

# KIC 008295671

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008295671-01	OBS	4593.01	0.981386	132.134078	60.1	0.876	11.5	8.7	0.90	6038	0.70	2599.35
008295671-02	OBS	No	0.981362	131.674419	20.4	5.309	10.1	7.2	0.90	6038	0.44	2599.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008295671-01	OBS	FP	0.00	1	0	1	0	LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_UNRESOLVED_OFFSET
008295671-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

**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.

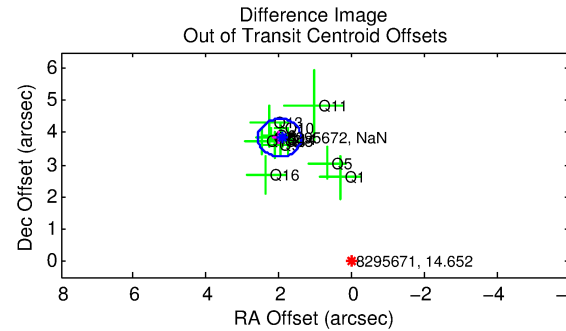
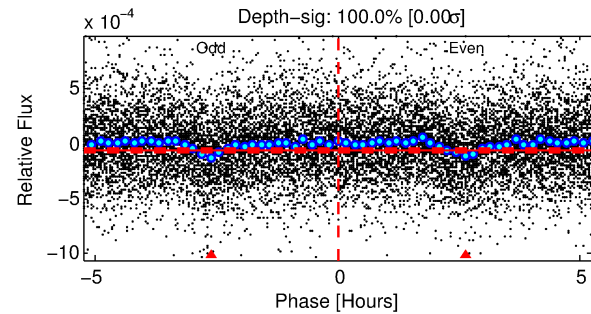
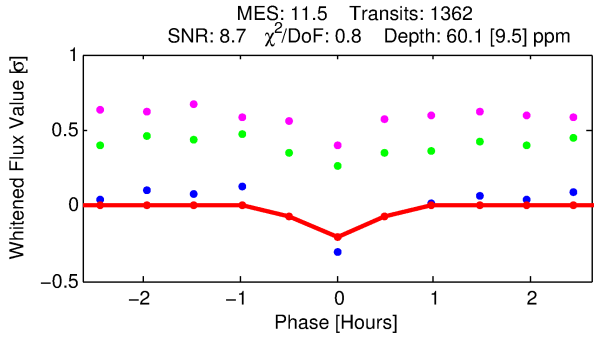
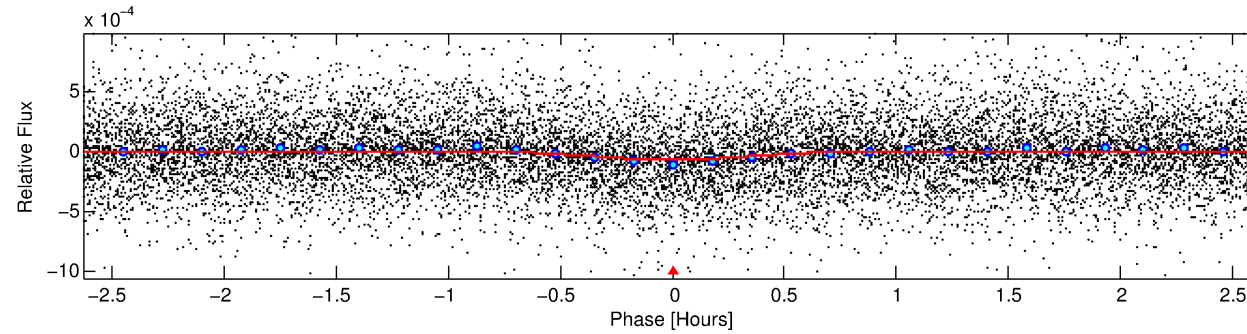
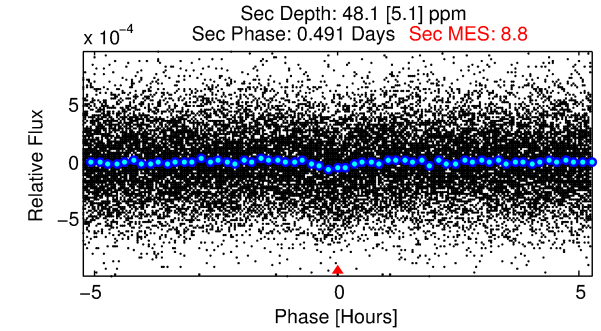
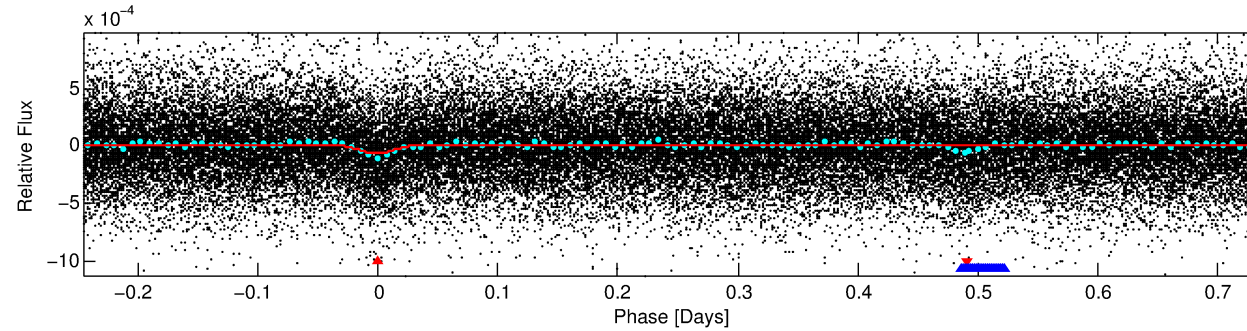
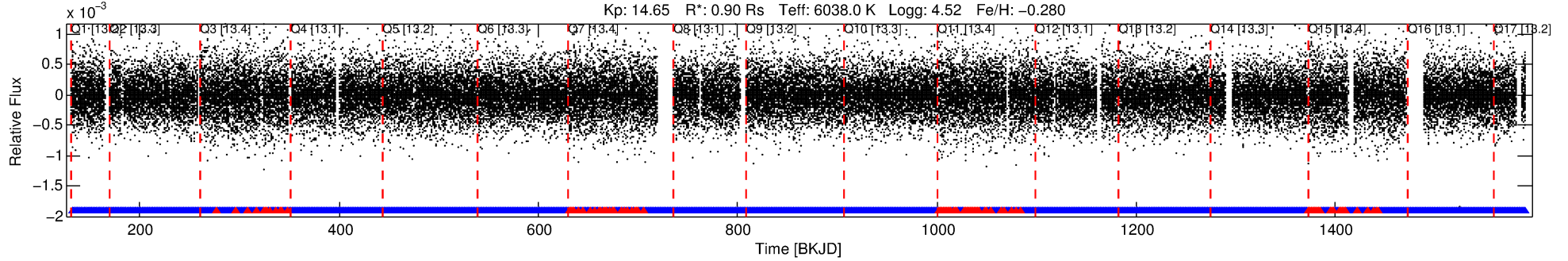
## Ephemeris Match Information For 008295671-01

No Significant Match Found

# DV One-Page Summary

KIC: 8295671 Candidate: 1 of 2 Period: 0.981 d  
KOI: K04593.01 Corr: 0.761

Kp: 14.65 R\*: 0.90 Rs Teff: 6038.0 K Logg: 4.52 Fe/H: -0.280



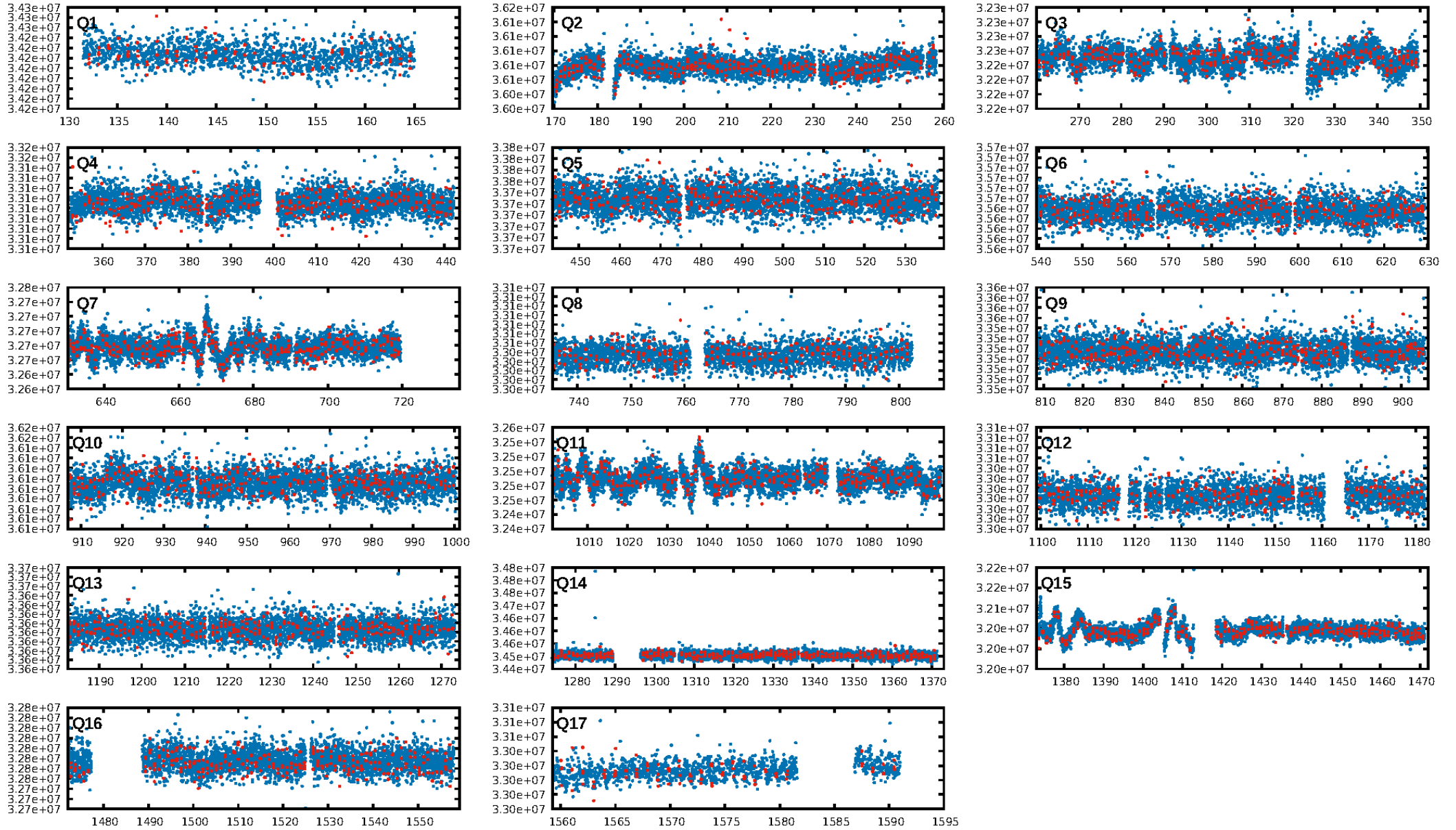
## DV Fit Results:

Period = 0.98139 [0.00001] d  
Epoch = 132.1341 [0.0019] BKJD  
Rp/R\* = 0.0072 [0.0166]  
a/R\* = 8.60 [97.11]  
b = 0.10 [113.62]  
Seff = 2599.35 [1017.66]  
Teq = 1821 [178] K  
Rp = 0.70 [1.64] Re  
a = 0.0192 [0.0048] AU  
Ag = 19.73 [91.40] [0.20σ]  
Teffp = 5933 [6852] K [0.60σ]

## DV Diagnostic Results:

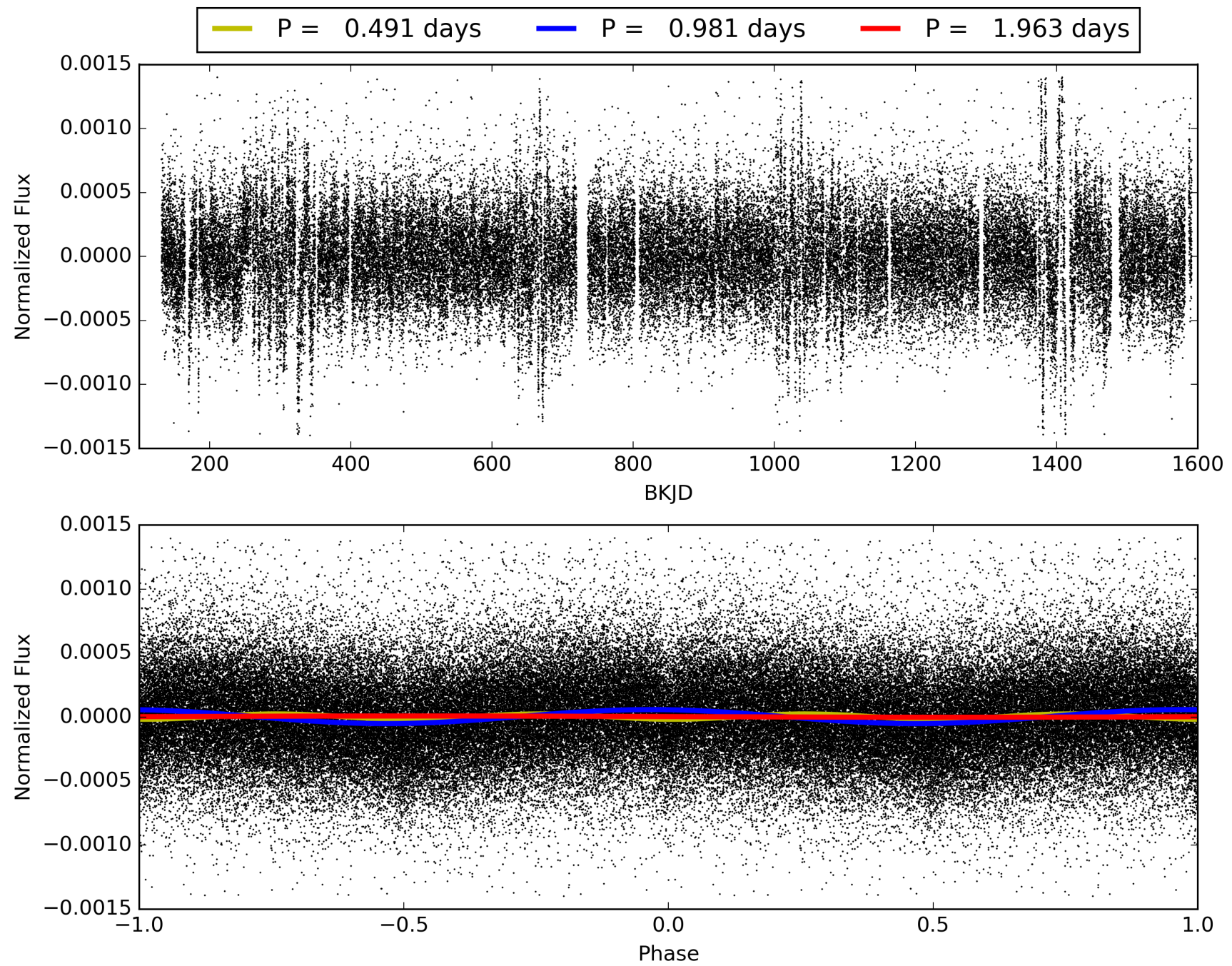
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.40e-30  
RollingBand-fgt: 0.92 [1202/1302]  
GhostDiagnostic-chr: 0.2721  
Centroid-sig: 0.0%  
Centroid-so: 12.747 arcsec [7.40σ]  
OotOffset-rm: 4.320 arcsec [21.88σ]  
KicOffset-rm: 4.402 arcsec [21.38σ]  
OotOffset-st: 3/4/2/4 [13]  
KicOffset-st: 3/4/2/4 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008295671-01, PDC Light Curves



