

KIC 006448362

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})
006448362-01	OBS	No	0.824333	131.789102	60.9	1.489	15.6	14.2	2.14	7615	1.93	32768.16
006448362-02	OBS	No	0.824344	132.191234	67.2	2.838	15.9	19.7	2.14	7615	2.04	32767.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006448362-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006448362-02	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.

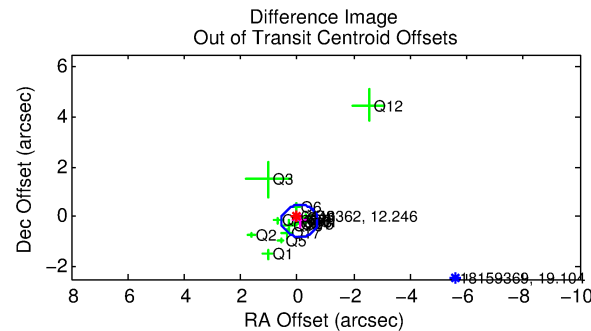
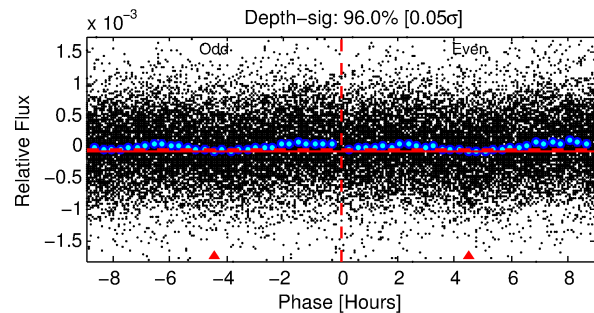
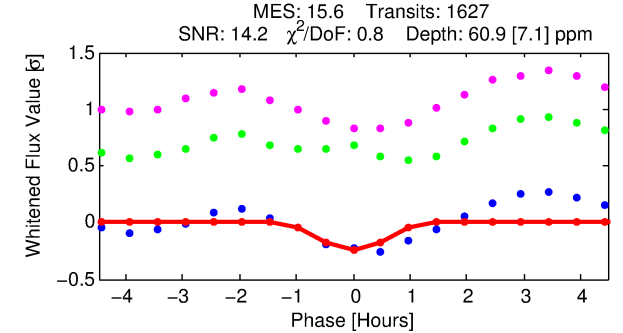
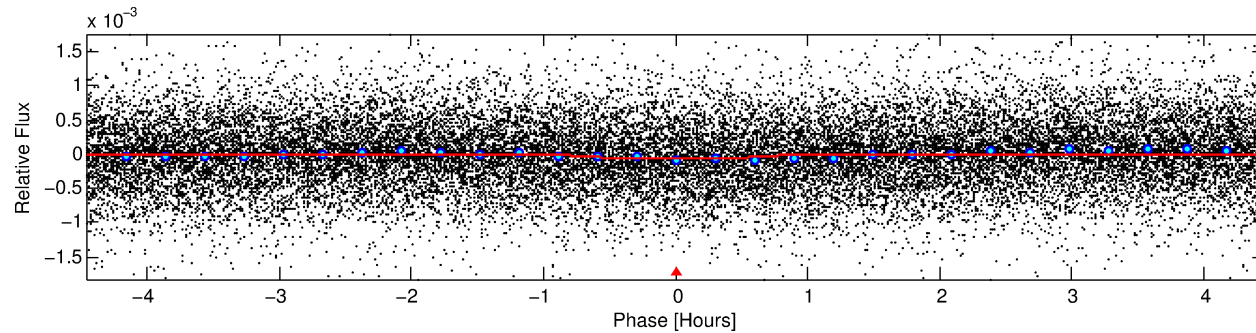
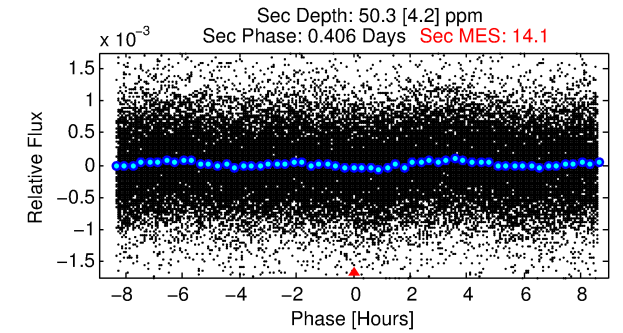
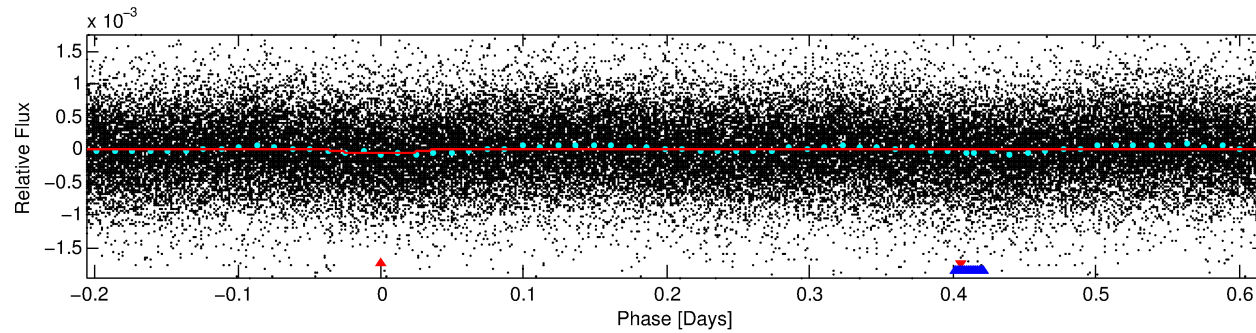
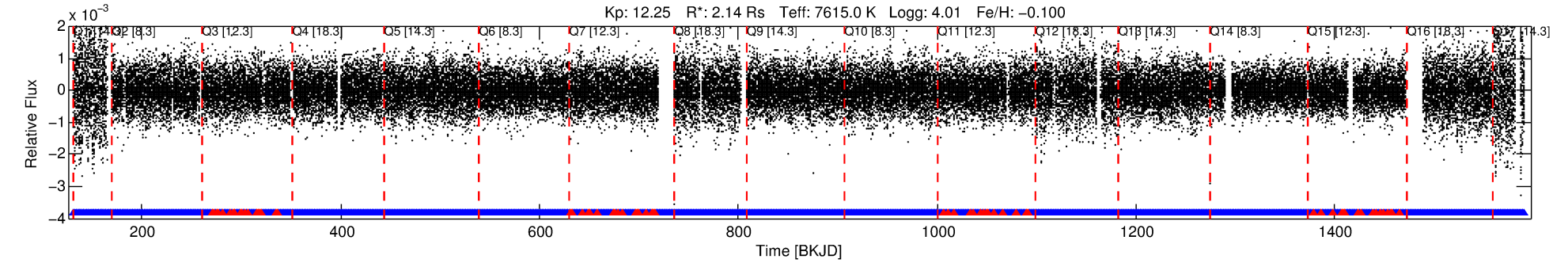
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006448362-01

No Significant Match Found

DV One-Page Summary

KIC: 6448362 Candidate: 1 of 2 Period: 0.824 d



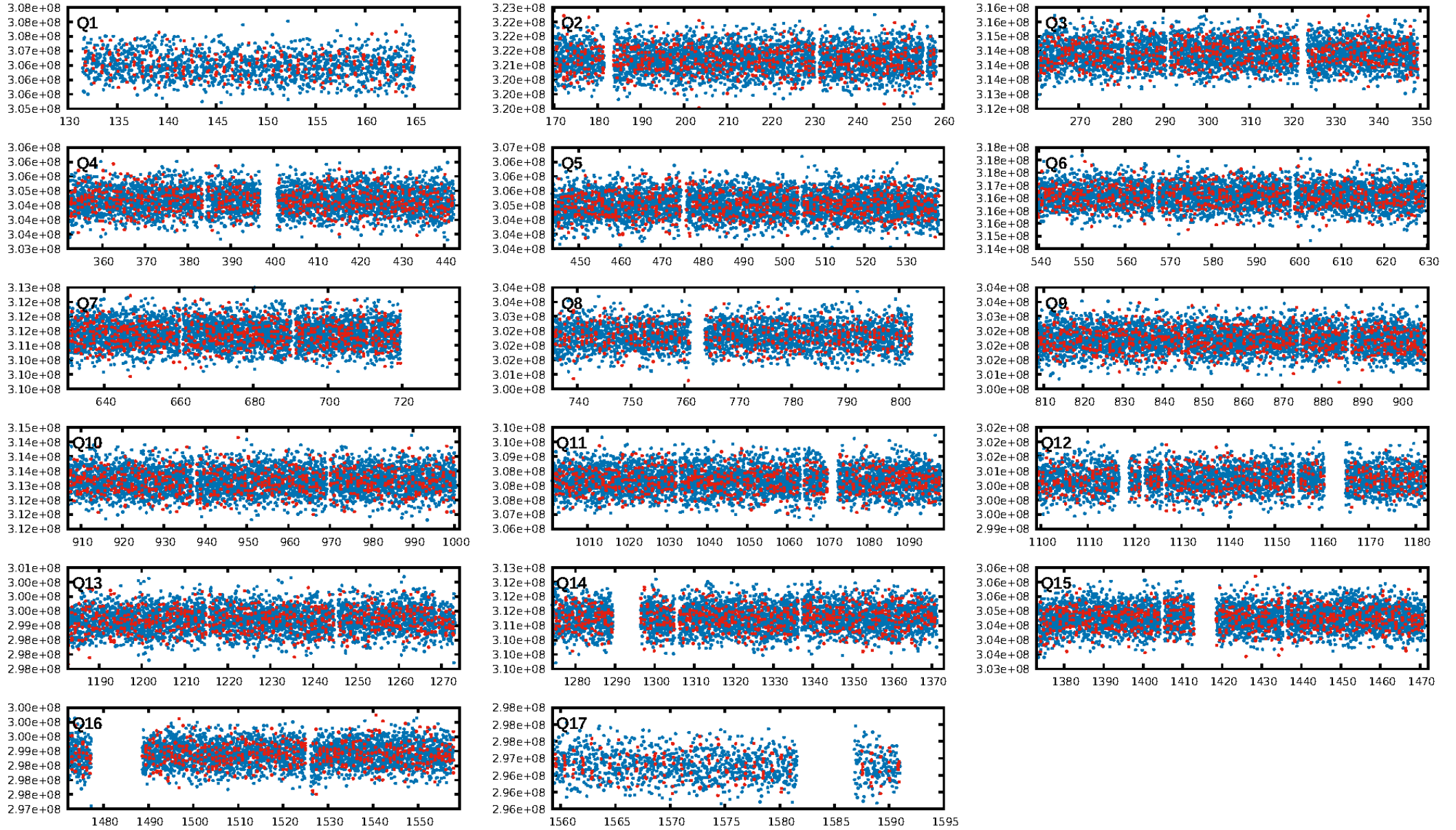
DV Fit Results:

Period = 0.82433 [0.00001] d
Epoch = 131.7891 [0.0019] BKJD
Rp/R* = 0.0083 [0.0039]
a/R* = 2.18 [5.31]
b = 0.89 [0.70]
Seff = 32768.16 [8351.65]
Teq = 3431 [219] K
Rp = 1.93 [0.98] Re
a = 0.0205 [0.0033] AU
Ag = 3.13 [3.07] [0.69σ]
Teffp = 7053 [1678] K [2.14σ]

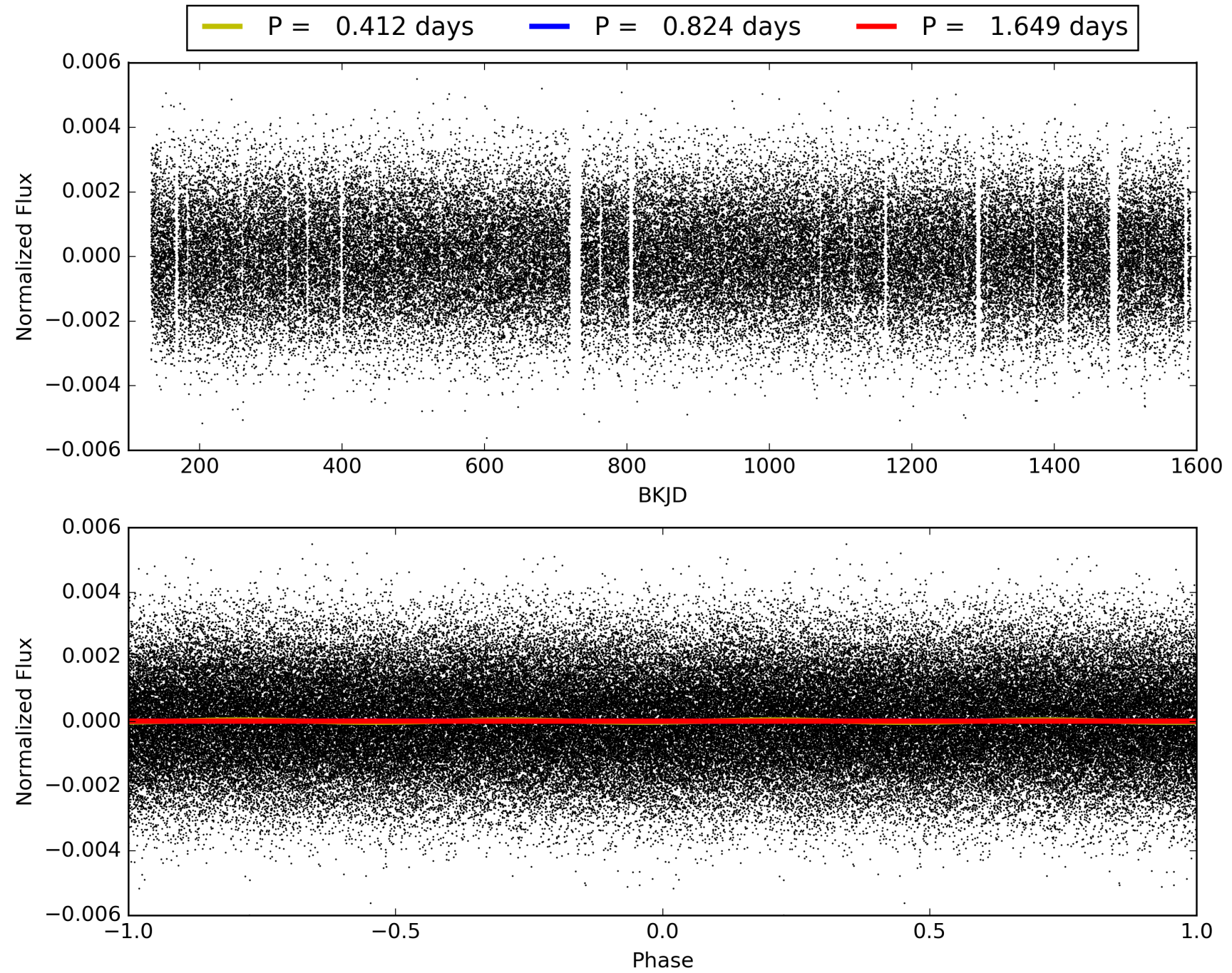
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.86e-110
RollingBand-fgt: 0.95 [1484/1554]
GhostDiagnostic-chr: 4.923
Centroid-sig: 0.1%
Centroid-so: 0.365 arcsec [1.65σ]
OotOffset-rm: 0.189 arcsec [0.88σ]
KicOffset-rm: 0.230 arcsec [1.18σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.82 [14/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006448362-01, PDC Light Curves

