

KIC 006345732

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})
006345732-01	OBS	2857.01	20.264130	135.282484	178.6	4.654	16.4	16.5	1.29	5937	2.04	83.08
006345732-02	OBS	2857.02	7.441357	137.747600	83.8	4.764	12.8	13.1	1.29	5937	1.38	315.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006345732-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006345732-02	OBS	PC	0.93	0	0	0	0	NO_COMMENT

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

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

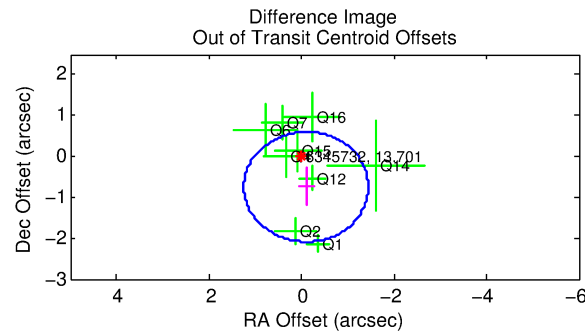
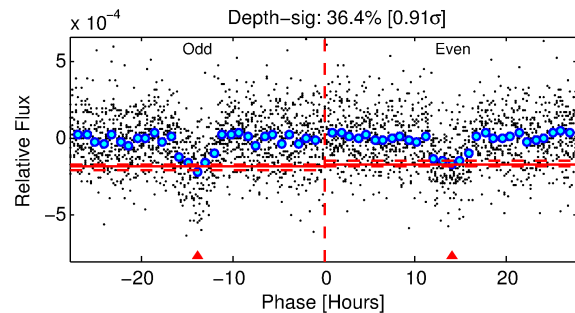
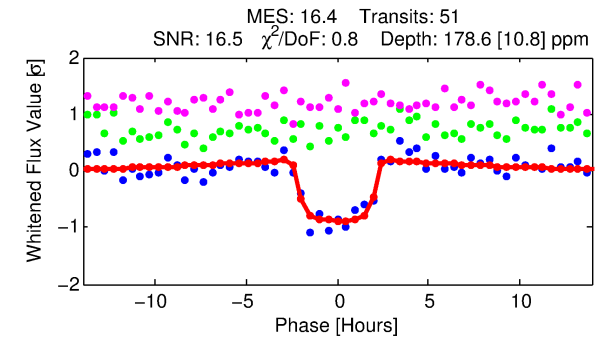
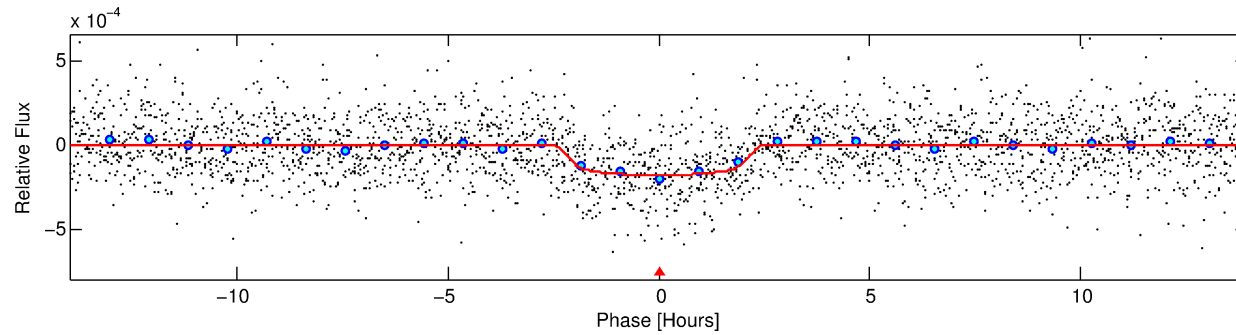
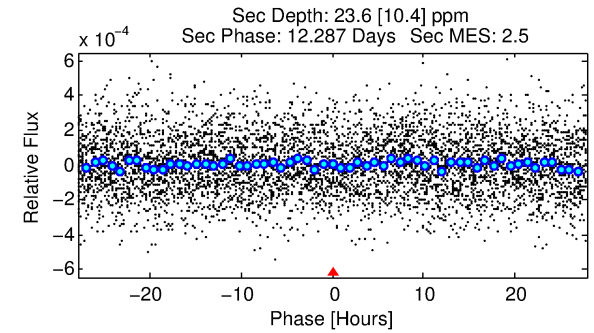
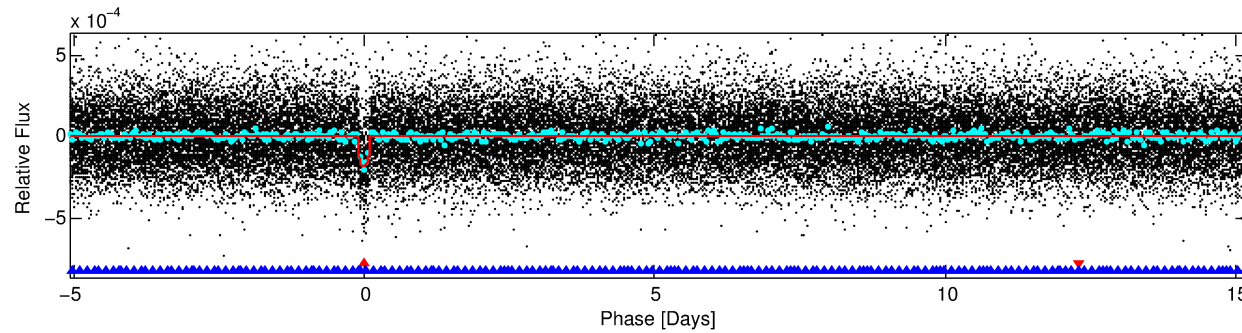
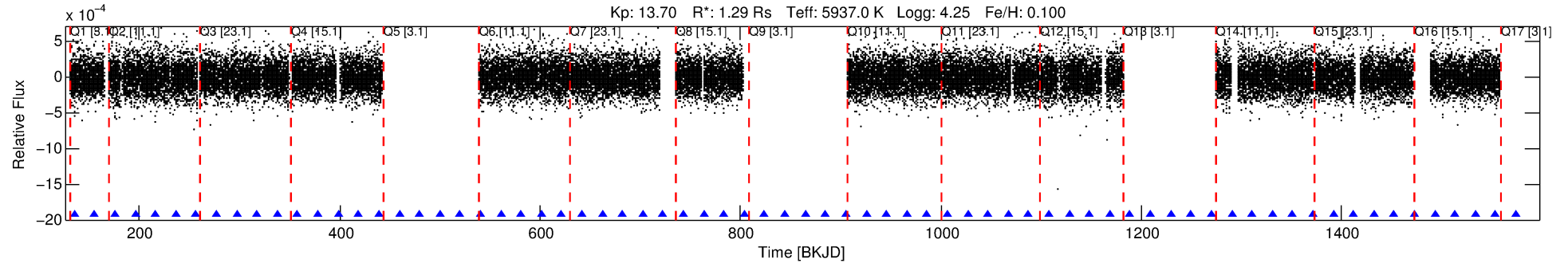
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006345732-01

No Significant Match Found

DV One-Page Summary

KIC: 6345732 Candidate: 1 of 2 Period: 20.264 d
KOI: K02857.01 Corr: 0.960



DV Fit Results:

Period = 20.26413 [0.00012] d
Epoch = 135.2825 [0.0048] BKJD
Rp/R* = 0.0145 [0.0031]
a/R* = 15.59 [15.99]
b = 0.90 [0.22]
Seff = 83.08 [20.13]
Teff = 770 [47] K
Rp = 2.04 [0.54] Re
a = 0.1494 [0.0225] AU
Ag = 69.51 [45.56] [1.50σ]
Teffp = 3437 [527] K [5.04σ]

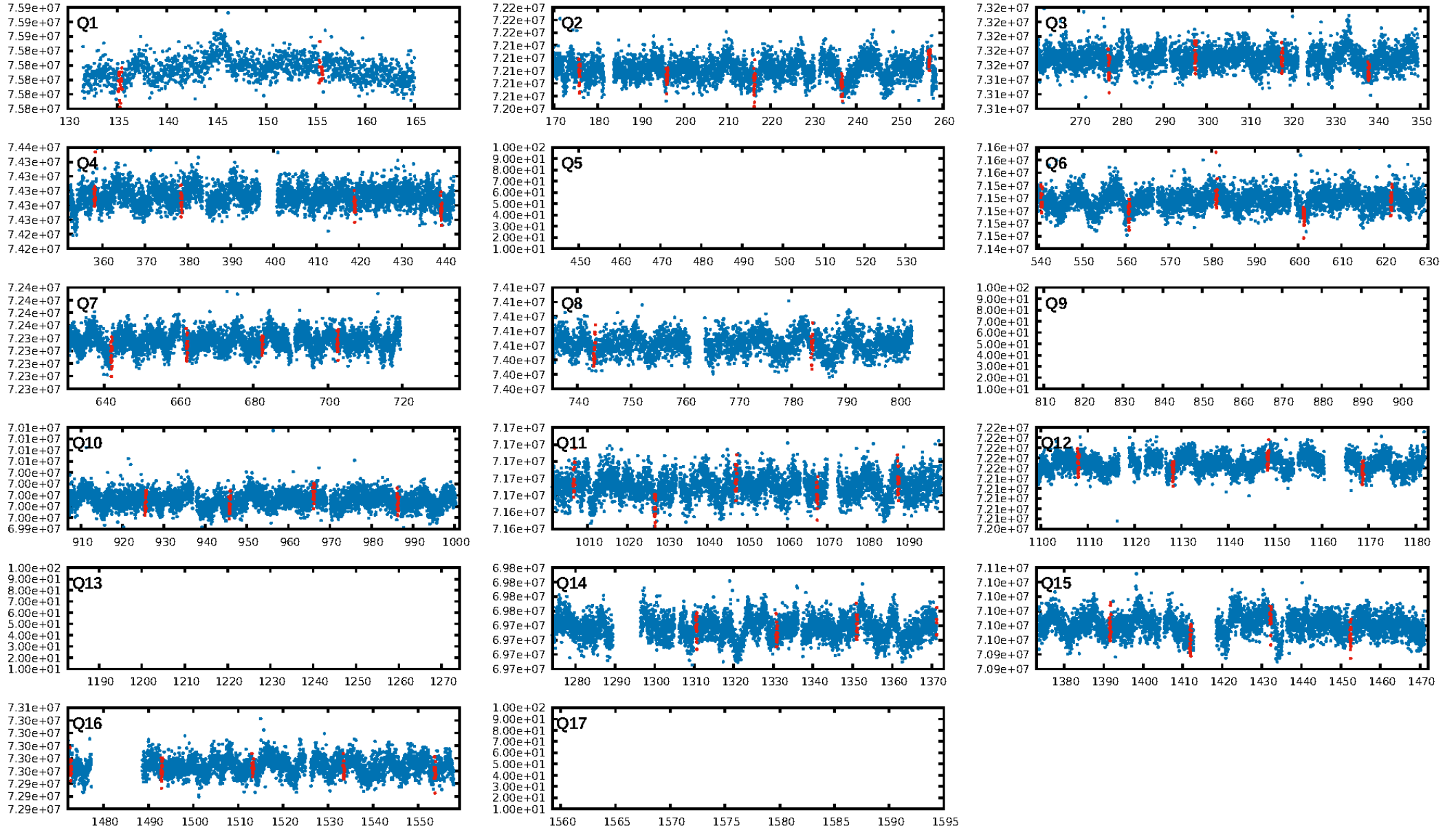
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.21σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.53e-58
RollingBand-fgt: 1.00 [49/49]
GhostDiagnostic-chr: 4.871
Centroid-sig: 37.5%
Centroid-so: 1.447 arcsec [1.38σ]
OotOffset-rm: 0.752 arcsec [1.68σ]
KicOffset-rm: 0.744 arcsec [1.68σ]
OotOffset-st: 3/2/3/1 [9]
KicOffset-st: 3/2/3/1 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [13/13]

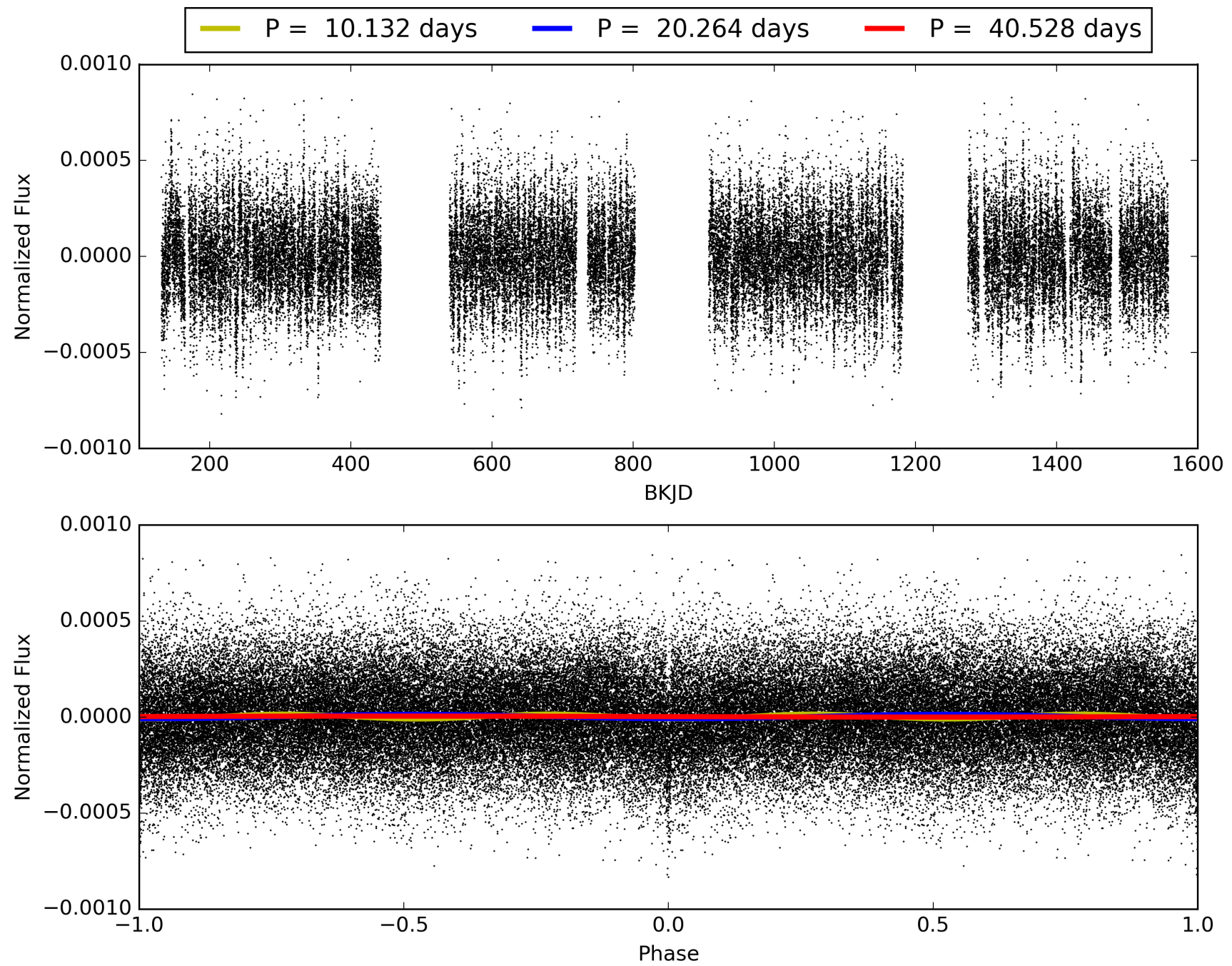
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:14:18 Z

