

KIC 002436378

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})
002436378-01	OBS	2682.01	8.531615	136.278030	66262.3	2.933	90.9	89.8	1.00	5780	36.34	149.70
002436378-02	OBS	No	8.531650	132.003016	5987.1	2.260	7.7	8.6	1.00	5780	8.76	149.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436378-01	OBS	FP	0.01	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
002436378-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS

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.

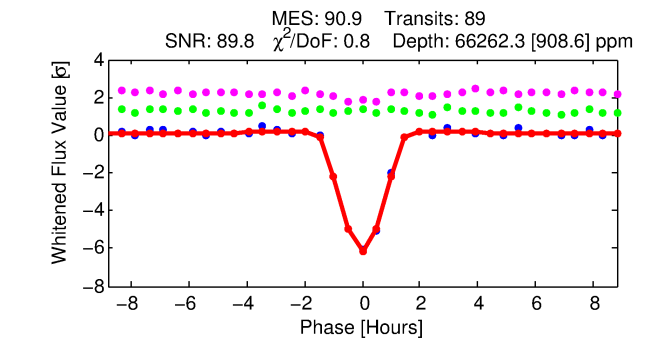
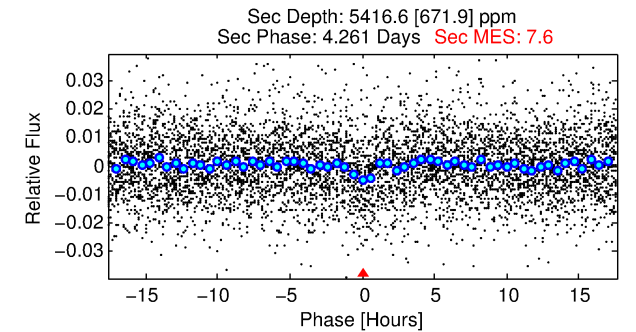
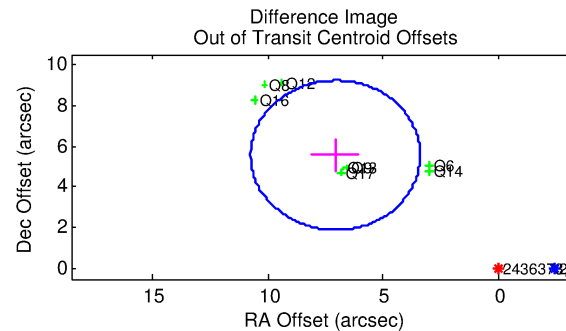
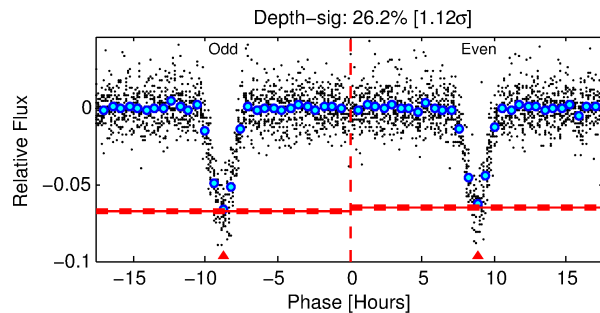
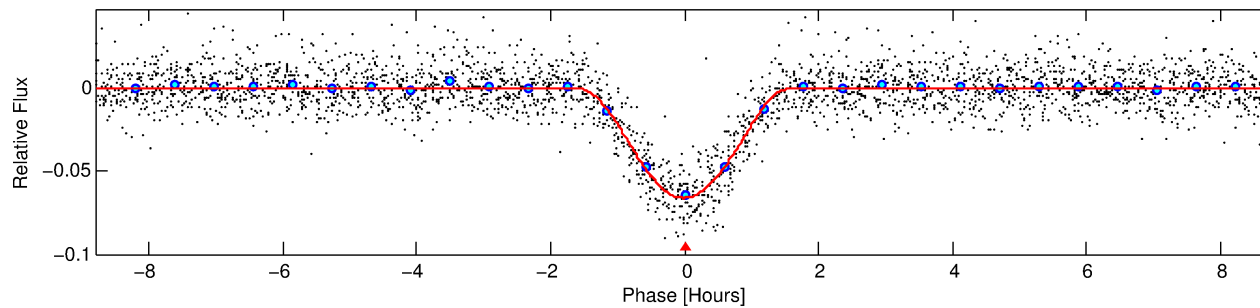
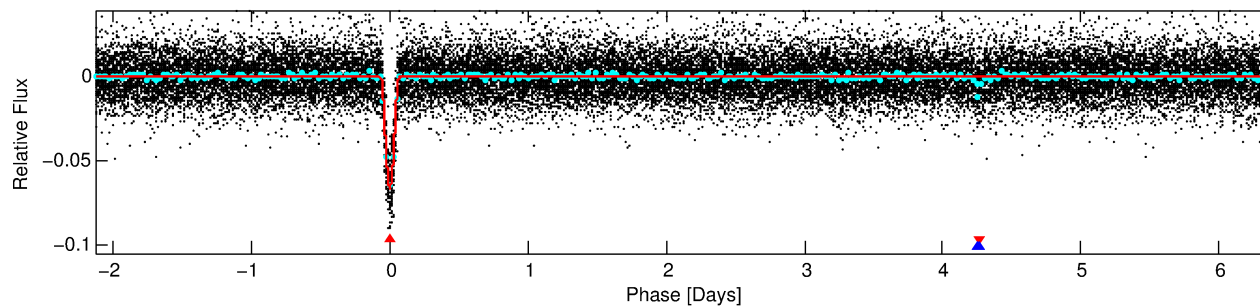
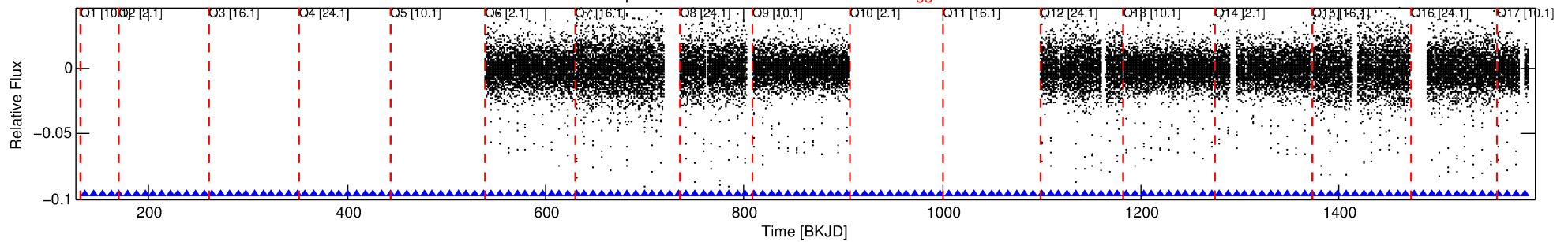
Ephemeris Match Information For 002436378-01

No Significant Match Found

DV One-Page Summary

KIC: 2436378 Candidate: 1 of 2 Period: 8.532 d
KOI: K02682.01 Corr: 0.998

Kp: 18.50 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 8.53161 [0.00001] d
Epoch = 136.2780 [0.0011] BKJD
Rp/R* = 0.3330 [0.1999]
a/R* = 22.01 [0.87]
b = 0.89 [0.32]
Seff = 149.70 [0.00]
Teq = 892 [0] K
Rp = 36.34 [21.81] Re
a = 0.0817 [0.0000] AU
Ag = 15.07 [18.19] [0.77σ]
Teffp = 2717 [820] K [2.23σ]

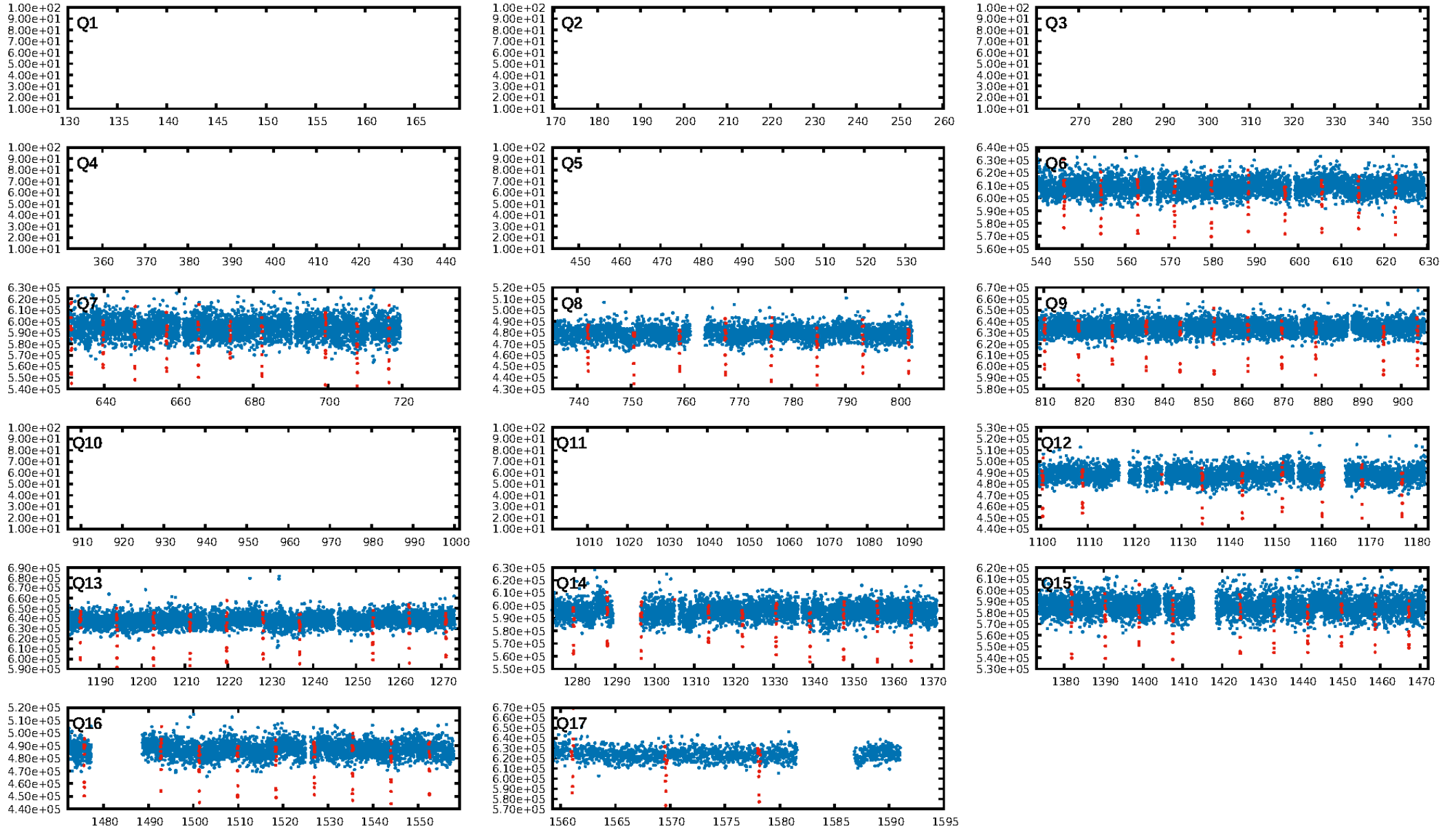
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 7.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [86/86]
GhostDiagnostic-chr: 2.654
Centroid-sig: 0.0%
Centroid-so: 1.840 arcsec [61.89σ]
OotOffset-rm: 8.997 arcsec [7.37σ]
KicOffset-rm: 0.104 arcsec [1.07σ]
OotOffset-st: 2/0/3/3 [8]
KicOffset-st: 2/2/3/3 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [10/10]

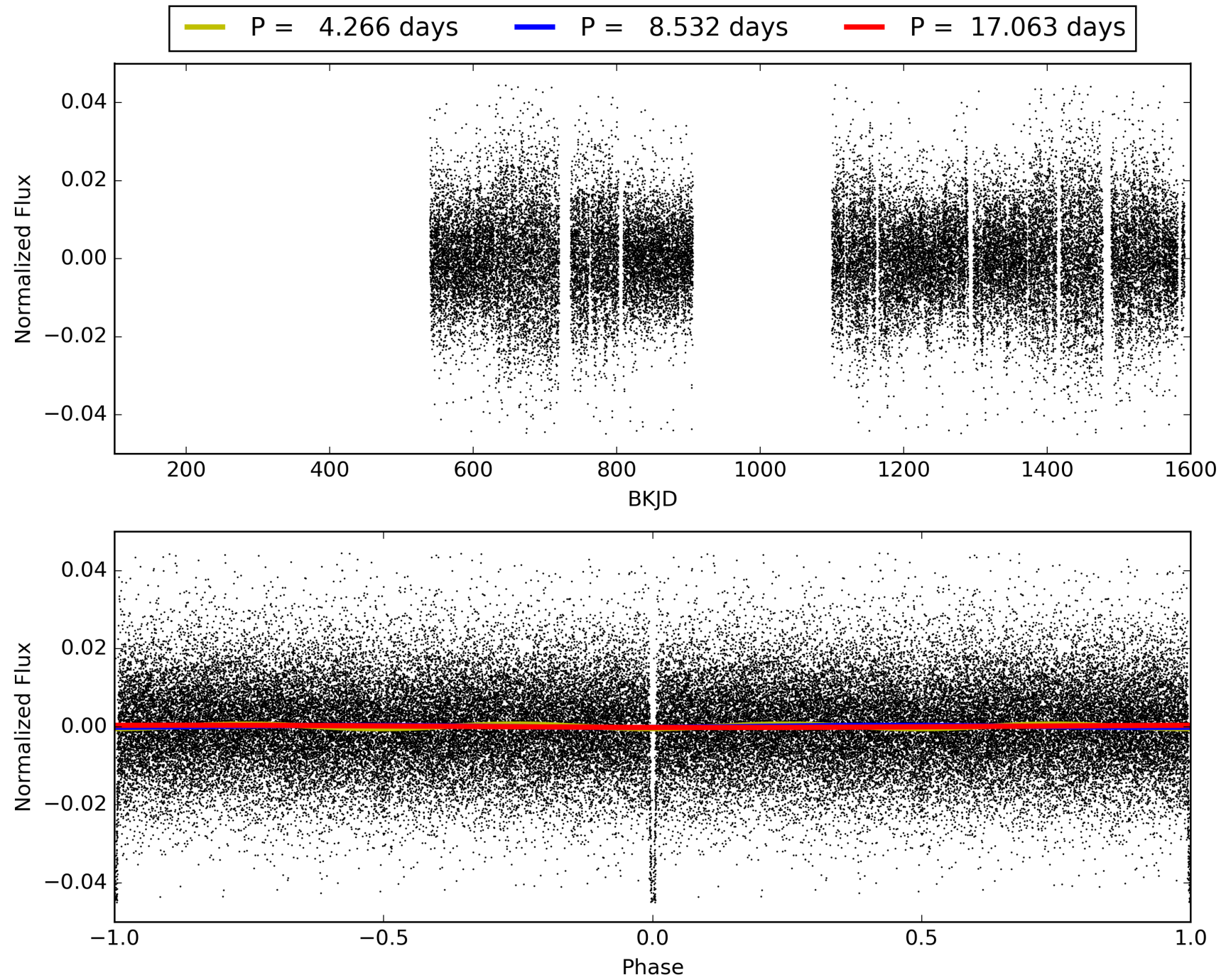
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:43:08 Z