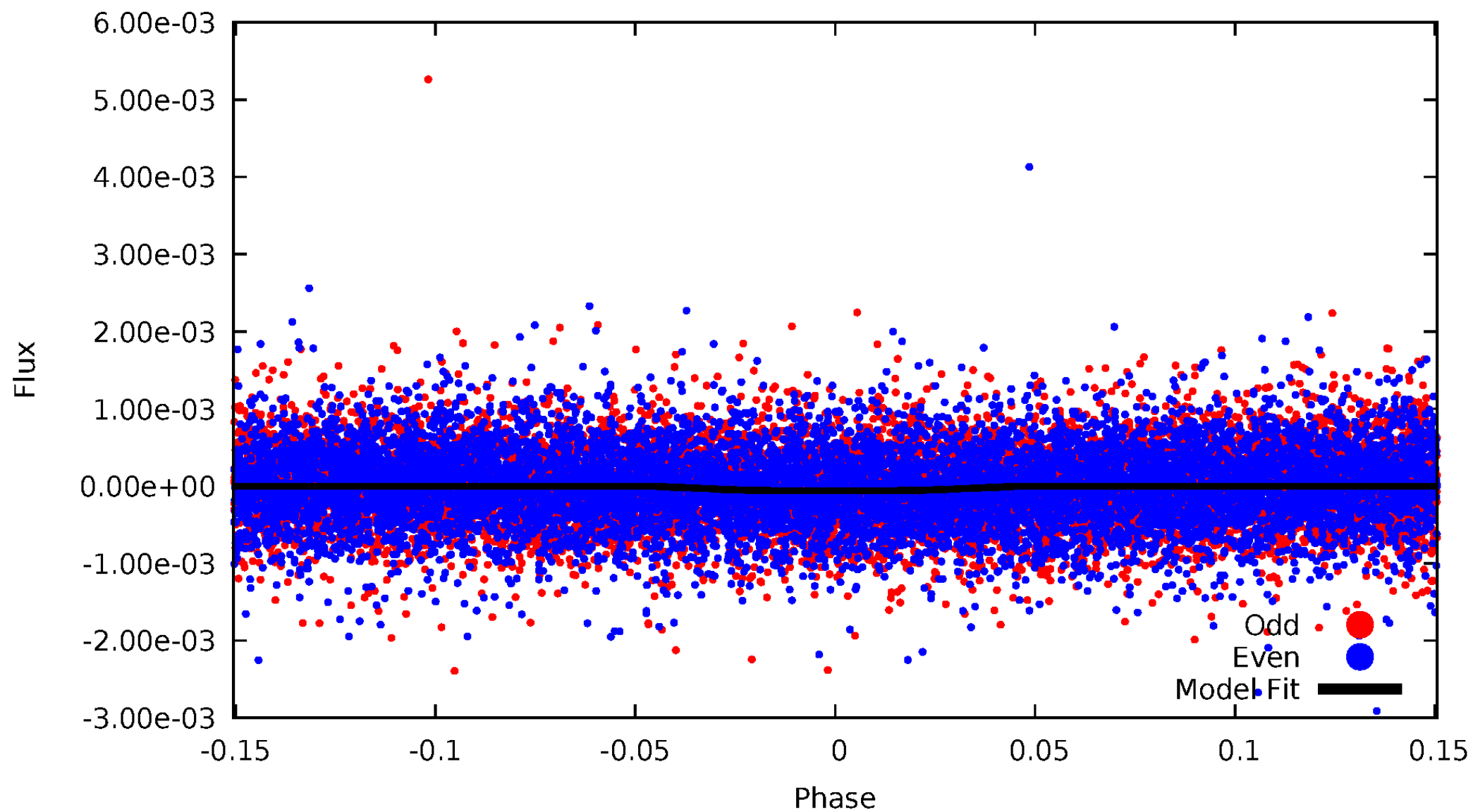


TCE 006448362-01



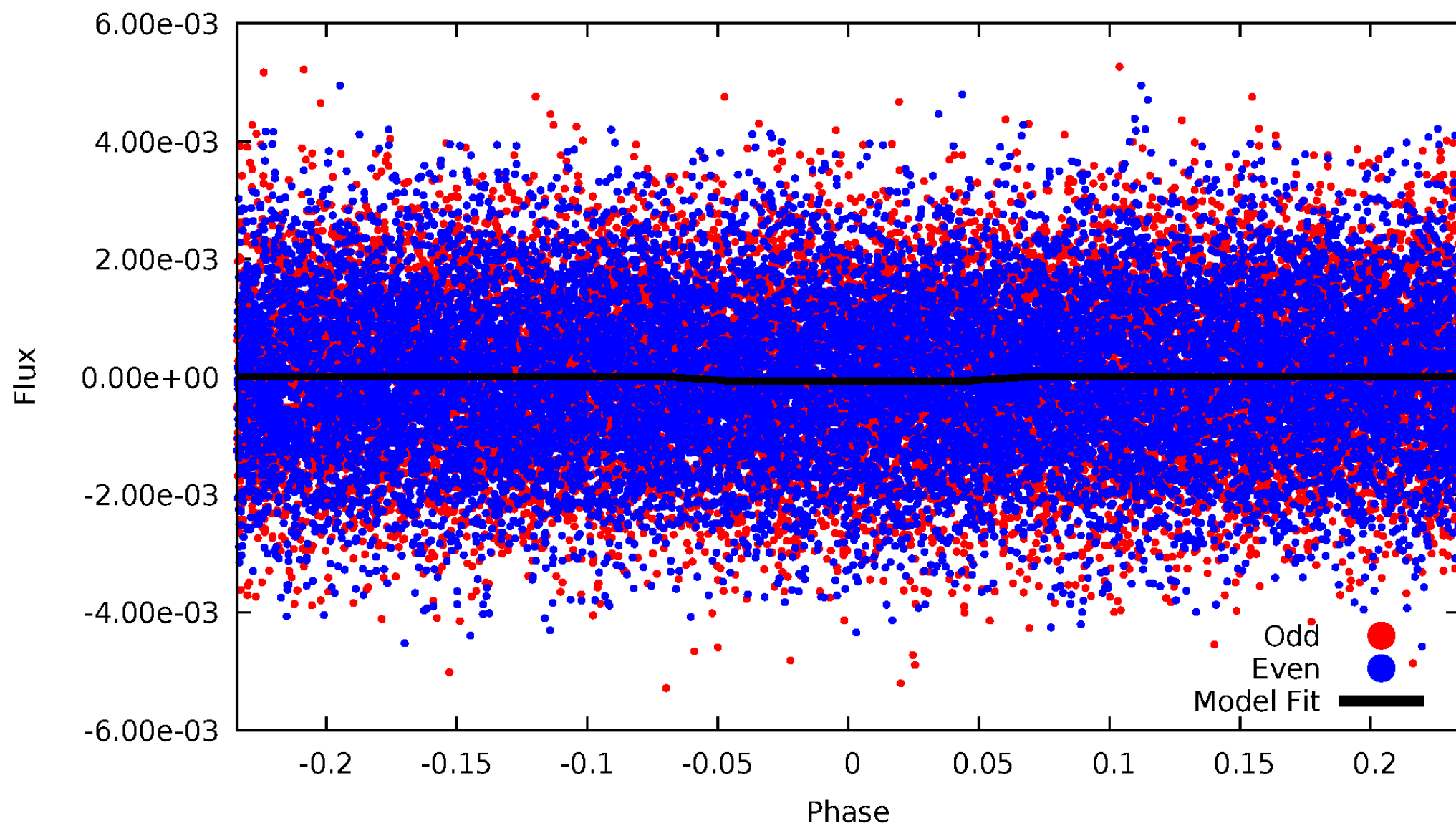
DV Odd/Even

TCE 006448362-01



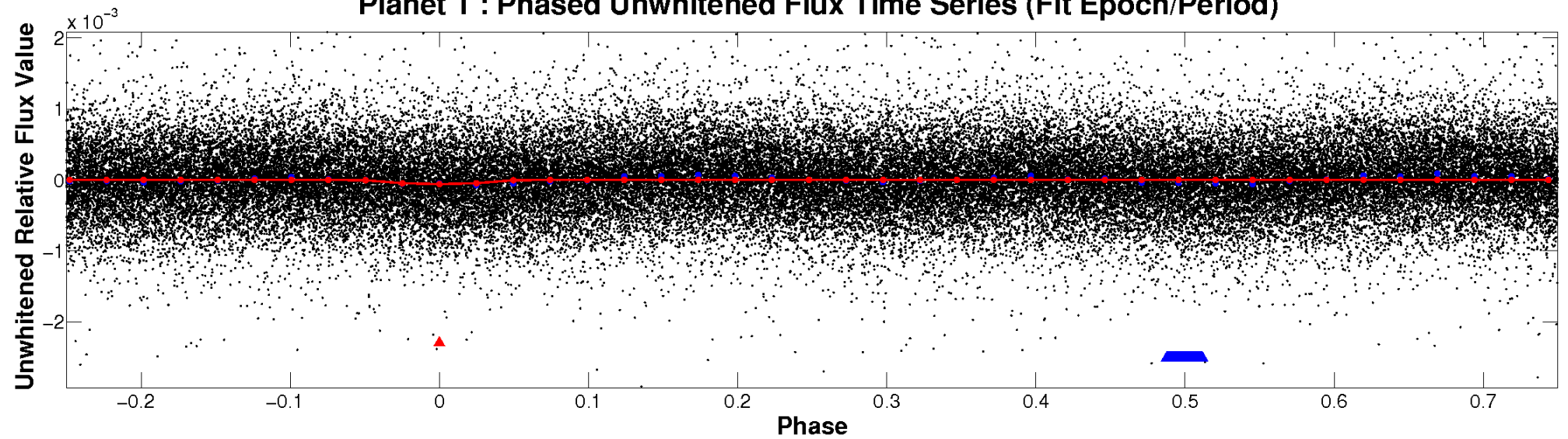
ALT Odd/Even

TCE 006448362-01

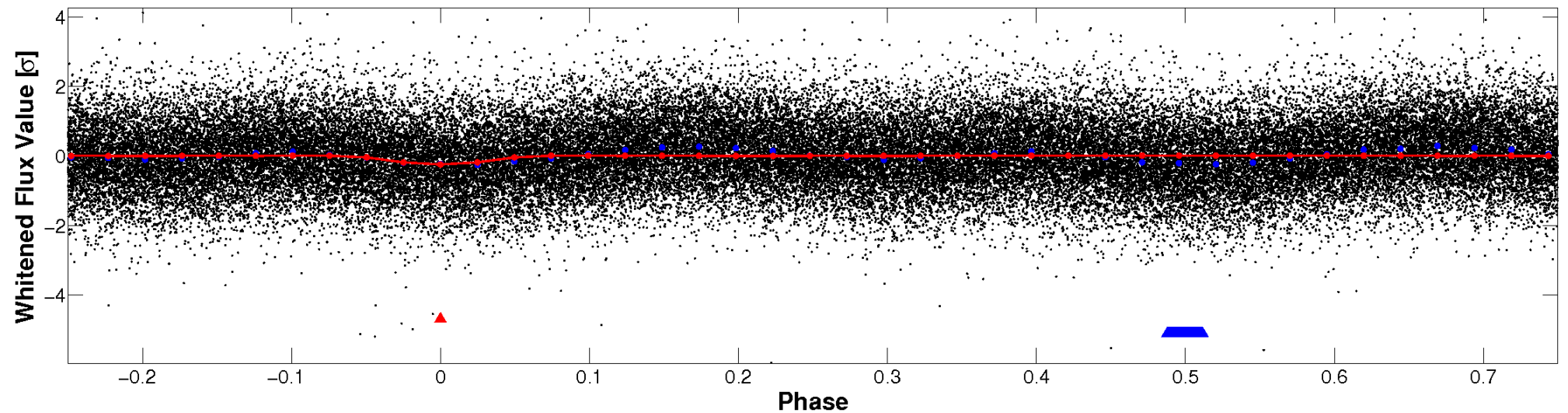


Non-Whitened Vs. Whitened Light Curve

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

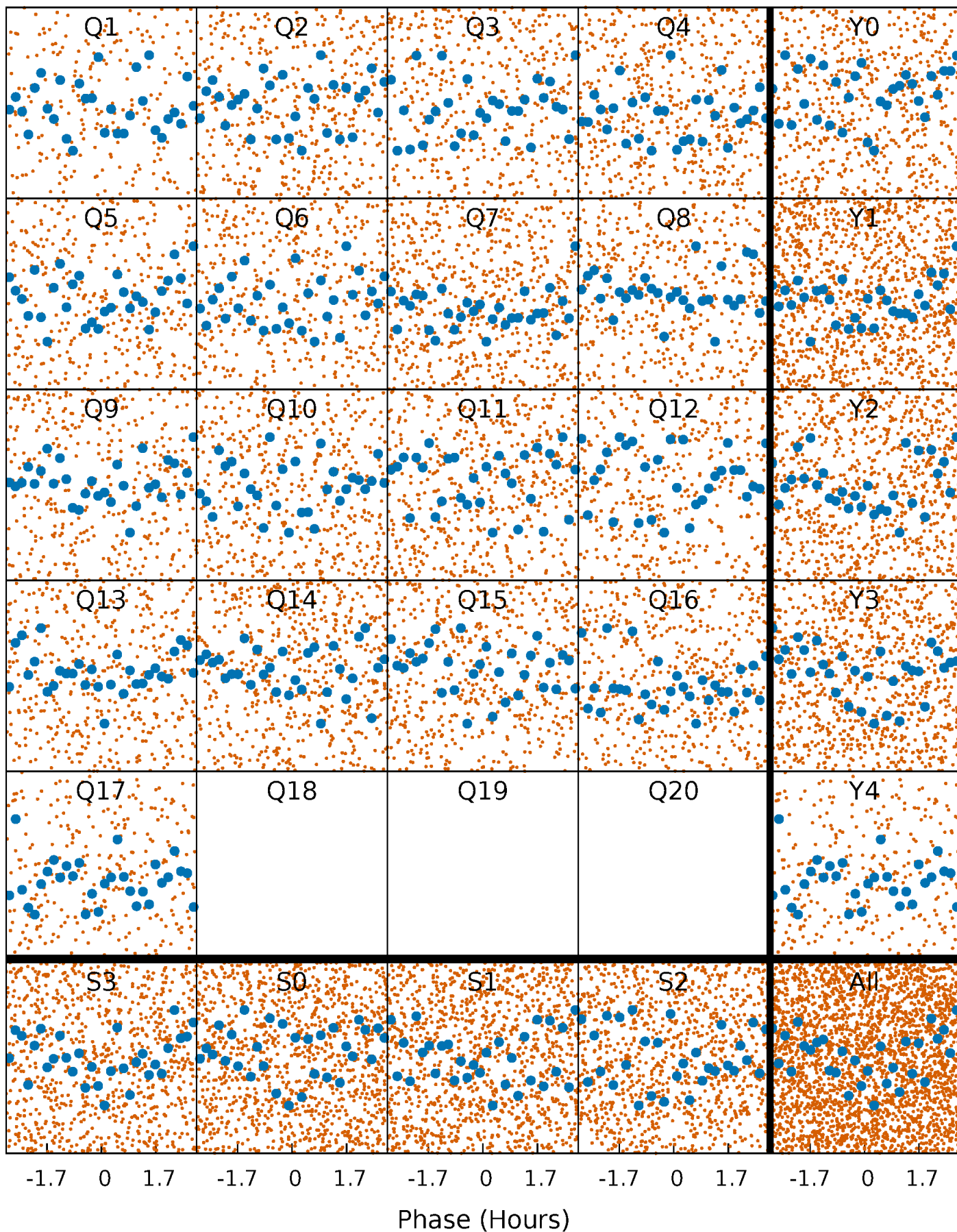


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



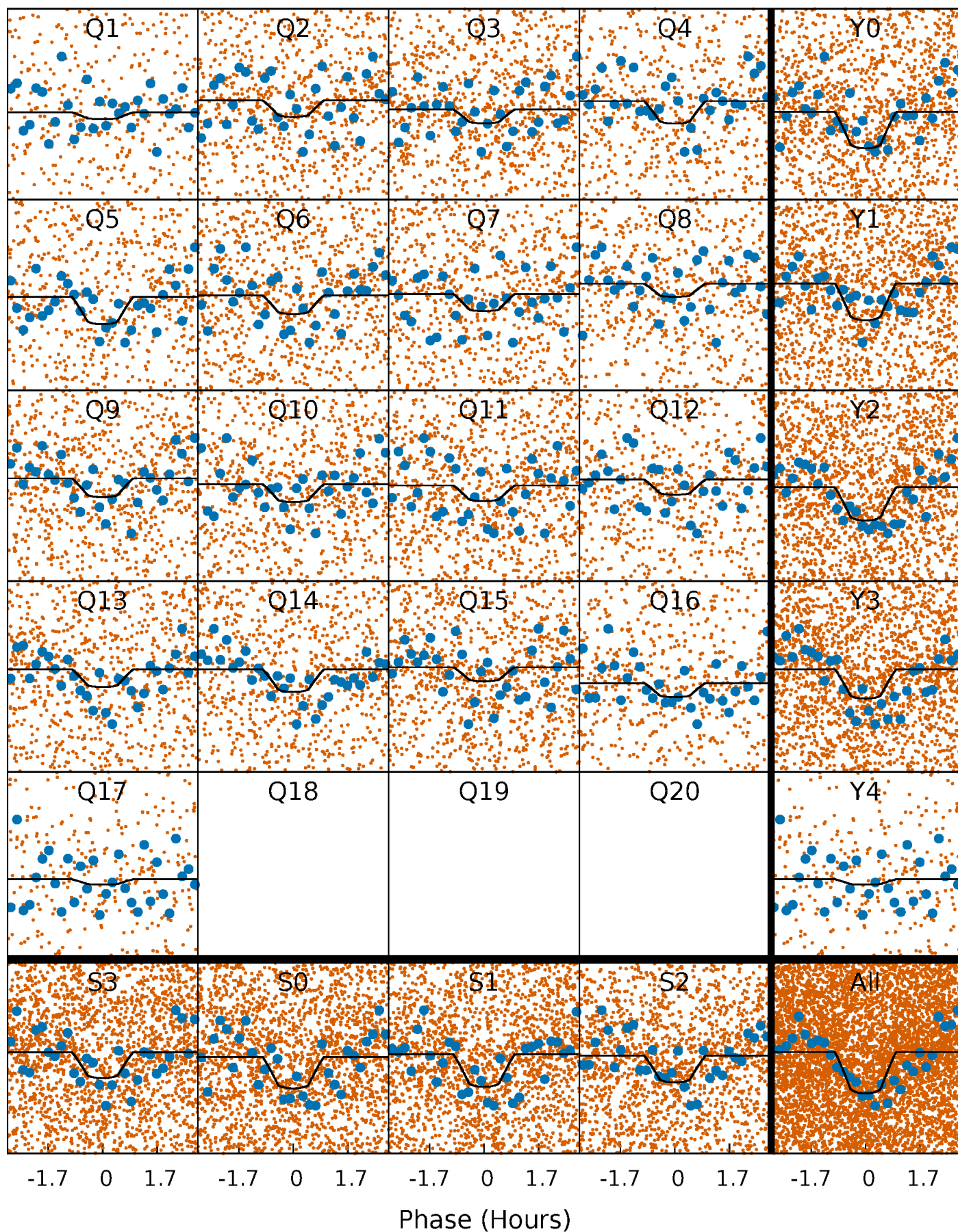
PDC Quarter-Phased Transit Curves

TCE 006448362-01 P= 0.824333 Days $T_0=131.789102$ (BKJD)



