

KIC 009873254

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})
009873254-01	OBS	0717.01	14.707508	131.669539	253.9	3.292	29.7	33.2	1.28	5676	2.37	106.45
009873254-02	OBS	0717.02	0.900369	132.222977	37.2	1.211	11.5	12.7	1.28	5676	0.78	4412.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009873254-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009873254-02	OBS	PC	1.00	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.

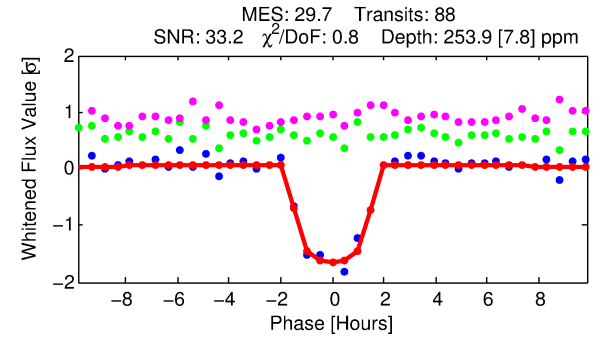
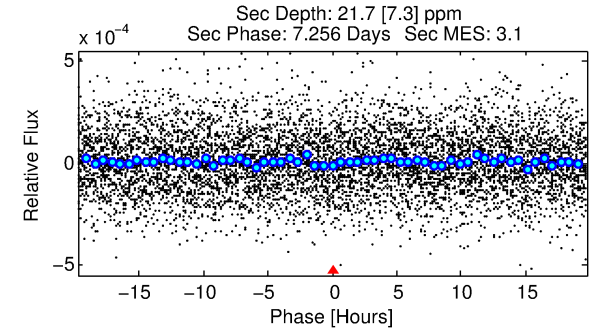
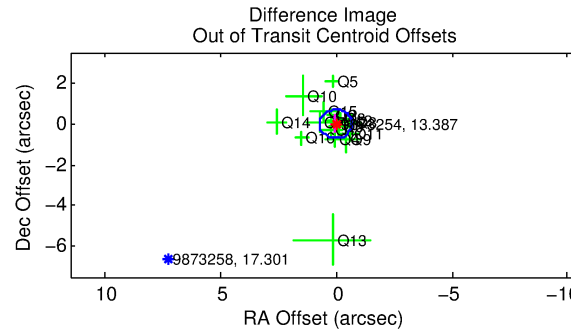
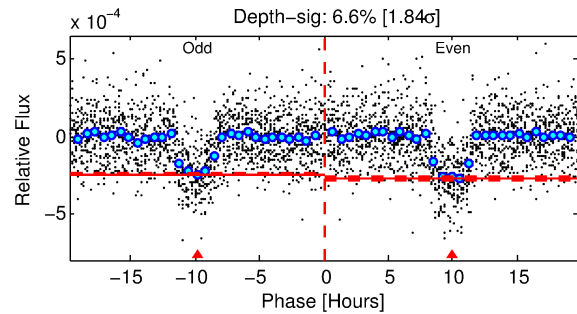
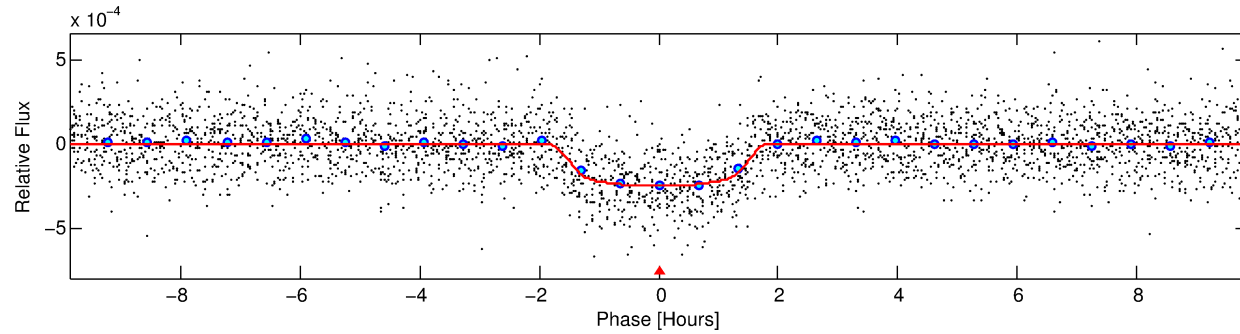
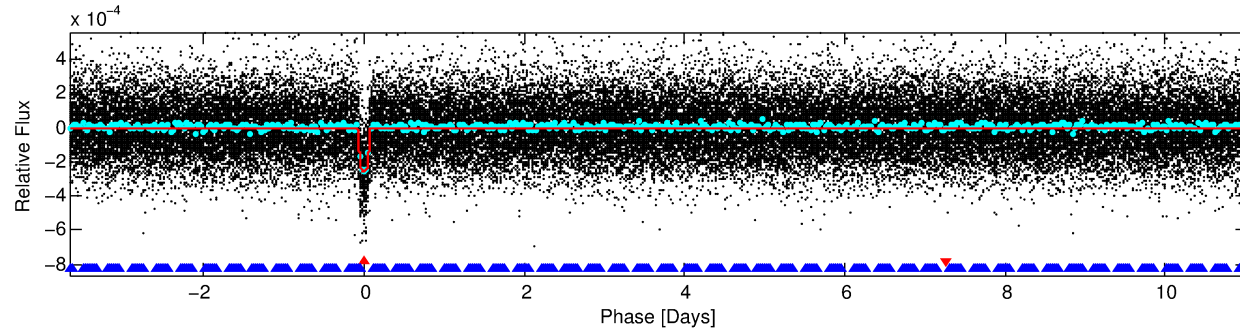
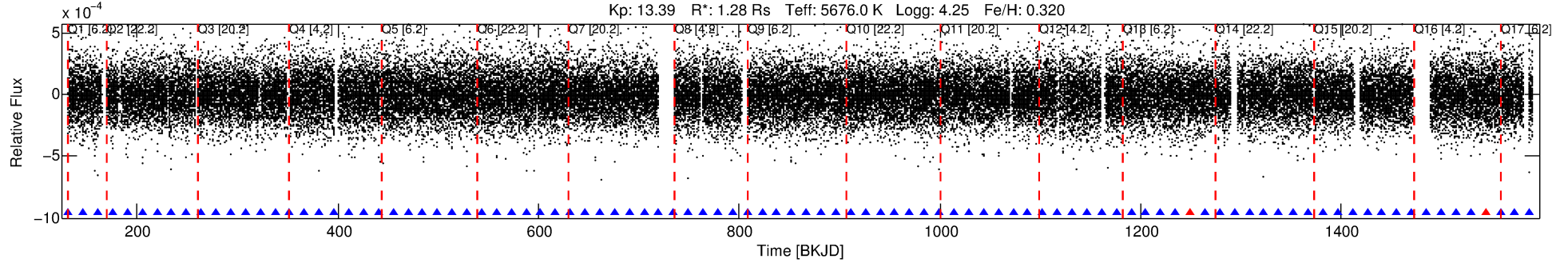
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009873254-01

No Significant Match Found

DV One-Page Summary

KIC: 9873254 Candidate: 1 of 2 Period: 14.708 d
KOI: K00717.01 Corr: 0.980



DV Fit Results:

Period = 14.70751 [0.00004] d
Epoch = 131.6695 [0.0022] BKJD
Rp/R* = 0.0170 [0.0039]
a/R* = 18.16 [18.19]
b = 0.87 [0.29]
Seff = 106.45 [27.62]
Teq = 819 [53] K
Rp = 2.37 [0.68] Re
a = 0.1196 [0.0188] AU
Ag = 30.34 [18.81] [1.56 σ]
Teffp = 2972 [427] K [5.01 σ]

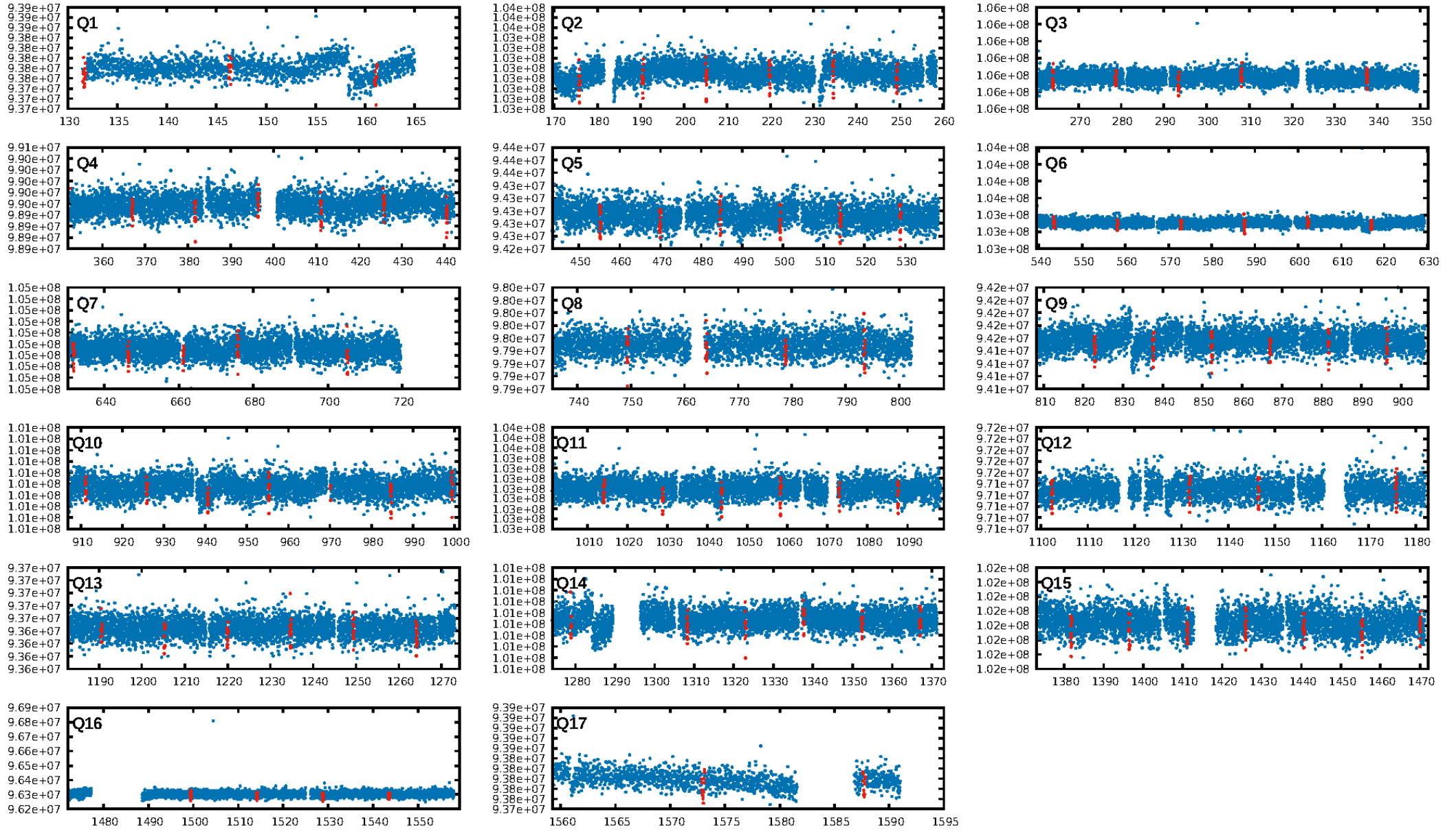
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [94.48 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.4%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 9.82e-183
RollingBand-fgt: 0.98 [81/83]
GhostDiagnostic-chr: 6.643
Centroid-sig: 5.9%
Centroid-so: 0.869 arcsec [1.98 σ]
OotOffset-rm: 0.030 arcsec [0.13 σ]
KicOffset-rm: 0.225 arcsec [0.95 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.76 [13/17]

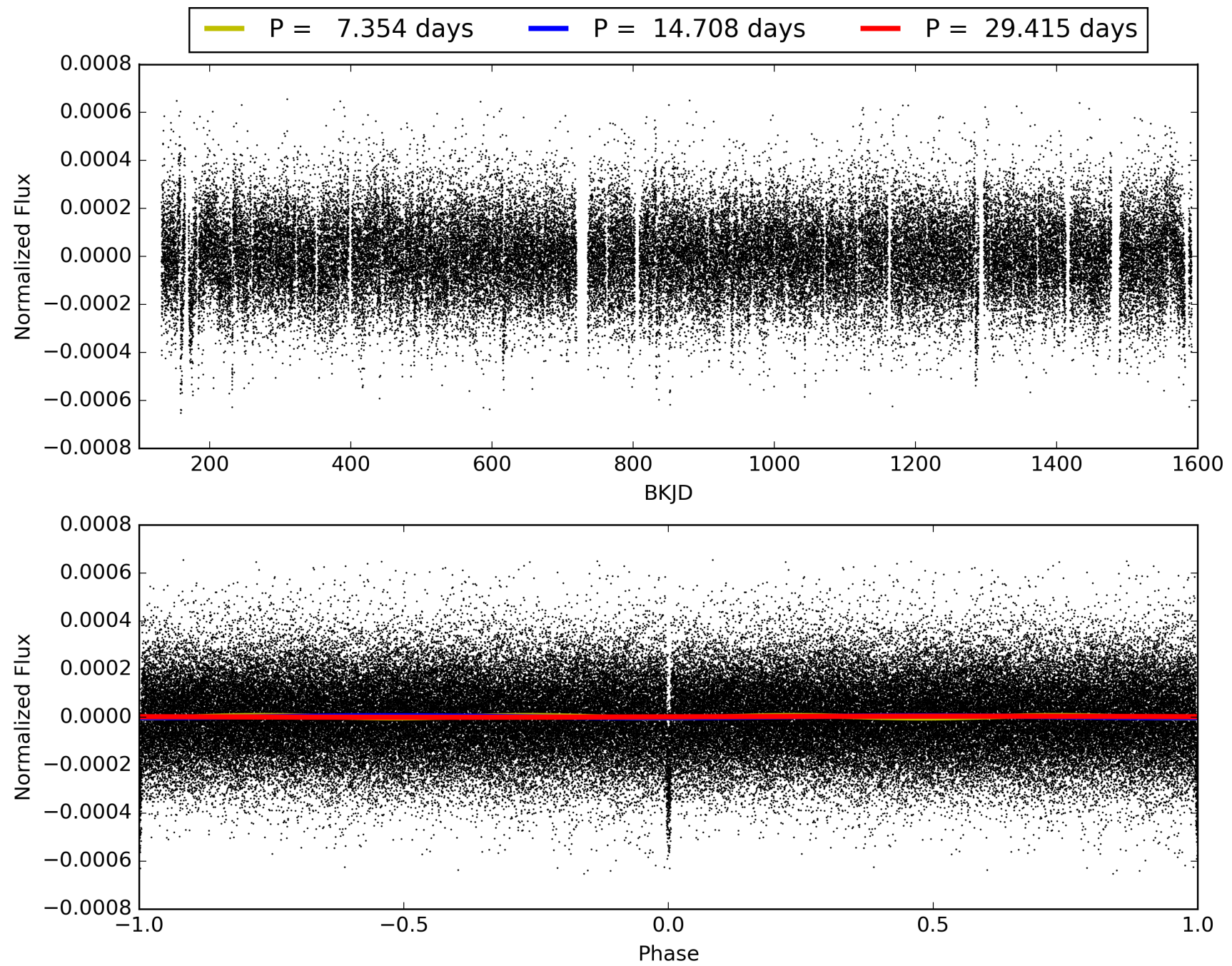
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:59:16 Z

