

# KIC 006862333

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006862333-01	OBS	No	3.492383	134.710298	26.8	9.080	7.9	6.7	1.82	7379	1.07	3253.06
006862333-02	OBS	No	495.897800	144.136745	370.9	9.578	10.8	8.5	1.82	7379	3.91	4.39
006862333-03	OBS	No	0.611041	132.053934	25.9	6.260	8.7	11.7	1.82	7379	0.93	33242.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006862333-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006862333-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006862333-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

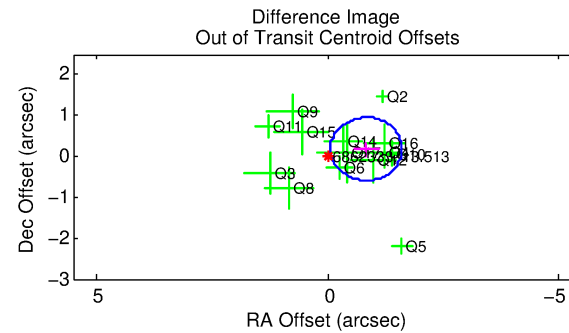
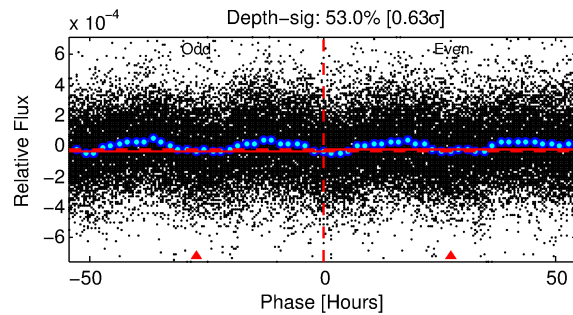
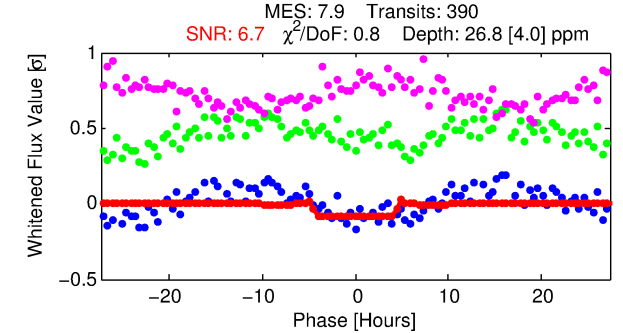
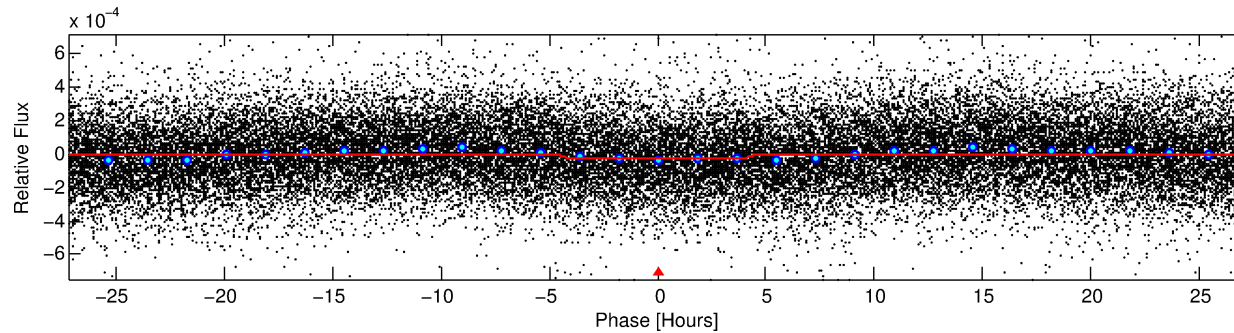
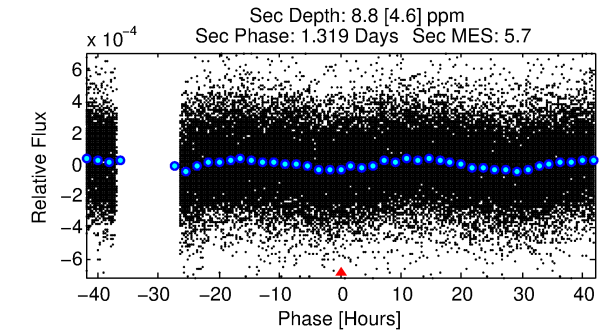
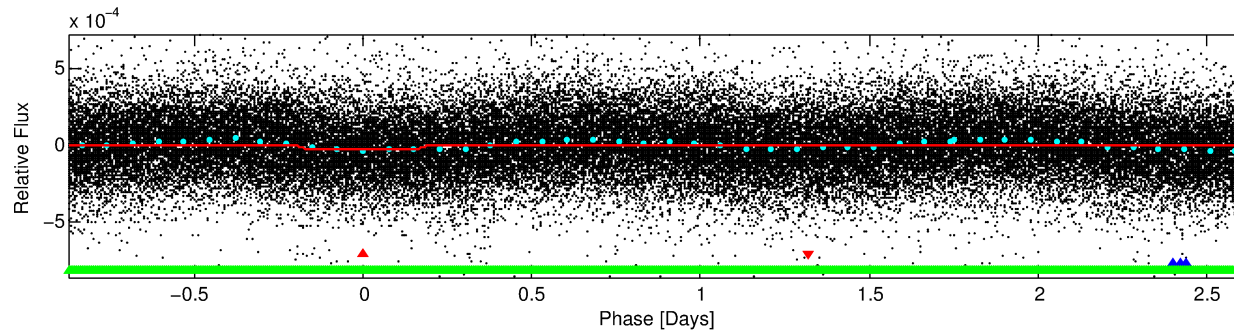
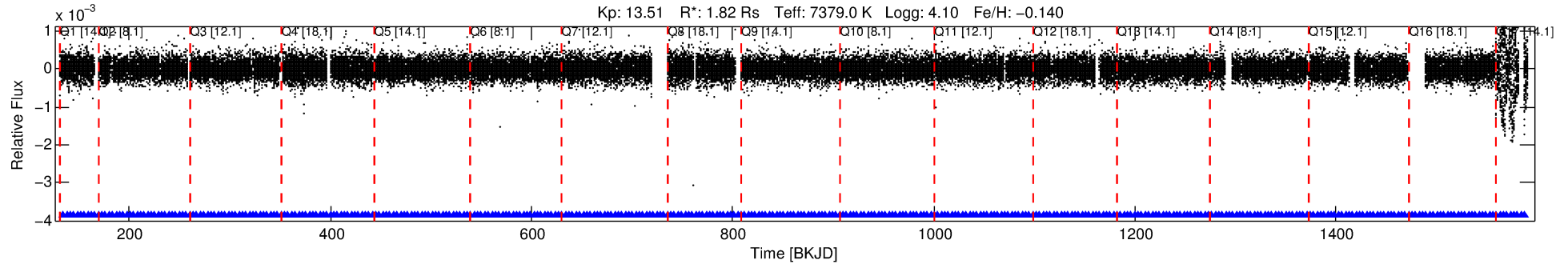
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006862333-01

No Significant Match Found

# DV One-Page Summary

KIC: 6862333 Candidate: 1 of 3 Period: 3.492 d



## DV Fit Results:

Period = 3.49238 [0.00005] d  
Epoch = 134.7103 [0.0083] BKJD  
Rp/R\* = 0.0054 [0.0013]  
a/R\* = 1.73 [1.56]  
b = 0.87 [0.37]  
Seff = 3253.06 [1265.13]  
Teq = 1926 [187] K  
Rp = 1.07 [0.40] Re  
a = 0.0519 [0.0124] AU  
Ag = 11.27 [8.84] [1.16σ]  
Teffp = 5456 [991] K [3.50σ]

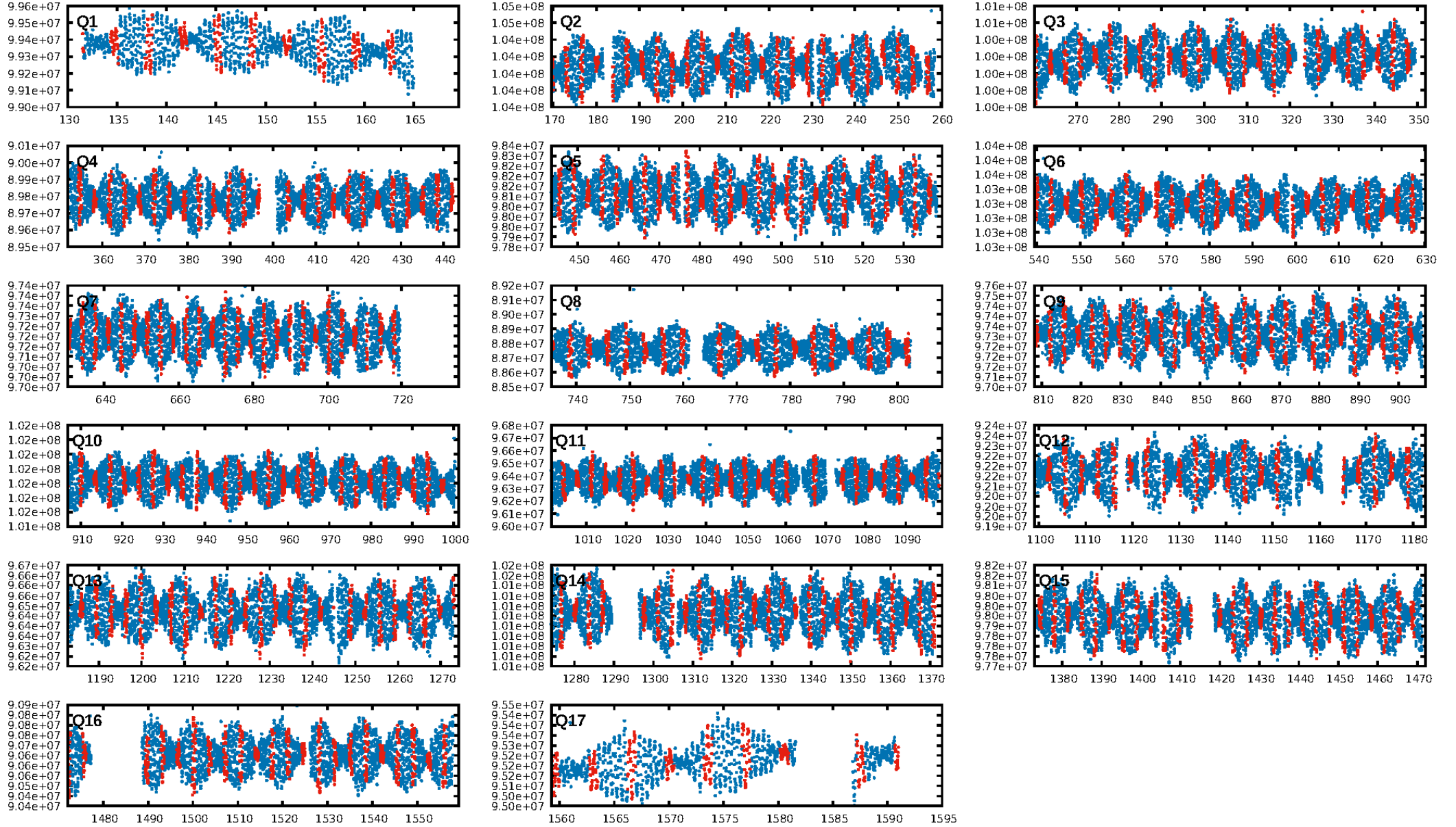
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.27σ]  
LongPeriod-sig: 100.0% [895.39σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [372/372]  
GhostDiagnostic-chr: 1.22  
Centroid-sig: 57.7%  
Centroid-so: 0.510 arcsec [0.55σ]  
OotOffset-rm: 0.853 arcsec [3.32σ]  
KicOffset-rm: 0.770 arcsec [2.86σ]  
OotOffset-st: 4/3/4/3 [14]  
KicOffset-st: 4/3/4/3 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:39:59 Z

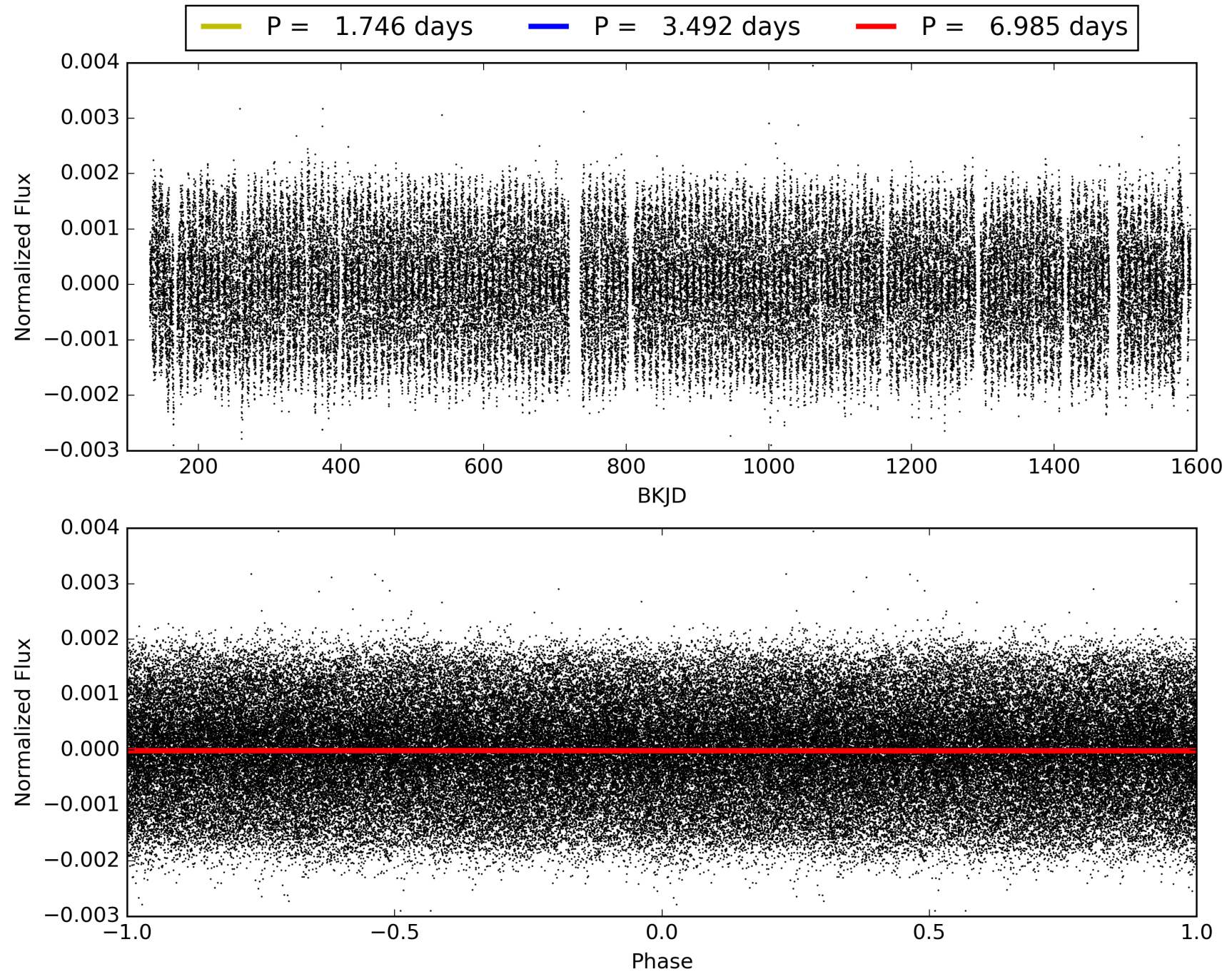
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006862333-01, PDC Light Curves





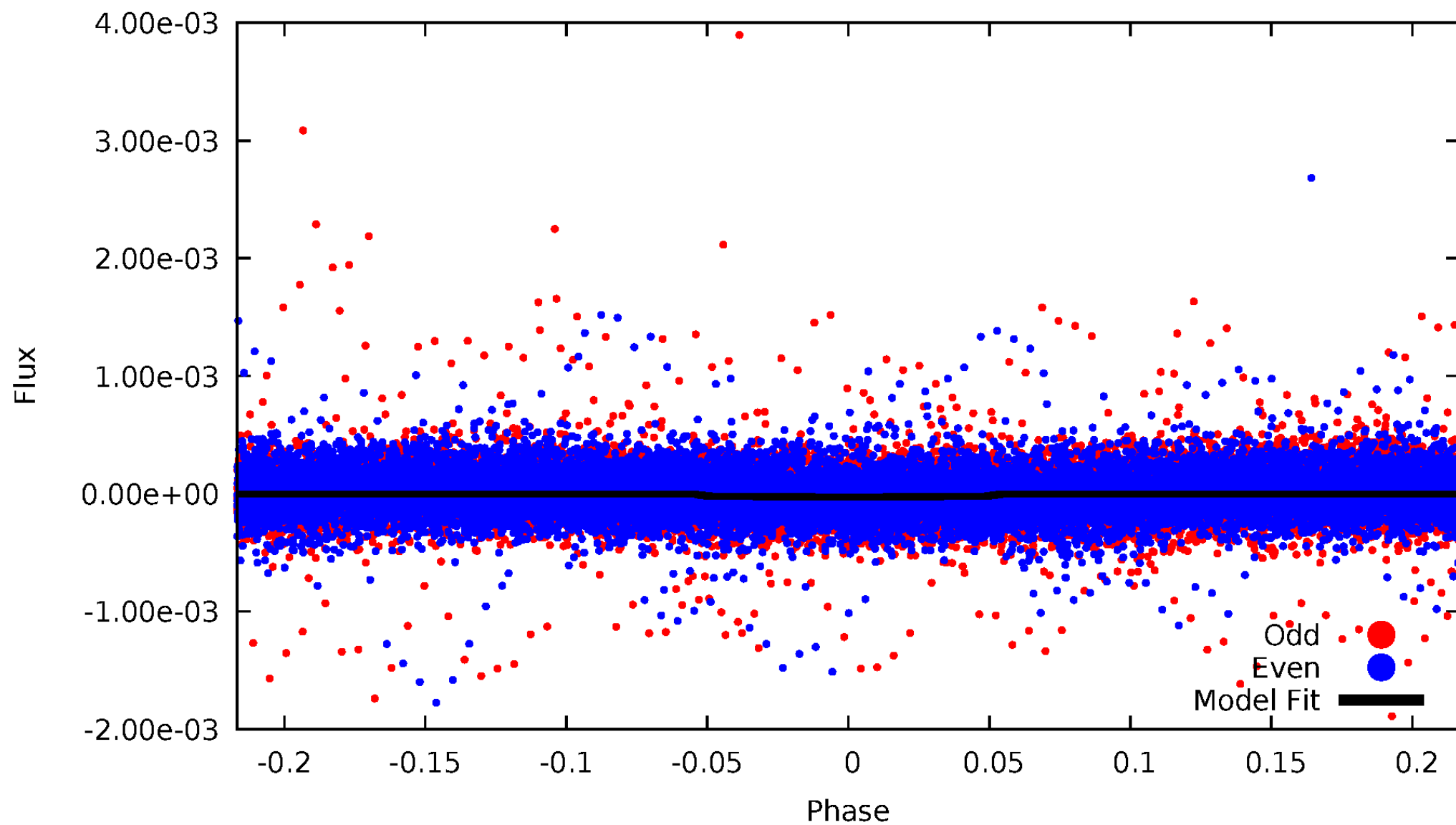
TCE 006862333-01





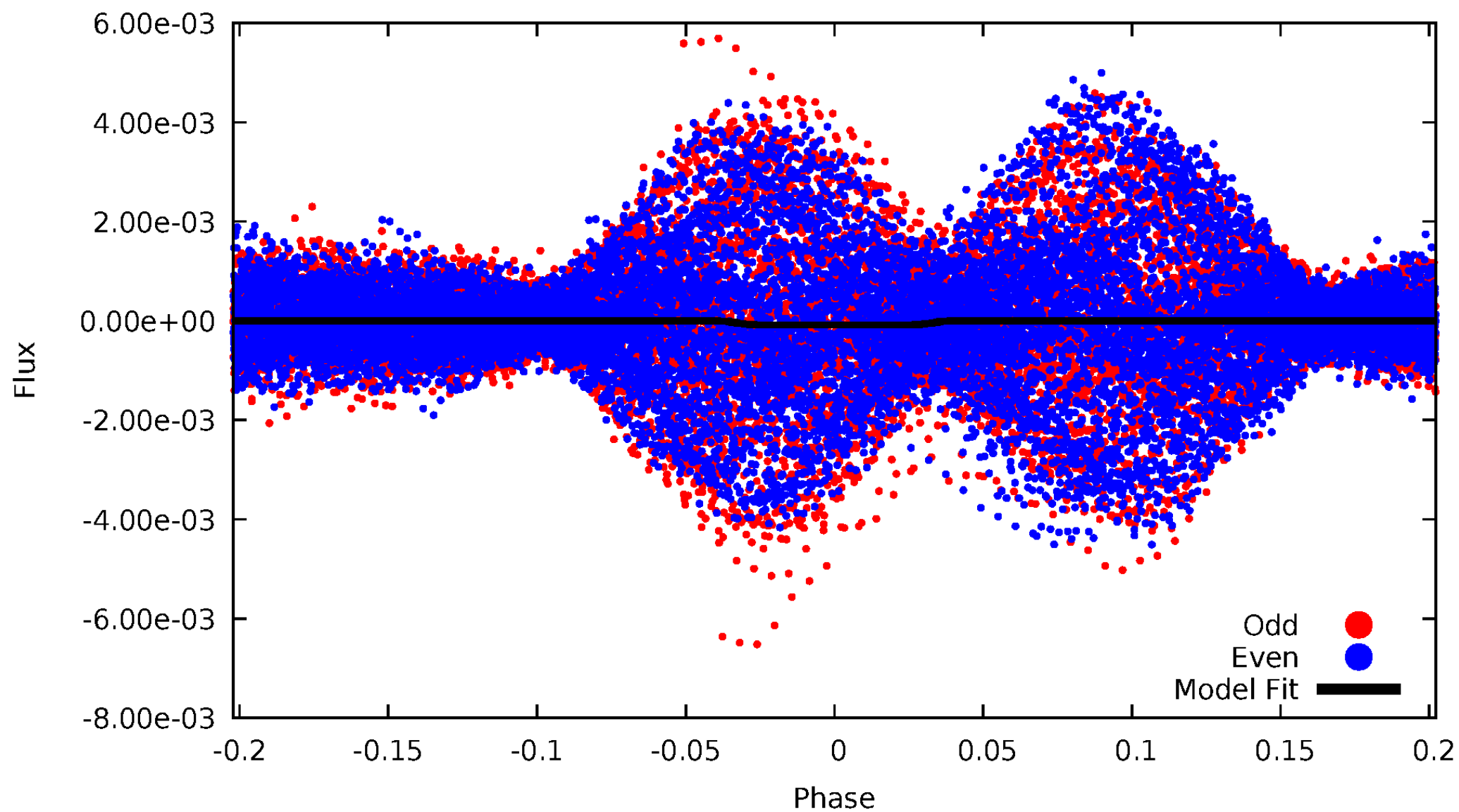
# DV Odd/Even

TCE 006862333-01



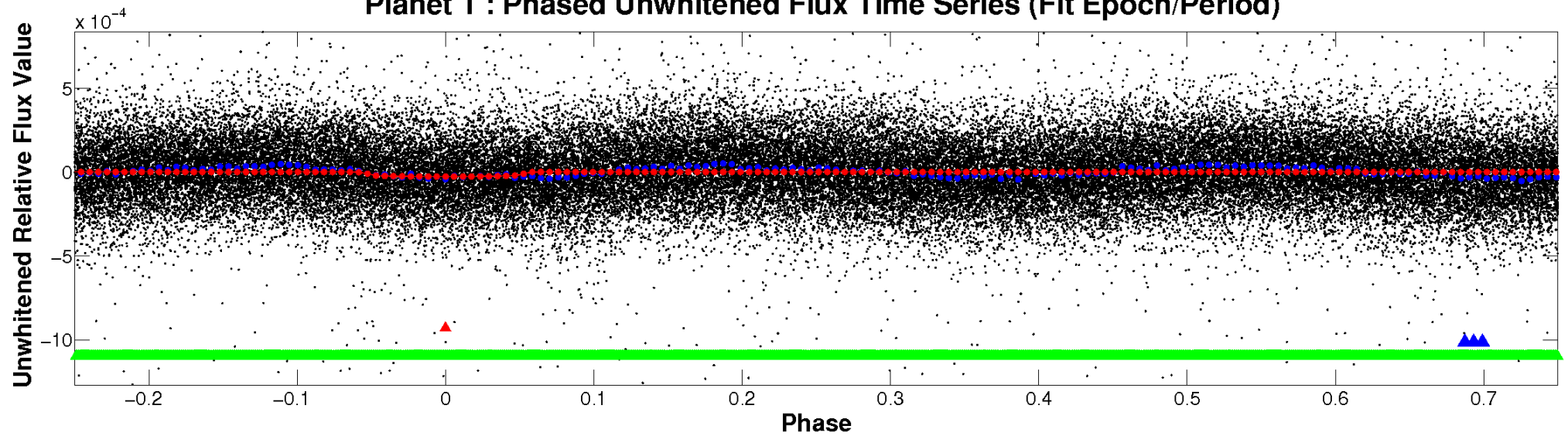
# ALT Odd/Even

TCE 006862333-01

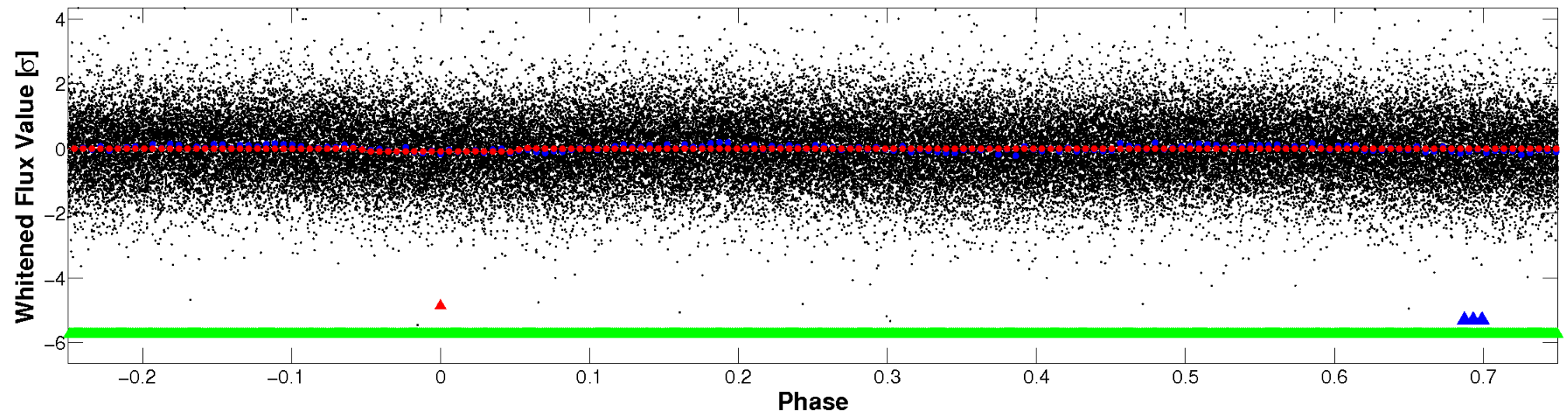


# Non-Whitened Vs. Whitened Light Curve

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



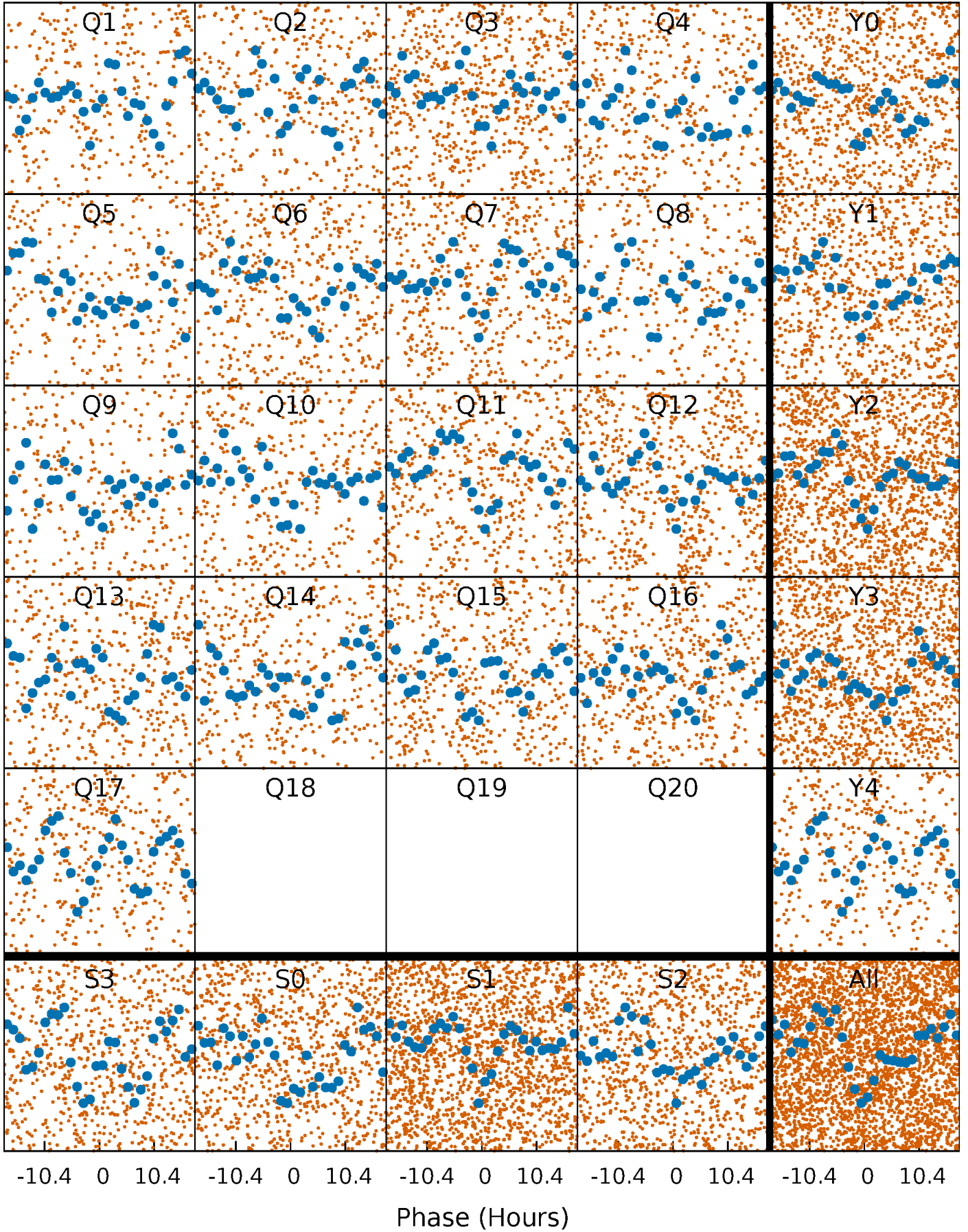
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





