

KIC 003836439

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})
003836439-01	OBS	6364.01	1.540405	131.991986	70404.1	2.582	7840.8	4225.7	2.28	7394	73.25	15627.97
003836439-02	OBS	No	0.770197	131.995369	506.9	1.500	670.1	-1.0	2.28	7394	5.23	39380.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836439-01	OBS	FP	0.00	0	1	0	1	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED—EPHEM_MATCH
003836439-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—CENT_SATURATED—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 003836439-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	ΔRow	ΔCol	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003836439-01	3836439	6363.01	3836413	1:1	27.2	-7	0	13.76	7.57	1.05	Direct-PRF	1	0.48	0.26

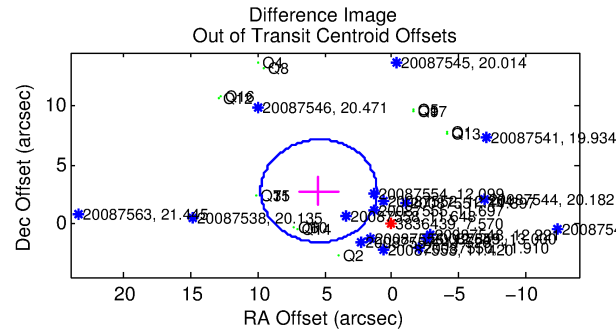
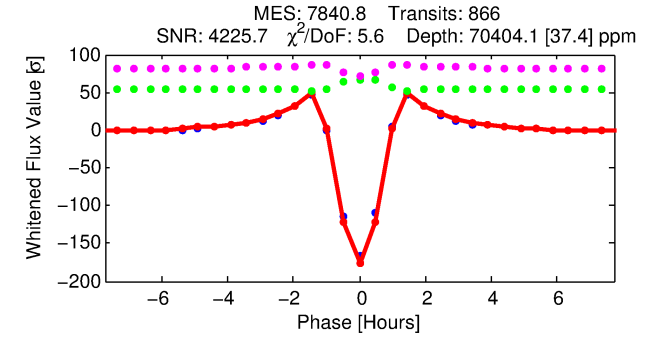
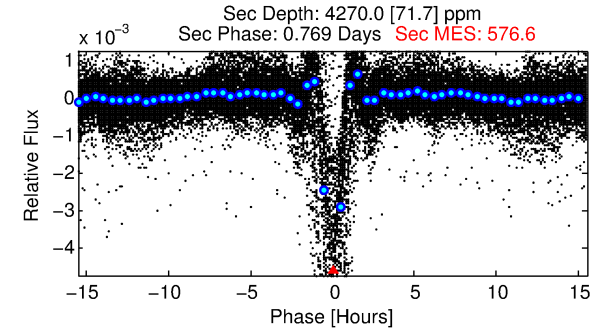
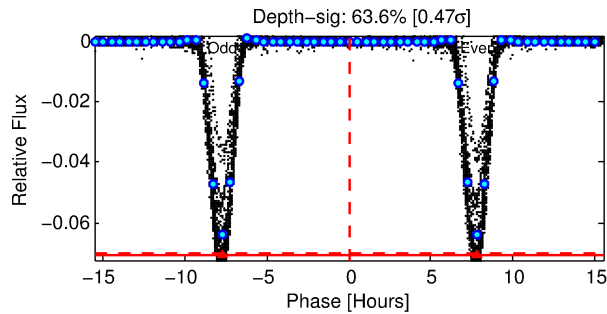
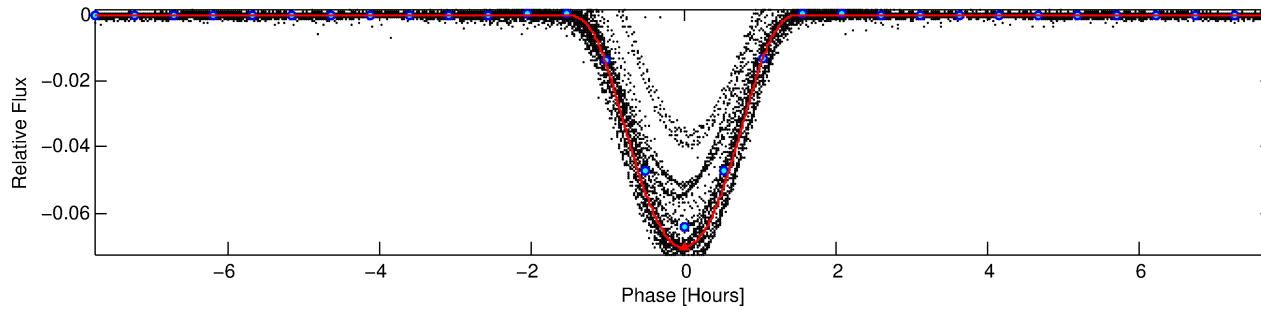
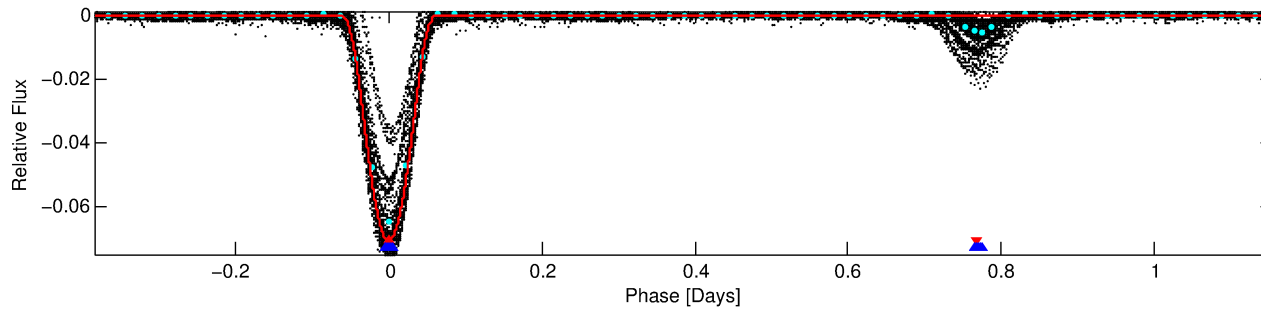
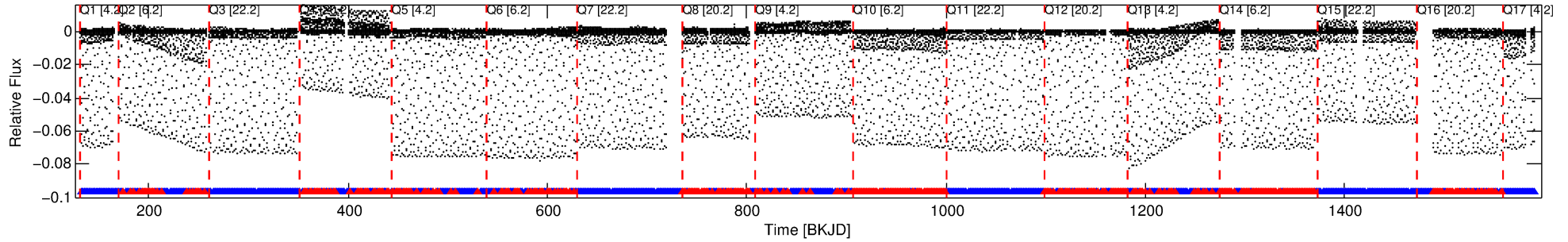
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 3836439 Candidate: 1 of 2 Period: 1.540 d

KOI: K06364.01 Corr: 0.945

Kp: 7.57 R*: 2.28 Rs Teff: 7394.0 K Logg: 3.90 Fe/H: -0.580



DV Fit Results:

Period = 1.54041 [0.00000] d
Epoch = 131.9920 [0.0000] BKJD
Rp/R* = 0.2940 [0.0009]
a/R* = 4.71 [0.00]
b = 0.81 [0.00]
Seff = 15627.97 [10324.77]
Teq = 2851 [471] K
Rp = 73.25 [30.45] Re
a = 0.0299 [0.0119] AU
Ag = 0.39 [0.25] [-2.44σ]
Teffp = 3486 [147] K [1.29σ]

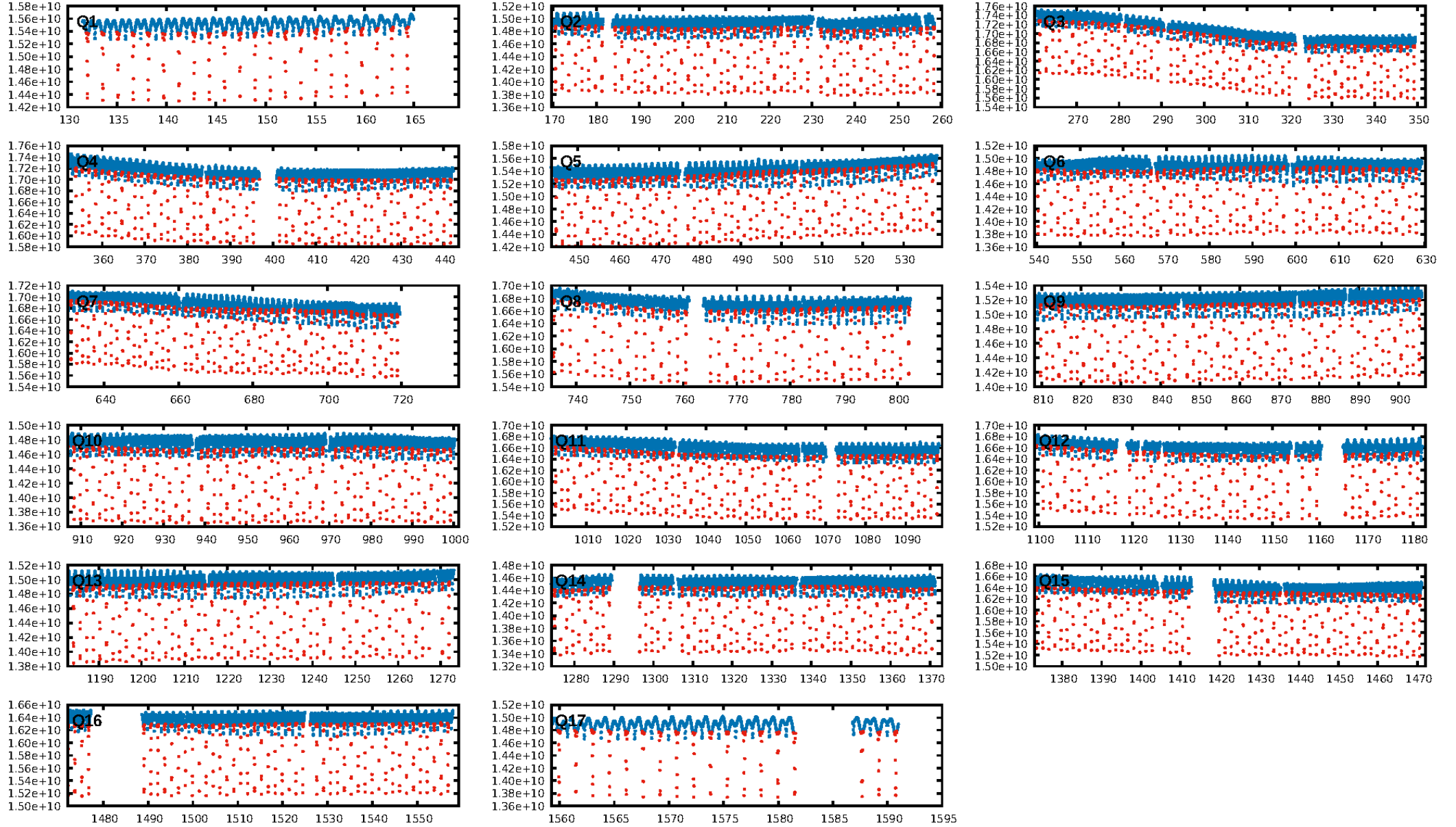
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.56 [462/826]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 11.788 arcsec [3506.34σ]
OotOffset-rm: 6.093 arcsec [4.21σ]
KicOffset-rm: 14.917 arcsec [9.68σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

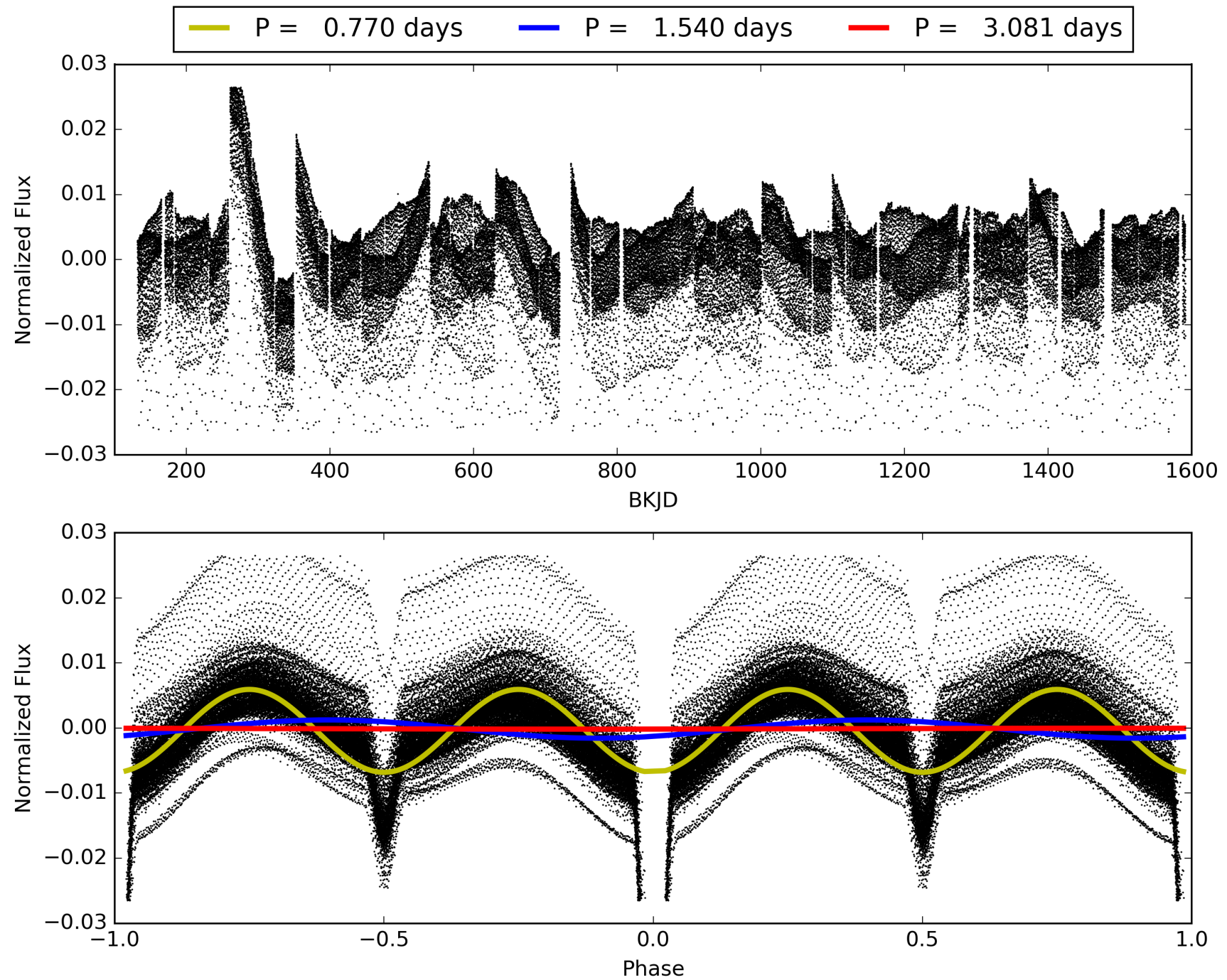
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:49:37 Z

