

# KIC 004180718

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004180718-01	OBS	No	150.146185	134.122504	5252.2	23.062	7.7	7.3	0.90	6011	7.77	3.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004180718-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

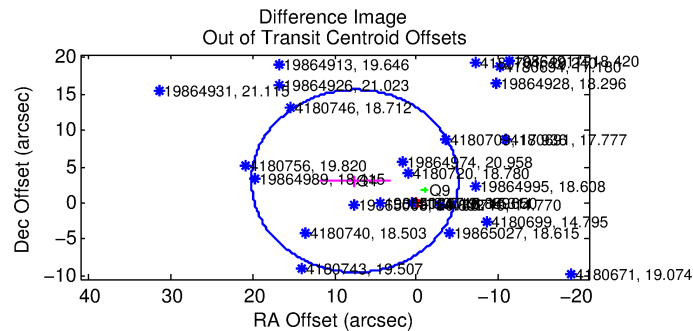
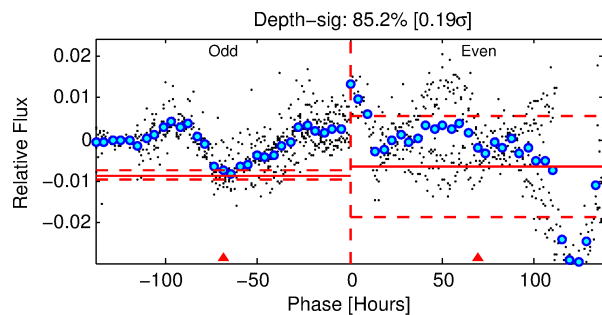
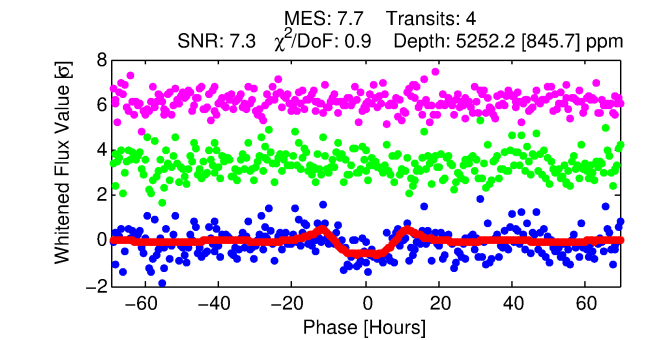
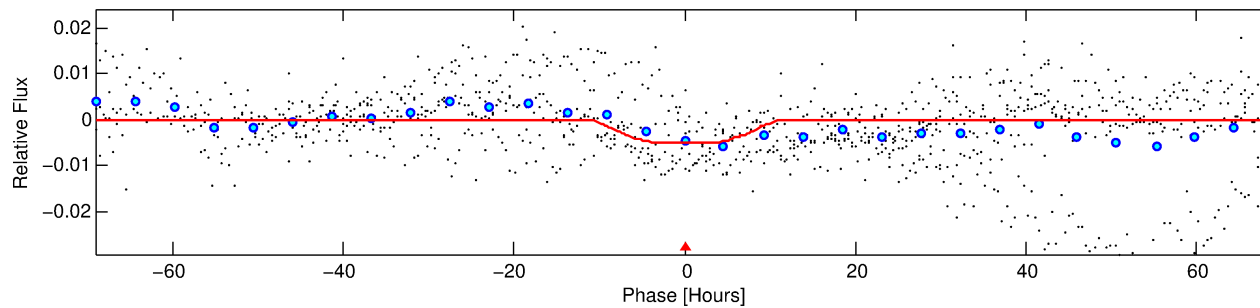
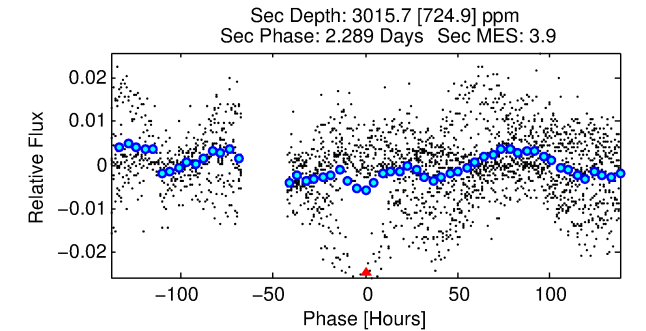
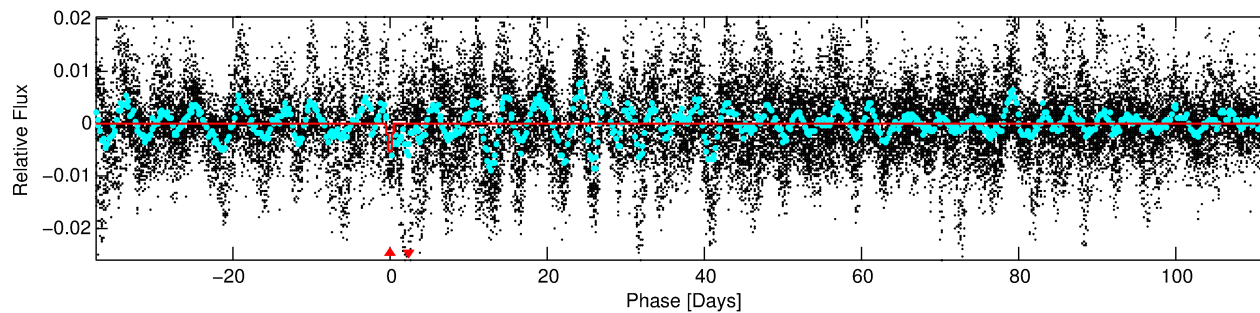
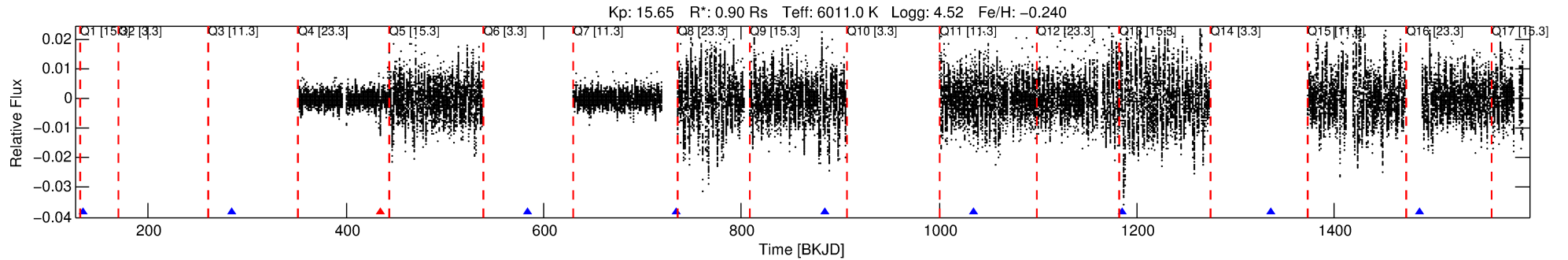
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004180718-01

No Significant Match Found

# DV One-Page Summary

KIC: 4180718 Candidate: 1 of 1 Period: 150.146 d



## DV Fit Results:

Period = 150.14619 [0.01195] d  
Epoch = 134.1225 [0.0445] BKJD  
Rp/R\* = 0.0789 [0.0076]  
a/R\* = 29.46 [3.99]  
b = 0.90 [0.03]  
Seff = 3.14 [1.19]  
Teff = 339 [32] K  
Rp = 7.77 [2.38] Re  
a = 0.5506 [0.1343] AU  
Ag = 8340.90 [3904.81] [2.14σ]  
Teffp = 5015 [423] K [11.01σ]