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

TCE 009873254-01, PDC Light Curves

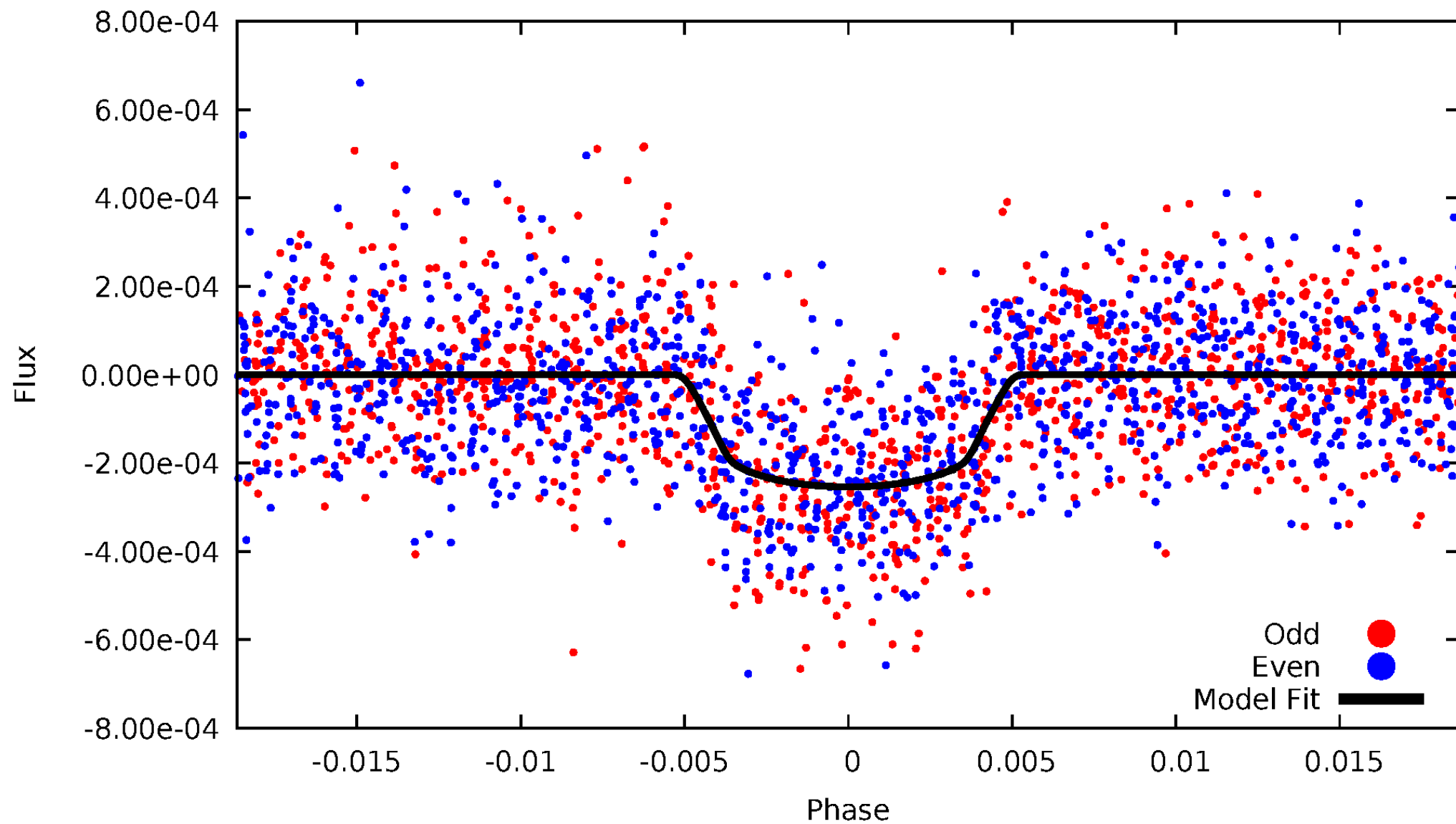


TCE 009873254-01



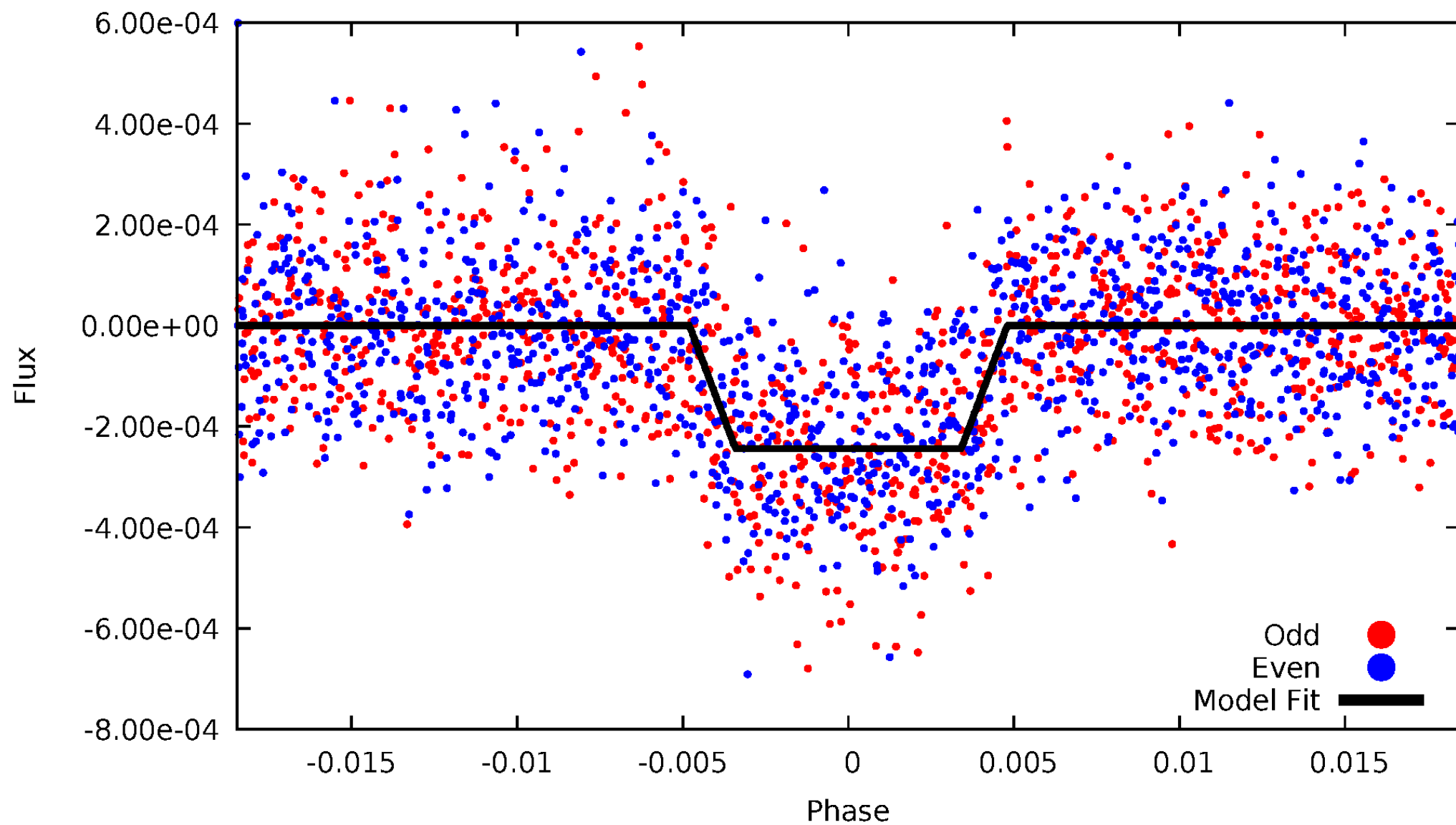
DV Odd/Even

TCE 009873254-01

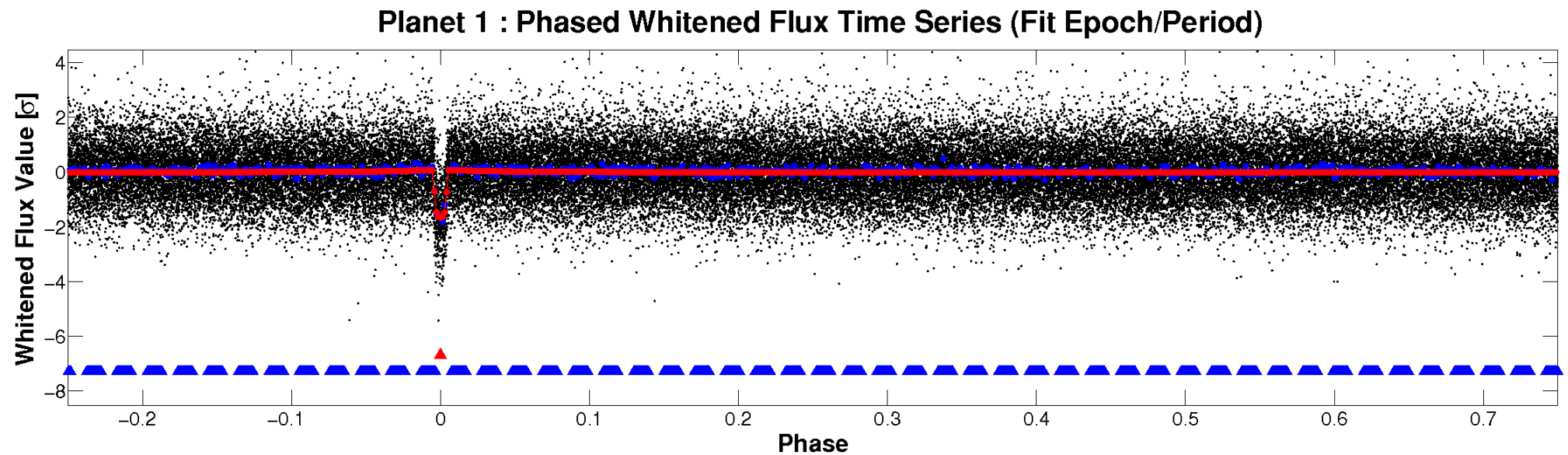
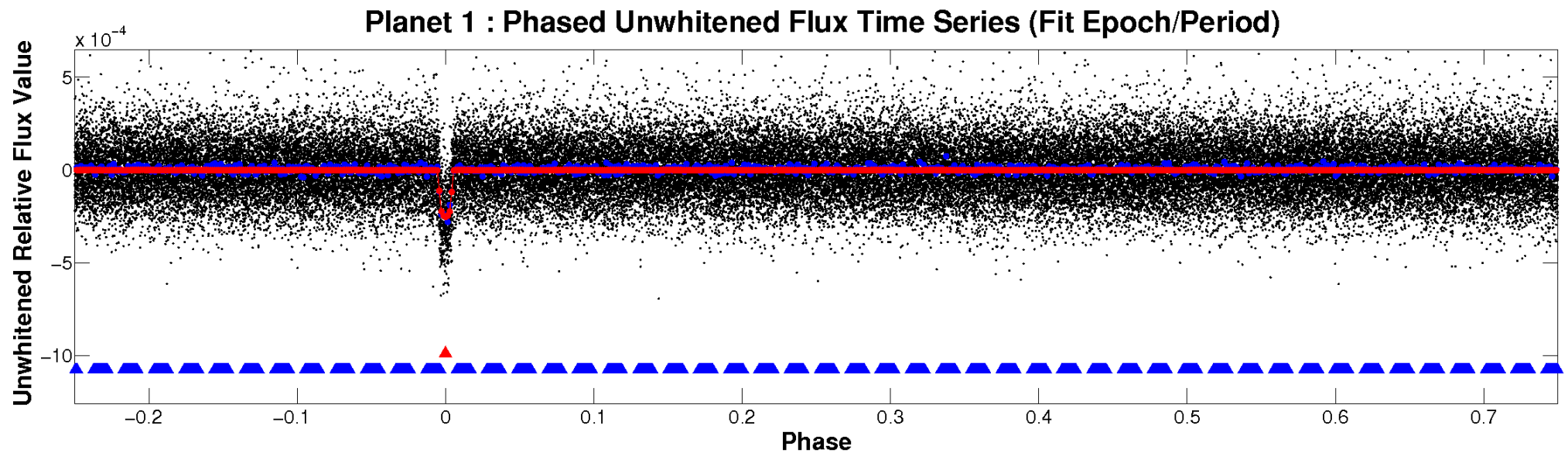


ALT Odd/Even

TCE 009873254-01

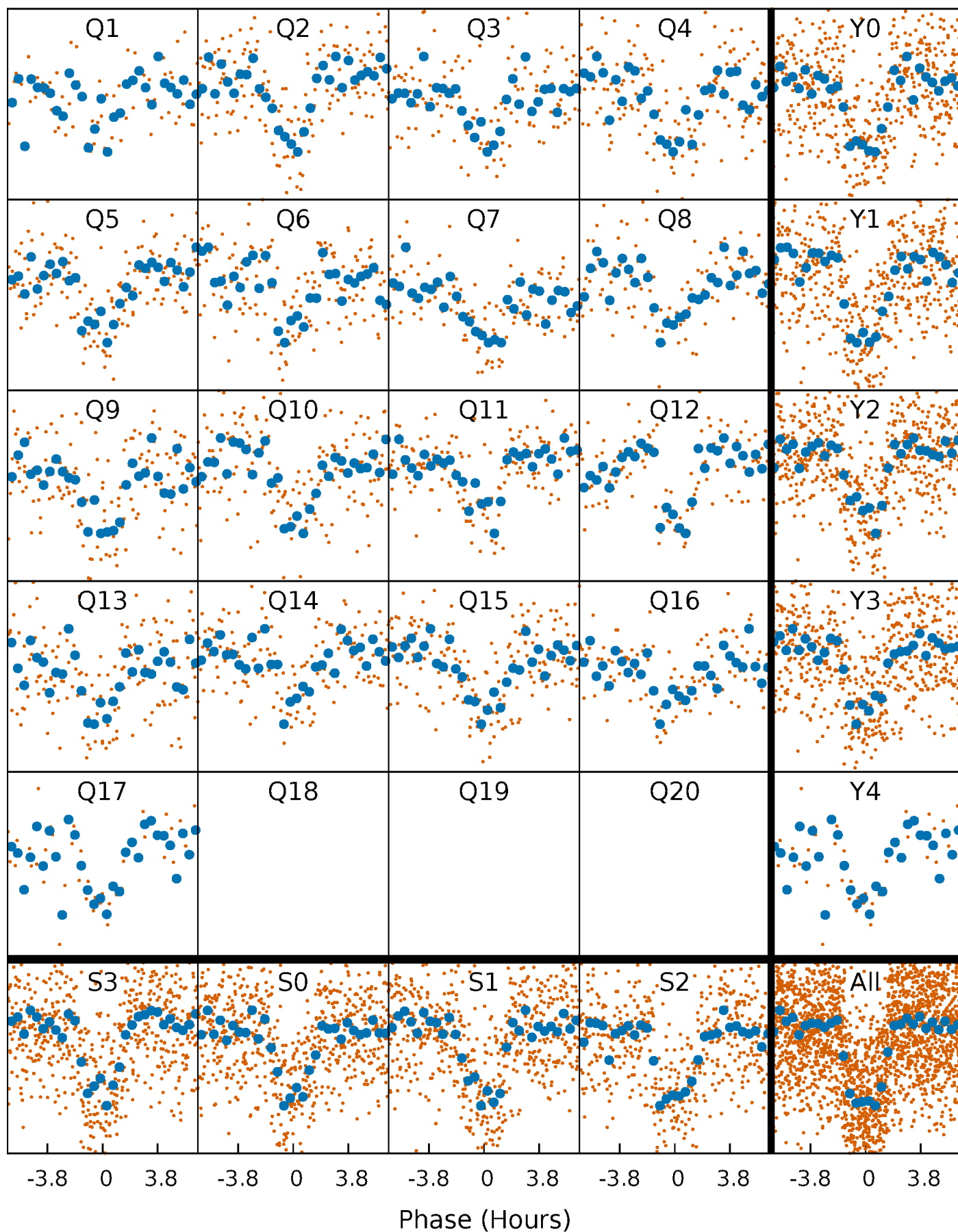


Non-Whitened Vs. Whitened Light Curve



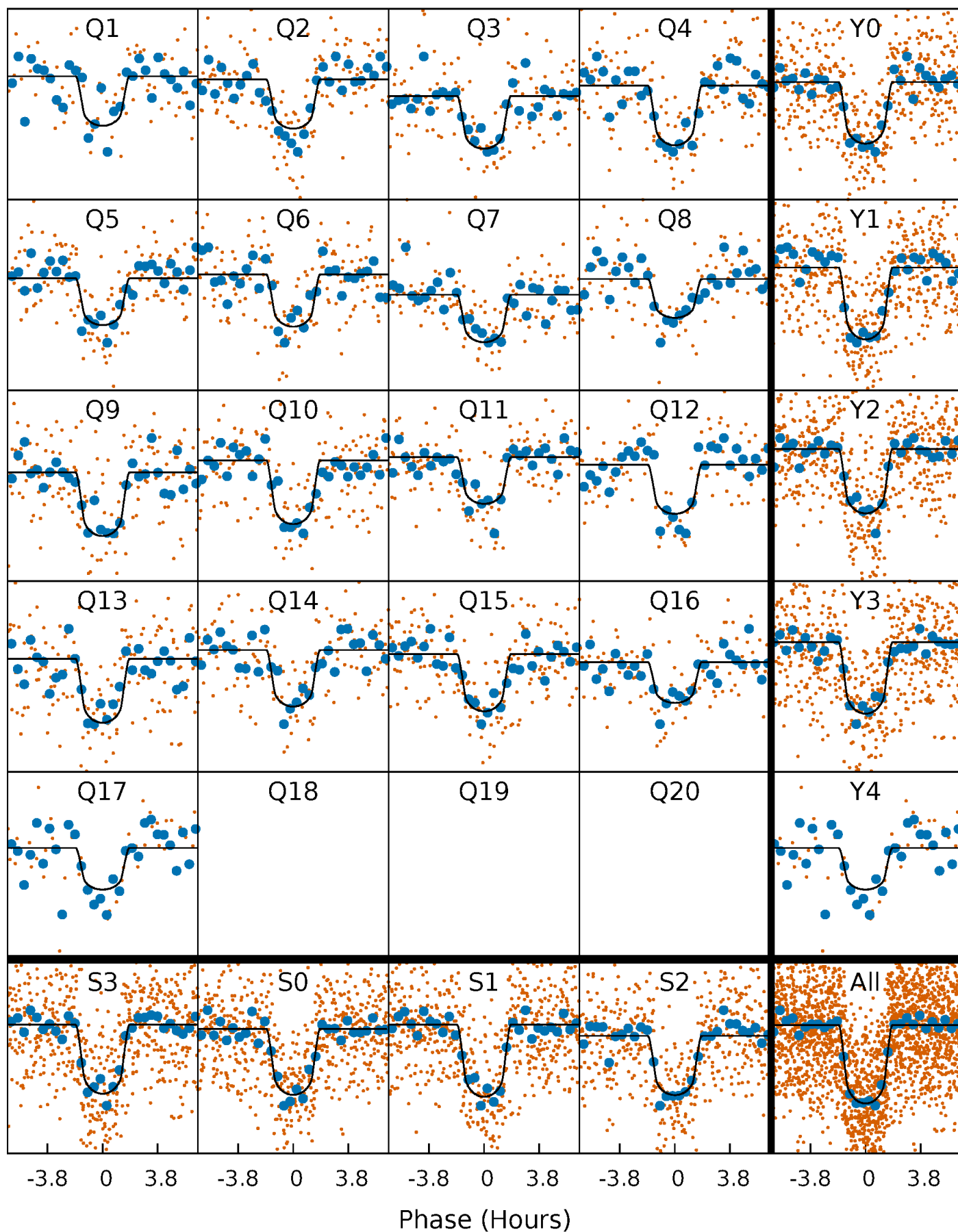
PDC Quarter-Phased Transit Curves

TCE 009873254-01 P= 14.707508 Days $T_0=131.669539$ (BKJD)



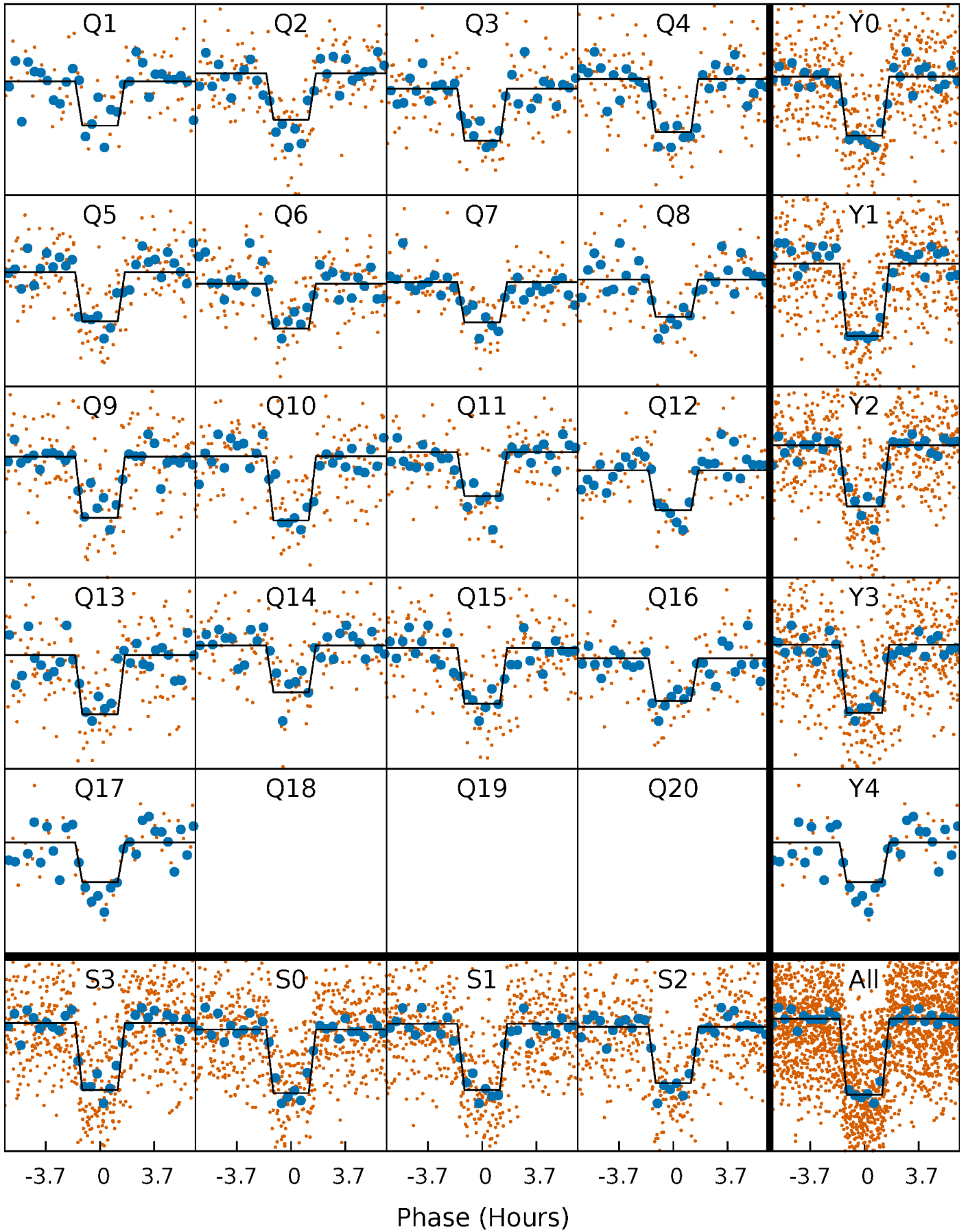
DV Quarter-Phased Transit Curves

TCE 009873254-01 P= 14.707508 Days $T_0=131.669539$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