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

TCE 002436378-01, PDC Light Curves

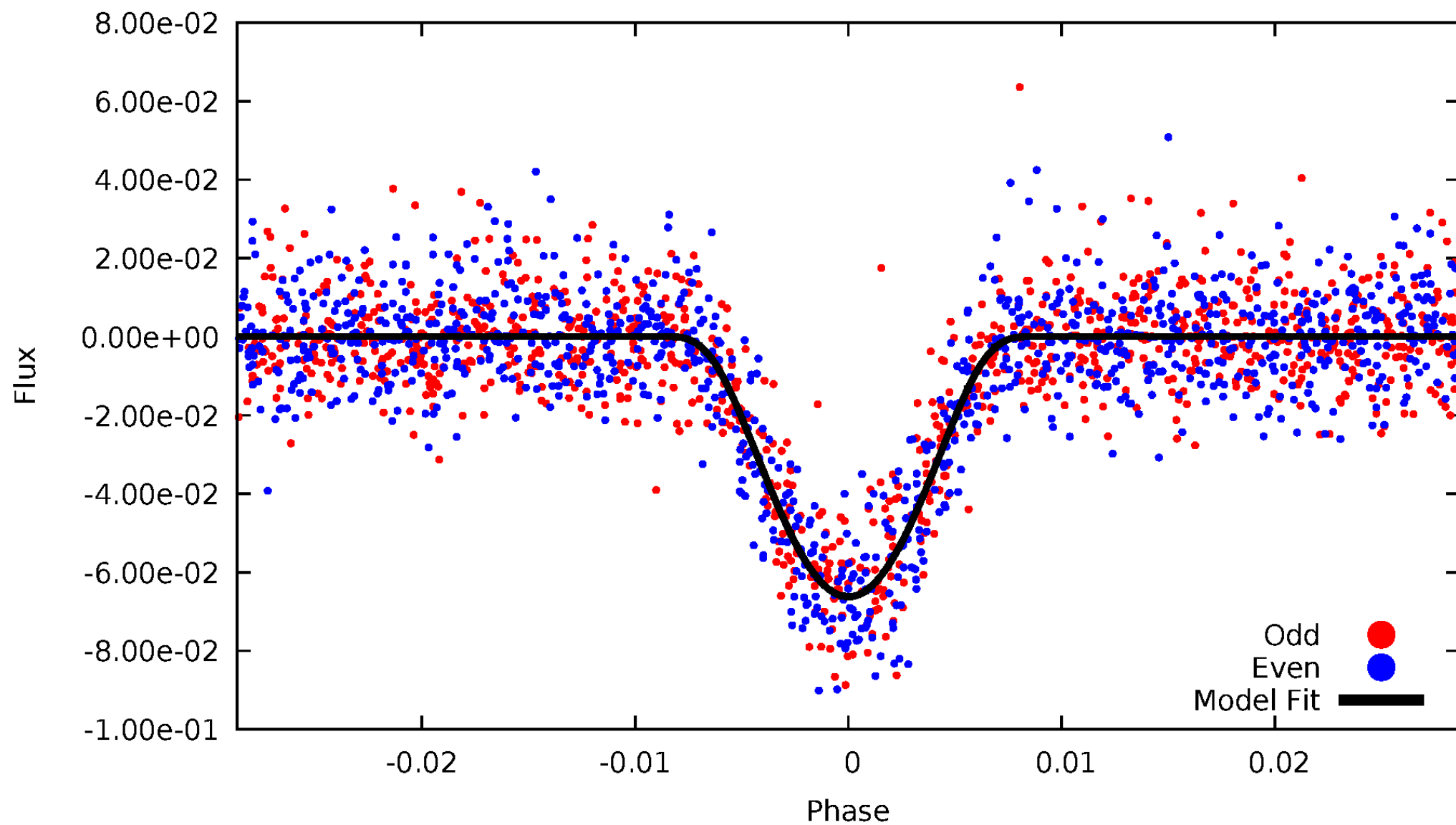


TCE 002436378-01



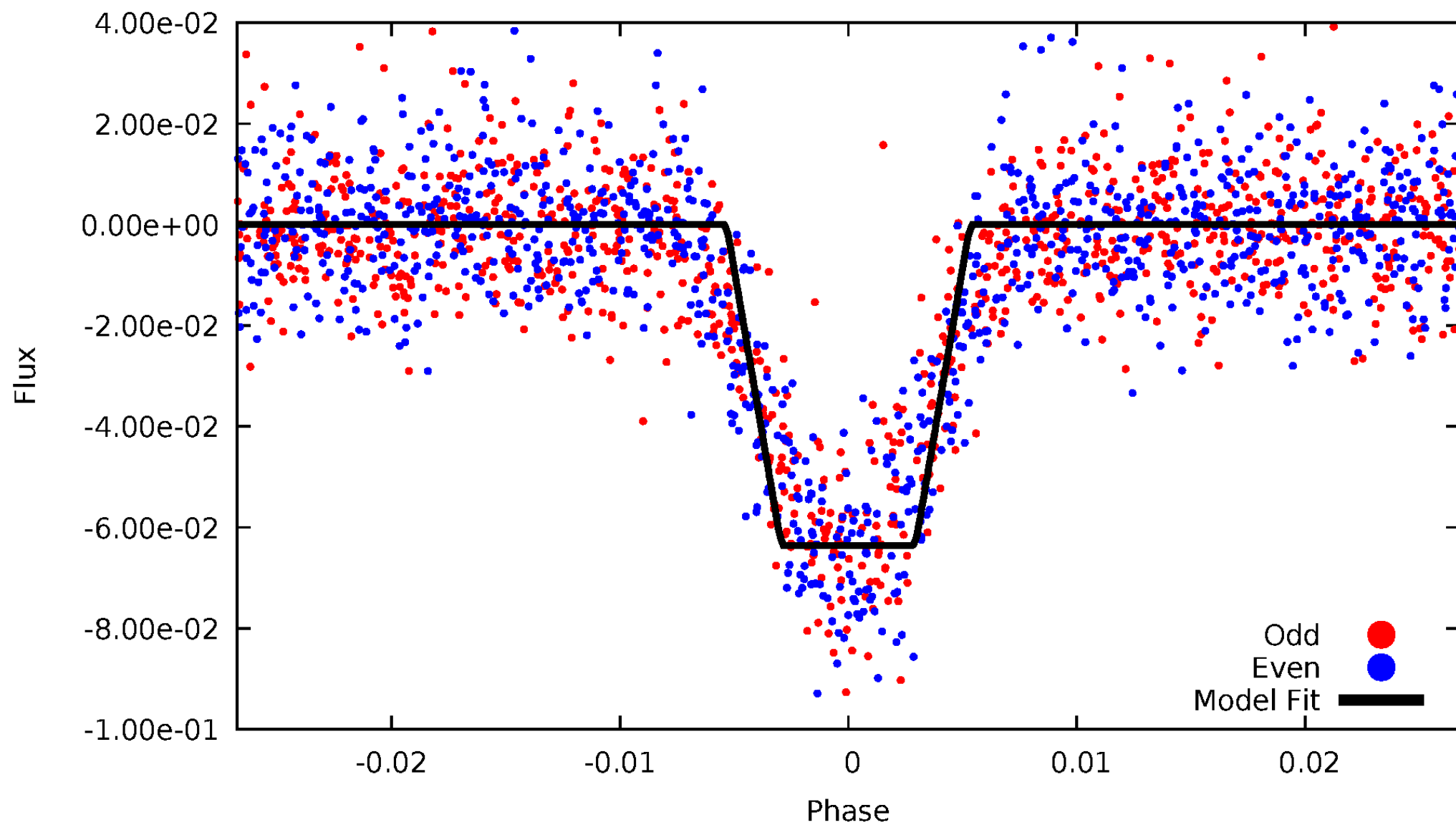
DV Odd/Even

TCE 002436378-01



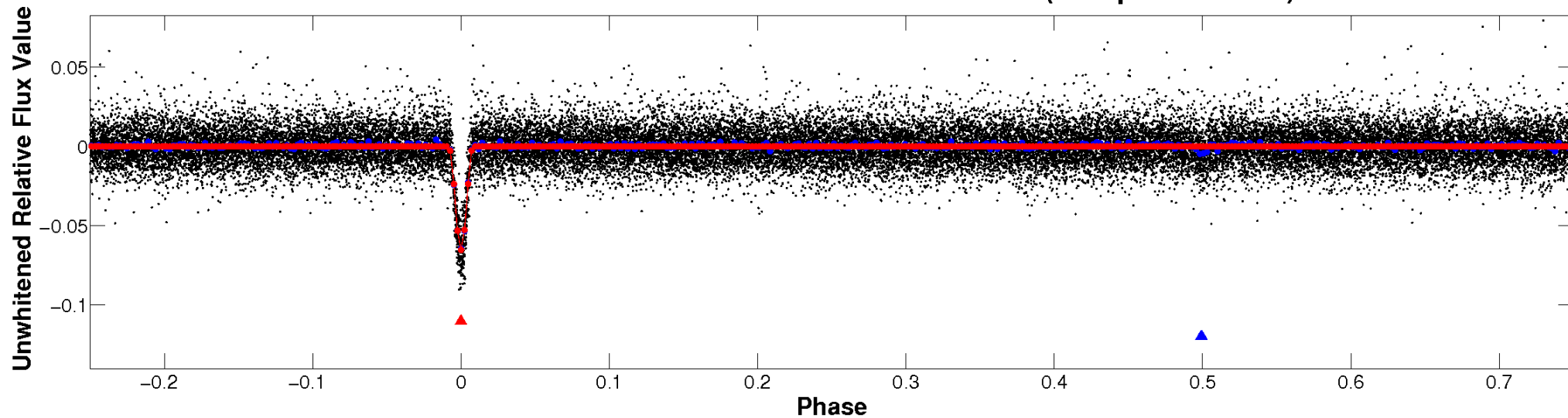
ALT Odd/Even

TCE 002436378-01

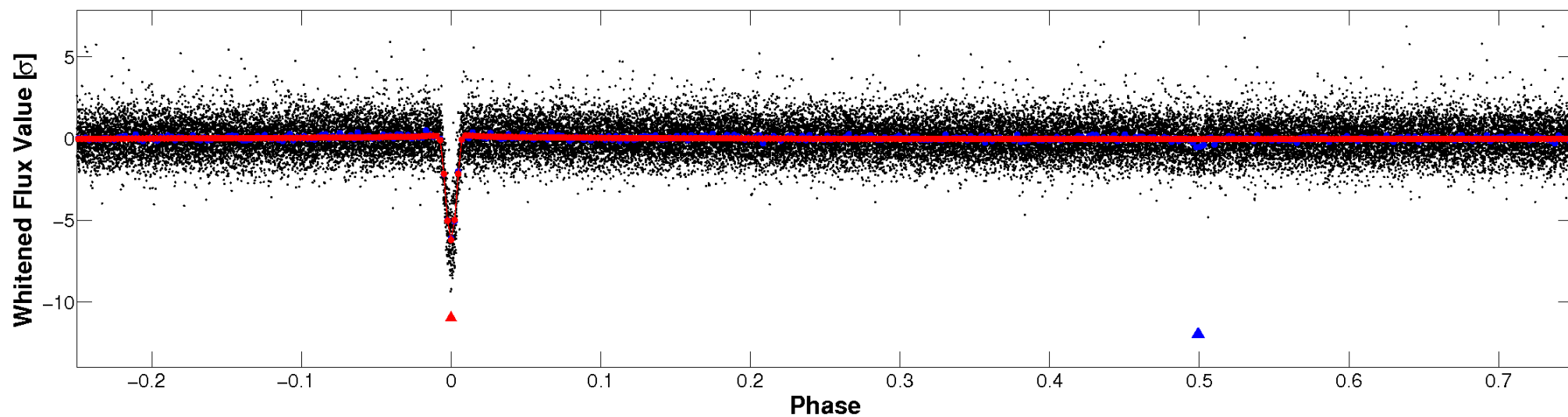


Non-Whitened Vs. Whitened Light Curve

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

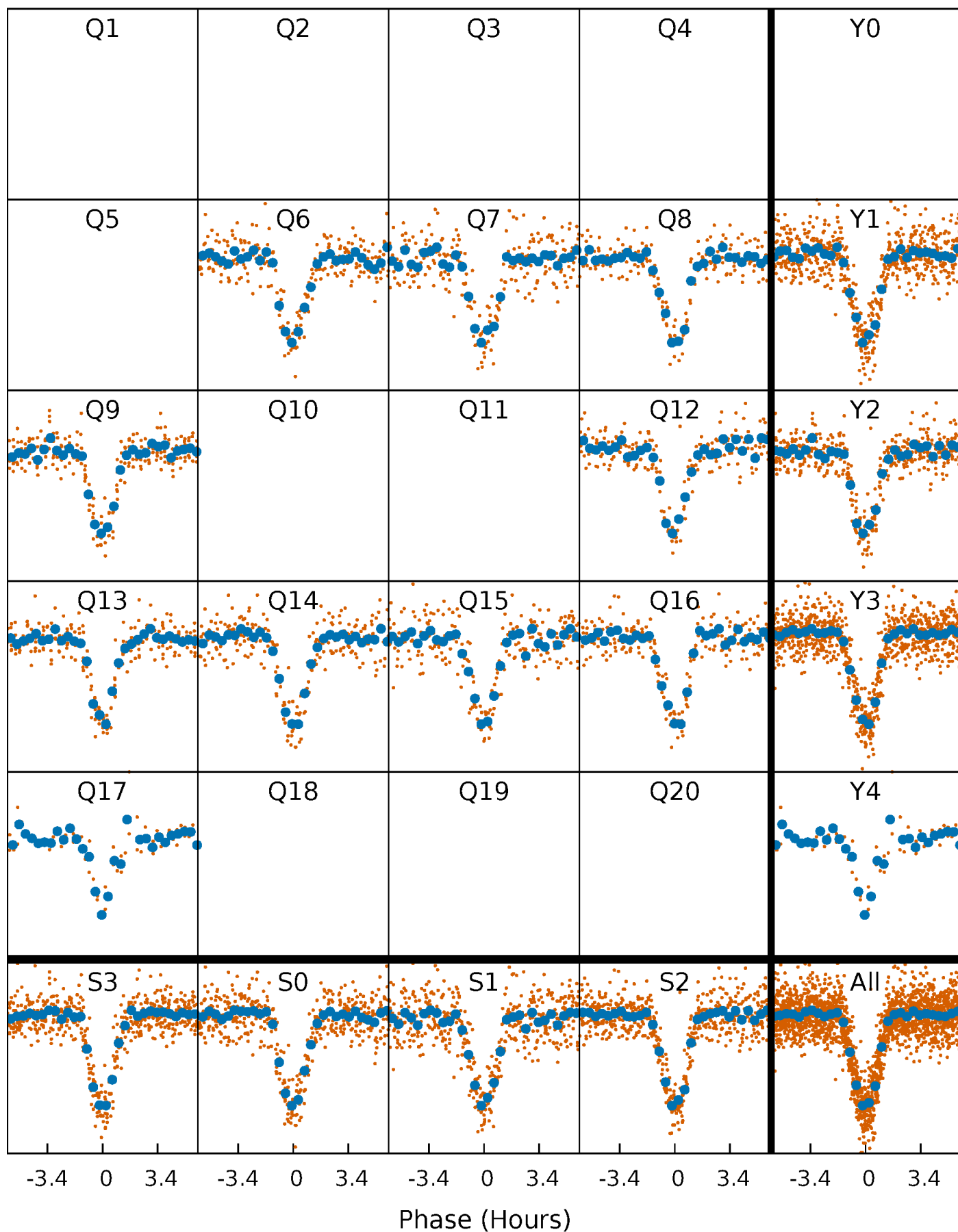


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



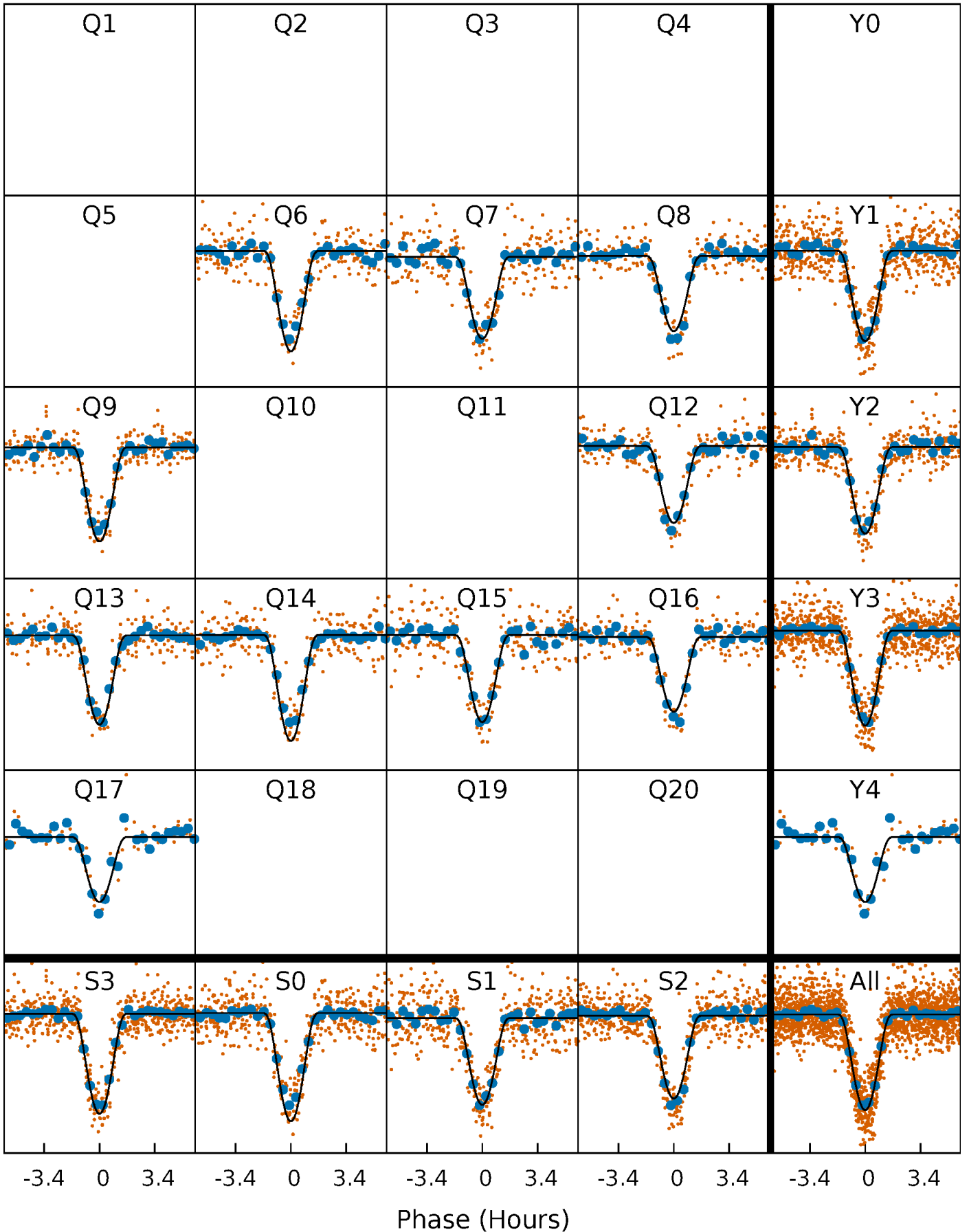
PDC Quarter-Phased Transit Curves

TCE 002436378-01 P= 8.531615 Days $T_0=136.278030$ (BKJD)