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

TCE 003836439-01, PDC Light Curves

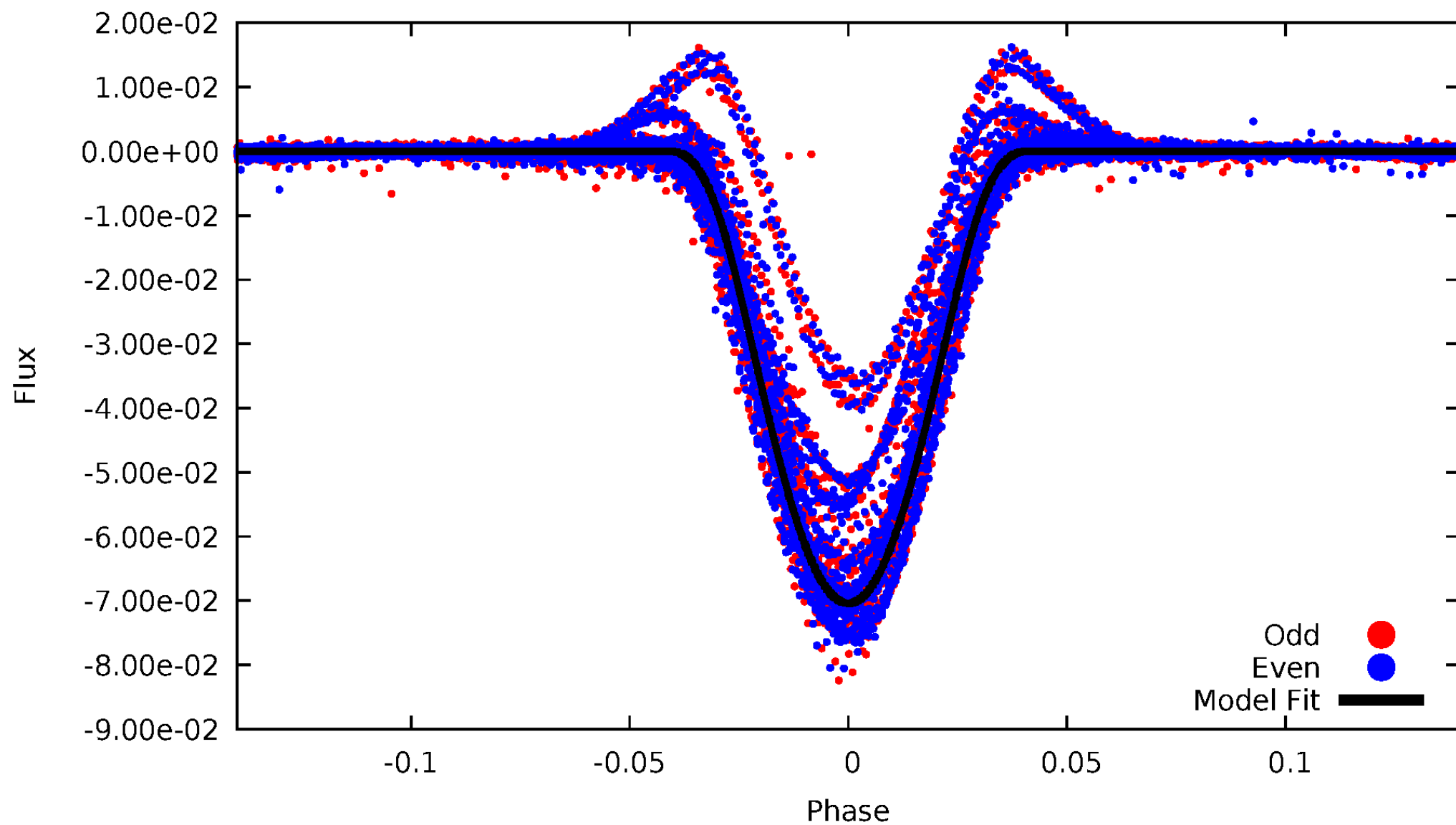


TCE 003836439-01



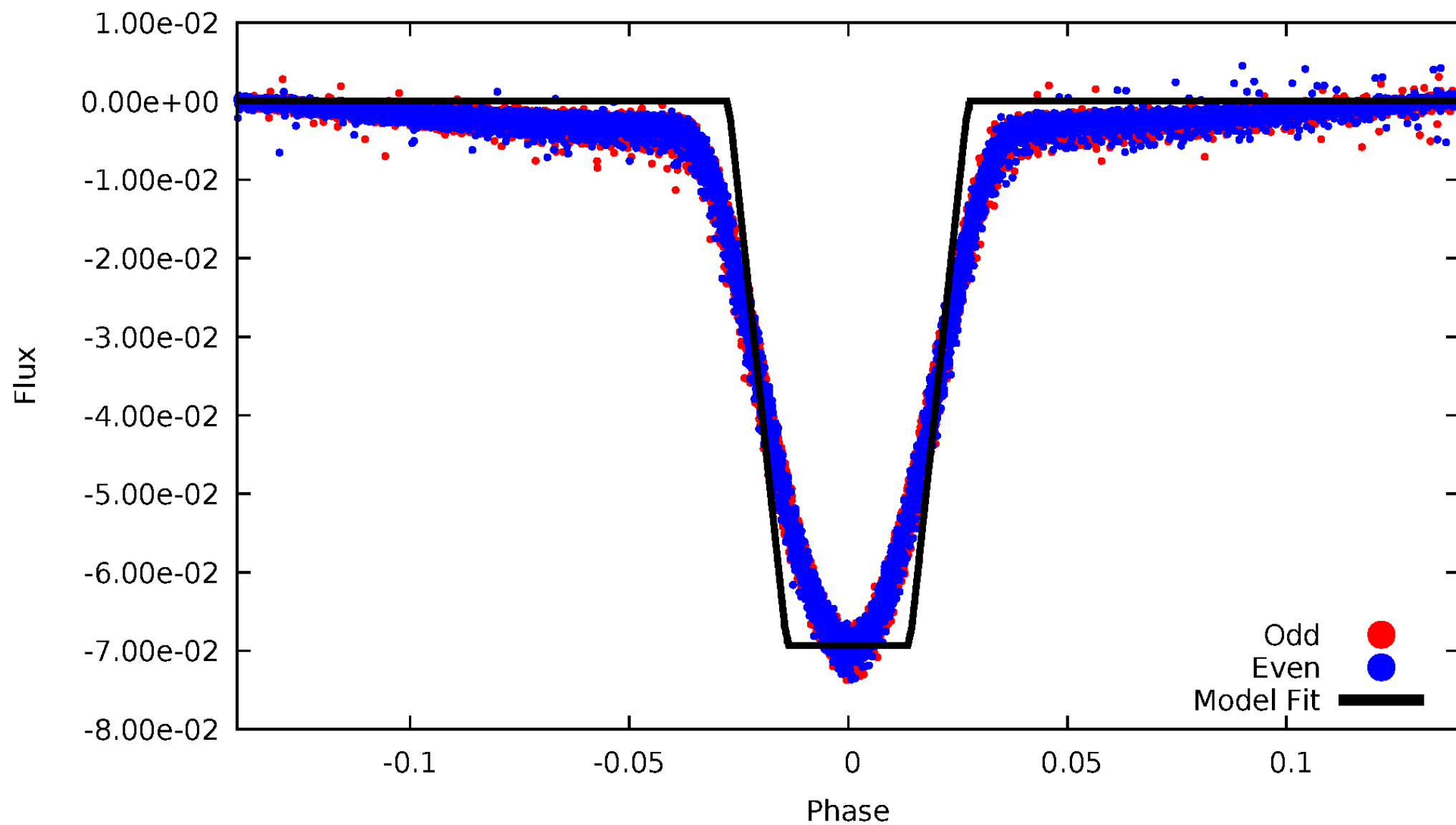
DV Odd/Even

TCE 003836439-01



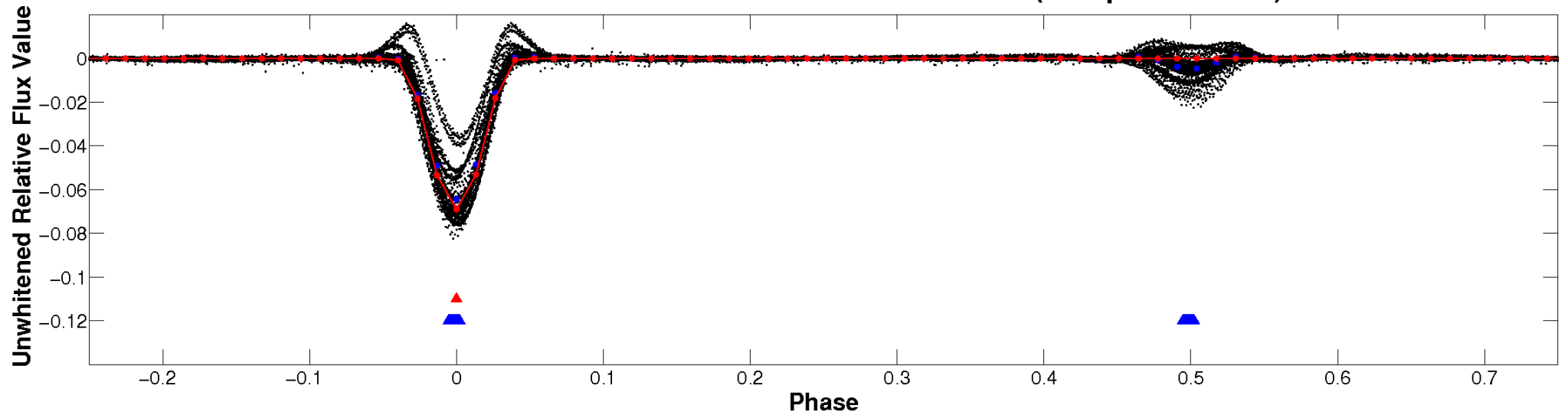
ALT Odd/Even

TCE 003836439-01

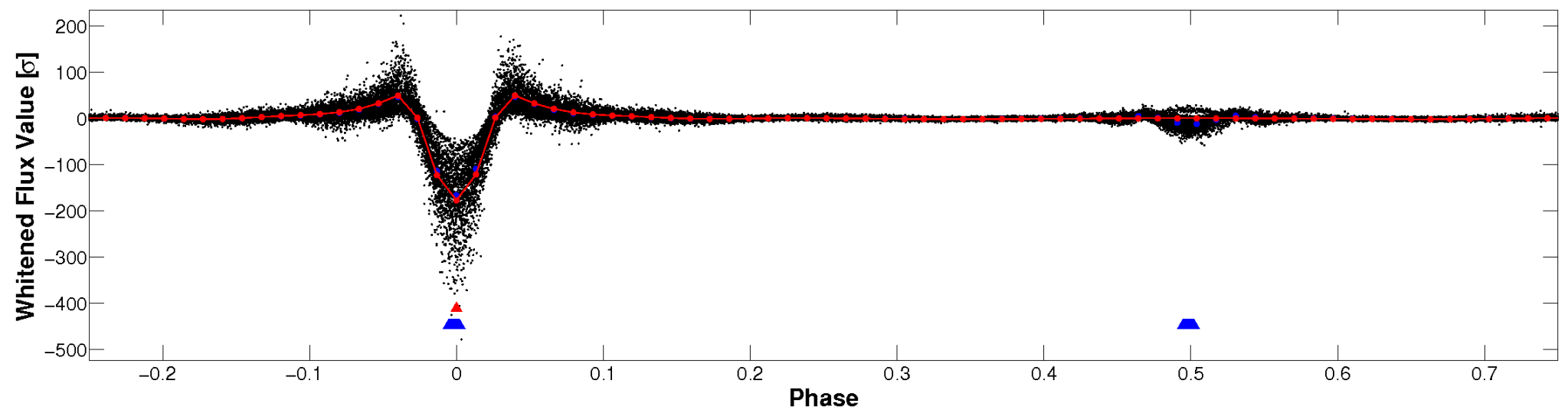


Non-Whitened Vs. Whitened Light Curve

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

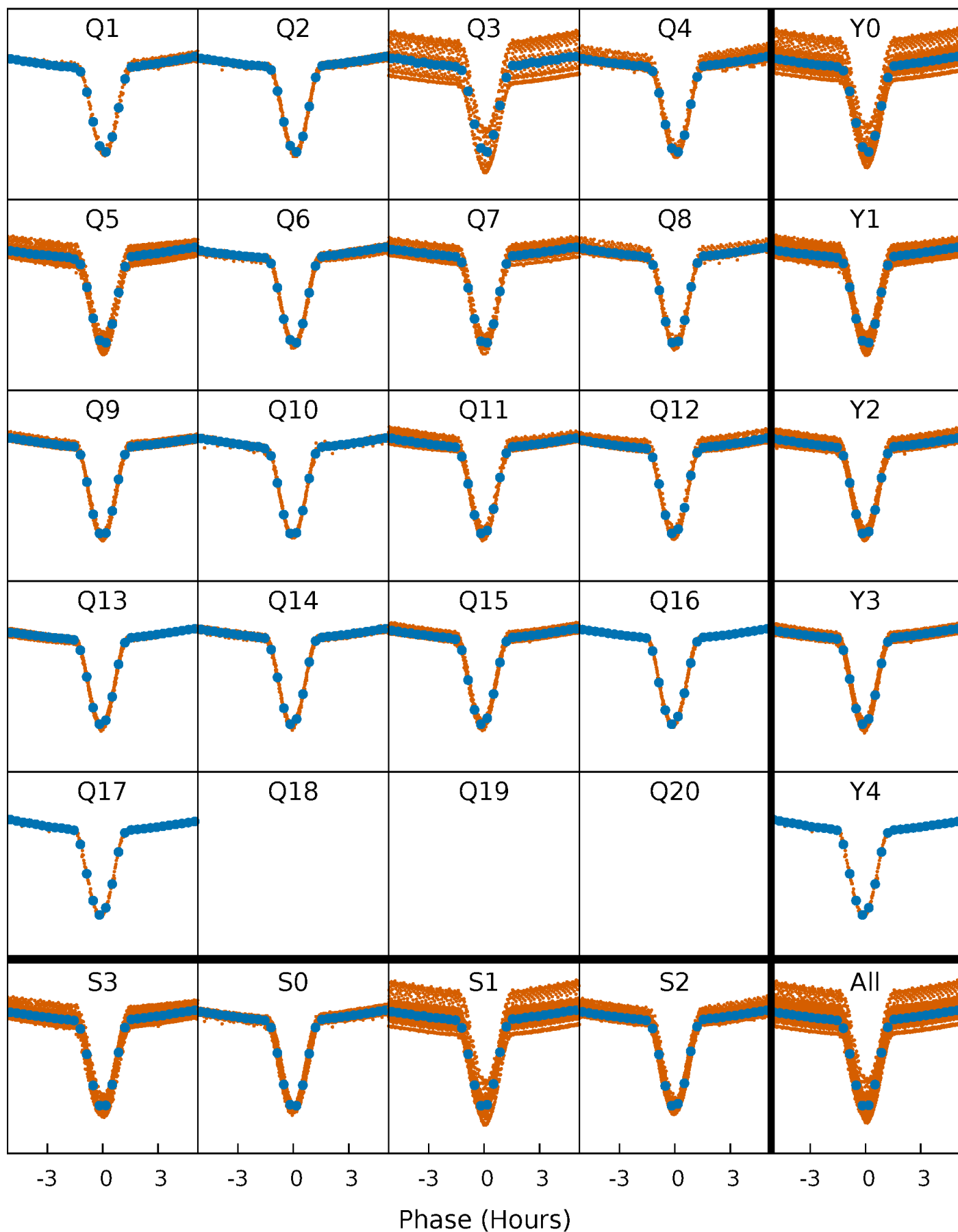


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



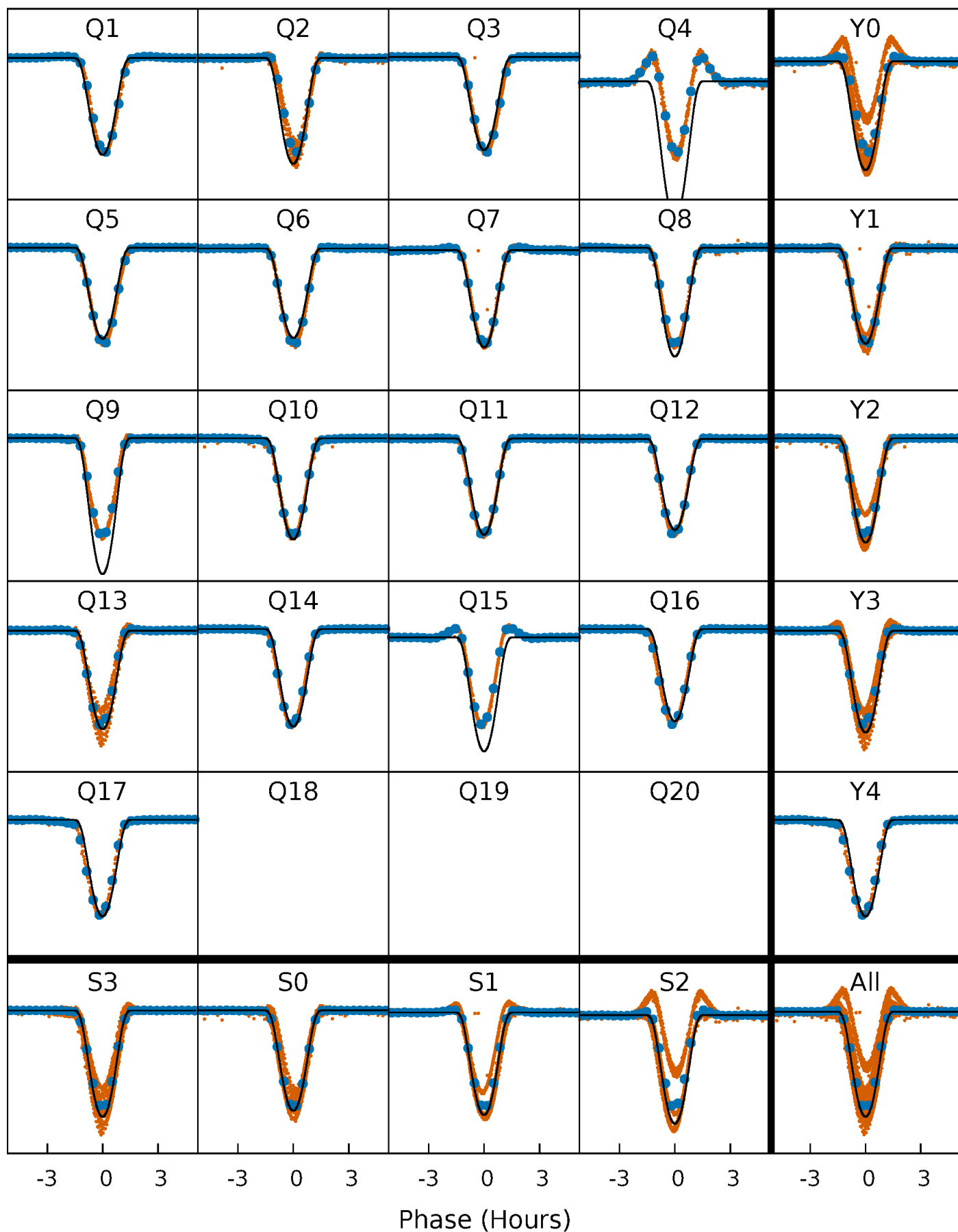
PDC Quarter-Phased Transit Curves

TCE 003836439-01 P= 1.540405 Days $T_0=131.991986$ (BKJD)



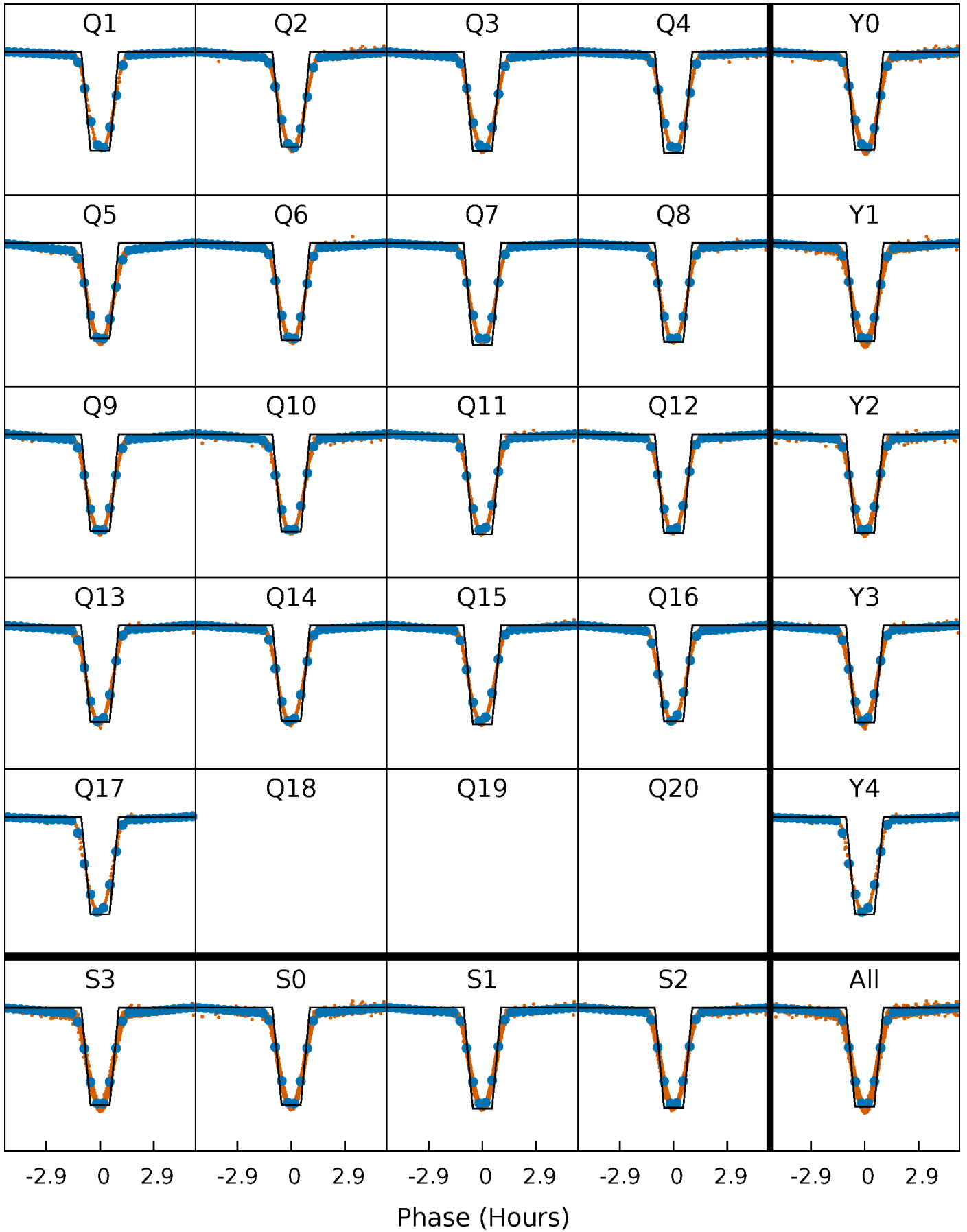
DV Quarter-Phased Transit Curves

TCE 003836439-01 P= 1.540405 Days $T_0=131.991986$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