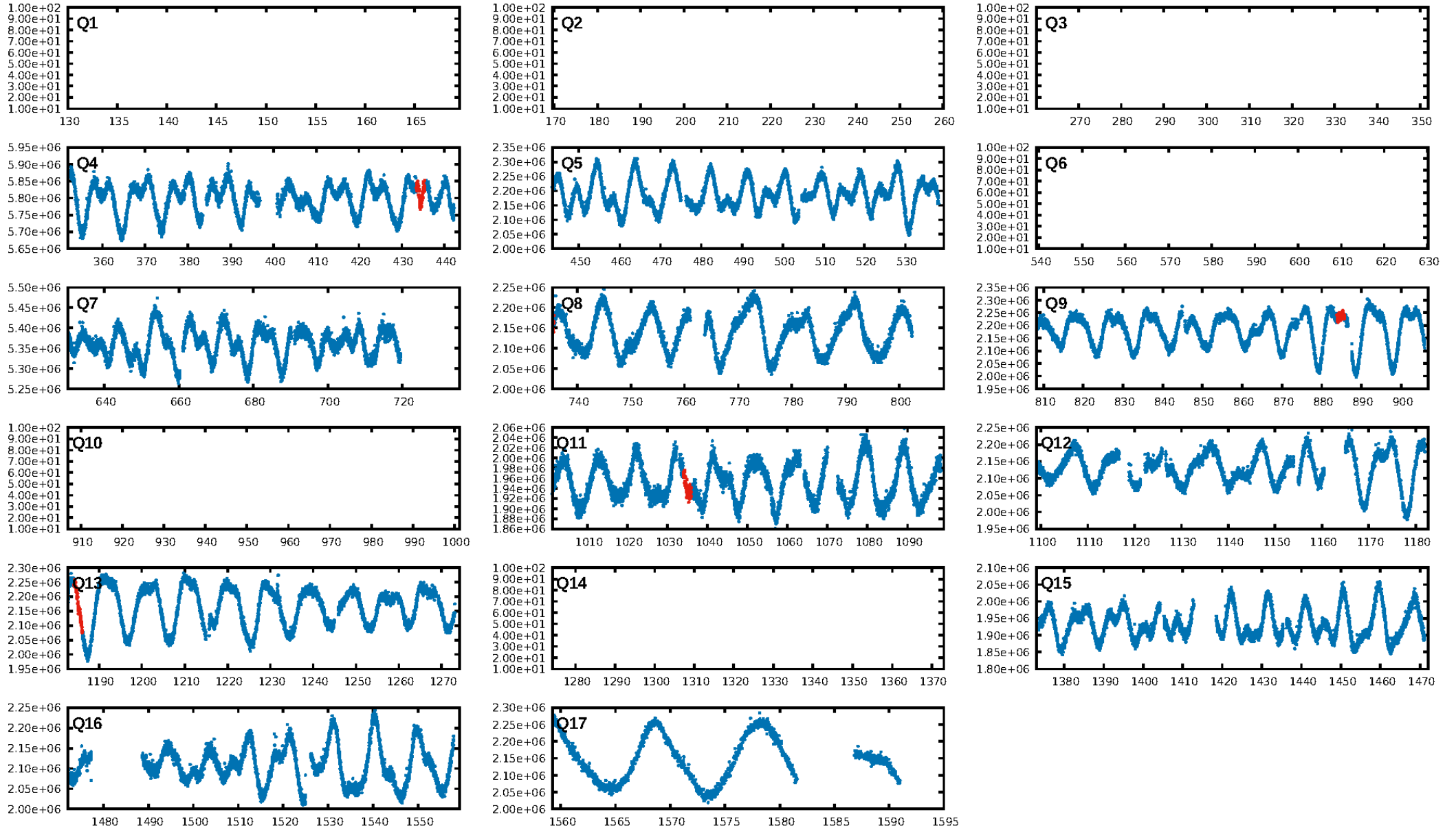
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 34.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.88e-08  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 1.036  
Centroid-sig: 63.1%  
Centroid-so: 1.646 arcsec [5.44σ]  
OotOffset-rm: 8.097 arcsec [1.93σ]  
KicOffset-rm: 3.788 arcsec [1.54σ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

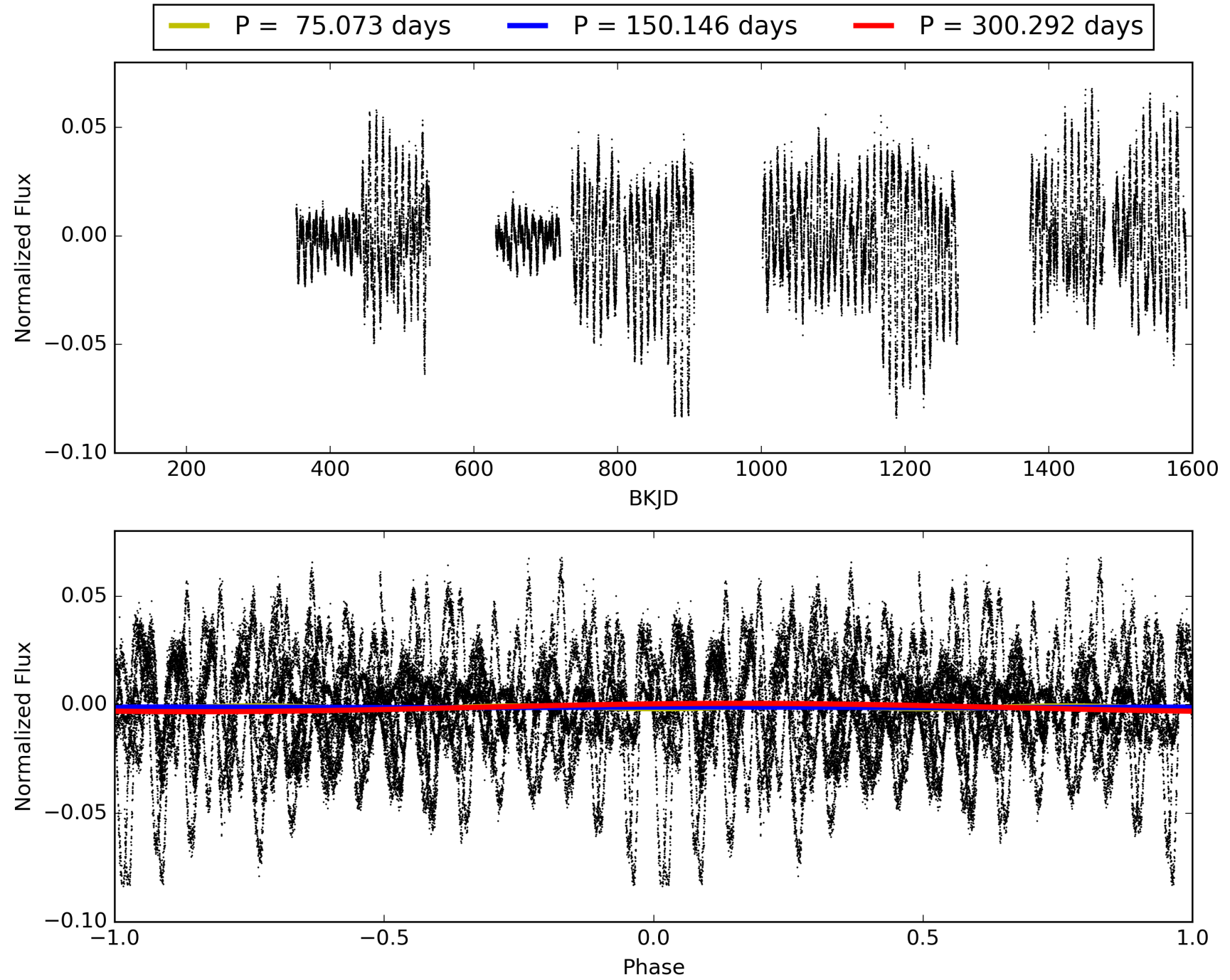
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:53:26 Z

