

KIC 003836413

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})
003836413-01	OBS	6363.01	1.540378	132.003888	43467.8	2.512	704.6	379.0	1.00	5780	23.05	1467.02
003836413-02	OBS	No	0.770197	131.995369	17391.0	1.500	40.5	-1.0	1.00	5780	13.14	3696.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836413-01	OBS	FP	0.00	0	1	1	1	SWEET_EB—MOD_SEC_DV—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003836413-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—CENT_NOFITS—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 003836413-01

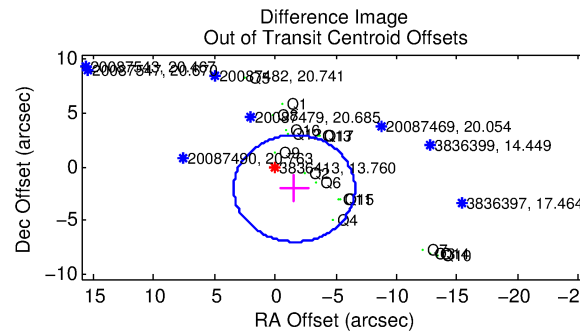
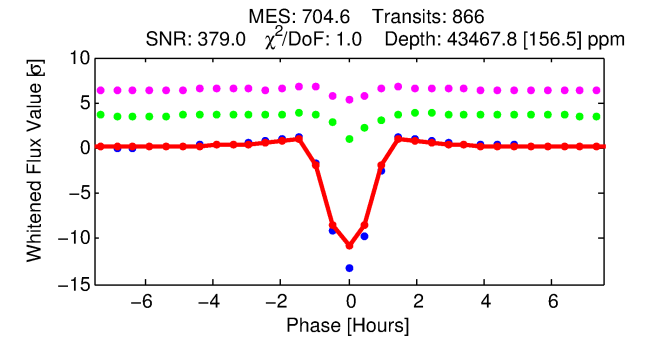
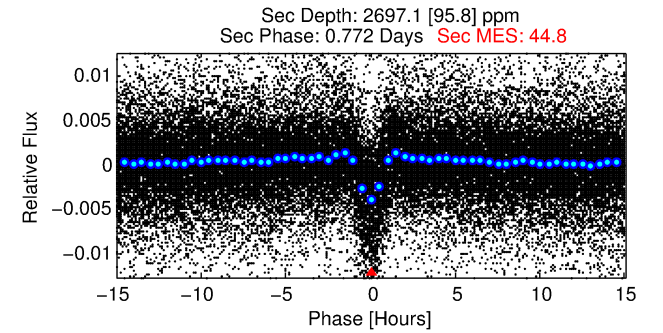
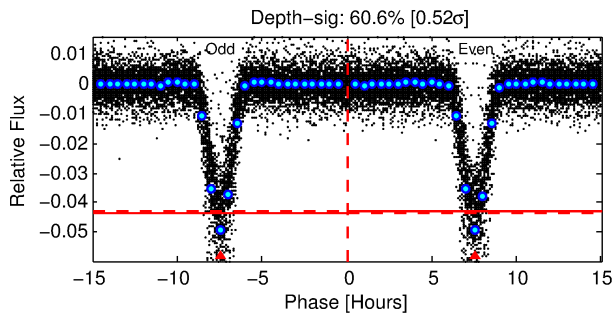
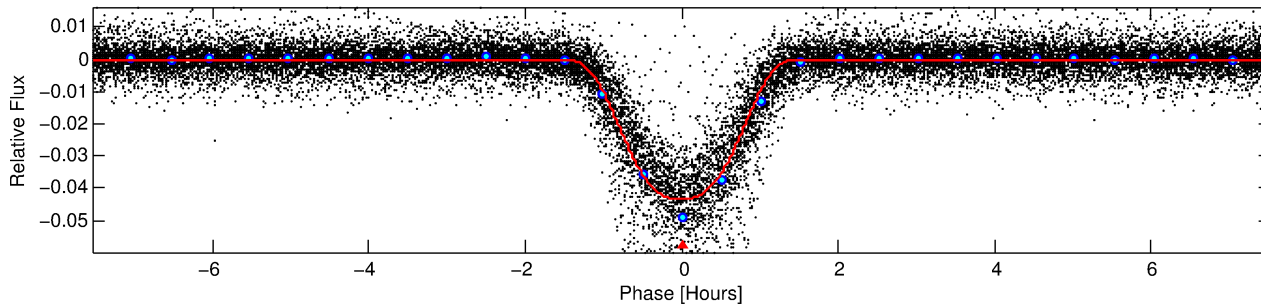
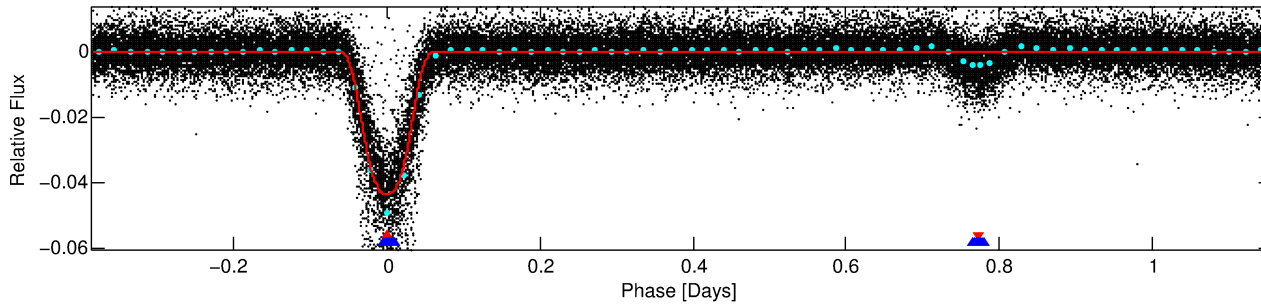
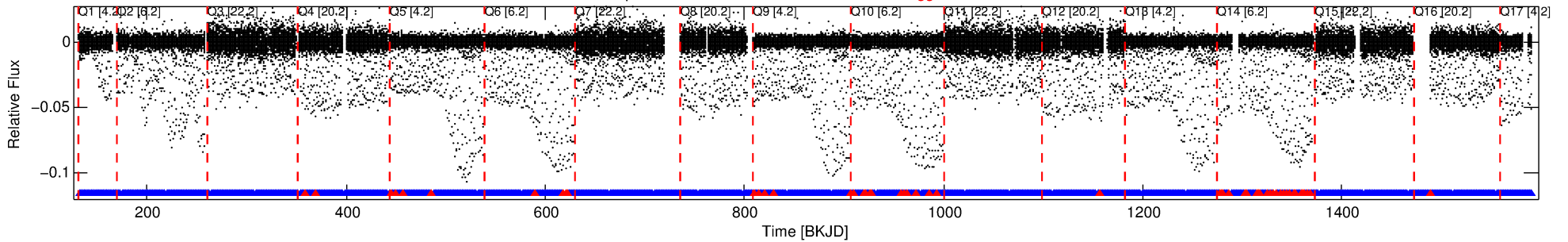
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
003836413-01	3836413	6364.01	3836439	1:1	27.2	7	0	7.57	13.76	1.63	Direct-PRF	0	0.89	0.46

