

# KIC 003446837

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003446837-01	OBS	No	0.879003	131.599160	23.9	1.106	11.2	5.7	2.02	6623	1.03	16433.90
003446837-02	OBS	No	0.879089	132.109716	30.1	2.196	11.2	7.1	2.02	6623	1.29	16431.75
003446837-03	OBS	No	0.878997	131.876218	46.6	3.010	11.9	11.6	2.02	6623	1.69	16434.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003446837-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003446837-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003446837-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

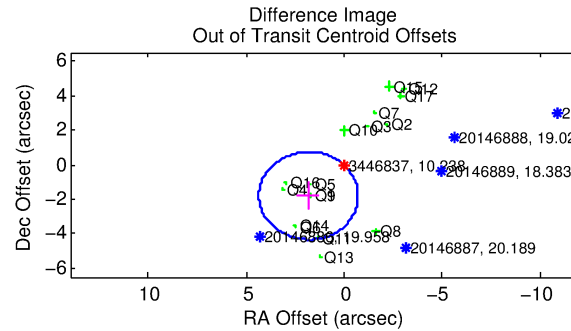
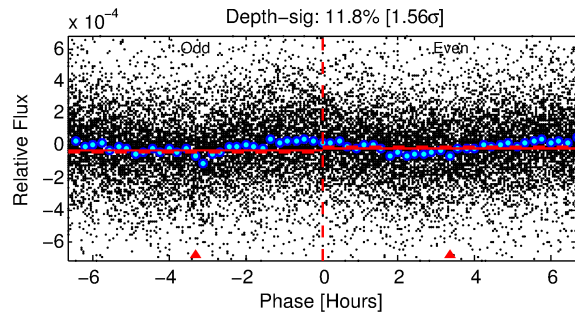
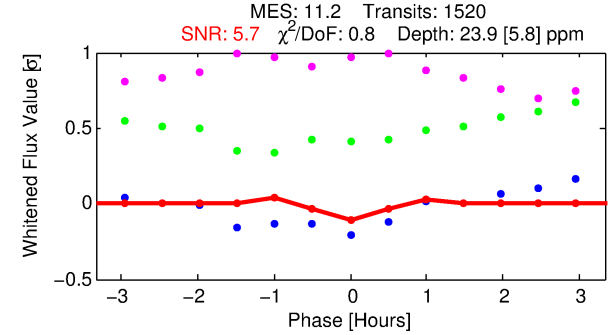
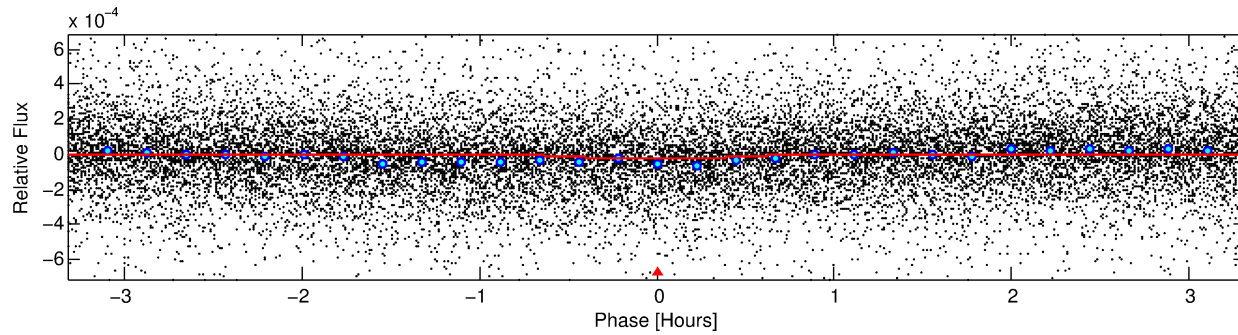
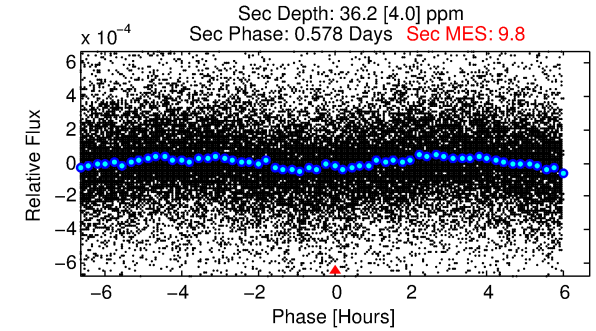
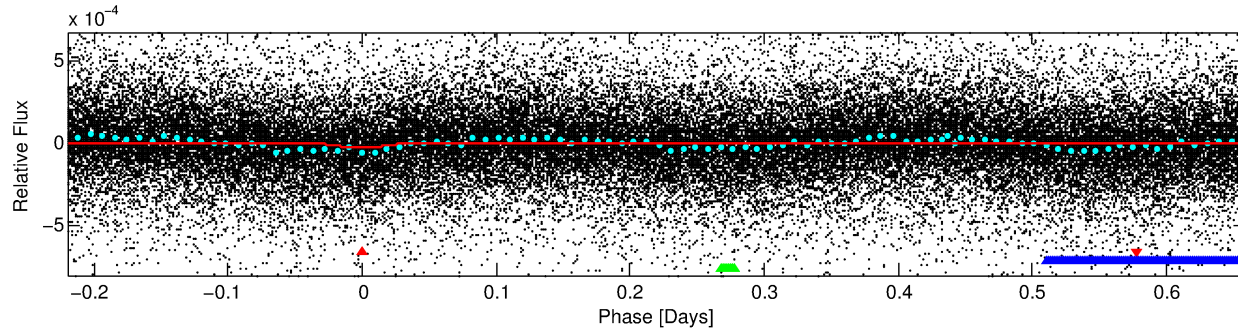
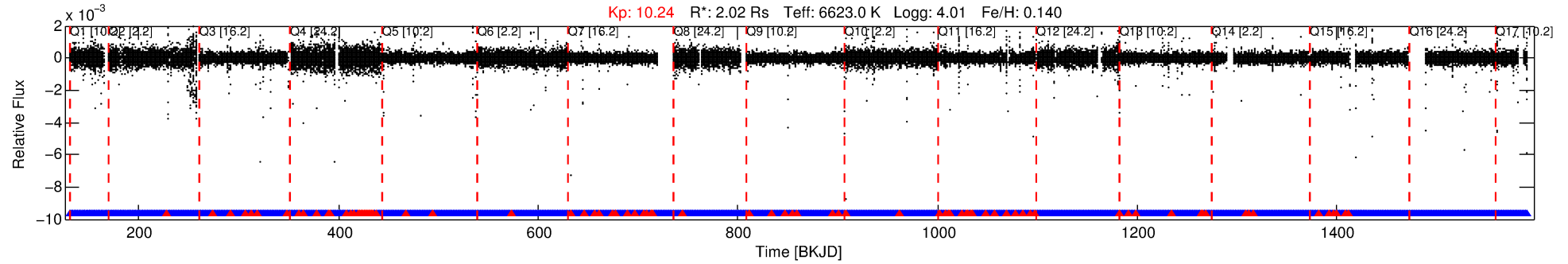
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003446837-01

No Significant Match Found

# DV One-Page Summary

KIC: 3446837 Candidate: 1 of 3 Period: 0.879 d



## DV Fit Results:

Period = 0.87900 [0.00002] d  
Epoch = 131.5992 [0.0022] BKJD  
Rp/R\* = 0.0047 [0.0015]  
a/R\* = 5.25 [8.18]  
b = 0.53 [2.23]  
Seff = 16433.90 [7894.07]  
Teff = 2887 [347] K  
Rp = 1.03 [0.48] Re  
a = 0.0207 [0.0062] AU  
Ag = 8.04 [6.44] [1.09σ]  
Teffp = 7516 [1272] K [3.51σ]

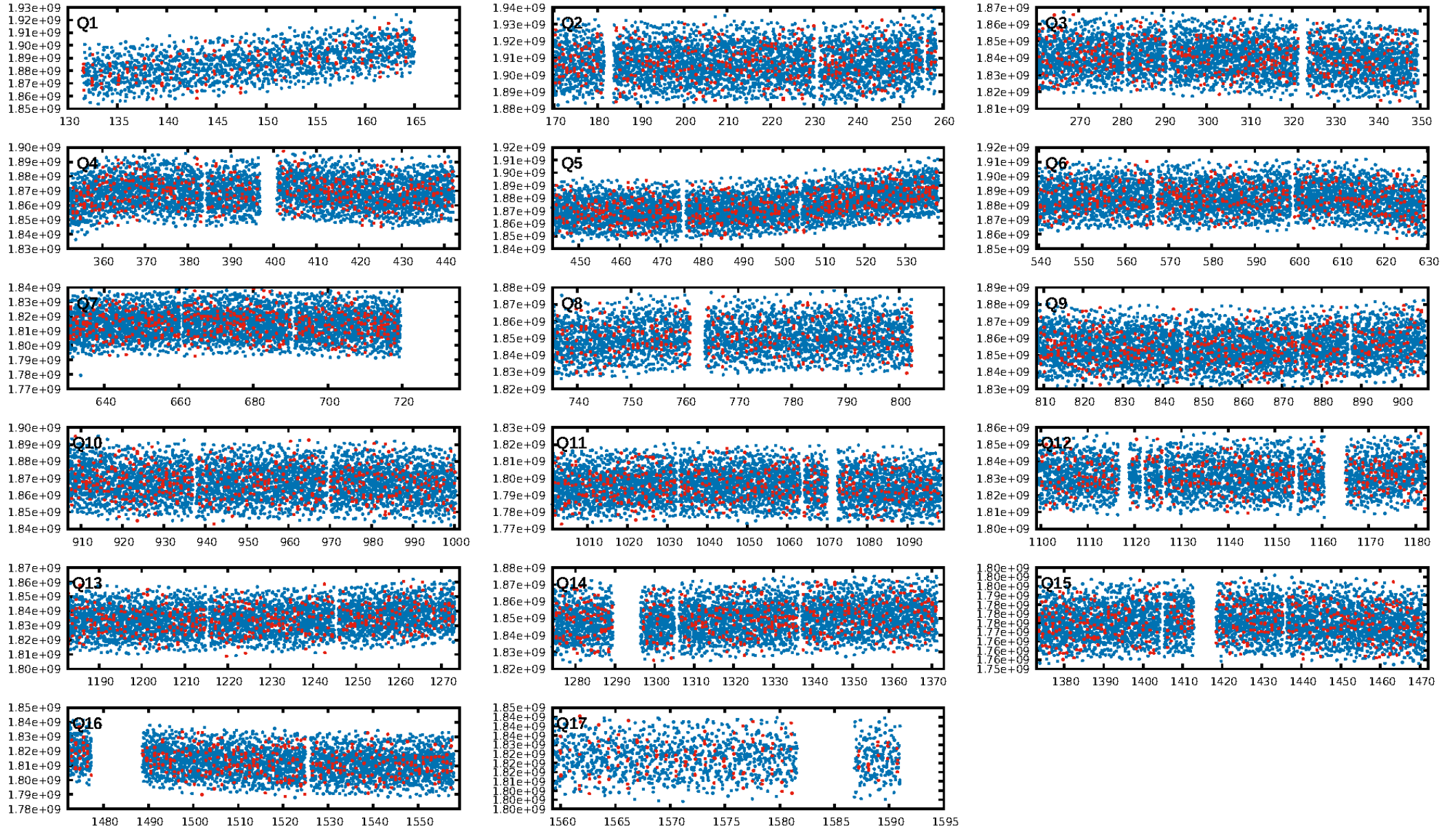
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 0.1% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGo-sig: N/A  
Bootstrap-pfa: 3.38e-24  
RollingBand-fgt: 0.94 [1361/1451]  
GhostDiagnostic-chr: 1.075  
Centroid-sig: 0.1%  
Centroid-so: 2.390 arcsec [2.25σ]  
OotOffset-rm: 2.567 arcsec [3.04σ]  
KicOffset-rm: 2.180 arcsec [3.17σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.29 [5/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:03:37 Z

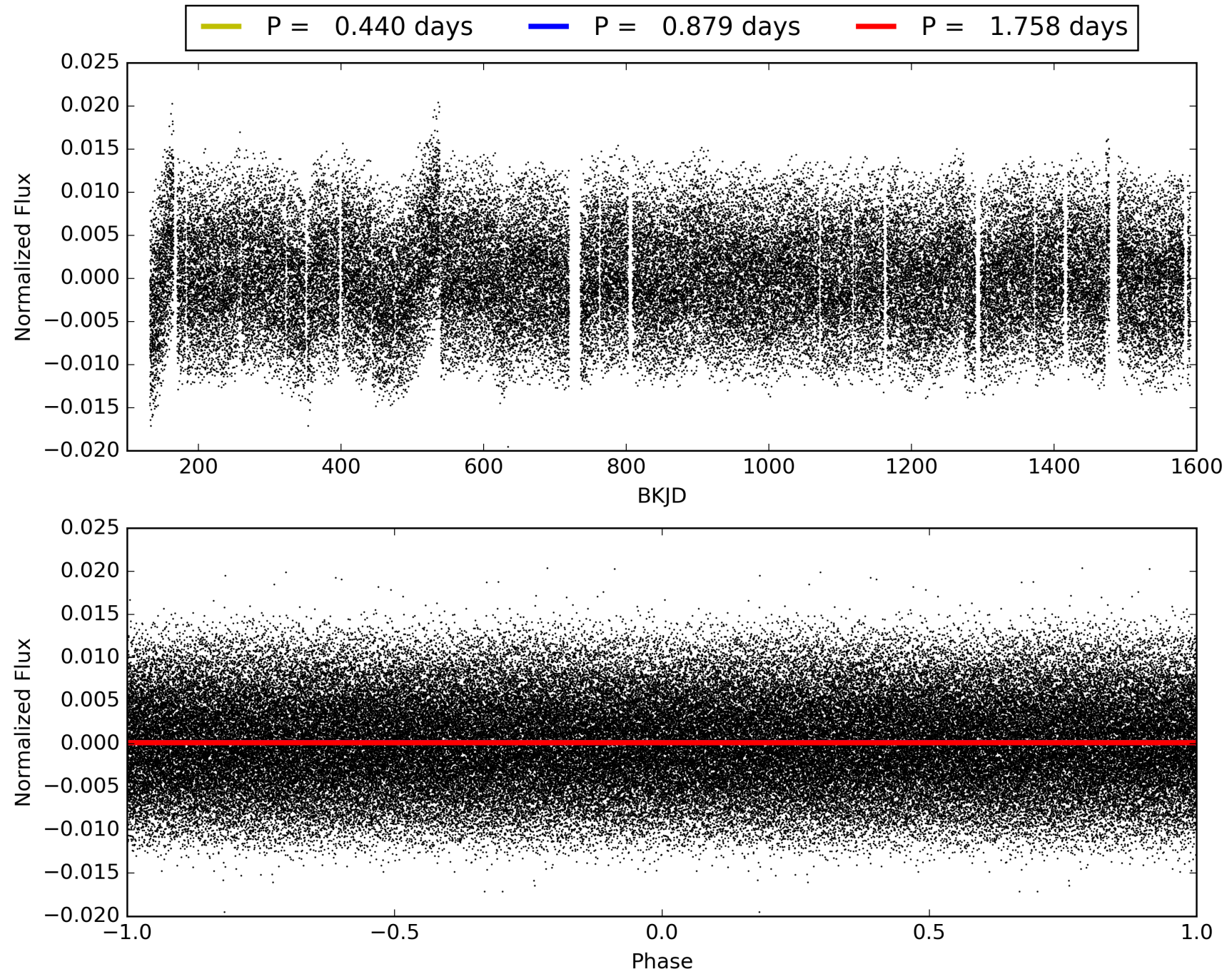
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003446837-01, PDC Light Curves





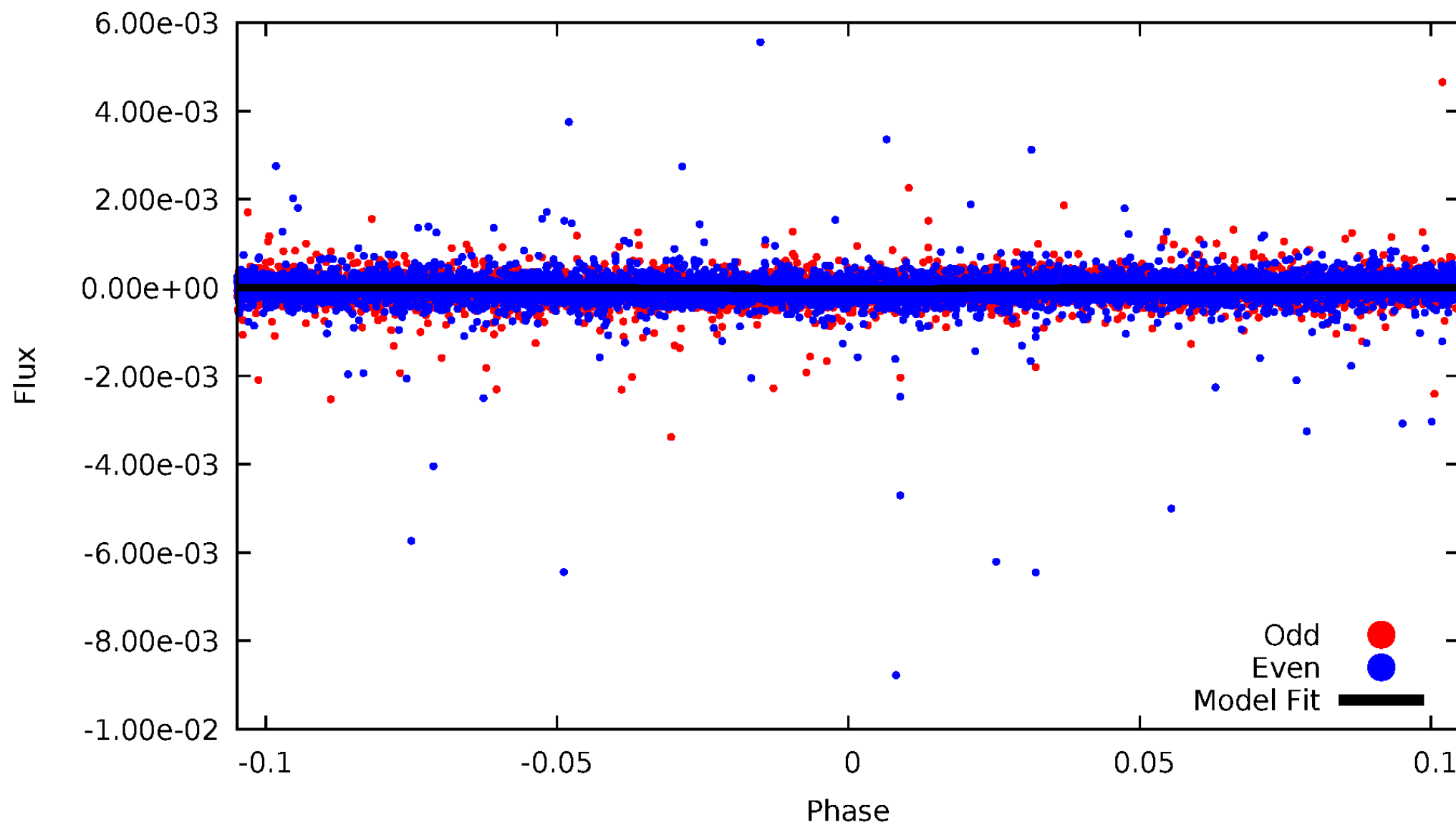
TCE 003446837-01





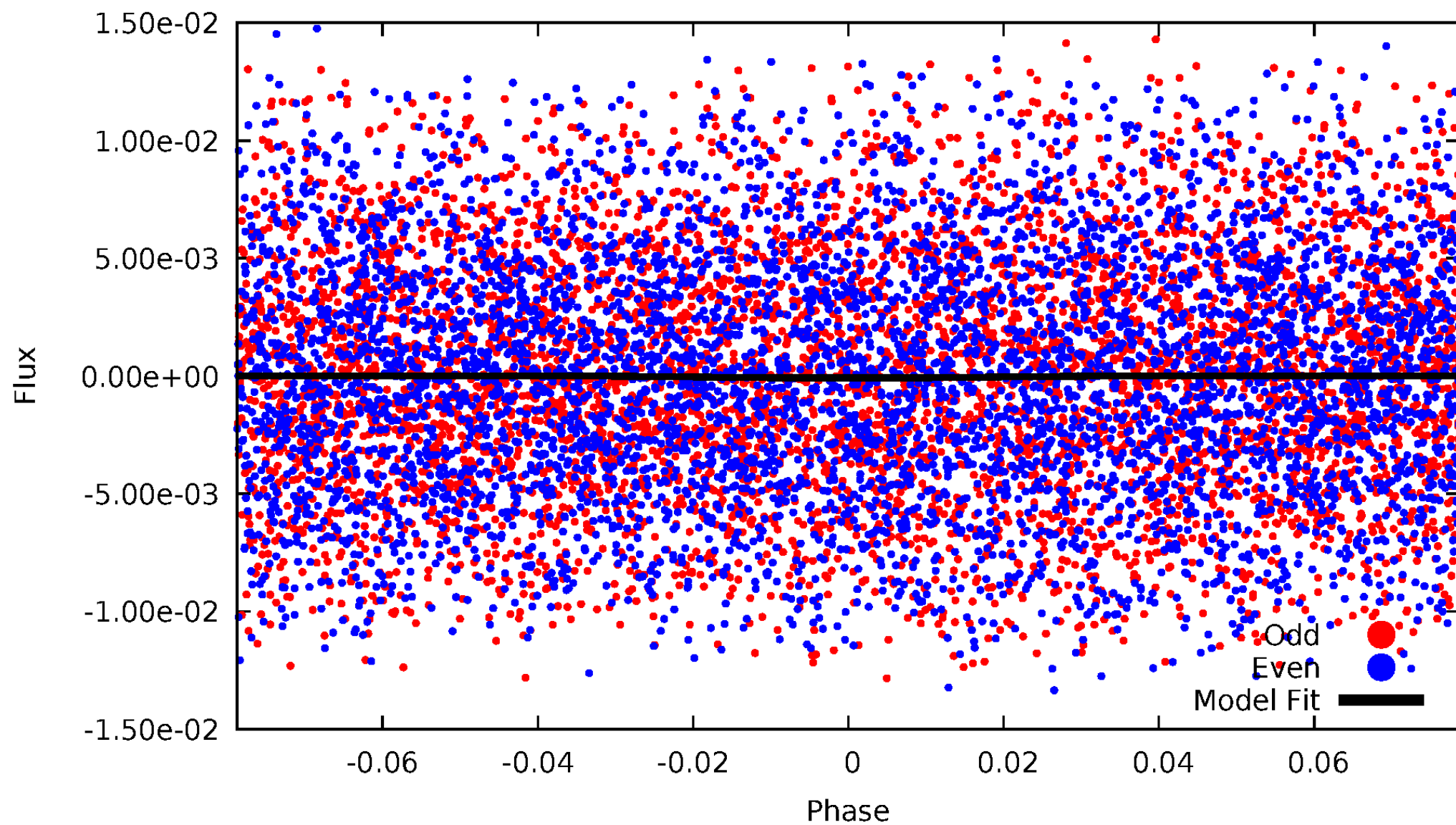
# DV Odd/Even

TCE 003446837-01



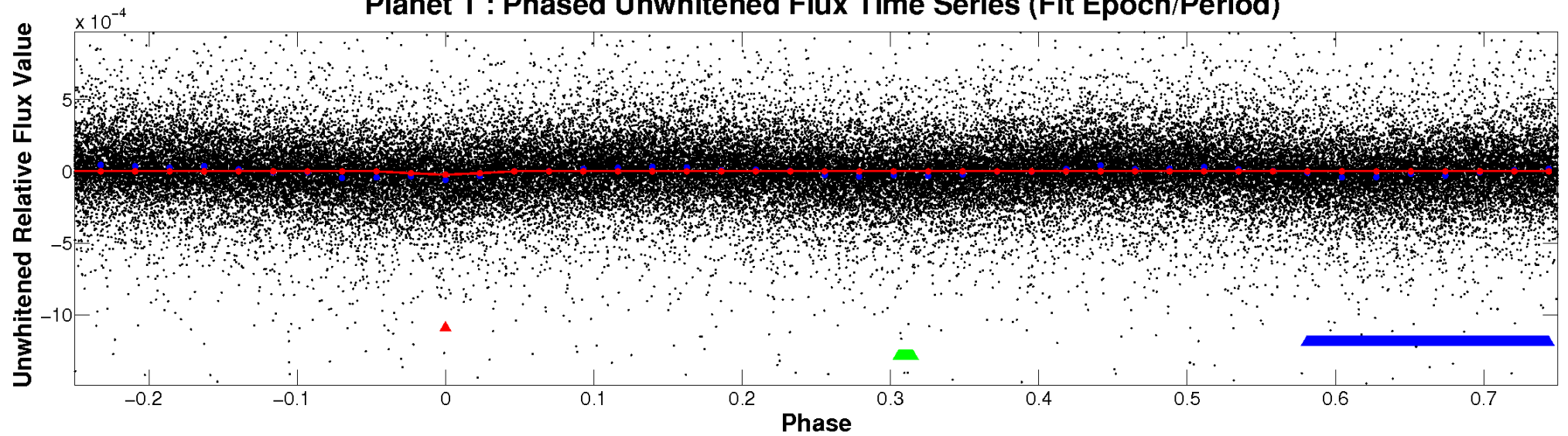
# ALT Odd/Even

TCE 003446837-01

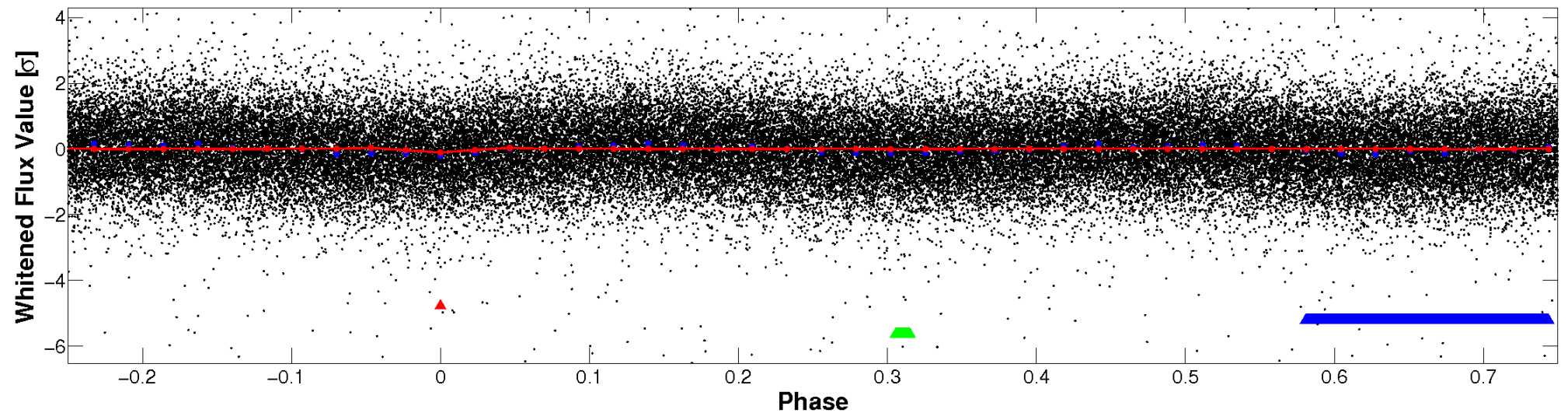


# Non-Whitened Vs. Whitened Light Curve

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



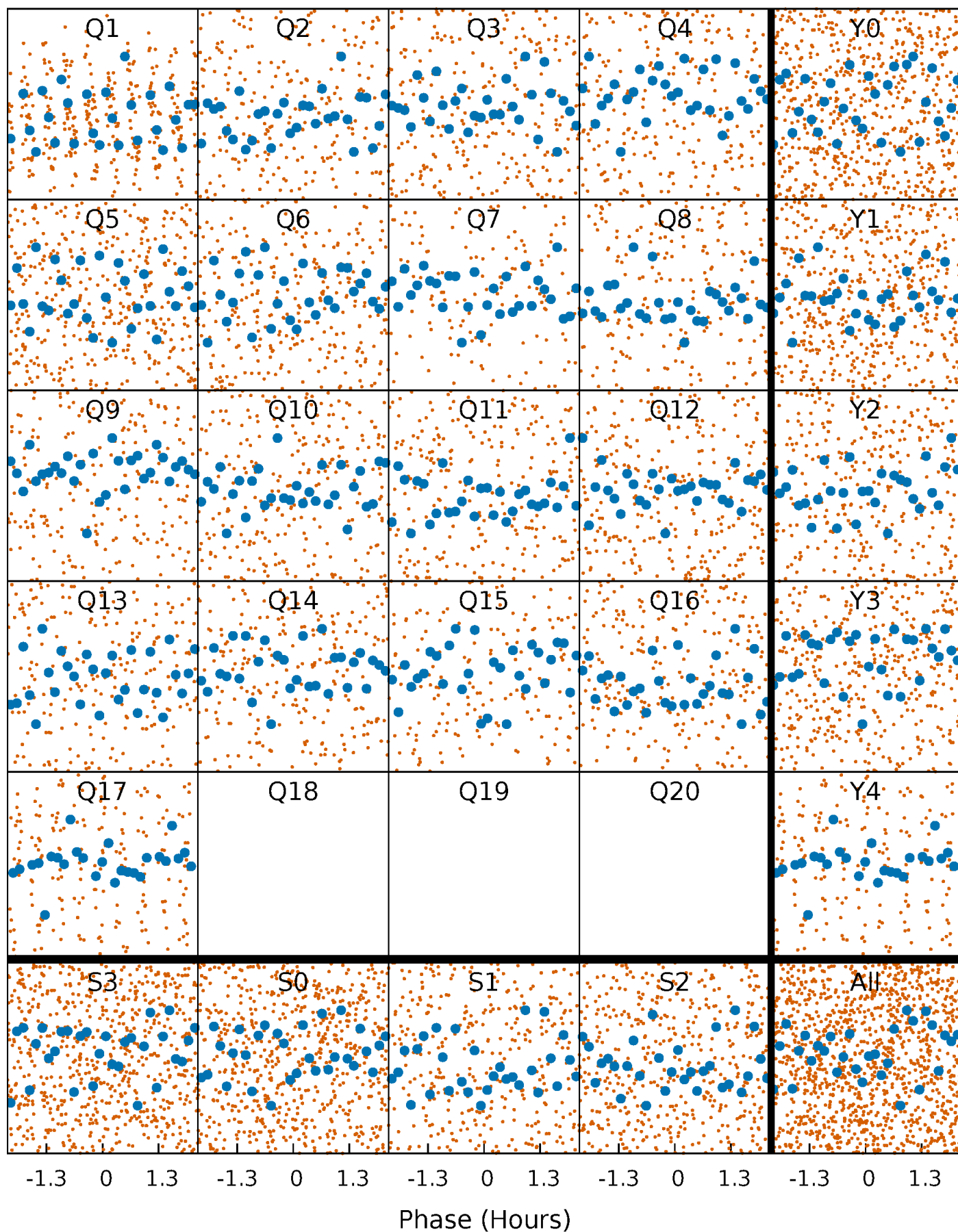
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