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

# TCE 004180718-01, PDC Light Curves

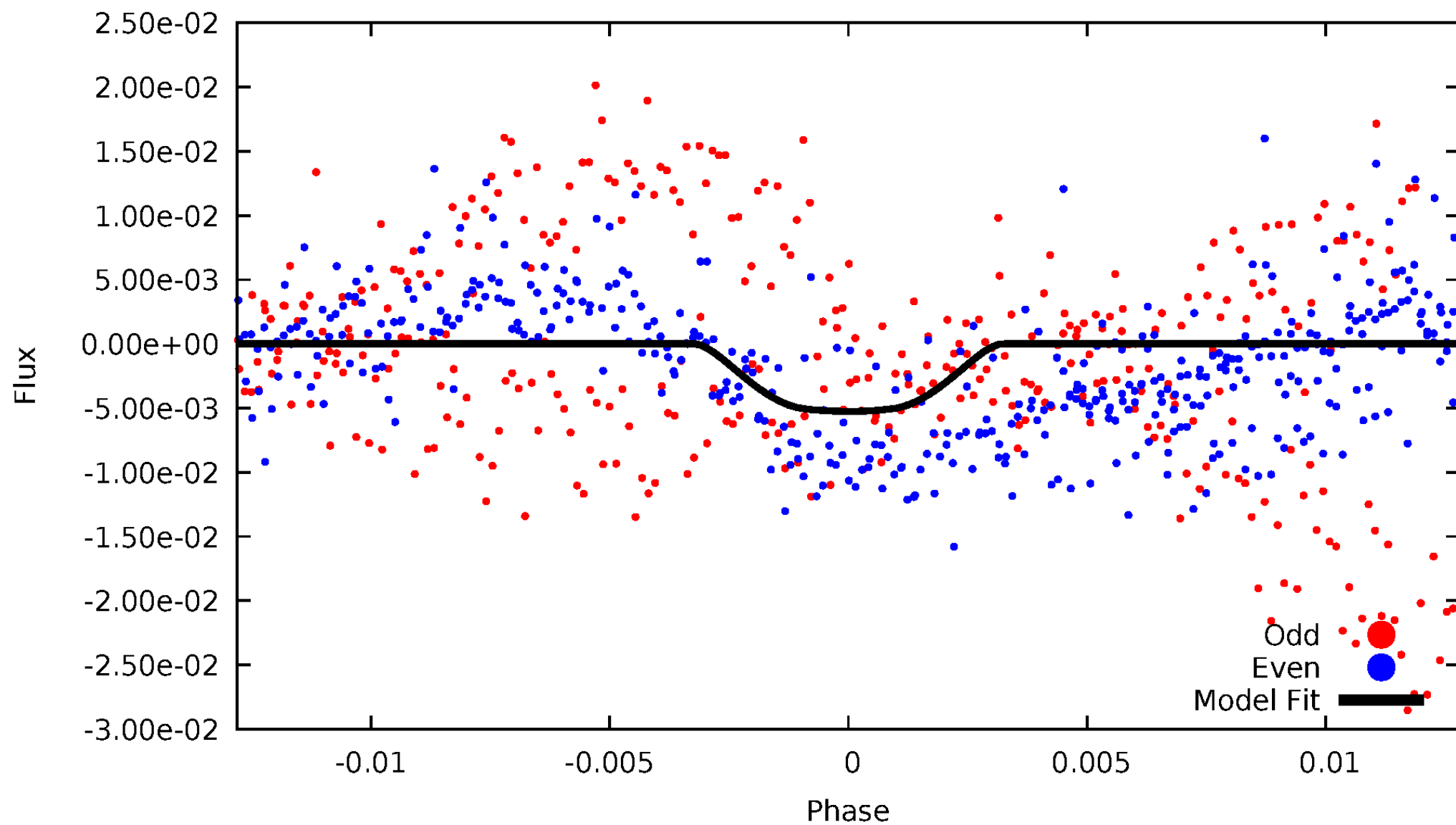


# TCE 004180718-01



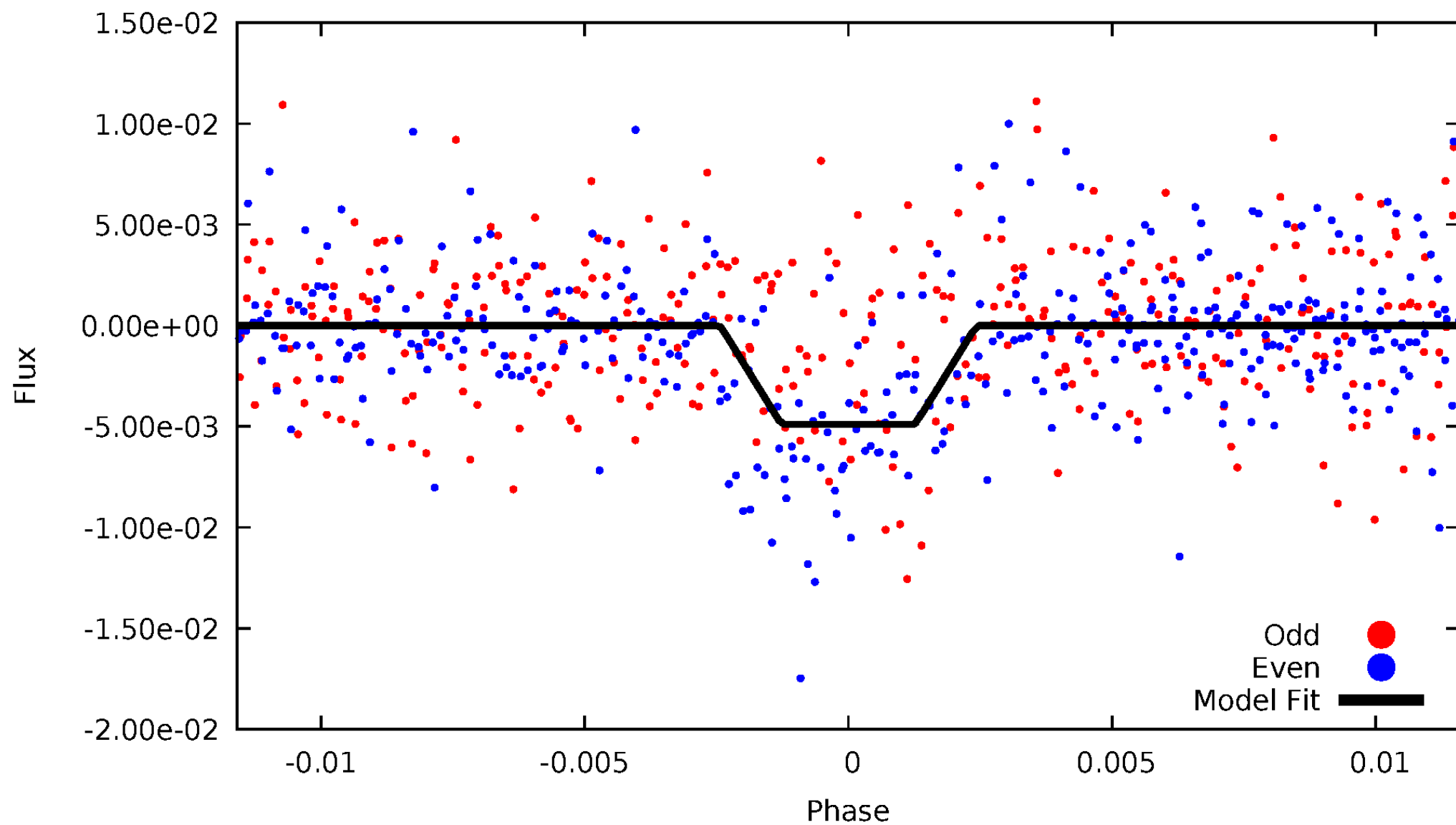
# DV Odd/Even

TCE 004180718-01



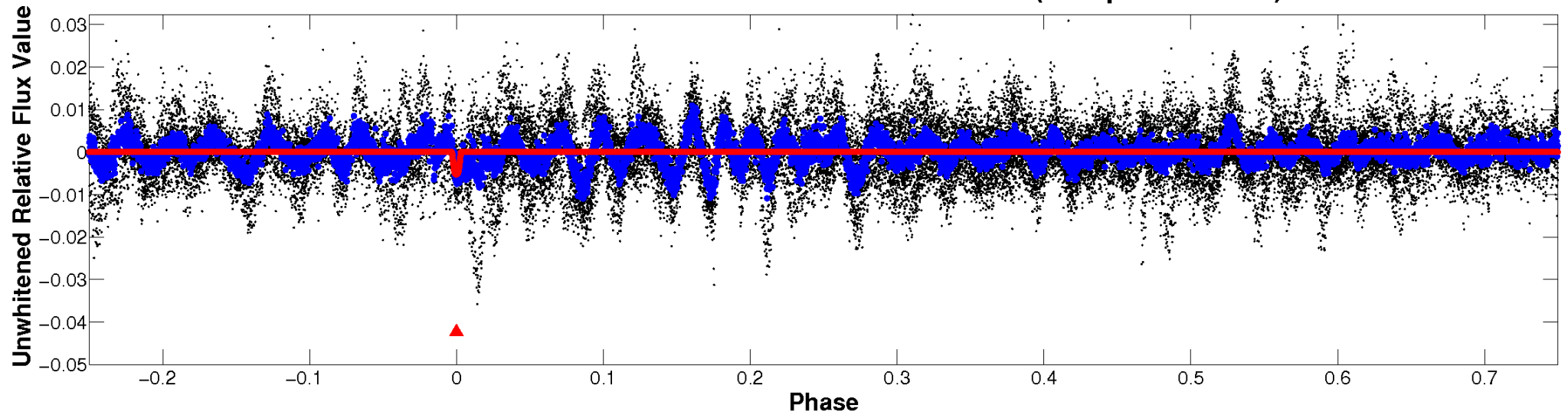