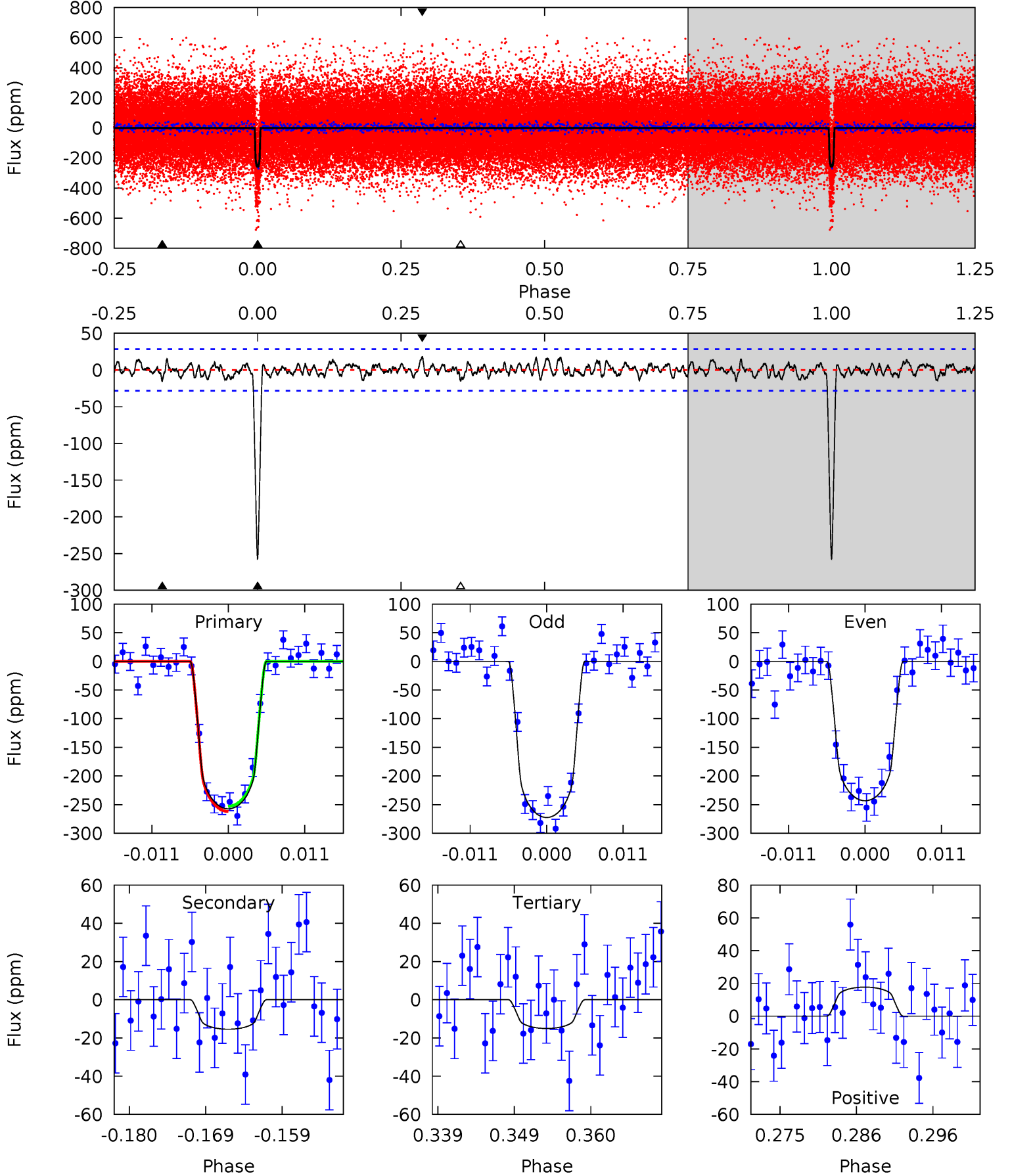
TCE 009873254-01 P= 14.707543 Days $T_0=131.667880$ (BKJD)



DV Model-Shift Uniqueness Test

009873254-01, $P = 14.707508$ Days, $E = 116.962031$ Days

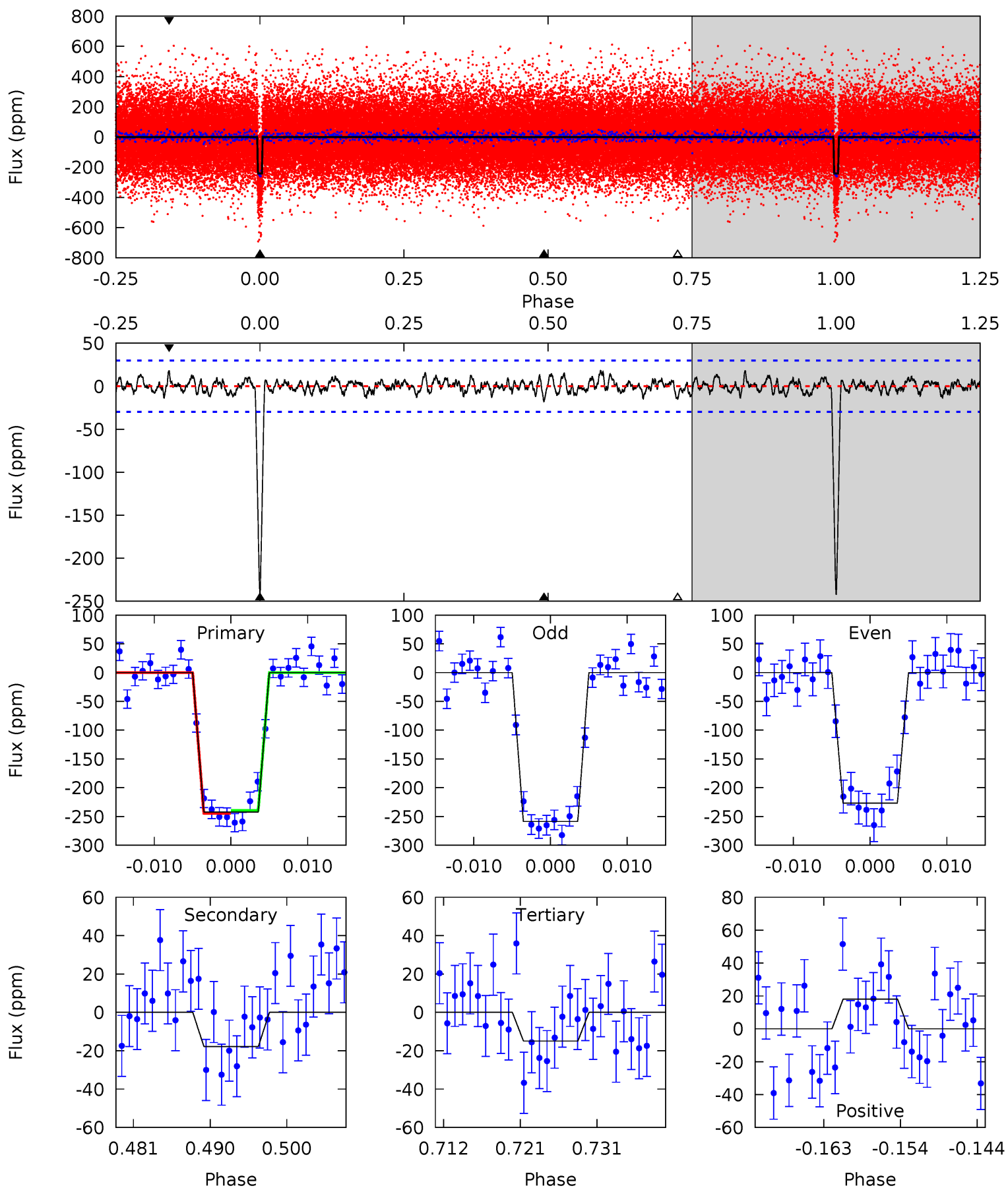
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.6	2.74	2.66	3.14	5.02	2.56	1.08	42.9	42.5	0.07	-0.40	2.60	1.00	0.06	0.81



Alt Model-Shift Uniqueness Test

009873254-01, $P = 14.707543$ Days, $E = 116.960337$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	3.01	2.52	3.04	5.03	2.59	1.01	38.3	37.8	0.49	-0.03	2.68	1.02	0.07	0.41



Stellar Parameters For KIC 009873254

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5676^{+101}_{-113}	$4.247^{+0.143}_{-0.117}$	$0.320^{+0.100}_{-0.150}$	$1.280^{+0.217}_{-0.217}$	$1.056^{+0.088}_{-0.072}$	$0.710^{+0.478}_{-0.243}$
	+2%/-2%	+3%/-3%	+31%/-47%	+17%/-17%	+8%/-7%	+67%/-34%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009873254-01 / KOI 0717.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 6	$2.33^{+0.61}_{-0.58}$	1143^{+53}_{-63}	3251^{+323}_{-275}	21^{+17}_{-10}
Alt.	-18 ± 6	$2.15^{+0.55}_{-0.55}$	1138^{+56}_{-54}	3439^{+394}_{-304}	30^{+27}_{-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 $A_{obs} \gg 1.0$

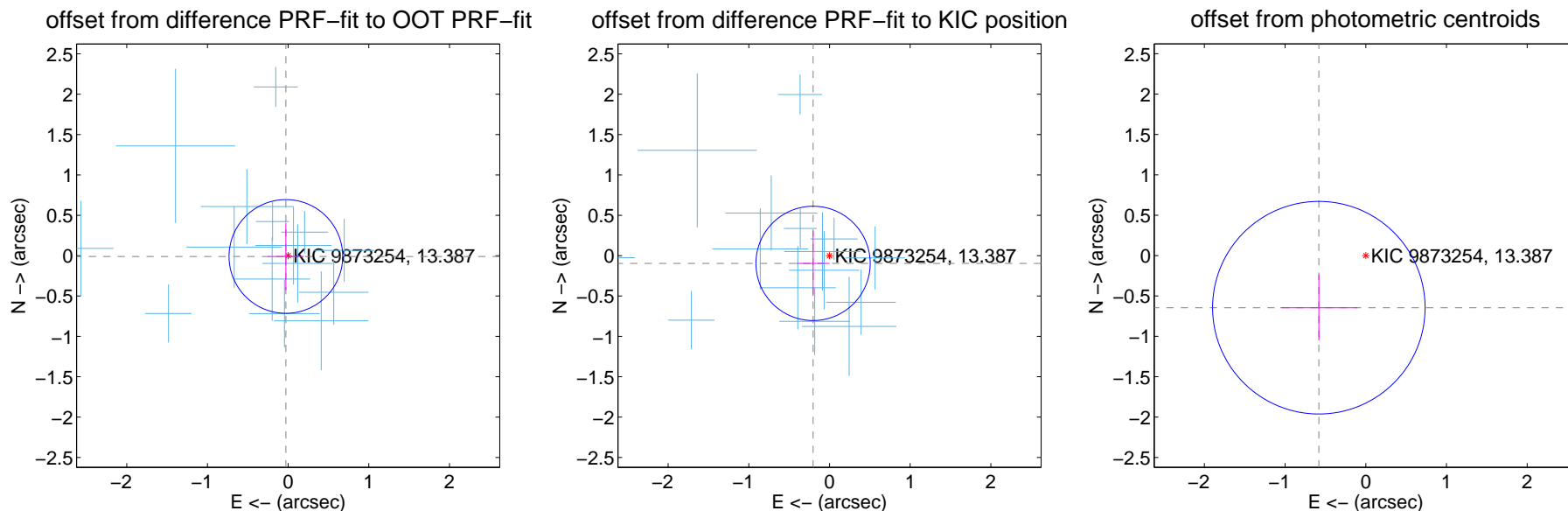
DV Centroid Data

Supplemental centroid analysis for 009873254-01. Kepler magnitude: 13.39. Transit SNR 33.23

There are 15 quarters with good PRF difference image offsets

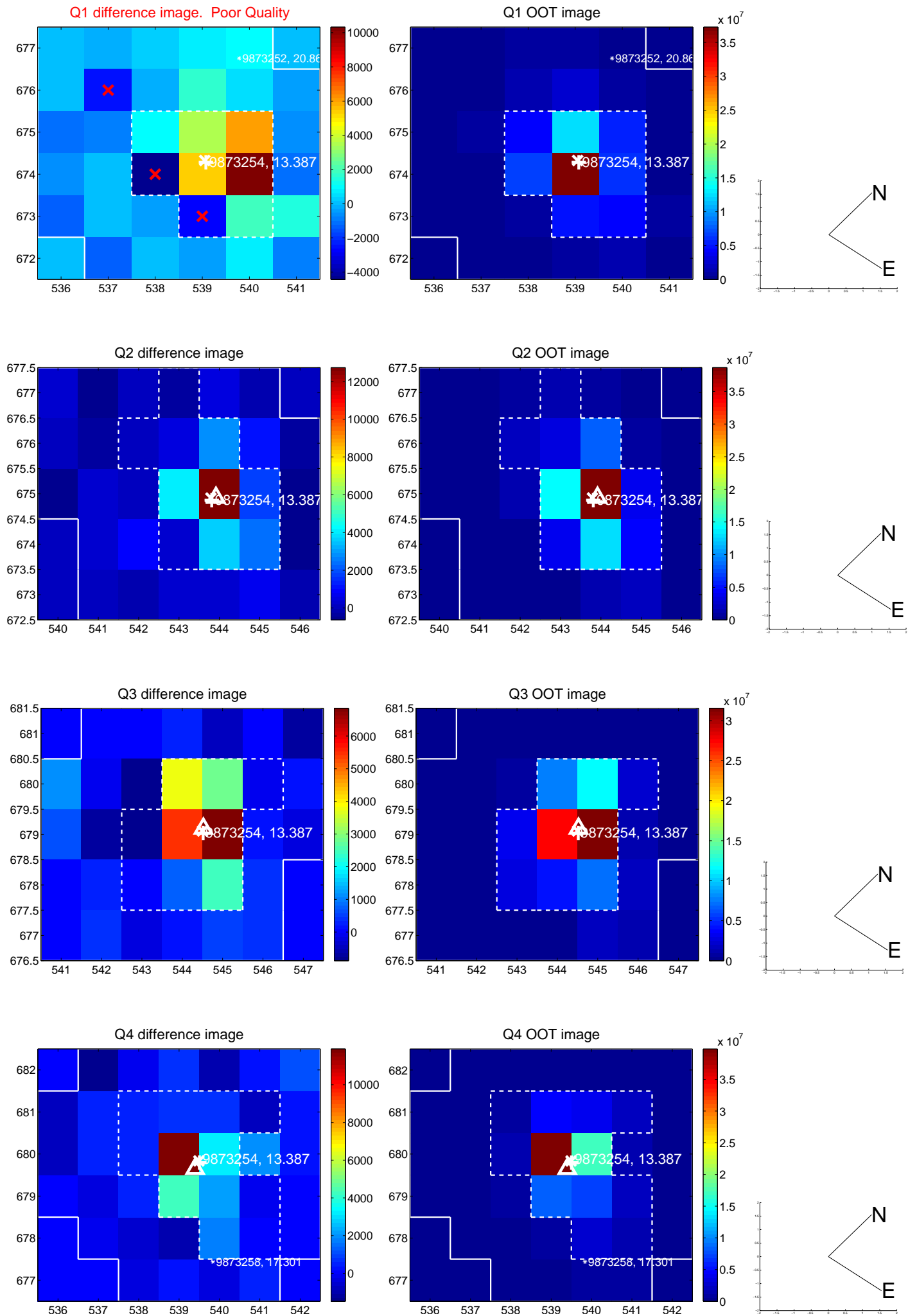
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.030 ± 0.235	0.13	0.028 ± 0.222	-0.010 ± 0.418
PRF-fit source offset from KIC position	0.225 ± 0.236	0.95	0.204 ± 0.206	-0.096 ± 0.403
photometric centroid source offset	0.87 ± 0.44	1.98	0.58 ± 0.48	-0.65 ± 0.41

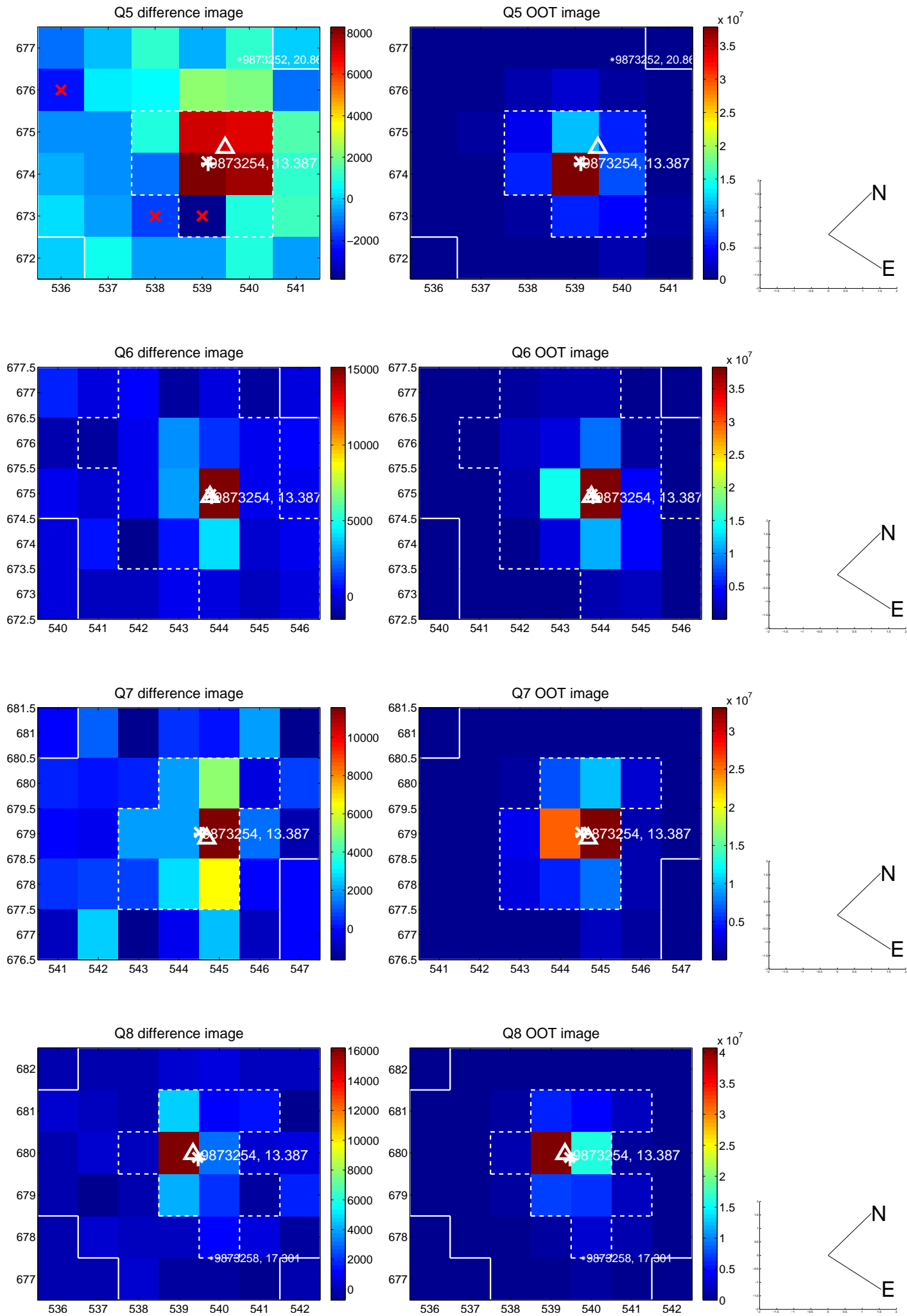


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

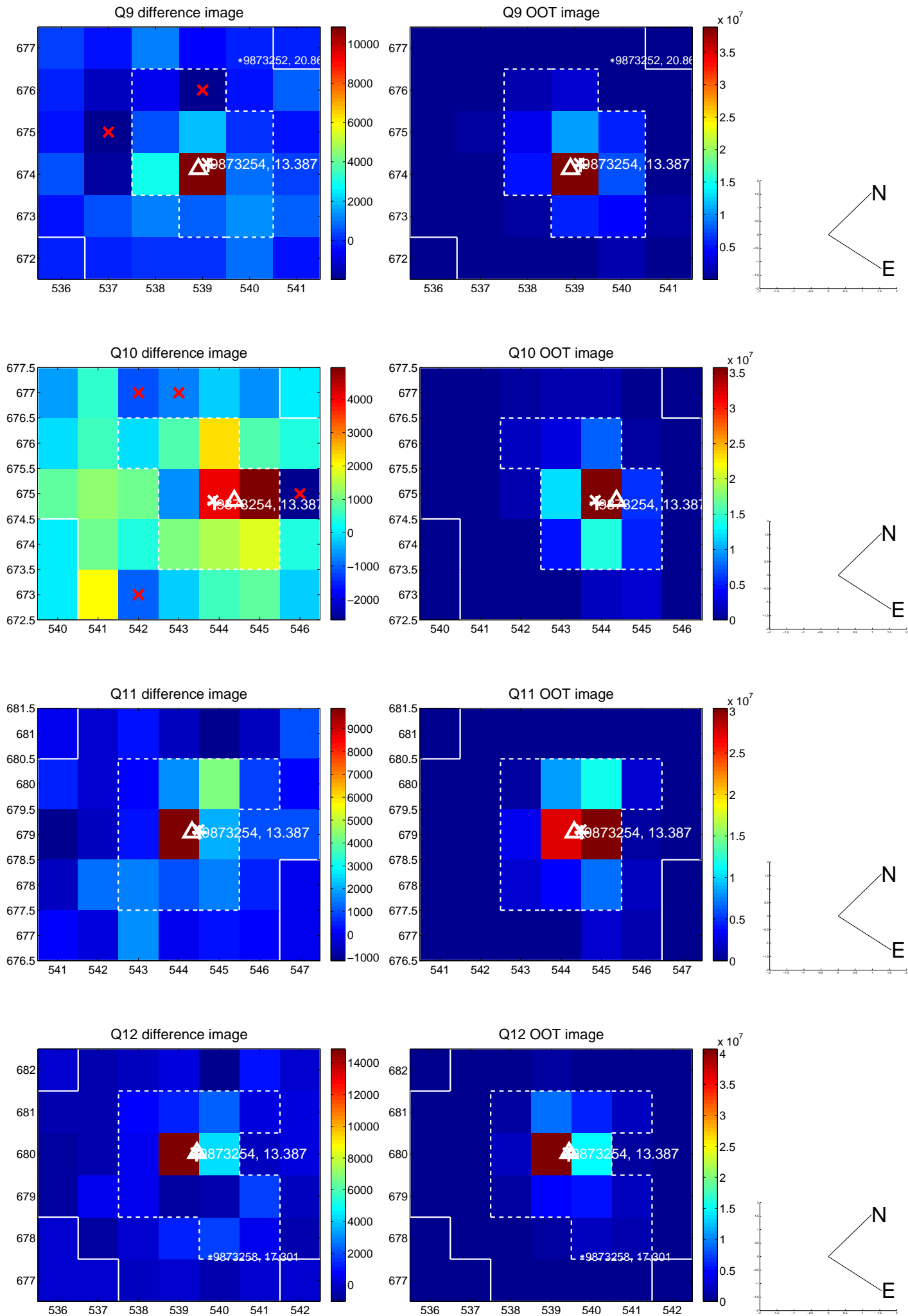
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



