

# KIC 009290858

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009290858-01	OBS	No	454.914873	435.044445	64.5	15.004	11.4	10.8	2.54	8584	2.33	14.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009290858-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—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.

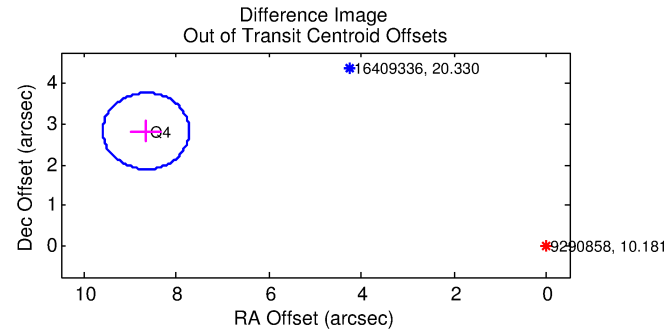
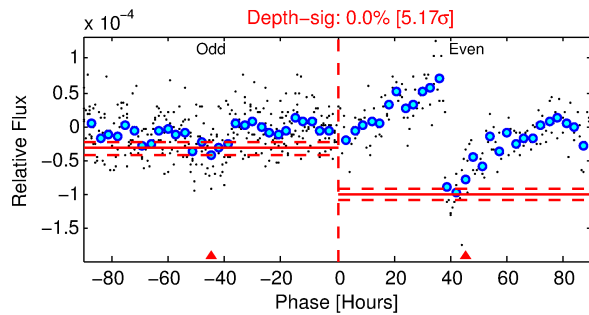
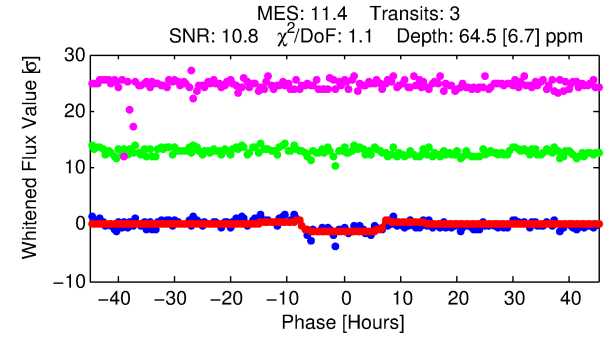
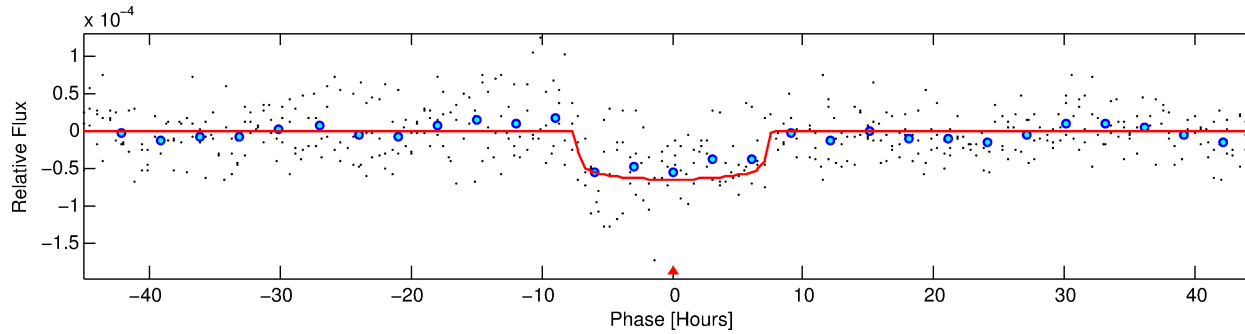
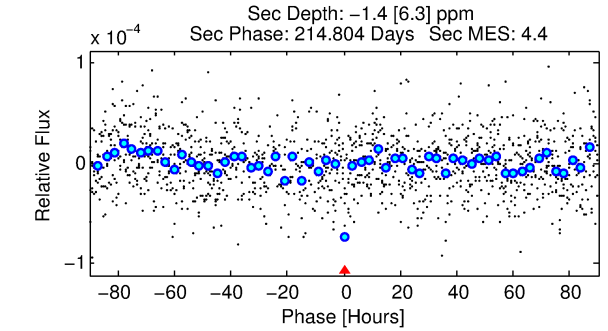
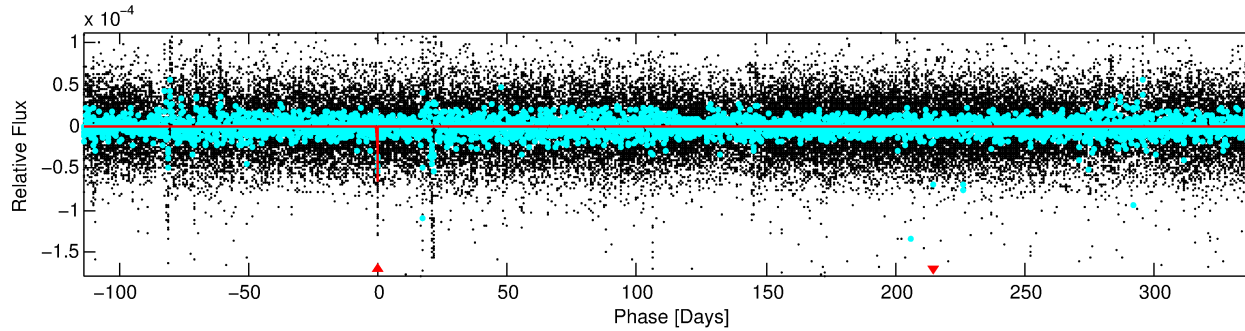
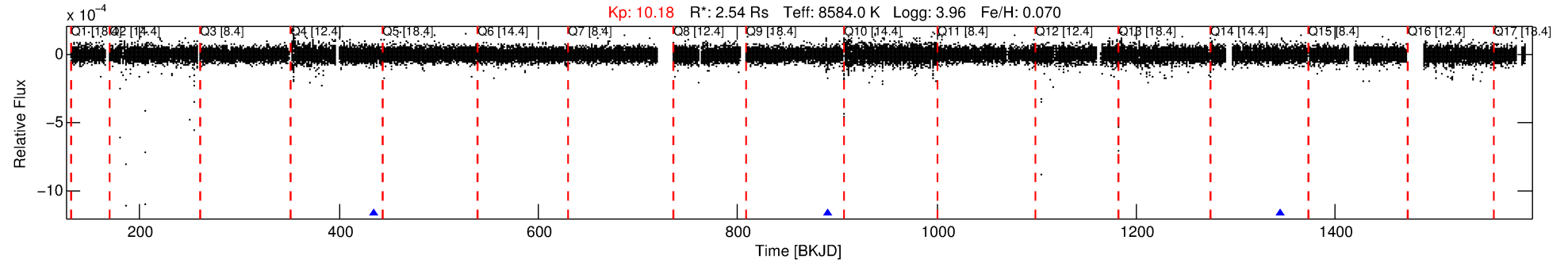
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009290858-01

No Significant Match Found

# DV One-Page Summary

KIC: 9290858 Candidate: 1 of 1 Period: 454.915 d



## DV Fit Results:

Period = 454.91487 [0.00911] d  
Epoch = 435.0444 [0.0122] BKJD  
Rp/R\* = 0.0084 [0.0009]  
a/R\* = 114.66 [70.29]  
b = 0.88 [0.16]  
Seff = 14.03 [6.06]  
Teq = 494 [53] K  
Rp = 2.33 [0.78] Re  
a = 1.4962 [0.3988] AU  
Ag = N/A  
Teffp = N/A