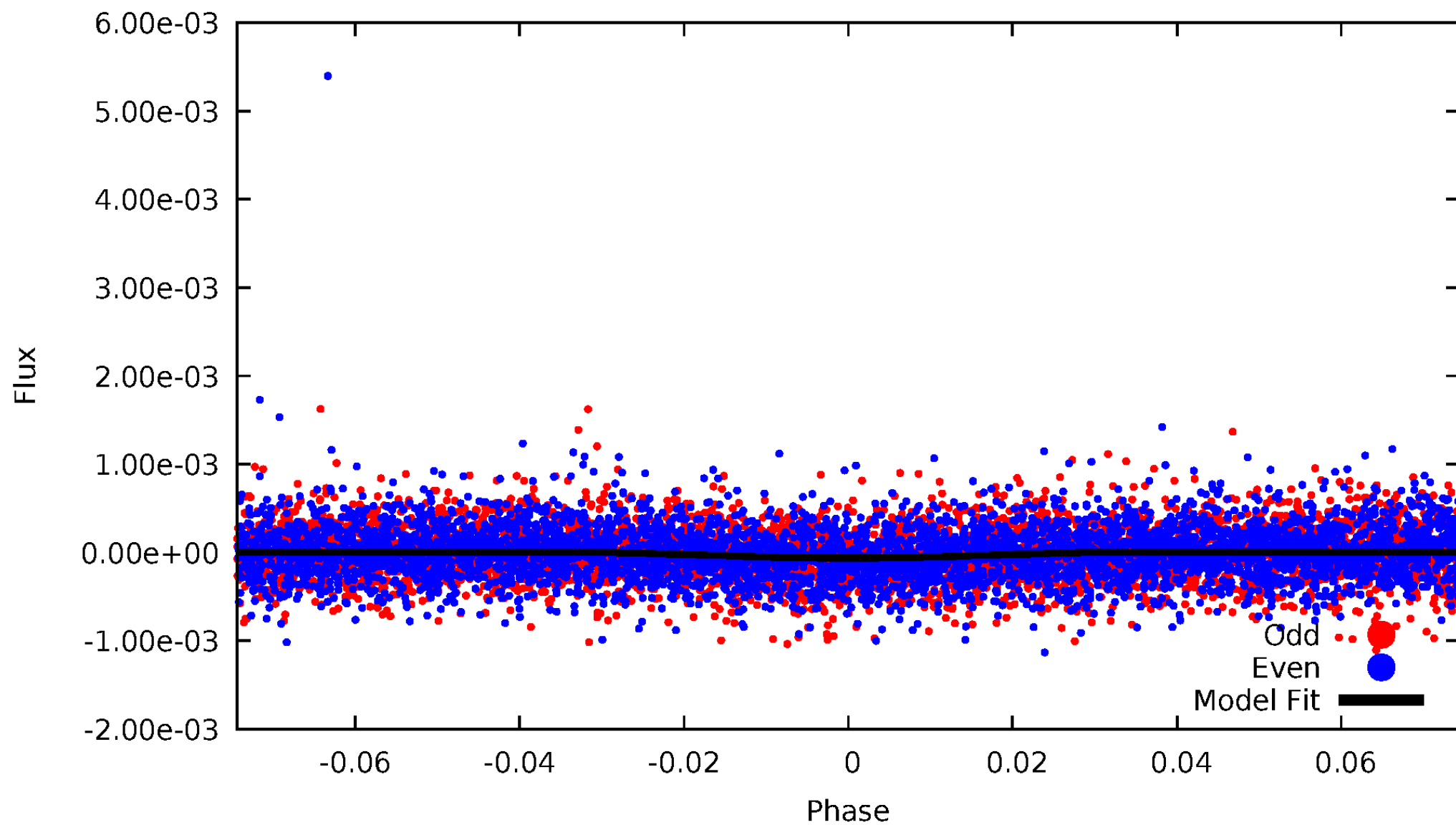


TCE 008295671-01



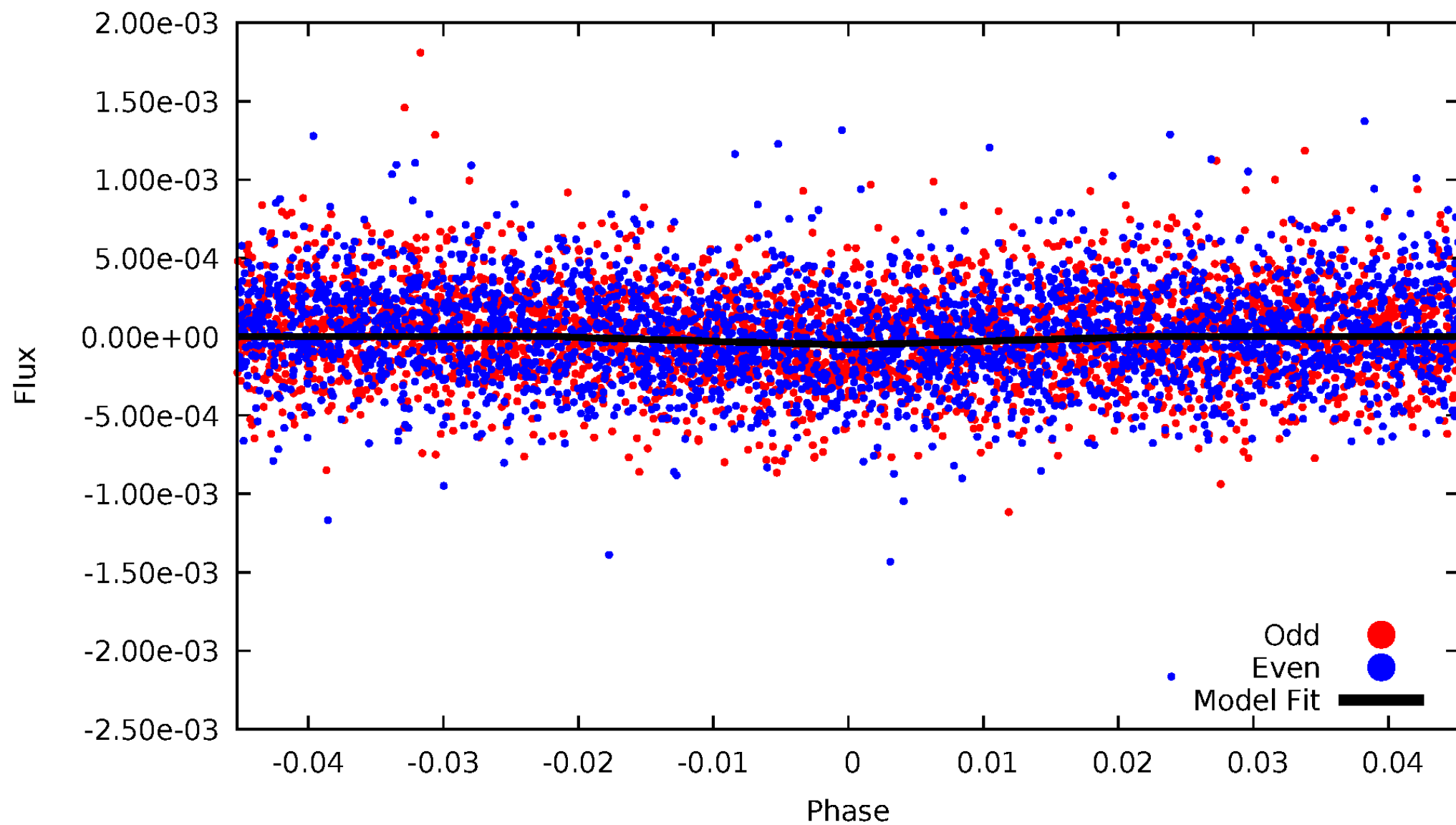
# DV Odd/Even

TCE 008295671-01



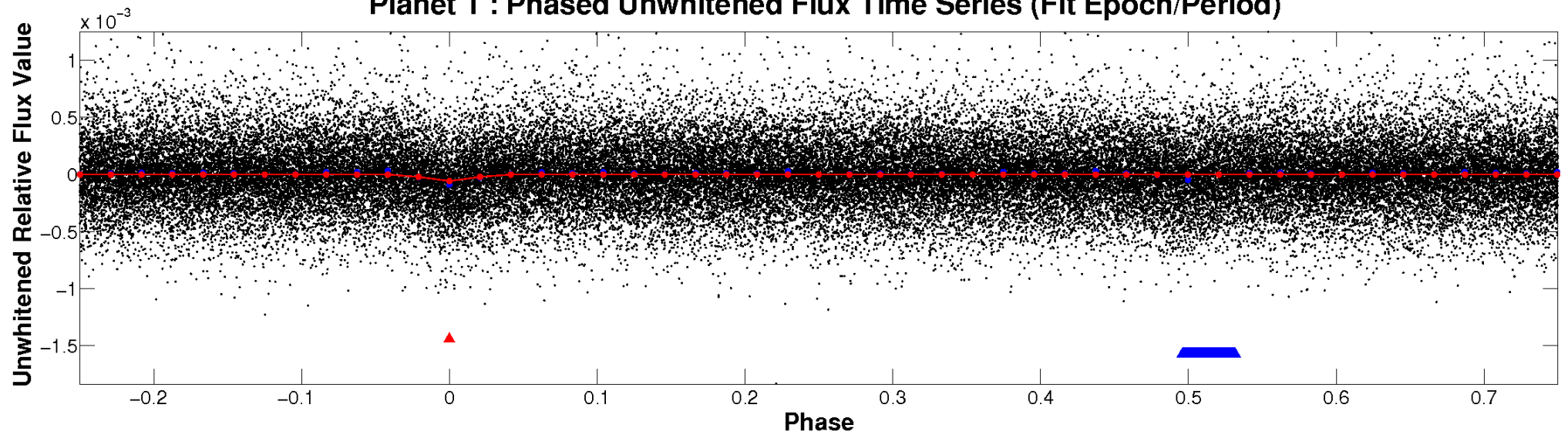
# ALT Odd/Even

TCE 008295671-01

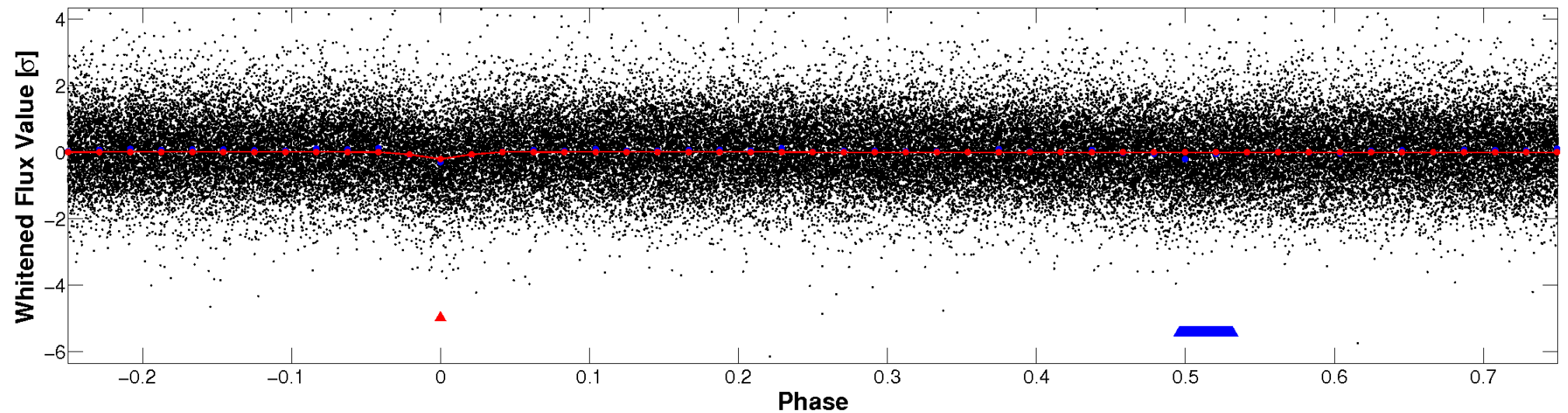


# Non-Whitened Vs. Whitened Light Curve

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



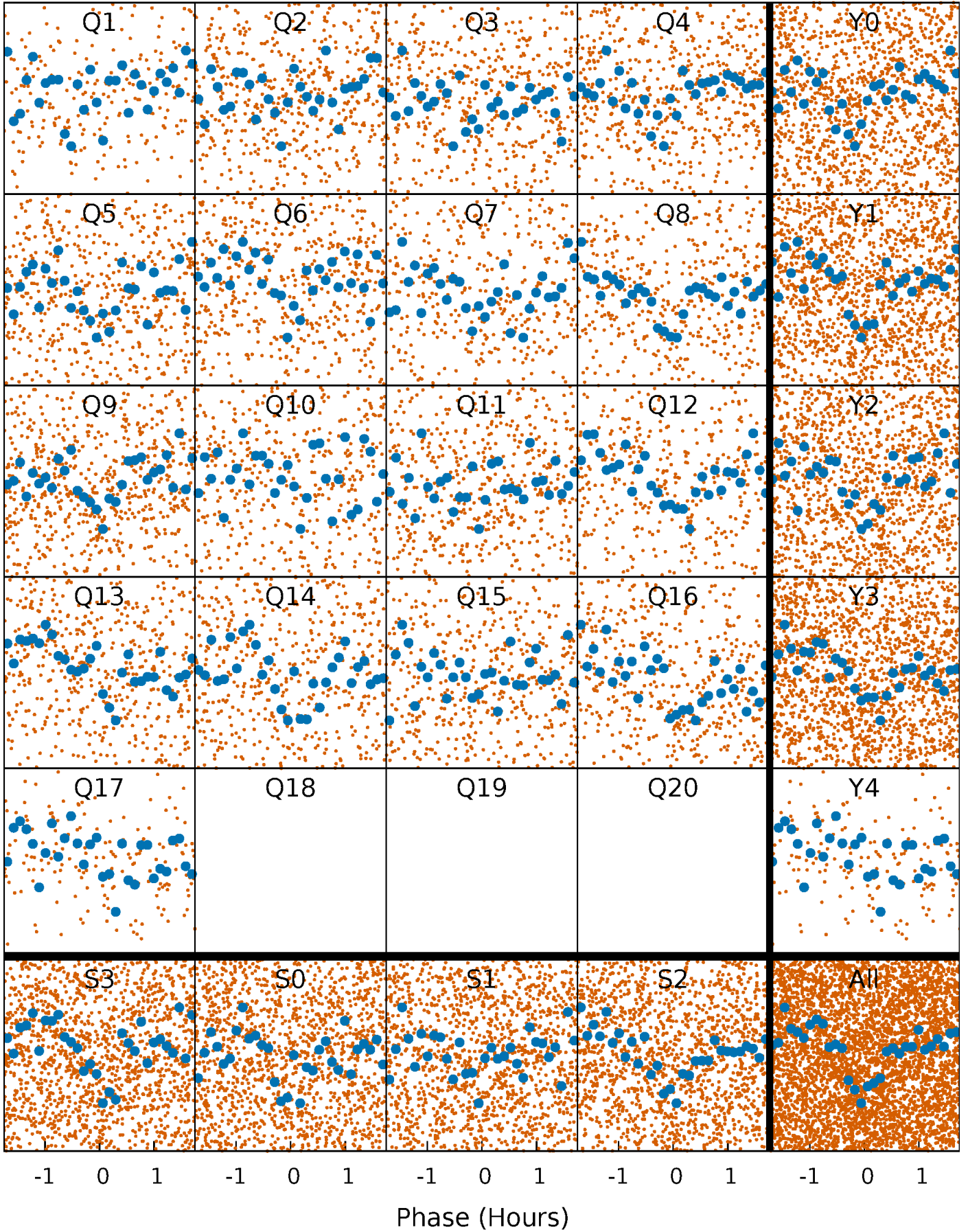
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

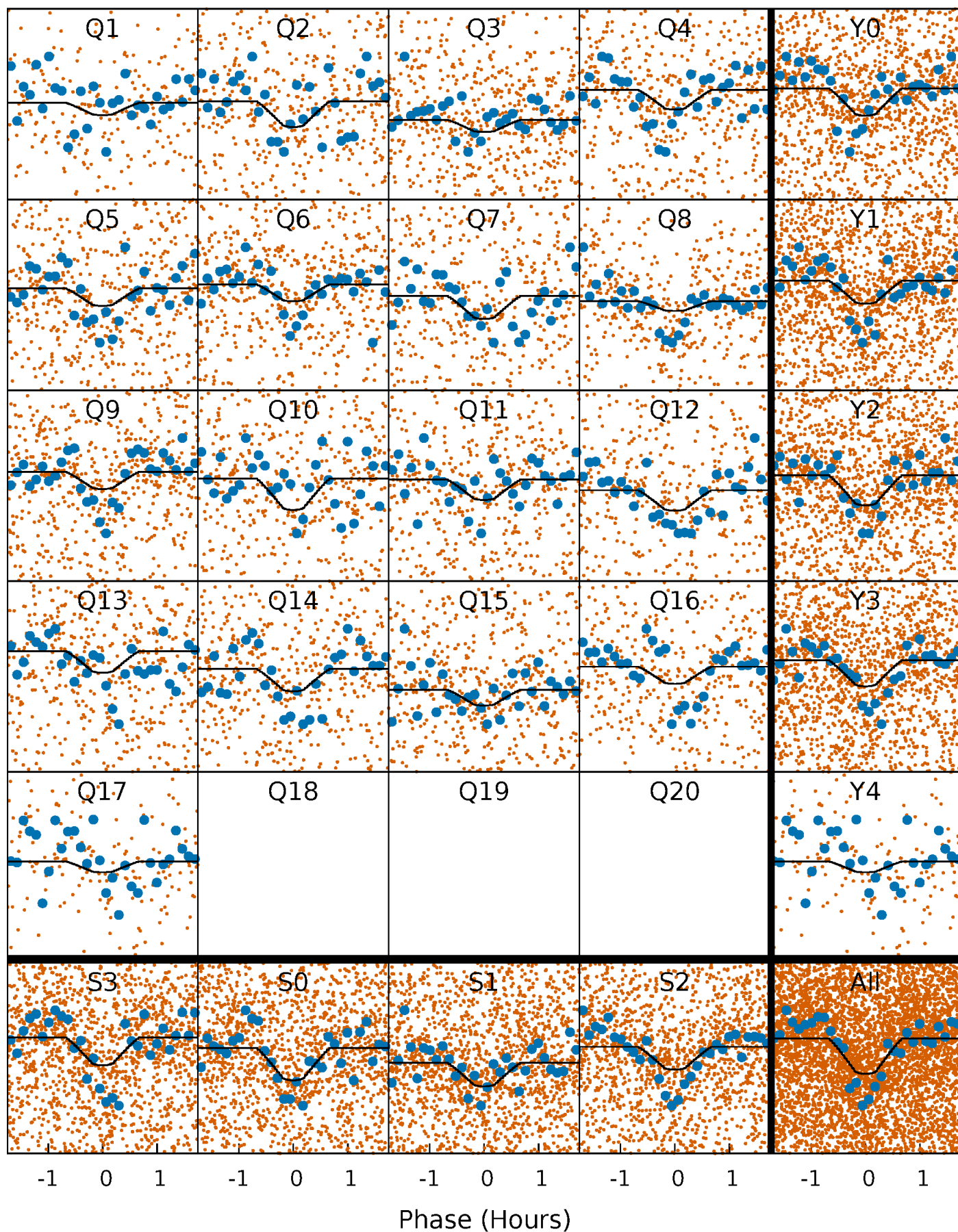
TCE 008295671-01 P= 0.981386 Days  $T_0=132.134078$  (BKJD)





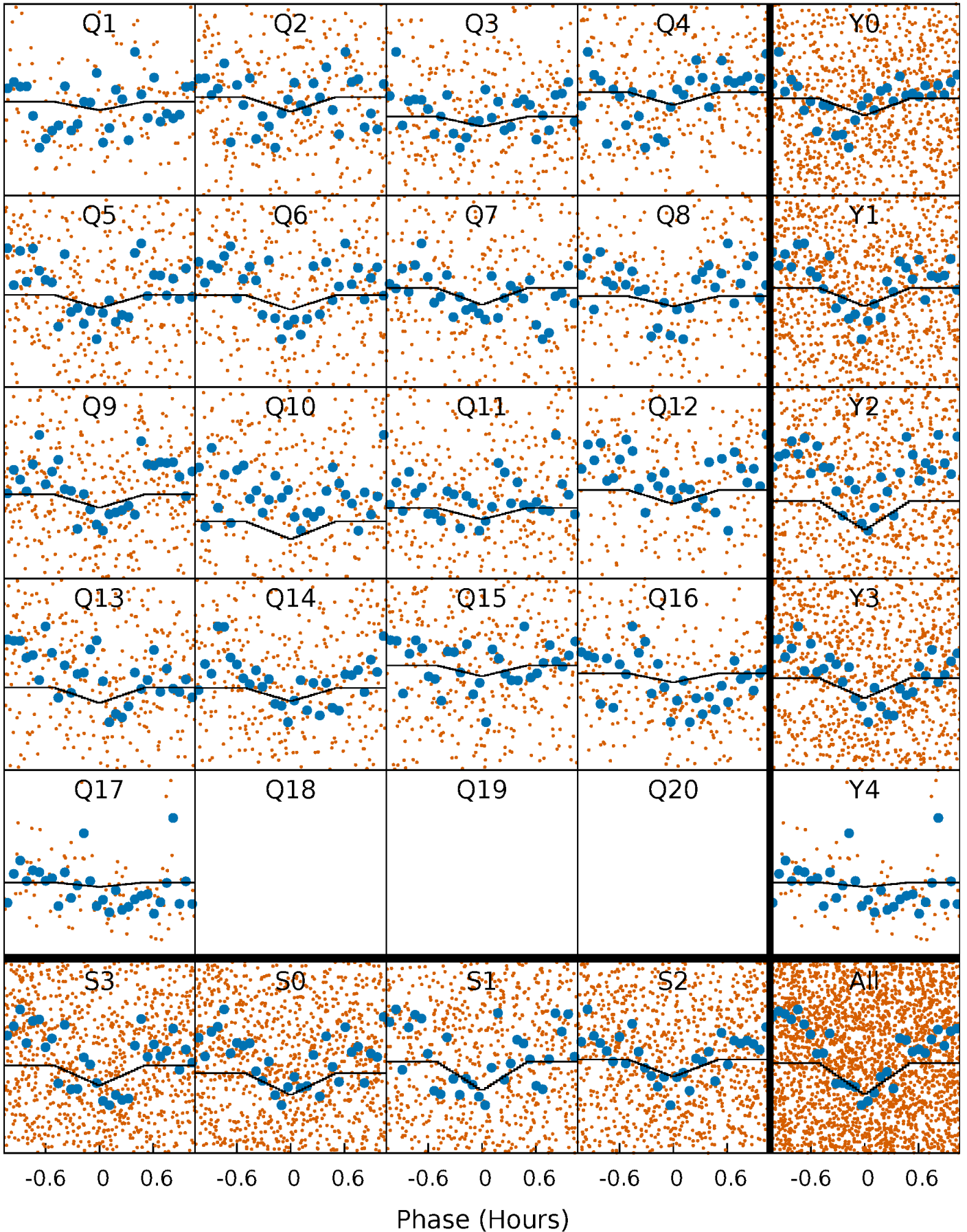
# DV Quarter-Phased Transit Curves

TCE 008295671-01 P= 0.981386 Days  $T_0=132.134078$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

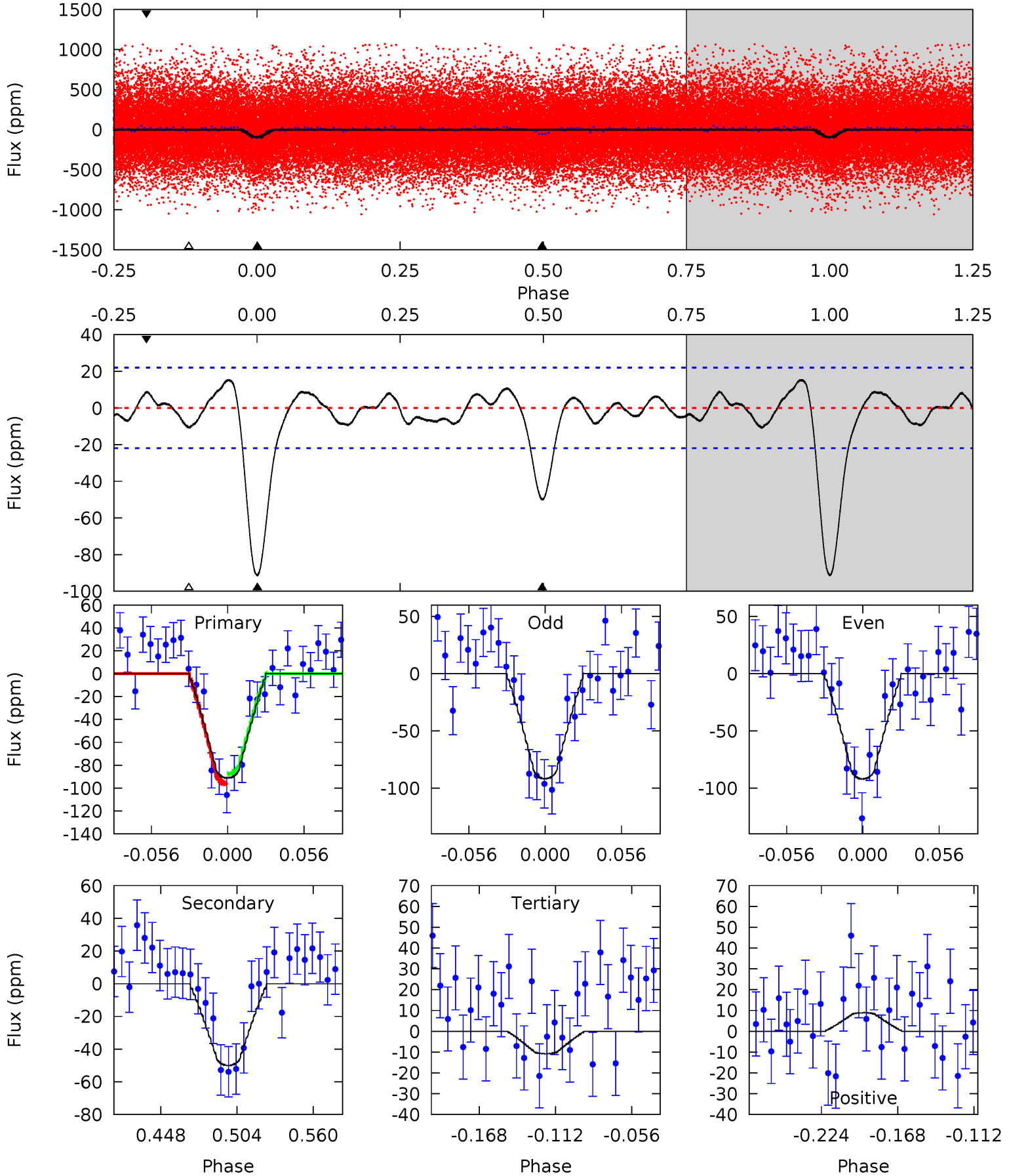
TCE 008295671-01 P= 0.981386 Days  $T_0=132.134078$  (BKJD)



