

# KIC 005027780

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005027780-01	OBS	No	111.105376	150.692905	1101.5	1.769	11.5	5.4	0.92	5786	3.22	4.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005027780-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—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.

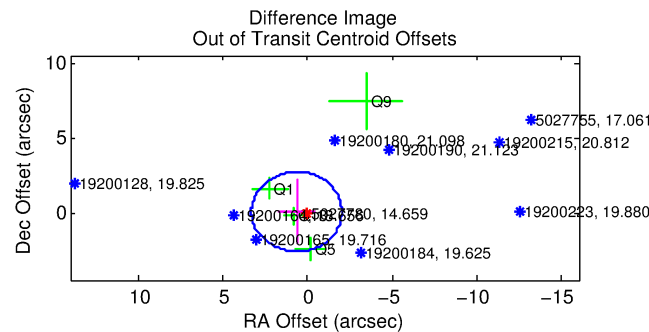
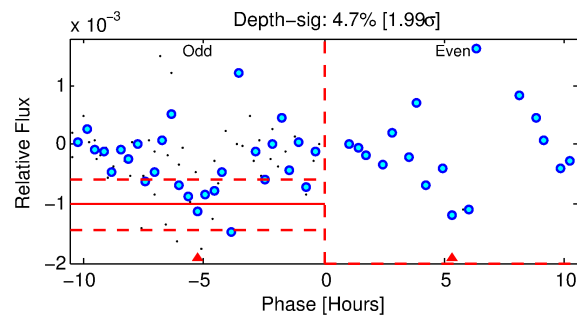
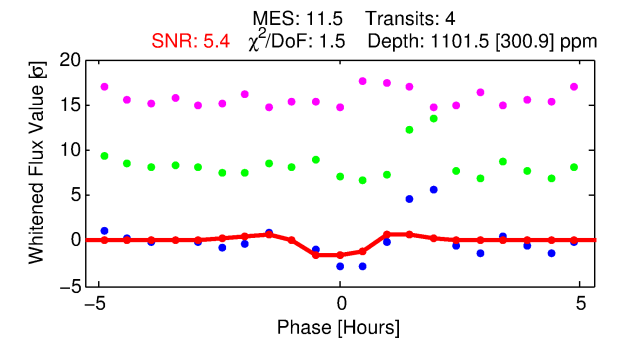
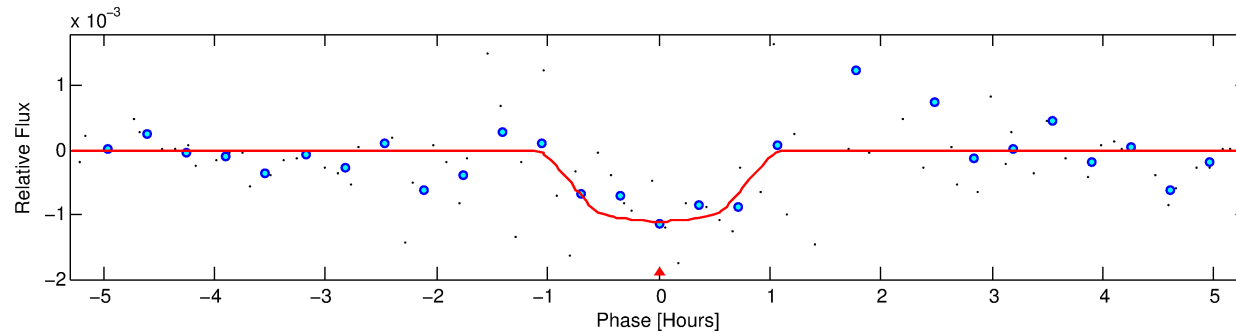
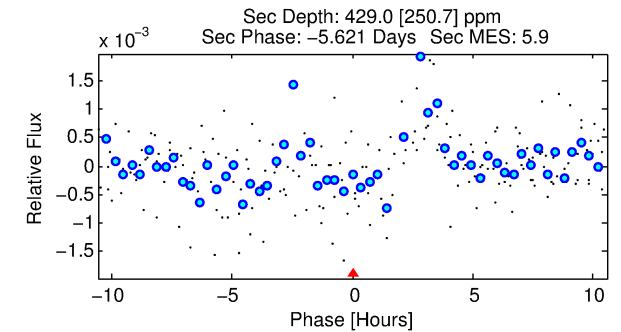
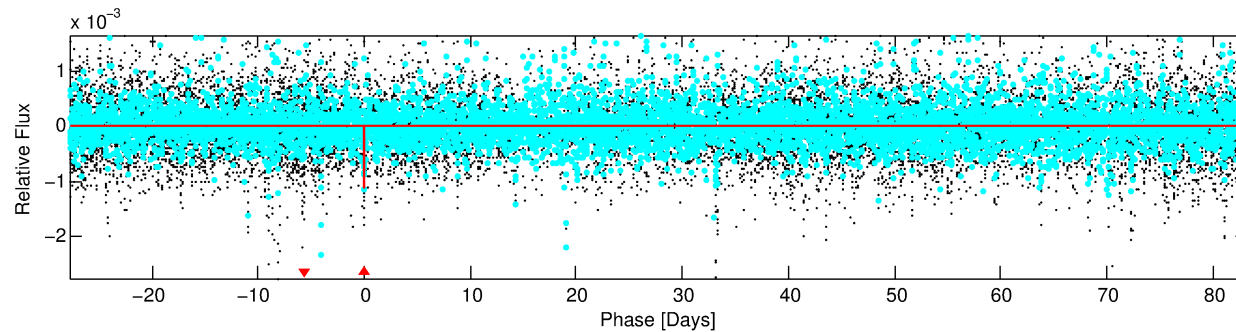
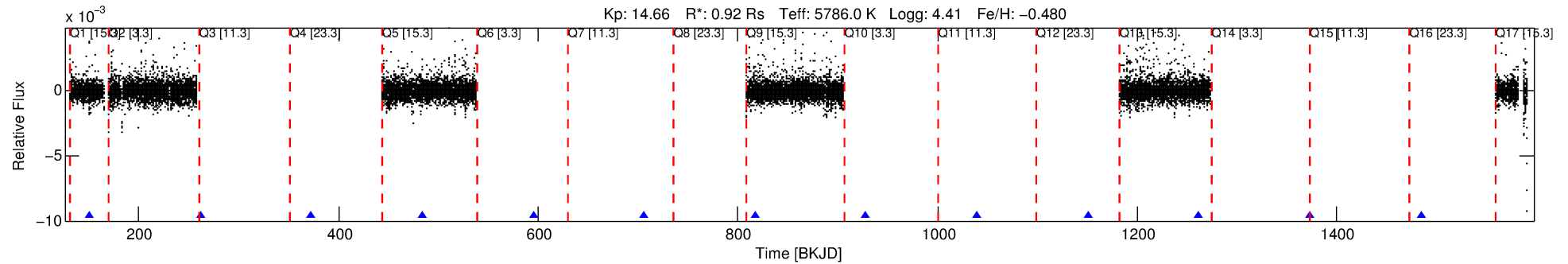
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005027780-01

No Significant Match Found

# DV One-Page Summary

KIC: 5027780 Candidate: 1 of 1 Period: 111.105 d



## DV Fit Results:

Period = 111.10538 [0.00114] d  
Epoch = 150.6929 [0.0076] BKJD  
Rp/R\* = 0.0320 [0.0985]  
a/R\* = 391.36 [5639.01]  
b = 0.63 [13.90]  
Seff = 4.83 [1.69]  
Teq = 378 [33] K  
Rp = 3.22 [9.95] Re  
a = 0.4204 [0.0939] AU  
Ag = 4013.72 [24829.03] [0.16σ]  
Teffp = 4652 [7185] K [0.59σ]