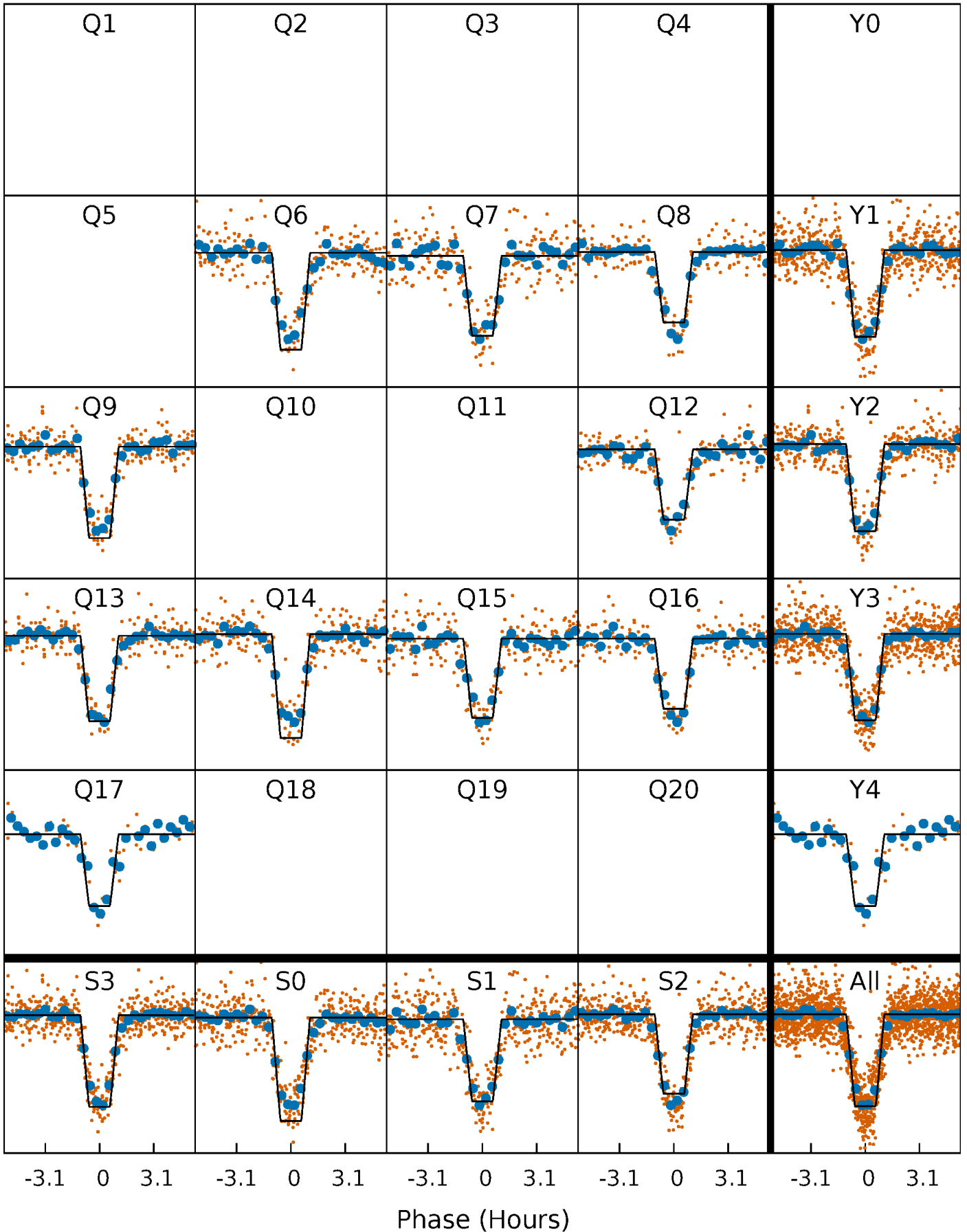
DV Quarter-Phased Transit Curves

TCE 002436378-01 P= 8.531615 Days $T_0=136.278030$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

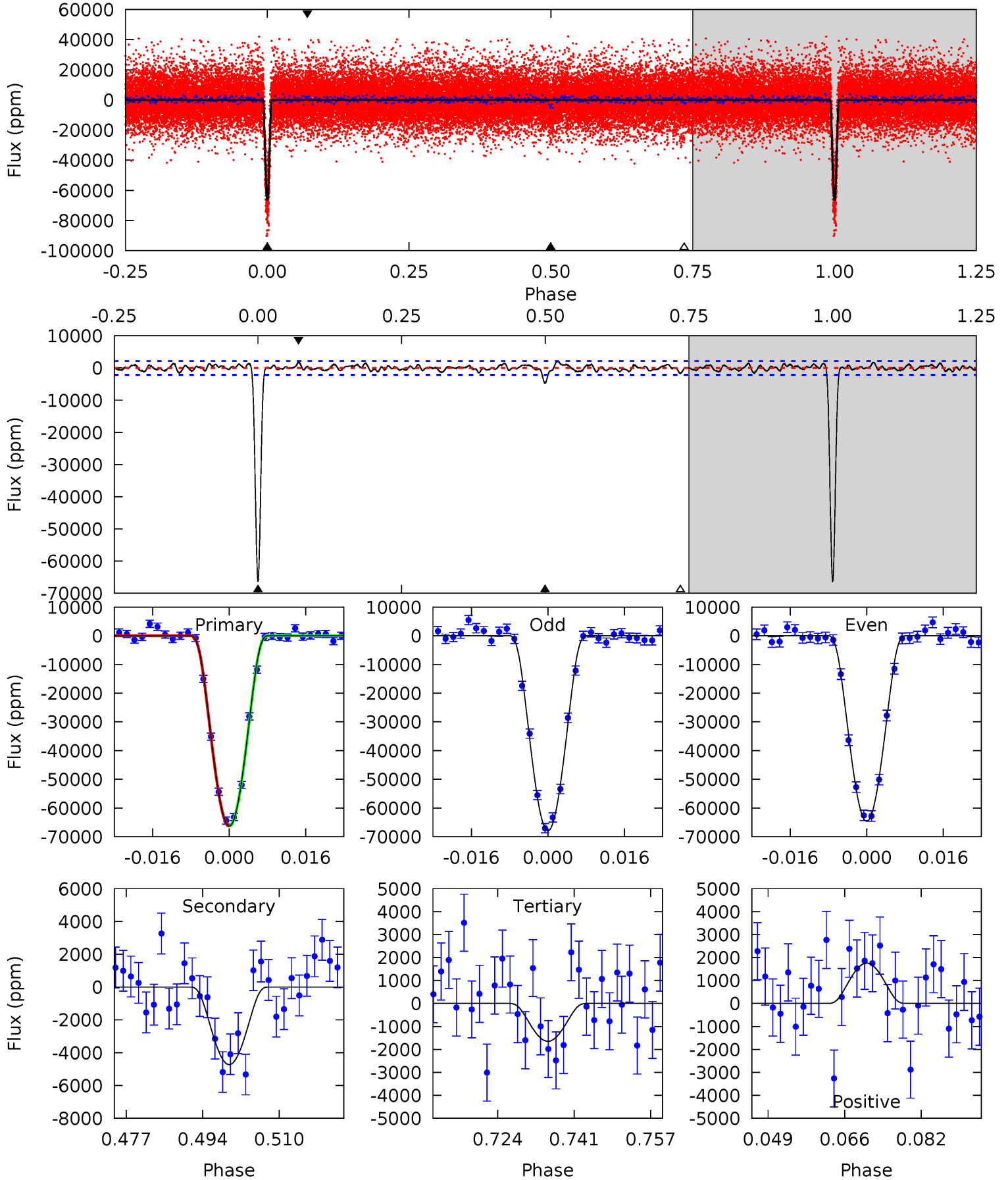
TCE 002436378-01 P= 8.531622 Days $T_0=136.277243$ (BKJD)



DV Model-Shift Uniqueness Test

002436378-01, P = 8.531615 Days, E = 136.278030 Days

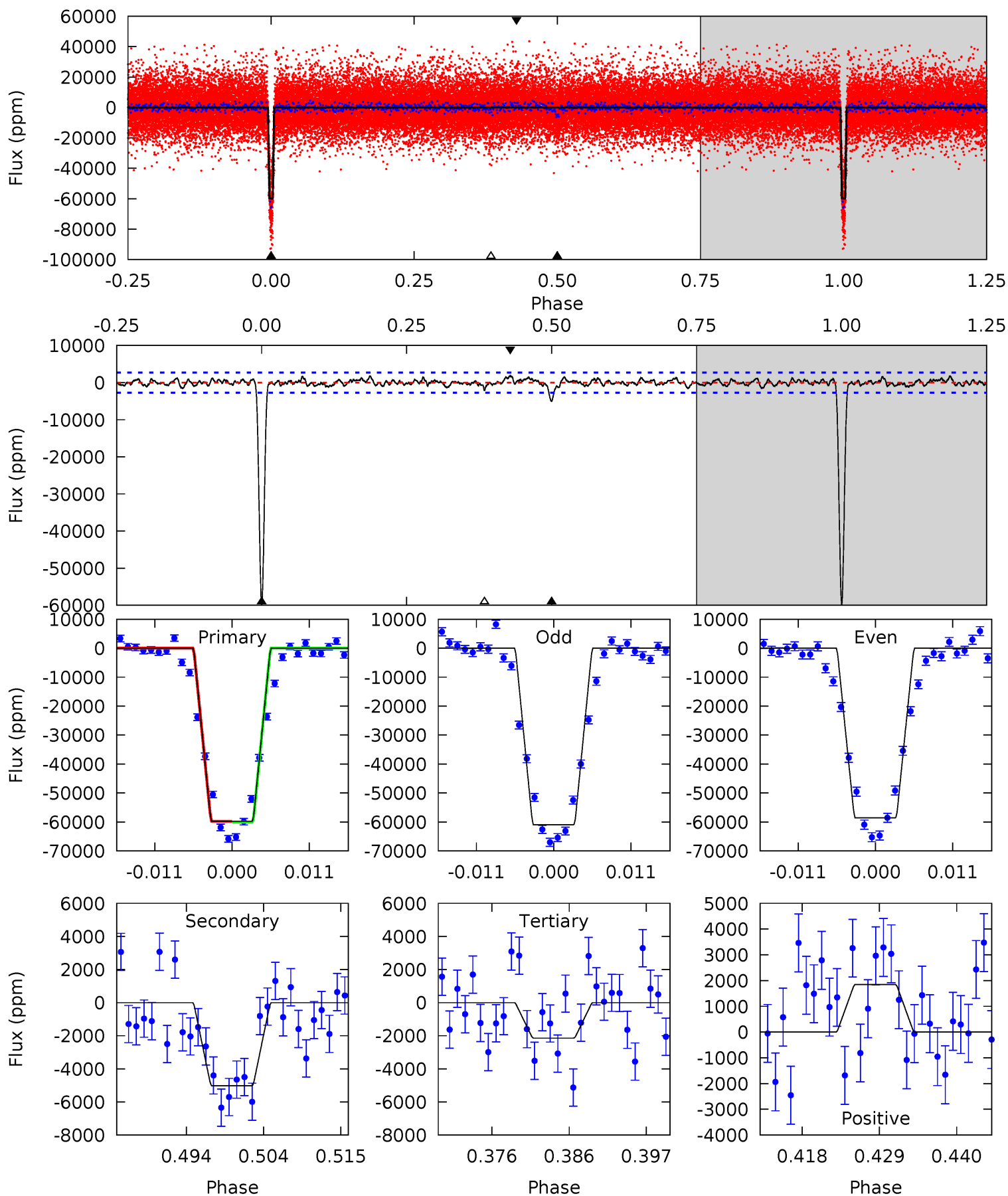
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
151.6	10.8	3.76	4.01	4.93	2.40	1.48	147.8	147.6	7.04	6.79	3.82	1.02	0.03	0.02



Alt Model-Shift Uniqueness Test

002436378-01, P = 8.531622 Days, E = 136.277243 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
109.9	9.24	3.94	3.39	5.01	2.55	1.14	106.0	106.5	5.30	5.85	2.18	1.01	0.03	0.28



Stellar Parameters For KIC 002436378

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436378-01 / KOI 2682.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4725 ± 437	$37.94^{+21.93}_{-20.15}$	1244^{+64}_{-58}	3184^{+875}_{-412}	13^{+43}_{-8}
Alt.	-5024 ± 544	$29.86^{+22.25}_{-18.69}$	1249^{+64}_{-64}	3457^{+1407}_{-528}	21^{+127}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

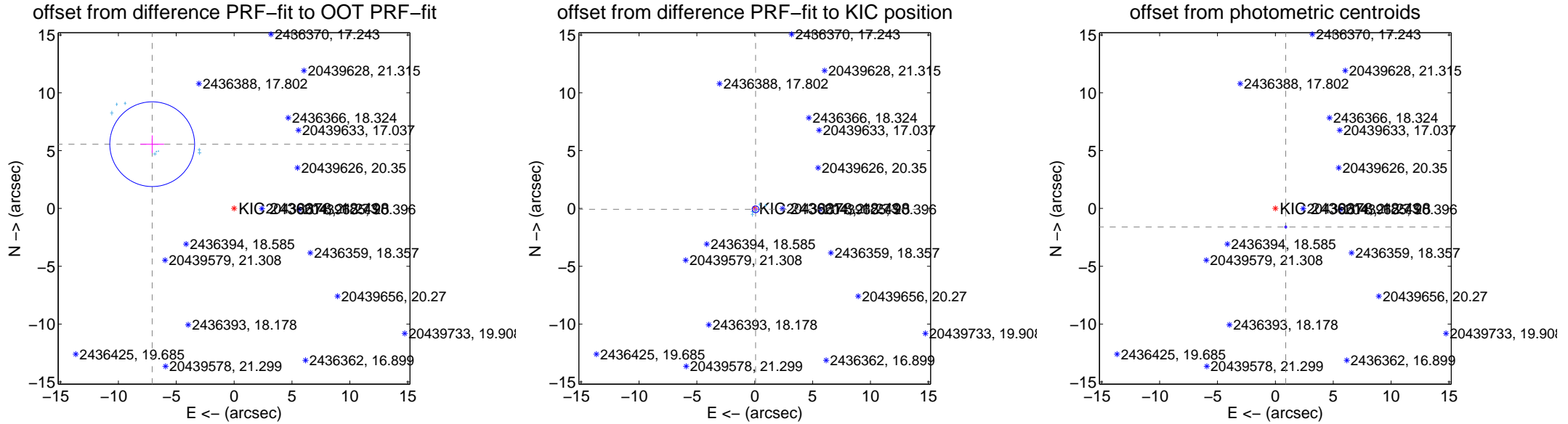
DV Centroid Data

Supplemental centroid analysis for 002436378-01. Kepler magnitude: 18.50. Transit SNR 89.77

There are 10 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 8.33 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.997 ± 1.221	7.37	7.076 ± 1.023	5.557 ± 0.760
PRF-fit source offset from KIC position	0.104 ± 0.098	1.07	-0.073 ± 0.098	-0.075 ± 0.097
photometric centroid source offset	1.84 ± 0.03	61.89	-0.90 ± 0.04	-1.61 ± 0.03



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.

