

# KIC 004566848

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004566848-01	OBS	5071.01	180.412082	142.863987	4290.6	3.267	25.3	35.1	0.97	6032	8.52	2.77

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004566848-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT

**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 004566848-01

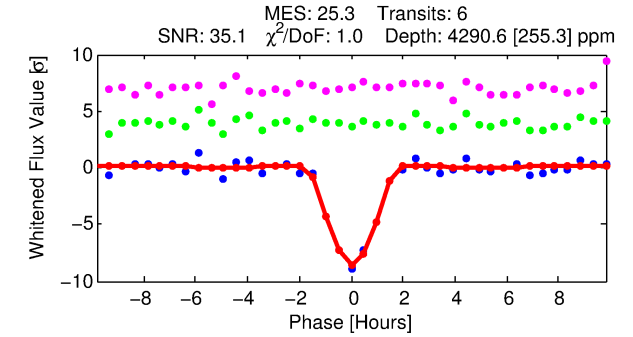
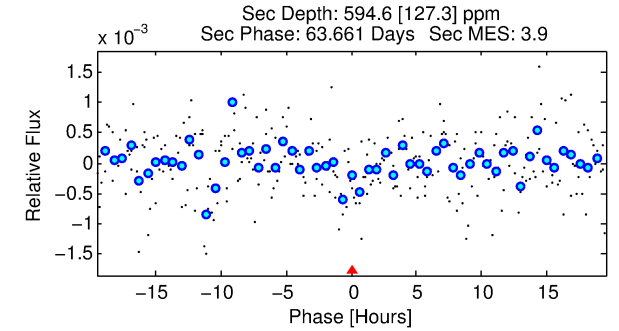
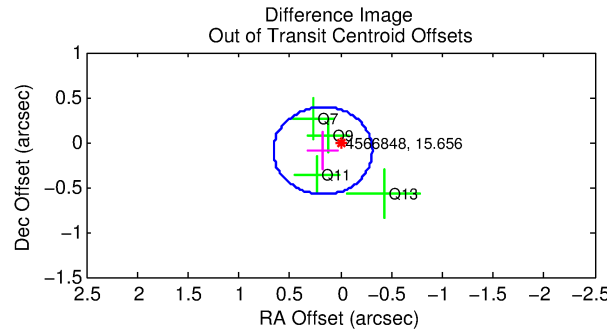
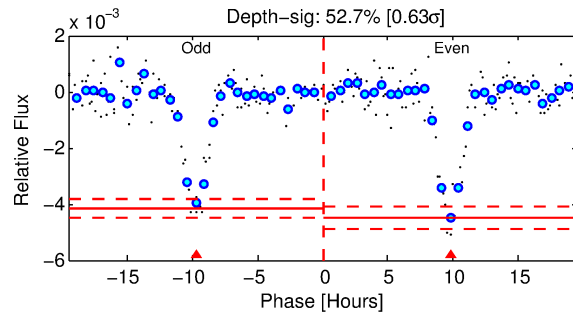
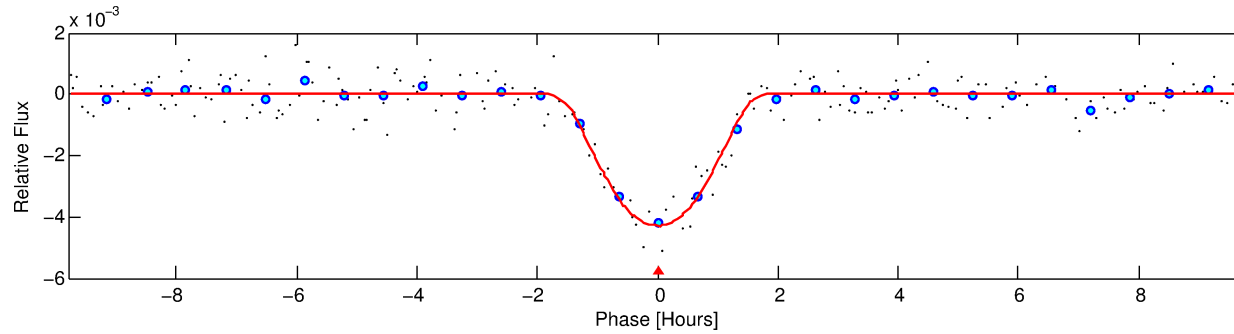
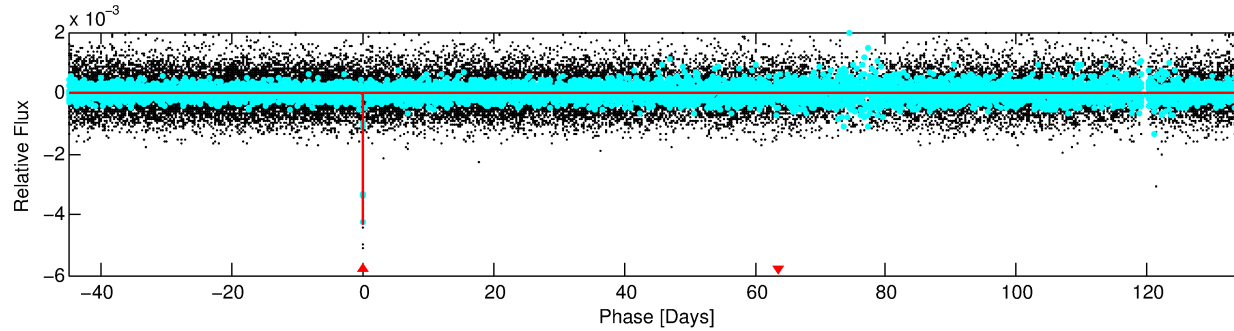
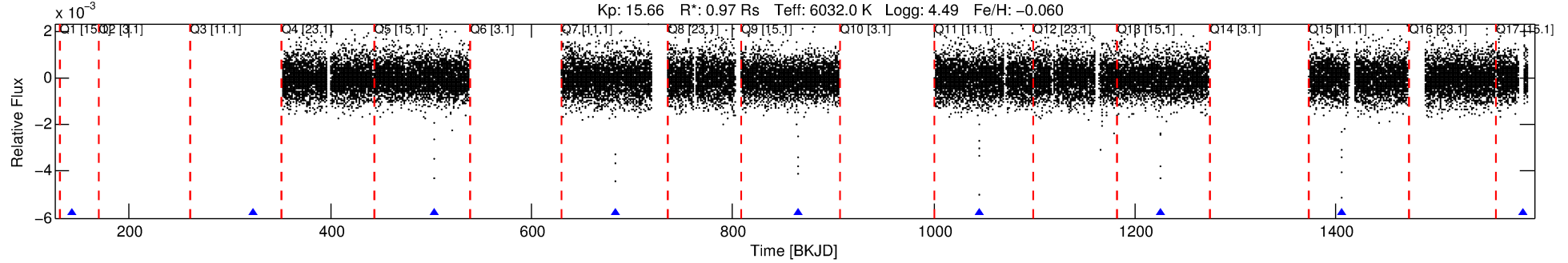
No Significant Match Found

# DV One-Page Summary

KIC: 4566848 Candidate: 1 of 1 Period: 180.412 d

KOI: K05071.01 Corr: 0.995

Kp: 15.66 R\*: 0.97 Rs Teff: 6032.0 K Logg: 4.49 Fe/H: -0.060



## DV Fit Results:

Period = 180.41208 [0.00072] d  
Epoch = 142.8640 [0.0035] BKJD  
Rp/R\* = 0.0802 [0.0249]  
a/R\* = 219.52 [33.17]  
b = 0.95 [0.06]  
Seff = 2.77 [1.10]  
Teq = 329 [33] K  
Rp = 8.52 [3.63] Re  
a = 0.6362 [0.1580] AU  
Ag = 1826.07 [1371.30] [1.33σ]  
Teffp = 3326 [561] K [5.33σ]

