

# KIC 011037818

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011037818-01	OBS	5856.01	259.344310	165.674237	320.8	16.284	10.9	10.9	3.20	5490	6.23	9.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011037818-01	OBS	PC	0.85	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.

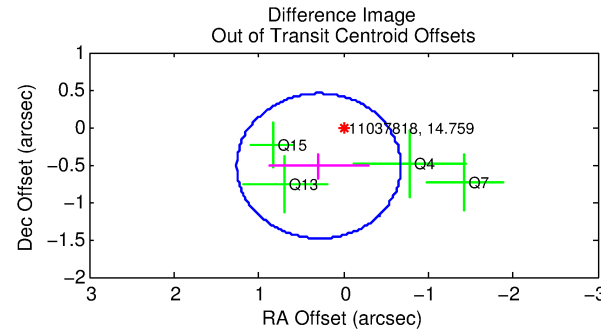
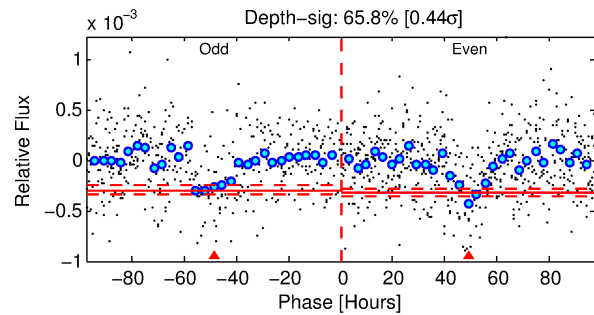
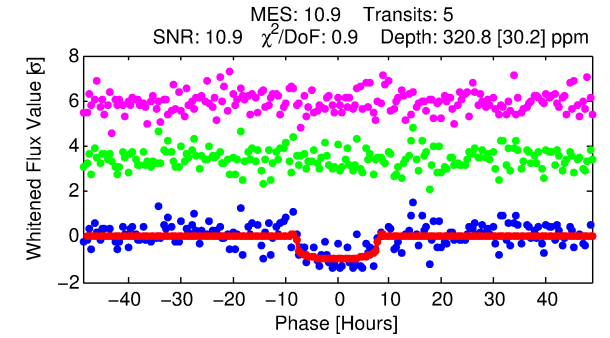
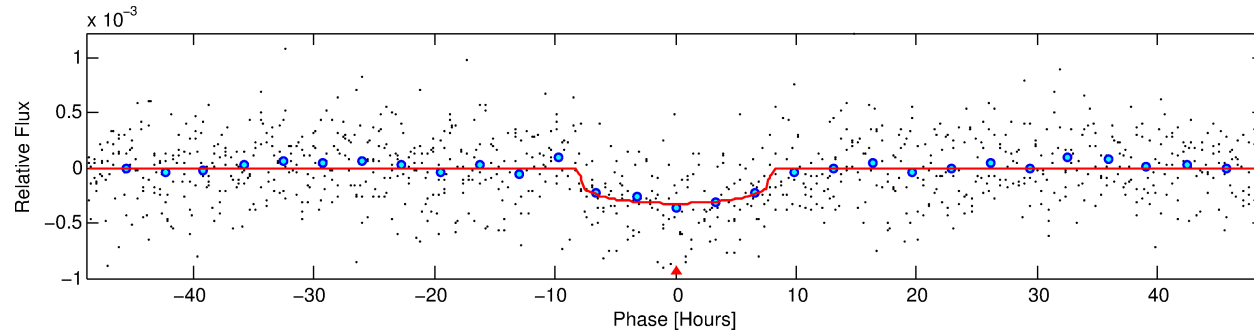
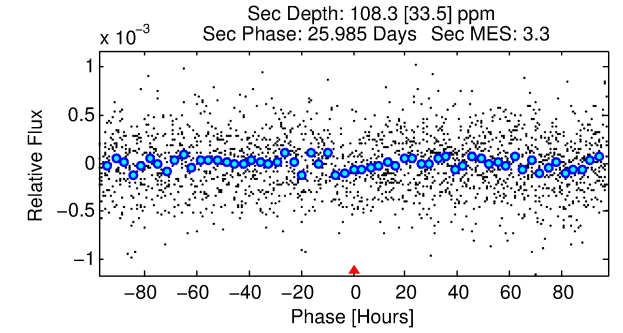
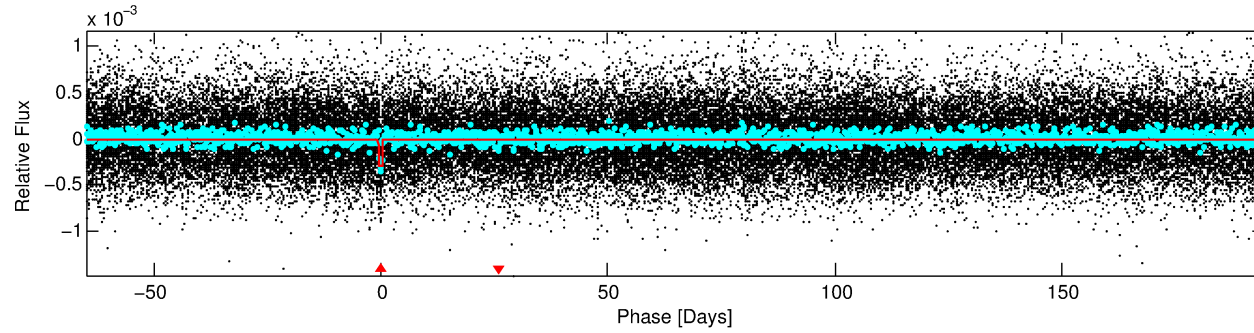
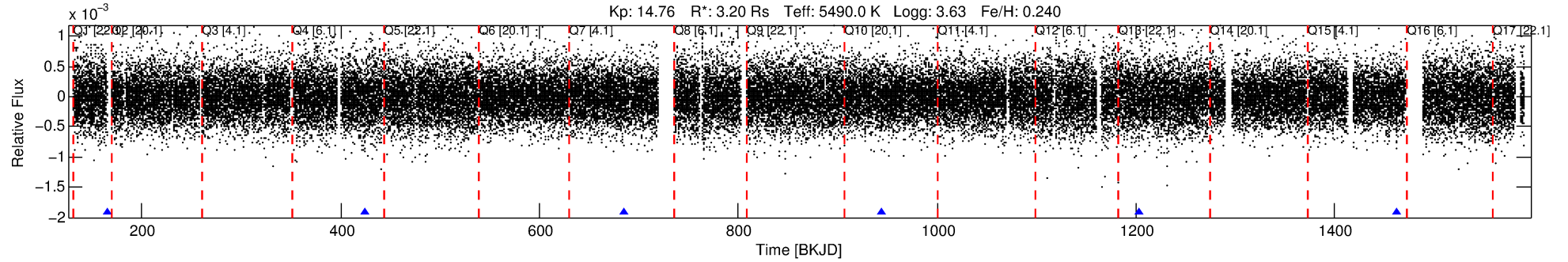
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011037818-01

No Significant Match Found

# DV One-Page Summary

KIC: 11037818 Candidate: 1 of 1 Period: 259.344 d  
KOI: K05856.01 Corr: 0.981



## DV Fit Results:

Period = 259.34431 [0.00839] d  
Epoch = 165.6742 [0.0278] BKJD  
Rp/R\* = 0.0178 [0.0087]  
a/R\* = 84.08 [165.66]  
b = 0.75 [1.18]  
Seff = 9.66 [4.59]  
Teff = 450 [53] K  
Rp = 6.23 [3.82] Re  
a = 0.9298 [0.2951] AU  
Ag = 1327.28 [1501.18] [0.88 $\sigma$ ]  
Teffp = 4196 [1080] K [3.46 $\sigma$ ]