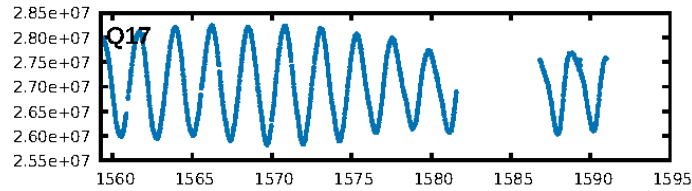
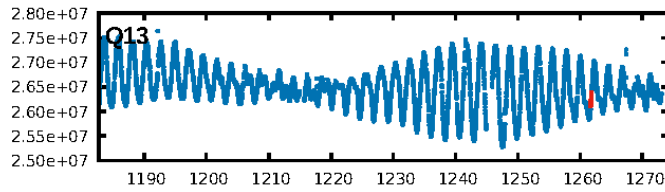
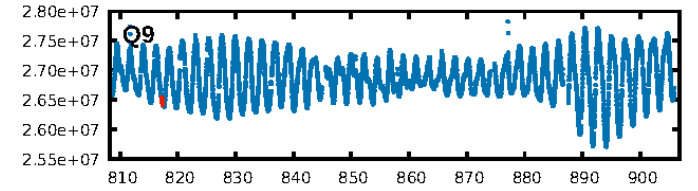
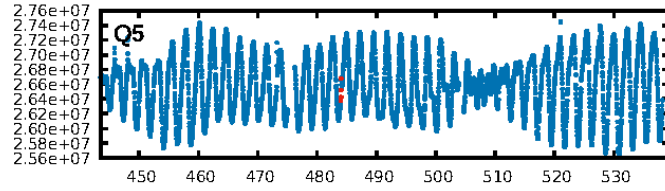
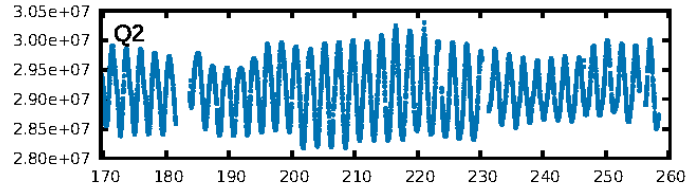
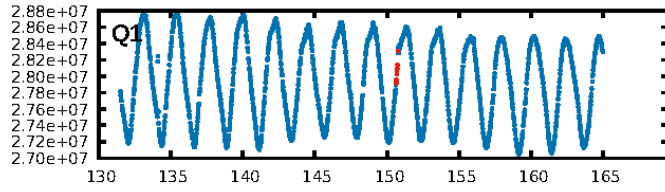
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 28.1%  
ModelChiSquareGof-sig: 63.5%  
Bootstrap-pfa: 8.01e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.6039  
Centroid-sig: 77.7%  
Centroid-so: 0.744 arcsec [0.45σ]  
OotOffset-rm: 0.654 arcsec [0.74σ]  
OotOffset-st: 0/0/0/4 [4]  
KicOffset-rm: 0.750 arcsec [0.83σ]  
KicOffset-st: 0/0/0/4 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 1.00 [4/4]

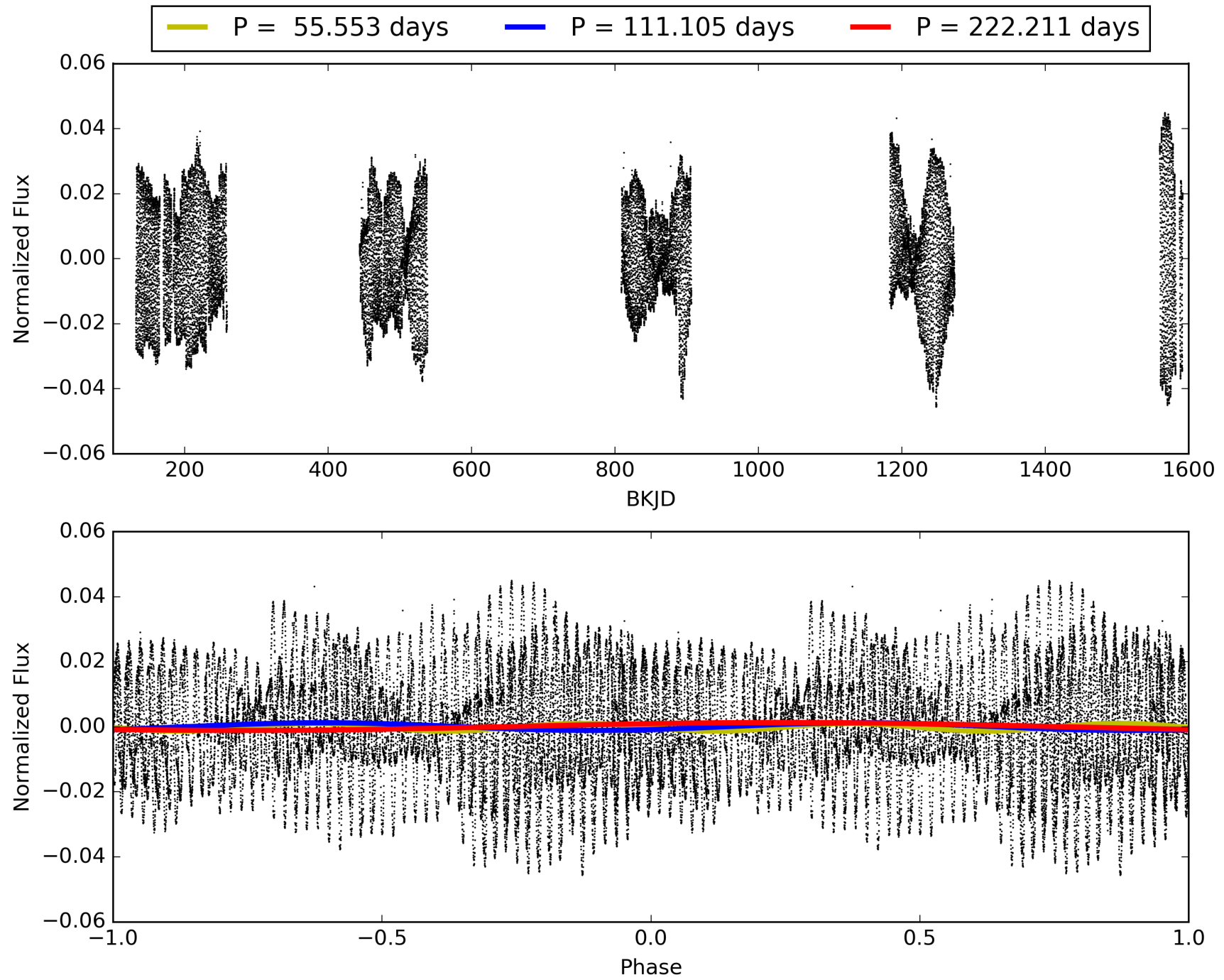
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:57:10 Z