# ALT Odd/Even

TCE 004180718-01

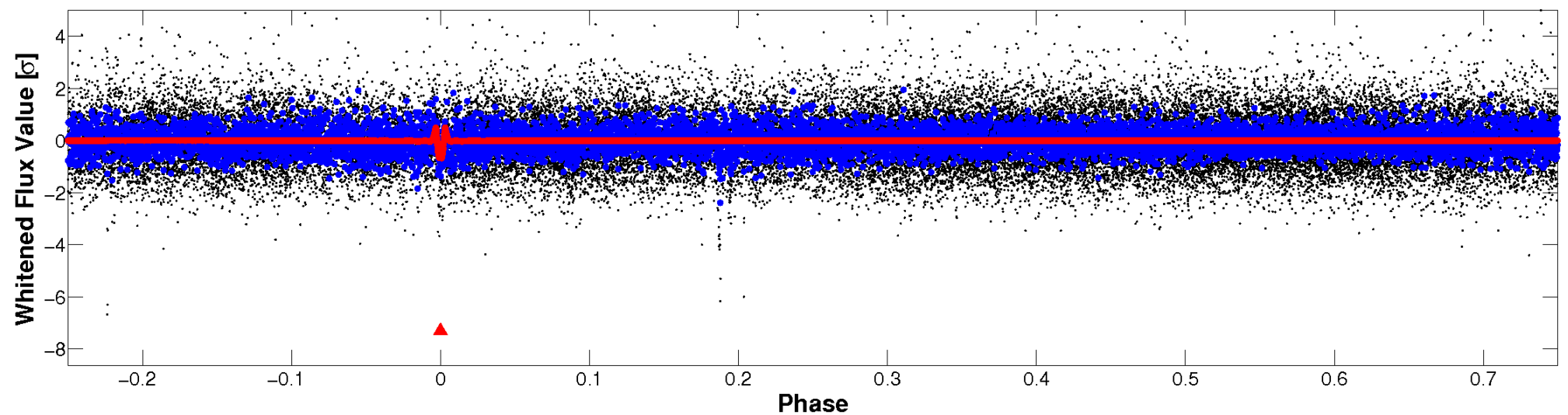


# Non-Whitened Vs. Whitened Light Curve

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



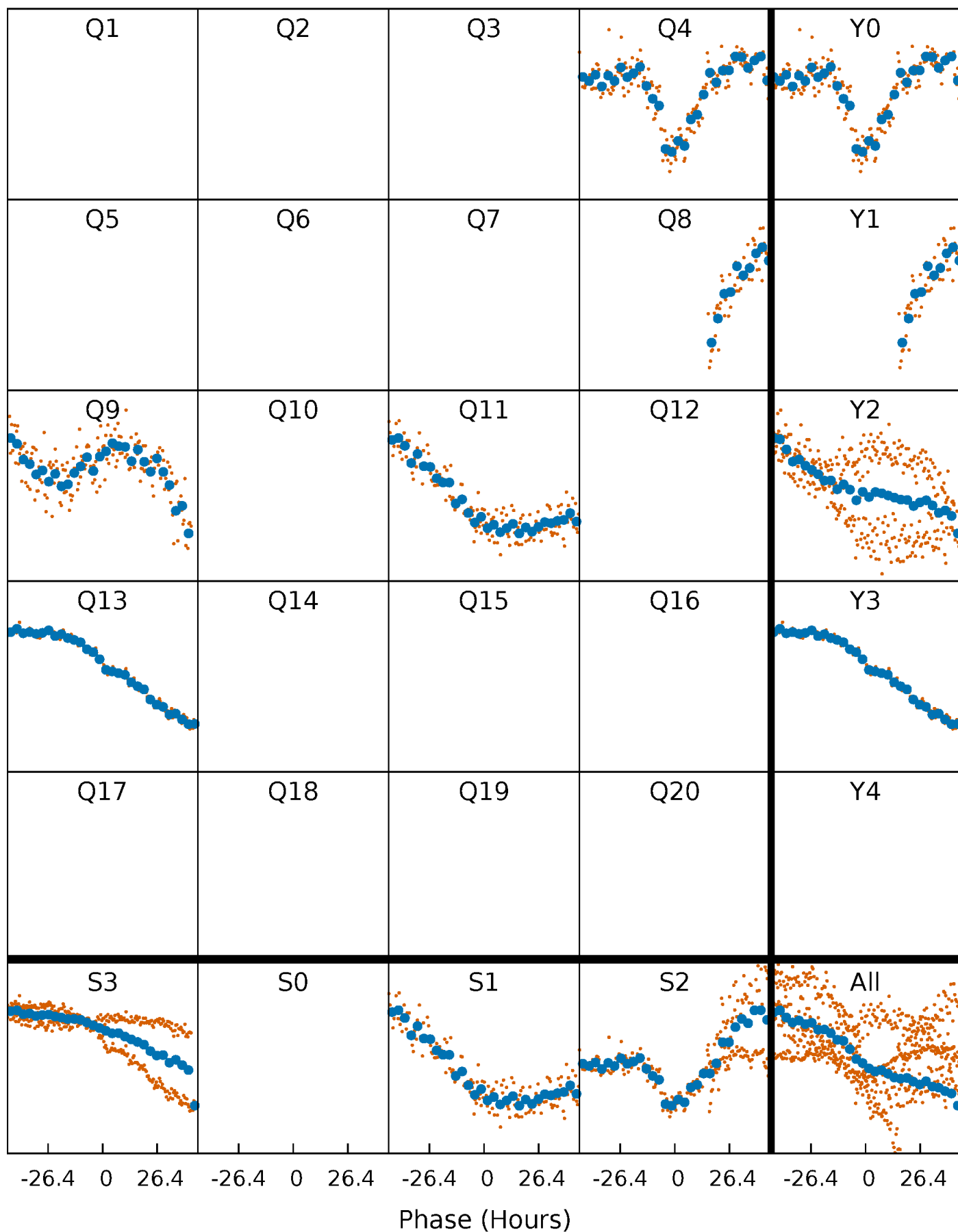
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