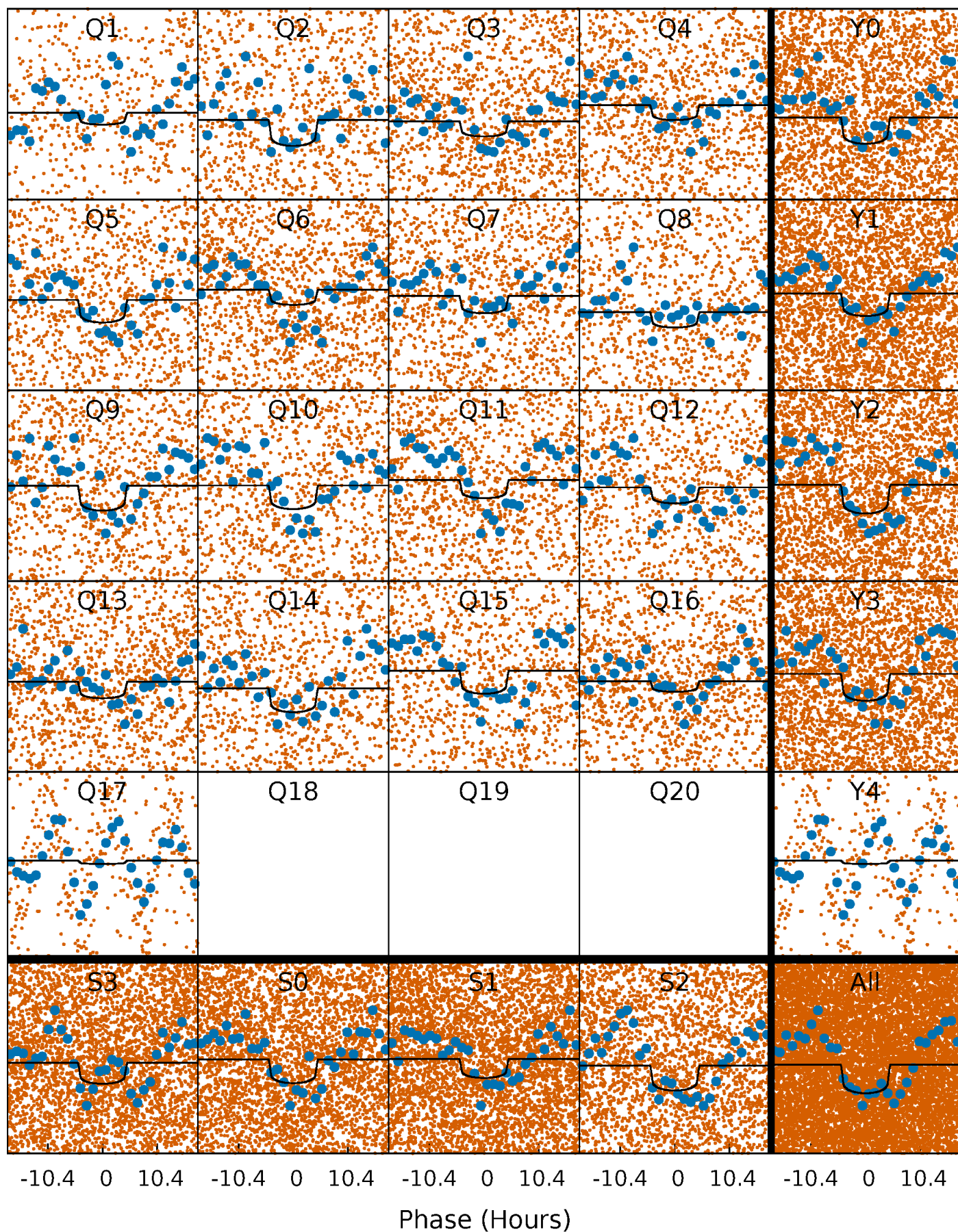
# PDC Quarter-Phased Transit Curves

TCE 006862333-01     $P = 3.492383$  Days     $T_0 = 134.710298$  (BKJD)



# DV Quarter-Phased Transit Curves

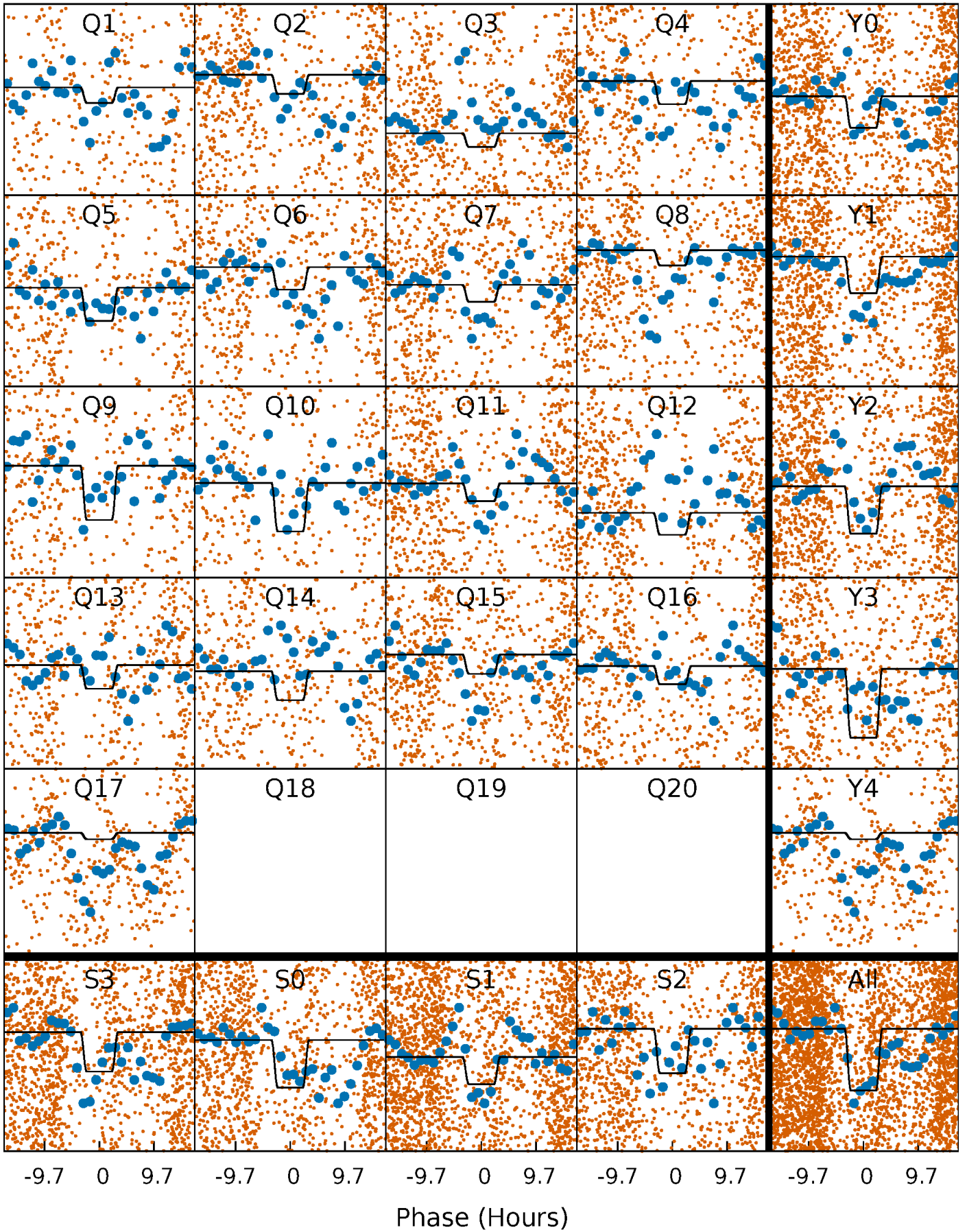
TCE 006862333-01 P= 3.492383 Days  $T_0=134.710298$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 006862333-01 P= 3.492242 Days  $T_0=134.701653$  (BKJD)

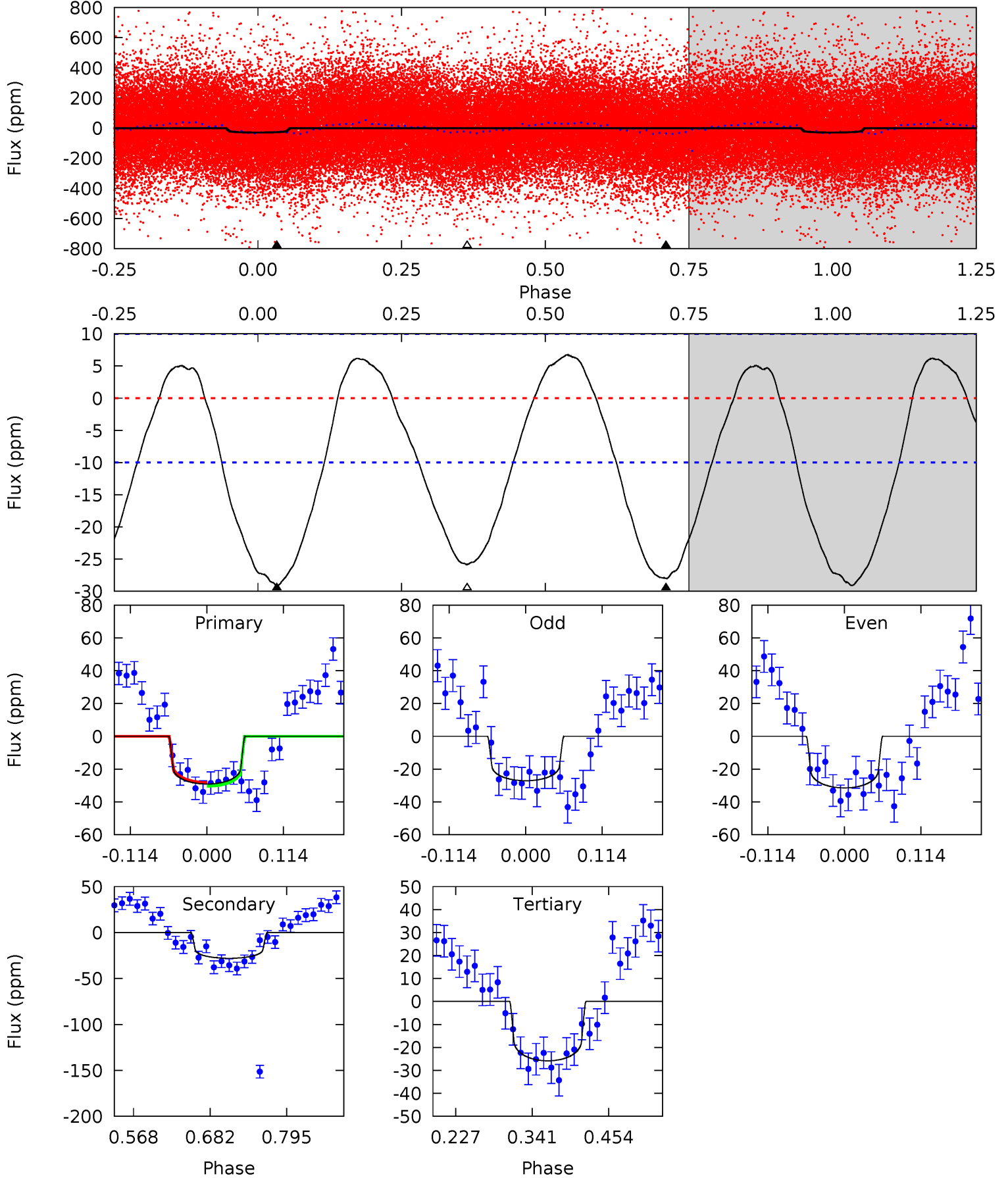




# DV Model-Shift Uniqueness Test

006862333-01, P = 3.492383 Days, E = 131.217915 Days

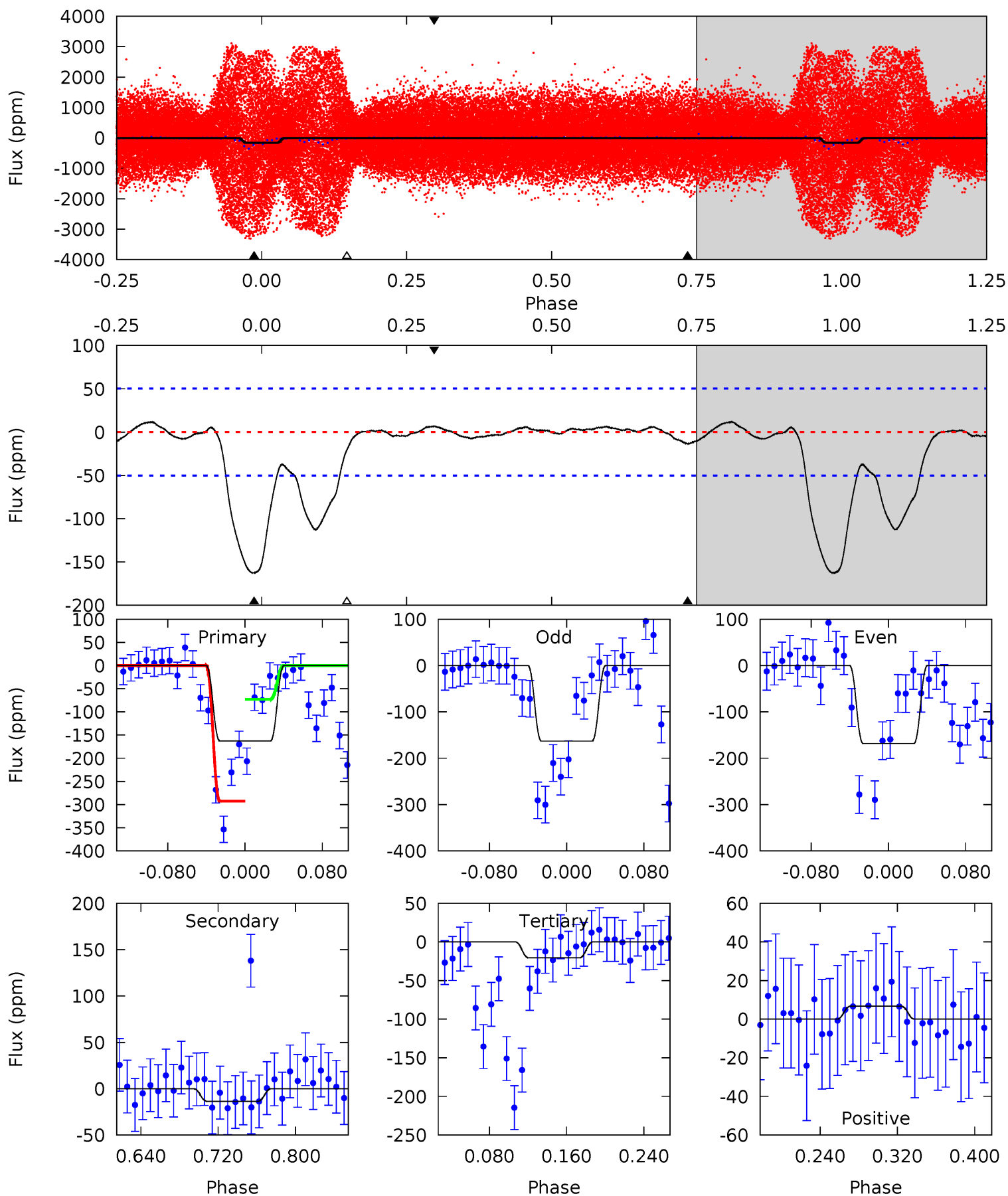
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	12.8	11.8	0	4.54	1.58	4.99	1.48	13.2	0.99	12.8	1.00	0.92	0.19	0.50



# Alt Model-Shift Uniqueness Test

006862333-01, P = 3.492242 Days, E = 131.209411 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
14.9	1.24	1.89	0.61	4.61	1.75	2.44	13.0	14.3	-0.65	0.63	0.25	0.37	0.07	12.0



### Stellar Parameters For KIC 006862333

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7379^{+205}_{-333}$	$4.104^{+0.153}_{-0.187}$	$-0.140^{+0.250}_{-0.350}$	$1.817^{+0.519}_{-0.425}$	$1.526^{+0.209}_{-0.255}$	$0.358^{+0.338}_{-0.175}$
	+3%/-5%	+4%/-5%	+179%/-250%	+29%/-23%	+14%/-17%	+94%/-49%
Source	KIC0	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 006862333-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-28 \pm 2$	$1.07^{+0.34}_{-0.29}$	$2684^{+204}_{-187}$	$7226^{+1305}_{-875}$	$36^{+30}_{-15}$
Alt.	$-14 \pm 11$	$1.76^{+0.35}_{-0.32}$	$2700^{+193}_{-188}$	$4775^{+779}_{-1364}$	$6.286^{+7.053}_{-5.182}$

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



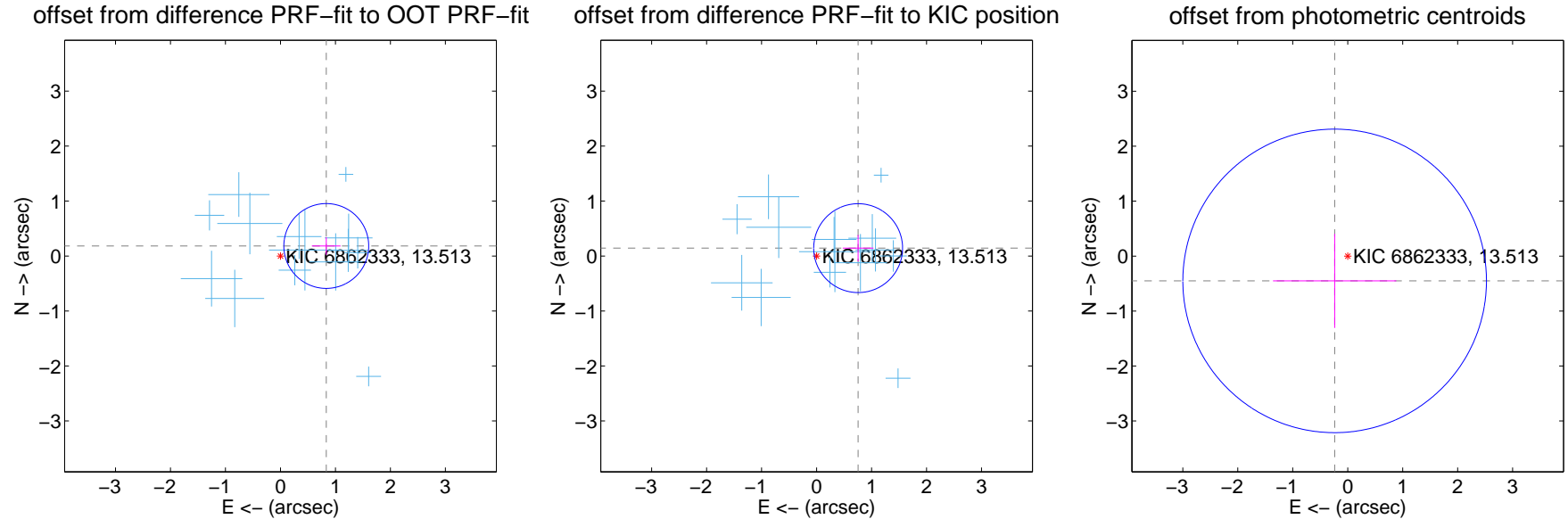
## DV Centroid Data

Supplemental centroid analysis for 006862333-01. Kepler magnitude: 13.51. Transit SNR 6.74

There are 14 quarters with good PRF difference image offsets

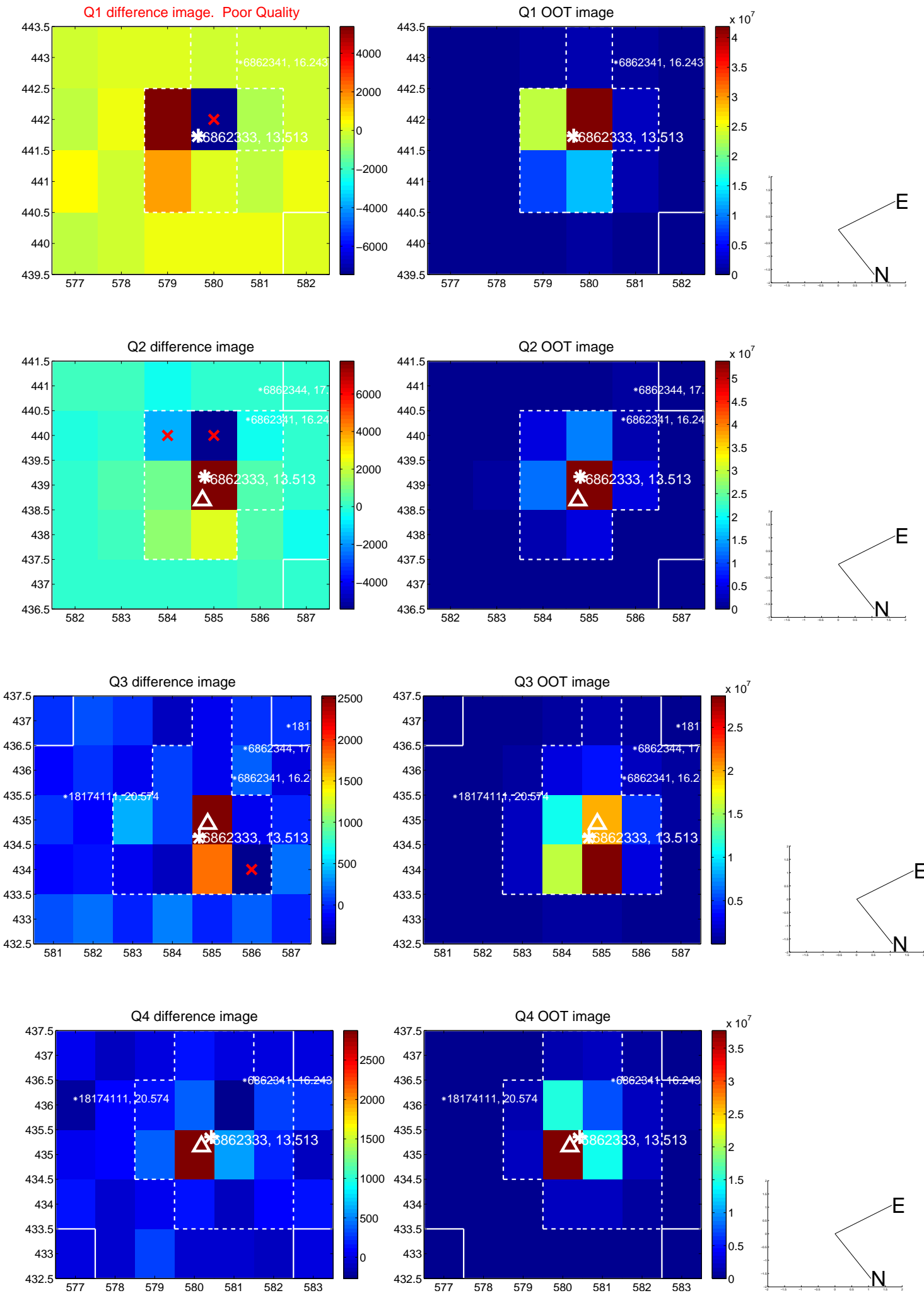
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.853 \pm 0.257</math></b>	<b>3.32</b>	$-0.833 \pm 0.261$	$0.183 \pm 0.161$
PRF-fit source offset from KIC position	$0.770 \pm 0.269$	2.86	$-0.756 \pm 0.279$	$0.143 \pm 0.240$
photometric centroid source offset	$0.51 \pm 0.92$	0.55	$0.24 \pm 1.12$	$-0.45 \pm 0.86$