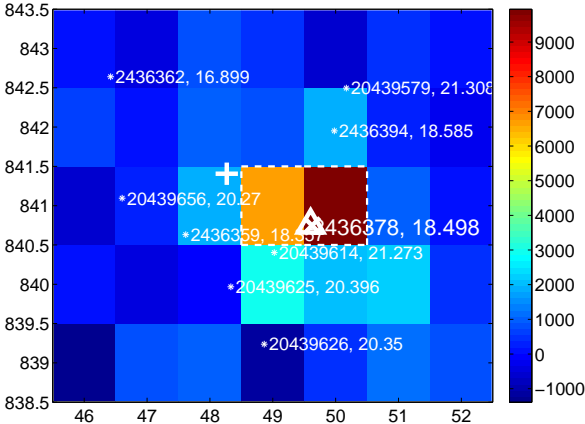
Q5 no difference image



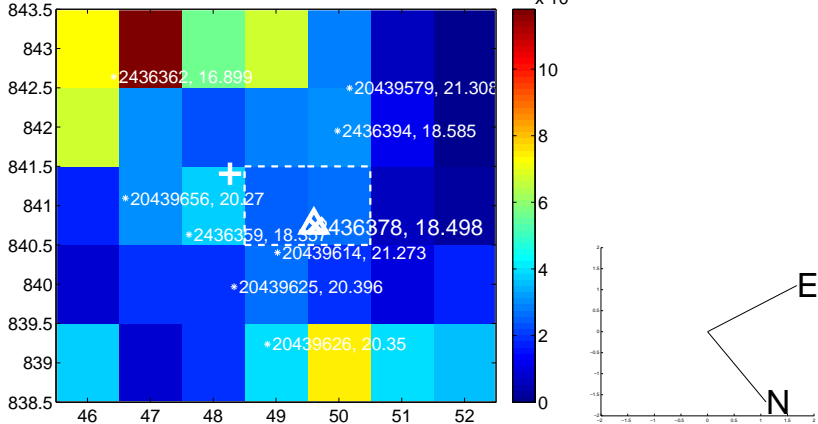
Q5 no OOT image



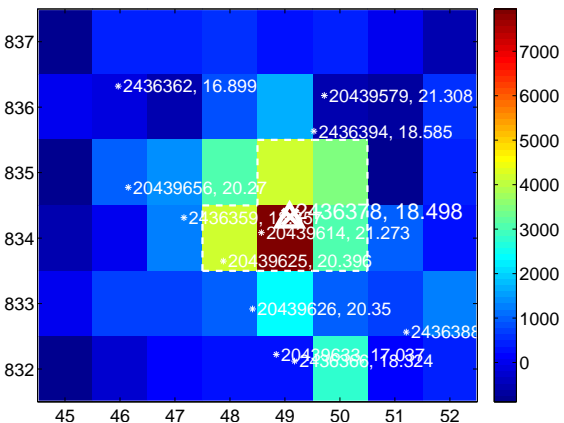
Q6 difference image



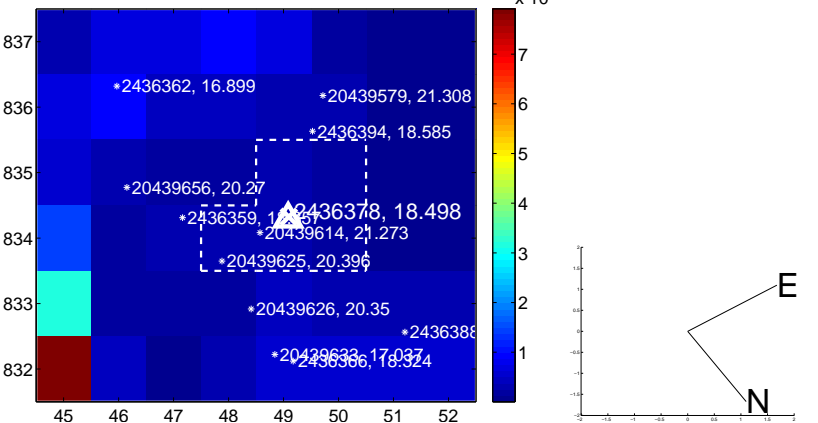
Q6 OOT image



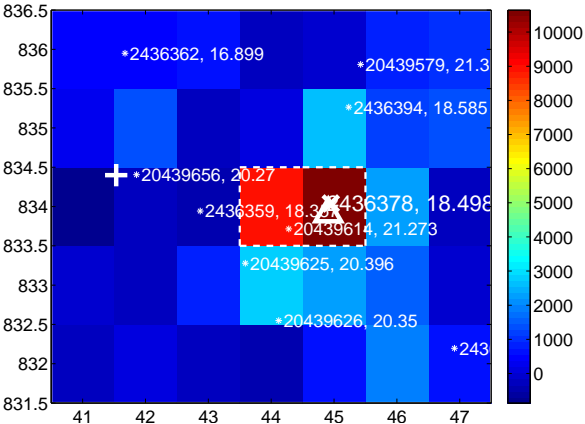
Q7 difference image



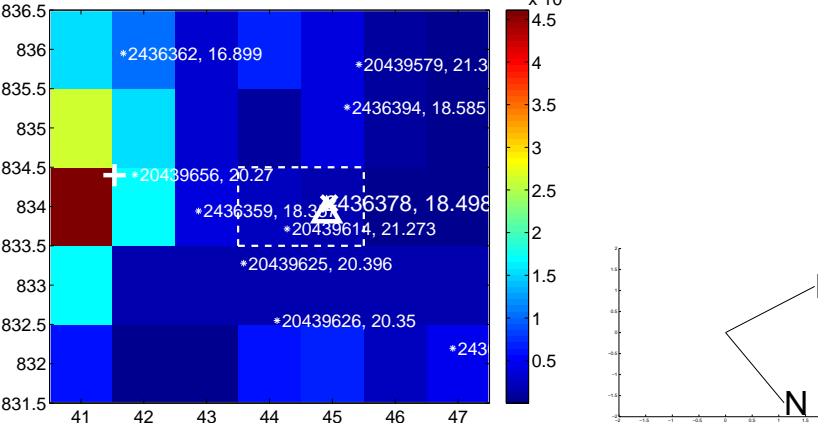
Q7 OOT image



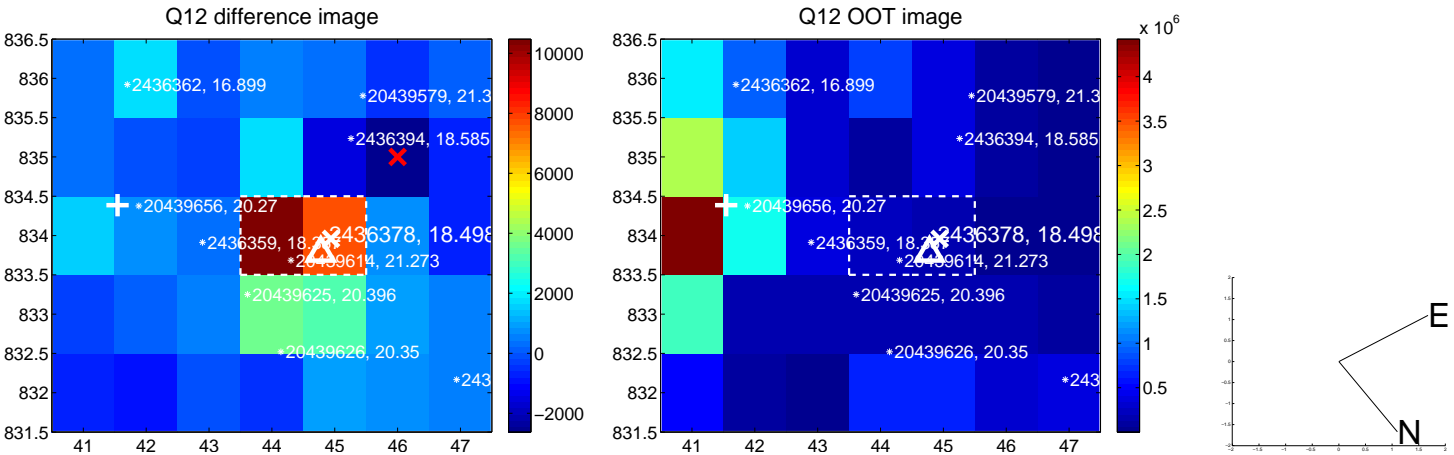
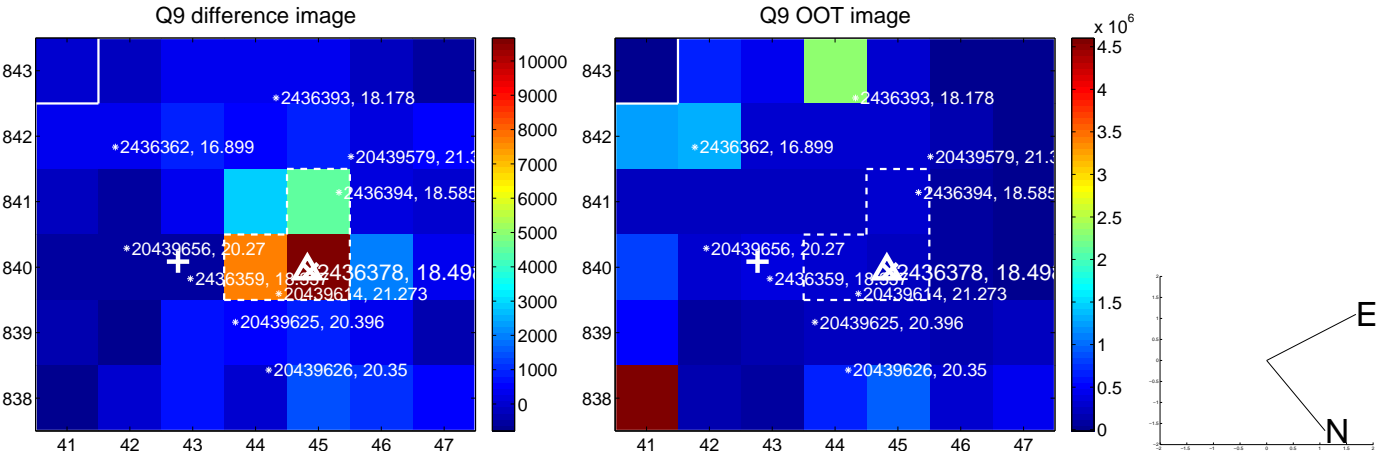
Q8 difference image



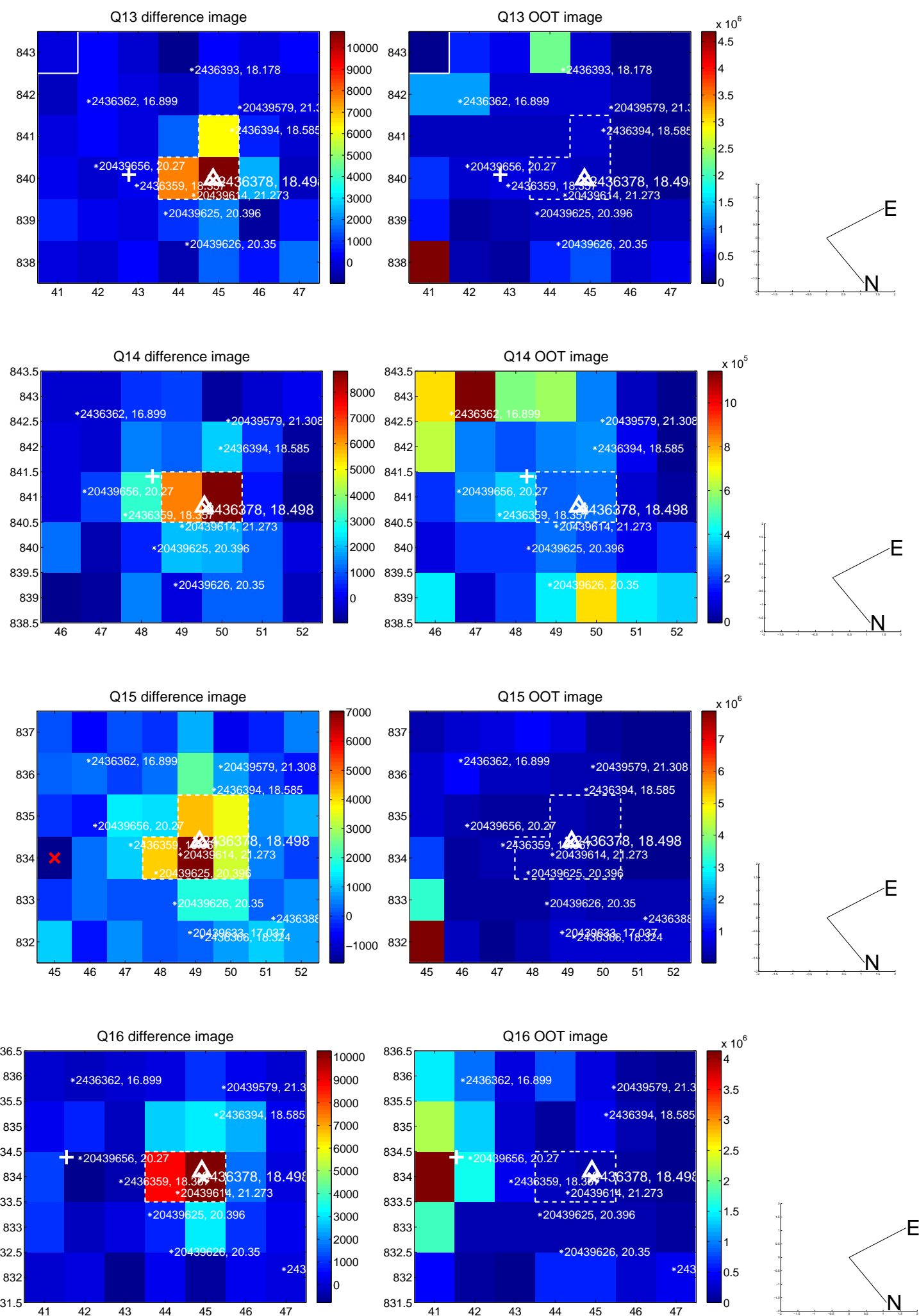
Q8 OOT image



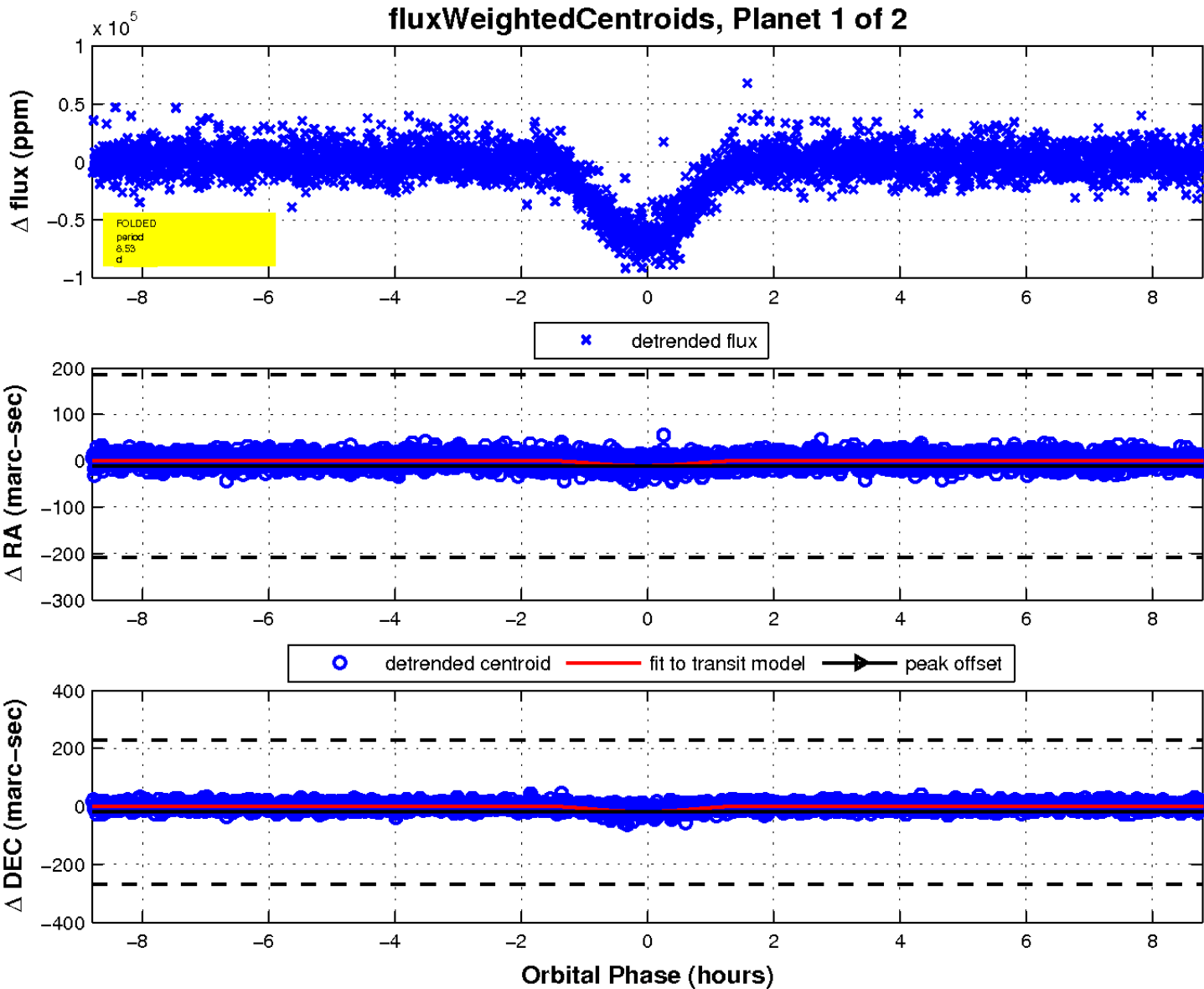
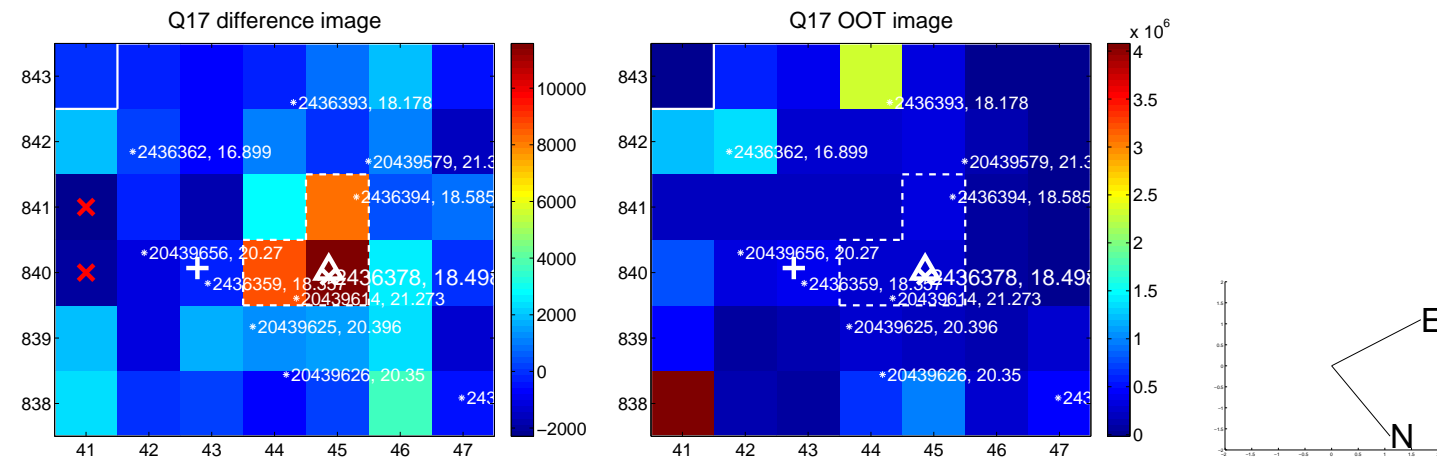
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



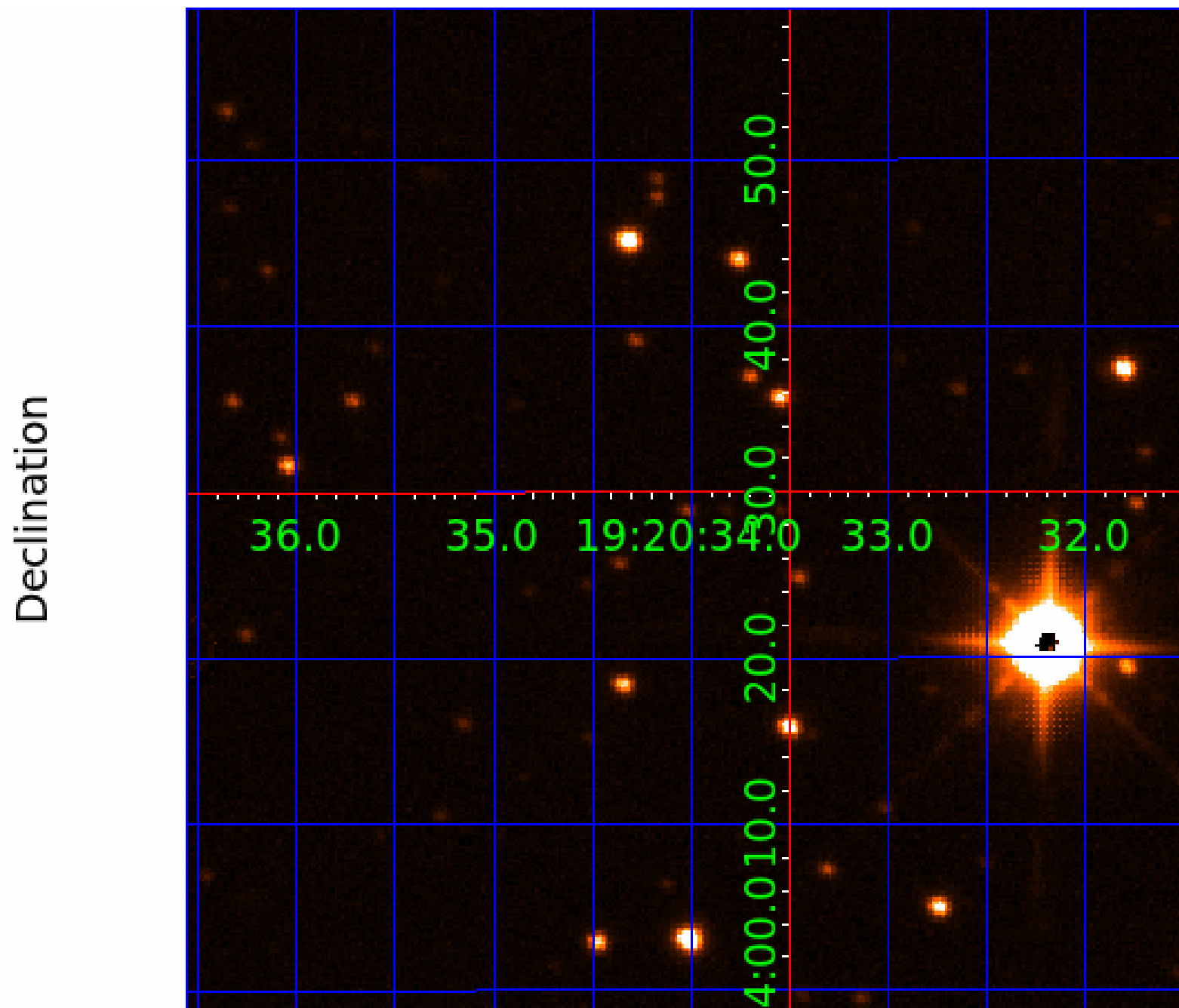
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 002436378

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})
002436378-01	OBS	2682.01	8.531615	136.278030	66262.3	2.933	90.9	89.8	1.00	5780	36.34	149.70
002436378-02	OBS	No	8.531650	132.003016	5987.1	2.260	7.7	8.6	1.00	5780	8.76	149.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002436378-01	OBS	FP	0.01	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
002436378-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS

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.

