

# KIC 008244295

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008244295-01	OBS	No	567.993164	355.065479	2376.7	28.981	8.2	9.3	0.73	4856	4.60	0.17
008244295-02	OBS	7001.01	1.092074	132.094855	103.1	1.761	8.4	8.4	0.73	4856	0.75	719.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008244295-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008244295-02	OBS	FP	0.00	0	0	0	1	CENT_FEW_DIFFS—EPHEM_MATCH

**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 008244295-01

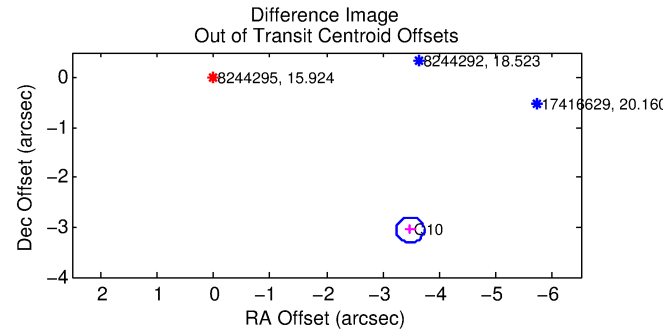
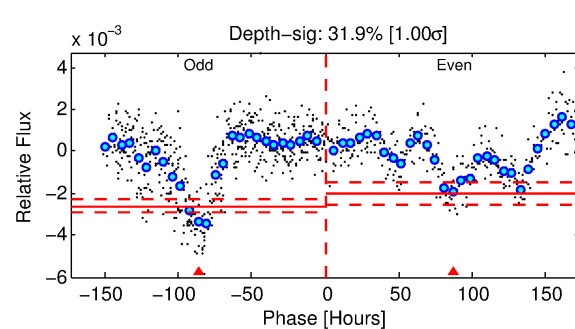
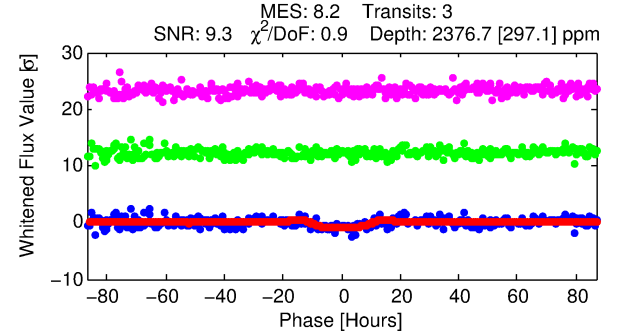
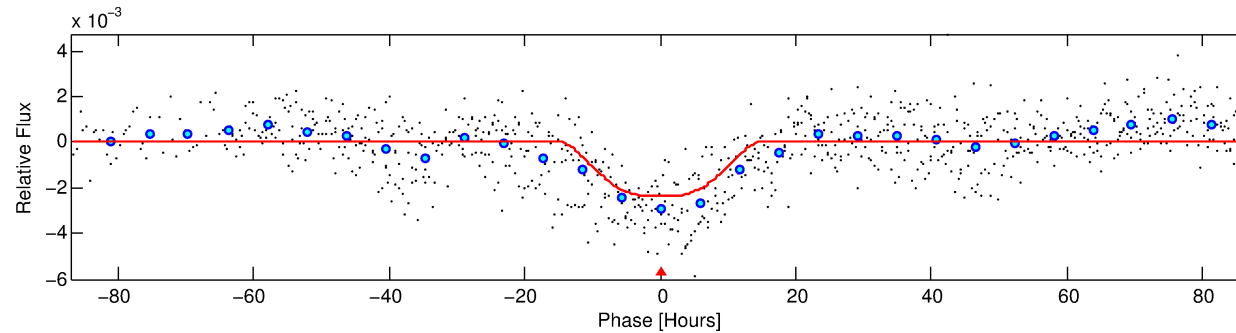
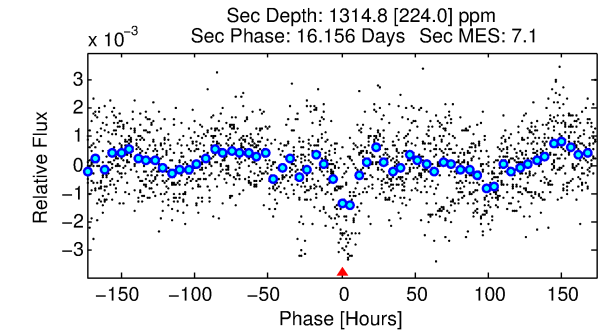
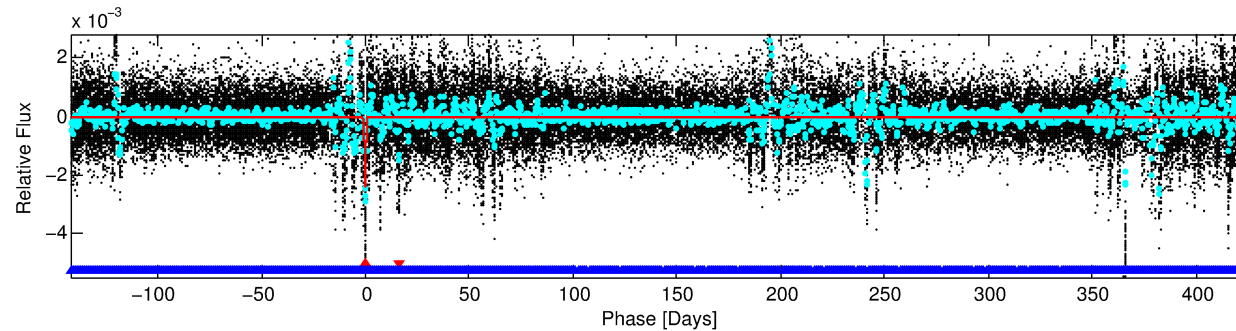
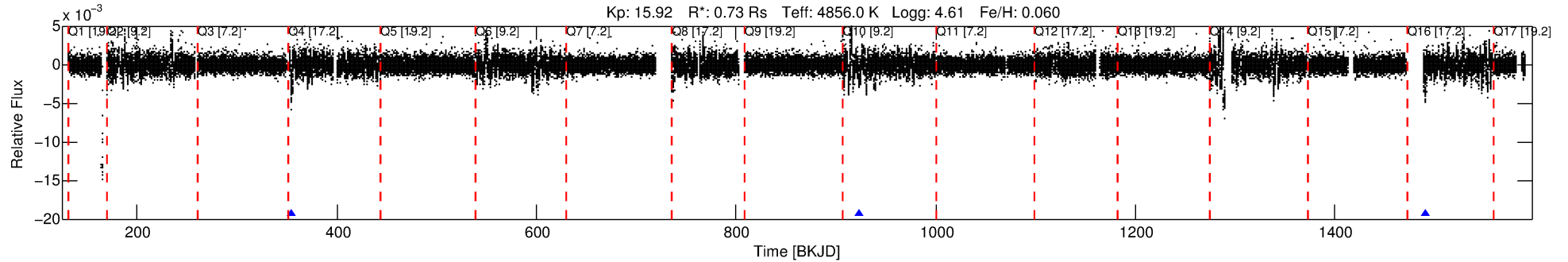
No Significant Match Found

# DV One-Page Summary

KIC: 8244295 Candidate: 1 of 2 Period: 567.993 d

KOI: K07001 Corr: No Ephemeris Match

Kp: 15.92 R\*: 0.73 Rs Teff: 4856.0 K Logg: 4.61 Fe/H: 0.060



## DV Fit Results:

Period = 567.99316 [0.02951] d  
Epoch = 355.0655 [0.0376] BKJD  
Rp/R\* = 0.0579 [0.0047]  
a/R\* = 74.24 [7.64]  
b = 0.93 [0.02]  
Seff = 0.17 [0.03]  
Teq = 164 [6] K  
Rp = 4.60 [0.57] Re  
a = 1.2388 [0.0927] AU  
Ag = 52489.92 [13516.98] [3.88σ]  
Teffp = 3843 [254] K [14.51σ]

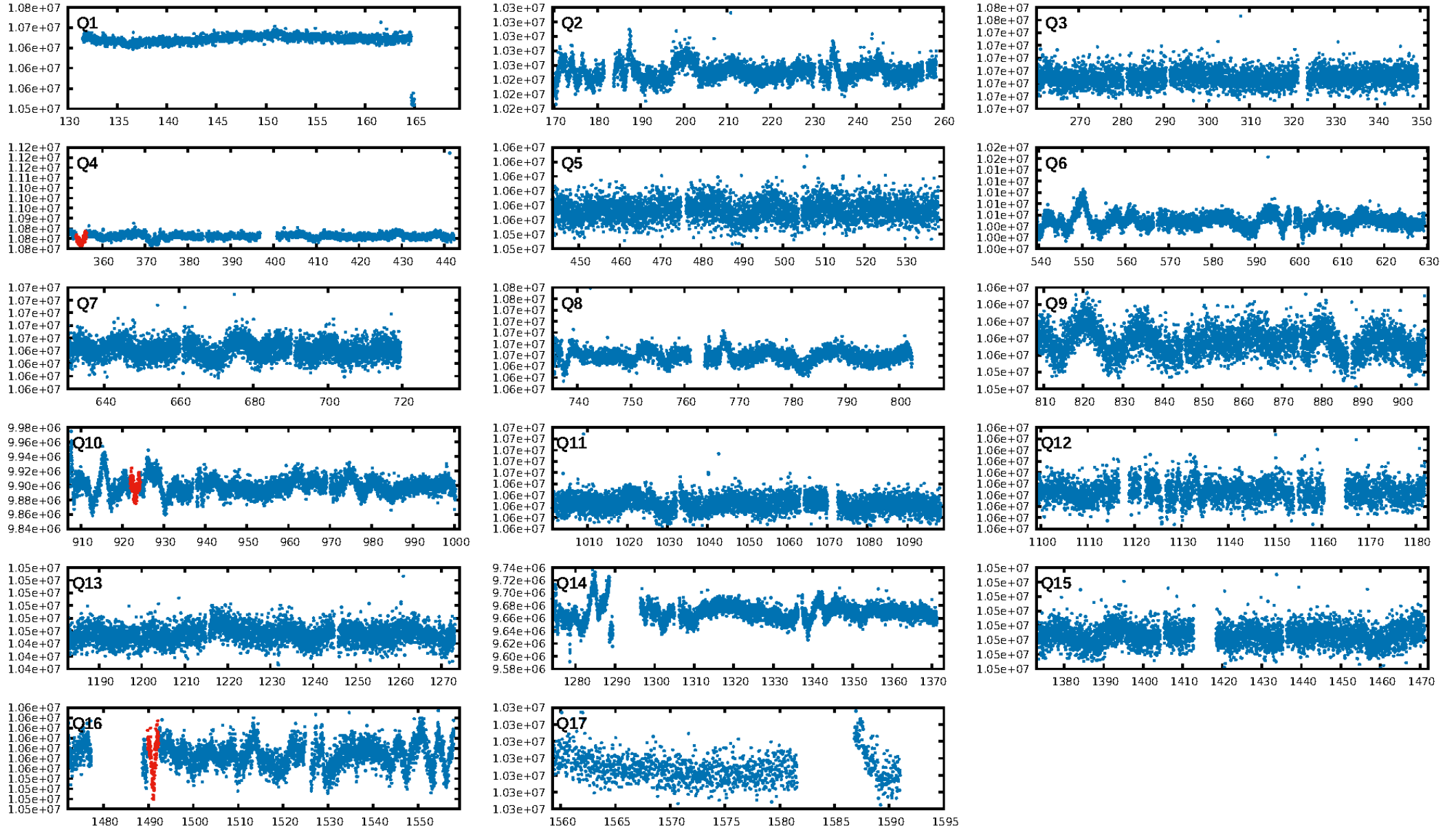
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [468.60σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.3%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.90e-07**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.247  
**Centroid-sig: 0.1%**  
Centroid-so: 3.751 arcsec [2.05σ]  
**OotOffset-rm: 4.627 arcsec [55.39σ]**  
**KicOffset-rm: 4.803 arcsec [57.51σ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.00 [0/1]

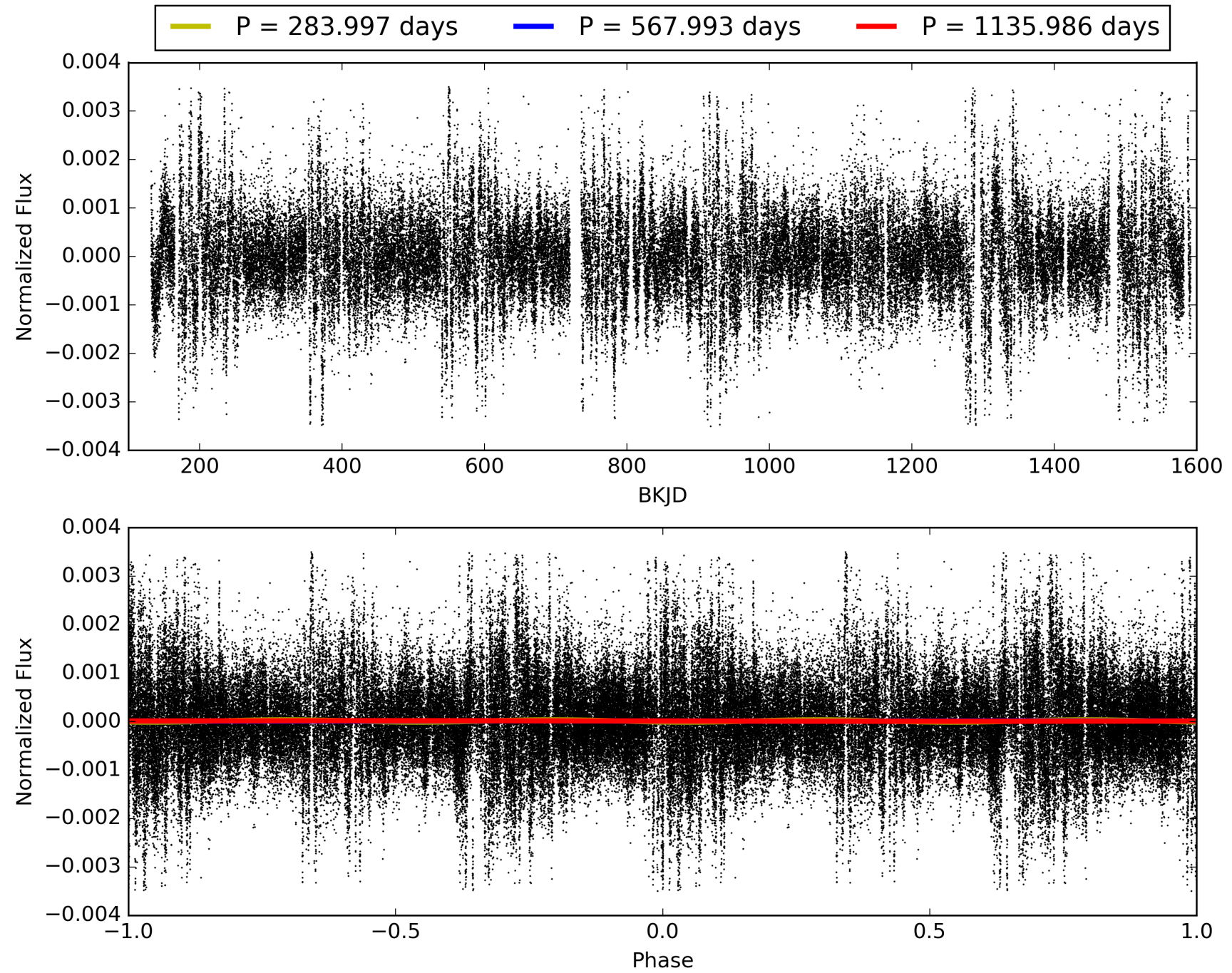
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:17:13 Z

