

KIC 009762866

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})
009762866-01	OBS	No	0.507507	131.524048	177.4	0.671	11.6	11.7	2.86	8855	4.10	185253.95
009762866-02	OBS	No	1.603408	132.759126	320.4	19.241	10.9	21.8	2.86	8855	6.13	39960.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009762866-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009762866-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

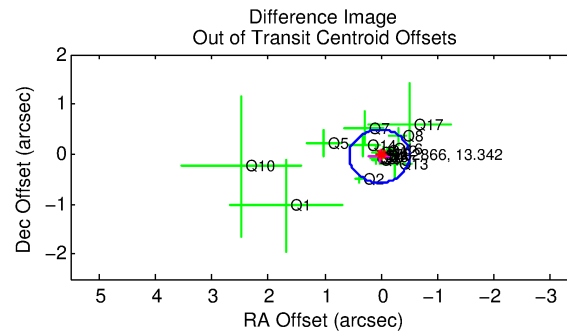
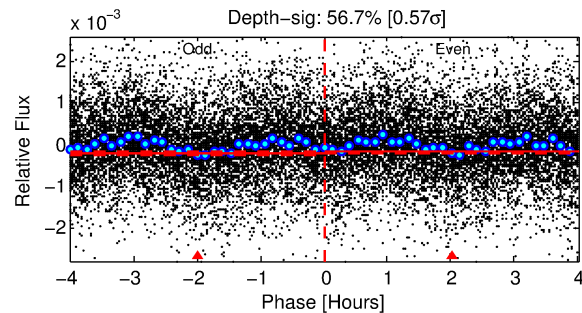
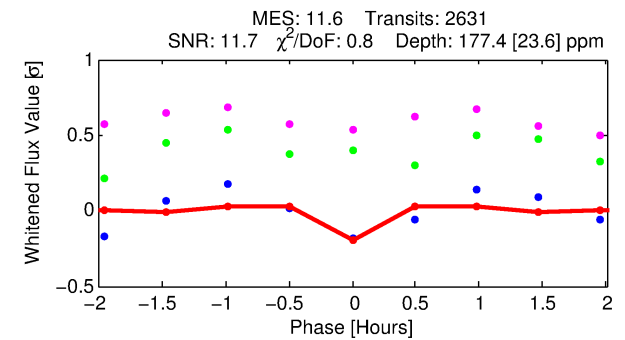
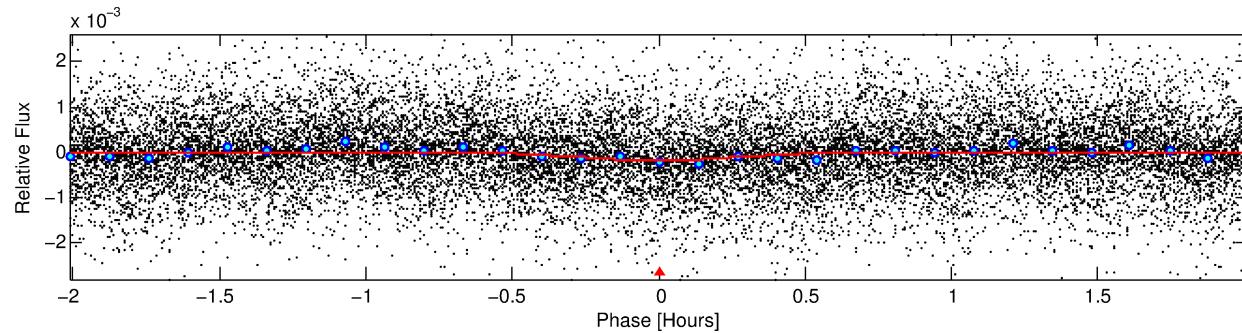
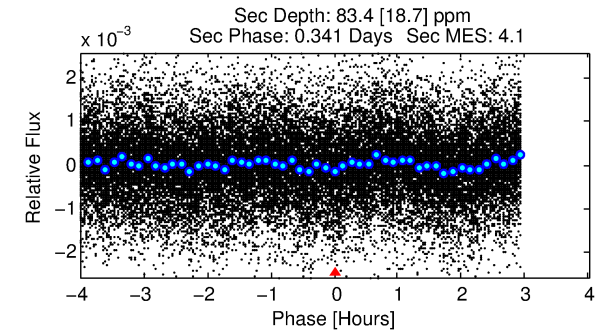
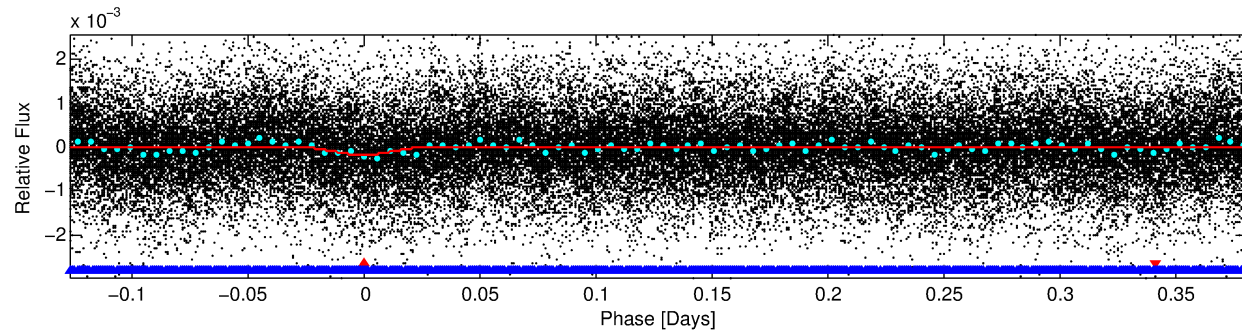
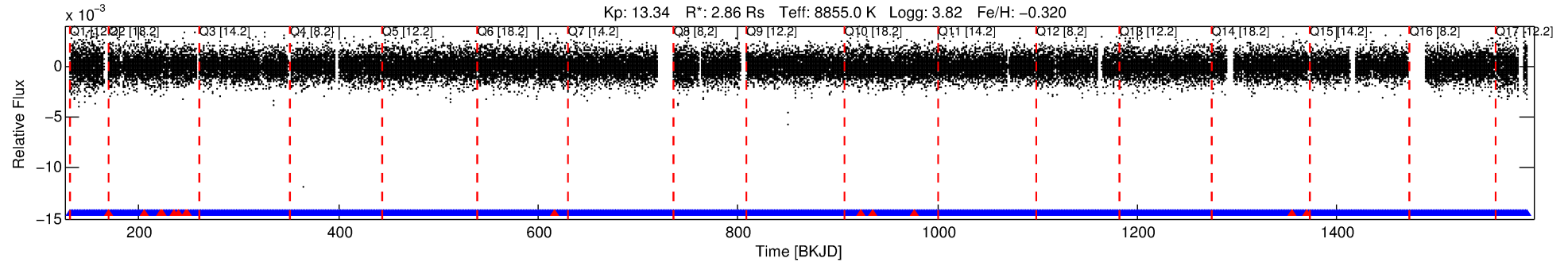
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009762866-01

No Significant Match Found

DV One-Page Summary

KIC: 9762866 Candidate: 1 of 2 Period: 0.508 d



DV Fit Results:

Period = 0.50751 [0.00001] d
Epoch = 131.5240 [0.0008] BKJD
Rp/R* = 0.0132 [0.0034]
a/R* = 4.65 [7.28]
b = 0.63 [1.57]
Seff = 185253.95 [124397.69]
Teq = 5290 [888] K
Rp = 4.10 [2.00] Re
a = 0.0156 [0.0063] AU
Ag = 0.66 [0.57] [-0.59σ]
Teffp = 7378 [1098] K [1.48σ]

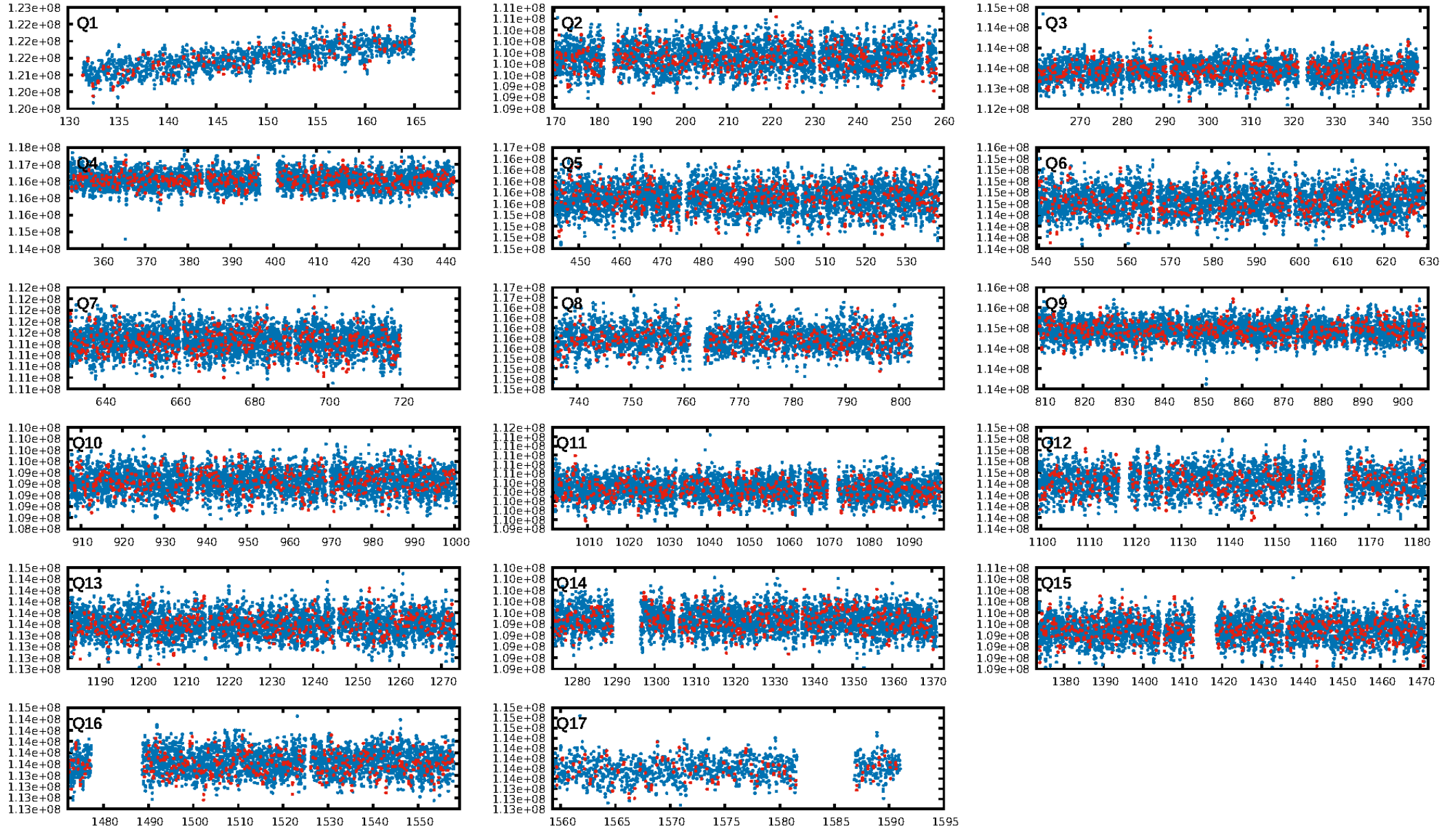
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 82.8% [1.37σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [2498/2512]
GhostDiagnostic-chr: 1.919
Centroid-sig: 8.7%
Centroid-so: 0.289 arcsec [1.59σ]
OotOffset-rm: 0.050 arcsec [0.28σ]
KicOffset-rm: 0.193 arcsec [1.44σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 1.00 [17/17]

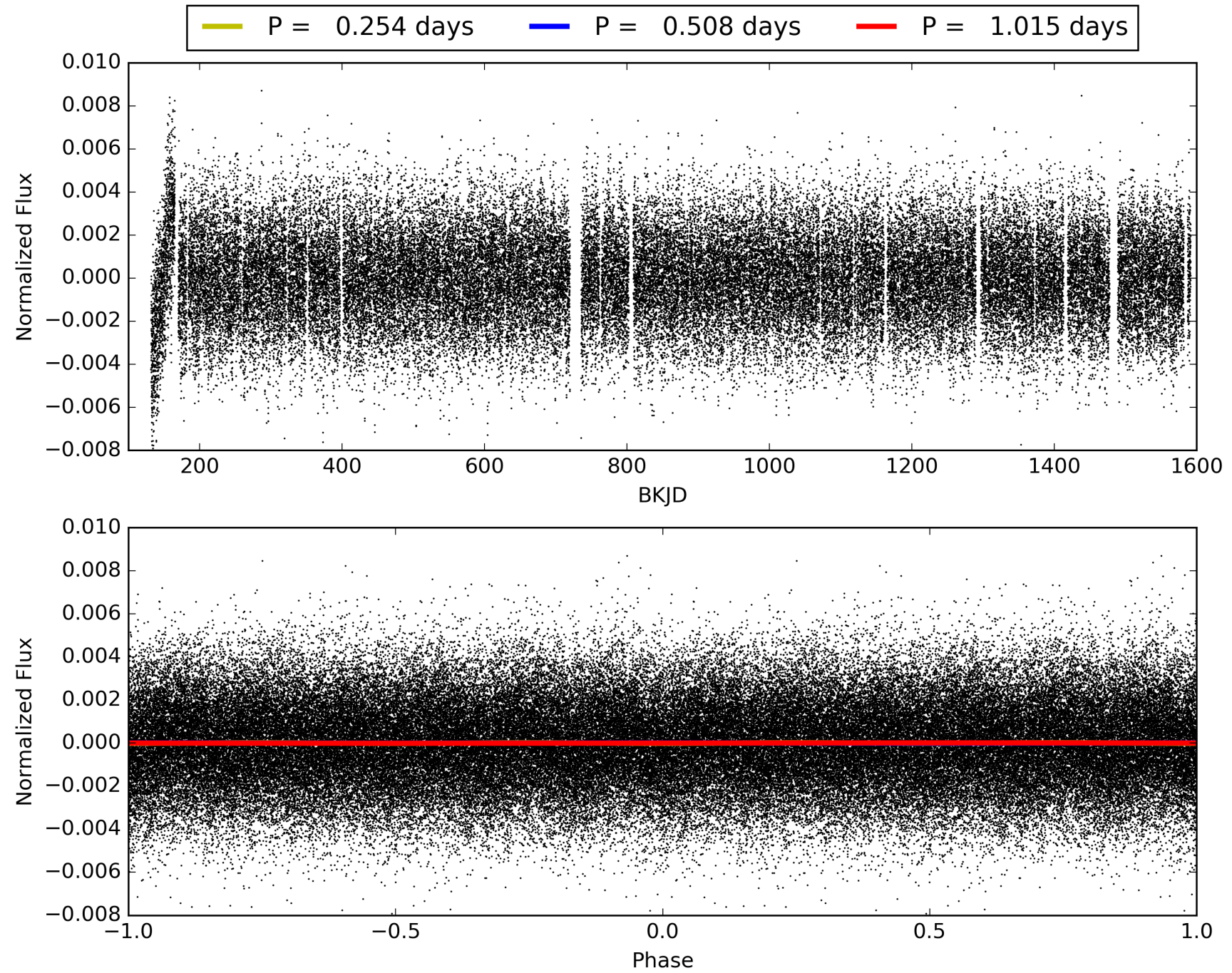
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:26:40 Z