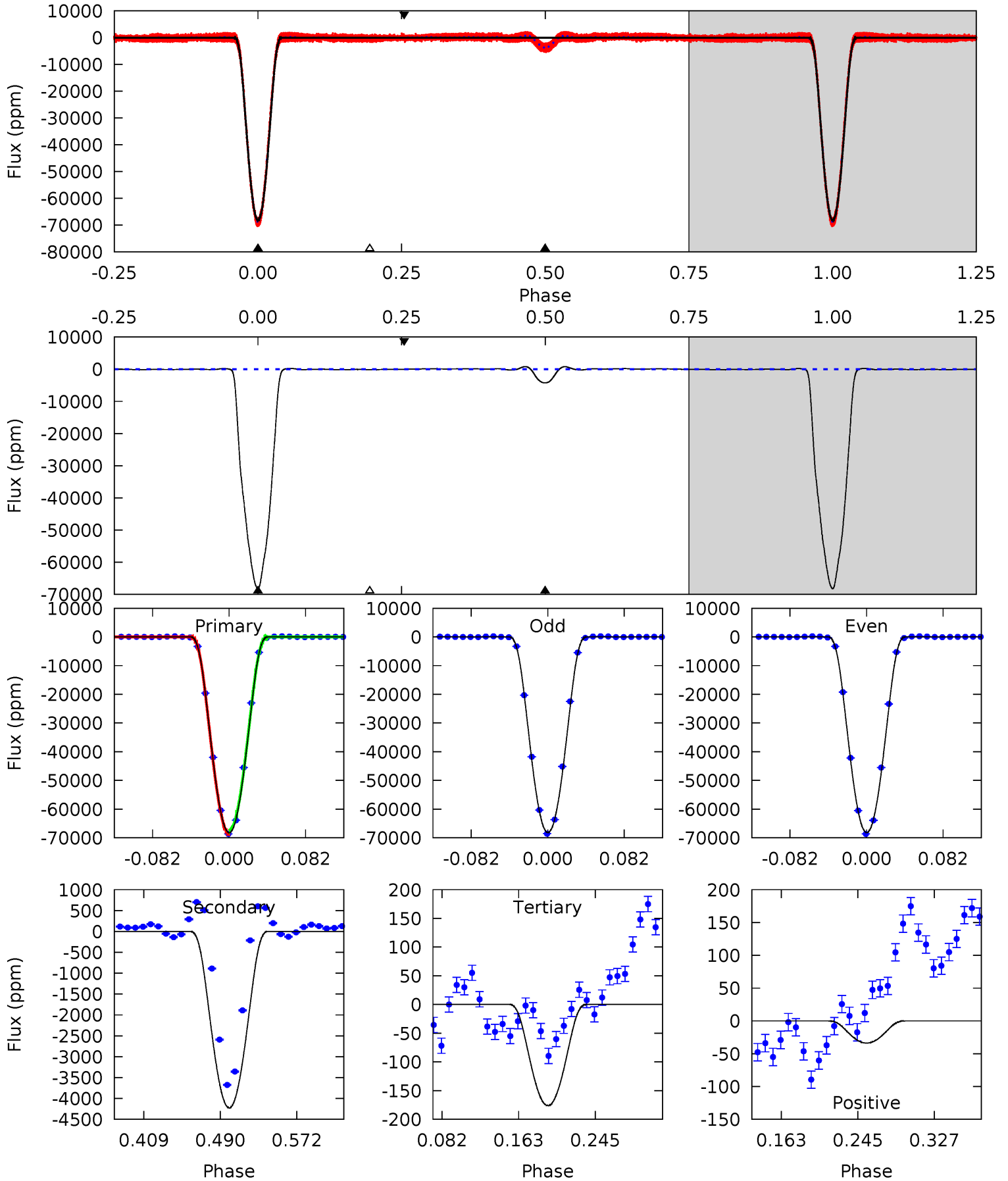
TCE 003836439-01 P= 1.540401 Days $T_0=131.994068$ (BKJD)



DV Model-Shift Uniqueness Test

003836439-01, P = 1.540405 Days, E = 130.451581 Days

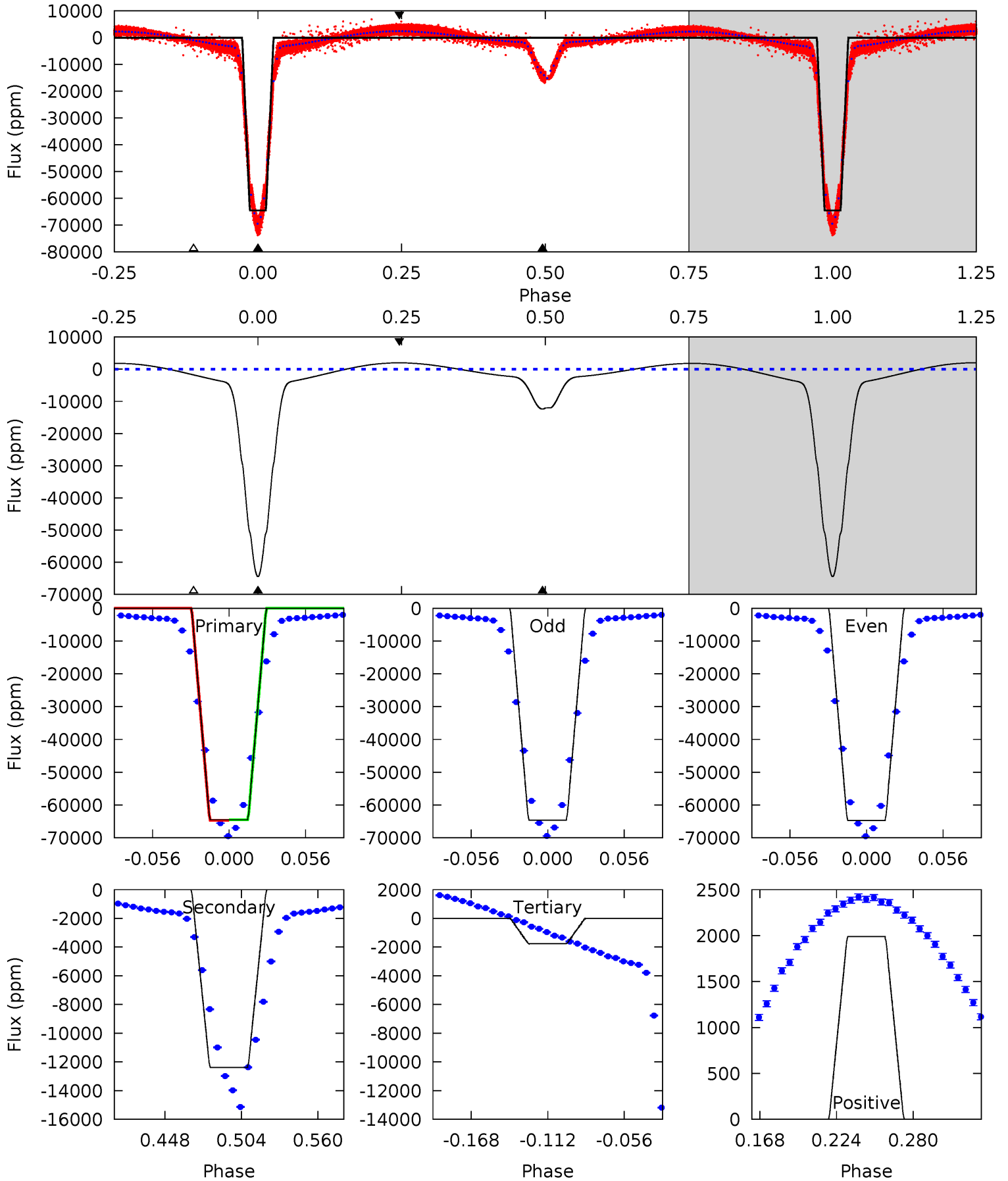
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6948	430.7	17.9	-3.44	4.61	1.74	10.2	6930	6952	412.7	434.1	0.63	0.94	0.01	0



Alt Model-Shift Uniqueness Test

003836439-01, P = 1.540401 Days, E = 130.453667 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2153	413.3	58.9	66.4	4.68	1.91	55.5	2094	2086	354.4	346.9	1.89	1.00	0.03	2.47



Stellar Parameters For KIC 003836439

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7394^{+233}_{-311}	$3.897^{+0.375}_{-0.125}$	$-0.580^{+0.300}_{-0.300}$	$2.283^{+0.438}_{-0.949}$	$1.502^{+0.192}_{-0.357}$	$0.178^{+0.608}_{-0.065}$
	+3%/-4%	+10%/-3%	+52%/-52%	+19%/-42%	+13%/-24%	+342%/-36%
Source	KIC0	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 003836439-01 / KOI 6364.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4228 ± 10	$72.14^{+8.81}_{-16.22}$	3896^{+311}_{-396}	3075^{+336}_{-461}	$0.406^{+0.216}_{-0.080}$
Alt.	-12384 ± 30	$65.24^{+7.66}_{-13.54}$	3914^{+292}_{-360}	4648^{+132}_{-160}	$1.474^{+0.740}_{-0.284}$

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

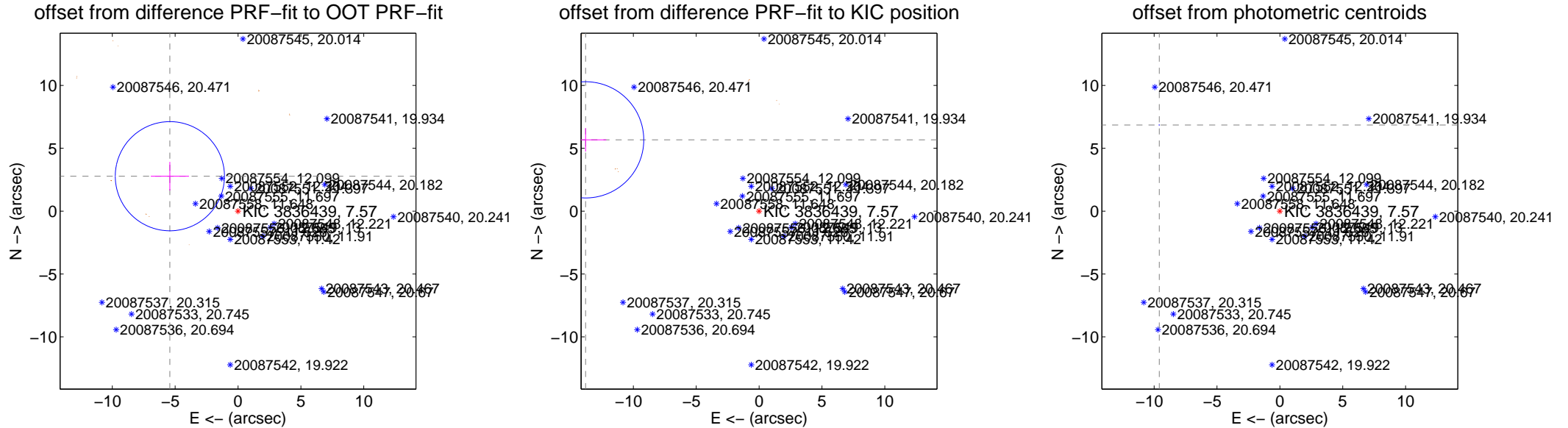
DV Centroid Data

Supplemental centroid analysis for 003836439-01. **Kepler magnitude: 7.57.** Transit SNR 4225.73

There are 0 quarters with good PRF difference image offsets

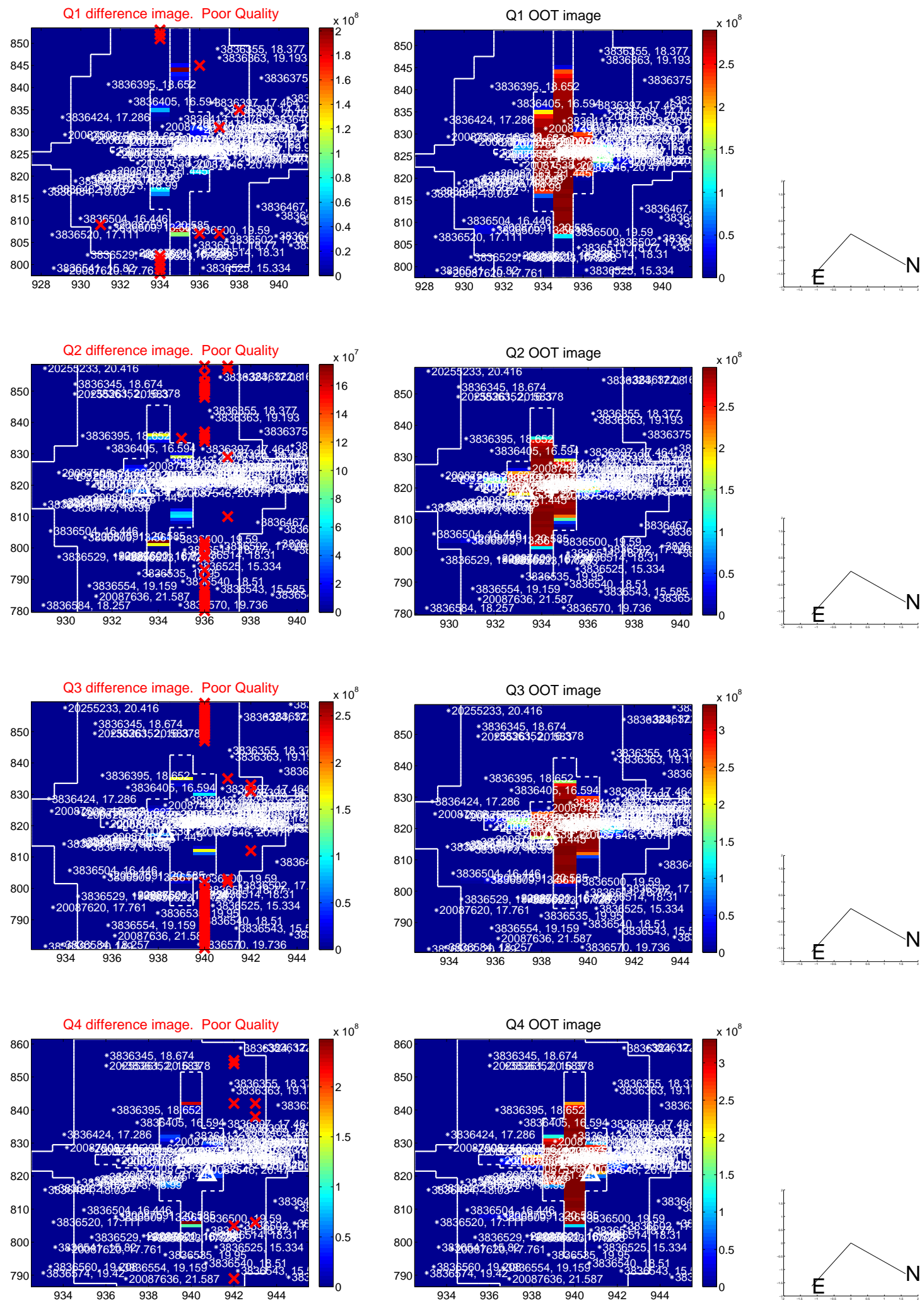
The OOT PRF centroid is offset from the target star catalog position by about 2.64 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.093 ± 1.447	4.21	5.422 ± 1.517	2.778 ± 1.142
PRF-fit source offset from KIC position	14.917 ± 1.541	9.68	13.797 ± 1.636	5.672 ± 0.931
photometric centroid source offset	11.79 ± 0.00	3506.36	9.59 ± 0.00	6.85 ± 0.00