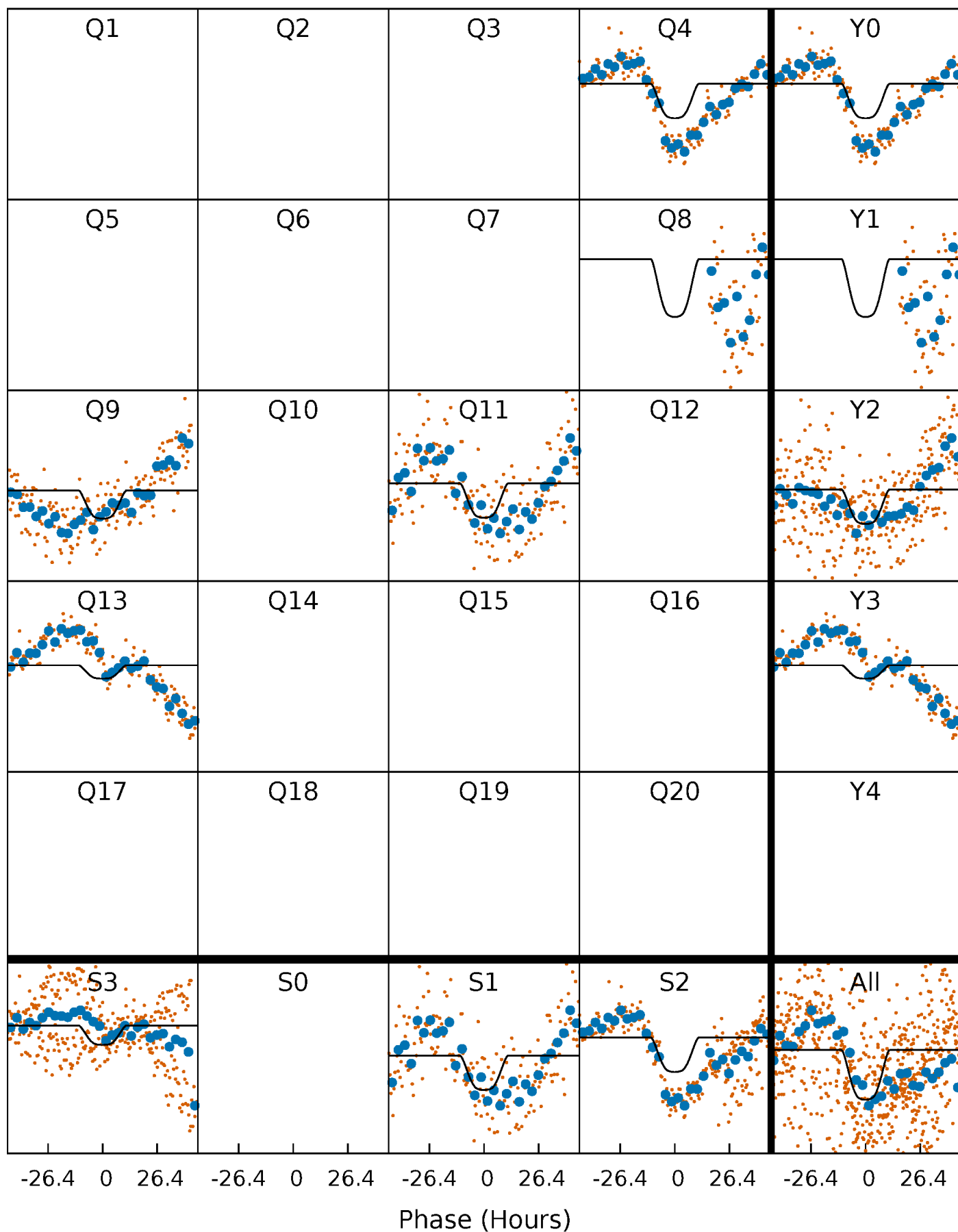
TCE 004180718-01 P=150.146186 Days  $T_0=134.122504$  (BKJD)





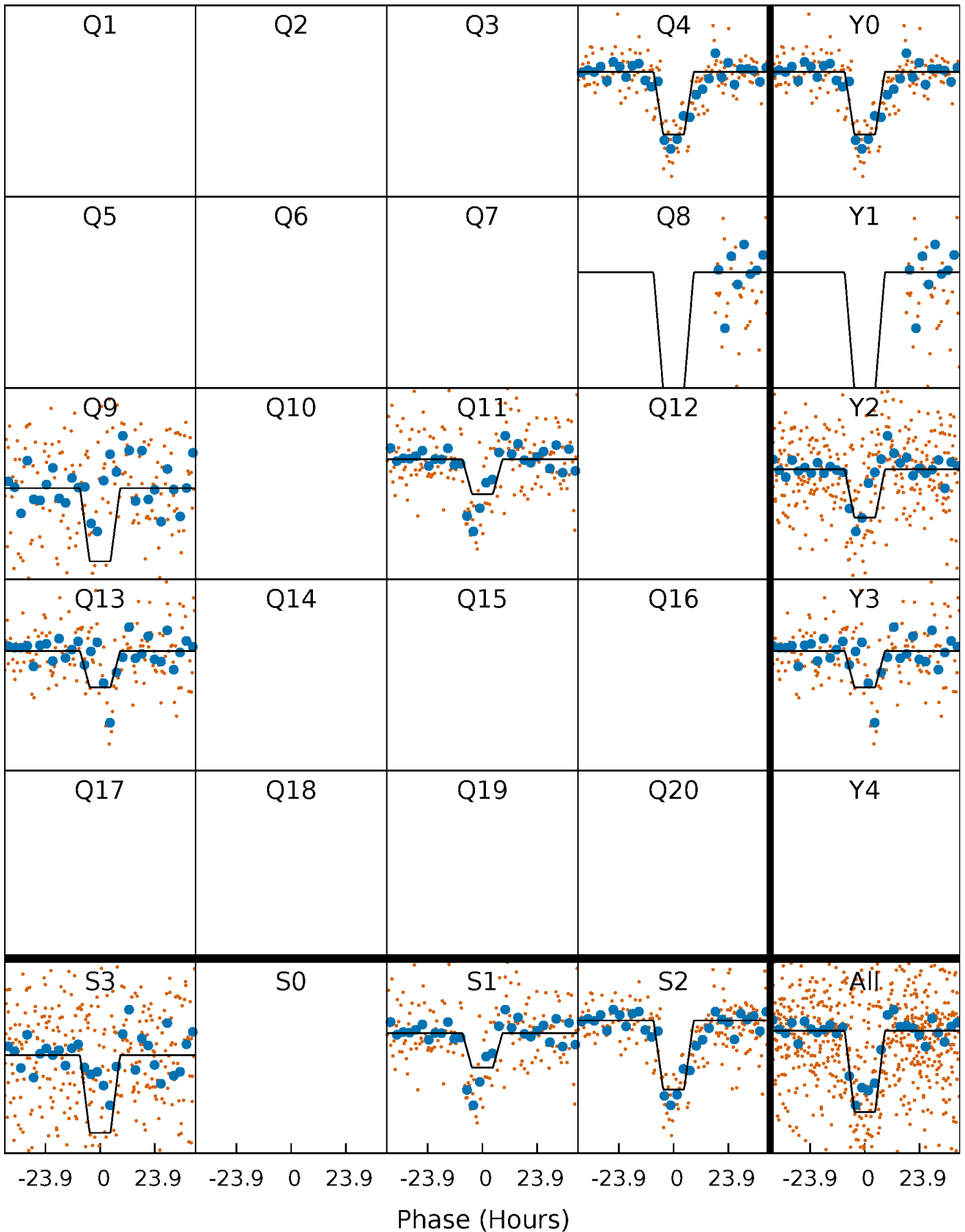
# DV Quarter-Phased Transit Curves

TCE 004180718-01 P=150.146186 Days  $T_0=134.122504$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

