

# KIC 003834322

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003834322-01	OBS	2763.01	0.996868	132.071992	222.0	1.014	13.9	17.9	0.71	4784	1.31	741.13
003834322-02	OBS	No	0.996866	131.573220	180.2	1.146	13.6	15.8	0.71	4784	1.18	741.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003834322-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003834322-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

**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 003834322-01

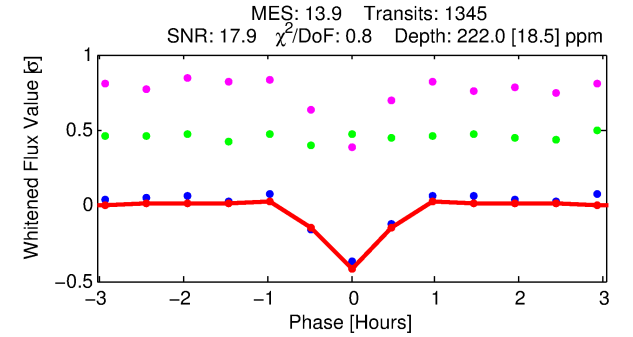
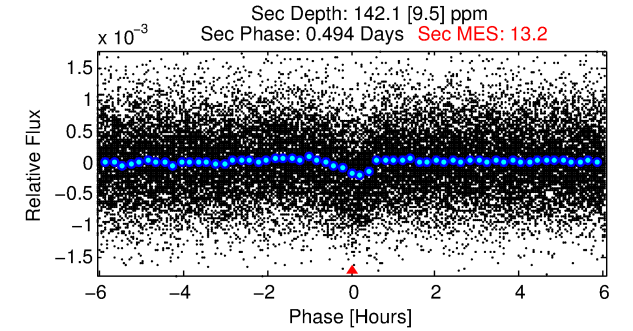
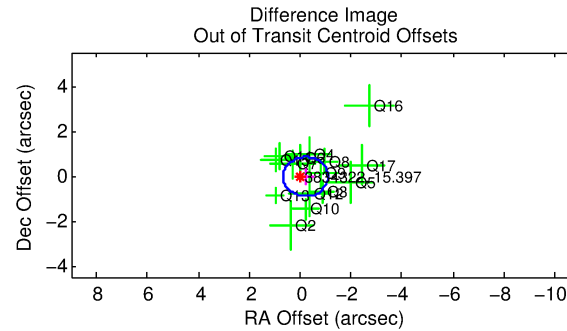
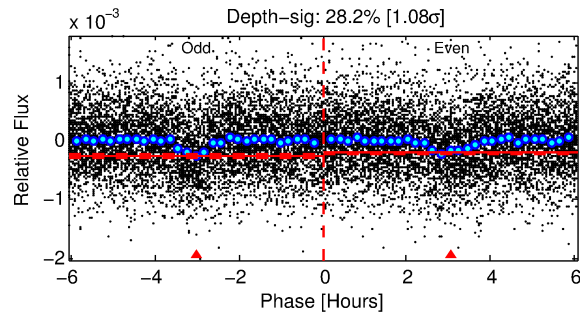
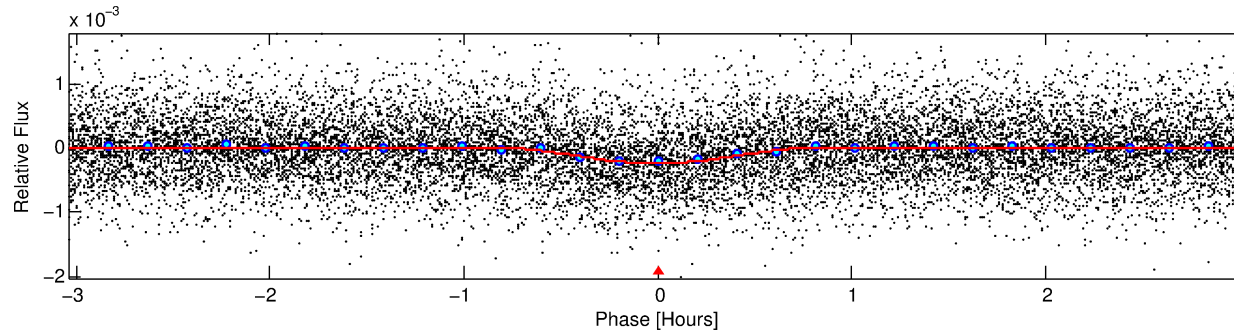
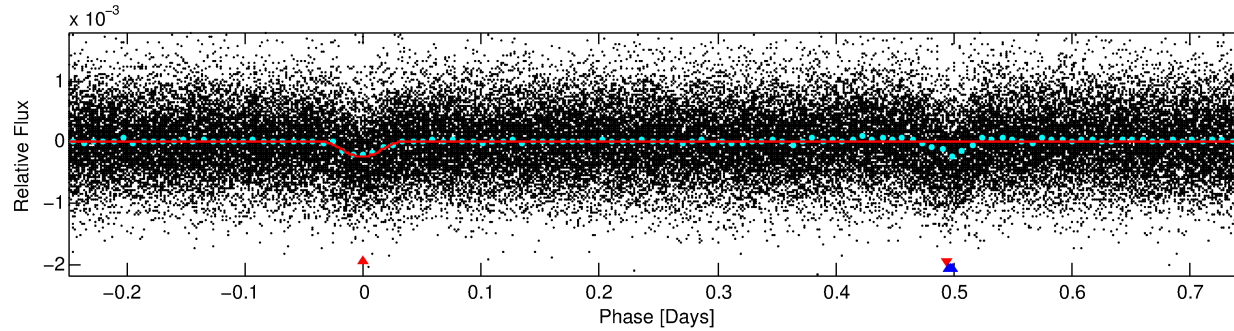
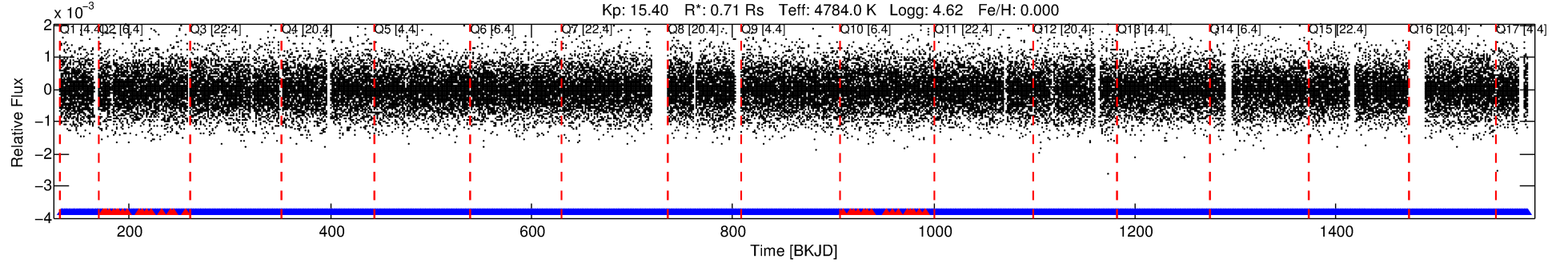
No Significant Match Found

# DV One-Page Summary

KIC: 3834322 Candidate: 1 of 2 Period: 0.997 d

KOI: K02763 Corr: No Ephemeris Match

Kp: 15.40 R\*: 0.71 Rs Teff: 4784.0 K Logg: 4.62 Fe/H: 0.000



## DV Fit Results:

Period = 0.99687 [0.00001] d  
Epoch = 132.0720 [0.0009] BKJD  
Rp/R\* = 0.0170 [0.0087]  
a/R\* = 3.65 [6.53]  
b = 0.90 [0.41]  
Seff = 741.14 [116.08]  
Teq = 1330 [52] K  
Rp = 1.31 [0.68] Re  
a = 0.0178 [0.0013] AU  
Ag = 14.39 [14.76] [0.91σ]  
Teff = 4007 [1029] K [2.60σ]

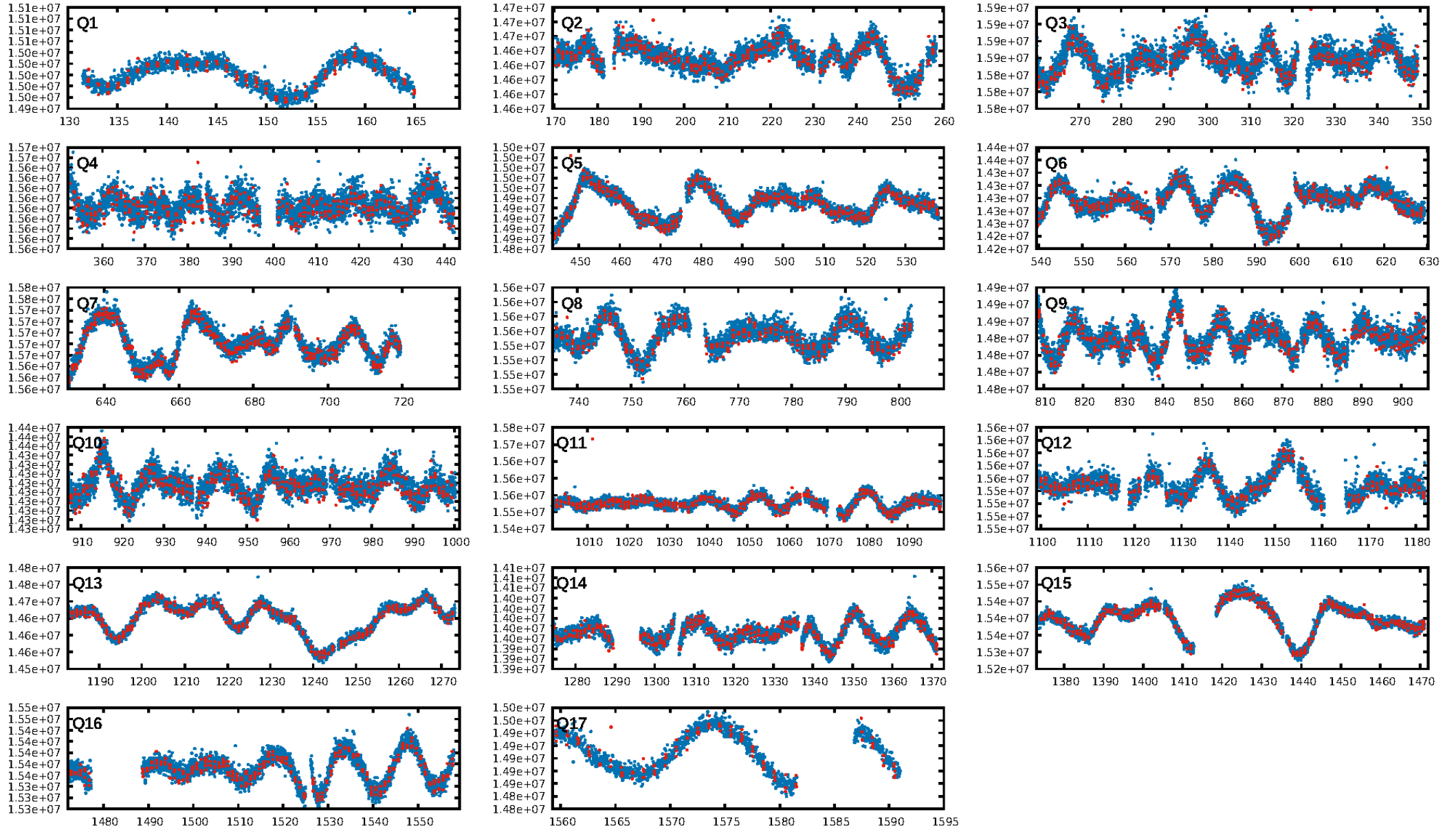
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.61e-43  
RollingBand-fgt: 0.97 [1250/1284]  
GhostDiagnostic-chr: 1.313  
Centroid-sig: 24.9%  
Centroid-so: 0.607 arcsec [0.77σ]  
OotOffset-rm: 0.213 arcsec [0.73σ]  
KicOffset-rm: 0.129 arcsec [0.44σ]  
OotOffset-st: 3/4/4/4 [15]  
KicOffset-st: 3/4/4/4 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 1.00 [17/17]

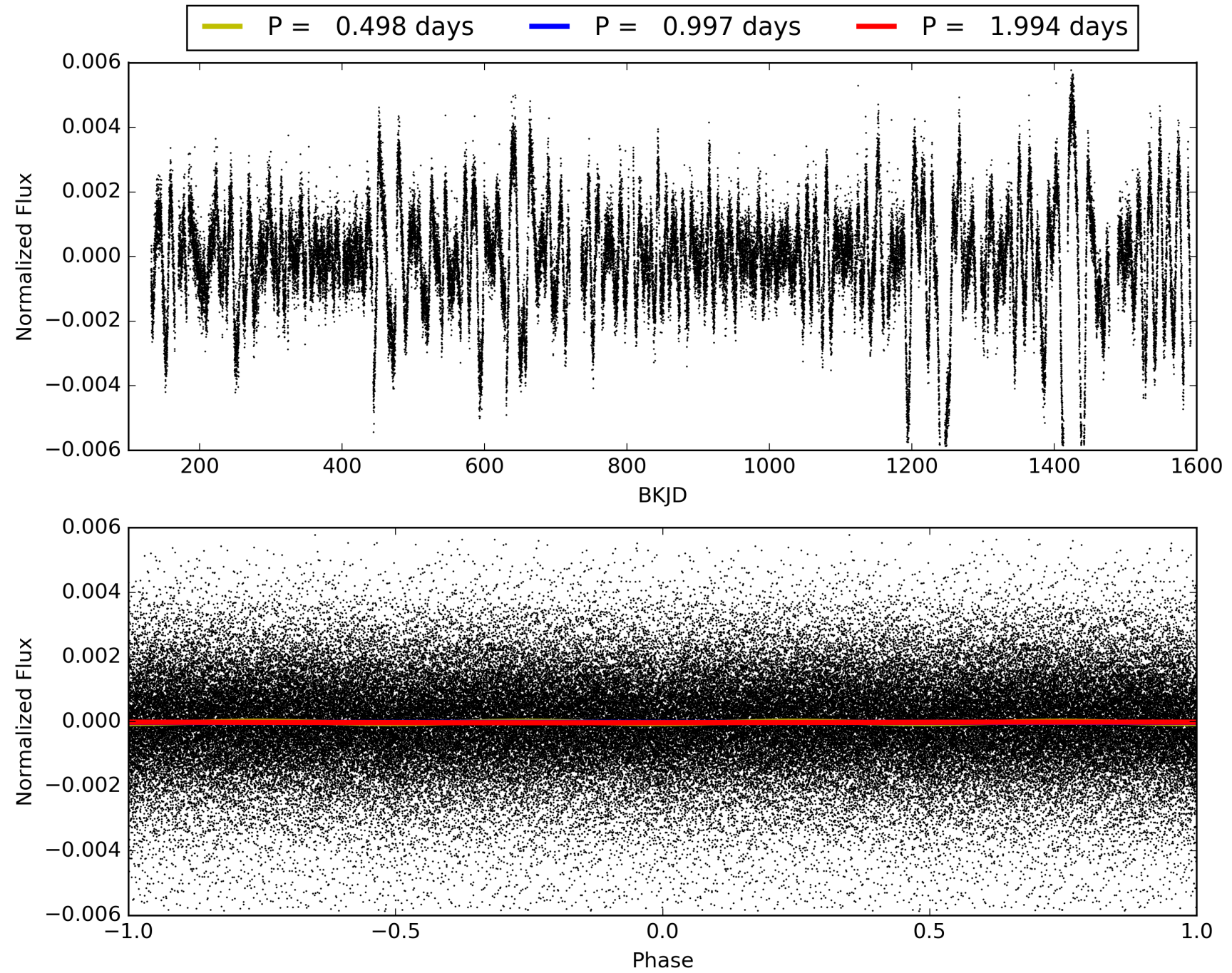
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:19:54 Z

