

KIC 011624521

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})
011624521-01	OBS	No	0.592851	131.631321	92.6	0.865	8.1	10.1	3.28	7870	3.22	122945.63
011624521-02	OBS	No	0.592843	131.827336	91.7	1.043	8.8	10.0	3.28	7870	3.26	122947.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624521-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011624521-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

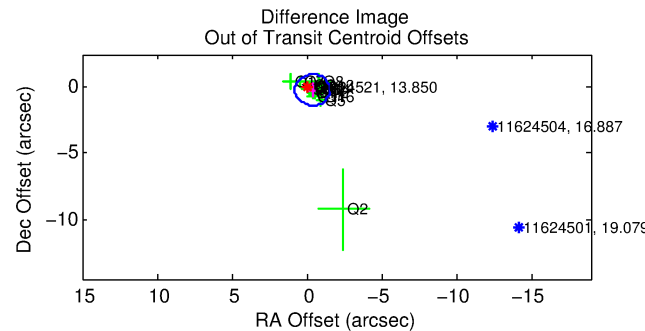
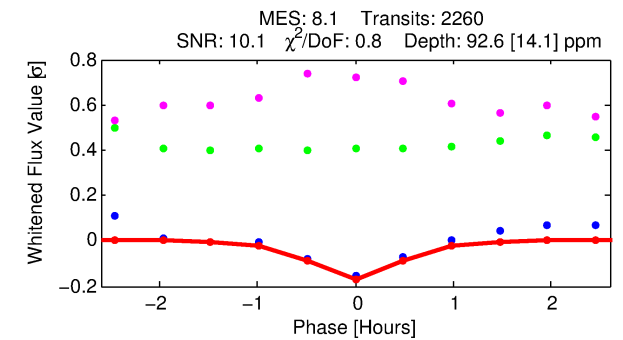
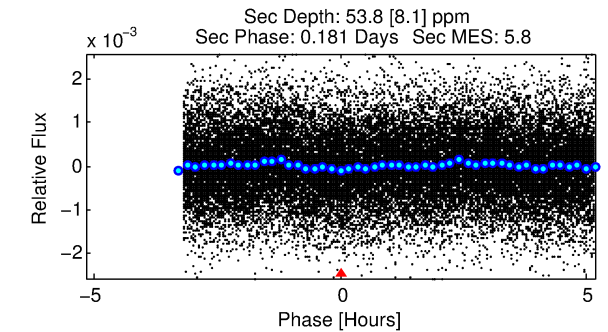
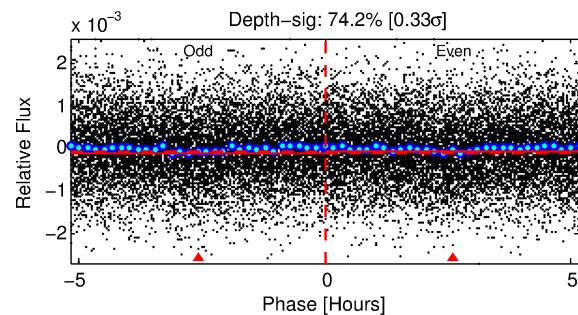
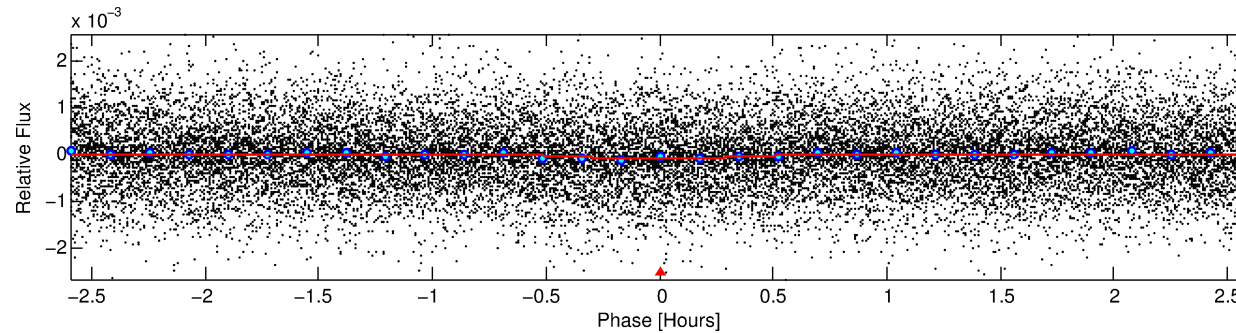
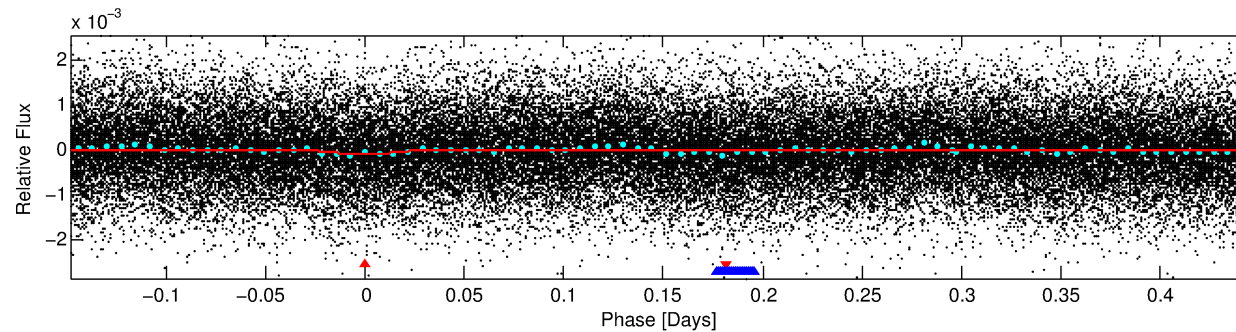
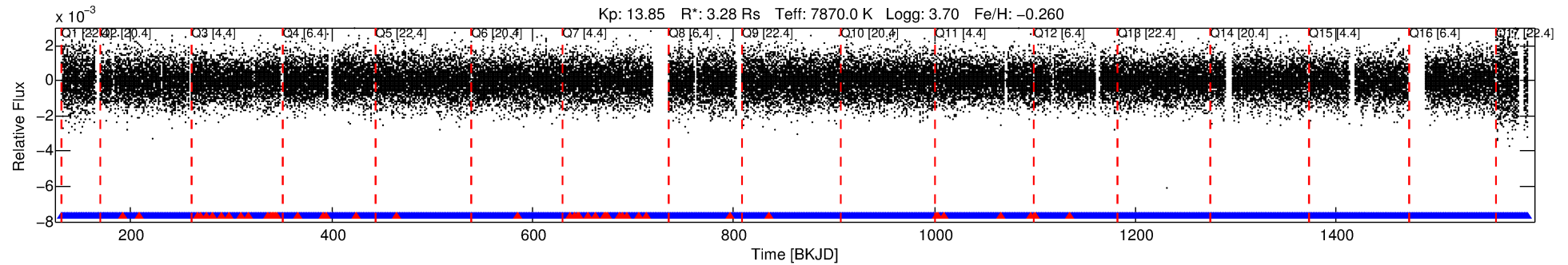
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624521-01

No Significant Match Found

DV One-Page Summary

KIC: 11624521 Candidate: 1 of 2 Period: 0.593 d



DV Fit Results:

Period = 0.59285 [0.00001] d
Epoch = 131.6313 [0.0022] BKJD
Rp/R* = 0.0090 [0.0138]
a/R* = 5.24 [42.33]
b = 0.17 [47.91]
Seff = 122945.63 [97654.73]
Teq = 4775 [948] K
Rp = 3.22 [5.18] Re
a = 0.0174 [0.0083] AU
Ag = 0.86 [2.72] [-0.05 σ]
Teffp = 7107 [5459] K [0.42 σ]

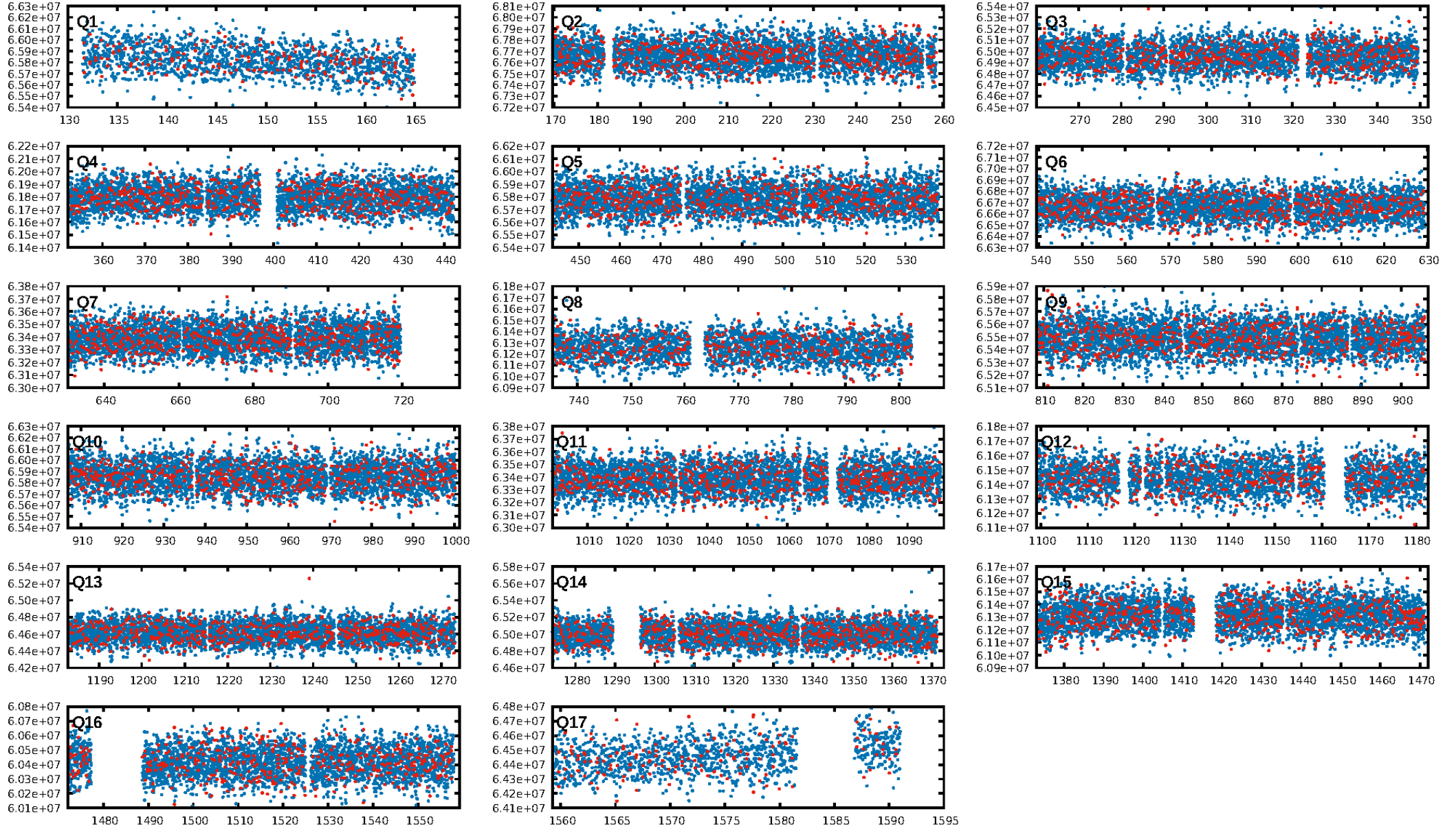
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.85e-19
RollingBand-fgt: 0.98 [2113/2158]
GhostDiagnostic-chr: 3.078
Centroid-sig: N/A
Centroid-so: 0.814 arcsec [1.49 σ]
OotOffset-rm: 0.433 arcsec [1.11 σ]
KicOffset-rm: 0.603 arcsec [1.44 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

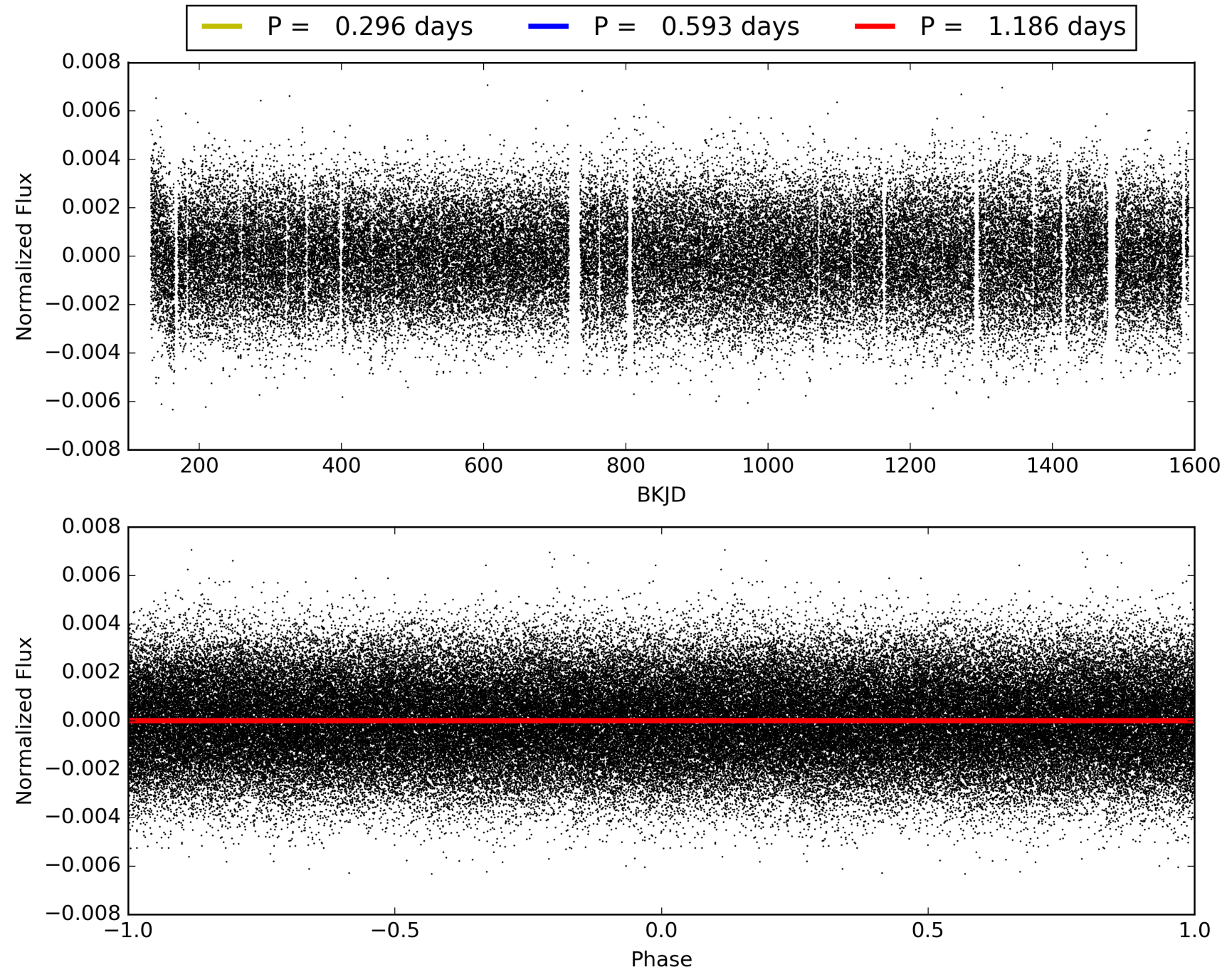
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:59:13 Z