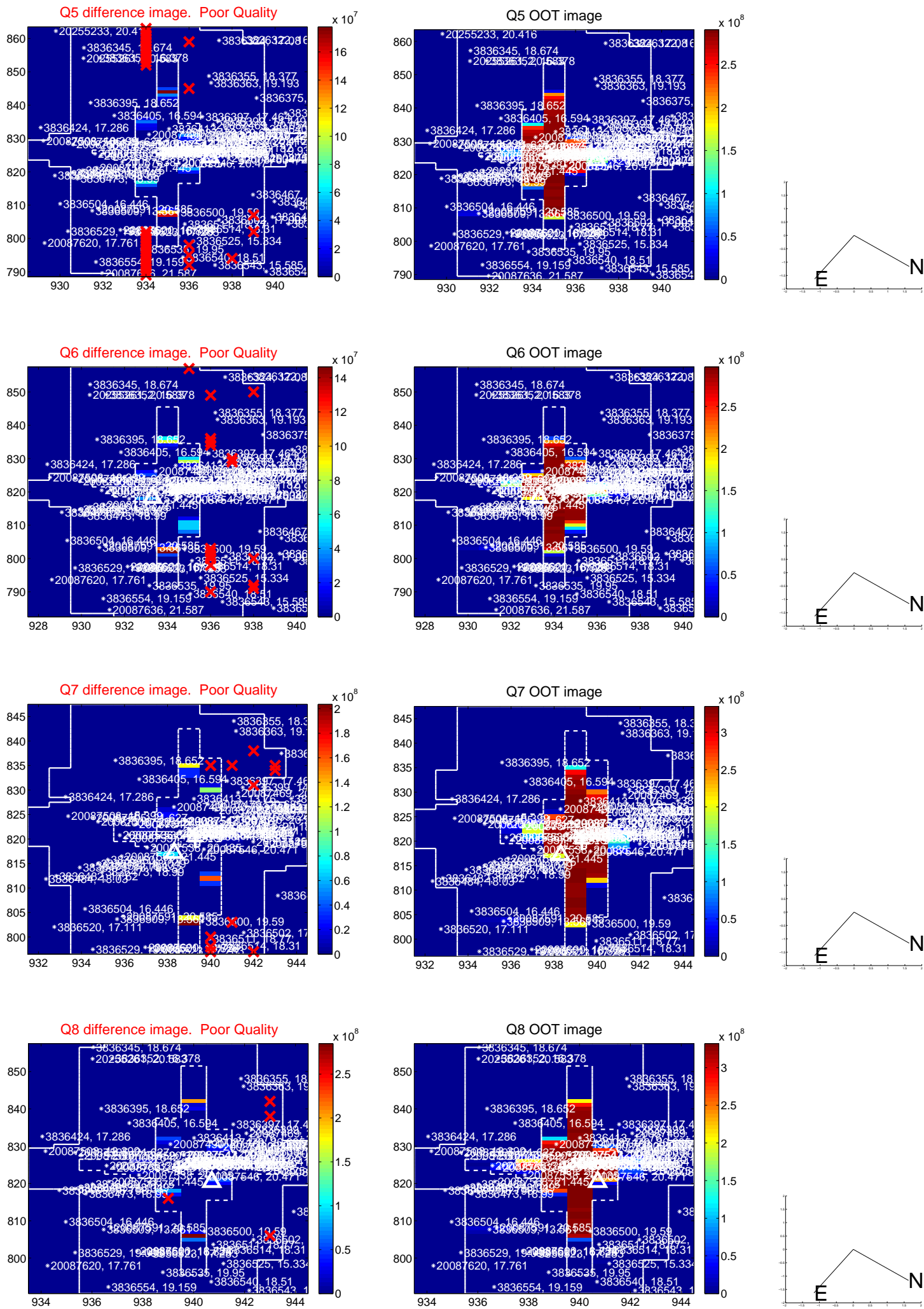


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

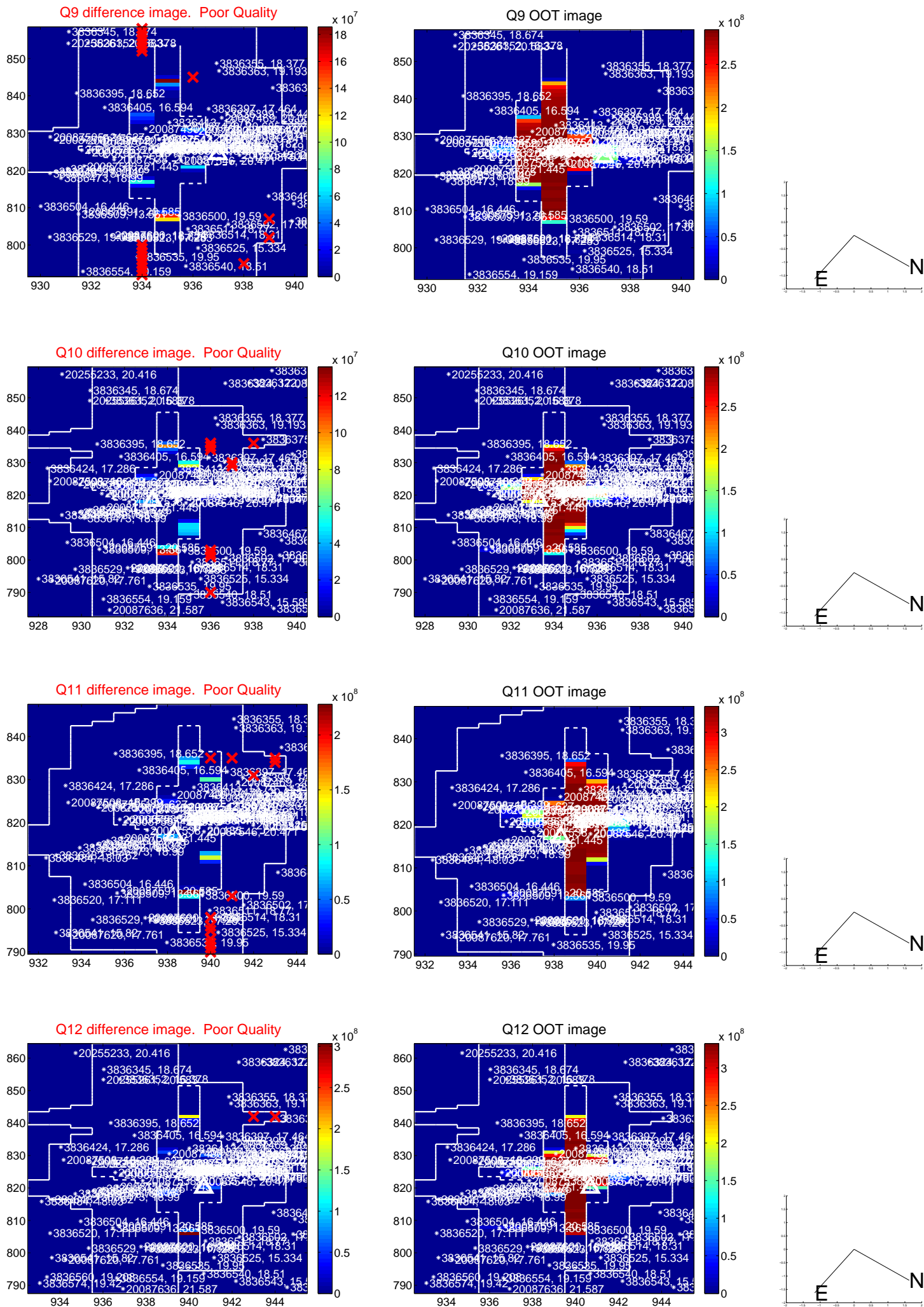
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



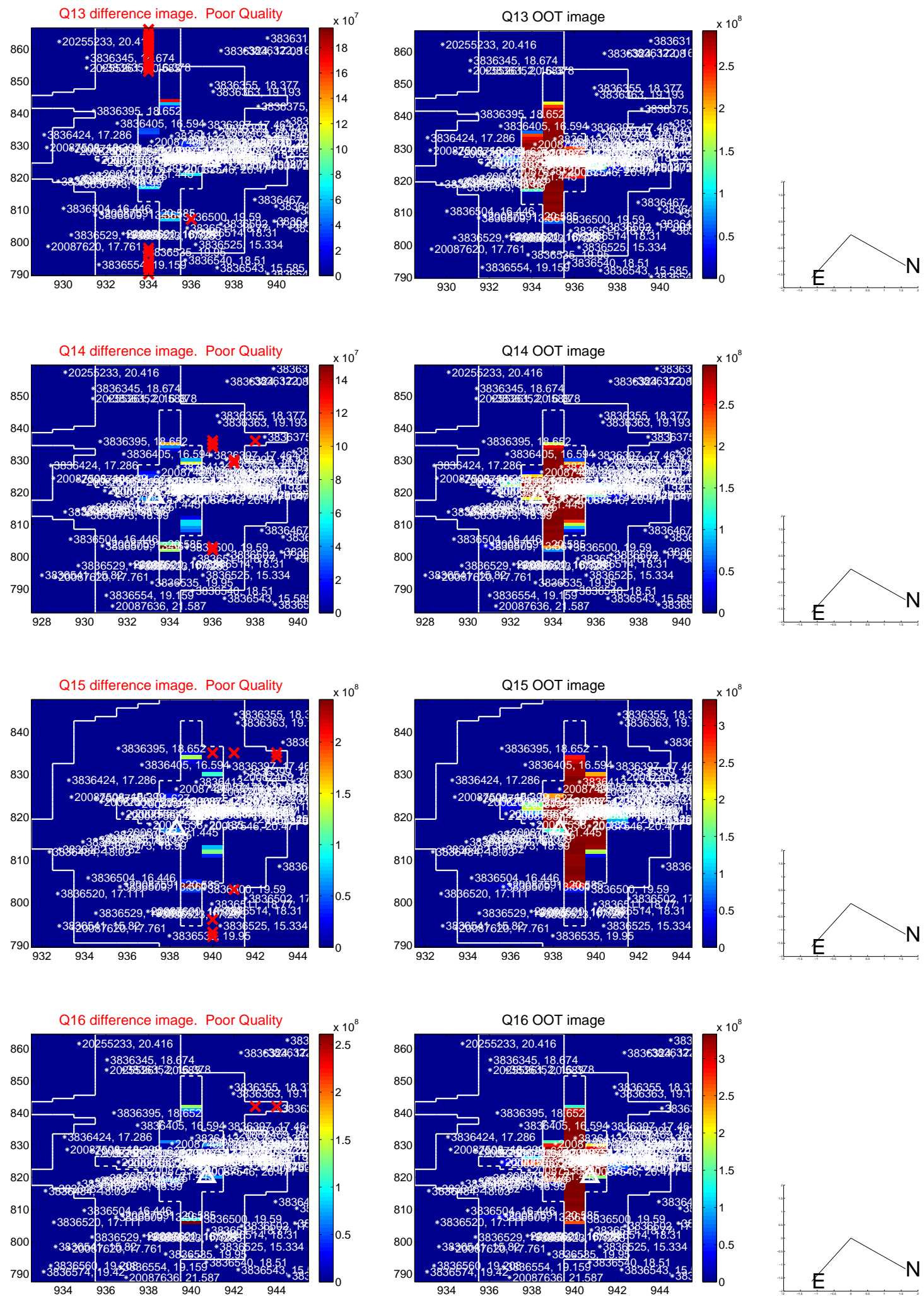
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



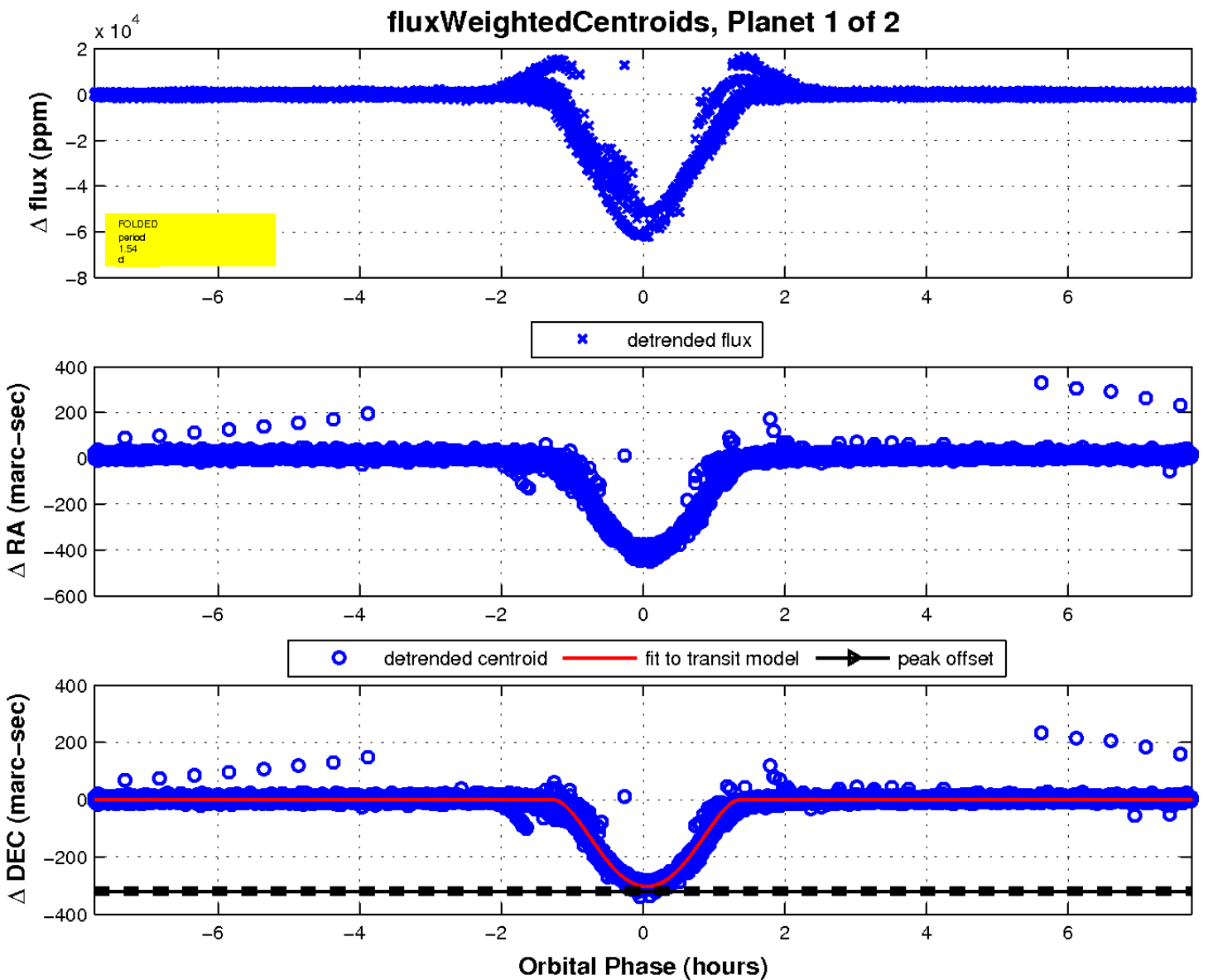
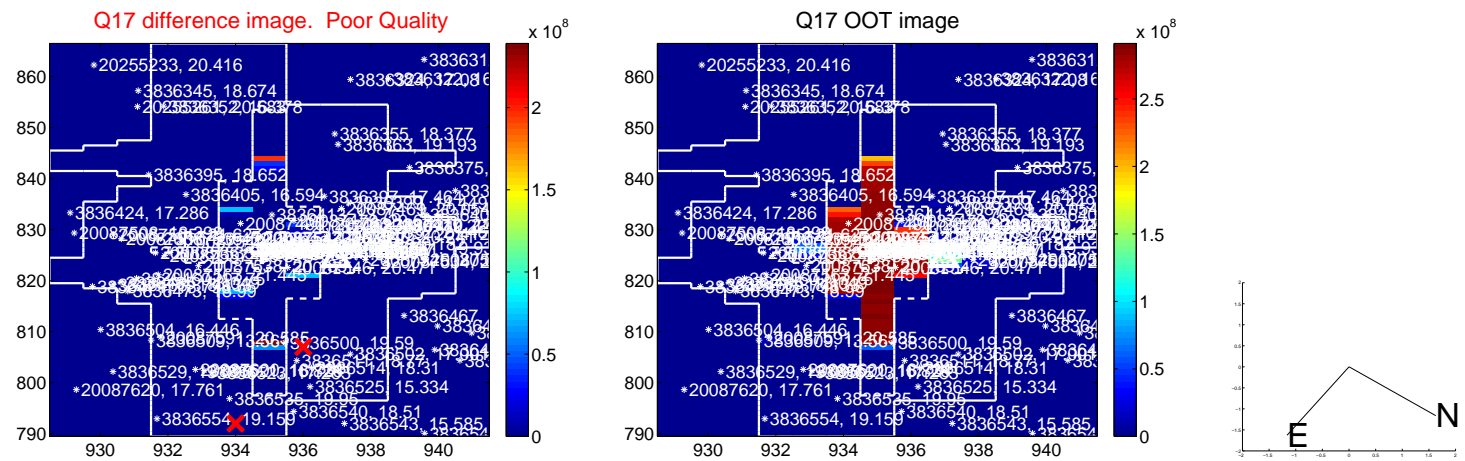
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

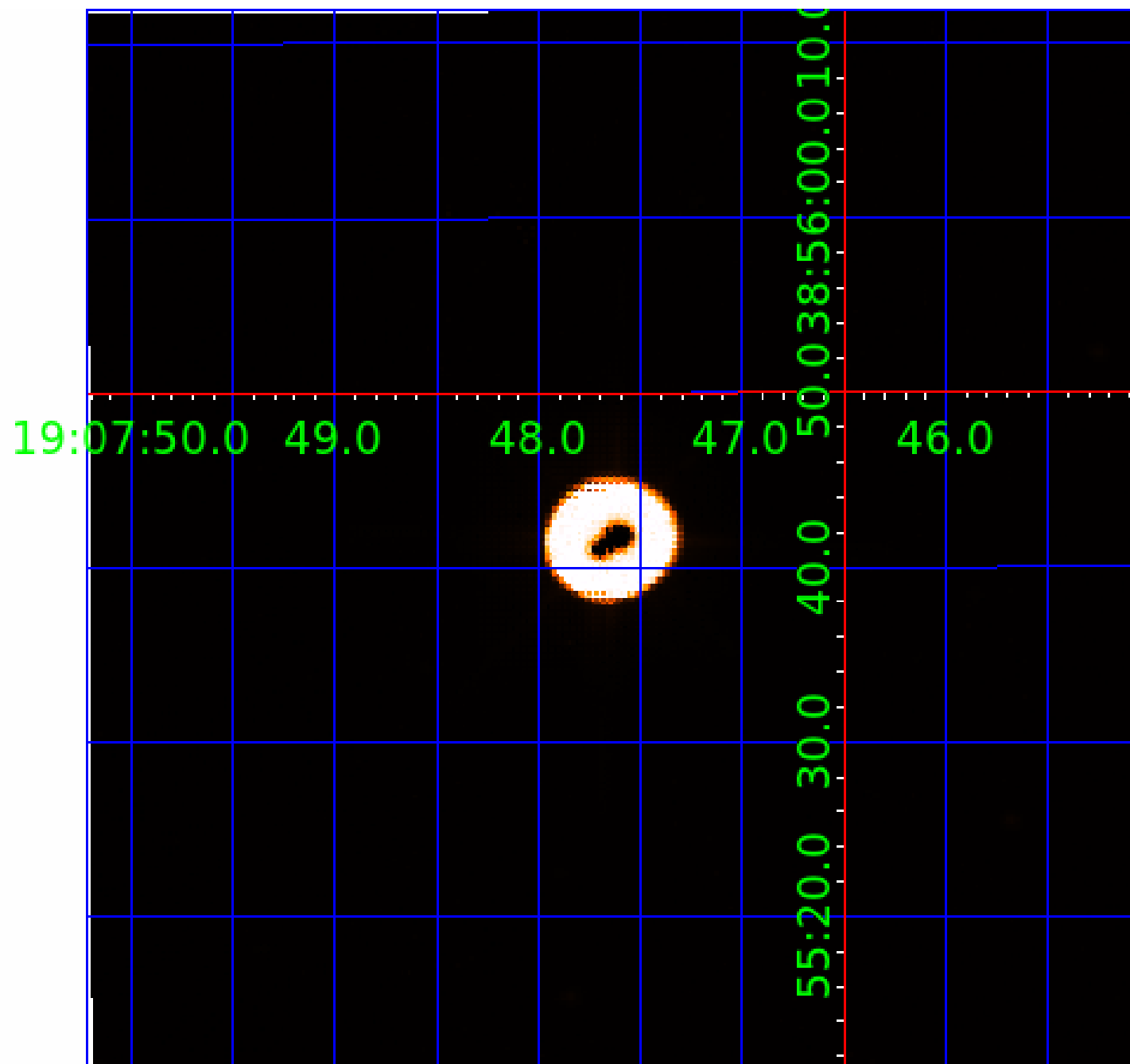


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003836439

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})
003836439-01	OBS	6364.01	1.540405	131.991986	70404.1	2.582	7840.8	4225.7	2.28	7394	73.25	15627.97
003836439-02	OBS	No	0.770197	131.995369	506.9	1.500	670.1	-1.0	2.28	7394	5.23	39380.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836439-01	OBS	FP	0.00	0	1	0	1	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_SATURATED—EPHEM_MATCH
003836439-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—CENT_SATURATED—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 003836439-02