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

# TCE 005027780-01, PDC Light Curves

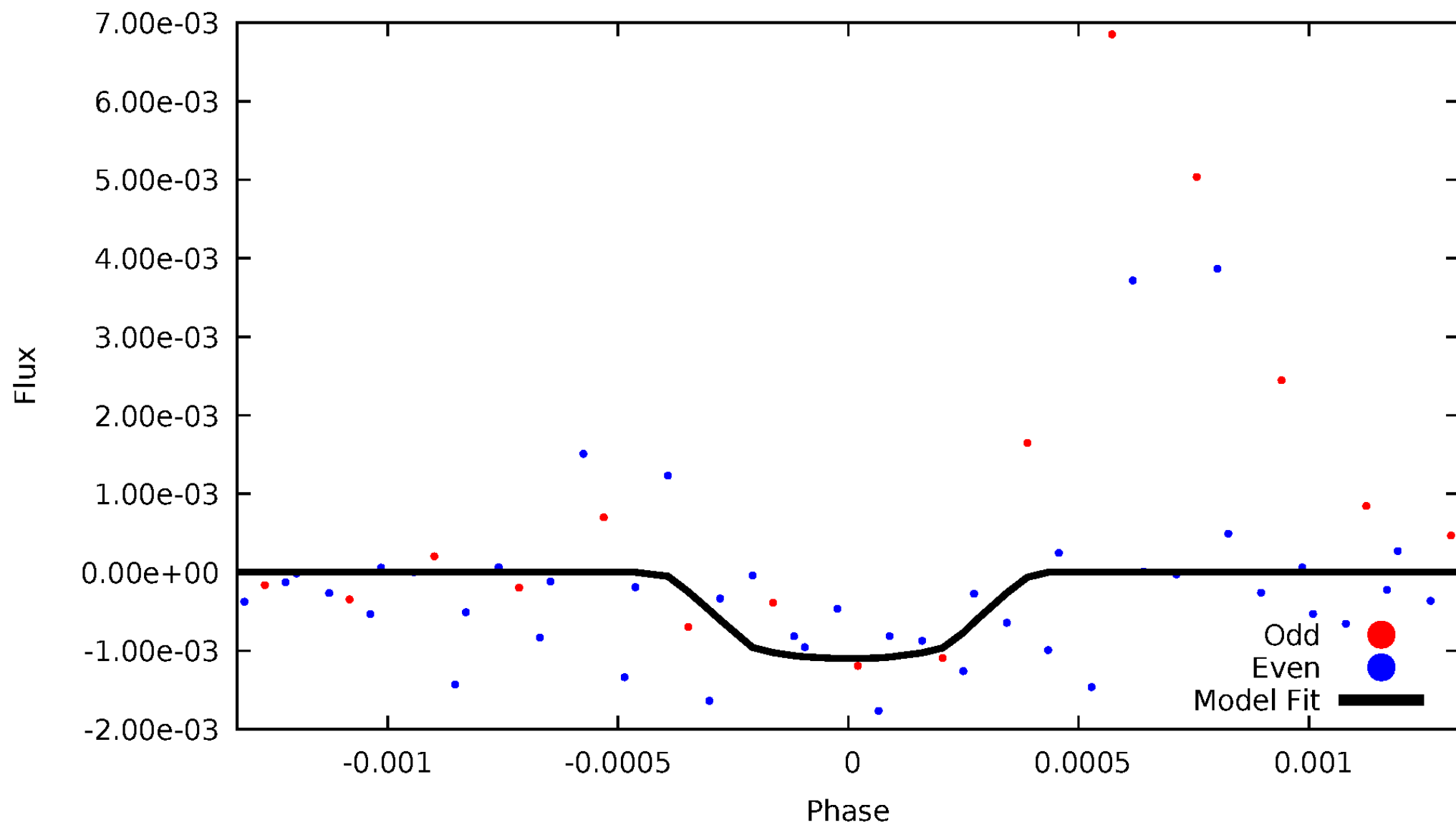


TCE 005027780-01



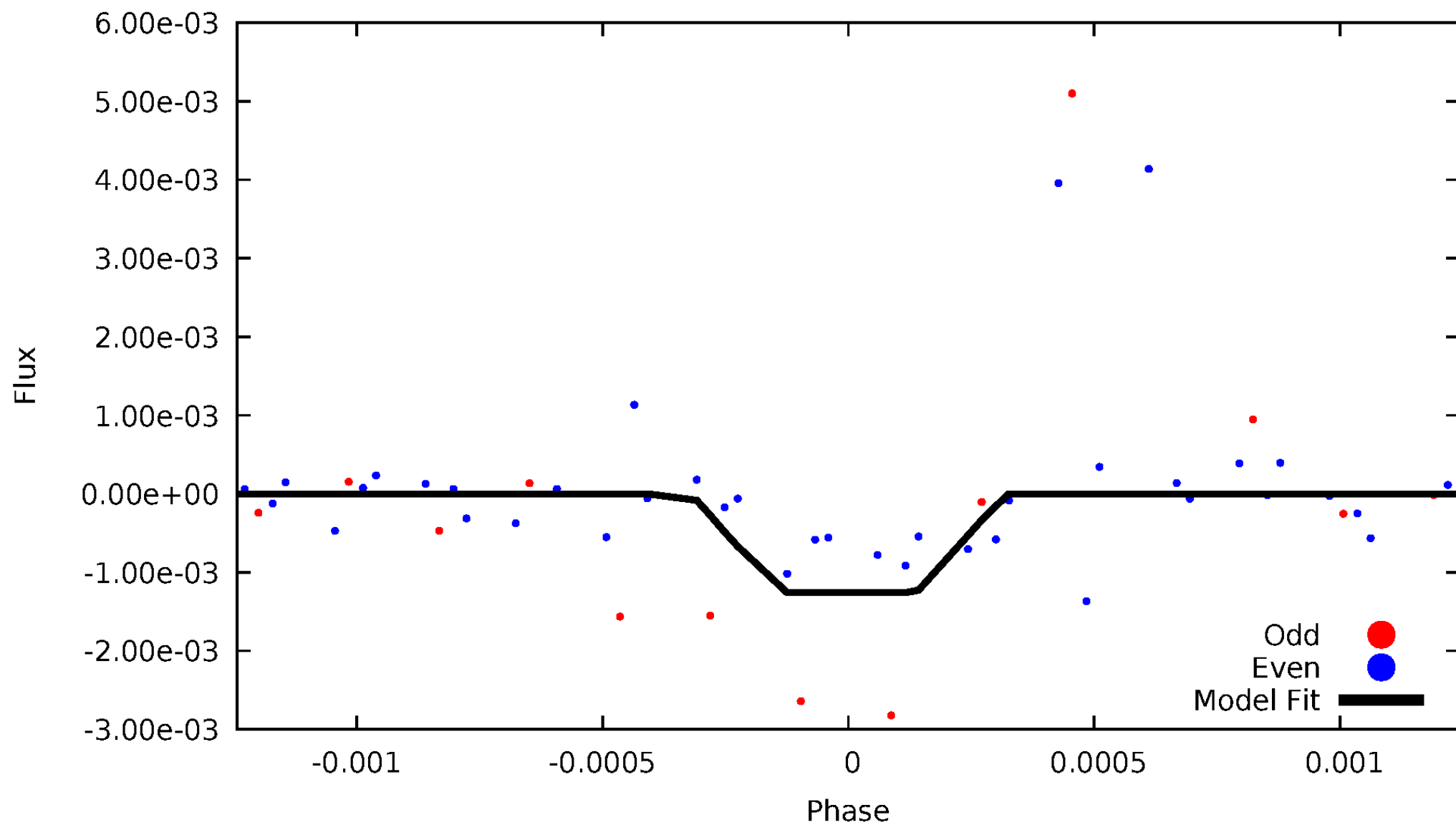
# DV Odd/Even

TCE 005027780-01



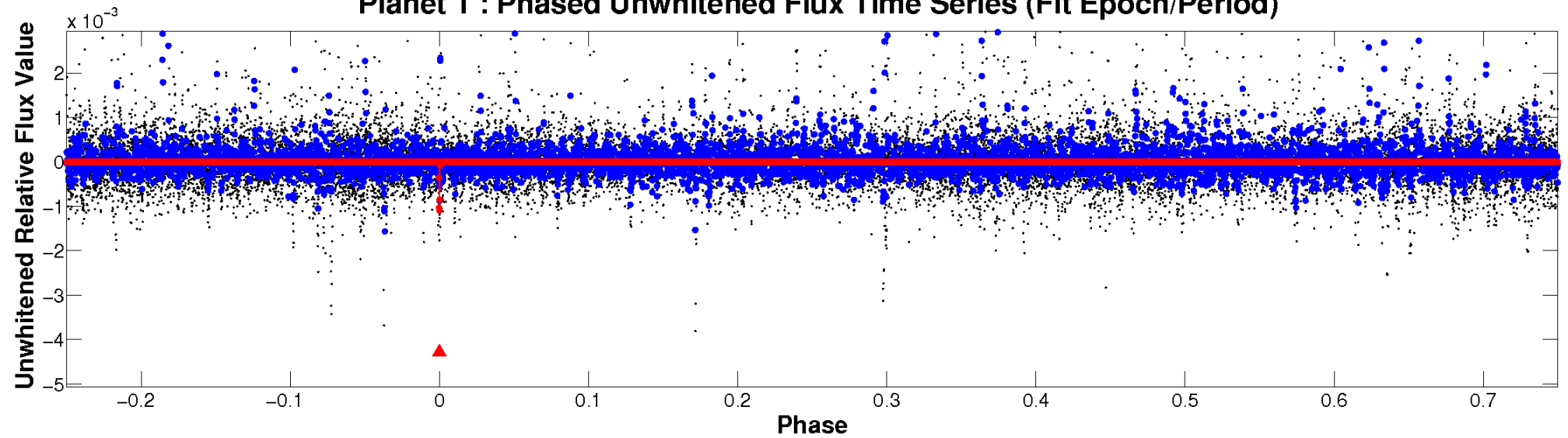
# ALT Odd/Even

TCE 005027780-01

