

# KIC 009834854

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009834854-01	OBS	No	400.348744	461.718769	949.0	4.215	12.9	9.9	1.60	5254	5.16	1.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009834854-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

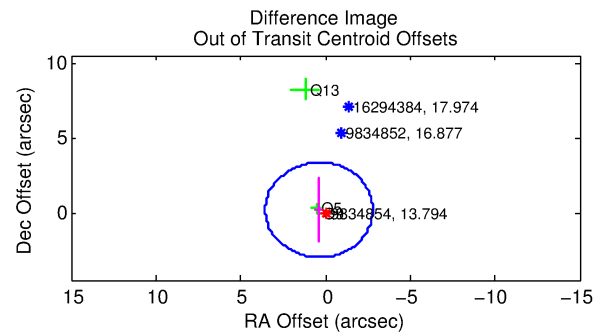
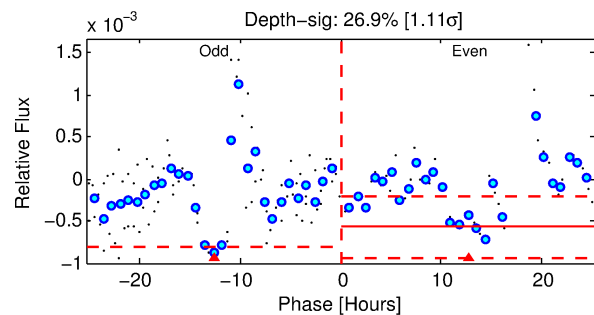
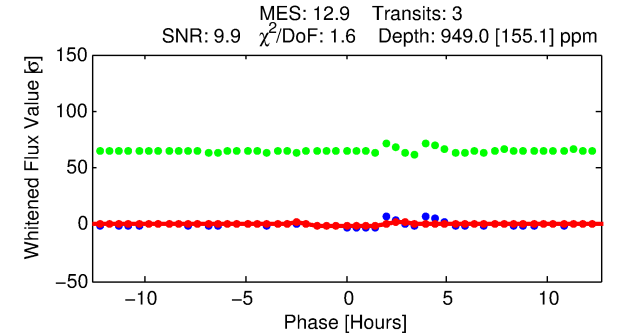
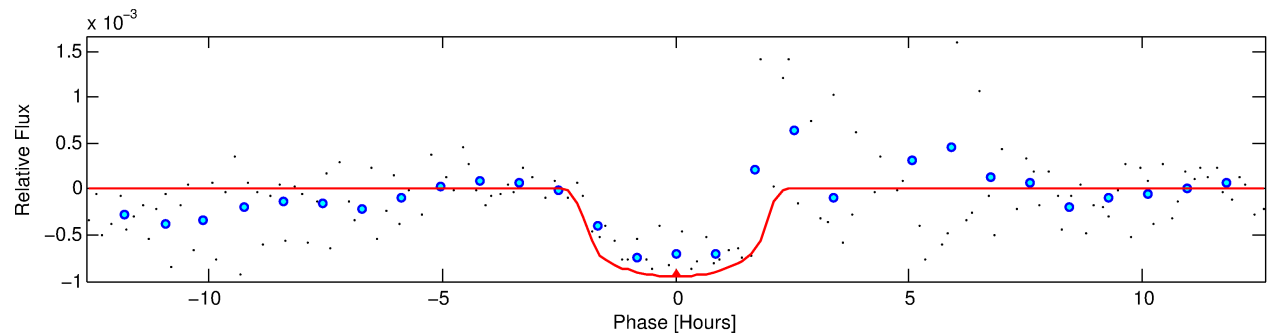
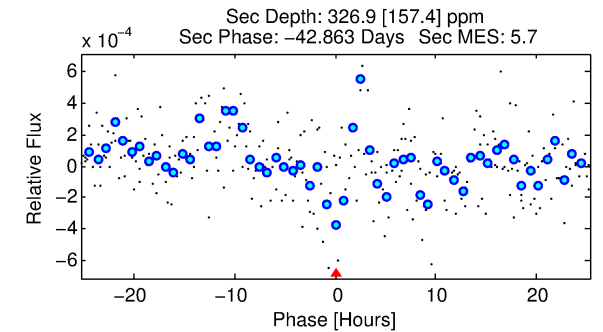
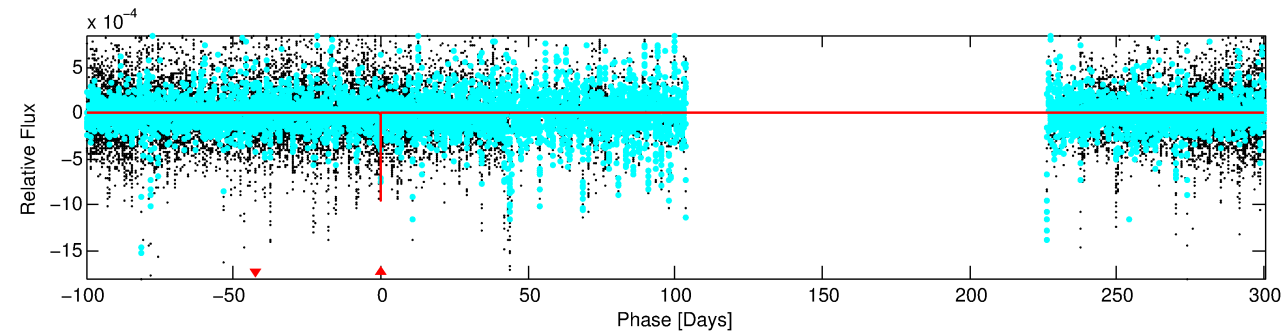
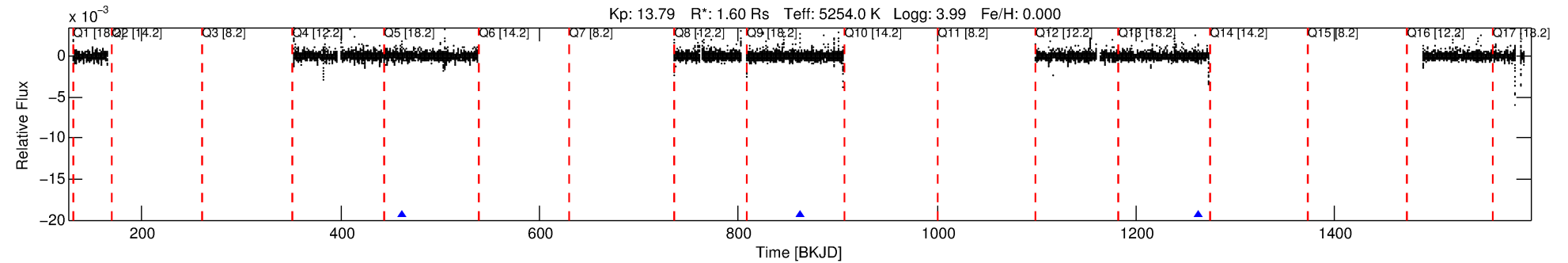
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009834854-01

No Significant Match Found

# DV One-Page Summary

KIC: 9834854 Candidate: 1 of 1 Period: 400.349 d



## DV Fit Results:

Period = 400.34874 [0.00515] d  
Epoch = 461.7188 [0.0058] BKJD  
Rp/R\* = 0.0296 [0.0394]  
a/R\* = 582.22 [2879.14]  
b = 0.65 [4.54]  
Seff = 1.64 [1.58]  
Teff = 289 [70] K  
Rp = 5.16 [7.34] Re  
a = 1.0305 [0.5750] AU  
Ag = 7174.22 [20575.98] [0.35σ]  
Teffp = 4107 [2782] K [1.37σ]