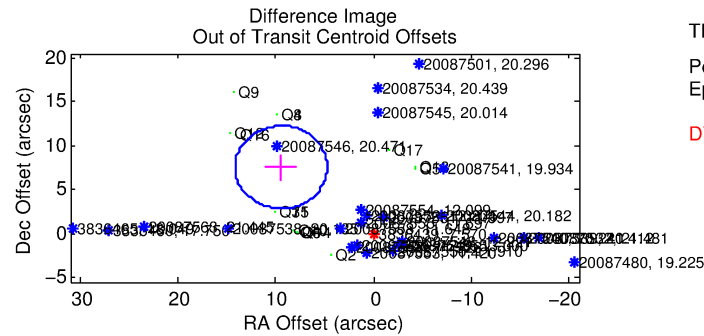
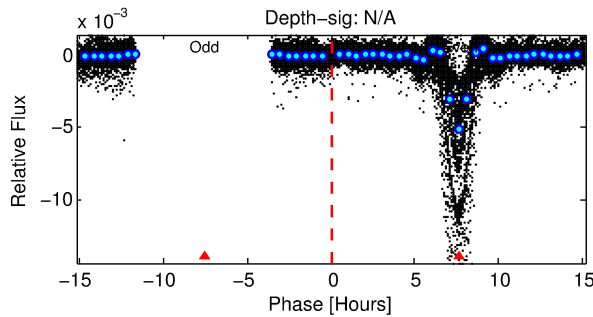
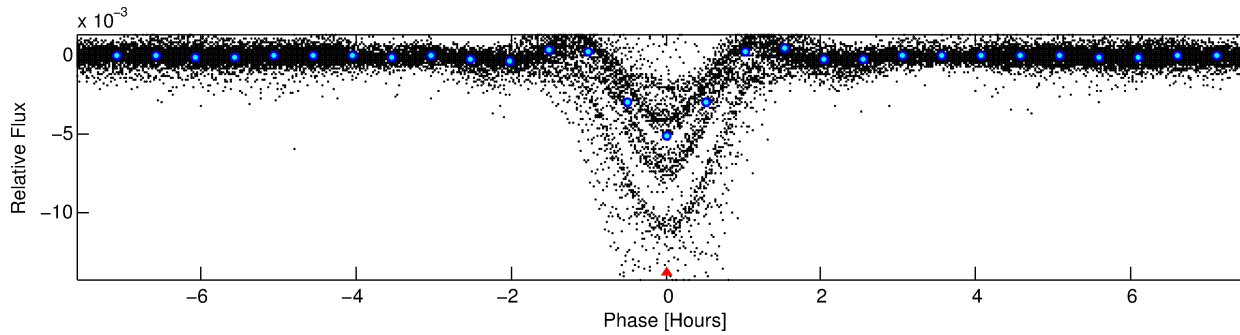
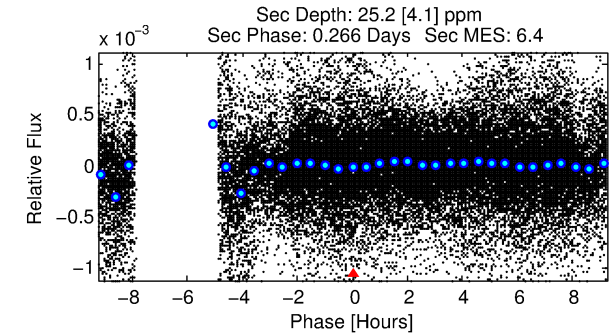
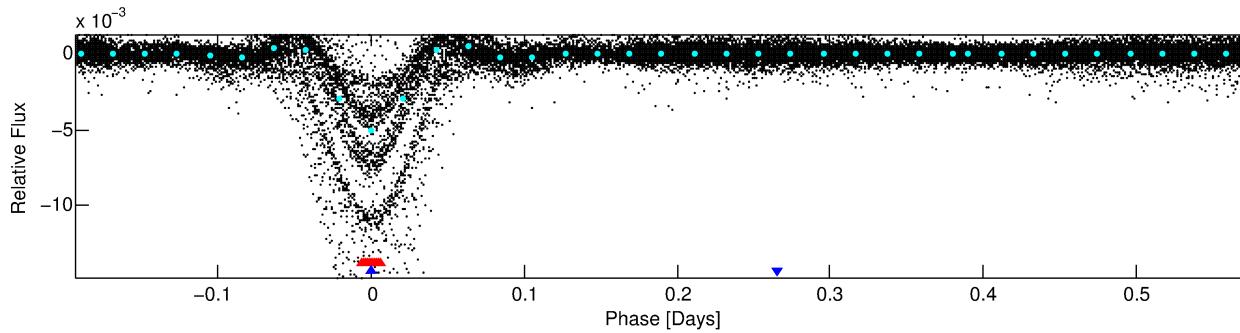
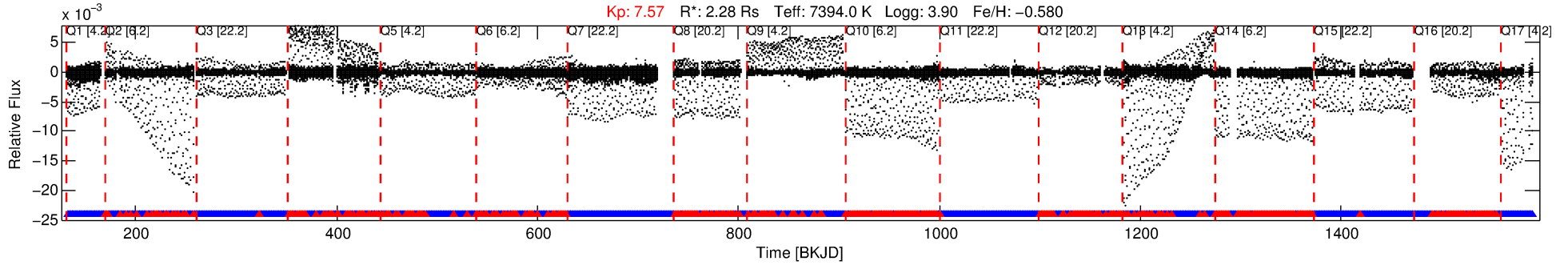
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003836439-02	3836439	6363.01	3836413	1:2	27.2	-7	0	13.76	7.57	146.27	Direct-PRF	1	0.37	0.07

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: 3836439 Candidate: 2 of 2 Period: 0.770 d
KOI: K06364 Corr: No Ephemeris Match

Kp: 7.57 R*: 2.28 Rs Teff: 7394.0 K Logg: 3.90 Fe/H: -0.580



TPS TCE Results:

Period = 0.77020 d
Epoch = 131.9954 BKJD

DV fit results are unavailable

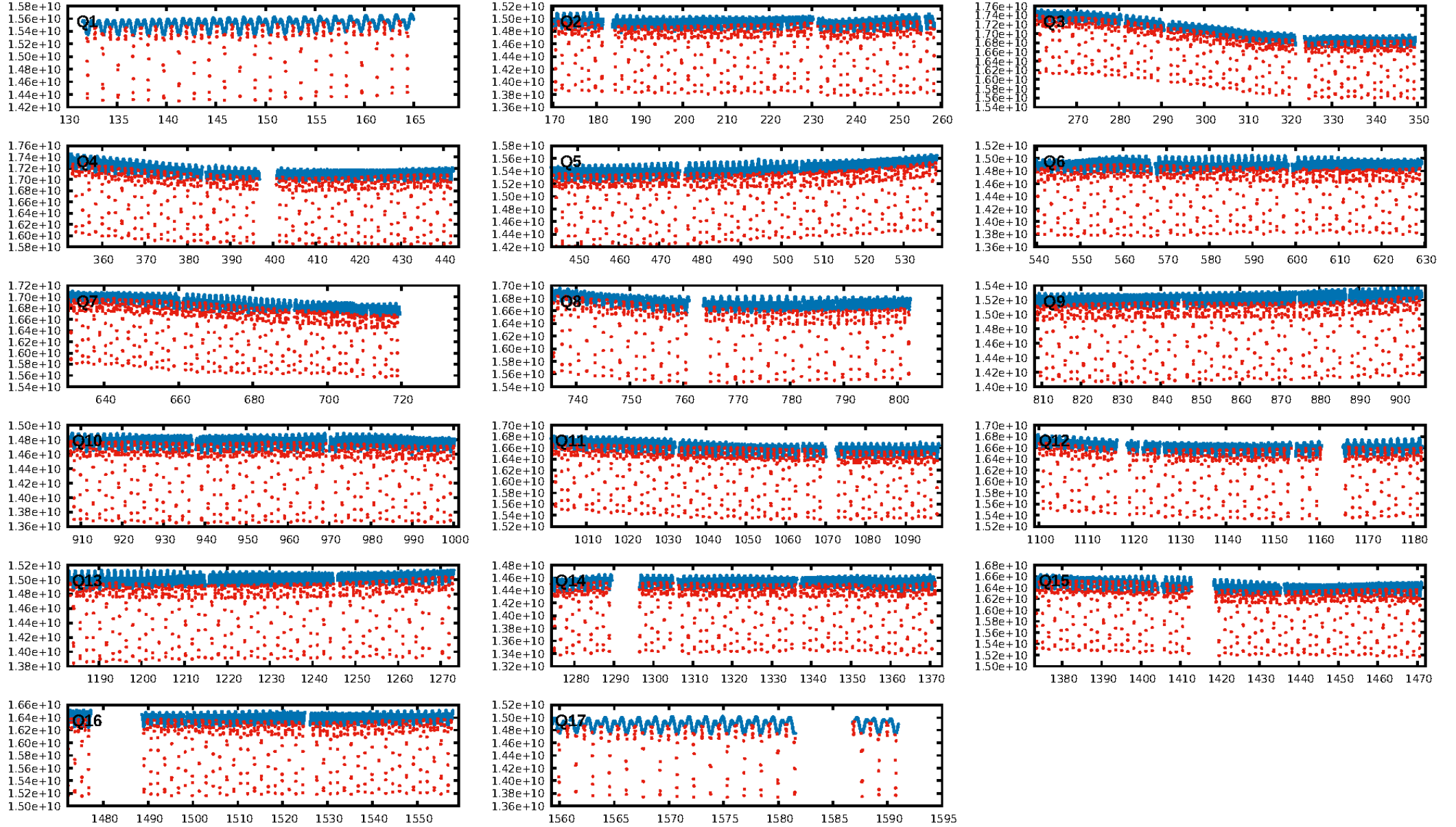
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.19σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.55 [455/833]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 5.730 arcsec [524.35σ]
OotOffset-rm: 12.114 arcsec [7.72σ]
KicOffset-rm: 18.067 arcsec [11.49σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
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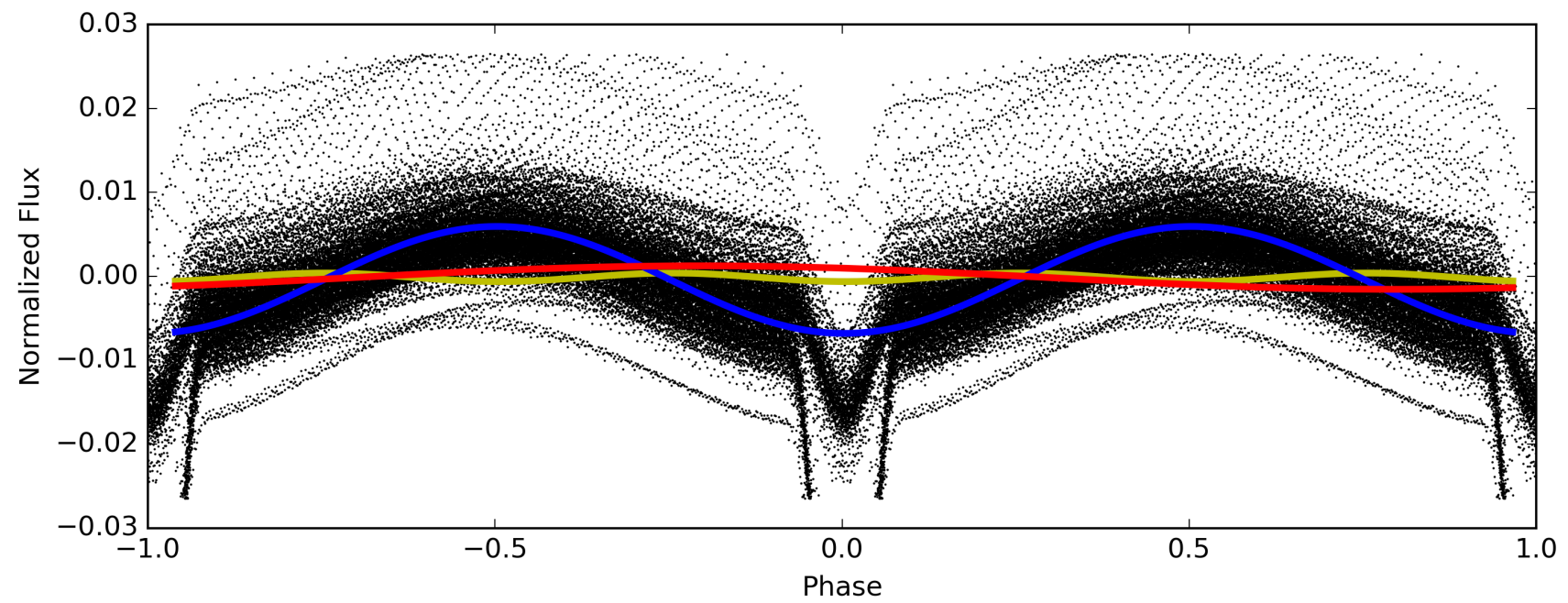
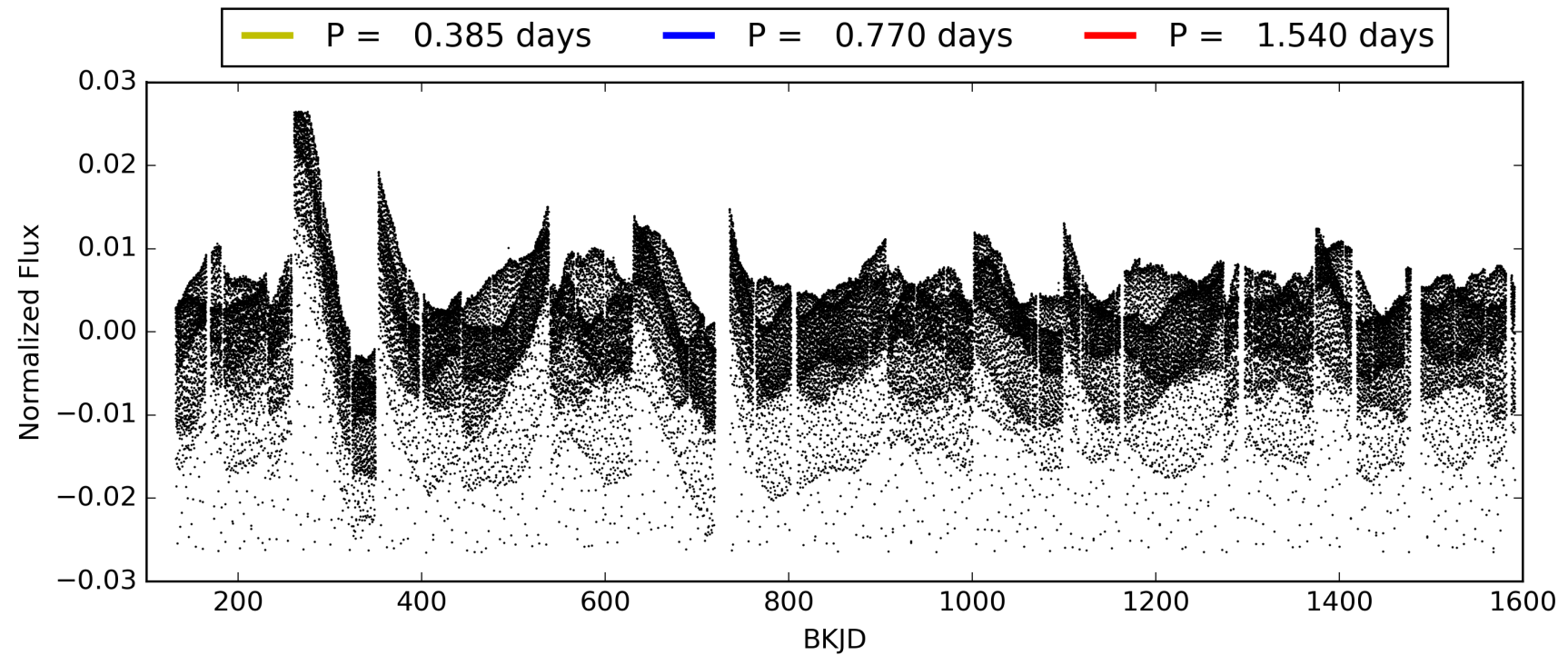
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:49:45 Z

