

# KIC 004832837

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004832837-01	OBS	0605.01	2.628102	132.929491	875.6	1.956	62.2	86.9	0.56	3939	1.98	69.74
004832837-02	OBS	0605.02	5.065422	131.951186	124.9	2.481	9.5	10.1	0.56	3939	0.73	29.07

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004832837-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004832837-02	OBS	PC	0.92	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.

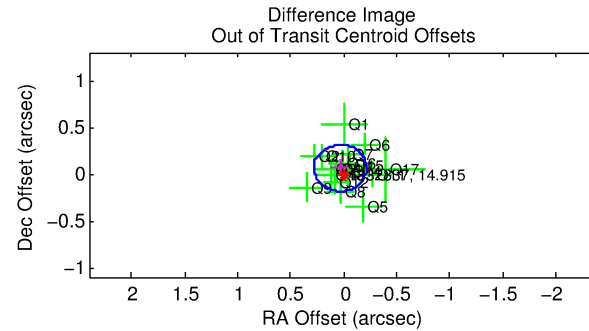
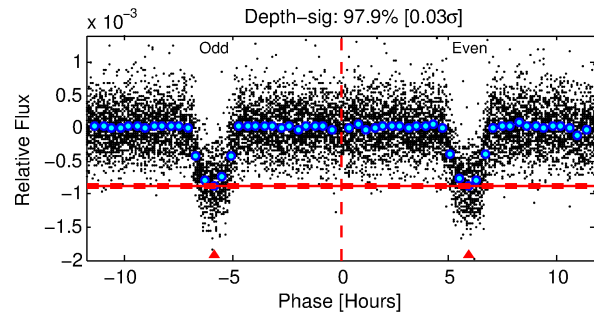
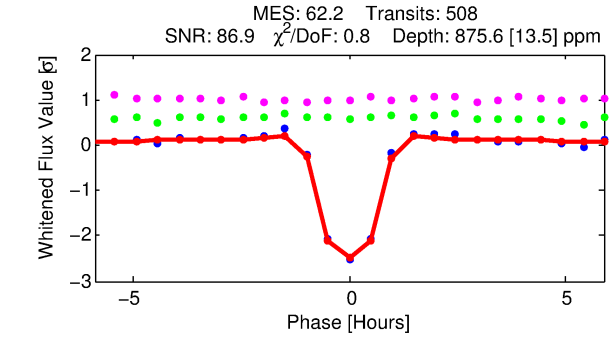
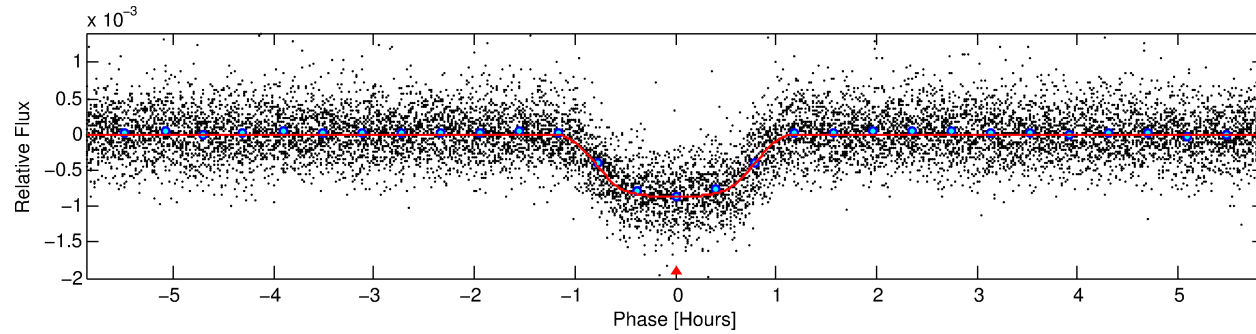
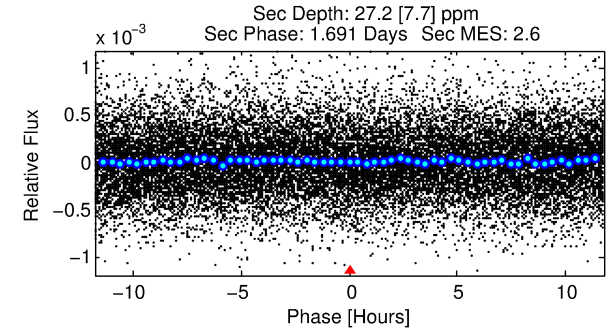
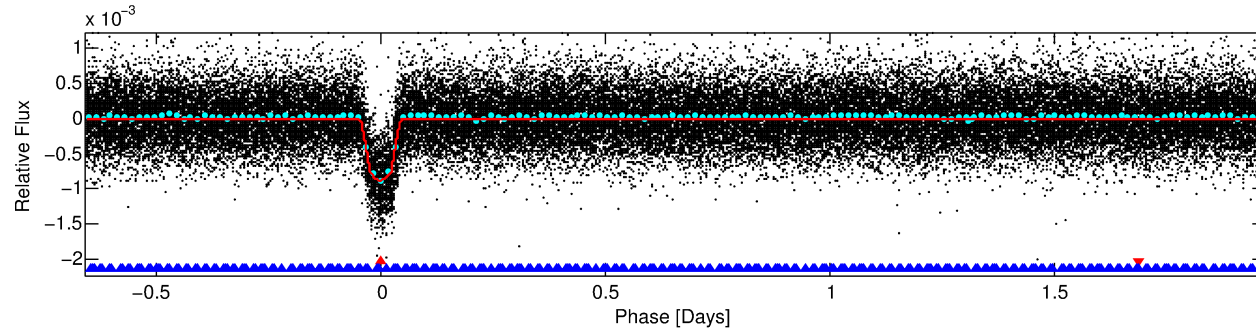
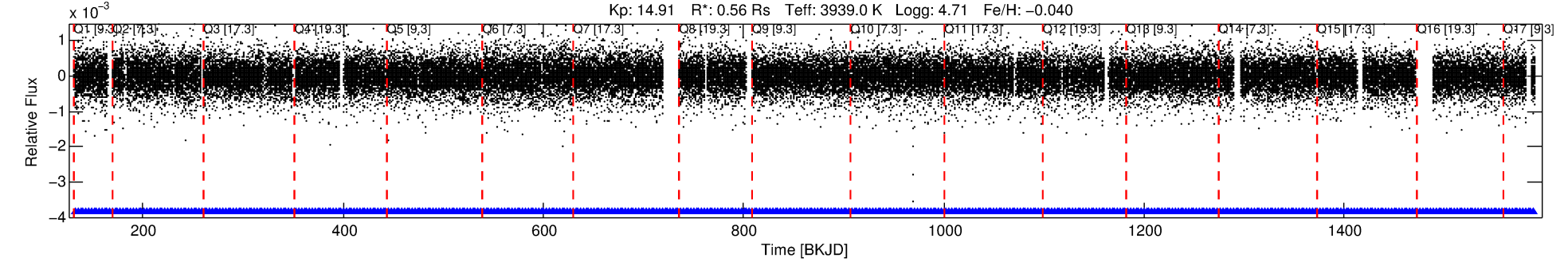
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004832837-01

No Significant Match Found

# DV One-Page Summary

KIC: 4832837 Candidate: 1 of 2 Period: 2.628 d  
KOI: K00605.01 Corr: 0.971



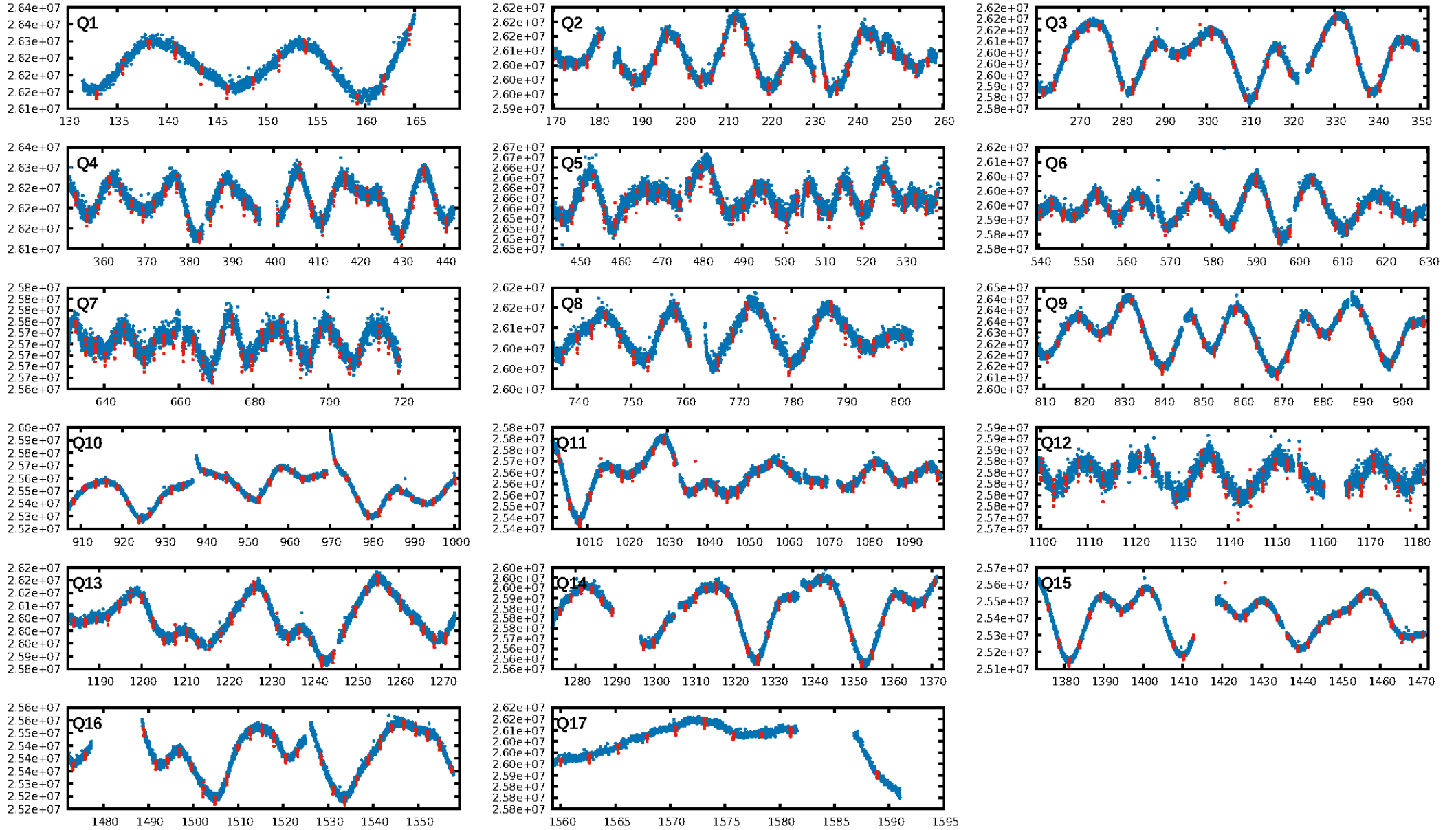
## DV Fit Results:

Period = 2.62810 [0.00000] d  
Epoch = 132.9295 [0.0004] BKJD  
Rp/R\* = 0.0326 [0.0014]  
a/R\* = 5.33 [0.89]  
b = 0.90 [0.04]  
Seff = 69.74 [23.77]  
Teff = 737 [63] K  
Rp = 1.98 [0.32] Re  
a = 0.0310 [0.0037] AU  
Ag = 3.66 [1.23] [2.16σ]  
Teffp = 1576 [166] K [4.72σ]

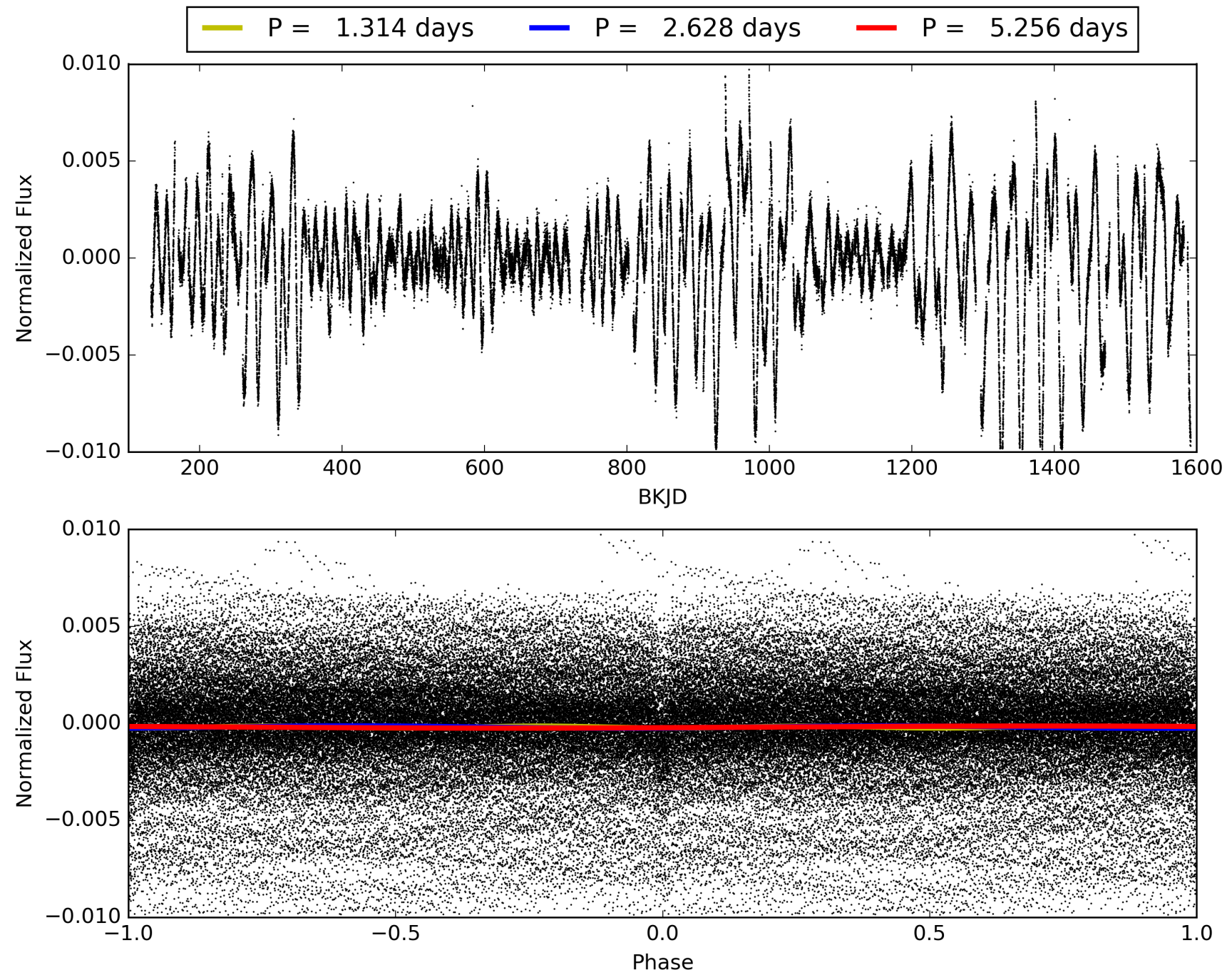
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [18.52σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [485/485]  
GhostDiagnostic-chr: 4.525  
Centroid-sig: 0.7%  
Centroid-so: 0.375 arcsec [2.76σ]  
OotOffset-rm: 0.071 arcsec [0.86σ]  
KicOffset-rm: 0.121 arcsec [1.43σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 004832837-01, PDC Light Curves