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

TCE 009762866-01, PDC Light Curves

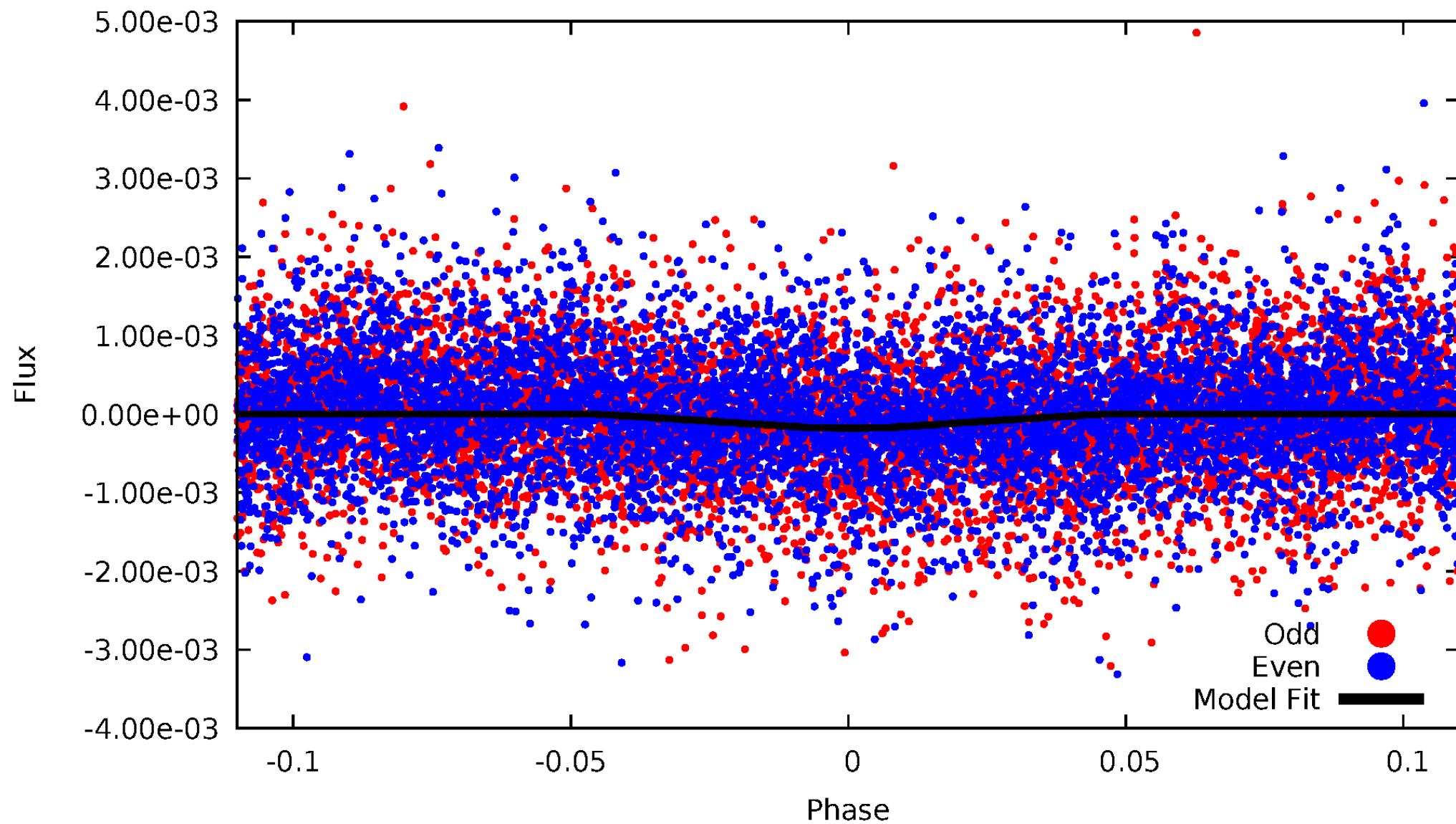


TCE 009762866-01



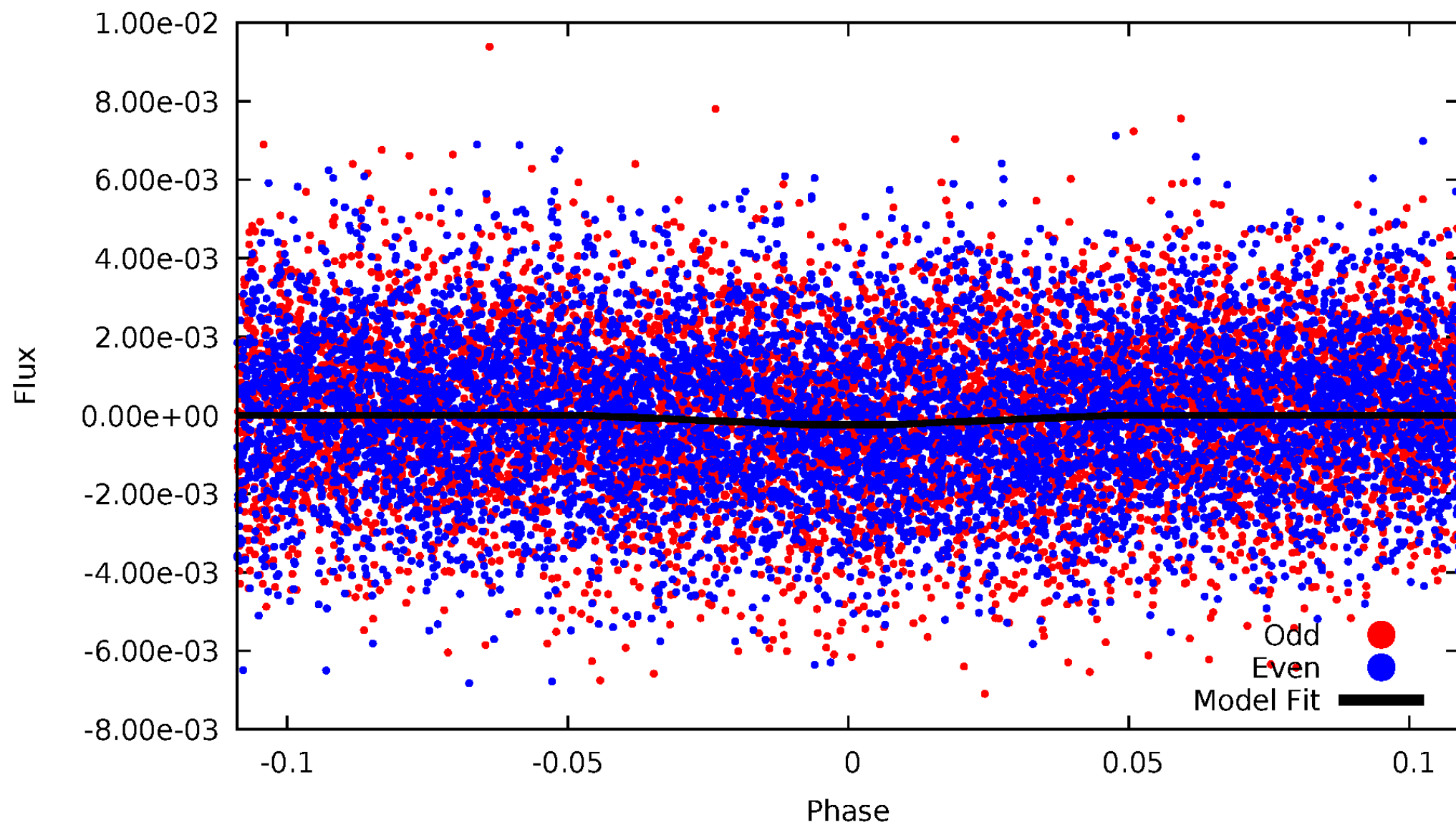
DV Odd/Even

TCE 009762866-01



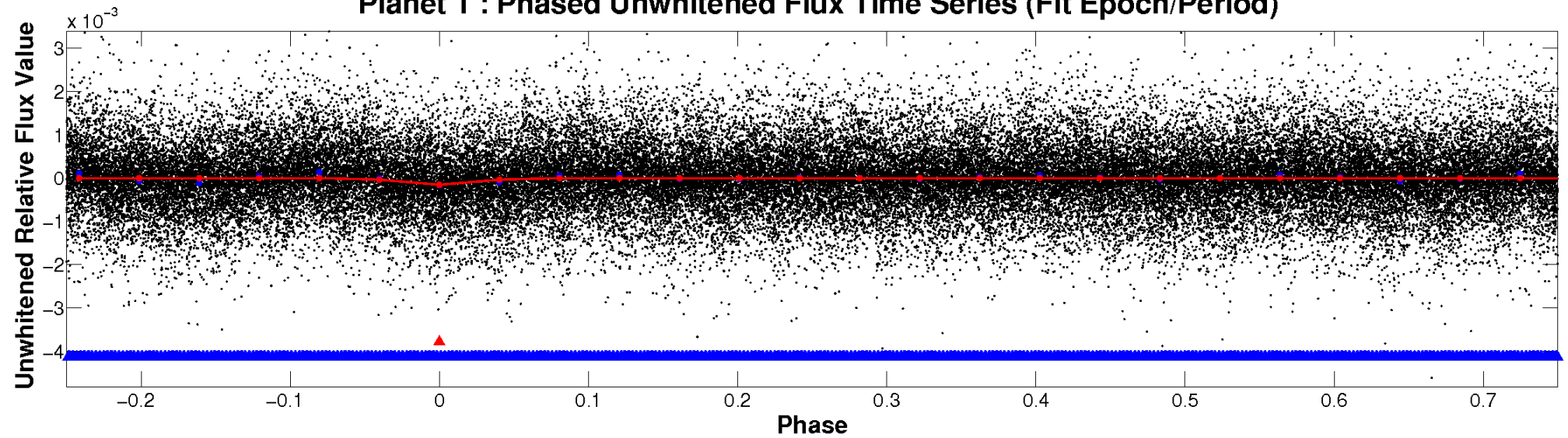
ALT Odd/Even

TCE 009762866-01

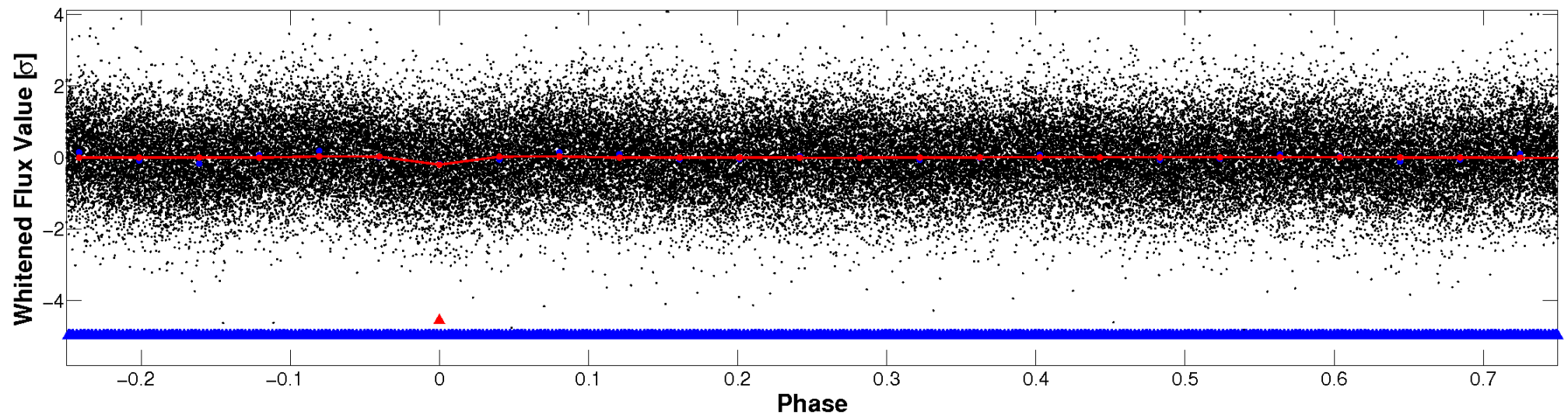


Non-Whitened Vs. Whitened Light Curve

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

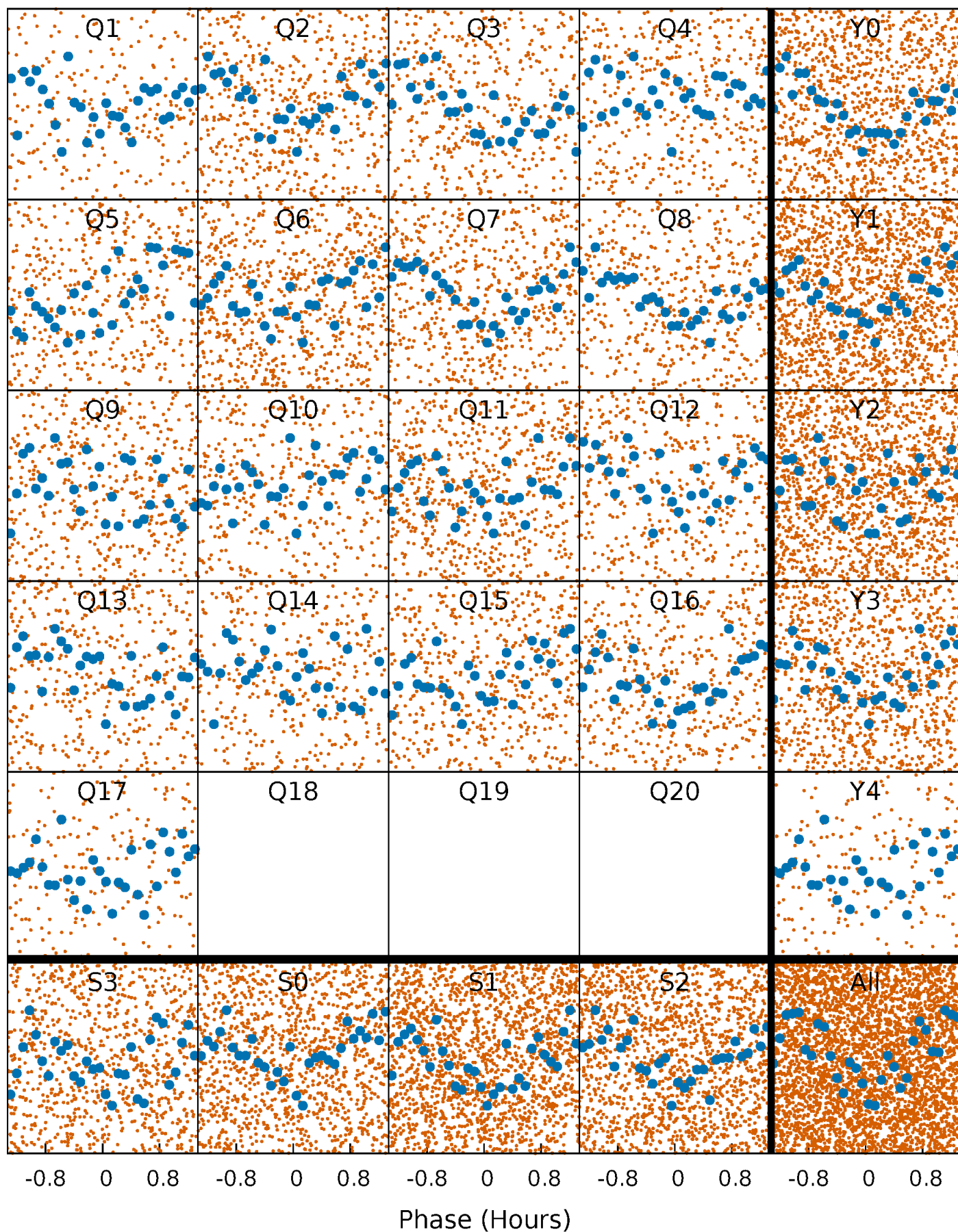


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



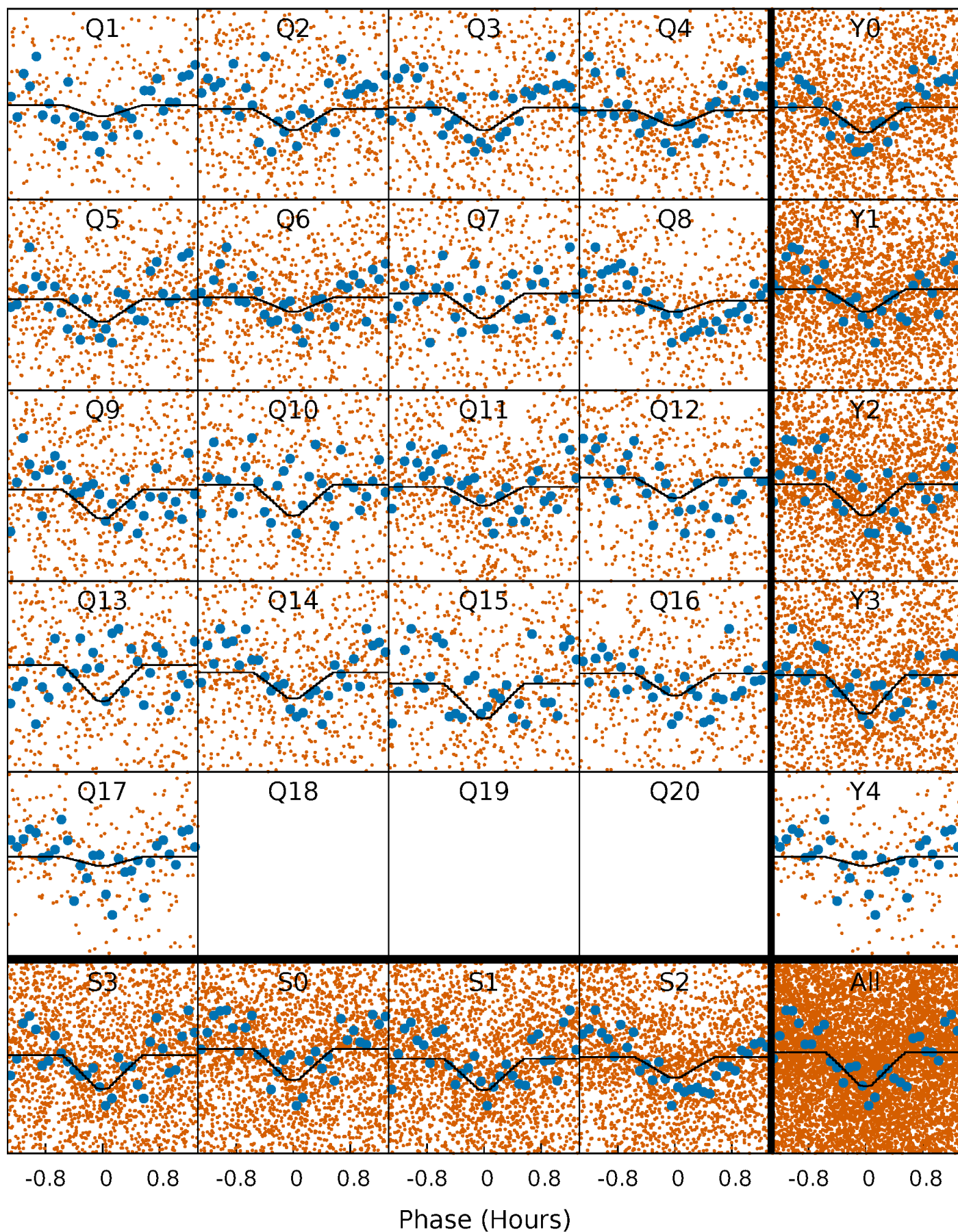
PDC Quarter-Phased Transit Curves

TCE 009762866-01 P= 0.507507 Days $T_0=131.524048$ (BKJD)



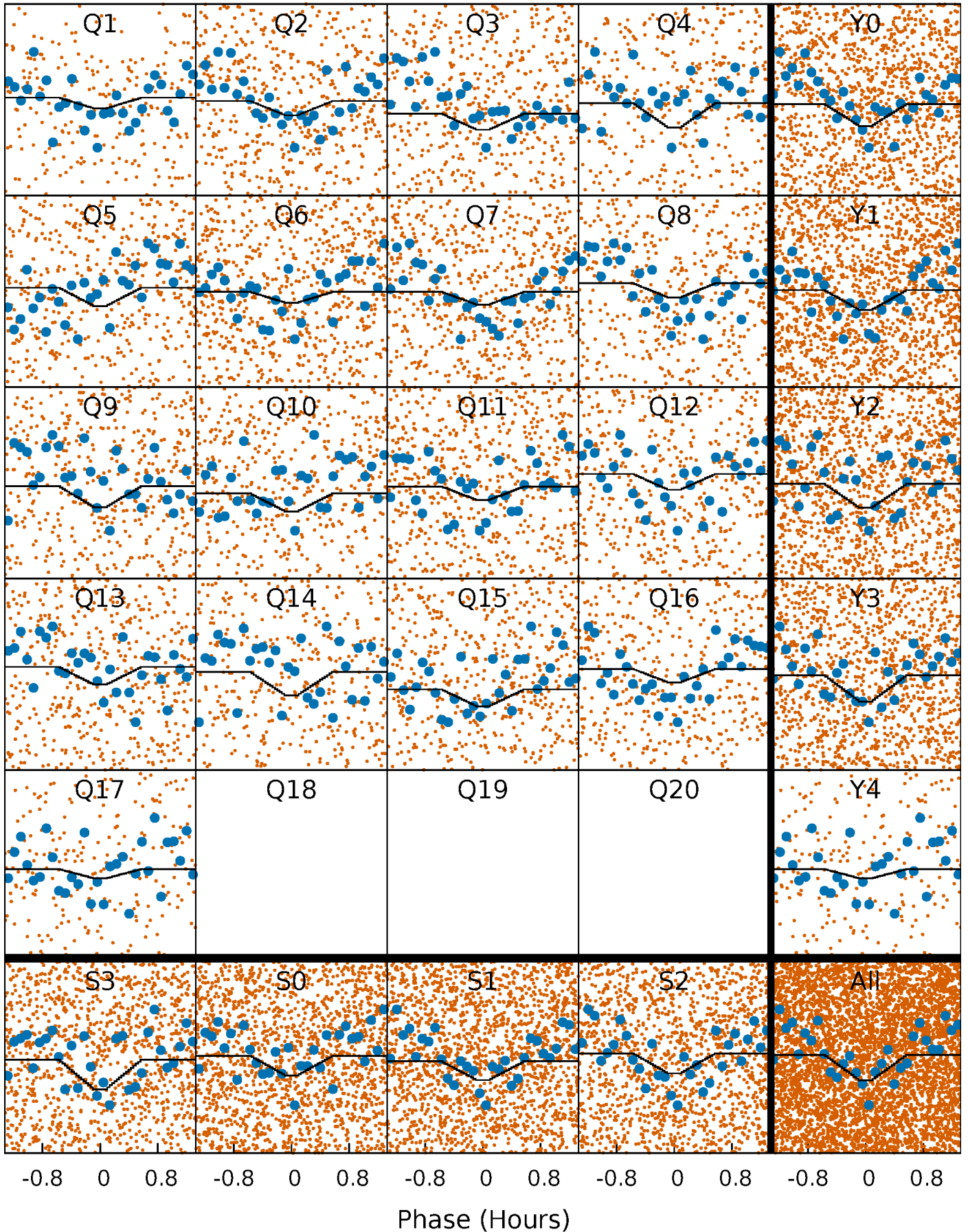
DV Quarter-Phased Transit Curves

TCE 009762866-01 P= 0.507507 Days $T_0=131.524048$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