# DV Model-Shift Uniqueness Test

008295671-01, P = 0.981386 Days, E = 131.152692 Days

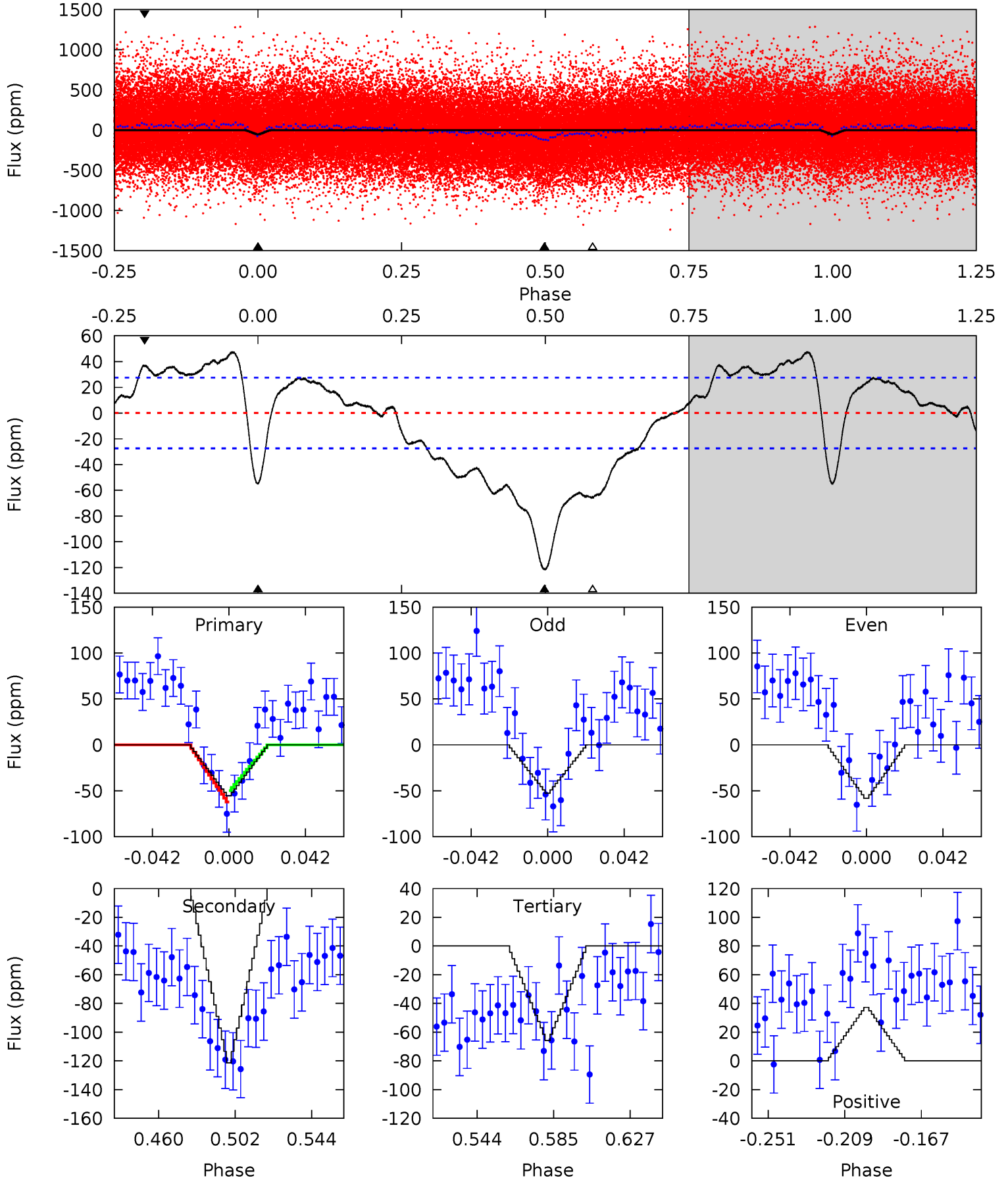
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	10.7	2.31	1.90	4.68	1.91	1.21	17.2	17.6	8.37	8.78	0.02	0.99	0.14	0.94



# Alt Model-Shift Uniqueness Test

008295671-01, P = 0.981386 Days, E = 131.152692 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
9.57	21.0	11.4	6.44	4.74	2.04	6.00	-1.79	3.13	9.61	14.5	0.49	0.94	0.28	1.06





### Stellar Parameters For KIC 008295671

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6038^{+163}_{-199}$	$4.524^{+0.048}_{-0.204}$	$-0.280^{+0.300}_{-0.300}$	$0.898^{+0.262}_{-0.087}$	$0.982^{+0.117}_{-0.130}$	$1.912^{+0.389}_{-1.004}$
	+3%/-3%	+1%/-5%	+107%/-107%	+29%/-10%	+12%/-13%	+20%/-53%
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 008295671-01 / KOI 4593.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-50 \pm 5$	$1.51^{+1.44}_{-1.04}$	$2594^{+169}_{-121}$	$4311^{+3381}_{-988}$	$4.310^{+40.991}_{-3.166}$
Alt.	$-121 \pm 6$	$1.50^{+1.38}_{-1.03}$	$2600^{+158}_{-123}$	$5248^{+4589}_{-1255}$	$11^{+94}_{-8}$

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

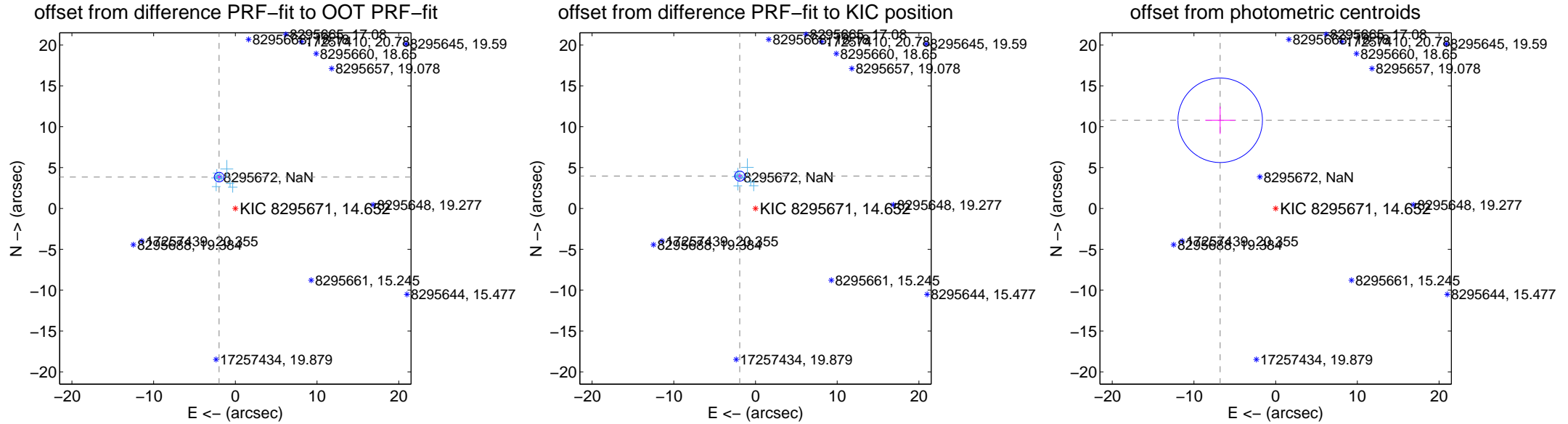
## DV Centroid Data

Supplemental centroid analysis for 008295671-01. Kepler magnitude: 14.65. Transit SNR 8.66

There are 13 quarters with good PRF difference image offsets

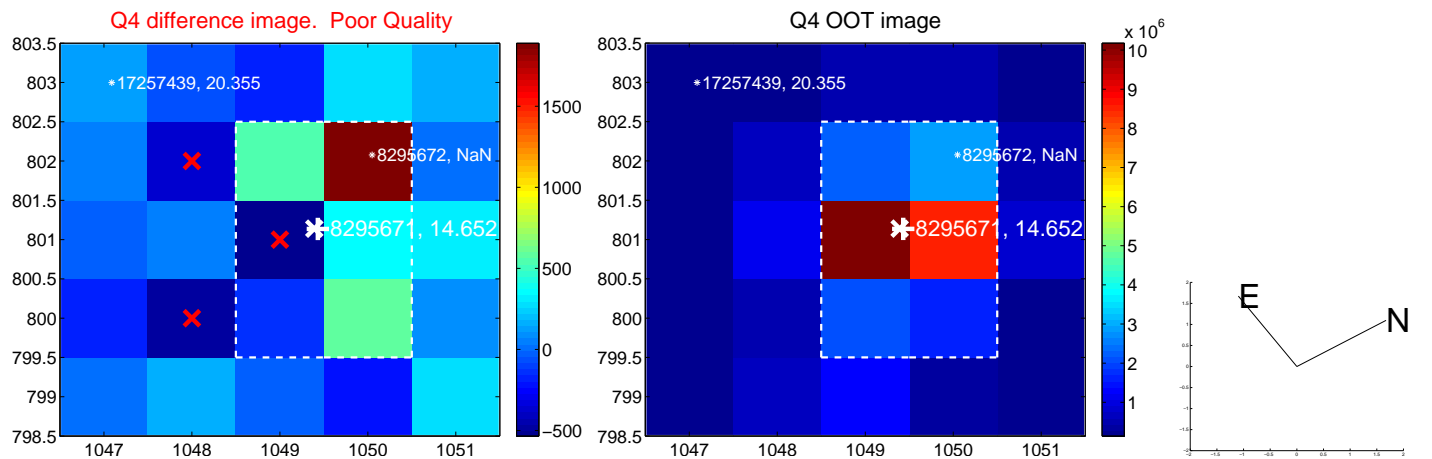
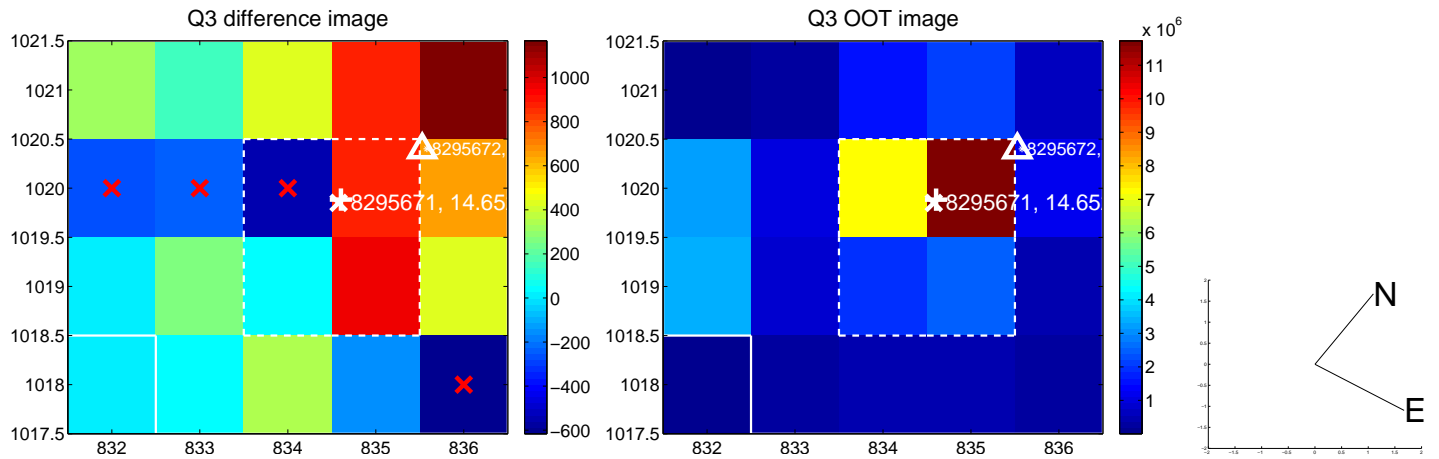
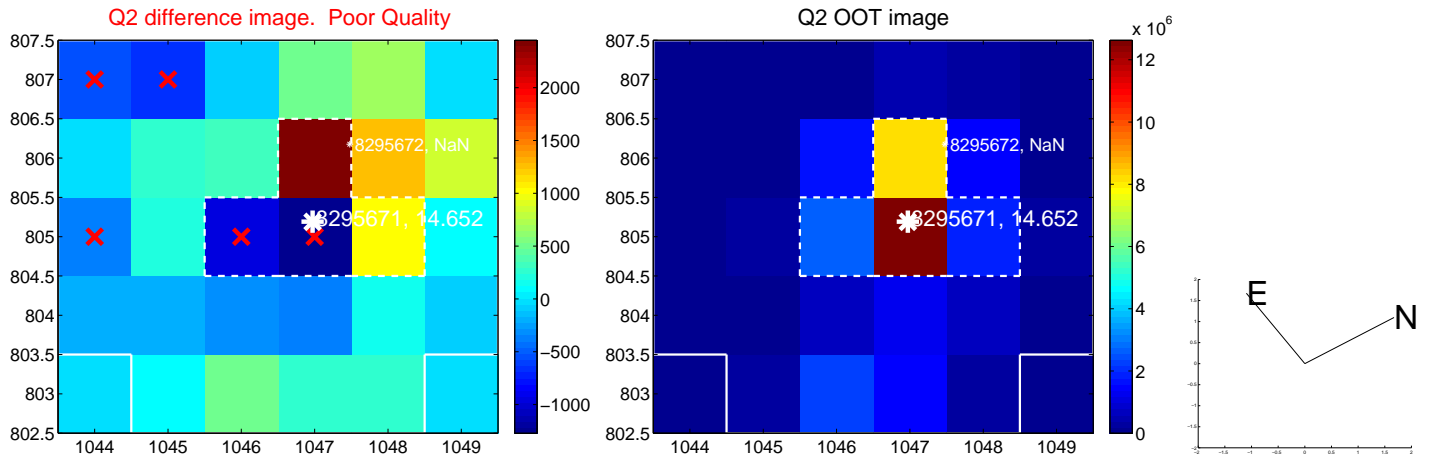
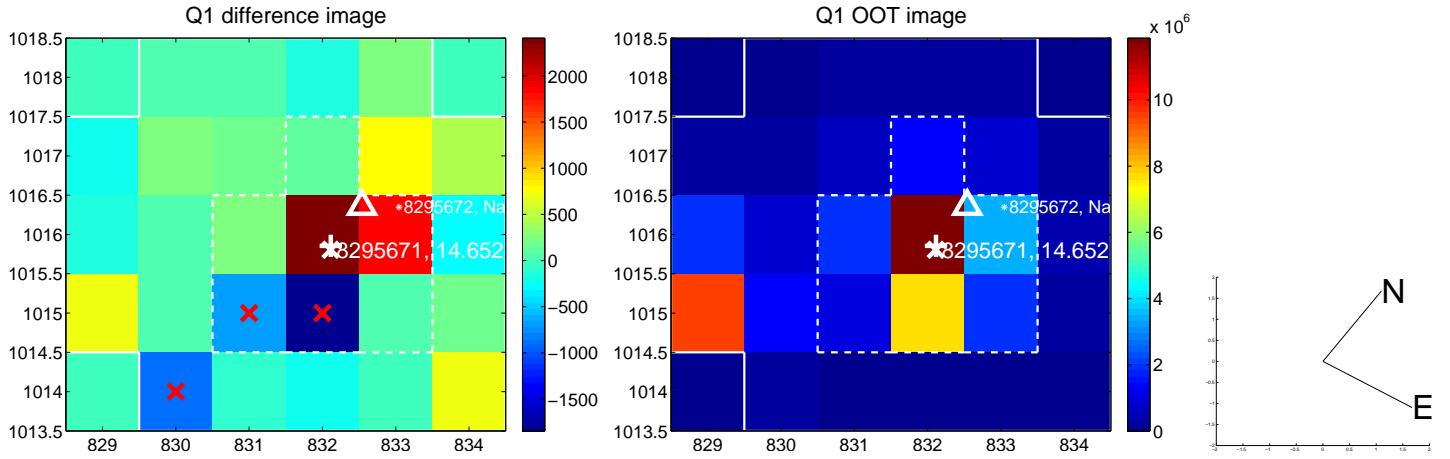
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.320 \pm 0.197$	21.88	$1.986 \pm 0.189$	$3.836 \pm 0.178$
PRF-fit source offset from KIC position	$4.402 \pm 0.206$	21.38	$1.925 \pm 0.207$	$3.958 \pm 0.186$
photometric centroid source offset	$12.75 \pm 1.72$	7.40	$6.79 \pm 1.83$	$10.79 \pm 1.68$

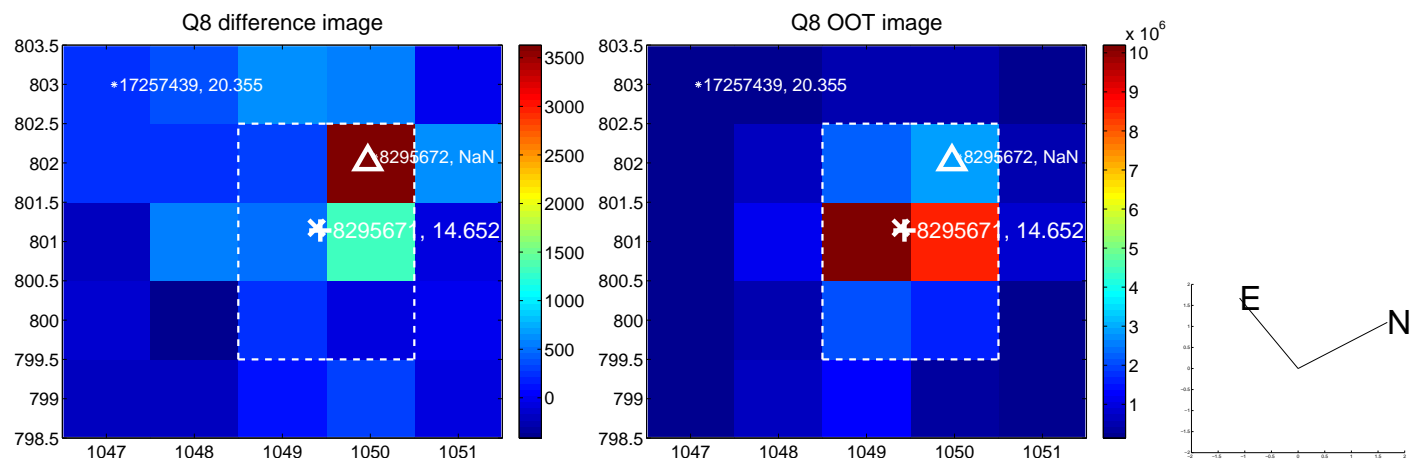
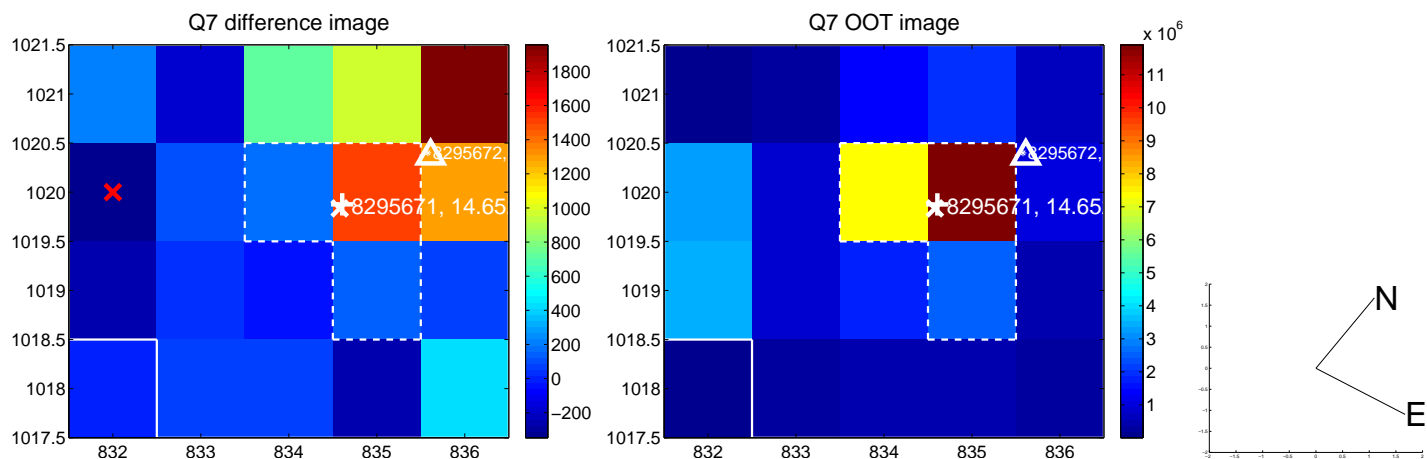
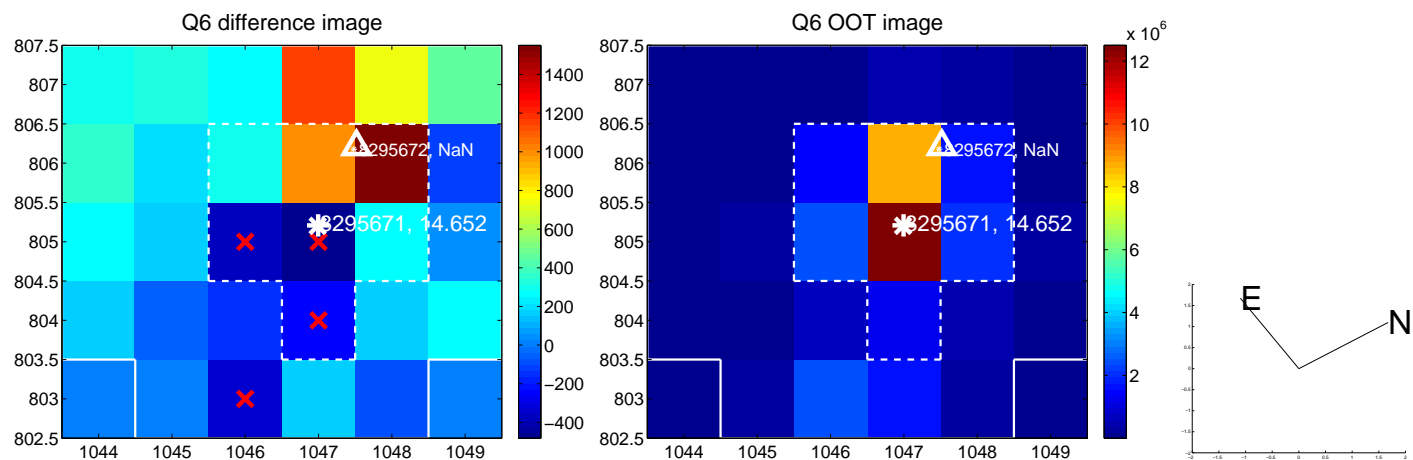
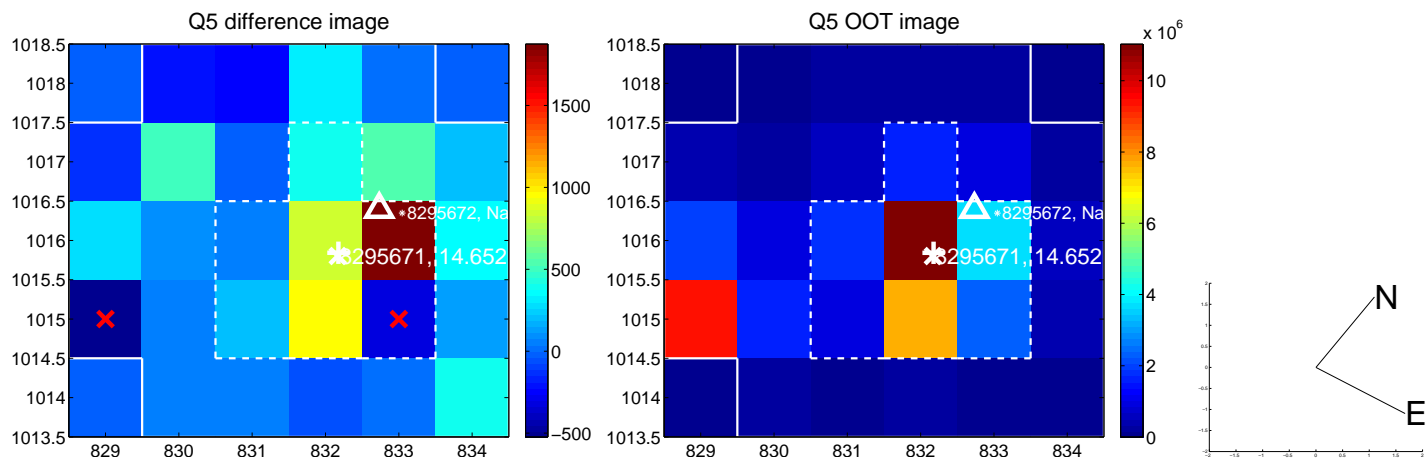