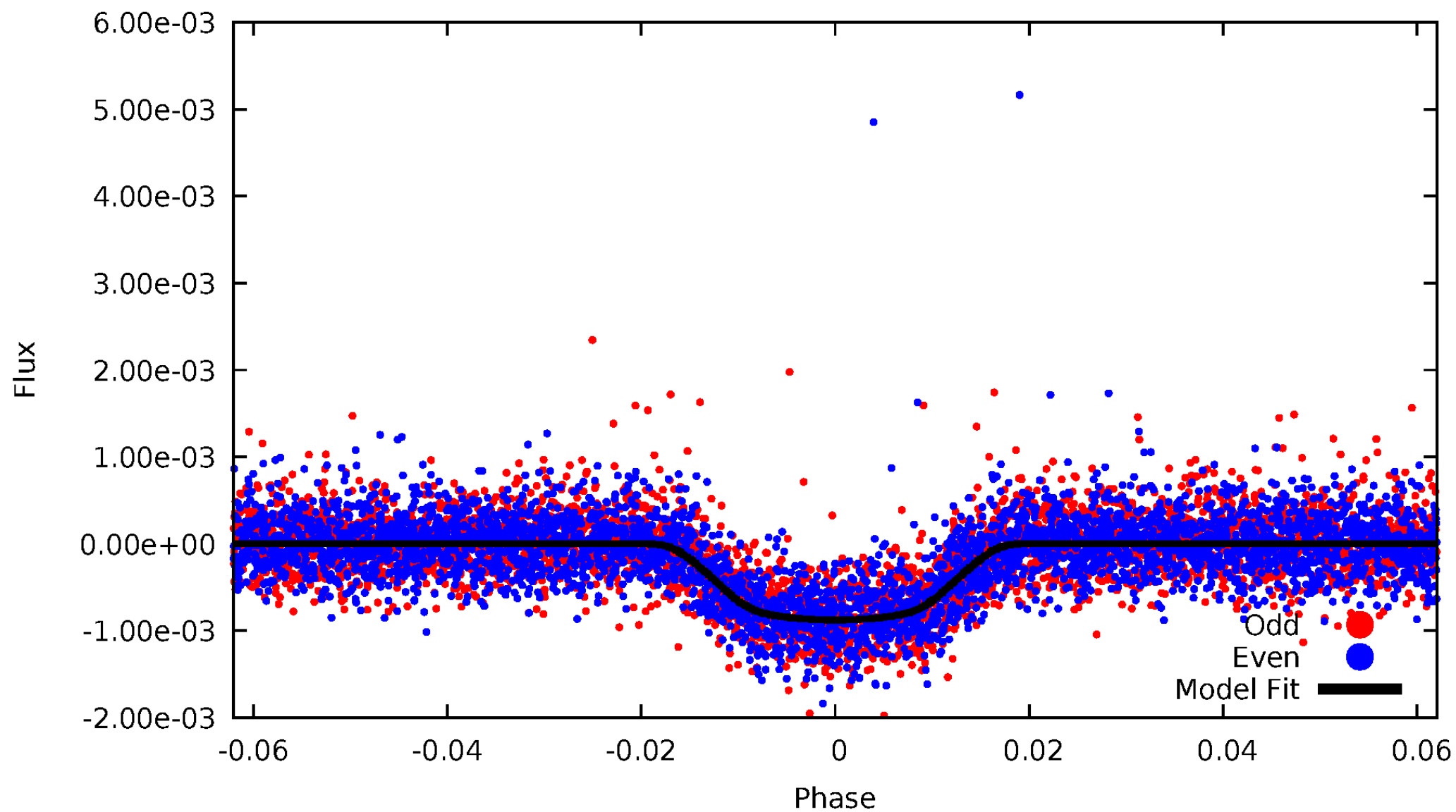


TCE 004832837-01



# DV Odd/Even

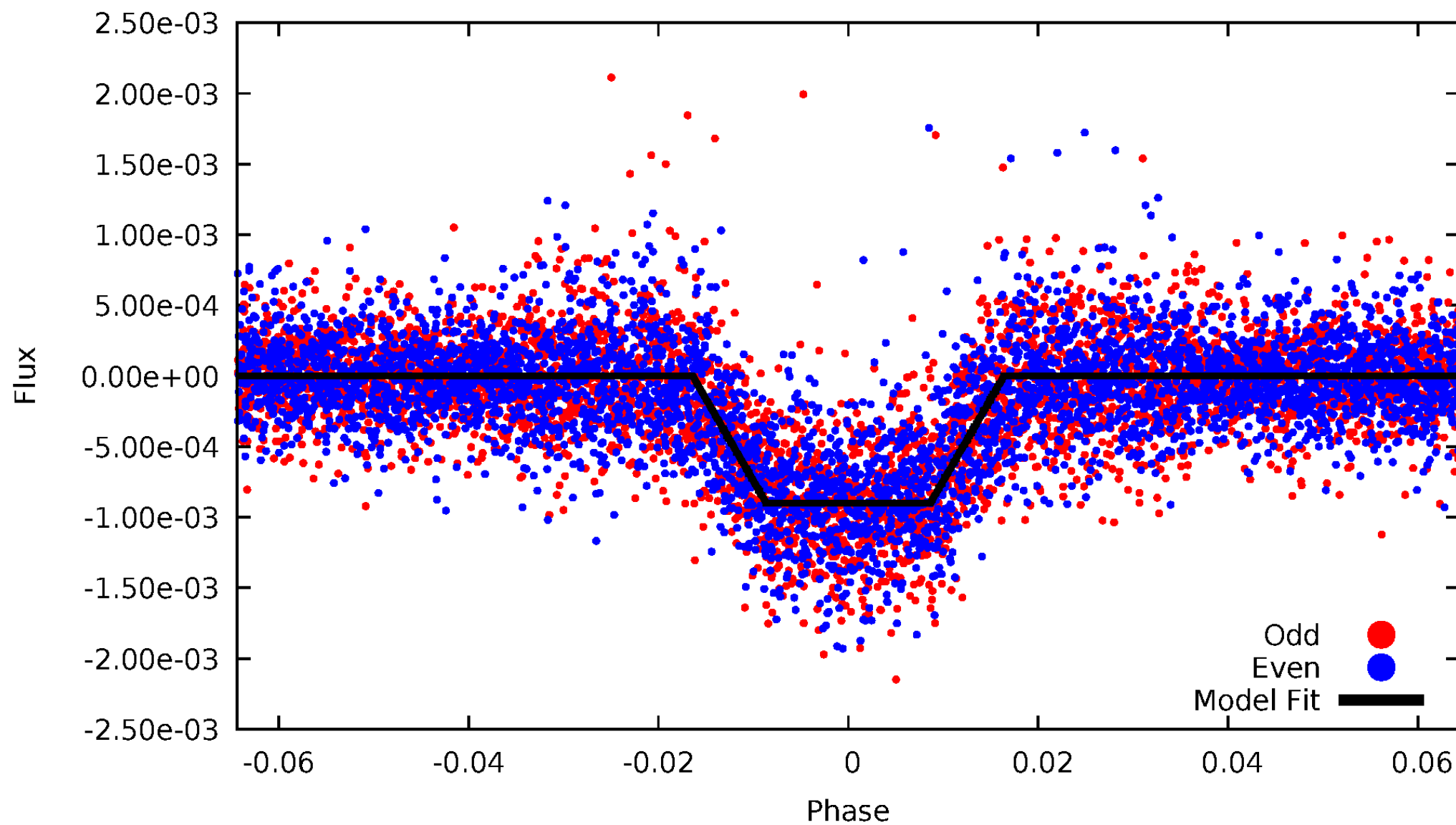
TCE 004832837-01





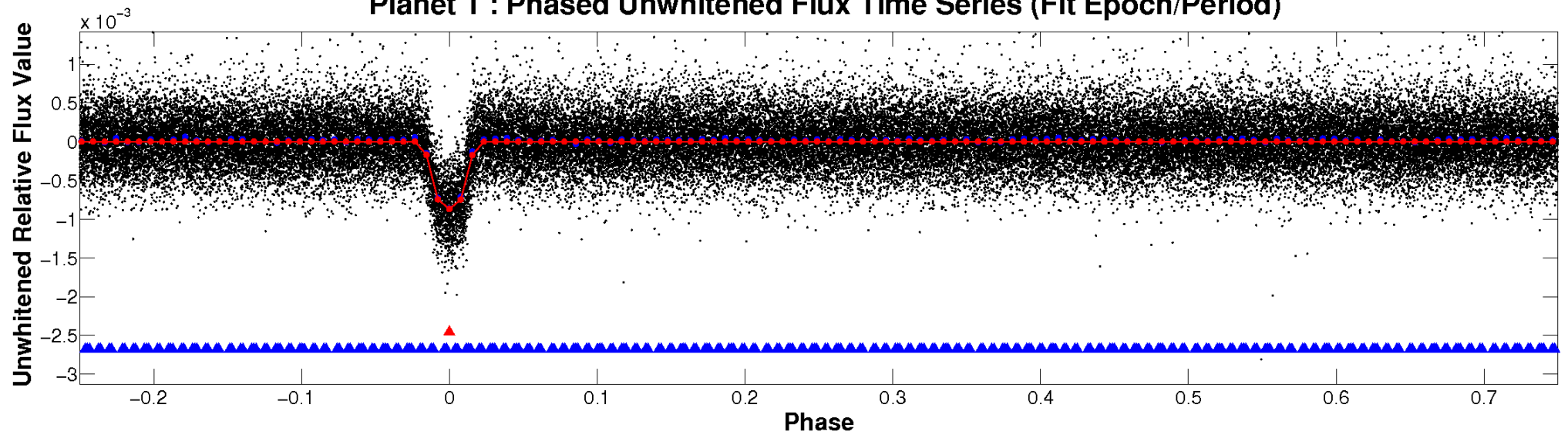
# ALT Odd/Even

TCE 004832837-01

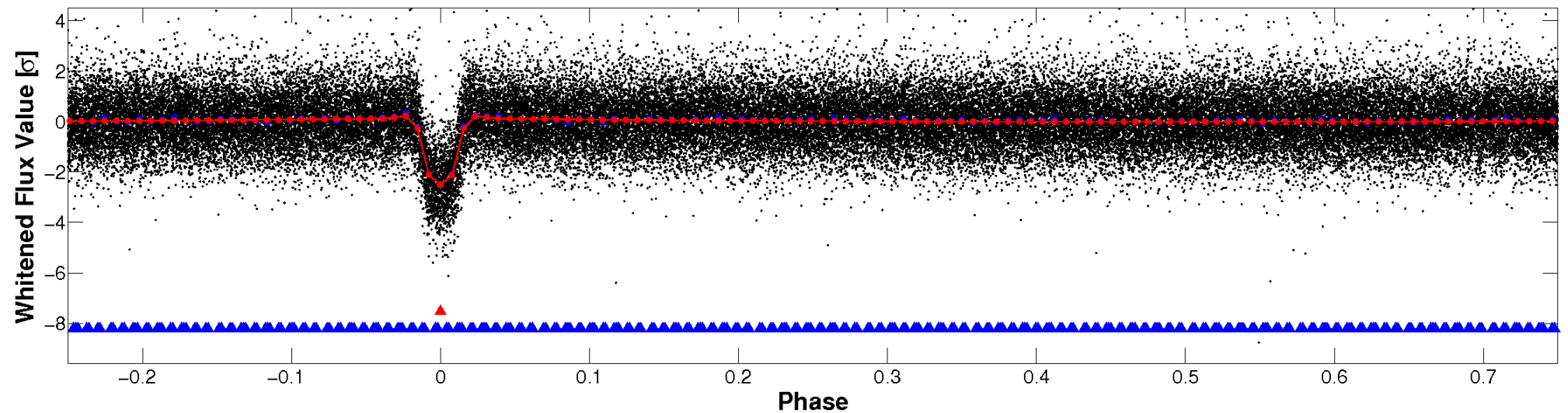


# Non-Whitened Vs. Whitened Light Curve

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

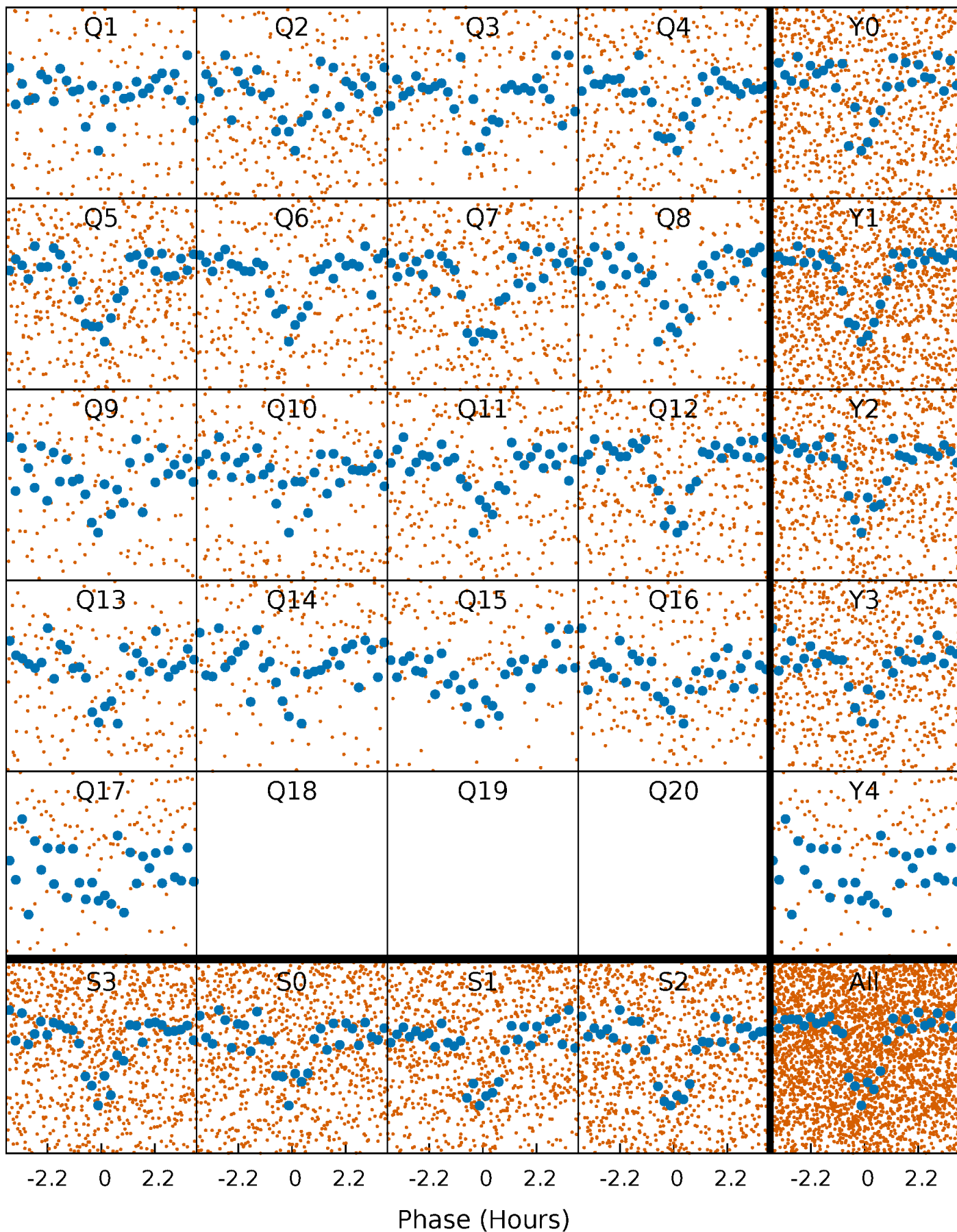


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

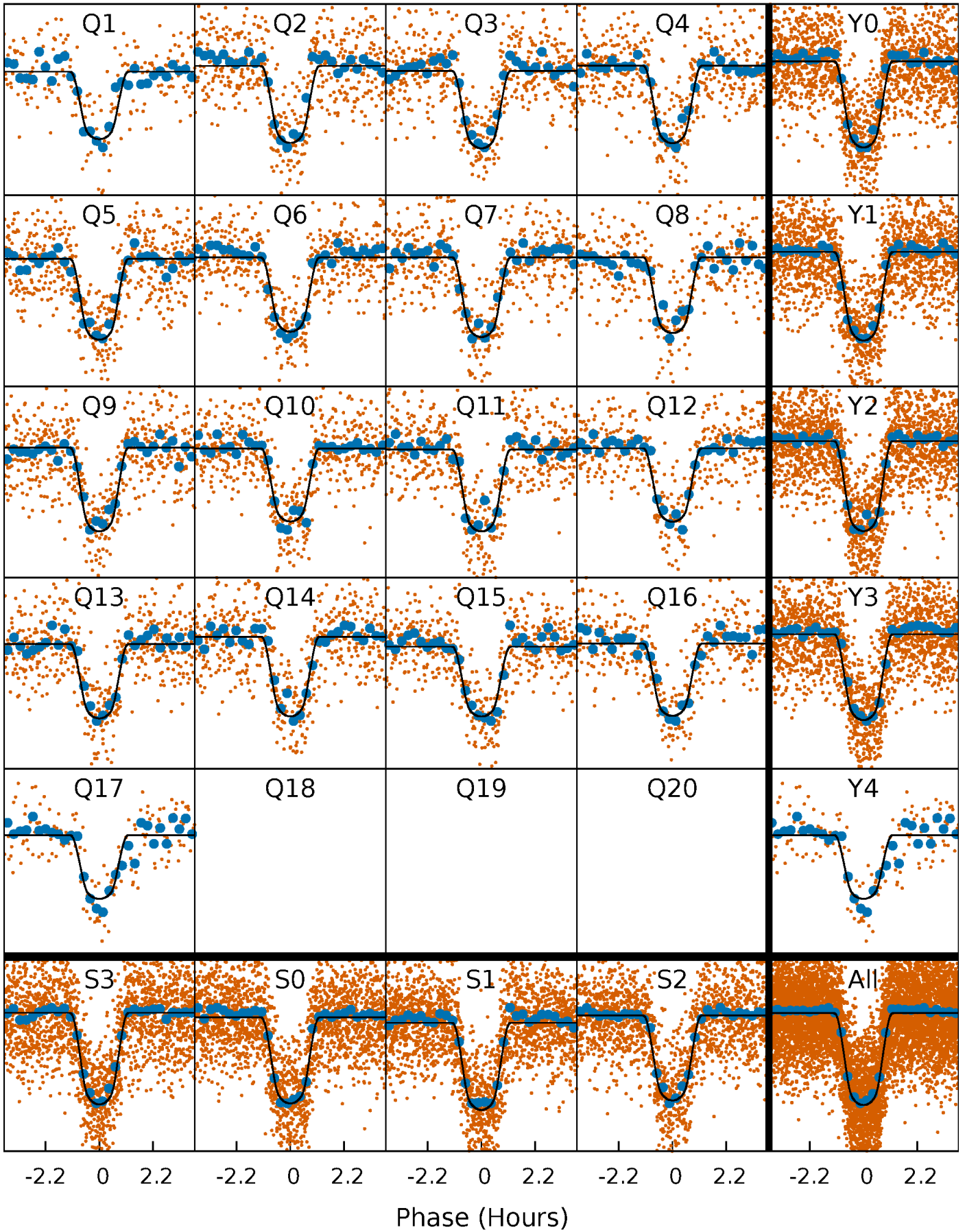
TCE 004832837-01 P= 2.628101 Days  $T_0=132.929491$  (BKJD)





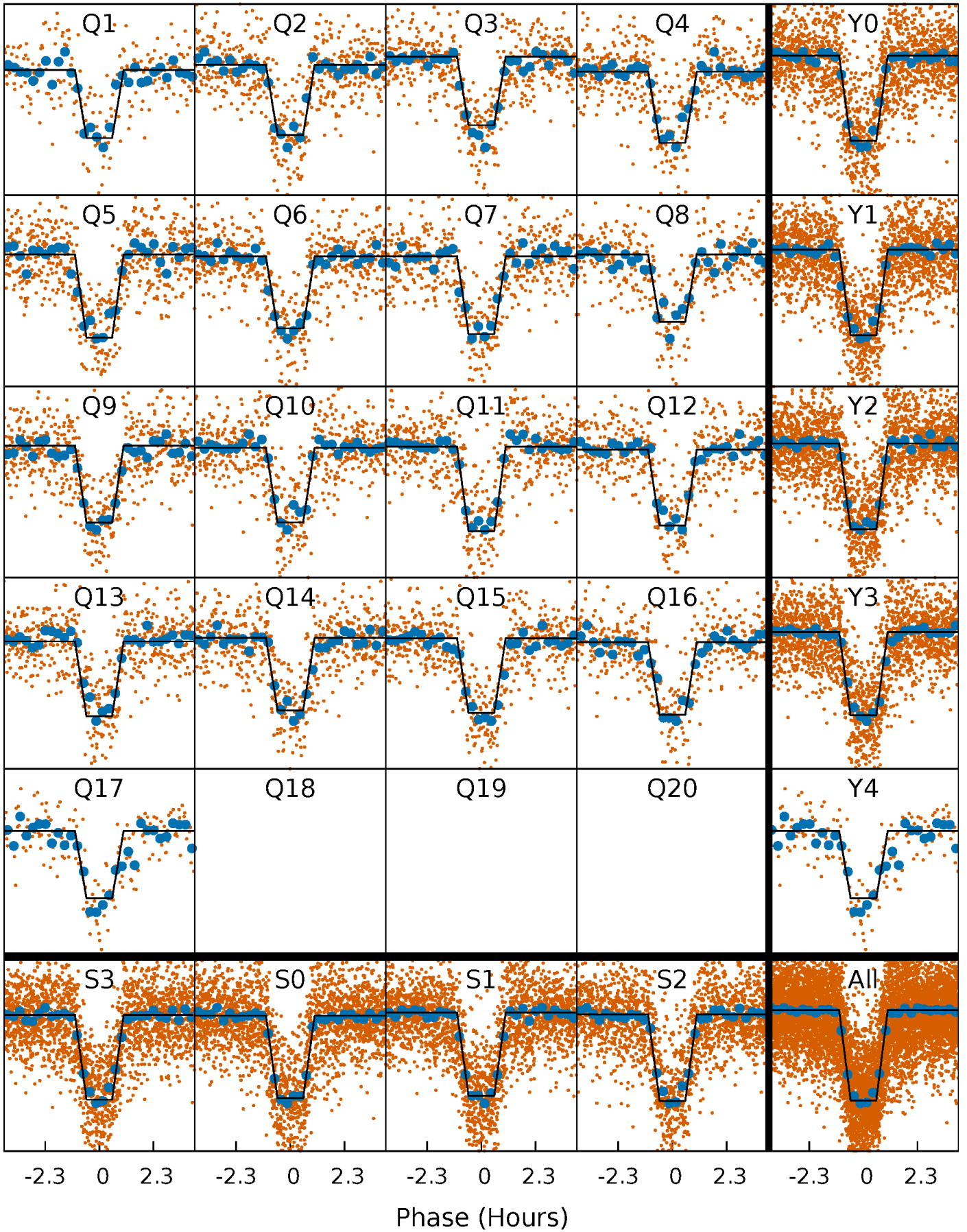
# DV Quarter-Phased Transit Curves

TCE 004832837-01 P= 2.628101 Days  $T_0=132.929491$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

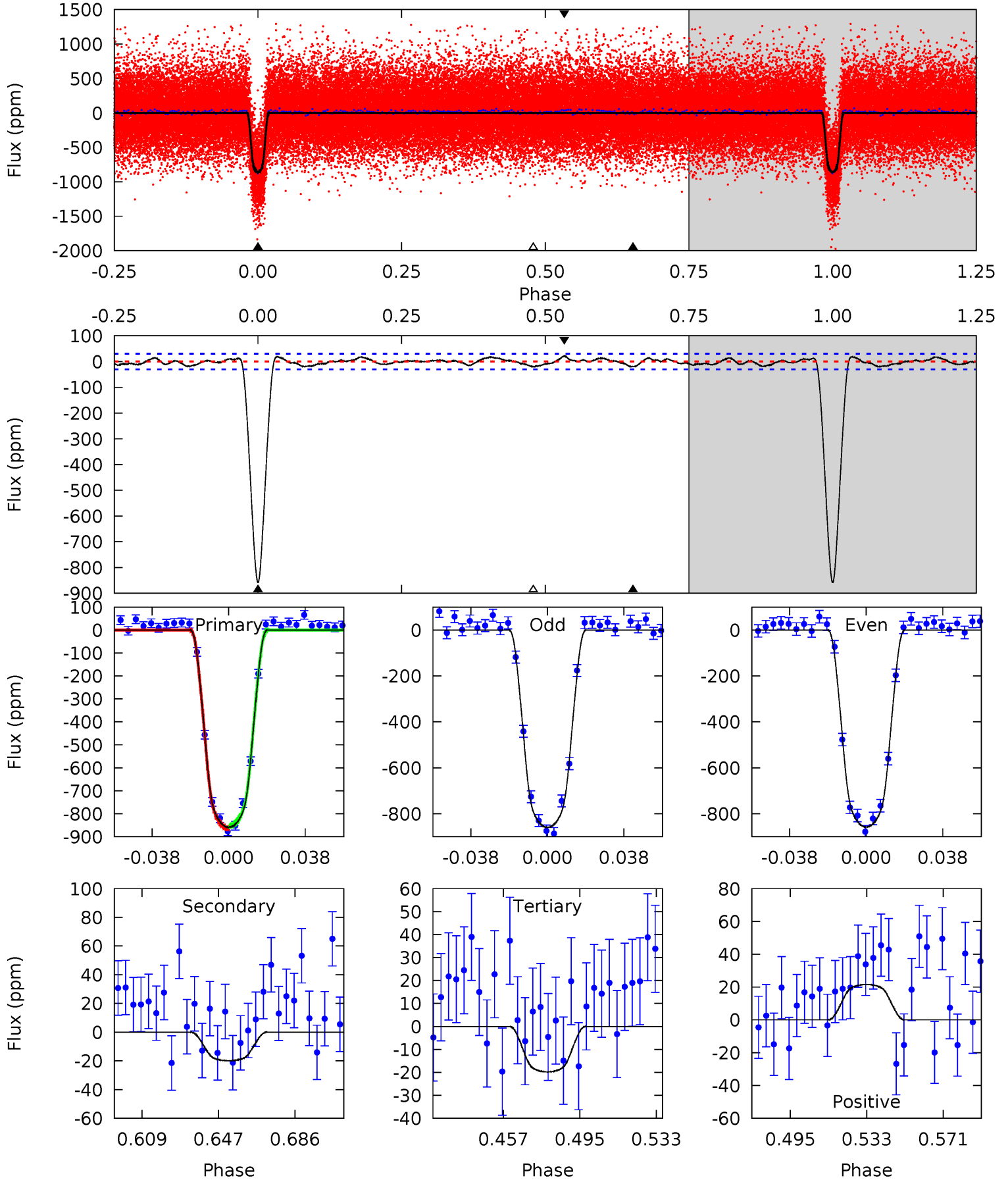
TCE 004832837-01 P= 2.628103 Days  $T_0=132.929206$  (BKJD)



# DV Model-Shift Uniqueness Test

004832837-01, P = 2.628101 Days, E = 130.301390 Days

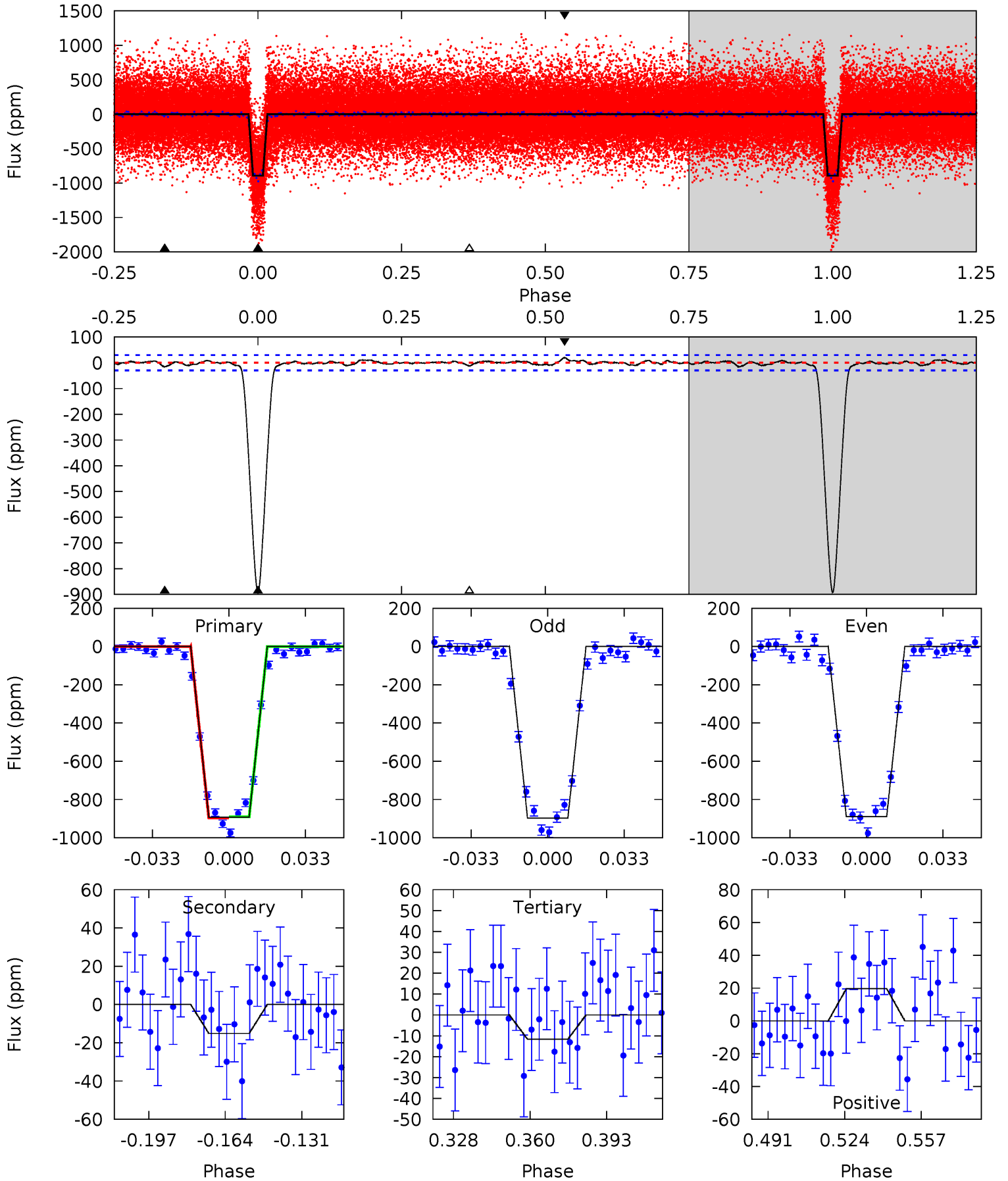
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
134.0	3.10	3.09	3.36	4.76	2.07	1.40	130.9	130.7	0.01	-0.25	0.14	1.00	0.02	0.79