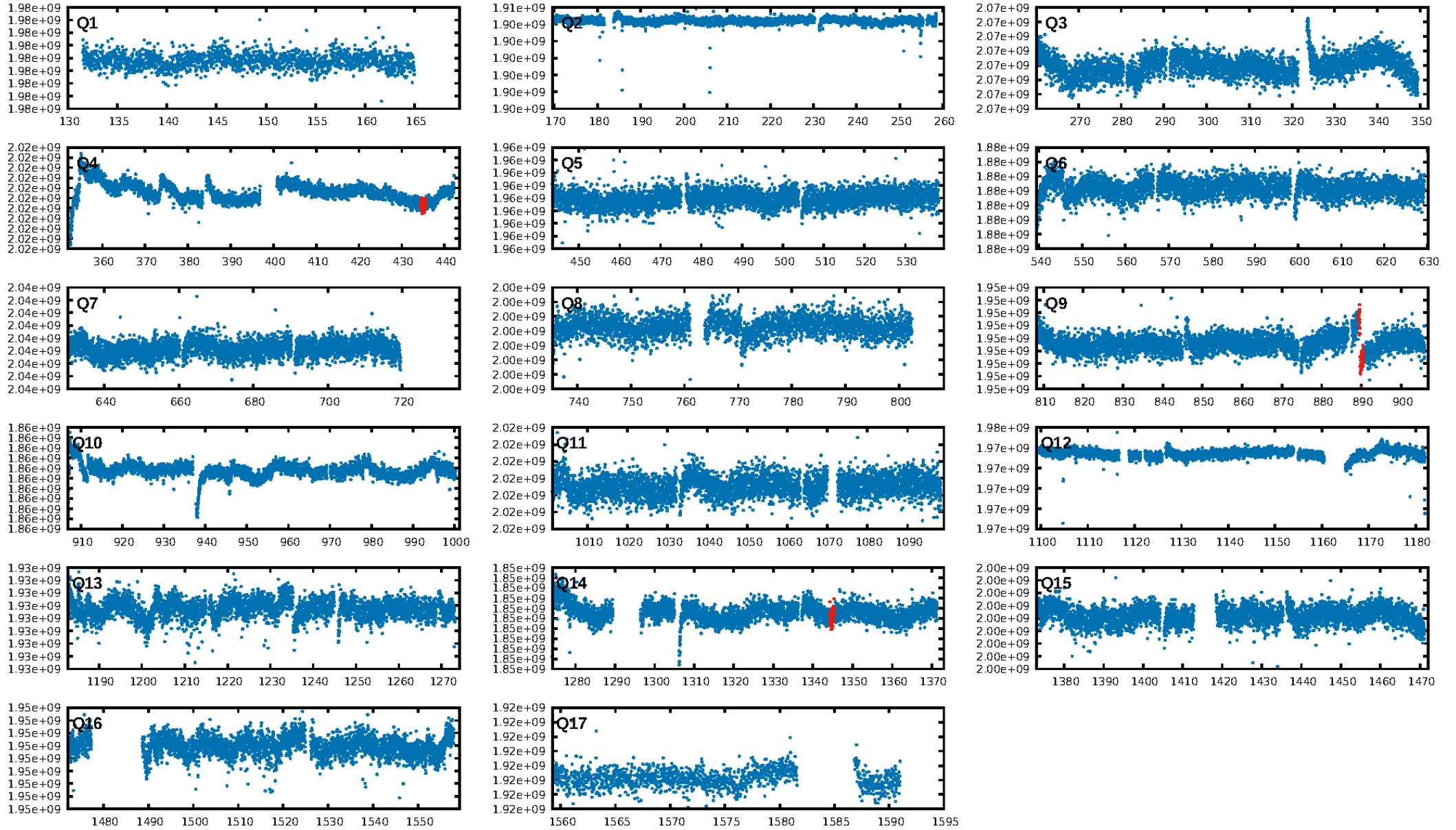
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 90.7%  
Bootstrap-pfa: 2.45e-11  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.276  
Centroid-sig: 58.9%  
Centroid-so: 1.385 arcsec [0.36σ]  
OotOffset-rm: 9.110 arcsec [29.26σ]  
KicOffset-rm: 8.488 arcsec [27.38σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

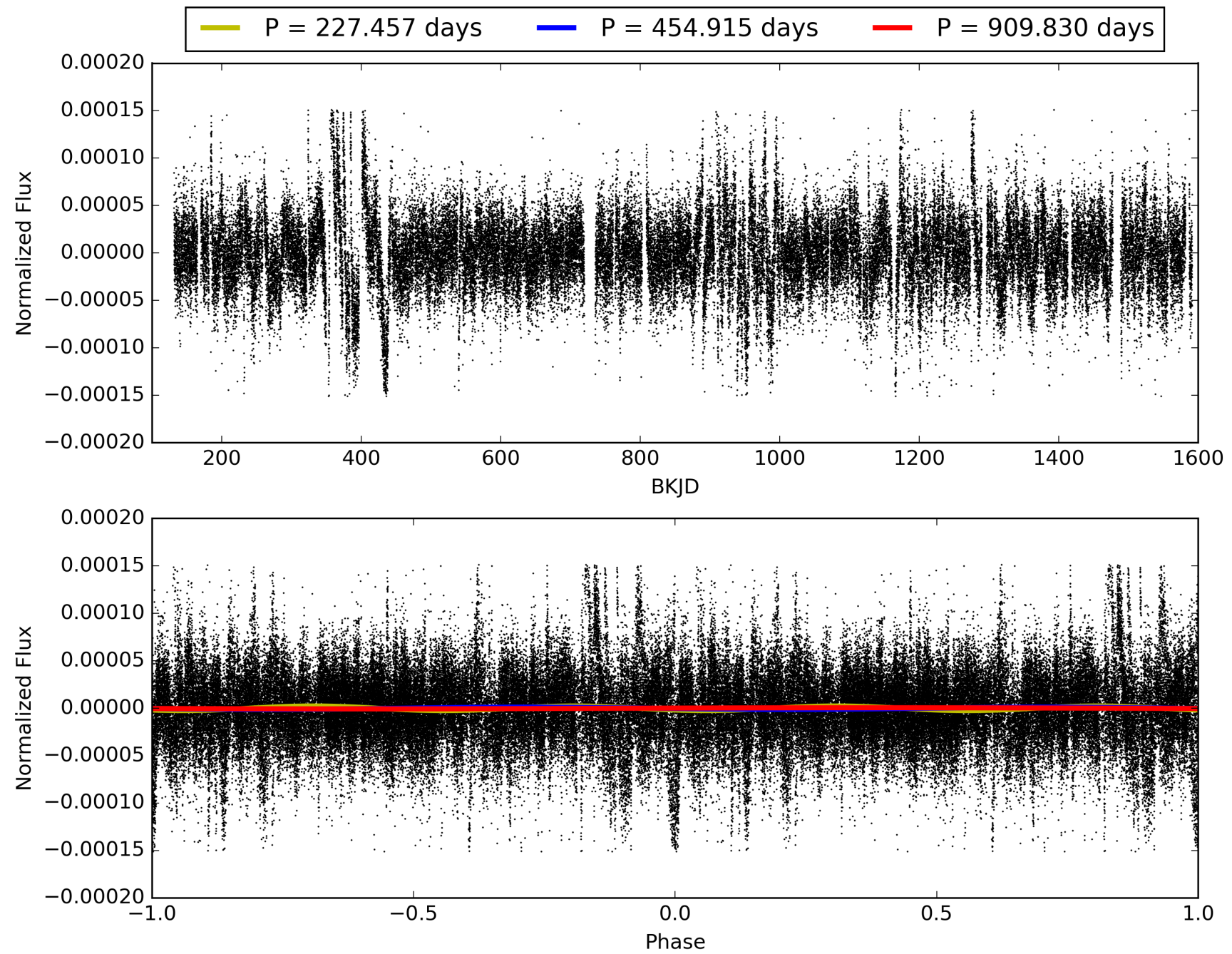
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:33:40 Z

