

# KIC 012644455

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012644455-01	OBS	No	469.669521	271.443856	532.6	5.378	8.5	5.4	1.01	6225	2.61	0.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012644455-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—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.

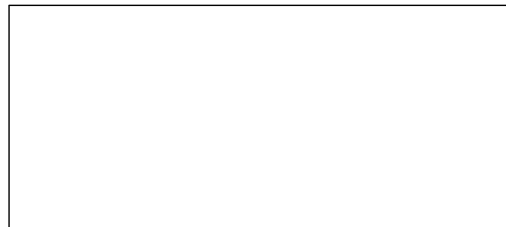
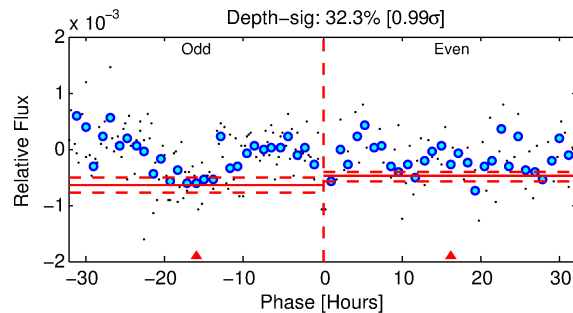
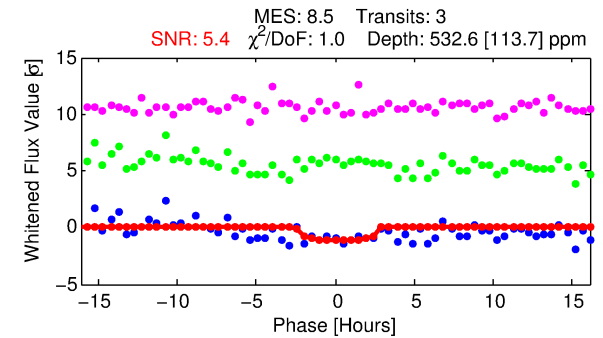
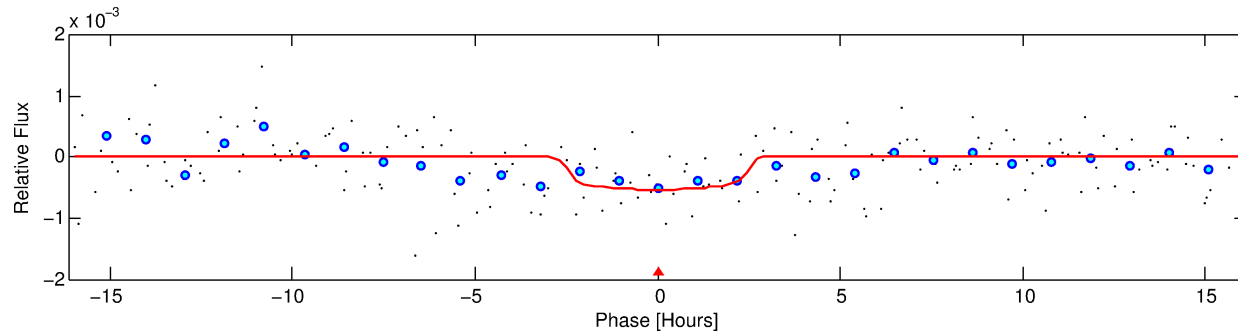
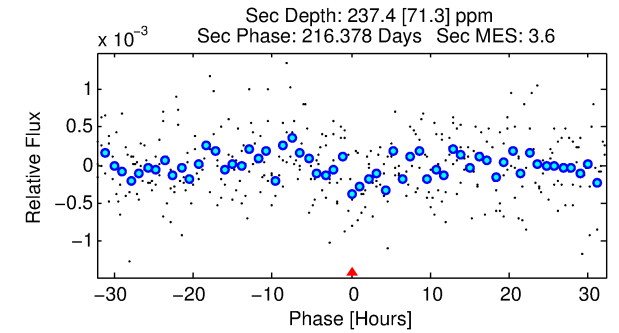
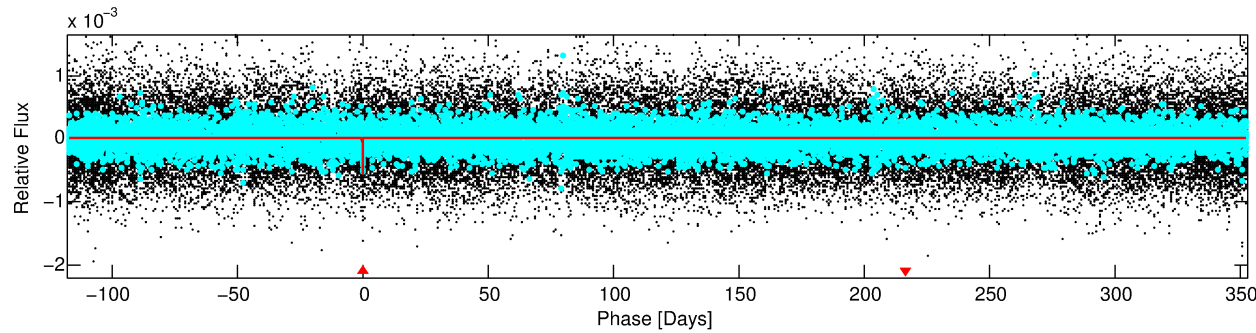
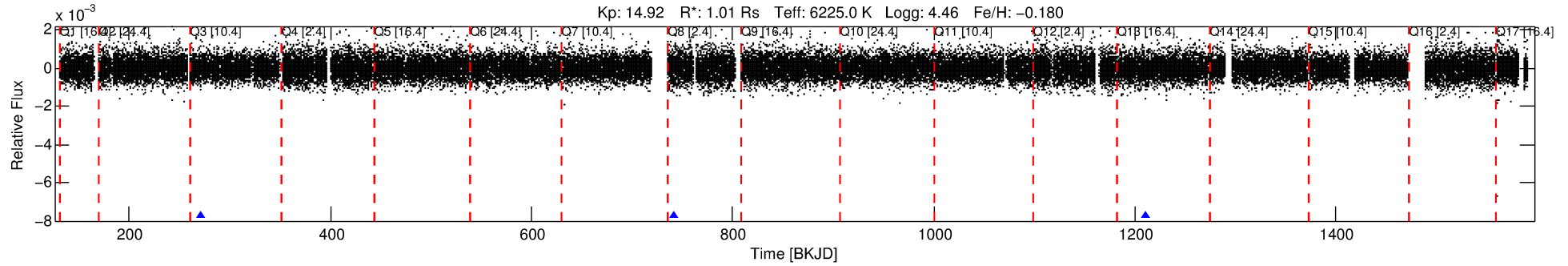
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012644455-01

No Significant Match Found

# DV One-Page Summary

KIC: 12644455 Candidate: 1 of 1 Period: 469.670 d



## DV Fit Results:

Period = 469.66952 [0.01796] d  
Epoch = 271.4439 [0.0249] BKJD  
Rp/R\* = 0.0237 [0.0161]  
a/R\* = 398.06 [1357.24]  
b = 0.83 [1.29]  
Seff = 0.93 [0.41]  
Teq = 251 [27] K  
Rp = 2.61 [1.97] Re  
a = 1.2110 [0.3423] AU  
Ag = 28040.41 [40665.80] [0.69σ]  
Teffp = 5015 [1750] K [2.72σ]

