

# KIC 002578869

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002578869-01	OBS	No	515.982485	365.091066	178.6	15.739	9.5	9.4	2.41	5314	3.48	2.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002578869-01	OBS	FP	0.06	1	0	0	0	MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

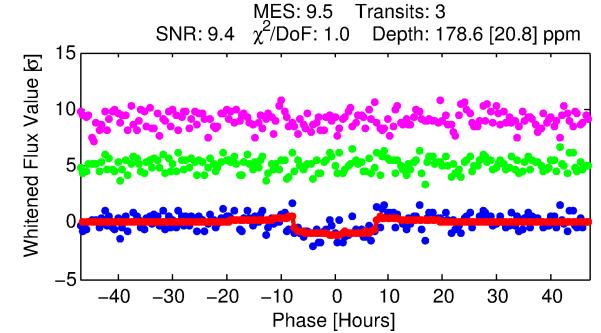
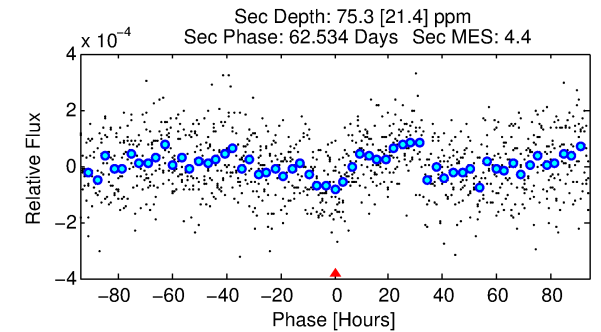
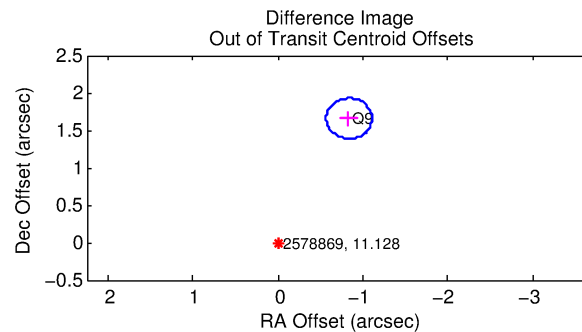
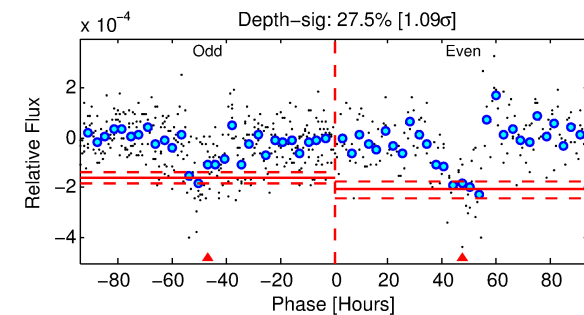
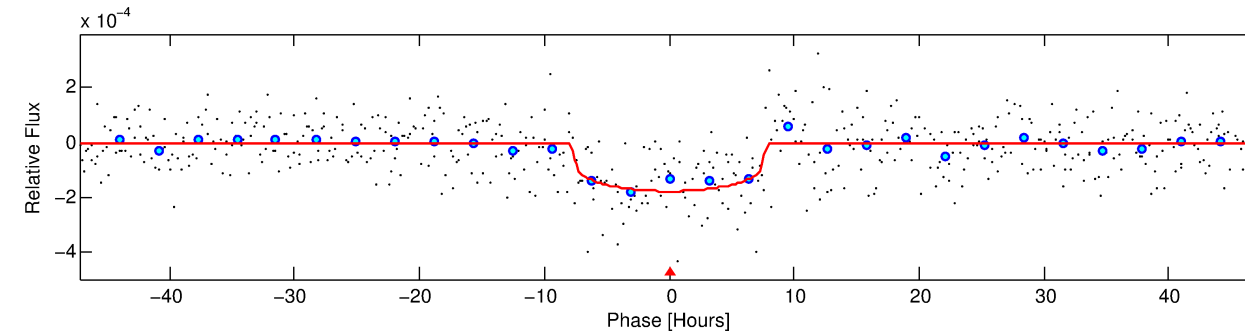
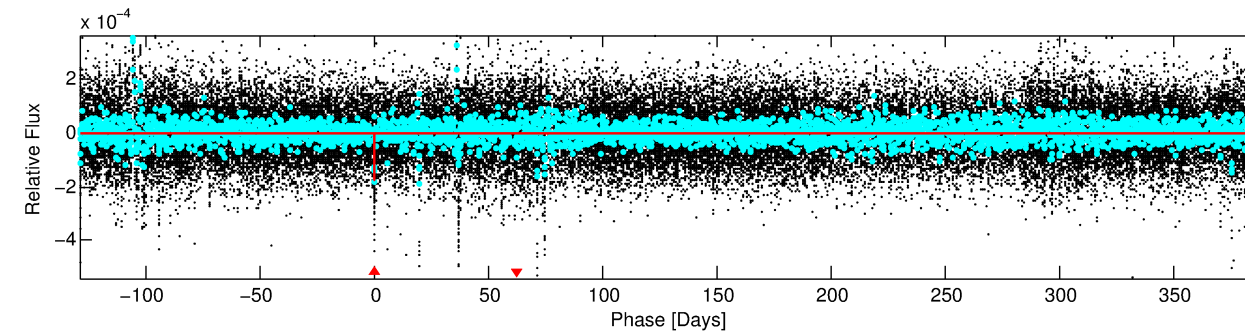
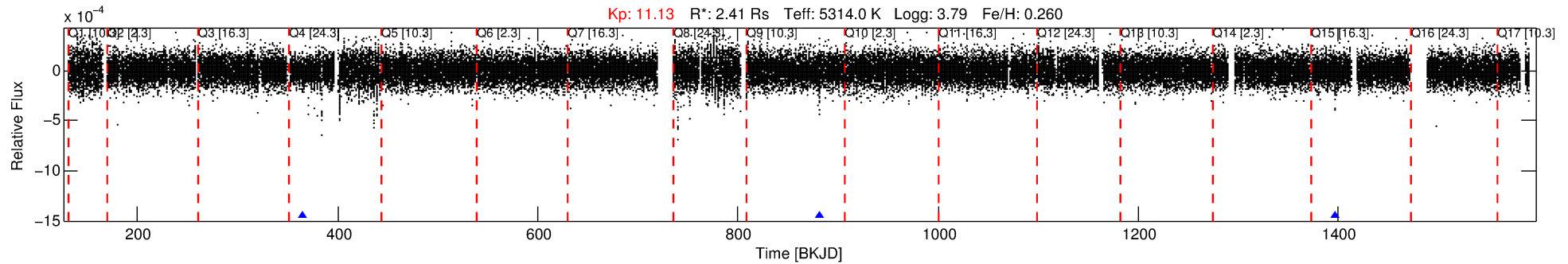
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002578869-01