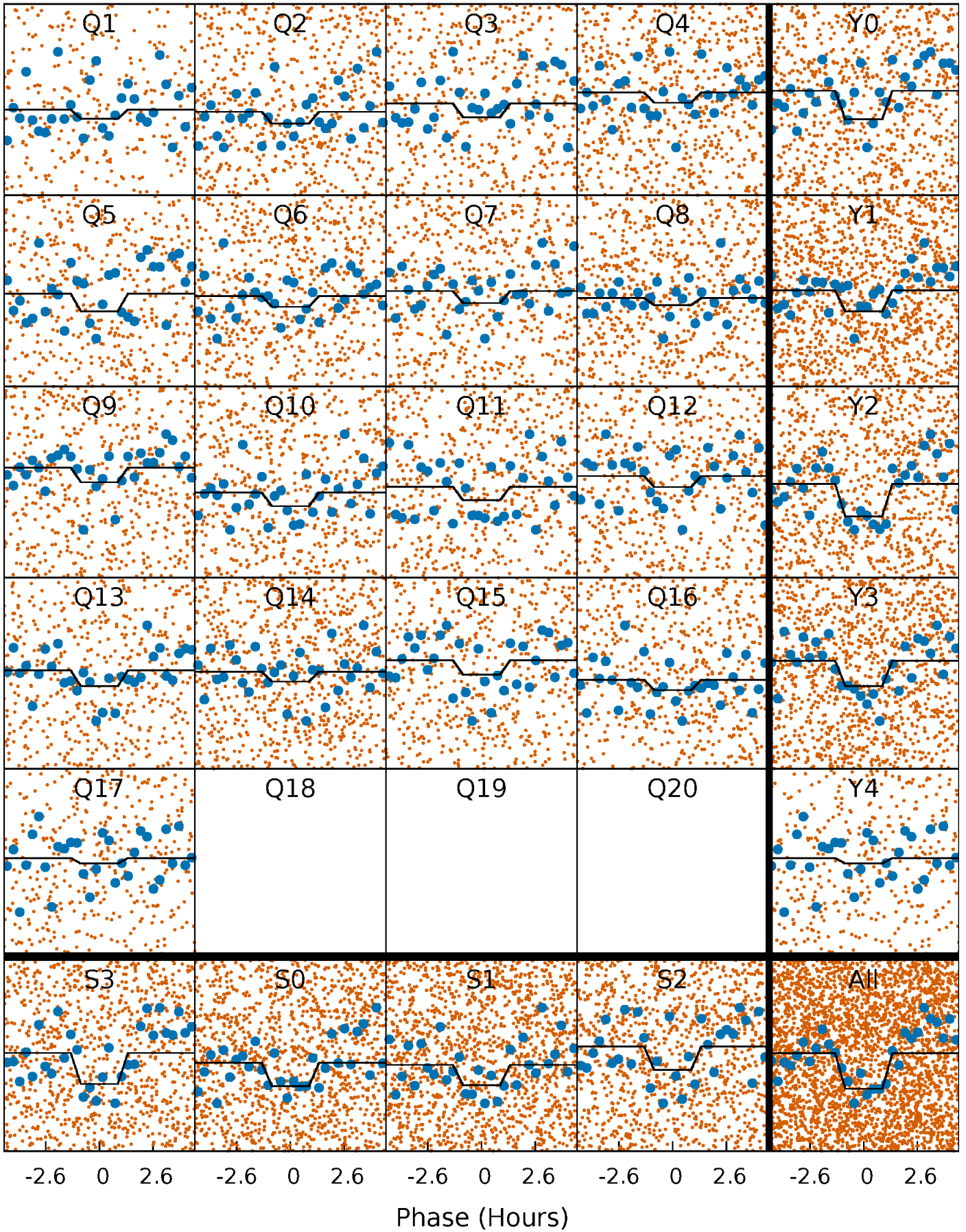
DV Quarter-Phased Transit Curves

TCE 006448362-01 P= 0.824333 Days $T_0=131.789102$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

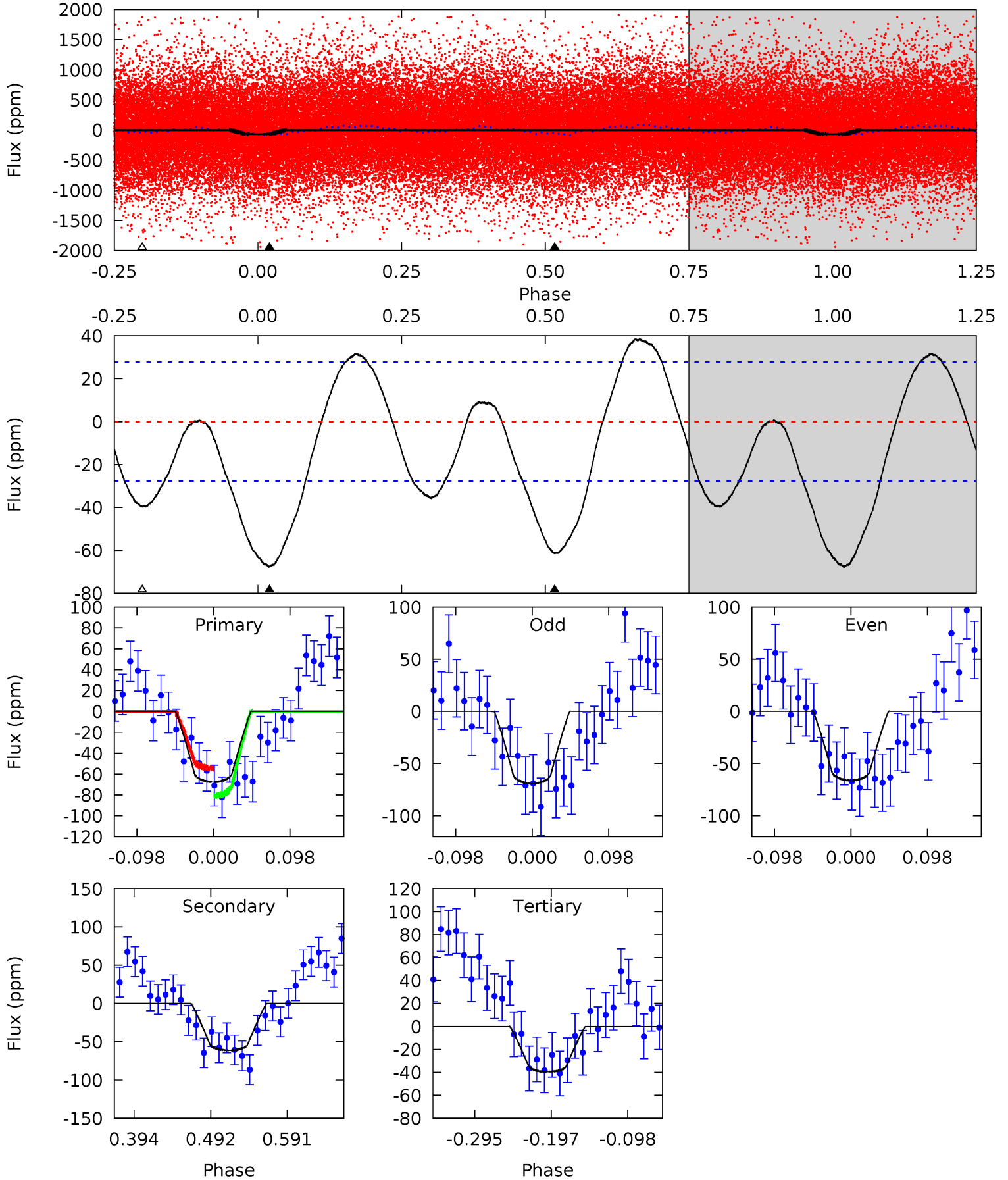
TCE 006448362-01 P= 0.824337 Days $T_0=131.788579$ (BKJD)



DV Model-Shift Uniqueness Test

006448362-01, P = 0.824333 Days, E = 130.964769 Days

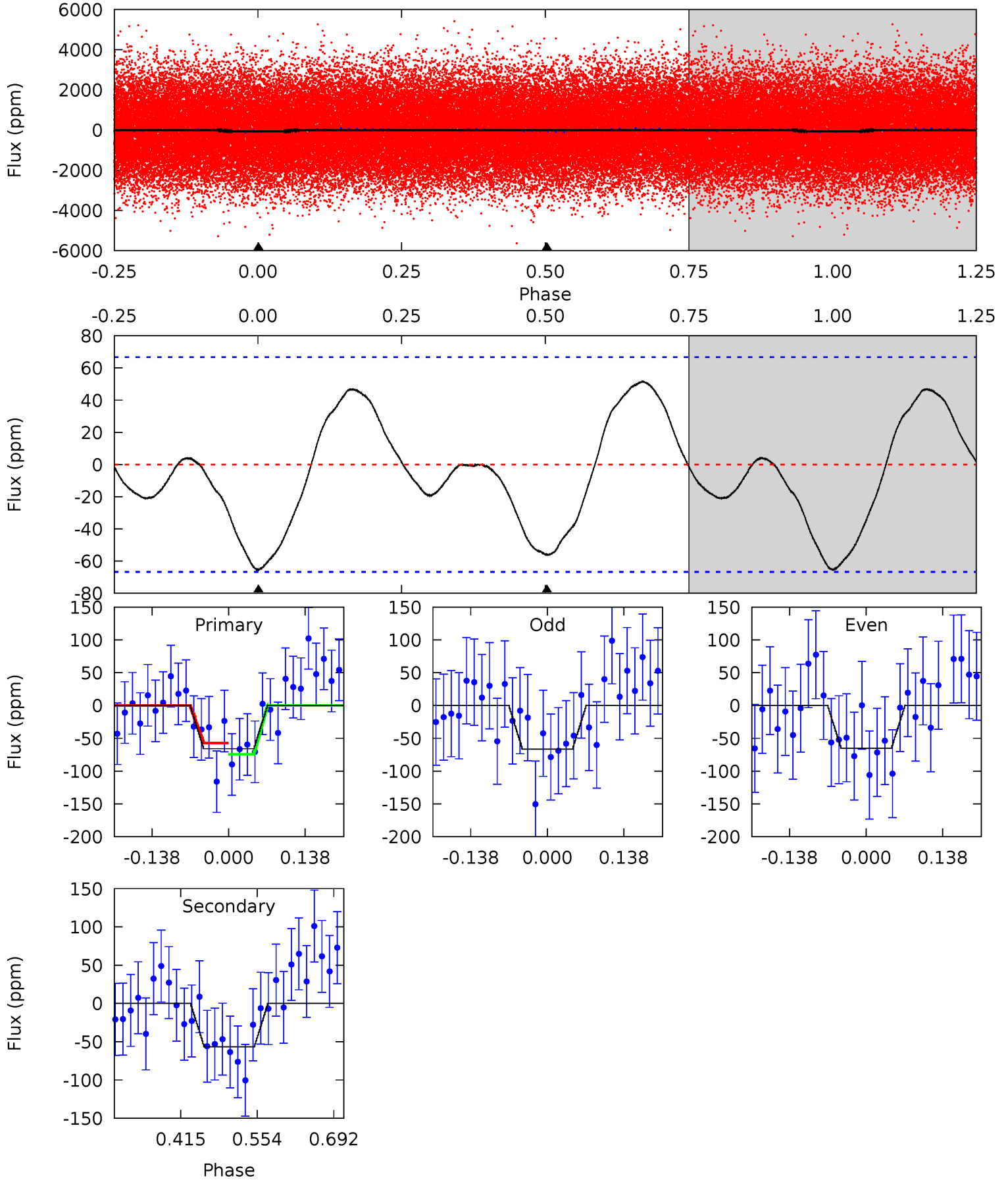
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	10.1	6.54	0	4.57	1.65	3.99	4.63	11.2	3.58	10.1	0.25	1.09	0.36	2.19



Alt Model-Shift Uniqueness Test

006448362-01, P = 0.824337 Days, E = 130.964242 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.44	3.81	0	0	4.50	1.48	1.71	4.44	4.44	3.81	3.81	0.04	1.06	0.44	0.57



Stellar Parameters For KIC 006448362

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7615^{+75}_{-83}	$4.007^{+0.144}_{-0.096}$	$-0.100^{+0.150}_{-0.150}$	$2.143^{+0.345}_{-0.383}$	$1.702^{+0.167}_{-0.150}$	$0.243^{+0.154}_{-0.080}$
	+1%/-1%	+4%/-2%	+150%/-150%	+16%/-18%	+10%/-9%	+63%/-33%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006448362-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-61 ± 6	$1.92^{+0.94}_{-0.92}$	4764^{+191}_{-216}	7162^{+4251}_{-1473}	$3.932^{+10.157}_{-2.217}$
Alt.	-57 ± 15	$1.89^{+0.90}_{-0.87}$	4763^{+209}_{-216}	7036^{+3613}_{-1524}	$3.669^{+9.130}_{-2.117}$

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 $A_{obs} \gg 1.0$

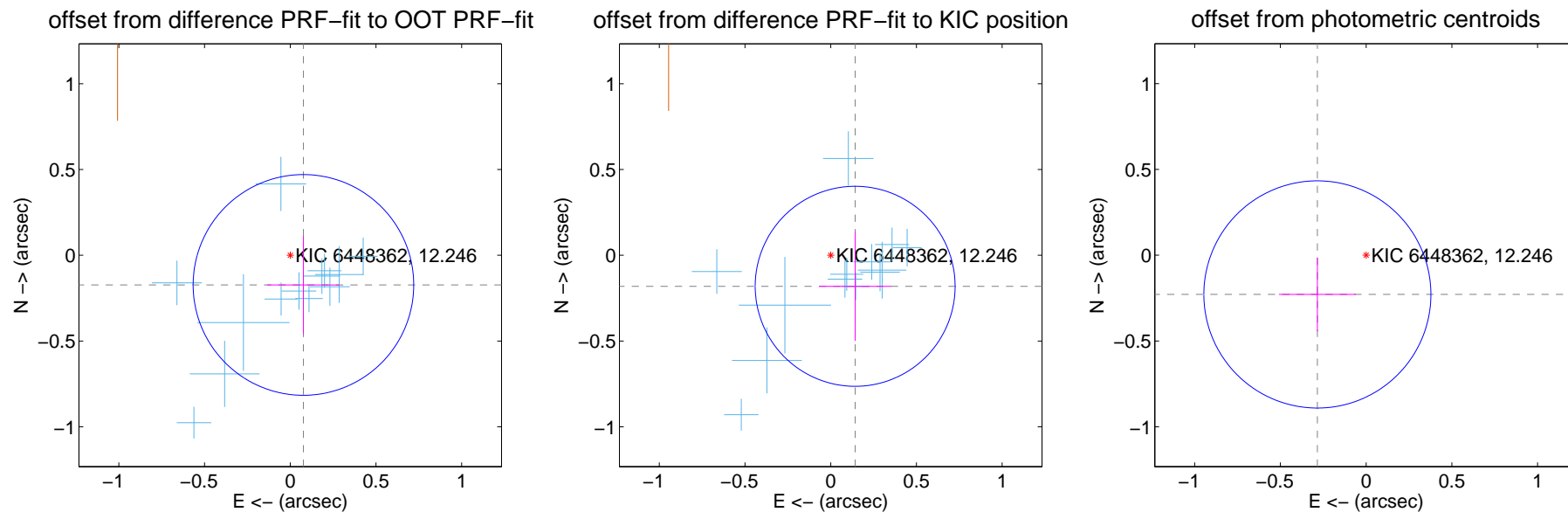
DV Centroid Data

Supplemental centroid analysis for 006448362-01. Kepler magnitude: 12.25. Transit SNR 14.19

There are 14 quarters with good PRF difference image offsets

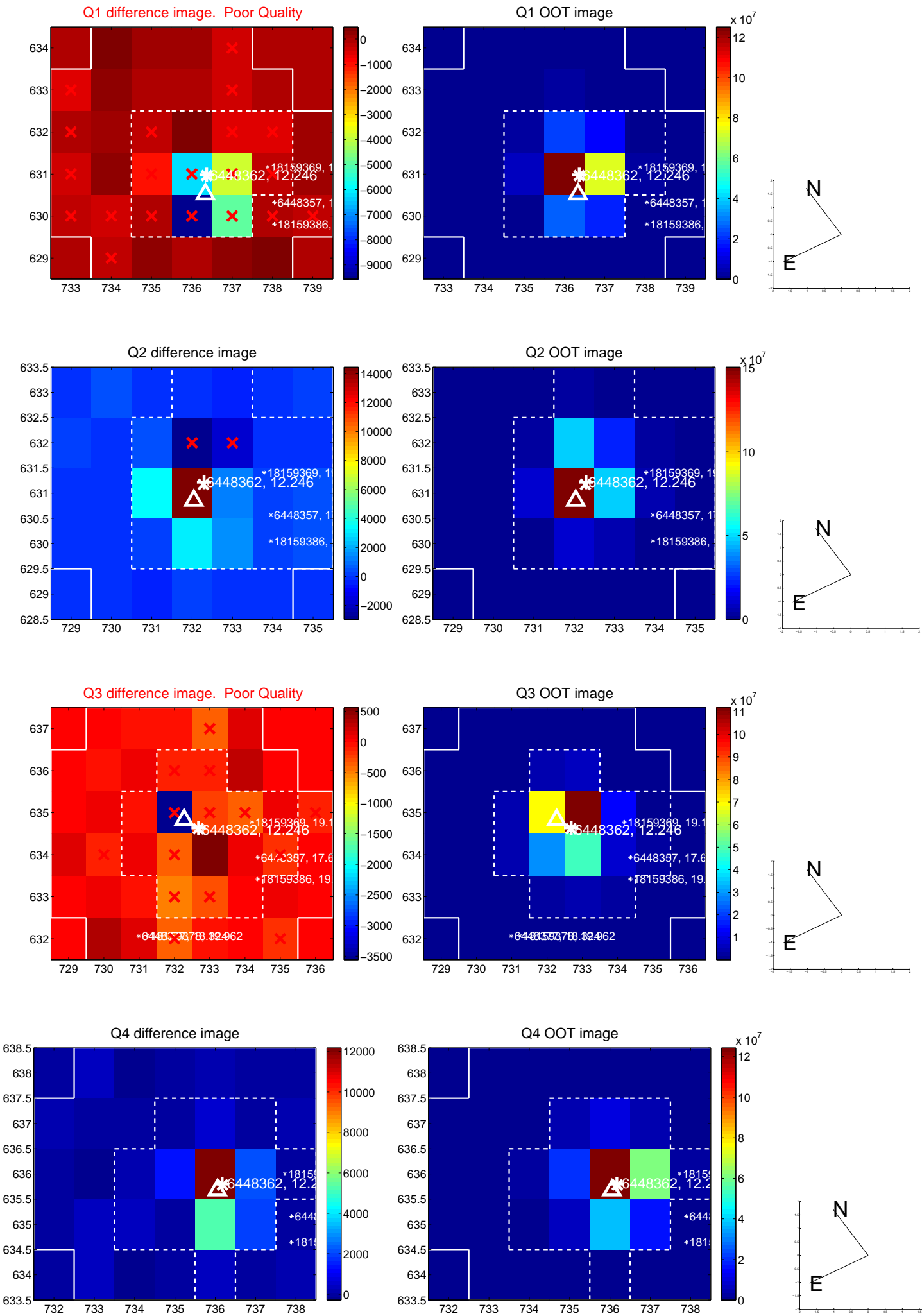
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.189 ± 0.214	0.88	-0.077 ± 0.211	-0.173 ± 0.285
PRF-fit source offset from KIC position	0.230 ± 0.194	1.18	-0.143 ± 0.211	-0.181 ± 0.318
photometric centroid source offset	0.36 ± 0.22	1.65	0.28 ± 0.22	-0.23 ± 0.21