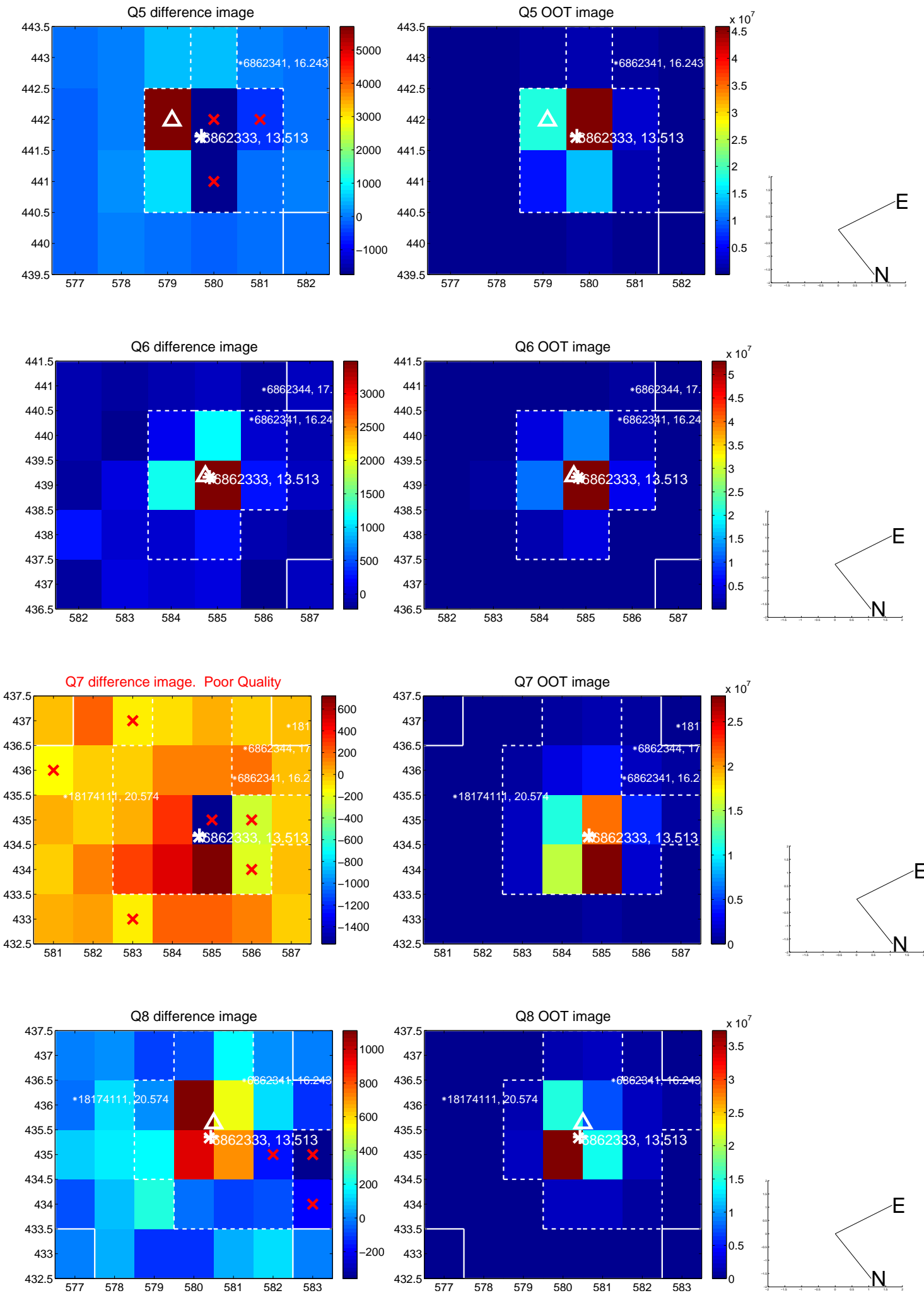


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

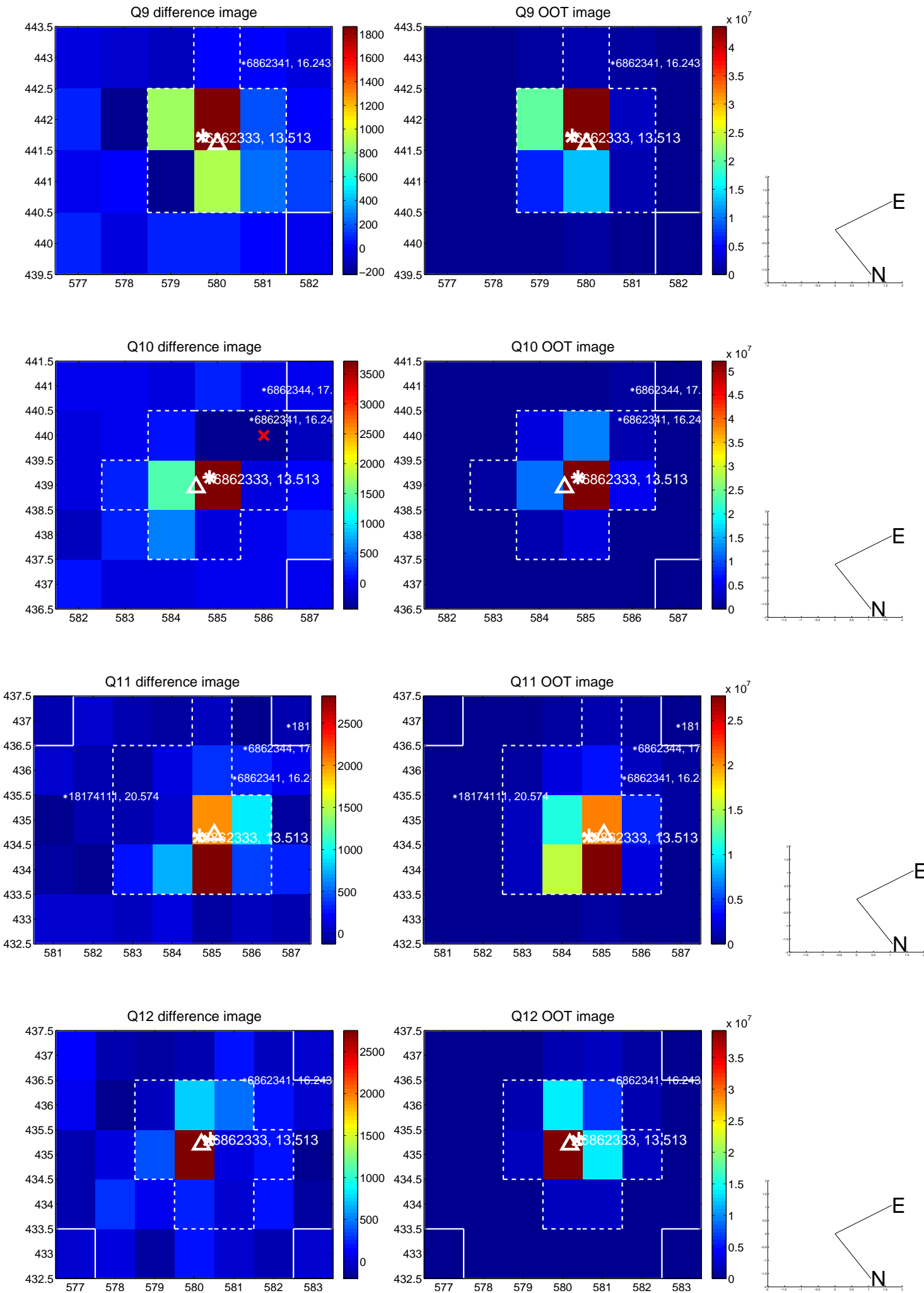


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

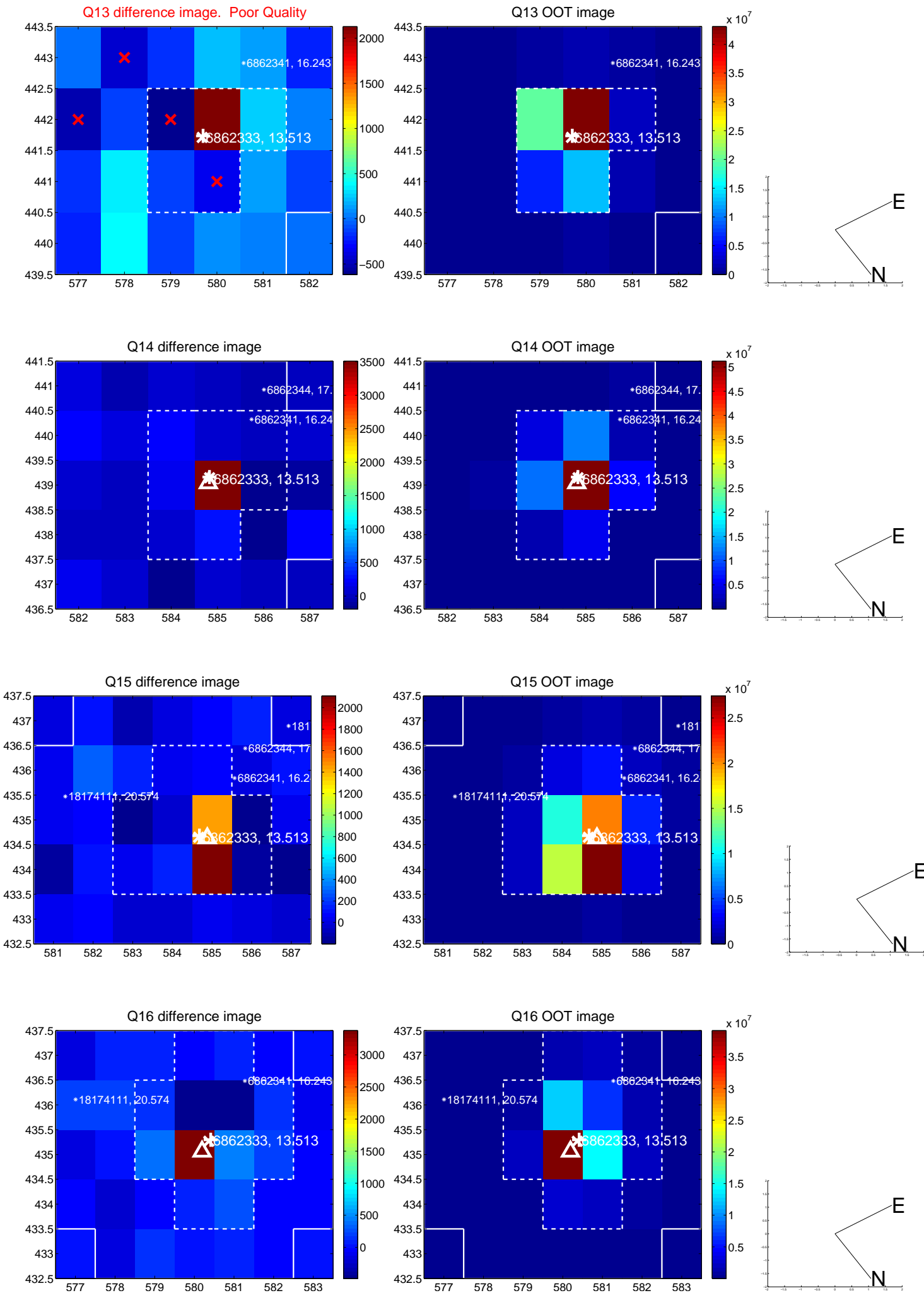




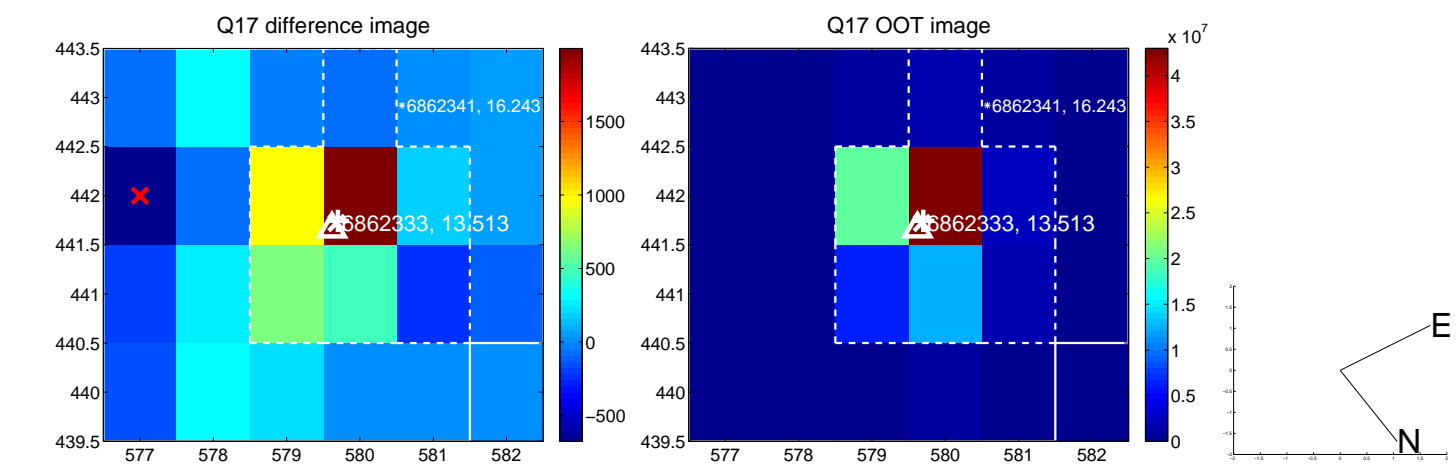
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



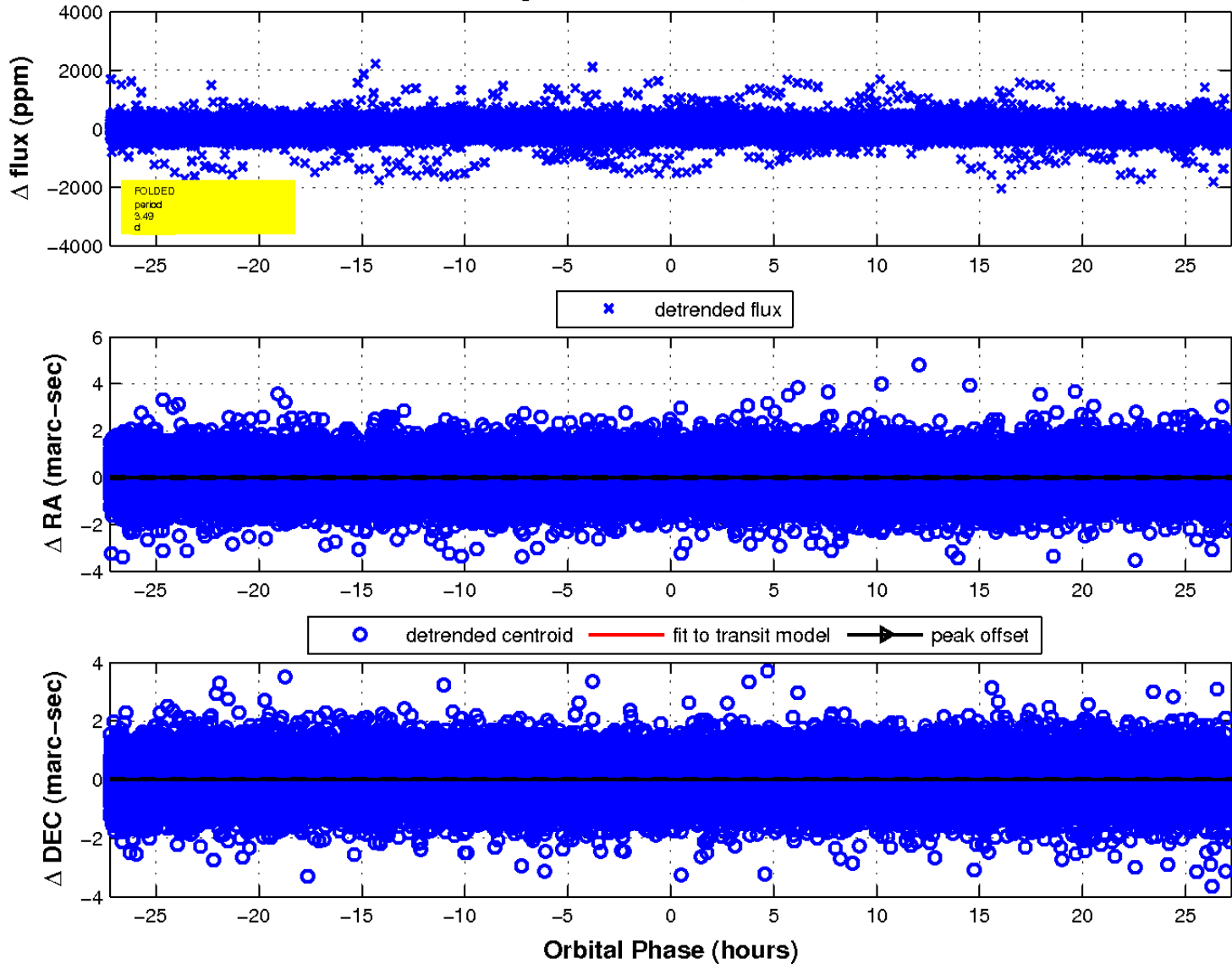
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

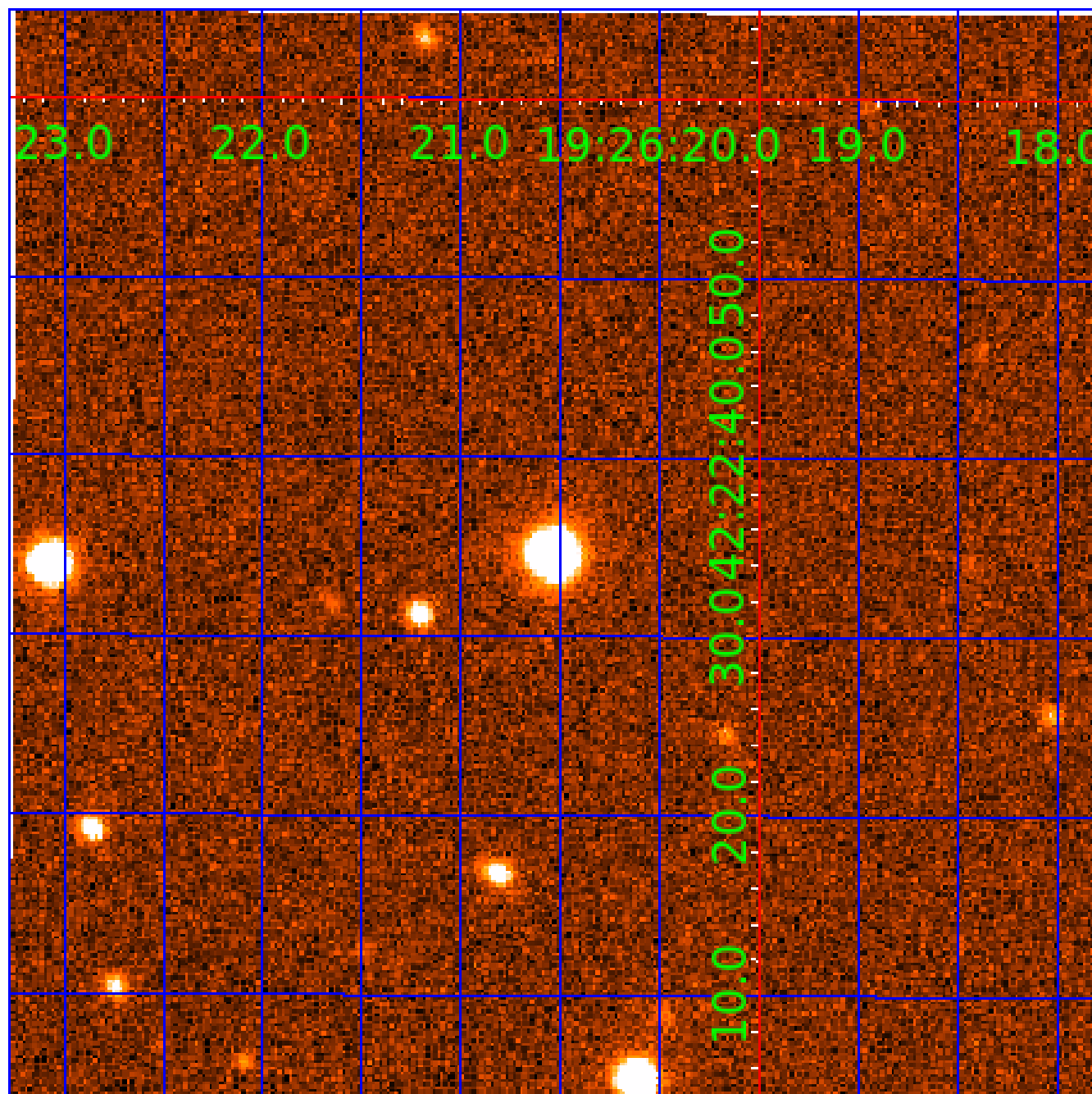


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



# KIC 006862333

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006862333-01	OBS	No	3.492383	134.710298	26.8	9.080	7.9	6.7	1.82	7379	1.07	3253.06
006862333-02	OBS	No	495.897800	144.136745	370.9	9.578	10.8	8.5	1.82	7379	3.91	4.39
006862333-03	OBS	No	0.611041	132.053934	25.9	6.260	8.7	11.7	1.82	7379	0.93	33242.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006862333-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006862333-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006862333-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

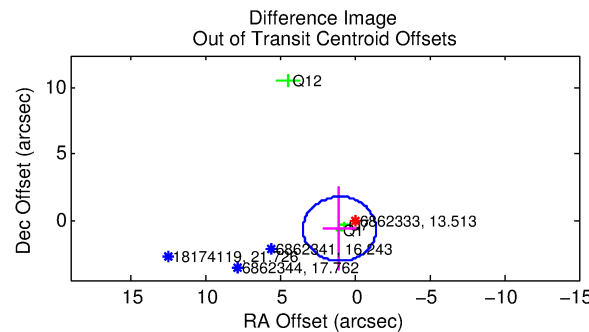
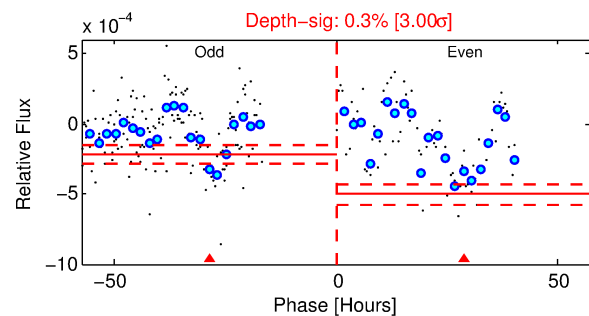
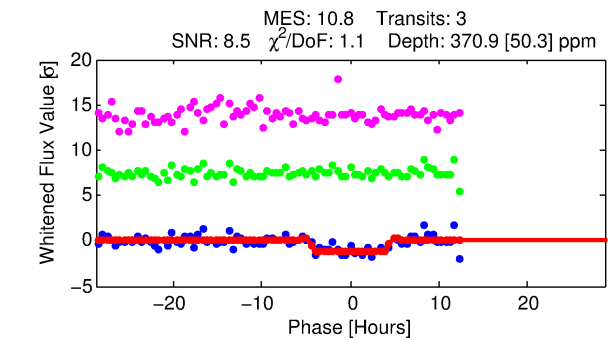
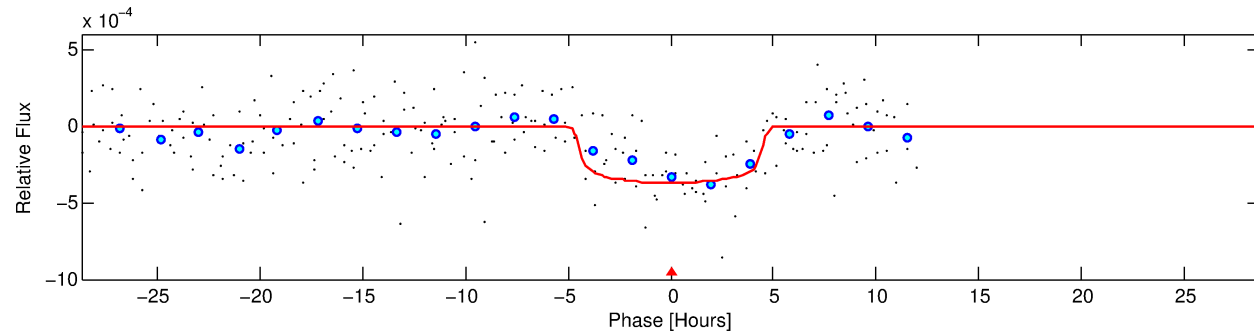
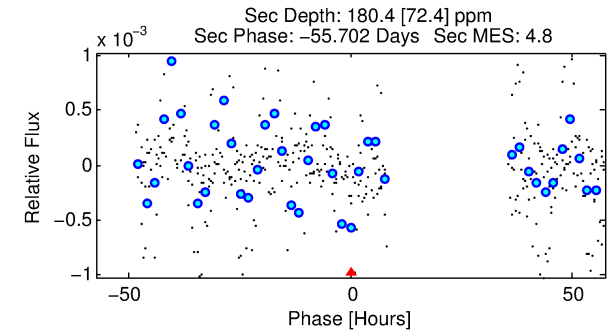
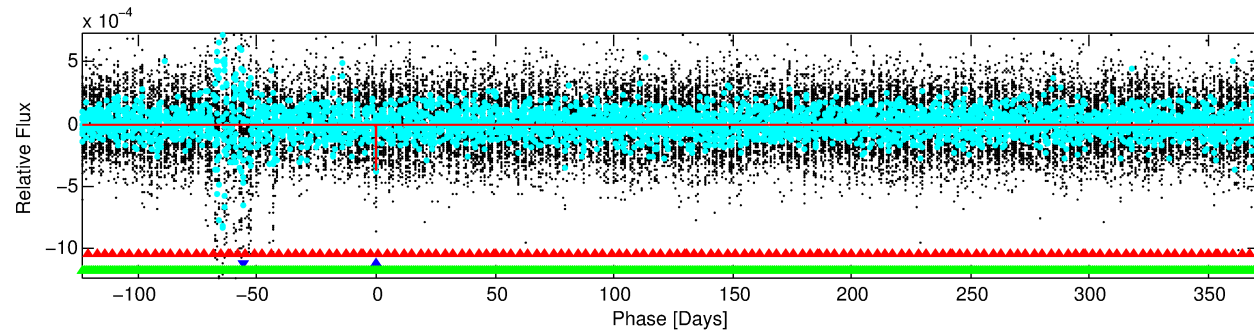
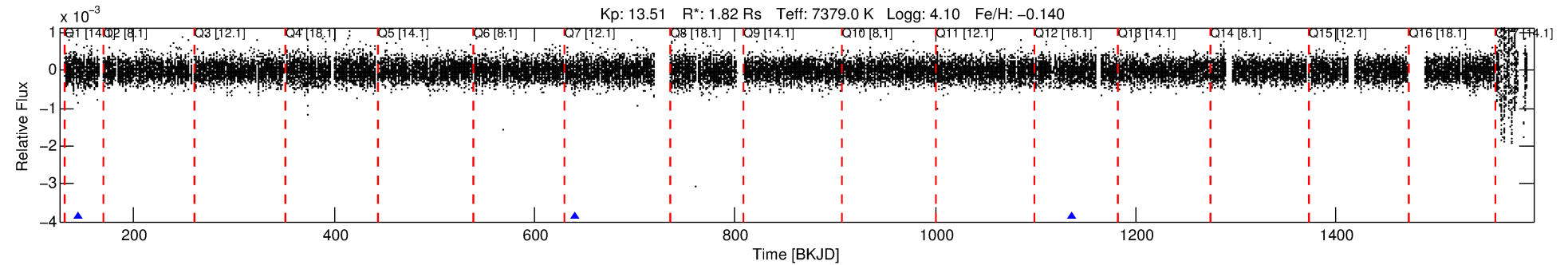
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006862333-02

No Significant Match Found

# DV One-Page Summary

KIC: 6862333 Candidate: 2 of 3 Period: 495.898 d



## DV Fit Results:

Period = 495.89780 [0.00925] d  
Epoch = 144.1367 [0.0120] BKJD  
Rp/R\* = 0.0197 [0.0031]  
a/R\* = 234.96 [184.82]  
b = 0.83 [0.30]  
Seff = 4.39 [1.71]  
Teq = 369 [36] K  
Rp = 3.91 [1.28] Re  
a = 1.4132 [0.3370] AU  
Ag = 12988.25 [8005.15] [1.62 sigma]  
Teffp = 6093 [826] K [6.93 sigma]