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

TCE 003836439-02, PDC Light Curves

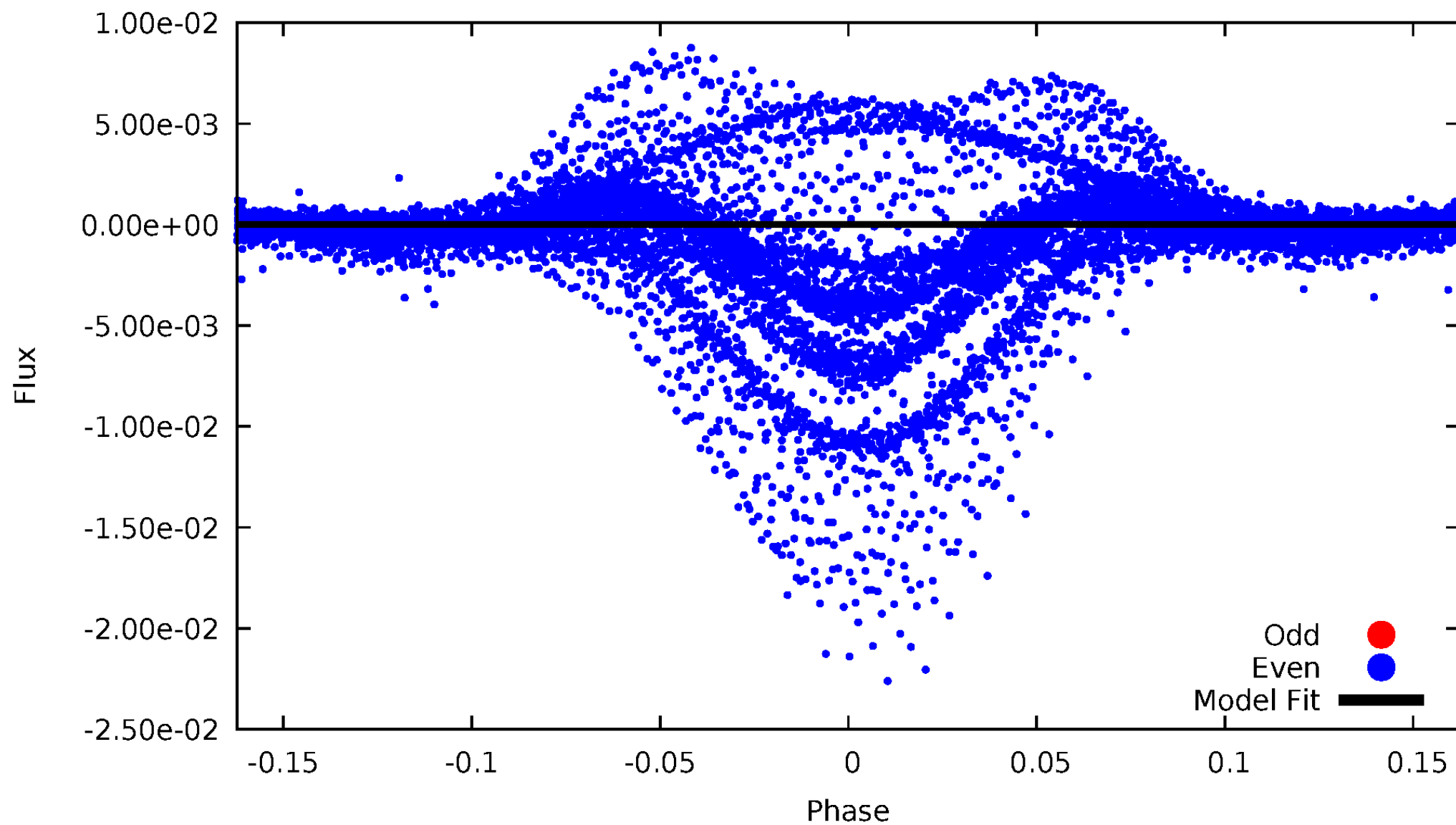


TCE 003836439-02



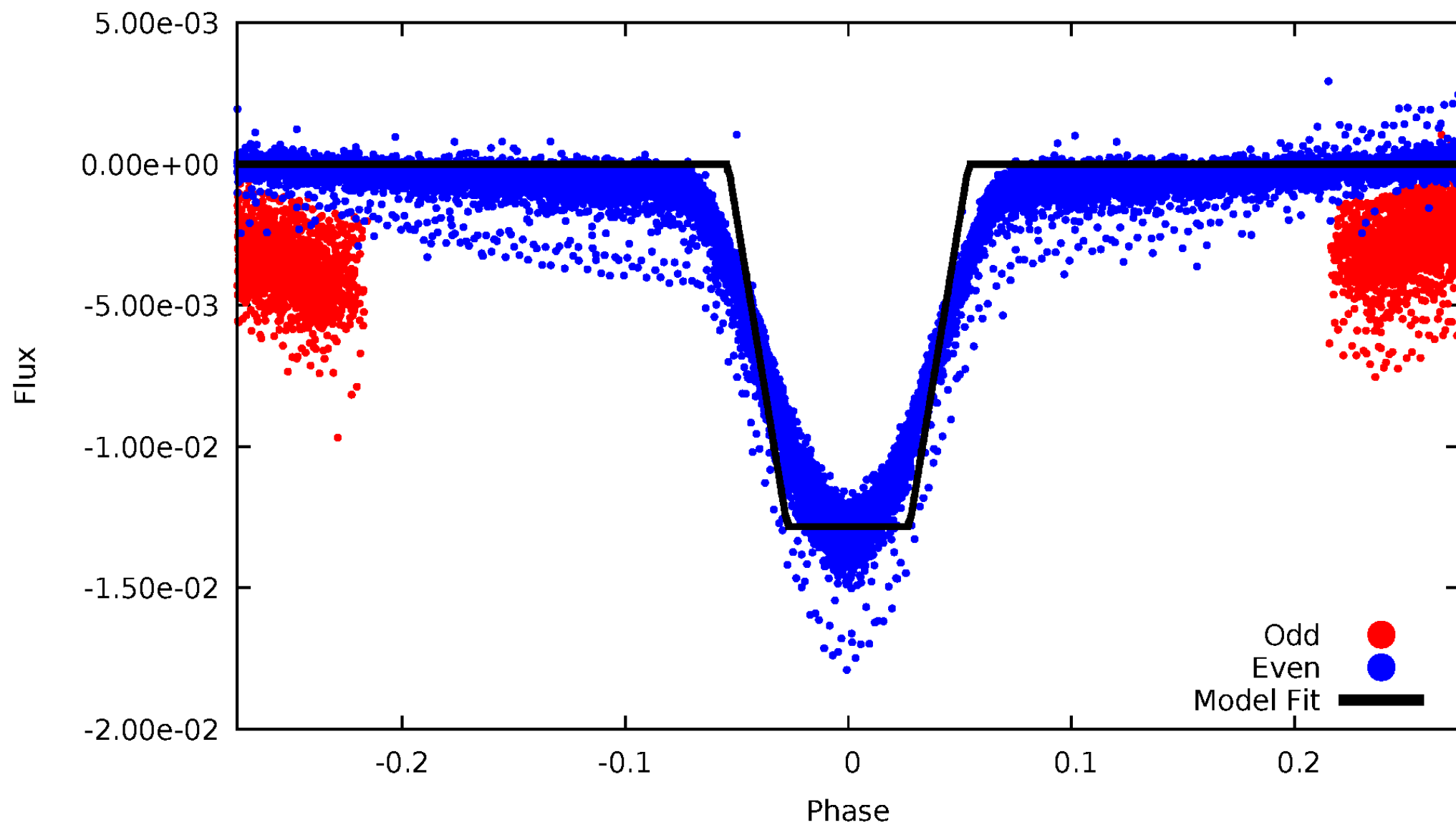
DV Odd/Even

TCE 003836439-02



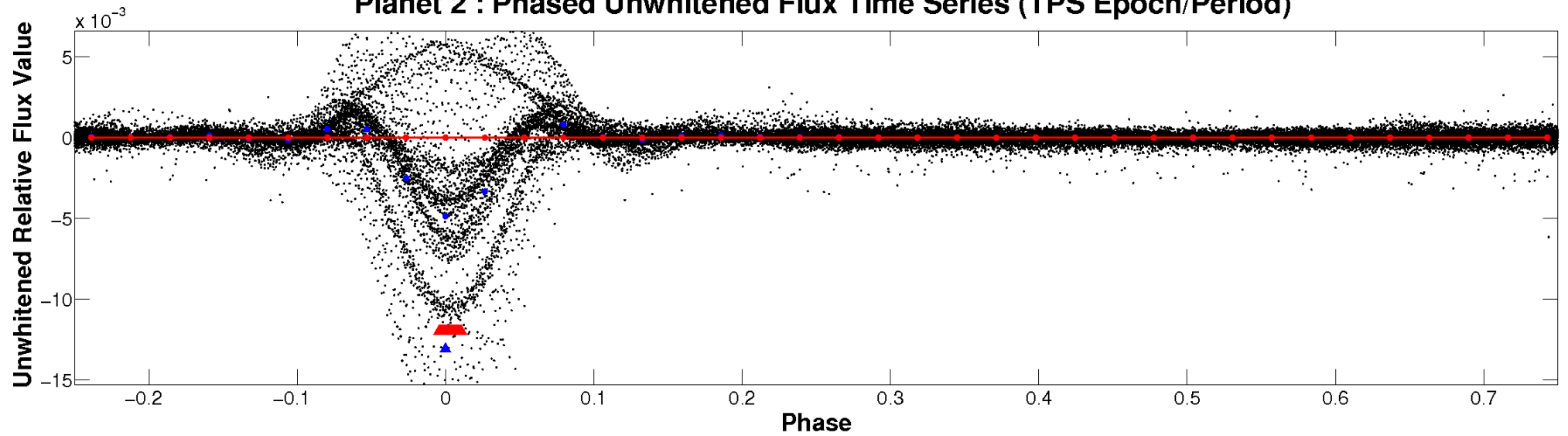
ALT Odd/Even

TCE 003836439-02

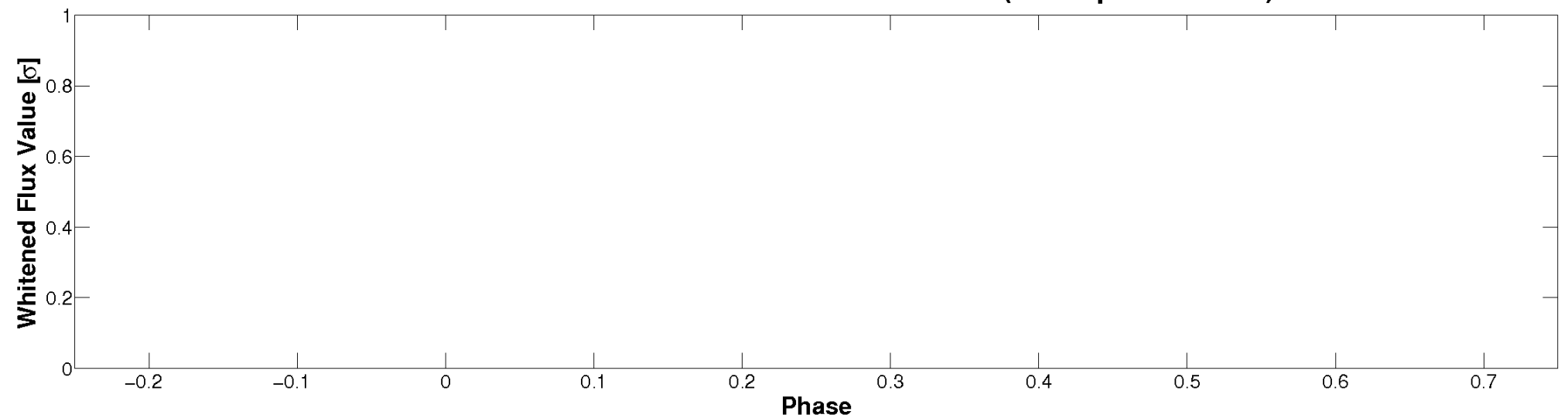


Non-Whitened Vs. Whitened Light Curve

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

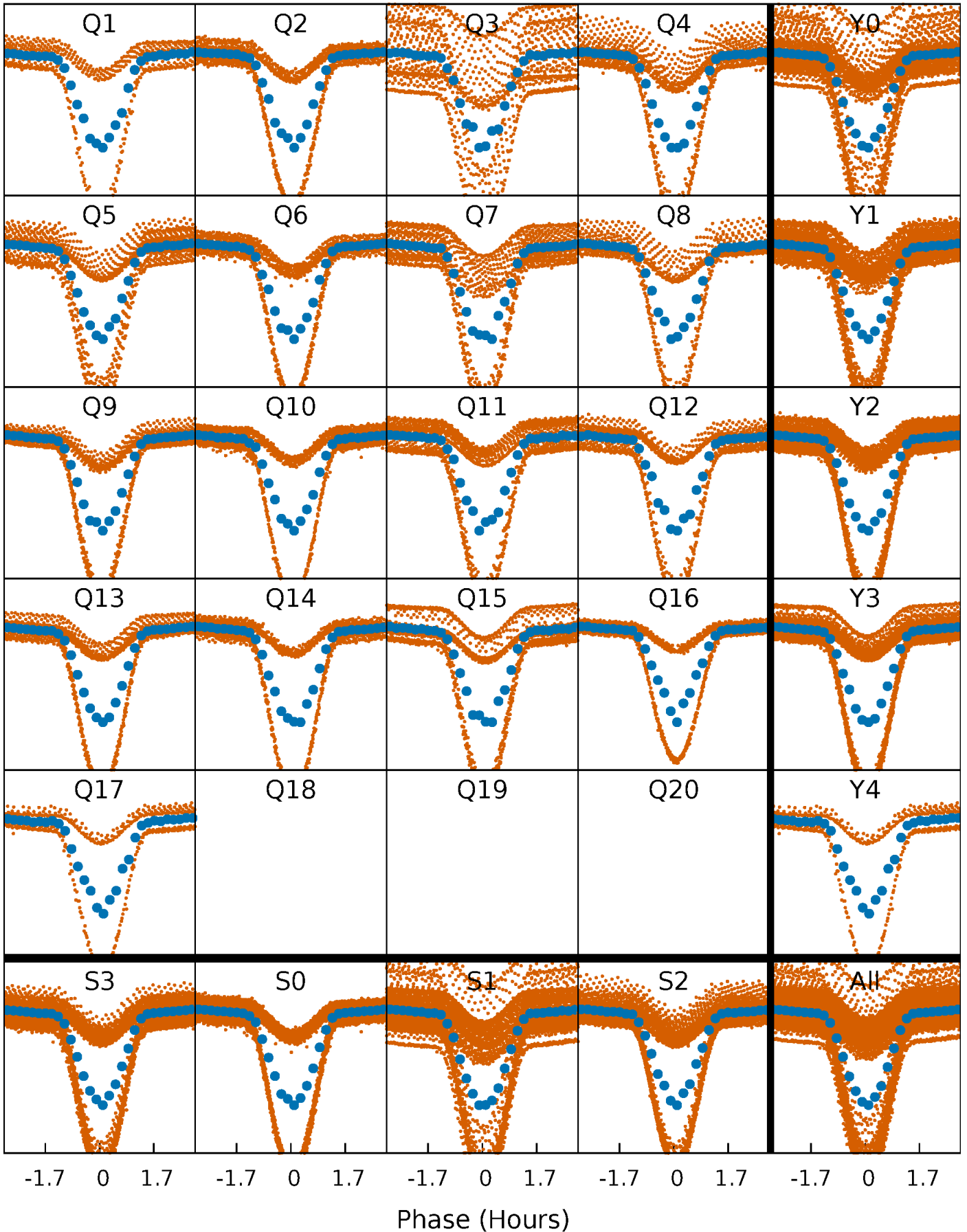


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



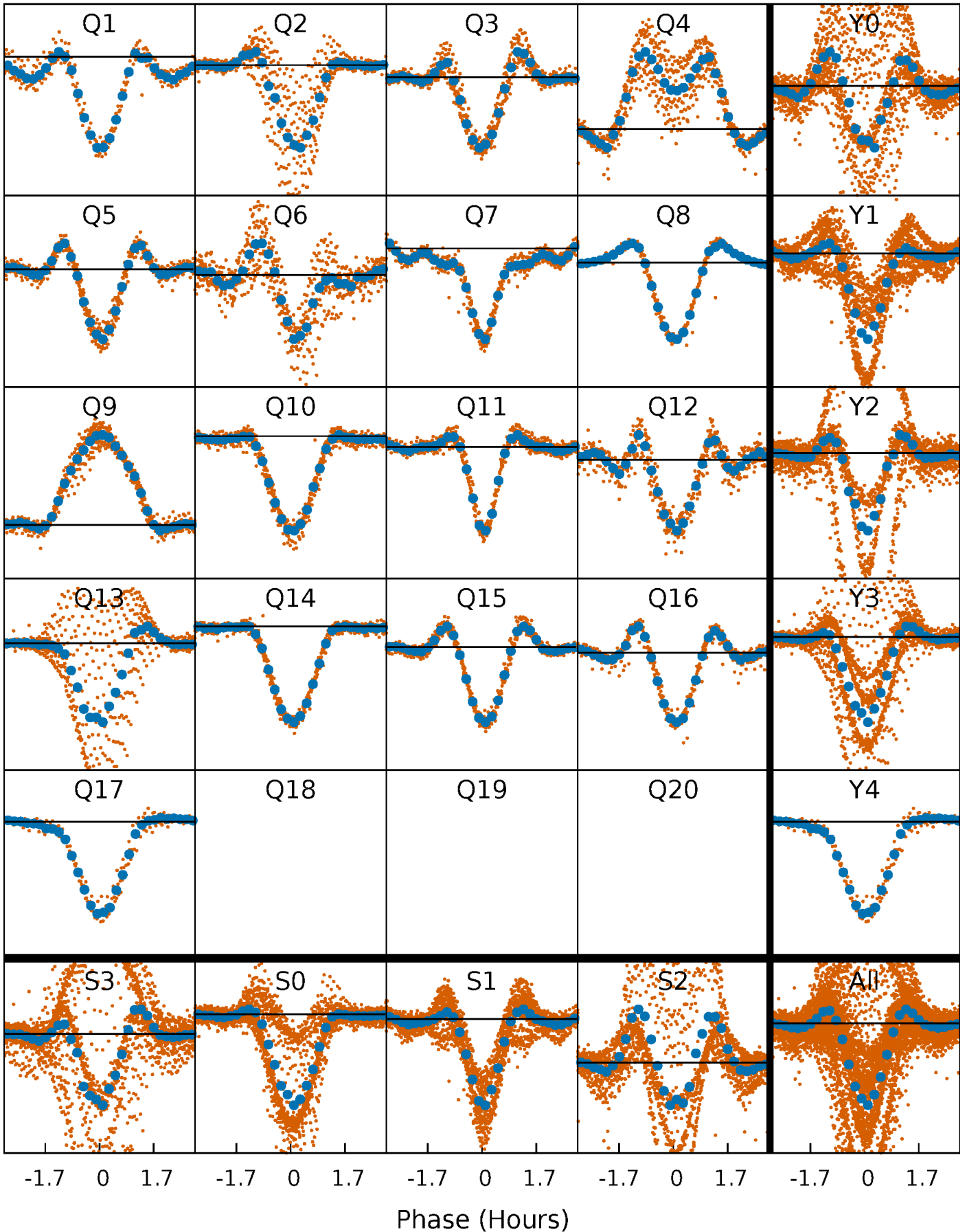
PDC Quarter-Phased Transit Curves

TCE 003836439-02 P= 0.770197 Days $T_0=131.995369$ (BKJD)