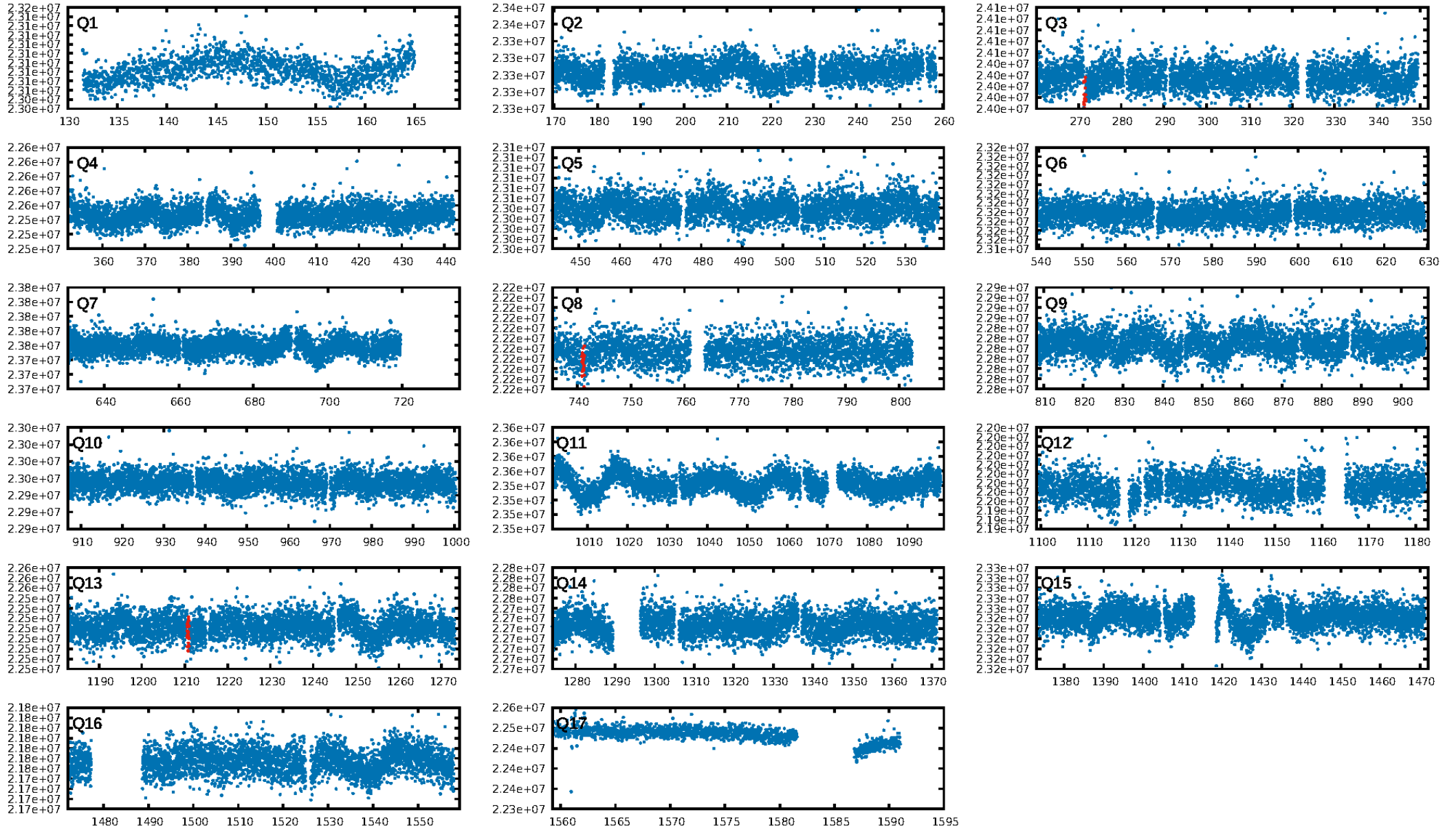
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 9.1%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.89e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -9.053  
Centroid-sig: 57.3%  
Centroid-so: 2.309 arcsec [0.76σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

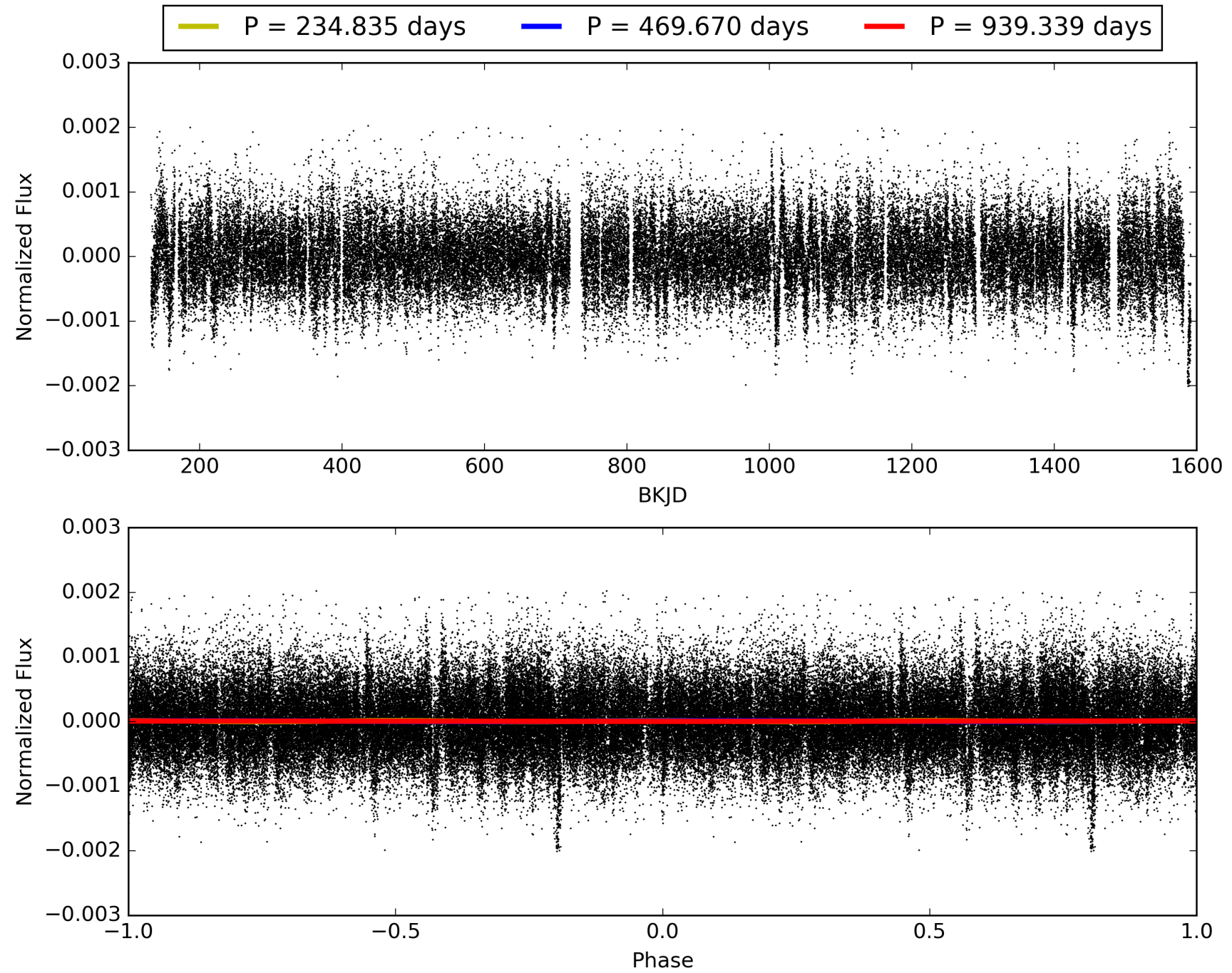
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:32:18 Z