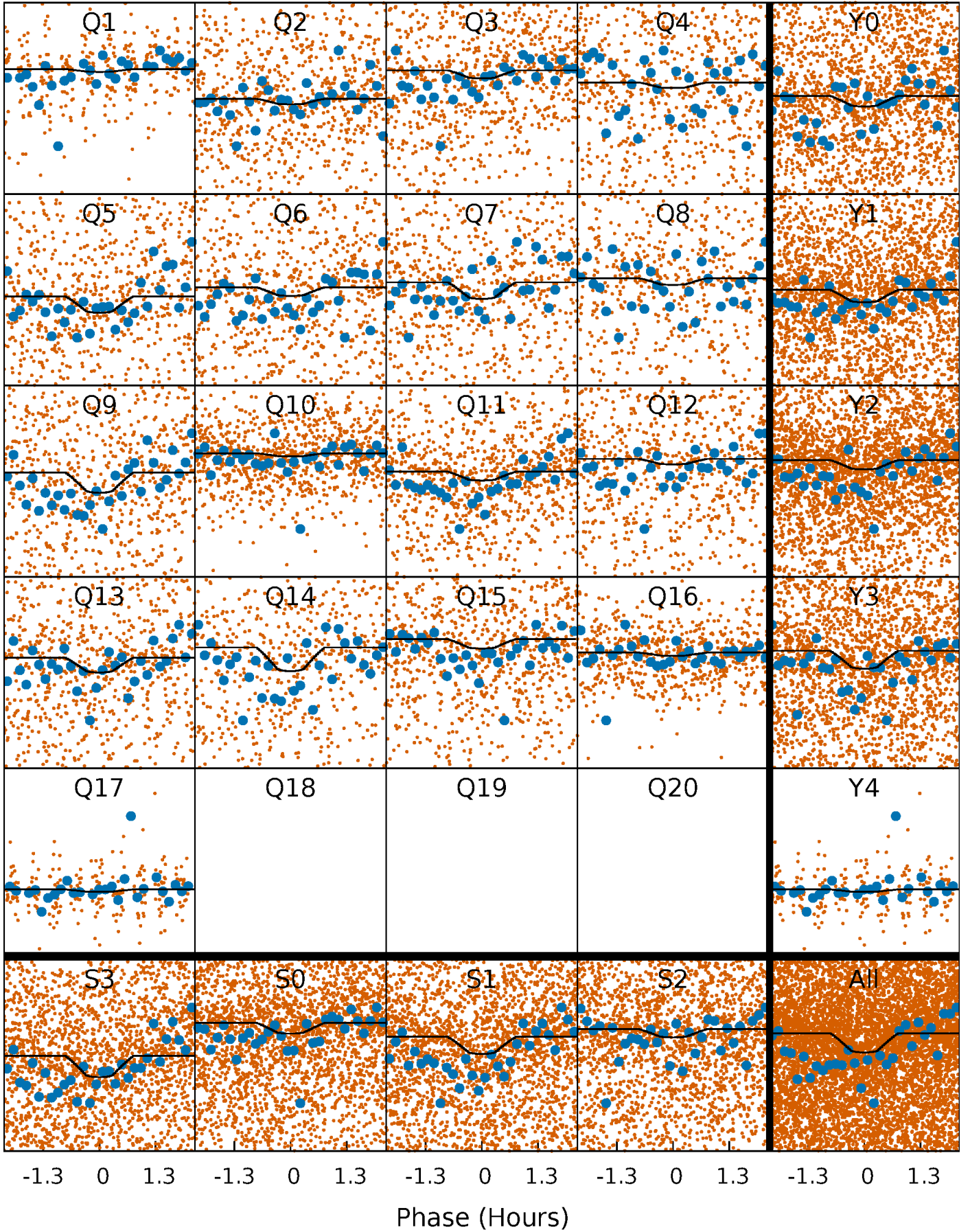
# PDC Quarter-Phased Transit Curves

TCE 003446837-01 P= 0.879003 Days  $T_0=131.599160$  (BKJD)



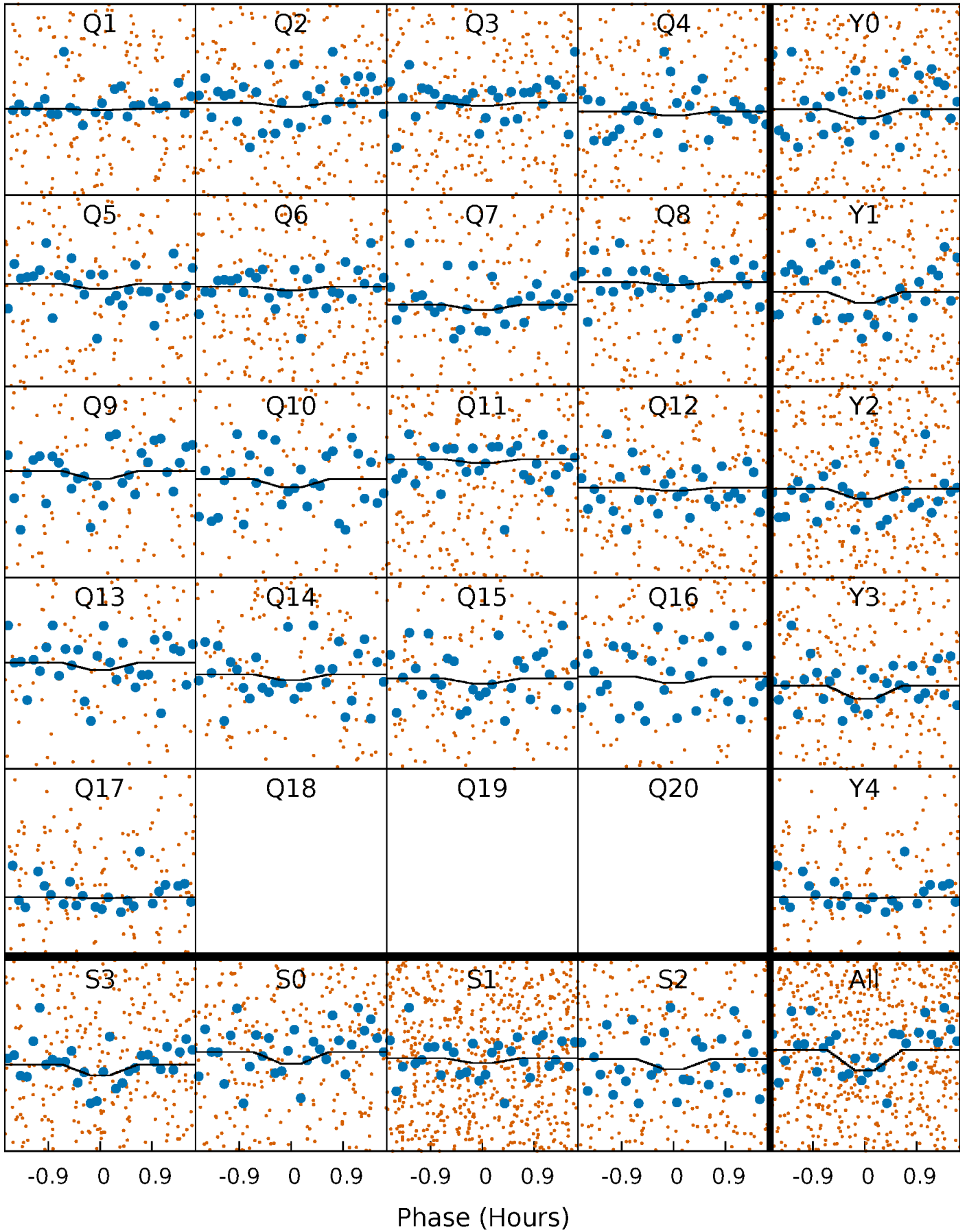
# DV Quarter-Phased Transit Curves

TCE 003446837-01   P= 0.879003 Days    $T_0=131.599160$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003446837-01 P= 0.879021 Days  $T_0=131.585541$  (BKJD)

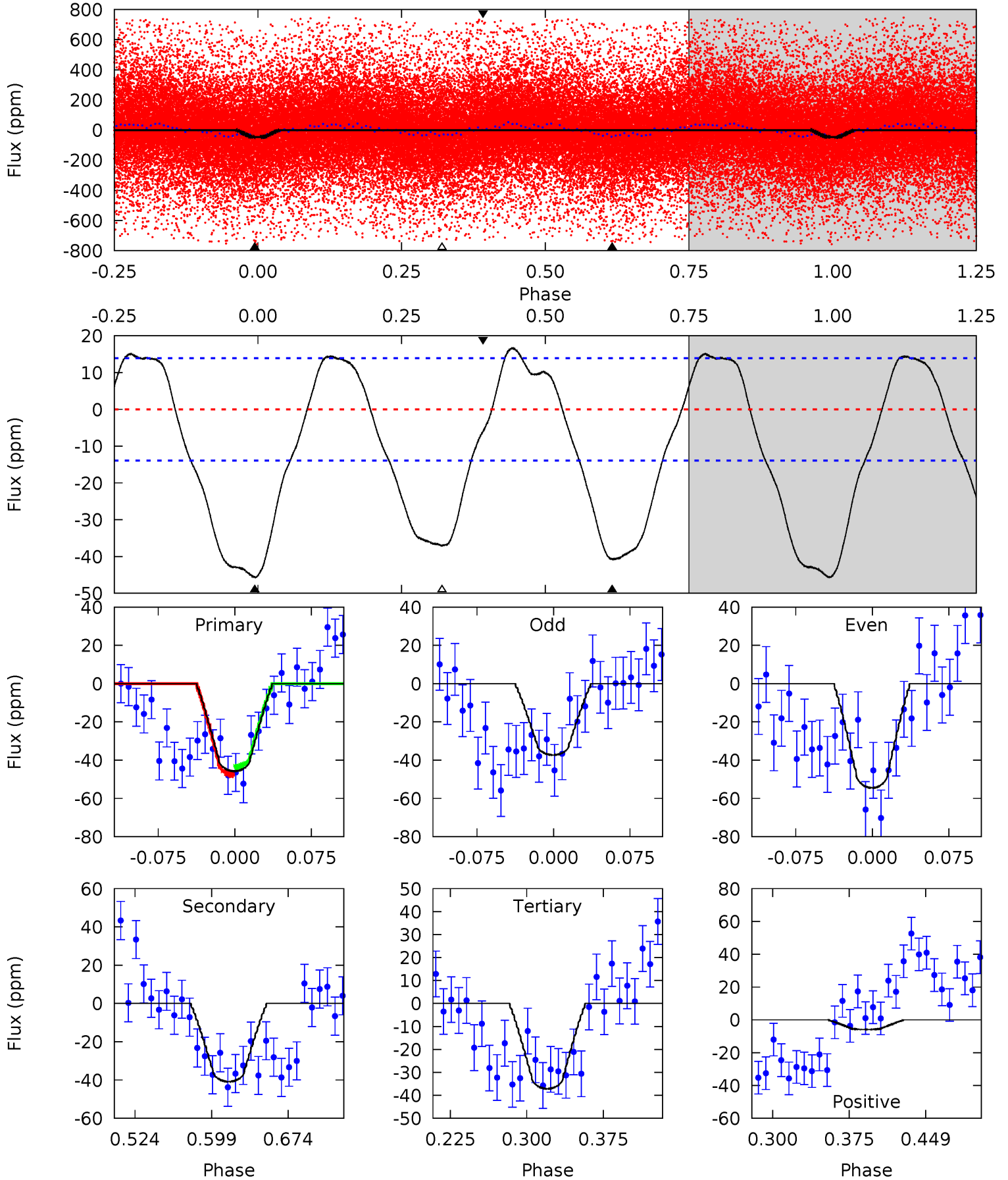




# DV Model-Shift Uniqueness Test

003446837-01, P = 0.879003 Days, E = 130.720157 Days

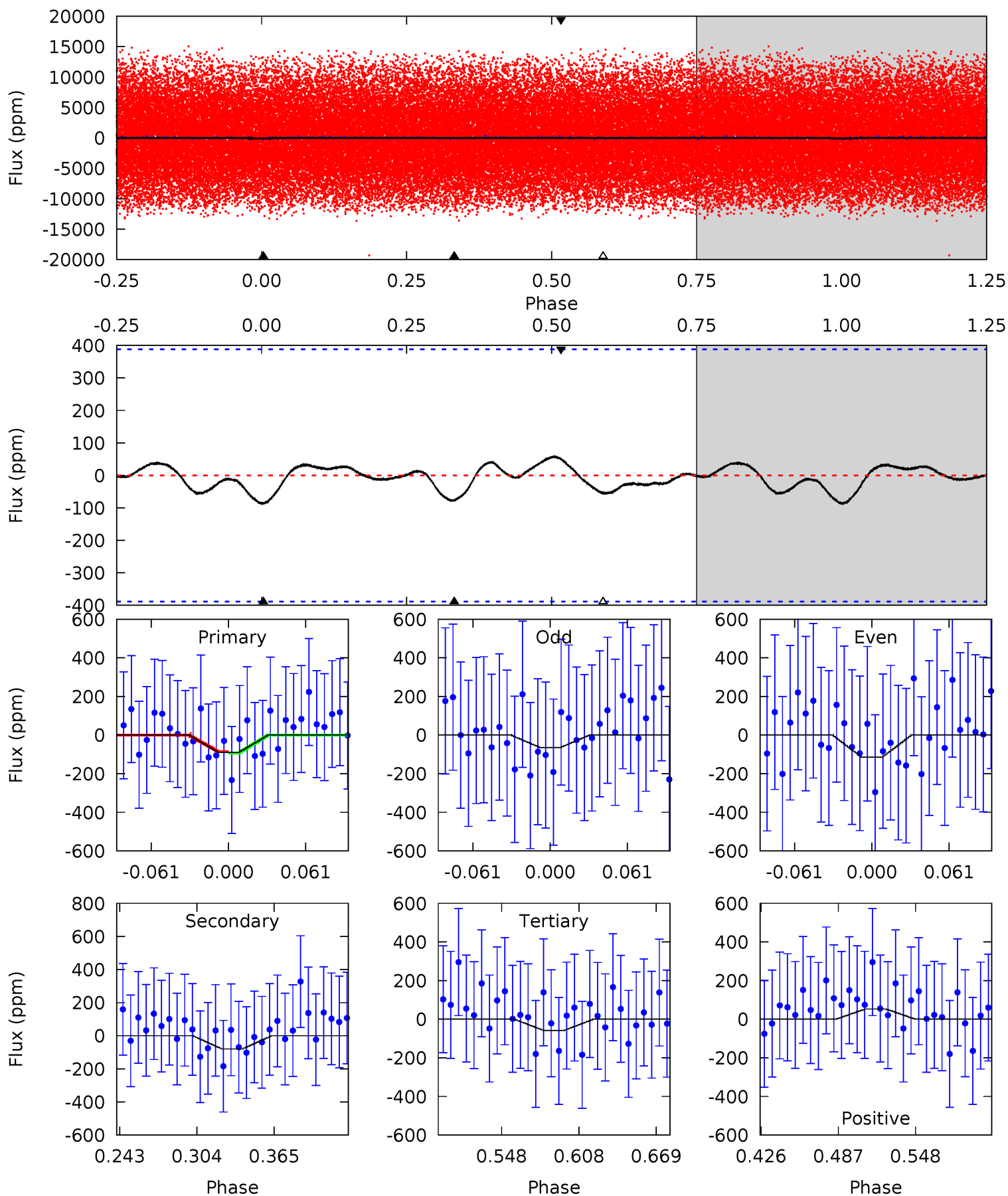
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	13.6	12.3	-1.96	4.63	1.78	5.59	2.86	17.2	1.24	15.5	2.88	1.35	0.27	0.68



# Alt Model-Shift Uniqueness Test

003446837-01, P = 0.879021 Days, E = 130.706520 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
1.08	0.96	0.70	0.63	4.67	1.87	0.34	0.37	0.44	0.26	0.32	0.30	0.31	0.40	0.04



### Stellar Parameters For KIC 003446837

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6623^{+185}_{-255}$	$4.011^{+0.258}_{-0.172}$	$0.140^{+0.200}_{-0.350}$	$2.018^{+0.616}_{-0.678}$	$1.521^{+0.200}_{-0.325}$	$0.261^{+0.451}_{-0.128}$
	+3%/-4%	+6%/-4%	+143%/-250%	+31%/-34%	+13%/-21%	+173%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003446837-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-41 \pm 3$	$0.99^{+0.38}_{-0.35}$	$4002^{+340}_{-357}$	$7842^{+2376}_{-1212}$	$9.806^{+13.084}_{-4.659}$
Alt.	$-80 \pm 83$	$1.92^{+0.52}_{-0.45}$	$3995^{+319}_{-344}$	$6324^{+1893}_{-10250}$	$4.579^{+7.585}_{-4.720}$

$T_{max}$  = 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

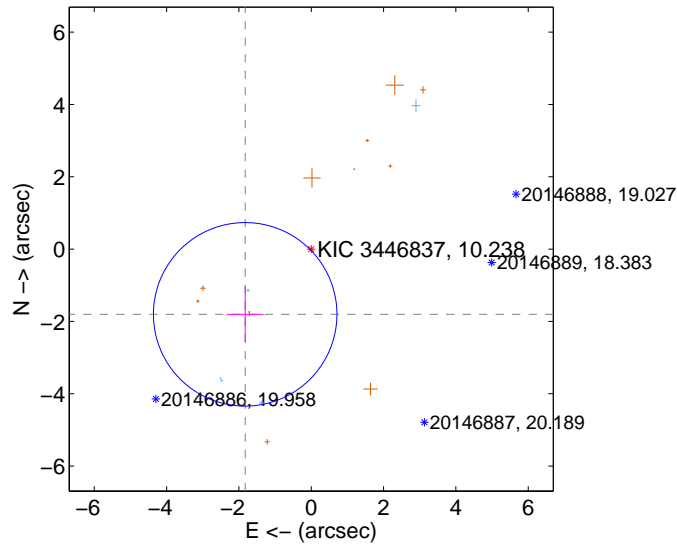
Supplemental centroid analysis for 003446837-01. **Kepler magnitude: 10.24.** Transit SNR 5.72

There are 5 quarters with good PRF difference image offsets

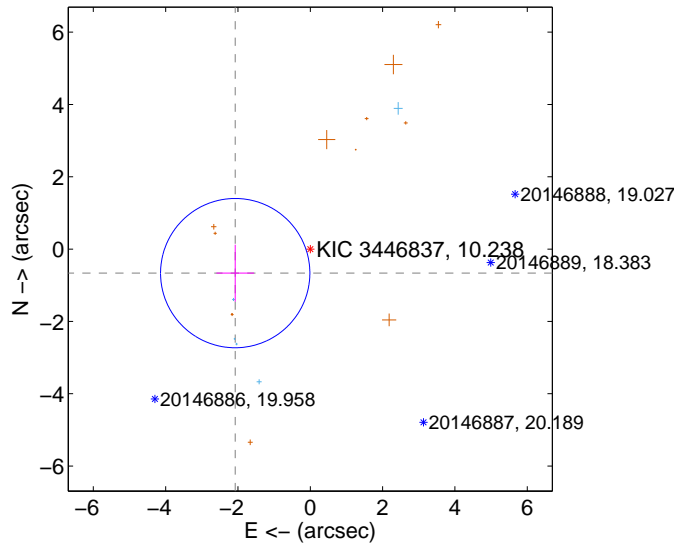
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>2.567 \pm 0.846</math></b>	<b>3.04</b>	$1.827 \pm 0.512$	$-1.804 \pm 0.776$
PRF-fit source offset from KIC position	<b><math>2.180 \pm 0.688</math></b>	<b>3.17</b>	$2.076 \pm 0.518$	$-0.664 \pm 0.787$
photometric centroid source offset	$2.39 \pm 1.06$	2.25	$-2.28 \pm 1.02$	$-0.72 \pm 1.43$

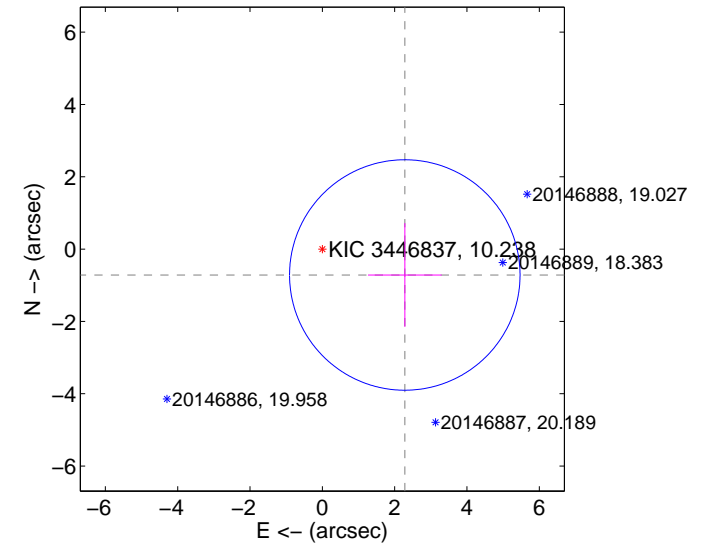
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

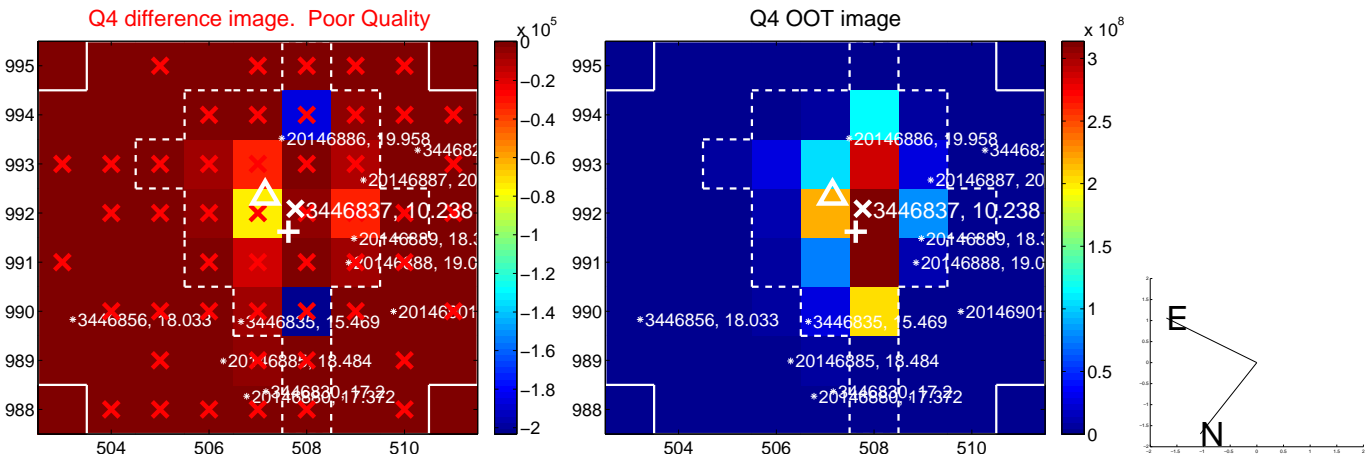
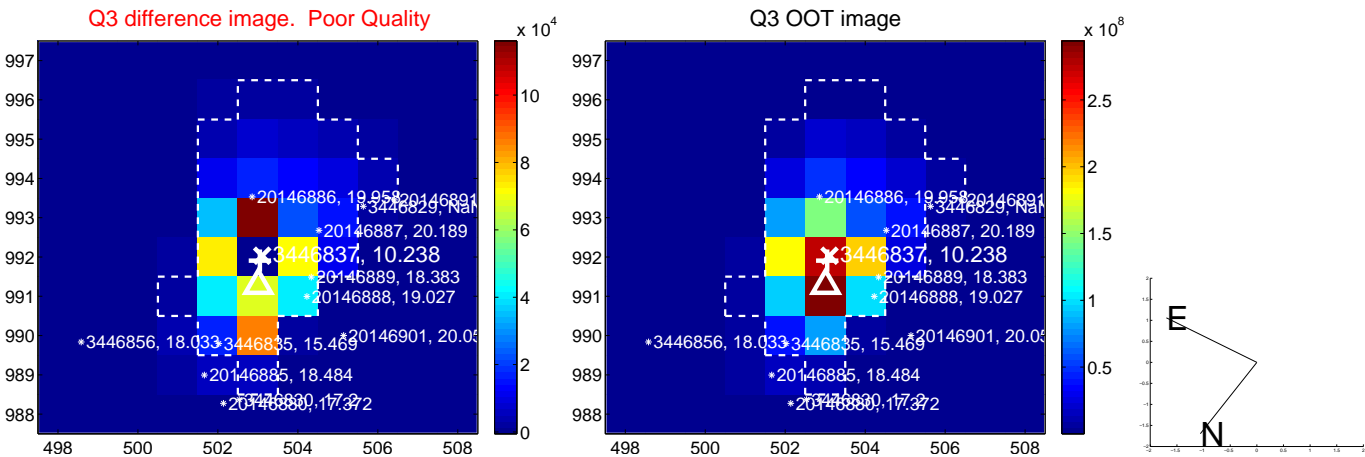
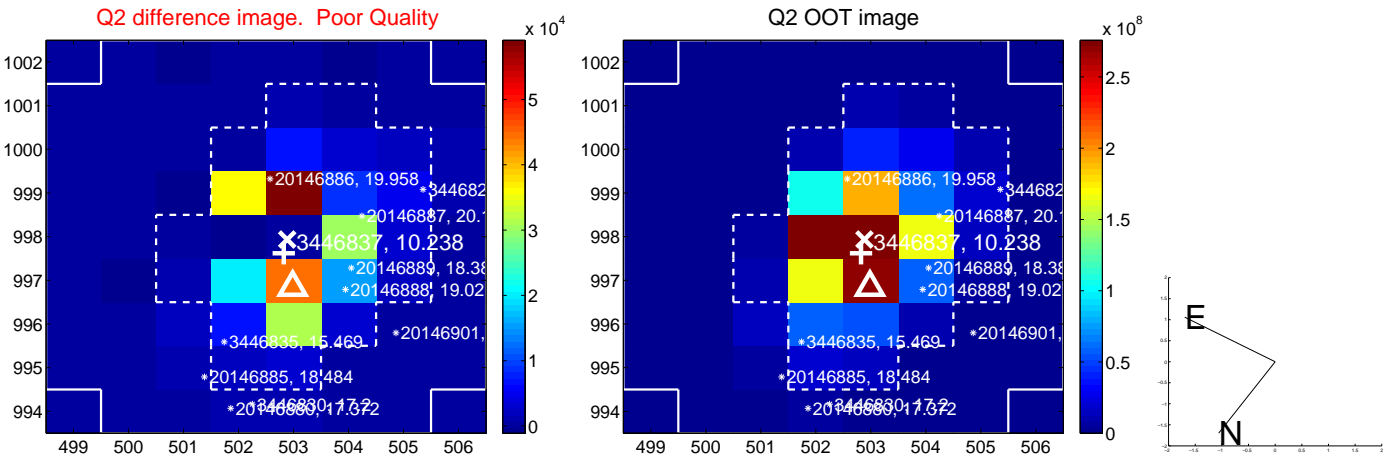
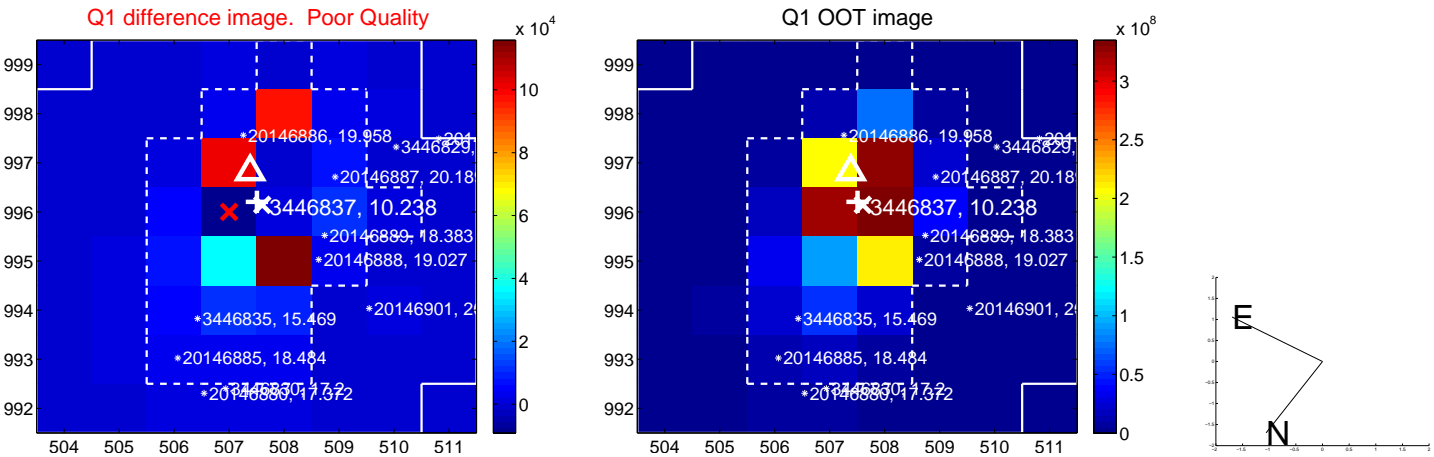


