

# KIC 008800954

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008800954-01	OBS	No	352.105624	140.653990	128.0	15.835	76.5	6.4	0.74	5306	0.85	0.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008800954-01	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

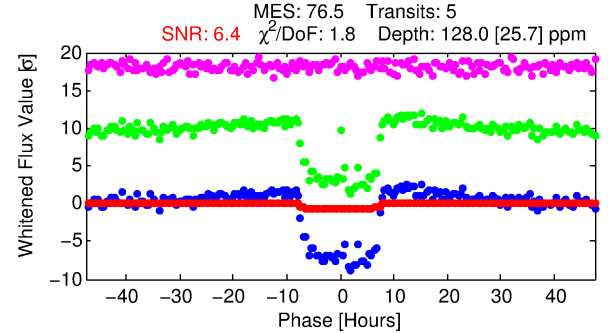
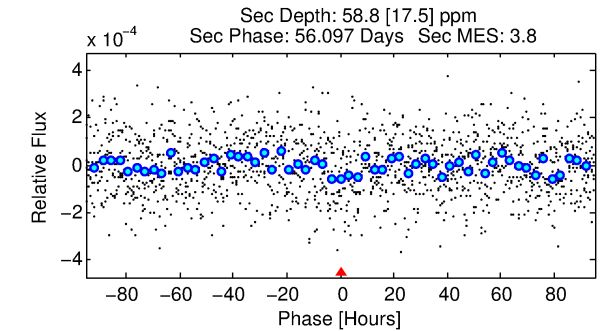
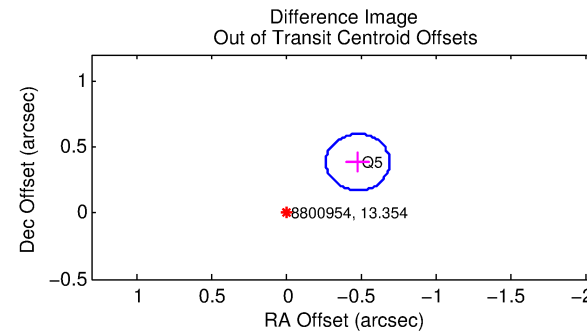
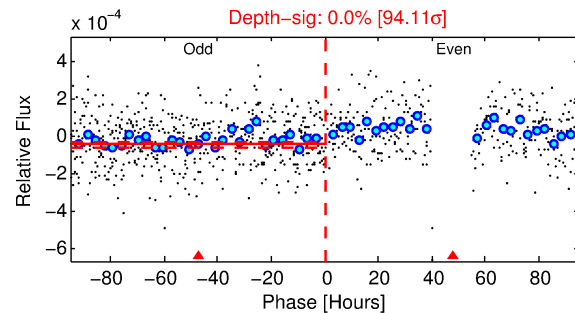
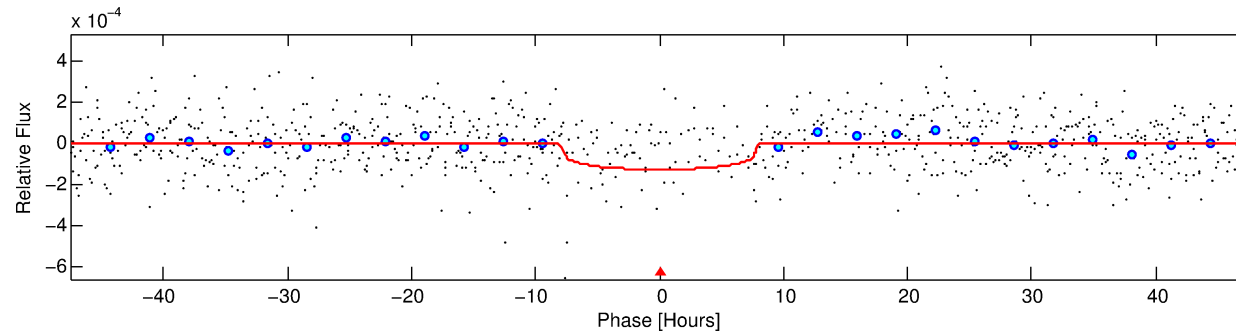
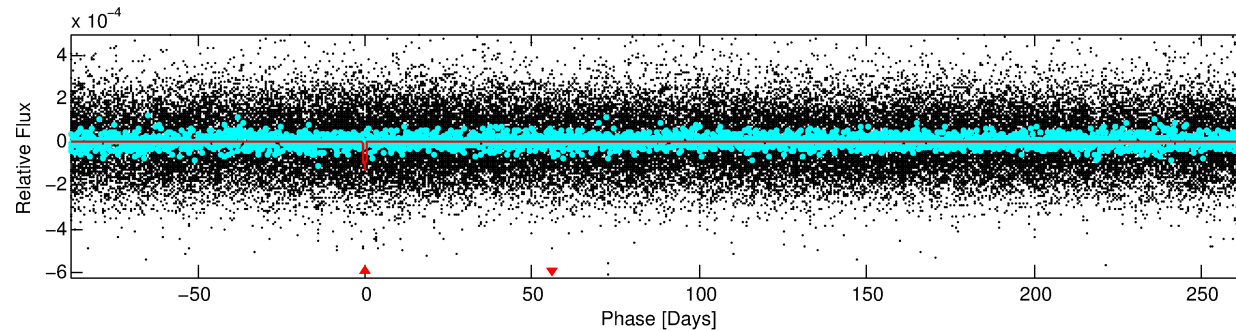
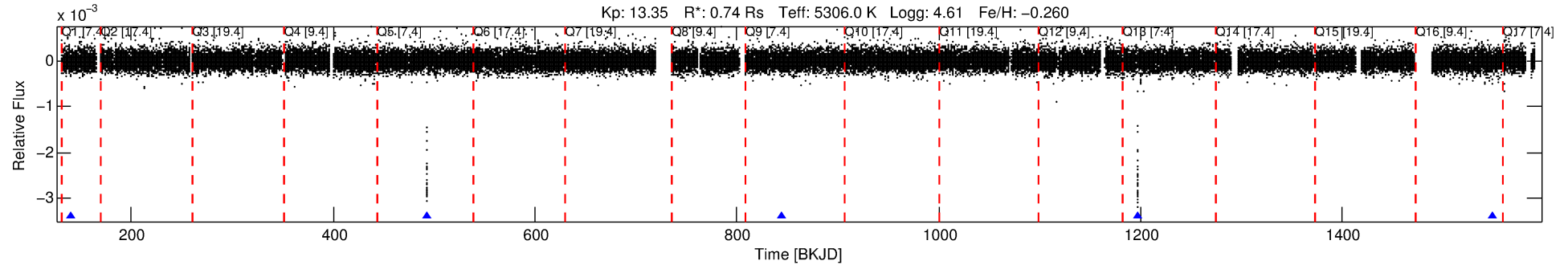
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008800954-01

No Significant Match Found

# DV One-Page Summary

KIC: 8800954 Candidate: 1 of 1 Period: 352.106 d  
KOI: K01274 Name: Kepler-421 Corr: No Ephemeris Match



## DV Fit Results:

Period = 352.10562 [0.01455] d  
Epoch = 140.6540 [0.0367] BKJD  
Rp/R\* = 0.0105 [0.0219]  
a/R\* = 148.19 [1211.82]  
b = 0.51 [11.95]  
Seff = 0.47 [0.07]  
Teq = 211 [7] K  
Rp = 0.85 [1.77] Re  
a = 0.9107 [0.0721] AU  
Ag = 36922.76 [153601.12] [0.24 $\sigma$ ]  
Teffp = 4525 [4705] K [0.92 $\sigma$ ]

