

# KIC 010613451

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010613451-01	OBS	No	720.192740	135.048559	1891.8	16.078	9.3	9.1	7.89	4888	39.98	9.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010613451-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS

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

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

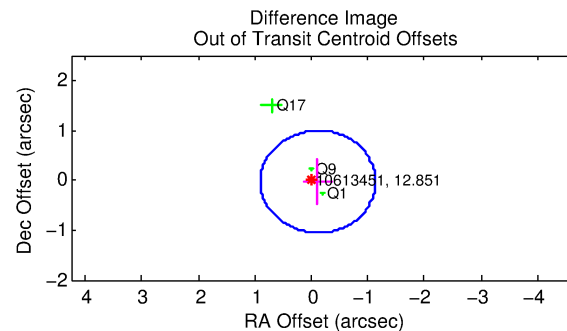
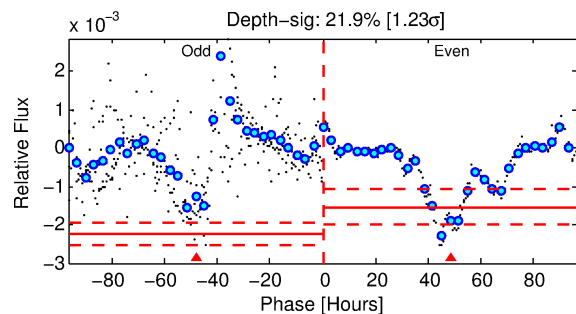
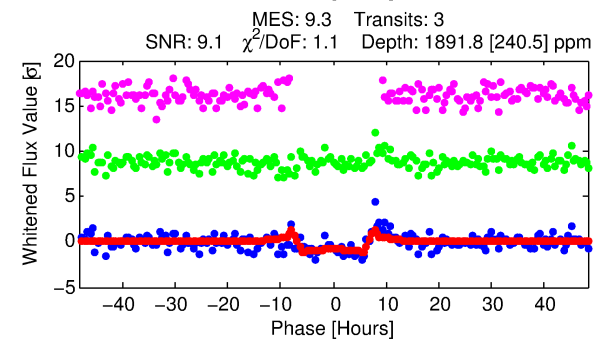
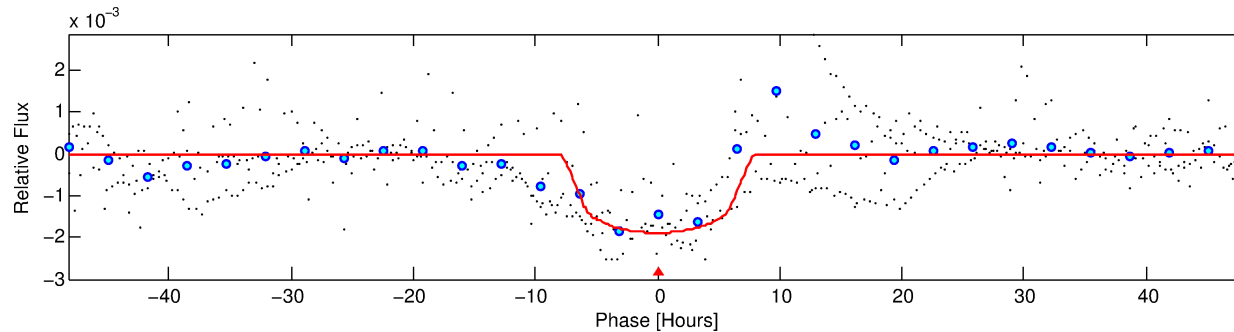
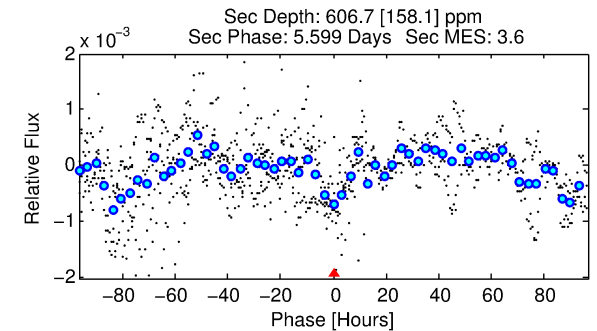
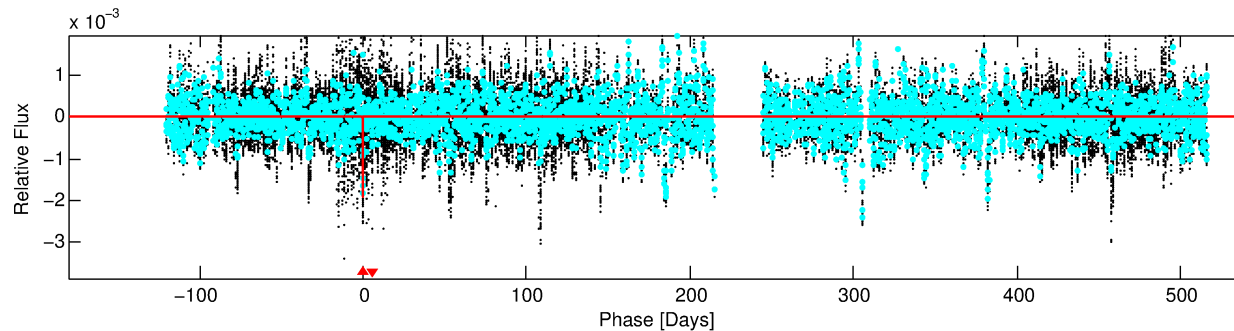
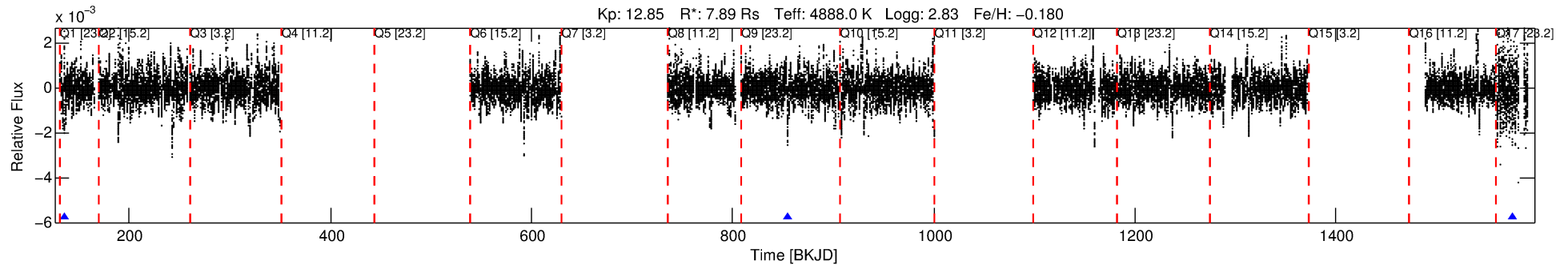
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010613451-01

No Significant Match Found

# DV One-Page Summary

KIC: 10613451 Candidate: 1 of 1 Period: 720.193 d



## DV Fit Results:

Period = 720.19274 [0.01005] d  
Epoch = 135.0486 [0.0098] BKJD  
Rp/R\* = 0.0464 [0.0031]  
a/R\* = 206.46 [16.14]  
b = 0.86 [0.03]  
Seff = 9.61 [7.47]  
Teq = 449 [87] K  
Rp = 39.98 [19.44] Re  
a = 1.8194 [0.8641] AU  
Ag = 691.38 [569.69] [1.21σ]  
Teffp = 3559 [278] K [10.68σ]

