

# KIC 008650819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008650819-01	OBS	No	0.637366	131.824661	418.7	1.522	12.2	14.9	2.75	7355	6.04	64058.58
008650819-02	OBS	No	0.637366	131.984321	425.8	1.650	12.9	15.8	2.75	7355	6.70	64058.58
008650819-03	OBS	No	0.637358	132.148159	377.0	1.651	12.5	14.4	2.75	7355	6.30	64059.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008650819-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008650819-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008650819-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

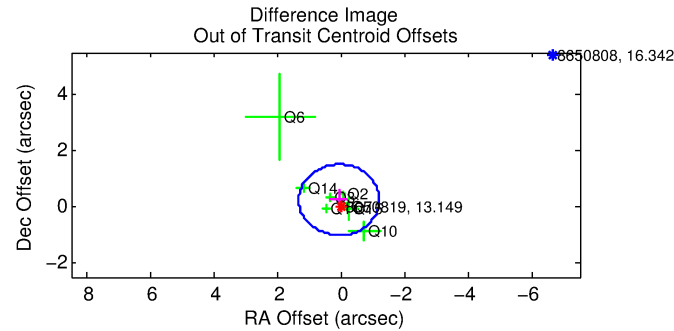
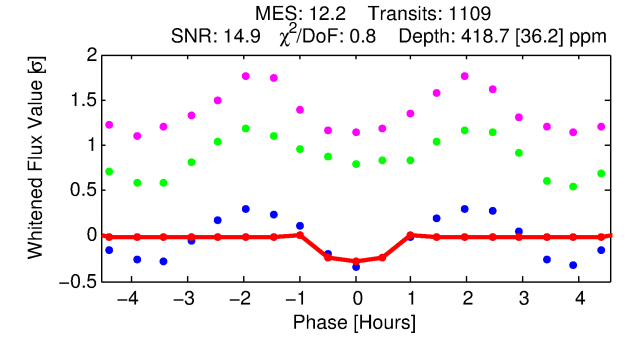
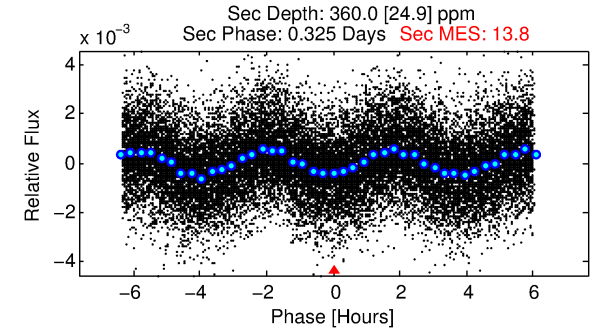
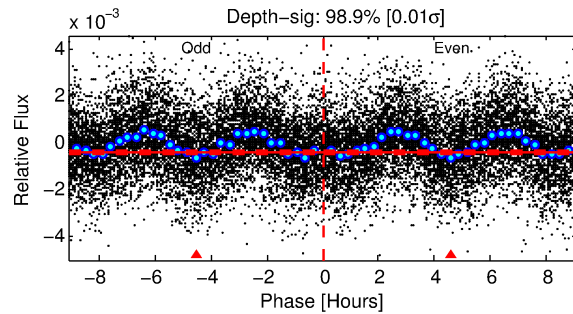
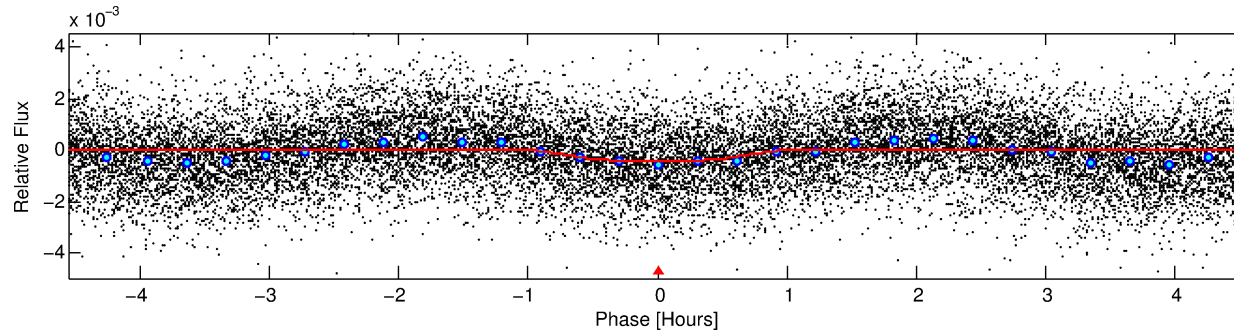
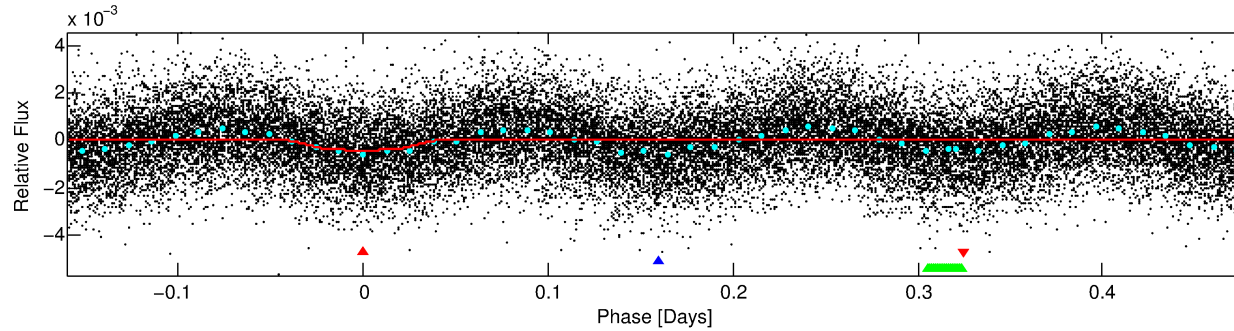
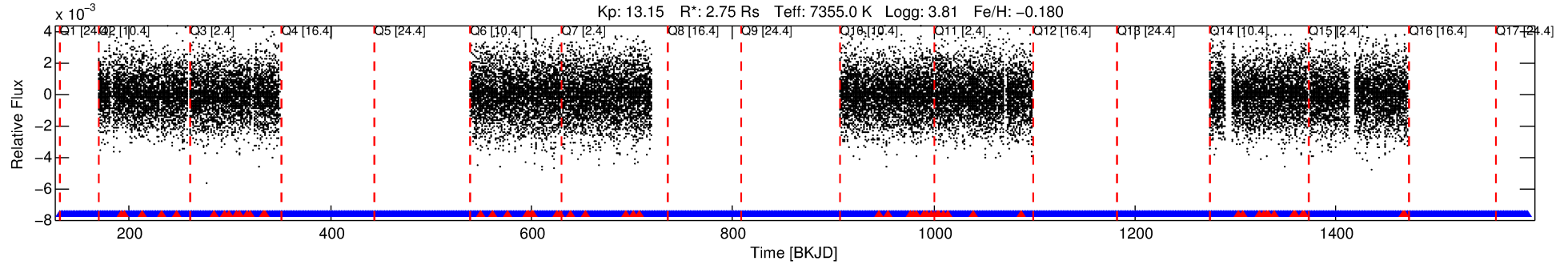
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008650819-01

No Significant Match Found

# DV One-Page Summary

KIC: 8650819 Candidate: 1 of 3 Period: 0.637 d



## DV Fit Results:

Period = 0.63737 [0.00001] d  
Epoch = 131.8247 [0.0013] BKJD  
Rp/R\* = 0.0201 [0.0095]  
a/R\* = 2.52 [5.08]  
b = 0.70 [1.79]  
Seff = 64058.58 [43271.71]  
Teq = 4057 [685] K  
Rp = 6.04 [3.85] Re  
a = 0.0176 [0.0072] AU  
Ag = 1.68 [1.94] [0.35σ]  
Teffp = 7143 [1720] K [1.67σ]

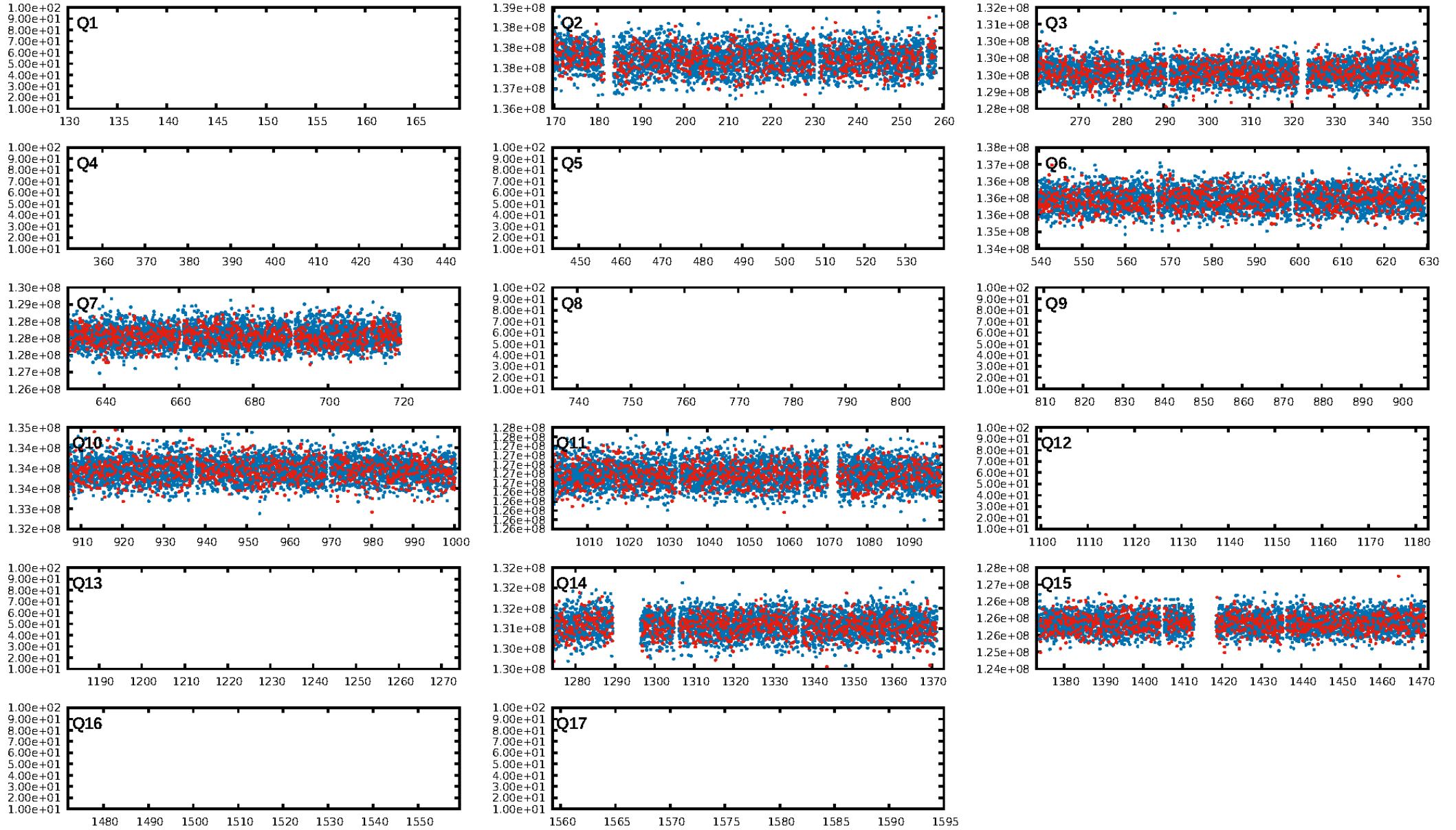
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00σ]**  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.95 [1051/1109]  
GhostDiagnostic-chr: -4.574  
Centroid-sig: 27.0%  
Centroid-so: 0.244 arcsec [2.15σ]  
OotOffset-rm: 0.258 arcsec [0.61σ]  
OotOffset-st: 4/4/0/0 [8]  
KicOffset-rm: 0.284 arcsec [1.46σ]  
KicOffset-st: 4/4/0/0 [8]  
DiffImageQuality-fgm: 0.88 [7/8]  
DiffImageOverlap-fno: 0.00 [0/8]

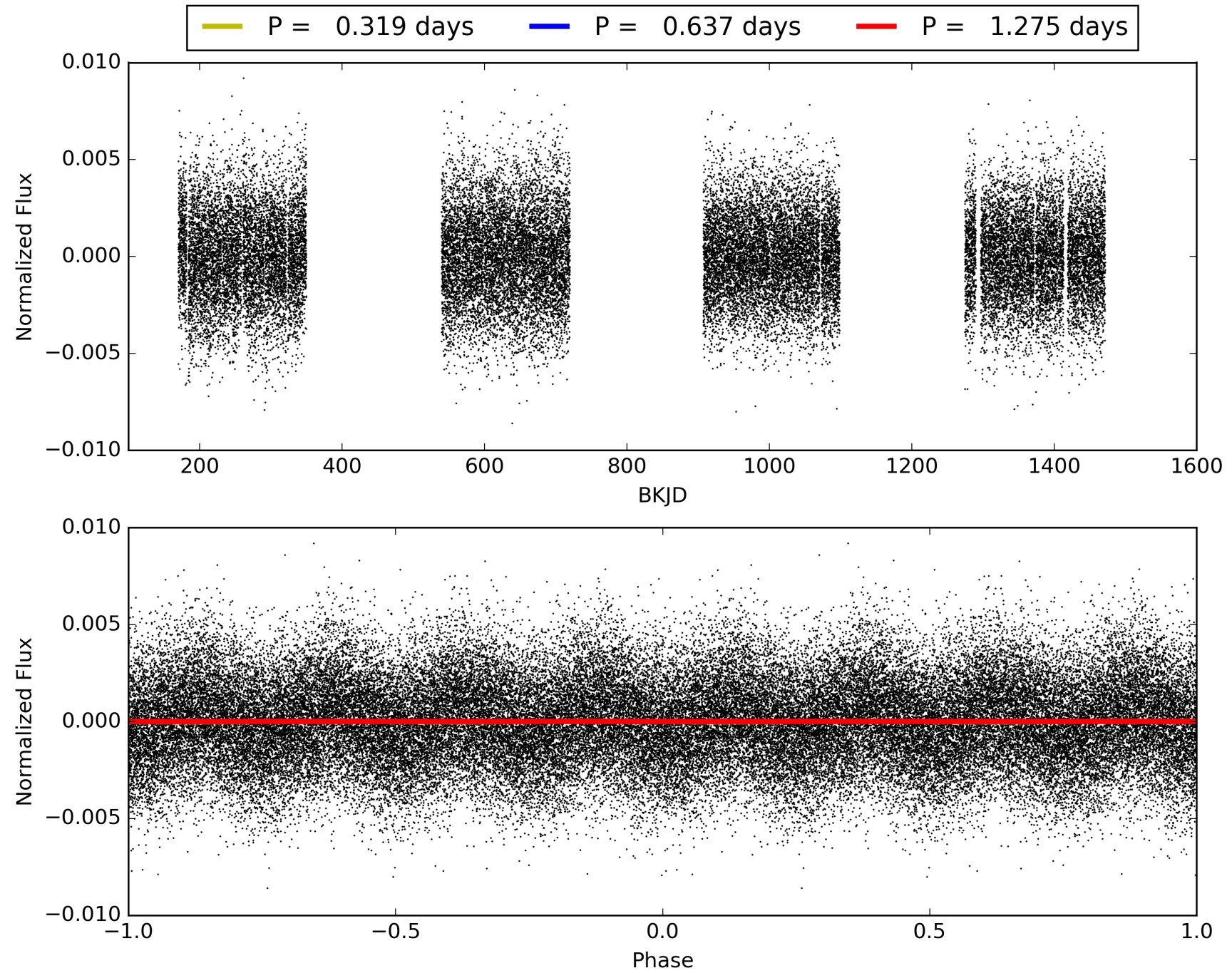
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:18:28 Z

