

KIC 006233483

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})
006233483-01	OBS	3291.01	15.873390	143.859391	12038.4	7.954	978.0	637.1	1.05	6161	20.12	112.16
006233483-02	OBS	No	15.873367	135.628452	5126.8	7.525	390.2	328.7	1.05	6161	9.58	112.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006233483-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
006233483-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 006233483-01

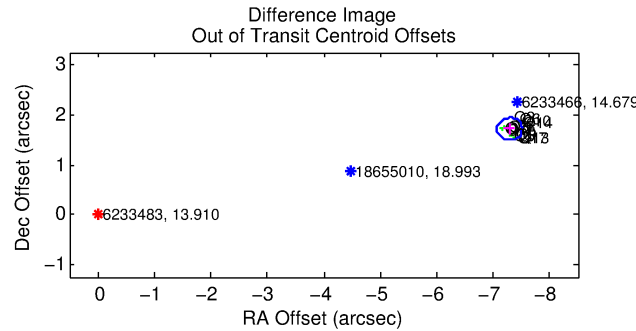
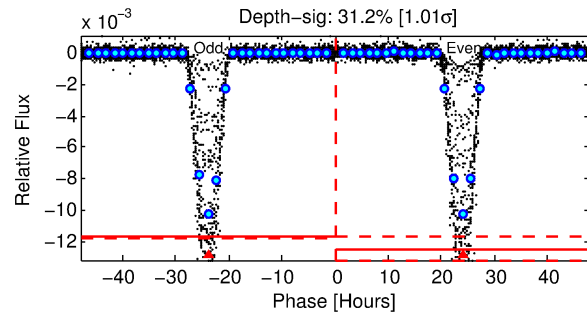
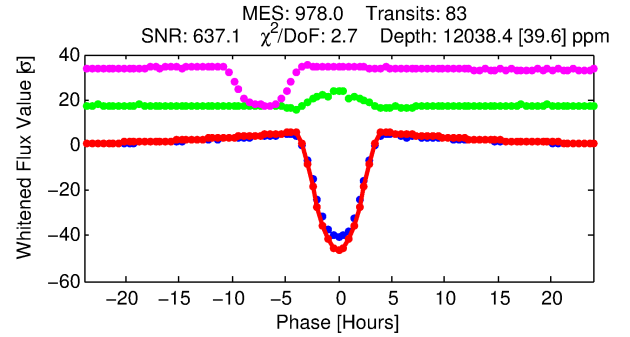
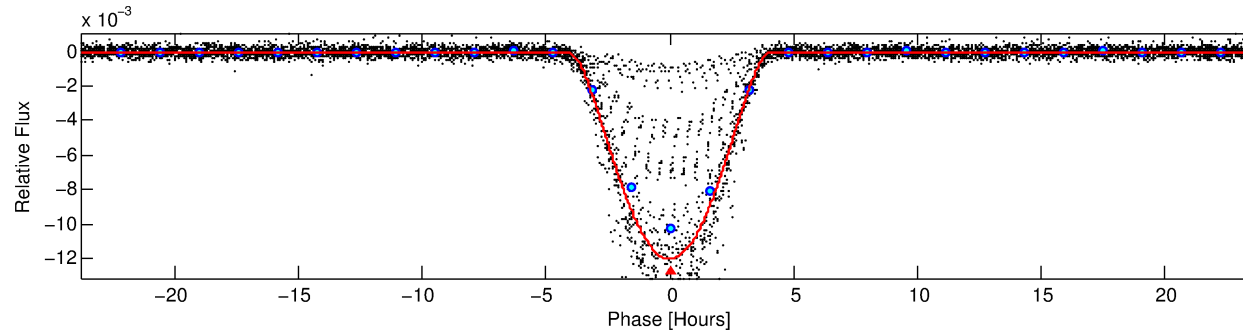
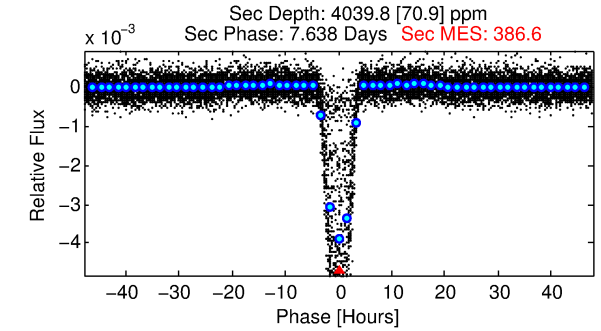
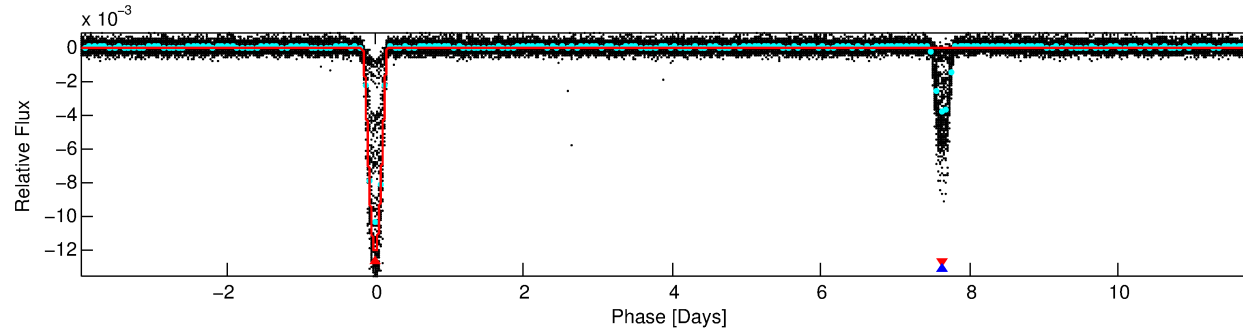
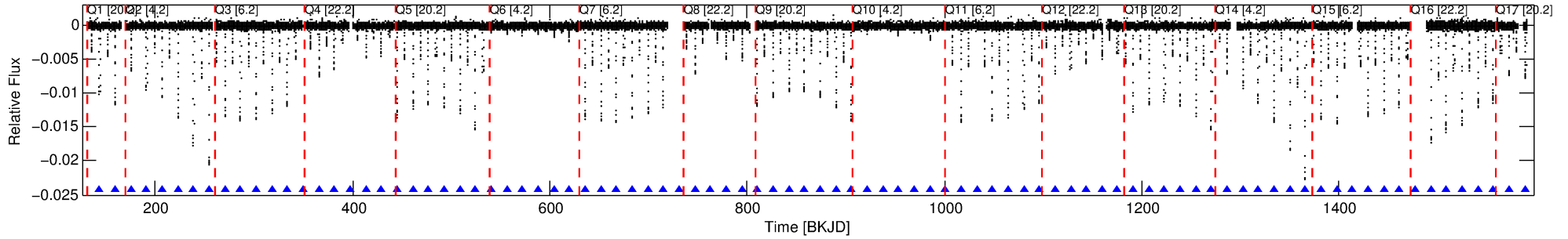
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006233483-01	6233483	3552.01	6233466	1:1	7.7	1	-1	14.68	13.91	18.50	Direct-PRF	0	0.01	0.01

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 6233483 Candidate: 1 of 2 Period: 15.873 d
KOI: K03291 Corr: No Ephemeris Match

Kp: 13.91 R*: 1.05 Rs Teff: 6161.0 K Logg: 4.28 Fe/H: -1.000



DV Fit Results:

Period = 15.87339 [0.00001] d
Epoch = 143.8594 [0.0003] BKJD
Rp/R* = 0.1750 [0.0142]
a/R* = 9.53 [0.11]
b = 1.00 [0.02]
Seff = 112.16 [54.71]
Teq = 830 [101] K
Rp = 20.12 [5.97] Re
a = 0.1131 [0.0326] AU
Ag = 70.17 [35.10] [1.97σ]
Teffp = 3713 [187] K [13.53σ]

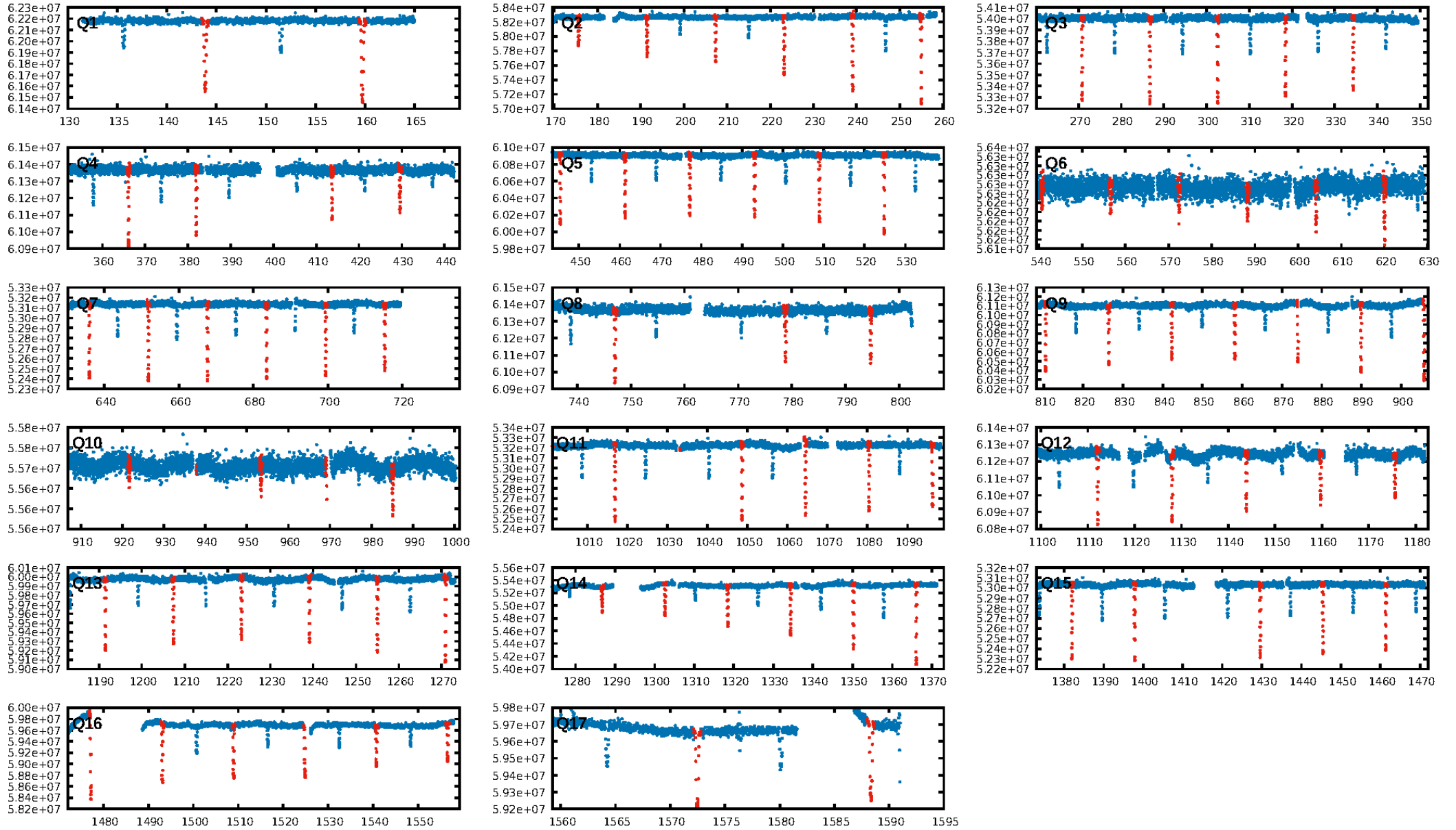
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [79/79]
GhostDiagnostic-chr: -0.3568
Centroid-sig: 0.0%
Centroid-so: 24.654 arcsec [1783.14σ]
OotOffset-rm: 7.482 arcsec [99.77σ]
KicOffset-rm: 7.653 arcsec [104.33σ]
OotOffset-st: 4/4/0/5 [13]
KicOffset-st: 4/4/0/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [17/17]

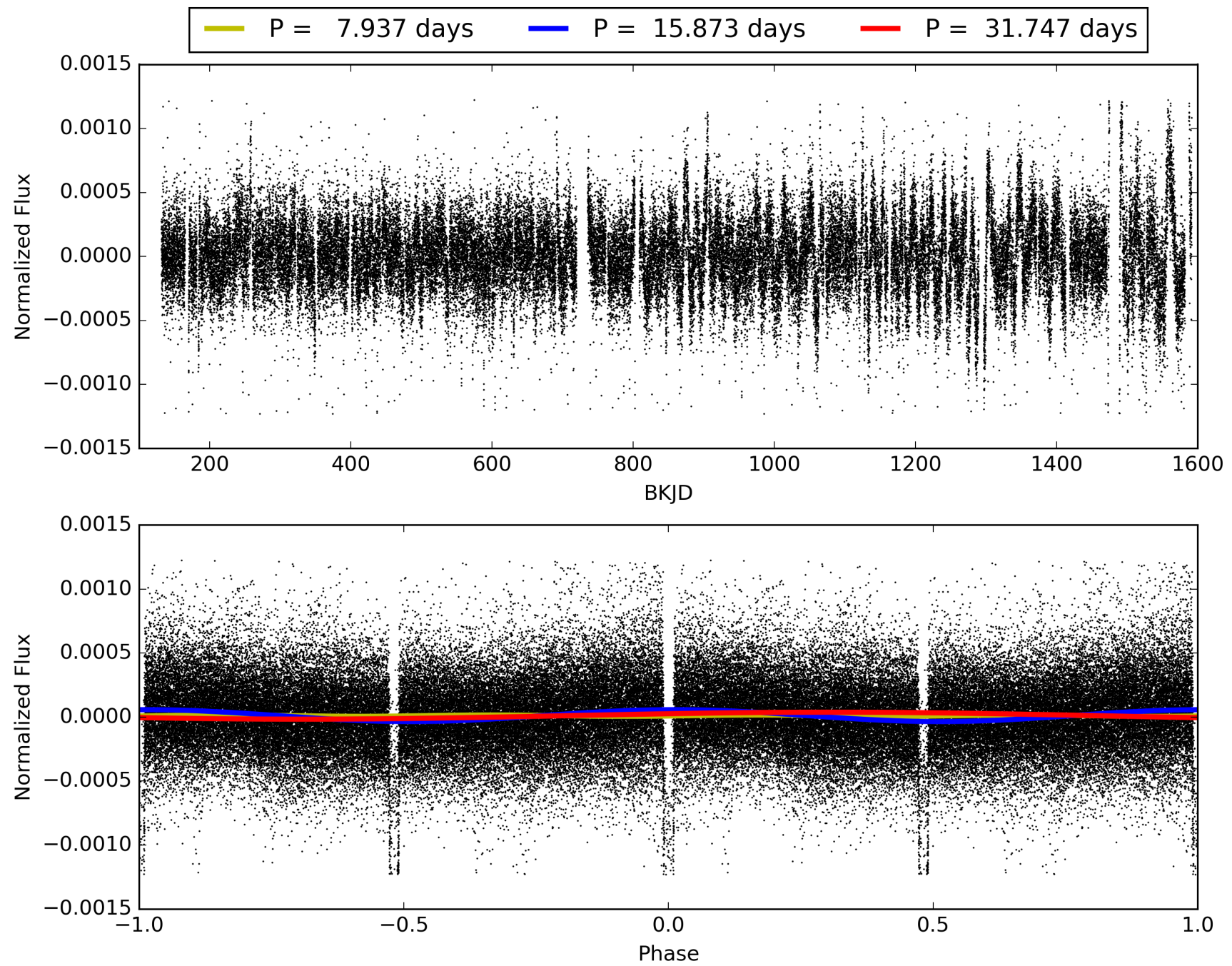
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:56:59 Z

