

# KIC 010717241

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010717241-01	OBS	0430.01	12.376457	142.276205	1687.8	2.766	75.7	74.9	0.61	4200	2.60	12.88
010717241-02	OBS	0430.02	9.340508	135.125413	200.8	2.792	10.2	10.6	0.61	4200	0.98	18.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010717241-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010717241-02	OBS	PC	1.00	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 010717241-01

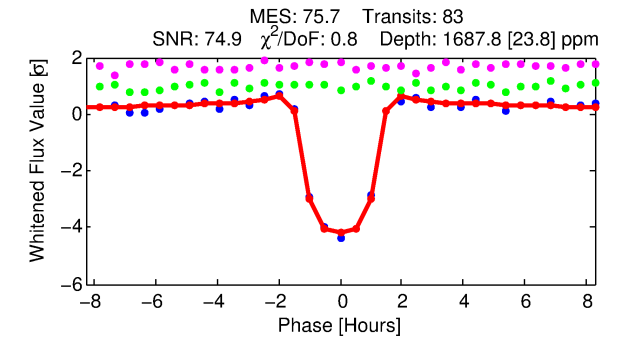
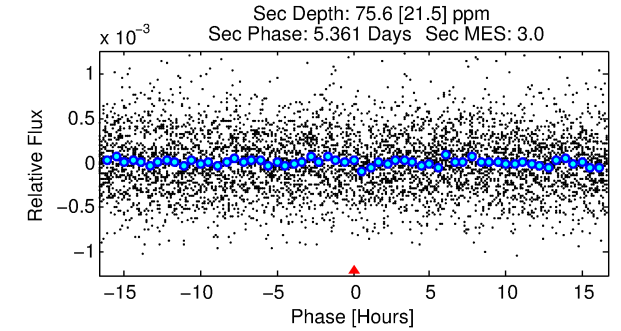
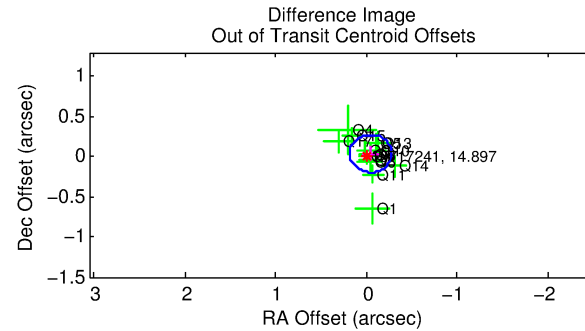
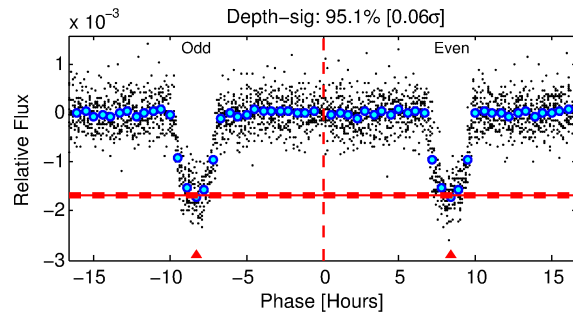
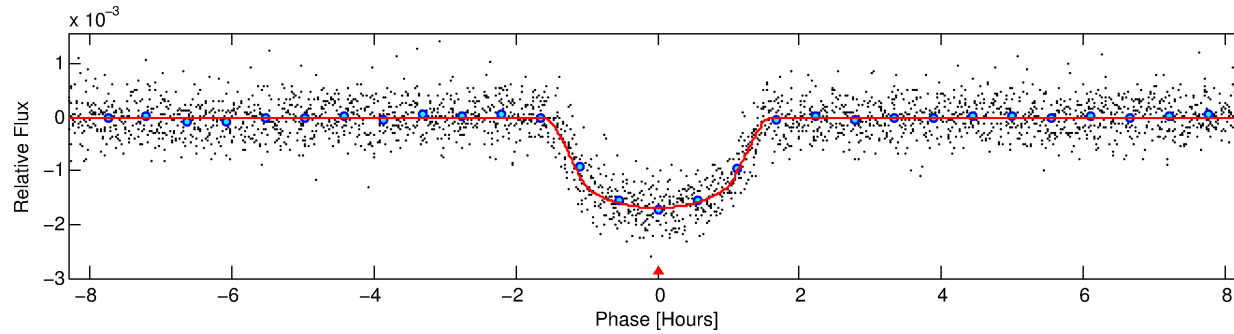
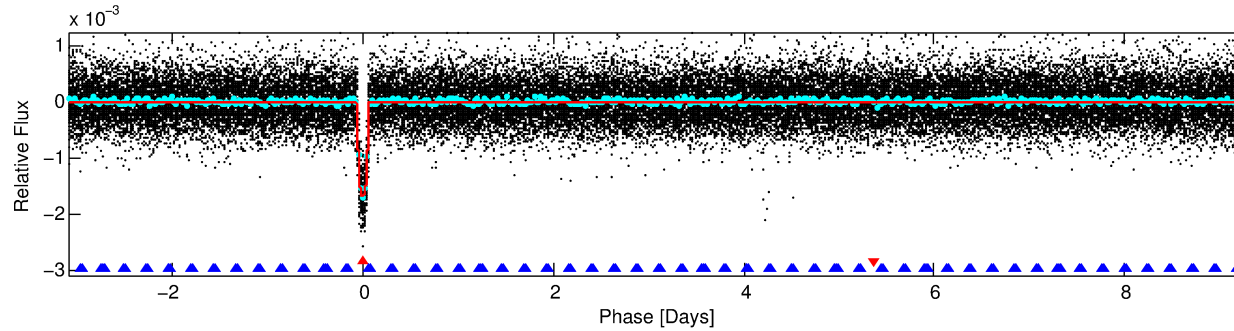
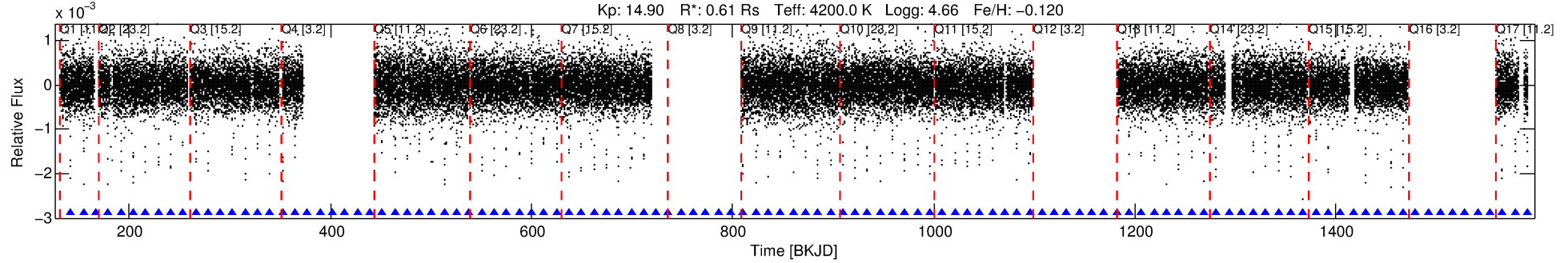
No Significant Match Found

# DV One-Page Summary

KIC: 10717241 Candidate: 1 of 2 Period: 12.376 d

KOI: K00430.01 Corr: 0.996

Kp: 14.90 R\*: 0.61 Rs Teff: 4200.0 K Logg: 4.66 Fe/H: -0.120



## DV Fit Results:

Period = 12.37646 [0.00001] d  
Epoch = 142.2762 [0.0007] BKJD  
Rp/R\* = 0.0392 [0.0063]  
a/R\* = 28.41 [15.33]  
b = 0.62 [0.54]  
Seff = 12.88 [1.21]  
Teq = 483 [11] K  
Rp = 2.60 [0.44] Re  
a = 0.0893 [0.0032] AU  
Ag = 49.19 [21.31] [2.26σ]  
Teffp = 1978 [216] K [6.90σ]

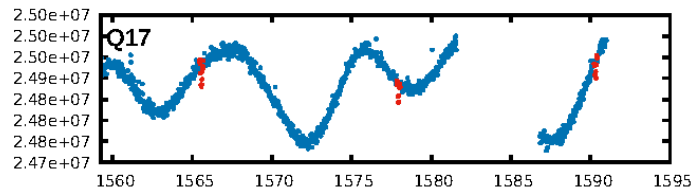
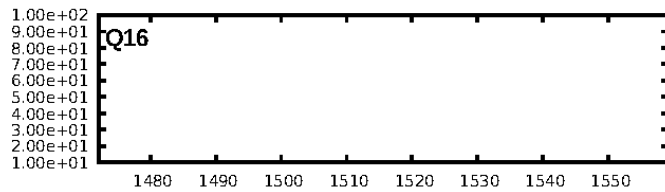
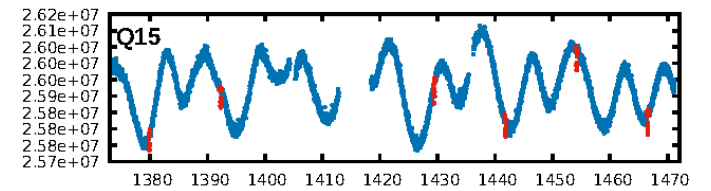
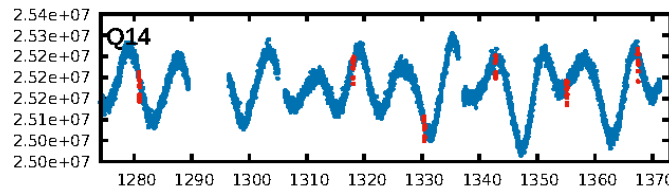
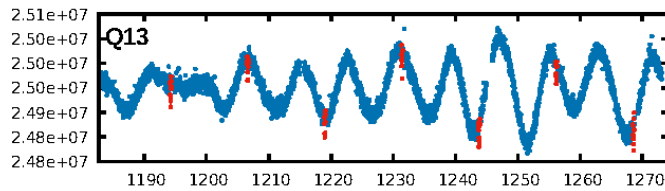
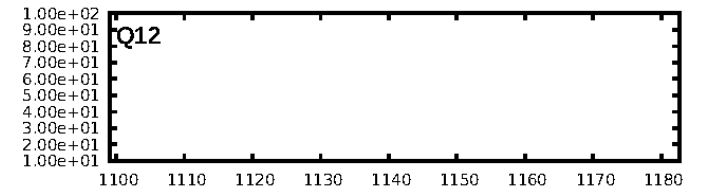
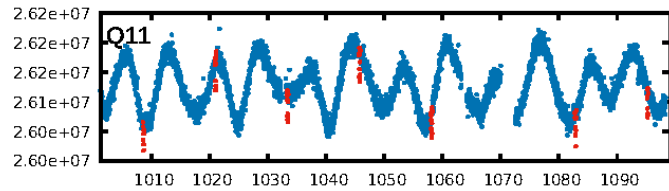
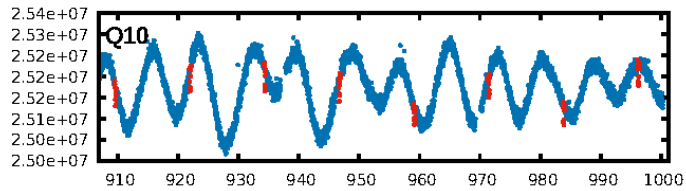
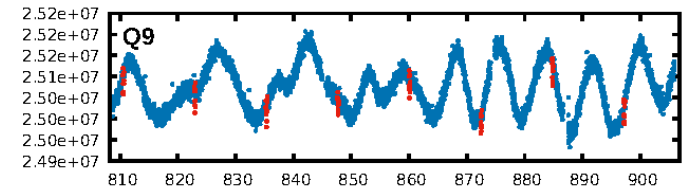
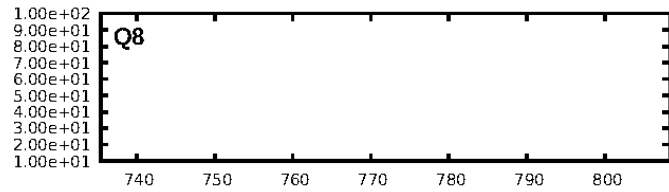
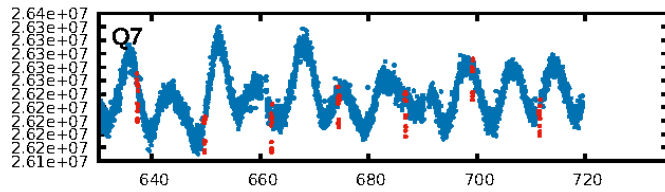
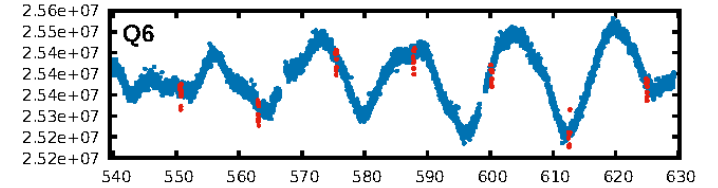
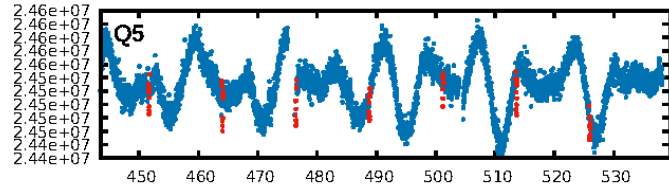
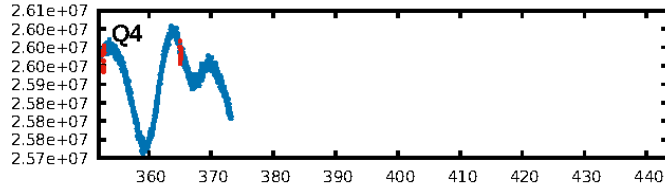
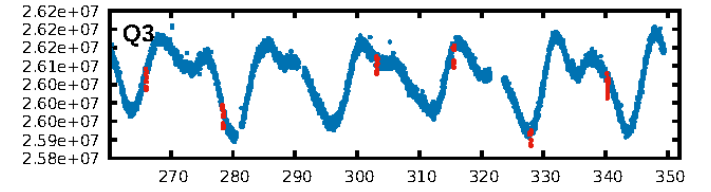
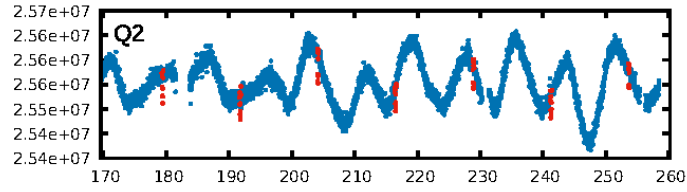
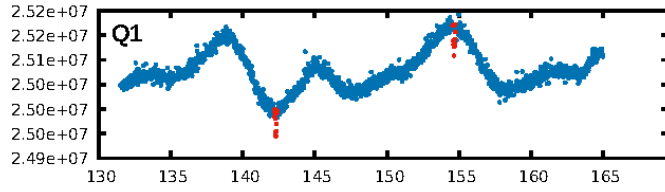
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.54σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 93.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [76/76]  
GhostDiagnostic-chr: 6.031  
Centroid-sig: 7.8%  
Centroid-so: 0.200 arcsec [1.26σ]  
OotOffset-rm: 0.059 arcsec [0.76σ]  
OotOffset-st: 4/4/1/5 [14]  
KicOffset-rm: 0.312 arcsec [3.43σ]  
KicOffset-st: 4/4/1/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

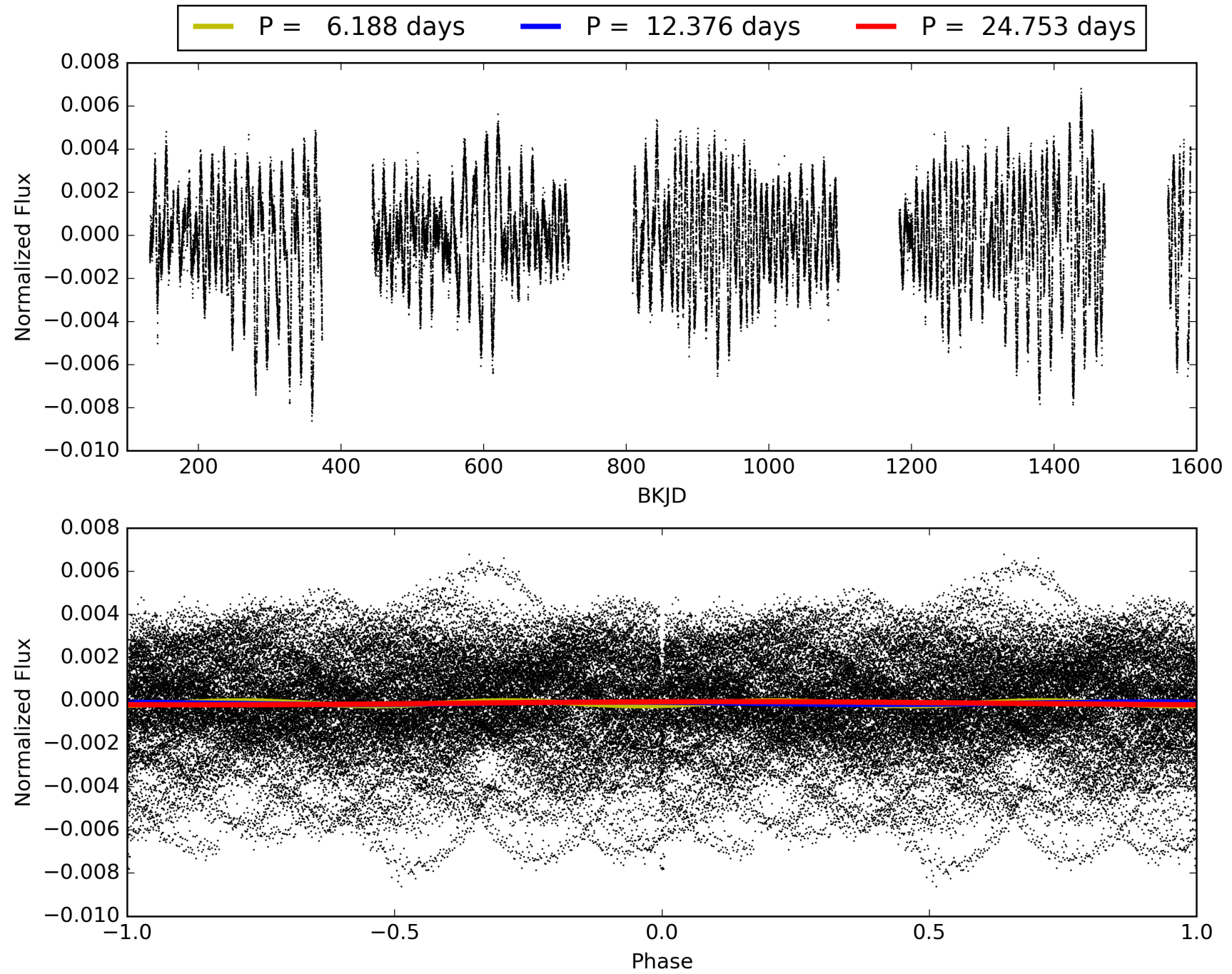
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:17:41 Z