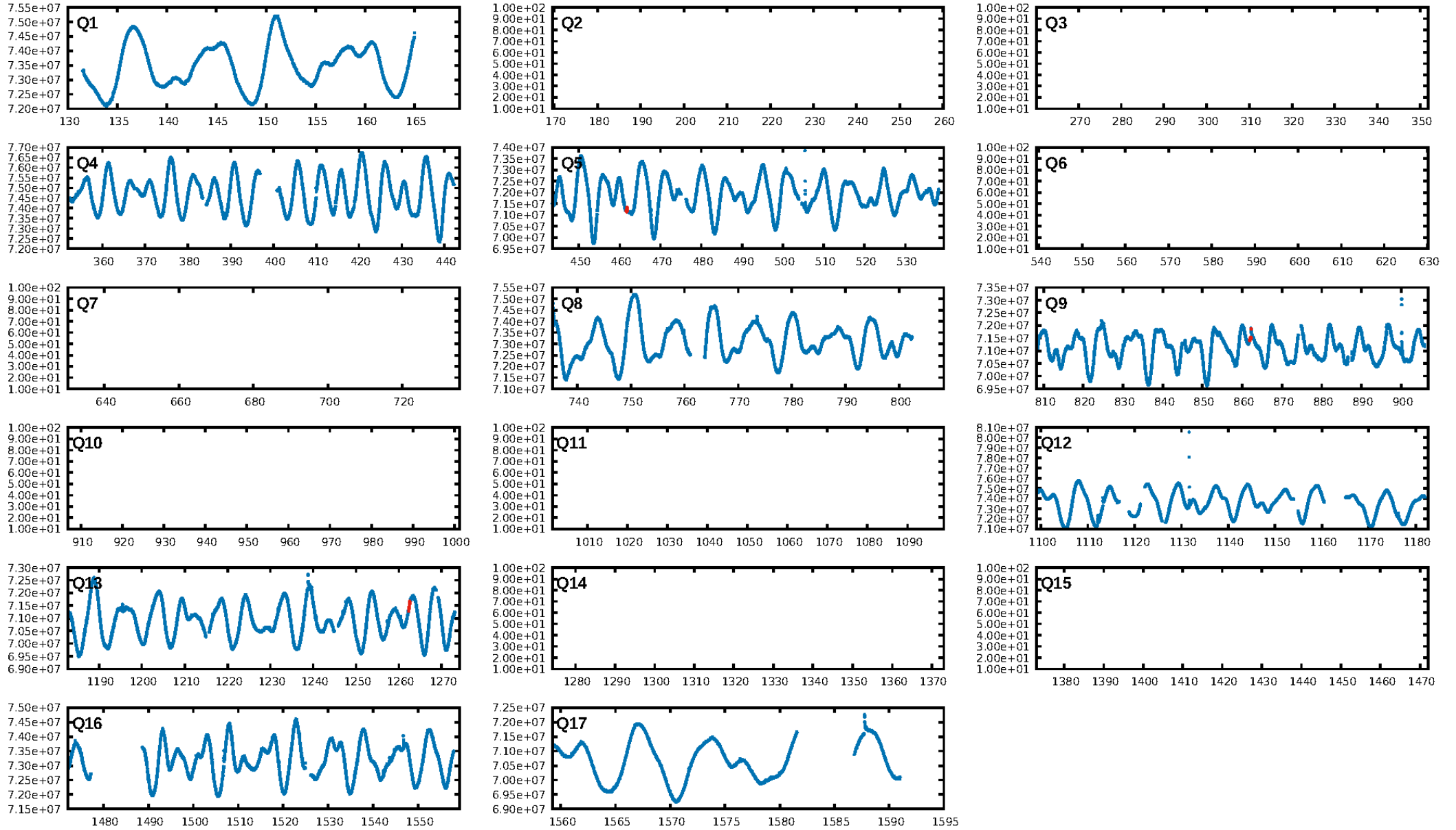
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 40.7%  
ModelChiSquareGof-sig: 98.2%  
**Bootstrap-pfa: 4.41e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -0.1842**  
Centroid-sig: 36.2%  
Centroid-so: 0.581 arcsec [0.80σ]  
OotOffset-rm: 0.416 arcsec [0.39σ]  
OotOffset-st: 0/0/0/3 [3]  
KicOffset-rm: 0.349 arcsec [1.12σ]  
KicOffset-st: 0/0/0/3 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

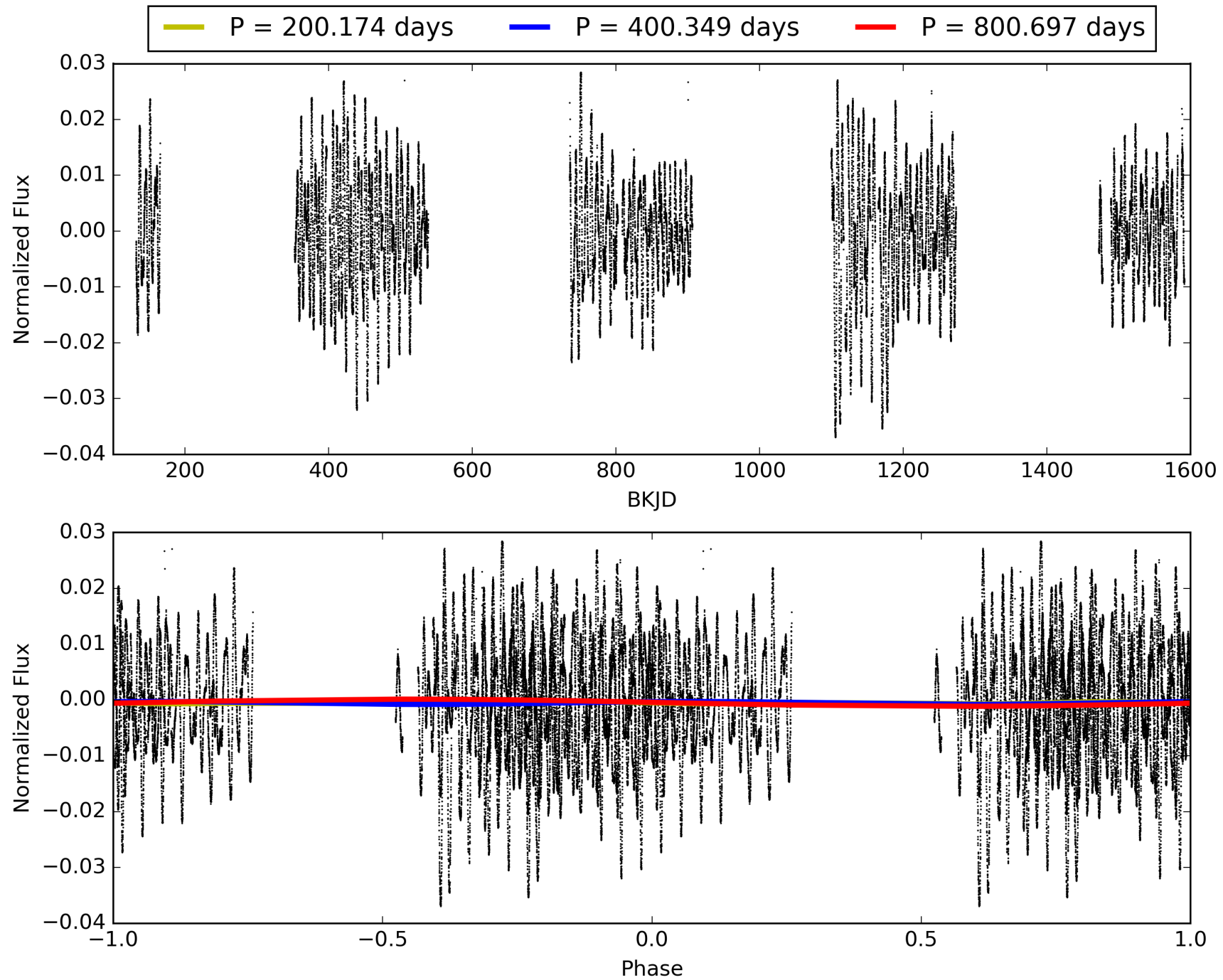
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:53:56 Z