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

# TCE 008650819-01, PDC Light Curves



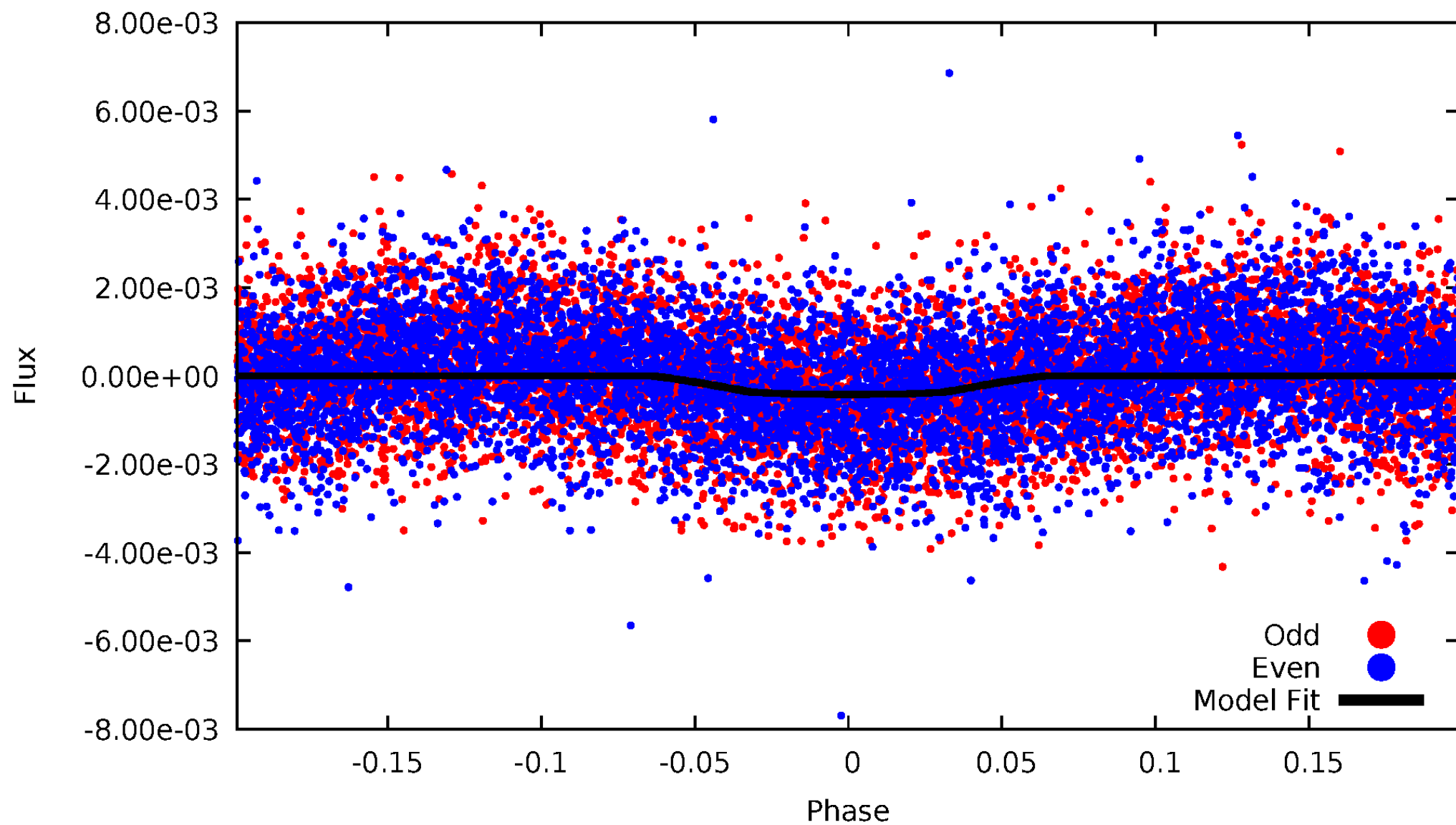
TCE 008650819-01





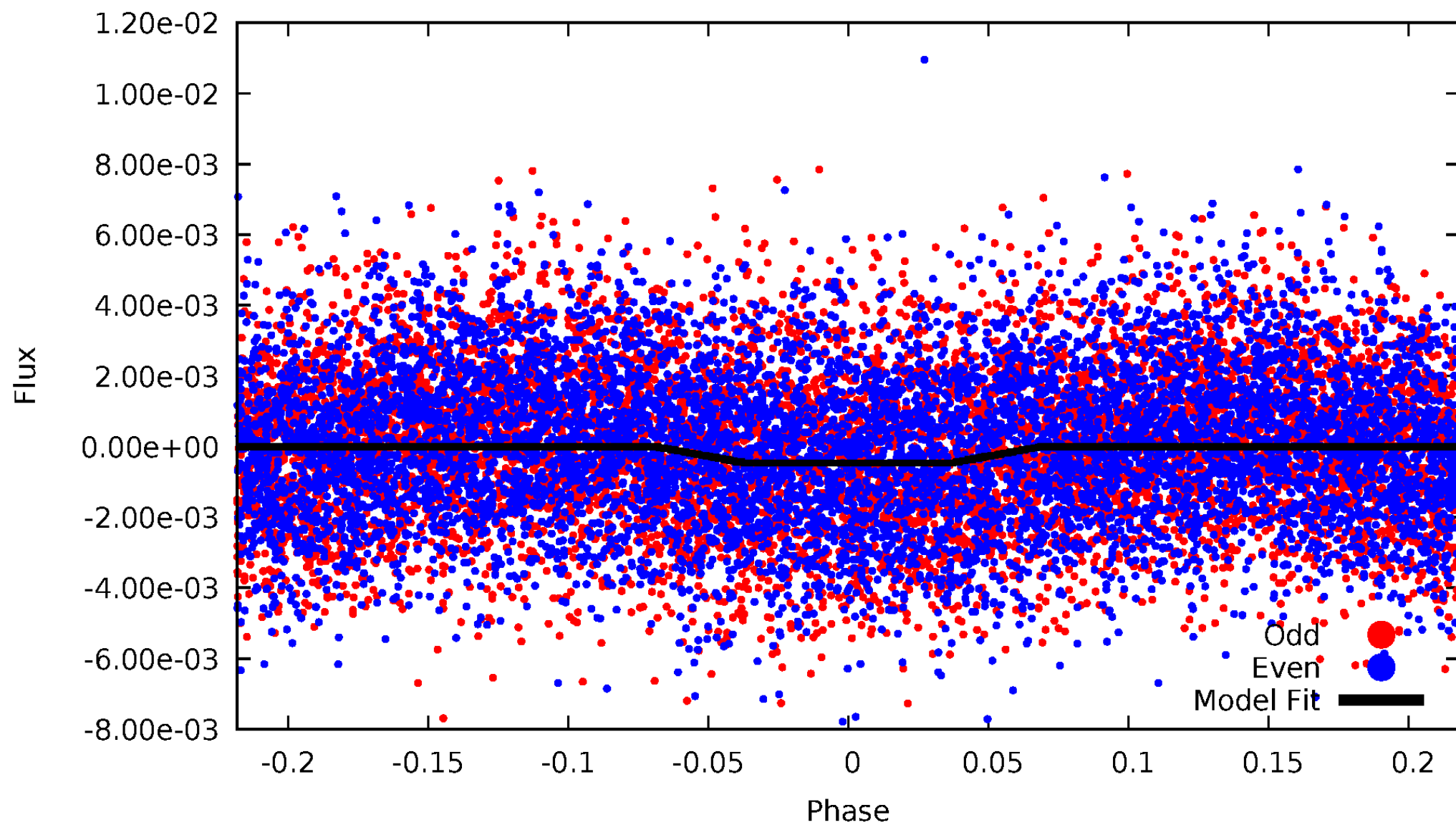
# DV Odd/Even

TCE 008650819-01



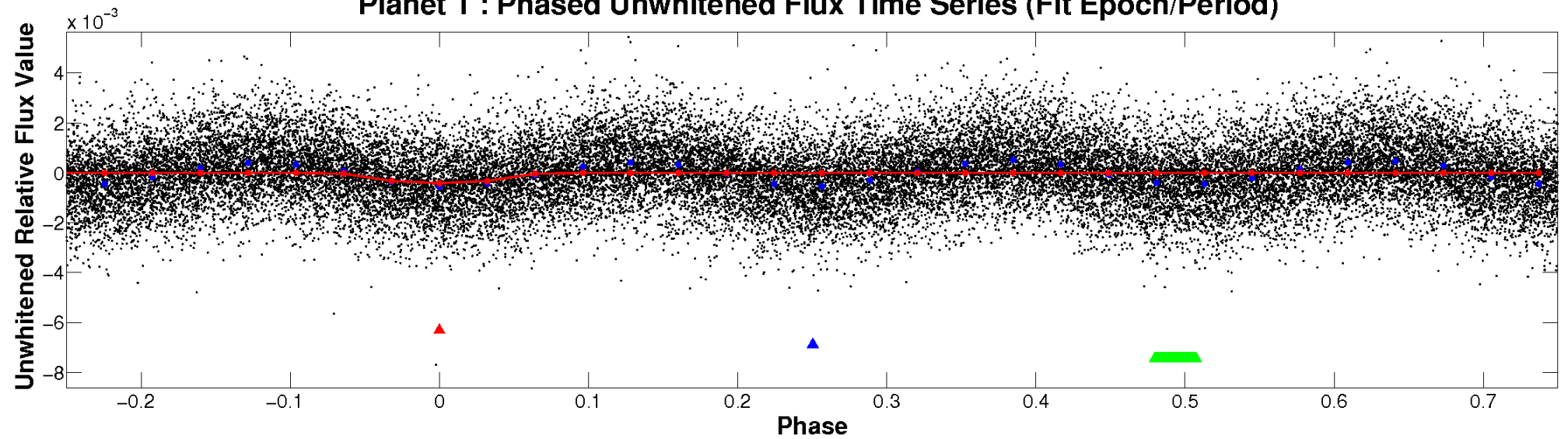
# ALT Odd/Even

TCE 008650819-01

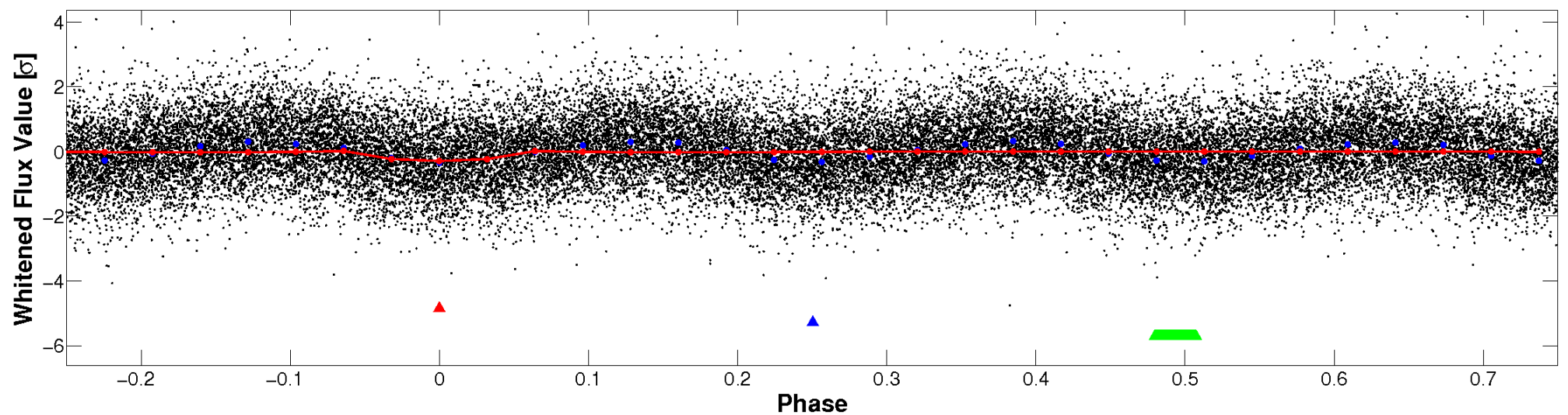


# Non-Whitened Vs. Whitened Light Curve

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

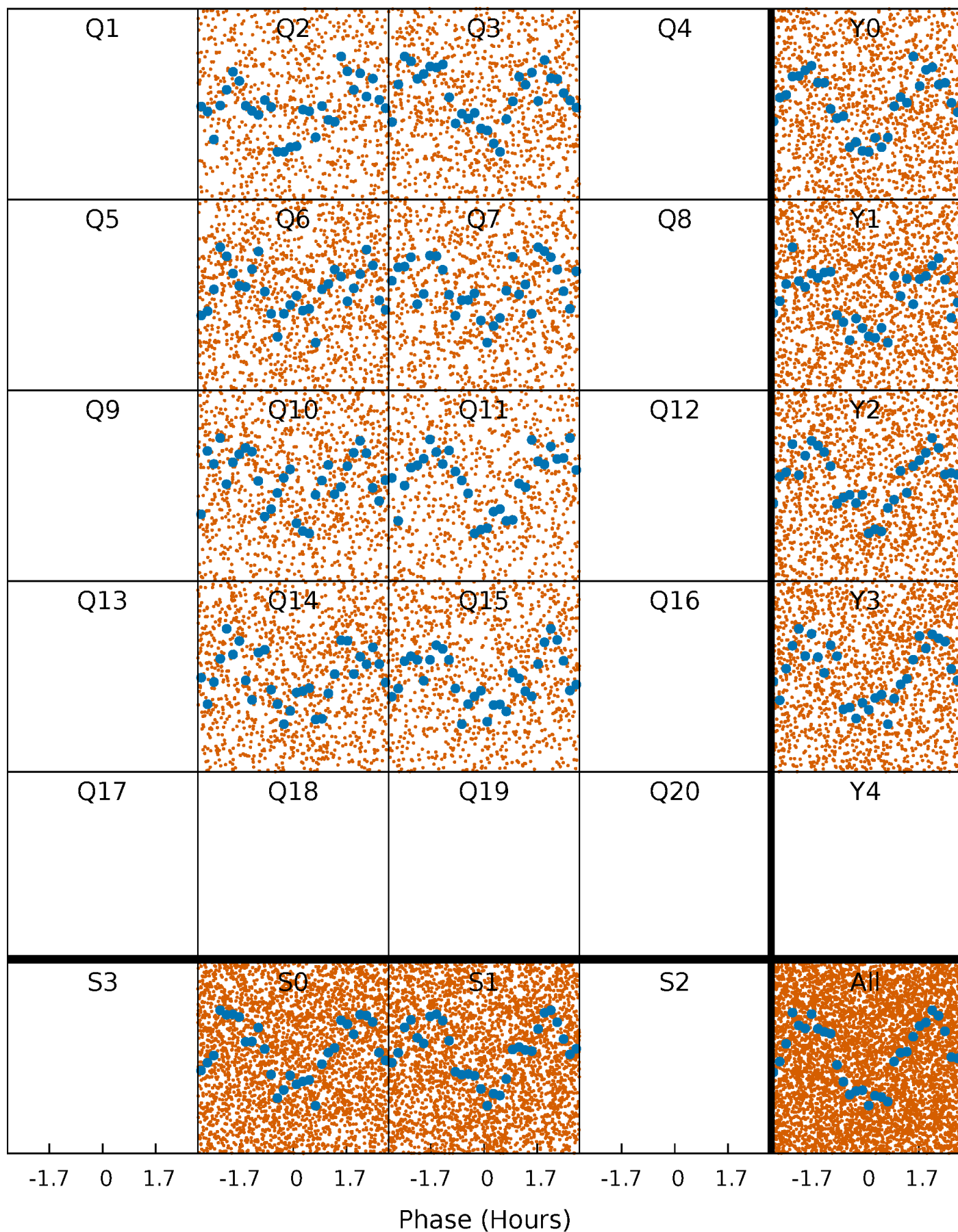


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

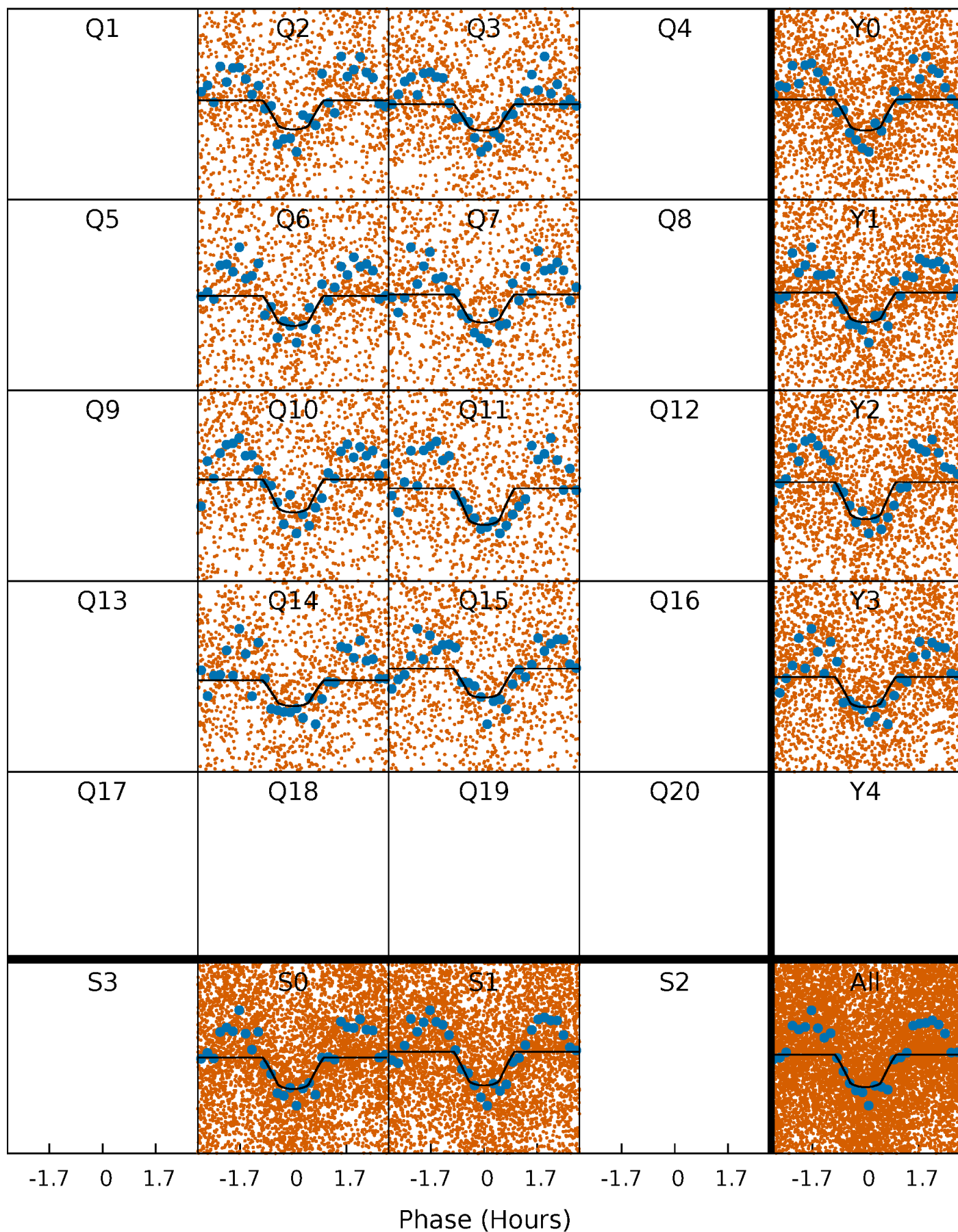
TCE 008650819-01 P= 0.637366 Days  $T_0=131.824661$  (BKJD)





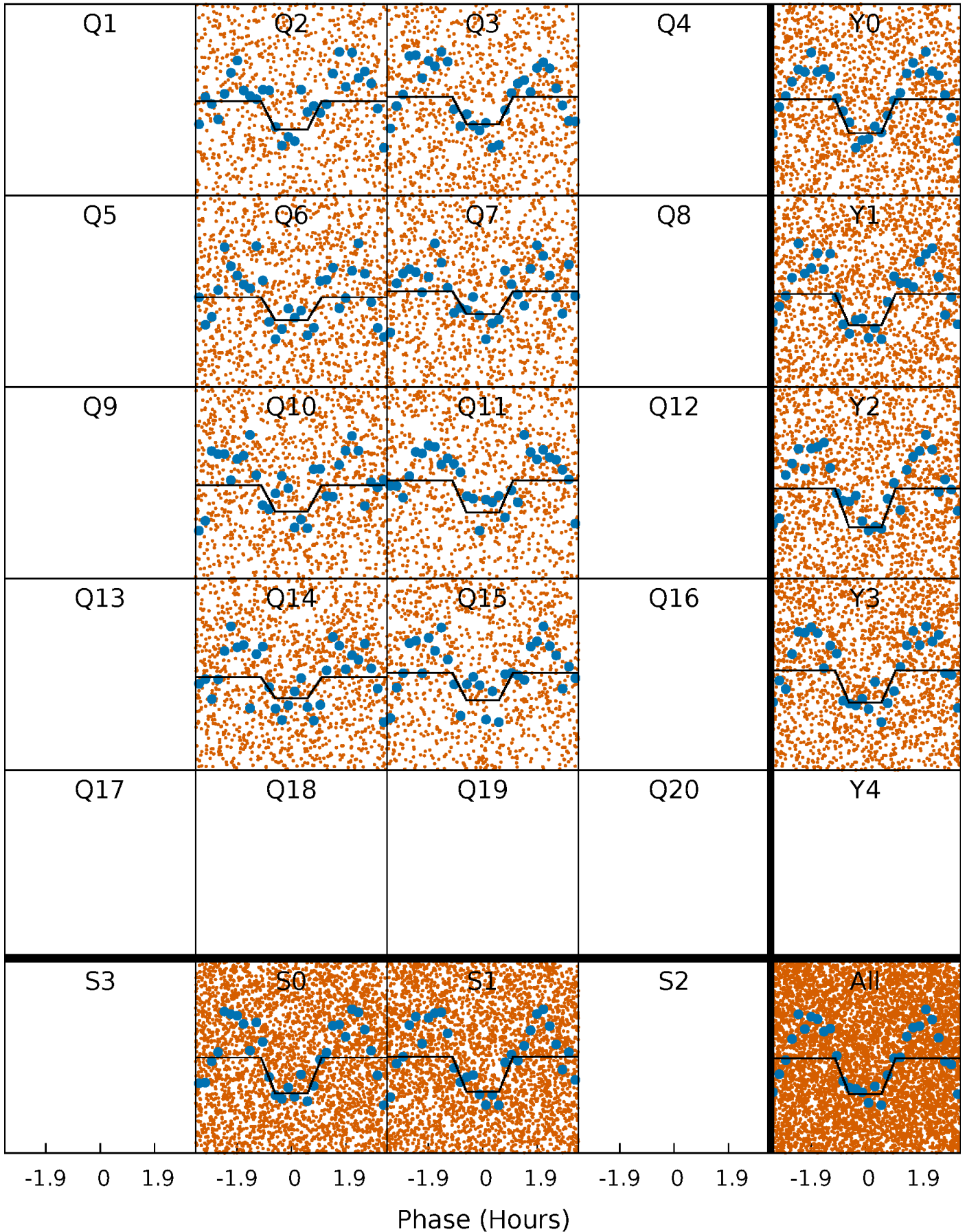
# DV Quarter-Phased Transit Curves

TCE 008650819-01 P= 0.637366 Days  $T_0=131.824661$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

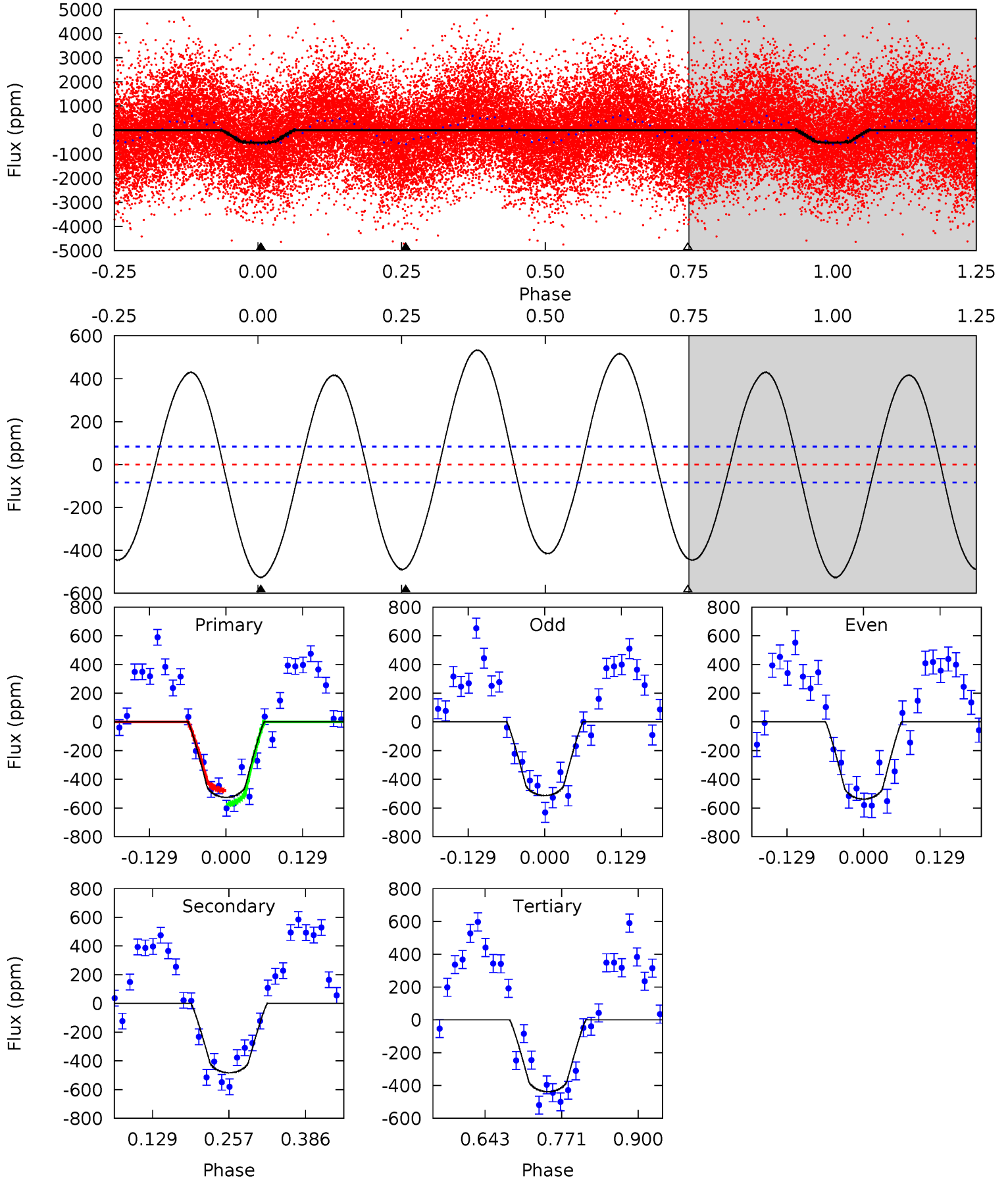
TCE 008650819-01 P= 0.637368 Days  $T_0=131.823954$  (BKJD)



# DV Model-Shift Uniqueness Test

008650819-01, P = 0.637366 Days, E = 131.824661 Days

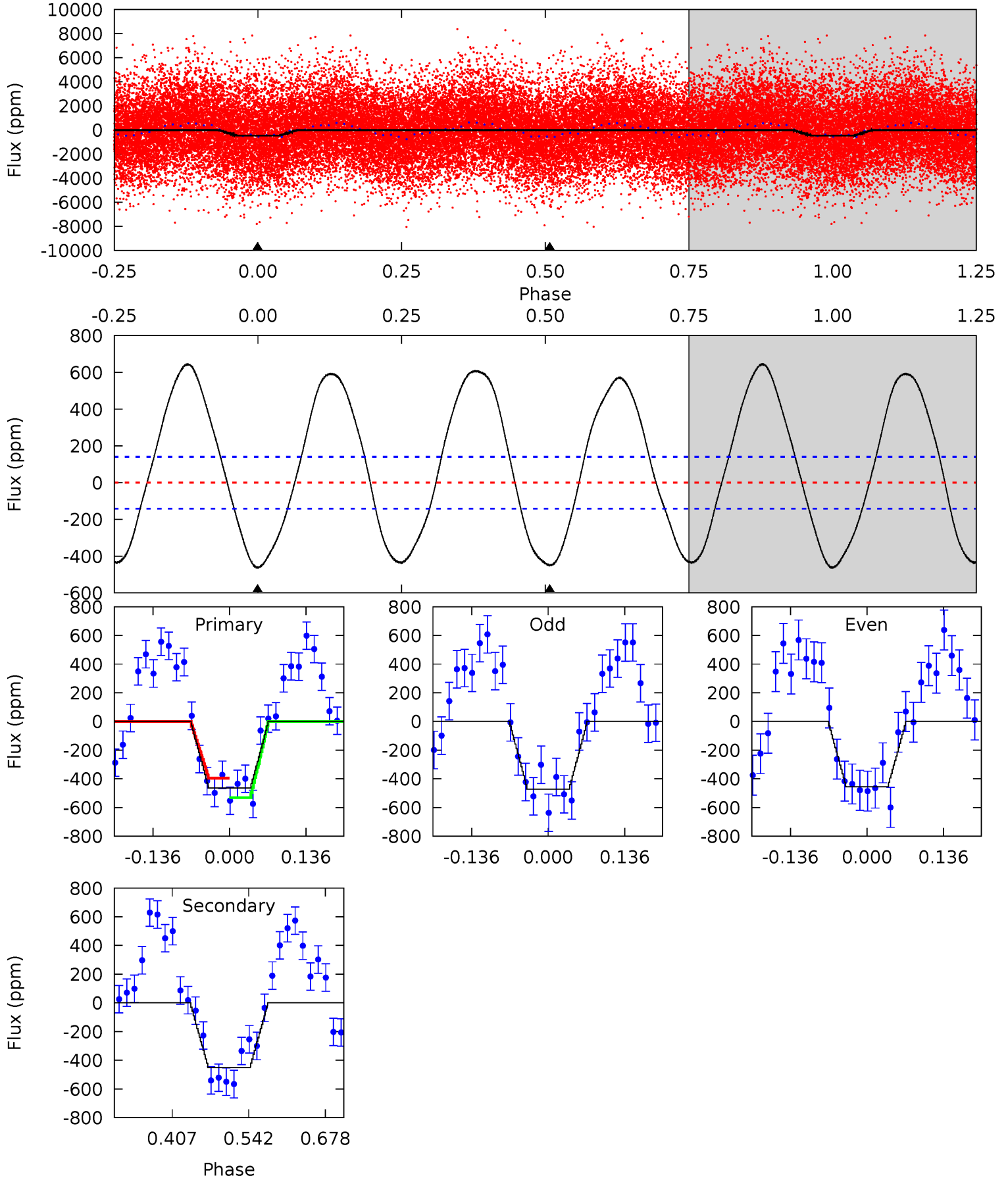
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.4	26.1	23.7	0	4.51	1.52	17.7	4.75	28.4	2.43	26.1	0.66	0.99	0.50	2.70



# Alt Model-Shift Uniqueness Test

008650819-01, P = 0.637368 Days, E = 131.823954 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
14.8	14.4	0	0	4.50	1.49	11.0	14.8	14.8	14.4	14.4	0.27	0.94	0.58	2.06





### Stellar Parameters For KIC 008650819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7355^{+230}_{-307}$	$3.812^{+0.384}_{-0.096}$	$-0.180^{+0.250}_{-0.350}$	$2.753^{+0.420}_{-1.175}$	$1.794^{+0.192}_{-0.479}$	$0.121^{+0.380}_{-0.035}$
	+3%/-4%	+10%/-3%	+139%/-194%	+15%/-43%	+11%/-27%	+314%/-29%
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 008650819-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-483 \pm 19$	$5.58^{+3.17}_{-2.61}$	$5524^{+377}_{-537}$	$7388^{+4207}_{-1713}$	$2.606^{+6.351}_{-1.518}$
Alt.	$-451 \pm 31$	$5.87^{+3.09}_{-2.66}$	$5531^{+375}_{-605}$	$6883^{+3368}_{-1477}$	$2.216^{+4.721}_{-1.297}$

$T_{max}$  = 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

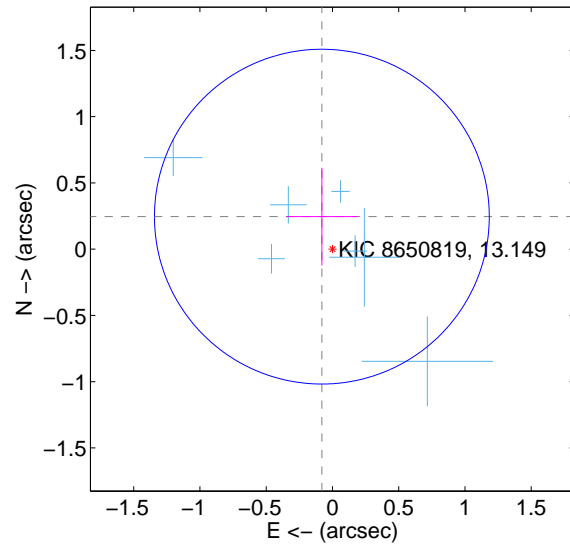
Supplemental centroid analysis for 008650819-01. Kepler magnitude: 13.15. Transit SNR 14.88

There are 7 quarters with good PRF difference image offsets

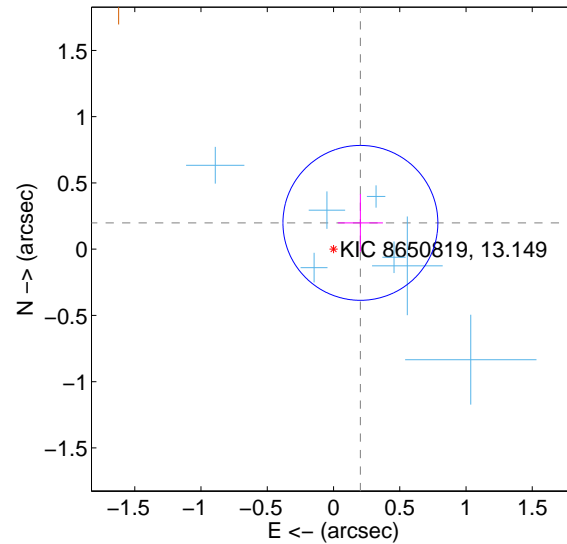
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.258 \pm 0.421$	0.61	$0.080 \pm 0.269$	$0.246 \pm 0.369$
PRF-fit source offset from KIC position	$0.284 \pm 0.195$	1.46	$-0.203 \pm 0.170$	$0.199 \pm 0.218$
photometric centroid source offset	$0.24 \pm 0.11$	2.15	$-0.20 \pm 0.12$	$0.14 \pm 0.09$

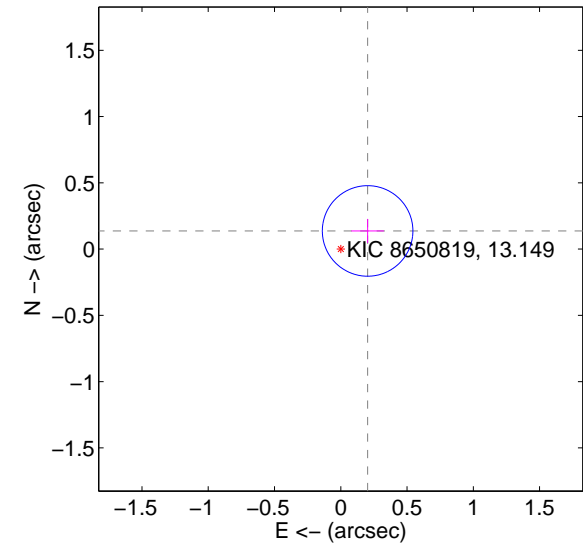
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