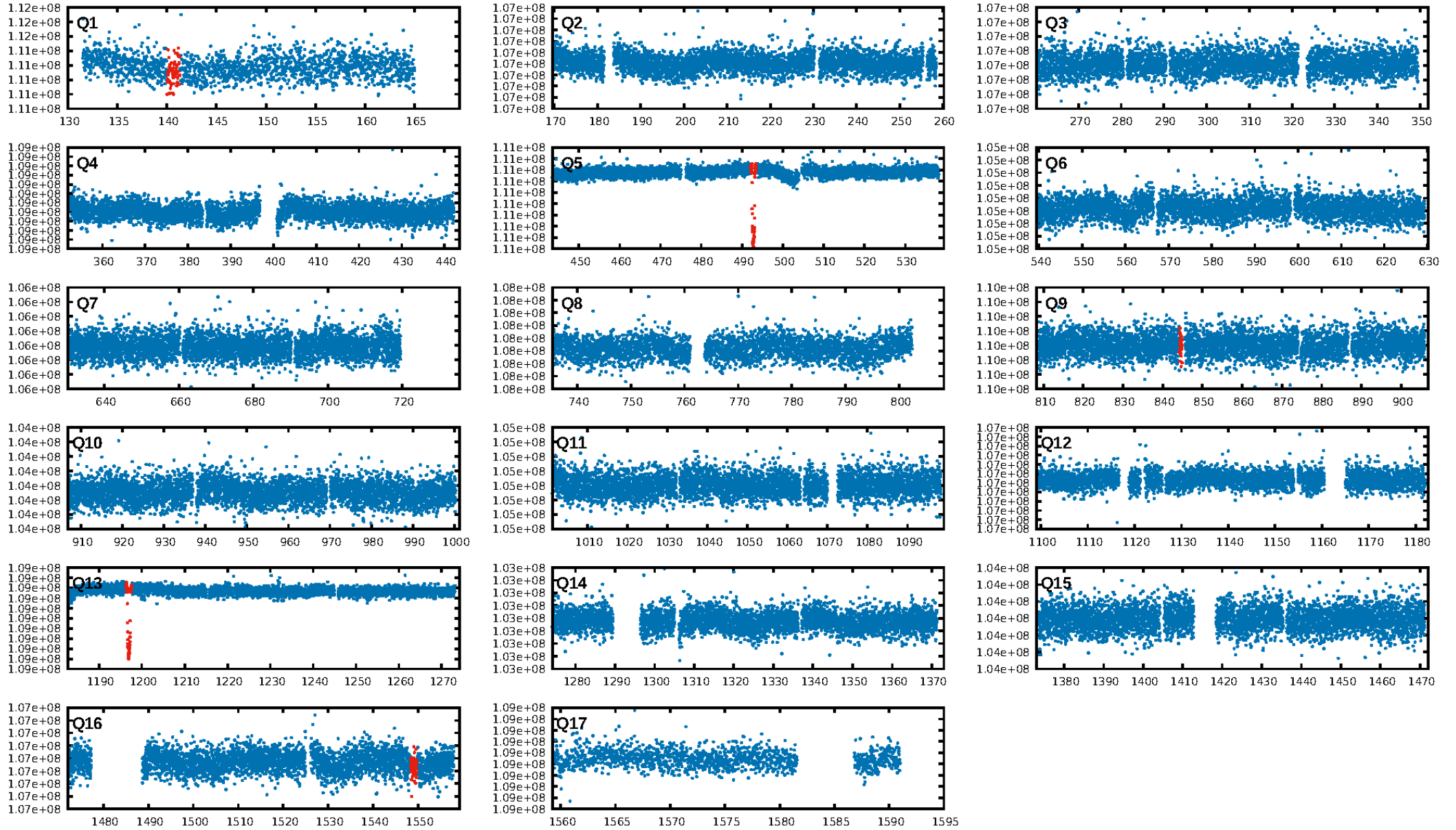
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 45.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 3.79  
Centroid-sig: 0.2%  
Centroid-so: 3.062 arcsec [2.29 $\sigma$ ]  
OotOffset-rm: 0.615 arcsec [8.64 $\sigma$ ]  
KicOffset-rm: 0.504 arcsec [7.11 $\sigma$ ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

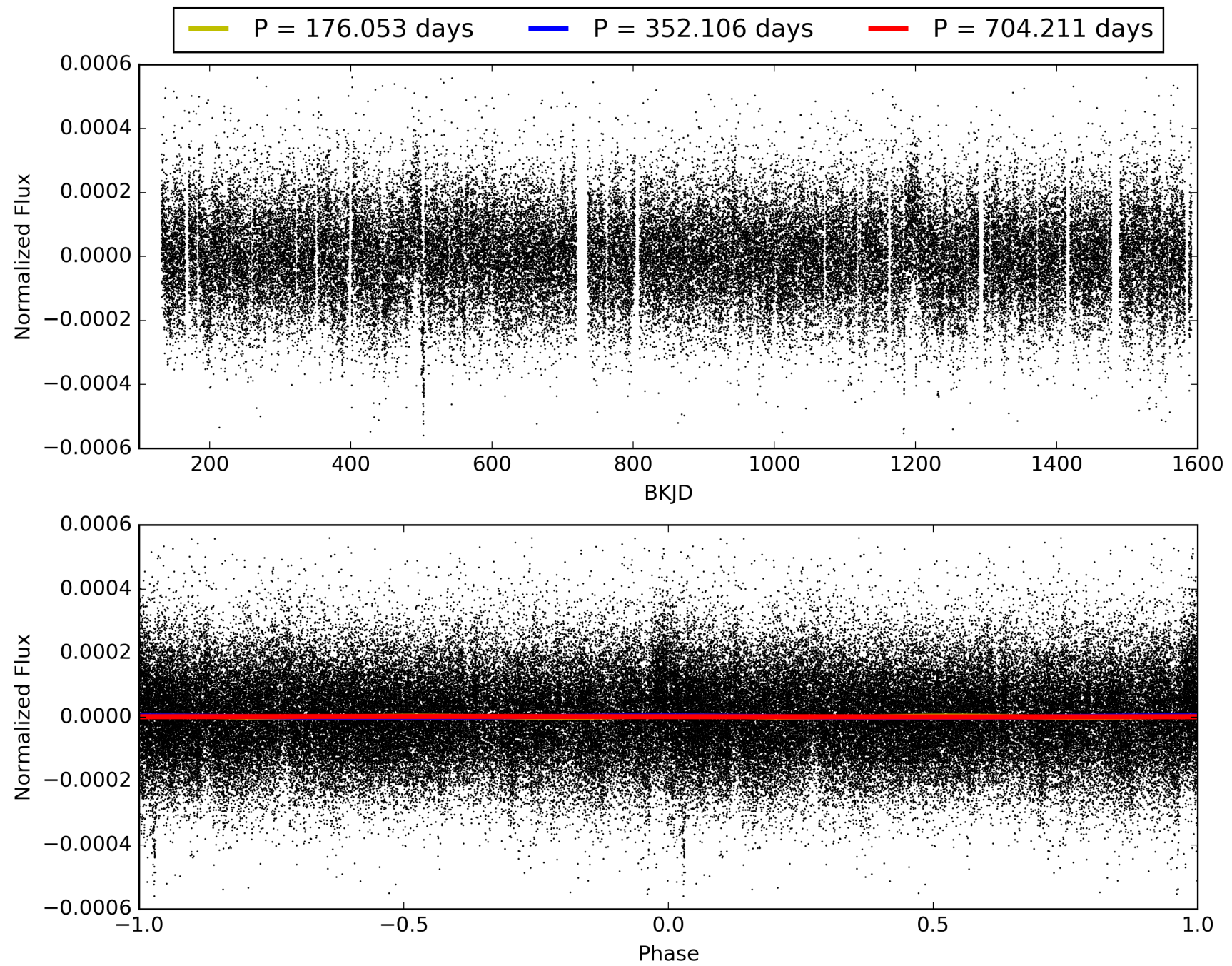
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:20:41 Z