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

# TCE 008244295-01, PDC Light Curves

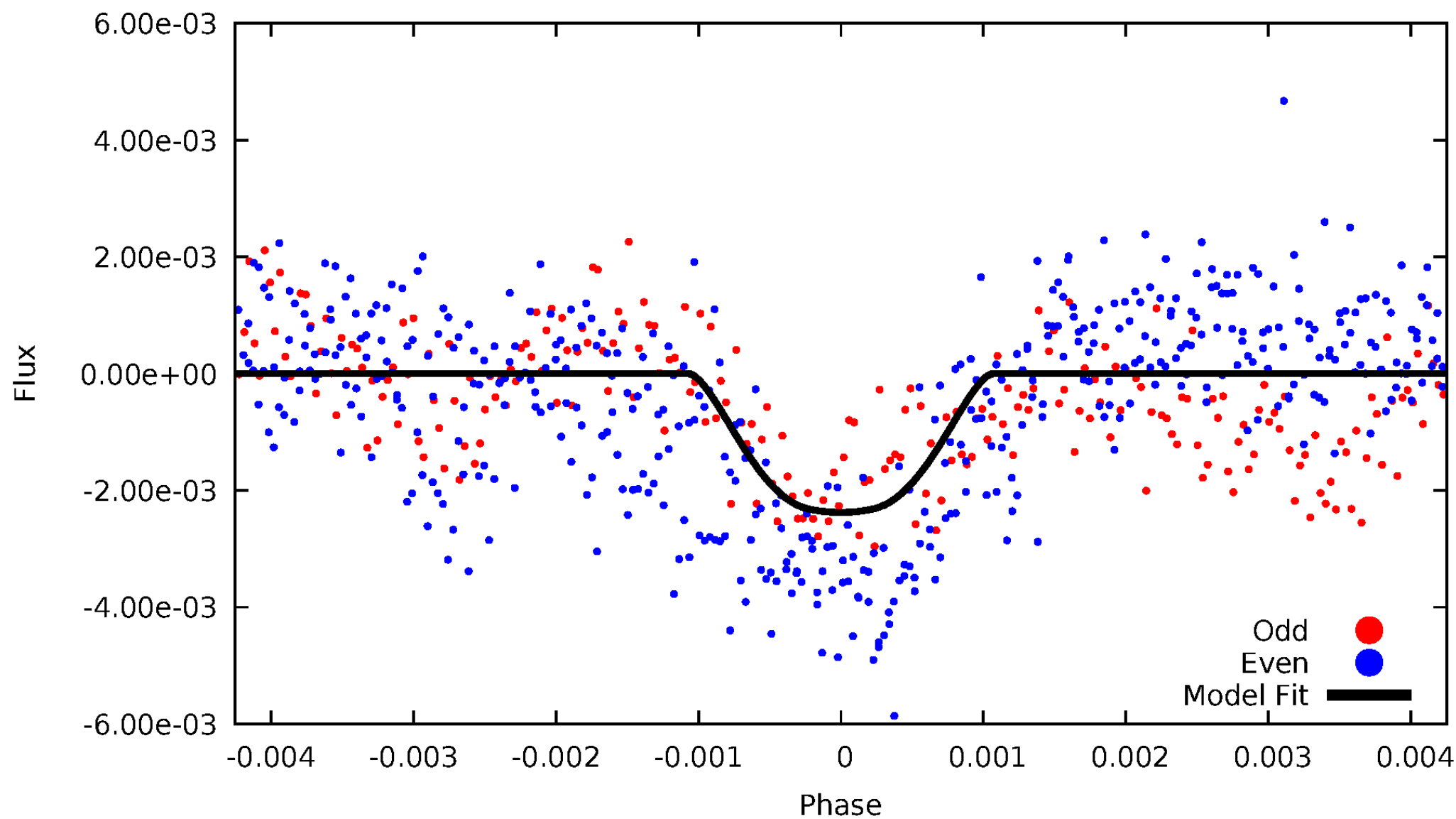


TCE 008244295-01



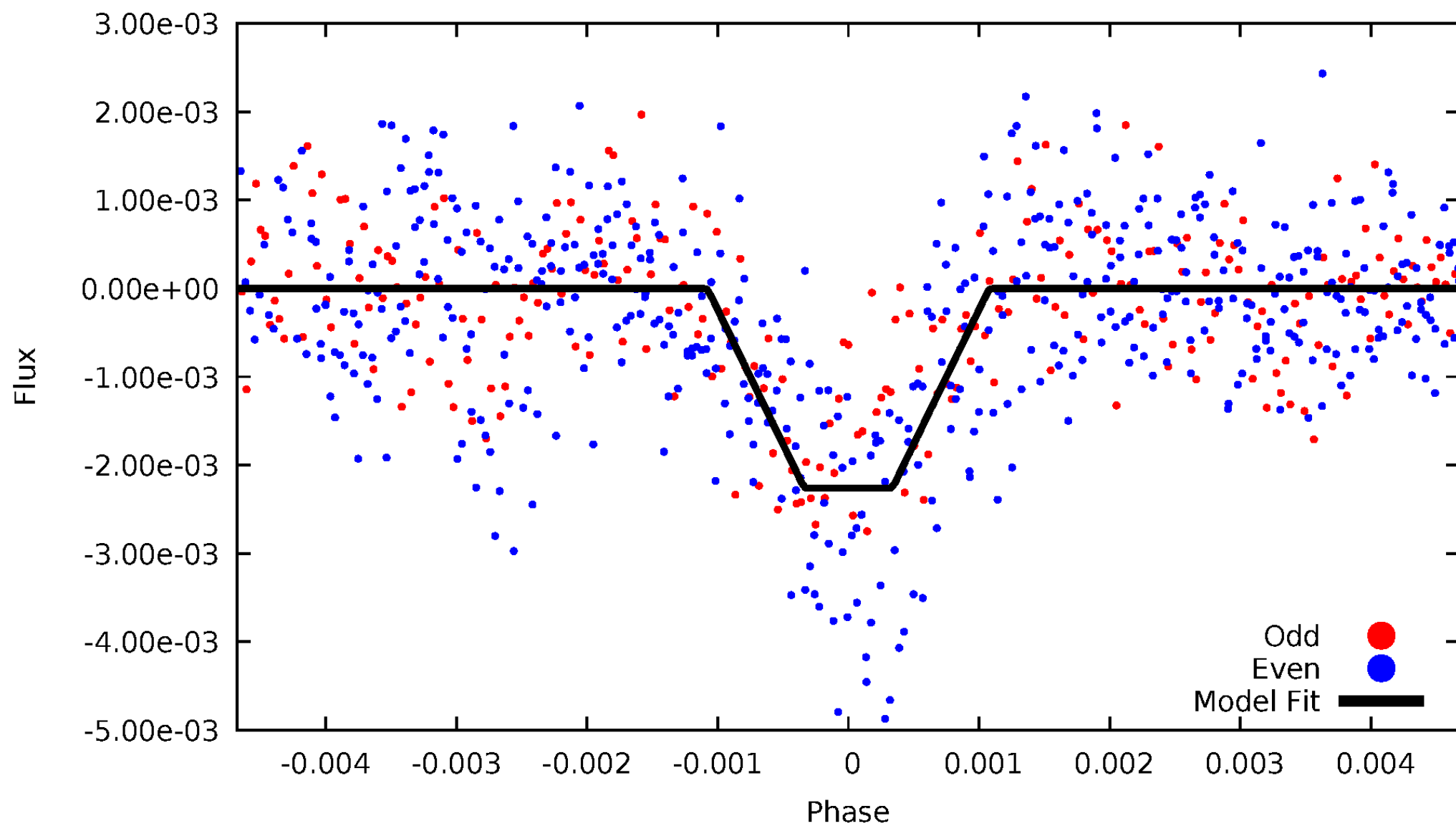
# DV Odd/Even

TCE 008244295-01



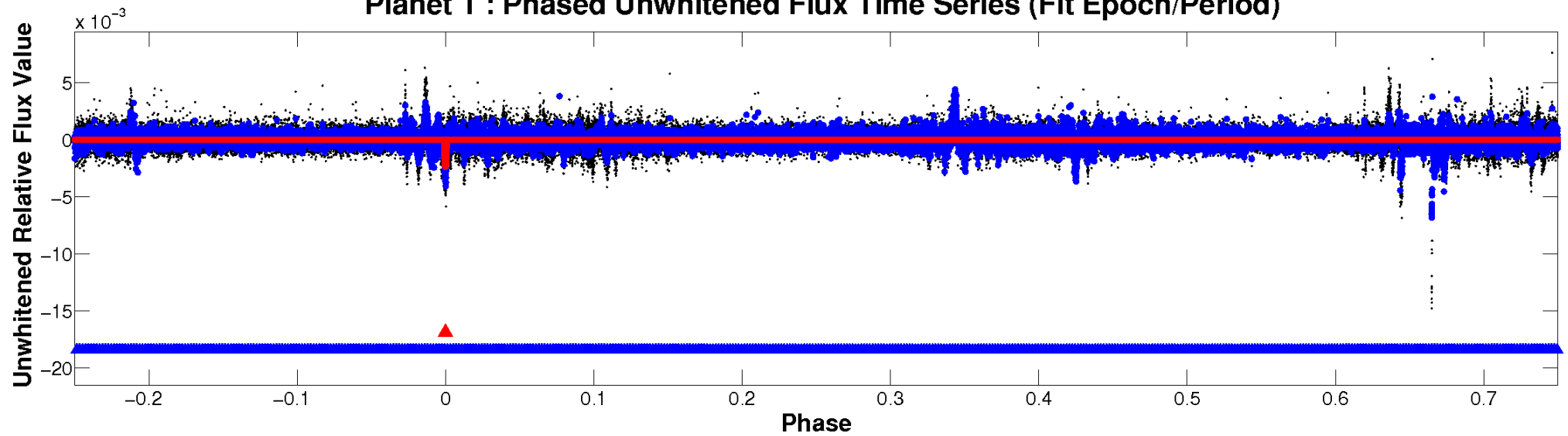
# ALT Odd/Even

TCE 008244295-01

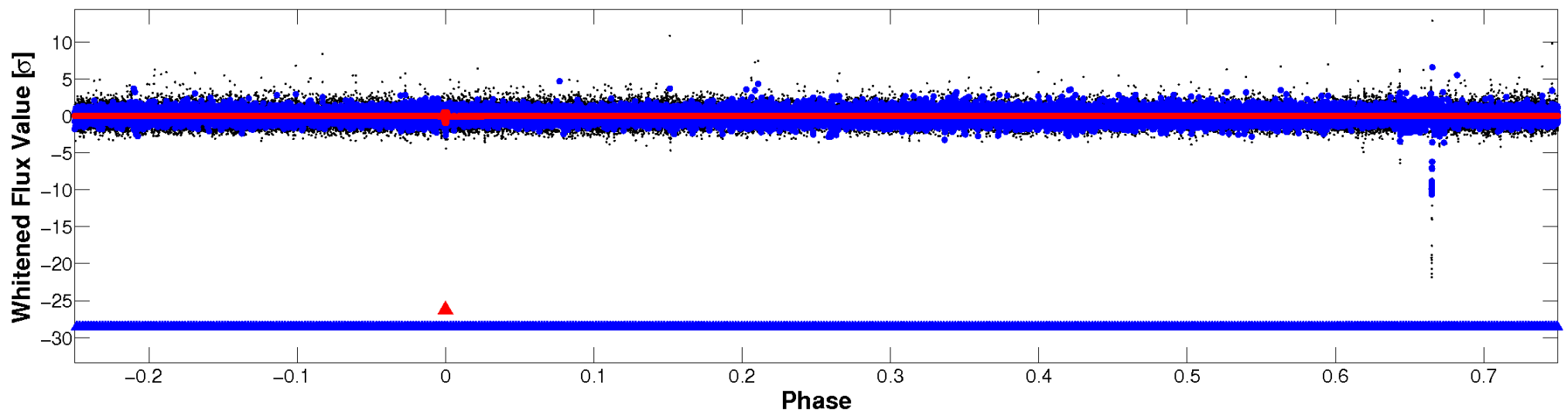


# Non-Whitened Vs. Whitened Light Curve

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

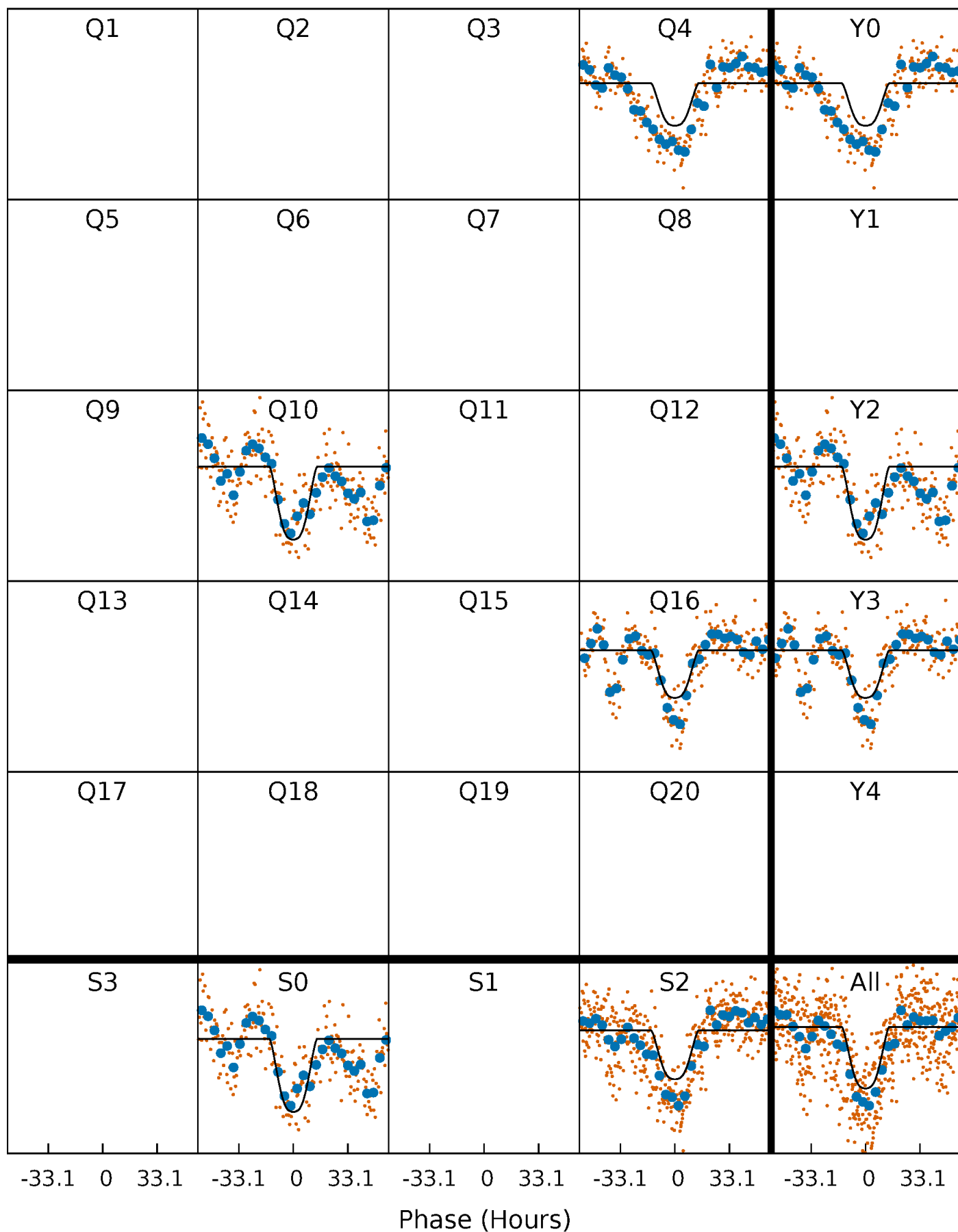
TCE 008244295-01 P=567.993164 Days  $T_0=355.065479$  (BKJD)





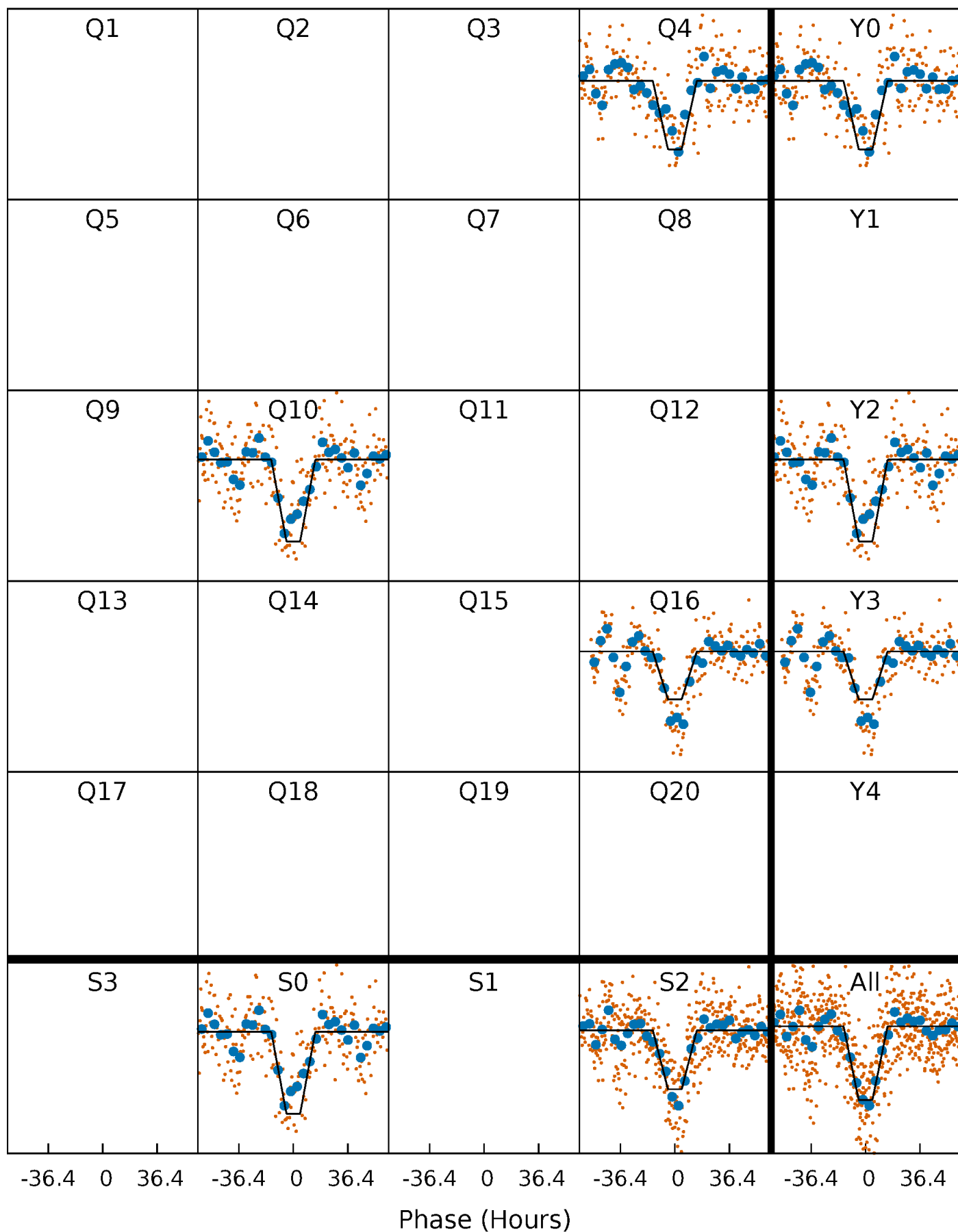
# DV Quarter-Phased Transit Curves

TCE 008244295-01 P=567.993164 Days  $T_0=355.065479$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