No Significant Match Found

# DV One-Page Summary

KIC: 2578869 Candidate: 1 of 1 Period: 515.982 d



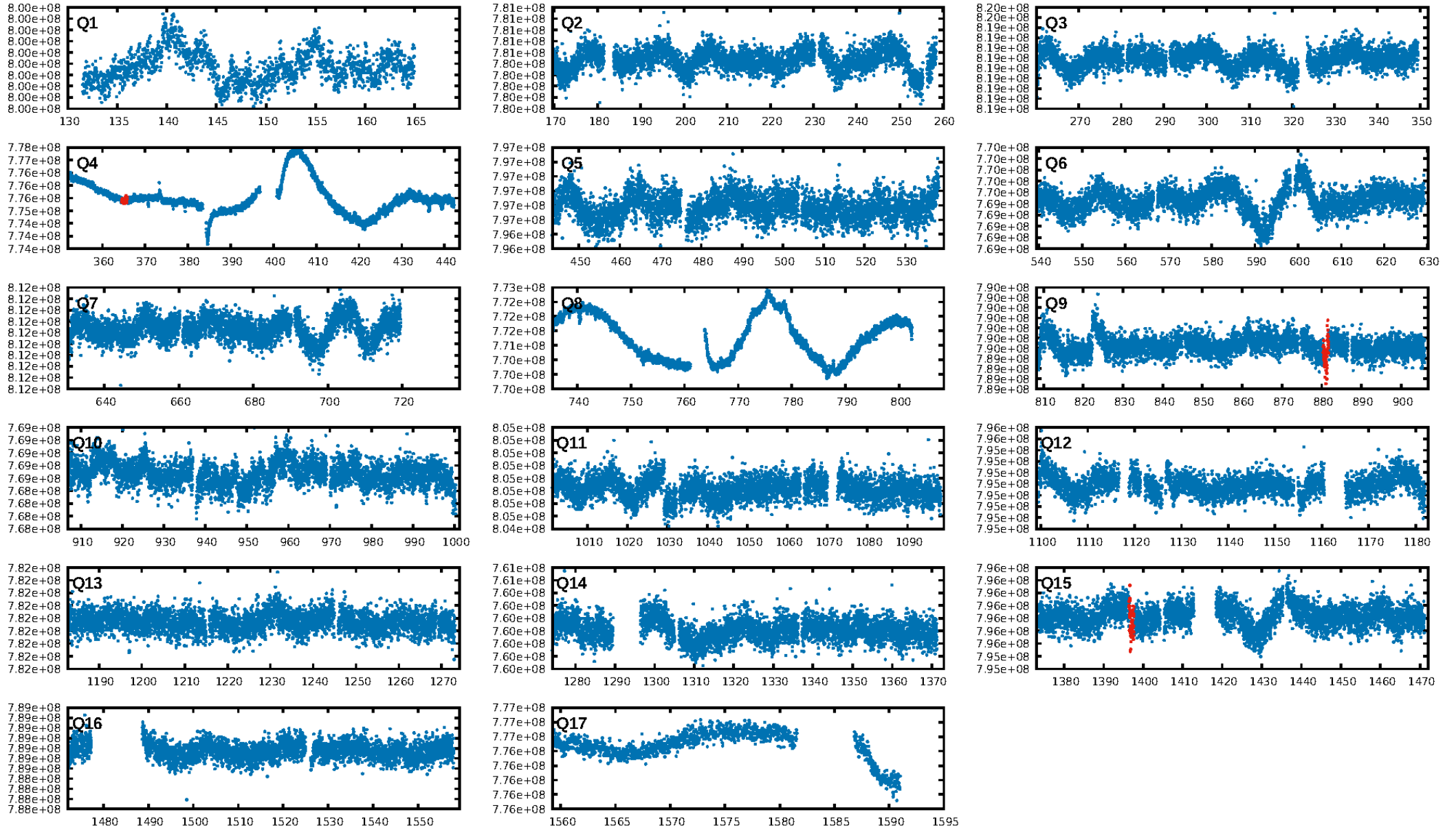
## DV Fit Results:

Period = 515.98249 [0.00882] d  
Epoch = 365.0911 [0.0119] BKJD  
Rp/R\* = 0.0132 [0.0052]  
a/R\* = 174.10 [261.98]  
b = 0.74 [0.94]  
Seff = 2.18 [0.85]  
Teq = 310 [30] K  
Rp = 3.48 [1.75] Re  
a = 1.3775 [0.3622] AU  
Ag = 6486.33 [5975.09] [1.09 $\sigma$ ]  
Teffp = 4300 [903] K [4.42 $\sigma$ ]