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

# TCE 009834854-01, PDC Light Curves

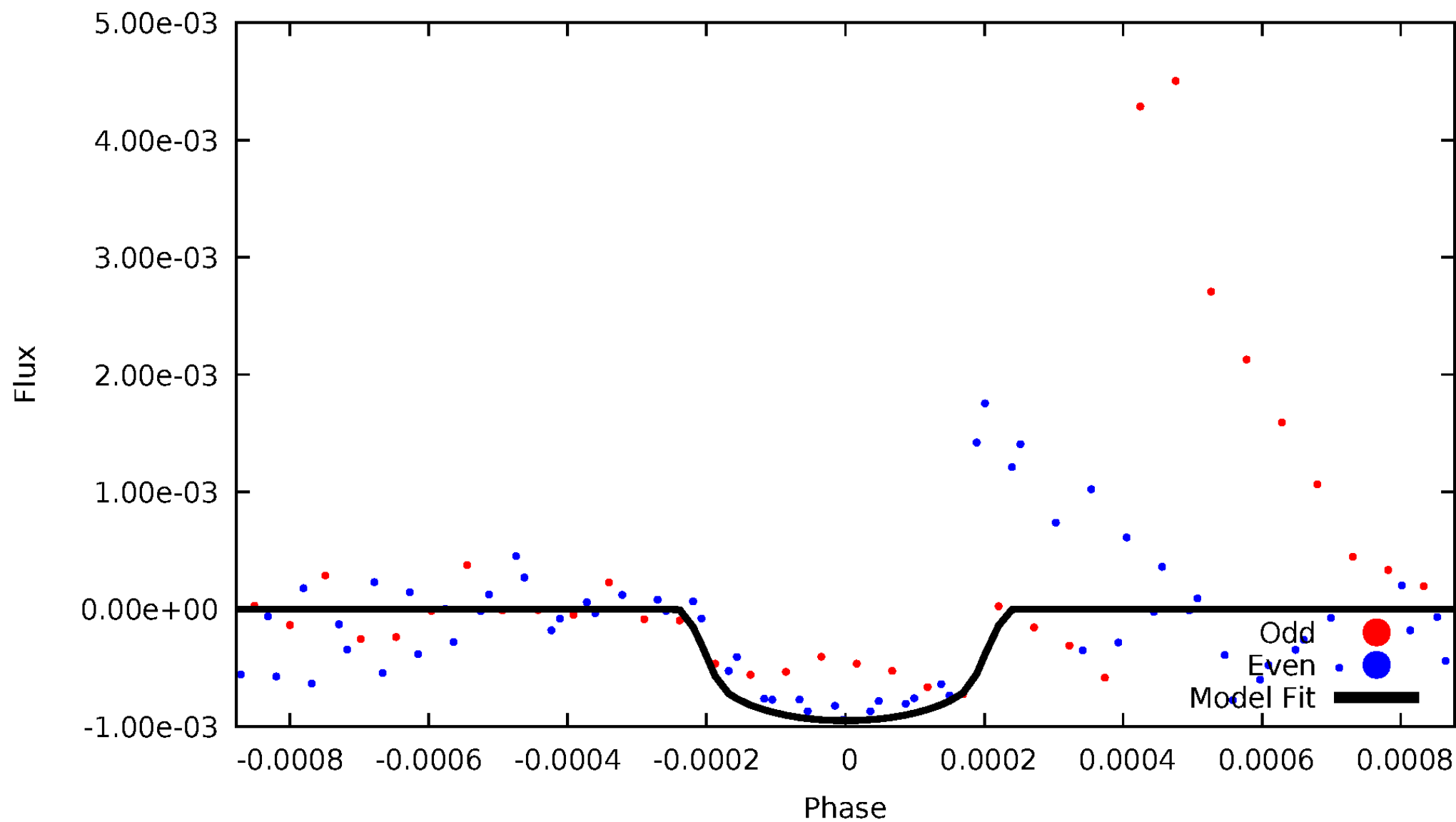


TCE 009834854-01



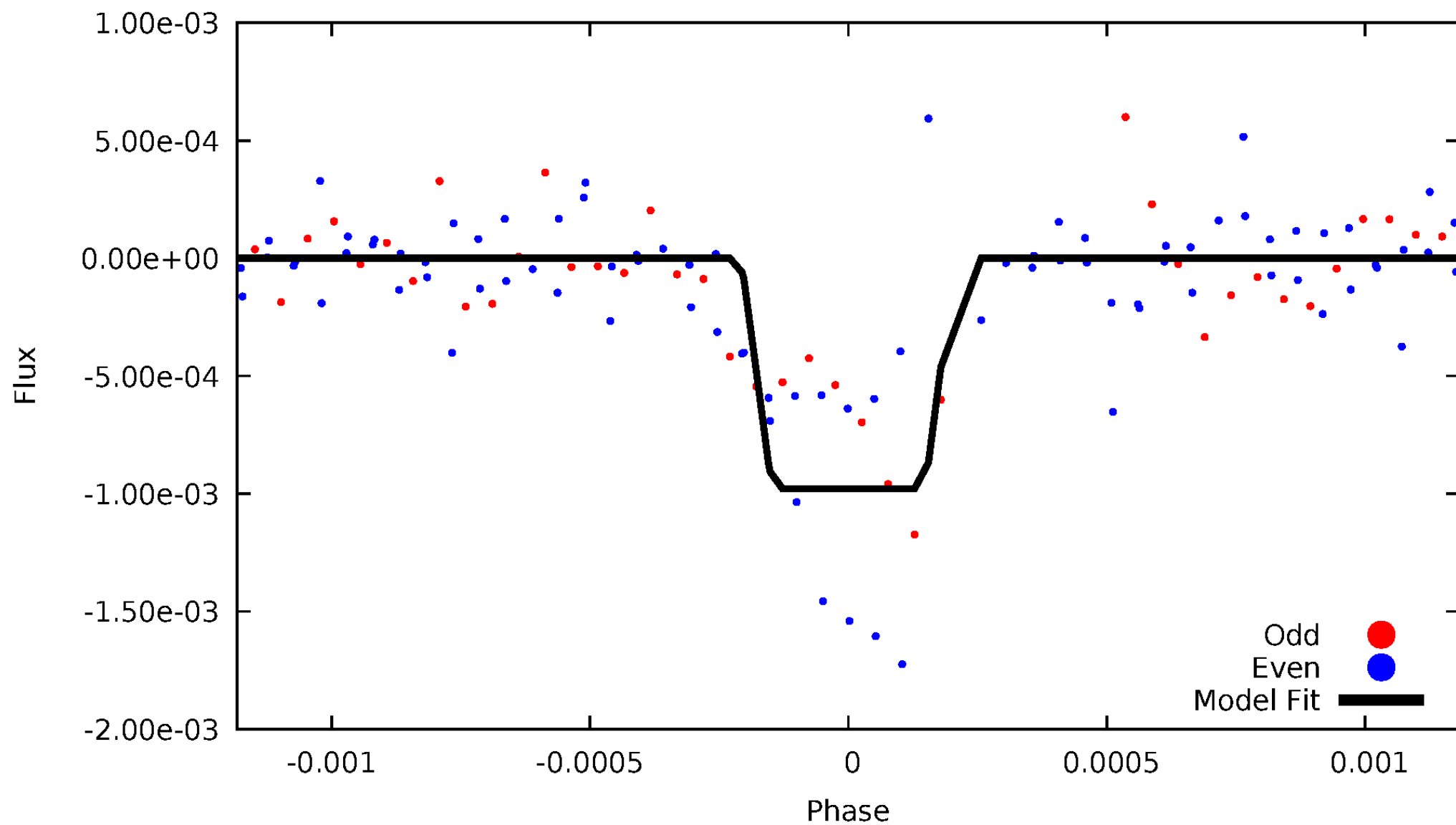
# DV Odd/Even

TCE 009834854-01



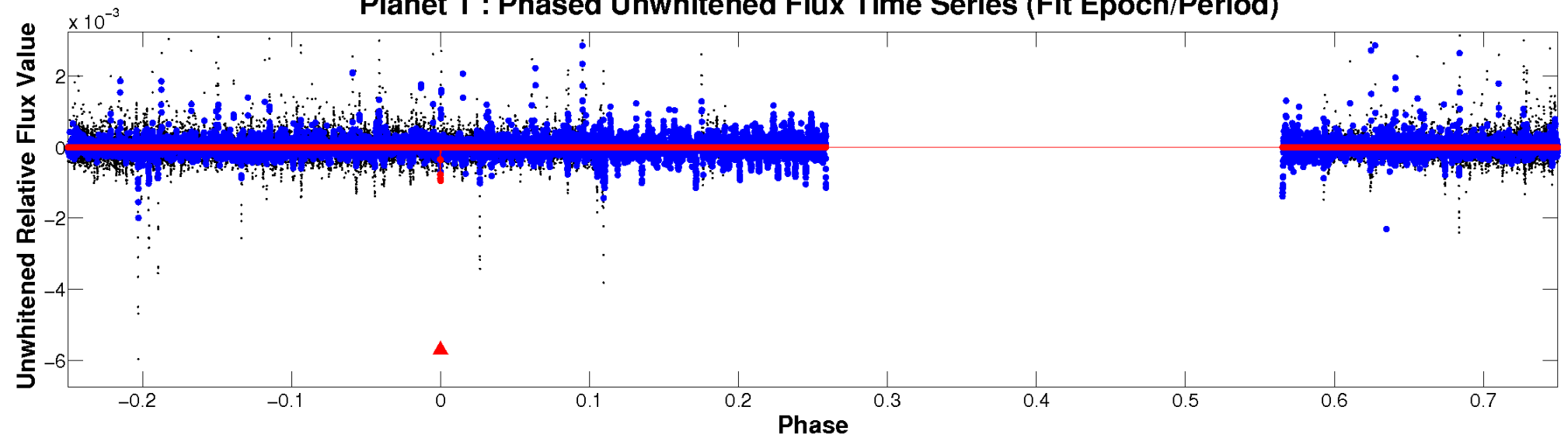
# ALT Odd/Even

TCE 009834854-01

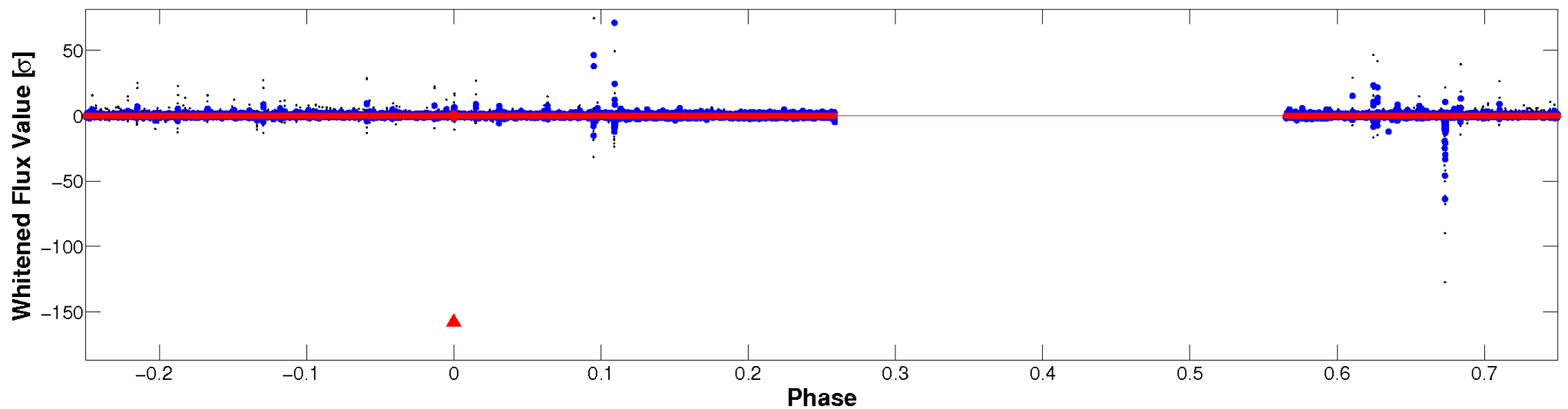