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: 3836413 Candidate: 1 of 2 Period: 1.540 d
KOI: K06363.01 Corr: 0.945

Kp: 13.76 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 1.54038 [0.00000] d
Epoch = 132.0039 [0.0001] BKJD
Rp/R* = 0.2112 [0.0007]
a/R* = 4.54 [0.02]
b = 0.75 [0.00]
Seff = 1467.02 [0.00]
Teq = 1578 [0] K
Rp = 23.05 [0.07] Re
a = 0.0261 [0.0000] AU
Ag = 1.90 [0.07] [13.15σ]
Teffp = 2866 [26] K [49.80σ]

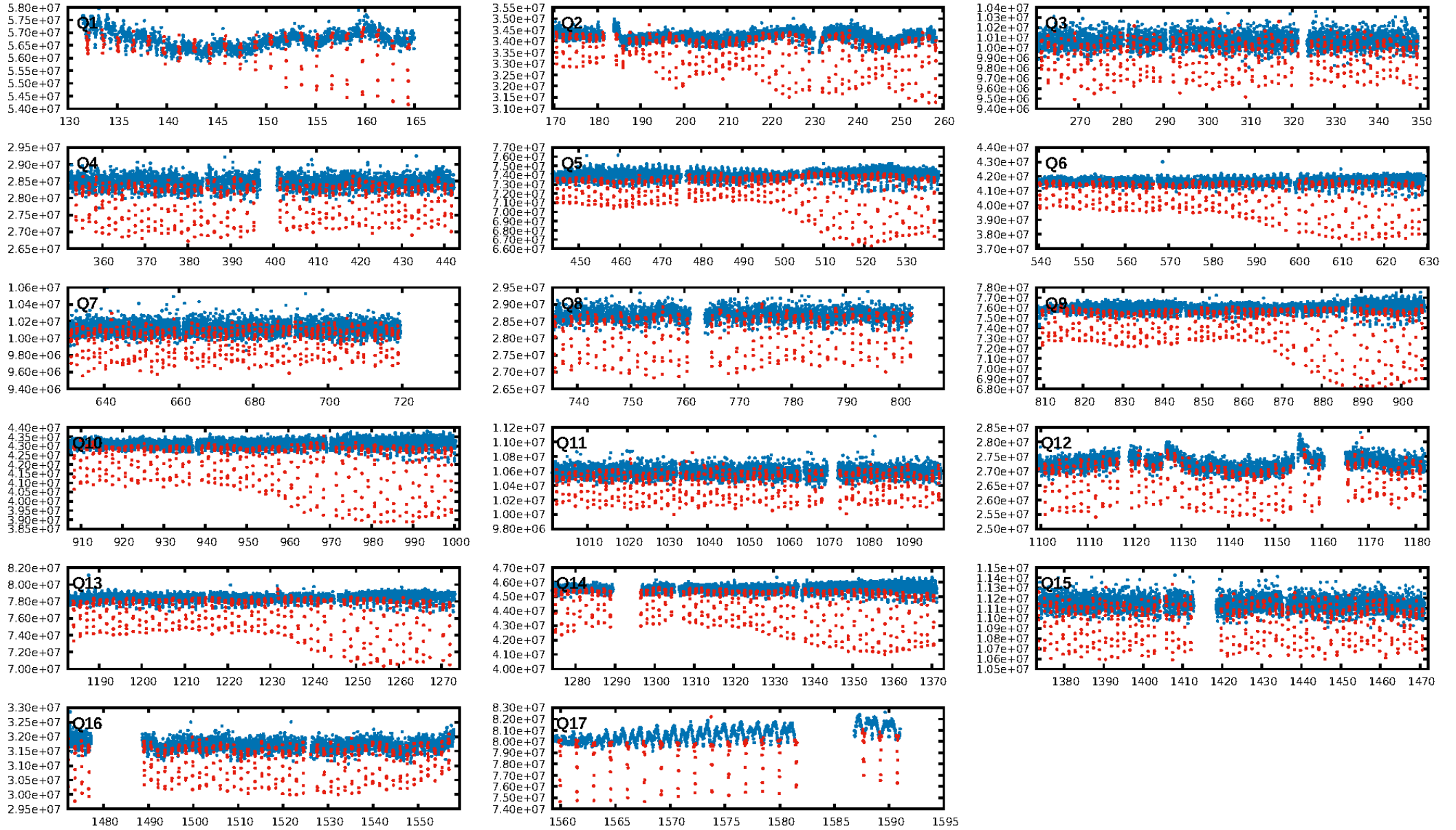
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.32σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [774/826]
GhostDiagnostic-chr: -0.8936
Centroid-sig: 0.0%
Centroid-so: 2.611 arcsec [6448.24σ]
OotOffset-rm: 2.580 arcsec [1.55σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 1.711 arcsec [1.05σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
DiffImageOverlap-fno: 0.00 [0/17]

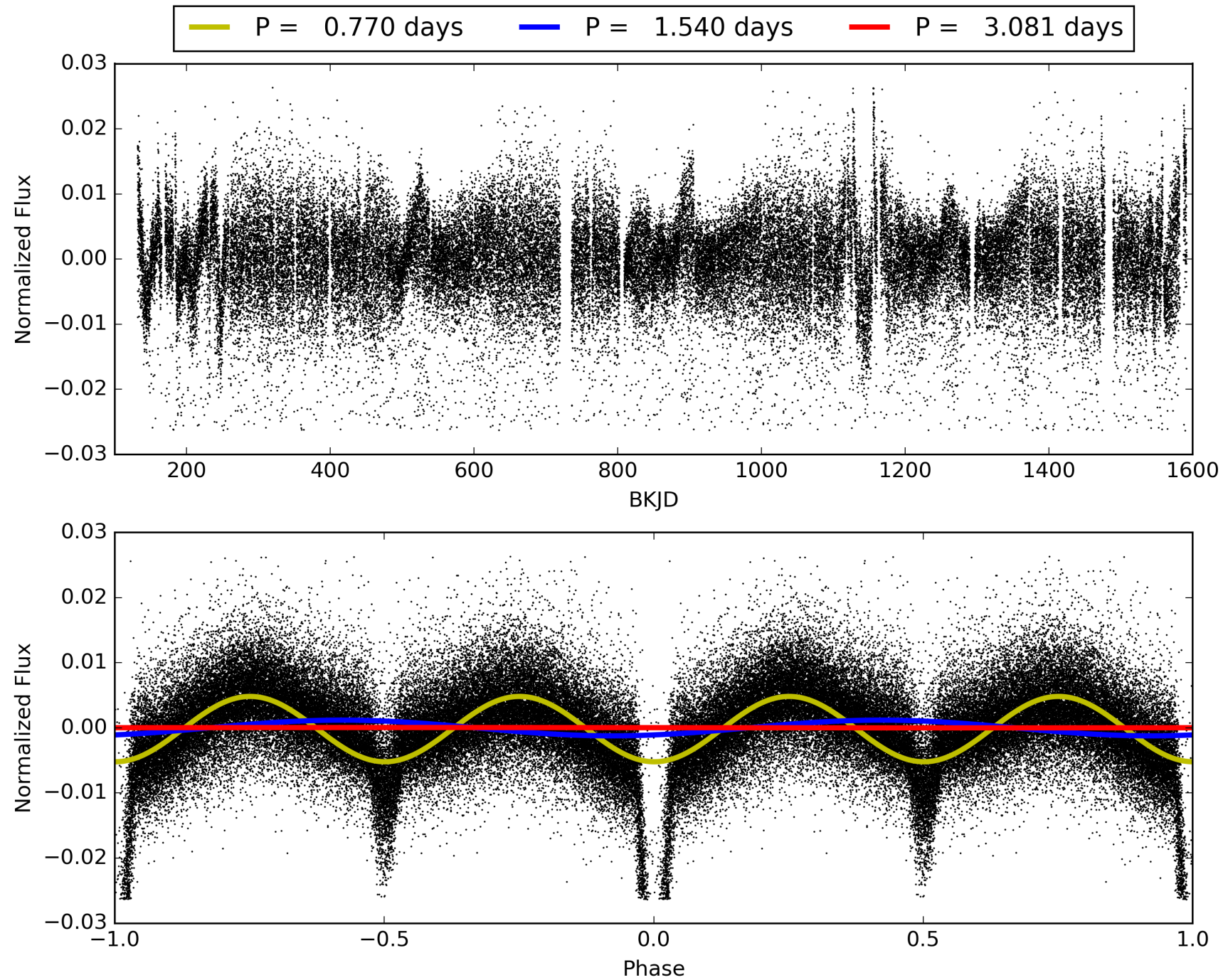
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:59:19 Z