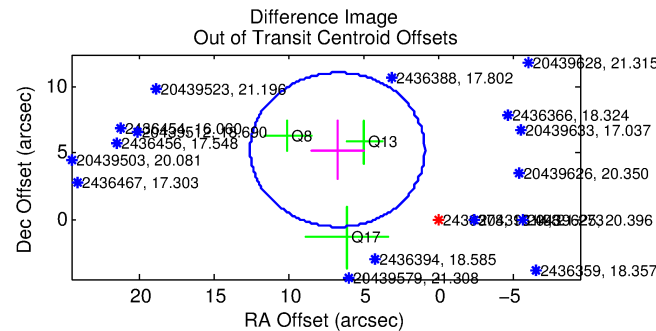
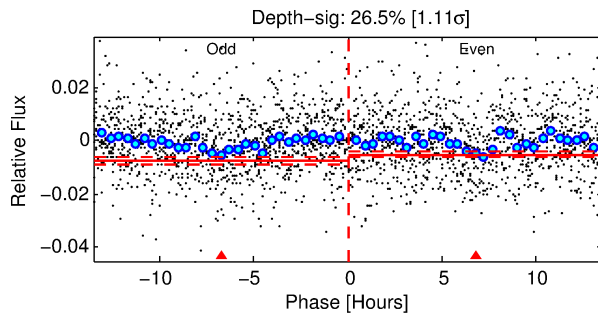
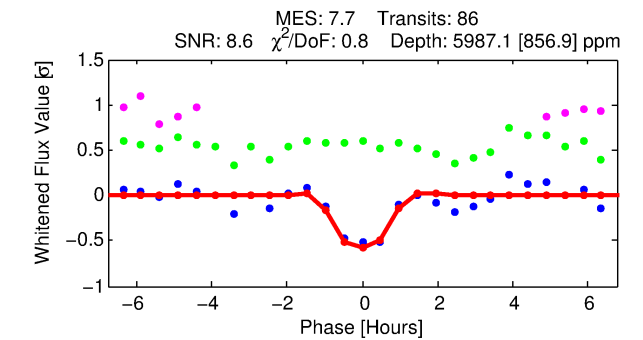
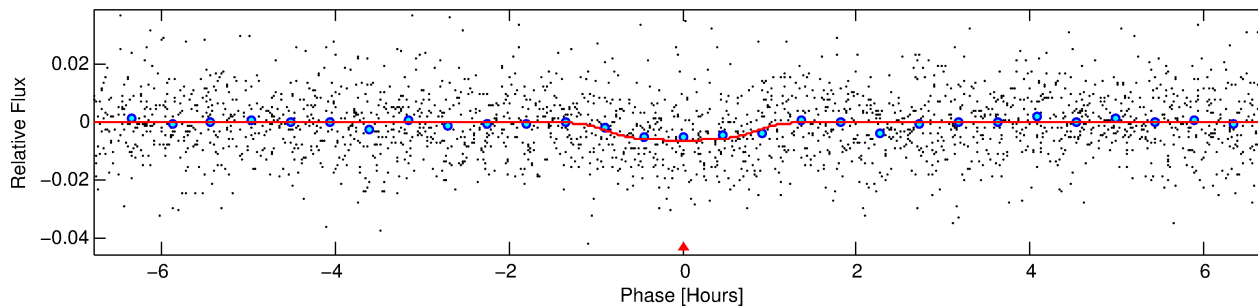
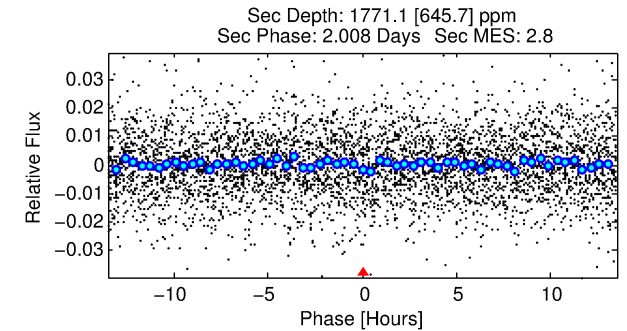
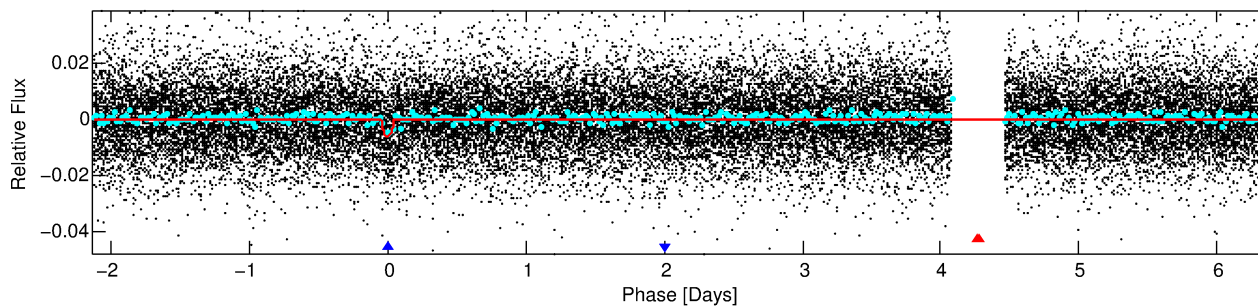
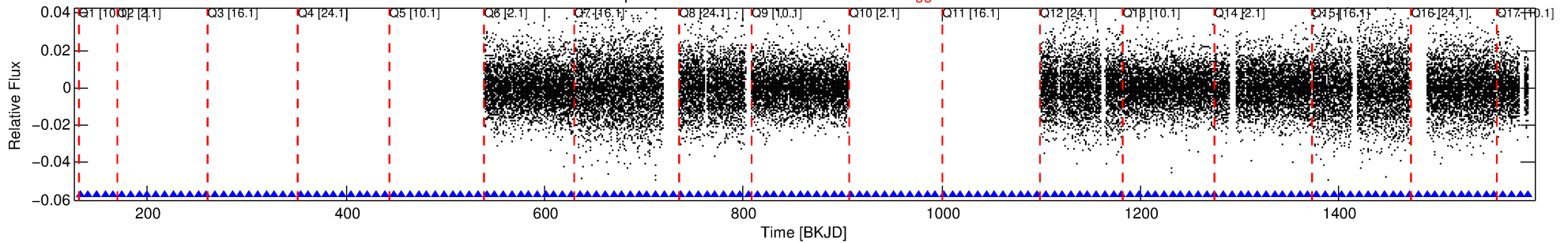
Ephemeris Match Information For 002436378-02

No Significant Match Found

DV One-Page Summary

KIC: 2436378 Candidate: 2 of 2 Period: 8.532 d
KOI: K02682 Corr: No Ephemeris Match

Kp: 18.50 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 8.53165 [0.00008] d
Epoch = 132.0030 [0.0087] BKJD
Rp/R* = 0.0803 [0.0207]
a/R* = 20.04 [19.35]
b = 0.83 [0.38]
Seff = 149.70 [0.00]
Teq = 892 [0] K
Rp = 8.76 [2.26] Re
a = 0.0817 [0.0000] AU
Ag = 84.80 [53.56] [1.56σ]
Teffp = 4185 [661] K [4.98σ]

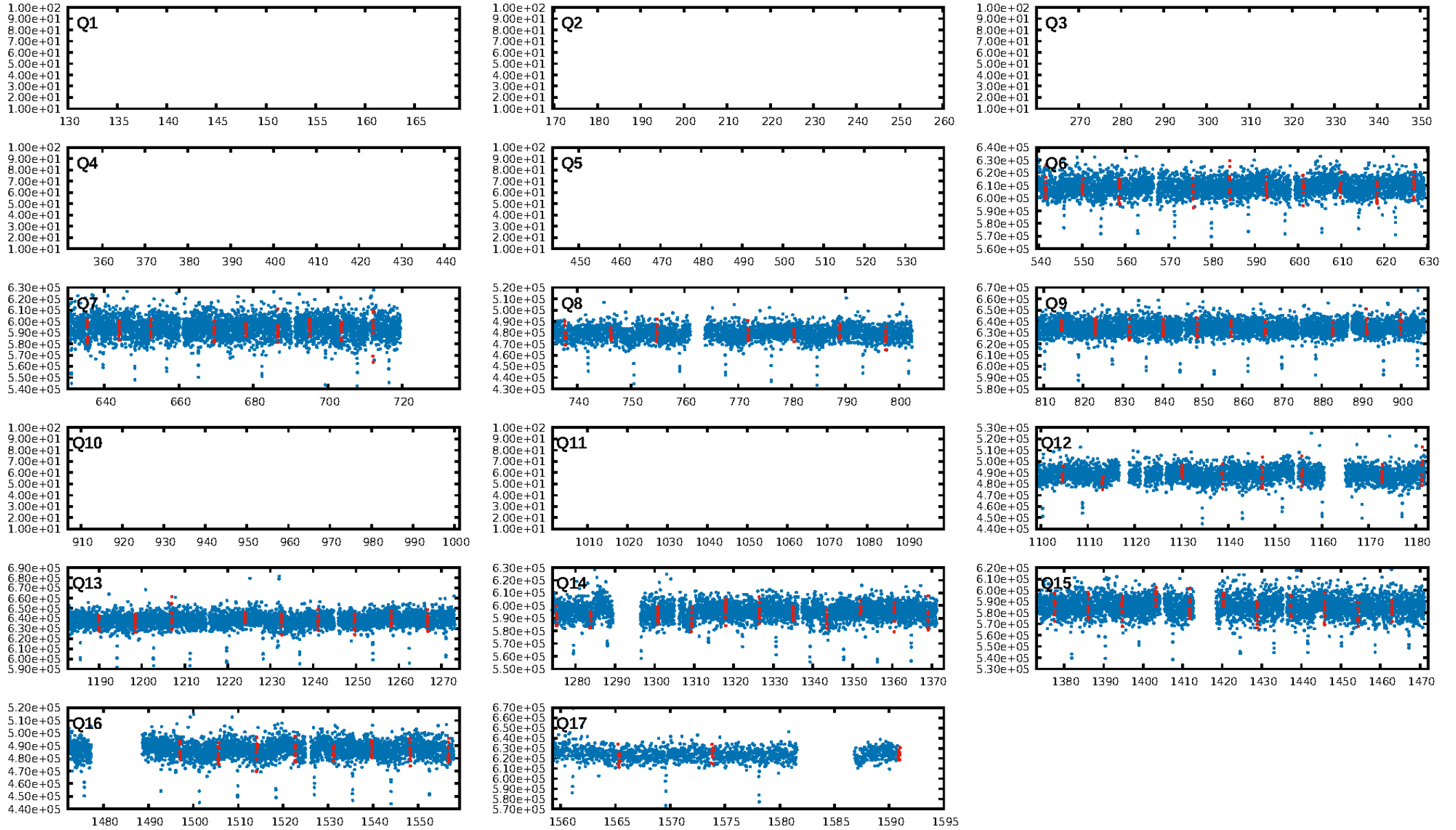
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.13e-15
RollingBand-fgt: 1.00 [83/83]
GhostDiagnostic-chr: 2.401
Centroid-sig: 0.2%
Centroid-so: 1.827 arcsec [5.36σ]
OotOffset-rm: 8.522 arcsec [4.39σ]
KicOffset-rm: 2.271 arcsec [1.55σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [10/10]

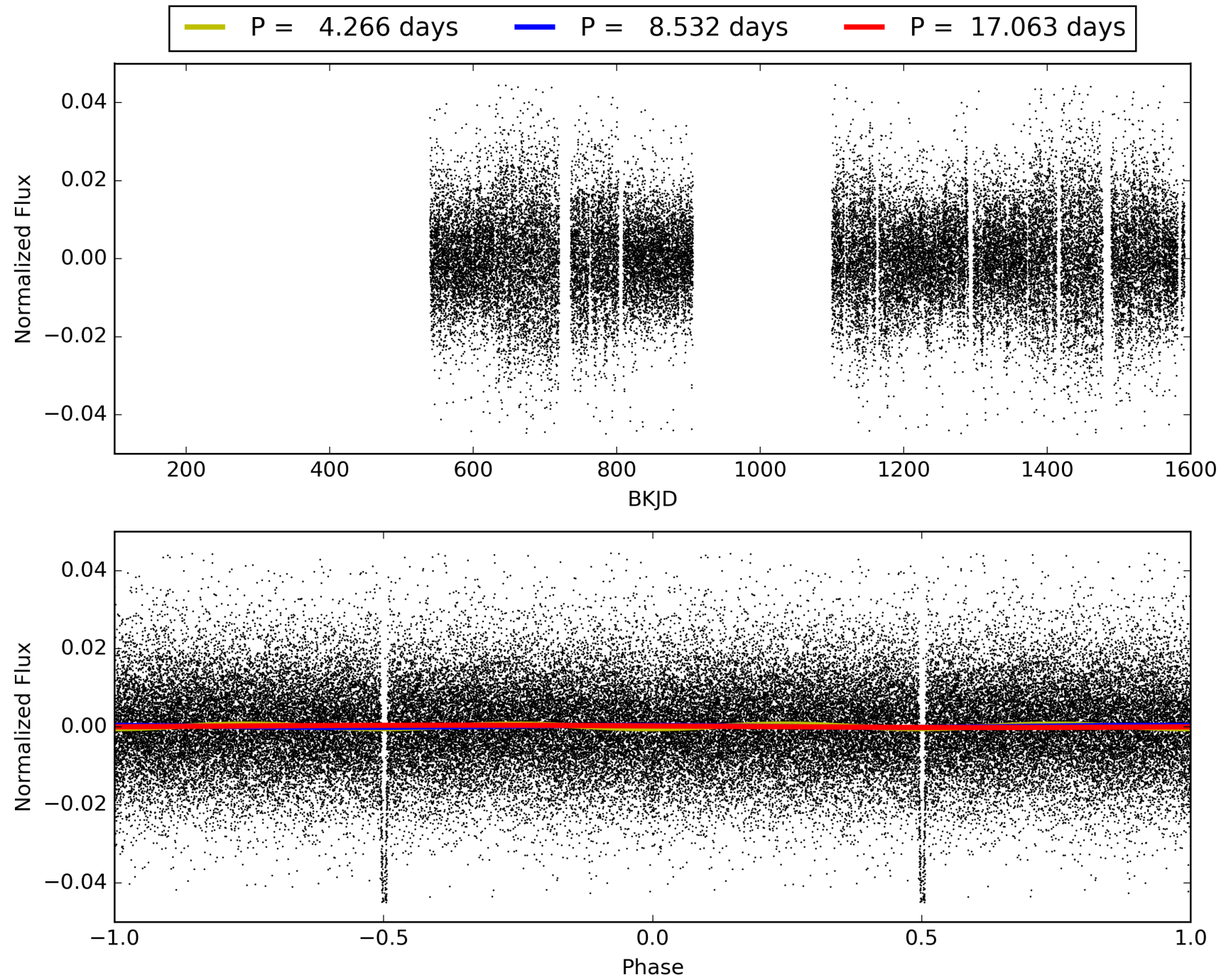
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:43:13 Z