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

# TCE 010717241-01, PDC Light Curves

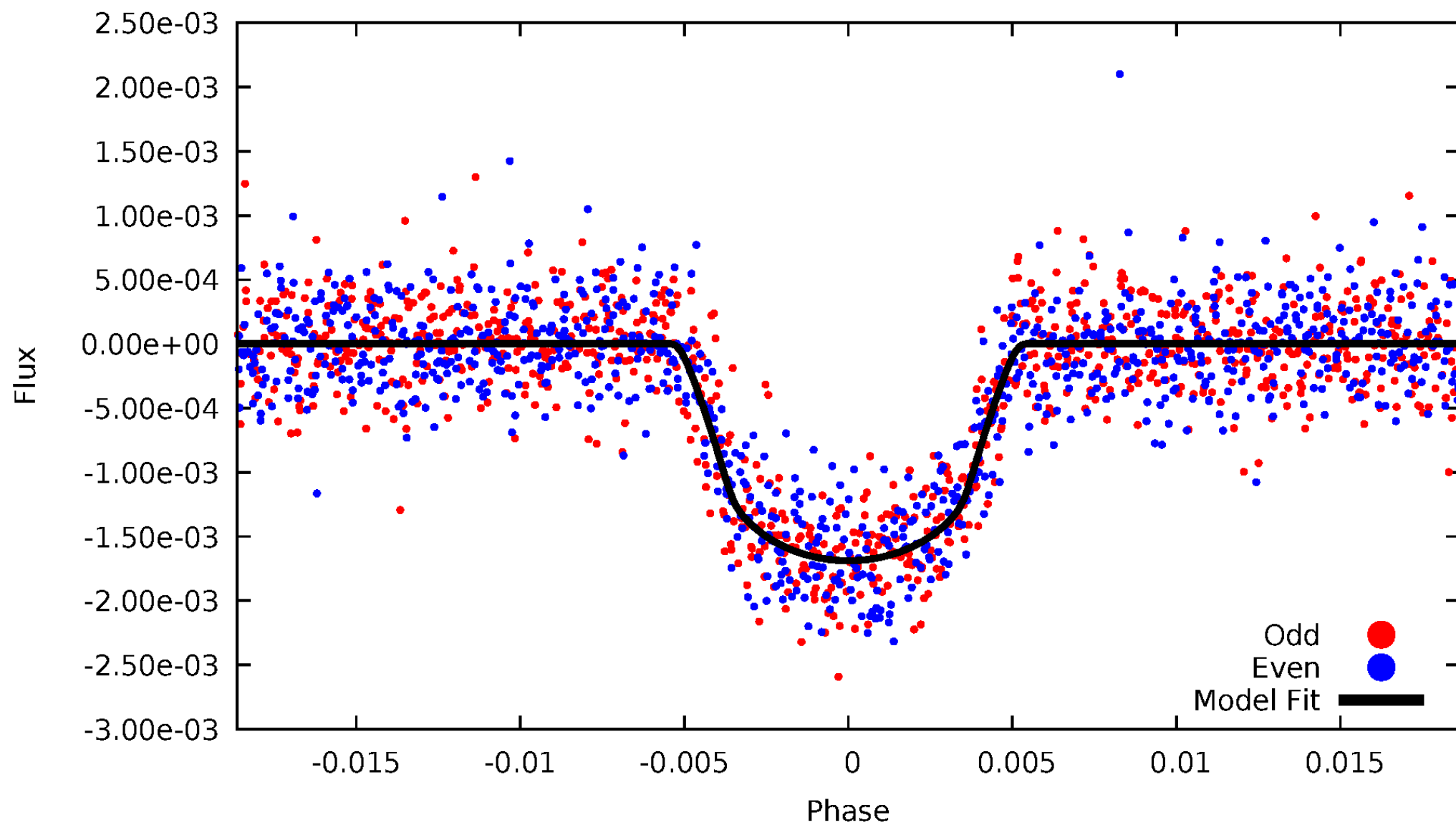


TCE 010717241-01



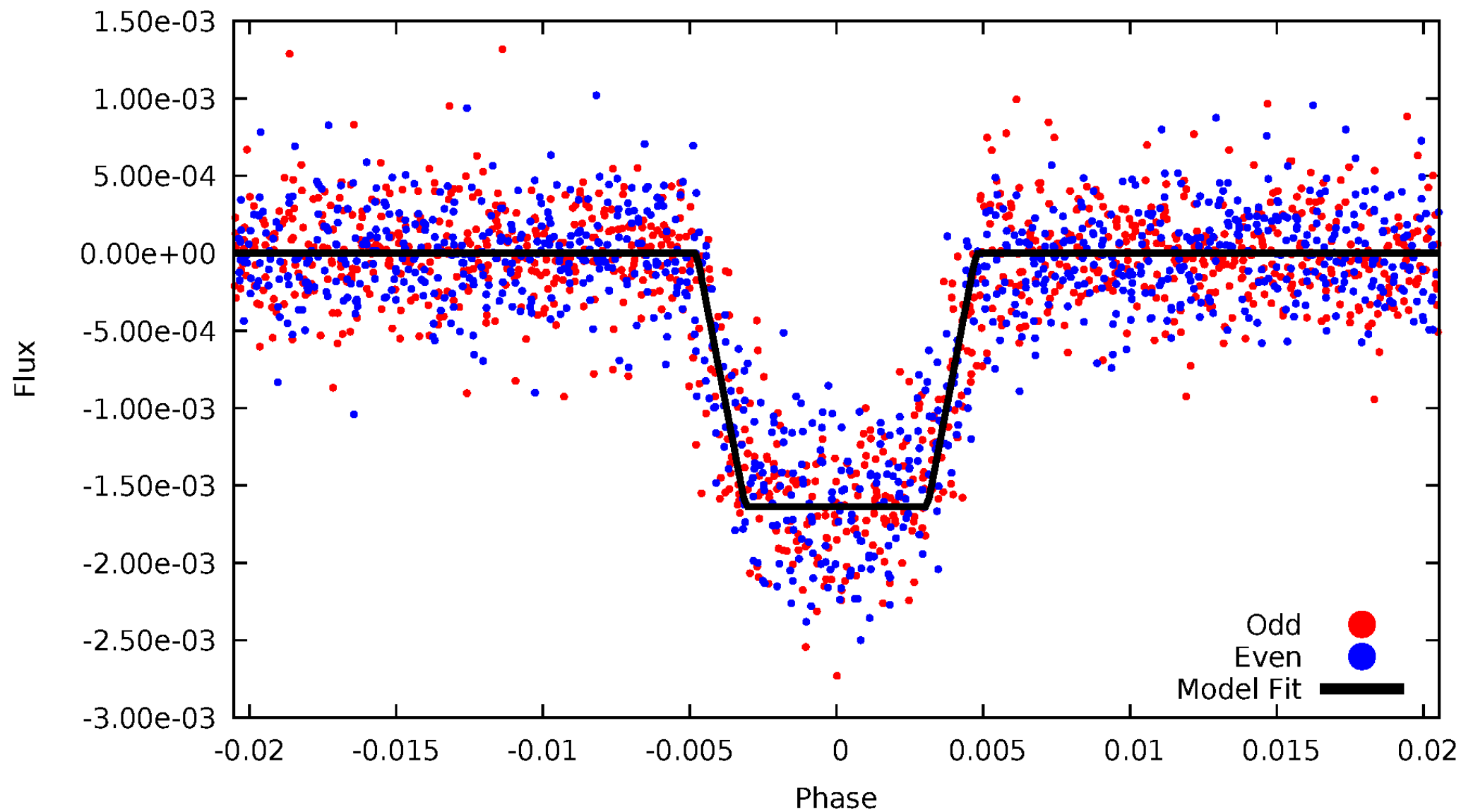
# DV Odd/Even

TCE 010717241-01



# ALT Odd/Even

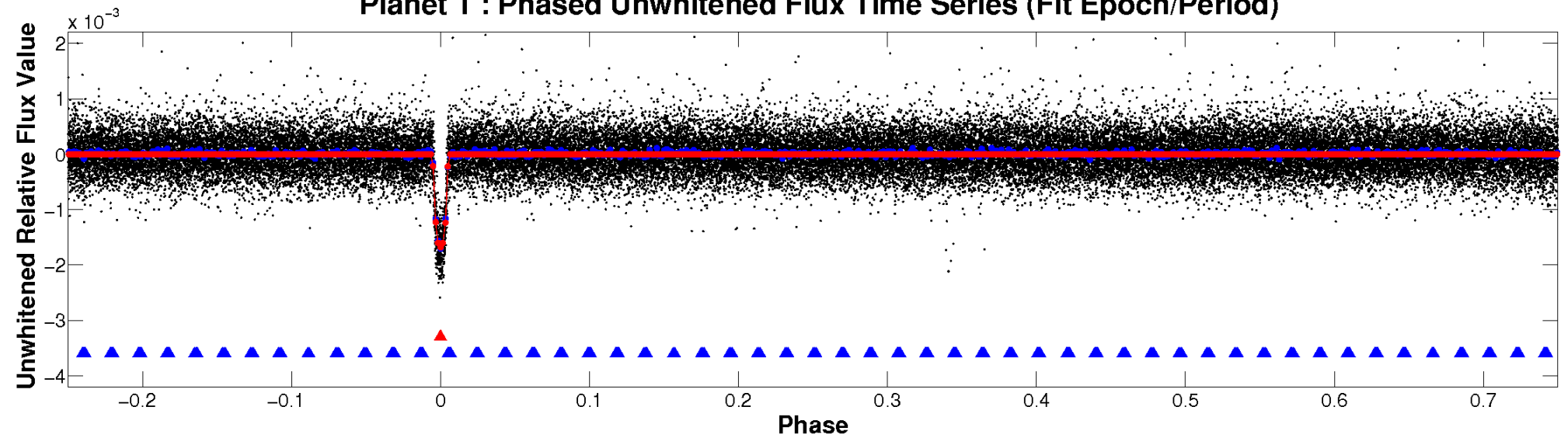
TCE 010717241-01



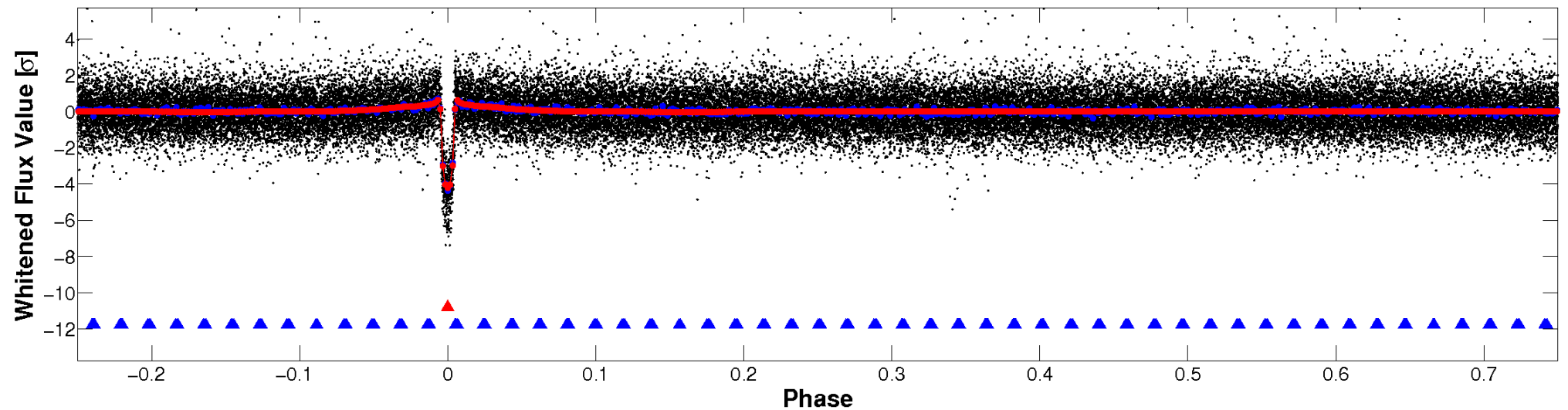


# Non-Whitened Vs. Whitened Light Curve

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

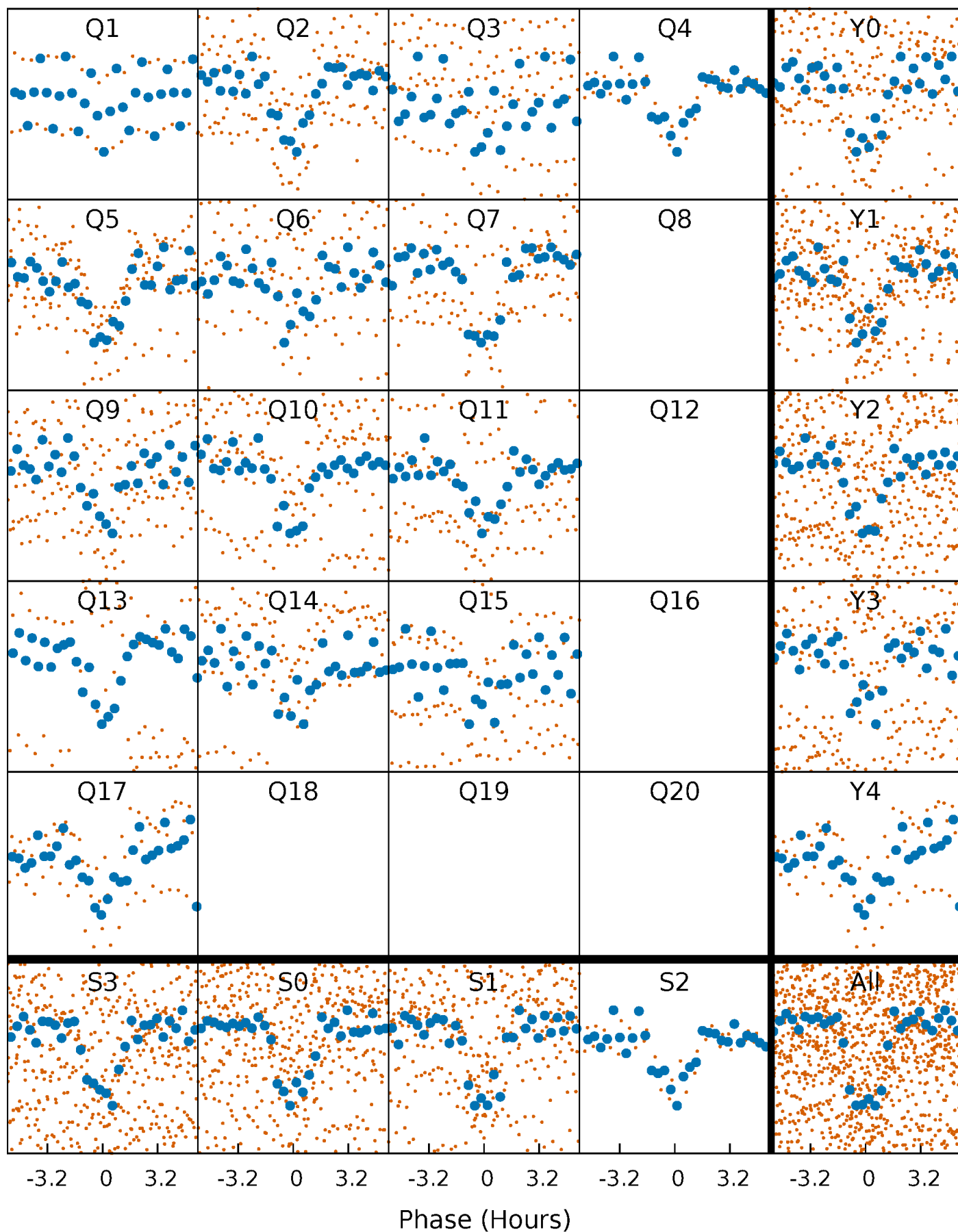


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

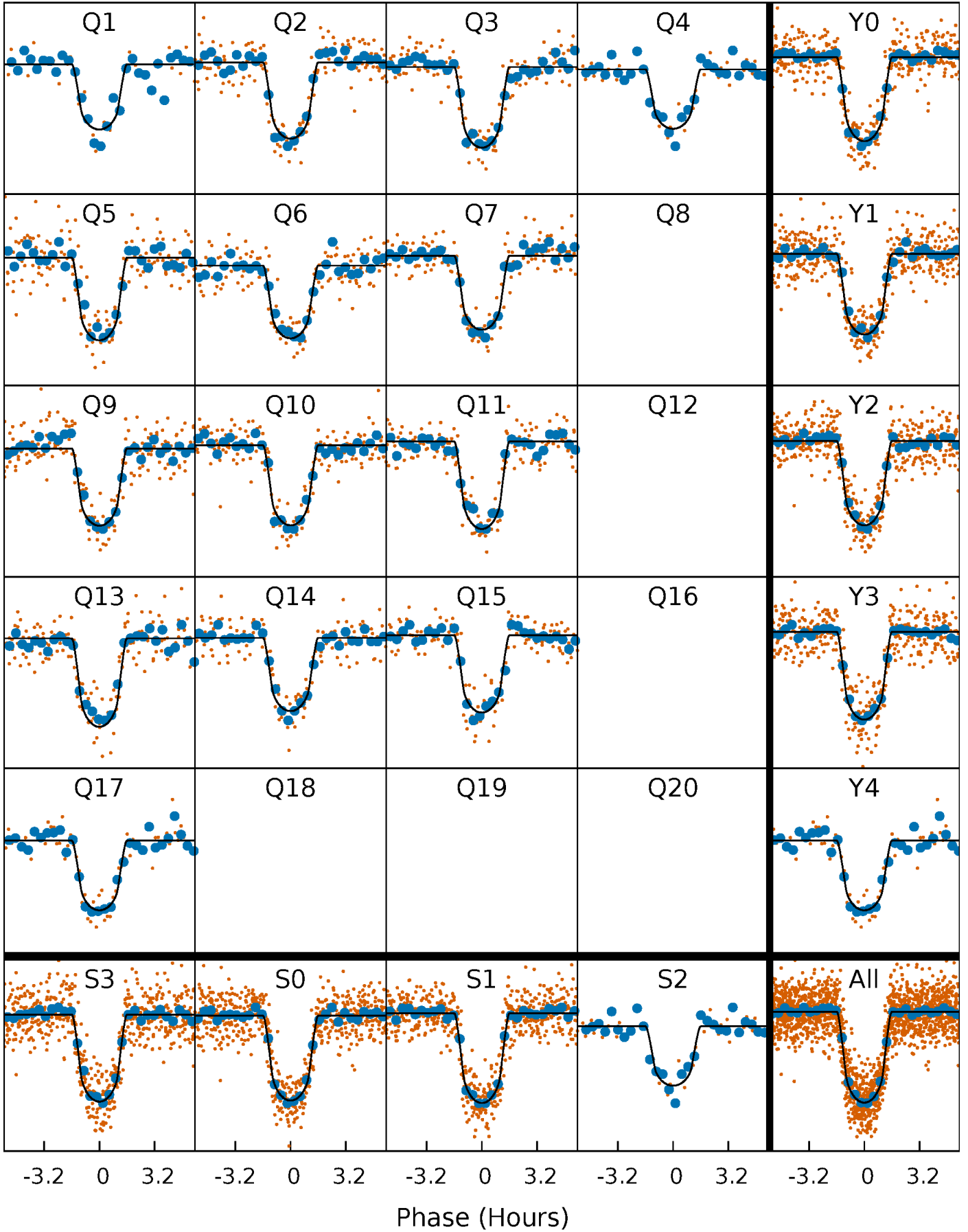
TCE 010717241-01 P= 12.376457 Days  $T_0=142.276205$  (BKJD)





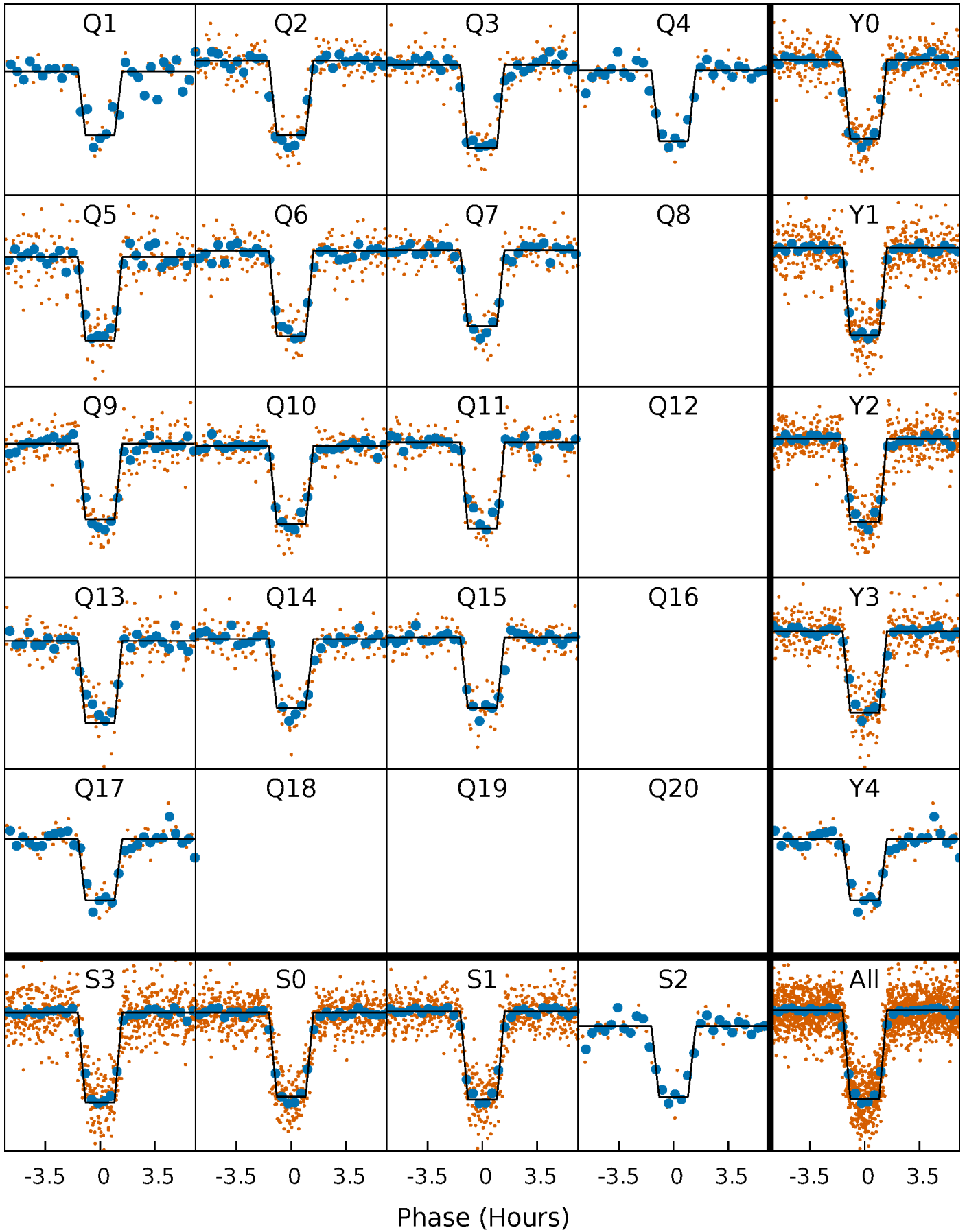
# DV Quarter-Phased Transit Curves

TCE 010717241-01 P= 12.376457 Days  $T_0=142.276205$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