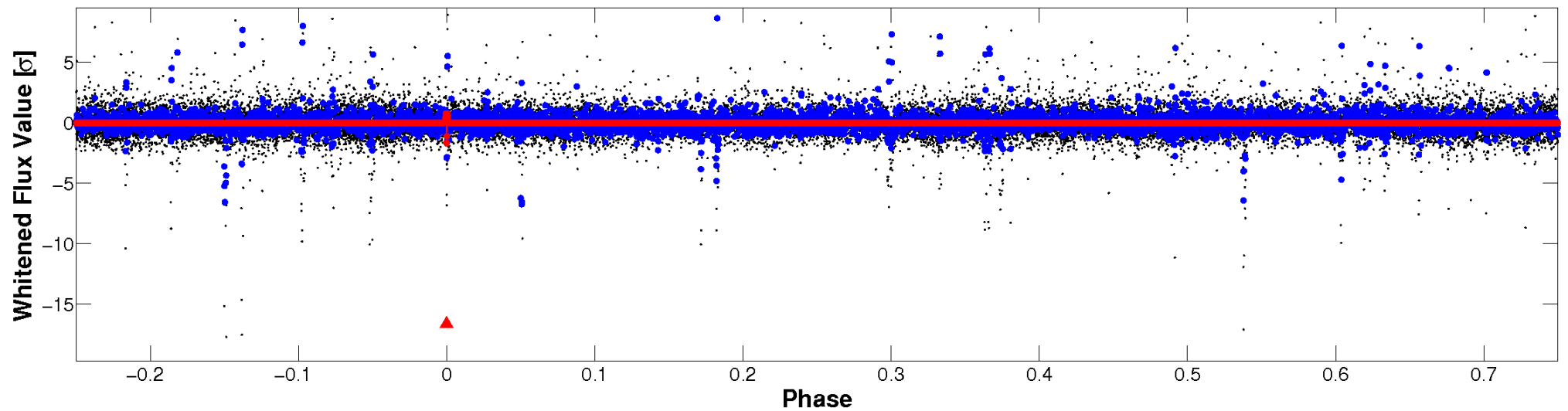


# Non-Whitened Vs. Whitened Light Curve

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

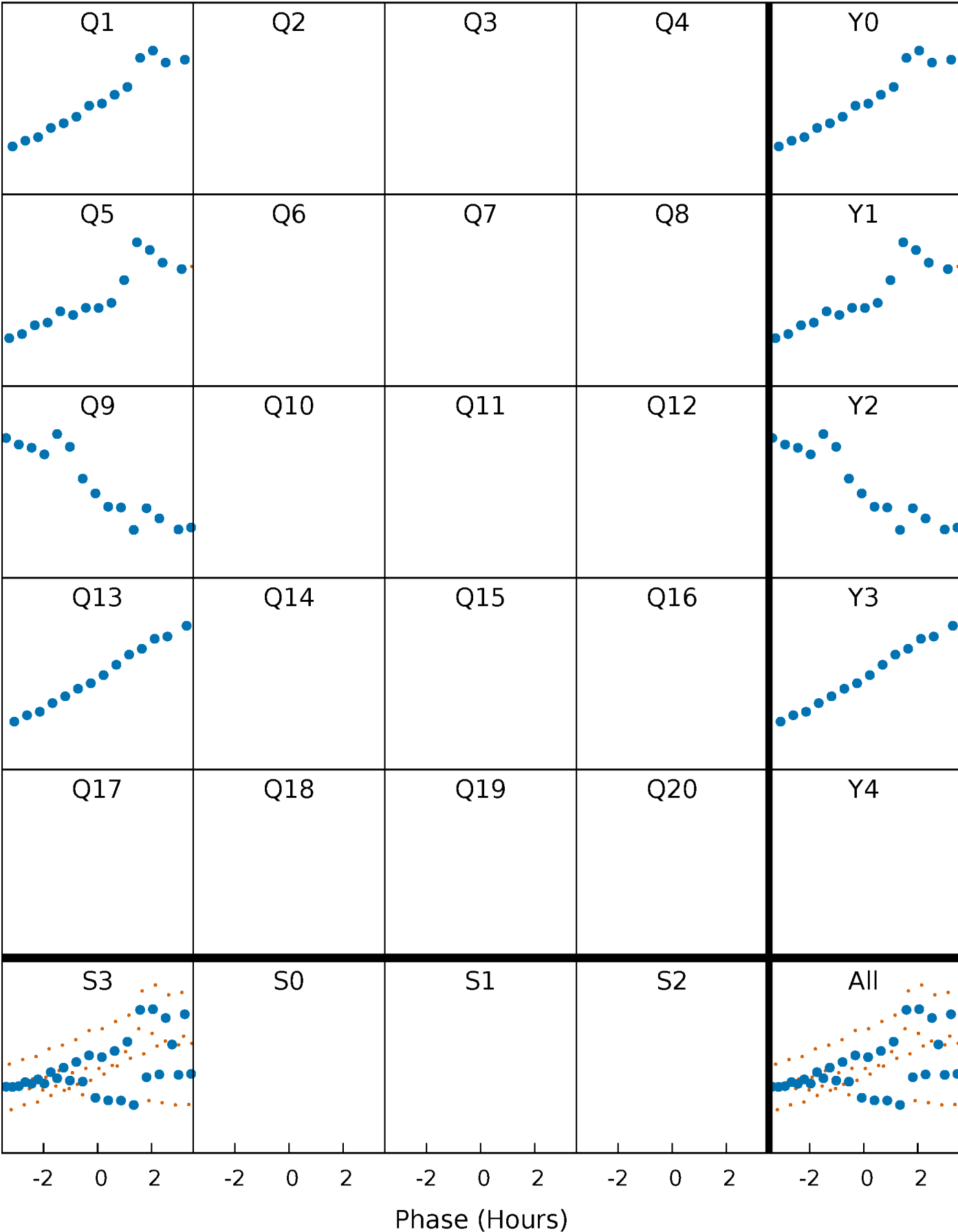


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



PDC Quarter-Phased Transit Curves