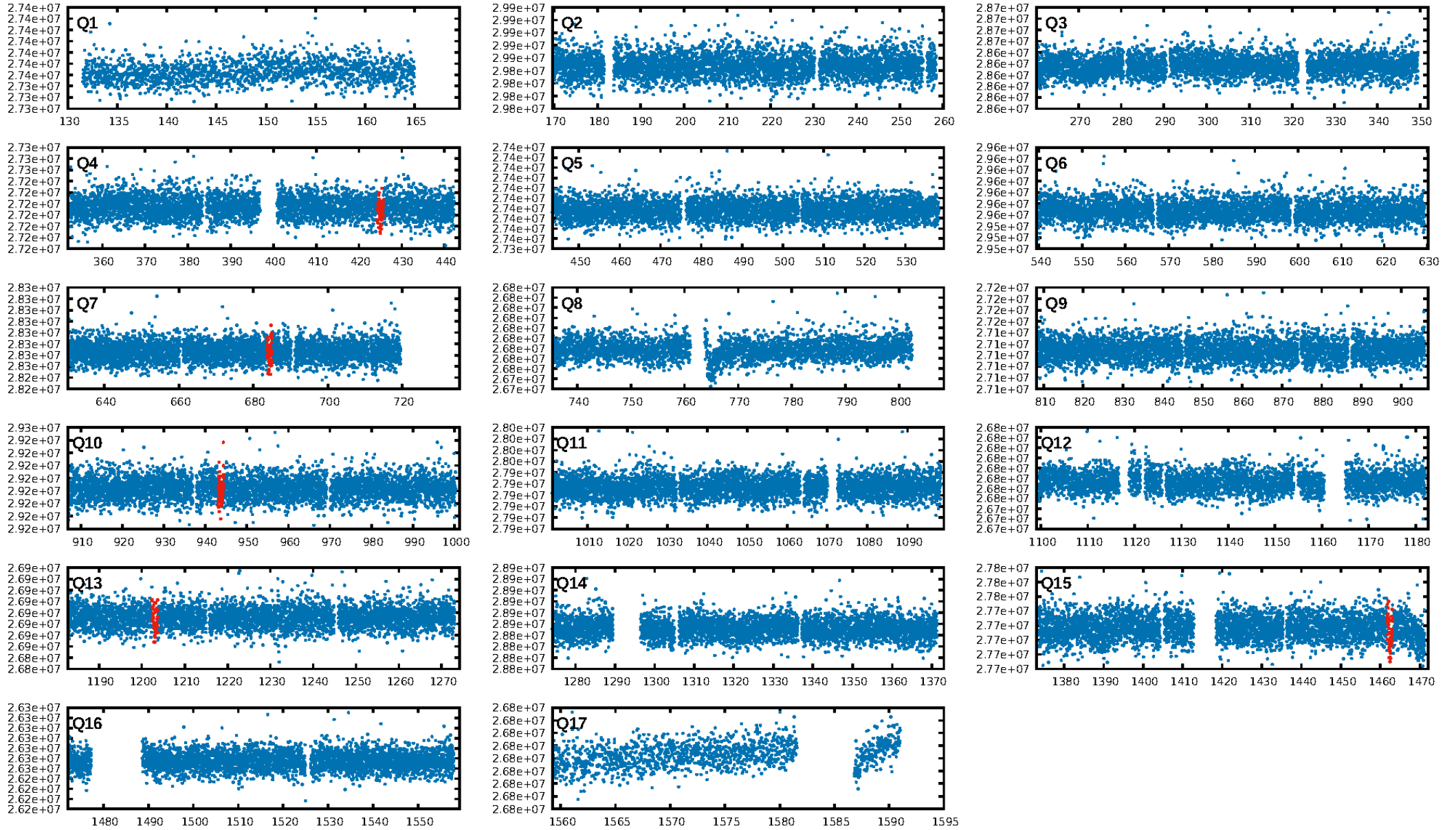
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 9.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.88e-28  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 3.255  
Centroid-sig: 65.0%  
Centroid-so: 0.423 arcsec [0.36 $\sigma$ ]  
OotOffset-rm: 0.593 arcsec [1.84 $\sigma$ ]  
KicOffset-rm: 0.342 arcsec [1.24 $\sigma$ ]  
OotOffset-st: 0/2/1/1 [4]  
KicOffset-st: 0/2/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [5/5]

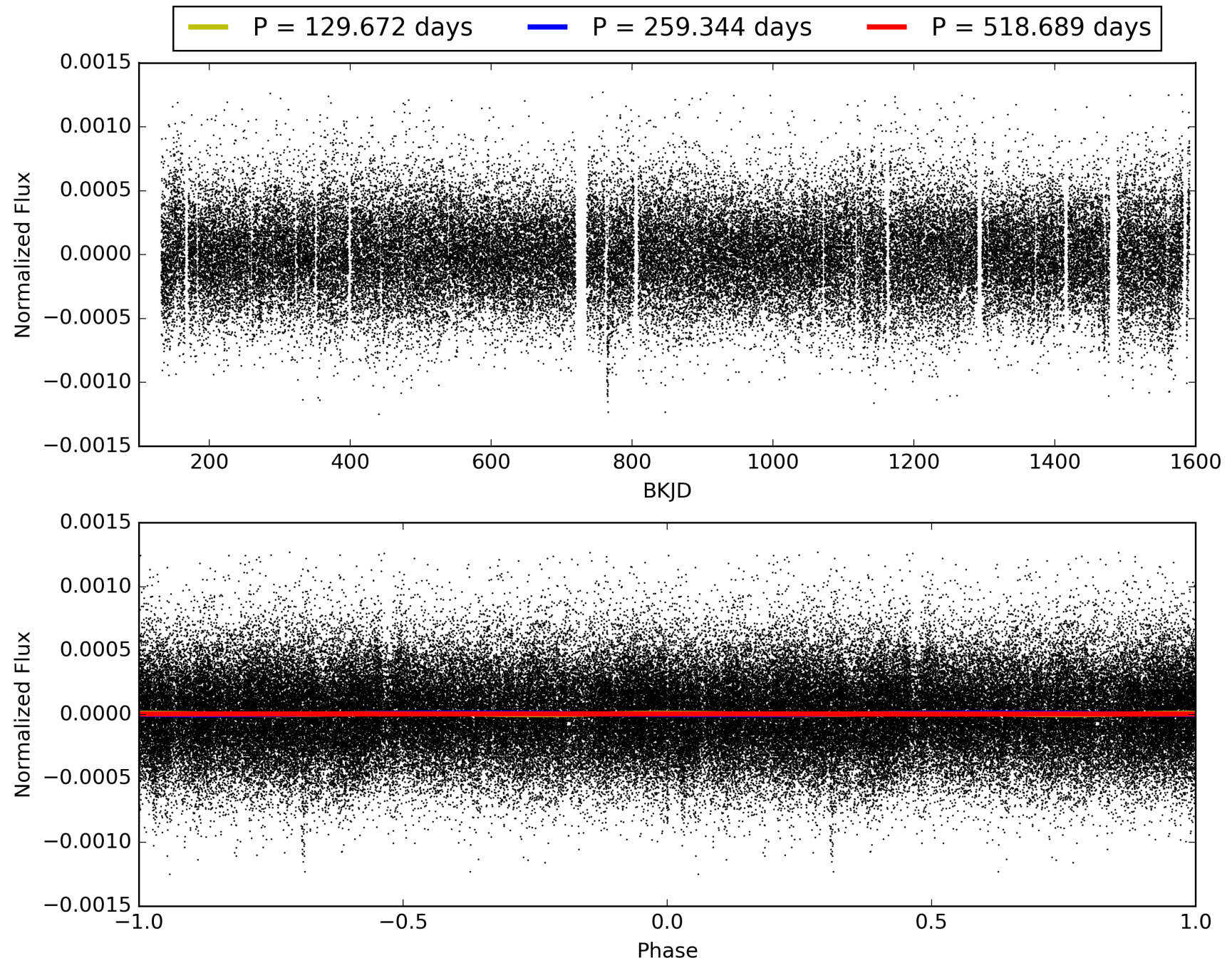
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:54:57 Z