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

TCE 003836413-01, PDC Light Curves

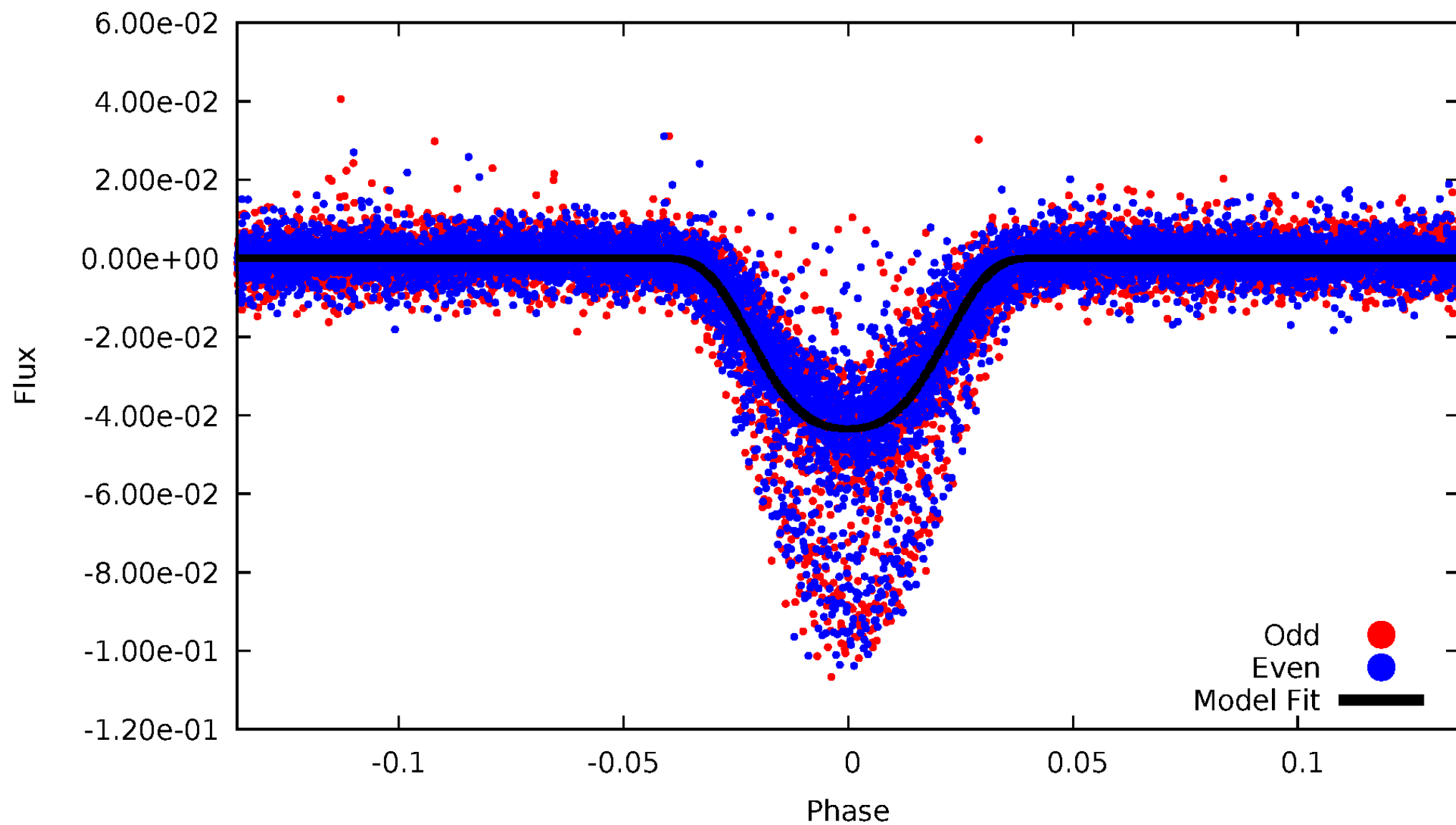


TCE 003836413-01



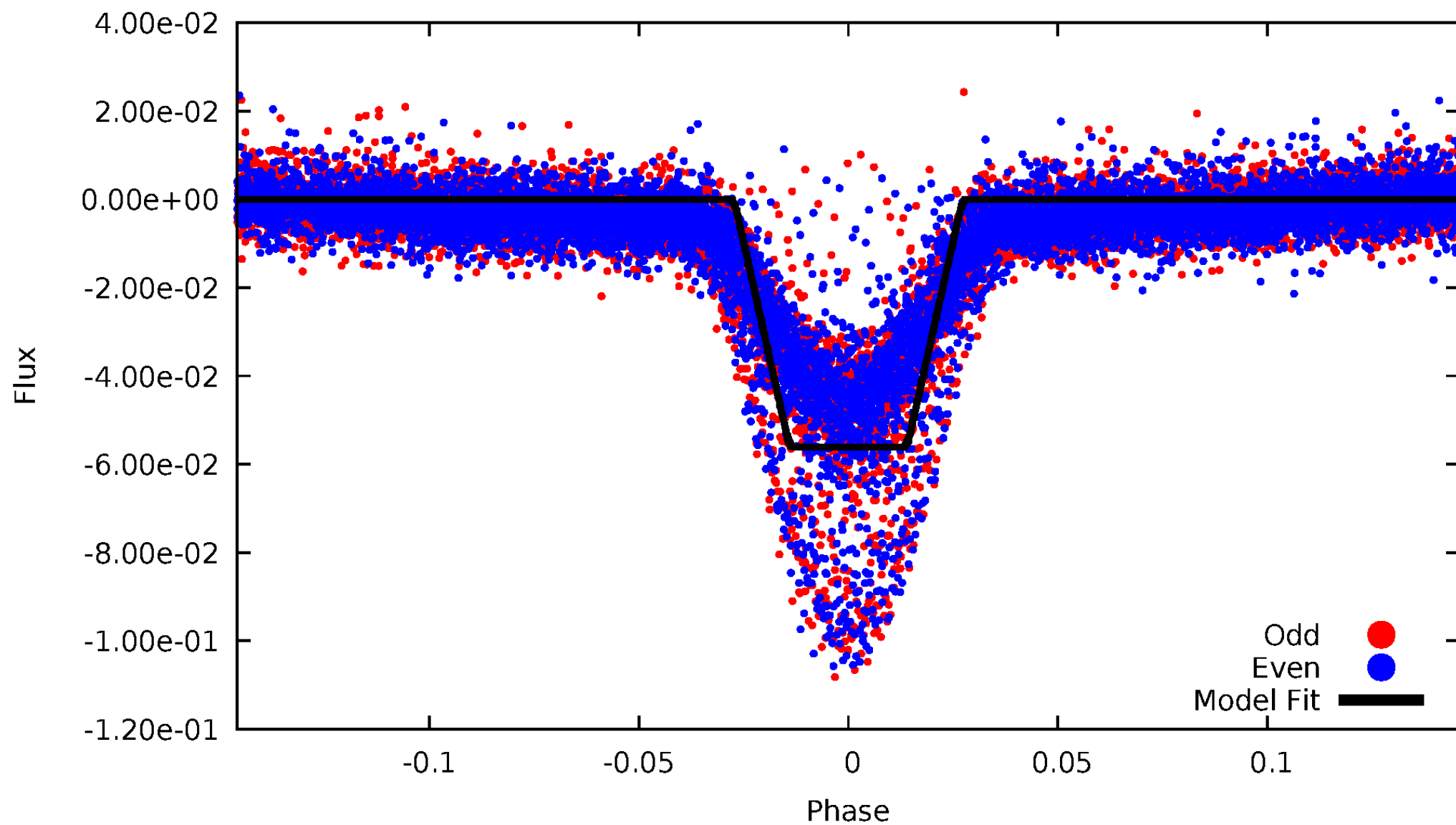
DV Odd/Even

TCE 003836413-01