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

# TCE 009290858-01, PDC Light Curves

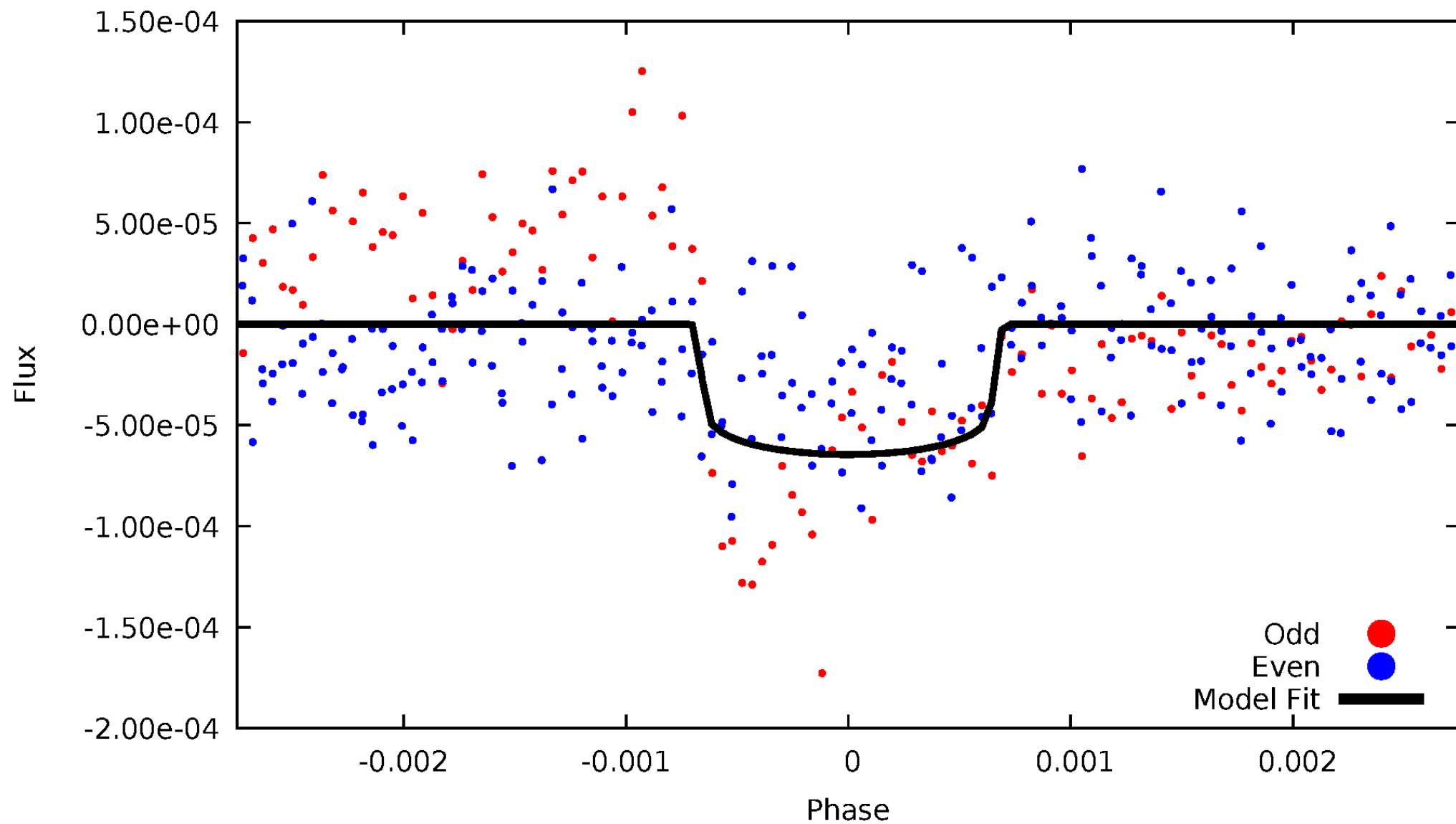


TCE 009290858-01



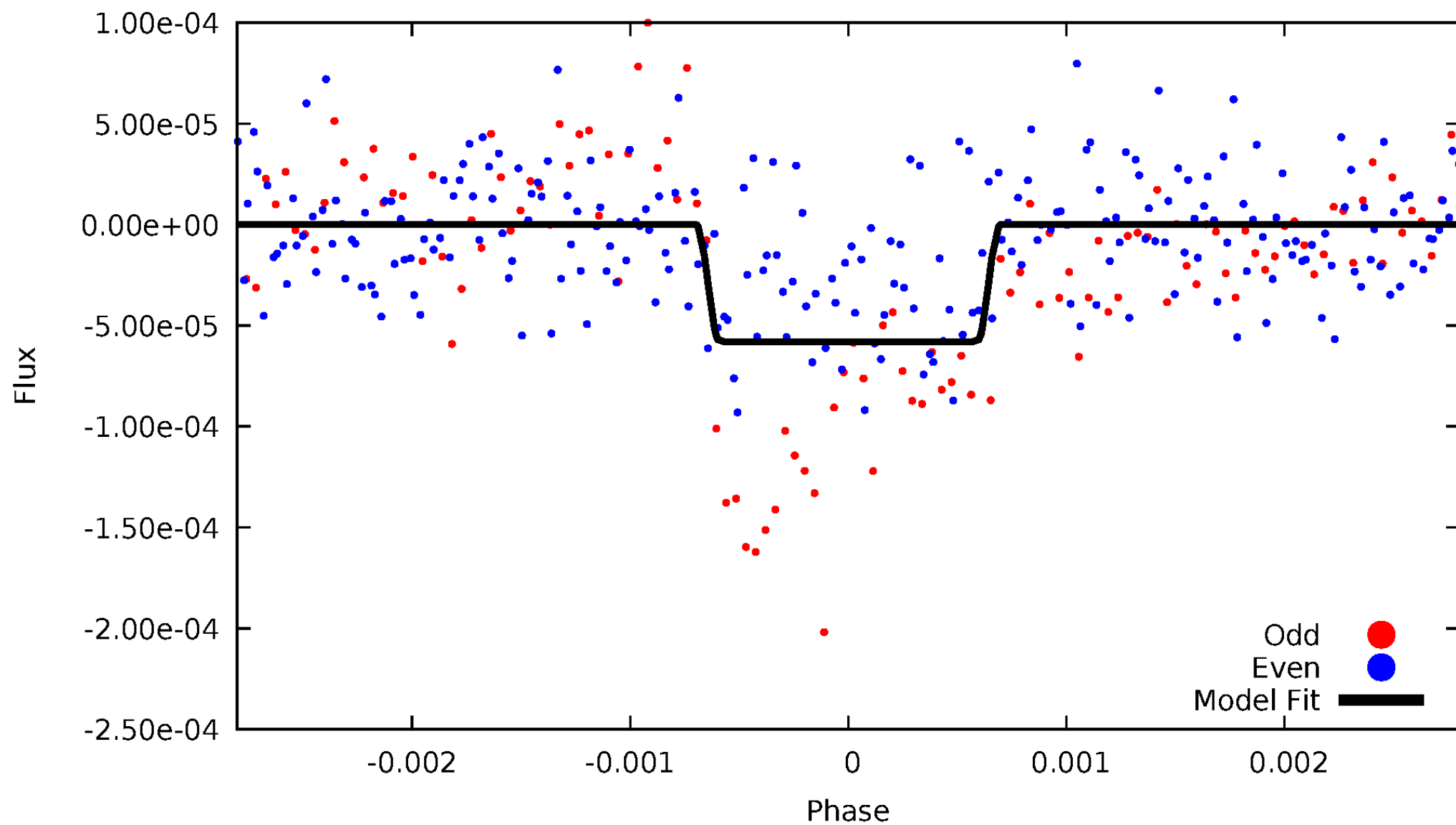
# DV Odd/Even

TCE 009290858-01



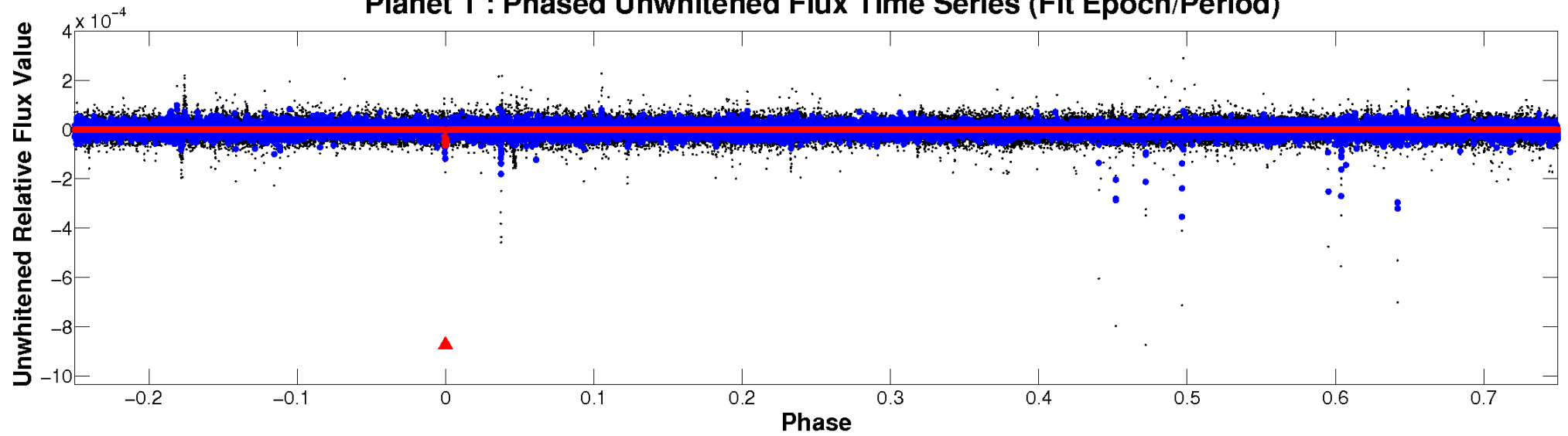
# ALT Odd/Even

TCE 009290858-01