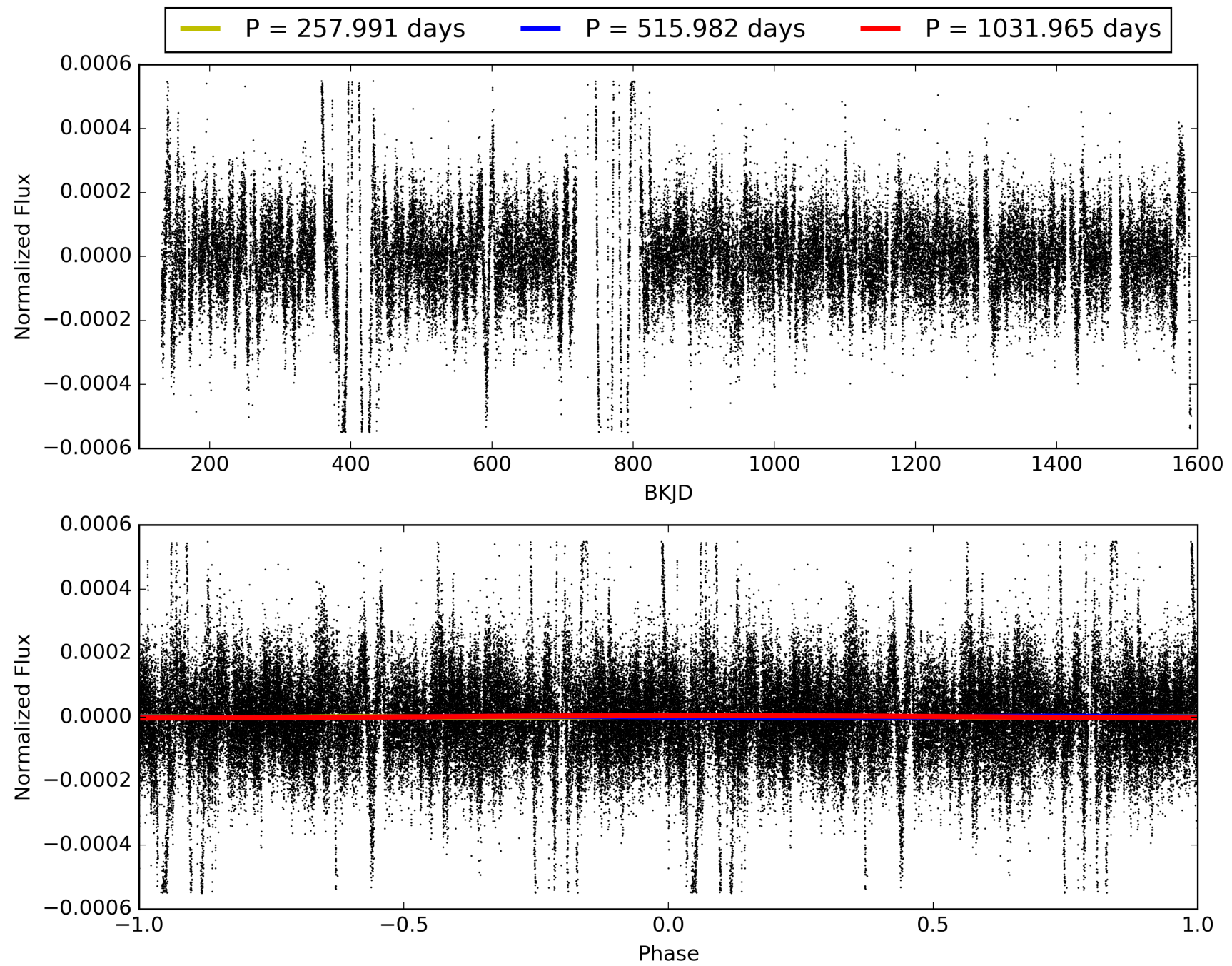
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 62.8%  
ModelChiSquareGof-sig: 93.1%  
**Bootstrap-pfa: 5.05e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.315  
Centroid-sig: 64.5%  
Centroid-so: 0.619 arcsec [0.42 $\sigma$ ]  
**OotOffset-rm: 1.857 arcsec [20.63 $\sigma$ ]**  
**KicOffset-rm: 2.087 arcsec [23.20 $\sigma$ ]**  
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]