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

# TCE 003834322-01, PDC Light Curves



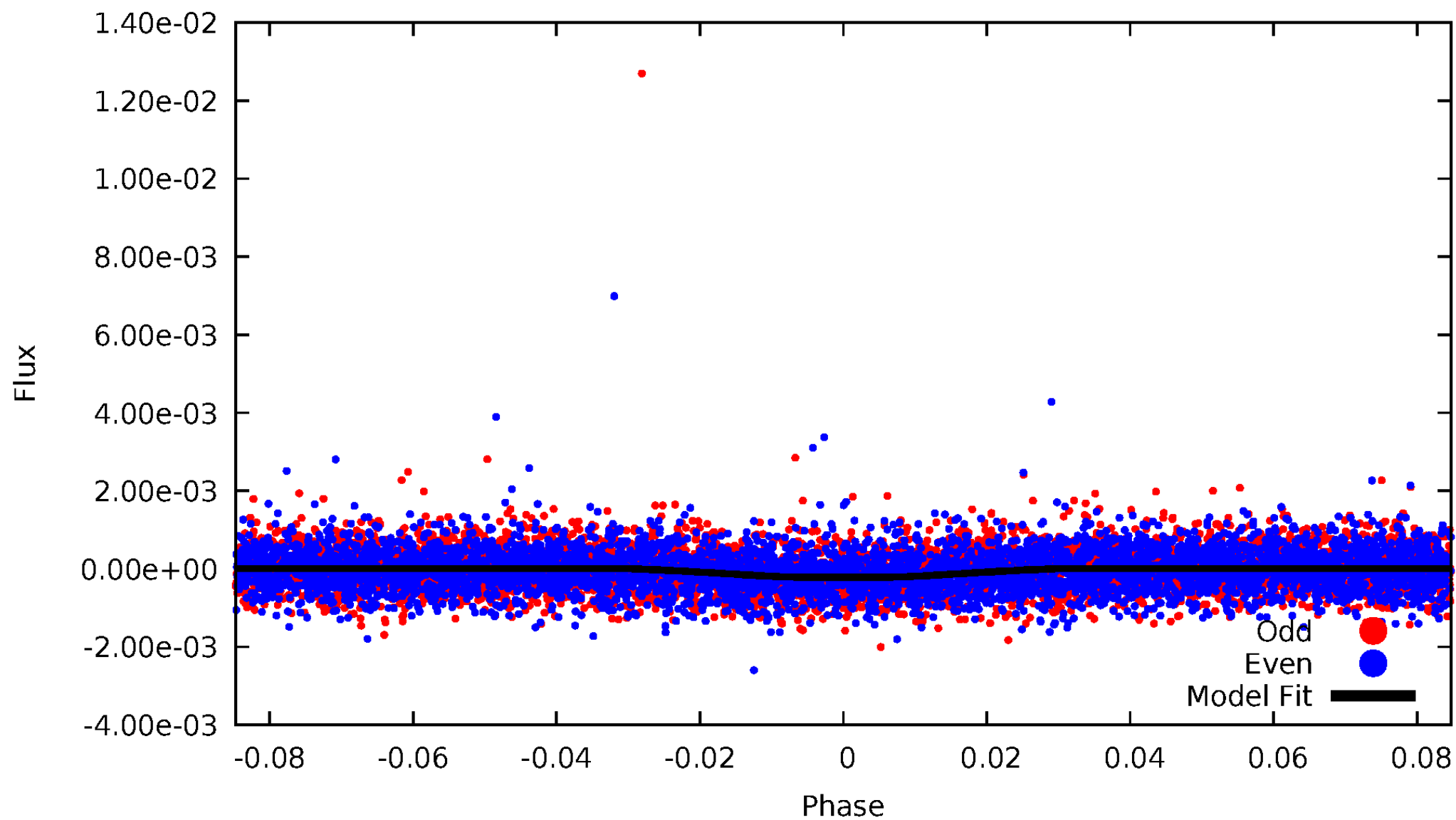
TCE 003834322-01





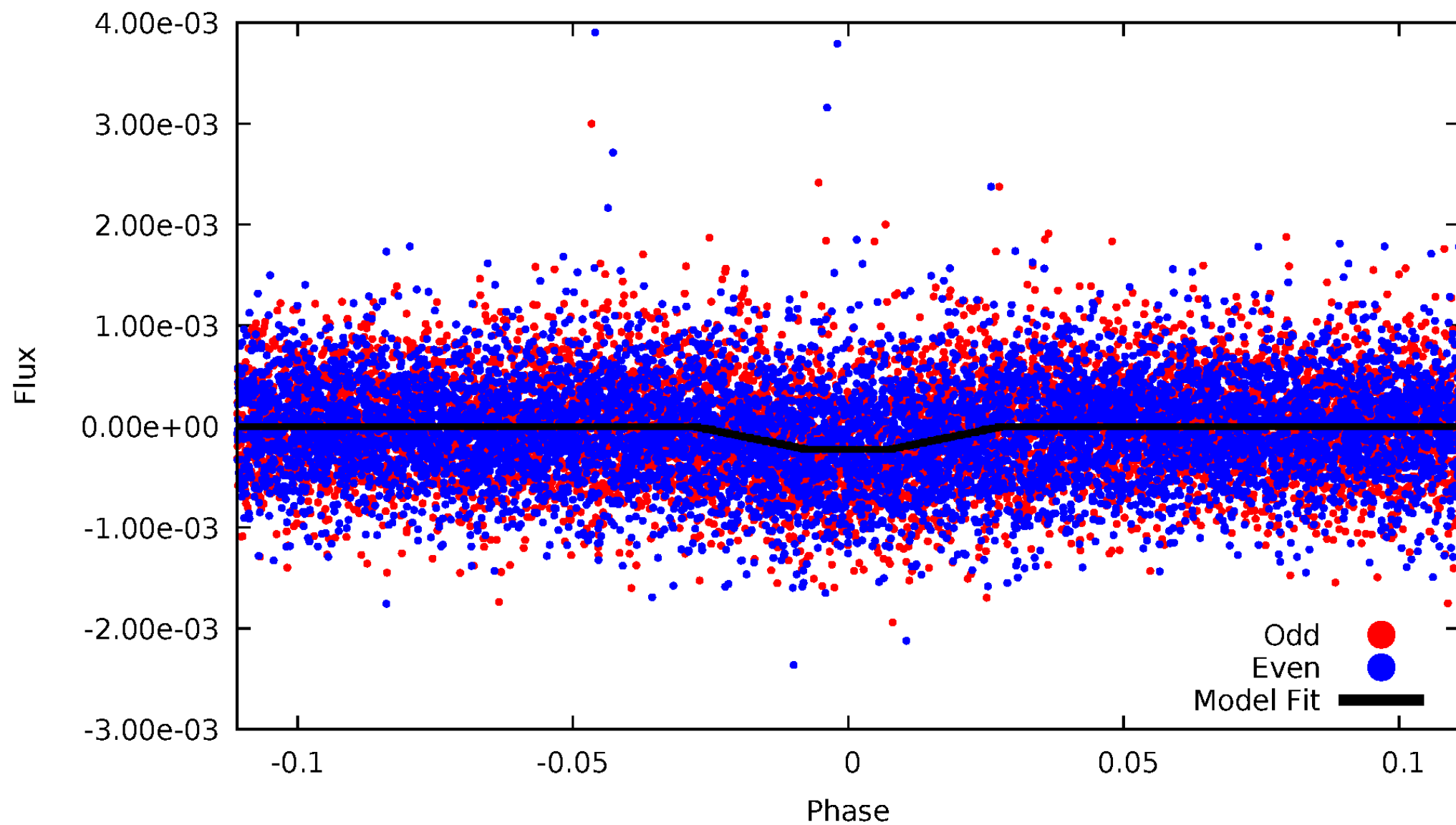
# DV Odd/Even

TCE 003834322-01

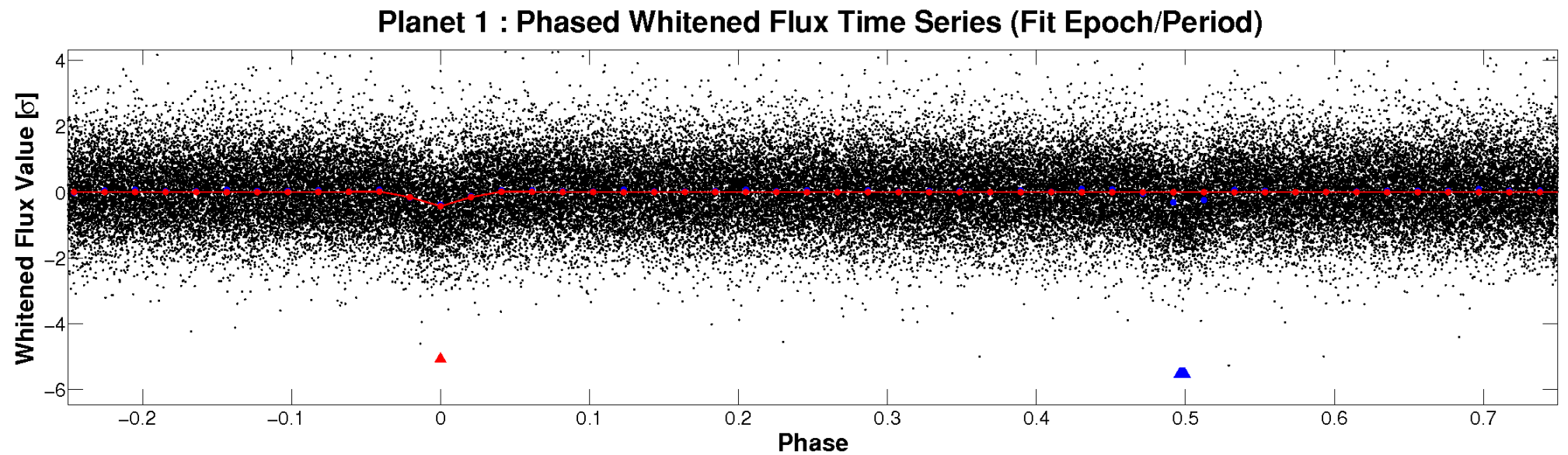
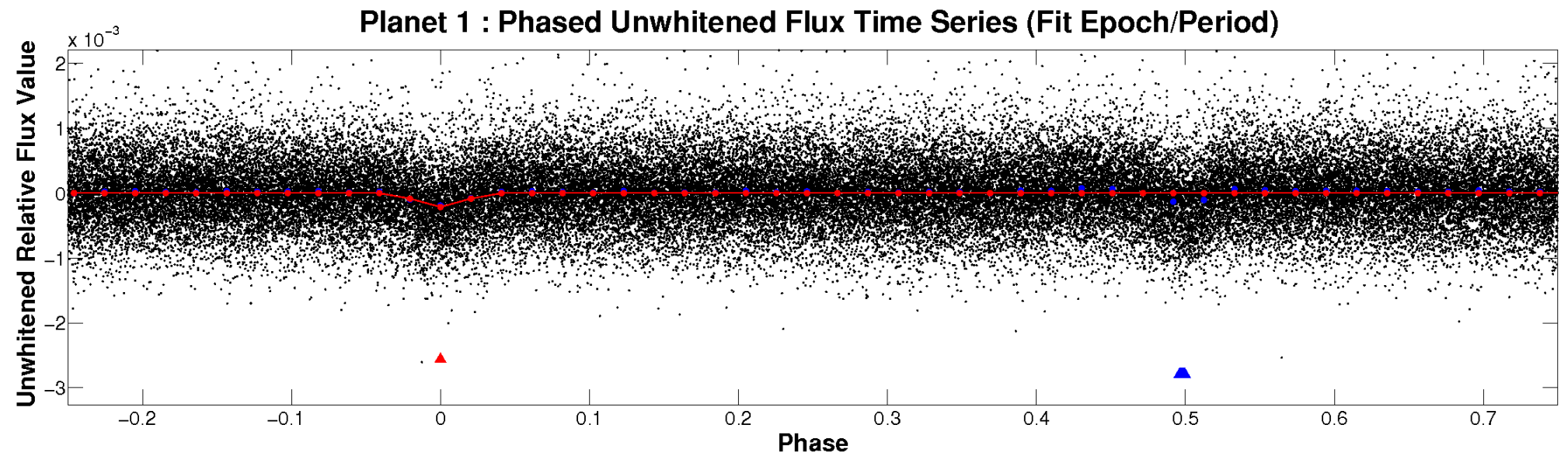


# ALT Odd/Even

TCE 003834322-01

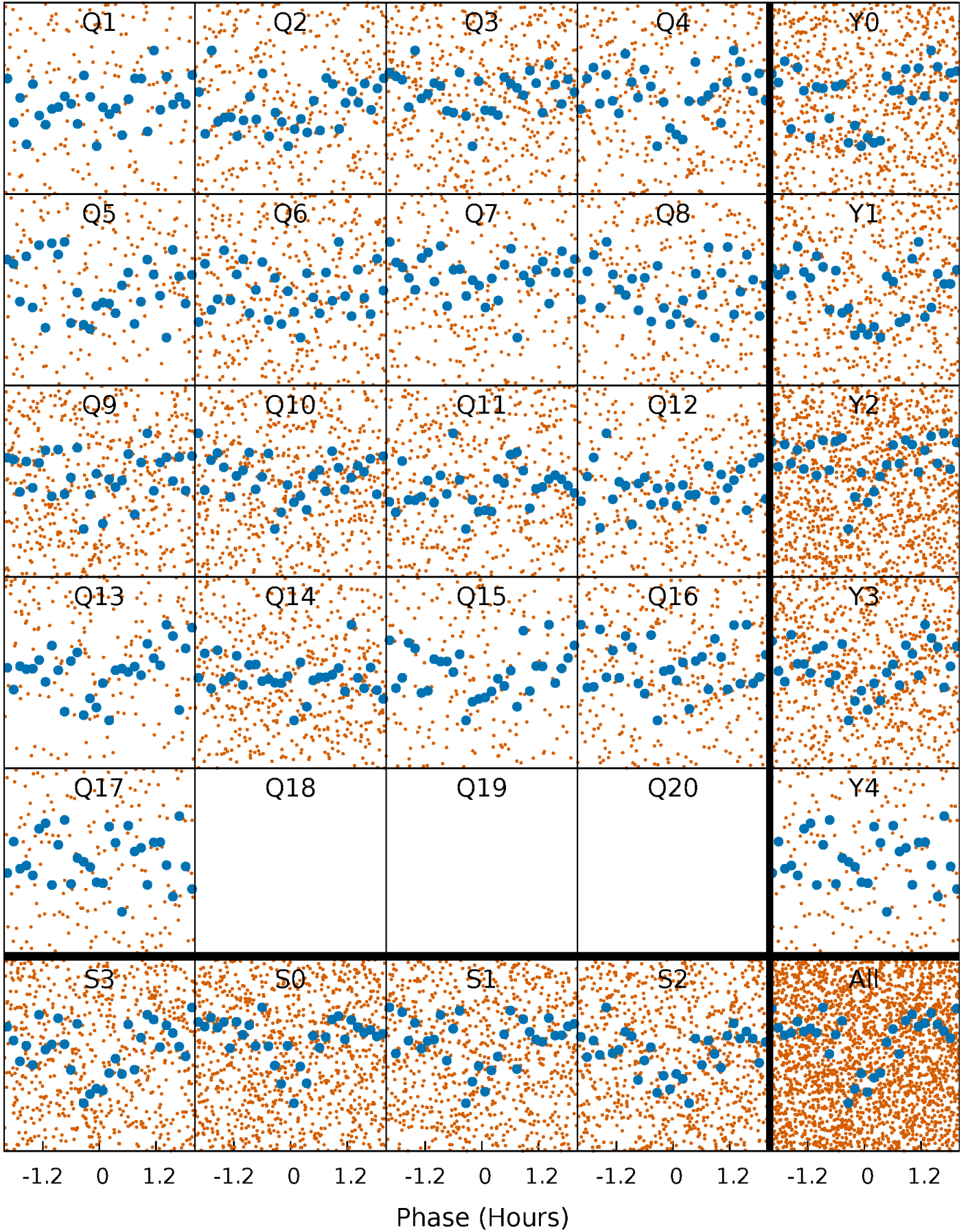


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

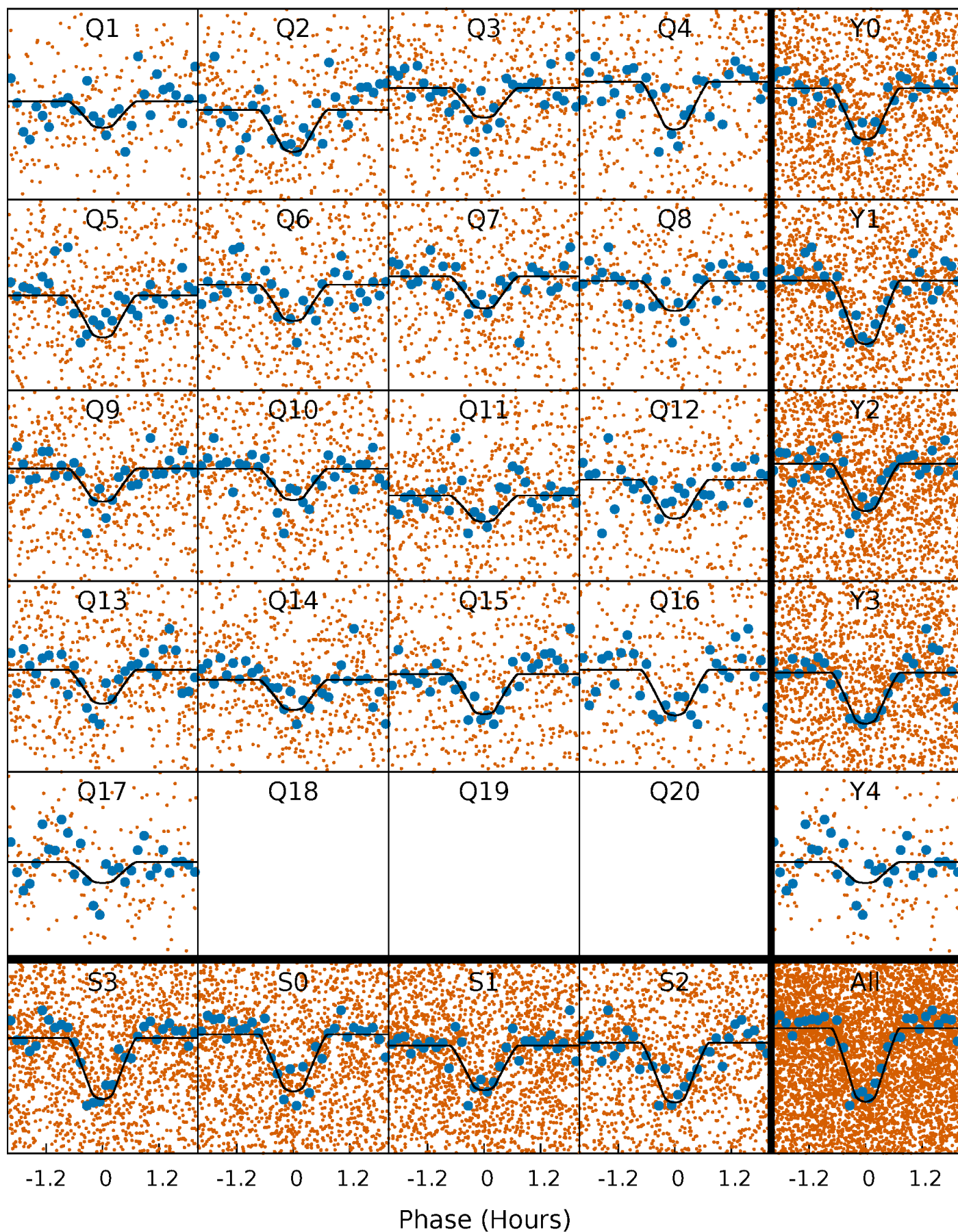
TCE 003834322-01   P= 0.996868 Days    $T_0=132.071992$  (BKJD)





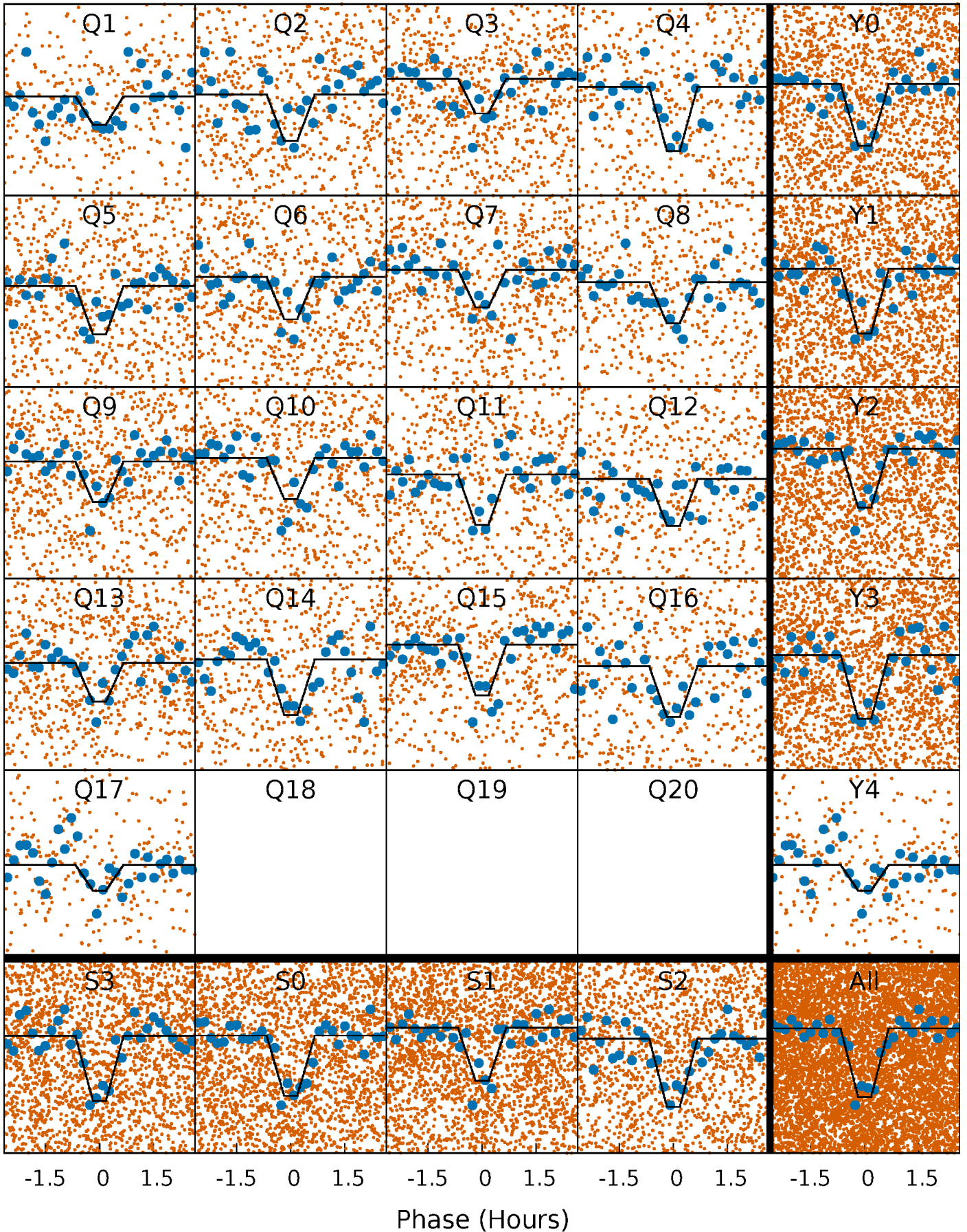
# DV Quarter-Phased Transit Curves

TCE 003834322-01 P= 0.996868 Days  $T_0=132.071992$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