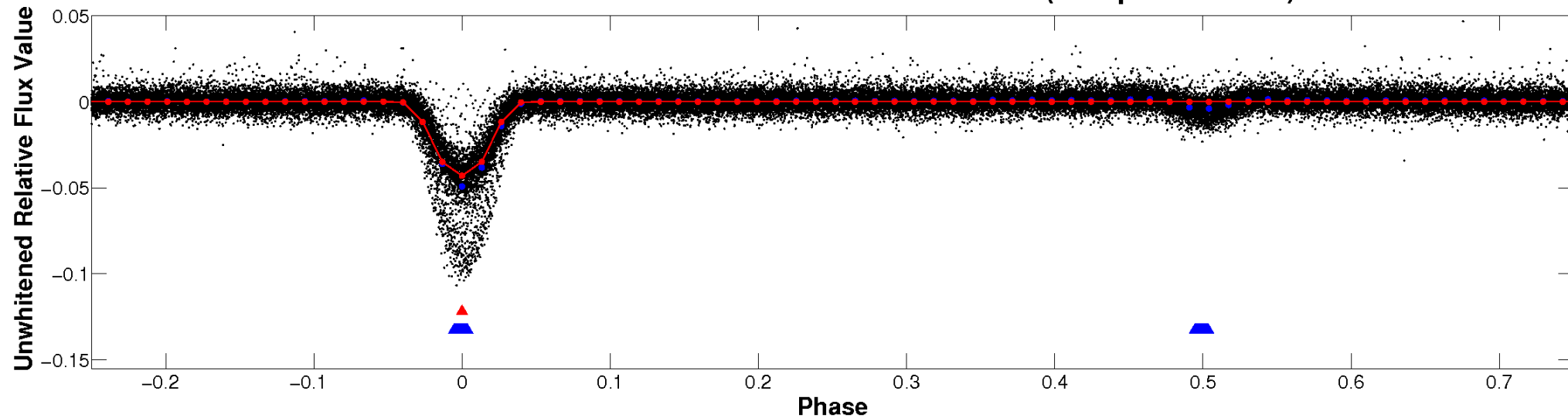
ALT Odd/Even

TCE 003836413-01

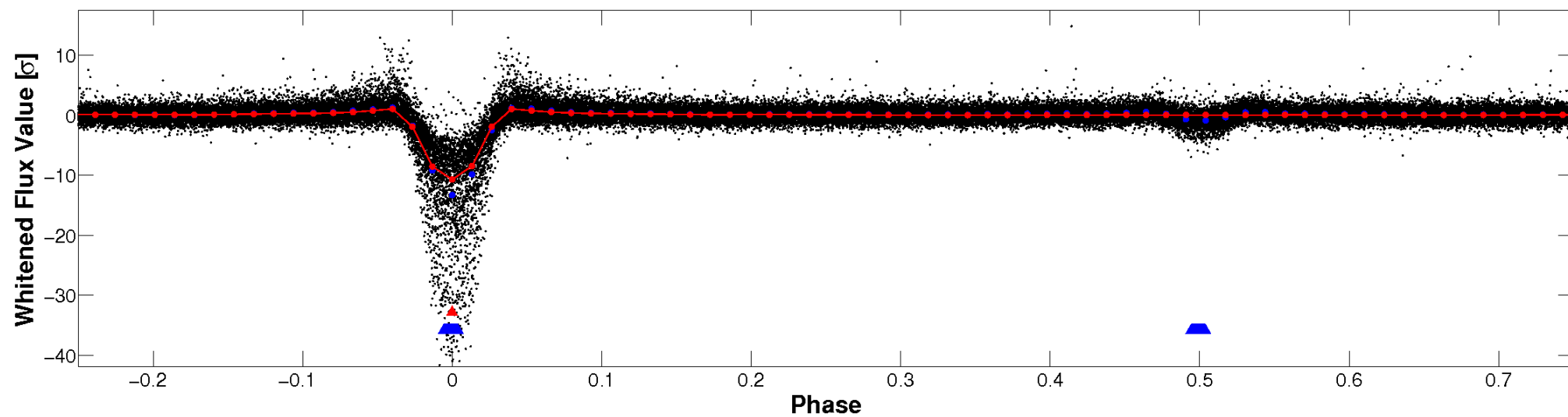


Non-Whitened Vs. Whitened Light Curve

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