offset from photometric centroids

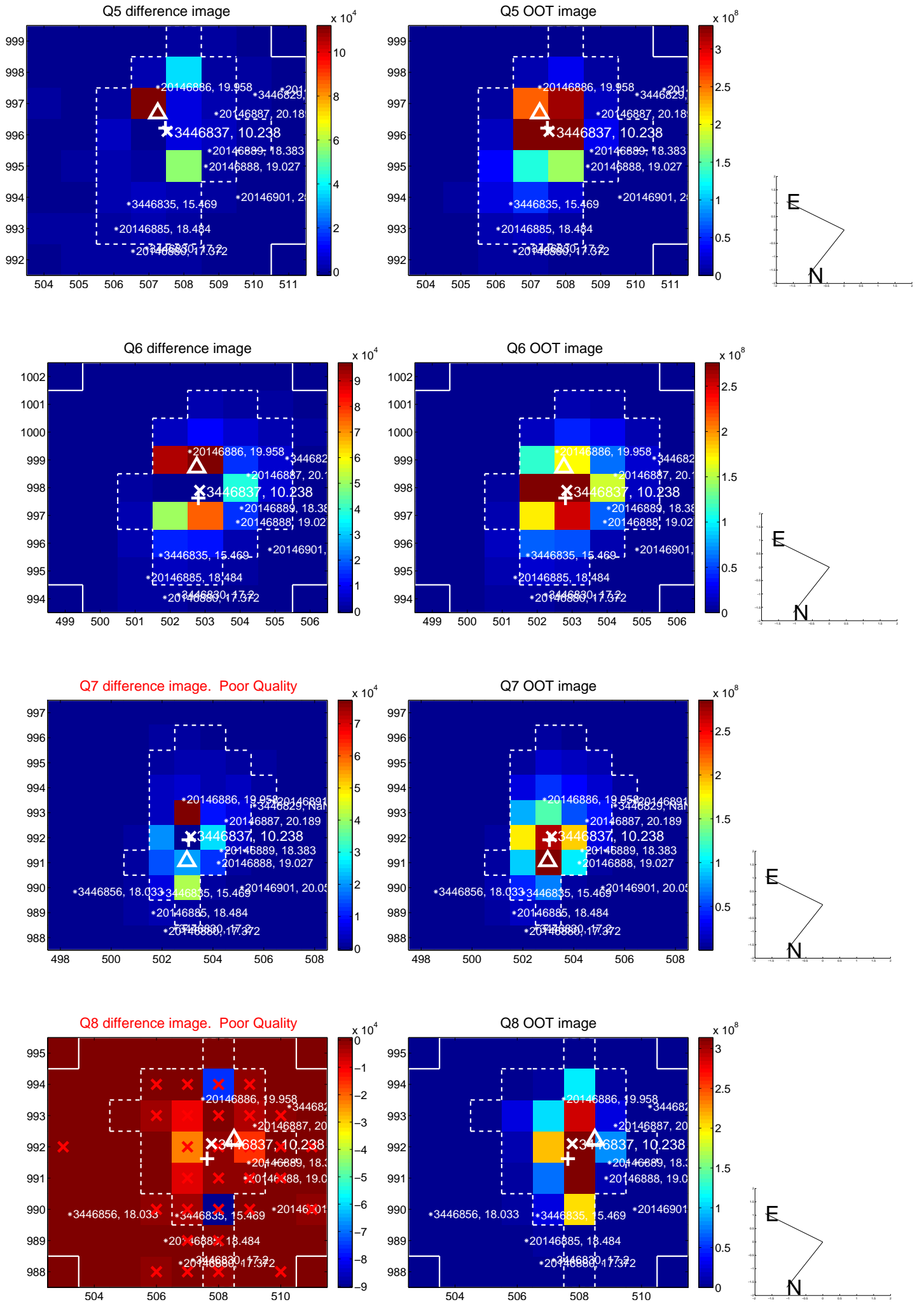


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

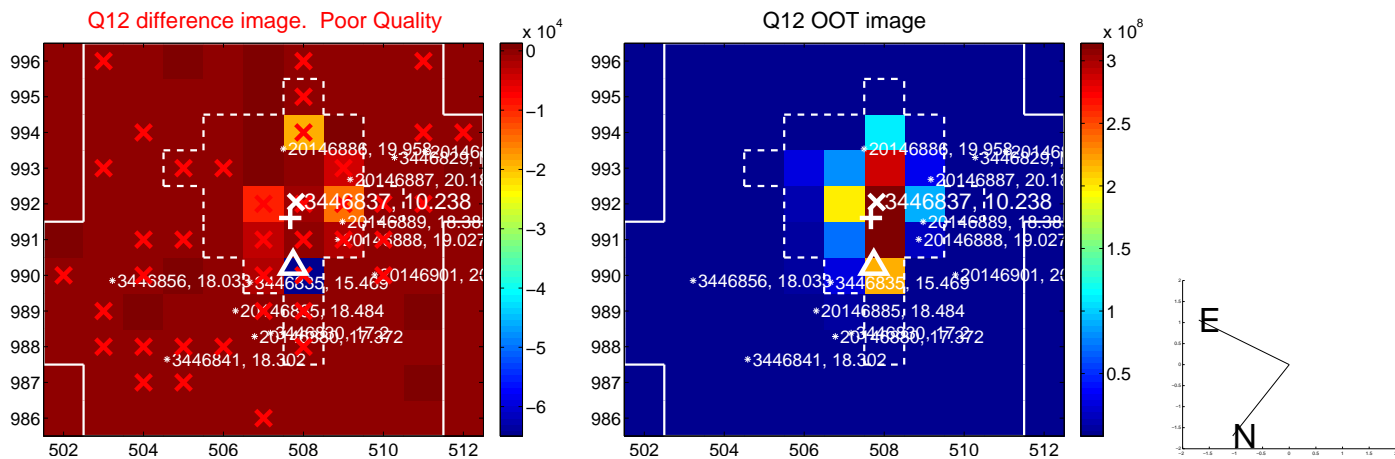
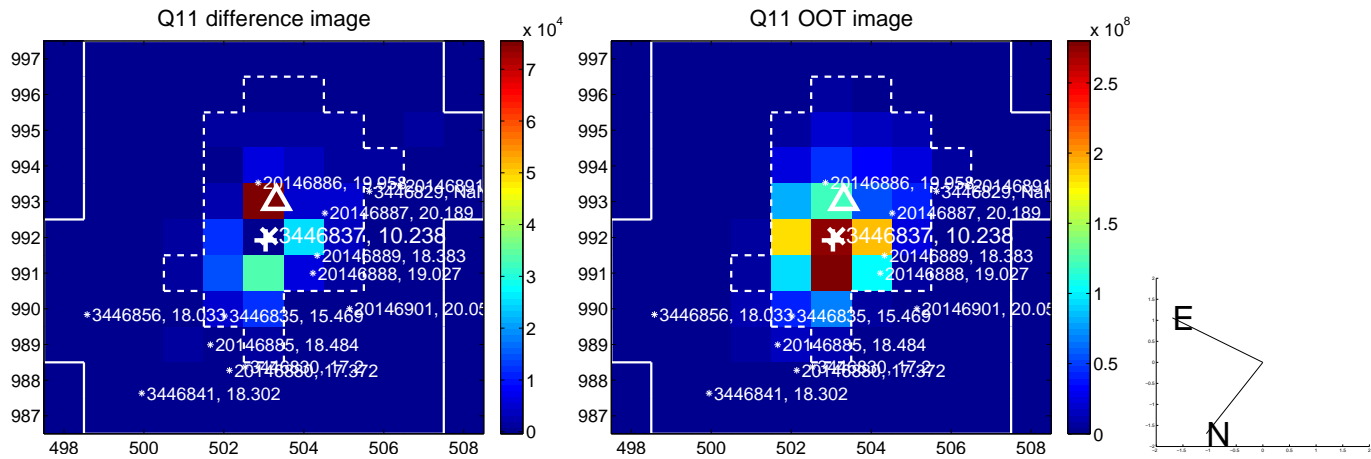
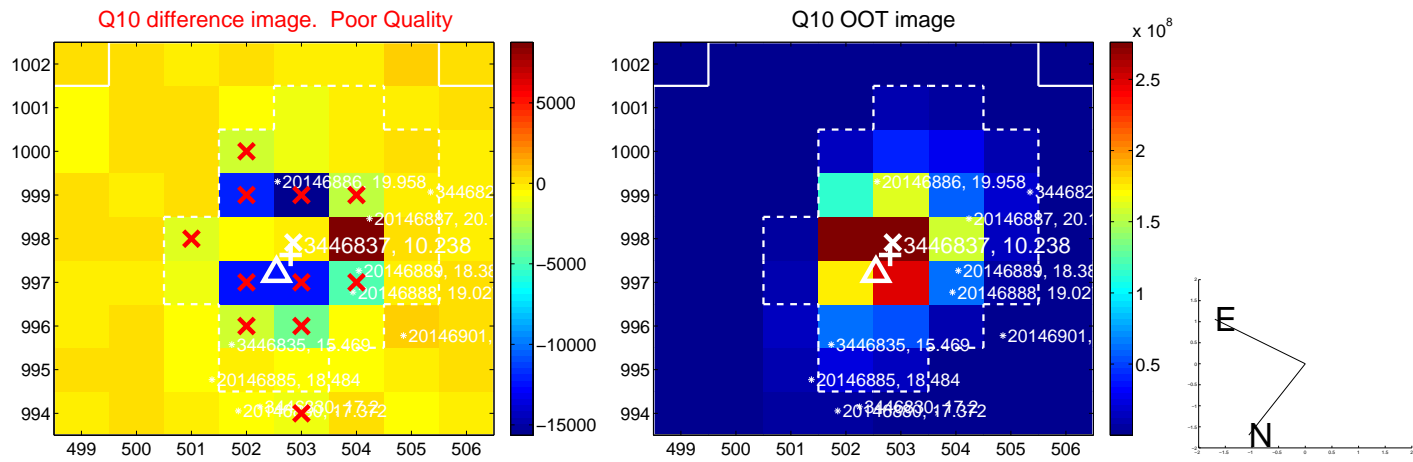
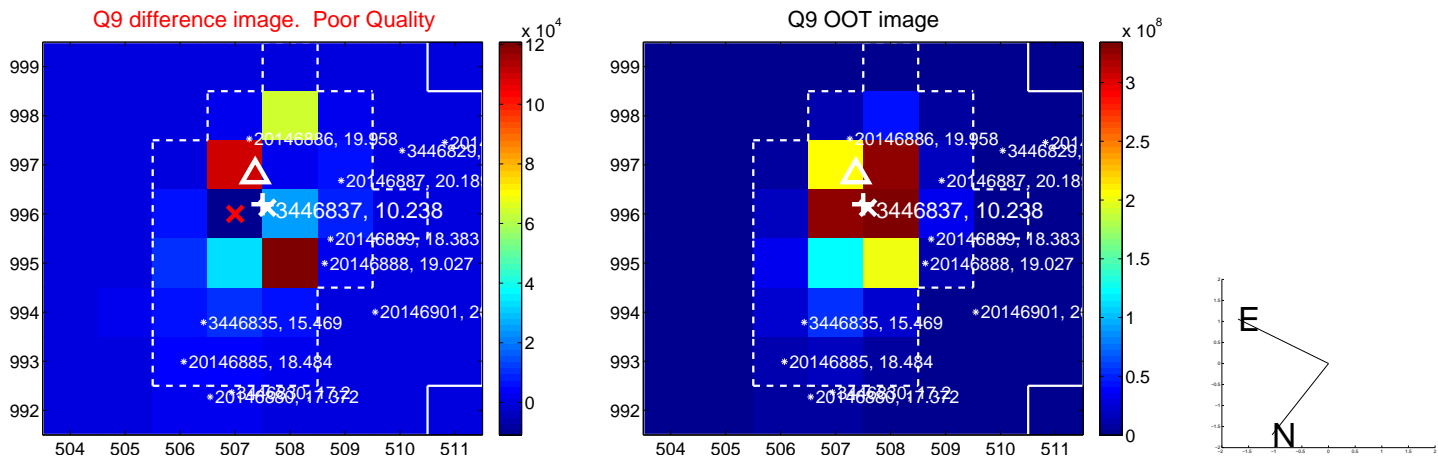


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

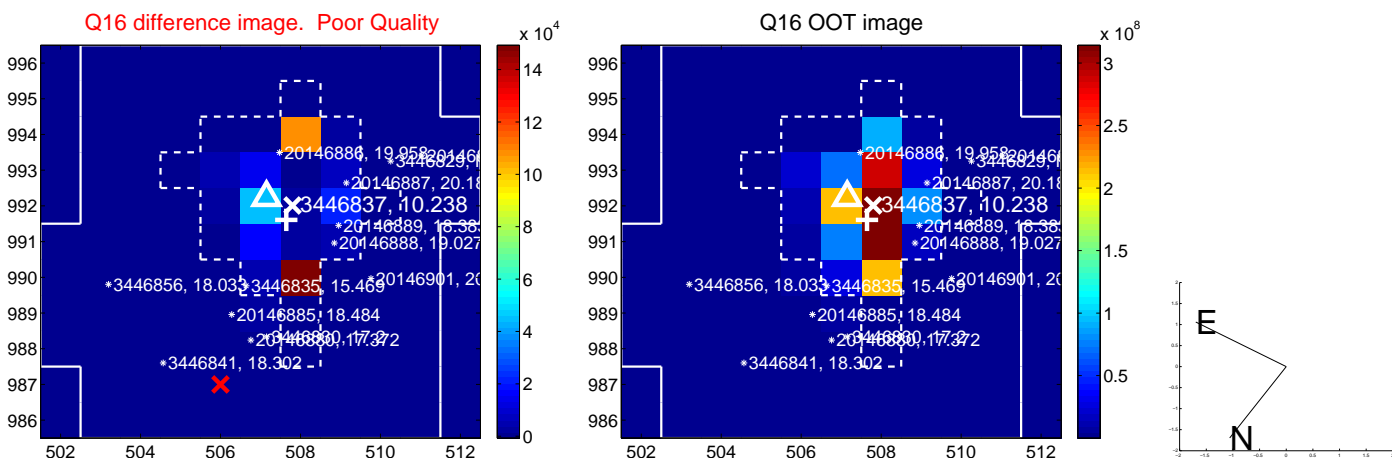
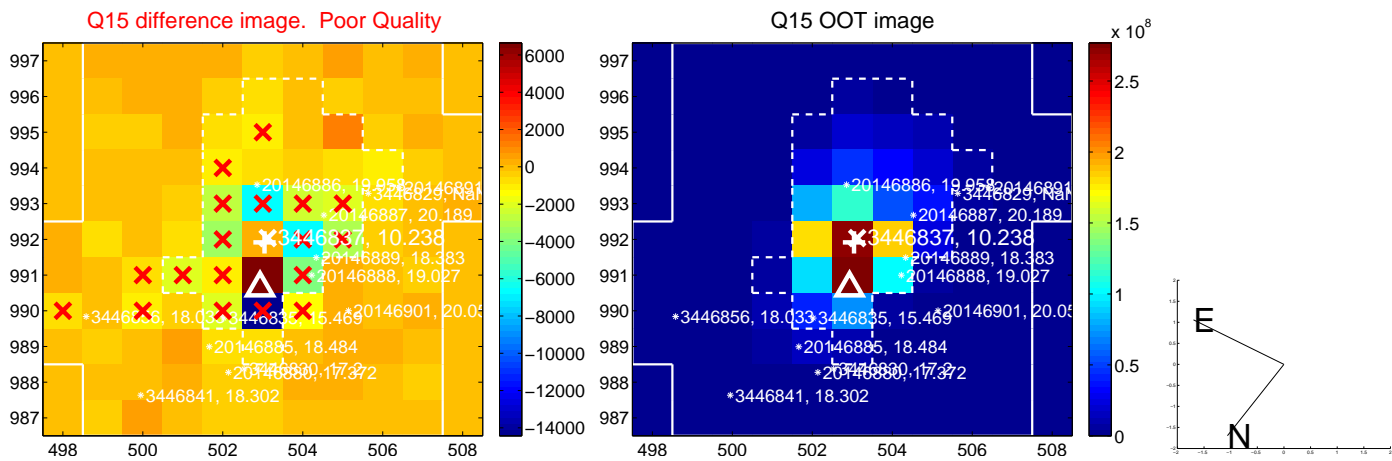
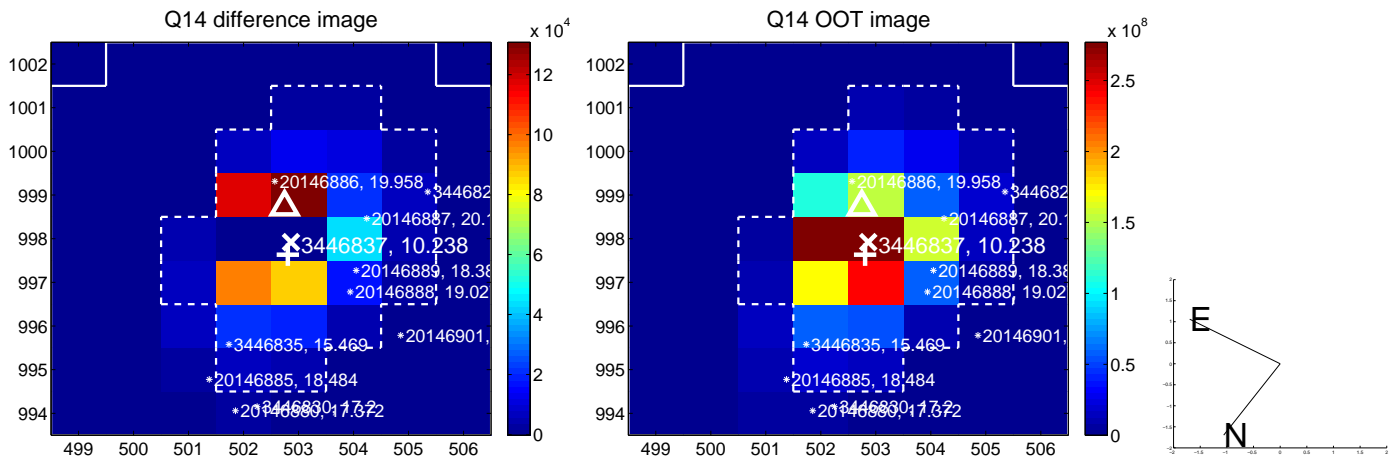
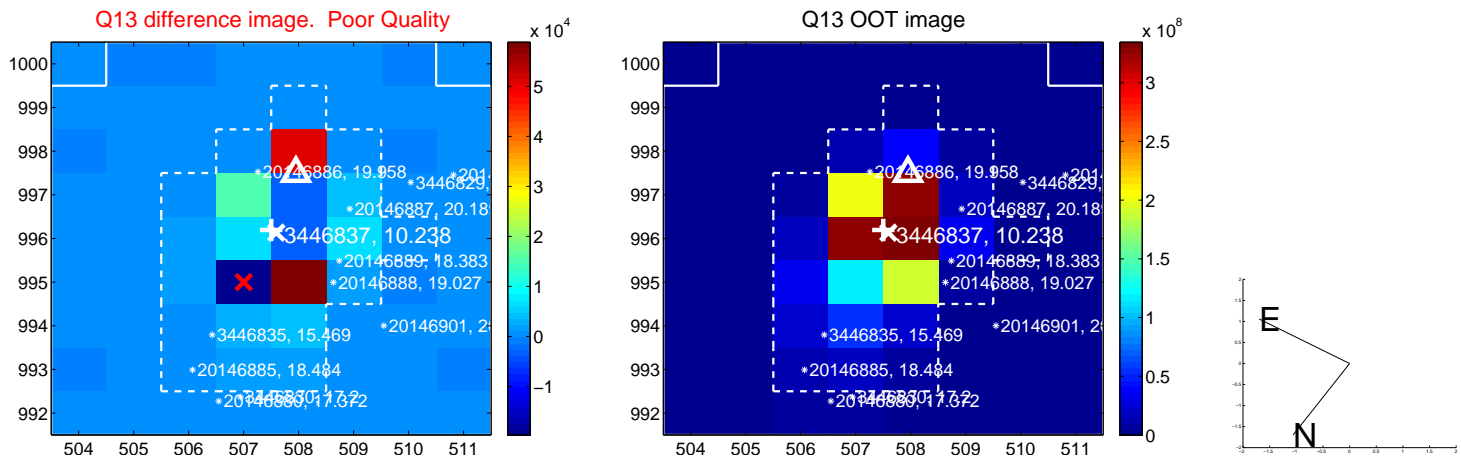




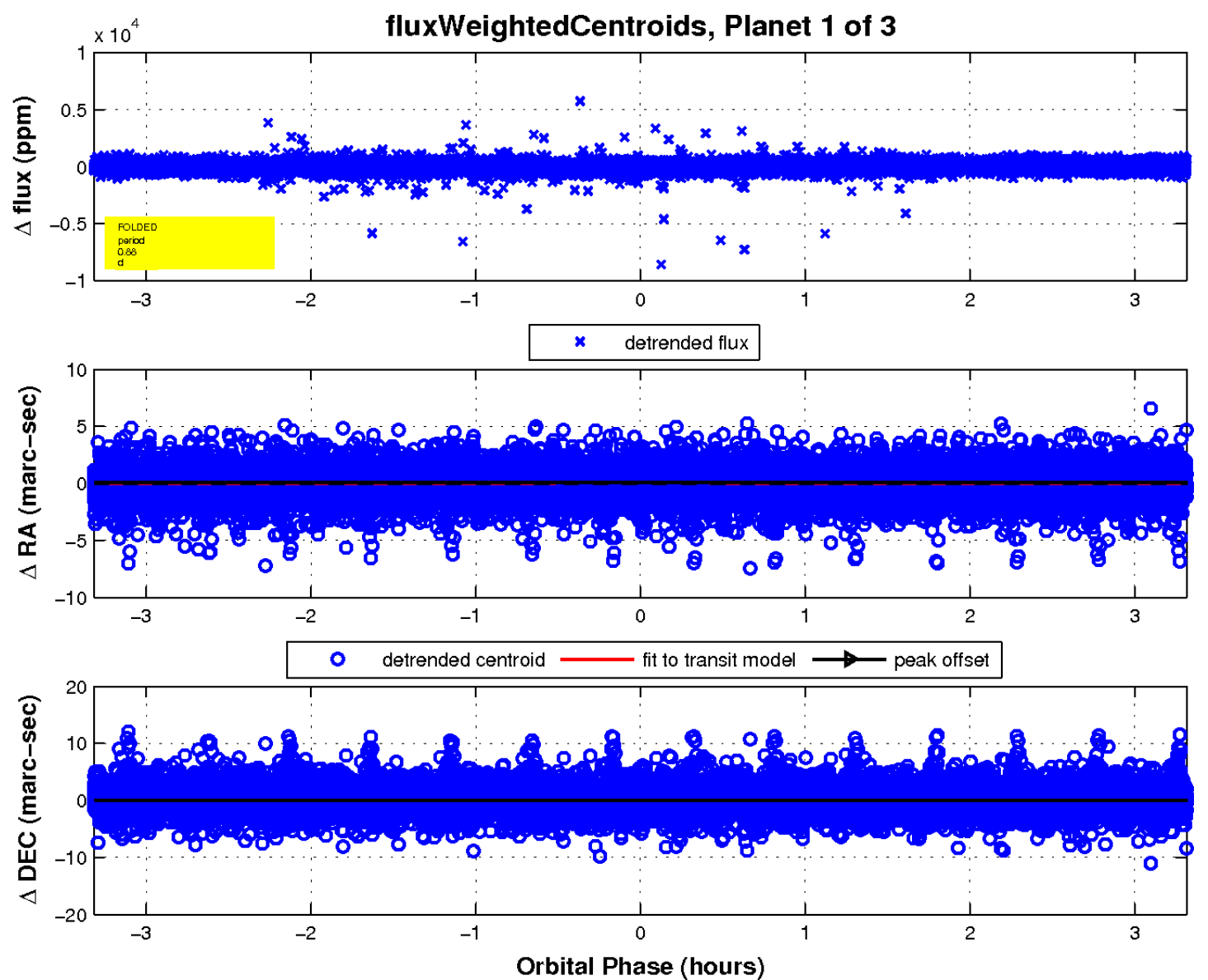
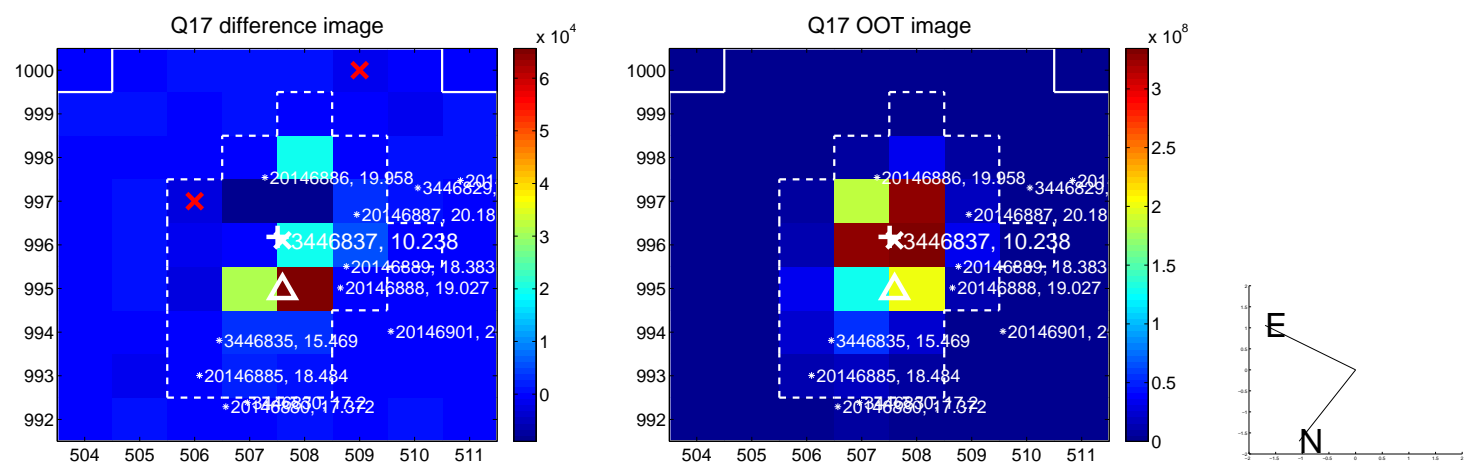
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

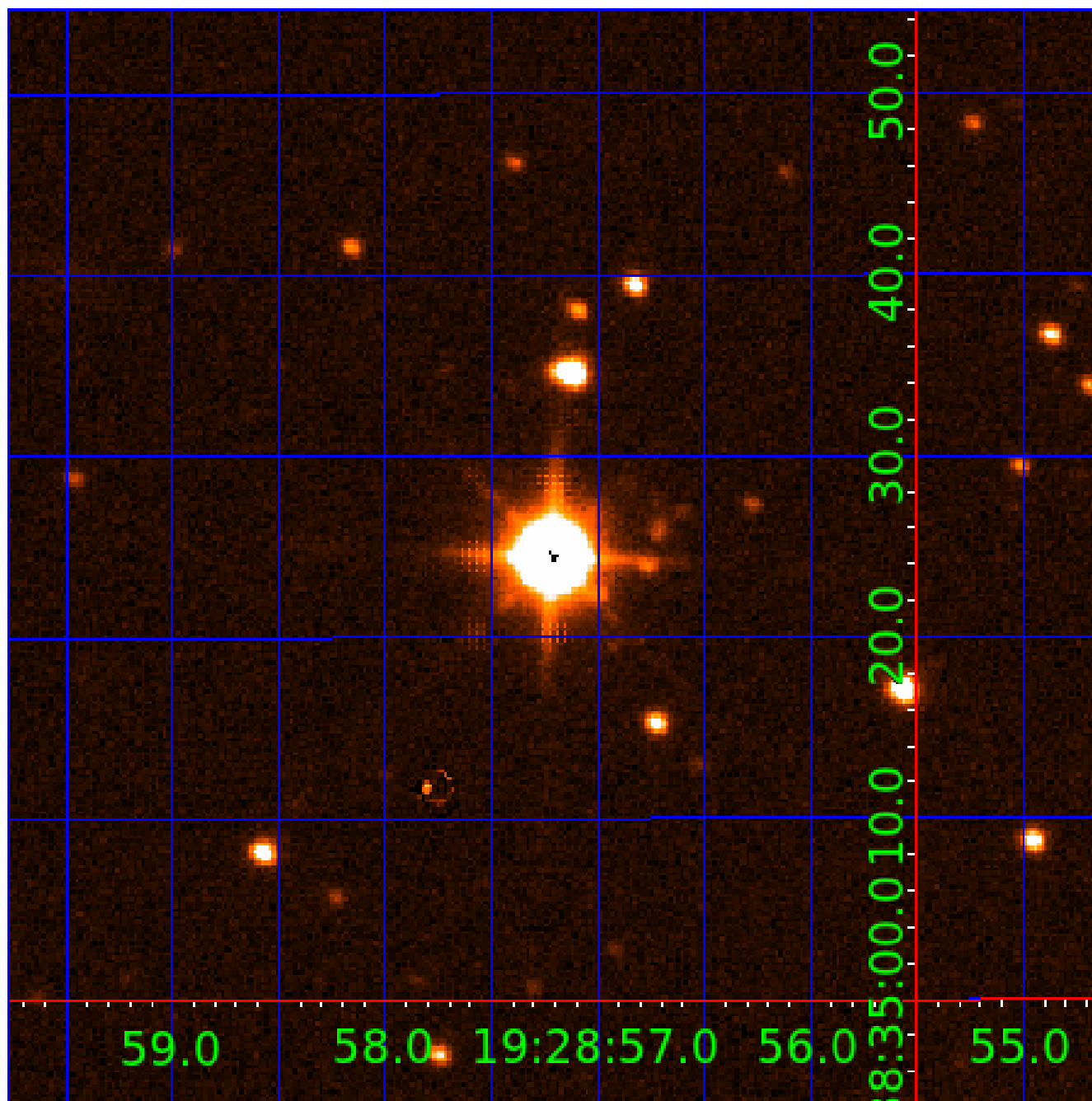


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003446837

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003446837-01	OBS	No	0.879003	131.599160	23.9	1.106	11.2	5.7	2.02	6623	1.03	16433.90
003446837-02	OBS	No	0.879089	132.109716	30.1	2.196	11.2	7.1	2.02	6623	1.29	16431.75
003446837-03	OBS	No	0.878997	131.876218	46.6	3.010	11.9	11.6	2.02	6623	1.69	16434.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003446837-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003446837-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003446837-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

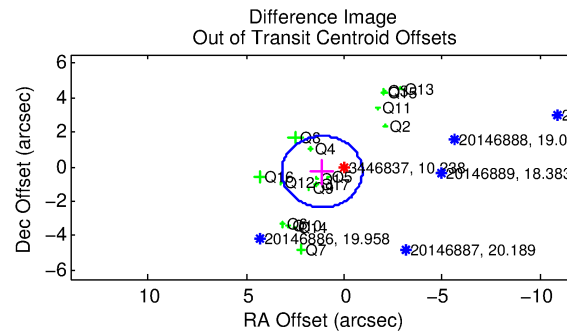
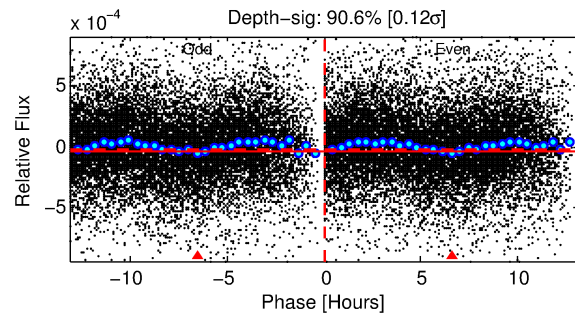
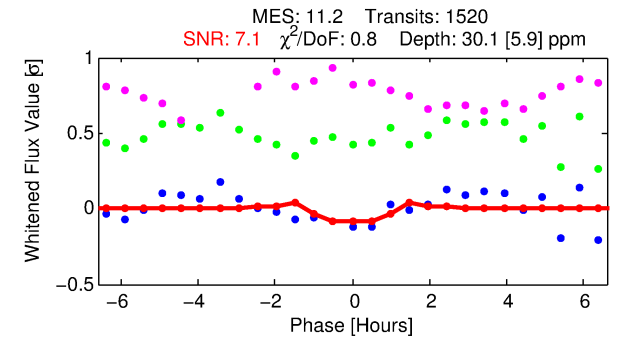
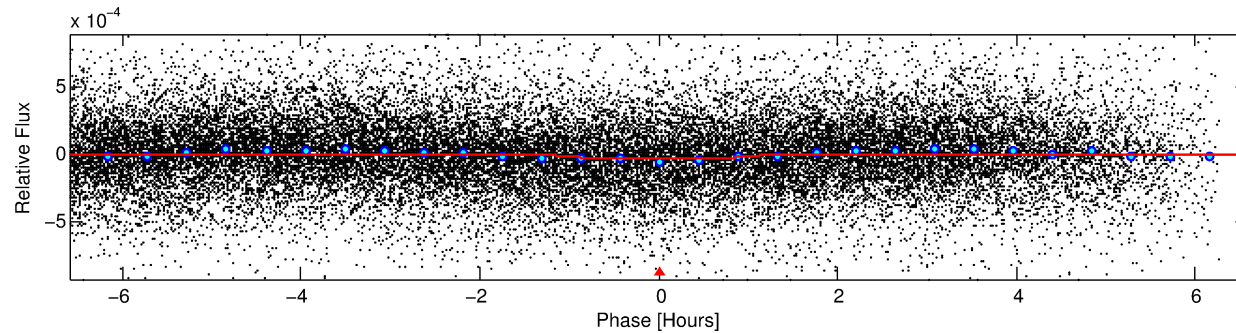
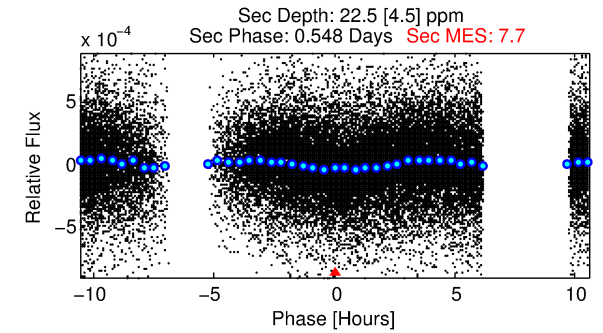
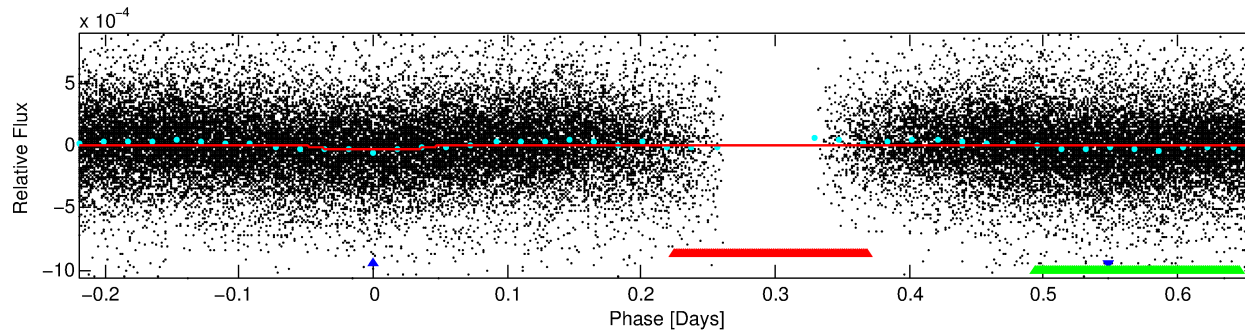
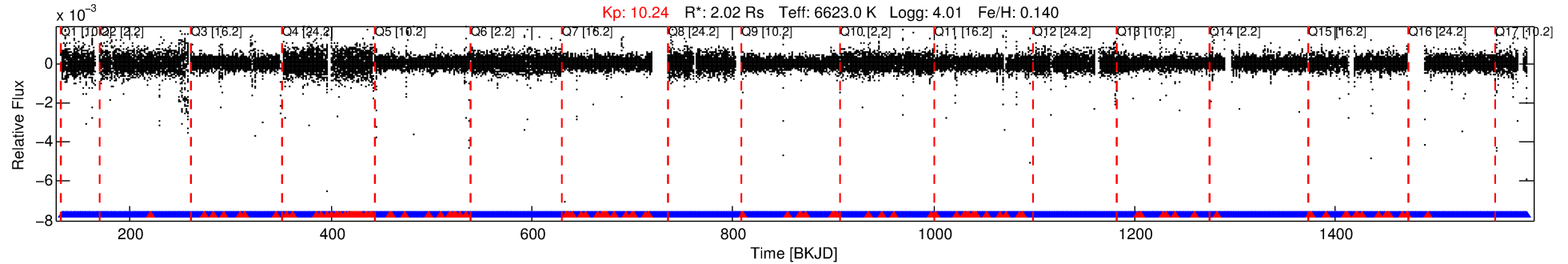
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003446837-02