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

TCE 002436378-02, PDC Light Curves

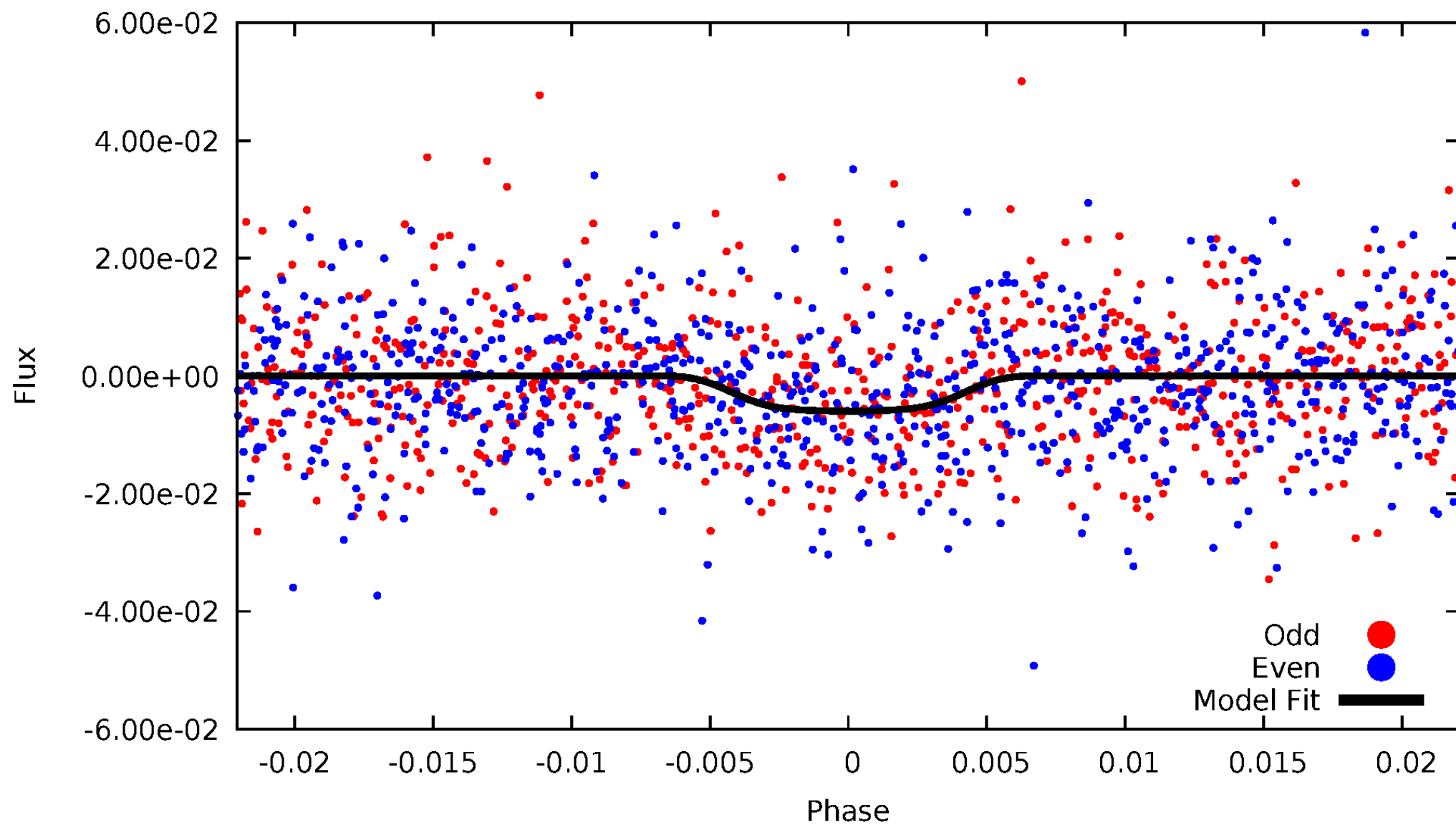


TCE 002436378-02



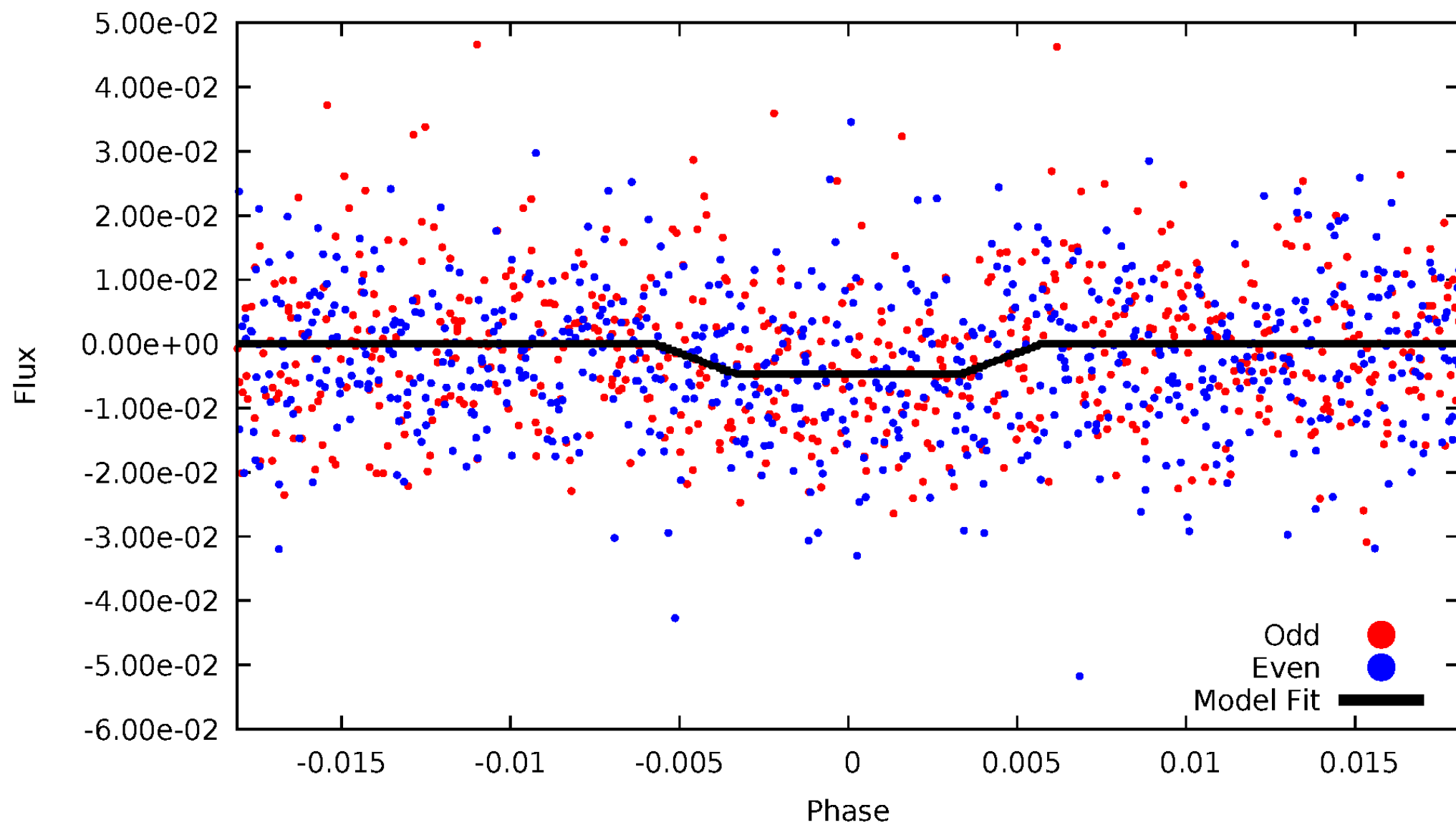
DV Odd/Even

TCE 002436378-02



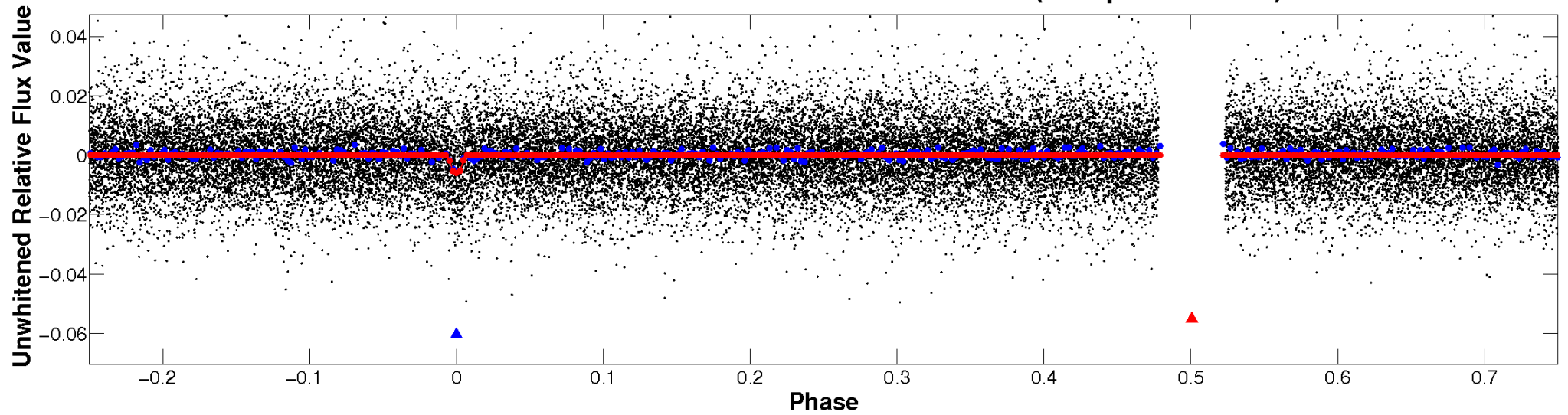
ALT Odd/Even

TCE 002436378-02

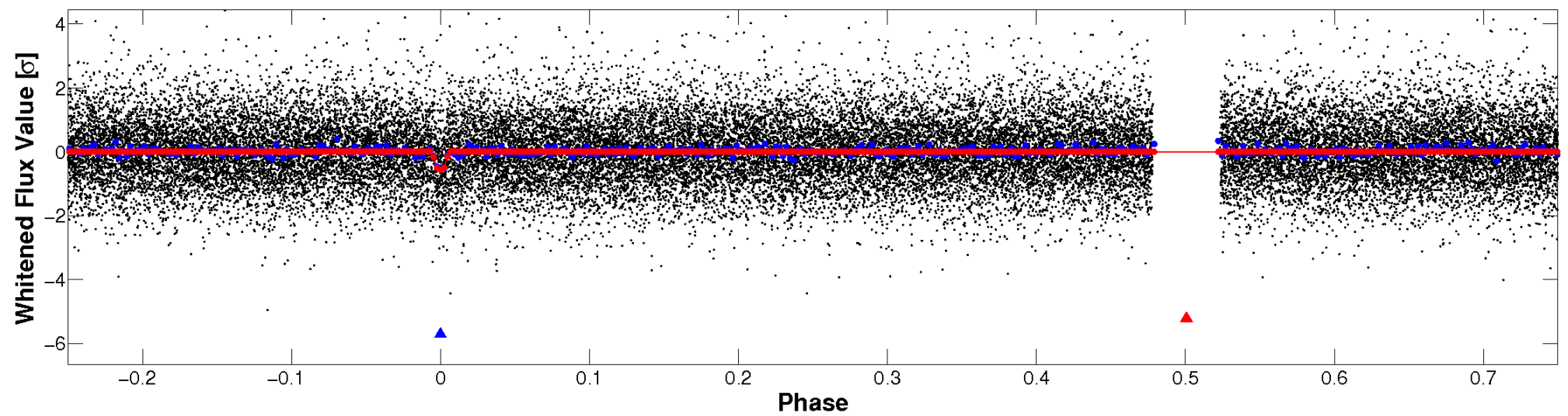


Non-Whitened Vs. Whitened Light Curve

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

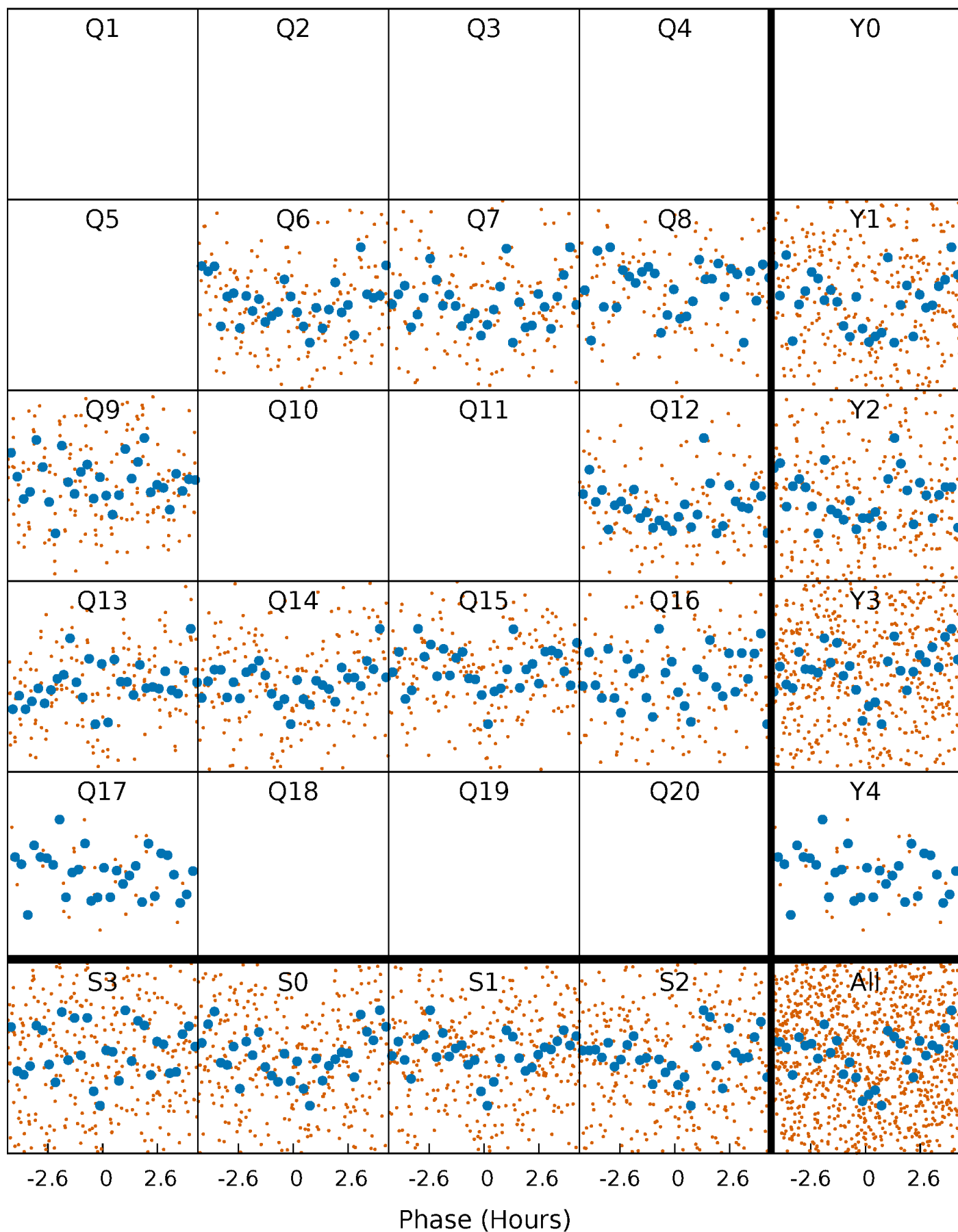


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



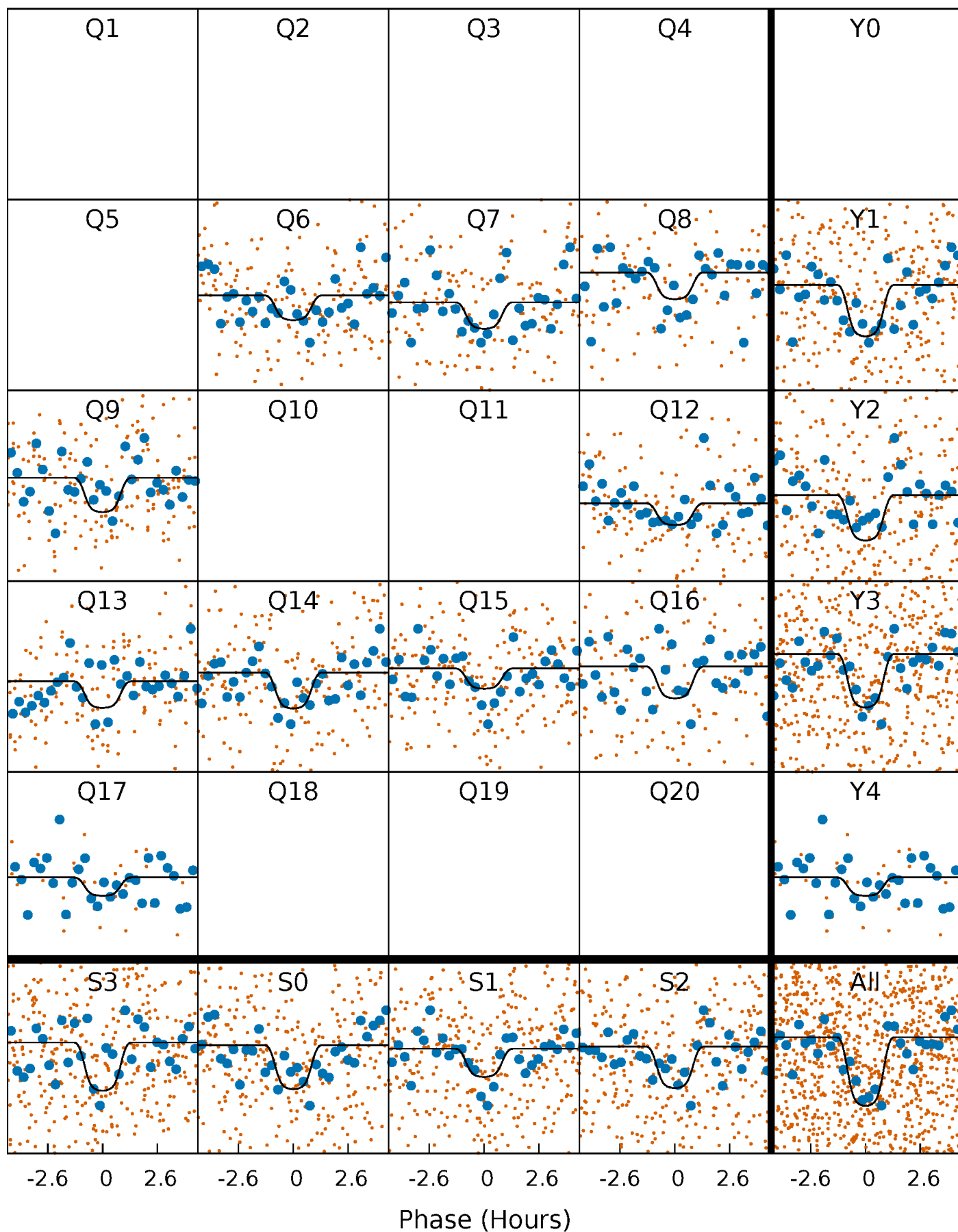
PDC Quarter-Phased Transit Curves

TCE 002436378-02 P= 8.531650 Days $T_0=132.003016$ (BKJD)