# TCE 002578869-01, PDC Light Curves

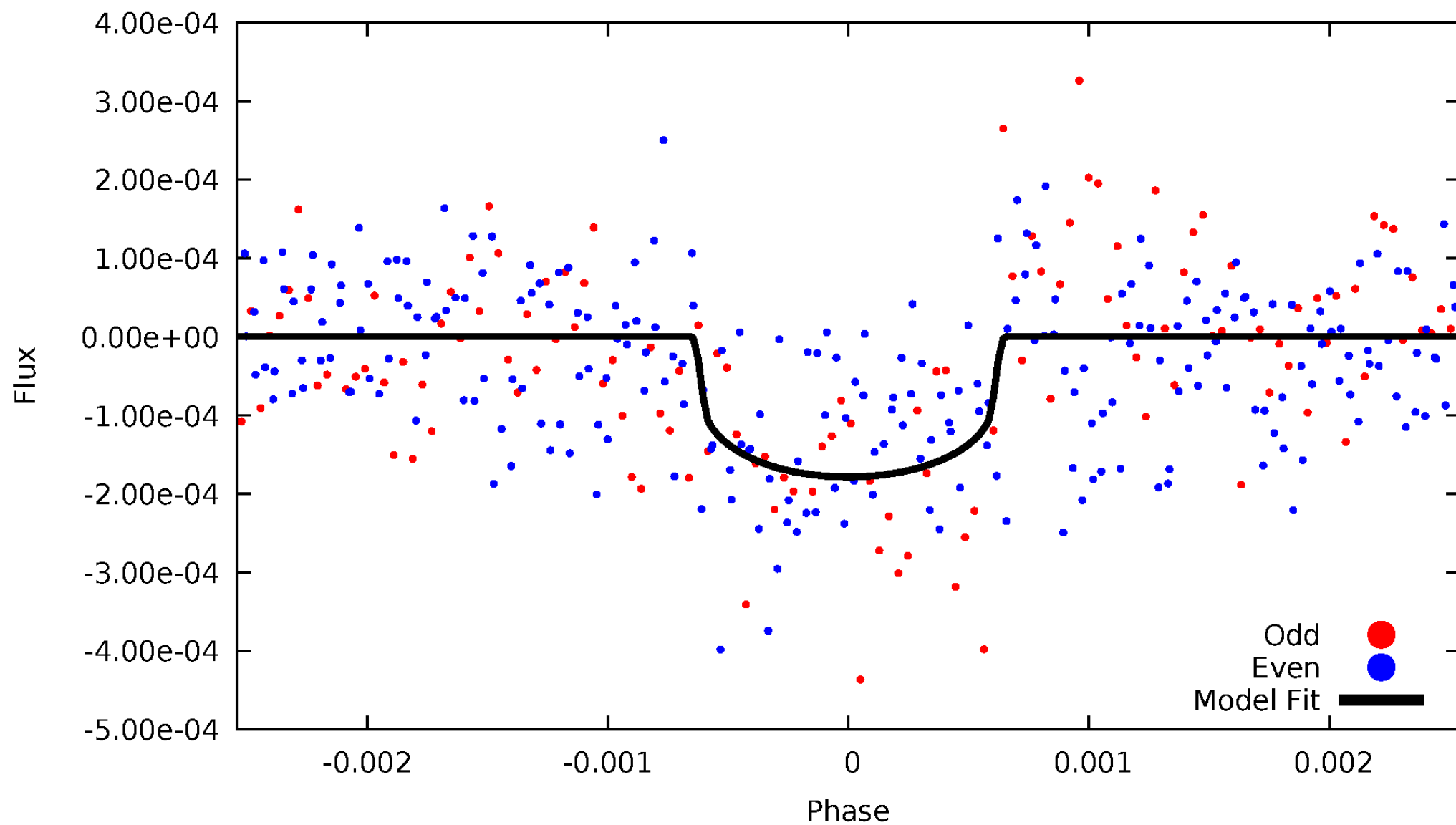


TCE 002578869-01



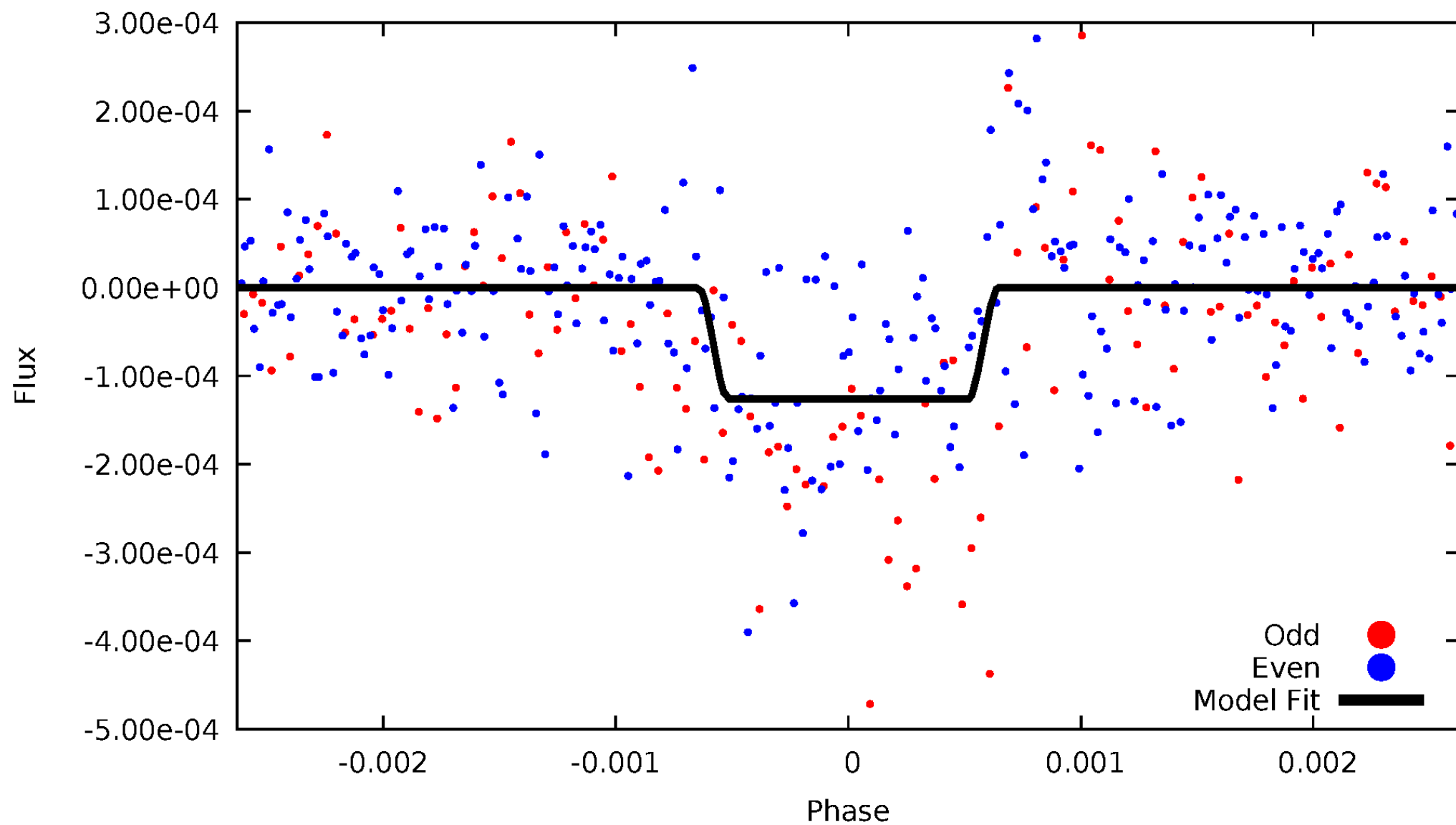
# DV Odd/Even

TCE 002578869-01



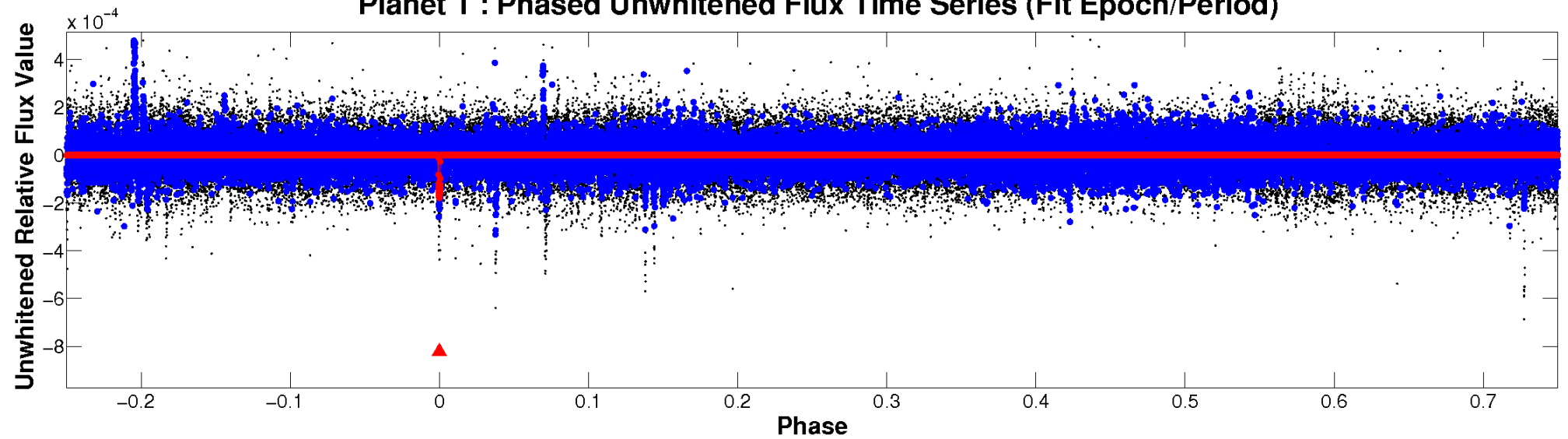
# ALT Odd/Even

TCE 002578869-01

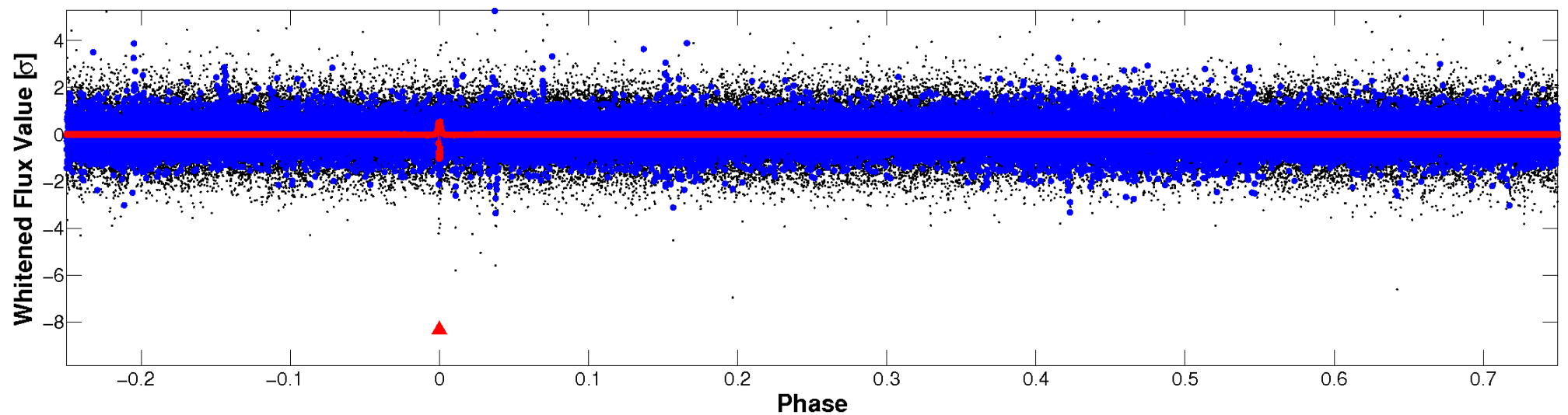


# Non-Whitened Vs. Whitened Light Curve

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