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

# TCE 012644455-01, PDC Light Curves

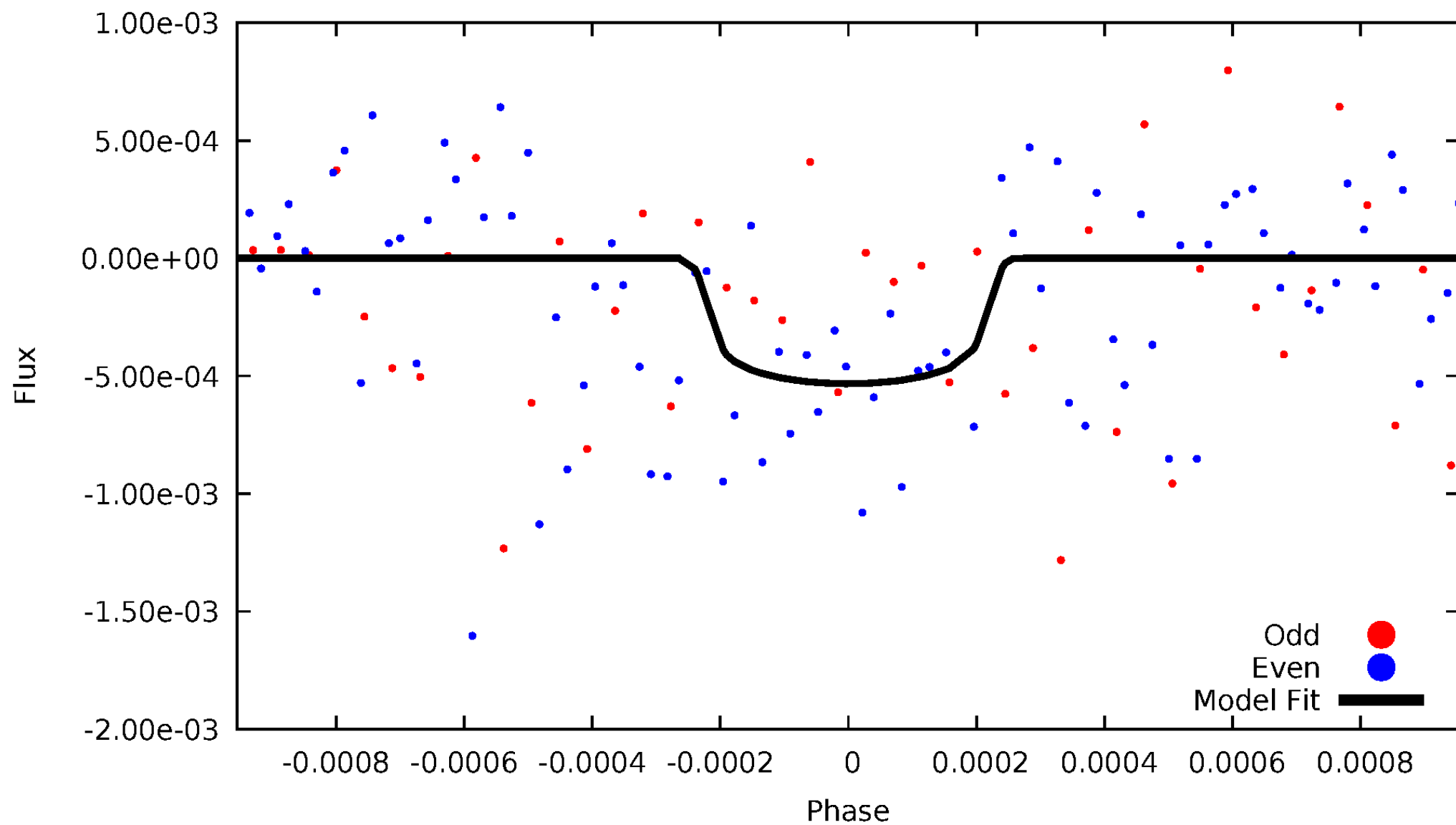


TCE 012644455-01



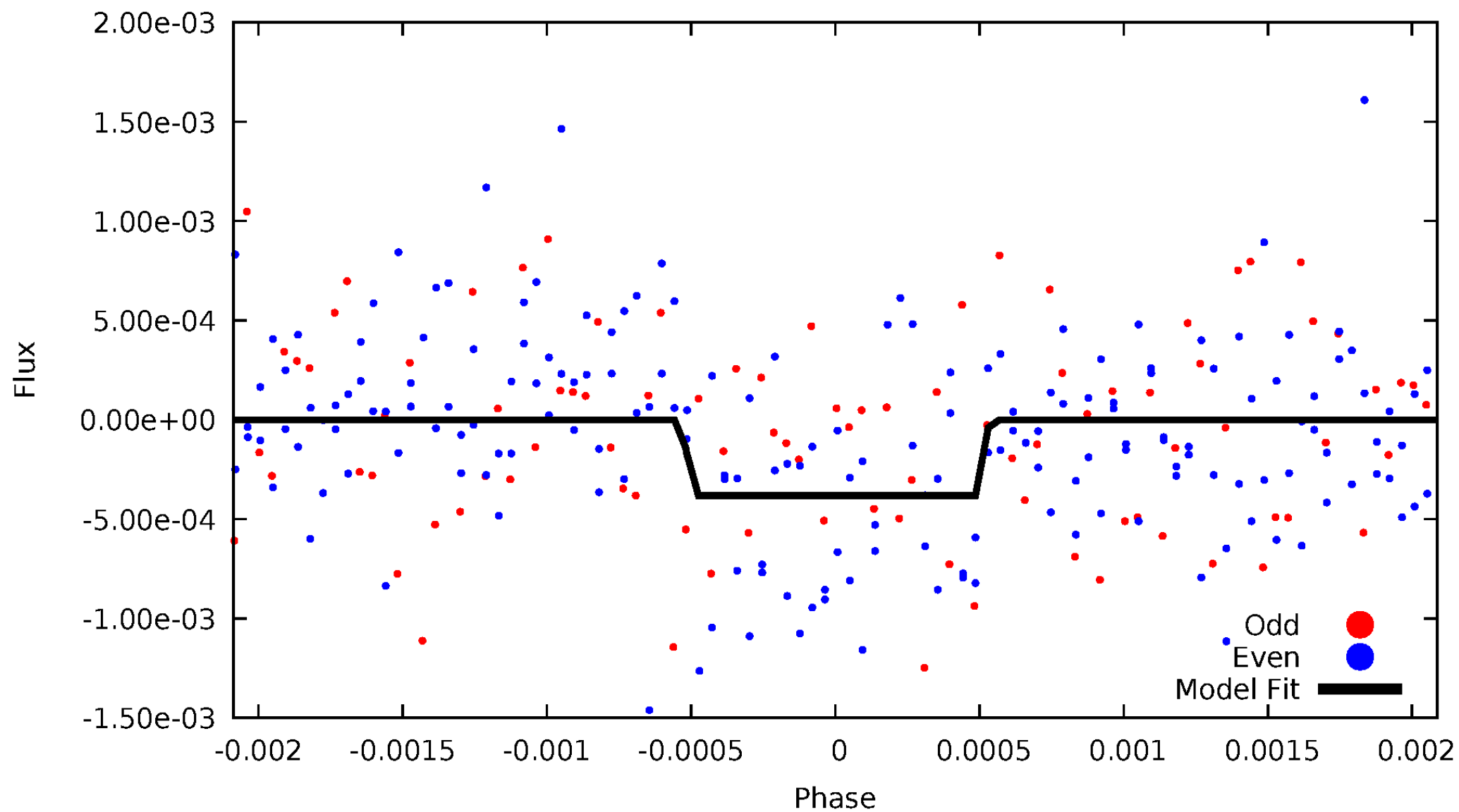
# DV Odd/Even

TCE 012644455-01