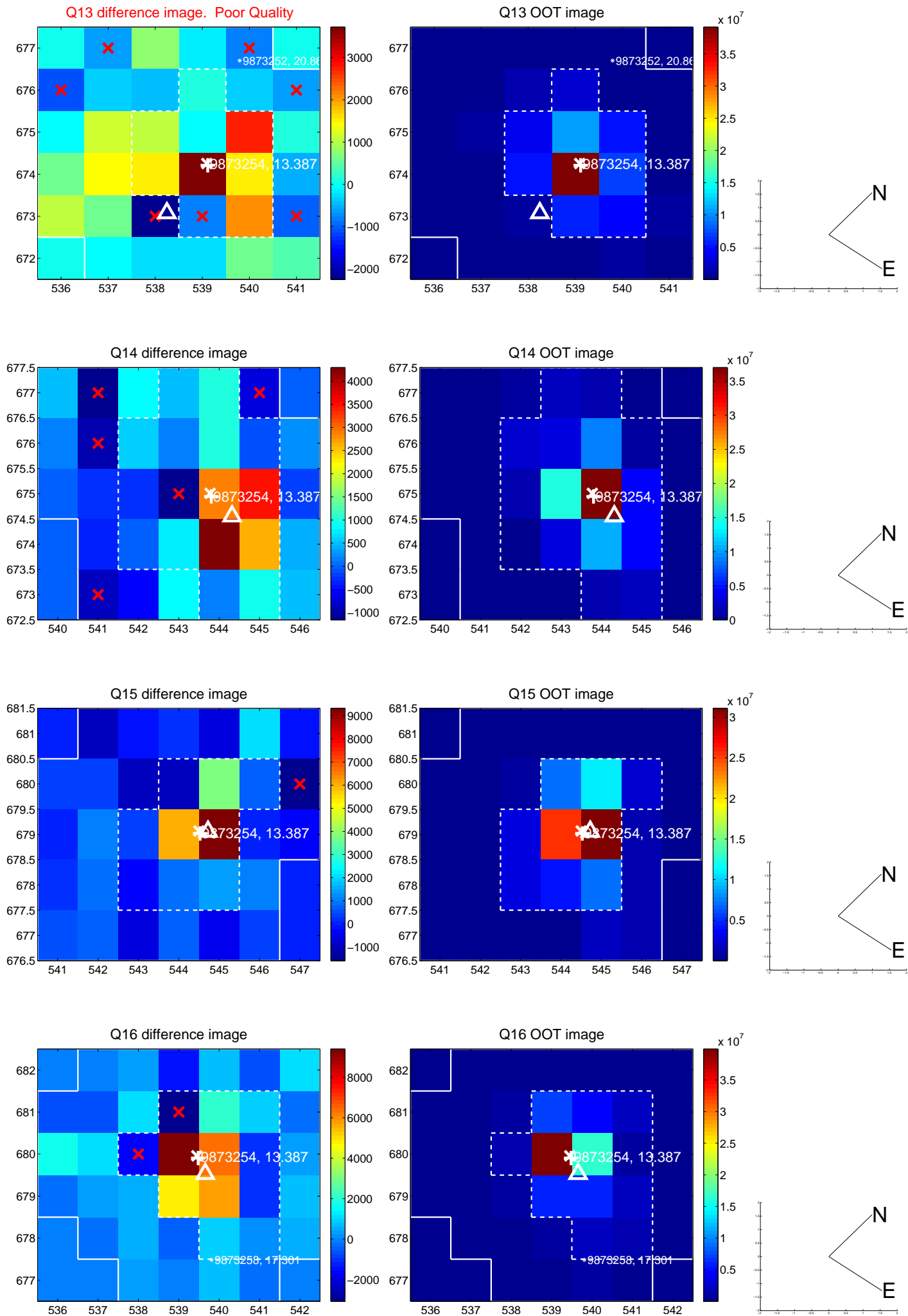
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



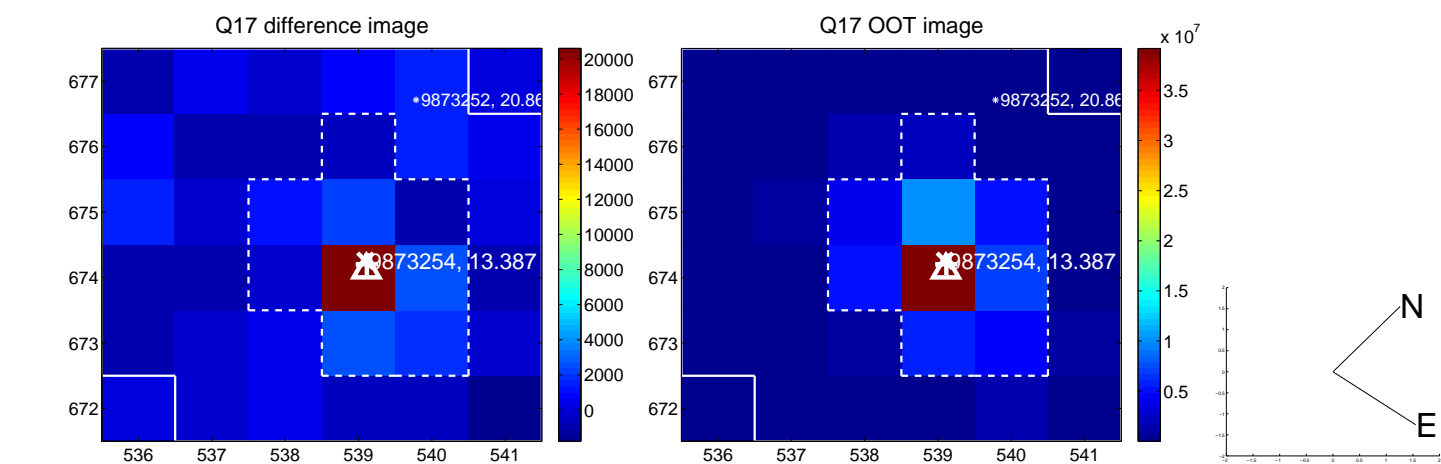
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



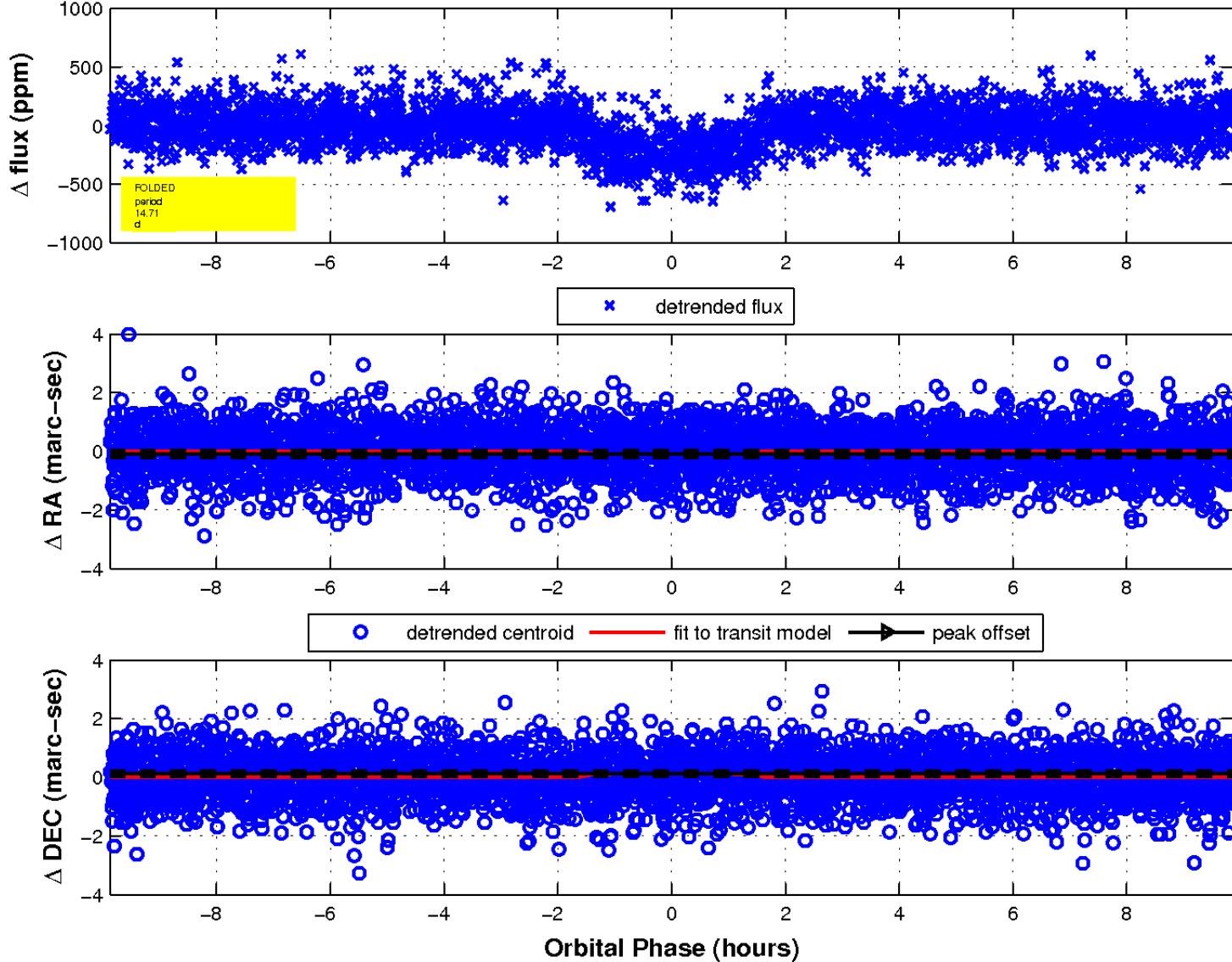
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

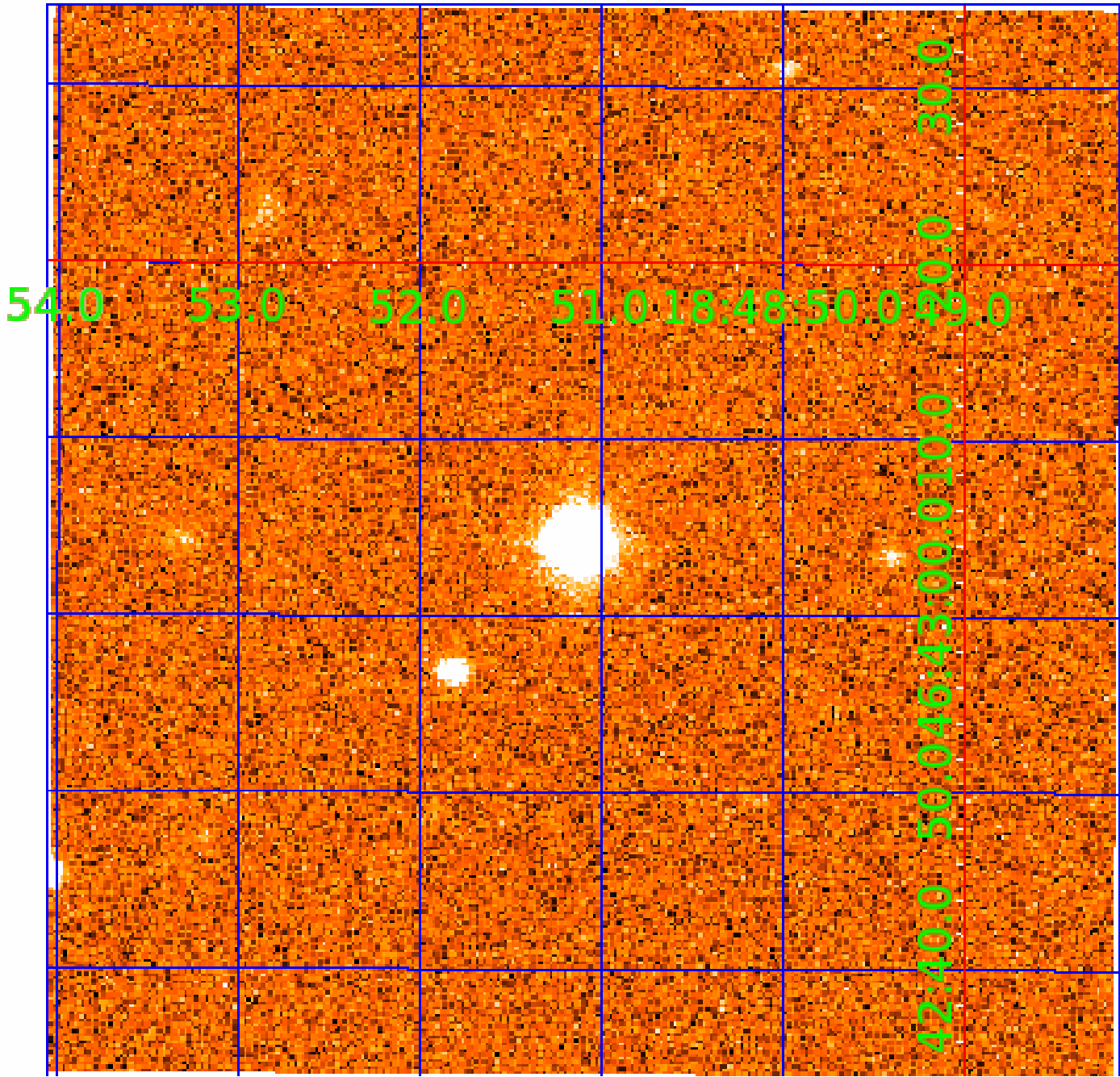


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009873254

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})
009873254-01	OBS	0717.01	14.707508	131.669539	253.9	3.292	29.7	33.2	1.28	5676	2.37	106.45
009873254-02	OBS	0717.02	0.900369	132.222977	37.2	1.211	11.5	12.7	1.28	5676	0.78	4412.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009873254-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009873254-02	OBS	PC	1.00	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.

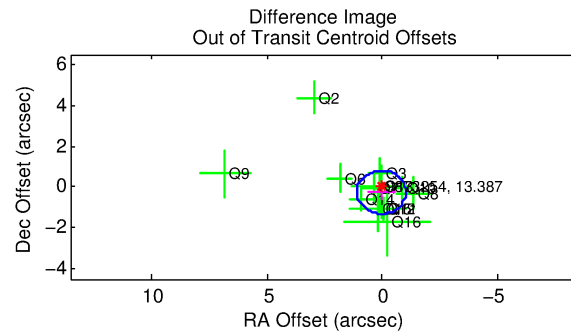
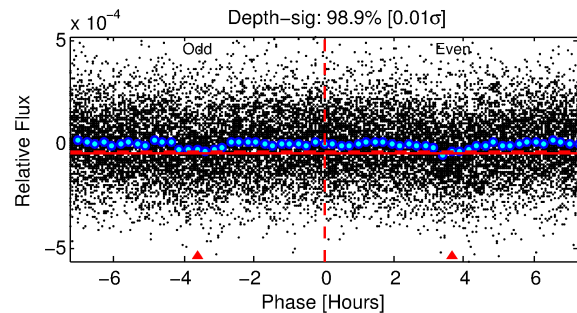
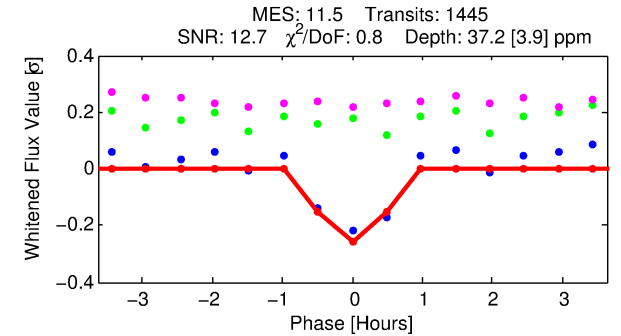
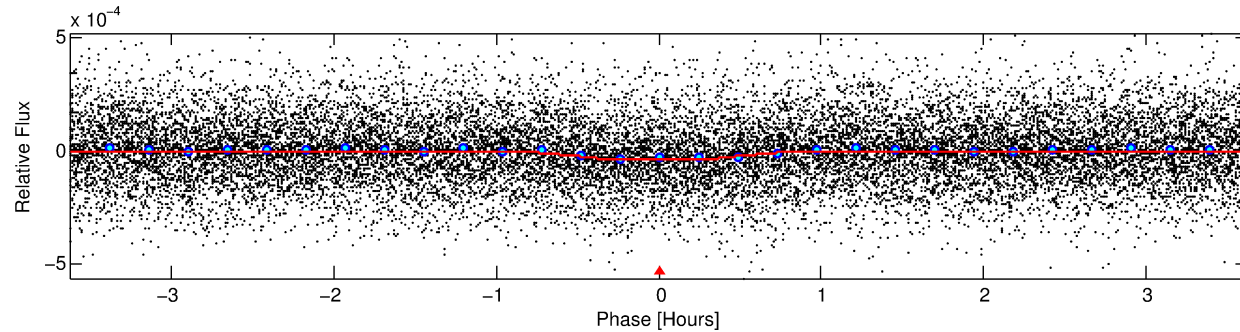
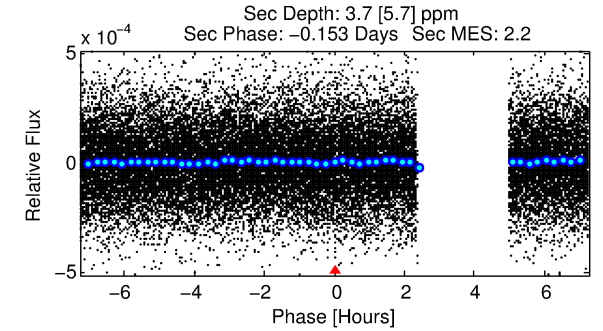
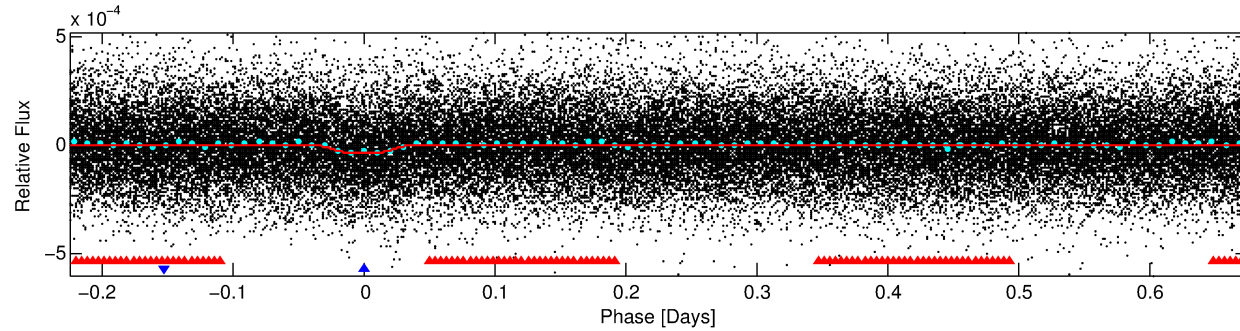
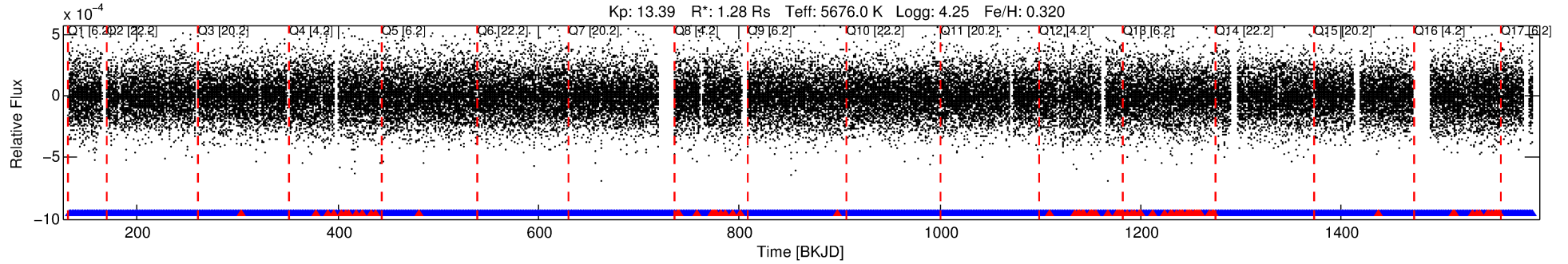
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009873254-02