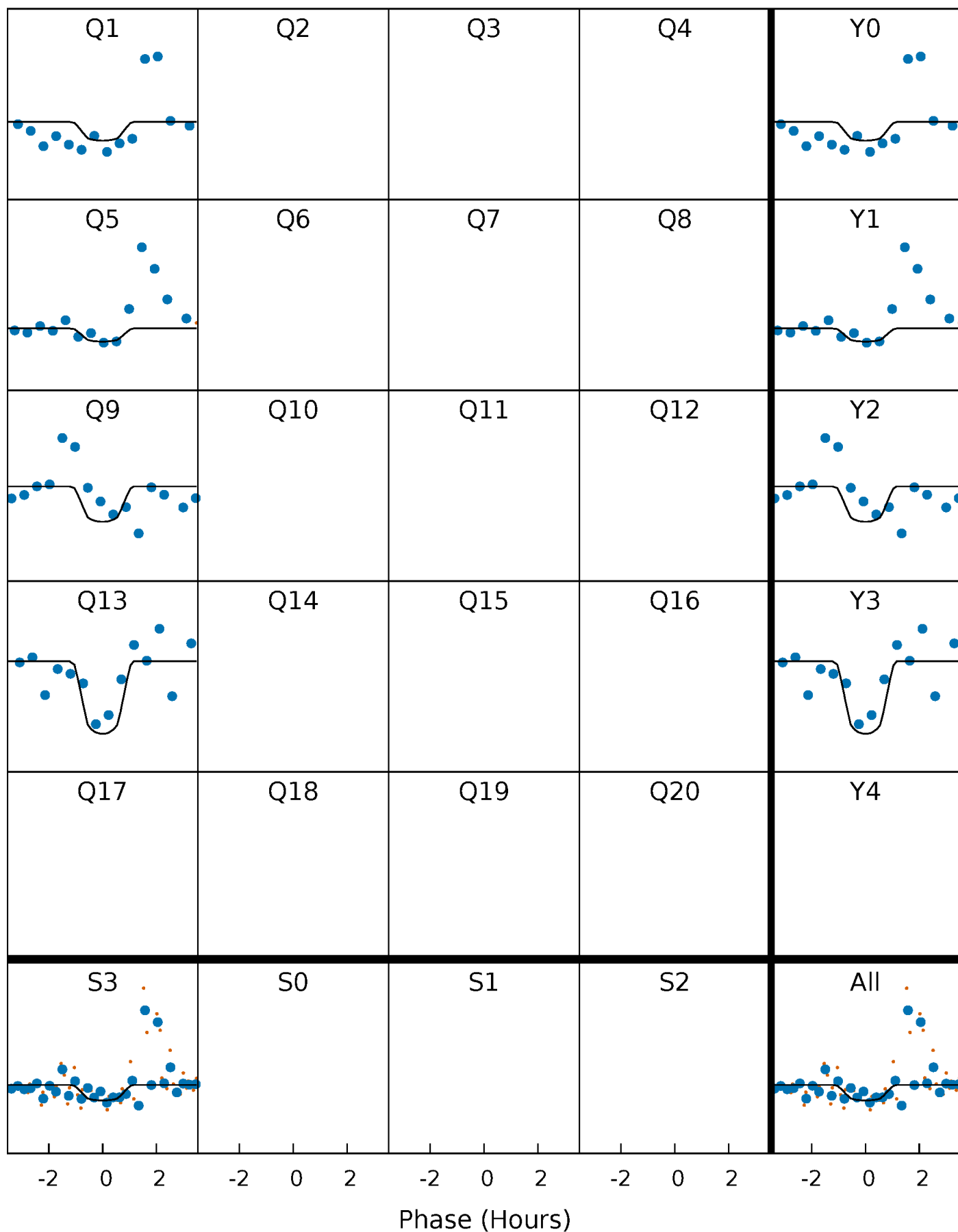
TCE 005027780-01    P=111.105376 Days    T<sub>0</sub>=150.692905 (BKJD)





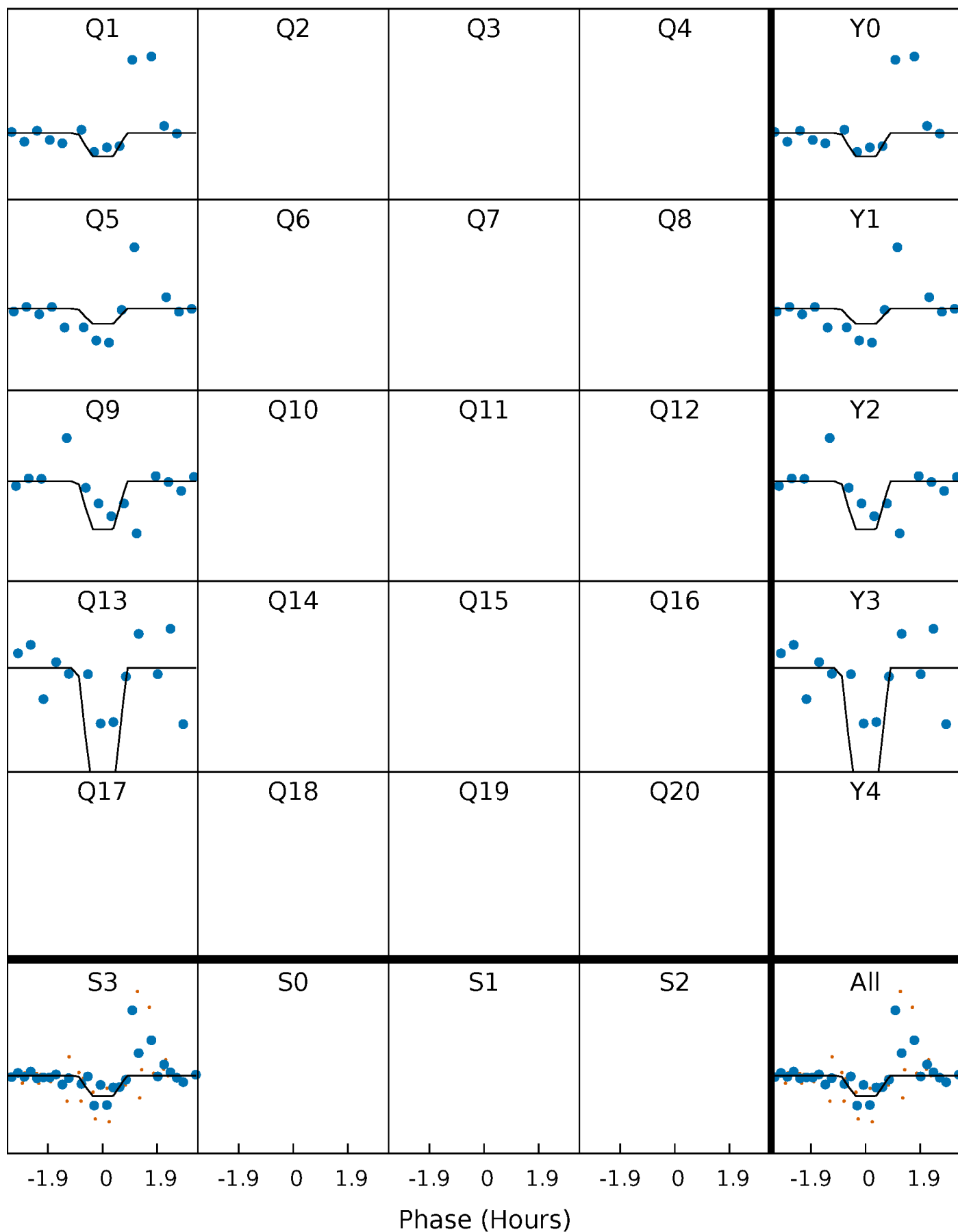
# DV Quarter-Phased Transit Curves

TCE 005027780-01 P=111.105376 Days  $T_0=150.692905$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