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

# TCE 008800954-01, PDC Light Curves

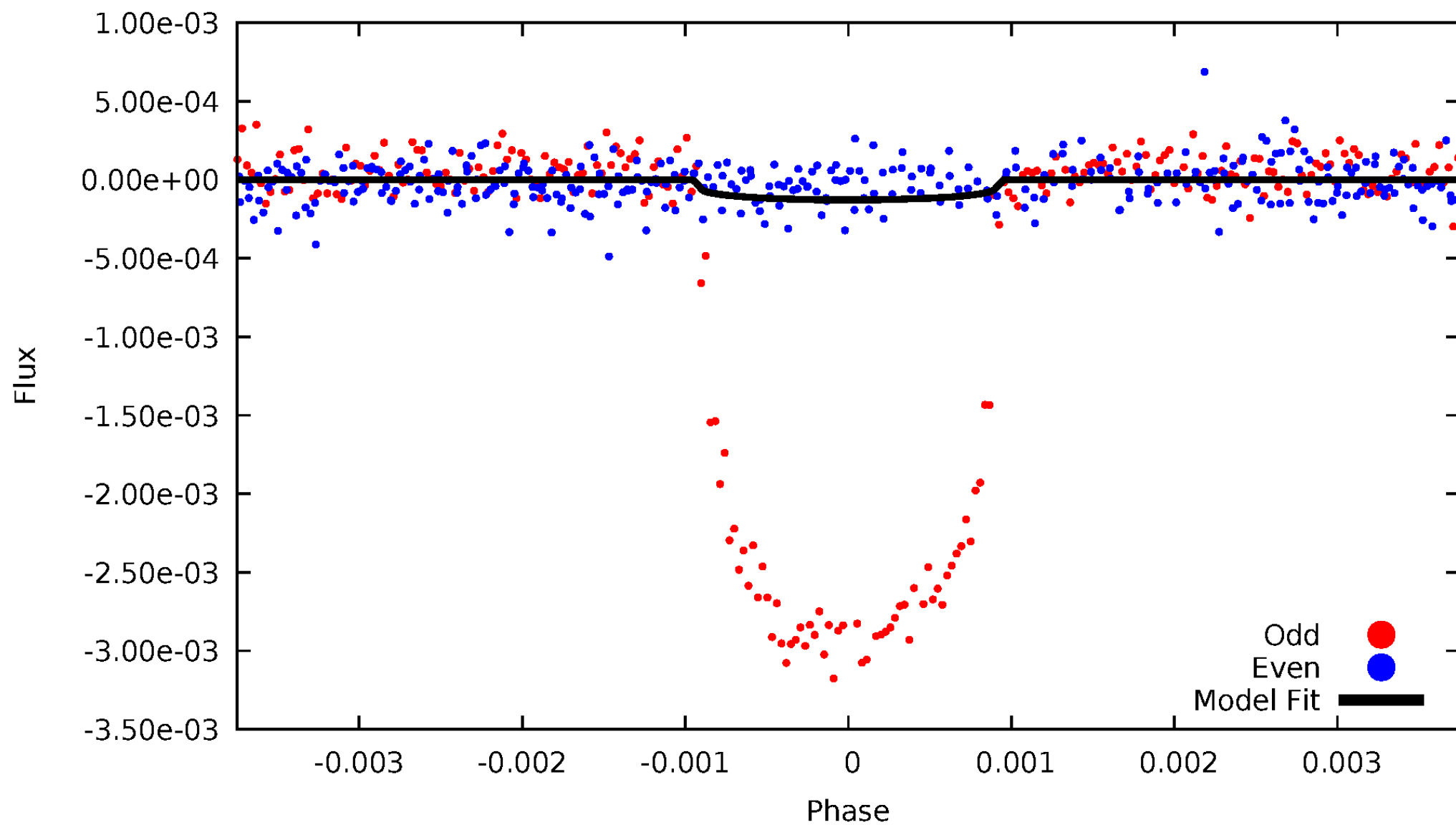


TCE 008800954-01



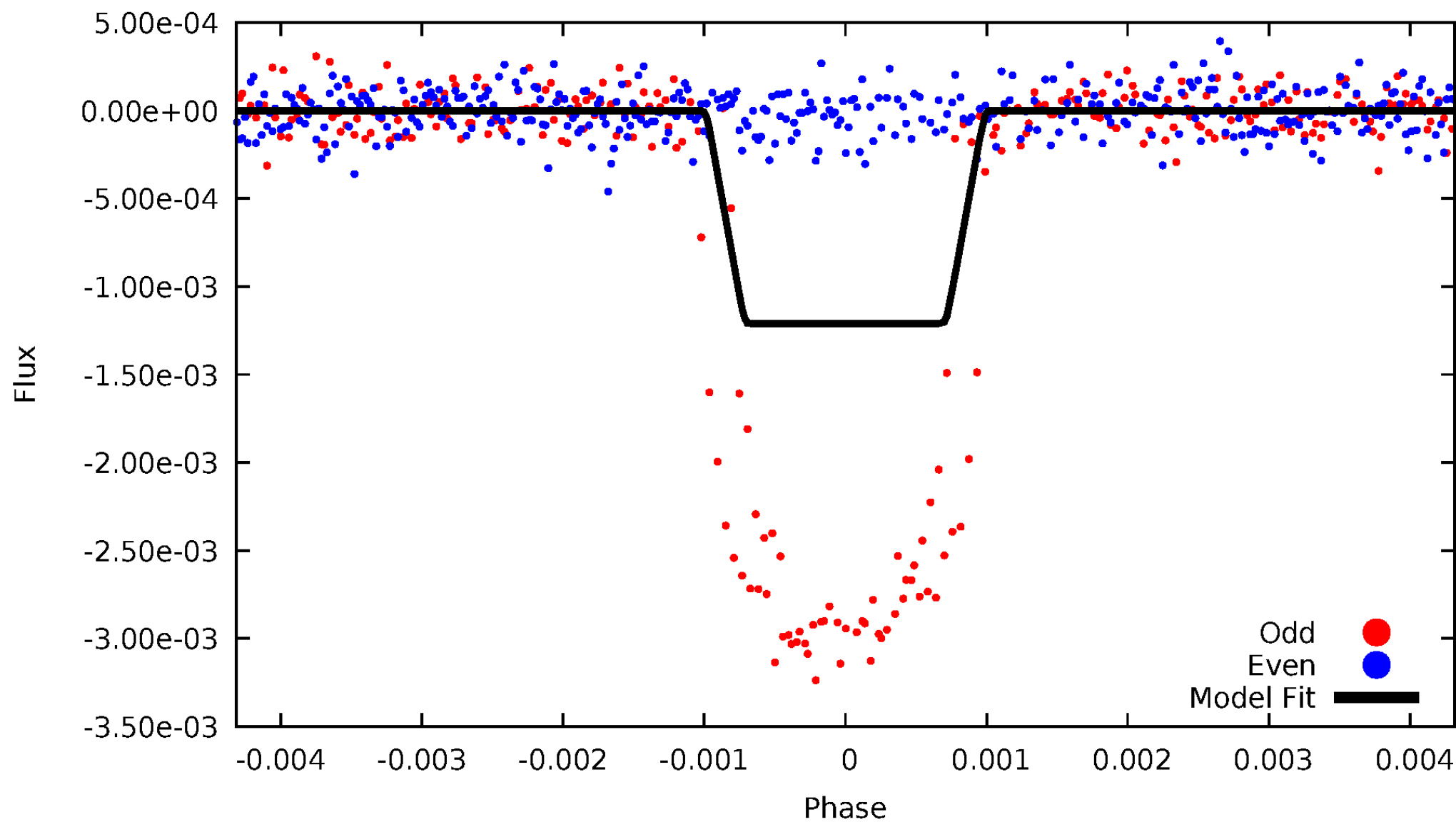
# DV Odd/Even

TCE 008800954-01



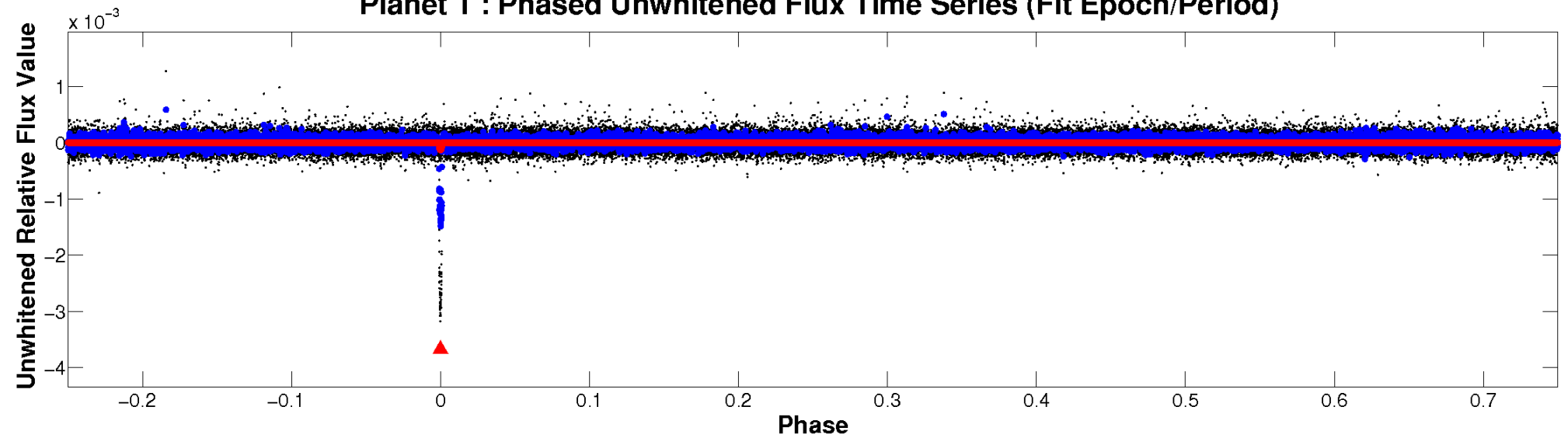