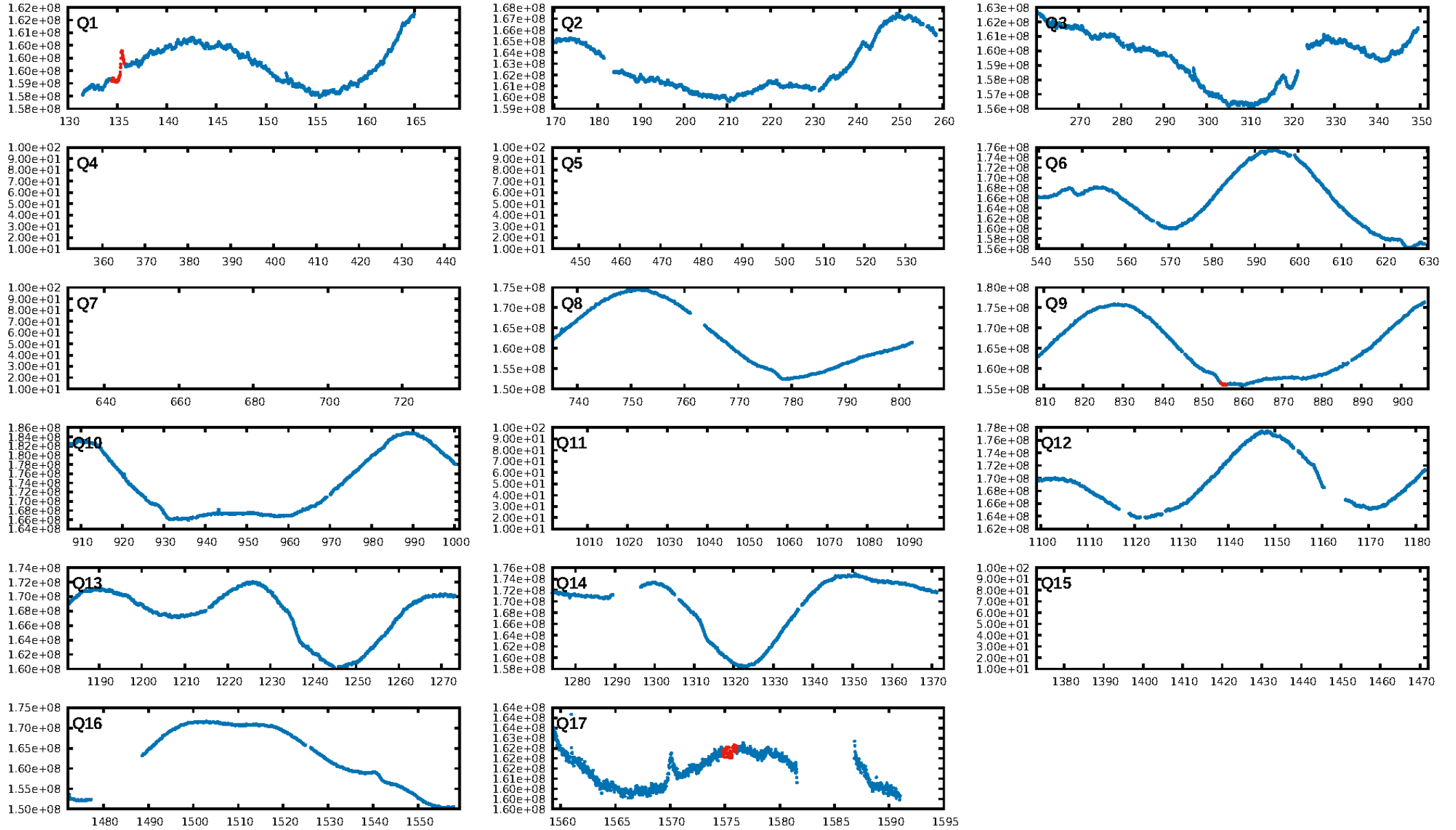
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 67.0%  
ModelChiSquareGof-sig: 79.8%  
Bootstrap-pfa: 1.03e-10  
RollingBand-fgt: 1.00 [1/1]  
GhostDiagnostic-chr: 0.4088  
Centroid-sig: 8.2%  
Centroid-so: 0.261 arcsec [2.49σ]  
OotOffset-rm: 0.120 arcsec [0.35σ]  
OotOffset-st: 0/0/0/3 [3]  
KicOffset-rm: 0.096 arcsec [0.61σ]  
KicOffset-st: 0/0/0/3 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

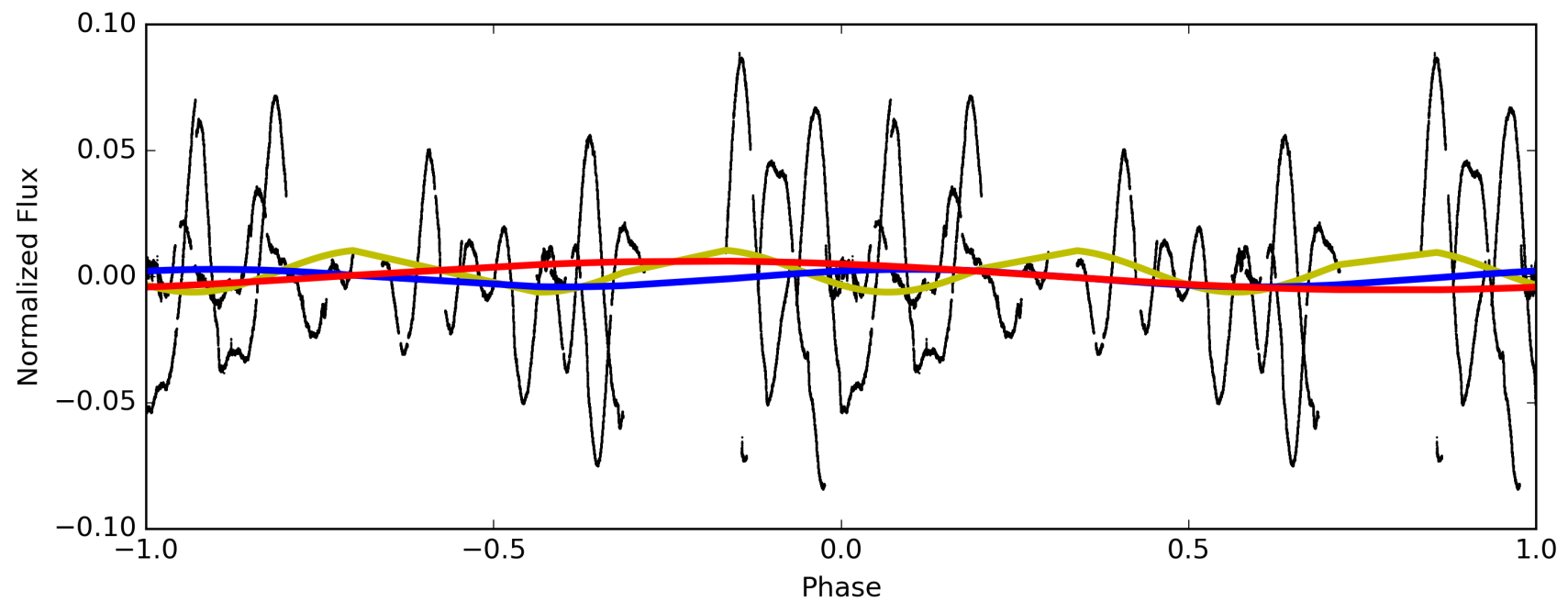
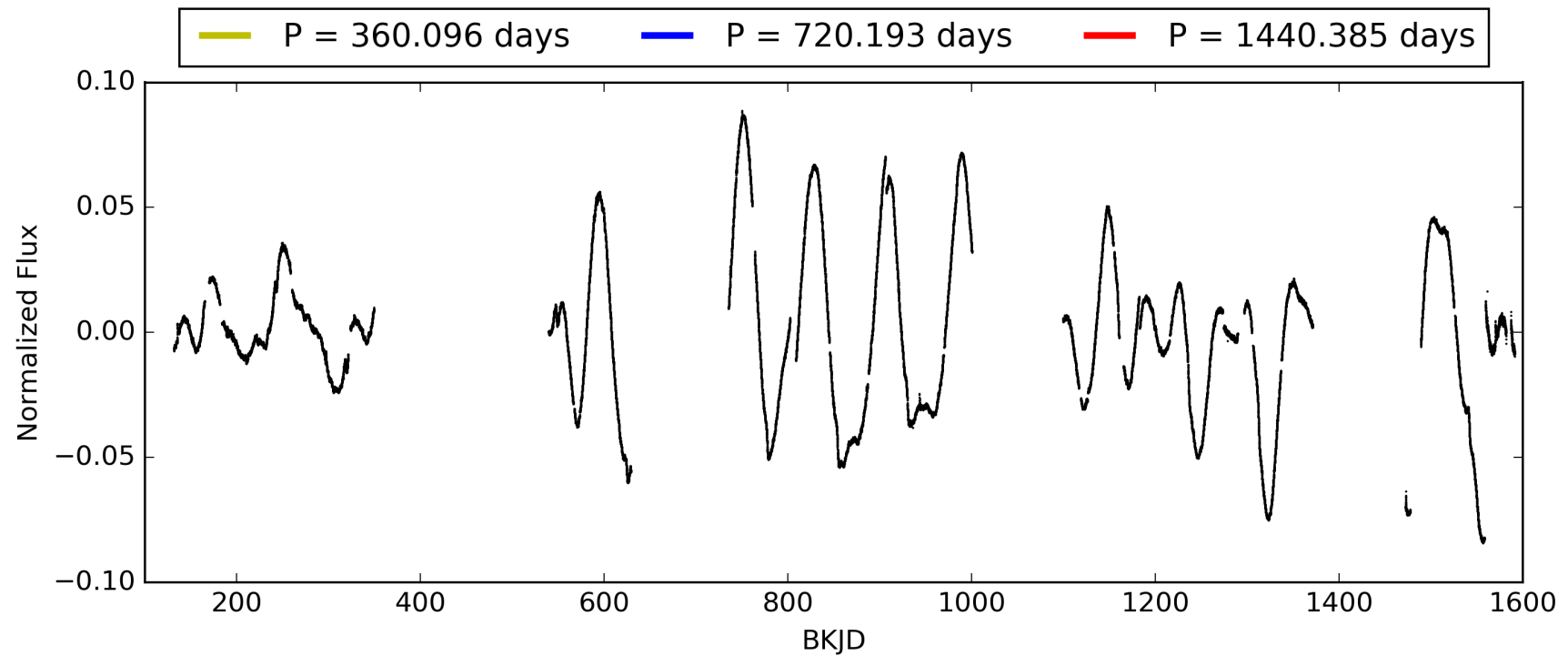
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:42:42 Z