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

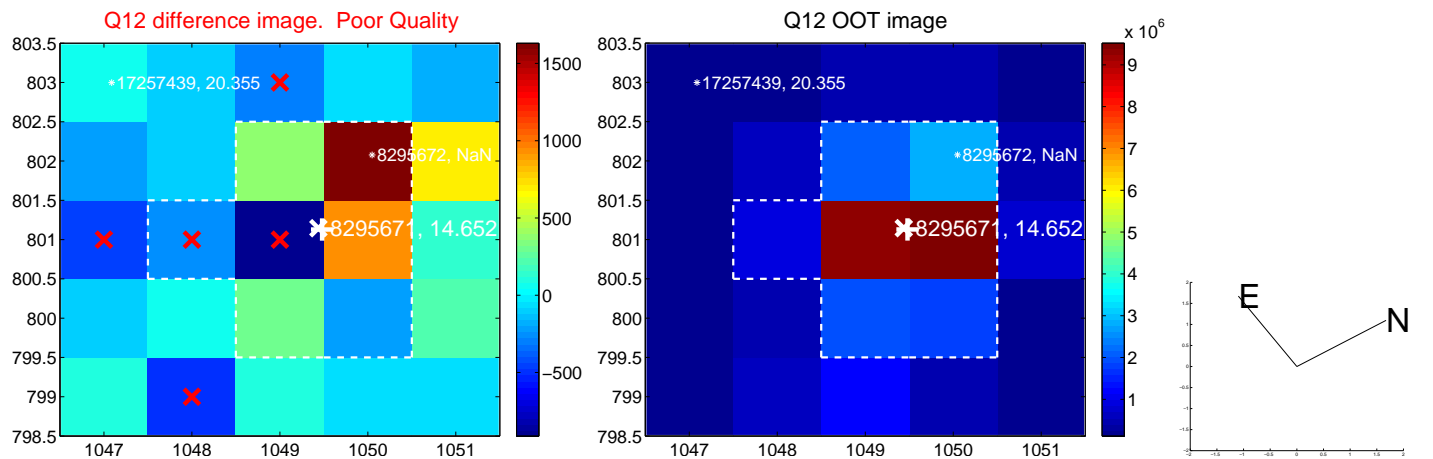
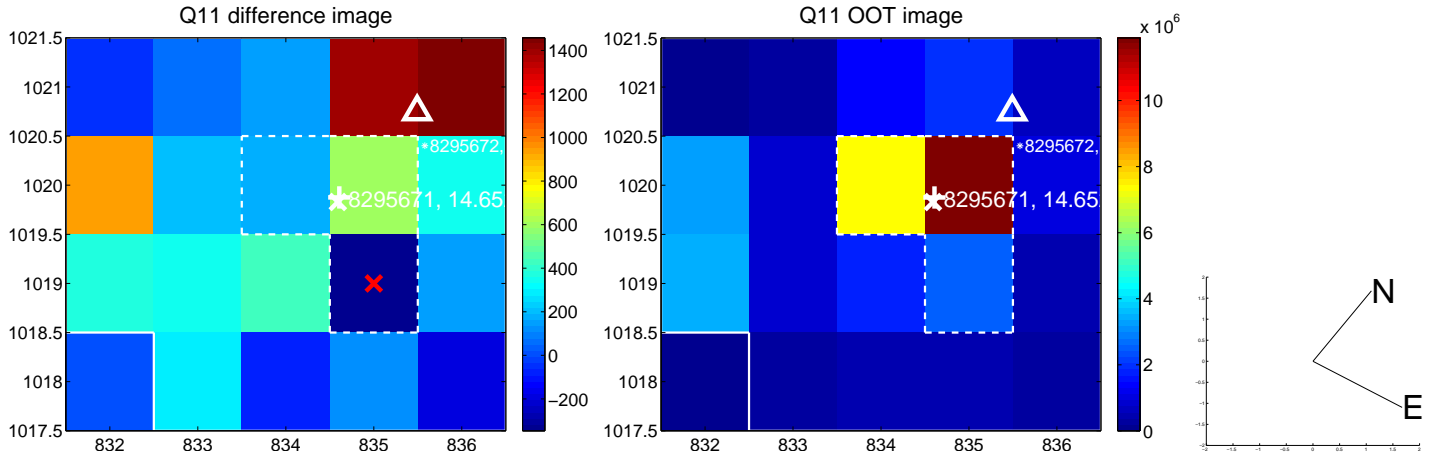
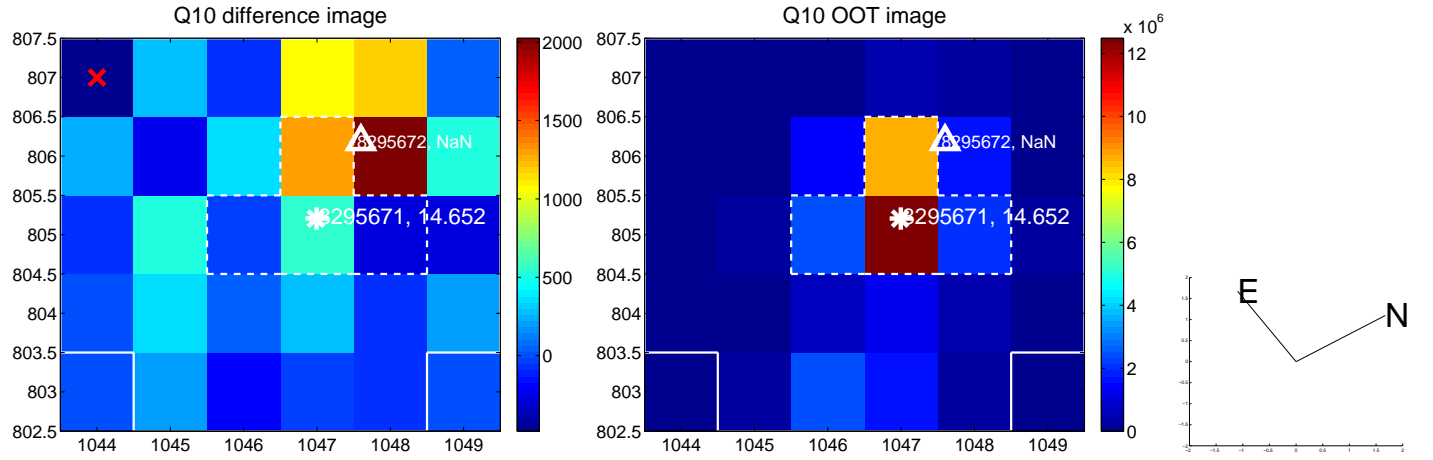
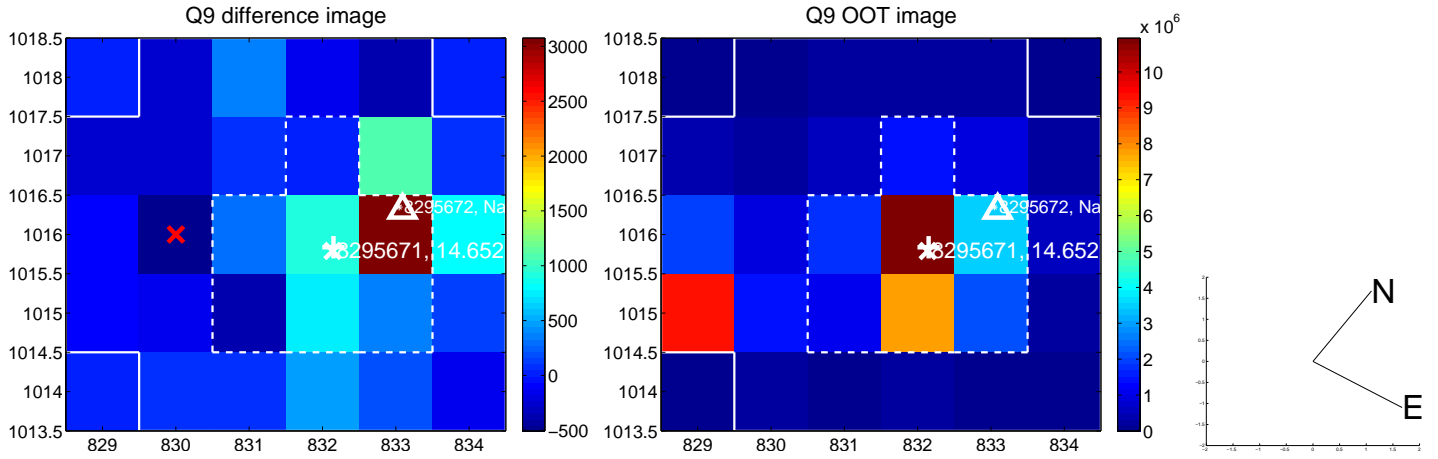


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

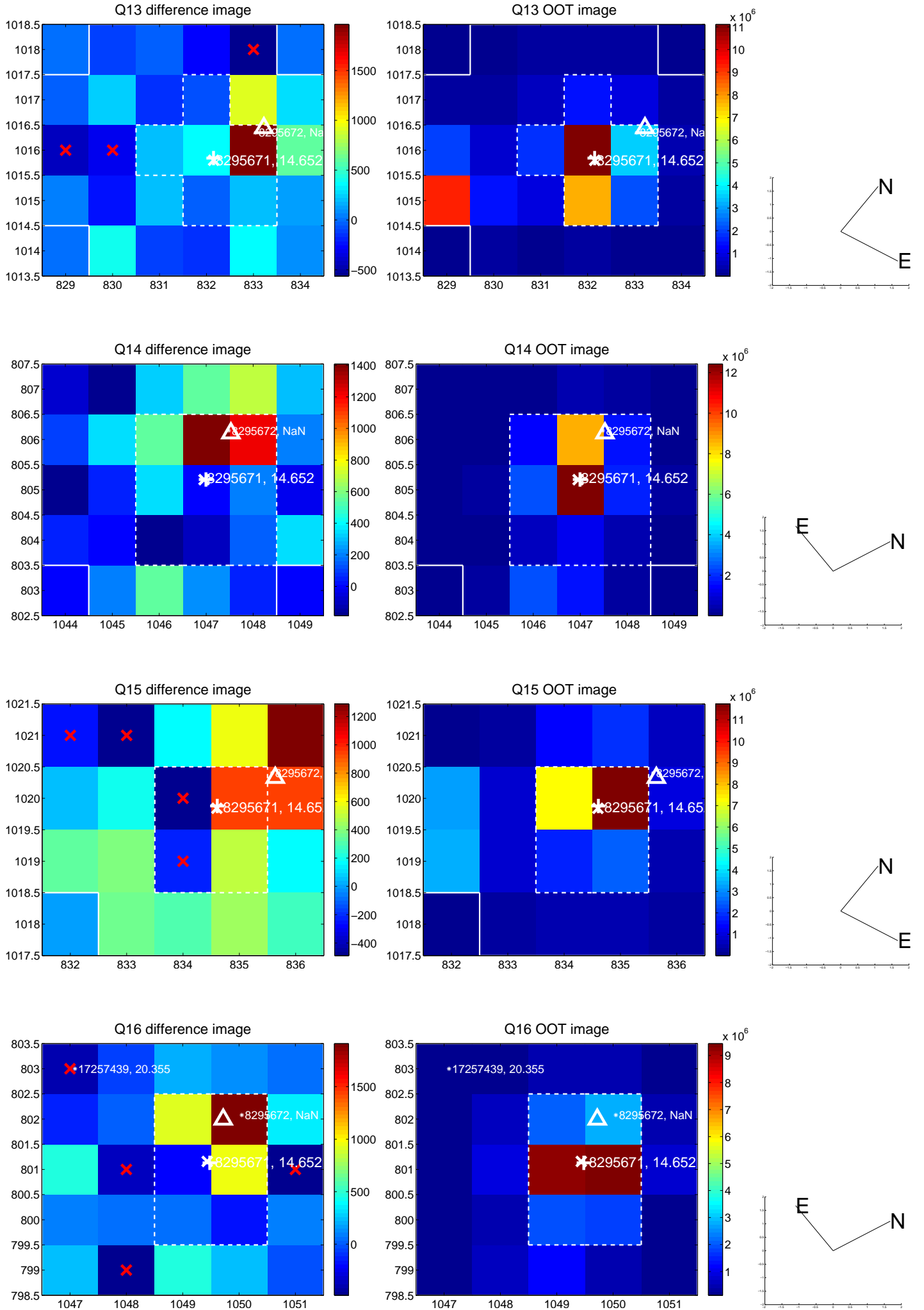




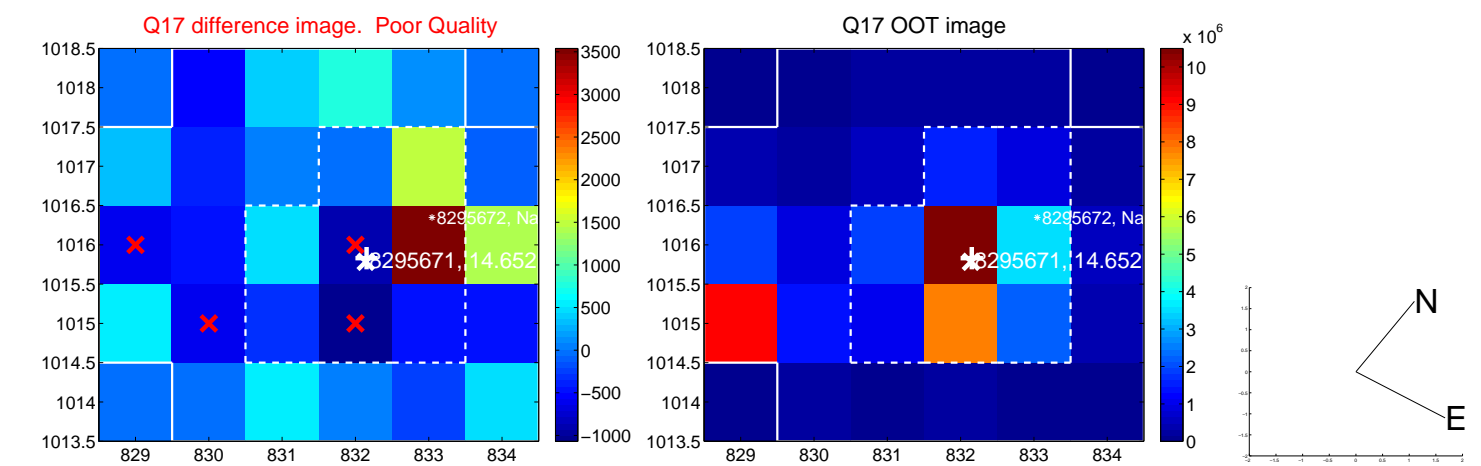
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



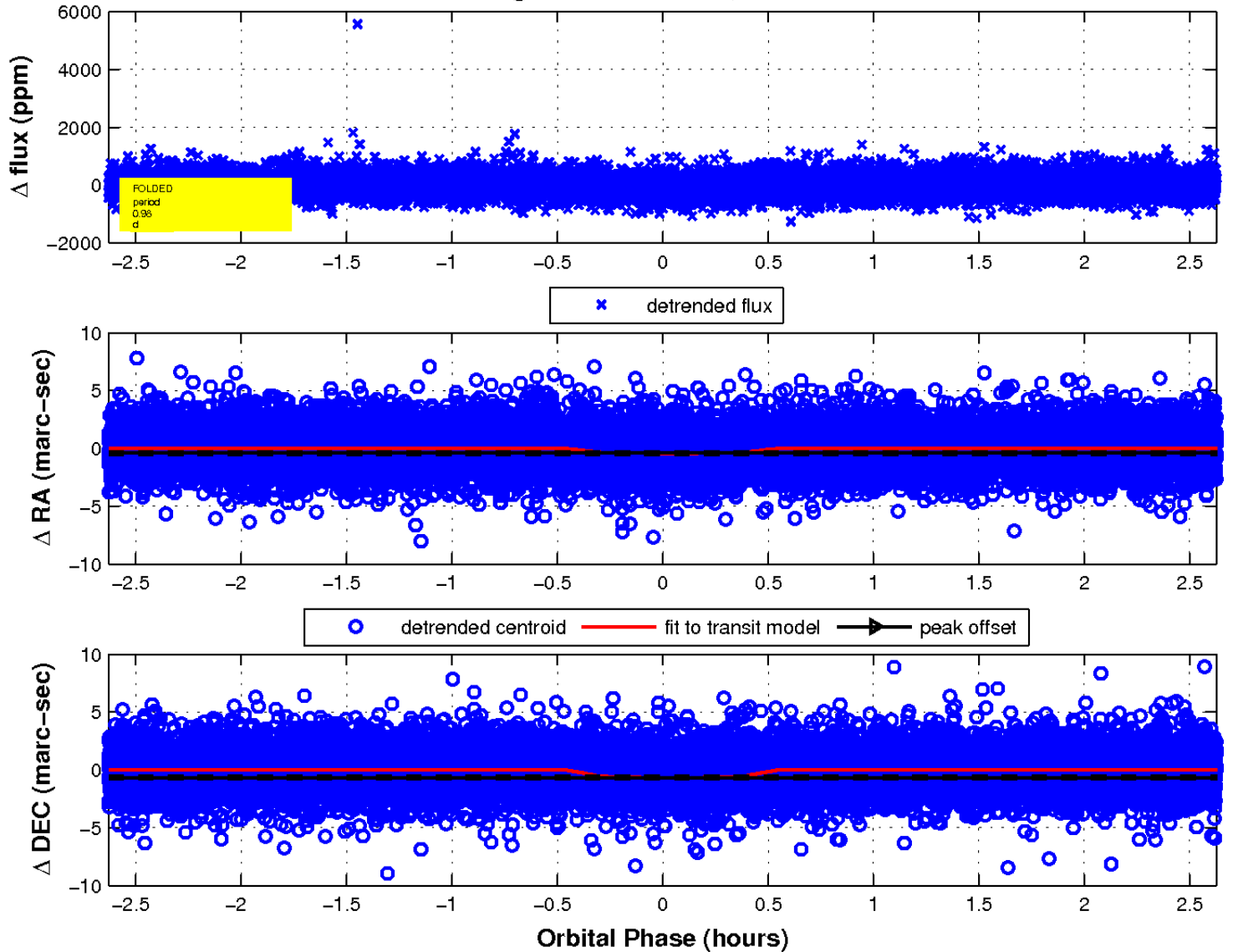
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

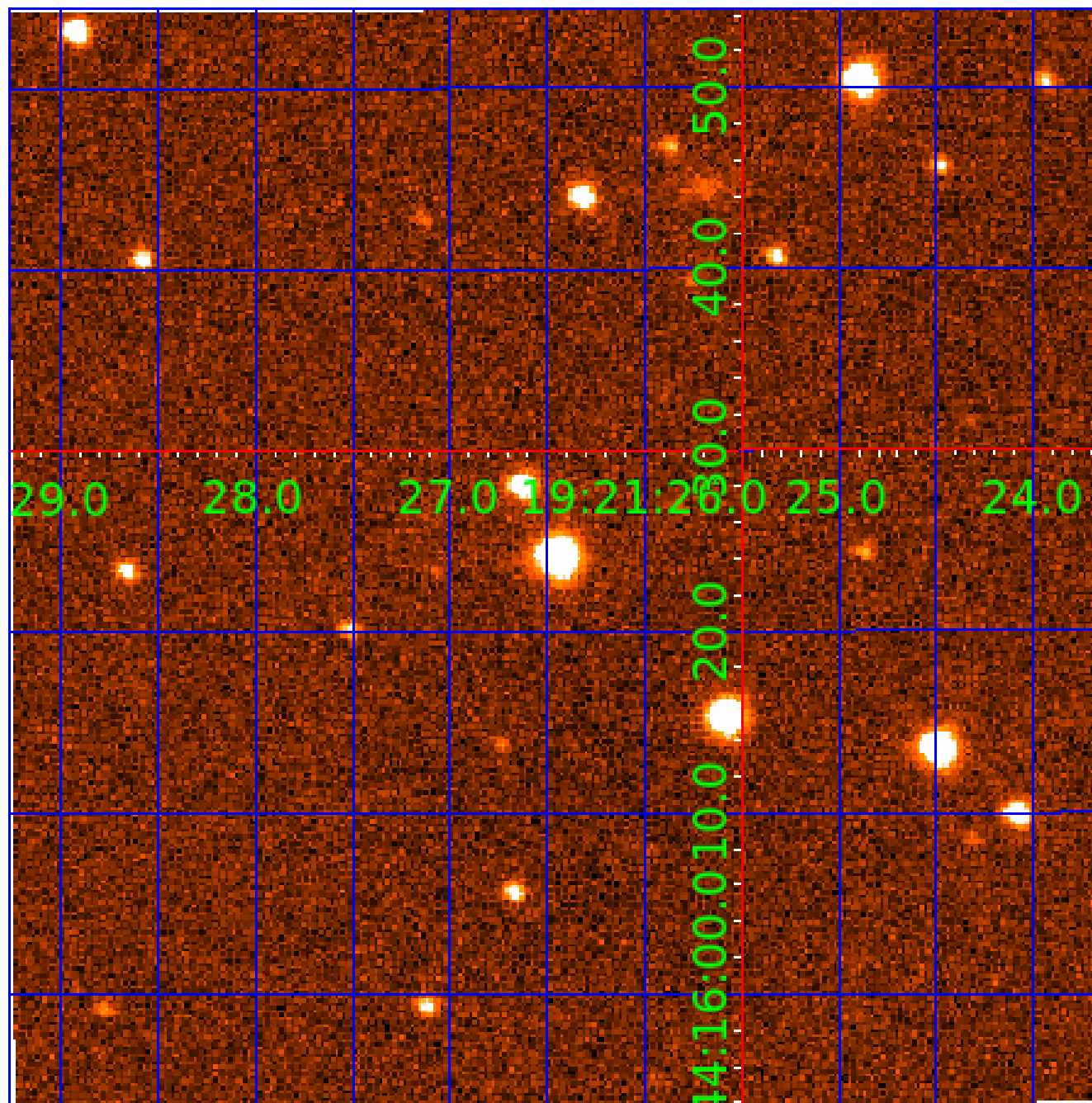


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination





# KIC 008295671

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008295671-01	OBS	4593.01	0.981386	132.134078	60.1	0.876	11.5	8.7	0.90	6038	0.70	2599.35
008295671-02	OBS	No	0.981362	131.674419	20.4	5.309	10.1	7.2	0.90	6038	0.44	2599.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008295671-01	OBS	FP	0.00	1	0	1	0	LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_UNRESOLVED_OFFSET
008295671-02	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