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

TCE 011624521-01, PDC Light Curves

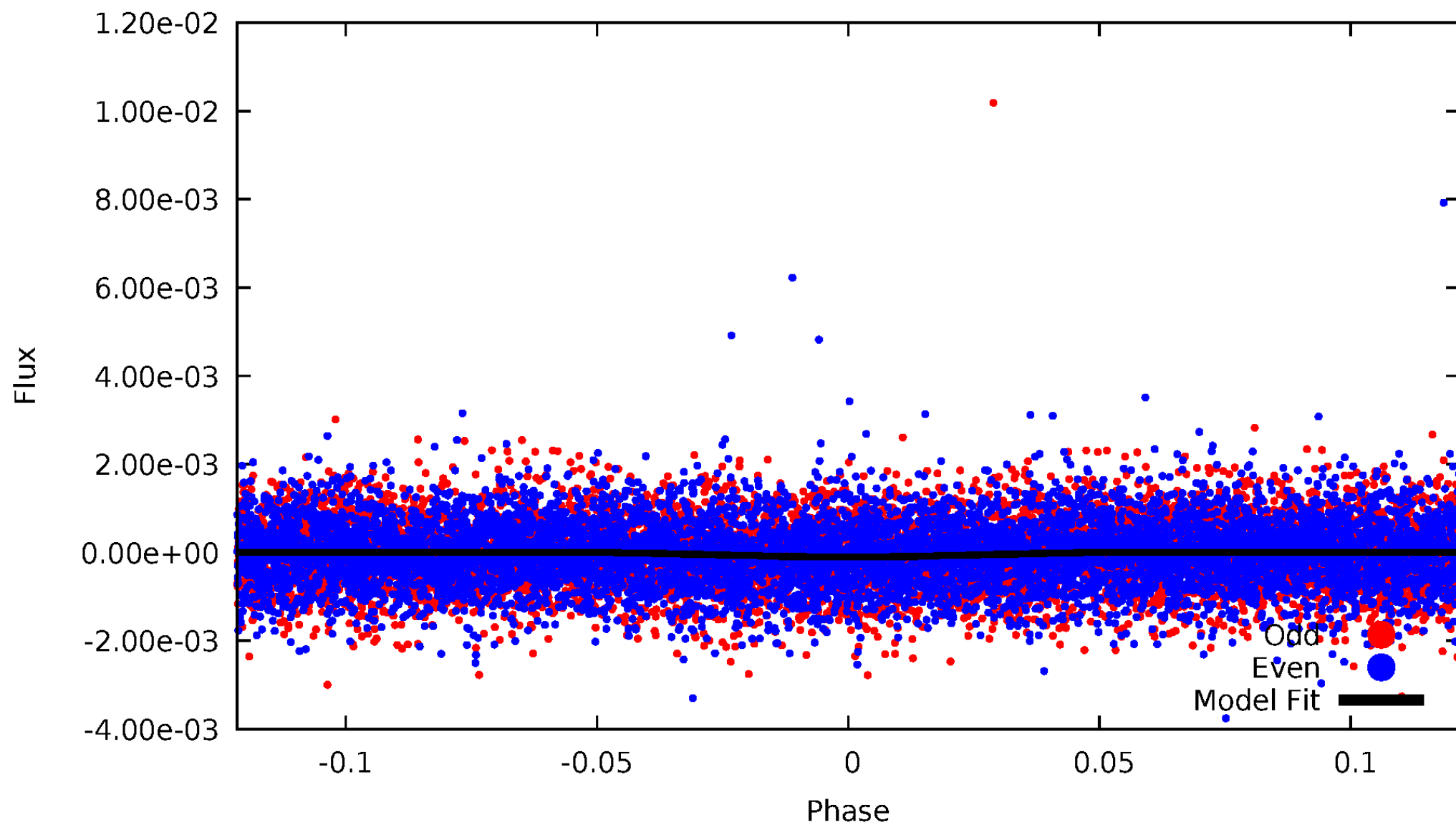


TCE 011624521-01



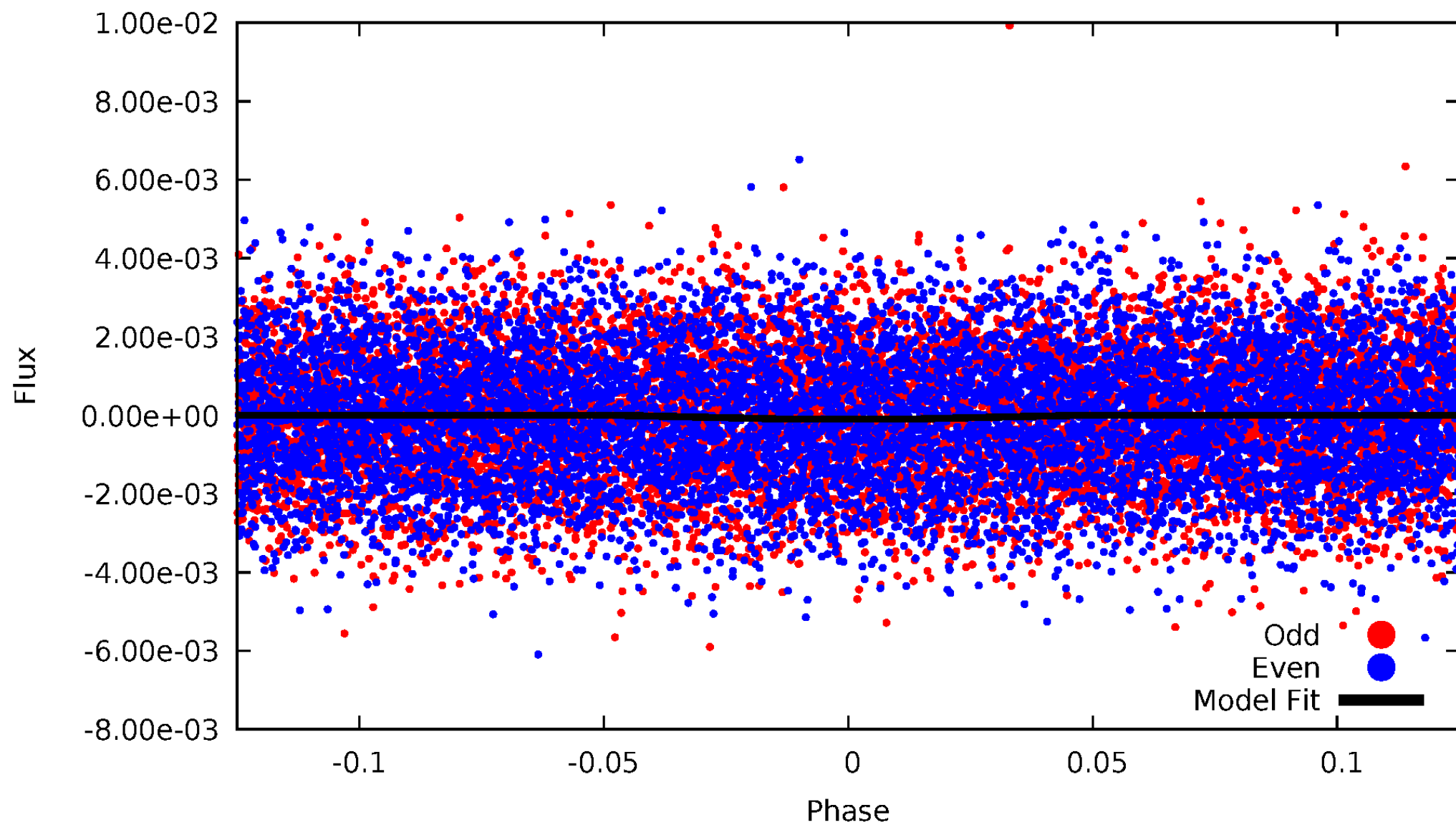
DV Odd/Even

TCE 011624521-01



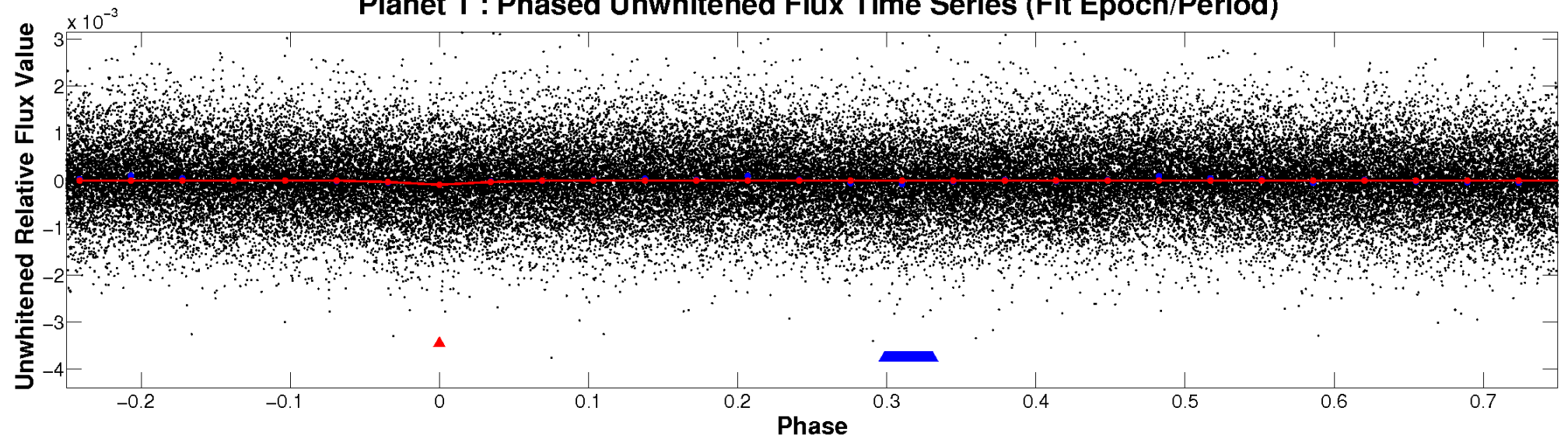
ALT Odd/Even

TCE 011624521-01

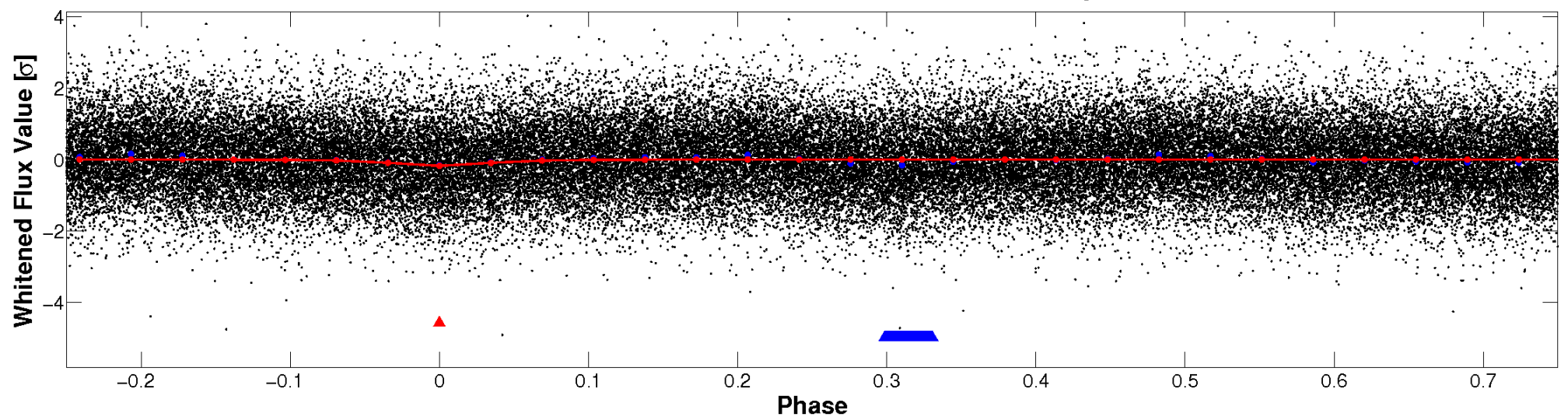


Non-Whitened Vs. Whitened Light Curve

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

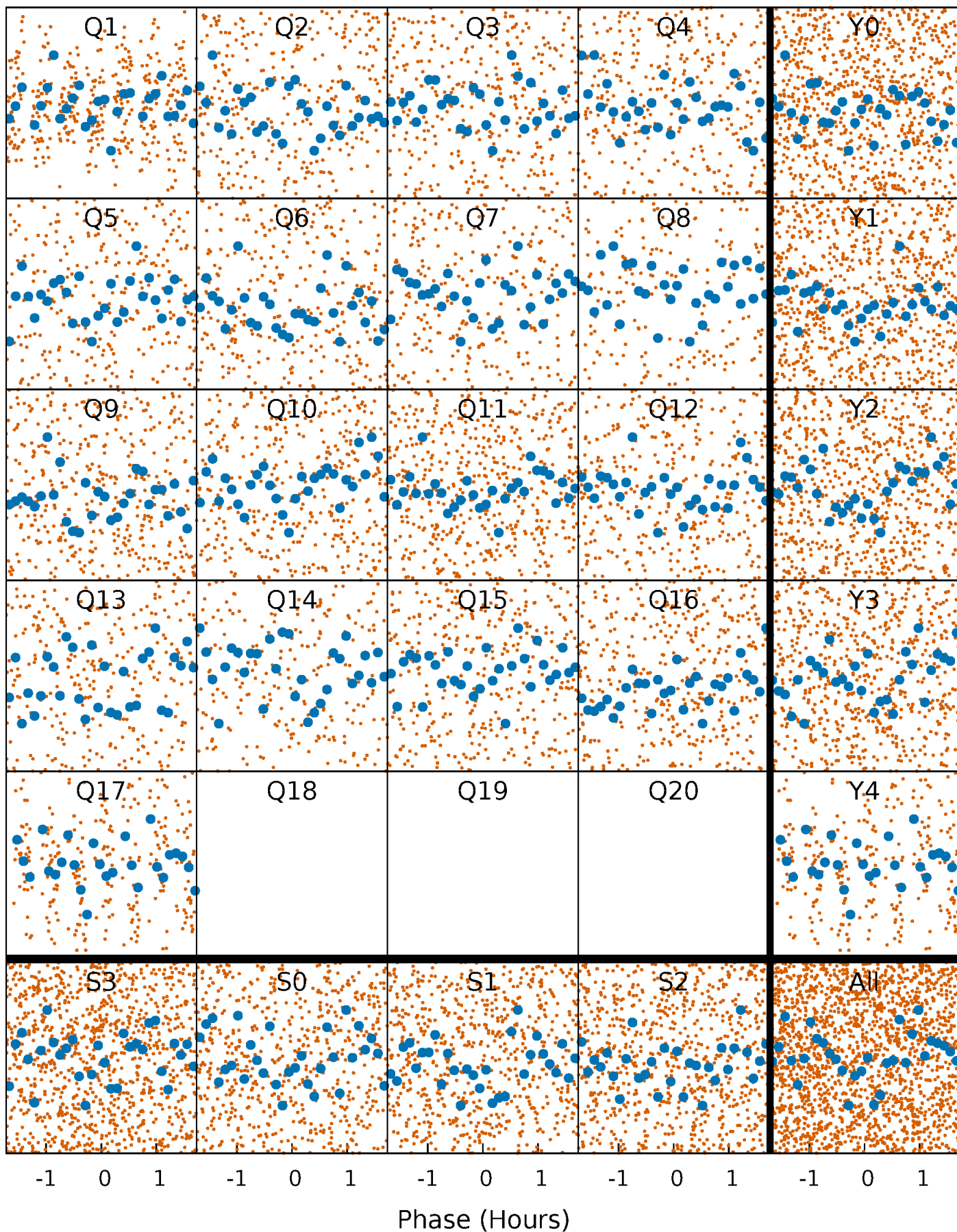


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



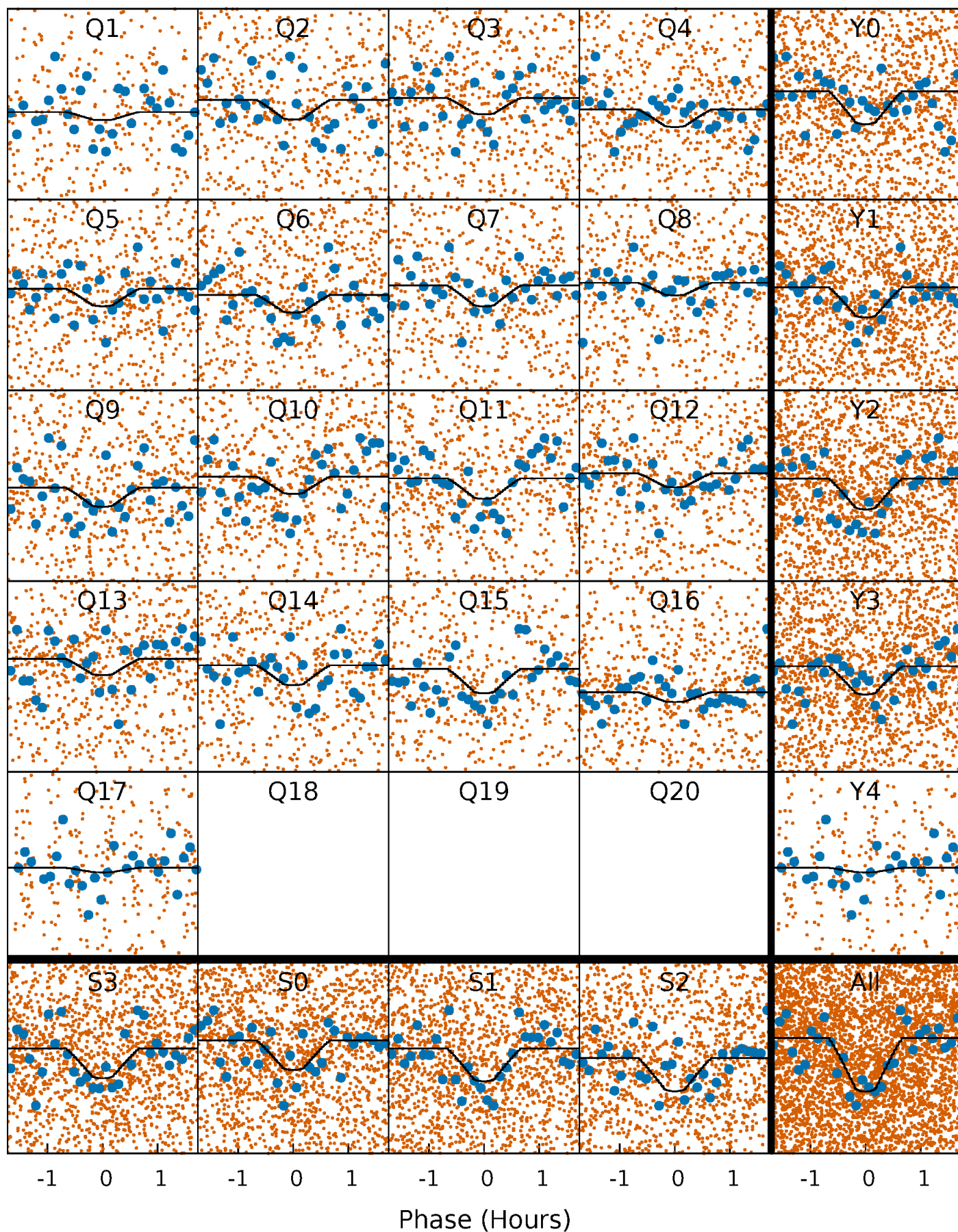
PDC Quarter-Phased Transit Curves

TCE 011624521-01 P= 0.592851 Days $T_0=131.631321$ (BKJD)