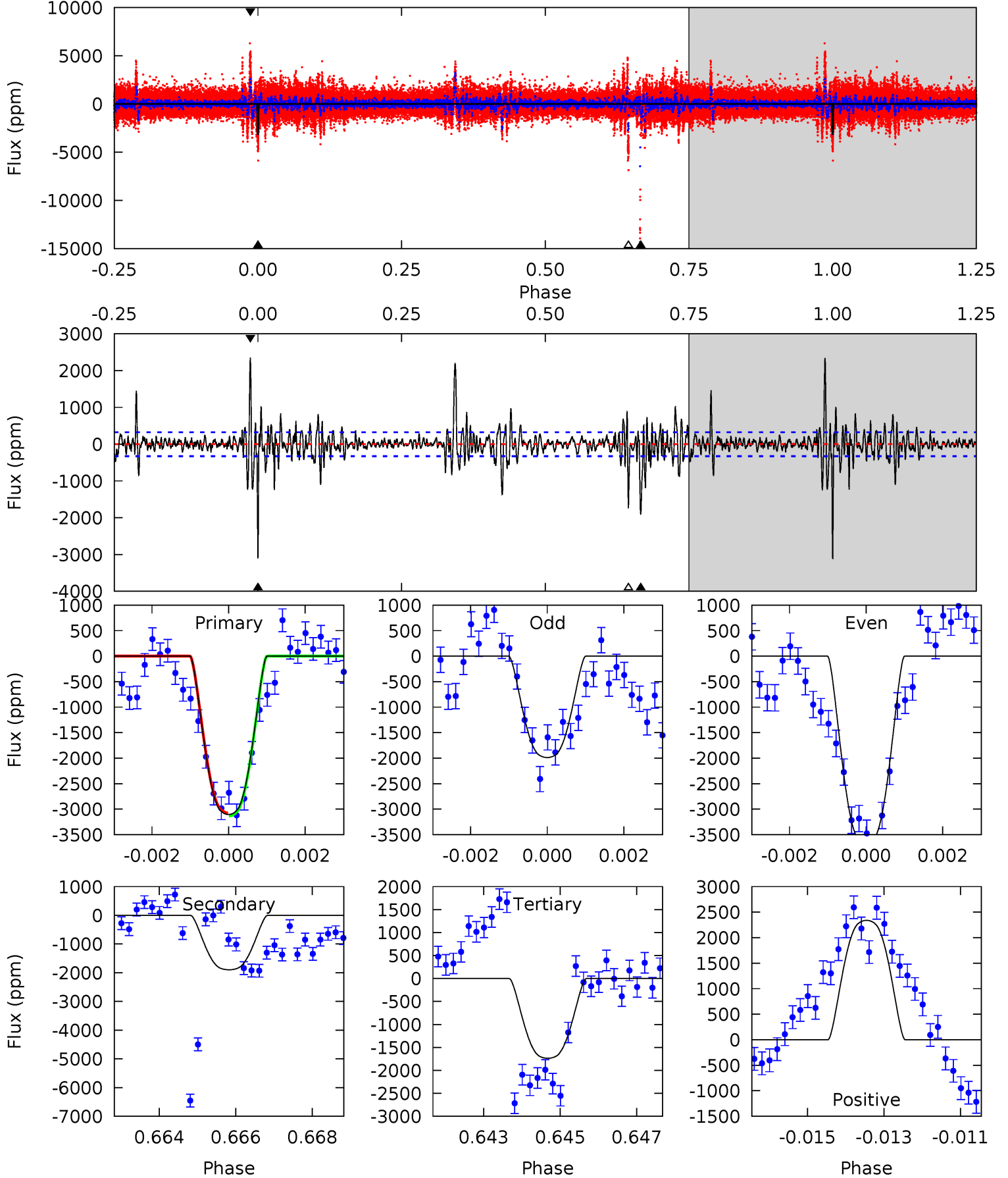
TCE 008244295-01 P=567.909933 Days  $T_0=355.201420$  (BKJD)



# DV Model-Shift Uniqueness Test

008244295-01, P = 567.993164 Days, E = 355.065479 Days

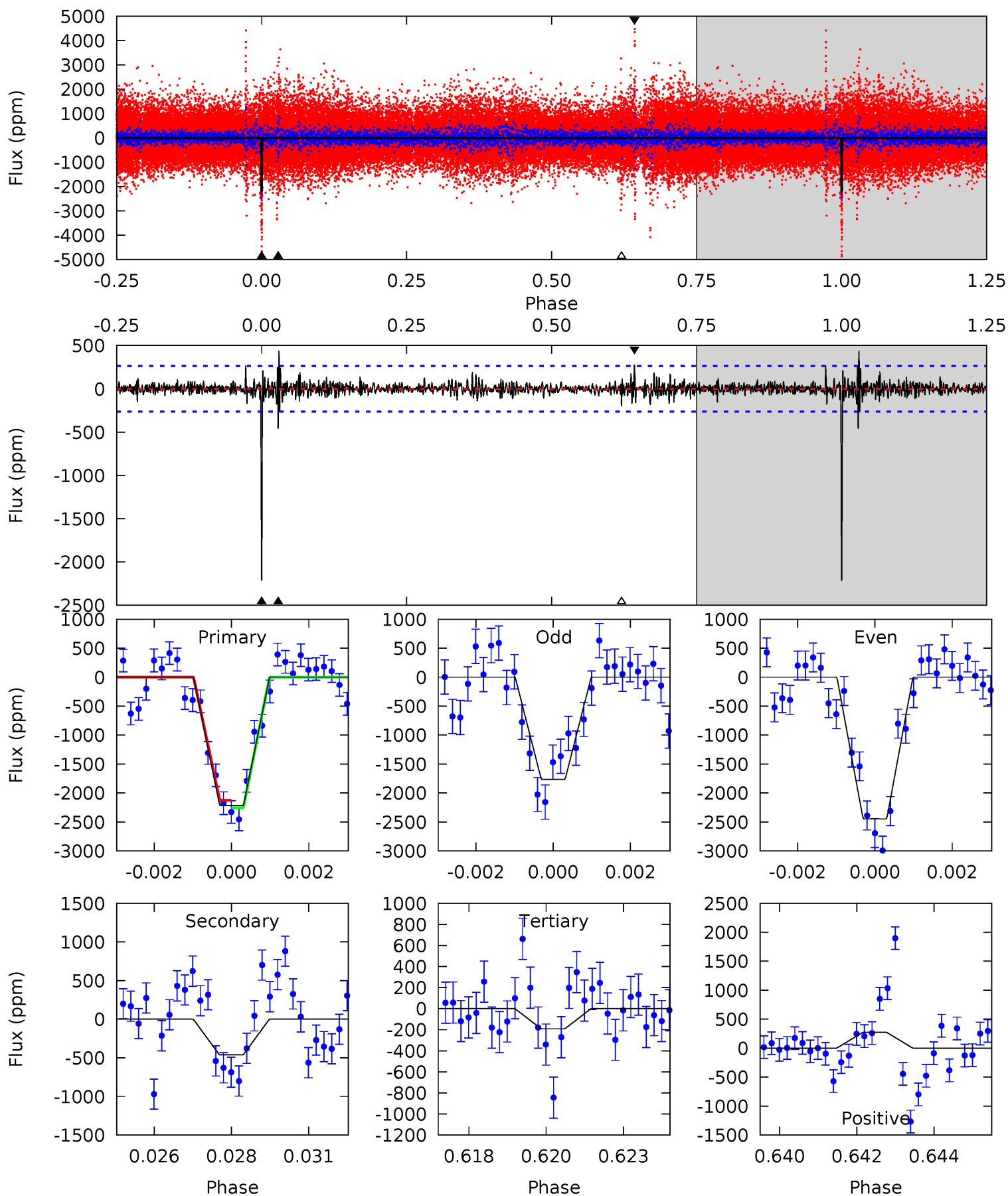
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.6	30.9	28.3	38.1	5.32	3.07	4.97	22.3	12.5	2.59	-7.22	13.1	0.96	0.43	0.48



# Alt Model-Shift Uniqueness Test

008244295-01, P = 567.909933 Days, E = 355.201420 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
44.6	9.30	3.85	5.51	5.31	3.06	0.96	40.8	39.1	5.45	3.79	6.55	1.25	0.16	1.31



### Stellar Parameters For KIC 008244295

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4856^{+144}_{-144}$	$4.609^{+0.027}_{-0.054}$	$0.060^{+0.250}_{-0.300}$	$0.728^{+0.068}_{-0.049}$	$0.793^{+0.048}_{-0.075}$	$2.896^{+0.402}_{-0.579}$
	+3%/-3%	+1%/-1%	+417%/-500%	+9%/-7%	+6%/-9%	+14%/-20%
Source	PHO1	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 008244295-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1896 \pm 61$	$4.66^{+0.45}_{-0.48}$	$231^{+8}_{-8}$	$4347^{+181}_{-173}$	$73817^{+16608}_{-12039}$
Alt.	$-462 \pm 50$	$3.83^{+0.44}_{-0.44}$	$232^{+8}_{-9}$	$3636^{+171}_{-163}$	$26665^{+7316}_{-5699}$

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

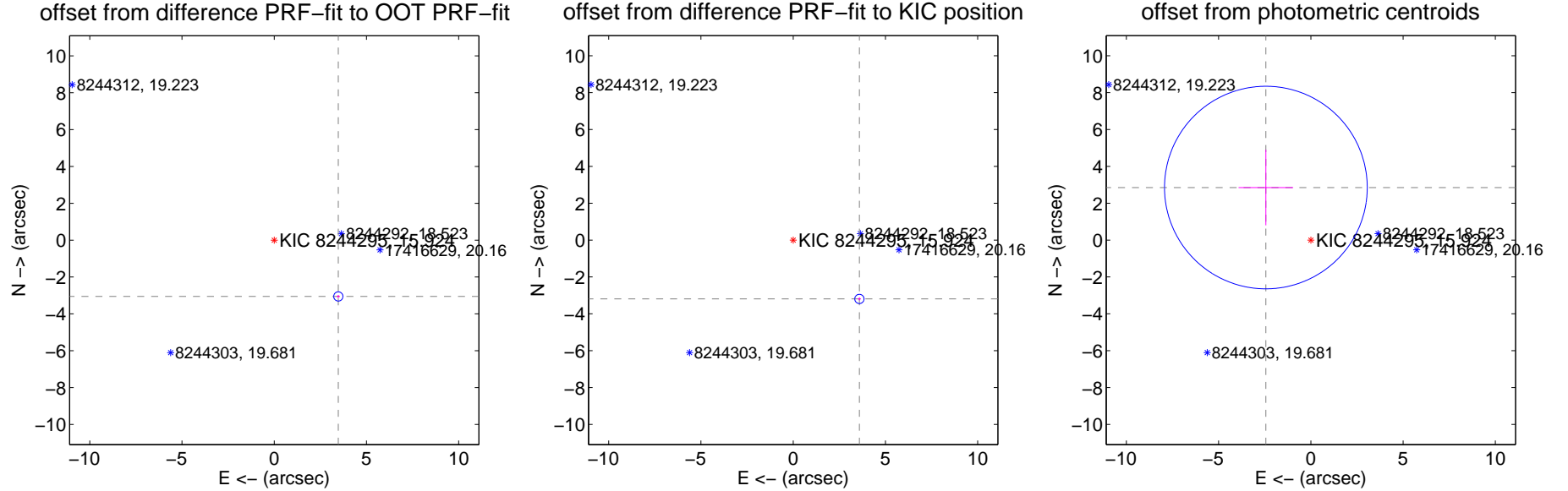
## DV Centroid Data

Supplemental centroid analysis for 008244295-01. Kepler magnitude: 15.92. Transit SNR 9.30

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.627 \pm 0.084$	55.39	$-3.475 \pm 0.085$	$-3.054 \pm 0.082$
PRF-fit source offset from KIC position	$4.803 \pm 0.084$	57.51	$-3.588 \pm 0.085$	$-3.192 \pm 0.082$
photometric centroid source offset	$3.75 \pm 1.83$	2.05	$2.44 \pm 1.48$	$2.85 \pm 2.05$



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.