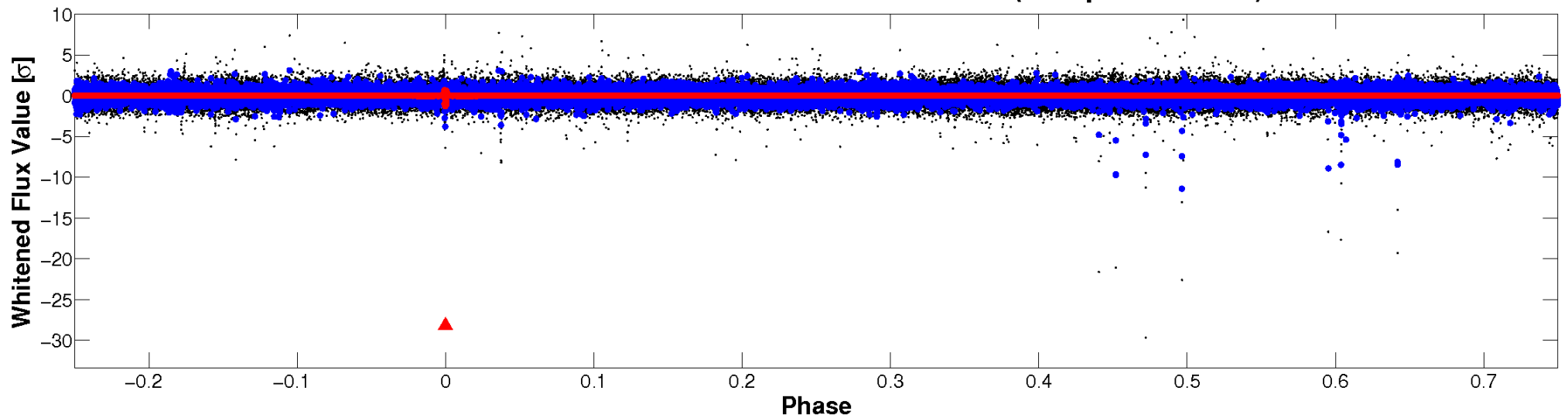


# Non-Whitened Vs. Whitened Light Curve

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

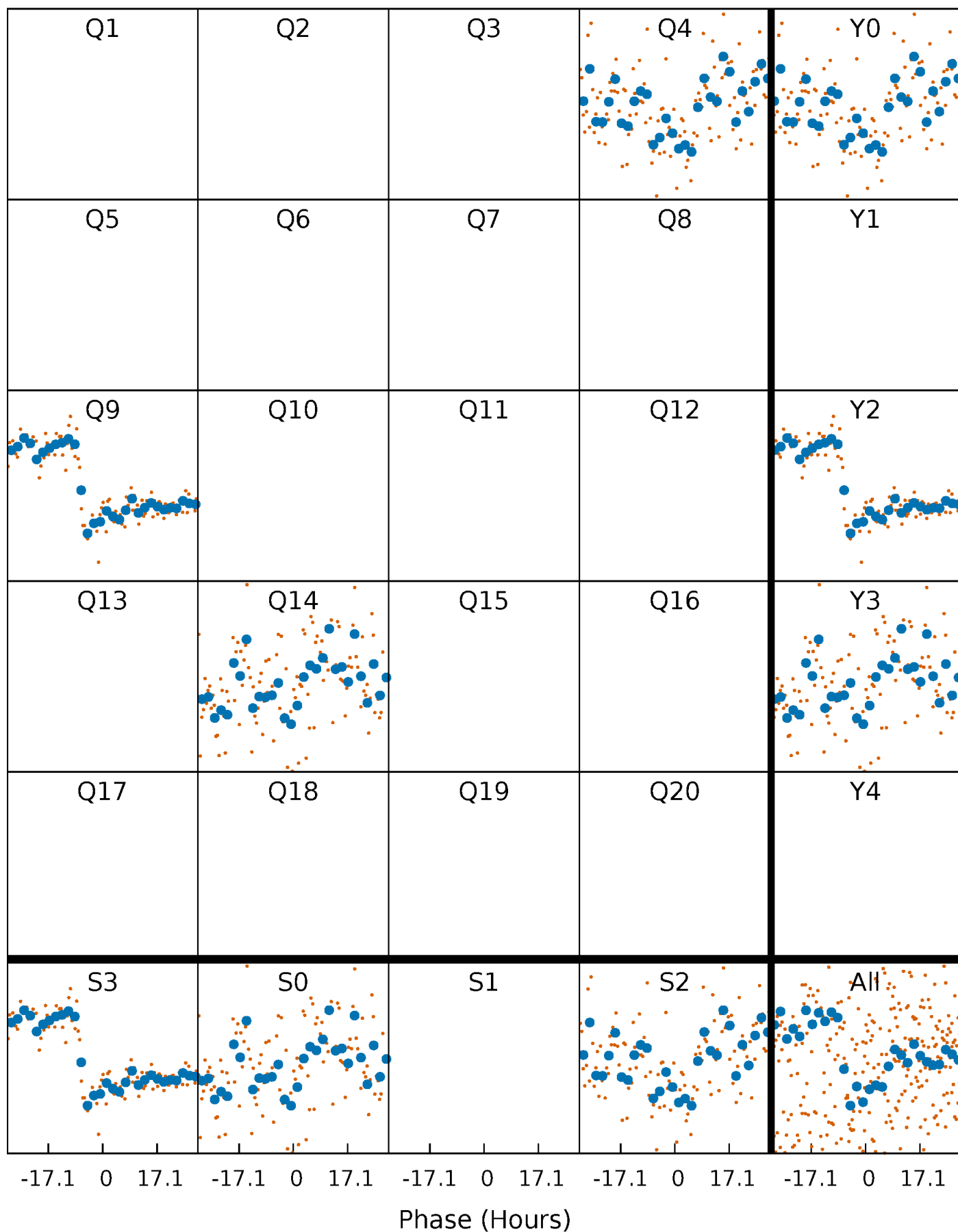


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

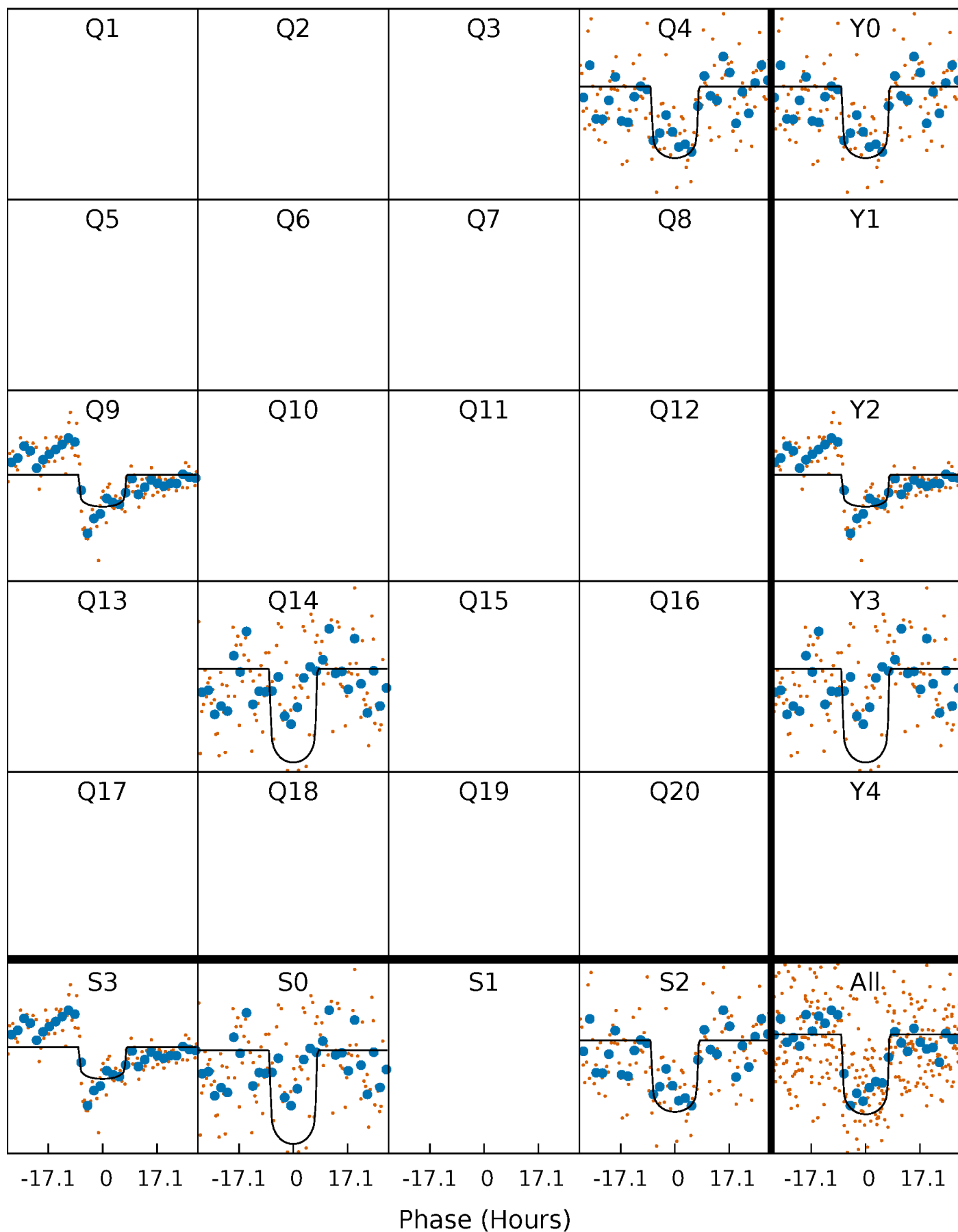
TCE 009290858-01 P=454.914873 Days  $T_0=435.044445$  (BKJD)