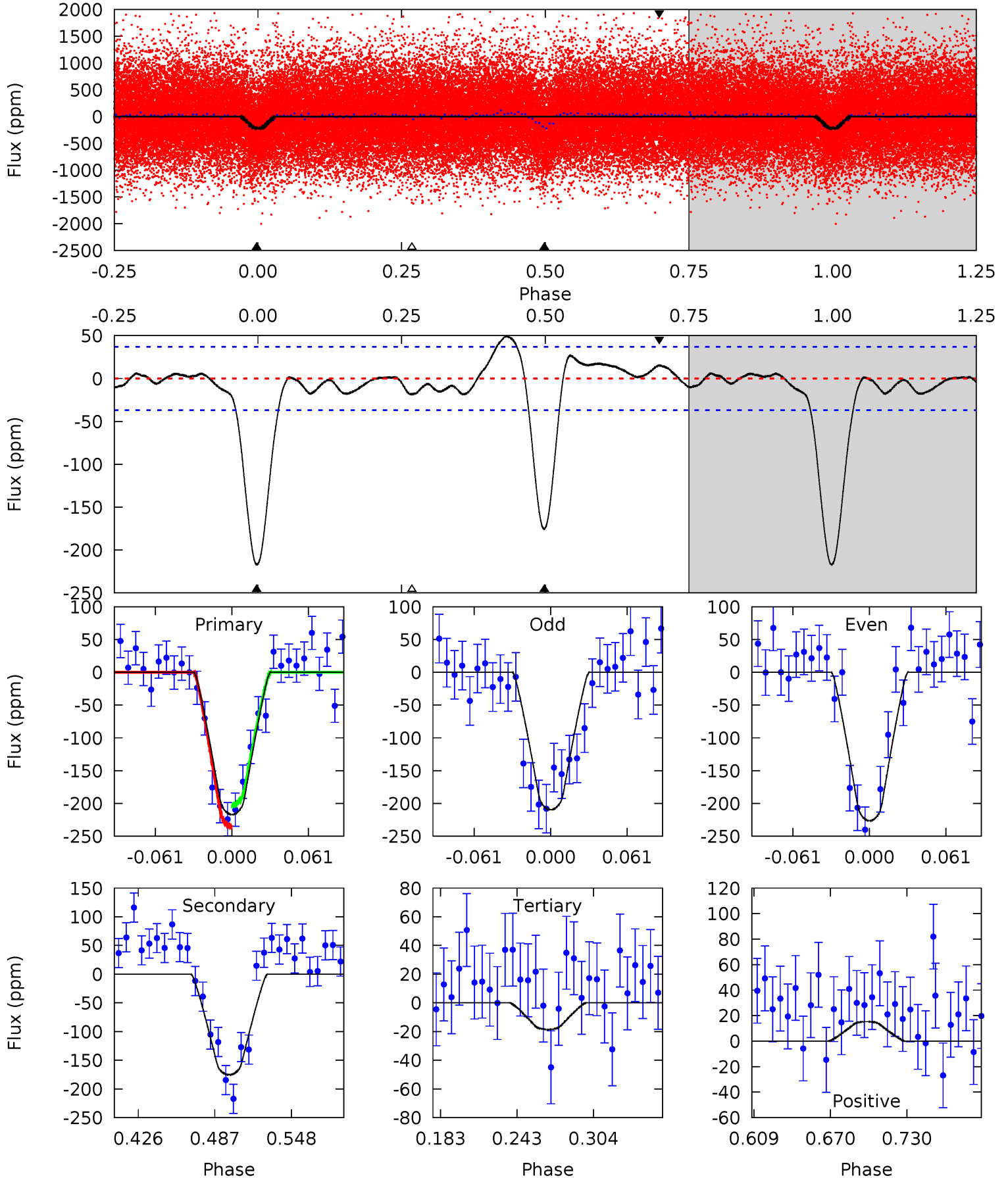
TCE 003834322-01 P= 0.996866 Days  $T_0=132.071743$  (BKJD)



# DV Model-Shift Uniqueness Test

003834322-01, P = 0.996868 Days, E = 131.075124 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
27.4	22.2	2.34	1.93	4.67	1.87	1.65	25.1	25.5	19.8	20.2	1.07	0.94	0.19	2.07

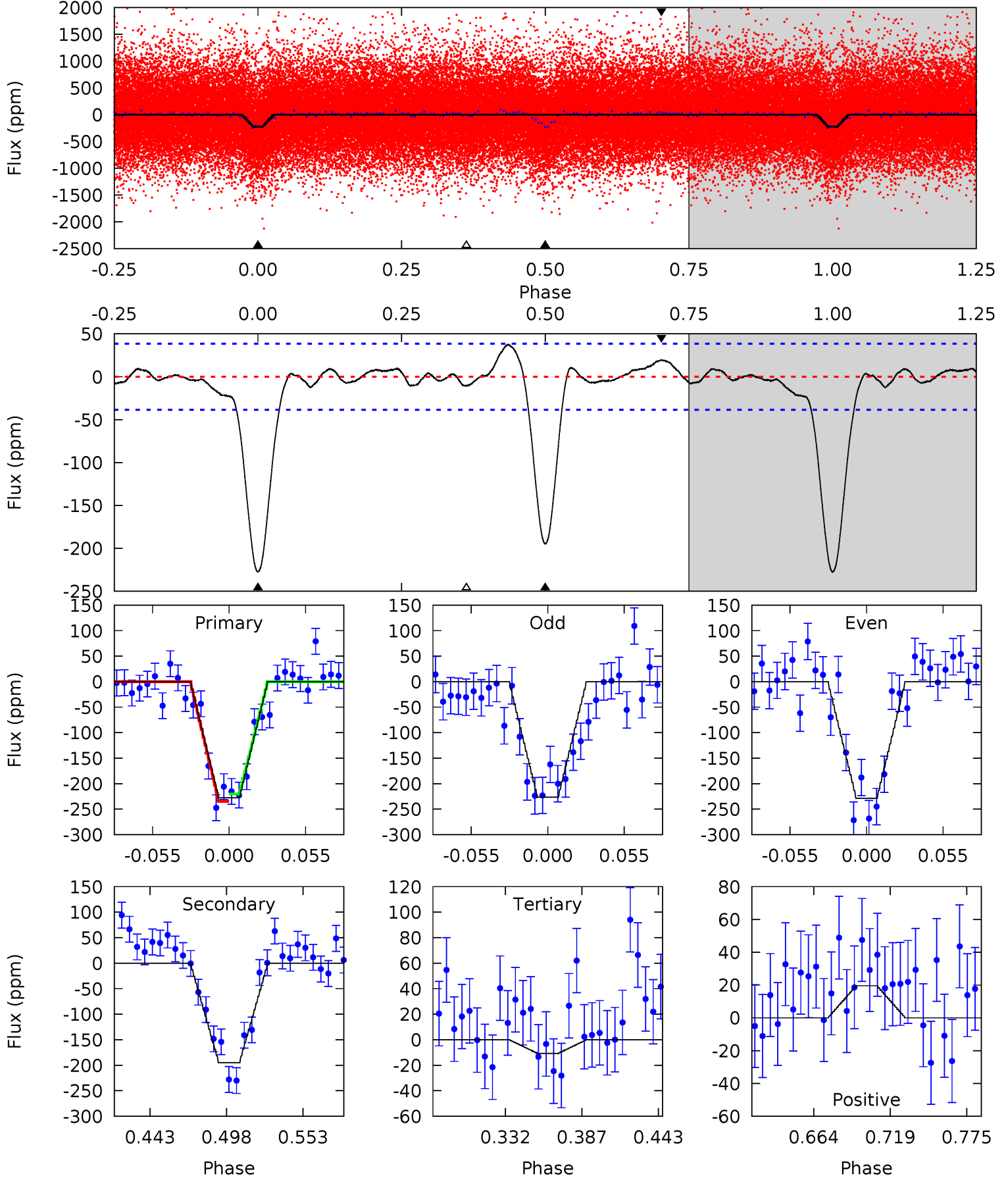




# Alt Model-Shift Uniqueness Test

003834322-01, P = 0.996866 Days, E = 131.074877 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
27.8	23.8	1.30	2.39	4.69	1.92	1.18	26.5	25.4	22.5	21.4	0.14	0.88	0.14	0.87





### Stellar Parameters For KIC 003834322

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4784^{+129}_{-143}$	$4.618^{+0.028}_{-0.052}$	$0.000^{+0.300}_{-0.300}$	$0.708^{+0.066}_{-0.054}$	$0.766^{+0.053}_{-0.070}$	$3.043^{+0.453}_{-0.573}$
	+3%/-3%	+1%/-1%	+inf%/-inf%	+9%/-8%	+7%/-9%	+15%/-19%
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 003834322-01 / KOI 2763.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-175 \pm 8$	$1.38^{+0.68}_{-0.65}$	$1868^{+62}_{-59}$	$4266^{+1231}_{-594}$	$16^{+41}_{-9}$
Alt.	$-195 \pm 8$	$1.21^{+0.68}_{-0.58}$	$1872^{+58}_{-59}$	$4585^{+1547}_{-726}$	$23^{+65}_{-13}$

$T_{\text{max}}$  = 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

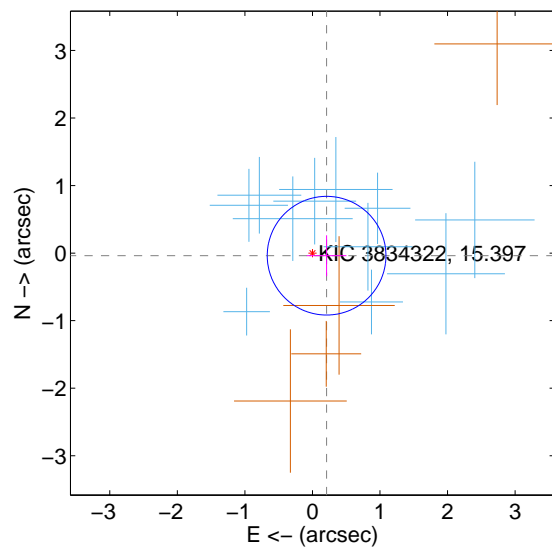
Supplemental centroid analysis for 003834322-01. Kepler magnitude: 15.40. Transit SNR 17.91

There are 11 quarters with good PRF difference image offsets

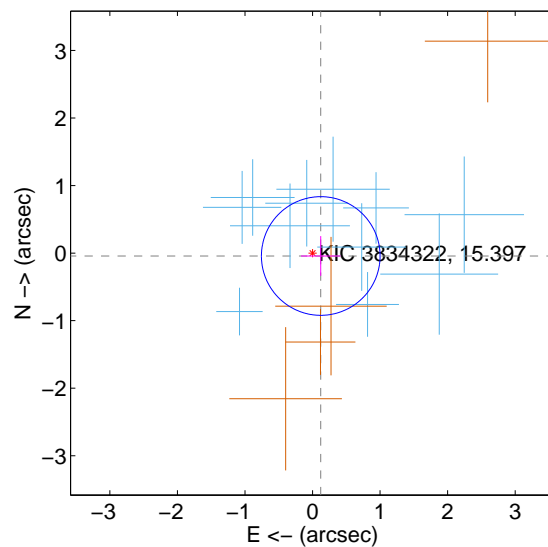
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.213 \pm 0.293$	0.73	$-0.209 \pm 0.292$	$-0.038 \pm 0.303$
PRF-fit source offset from KIC position	$0.129 \pm 0.293$	0.44	$-0.122 \pm 0.292$	$-0.043 \pm 0.294$
photometric centroid source offset	$0.61 \pm 0.79$	0.77	$0.51 \pm 0.81$	$0.33 \pm 0.76$

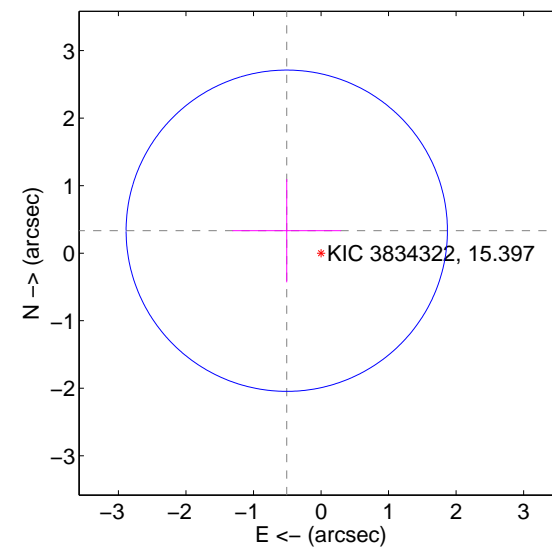
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

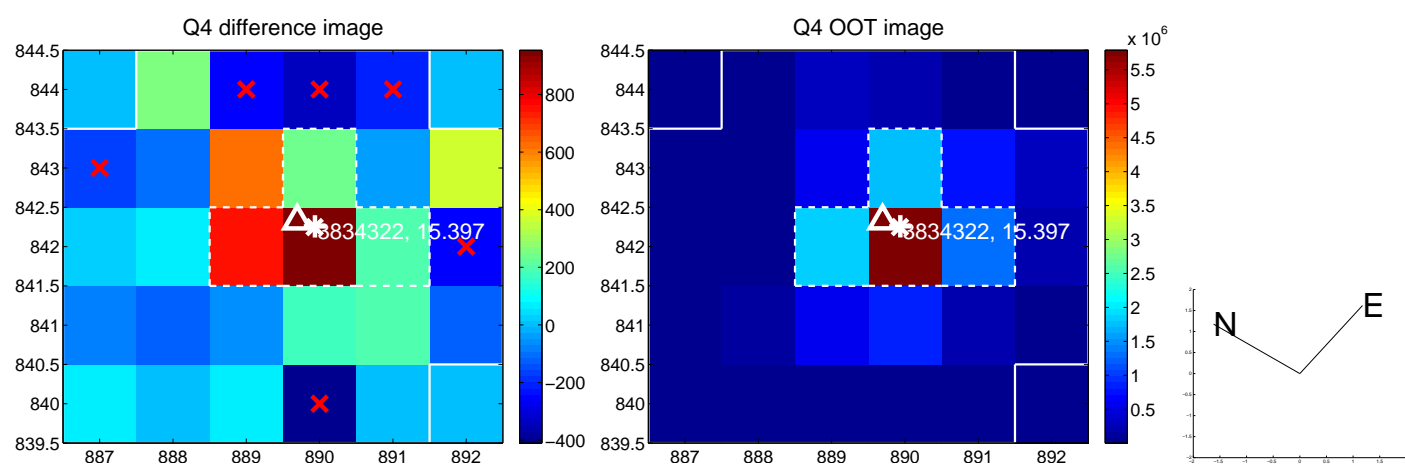
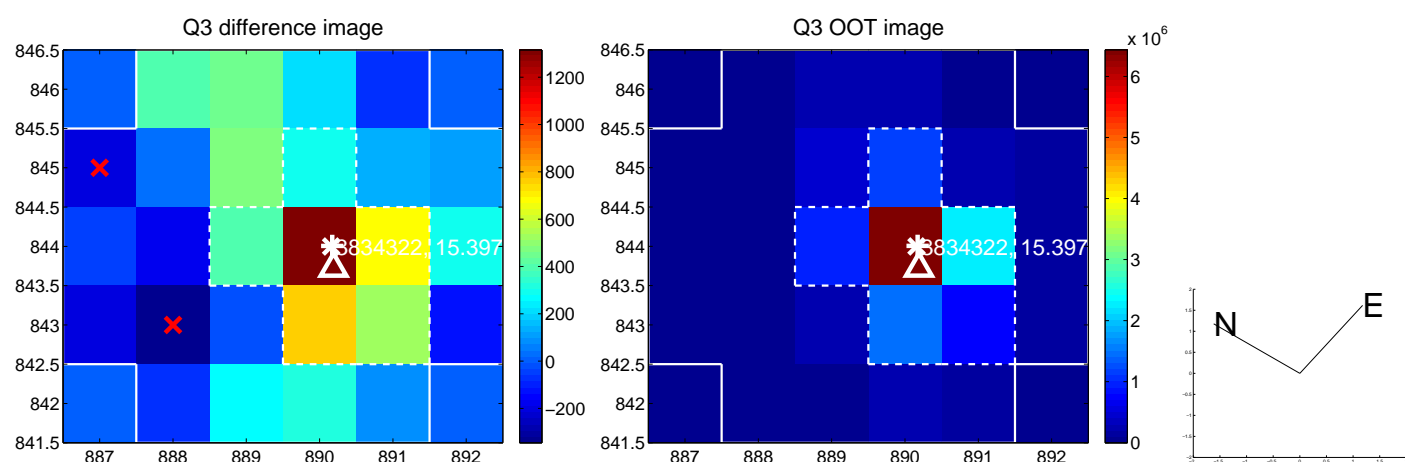
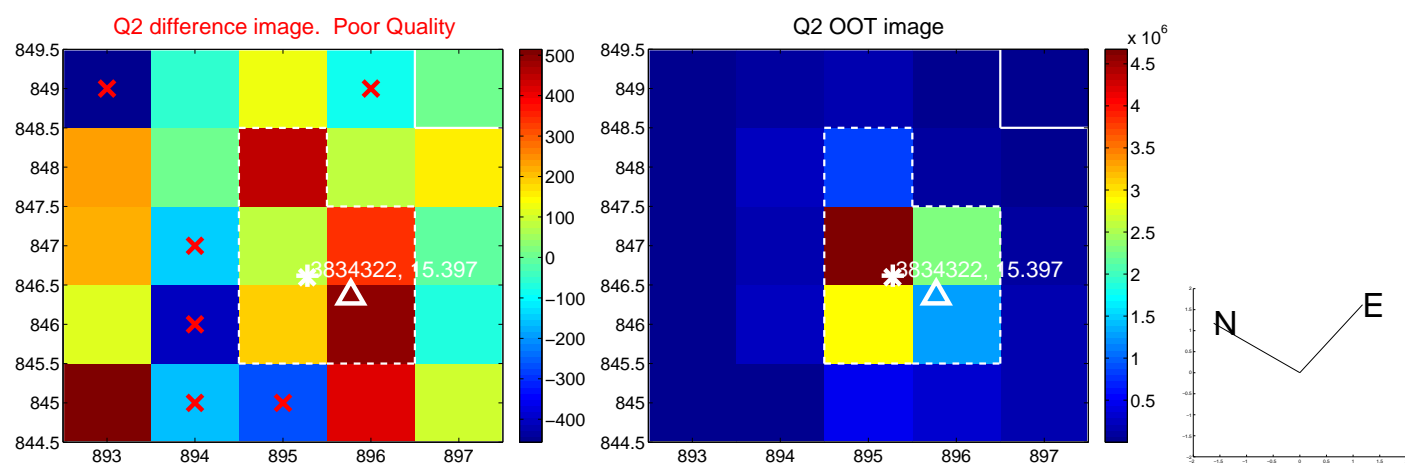
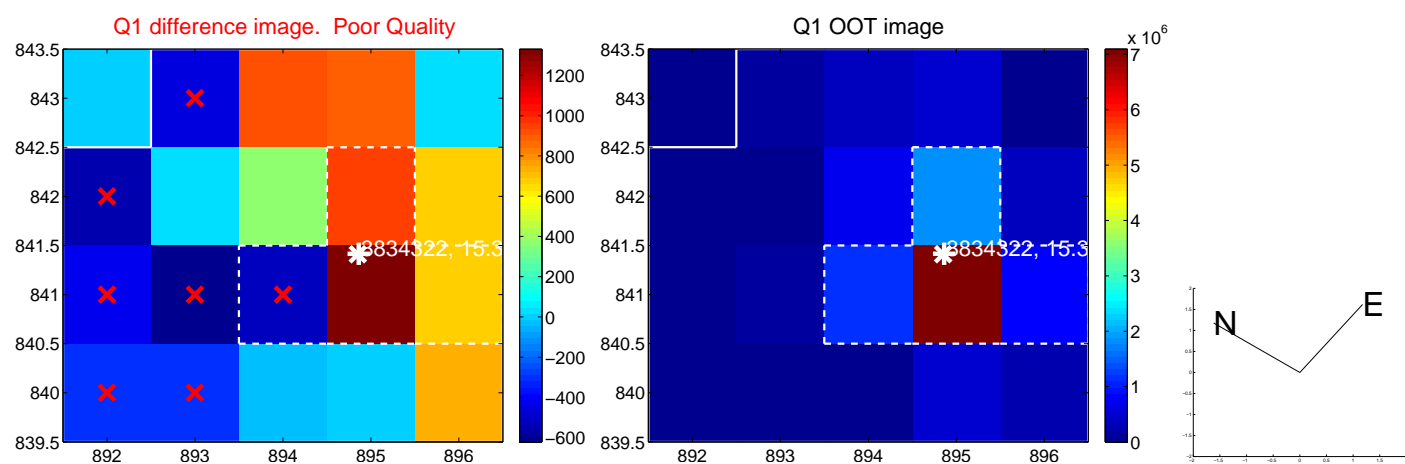