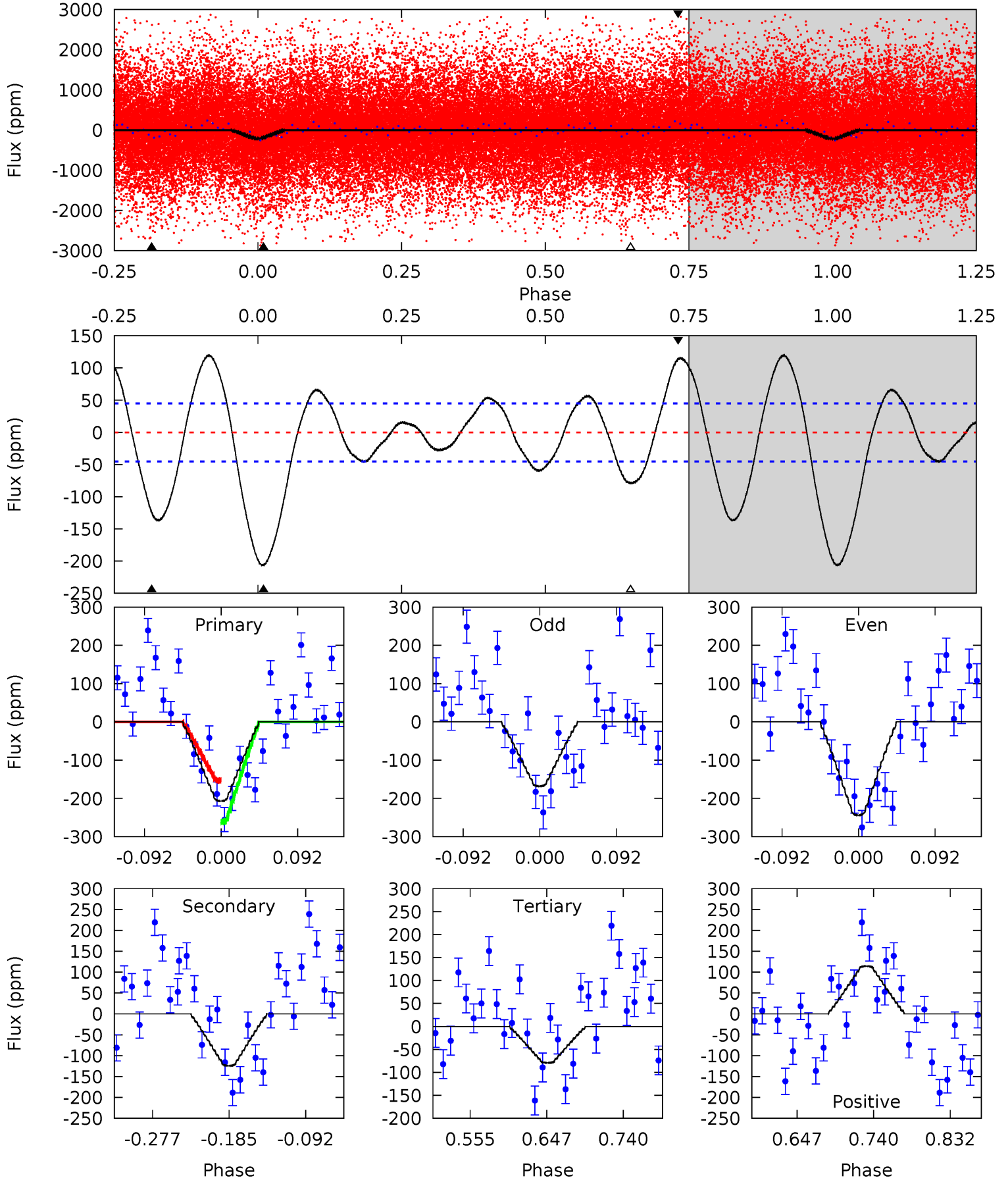
TCE 009762866-01 P= 0.507510 Days $T_0=131.521733$ (BKJD)



DV Model-Shift Uniqueness Test

009762866-01, P = 0.507507 Days, E = 131.016541 Days

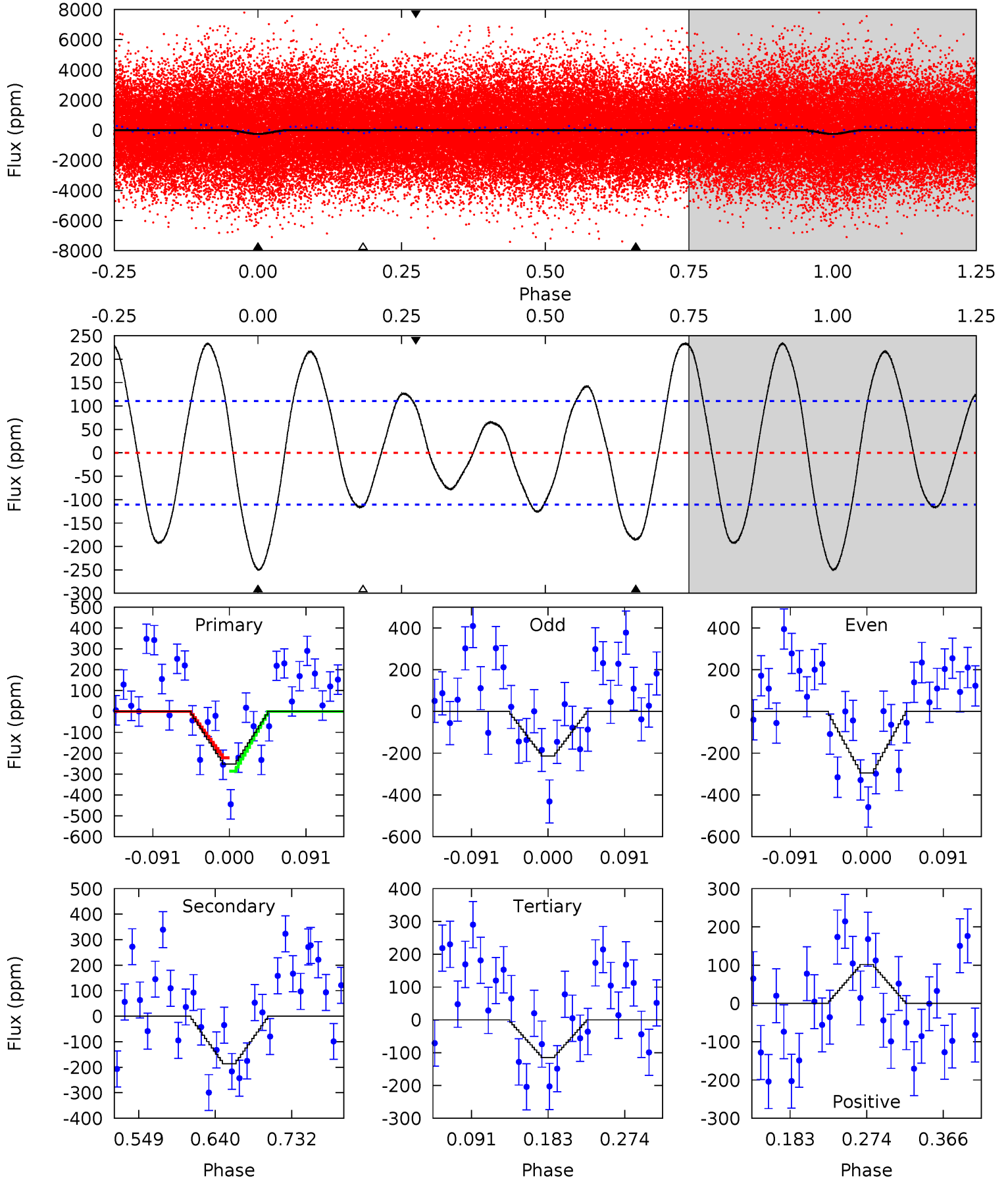
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	12.6	8.07	11.6	4.58	1.68	4.75	13.0	9.39	4.58	1.01	3.88	1.15	0.37	5.55



Alt Model-Shift Uniqueness Test

009762866-01, P = 0.507510 Days, E = 131.014223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	7.72	4.74	4.21	4.58	1.69	4.32	5.69	6.22	2.98	3.51	1.65	0.82	0.48	1.30



Stellar Parameters For KIC 009762866

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8855^{+251}_{-394}	$3.818^{+0.382}_{-0.127}$	$-0.320^{+0.500}_{-0.350}$	$2.858^{+0.687}_{-1.177}$	$1.964^{+0.415}_{-0.415}$	$0.118^{+0.402}_{-0.046}$
	+3%/-4%	+10%/-3%	+156%/-109%	+24%/-41%	+21%/-21%	+339%/-39%
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 009762866-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-124 ± 10	$3.93^{+1.38}_{-1.22}$	7247^{+565}_{-722}	7152^{+1967}_{-1321}	$1.086^{+1.196}_{-0.466}$
Alt.	-186 ± 24	$4.66^{+1.46}_{-1.37}$	7218^{+560}_{-769}	7340^{+1557}_{-1178}	$1.163^{+1.093}_{-0.466}$

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 $A_{obs} \gg 1.0$

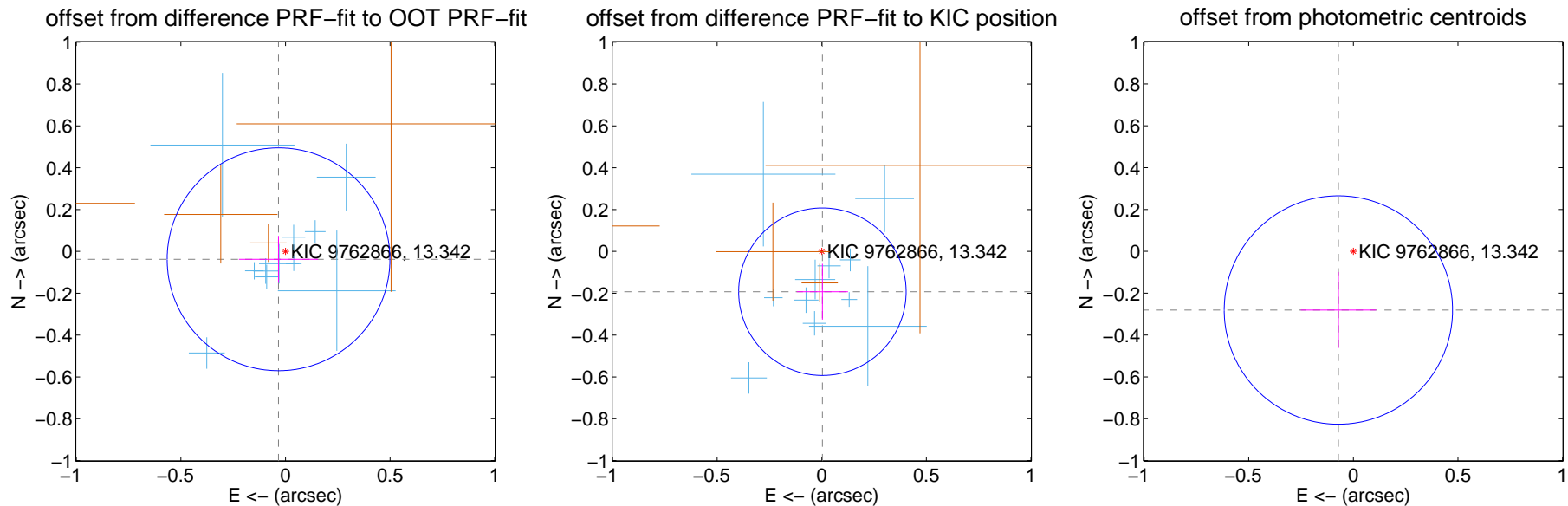
DV Centroid Data

Supplemental centroid analysis for 009762866-01. Kepler magnitude: 13.34. Transit SNR 11.71

There are 11 quarters with good PRF difference image offsets

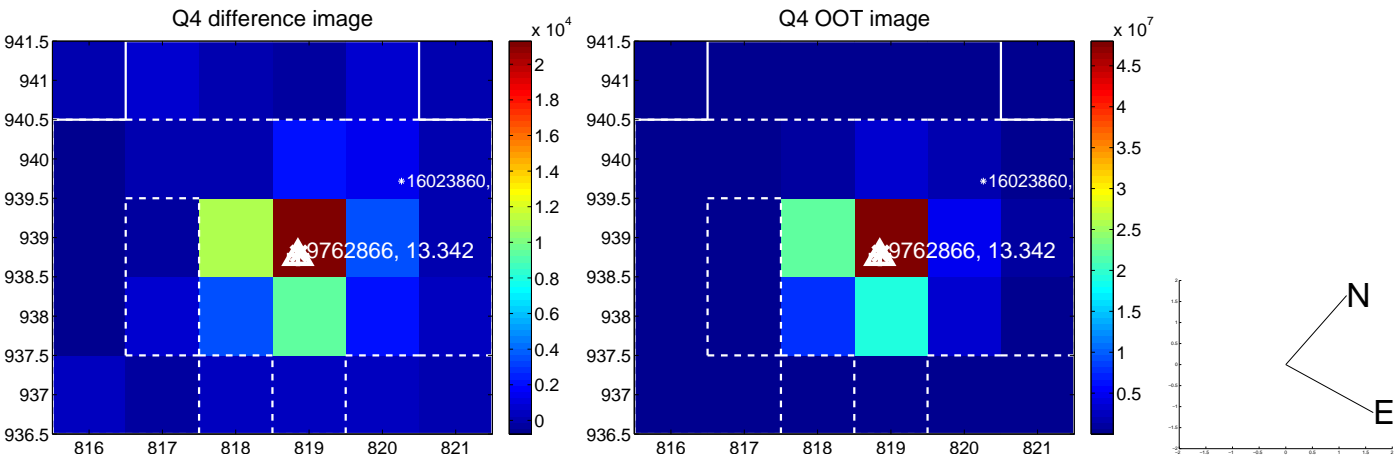
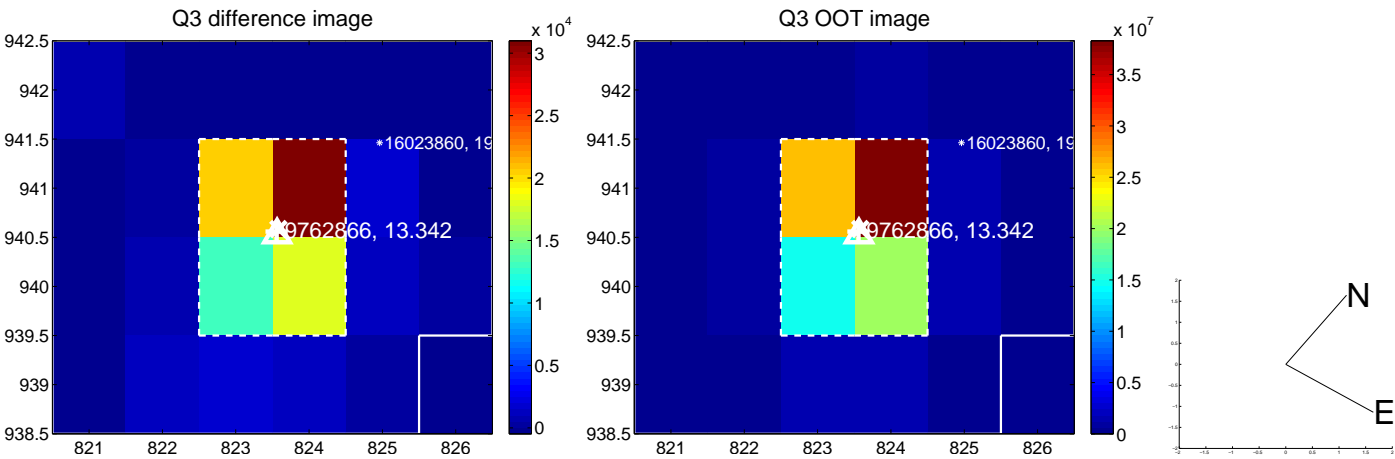
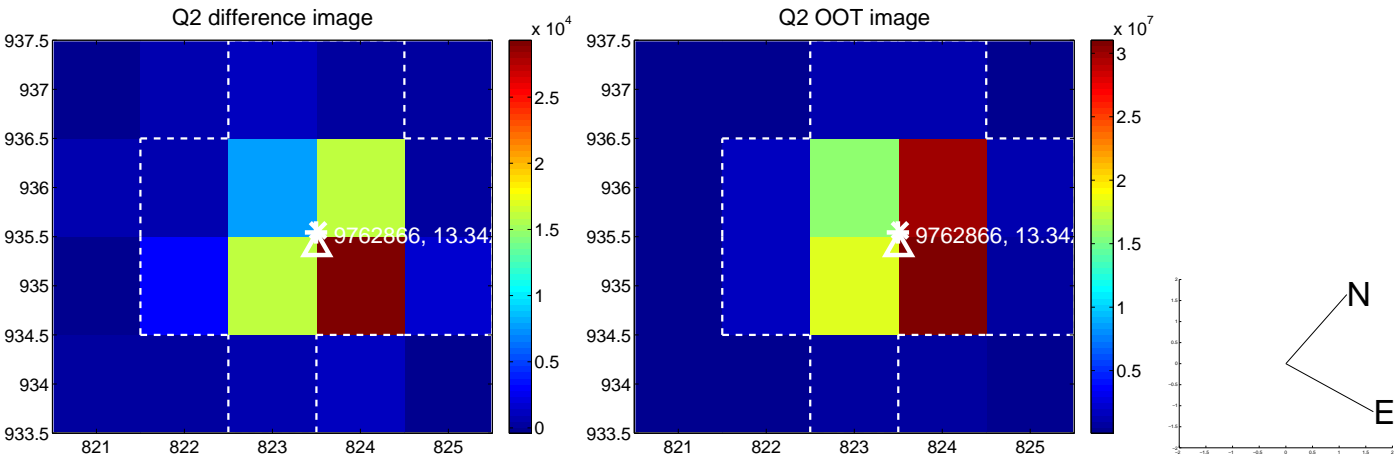
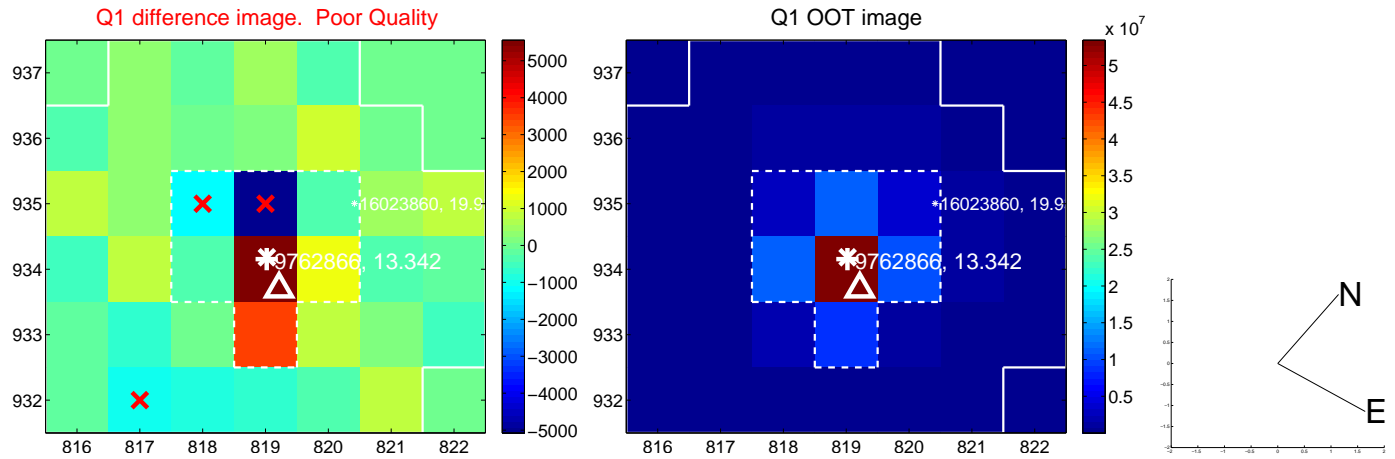
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.178	0.28	0.033 ± 0.190	-0.038 ± 0.112
PRF-fit source offset from KIC position	0.193 ± 0.133	1.44	-0.003 ± 0.122	-0.193 ± 0.133
photometric centroid source offset	0.29 ± 0.18	1.59	0.07 ± 0.18	-0.28 ± 0.18