## DV Diagnostic Results:

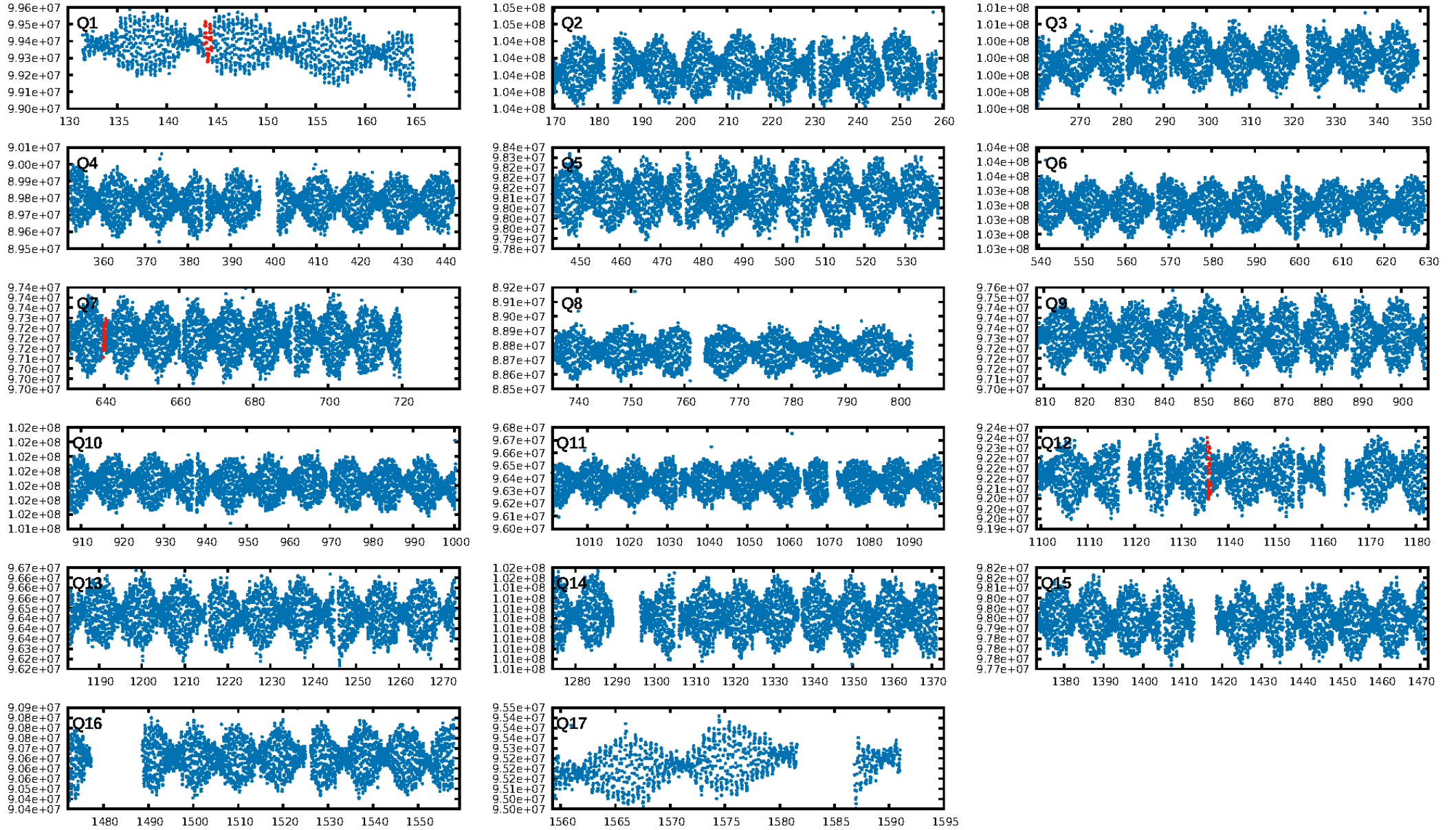
ShortPeriod-sig: 100.0% [895.39 sigma]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 91.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.6878  
Centroid-sig: 11.5%  
Centroid-so: 0.825 arcsec [1.26 sigma]  
OotOffset-rm: 1.199 arcsec [1.48 sigma]  
KicOffset-rm: 1.306 arcsec [1.73 sigma]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:40:12 Z

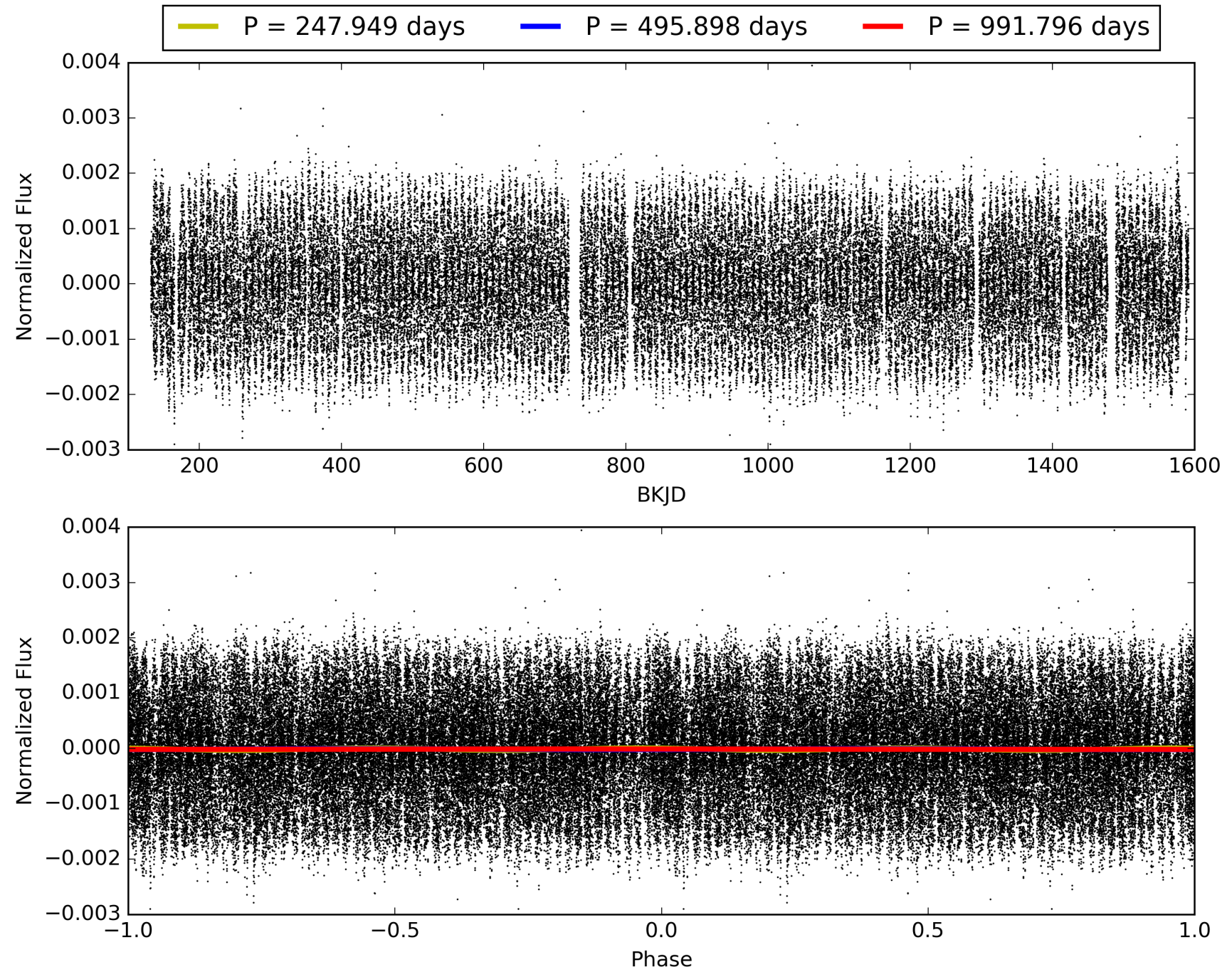
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006862333-02, PDC Light Curves

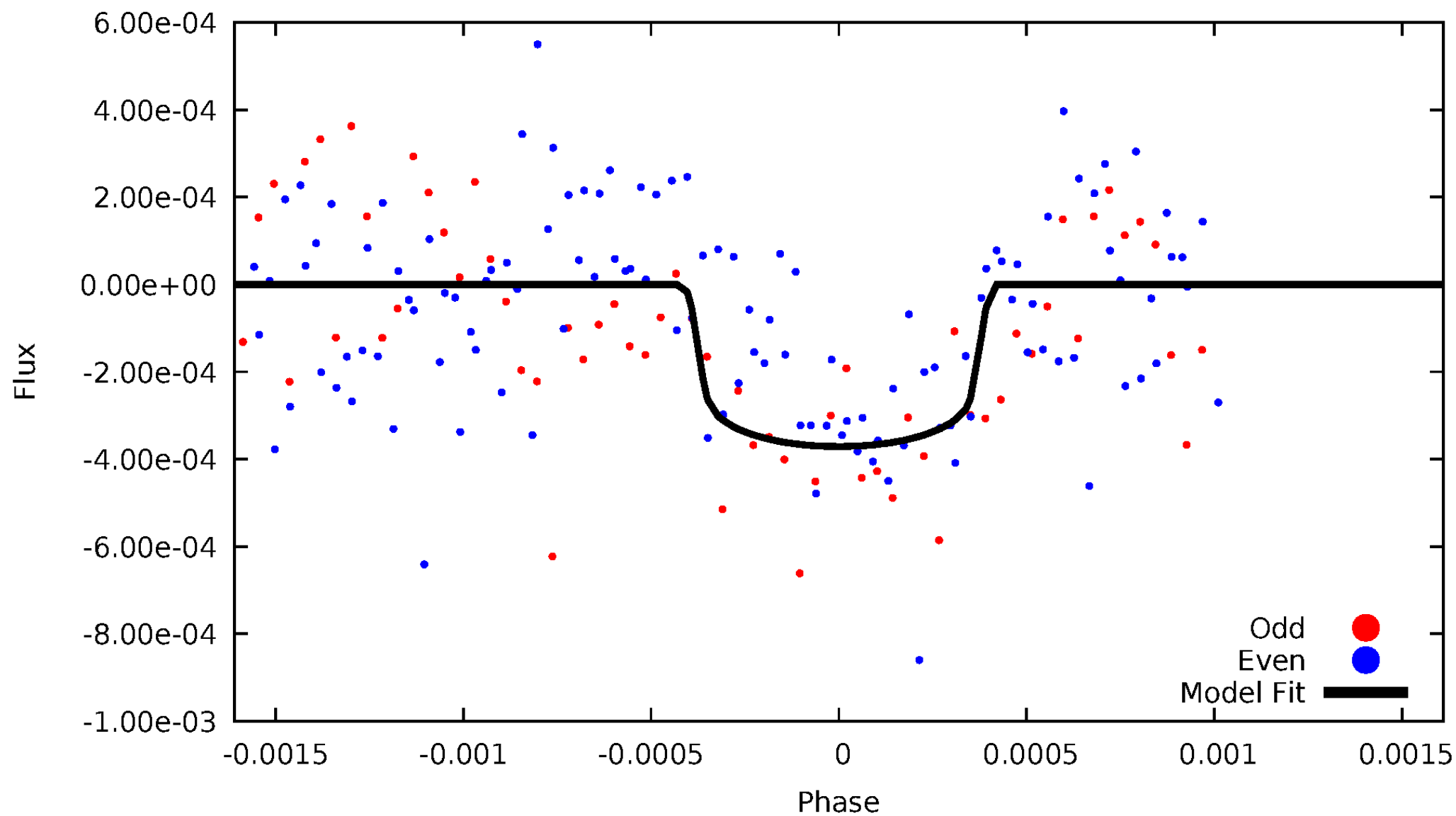


# TCE 006862333-02



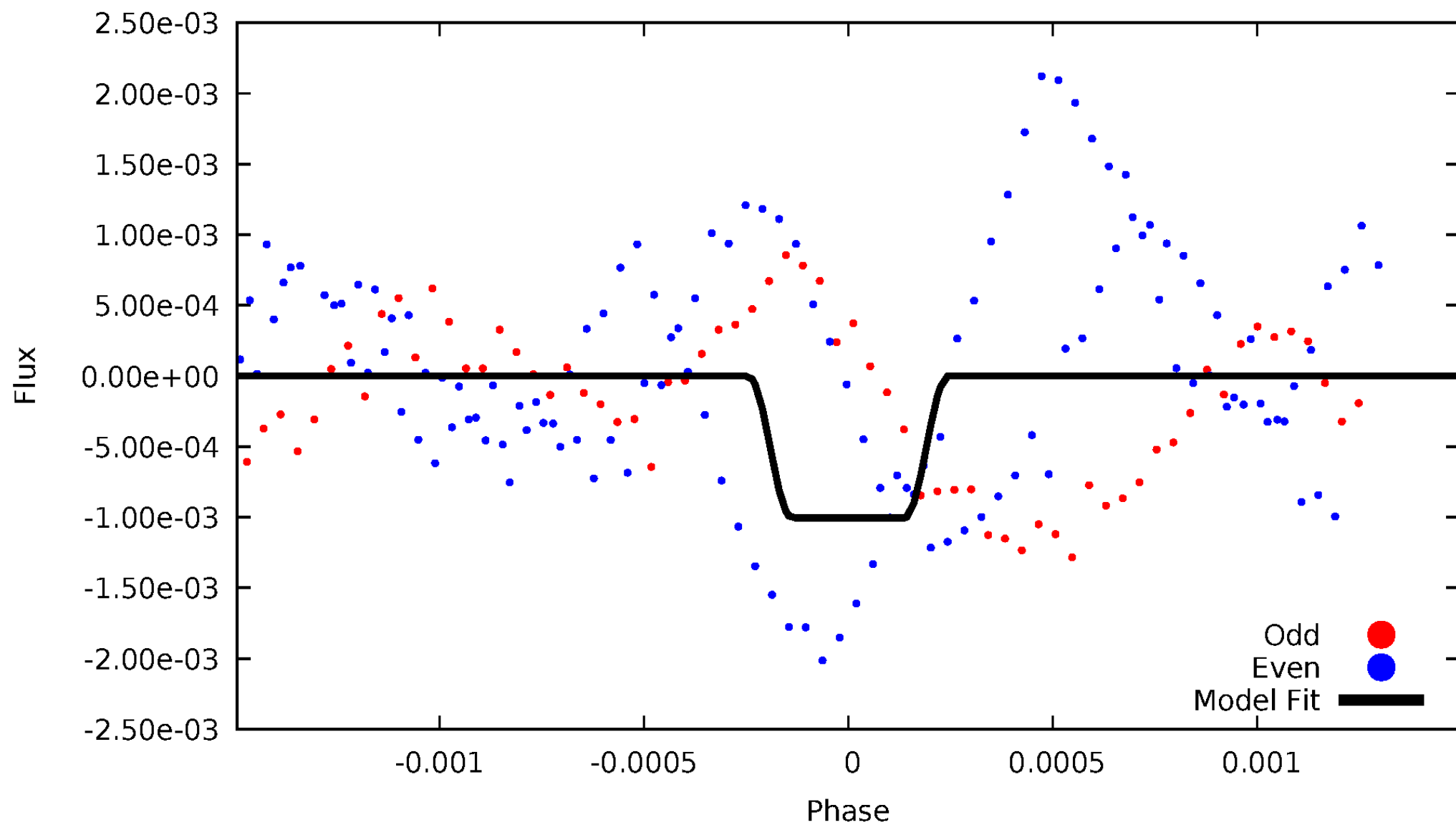
# DV Odd/Even

TCE 006862333-02



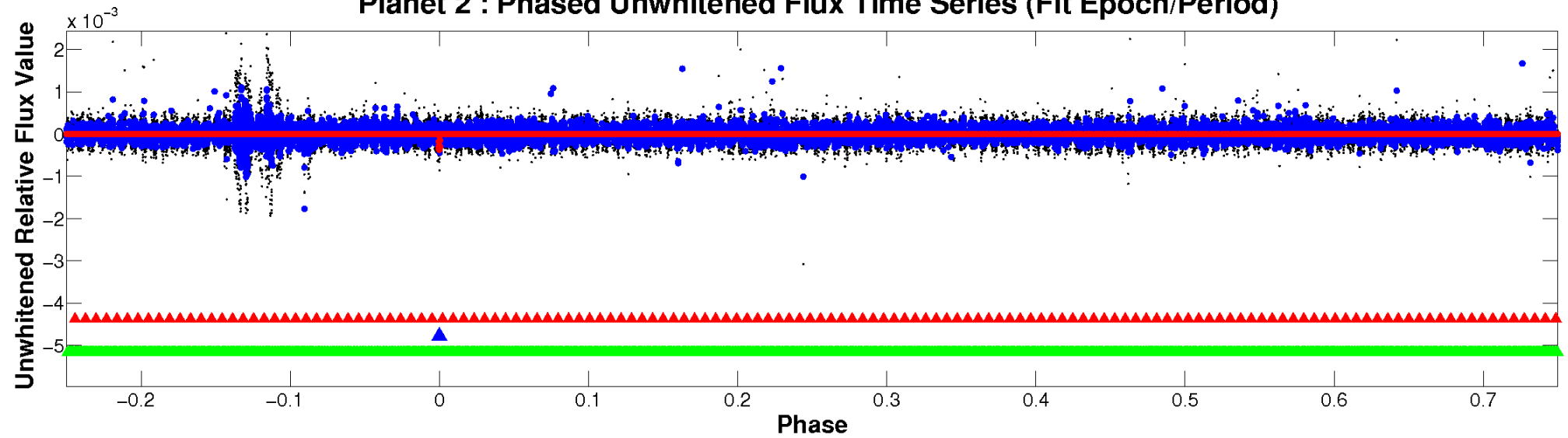
# ALT Odd/Even

TCE 006862333-02

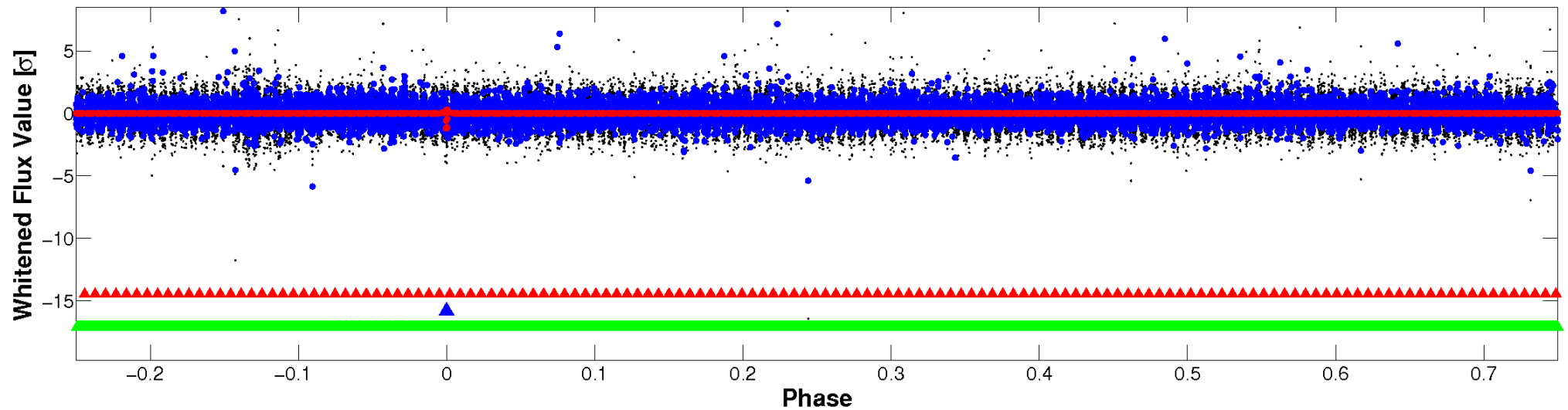


# Non-Whitened Vs. Whitened Light Curve

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

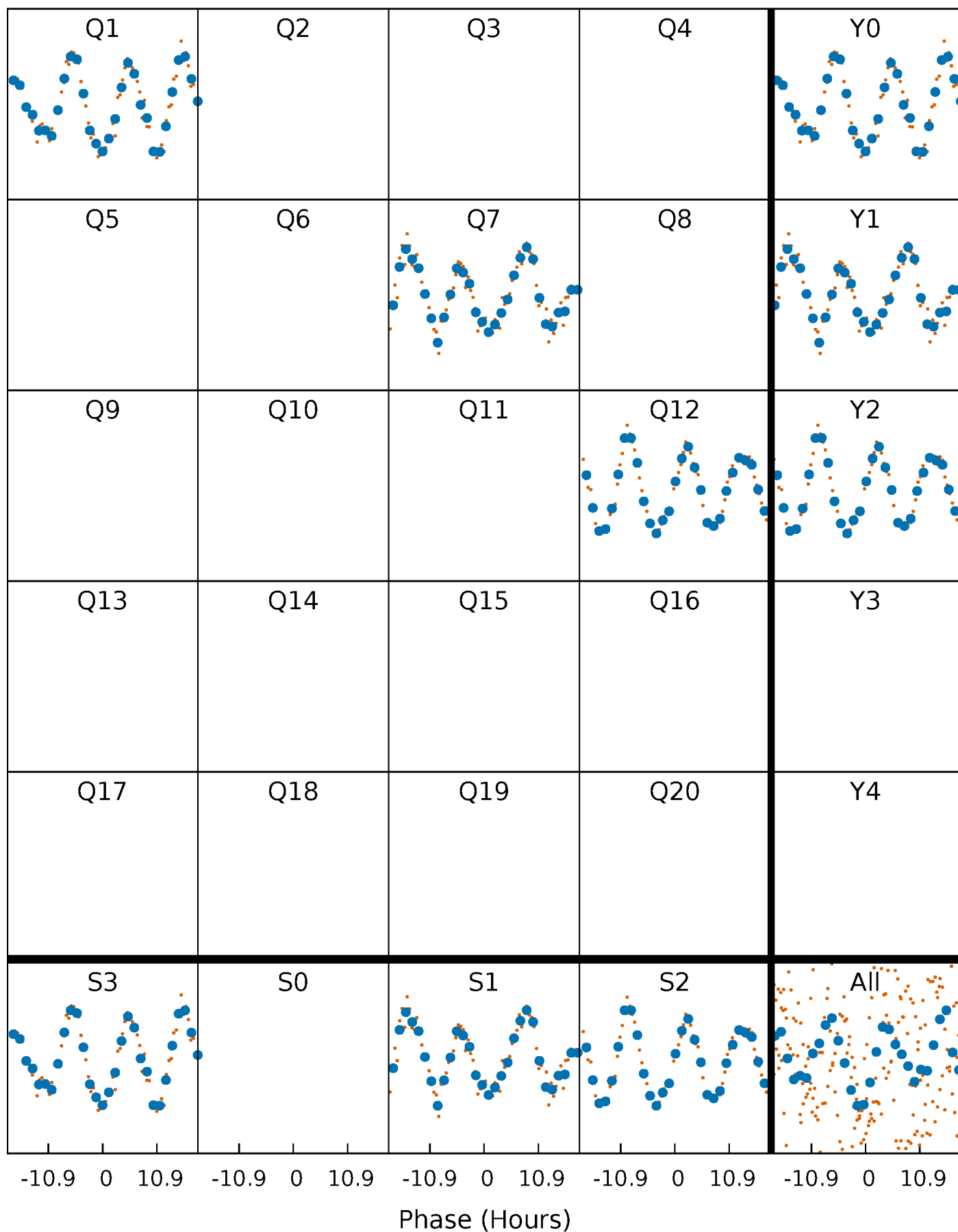


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

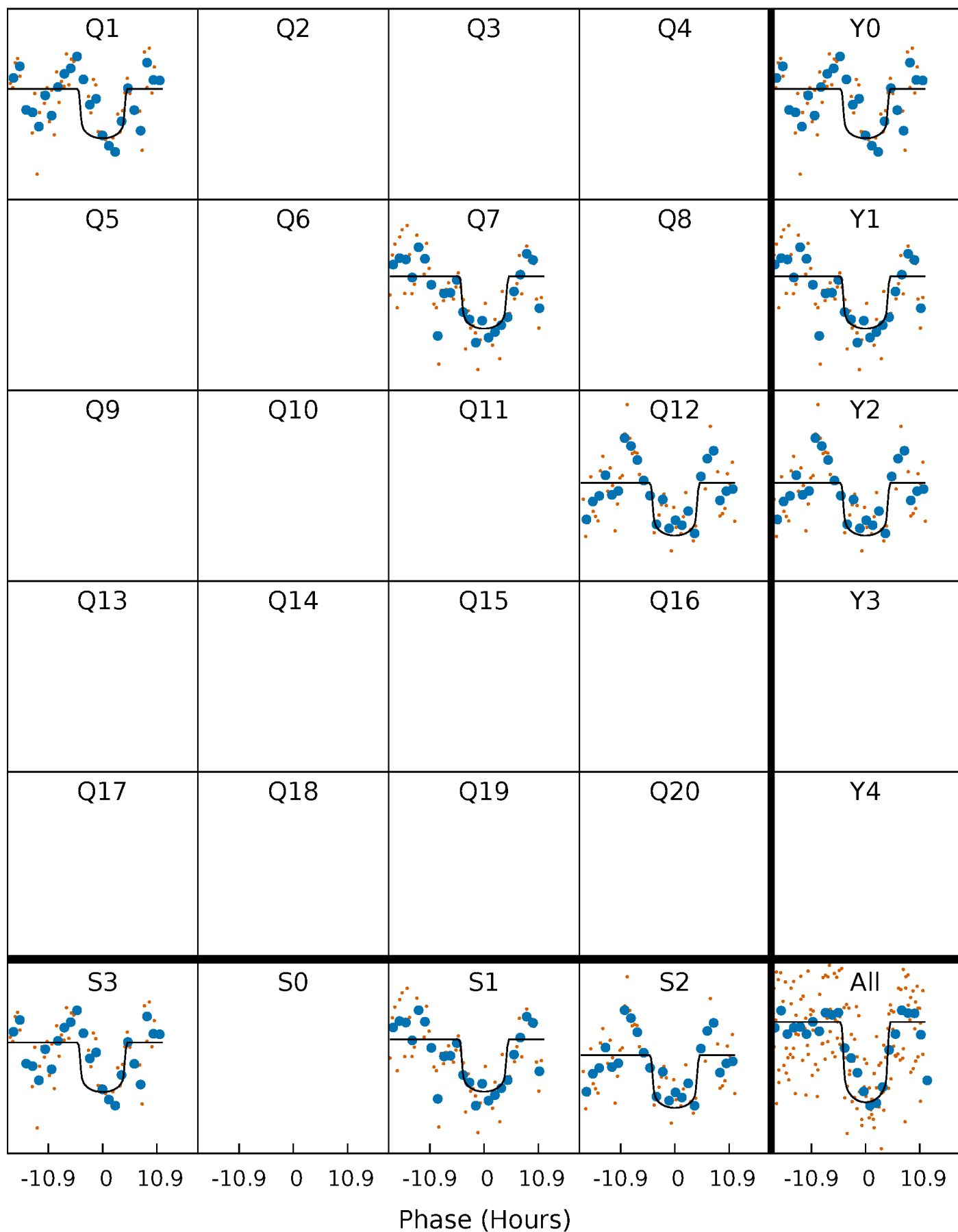
TCE 006862333-02     $P=495.897800$  Days     $T_0=144.136745$  (BKJD)





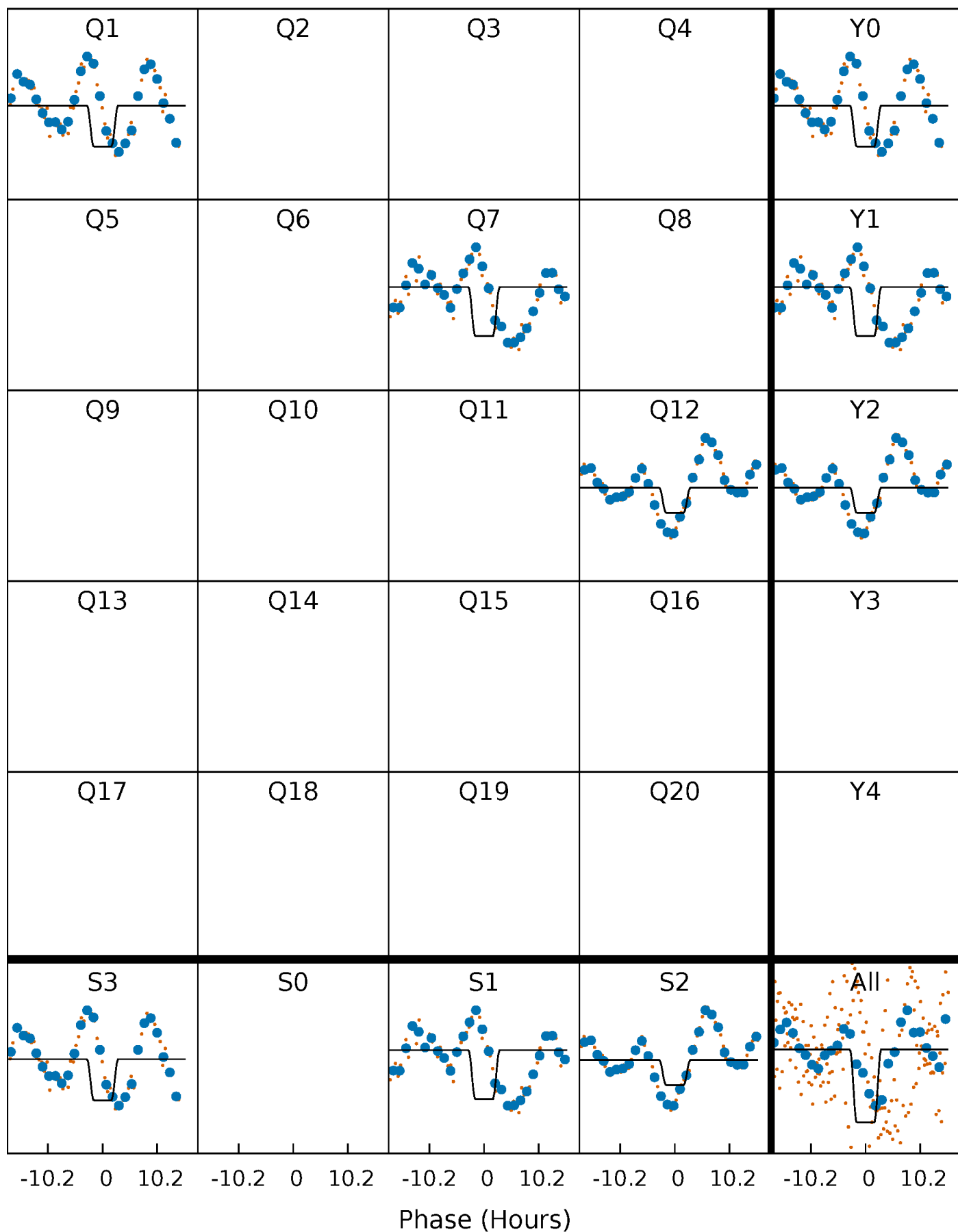
# DV Quarter-Phased Transit Curves

TCE 006862333-02     $P=495.897800$  Days     $T_0=144.136745$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