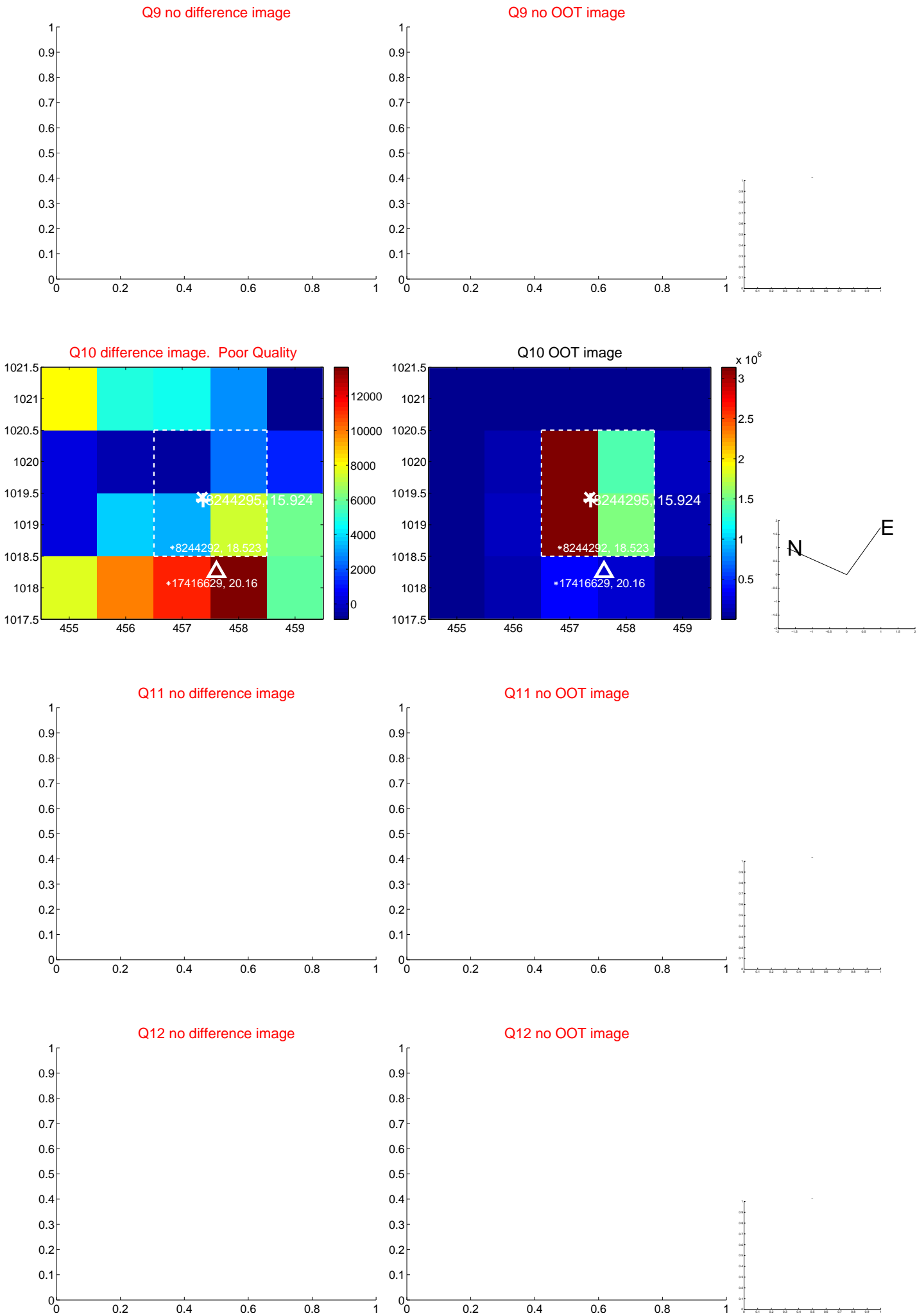




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



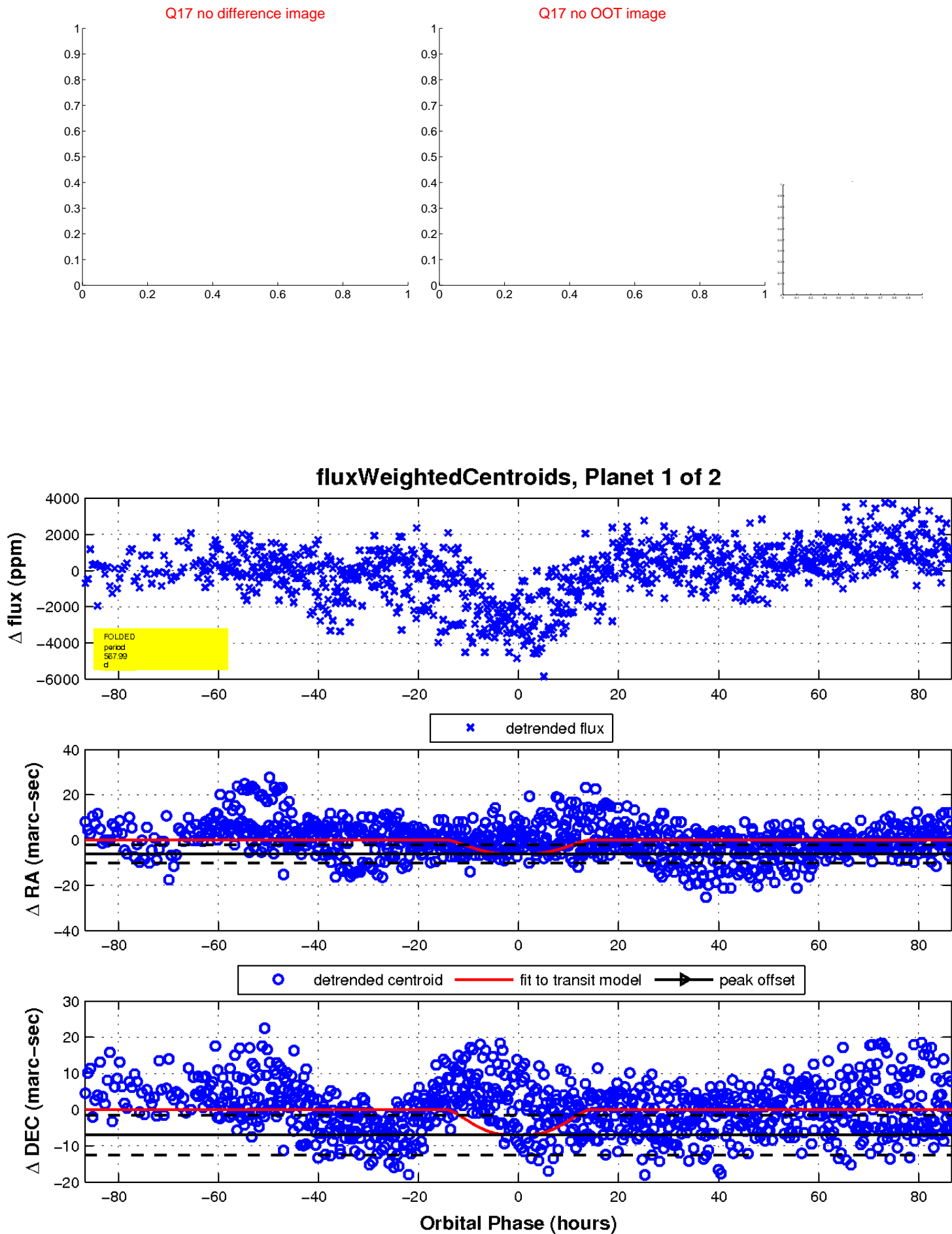
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

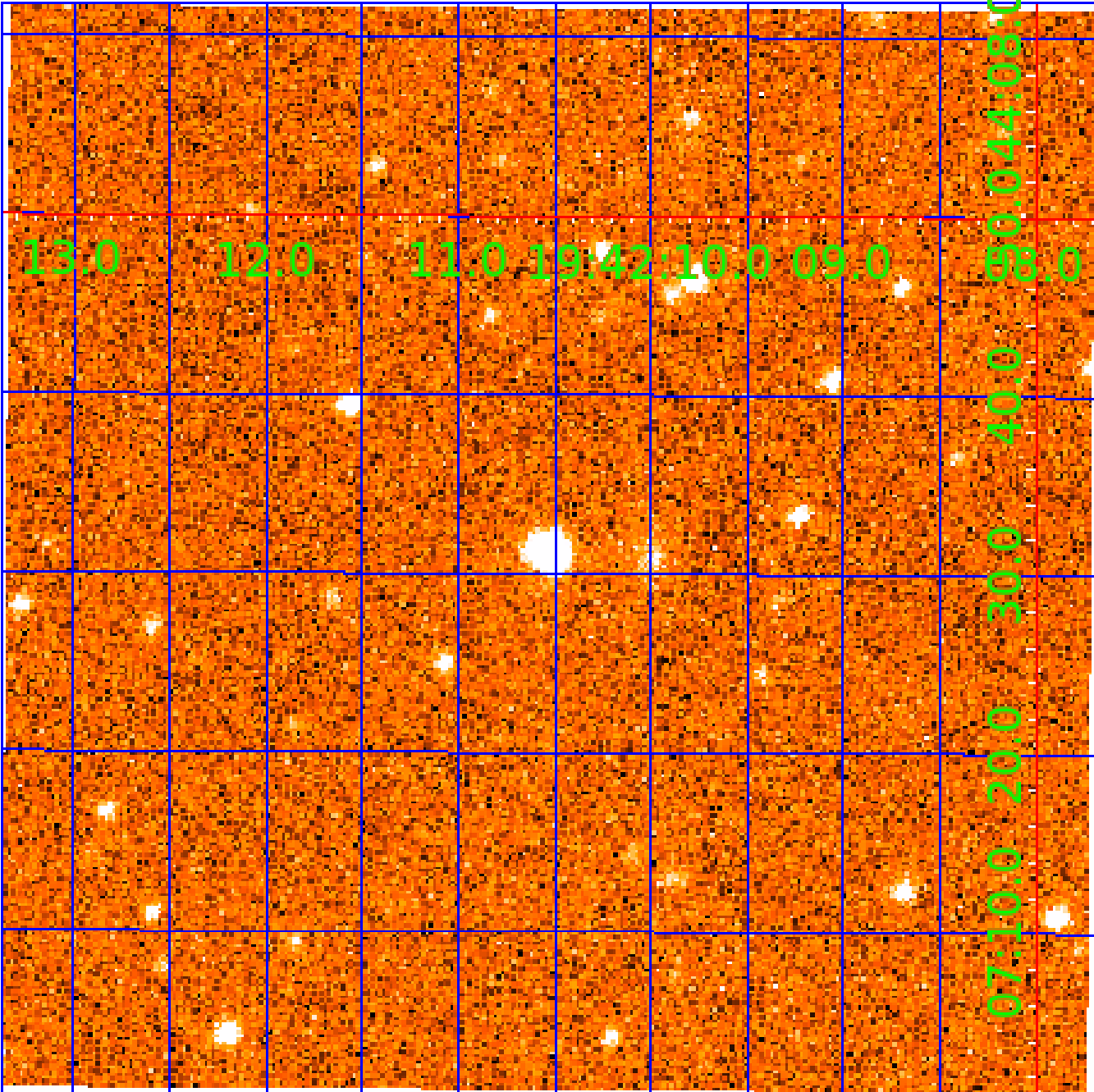


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008244295

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008244295-01	OBS	No	567.993164	355.065479	2376.7	28.981	8.2	9.3	0.73	4856	4.60	0.17
008244295-02	OBS	7001.01	1.092074	132.094855	103.1	1.761	8.4	8.4	0.73	4856	0.75	719.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008244295-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008244295-02	OBS	FP	0.00	0	0	0	1	CENT_FEW_DIFFS—EPHEM_MATCH

**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.

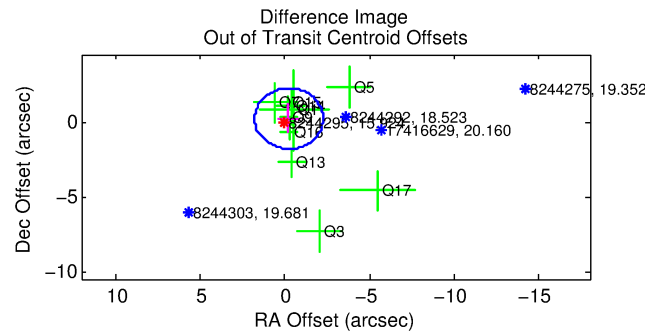
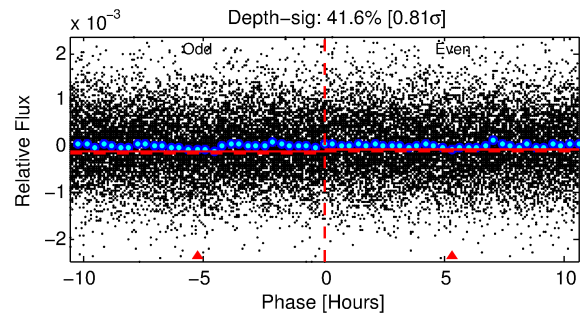
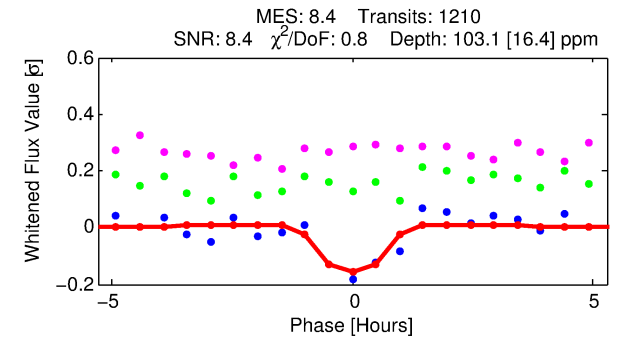
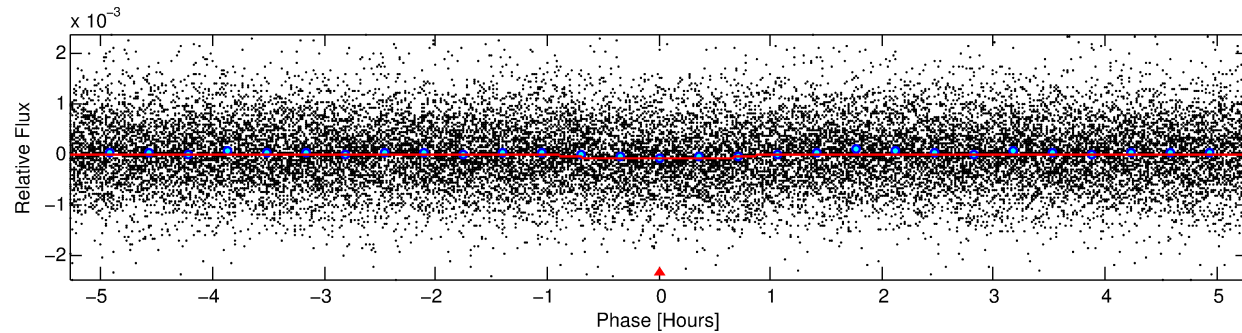
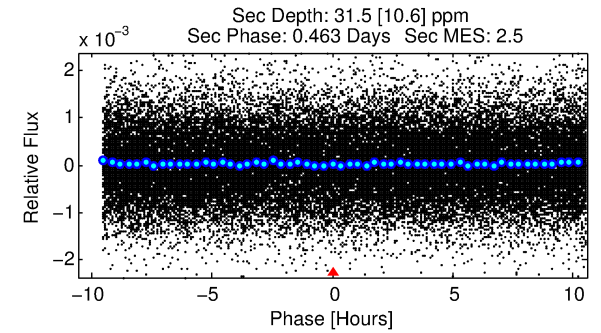
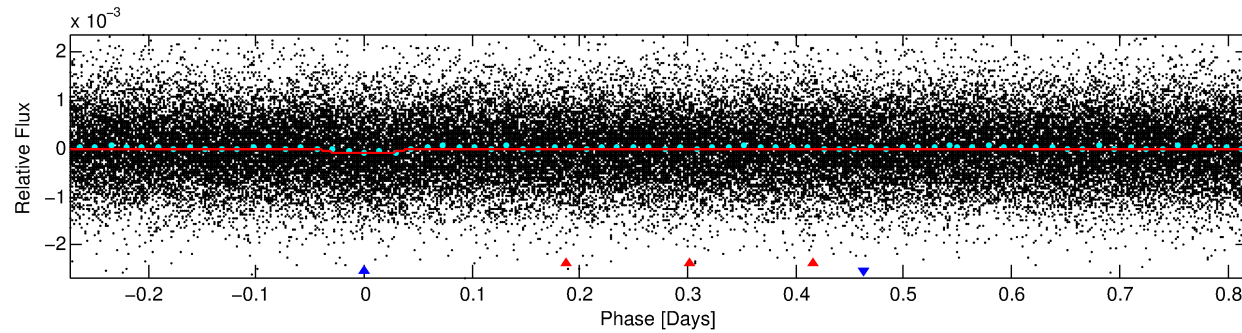
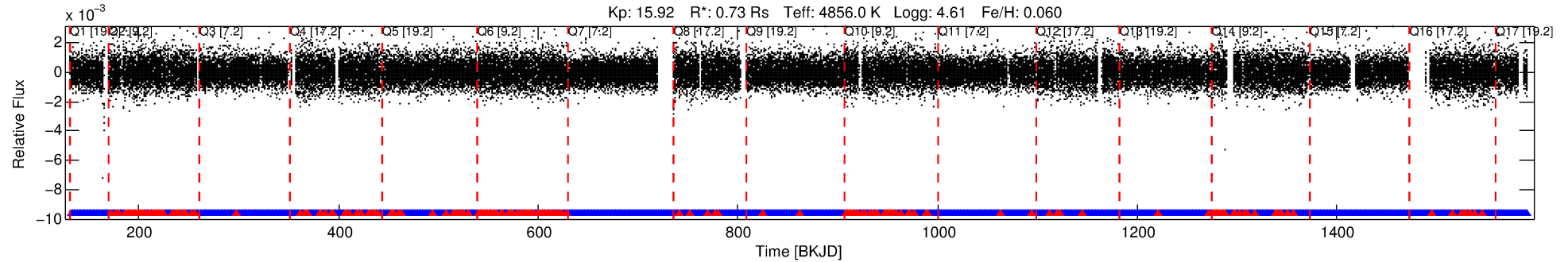
## Ephemeris Match Information For 008244295-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $\mu$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008244295-02	8244295	3545.01	8244173	1:1	111.4	28	0	15.90	15.93	4268.70	Col-Anomaly	0	0.64	0.57

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 8244295 Candidate: 2 of 2 Period: 1.092 d  
KOI: K07001.01 Corr: 0.918



## DV Fit Results:

Period = 1.09207 [0.00001] d  
Epoch = 132.0949 [0.0032] BKJD  
Rp/R\* = 0.0094 [0.0106]  
a/R\* = 4.22 [14.43]  
b = 0.50 [5.58]  
Seff = 719.60 [113.37]  
Teff = 1321 [52] K  
Rp = 0.75 [0.84] Re  
a = 0.0192 [0.0014] AU  
Ag = 11.42 [25.97] [0.40σ]  
Teffp = 3754 [2135] K [1.14σ]