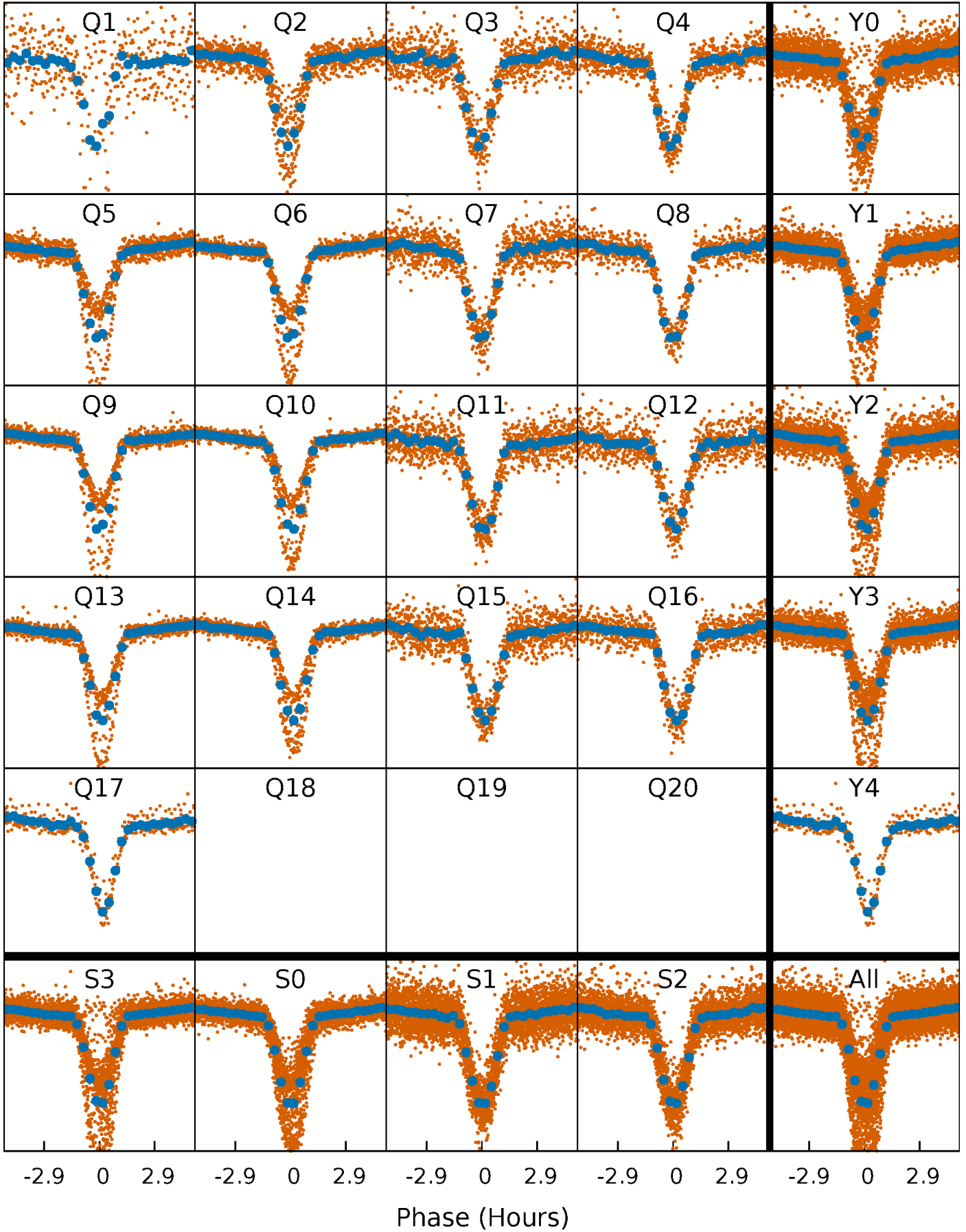


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



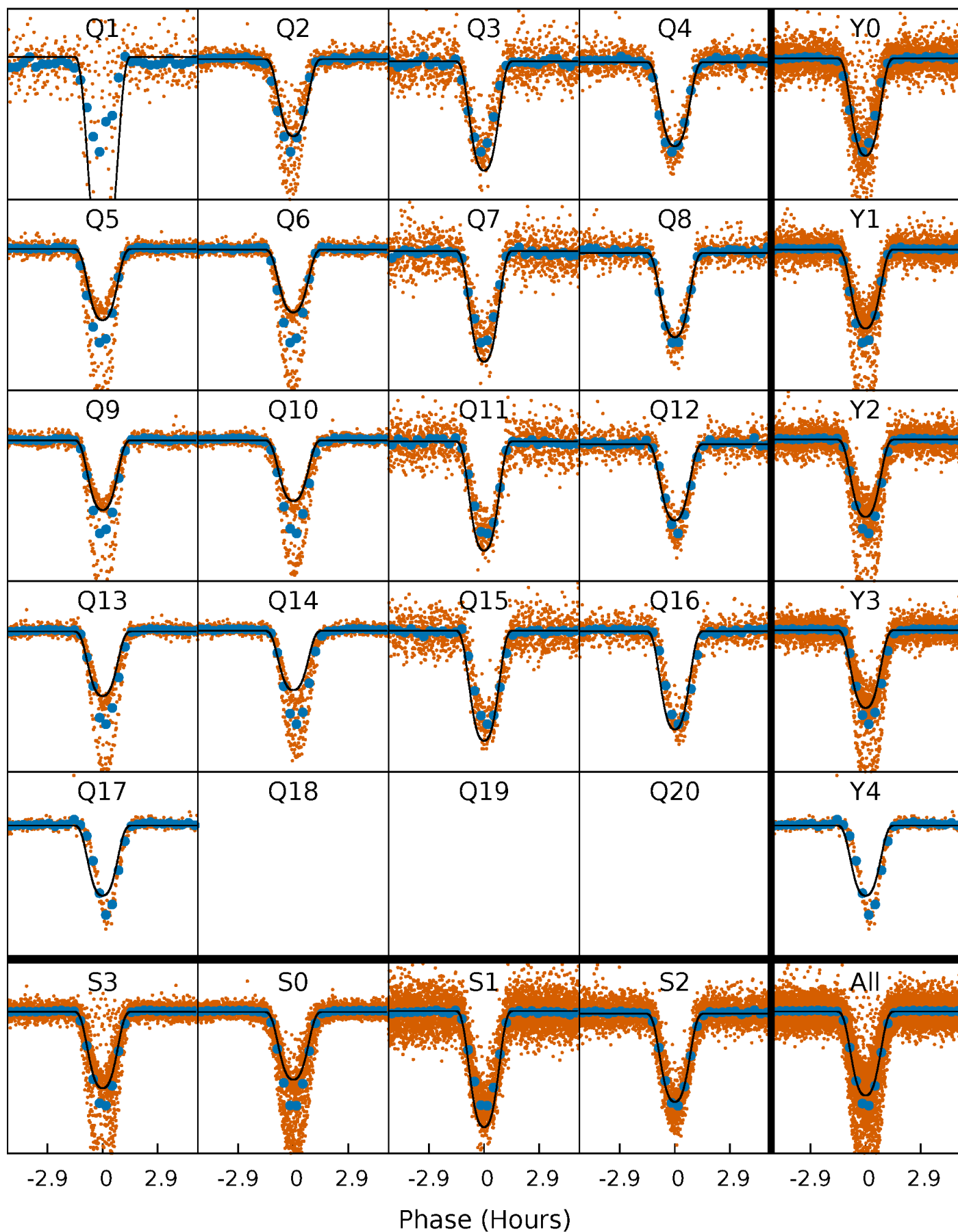
PDC Quarter-Phased Transit Curves

TCE 003836413-01 P= 1.540378 Days $T_0=132.003888$ (BKJD)