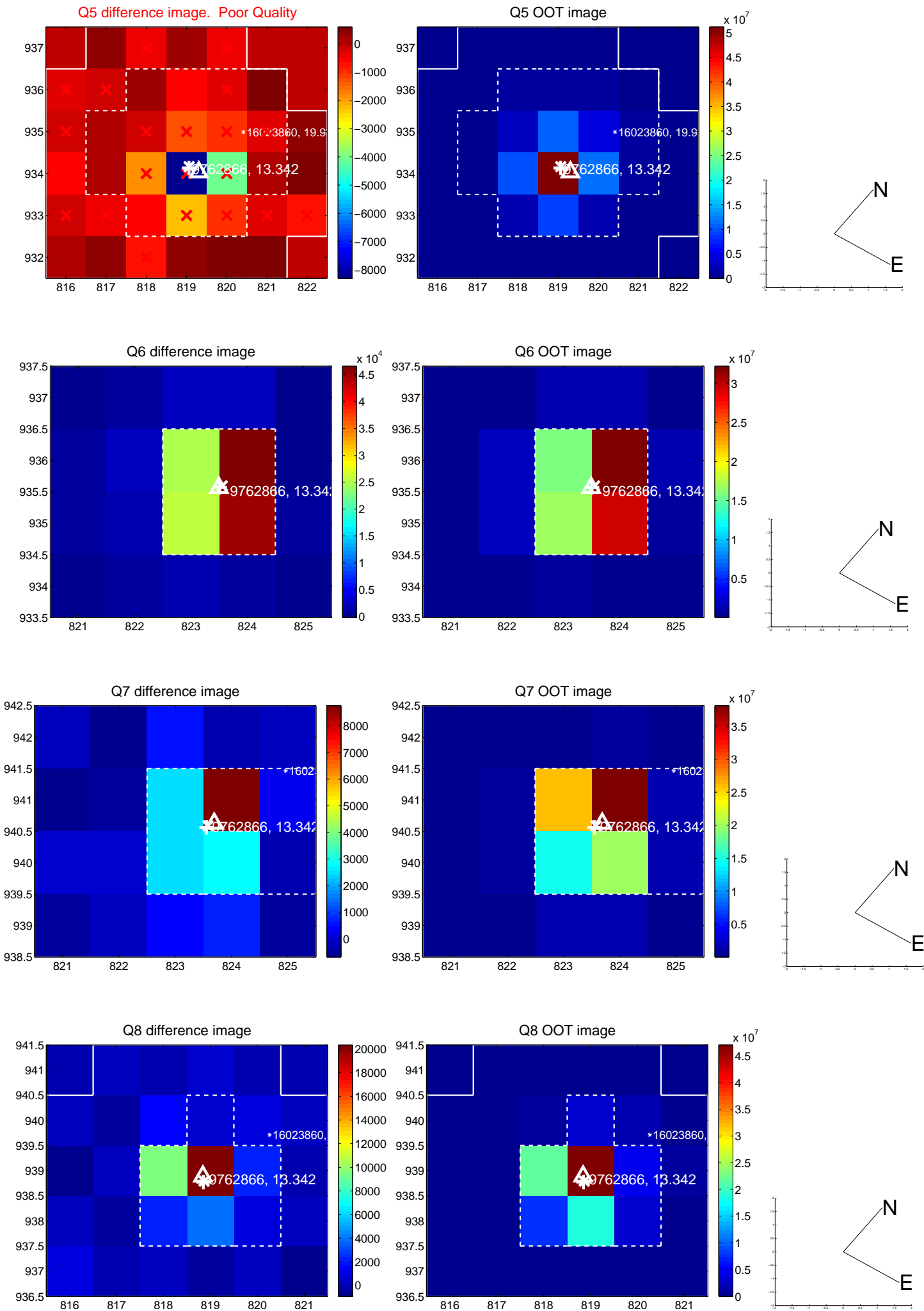


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

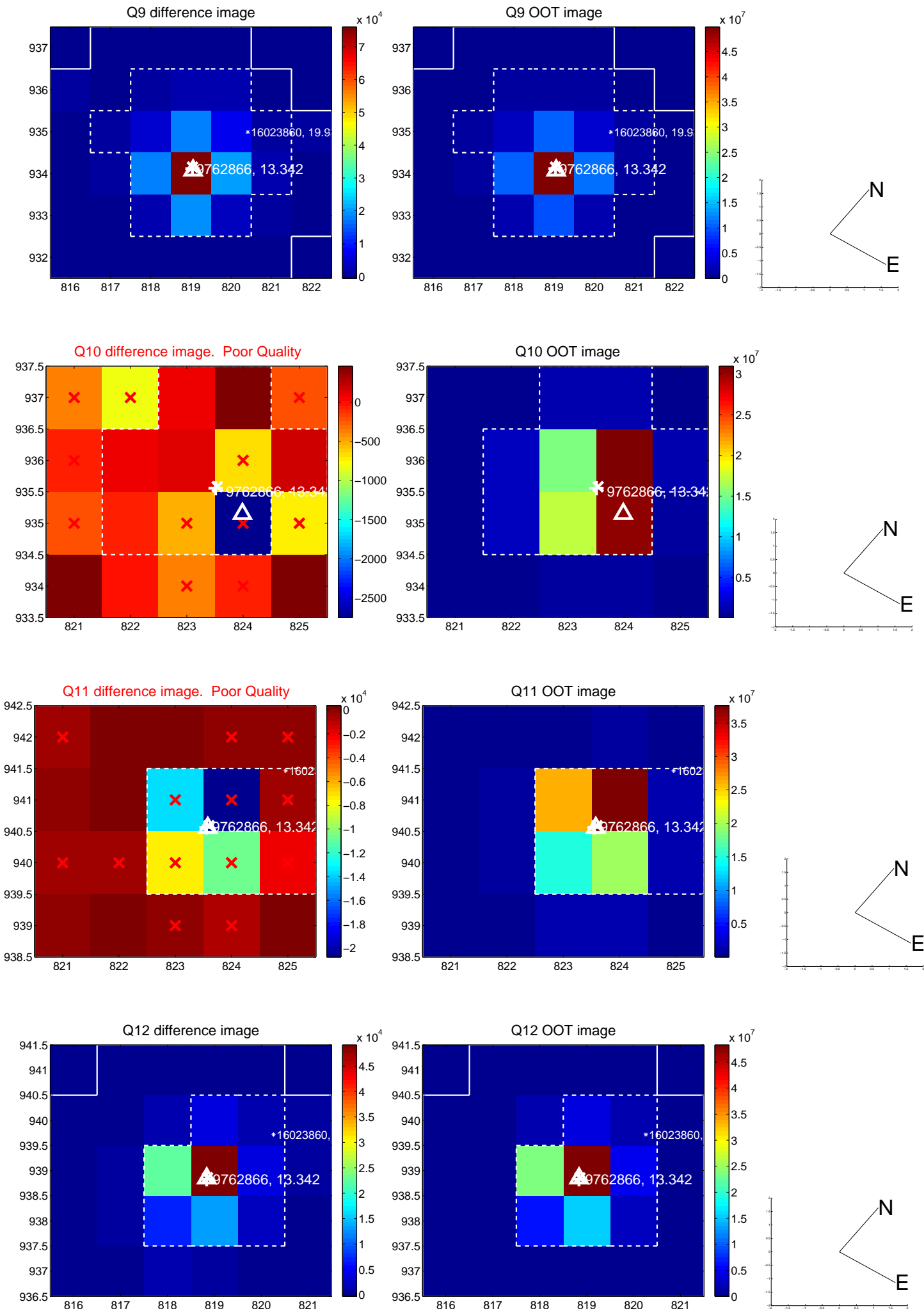
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



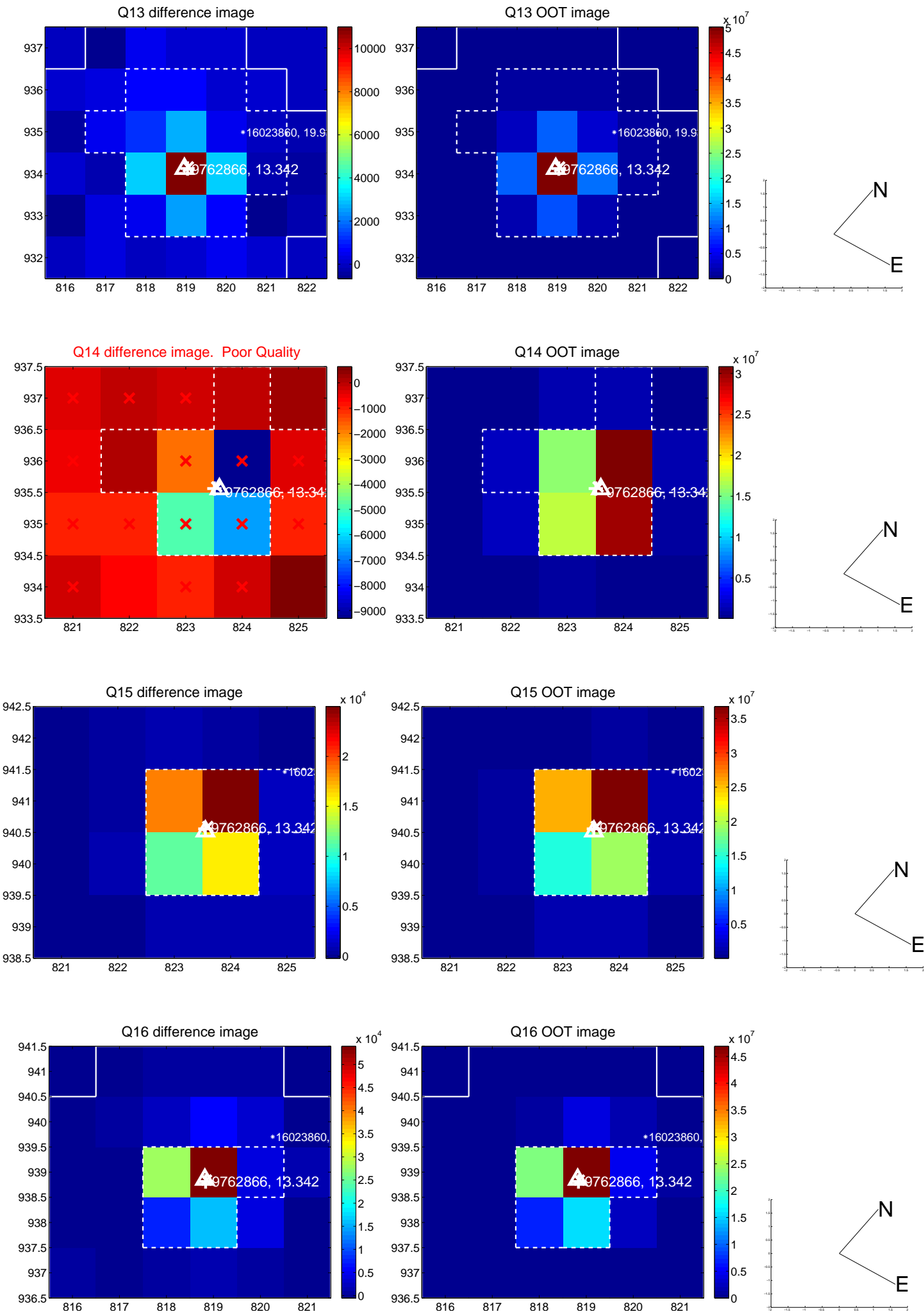
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



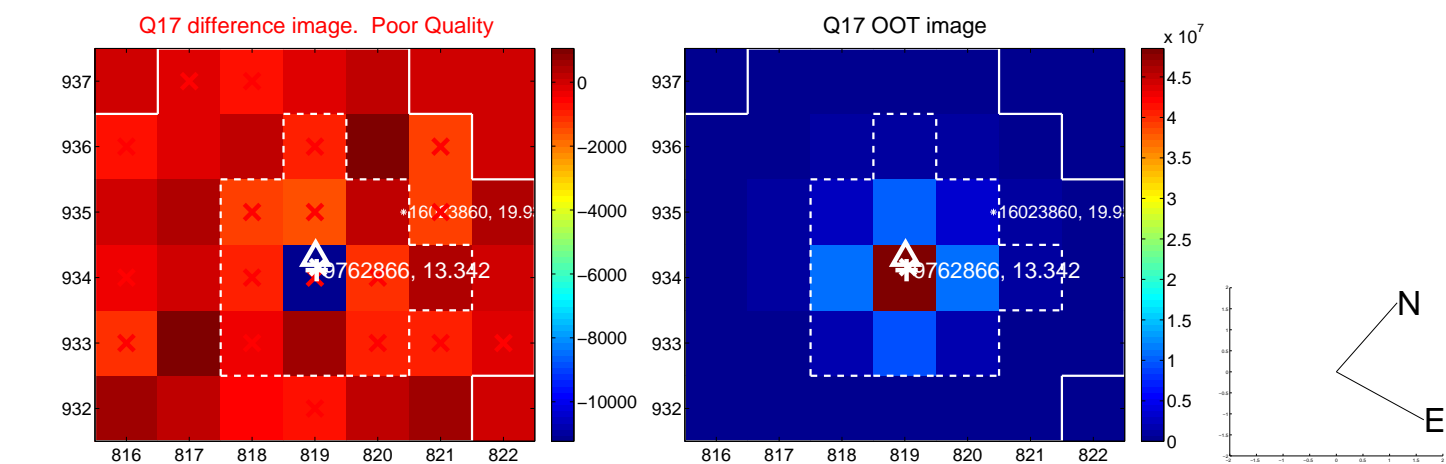
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



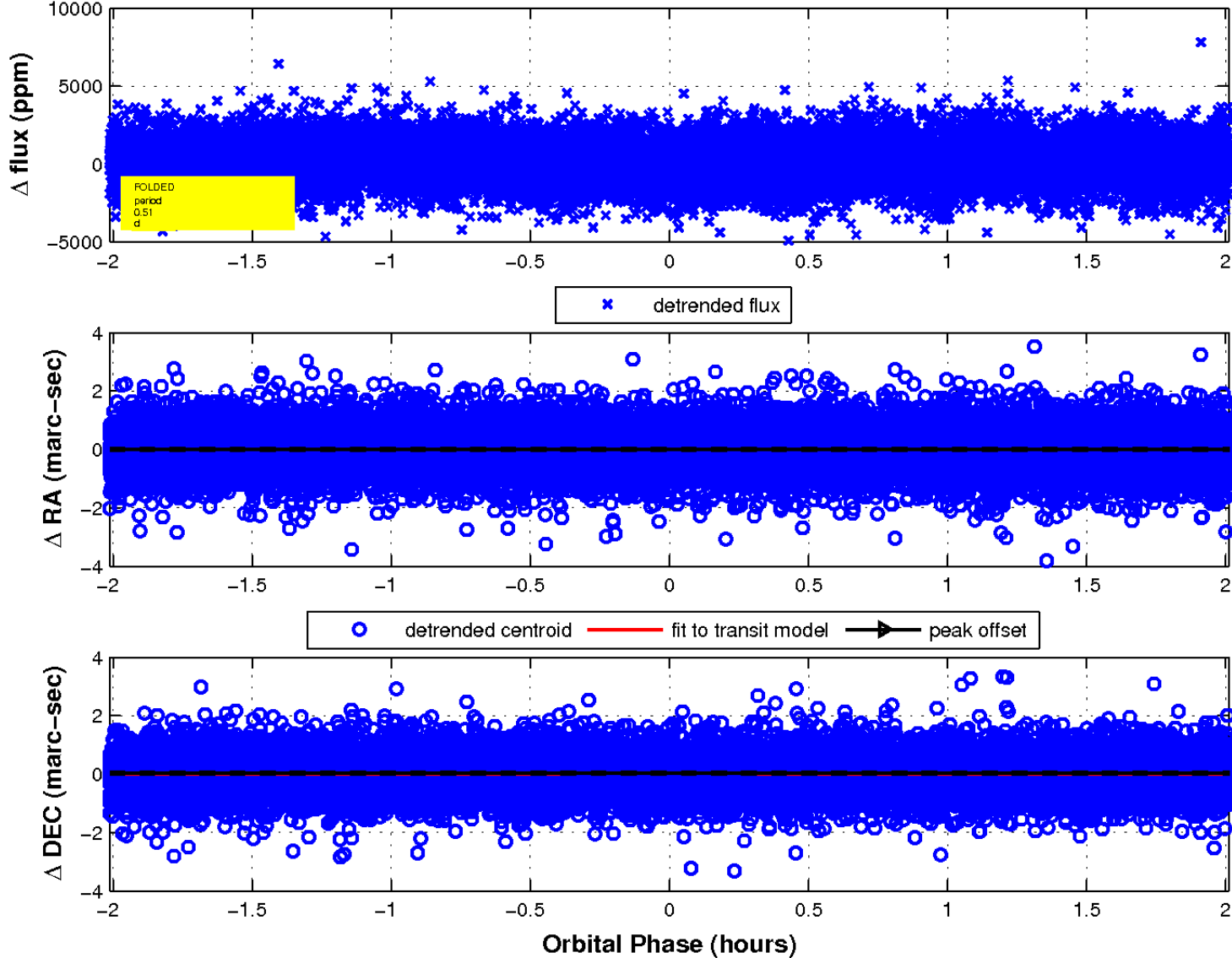
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

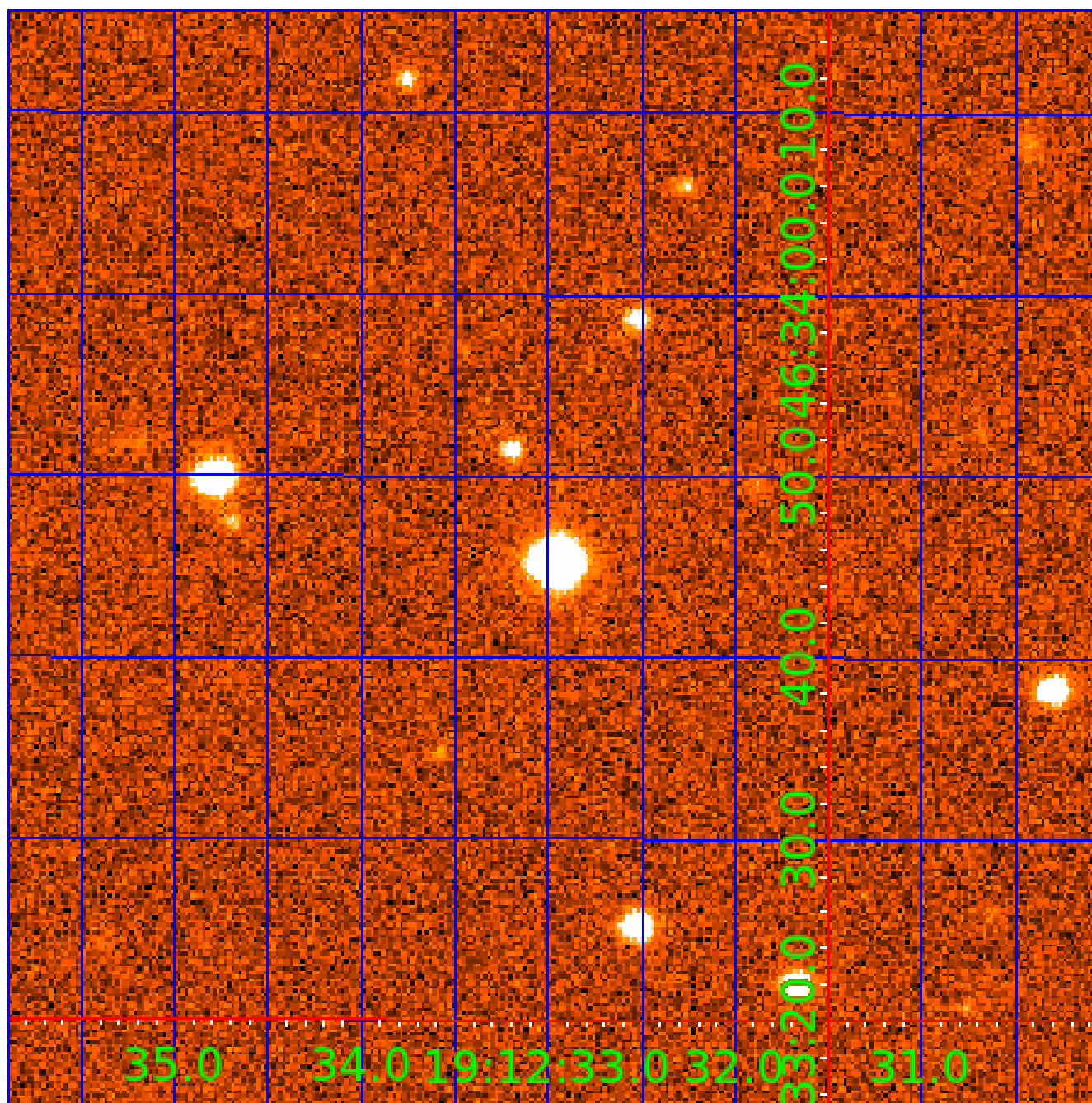


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009762866

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})
009762866-01	OBS	No	0.507507	131.524048	177.4	0.671	11.6	11.7	2.86	8855	4.10	185253.95
009762866-02	OBS	No	1.603408	132.759126	320.4	19.241	10.9	21.8	2.86	8855	6.13	39960.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009762866-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009762866-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