## DV Diagnostic Results:

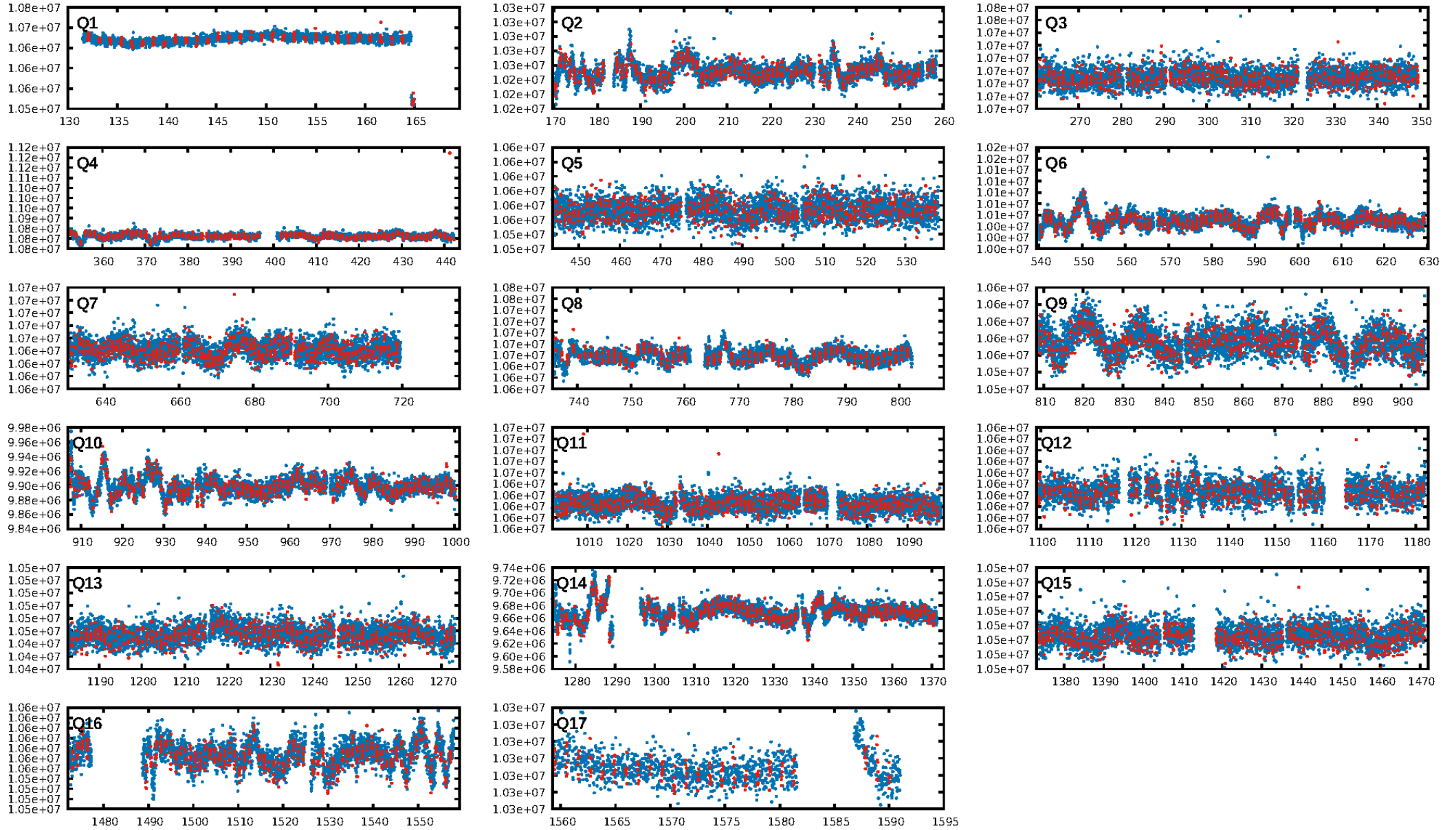
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [468.60σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.75e-17  
RollingBand-fgt: 0.81 [939/1155]  
GhostDiagnostic-chr: 9.986  
Centroid-sig: 5.0%  
Centroid-so: 2.566 arcsec [1.20σ]  
OotOffset-rm: 0.321 arcsec [0.48σ]  
KicOffset-rm: 0.392 arcsec [0.73σ]  
OotOffset-st: 1/3/1/5 [10]  
KicOffset-st: 1/3/1/5 [10]  
DiffImageQuality-fgm: 0.30 [3/10]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:17:20 Z

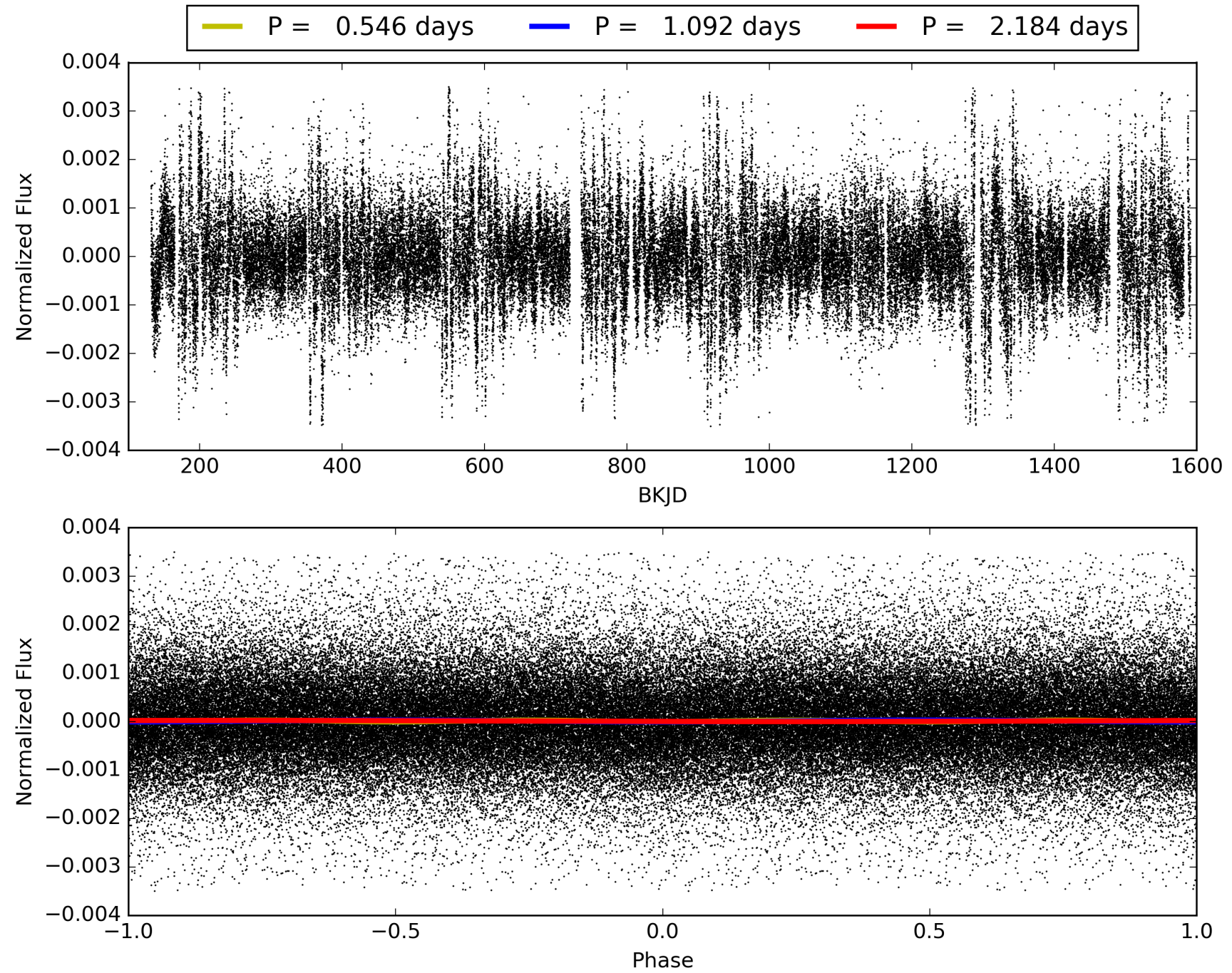
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008244295-02, PDC Light Curves