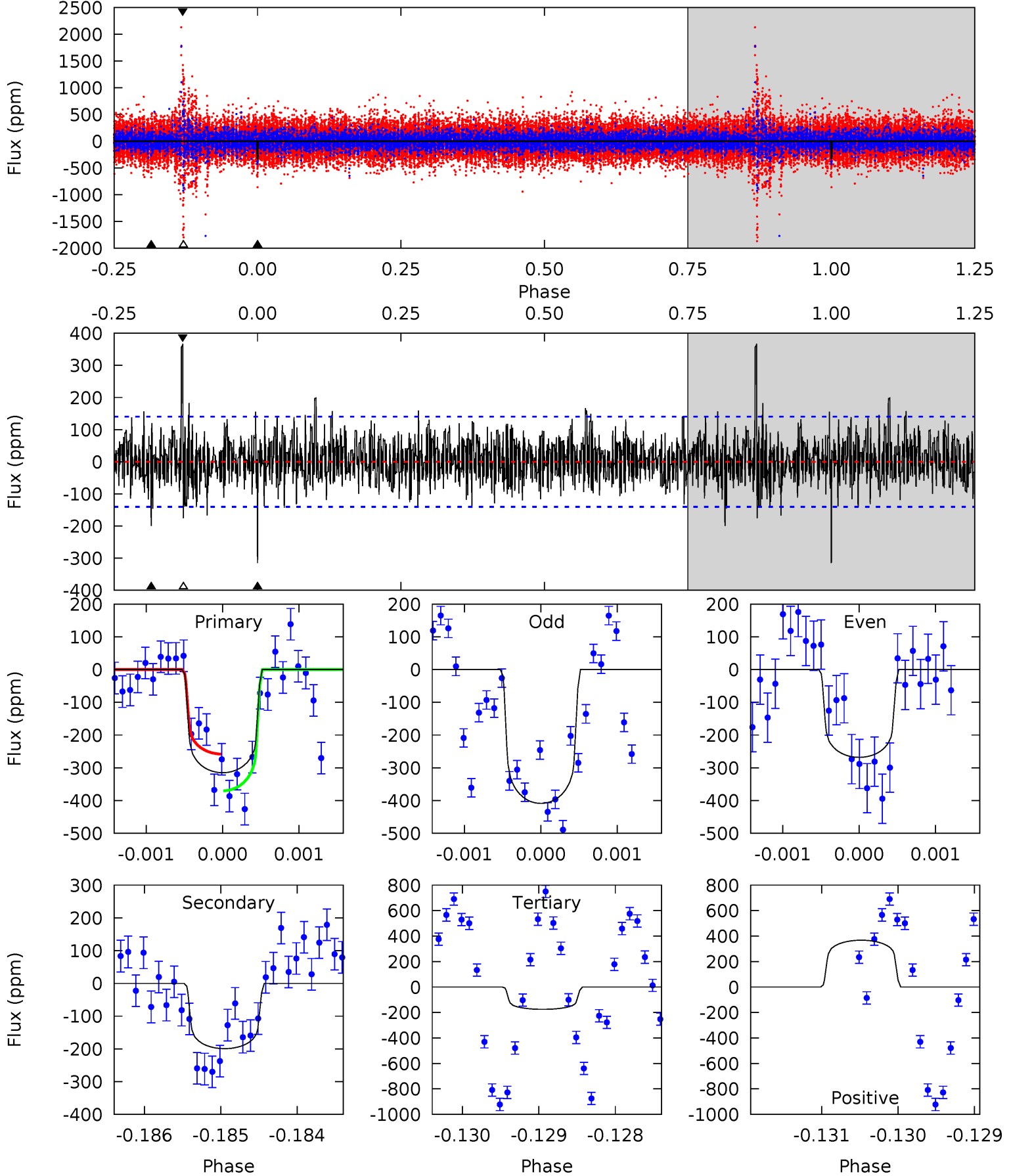
TCE 006862333-02     $P=495.895256$  Days     $T_0=143.999966$  (BKJD)



# DV Model-Shift Uniqueness Test

006862333-02, P = 495.897800 Days, E = 144.136745 Days

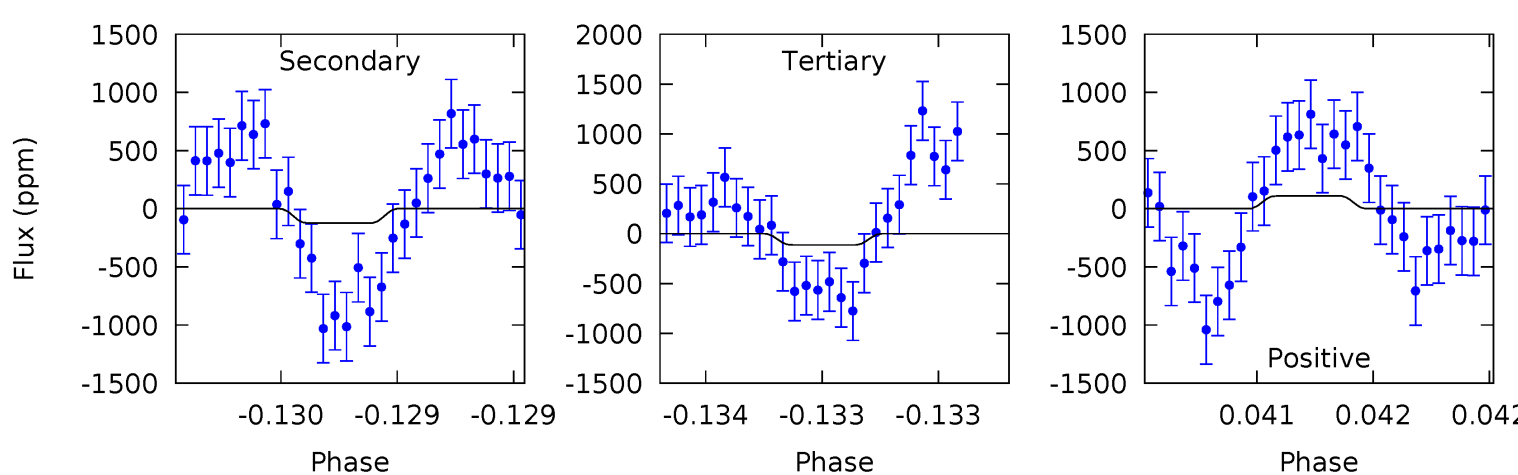
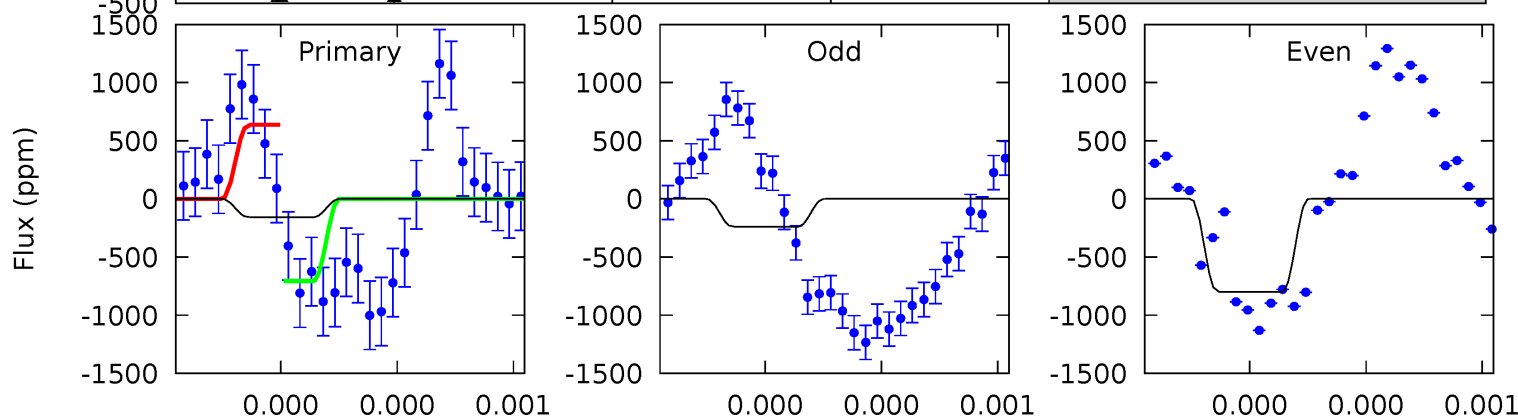
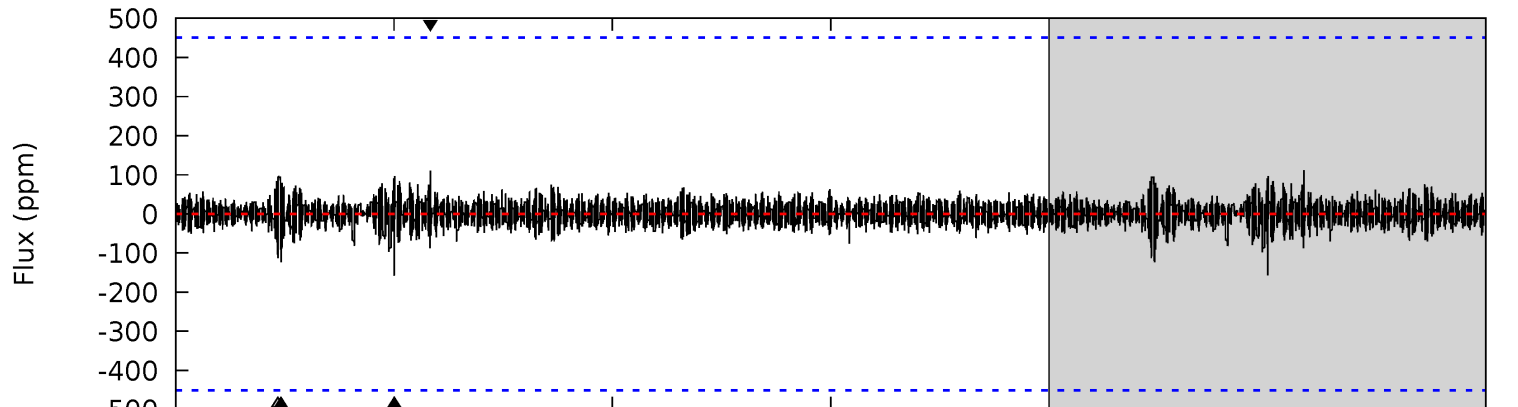
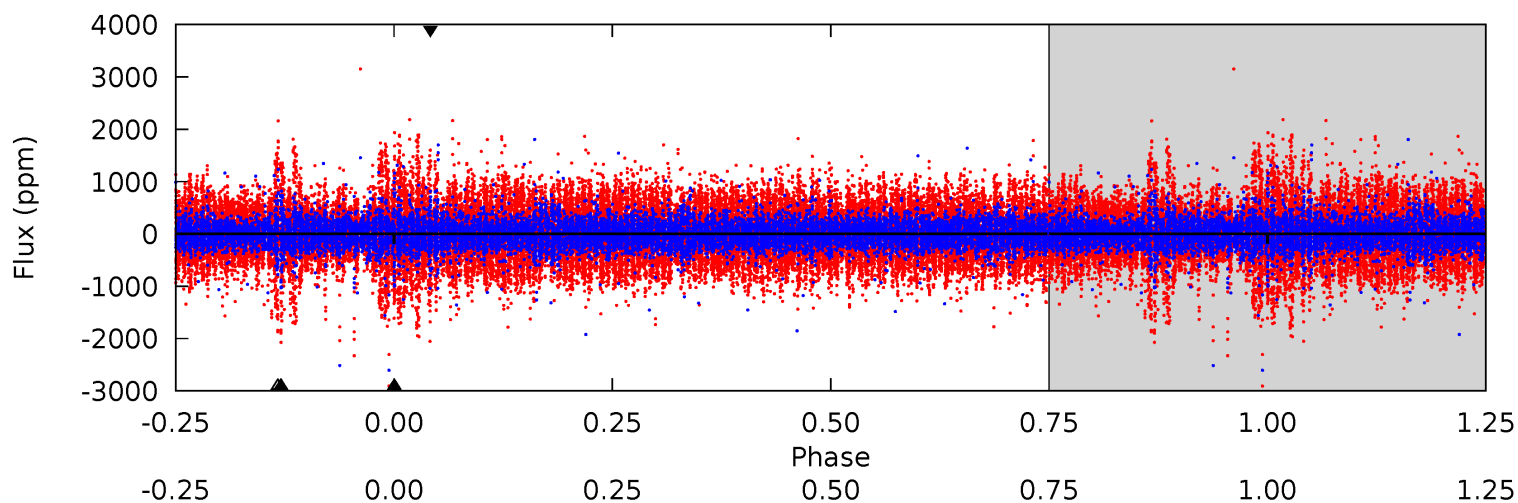
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	7.79	6.85	14.4	5.49	3.35	1.89	5.46	-2.05	0.94	-6.58	2.35	1.12	0.54	2.22



# Alt Model-Shift Uniqueness Test

006862333-02, P = 495.895256 Days, E = 143.999966 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
1.95	1.52	1.39	1.36	5.58	3.49	0.29	0.55	0.59	0.13	0.16	3.50	12.0	0.41	0.42



### Stellar Parameters For KIC 006862333

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7379^{+205}_{-333}$	$4.104^{+0.153}_{-0.187}$	$-0.140^{+0.250}_{-0.350}$	$1.817^{+0.519}_{-0.425}$	$1.526^{+0.209}_{-0.255}$	$0.358^{+0.338}_{-0.175}$
	+3%/-5%	+4%/-5%	+179%/-250%	+29%/-23%	+14%/-17%	+94%/-49%
Source	KIC0	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 006862333-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-199 \pm 26$	$3.91^{+0.91}_{-0.83}$	$516^{+39}_{-35}$	$6137^{+681}_{-518}$	$14021^{+8510}_{-4747}$
Alt.	$-123 \pm 81$	$6.38^{+1.09}_{-1.03}$	$518^{+37}_{-37}$	$4469^{+523}_{-817}$	$3120^{+2777}_{-2158}$

$T_{\text{max}}$  = 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

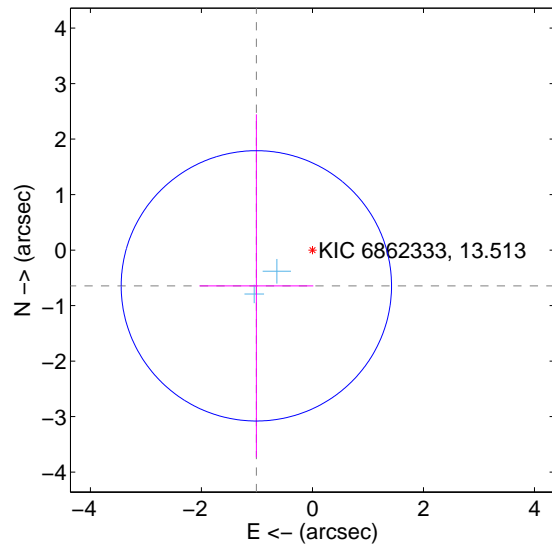
Supplemental centroid analysis for 006862333-02. Kepler magnitude: 13.51. Transit SNR 8.54

There are 2 quarters with good PRF difference image offsets

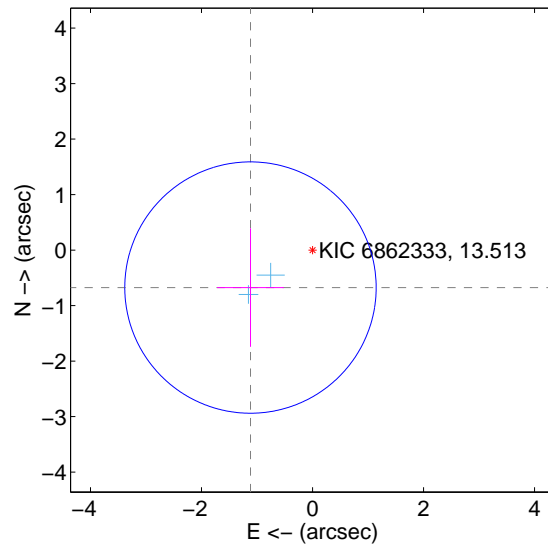
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.199 \pm 0.812$	1.48	$1.011 \pm 1.026$	$-0.644 \pm 3.090$
PRF-fit source offset from KIC position	$1.306 \pm 0.755$	1.73	$1.118 \pm 0.601$	$-0.675 \pm 1.069$
photometric centroid source offset	$0.83 \pm 0.66$	1.26	$-0.19 \pm 0.87$	$0.80 \pm 0.64$

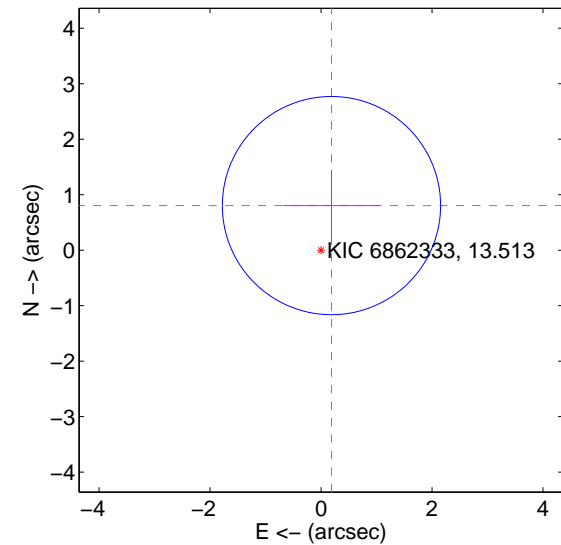
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



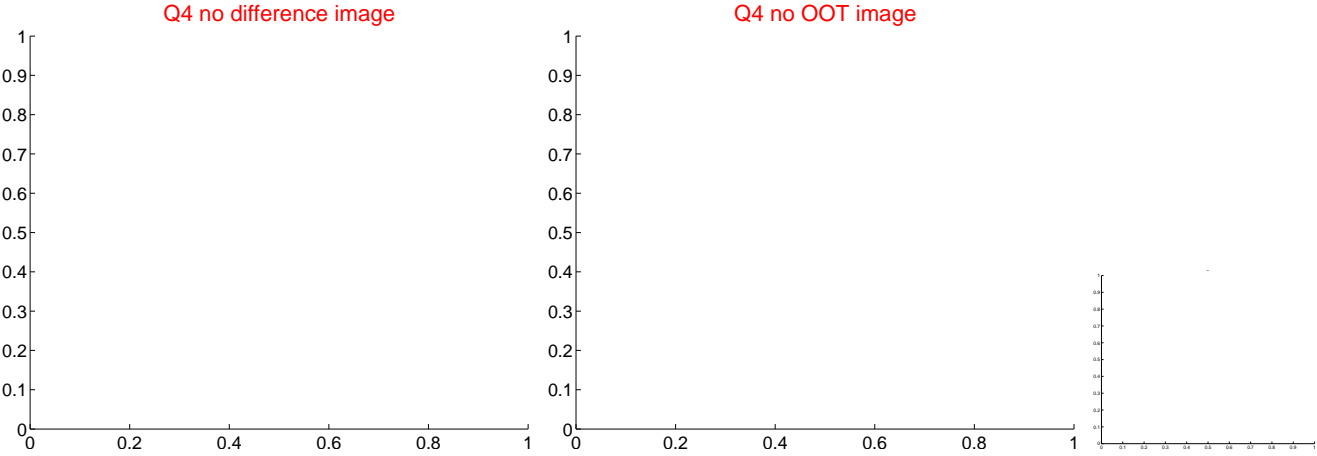
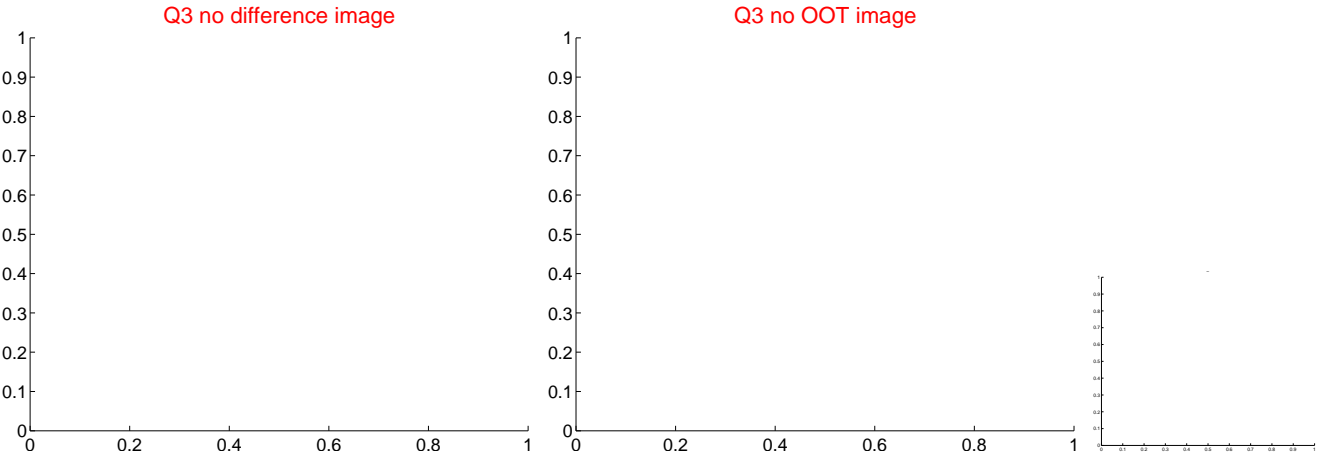
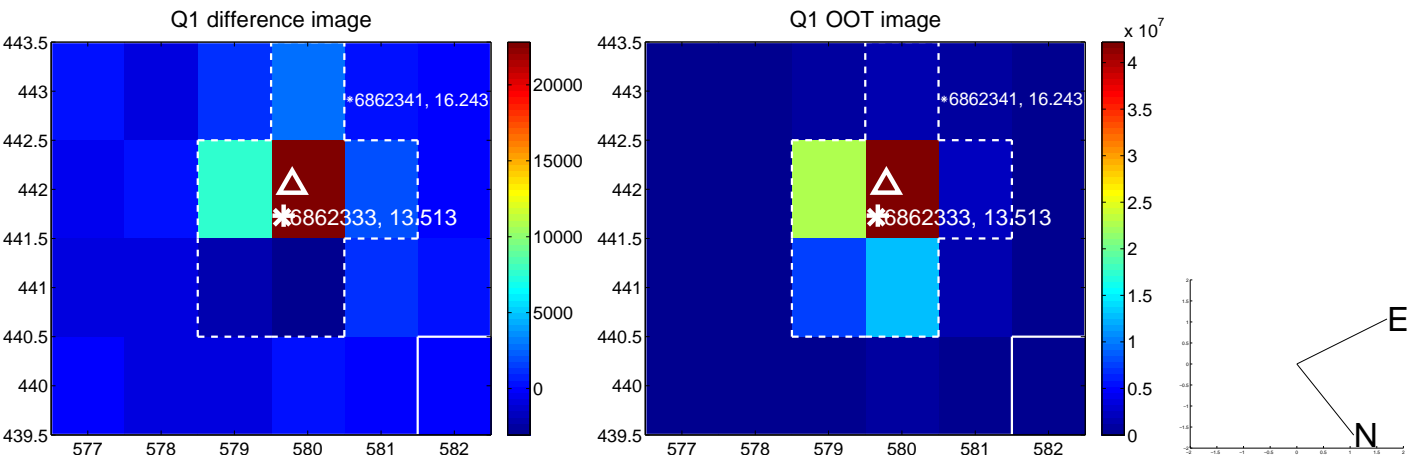
offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



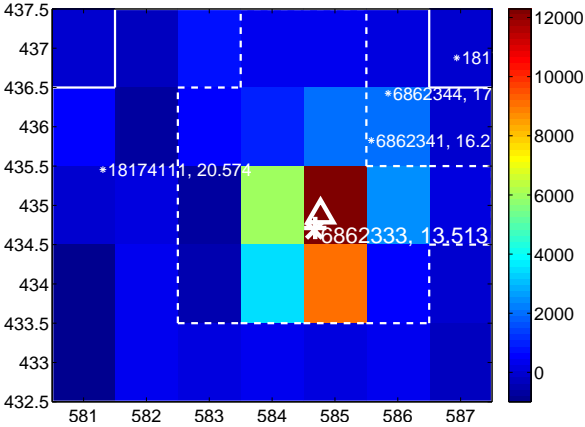
Q6 no difference image



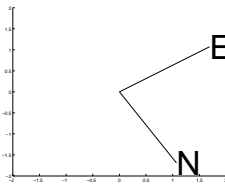
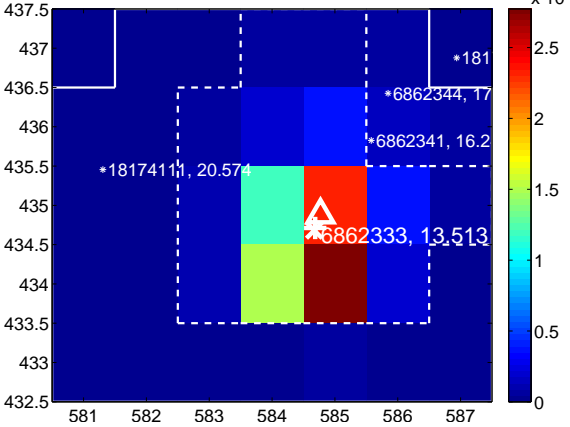
Q6 no OOT image