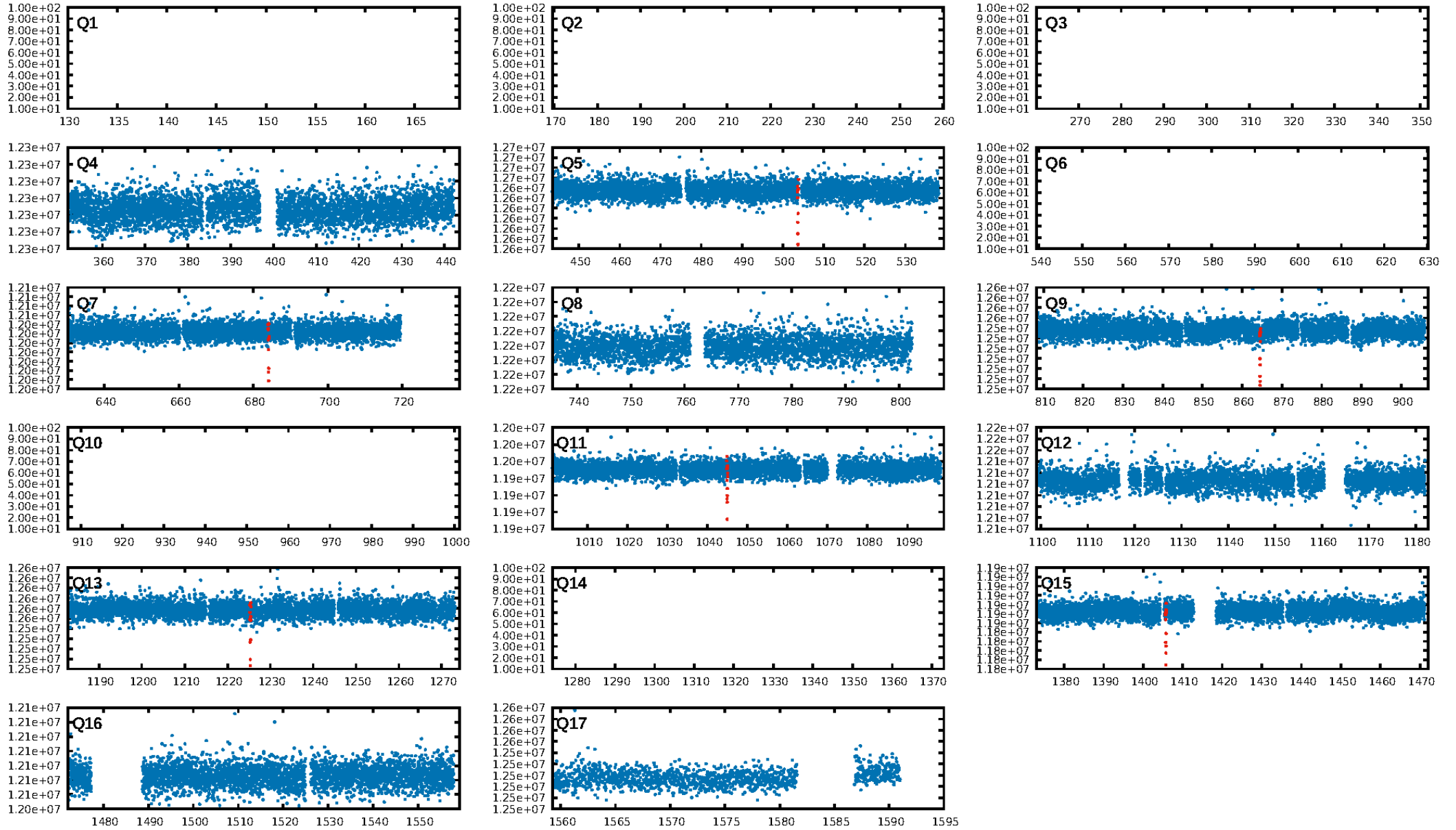
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 81.3%  
ModelChiSquareGof-sig: 98.9%  
Bootstrap-pfa: 3.26e-128  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 4.513  
Centroid-sig: 24.4%  
Centroid-so: 0.456 arcsec [1.01σ]  
OotOffset-rm: 0.198 arcsec [1.22σ]  
KicOffset-rm: 0.328 arcsec [2.29σ]  
OotOffset-st: 0/2/0/2 [4]  
KicOffset-st: 0/2/0/2 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

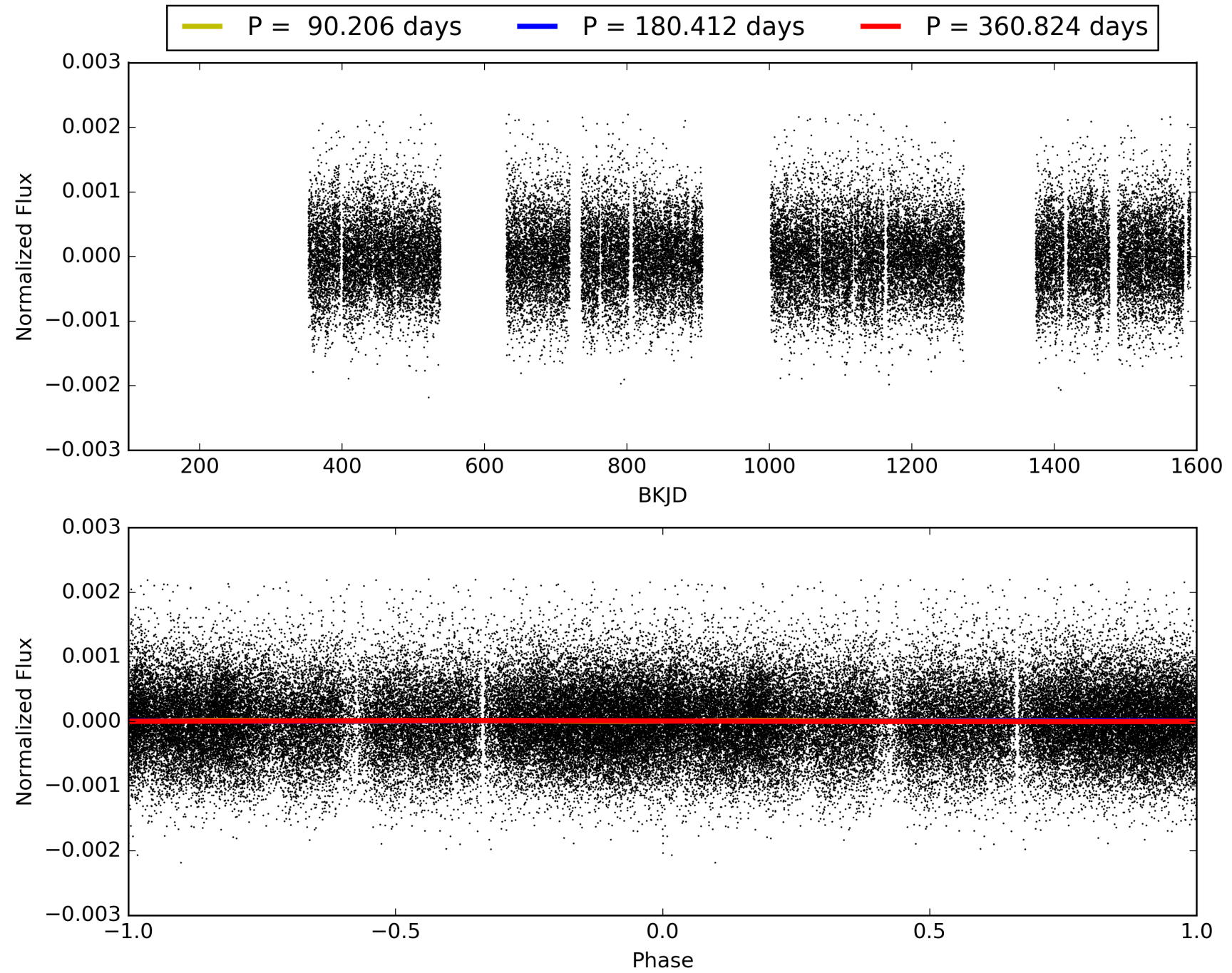
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:19:19 Z