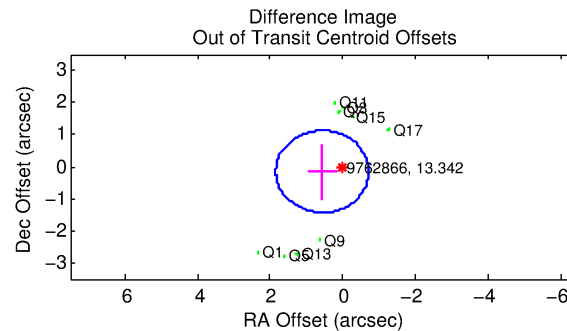
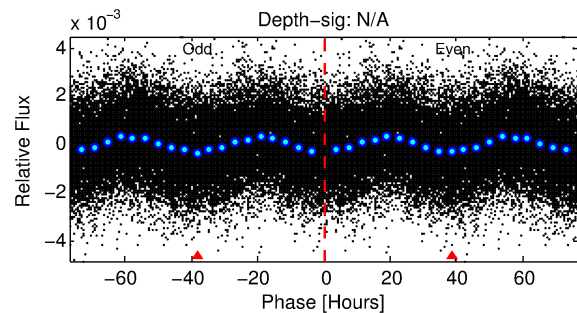
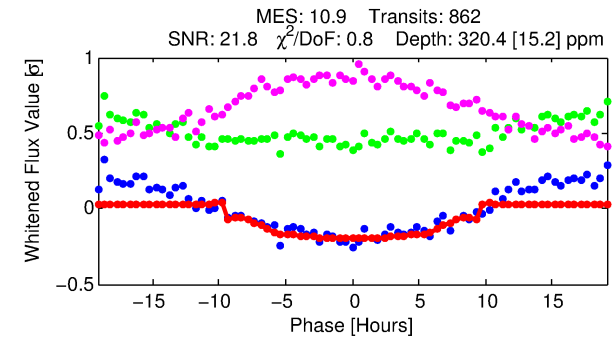
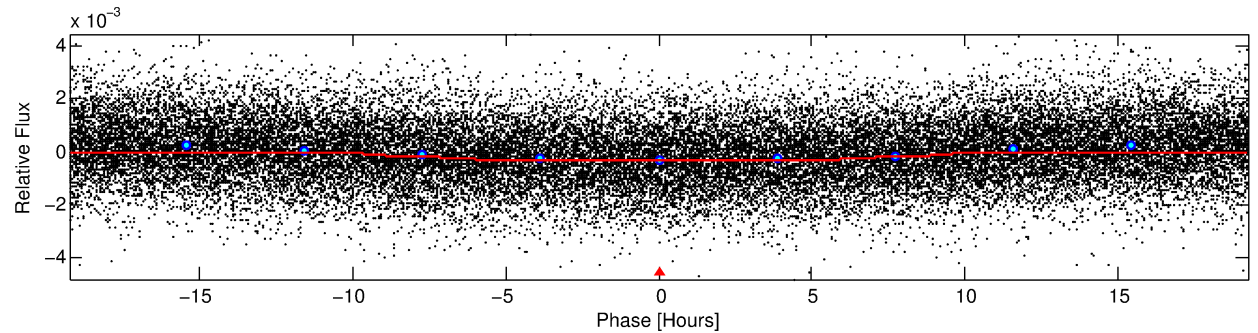
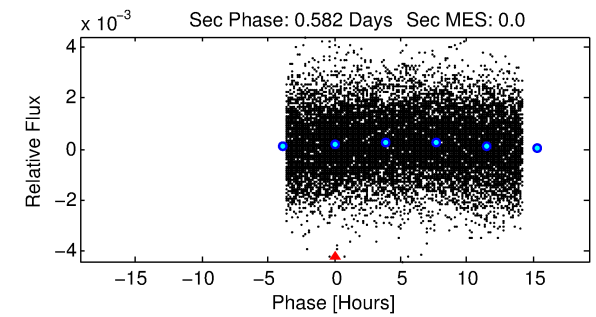
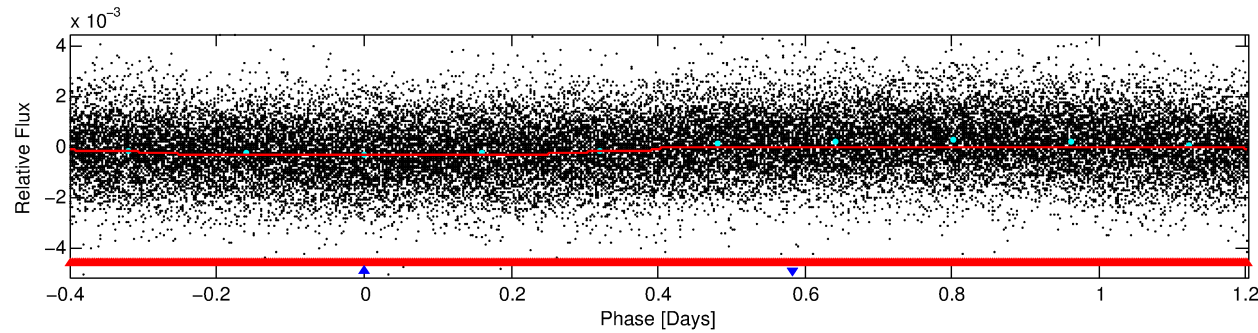
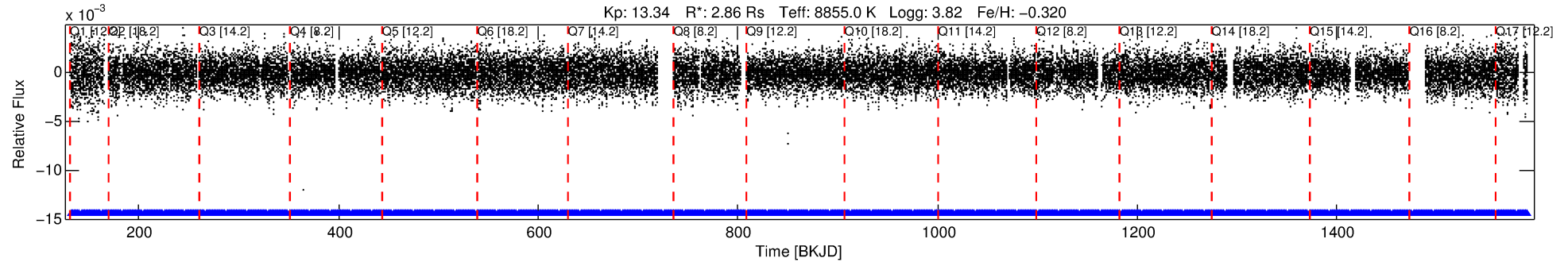
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009762866-02

No Significant Match Found

DV One-Page Summary

KIC: 9762866 Candidate: 2 of 2 Period: 1.603 d



DV Fit Results:

Period = 1.60341 [0.00002] d
Epoch = 132.7591 [0.0041] BKJD
Rp/R* = 0.0197 [0.0007]
a/R* = 1.00 [0.00]
b = 0.94 [0.02]
Seff = 39960.54 [26833.43]
Teq = 3605 [605] K
Rp = 6.13 [2.54] Re
a = 0.0336 [0.0135] AU
Ag = N/A
Teffp = N/A

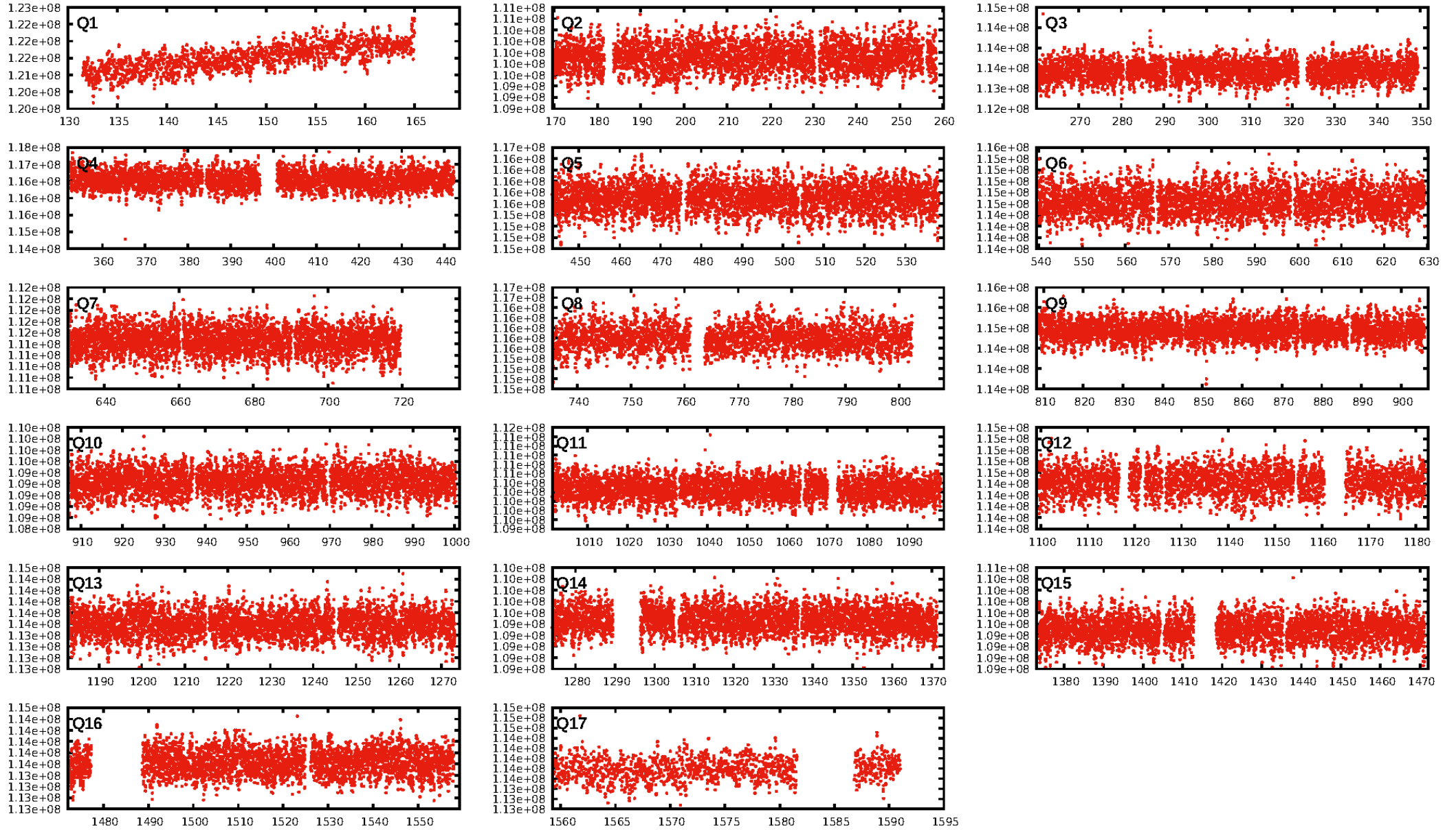
DV Diagnostic Results:

ShortPeriod-sig: 82.8% [1.37σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [824/824]
GhostDiagnostic-chr: 1.696
Centroid-sig: 0.0%
Centroid-so: 0.186 arcsec [5.03σ]
OotOffset-rm: 0.587 arcsec [1.38σ]
KicOffset-rm: 0.652 arcsec [1.06σ]
OotOffset-st: 0/4/0/5 [9]
KicOffset-st: 0/4/0/5 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 0.00 [0/17]

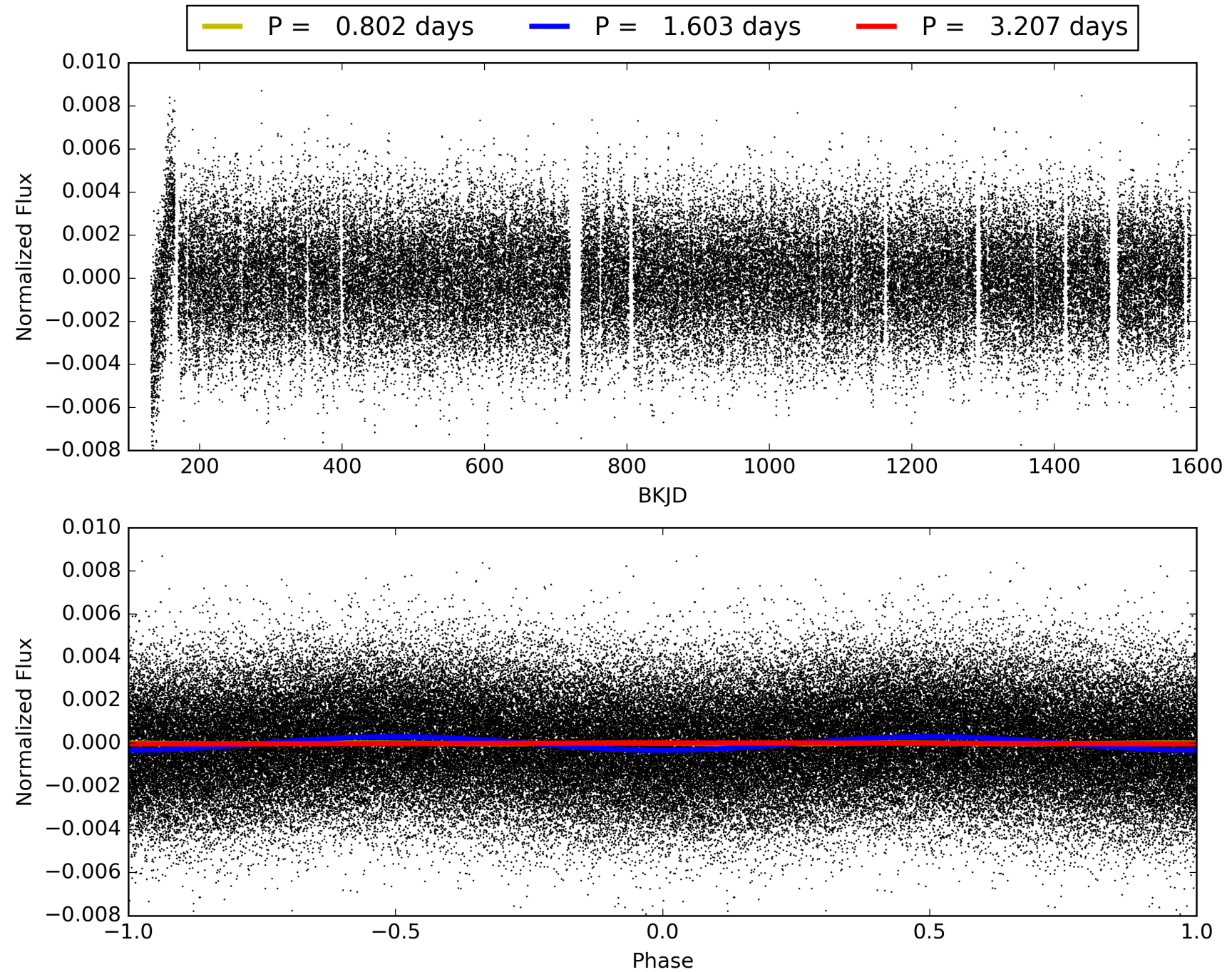
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:26:54 Z