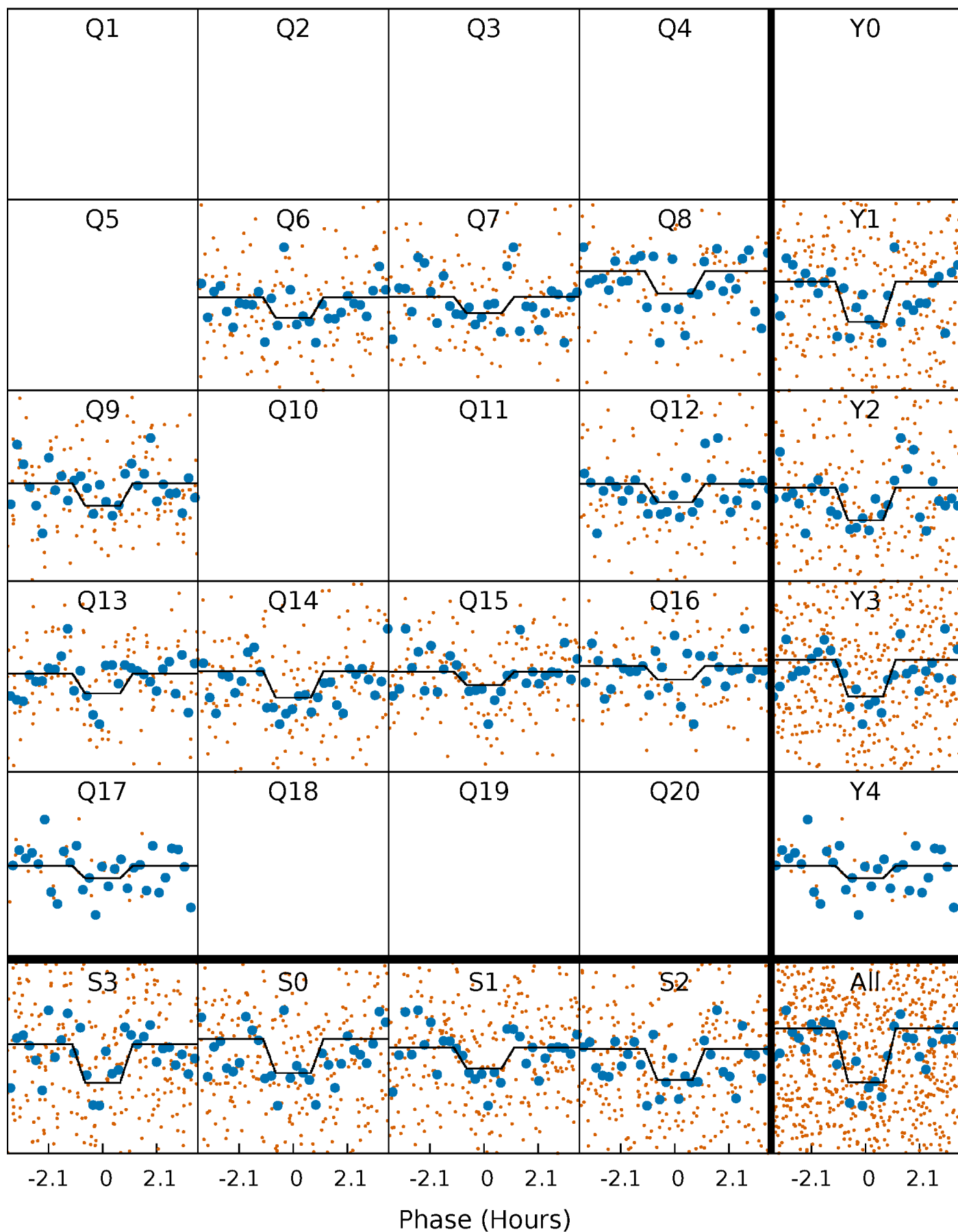
DV Quarter-Phased Transit Curves

TCE 002436378-02 P= 8.531650 Days $T_0=132.003016$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

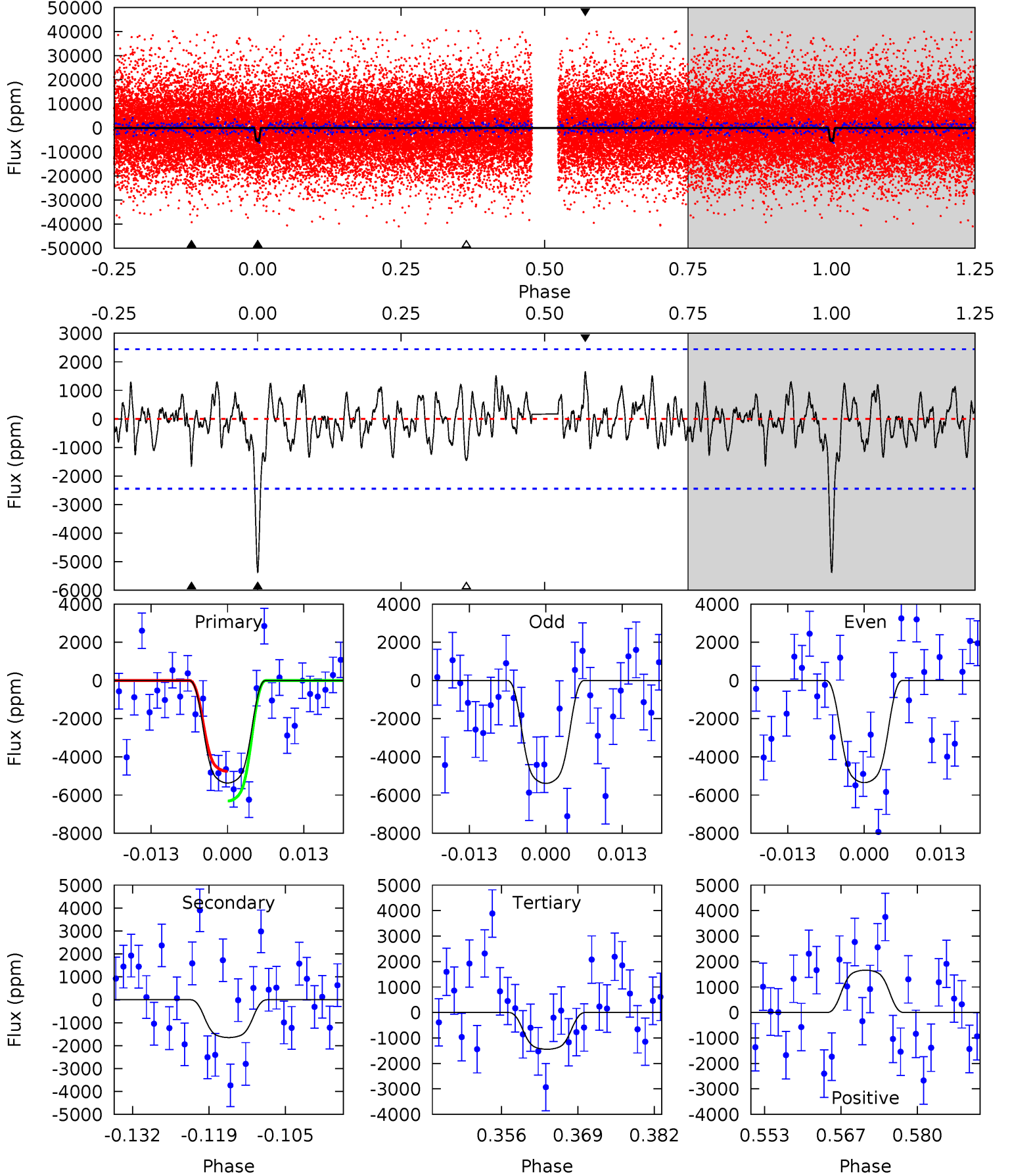
TCE 002436378-02 P= 8.531686 Days $T_0=131.999291$ (BKJD)



DV Model-Shift Uniqueness Test

002436378-02, P = 8.531650 Days, E = 132.003016 Days

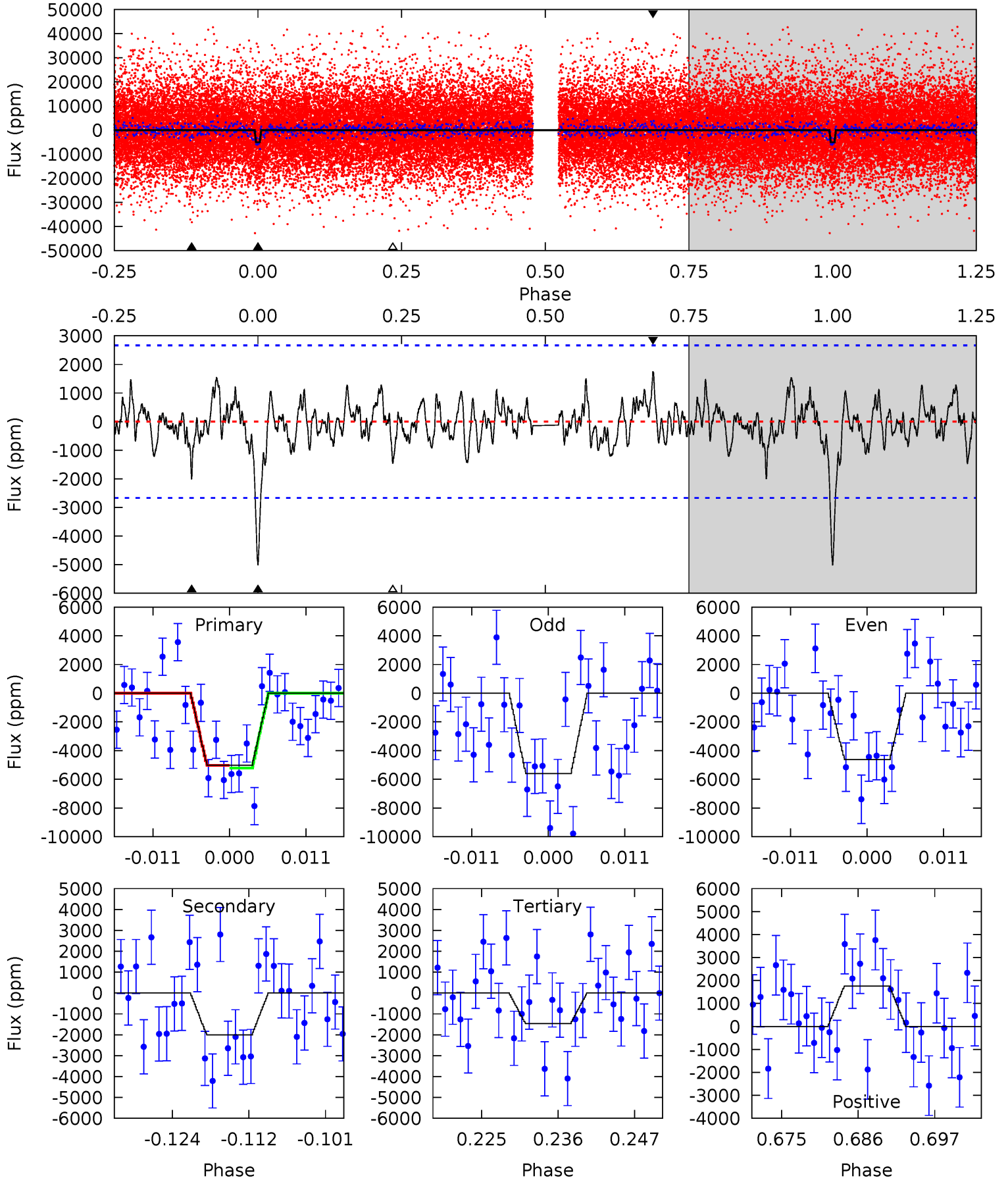
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	3.35	2.94	3.38	4.97	2.48	1.15	7.98	7.54	0.41	-0.03	0.04	0.92	0.24	1.59



Alt Model-Shift Uniqueness Test

002436378-02, P = 8.531686 Days, E = 131.999291 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.43	3.77	2.75	3.29	5.00	2.53	1.06	6.68	6.13	1.02	0.47	0.91	1.01	0.26	0.17



Stellar Parameters For KIC 002436378

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 002436378-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1648 ± 491	$8.69^{+2.23}_{-2.41}$	1247^{+62}_{-57}	4339^{+664}_{-450}	78^{+92}_{-37}
Alt.	-2008 ± 533	$7.53^{+2.44}_{-2.33}$	1249^{+59}_{-56}	4765^{+919}_{-542}	129^{+159}_{-63}

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 $A_{\text{obs}} \gg 1.0$

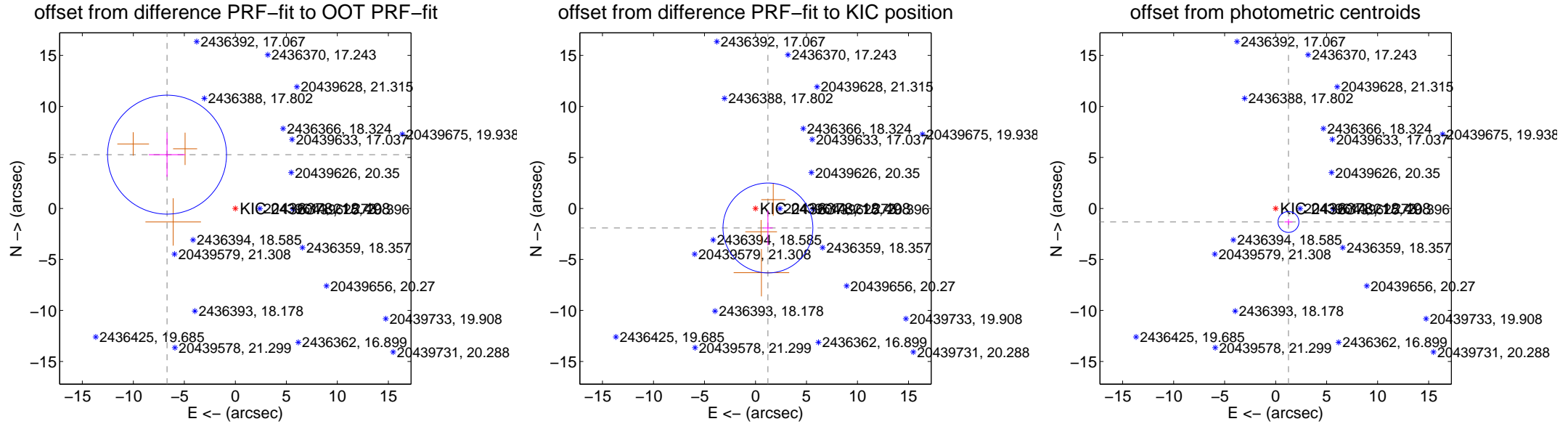
DV Centroid Data

Supplemental centroid analysis for 002436378-02. Kepler magnitude: 18.50. Transit SNR 8.57

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 8.32 arcsec so the offset from difference PRF-fit to OOT PRF-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.522 ± 1.943	4.39	6.695 ± 1.789	5.273 ± 2.169
PRF-fit source offset from KIC position	2.271 ± 1.468	1.55	-1.220 ± 0.471	-1.915 ± 1.715
photometric centroid source offset	1.83 ± 0.34	5.36	-1.26 ± 0.39	-1.33 ± 0.29