No Significant Match Found

DV One-Page Summary

KIC: 9873254 Candidate: 2 of 2 Period: 0.900 d
KOI: K00717.02 Corr: 0.922



DV Fit Results:

Period = 0.90037 [0.00001] d
Epoch = 132.2230 [0.0016] BKJD
Rp/R* = 0.0056 [0.0042]
a/R* = 5.49 [16.43]
b = 0.30 [9.36]
Seff = 4412.08 [1144.60]
Teq = 2078 [135] K
Rp = 0.78 [0.61] Re
a = 0.0186 [0.0029] AU
Ag = 1.15 [2.50] [0.06σ]
Teffp = 3330 [1792] K [0.70σ]

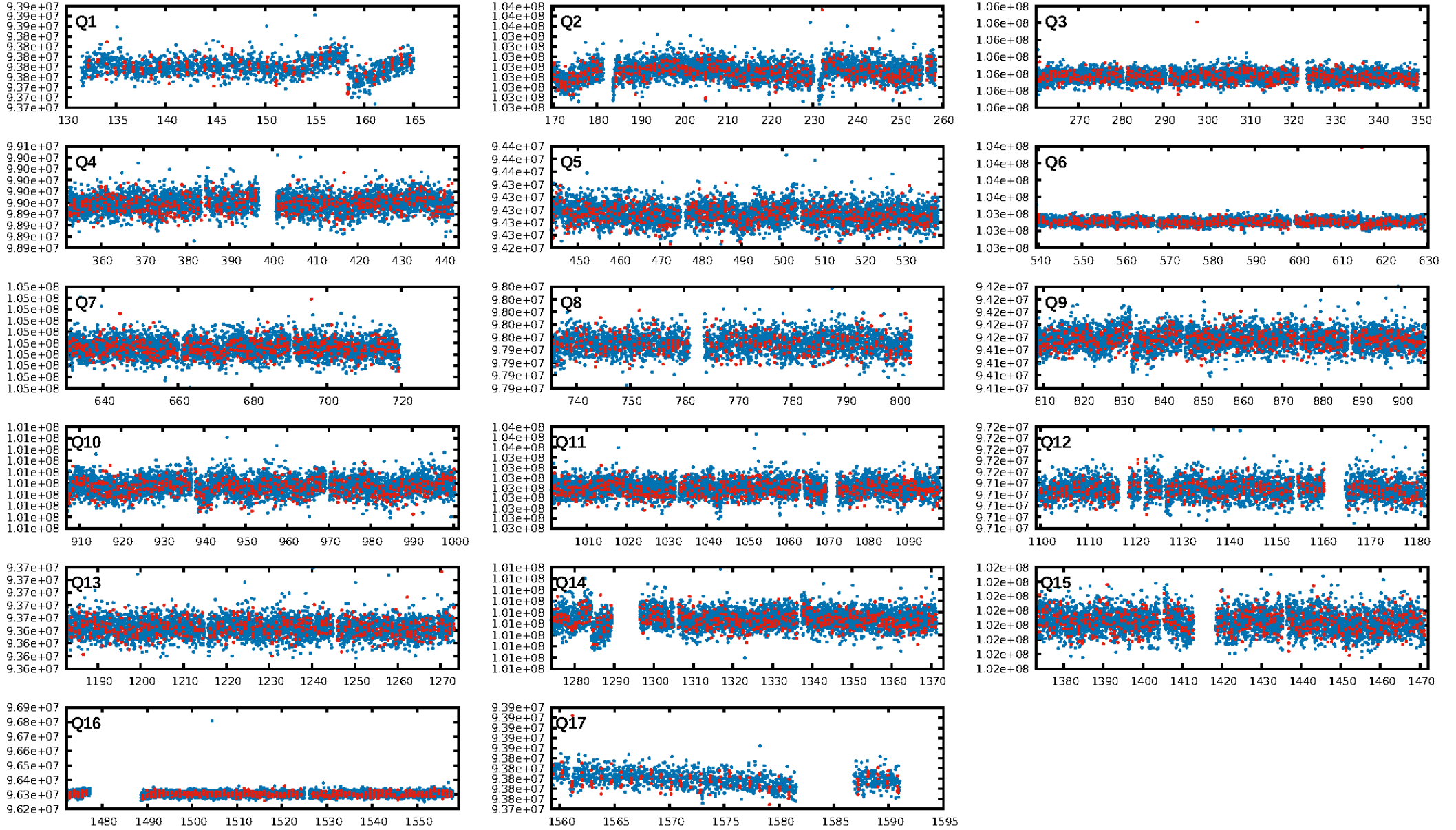
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [94.48σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.47e-30
RollingBand-fgt: 0.94 [1292/1379]
GhostDiagnostic-chr: 28.57
Centroid-sig: 1.0%
Centroid-so: 3.004 arcsec [2.40σ]
OotOffset-rm: 0.258 arcsec [0.73σ]
OotOffset-st: 4/4/3/2 [13]
KicOffset-rm: 0.401 arcsec [1.21σ]
KicOffset-st: 4/4/3/2 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 1.00 [17/17]

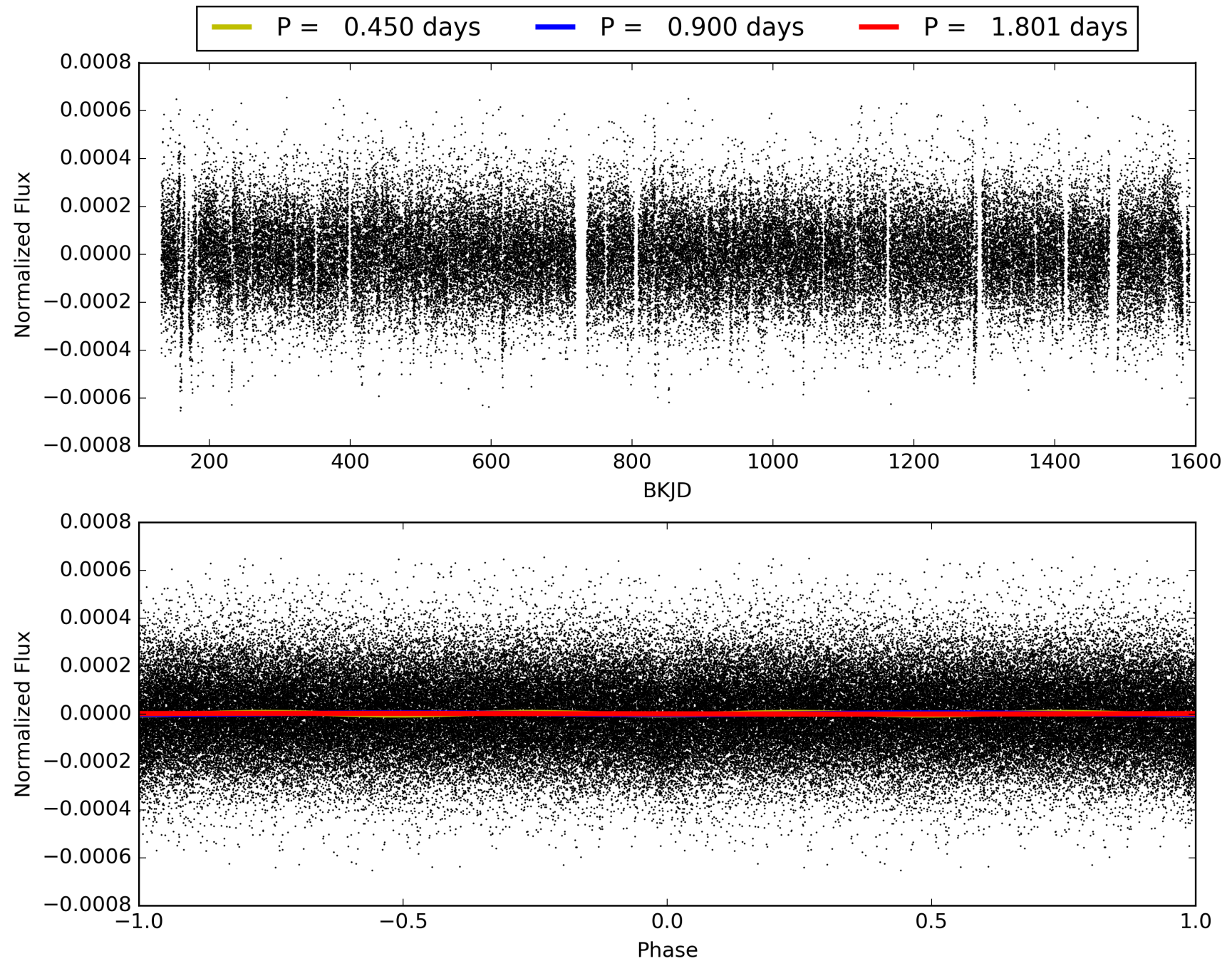
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:59:23 Z