offset from photometric centroids

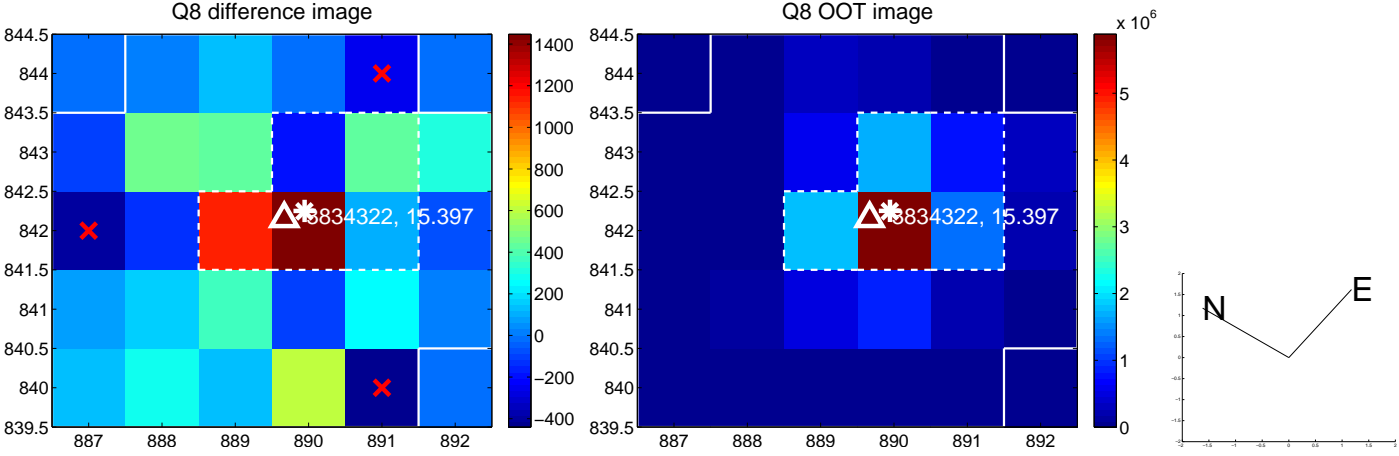
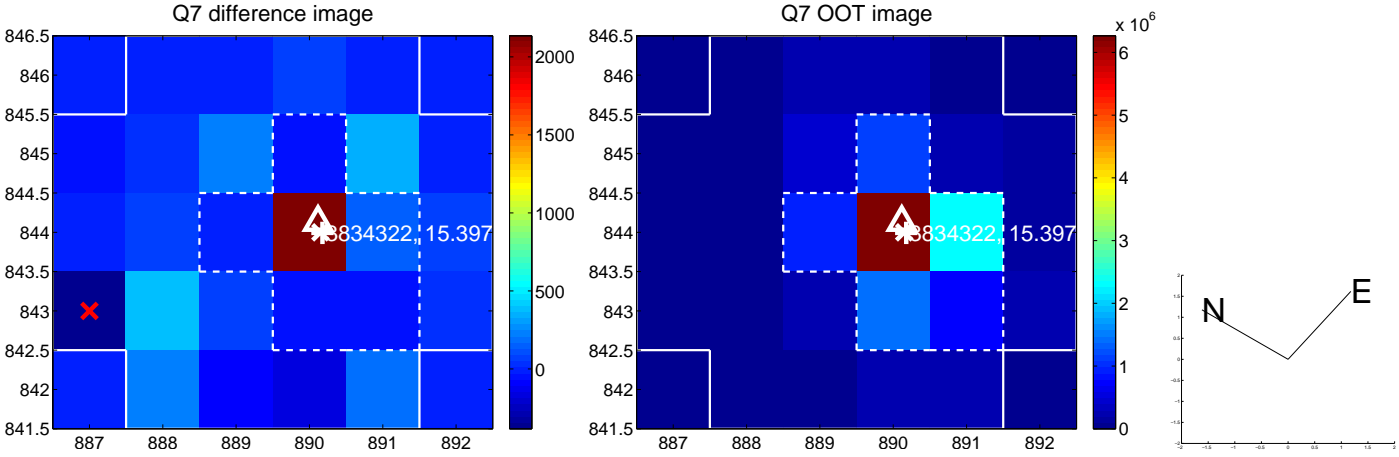
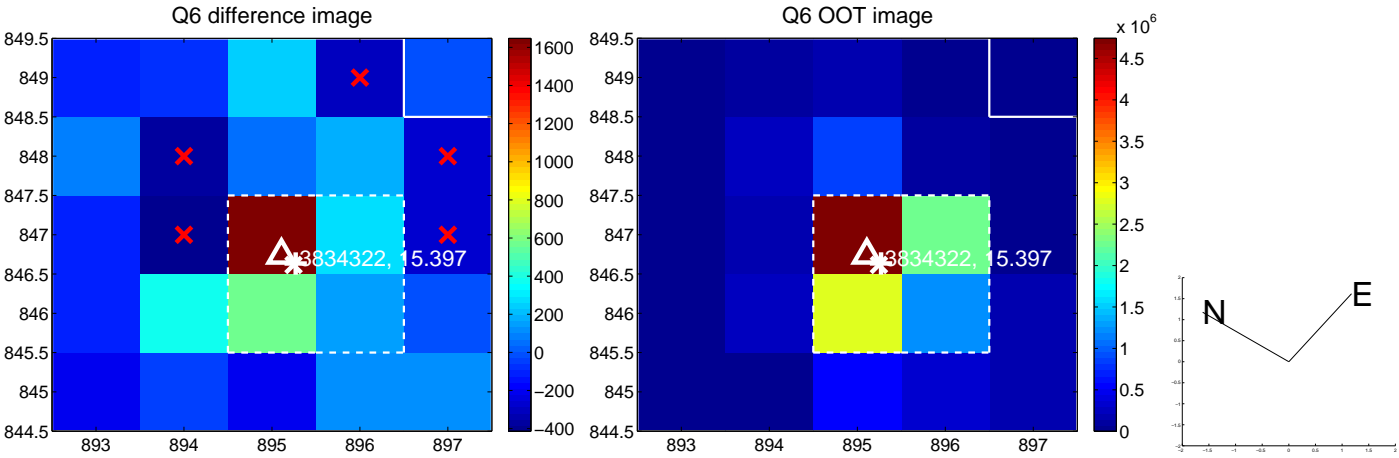
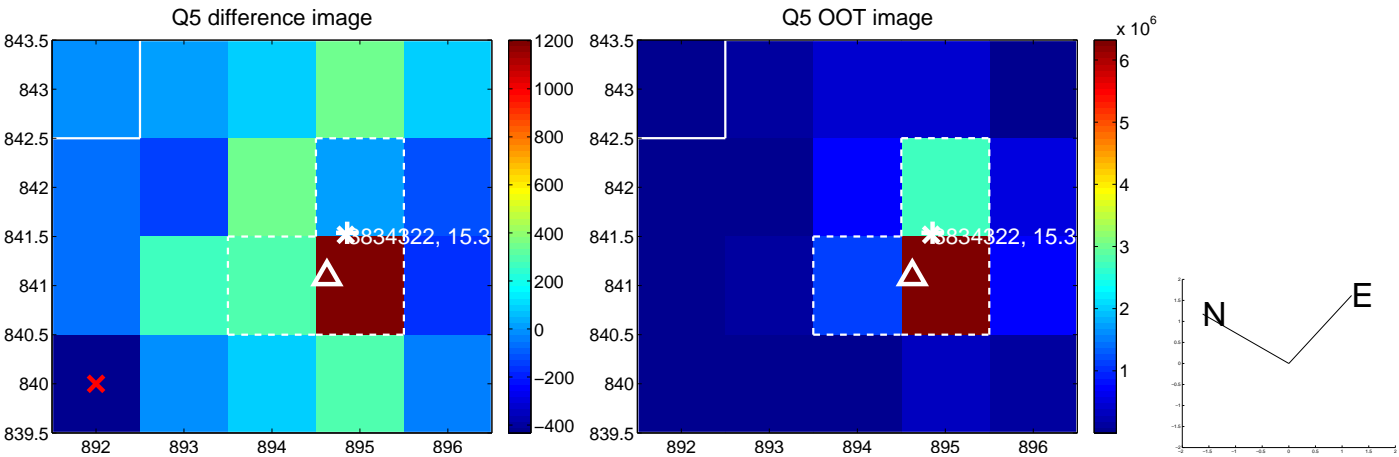


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

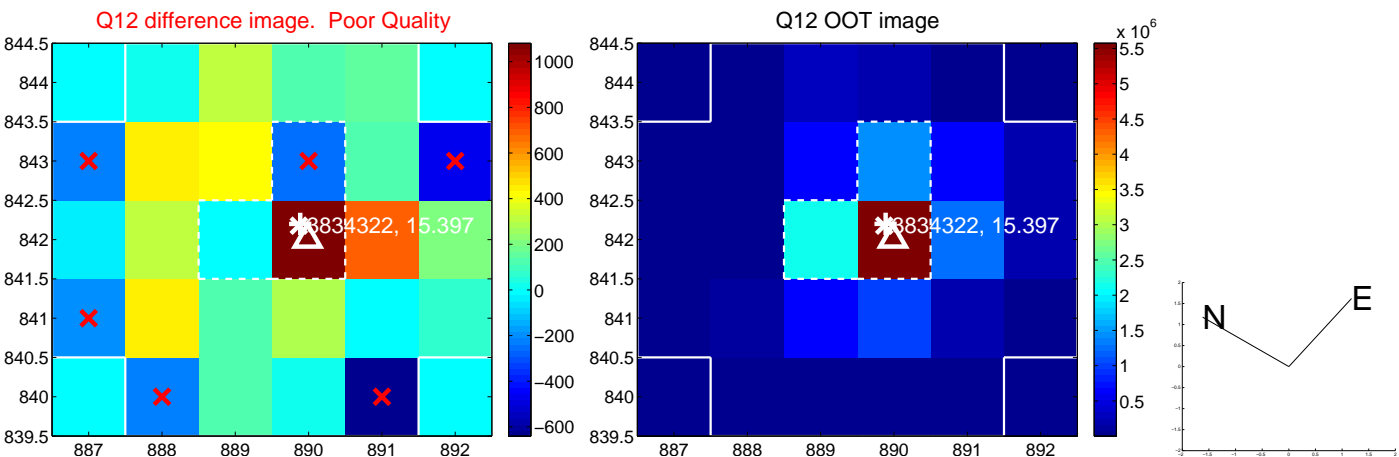
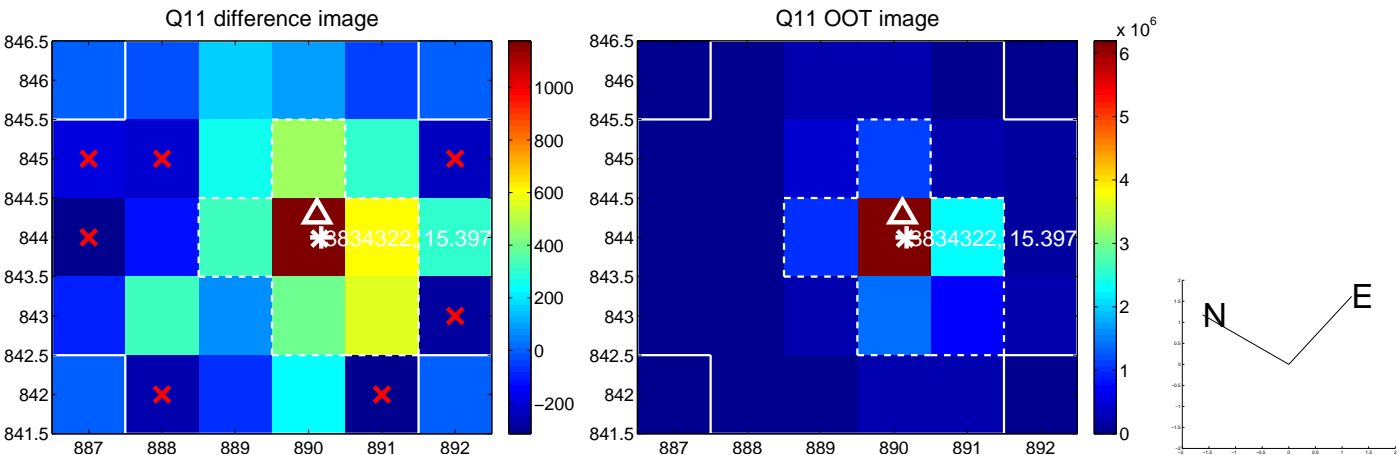
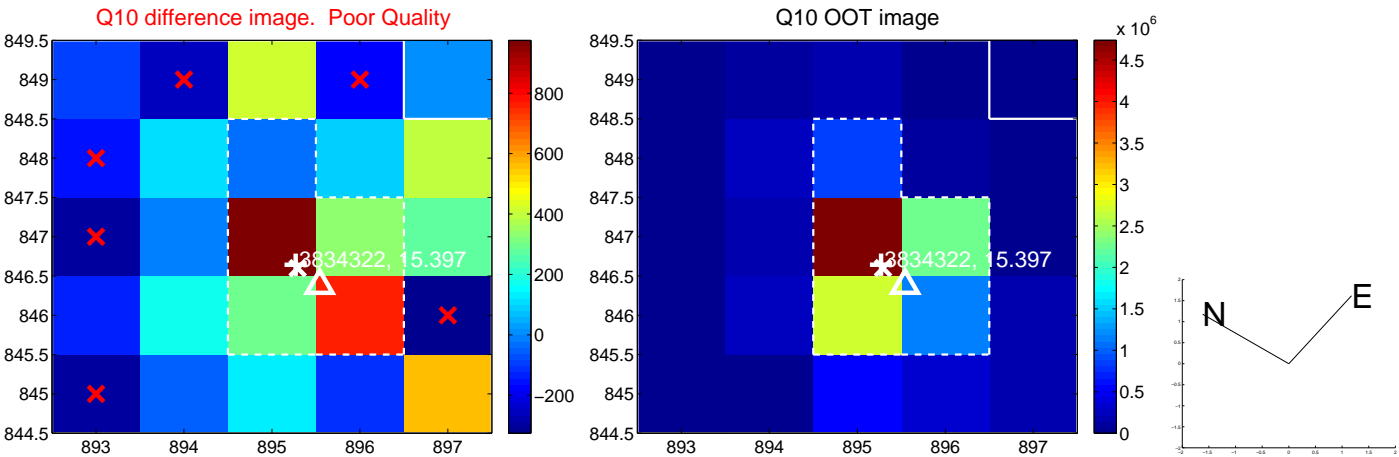
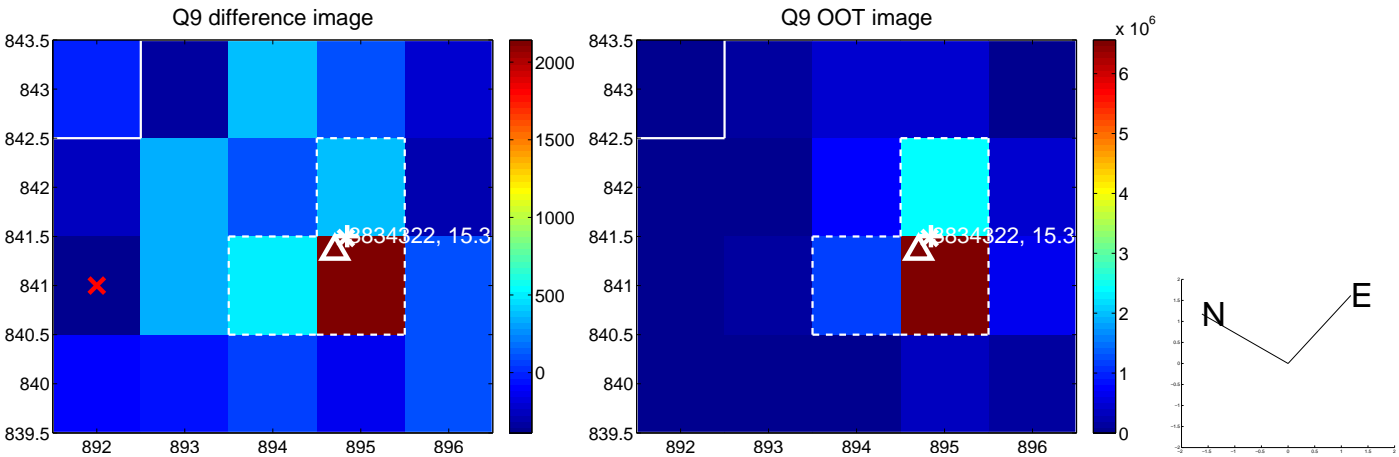


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



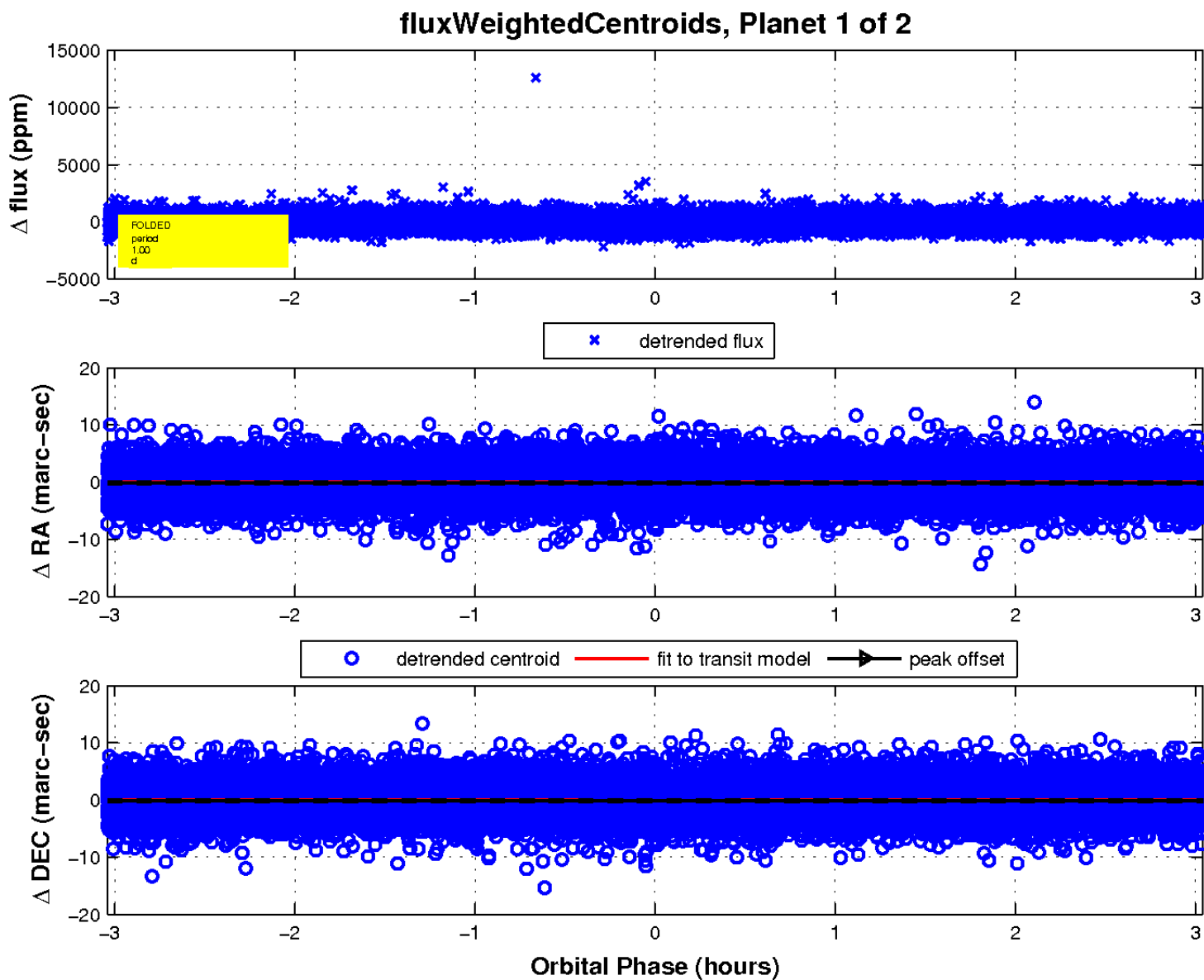
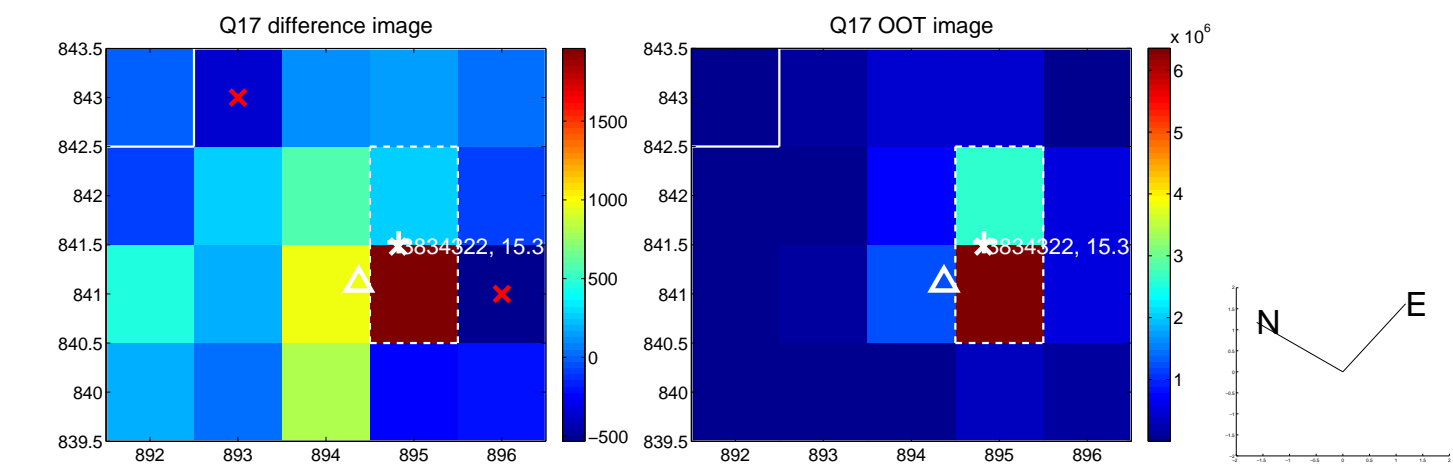