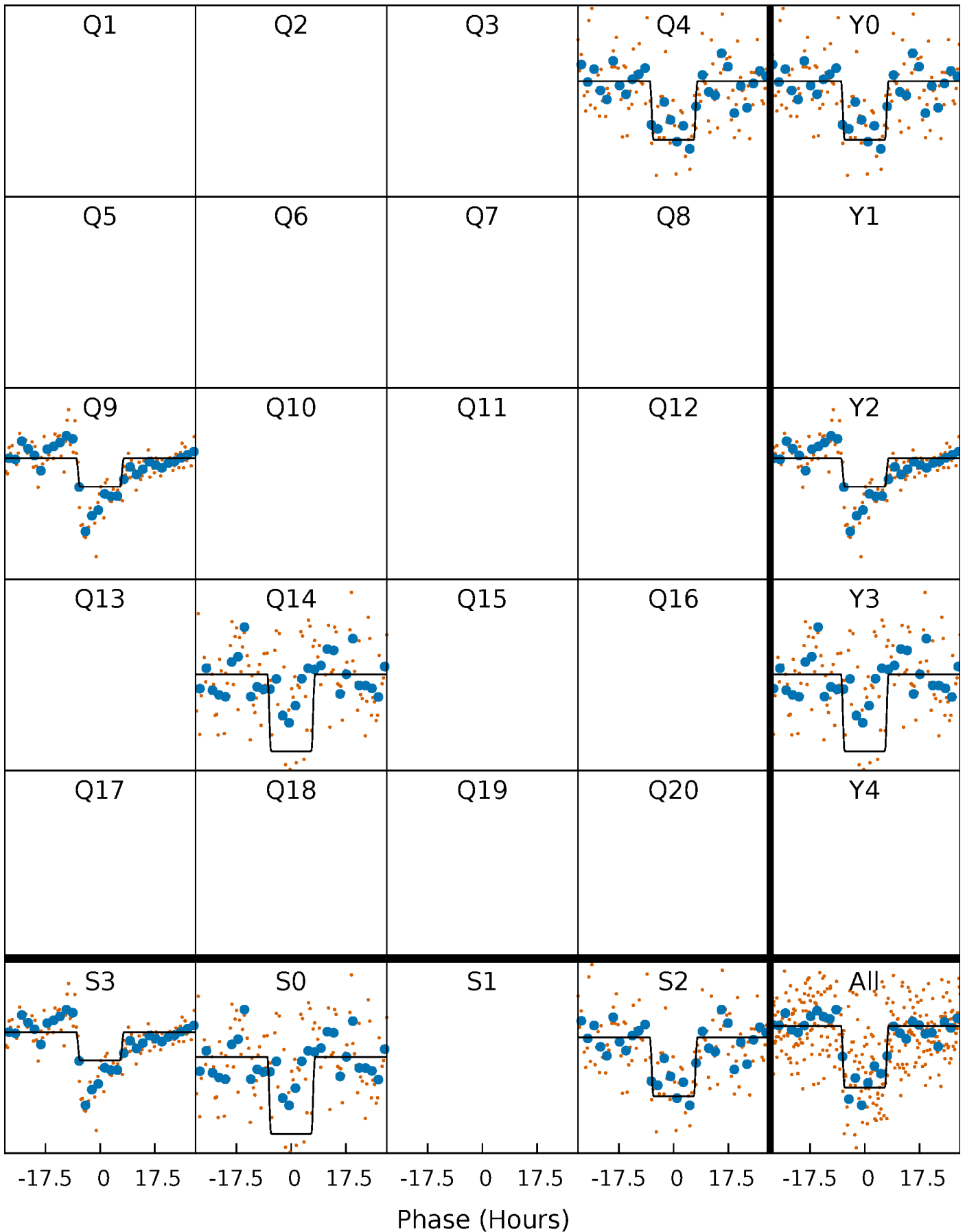
# DV Quarter-Phased Transit Curves

TCE 009290858-01 P=454.914873 Days  $T_0=435.044445$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

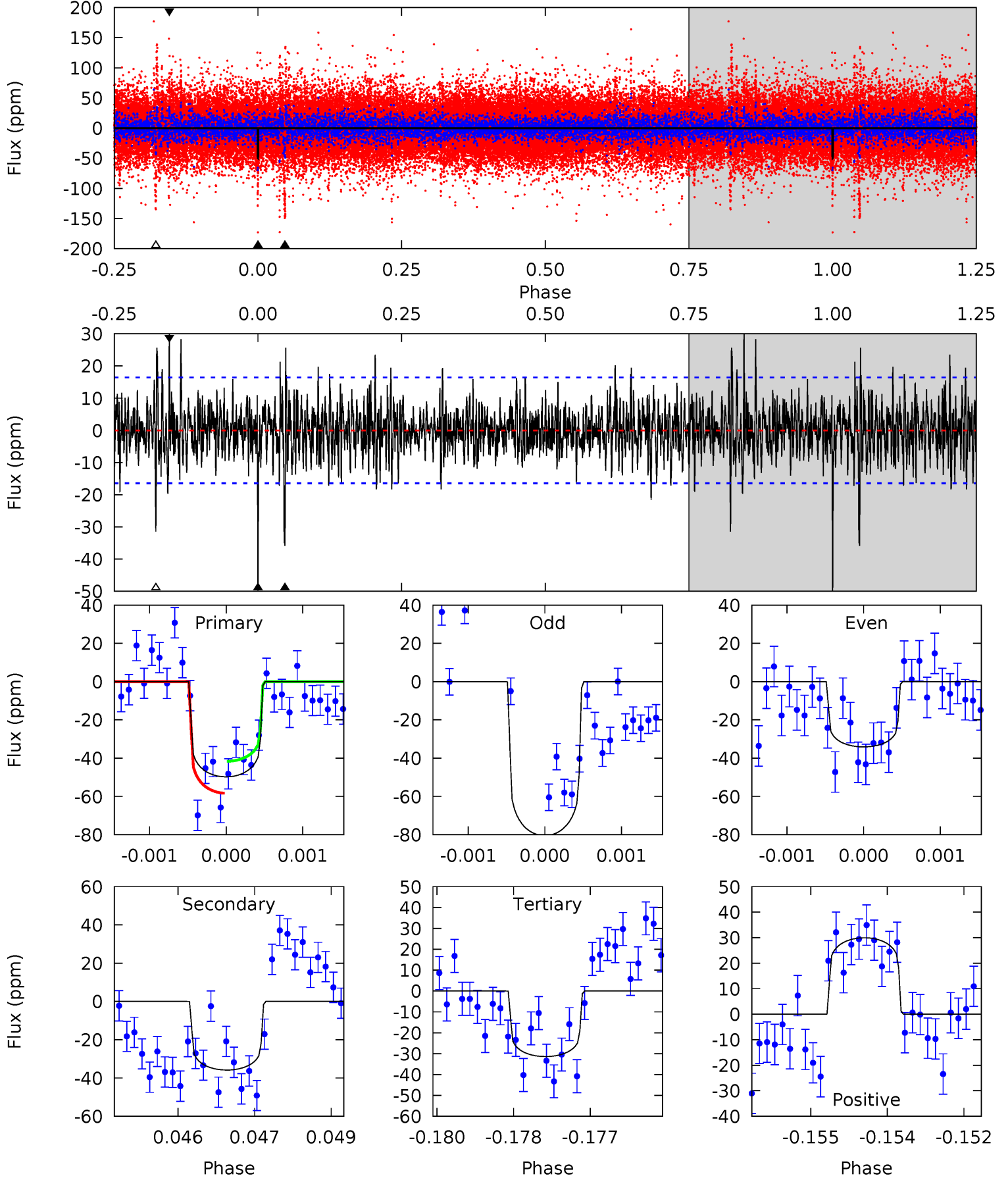
TCE 009290858-01 P=454.919157 Days  $T_0=435.036827$  (BKJD)