No Significant Match Found

# DV One-Page Summary

KIC: 3446837 Candidate: 2 of 3 Period: 0.879 d



## DV Fit Results:

Period = 0.87909 [0.00001] d  
Epoch = 132.1097 [0.0023] BKJD  
Rp/R\* = 0.0058 [0.0020]  
a/R\* = 1.70 [2.13]  
b = 0.89 [0.44]  
Seff = 16431.75 [7893.04]  
Teq = 2887 [347] K  
Rp = 1.29 [0.62] Re  
a = 0.0207 [0.0062] AU  
Ag = 3.19 [2.72] [0.81σ]  
Teffp = 5967 [1099] K [2.67σ]

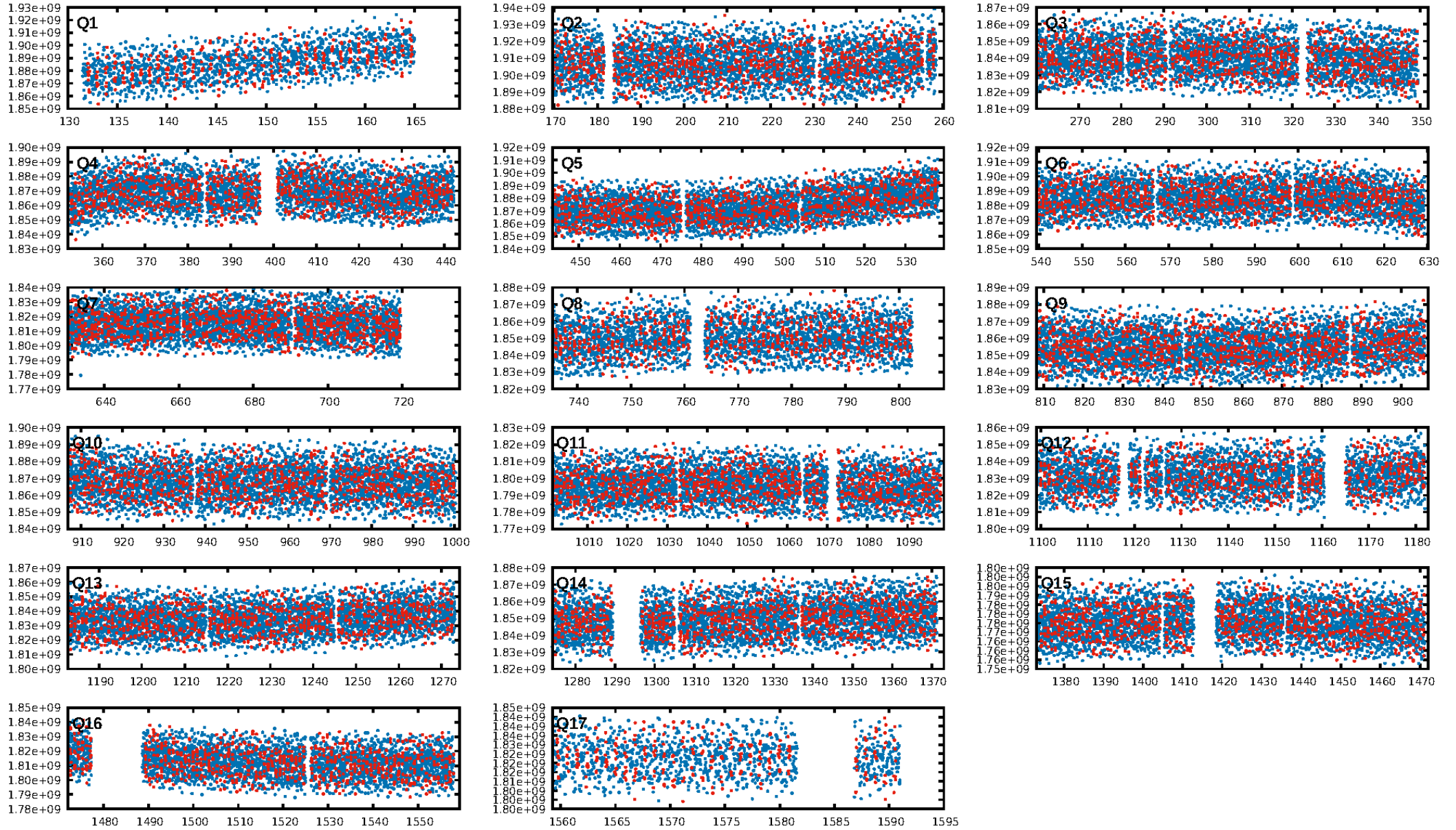
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.55e-23  
RollingBand-fgt: 0.92 [1334/1452]  
GhostDiagnostic-chr: 0.5722  
Centroid-sig: 52.9%  
Centroid-so: 0.268 arcsec [0.43σ]  
OotOffset-rm: 1.173 arcsec [1.71σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 2.185 arcsec [4.74σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.18 [3/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:03:47 Z

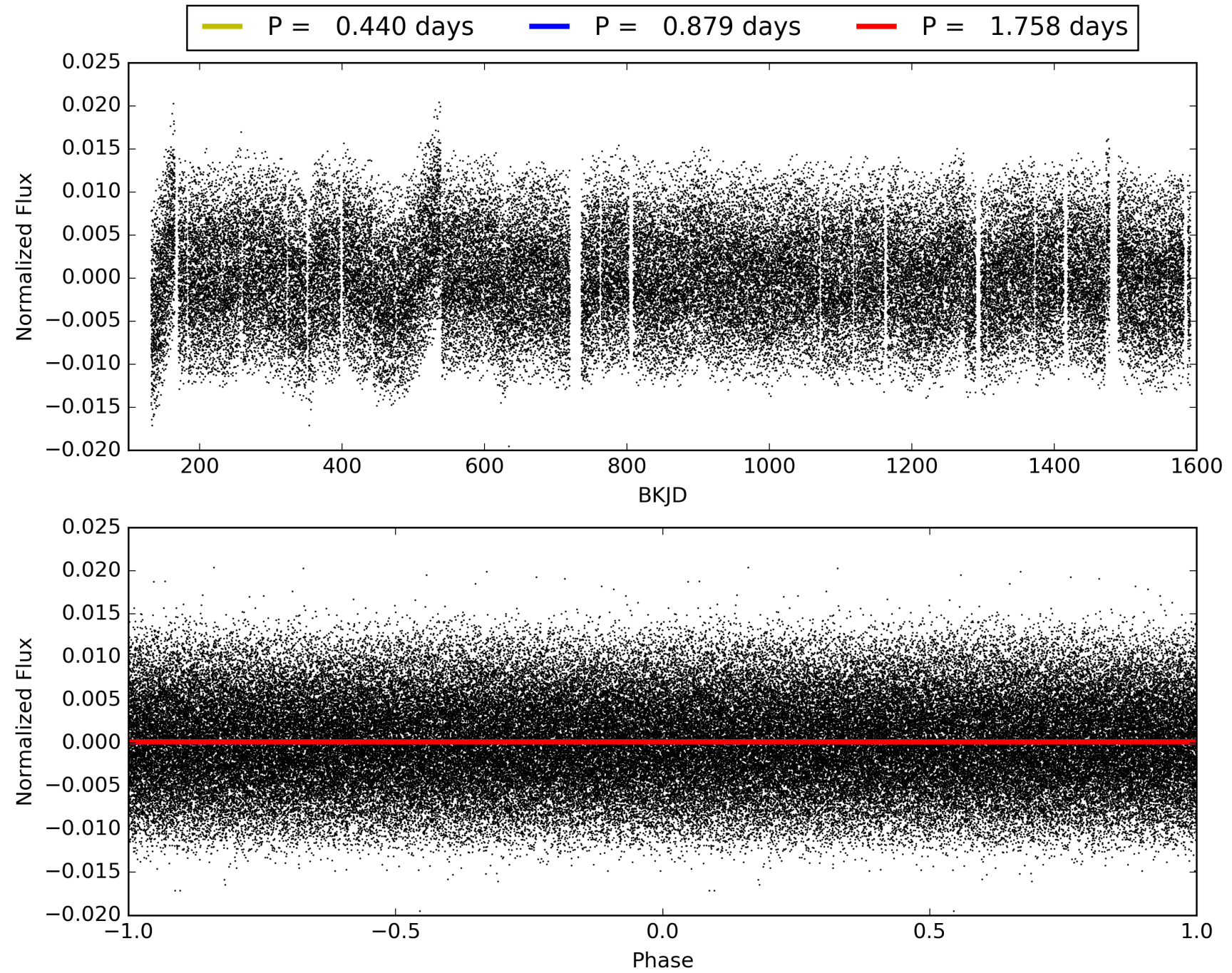
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003446837-02, PDC Light Curves



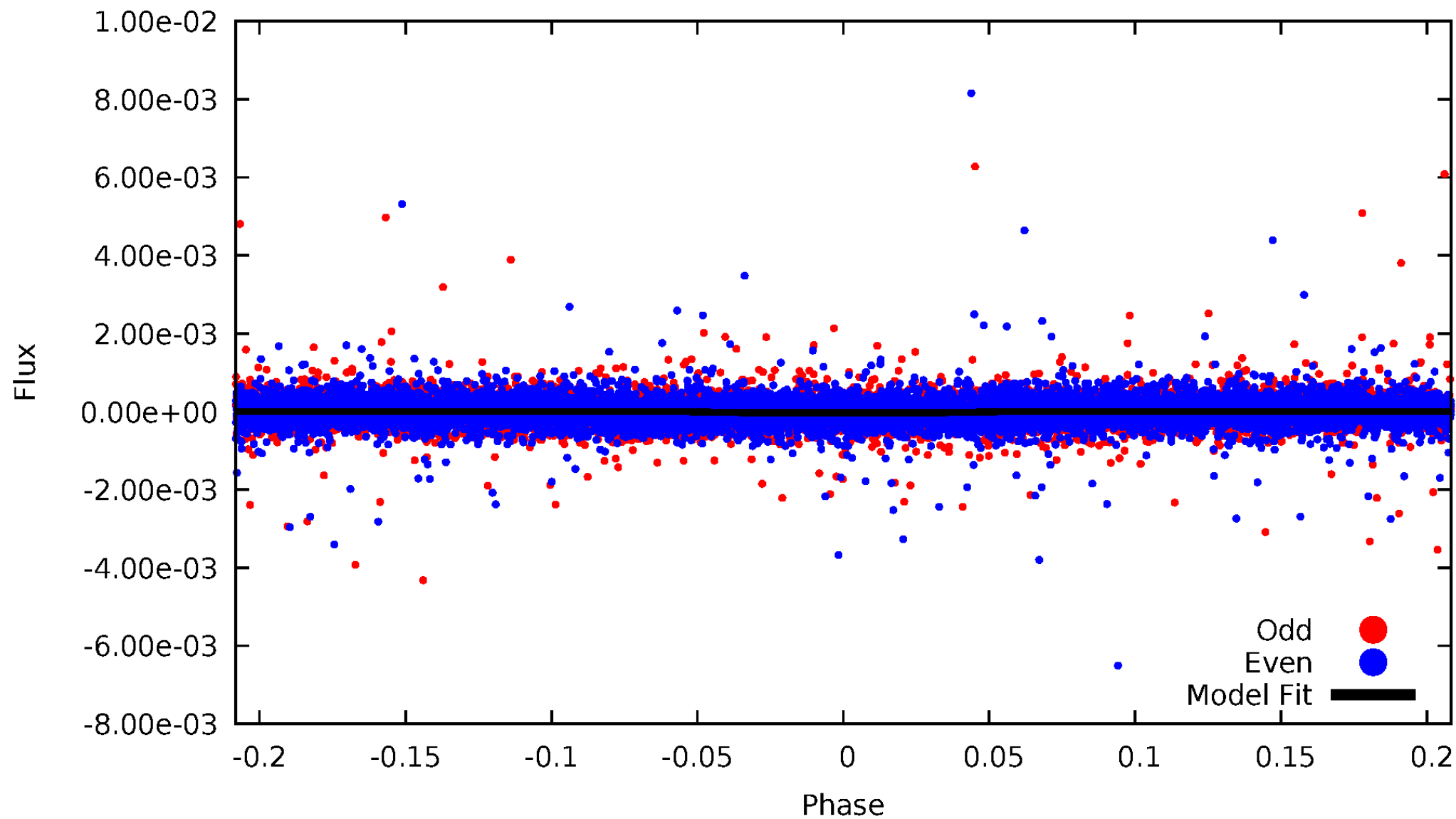


# TCE 003446837-02



# DV Odd/Even

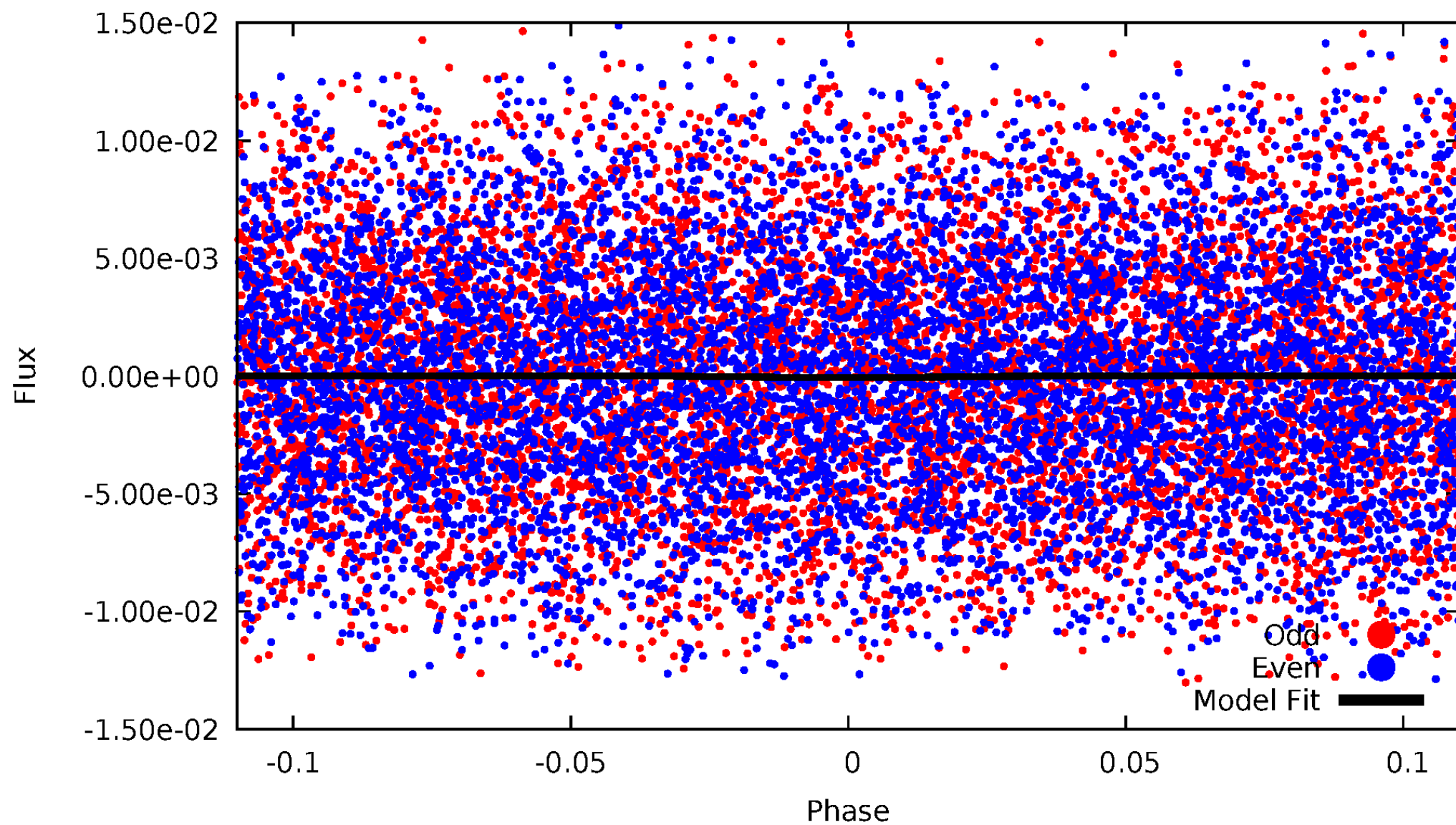
TCE 003446837-02





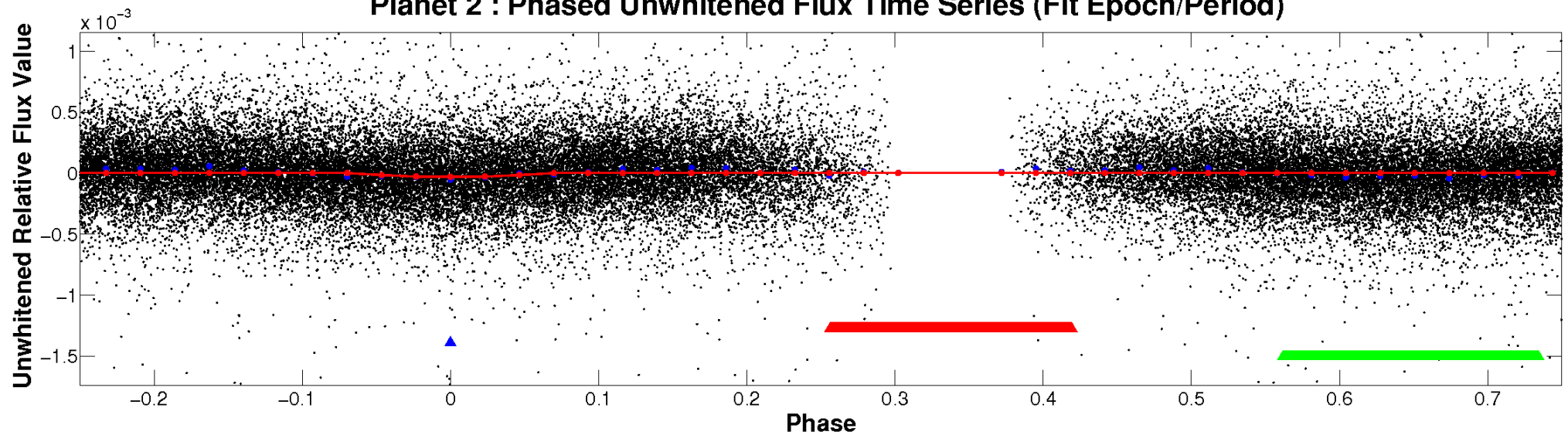
# ALT Odd/Even

TCE 003446837-02

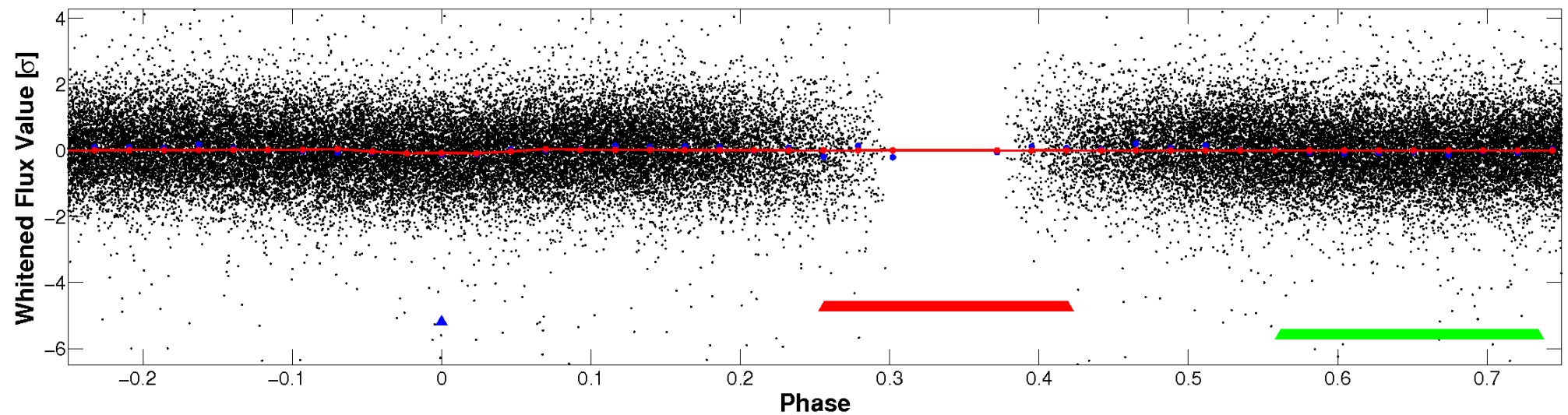


# Non-Whitened Vs. Whitened Light Curve

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

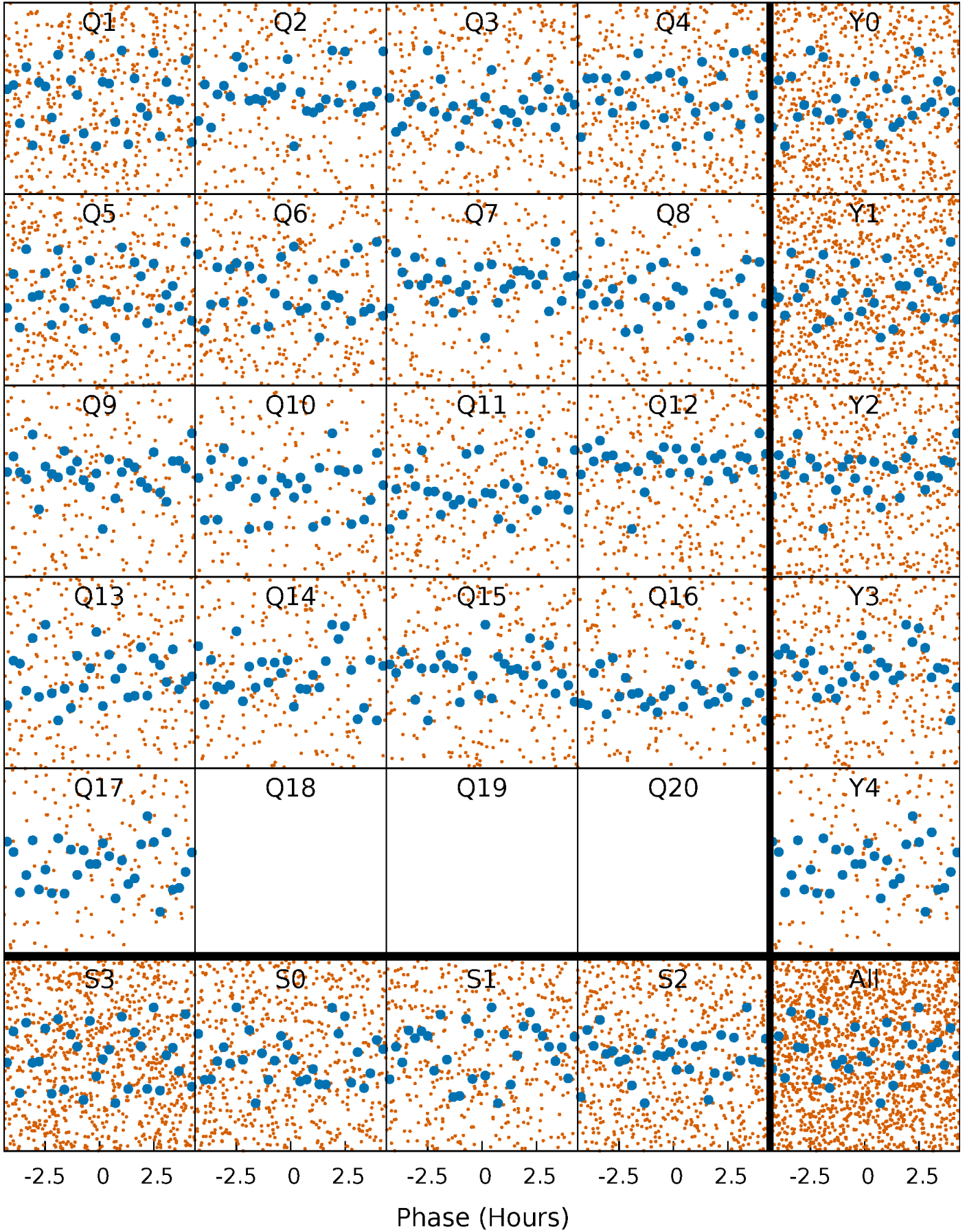


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

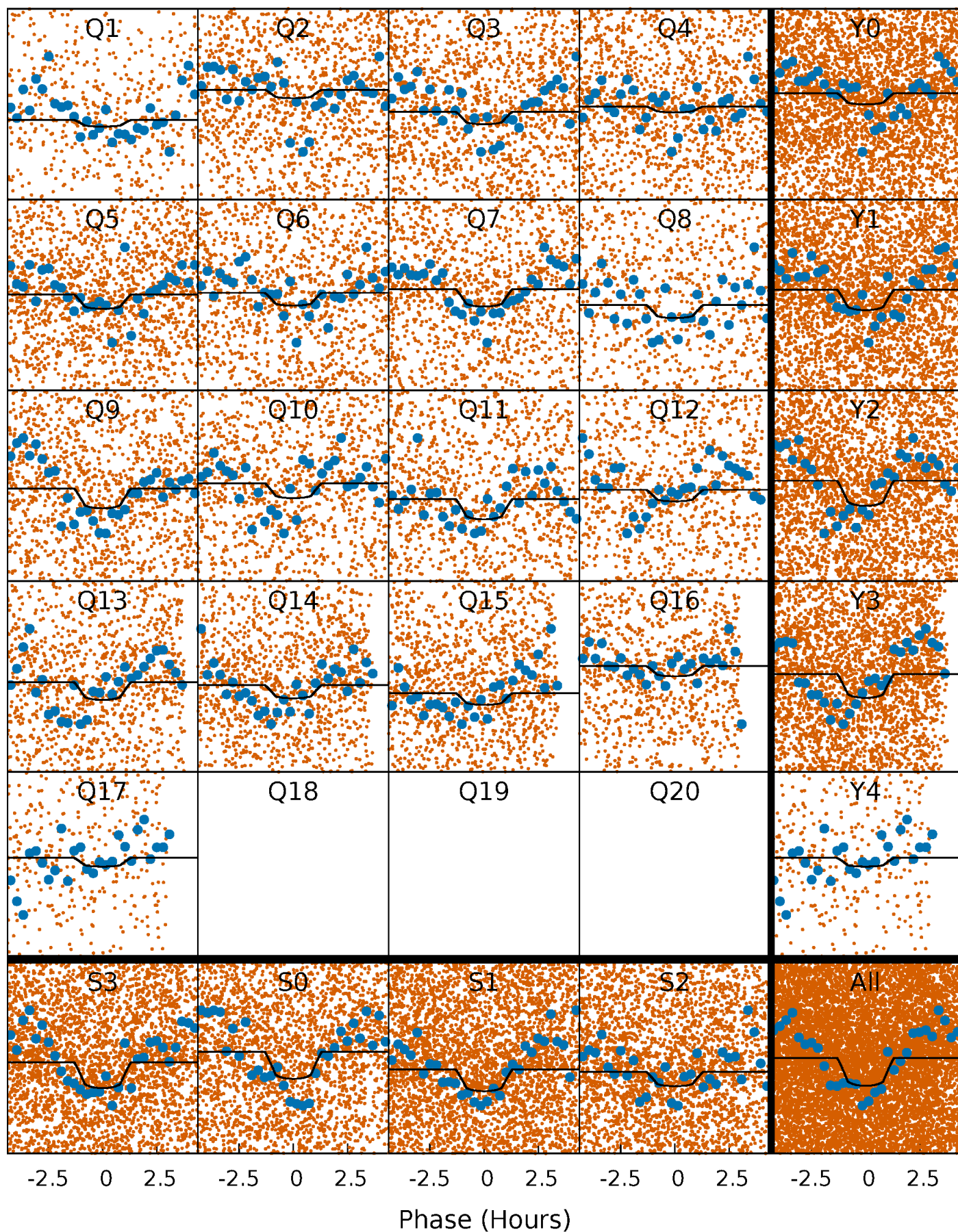
TCE 003446837-02   P= 0.879089 Days    $T_0=132.109716$  (BKJD)





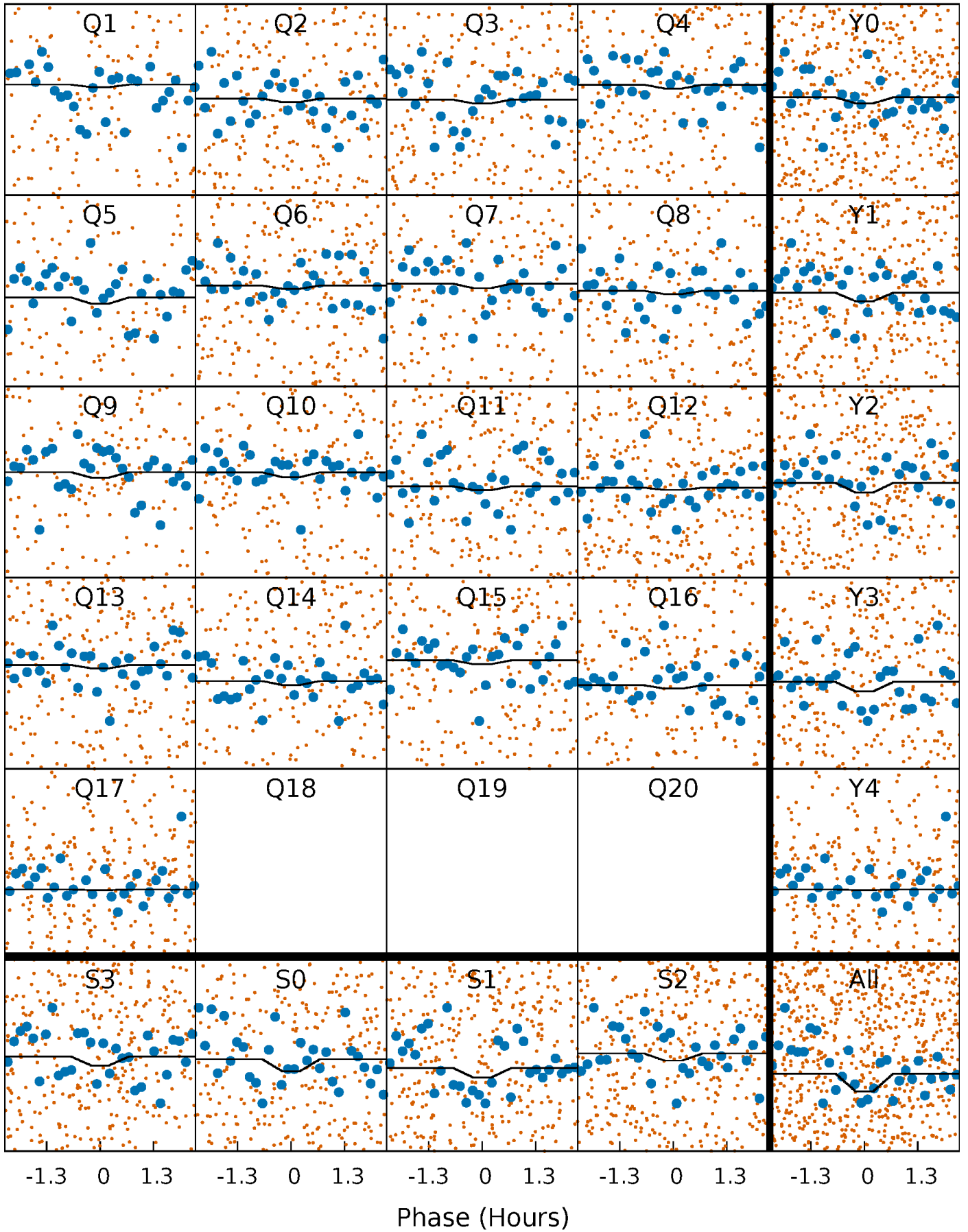
# DV Quarter-Phased Transit Curves

TCE 003446837-02   P= 0.879089 Days    $T_0=132.109716$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003446837-02 P= 0.879023 Days  $T_0=132.105098$  (BKJD)