# Non-Whitened Vs. Whitened Light Curve

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

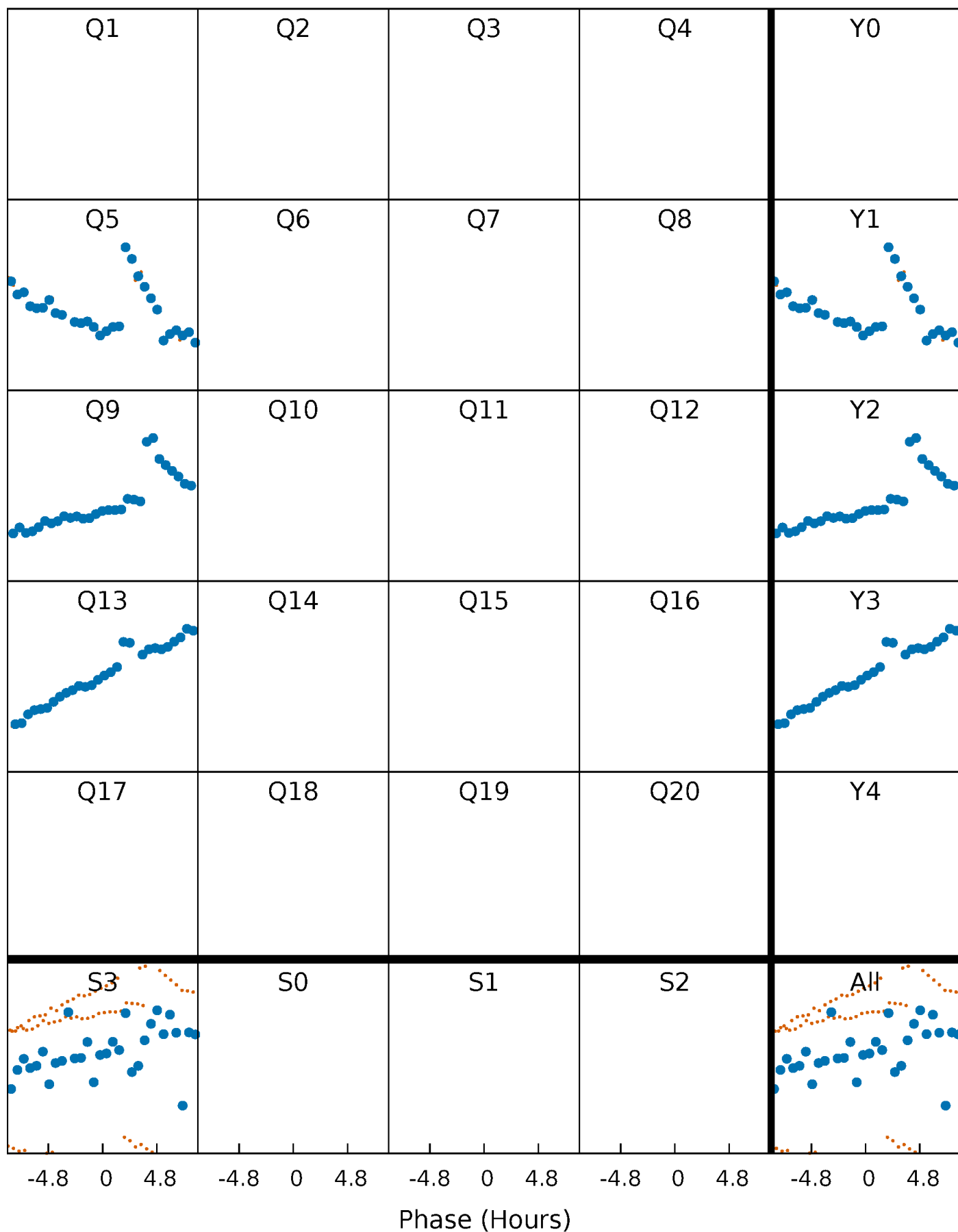


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

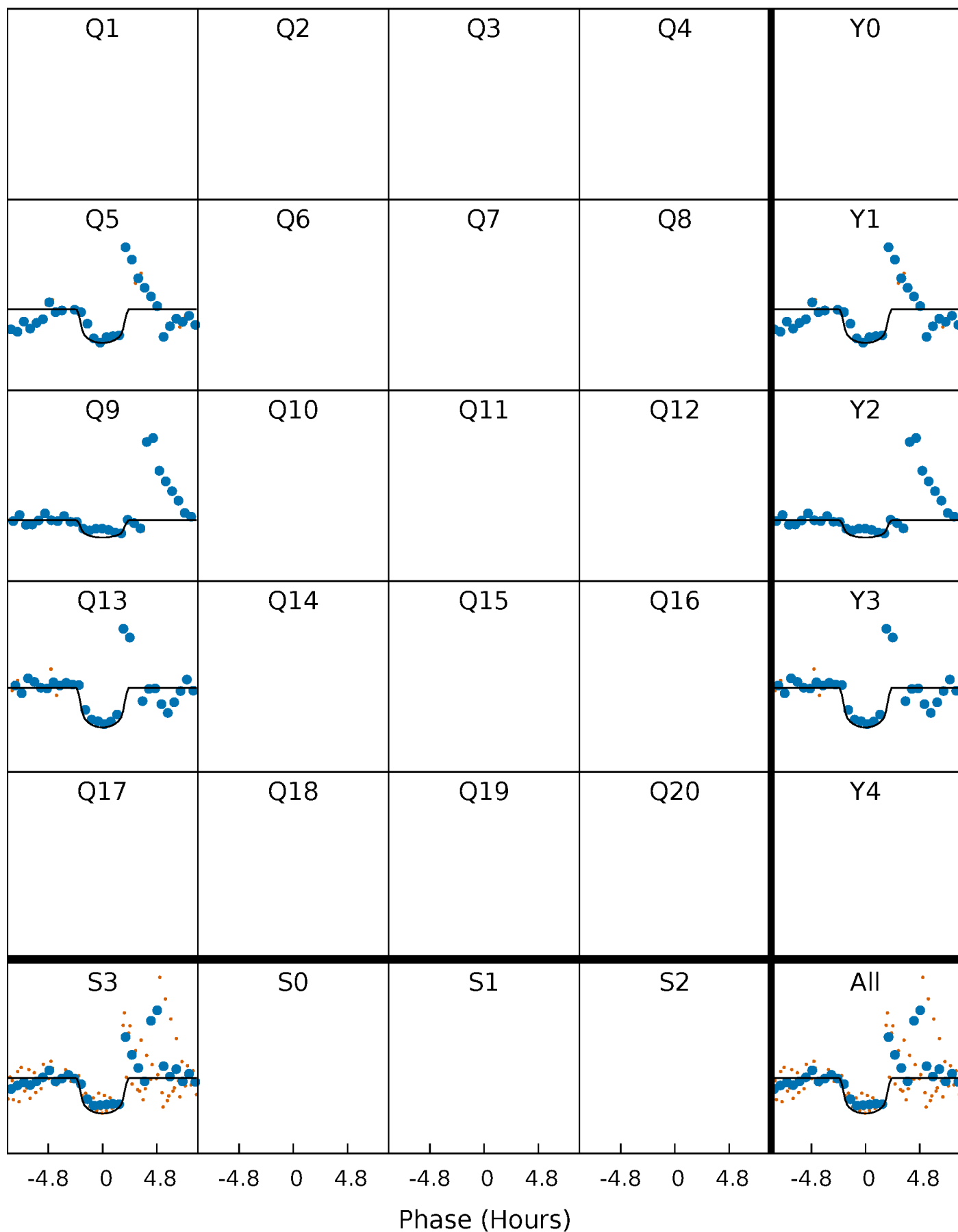
TCE 009834854-01     $P=400.348744$  Days     $T_0=461.718769$  (BKJD)