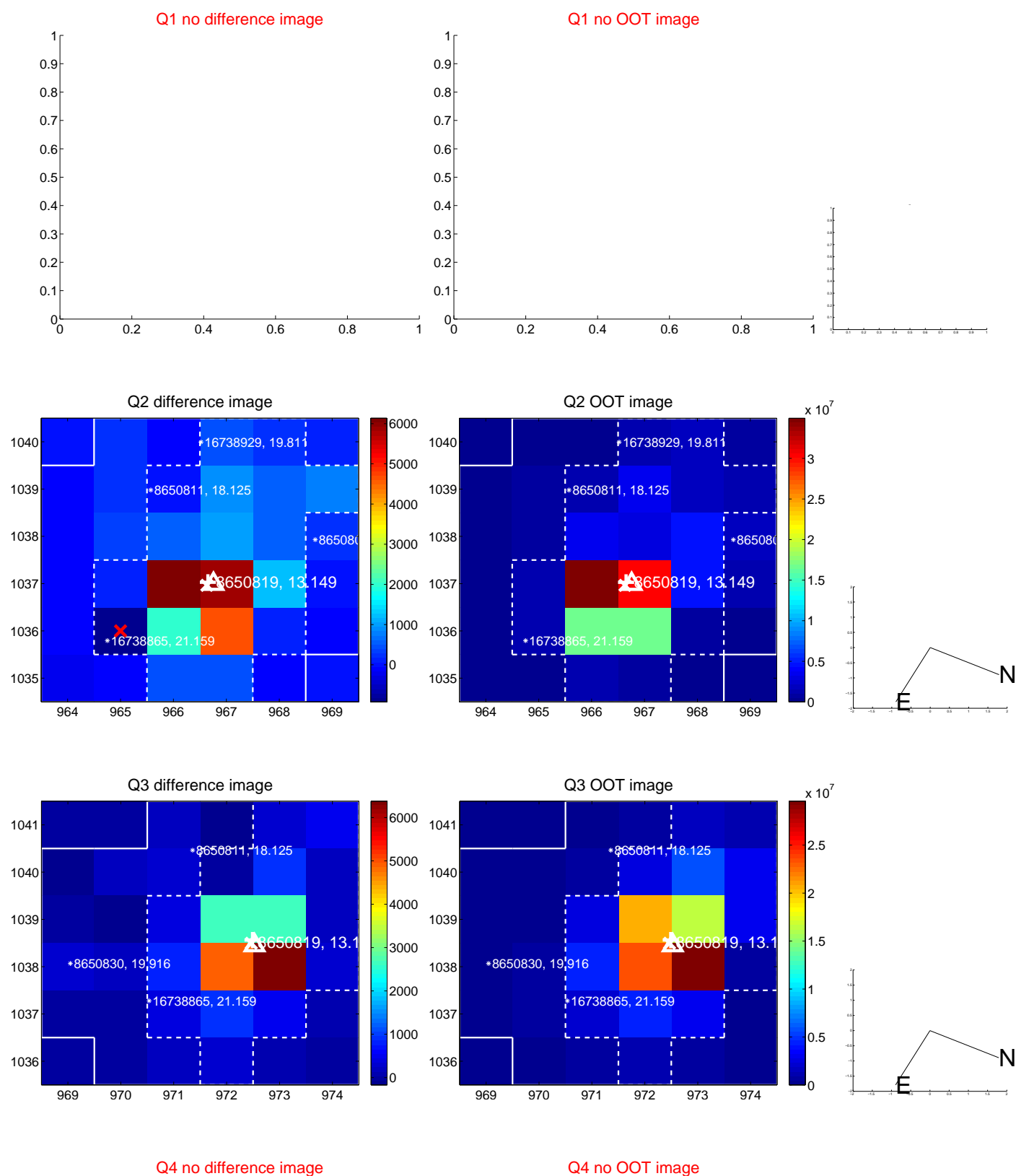


offset from photometric centroids

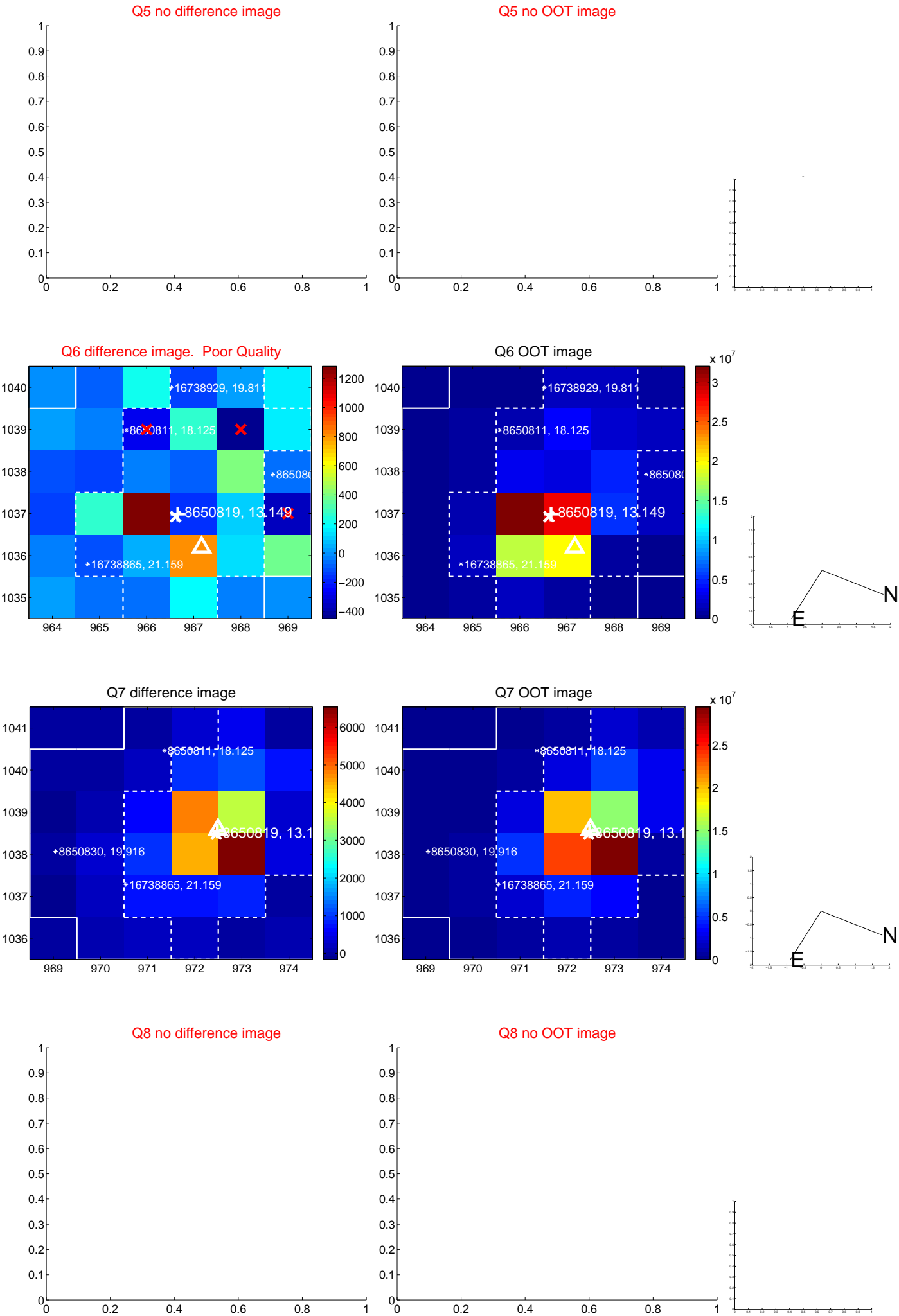


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

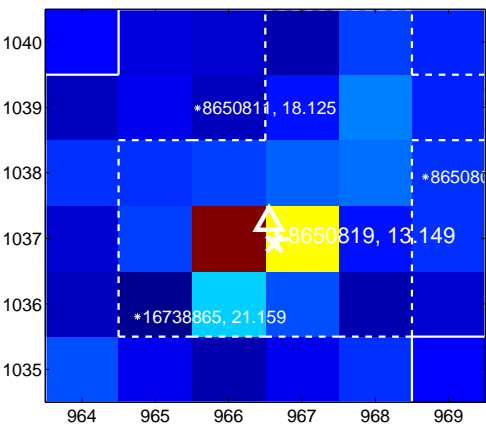
Q9 no difference image



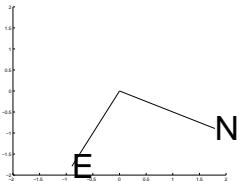
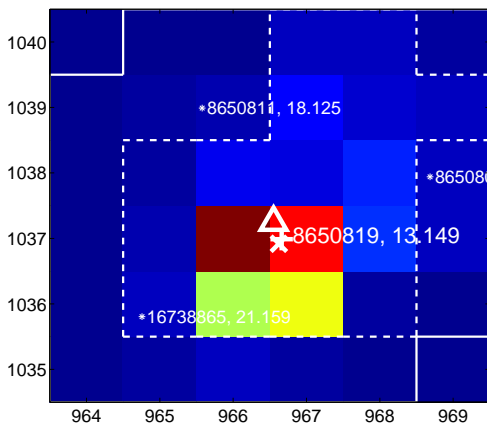
Q9 no OOT image



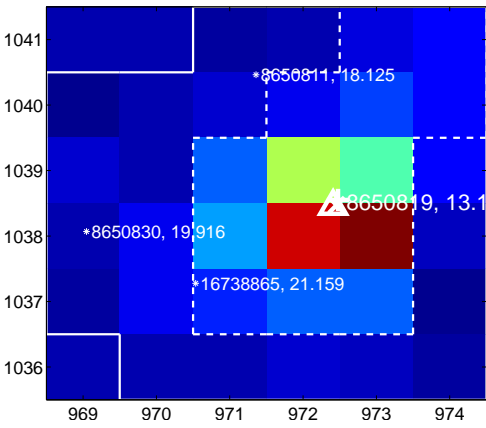
Q10 difference image



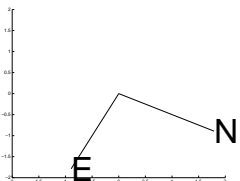
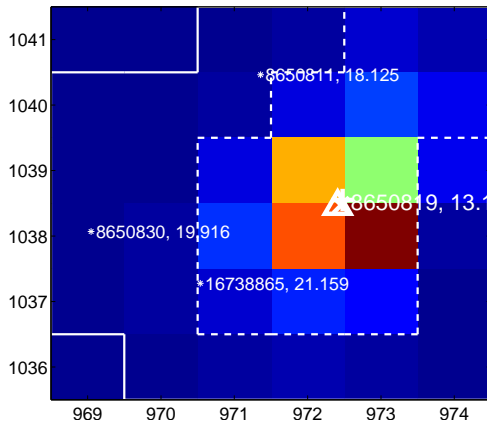
Q10 OOT image



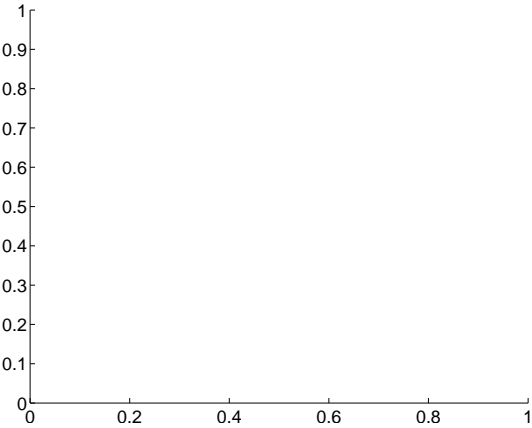
Q11 difference image



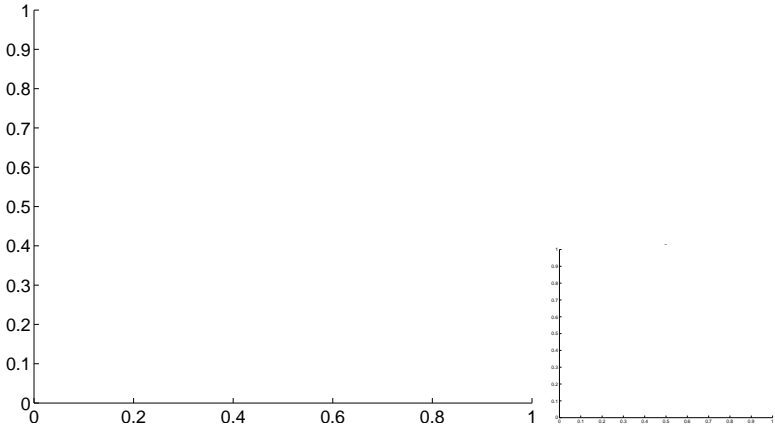
Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

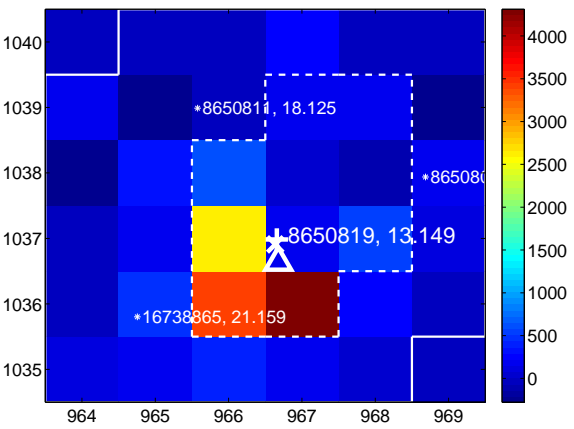
Q13 no difference image



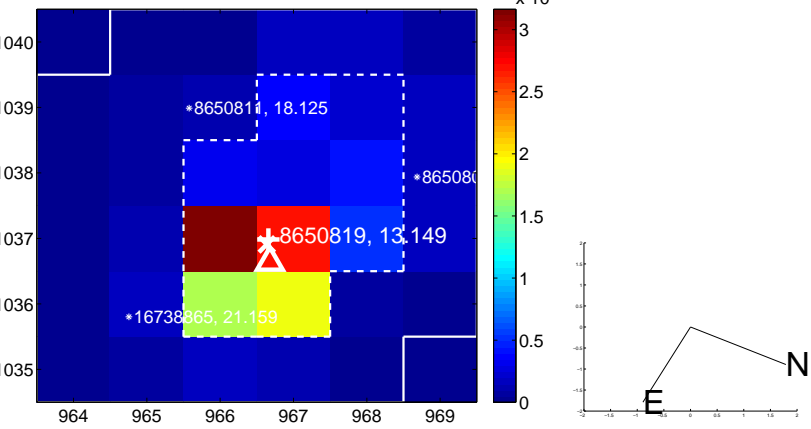
Q13 no OOT image



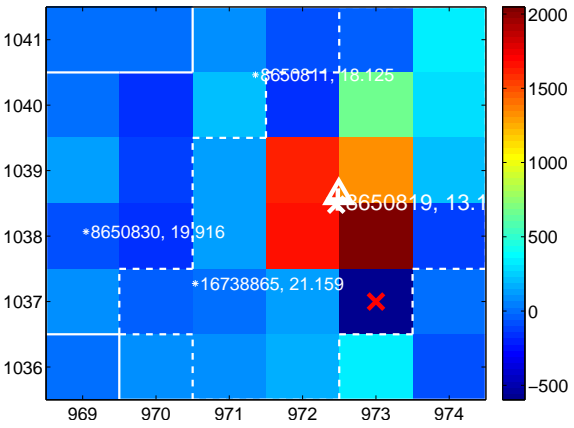
Q14 difference image



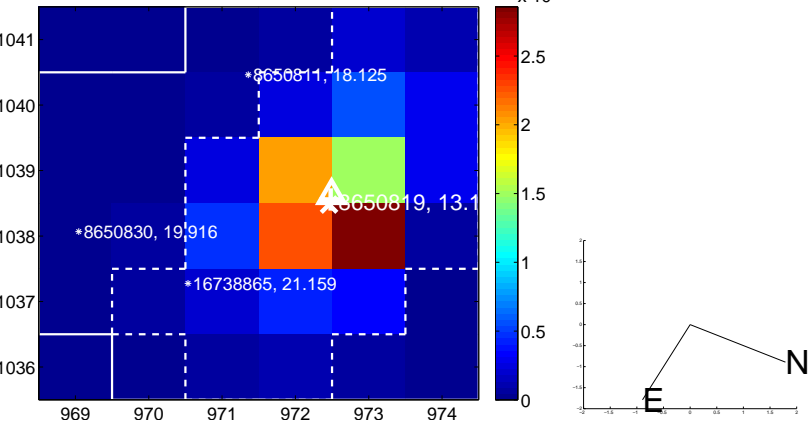
Q14 OOT image



Q15 difference image



Q15 OOT image



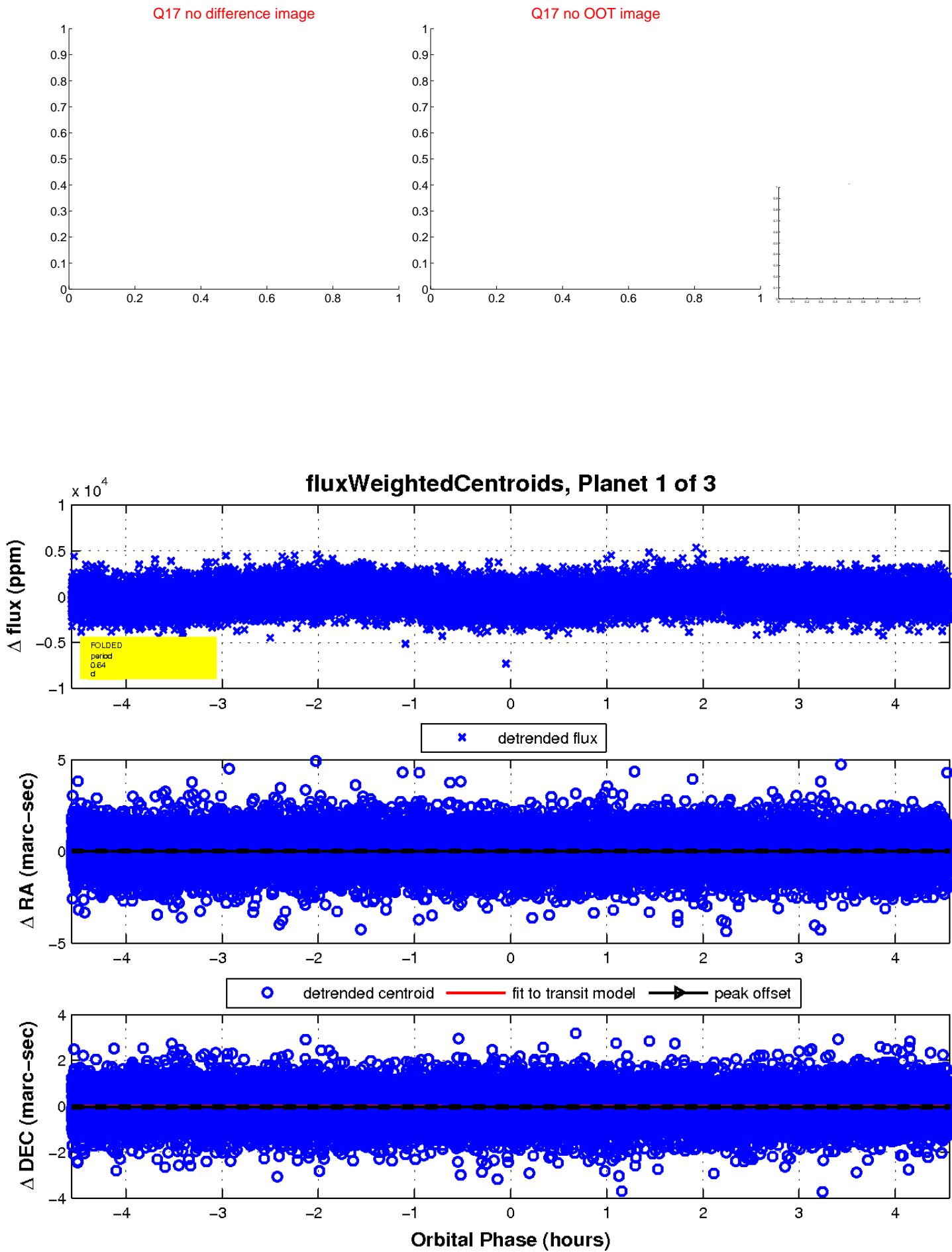
Q16 no difference image



Q16 no OOT image

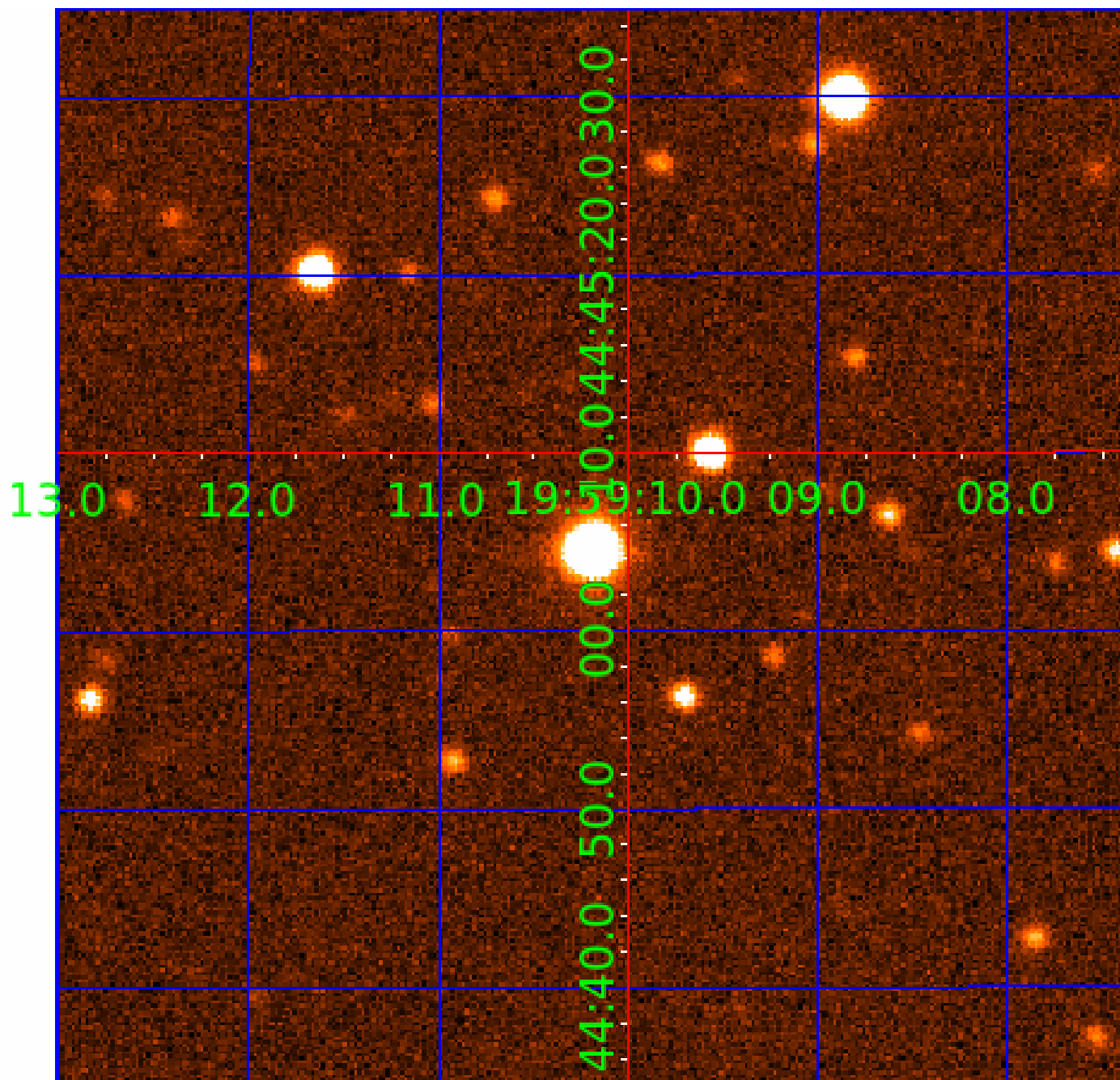


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008650819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008650819-01	OBS	No	0.637366	131.824661	418.7	1.522	12.2	14.9	2.75	7355	6.04	64058.58
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008650819-03	OBS	No	0.637358	132.148159	377.0	1.651	12.5	14.4	2.75	7355	6.30	64059.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008650819-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008650819-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008650819-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

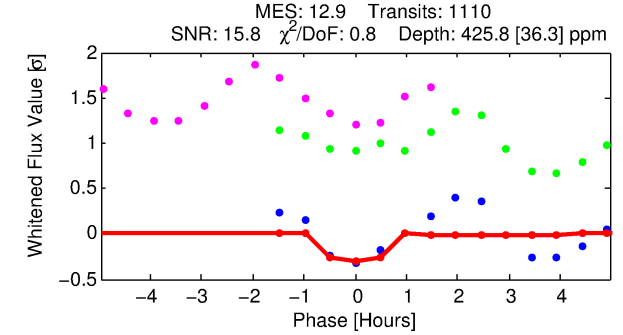
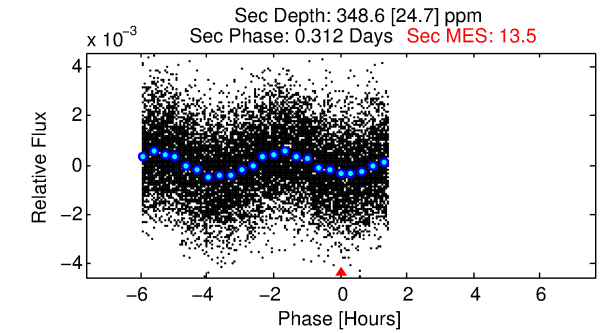
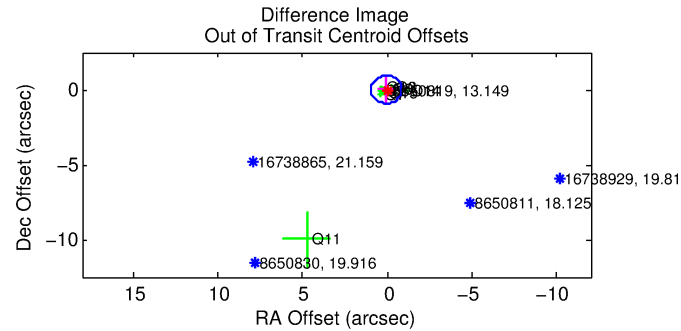
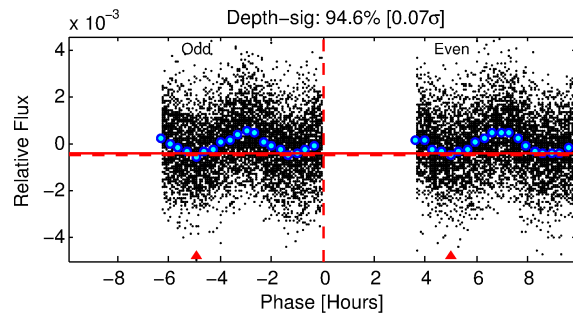
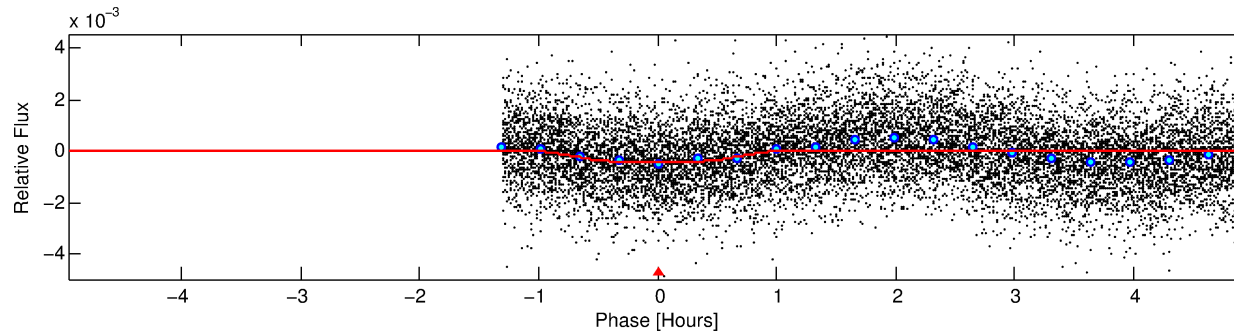
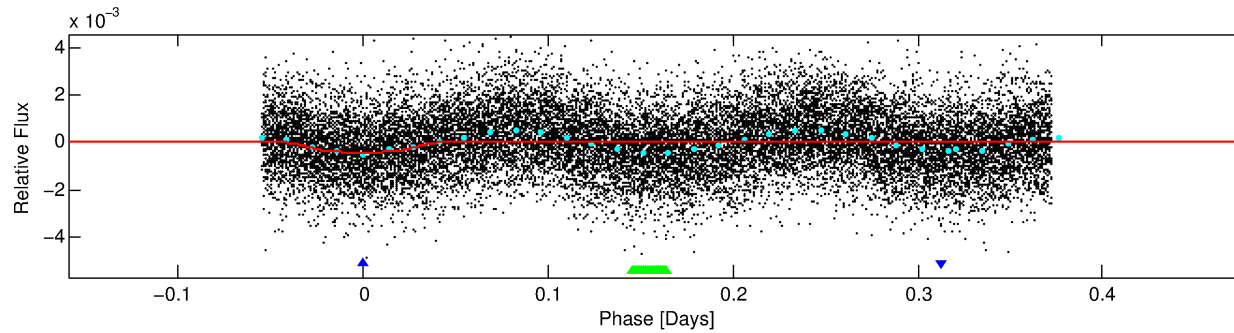
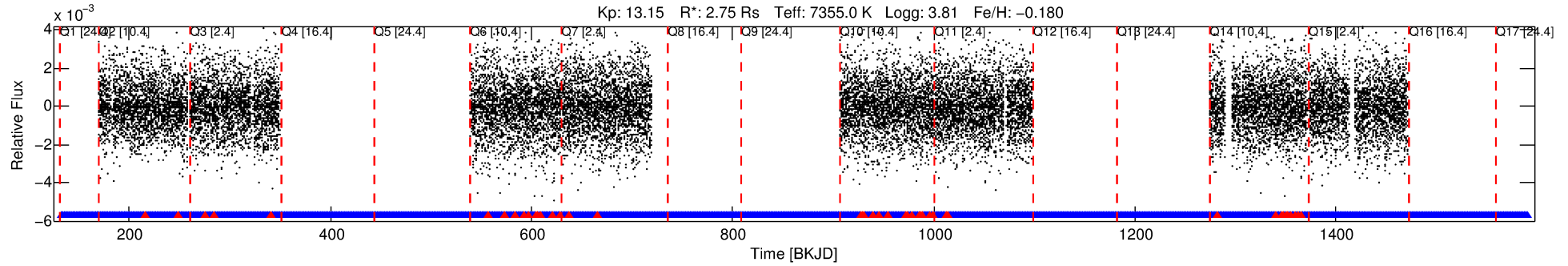
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008650819-02

No Significant Match Found

# DV One-Page Summary

KIC: 8650819 Candidate: 2 of 3 Period: 0.637 d



## DV Fit Results:

Period = 0.63737 [0.00001] d  
Epoch = 131.9843 [0.0013] BKJD  
Rp/R\* = 0.0223 [0.0052]  
a/R\* = 1.70 [1.40]  
b = 0.90 [0.26]  
Seff = 64058.58 [43271.71]  
Teff = 4057 [685] K  
Rp = 6.70 [3.26] Re  
a = 0.0176 [0.0072] AU  
Ag = 1.32 [1.07] [0.30σ]  
Teffp = 6728 [846] K [2.45σ]