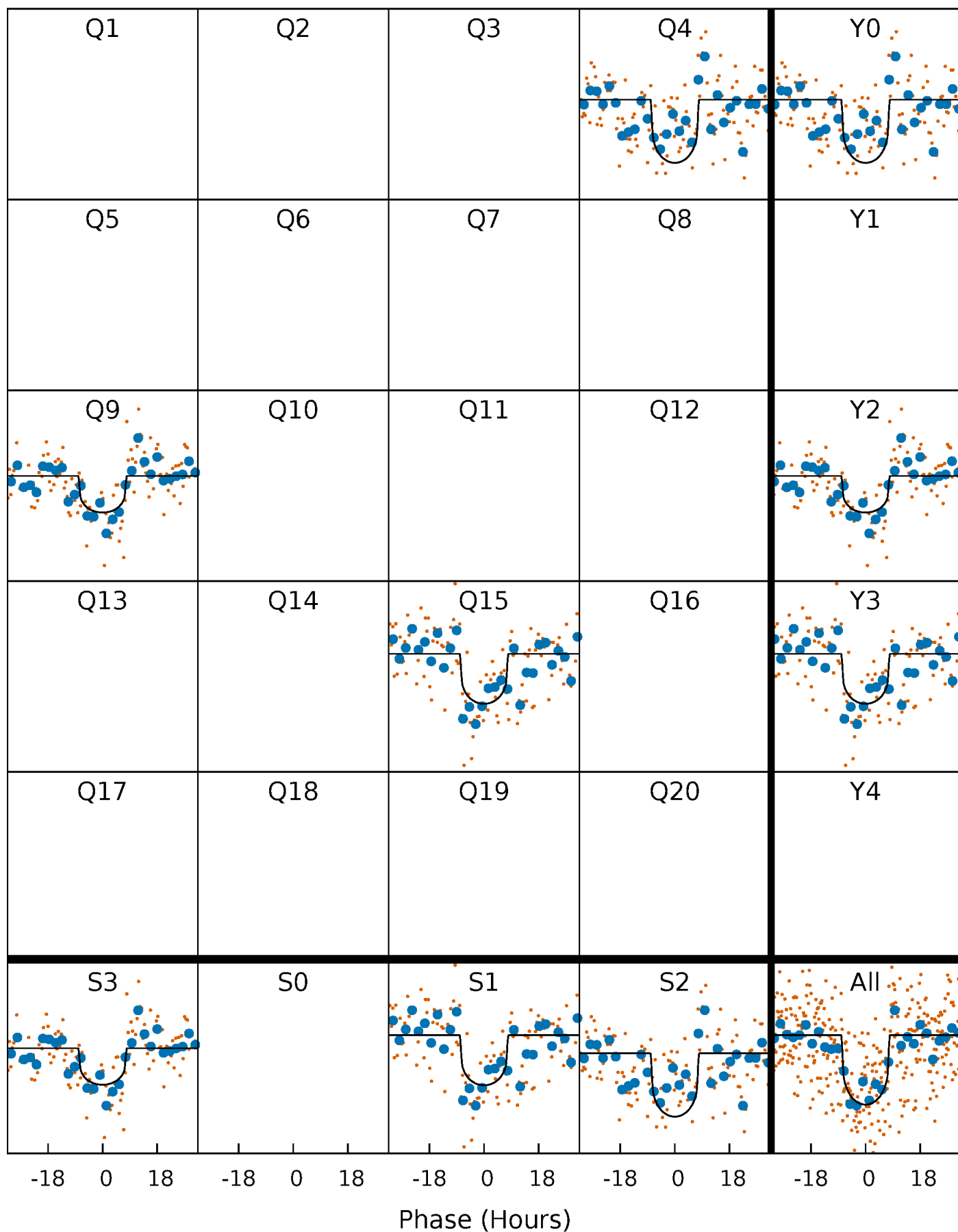
TCE 002578869-01 P=515.982485 Days  $T_0=365.091067$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 002578869-01 P=515.982485 Days  $T_0=365.091067$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

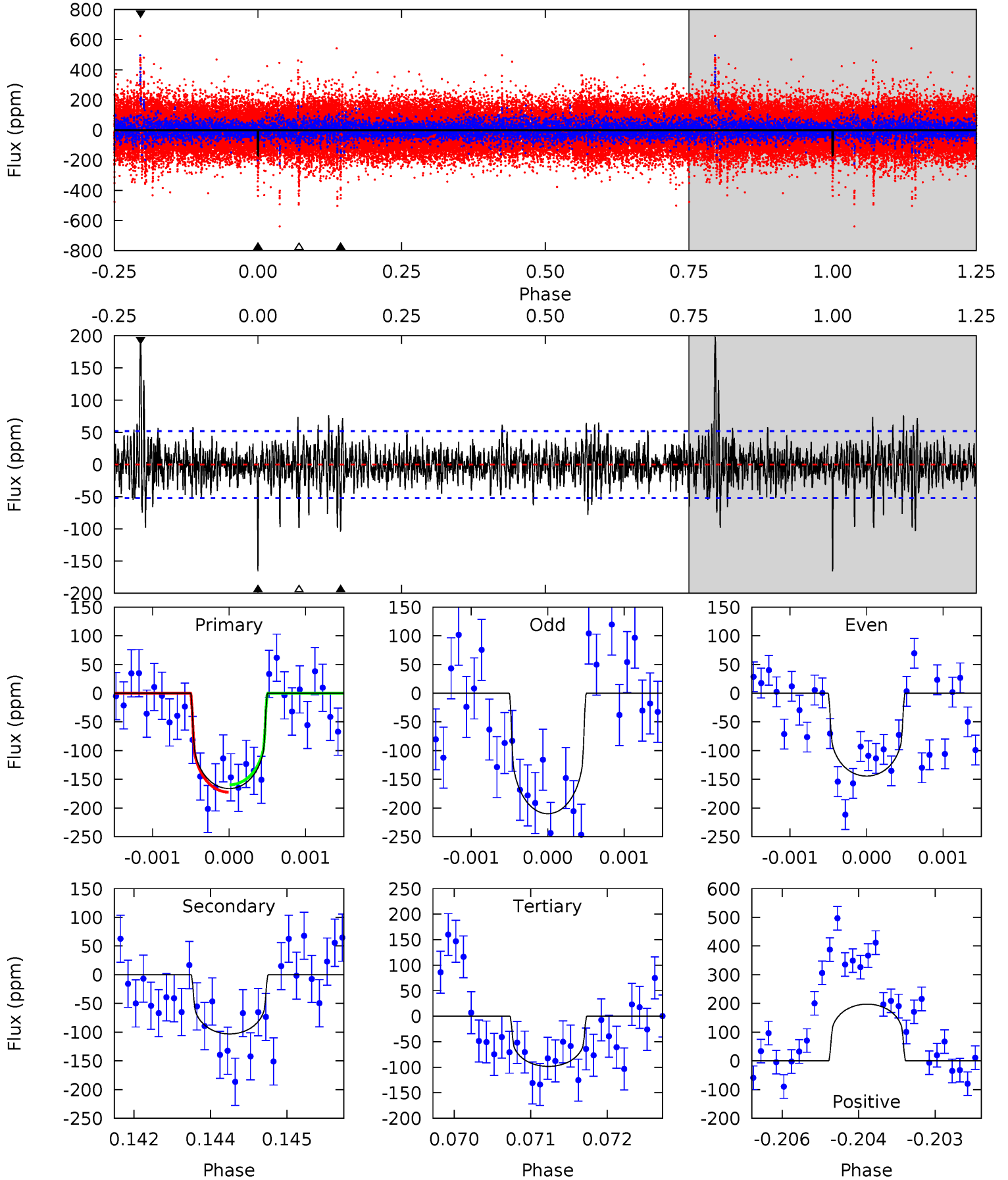
TCE 002578869-01 P=515.954201 Days  $T_0=365.096619$  (BKJD)