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

TCE 006233483-01, PDC Light Curves

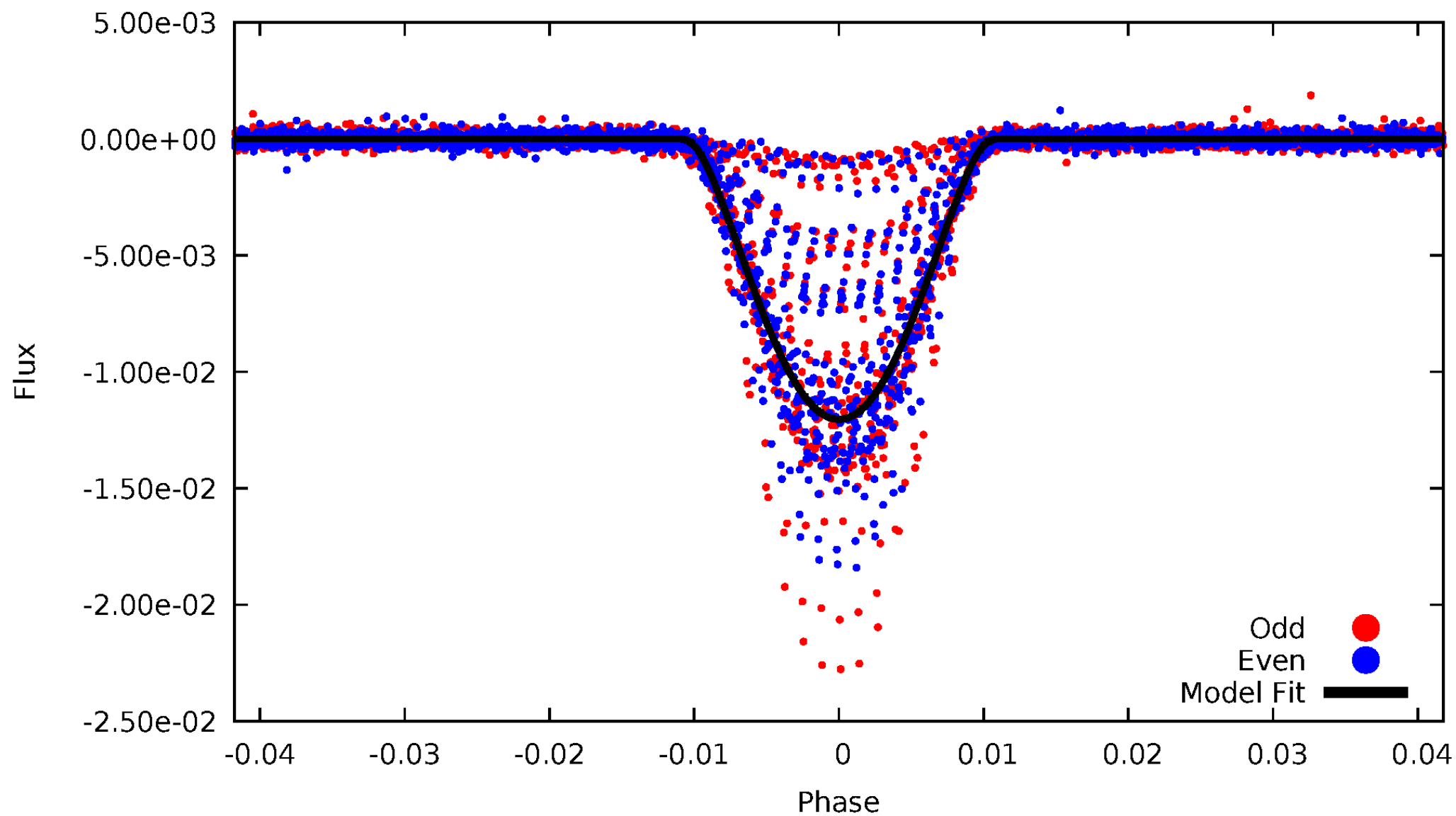


TCE 006233483-01



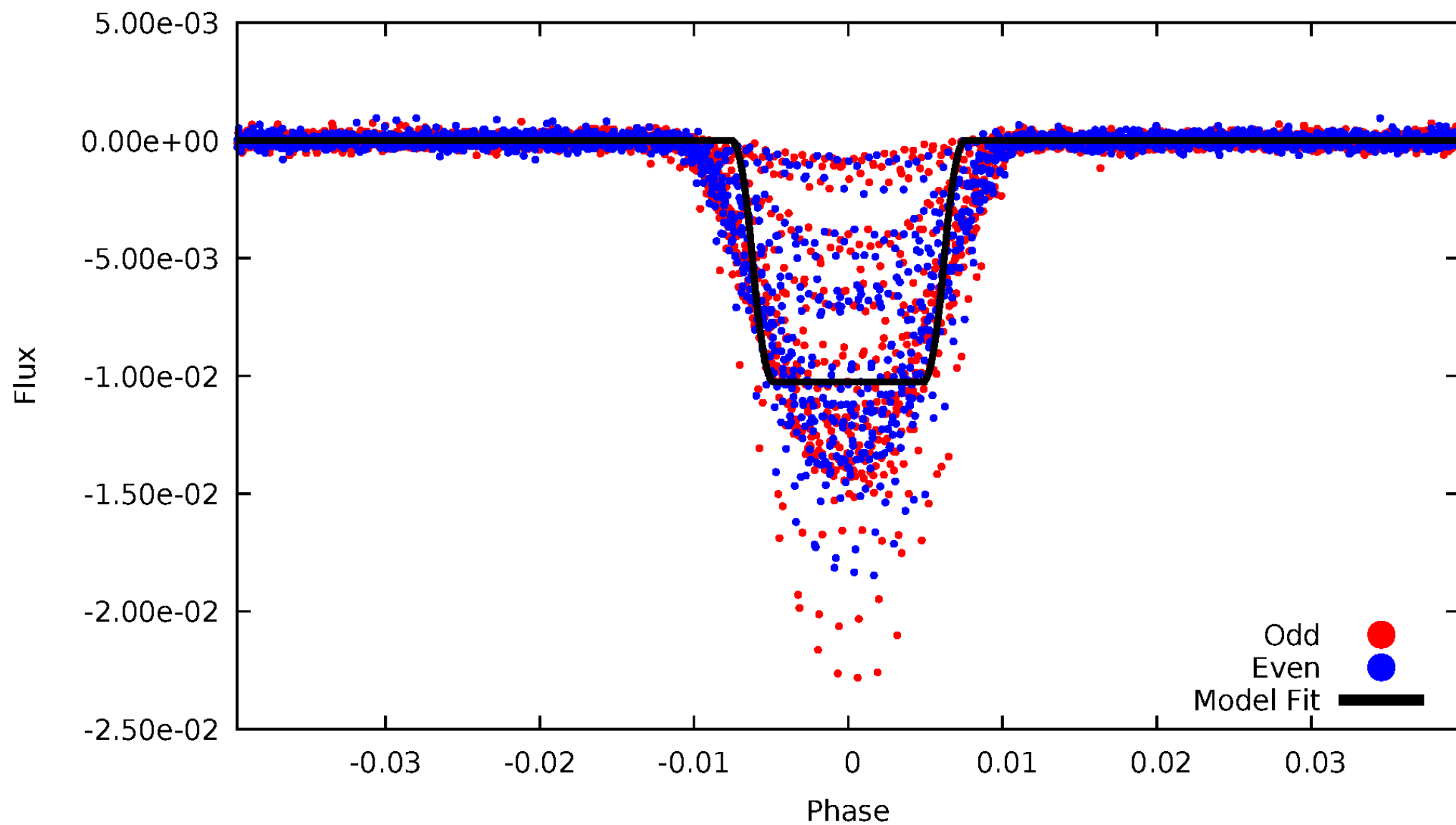
DV Odd/Even

TCE 006233483-01



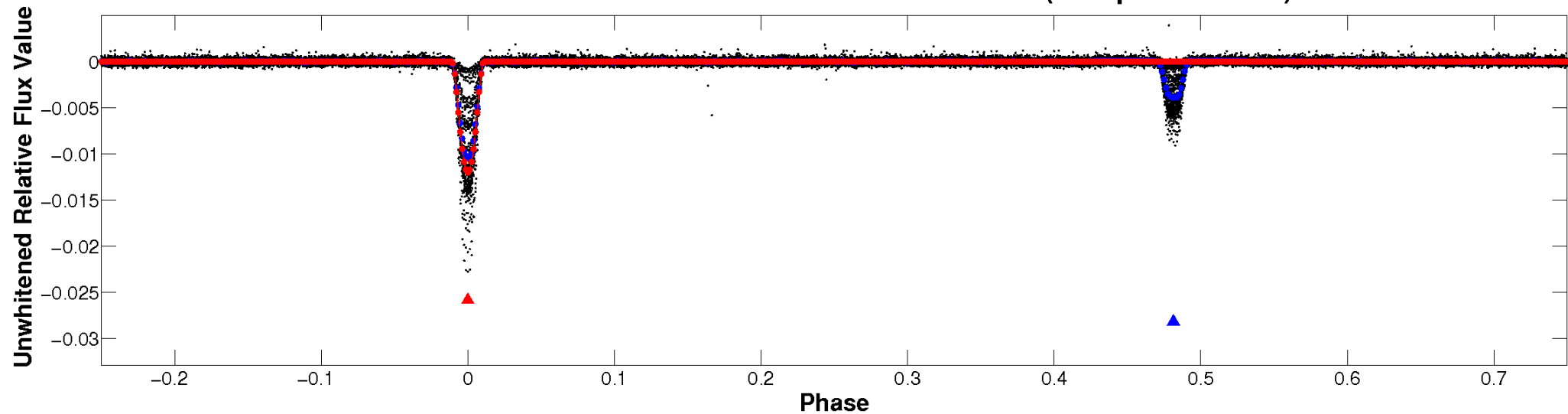
ALT Odd/Even

TCE 006233483-01

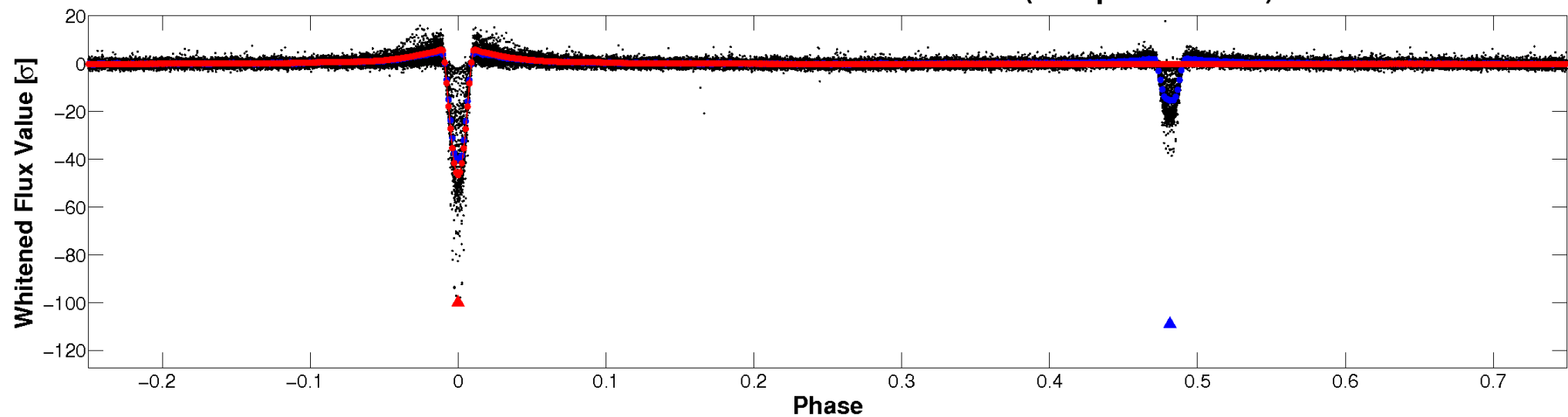


Non-Whitened Vs. Whitened Light Curve

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

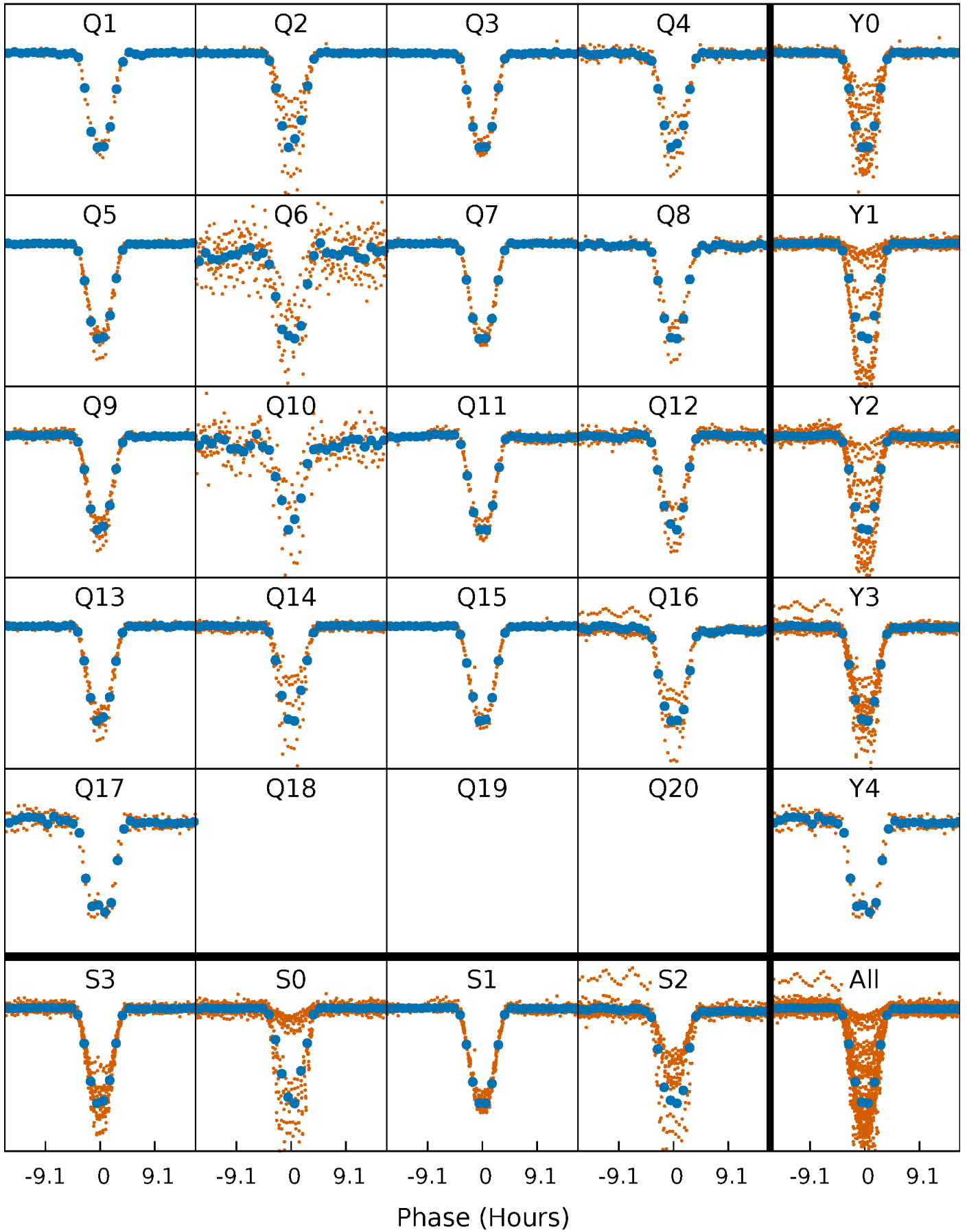


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



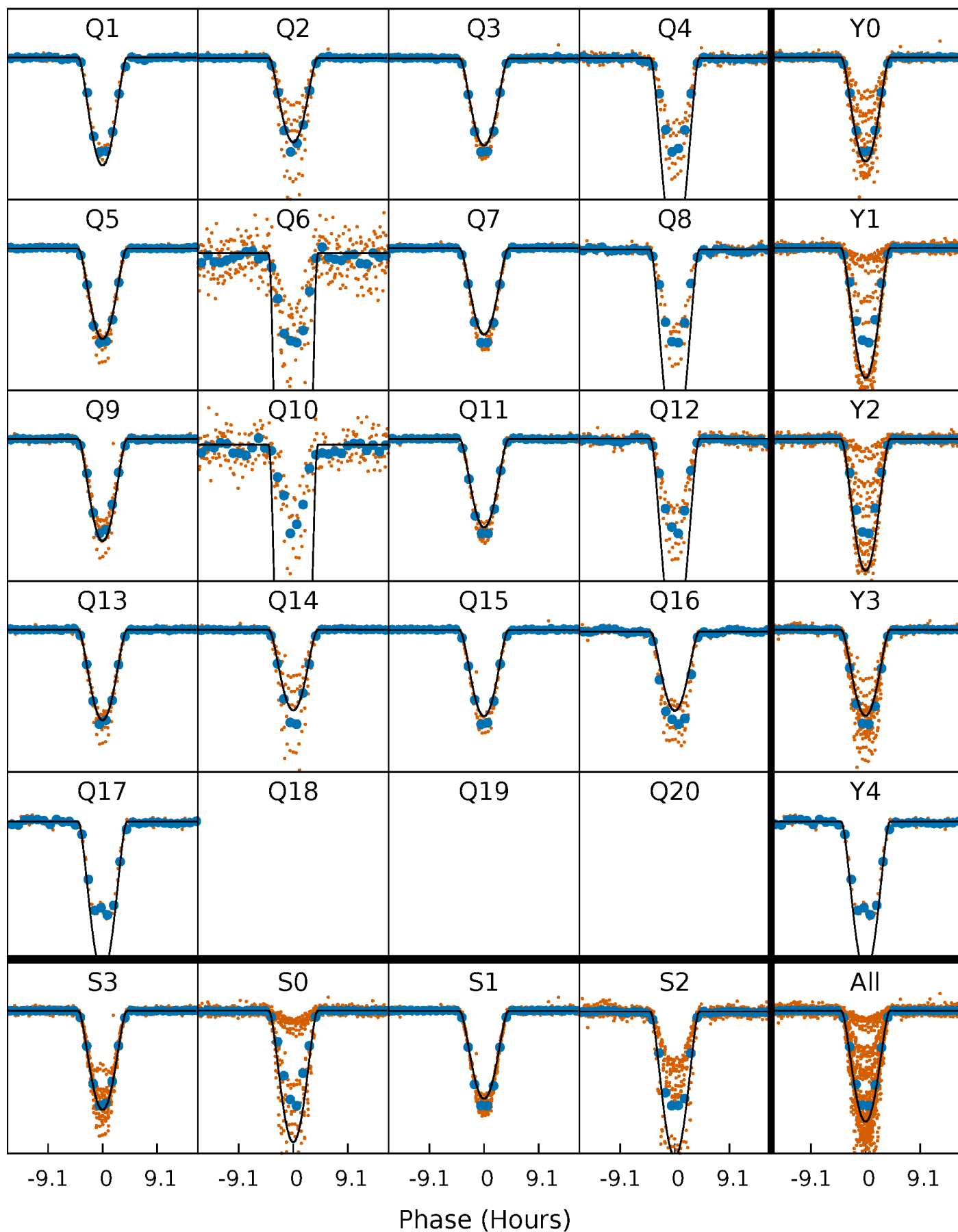
PDC Quarter-Phased Transit Curves

TCE 006233483-01 P= 15.873390 Days $T_0=143.859391$ (BKJD)



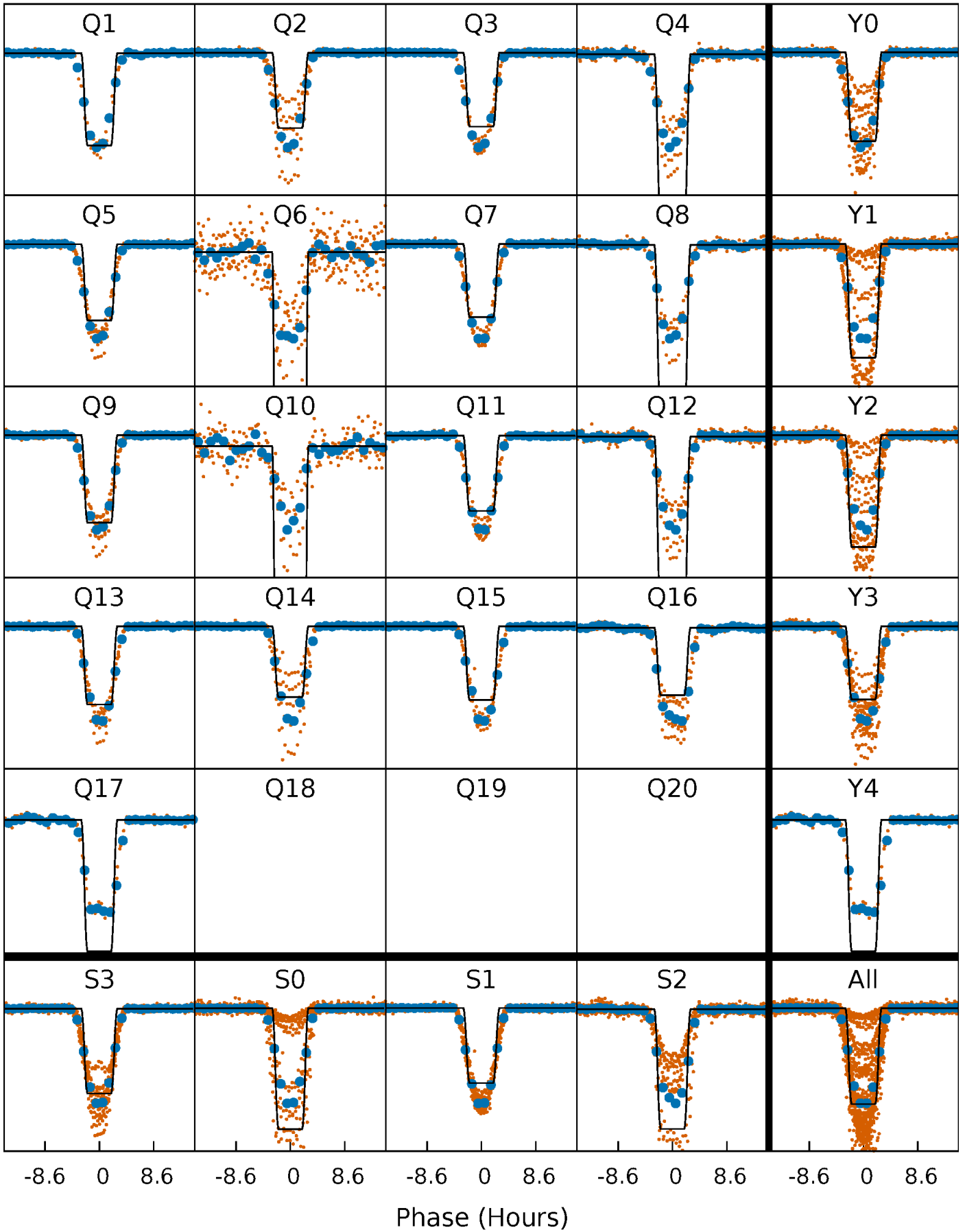
DV Quarter-Phased Transit Curves

TCE 006233483-01 P= 15.873390 Days $T_0=143.859391$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