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

# TCE 011037818-01, PDC Light Curves

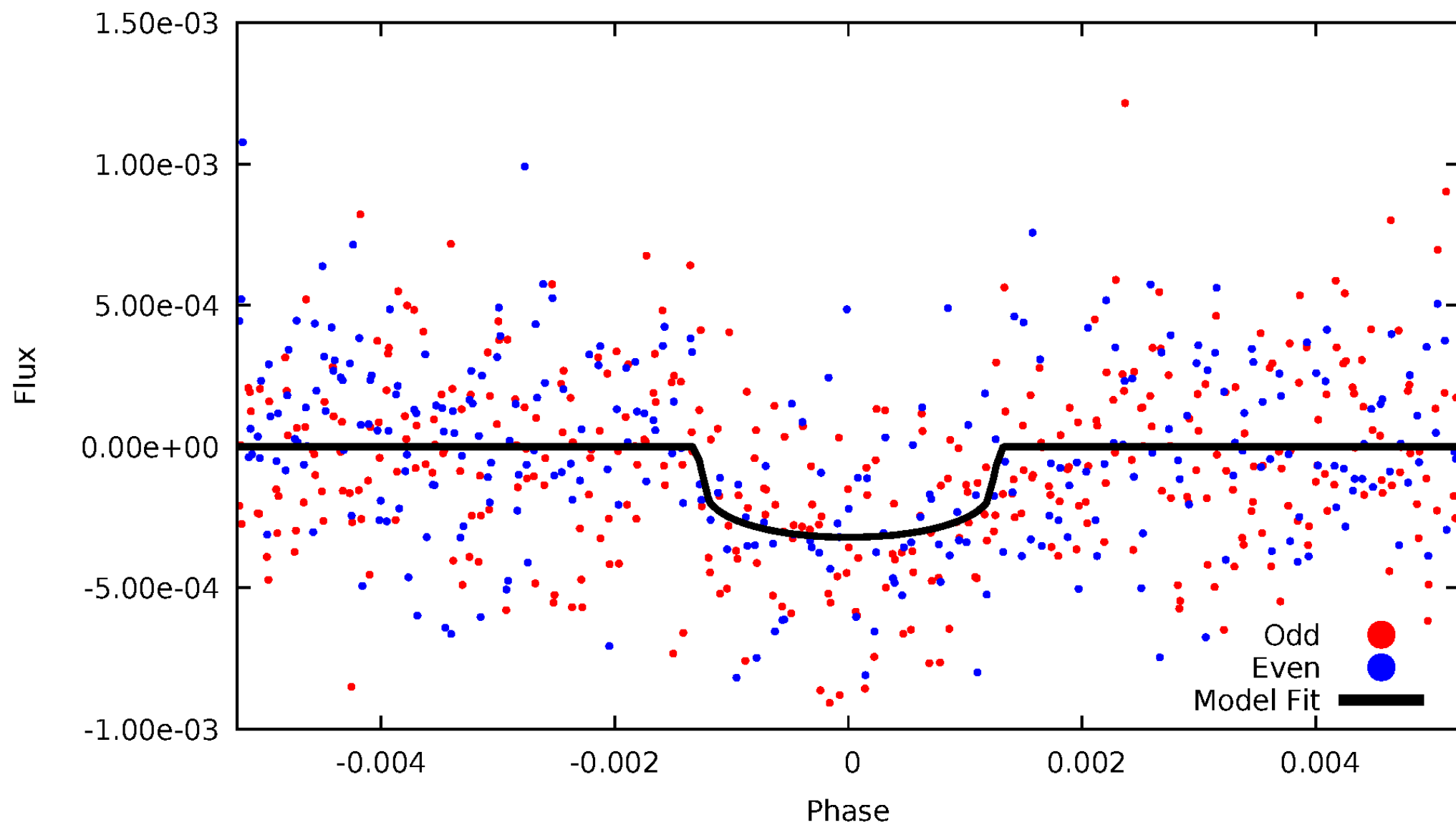


# TCE 011037818-01



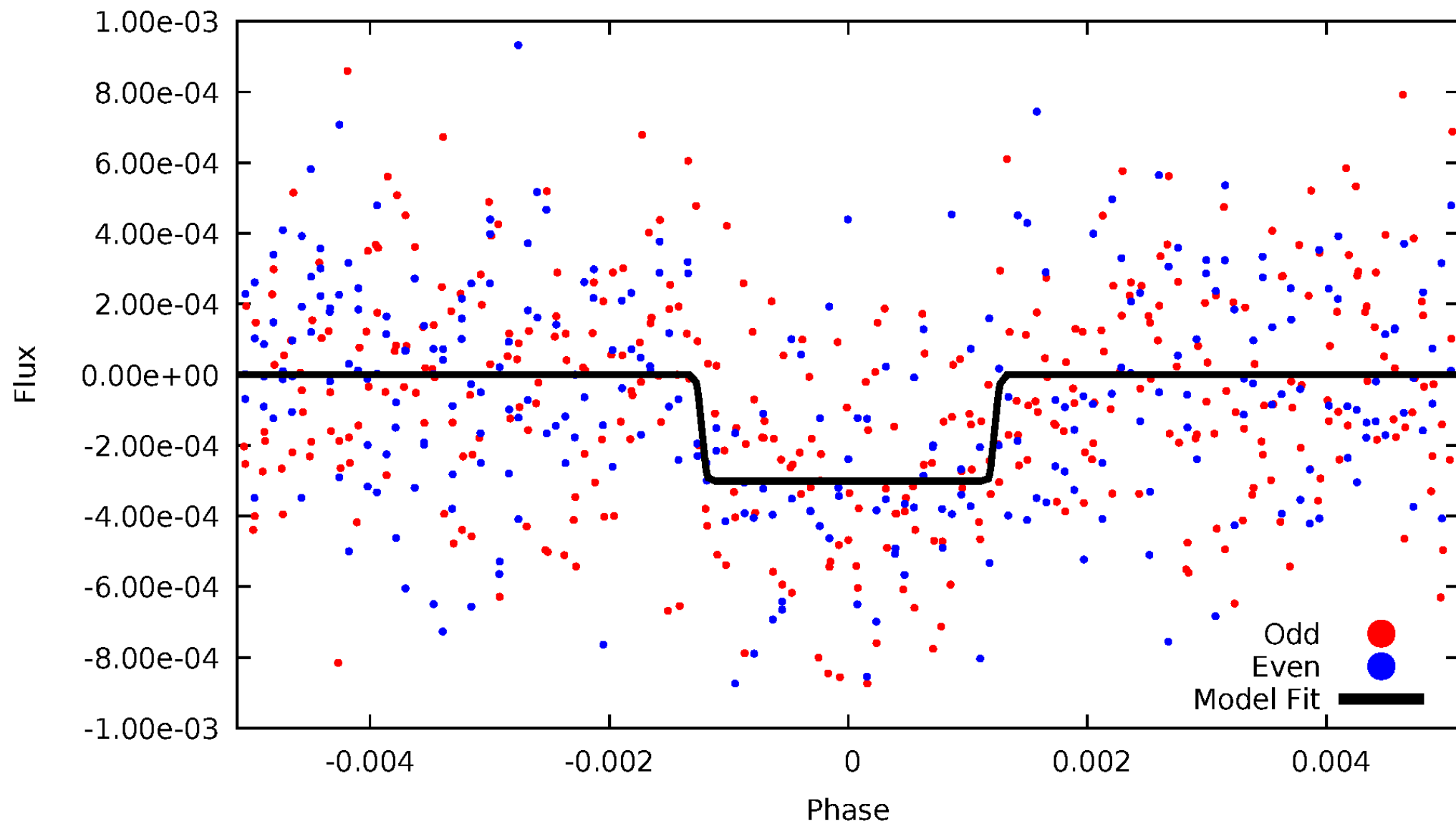
# DV Odd/Even

TCE 011037818-01



# ALT Odd/Even

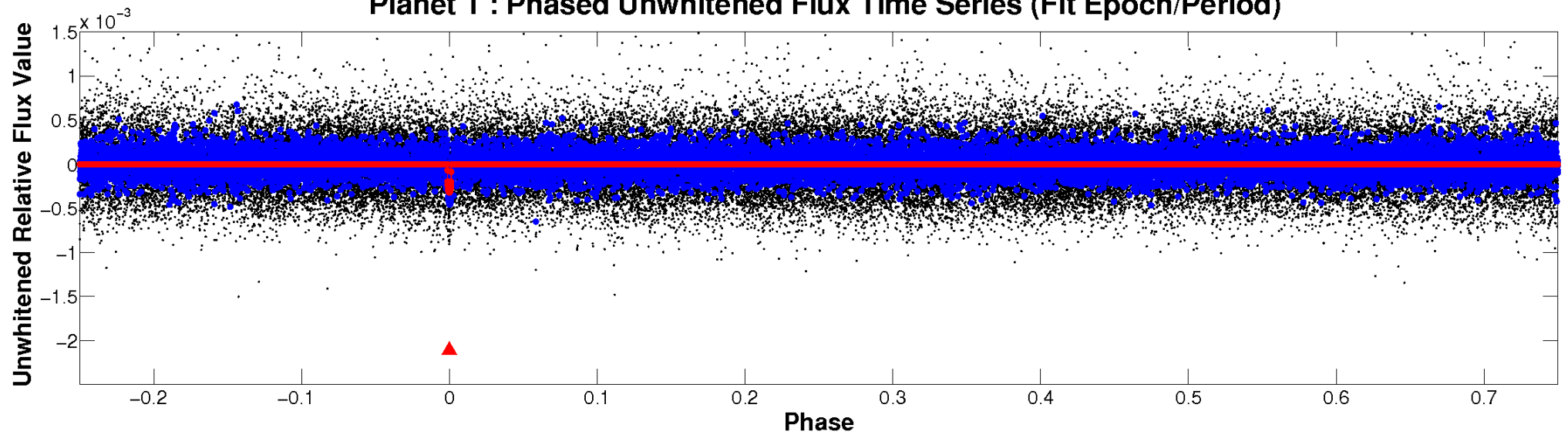
TCE 011037818-01