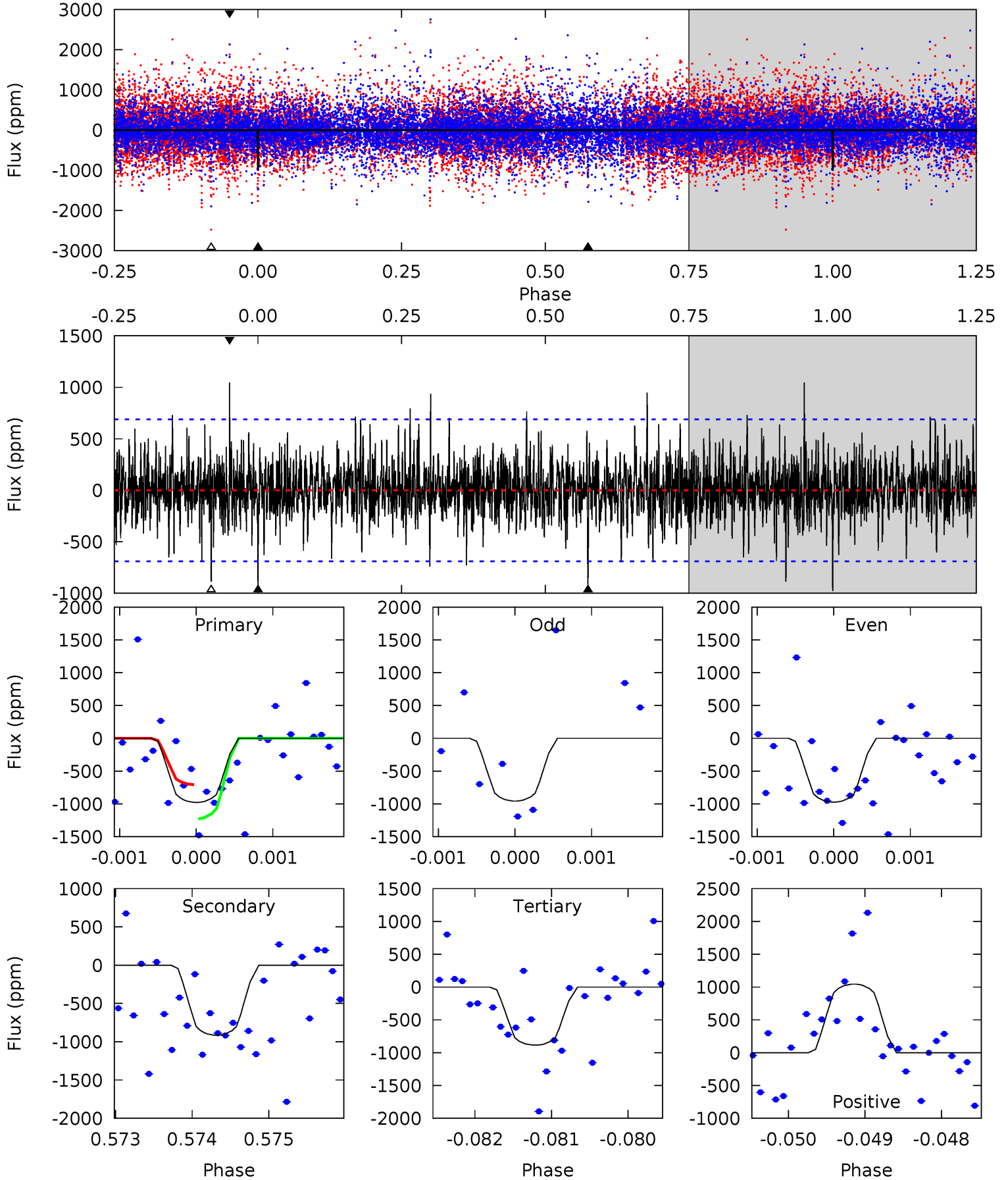
TCE 005027780-01 P=111.102664 Days  $T_0=150.714070$  (BKJD)



# DV Model-Shift Uniqueness Test

005027780-01, P = 111.105376 Days, E = 39.587529 Days

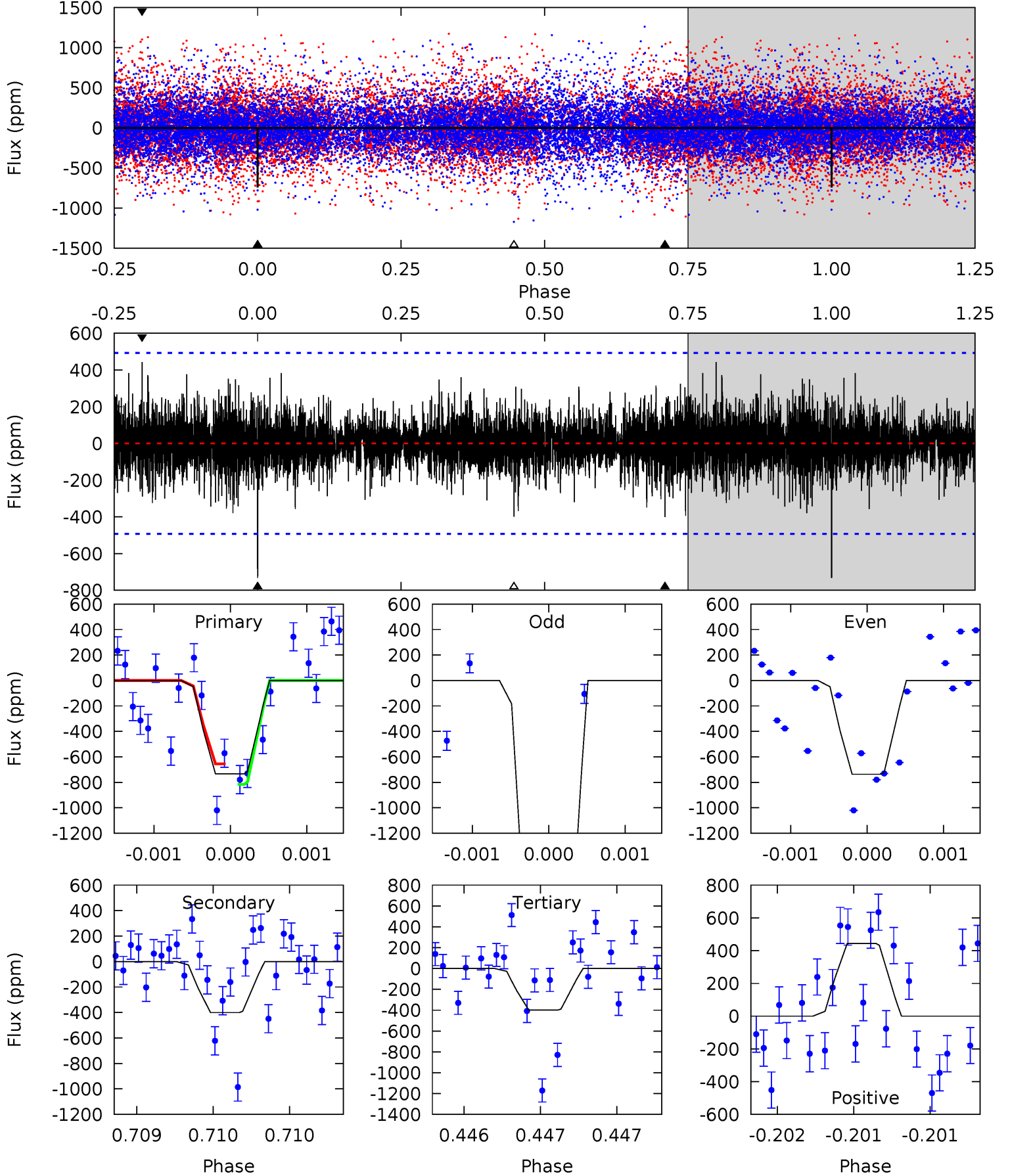
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.80	7.30	7.06	8.33	5.50	3.36	1.64	0.73	-0.54	0.24	-1.03	0.05	1.10	0.52	2.08



# Alt Model-Shift Uniqueness Test

005027780-01, P = 111.102664 Days, E = 39.611406 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
8.23	4.50	4.48	4.98	5.53	3.42	1.08	3.75	3.25	0.02	-0.48	11.4	1.45	0.38	0.91



### Stellar Parameters For KIC 005027780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5786^{+173}_{-173}$	$4.413^{+0.149}_{-0.182}$	$-0.480^{+0.300}_{-0.300}$	$0.922^{+0.241}_{-0.160}$	$0.802^{+0.114}_{-0.061}$	$1.442^{+0.981}_{-0.678}$
	+3%/-3%	+3%/-4%	+62%/-62%	+26%/-17%	+14%/-8%	+68%/-47%
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 005027780-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-915 \pm 125$	$8.25^{+8.05}_{-5.67}$	$532^{+37}_{-34}$	$3895^{+2326}_{-750}$	$1315^{+12107}_{-981}$
Alt.	$-400 \pm 89$	$8.62^{+8.15}_{-5.76}$	$532^{+39}_{-33}$	$3392^{+1577}_{-628}$	$529^{+4305}_{-392}$