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

# TCE 010613451-01, PDC Light Curves

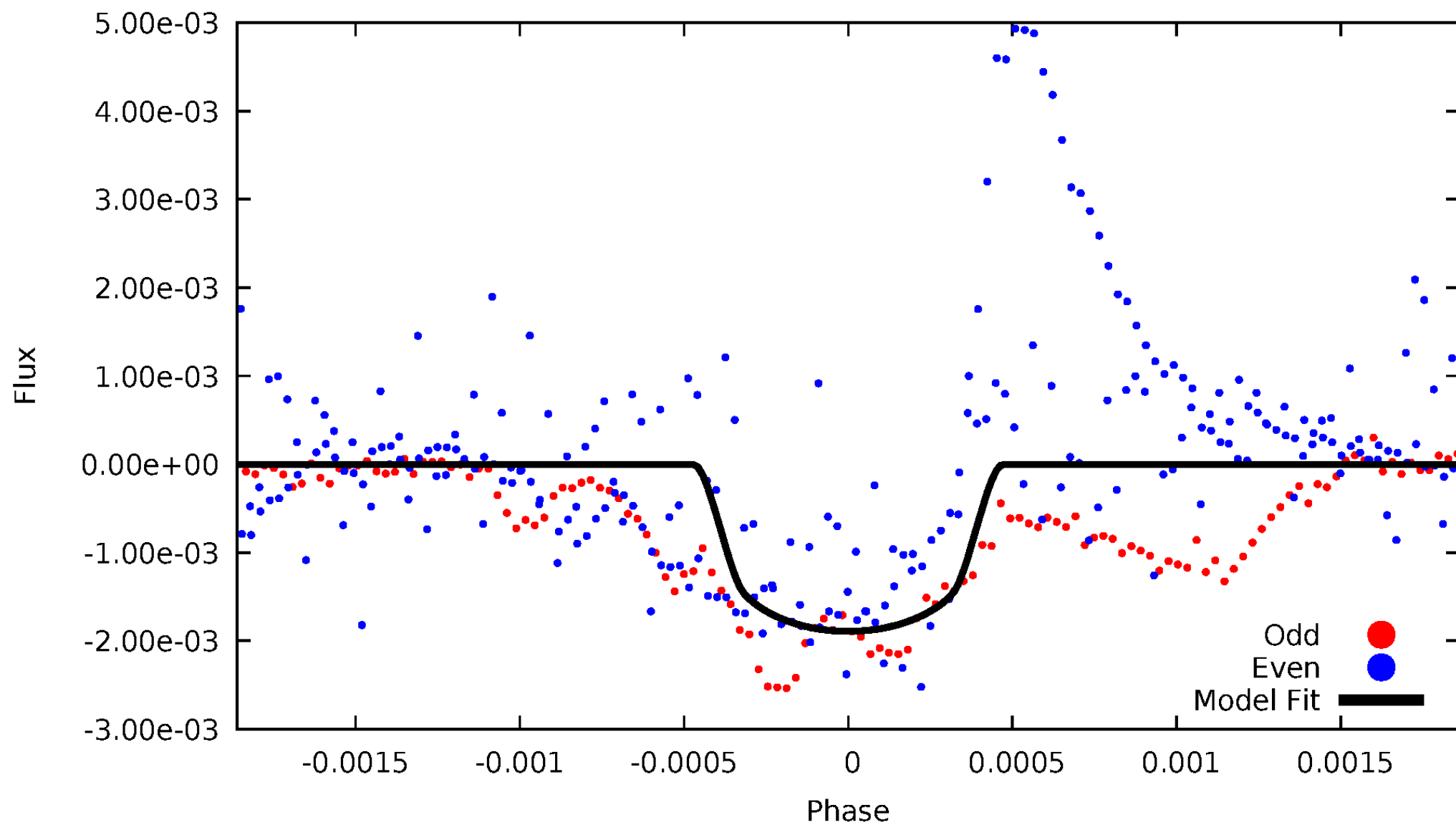


TCE 010613451-01



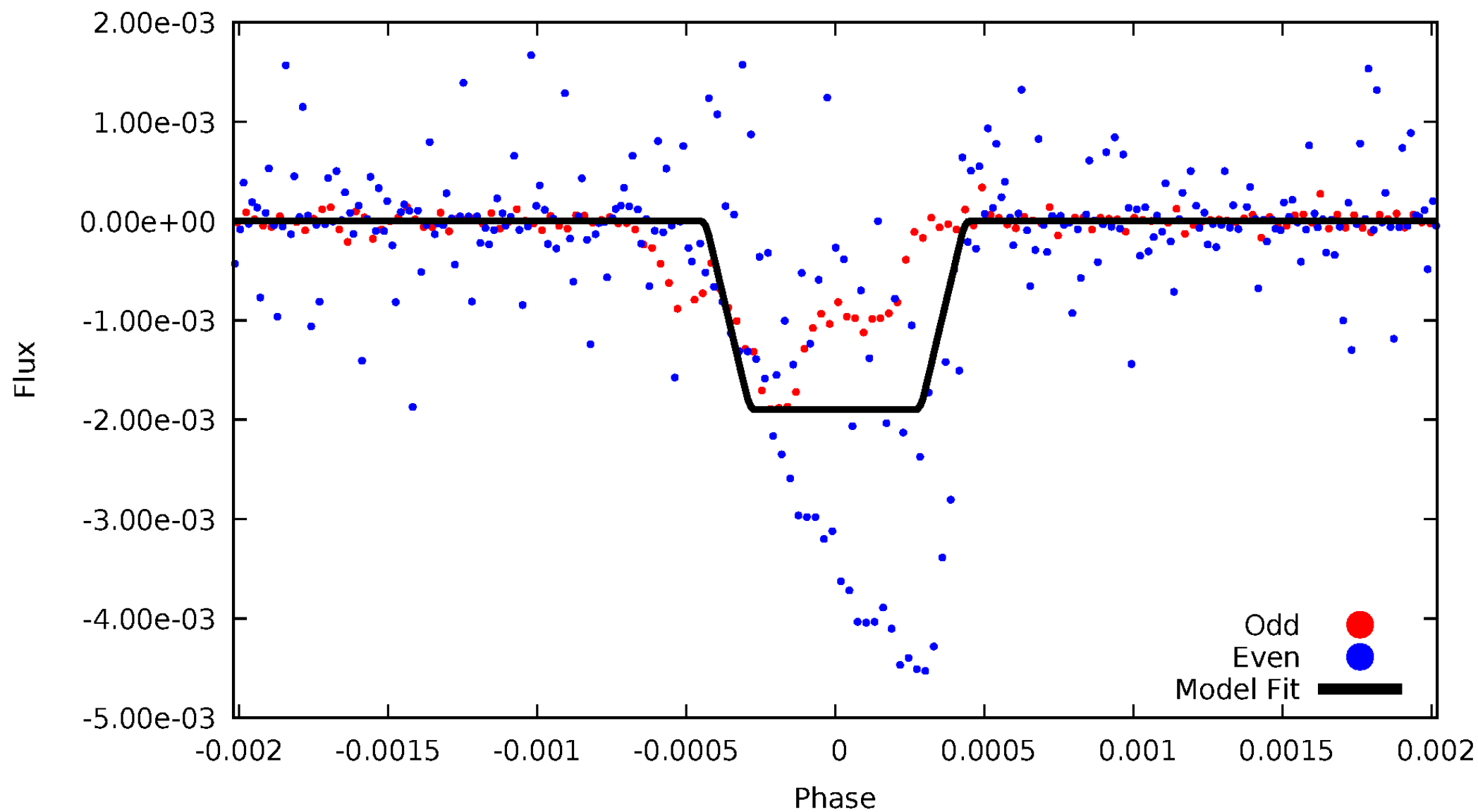
# DV Odd/Even

TCE 010613451-01



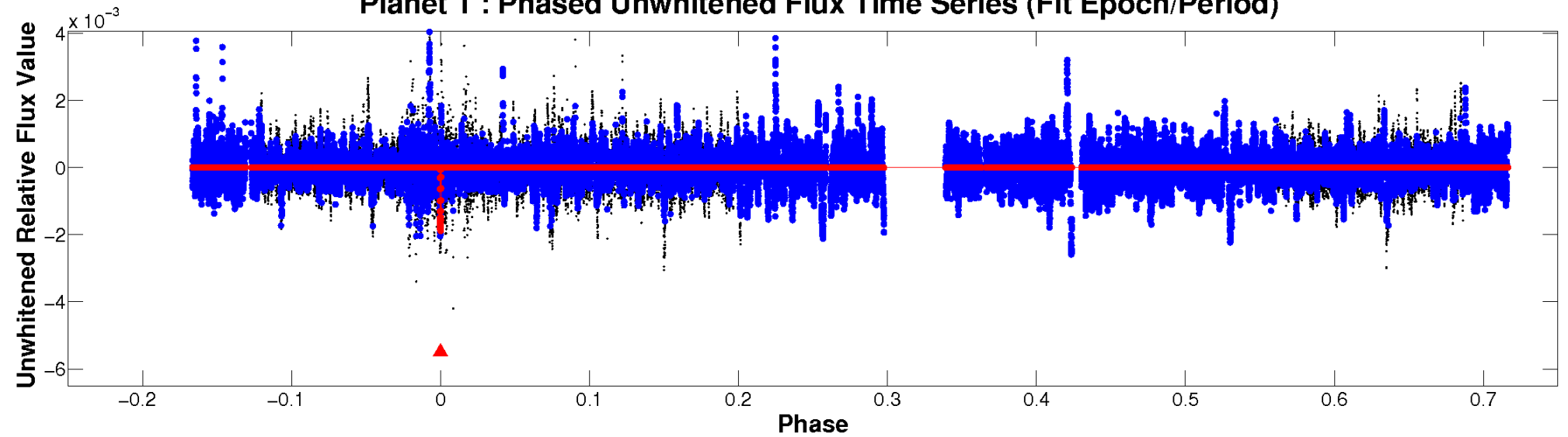
# ALT Odd/Even

TCE 010613451-01