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

TCE 009762866-02, PDC Light Curves

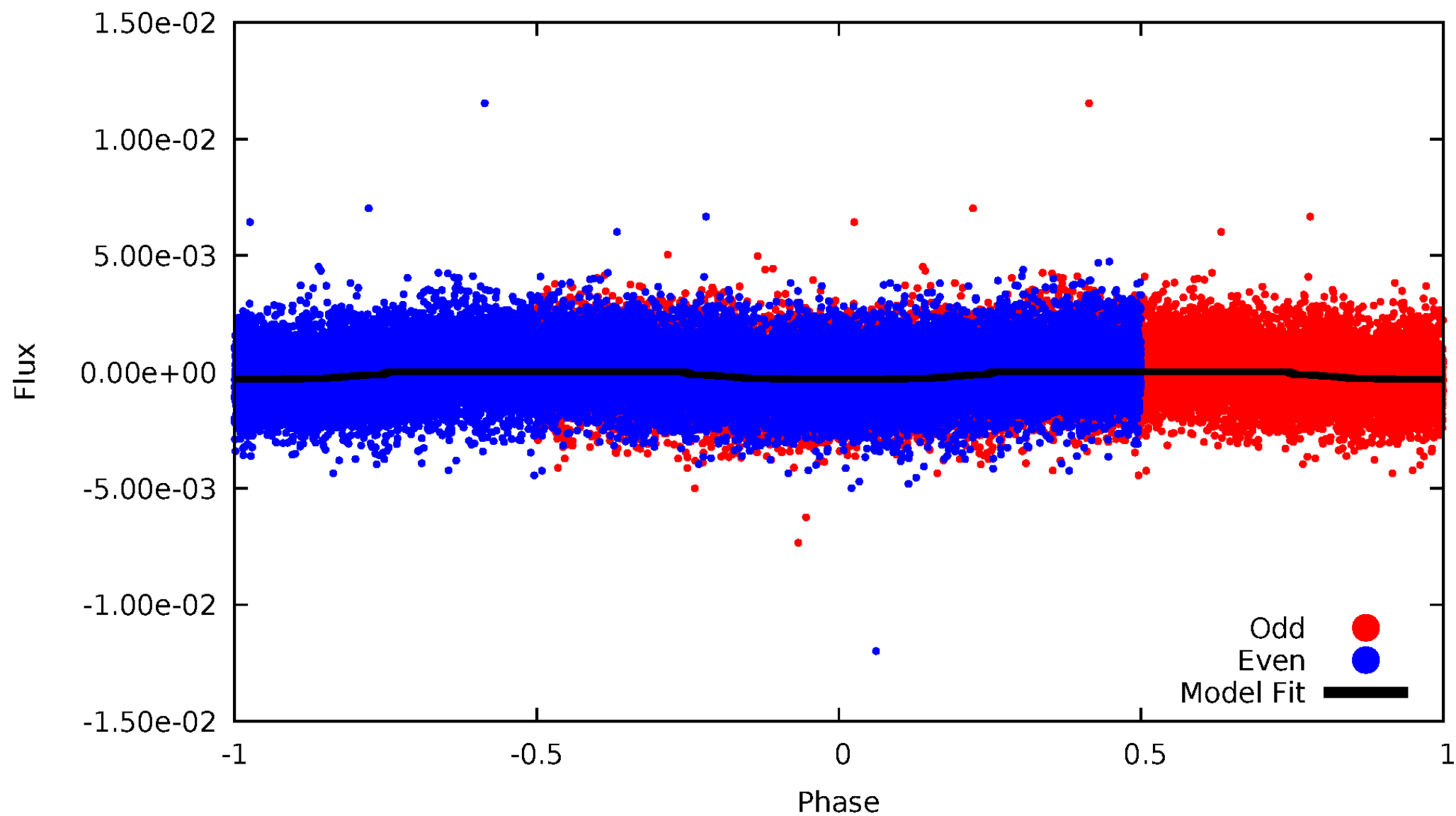


TCE 009762866-02



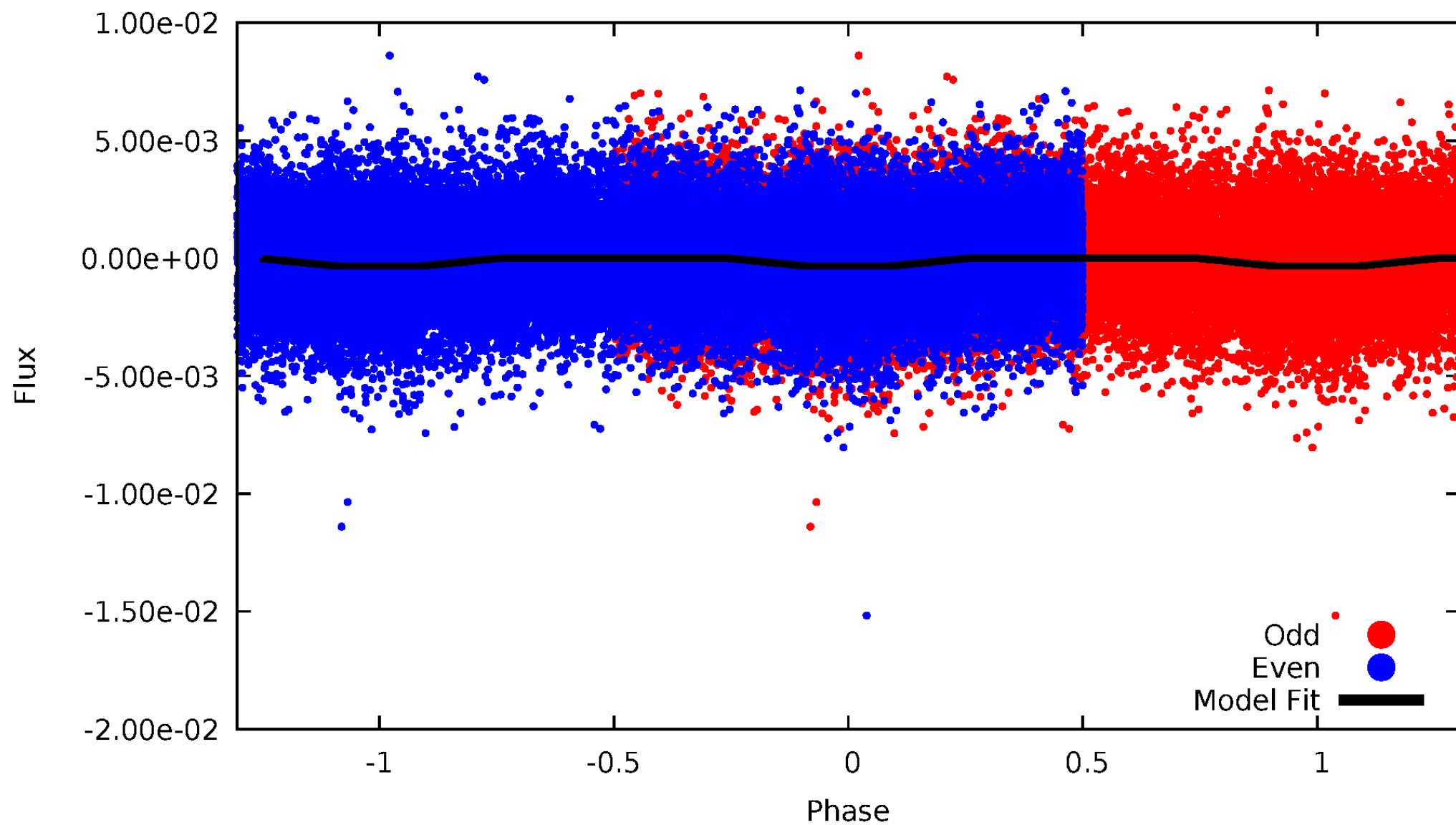
DV Odd/Even

TCE 009762866-02



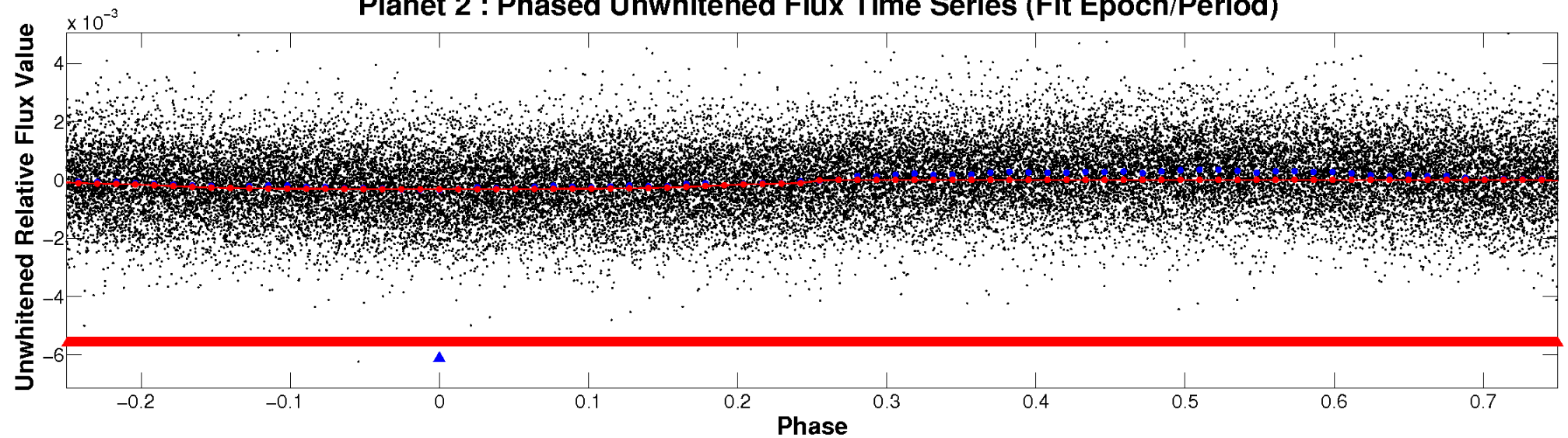
ALT Odd/Even

TCE 009762866-02

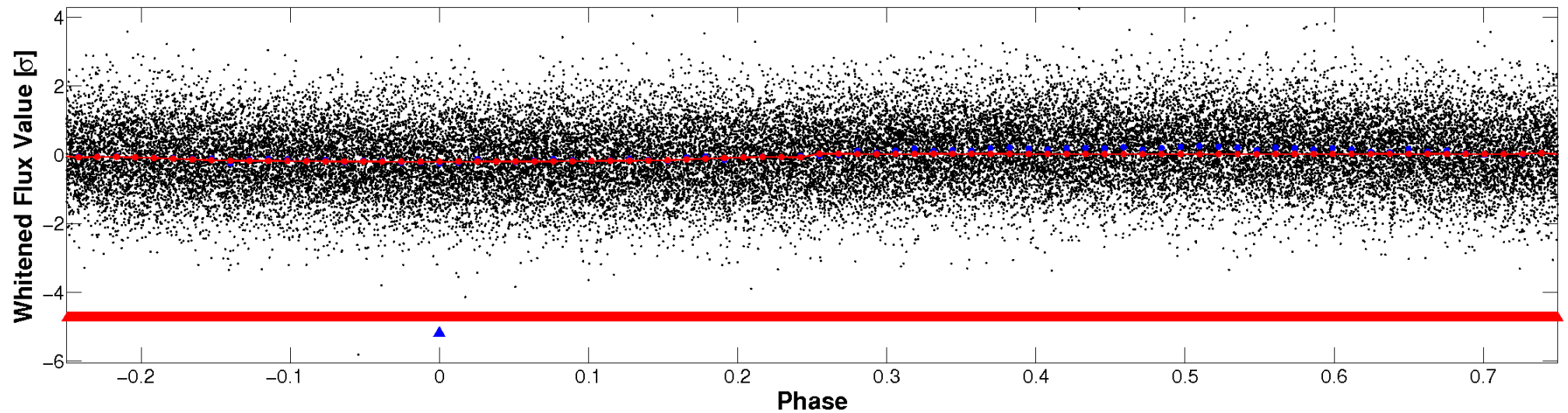


Non-Whitened Vs. Whitened Light Curve

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

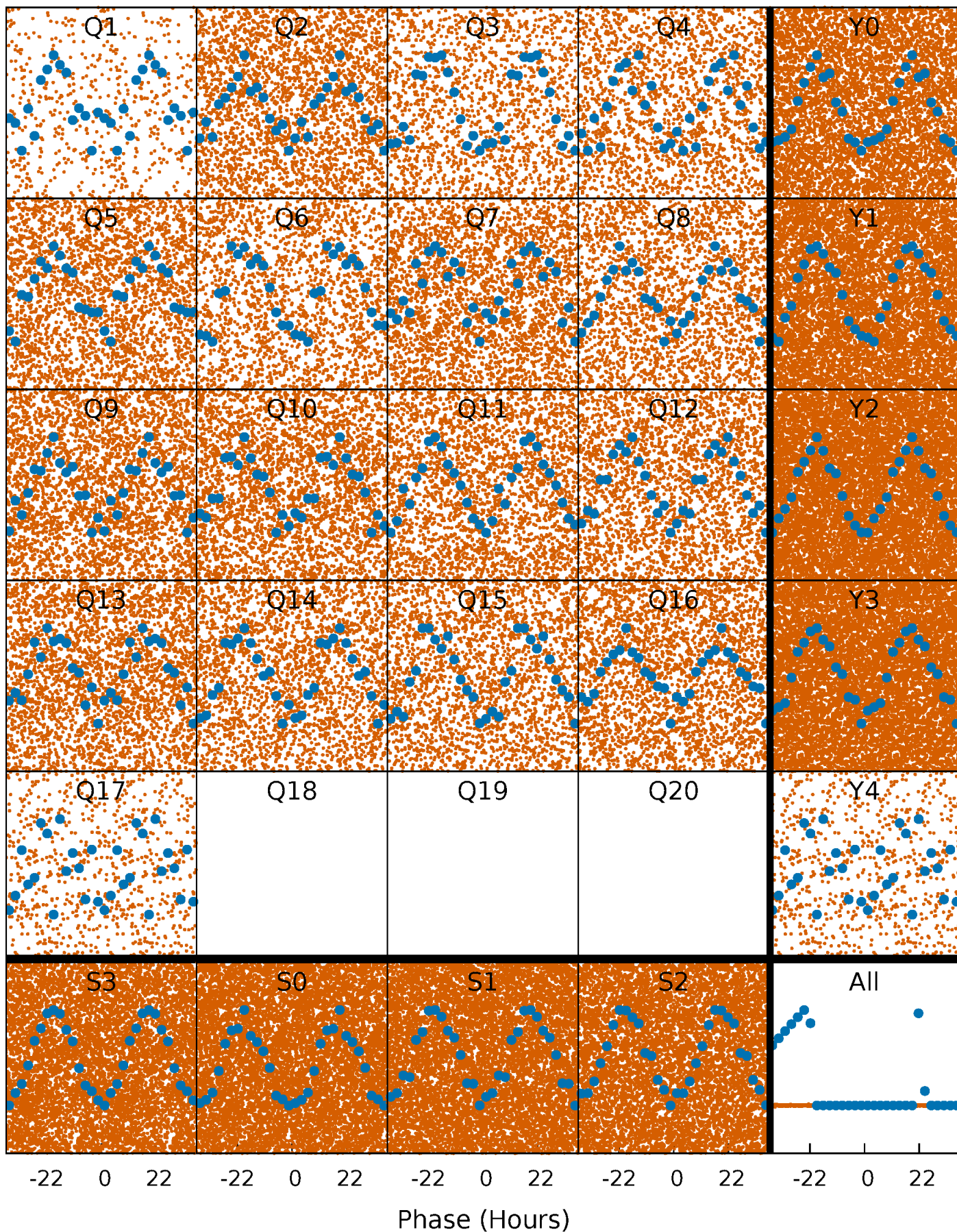


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



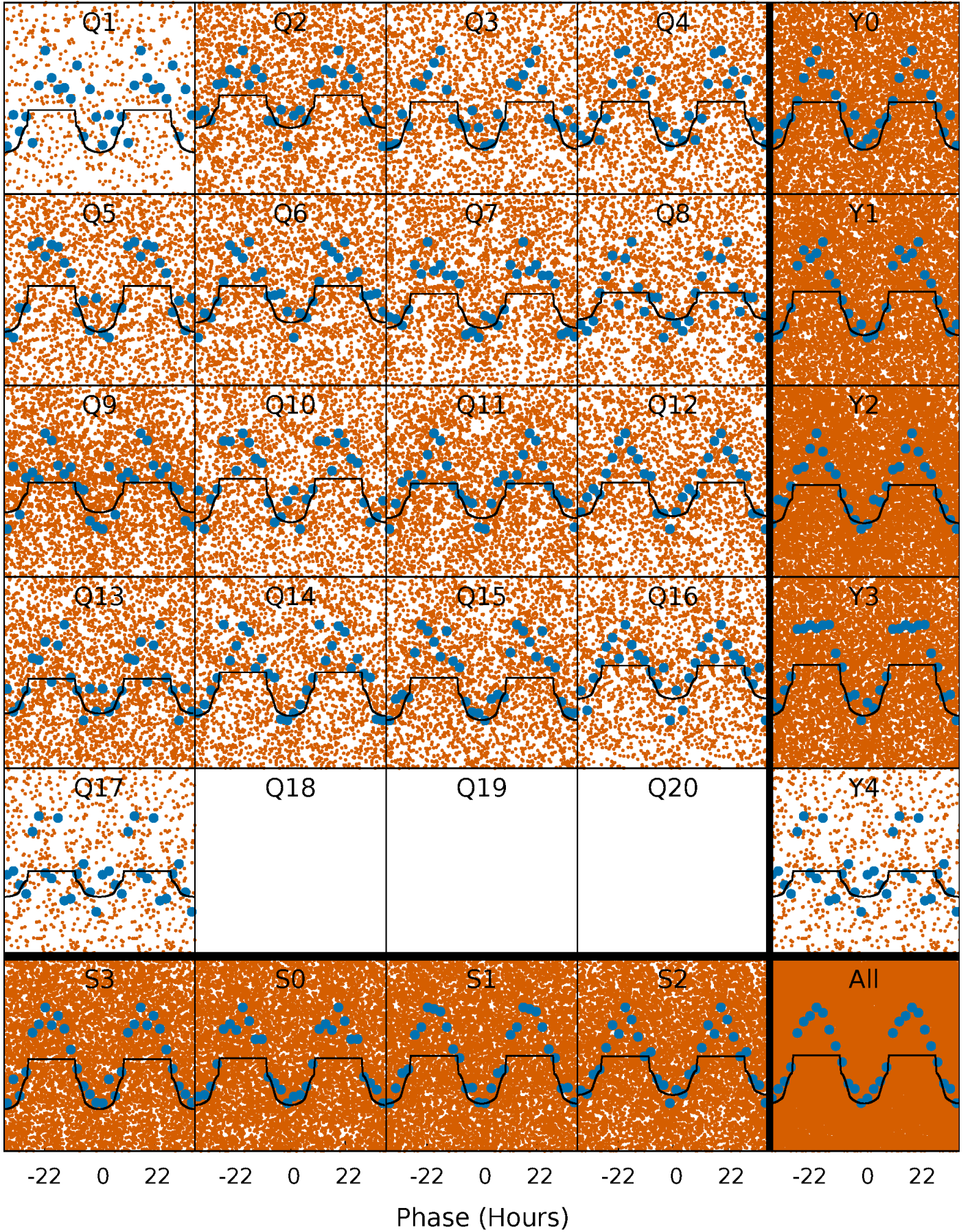
PDC Quarter-Phased Transit Curves

TCE 009762866-02 P= 1.603408 Days $T_0=132.759126$ (BKJD)



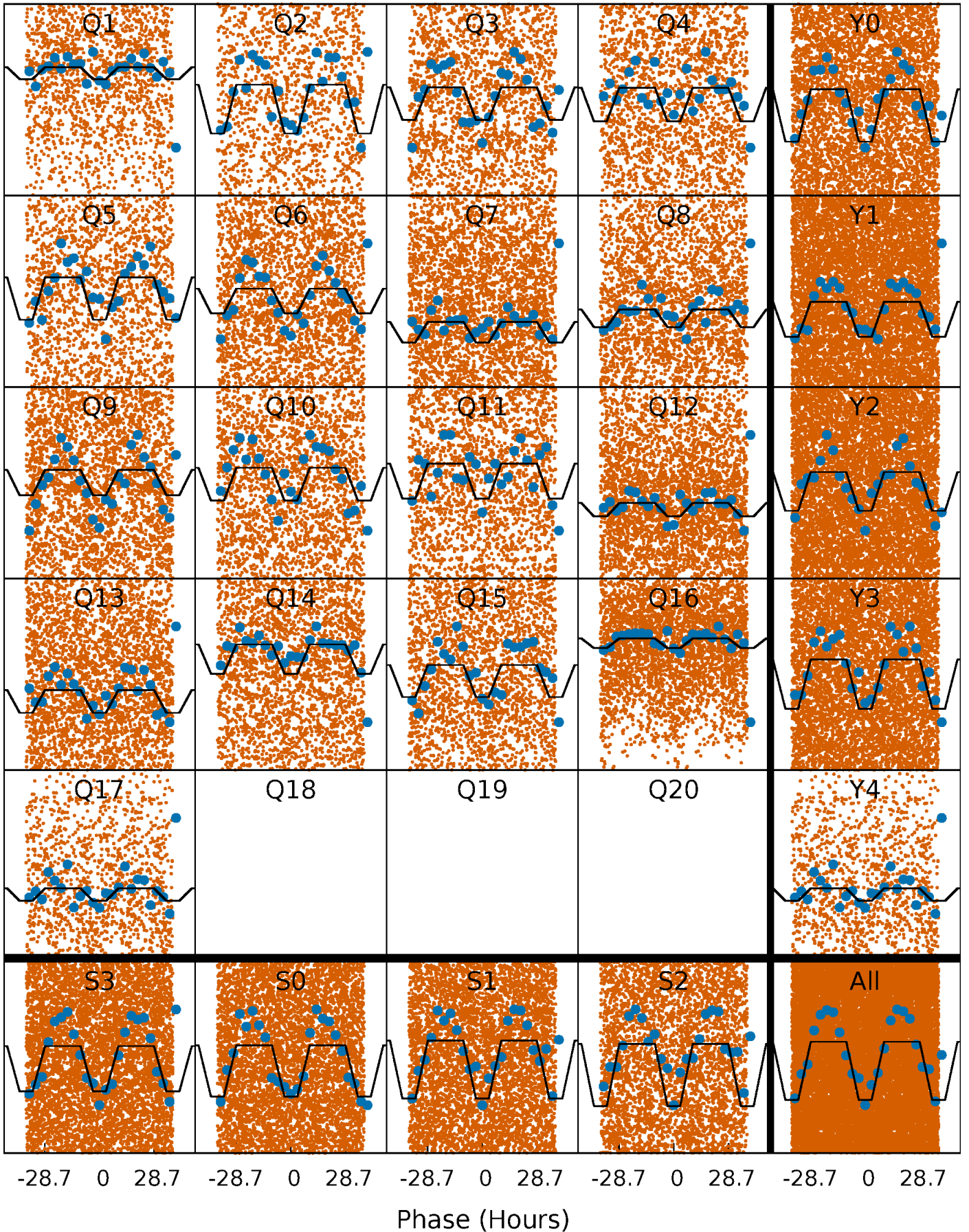
DV Quarter-Phased Transit Curves

TCE 009762866-02 P= 1.603408 Days $T_0=132.759126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