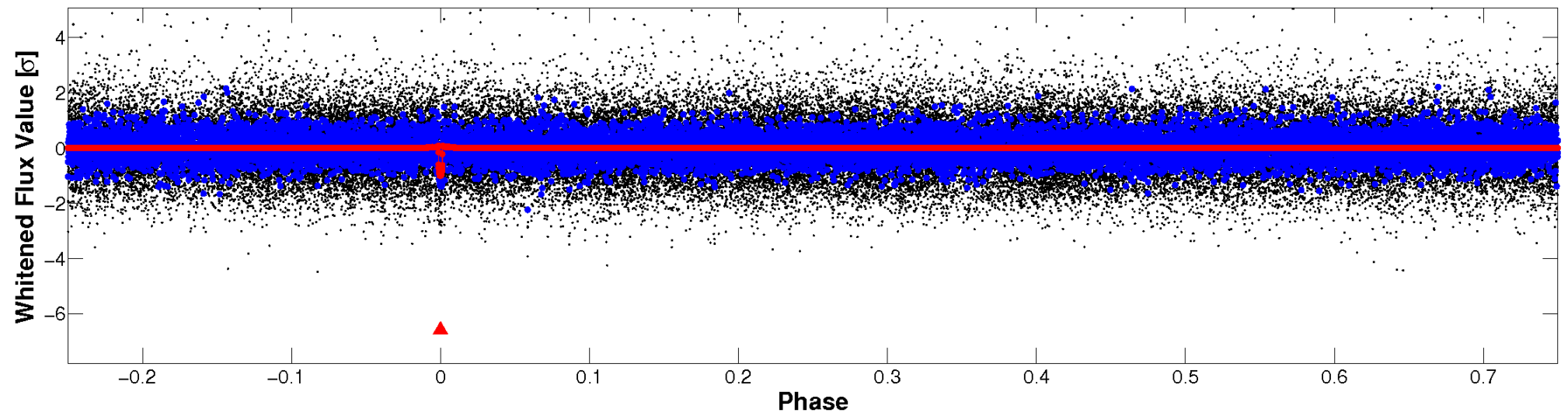


# Non-Whitened Vs. Whitened Light Curve

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

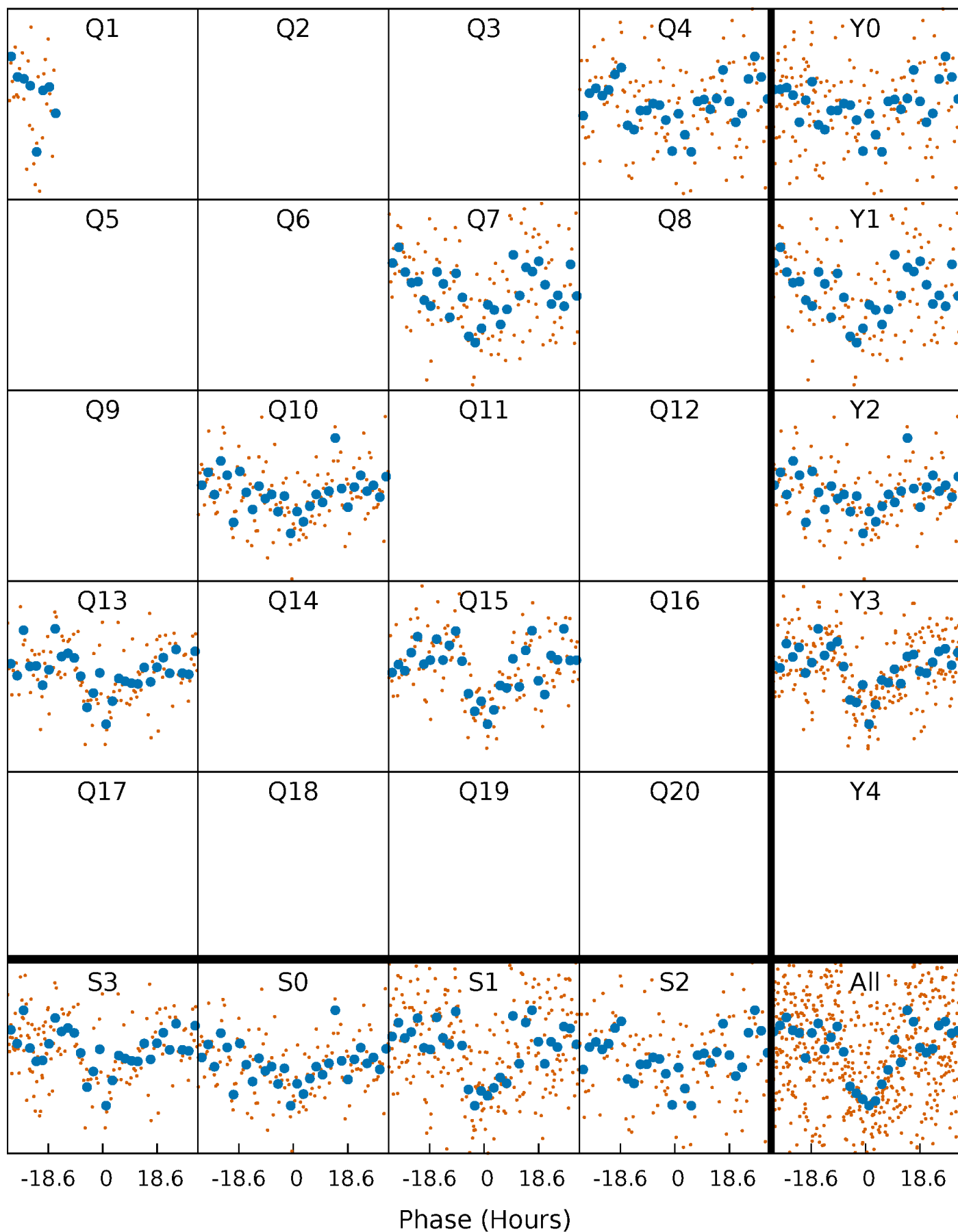


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

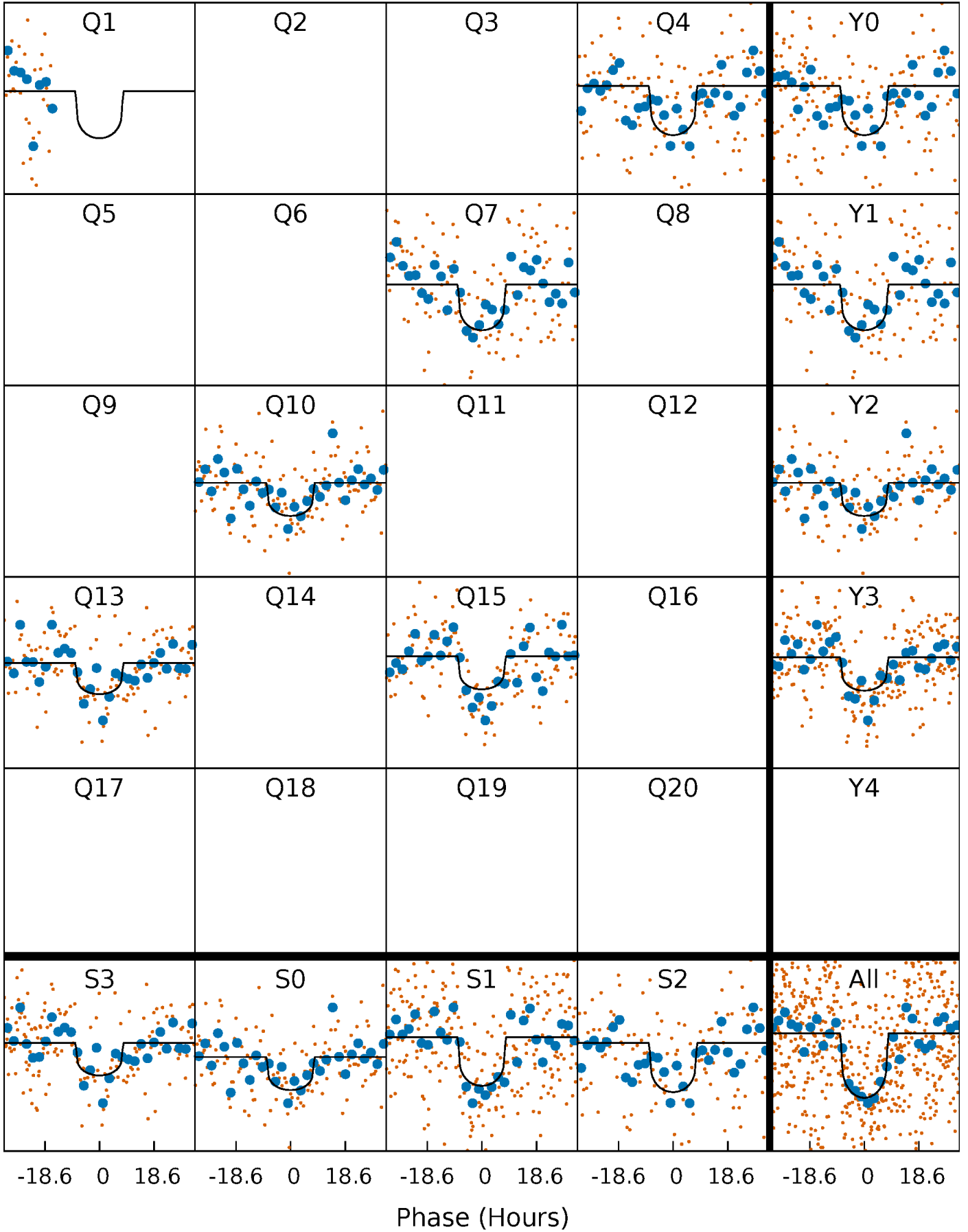
TCE 011037818-01 P=259.344310 Days  $T_0=165.674237$  (BKJD)