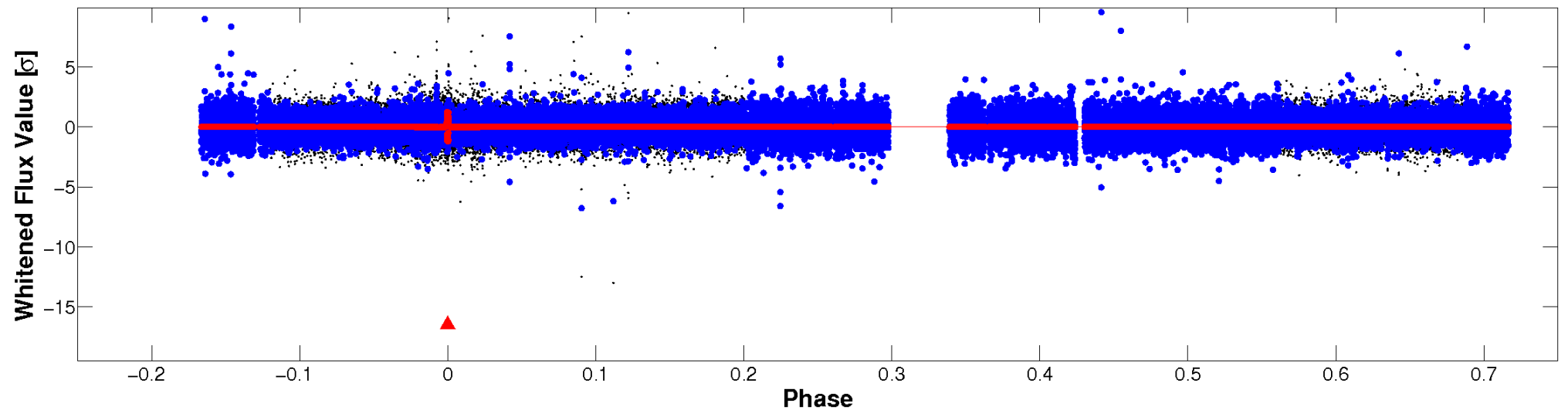


# Non-Whitened Vs. Whitened Light Curve

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

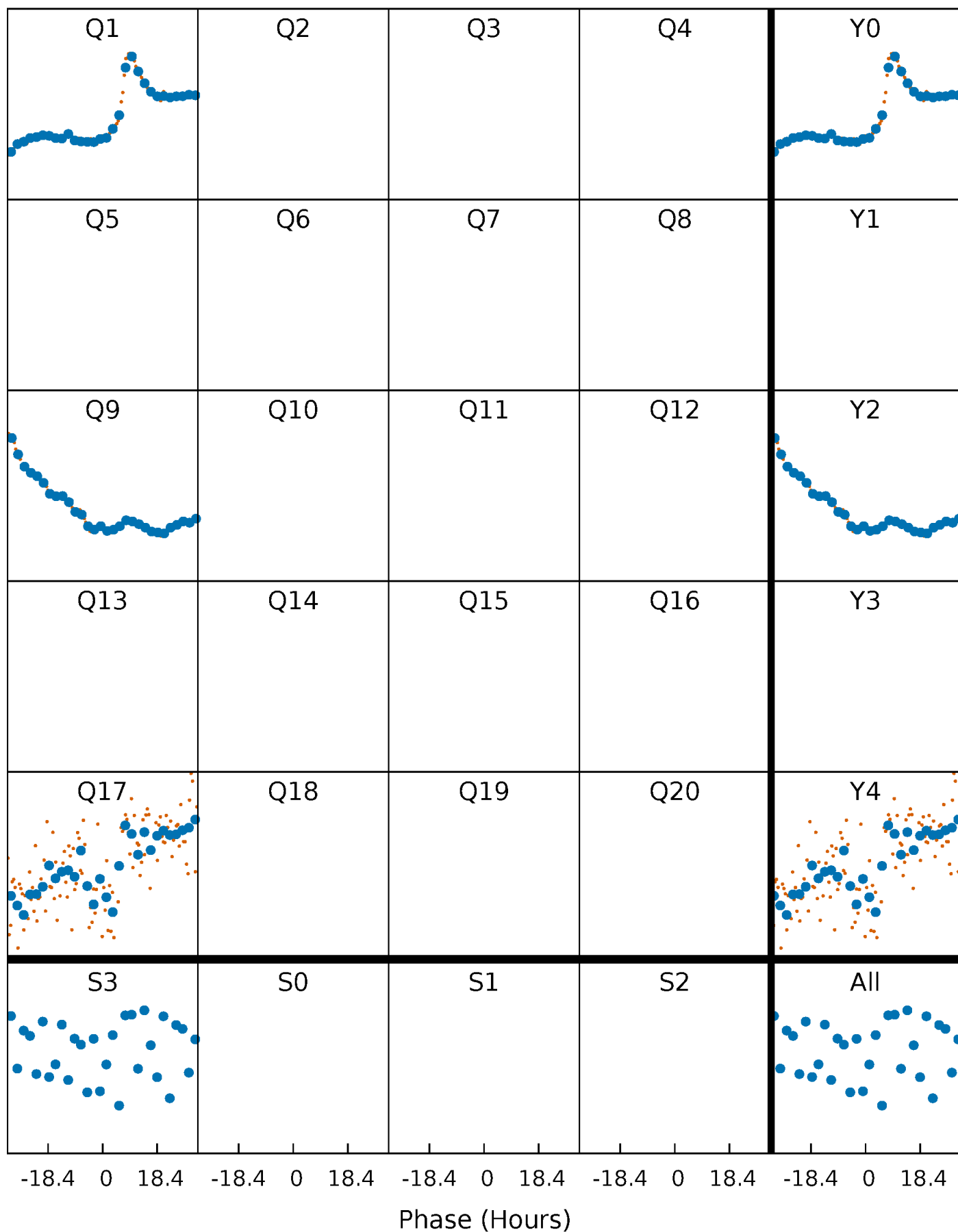


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

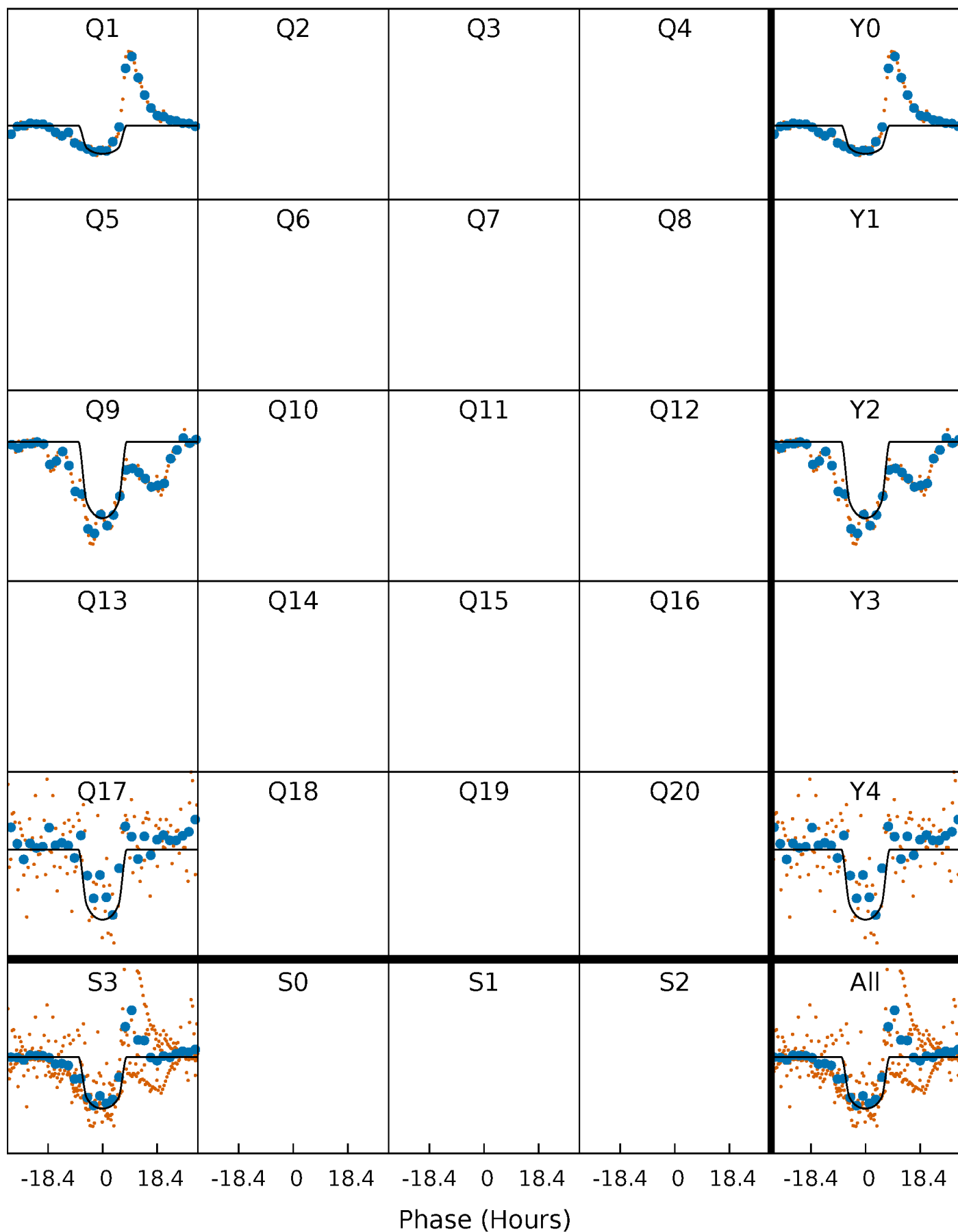
TCE 010613451-01 P=720.192740 Days  $T_0=135.048559$  (BKJD)