# DV Model-Shift Uniqueness Test

002578869-01, P = 515.982485 Days, E = 365.091067 Days

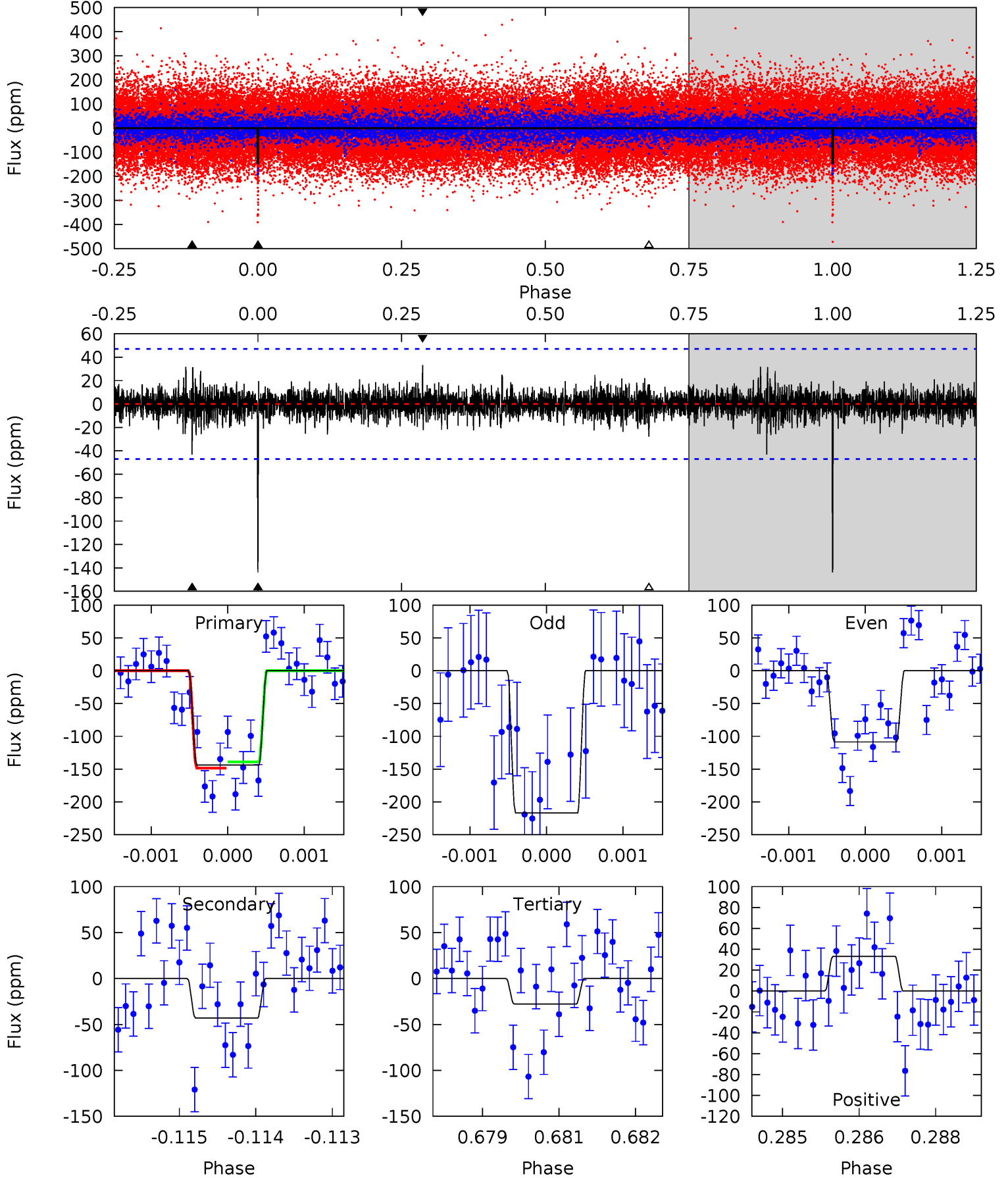
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	10.7	10.2	20.6	5.41	3.22	2.37	7.07	-3.28	0.50	-9.86	3.16	0.87	0.54	0.67



# Alt Model-Shift Uniqueness Test

002578869-01, P = 515.954201 Days, E = 365.096619 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
16.5	4.95	3.19	3.82	5.41	3.22	0.83	13.3	12.7	1.77	1.14	5.85	0.97	0.19	0.55



### Stellar Parameters For KIC 002578869

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5314^{+84}_{-84}$	$3.792^{+0.210}_{-0.084}$	$0.260^{+0.150}_{-0.150}$	$2.407^{+0.375}_{-0.750}$	$1.307^{+0.139}_{-0.278}$	$0.132^{+0.177}_{-0.038}$
	+2%/-2%	+6%/-2%	+58%/-58%	+16%/-31%	+11%/-21%	+134%/-29%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 002578869-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-103 \pm 10$	$3.25^{+1.48}_{-1.26}$	$429^{+18}_{-28}$	$4783^{+1088}_{-618}$	$9900^{+16519}_{-5169}$
Alt.	$-43 \pm 9$	$2.79^{+1.40}_{-1.21}$	$429^{+19}_{-28}$	$4279^{+1121}_{-545}$	$5680^{+11571}_{-3229}$