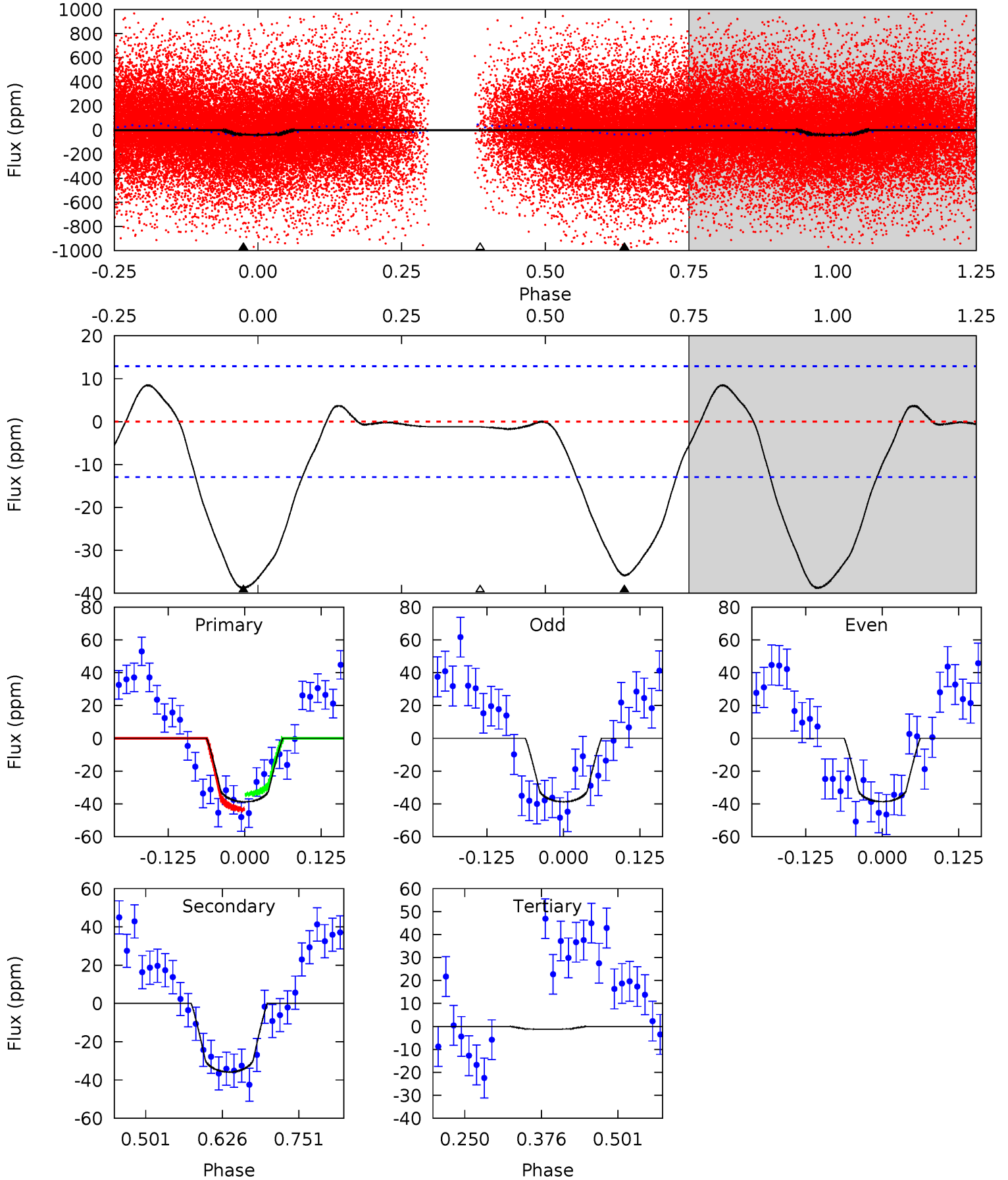




# DV Model-Shift Uniqueness Test

003446837-02, P = 0.879089 Days, E = 131.230627 Days

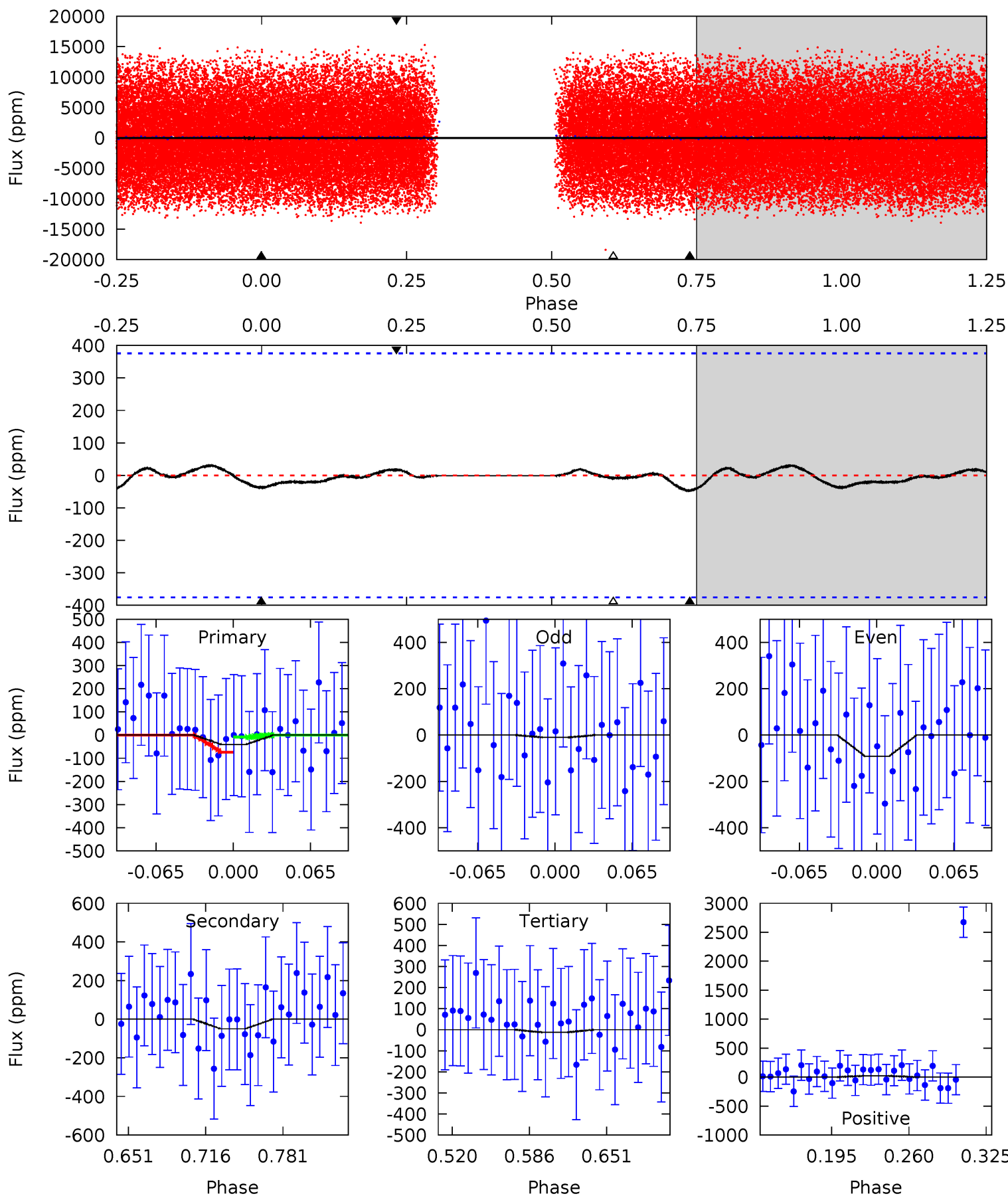
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	12.5	0.43	0	4.52	1.53	1.19	13.1	13.6	12.1	12.5	0.01	0.99	0.18	1.60



# Alt Model-Shift Uniqueness Test

003446837-02, P = 0.879023 Days, E = 131.226075 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
0.51	0.62	0.15	0.27	4.65	1.84	0.16	0.35	0.24	0.47	0.35	0.50	2.57	0.40	0.40



### Stellar Parameters For KIC 003446837

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6623^{+185}_{-255}$	$4.011^{+0.258}_{-0.172}$	$0.140^{+0.200}_{-0.350}$	$2.018^{+0.616}_{-0.678}$	$1.521^{+0.200}_{-0.325}$	$0.261^{+0.451}_{-0.128}$
	+3%/-4%	+6%/-4%	+143%/-250%	+31%/-34%	+13%/-21%	+173%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003446837-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-36 \pm 3$	$1.24^{+0.55}_{-0.46}$	$3991^{+312}_{-352}$	$6604^{+1933}_{-1107}$	$5.371^{+8.723}_{-2.716}$
Alt.	$-50 \pm 81$	$1.62^{+0.59}_{-0.48}$	$3999^{+330}_{-334}$	$6351^{+2394}_{-11947}$	$4.363^{+9.056}_{-6.411}$

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

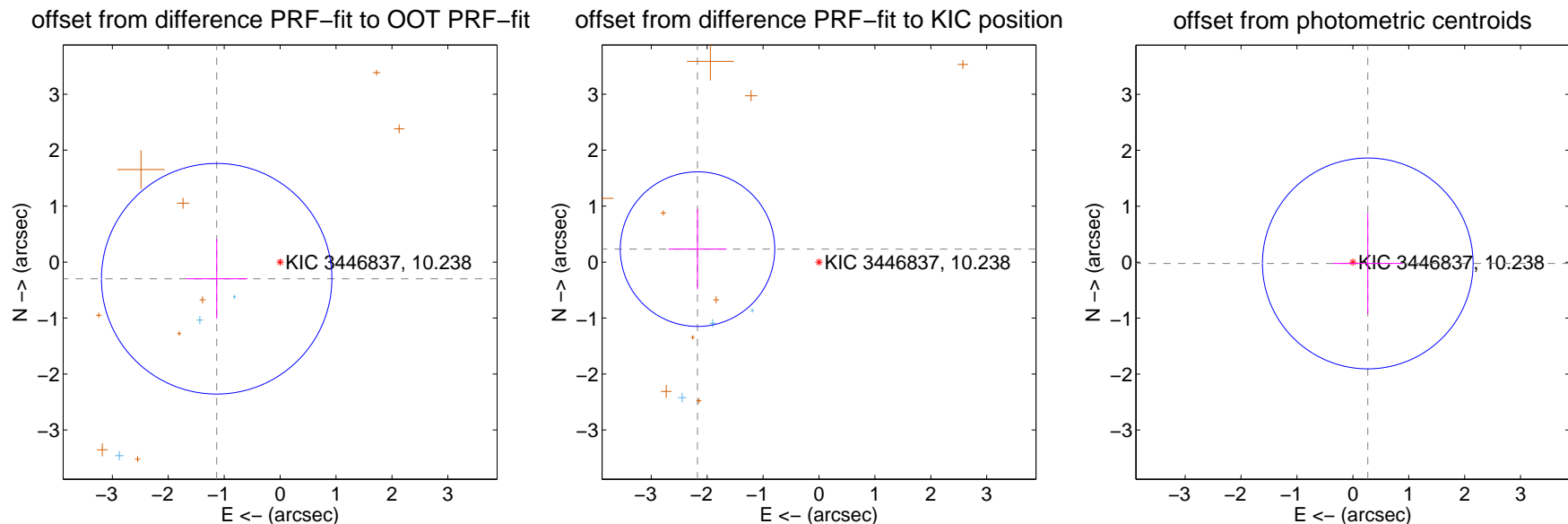
## DV Centroid Data

Supplemental centroid analysis for 003446837-02. **Kepler magnitude: 10.24.** Transit SNR 7.06

**There are 3 quarters with good PRF difference image offsets**

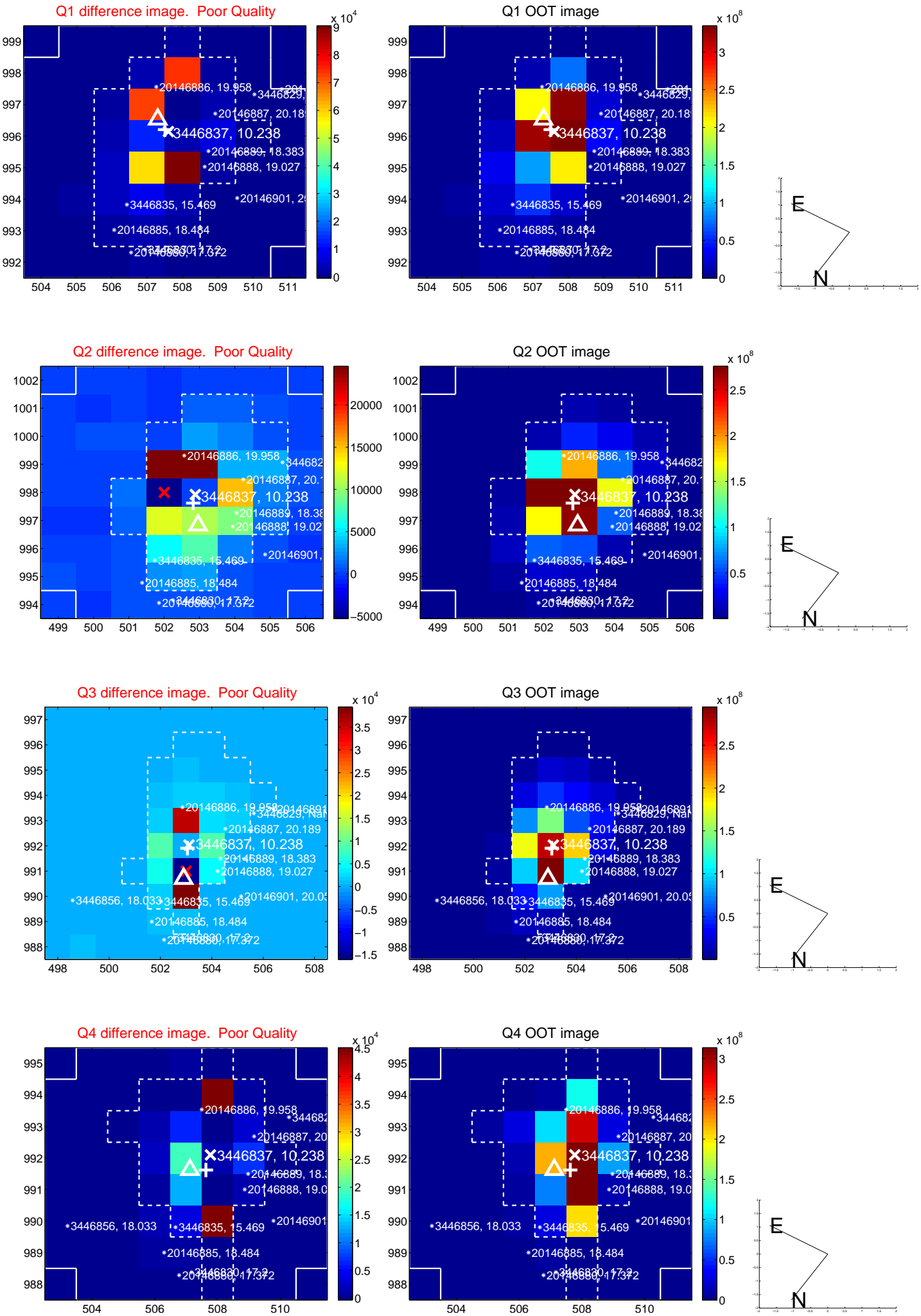
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.173 \pm 0.687$	1.71	$1.135 \pm 0.547$	$-0.298 \pm 0.712$
PRF-fit source offset from KIC position	<b><math>2.185 \pm 0.460</math></b>	<b>4.74</b>	$2.172 \pm 0.519$	$0.232 \pm 0.717$
photometric centroid source offset	$0.27 \pm 0.63$	0.43	$-0.27 \pm 0.63$	$-0.02 \pm 0.90$



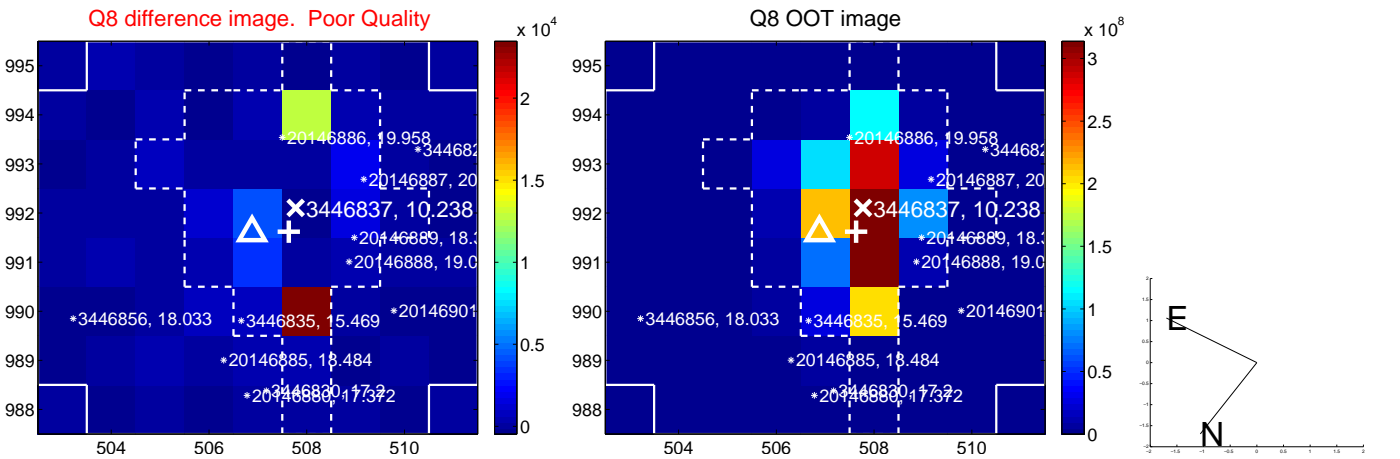
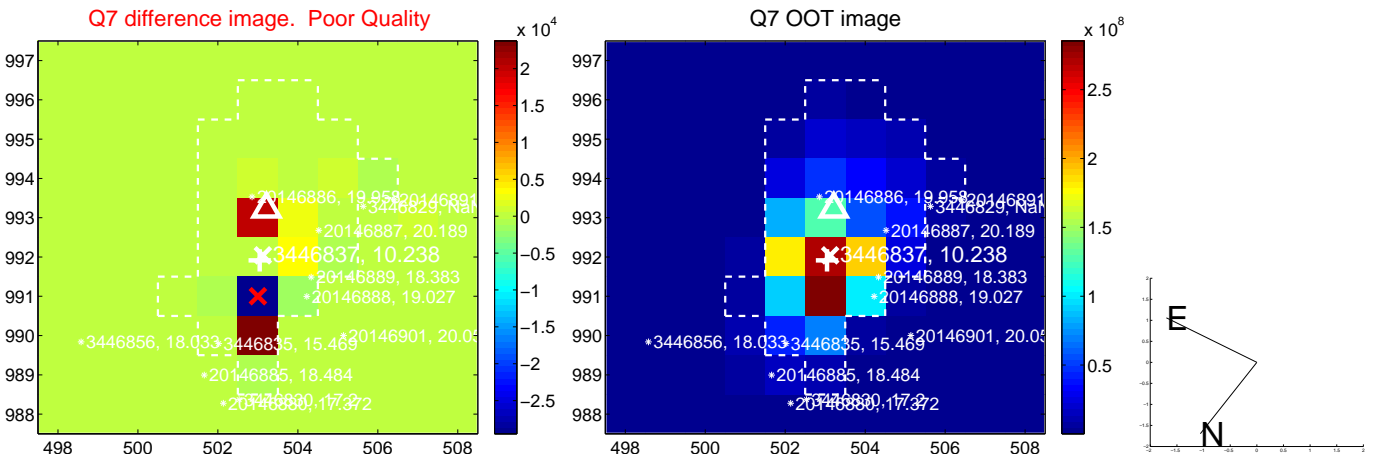
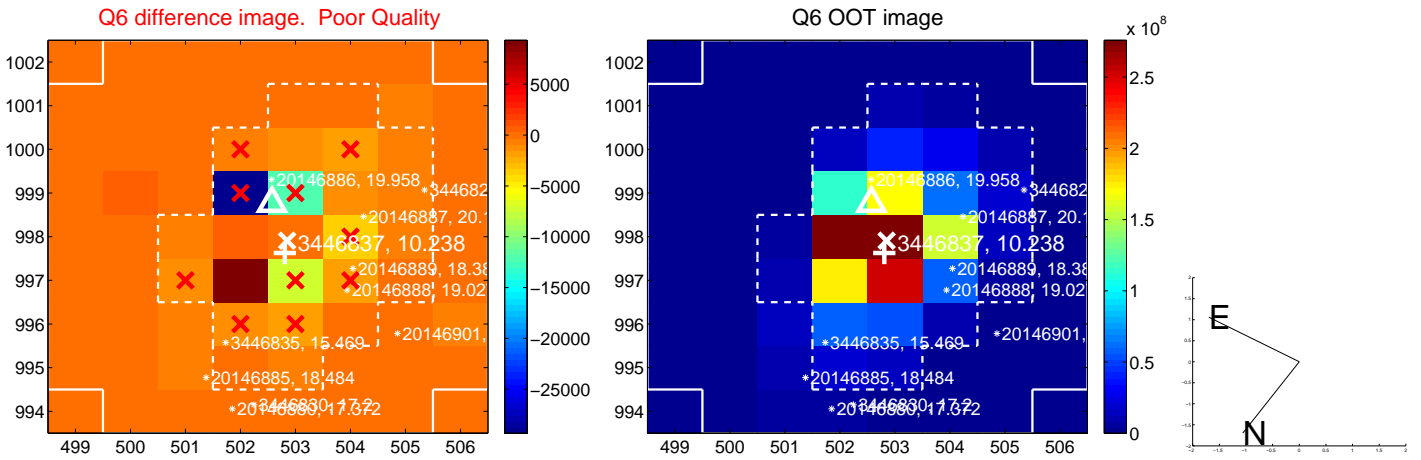
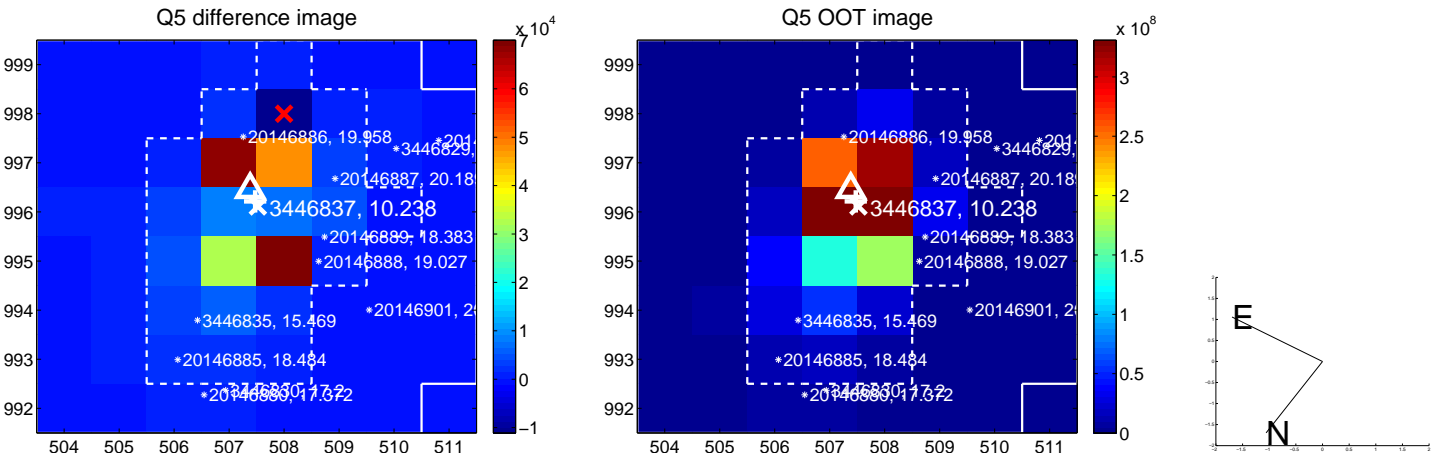
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

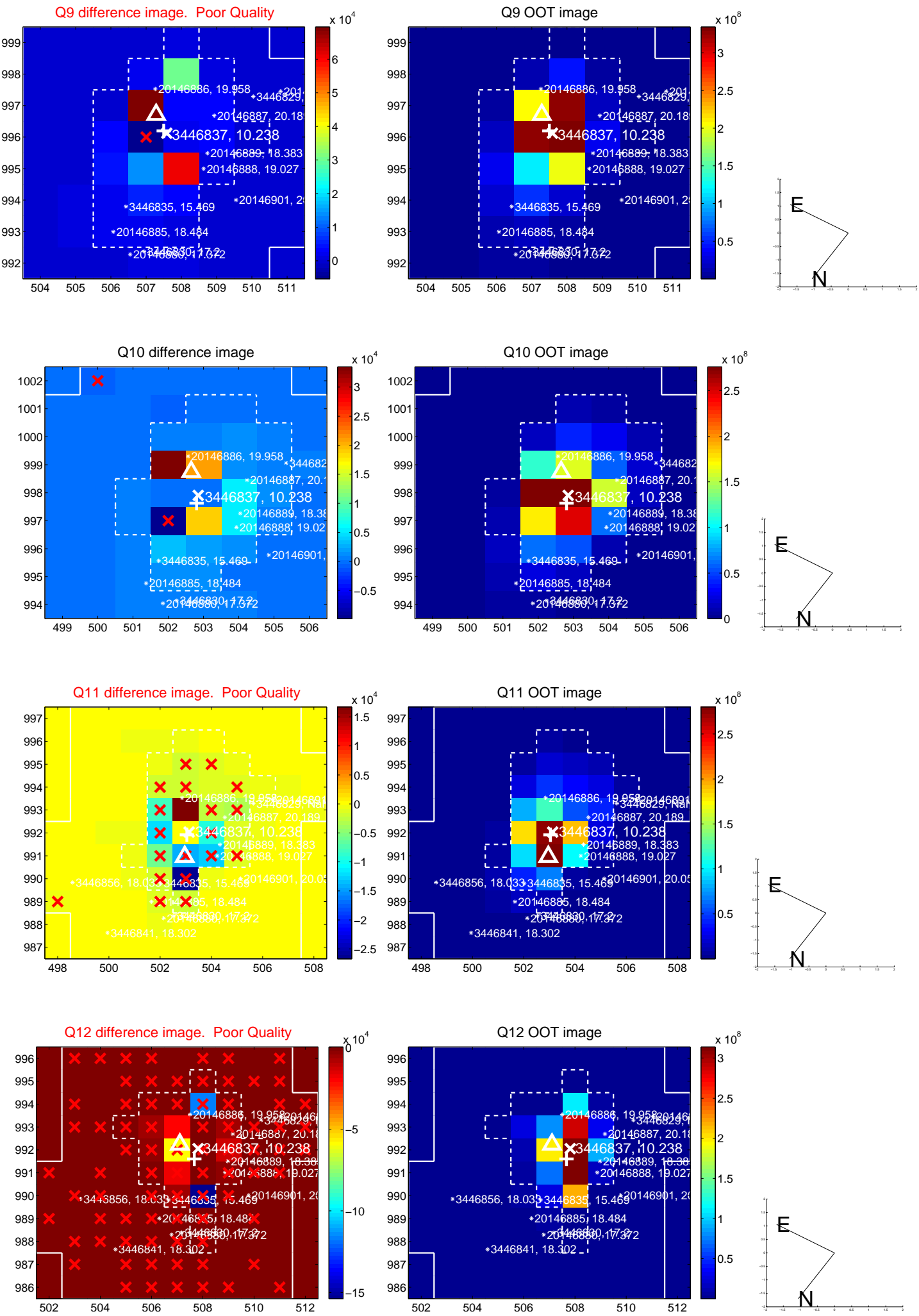




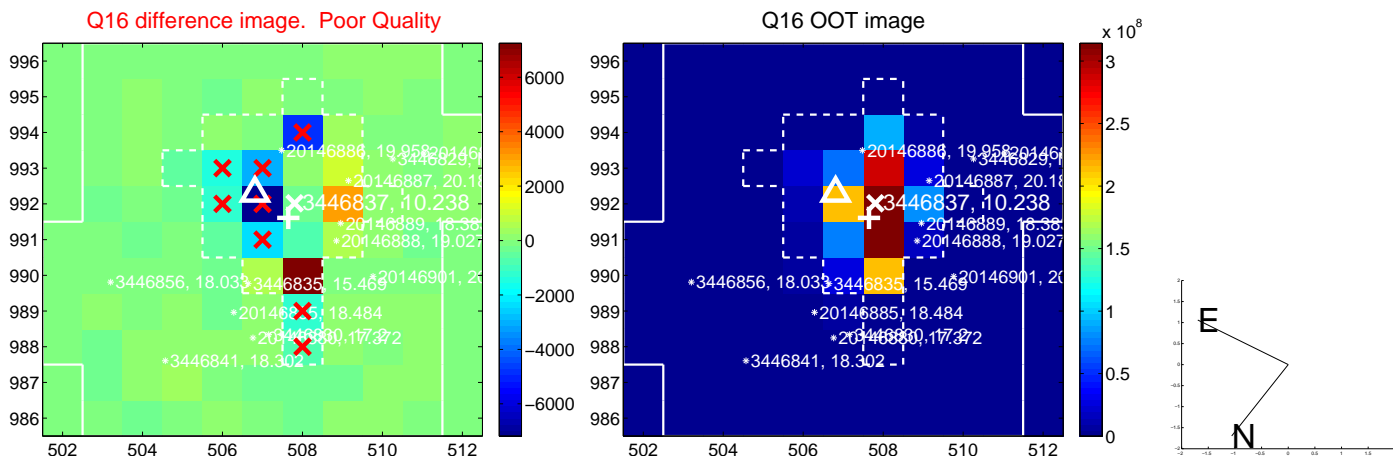
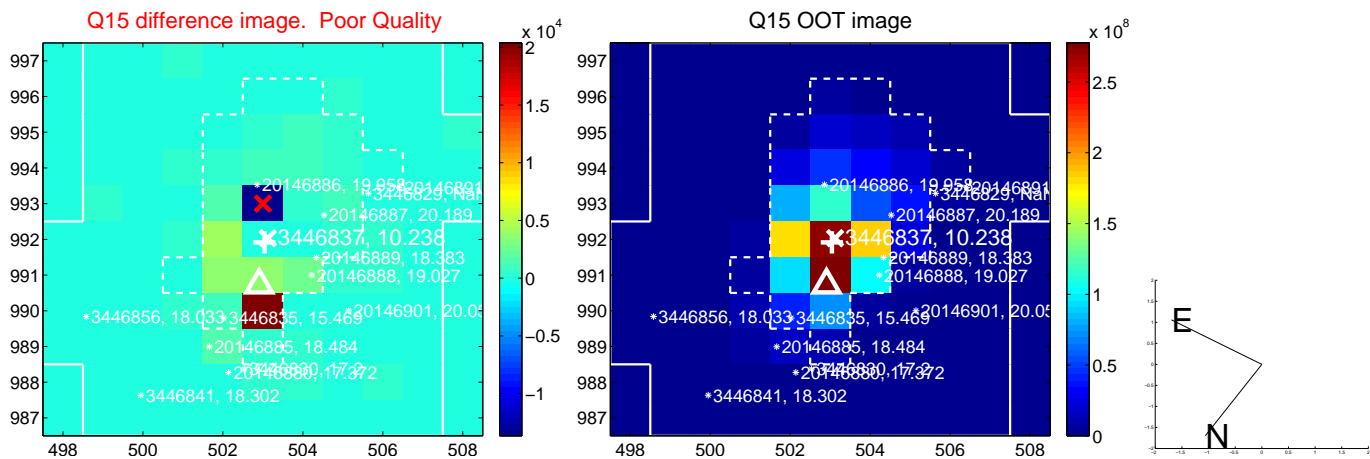
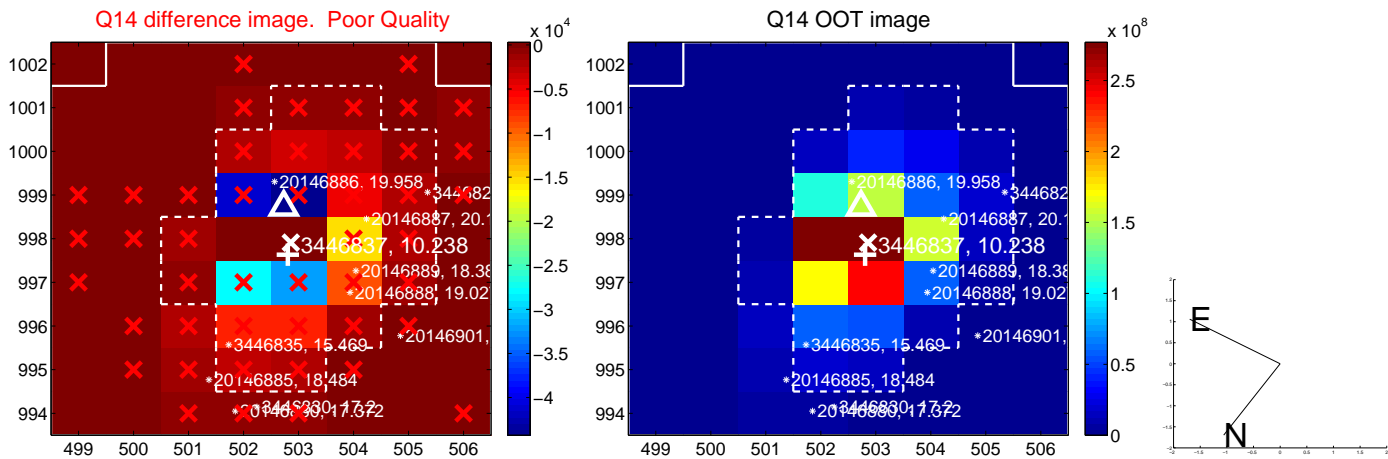
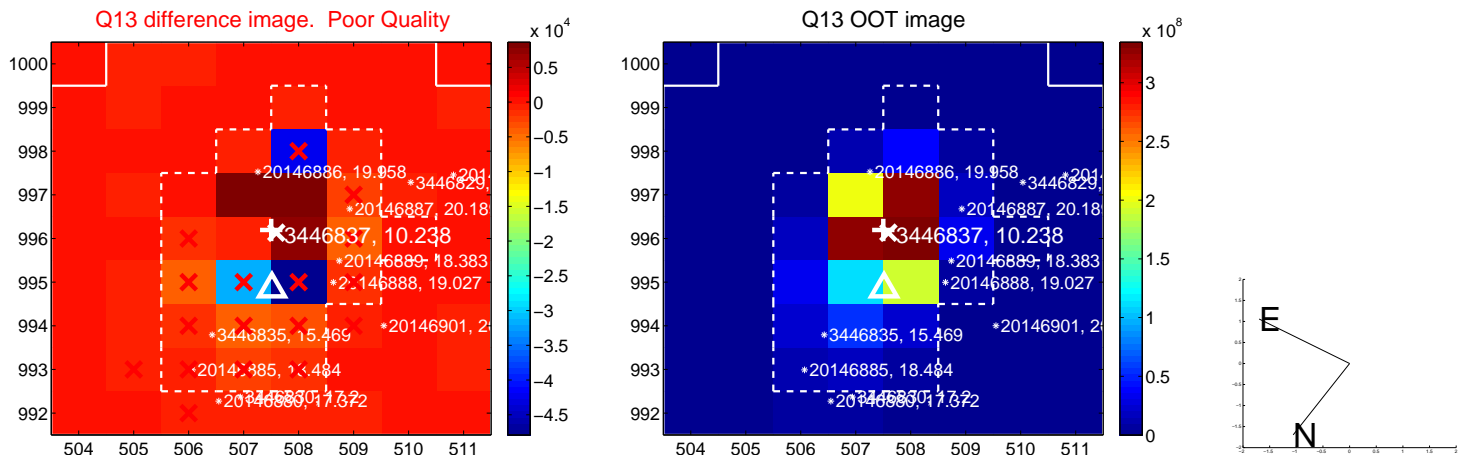
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