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



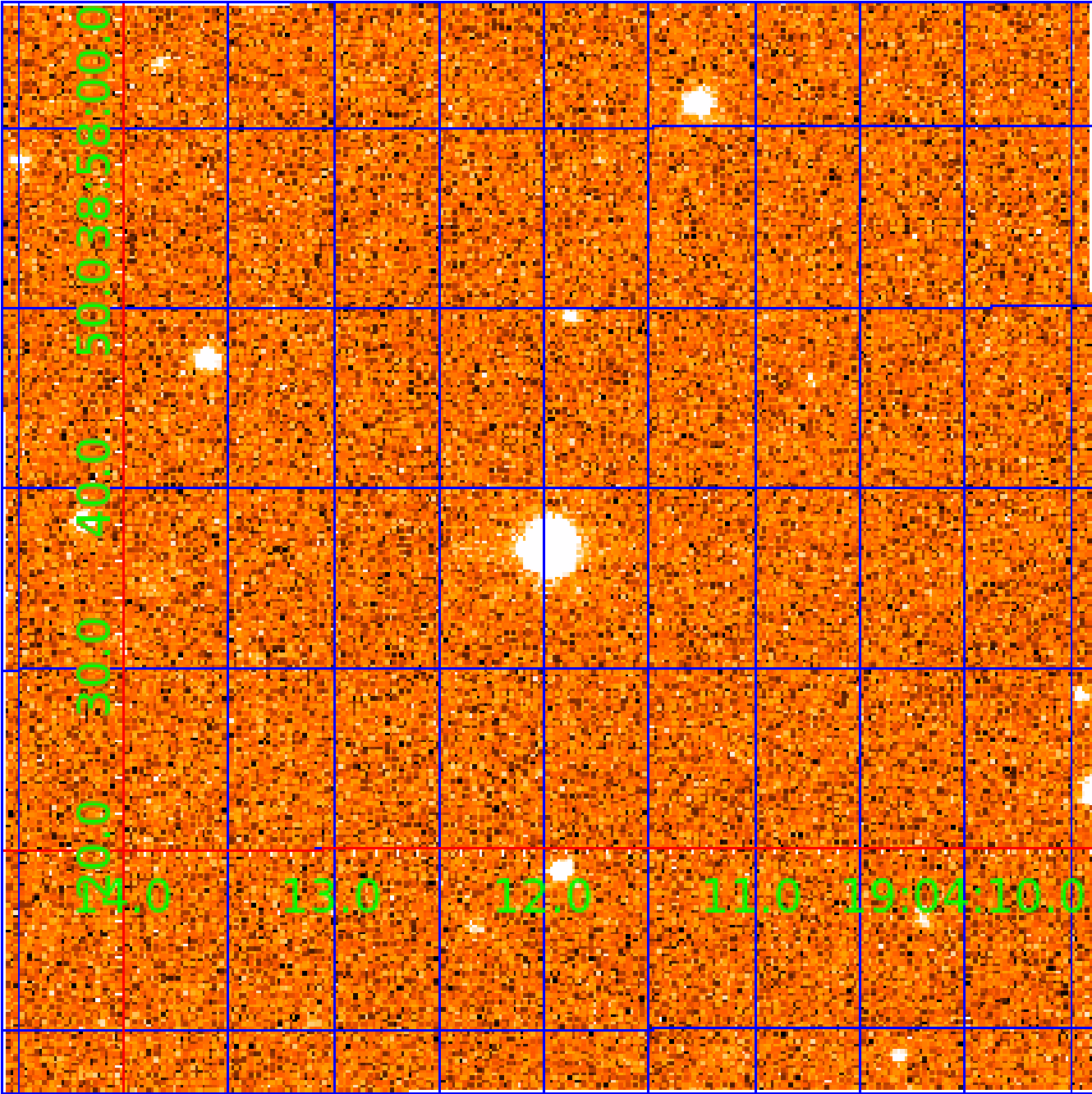


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003834322

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003834322-01	OBS	2763.01	0.996868	132.071992	222.0	1.014	13.9	17.9	0.71	4784	1.31	741.13
003834322-02	OBS	No	0.996866	131.573220	180.2	1.146	13.6	15.8	0.71	4784	1.18	741.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003834322-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003834322-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

**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.

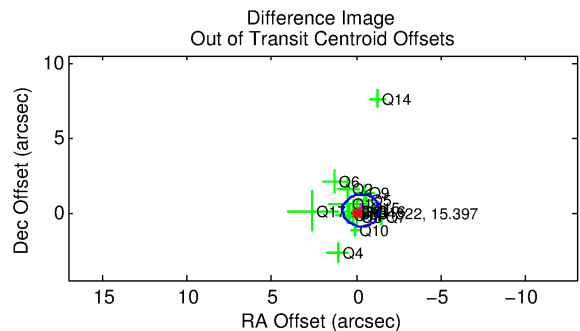
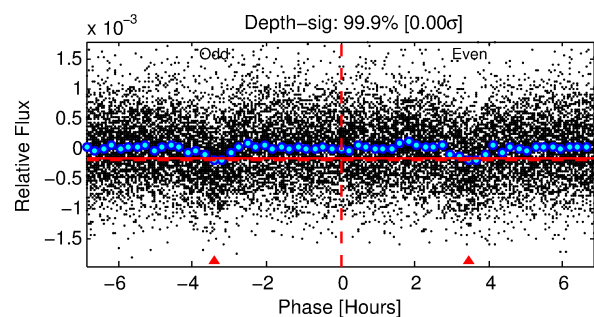
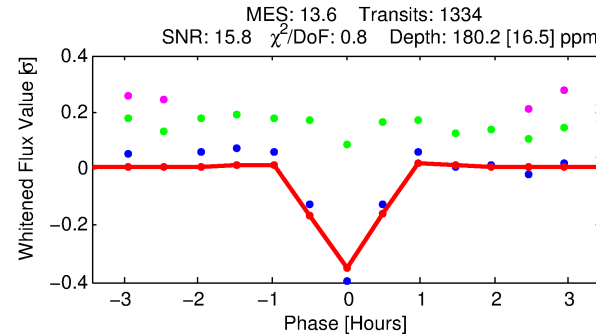
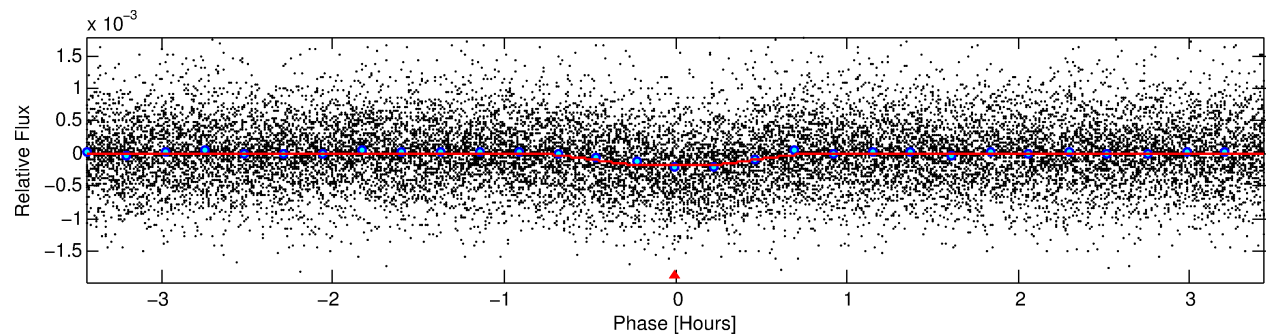
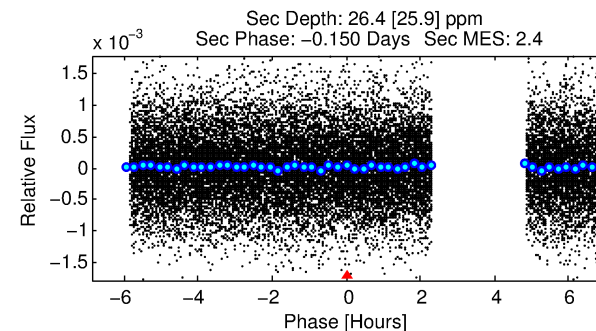
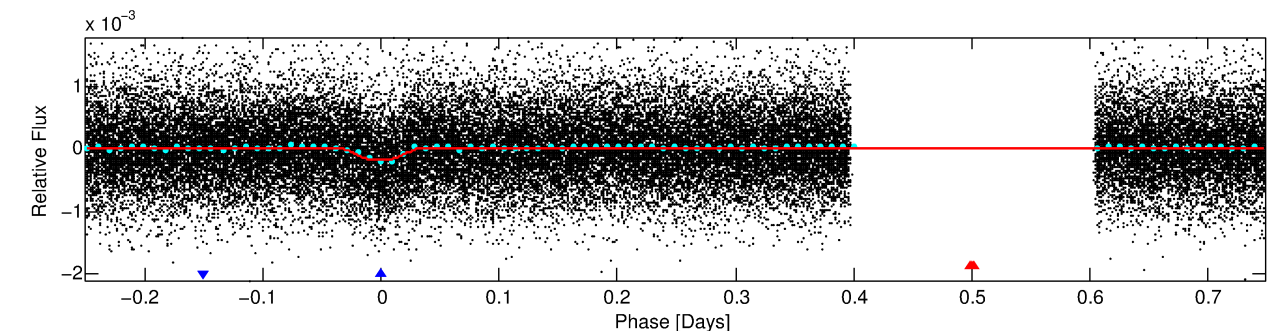
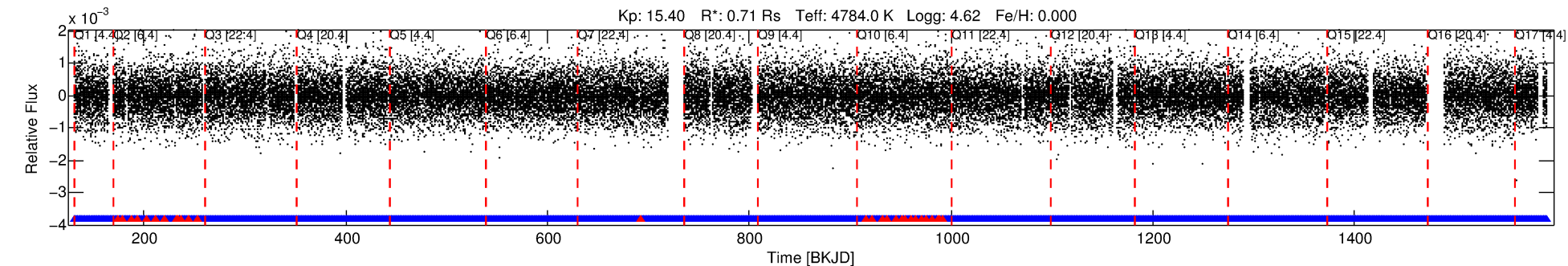
## Ephemeris Match Information For 003834322-02

No Significant Match Found

# DV One-Page Summary

KIC: 3834322 Candidate: 2 of 2 Period: 0.997 d  
KOI: K02763 Corr: No Ephemeris Match

Kp: 15.40 R\*: 0.71 Rs Teff: 4784.0 K Logg: 4.62 Fe/H: 0.000



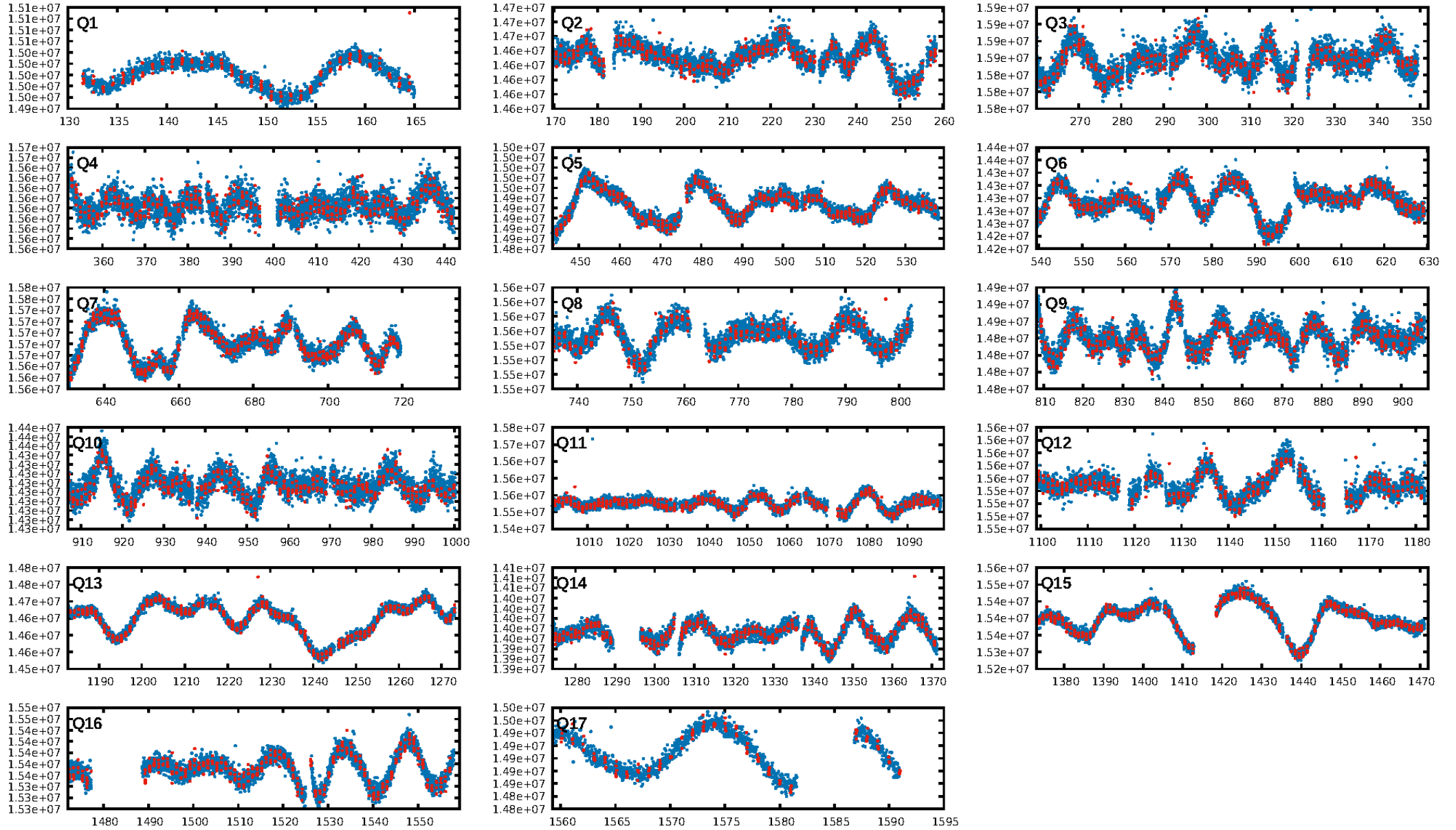
## DV Fit Results:

Period = 0.99687 [0.00001] d  
Epoch = 131.5732 [0.0012] BKJD  
Rp/R\* = 0.0152 [0.0088]  
a/R\* = 3.26 [6.49]  
b = 0.90 [0.48]  
Seff = 741.14 [116.08]  
Teq = 1330 [52] K  
Rp = 1.18 [0.69] Re  
a = 0.0178 [0.0013] AU  
Ag = 3.33 [5.06] [0.46σ]  
Teffp = 2779 [1057] K [1.37σ]