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

TCE 009873254-02, PDC Light Curves

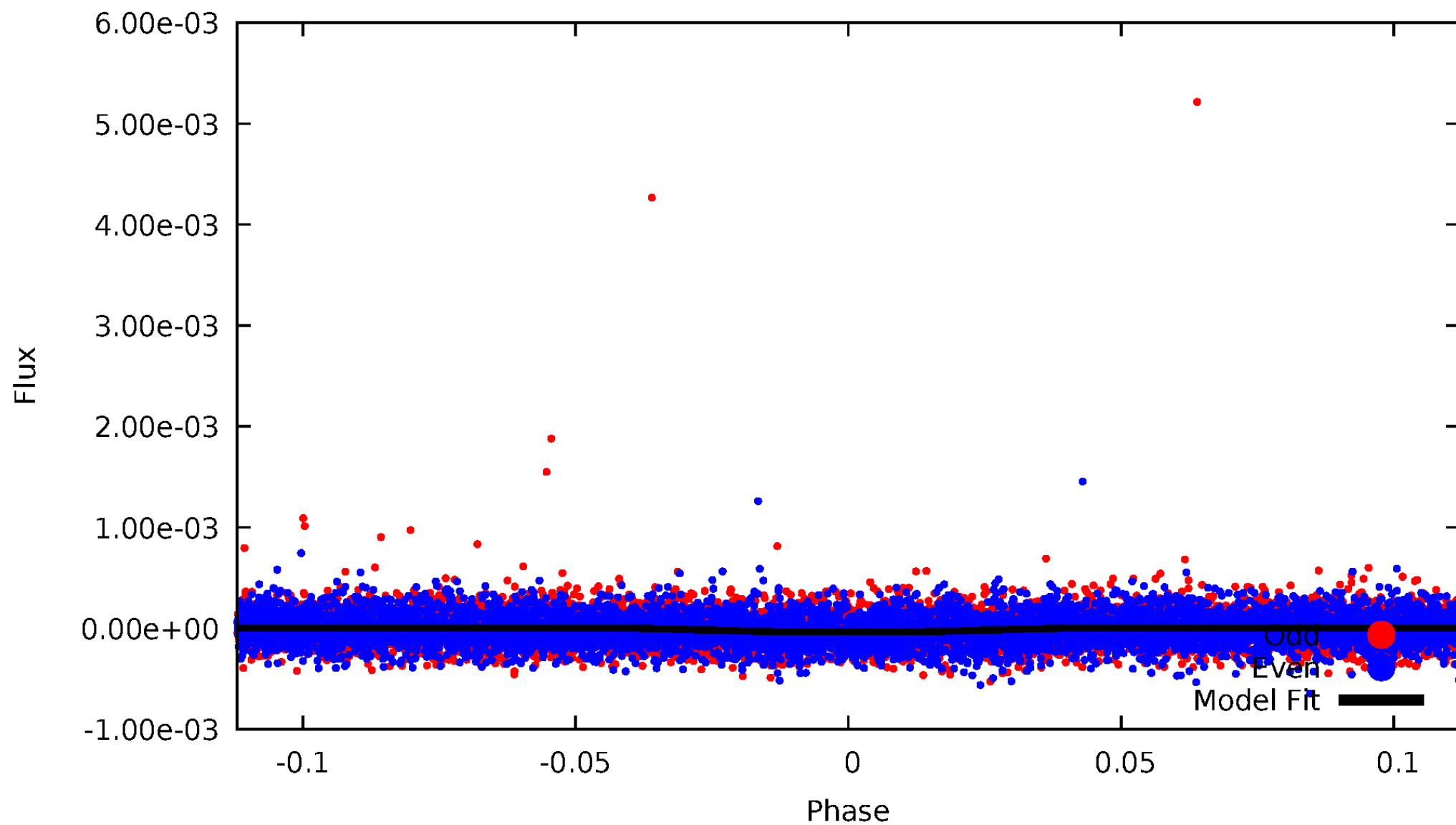


TCE 009873254-02



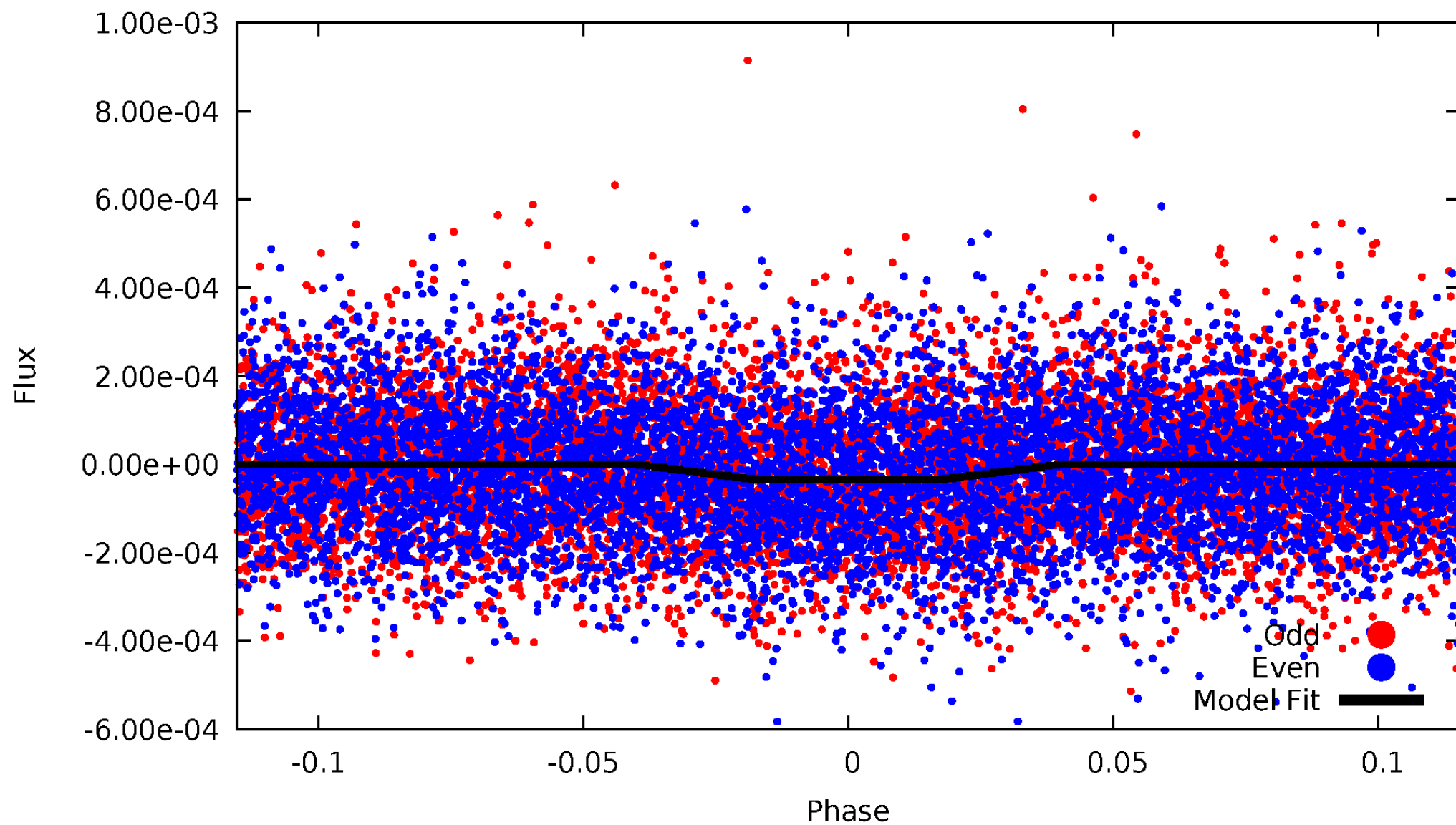
DV Odd/Even

TCE 009873254-02



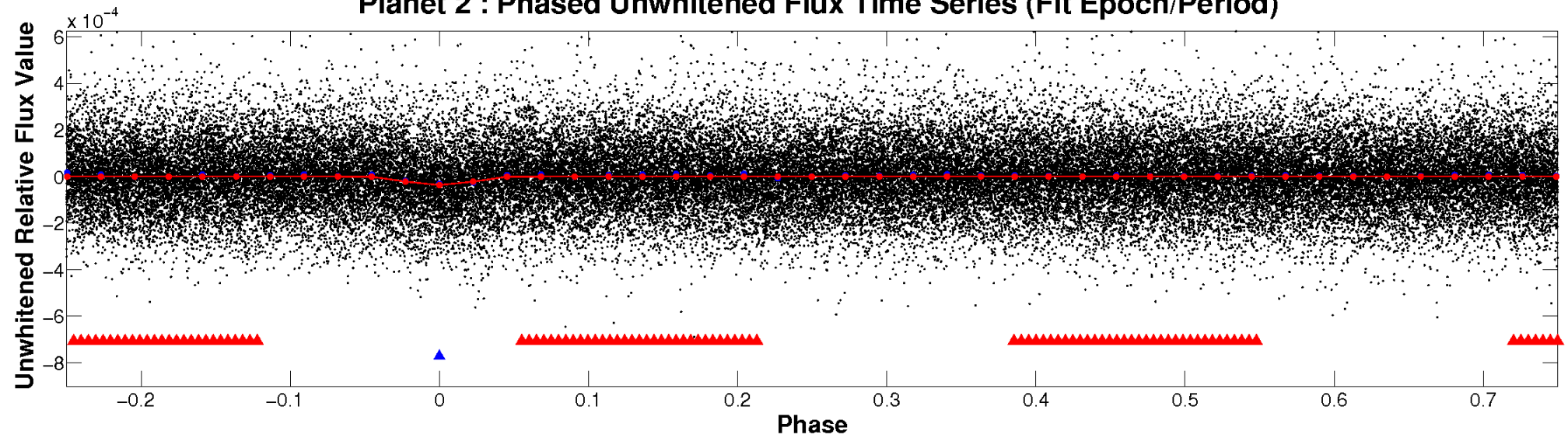
ALT Odd/Even

TCE 009873254-02

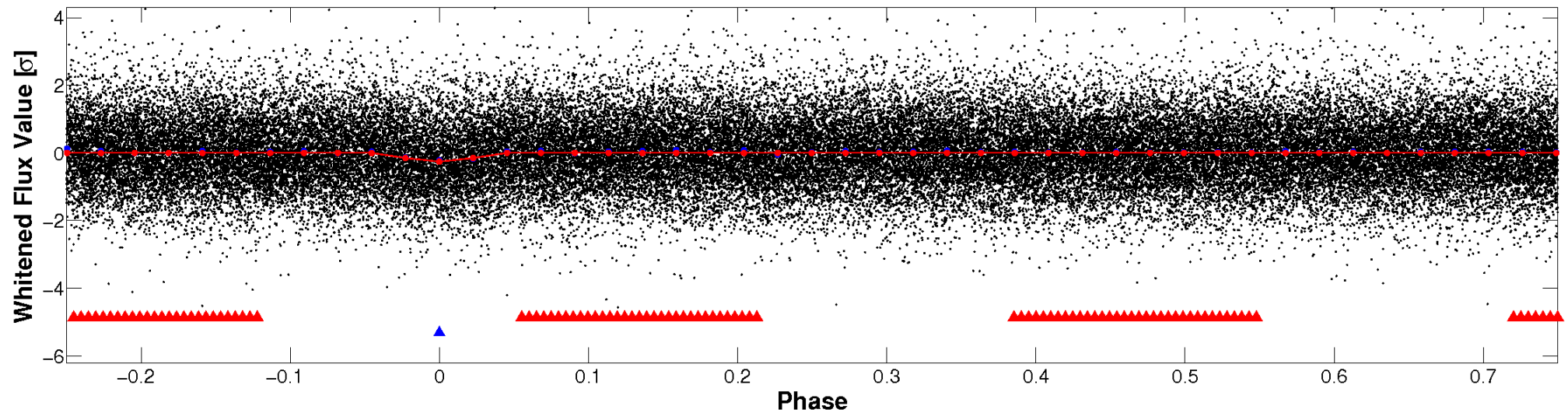


Non-Whitened Vs. Whitened Light Curve

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

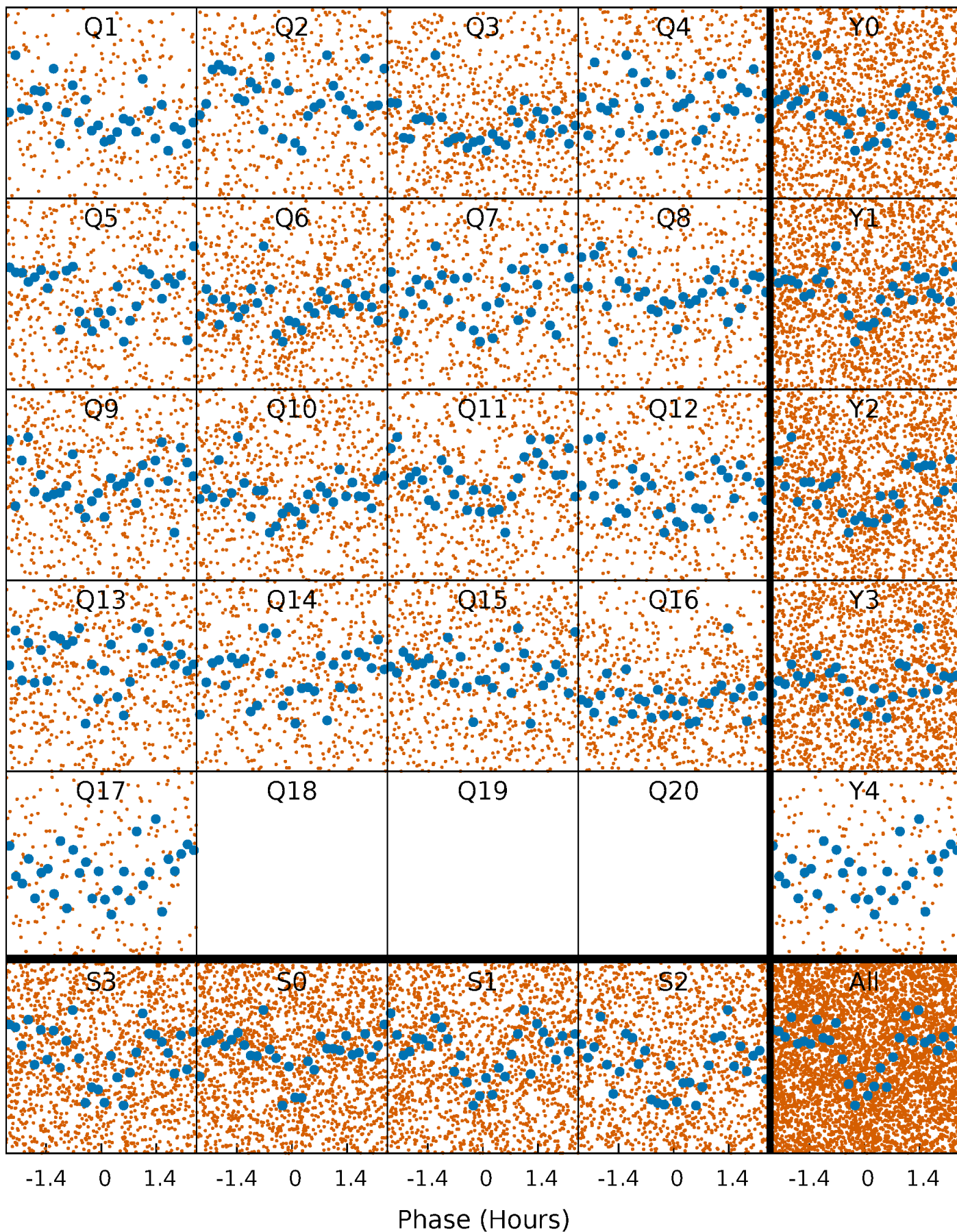


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



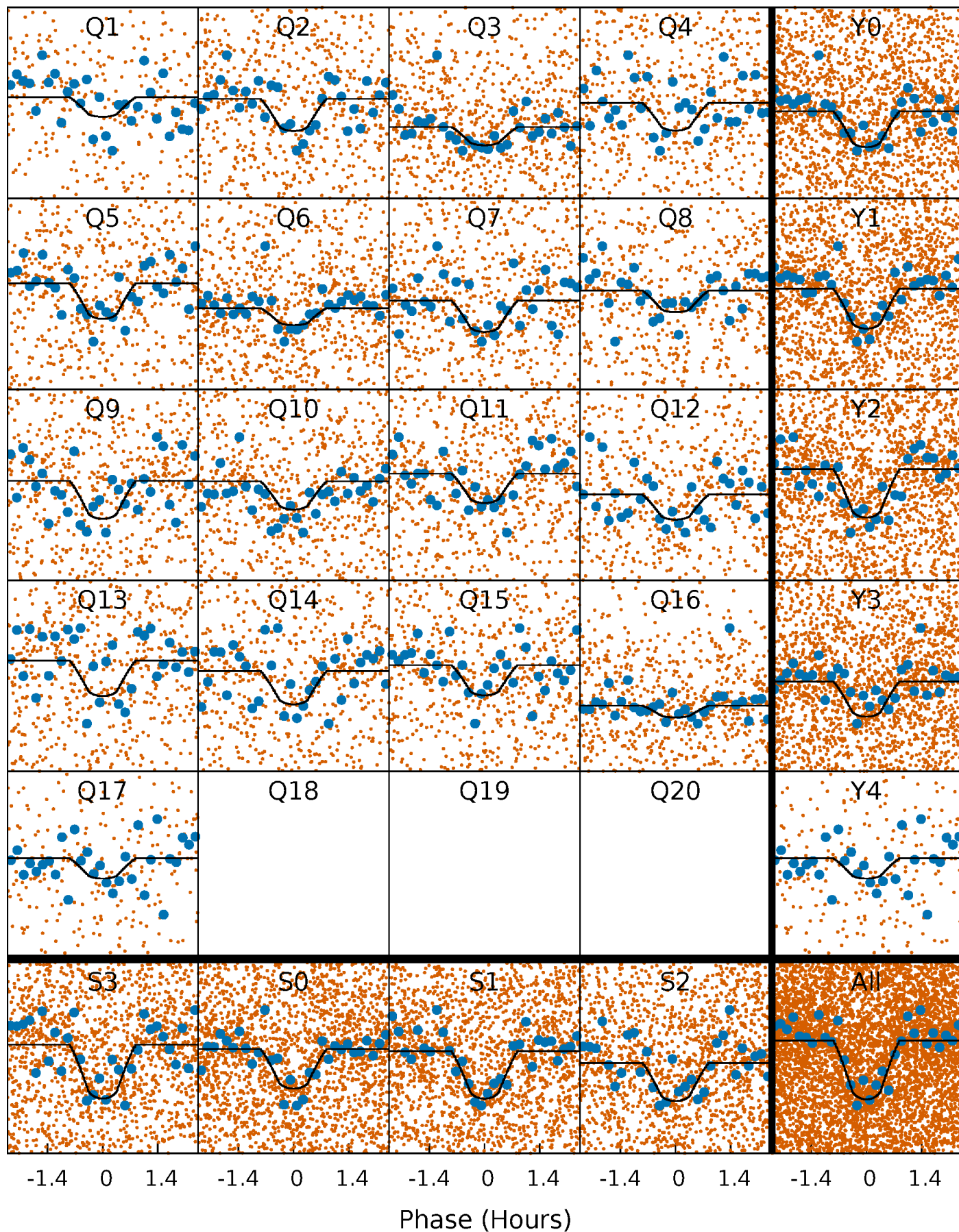
PDC Quarter-Phased Transit Curves

TCE 009873254-02 P= 0.900369 Days $T_0=132.222977$ (BKJD)



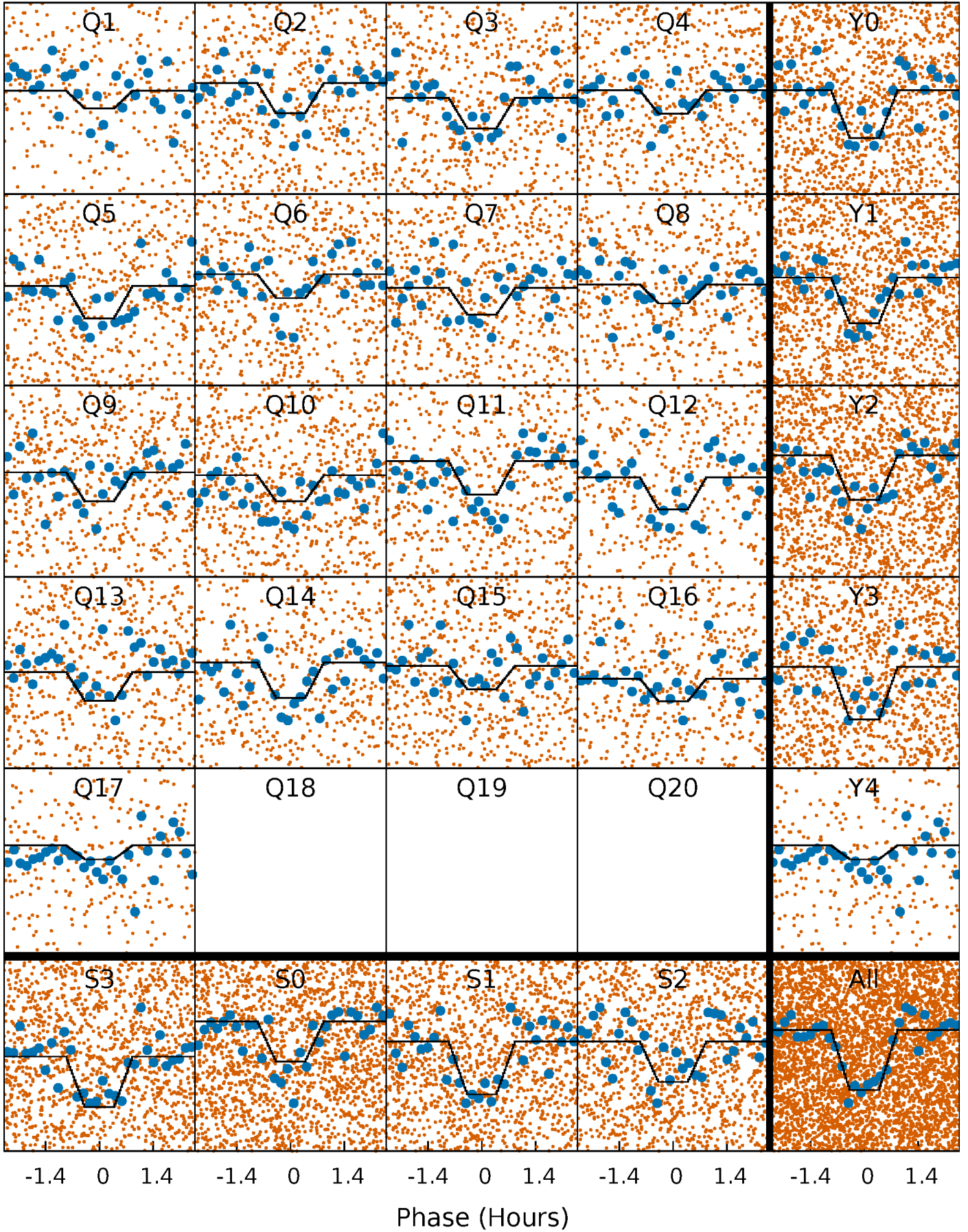
DV Quarter-Phased Transit Curves

TCE 009873254-02 P= 0.900369 Days $T_0=132.222977$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

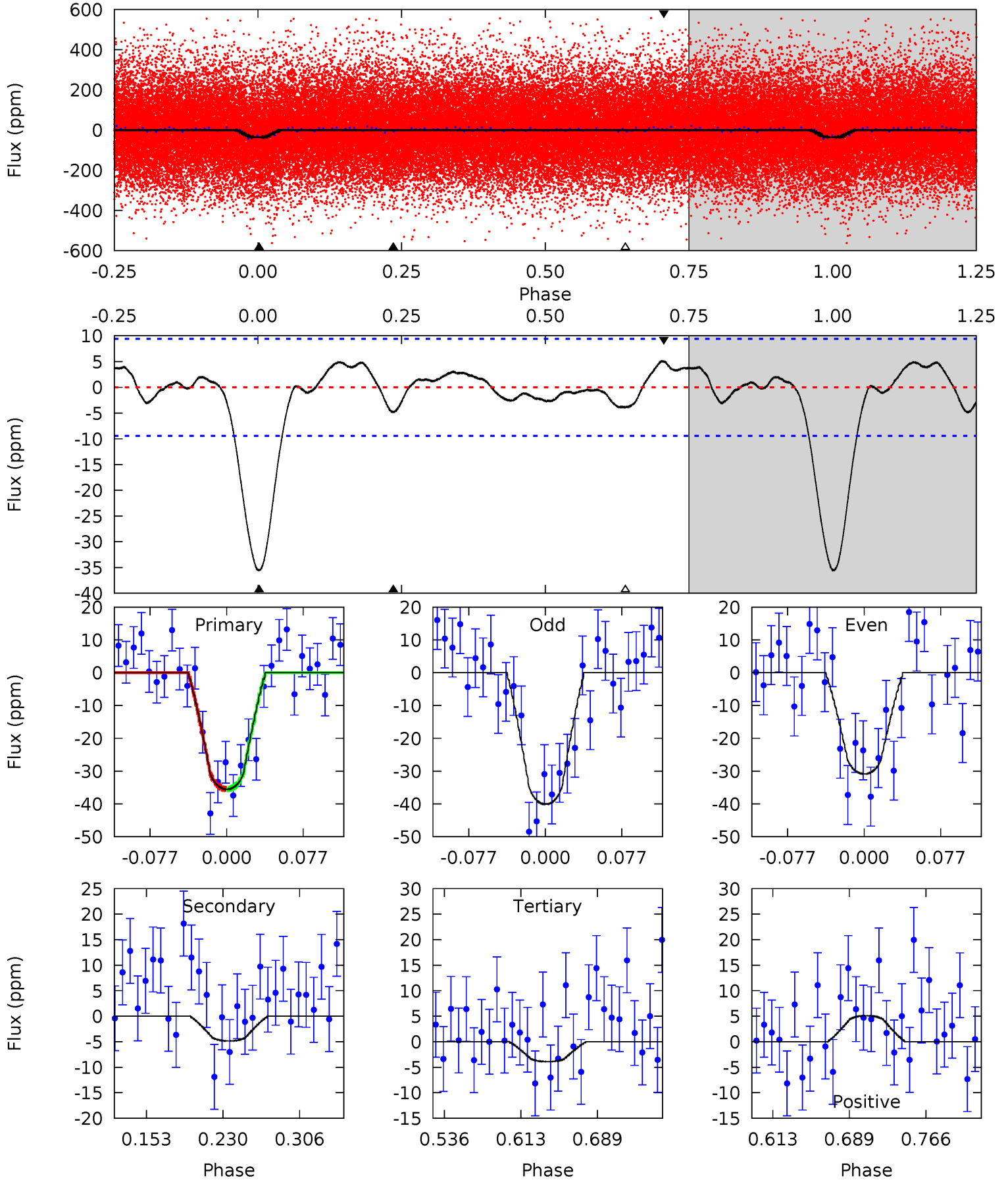
TCE 009873254-02 P= 0.900373 Days $T_0=132.223580$ (BKJD)



DV Model-Shift Uniqueness Test

009873254-02, P = 0.900369 Days, E = 131.322608 Days

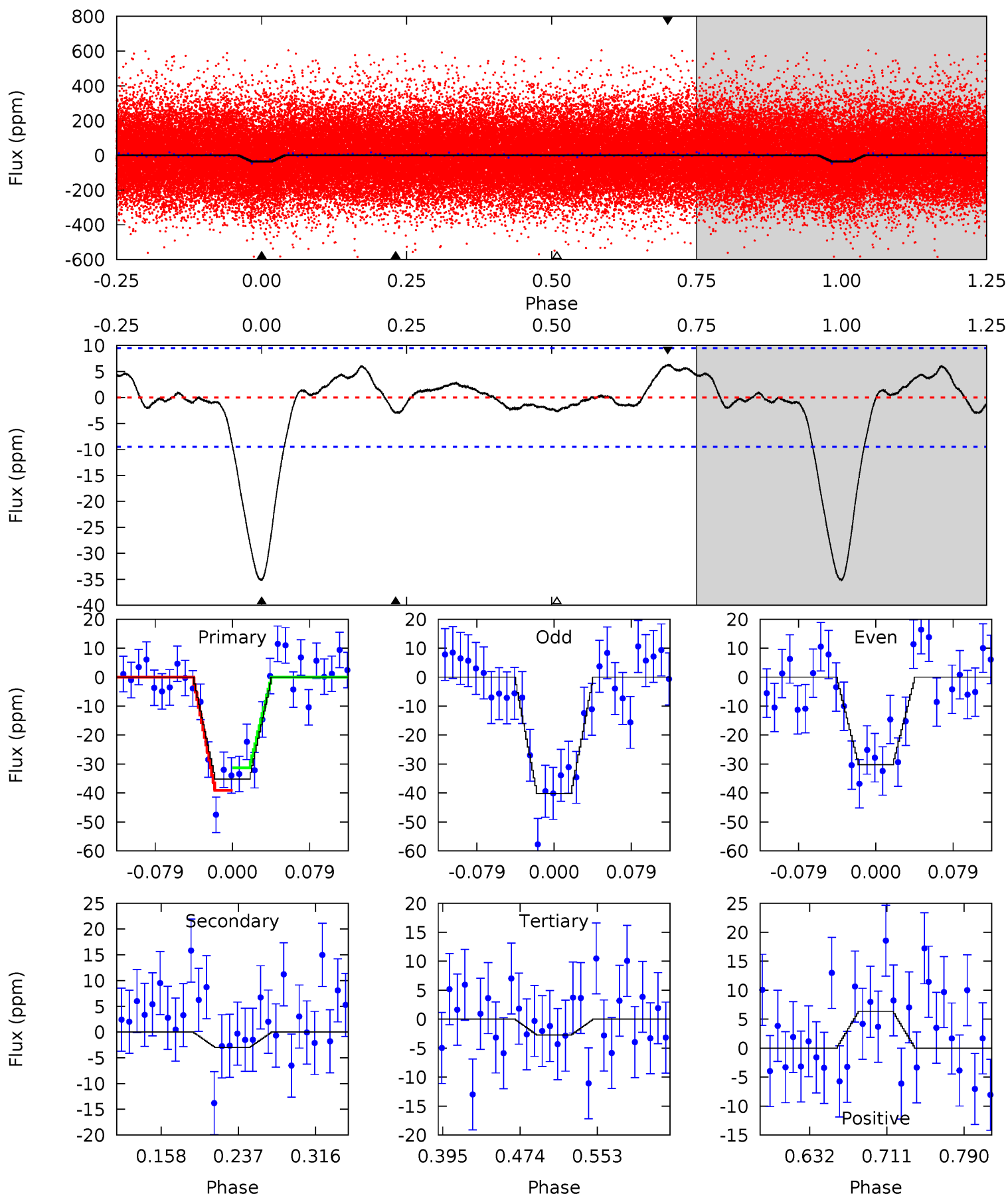
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	2.38	1.91	2.50	4.62	1.77	1.19	15.5	14.9	0.46	-0.12	2.26	0.96	0.13	0.01