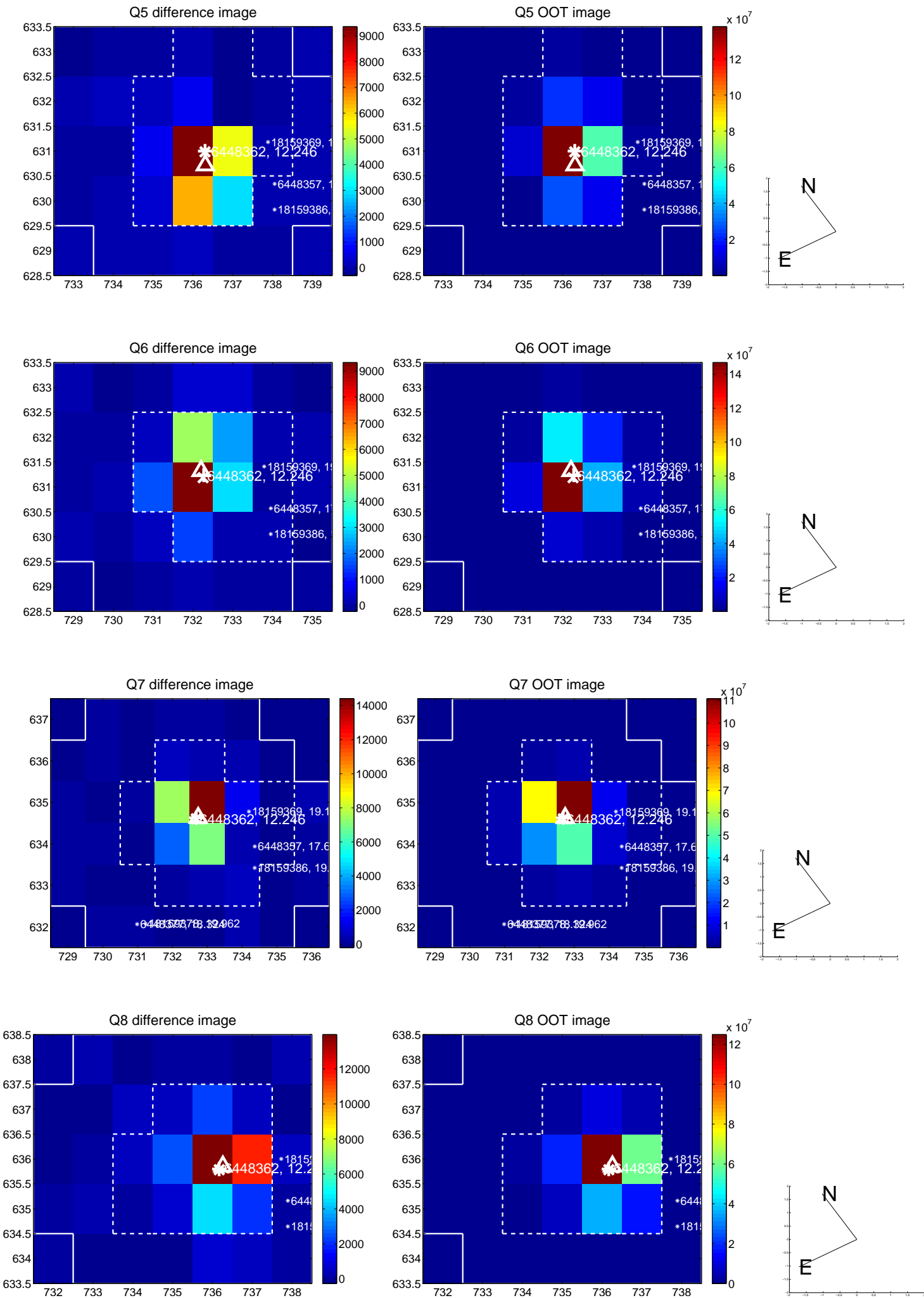


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

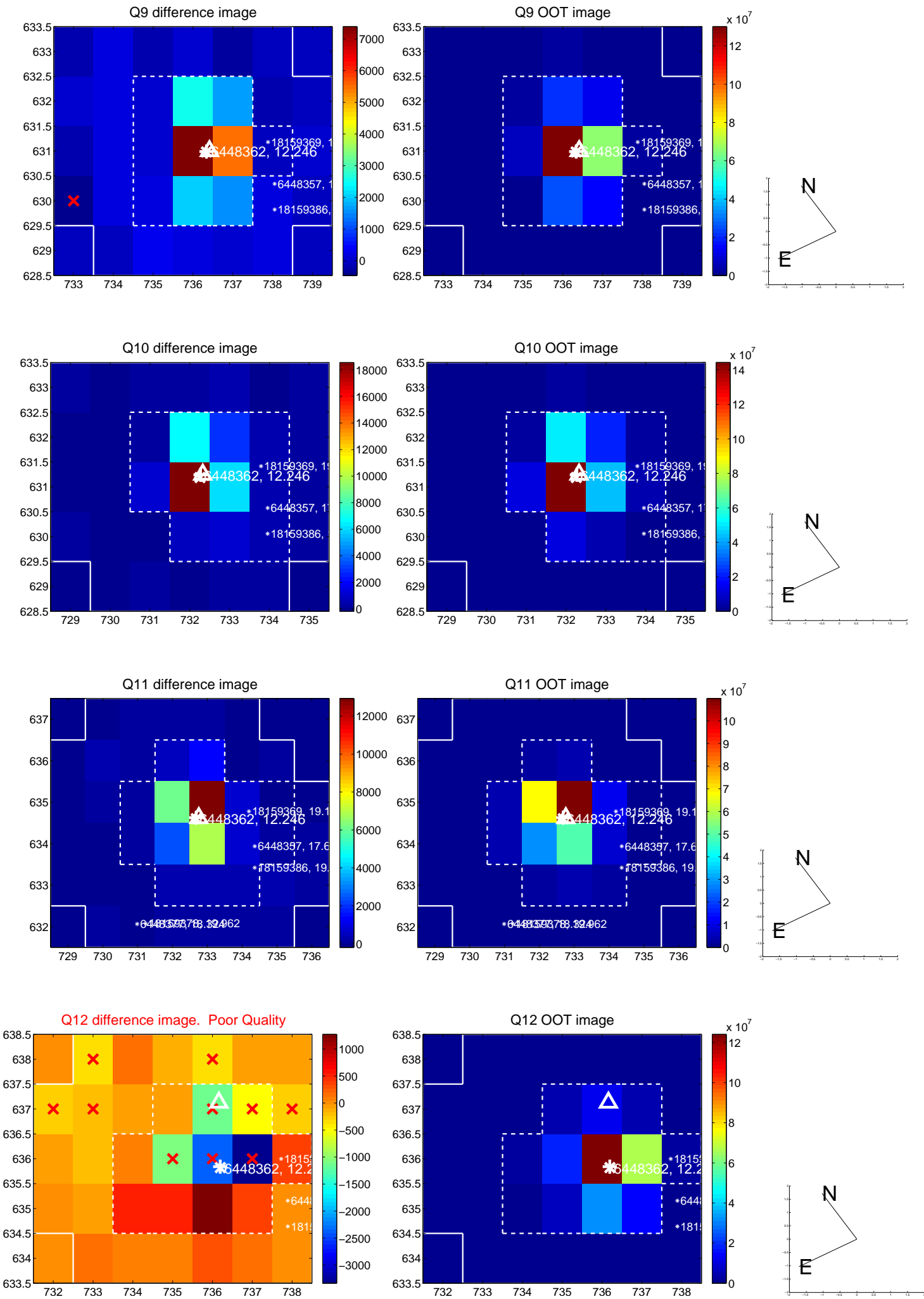
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



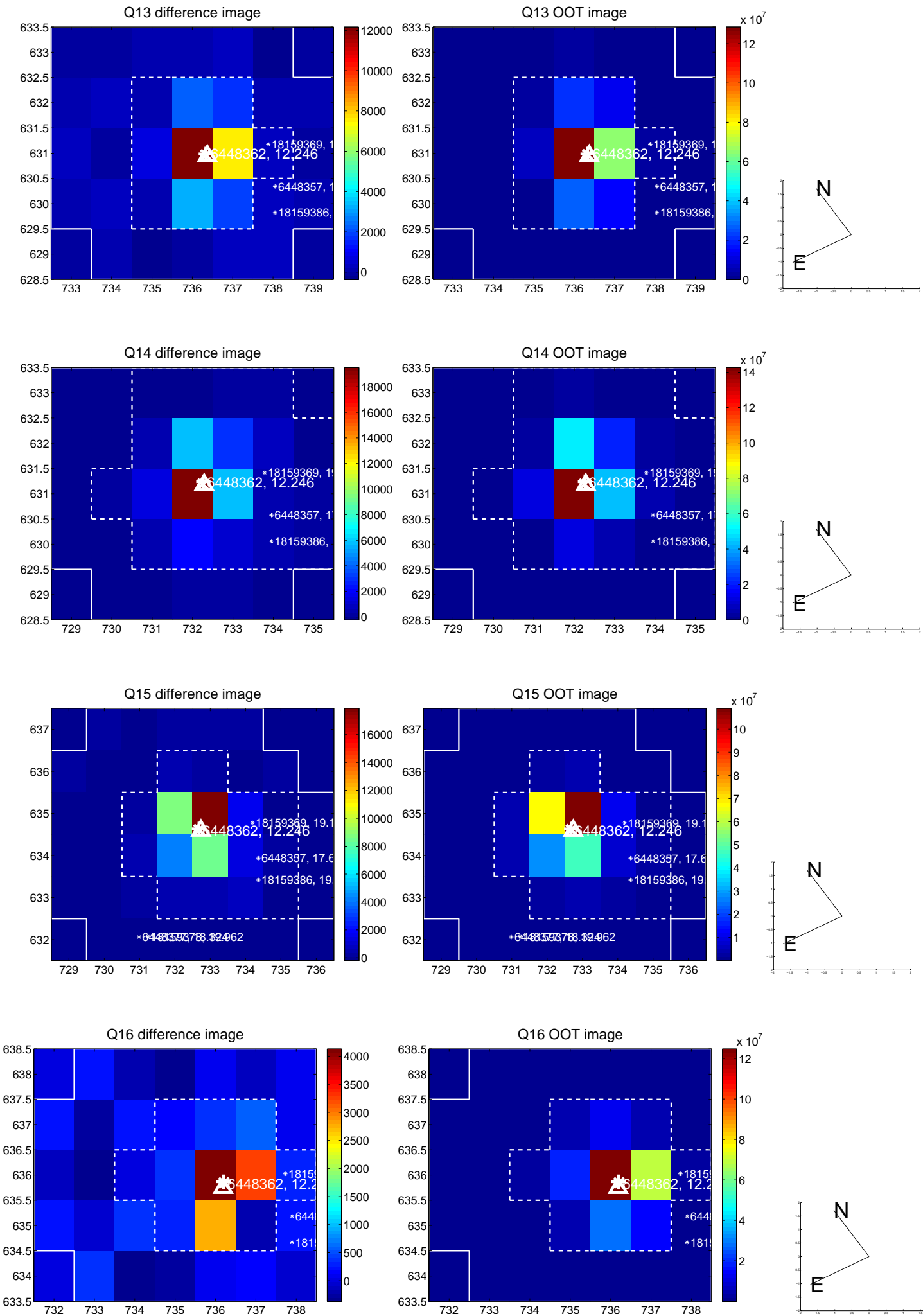
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



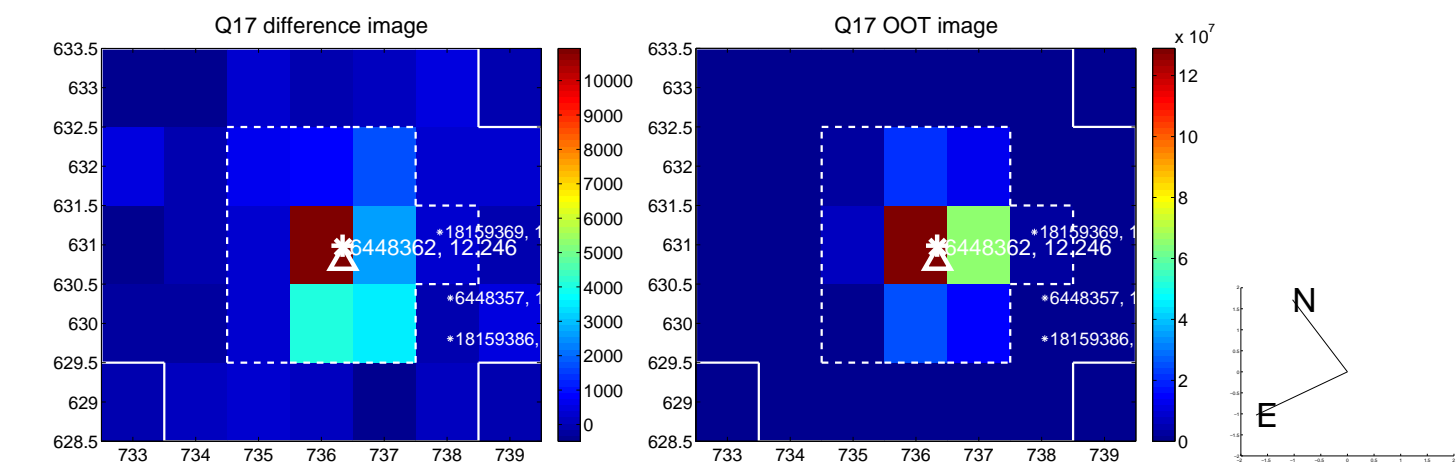
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



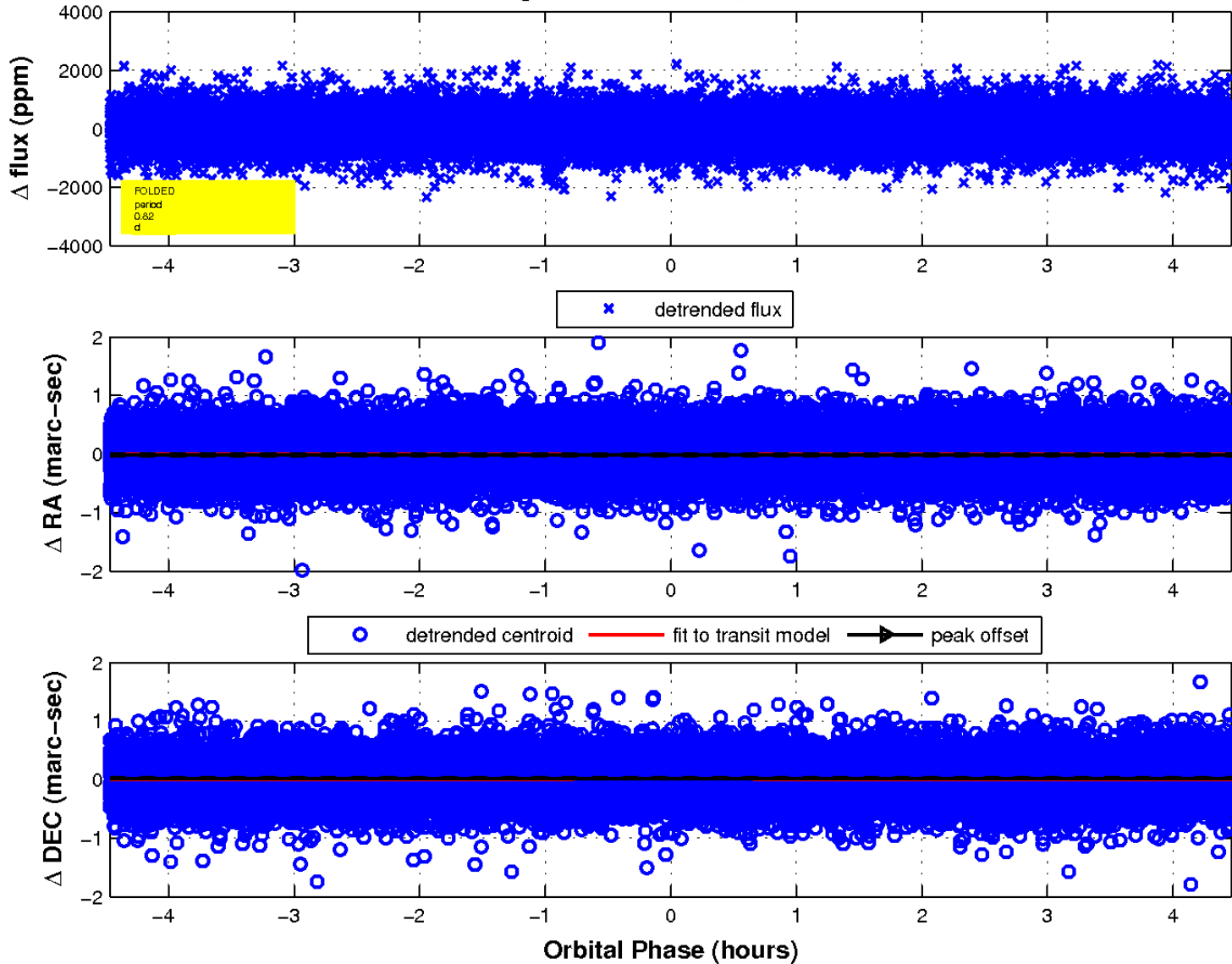
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