# Alt Model-Shift Uniqueness Test

004832837-01, P = 2.628103 Days, E = 130.301103 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
143.4	2.43	1.87	3.16	4.79	2.13	0.85	141.6	140.3	0.56	-0.73	0.58	1.01	0.02	0.46



### Stellar Parameters For KIC 004832837

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3939^{+297}_{-267}$	$4.705^{+0.078}_{-0.052}$	$-0.040^{+0.200}_{-0.150}$	$0.557^{+0.071}_{-0.087}$	$0.575^{+0.077}_{-0.085}$	$4.672^{+2.048}_{-1.009}$
	+8%/-7%	+2%/-1%	+500%/-375%	+13%/-16%	+13%/-15%	+44%/-22%
Source	SPE5	SPE5	SPE5	DSEP		

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

### Secondary Eclipse Parameters for KIC 004832837-01 / KOI 0605.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-20 \pm 6$	$1.98^{+0.15}_{-0.18}$	$1024^{+80}_{-71}$	$2232^{+138}_{-167}$	$2.748^{+1.065}_{-1.015}$
Alt.	$-15 \pm 6$	$1.82^{+0.15}_{-0.17}$	$1029^{+87}_{-84}$	$2201^{+156}_{-182}$	$2.410^{+1.074}_{-0.951}$

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



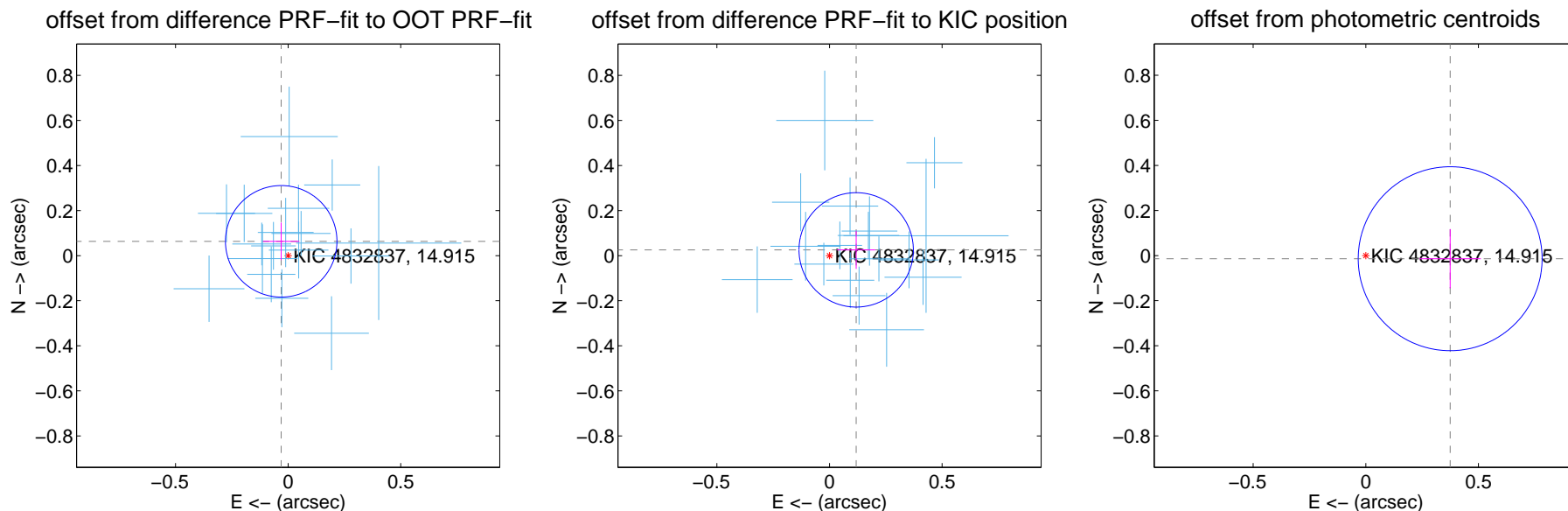
## DV Centroid Data

Supplemental centroid analysis for 004832837-01. Kepler magnitude: 14.91. Transit SNR 86.88

There are 17 quarters with good PRF difference image offsets

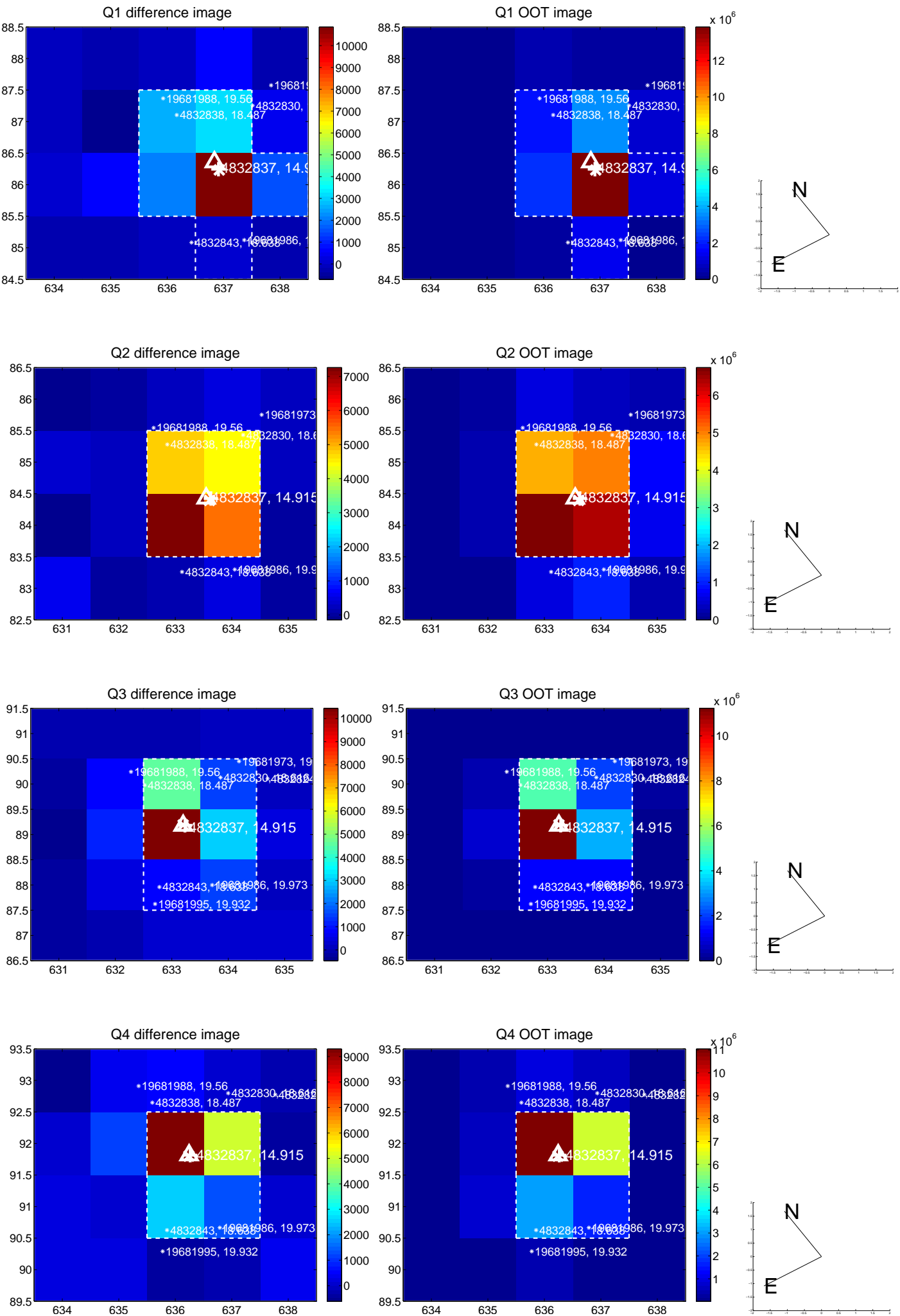
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.071 \pm 0.083$	0.86	$0.031 \pm 0.081$	$0.064 \pm 0.083$
PRF-fit source offset from KIC position	$0.121 \pm 0.085$	1.43	$-0.119 \pm 0.085$	$0.026 \pm 0.085$
photometric centroid source offset	$0.37 \pm 0.14$	2.76	$-0.37 \pm 0.14$	$-0.01 \pm 0.13$

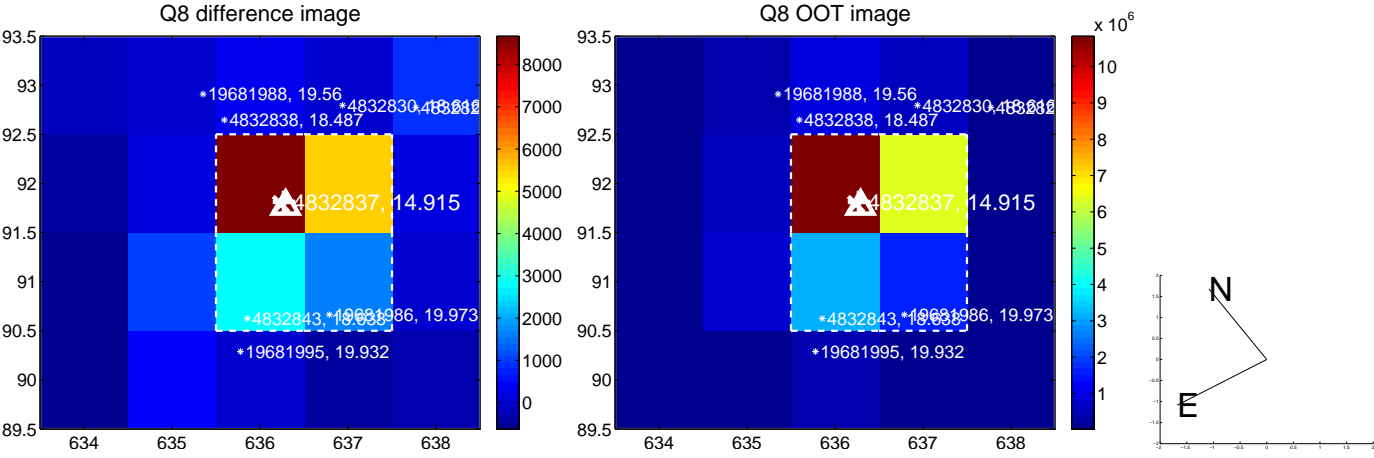
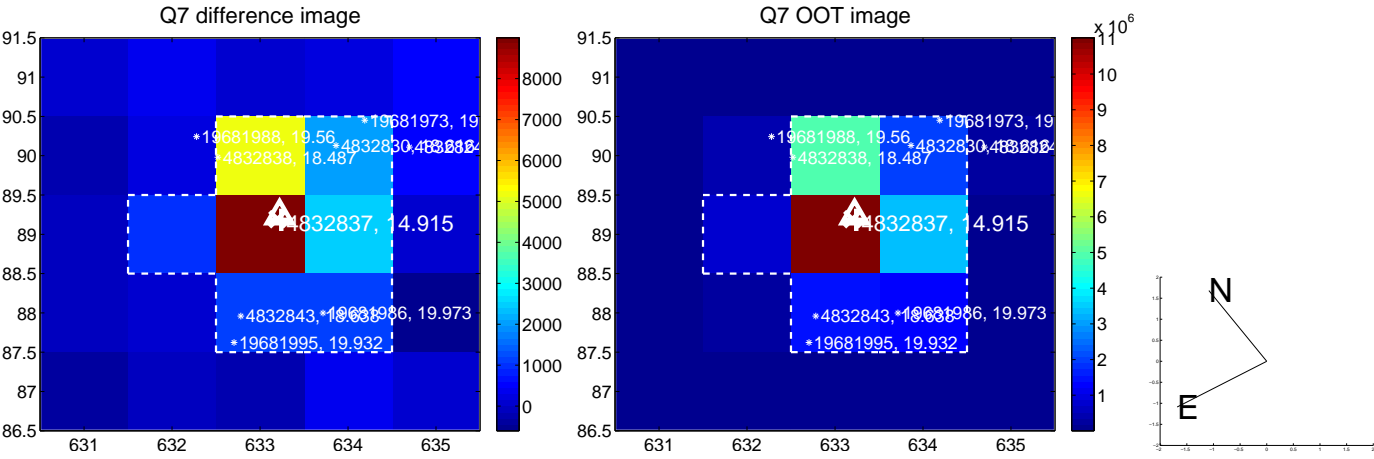
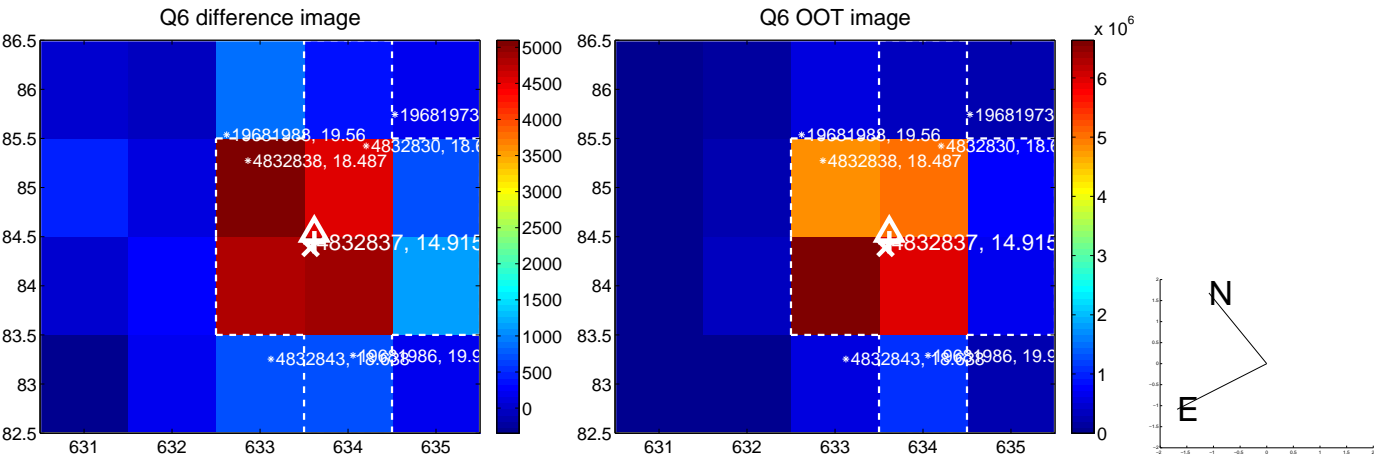
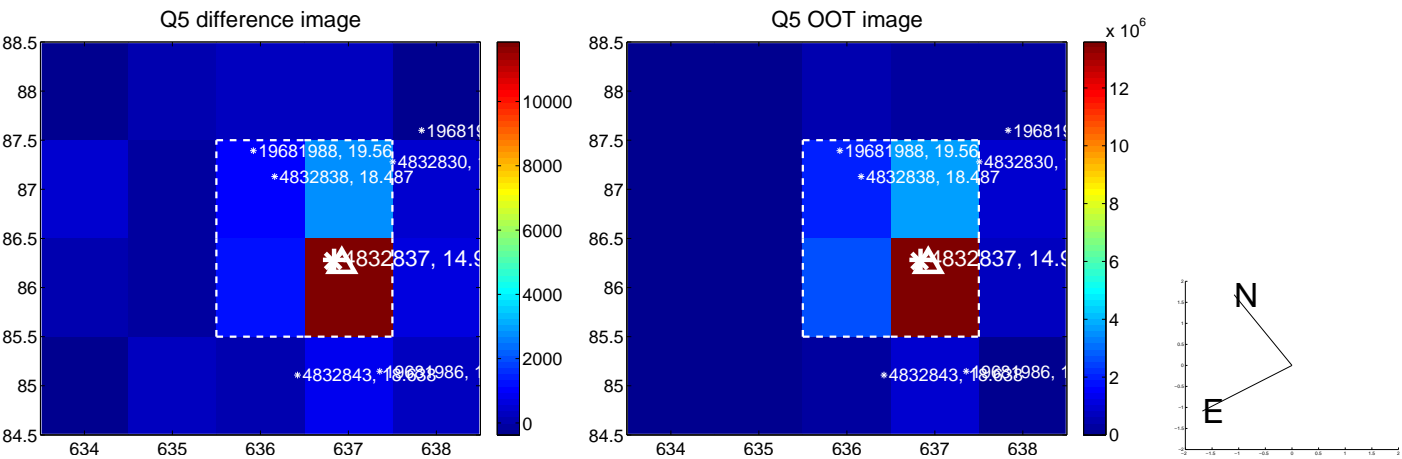


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

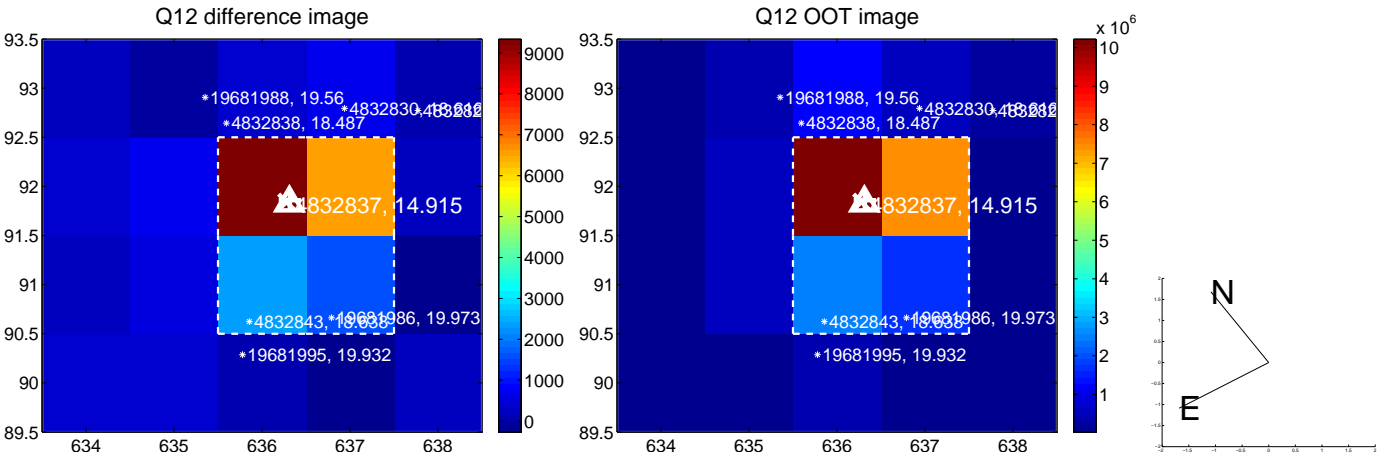
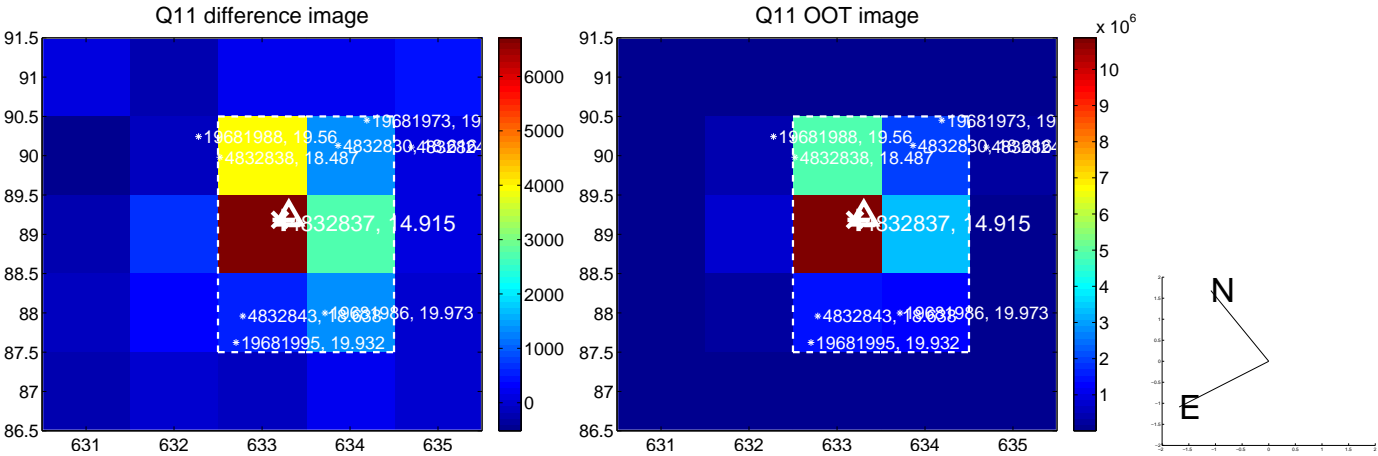
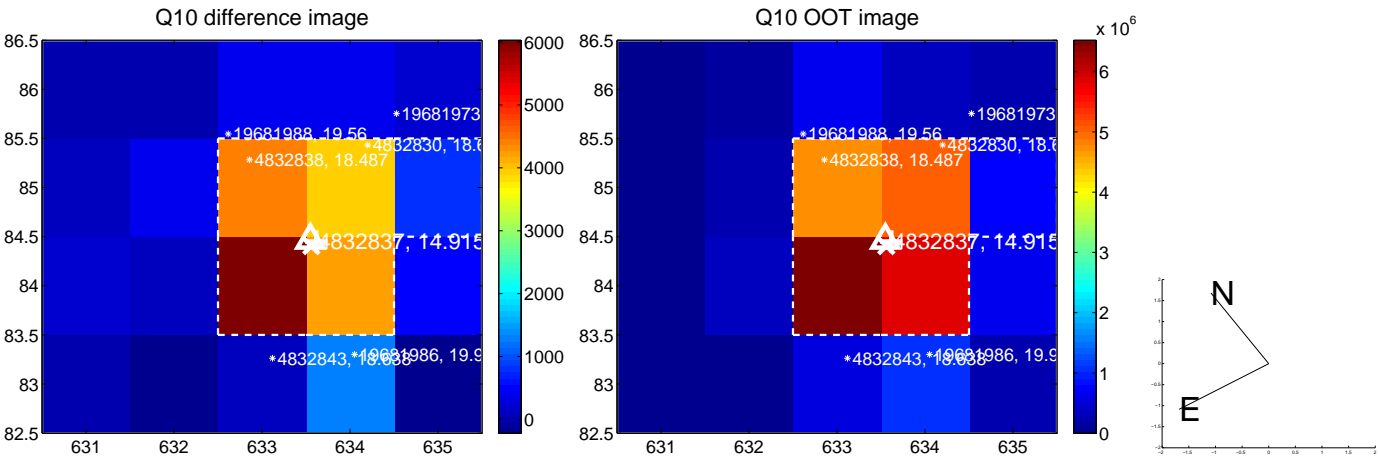
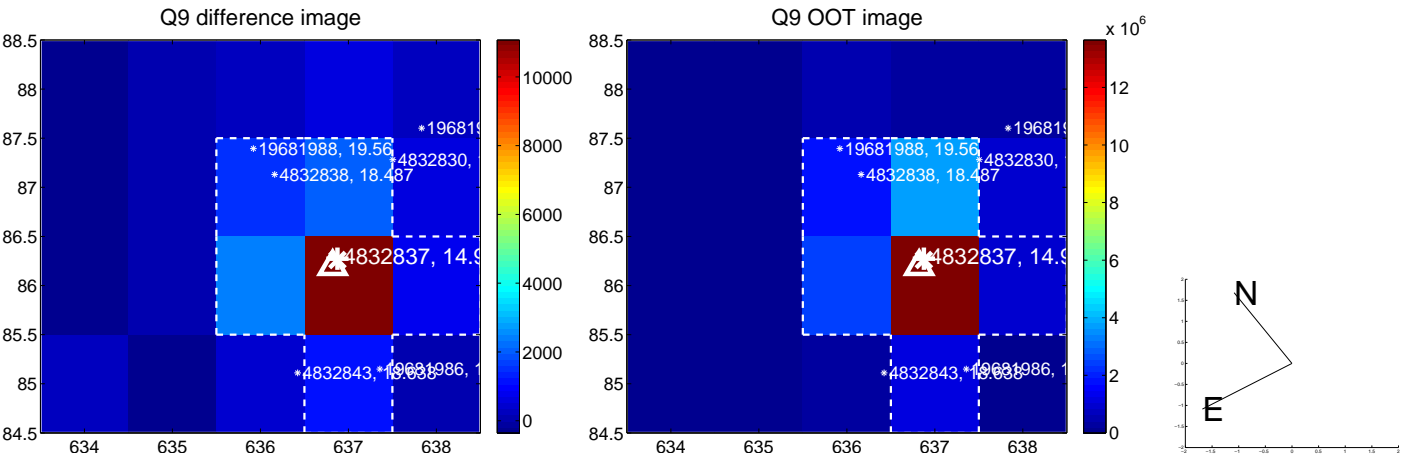
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