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

# TCE 004566848-01, PDC Light Curves

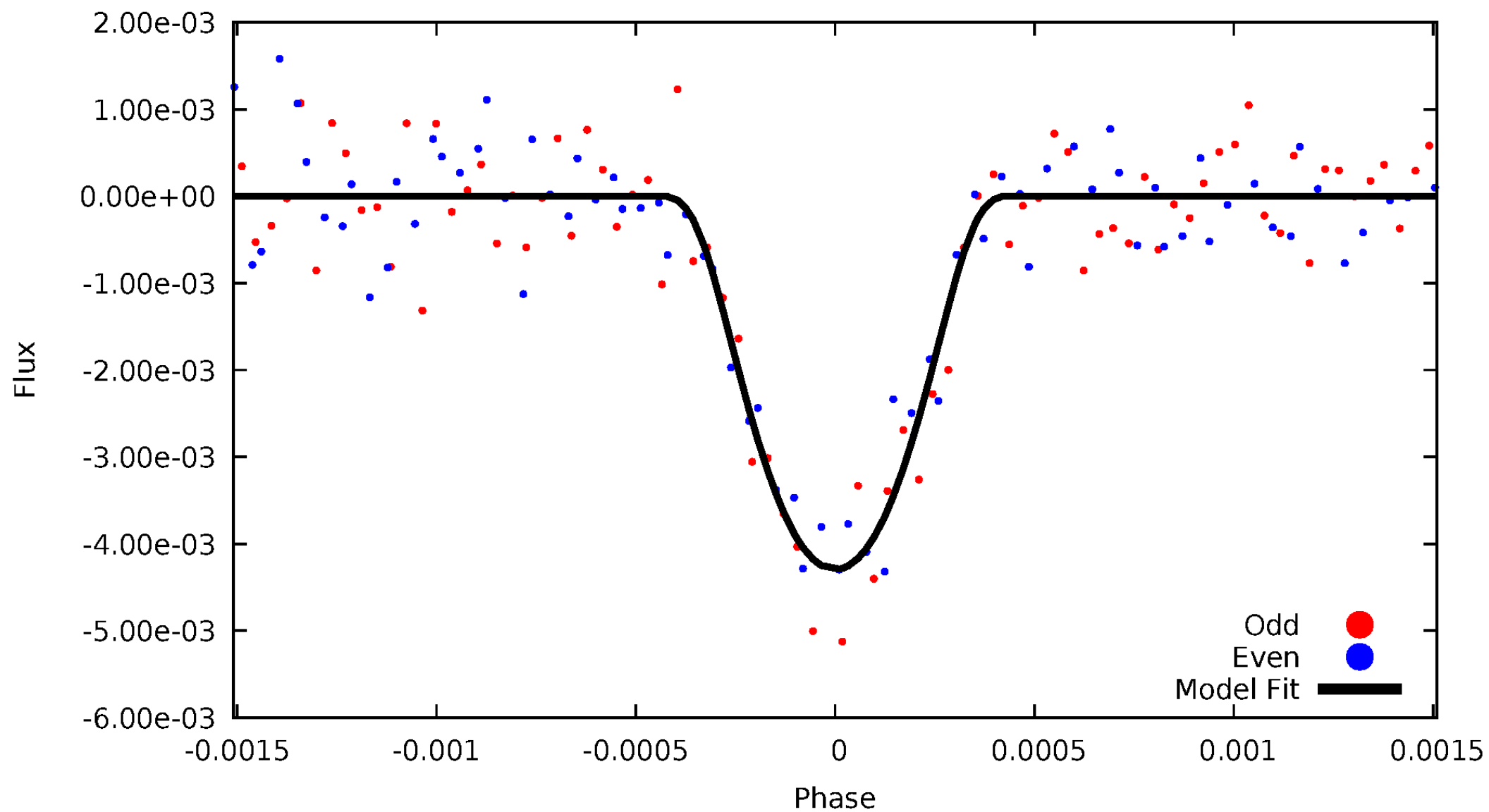


TCE 004566848-01



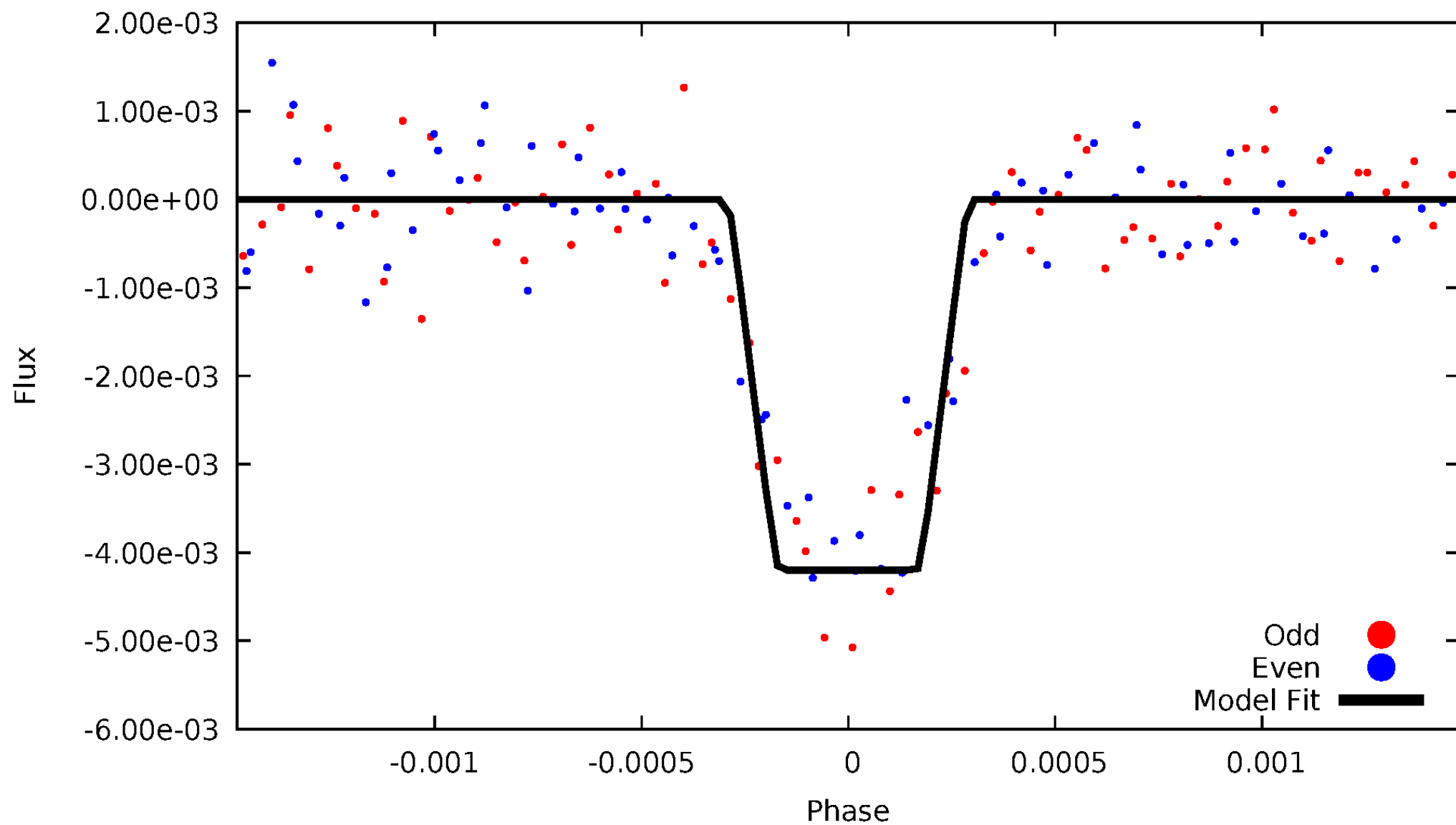
# DV Odd/Even

TCE 004566848-01



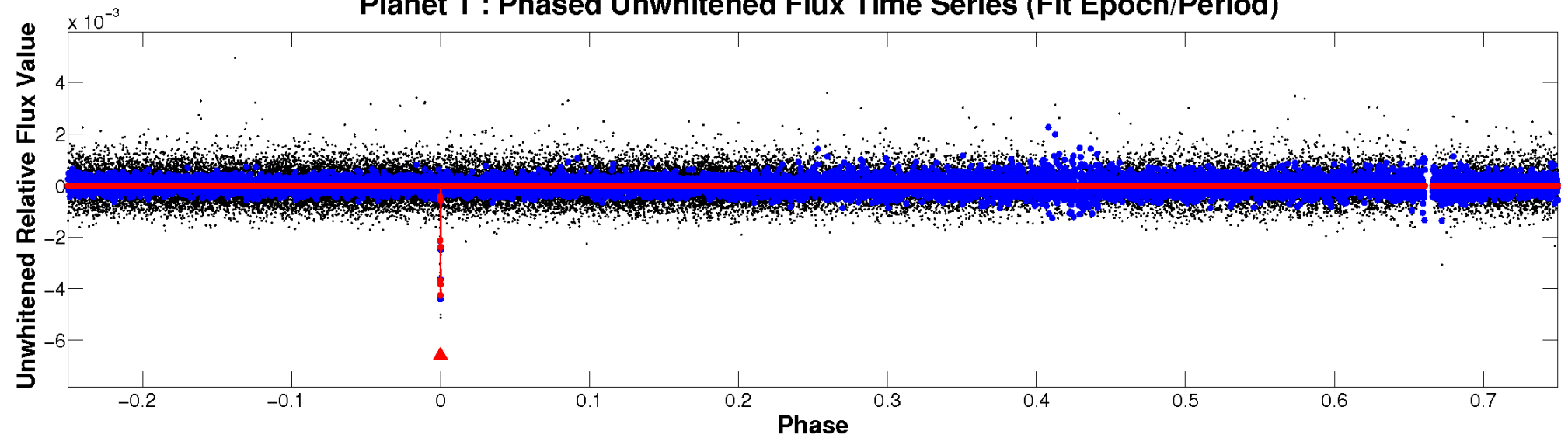
# ALT Odd/Even

TCE 004566848-01