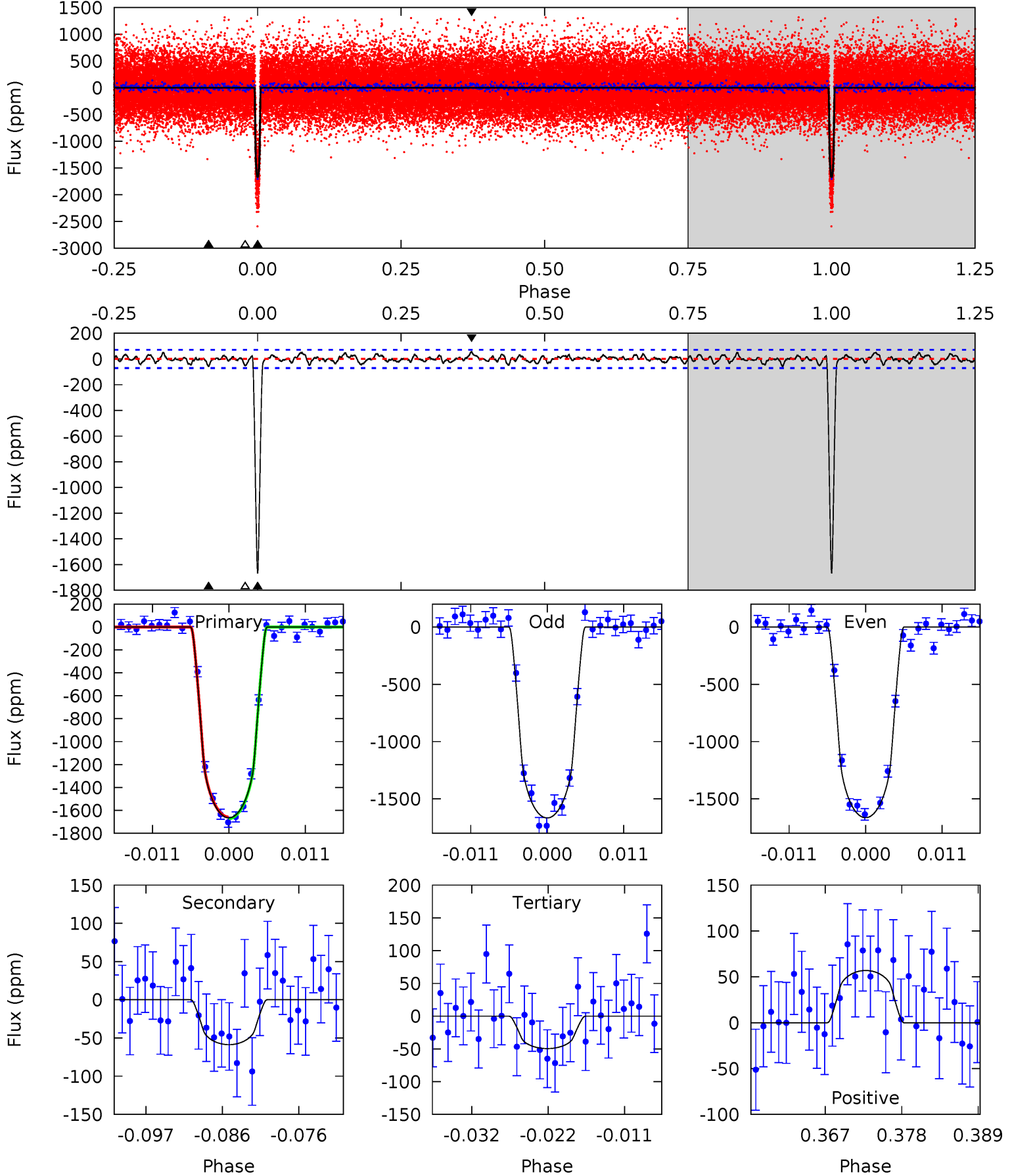
TCE 010717241-01 P= 12.376361 Days  $T_0=142.281720$  (BKJD)



# DV Model-Shift Uniqueness Test

010717241-01,  $P = 12.376457$  Days,  $E = 129.899748$  Days

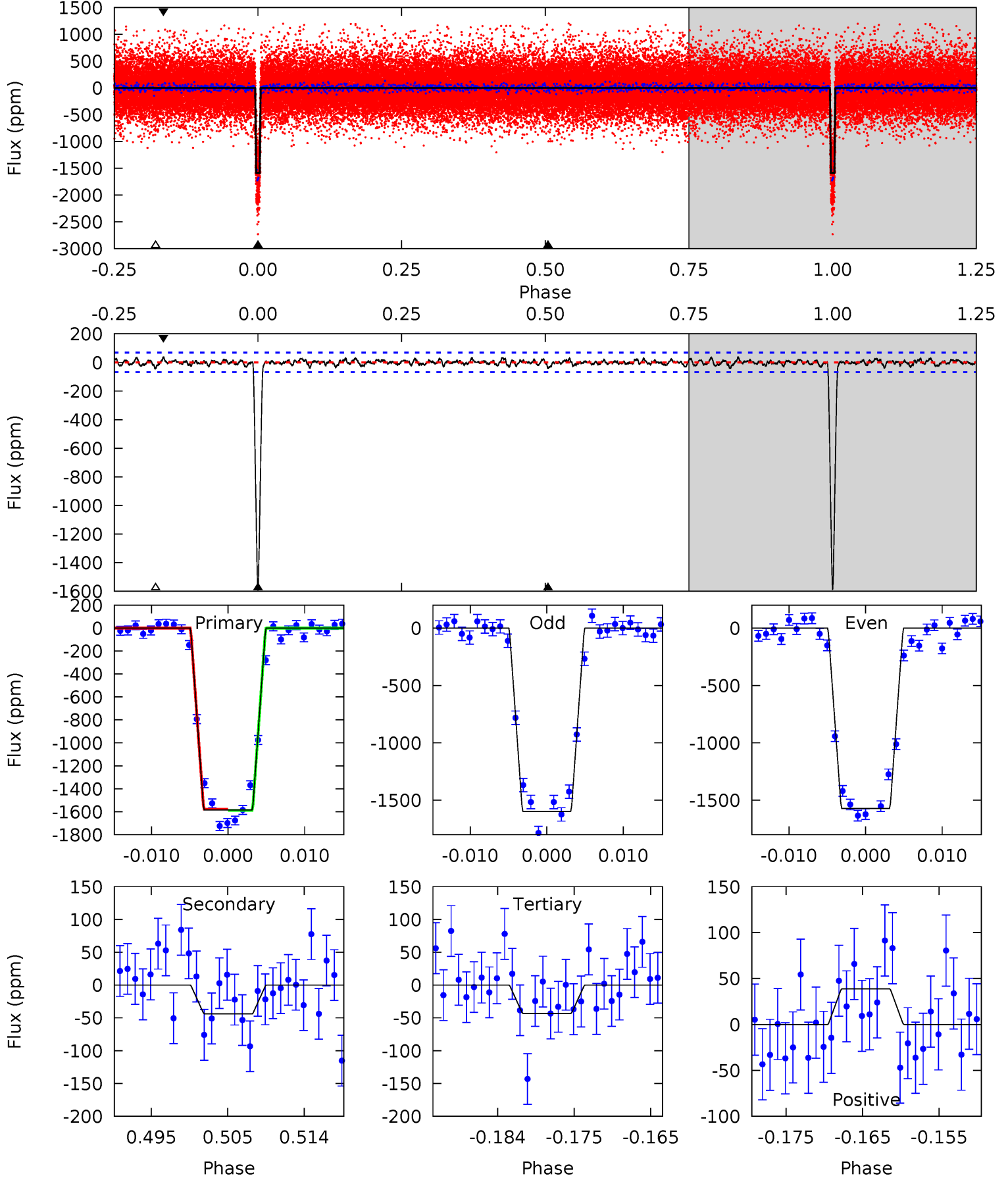
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
117.6	4.15	3.50	4.02	5.01	2.55	1.32	114.1	113.6	0.65	0.13	0.08	0.98	0.03	0.45



# Alt Model-Shift Uniqueness Test

010717241-01,  $P = 12.376361$  Days,  $E = 129.905359$  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
116.5	3.22	3.19	2.85	5.03	2.59	0.92	113.3	113.6	0.04	0.37	0.95	1.00	0.02	0.37



### Stellar Parameters For KIC 010717241

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4200^{+84}_{-84}$	$4.664^{+0.022}_{-0.025}$	$-0.120^{+0.150}_{-0.150}$	$0.607^{+0.028}_{-0.028}$	$0.622^{+0.029}_{-0.033}$	$3.907^{+0.377}_{-0.344}$
	+2%/-2%	+0%/-1%	+125%/-125%	+5%/-5%	+5%/-5%	+10%/-9%
Source	SPE60	SPE60	SPE60	DSEP		

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

### Secondary Eclipse Parameters for KIC 010717241-01 / KOI 0430.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-59 \pm 14$	$2.62^{+0.45}_{-0.46}$	$676^{+15}_{-14}$	$2564^{+148}_{-128}$	$37^{+20}_{-12}$
Alt.	$-44 \pm 14$	$2.73^{+0.44}_{-0.44}$	$674^{+15}_{-14}$	$2444^{+139}_{-136}$	$26^{+13}_{-10}$

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

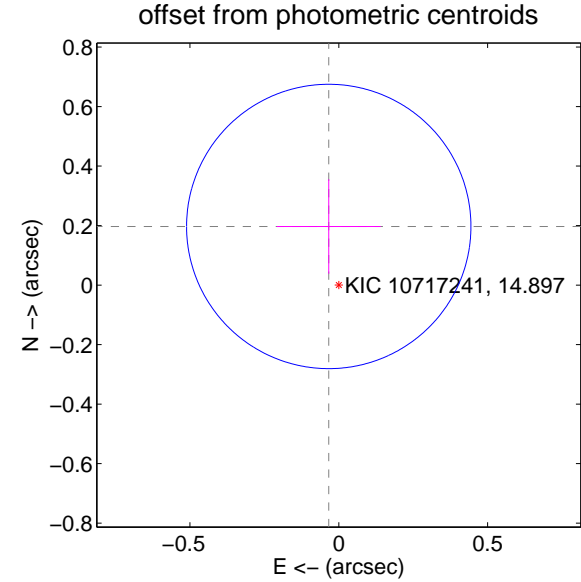
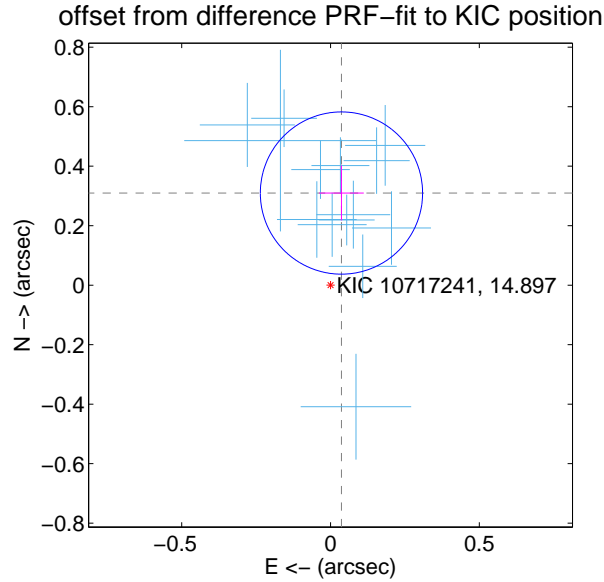
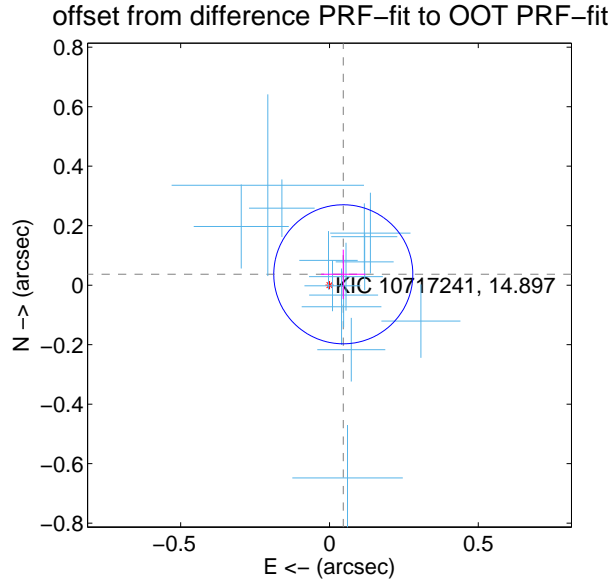
## DV Centroid Data

Supplemental centroid analysis for 010717241-01. Kepler magnitude: 14.90. Transit SNR 74.91

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

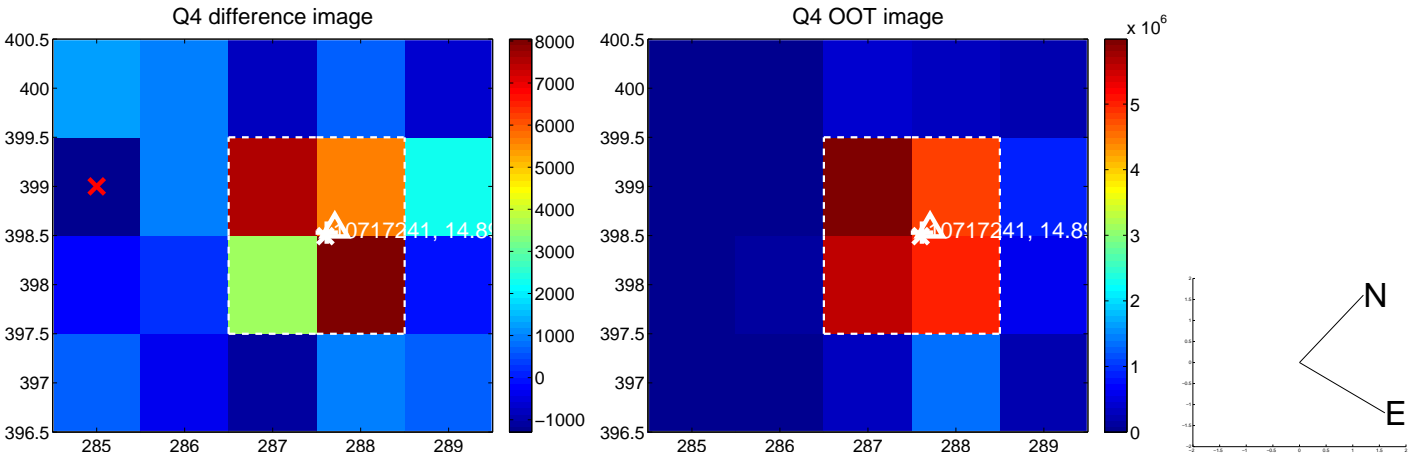
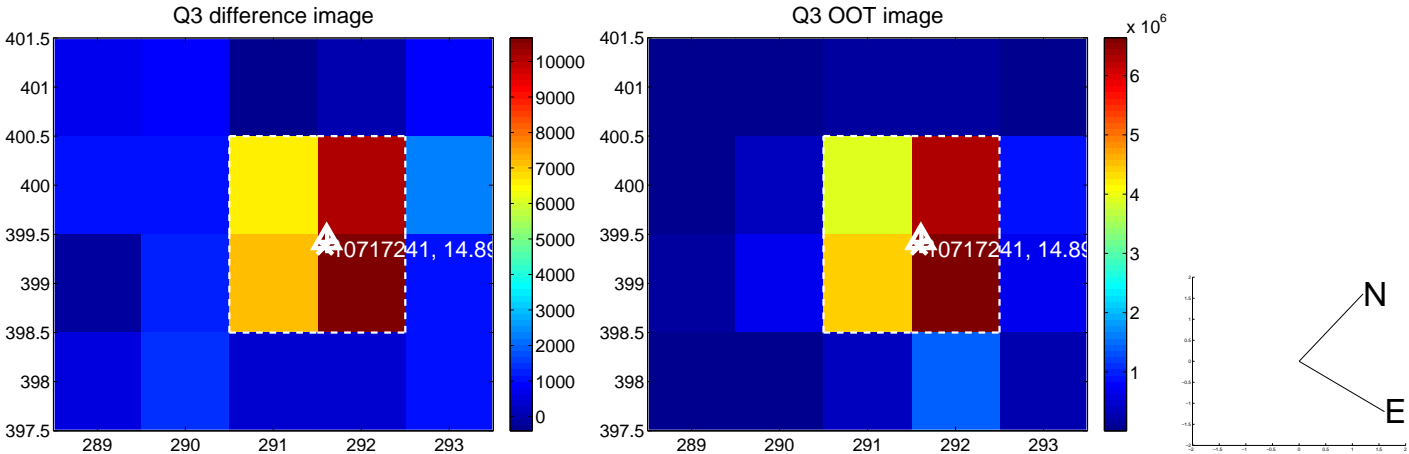
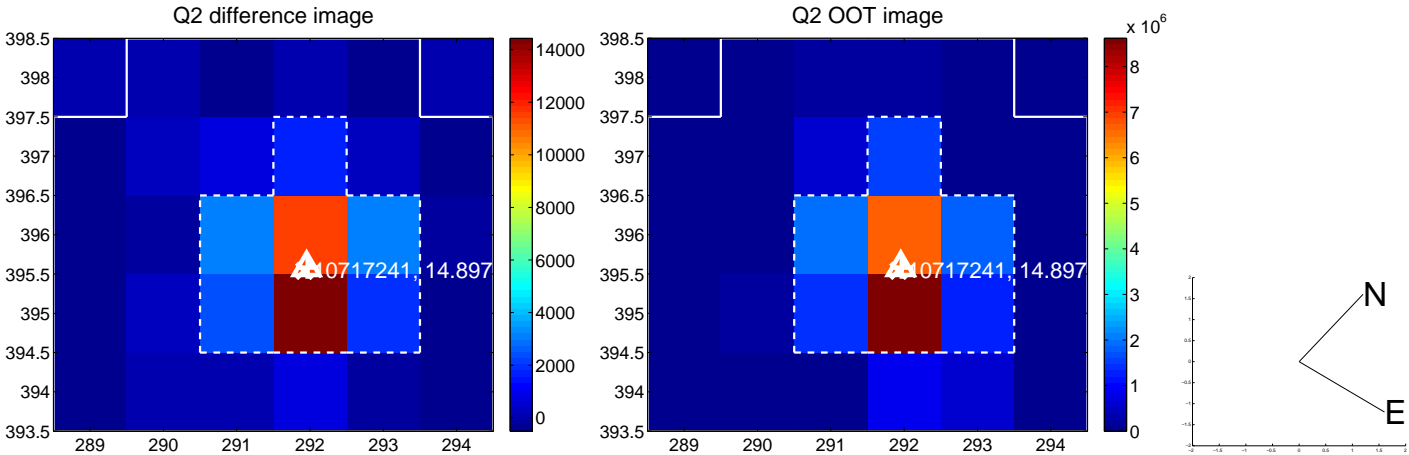
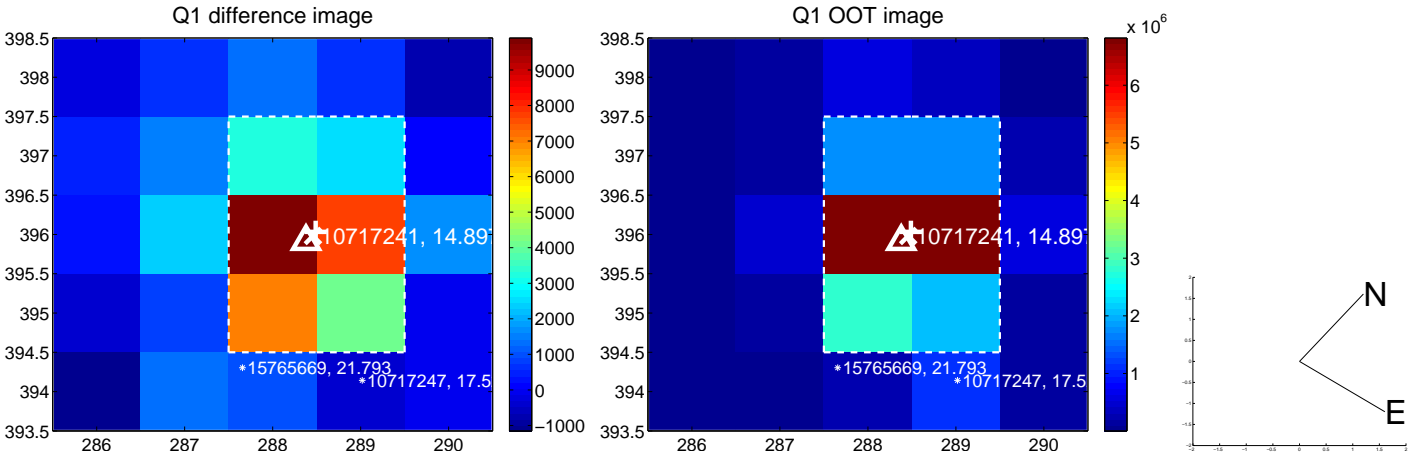
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.059 \pm 0.078$	0.76	$-0.046 \pm 0.075$	$0.037 \pm 0.083$
PRF-fit source offset from KIC position	$0.312 \pm 0.091$	3.43	$-0.037 \pm 0.075$	$0.310 \pm 0.092$
photometric centroid source offset	$0.20 \pm 0.16$	1.26	$0.03 \pm 0.17$	$0.20 \pm 0.16$