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

TCE 006345732-01, PDC Light Curves

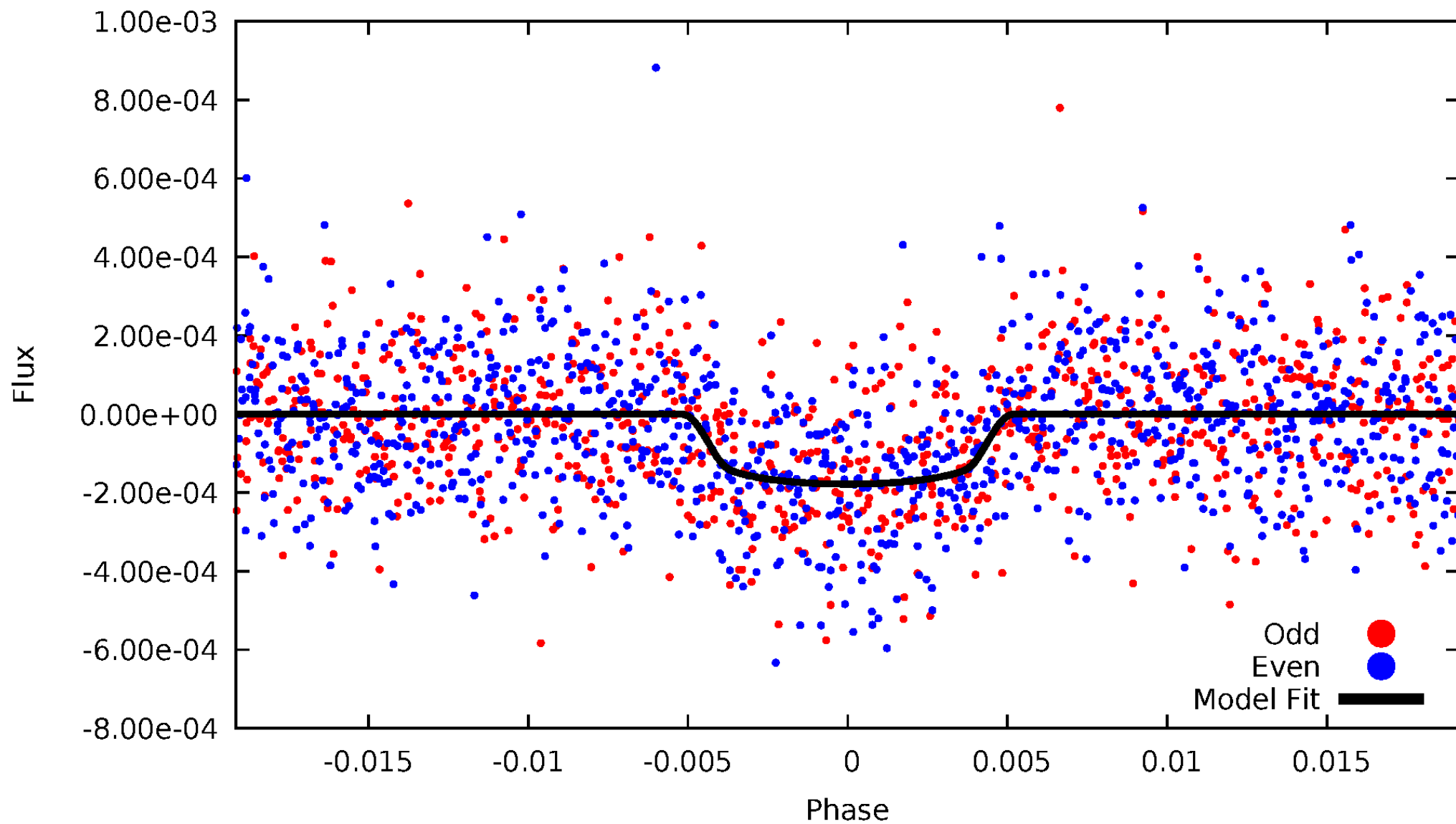


TCE 006345732-01



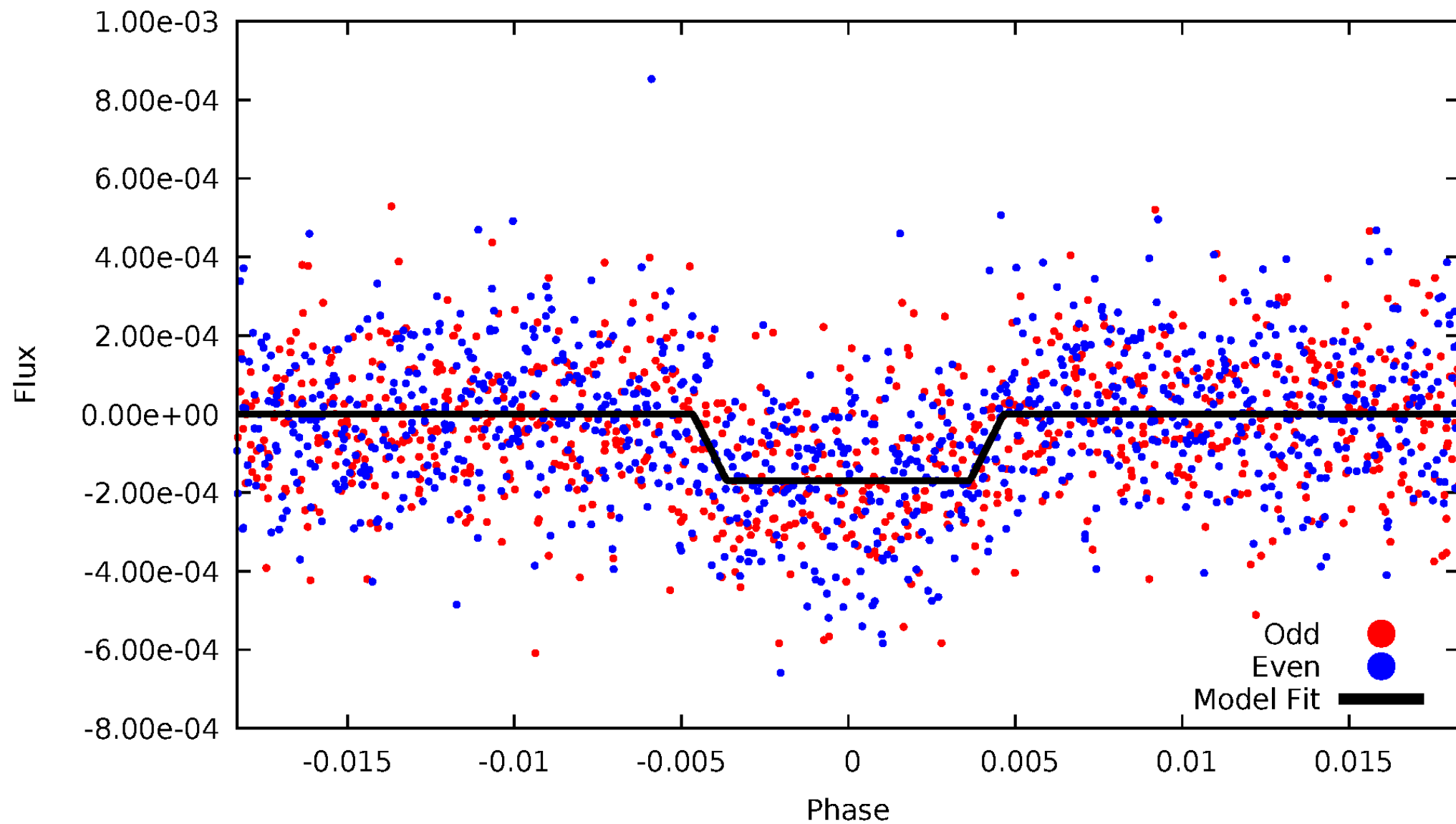
DV Odd/Even

TCE 006345732-01

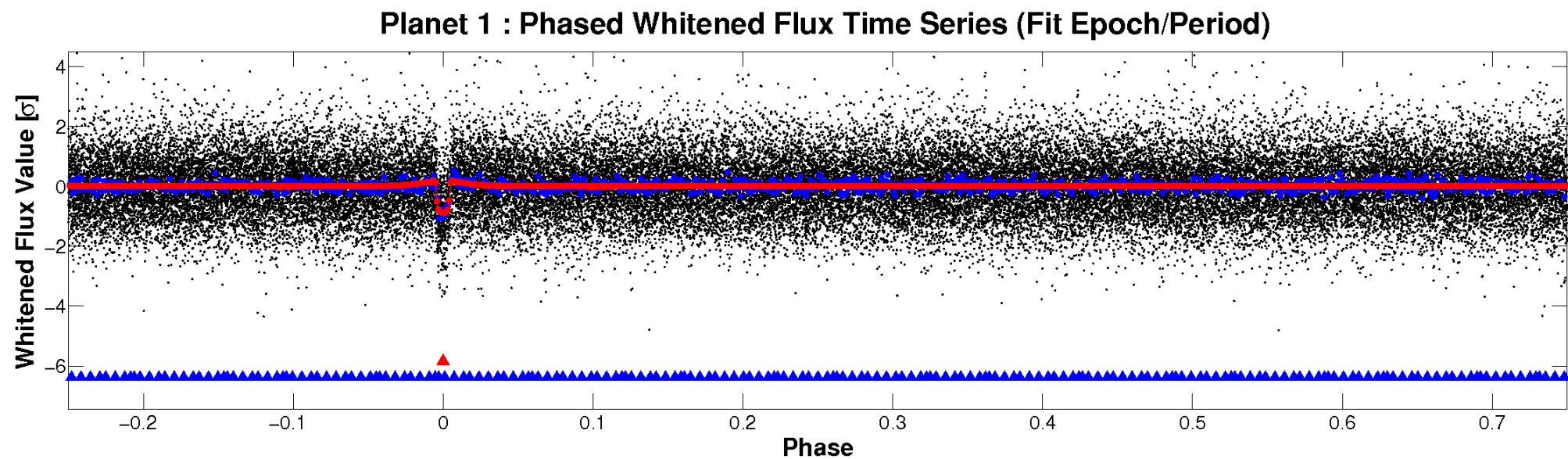
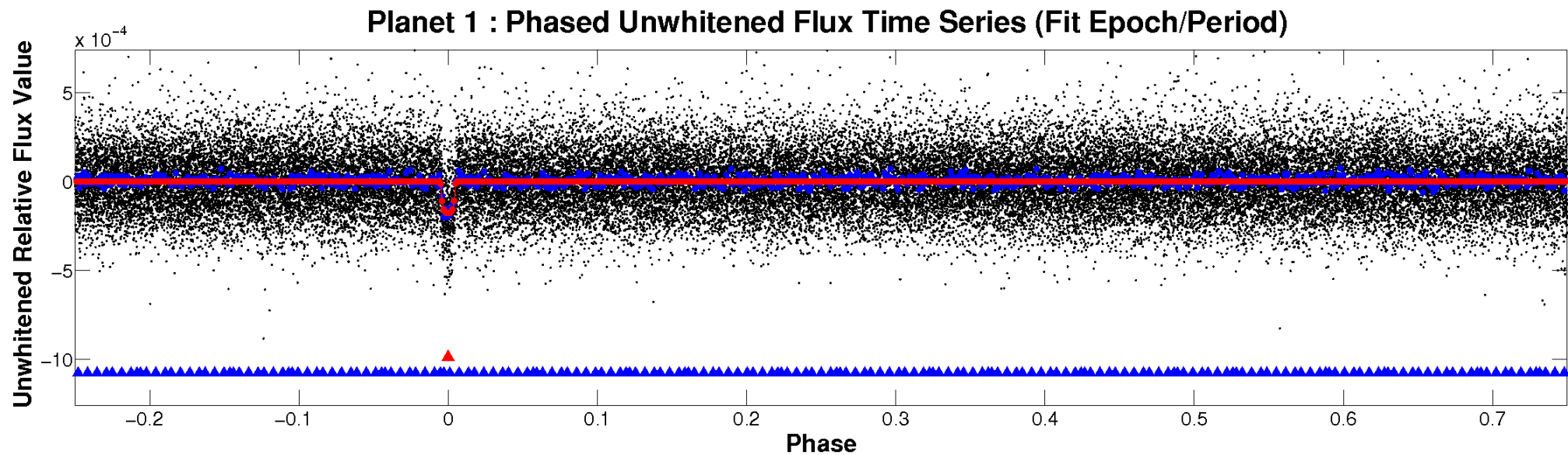


ALT Odd/Even

TCE 006345732-01

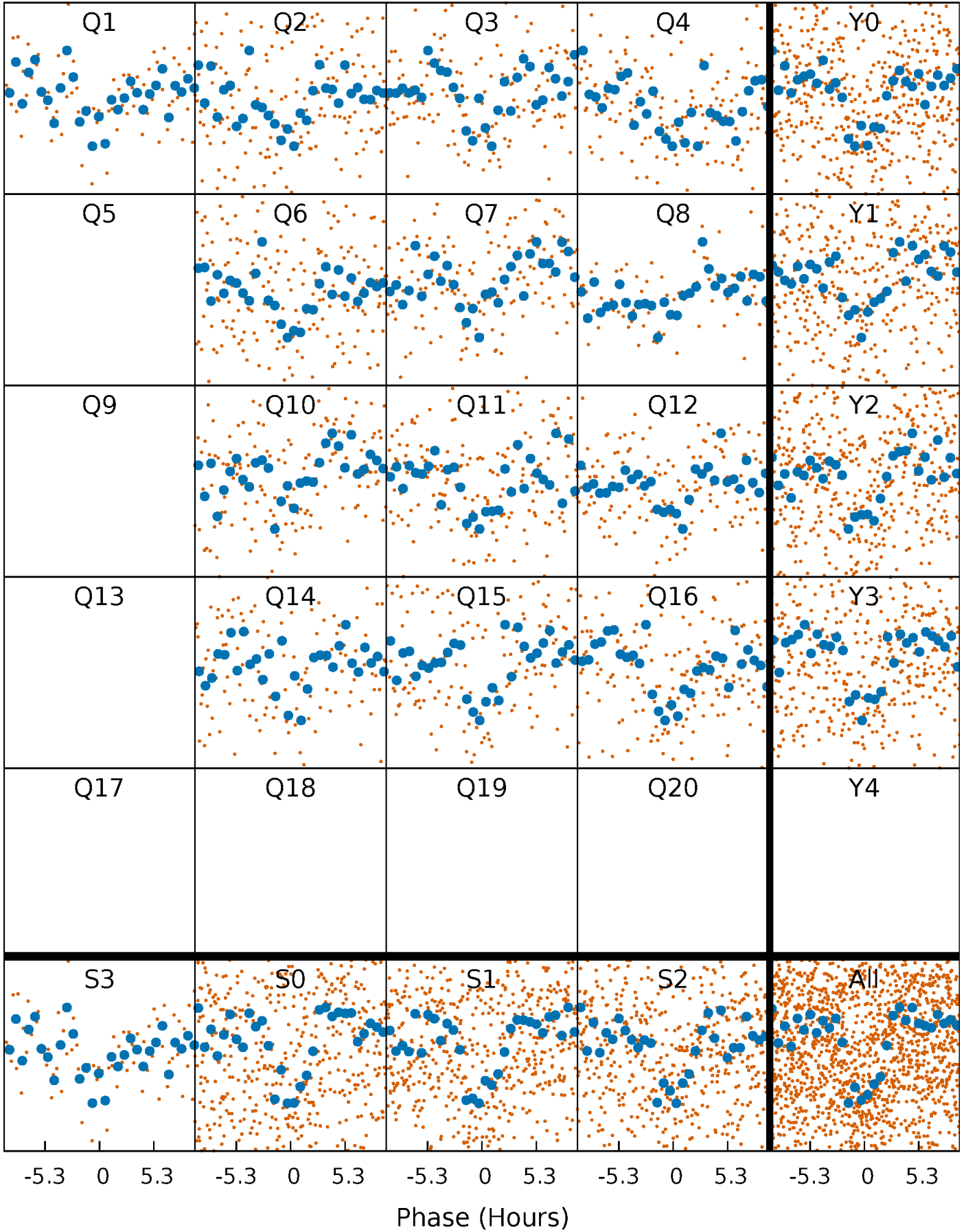


Non-Whitened Vs. Whitened Light Curve



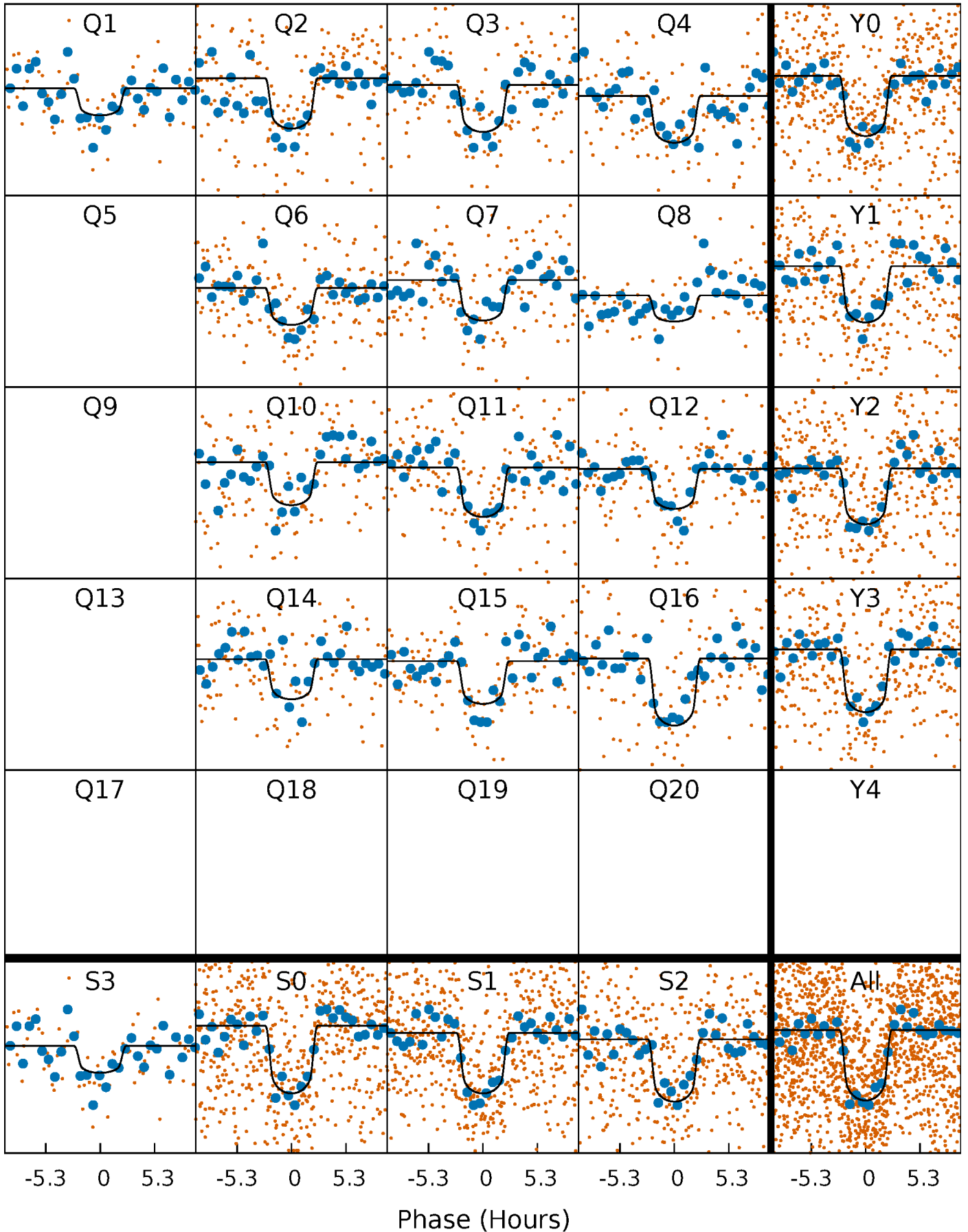
PDC Quarter-Phased Transit Curves

TCE 006345732-01 P= 20.264130 Days $T_0=135.282484$ (BKJD)



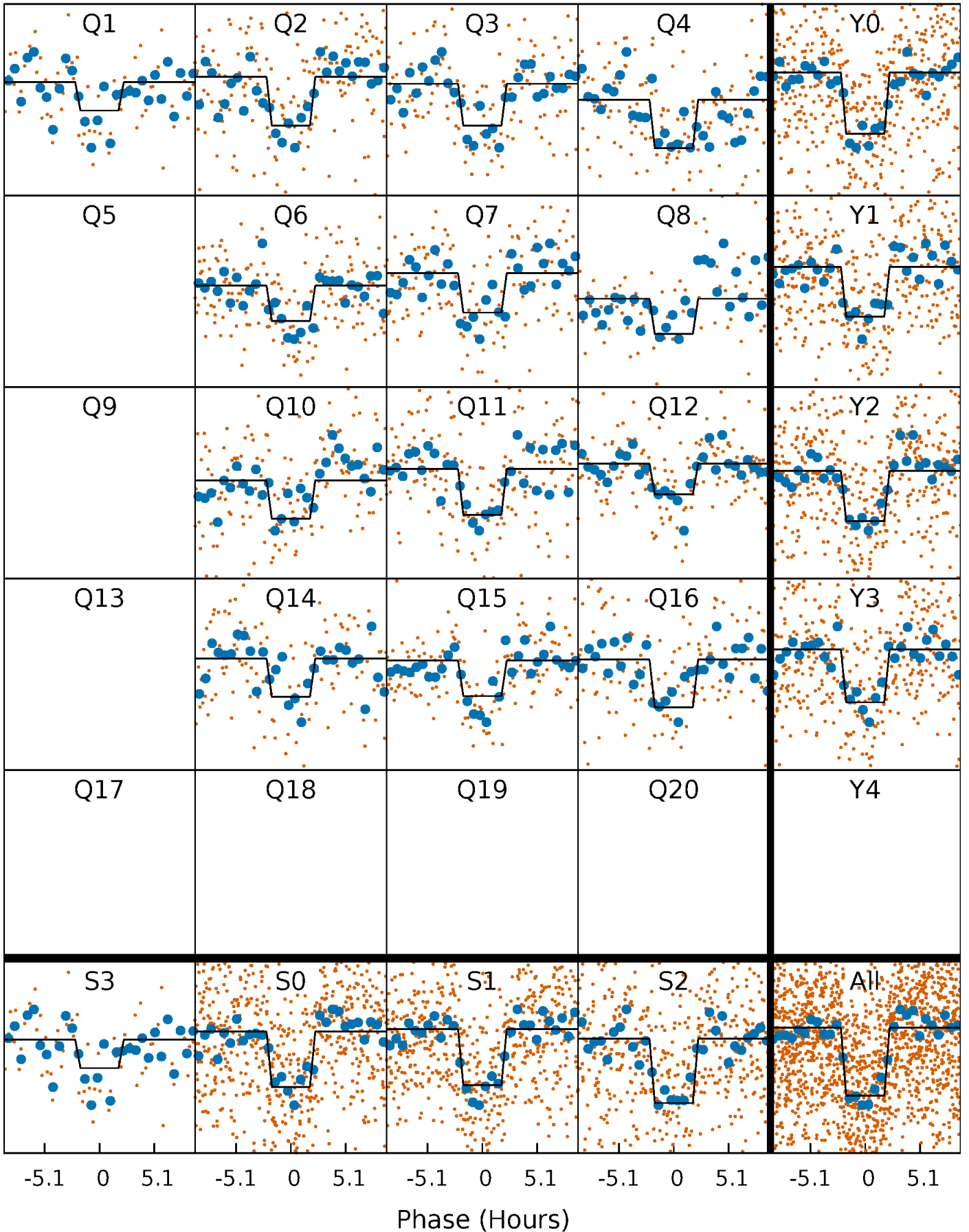
DV Quarter-Phased Transit Curves

TCE 006345732-01 P= 20.264130 Days $T_0=135.282484$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