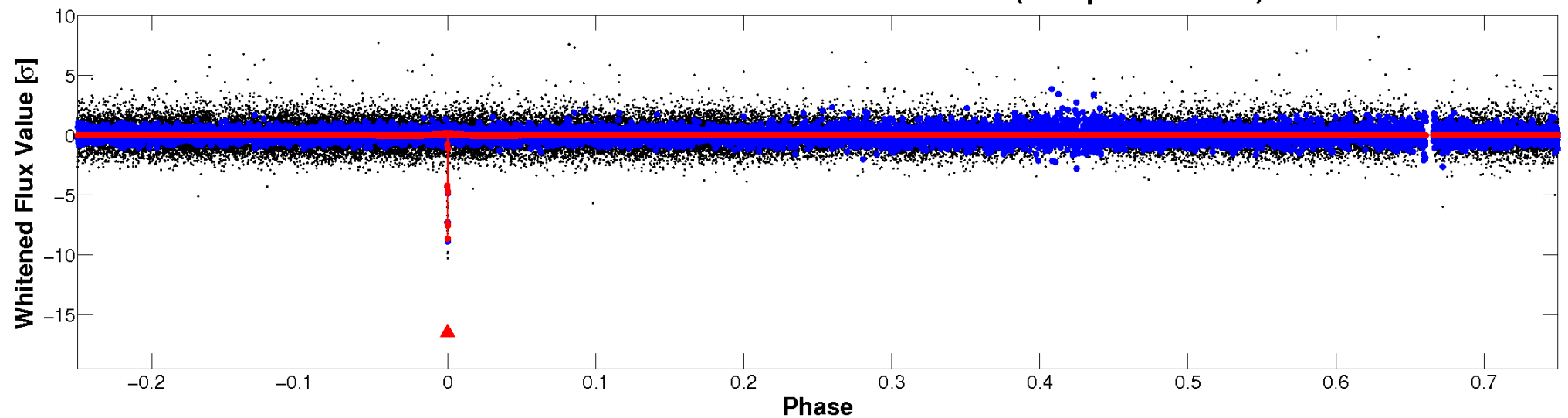


# Non-Whitened Vs. Whitened Light Curve

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

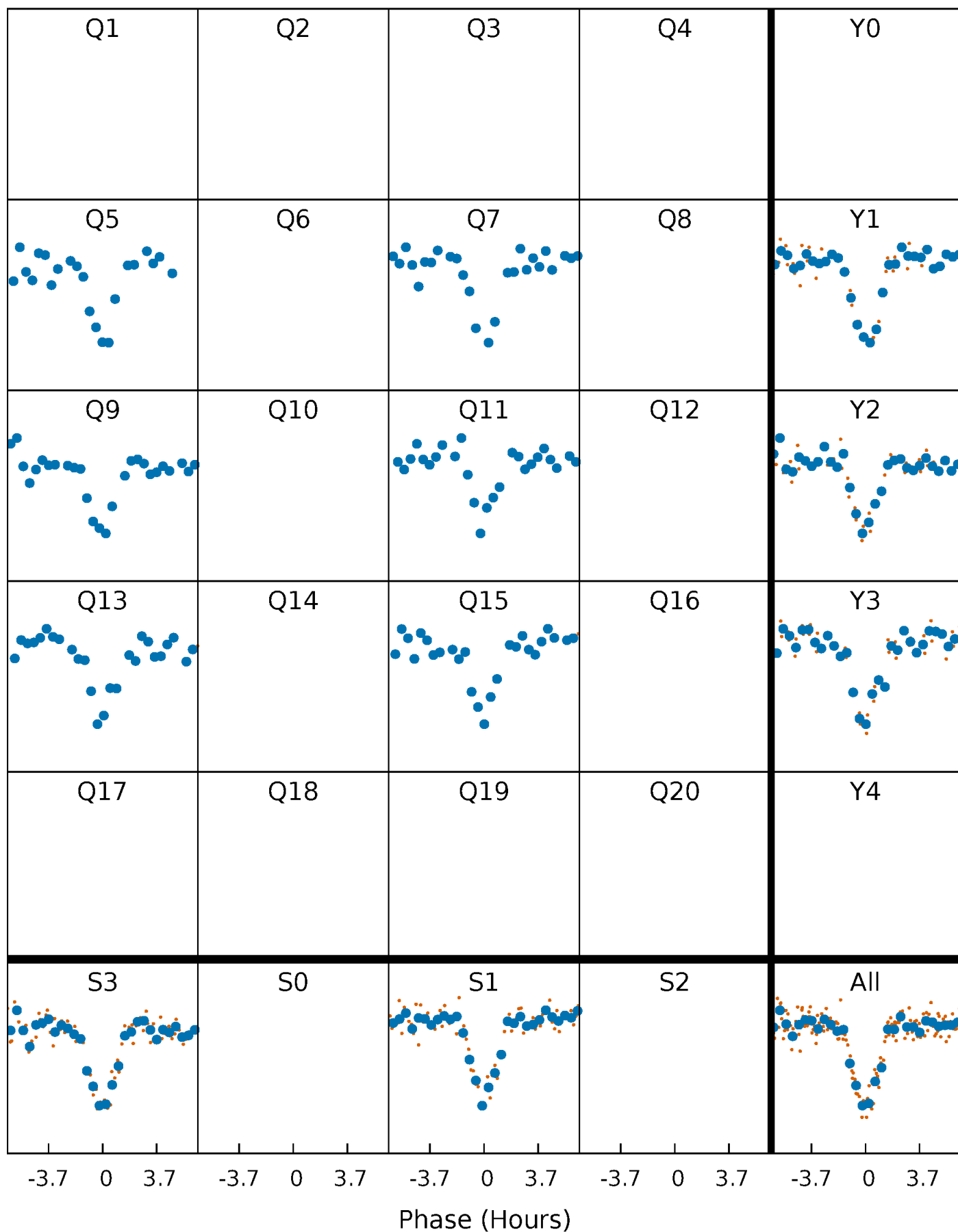


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

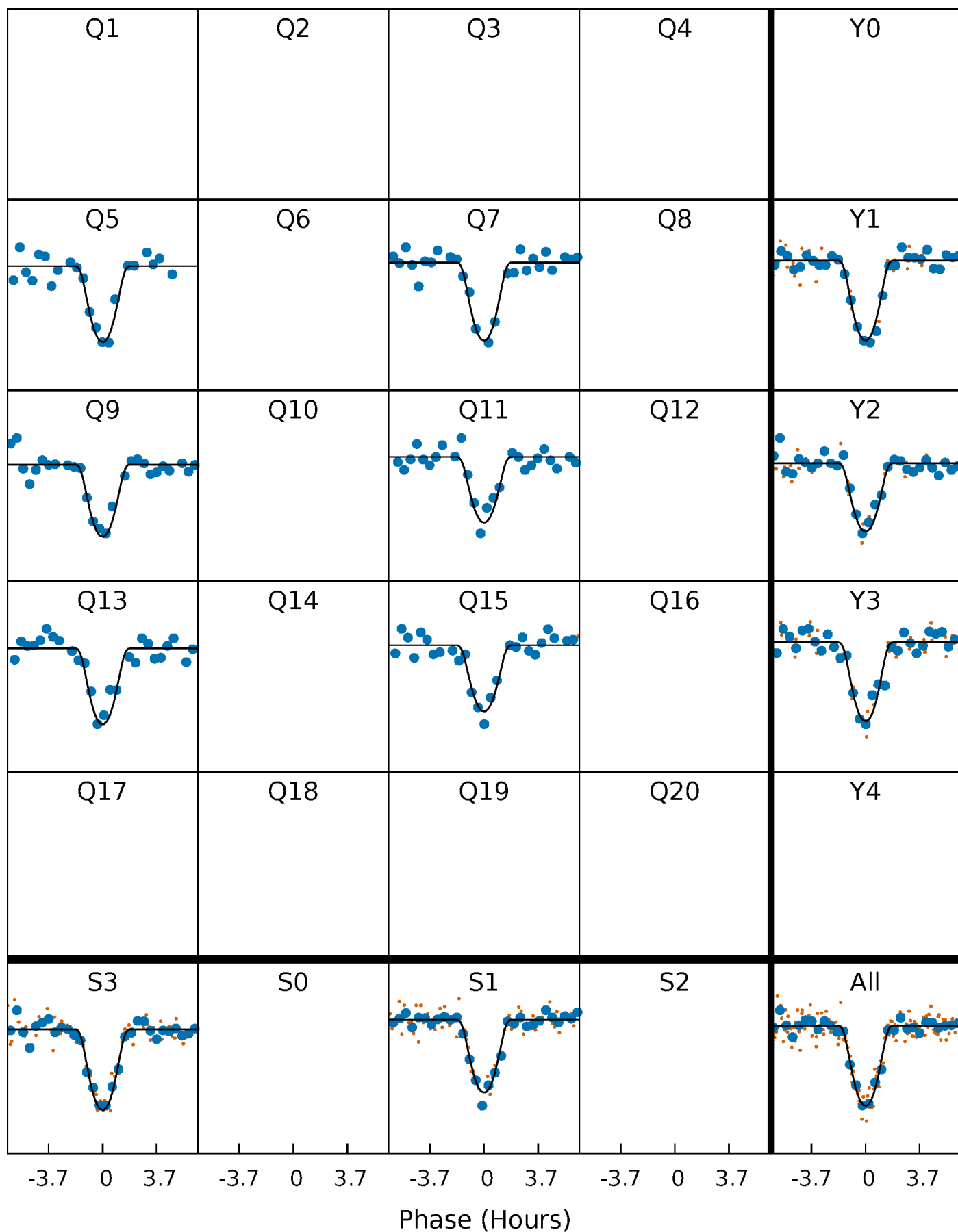
TCE 004566848-01 P=180.412082 Days  $T_0=142.863987$  (BKJD)