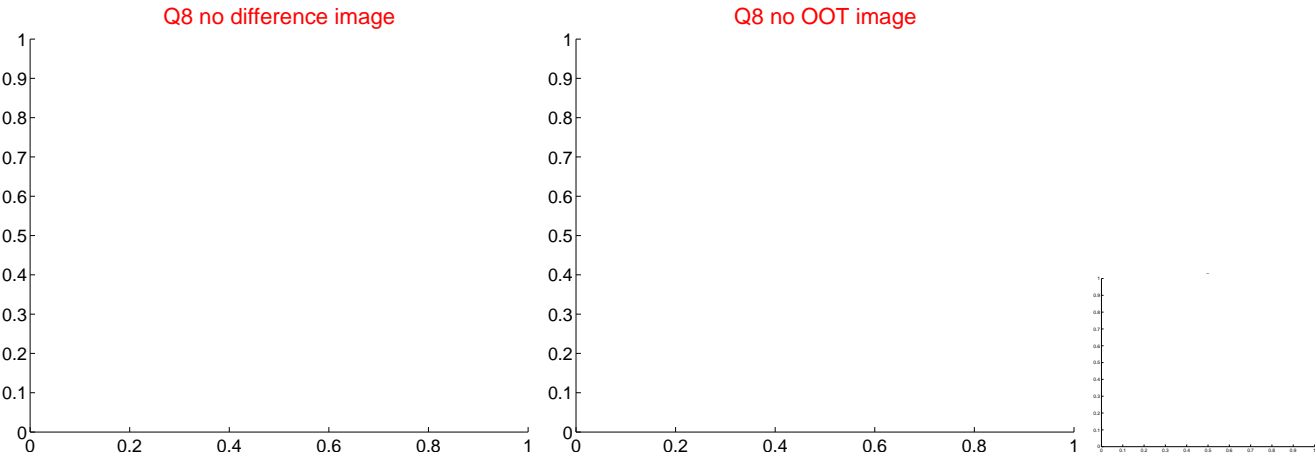
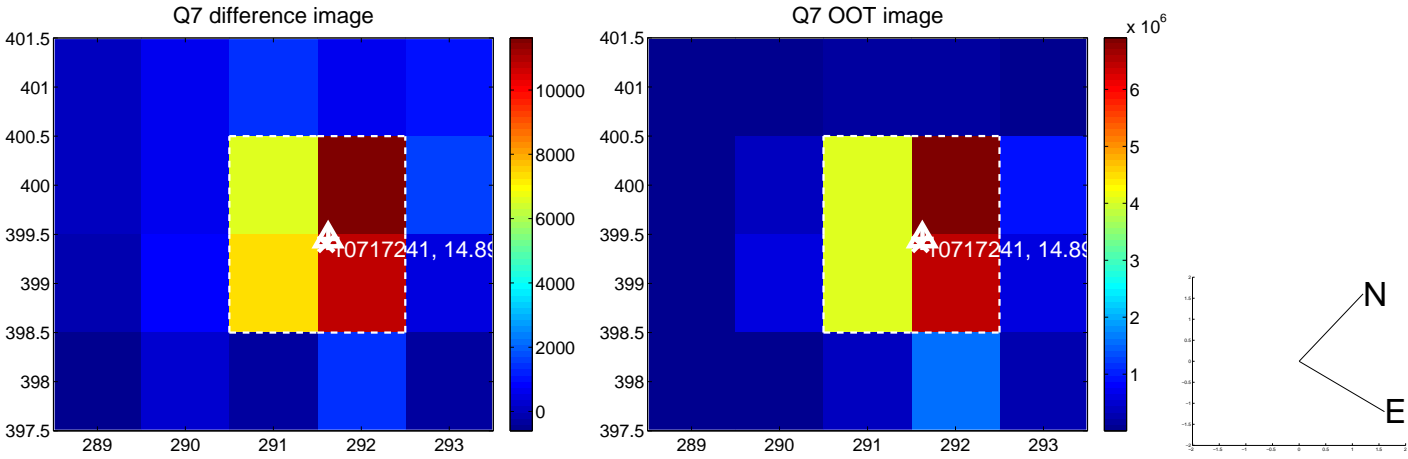
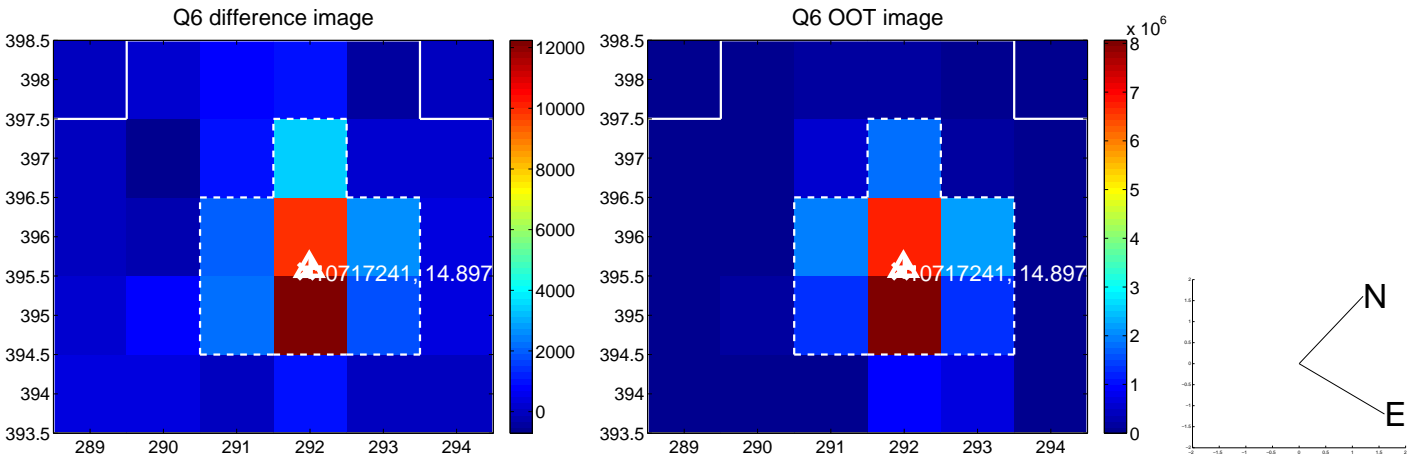
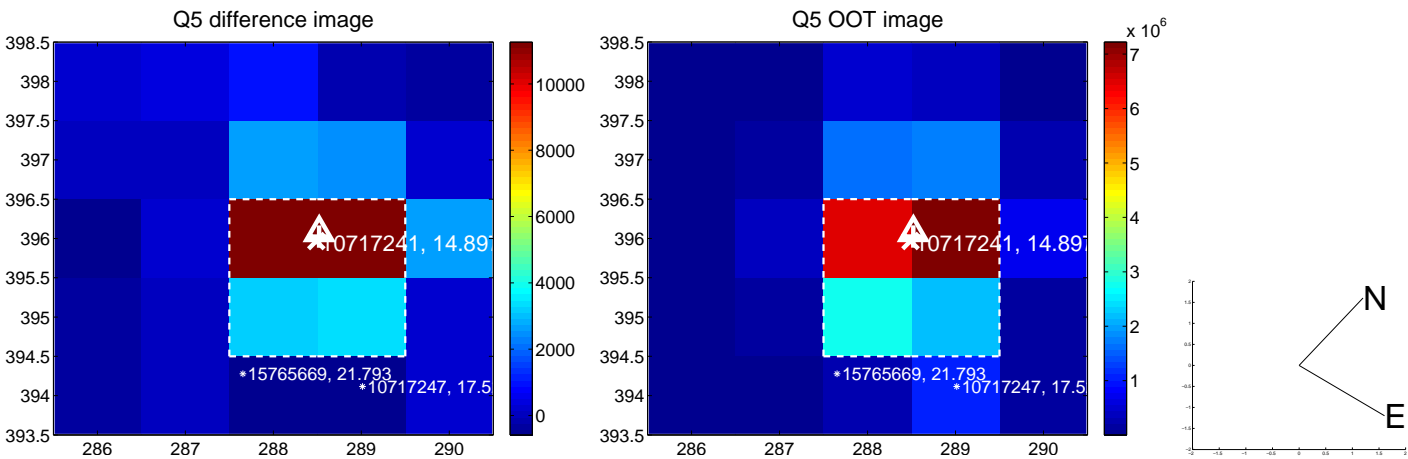
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



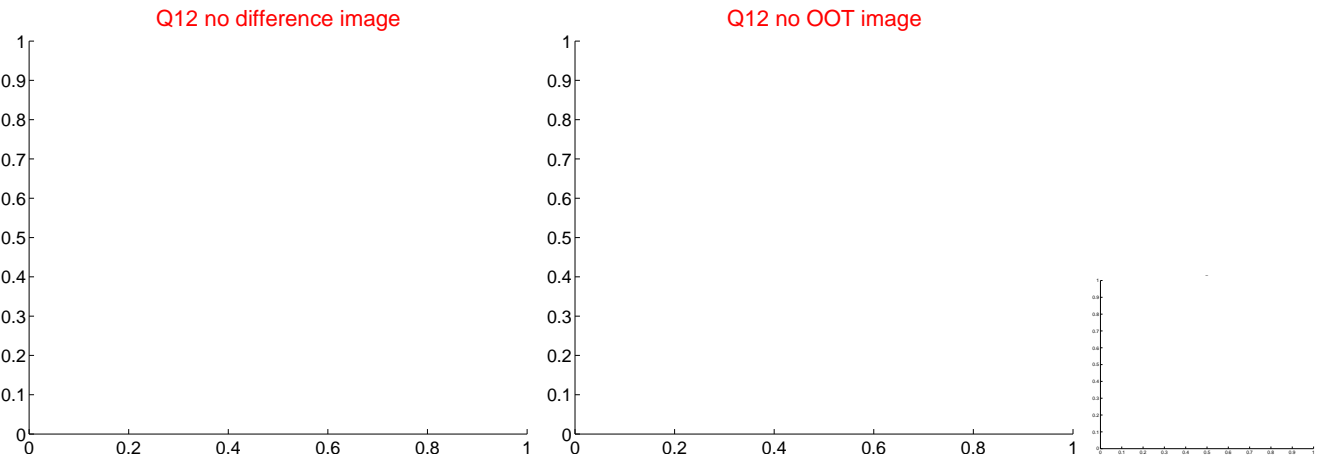
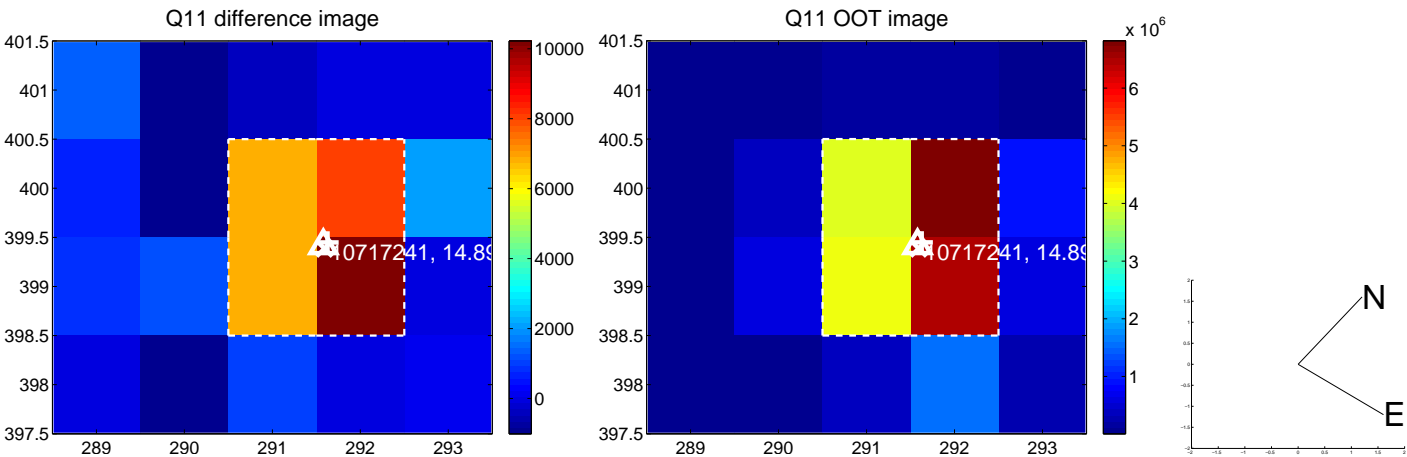
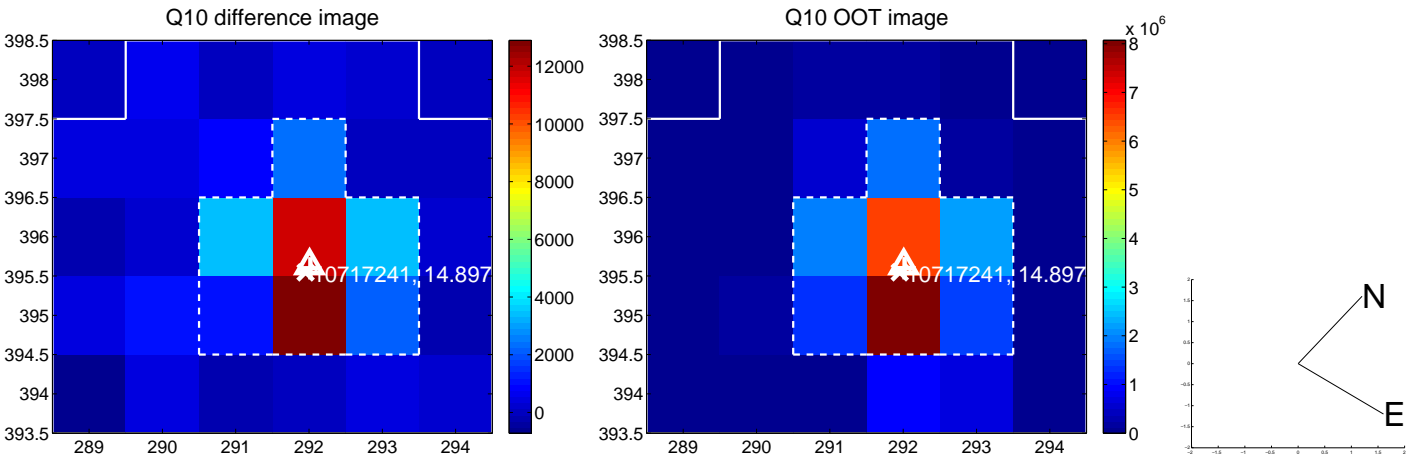
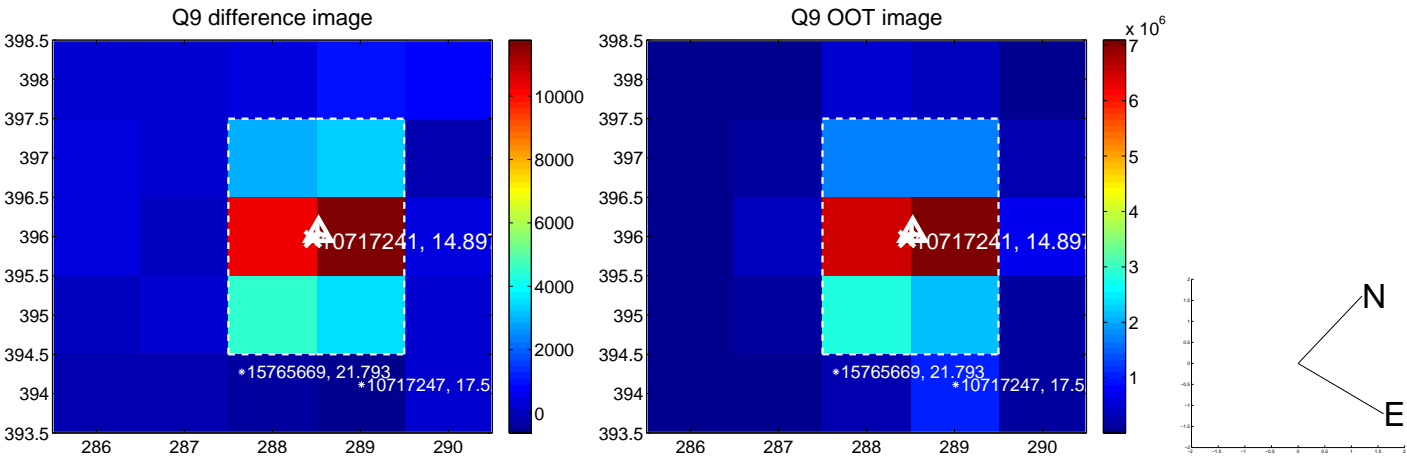
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



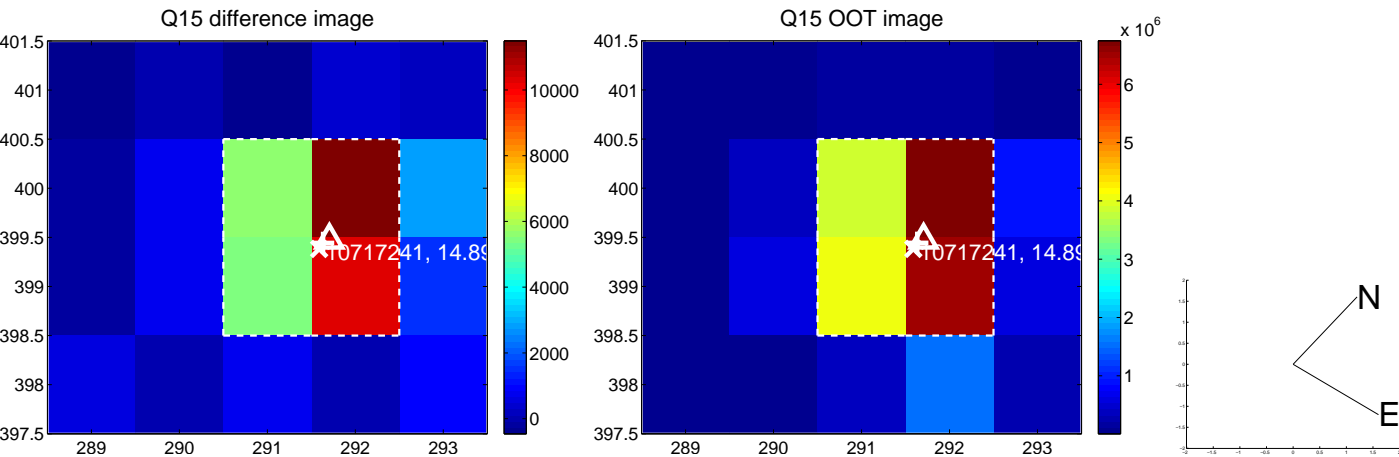
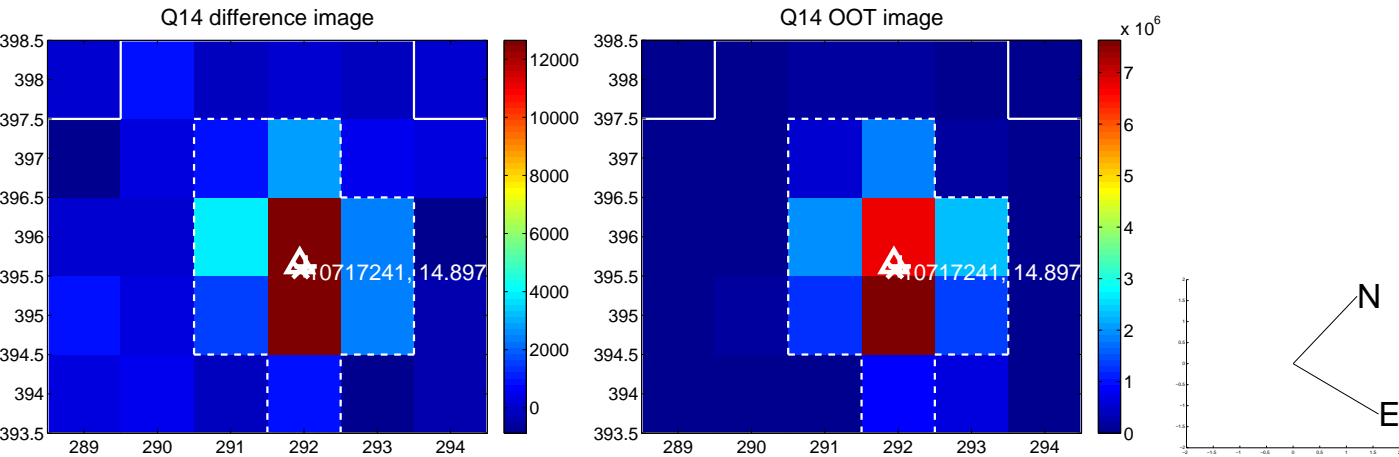
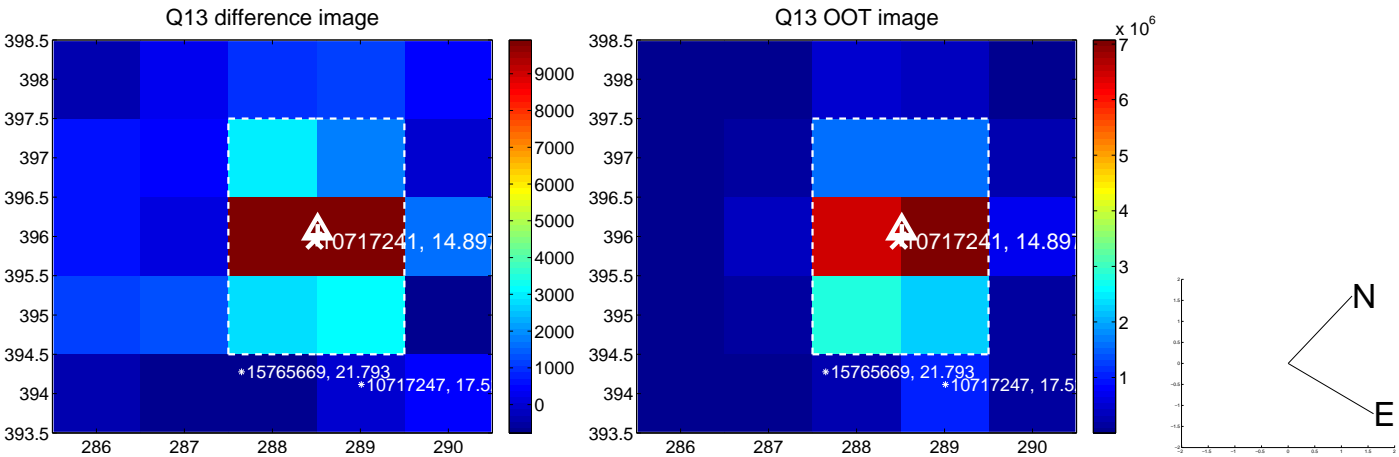
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