# DV Model-Shift Uniqueness Test

009290858-01,  $P = 454.914873$  Days,  $E = 435.044445$  Days

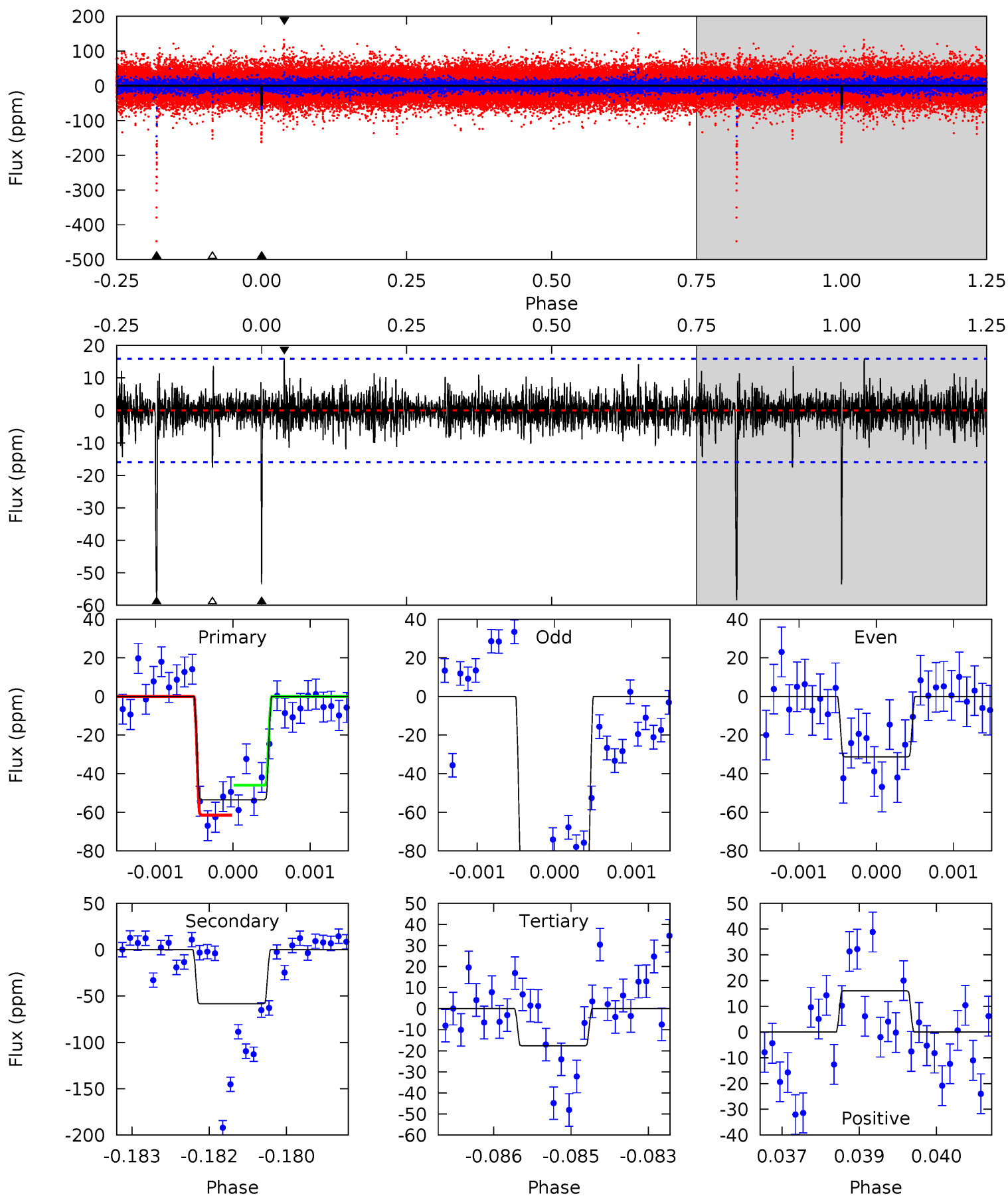
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	11.8	10.3	9.82	5.39	3.19	2.04	6.03	6.50	1.46	1.93	6.99	1.02	0.38	2.74



# Alt Model-Shift Uniqueness Test

009290858-01, P = 454.919157 Days, E = 435.036827 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
18.1	19.8	5.97	5.43	5.39	3.20	1.12	12.2	12.7	13.9	14.4	11.2	1.18	0.22	2.63



### Stellar Parameters For KIC 009290858

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8584^{+246}_{-400}$	$3.962^{+0.214}_{-0.175}$	$0.070^{+0.250}_{-0.550}$	$2.541^{+0.800}_{-0.800}$	$2.159^{+0.367}_{-0.551}$	$0.185^{+0.243}_{-0.091}$
	+3%/-5%	+5%/-4%	+357%/-786%	+31%/-31%	+17%/-26%	+131%/-49%
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 009290858-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-36 \pm 3$	$2.33^{+0.48}_{-0.44}$	$689^{+52}_{-60}$	$6938^{+562}_{-435}$	$8176^{+3613}_{-2589}$
Alt.	$-58 \pm 3$	$2.07^{+0.43}_{-0.42}$	$682^{+54}_{-59}$	$8598^{+823}_{-706}$	$16646^{+8297}_{-5037}$

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

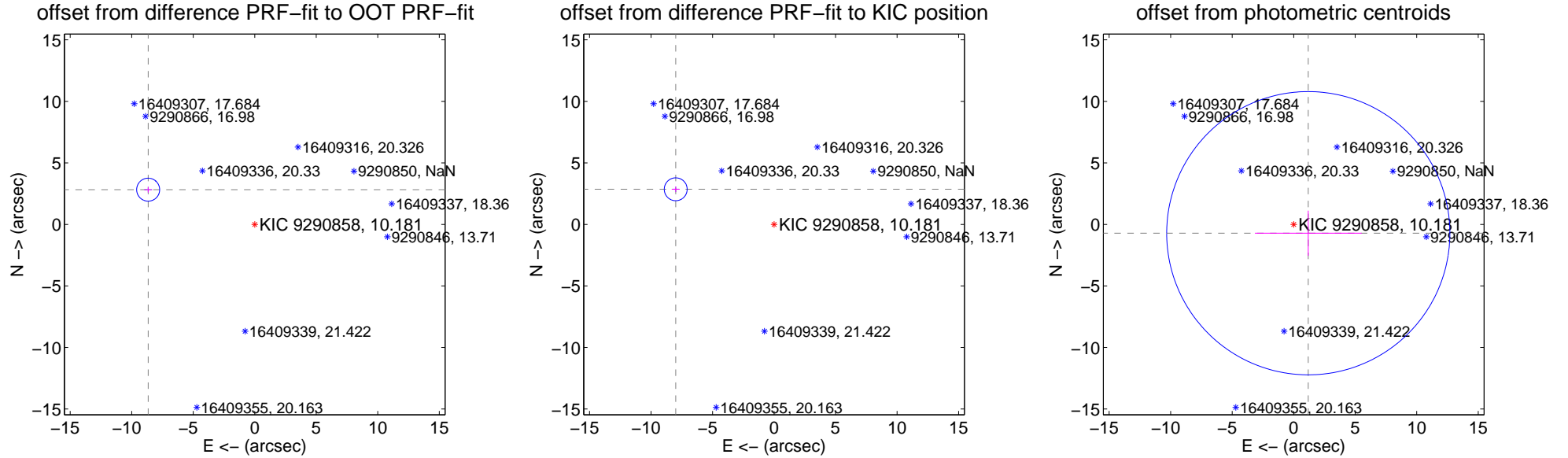
## DV Centroid Data

Supplemental centroid analysis for 009290858-01. **Kepler magnitude: 10.18.** Transit SNR 10.85