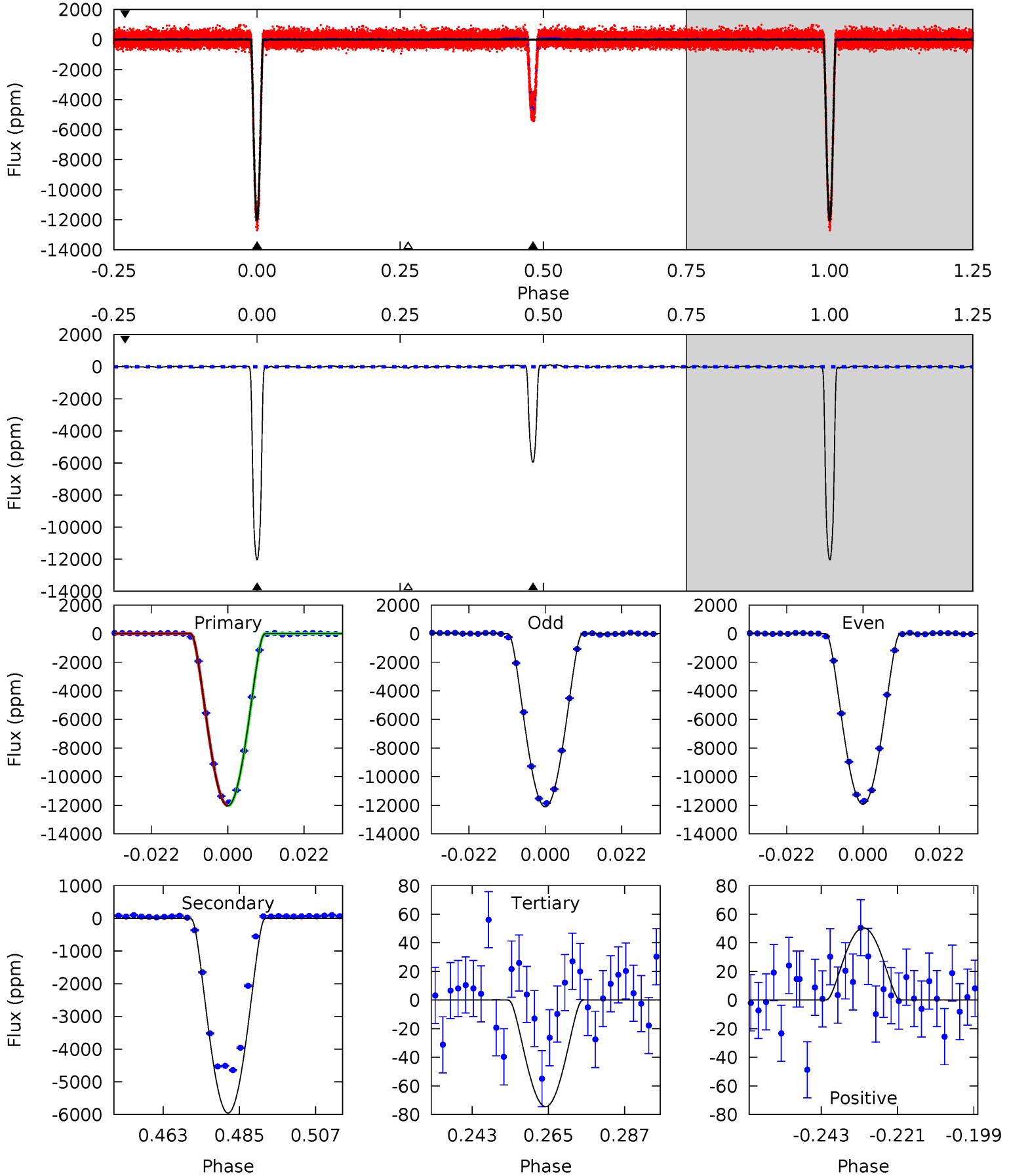
TCE 006233483-01 P= 15.873131 Days $T_0=143.871768$ (BKJD)



DV Model-Shift Uniqueness Test

006233483-01, P = 15.873390 Days, E = 127.986001 Days

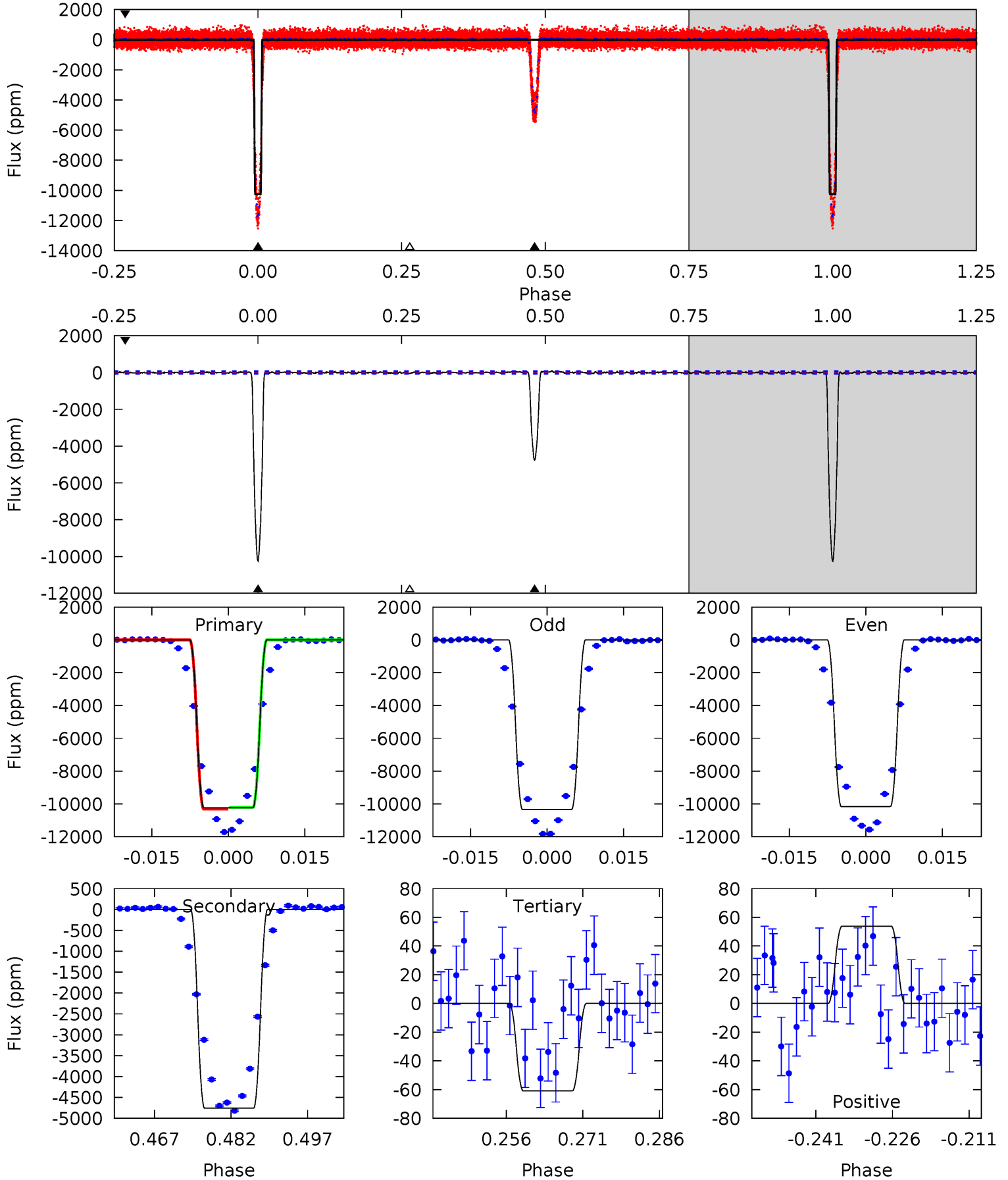
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1422	703.7	8.80	5.97	4.87	2.29	3.48	1414	1416	694.9	697.8	10.7	0.87	0.01	0



Alt Model-Shift Uniqueness Test

006233483-01, P = 15.873131 Days, E = 127.998637 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
744.0	345.7	4.43	3.91	4.95	2.43	1.48	739.6	740.1	341.3	341.8	6.55	0.88	0.01	0



Stellar Parameters For KIC 006233483

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6161^{+184}_{-184}	$4.276^{+0.282}_{-0.212}$	$-1.000^{+0.300}_{-0.300}$	$1.054^{+0.301}_{-0.246}$	$0.763^{+0.102}_{-0.032}$	$0.919^{+1.343}_{-0.486}$
	+3%/-3%	+7%/-5%	+30%/-30%	+29%/-23%	+13%/-4%	+146%/-53%
Source	PHO1	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 006233483-01 / KOI 3291.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5956 ± 8	$19.96^{+3.86}_{-3.56}$	1150^{+96}_{-99}	4329^{+185}_{-159}	108^{+48}_{-32}
Alt.	-4758 ± 14	$11.59^{+2.64}_{-2.39}$	1152^{+97}_{-96}	5158^{+364}_{-303}	255^{+142}_{-83}

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

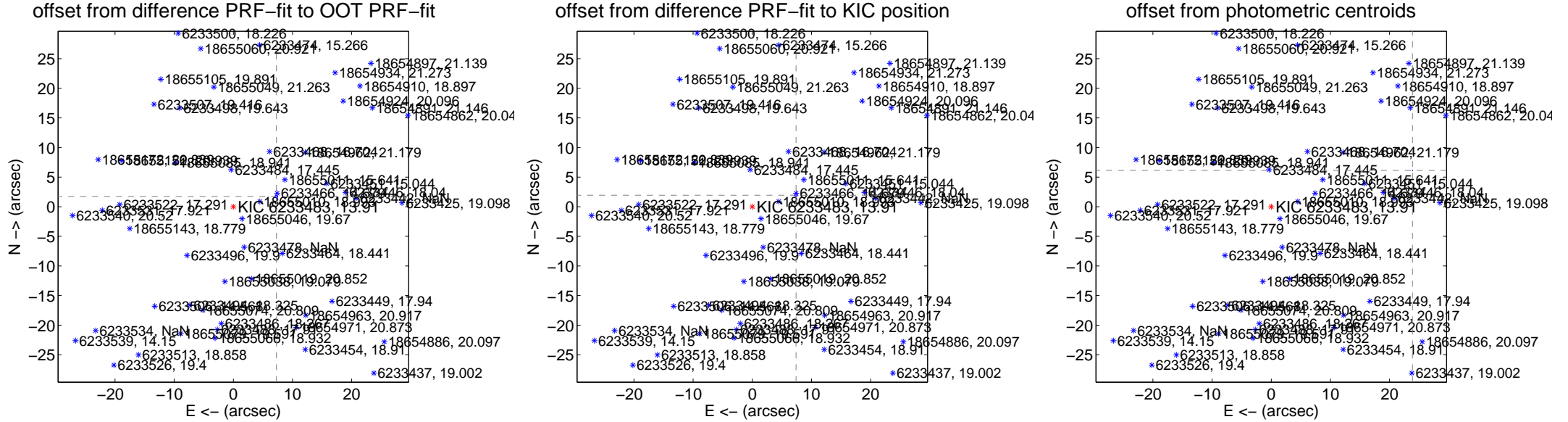
DV Centroid Data

Supplemental centroid analysis for 006233483-01. Kepler magnitude: 13.91. Transit SNR 637.05

There are 13 quarters with good PRF difference image offsets

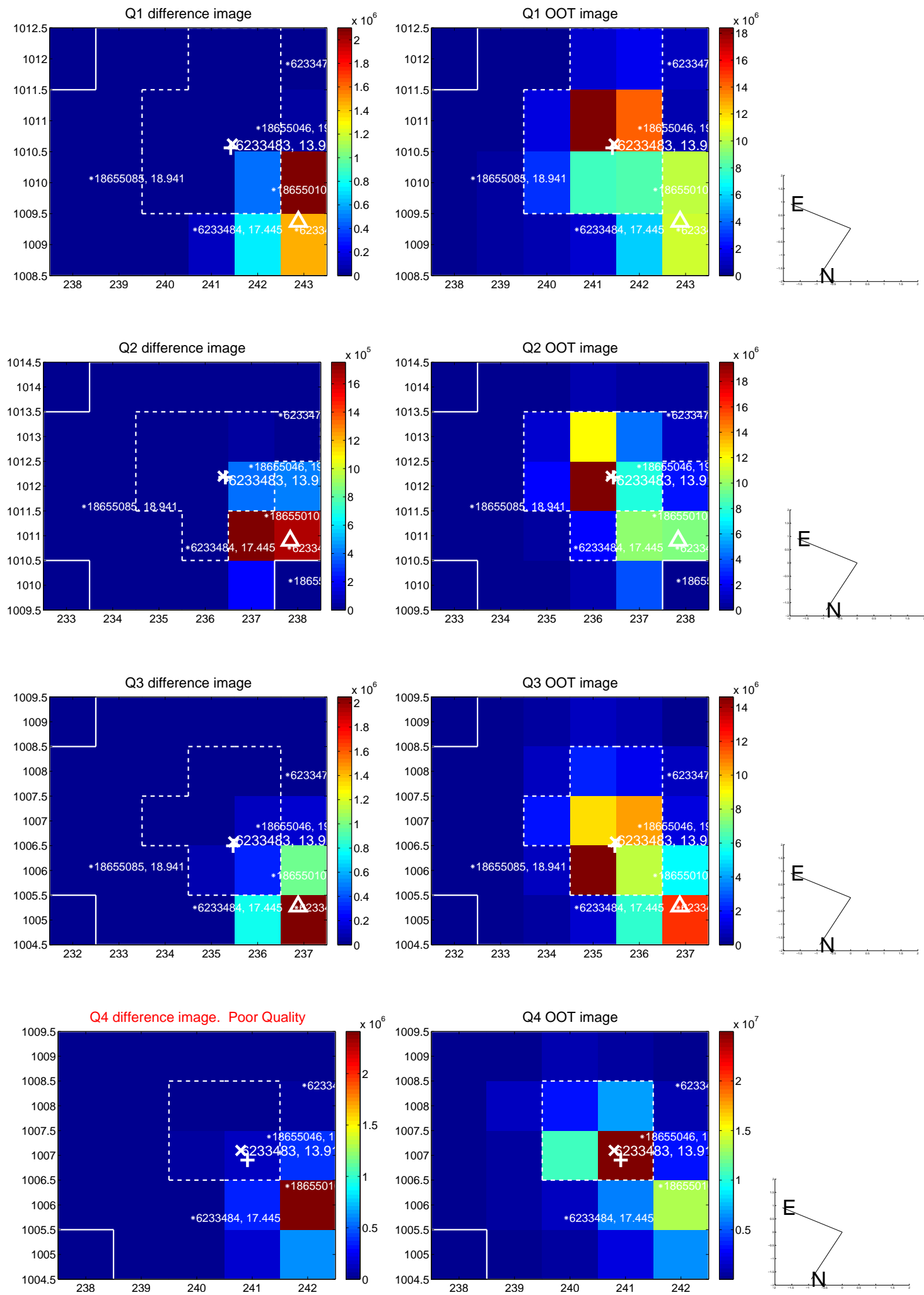
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.482 \pm 0.075	99.77	-7.283 \pm 0.075	1.714 \pm 0.078
PRF-fit source offset from KIC position	7.653 \pm 0.073	104.33	-7.403 \pm 0.074	1.942 \pm 0.070
photometric centroid source offset	24.65 \pm 0.01	1783.14	-23.88 \pm 0.01	6.13 \pm 0.01