Alt Model-Shift Uniqueness Test

009873254-02, P = 0.900373 Days, E = 131.323207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	1.46	1.33	3.09	4.61	1.76	1.17	15.8	14.0	0.13	-1.63	2.43	0.97	0.15	1.87



Stellar Parameters For KIC 009873254

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5676^{+101}_{-113}	$4.247^{+0.143}_{-0.117}$	$0.320^{+0.100}_{-0.150}$	$1.280^{+0.217}_{-0.217}$	$1.056^{+0.088}_{-0.072}$	$0.710^{+0.478}_{-0.243}$
	+2%/-2%	+3%/-3%	+31%/-47%	+17%/-17%	+8%/-7%	+67%/-34%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 009873254-02 / KOI 0717.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 2	$0.86^{+0.55}_{-0.50}$	2898^{+129}_{-145}	3567^{+1572}_{-977}	$1.199^{+5.764}_{-0.806}$
Alt.	-3 ± 2	$0.88^{+0.53}_{-0.52}$	2897^{+141}_{-147}	3051^{+1497}_{-5865}	$0.623^{+3.109}_{-0.496}$

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 $A_{obs} \gg 1.0$

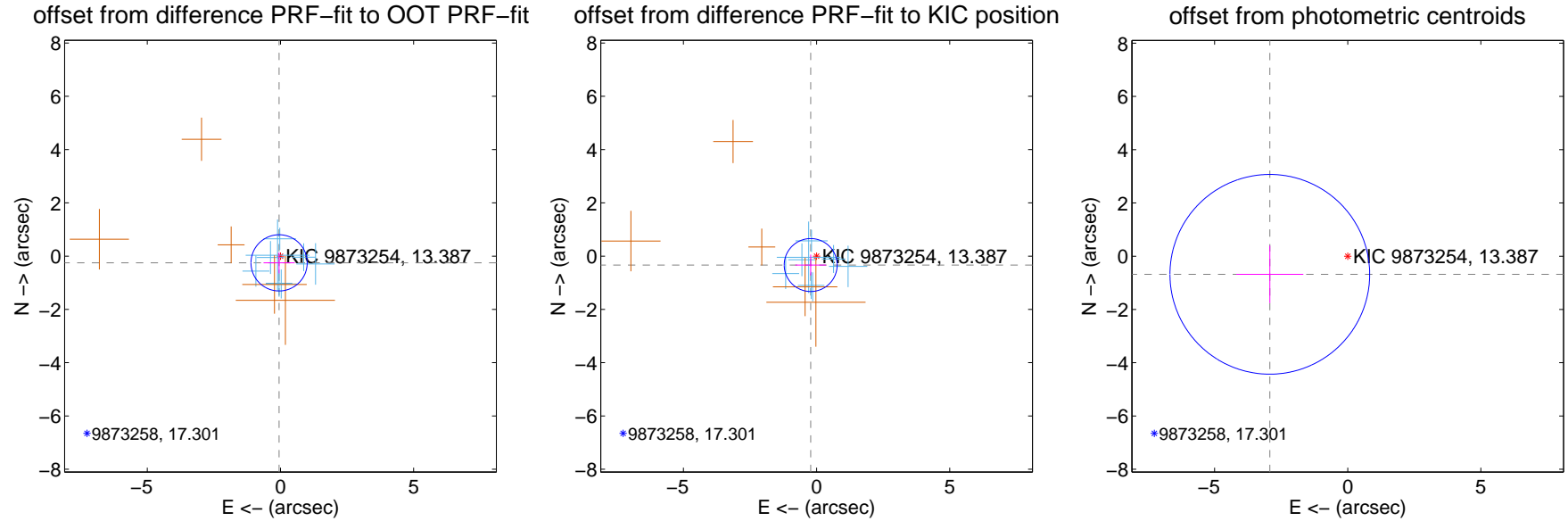
DV Centroid Data

Supplemental centroid analysis for 009873254-02. Kepler magnitude: 13.39. Transit SNR 12.67

There are 8 quarters with good PRF difference image offsets

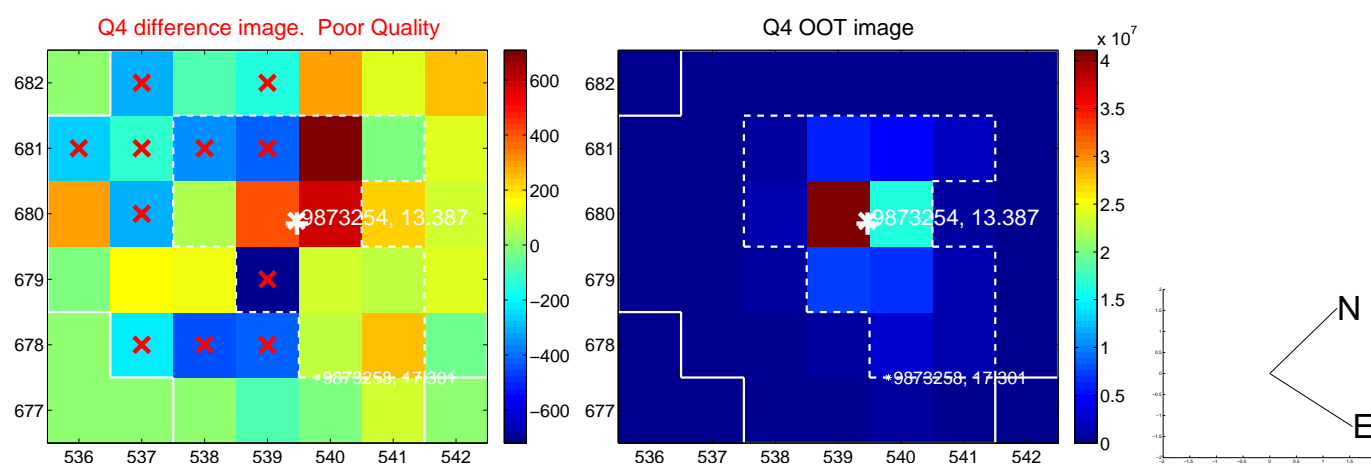
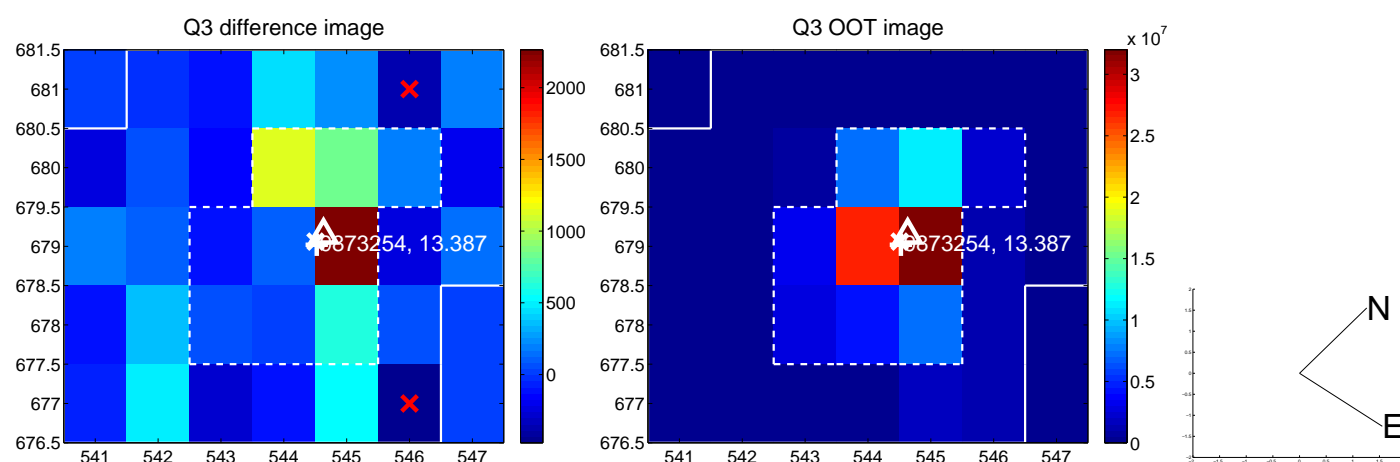
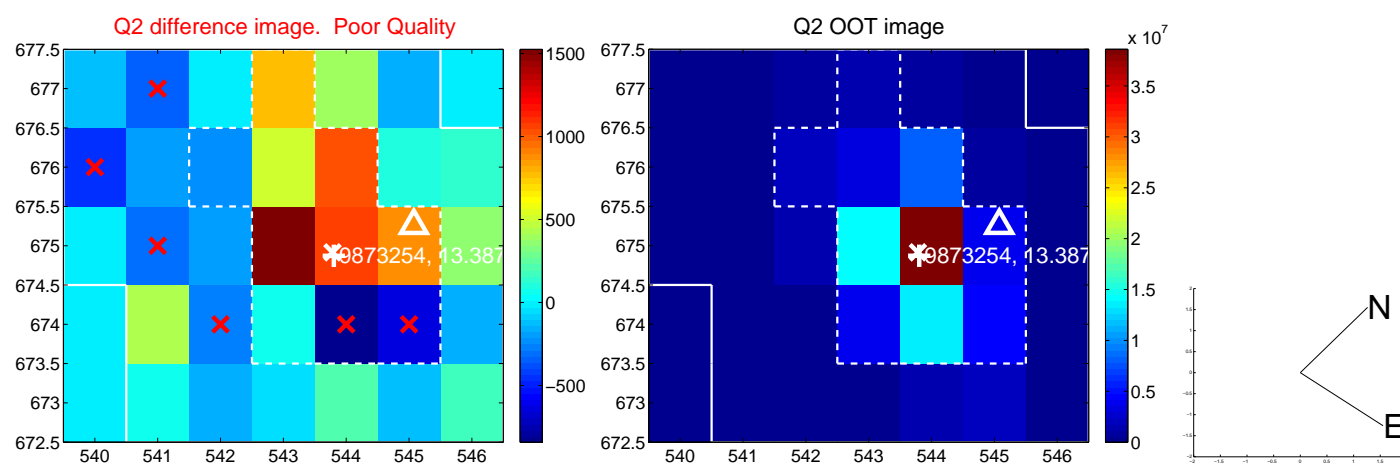
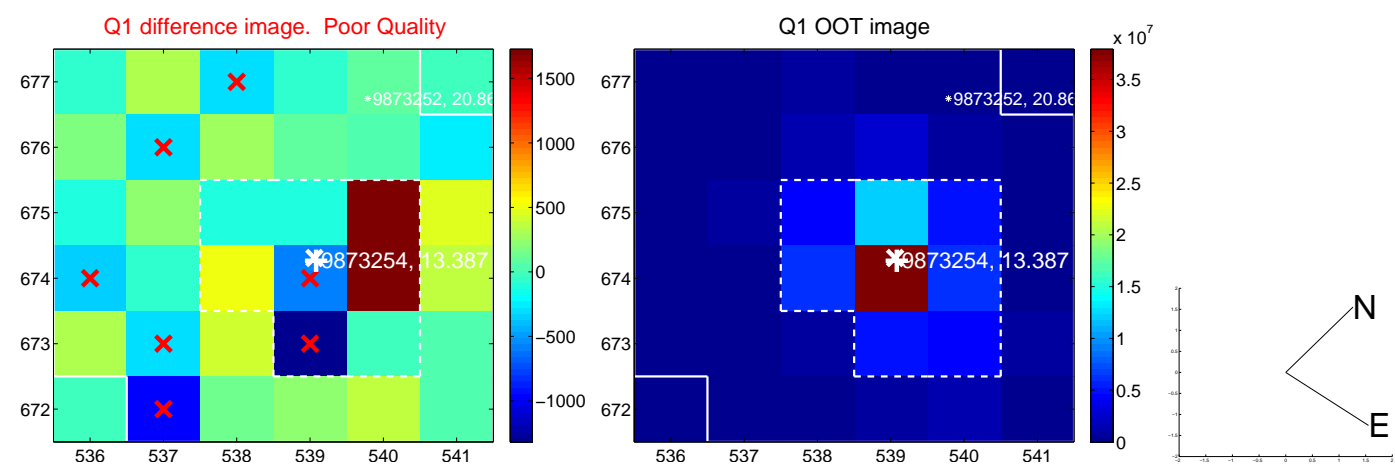
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.258 ± 0.352	0.73	0.051 ± 0.585	-0.252 ± 0.396
PRF-fit source offset from KIC position	0.401 ± 0.331	1.21	0.221 ± 0.577	-0.335 ± 0.390
photometric centroid source offset	3.00 ± 1.25	2.40	2.93 ± 1.26	-0.68 ± 1.08