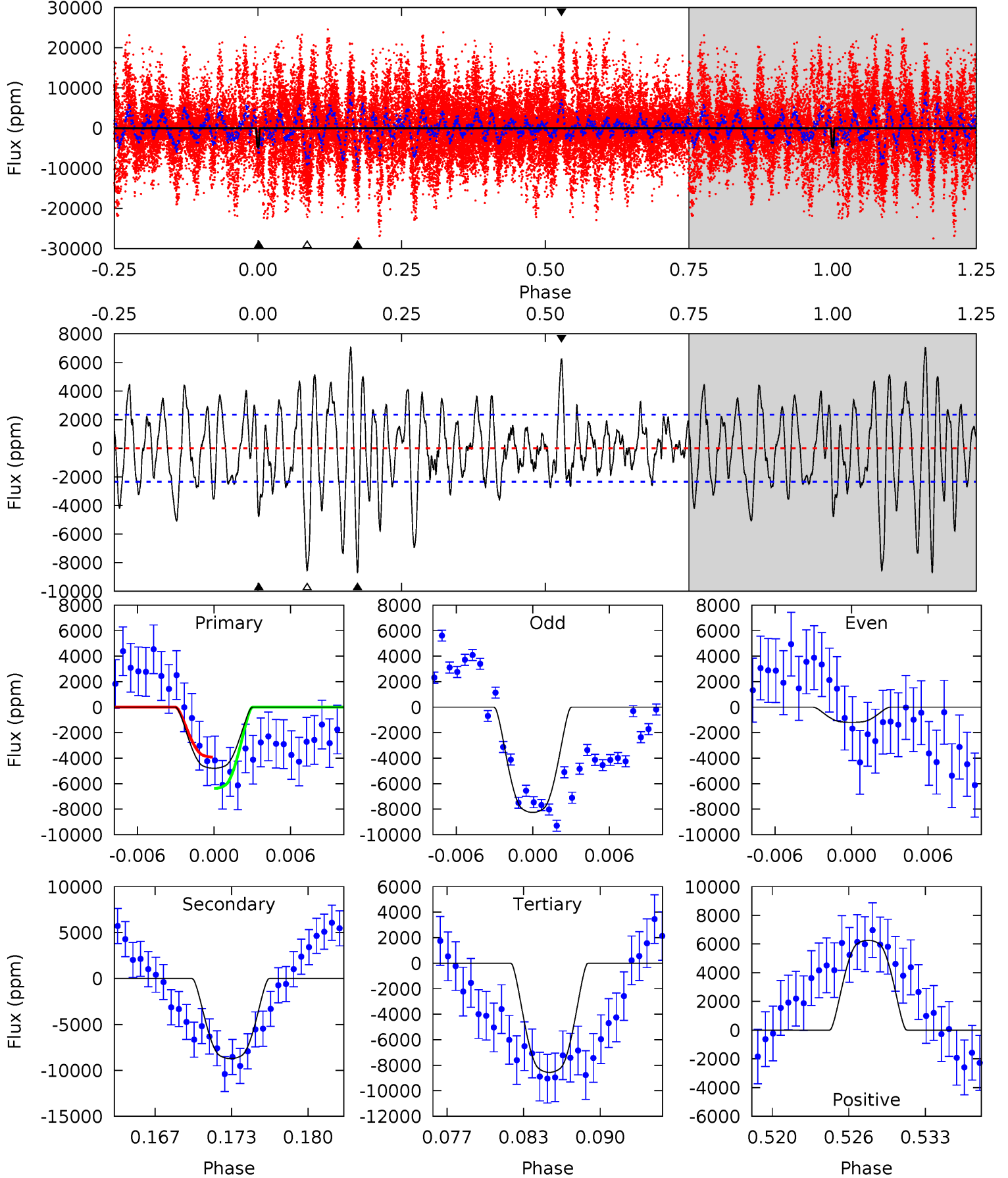
TCE 004180718-01 P=150.145799 Days  $T_0=134.061528$  (BKJD)



# DV Model-Shift Uniqueness Test

004180718-01, P = 150.146186 Days, E = 134.122504 Days

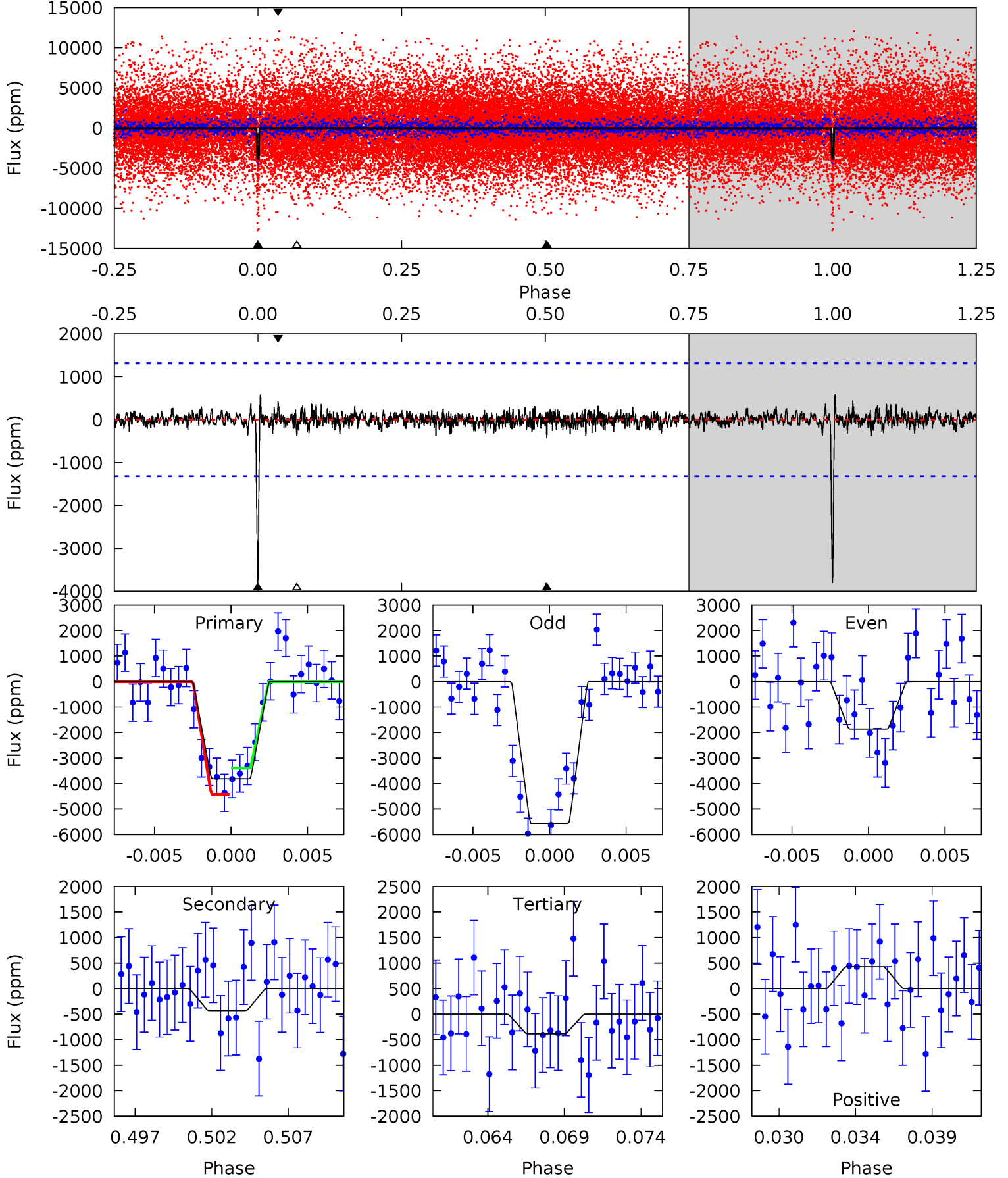
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	19.0	18.6	13.6	5.11	2.73	5.02	-8.19	-3.19	0.35	5.36	7.70	0.80	0.45	2.69