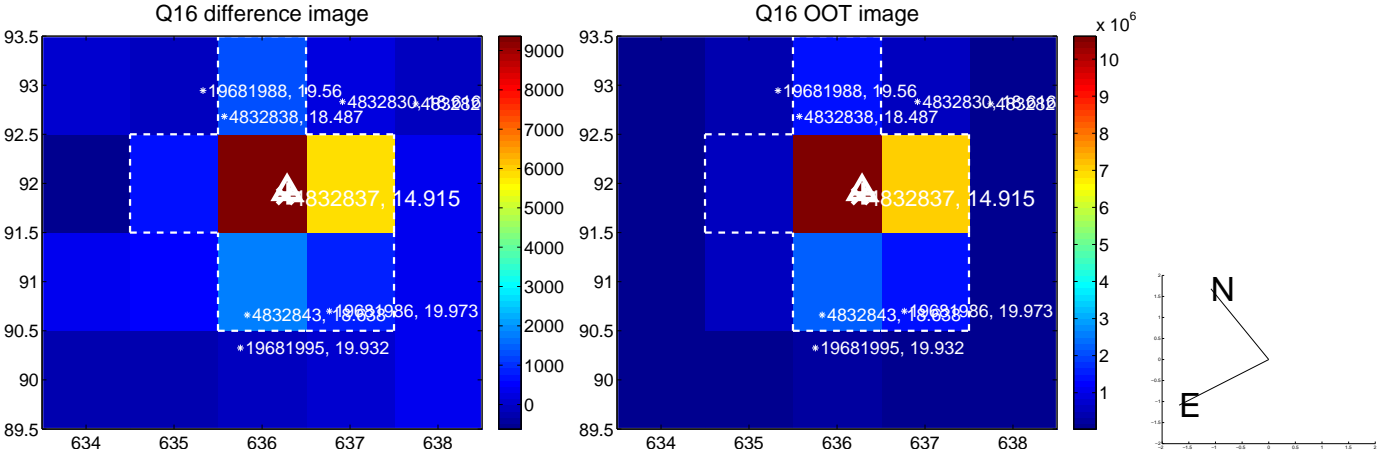
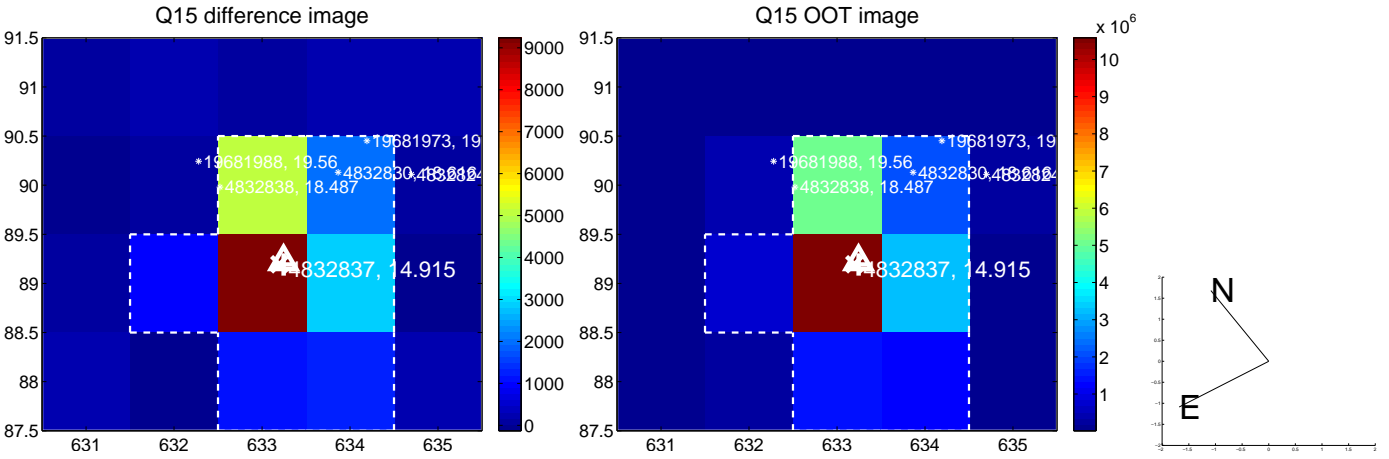
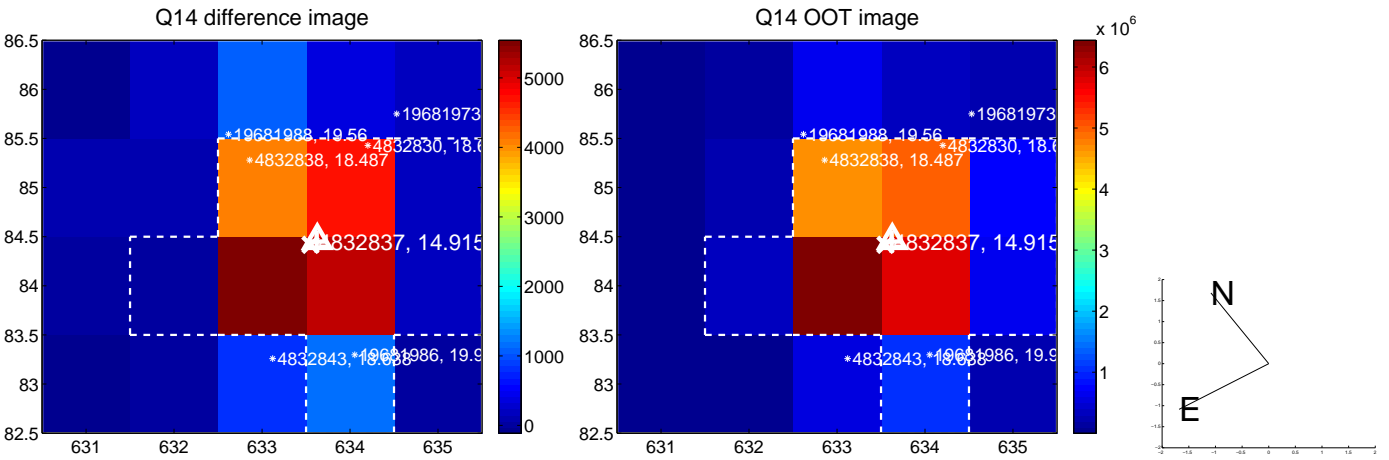
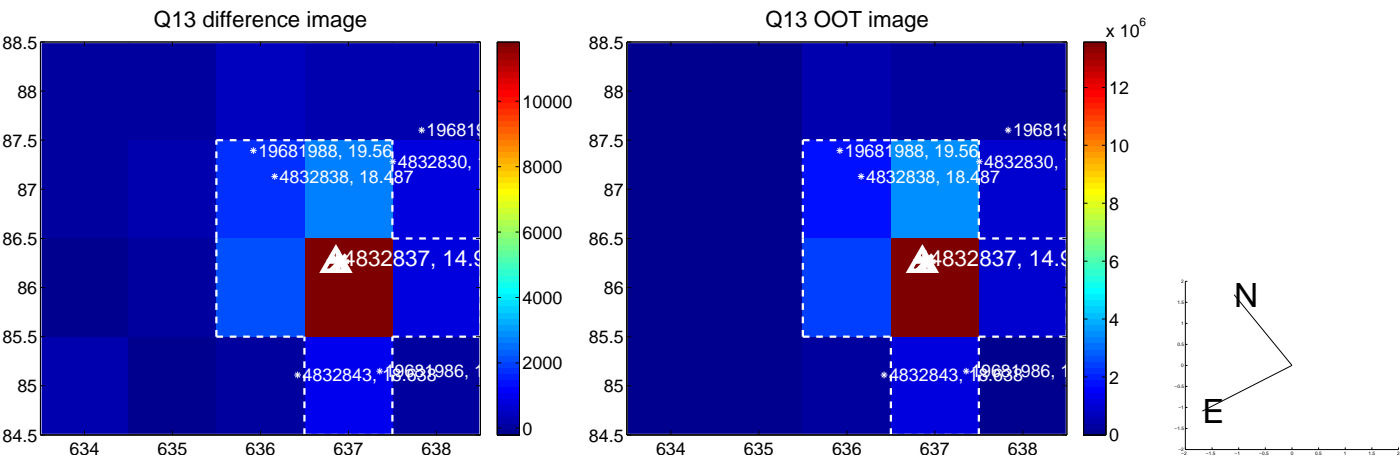
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

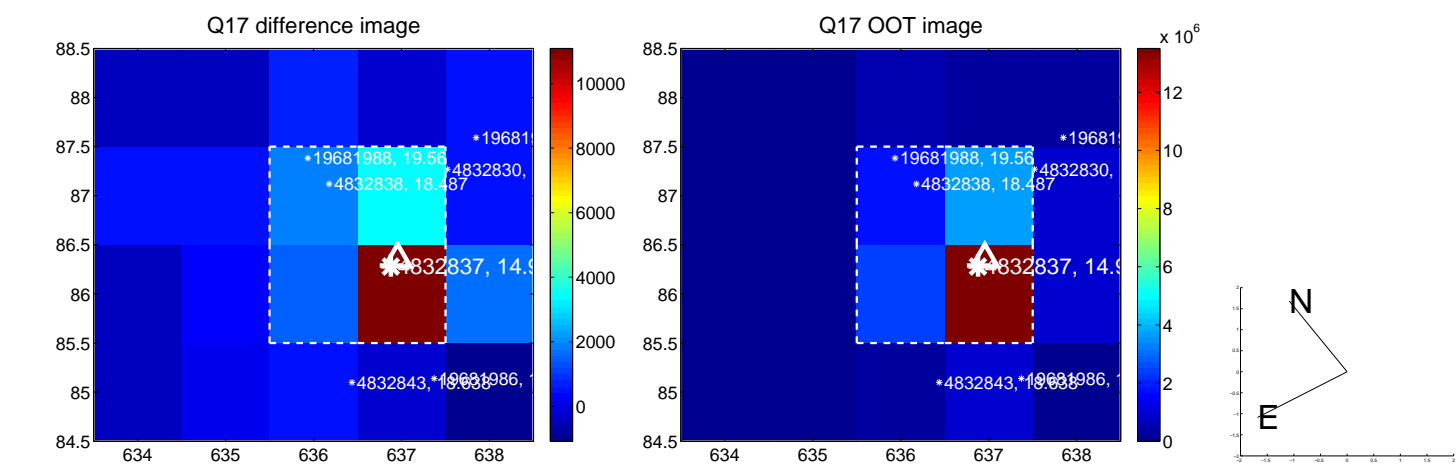


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

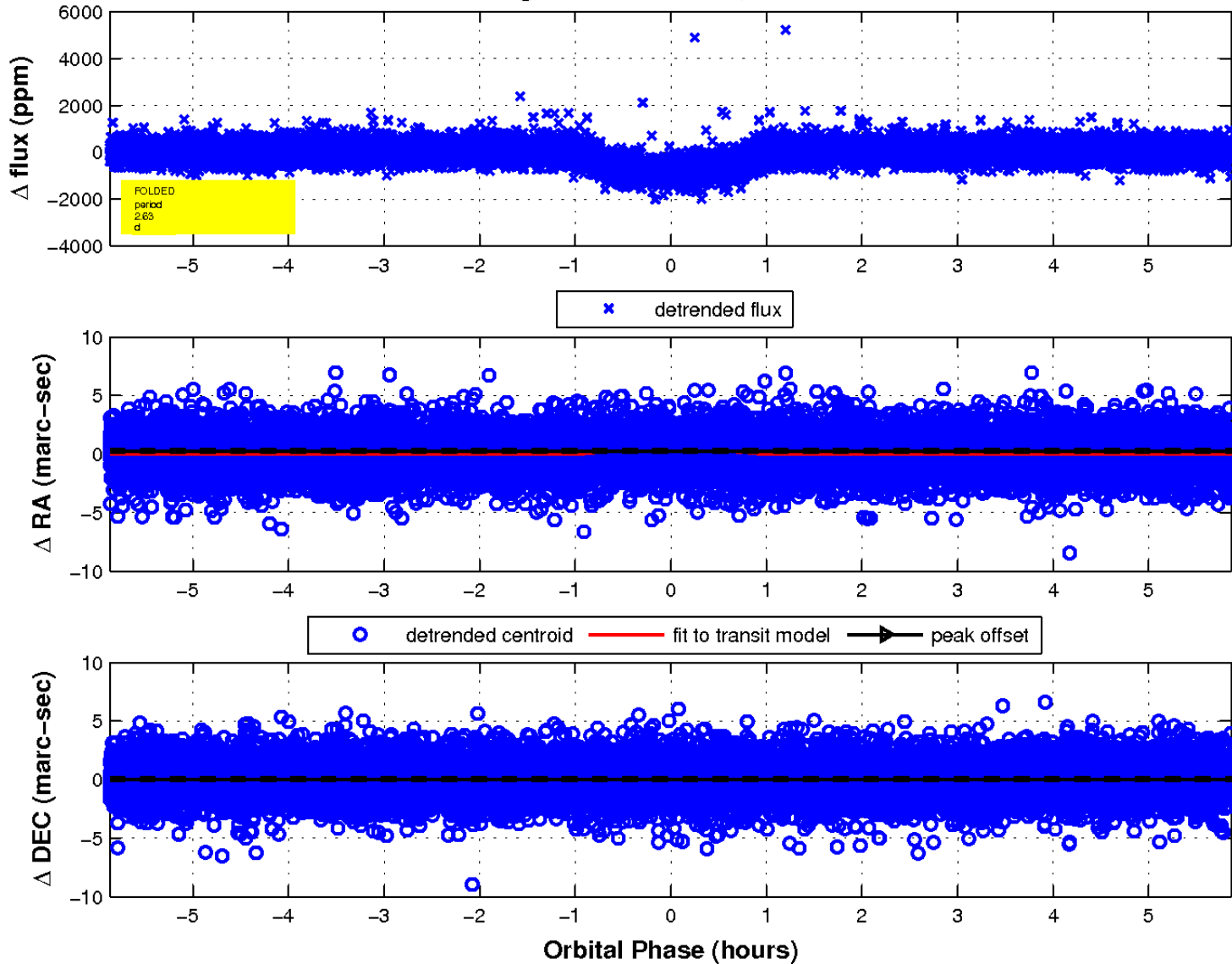




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

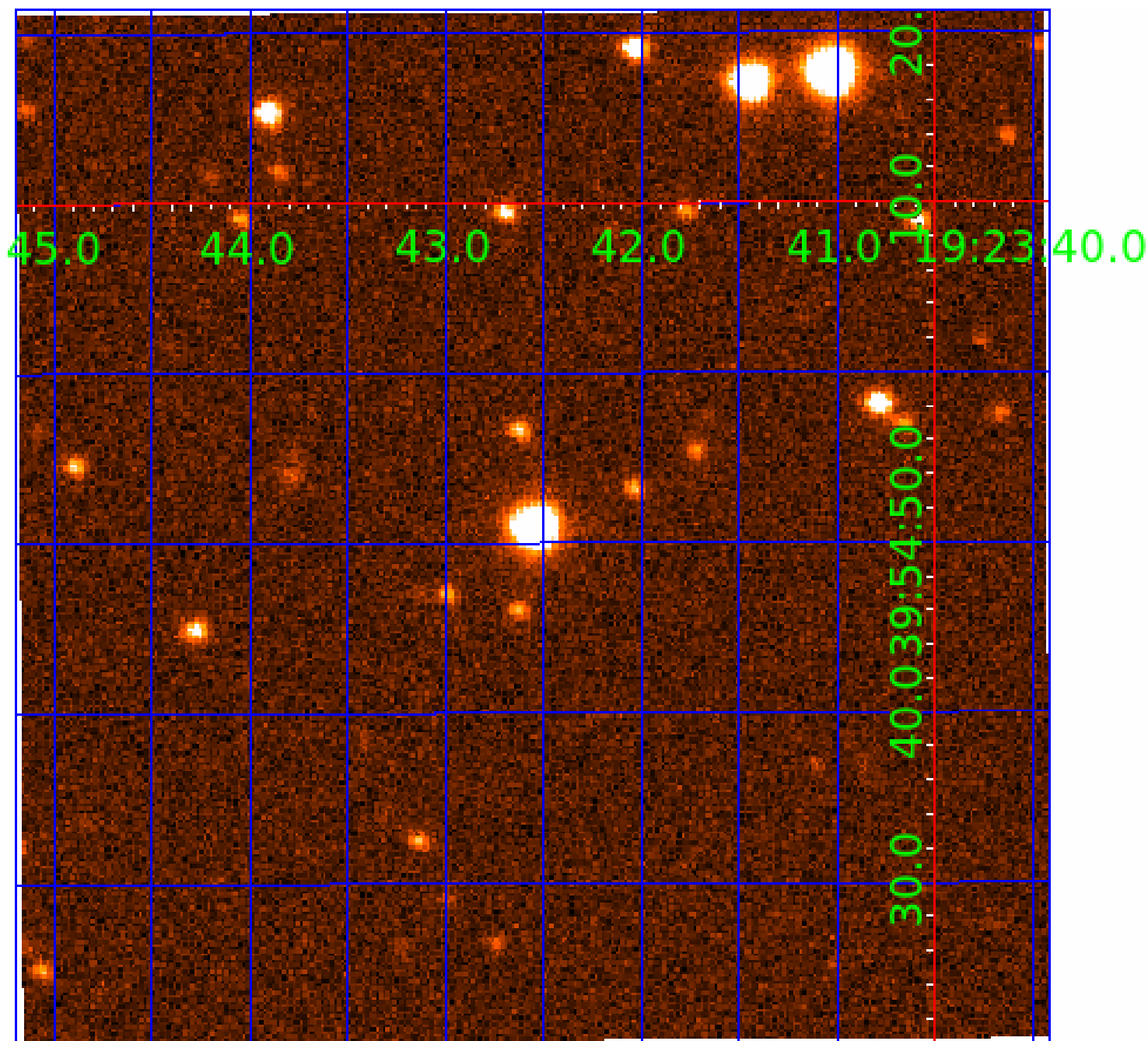


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



# KIC 004832837

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004832837-01	OBS	0605.01	2.628102	132.929491	875.6	1.956	62.2	86.9	0.56	3939	1.98	69.74
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004832837-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004832837-02	OBS	PC	0.92	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.