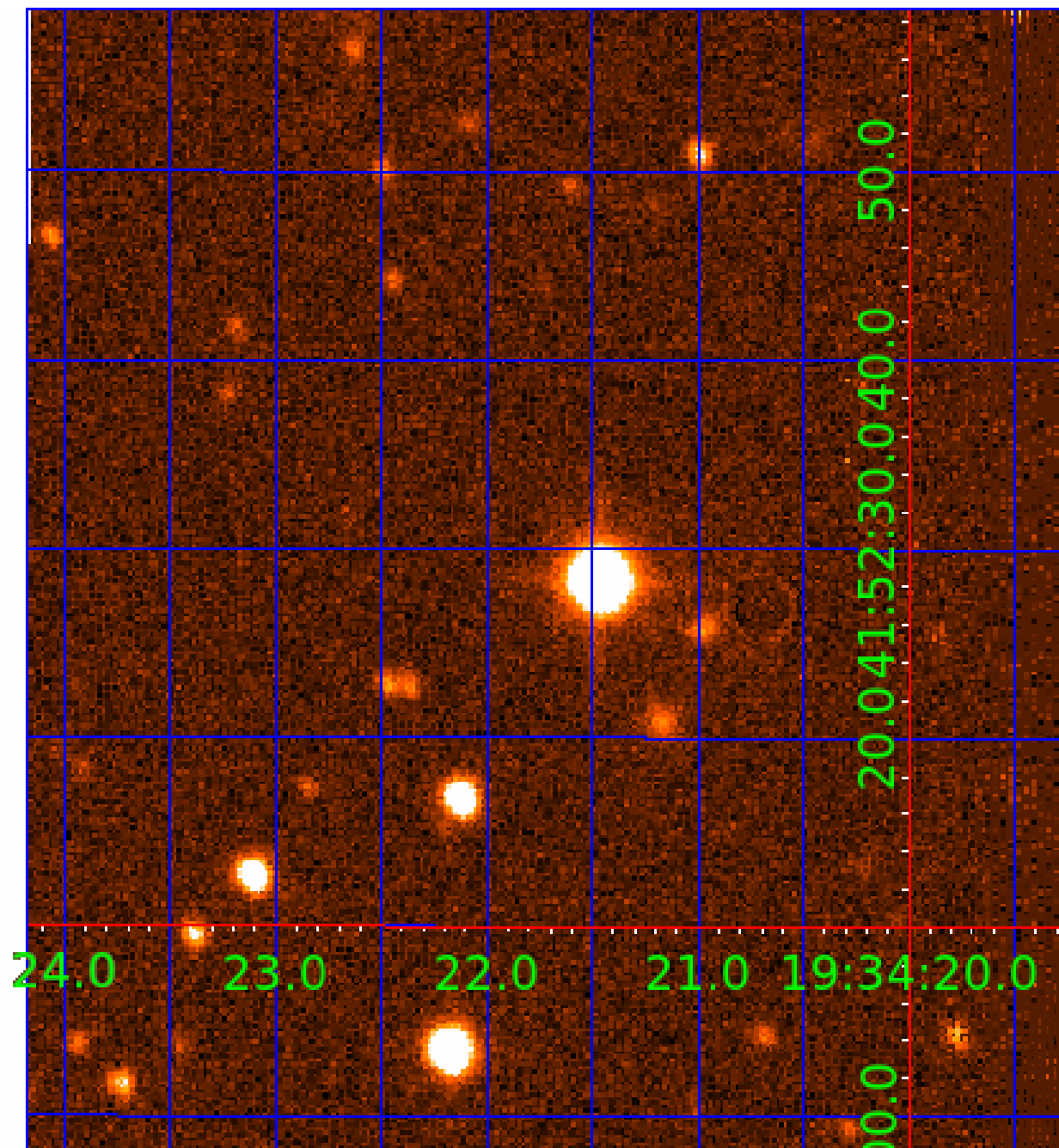


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006448362

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})
006448362-01	OBS	No	0.824333	131.789102	60.9	1.489	15.6	14.2	2.14	7615	1.93	32768.16
006448362-02	OBS	No	0.824344	132.191234	67.2	2.838	15.9	19.7	2.14	7615	2.04	32767.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006448362-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006448362-02	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.

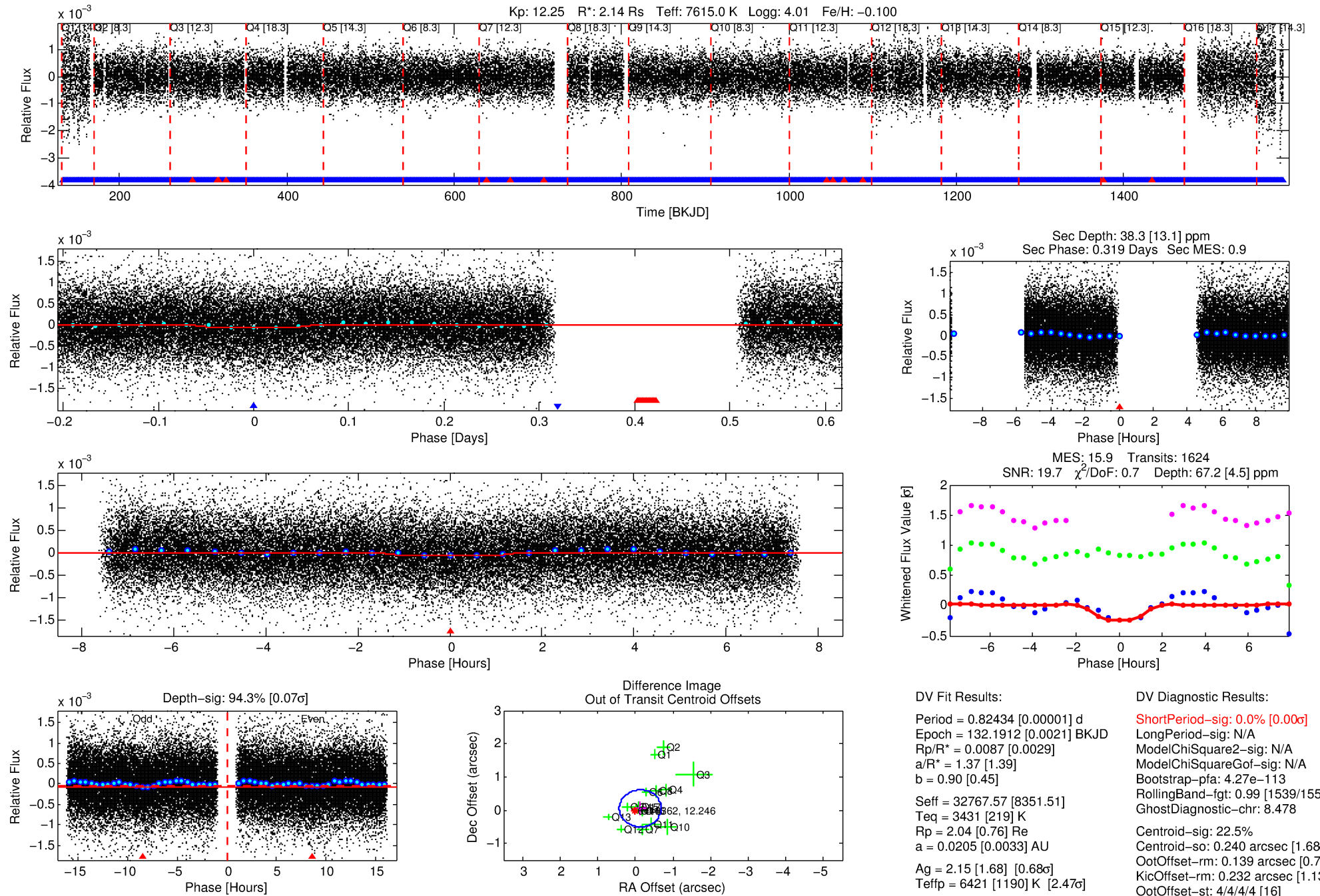
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006448362-02

No Significant Match Found

DV One-Page Summary

KIC: 6448362 Candidate: 2 of 2 Period: 0.824 d



DV Fit Results:

Period = 0.82434 [0.00001] d
Epoch = 132.1912 [0.0021] BKJD
Rp/R* = 0.0087 [0.0029]
a/R* = 1.37 [1.39]
b = 0.90 [0.45]
Seff = 32767.57 [8351.51]
Teff = 3431 [219] K
Rp = 2.04 [0.76] Re
a = 0.0205 [0.0033] AU
Ag = 2.15 [1.68] [0.68 σ]
Teffp = 6421 [1190] K [2.47 σ]

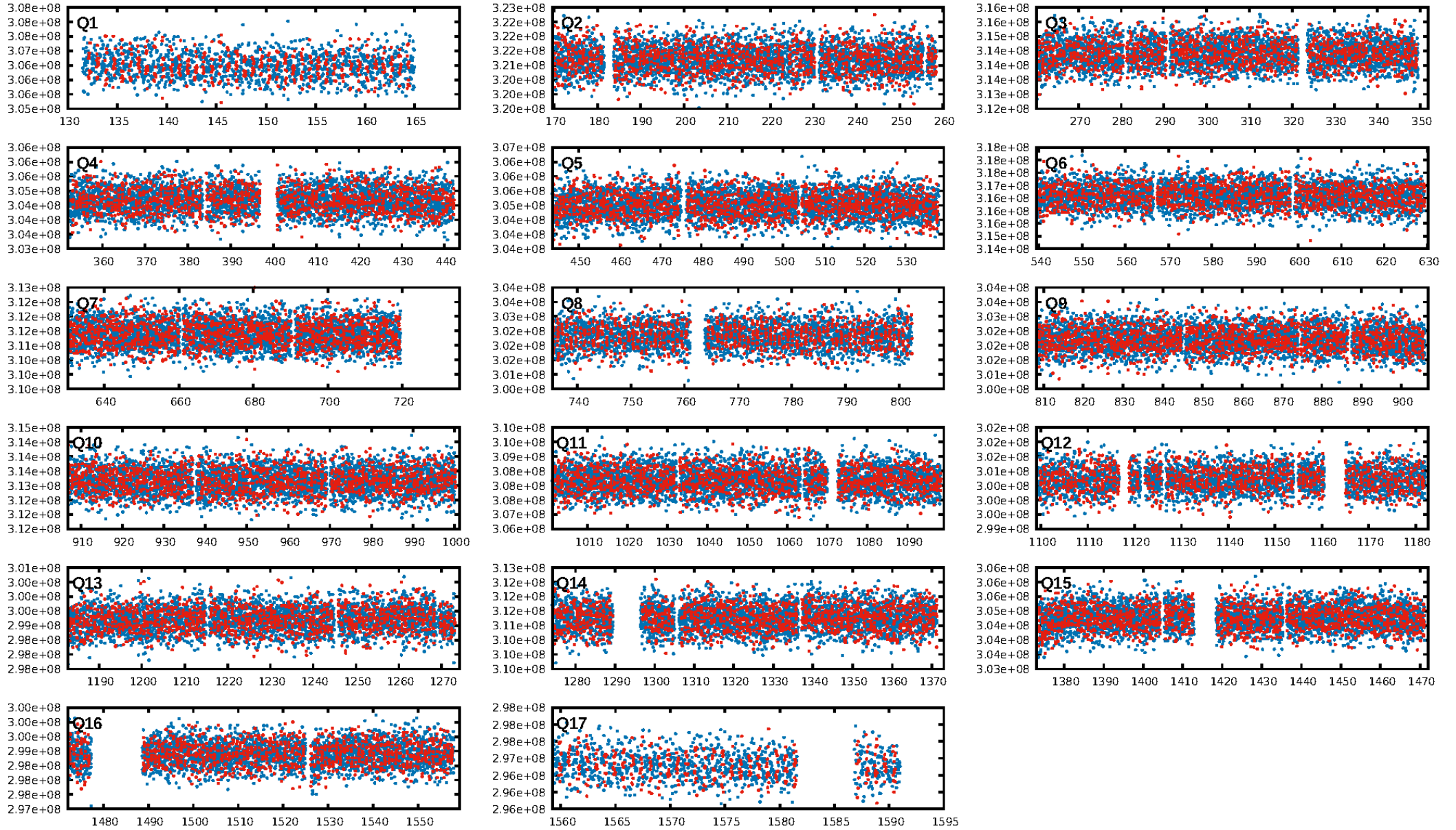
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.27e-113
RollingBand-fgt: 0.99 [1539/1552]
GhostDiagnostic-chr: 8.478
Centroid-sig: 22.5%
Centroid-so: 0.240 arcsec [1.68 σ]
OotOffset-rm: 0.139 arcsec [0.75 σ]
KicOffset-rm: 0.232 arcsec [1.13 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

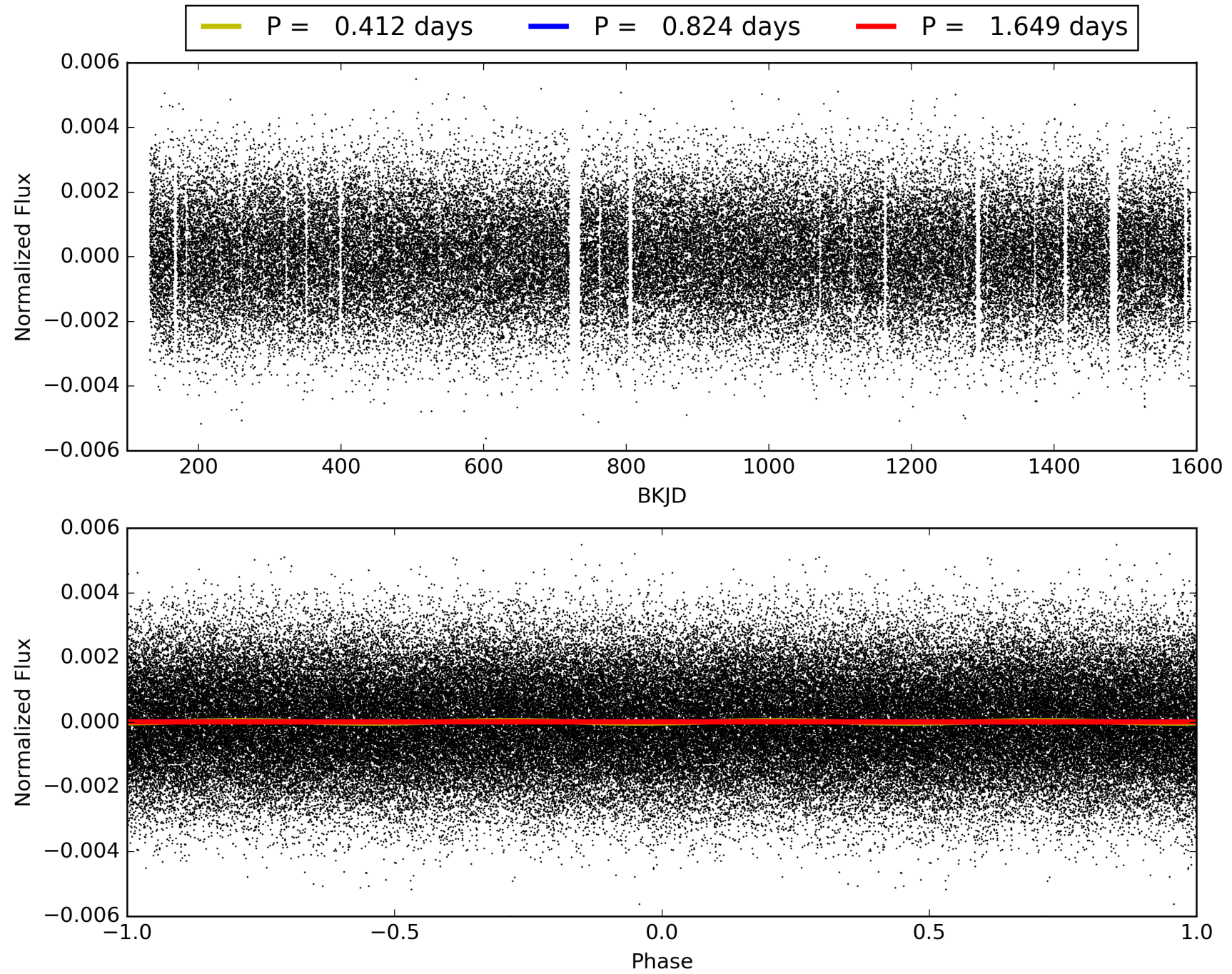
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:08:48 Z