**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.

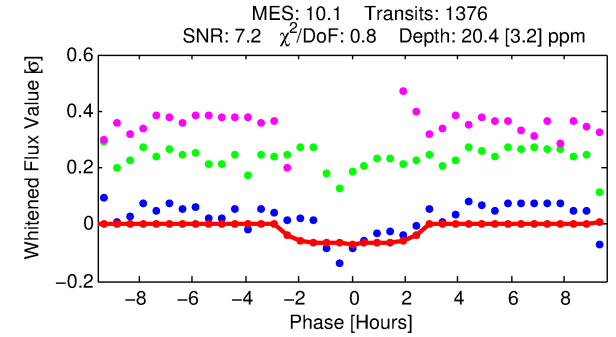
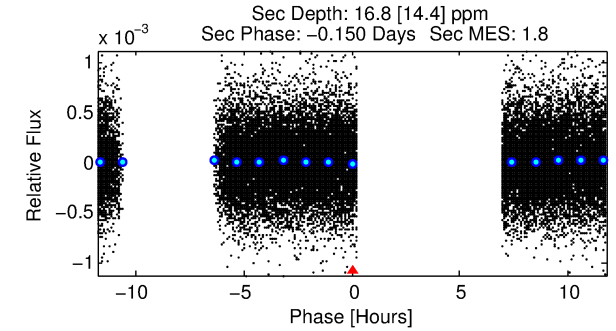
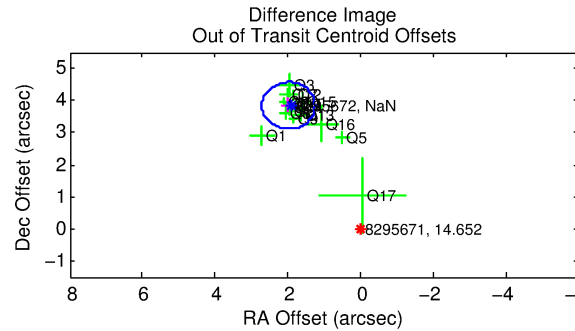
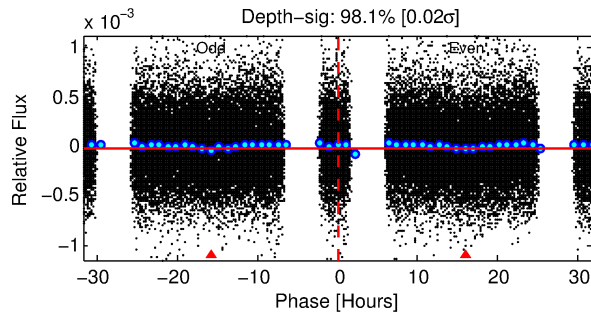
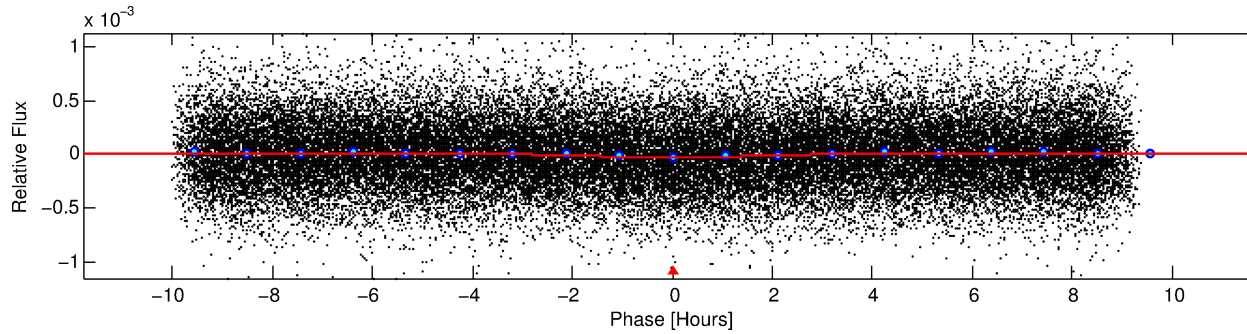
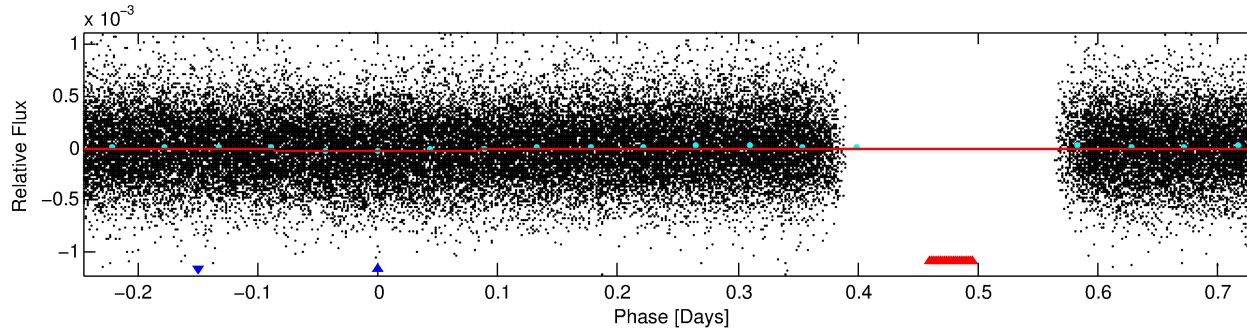
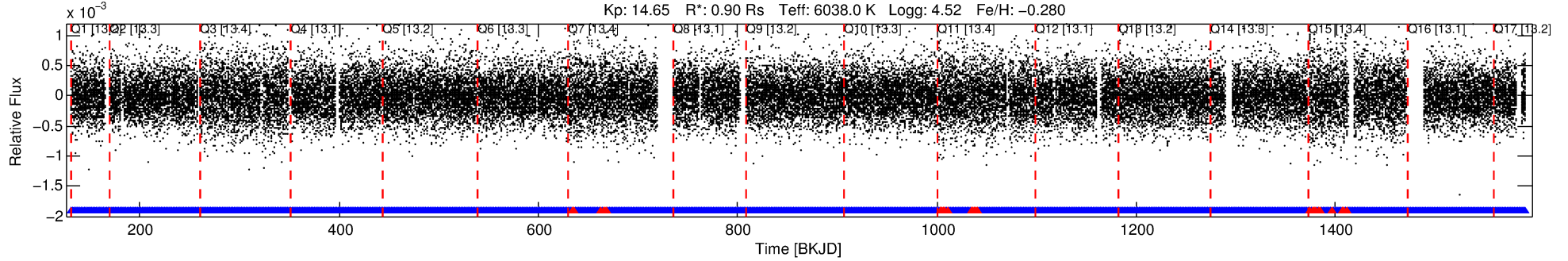
## Ephemeris Match Information For 008295671-02

No Significant Match Found

# DV One-Page Summary

KIC: 8295671 Candidate: 2 of 2 Period: 0.981 d  
KOI: K04593 Corr: No Ephemeris Match

Kp: 14.65 R\*: 0.90 Rs Teff: 6038.0 K Logg: 4.52 Fe/H: -0.280



## DV Fit Results:

Period = 0.98136 [0.00002] d  
Epoch = 131.6744 [0.0081] BKJD  
Rp/R\* = 0.0045 [0.0035]  
a/R\* = 1.25 [1.78]  
b = 0.78 [2.05]  
Seff = 2599.43 [1017.69]  
Teq = 1821 [178] K  
Rp = 0.44 [0.37] Re  
a = 0.0192 [0.0048] AU  
Ag = 17.26 [31.37] [0.52σ]  
Teffp = 5738 [2560] K [1.53σ]

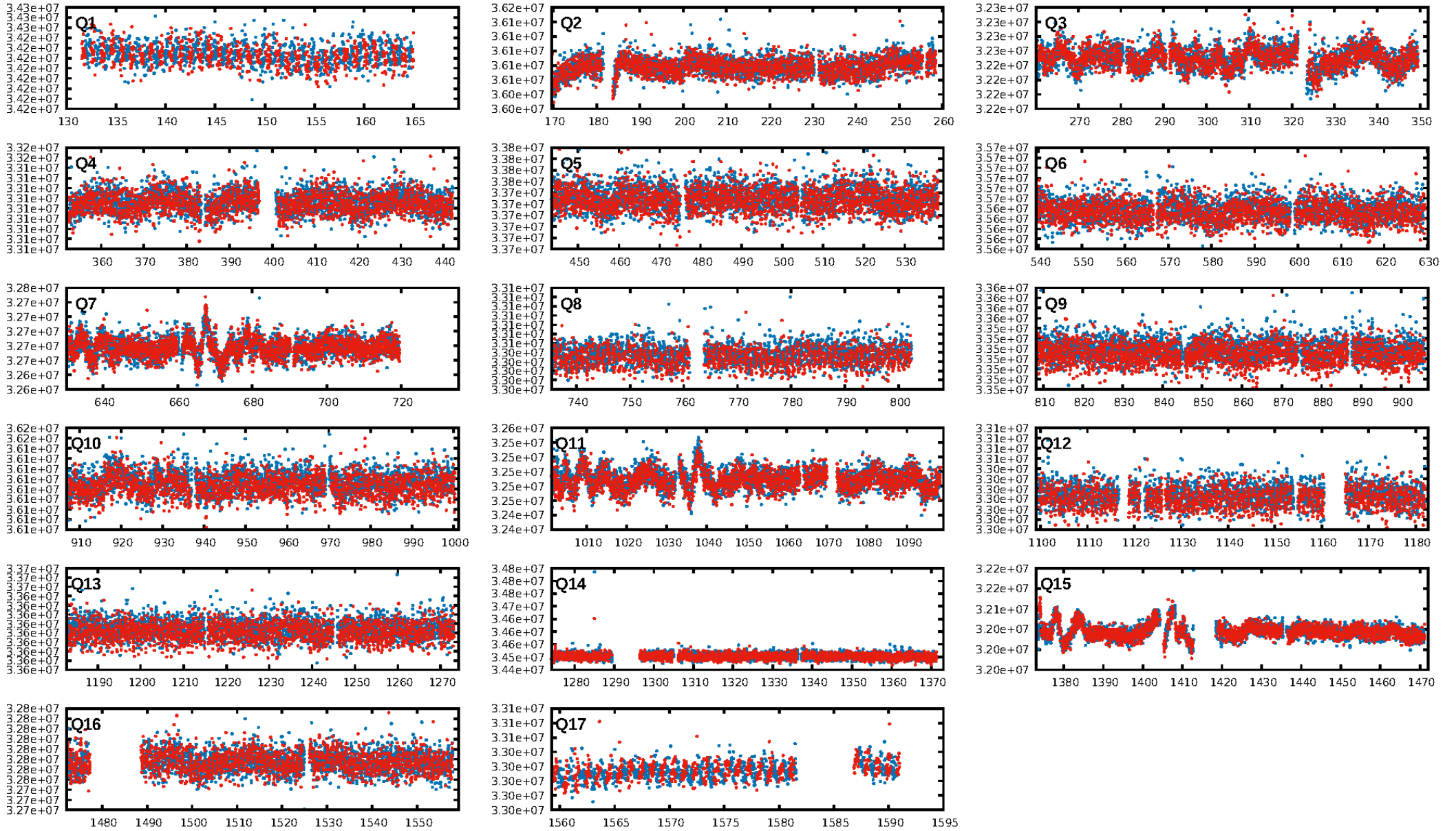
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.38e-25  
RollingBand-fgt: 0.97 [1280/1313]  
GhostDiagnostic-chr: 1.044  
Centroid-sig: 0.0%  
Centroid-so: 10.406 arcsec [4.87σ]  
OotOffset-rm: 4.323 arcsec [17.75σ]  
KicOffset-rm: 4.372 arcsec [19.39σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:30:02 Z

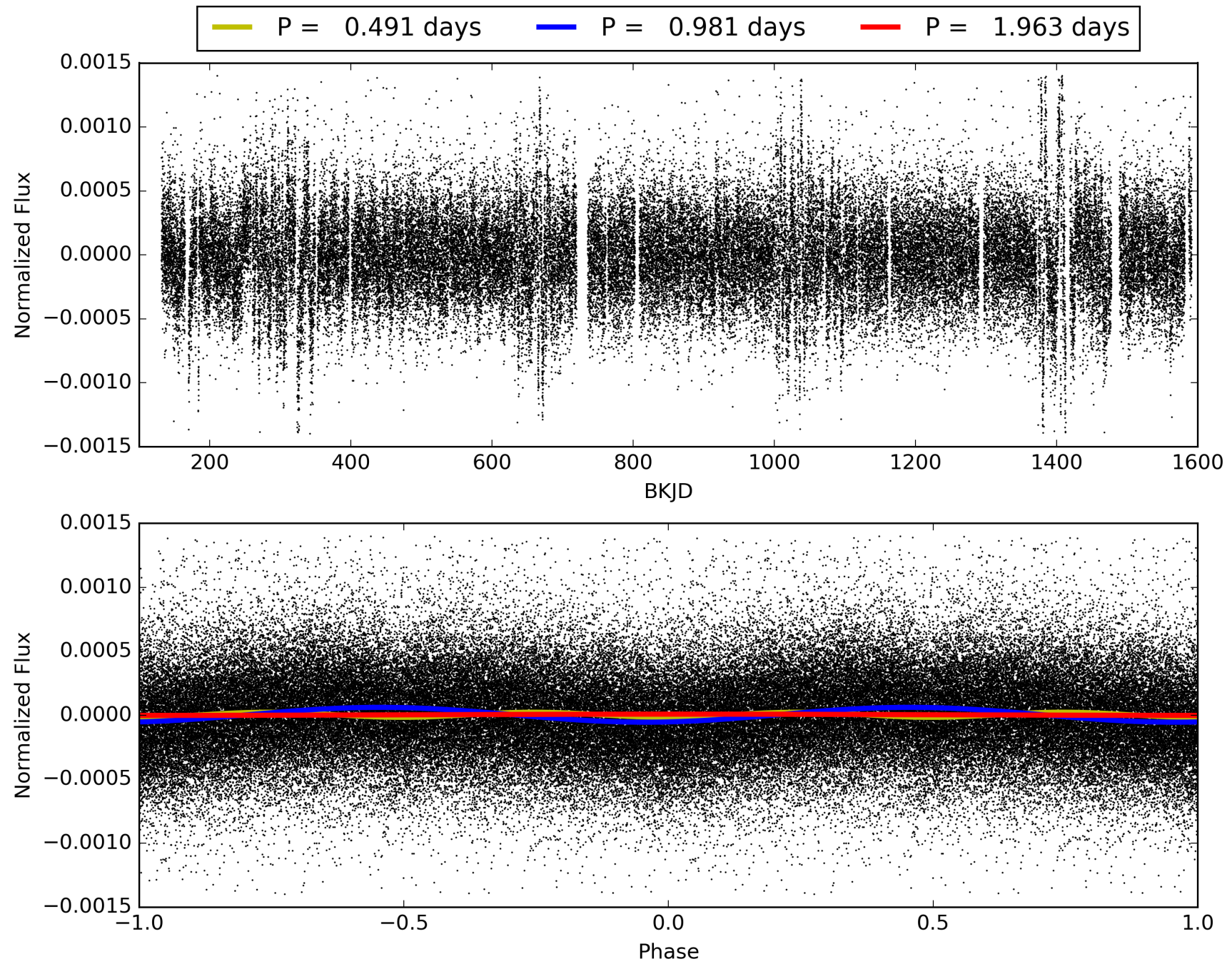
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008295671-02, PDC Light Curves