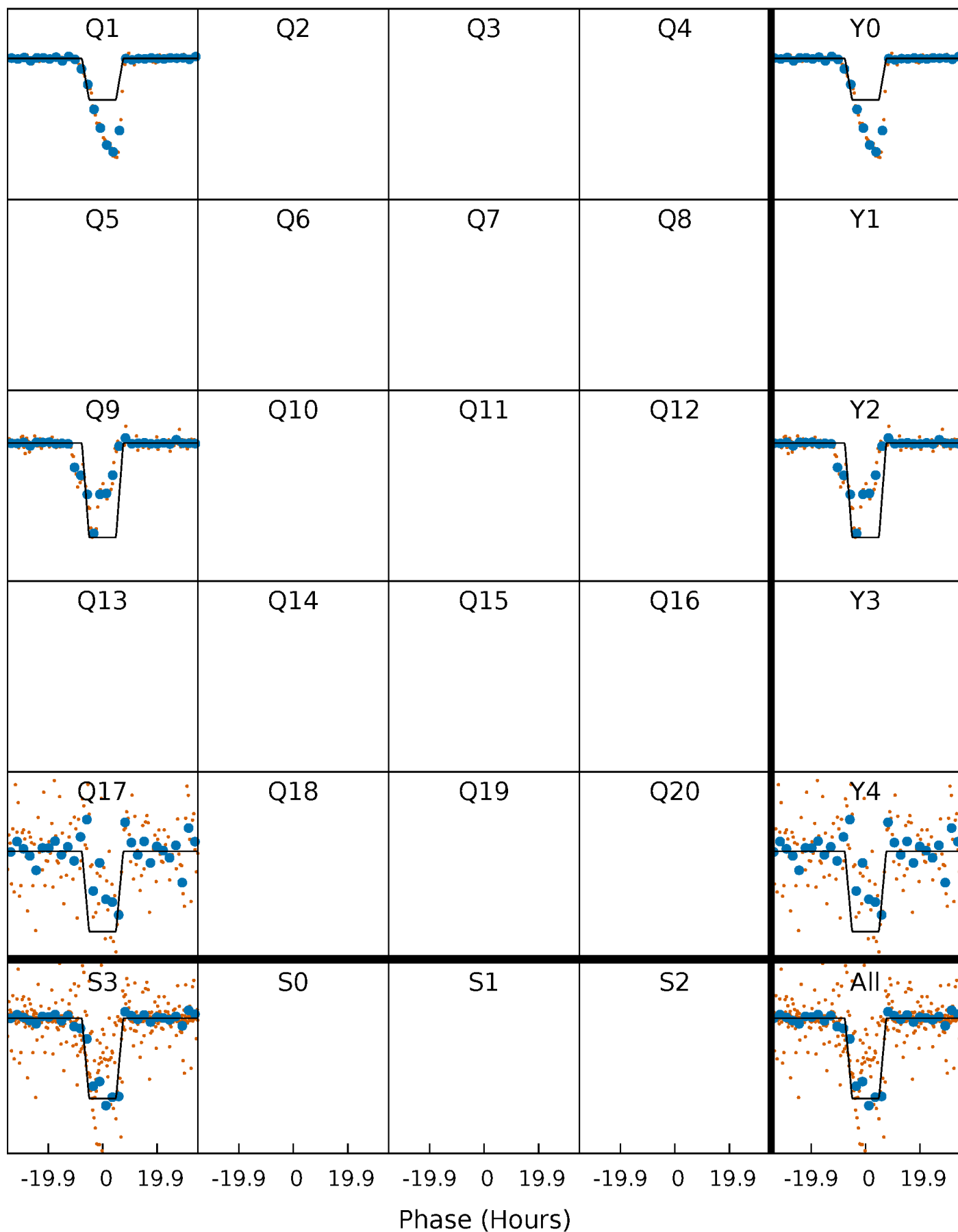
# DV Quarter-Phased Transit Curves

TCE 010613451-01 P=720.192740 Days  $T_0=135.048559$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

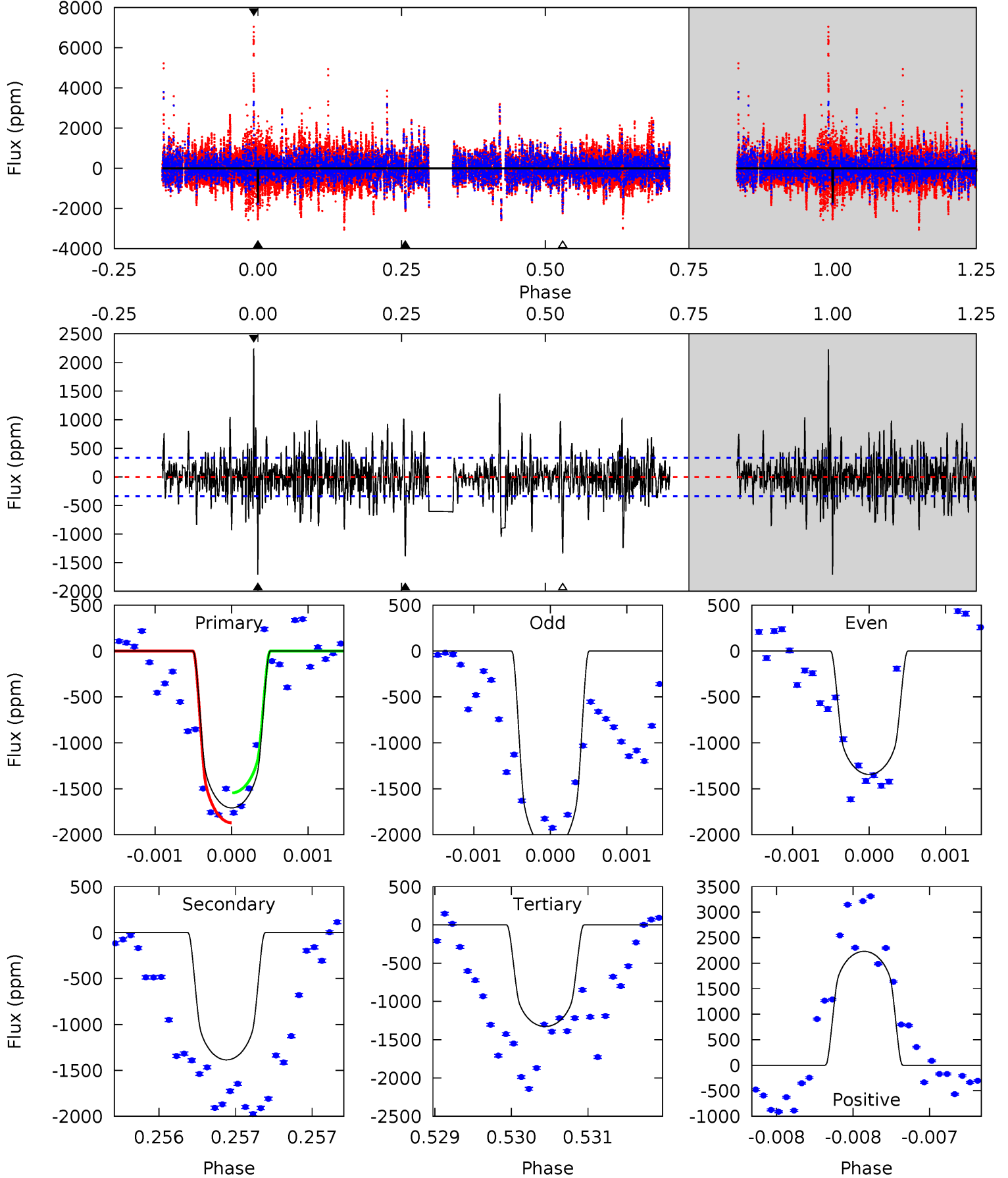
TCE 010613451-01 P=720.167200 Days  $T_0=135.054026$  (BKJD)