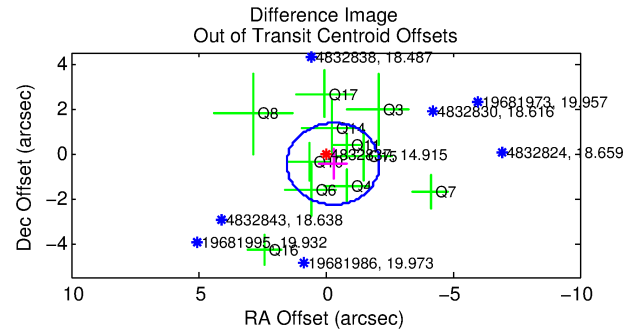
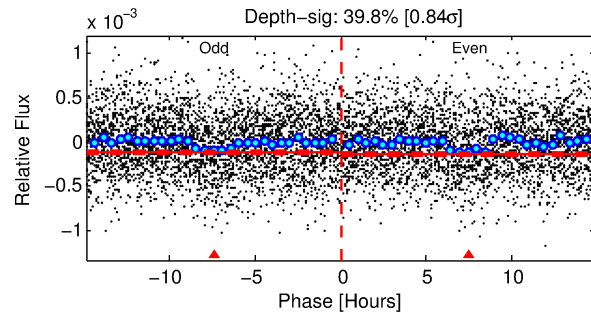
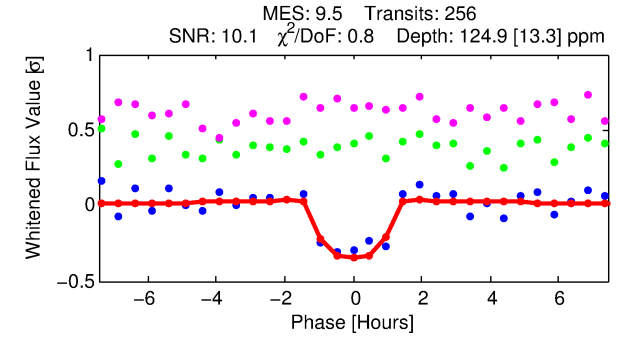
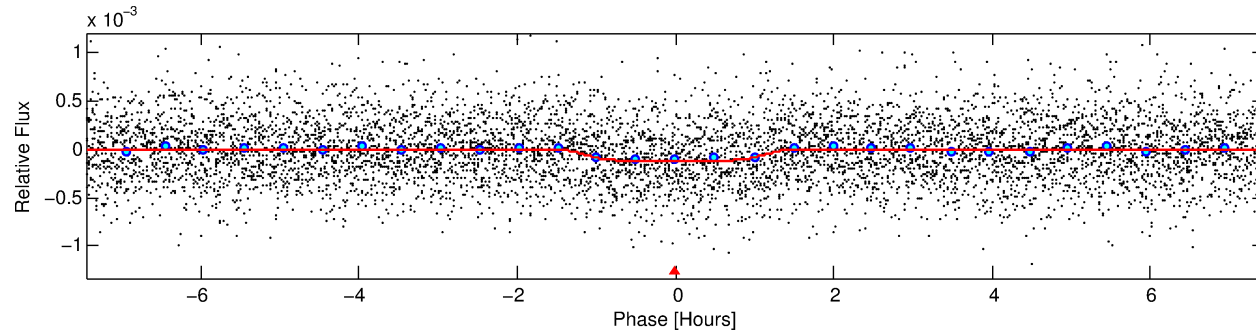
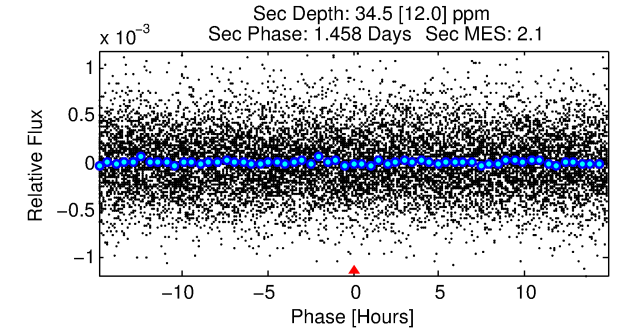
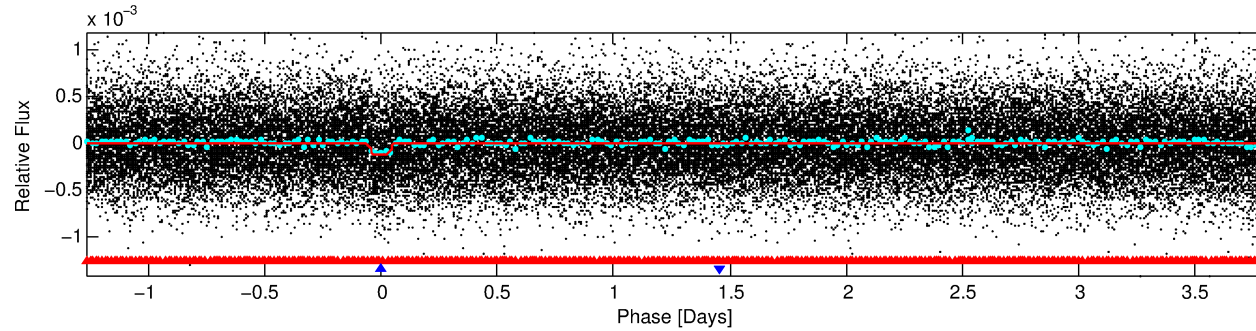
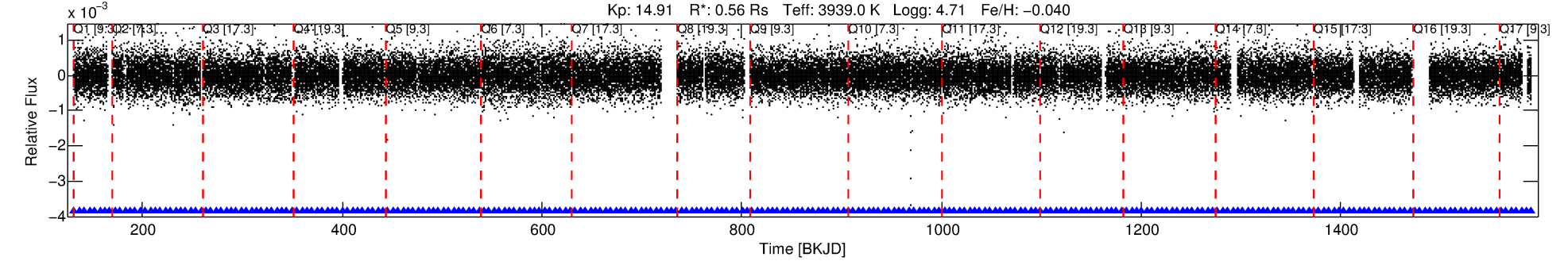
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004832837-02

No Significant Match Found

# DV One-Page Summary

KIC: 4832837 Candidate: 2 of 2 Period: 5.065 d  
KOI: K00605.02 Corr: 0.940



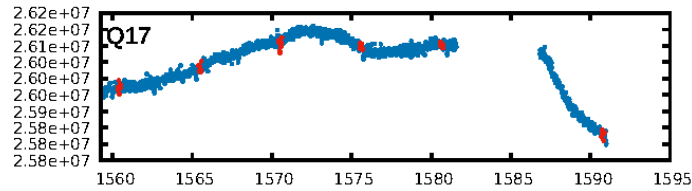
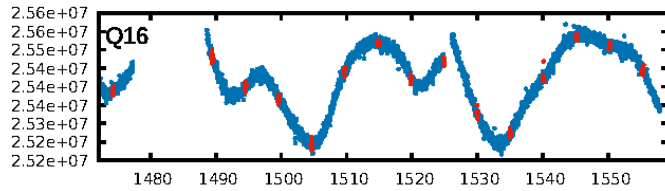
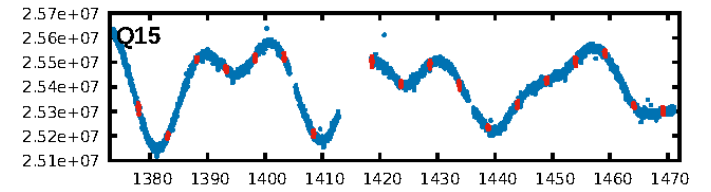
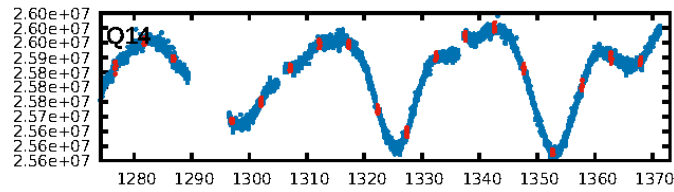
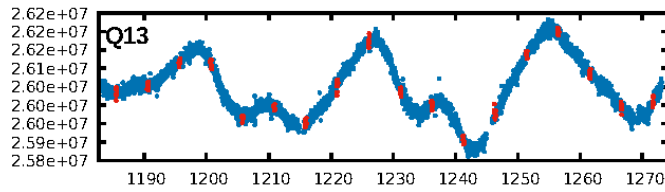
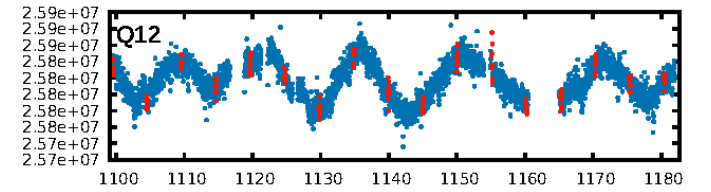
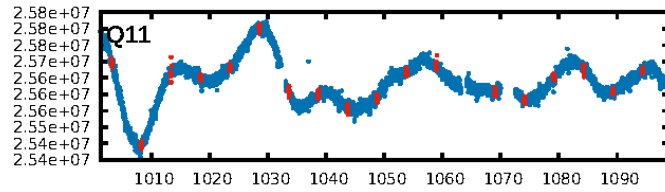
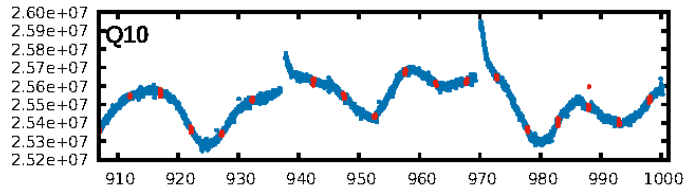
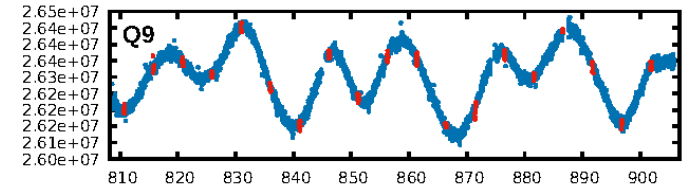
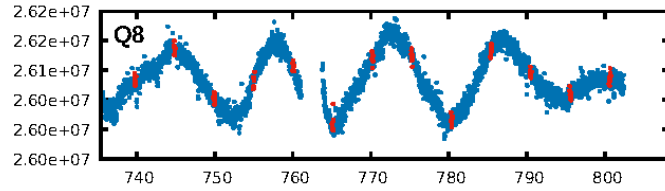
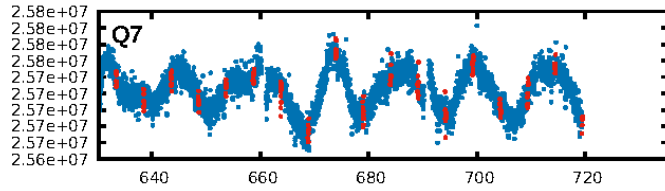
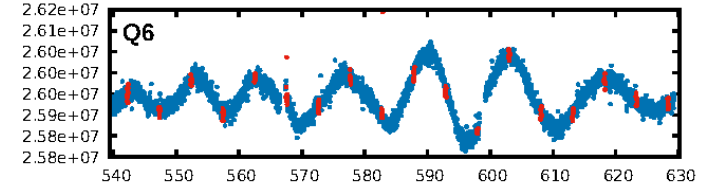
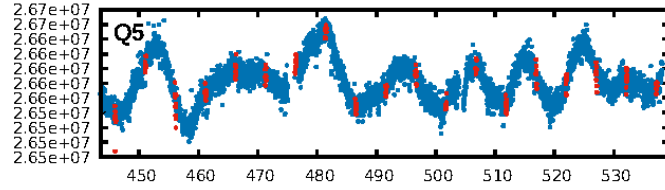
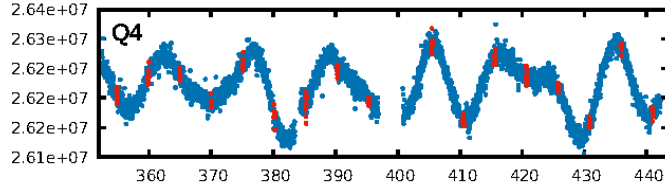
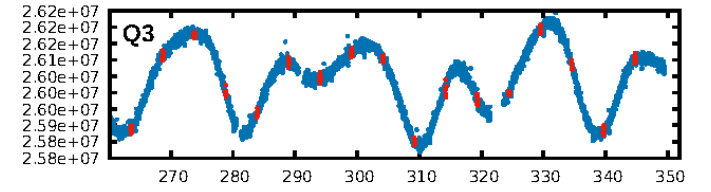
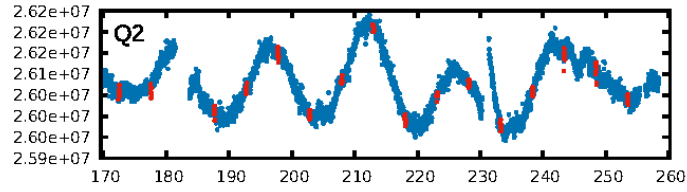
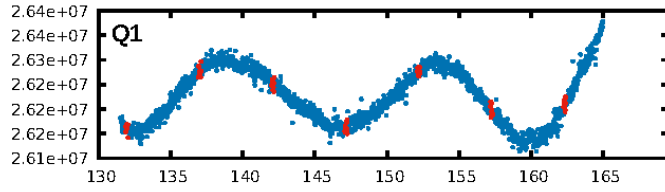
## DV Fit Results:

Period = 5.06542 [0.00003] d  
Epoch = 131.9512 [0.0043] BKJD  
Rp/R\* = 0.0120 [0.0115]  
a/R\* = 8.05 [32.40]  
b = 0.87 [1.14]  
Seff = 29.08 [9.91]  
Teff = 592 [50] K  
Rp = 0.73 [0.71] Re  
a = 0.0480 [0.0058] AU  
Ag = 82.24 [160.76] [0.51σ]  
Teffp = 2757 [1359] K [1.59σ]

## DV Diagnostic Results:

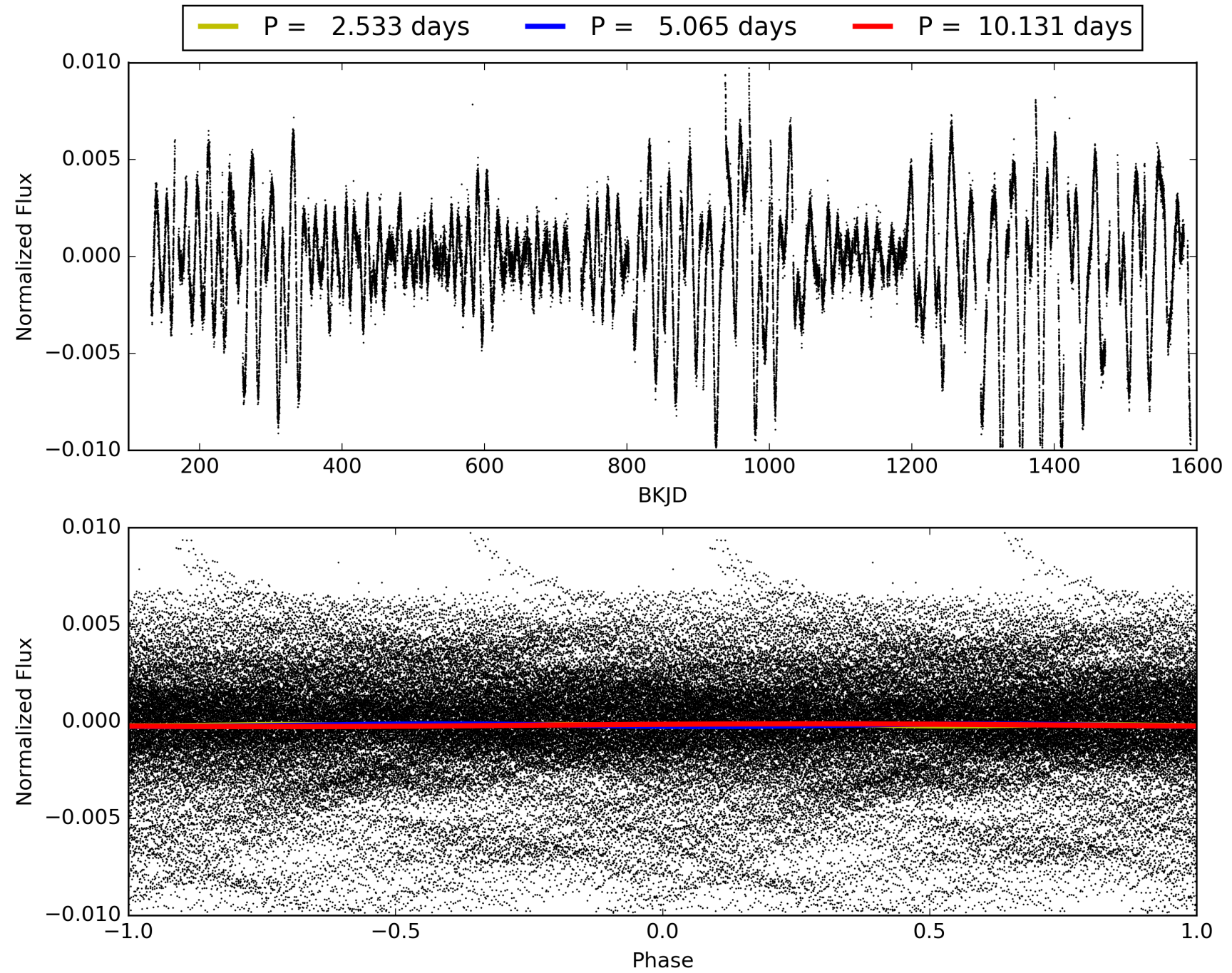
ShortPeriod-sig: 100.0% [18.52σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.18e-21  
RollingBand-fgt: 1.00 [244/244]  
GhostDiagnostic-chr: 9.46  
Centroid-sig: 7.6%  
Centroid-so: 1.446 arcsec [1.34σ]  
OotOffset-rm: 0.555 arcsec [0.91σ]  
KicOffset-rm: 0.678 arcsec [1.24σ]  
OotOffset-st: 3/4/3/1 [11]  
KicOffset-st: 3/4/3/1 [11]  
DiffImageQuality-fgm: 0.36 [4/11]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 004832837-02, PDC Light Curves