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

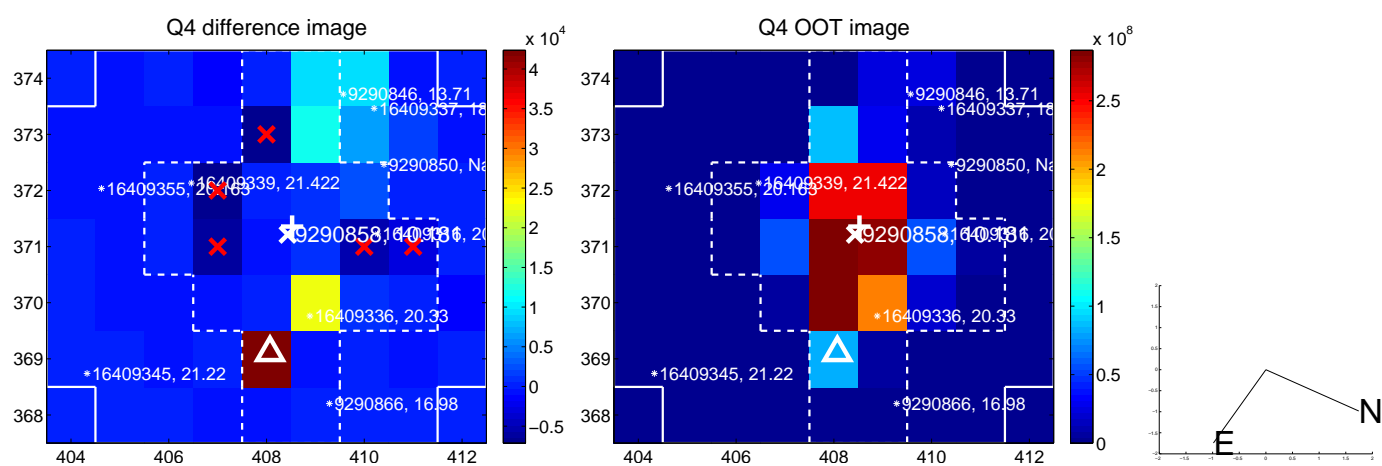
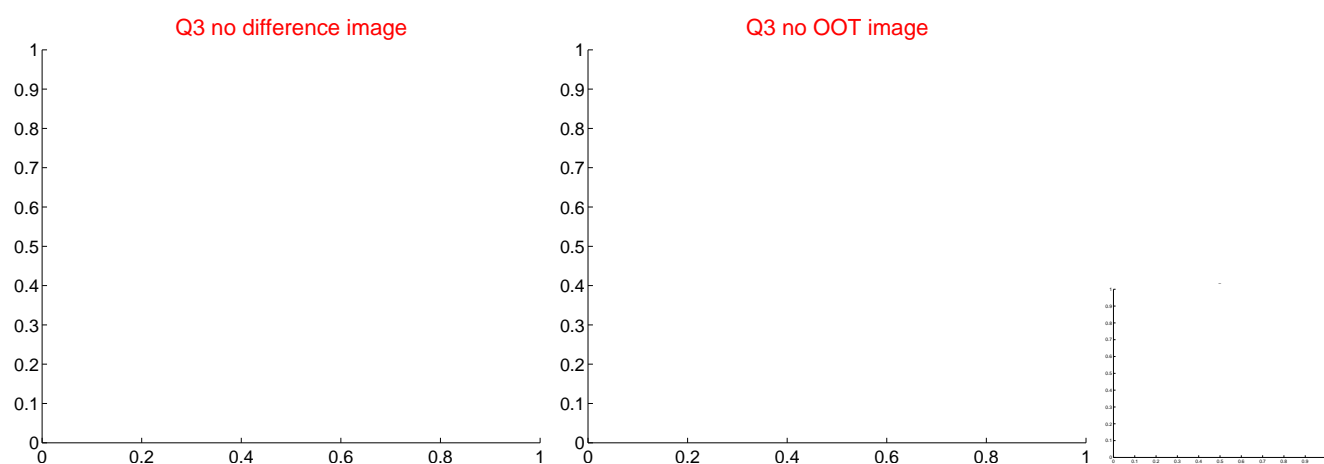
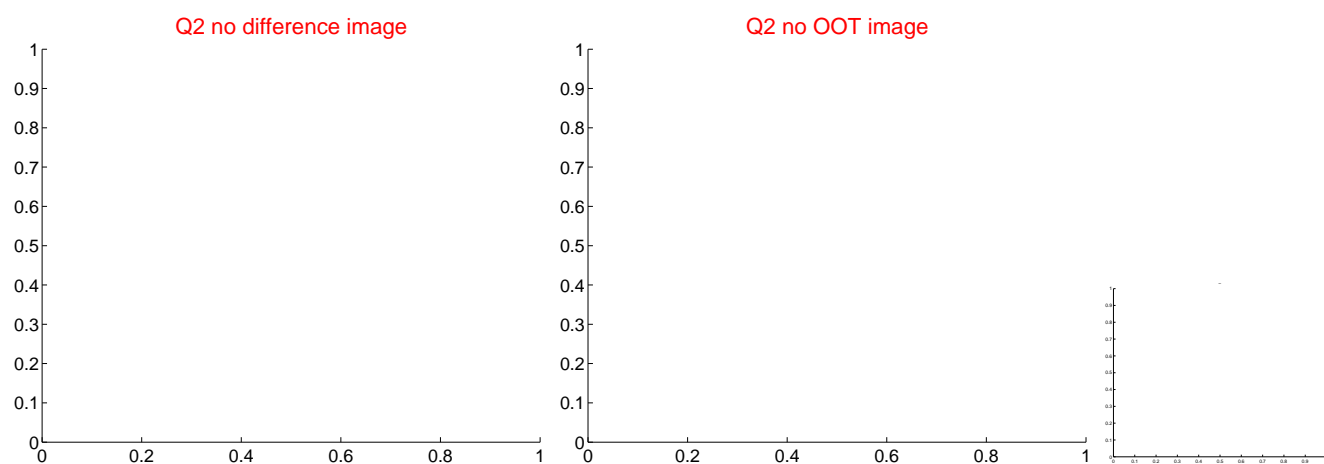
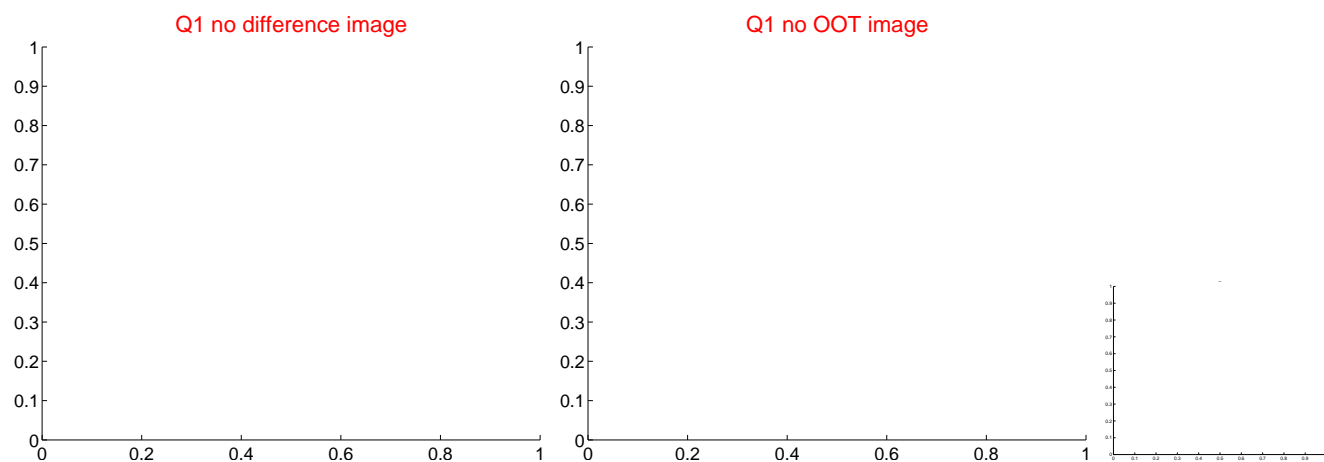
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>9.110 \pm 0.311</math></b>	<b>29.26</b>	$8.661 \pm 0.319$	$2.823 \pm 0.233$
PRF-fit source offset from KIC position	<b><math>8.488 \pm 0.310</math></b>	<b>27.38</b>	$7.993 \pm 0.319$	$2.855 \pm 0.233$
photometric centroid source offset	$1.38 \pm 3.84$	0.36	$-1.19 \pm 4.34$	$-0.71 \pm 1.83$