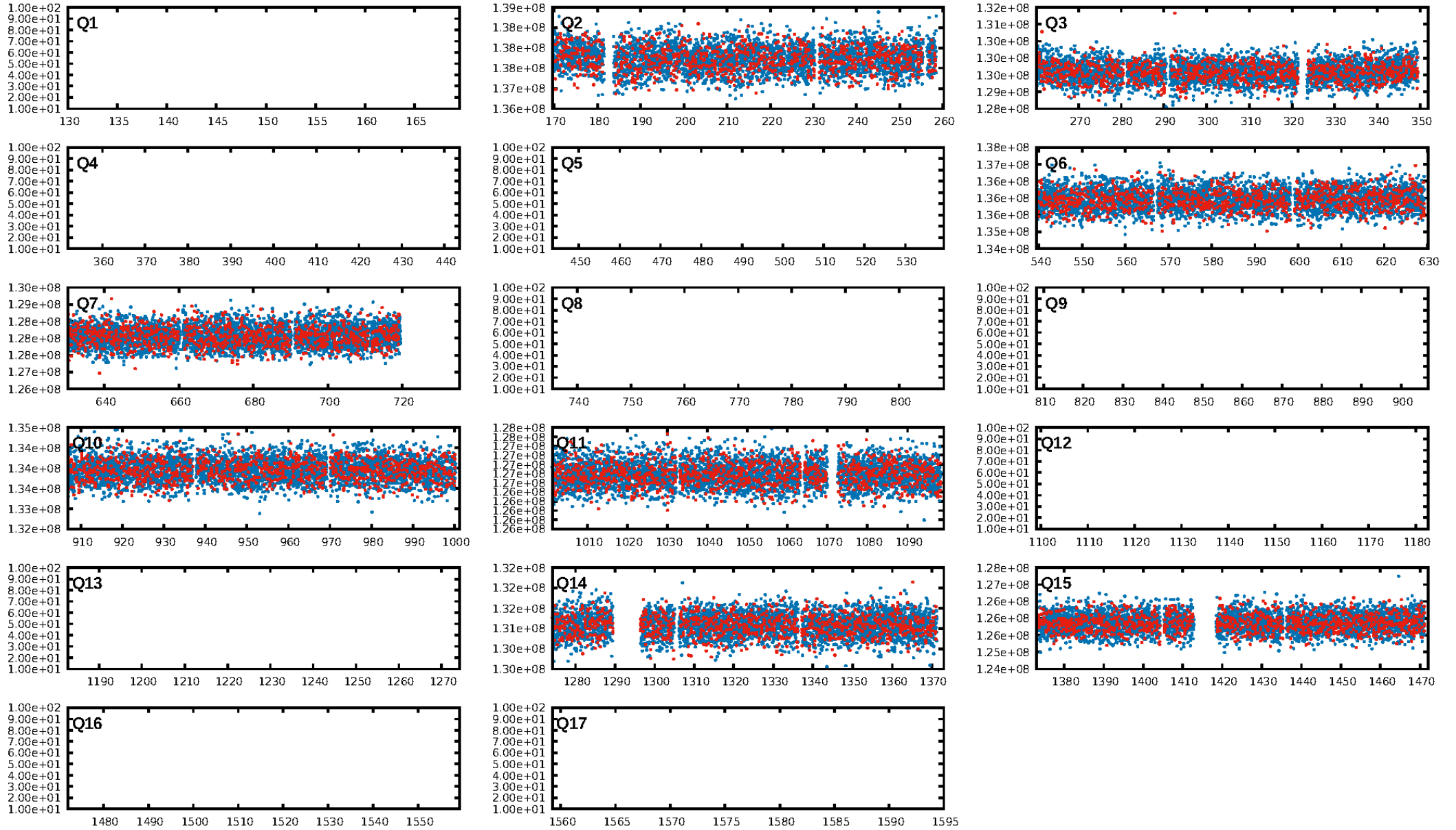
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.95 [1059/1110]  
GhostDiagnostic-chr: 7.366  
Centroid-sig: 0.3%  
Centroid-so: 0.259 arcsec [2.66σ]  
OotOffset-rm: 0.090 arcsec [0.29σ]  
KicOffset-rm: 0.212 arcsec [0.29σ]  
OotOffset-st: 4/4/0/0 [8]  
KicOffset-st: 4/4/0/0 [8]  
DiffImageQuality-fgm: 0.88 [7/8]  
DiffImageOverlap-fno: 0.00 [0/8]

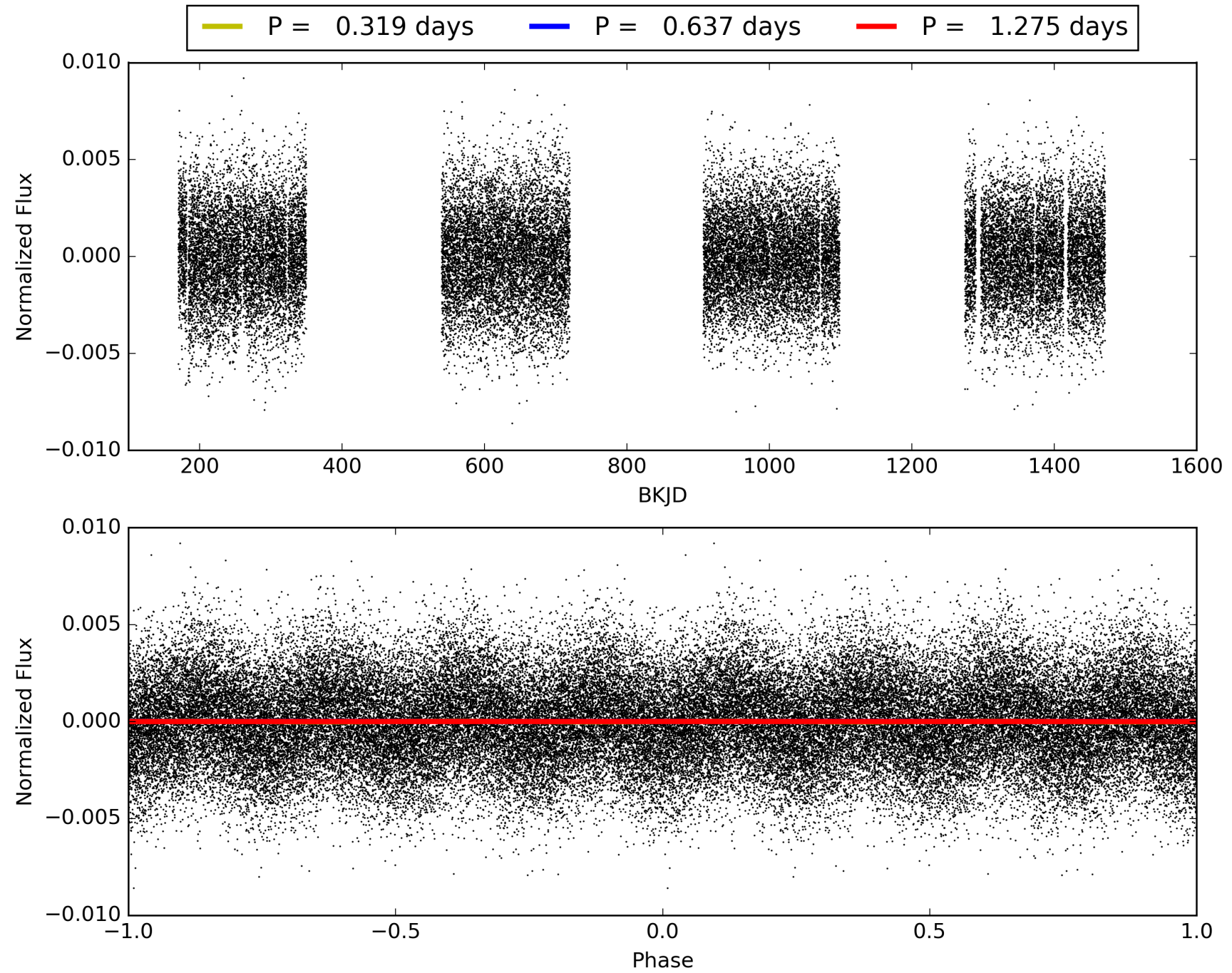
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:18:36 Z

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

# TCE 008650819-02, PDC Light Curves

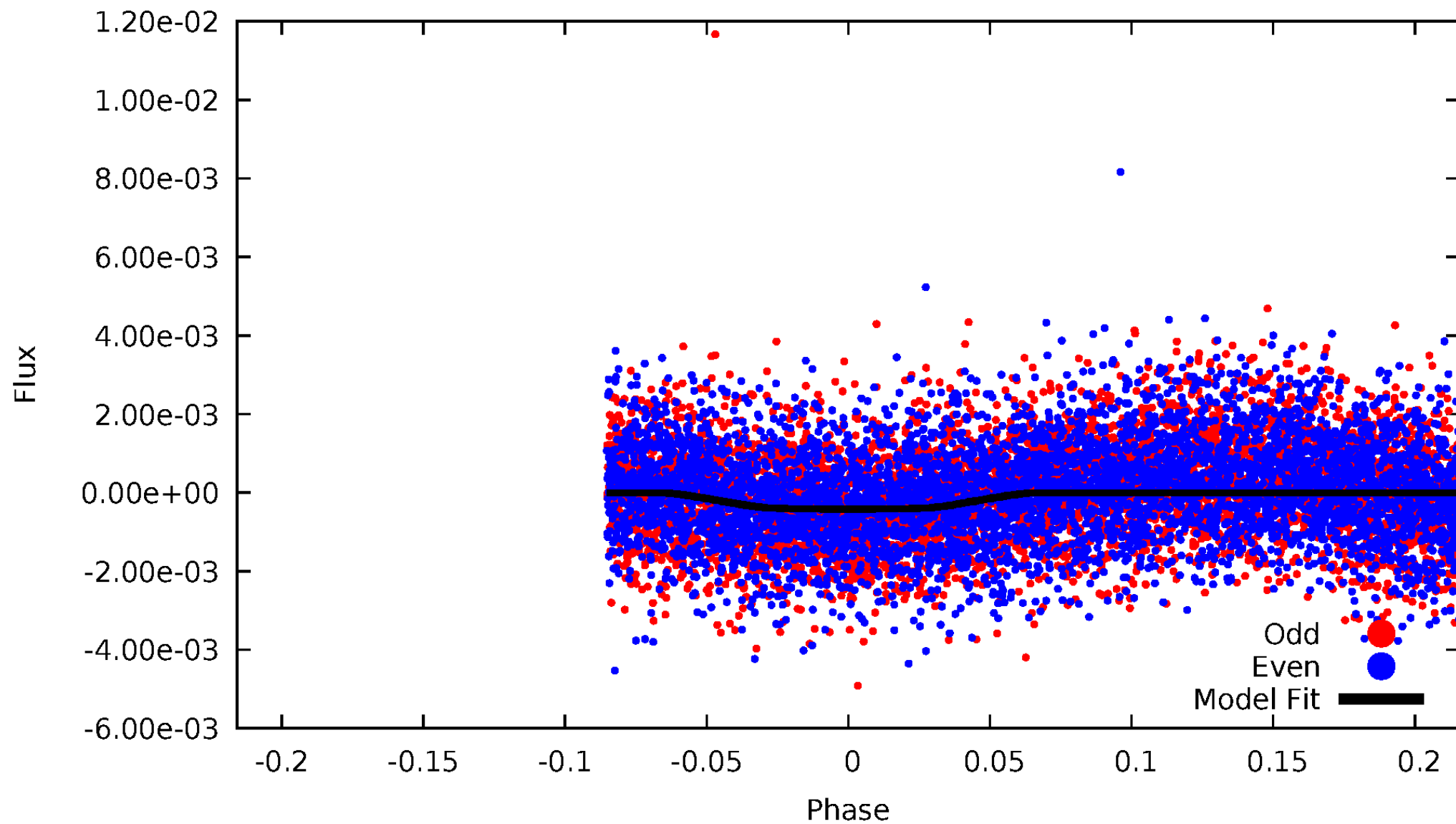


TCE 008650819-02



DV Odd/Even

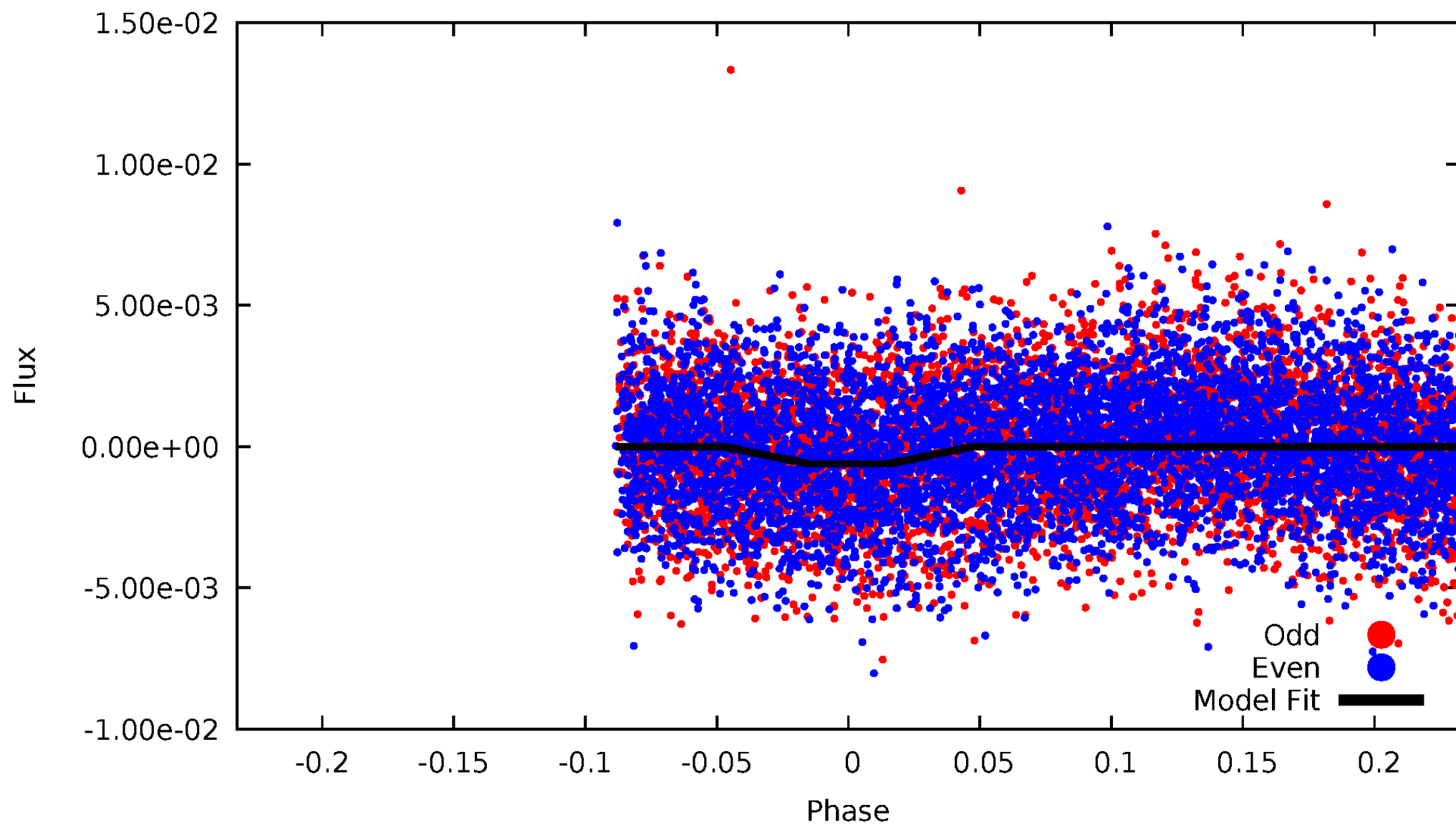
TCE 008650819-02





# ALT Odd/Even

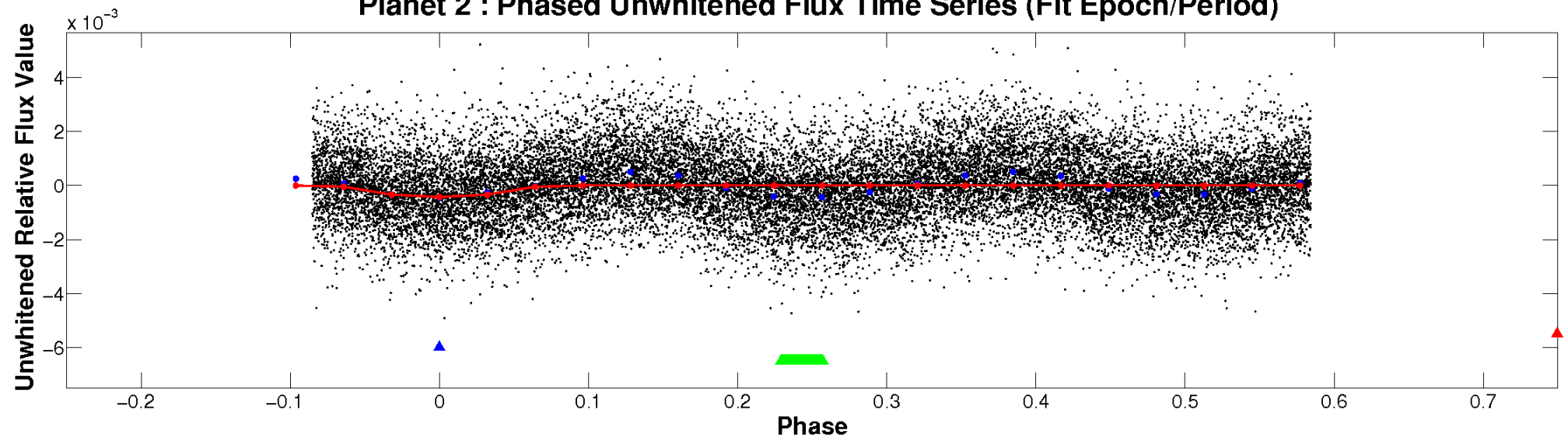
TCE 008650819-02



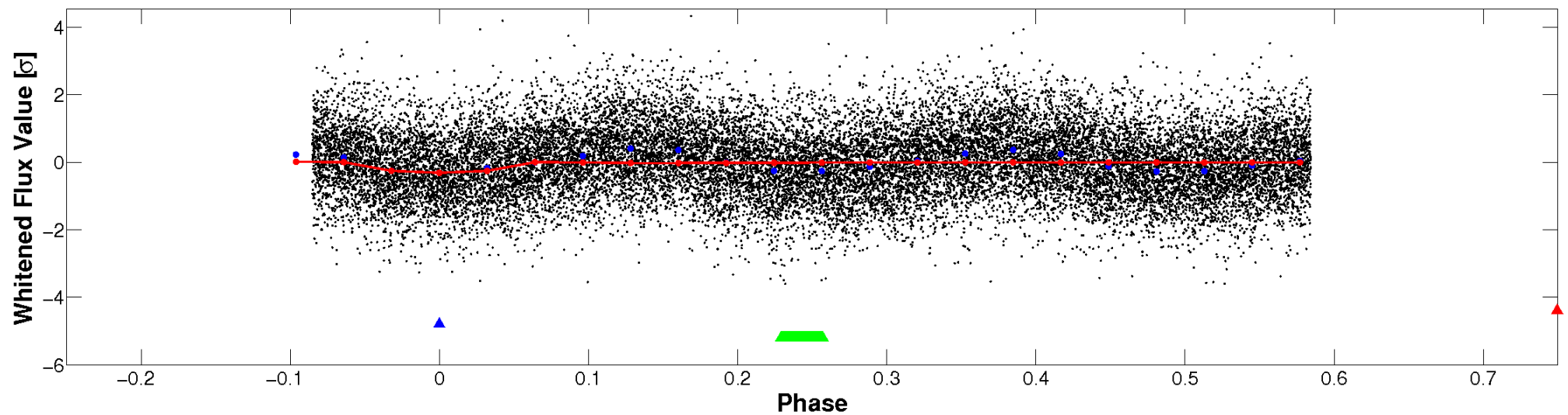


# Non-Whitened Vs. Whitened Light Curve

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

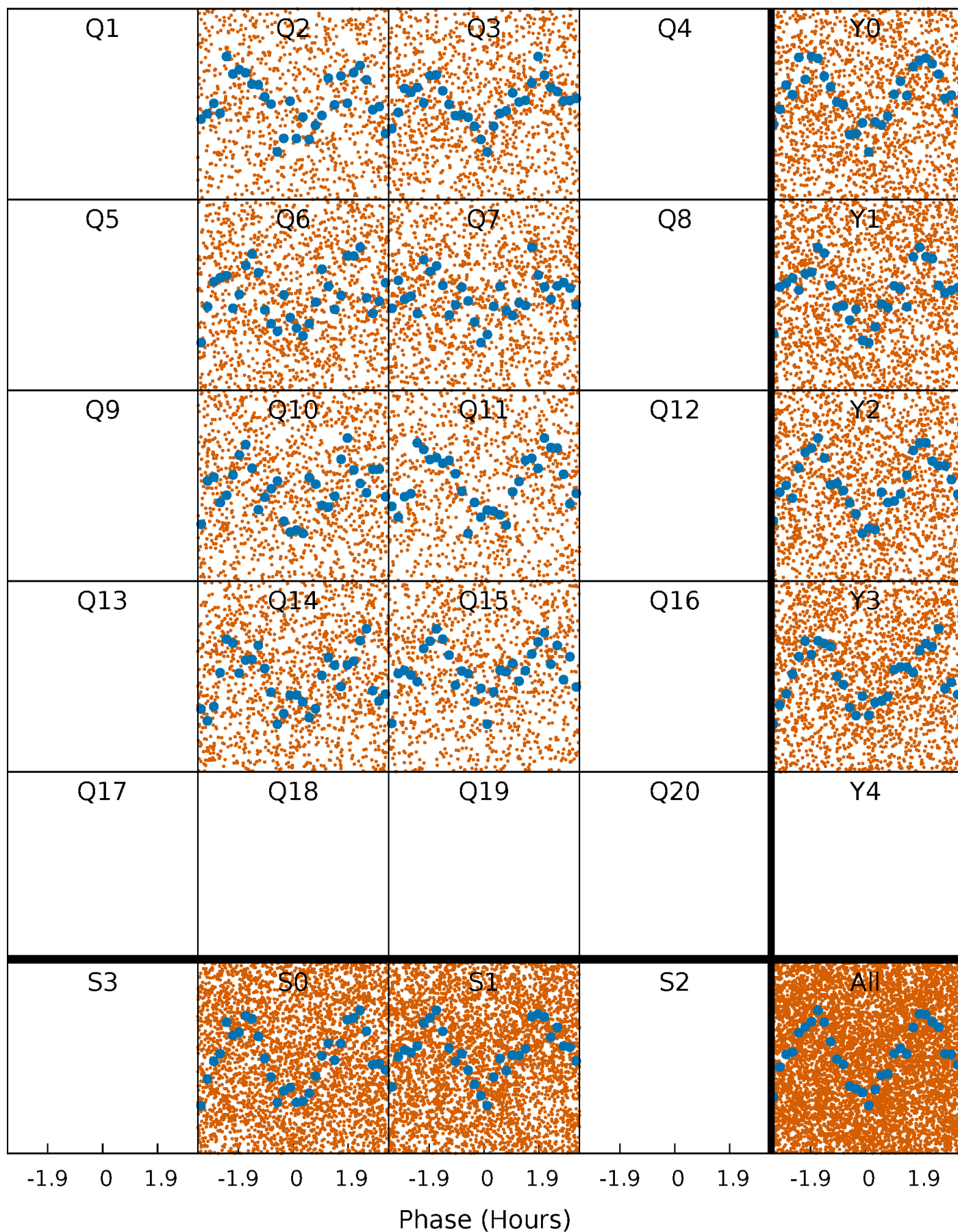


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



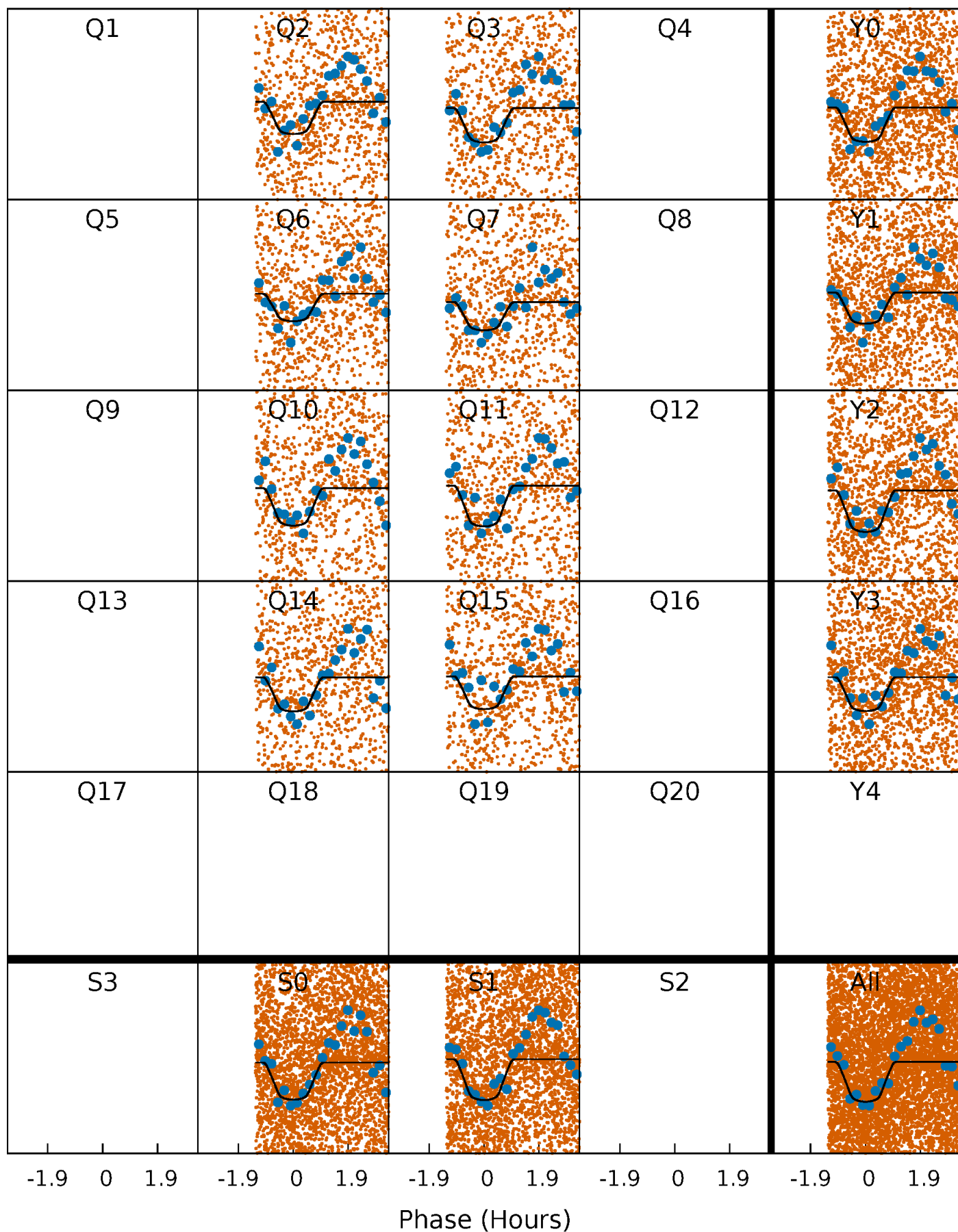
# PDC Quarter-Phased Transit Curves

TCE 008650819-02 P= 0.637366 Days  $T_0=131.984321$  (BKJD)