# DV Model-Shift Uniqueness Test

010613451-01, P = 720.192740 Days, E = 135.048559 Days

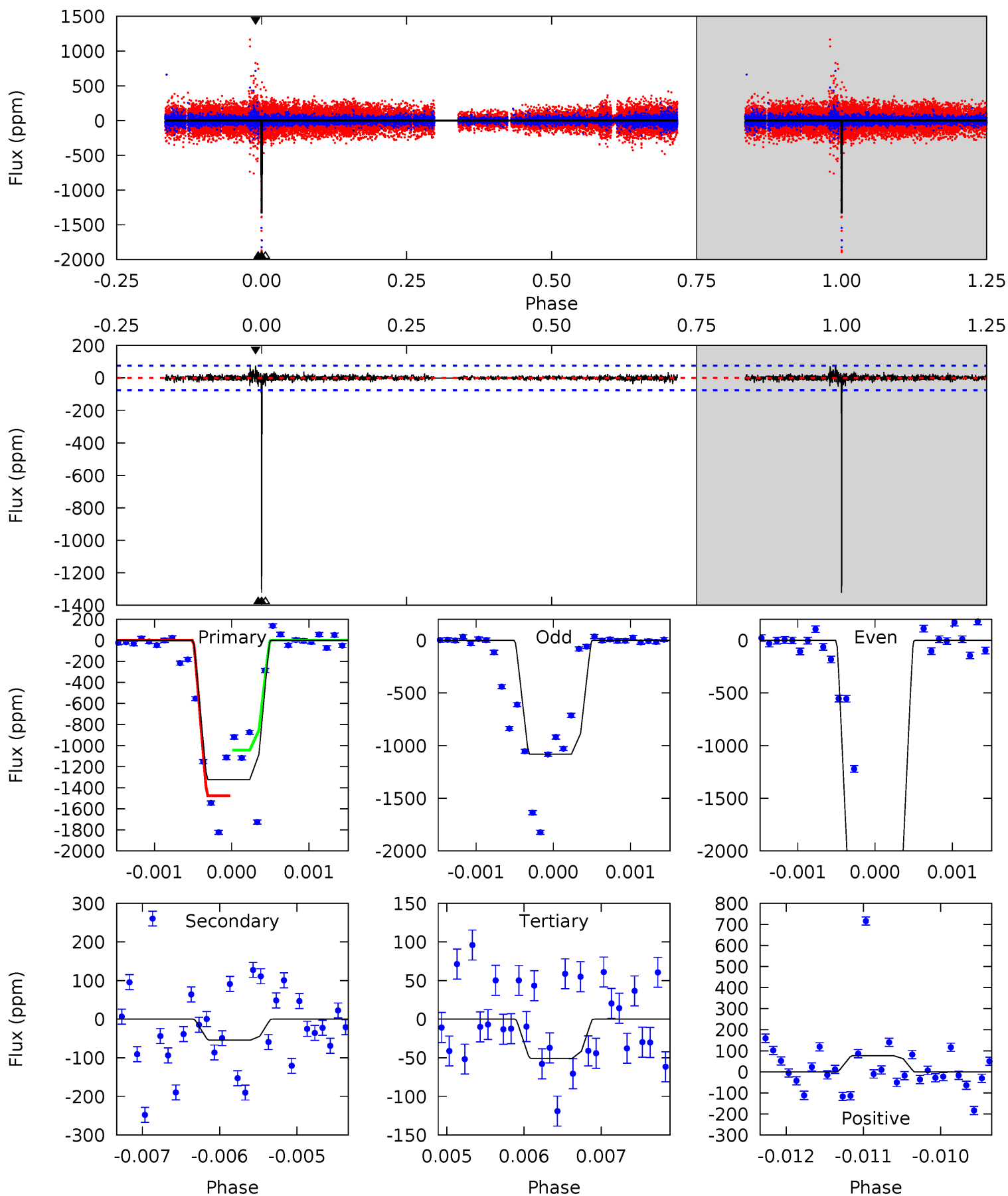
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.8	22.6	21.6	36.3	5.46	3.31	5.03	6.20	-8.51	0.95	-13.8	6.69	1.09	0.57	2.65