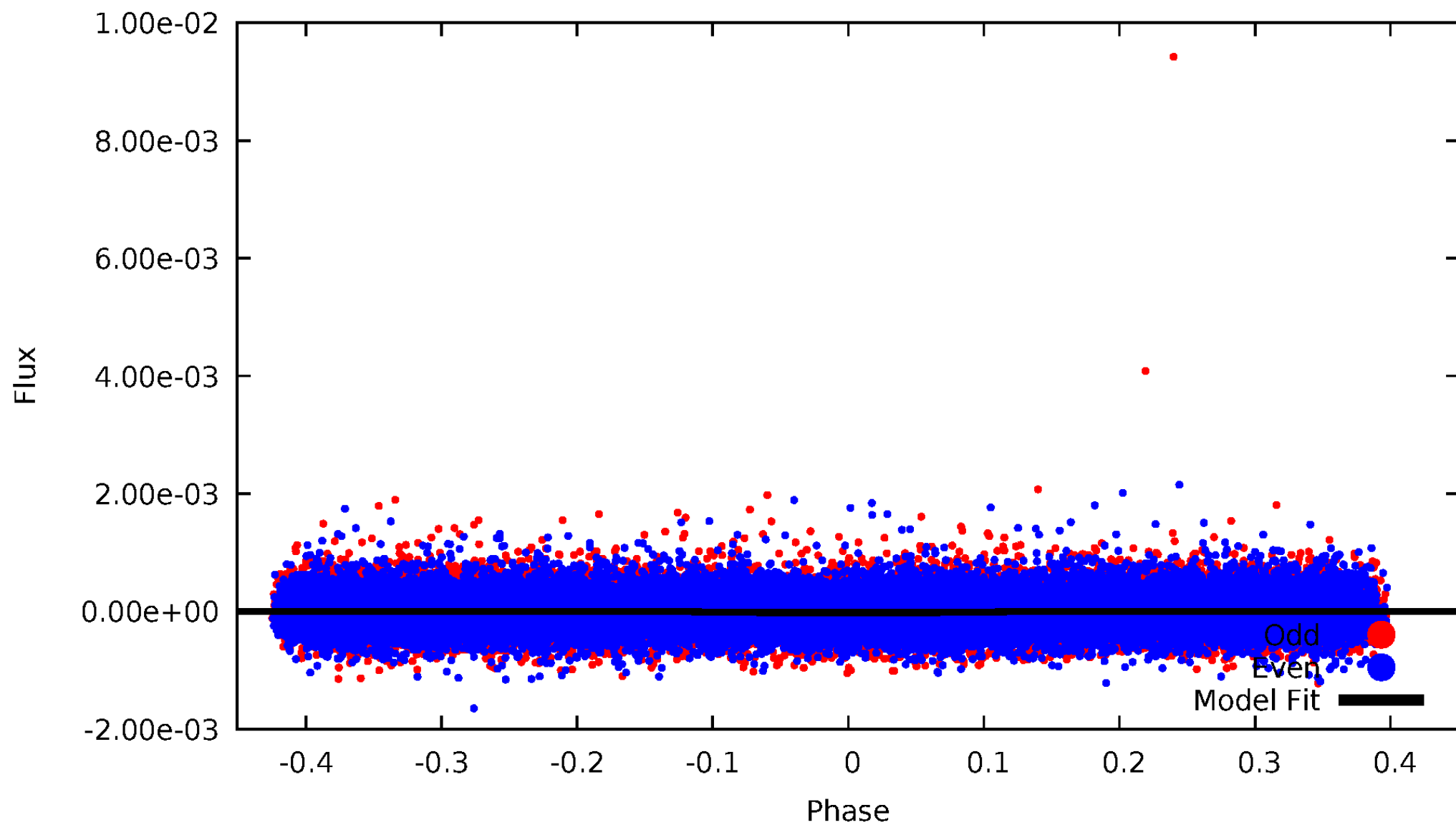
TCE 008295671-02





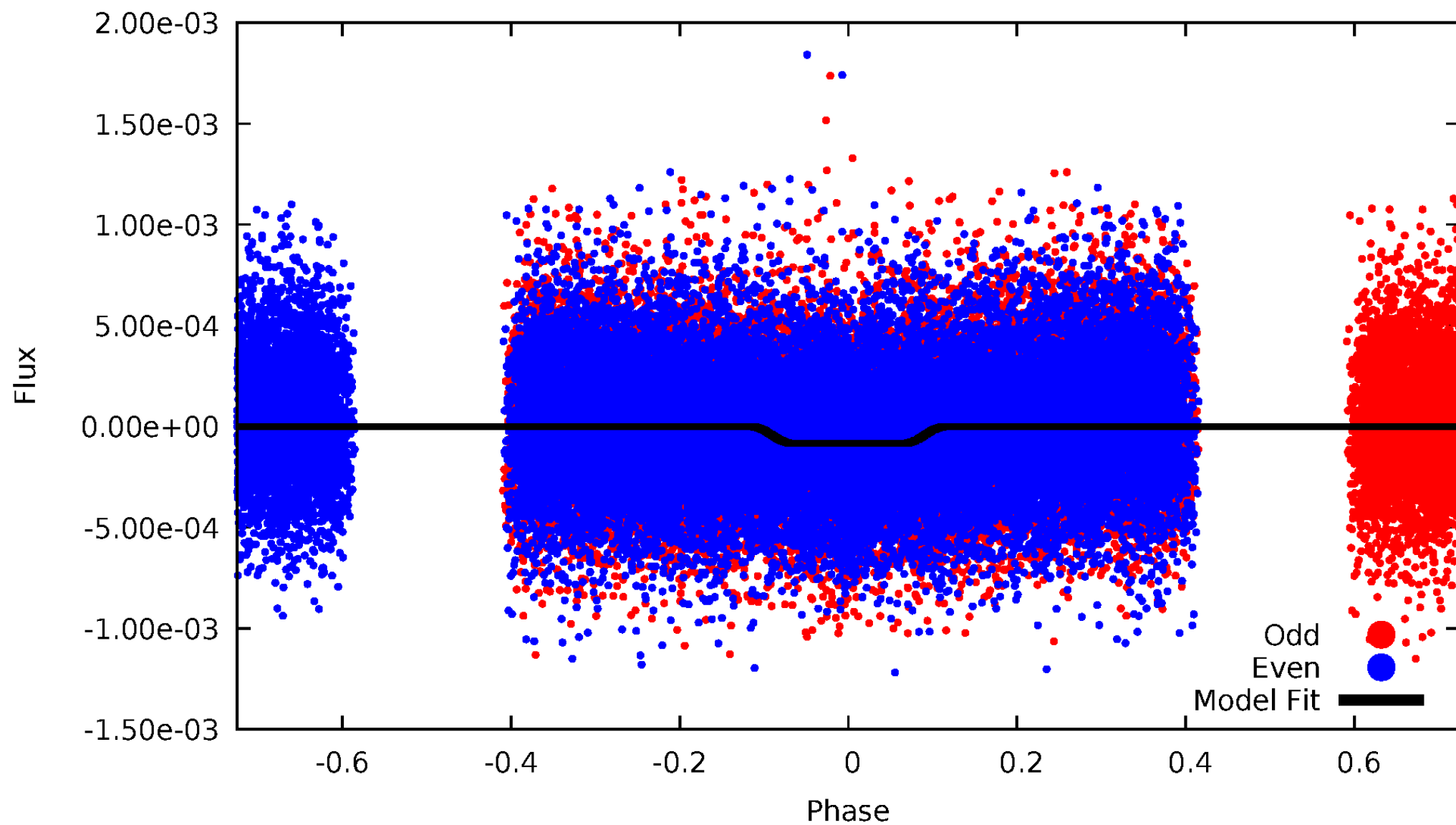
# DV Odd/Even

TCE 008295671-02



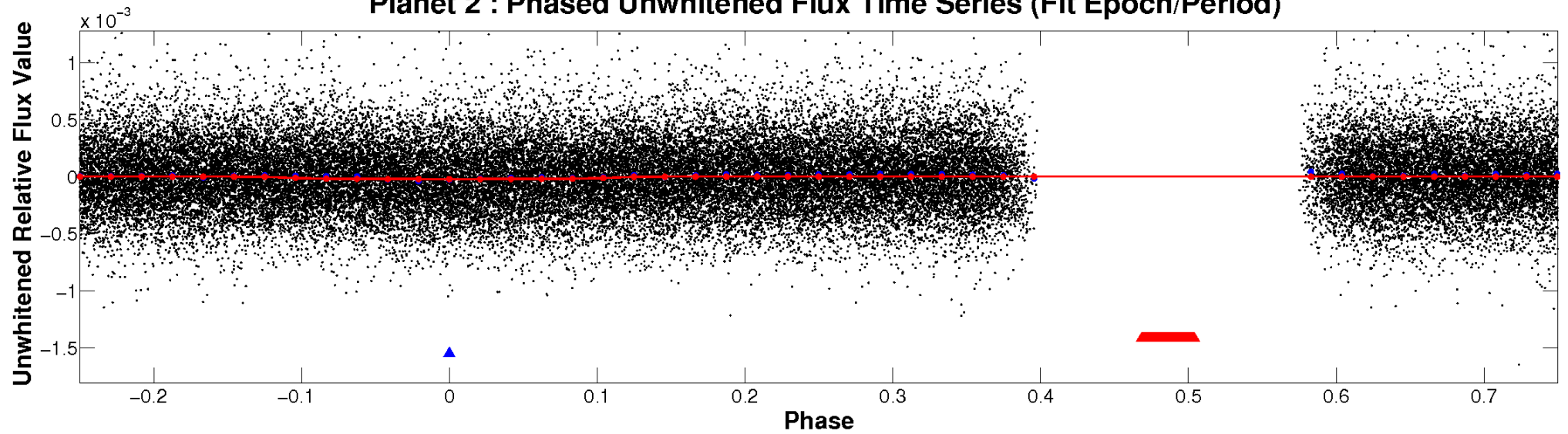
# ALT Odd/Even

TCE 008295671-02

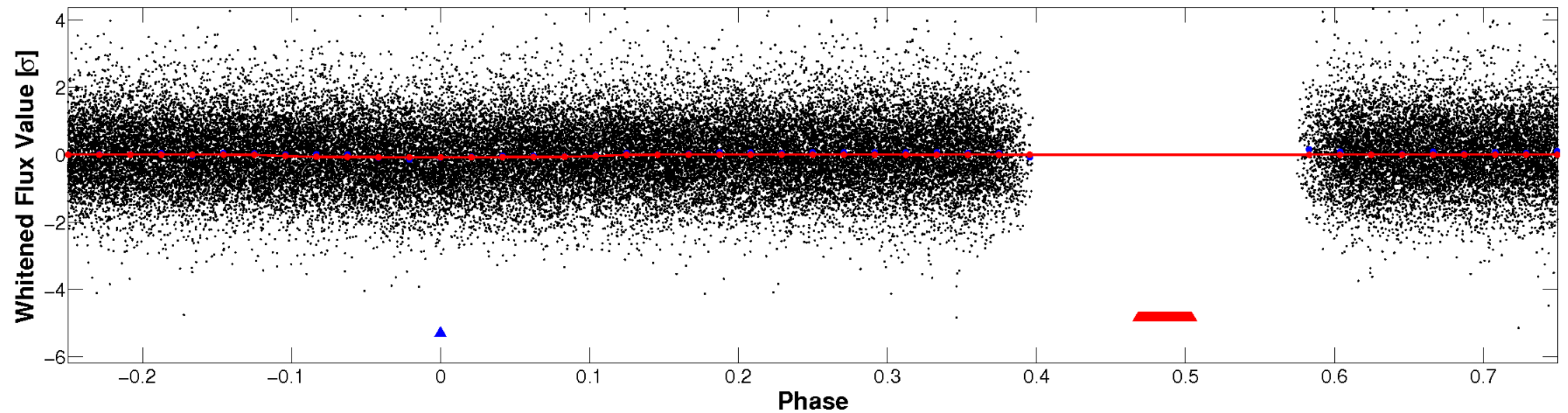


# Non-Whitened Vs. Whitened Light Curve

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

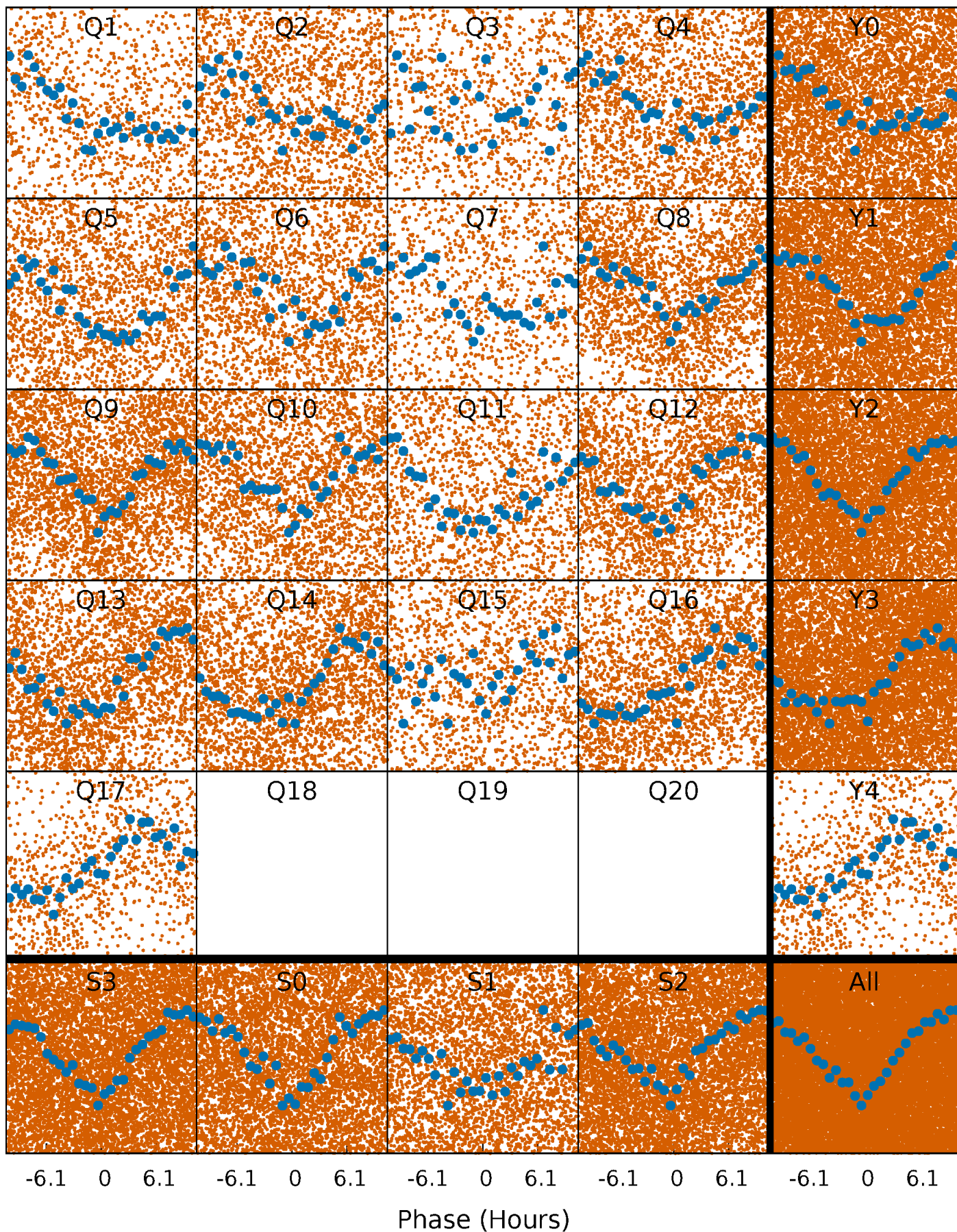


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

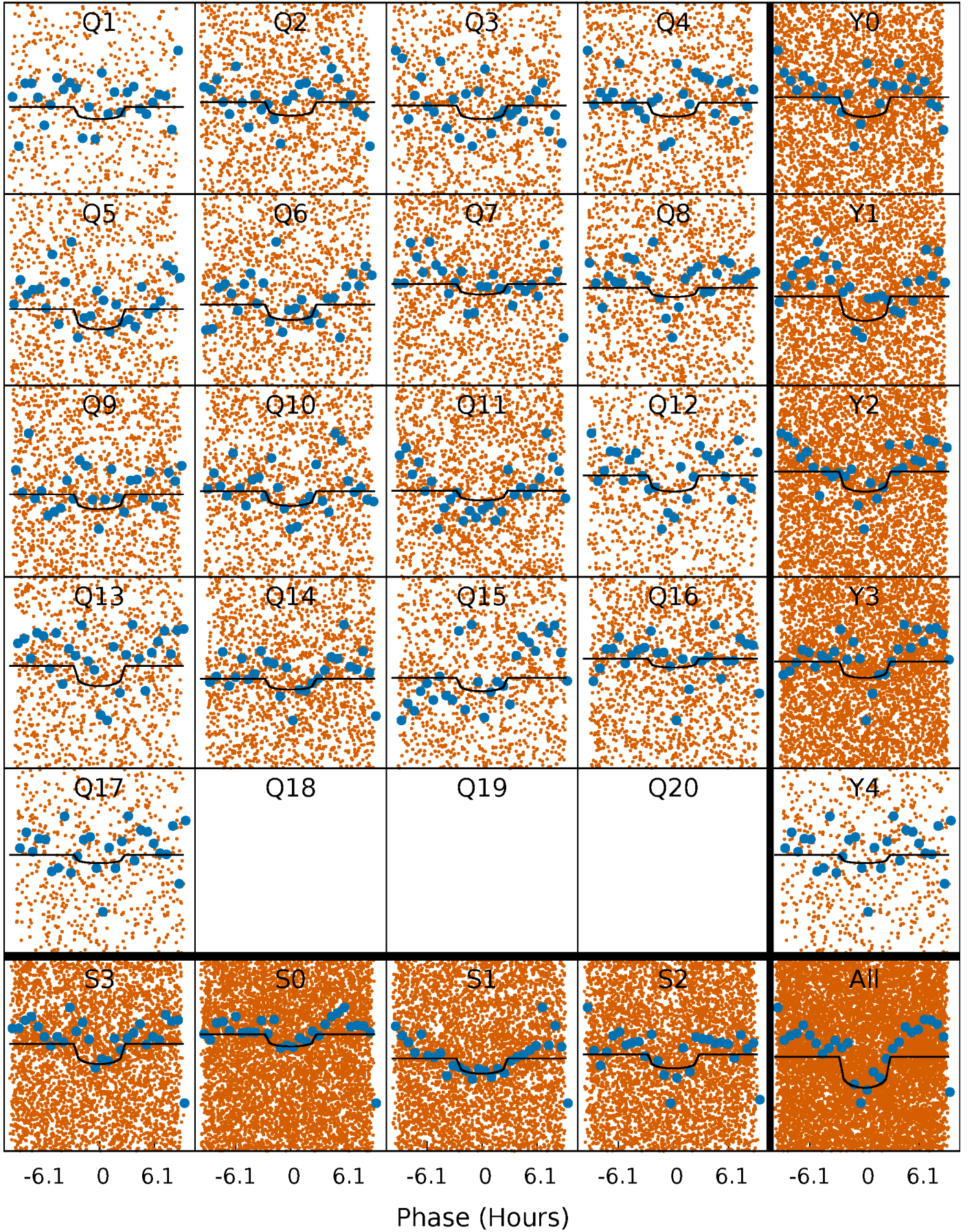
TCE 008295671-02   P= 0.981362 Days    $T_0=131.674419$  (BKJD)





# DV Quarter-Phased Transit Curves

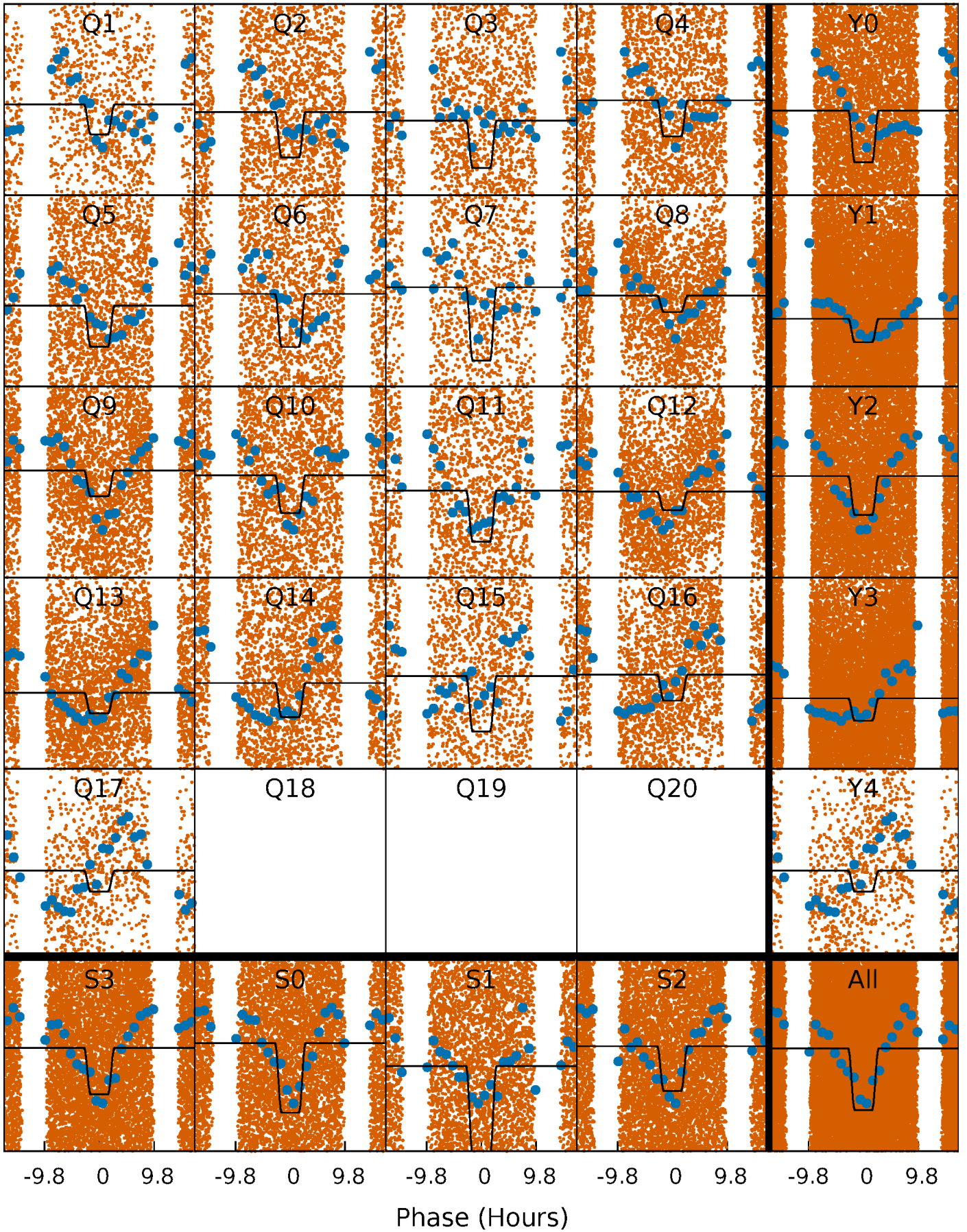
TCE 008295671-02   P= 0.981362 Days    $T_0=131.674419$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

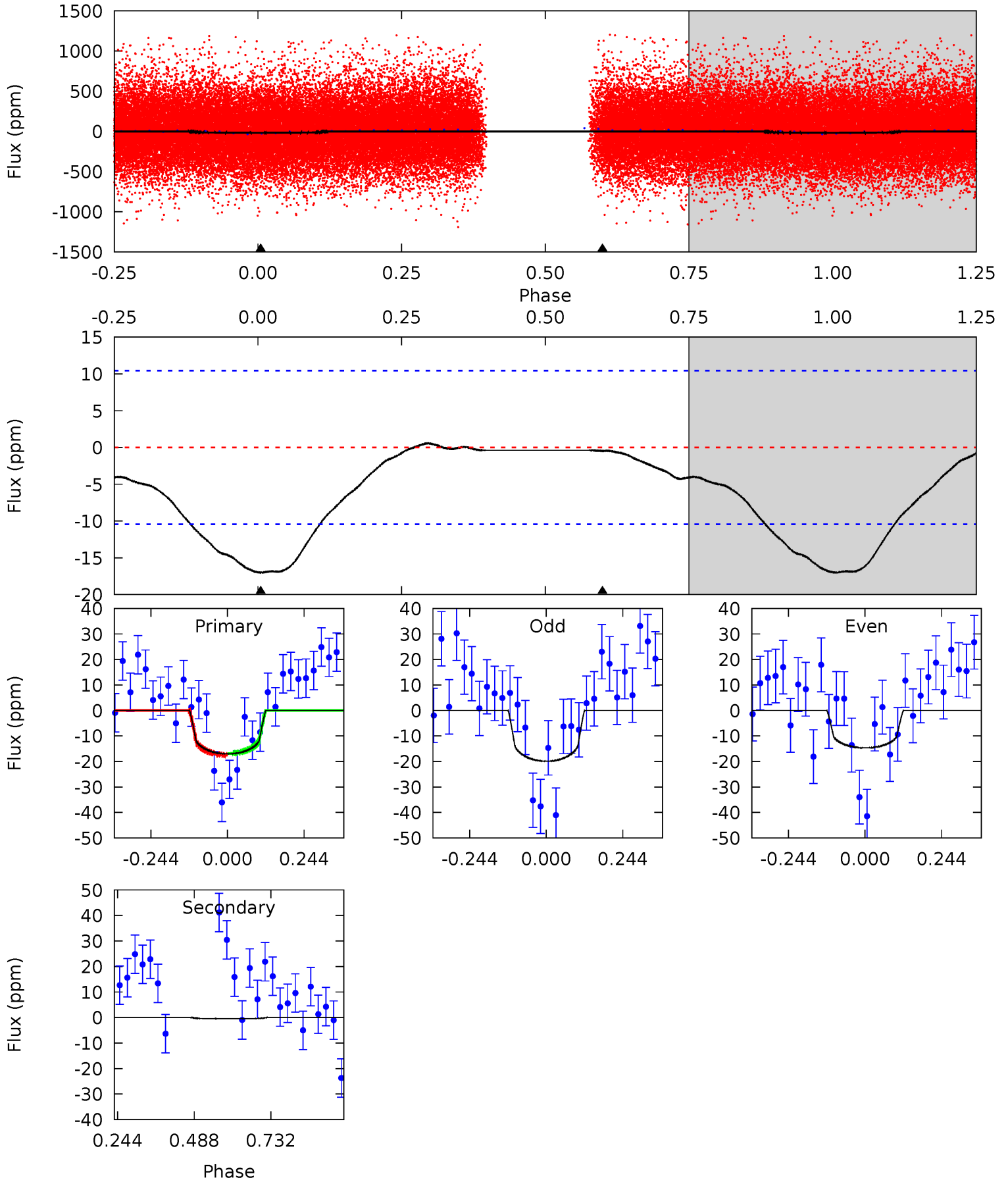
TCE 008295671-02   P= 0.981411 Days    $T_0=131.621366$  (BKJD)