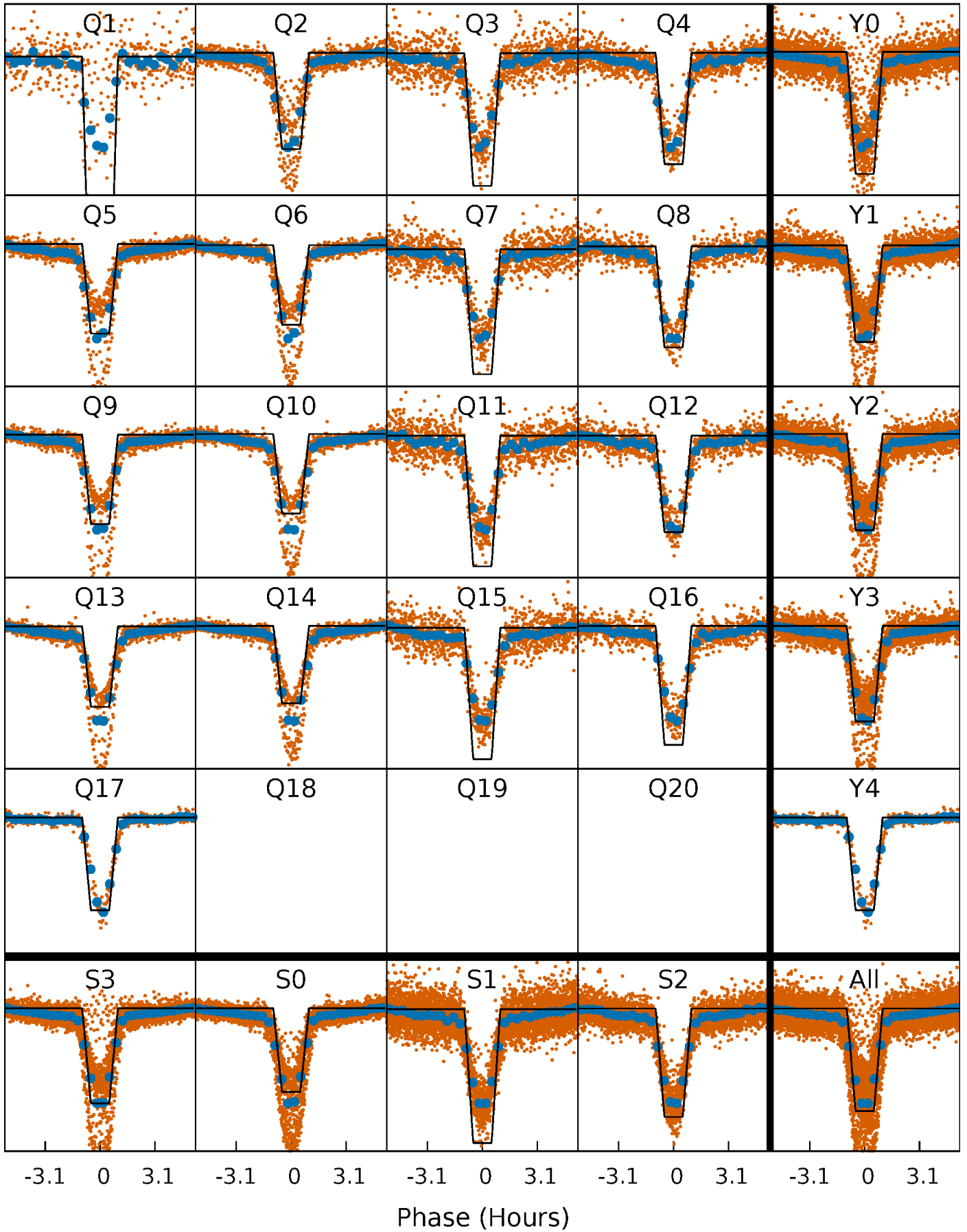
DV Quarter-Phased Transit Curves

TCE 003836413-01 P= 1.540378 Days $T_0=132.003888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

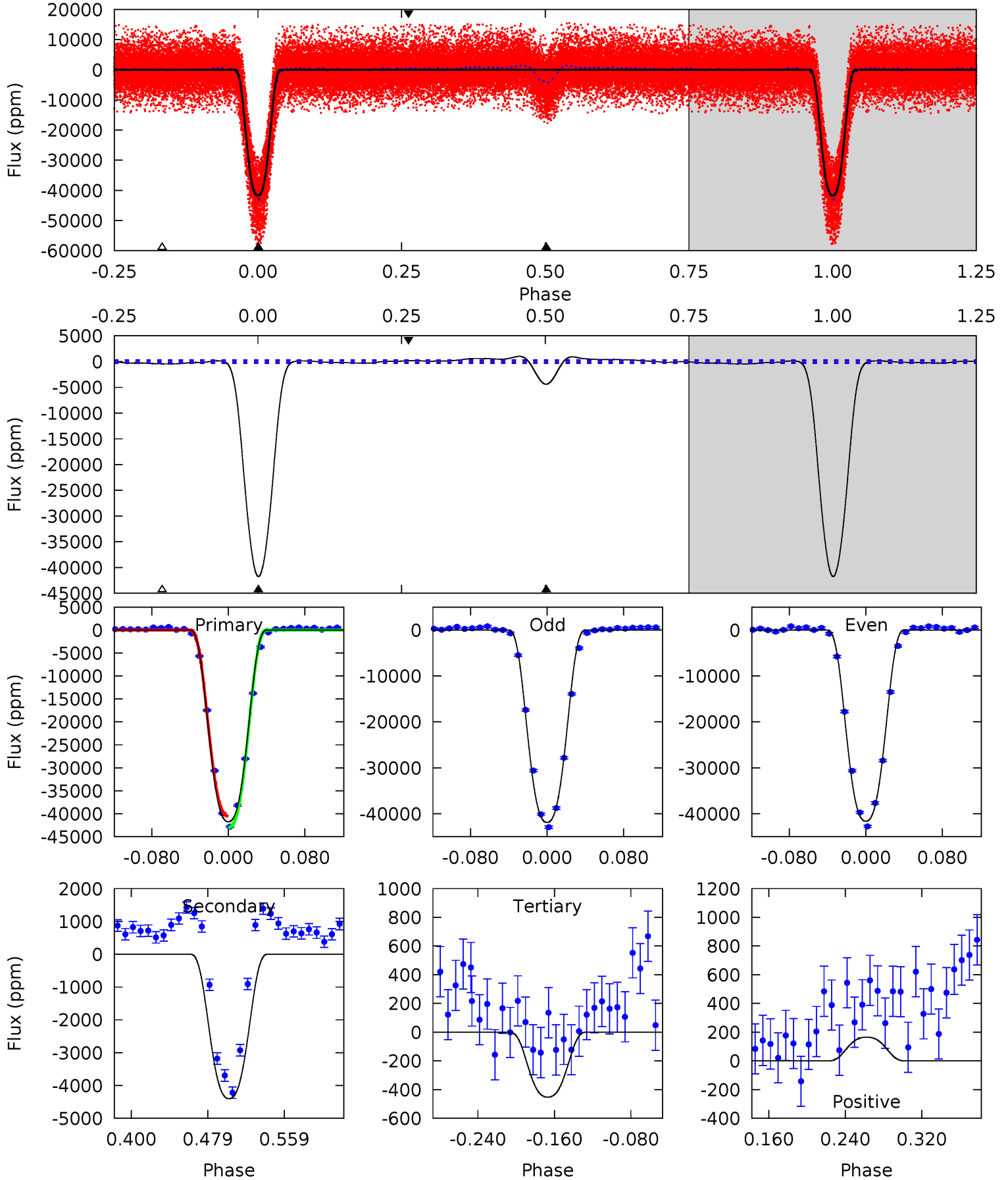
TCE 003836413-01 P= 1.540387 Days $T_0=132.000594$ (BKJD)