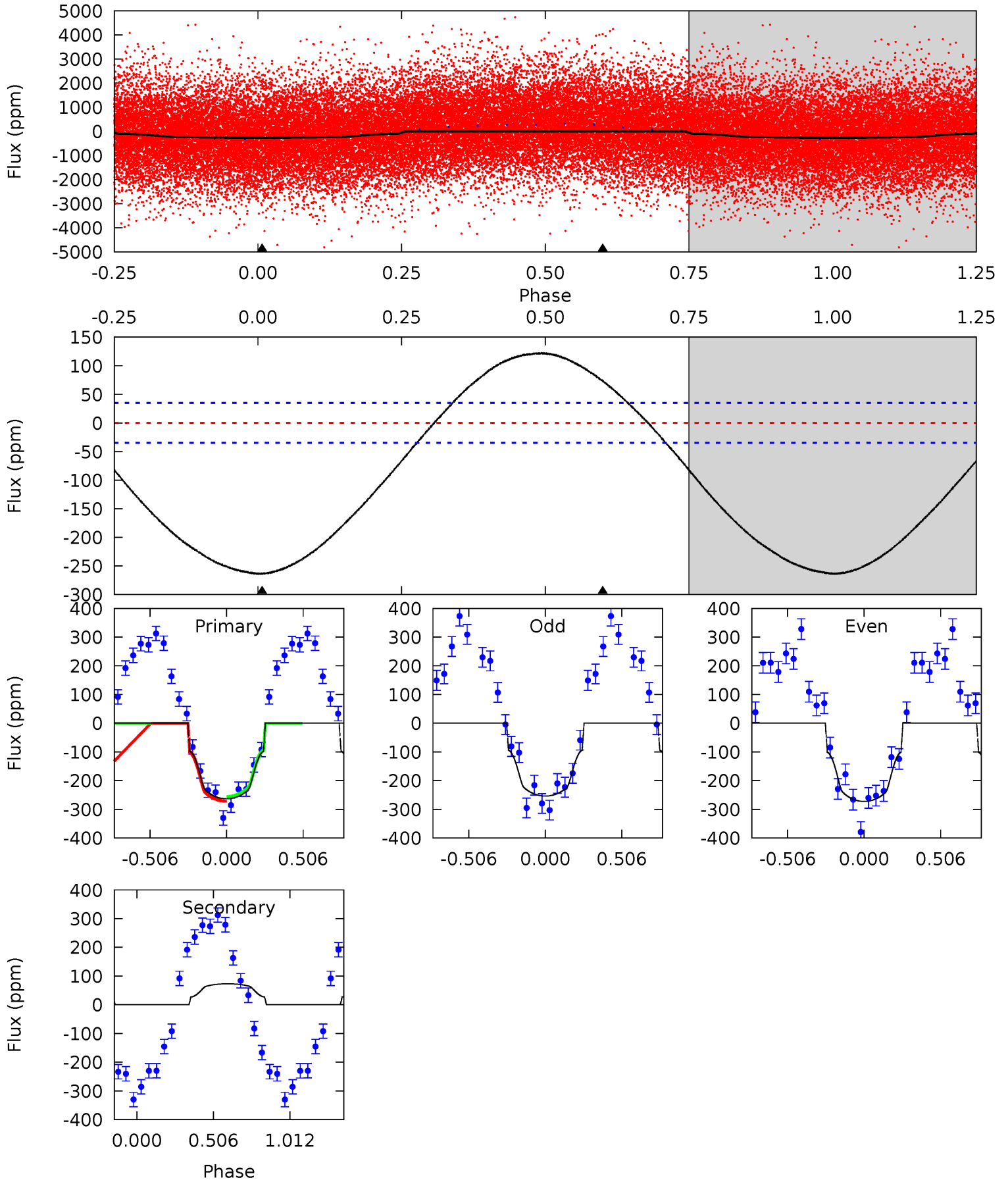
TCE 009762866-02 P= 1.603363 Days $T_0=132.801342$ (BKJD)



DV Model-Shift Uniqueness Test

009762866-02, P = 1.603408 Days, E = 131.155718 Days

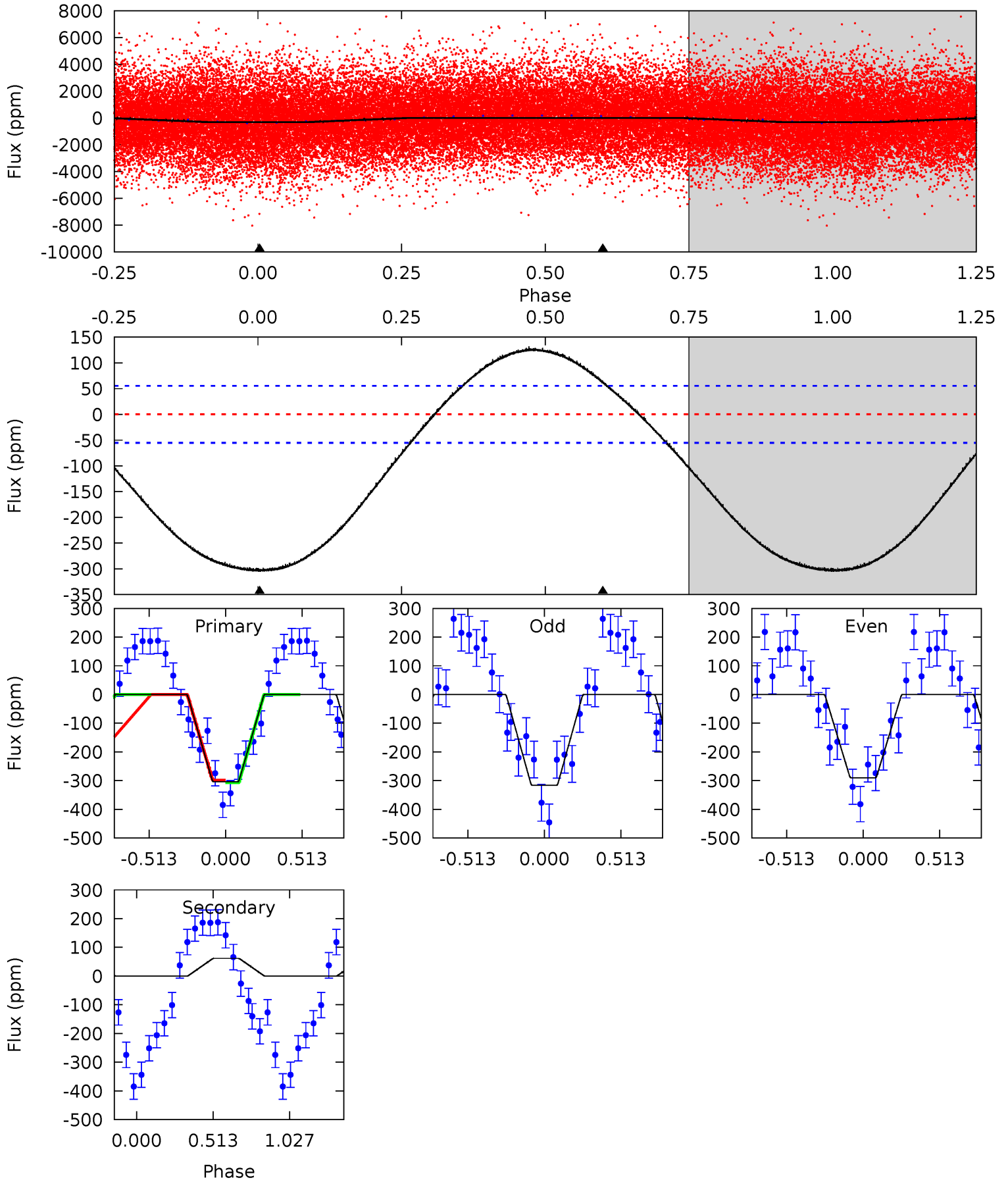
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.9	-8.87	0	0	4.21	0.67	3.99	31.9	31.9	-8.87	-8.87	1.13	0.90	0.32	0.99



Alt Model-Shift Uniqueness Test

009762866-02, P = 1.603363 Days, E = 131.197979 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	-4.68	0	0	4.21	0.65	2.69	23.1	23.1	-4.68	-4.68	1.00	1.20	0.30	0.35



Stellar Parameters For KIC 009762866

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8855^{+251}_{-394}	$3.818^{+0.382}_{-0.127}$	$-0.320^{+0.500}_{-0.350}$	$2.858^{+0.687}_{-1.177}$	$1.964^{+0.415}_{-0.415}$	$0.118^{+0.402}_{-0.046}$
	+3%/-4%	+10%/-3%	+156%/-109%	+24%/-41%	+21%/-21%	+339%/-39%
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 009762866-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	73 ± 8	$6.09^{+0.92}_{-1.36}$	4930^{+373}_{-496}	-5831^{+233}_{-245}	$-1.270^{+0.327}_{-0.675}$
Alt.	62 ± 13	$5.58^{+0.84}_{-1.23}$	4891^{+415}_{-502}	-5782^{+295}_{-310}	$-1.261^{+0.392}_{-0.743}$

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

DV Centroid Data

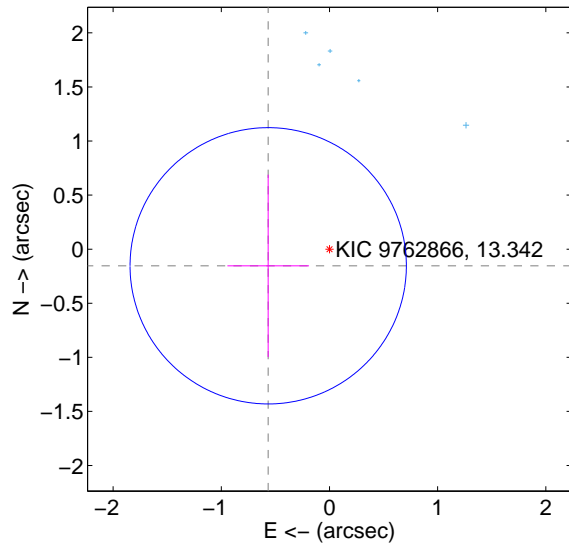
Supplemental centroid analysis for 009762866-02. Kepler magnitude: 13.34. Transit SNR 21.77

There are 5 quarters with good PRF difference image offsets

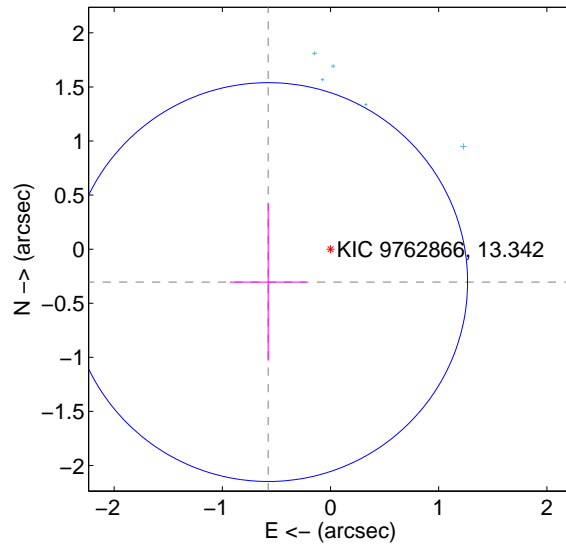
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.587 ± 0.426	1.38	0.566 ± 0.377	-0.154 ± 0.843
PRF-fit source offset from KIC position	0.652 ± 0.615	1.06	0.577 ± 0.354	-0.304 ± 0.726
photometric centroid source offset	0.19 ± 0.04	5.03	0.11 ± 0.04	-0.15 ± 0.04

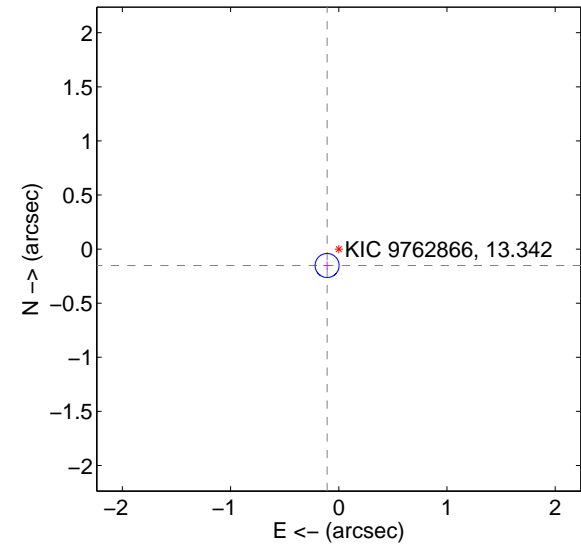
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

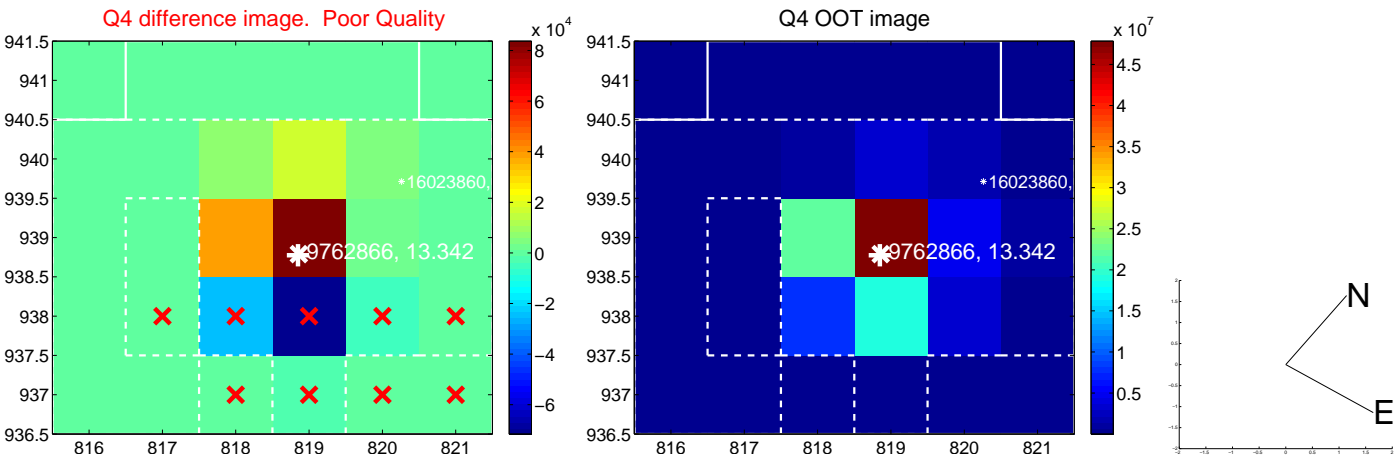
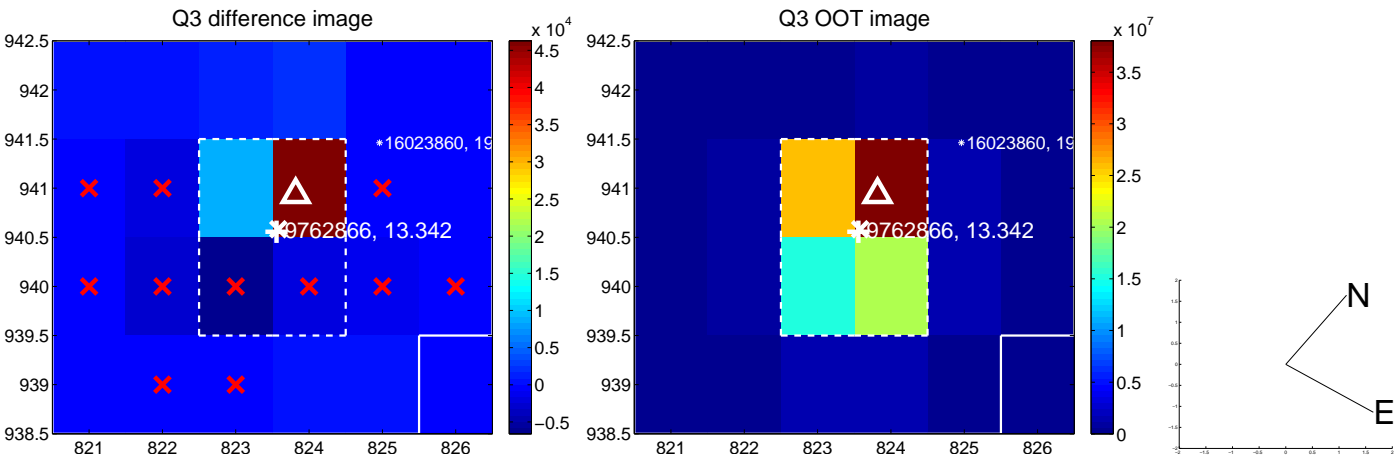
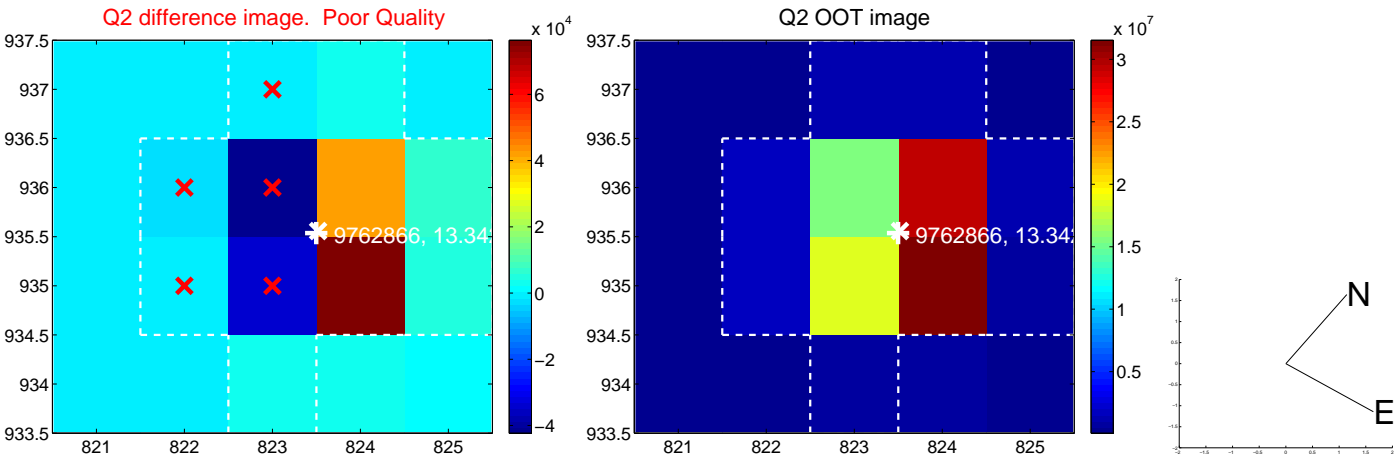
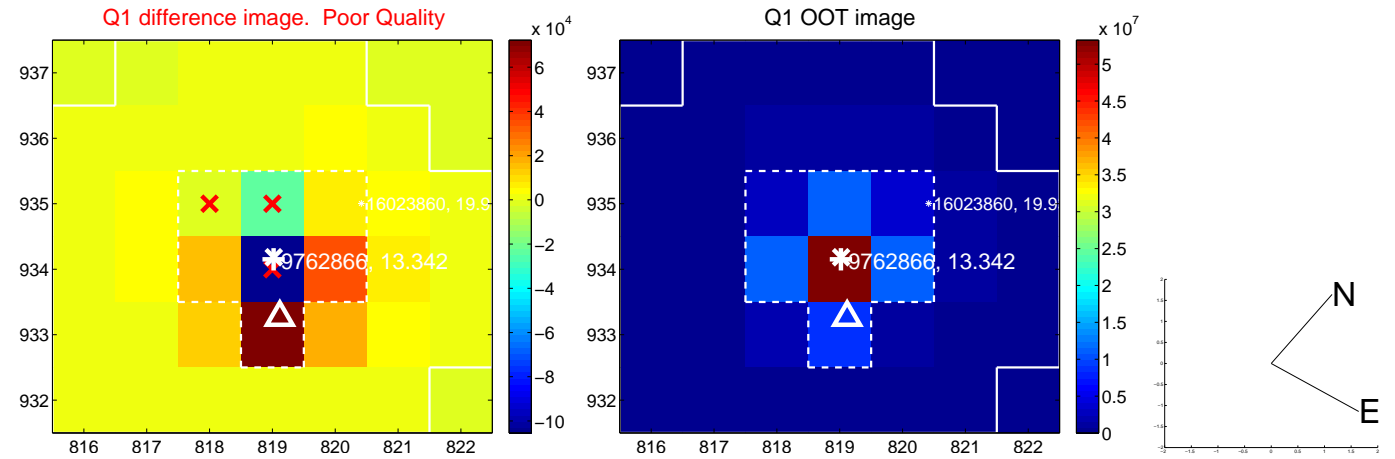