# Alt Model-Shift Uniqueness Test

004180718-01, P = 150.145799 Days, E = 134.061528 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
14.9	1.67	1.50	1.68	5.16	2.81	0.43	13.4	13.2	0.17	-0.01	7.31	0.90	0.13	2.02



### Stellar Parameters For KIC 004180718

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6011^{+210}_{-210}$	$4.522^{+0.048}_{-0.192}$	$-0.240^{+0.300}_{-0.300}$	$0.902^{+0.263}_{-0.088}$	$0.988^{+0.130}_{-0.117}$	$1.898^{+0.391}_{-1.008}$
	+3%/-3%	+1%/-4%	+125%/-125%	+29%/-10%	+13%/-12%	+21%/-53%
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 004180718-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-8720 \pm 460$	$7.99^{+1.44}_{-0.95}$	$486^{+32}_{-25}$	$6590^{+430}_{-392}$	$22291^{+6998}_{-5622}$
Alt.	$-427 \pm 256$	$7.20^{+1.19}_{-1.01}$	$486^{+33}_{-24}$	$3684^{+369}_{-532}$	$1284^{+1029}_{-815}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{\text{obs}}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

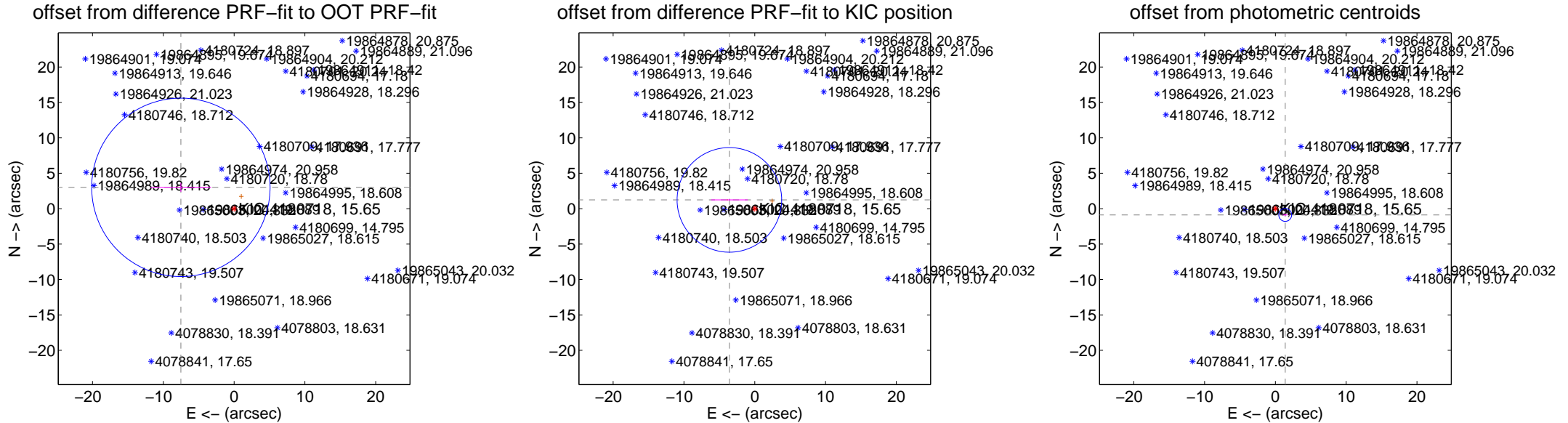
## DV Centroid Data

Supplemental centroid analysis for 004180718-01. Kepler magnitude: 15.65. Transit SNR 7.27

There are 0 quarters with good PRF difference image offsets

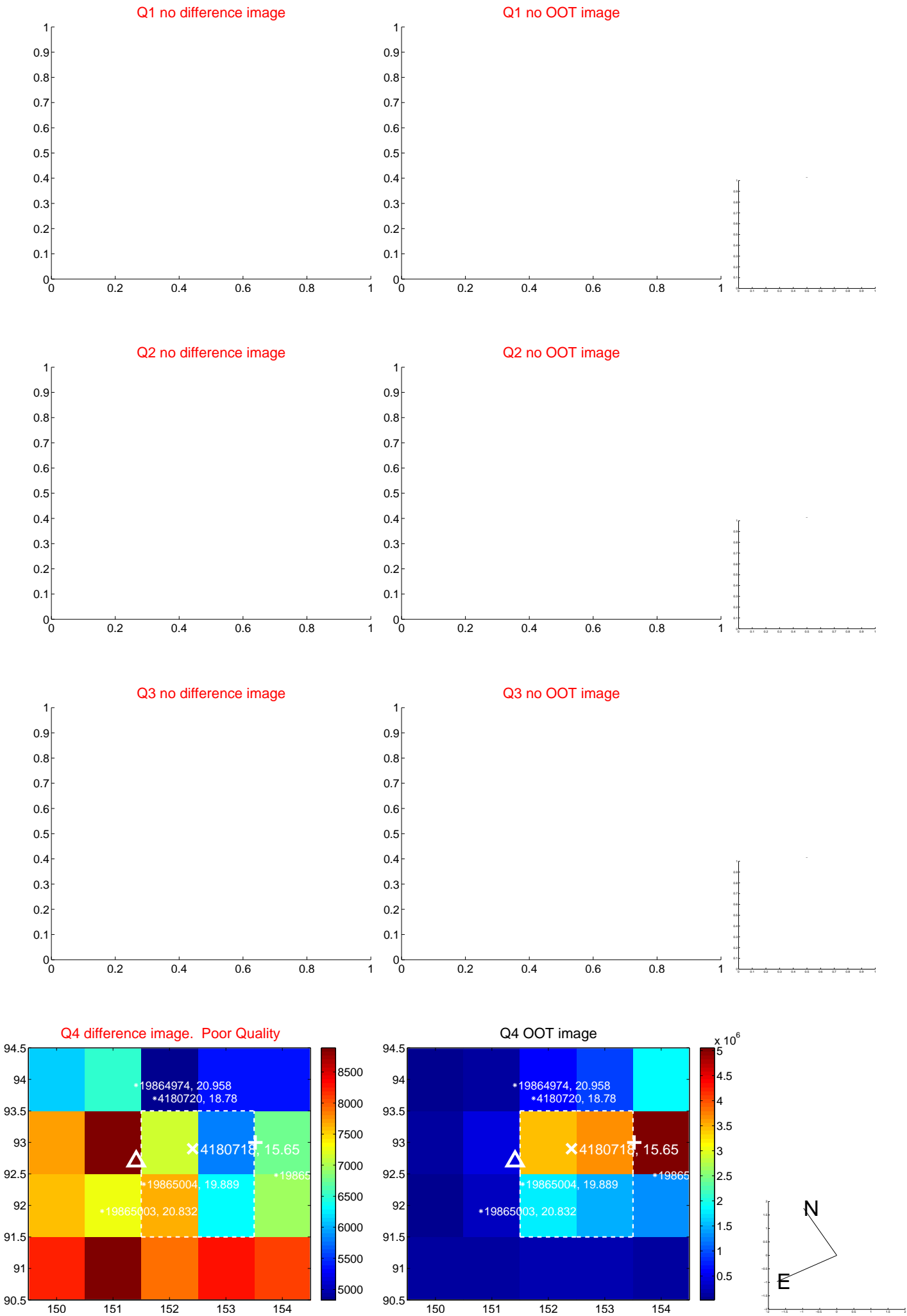
The direct PRF centroid is offset from the target star catalog position by about 1.59 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.097 \pm 4.199$	1.93	$7.517 \pm 4.271$	$3.010 \pm 0.632$
PRF-fit source offset from KIC position	$3.788 \pm 2.462$	1.54	$3.579 \pm 2.582$	$1.238 \pm 0.095$
photometric centroid source offset	$1.65 \pm 0.30$	5.44	$-1.39 \pm 0.35$	$-0.88 \pm 0.15$