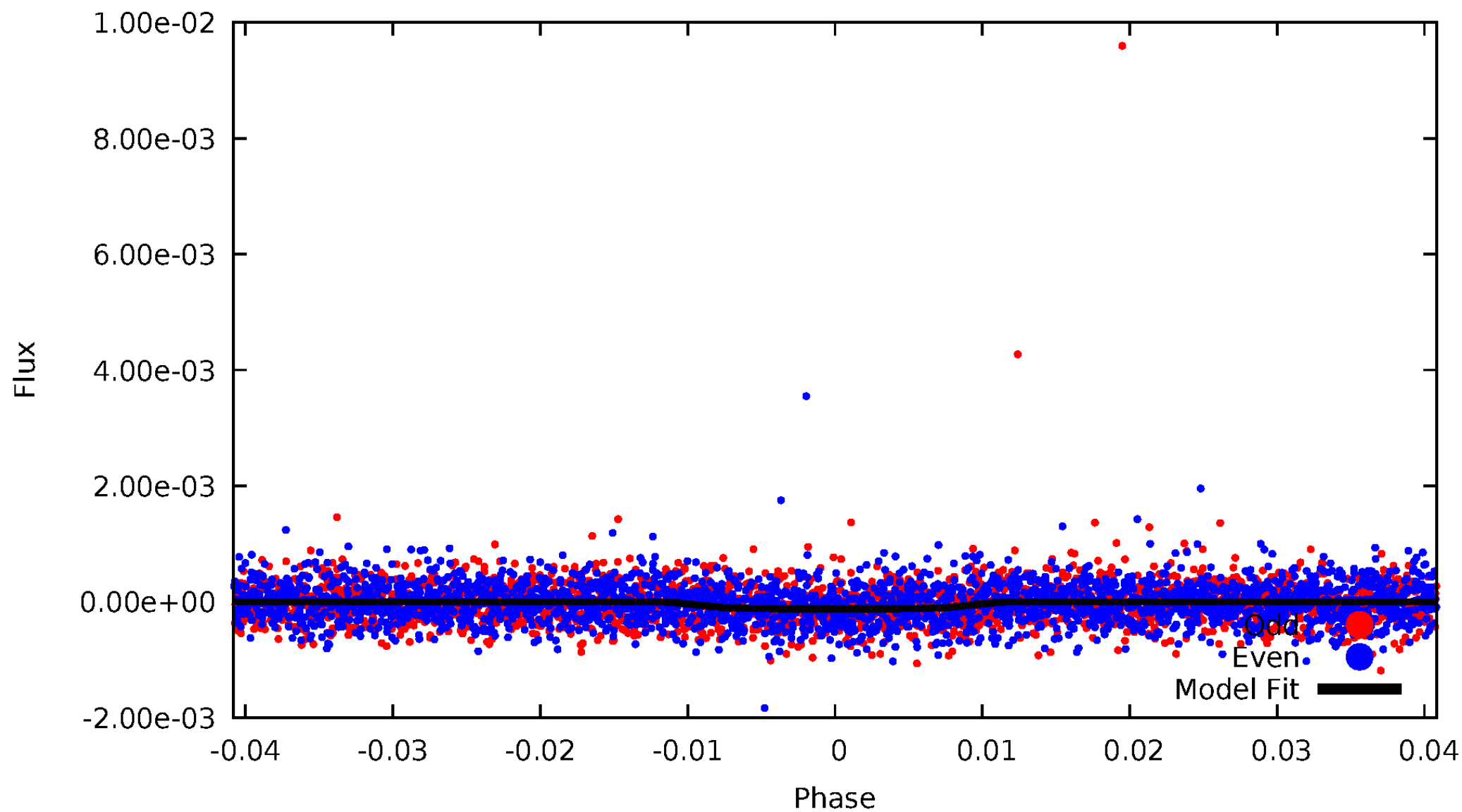


TCE 004832837-02



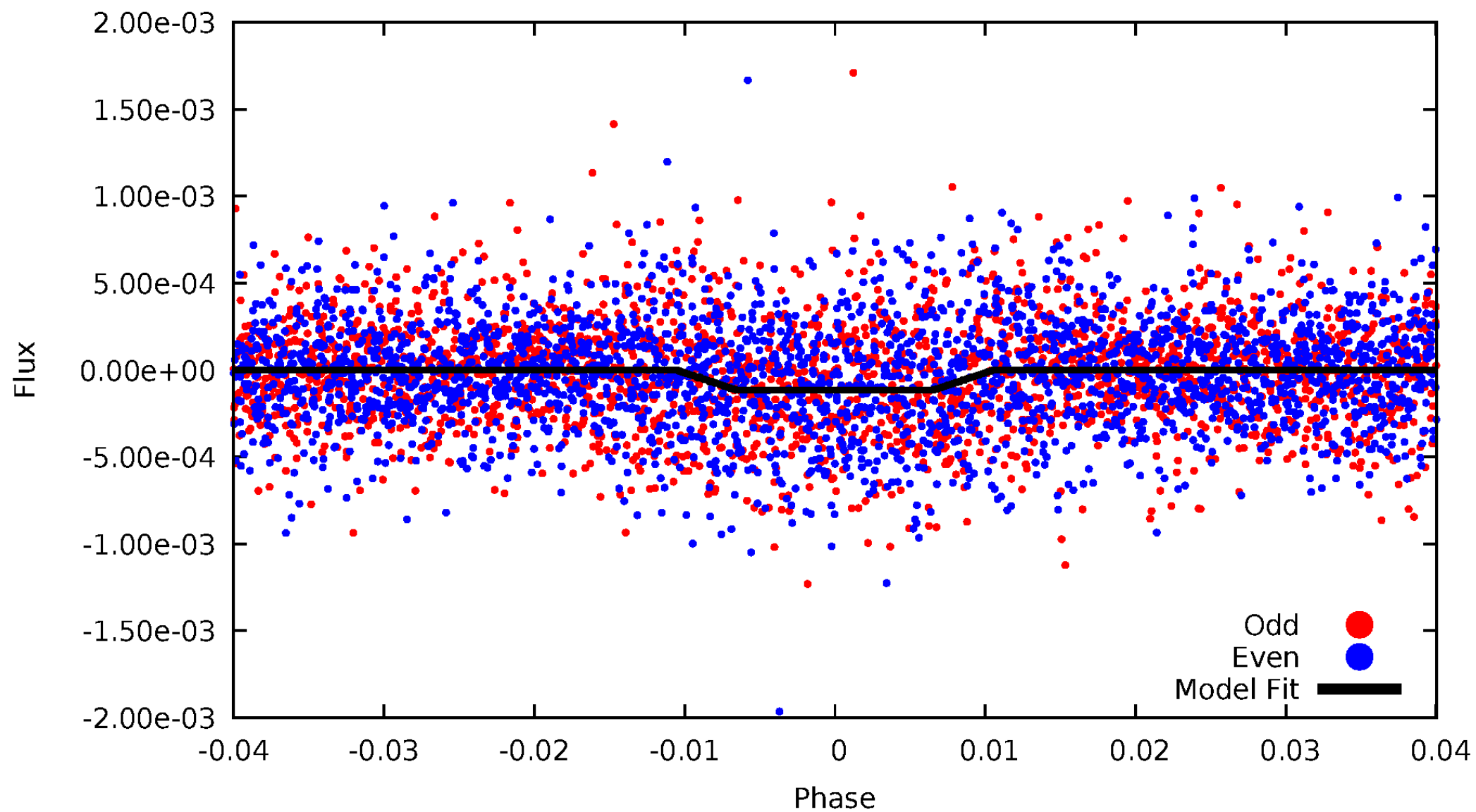
# DV Odd/Even

TCE 004832837-02



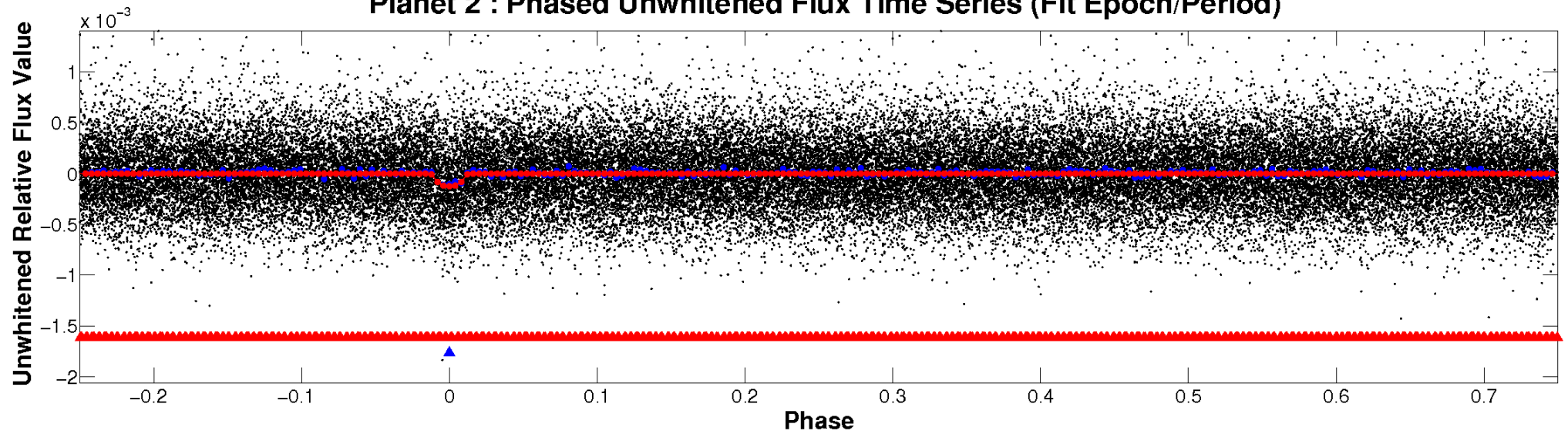
# ALT Odd/Even

TCE 004832837-02

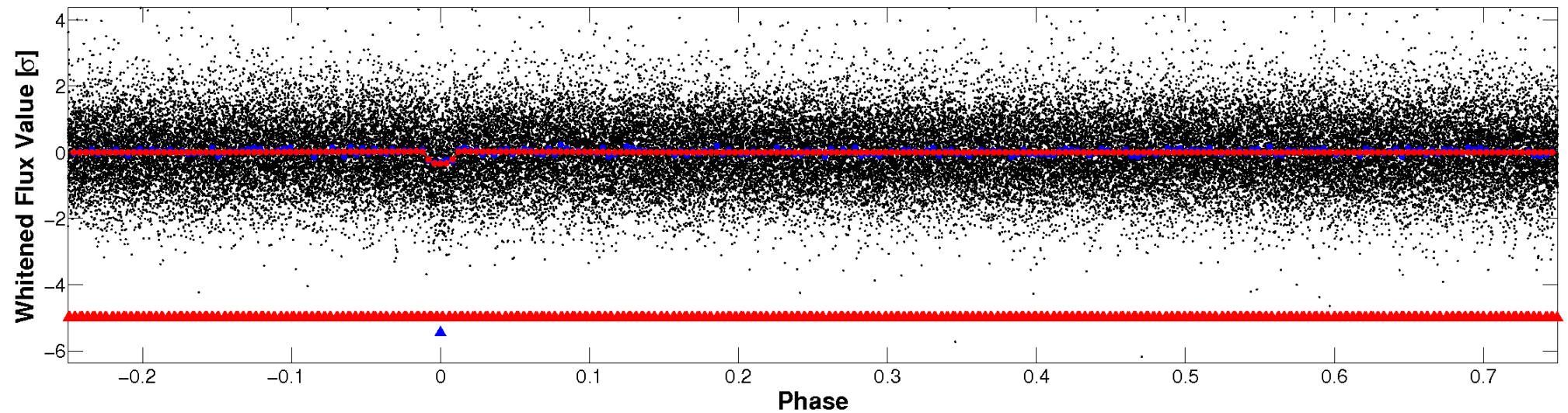


# Non-Whitened Vs. Whitened Light Curve

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

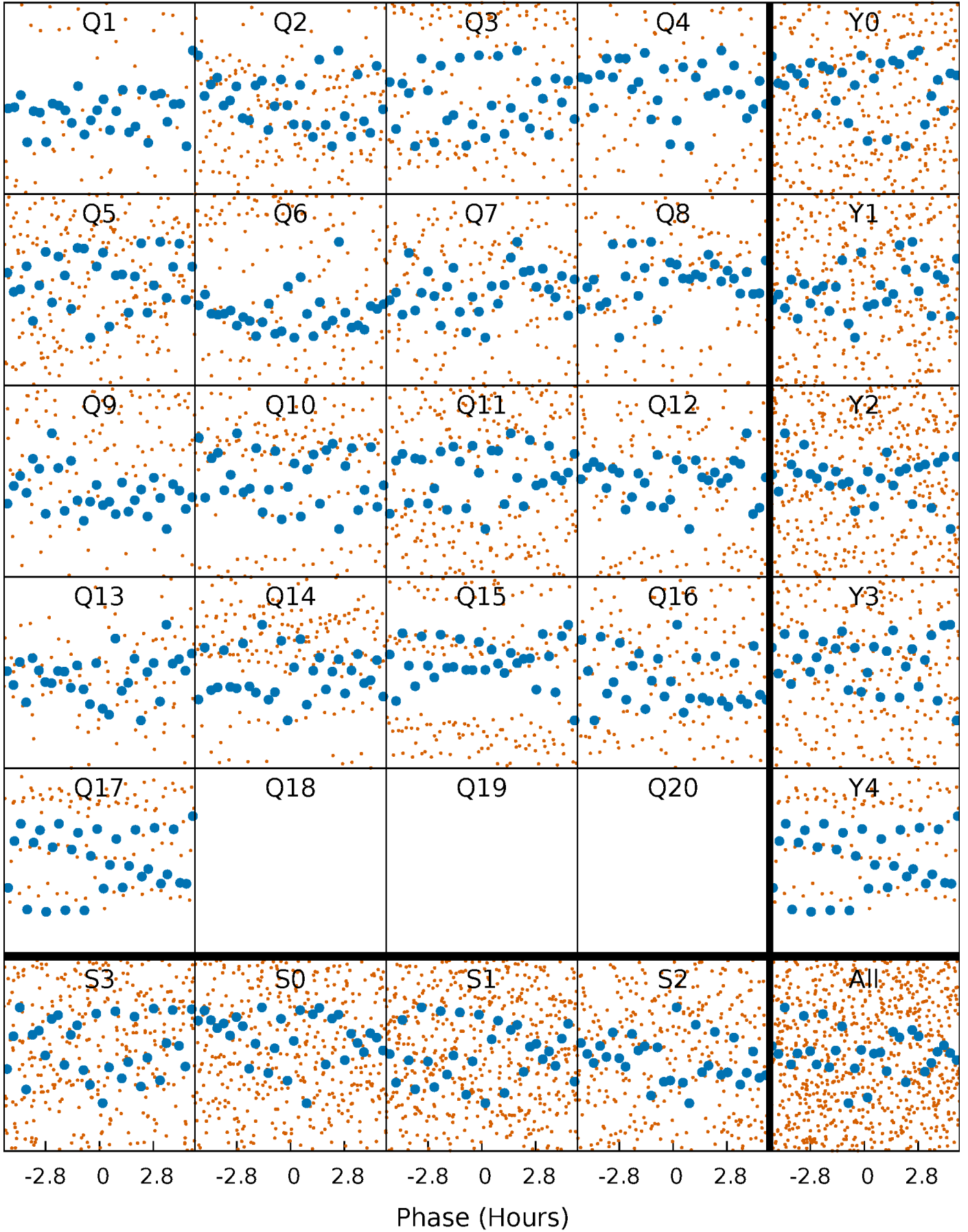


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

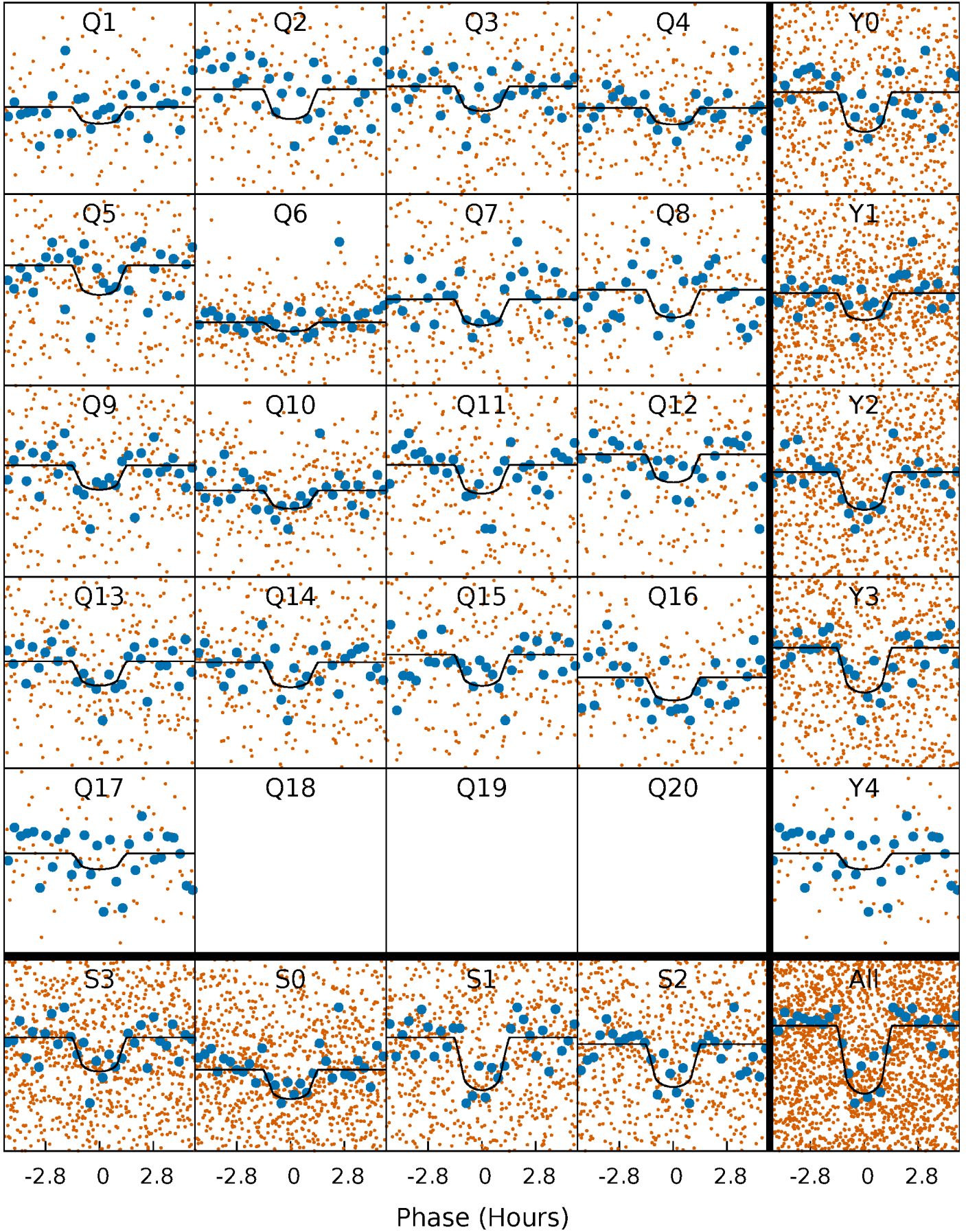
TCE 004832837-02   P= 5.065422 Days    $T_0=131.951186$  (BKJD)





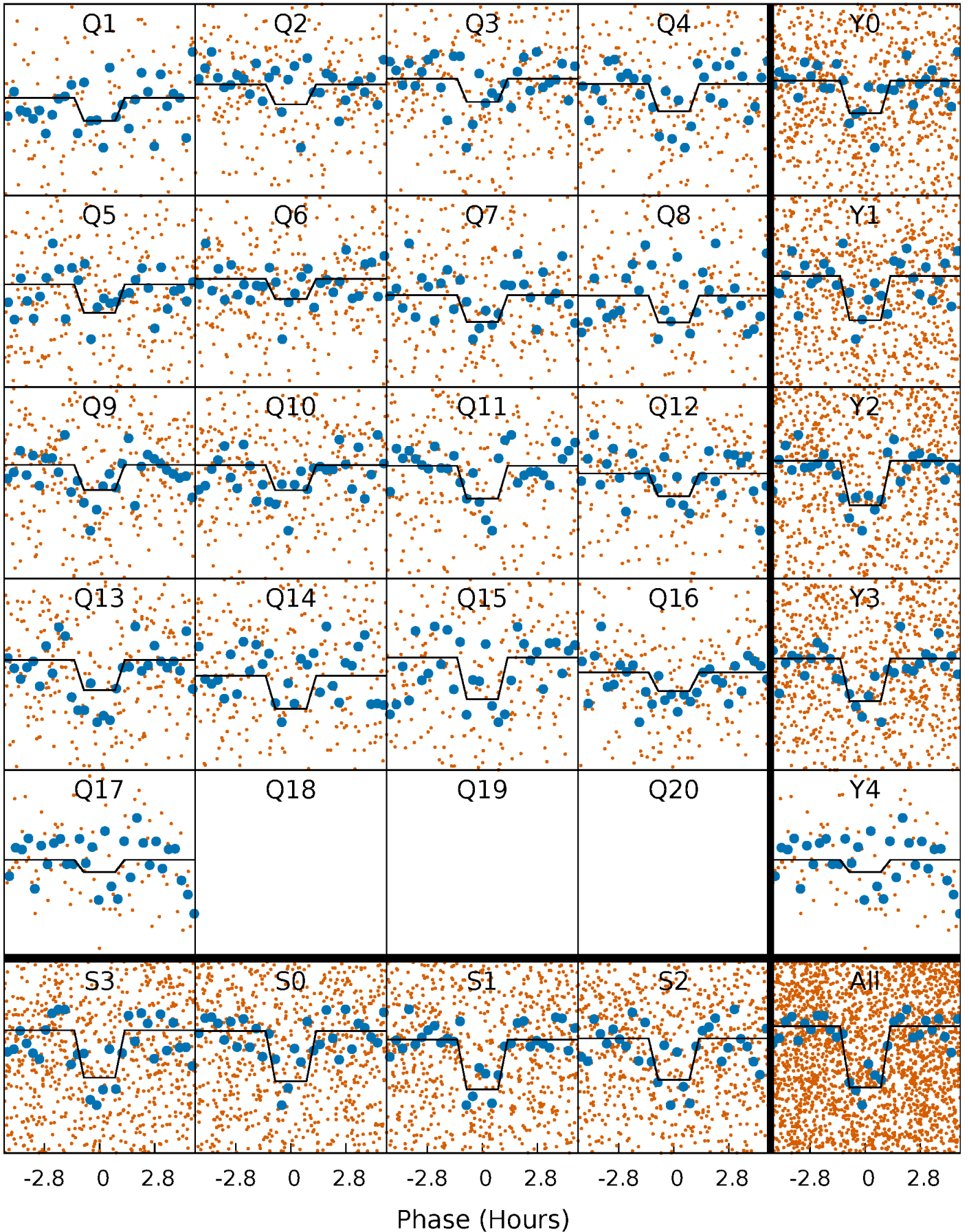
# DV Quarter-Phased Transit Curves

TCE 004832837-02   P= 5.065422 Days    $T_0=131.951186$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

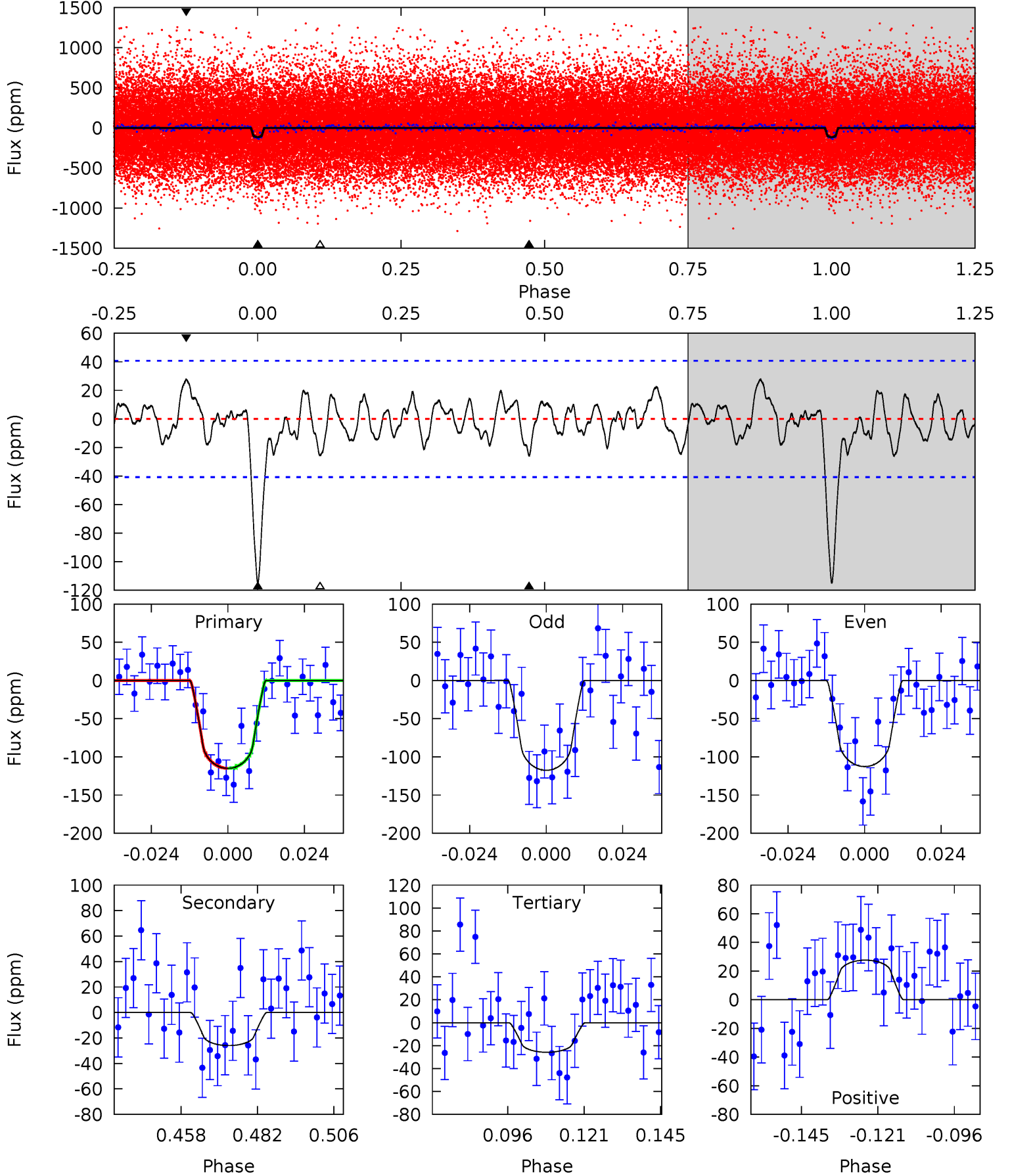
TCE 004832837-02   P= 5.065497 Days    $T_0=131.940981$  (BKJD)