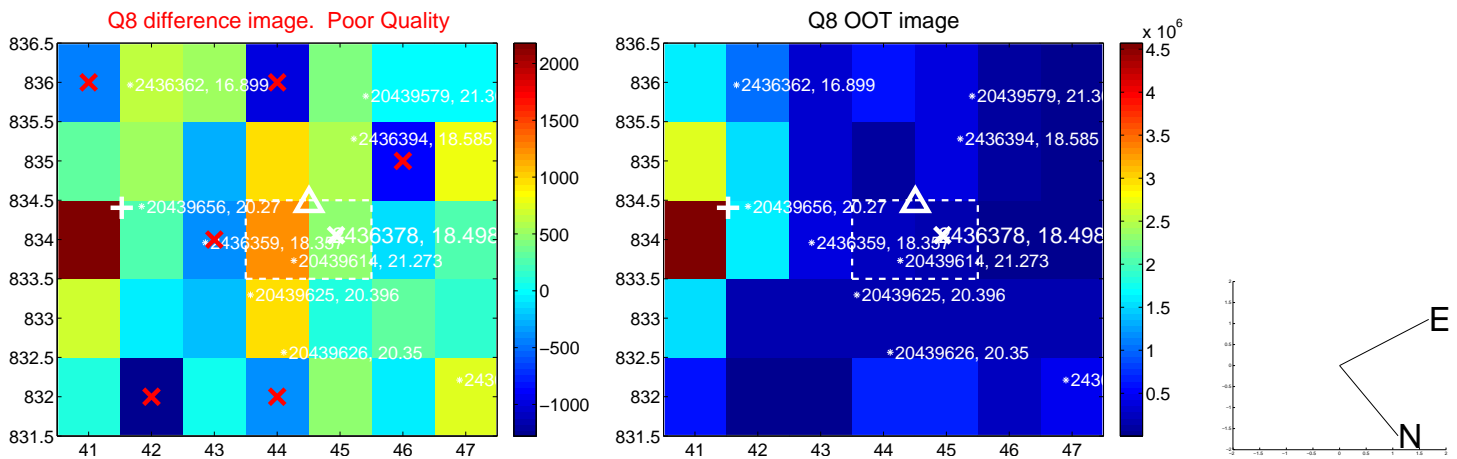
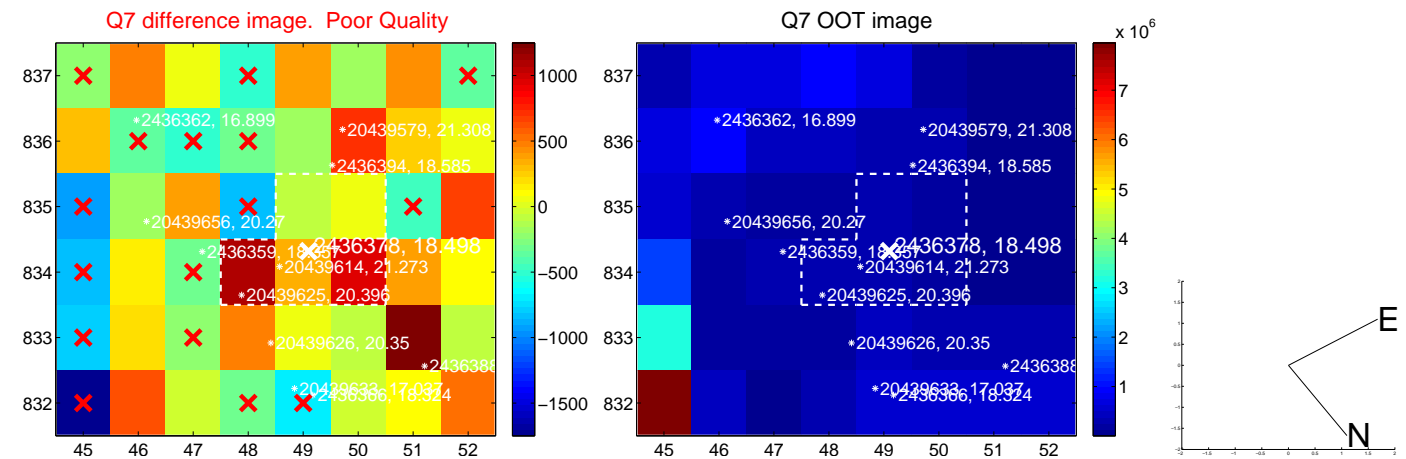
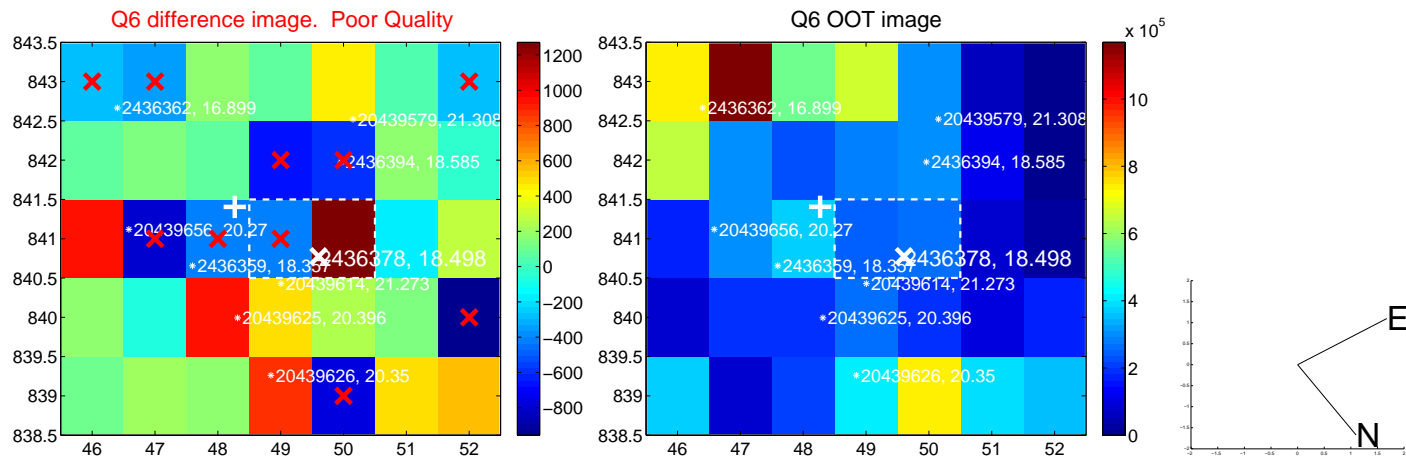
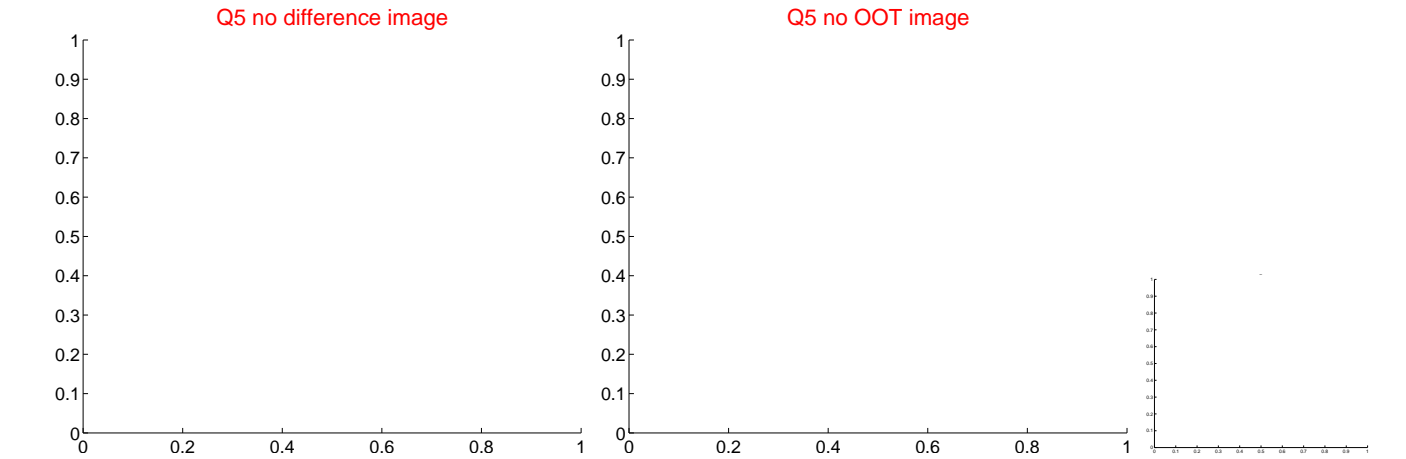


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

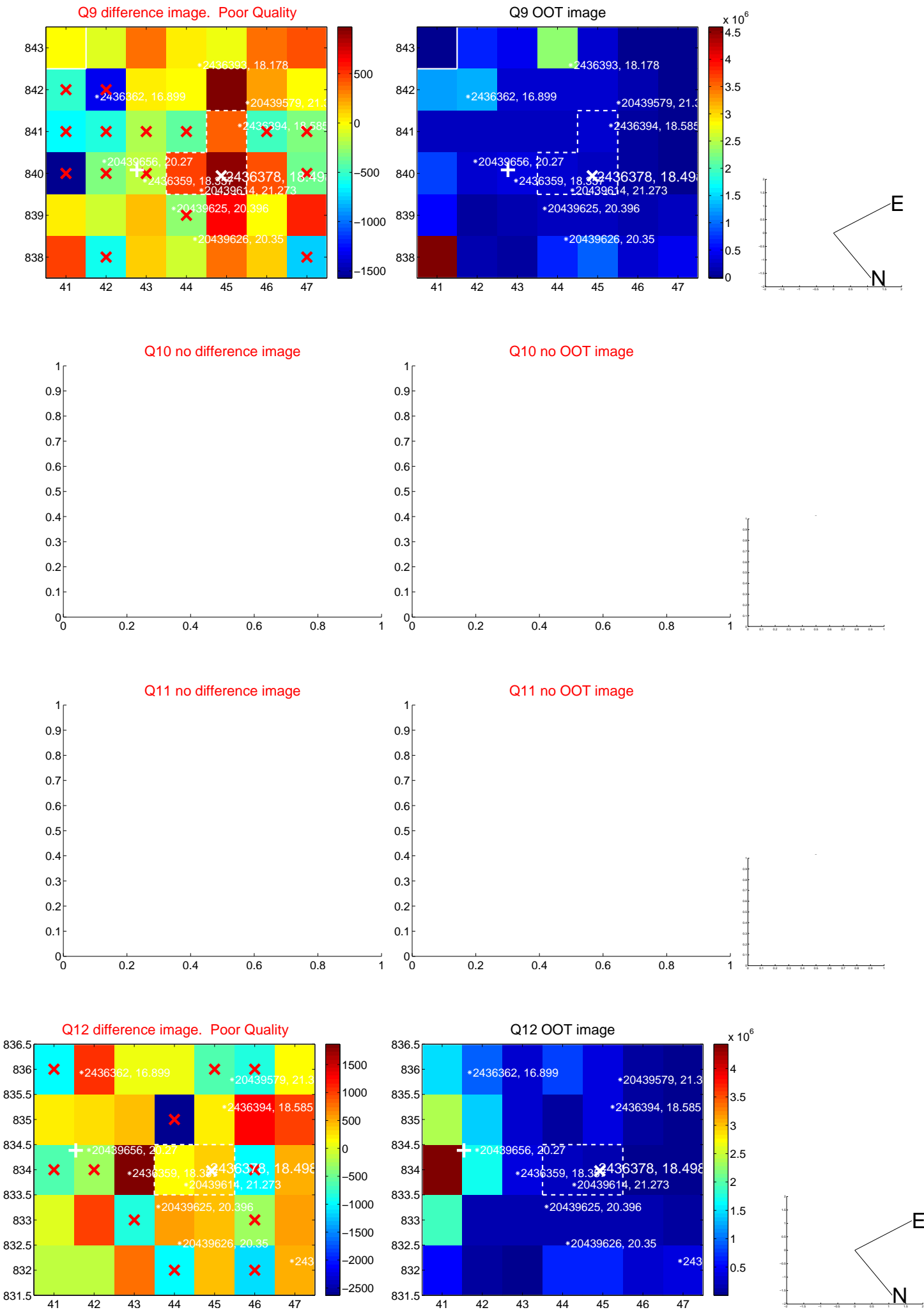
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



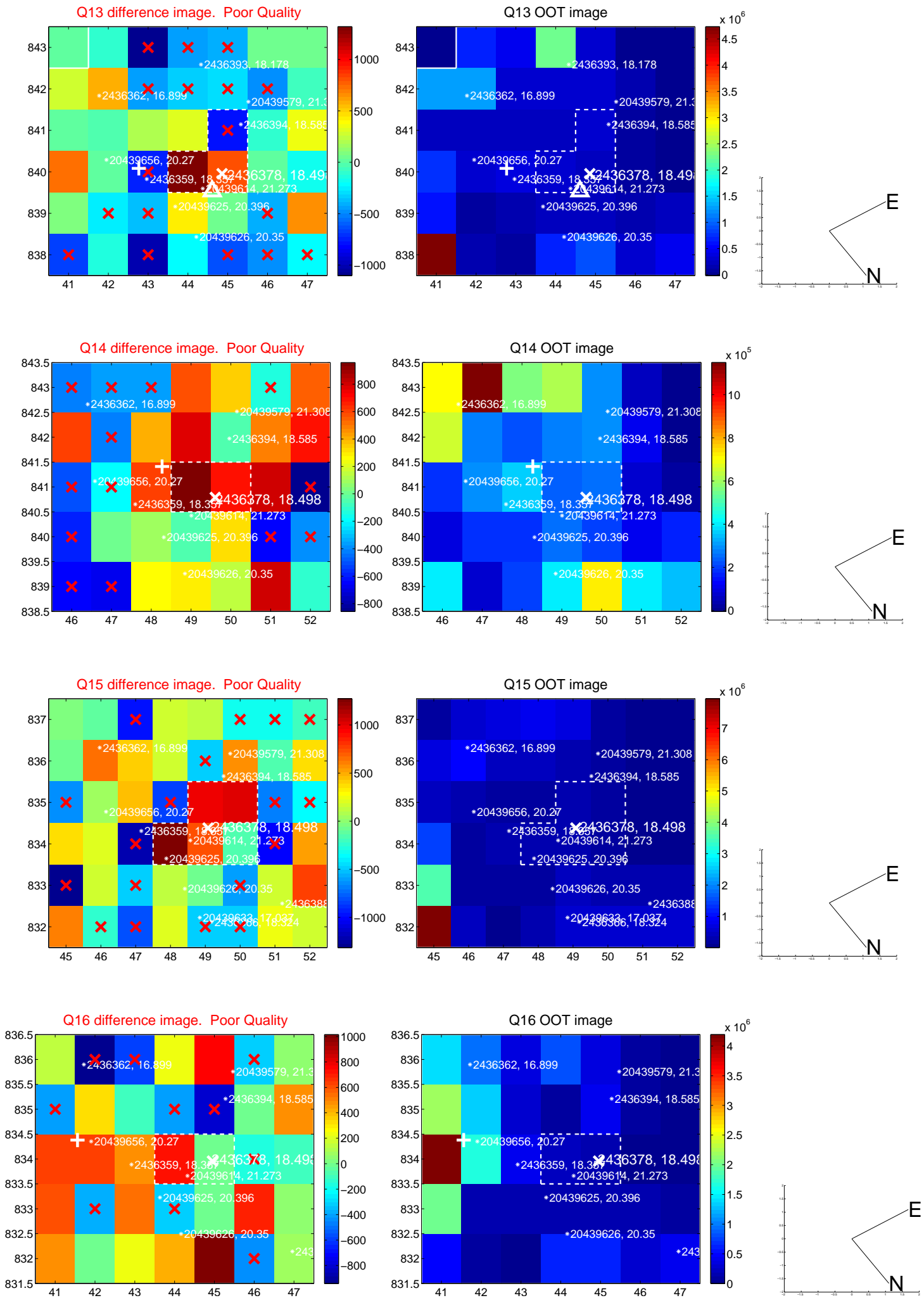
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



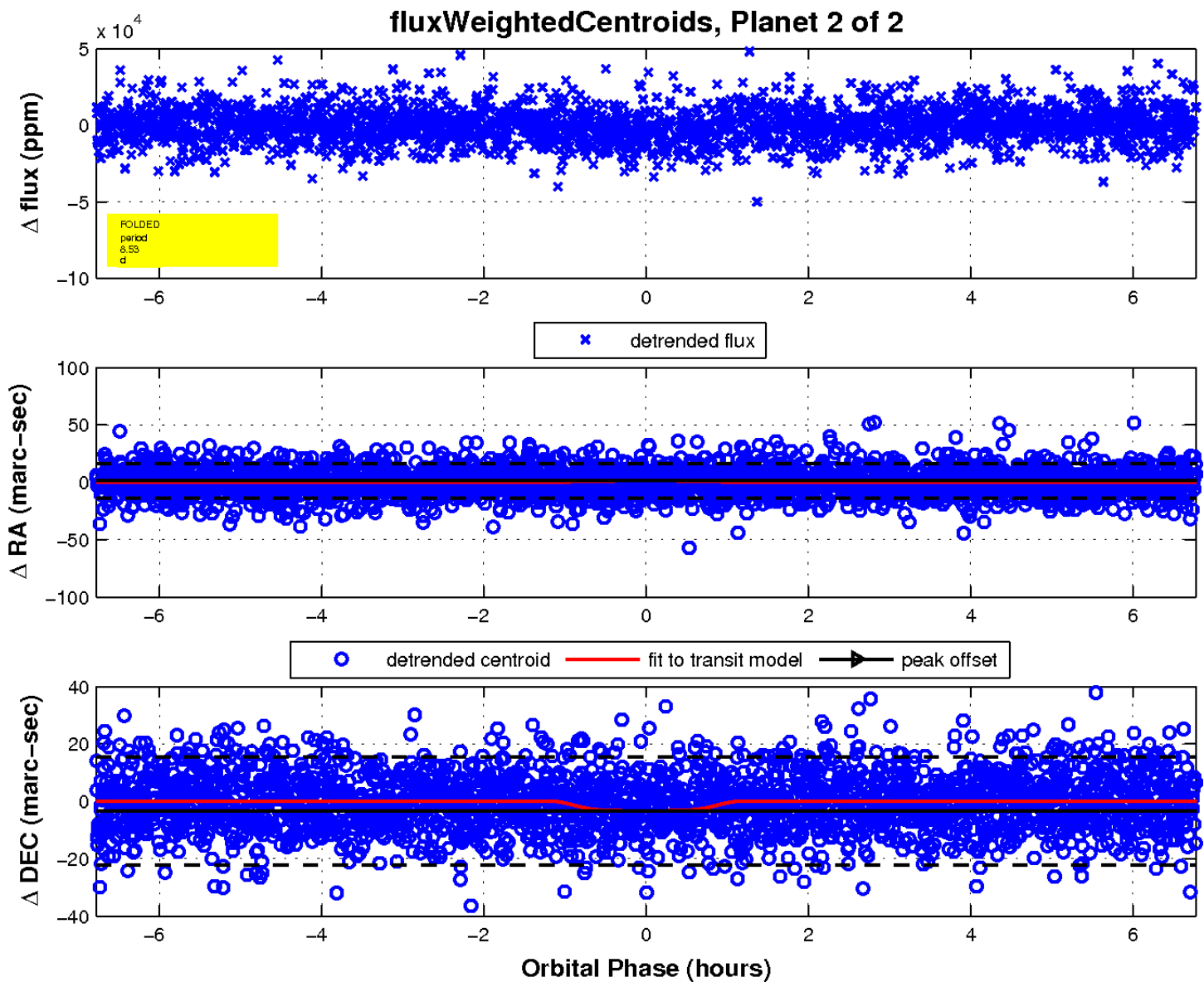
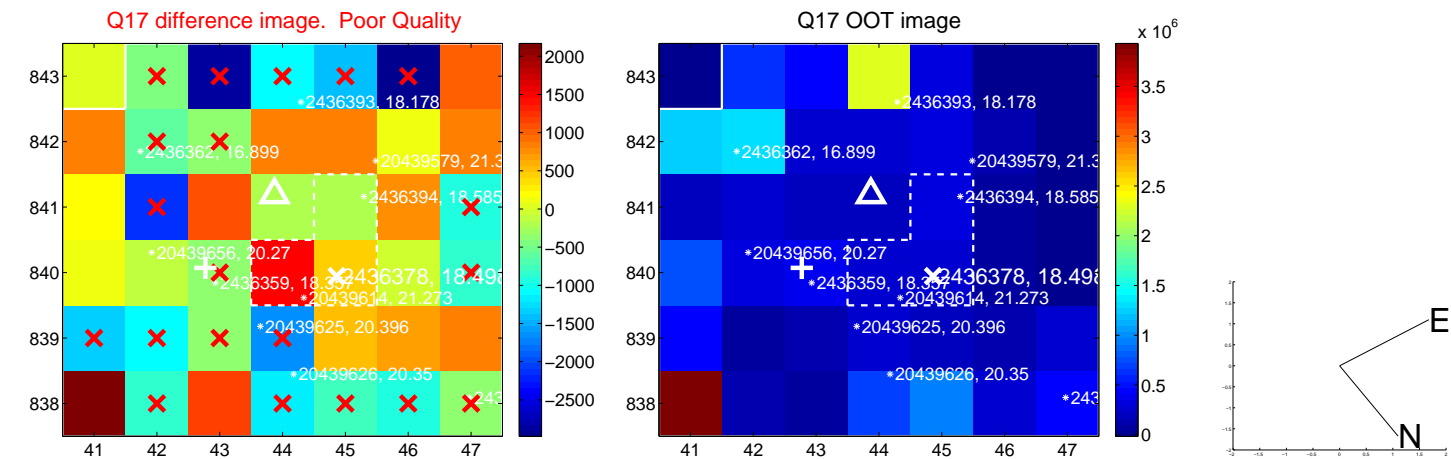
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