Q7 difference image



Q7 OOT image



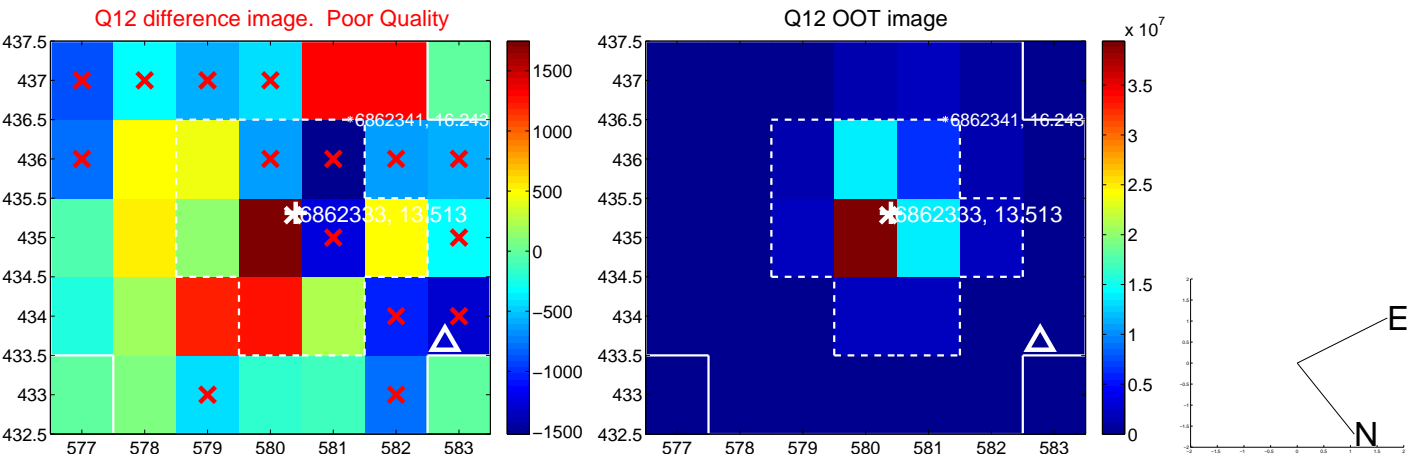
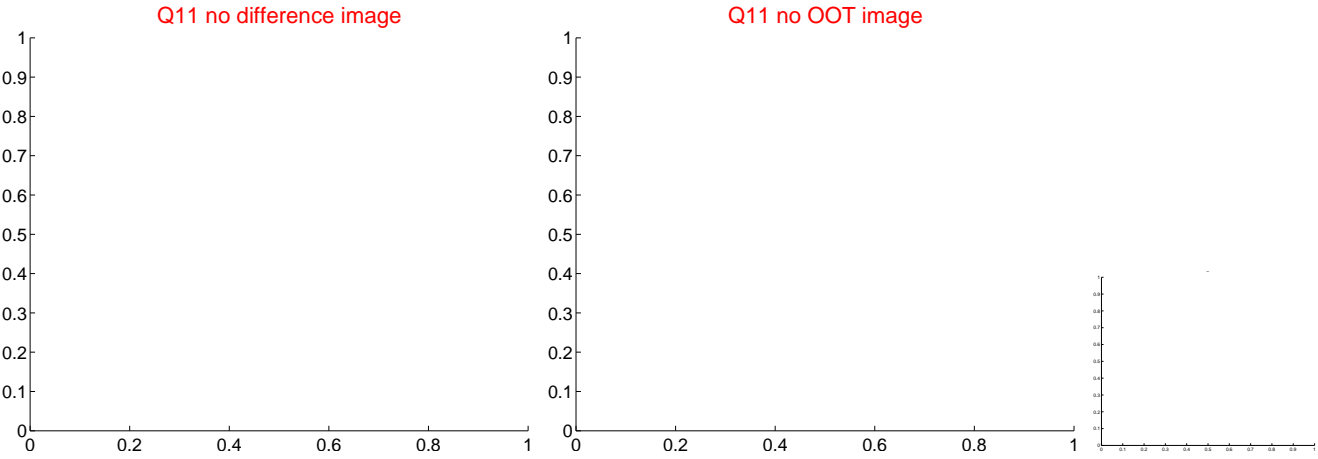
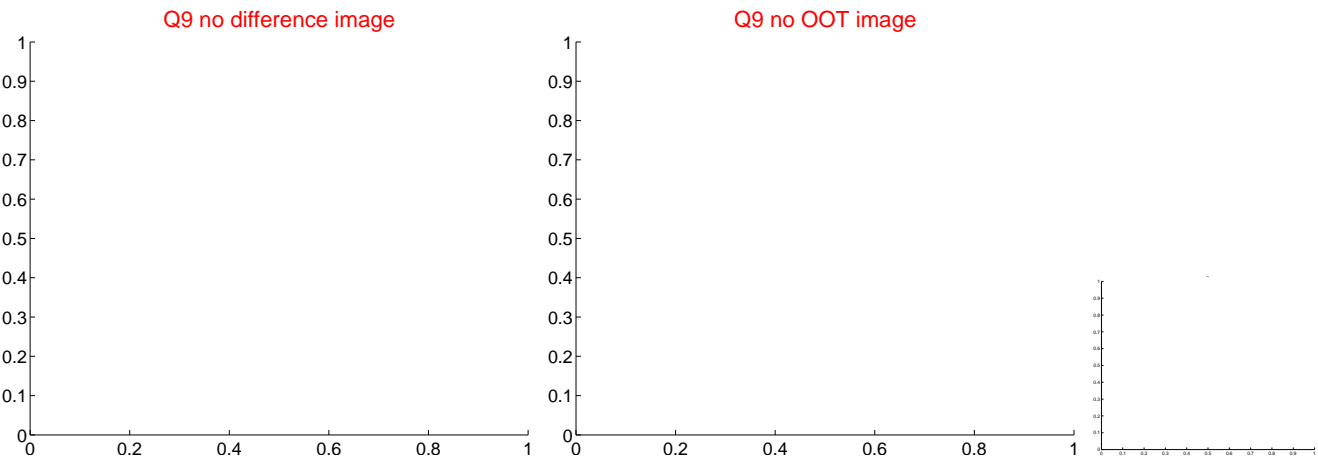
Q8 no difference image



Q8 no OOT image



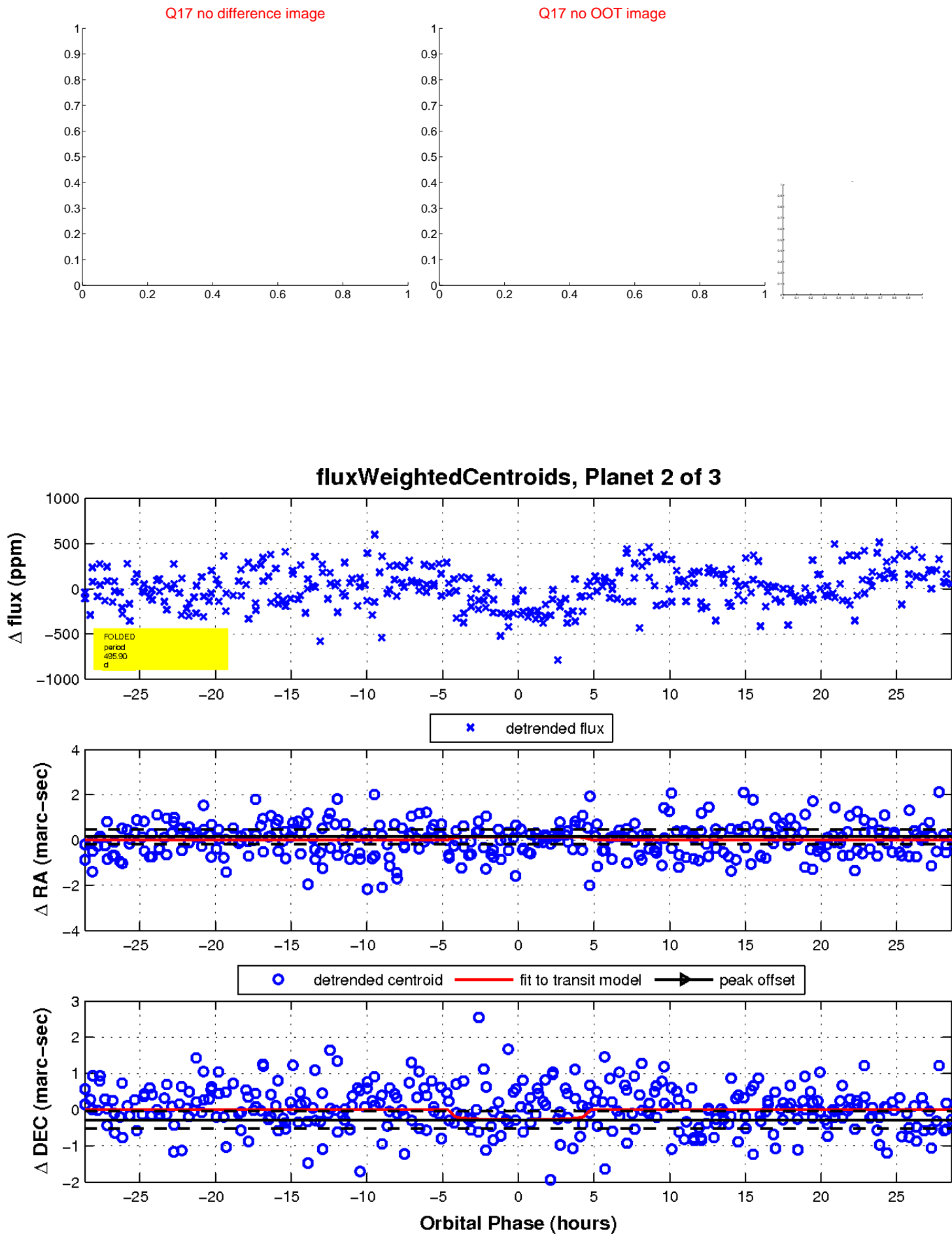
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



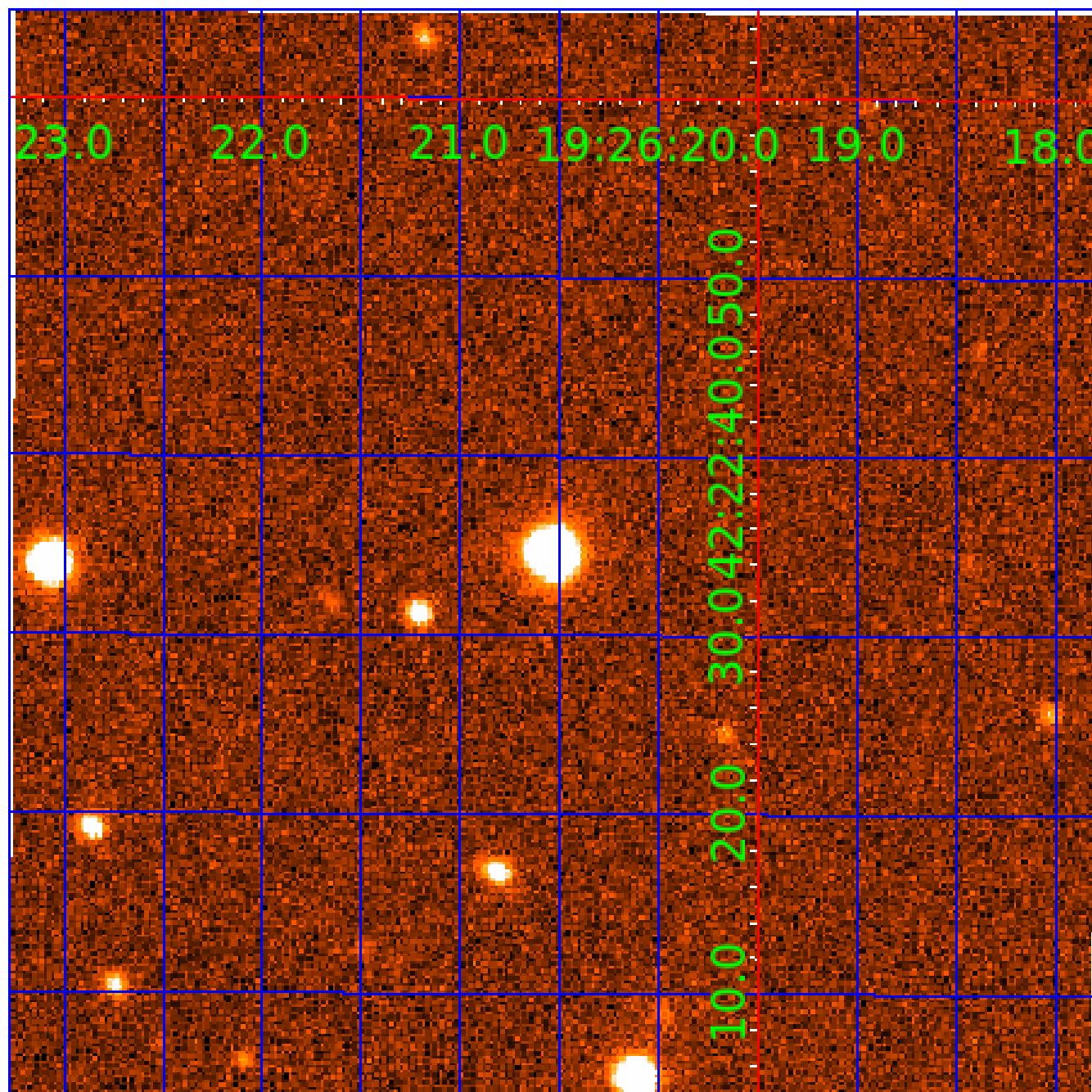
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 006862333

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006862333-01	OBS	No	3.492383	134.710298	26.8	9.080	7.9	6.7	1.82	7379	1.07	3253.06
006862333-02	OBS	No	495.897800	144.136745	370.9	9.578	10.8	8.5	1.82	7379	3.91	4.39
006862333-03	OBS	No	0.611041	132.053934	25.9	6.260	8.7	11.7	1.82	7379	0.93	33242.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006862333-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006862333-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006862333-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS

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

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

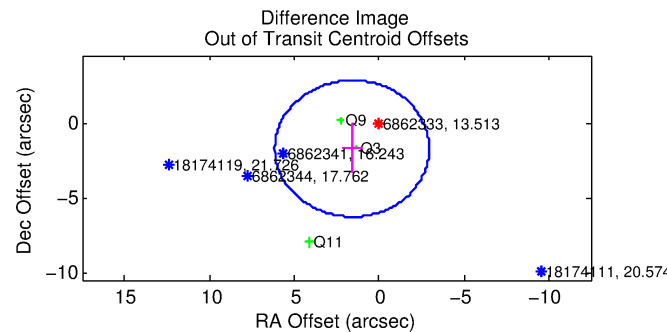
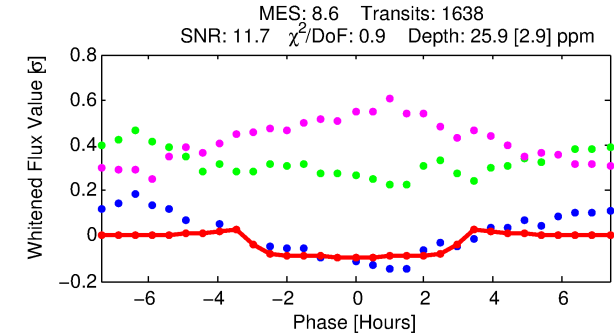
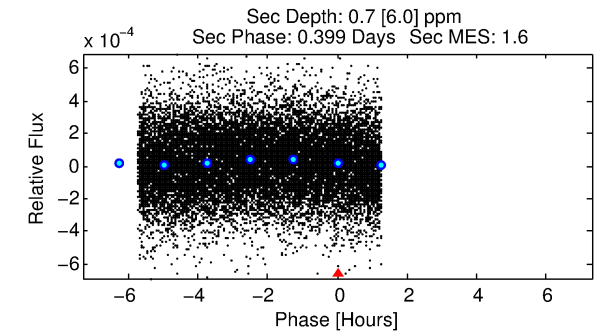
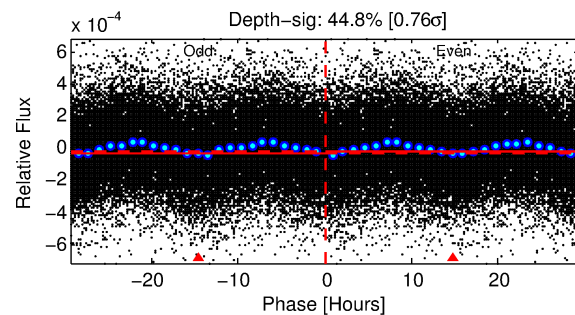
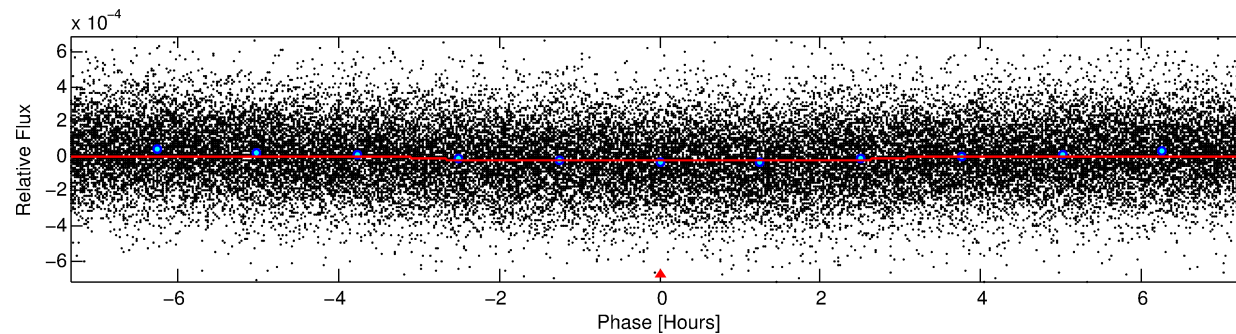
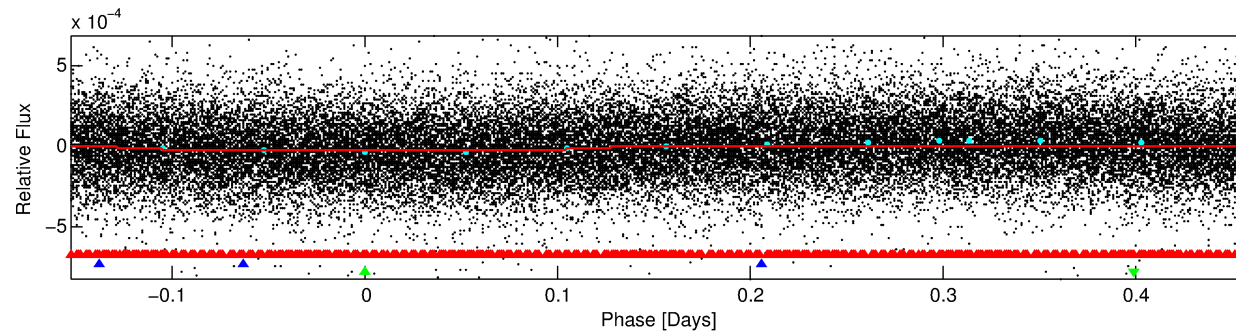
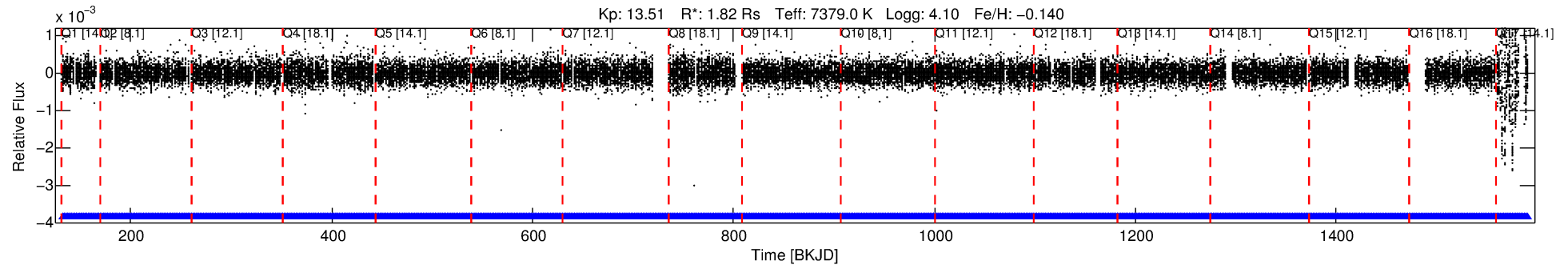
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006862333-03

No Significant Match Found

# DV One-Page Summary

KIC: 6862333 Candidate: 3 of 3 Period: 0.611 d



## DV Fit Results:

Period = 0.61104 [0.00001] d  
Epoch = 132.0539 [0.0040] BKJD  
Rp/R\* = 0.0047 [0.0035]  
a/R\* = 1.03 [0.26]  
b = 0.01 [397.79]  
Seff = 33242.48 [12928.16]  
Teq = 3443 [335] K  
Rp = 0.93 [0.74] Re  
a = 0.0162 [0.0039] AU  
Ag = 0.11 [1.01] [-0.88σ]  
Teffp = 3070 [7022] K [-0.05σ]

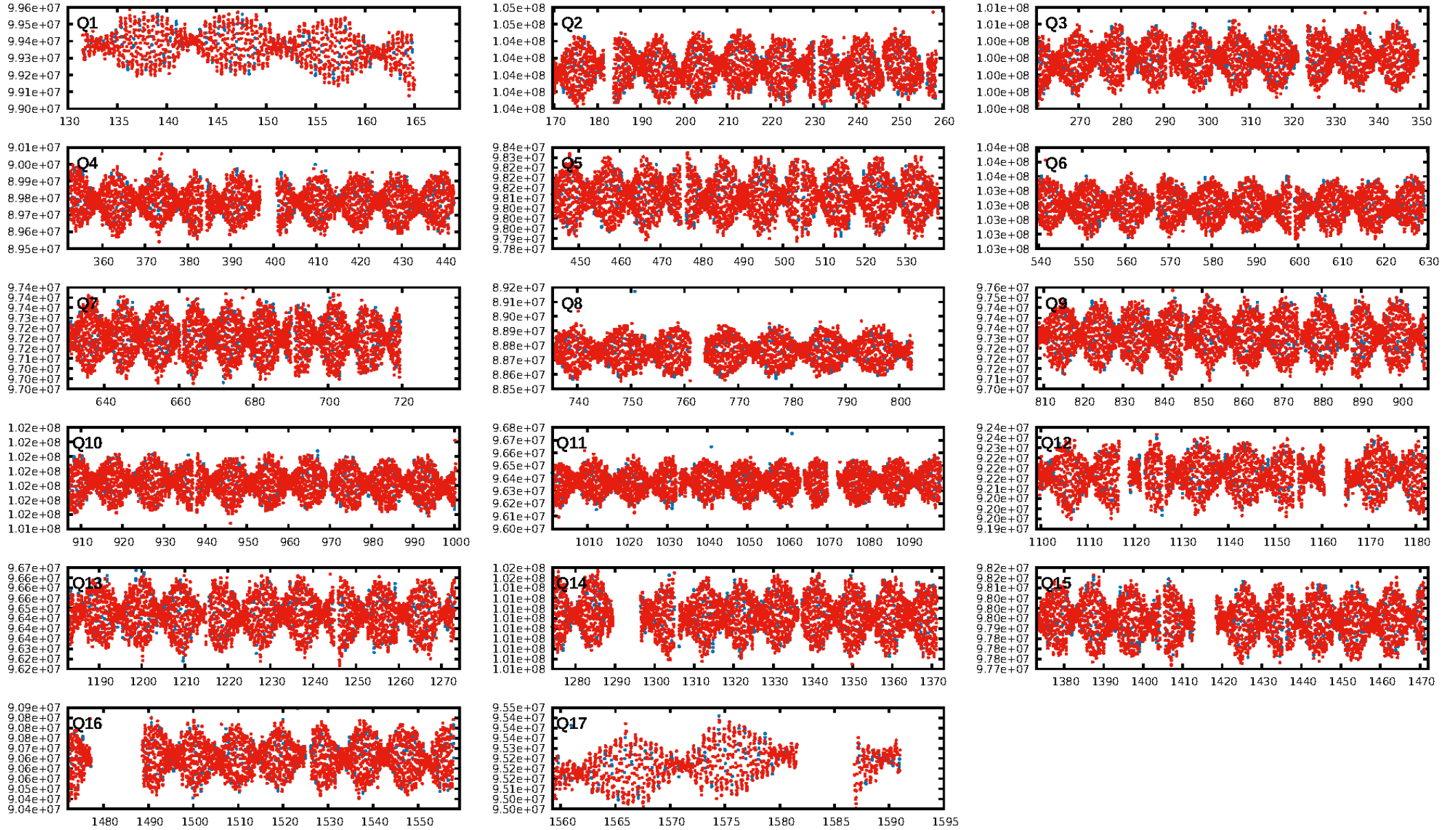
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [6.27σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1565/1565]  
GhostDiagnostic-chr: 3.259  
Centroid-sig: 1.8%  
Centroid-so: 0.828 arcsec [1.73σ]  
OotOffset-rm: 2.348 arcsec [1.55σ]  
KicOffset-rm: 2.479 arcsec [1.58σ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:40:22 Z

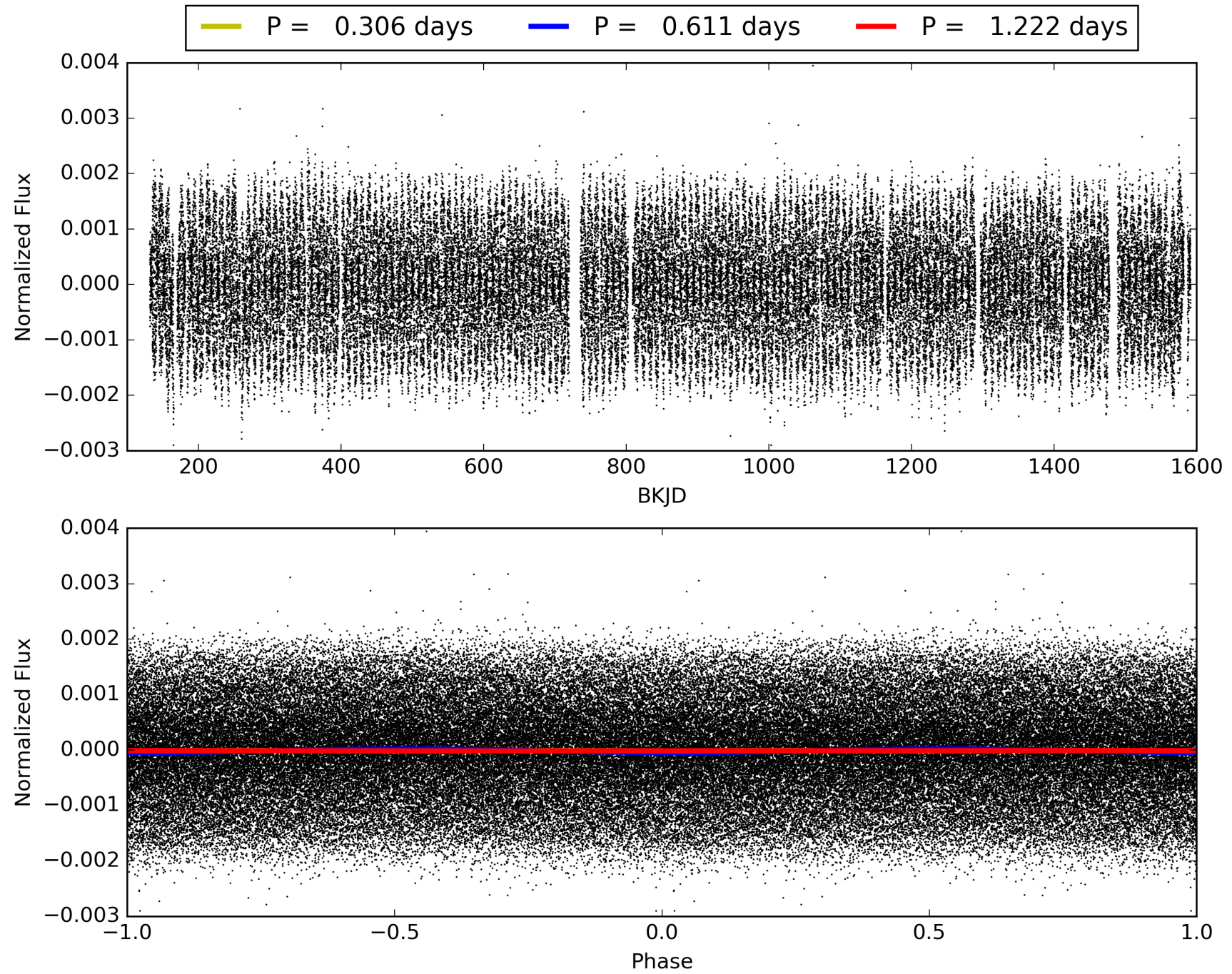
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006862333-03, PDC Light Curves