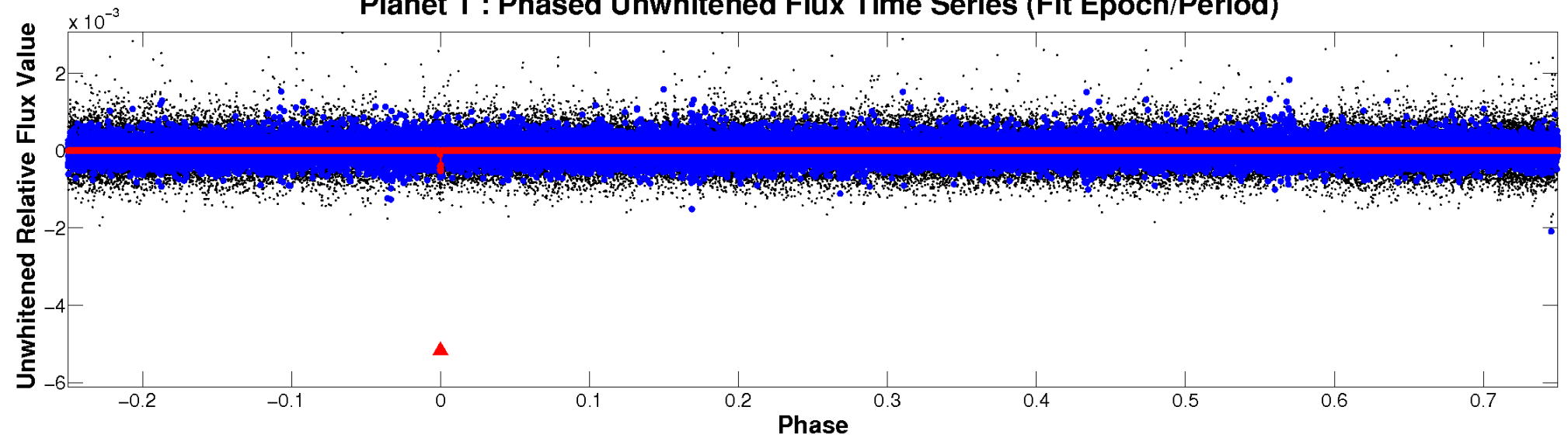
# ALT Odd/Even

TCE 012644455-01

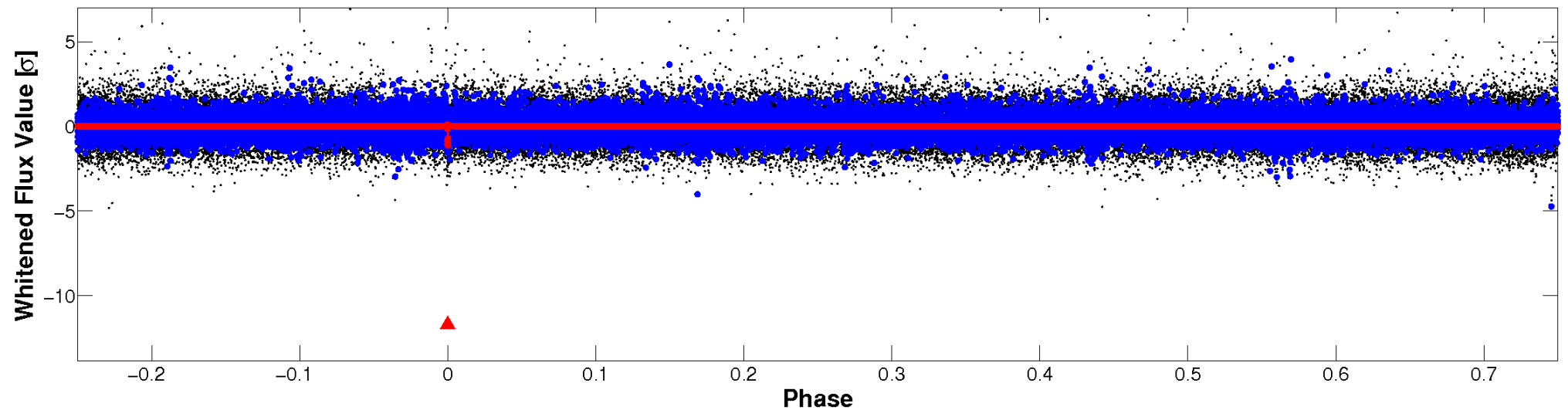


# Non-Whitened Vs. Whitened Light Curve

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