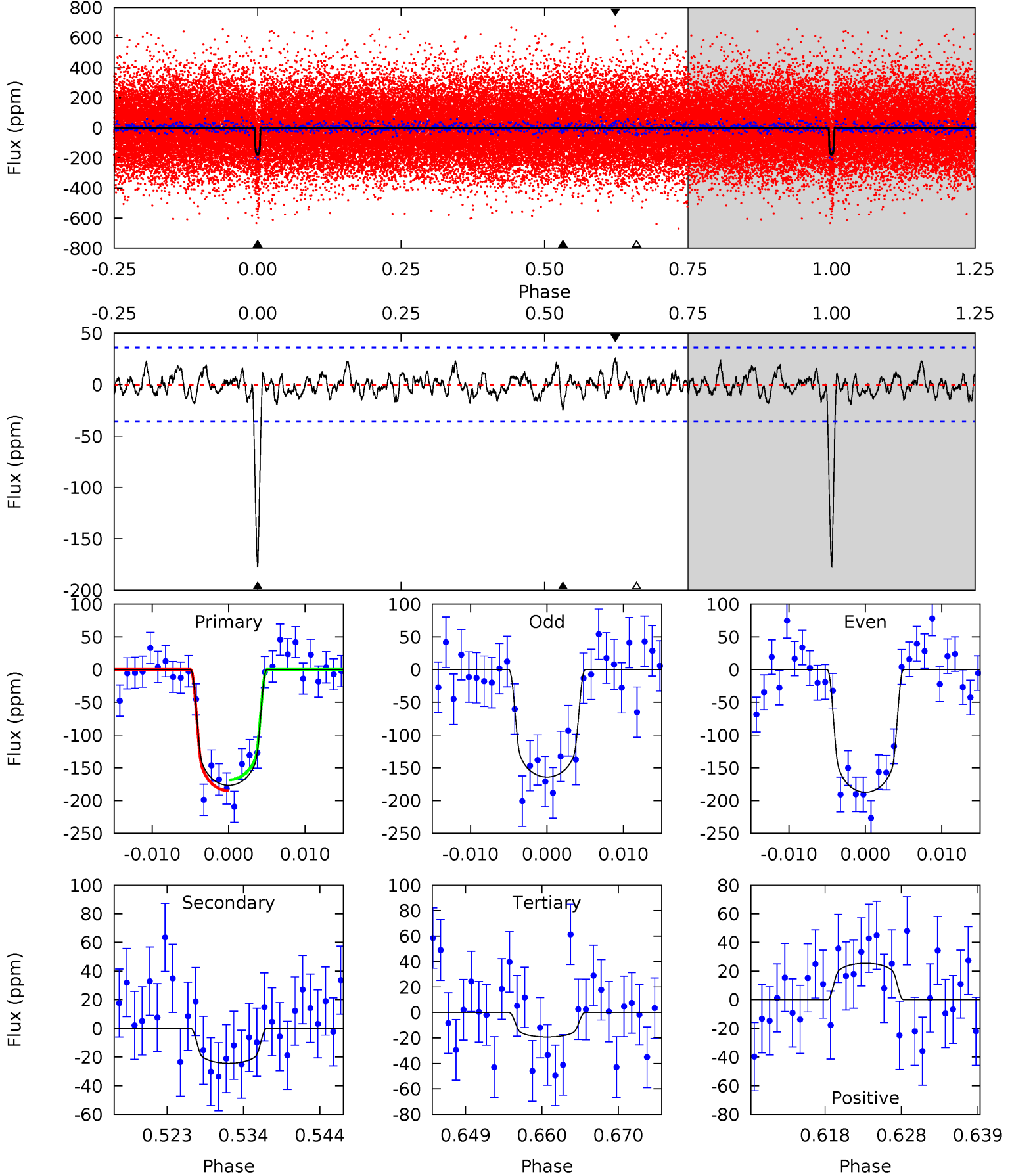
TCE 006345732-01 P= 20.264271 Days $T_0=135.277256$ (BKJD)



DV Model-Shift Uniqueness Test

006345732-01, P = 20.264130 Days, E = 115.018354 Days

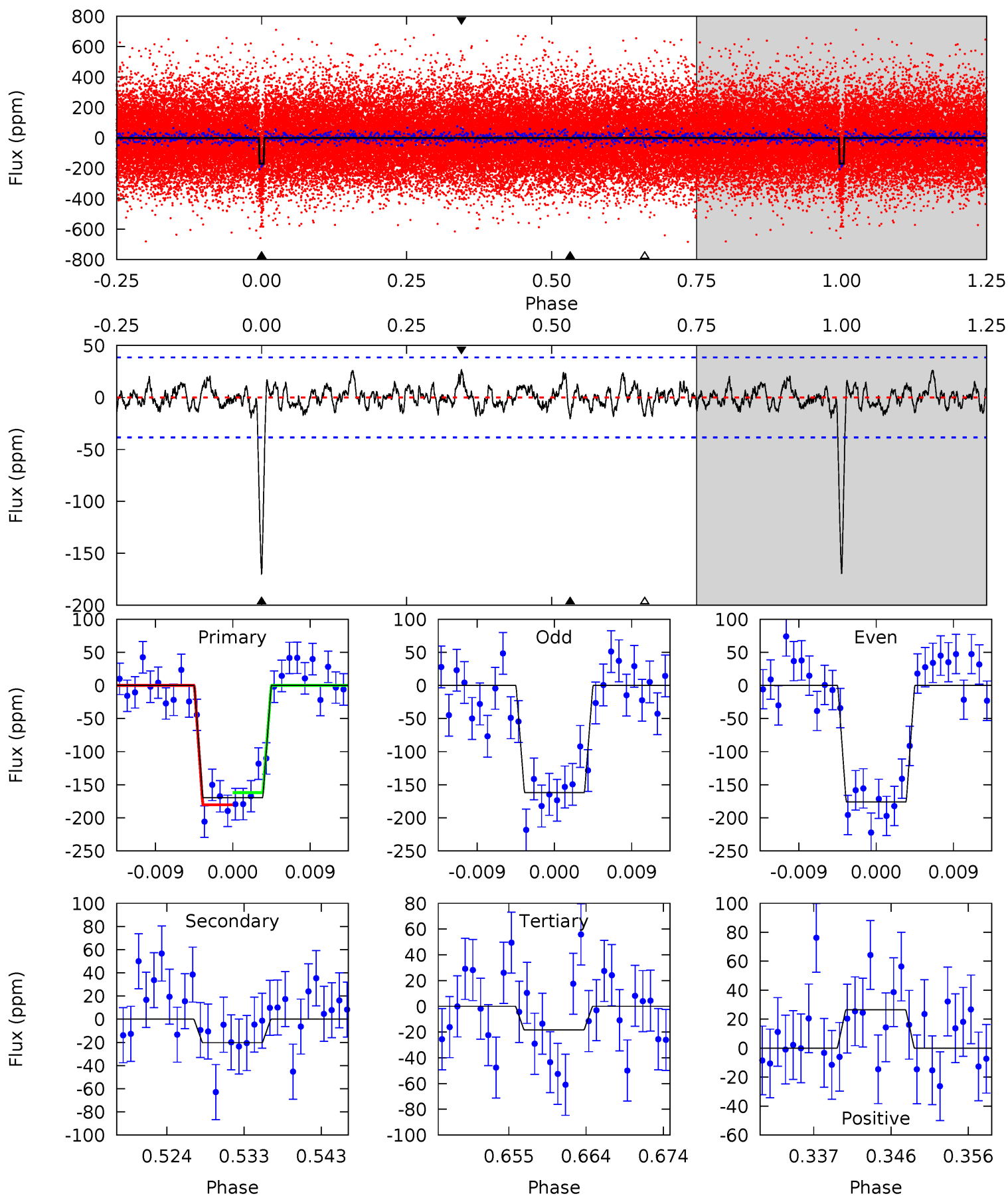
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.6	3.39	2.68	3.54	5.02	2.56	1.13	21.9	21.1	0.72	-0.15	1.63	1.02	0.13	1.16



Alt Model-Shift Uniqueness Test

006345732-01, P = 20.264271 Days, E = 115.012985 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	2.65	2.40	3.46	5.04	2.60	1.07	19.8	18.7	0.25	-0.81	0.93	1.01	0.13	1.20



Stellar Parameters For KIC 006345732

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5937^{+71}_{-79}	$4.251^{+0.137}_{-0.112}$	$0.100^{+0.150}_{-0.150}$	$1.291^{+0.209}_{-0.209}$	$1.084^{+0.085}_{-0.077}$	$0.710^{+0.445}_{-0.232}$
	+1%/-1%	+3%/-3%	+150%/-150%	+16%/-16%	+8%/-7%	+63%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 006345732-01 / KOI 2857.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-24 ± 7	$2.04^{+0.51}_{-0.45}$	1074^{+45}_{-49}	3823^{+403}_{-321}	72^{+60}_{-31}
Alt.	-20 ± 8	$1.81^{+0.46}_{-0.43}$	1073^{+45}_{-48}	3830^{+452}_{-371}	73^{+64}_{-35}

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 $A_{obs} \gg 1.0$

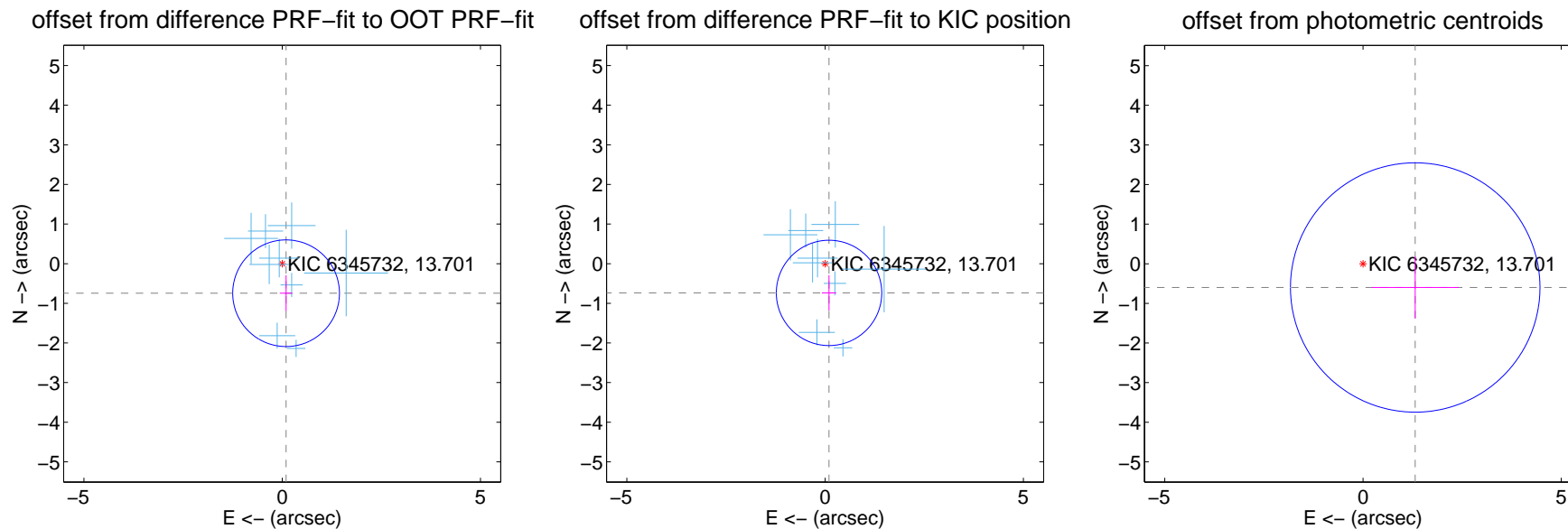
DV Centroid Data

Supplemental centroid analysis for 006345732-01. Kepler magnitude: 13.70. Transit SNR 16.47

There are 9 quarters with good PRF difference image offsets

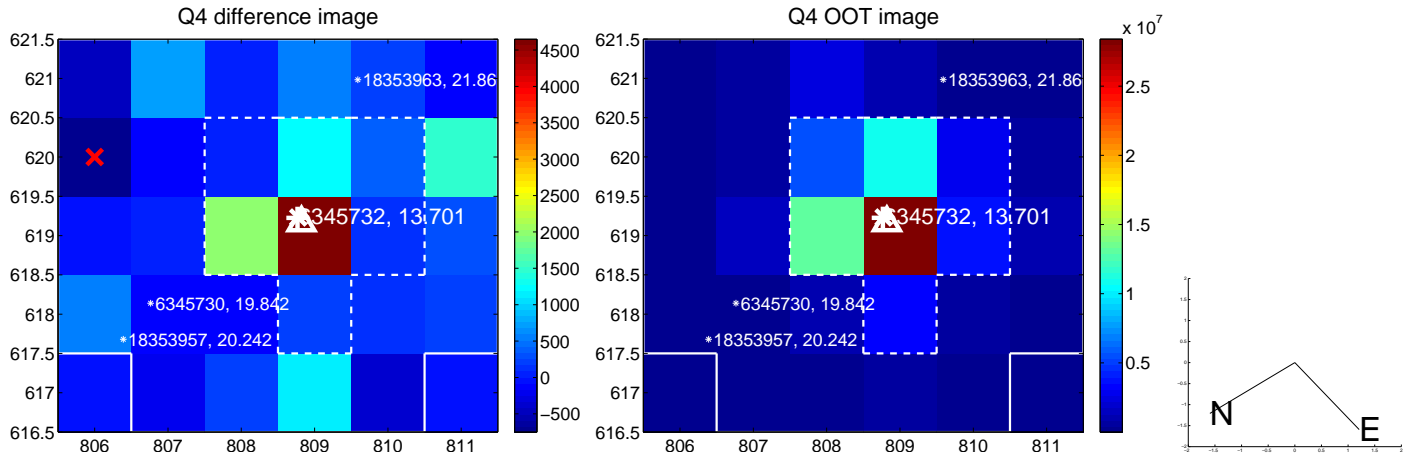
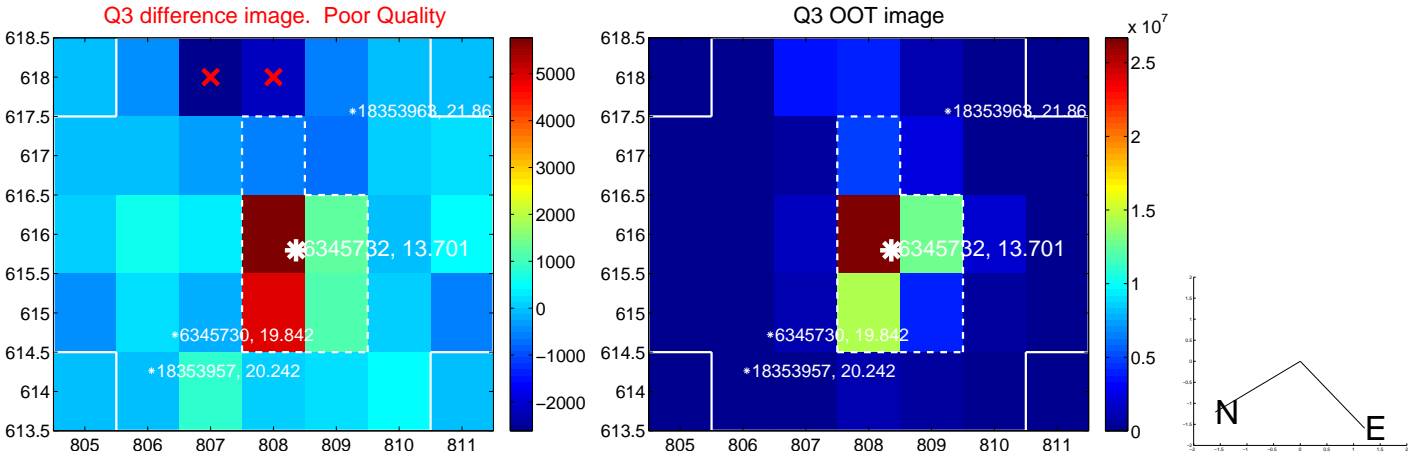
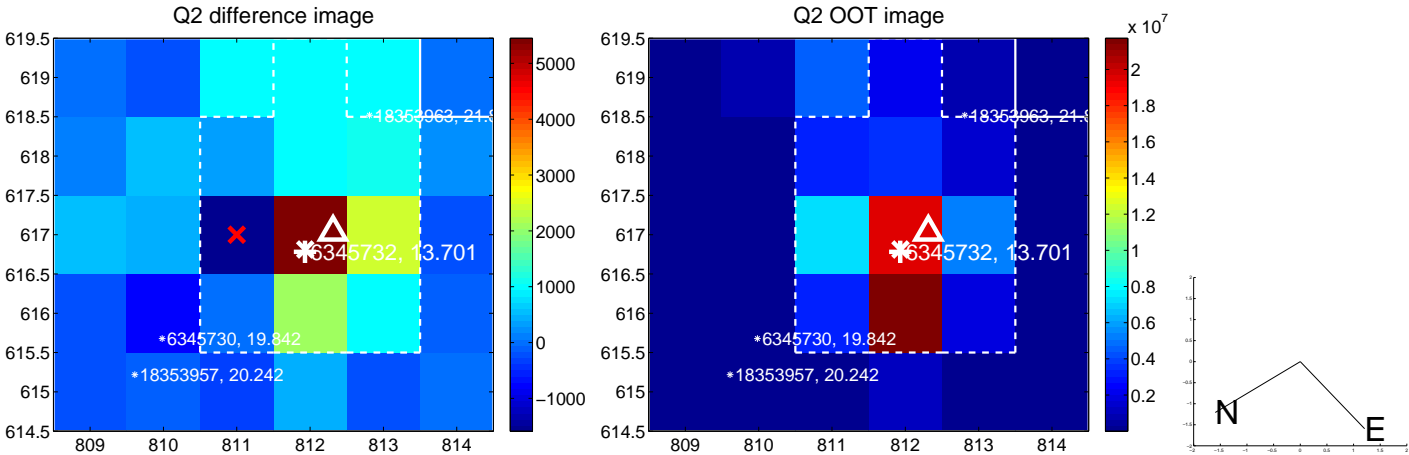
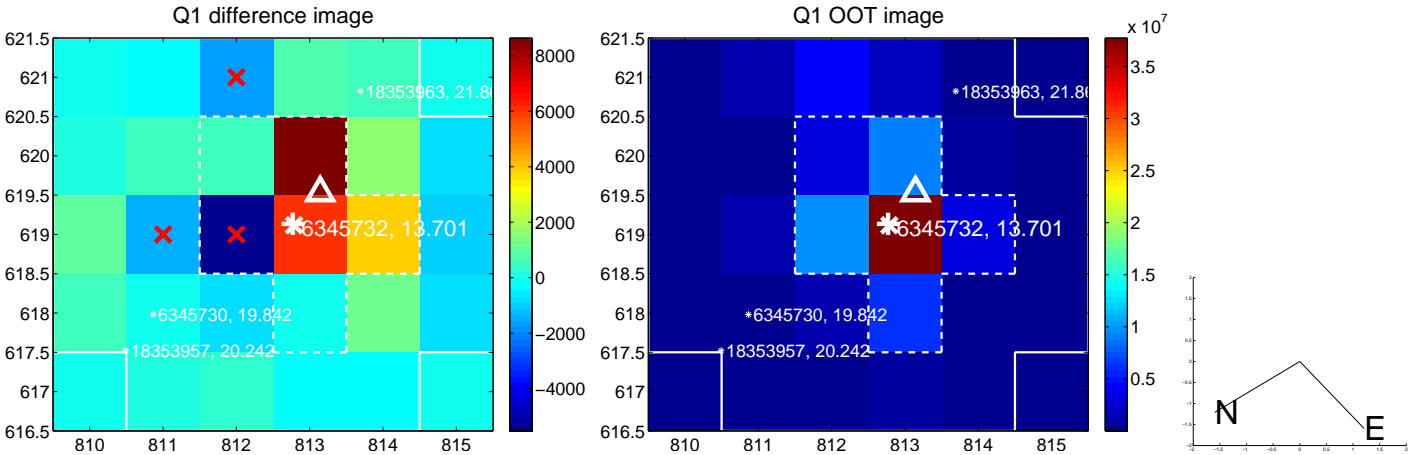
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.752 ± 0.449	1.68	-0.098 ± 0.160	-0.745 ± 0.452
PRF-fit source offset from KIC position	0.744 ± 0.443	1.68	-0.099 ± 0.182	-0.737 ± 0.446
photometric centroid source offset	1.45 ± 1.05	1.38	-1.32 ± 1.10	-0.60 ± 0.78