# DV Model-Shift Uniqueness Test

008295671-02, P = 0.981362 Days, E = 130.693057 Days

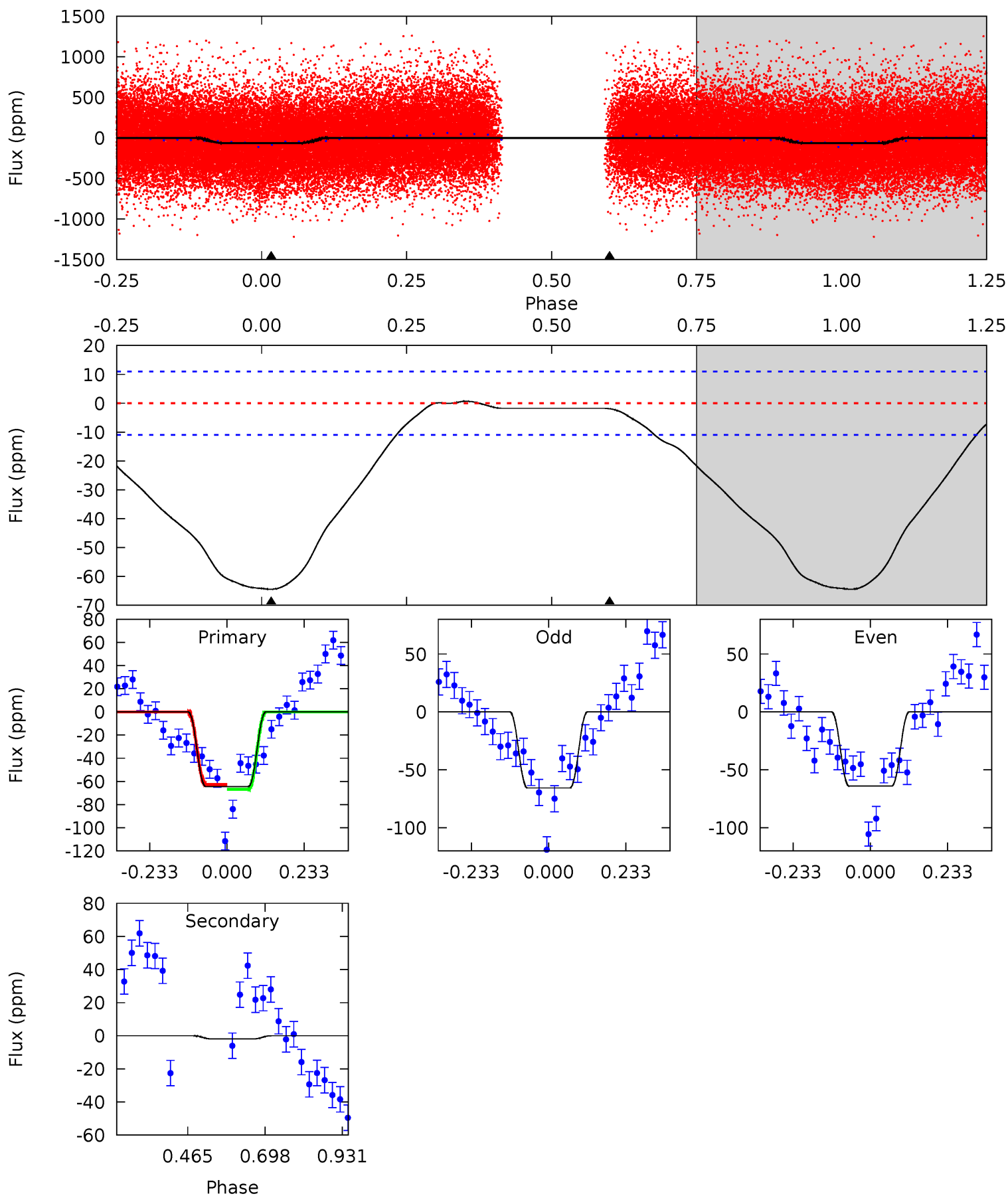
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.14	0.20	0	0	4.37	1.16	0.14	7.14	7.14	0.20	0.20	1.09	0.89	0.03	0.13



# Alt Model-Shift Uniqueness Test

008295671-02, P = 0.981411 Days, E = 130.639955 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	0.76	0	0	4.38	1.19	0.91	25.8	25.8	0.76	0.76	0.32	0.92	0.01	0.86



### Stellar Parameters For KIC 008295671

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6038^{+163}_{-199}$	$4.524^{+0.048}_{-0.204}$	$-0.280^{+0.300}_{-0.300}$	$0.898^{+0.262}_{-0.087}$	$0.982^{+0.117}_{-0.130}$	$1.912^{+0.389}_{-1.004}$
	+3%/-3%	+1%/-5%	+107%/-107%	+29%/-10%	+12%/-13%	+20%/-53%
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 008295671-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-0 \pm 2$	$0.52^{+0.34}_{-0.31}$	$2604^{+172}_{-138}$	$2071^{+2140}_{-5832}$	$0.323^{+3.505}_{-1.795}$
Alt.	$-2 \pm 3$	$0.96^{+0.38}_{-0.37}$	$2611^{+180}_{-130}$	$2398^{+1060}_{-5402}$	$0.381^{+0.946}_{-0.482}$

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

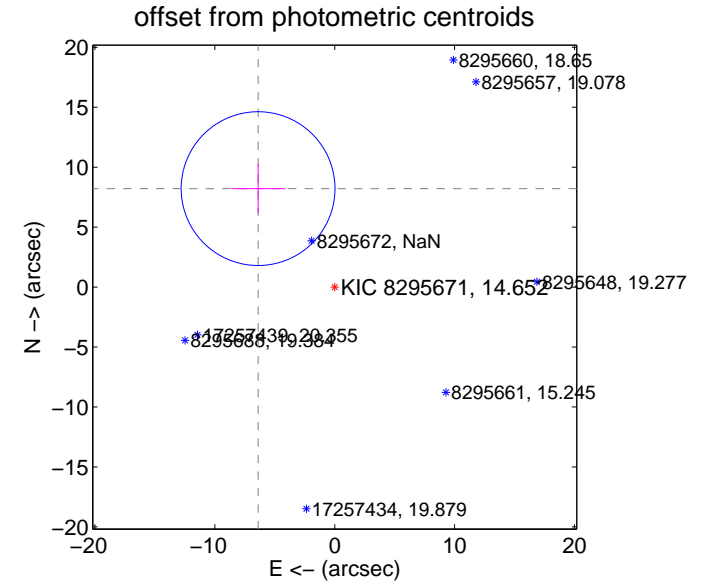
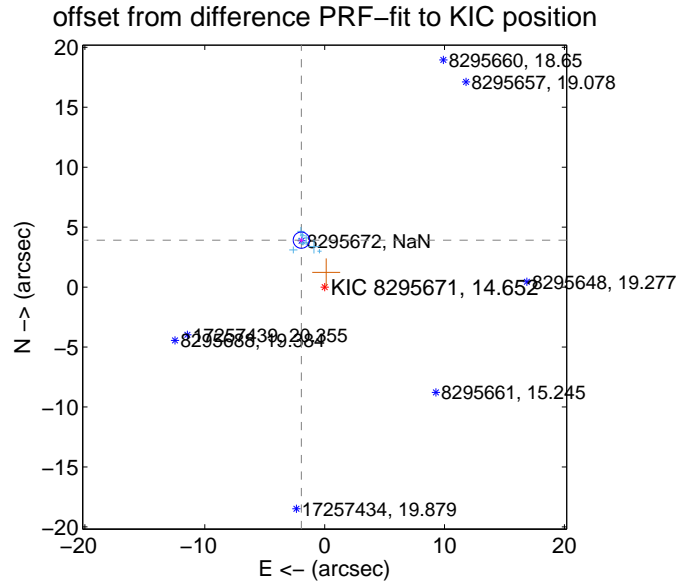
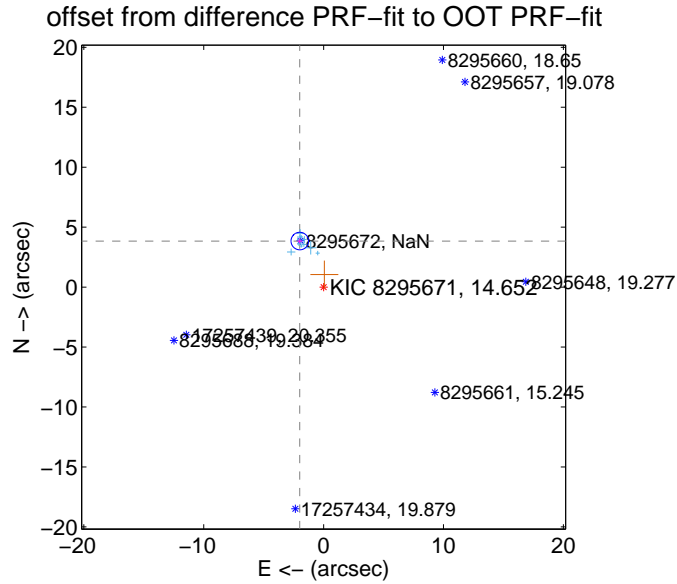
## DV Centroid Data

Supplemental centroid analysis for 008295671-02. Kepler magnitude: 14.65. Transit SNR 7.21

There are 15 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

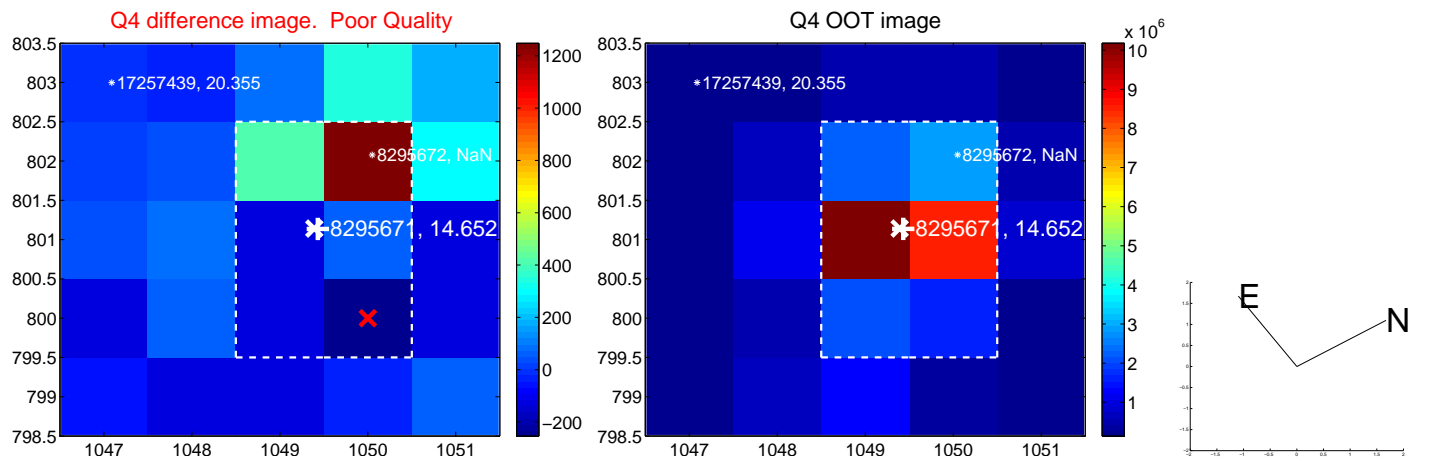
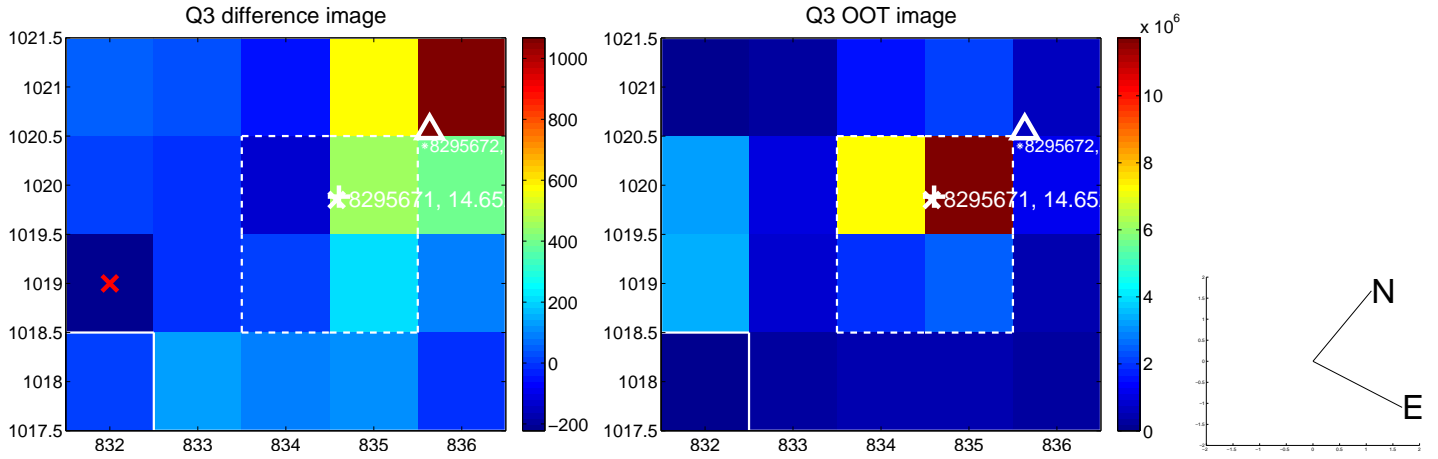
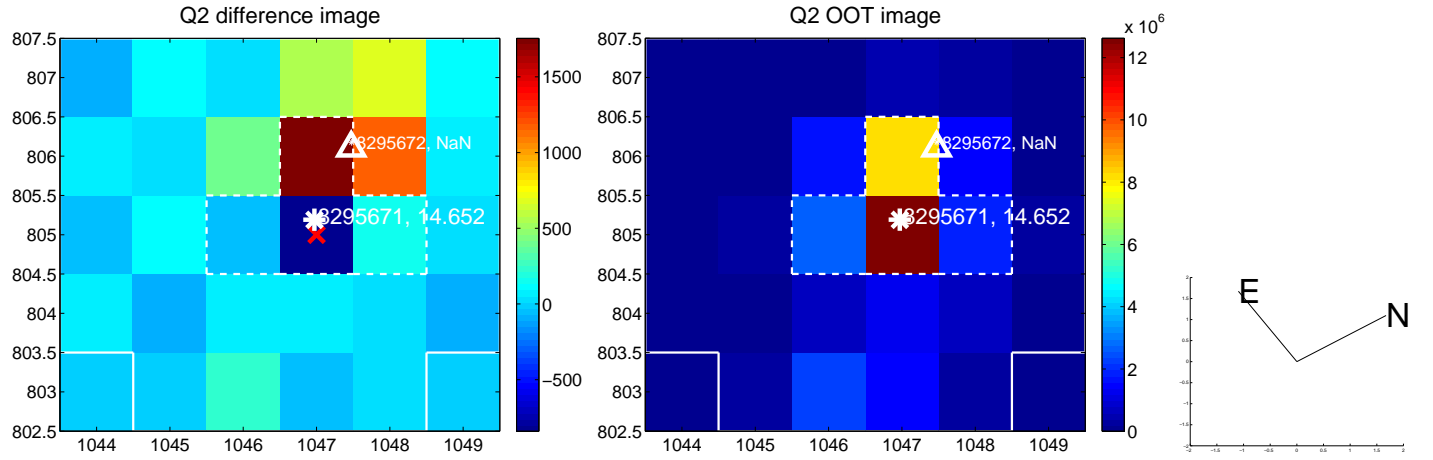
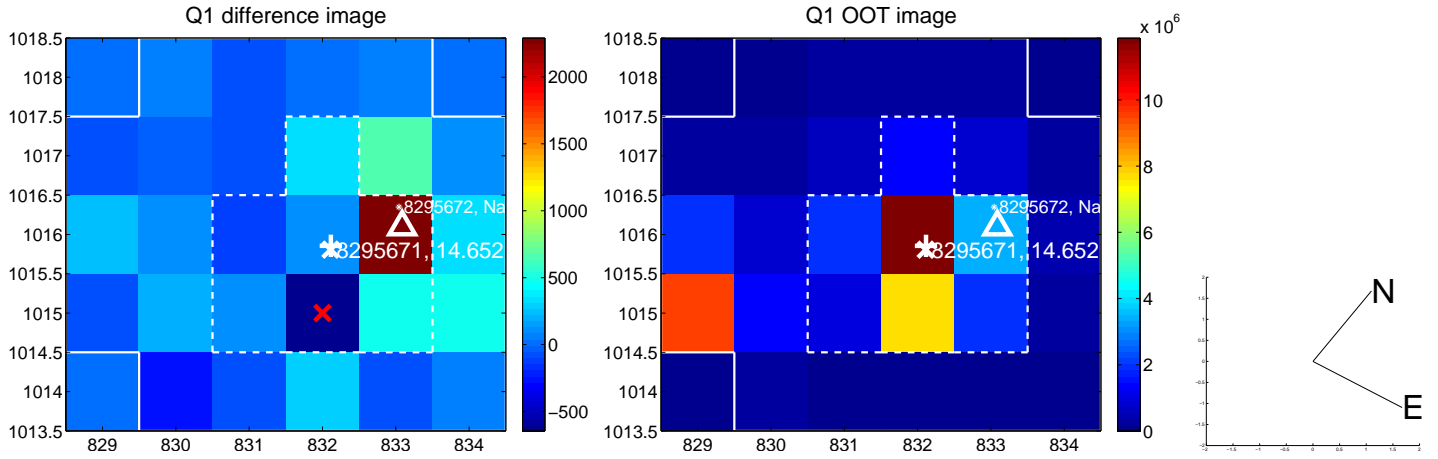
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.323 \pm 0.244$	17.75	$1.987 \pm 0.187$	$3.839 \pm 0.204$
PRF-fit source offset from KIC position	$4.372 \pm 0.225$	19.39	$1.946 \pm 0.176$	$3.915 \pm 0.191$
photometric centroid source offset	$10.41 \pm 2.14$	4.87	$6.39 \pm 2.25$	$8.21 \pm 2.07$



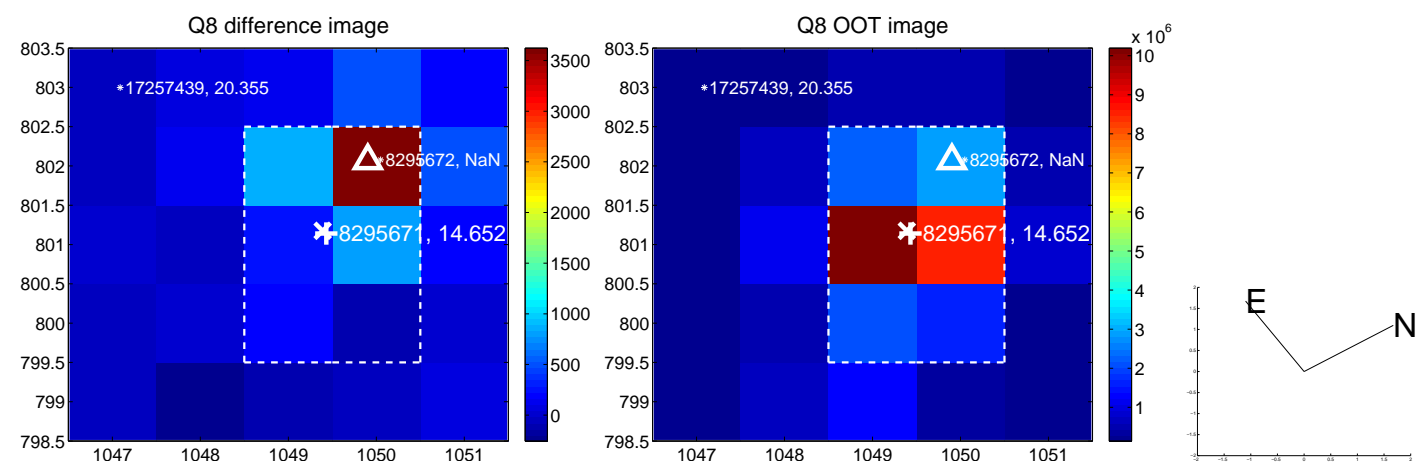
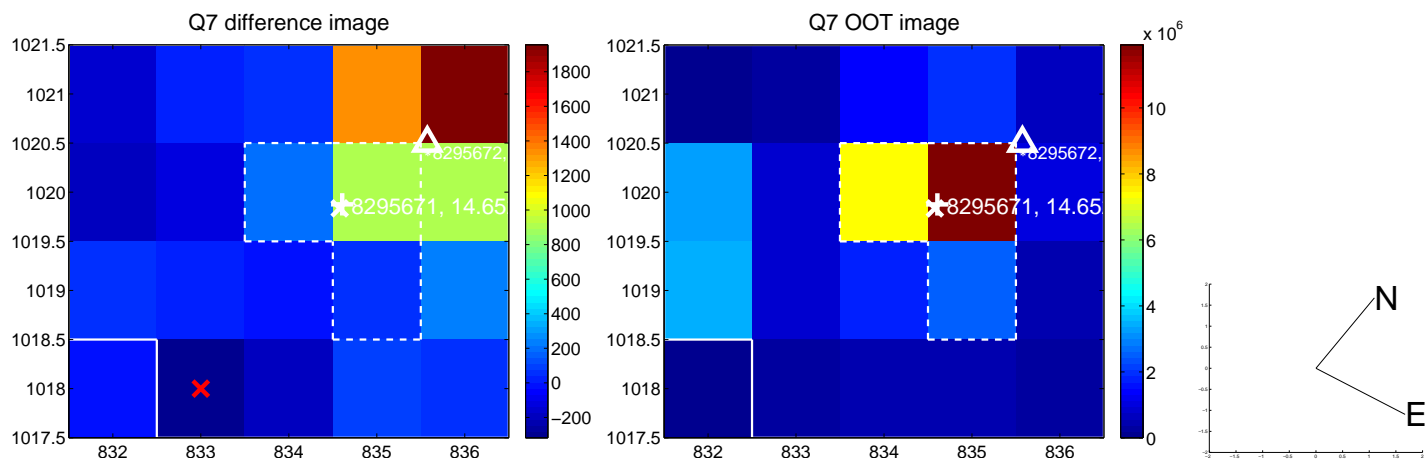
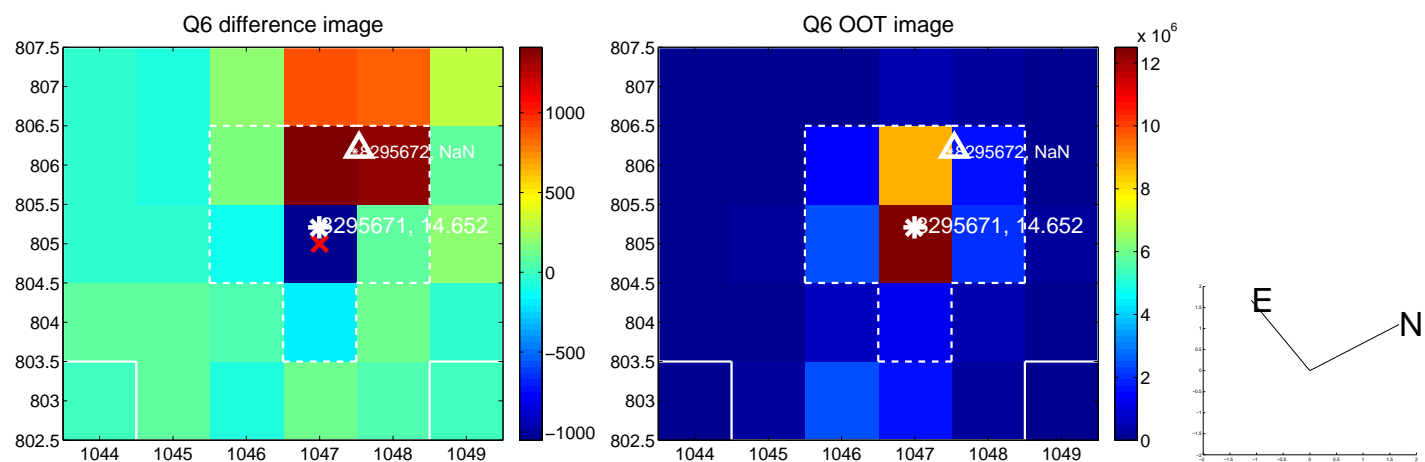
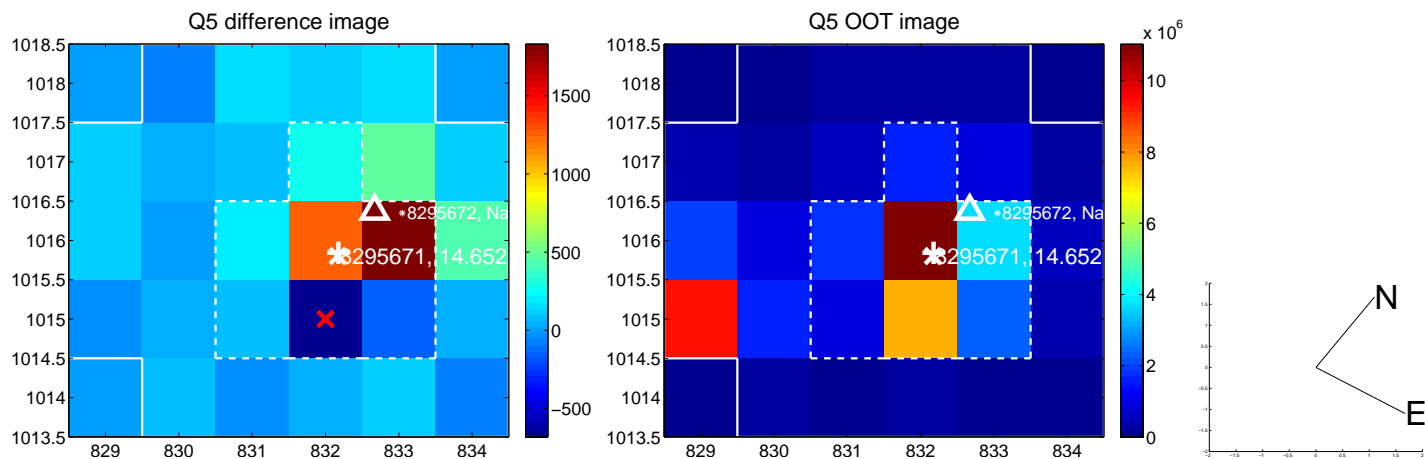
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