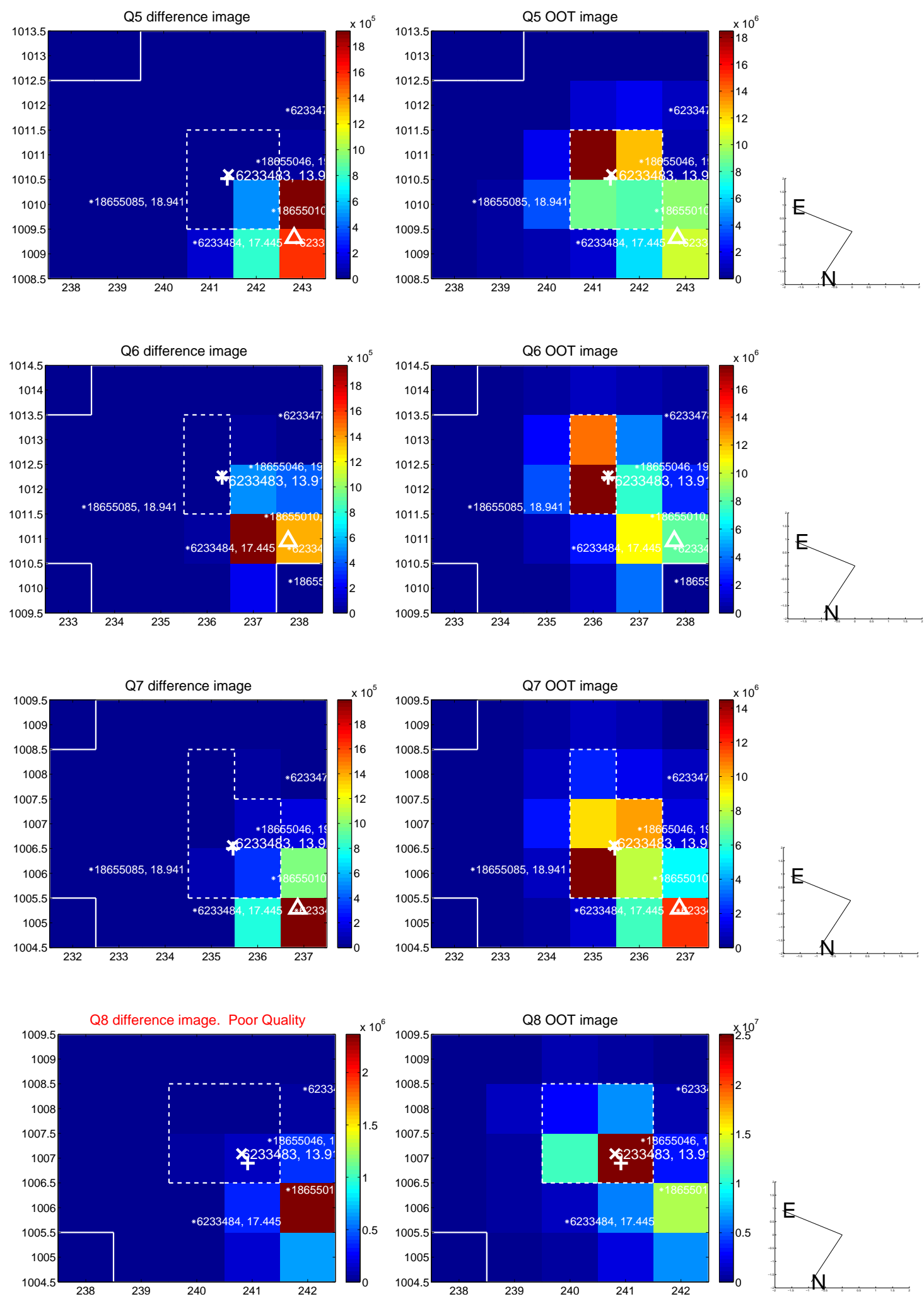


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

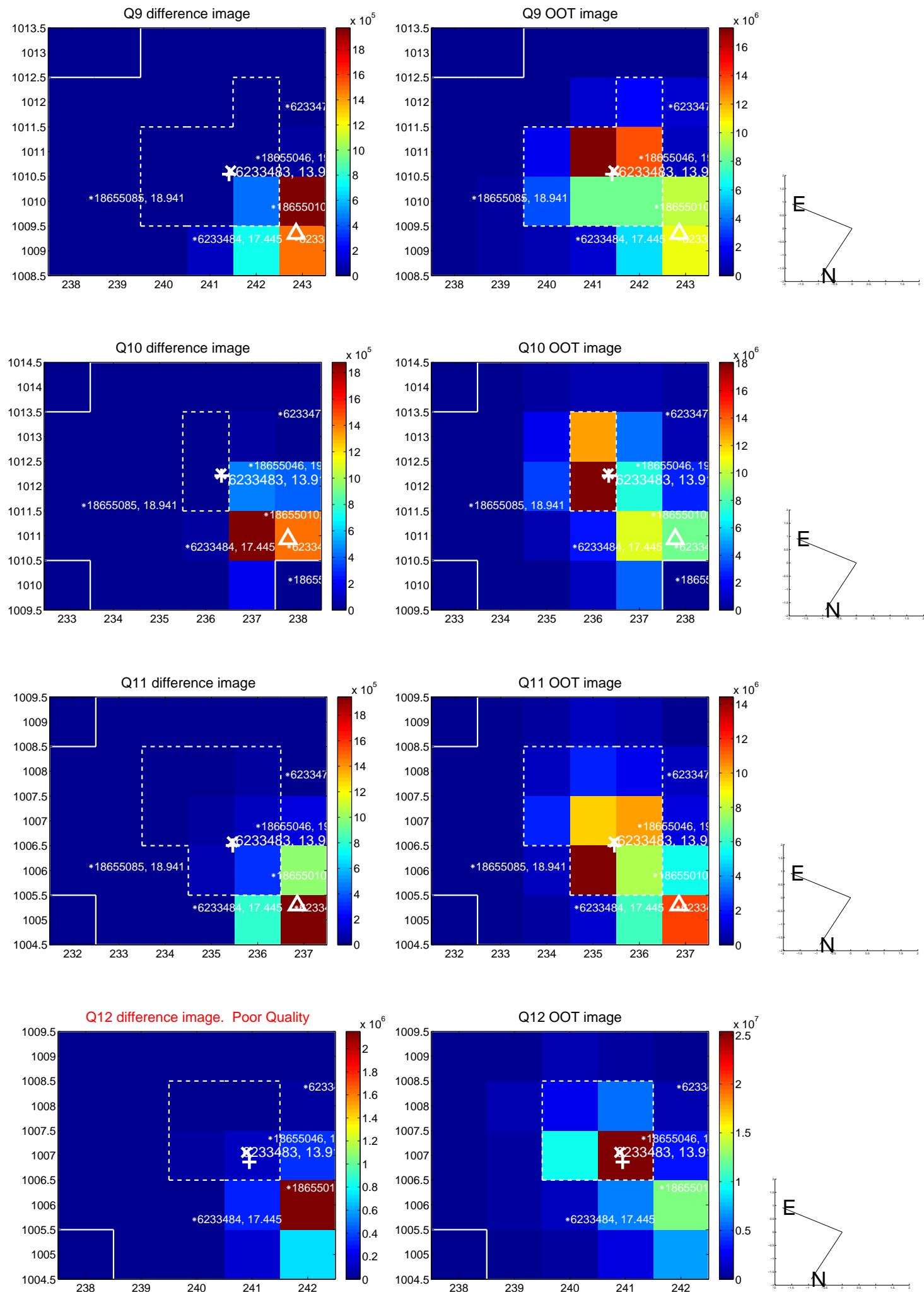
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



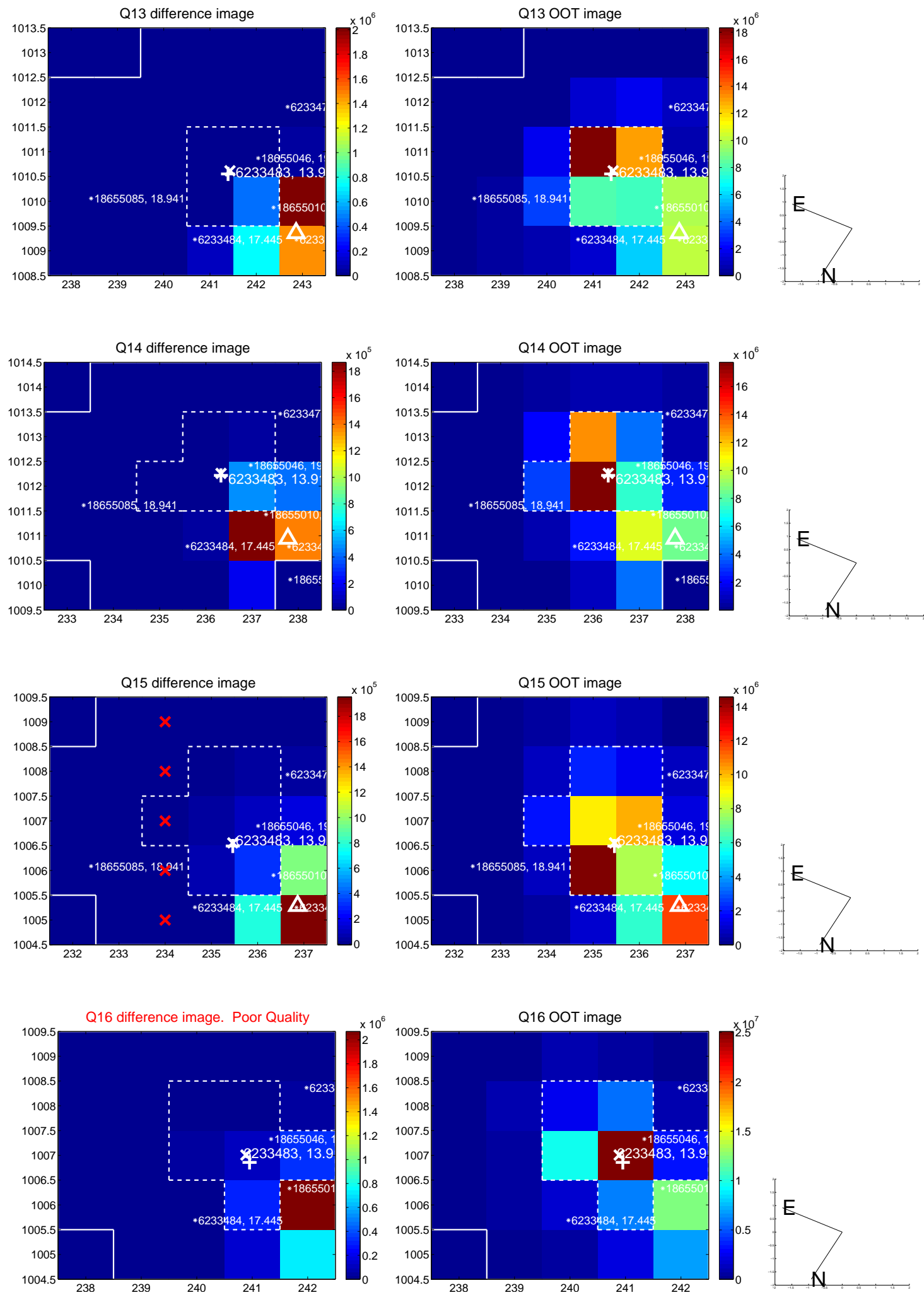
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



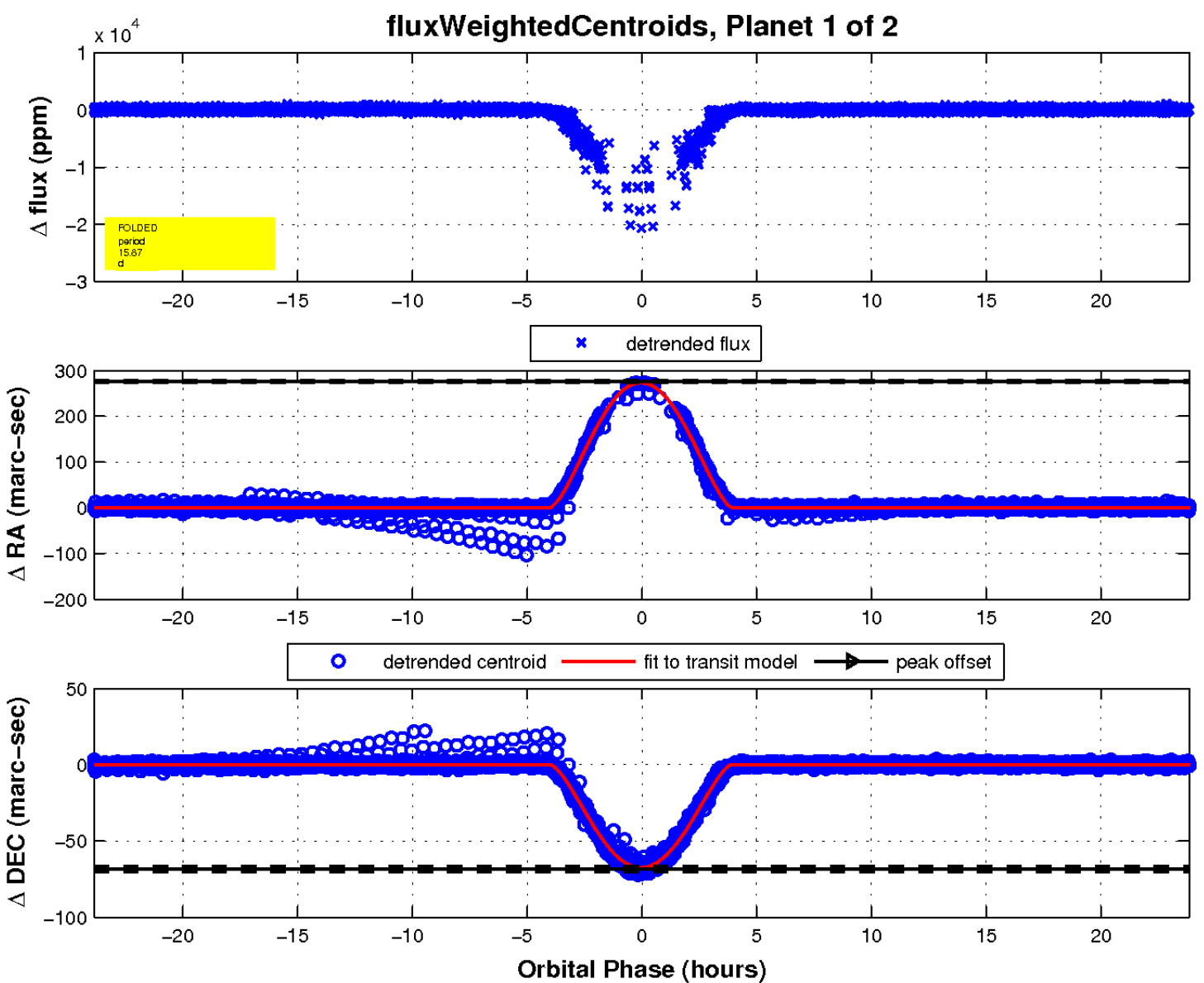
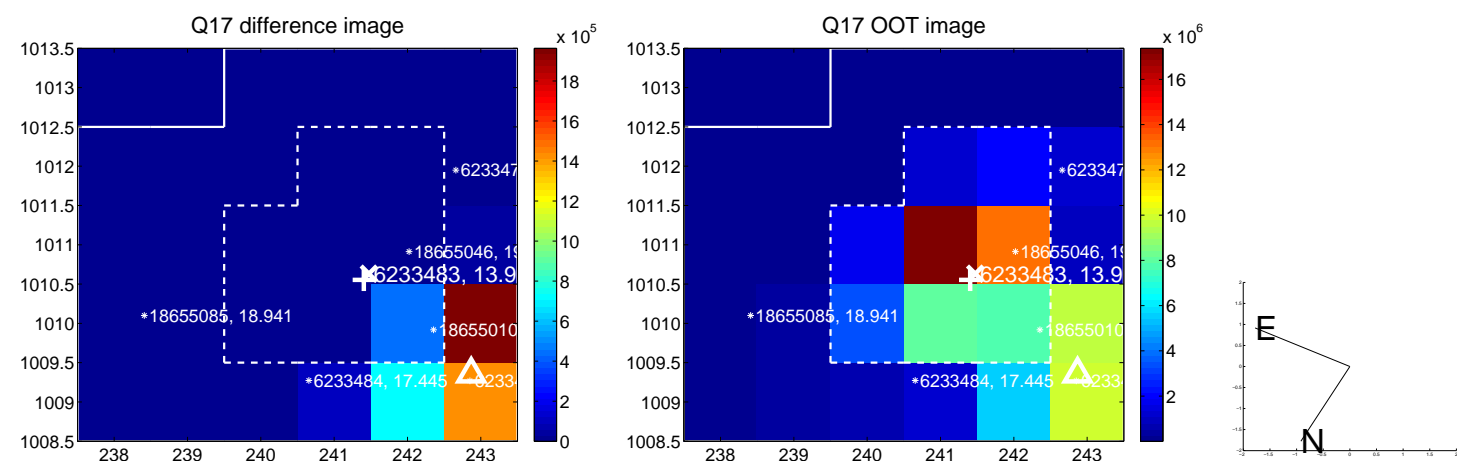
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

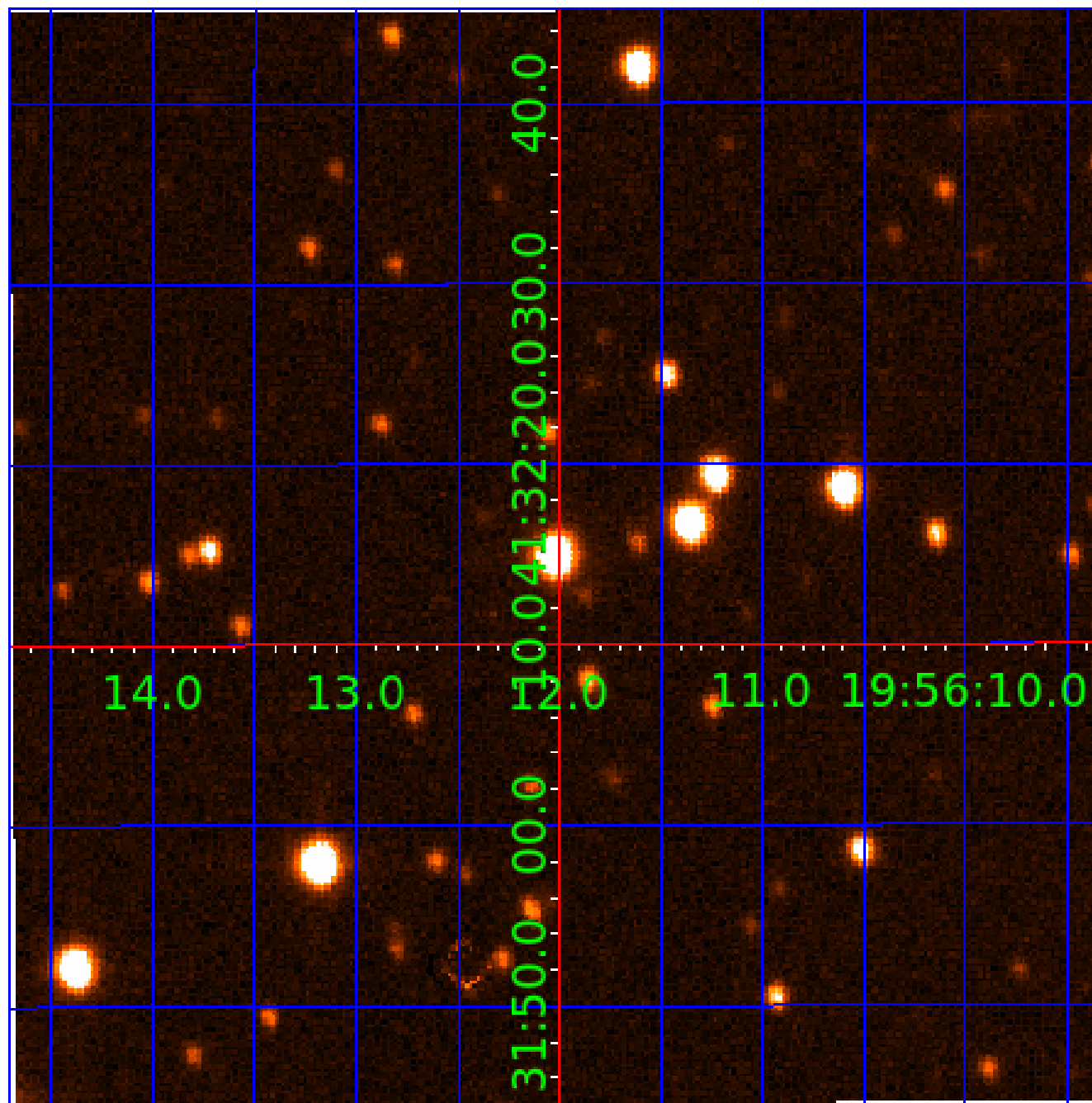


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006233483

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})
006233483-01	OBS	3291.01	15.873390	143.859391	12038.4	7.954	978.0	637.1	1.05	6161	20.12	112.16
006233483-02	OBS	No	15.873367	135.628452	5126.8	7.525	390.2	328.7	1.05	6161	9.58	112.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006233483-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
006233483-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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.