# ALT Odd/Even

TCE 008800954-01

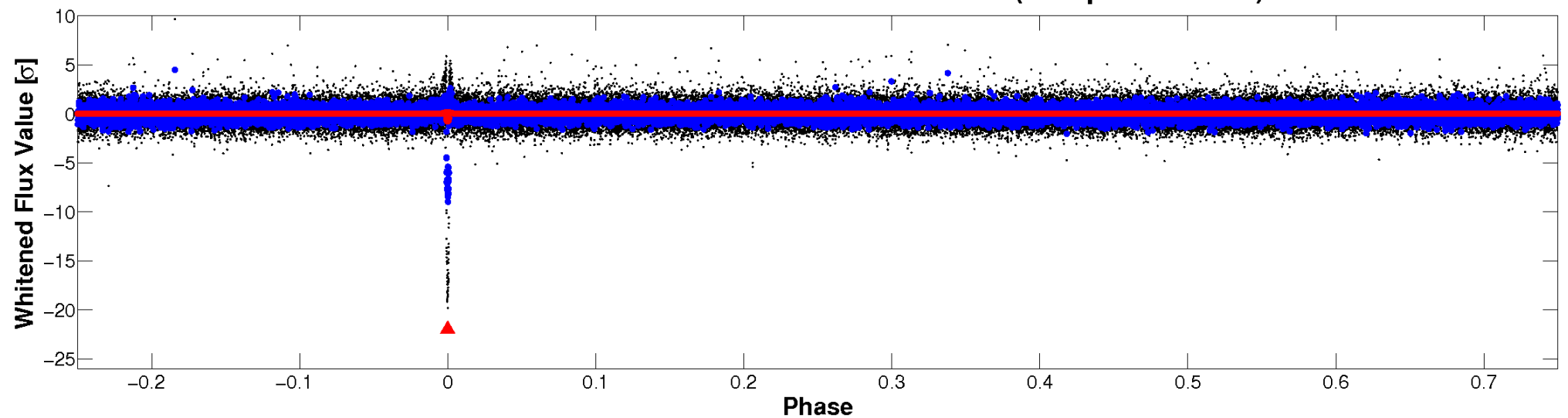


# Non-Whitened Vs. Whitened Light Curve

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



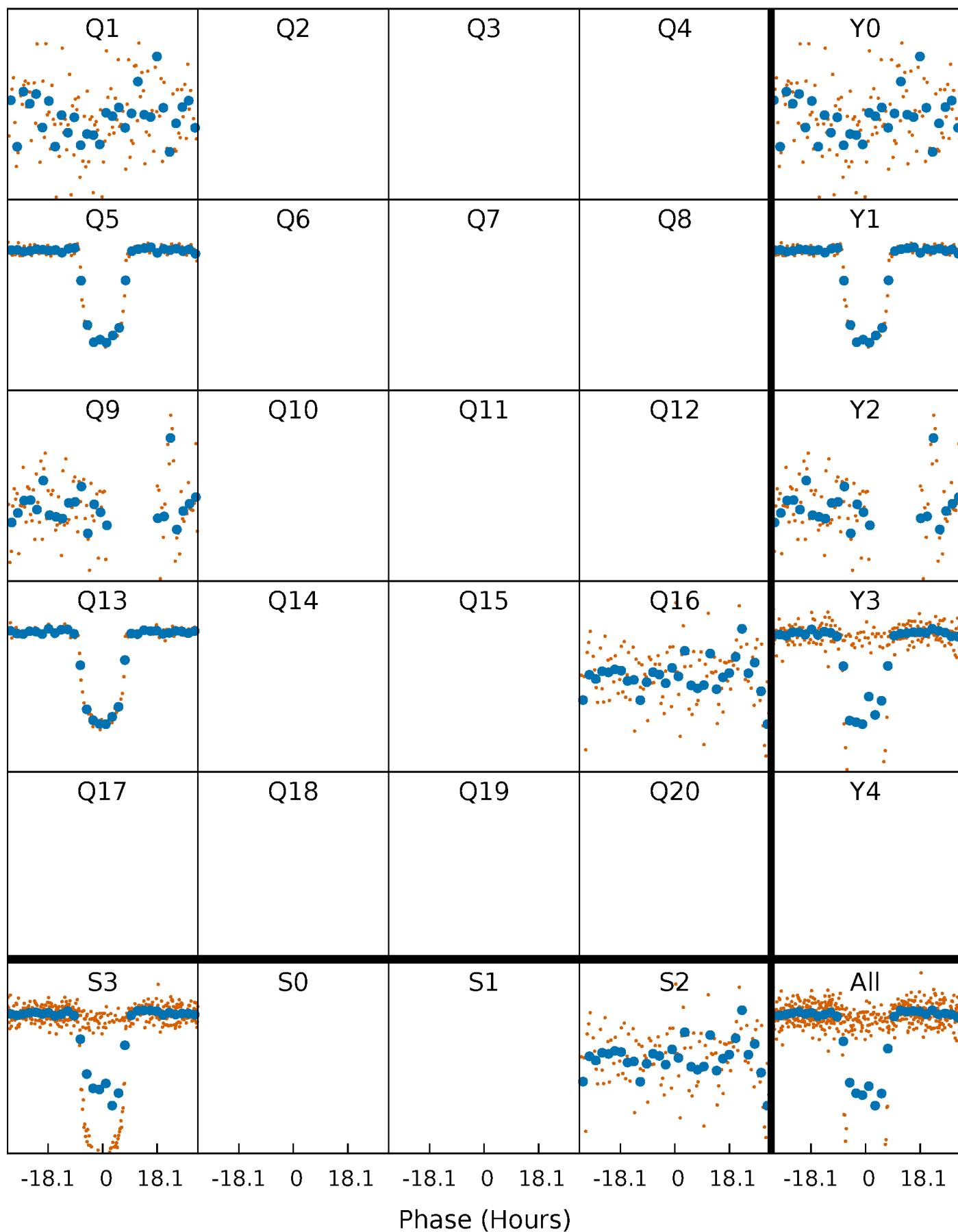
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