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

TCE 006448362-02, PDC Light Curves

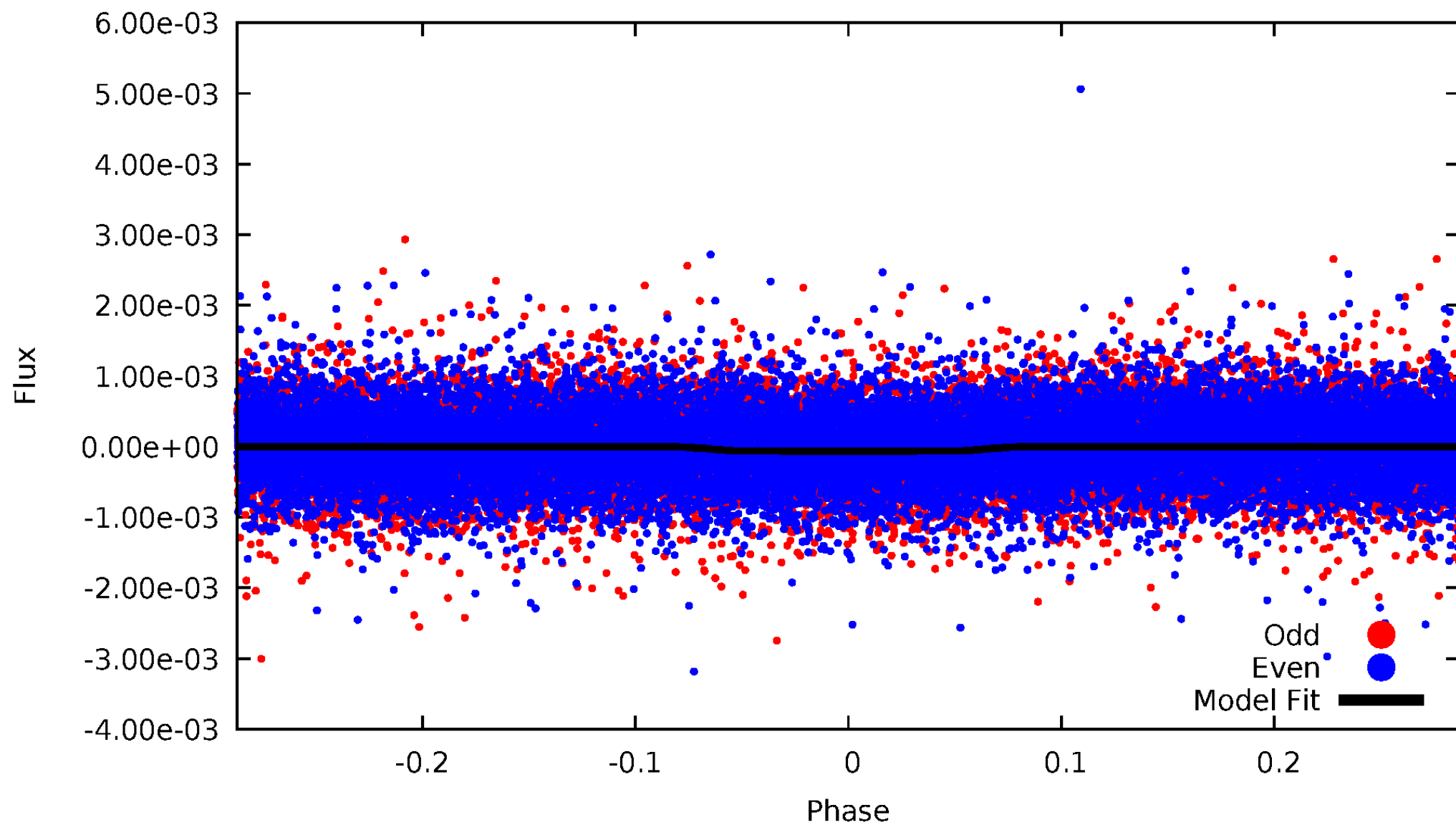


TCE 006448362-02



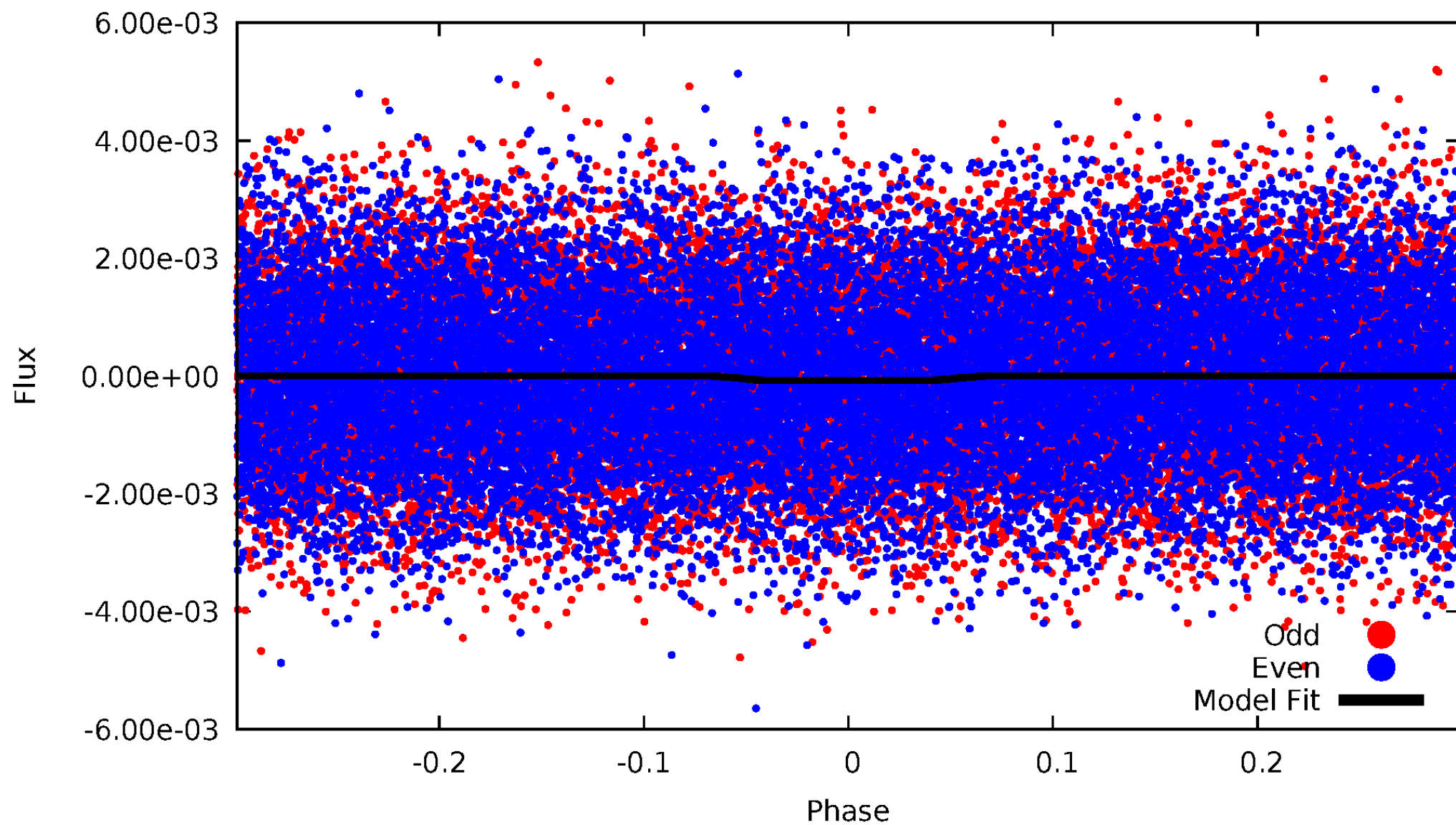
DV Odd/Even

TCE 006448362-02



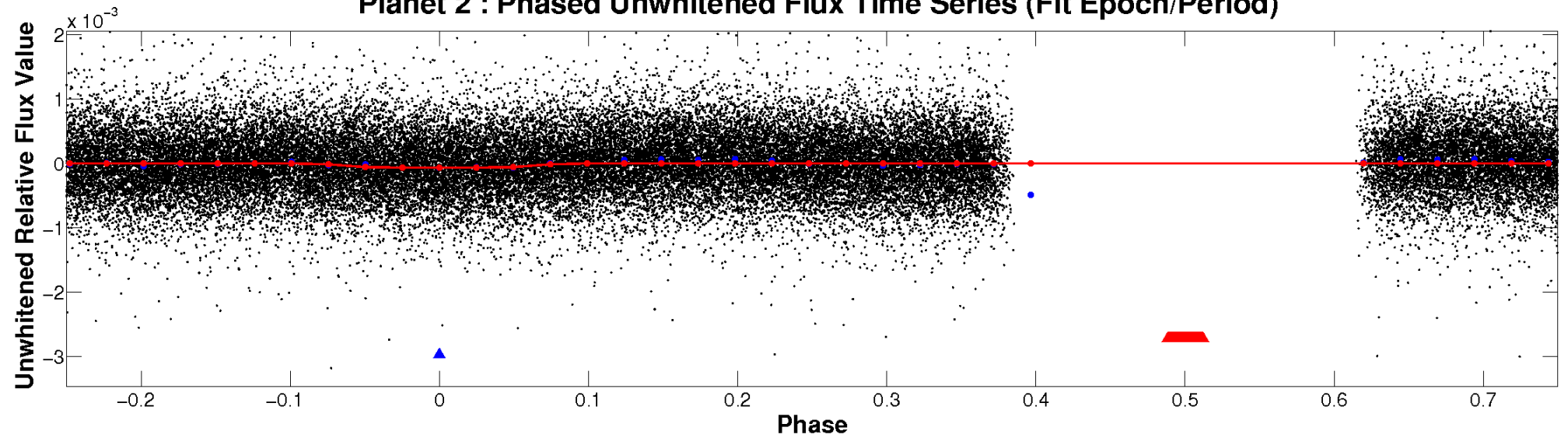
ALT Odd/Even

TCE 006448362-02

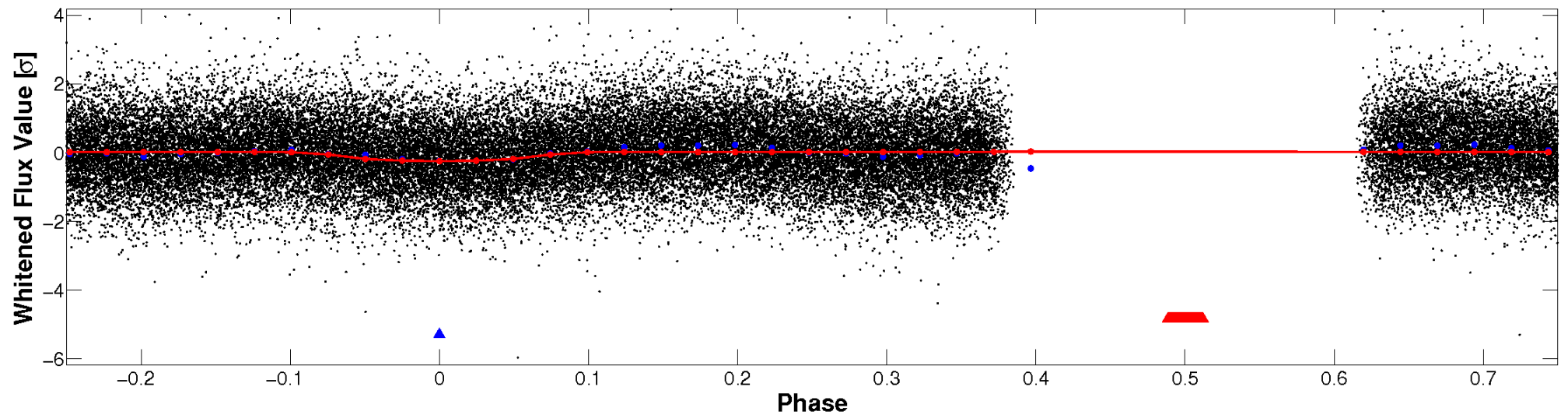


Non-Whitened Vs. Whitened Light Curve

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

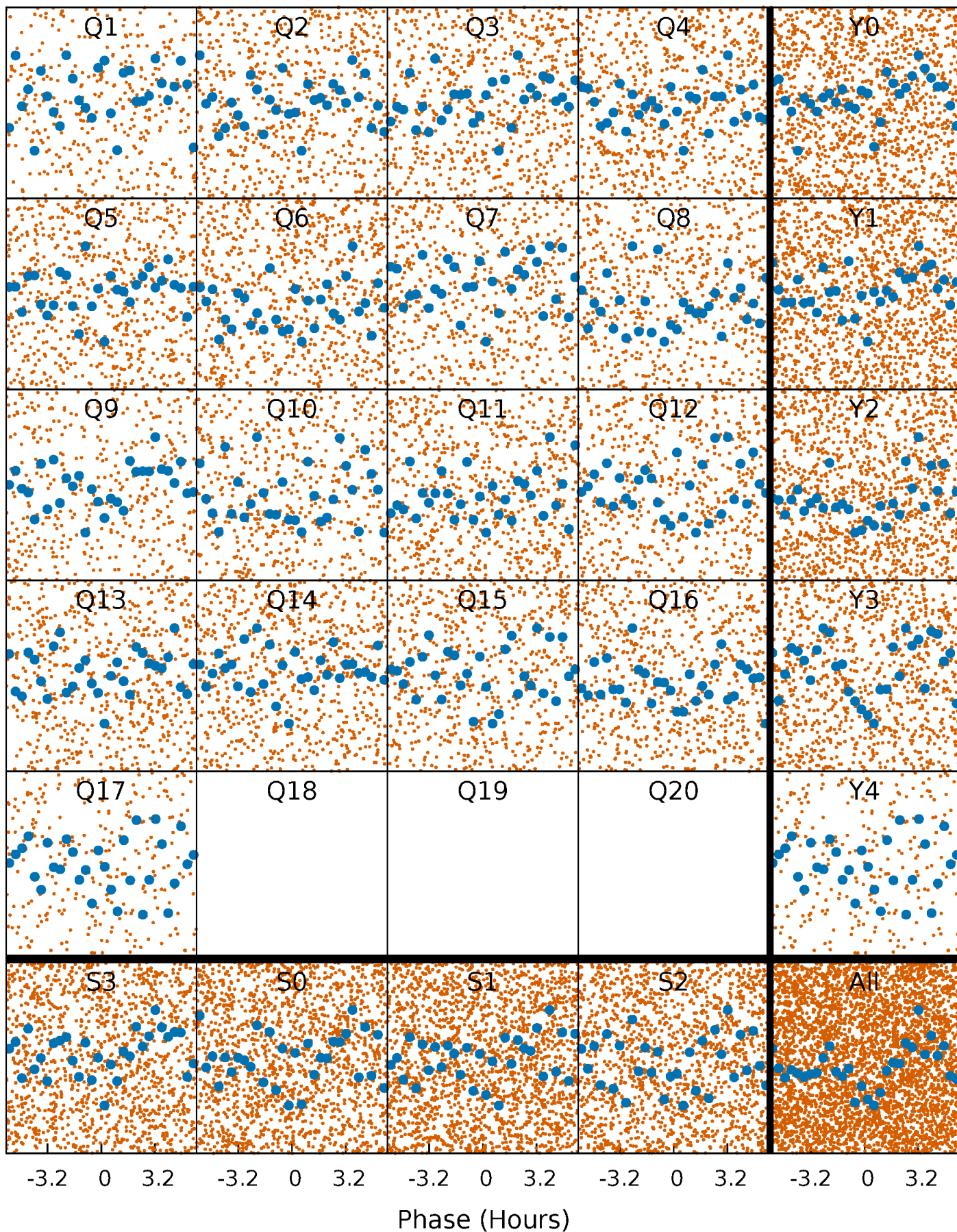


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



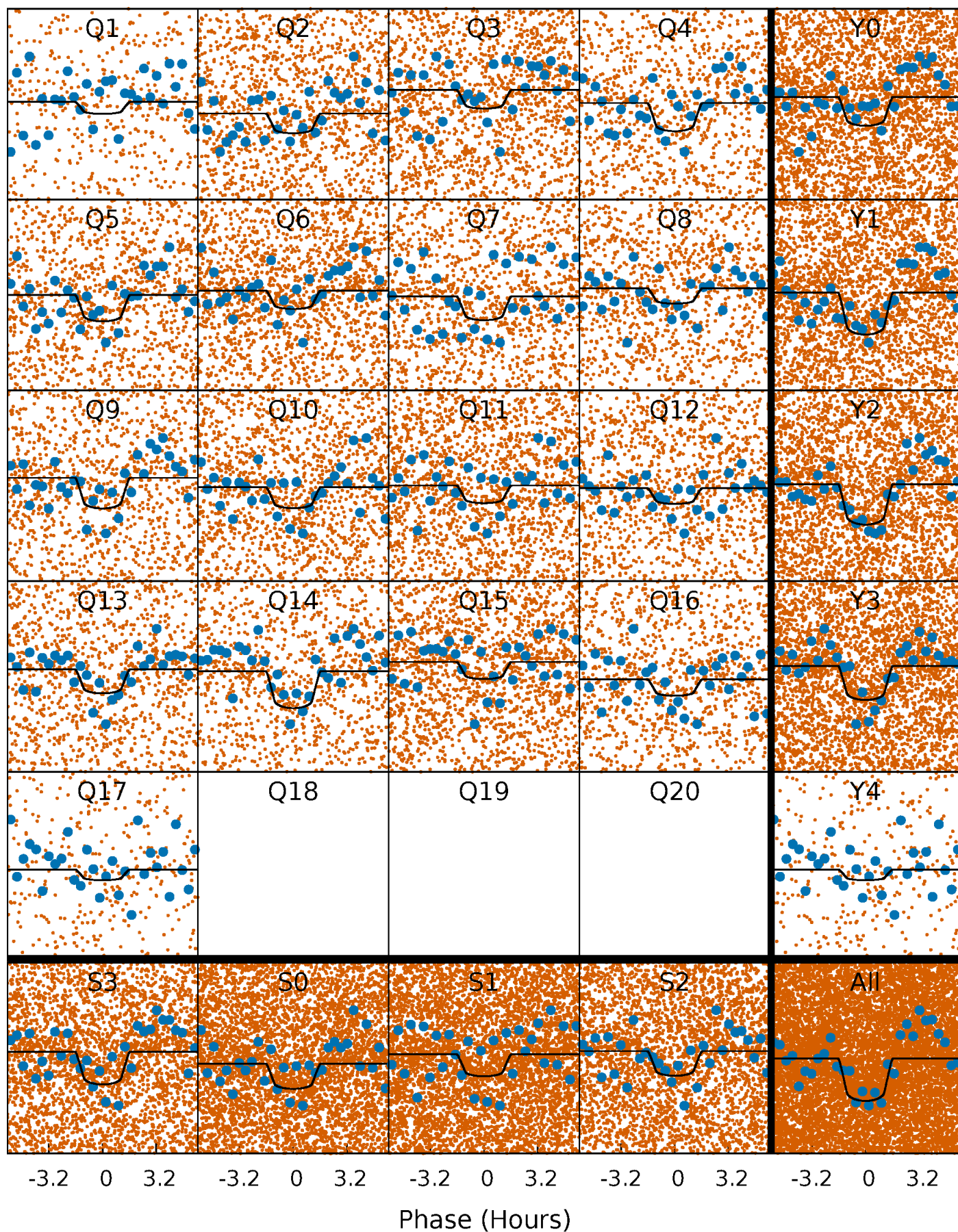
PDC Quarter-Phased Transit Curves

TCE 006448362-02 $P = 0.824344$ Days $T_0 = 132.191234$ (BKJD)