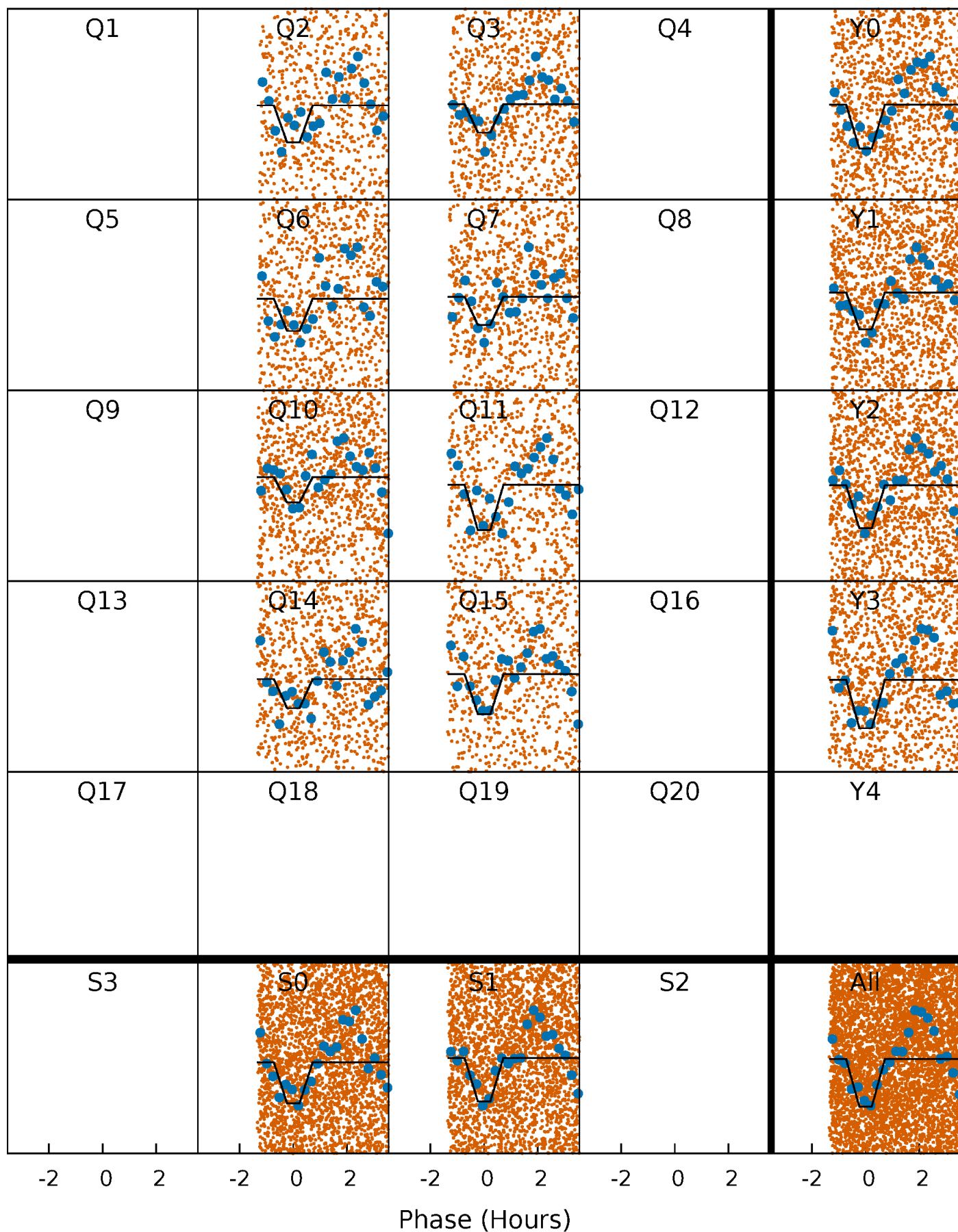
# DV Quarter-Phased Transit Curves

TCE 008650819-02   P= 0.637366 Days    $T_0=131.984321$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008650819-02 P= 0.637368 Days  $T_0=131.982342$  (BKJD)

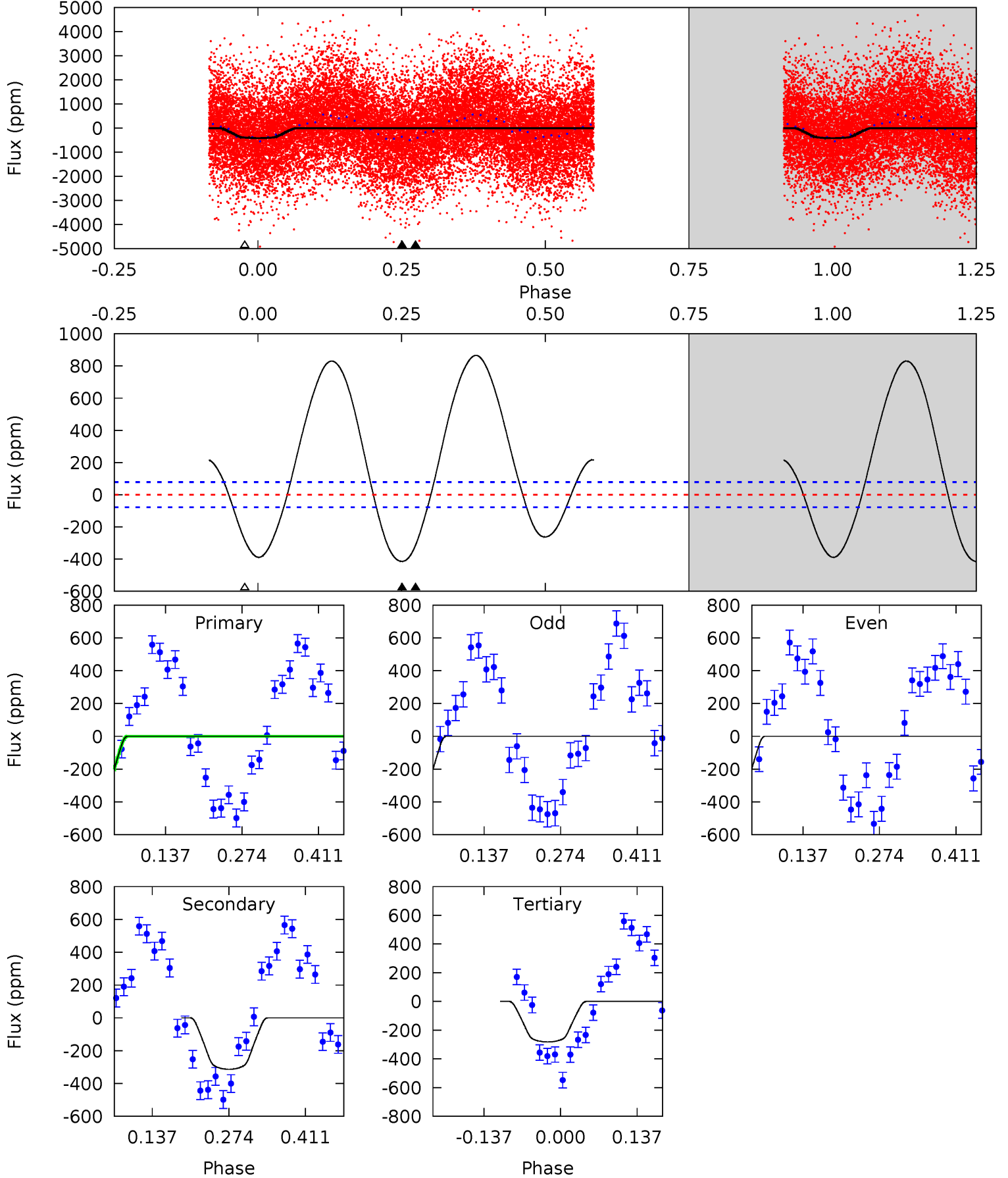




# DV Model-Shift Uniqueness Test

008650819-02, P = 0.637366 Days, E = 131.984321 Days

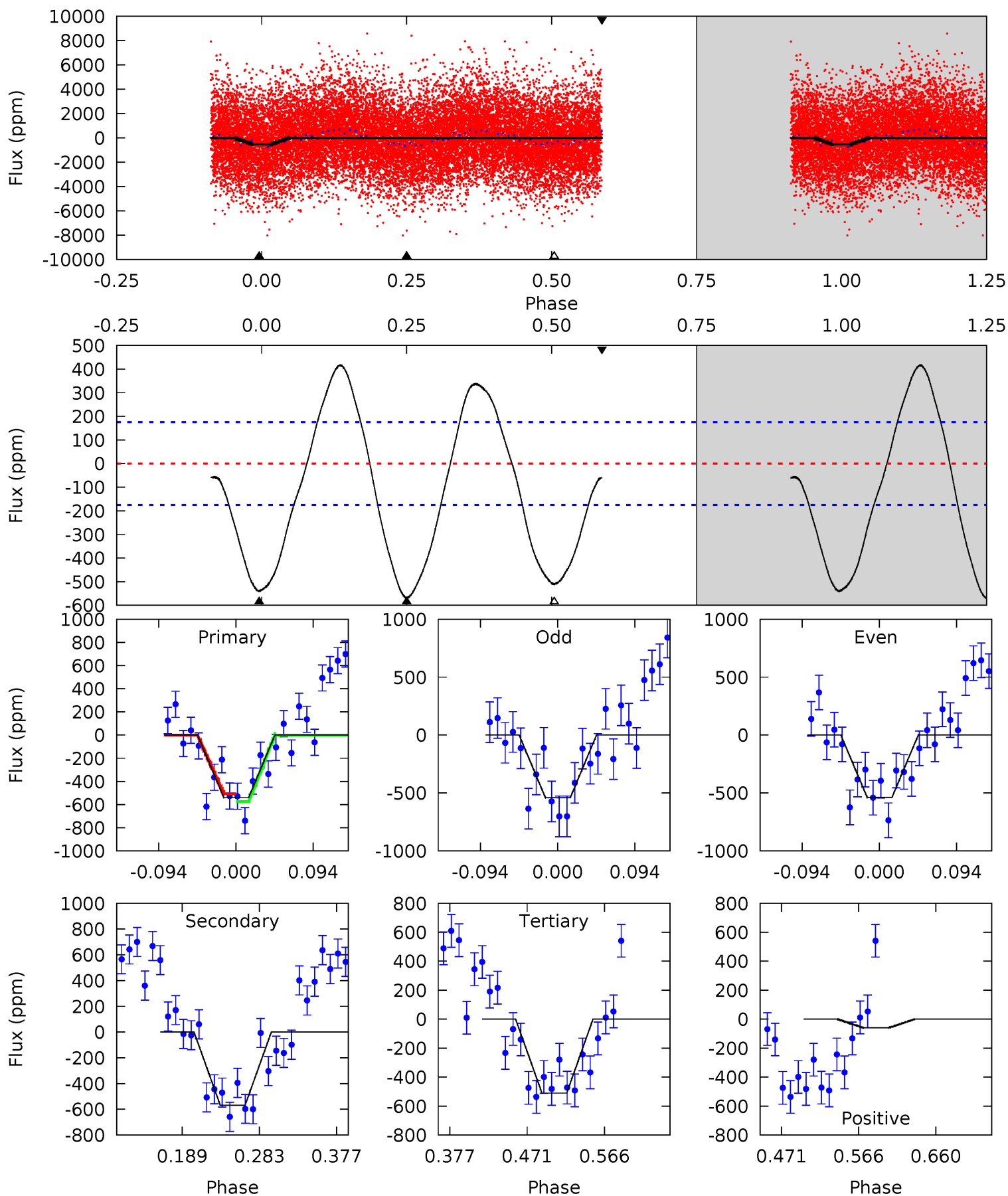
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	18.1	16.2	0	4.50	1.49	17.5	7.62	23.9	1.82	18.1	0.27	0.99	0.68	0.09



# Alt Model-Shift Uniqueness Test

008650819-02, P = 0.637368 Days, E = 131.982342 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
14.1	14.8	13.3	-1.56	4.58	1.67	8.46	0.77	15.7	1.52	16.4	0.04	1.12	0.42	0.90



### Stellar Parameters For KIC 008650819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7355^{+230}_{-307}$	$3.812^{+0.384}_{-0.096}$	$-0.180^{+0.250}_{-0.350}$	$2.753^{+0.420}_{-1.175}$	$1.794^{+0.192}_{-0.479}$	$0.121^{+0.380}_{-0.035}$
	+3%/-4%	+10%/-3%	+139%/-194%	+15%/-43%	+11%/-27%	+314%/-29%
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 008650819-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-314 \pm 17$	$6.10^{+2.00}_{-1.82}$	$5503^{+404}_{-608}$	$6075^{+1094}_{-827}$	$1.400^{+1.368}_{-0.564}$
Alt.	$-569 \pm 38$	$6.72^{+2.12}_{-1.88}$	$5489^{+417}_{-562}$	$6860^{+1276}_{-876}$	$2.089^{+1.877}_{-0.820}$

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



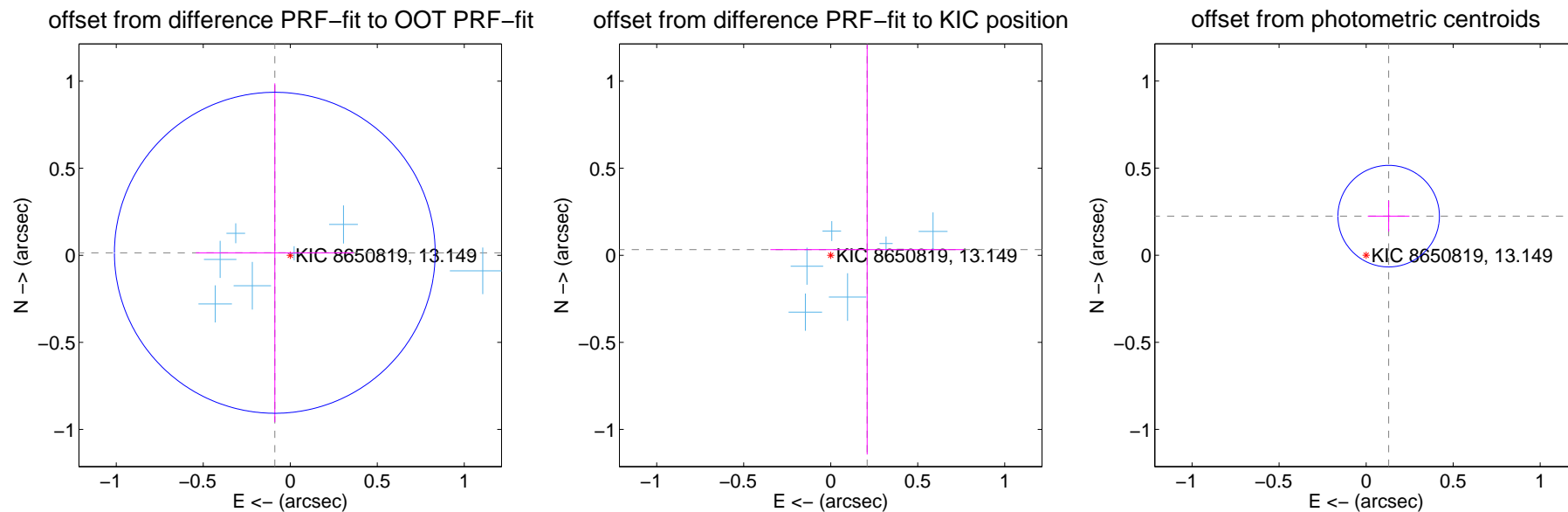
## DV Centroid Data

Supplemental centroid analysis for 008650819-02. Kepler magnitude: 13.15. Transit SNR 15.77

There are 7 quarters with good PRF difference image offsets

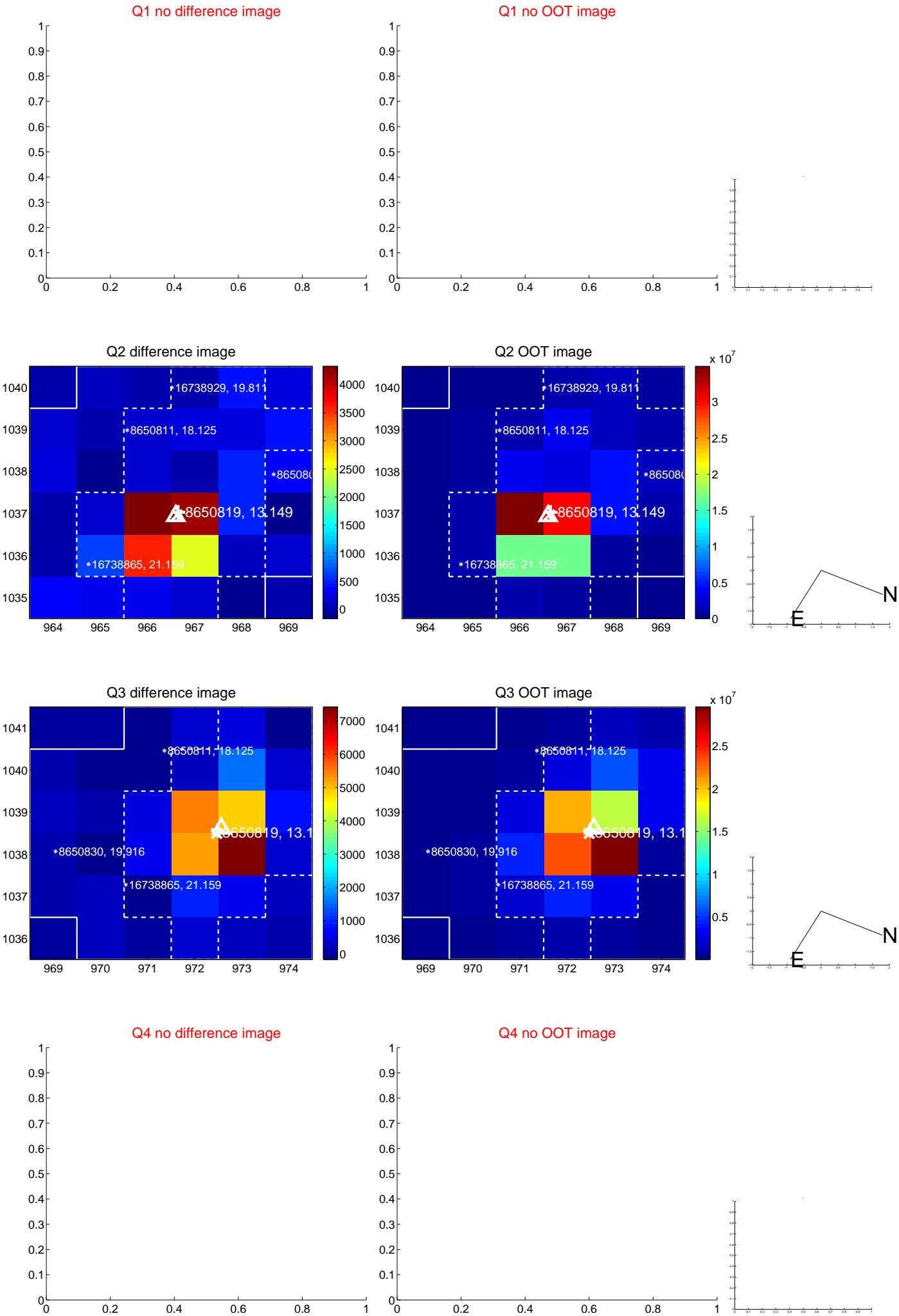
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.090 \pm 0.307$	0.29	$0.089 \pm 0.453$	$0.014 \pm 0.973$
PRF-fit source offset from KIC position	$0.212 \pm 0.723$	0.29	$-0.209 \pm 0.556$	$0.032 \pm 1.177$
photometric centroid source offset	$0.26 \pm 0.10$	2.66	$-0.13 \pm 0.12$	$0.22 \pm 0.09$



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.