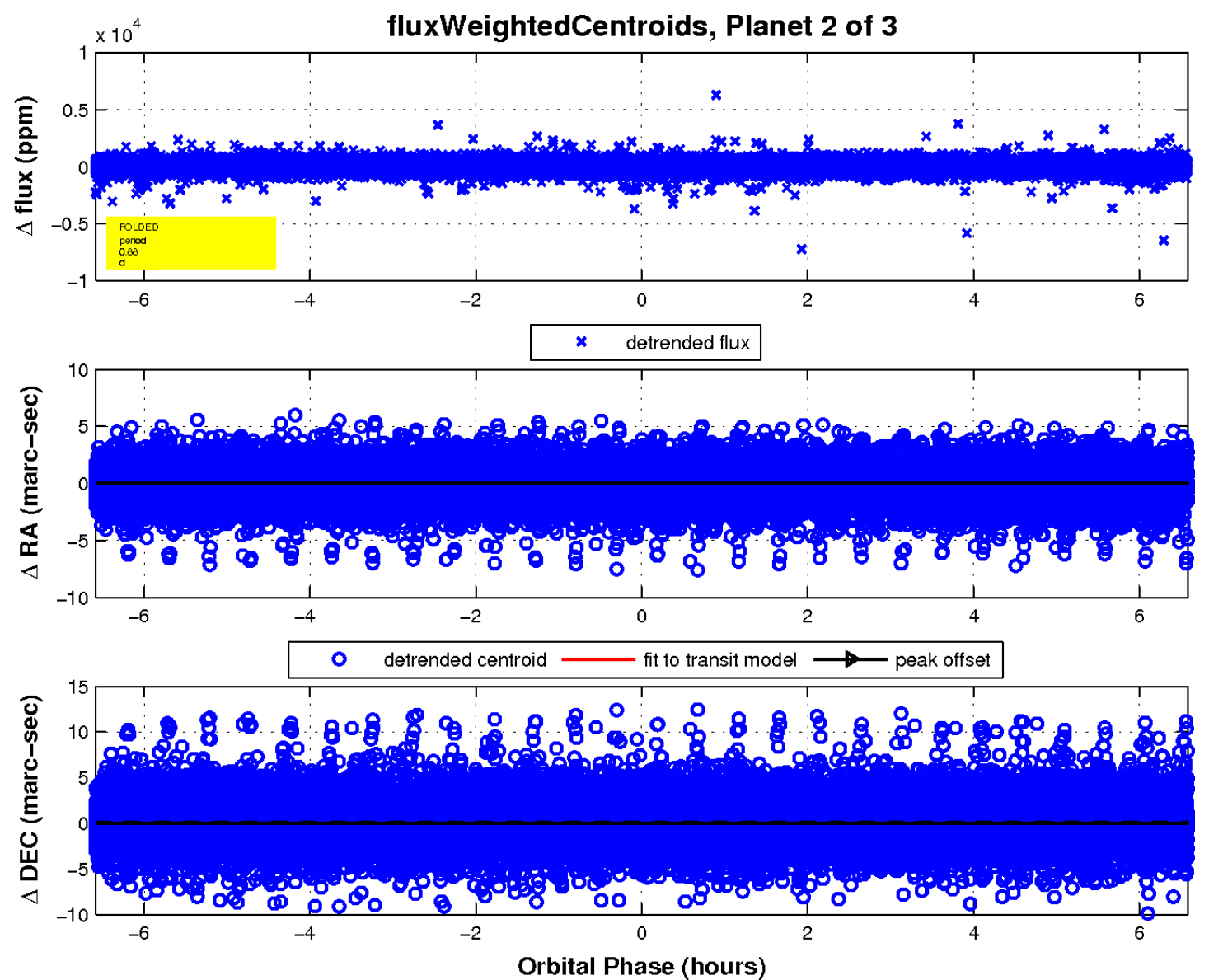
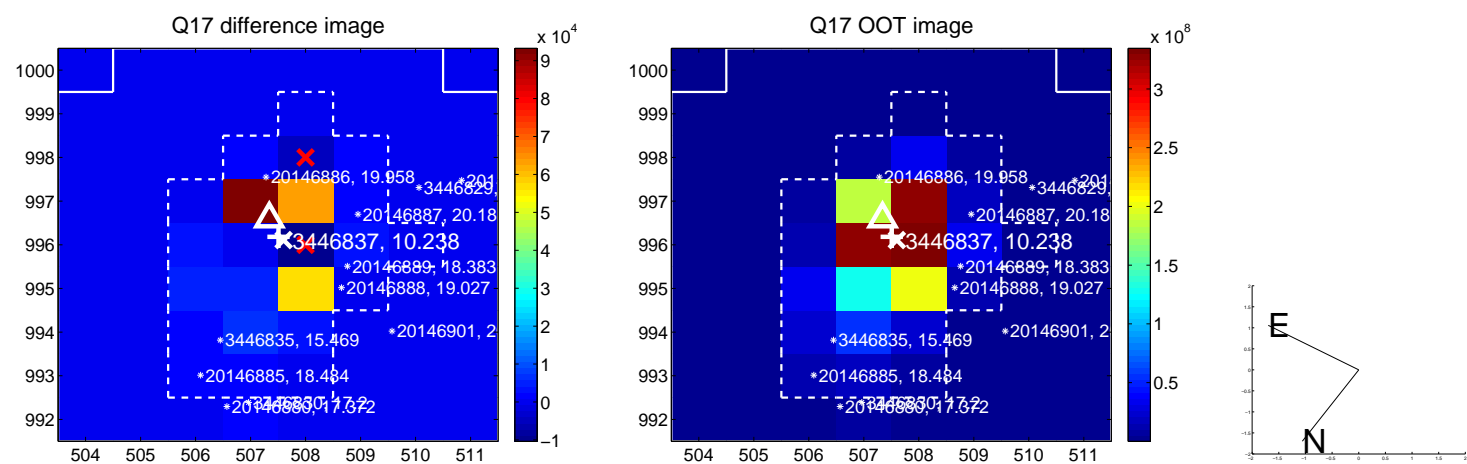
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

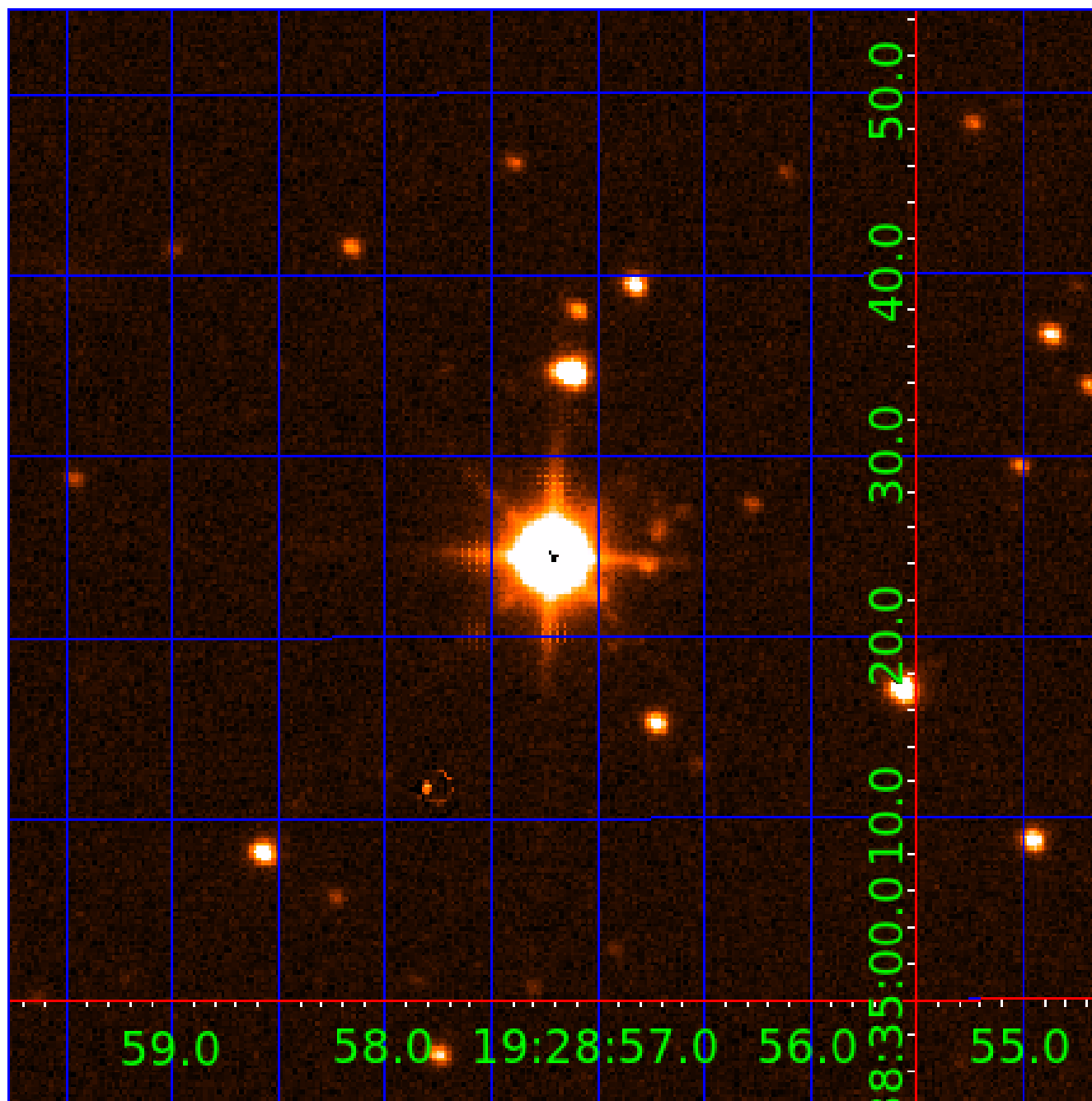


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003446837

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003446837-01	OBS	No	0.879003	131.599160	23.9	1.106	11.2	5.7	2.02	6623	1.03	16433.90
003446837-02	OBS	No	0.879089	132.109716	30.1	2.196	11.2	7.1	2.02	6623	1.29	16431.75
003446837-03	OBS	No	0.878997	131.876218	46.6	3.010	11.9	11.6	2.02	6623	1.69	16434.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003446837-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
003446837-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003446837-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

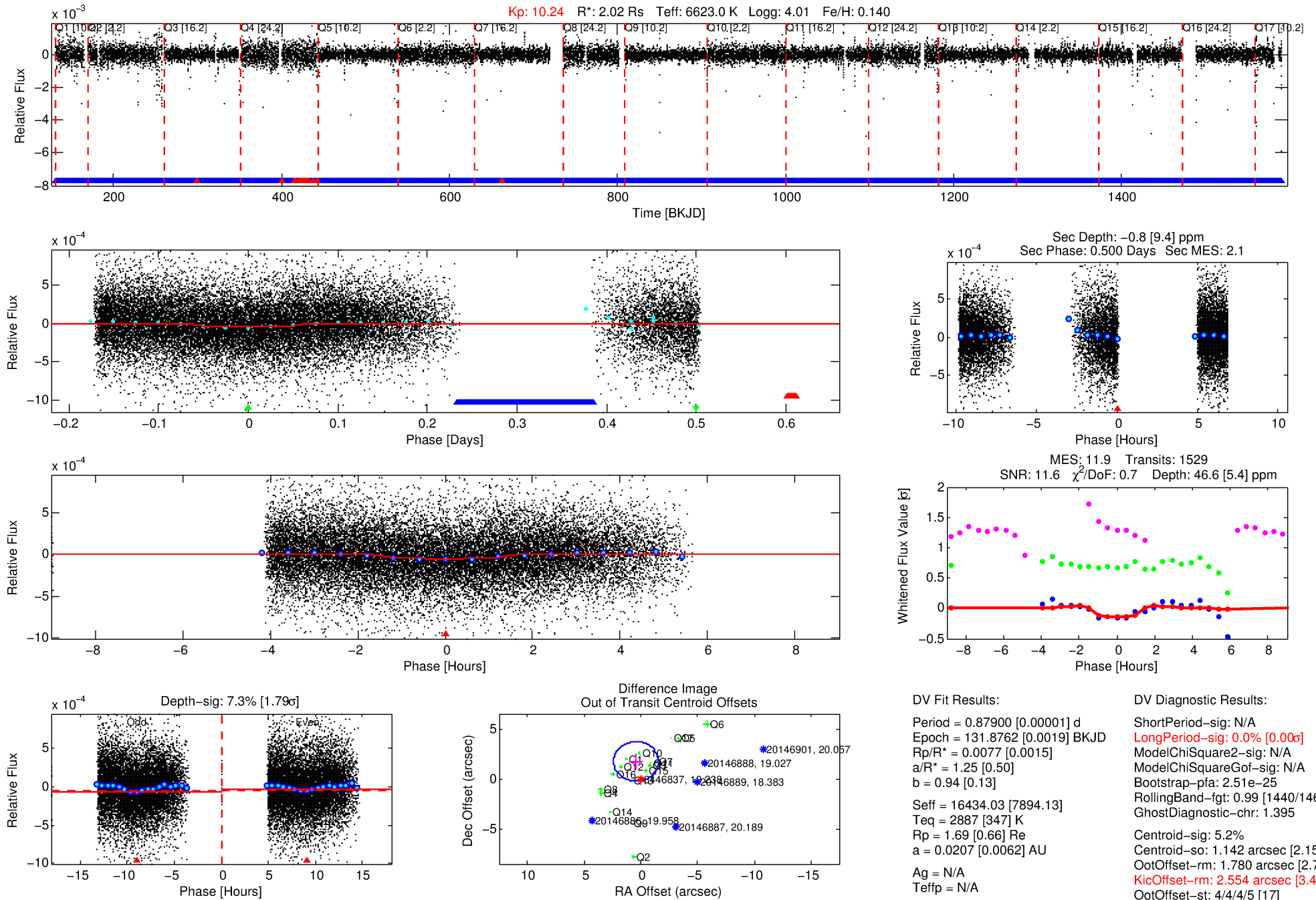
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003446837-03

No Significant Match Found

# DV One-Page Summary

KIC: 3446837 Candidate: 3 of 3 Period: 0.879 d



## DV Fit Results:

Period = 0.87900 [0.00001] d  
Epoch = 131.8762 [0.0019] BKJD  
Rp/R\* = 0.0077 [0.0015]  
a/R\* = 1.25 [0.50]  
b = 0.94 [0.13]  
Seff = 16434.03 [7894.13]  
Teff = 2887 [347] K  
Rp = 1.69 [0.66] Re  
a = 0.0207 [0.0062] AU  
Ag = N/A  
Teffp = N/A

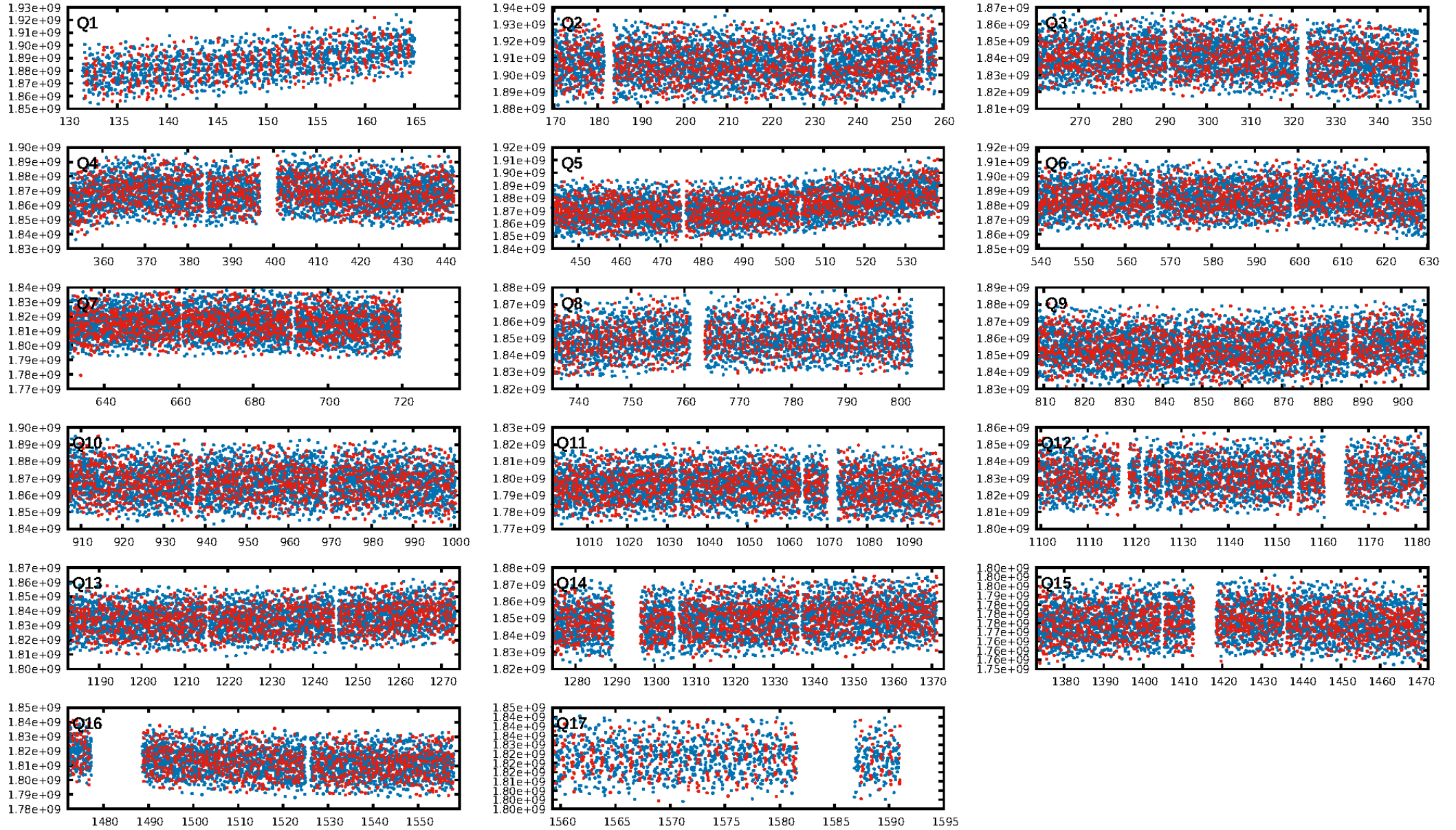
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.51e-25  
RollingBand-fgt: 0.99 [1440/1460]  
GhostDiagnostic-chr: 1.395  
Centroid-sig: 5.2%  
Centroid-so: 1.142 arcsec [2.15σ]  
OotOffset-rm: 1.780 arcsec [2.70σ]  
KicOffset-rm: 2.554 arcsec [3.43σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 05:03:57 Z

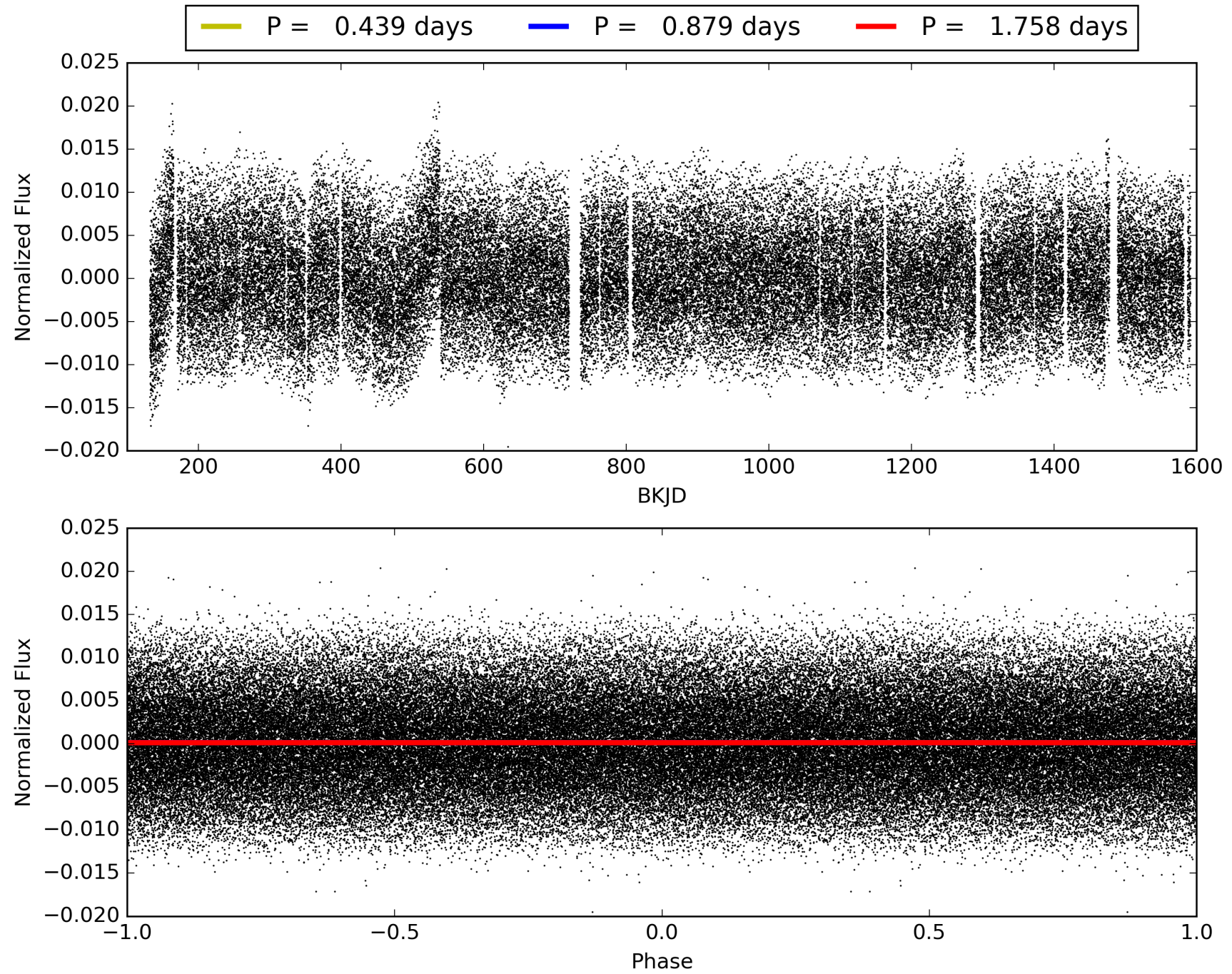
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003446837-03, PDC Light Curves