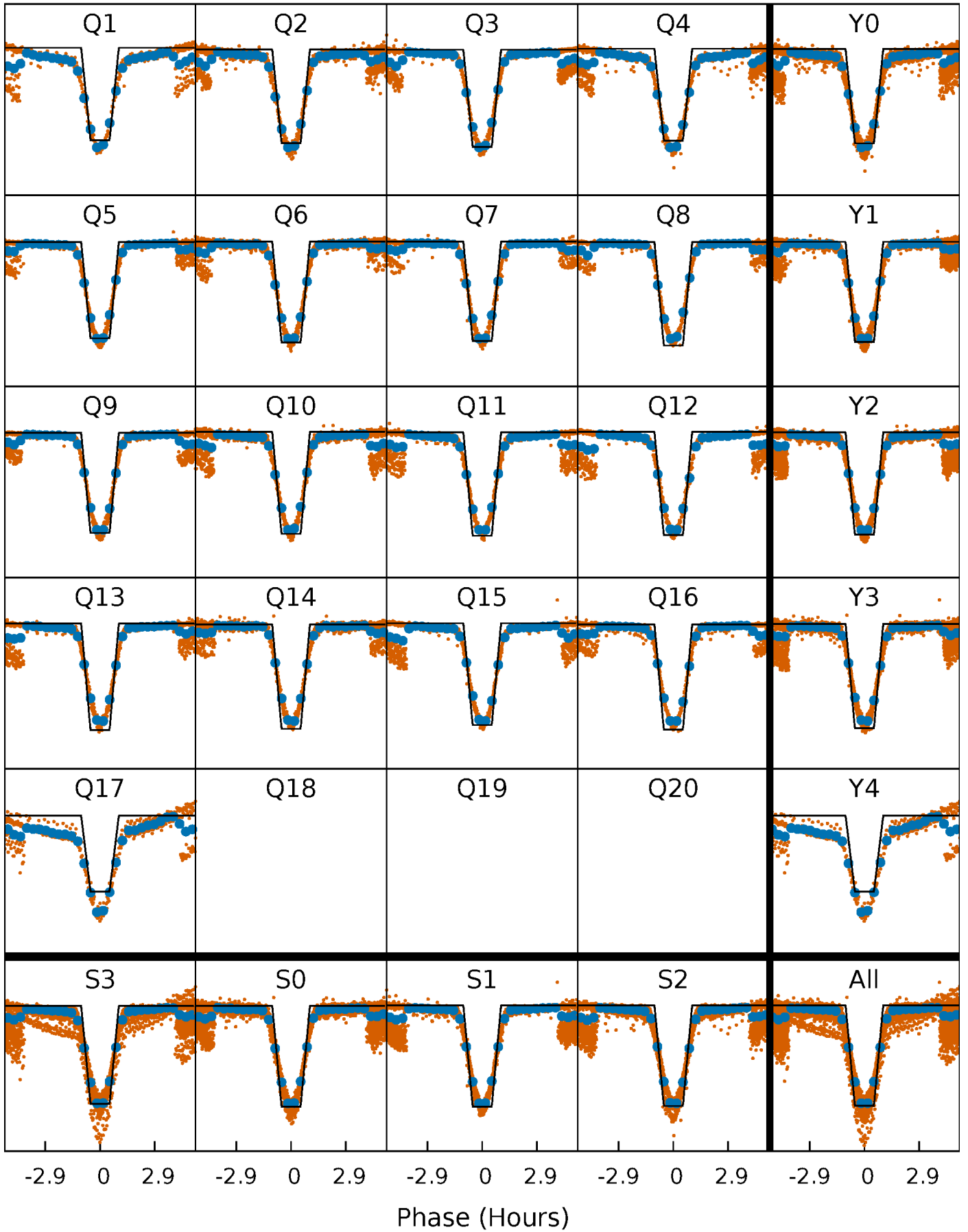
DV Quarter-Phased Transit Curves

TCE 003836439-02 P= 0.770197 Days $T_0=131.995369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

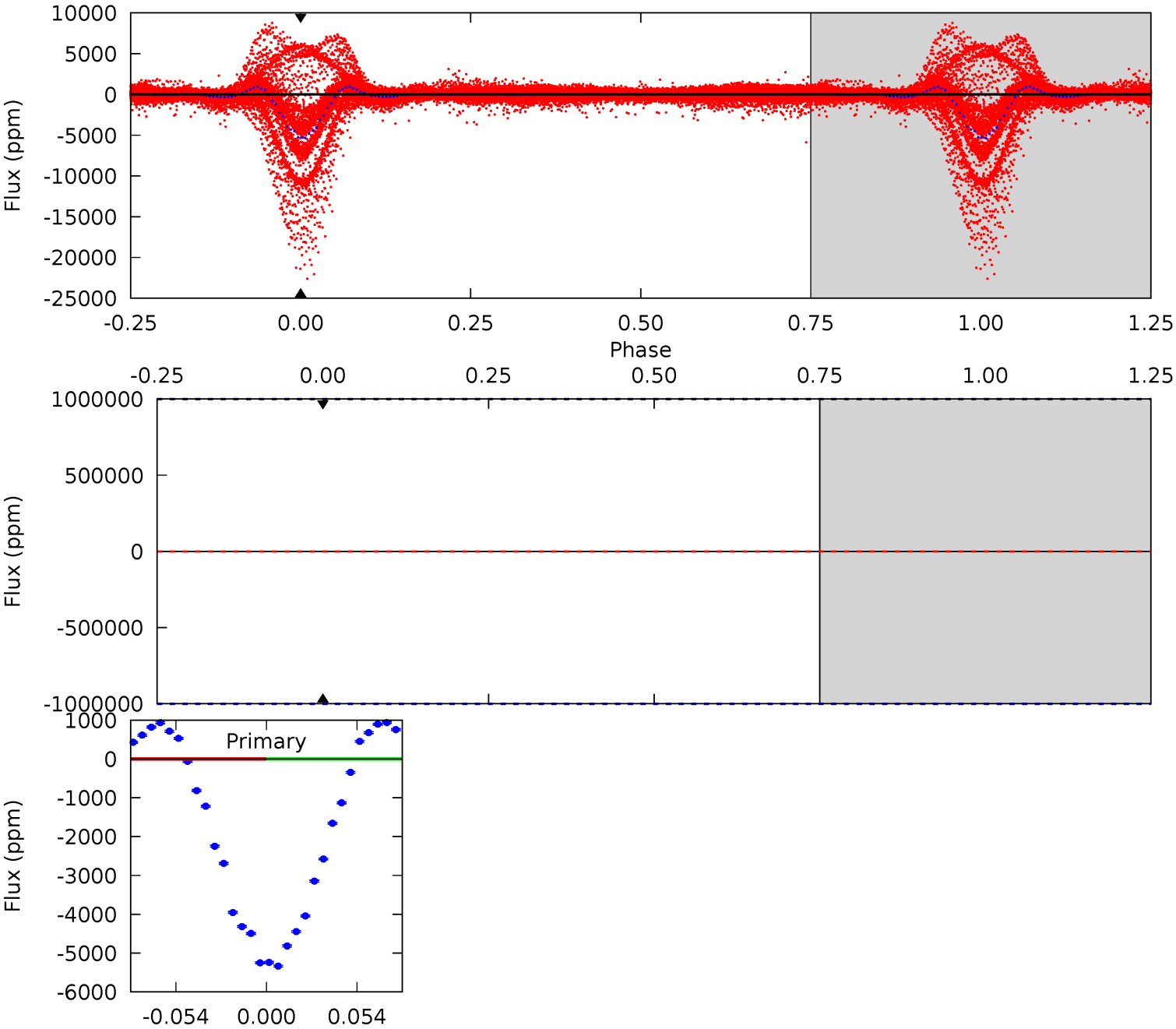
TCE 003836439-02 P= 0.770197 Days $T_0=131.997772$ (BKJD)



DV Model-Shift Uniqueness Test

003836439-02, P = 0.770197 Days, E = 131.225172 Days

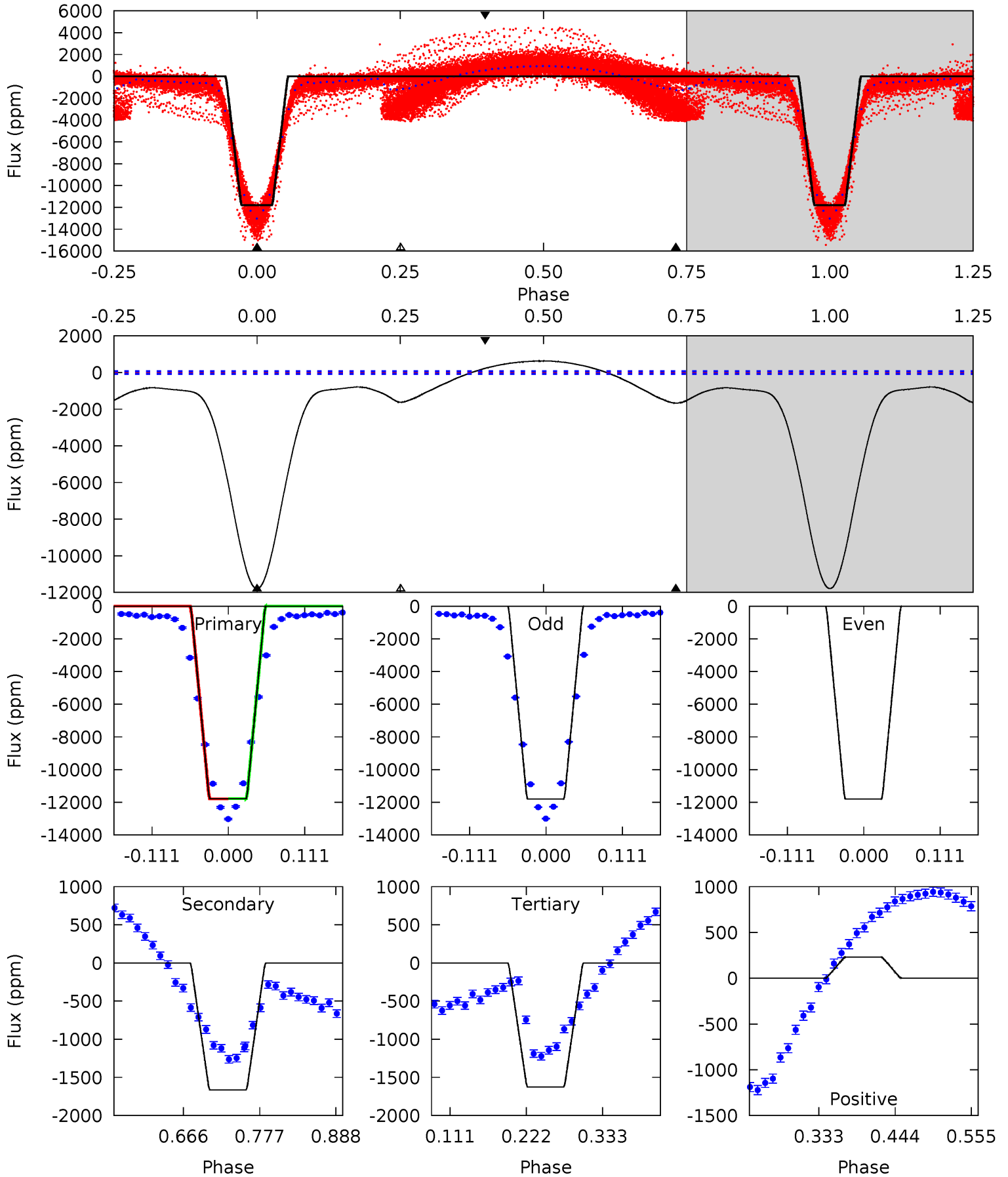
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003836439-02, P = 0.770197 Days, E = 131.227575 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
708.2	100.1	97.6	13.8	4.54	1.59	44.4	610.5	694.3	2.43	86.2	0	1.01	0.05	0.76



Stellar Parameters For KIC 003836439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7394^{+233}_{-311}	$3.897^{+0.375}_{-0.125}$	$-0.580^{+0.300}_{-0.300}$	$2.283^{+0.438}_{-0.949}$	$1.502^{+0.192}_{-0.357}$	$0.178^{+0.608}_{-0.065}$
	+3%/-4%	+10%/-3%	+52%/-52%	+19%/-42%	+13%/-24%	+342%/-36%
Source	KIC0	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 003836439-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$17.21^{+19.93}_{-11.72}$	4917^{+366}_{-502}	-6561^{+52320}_{-26607}	$-2.107^{+158.516}_{-96.173}$
Alt.	-1666 ± 17	$28.47^{+22.27}_{-17.91}$	4895^{+377}_{-543}	3379^{+3206}_{-7264}	$0.387^{+2.340}_{-0.262}$

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 $A_{obs} \gg 1.0$

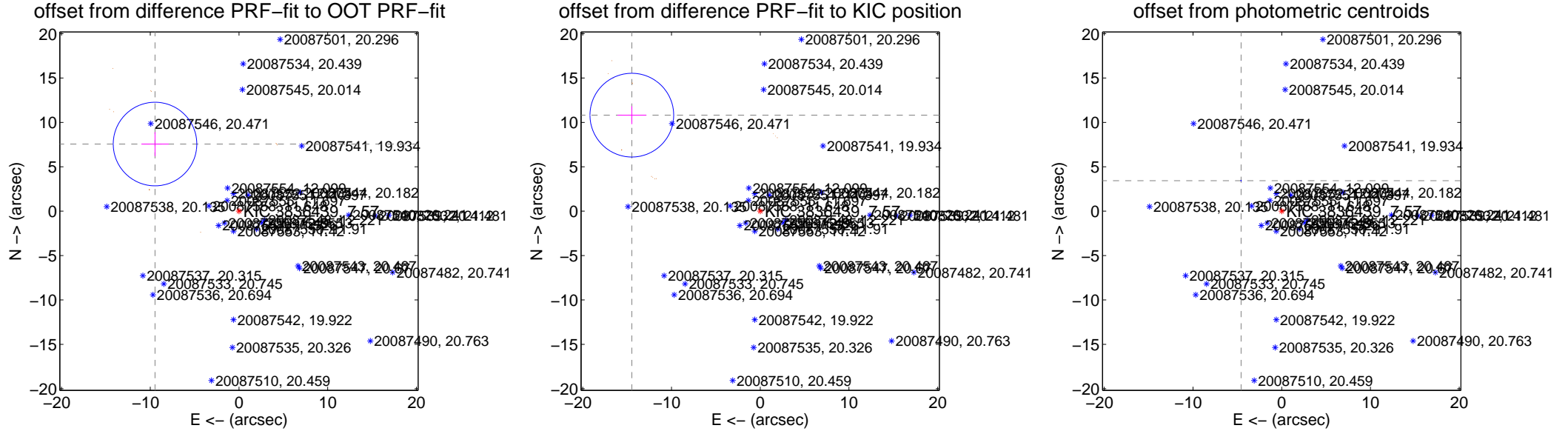
DV Centroid Data

Supplemental centroid analysis for 003836439-02. **Kepler magnitude: 7.57.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

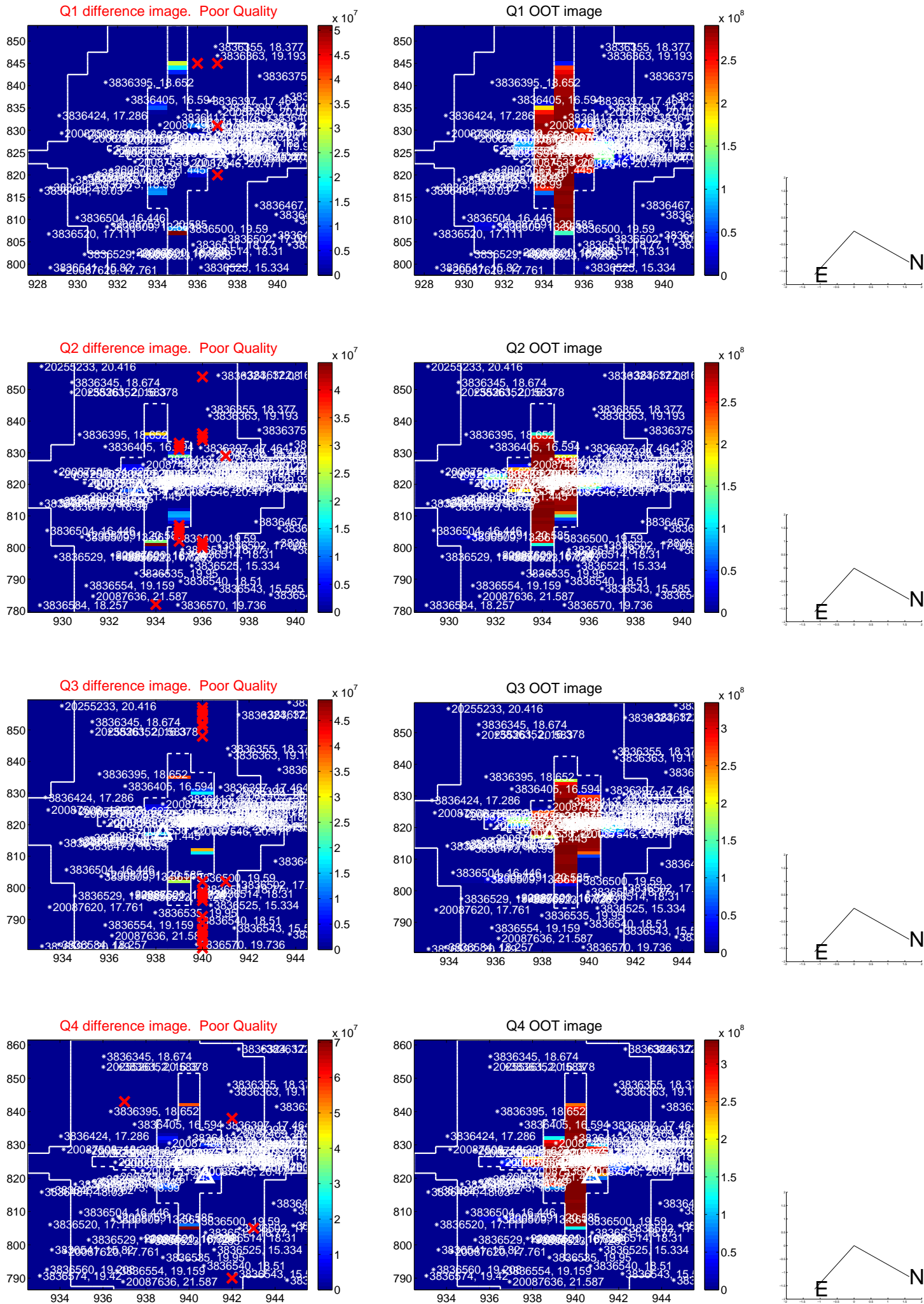
The OOT PRF centroid is offset from the target star catalog position by about 2.64 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.114 ± 1.569	7.72	9.462 ± 1.540	7.565 ± 1.346
PRF-fit source offset from KIC position	18.067 ± 1.572	11.49	14.469 ± 1.611	10.819 ± 1.014
photometric centroid source offset	5.73 ± 0.01	524.35	4.58 ± 0.01	3.44 ± 0.01