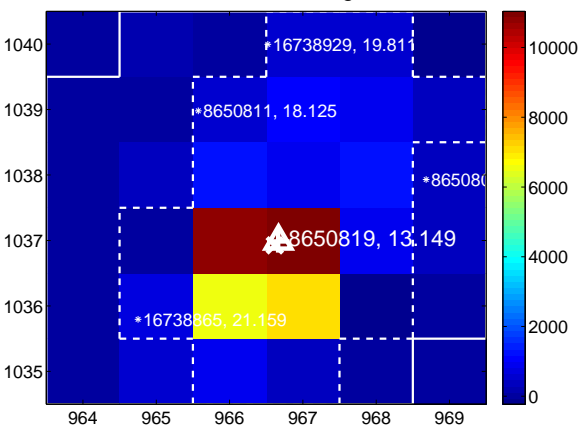
Q5 no difference image



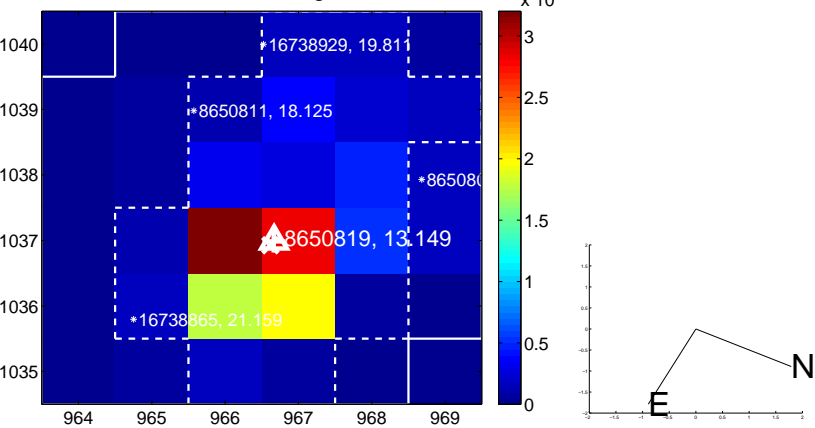
Q5 no OOT image



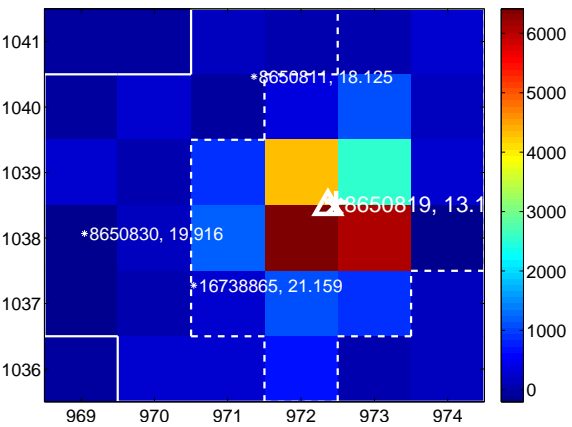
Q6 difference image



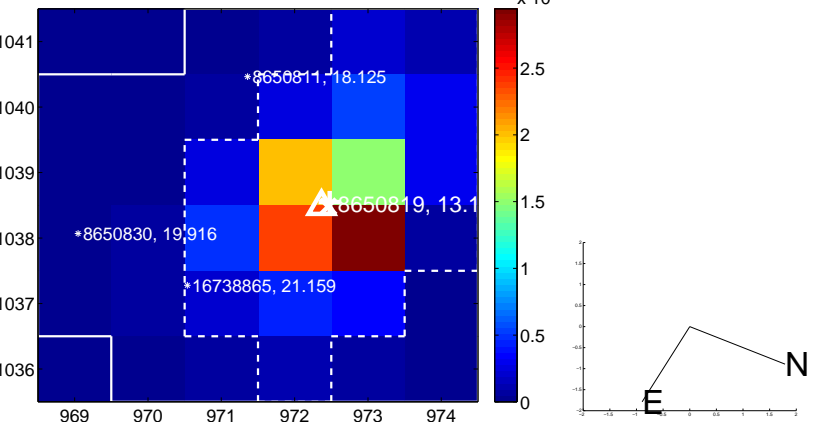
Q6 OOT image



Q7 difference image



Q7 OOT image



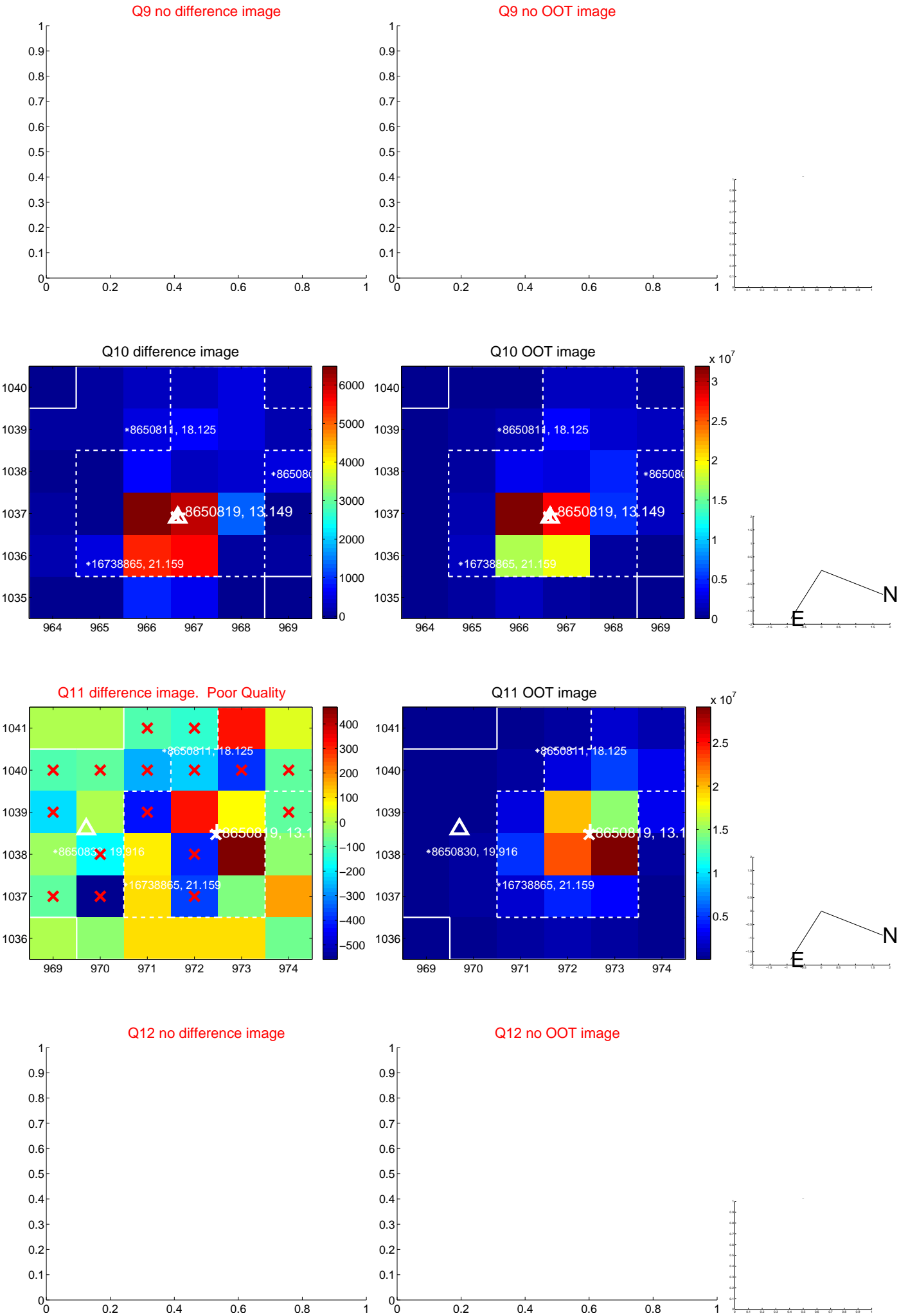
Q8 no difference image



Q8 no OOT image

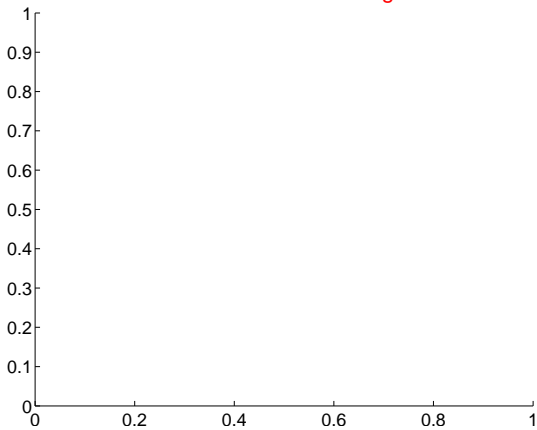


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

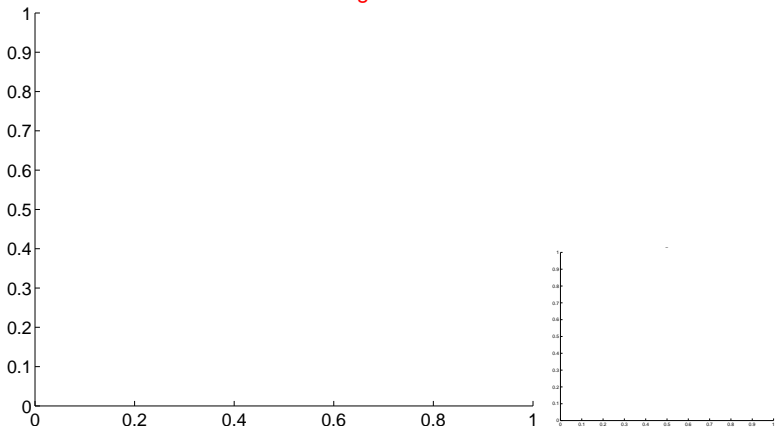


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

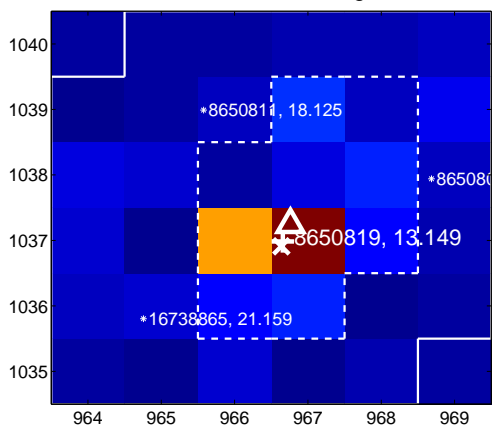
Q13 no difference image



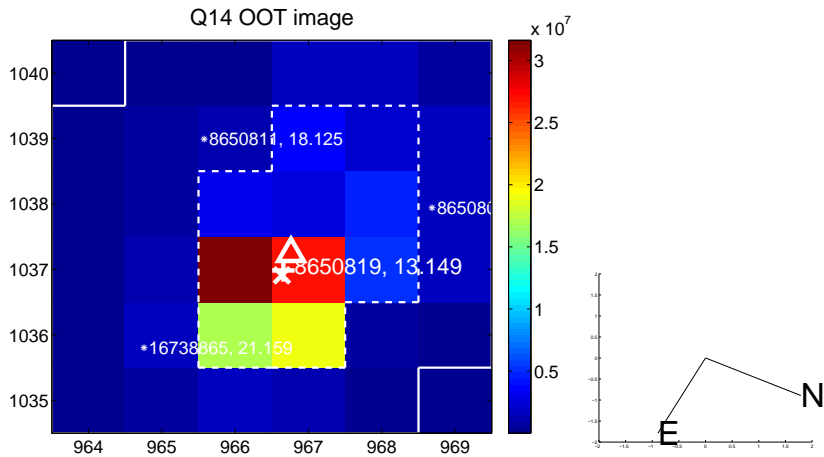
Q13 no OOT image



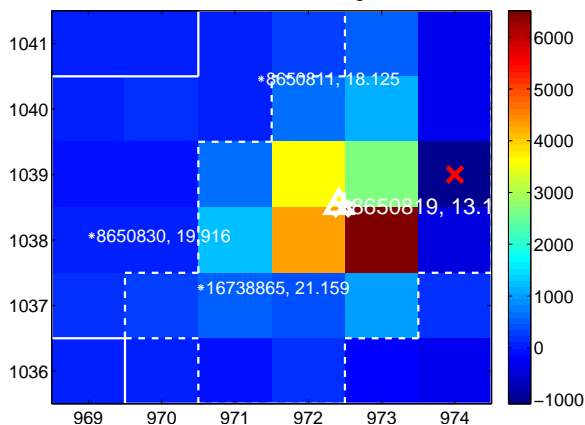
Q14 difference image



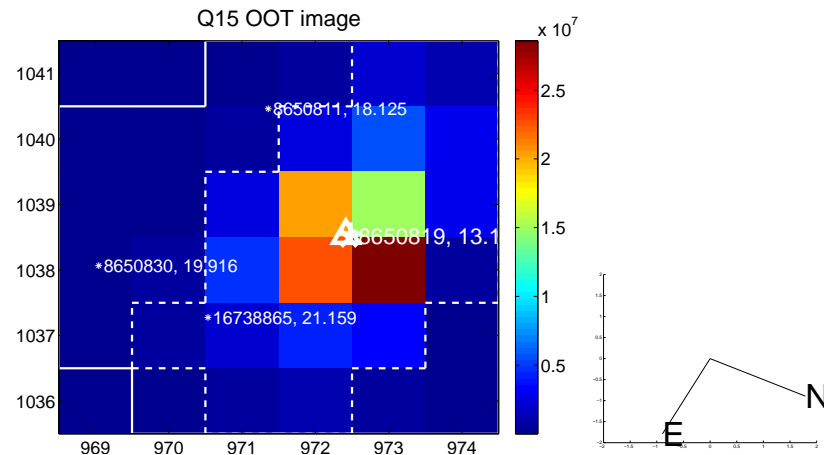
Q14 OOT image



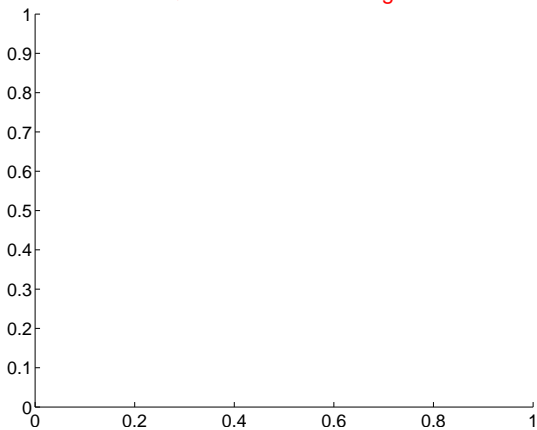
Q15 difference image



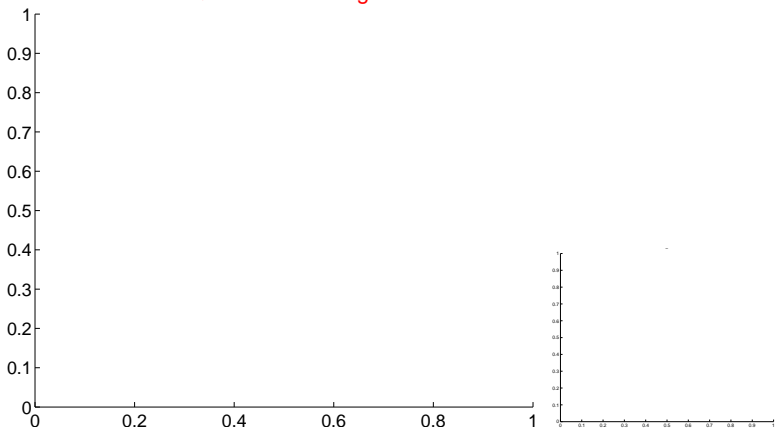
Q15 OOT image



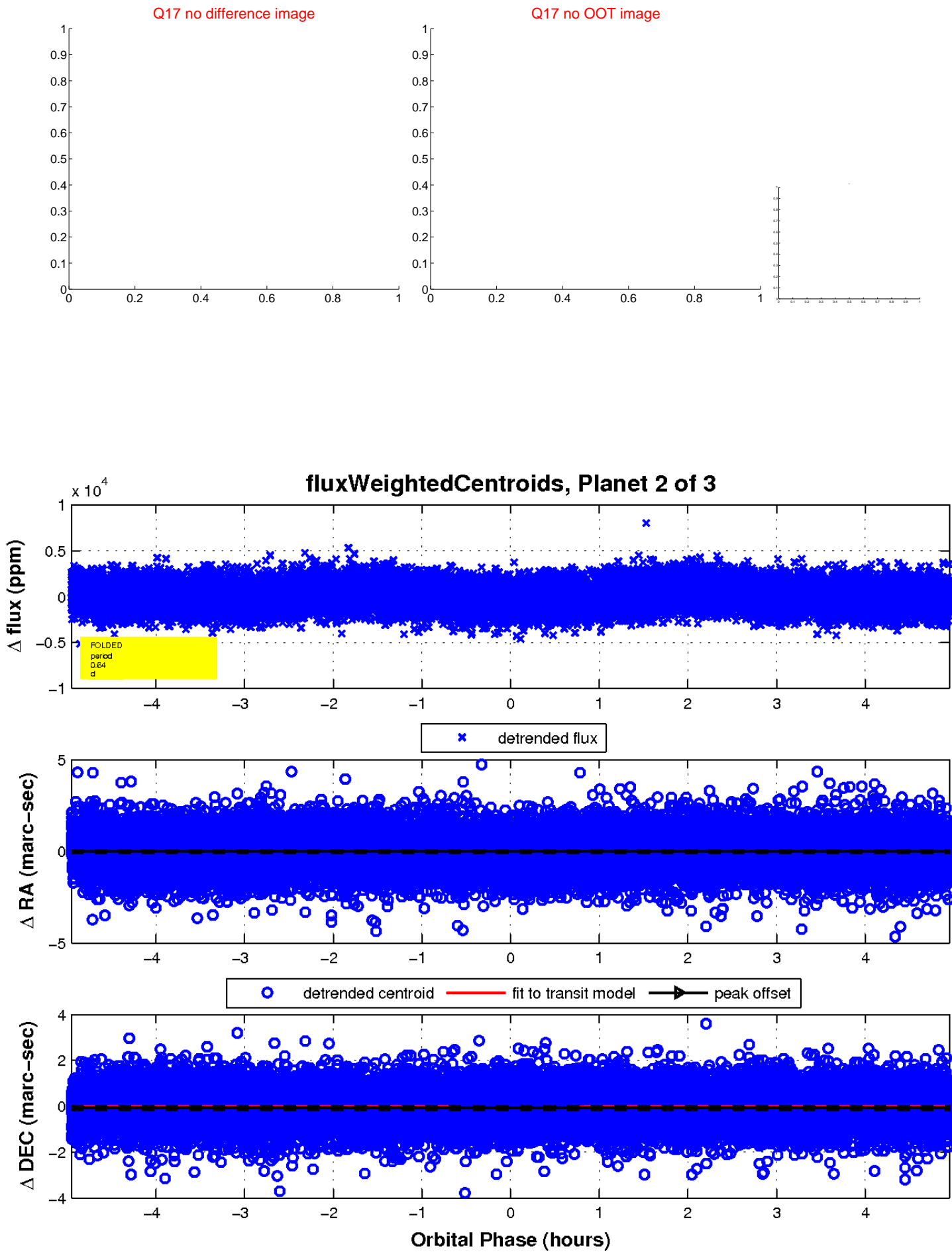
Q16 no difference image



Q16 no OOT image



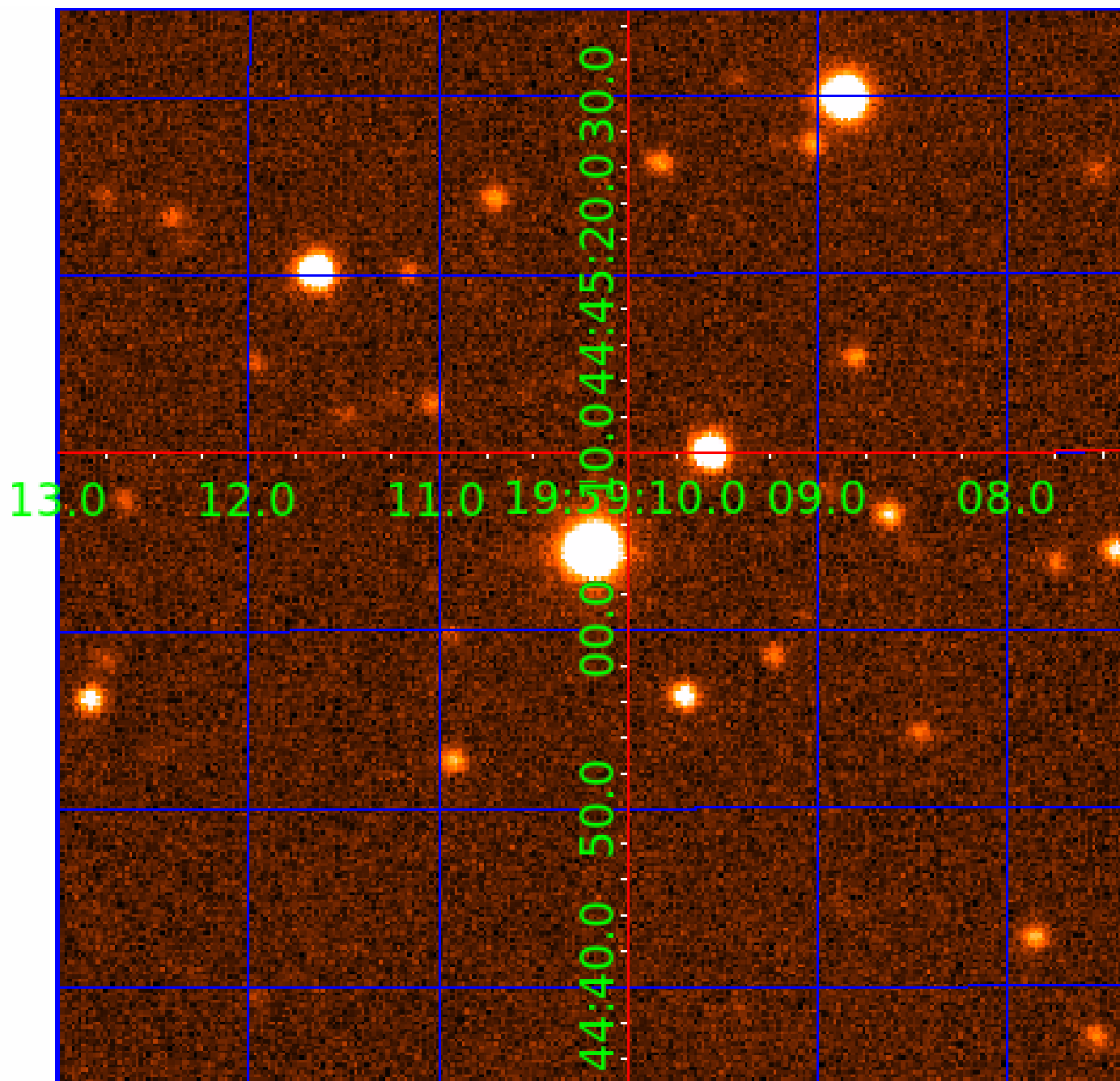
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 008650819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008650819-01	OBS	No	0.637366	131.824661	418.7	1.522	12.2	14.9	2.75	7355	6.04	64058.58
008650819-02	OBS	No	0.637366	131.984321	425.8	1.650	12.9	15.8	2.75	7355	6.70	64058.58
008650819-03	OBS	No	0.637358	132.148159	377.0	1.651	12.5	14.4	2.75	7355	6.30	64059.62

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008650819-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008650819-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008650819-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—SAME_NTL_PERIOD

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

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

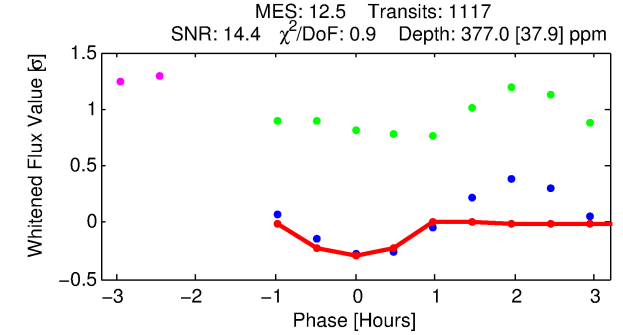
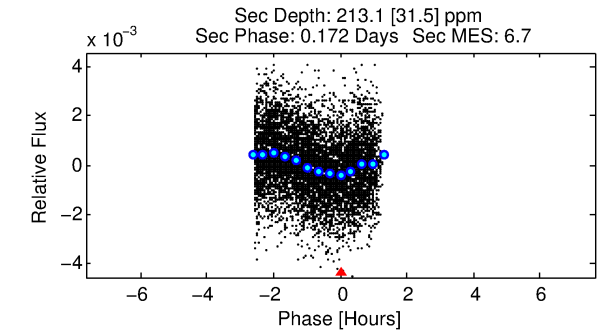
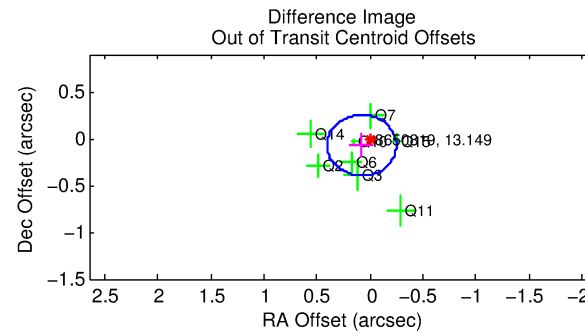
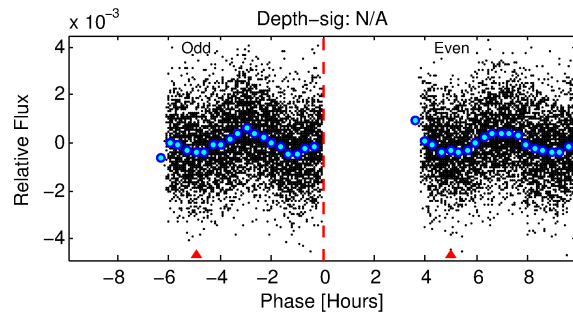
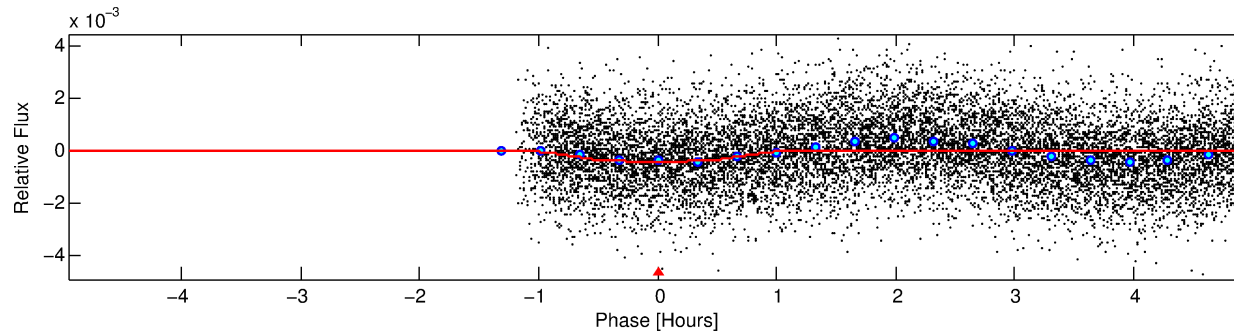
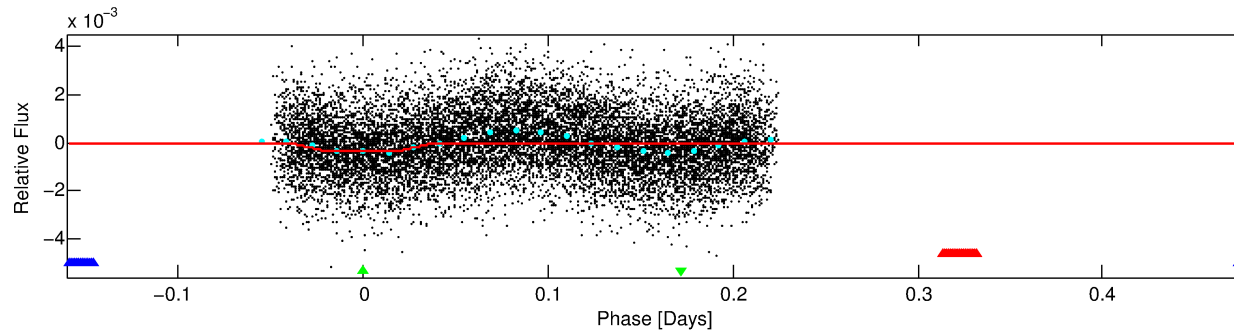
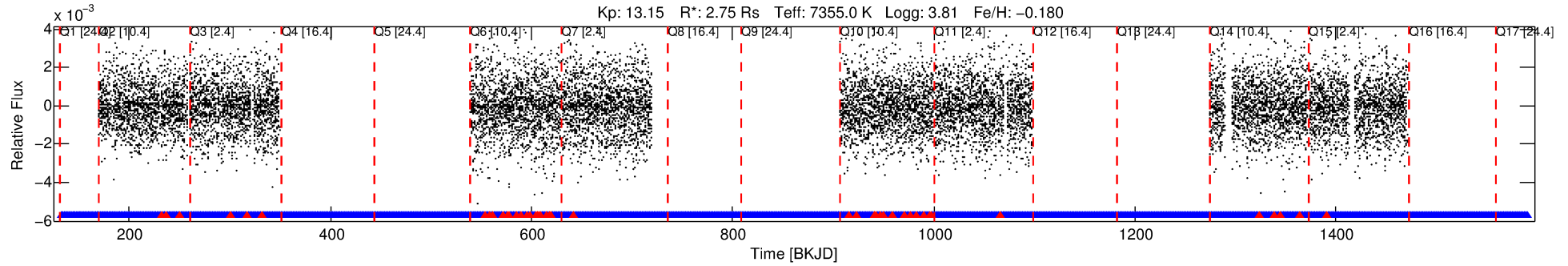
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008650819-03

No Significant Match Found

# DV One-Page Summary

KIC: 8650819 Candidate: 3 of 3 Period: 0.637 d



## DV Fit Results:

Period = 0.63736 [0.00001] d  
Epoch = 132.1482 [0.0015] BKJD  
Rp/R\* = 0.0210 [0.0070]  
a/R\* = 1.70 [2.01]  
b = 0.90 [0.39]  
Seff = 64059.62 [43272.41]  
Teq = 4057 [685] K  
Rp = 6.30 [3.41] Re  
a = 0.0176 [0.0072] AU  
Ag = 0.92 [0.87] [-0.10σ]  
Teffp = 6137 [1078] K [1.63σ]

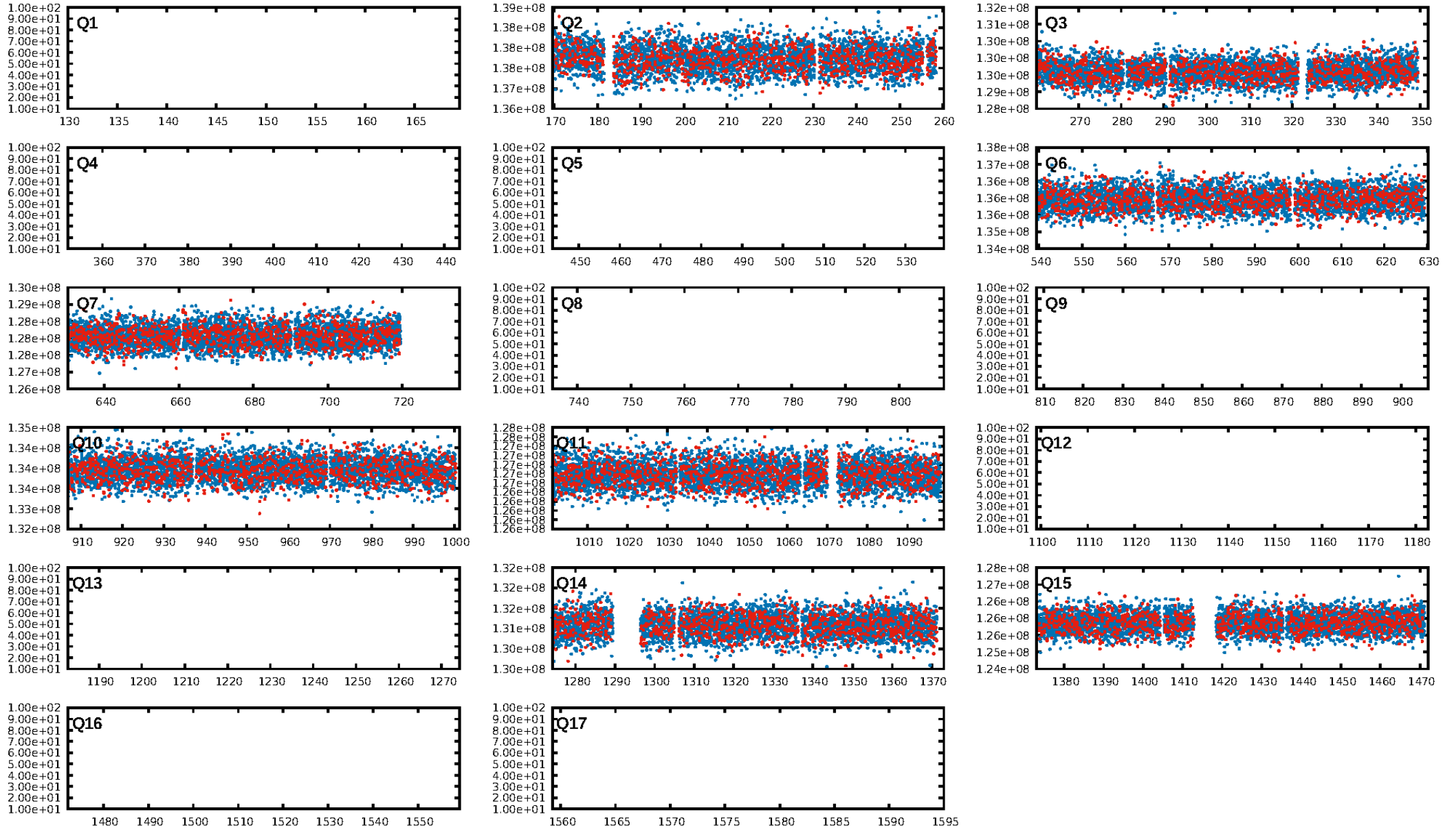
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
**LongPeriod-sig: 0.0% [0.00σ]**  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.96 [1073/1117]  
GhostDiagnostic-chr: 1.783  
Centroid-sig: 89.5%  
Centroid-so: 0.181 arcsec [1.41σ]  
OotOffset-rm: 0.107 arcsec [0.99σ]  
OotOffset-st: 4/4/0/0 [8]  
KicOffset-rm: 0.237 arcsec [1.99σ]  
KicOffset-st: 4/4/0/0 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 0.00 [0/8]

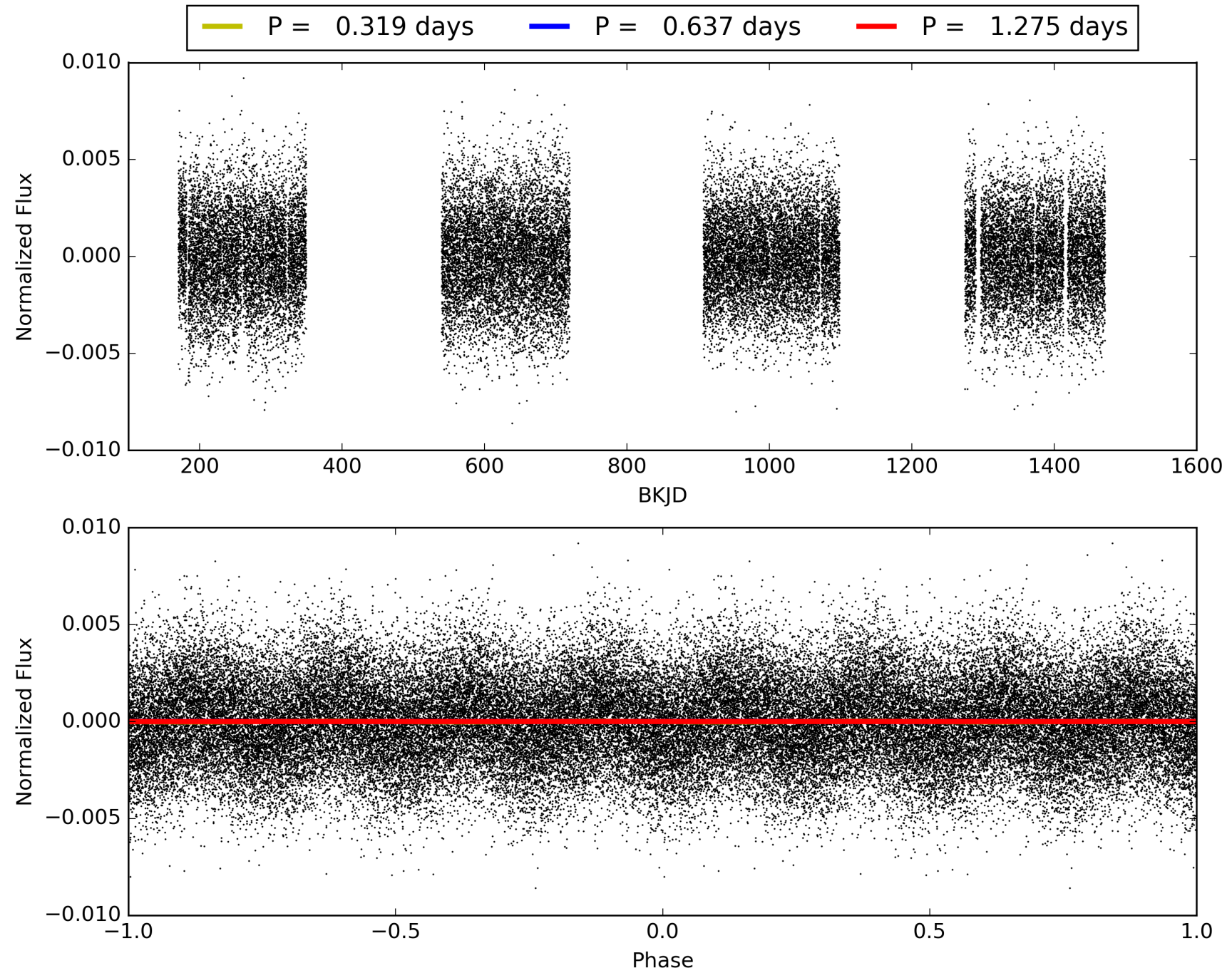
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:18:43 Z