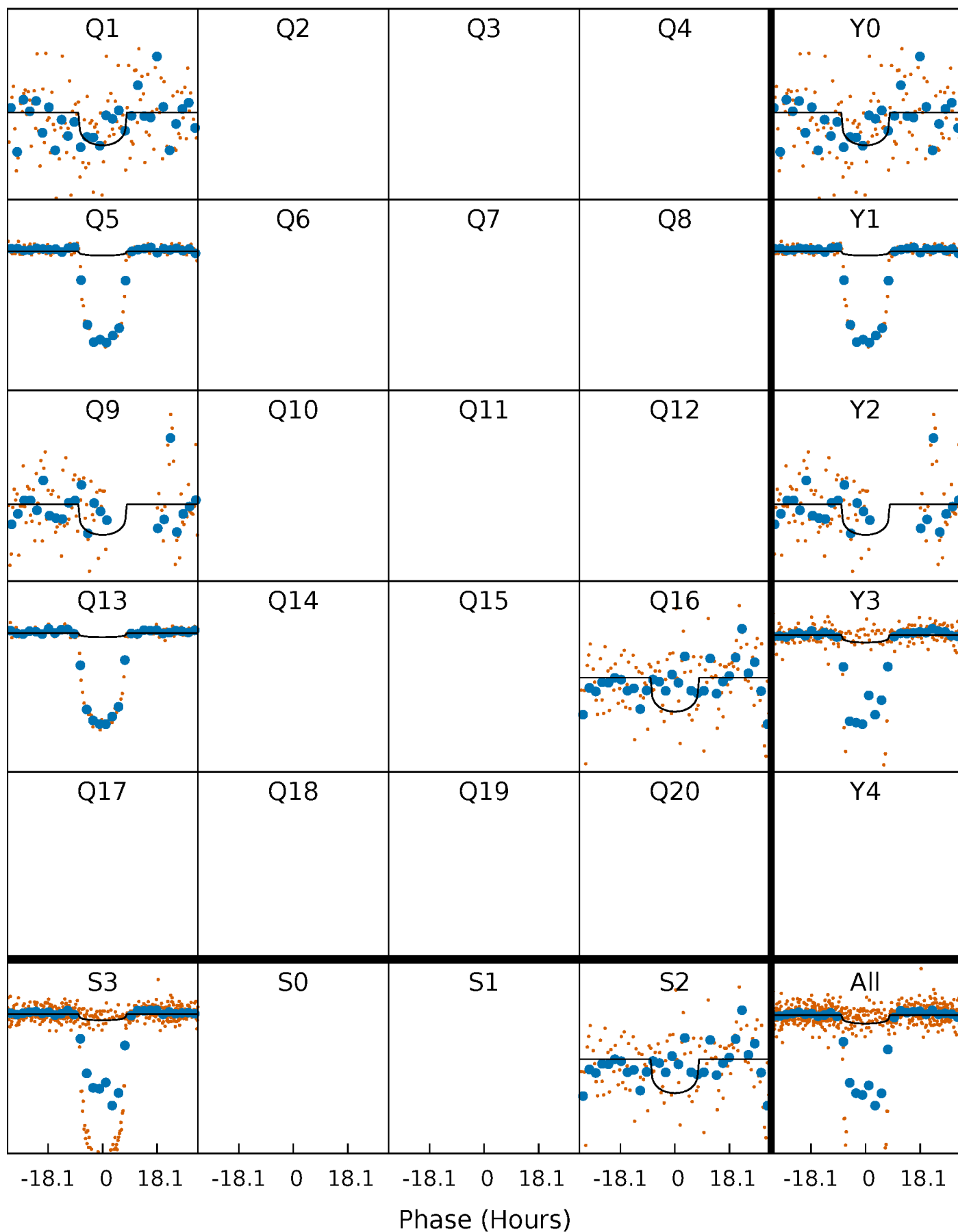
TCE 008800954-01 P=352.105624 Days  $T_0=140.653990$  (BKJD)





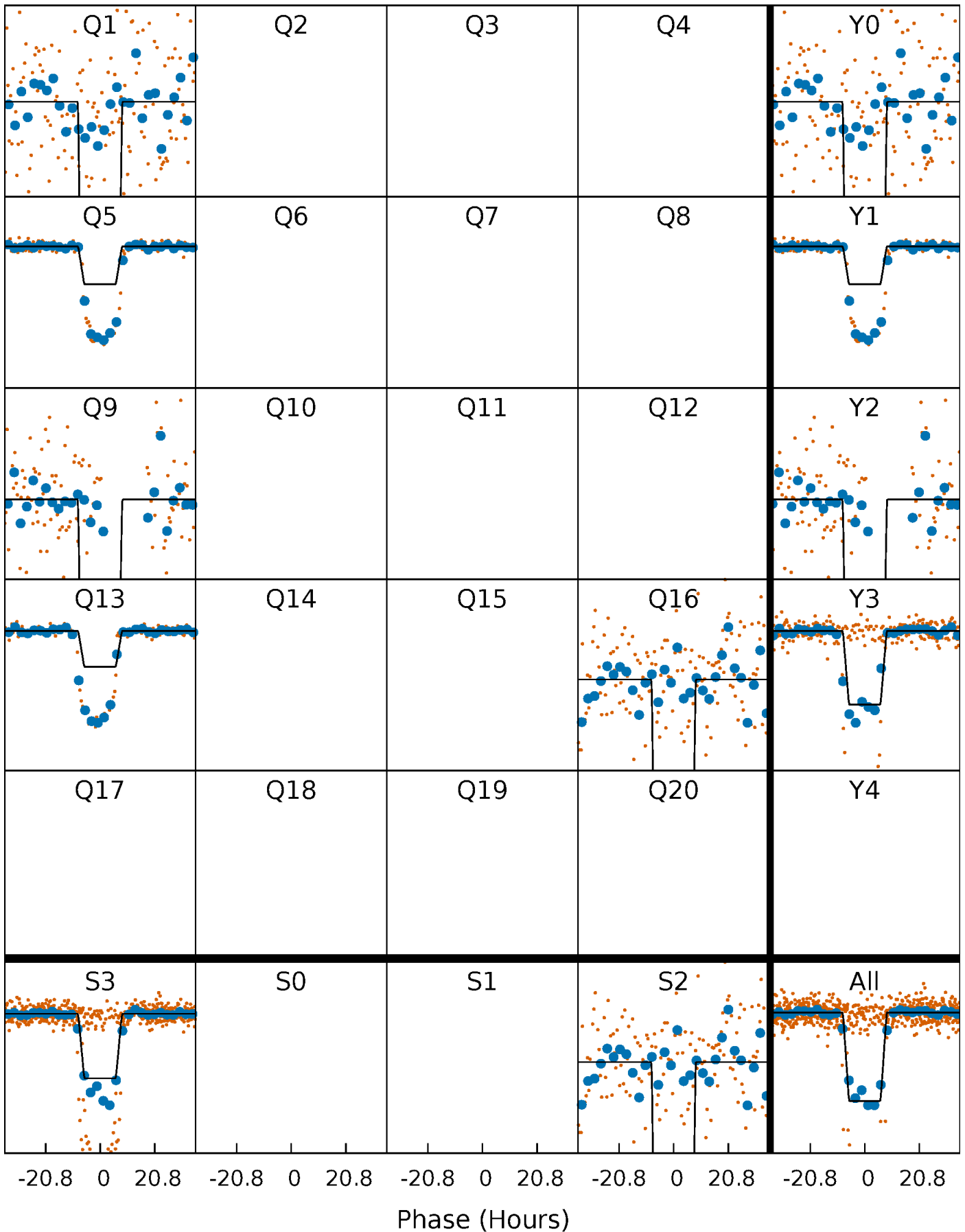
# DV Quarter-Phased Transit Curves

TCE 008800954-01 P=352.105624 Days  $T_0=140.653990$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