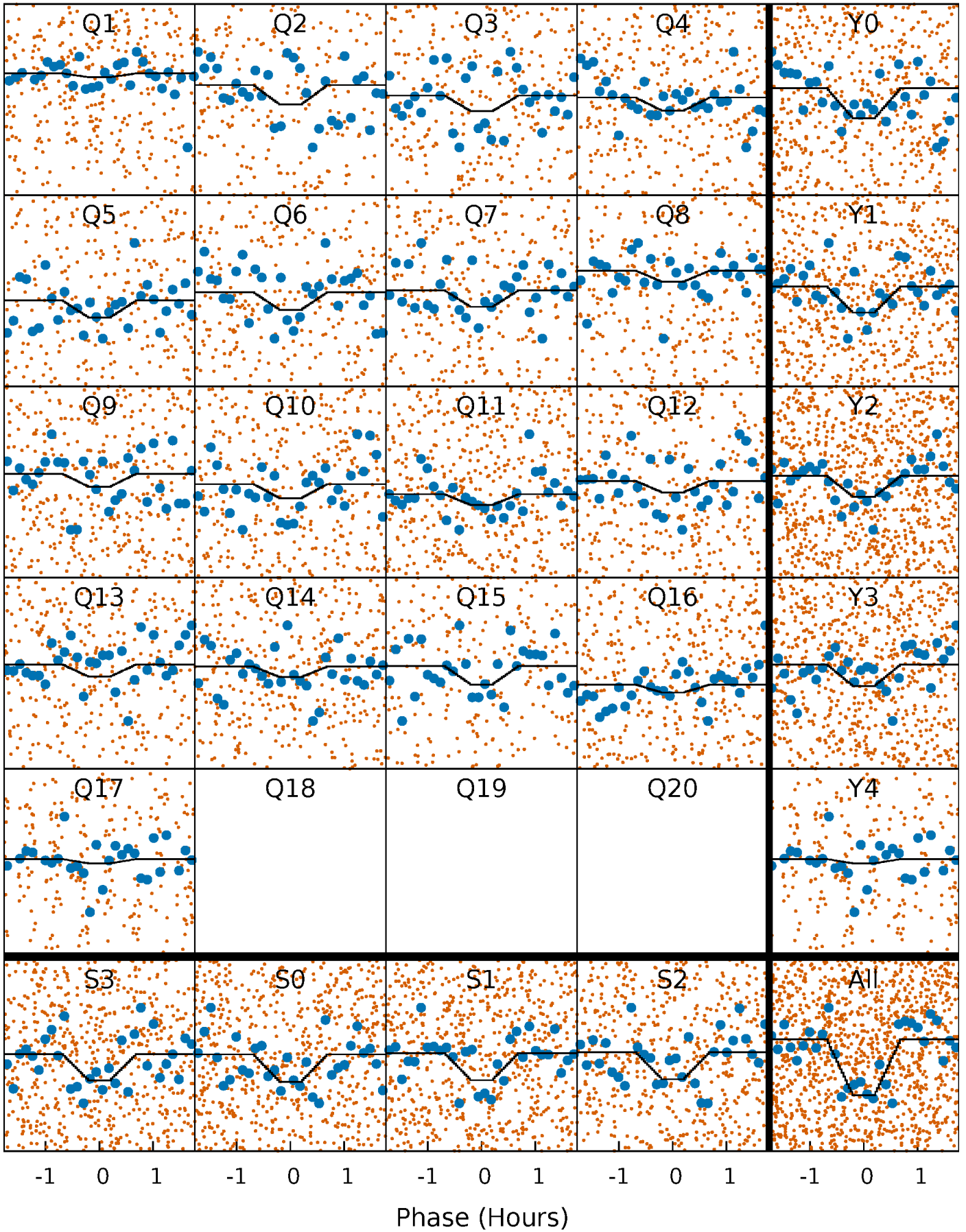
DV Quarter-Phased Transit Curves

TCE 011624521-01 P= 0.592851 Days $T_0=131.631321$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

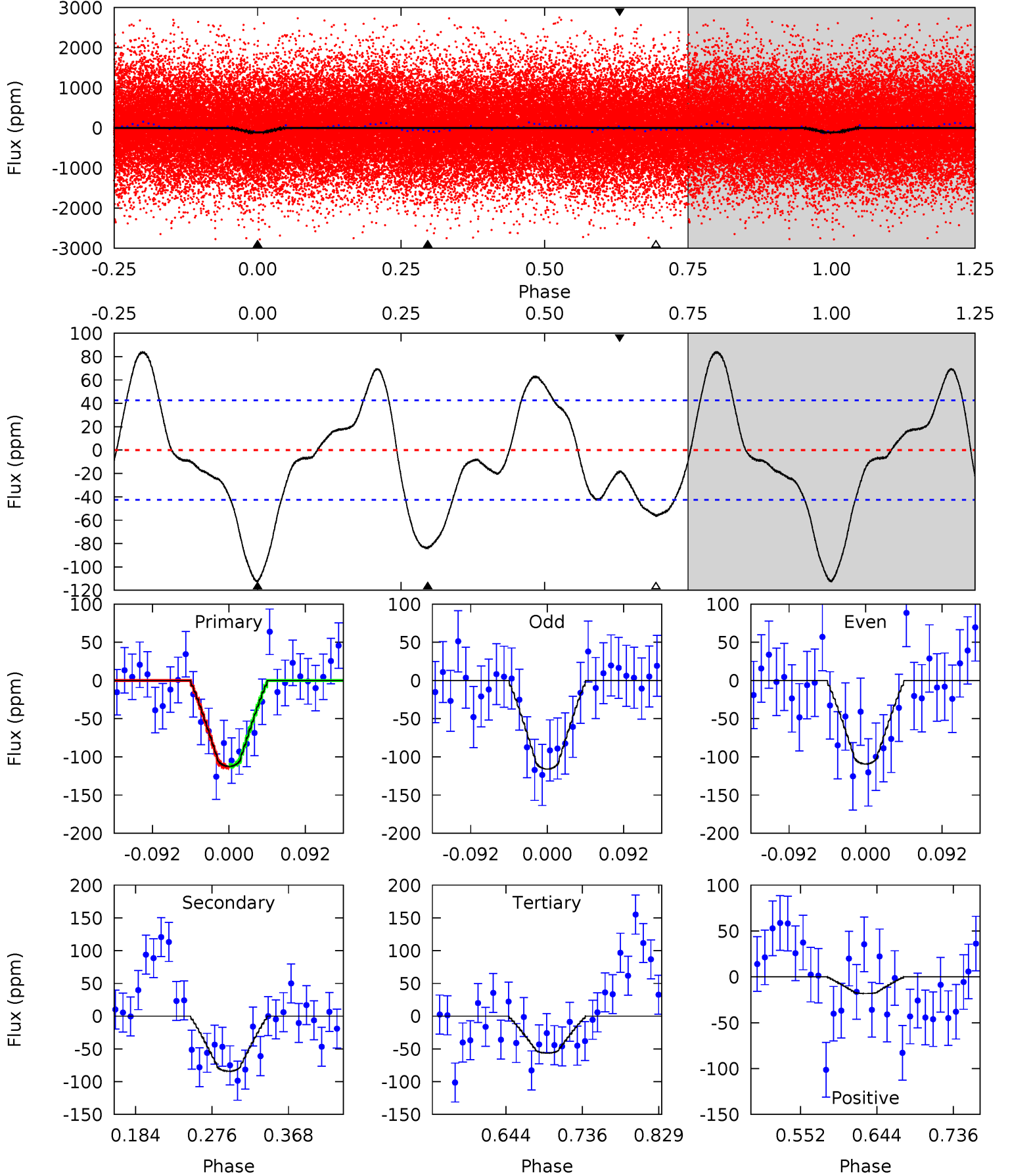
TCE 011624521-01 P= 0.592850 Days $T_0=131.630970$ (BKJD)



DV Model-Shift Uniqueness Test

011624521-01, P = 0.592851 Days, E = 131.038470 Days

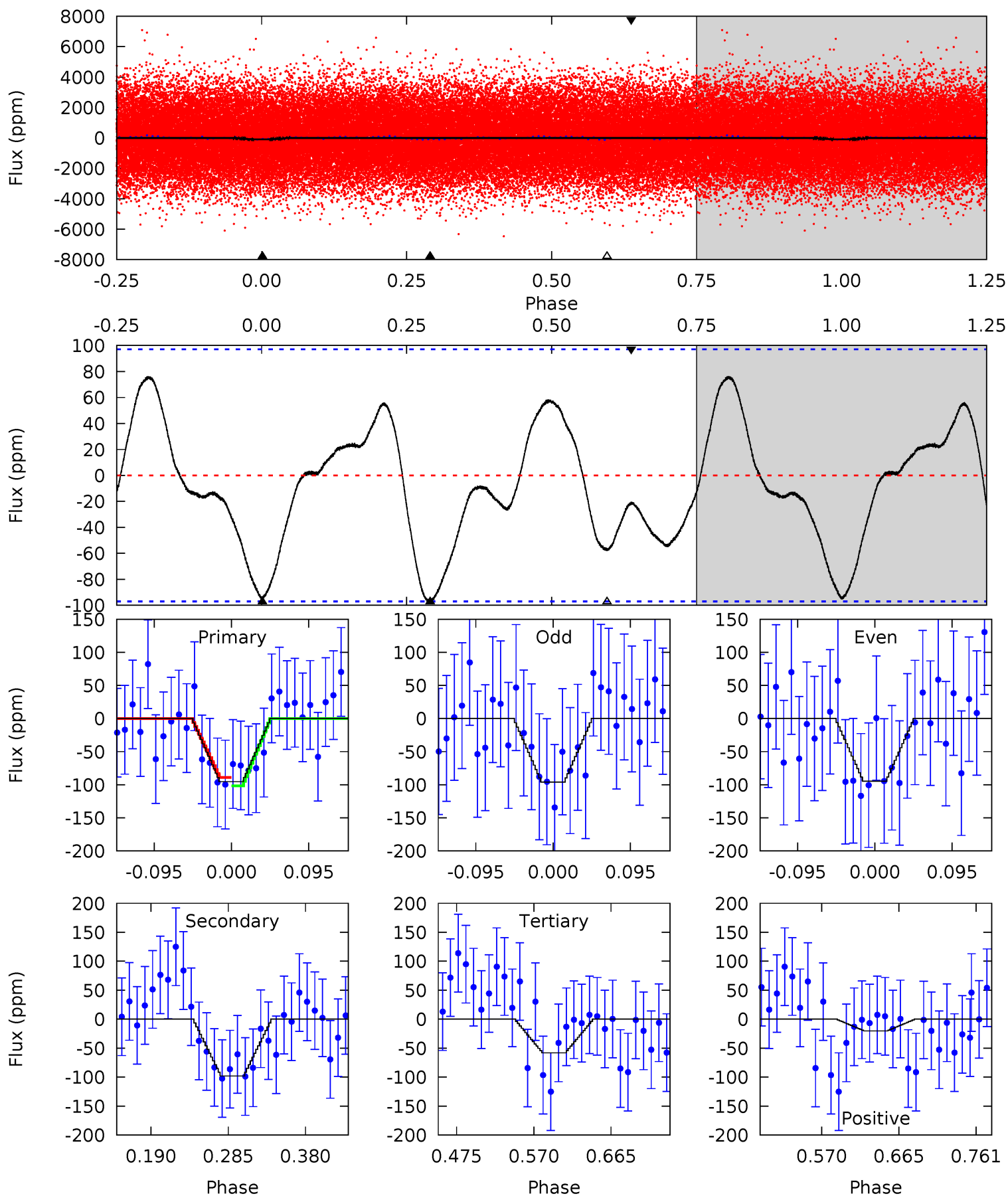
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	9.03	6.06	-1.96	4.58	1.68	4.07	6.01	14.0	2.97	11.0	0.36	0.92	0.43	0.07



Alt Model-Shift Uniqueness Test

011624521-01, P = 0.592850 Days, E = 131.038120 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.50	4.62	2.75	-0.96	4.58	1.67	1.75	1.75	5.45	1.88	5.58	0.03	0.79	0.44	0.30



Stellar Parameters For KIC 011624521

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7870^{+219}_{-329}	$3.703^{+0.459}_{-0.081}$	$-0.260^{+0.200}_{-0.300}$	$3.283^{+0.402}_{-1.607}$	$1.984^{+0.170}_{-0.511}$	$0.079^{+0.362}_{-0.021}$
	+3%/-4%	+12%/-2%	+77%/-115%	+12%/-49%	+9%/-26%	+459%/-27%
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 011624521-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-84 ± 9	$4.18^{+4.12}_{-2.80}$	6436^{+477}_{-787}	5696^{+7233}_{-9864}	$0.804^{+6.401}_{-0.605}$
Alt.	-98 ± 21	$4.33^{+4.20}_{-2.82}$	6435^{+463}_{-738}	5615^{+7215}_{-9721}	$0.821^{+6.389}_{-0.613}$

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 $A_{obs} \gg 1.0$

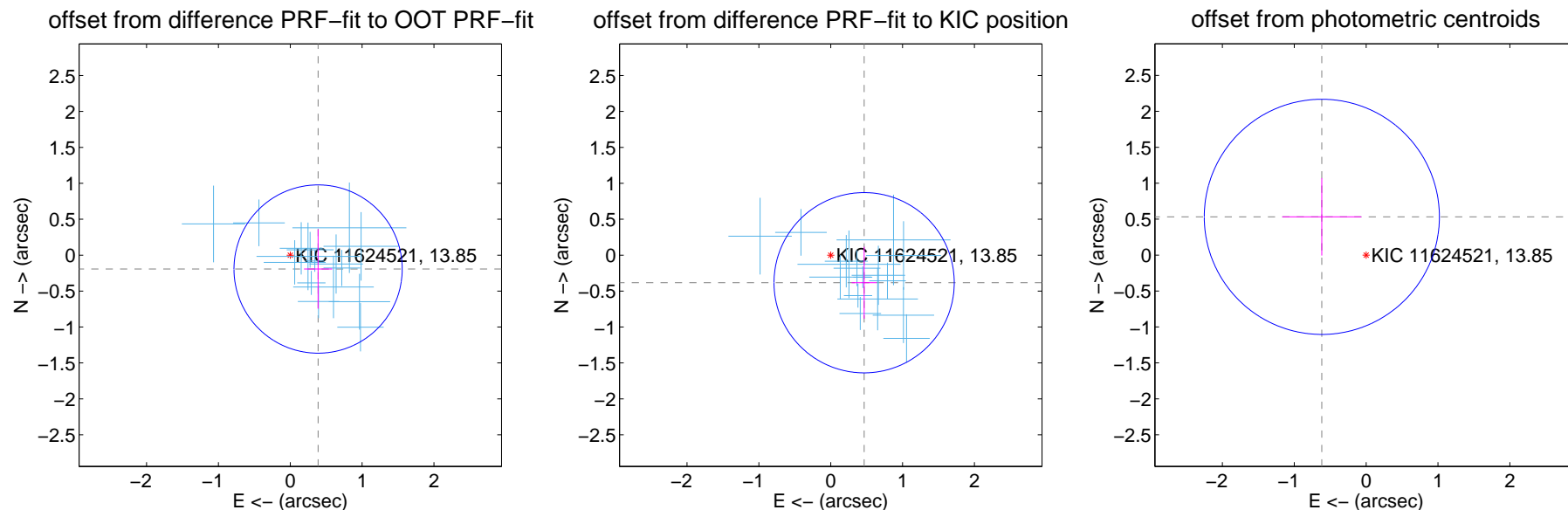
DV Centroid Data

Supplemental centroid analysis for 011624521-01. Kepler magnitude: 13.85. Transit SNR 10.08

There are 16 quarters with good PRF difference image offsets

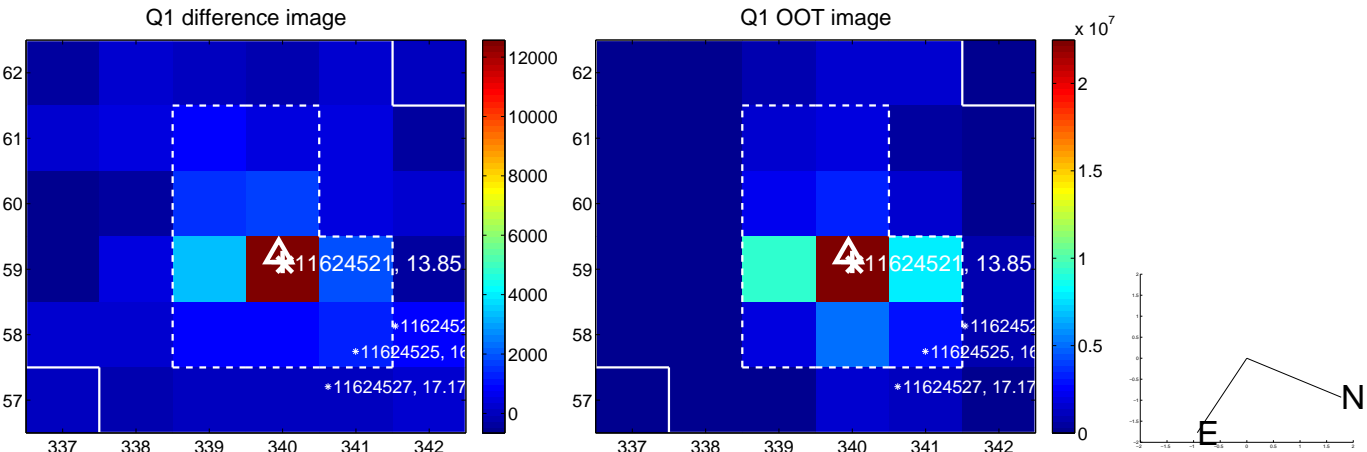
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.433 ± 0.390	1.11	-0.387 ± 0.196	-0.193 ± 0.552
PRF-fit source offset from KIC position	0.603 ± 0.418	1.44	-0.465 ± 0.173	-0.384 ± 0.500
photometric centroid source offset	0.81 ± 0.55	1.49	0.62 ± 0.55	0.53 ± 0.54