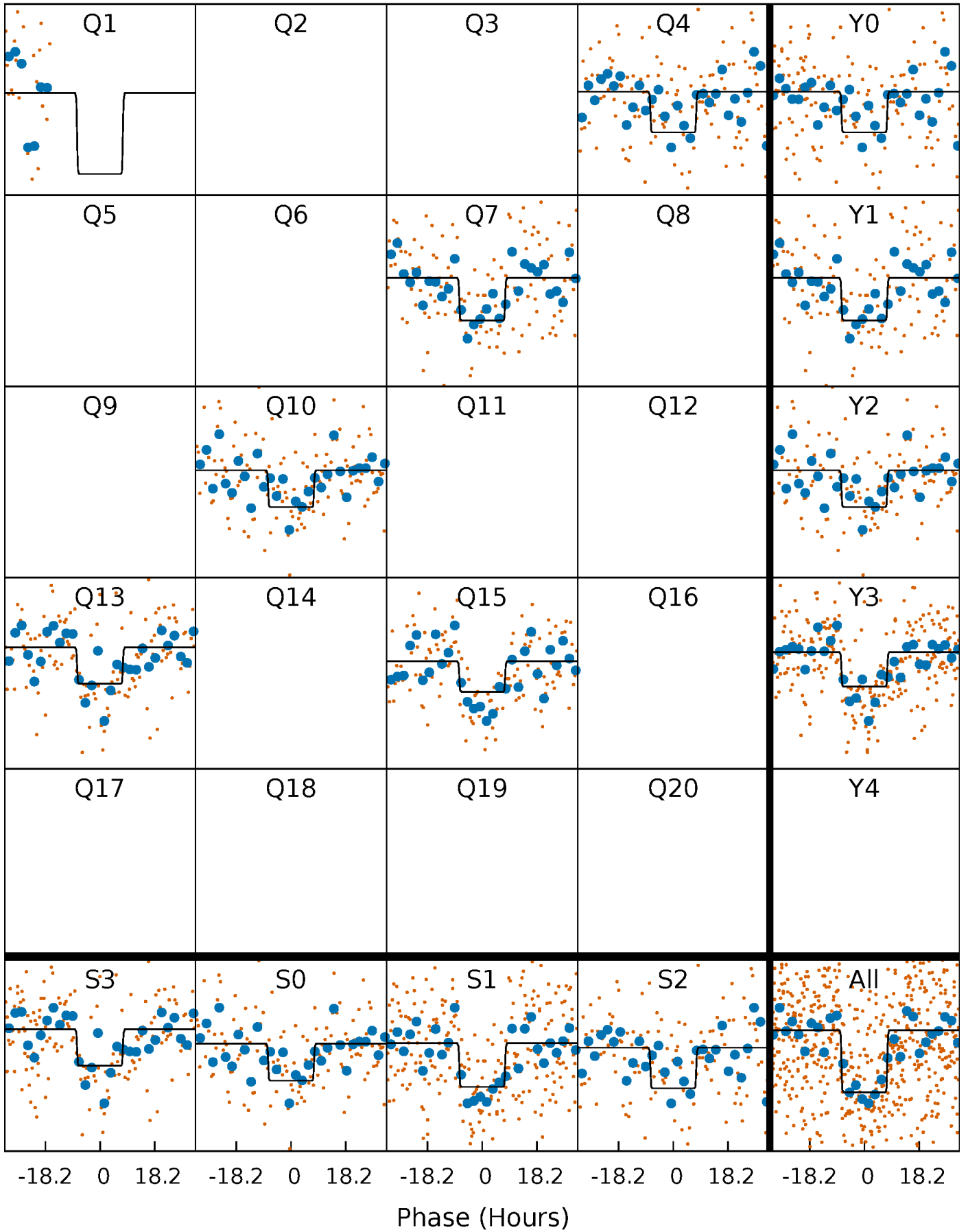
# DV Quarter-Phased Transit Curves

TCE 011037818-01 P=259.344310 Days  $T_0=165.674237$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

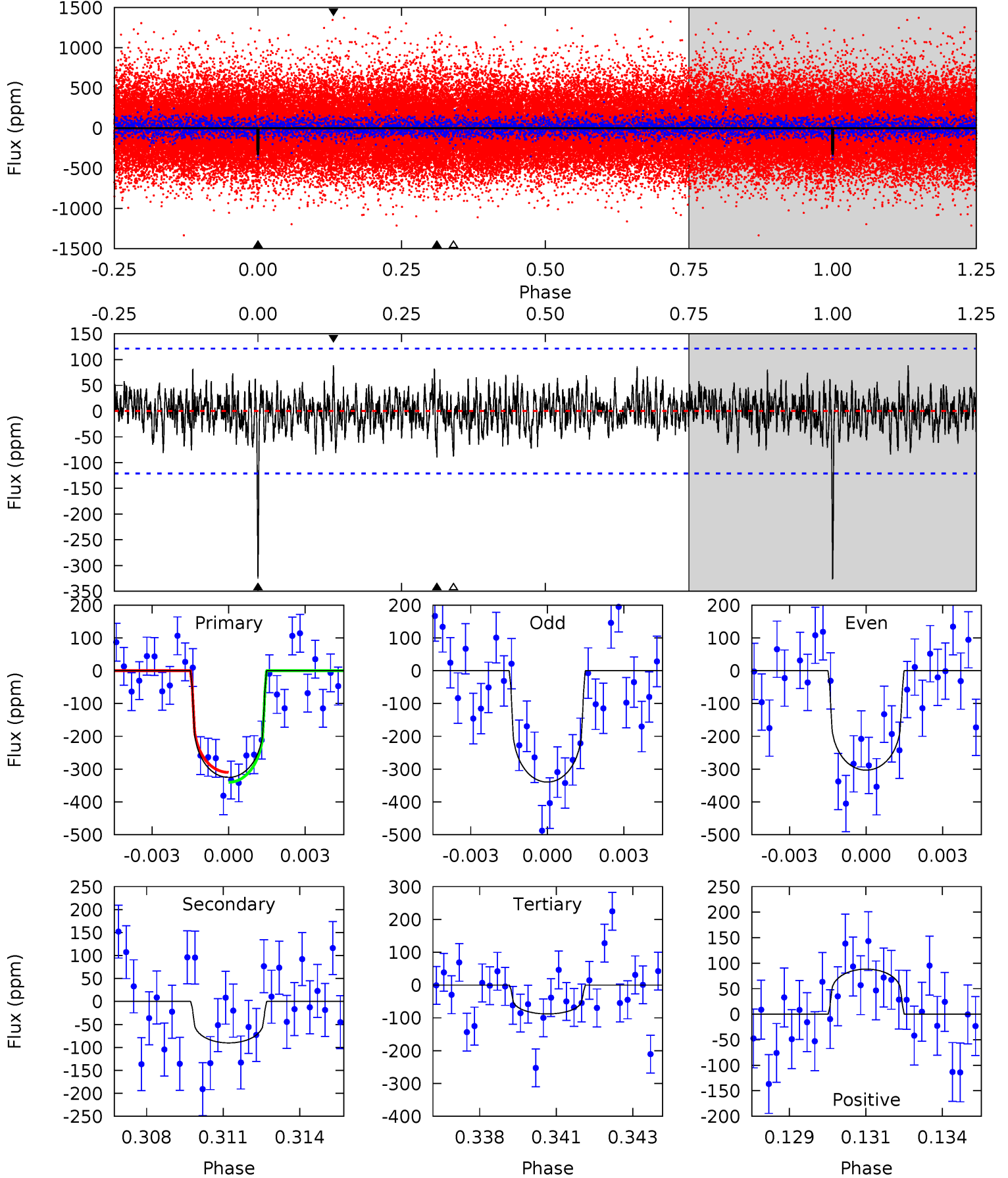
TCE 011037818-01 P=259.342743 Days  $T_0=165.678083$  (BKJD)



# DV Model-Shift Uniqueness Test

011037818-01, P = 259.344310 Days, E = 165.674237 Days

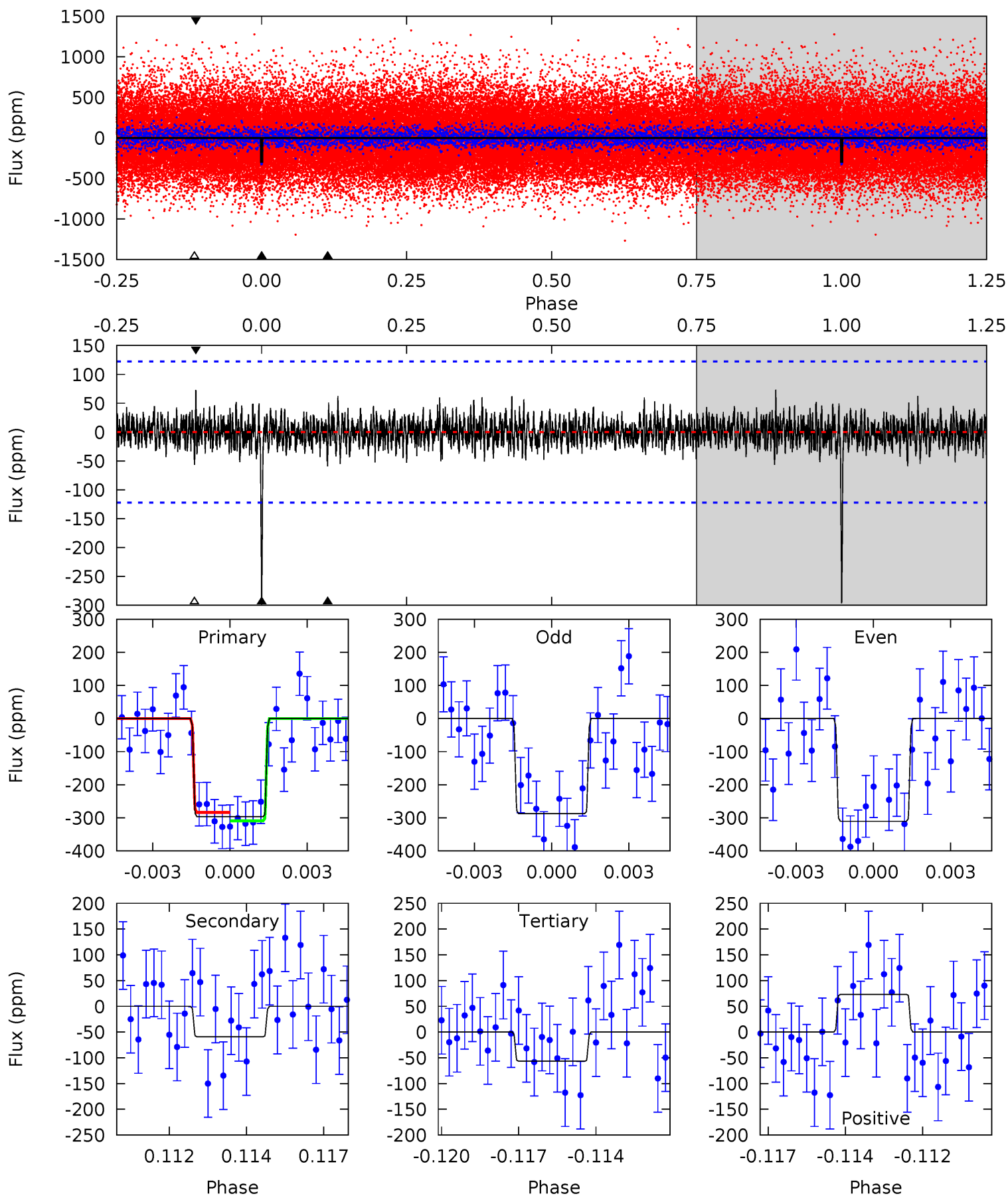
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	3.93	3.83	3.84	5.27	3.00	1.18	10.3	10.3	0.10	0.08	0.77	1.07	0.21	0.66