offset from photometric centroids

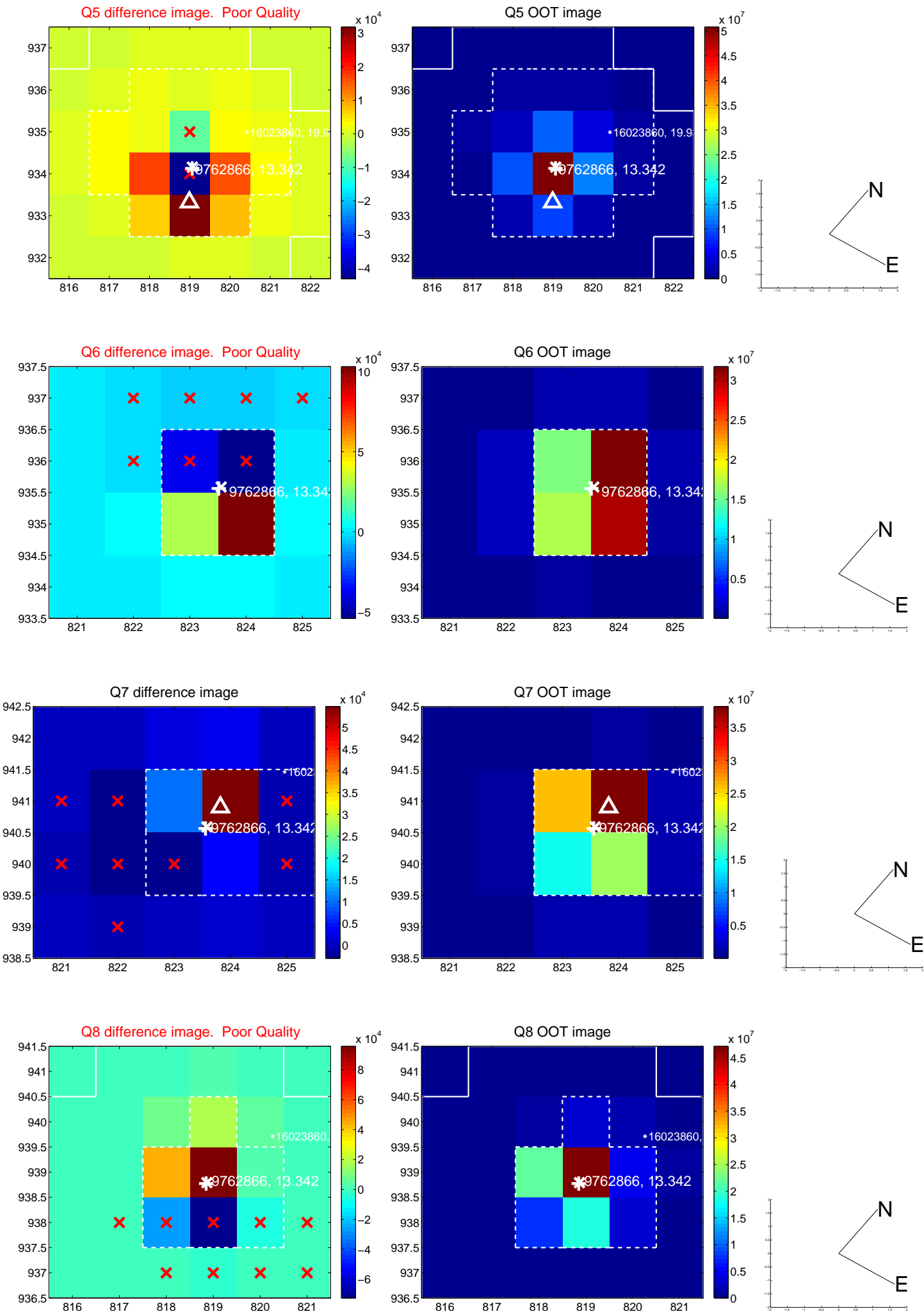


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

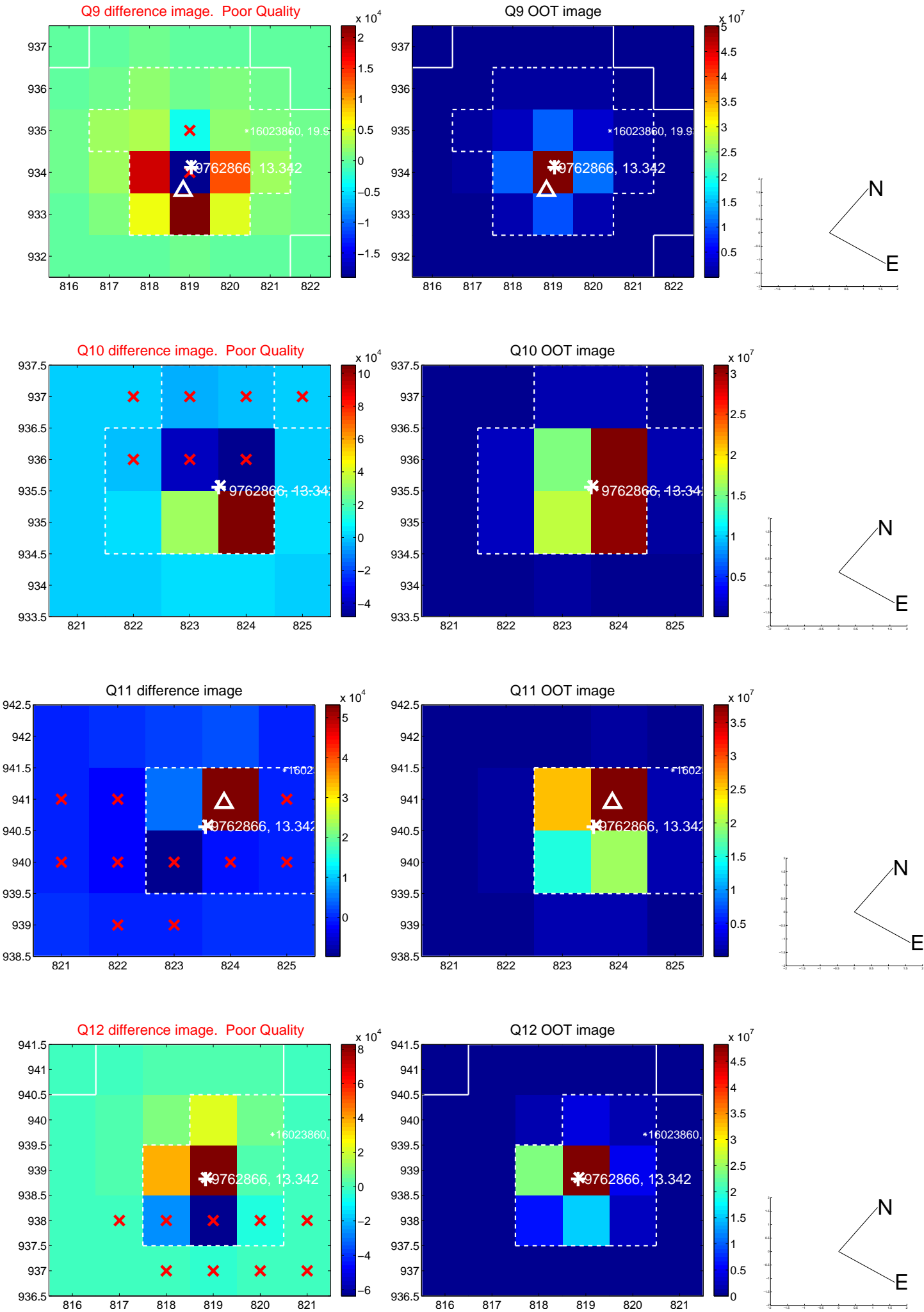
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



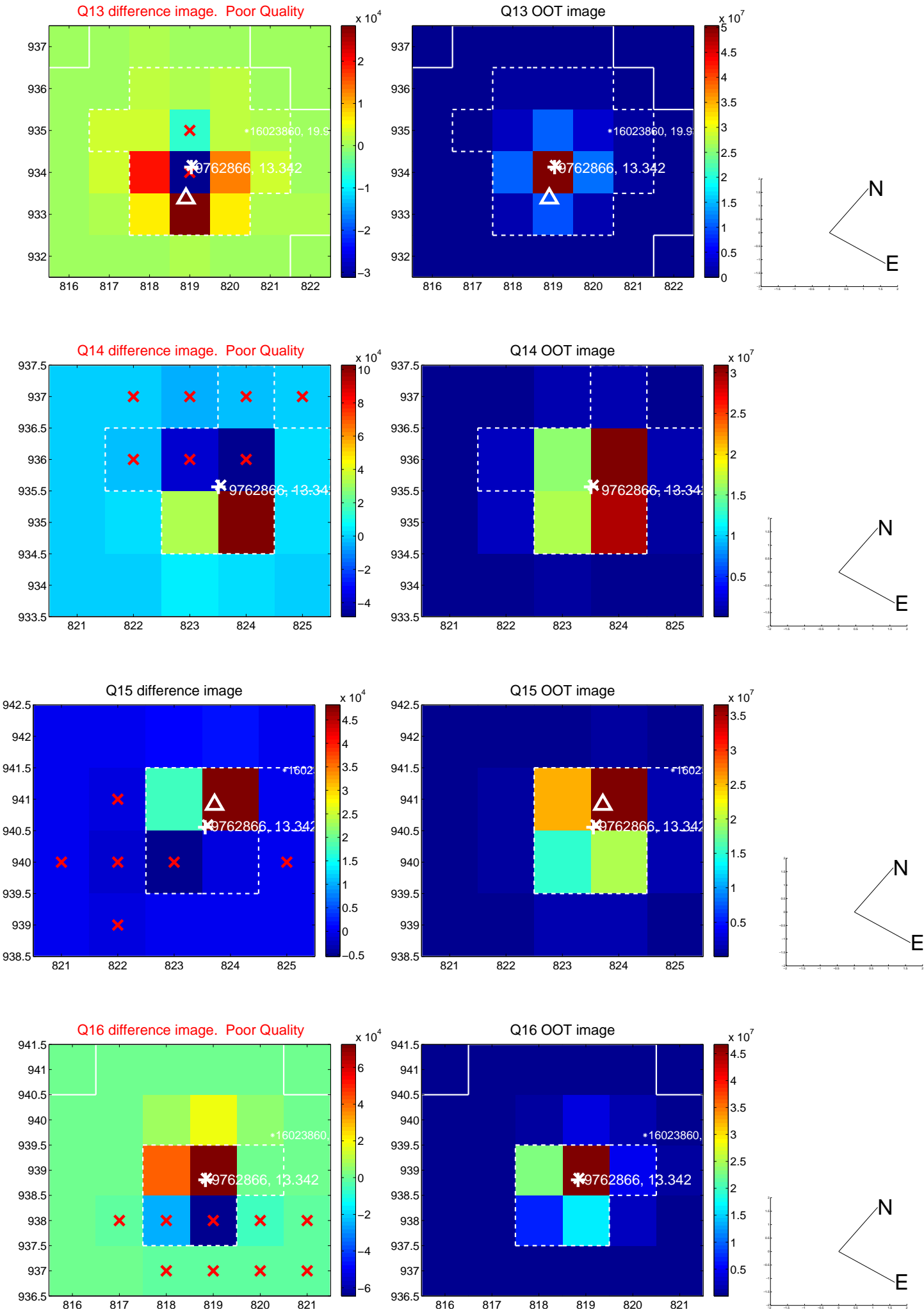
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



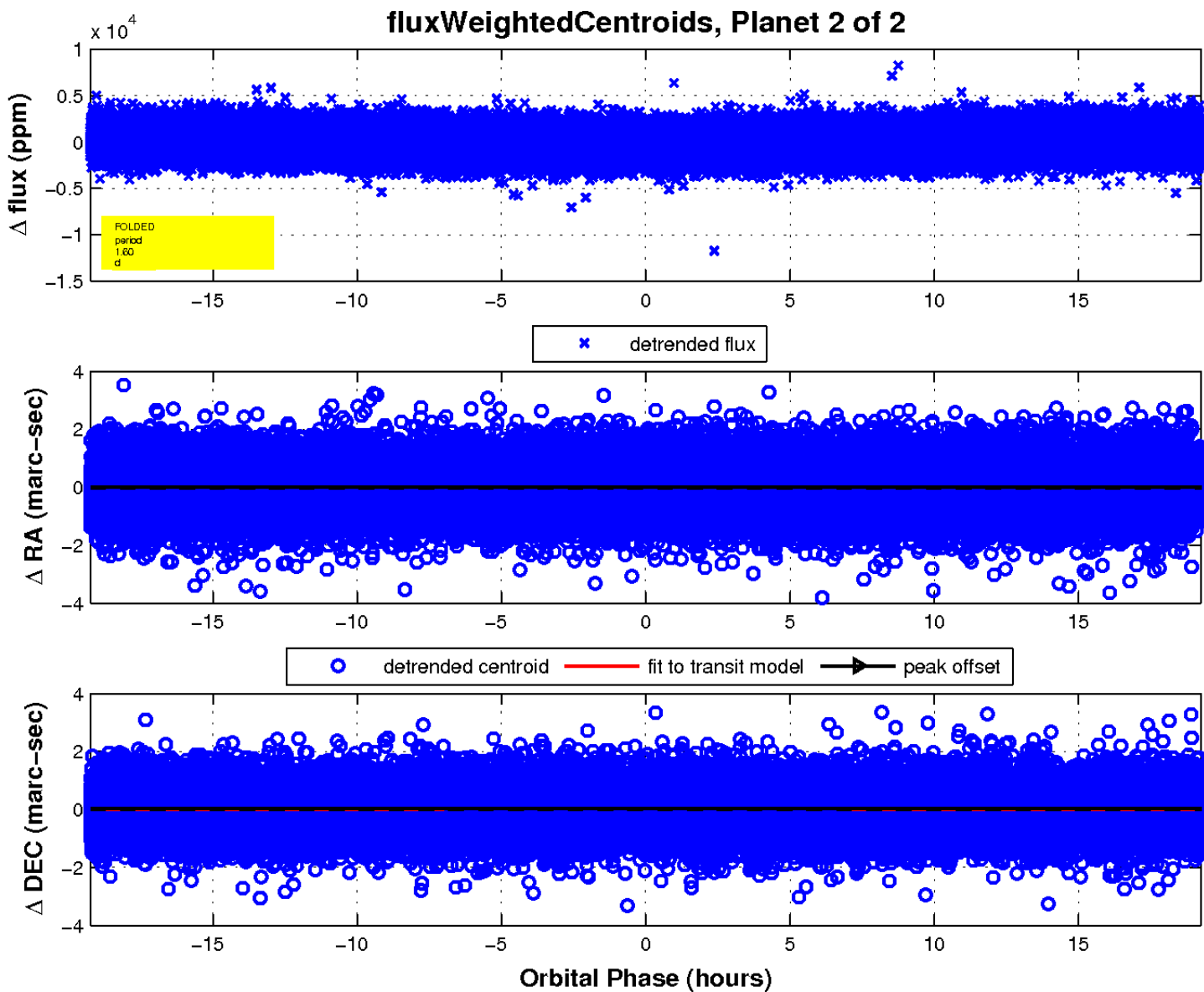
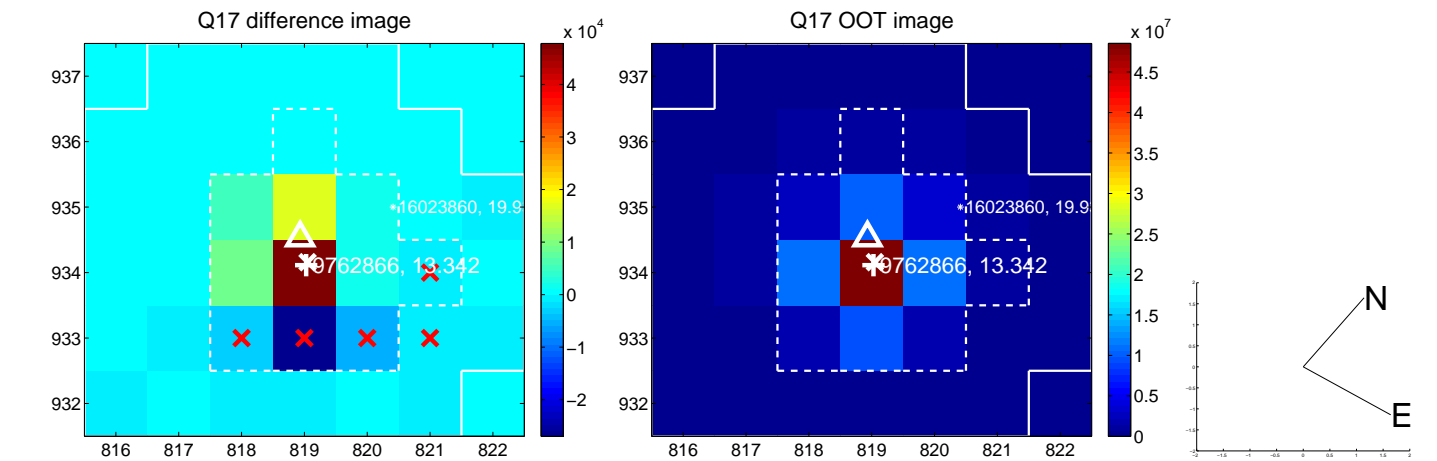
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