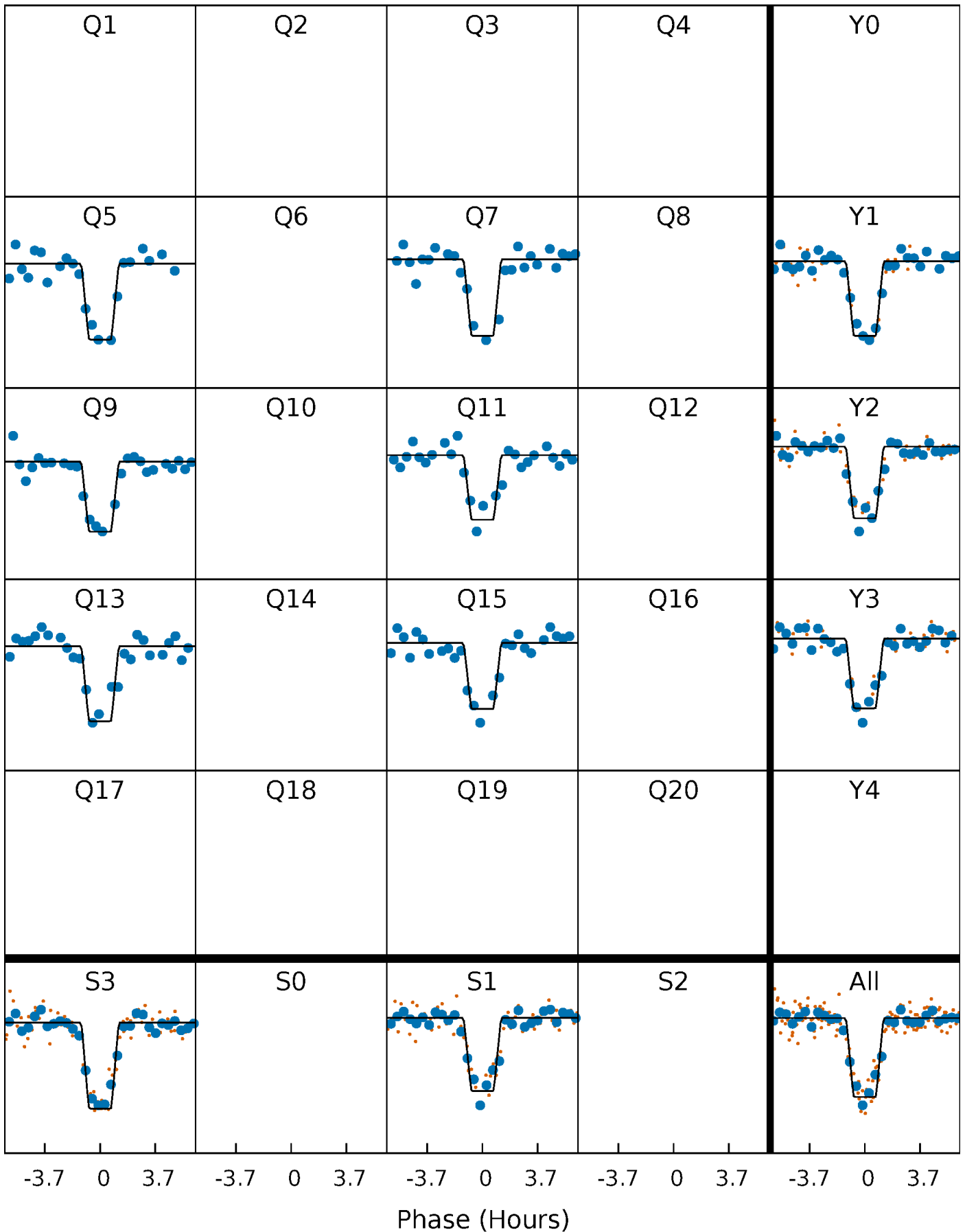
# DV Quarter-Phased Transit Curves

TCE 004566848-01 P=180.412082 Days  $T_0=142.863987$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

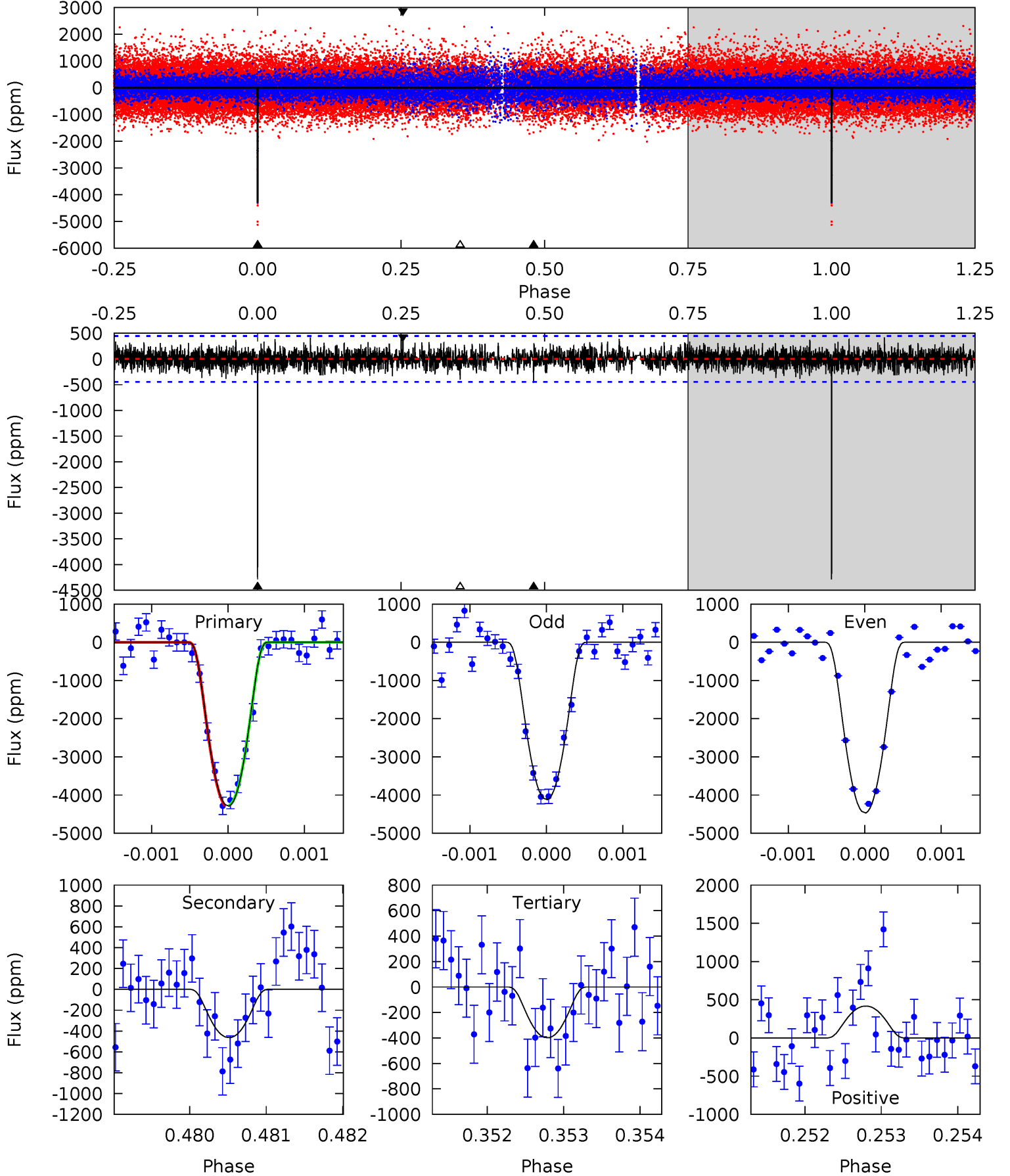
TCE 004566848-01 P=180.412646 Days  $T_0=142.861593$  (BKJD)