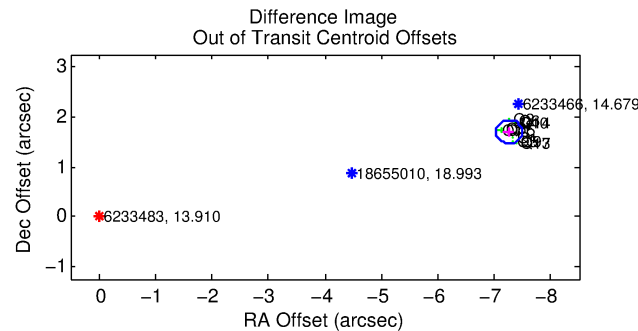
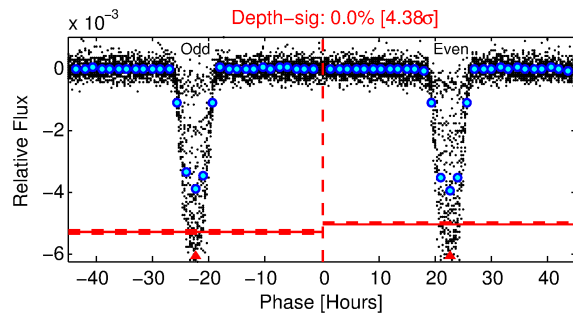
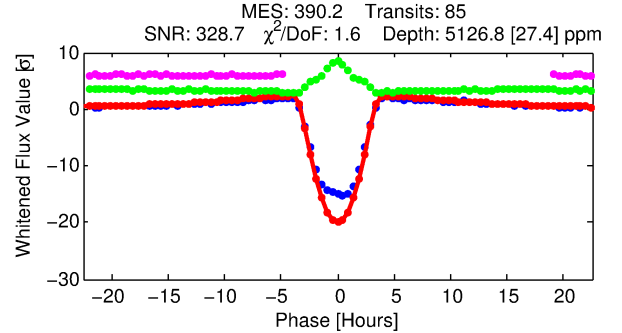
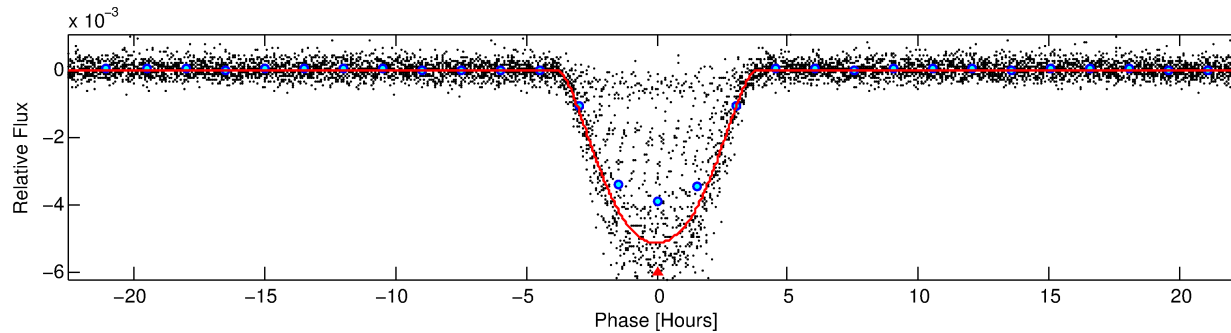
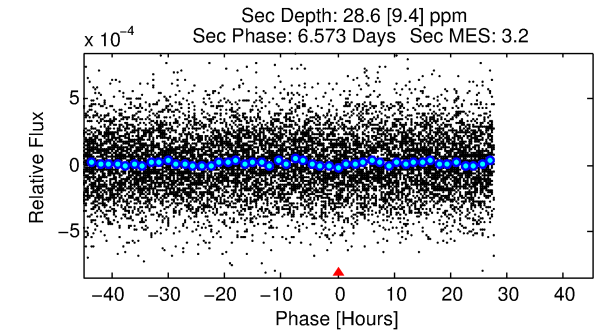
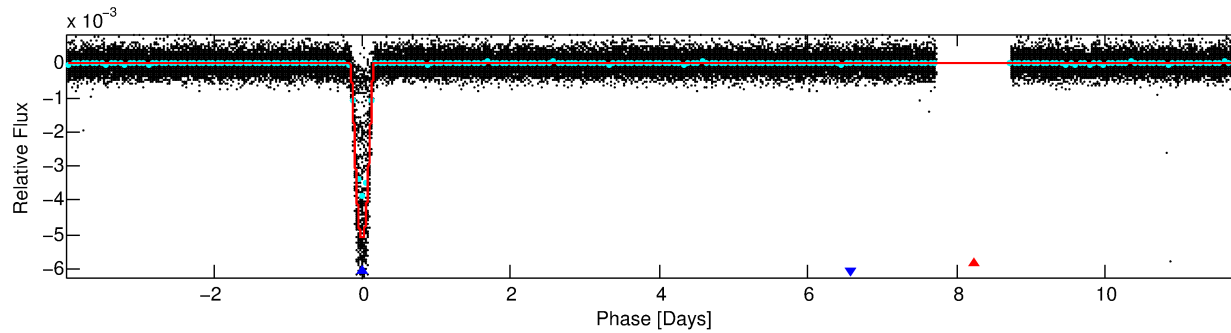
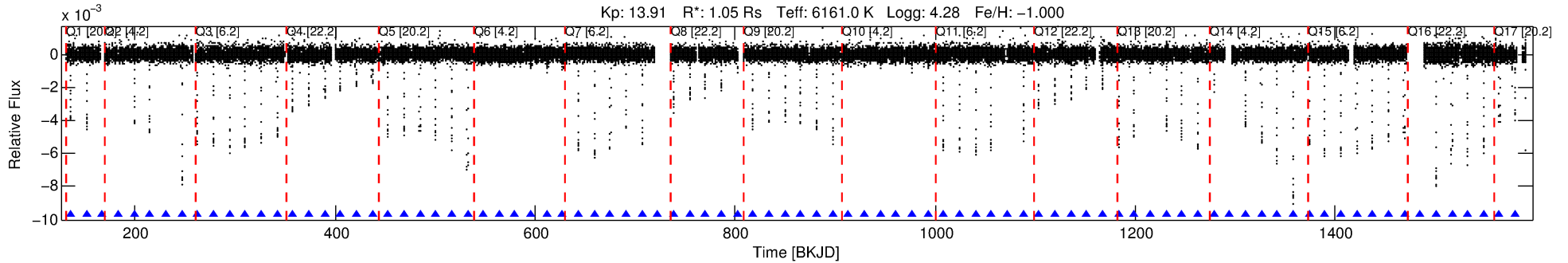
Ephemeris Match Information For 006233483-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006233483-02	6233483	006233466-sec	6233466	1:1	7.7	1	-1	14.68	13.91	13.28	Direct-PRF	0	0.12	0.01

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 6233483 Candidate: 2 of 2 Period: 15.873 d
KOI: K03291.01 Corr: 0.994



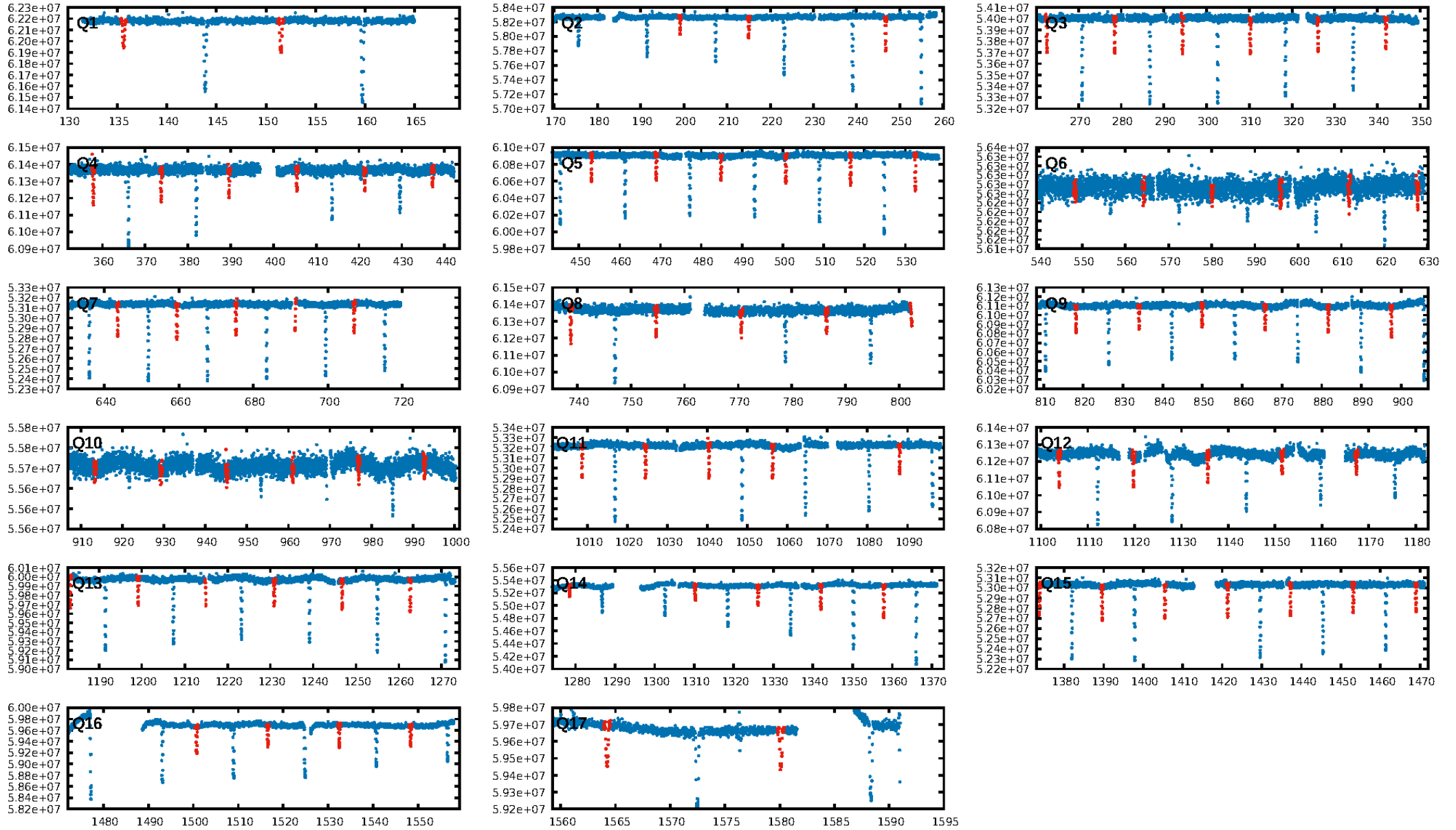
DV Fit Results:

Period = 15.87337 [0.00001] d
Epoch = 135.6285 [0.0005] BKJD
Rp/R* = 0.0833 [0.0014]
a/R* = 8.82 [0.08]
b = 0.94 [0.00]
Seff = 112.16 [54.71]
Teq = 830 [101] K
Rp = 9.58 [2.74] Re
a = 0.1131 [0.0326] AU
Ag = 2.19 [1.26] [0.94σ]
Teffp = 1561 [137] K [4.30σ]

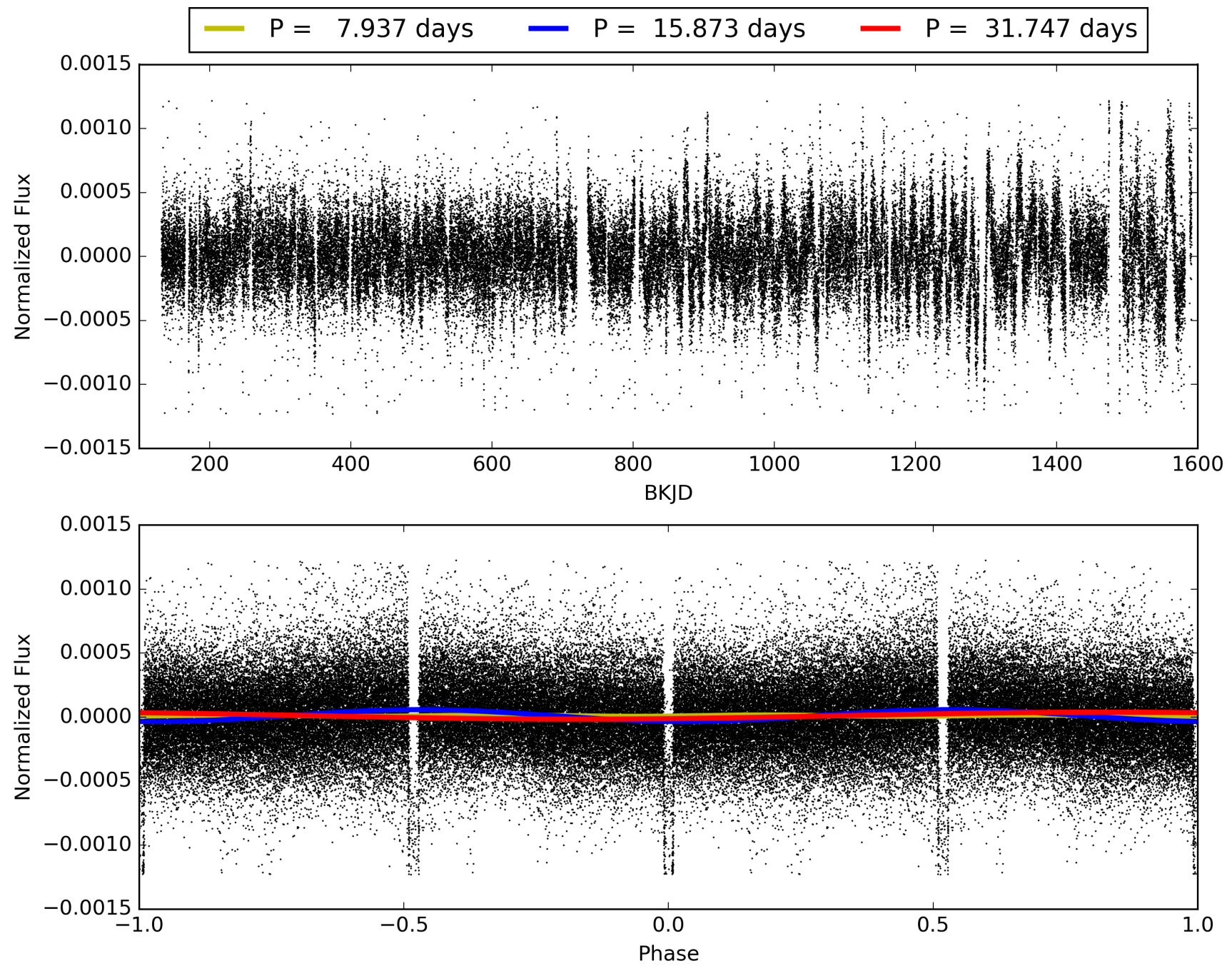
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.1%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [81/81]
GhostDiagnostic-chr: -0.337
Centroid-sig: 0.0%
Centroid-so: 23.518 arcsec [752.71σ]
OotOffset-rm: 7.448 arcsec [95.10σ]
KicOffset-rm: 7.598 arcsec [103.30σ]
OotOffset-st: 4/4/0/5 [13]
KicOffset-st: 4/4/0/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006233483-02, PDC Light Curves