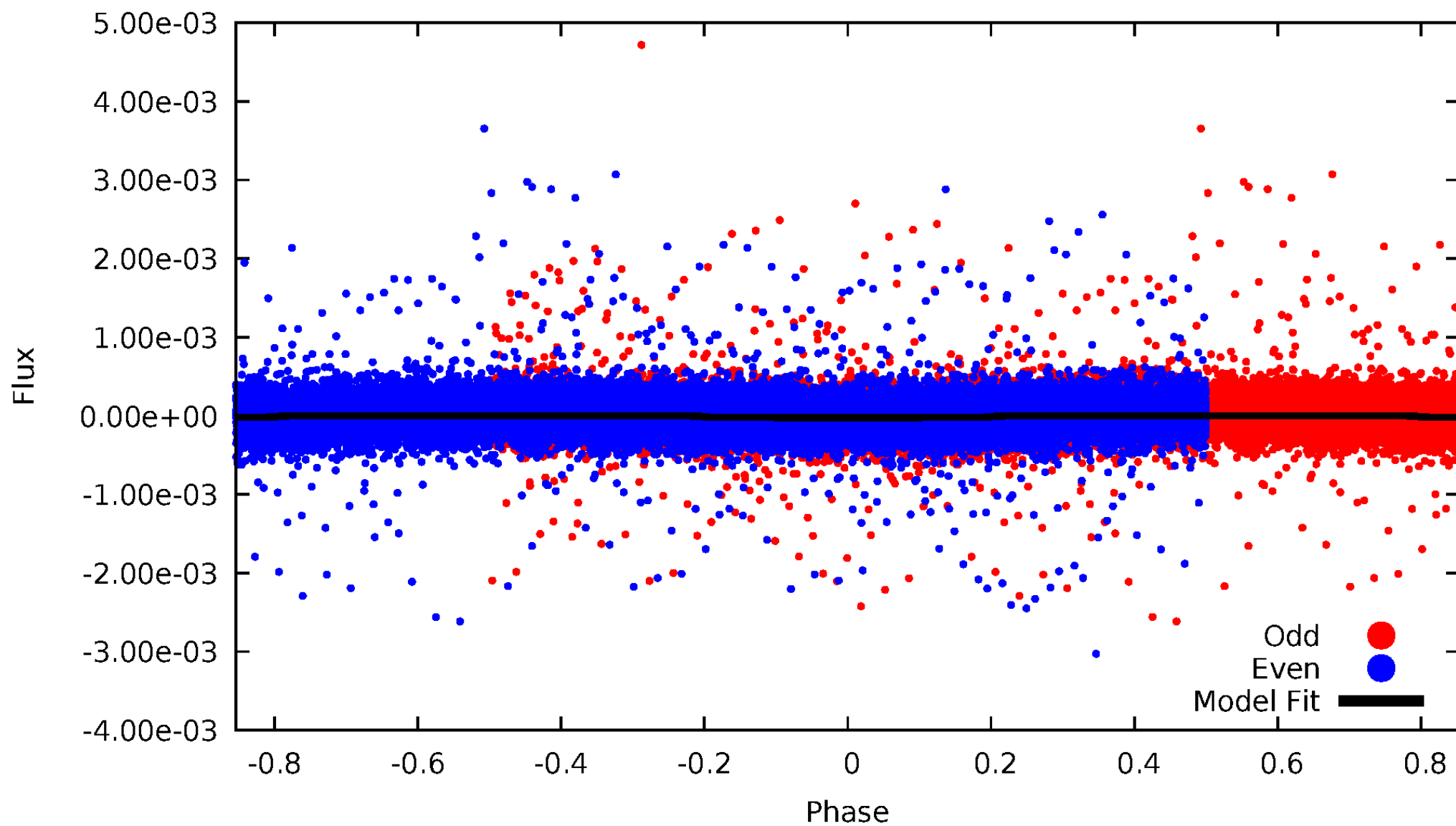


TCE 006862333-03



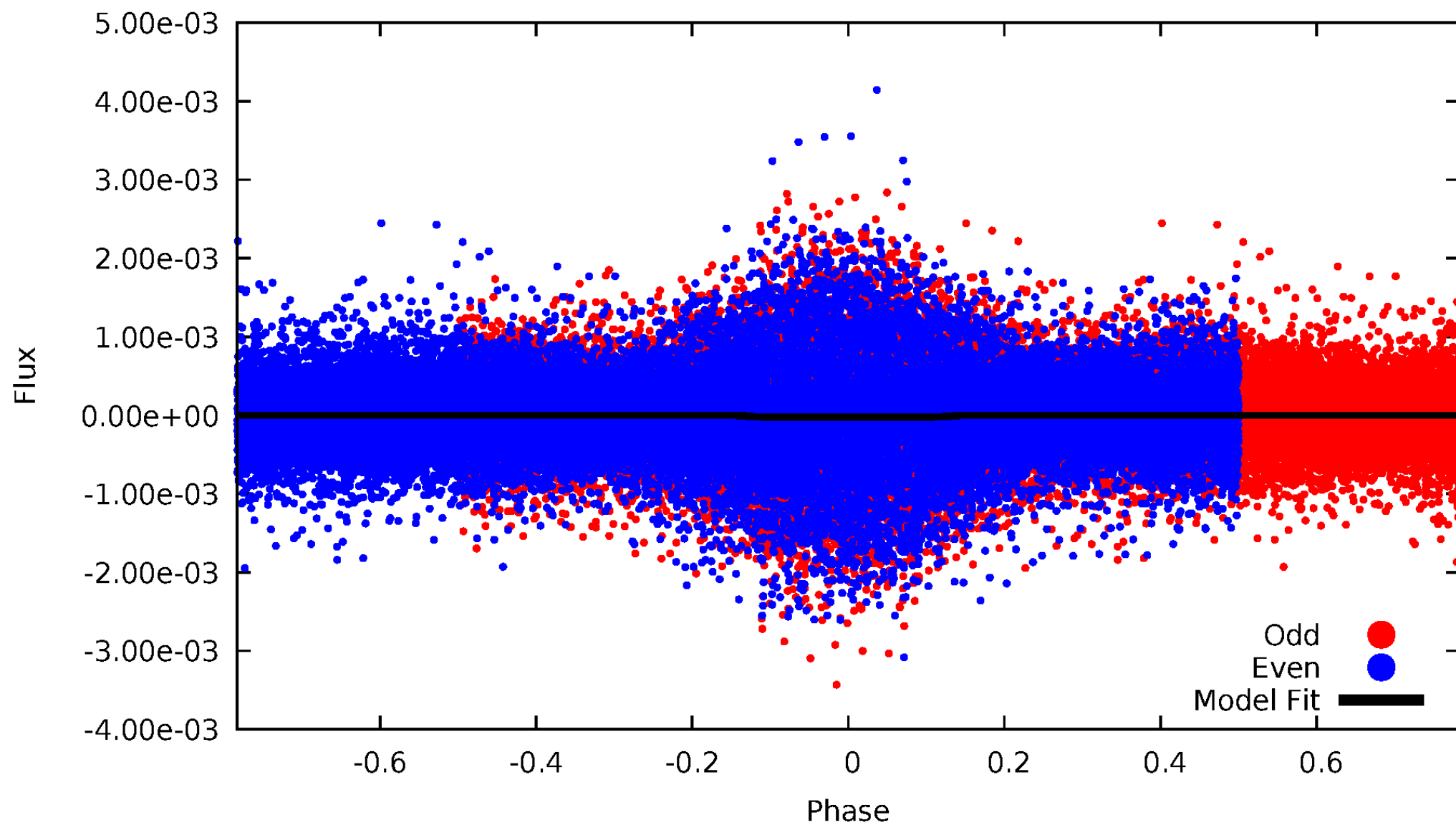
# DV Odd/Even

TCE 006862333-03



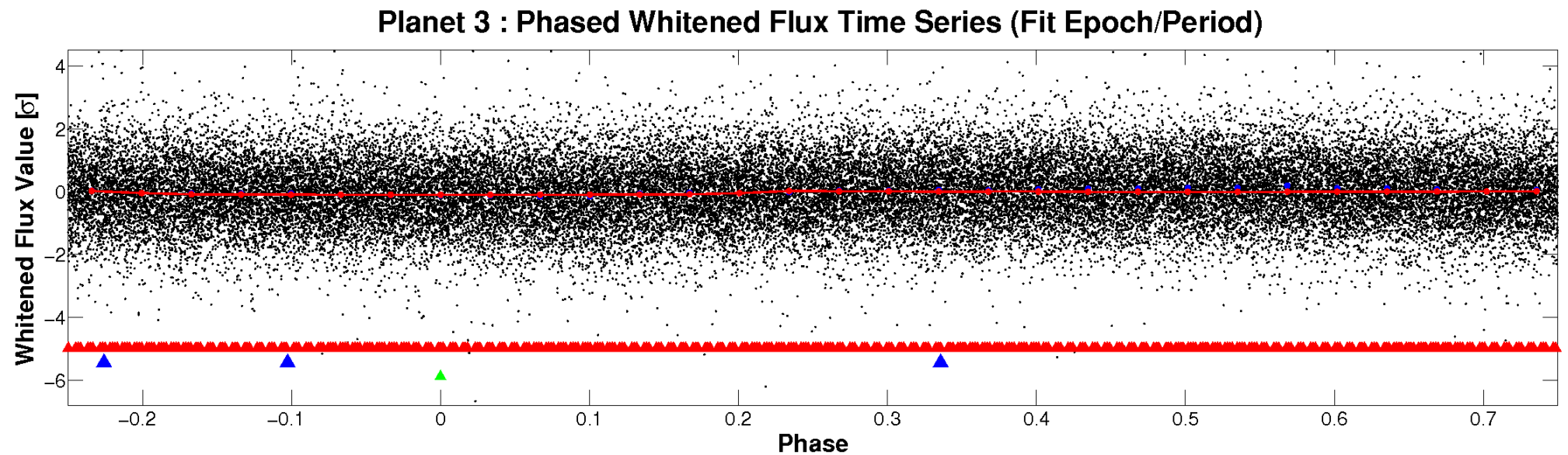
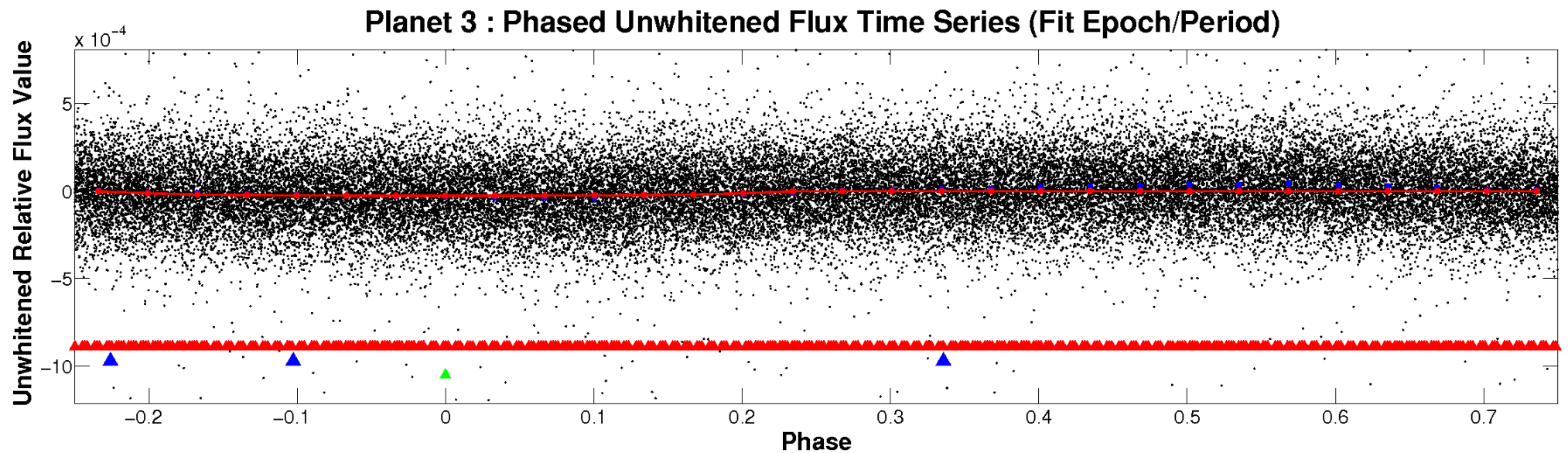
# ALT Odd/Even

TCE 006862333-03



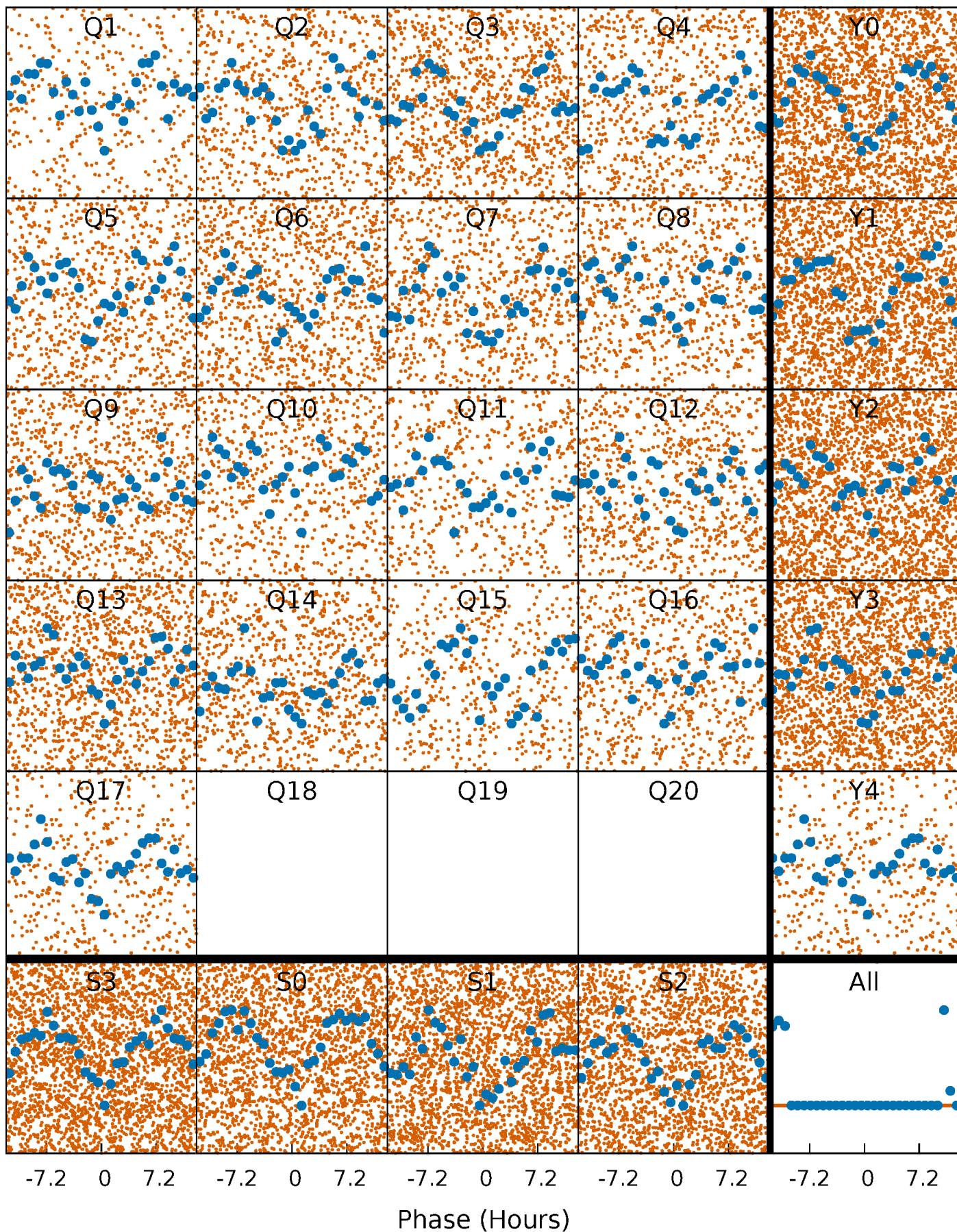


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

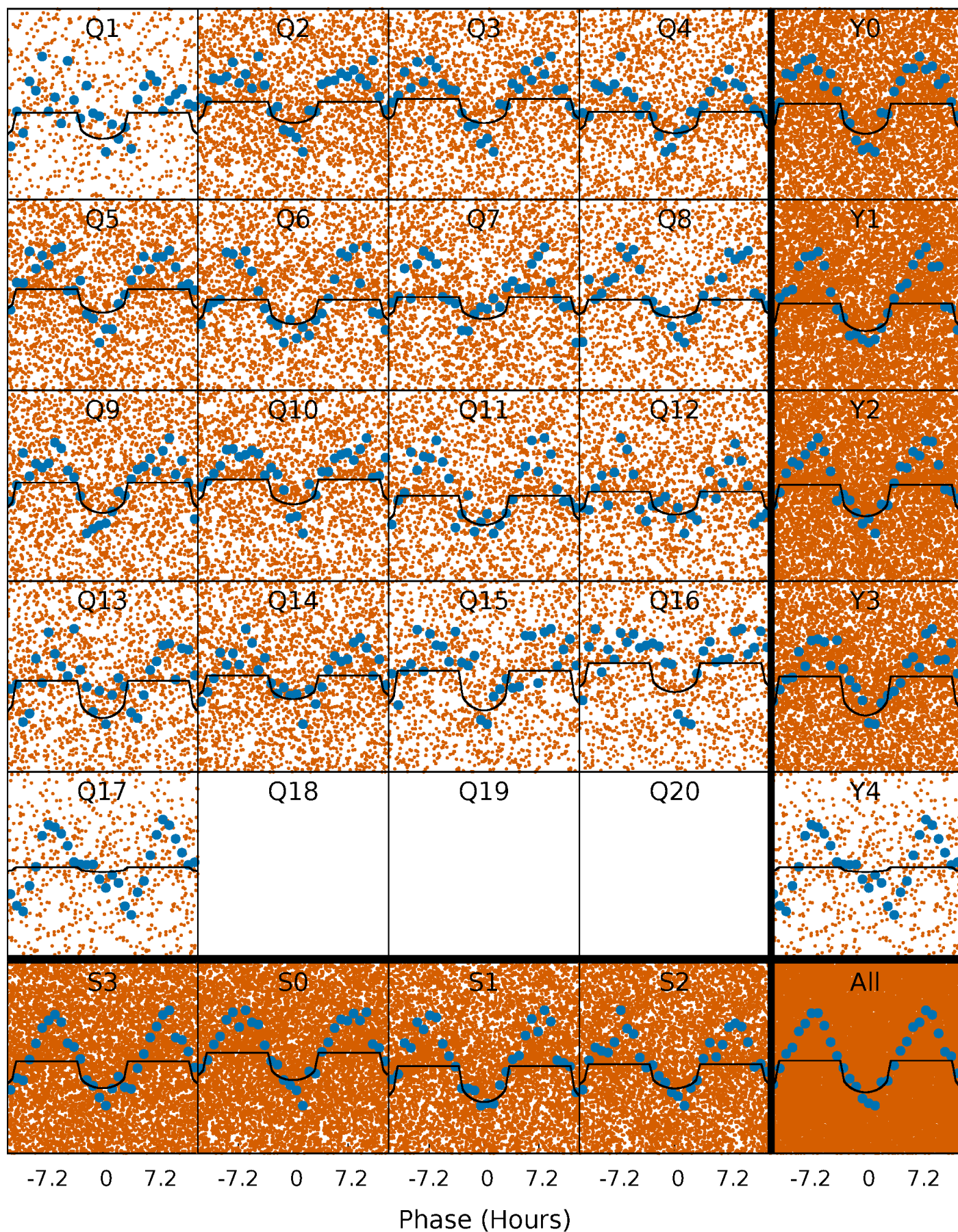
TCE 006862333-03 P= 0.611041 Days  $T_0=132.053934$  (BKJD)





# DV Quarter-Phased Transit Curves

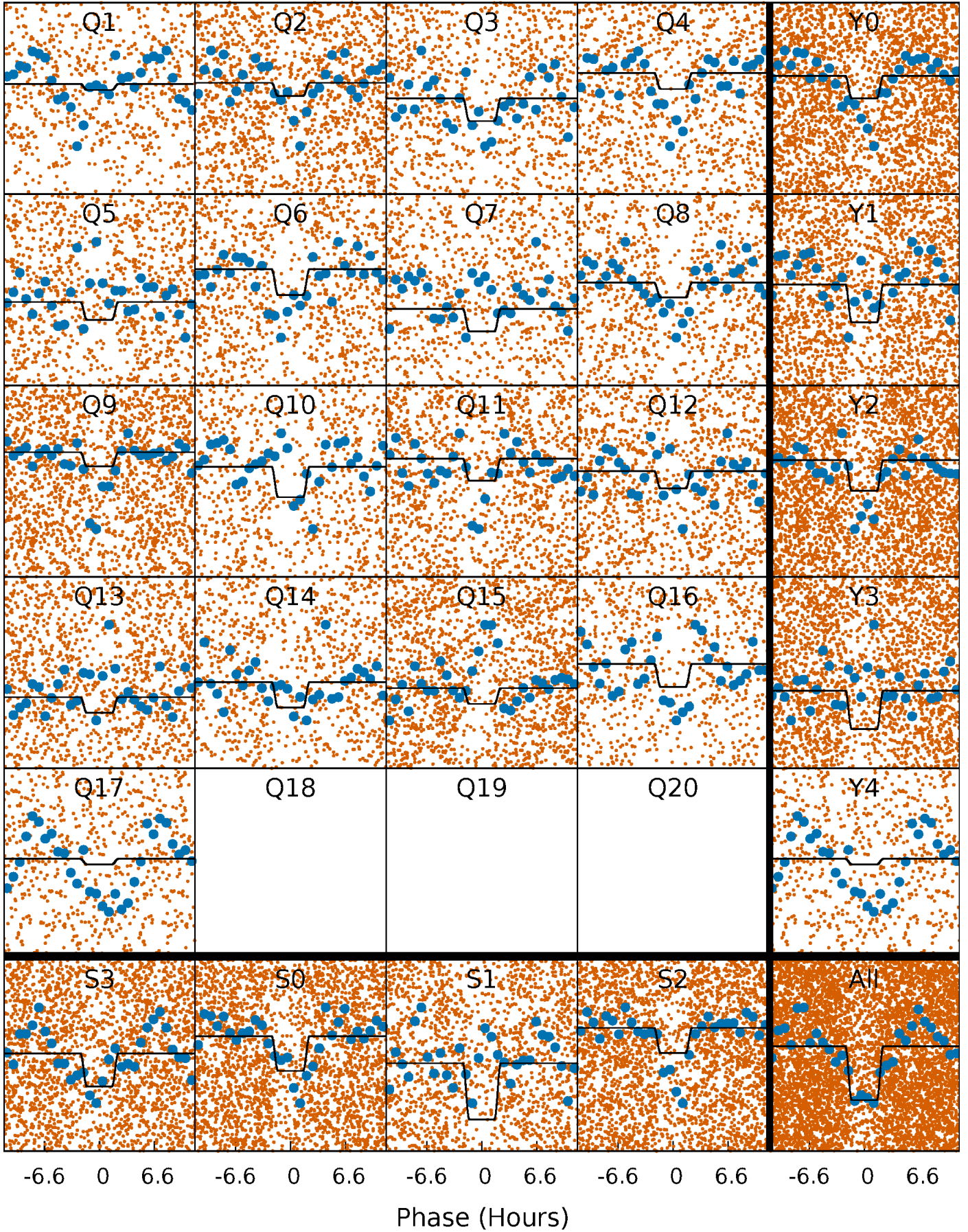
TCE 006862333-03 P= 0.611041 Days  $T_0=132.053934$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

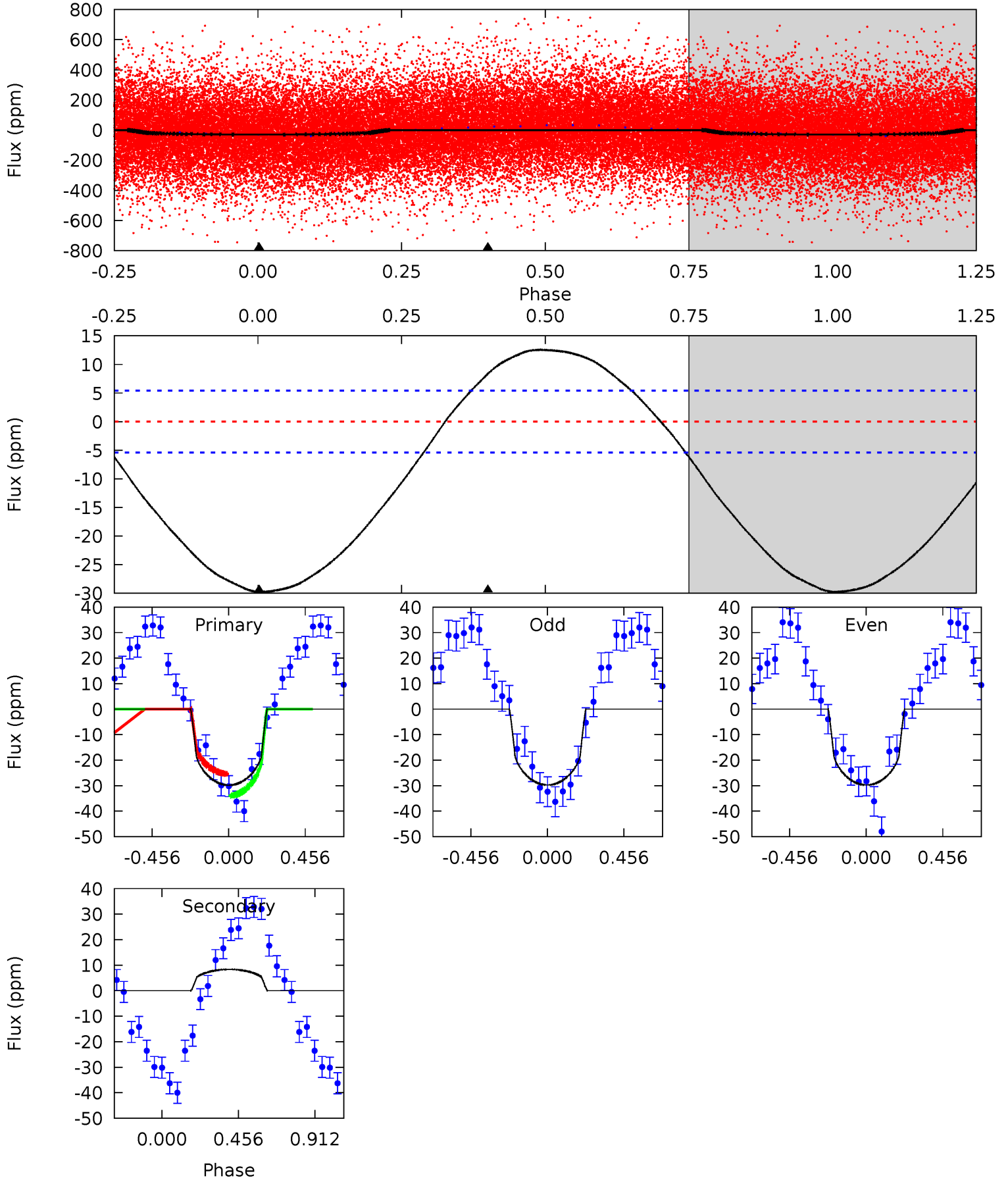
TCE 006862333-03 P= 0.611064 Days  $T_0=132.050660$  (BKJD)