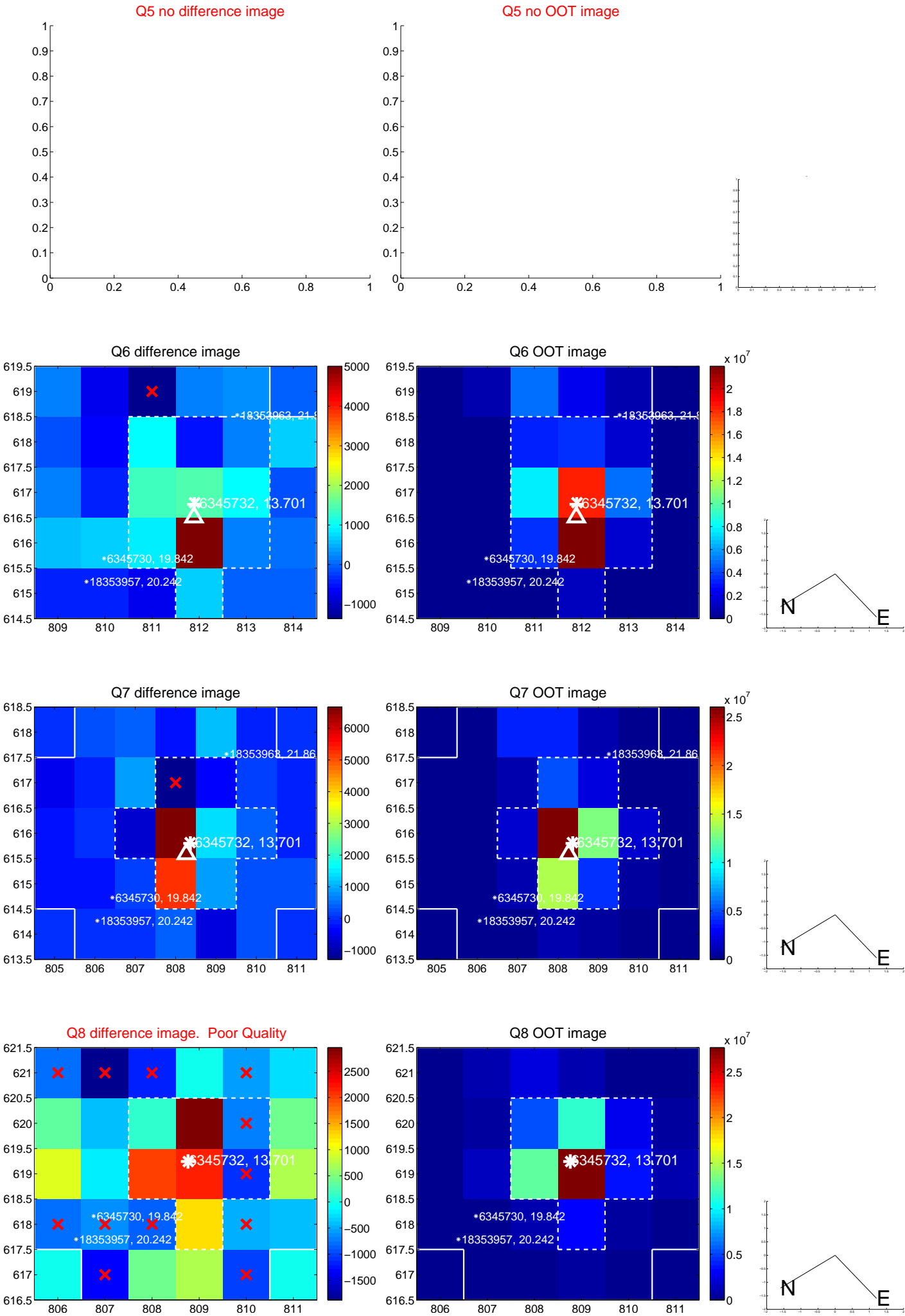


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

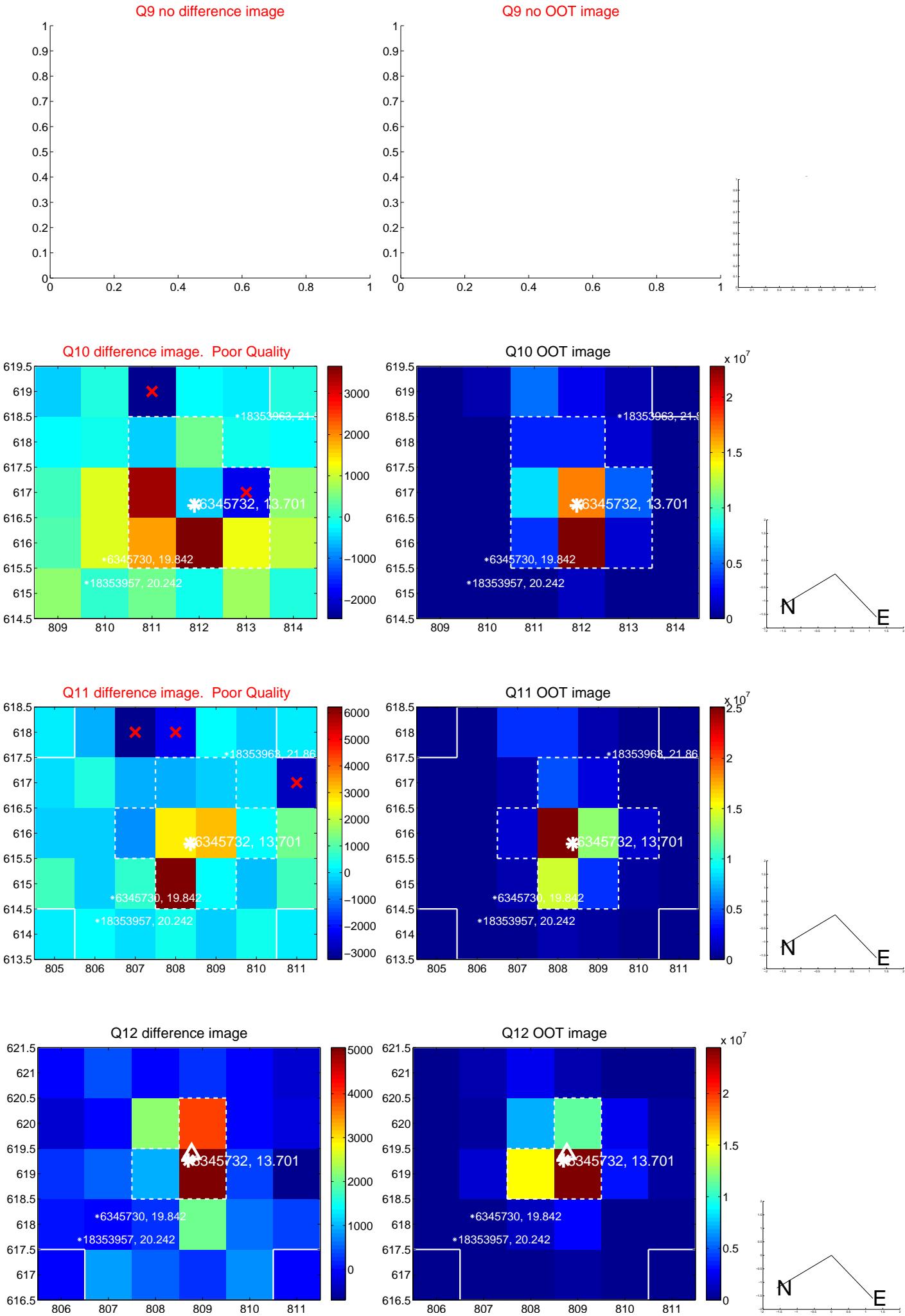
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



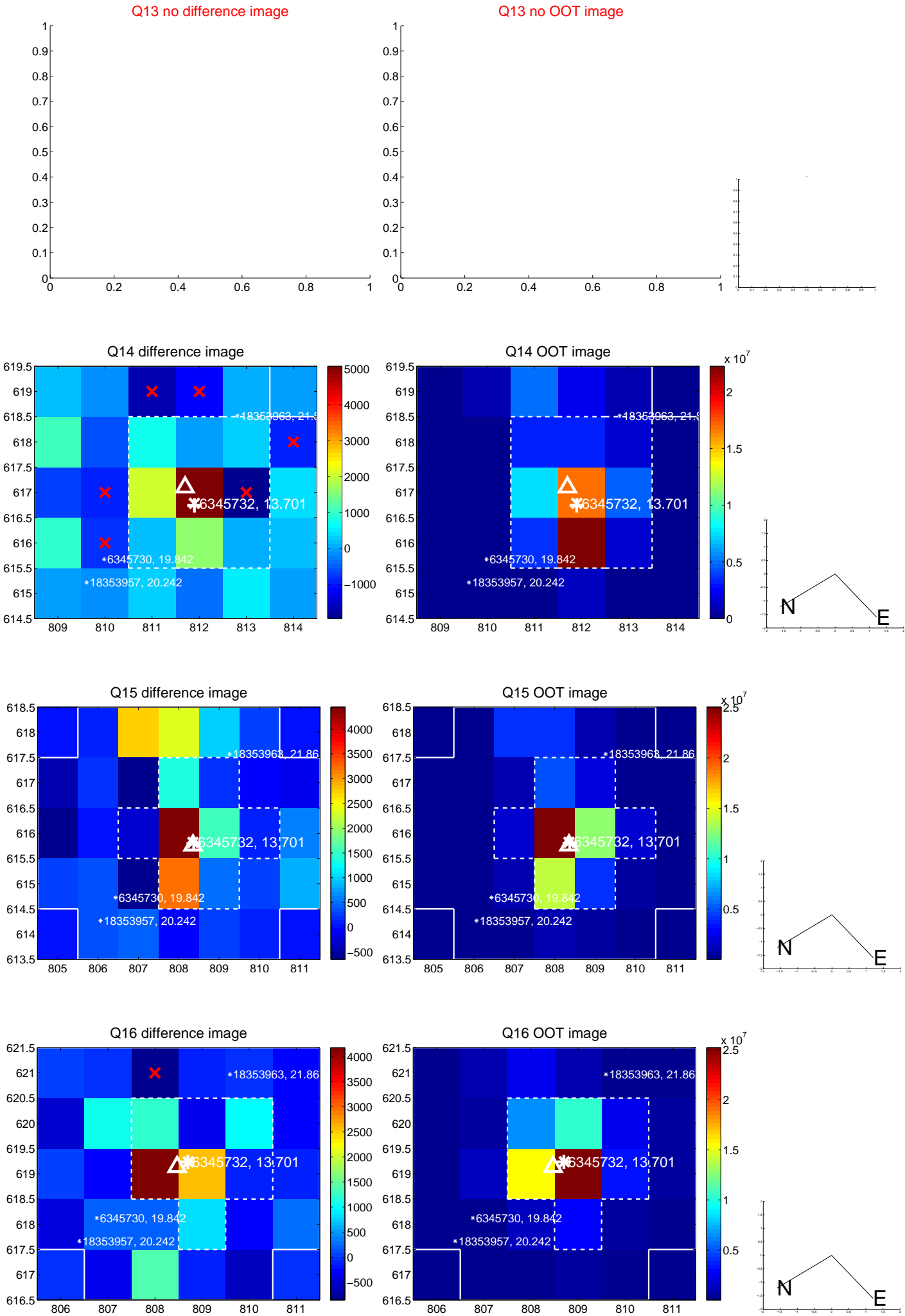
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



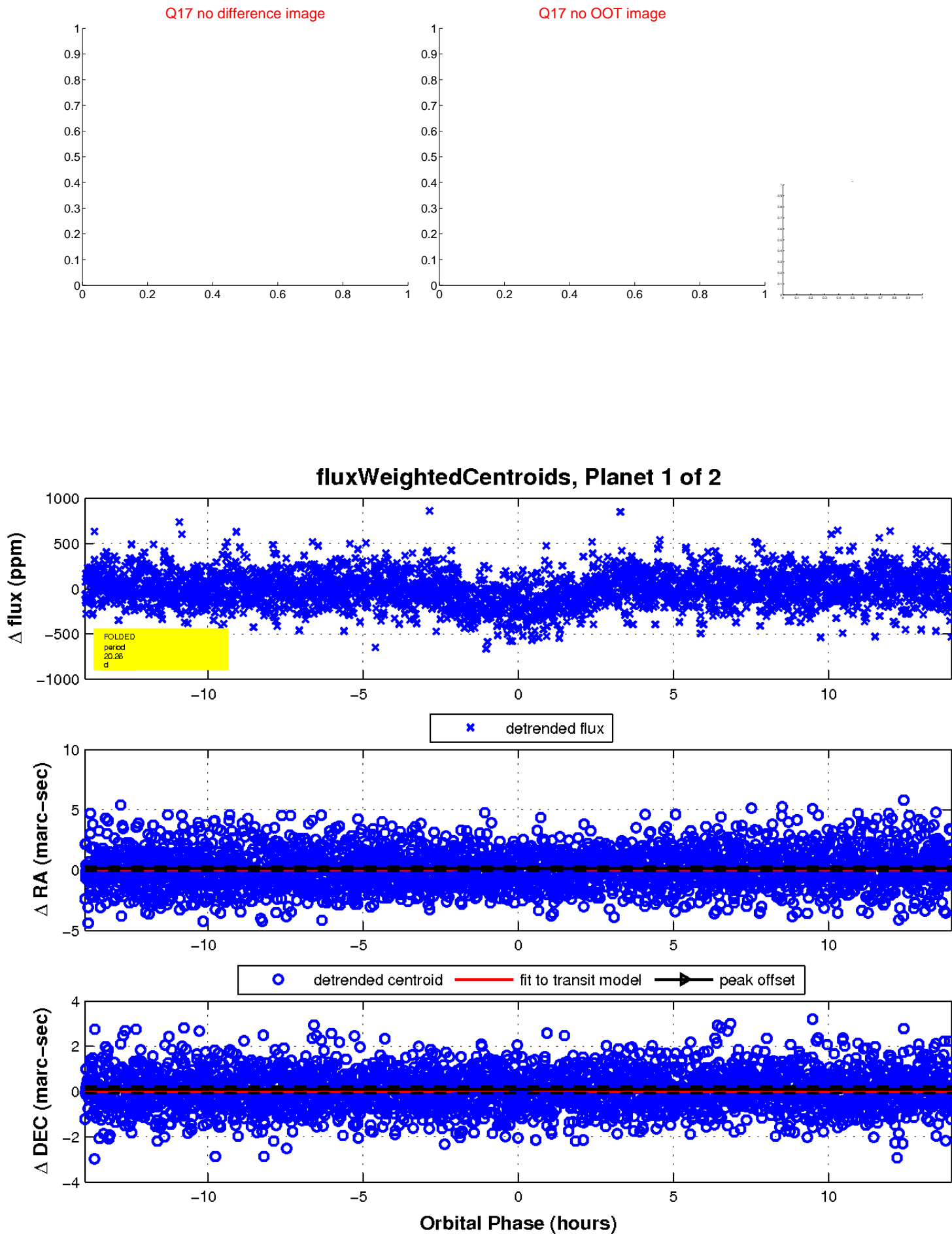
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