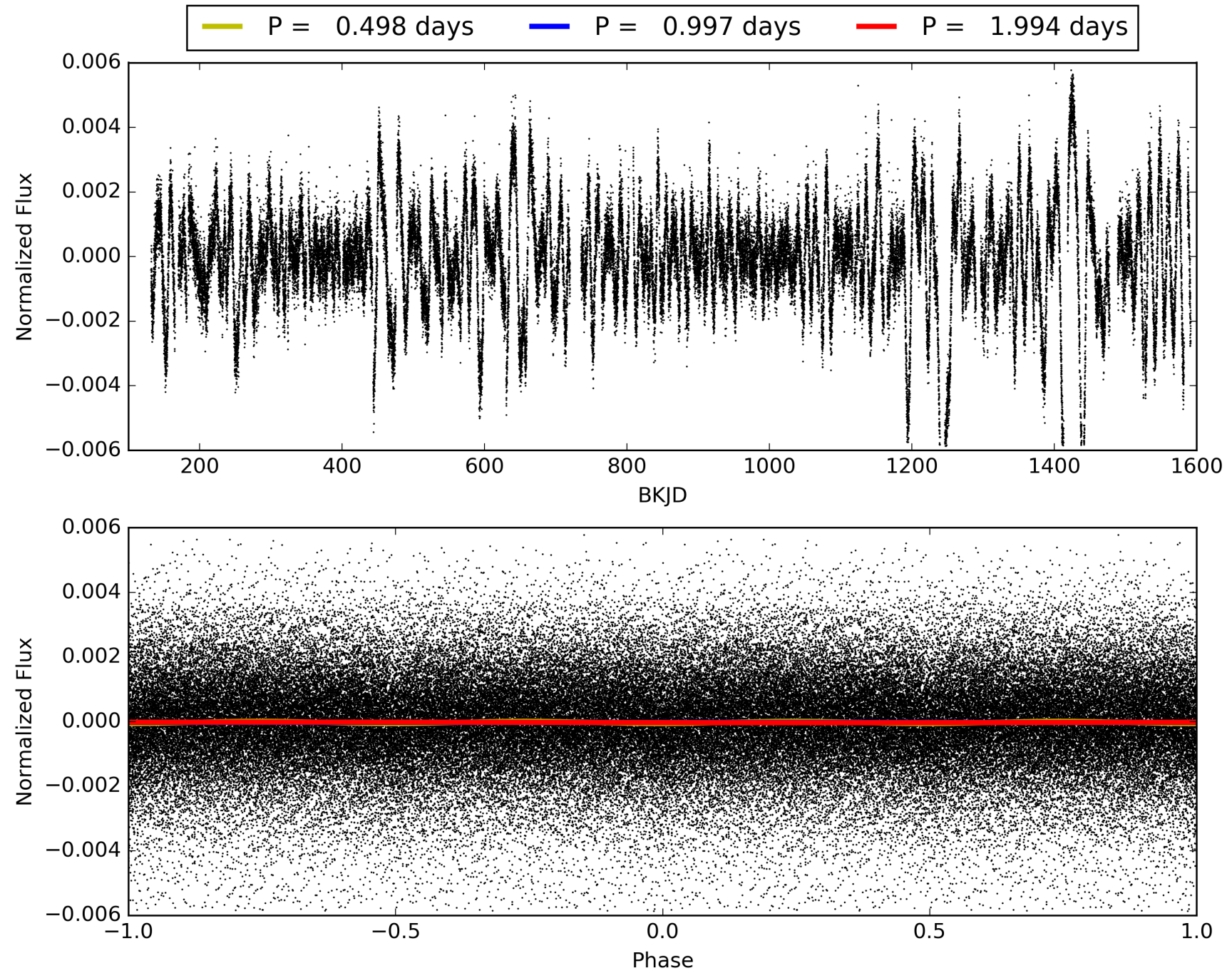
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.62e-41  
RollingBand-fgt: 0.98 [1243/1273]  
GhostDiagnostic-chr: 3.742  
Centroid-sig: 1.3%  
Centroid-so: 1.688 arcsec [1.85σ]  
OotOffset-rm: 0.294 arcsec [0.82σ]  
KicOffset-rm: 0.174 arcsec [0.55σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 003834322-02, PDC Light Curves



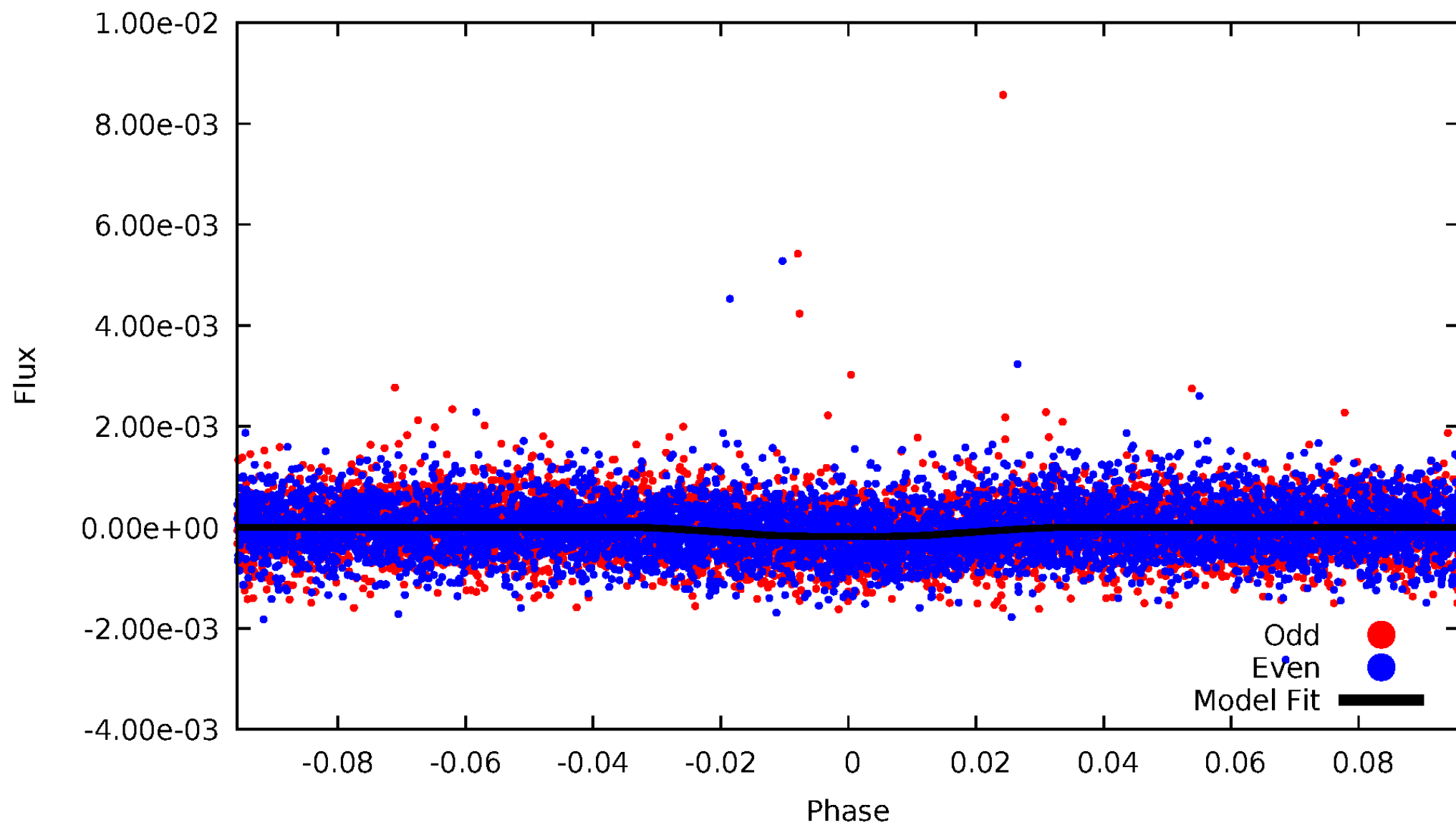
TCE 003834322-02





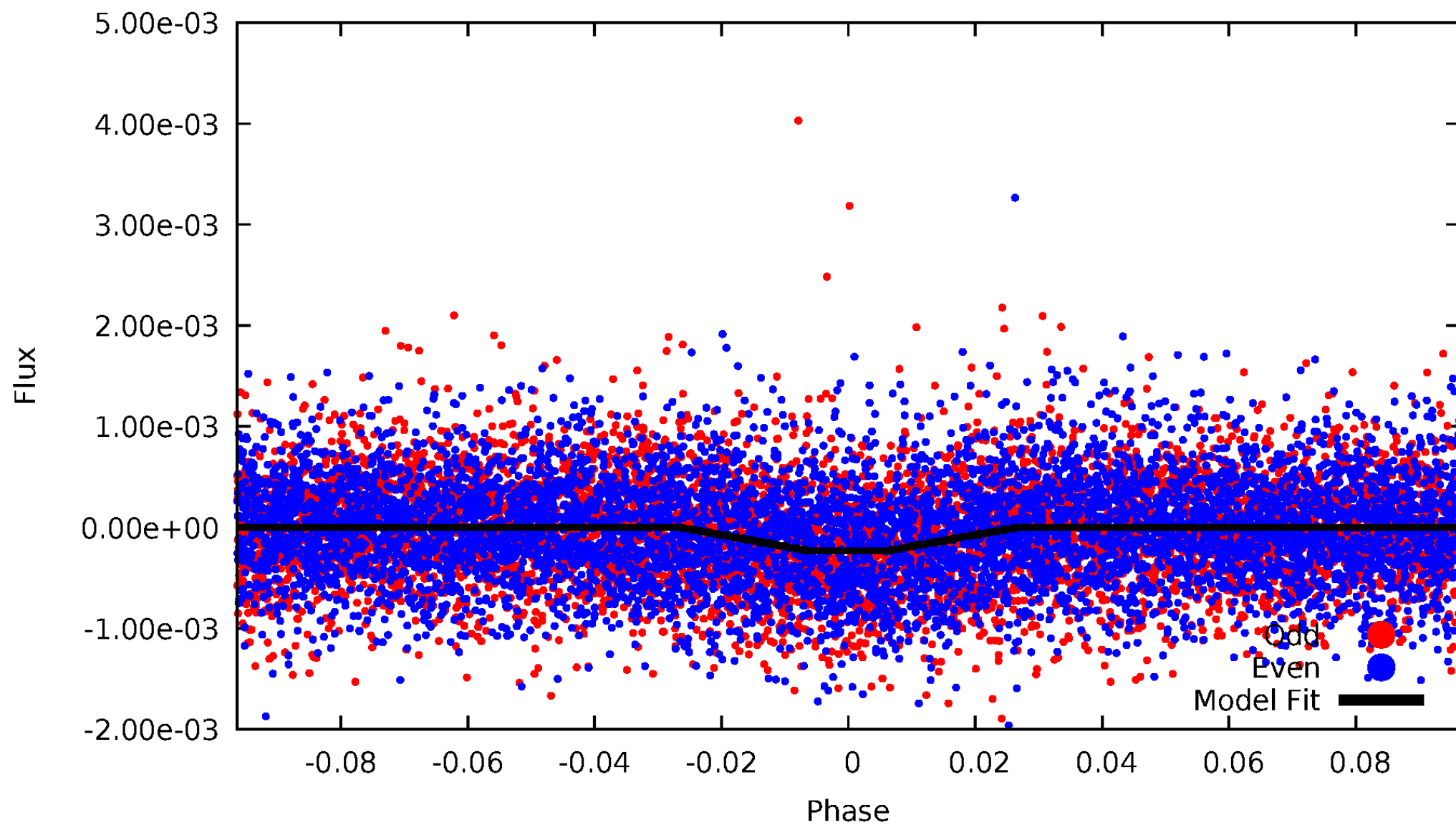
# DV Odd/Even

TCE 003834322-02



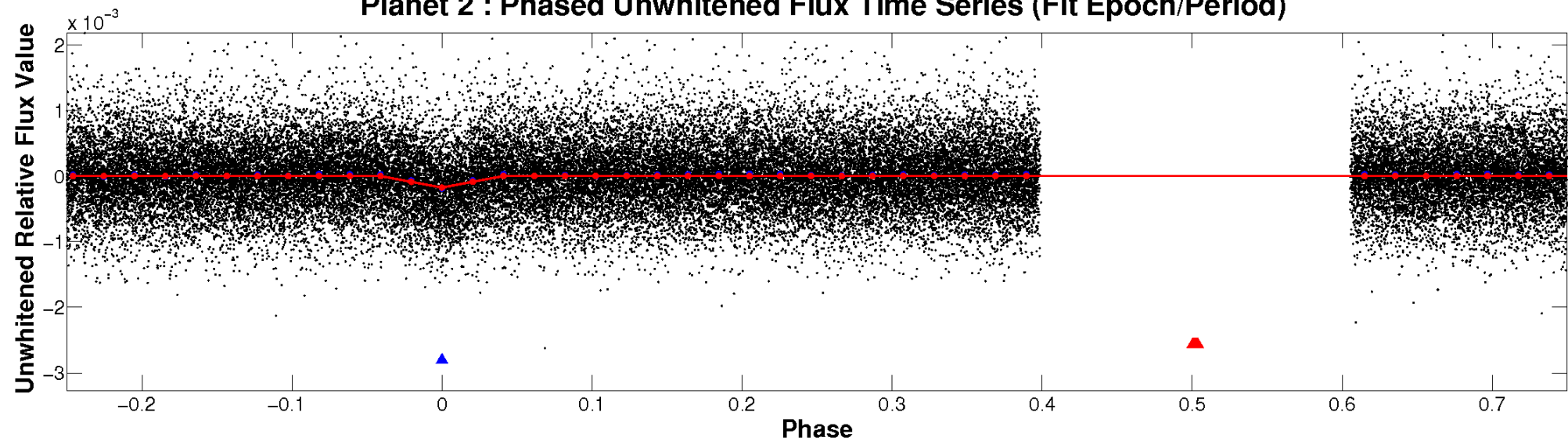
ALT Odd/Even

TCE 003834322-02

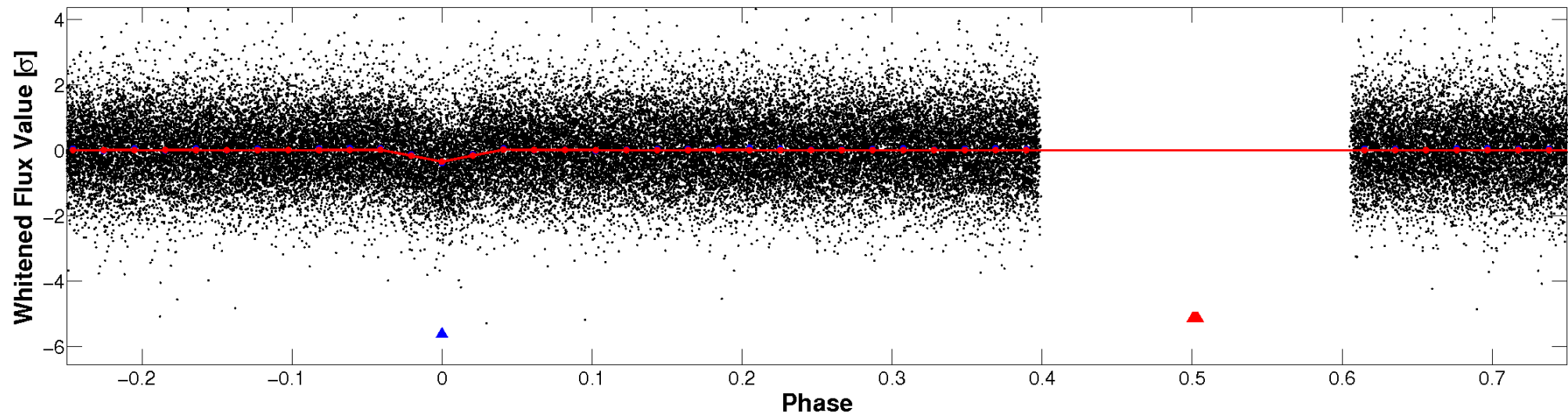


# Non-Whitened Vs. Whitened Light Curve

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

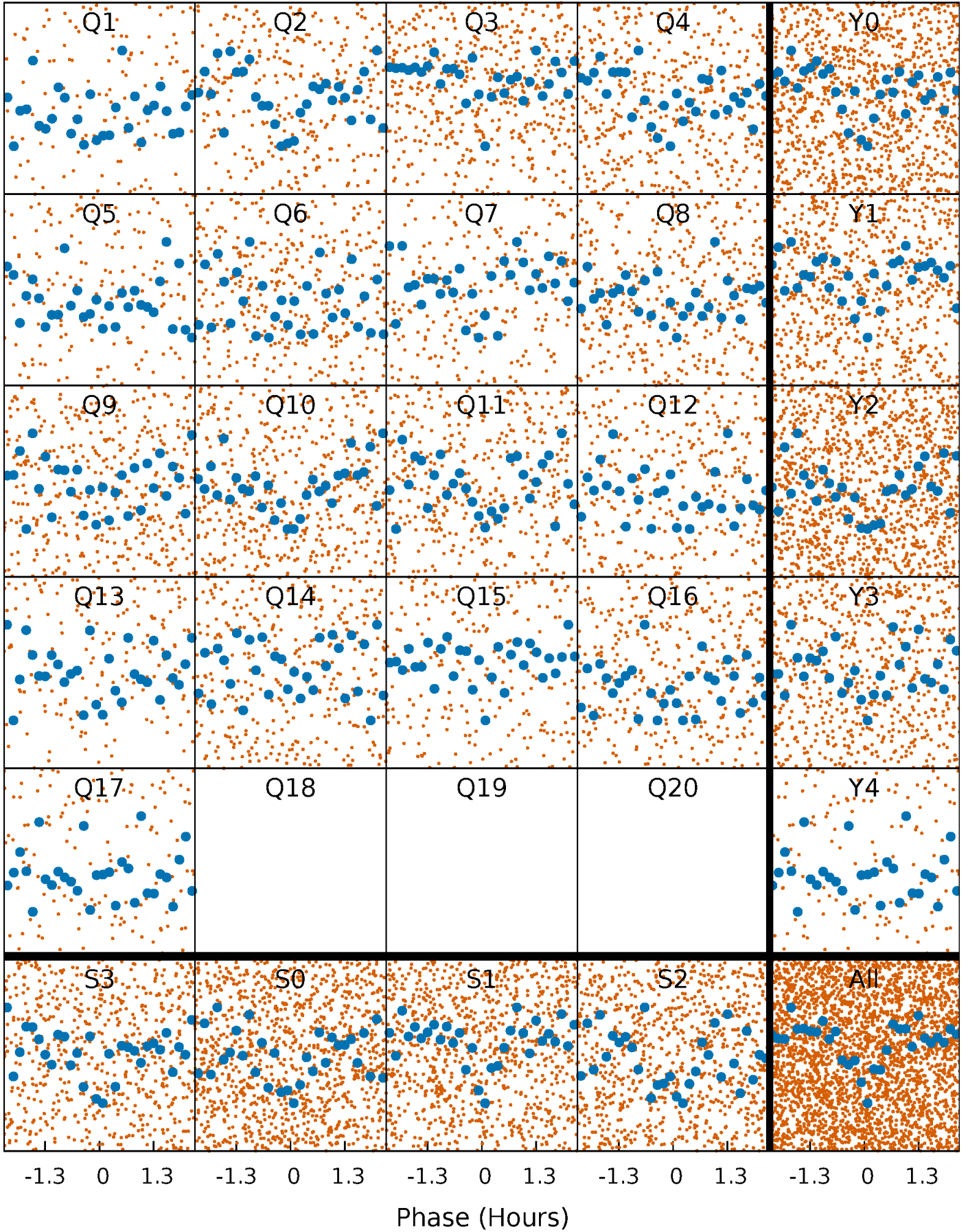


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

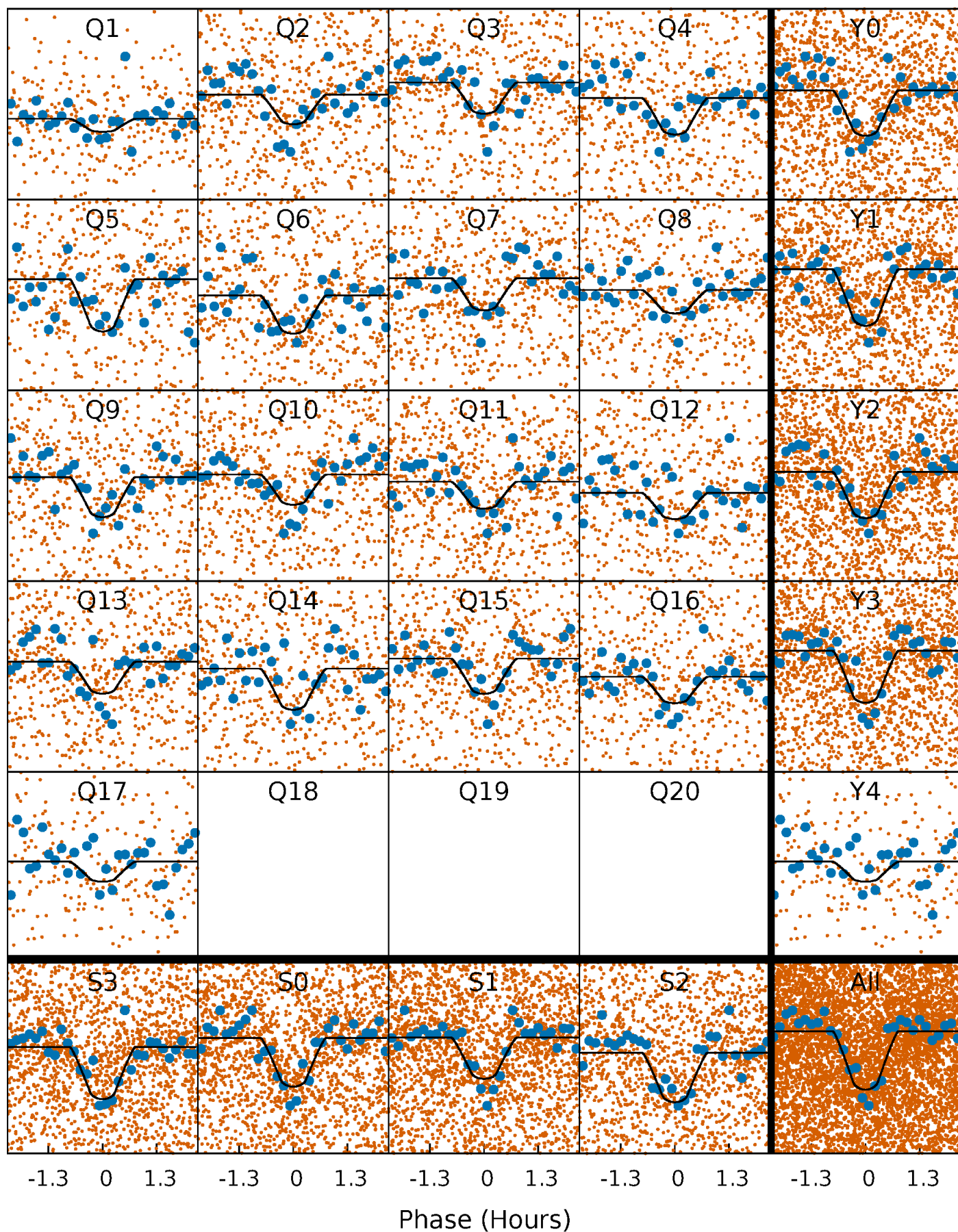
TCE 003834322-02   P= 0.996866 Days    $T_0=131.573220$  (BKJD)