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

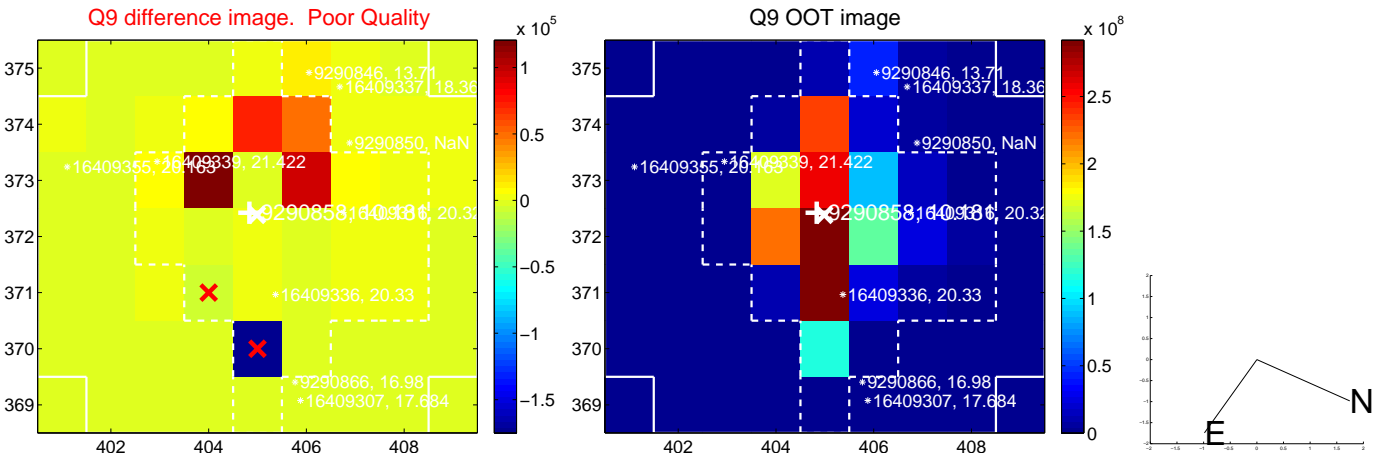


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

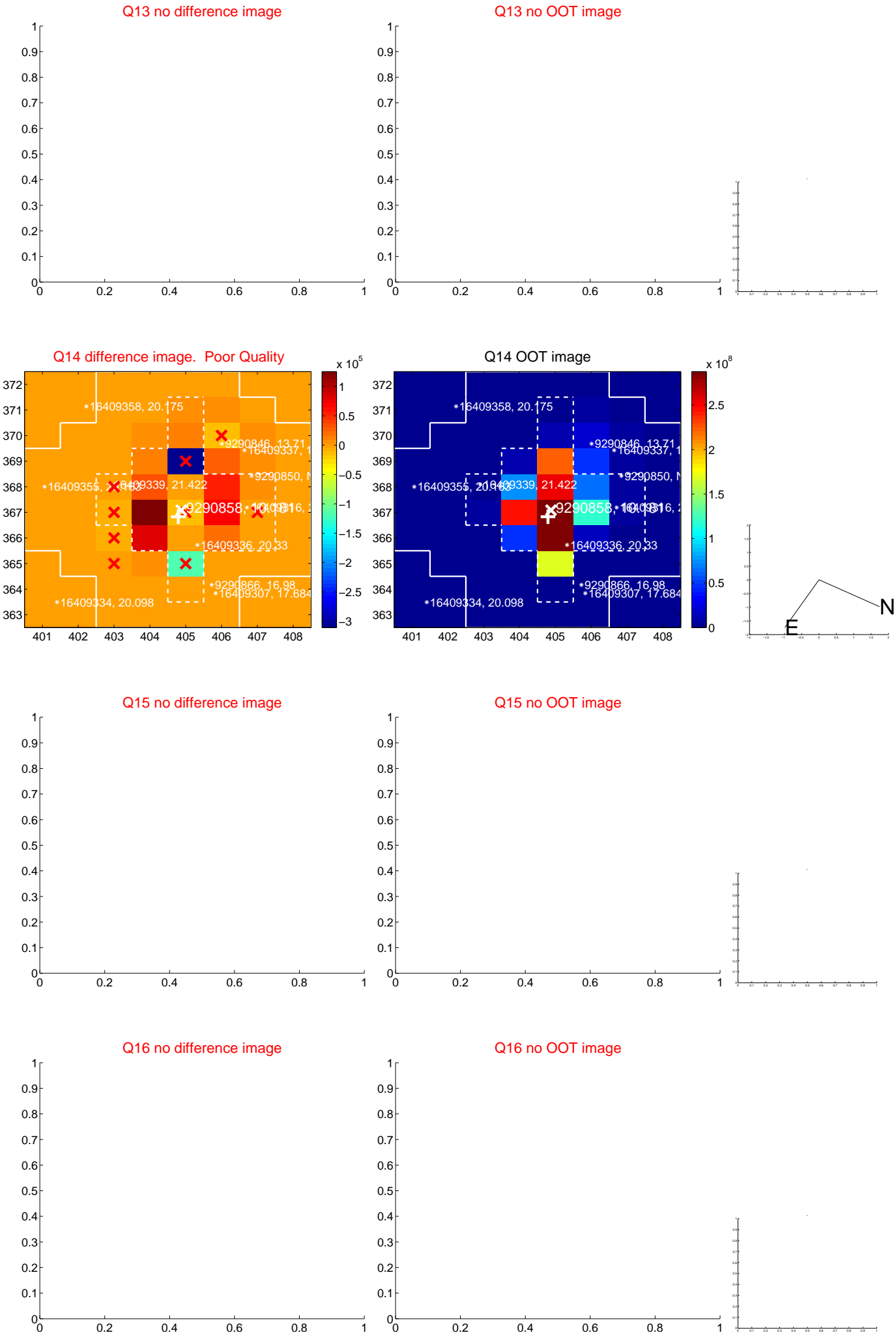




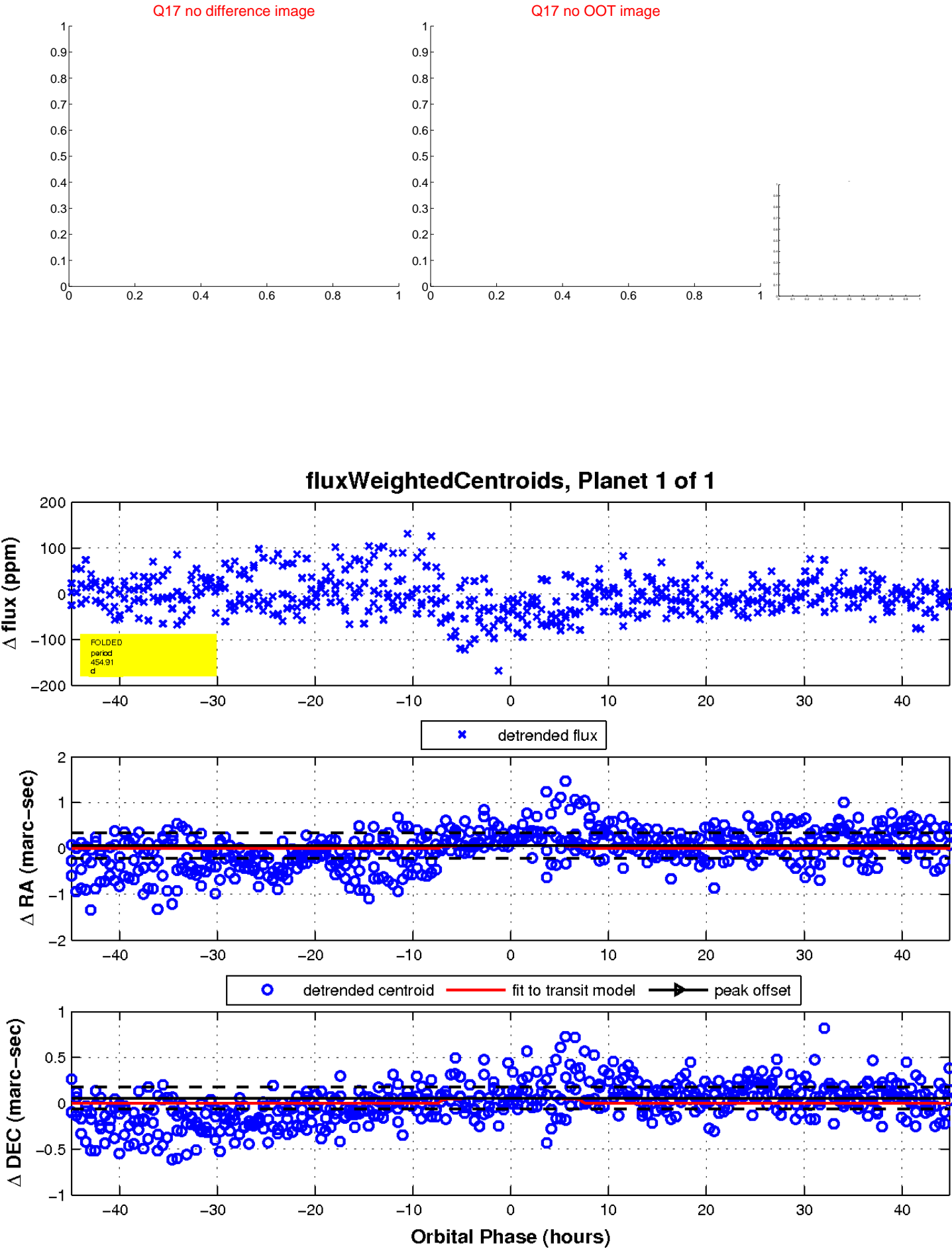
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