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

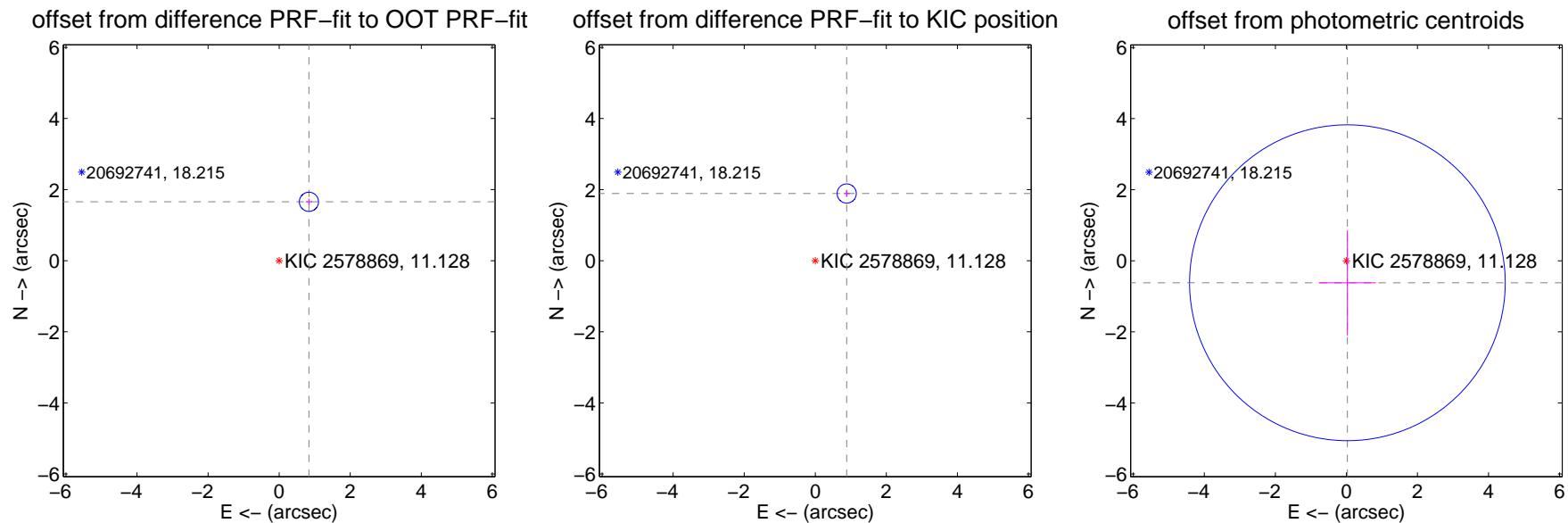
## DV Centroid Data

Supplemental centroid analysis for 002578869-01. **Kepler magnitude: 11.13.** Transit SNR 9.43

**There are 1 quarters with good PRF difference image offsets**

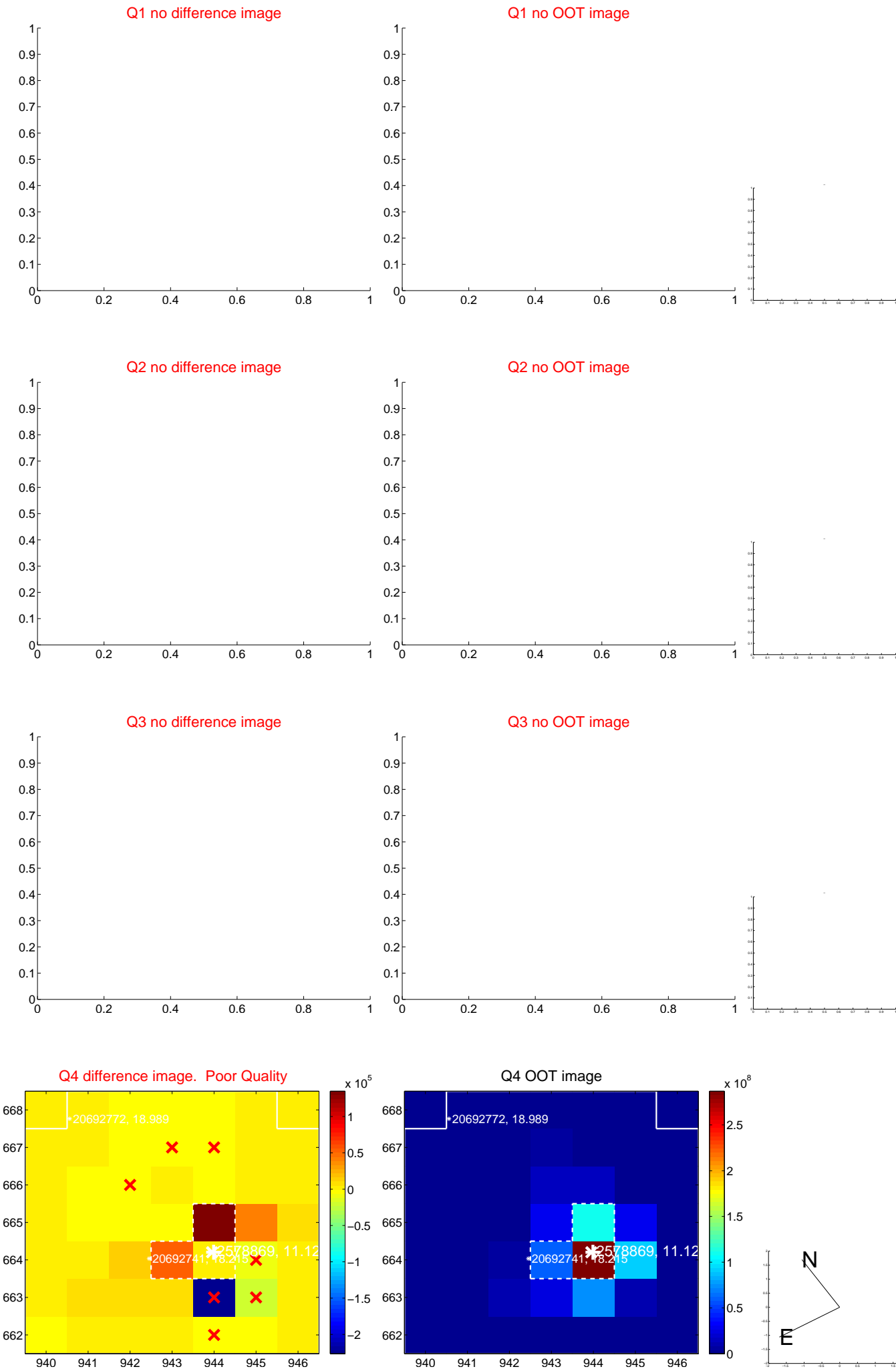
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.857 \pm 0.090</math></b>	<b>20.63</b>	$-0.838 \pm 0.091$	$1.657 \pm 0.090$
PRF-fit source offset from KIC position	<b><math>2.087 \pm 0.090</math></b>	<b>23.20</b>	$-0.885 \pm 0.091$	$1.890 \pm 0.090$
photometric centroid source offset	$0.62 \pm 1.48$	0.42	$-0.03 \pm 0.81$	$-0.62 \pm 1.48$



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.