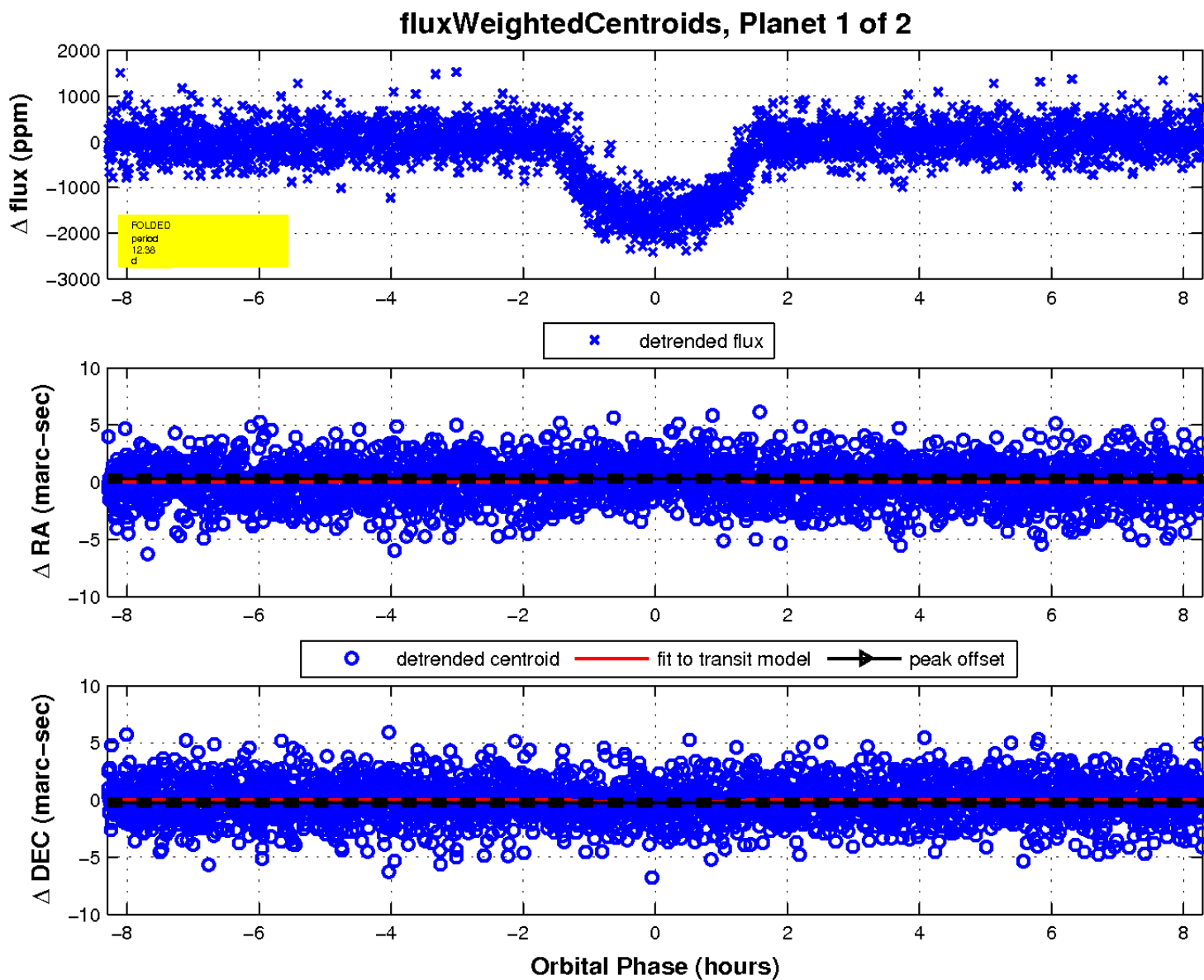
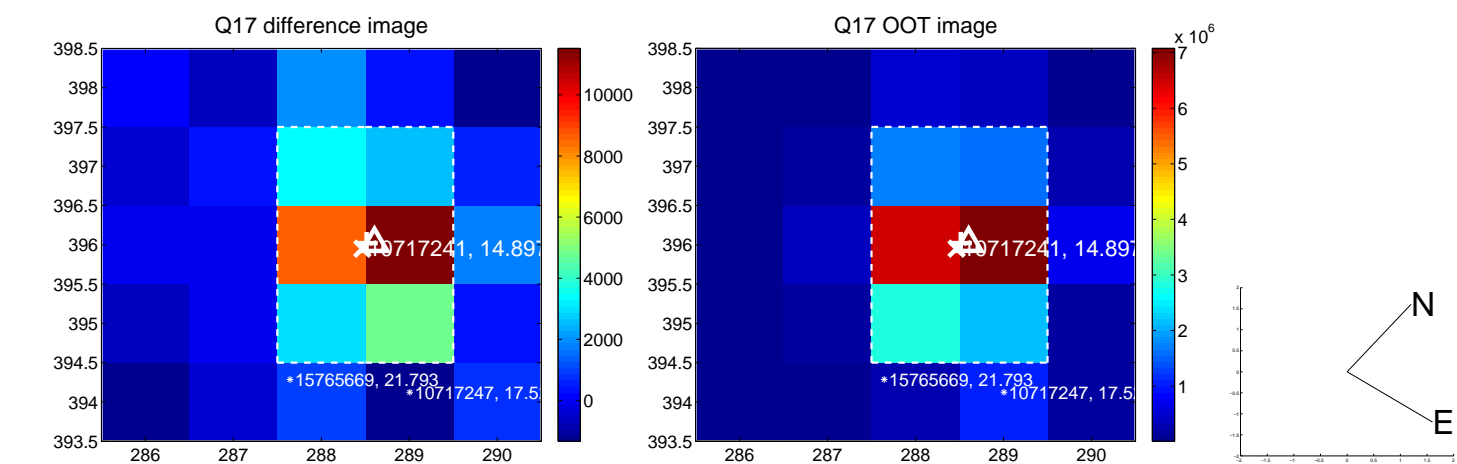
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

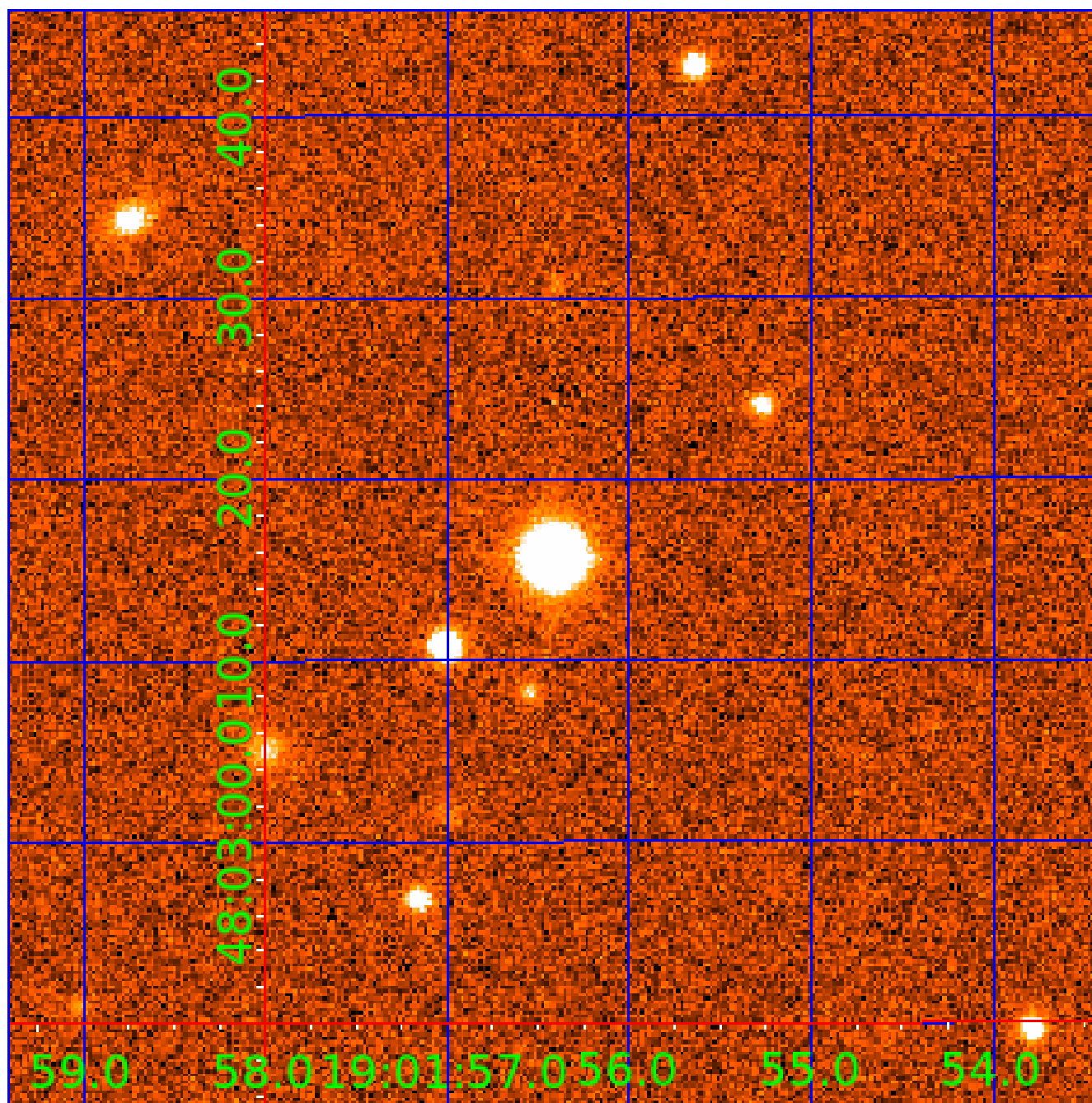


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 010717241

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010717241-01	OBS	0430.01	12.376457	142.276205	1687.8	2.766	75.7	74.9	0.61	4200	2.60	12.88
010717241-02	OBS	0430.02	9.340508	135.125413	200.8	2.792	10.2	10.6	0.61	4200	0.98	18.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010717241-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010717241-02	OBS	PC	1.00	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.

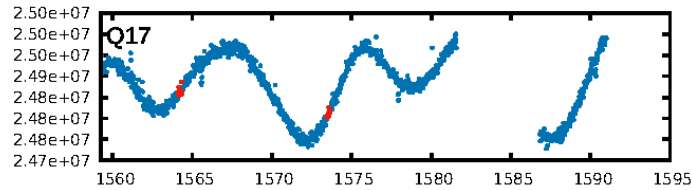
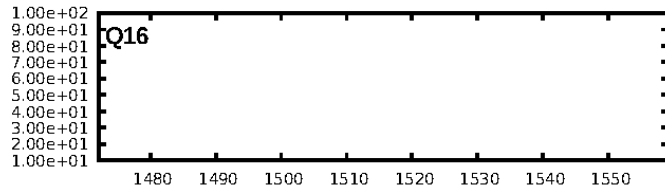
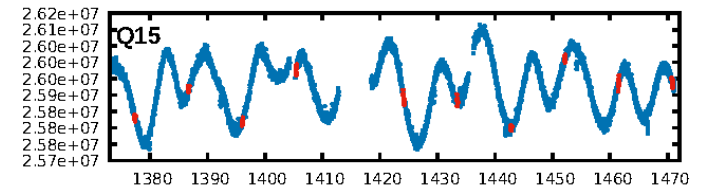
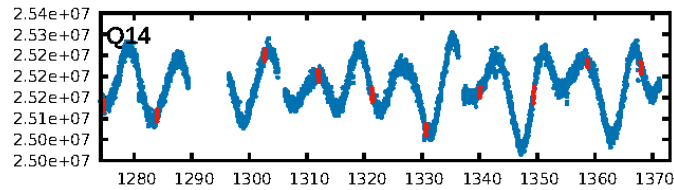
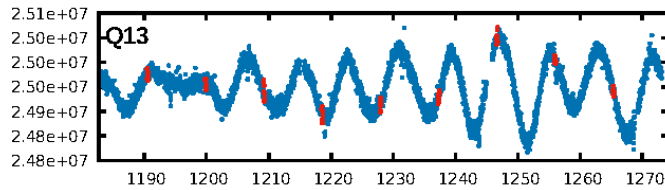
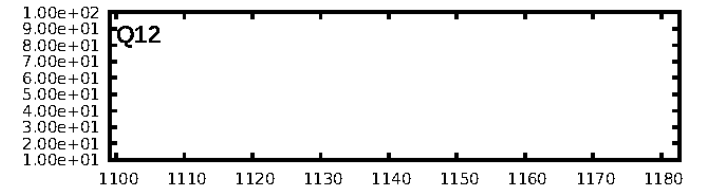
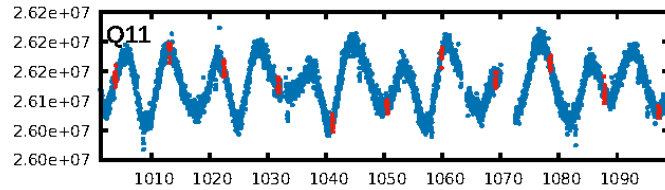
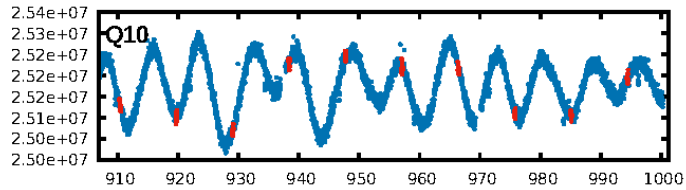
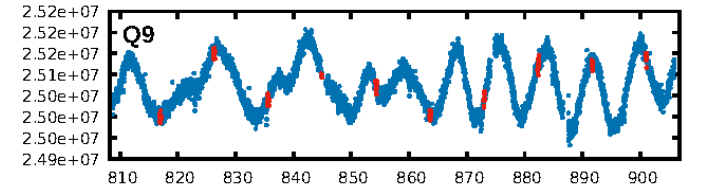
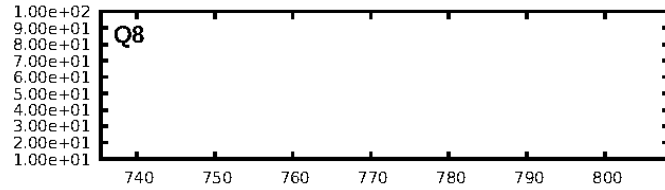
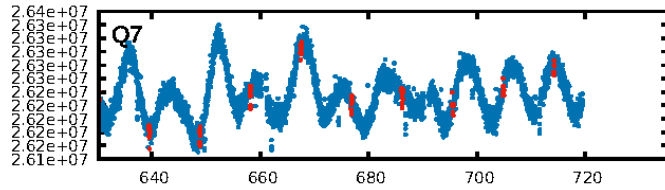
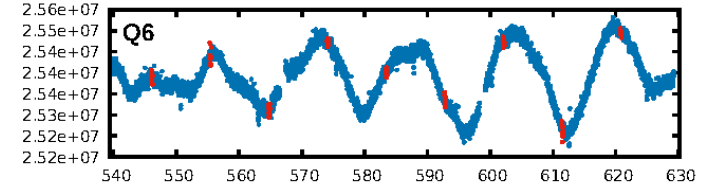
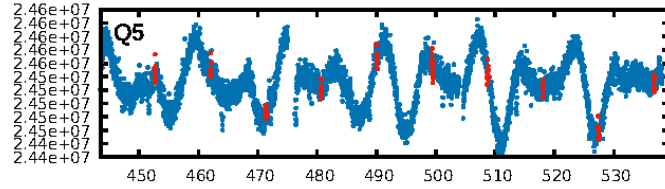
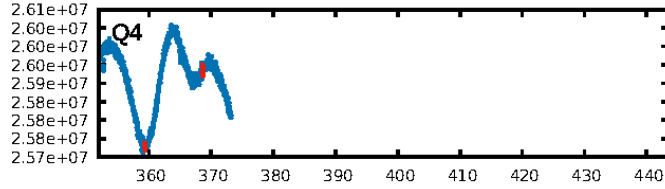
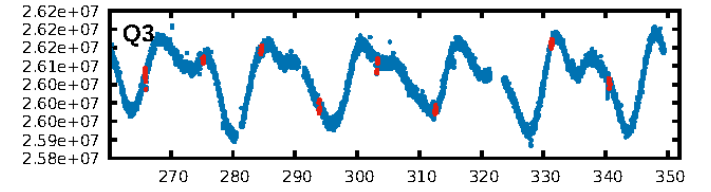
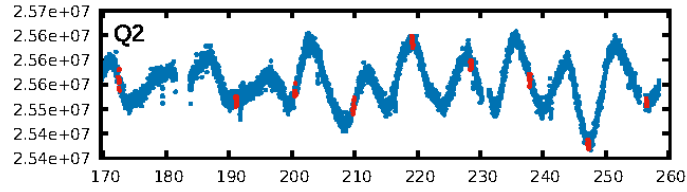
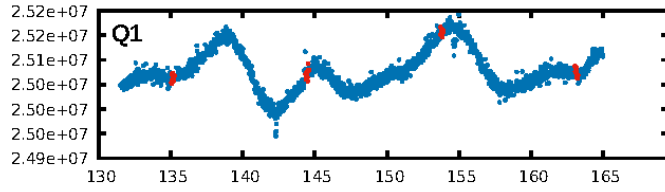
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010717241-02