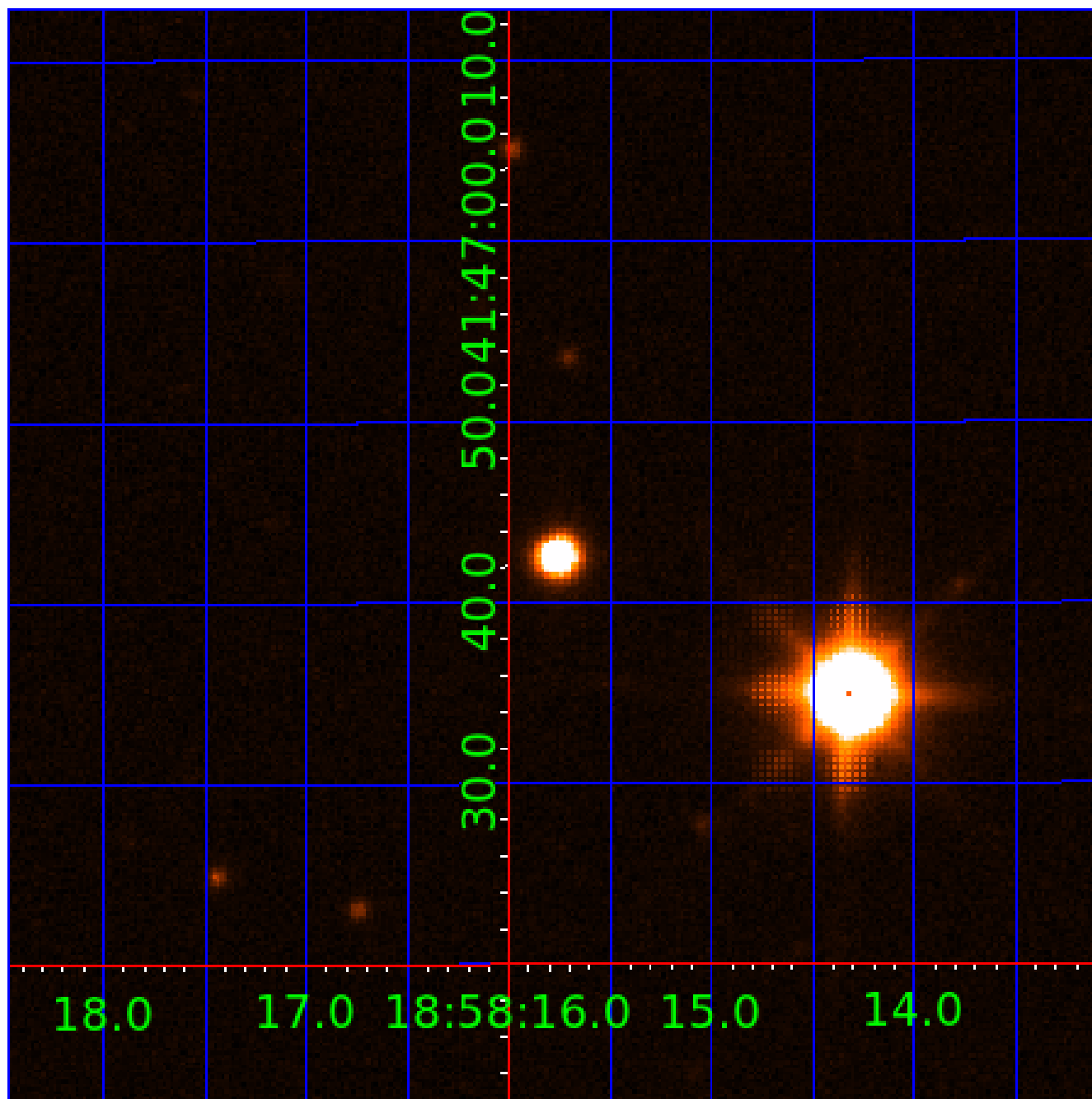


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006345732

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})
006345732-01	OBS	2857.01	20.264130	135.282484	178.6	4.654	16.4	16.5	1.29	5937	2.04	83.08
006345732-02	OBS	2857.02	7.441357	137.747600	83.8	4.764	12.8	13.1	1.29	5937	1.38	315.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006345732-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006345732-02	OBS	PC	0.93	0	0	0	0	NO_COMMENT

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

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

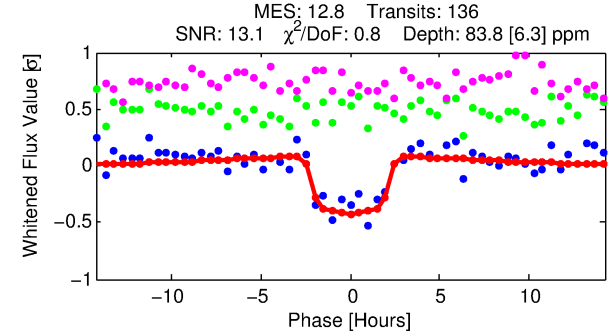
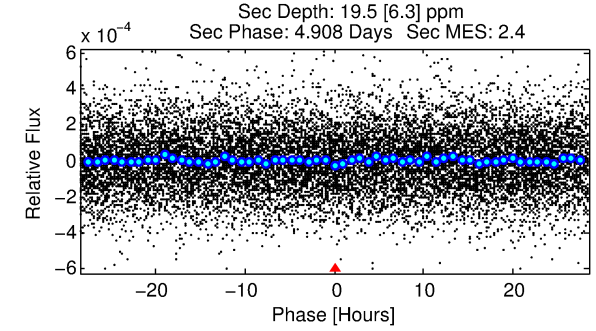
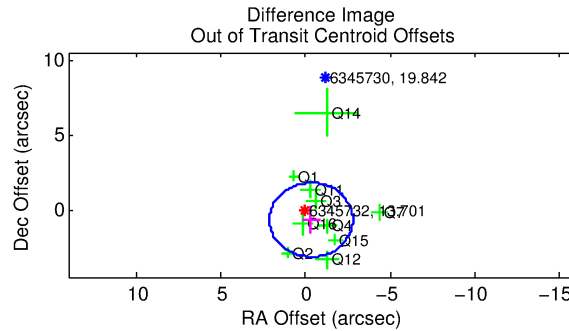
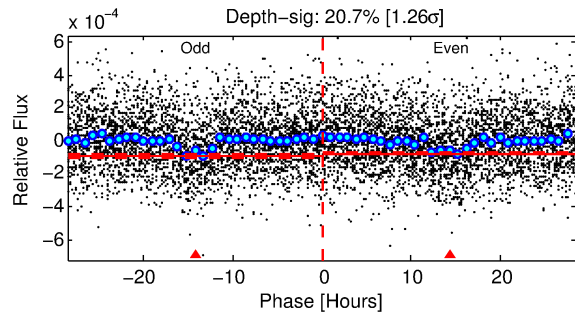
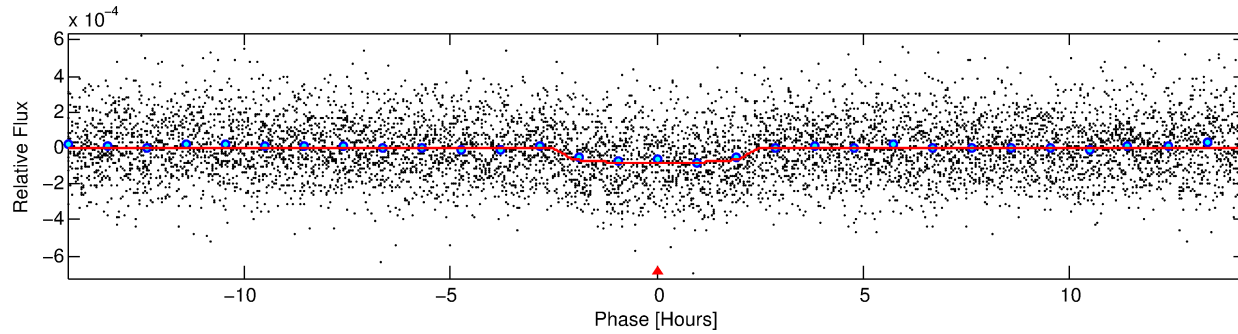
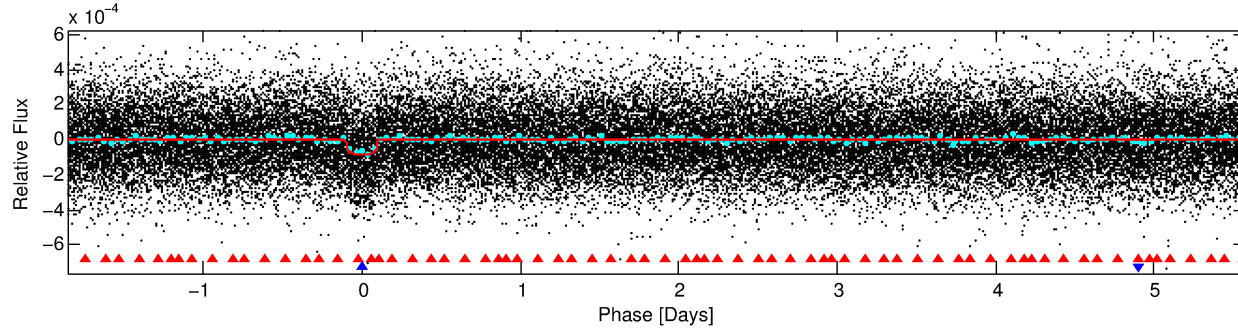
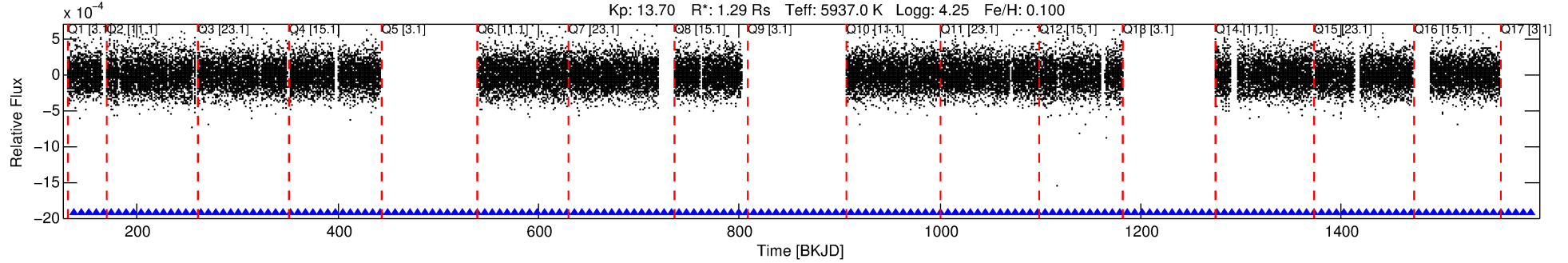
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006345732-02

No Significant Match Found

DV One-Page Summary

KIC: 6345732 Candidate: 2 of 2 Period: 7.441 d
KOI: K02857.02 Corr: 0.977



DV Fit Results:

Period = 7.44136 [0.00005] d
Epoch = 137.7476 [0.0054] BKJD
Rp/R* = 0.0098 [0.0037]
a/R* = 5.83 [10.63]
b = 0.89 [0.46]
Seff = 315.92 [76.55]
Teq = 1075 [65] K
Rp = 1.38 [0.57] Re
a = 0.0766 [0.0115] AU
Ag = 32.92 [28.38] [1.12 σ]
Teffp = 3981 [827] K [3.50 σ]

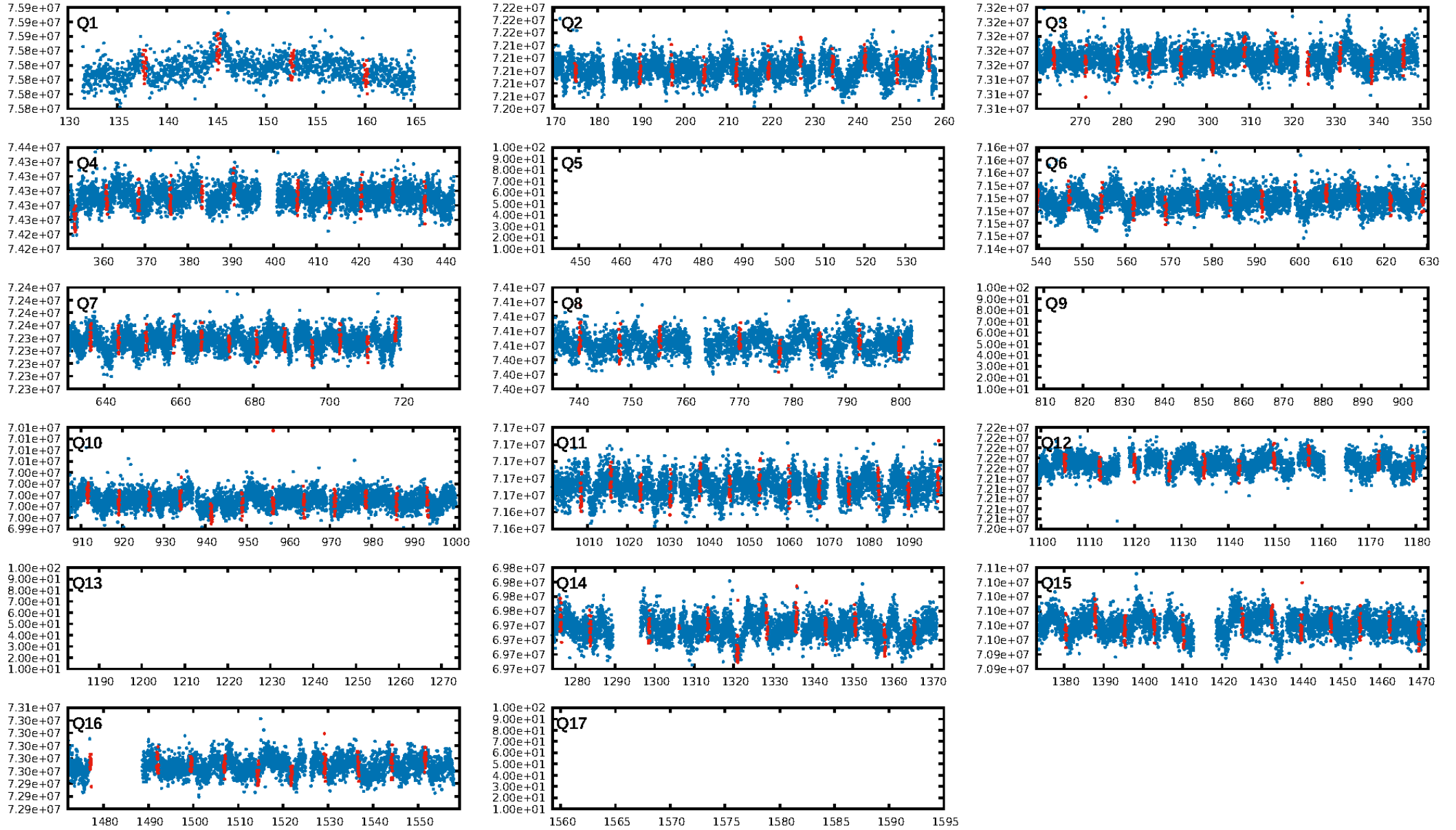
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [46.21 σ]
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.64e-37
RollingBand-fgt: 1.00 [132/132]
GhostDiagnostic-chr: 1.241
Centroid-sig: 72.5%
Centroid-so: 1.061 arcsec [0.76 σ]
OotOffset-rm: 0.758 arcsec [0.92 σ]
KicOffset-rm: 0.729 arcsec [0.83 σ]
OotOffset-st: 2/4/3/1 [10]
KicOffset-st: 2/4/3/1 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [13/13]

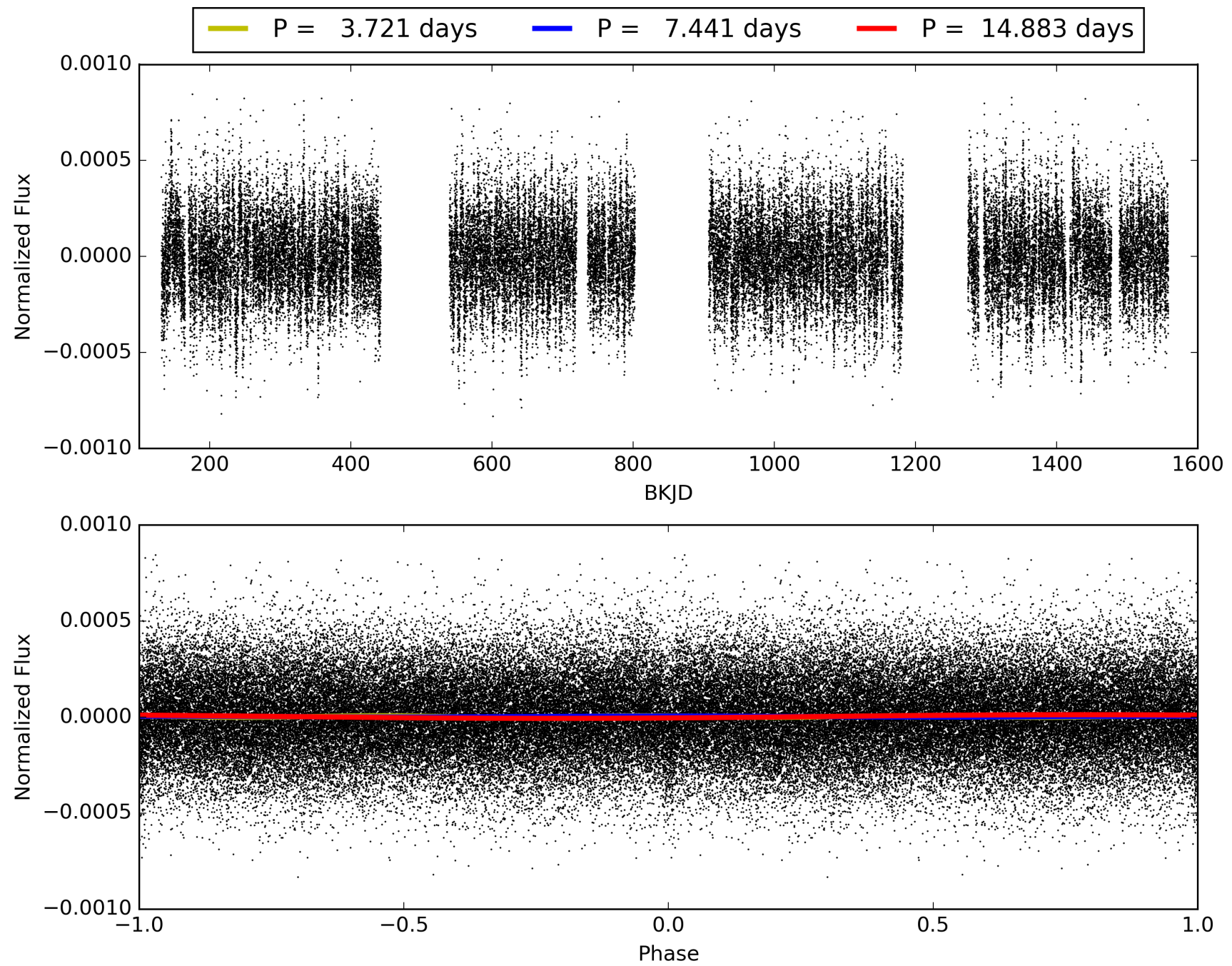
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:14:24 Z