DV Model-Shift Uniqueness Test

003836413-01, P = 1.540378 Days, E = 130.463510 Days

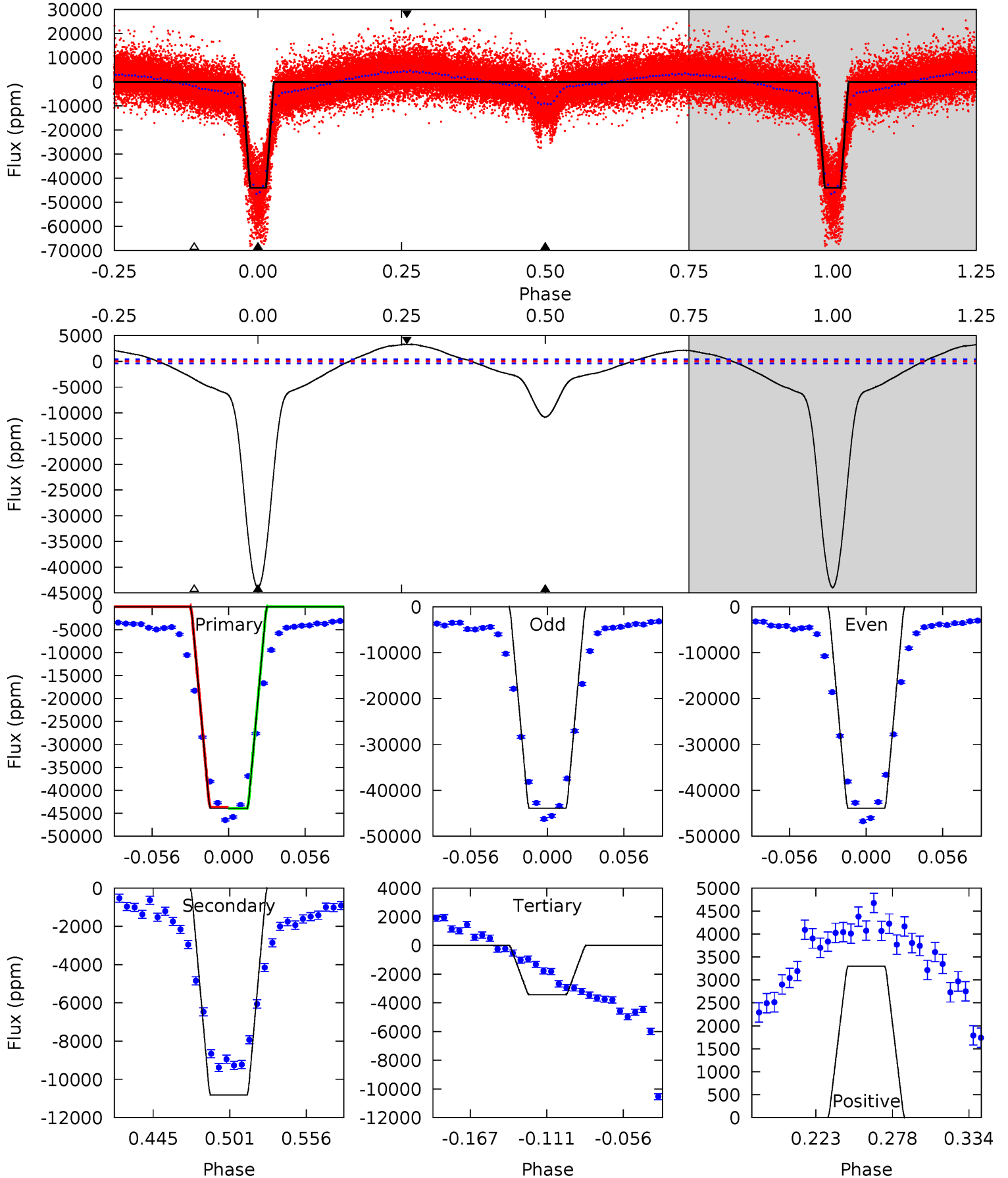
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
710.7	74.9	7.70	2.81	4.61	1.75	4.86	703.0	707.9	67.2	72.1	2.22	1.13	0.02	21.2



Alt Model-Shift Uniqueness Test

003836413-01, P = 1.540387 Days, E = 130.460207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
505.7	124.5	39.6	38.0	4.69	1.91	28.5	466.2	467.7	84.9	86.5	0.06	1.12	0.07	0



Stellar Parameters For KIC 003836413

	$T_{\text{eff}}(K)$	$\log(g)$	[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 003836413-01 / KOI 6363.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4402 ± 59	$23.21^{+1.58}_{-1.65}$	2204^{+100}_{-98}	3603^{+84}_{-91}	$3.098^{+0.436}_{-0.368}$
Alt.	-10814 ± 87	$26.07^{+1.80}_{-1.79}$	2215^{+102}_{-112}	4082^{+114}_{-110}	$6.039^{+0.868}_{-0.698}$

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 $A_{obs} \gg 1.0$

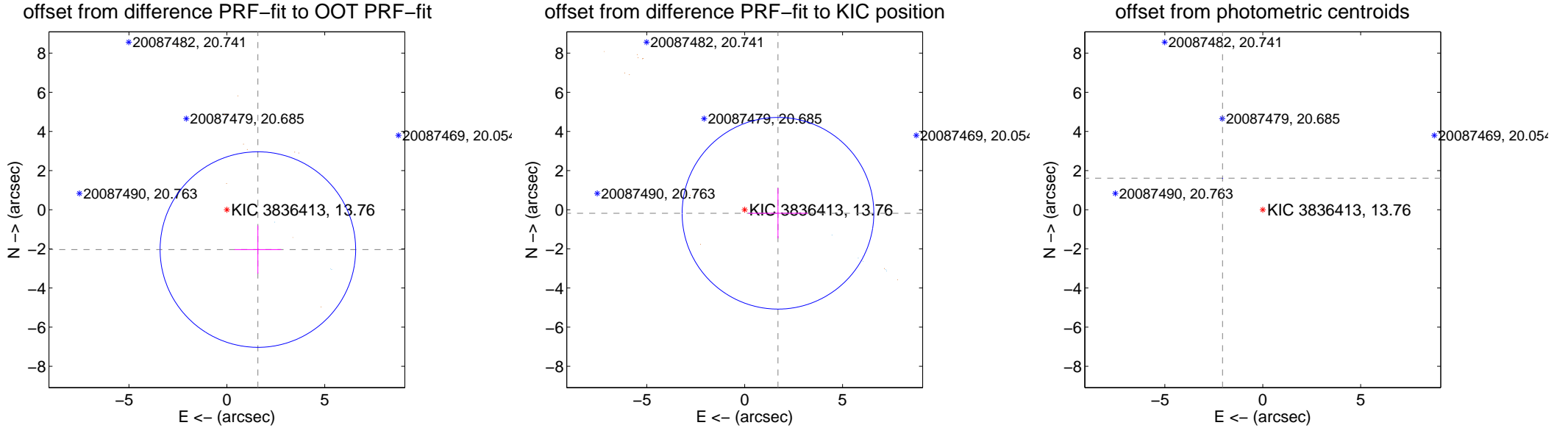
DV Centroid Data

Supplemental centroid analysis for 003836413-01. Kepler magnitude: 13.76. Transit SNR 379.02