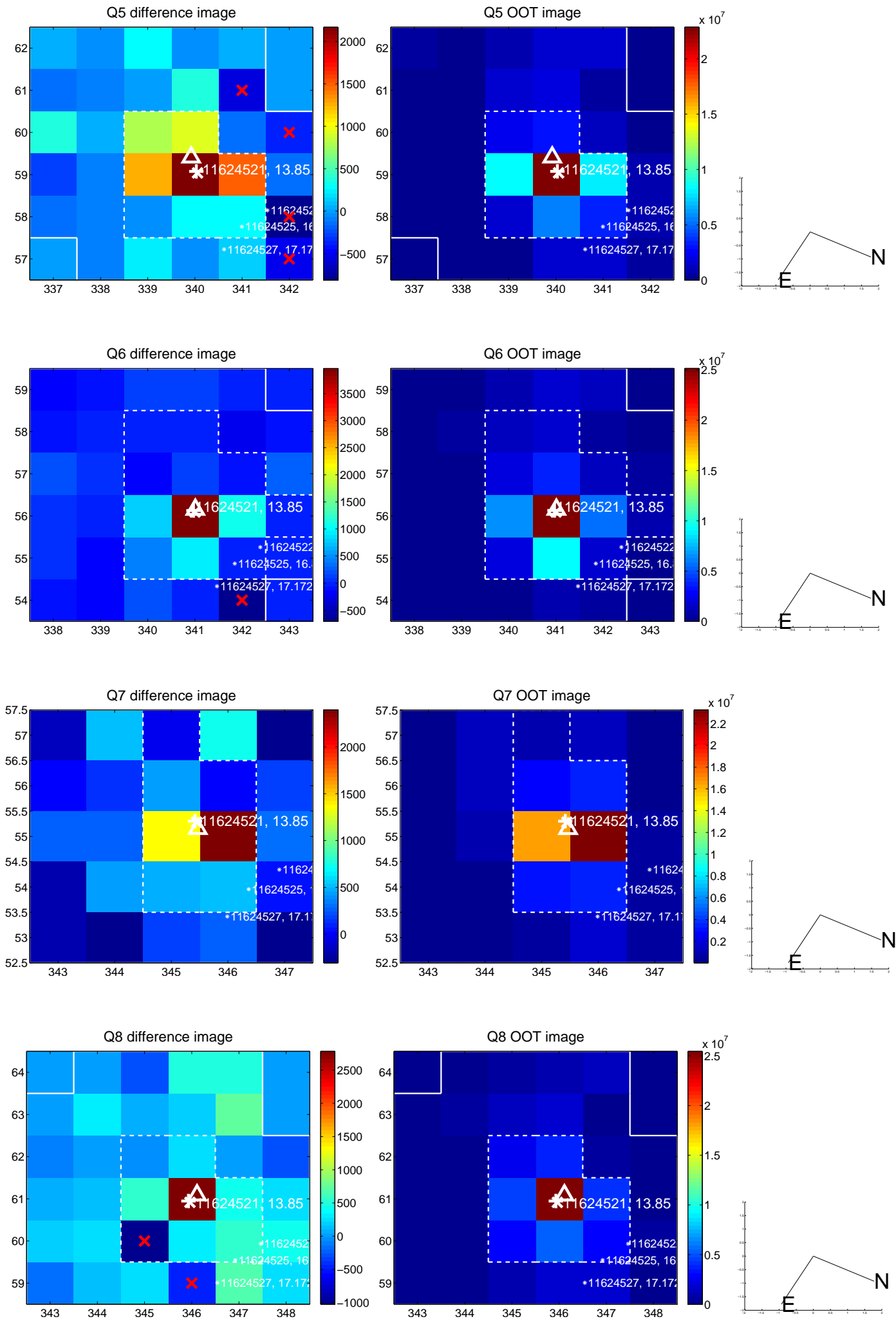


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

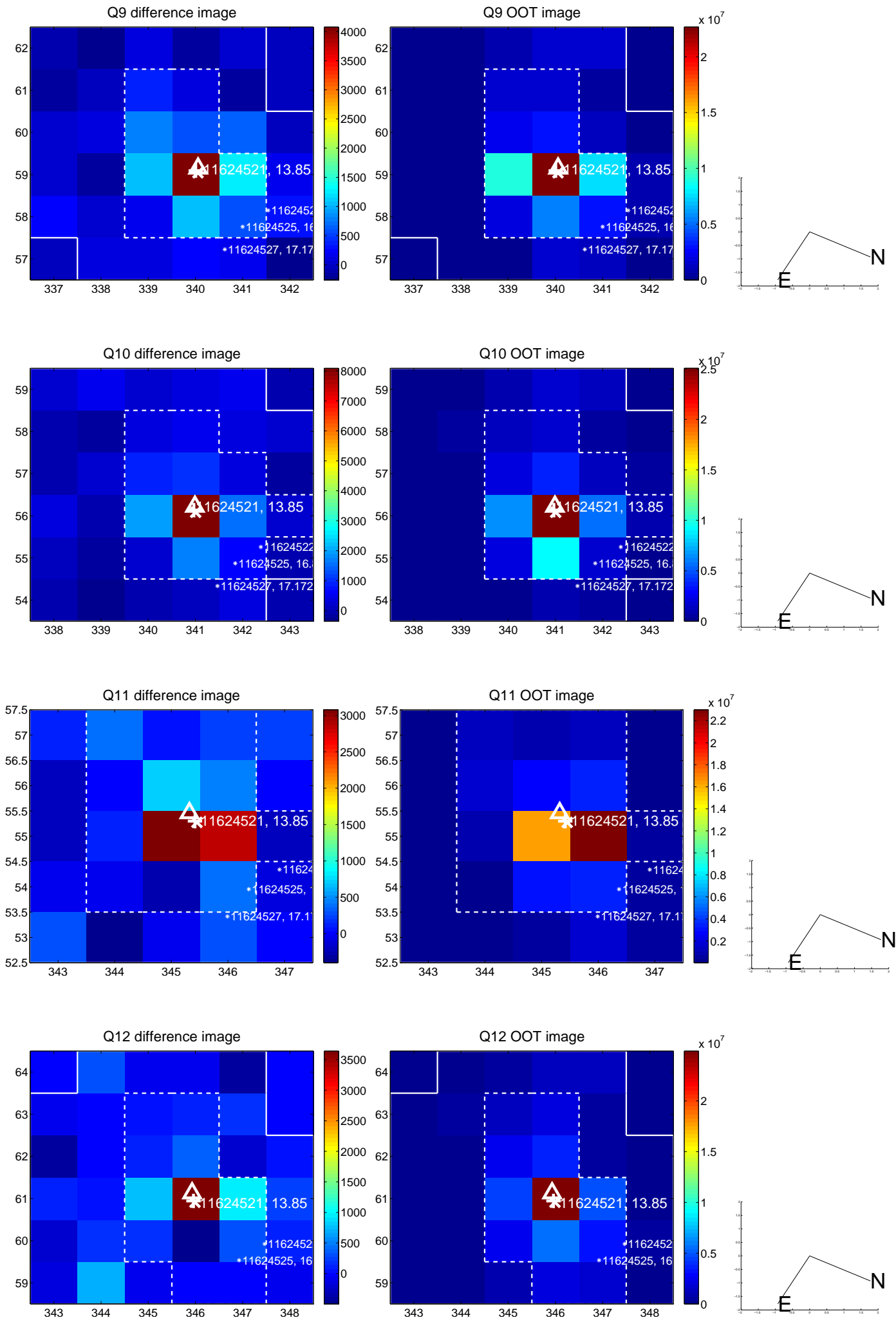
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



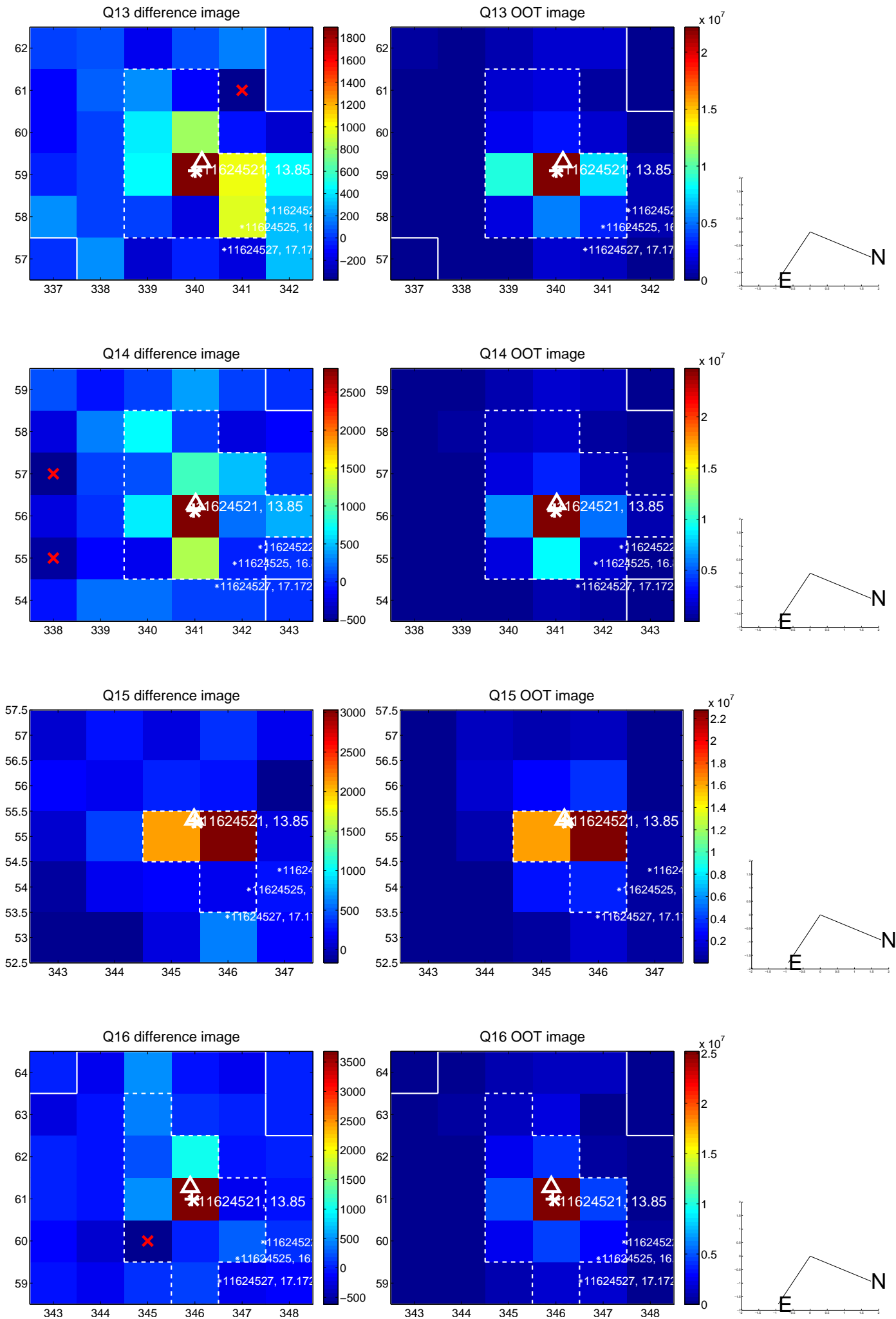
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



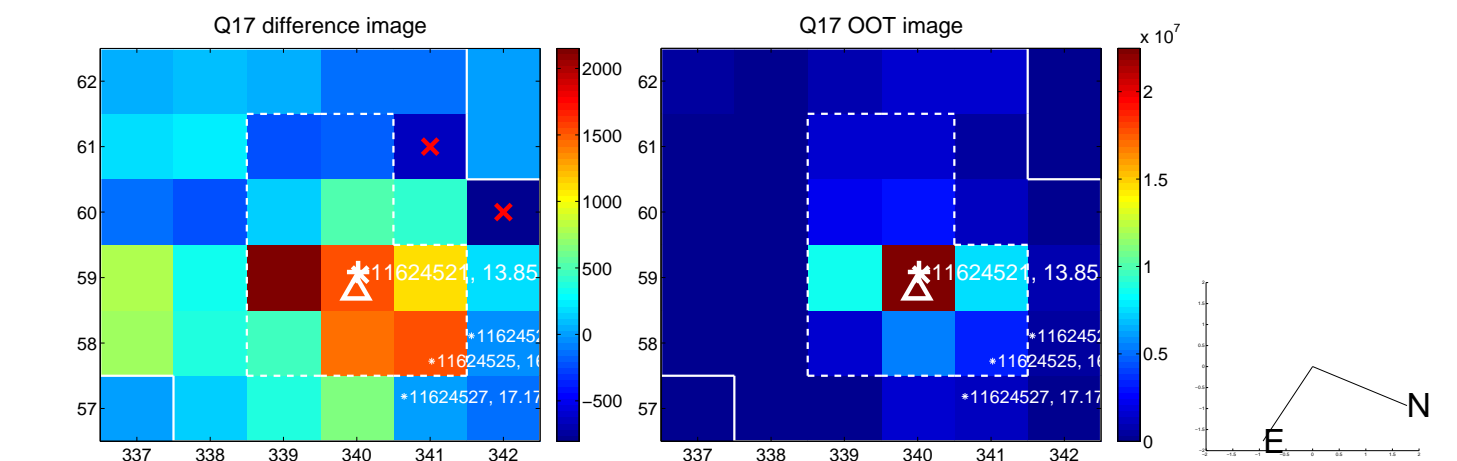
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



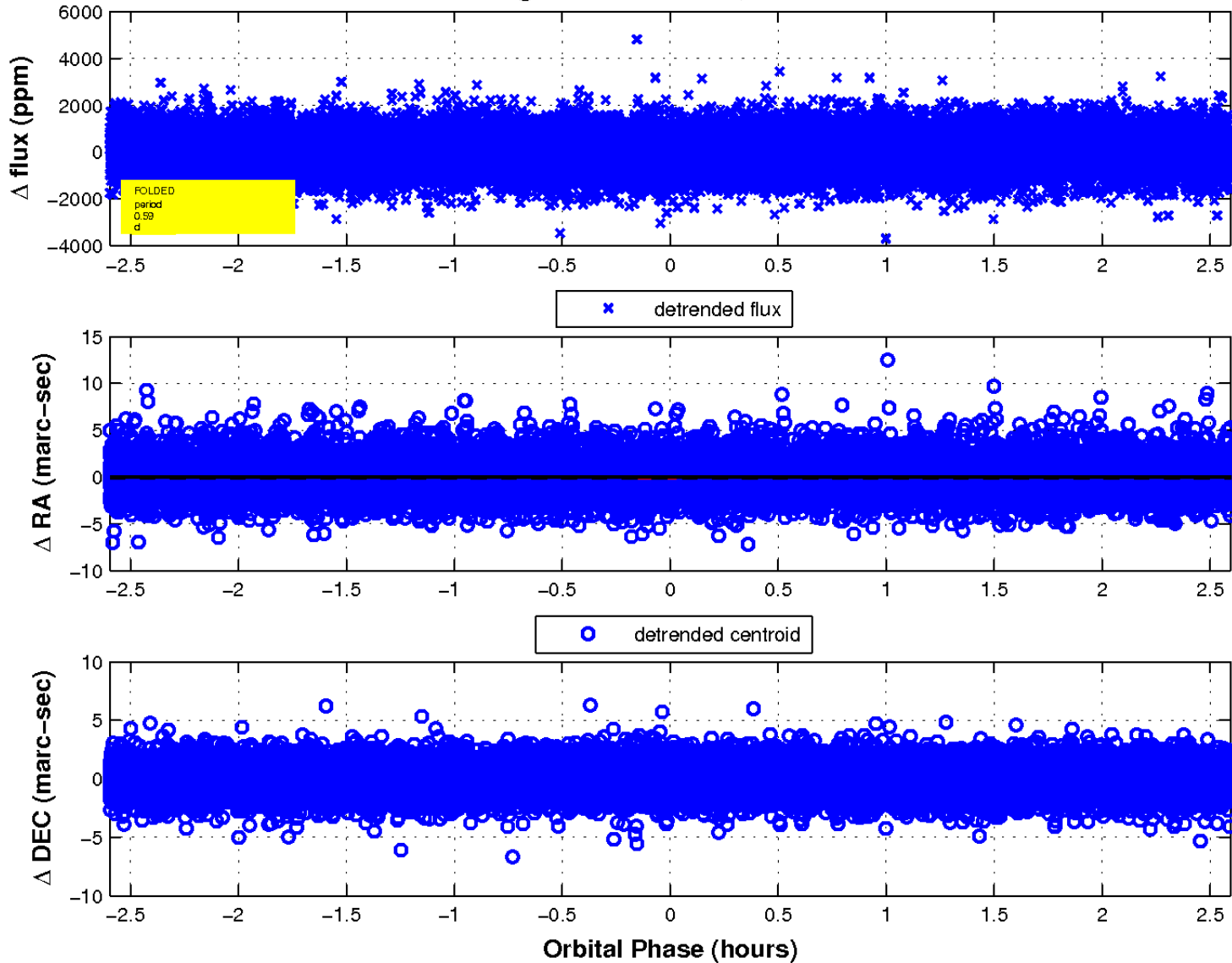
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

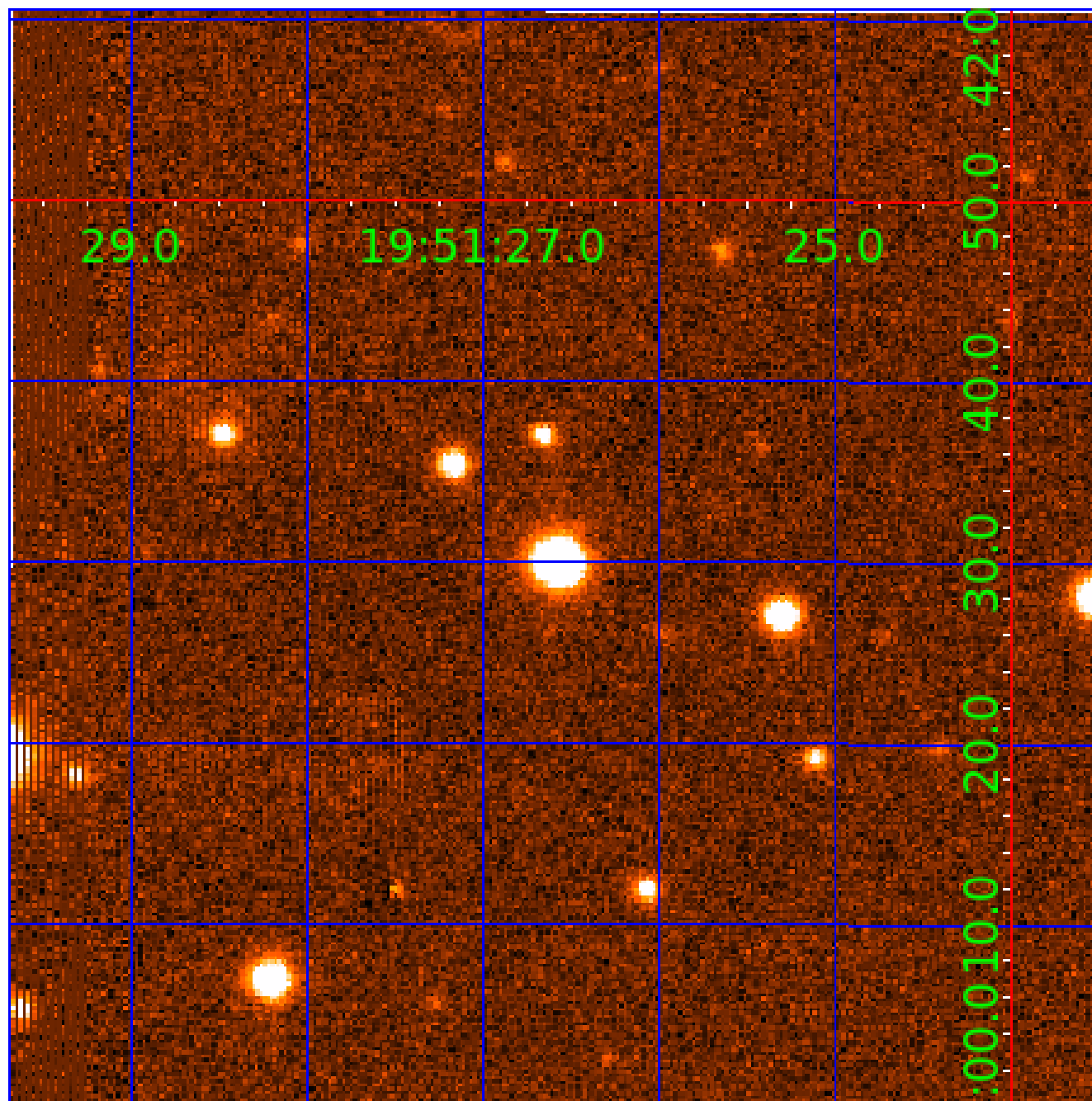


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011624521

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})
011624521-01	OBS	No	0.592851	131.631321	92.6	0.865	8.1	10.1	3.28	7870	3.22	122945.63
011624521-02	OBS	No	0.592843	131.827336	91.7	1.043	8.8	10.0	3.28	7870	3.26	122947.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624521-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
011624521-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—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.