# DV Model-Shift Uniqueness Test

004566848-01, P = 180.412082 Days, E = 142.863987 Days

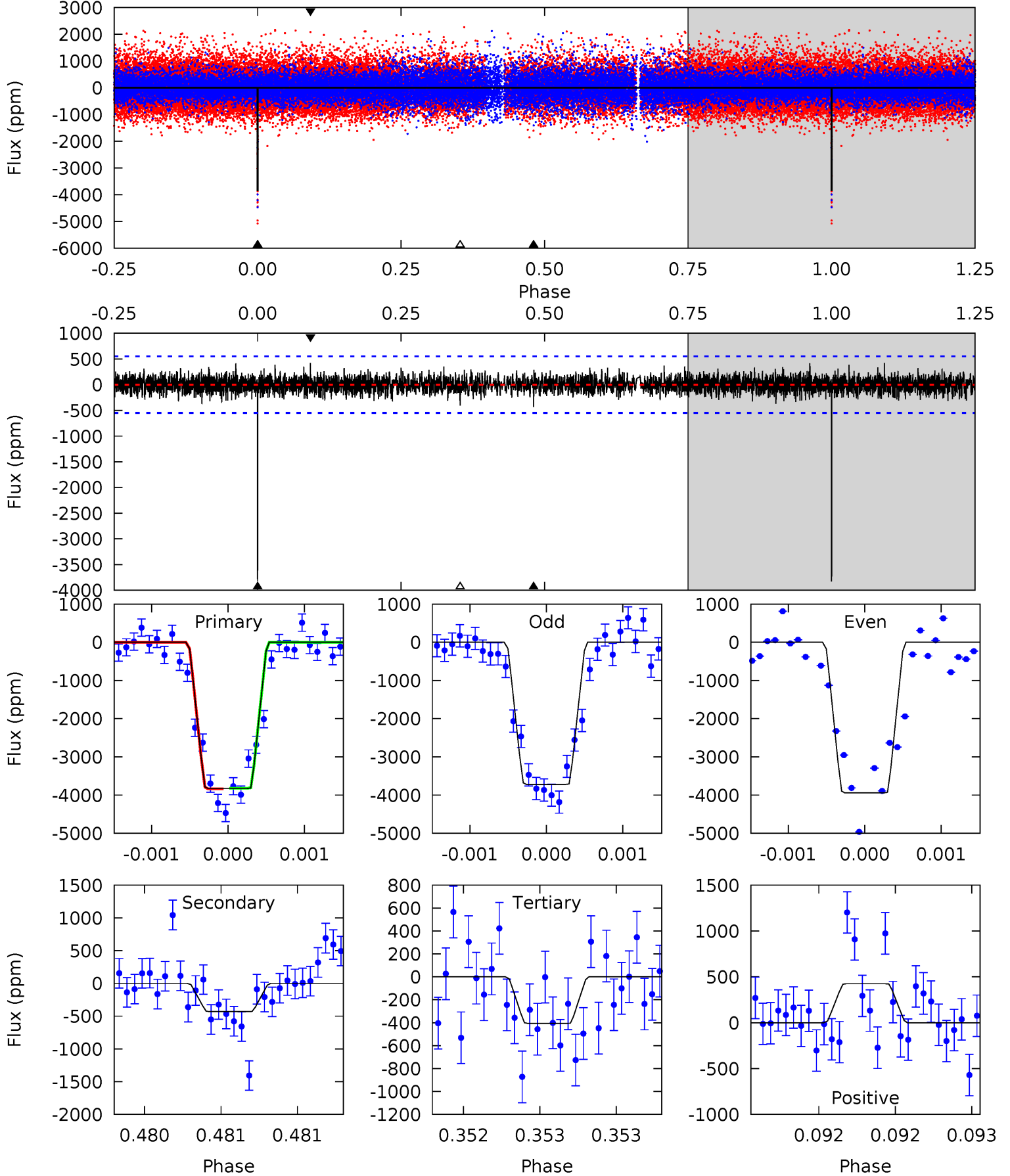
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.6	5.69	4.89	5.12	5.48	3.34	1.47	47.7	47.5	0.80	0.56	2.14	1.01	0.09	0.03



# Alt Model-Shift Uniqueness Test

004566848-01, P = 180.412646 Days, E = 142.861593 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
38.5	4.33	4.08	4.27	5.55	3.45	1.10	34.4	34.3	0.24	0.06	1.13	1.00	0.10	0.08



### Stellar Parameters For KIC 004566848

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6032^{+189}_{-232}$	$4.485^{+0.050}_{-0.200}$	$-0.060^{+0.250}_{-0.300}$	$0.973^{+0.285}_{-0.095}$	$1.055^{+0.139}_{-0.139}$	$1.612^{+0.416}_{-0.802}$
	+3%/-4%	+1%/-4%	+417%/-500%	+29%/-10%	+13%/-13%	+26%/-50%
Source	KIC0	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 004566848-01 / KOI 5071.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-464 \pm 82$	$9.07^{+2.90}_{-3.08}$	$469^{+31}_{-24}$	$3553^{+523}_{-300}$	$1242^{+1600}_{-569}$
Alt.	$-430 \pm 99$	$7.23^{+2.86}_{-2.58}$	$470^{+31}_{-24}$	$3767^{+662}_{-389}$	$1768^{+2619}_{-902}$

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

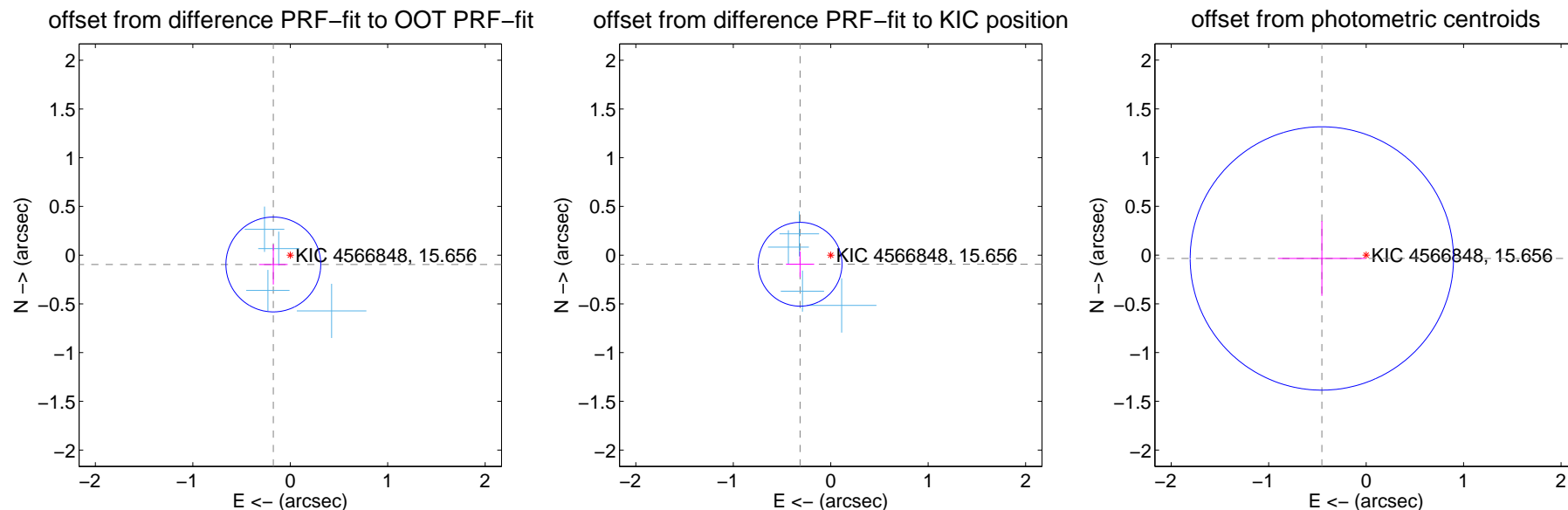
## DV Centroid Data

Supplemental centroid analysis for 004566848-01. Kepler magnitude: 15.66. Transit SNR 35.11