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

TCE 006345732-02, PDC Light Curves

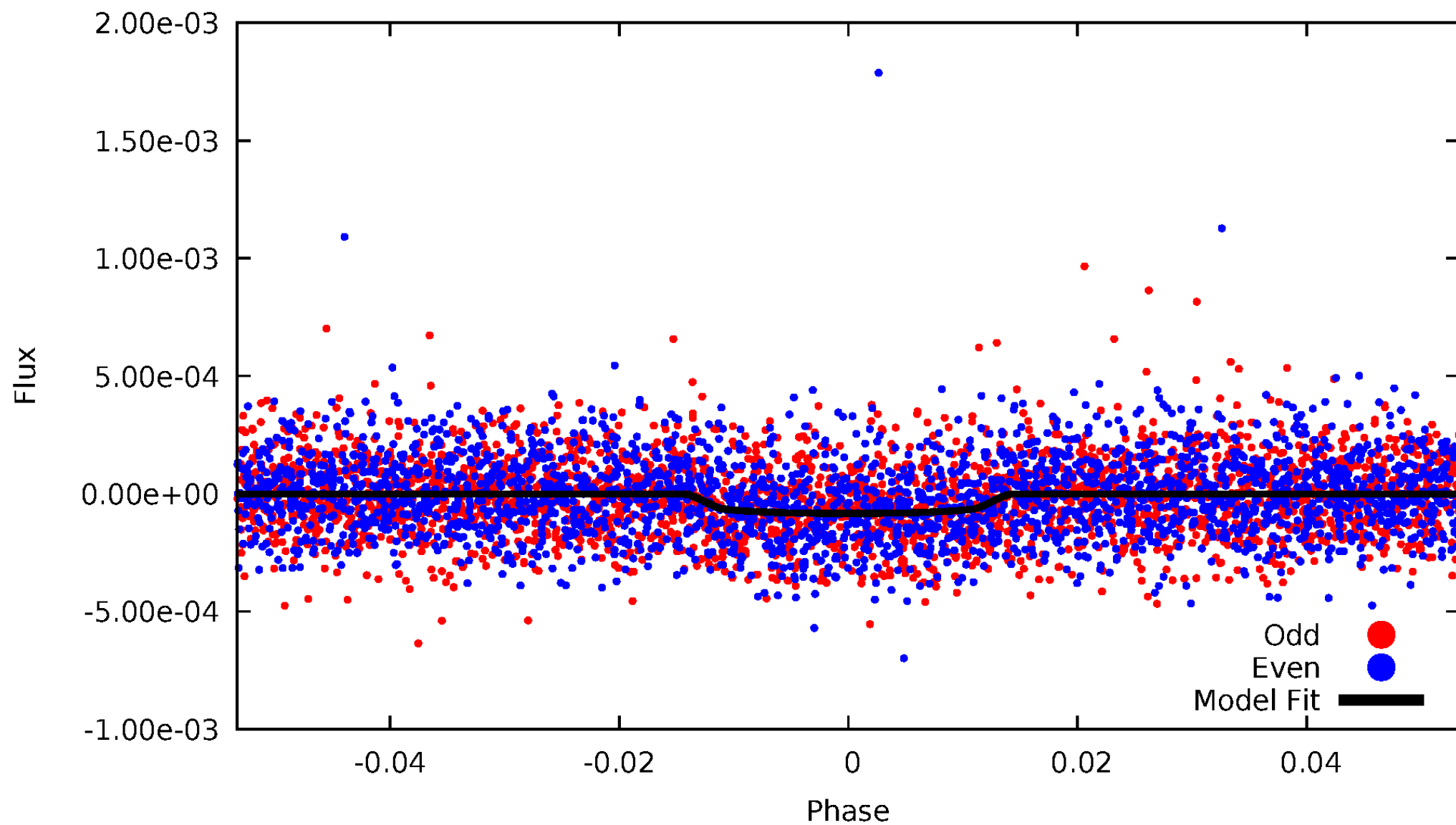


TCE 006345732-02



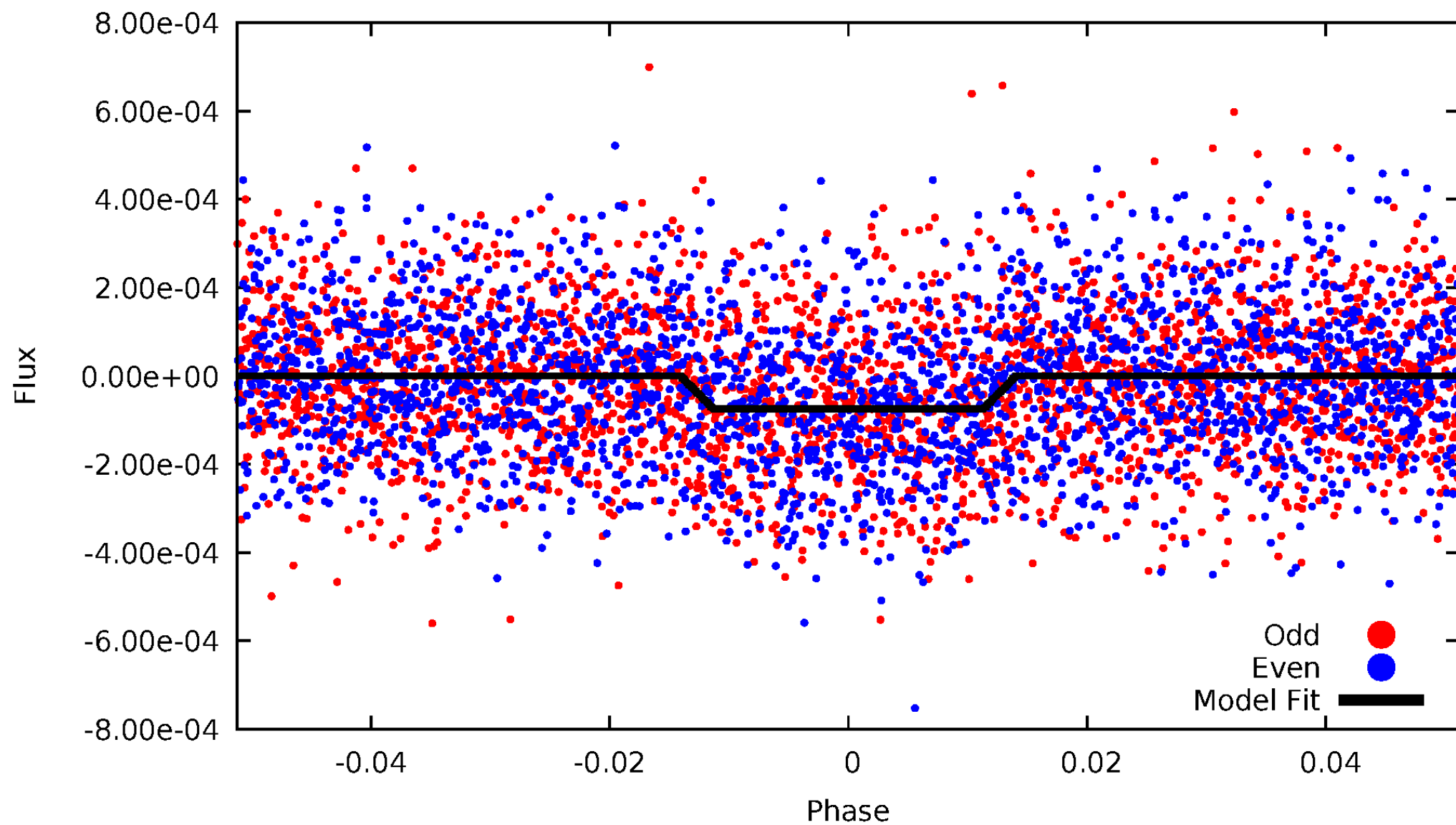
DV Odd/Even

TCE 006345732-02



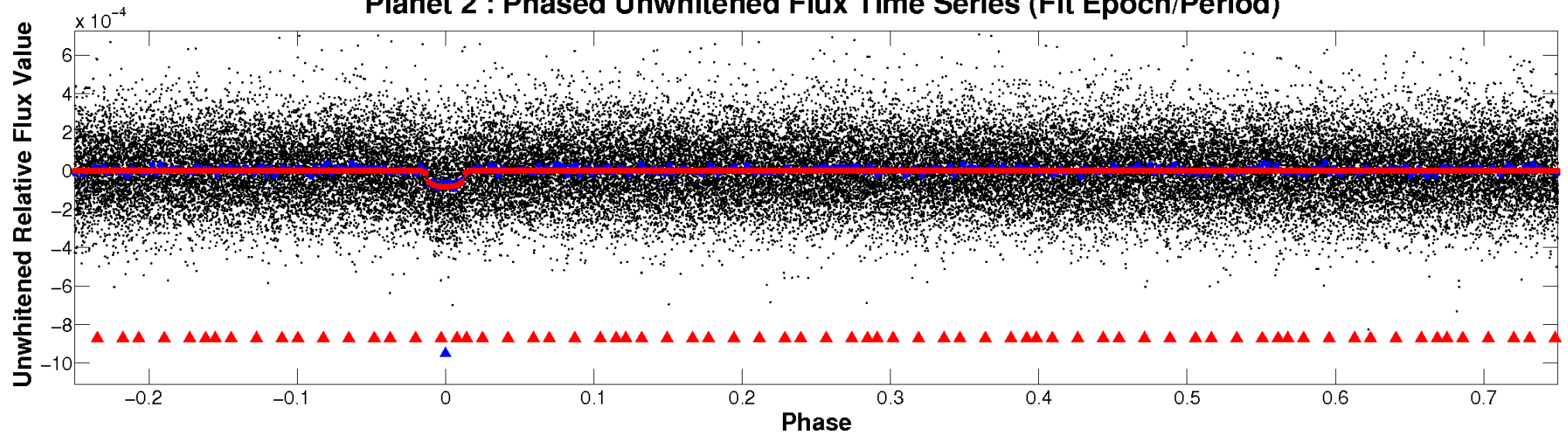
ALT Odd/Even

TCE 006345732-02

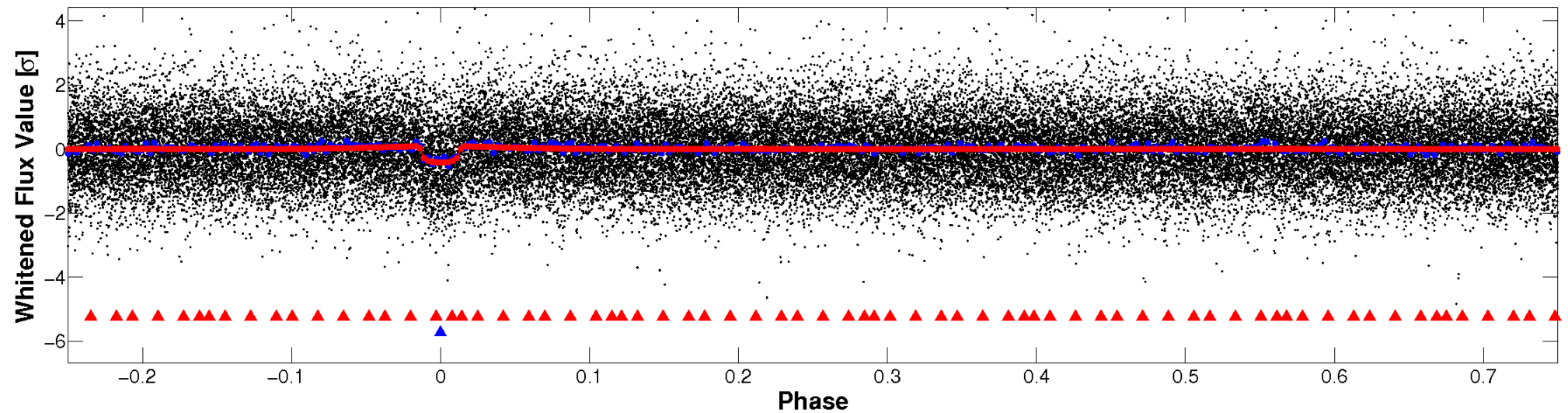


Non-Whitened Vs. Whitened Light Curve

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

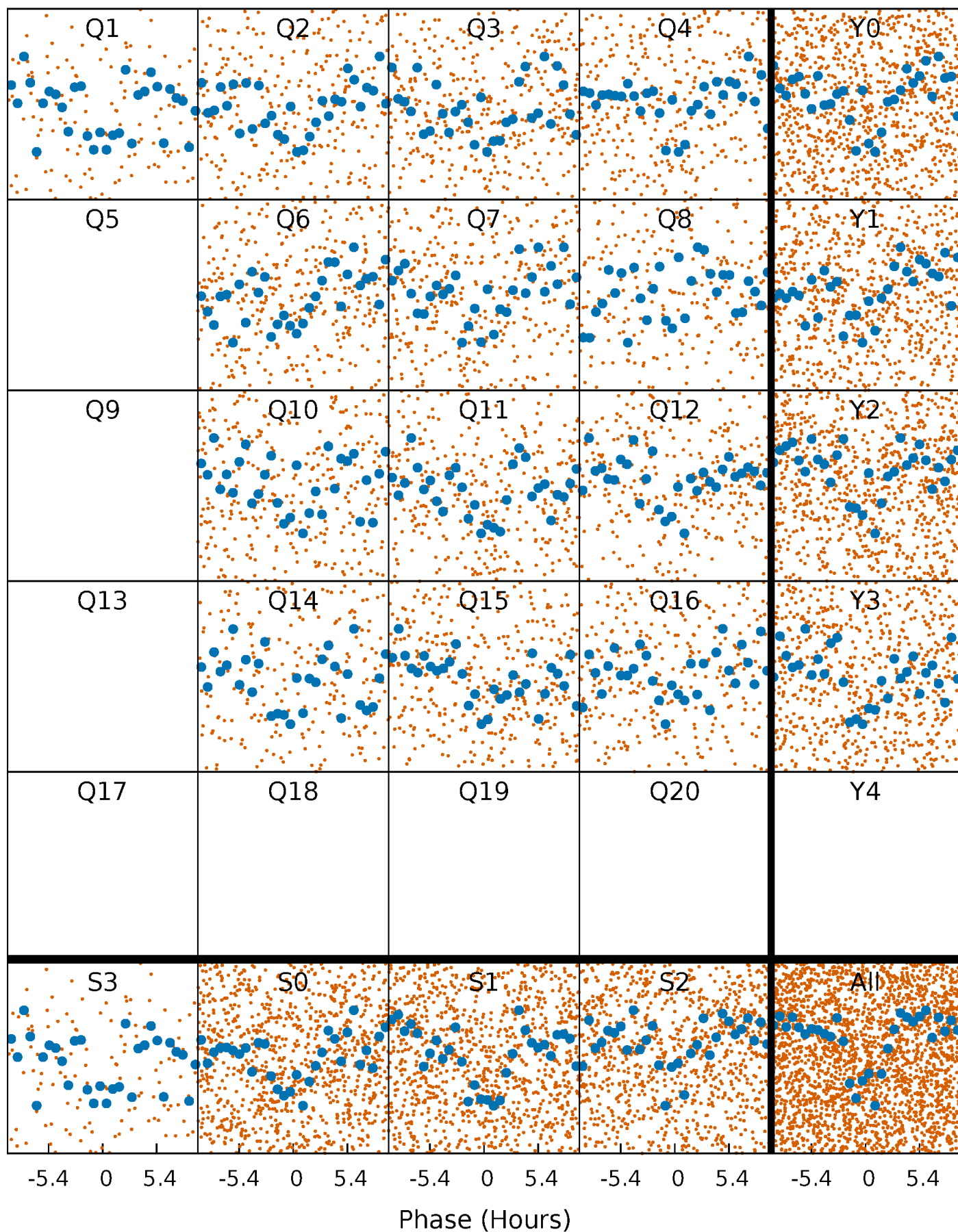


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



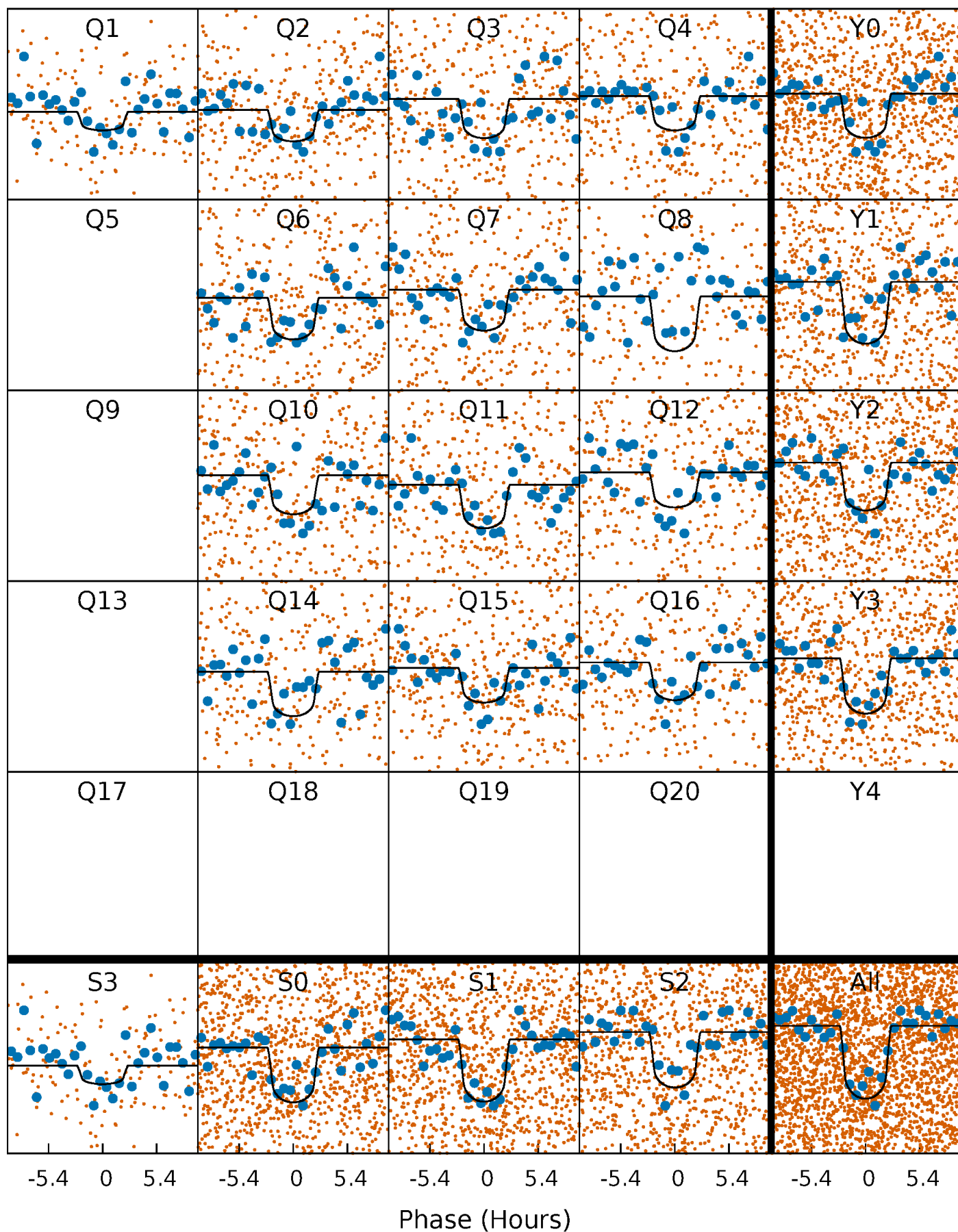
PDC Quarter-Phased Transit Curves

TCE 006345732-02 P= 7.441357 Days $T_0=137.747600$ (BKJD)