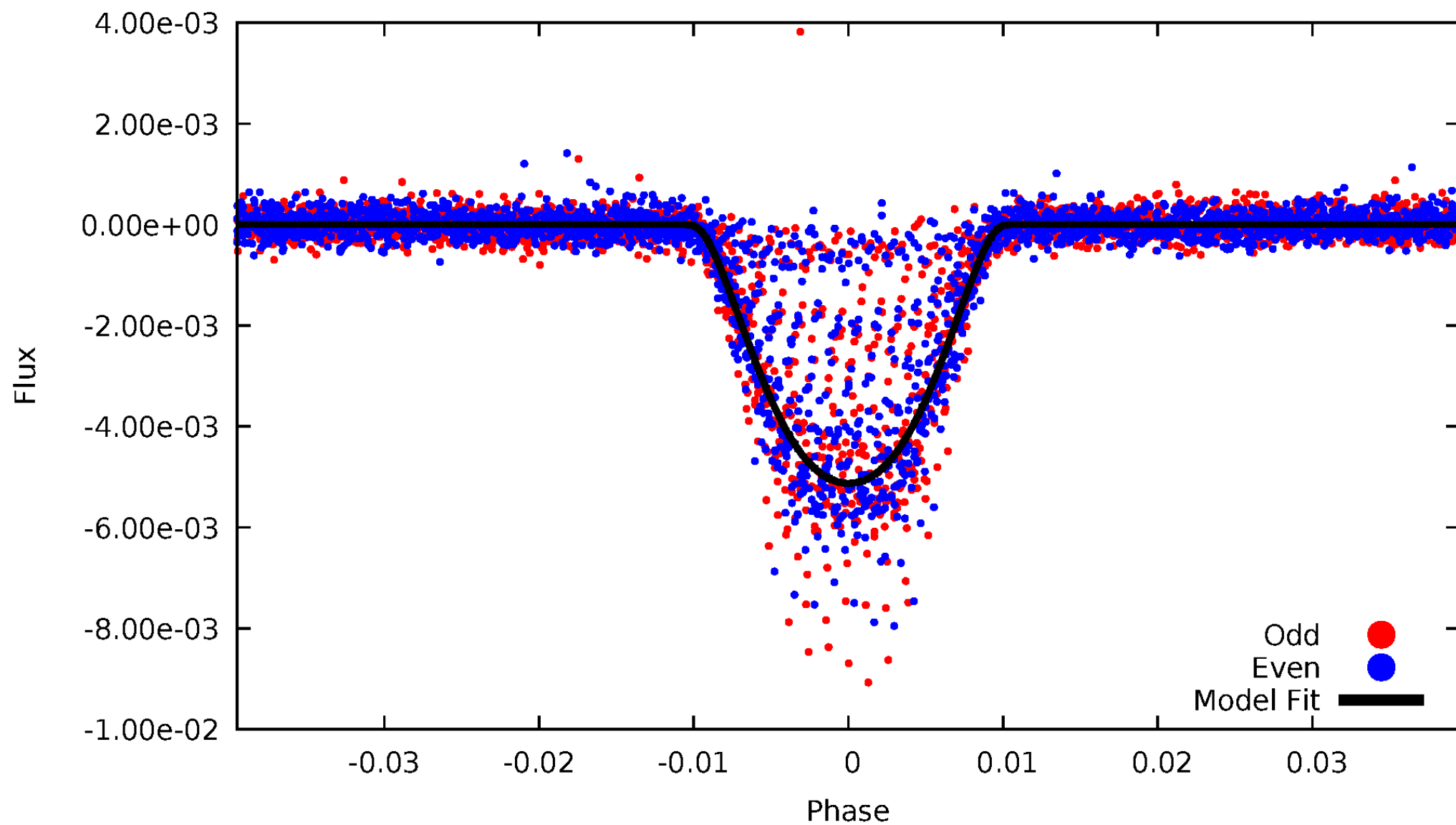


TCE 006233483-02



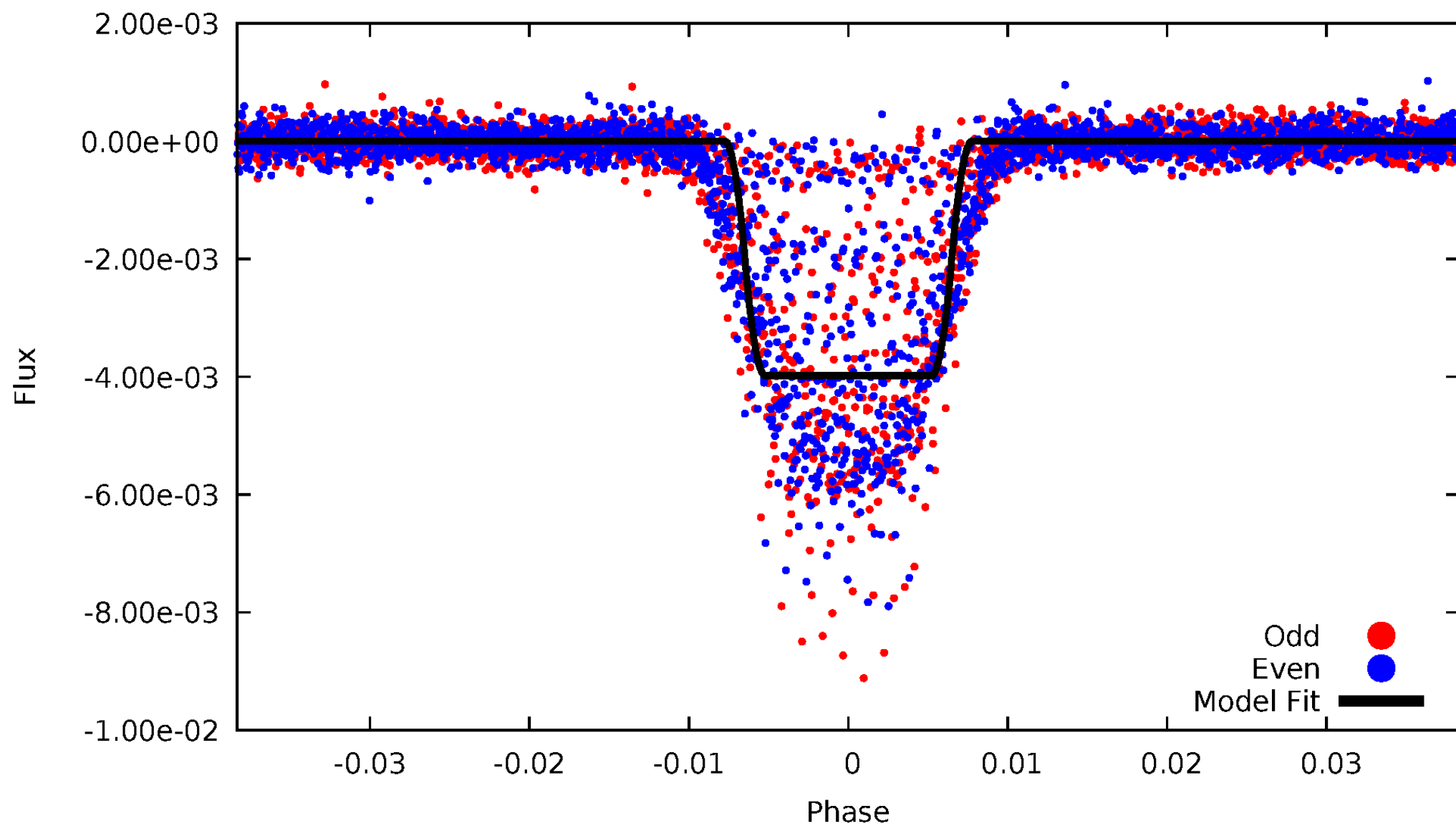
DV Odd/Even

TCE 006233483-02



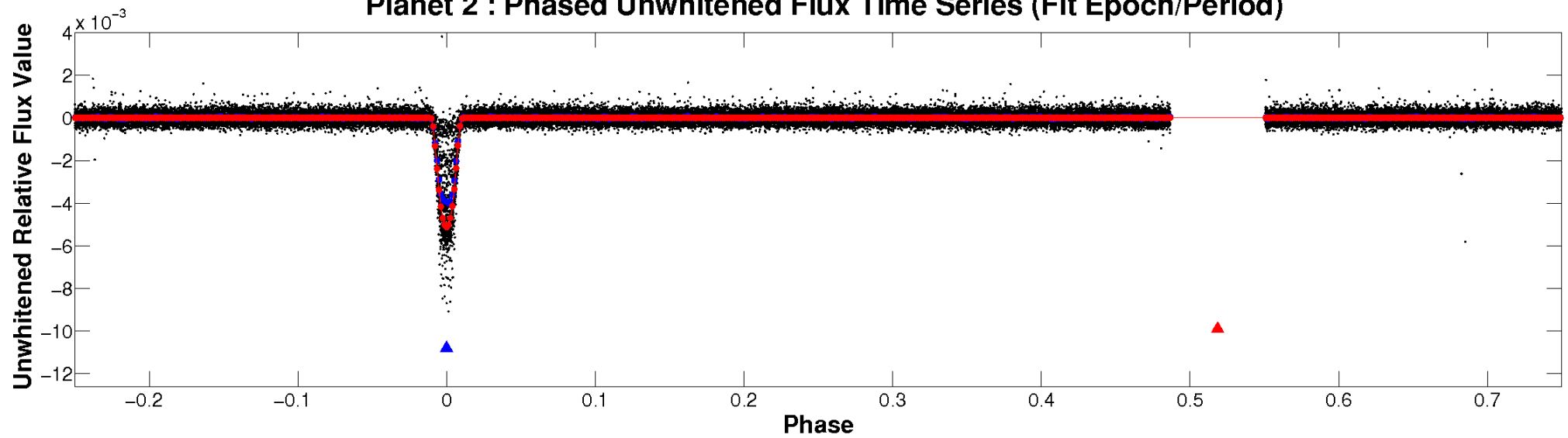
ALT Odd/Even

TCE 006233483-02

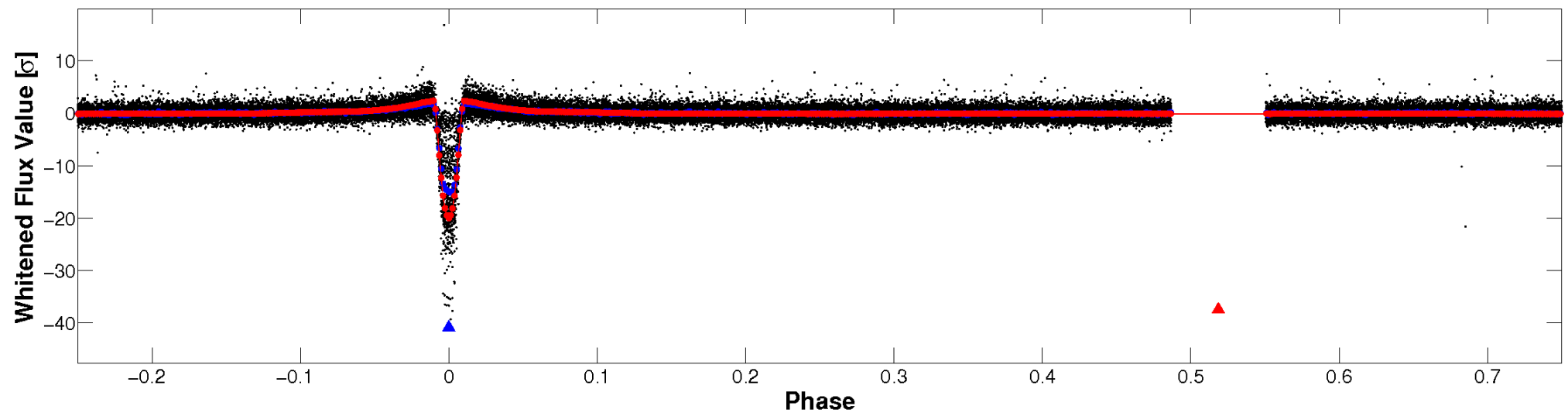


Non-Whitened Vs. Whitened Light Curve

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

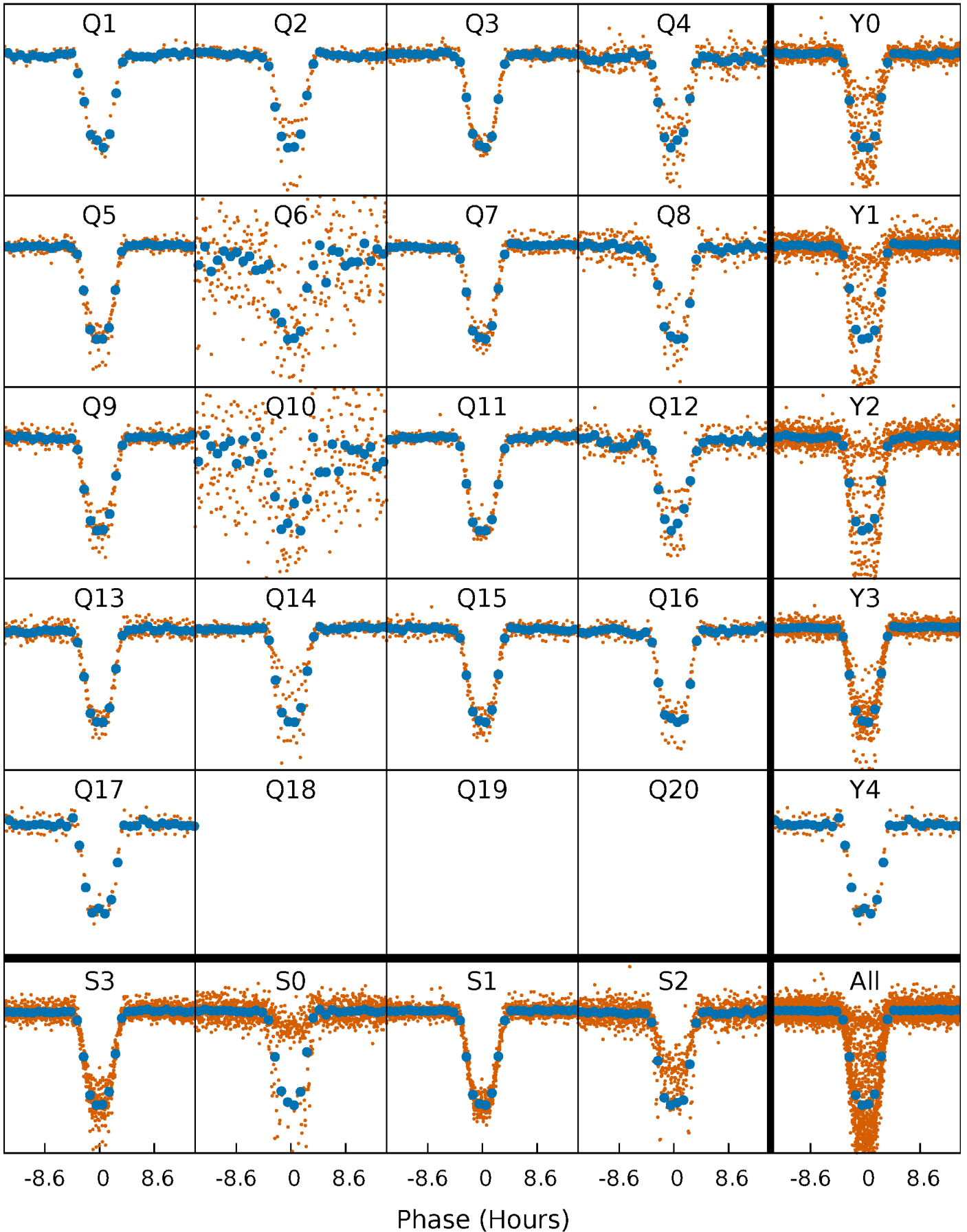


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



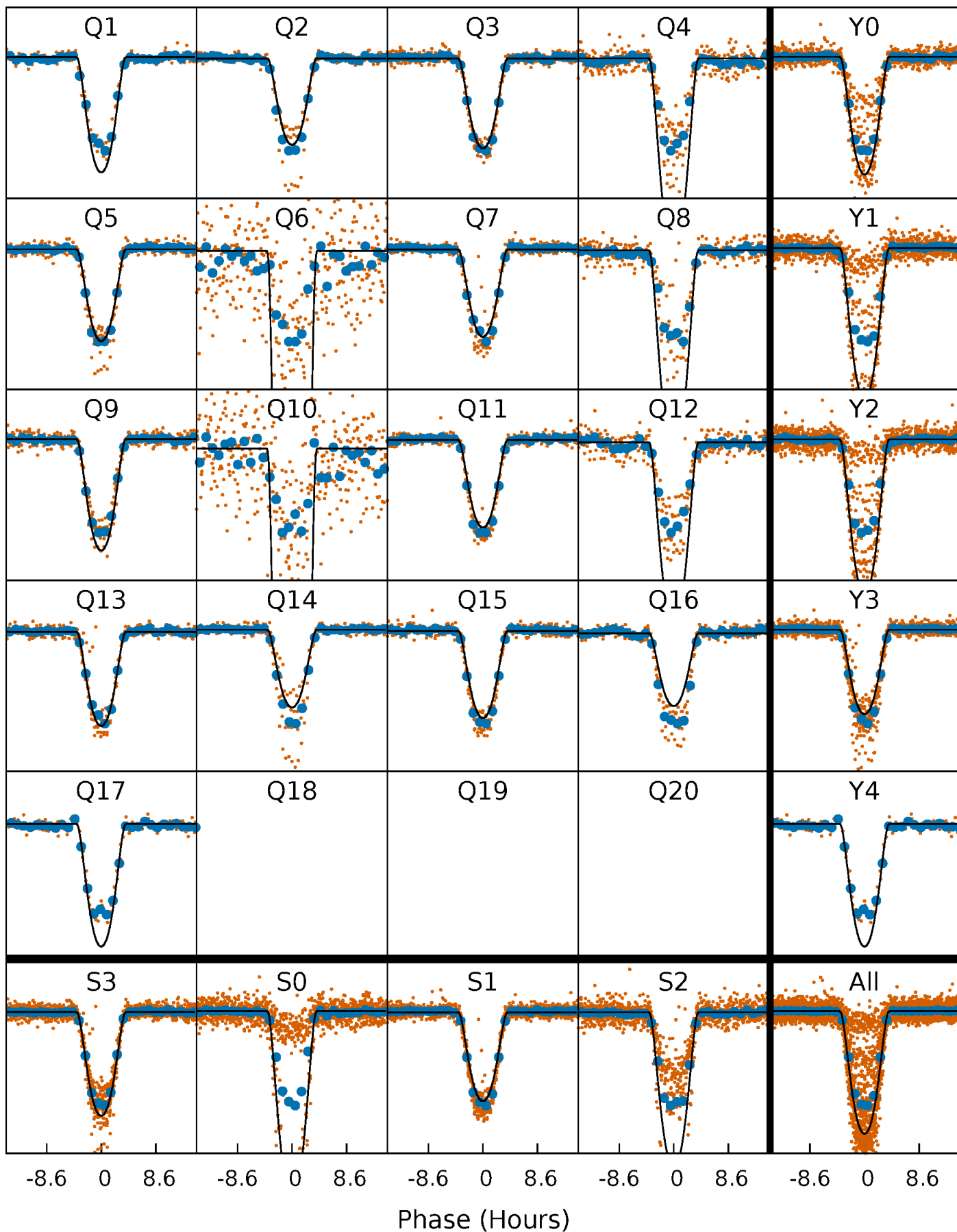
PDC Quarter-Phased Transit Curves

TCE 006233483-02 P= 15.873367 Days $T_0=135.628452$ (BKJD)



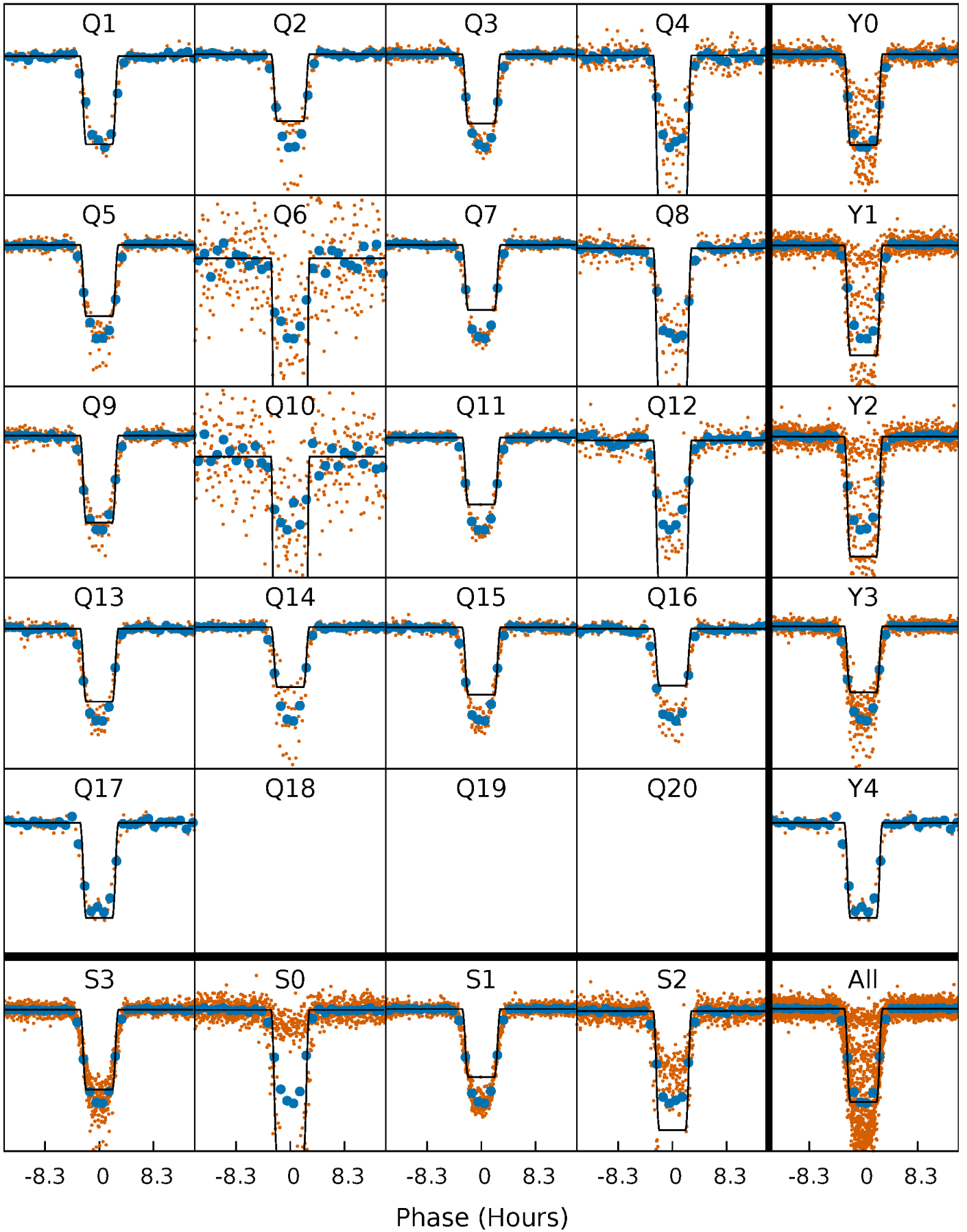
DV Quarter-Phased Transit Curves

TCE 006233483-02 P= 15.873367 Days $T_0=135.628452$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