# Alt Model-Shift Uniqueness Test

011037818-01, P = 259.342743 Days, E = 165.678083 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
12.8	2.55	2.45	3.16	5.28	3.01	0.77	10.4	9.66	0.11	-0.60	0.48	0.97	0.20	0.55



### Stellar Parameters For KIC 011037818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5490^{+82}_{-82}$	$3.629^{+0.262}_{-0.087}$	$0.240^{+0.150}_{-0.150}$	$3.204^{+0.545}_{-1.180}$	$1.592^{+0.163}_{-0.409}$	$0.068^{+0.125}_{-0.020}$
	+1%/-1%	+7%/-2%	+62%/-62%	+17%/-37%	+10%/-26%	+183%/-29%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 011037818-01 / KOI 5856.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-90 \pm 23$	$6.07^{+3.05}_{-2.82}$	$619^{+32}_{-48}$	$4160^{+1144}_{-525}$	$1113^{+2813}_{-640}$
Alt.	$-59 \pm 23$	$5.73^{+3.34}_{-2.81}$	$619^{+30}_{-53}$	$3926^{+1000}_{-564}$	$811^{+2218}_{-522}$

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

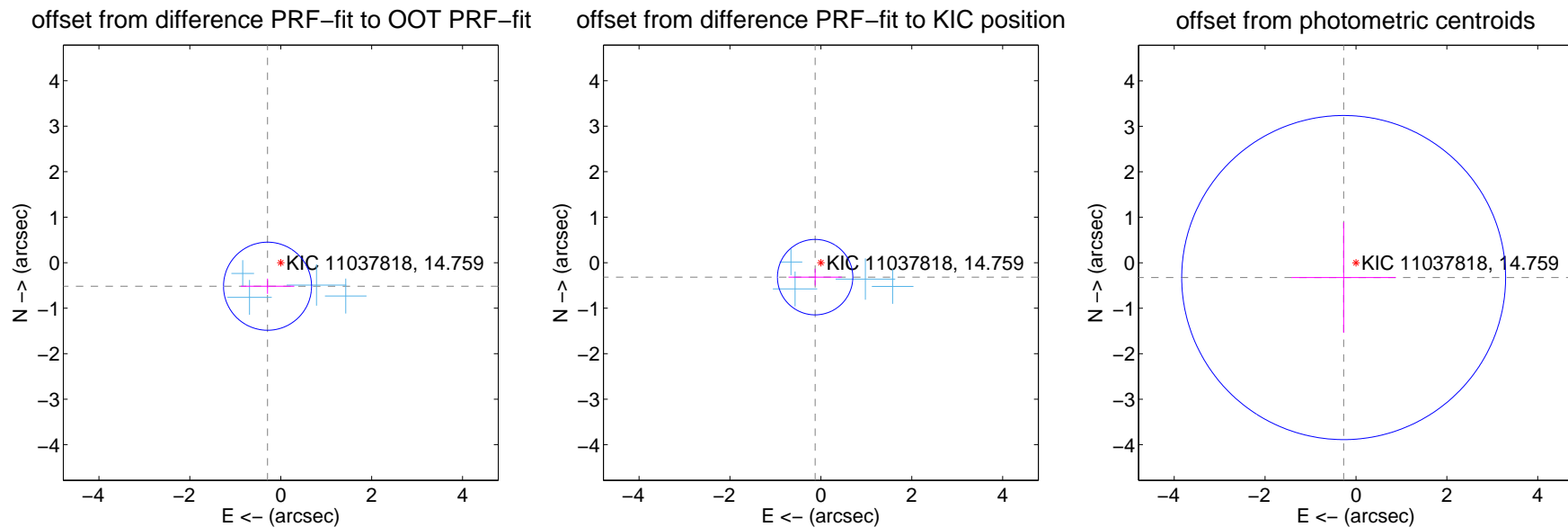
## DV Centroid Data

Supplemental centroid analysis for 011037818-01. Kepler magnitude: 14.76. Transit SNR 10.86

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.593 \pm 0.323$	1.84	$0.291 \pm 0.588$	$-0.517 \pm 0.167$
PRF-fit source offset from KIC position	$0.342 \pm 0.276$	1.24	$0.126 \pm 0.587$	$-0.318 \pm 0.185$
photometric centroid source offset	$0.42 \pm 1.19$	0.36	$0.27 \pm 1.15$	$-0.33 \pm 1.21$



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



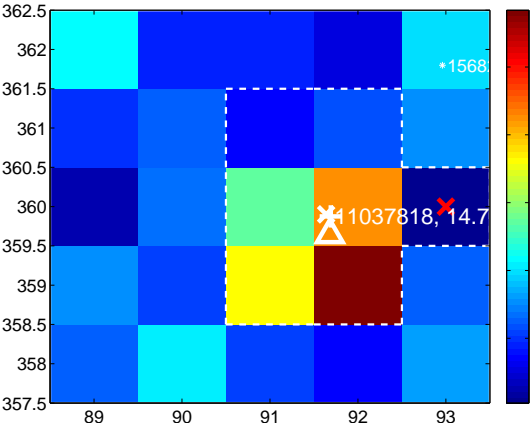
Q3 no difference image



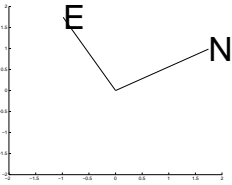
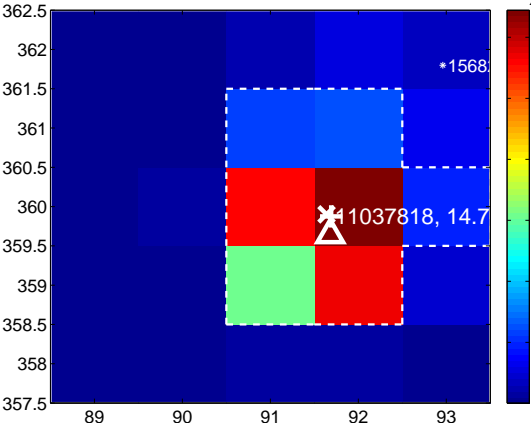
Q3 no OOT image



Q4 difference image



Q4 OOT image

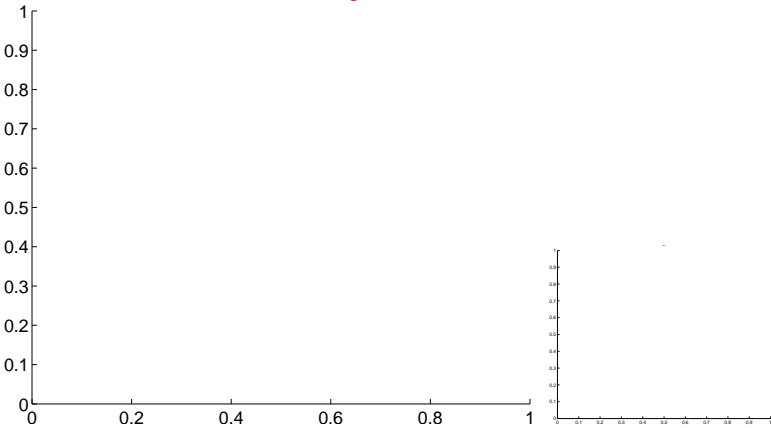


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q5 no difference image



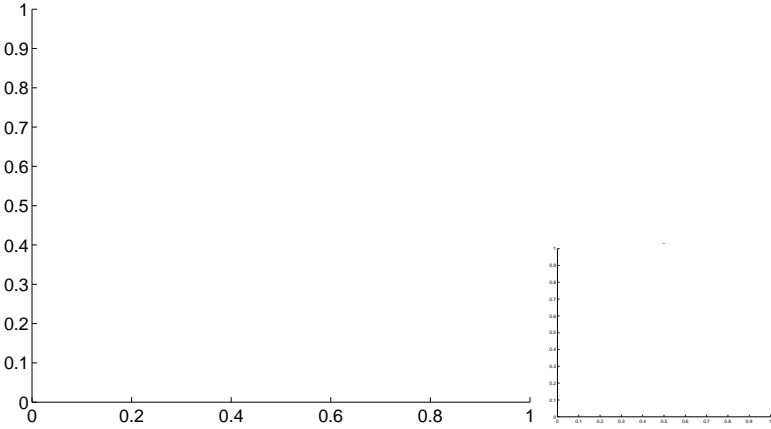
Q5 no OOT image



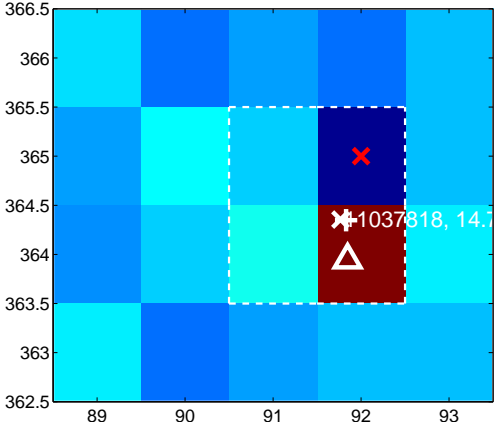
Q6 no difference image



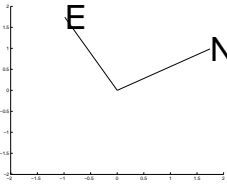
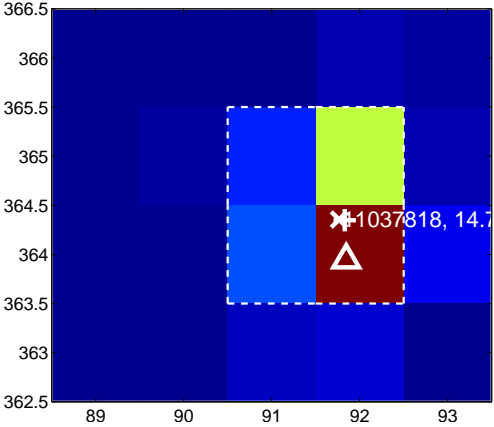
Q6 no OOT image