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

# TCE 008650819-03, PDC Light Curves

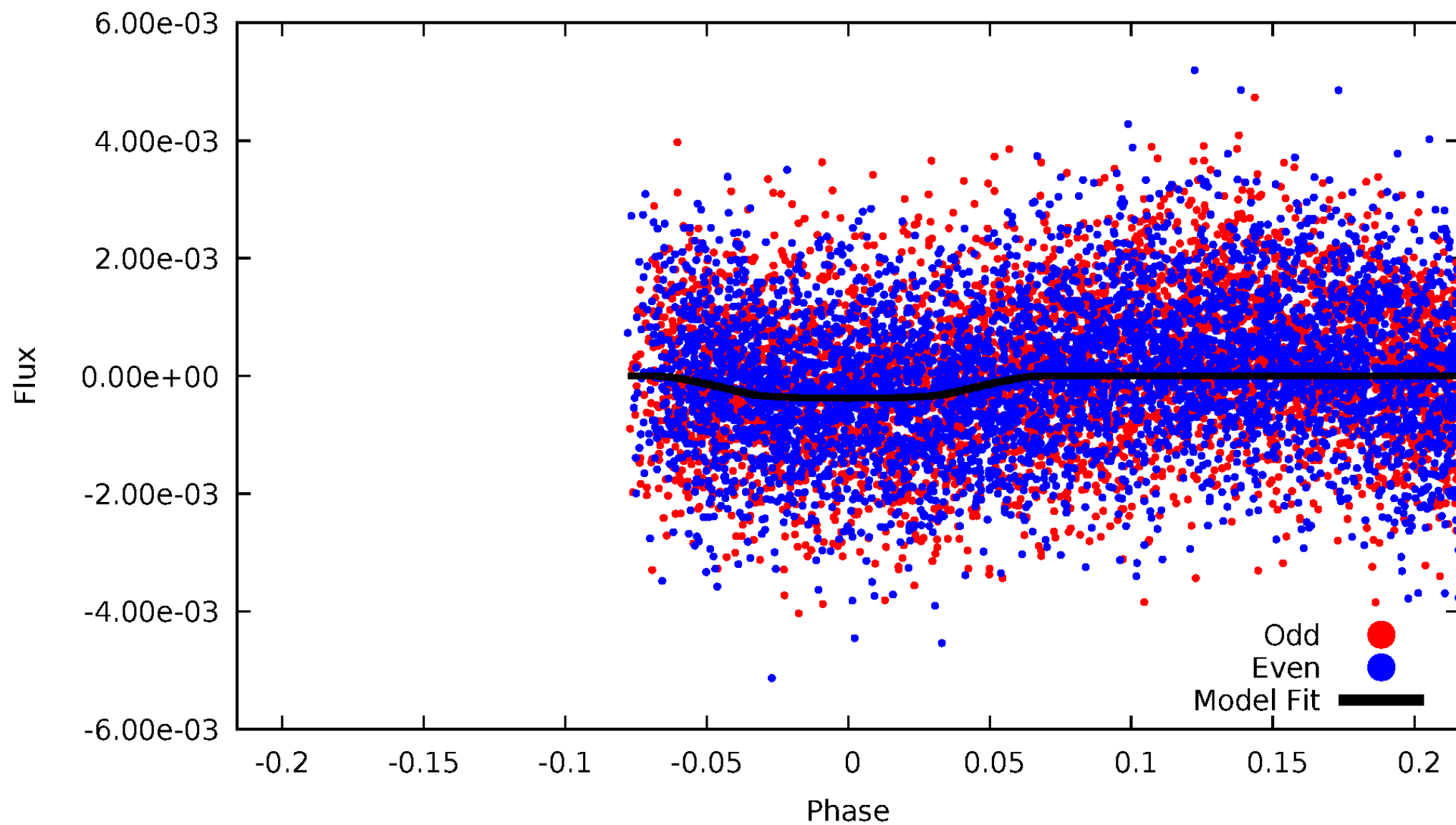


TCE 008650819-03



DV Odd/Even

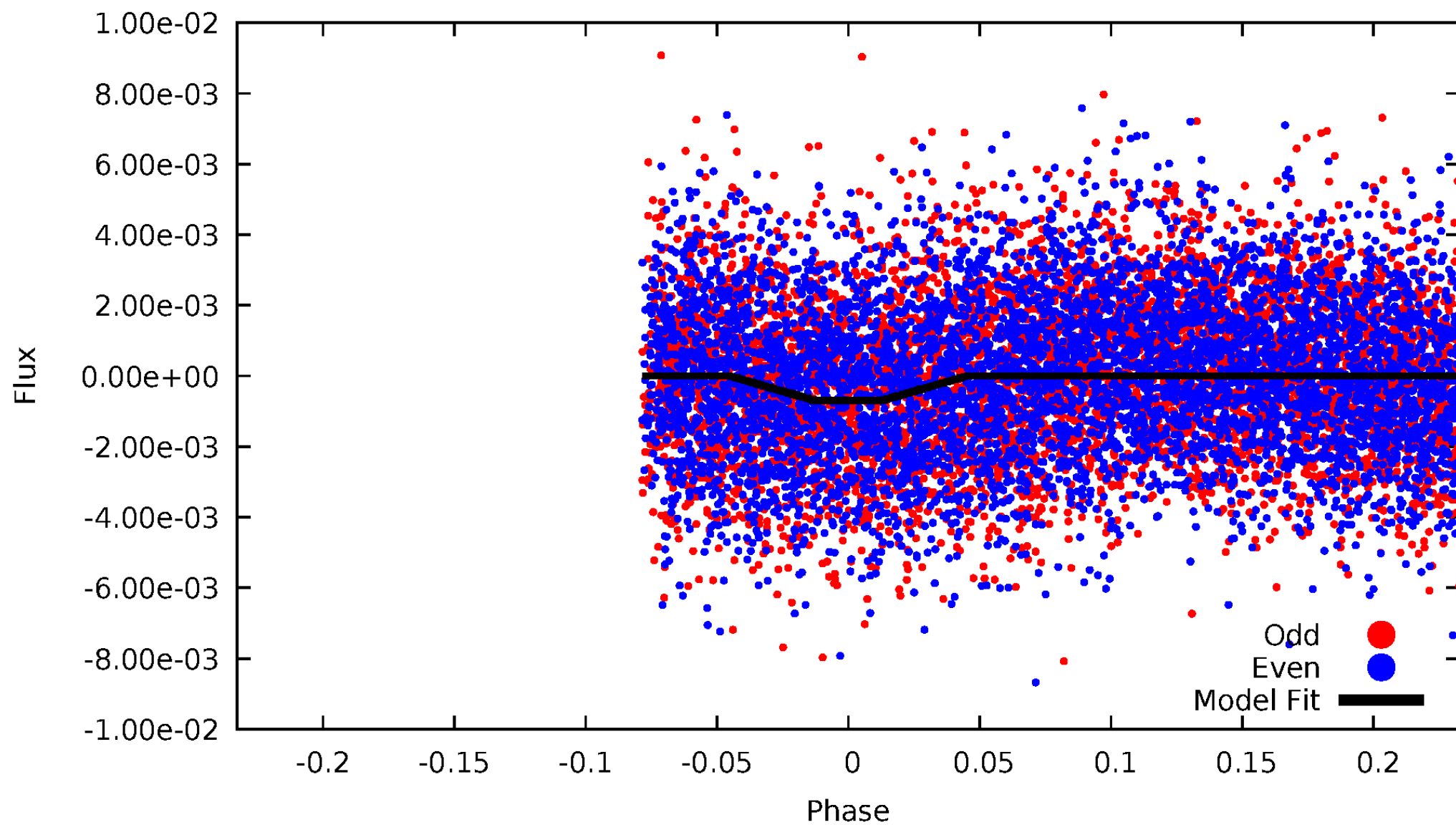
TCE 008650819-03





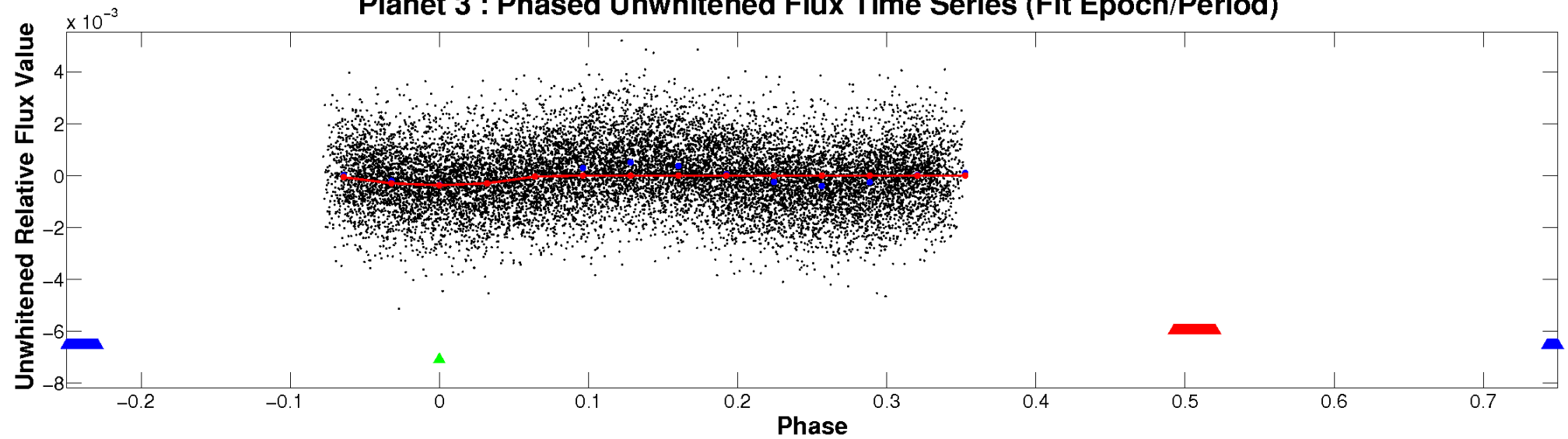
# ALT Odd/Even

TCE 008650819-03

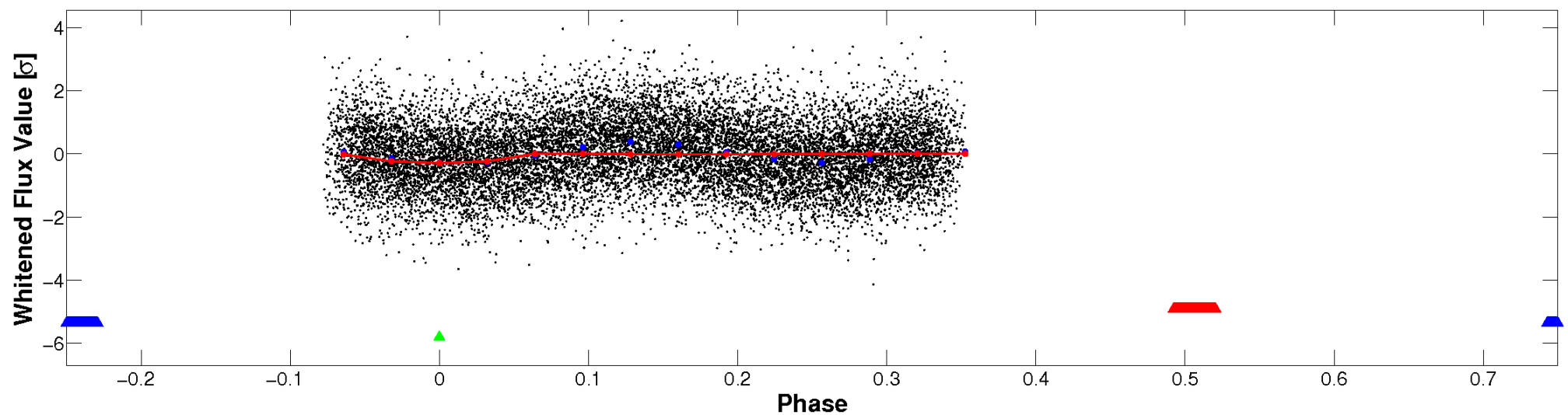


# Non-Whitened Vs. Whitened Light Curve

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

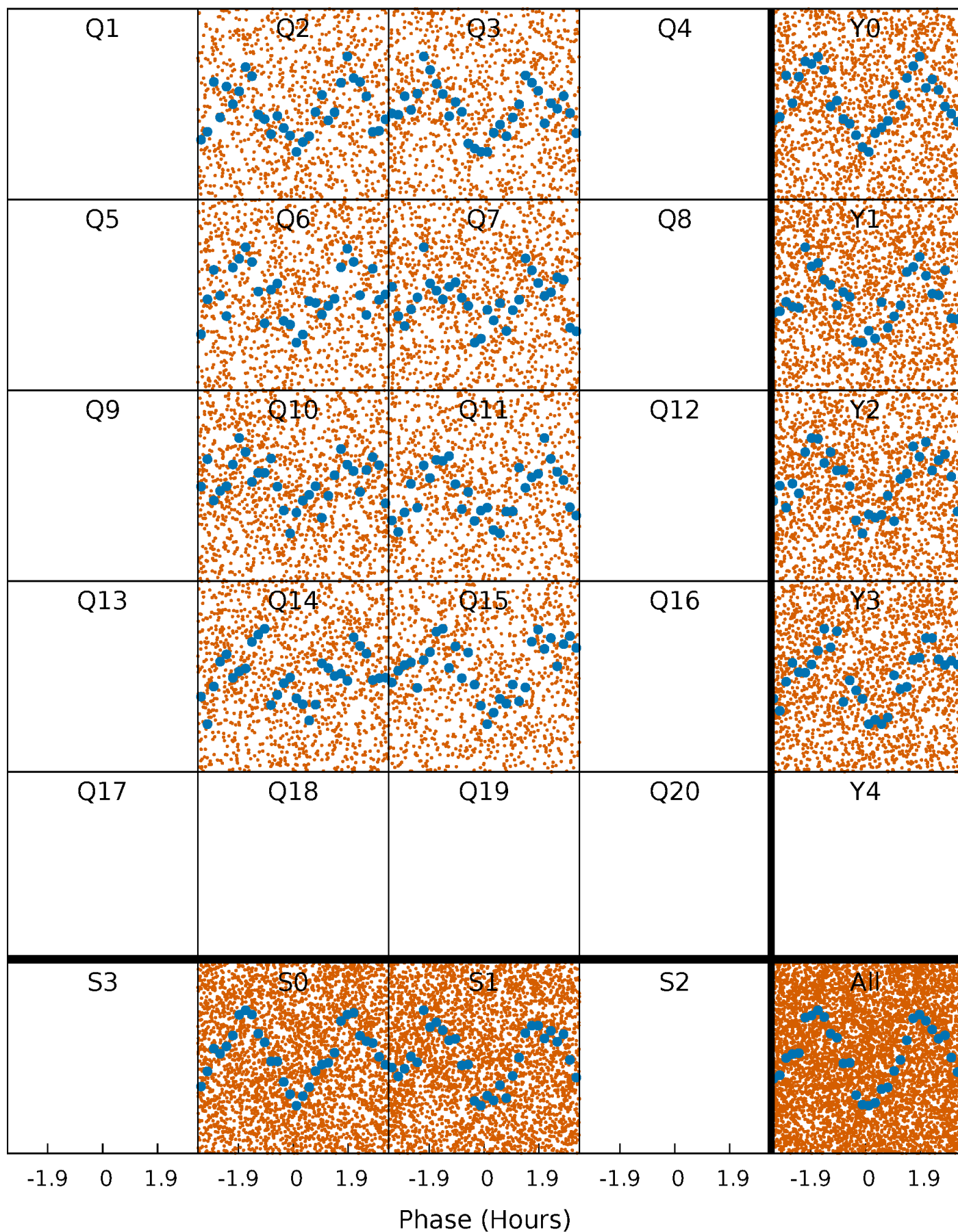


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



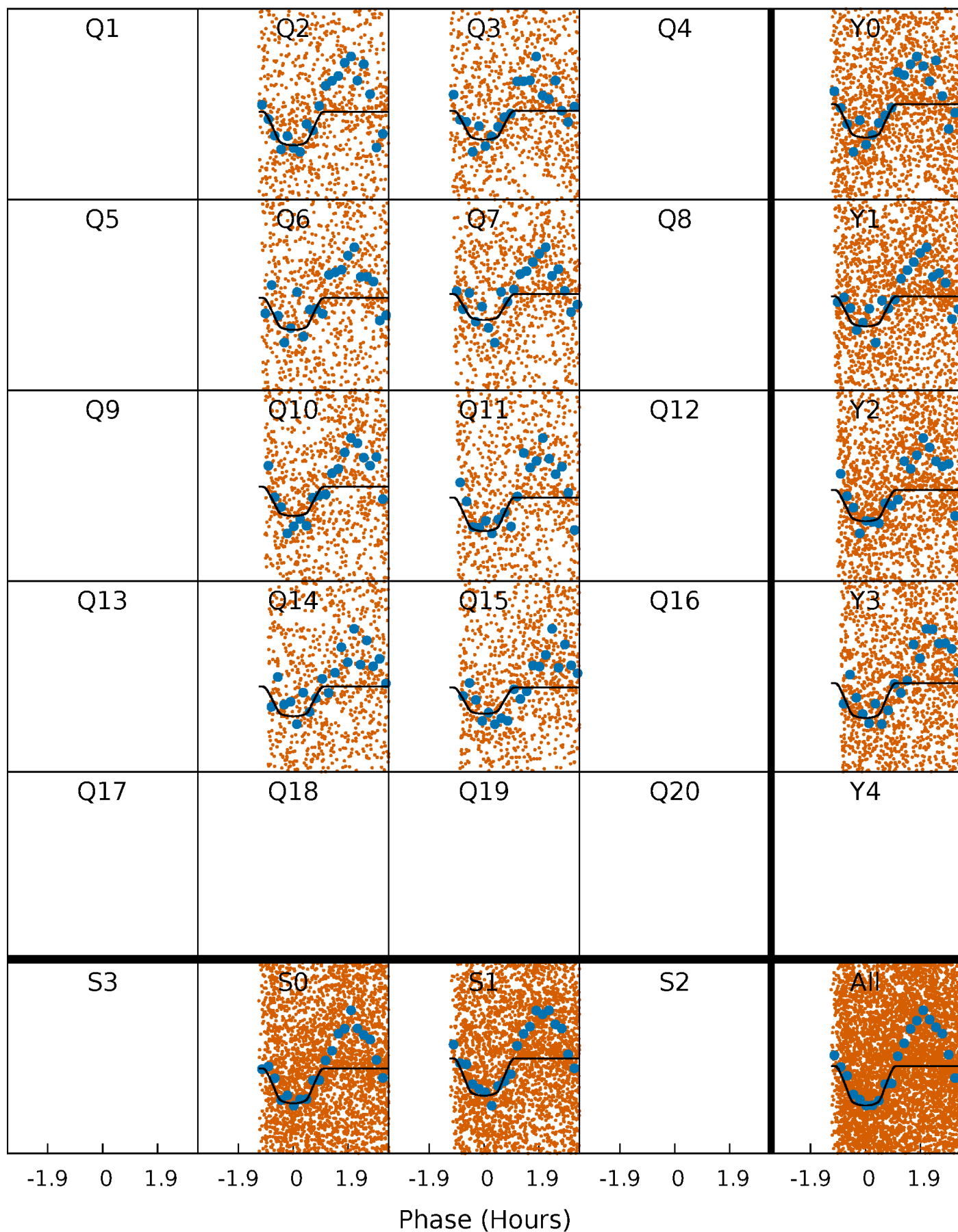
# PDC Quarter-Phased Transit Curves

TCE 008650819-03 P= 0.637358 Days  $T_0=132.148159$  (BKJD)



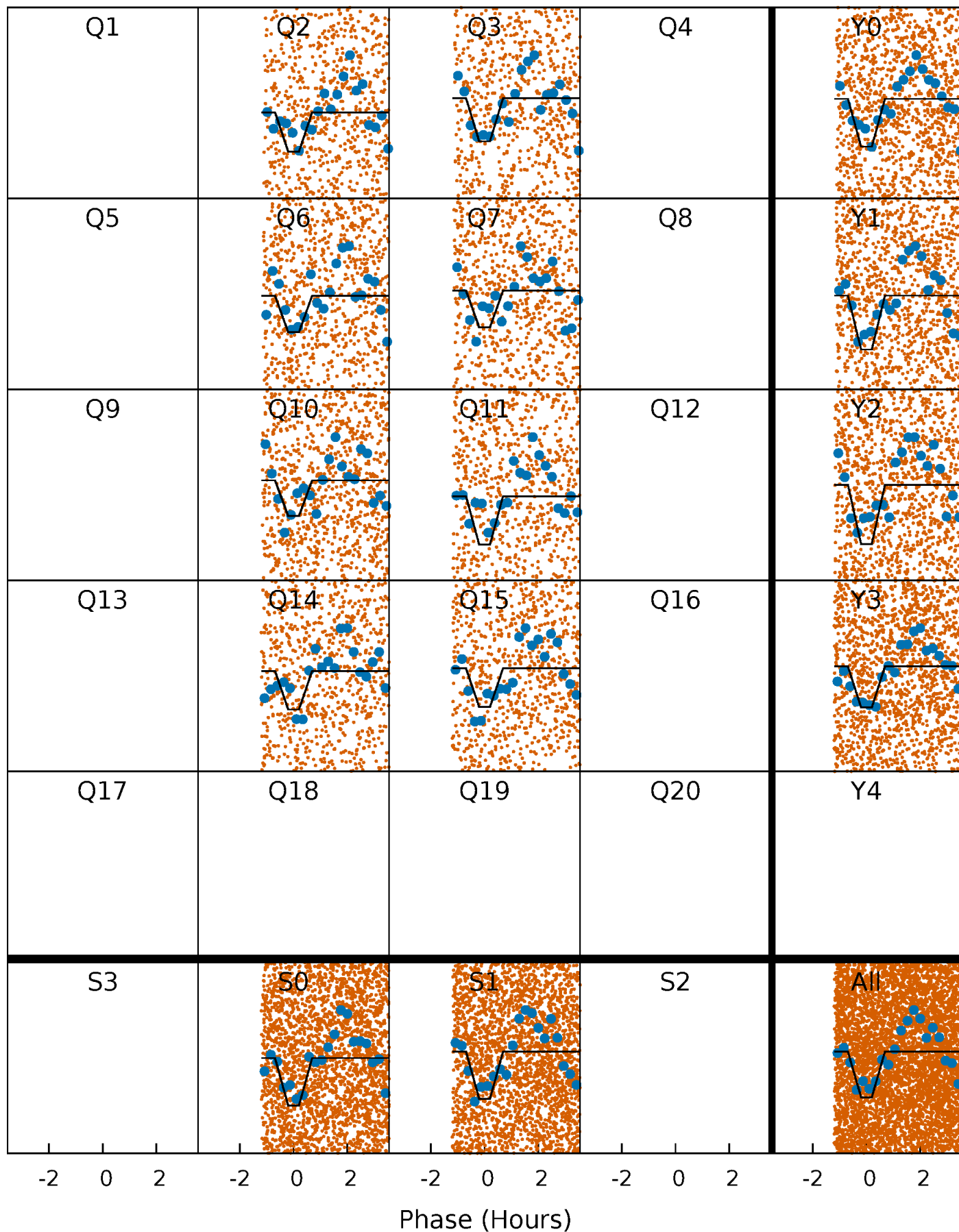
# DV Quarter-Phased Transit Curves

TCE 008650819-03 P= 0.637358 Days  $T_0=132.148159$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008650819-03   P= 0.637368 Days    $T_0=132.143673$  (BKJD)

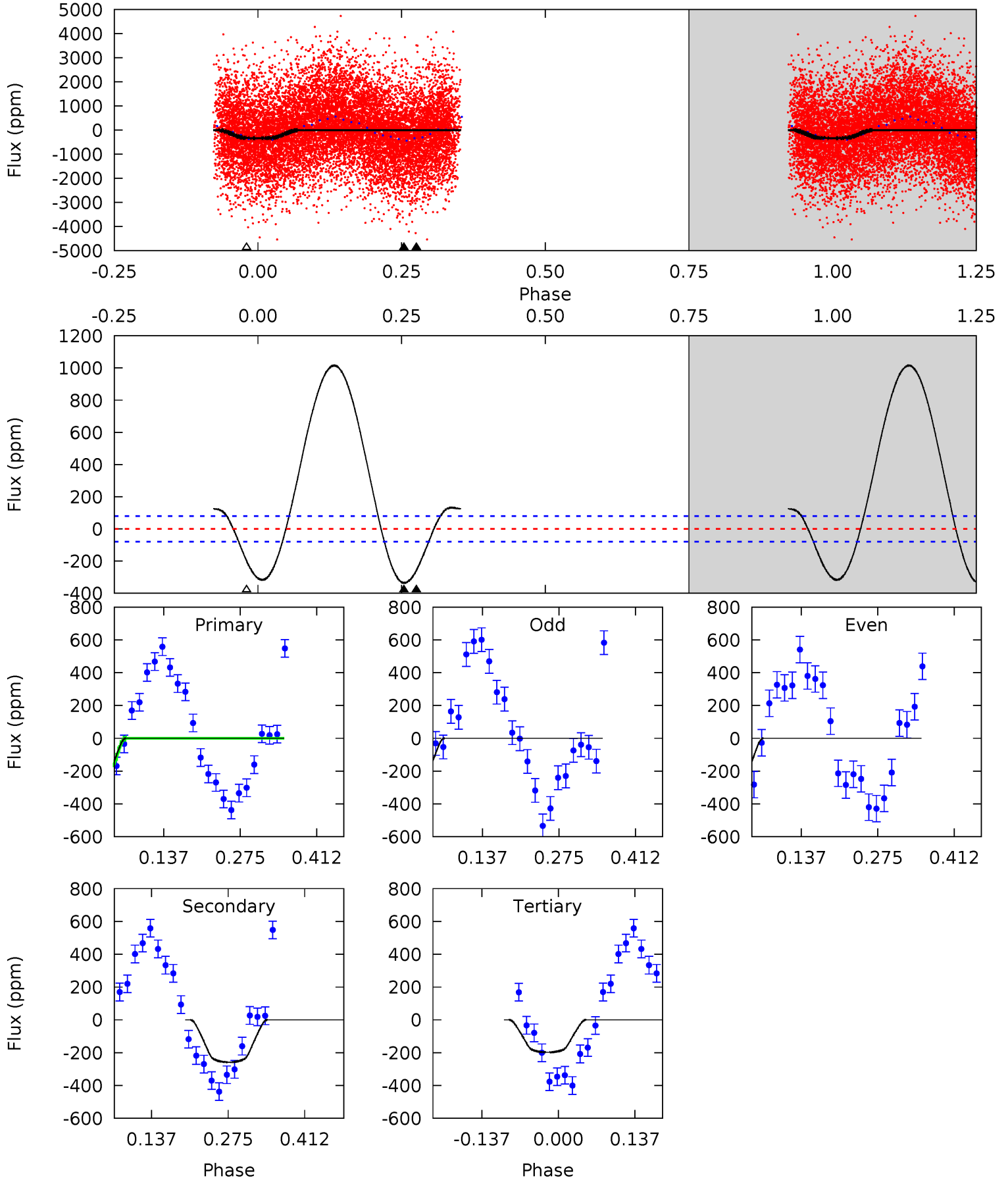




# DV Model-Shift Uniqueness Test

008650819-03, P = 0.637358 Days, E = 132.148159 Days

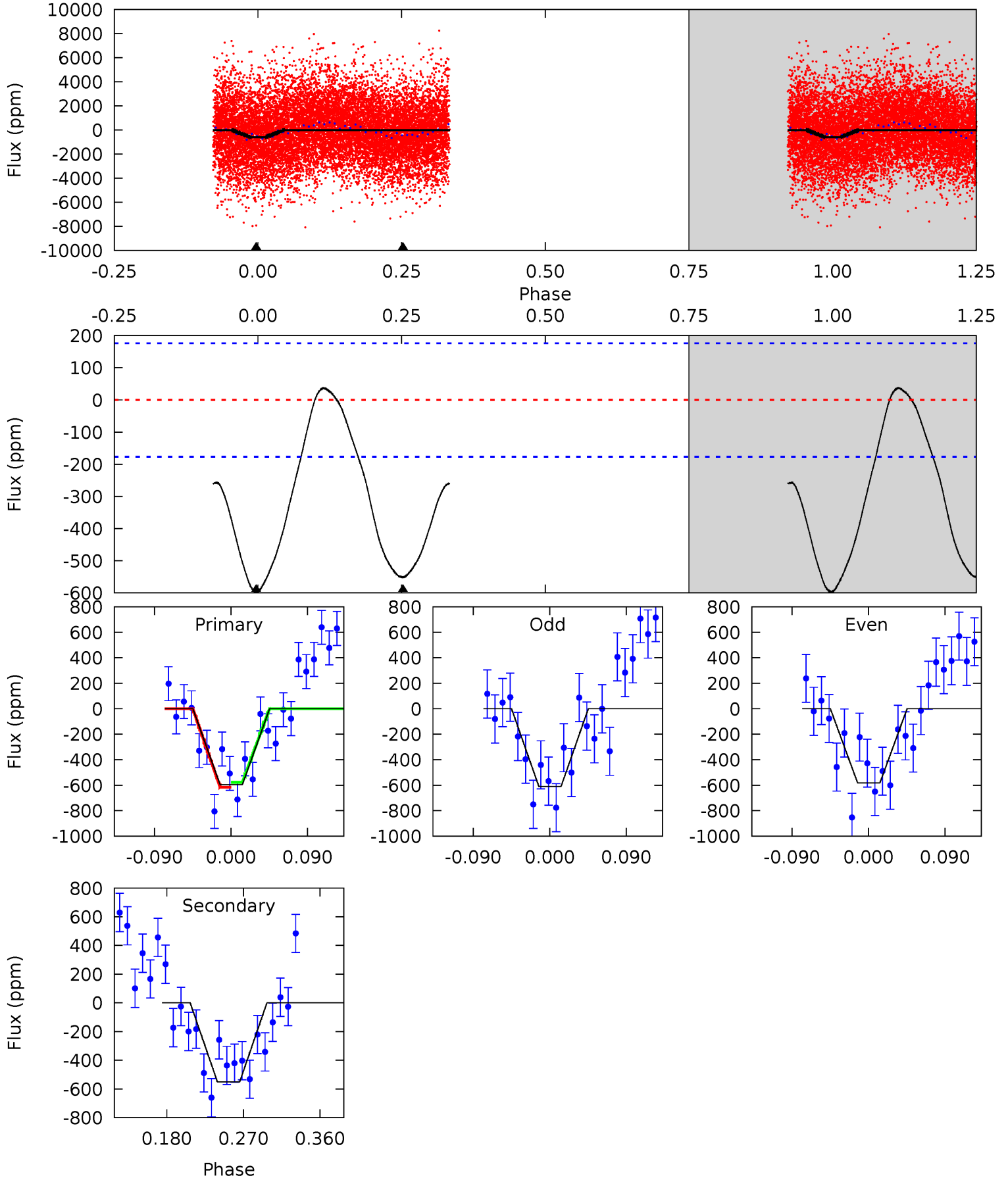
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	14.6	11.2	0	4.50	1.49	22.0	7.82	19.0	3.43	14.6	0.57	1.02	0.75	2.02