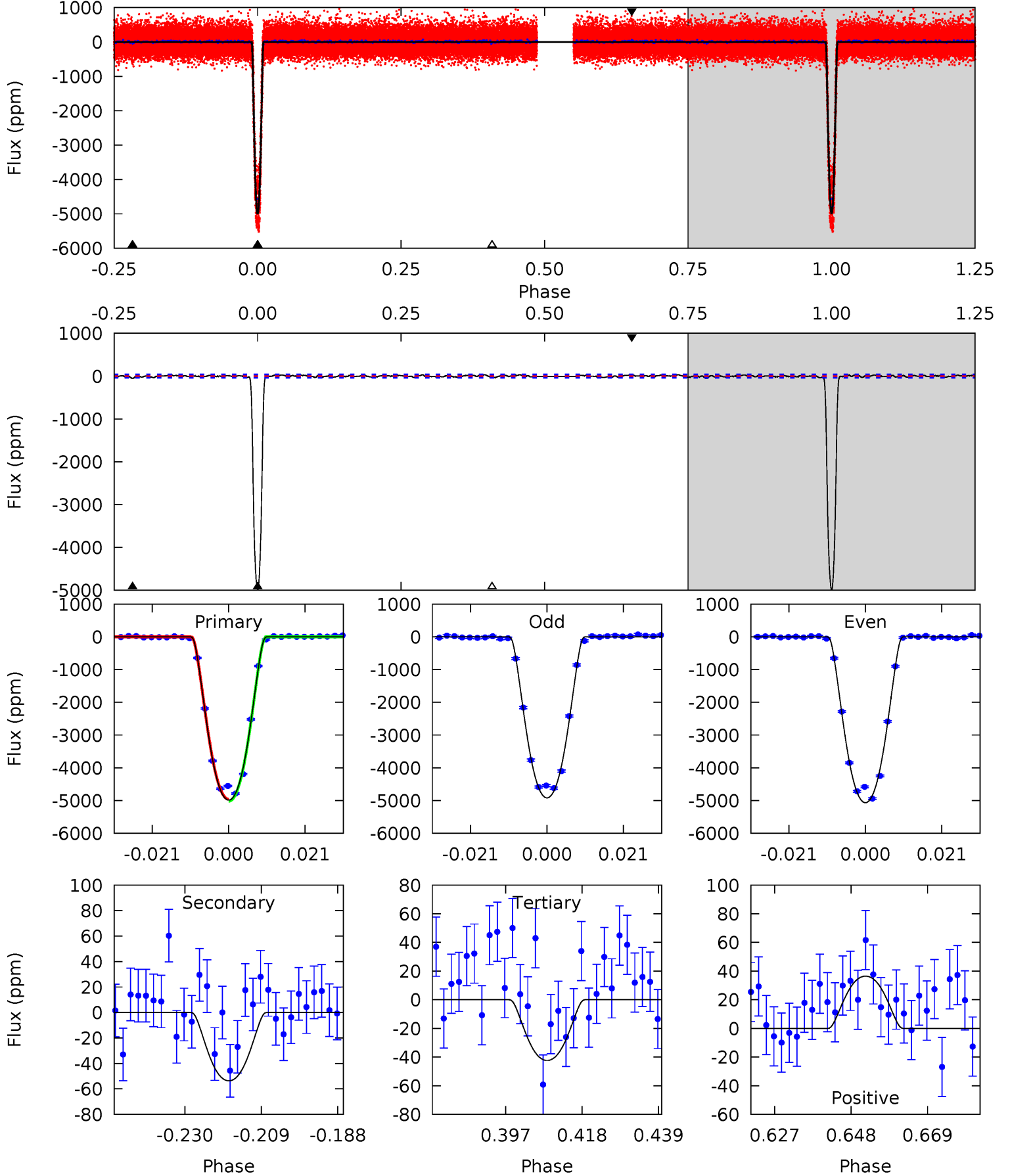
TCE 006233483-02 P= 15.873542 Days $T_0=135.620267$ (BKJD)



DV Model-Shift Uniqueness Test

006233483-02, P = 15.873367 Days, E = 119.755085 Days

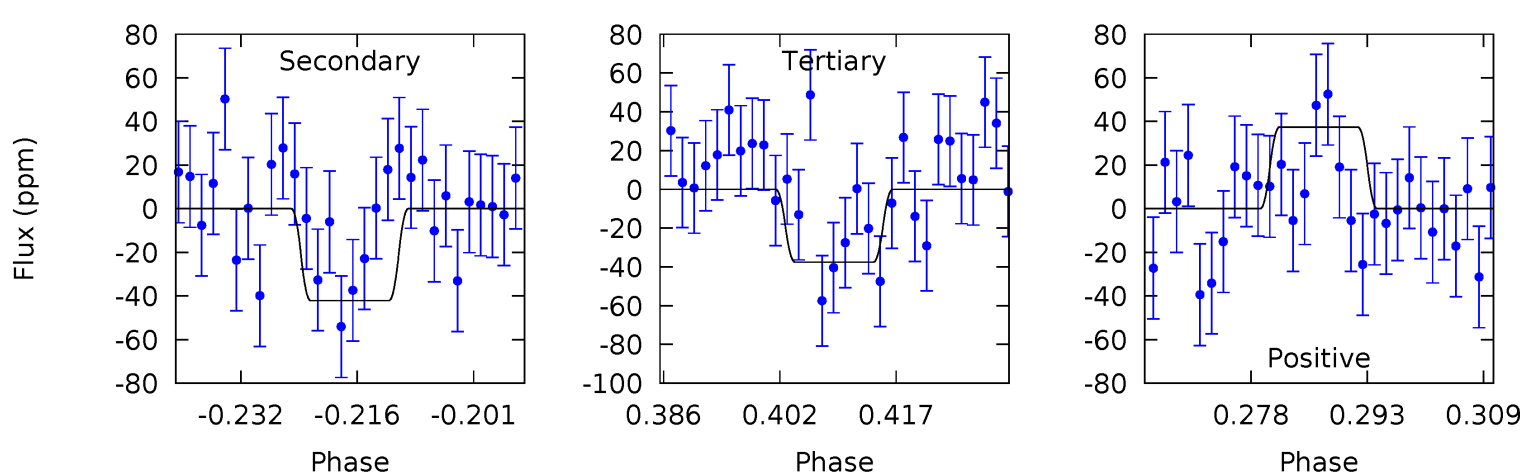
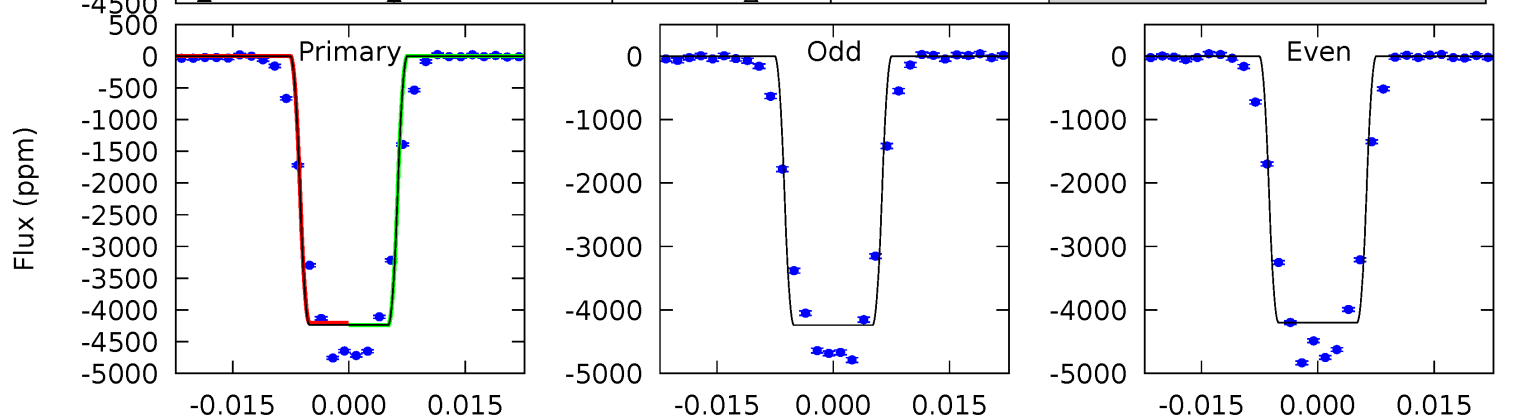
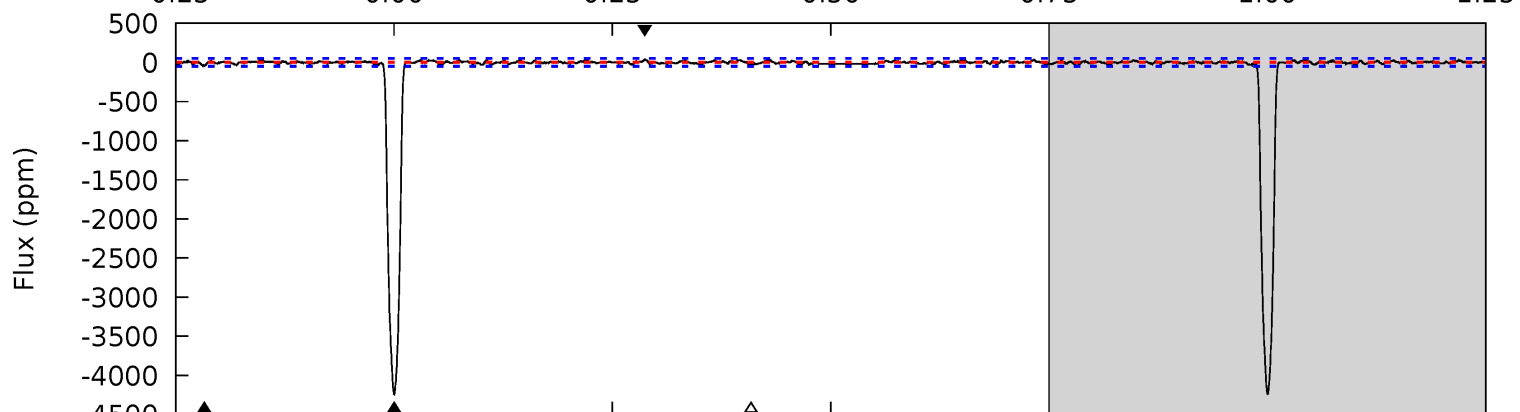
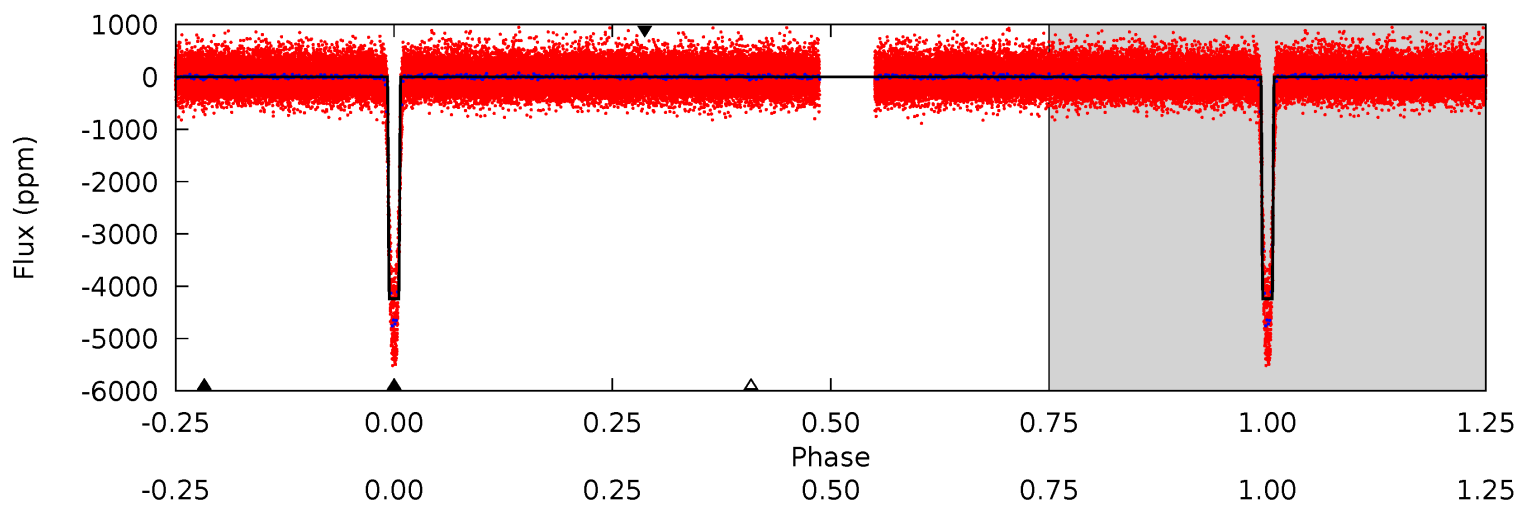
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
656.3	7.06	5.57	4.80	4.88	2.31	1.94	650.7	651.5	1.48	2.26	9.67	0.88	0.01	3.87



Alt Model-Shift Uniqueness Test

006233483-02, P = 15.873542 Days, E = 119.746725 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
421.5	4.19	3.73	3.72	4.94	2.42	1.23	417.7	417.7	0.46	0.47	2.05	0.87	0.01	0



Stellar Parameters For KIC 006233483

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6161^{+184}_{-184}	$4.276^{+0.282}_{-0.212}$	$-1.000^{+0.300}_{-0.300}$	$1.054^{+0.301}_{-0.246}$	$0.763^{+0.102}_{-0.032}$	$0.919^{+1.343}_{-0.486}$
	+3%/-3%	+7%/-5%	+30%/-30%	+29%/-23%	+13%/-4%	+146%/-53%
Source	PHO1	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 006233483-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-54 ± 8	$9.57^{+1.65}_{-1.35}$	1154^{+102}_{-93}	2612^{+67}_{-71}	$4.159^{+1.669}_{-1.228}$
Alt.	-42 ± 10	$7.17^{+1.36}_{-1.03}$	1150^{+100}_{-99}	2724^{+95}_{-114}	$5.663^{+3.076}_{-1.767}$

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

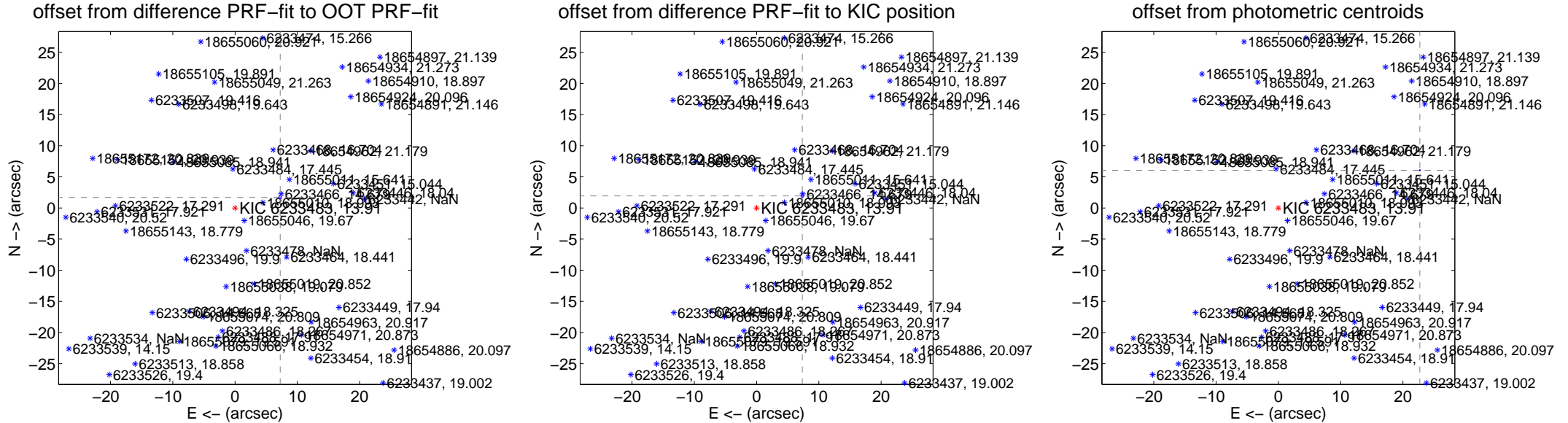
DV Centroid Data

Supplemental centroid analysis for 006233483-02. Kepler magnitude: 13.91. Transit SNR 328.72

There are 13 quarters with good PRF difference image offsets

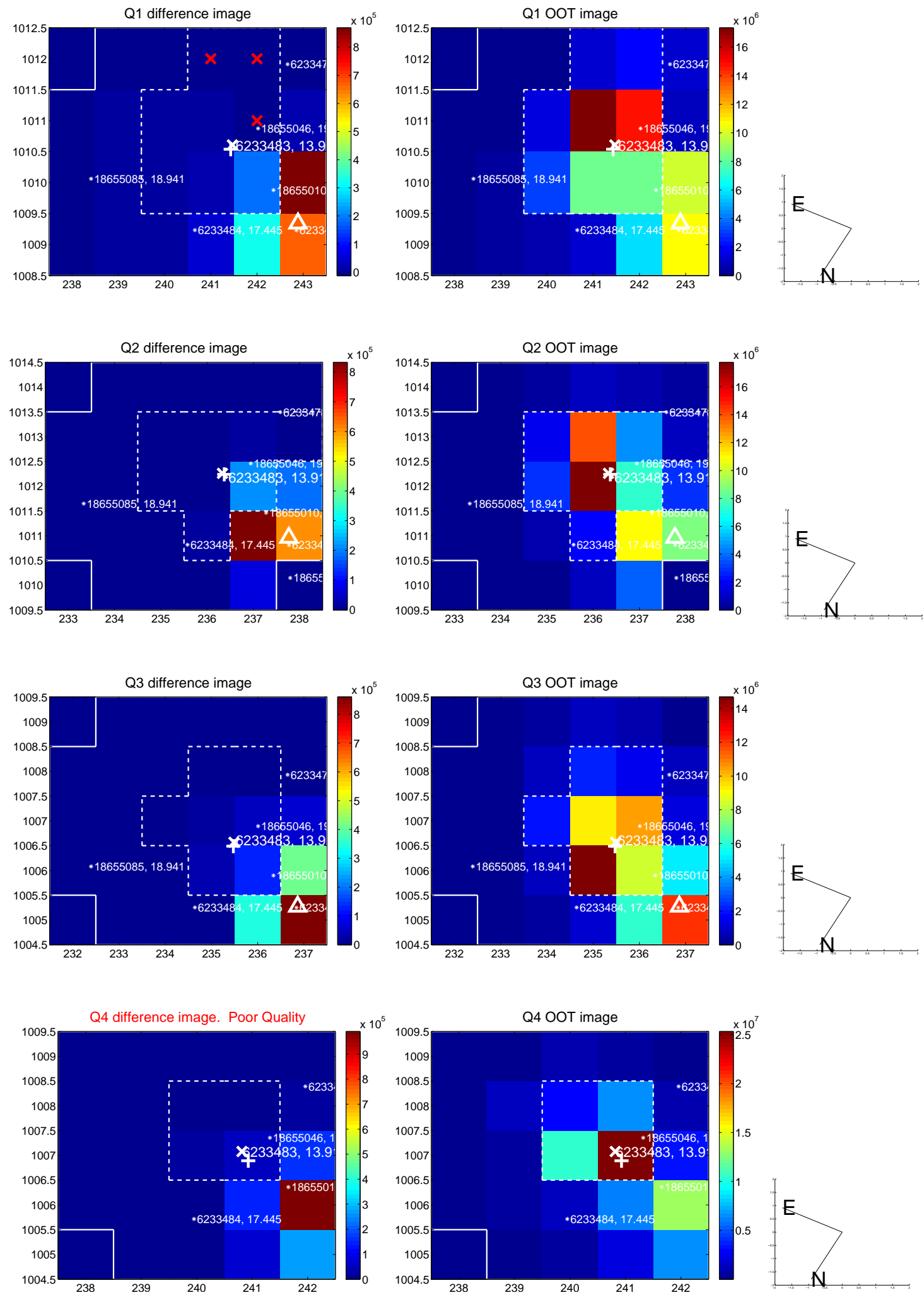
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.448 \pm 0.078	95.10	-7.251 \pm 0.078	1.703 \pm 0.084
PRF-fit source offset from KIC position	7.598 \pm 0.074	103.30	-7.348 \pm 0.074	1.936 \pm 0.074
photometric centroid source offset	23.52 \pm 0.03	752.71	-22.72 \pm 0.03	6.06 \pm 0.02