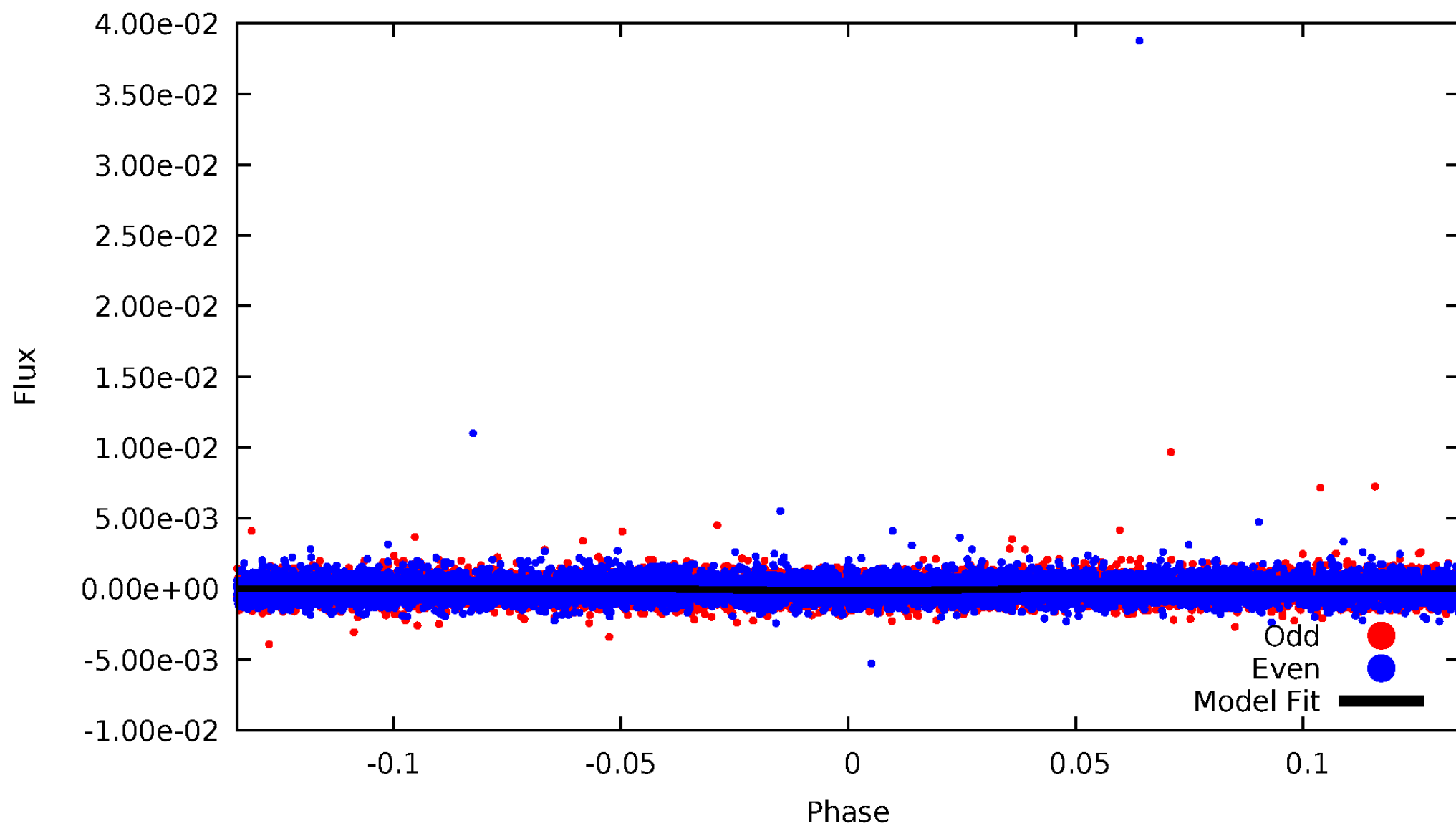


TCE 008244295-02



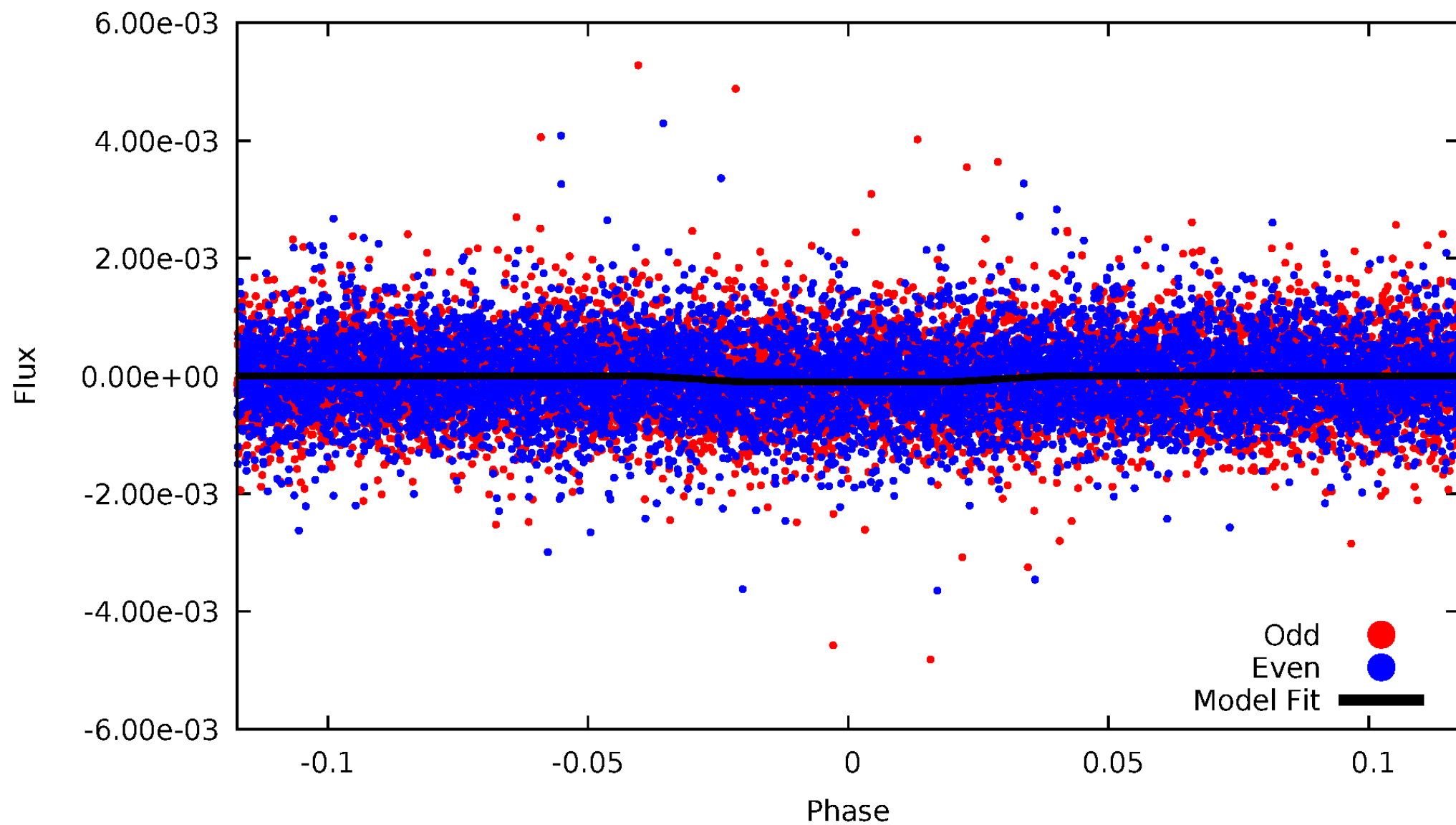
# DV Odd/Even

TCE 008244295-02



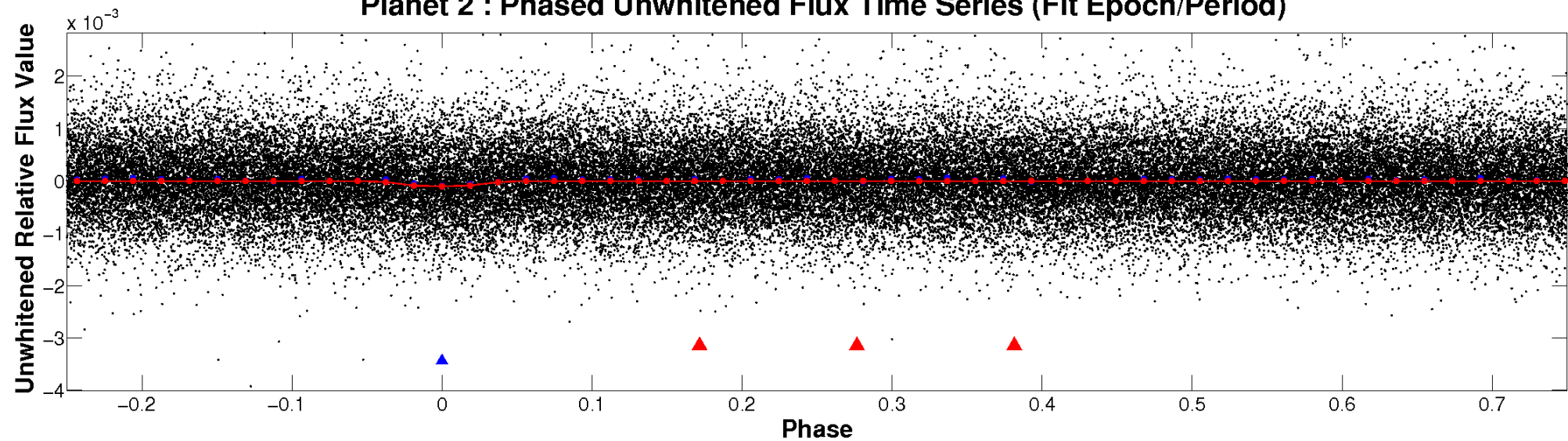
# ALT Odd/Even

TCE 008244295-02

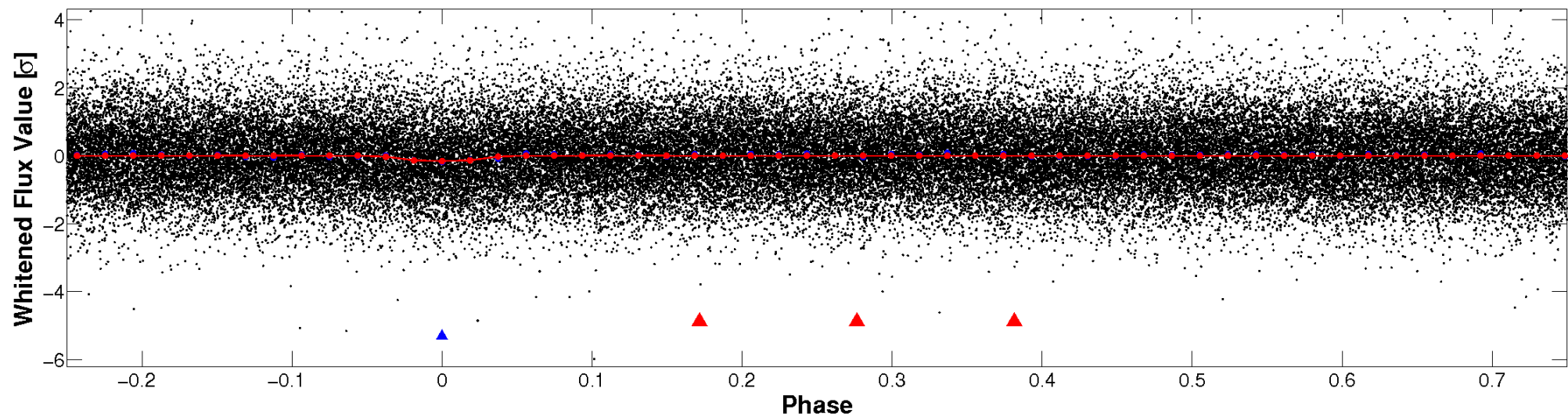


# Non-Whitened Vs. Whitened Light Curve

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



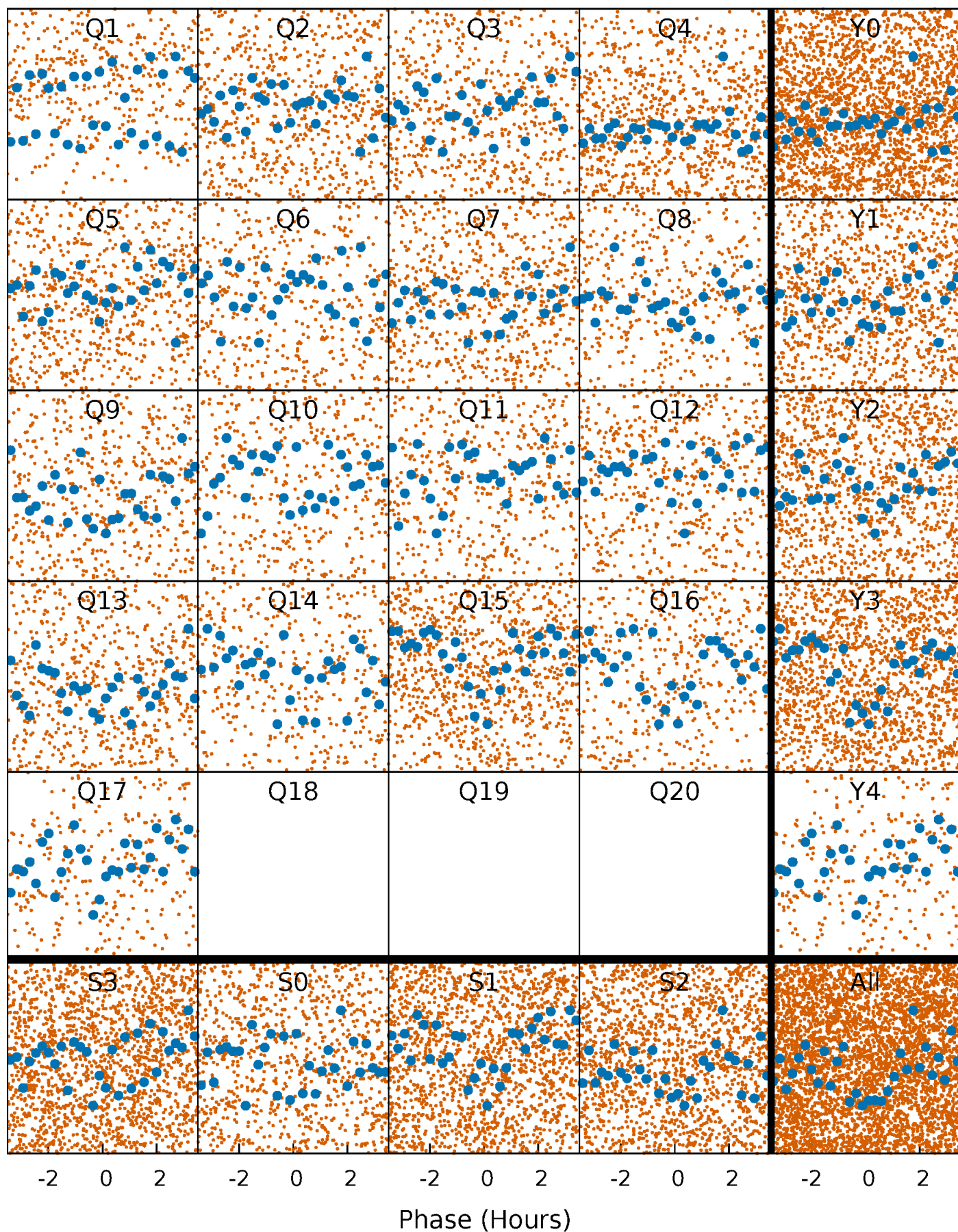
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





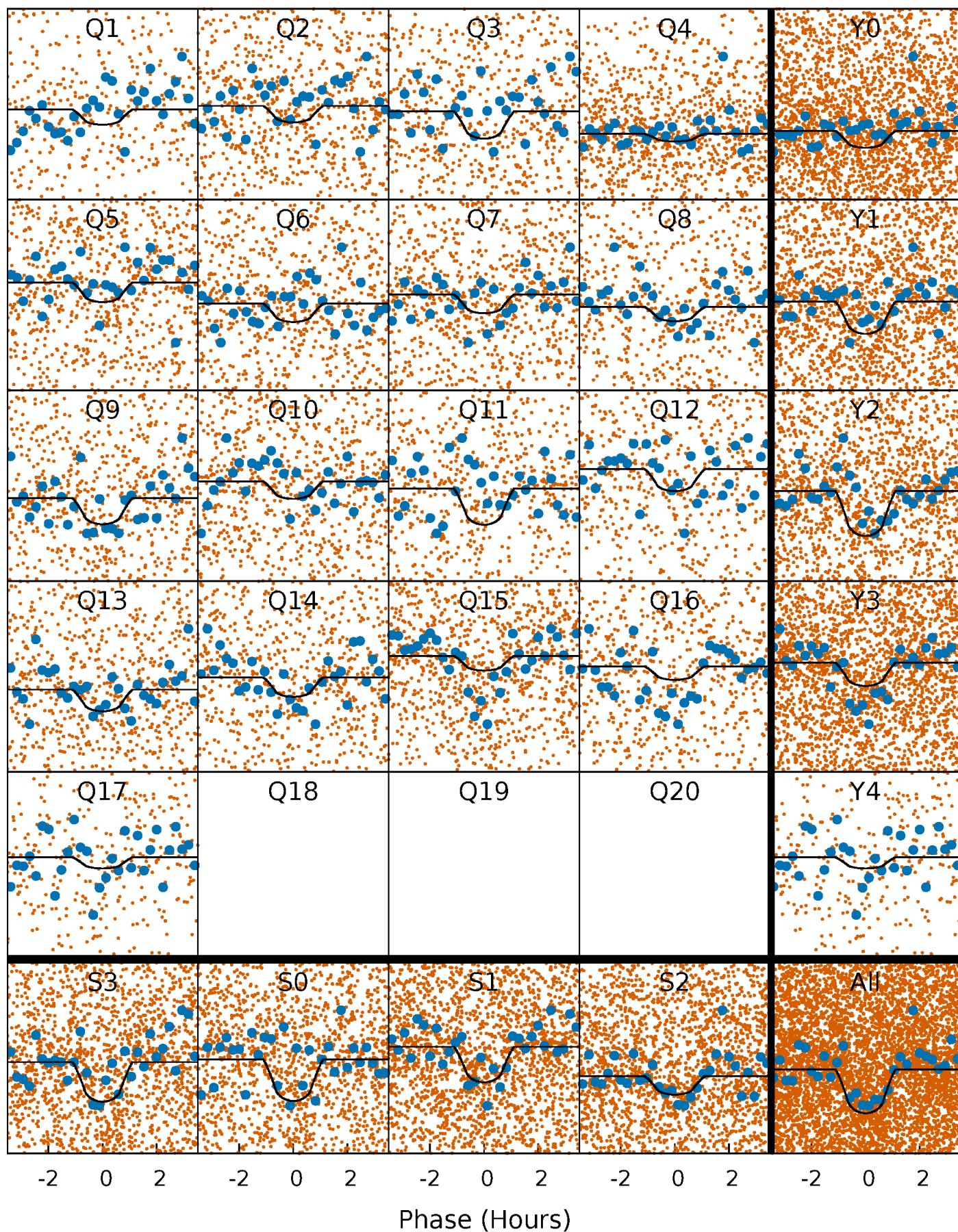
# PDC Quarter-Phased Transit Curves

TCE 008244295-02   P= 1.092074 Days    $T_0=132.094855$  (BKJD)



# DV Quarter-Phased Transit Curves

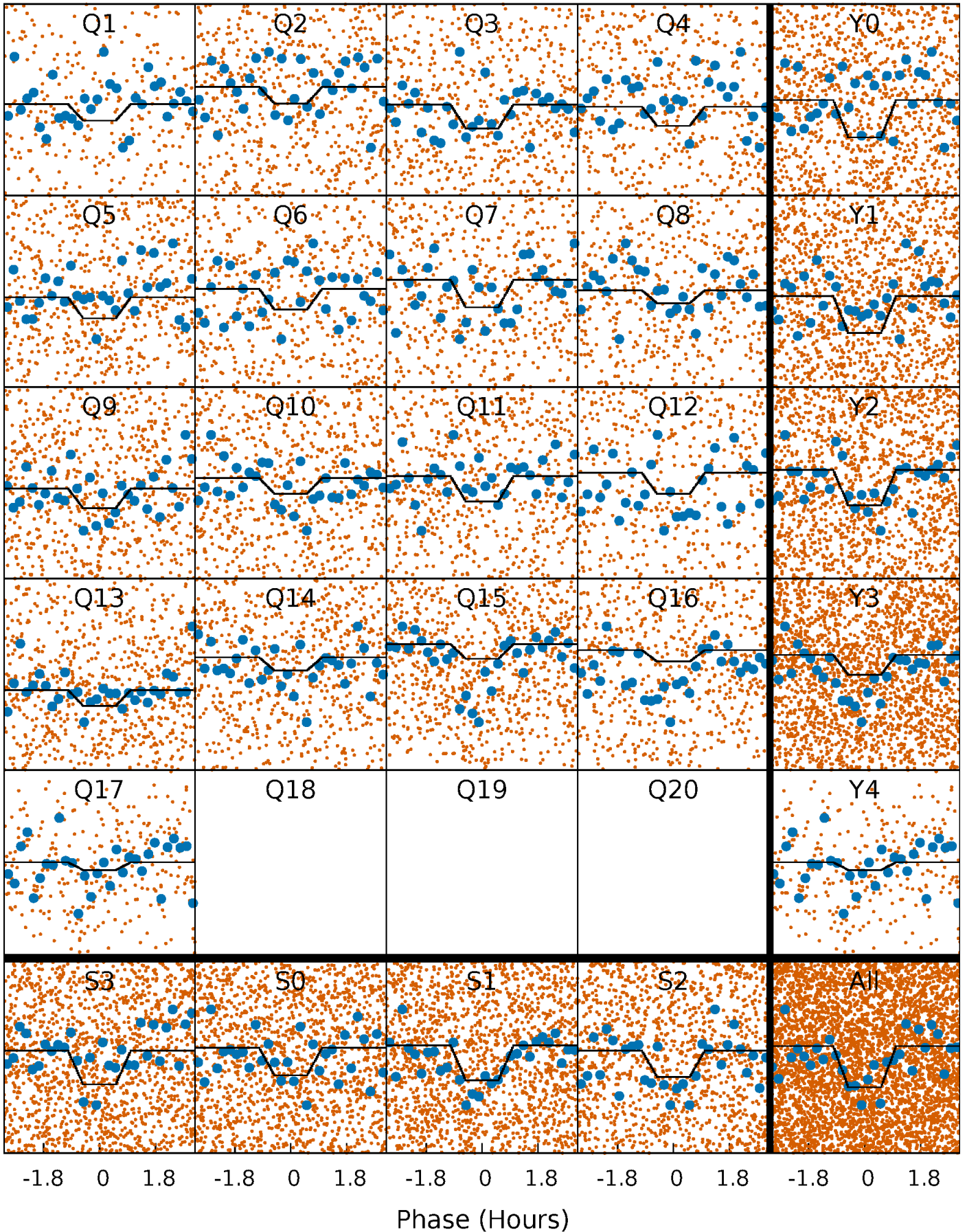
TCE 008244295-02   P= 1.092074 Days    $T_0=132.094855$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

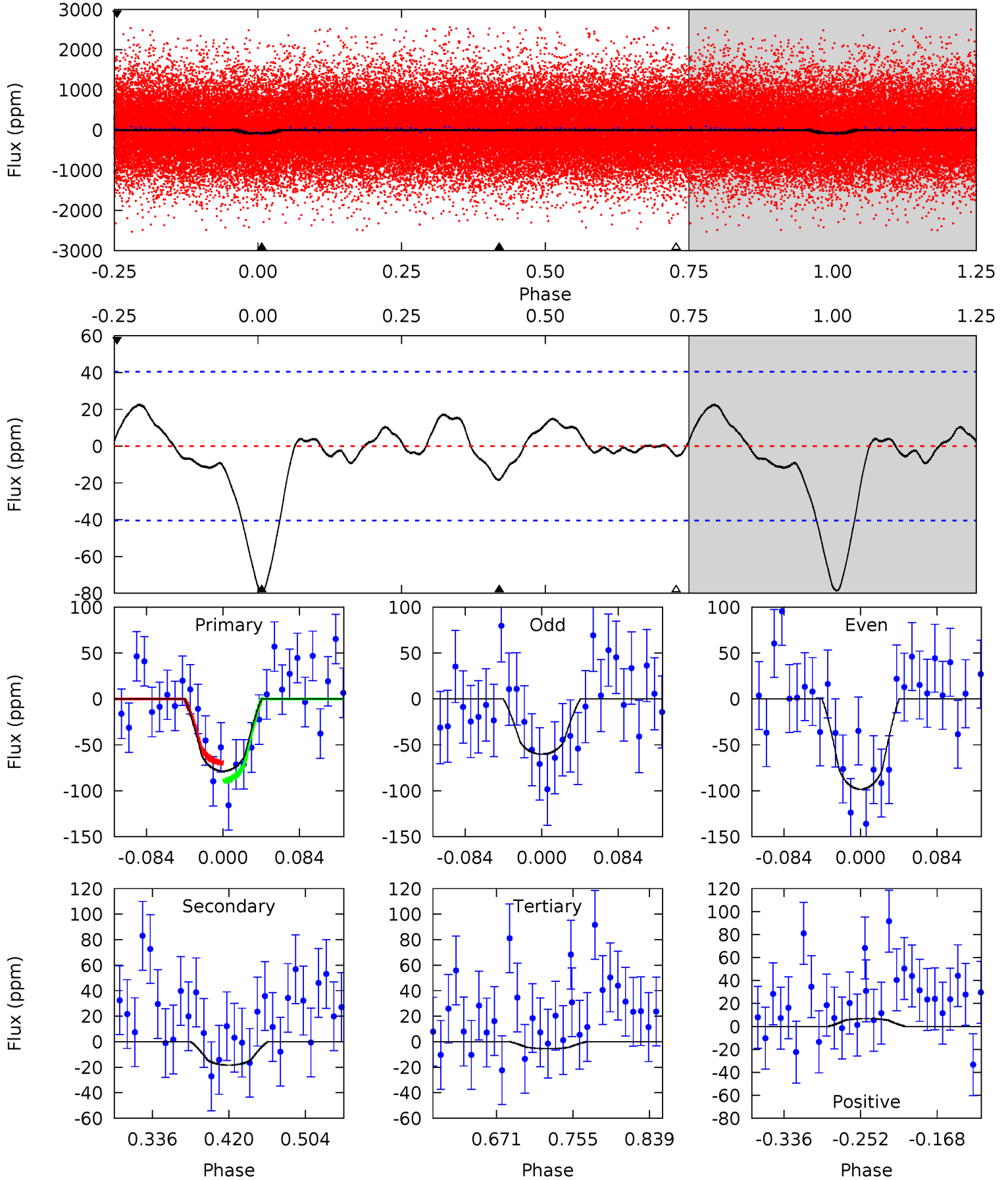
TCE 008244295-02   P= 1.092086 Days    $T_0=132.090617$  (BKJD)