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

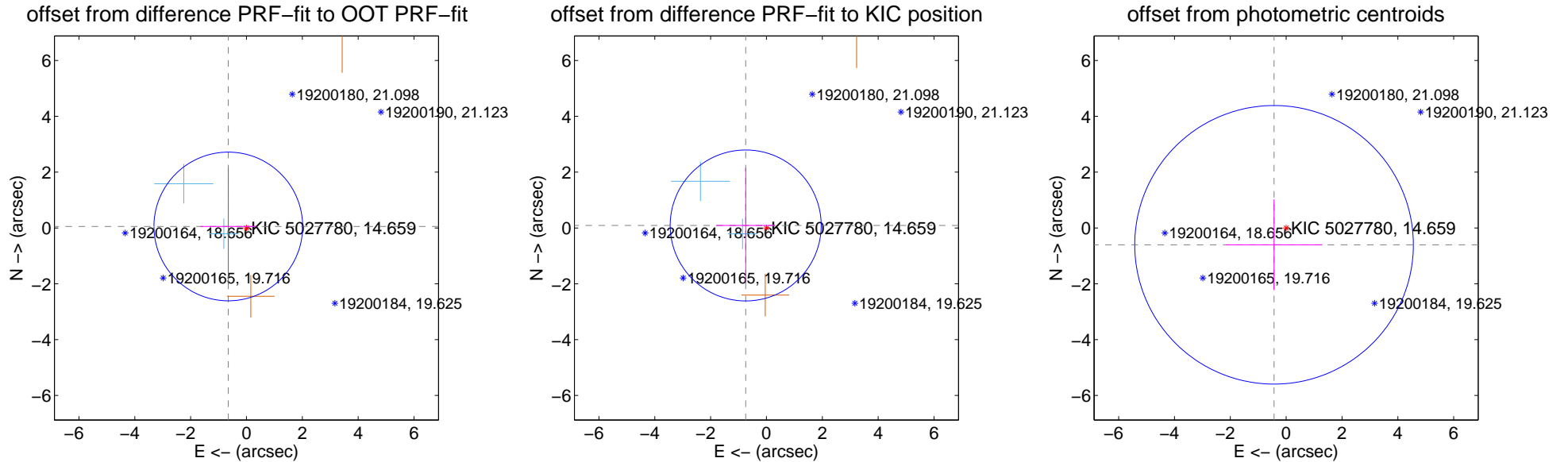
## DV Centroid Data

Supplemental centroid analysis for 005027780-01. Kepler magnitude: 14.66. Transit SNR 5.40

There are 2 quarters with good PRF difference image offsets

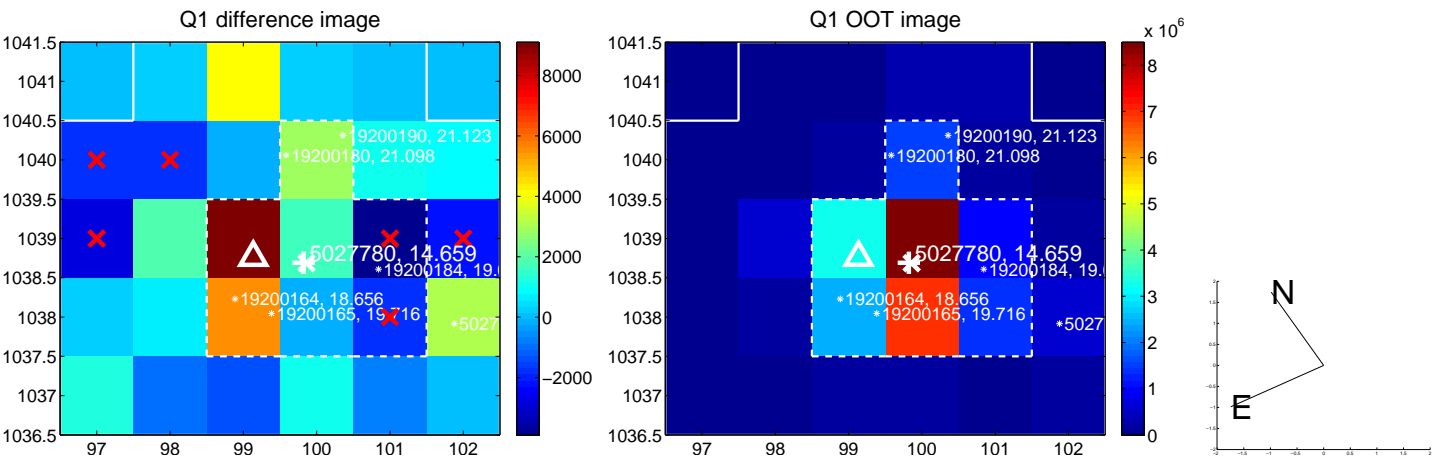
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.654 \pm 0.888$	0.74	$0.652 \pm 0.999$	$0.054 \pm 2.100$
PRF-fit source offset from KIC position	$0.750 \pm 0.901$	0.83	$0.745 \pm 1.053$	$0.090 \pm 2.063$
photometric centroid source offset	$0.74 \pm 1.66$	0.45	$0.43 \pm 1.73$	$-0.60 \pm 1.63$