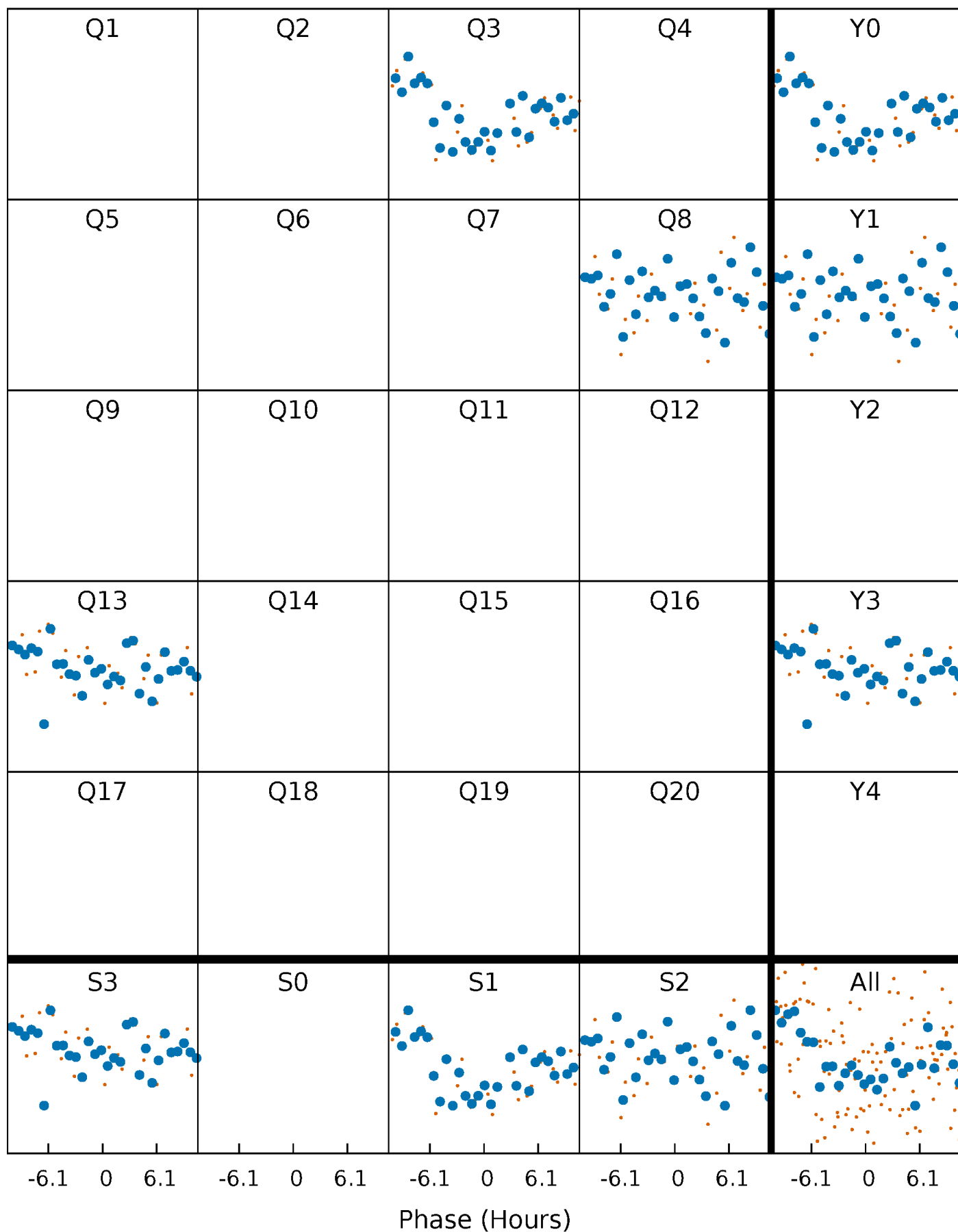


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

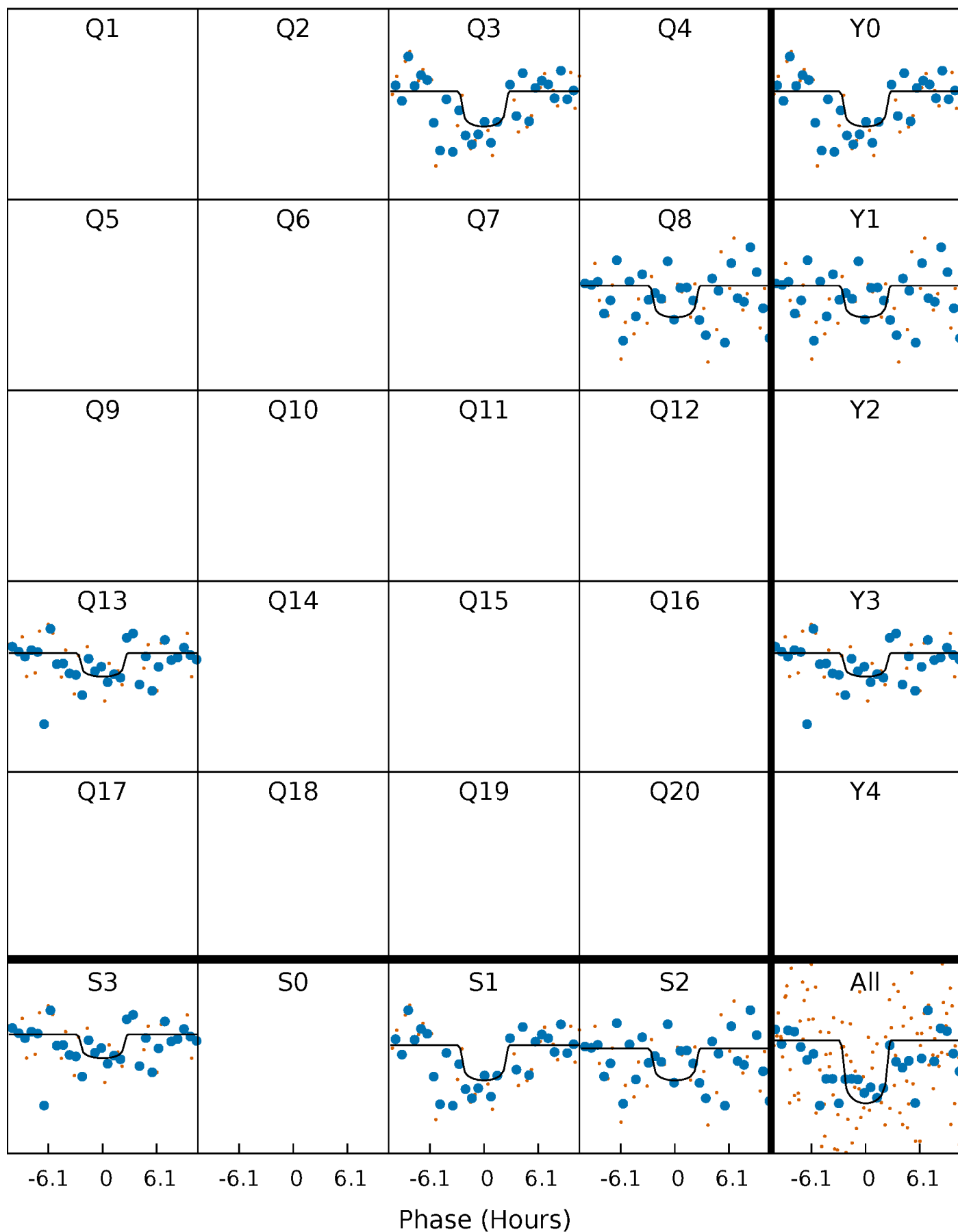
TCE 012644455-01 P=469.669521 Days  $T_0=271.443856$  (BKJD)