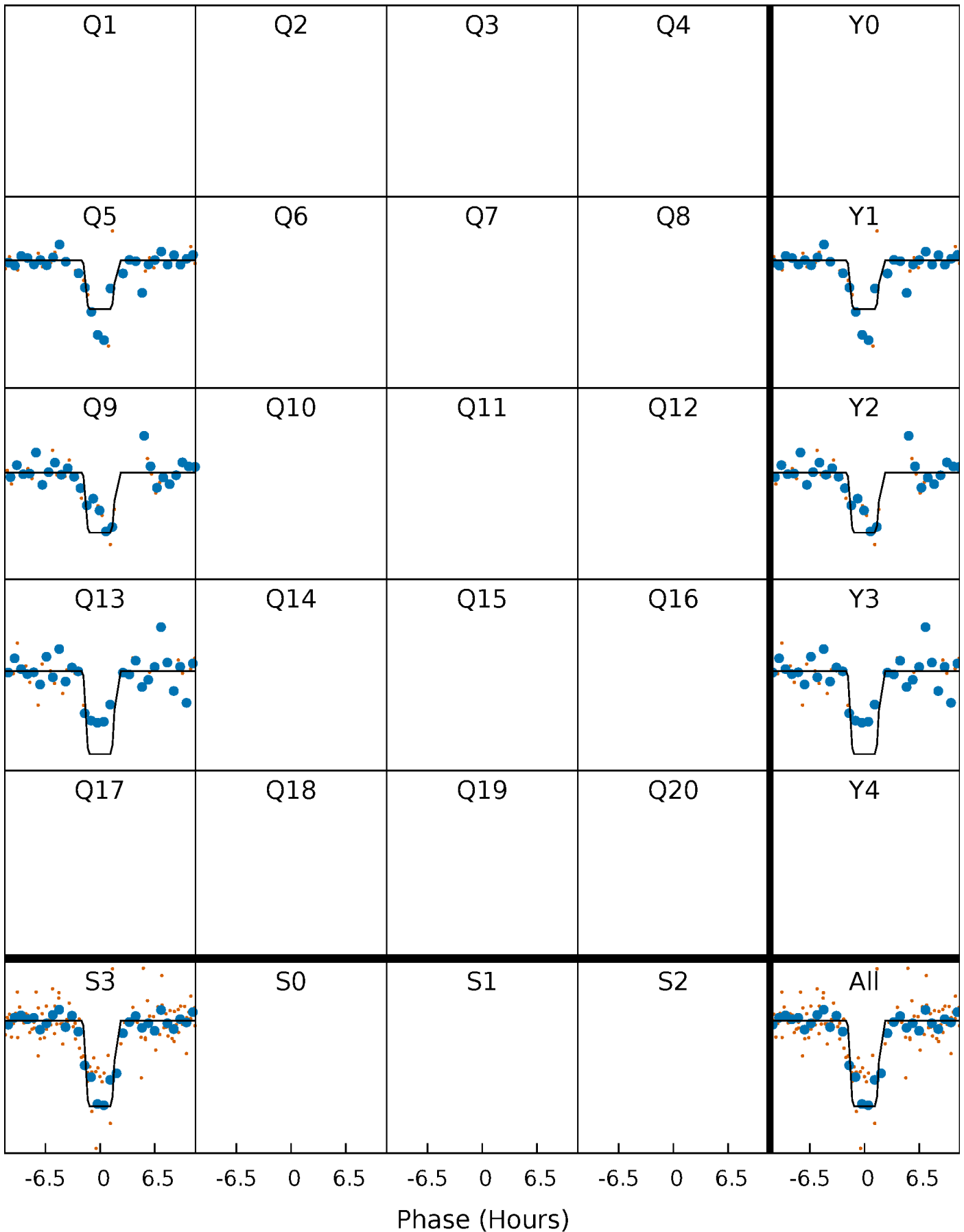
# DV Quarter-Phased Transit Curves

TCE 009834854-01     $P=400.348744$  Days     $T_0=461.718769$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

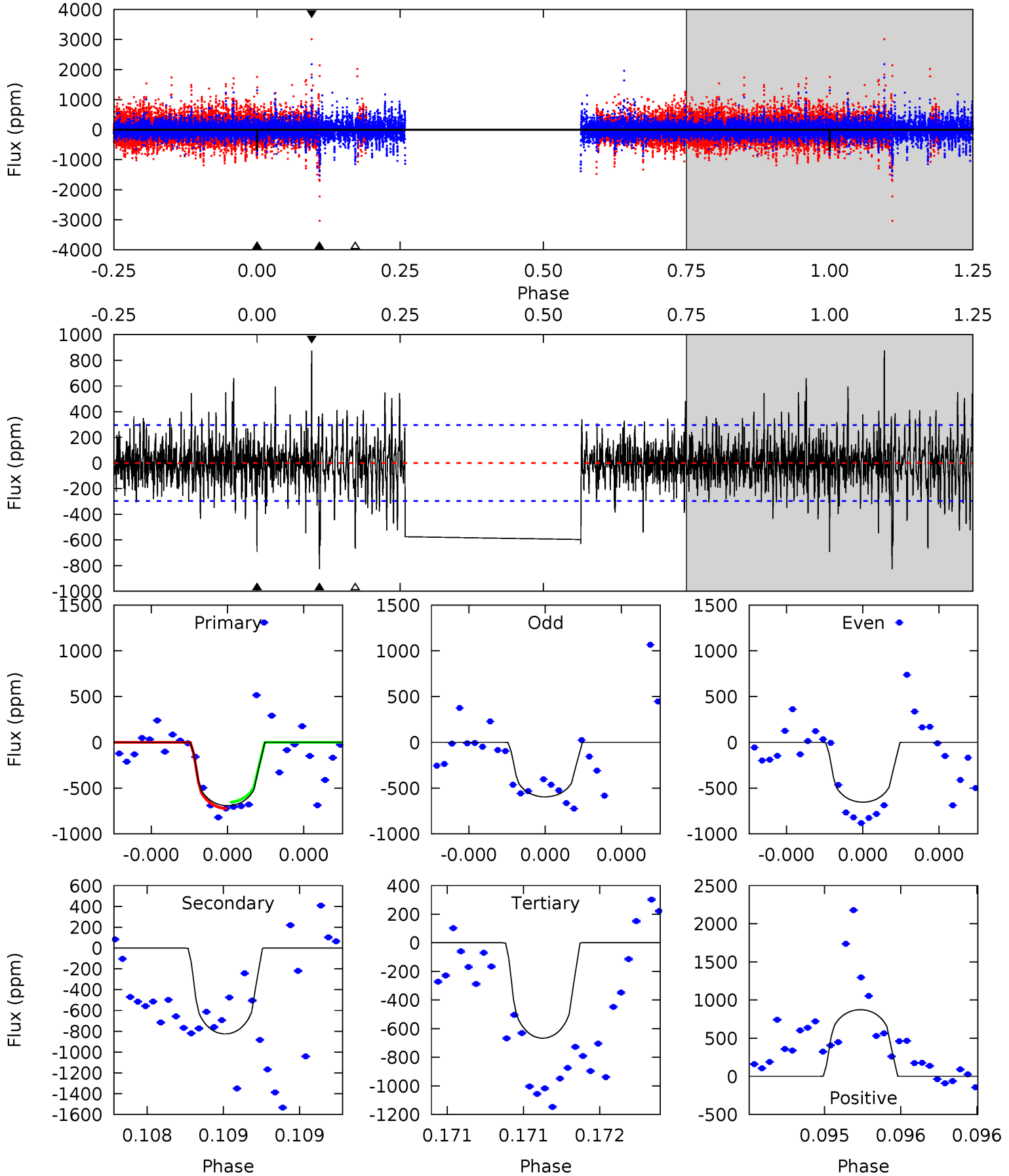
TCE 009834854-01 P=400.346945 Days  $T_0=461.737201$  (BKJD)