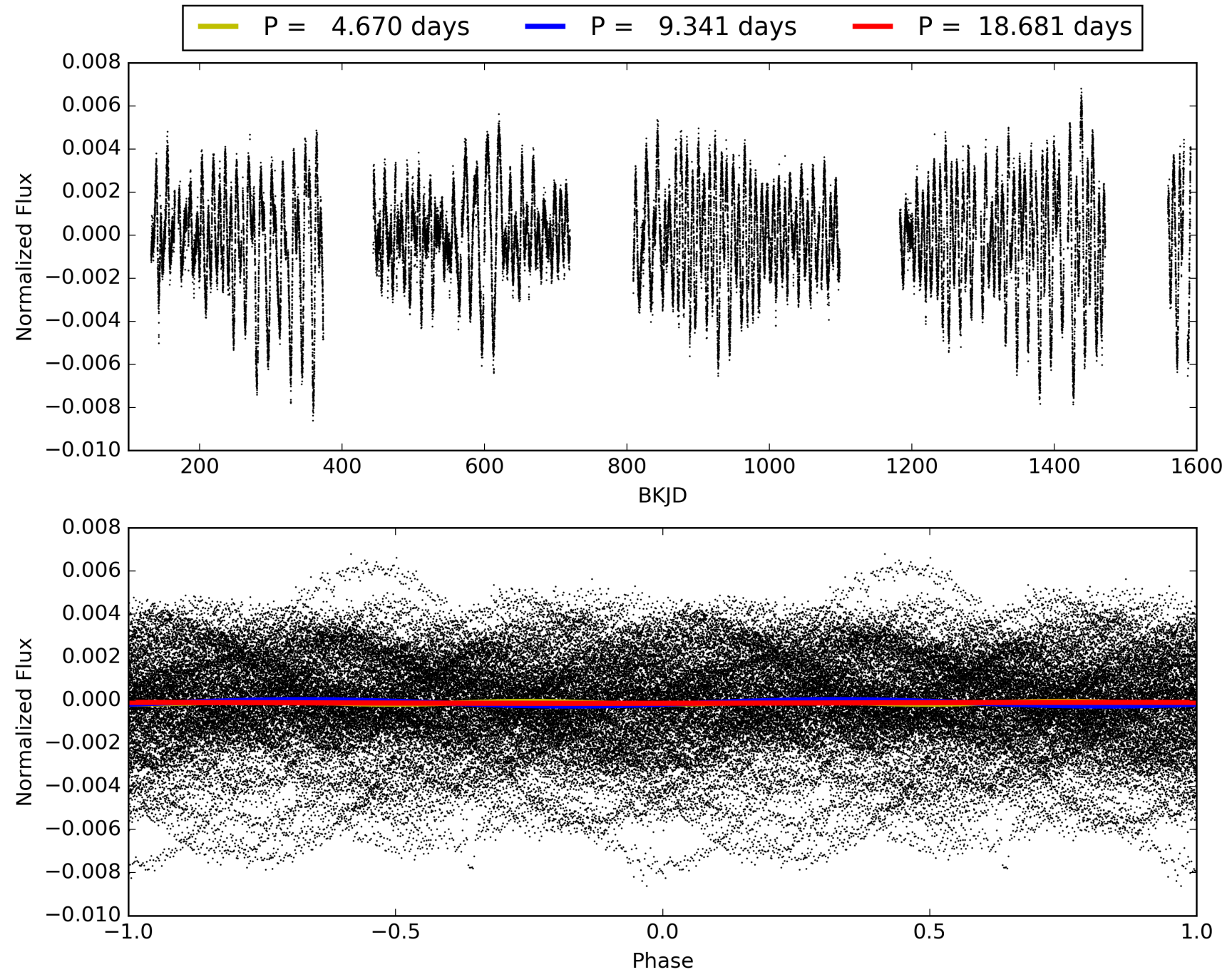
No Significant Match Found

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

# TCE 010717241-02, PDC Light Curves

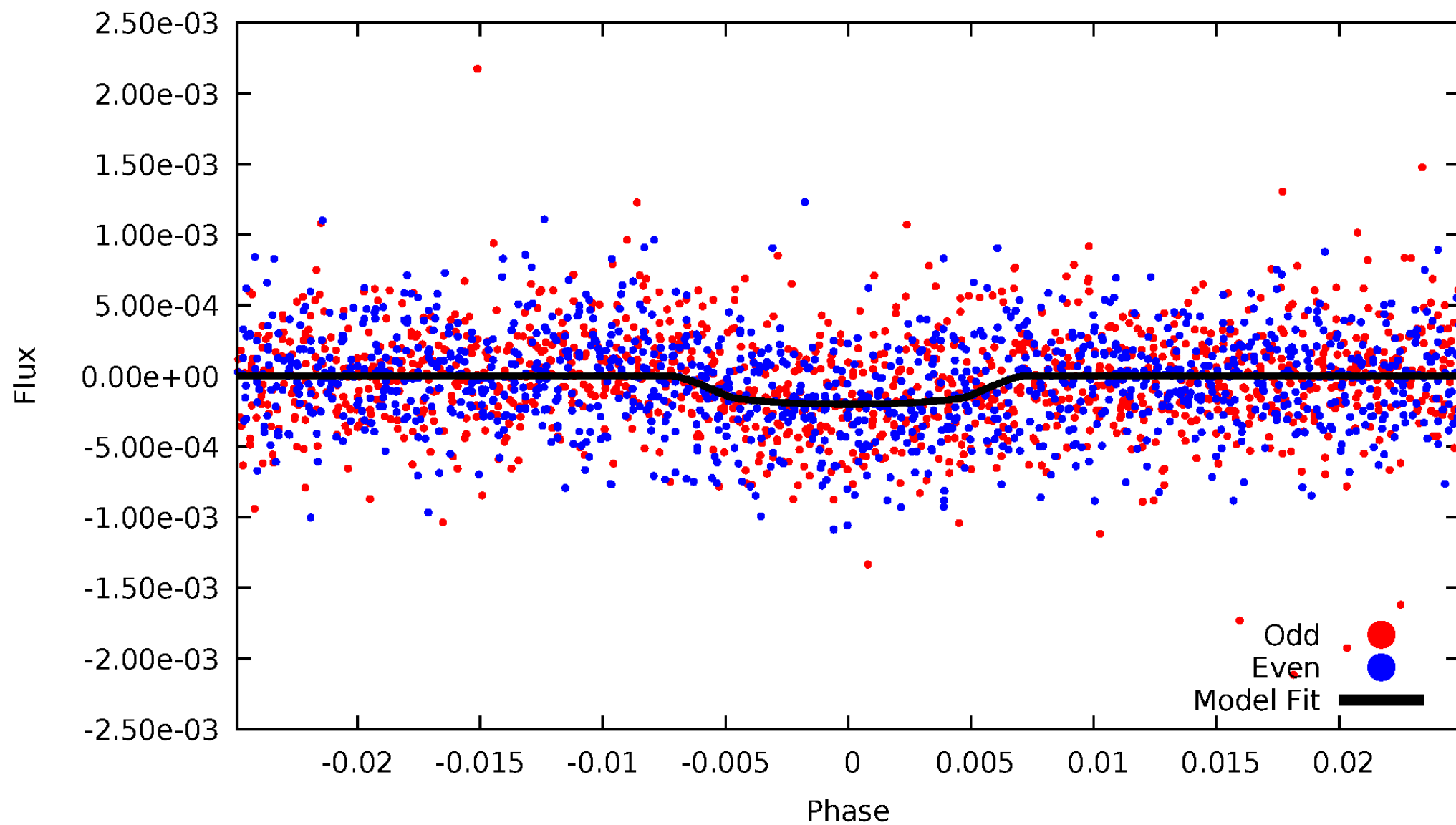


# TCE 010717241-02



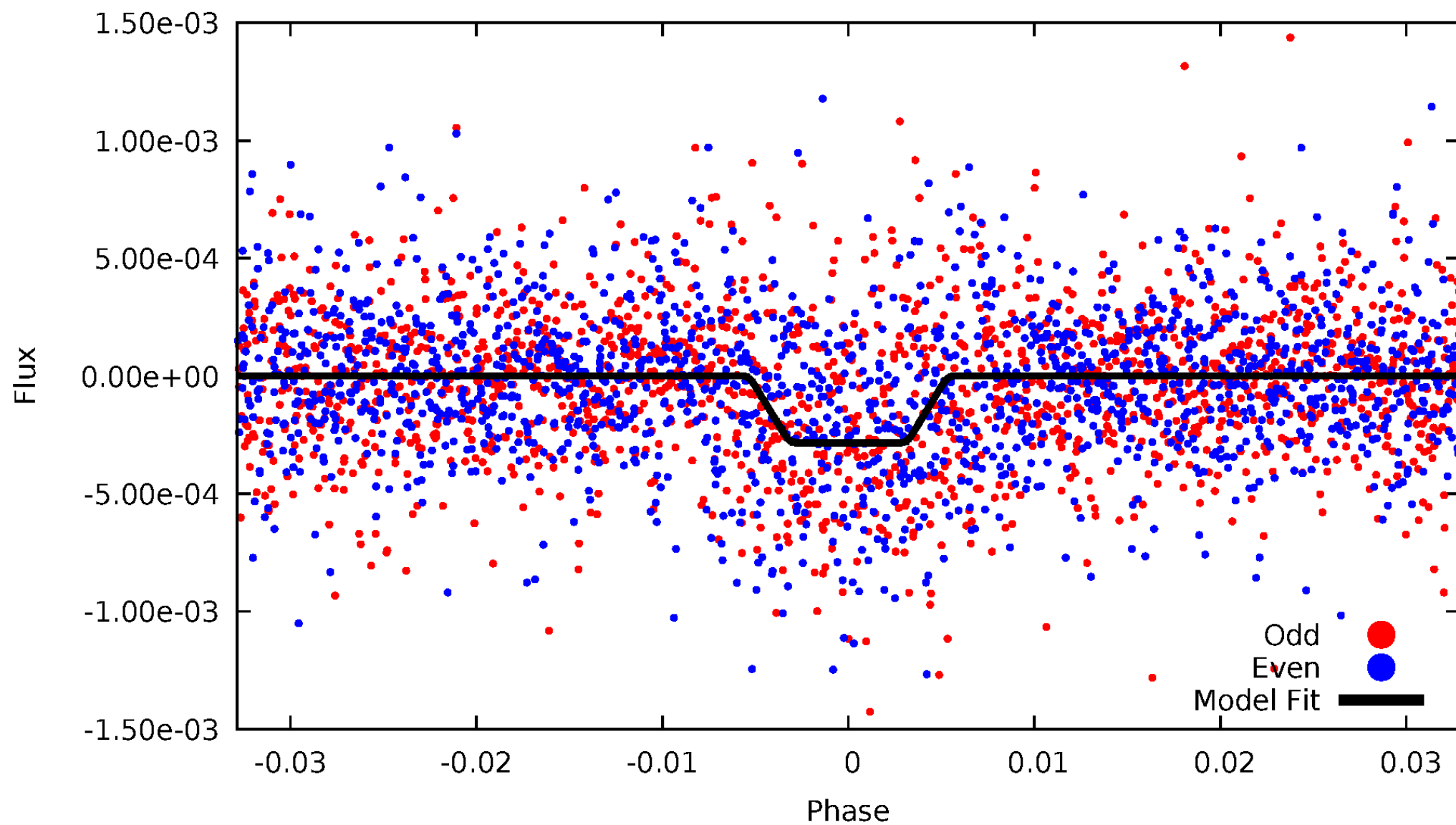
# DV Odd/Even

TCE 010717241-02



# ALT Odd/Even

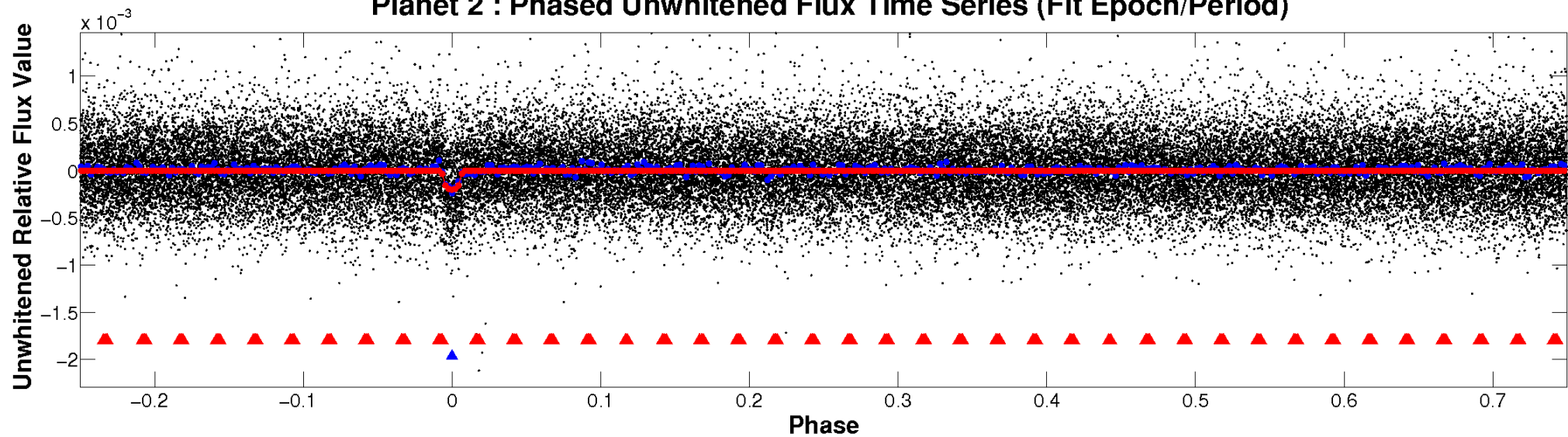
TCE 010717241-02



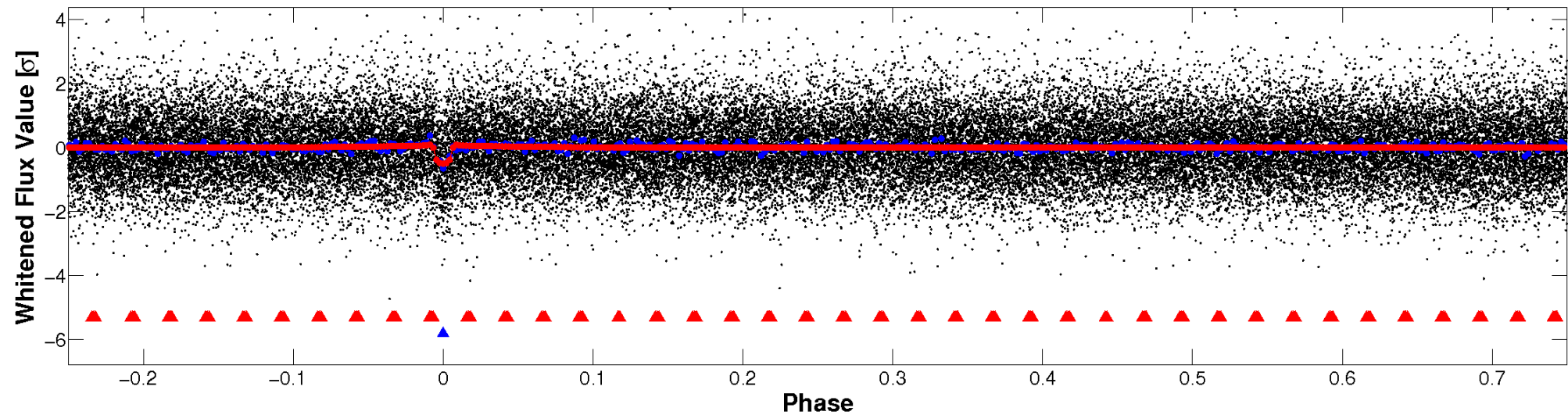


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

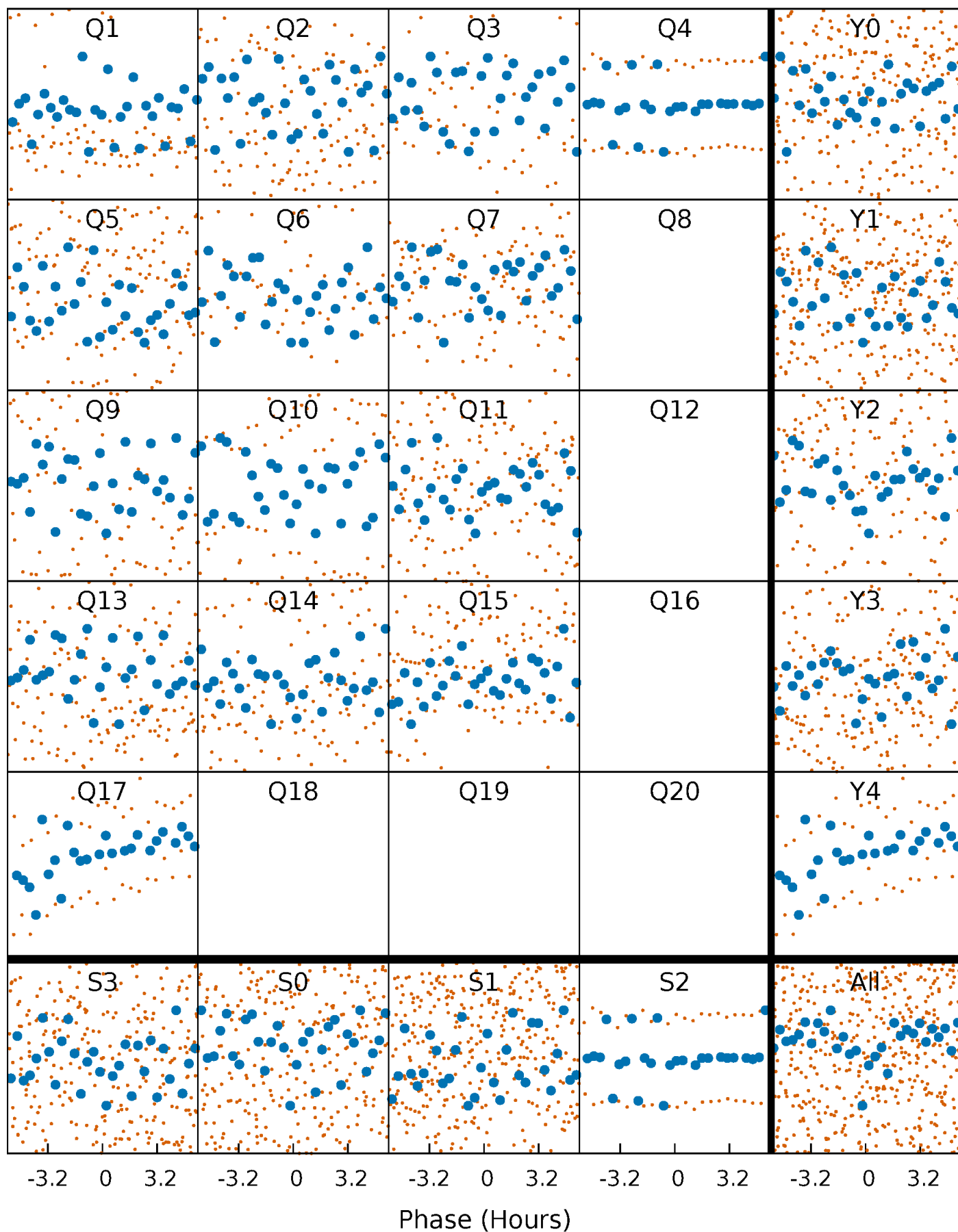


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



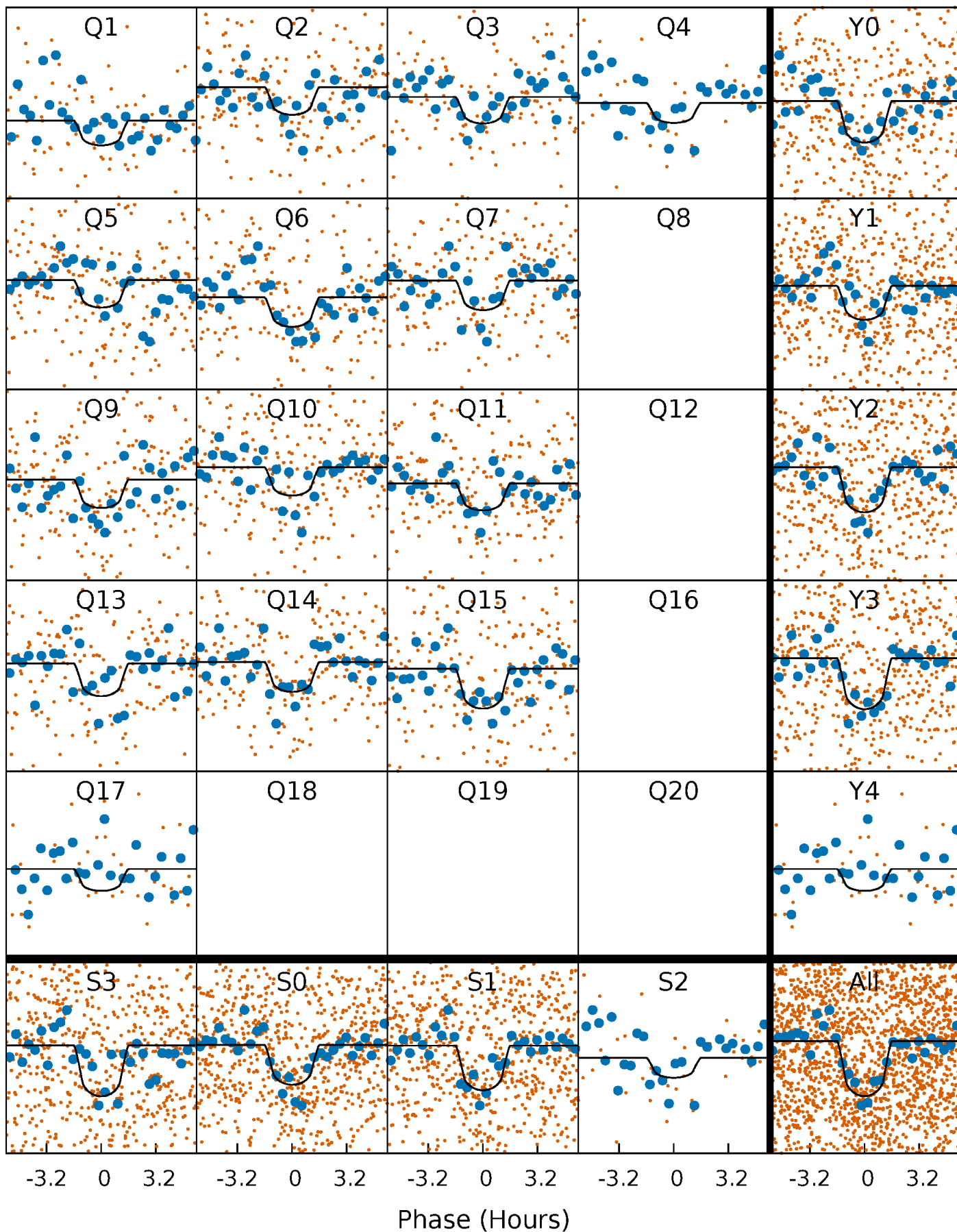
# PDC Quarter-Phased Transit Curves

TCE 010717241-02 P= 9.340508 Days  $T_0=135.125413$  (BKJD)