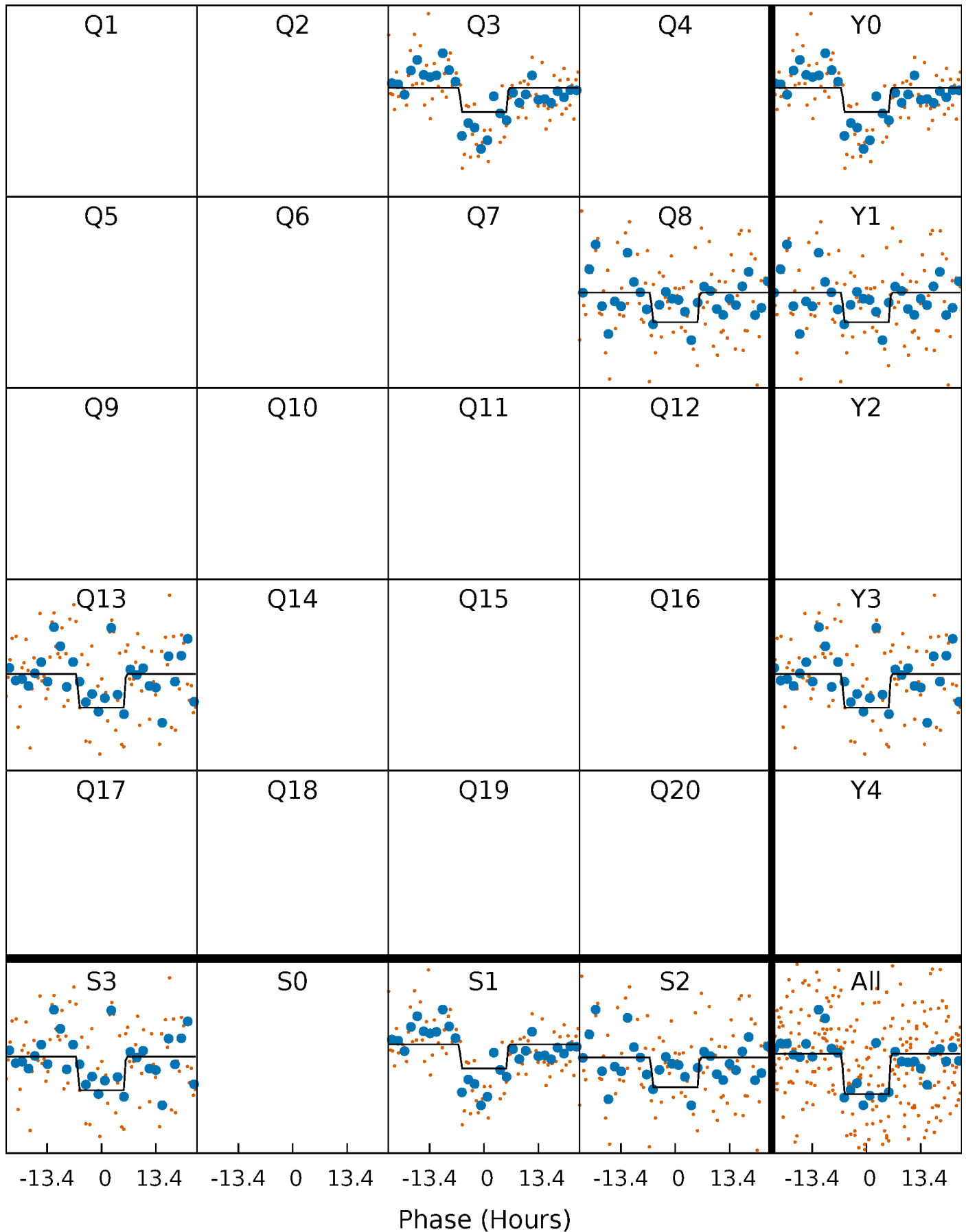
# DV Quarter-Phased Transit Curves

TCE 012644455-01 P=469.669521 Days  $T_0=271.443856$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

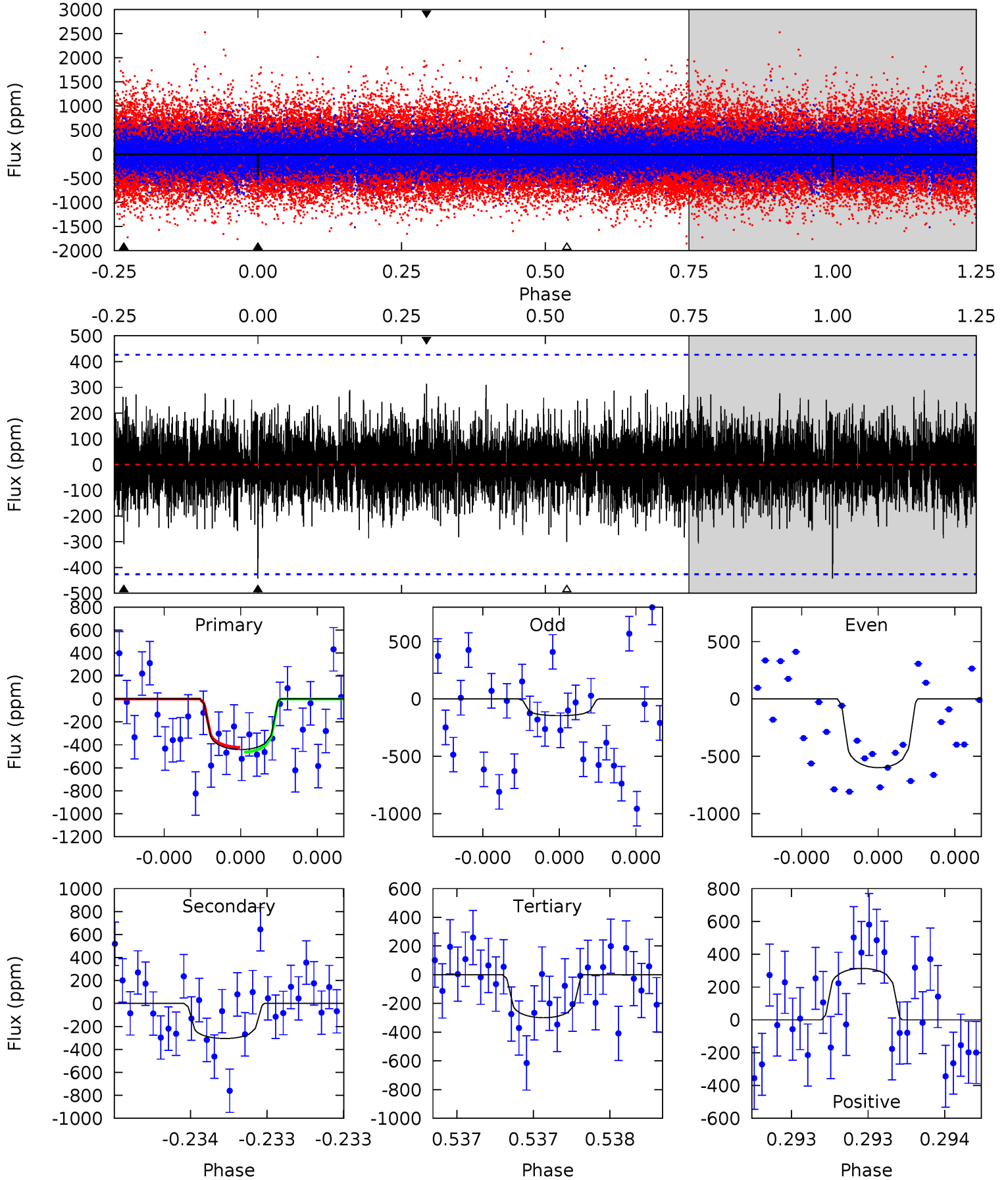
TCE 012644455-01 P=469.685810 Days  $T_0=271.438536$  (BKJD)