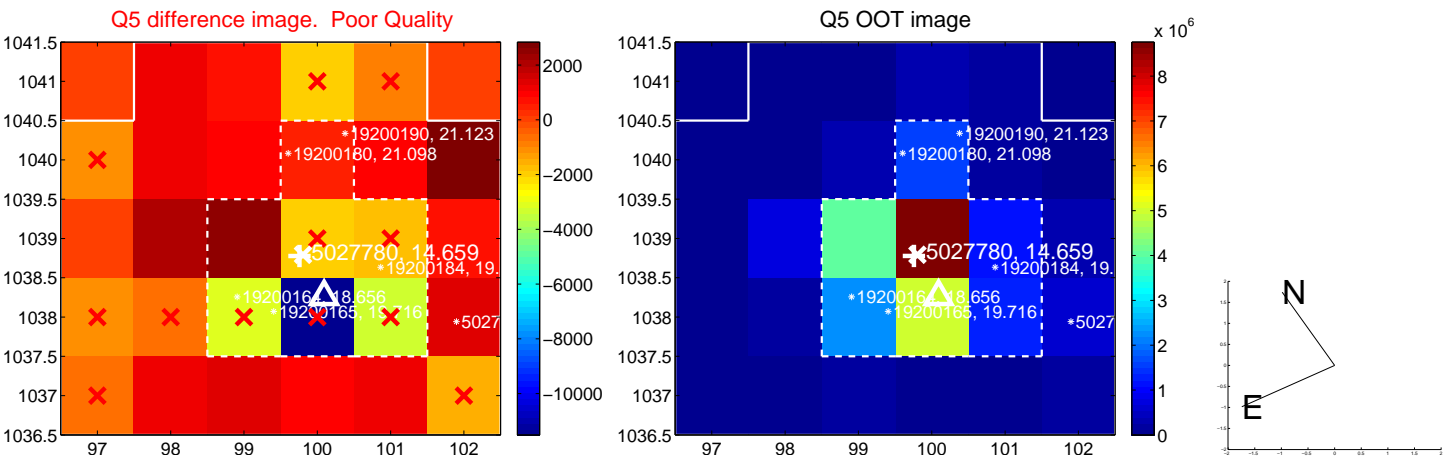


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

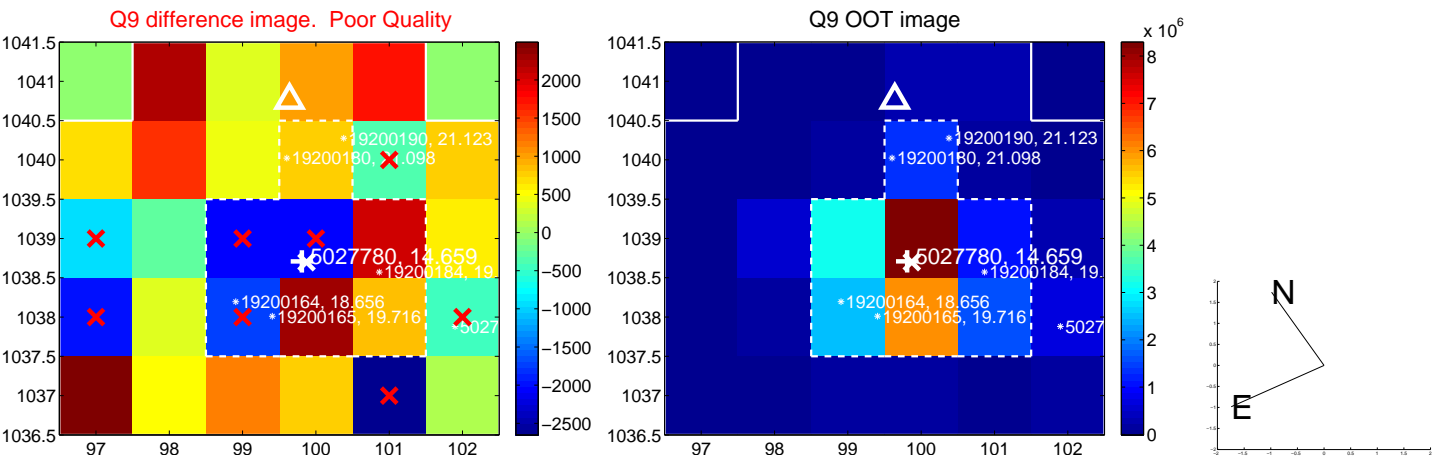


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

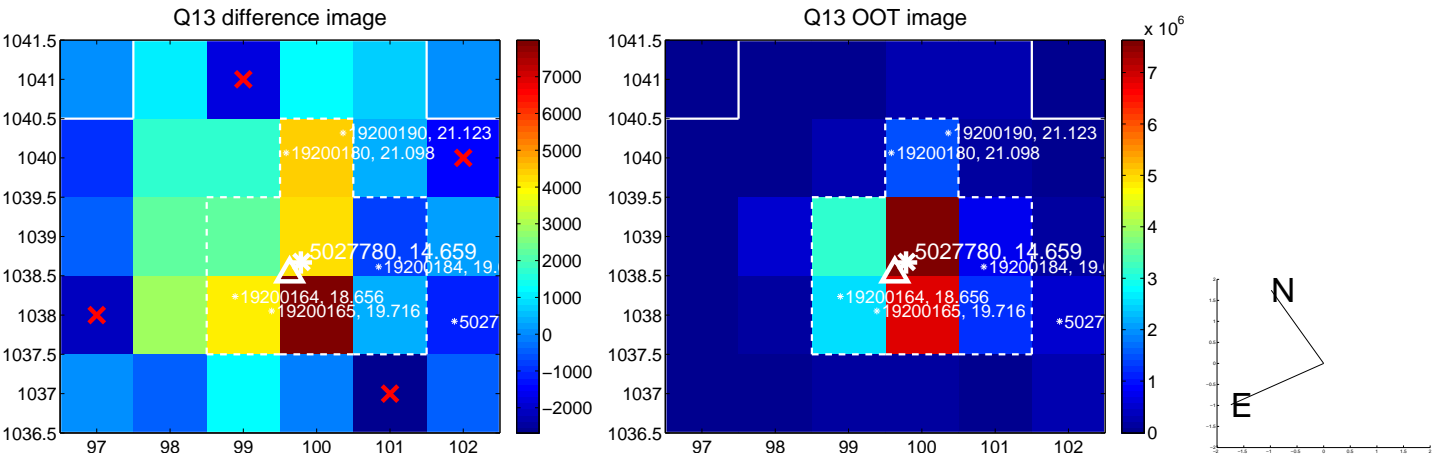




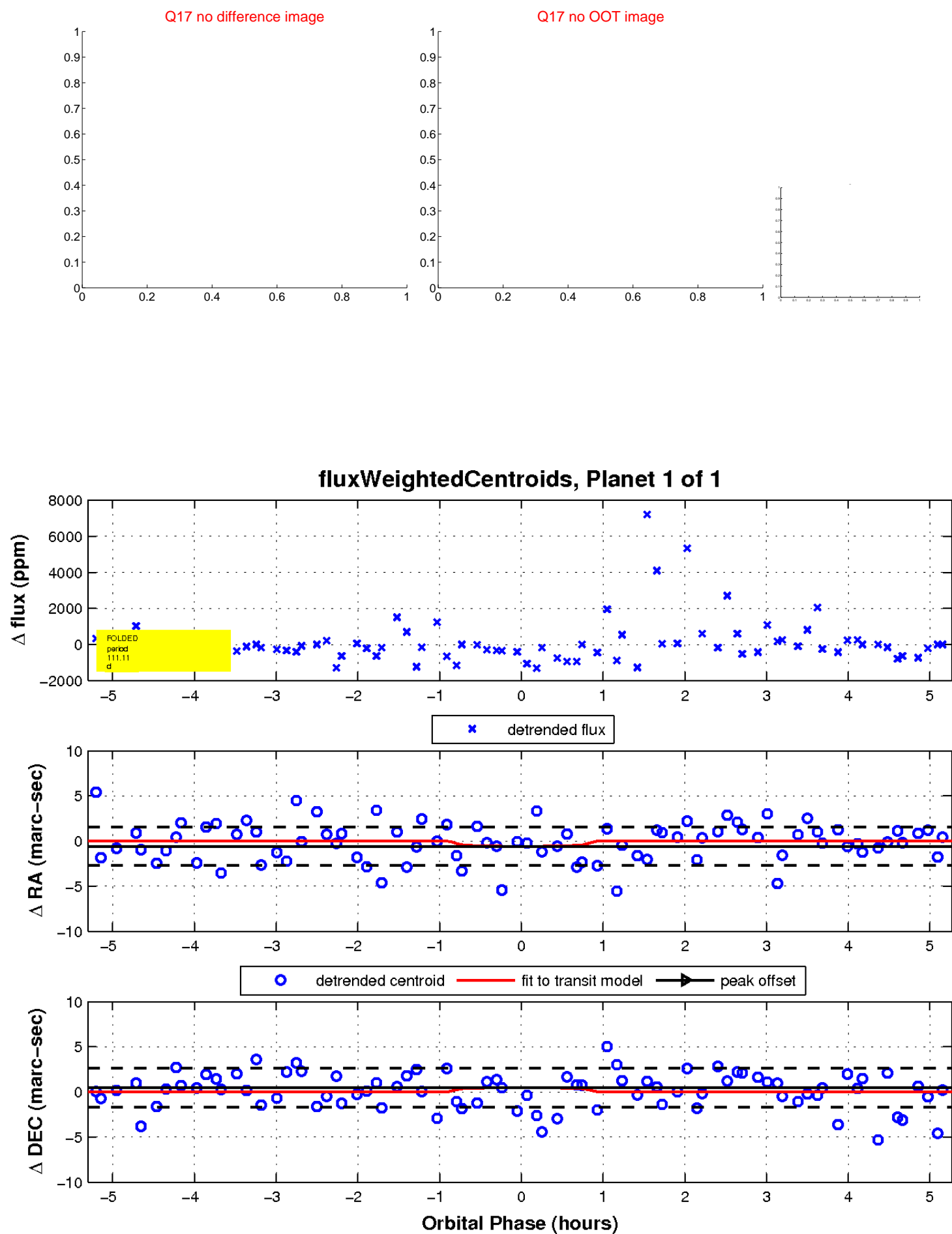
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



# UKIRT Image

Declination