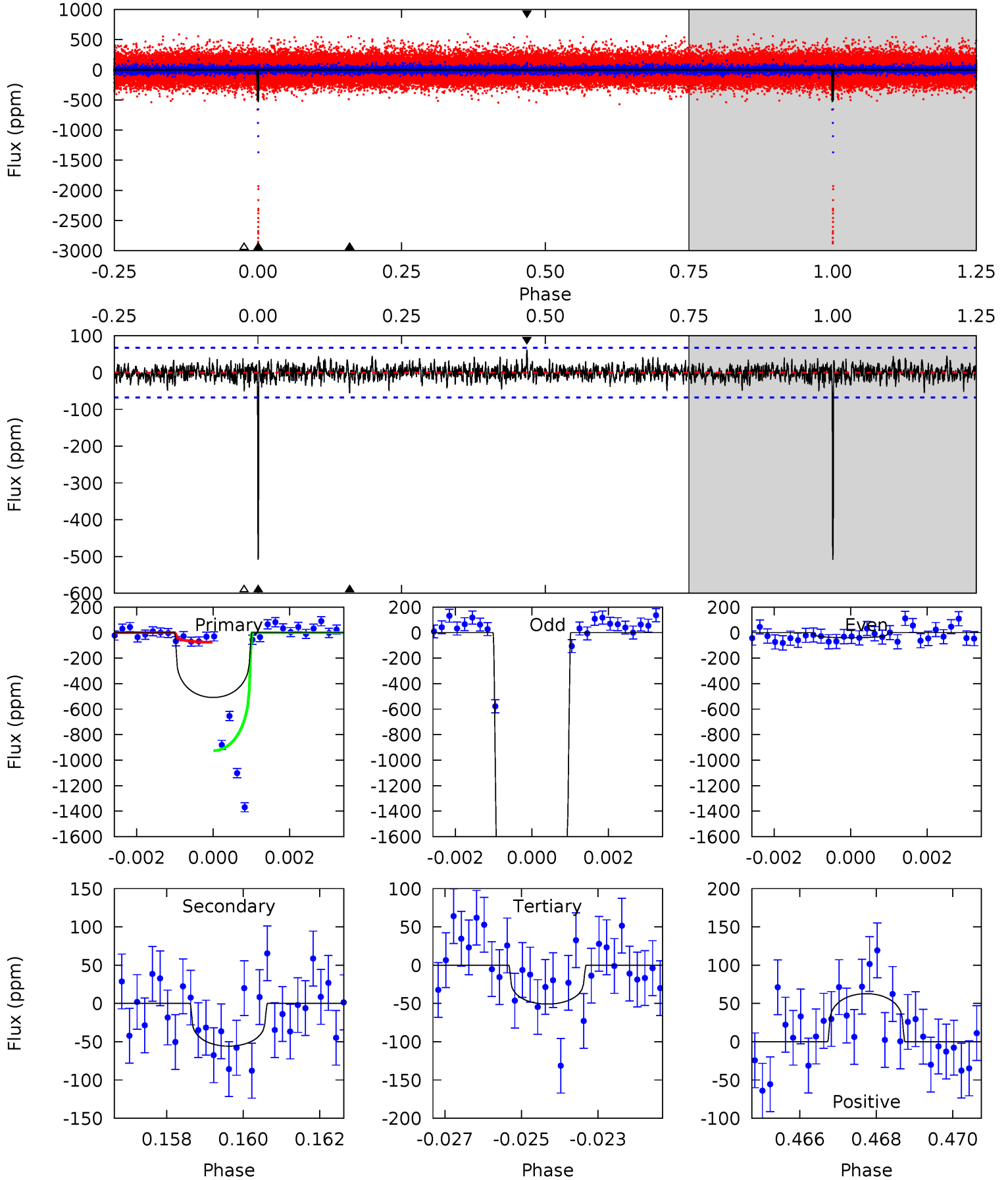
TCE 008800954-01 P=352.138351 Days  $T_0=140.597962$  (BKJD)



# DV Model-Shift Uniqueness Test

008800954-01, P = 352.105624 Days, E = 140.653990 Days

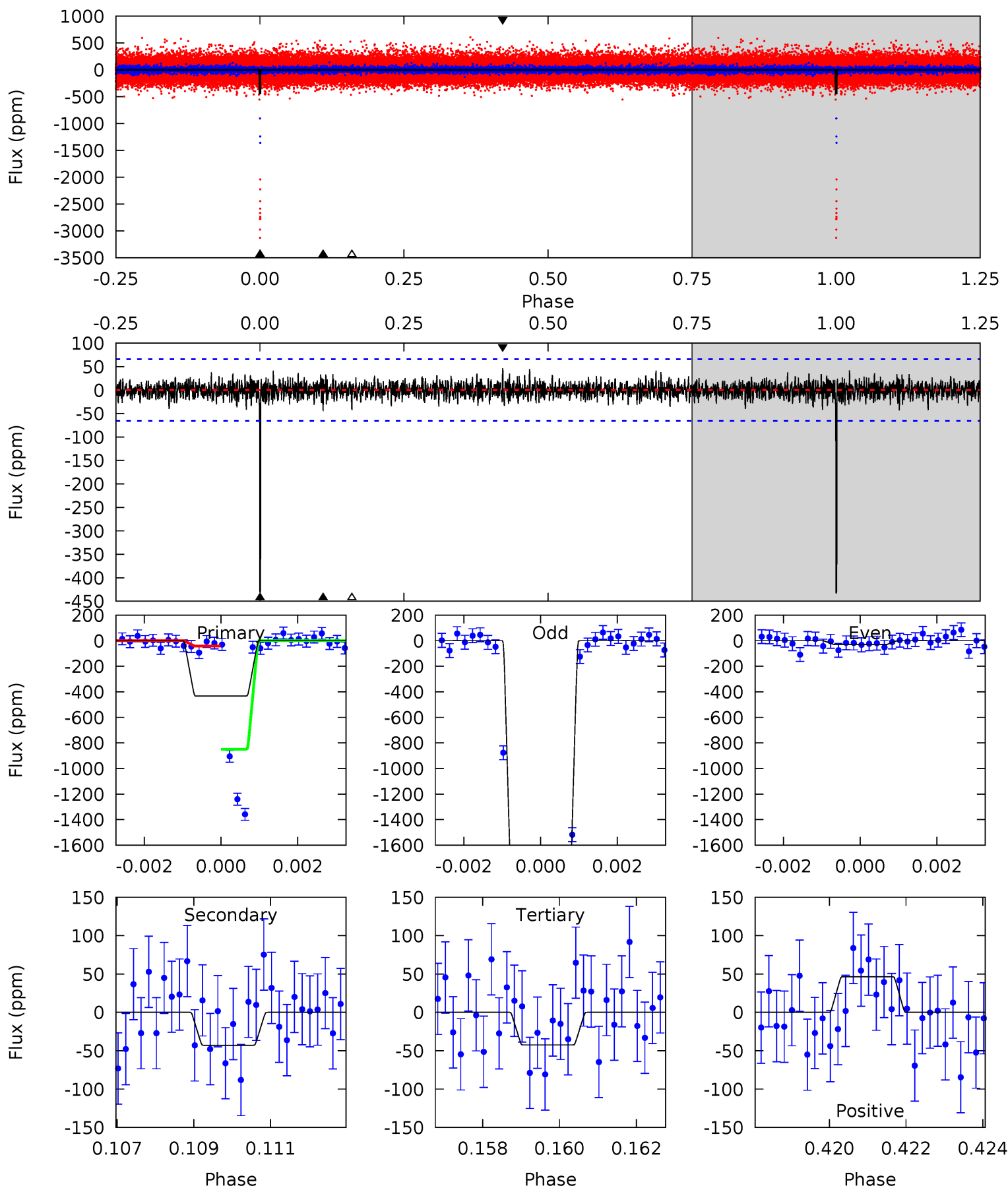
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.2	4.41	4.02	4.97	5.34	3.10	1.12	36.2	35.3	0.39	-0.56	131.0	15.4	0.11	33.7



# Alt Model-Shift Uniqueness Test

008800954-01, P = 352.138351 Days, E = 140.597962 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
35.0	3.46	3.43	3.75	5.32	3.08	0.96	31.6	31.3	0.03	-0.29	128.9	23.3	0.10	32.7



### Stellar Parameters For KIC 008800954

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5306^{+84}_{-74}$	$4.608^{+0.018}_{-0.072}$	$-0.260^{+0.150}_{-0.150}$	$0.741^{+0.063}_{-0.032}$	$0.826^{+0.033}_{-0.067}$	$2.864^{+0.259}_{-0.655}$
	+2%/-1%	+0%/-2%	+58%/-58%	+9%/-4%	+4%/-8%	+9%/-23%
Source	SPE80	SPE80	SPE80	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 008800954-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-56 \pm 13$	$1.54^{+1.54}_{-1.03}$	$298^{+8}_{-6}$	$3749^{+1993}_{-746}$	$11036^{+86723}_{-8488}$
Alt.	$-43 \pm 12$	$2.90^{+1.88}_{-1.59}$	$298^{+8}_{-6}$	$2959^{+842}_{-387}$	$2340^{+9205}_{-1558}$