# DV Model-Shift Uniqueness Test

012644455-01, P = 469.669521 Days, E = 271.443856 Days

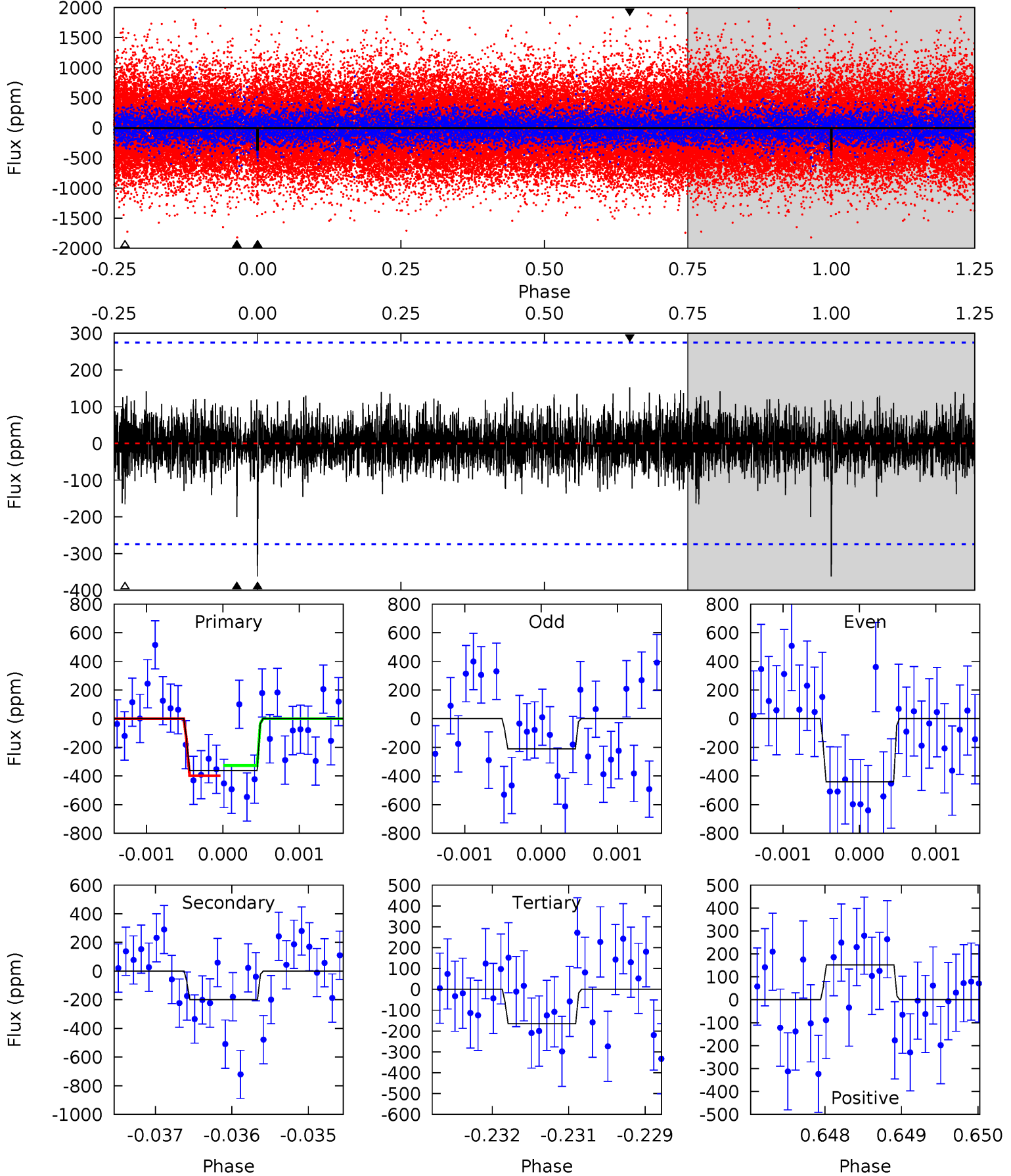
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.78	3.99	3.92	4.10	5.57	3.48	1.08	1.86	1.68	0.08	-0.11	2.86	0.89	0.42	0.28



# Alt Model-Shift Uniqueness Test

012644455-01, P = 469.685810 Days, E = 271.438536 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
7.16	3.96	3.26	3.01	5.44	3.27	0.82	3.90	4.15	0.70	0.95	2.15	1.76	0.30	0.70



### Stellar Parameters For KIC 012644455

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6225^{+188}_{-206}$	$4.461^{+0.054}_{-0.229}$	$-0.180^{+0.250}_{-0.350}$	$1.009^{+0.335}_{-0.112}$	$1.070^{+0.144}_{-0.144}$	$1.467^{+0.433}_{-0.790}$
	+3%/-3%	+1%/-5%	+139%/-194%	+33%/-11%	+13%/-13%	+29%/-54%
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 012644455-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-305 \pm 76$	$2.87^{+1.95}_{-1.58}$	$361^{+27}_{-20}$	$5287^{+2642}_{-1046}$	$28519^{+109736}_{-18380}$
Alt.	$-200 \pm 51$	$2.57^{+1.83}_{-1.51}$	$360^{+29}_{-19}$	$5036^{+2854}_{-939}$	$23296^{+117051}_{-15459}$

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

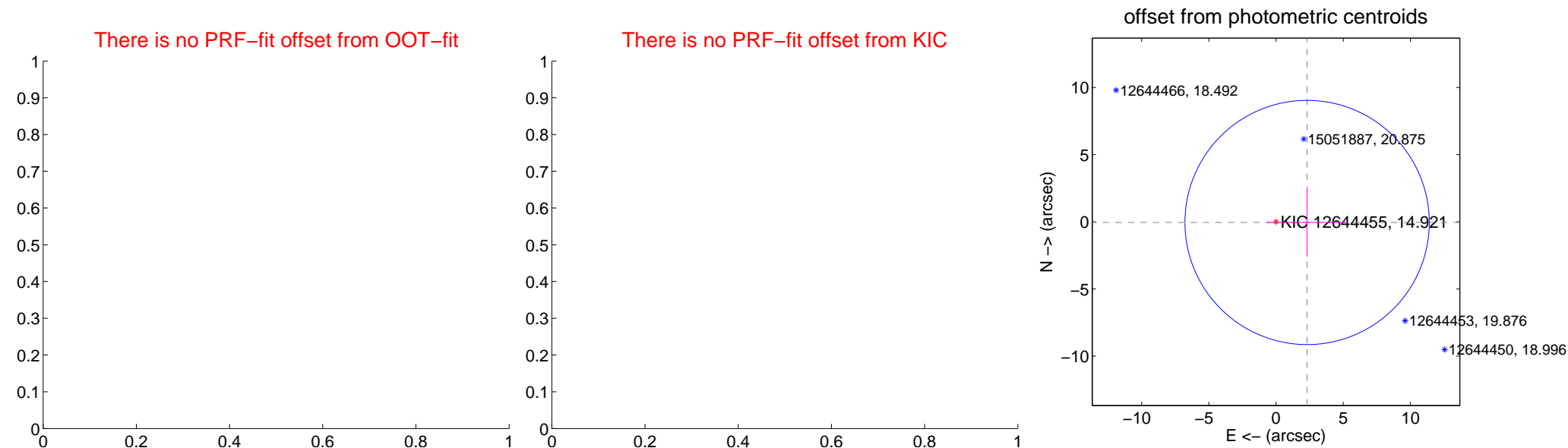
## DV Centroid Data

Supplemental centroid analysis for 012644455-01. Kepler magnitude: 14.92. Transit SNR 5.42

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$2.31 \pm 3.03$	0.76	$-2.31 \pm 3.03$	$-0.05 \pm 2.55$