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.198 \pm 0.162$	1.22	$0.174 \pm 0.147$	$-0.096 \pm 0.205$
PRF-fit source offset from KIC position	$0.328 \pm 0.143$	2.29	$0.314 \pm 0.144$	$-0.093 \pm 0.132$
photometric centroid source offset	$0.46 \pm 0.45$	1.01	$0.45 \pm 0.45$	$-0.03 \pm 0.38$

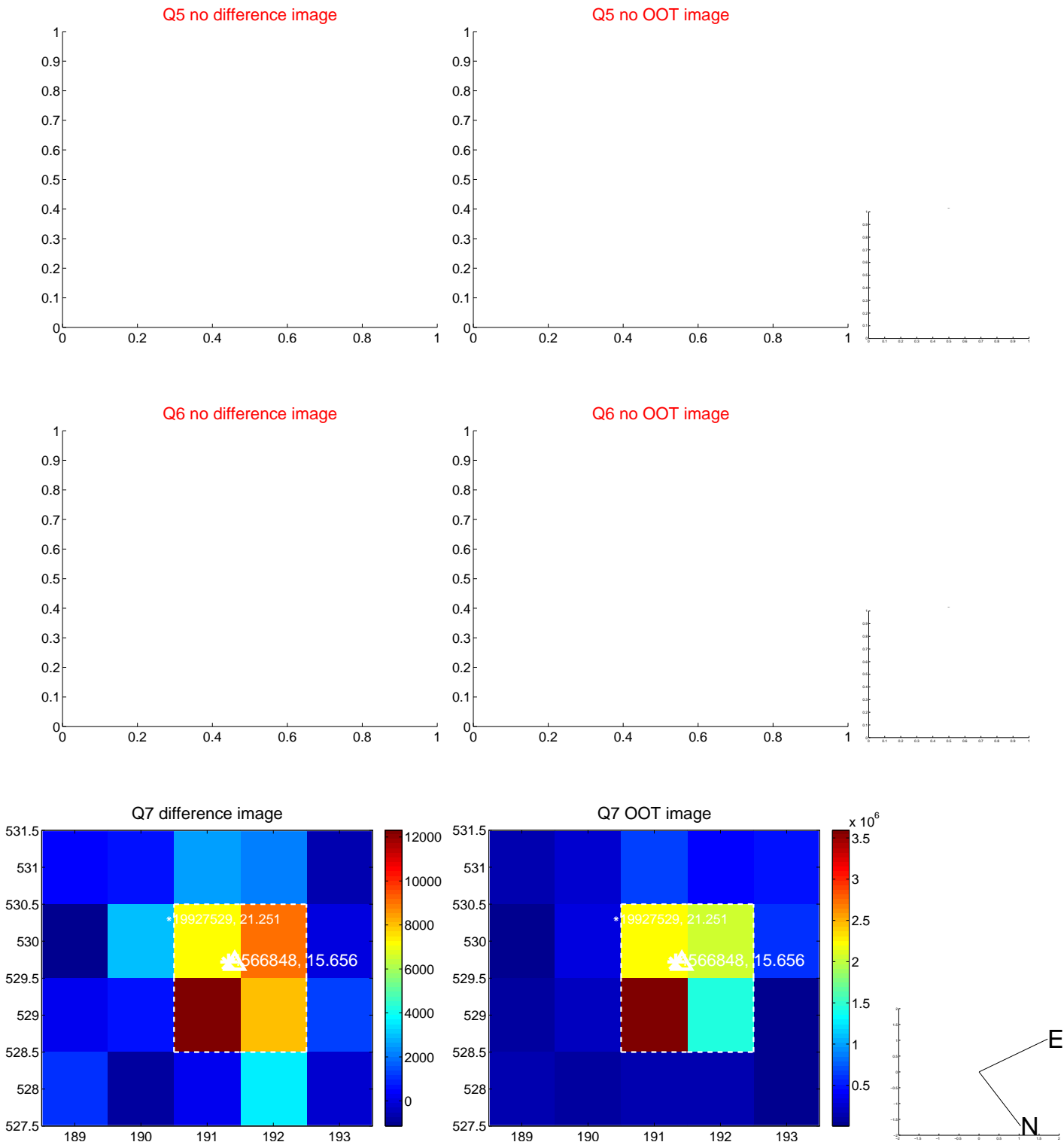


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

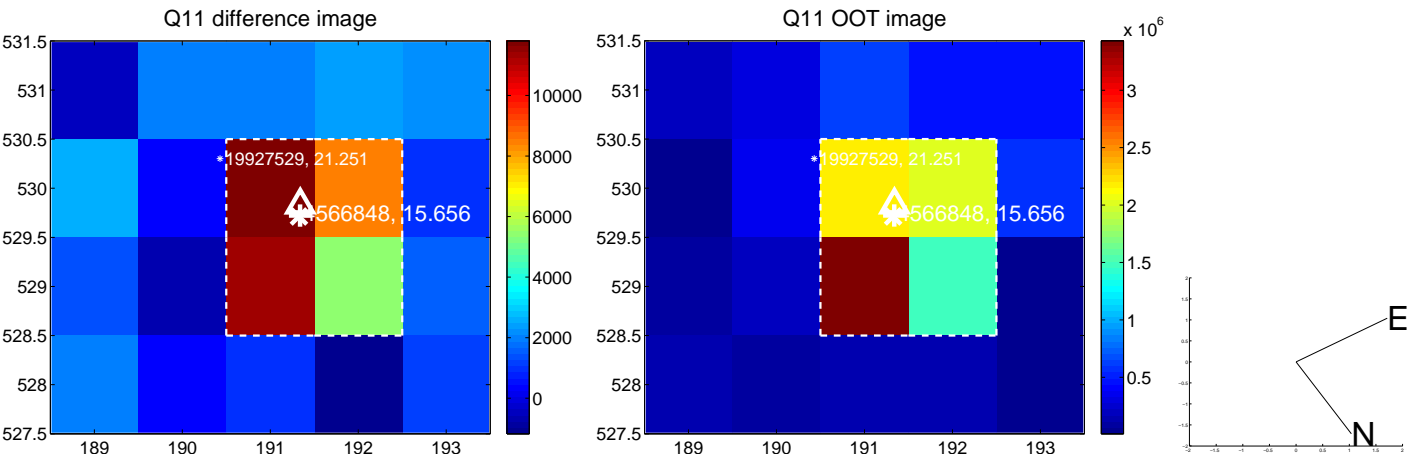
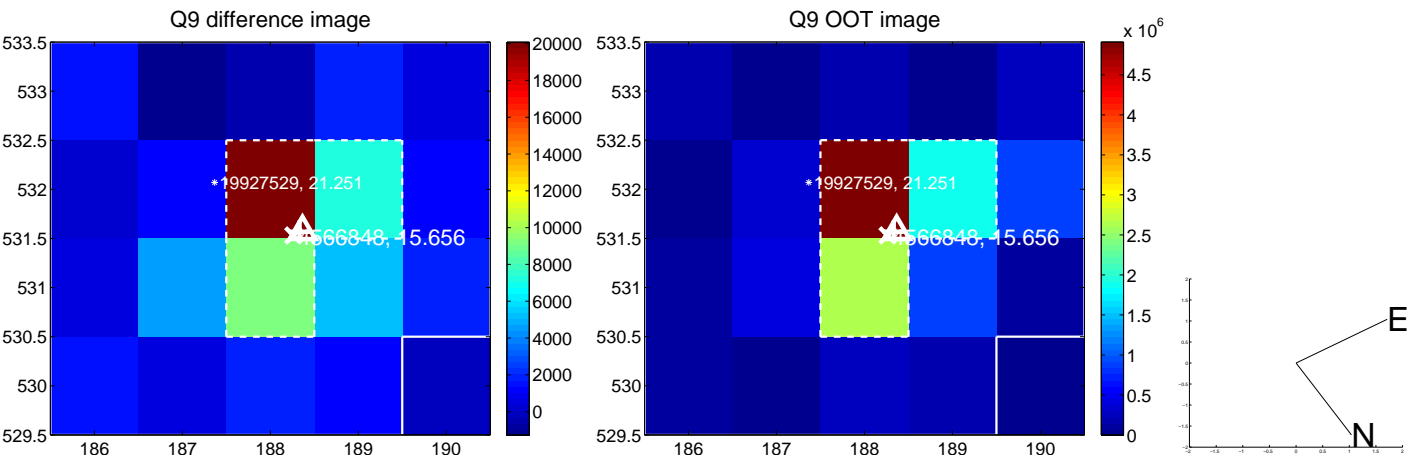