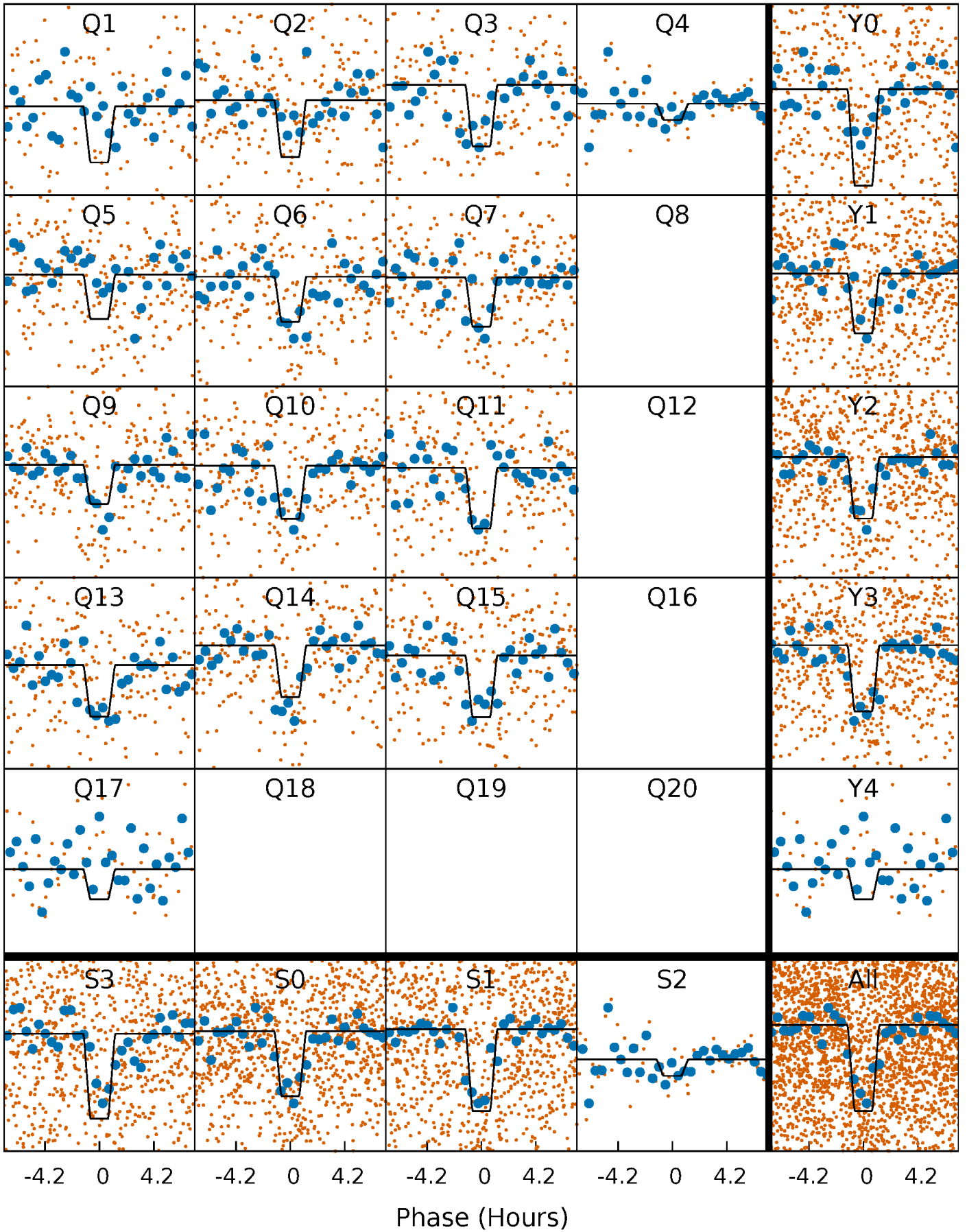
# DV Quarter-Phased Transit Curves

TCE 010717241-02   P= 9.340508 Days    $T_0=135.125413$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

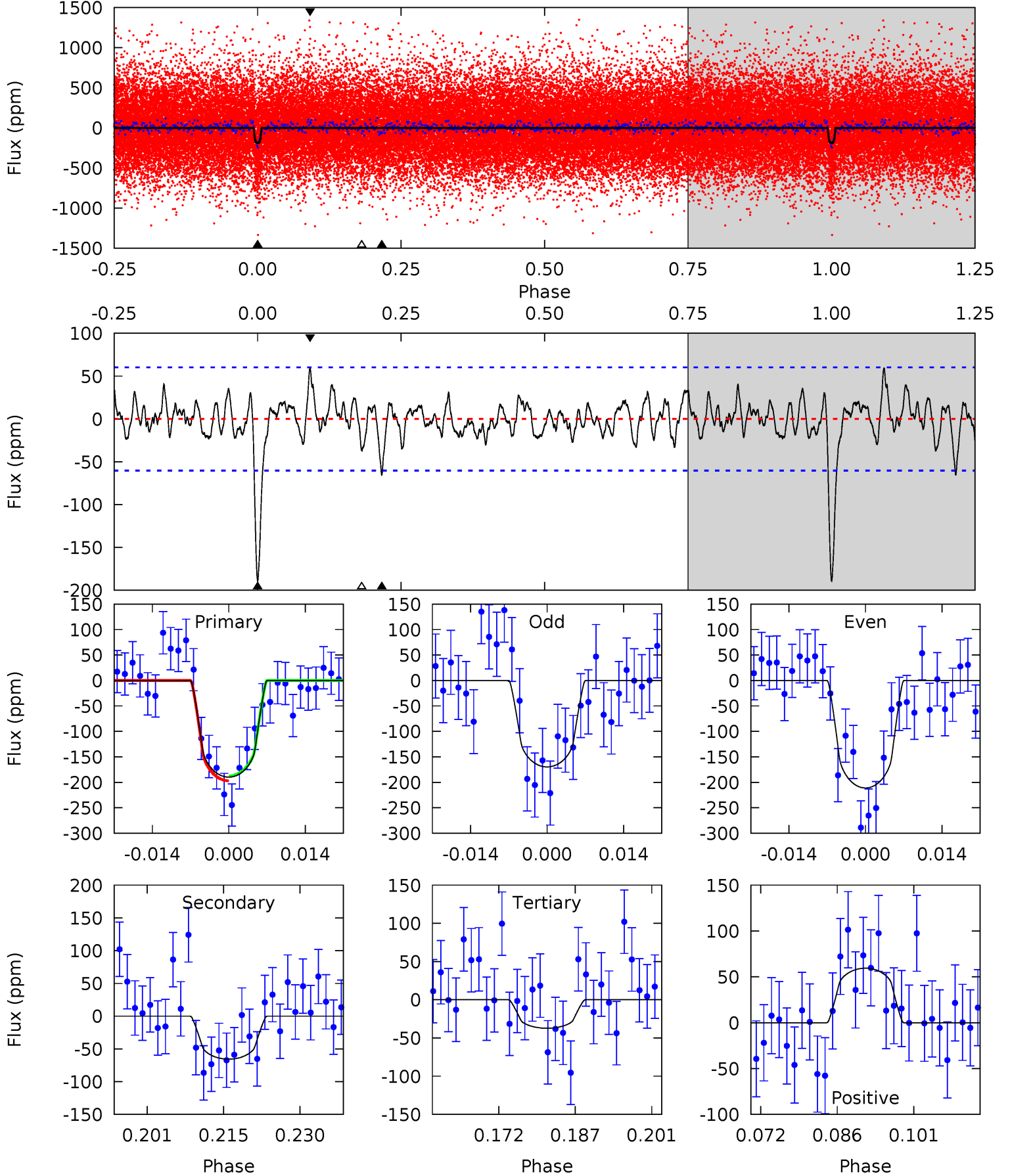
TCE 010717241-02   P= 9.340521 Days    $T_0=135.121327$  (BKJD)



# DV Model-Shift Uniqueness Test

010717241-02, P = 9.340508 Days, E = 125.784905 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
15.6	5.40	3.06	4.88	4.96	2.45	1.28	12.5	10.7	2.34	0.52	1.70	0.88	0.24	0.39

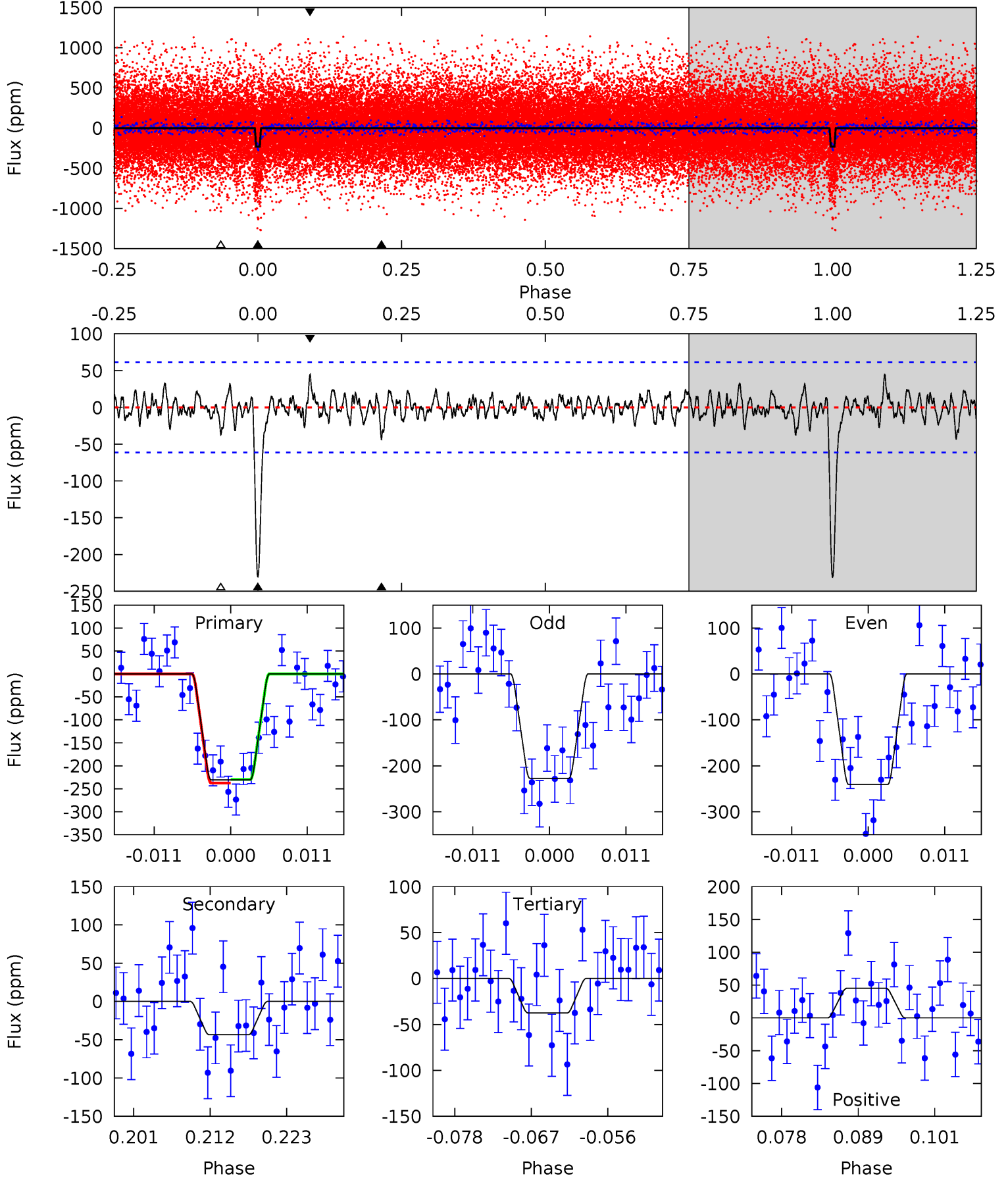




# Alt Model-Shift Uniqueness Test

010717241-02, P = 9.340521 Days, E = 125.780806 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
18.8	3.55	3.06	3.68	5.01	2.54	0.95	15.8	15.1	0.49	-0.13	0.54	1.09	0.16	0.31





### Stellar Parameters For KIC 010717241

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4200^{+84}_{-84}$	$4.664^{+0.022}_{-0.025}$	$-0.120^{+0.150}_{-0.150}$	$0.607^{+0.028}_{-0.028}$	$0.622^{+0.029}_{-0.033}$	$3.907^{+0.377}_{-0.344}$
	+2%/-2%	+0%/-1%	+125%/-125%	+5%/-5%	+5%/-5%	+10%/-9%
Source	SPE60	SPE60	SPE60	DSEP		

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

### Secondary Eclipse Parameters for KIC 010717241-02 / KOI 0430.02

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-66 \pm 12$	$1.15^{+0.79}_{-0.69}$	$743^{+16}_{-17}$	$3261^{+1272}_{-477}$	$151^{+827}_{-101}$
Alt.	$-44 \pm 12$	$1.24^{+0.77}_{-0.72}$	$742^{+17}_{-16}$	$3010^{+958}_{-400}$	$85^{+404}_{-55}$

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

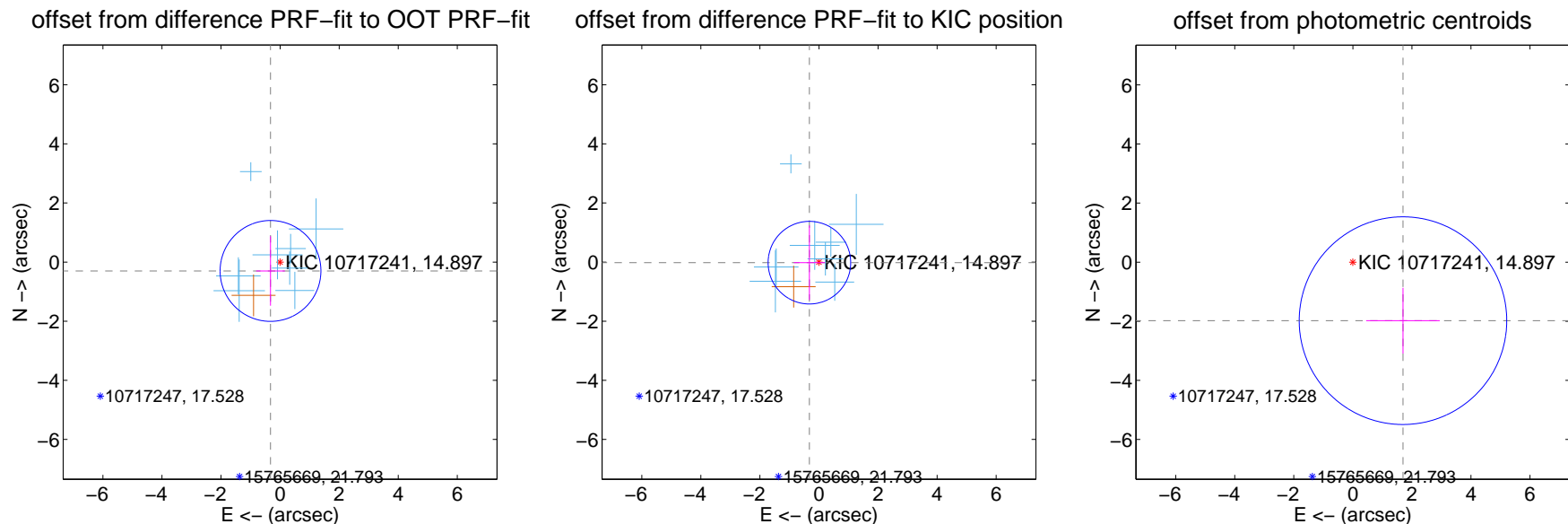
## DV Centroid Data

Supplemental centroid analysis for 010717241-02. Kepler magnitude: 14.90. Transit SNR 10.64

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

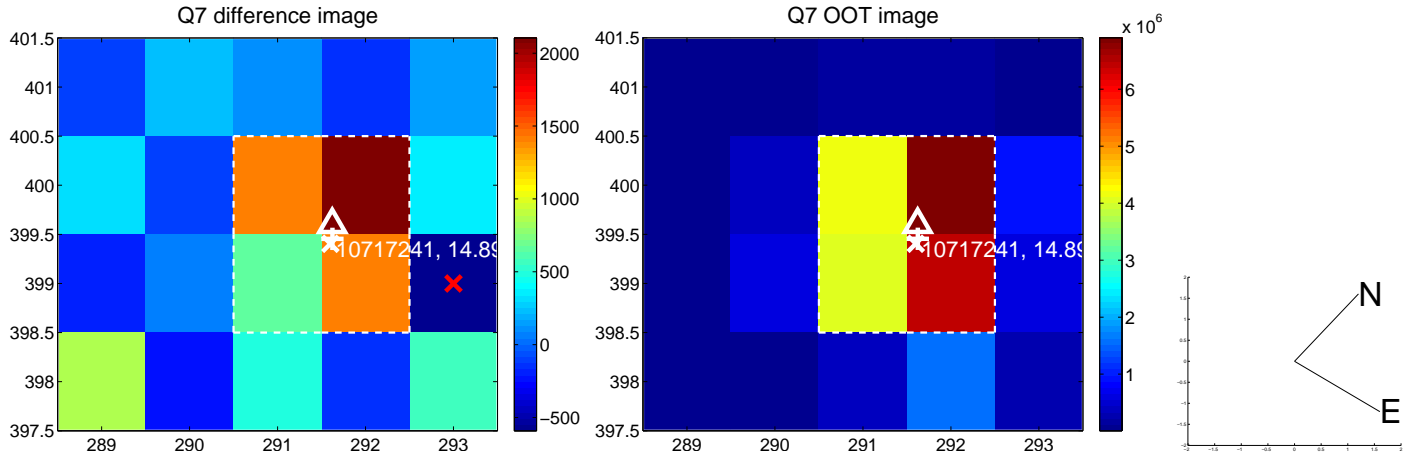
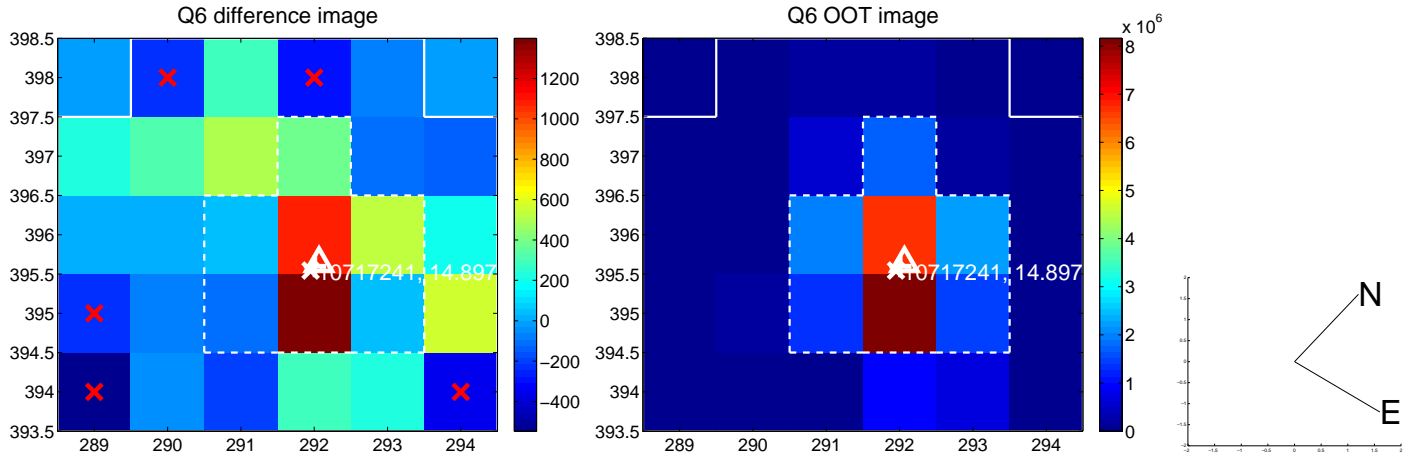
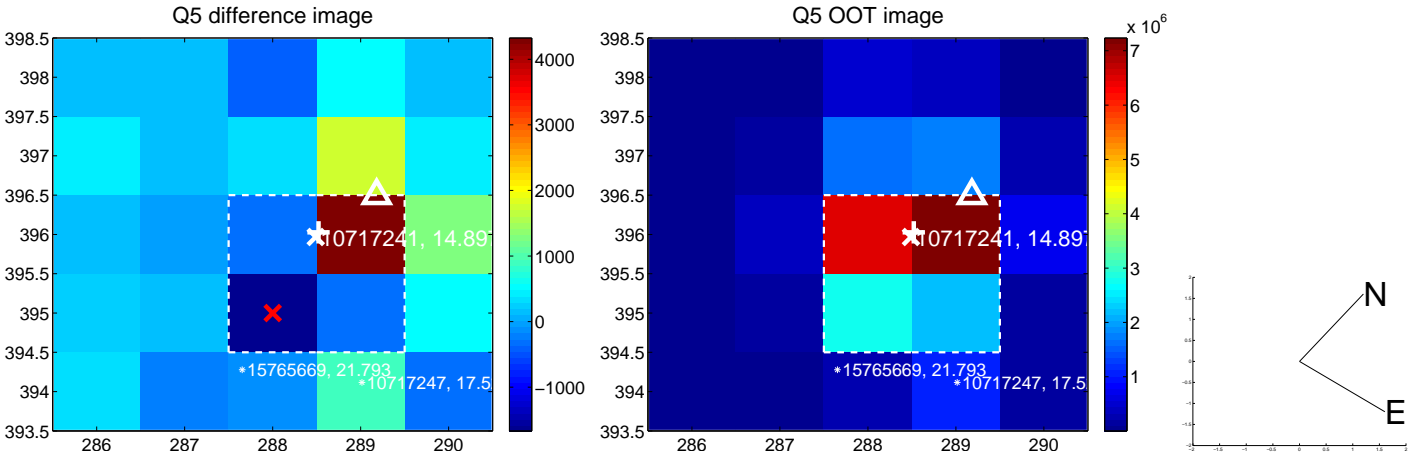
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.442 \pm 0.569$	0.78	$0.325 \pm 0.487$	$-0.299 \pm 1.175$
PRF-fit source offset from KIC position	$0.325 \pm 0.466$	0.70	$0.325 \pm 0.530$	$-0.020 \pm 1.261$
photometric centroid source offset	$2.61 \pm 1.17$	2.23	$-1.70 \pm 1.25$	$-1.98 \pm 1.11$