# DV Model-Shift Uniqueness Test

008244295-02, P = 1.092074 Days, E = 131.002781 Days

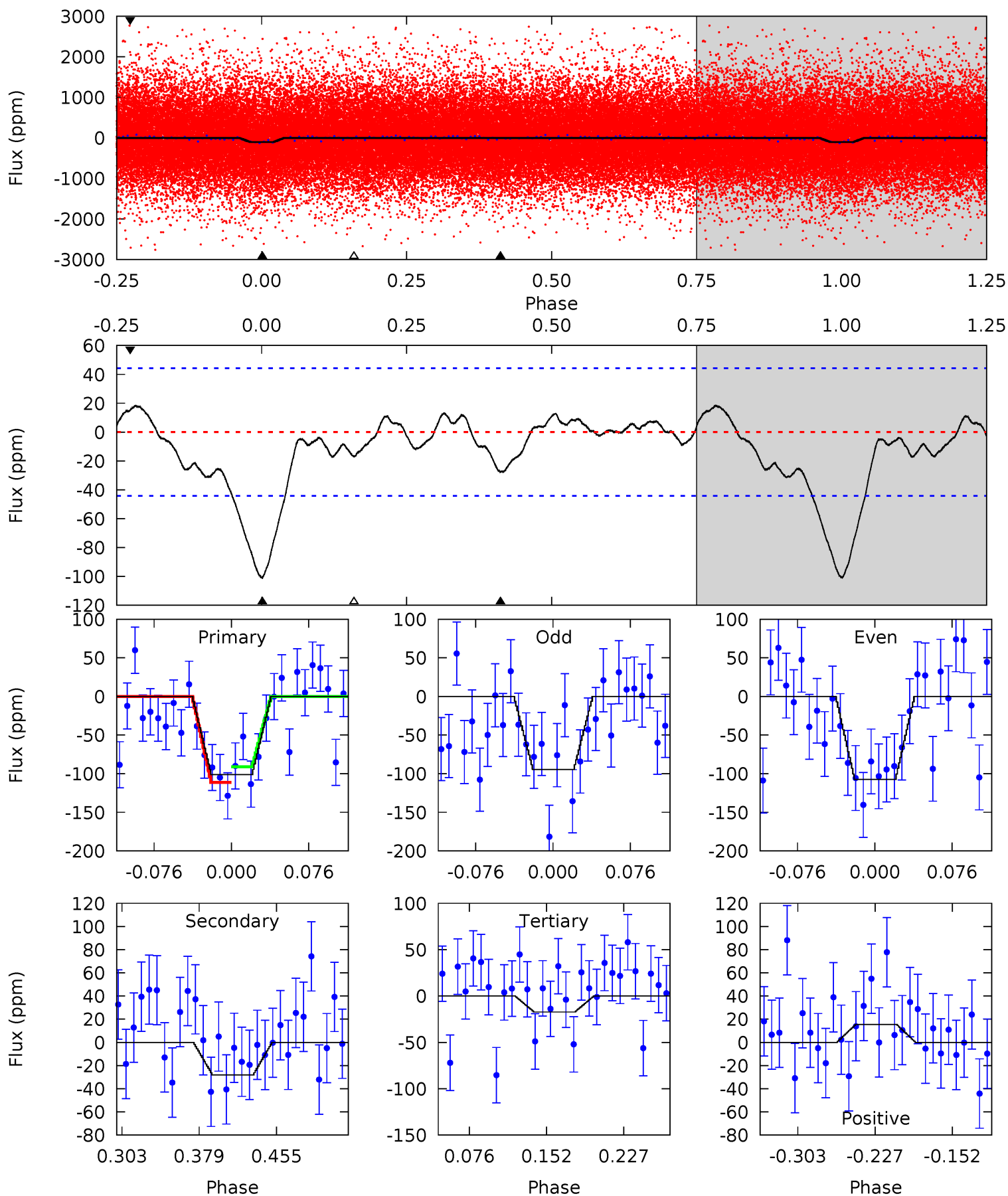
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.94	2.09	0.62	0.77	4.60	1.73	0.94	8.32	8.17	1.47	1.31	2.17	0.95	0.22	1.13



# Alt Model-Shift Uniqueness Test

008244295-02, P = 1.092086 Days, E = 130.998531 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
10.6	2.93	1.81	1.62	4.62	1.78	1.19	8.77	8.95	1.12	1.30	0.68	1.07	0.16	1.06



### Stellar Parameters For KIC 008244295

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4856^{+144}_{-144}$	$4.609^{+0.027}_{-0.054}$	$0.060^{+0.250}_{-0.300}$	$0.728^{+0.068}_{-0.049}$	$0.793^{+0.048}_{-0.075}$	$2.896^{+0.402}_{-0.579}$
	+3%/-3%	+1%/-1%	+417%/-500%	+9%/-7%	+6%/-9%	+14%/-20%
Source	PHO1	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 008244295-02 / KOI 7001.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-18 \pm 9$	$0.97^{+0.74}_{-0.57}$	$1857^{+64}_{-66}$	$3322^{+1321}_{-671}$	$3.967^{+21.341}_{-2.934}$
Alt.	$-28 \pm 10$	$1.02^{+0.79}_{-0.61}$	$1857^{+66}_{-63}$	$3509^{+1448}_{-654}$	$5.525^{+28.518}_{-3.974}$

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

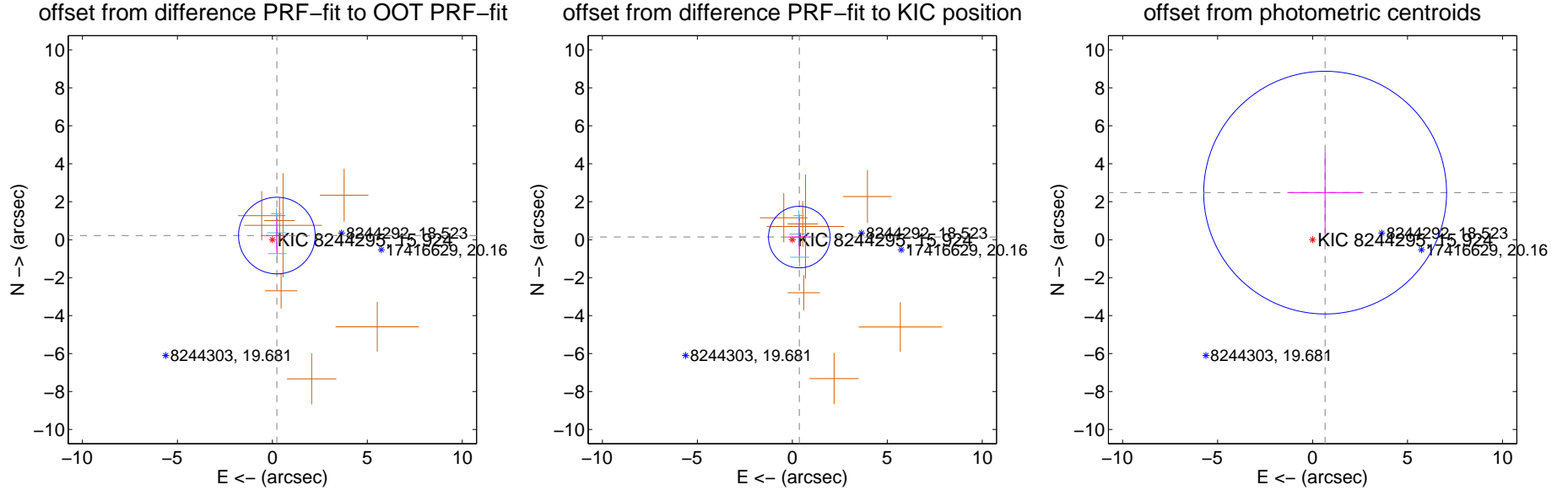
## DV Centroid Data

Supplemental centroid analysis for 008244295-02. Kepler magnitude: 15.92. Transit SNR 8.41

There are 3 quarters with good PRF difference image offsets

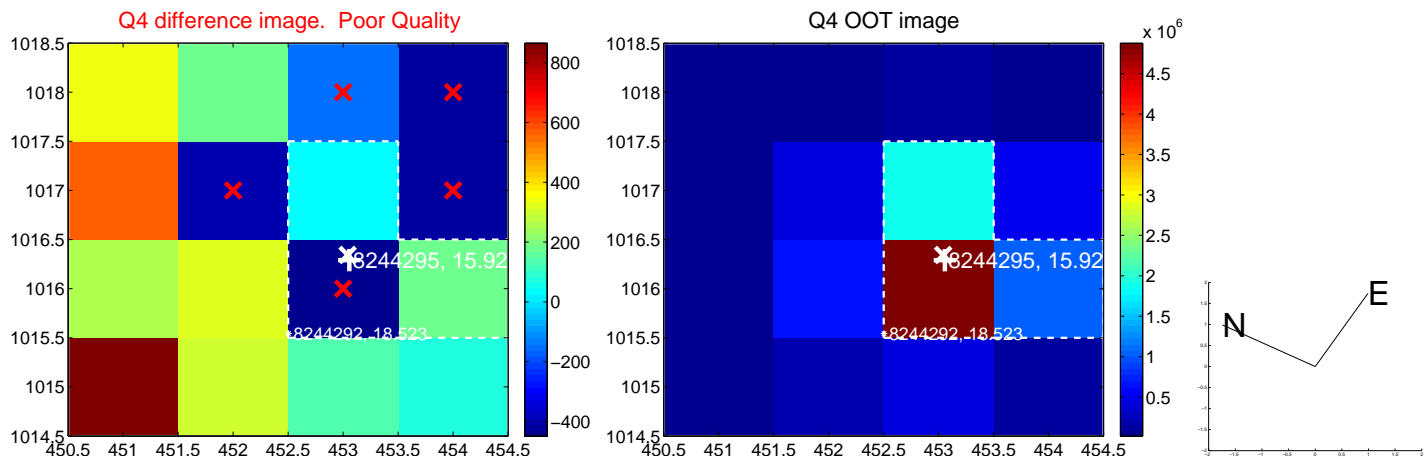
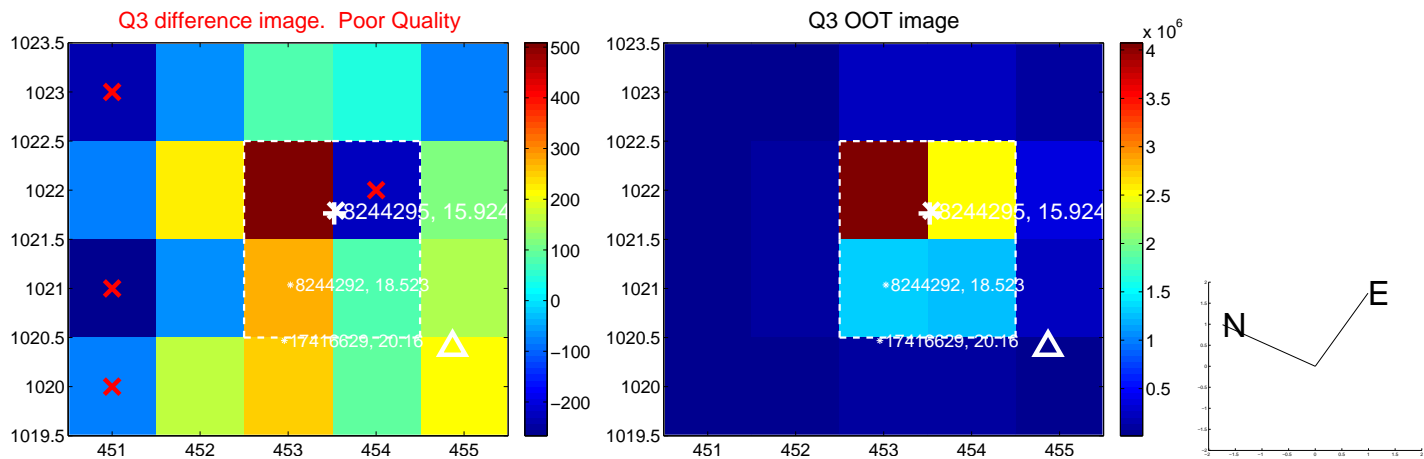
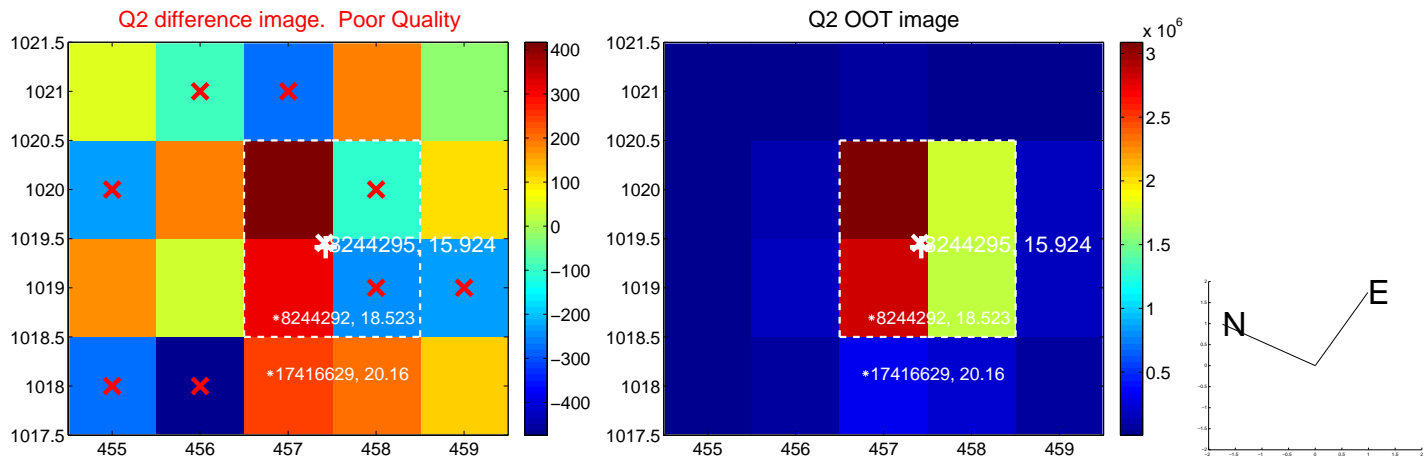
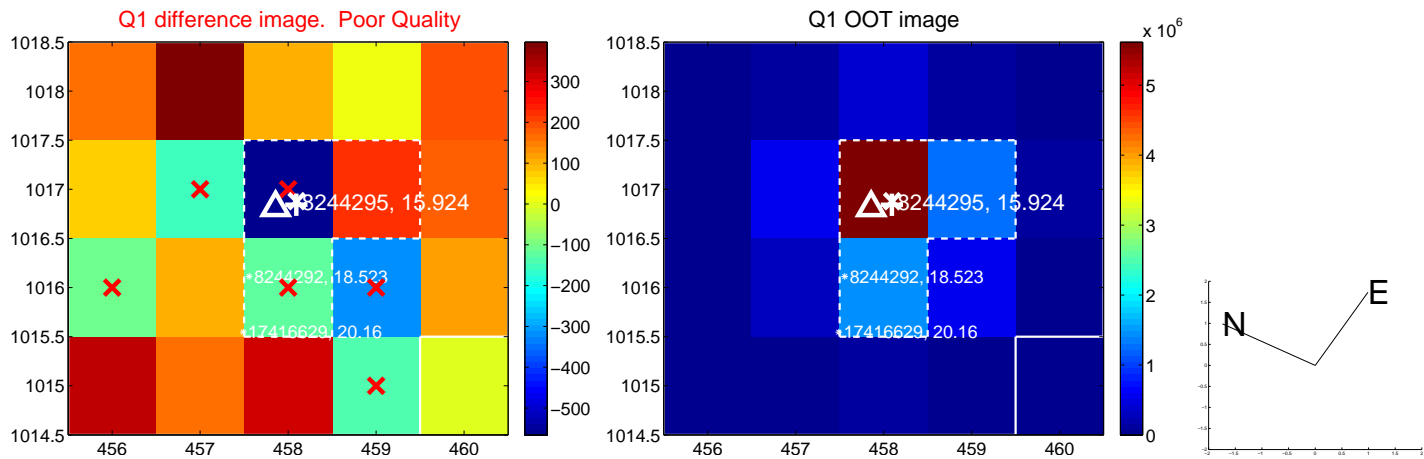
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.321 \pm 0.673$	0.48	$-0.236 \pm 0.580$	$0.217 \pm 0.915$
PRF-fit source offset from KIC position	$0.392 \pm 0.541$	0.73	$-0.367 \pm 0.603$	$0.138 \pm 0.981$
photometric centroid source offset	$2.57 \pm 2.13$	1.20	$-0.66 \pm 1.93$	$2.48 \pm 2.15$