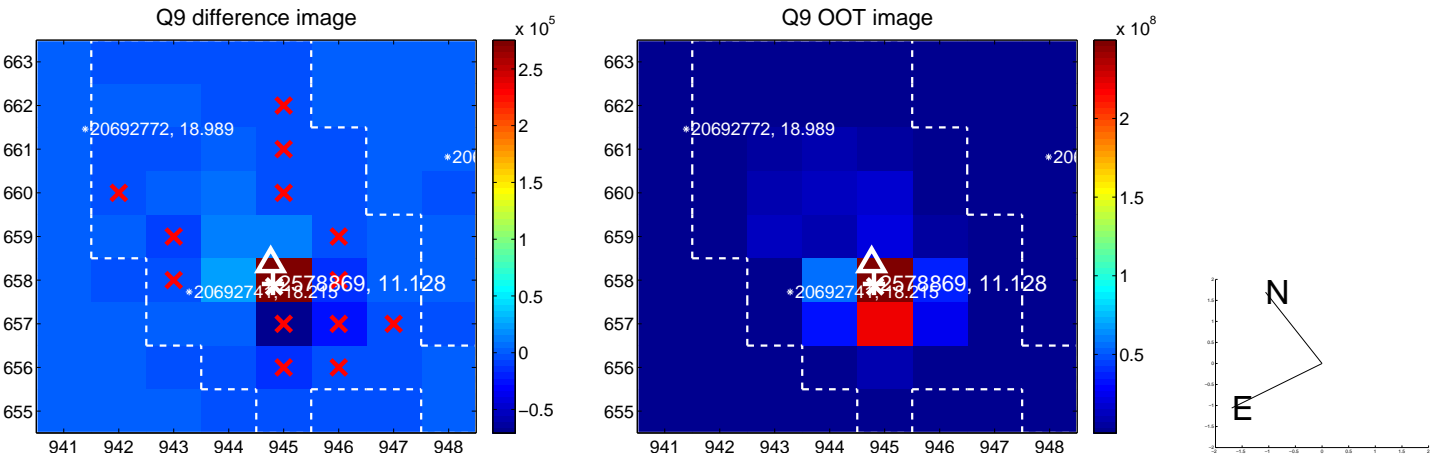




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



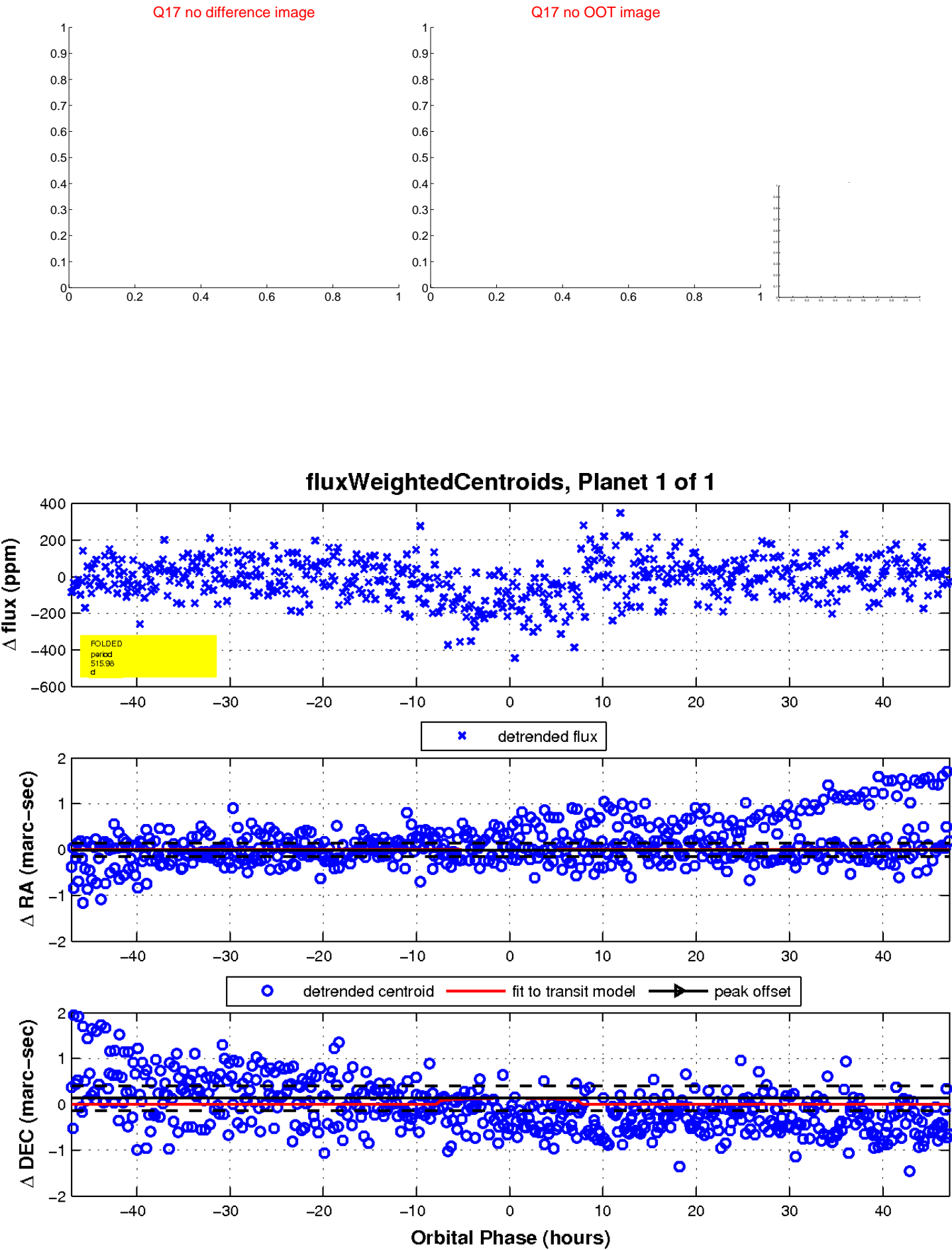
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