# DV Model-Shift Uniqueness Test

004832837-02, P = 5.065422 Days, E = 126.885764 Days

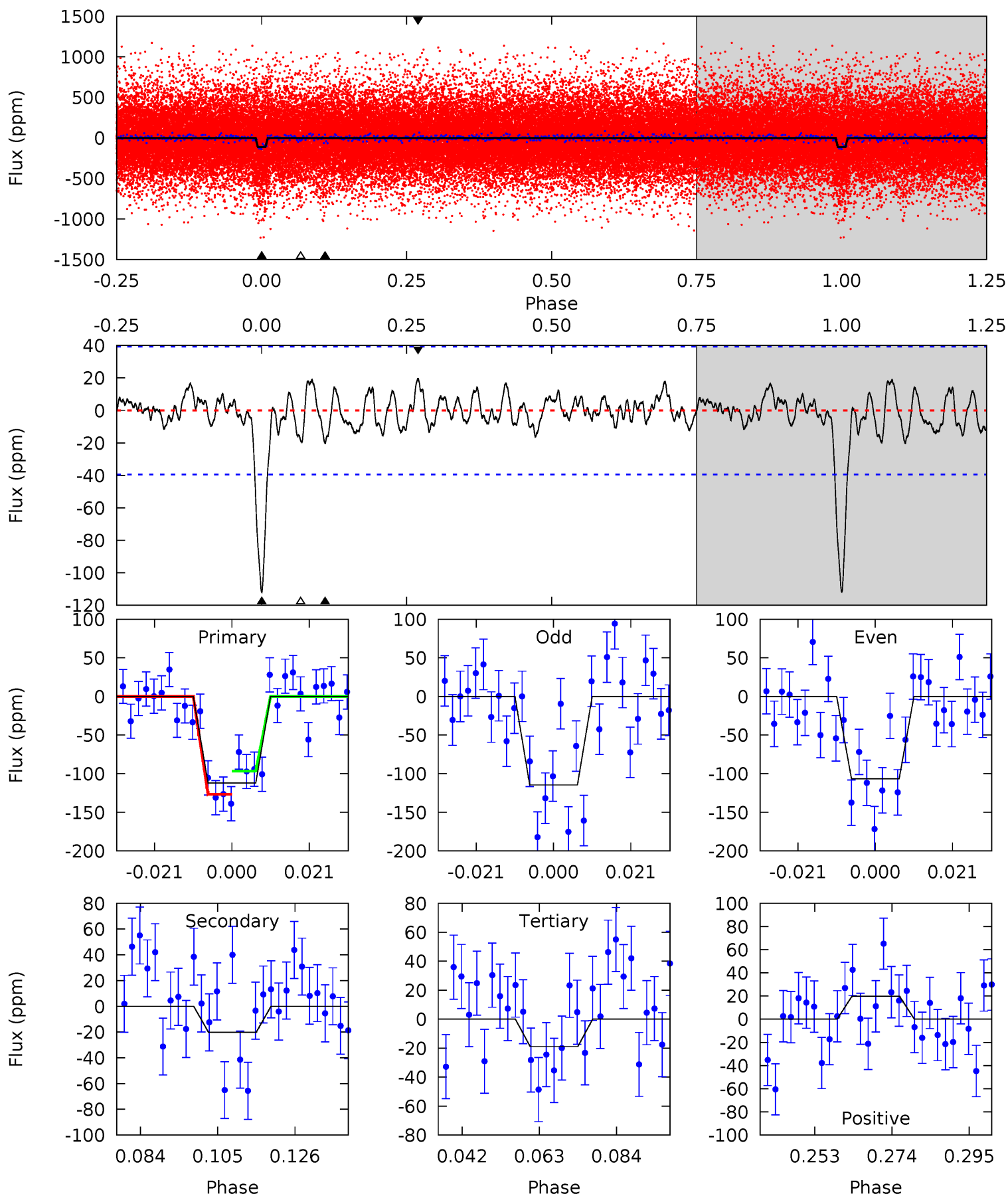
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	3.10	3.08	3.30	4.85	2.26	1.29	10.6	10.4	0.02	-0.20	0.29	0.99	0.19	0.00



# Alt Model-Shift Uniqueness Test

004832837-02, P = 5.065497 Days, E = 126.875484 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
13.9	2.50	2.34	2.44	4.88	2.31	0.94	11.5	11.4	0.17	0.06	0.50	1.11	0.15	1.86



### Stellar Parameters For KIC 004832837

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3939^{+297}_{-267}$	$4.705^{+0.078}_{-0.052}$	$-0.040^{+0.200}_{-0.150}$	$0.557^{+0.071}_{-0.087}$	$0.575^{+0.077}_{-0.085}$	$4.672^{+2.048}_{-1.009}$
	+8%/-7%	+2%/-1%	+500%/-375%	+13%/-16%	+13%/-15%	+44%/-22%
Source	SPE5	SPE5	SPE5	DSEP		

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

### Secondary Eclipse Parameters for KIC 004832837-02 / KOI 0605.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-26 \pm 8$	$0.80^{+0.72}_{-0.51}$	$824^{+70}_{-61}$	$2900^{+1215}_{-467}$	$48^{+322}_{-35}$
Alt.	$-20 \pm 8$	$0.81^{+0.66}_{-0.47}$	$827^{+64}_{-58}$	$2785^{+898}_{-424}$	$36^{+195}_{-25}$

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

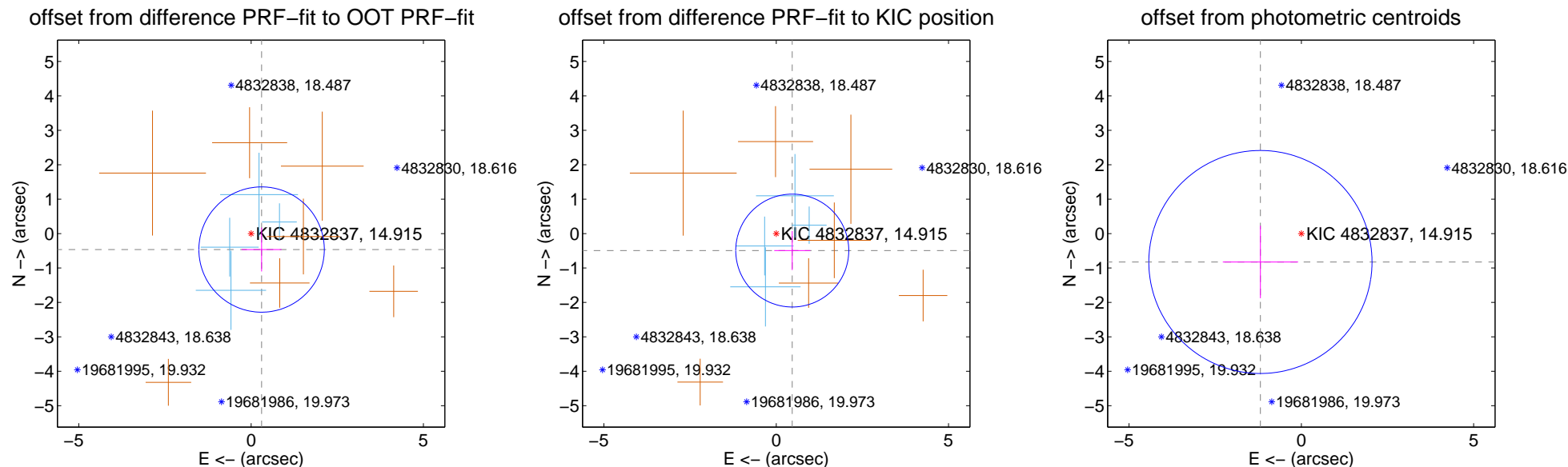
## DV Centroid Data

Supplemental centroid analysis for 004832837-02. Kepler magnitude: 14.91. Transit SNR 10.08

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

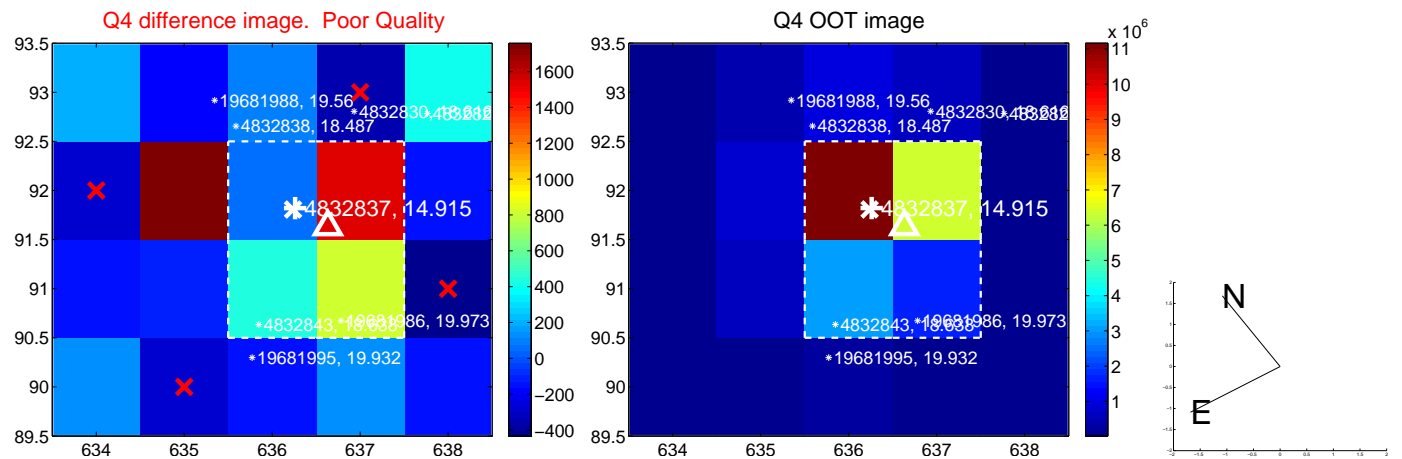
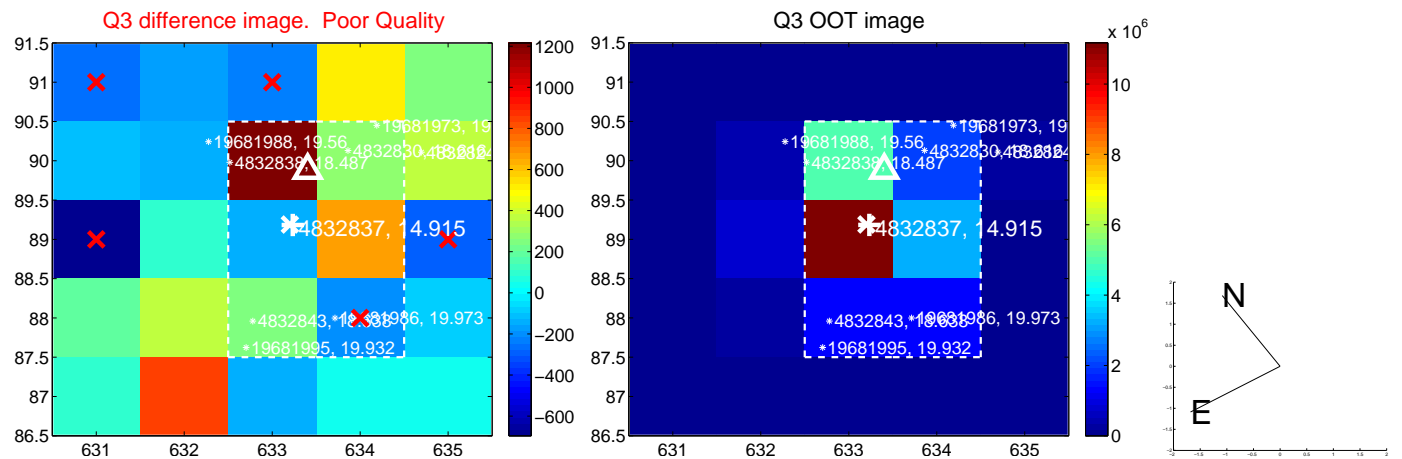
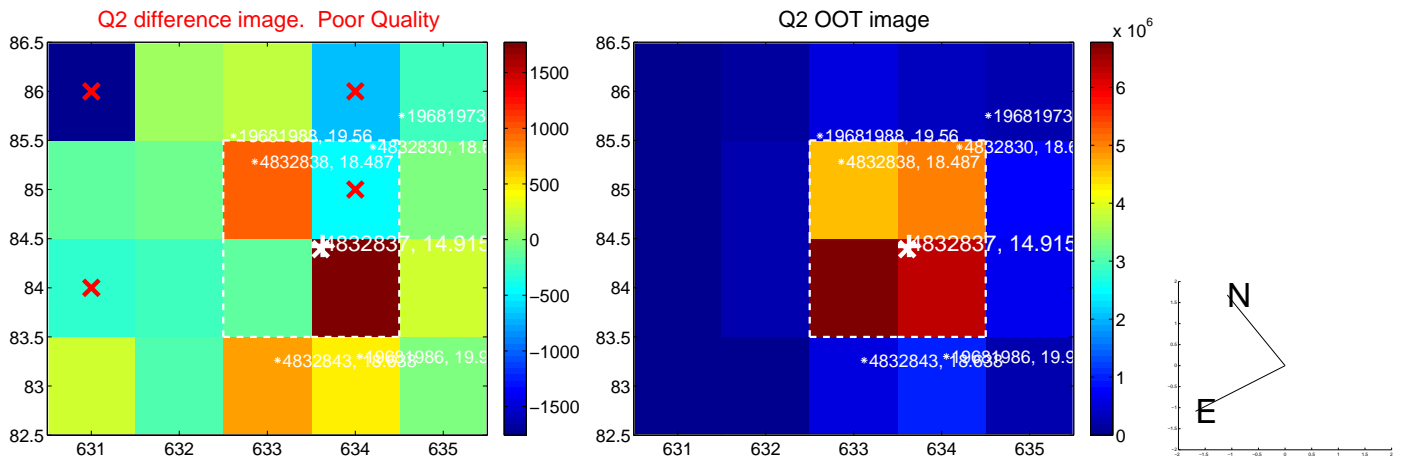
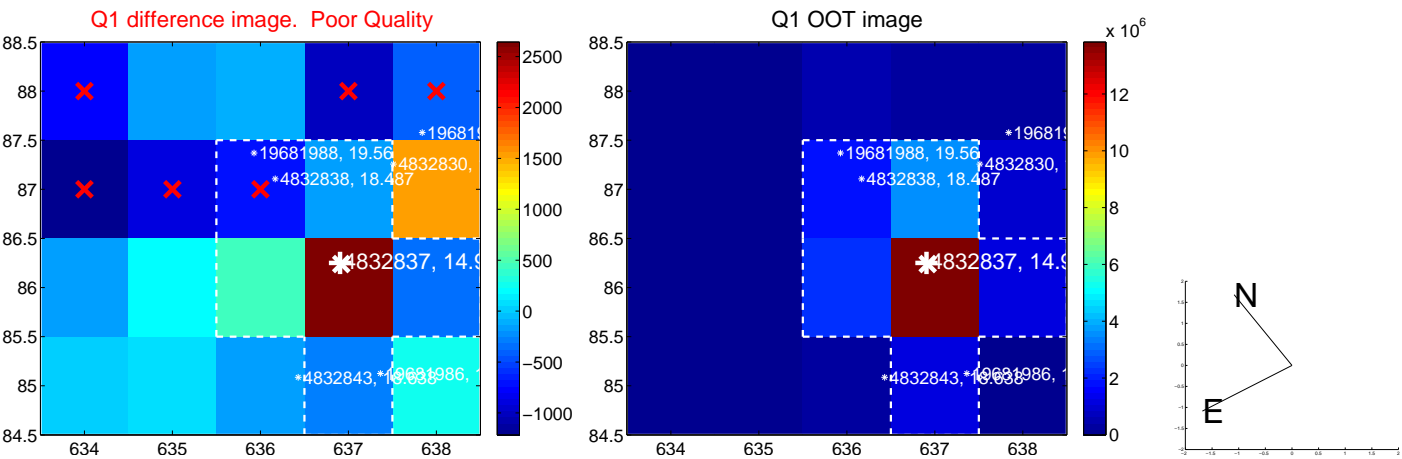
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.555 \pm 0.607$	0.91	$-0.304 \pm 0.578$	$-0.464 \pm 0.637$
PRF-fit source offset from KIC position	$0.678 \pm 0.546$	1.24	$-0.465 \pm 0.522$	$-0.493 \pm 0.567$
photometric centroid source offset	$1.45 \pm 1.08$	1.34	$1.19 \pm 1.09$	$-0.83 \pm 1.05$



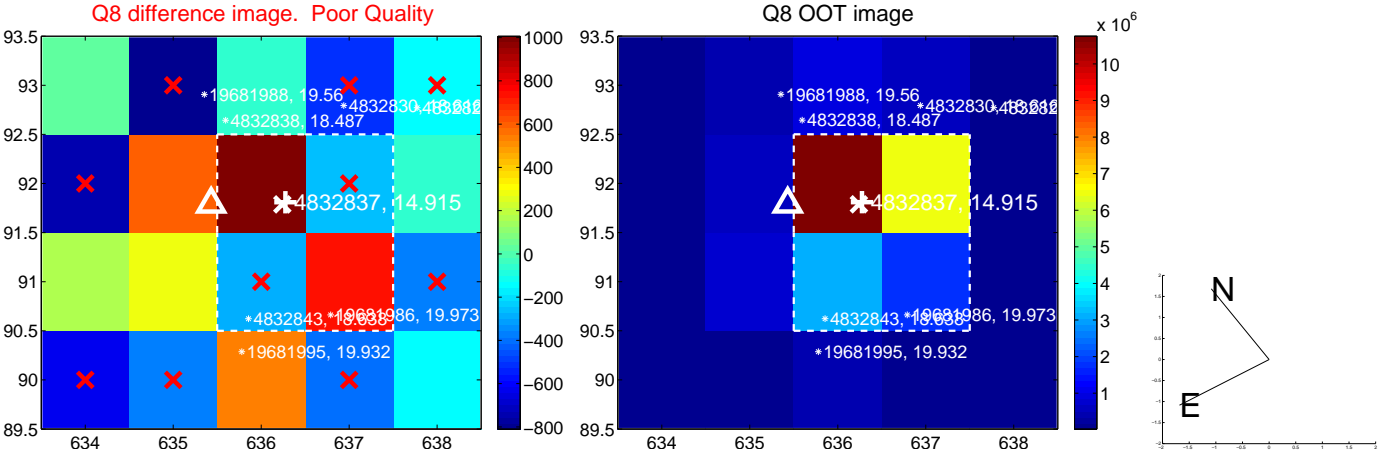
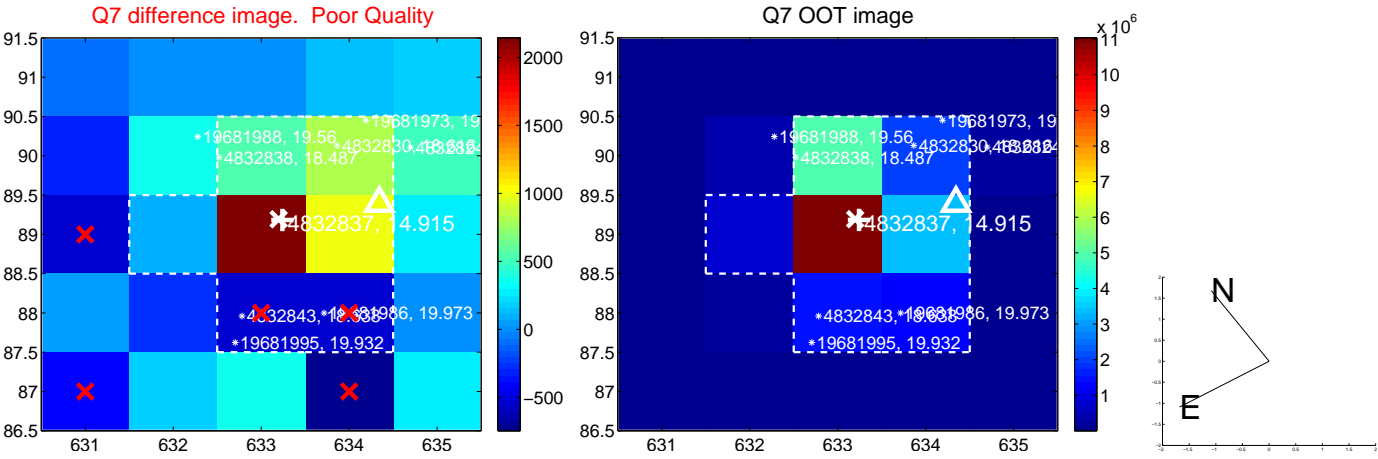
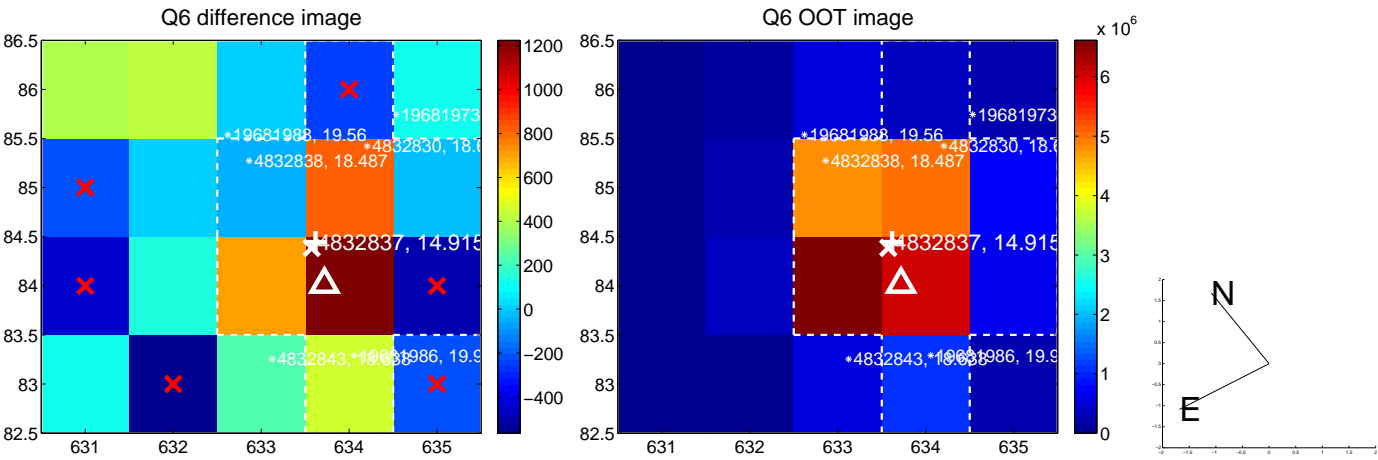
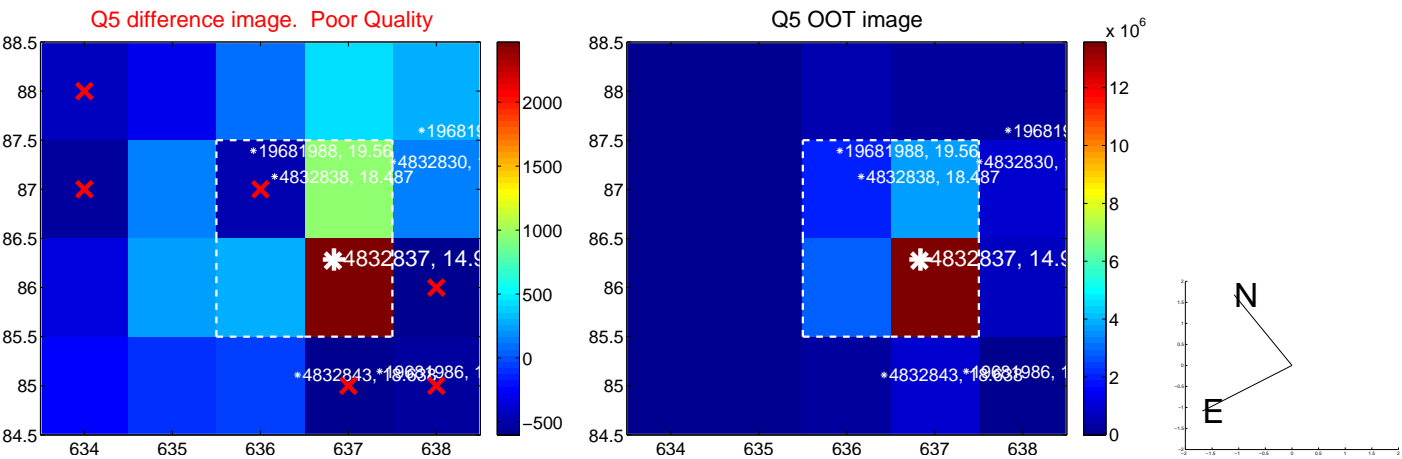
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