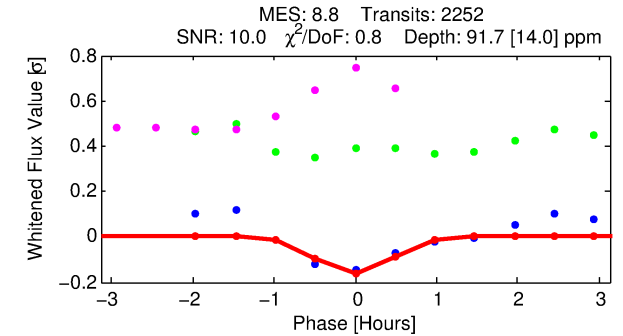
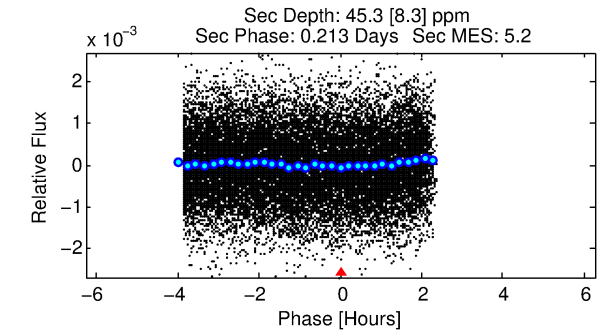
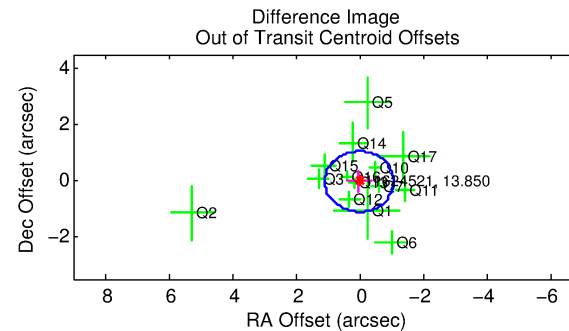
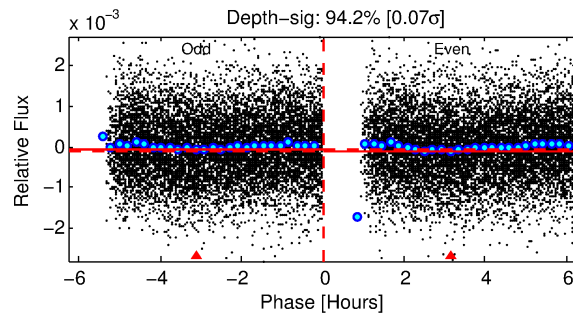
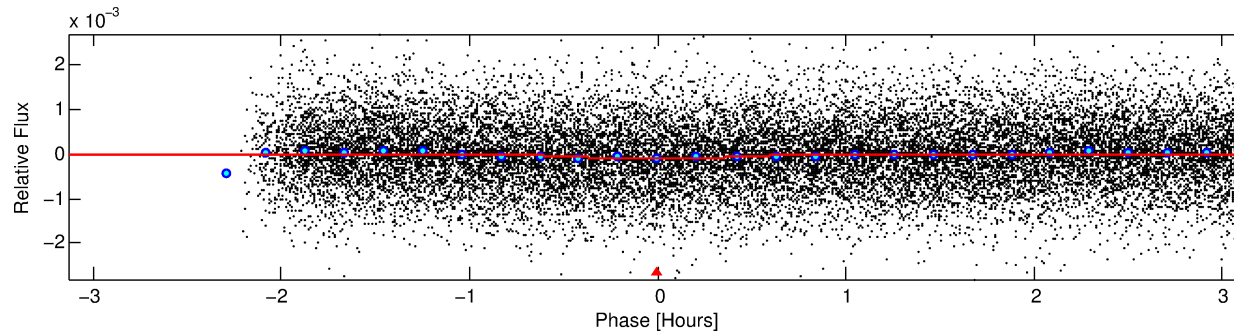
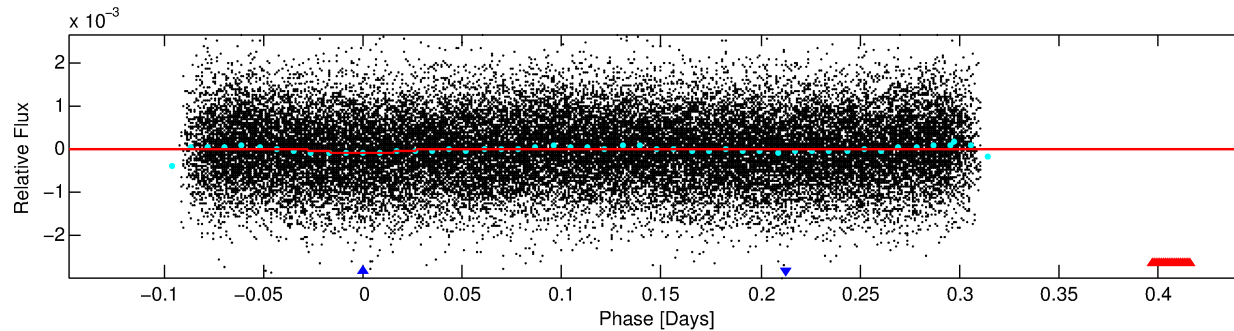
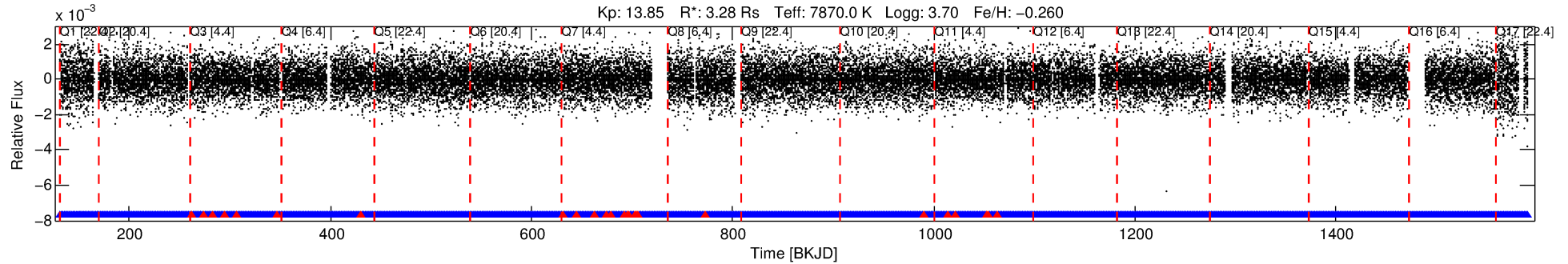
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624521-02

No Significant Match Found

DV One-Page Summary

KIC: 11624521 Candidate: 2 of 2 Period: 0.593 d



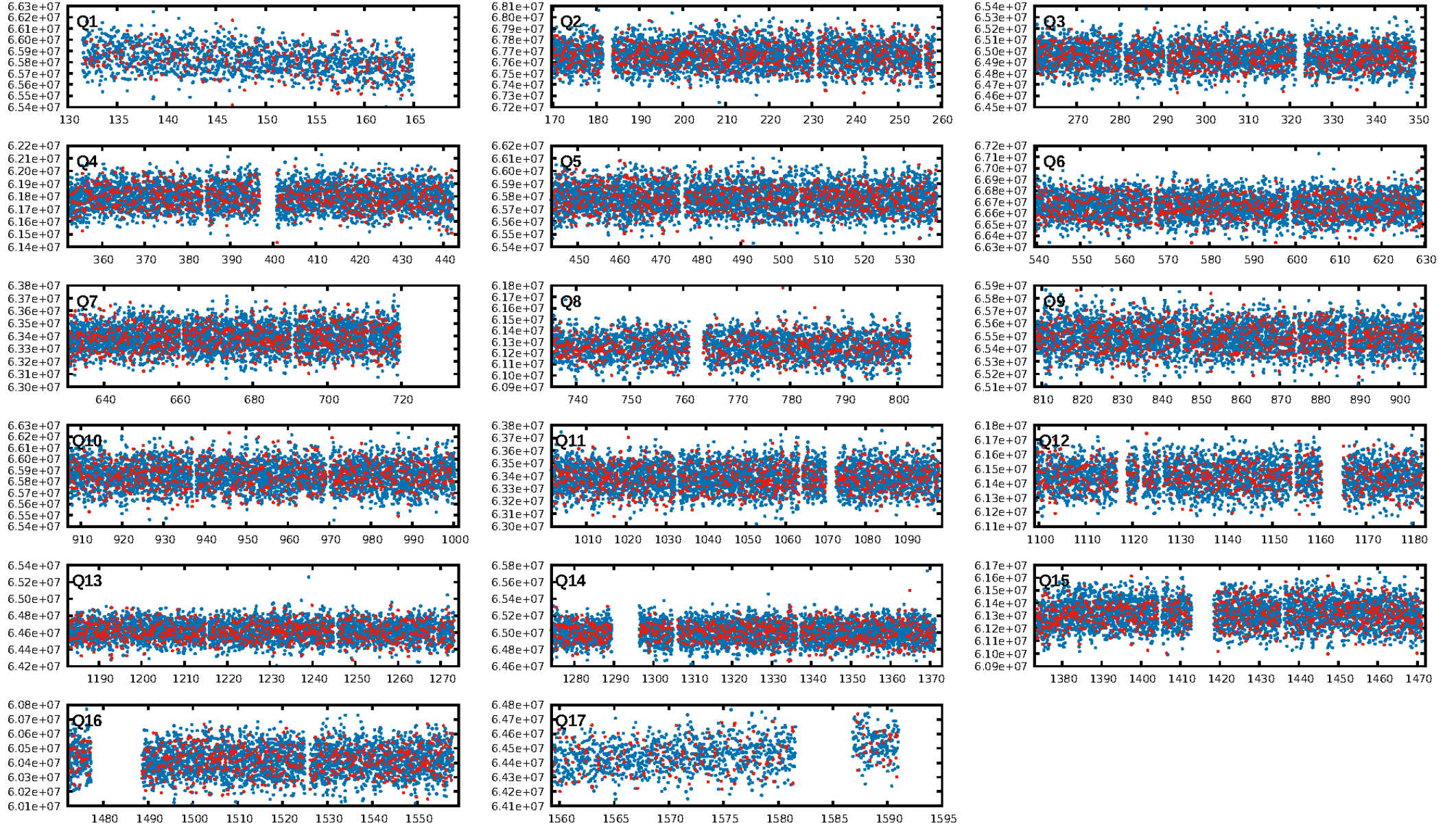
DV Fit Results:

Period = 0.59284 [0.00001] d
Epoch = 131.8273 [0.0022] BKJD
Rp/R* = 0.0091 [0.0058]
a/R* = 3.94 [12.71]
b = 0.47 [5.76]
Seff = 122947.77 [97656.43]
Teq = 4775 [948] K
Rp = 3.26 [2.62] Re
a = 0.0174 [0.0083] AU
Ag = 0.71 [1.07] [-0.27 σ]
Teffp = 6772 [2205] K [0.83 σ]

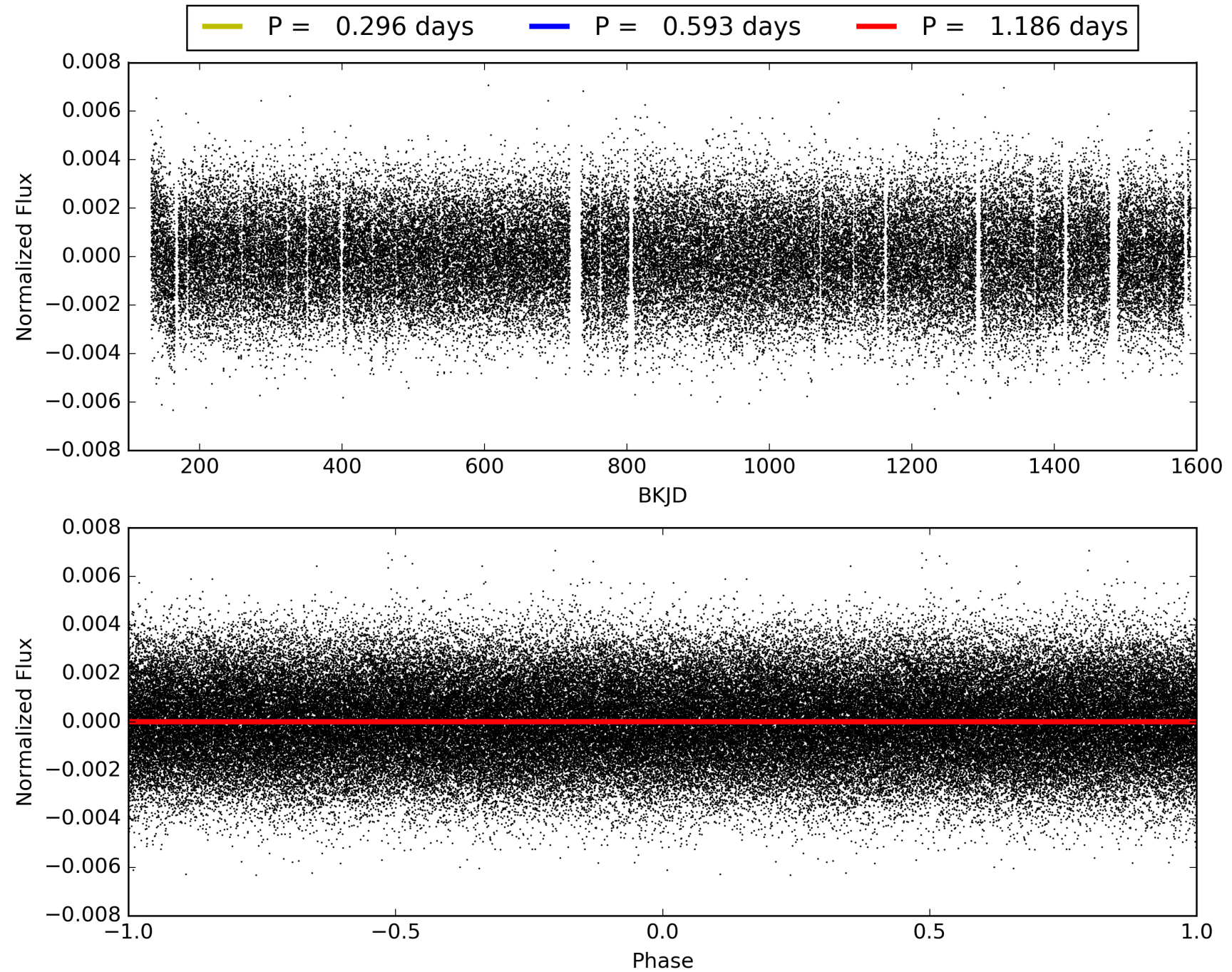
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.41e-23
RollingBand-fgt: 0.99 [2125/2151]
GhostDiagnostic-chr: 2.031
Centroid-sig: N/A
Centroid-so: 1.651 arcsec [3.33 σ]
OotOffset-rm: 0.032 arcsec [0.09 σ]
KicOffset-rm: 0.189 arcsec [0.71 σ]
OotOffset-st: 4/4/2/4 [14]
KicOffset-st: 4/4/2/4 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 011624521-02, PDC Light Curves