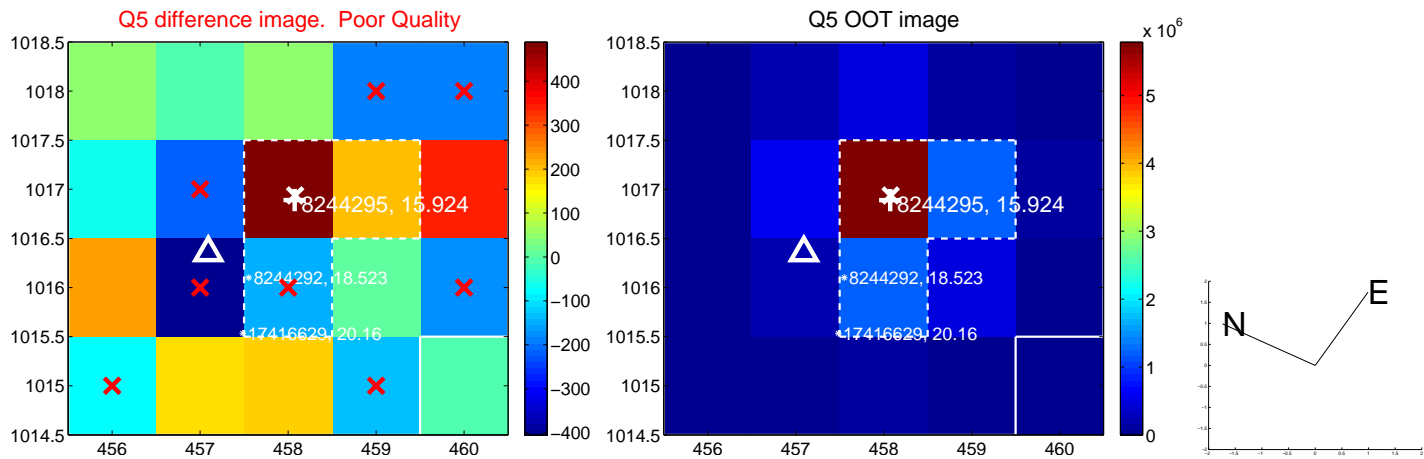


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

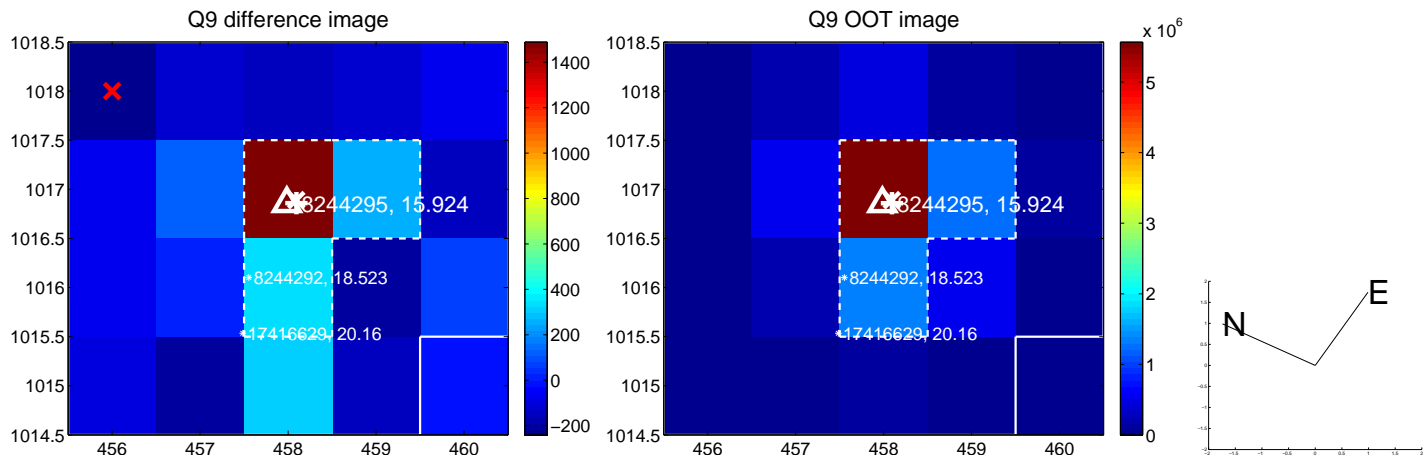


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

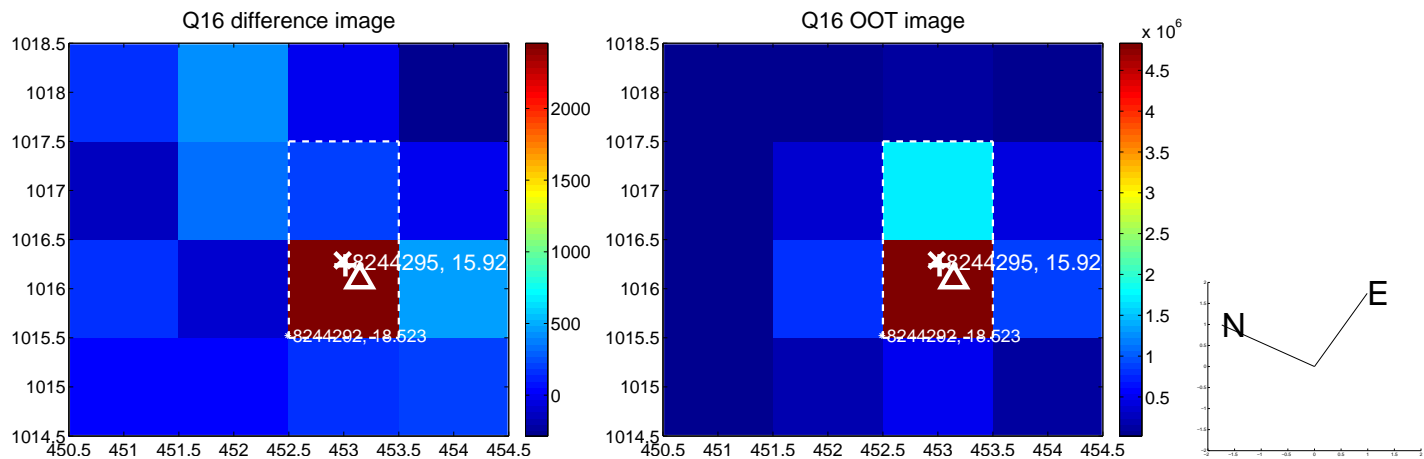
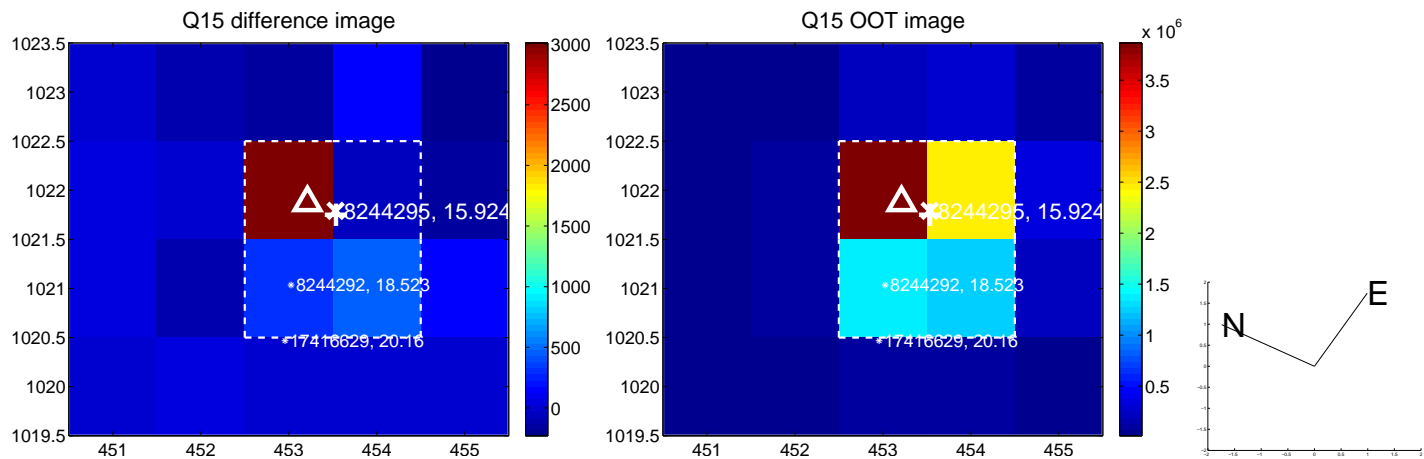
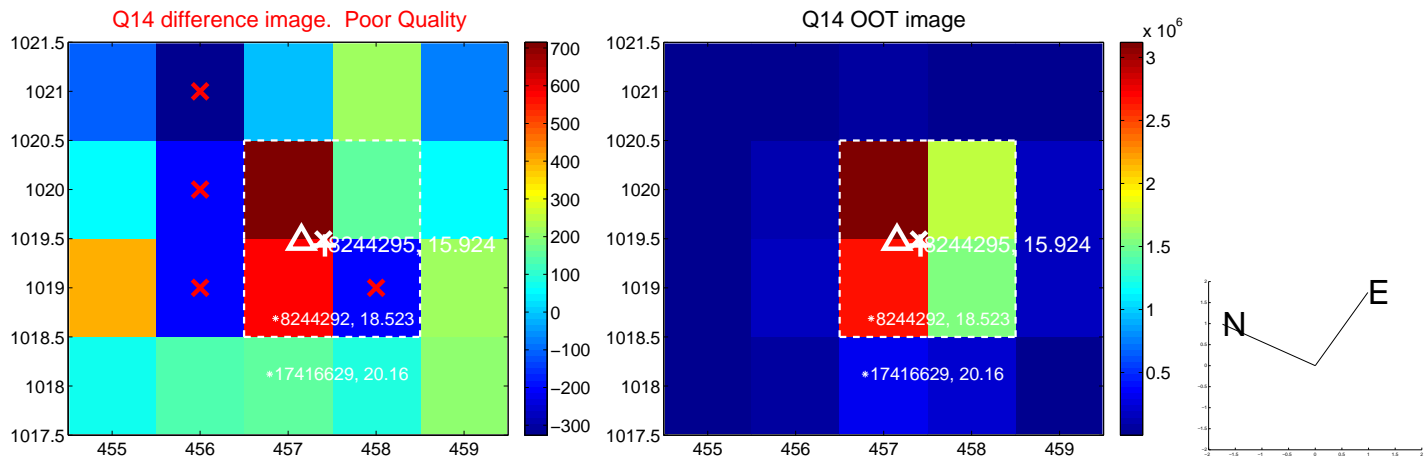
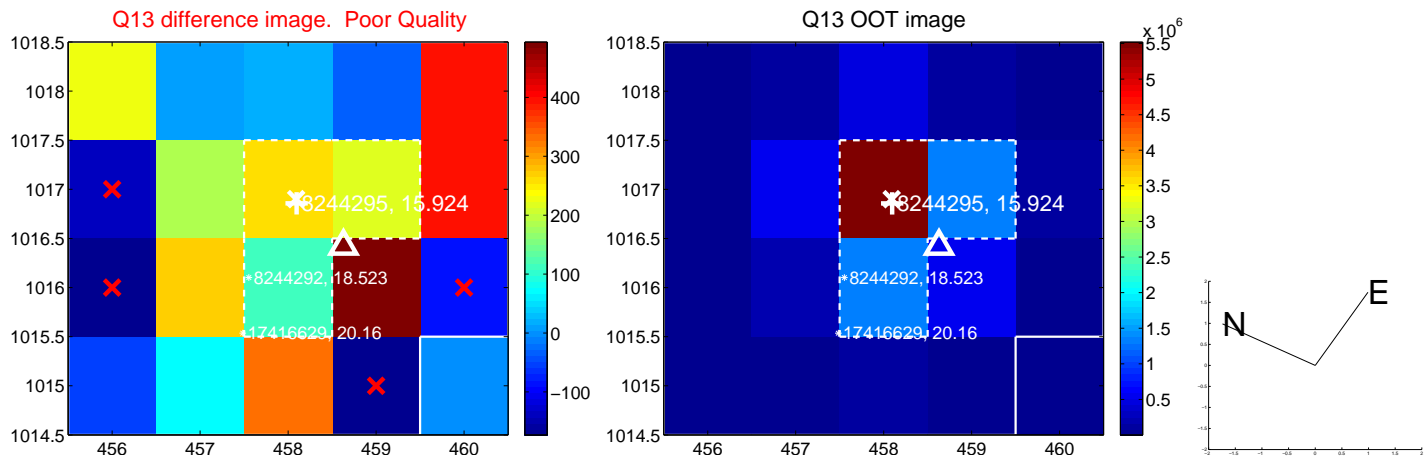




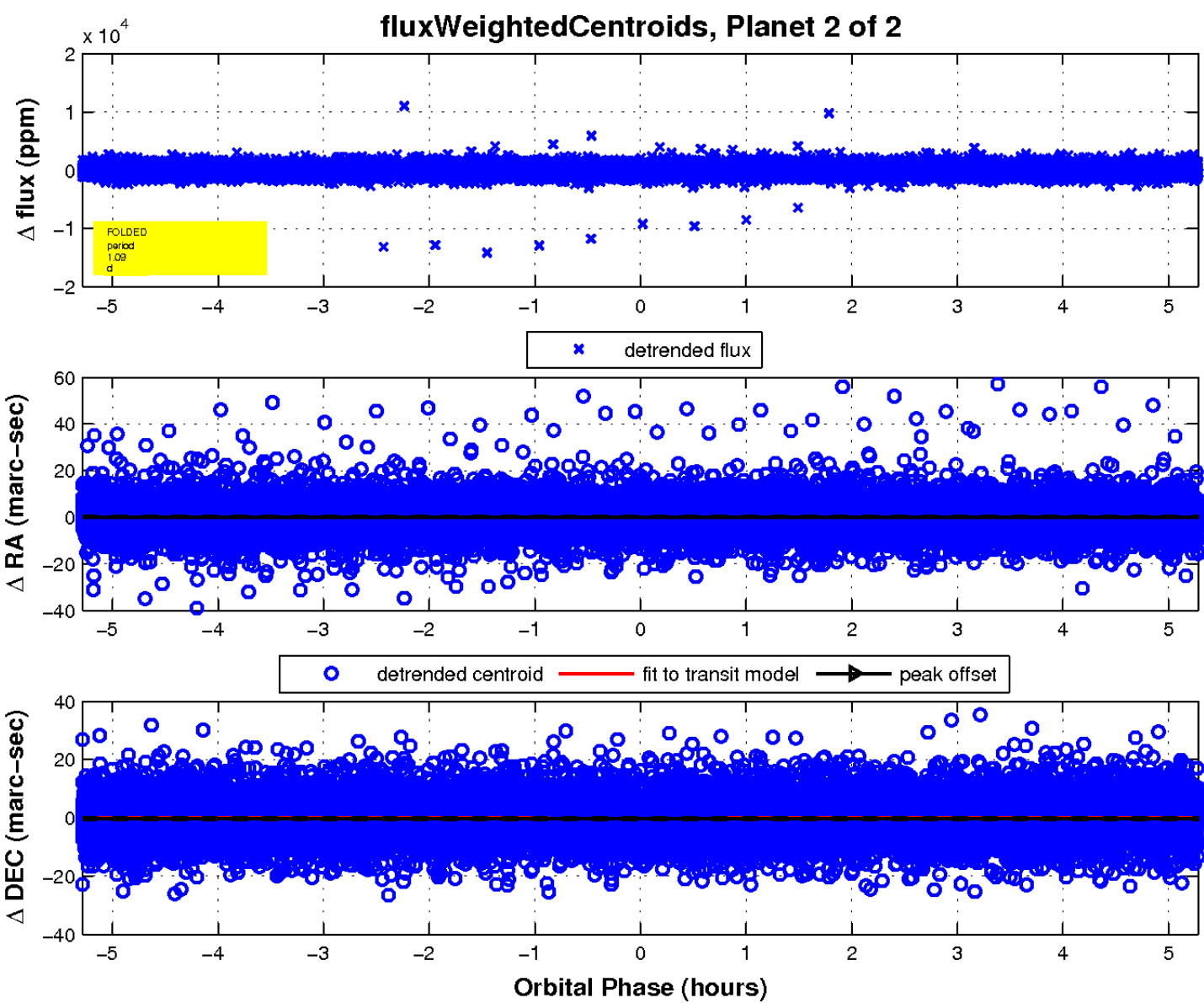
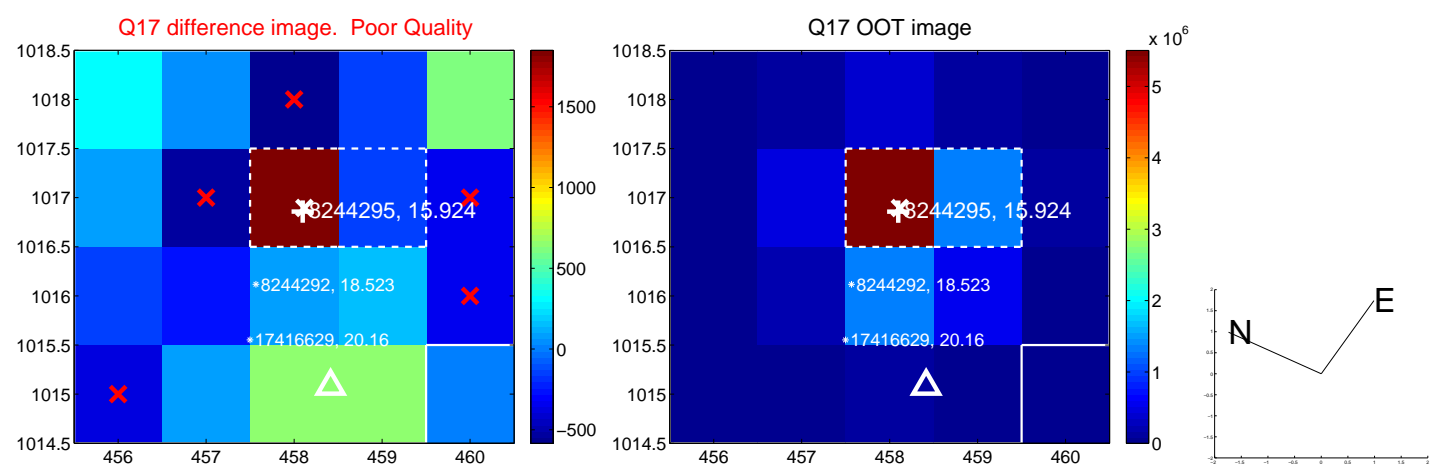
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