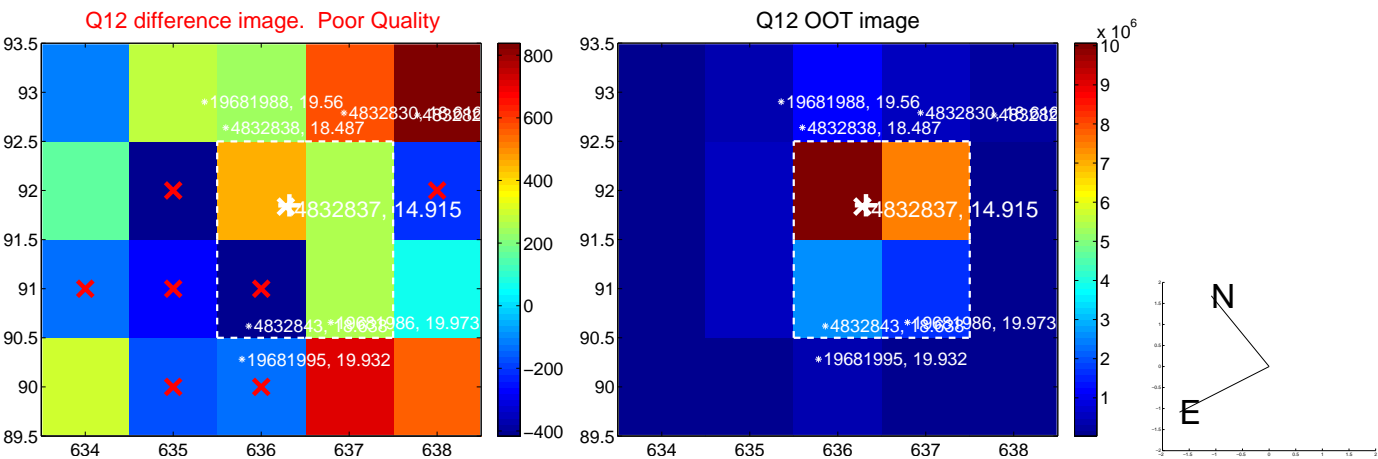
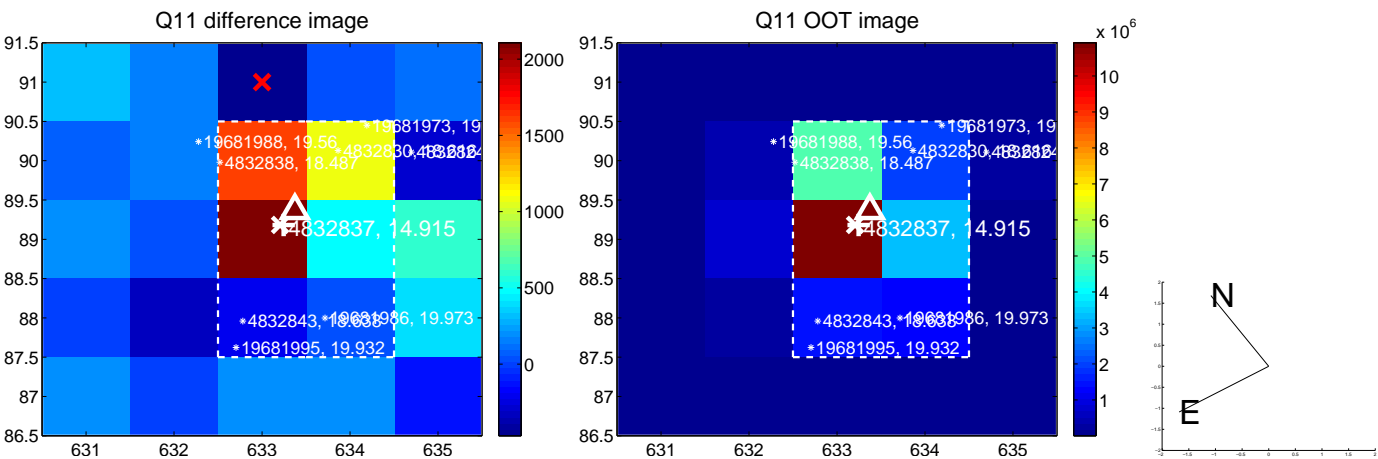
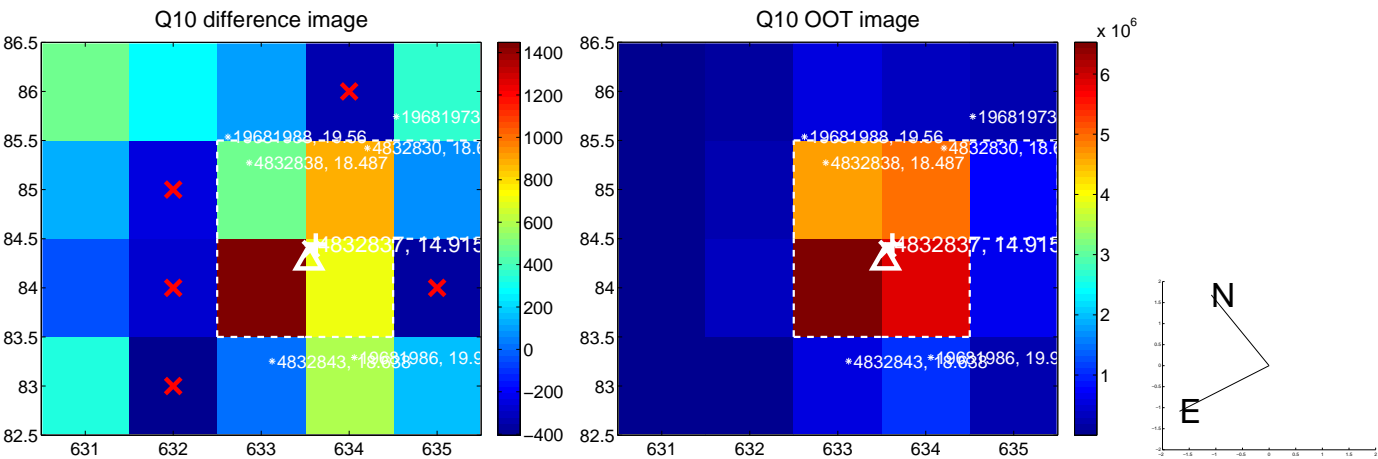
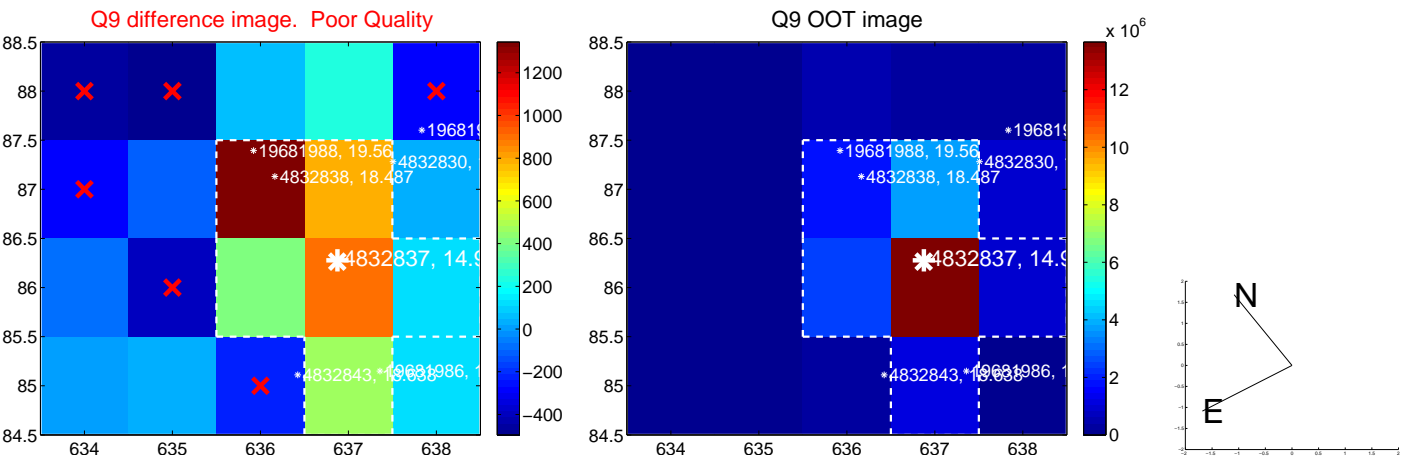
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



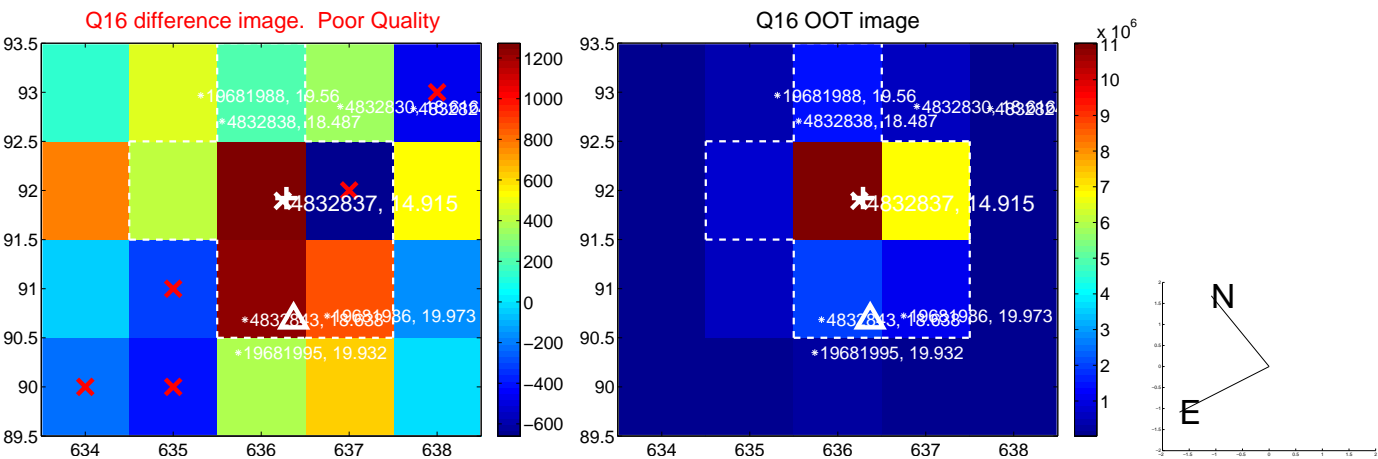
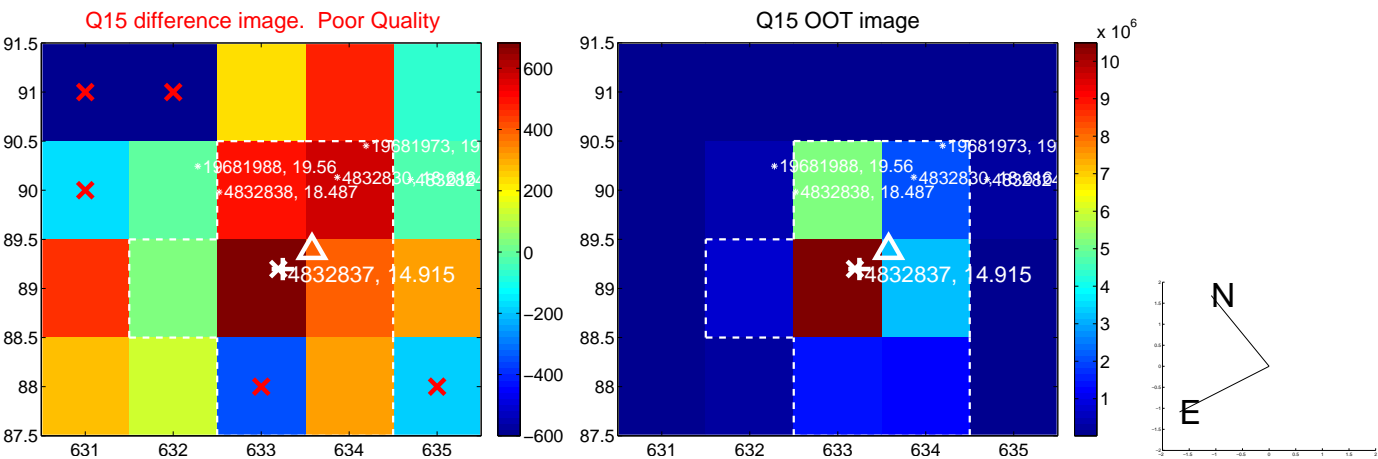
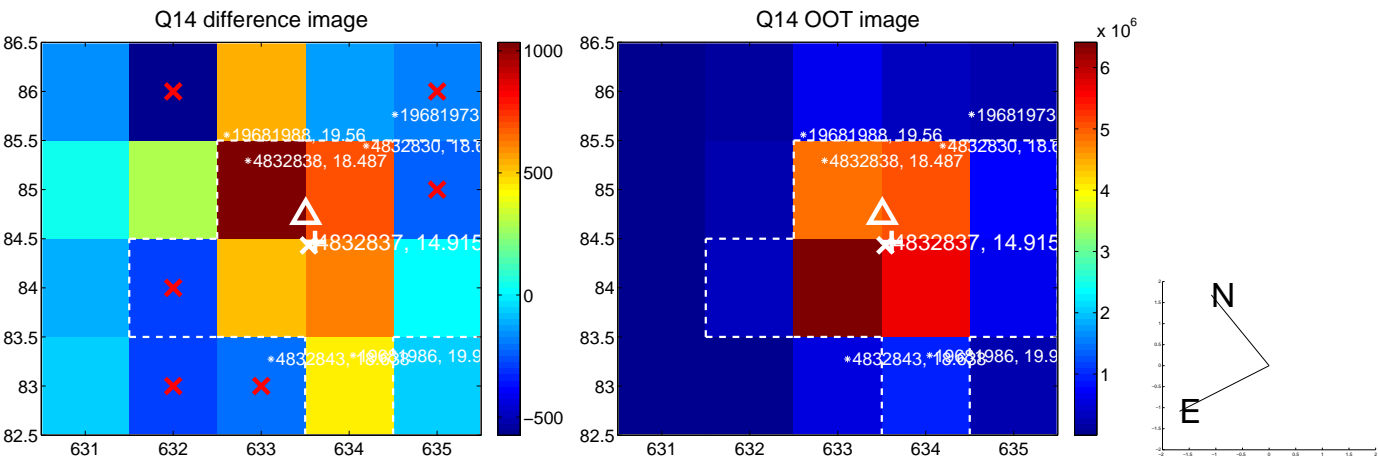
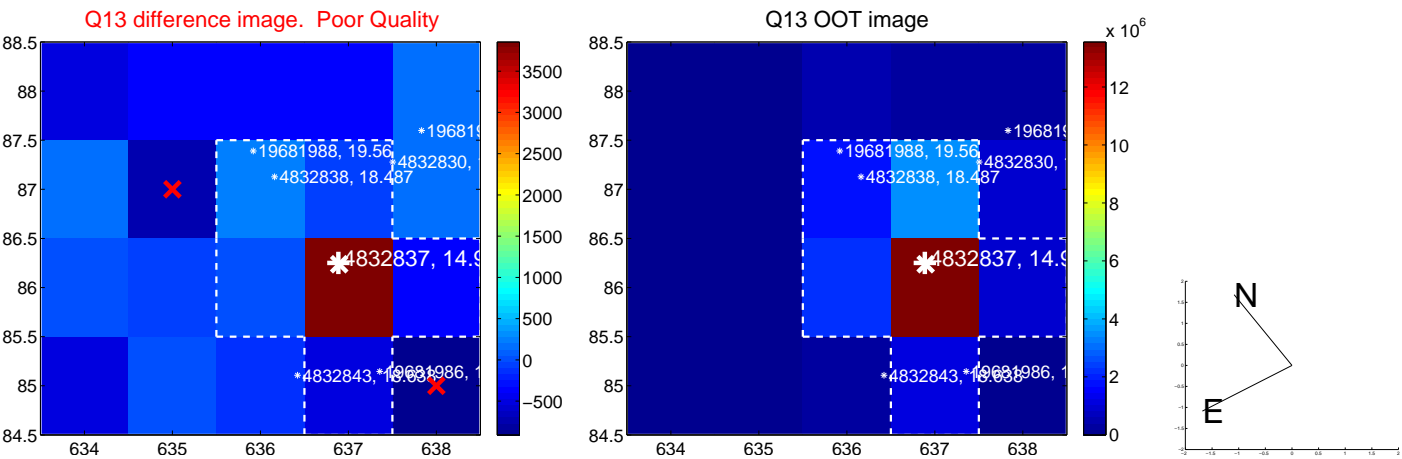
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



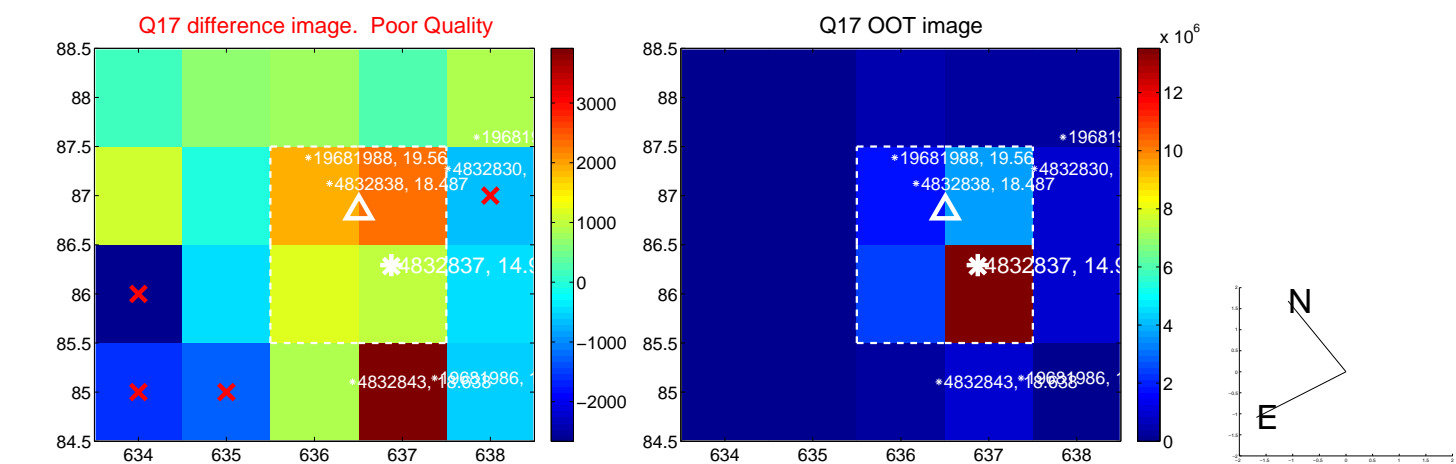
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



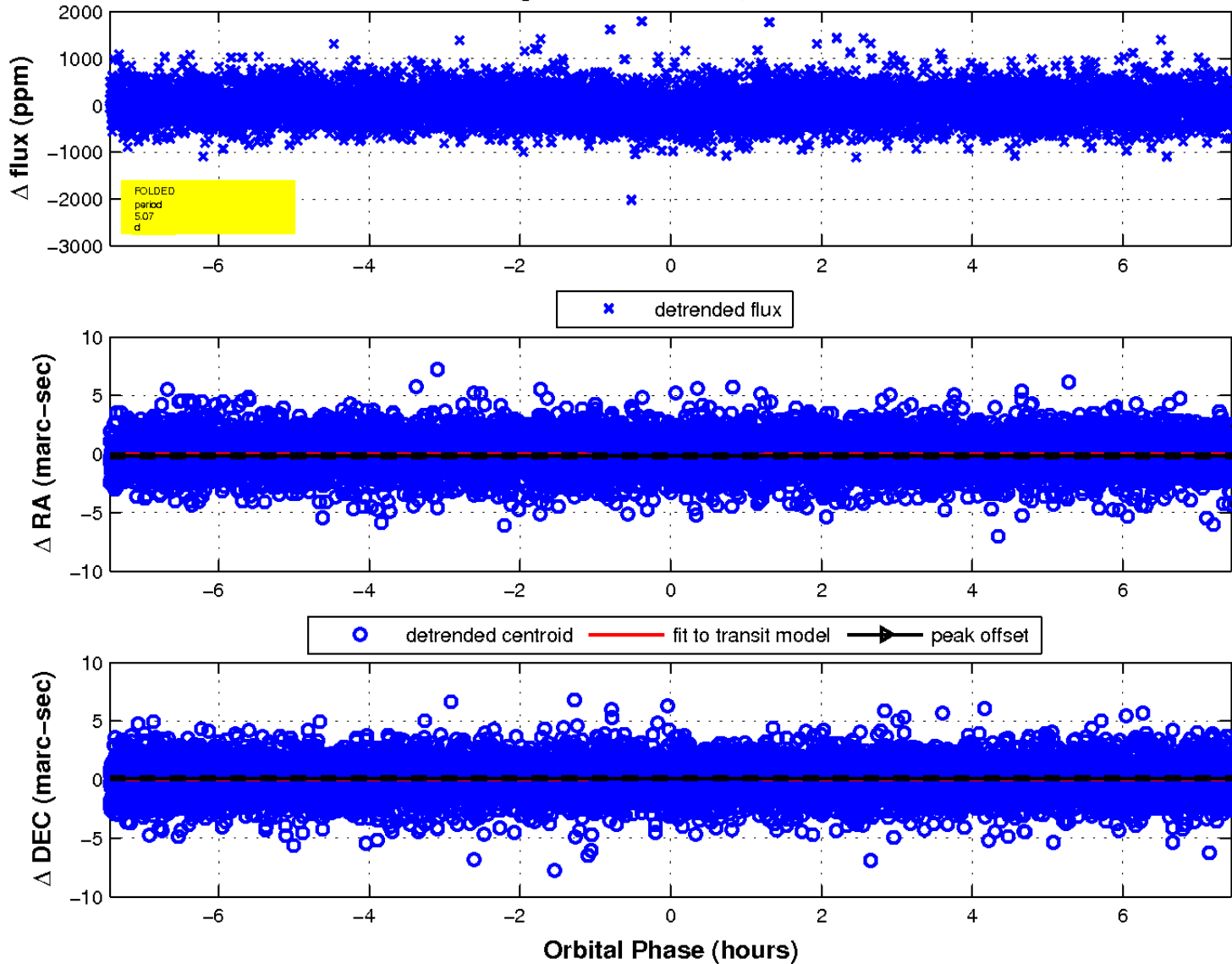
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