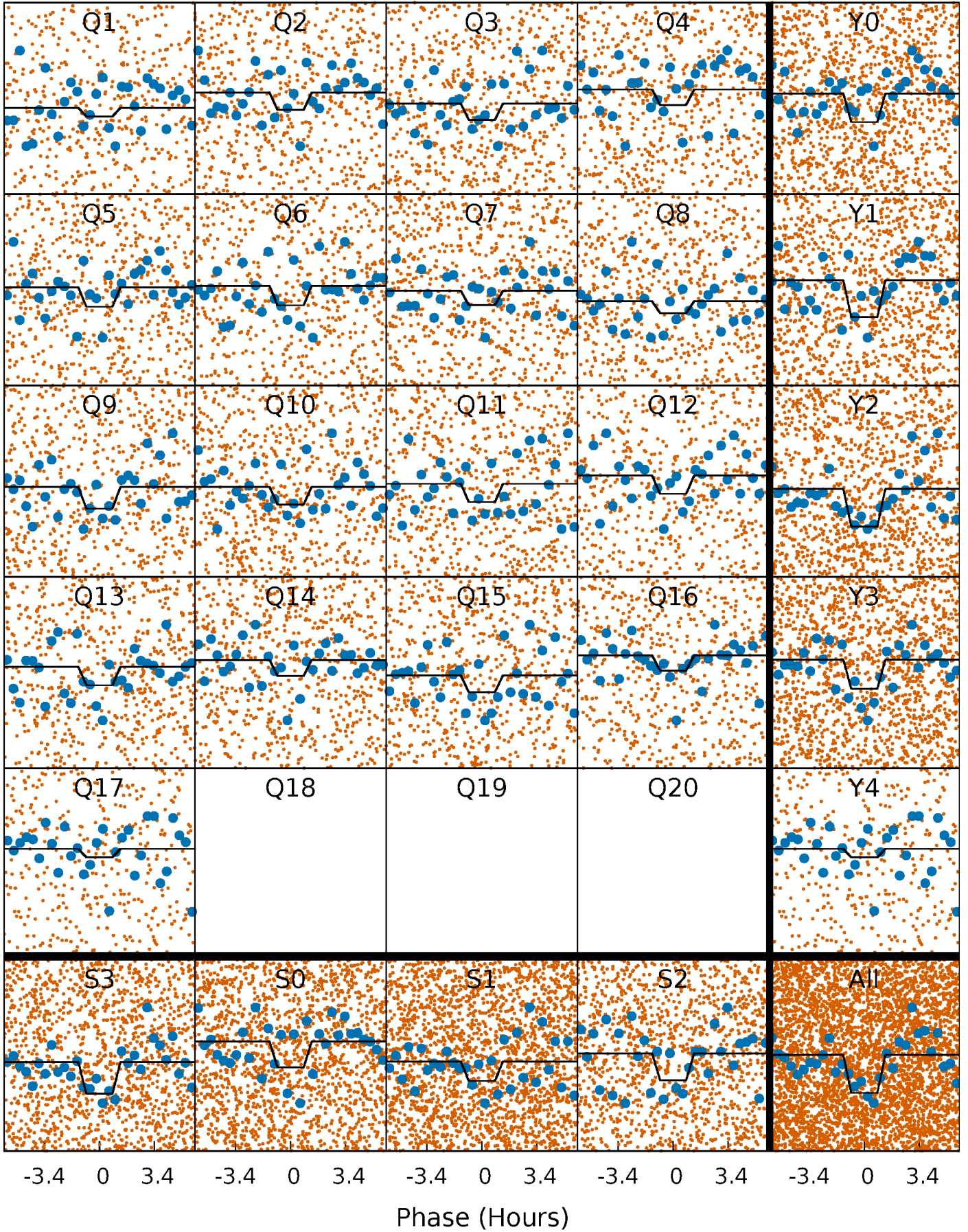
DV Quarter-Phased Transit Curves

TCE 006448362-02 P= 0.824344 Days $T_0=132.191234$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

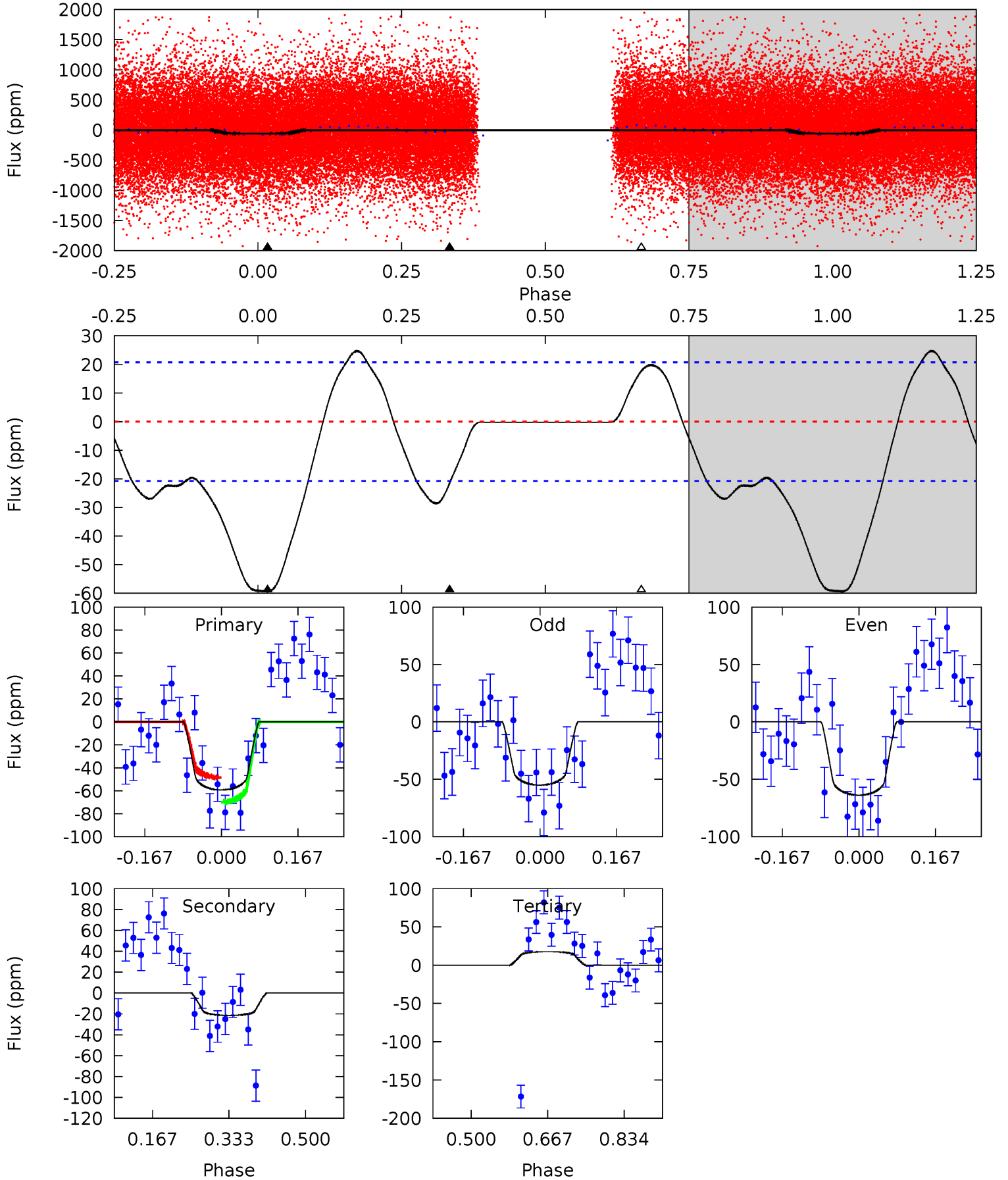
TCE 006448362-02 P= 0.824349 Days $T_0=132.190167$ (BKJD)



DV Model-Shift Uniqueness Test

006448362-02, P = 0.824344 Days, E = 131.366890 Days

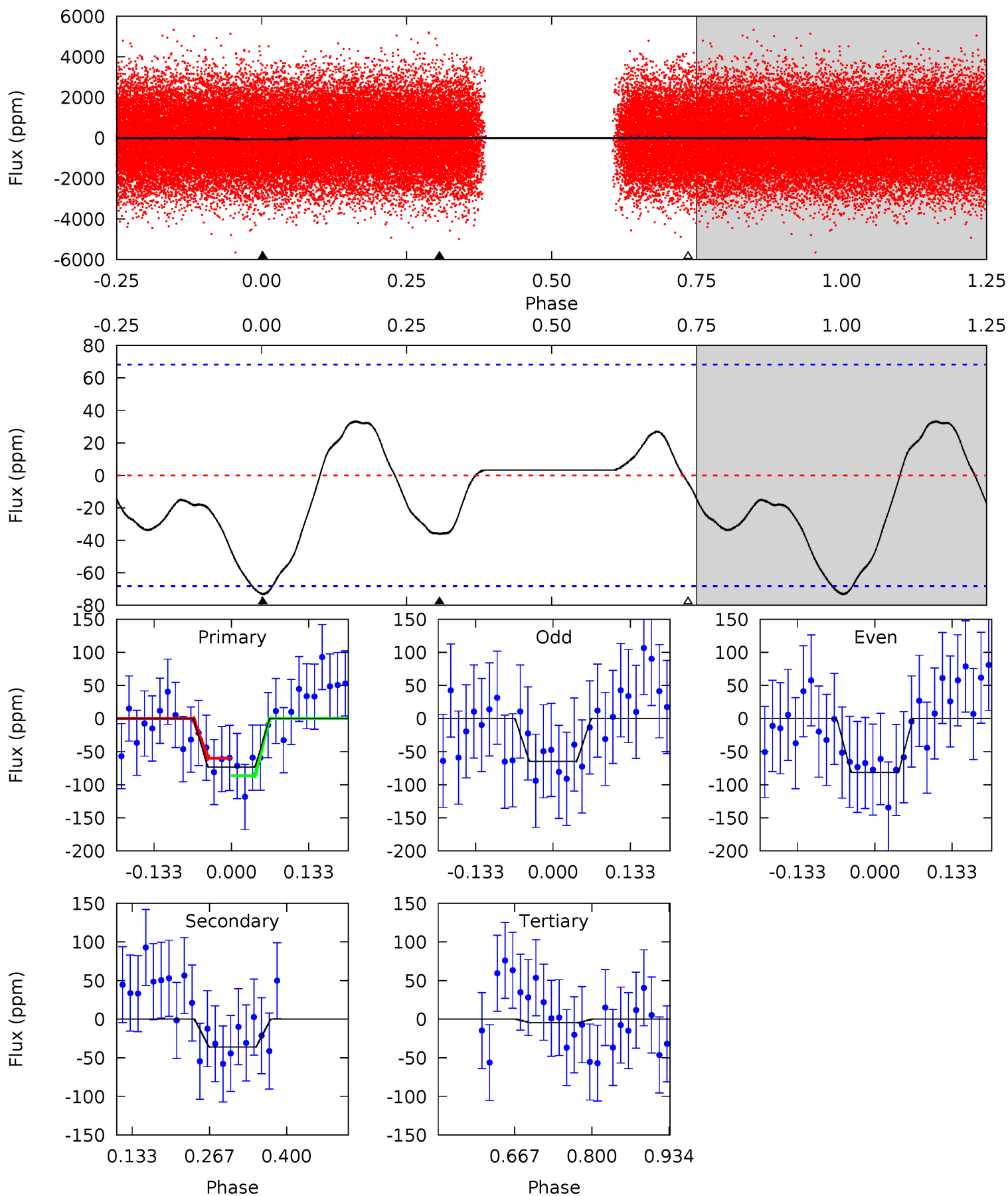
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	4.63	-3.79	0	4.46	1.38	3.76	16.5	12.8	8.42	4.63	0.95	1.00	0.29	2.32



Alt Model-Shift Uniqueness Test

006448362-02, P = 0.824349 Days, E = 131.365818 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.83	2.38	0.31	0	4.50	1.50	1.52	4.53	4.83	2.07	2.38	0.55	1.04	0.31	0.87



Stellar Parameters For KIC 006448362

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7615^{+75}_{-83}	$4.007^{+0.144}_{-0.096}$	$-0.100^{+0.150}_{-0.150}$	$2.143^{+0.345}_{-0.383}$	$1.702^{+0.167}_{-0.150}$	$0.243^{+0.154}_{-0.080}$
	+1%/-1%	+4%/-2%	+150%/-150%	+16%/-18%	+10%/-9%	+63%/-33%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 006448362-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-22 ± 5	$1.97^{+0.74}_{-0.74}$	4778^{+186}_{-228}	5224^{+1591}_{-933}	$1.324^{+2.019}_{-0.653}$
Alt.	-36 ± 15	$2.06^{+0.69}_{-0.72}$	4774^{+192}_{-248}	5933^{+1672}_{-1162}	$1.974^{+2.889}_{-1.051}$

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 $A_{obs} \gg 1.0$

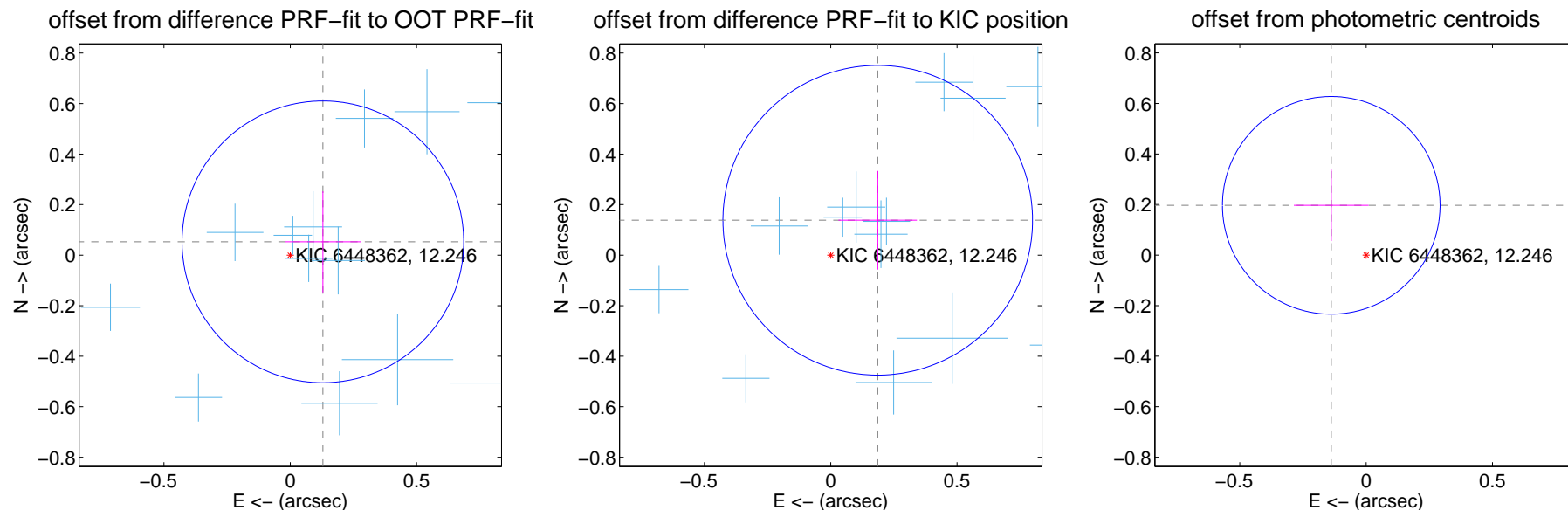
DV Centroid Data

Supplemental centroid analysis for 006448362-02. Kepler magnitude: 12.25. Transit SNR 19.73

There are 16 quarters with good PRF difference image offsets

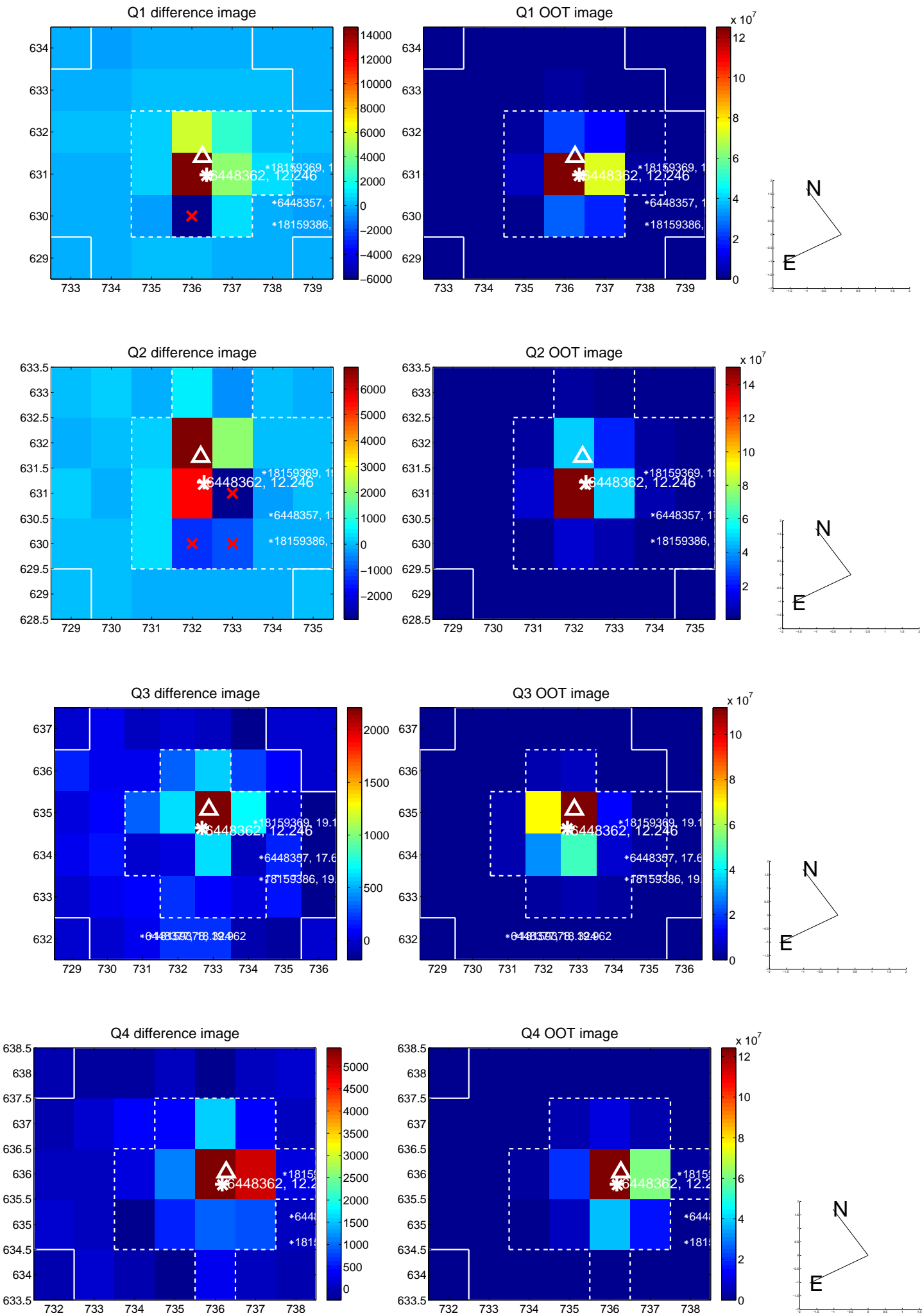
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.139 ± 0.186	0.75	-0.129 ± 0.149	0.053 ± 0.200
PRF-fit source offset from KIC position	0.232 ± 0.204	1.13	-0.186 ± 0.155	0.138 ± 0.195
photometric centroid source offset	0.24 ± 0.14	1.68	0.14 ± 0.15	0.20 ± 0.14