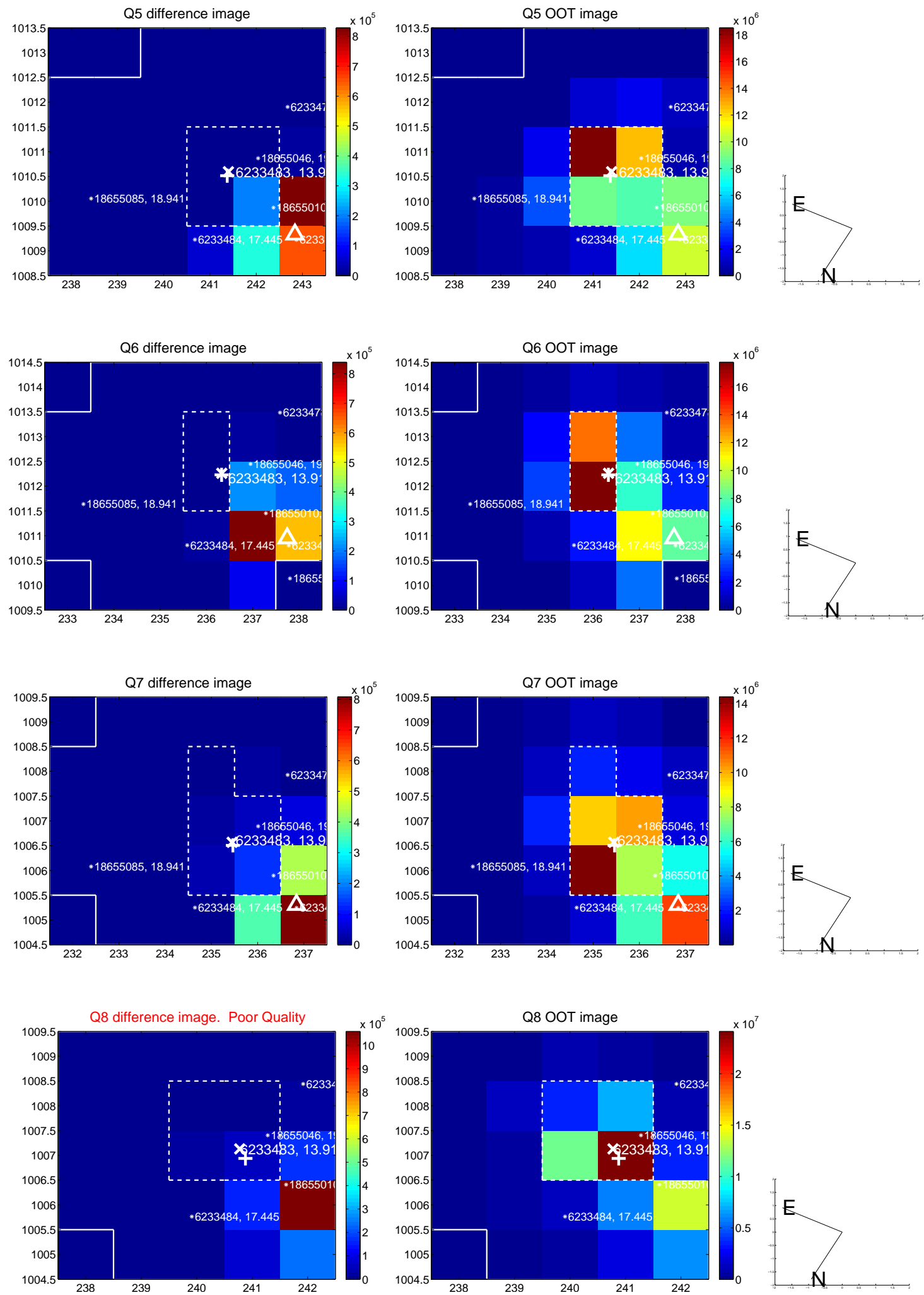


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

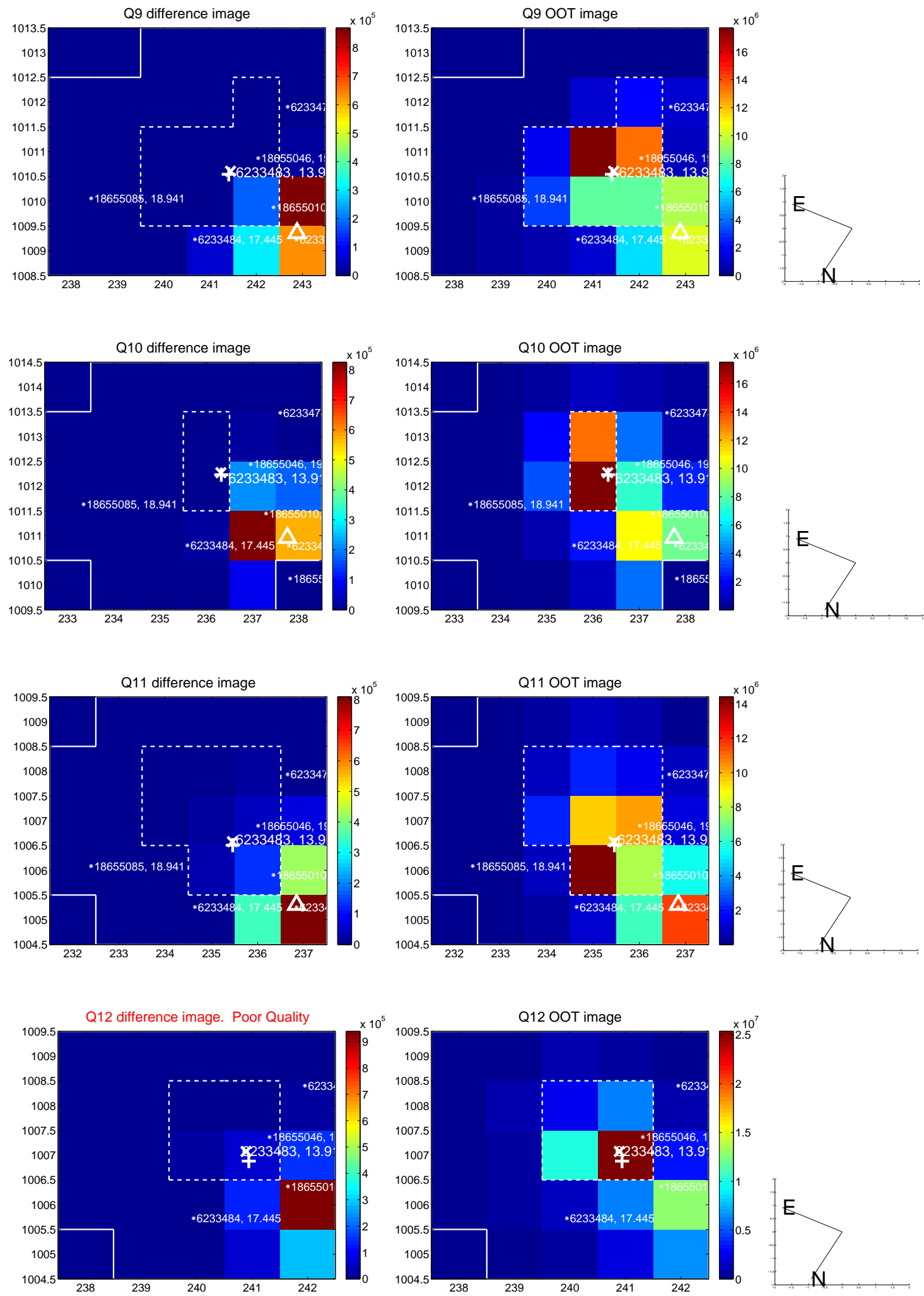
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



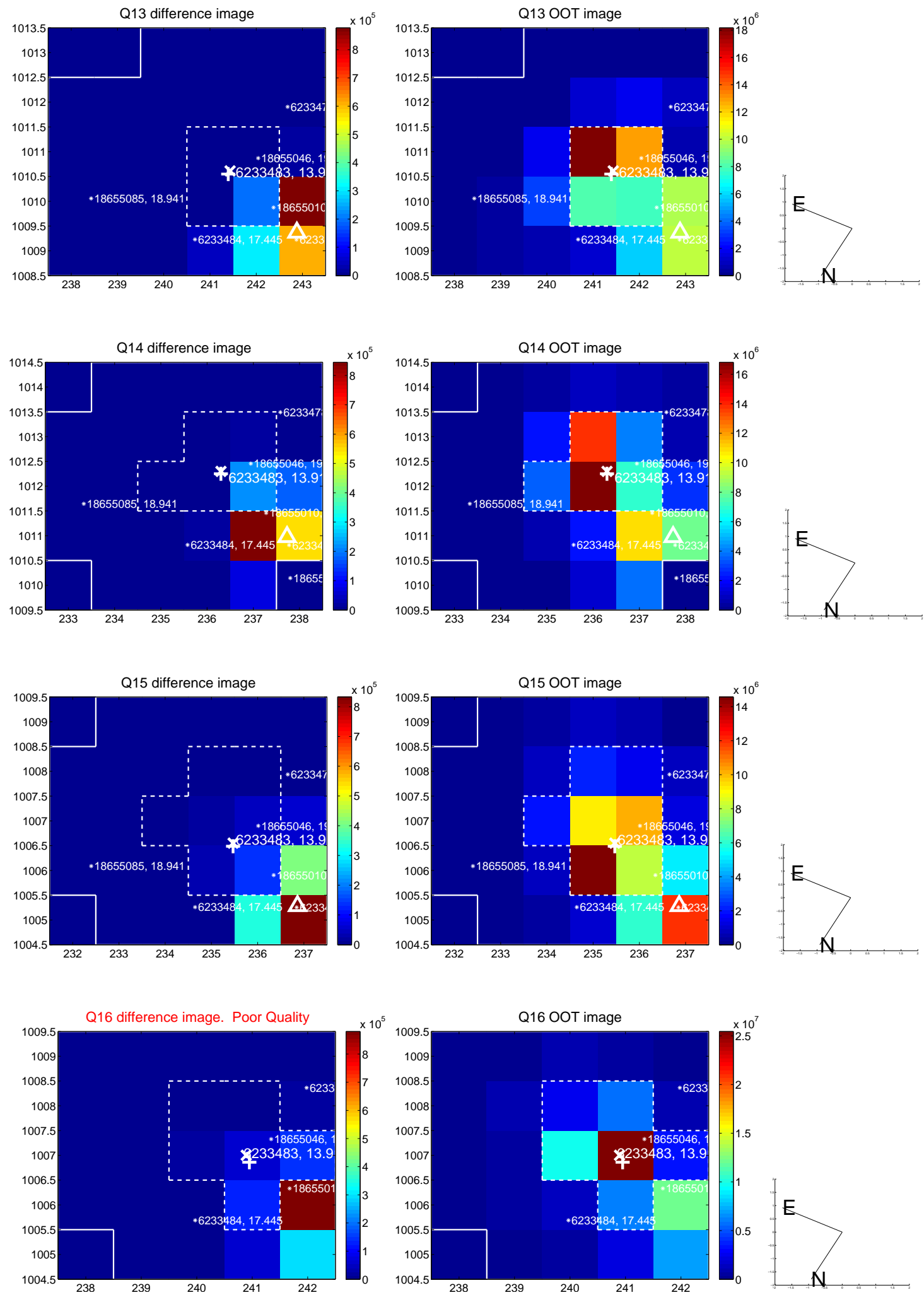
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



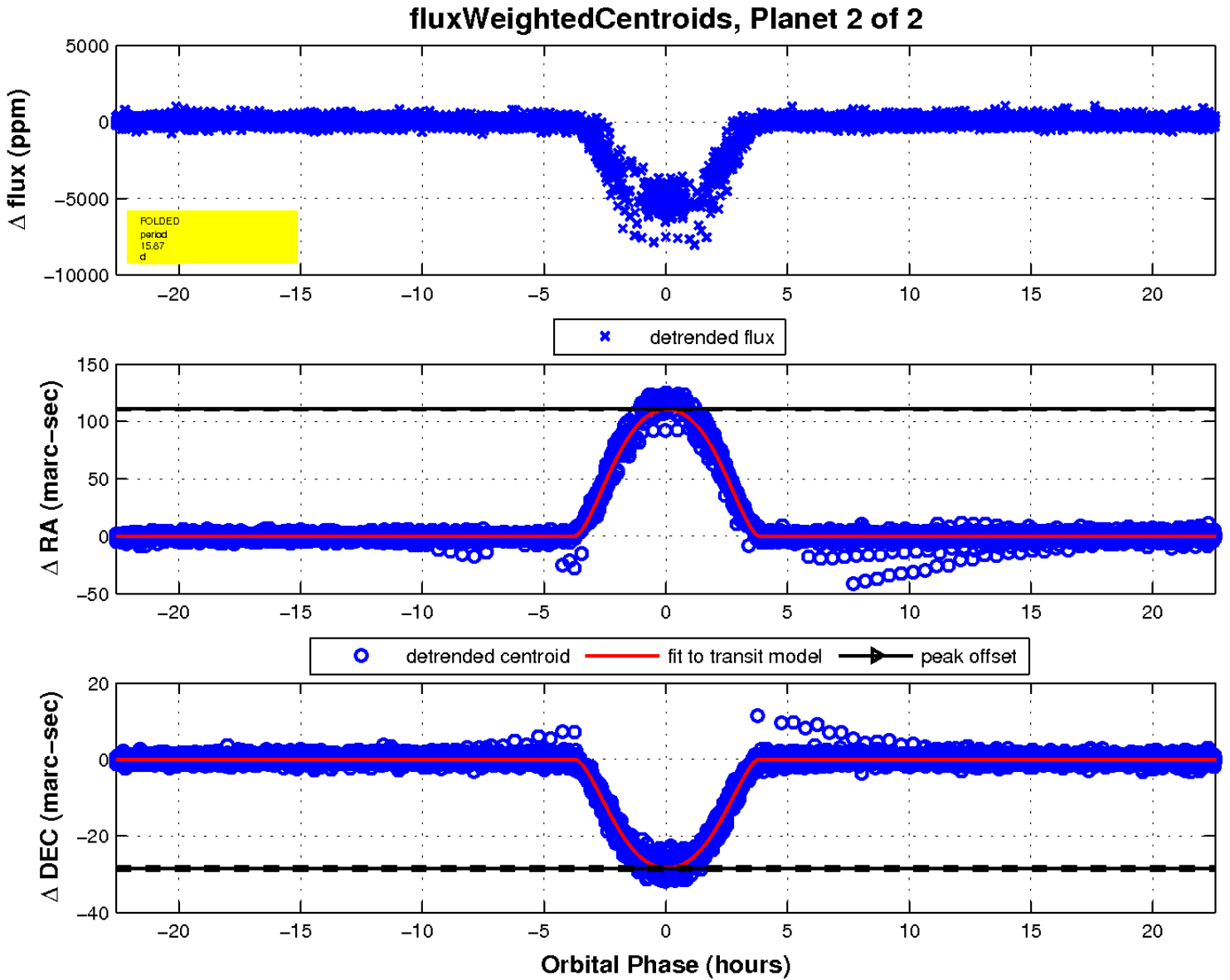
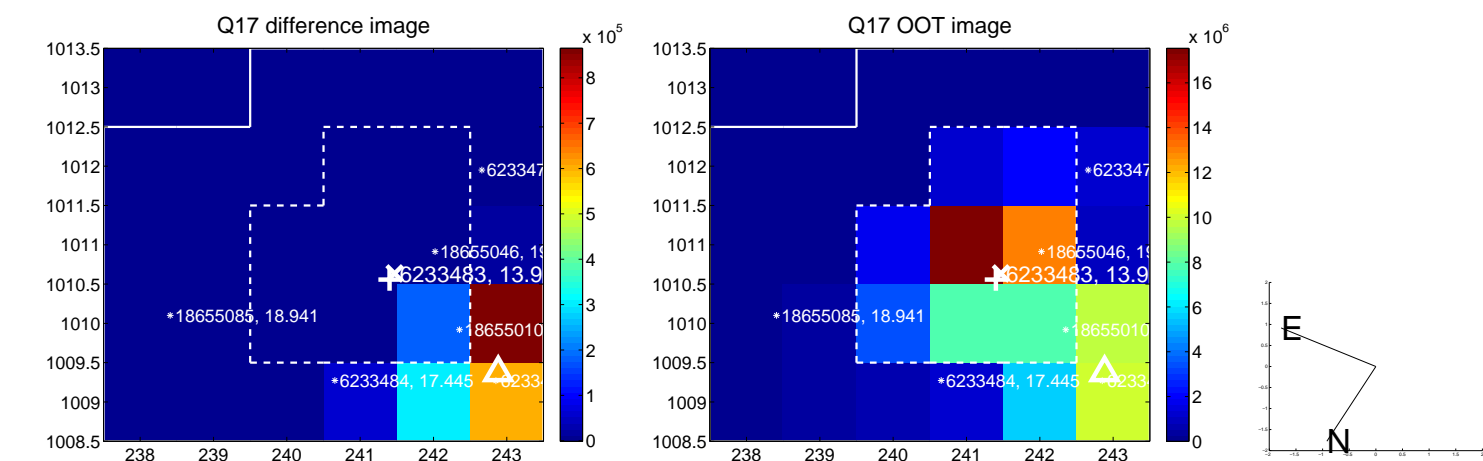
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