# DV Model-Shift Uniqueness Test

009834854-01, P = 400.348744 Days, E = 61.370025 Days

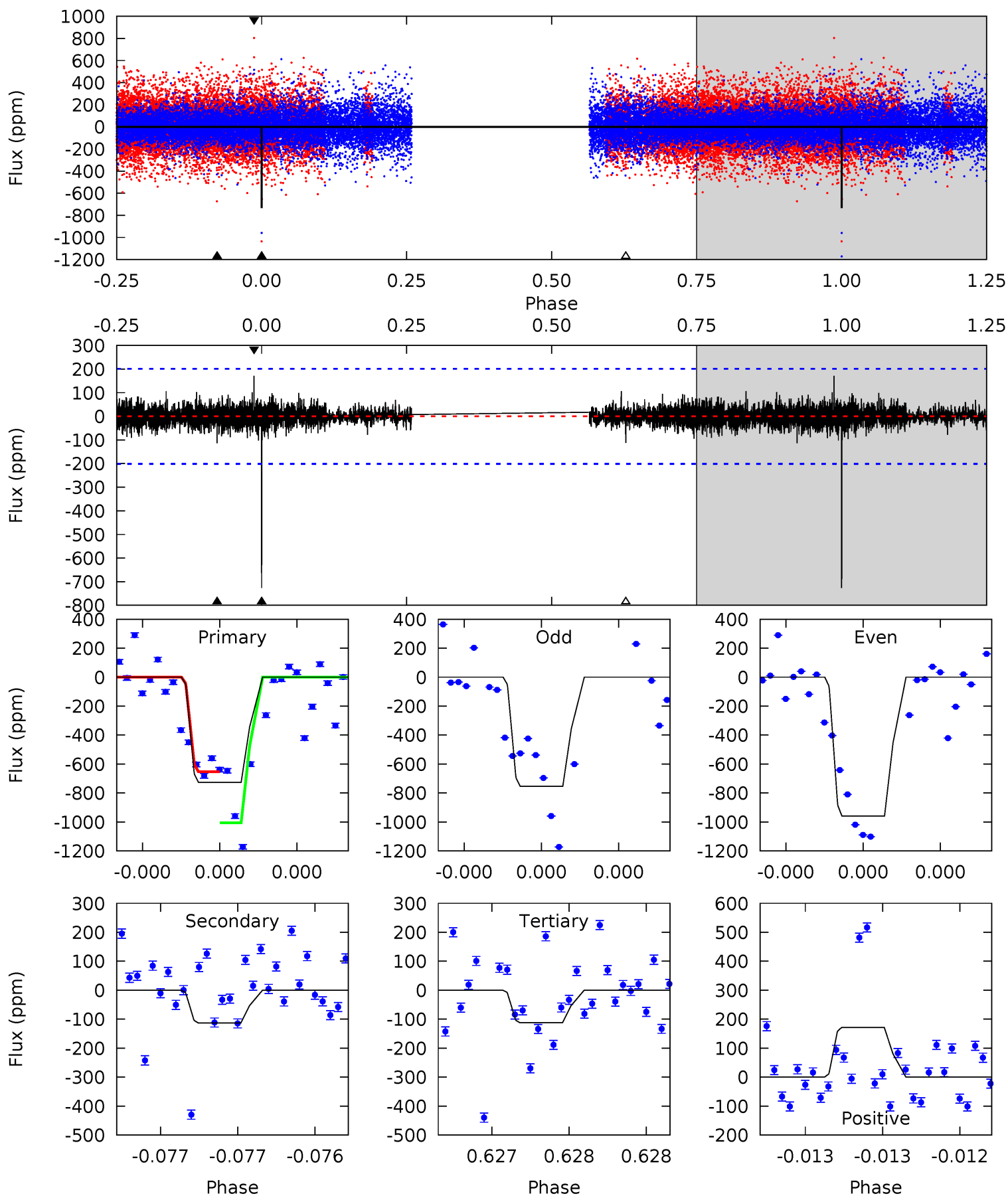
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	15.6	12.6	16.5	5.58	3.49	2.50	0.48	-3.43	3.00	-0.91	0.29	1.01	0.51	0.63



# Alt Model-Shift Uniqueness Test

009834854-01, P = 400.346945 Days, E = 61.390256 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
20.2	3.14	3.12	4.77	5.59	3.50	0.69	17.1	15.4	0.02	-1.63	3.08	1.09	0.19	4.76



### Stellar Parameters For KIC 009834854

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5254^{+203}_{-184}$	$3.990^{+0.581}_{-0.290}$	$0.000^{+0.300}_{-0.250}$	$1.598^{+0.804}_{-0.804}$	$0.911^{+0.101}_{-0.112}$	$0.314^{+1.976}_{-0.211}$
	+4%/-4%	+15%/-7%	+inf%/-inf%	+50%/-50%	+11%/-12%	+628%/-67%
Source	KIC0	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 009834854-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-826 \pm 53$	$6.71^{+6.53}_{-4.56}$	$397^{+55}_{-61}$	$4519^{+3070}_{-868}$	$10746^{+93101}_{-7988}$
Alt.	$-113 \pm 36$	$6.60^{+7.39}_{-4.39}$	$399^{+53}_{-57}$	$3257^{+1321}_{-595}$	$1526^{+11511}_{-1203}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

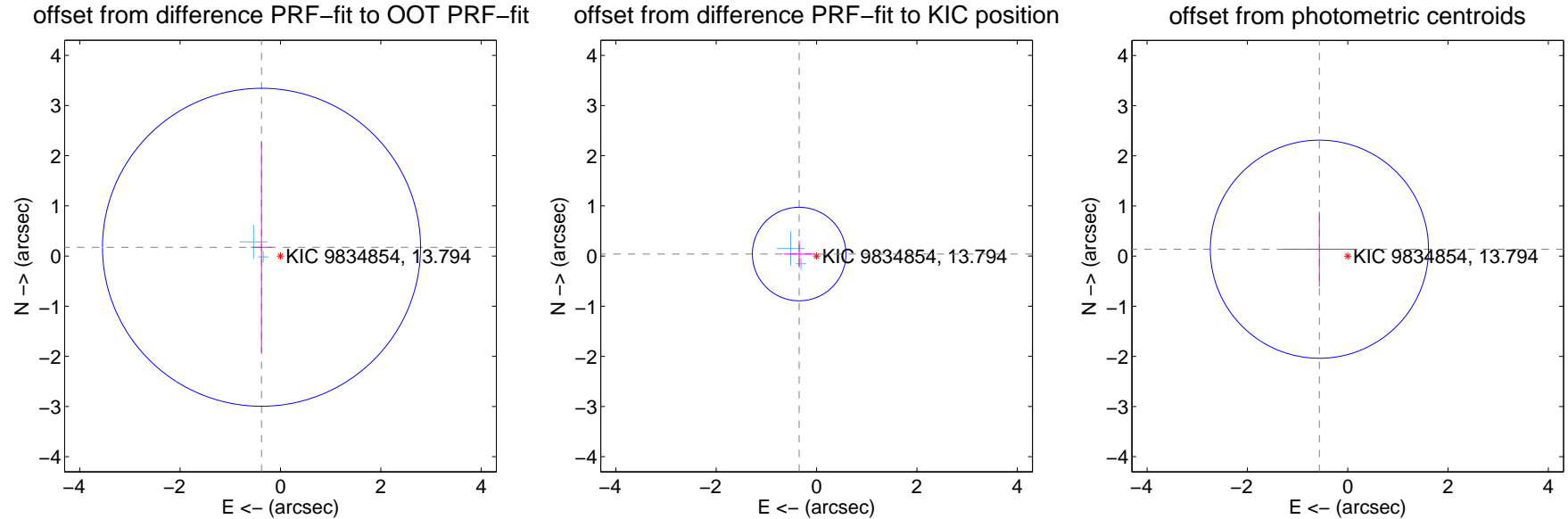
## DV Centroid Data

Supplemental centroid analysis for 009834854-01. Kepler magnitude: 13.79. Transit SNR 9.95

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	$0.416 \pm 1.056$	0.39	$0.378 \pm 0.207$	$0.174 \pm 2.095$
PRF-fit source offset from KIC position	$0.349 \pm 0.311$	1.12	$0.347 \pm 0.311$	$0.040 \pm 0.265$
photometric centroid source offset	$0.58 \pm 0.72$	0.80	$0.56 \pm 0.72$	$0.14 \pm 0.75$