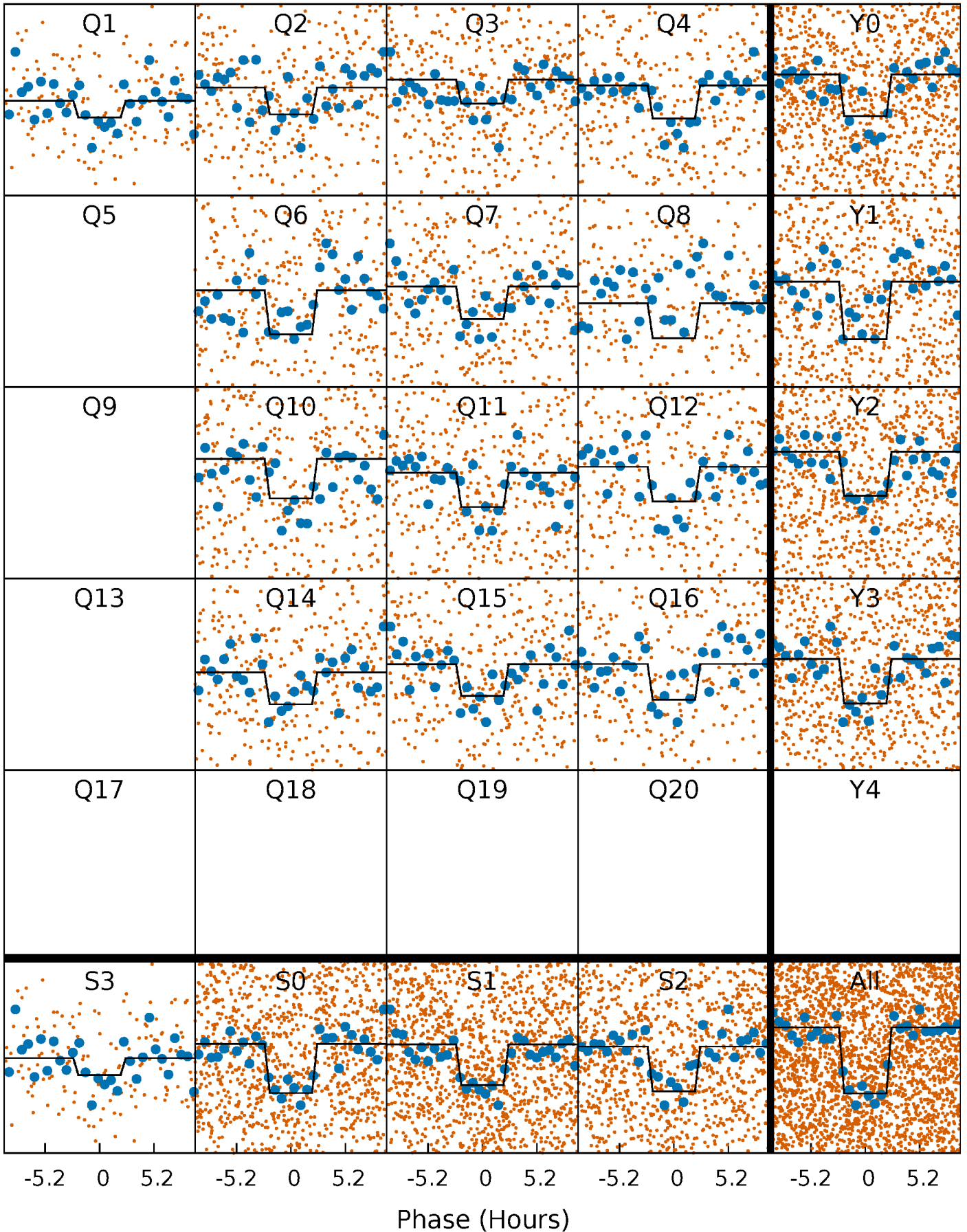
DV Quarter-Phased Transit Curves

TCE 006345732-02 P= 7.441357 Days $T_0=137.747600$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

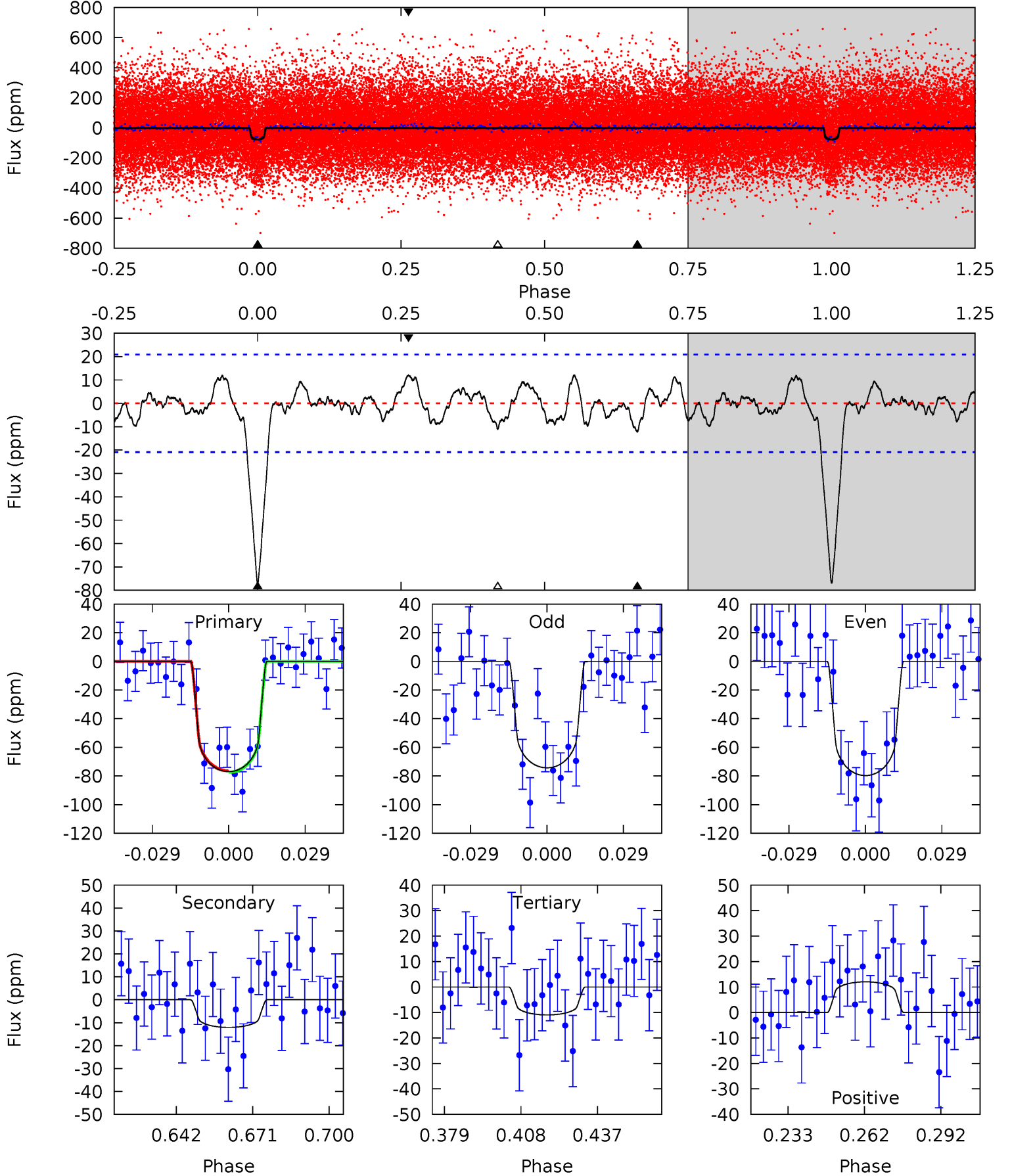
TCE 006345732-02 $P = 7.441452$ Days $T_0 = 137.740408$ (BKJD)



DV Model-Shift Uniqueness Test

006345732-02, P = 7.441357 Days, E = 130.306243 Days

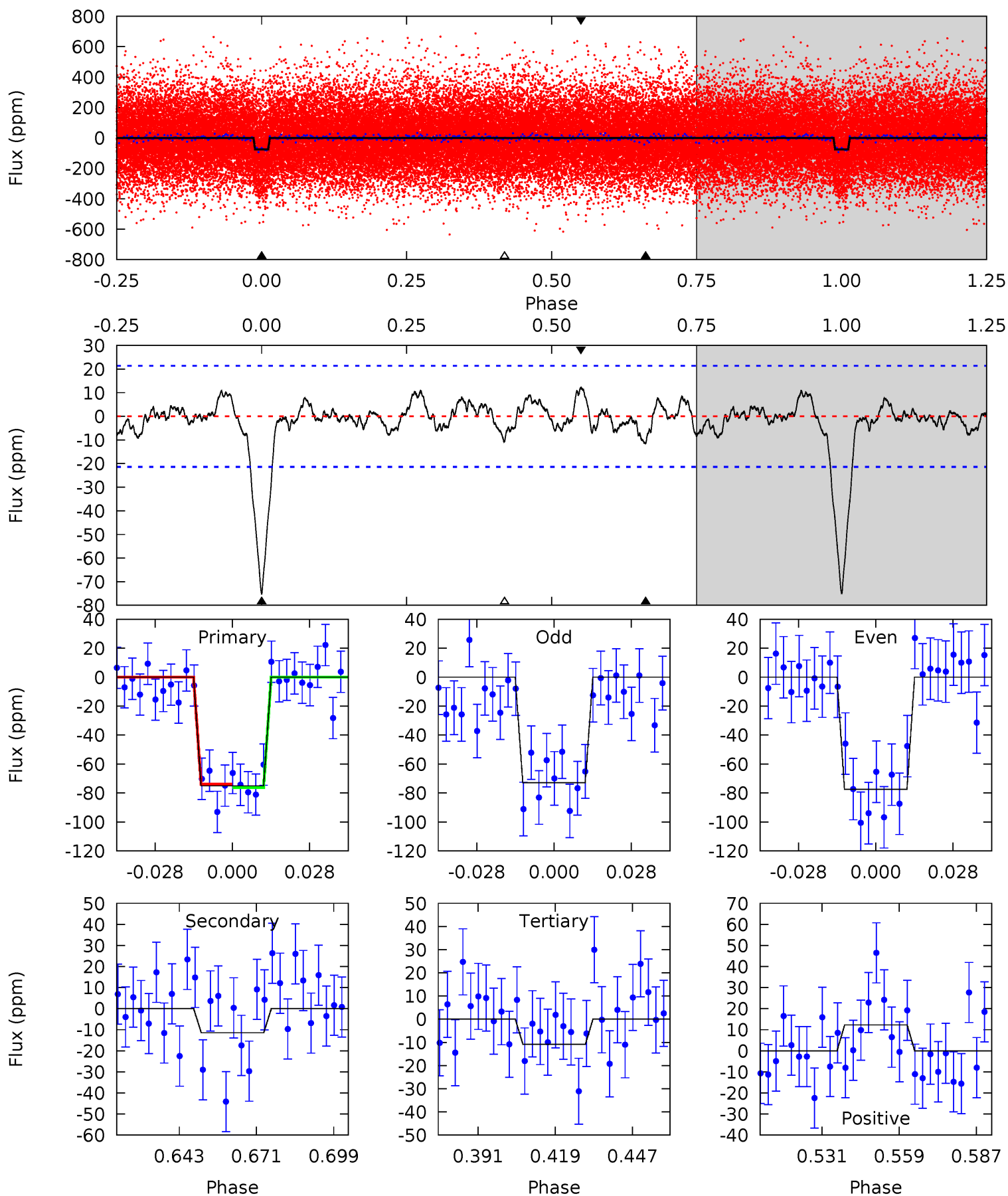
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	2.78	2.53	2.77	4.82	2.18	1.21	15.2	15.0	0.25	0.01	0.62	1.03	0.14	0.10



Alt Model-Shift Uniqueness Test

006345732-02, P = 7.441452 Days, E = 130.298956 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	2.58	2.45	2.77	4.83	2.20	1.04	14.5	14.2	0.13	-0.19	0.51	1.05	0.14	0.26



Stellar Parameters For KIC 006345732

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5937^{+71}_{-79}	$4.251^{+0.137}_{-0.112}$	$0.100^{+0.150}_{-0.150}$	$1.291^{+0.209}_{-0.209}$	$1.084^{+0.085}_{-0.077}$	$0.710^{+0.445}_{-0.232}$
	+1%/-1%	+3%/-3%	+150%/-150%	+16%/-16%	+8%/-7%	+63%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 006345732-02 / KOI 2857.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 4	$1.40^{+0.56}_{-0.52}$	1497^{+71}_{-63}	3839^{+704}_{-491}	19^{+31}_{-11}
Alt.	-11 ± 4	$1.21^{+0.51}_{-0.53}$	1499^{+68}_{-68}	3987^{+948}_{-550}	24^{+52}_{-14}

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 $A_{obs} \gg 1.0$

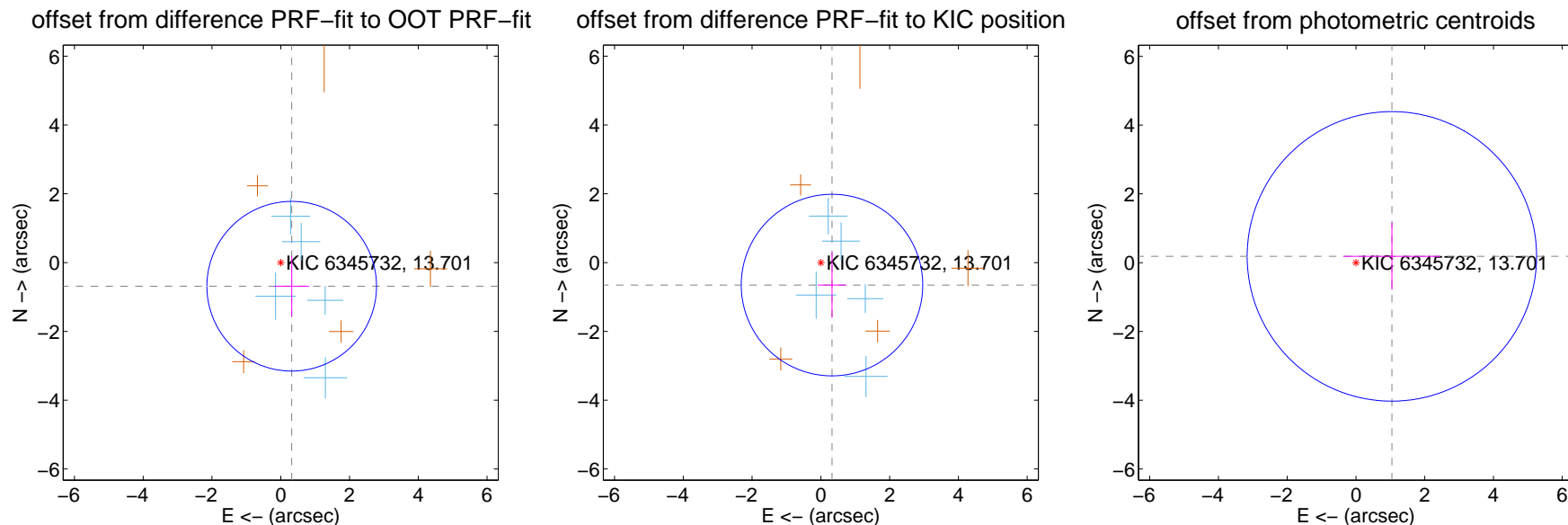
DV Centroid Data

Supplemental centroid analysis for 006345732-02. Kepler magnitude: 13.70. Transit SNR 13.12

There are 5 quarters with good PRF difference image offsets

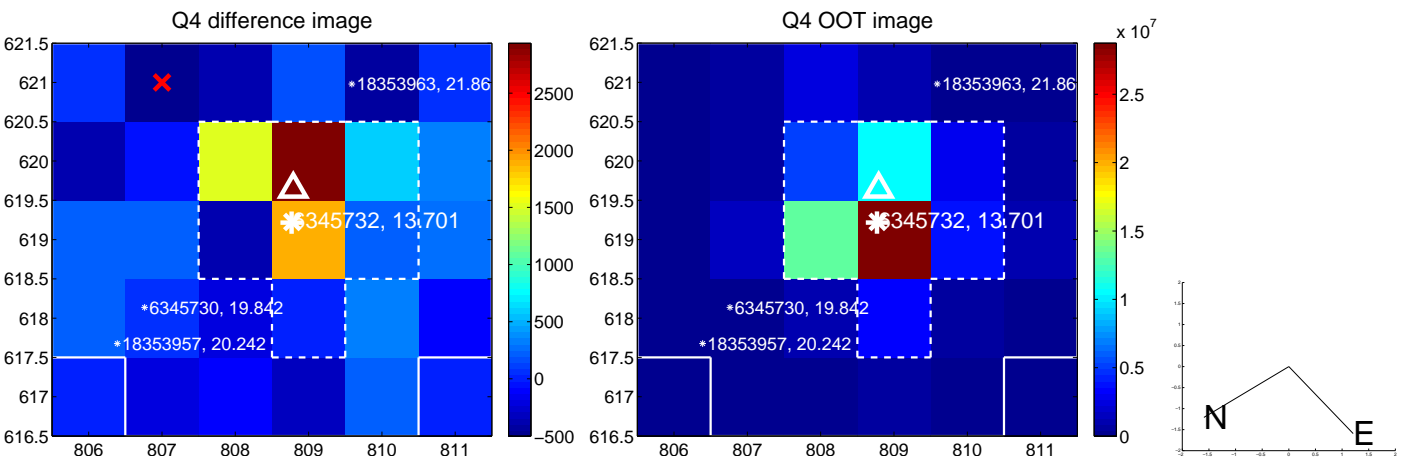
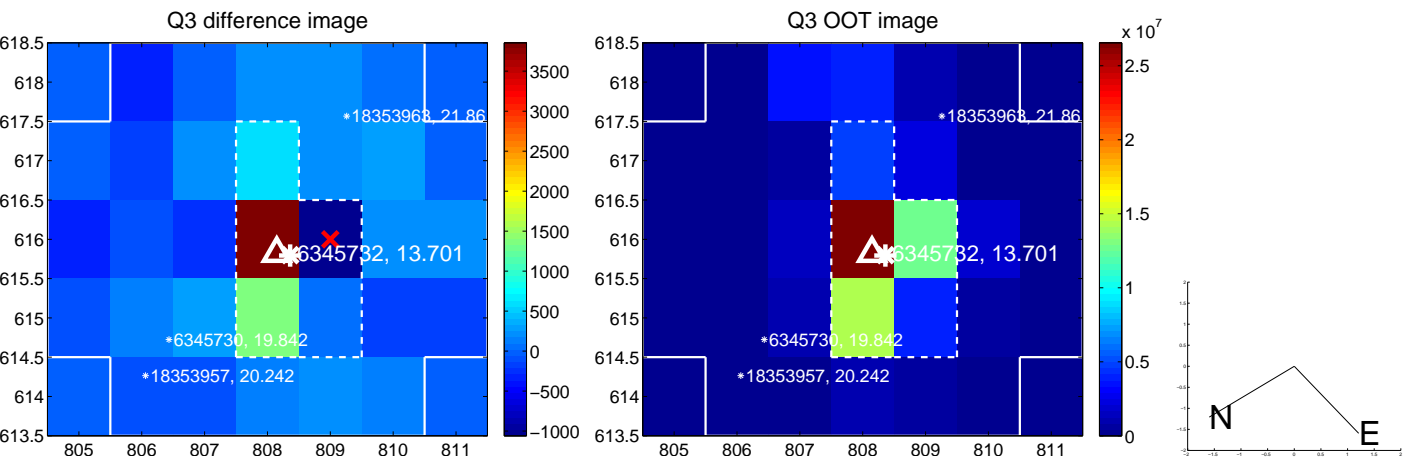
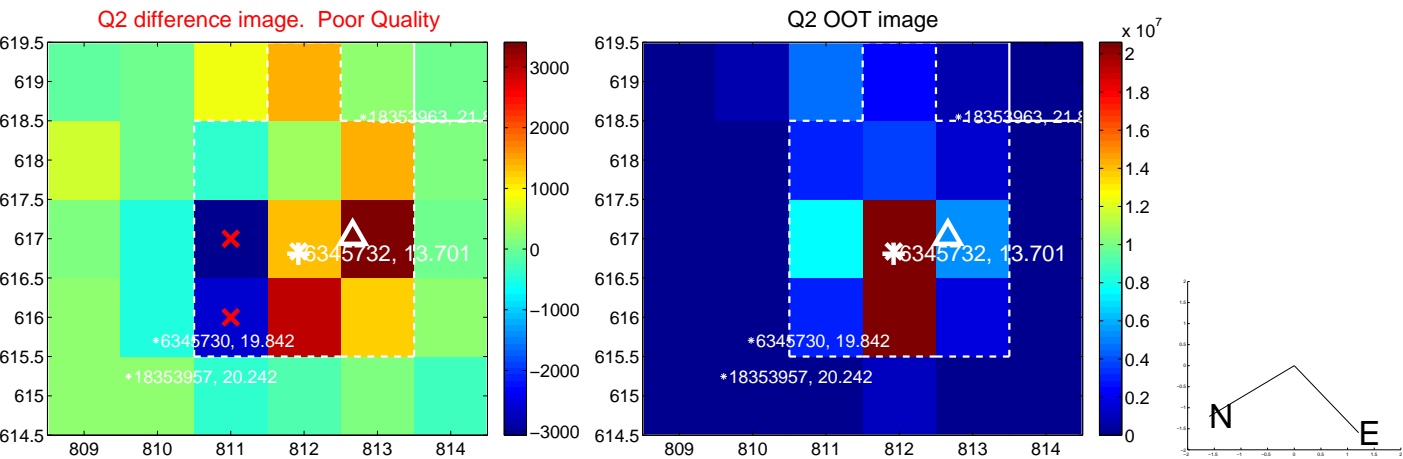
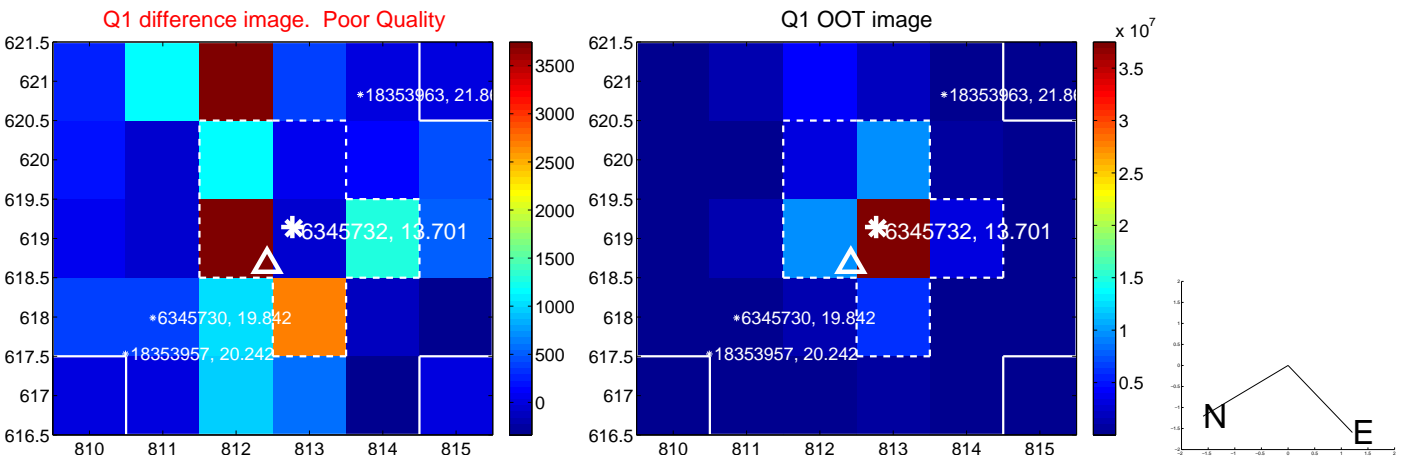
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.758 ± 0.822	0.92	-0.319 ± 0.509	-0.687 ± 0.879
PRF-fit source offset from KIC position	0.729 ± 0.880	0.83	-0.324 ± 0.416	-0.654 ± 0.953
photometric centroid source offset	1.06 ± 1.40	0.76	-1.04 ± 1.41	0.18 ± 0.98