# Alt Model-Shift Uniqueness Test

010613451-01, P = 720.167200 Days, E = 135.054026 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
95.6	3.90	3.66	5.50	5.47	3.32	0.60	92.0	90.1	0.24	-1.60	71.7	1.61	0.05	0



### Stellar Parameters For KIC 010613451

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4888^{+117}_{-132}$	$2.834^{+0.456}_{-0.304}$	$-0.180^{+0.250}_{-0.250}$	$7.887^{+3.107}_{-3.798}$	$1.549^{+0.273}_{-0.507}$	$0.004^{+0.021}_{-0.003}$
	+2%/-3%	+16%/-11%	+139%/-139%	+39%/-48%	+18%/-33%	+461%/-58%
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 010613451-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1386 \pm 61$	$39.87^{+10.84}_{-10.64}$	$629^{+77}_{-88}$	$4478^{+157}_{-166}$	$1567^{+1205}_{-594}$
Alt.	$-54 \pm 14$	$37.59^{+9.95}_{-9.84}$	$629^{+77}_{-80}$	$2728^{+116}_{-125}$	$66^{+62}_{-27}$

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

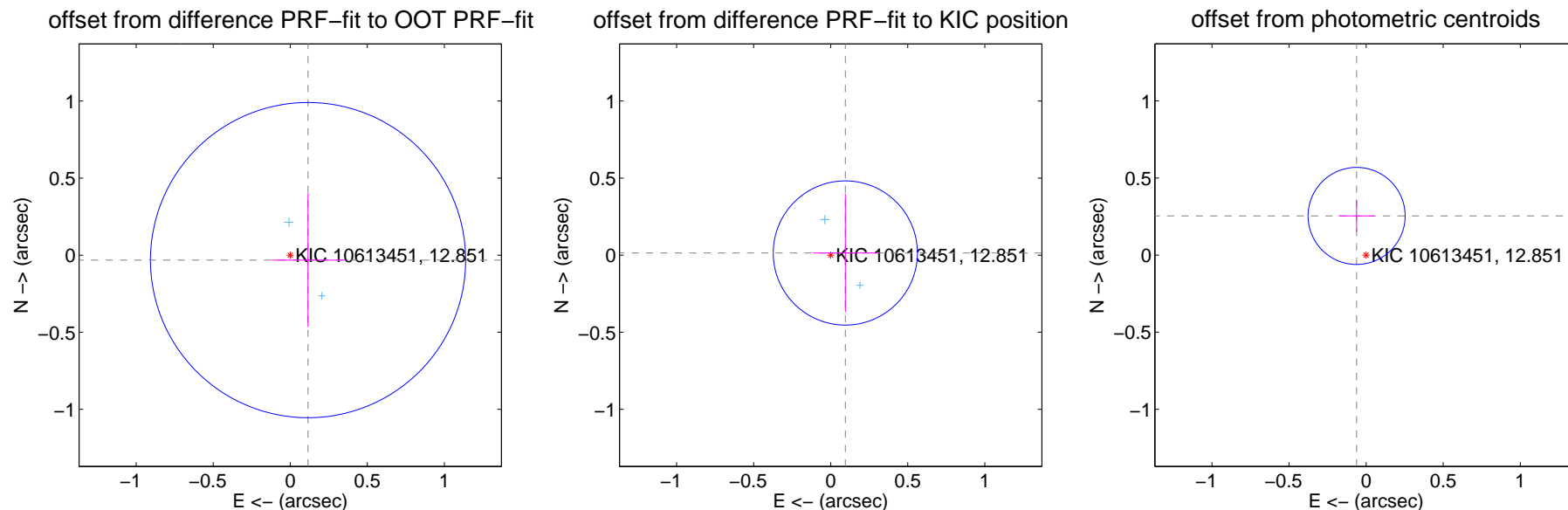
## DV Centroid Data

Supplemental centroid analysis for 010613451-01. Kepler magnitude: 12.85. Transit SNR 9.06

There are 3 quarters with good PRF difference image offsets

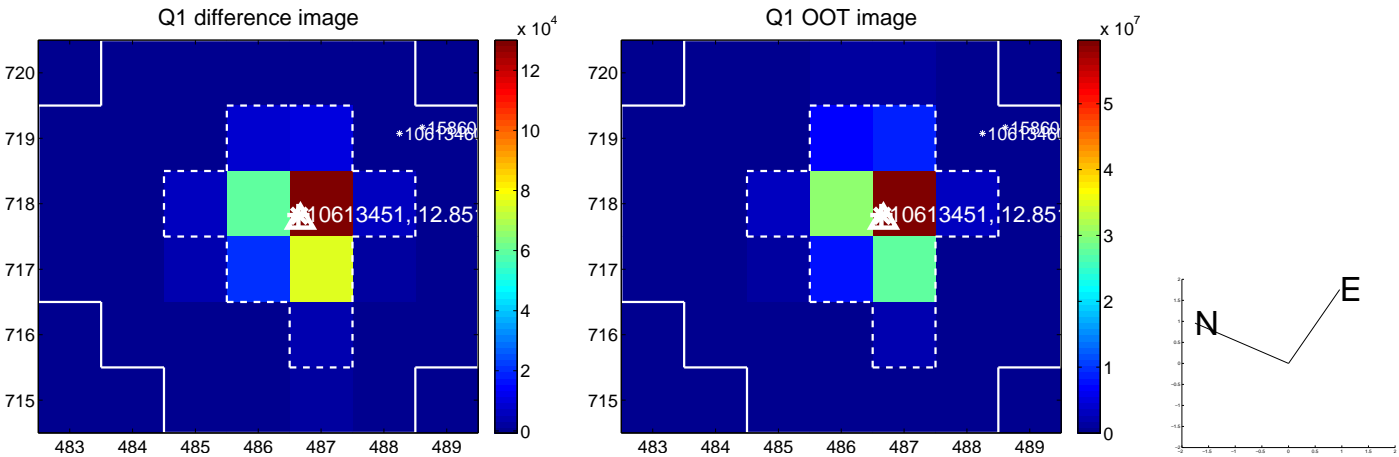
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.120 \pm 0.341$	0.35	$-0.115 \pm 0.237$	$-0.032 \pm 0.434$
PRF-fit source offset from KIC position	$0.096 \pm 0.156$	0.61	$-0.095 \pm 0.209$	$0.014 \pm 0.384$
photometric centroid source offset	$0.26 \pm 0.10$	2.49	$0.06 \pm 0.12$	$0.25 \pm 0.10$



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.