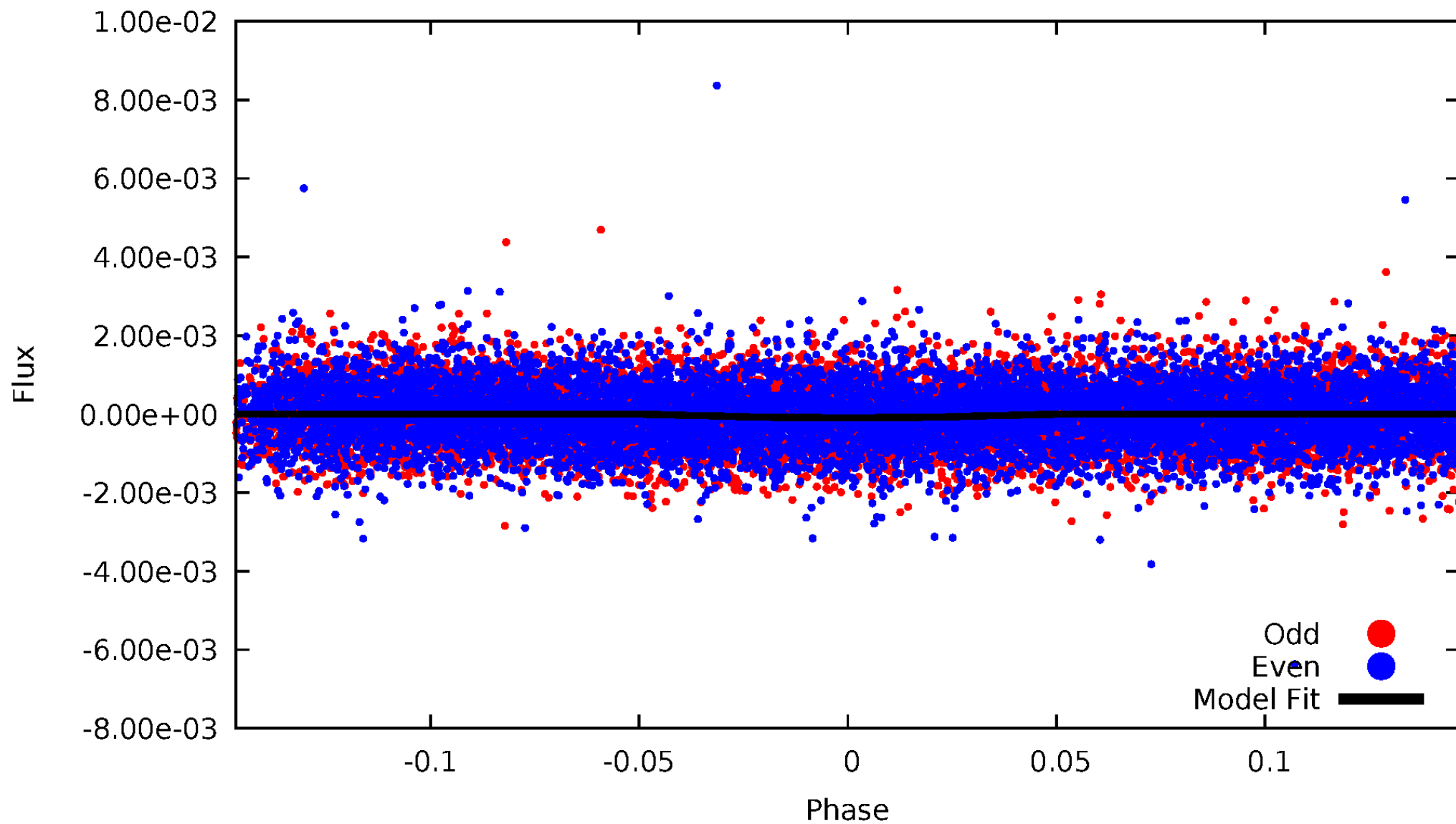


TCE 011624521-02



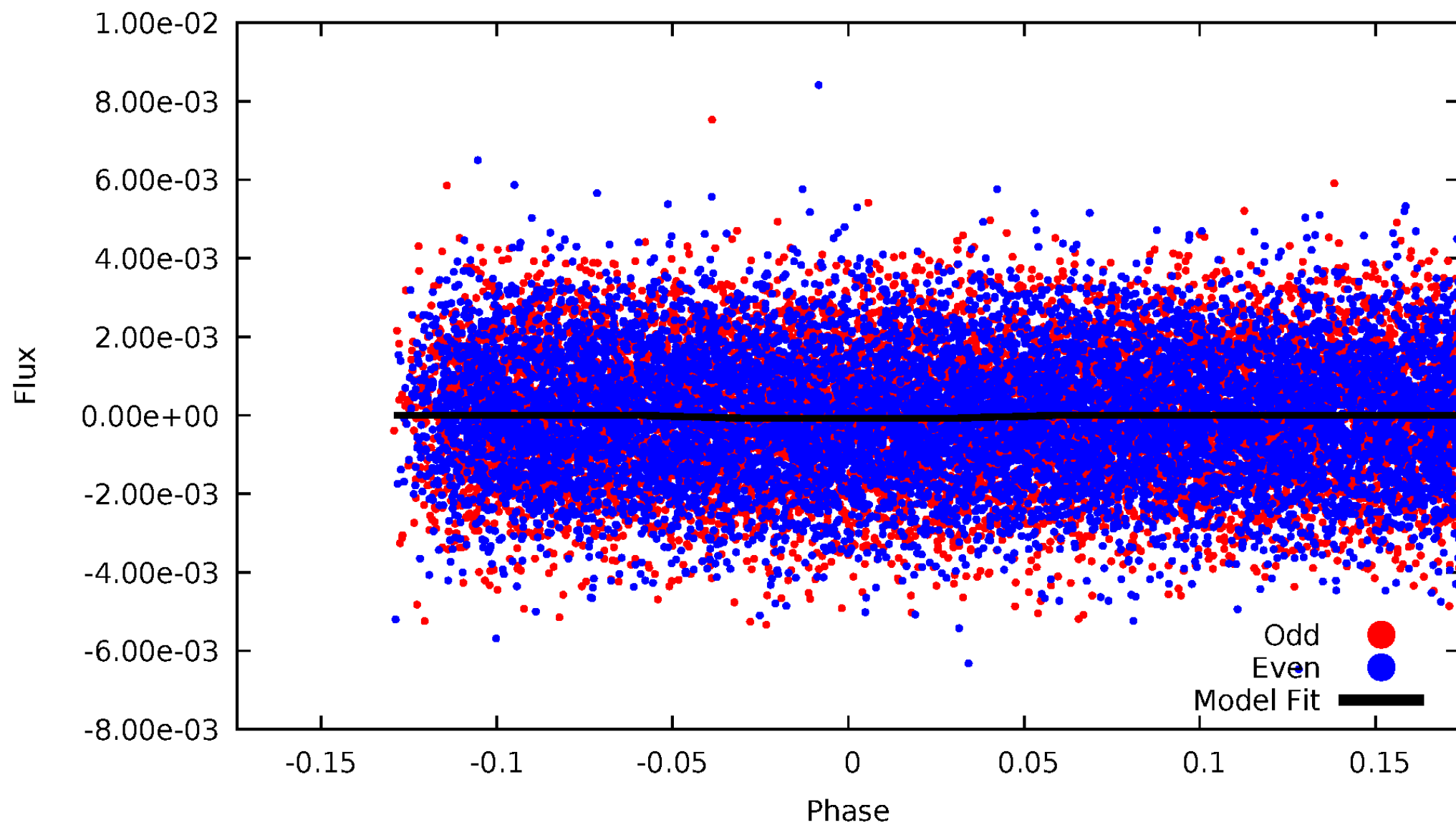
DV Odd/Even

TCE 011624521-02



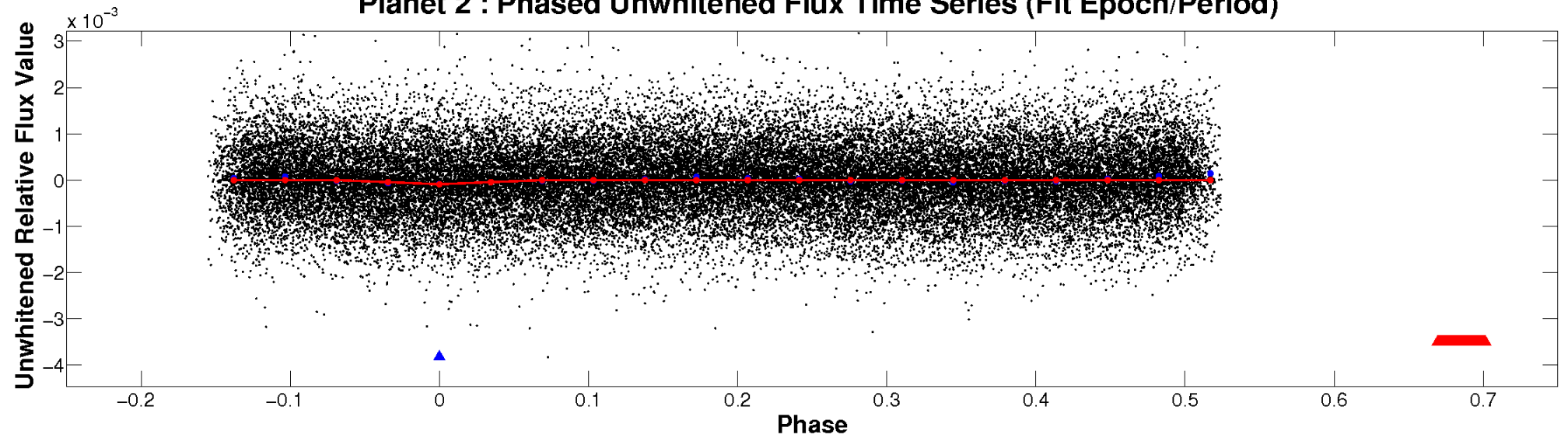
ALT Odd/Even

TCE 011624521-02

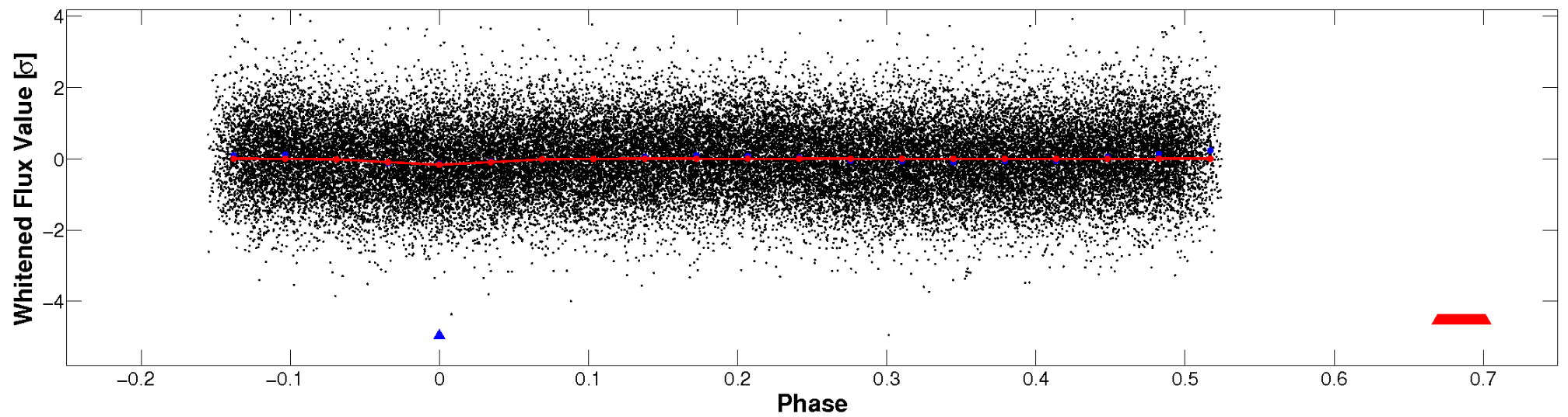


Non-Whitened Vs. Whitened Light Curve

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

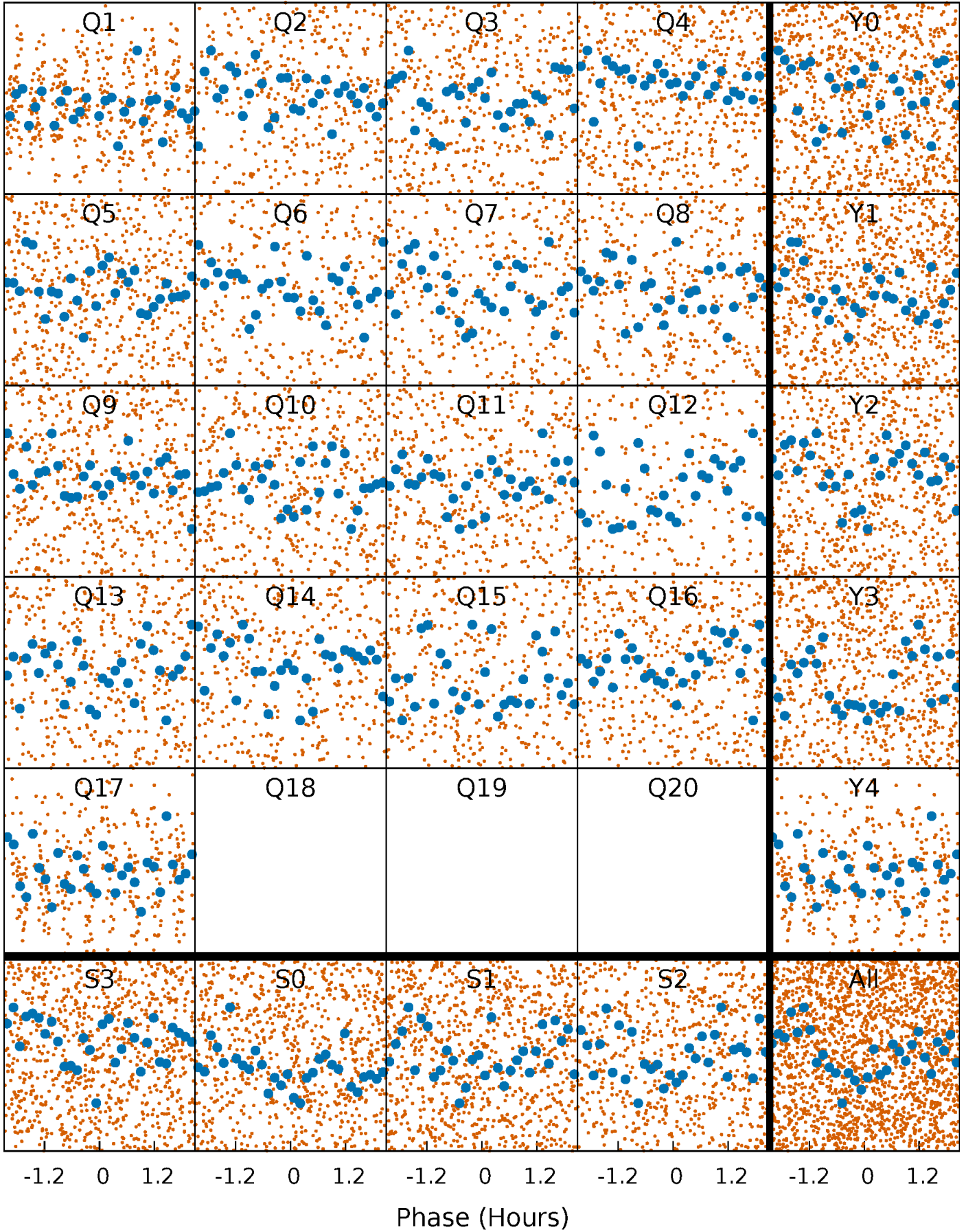


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



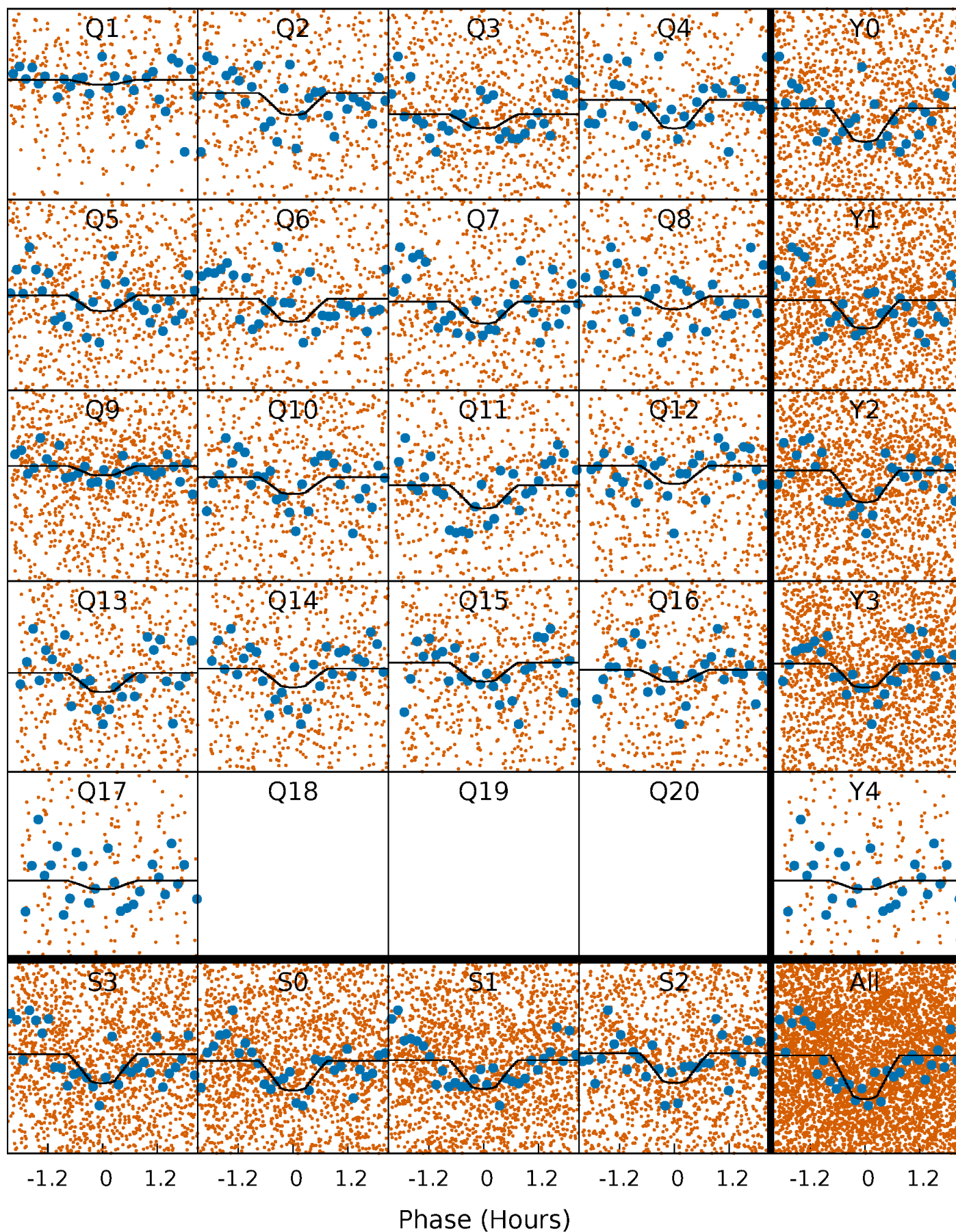
PDC Quarter-Phased Transit Curves

TCE 011624521-02 P= 0.592843 Days $T_0=131.827336$ (BKJD)