Q7 difference image



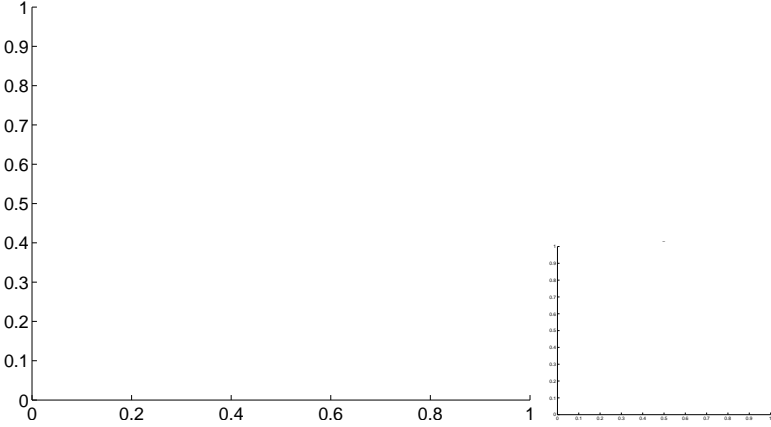
Q7 OOT image



Q8 no difference image



Q8 no OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

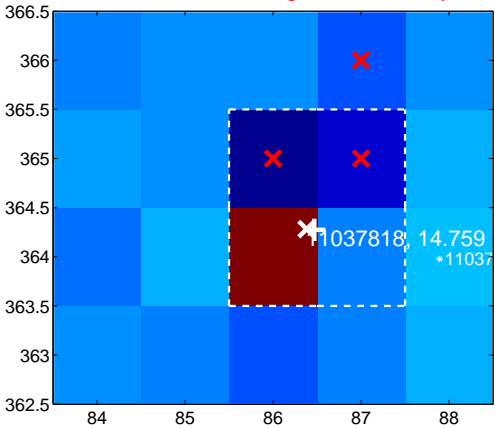
Q9 no difference image



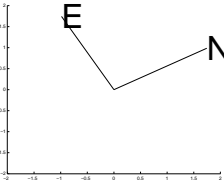
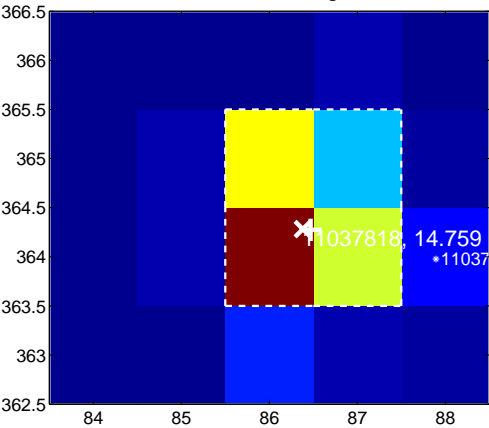
Q9 no OOT image