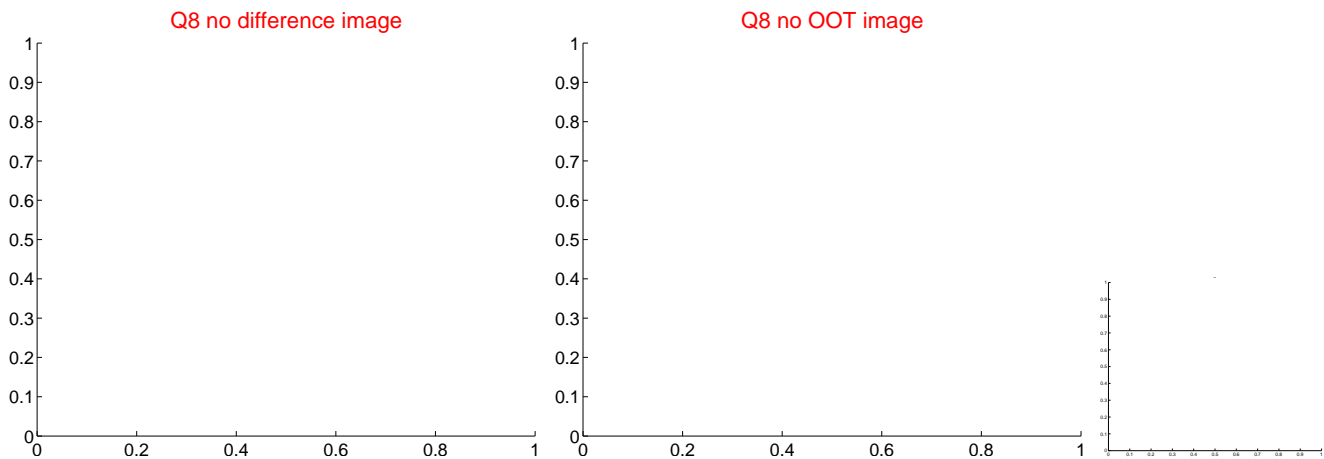
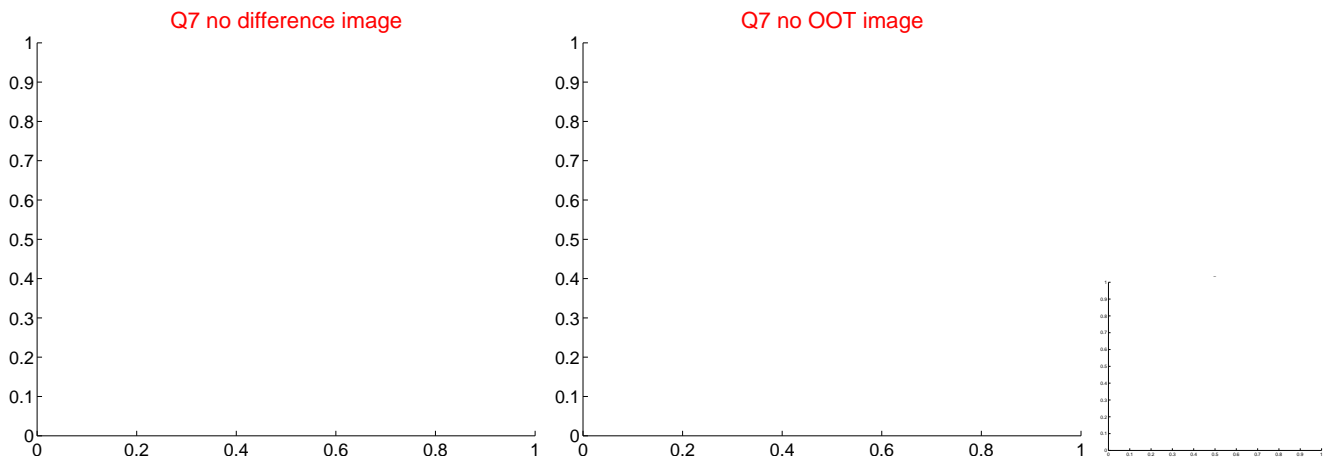
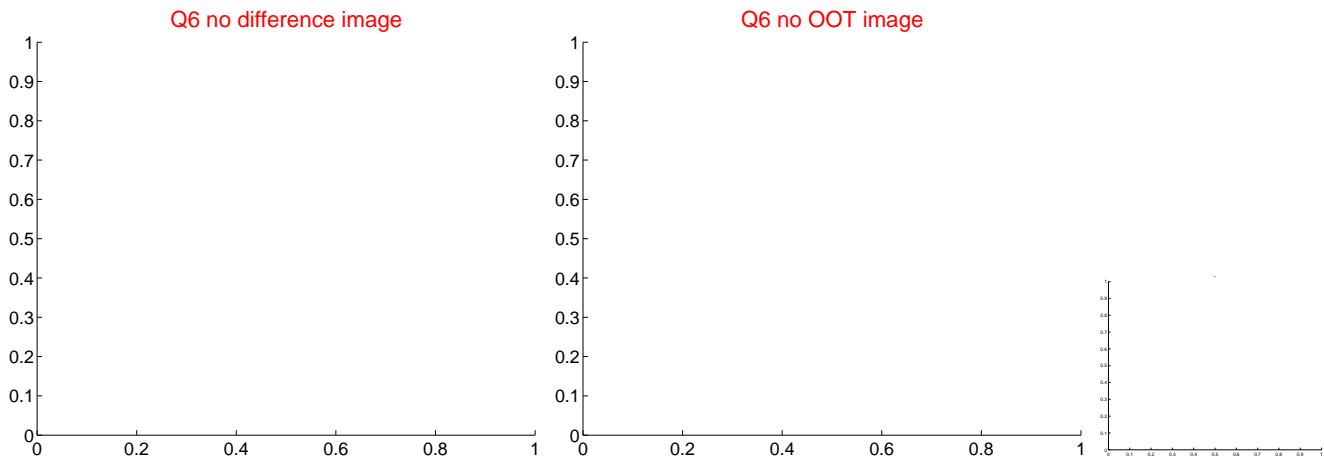
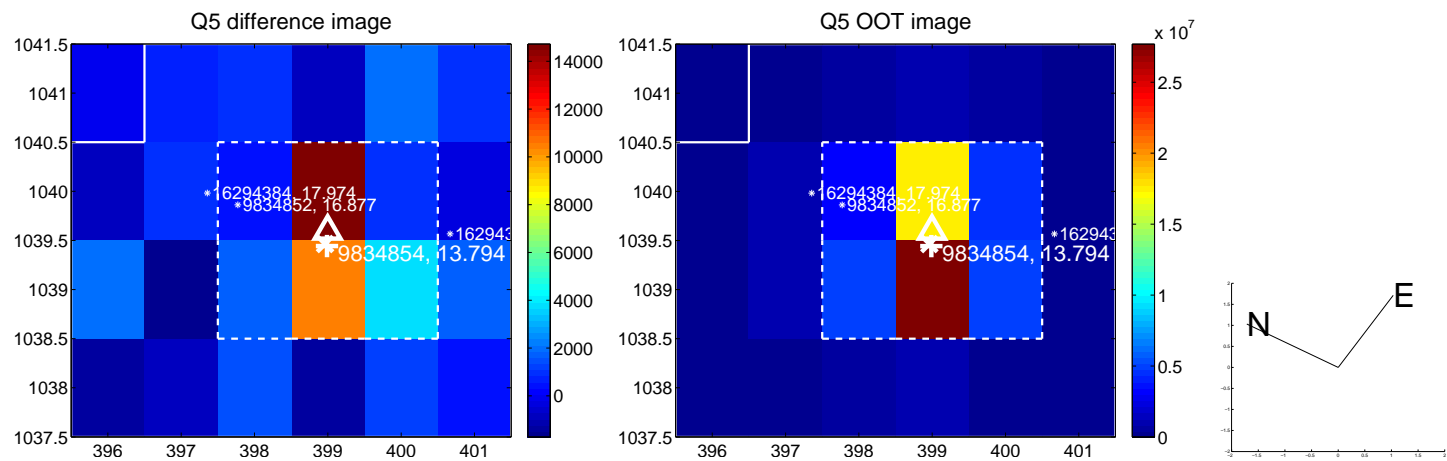