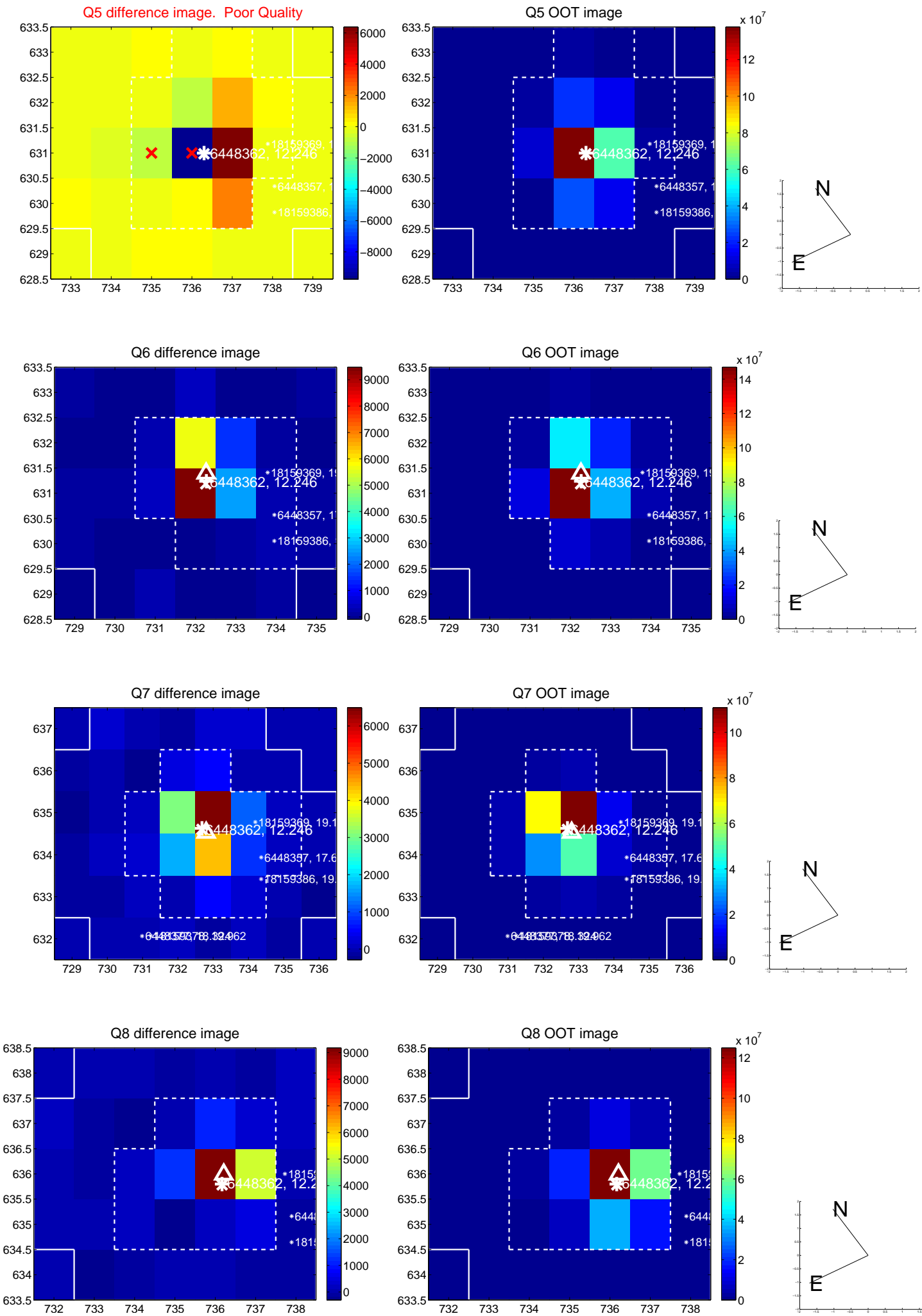


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

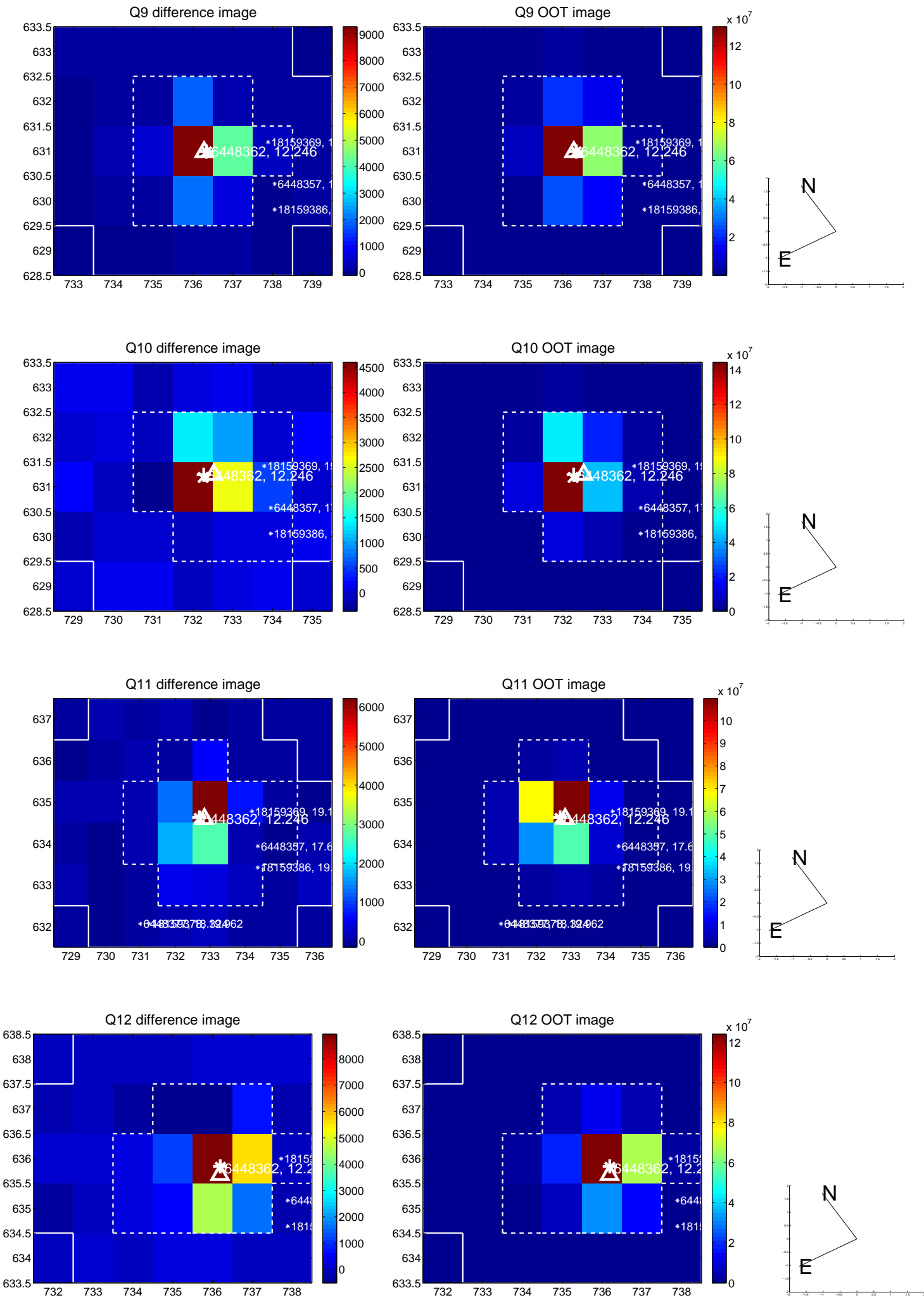
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



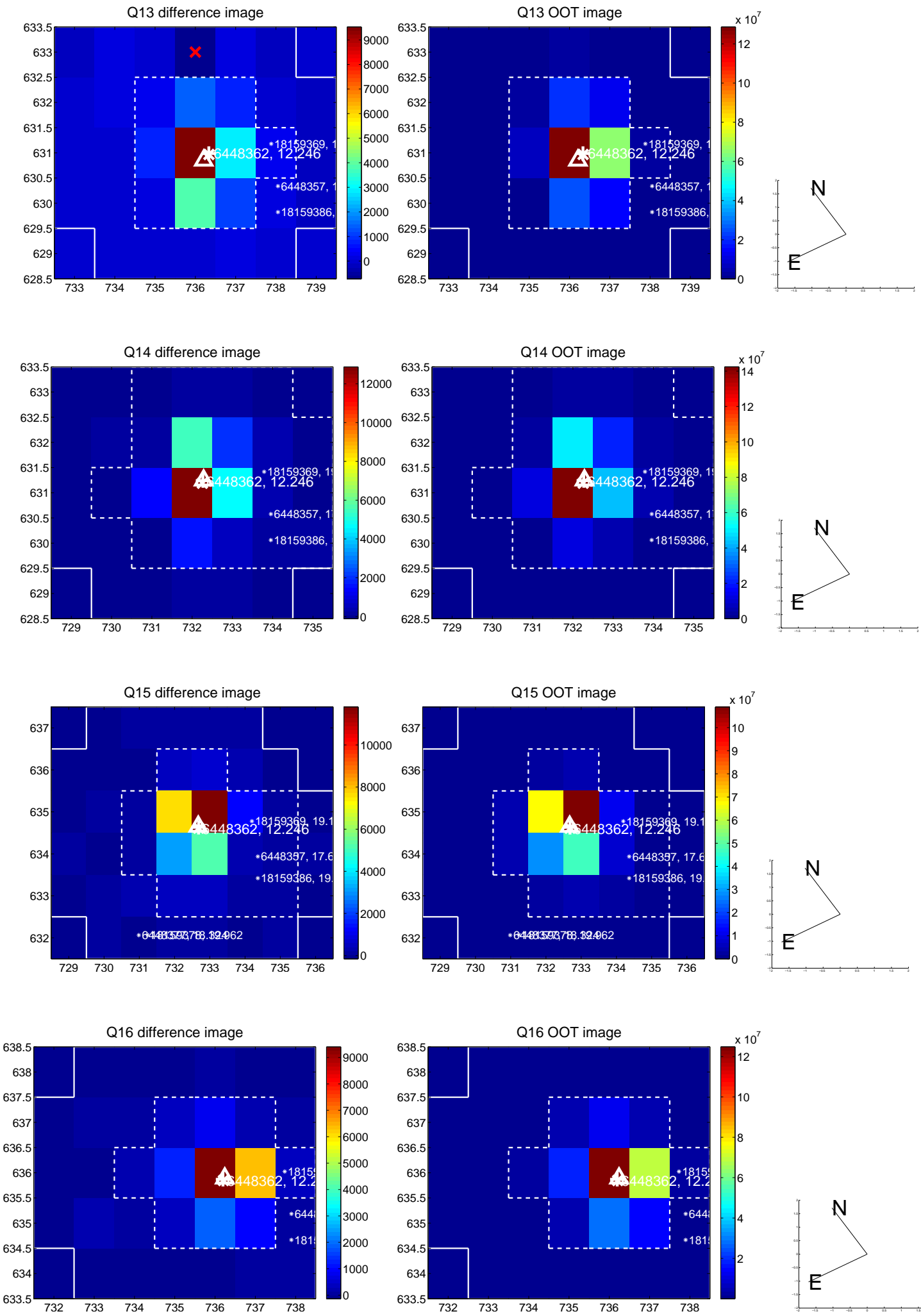
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



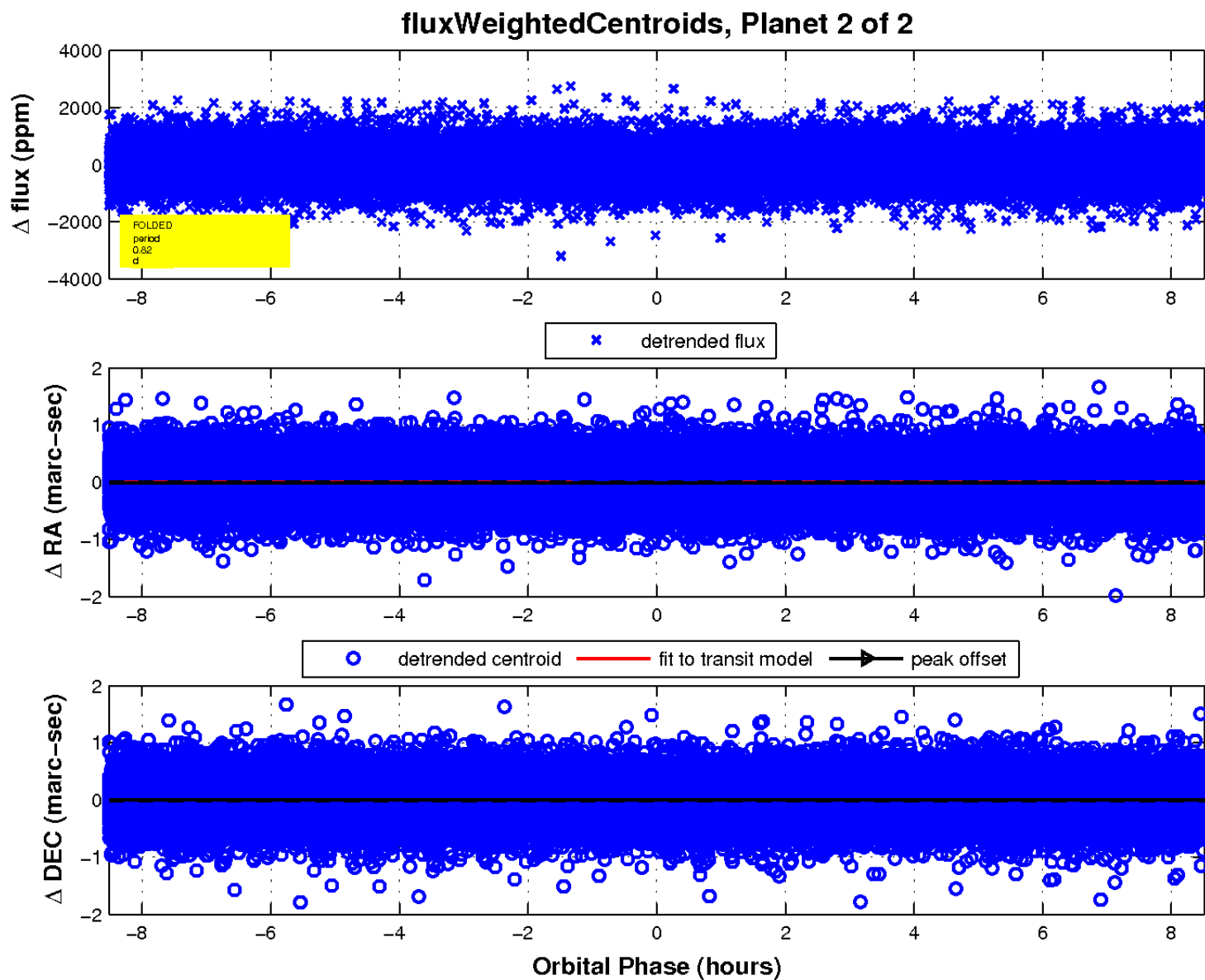
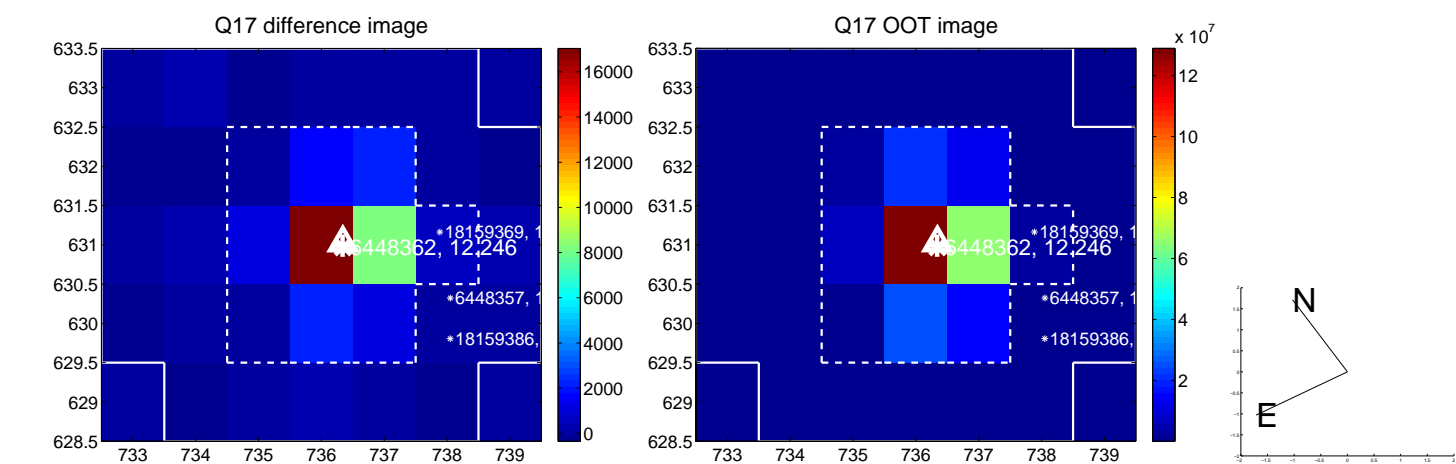
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