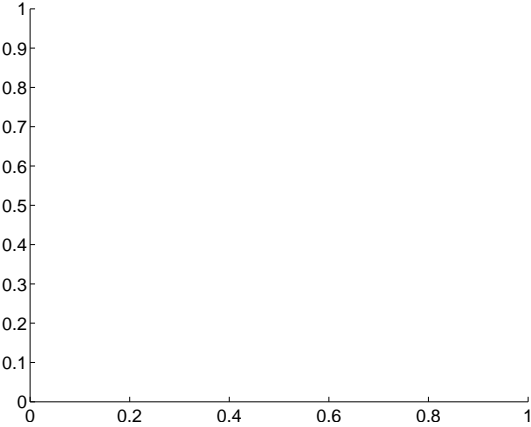
Q10 difference image. Poor Quality



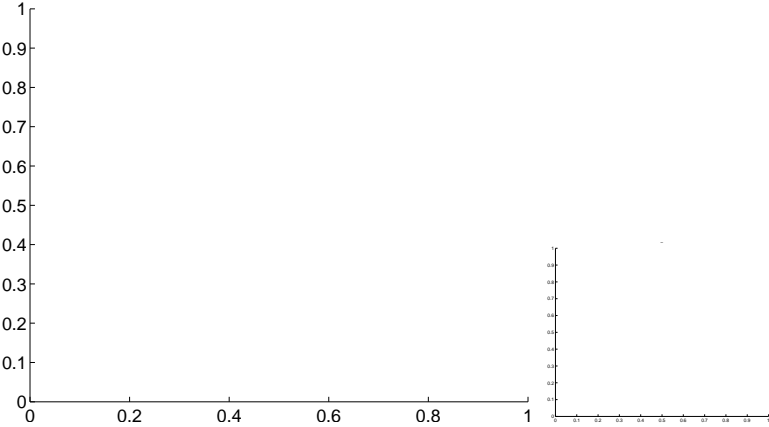
Q10 OOT image



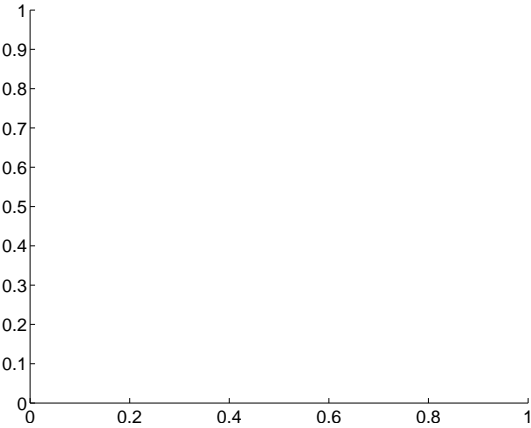
Q11 no difference image



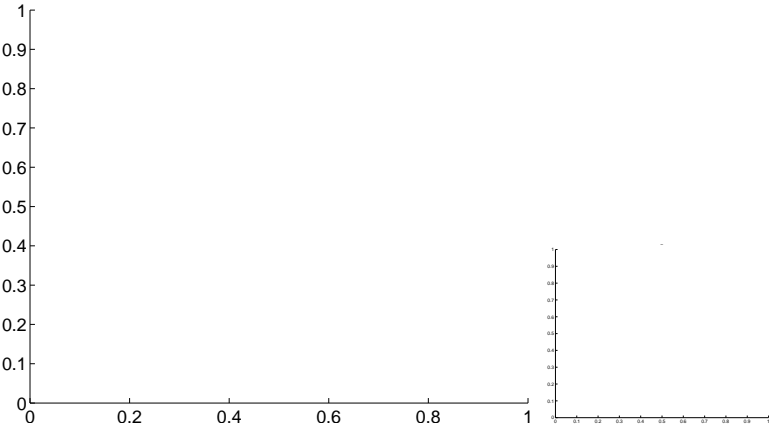
Q11 no OOT image



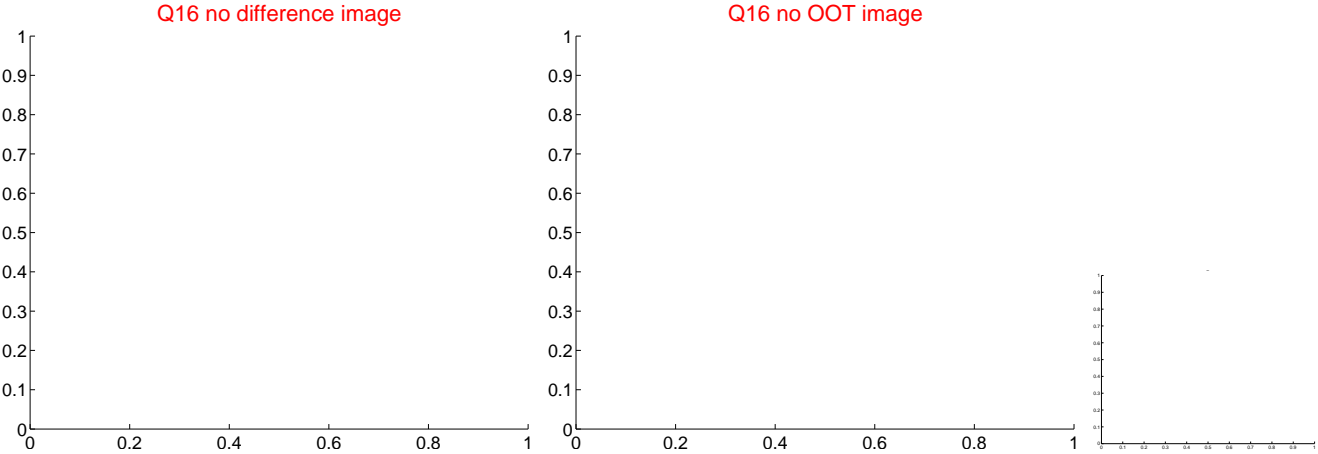
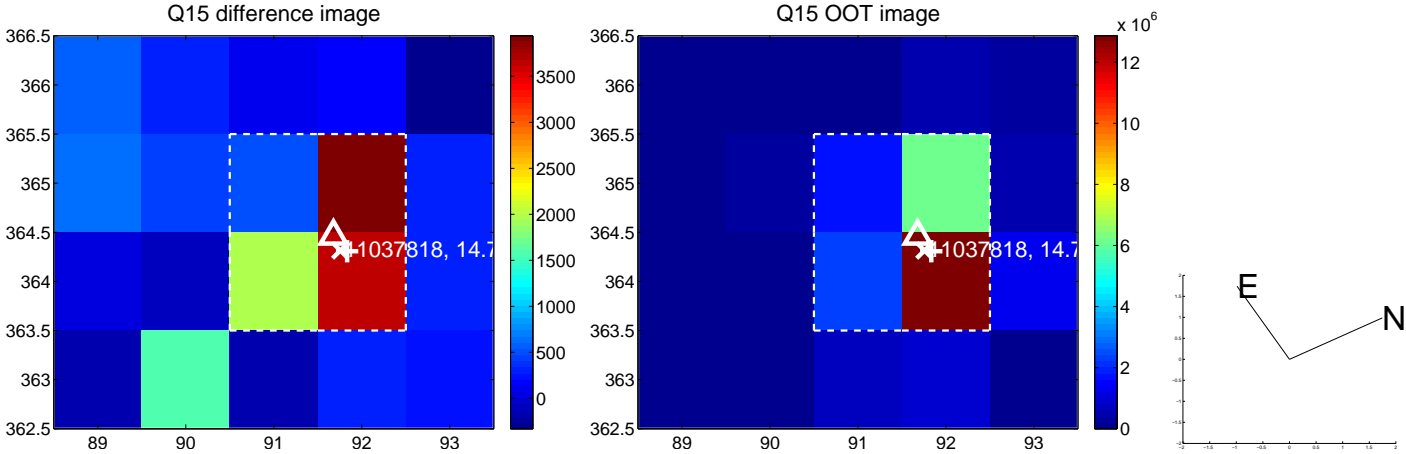
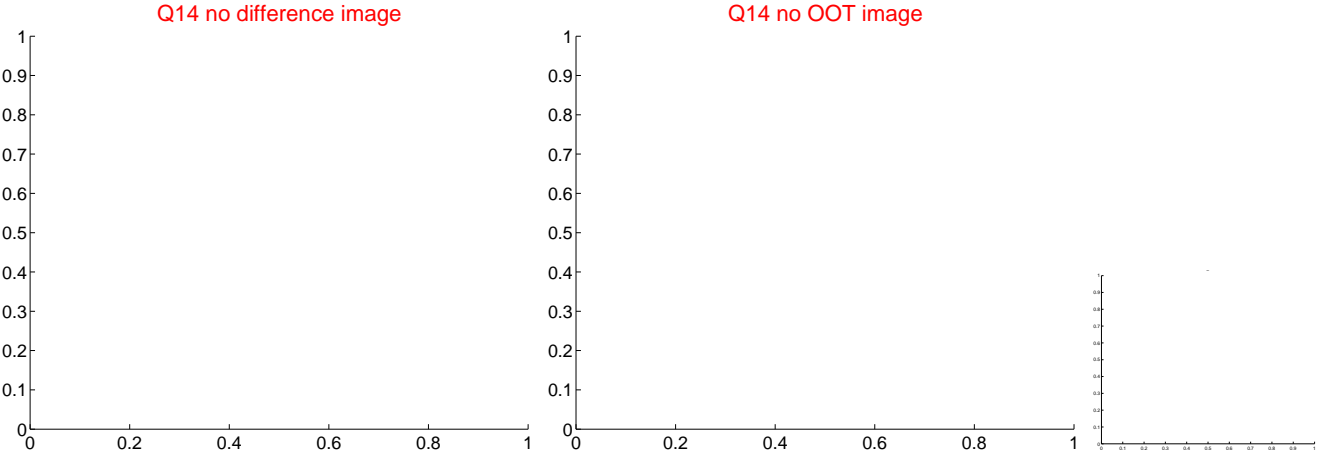
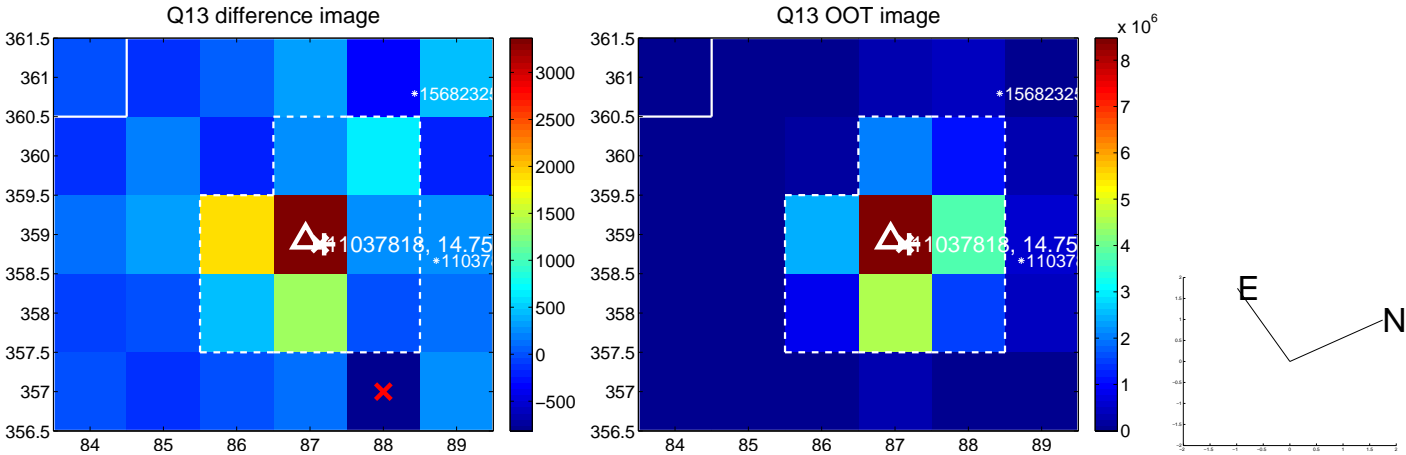
Q12 no difference image



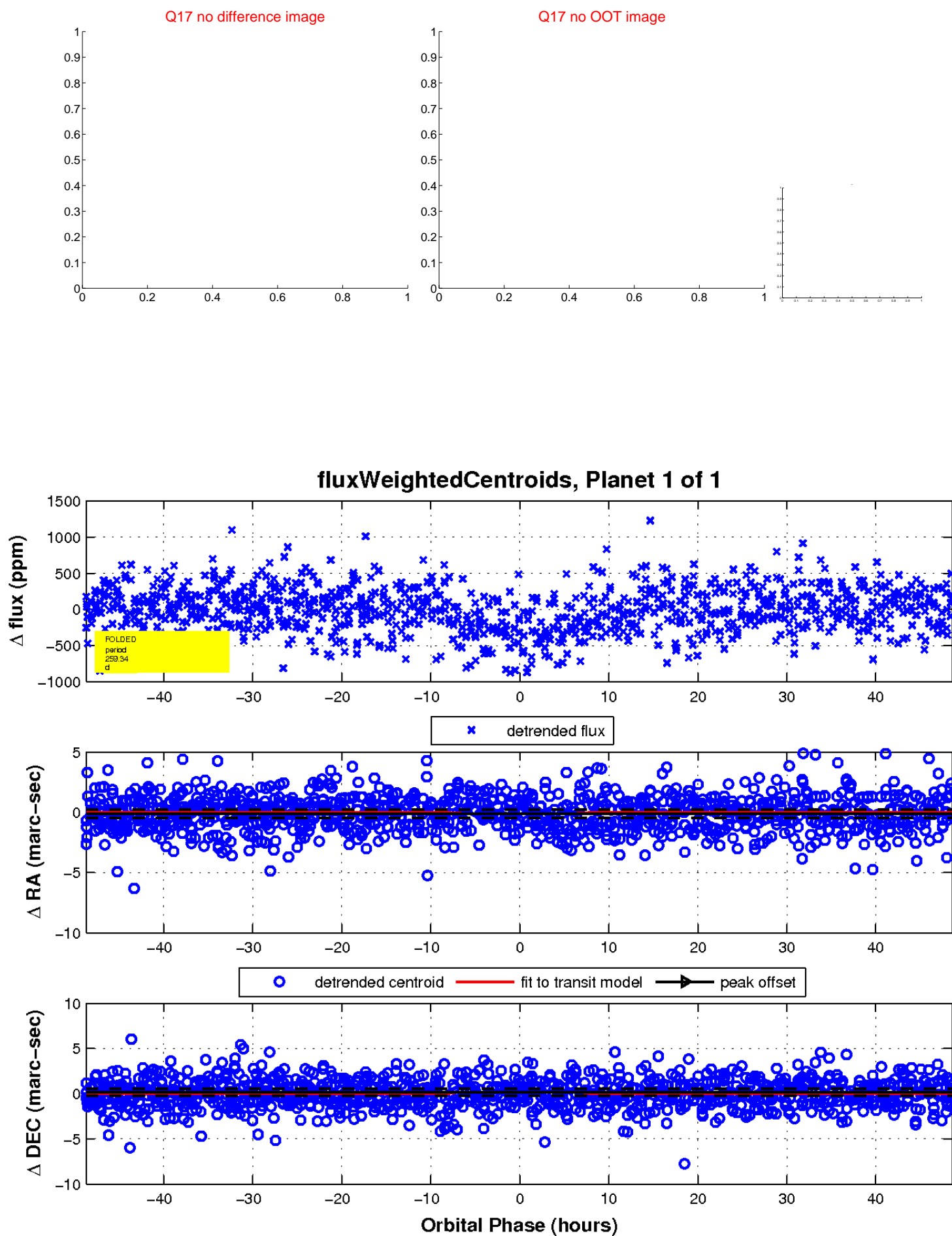
Q12 no OOT image



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