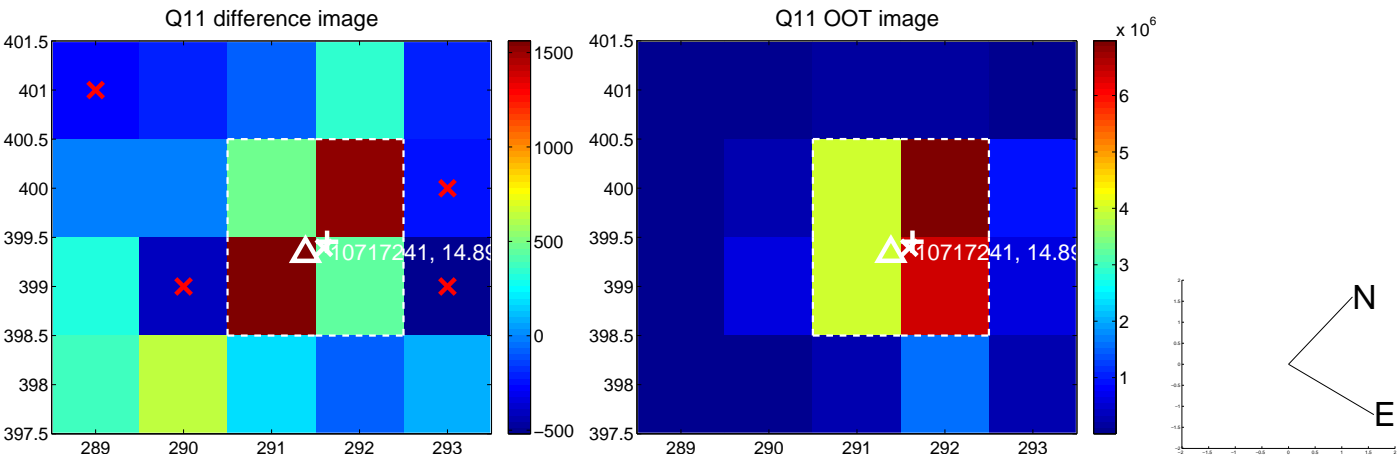
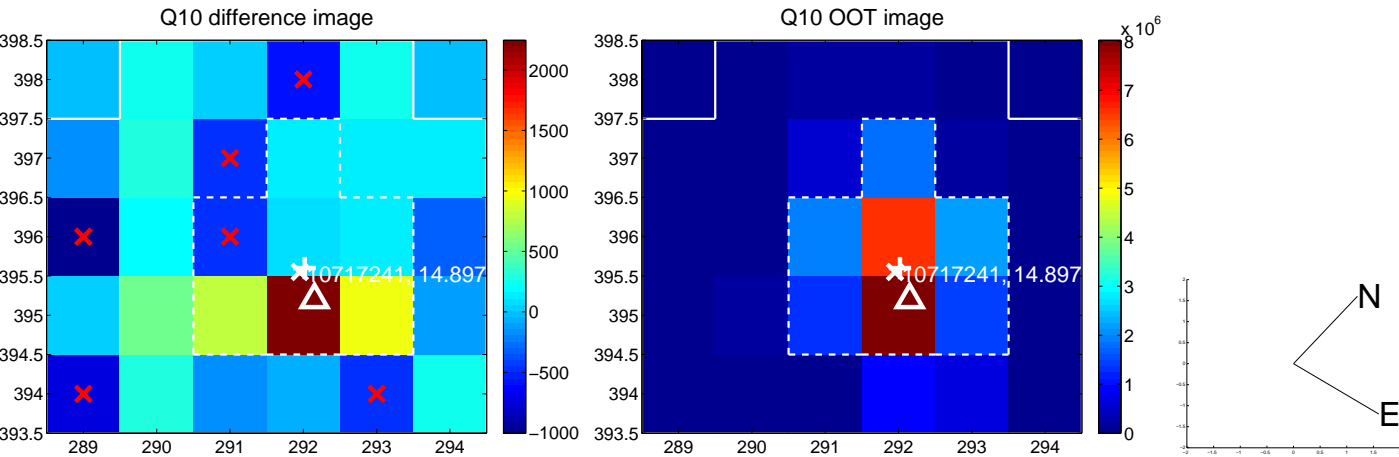
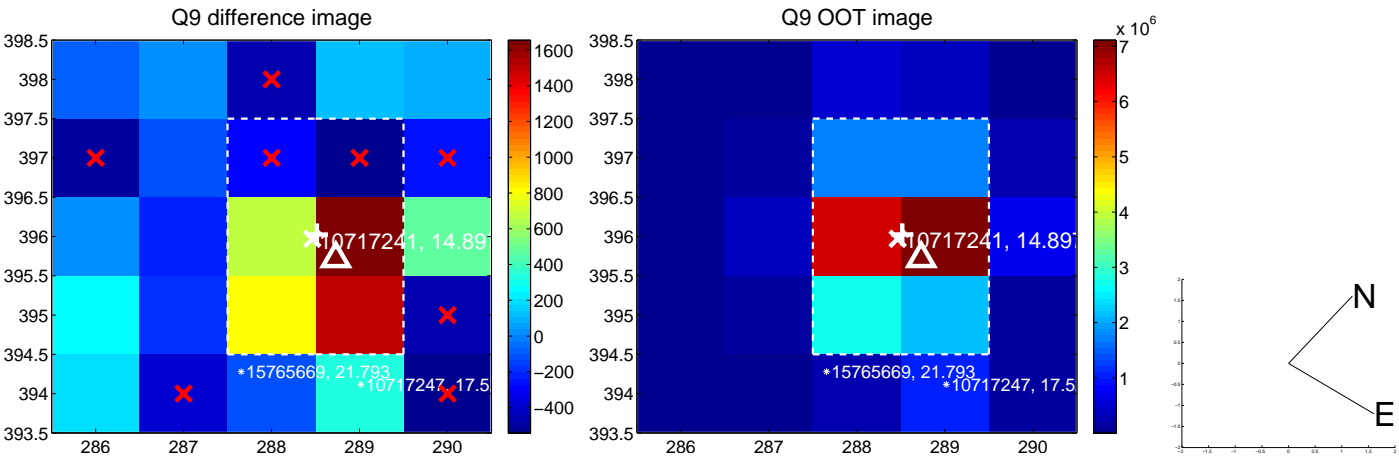
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



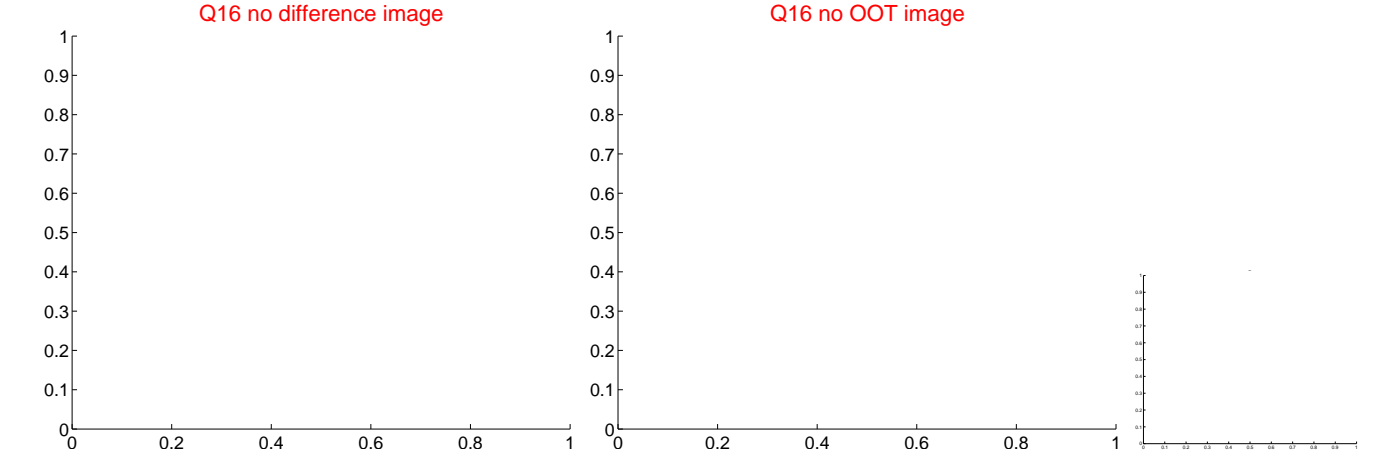
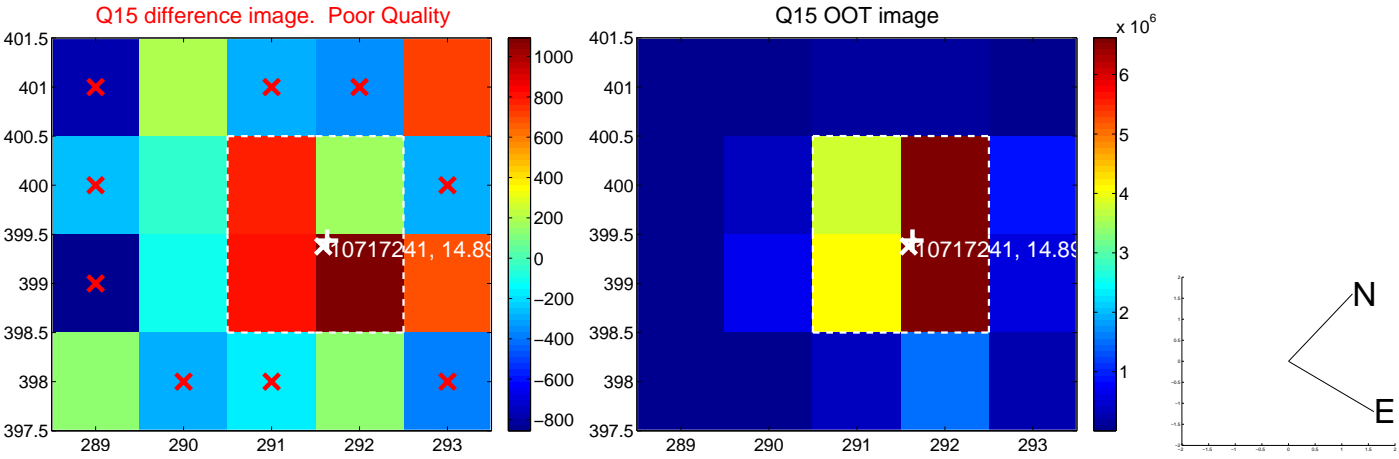
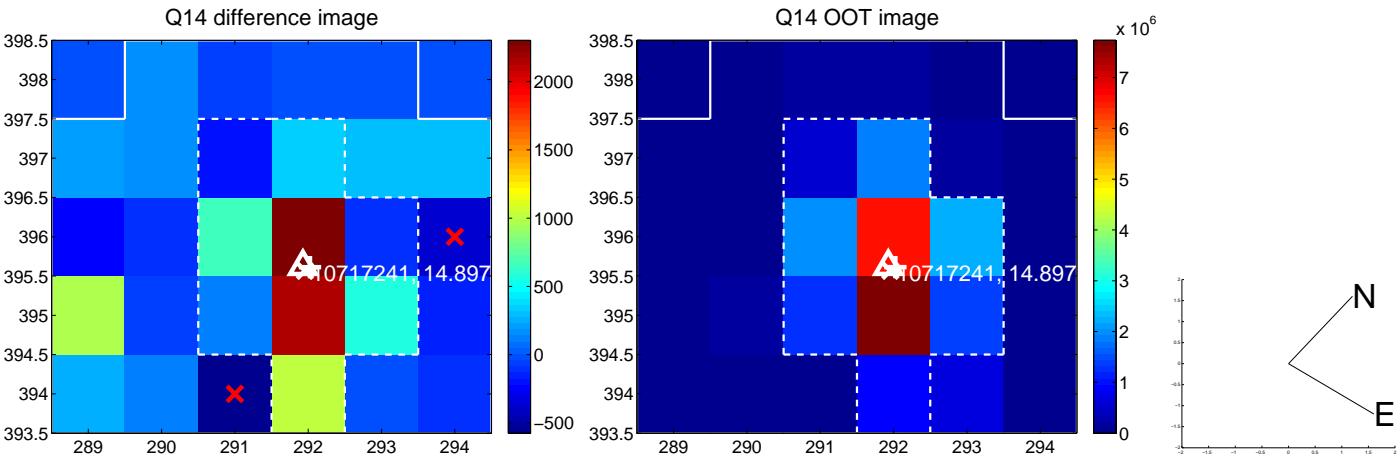
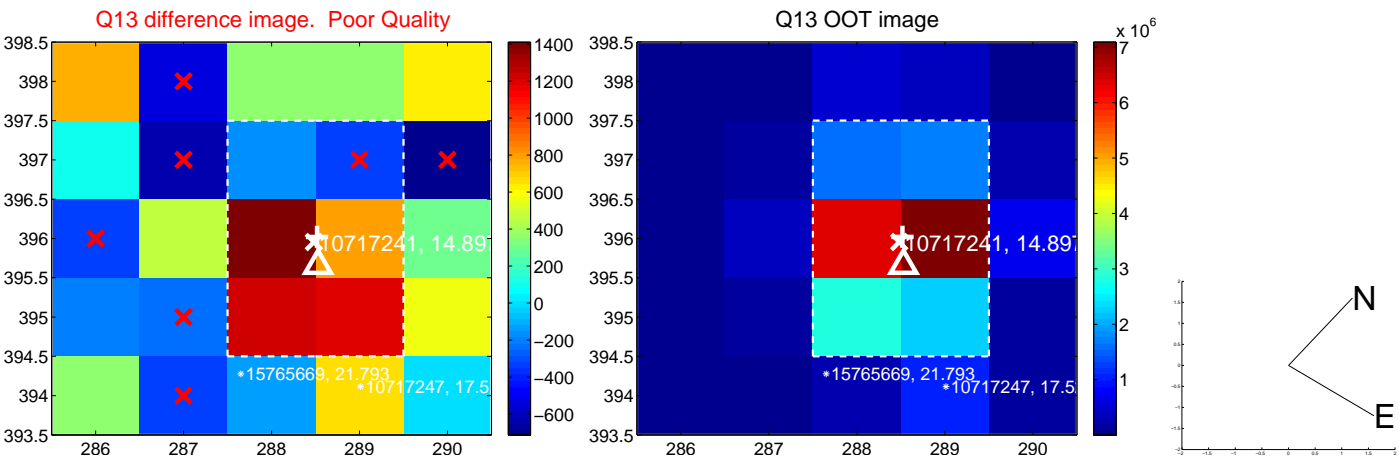
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



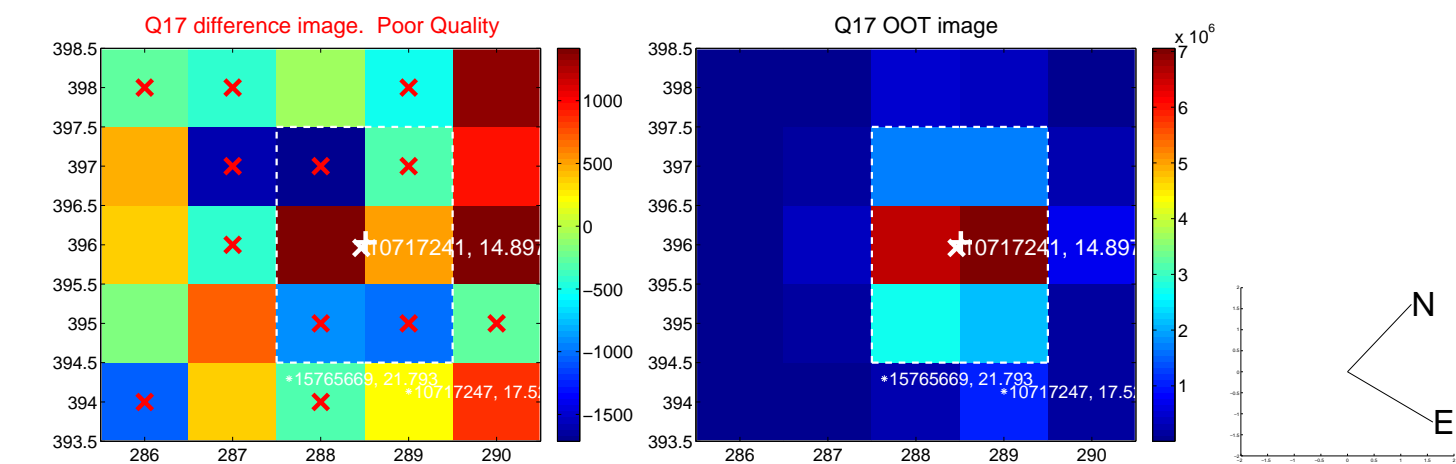
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



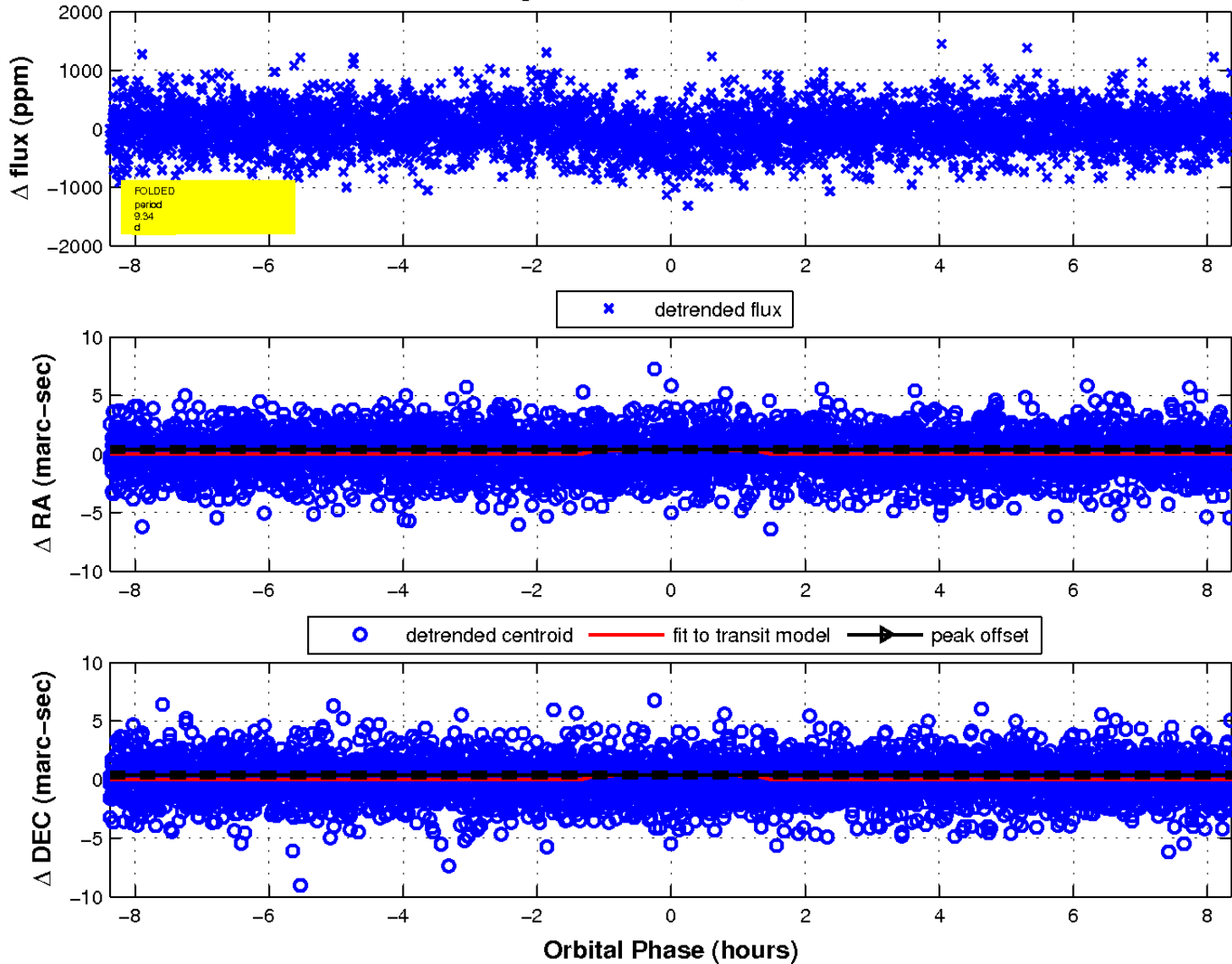
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