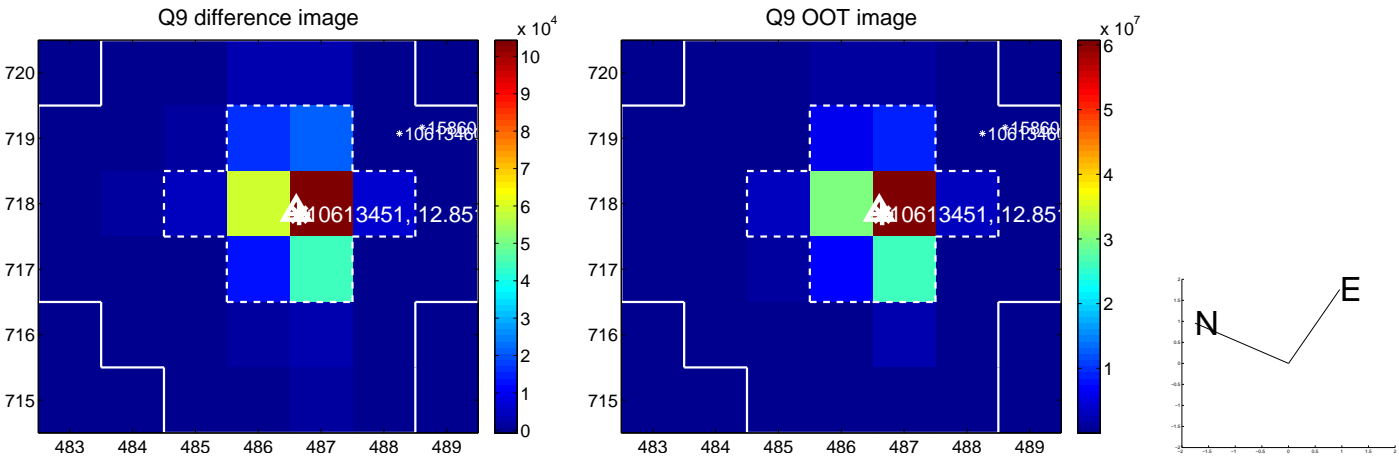


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





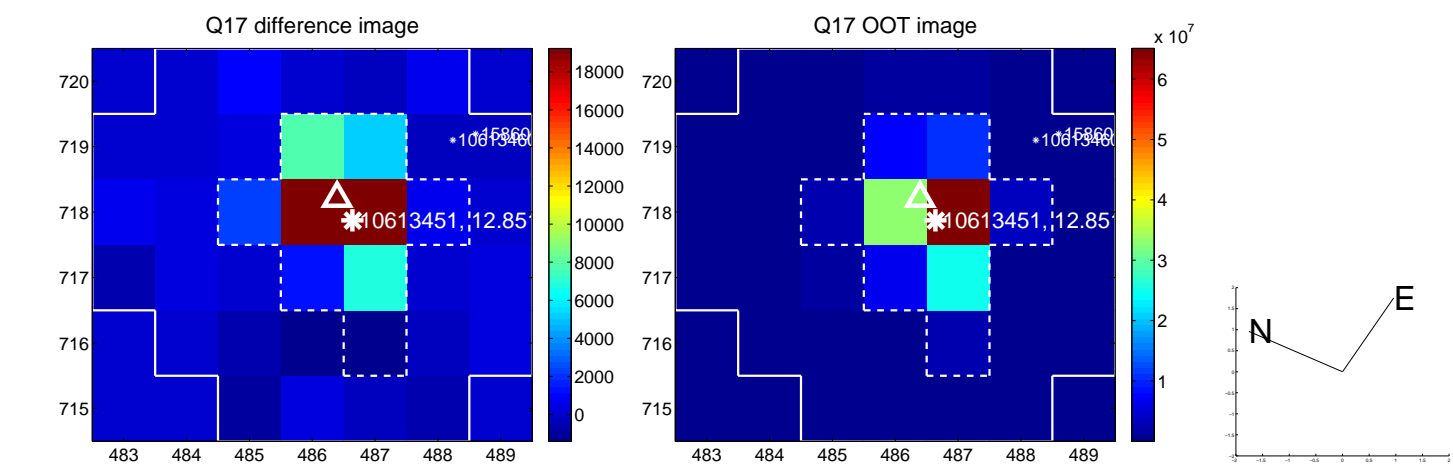
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



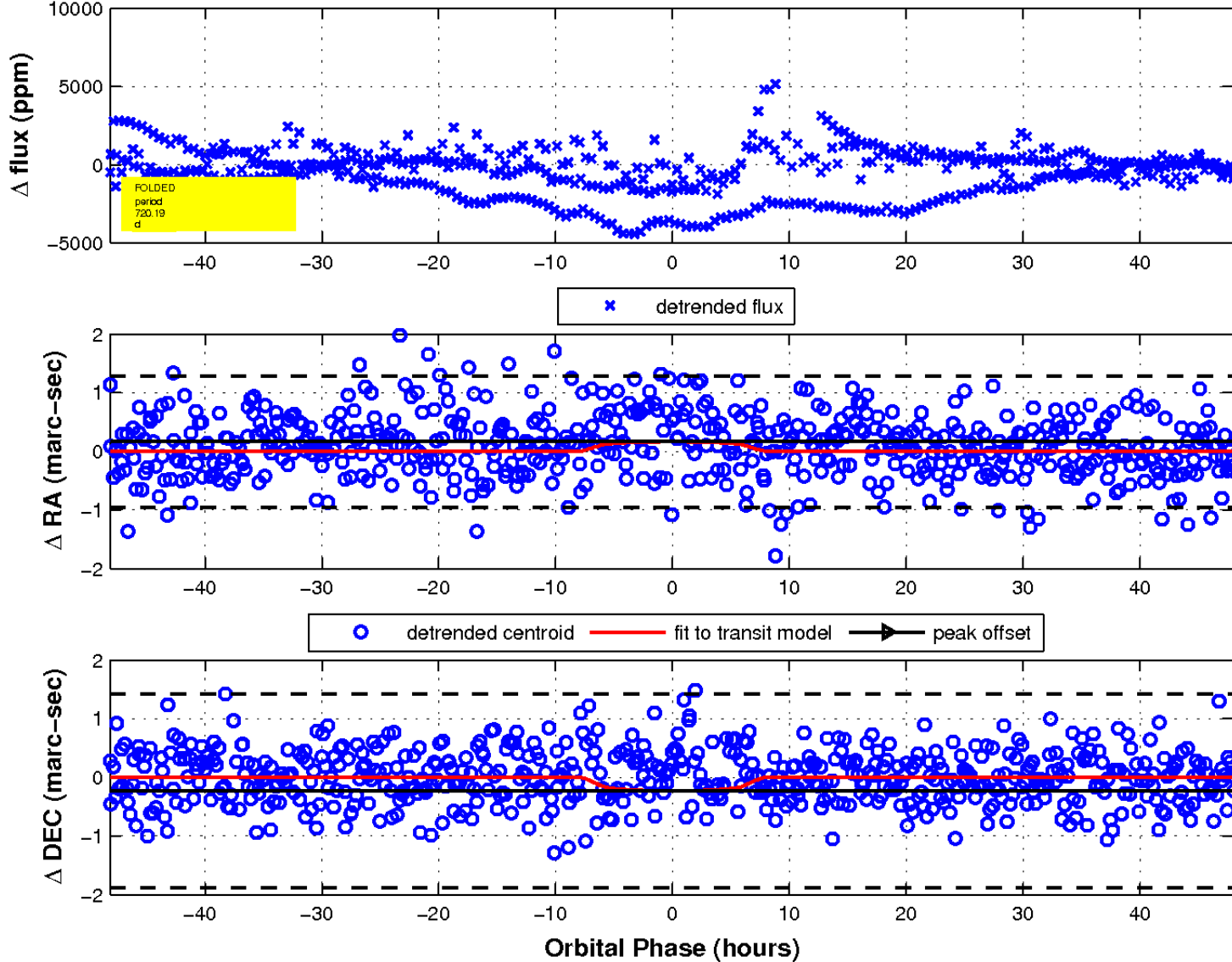
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