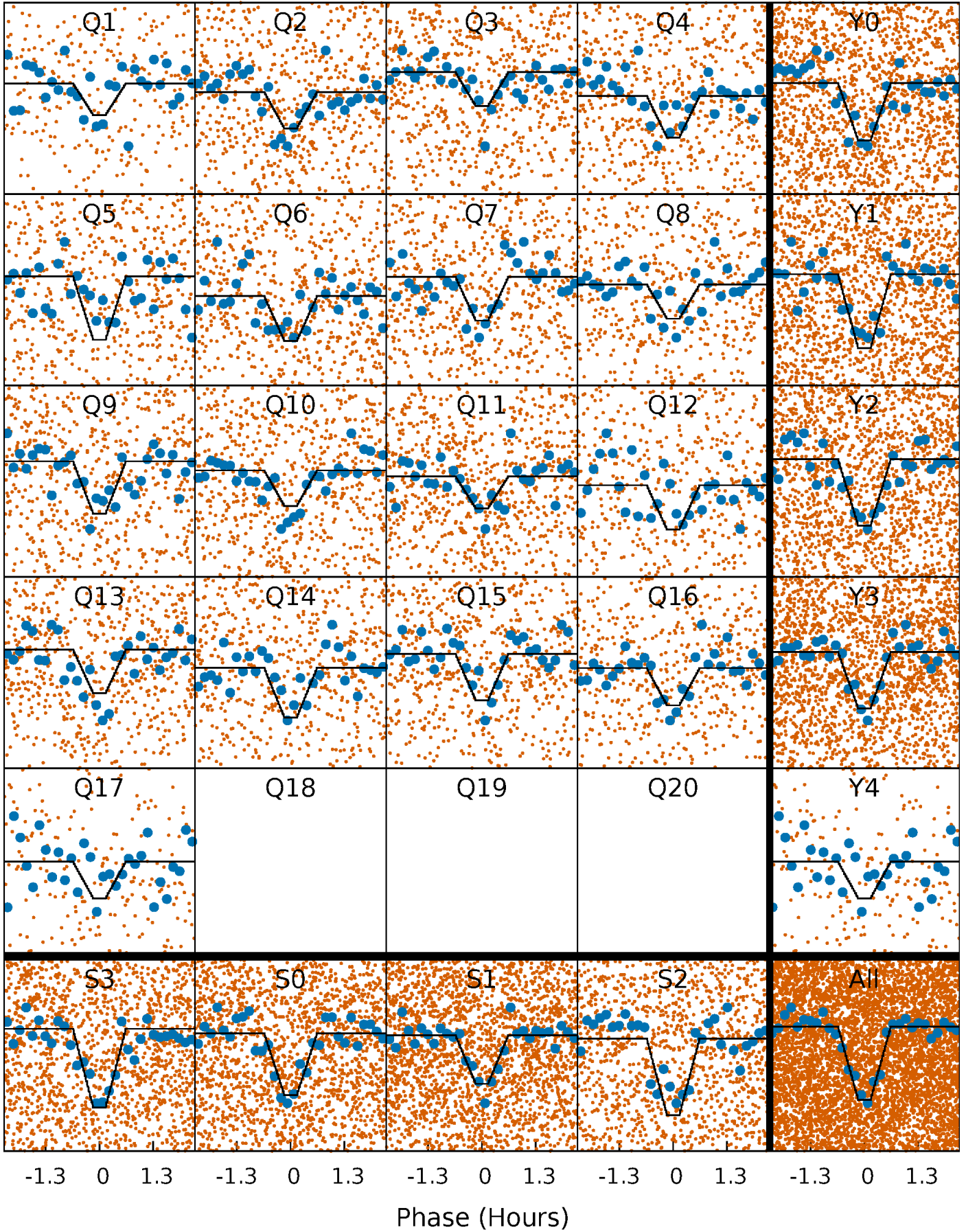
# DV Quarter-Phased Transit Curves

TCE 003834322-02   P= 0.996866 Days    $T_0=131.573220$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

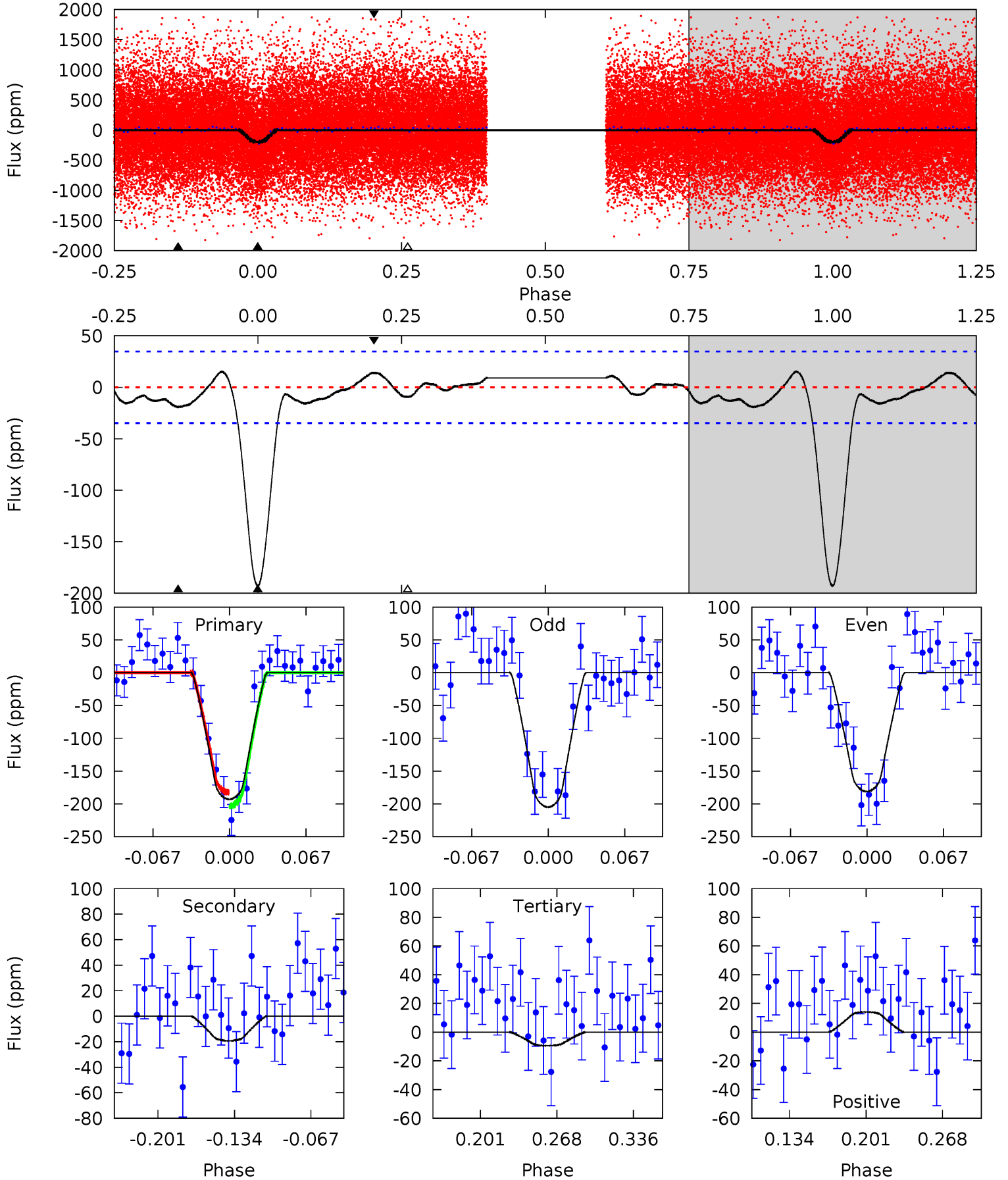
TCE 003834322-02     $P = 0.996866$  Days     $T_0 = 131.573234$  (BKJD)



# DV Model-Shift Uniqueness Test

003834322-02, P = 0.996866 Days, E = 130.576354 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
25.8	2.58	1.26	1.89	4.65	1.83	1.03	24.6	23.9	1.32	0.69	1.60	0.92	0.07	1.39

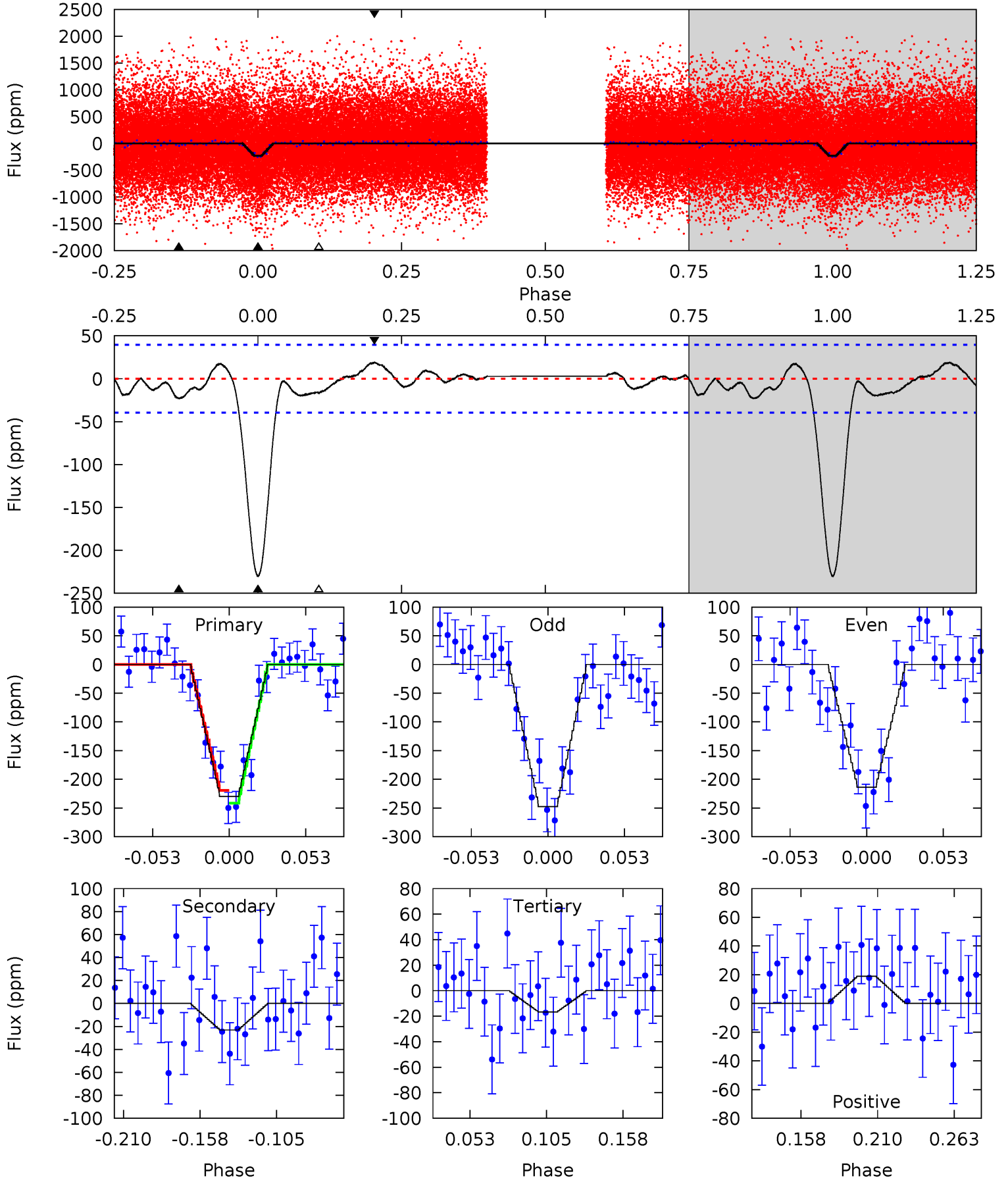




# Alt Model-Shift Uniqueness Test

003834322-02, P = 0.996866 Days, E = 130.576368 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
27.3	2.75	1.99	2.26	4.70	1.94	1.13	25.3	25.1	0.76	0.49	2.00	0.87	0.08	1.32



### Stellar Parameters For KIC 003834322

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4784^{+129}_{-143}$	$4.618^{+0.028}_{-0.052}$	$0.000^{+0.300}_{-0.300}$	$0.708^{+0.066}_{-0.054}$	$0.766^{+0.053}_{-0.070}$	$3.043^{+0.453}_{-0.573}$
	+3%/-3%	+1%/-1%	+inf%/-inf%	+9%/-8%	+7%/-9%	+15%/-19%
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 003834322-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-19 \pm 7$	$1.23^{+0.62}_{-0.62}$	$1866^{+64}_{-60}$	$3040^{+829}_{-537}$	$2.345^{+7.371}_{-1.567}$
Alt.	$-23 \pm 8$	$1.25^{+0.61}_{-0.70}$	$1872^{+61}_{-61}$	$3097^{+1091}_{-479}$	$2.513^{+12.464}_{-1.560}$

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

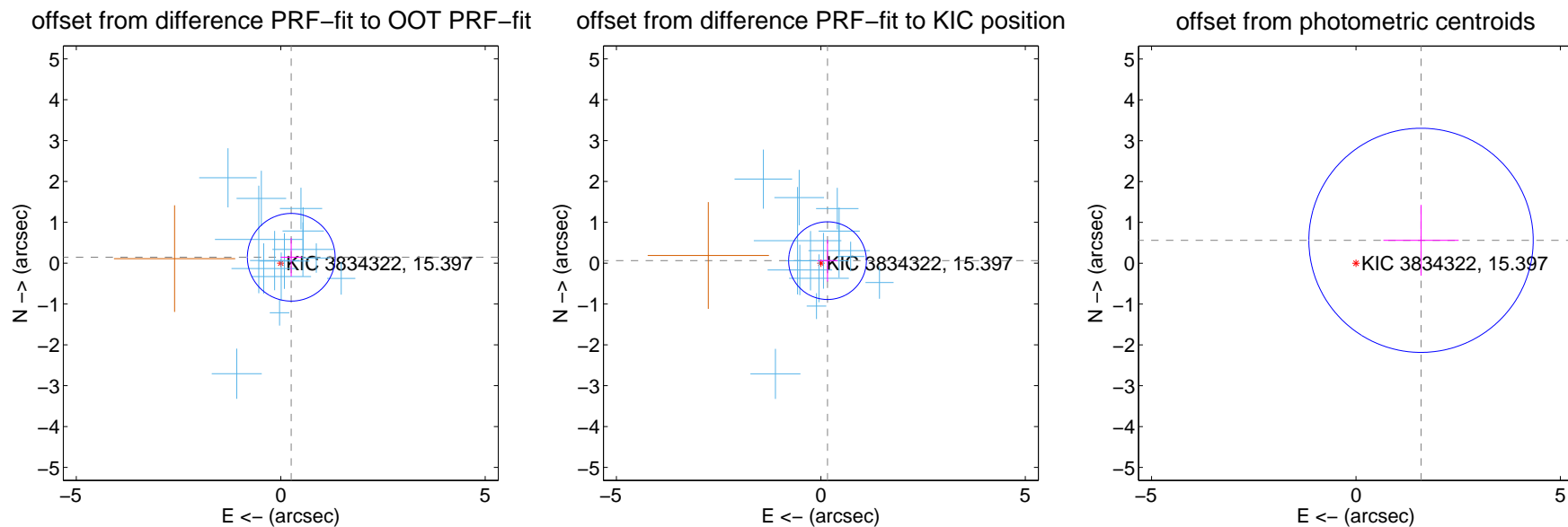
## DV Centroid Data

Supplemental centroid analysis for 003834322-02. Kepler magnitude: 15.40. Transit SNR 15.75