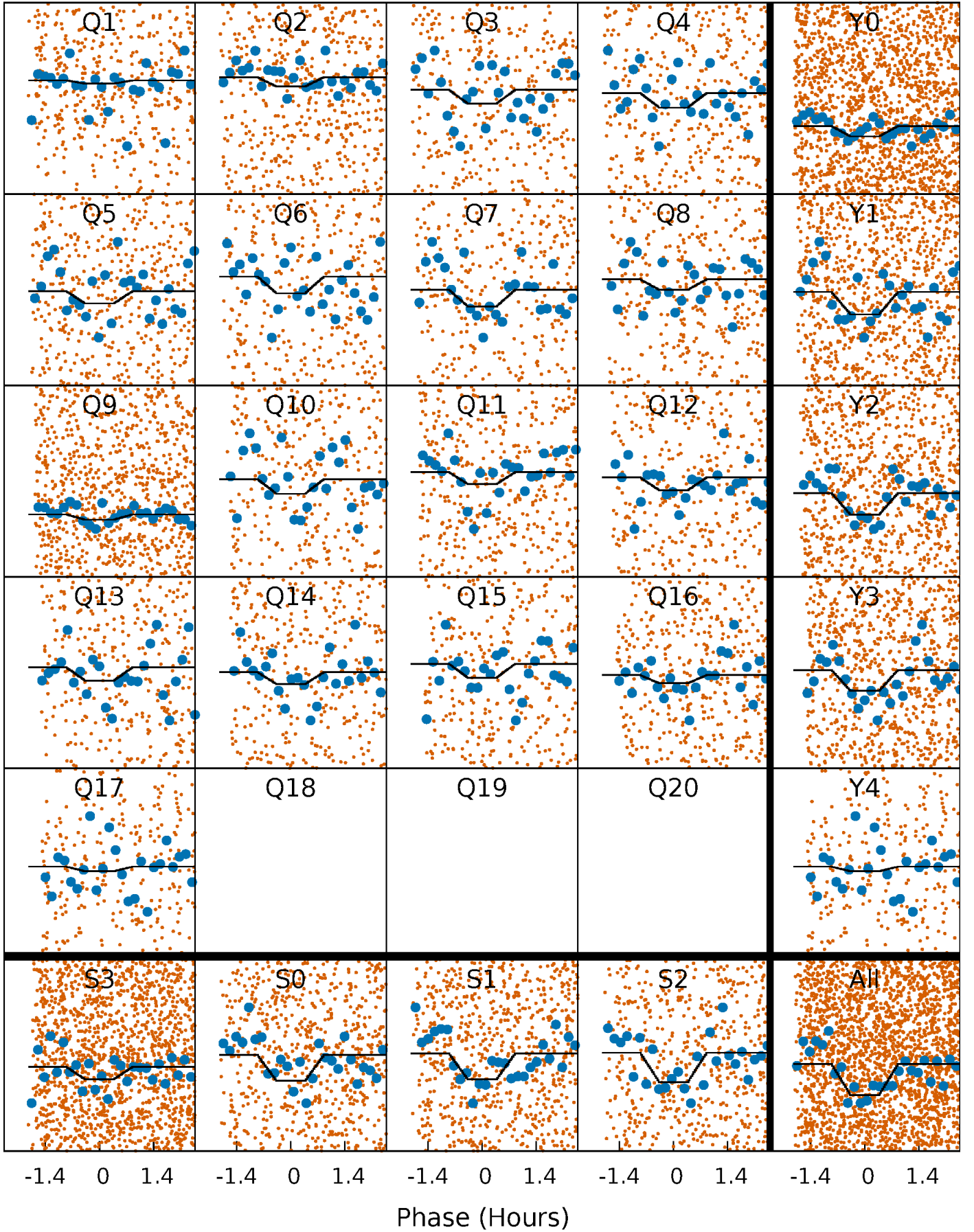
DV Quarter-Phased Transit Curves

TCE 011624521-02 P= 0.592843 Days $T_0=131.827336$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

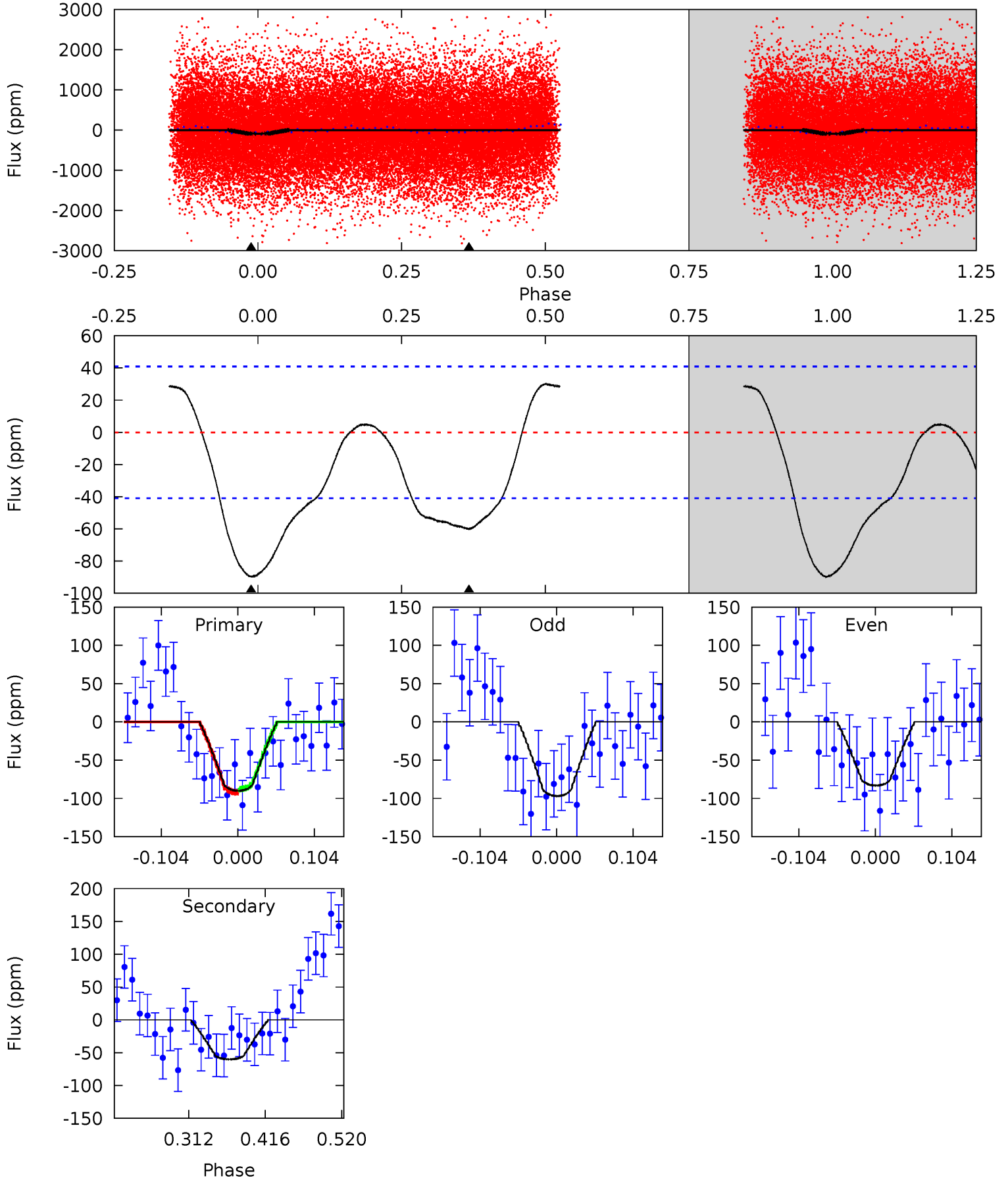
TCE 011624521-02 P= 0.592845 Days $T_0=131.812059$ (BKJD)



DV Model-Shift Uniqueness Test

011624521-02, P = 0.592843 Days, E = 131.234493 Days

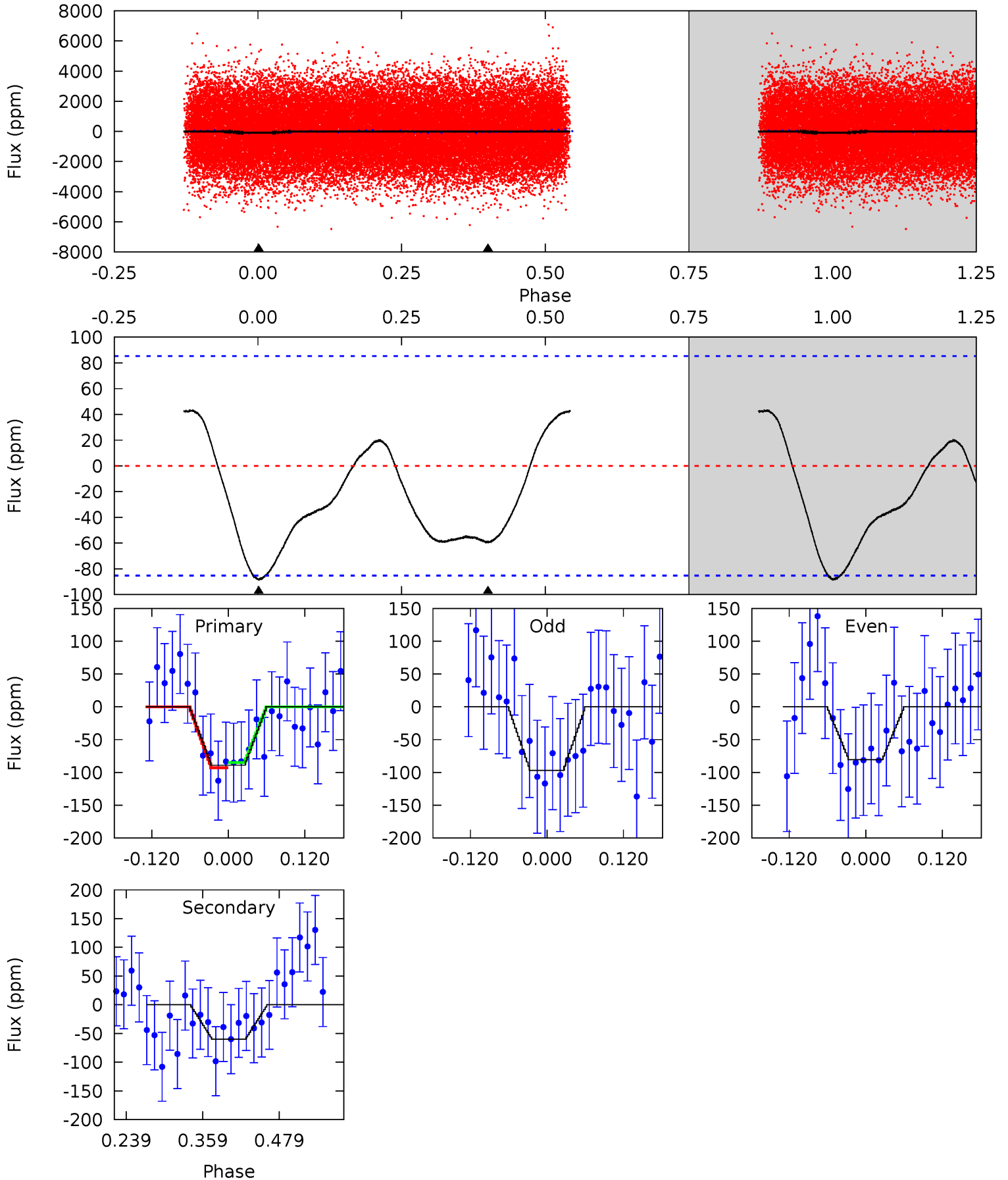
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	6.69	0	0	4.56	1.63	2.40	10.0	10.0	6.69	6.69	0.76	0.88	0.25	0.24



Alt Model-Shift Uniqueness Test

011624521-02, P = 0.592845 Days, E = 131.219214 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.72	3.19	0	0	4.53	1.56	1.15	4.72	4.72	3.19	3.19	0.43	1.05	0.33	0.21



Stellar Parameters For KIC 011624521

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7870^{+219}_{-329}	$3.703^{+0.459}_{-0.081}$	$-0.260^{+0.200}_{-0.300}$	$3.283^{+0.402}_{-1.607}$	$1.984^{+0.170}_{-0.511}$	$0.079^{+0.362}_{-0.021}$
	+3%/-4%	+12%/-2%	+77%/-115%	+12%/-49%	+9%/-26%	+459%/-27%
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 011624521-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-60 ± 9	$3.00^{+2.04}_{-1.58}$	6465^{+448}_{-769}	6334^{+4445}_{-2326}	$1.069^{+3.670}_{-0.692}$
Alt.	-60 ± 19	$2.87^{+2.06}_{-1.53}$	6411^{+454}_{-791}	6330^{+4965}_{-2332}	$1.161^{+4.083}_{-0.779}$

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 $A_{obs} \gg 1.0$

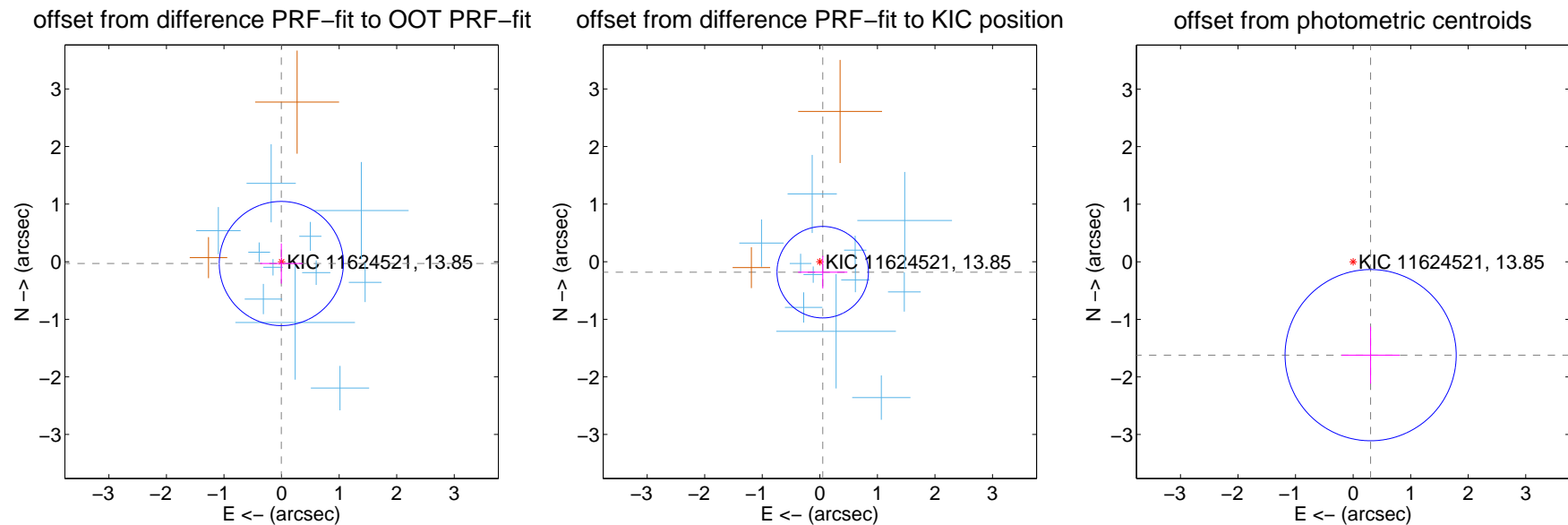
DV Centroid Data

Supplemental centroid analysis for 011624521-02. Kepler magnitude: 13.85. Transit SNR 9.96