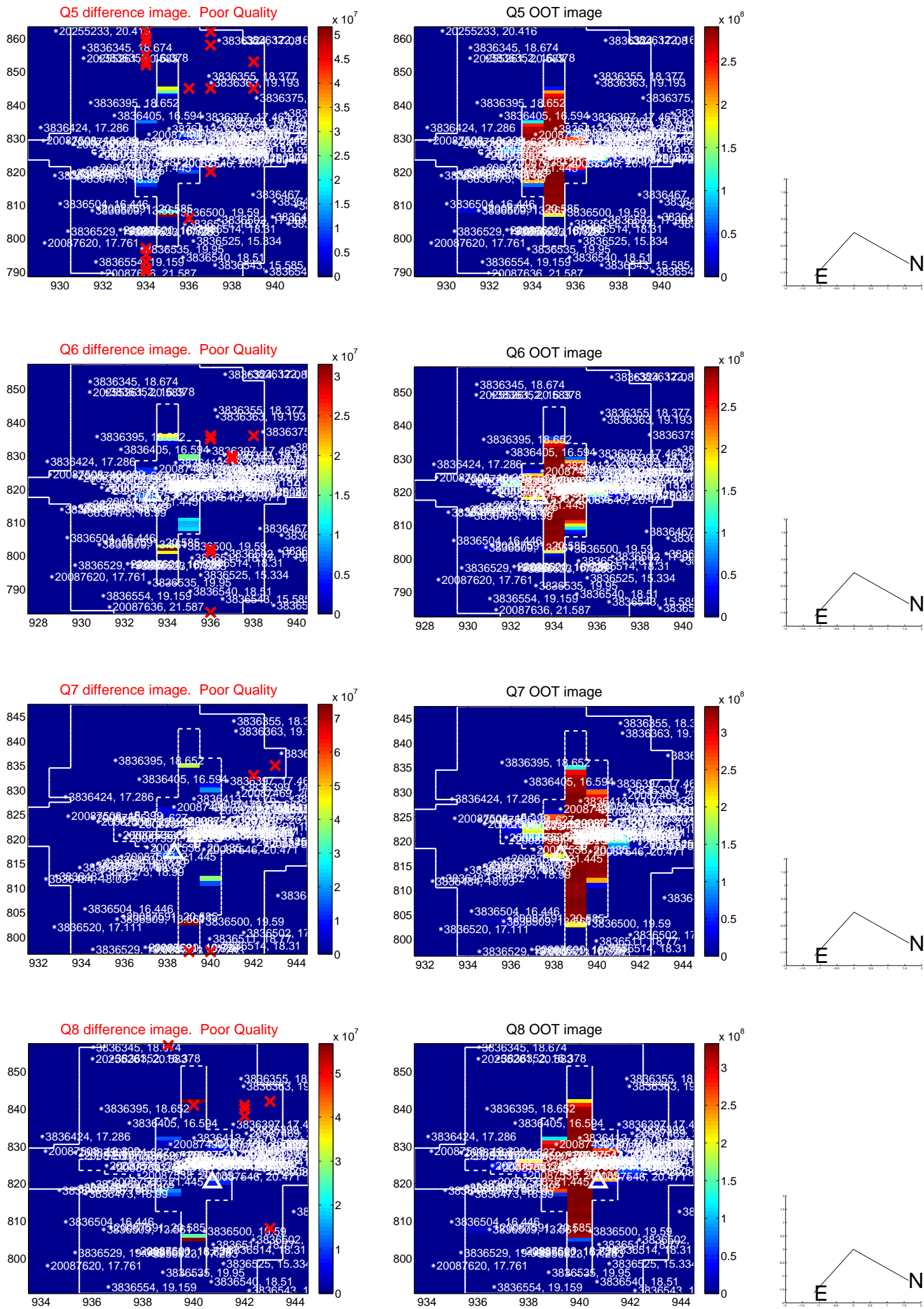


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

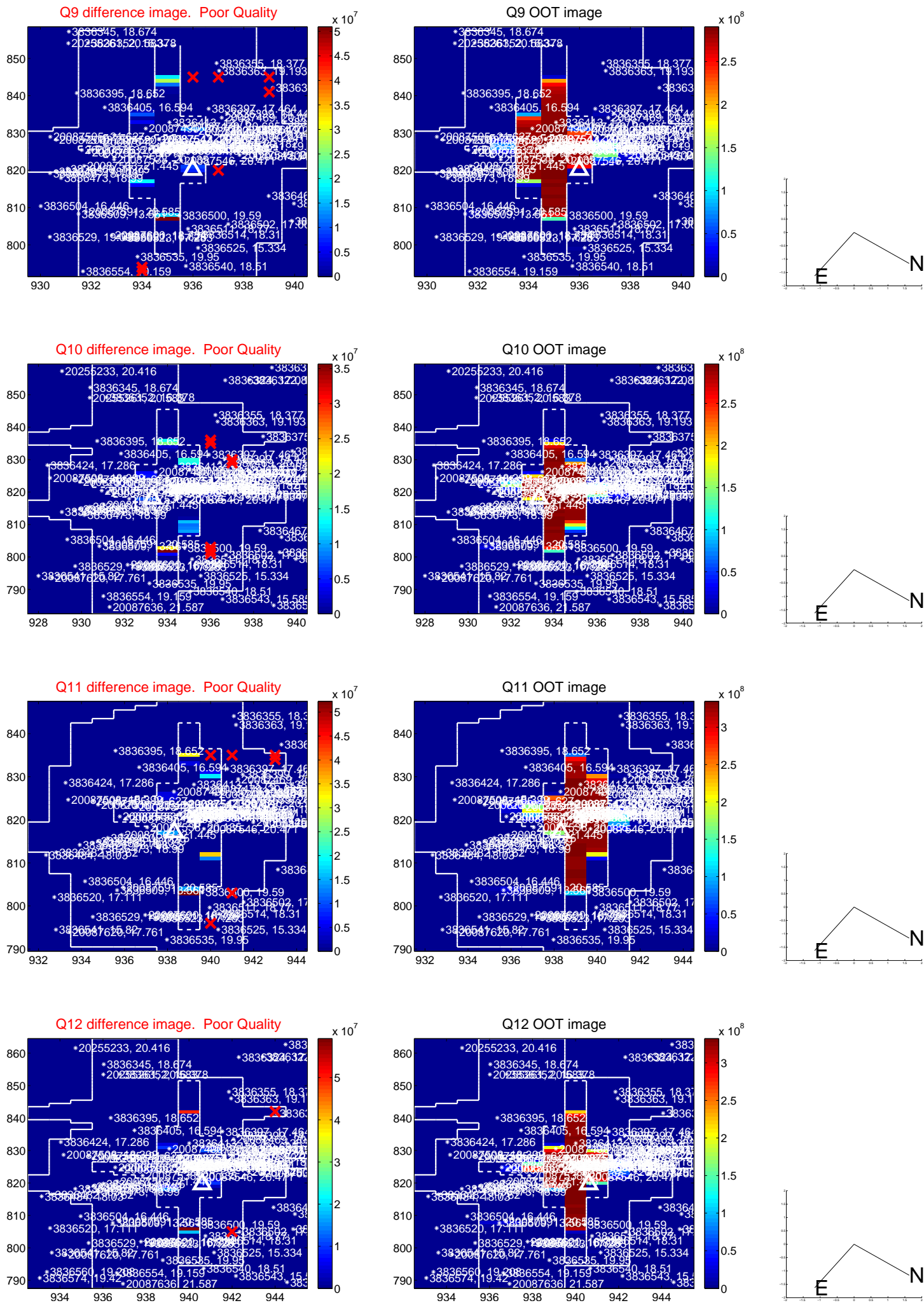
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



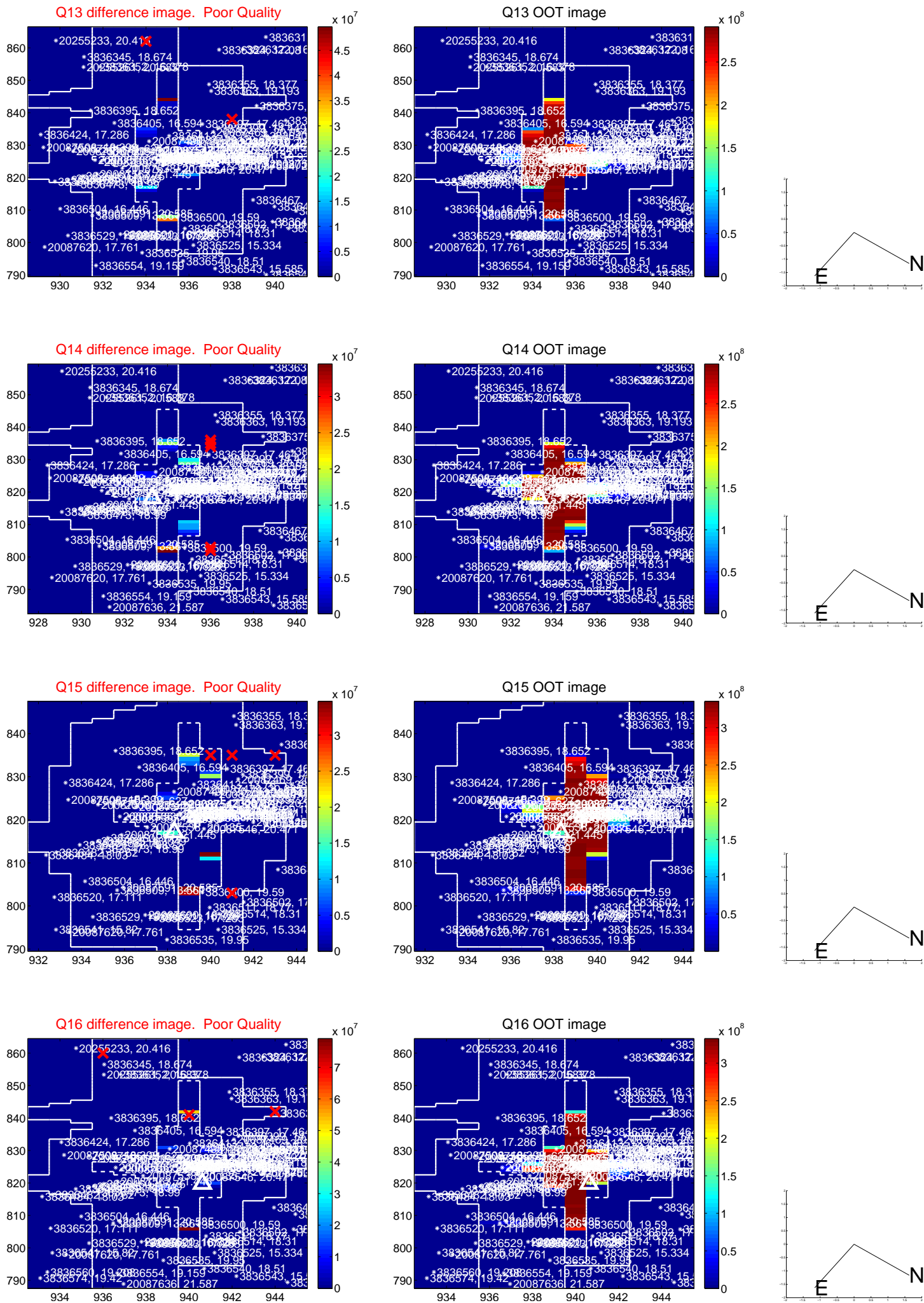
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



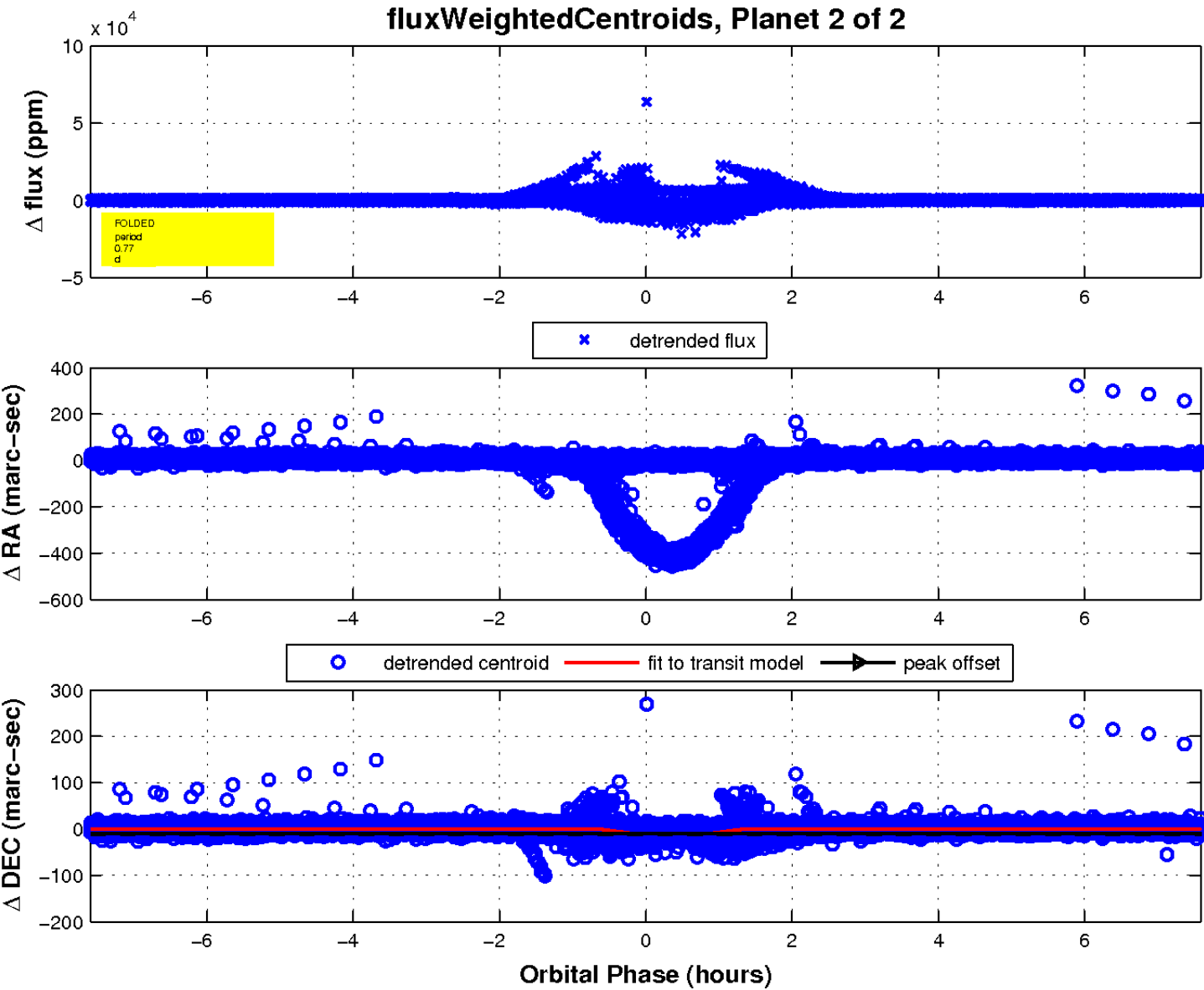
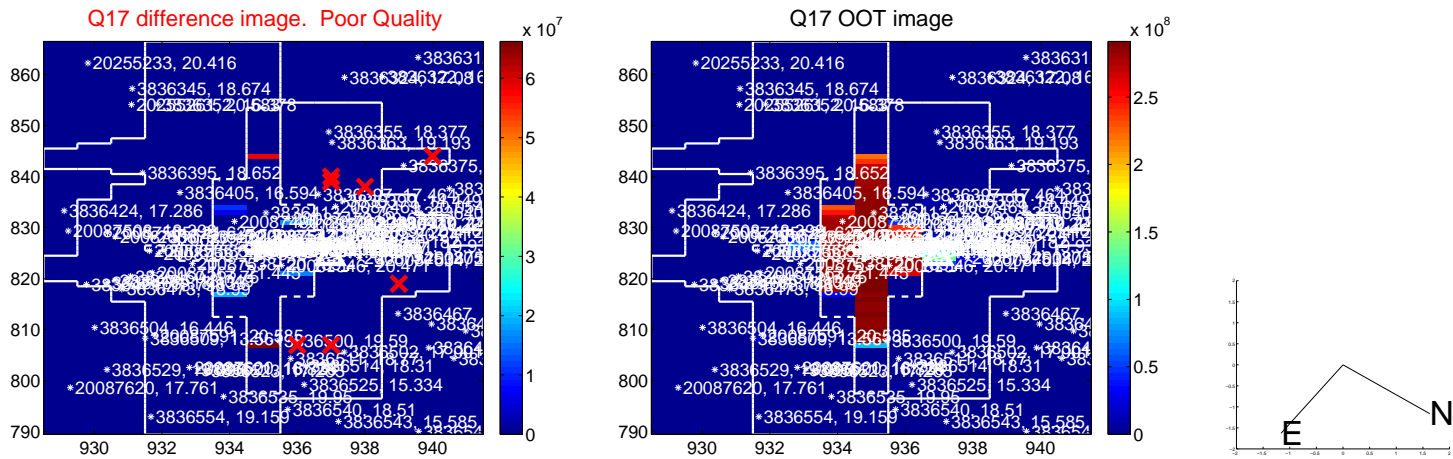
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