# DV Model-Shift Uniqueness Test

006862333-03, P = 0.611041 Days, E = 131.442893 Days

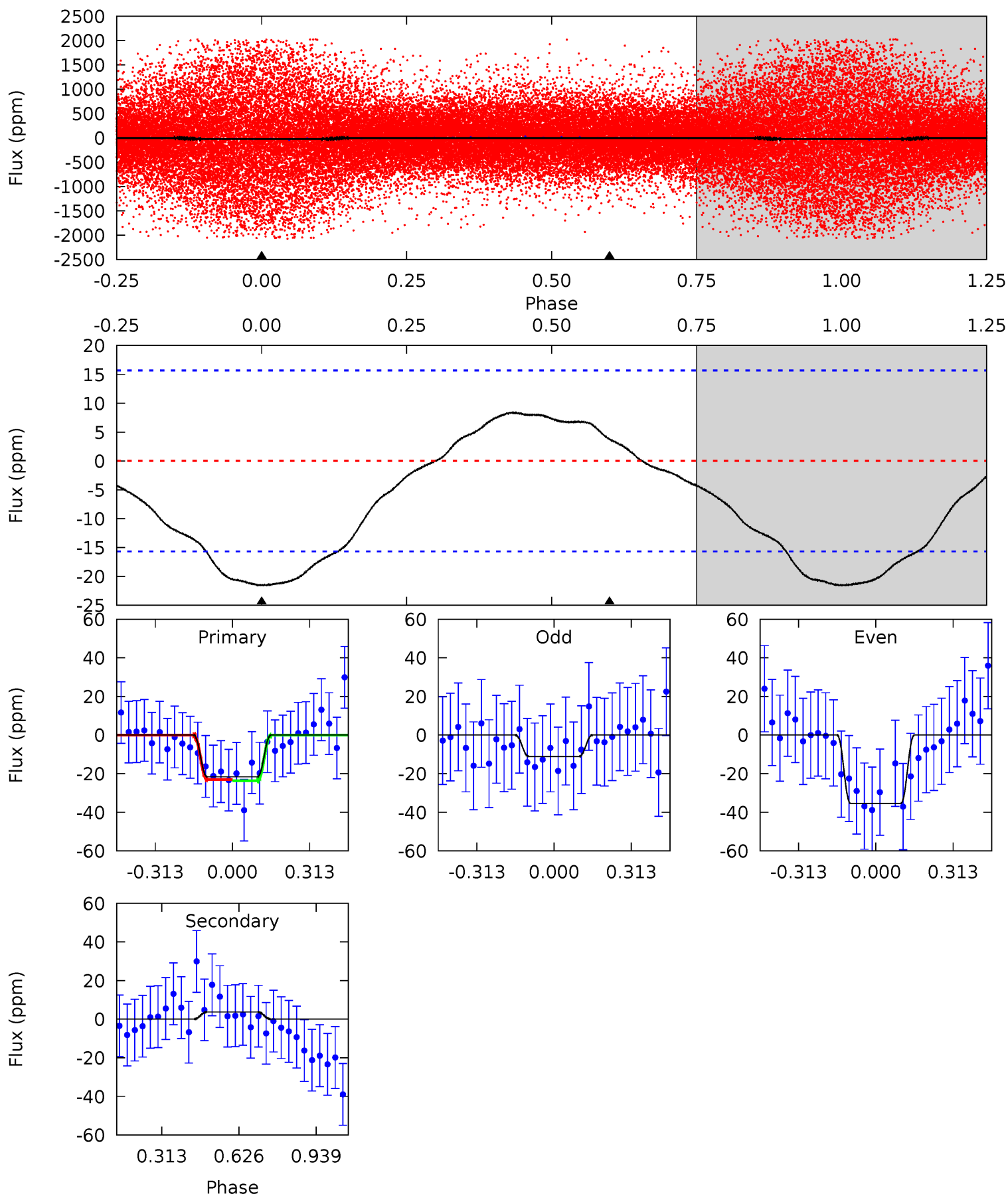
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.4	-6.55	0	0	4.24	0.75	2.65	23.4	23.4	-6.55	-6.55	0.00	1.12	0.30	3.35



# Alt Model-Shift Uniqueness Test

006862333-03, P = 0.611064 Days, E = 131.439596 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
5.96	-1.03	0	0	4.32	1.01	0.56	5.96	5.96	-1.03	-1.03	3.34	1.22	0.28	0.08



### Stellar Parameters For KIC 006862333

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7379^{+205}_{-333}$	$4.104^{+0.153}_{-0.187}$	$-0.140^{+0.250}_{-0.350}$	$1.817^{+0.519}_{-0.425}$	$1.526^{+0.209}_{-0.255}$	$0.358^{+0.338}_{-0.175}$
	+3%/-5%	+4%/-5%	+179%/-250%	+29%/-23%	+14%/-17%	+94%/-49%
Source	KIC0	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 006862333-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$8 \pm 1$	$1.01^{+0.66}_{-0.57}$	$4811^{+390}_{-319}$	$-5755^{+773}_{-2868}$	$-1.152^{+0.734}_{-4.907}$
Alt.	$4 \pm 4$	$1.05^{+0.72}_{-0.56}$	$4835^{+374}_{-357}$	$-4896^{+748}_{-1502}$	$-0.354^{+0.364}_{-1.565}$

$T_{max}$  = 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

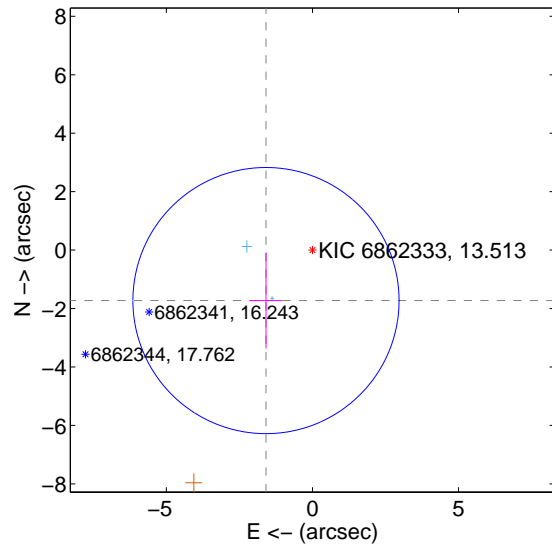
Supplemental centroid analysis for 006862333-03. Kepler magnitude: 13.51. Transit SNR 11.67

There are 2 quarters with good PRF difference image offsets

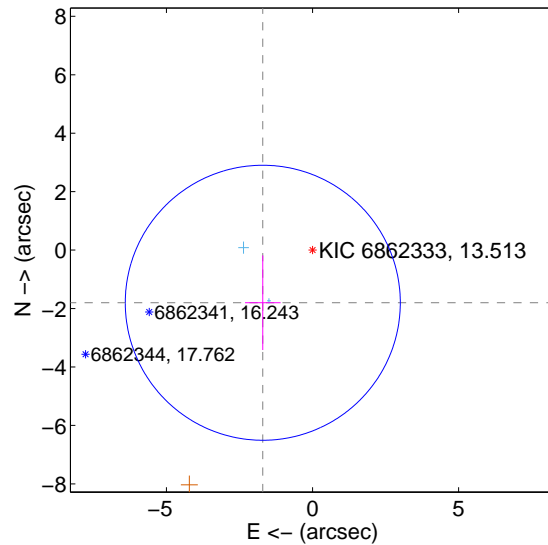
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.348 \pm 1.518$	1.55	$1.590 \pm 0.562$	$-1.727 \pm 1.643$
PRF-fit source offset from KIC position	$2.479 \pm 1.569$	1.58	$1.702 \pm 0.610$	$-1.802 \pm 1.618$
photometric centroid source offset	$0.83 \pm 0.48$	1.73	$0.37 \pm 0.57$	$0.74 \pm 0.45$

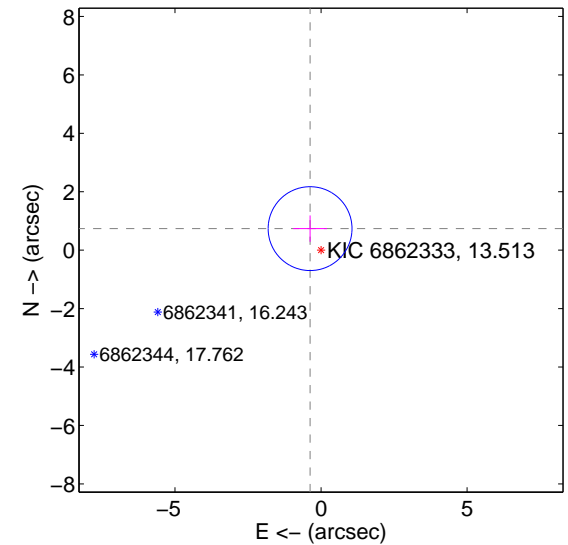
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

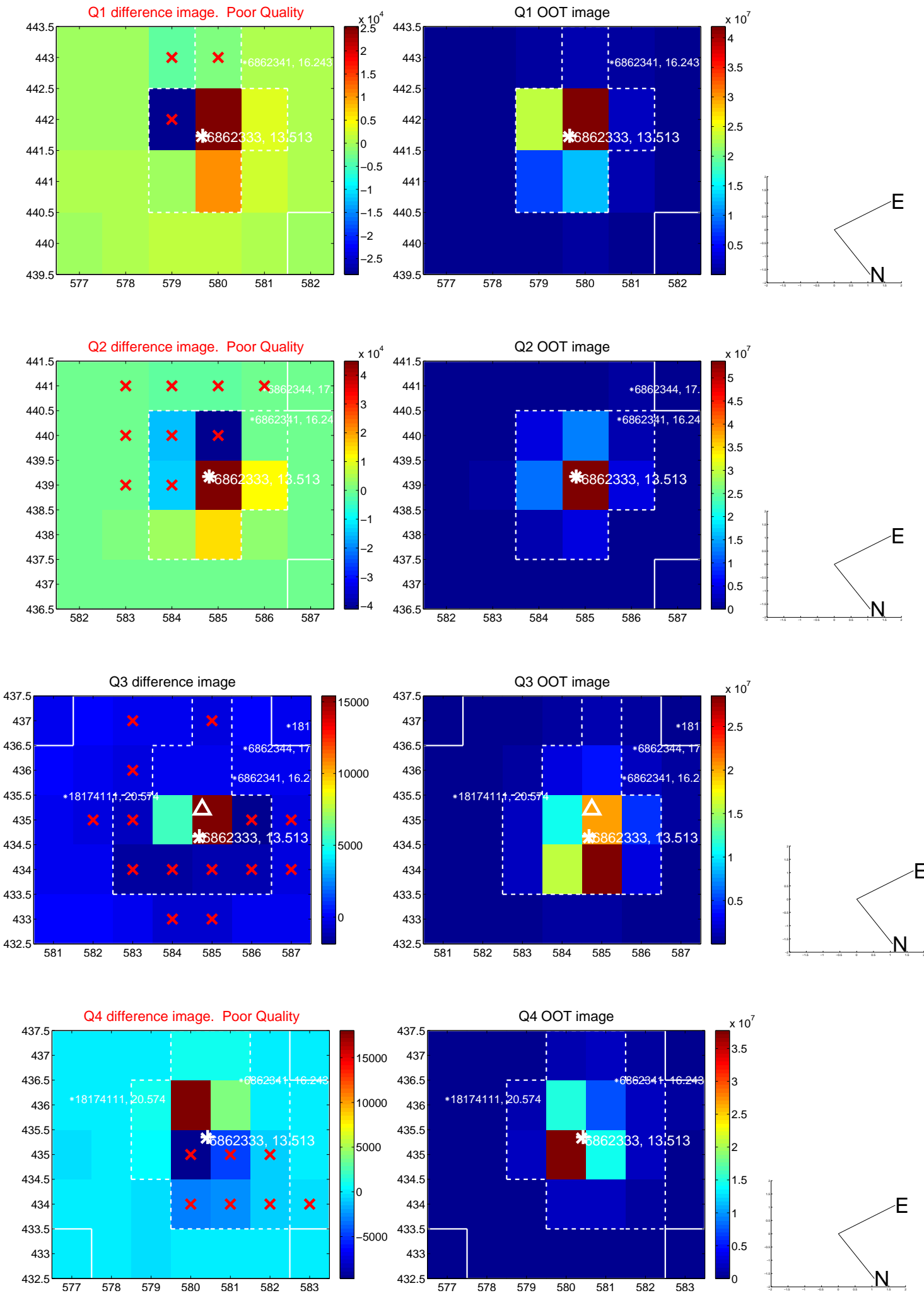


offset from photometric centroids

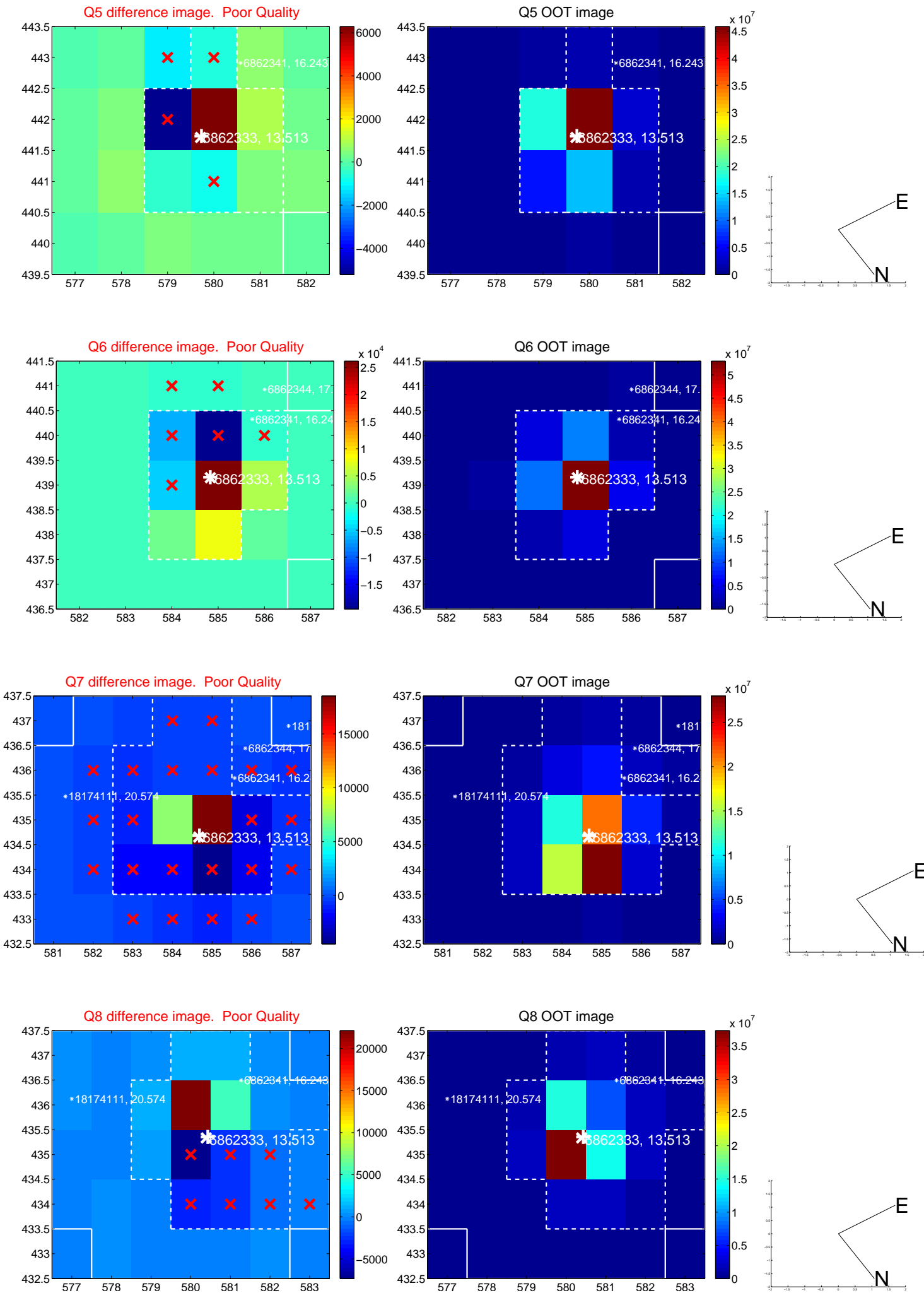


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

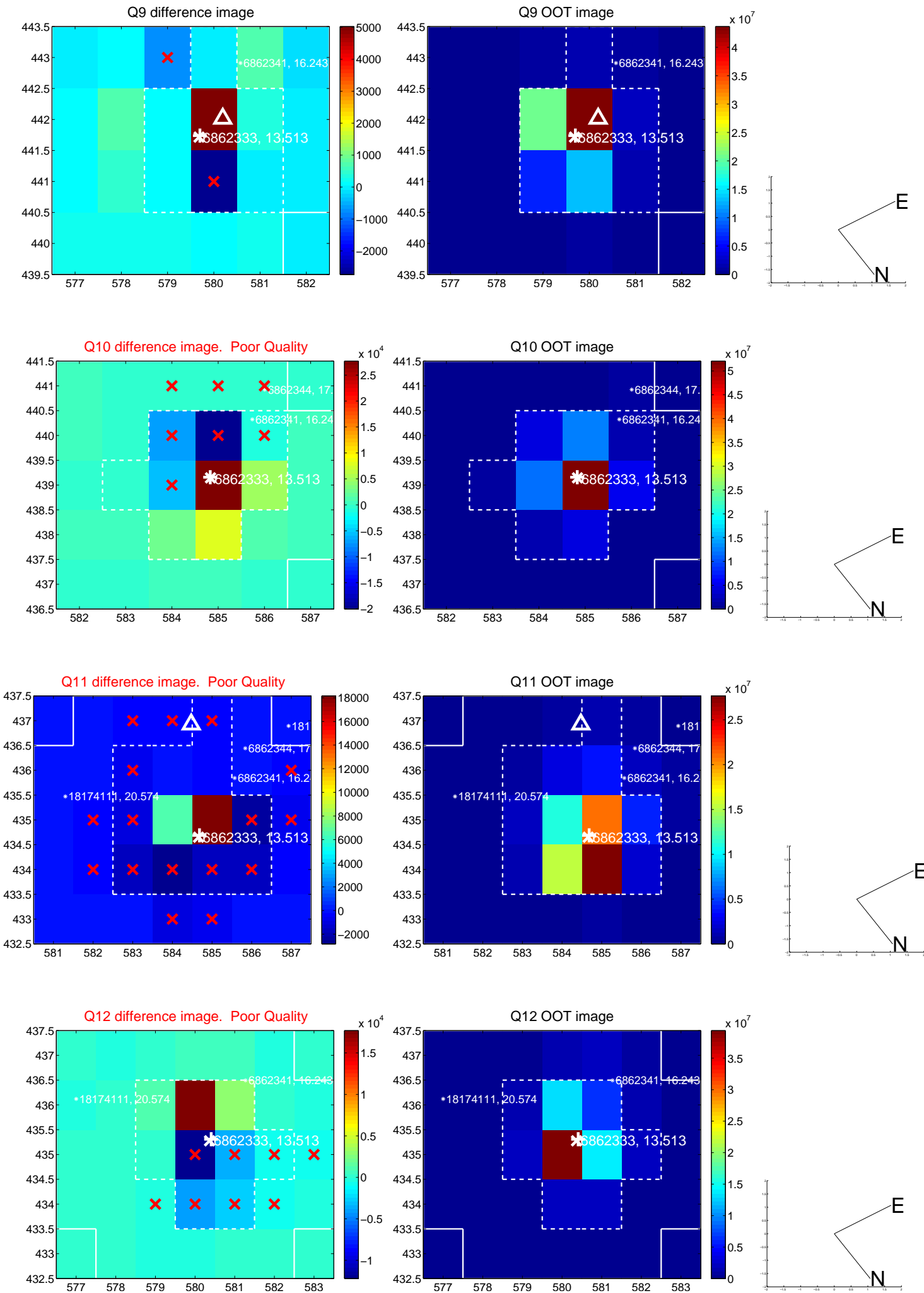
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



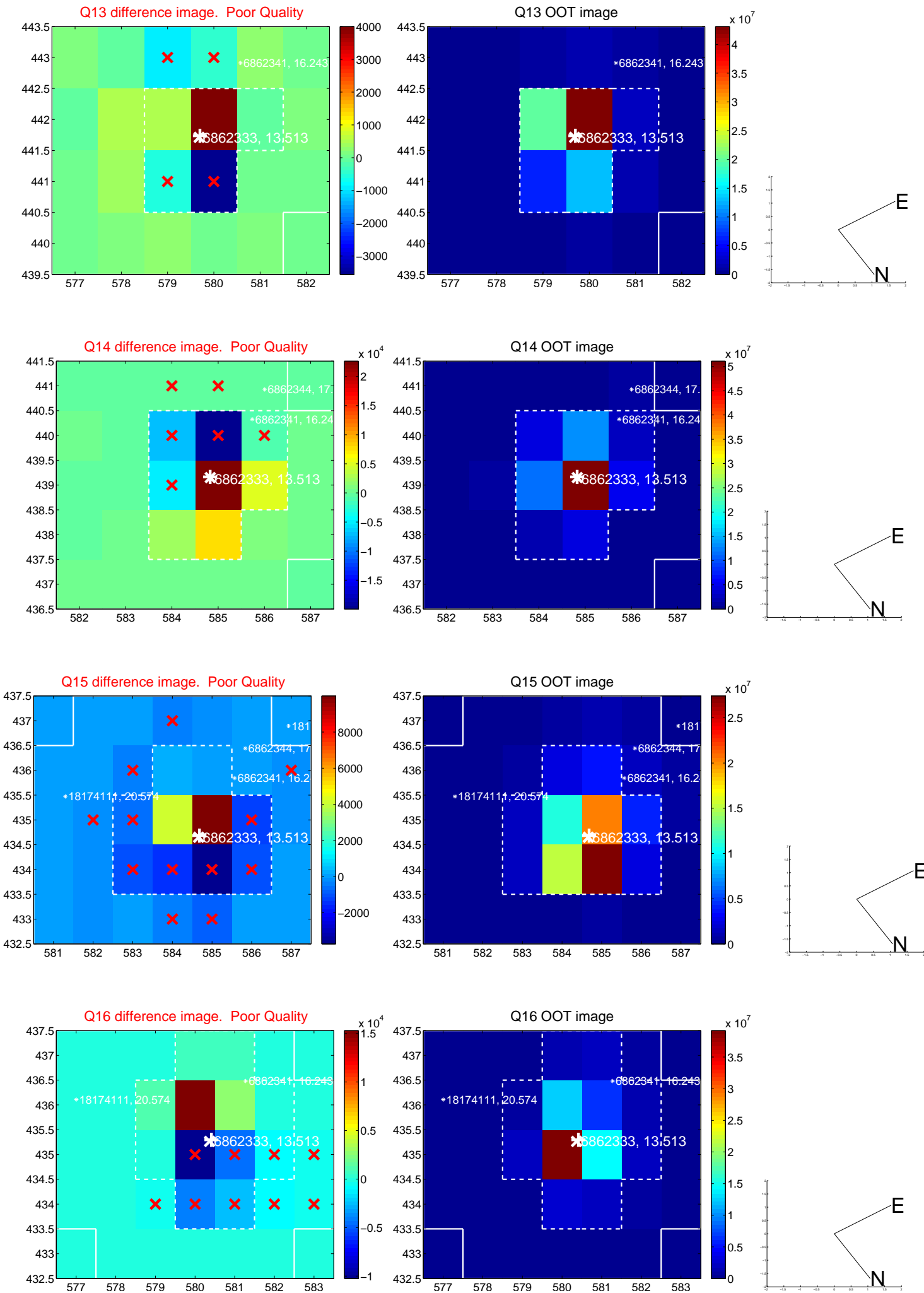
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



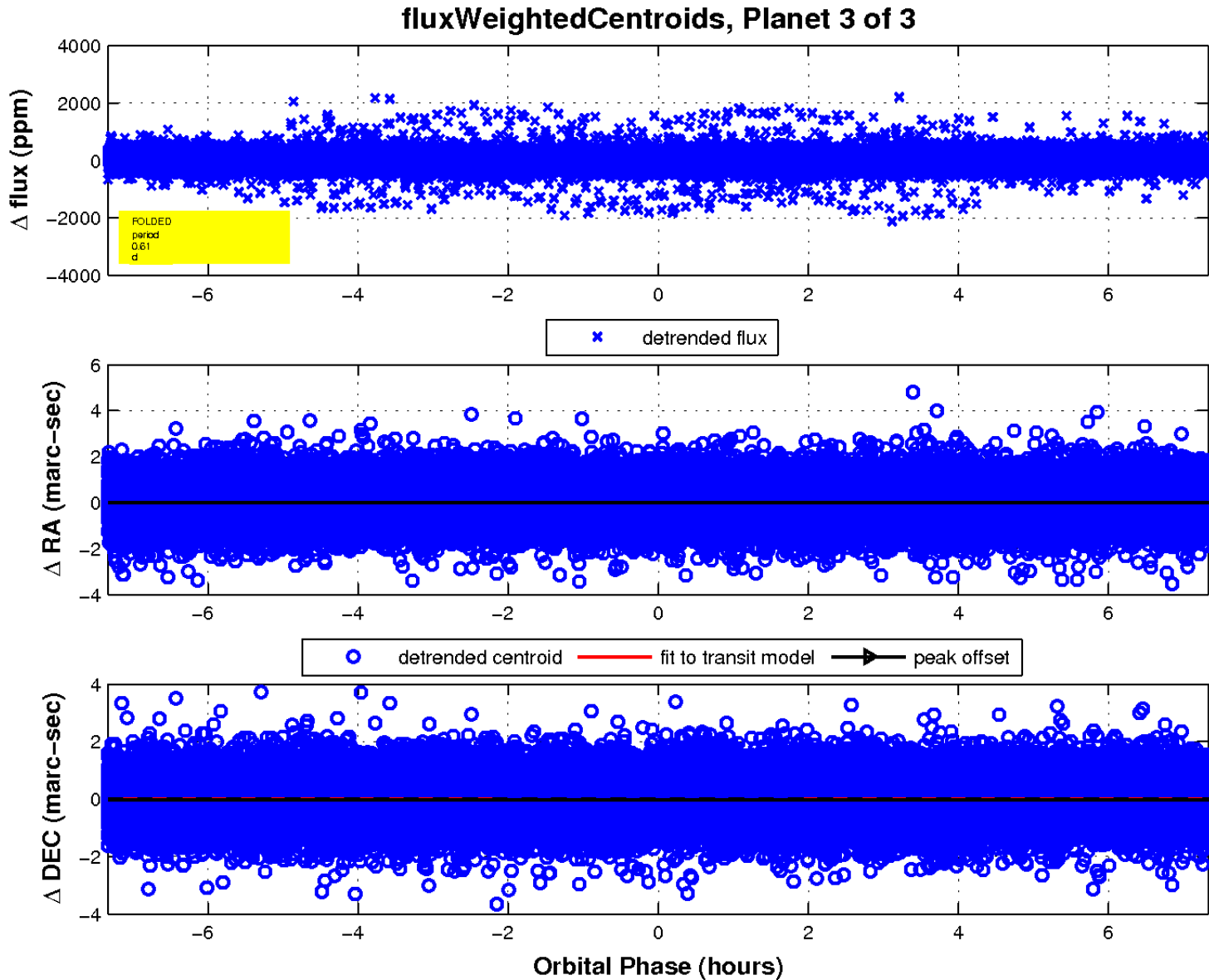
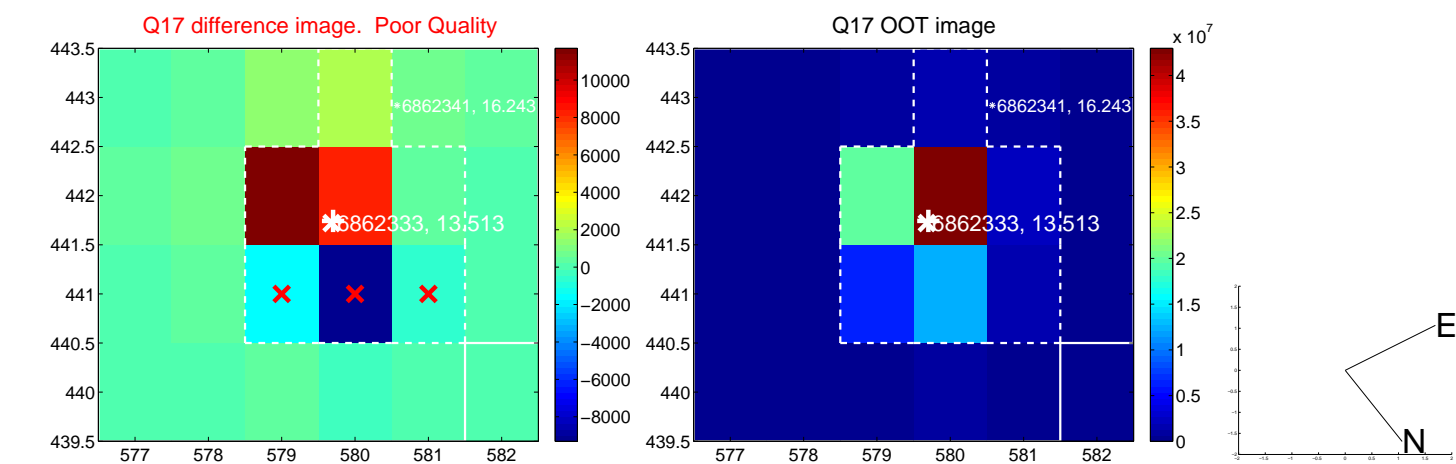
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