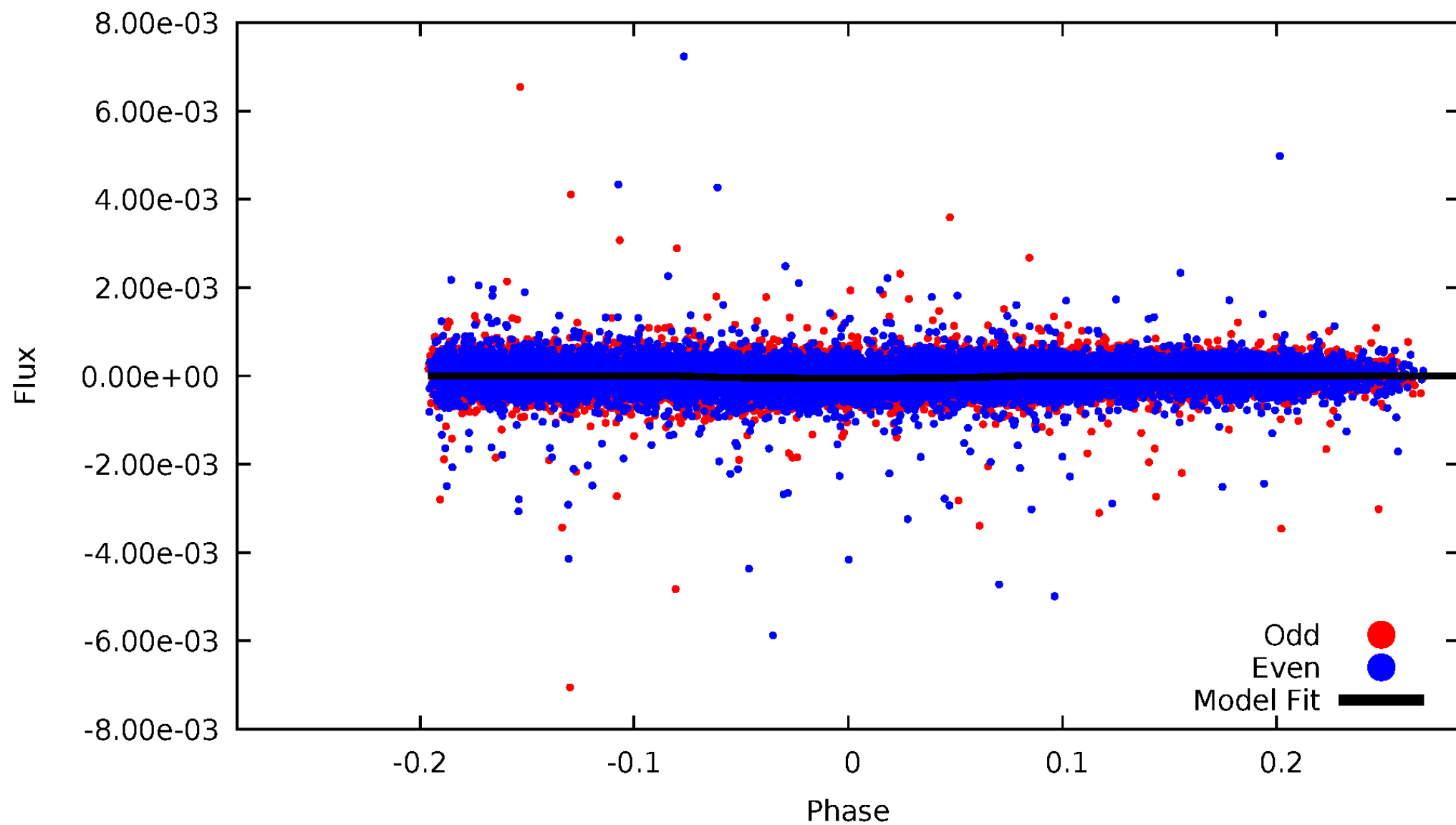


TCE 003446837-03



# DV Odd/Even

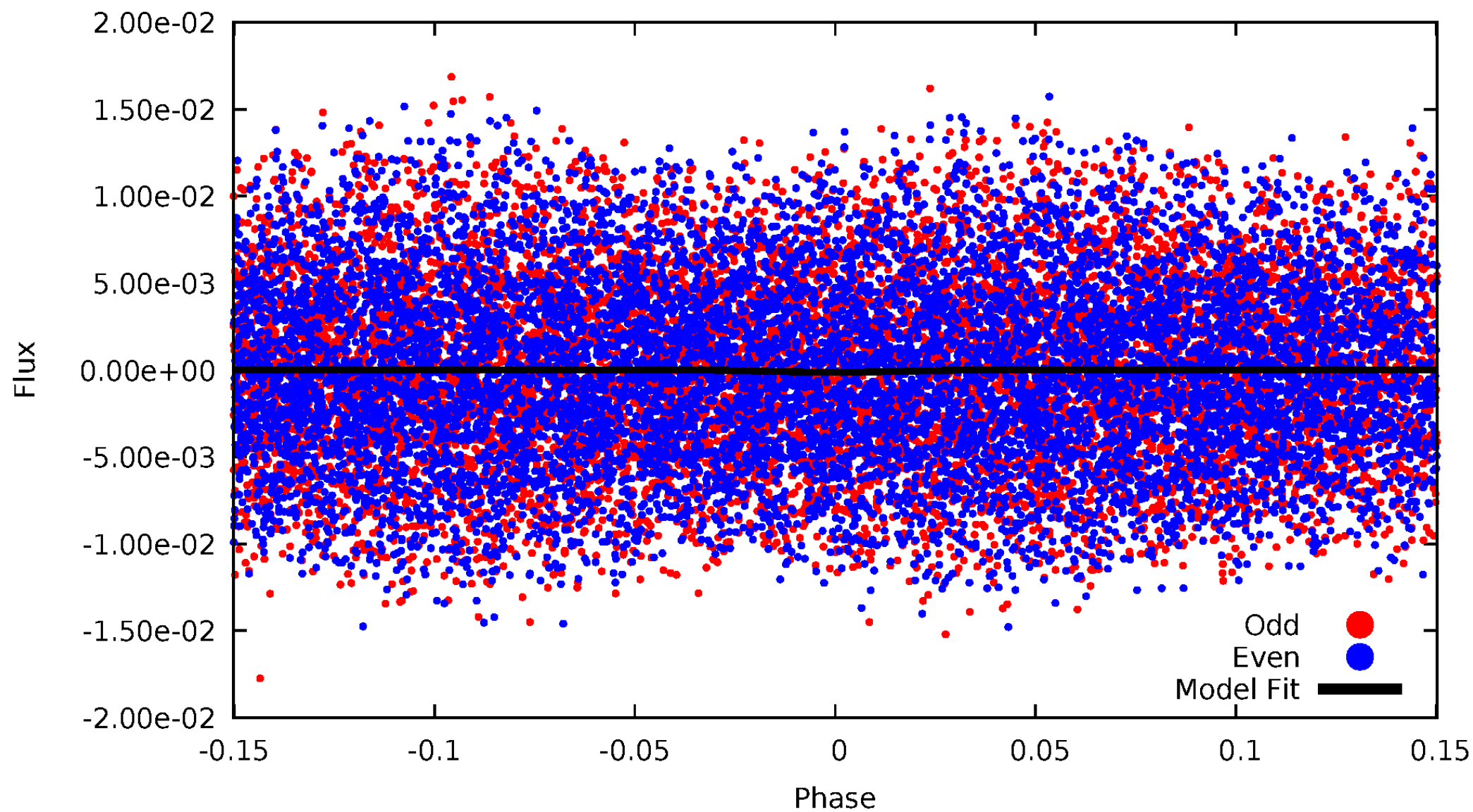
TCE 003446837-03





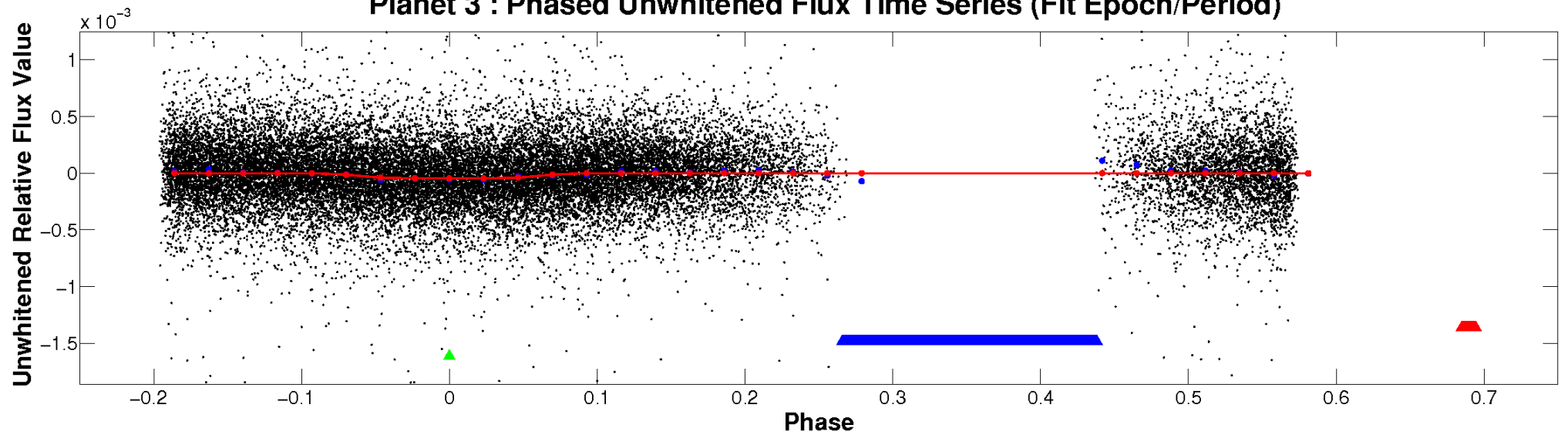
ALT Odd/Even

TCE 003446837-03

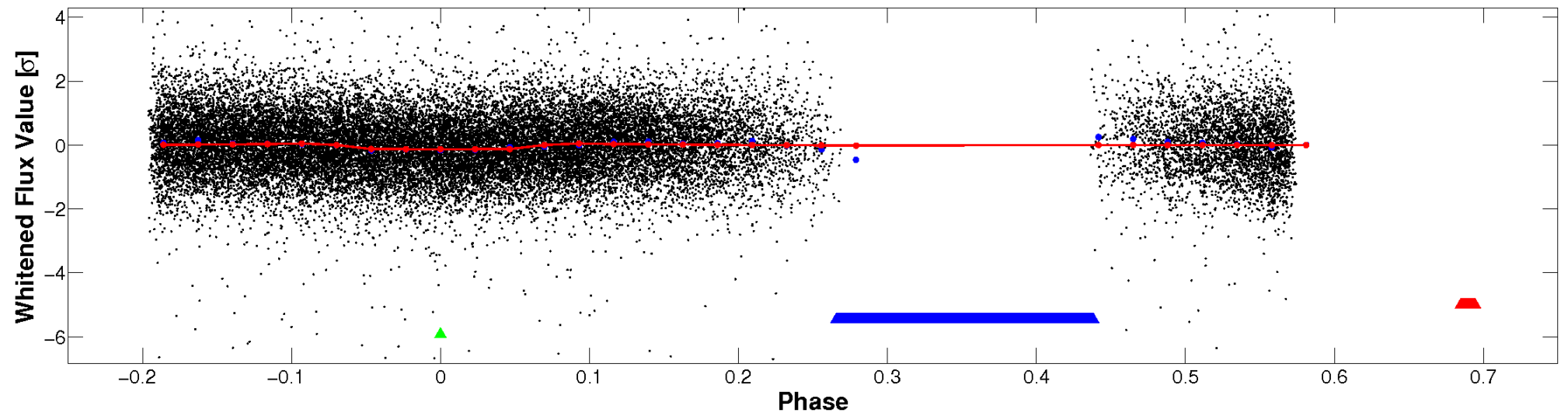


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

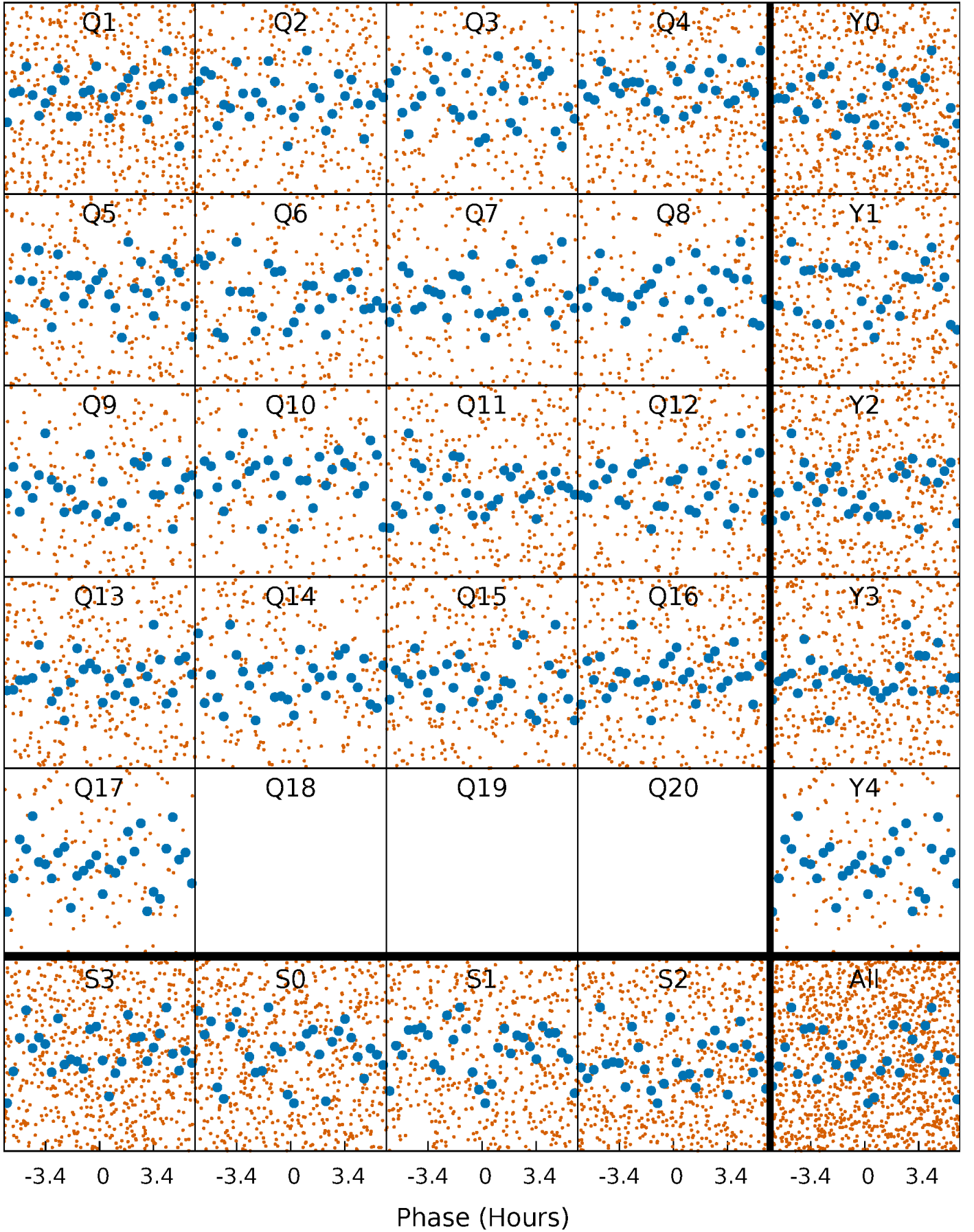


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



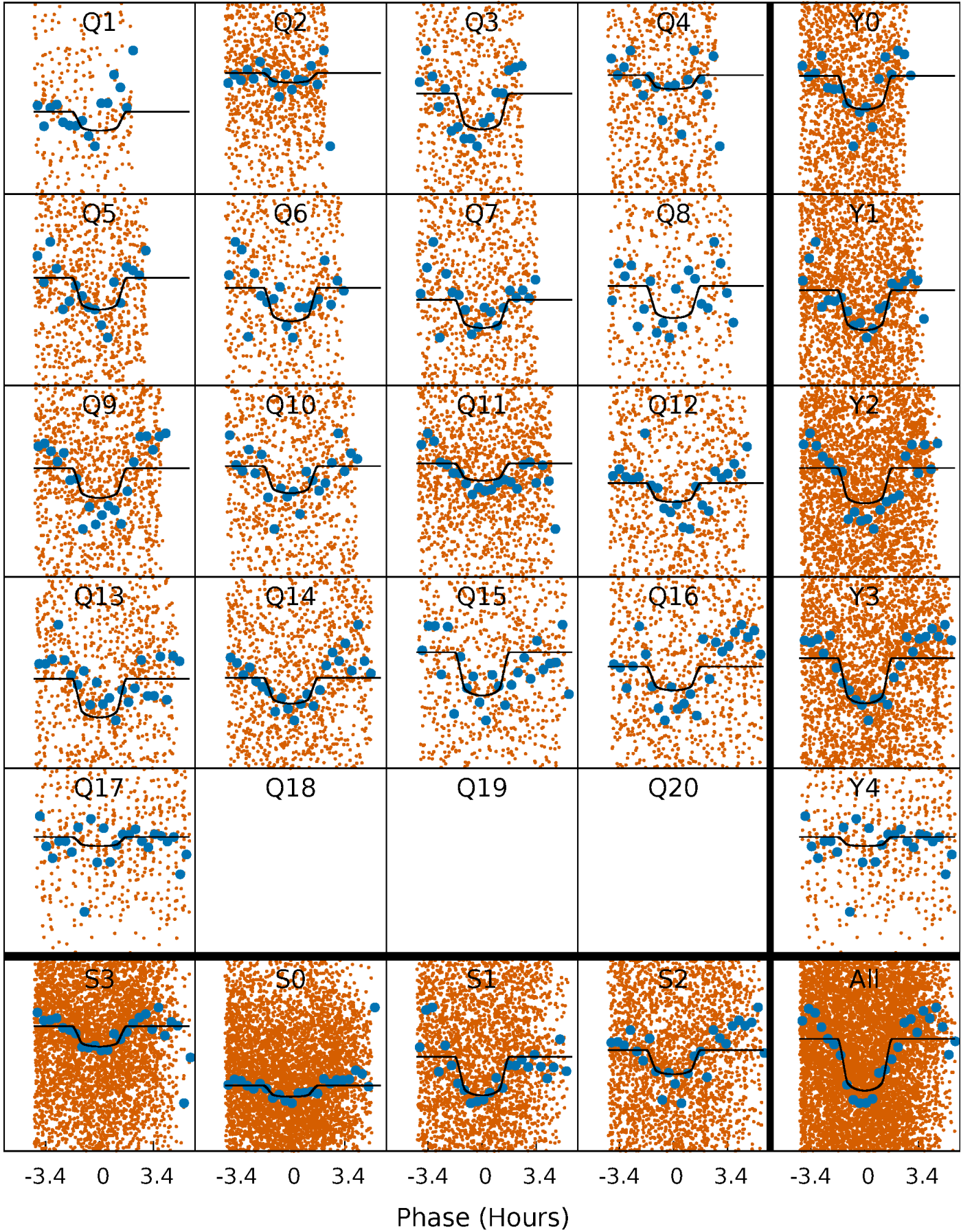
# PDC Quarter-Phased Transit Curves

TCE 003446837-03 P= 0.878997 Days  $T_0=131.876218$  (BKJD)



# DV Quarter-Phased Transit Curves

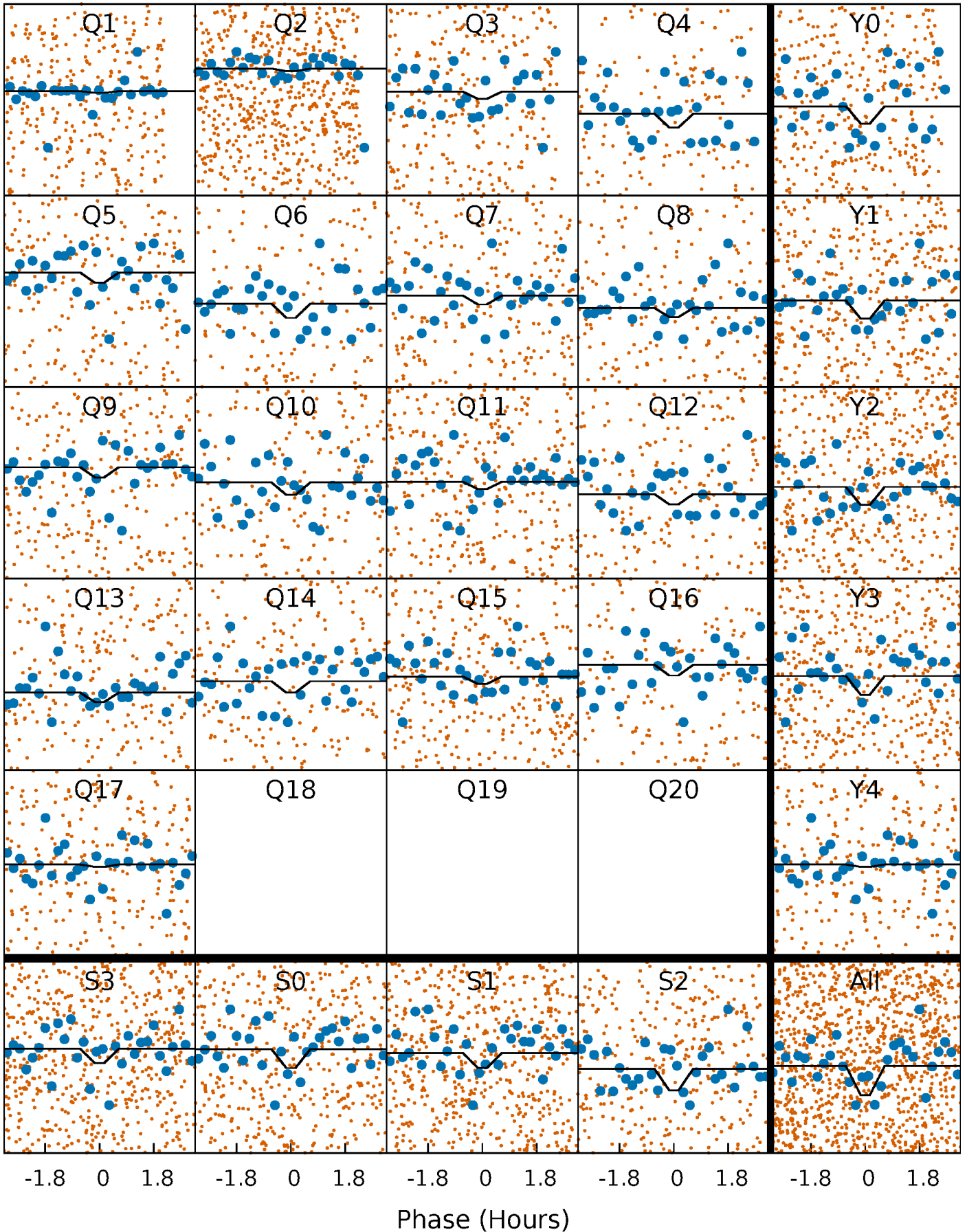
TCE 003446837-03   P= 0.878997 Days    $T_0=131.876218$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 003446837-03     $P = 0.879023$  Days     $T_0 = 131.873292$  (BKJD)

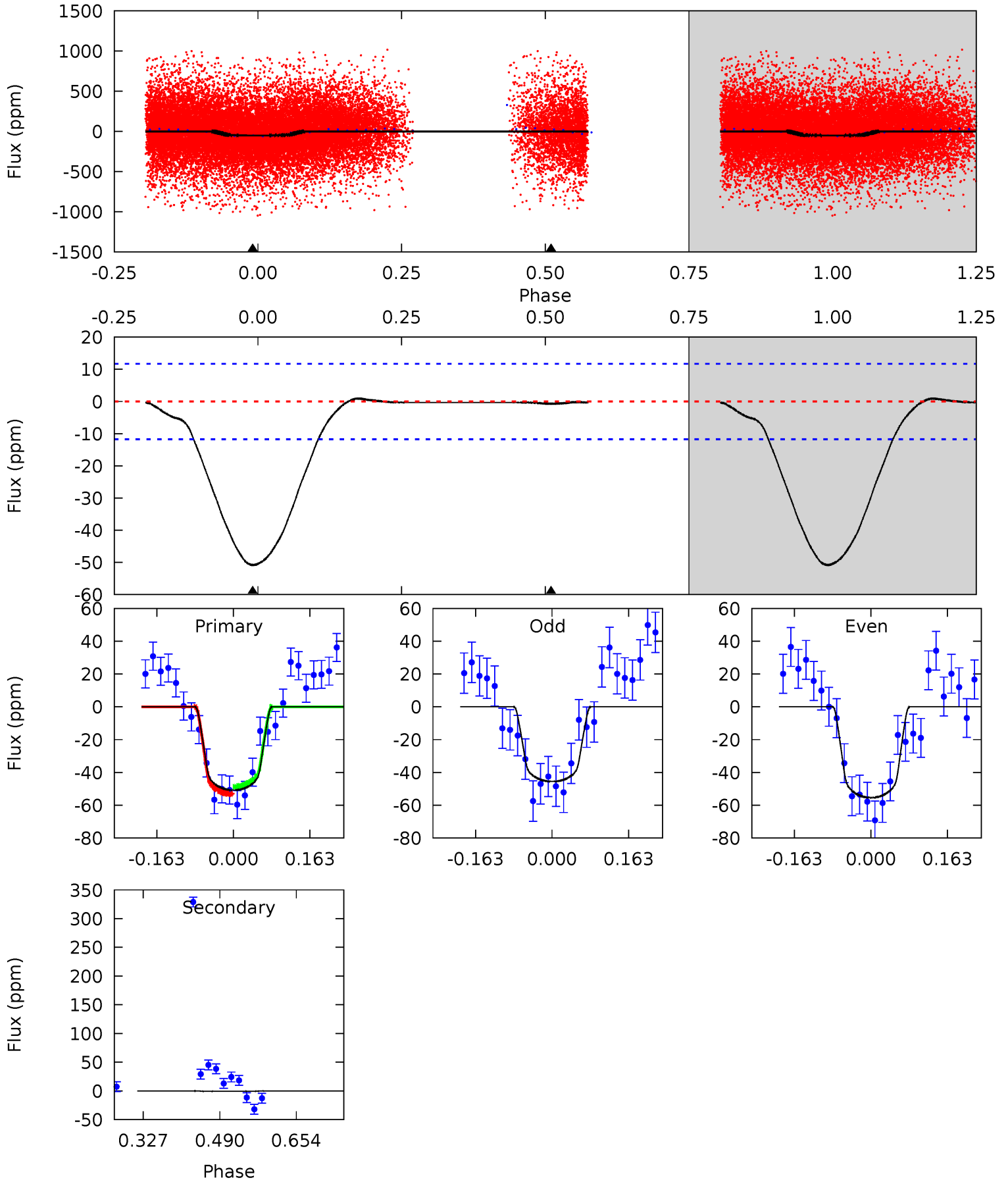




# DV Model-Shift Uniqueness Test

003446837-03, P = 0.878997 Days, E = 130.997221 Days

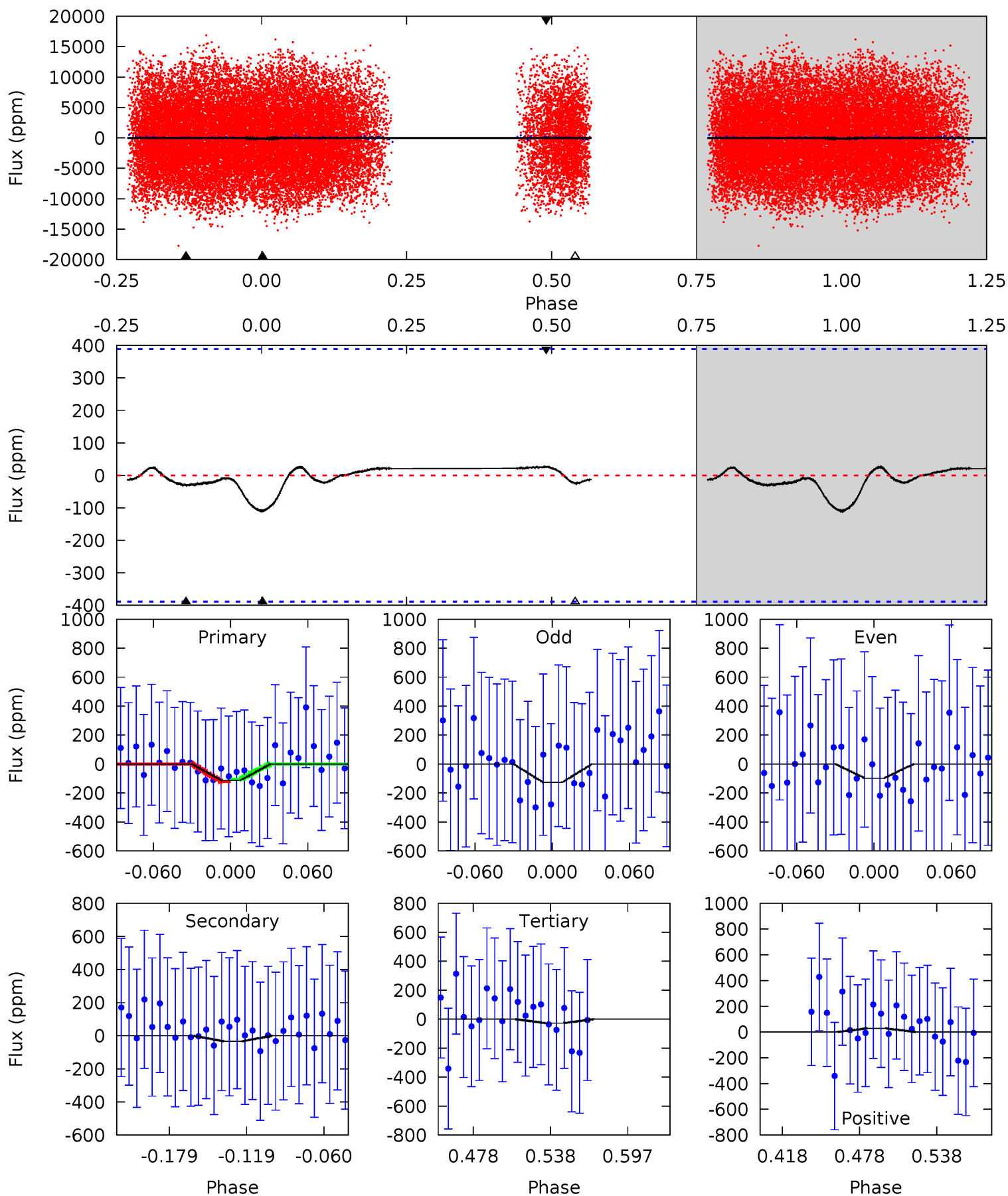
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	0.28	0	0	4.46	1.39	0.33	19.3	19.3	0.28	0.28	1.89	1.02	0.02	0.86



# Alt Model-Shift Uniqueness Test

003446837-03, P = 0.879023 Days, E = 130.994269 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
1.36	0.40	0.32	0.35	4.67	1.88	0.20	1.03	1.01	0.08	0.05	0.17	0.51	0.20	0.09



### Stellar Parameters For KIC 003446837

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6623^{+185}_{-255}$	$4.011^{+0.258}_{-0.172}$	$0.140^{+0.200}_{-0.350}$	$2.018^{+0.616}_{-0.678}$	$1.521^{+0.200}_{-0.325}$	$0.261^{+0.451}_{-0.128}$
	+3%/-4%	+6%/-4%	+143%/-250%	+31%/-34%	+13%/-21%	+173%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 003446837-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1 \pm 3$	$1.67^{+0.41}_{-0.44}$	$3994^{+346}_{-345}$	$-3575^{+1553}_{-457}$	$0.049^{+0.248}_{-0.210}$
Alt.	$-33 \pm 83$	$2.32^{+0.55}_{-0.47}$	$3985^{+314}_{-317}$	$4470^{+2186}_{-10125}$	$1.180^{+4.555}_{-3.529}$

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

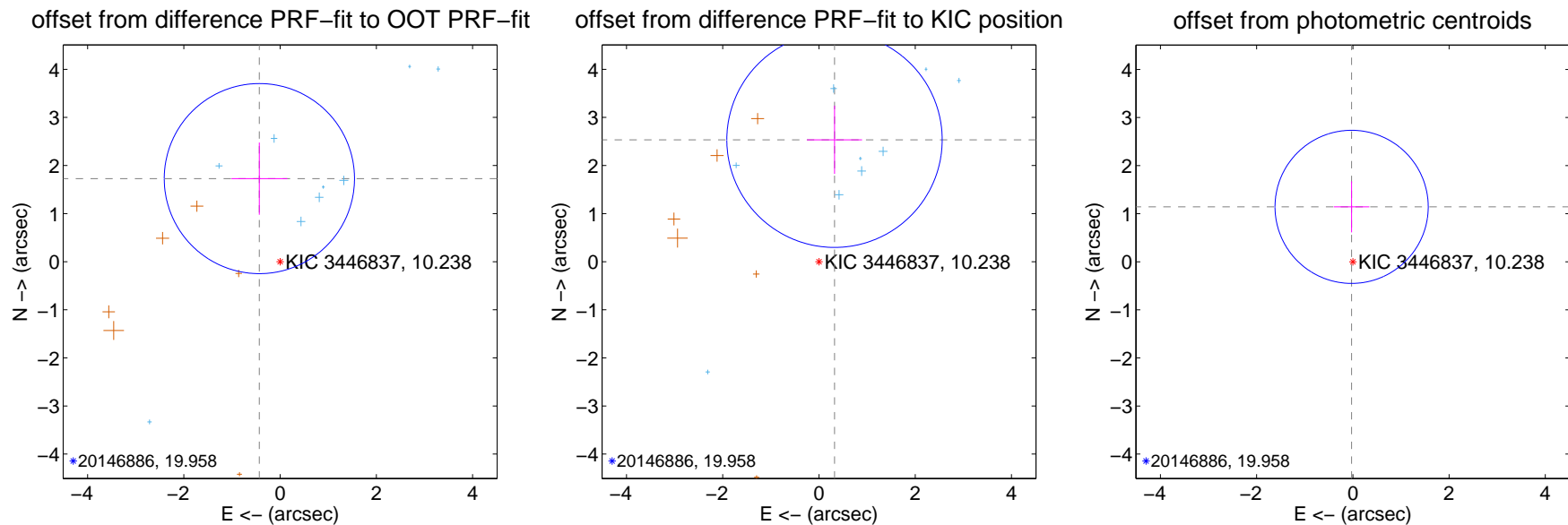
## DV Centroid Data

Supplemental centroid analysis for 003446837-03. **Kepler magnitude: 10.24.** Transit SNR 11.62