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

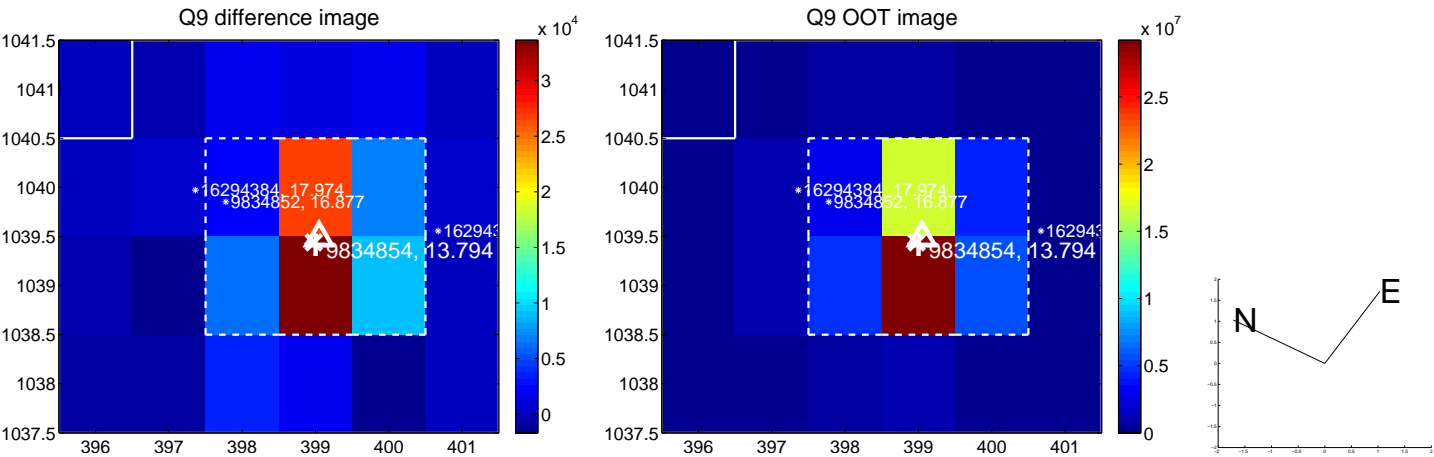


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

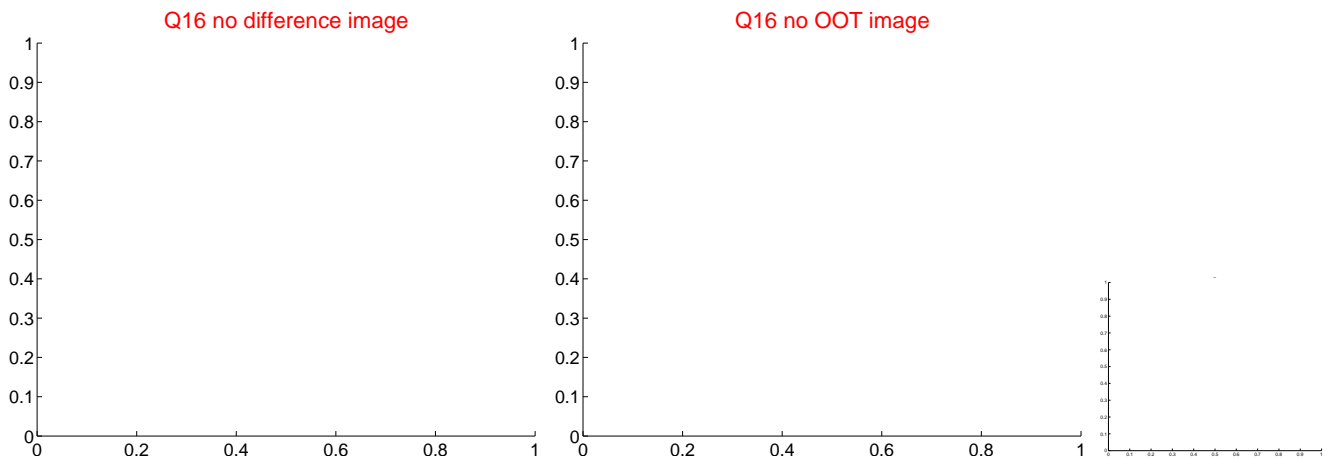
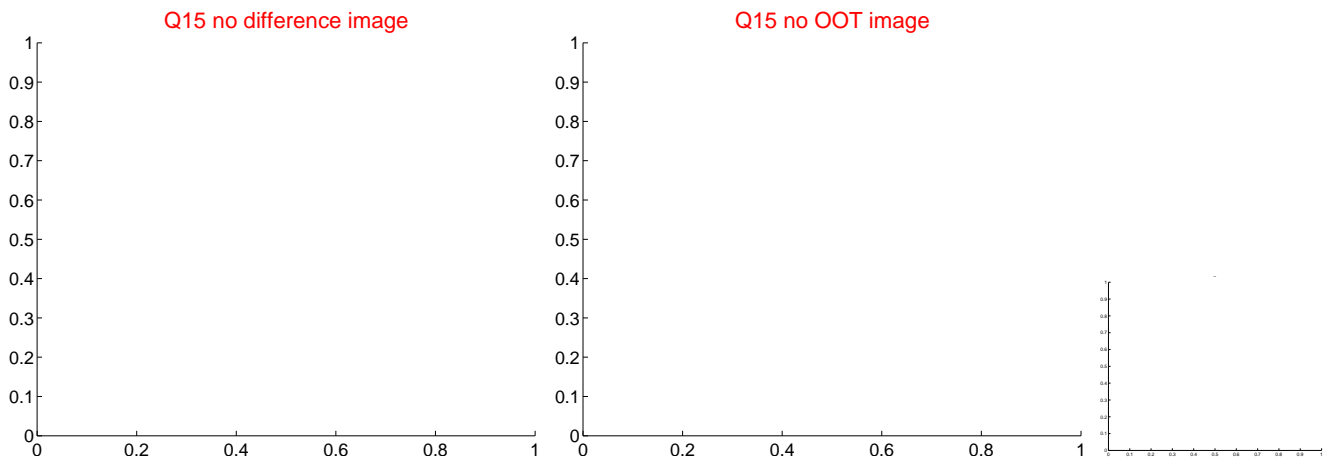
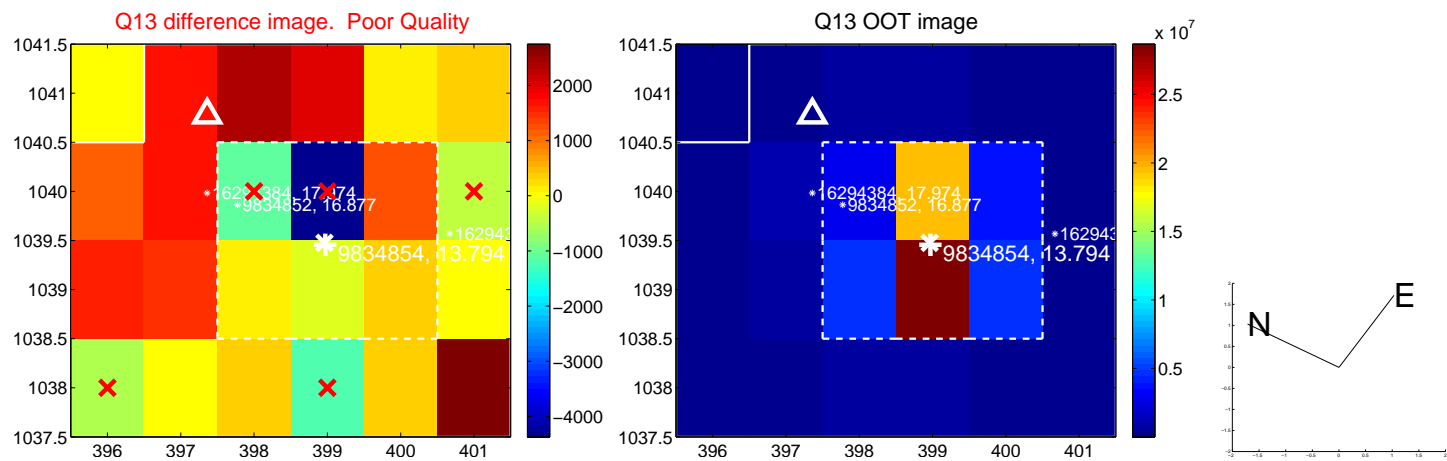




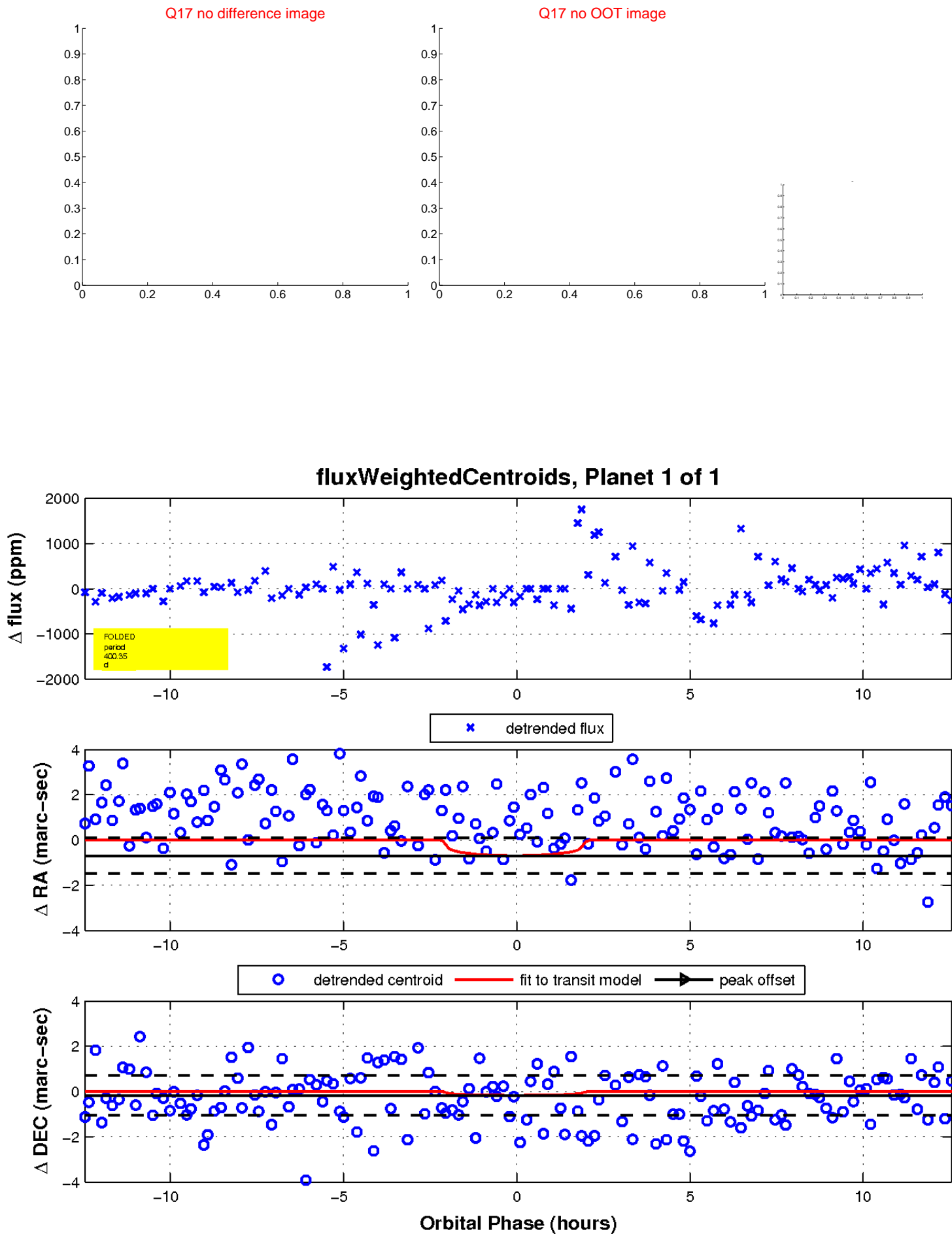
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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# UKIRT Image

Declination