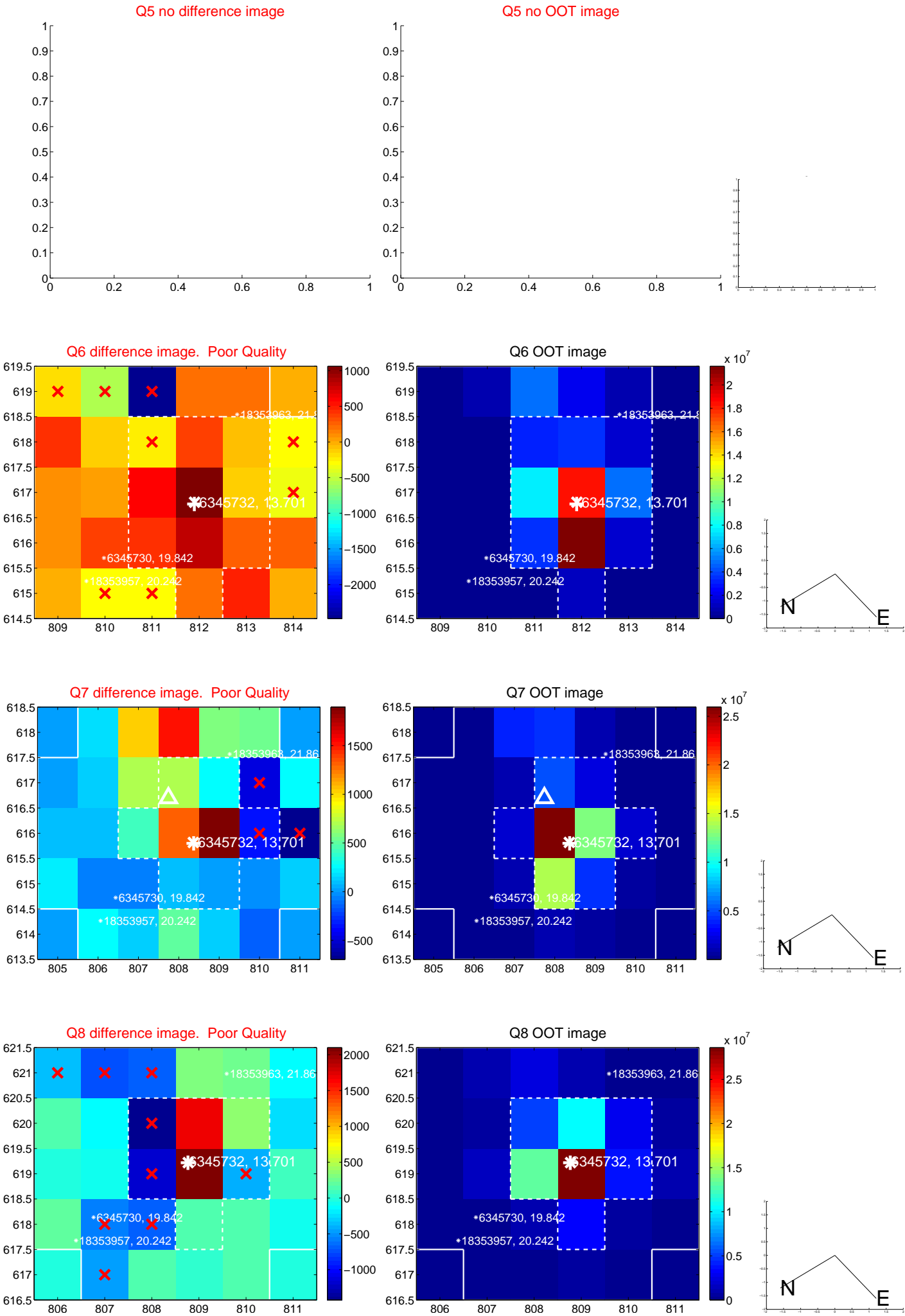


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

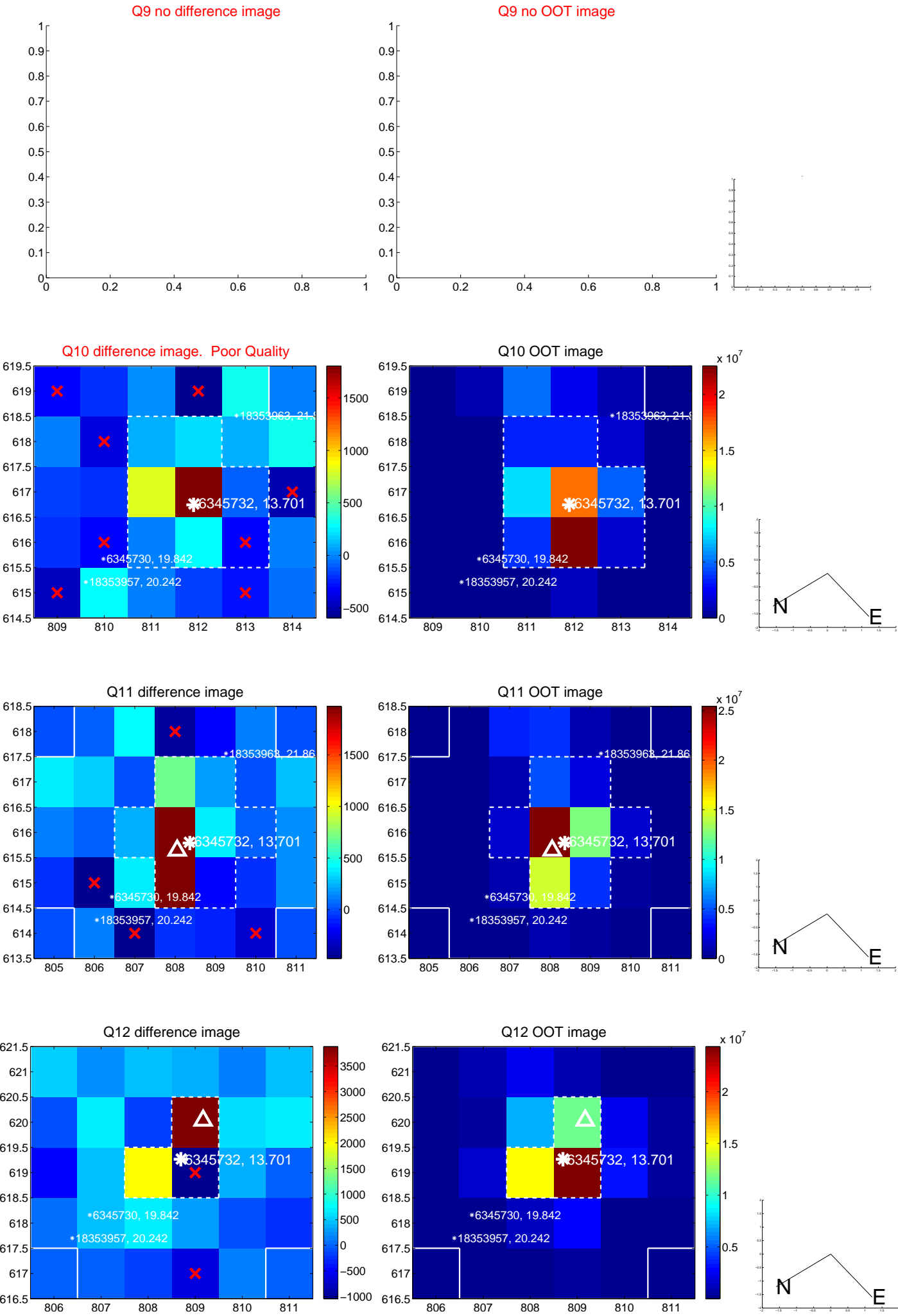
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



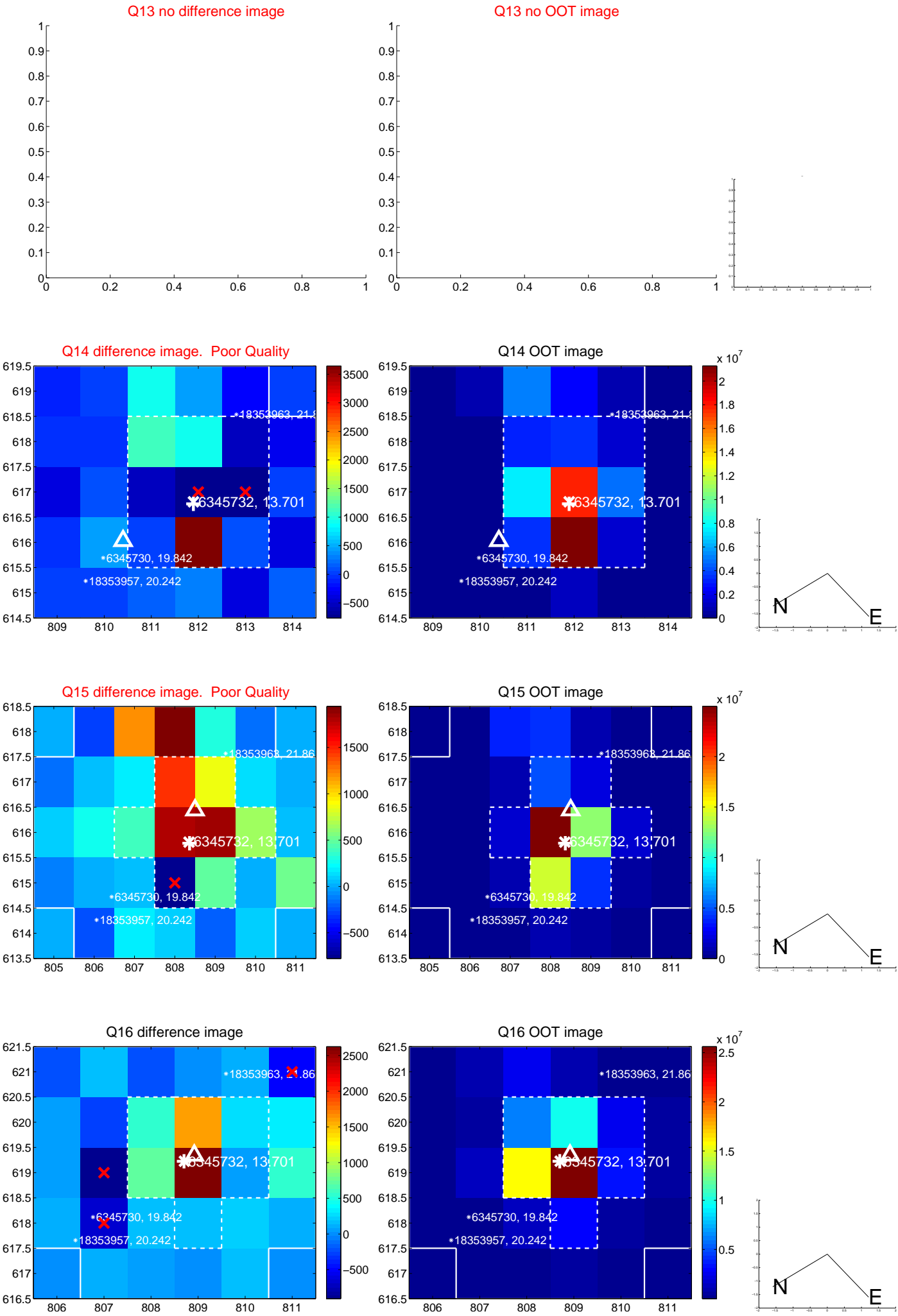
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



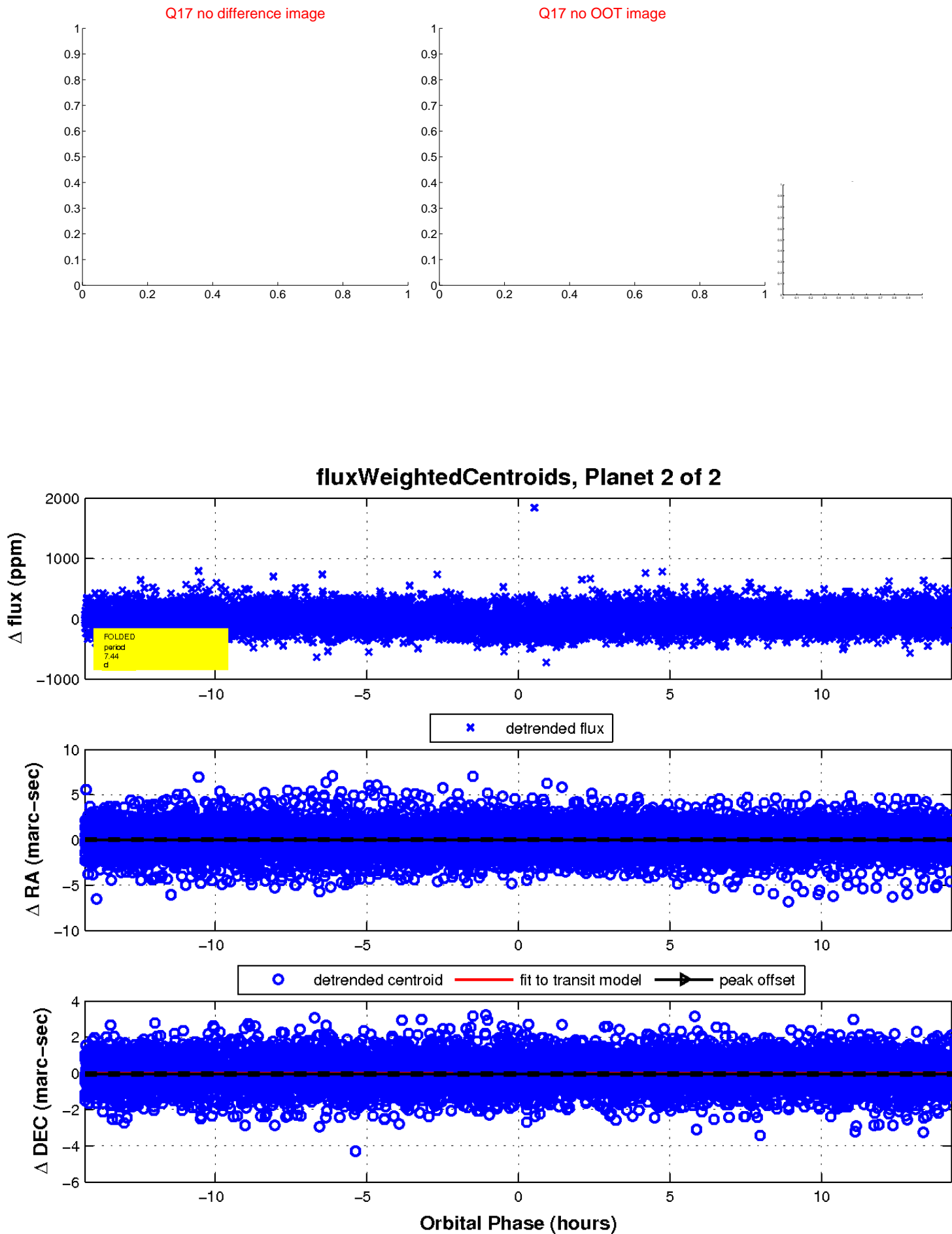
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