There are 9 quarters with good PRF difference image offsets

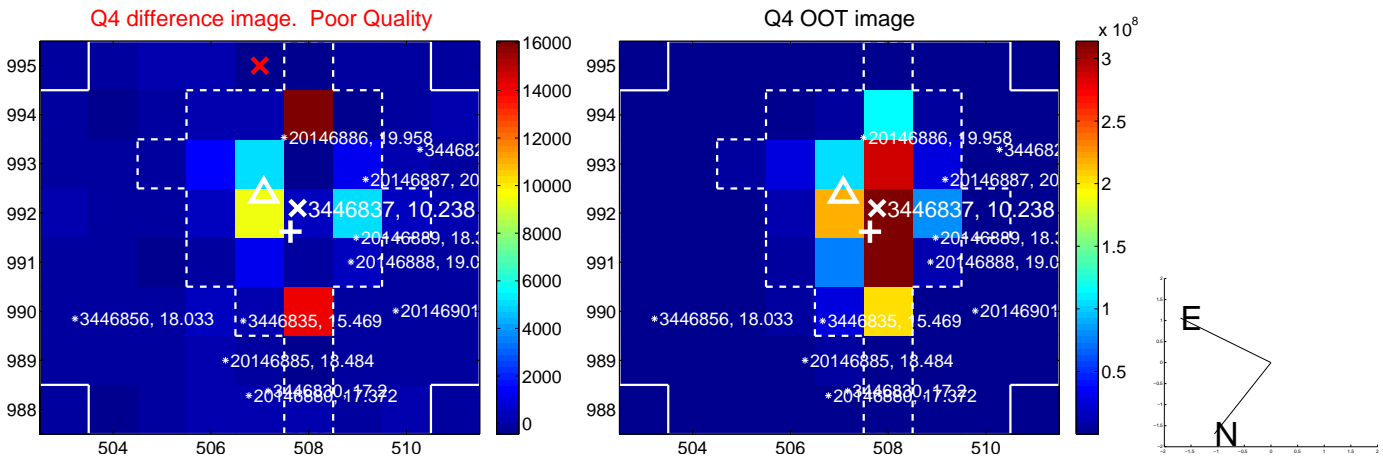
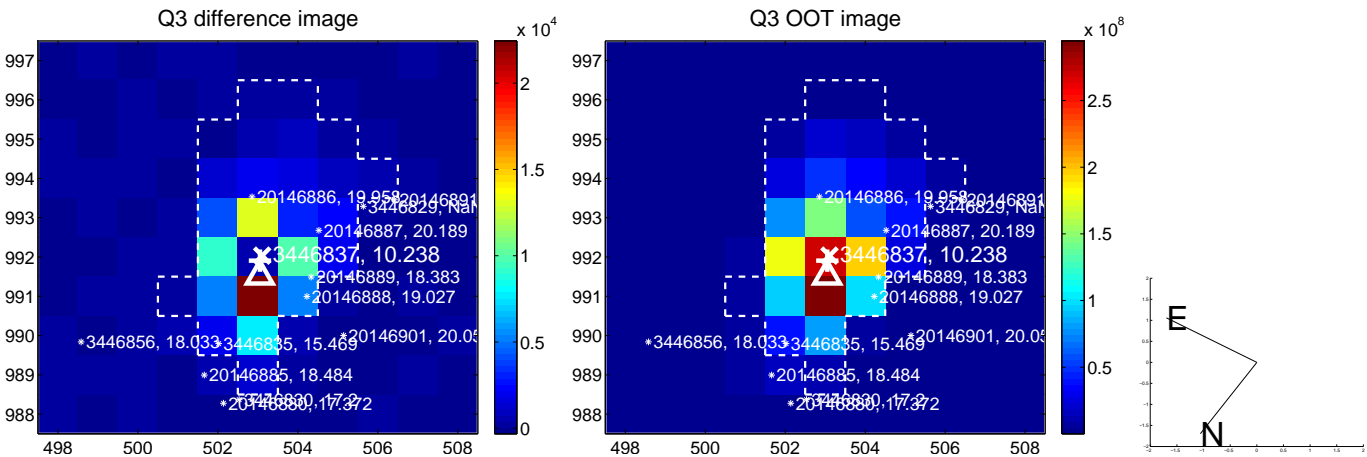
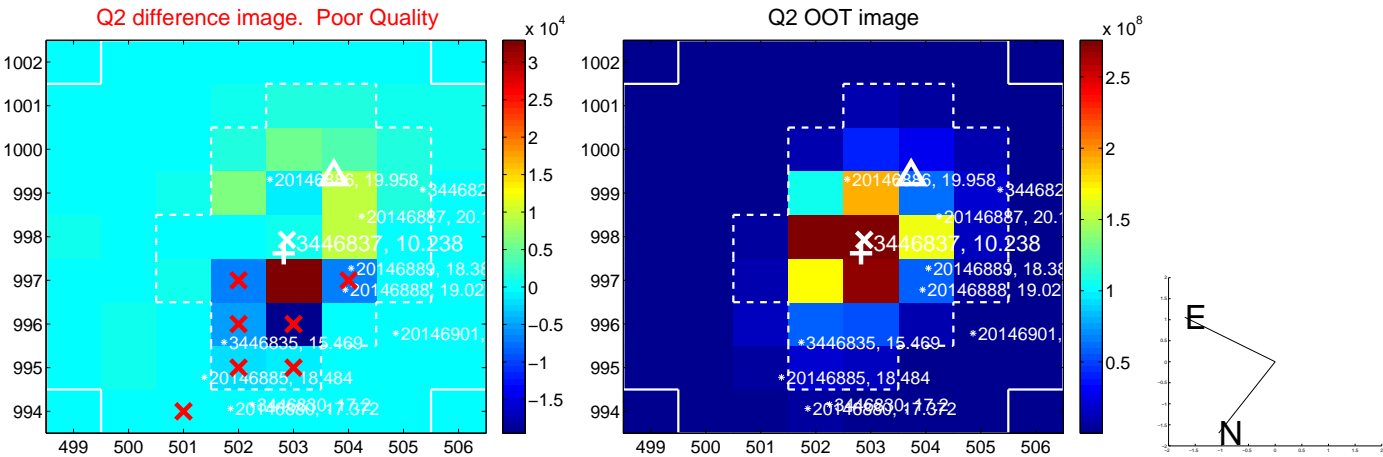
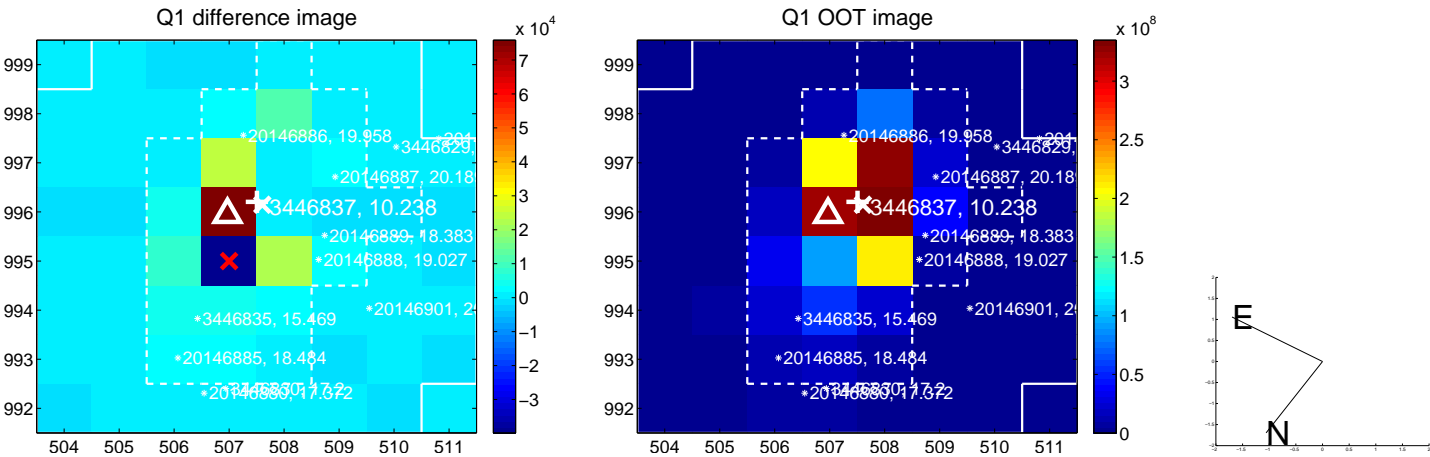
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.780 \pm 0.659$	2.70	$0.431 \pm 0.581$	$1.728 \pm 0.751$
PRF-fit source offset from KIC position	<b><math>2.554 \pm 0.746</math></b>	<b>3.43</b>	$-0.322 \pm 0.572$	$2.534 \pm 0.709$
photometric centroid source offset	$1.14 \pm 0.53$	2.15	$0.03 \pm 0.37$	$1.14 \pm 0.53$



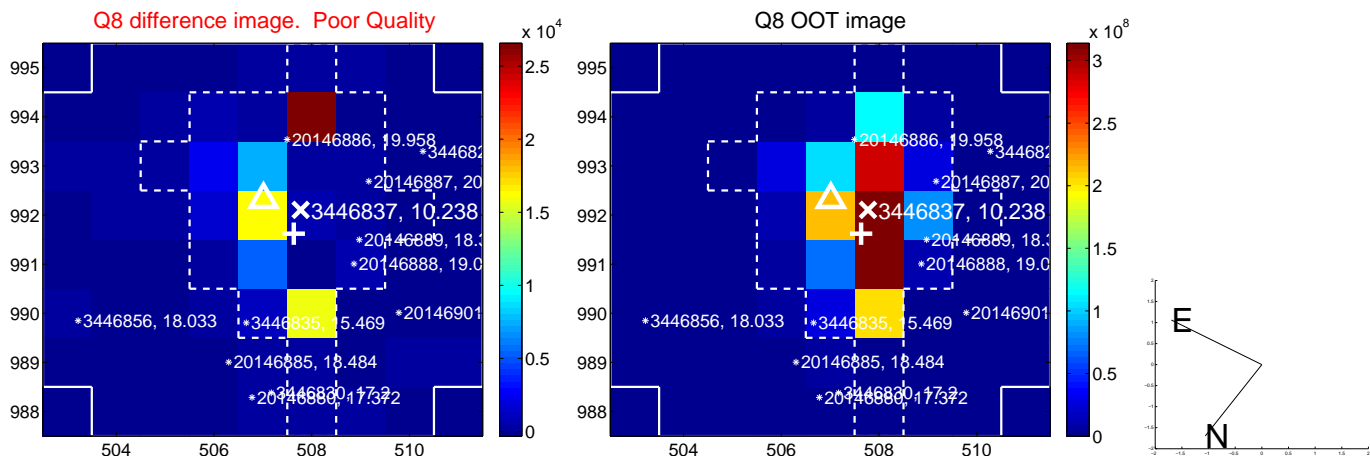
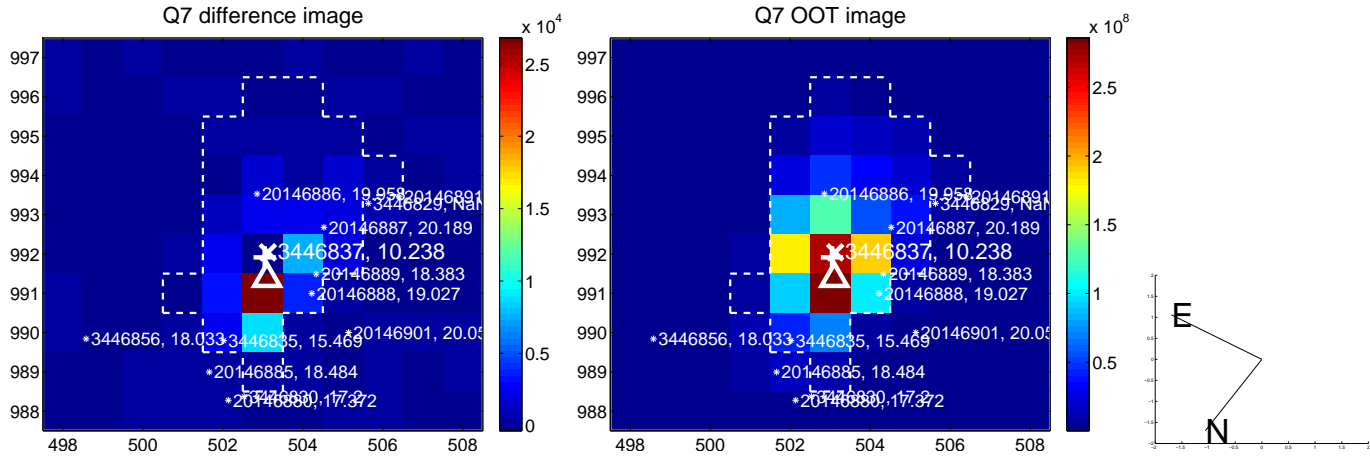
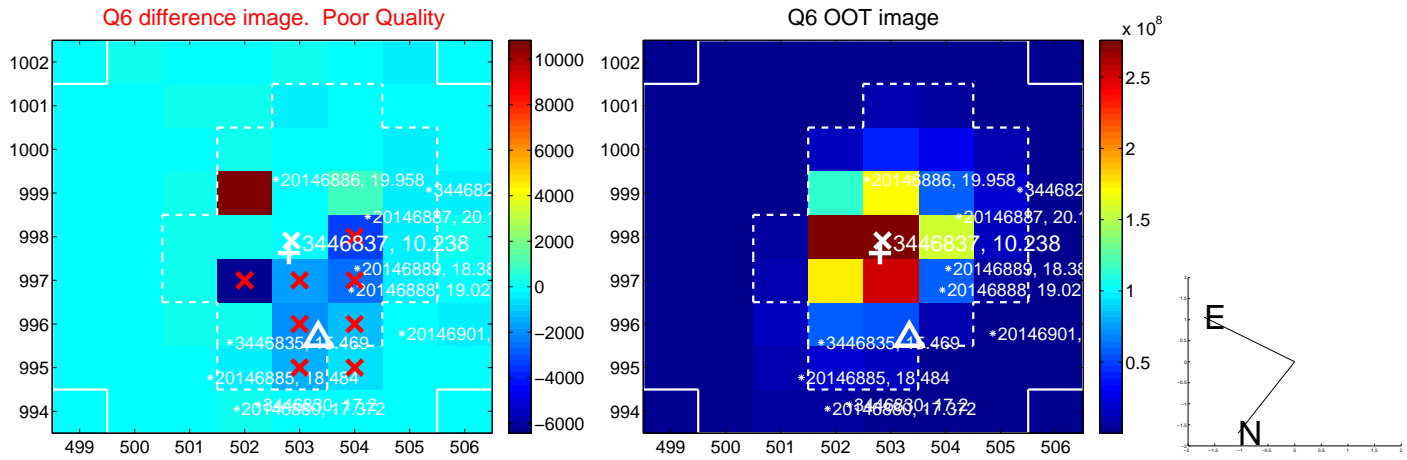
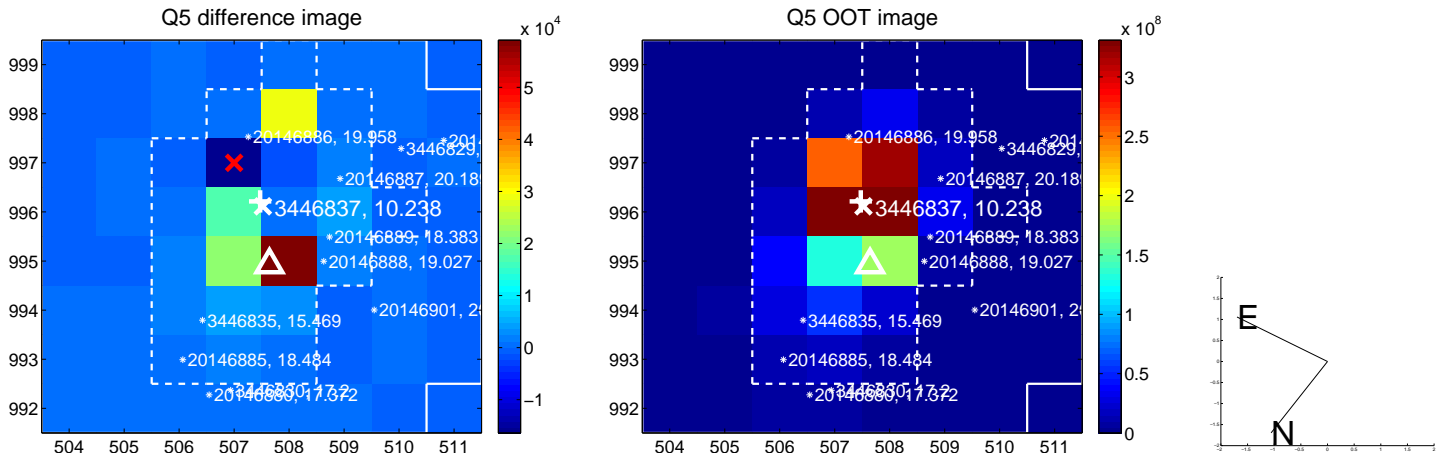
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

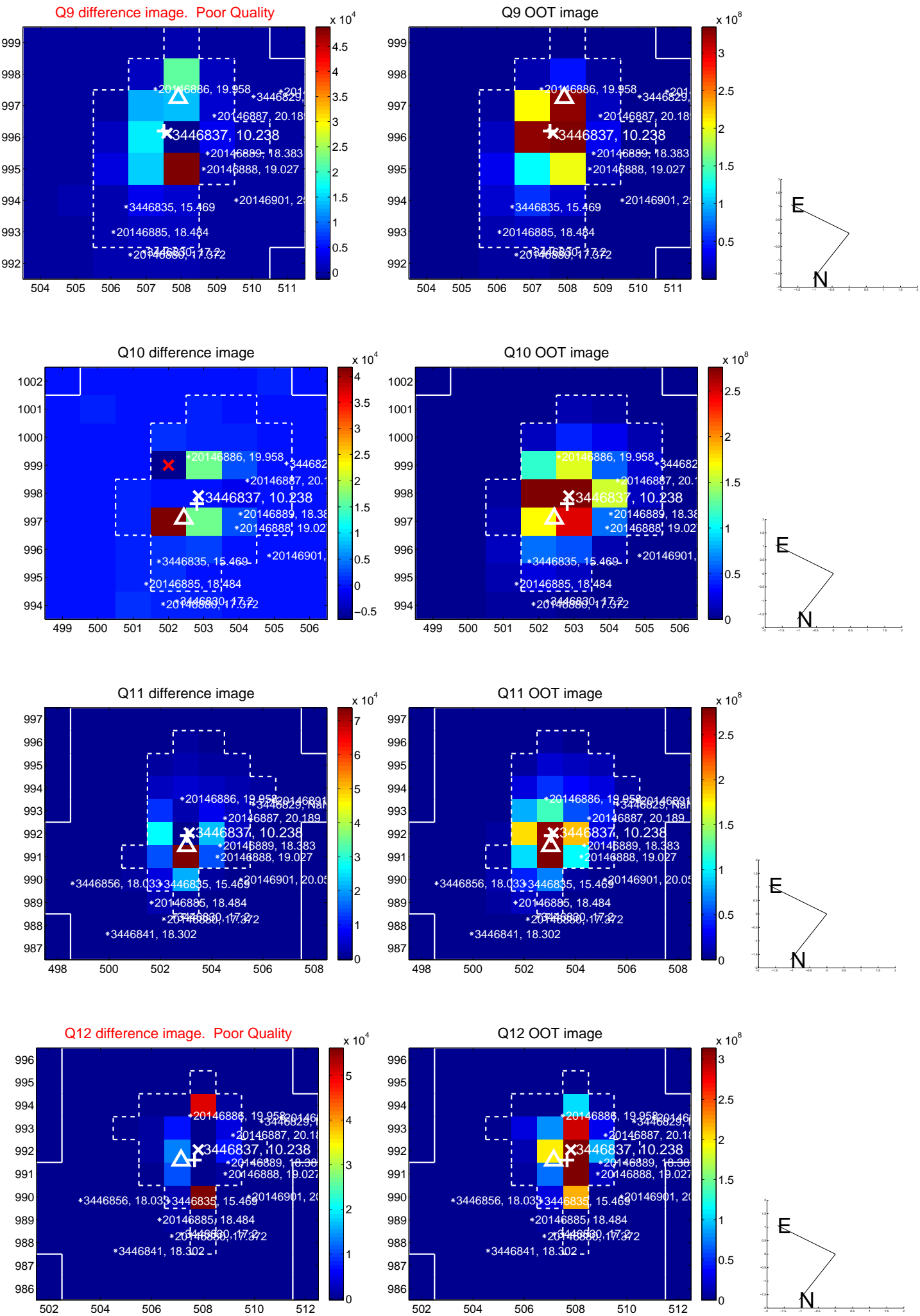




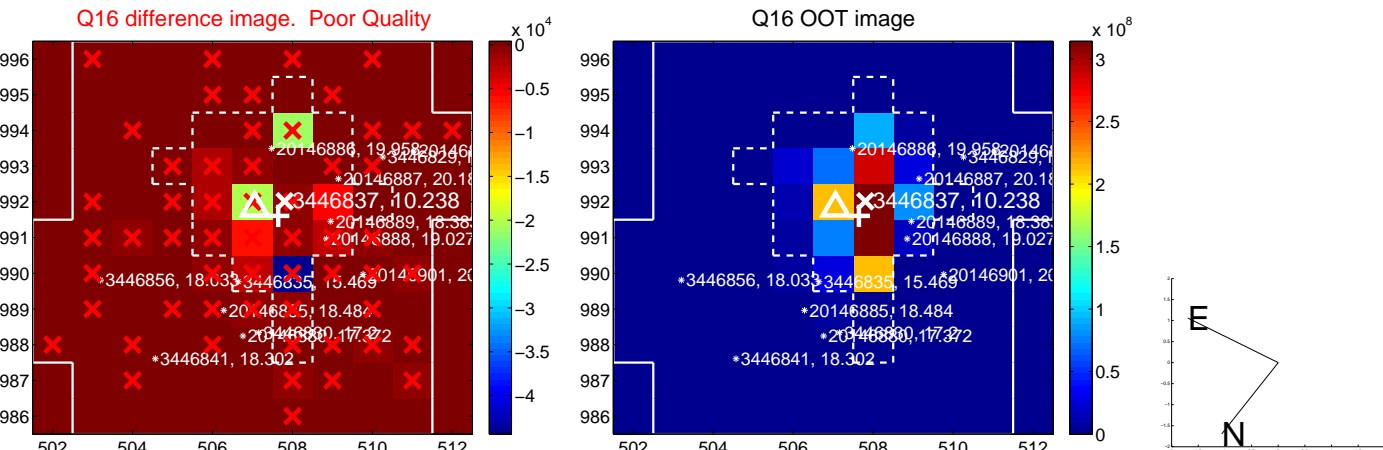
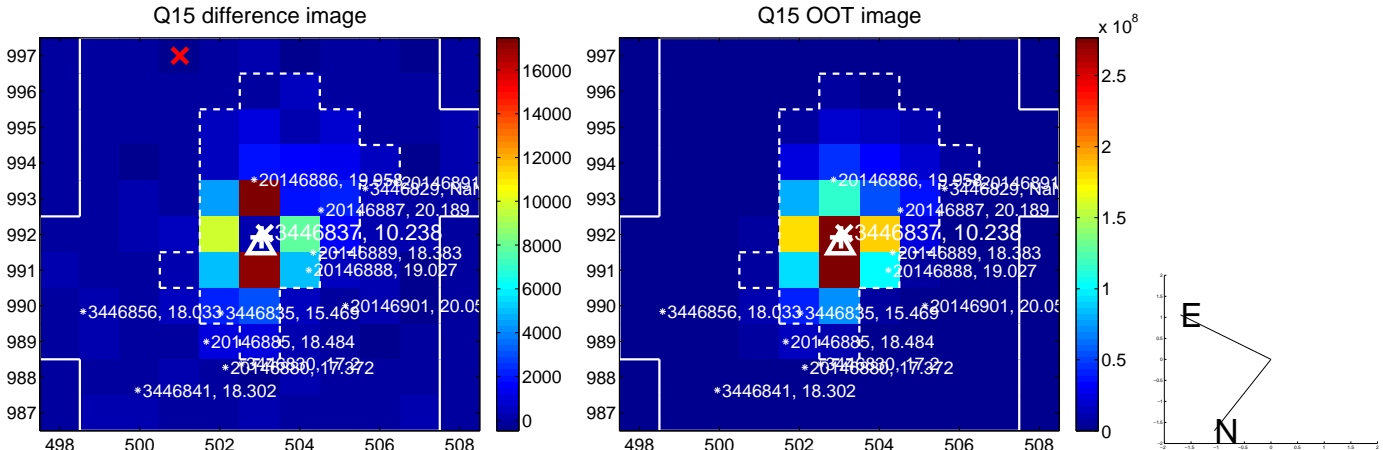
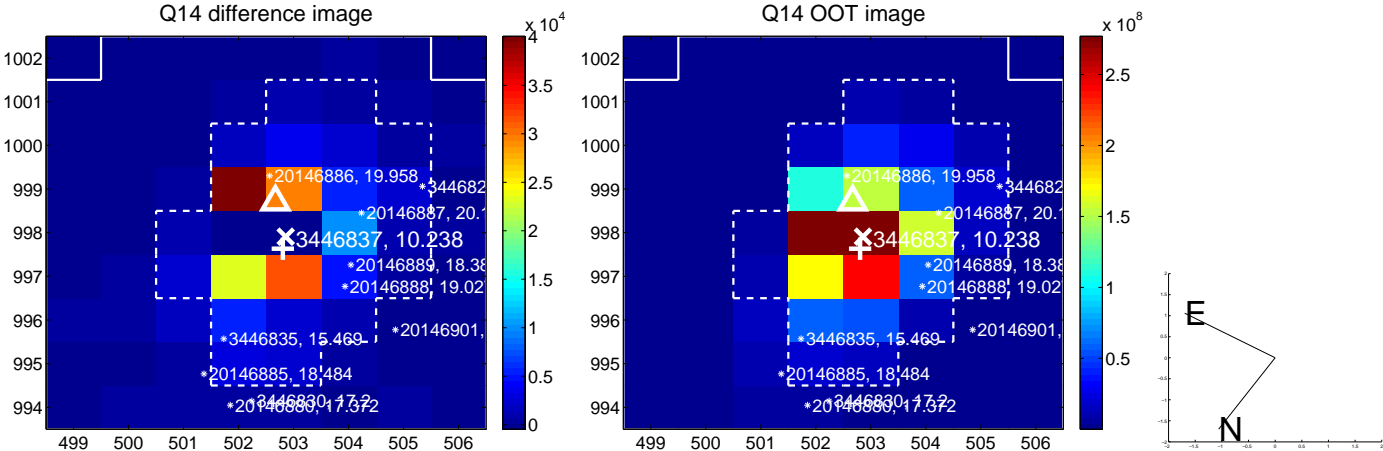
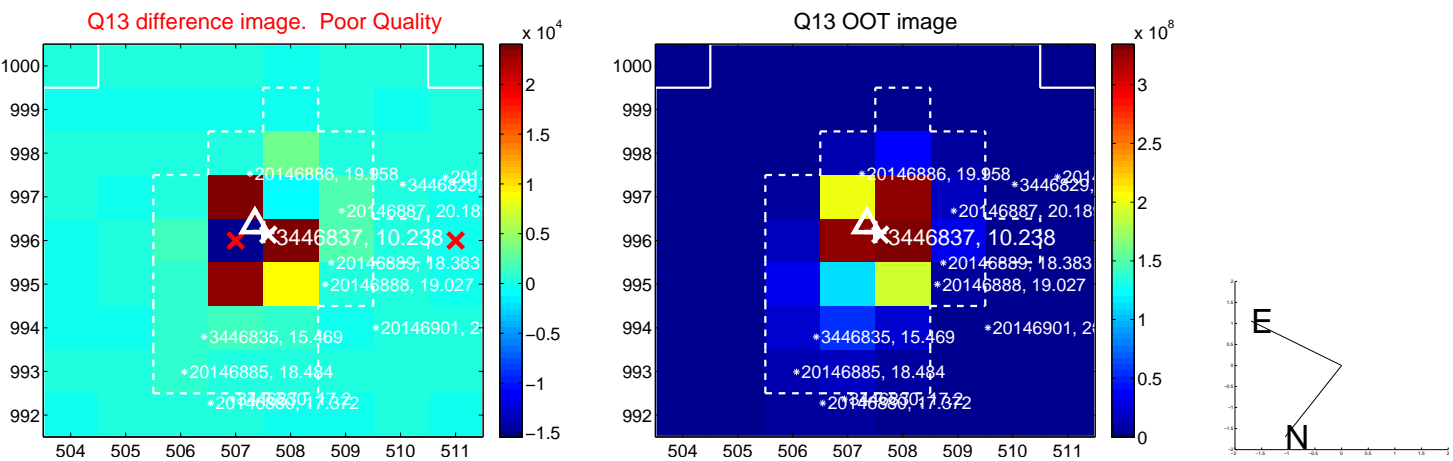
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



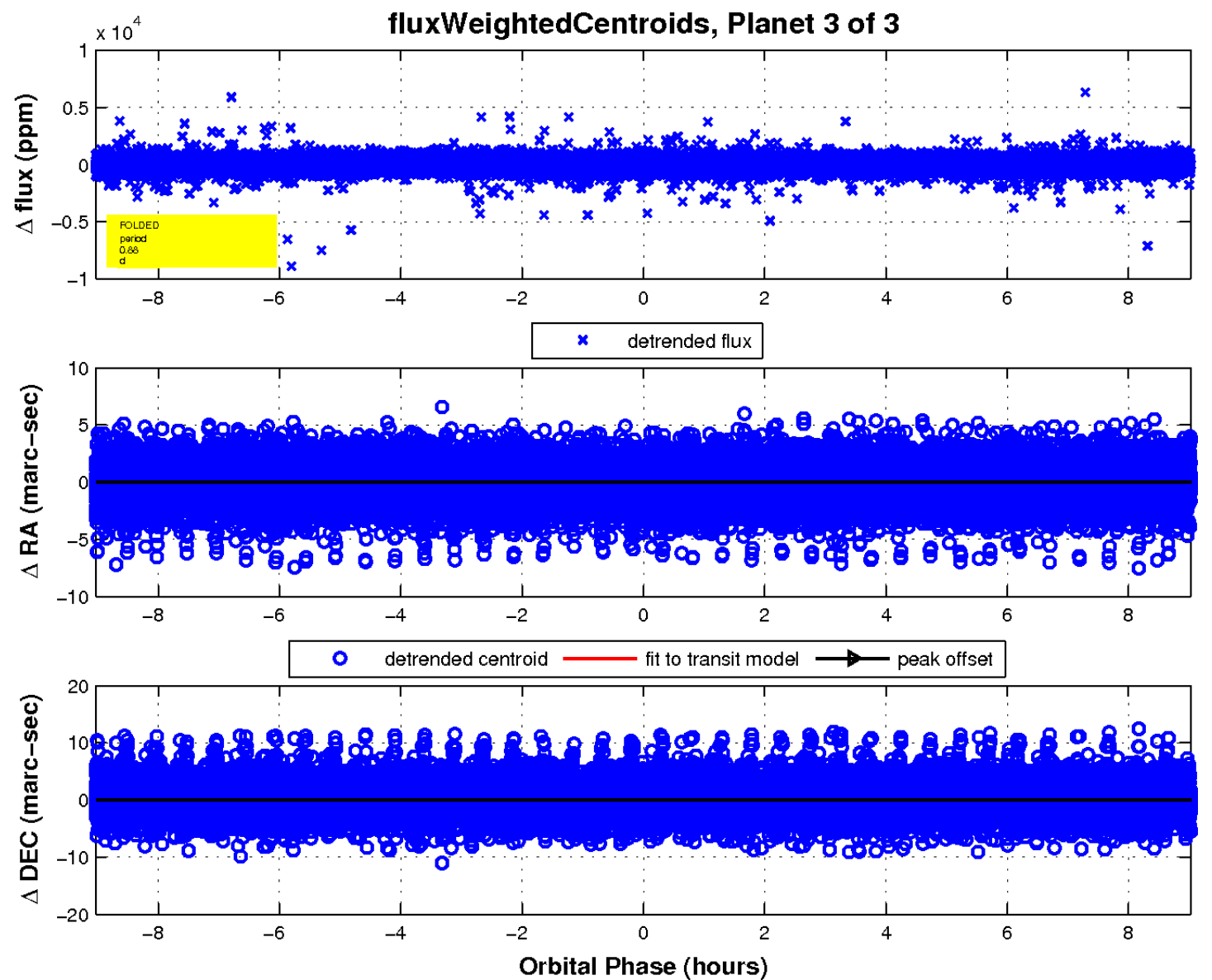
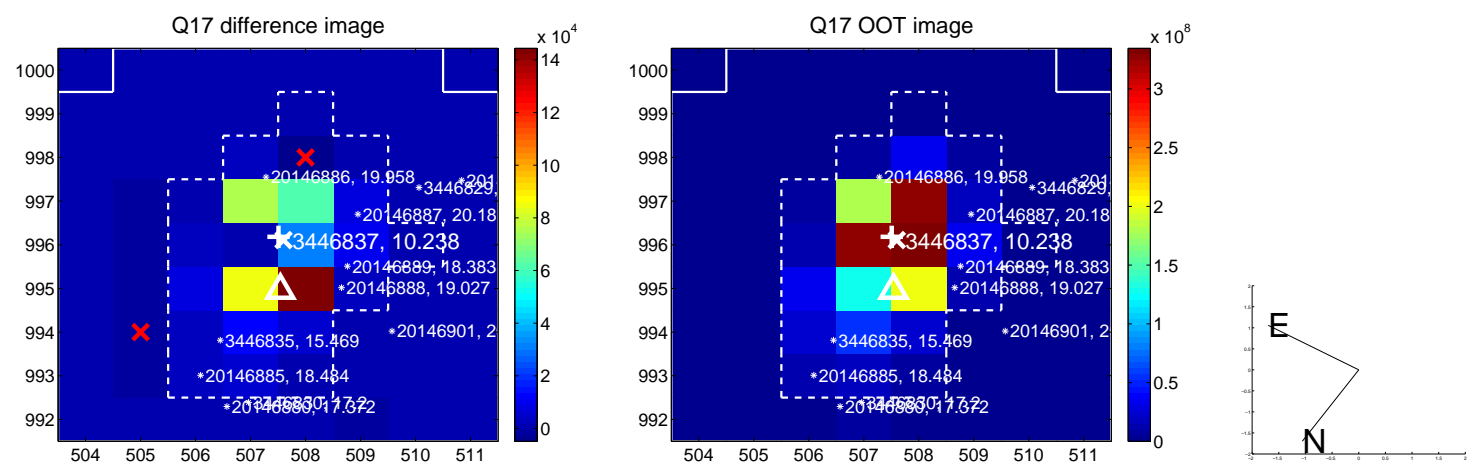
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