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

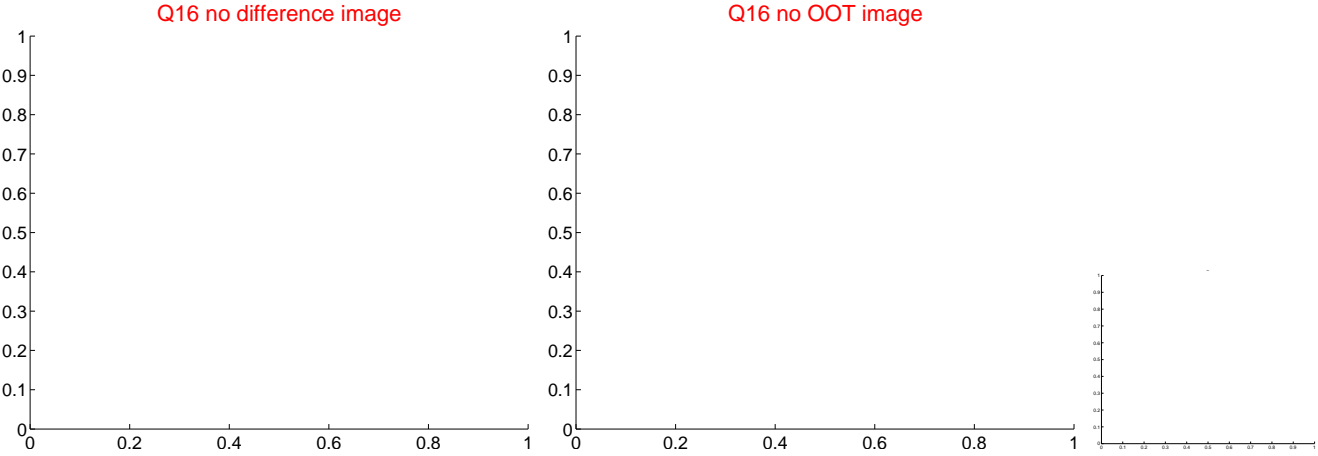
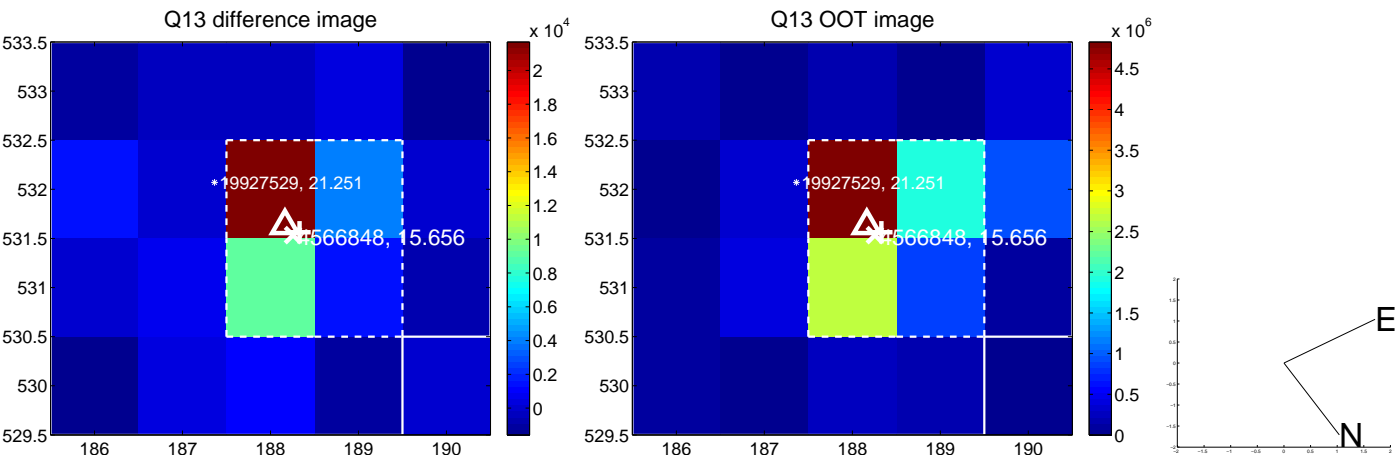




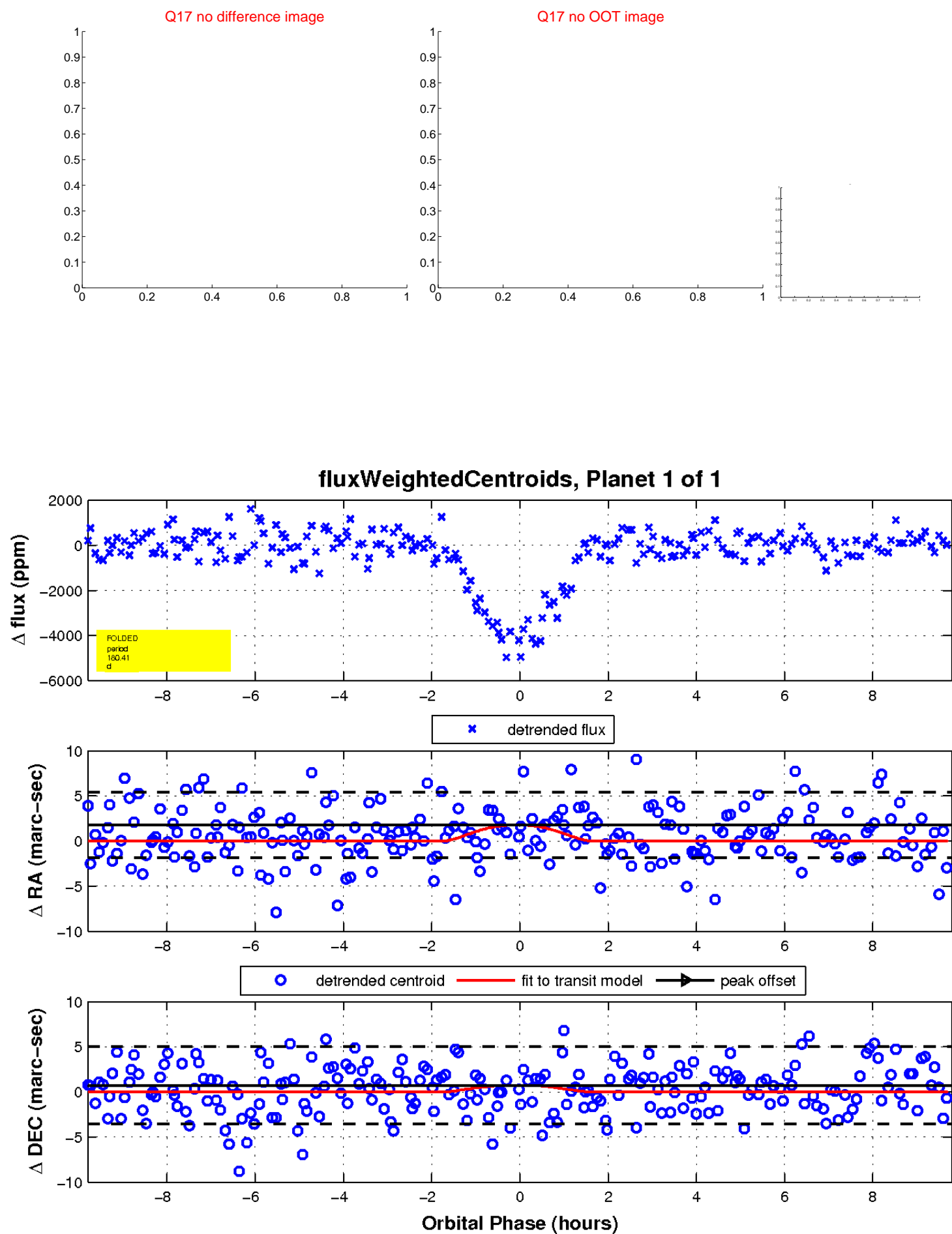
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