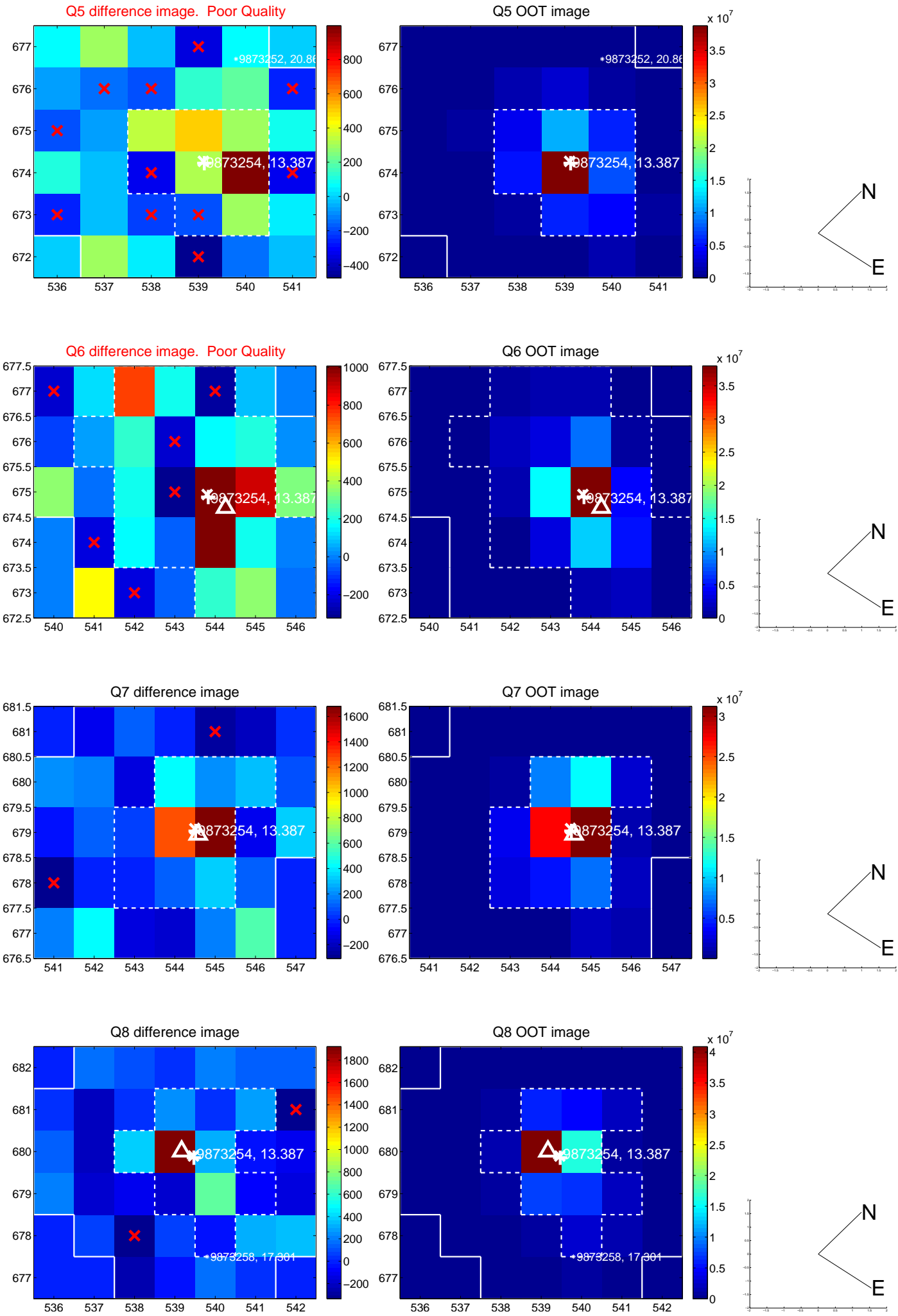


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

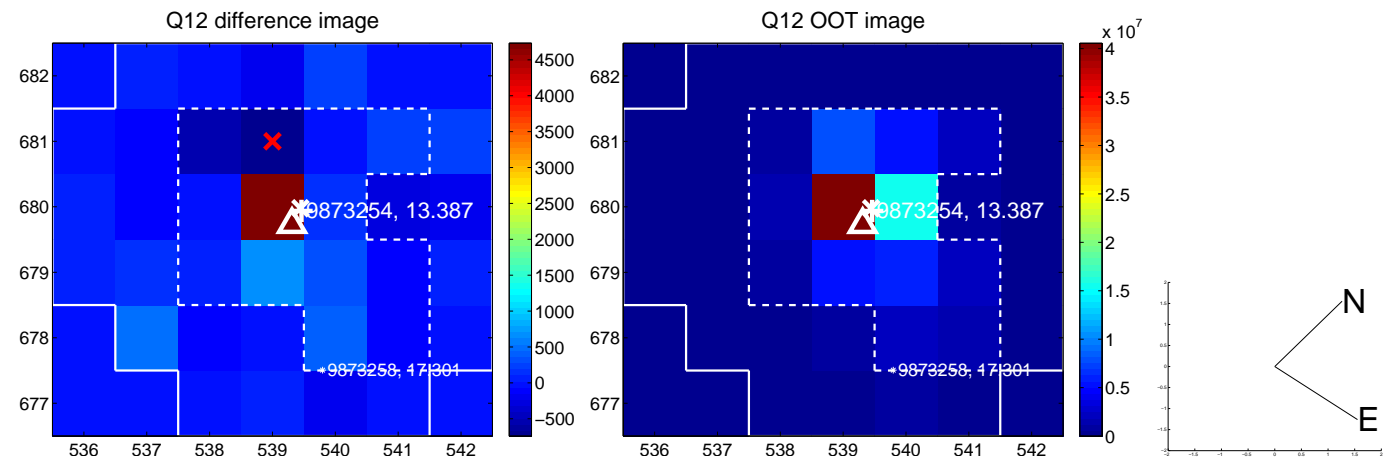
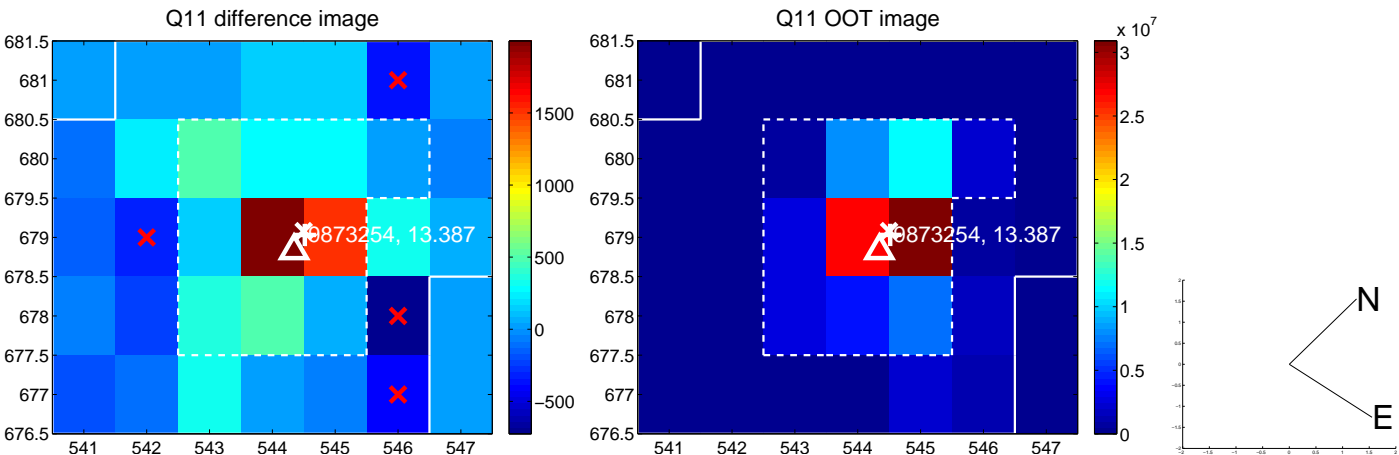
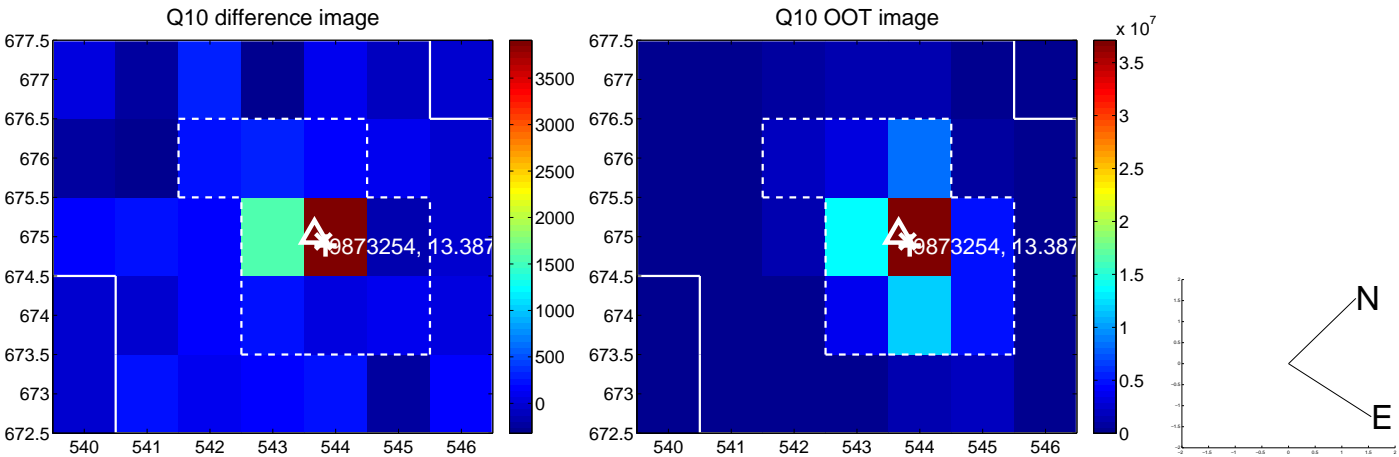
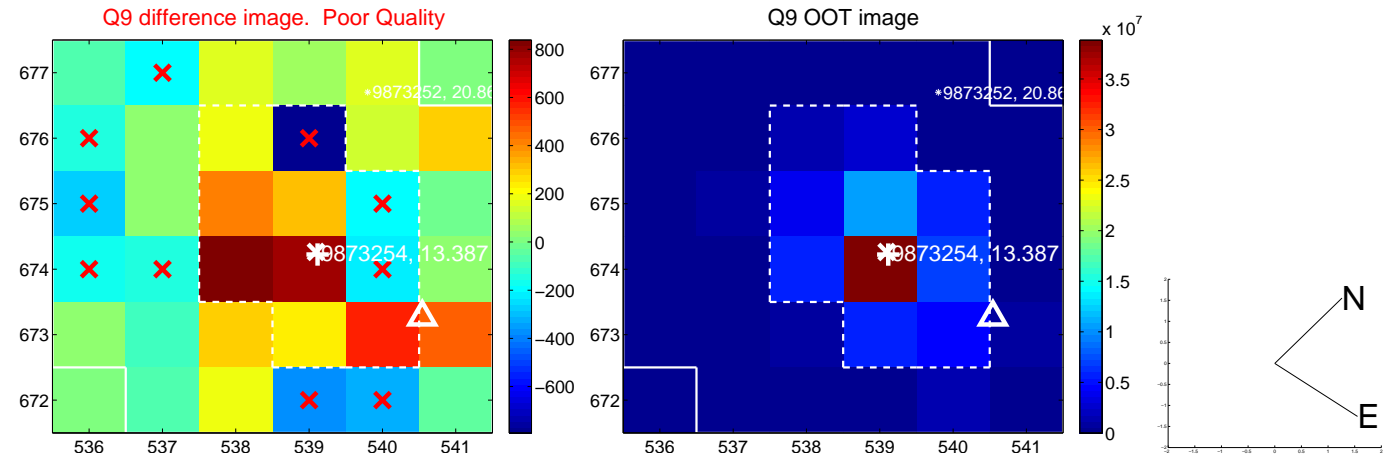
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



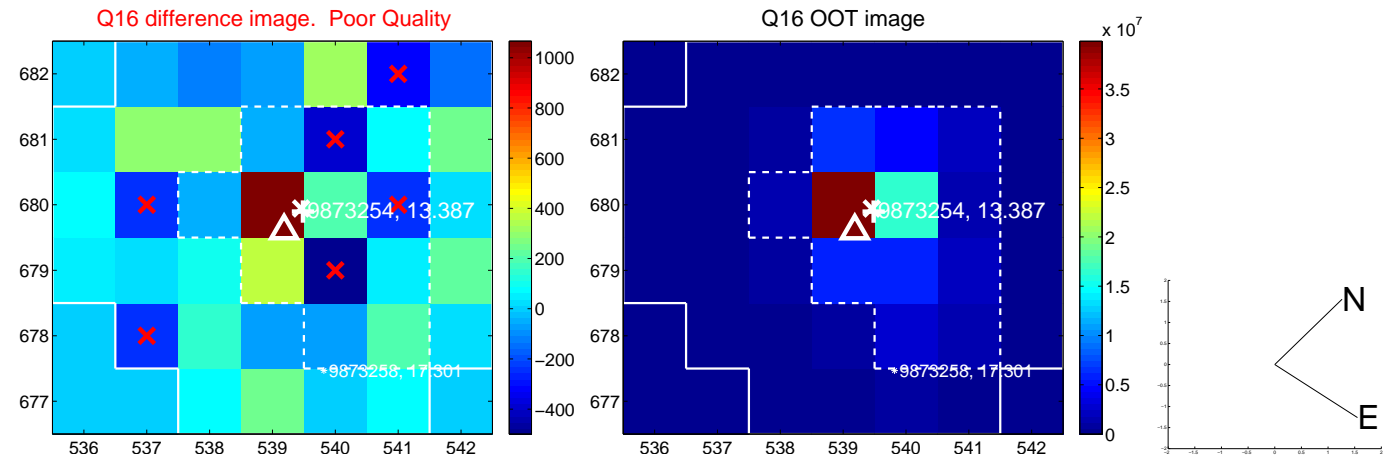
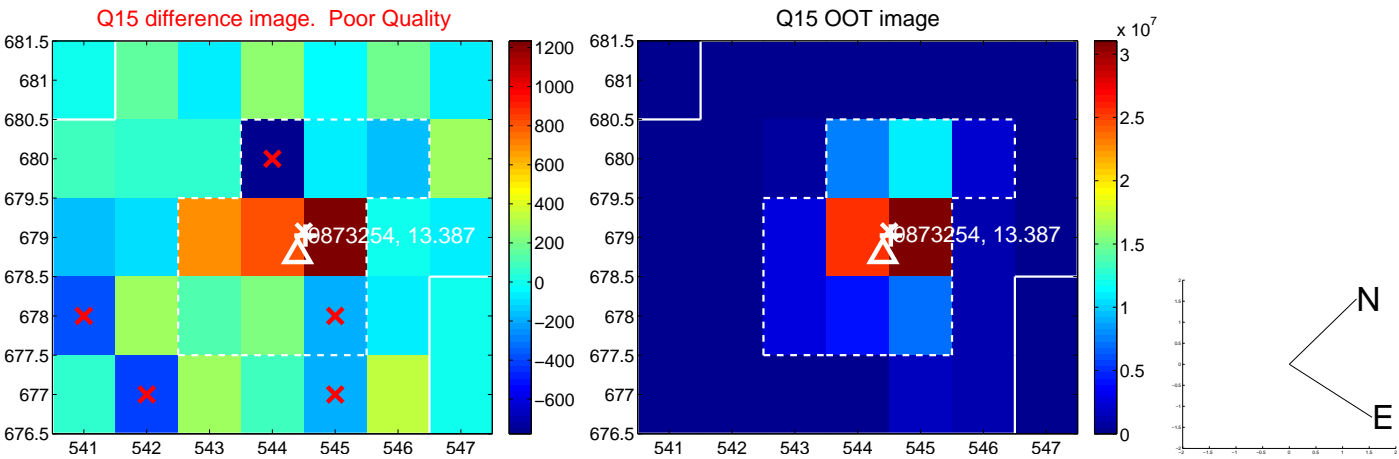
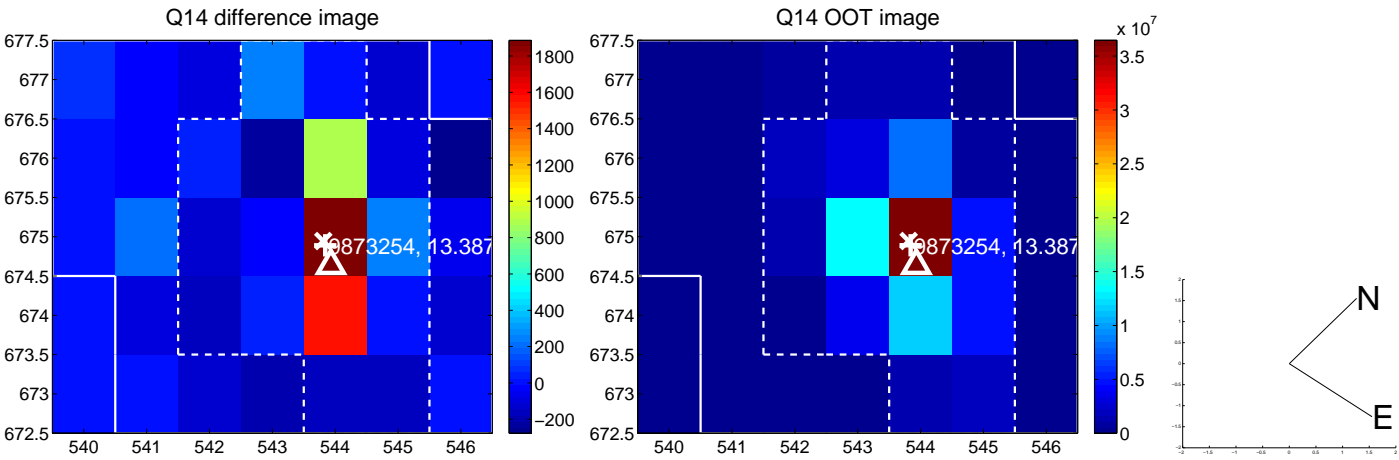
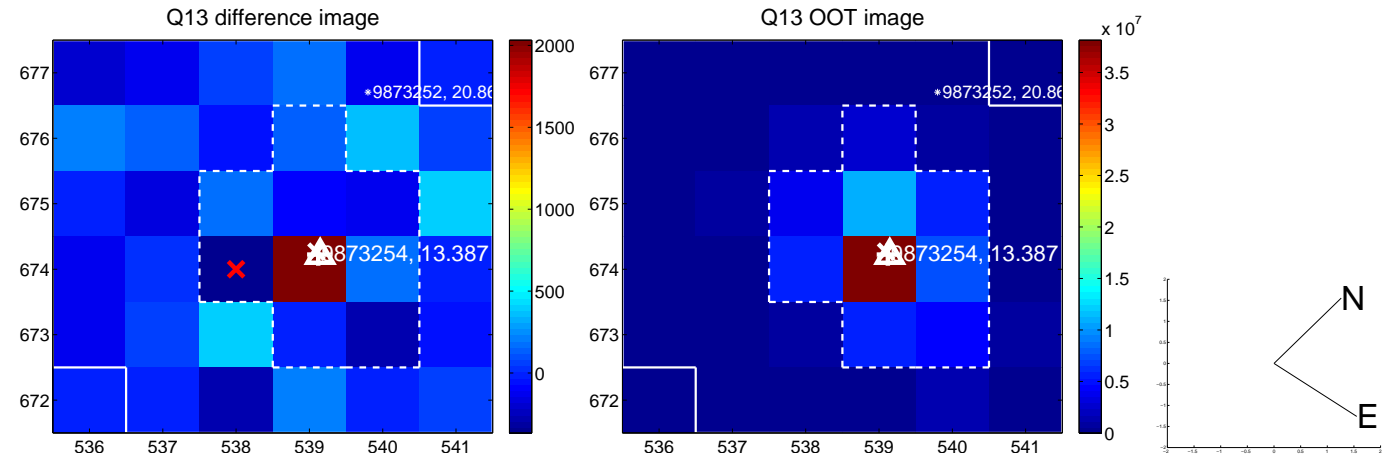
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



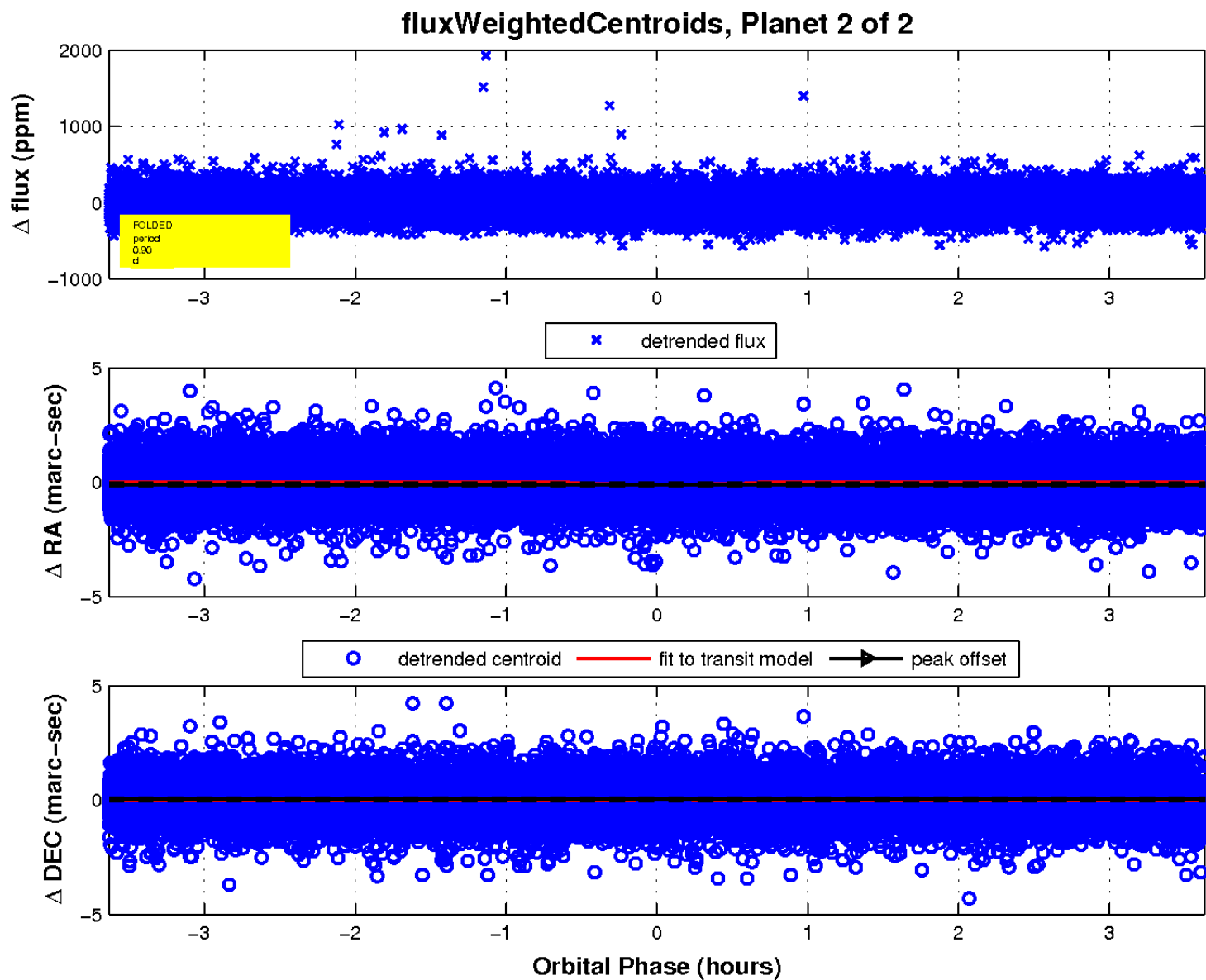
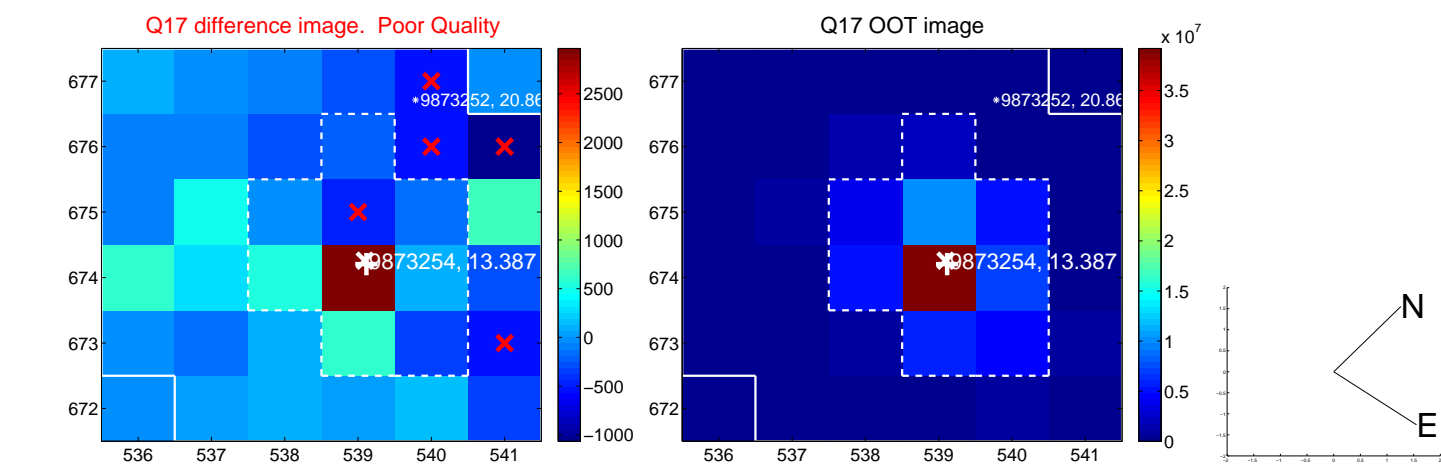
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