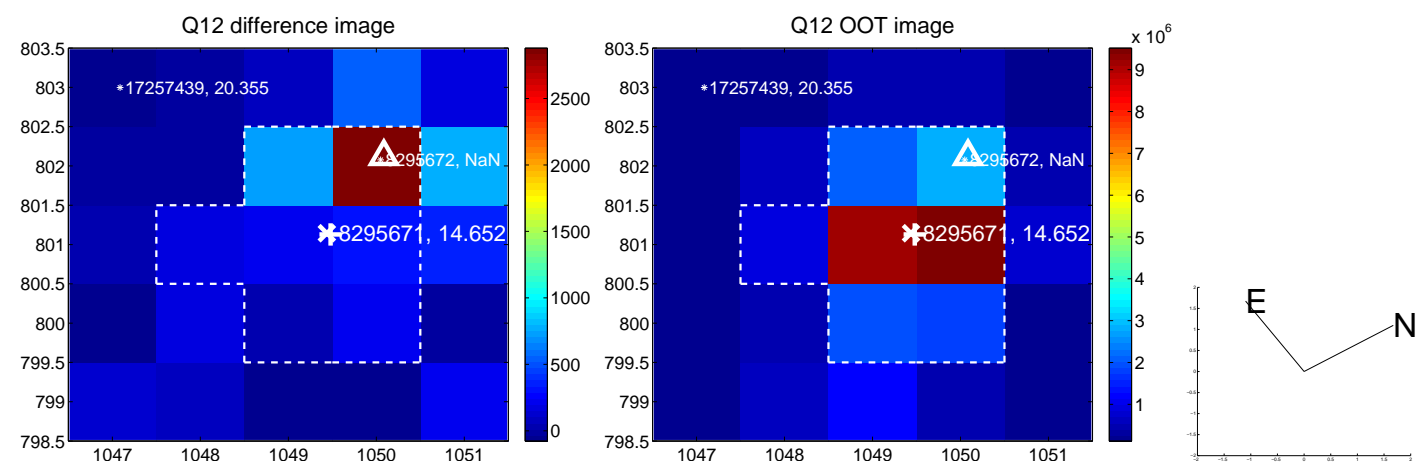
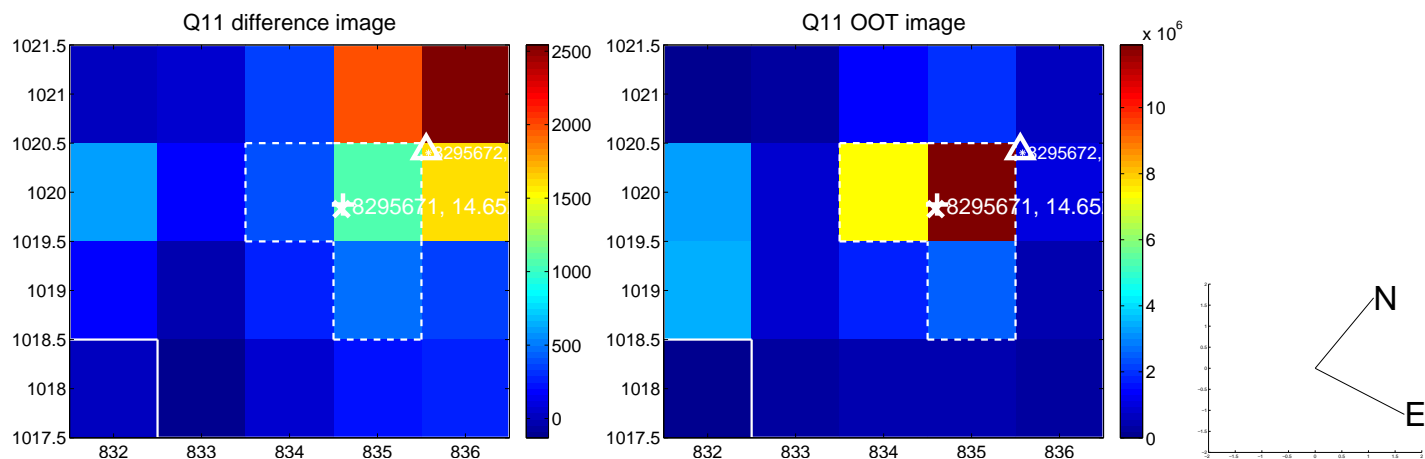
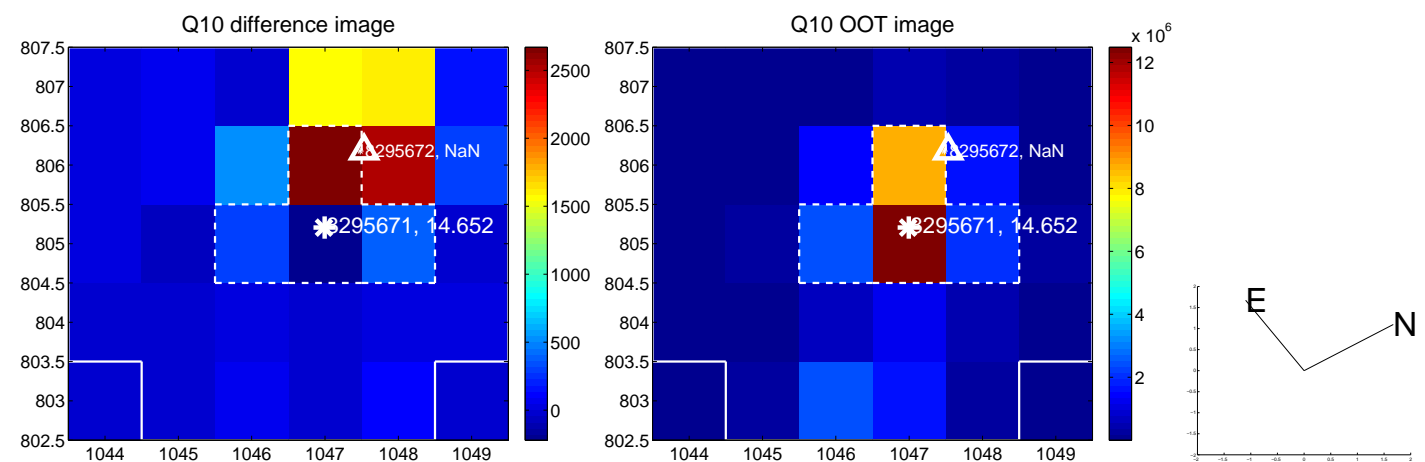
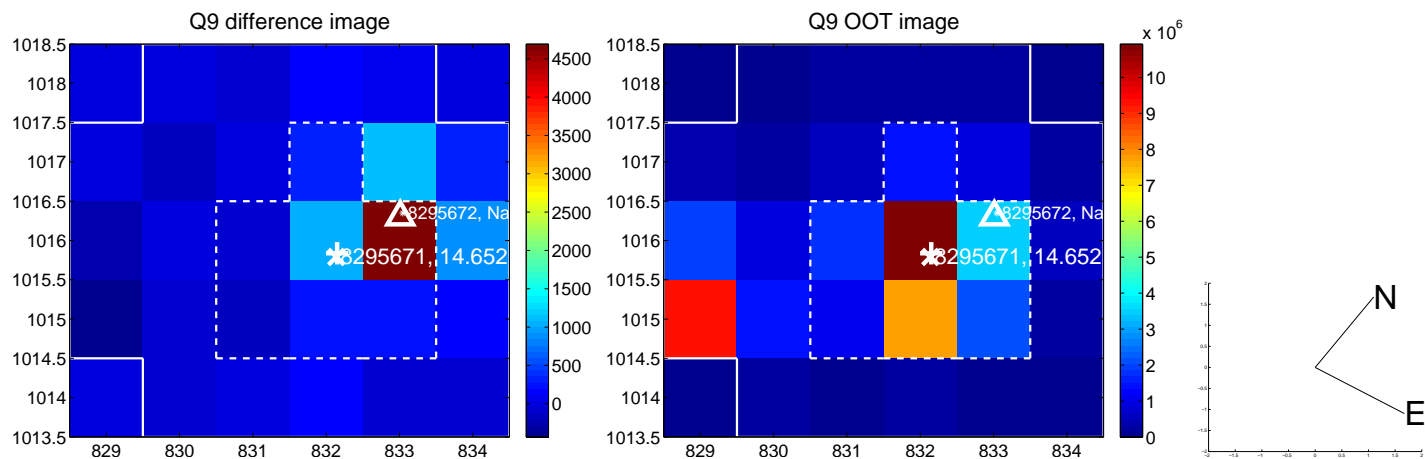
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



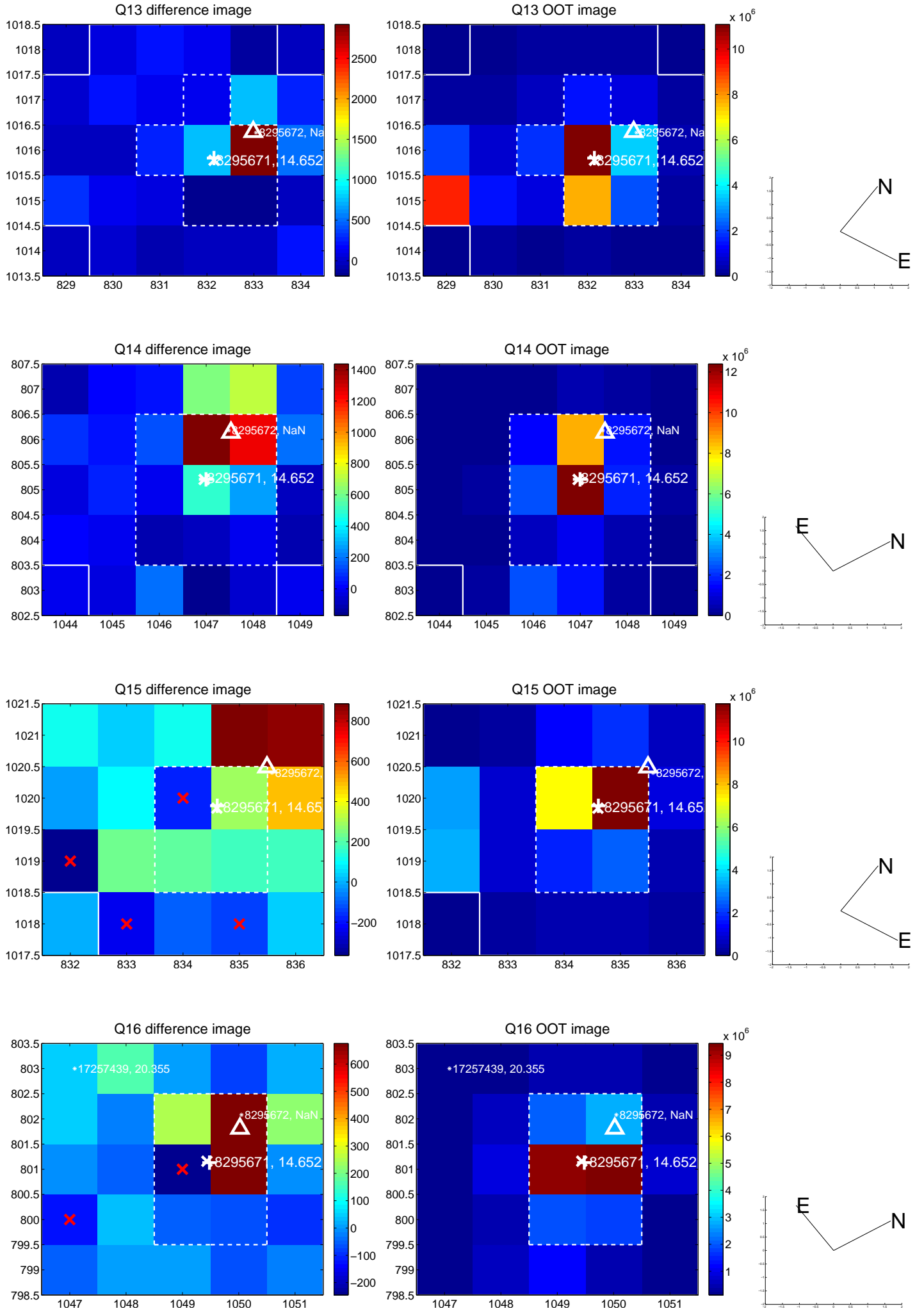
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



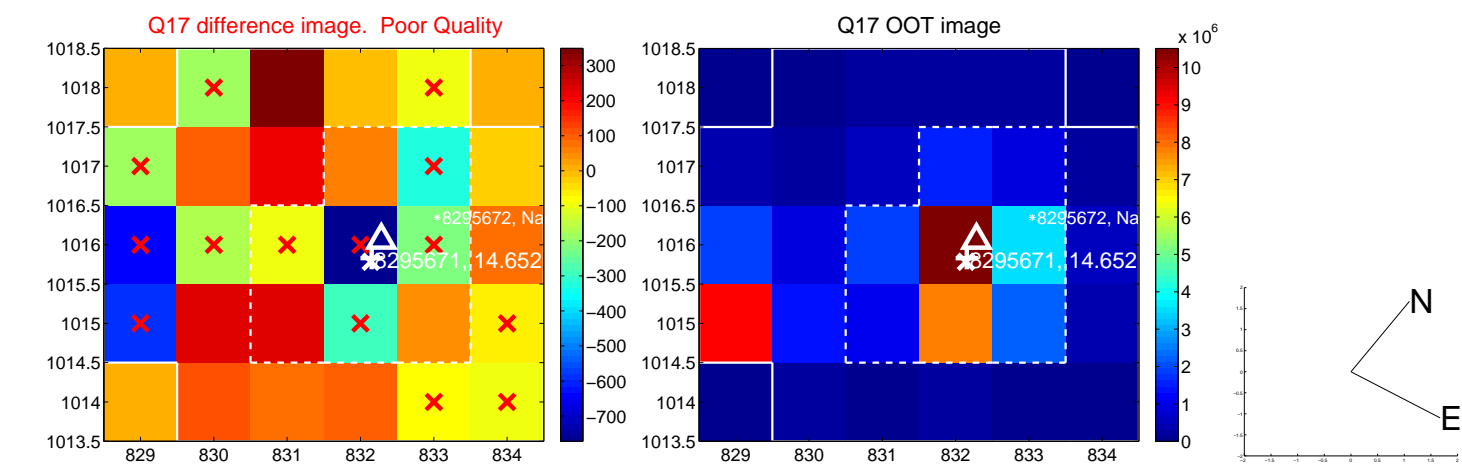
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



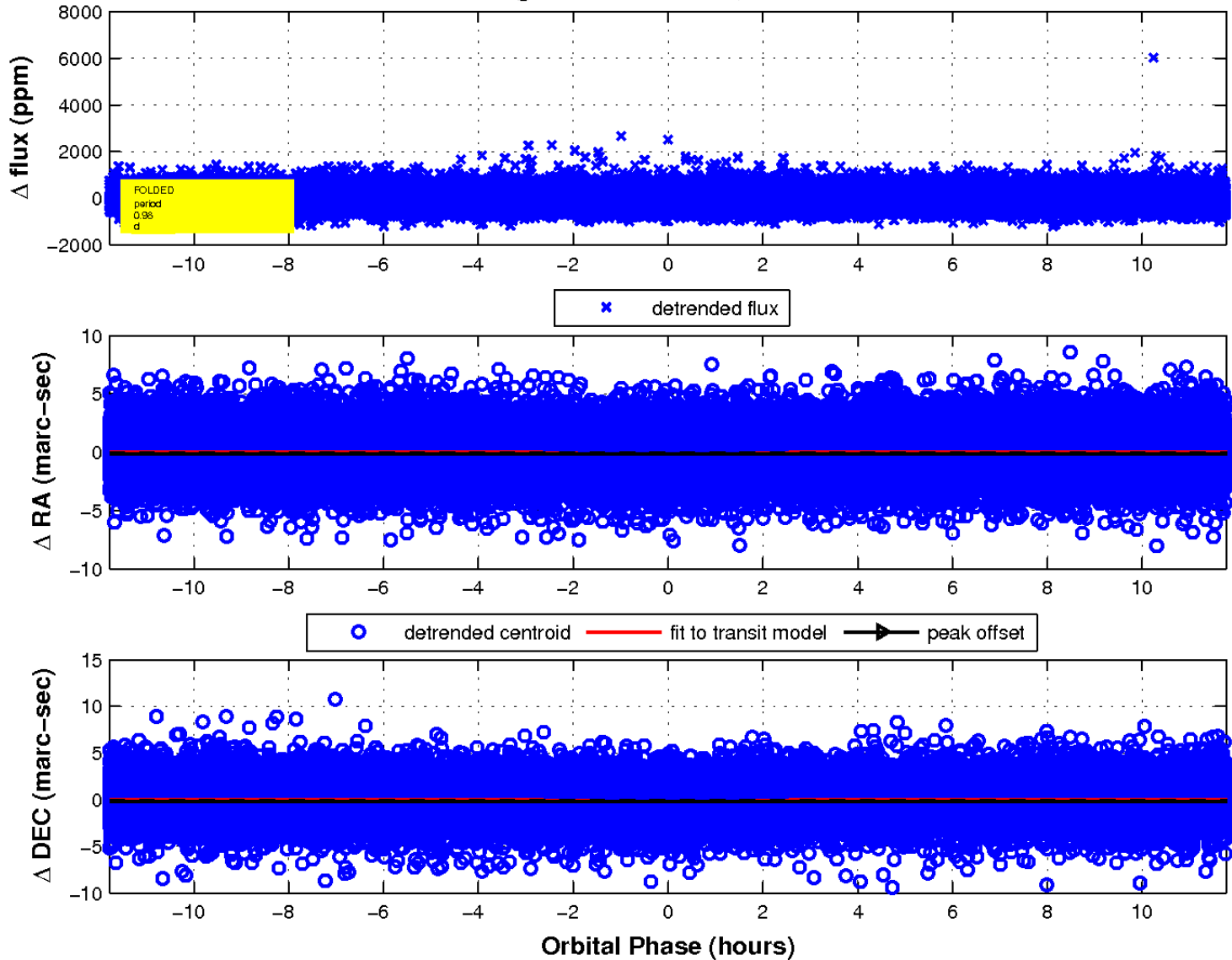
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2





UKIRT Image

Declination