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.

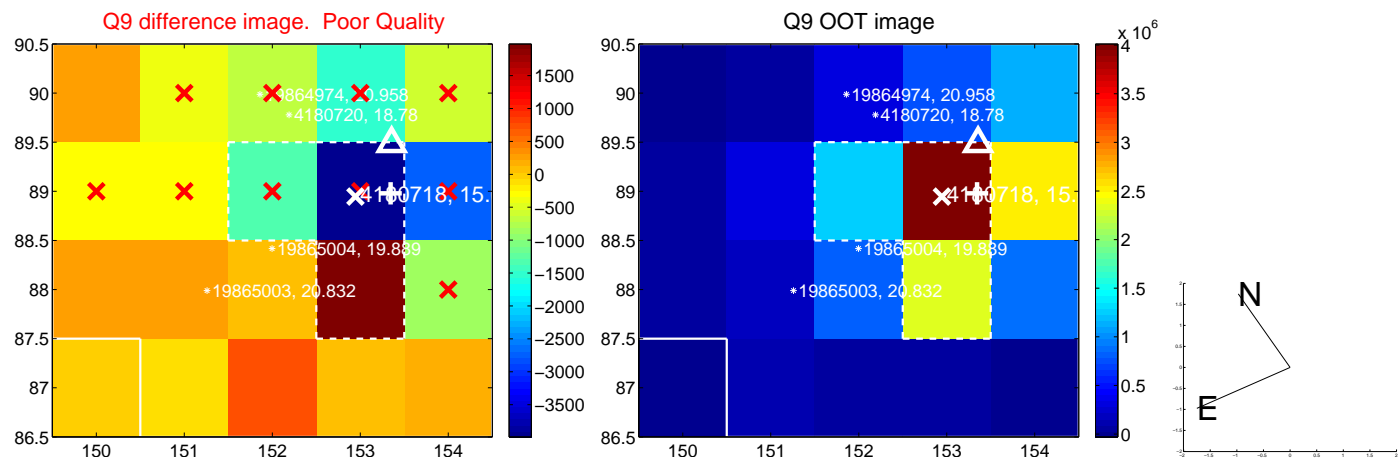




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



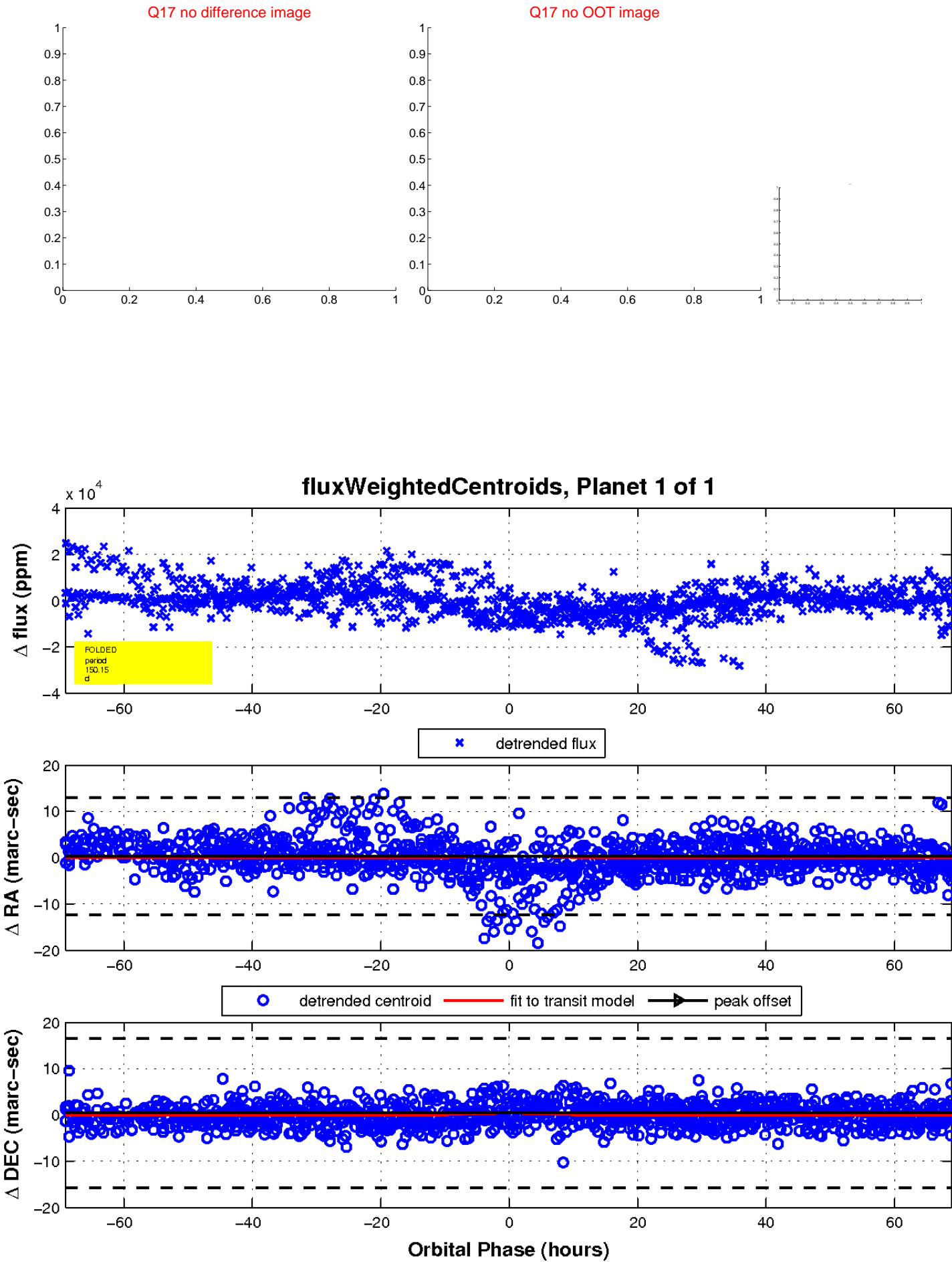
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