# Alt Model-Shift Uniqueness Test

008650819-03, P = 0.637368 Days, E = 132.143673 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
15.5	14.3	0	0	4.59	1.70	1.11	15.5	15.5	14.3	14.3	0.35	1.00	0.06	0.48





### Stellar Parameters For KIC 008650819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7355^{+230}_{-307}$	$3.812^{+0.384}_{-0.096}$	$-0.180^{+0.250}_{-0.350}$	$2.753^{+0.420}_{-1.175}$	$1.794^{+0.192}_{-0.479}$	$0.121^{+0.380}_{-0.035}$
	+3%/-4%	+10%/-3%	+139%/-194%	+15%/-43%	+11%/-27%	+314%/-29%
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 008650819-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-258 \pm 18$	$5.69^{+2.55}_{-2.18}$	$5520^{+399}_{-619}$	$5938^{+1730}_{-1116}$	$1.335^{+2.125}_{-0.674}$
Alt.	$-551 \pm 38$	$7.39^{+2.46}_{-2.27}$	$5510^{+372}_{-587}$	$6403^{+1521}_{-869}$	$1.691^{+1.925}_{-0.725}$

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

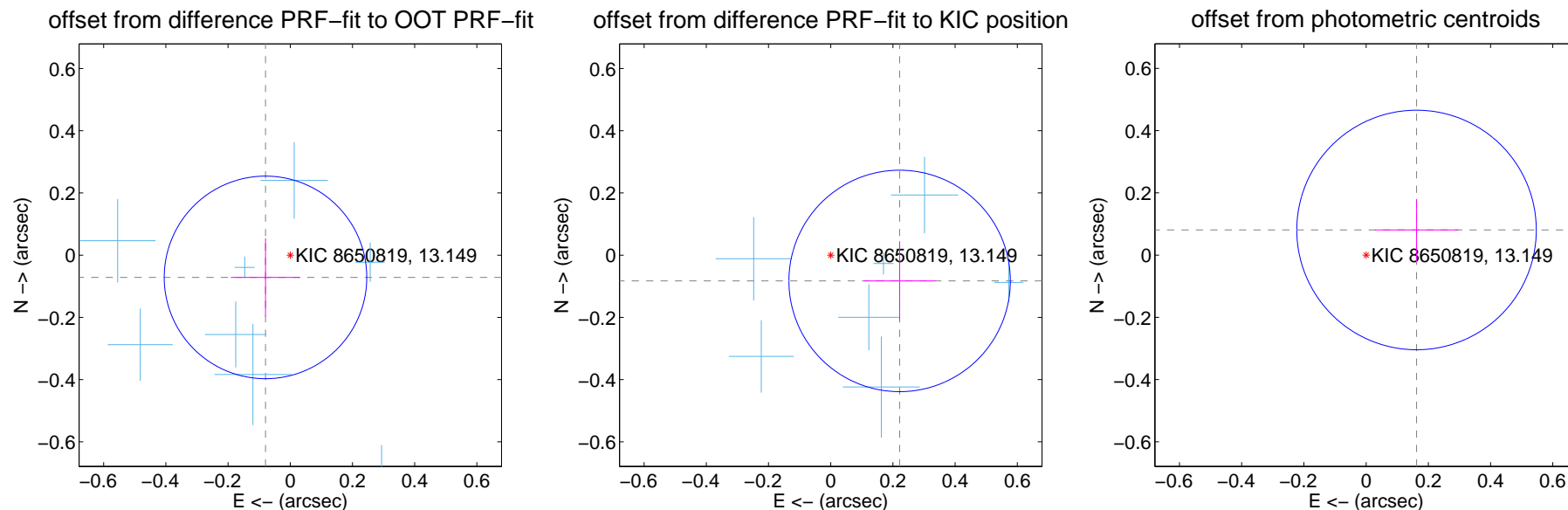
## DV Centroid Data

Supplemental centroid analysis for 008650819-03. Kepler magnitude: 13.15. Transit SNR 14.38

There are 8 quarters with good PRF difference image offsets

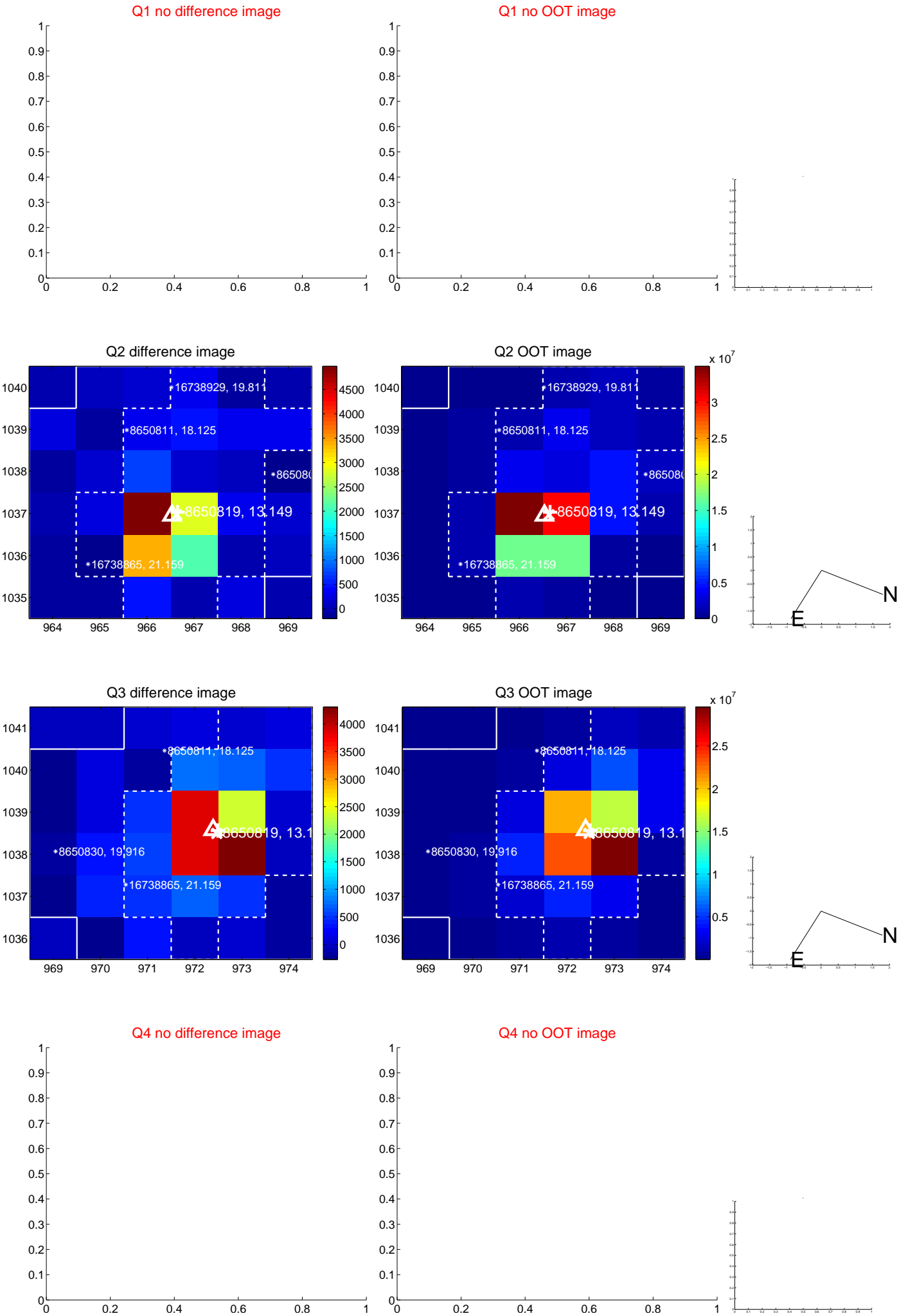
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.107 \pm 0.109$	0.99	$0.080 \pm 0.111$	$-0.072 \pm 0.126$
PRF-fit source offset from KIC position	$0.237 \pm 0.119$	1.99	$-0.222 \pm 0.115$	$-0.083 \pm 0.128$
photometric centroid source offset	$0.18 \pm 0.13$	1.41	$-0.16 \pm 0.13$	$0.08 \pm 0.10$

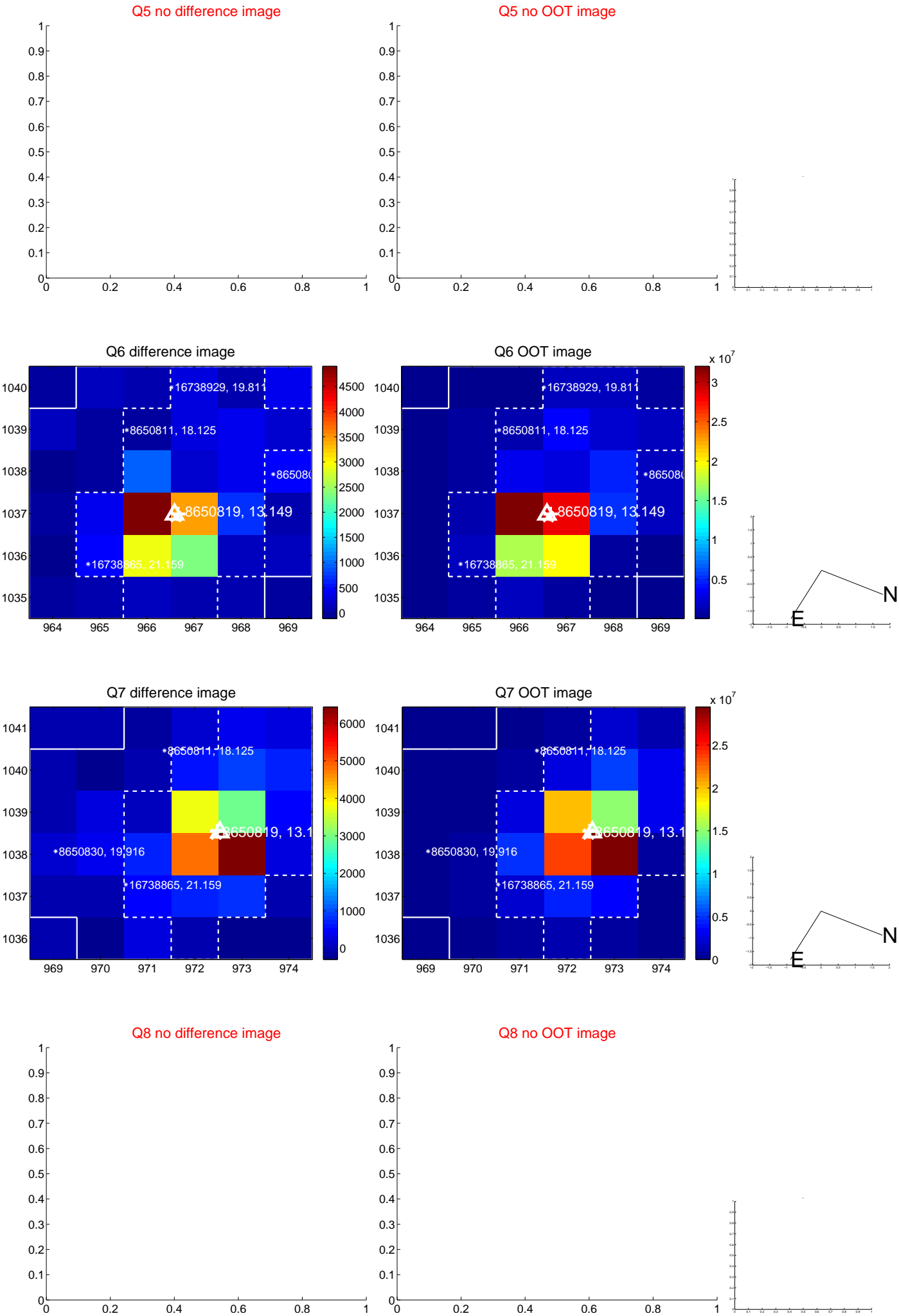


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

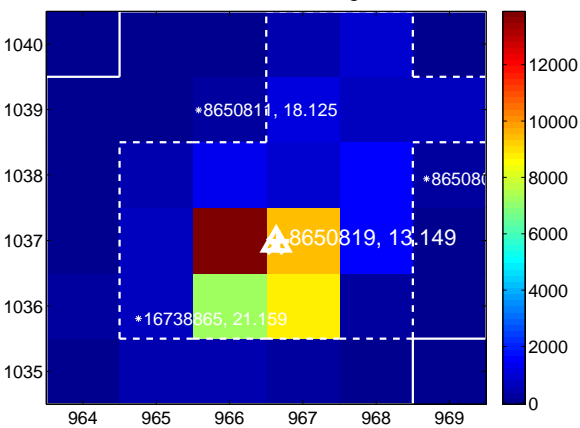
Q9 no difference image



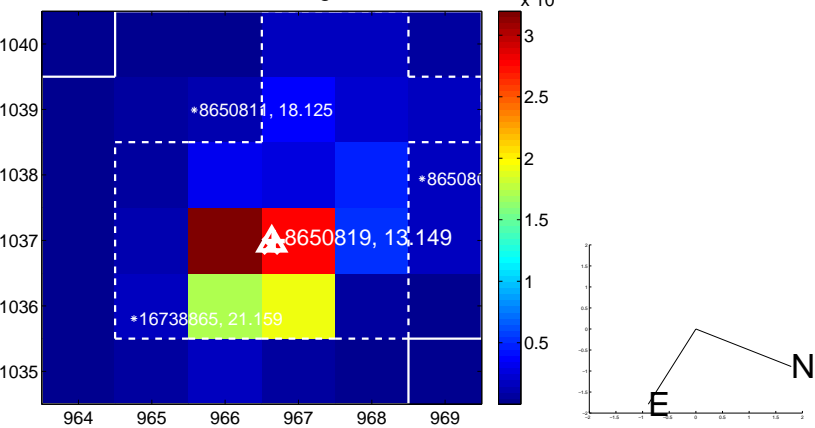
Q9 no OOT image



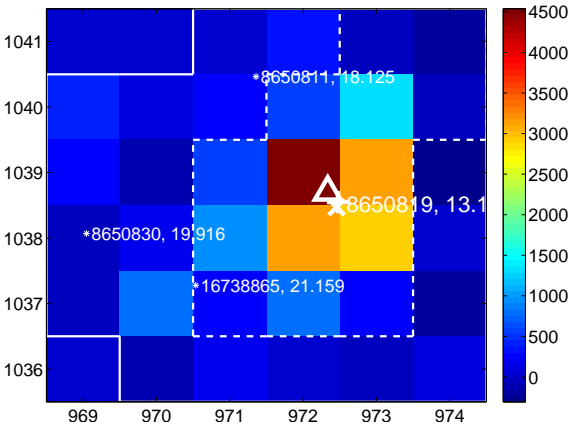
Q10 difference image



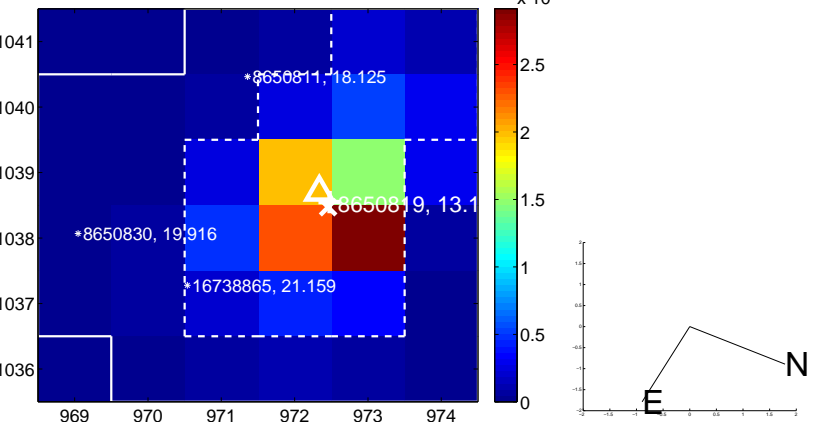
Q10 OOT image



Q11 difference image



Q11 OOT image



Q12 no difference image



Q12 no OOT image

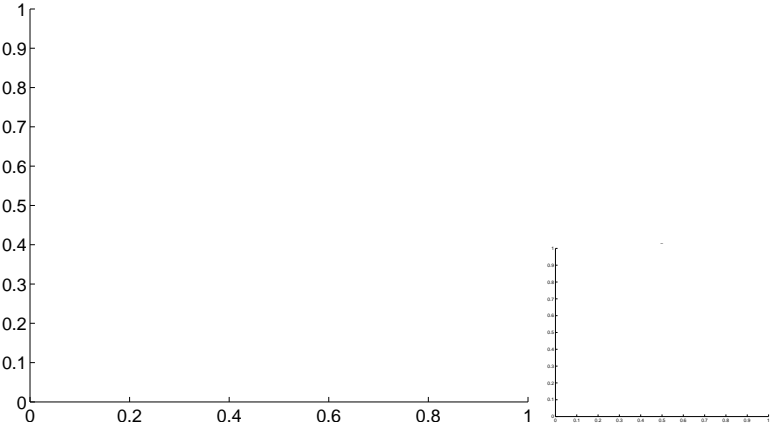


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

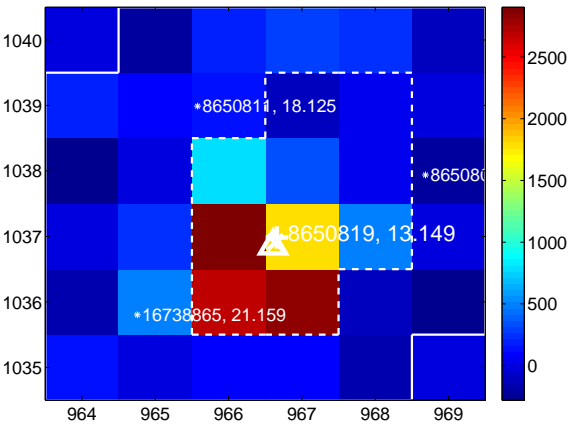
Q13 no difference image



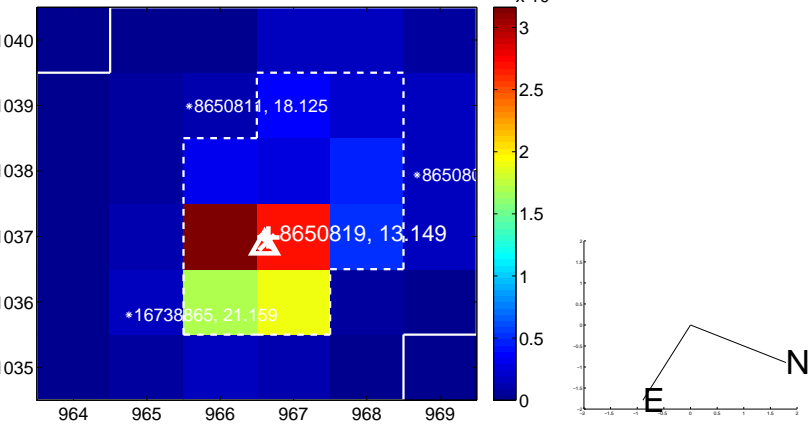
Q13 no OOT image



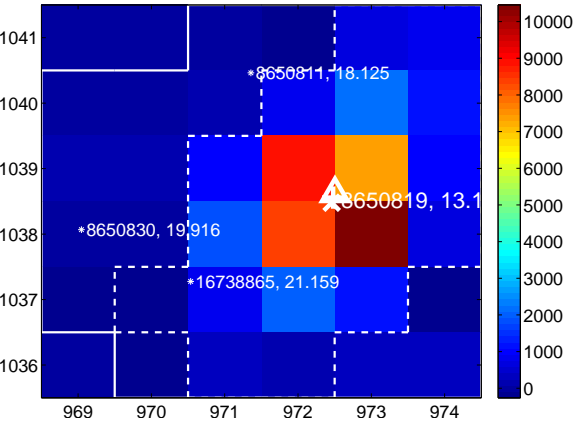
Q14 difference image



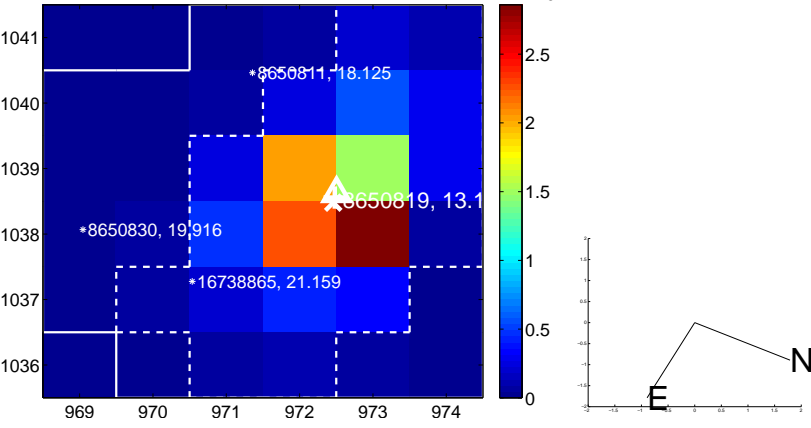
Q14 OOT image



Q15 difference image



Q15 OOT image



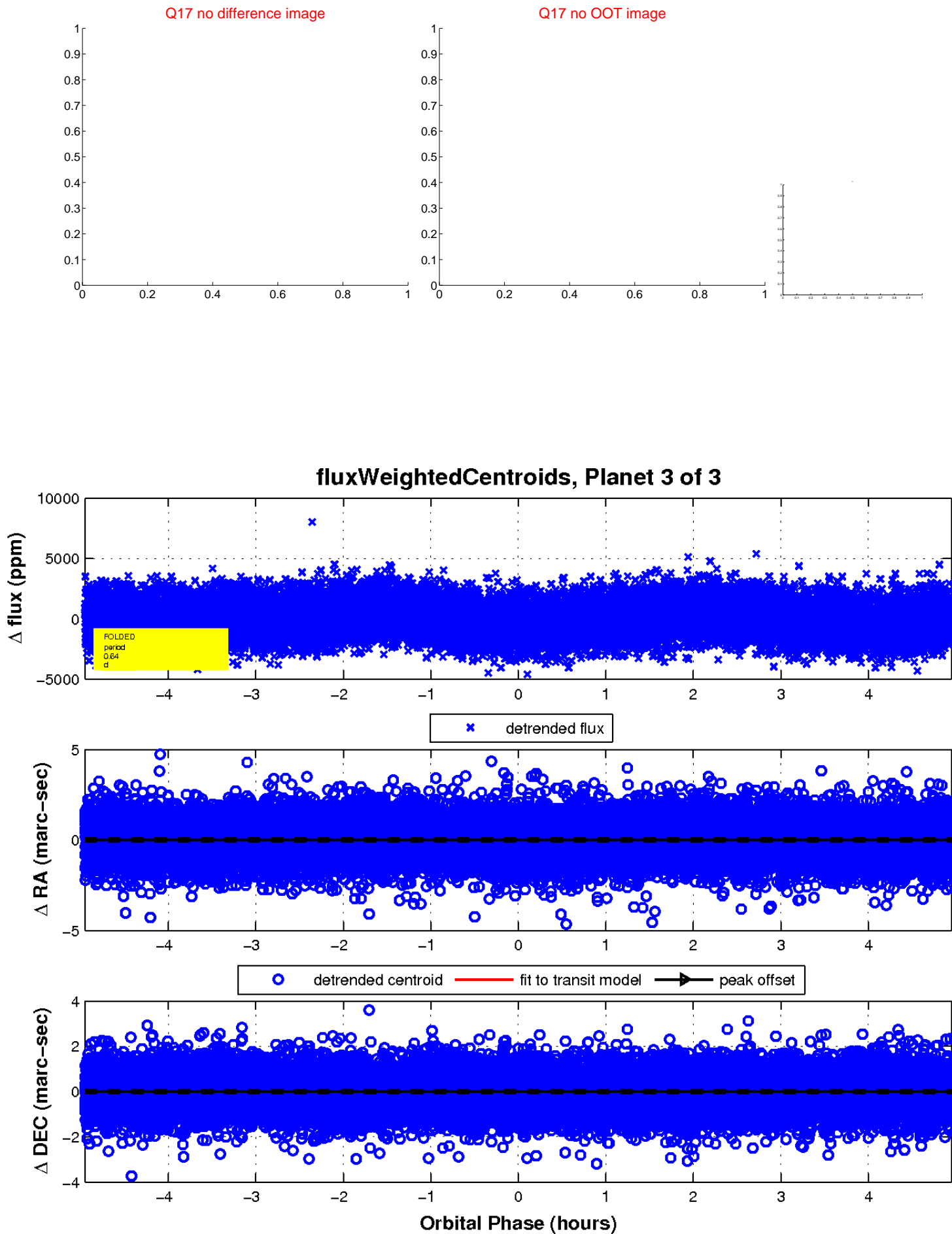
Q16 no difference image



Q16 no OOT image



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





UKIRT Image

Declination