There are 11 quarters with good PRF difference image offsets

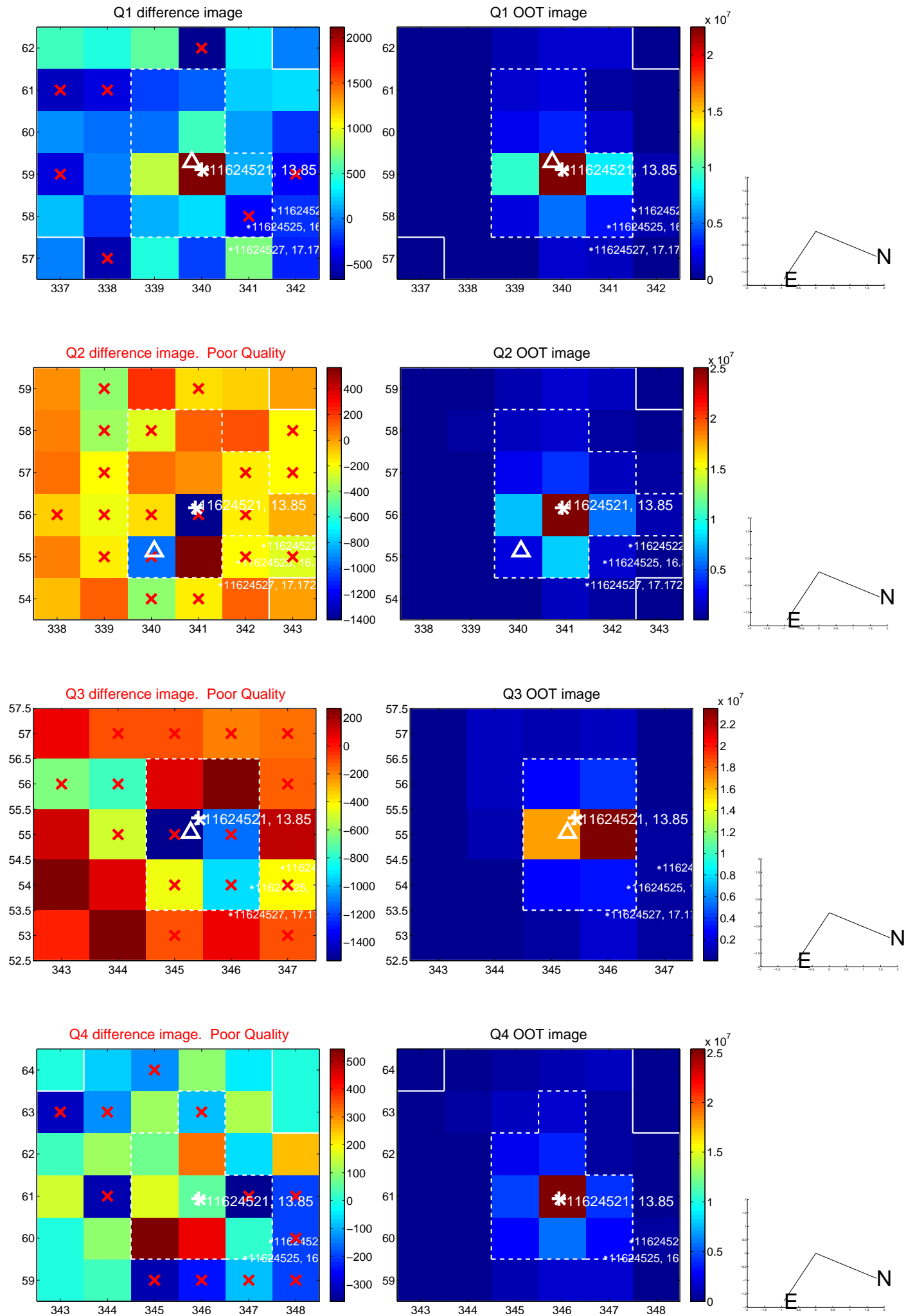
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.032 ± 0.359	0.09	0.005 ± 0.368	-0.032 ± 0.348
PRF-fit source offset from KIC position	0.189 ± 0.265	0.71	-0.050 ± 0.428	-0.182 ± 0.283
photometric centroid source offset	1.65 ± 0.50	3.33	-0.30 ± 0.51	-1.62 ± 0.50

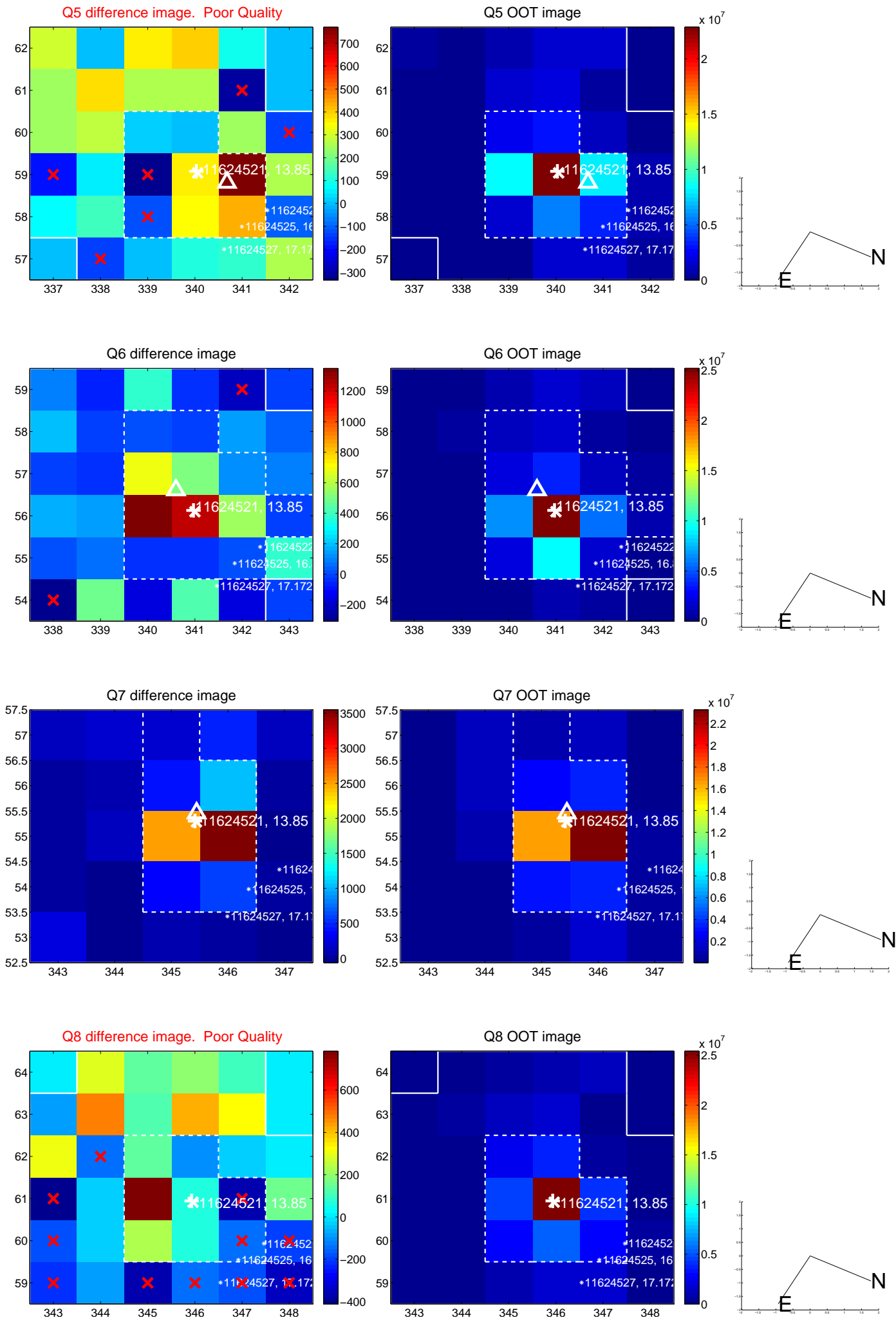


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

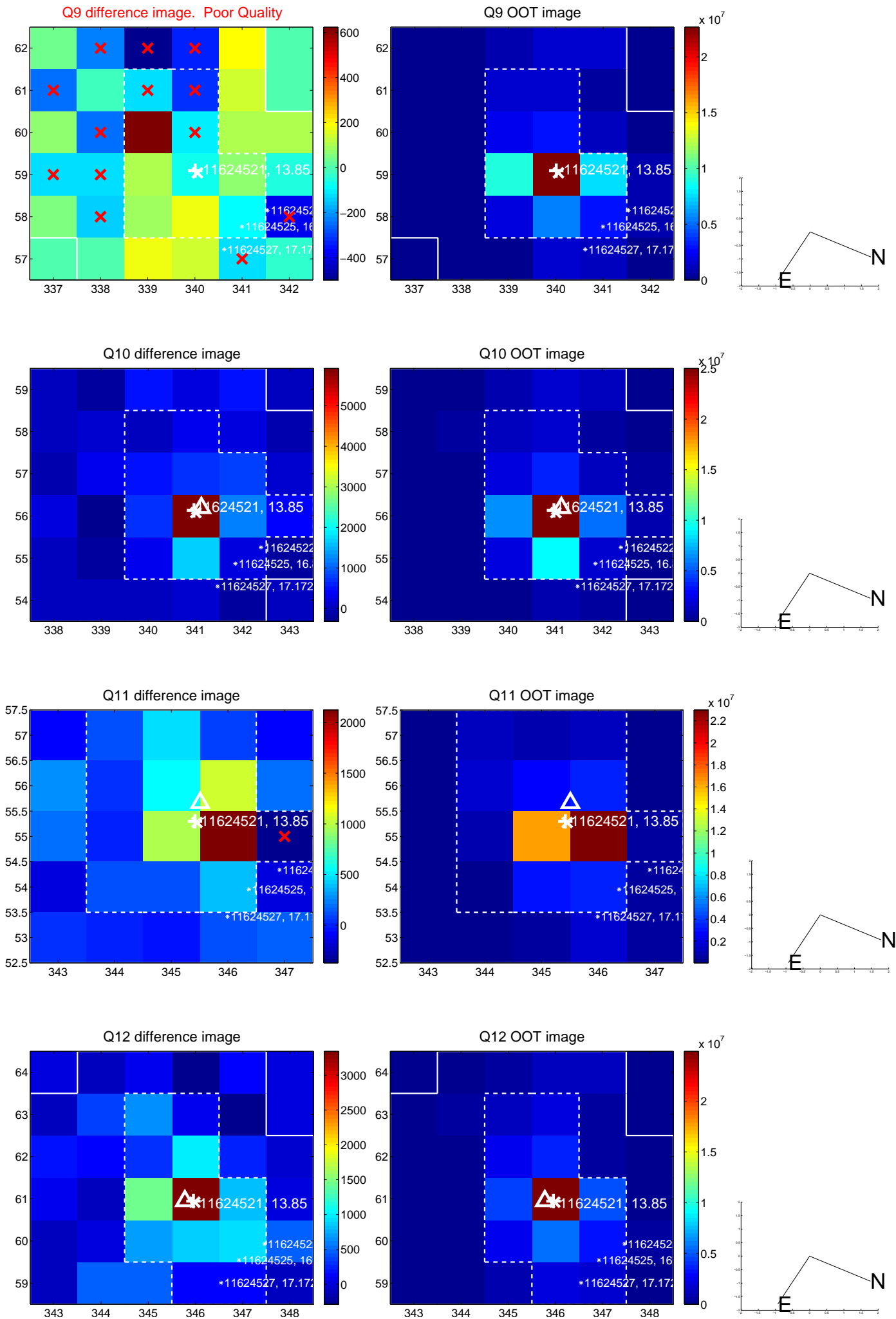
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



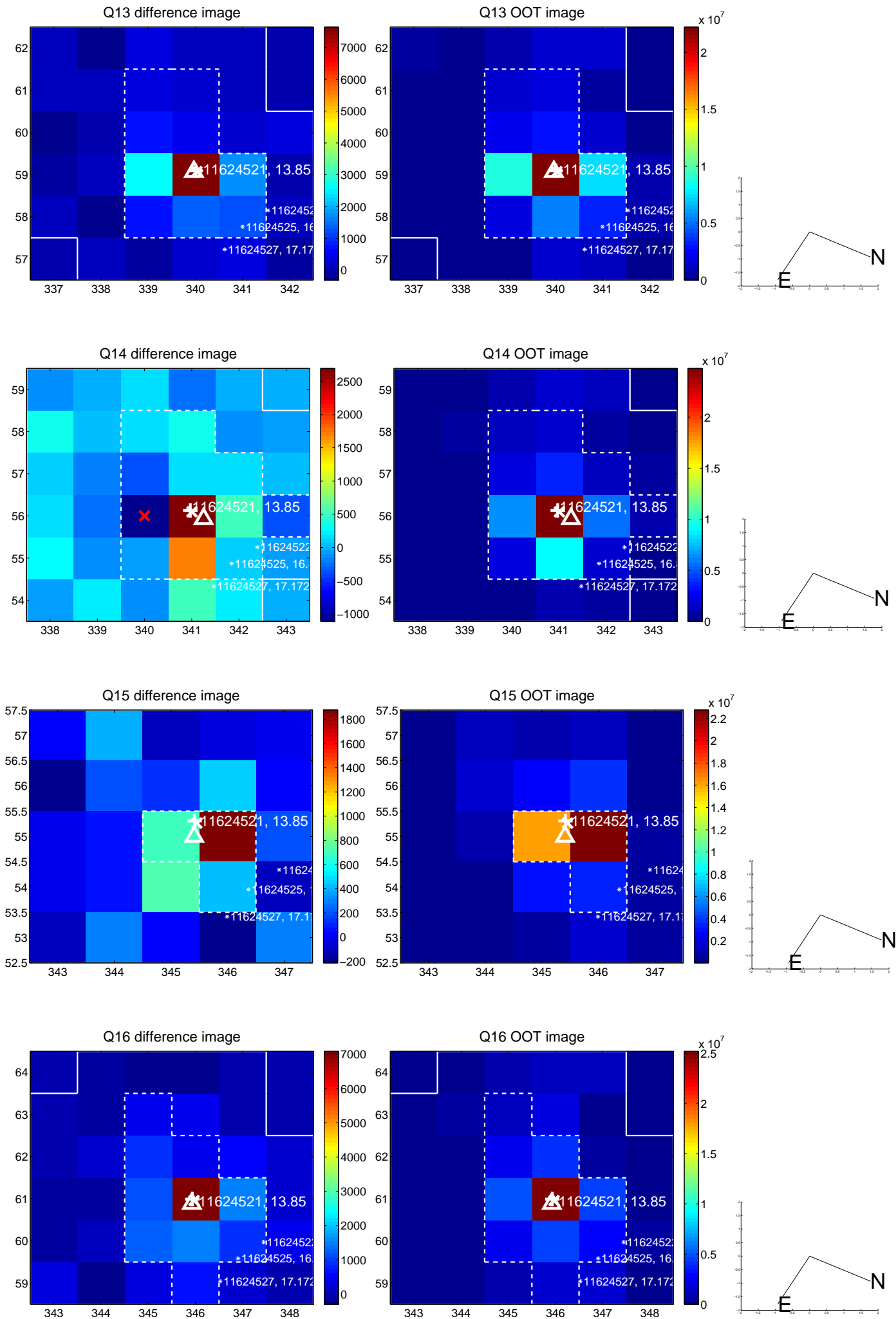
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



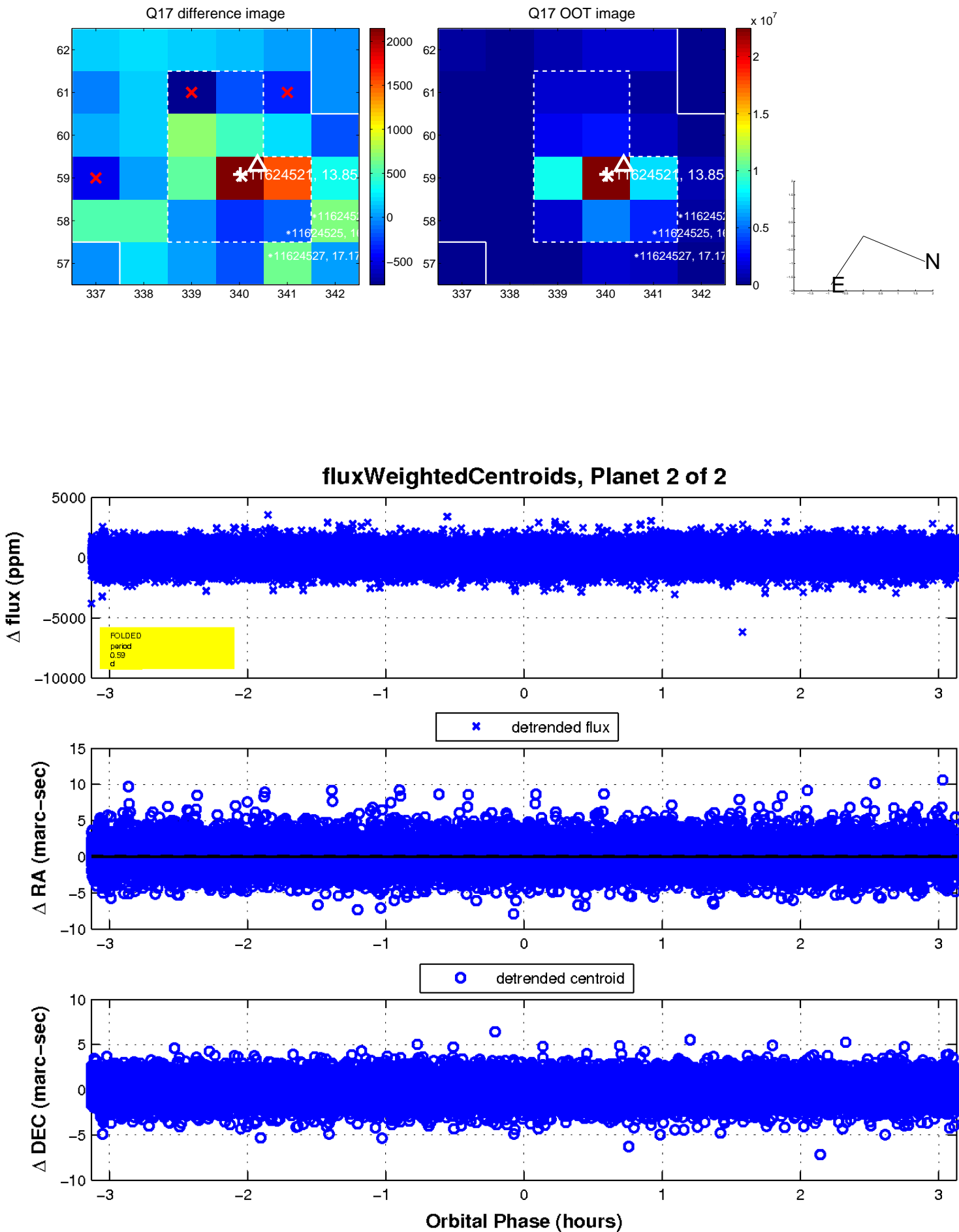
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