$T_{max}$  = 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

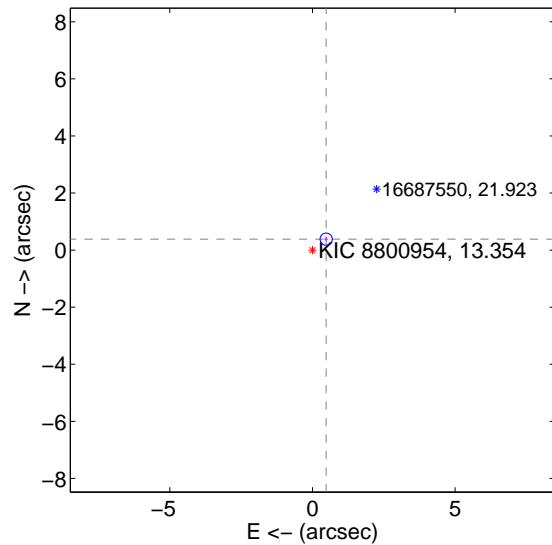
Supplemental centroid analysis for 008800954-01. Kepler magnitude: 13.35. Transit SNR 6.37

There are 1 quarters with good PRF difference image offsets

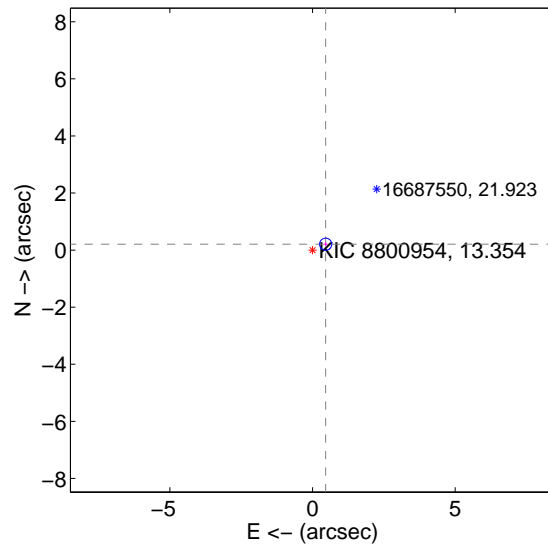
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.615 \pm 0.071$	8.64	$-0.481 \pm 0.071$	$0.383 \pm 0.072$
PRF-fit source offset from KIC position	$0.504 \pm 0.071$	7.11	$-0.460 \pm 0.071$	$0.206 \pm 0.072$
photometric centroid source offset	$3.06 \pm 1.33$	2.29	$2.10 \pm 1.42$	$-2.23 \pm 1.26$

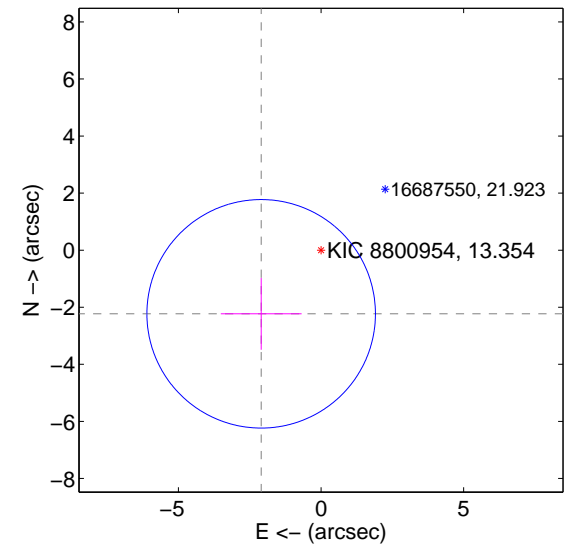
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