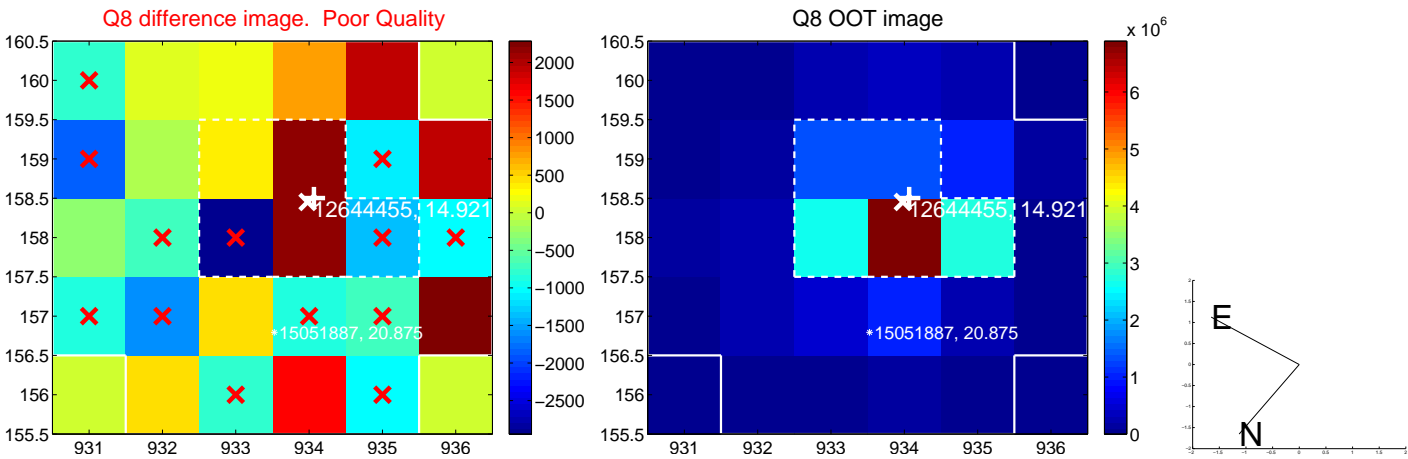


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

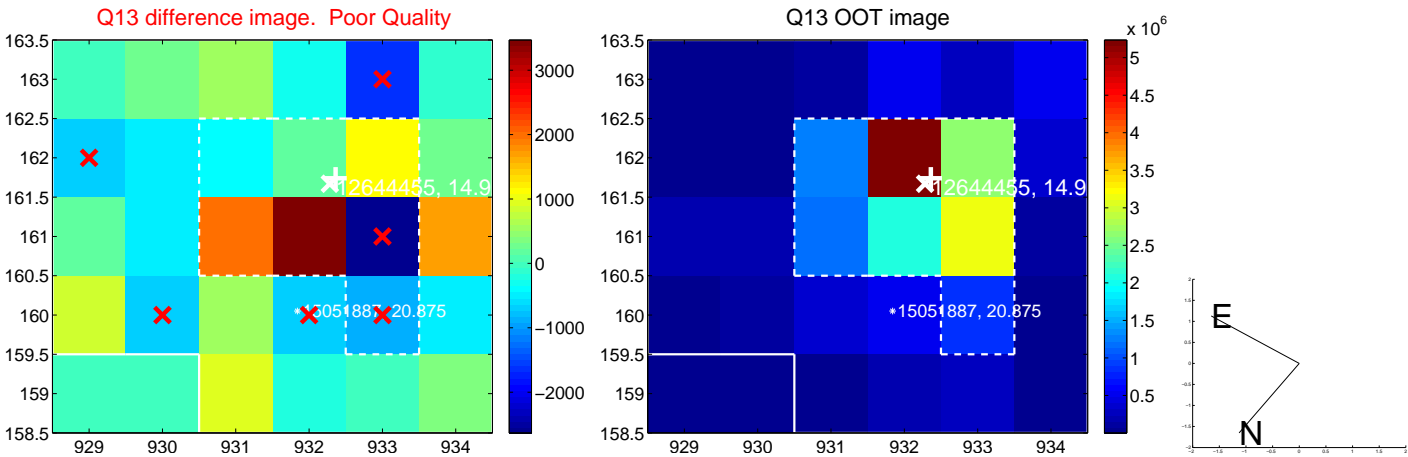




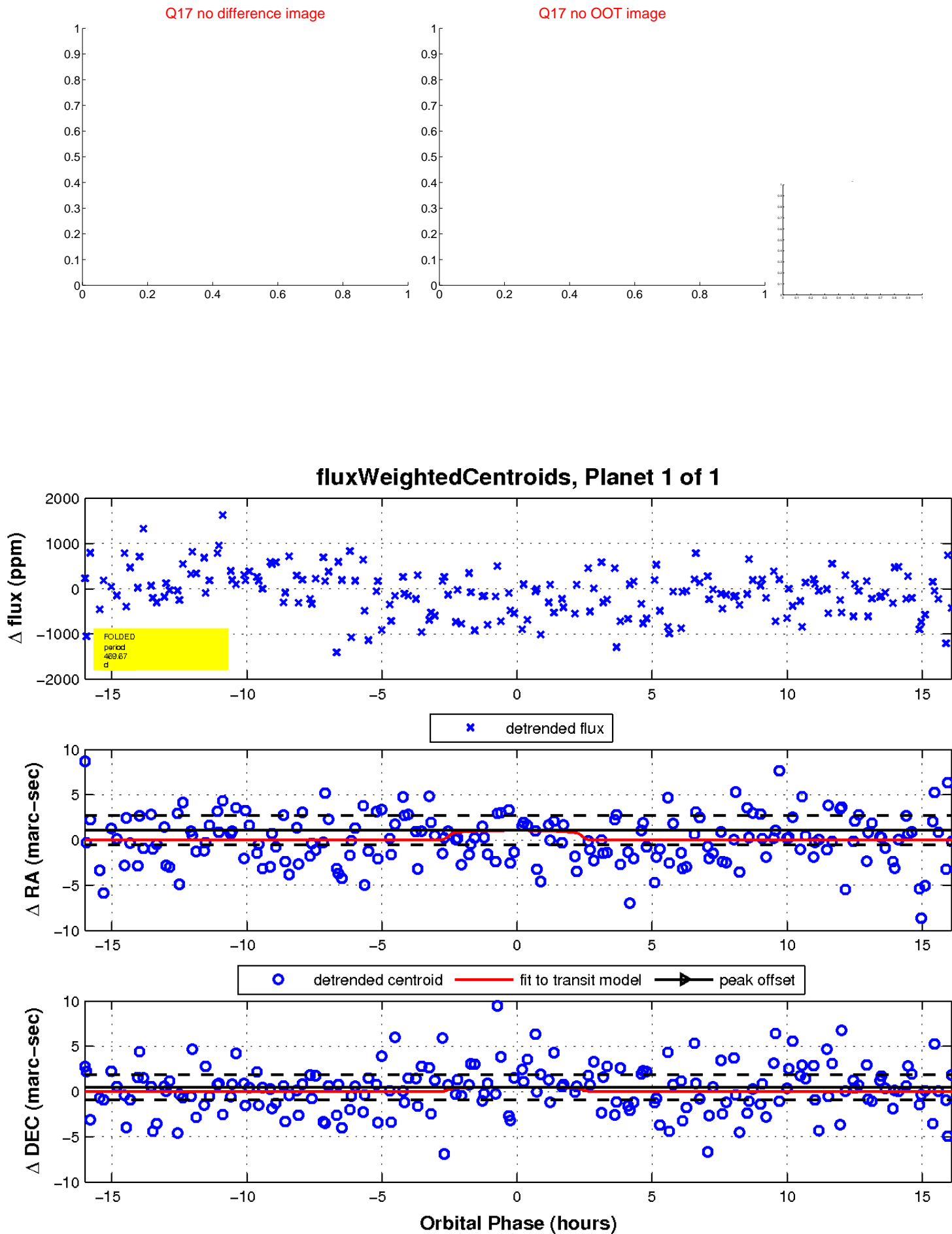
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