There are 14 quarters with good PRF difference image offsets

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

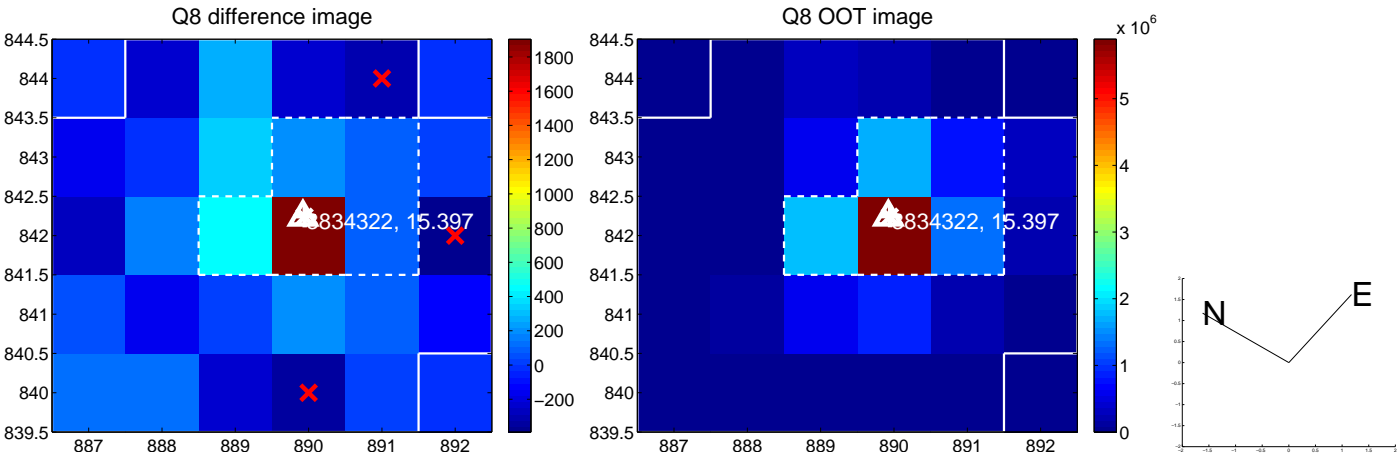
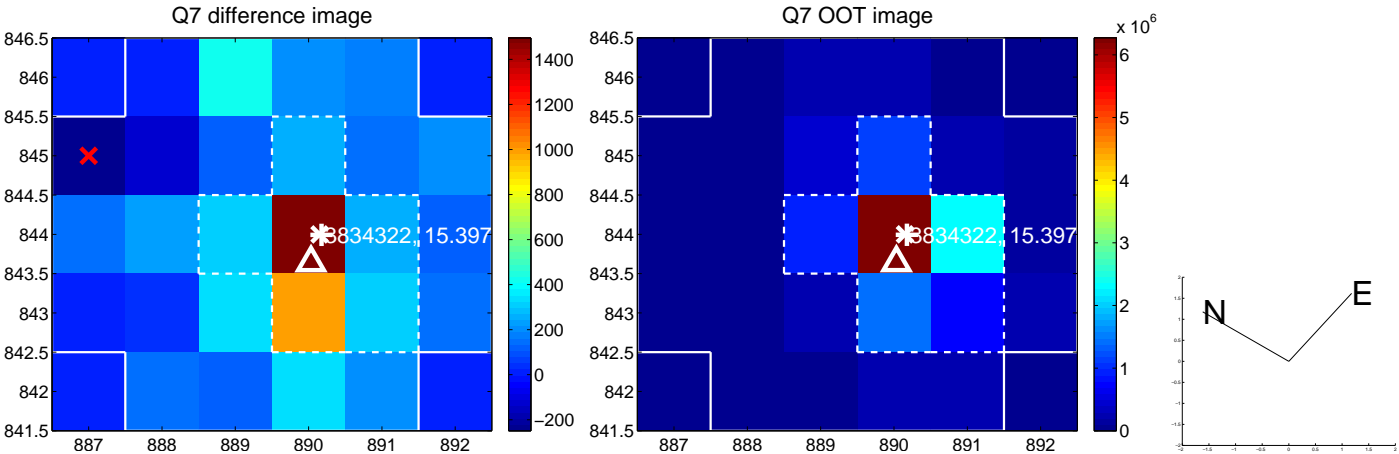
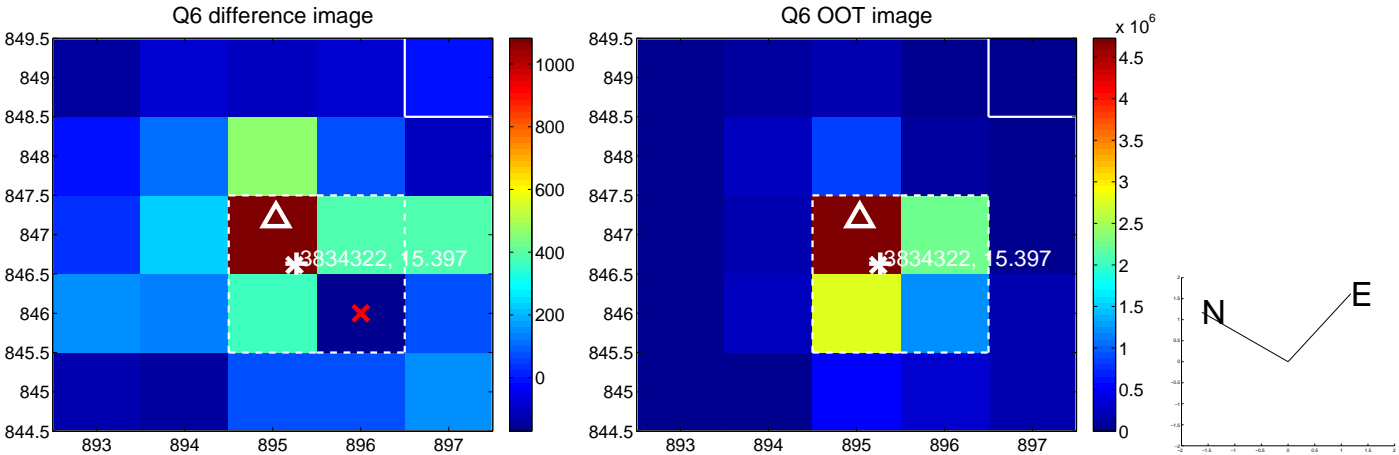
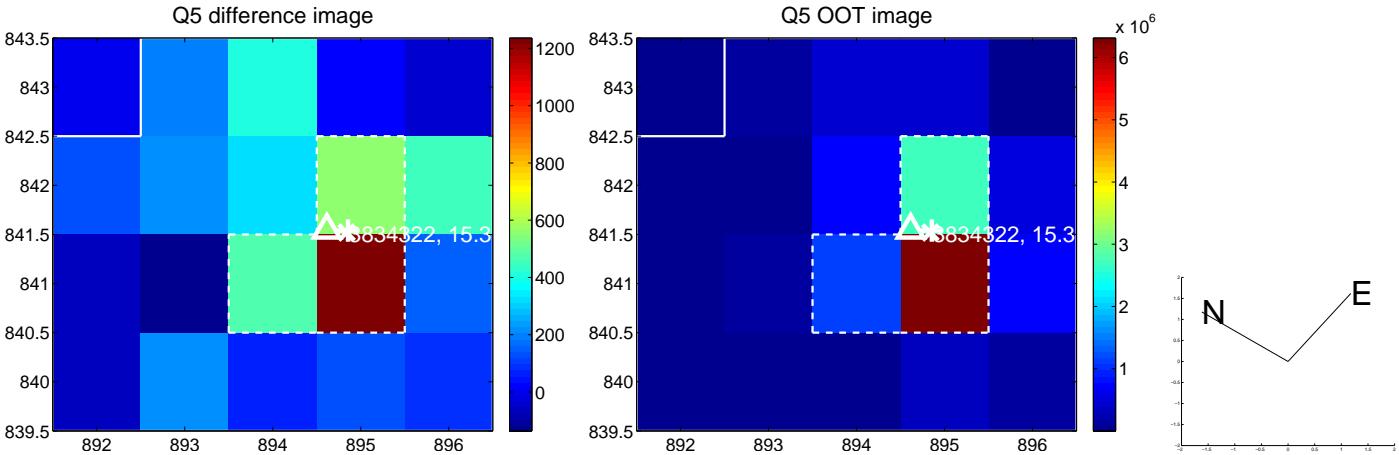
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.294 \pm 0.358$	0.82	$-0.257 \pm 0.258$	$0.144 \pm 0.470$
PRF-fit source offset from KIC position	$0.174 \pm 0.317$	0.55	$-0.163 \pm 0.245$	$0.061 \pm 0.510$
photometric centroid source offset	$1.69 \pm 0.91$	1.85	$-1.59 \pm 0.92$	$0.56 \pm 0.87$



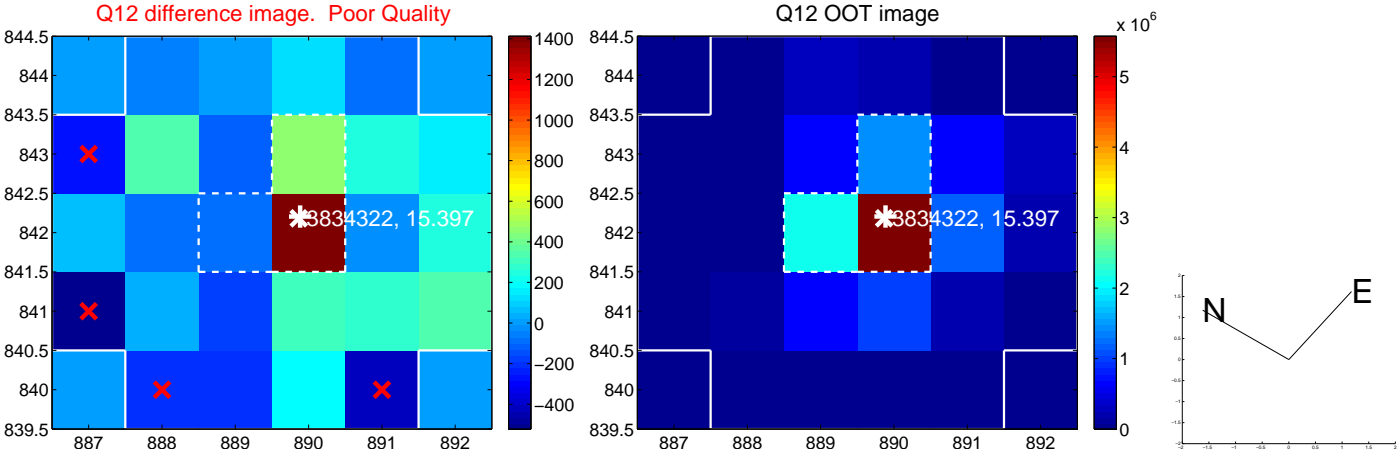
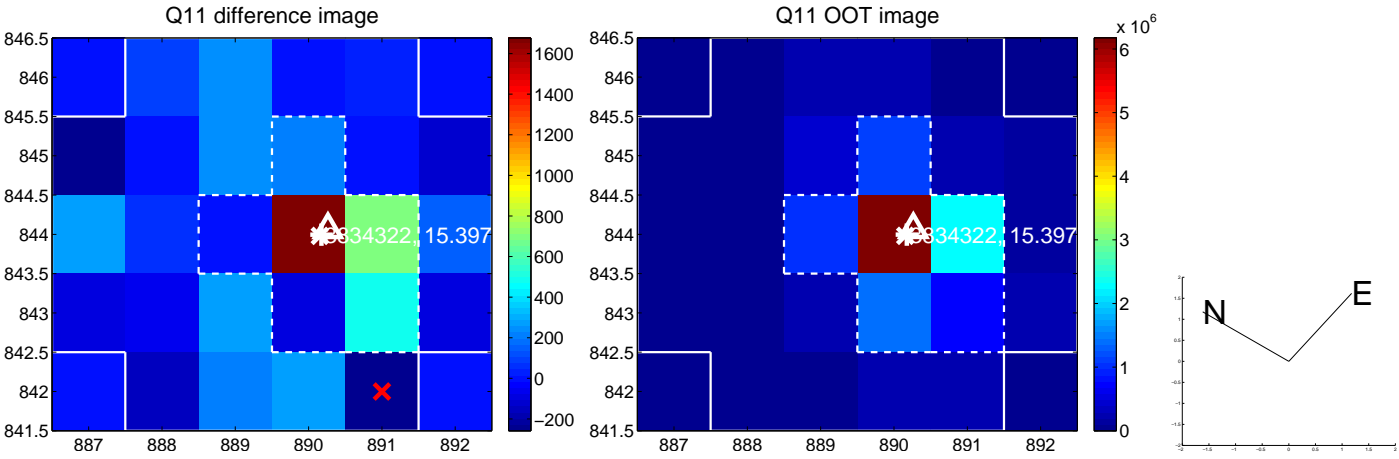
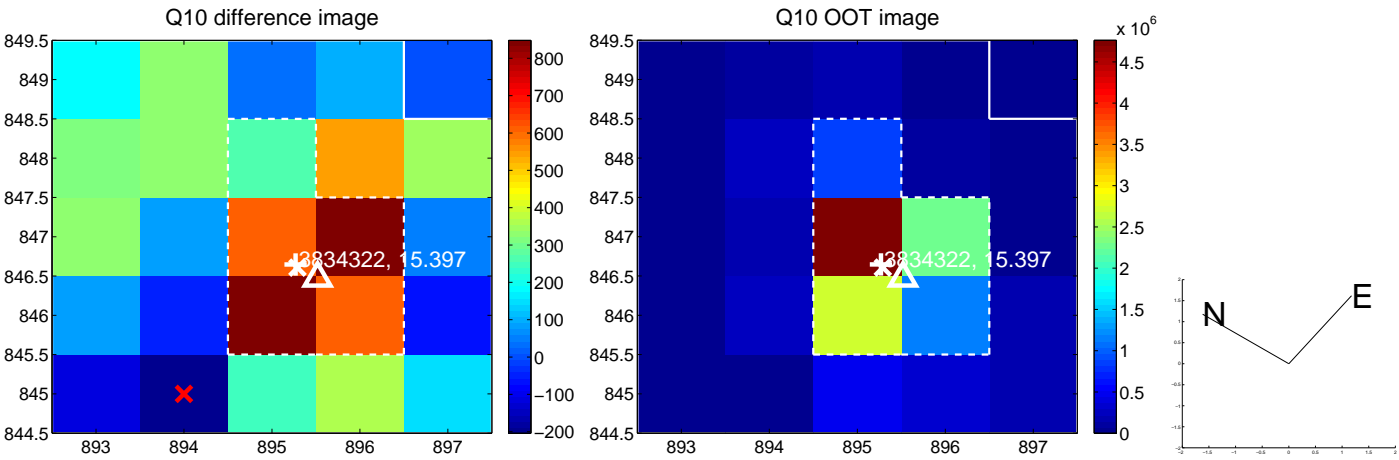
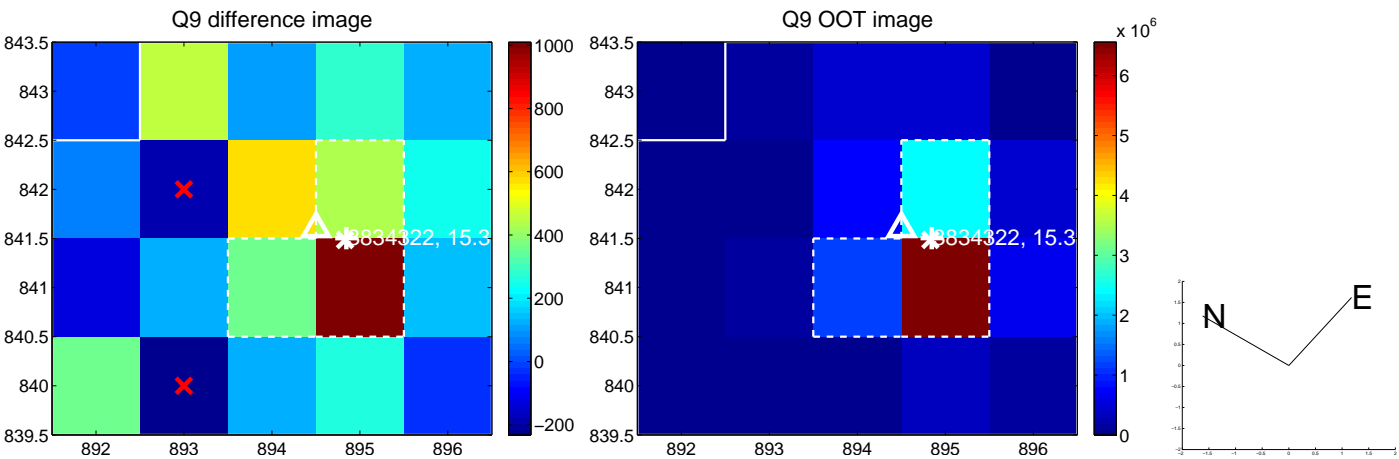
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



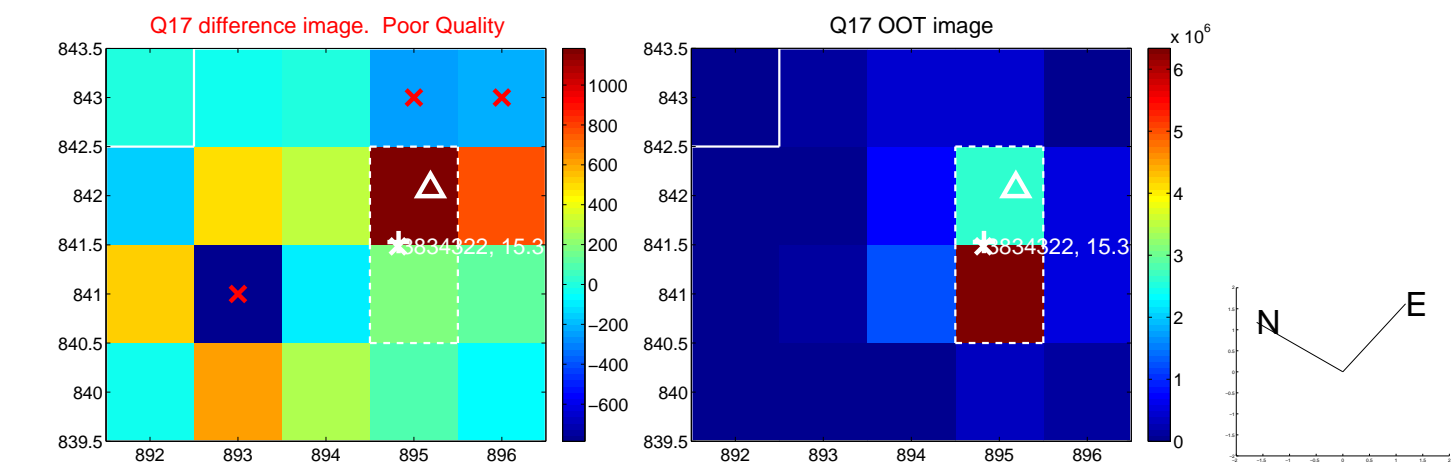
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



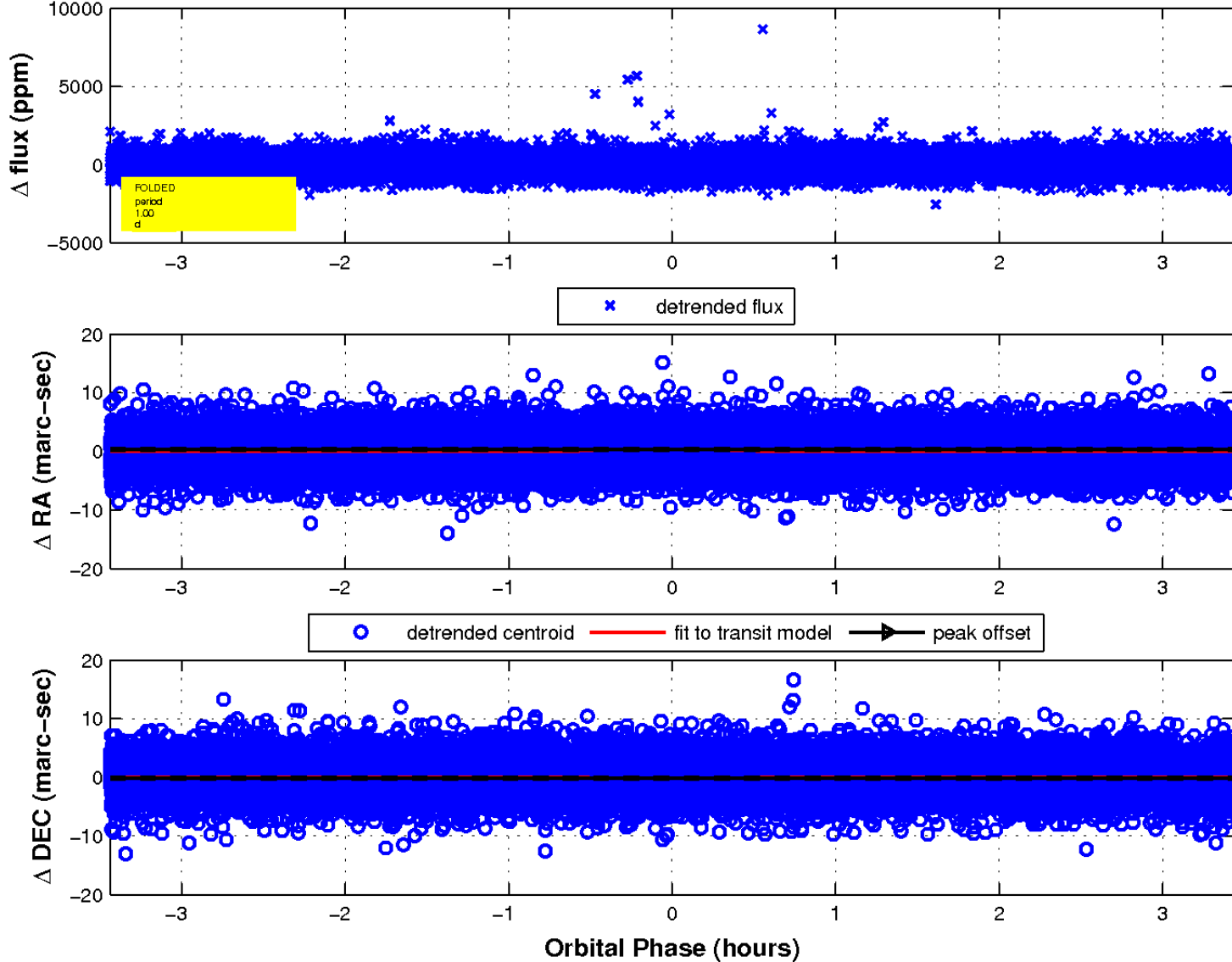




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