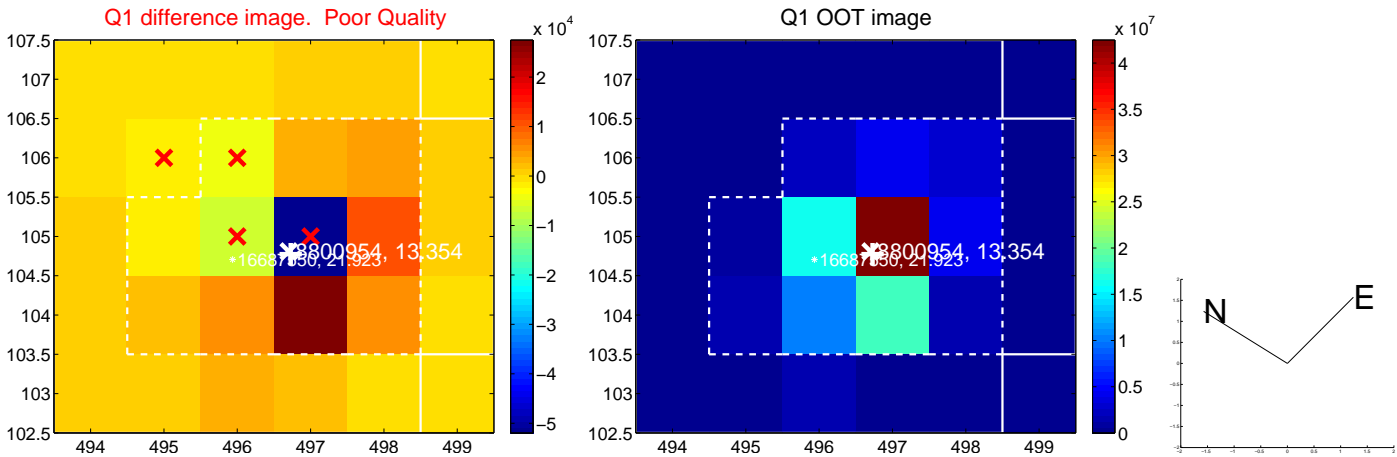


offset from photometric centroids



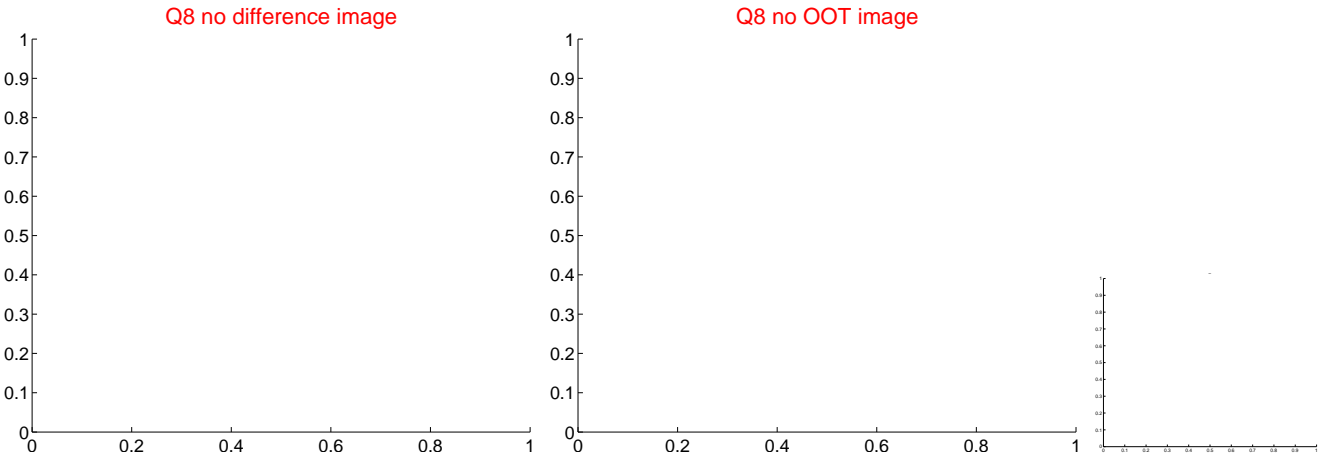
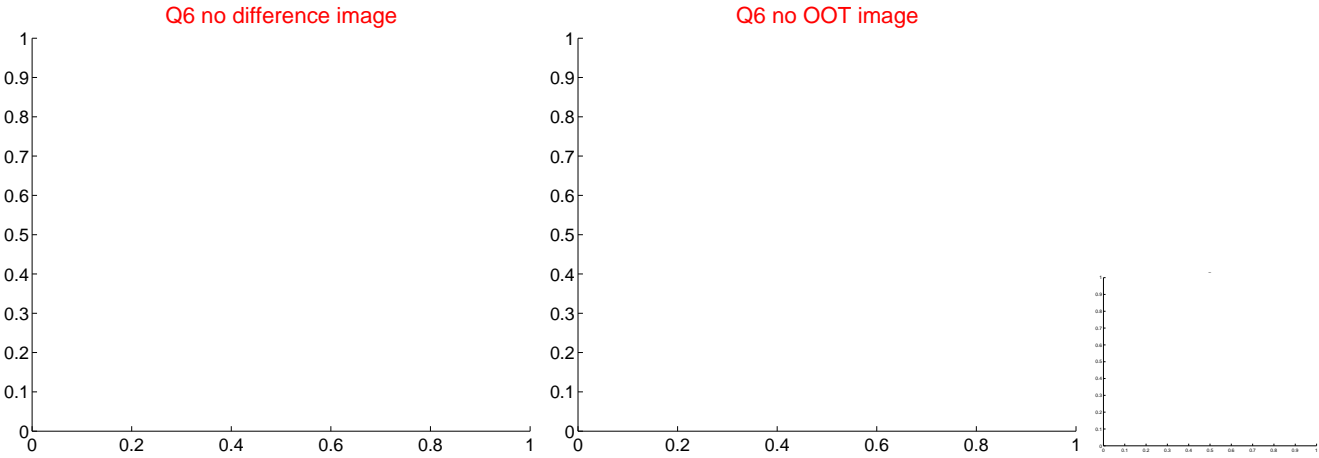
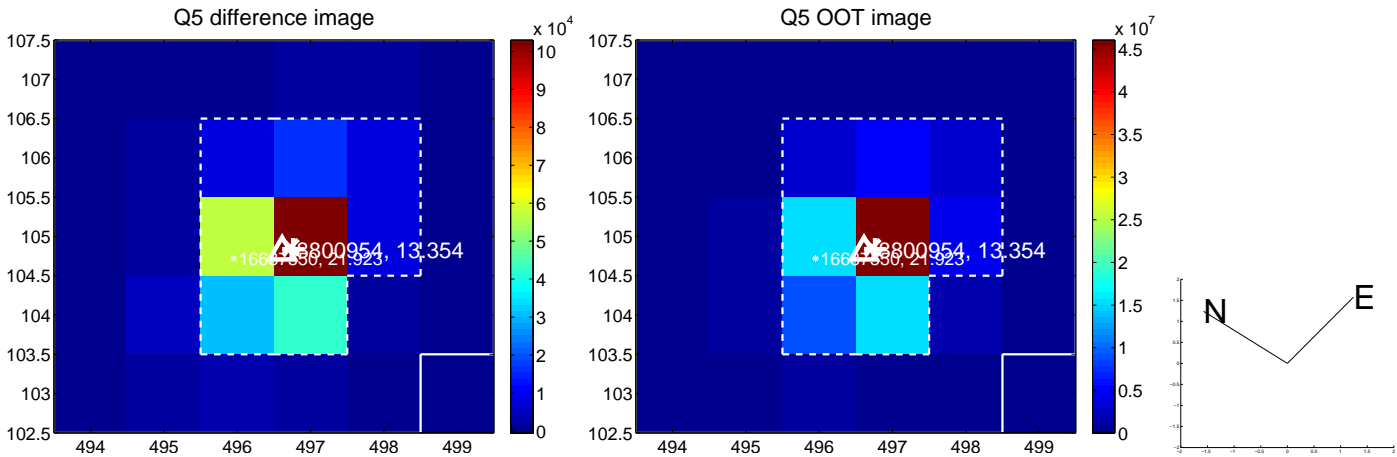
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



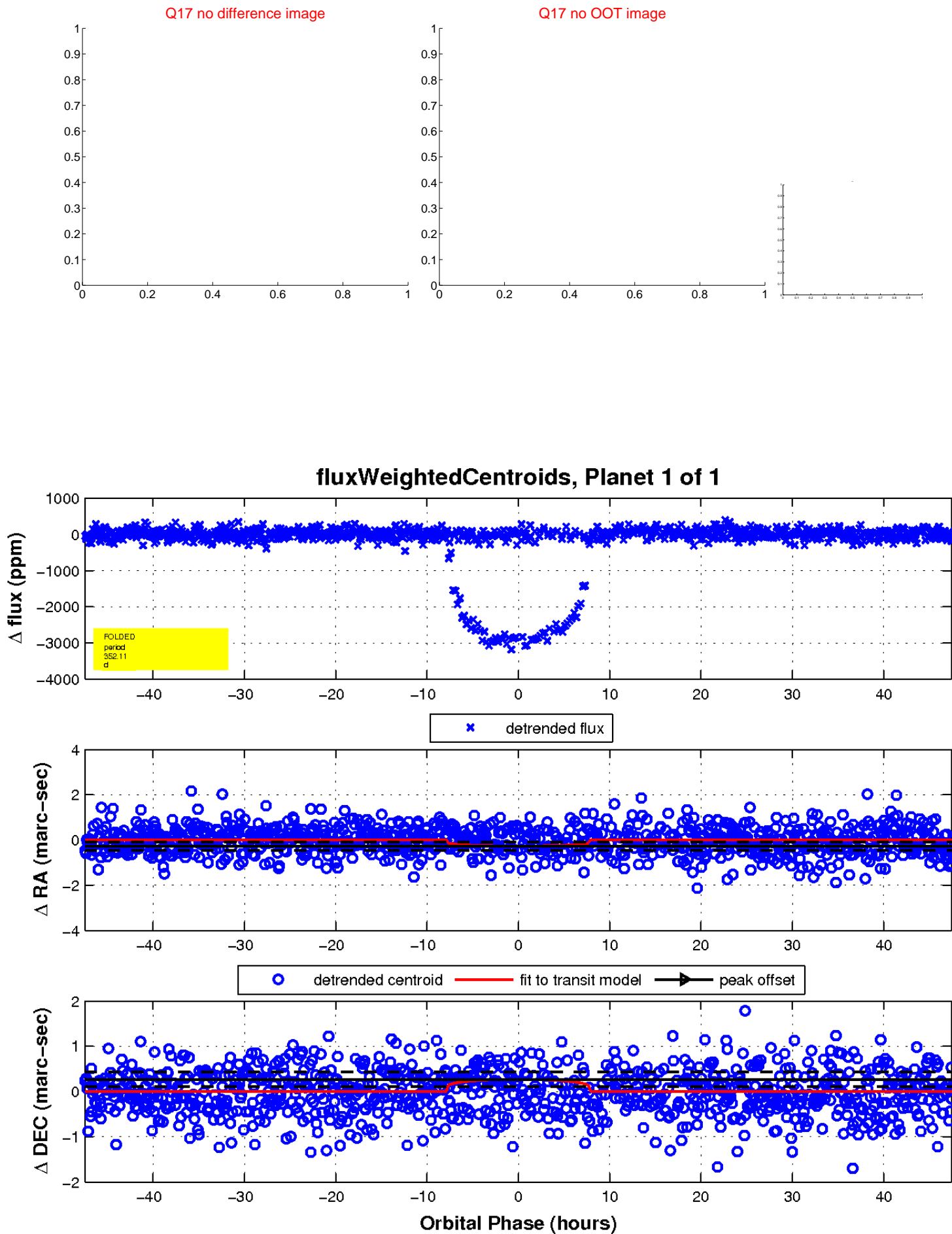
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