There are 5 quarters with good PRF difference image offsets

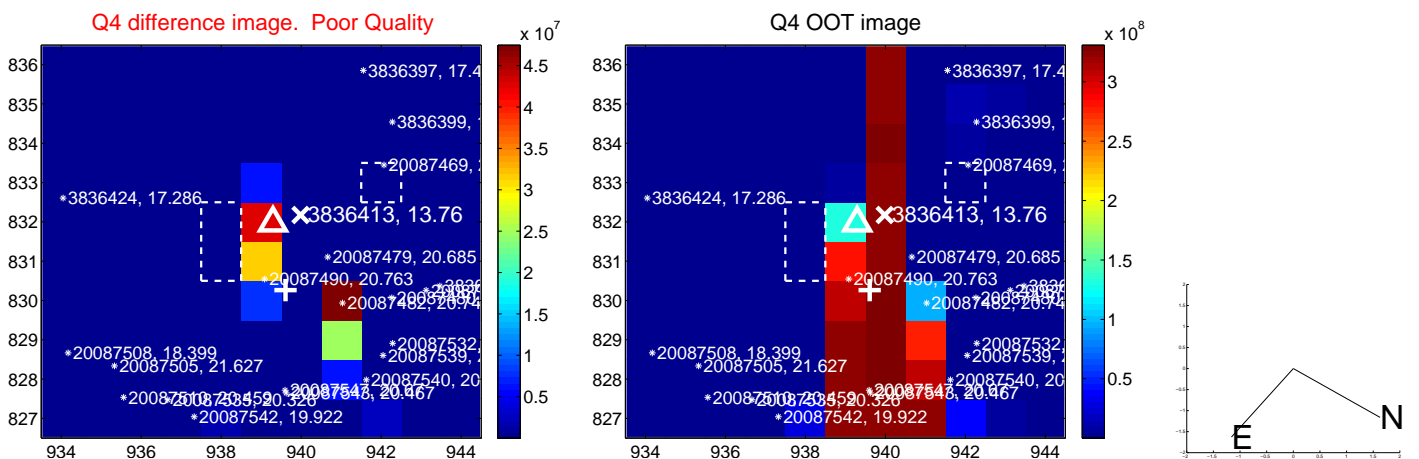
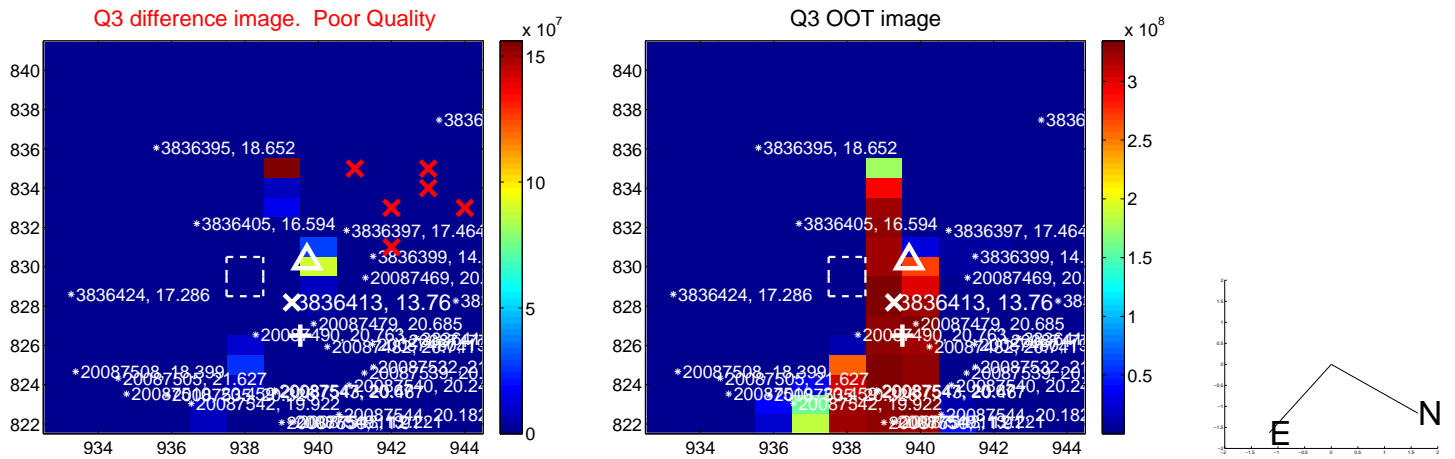
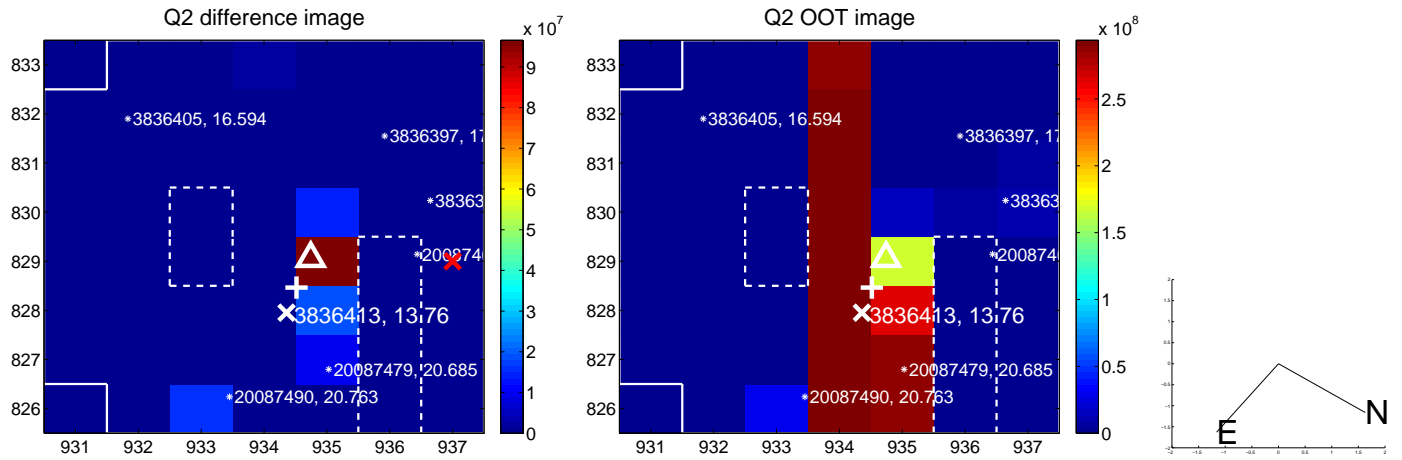
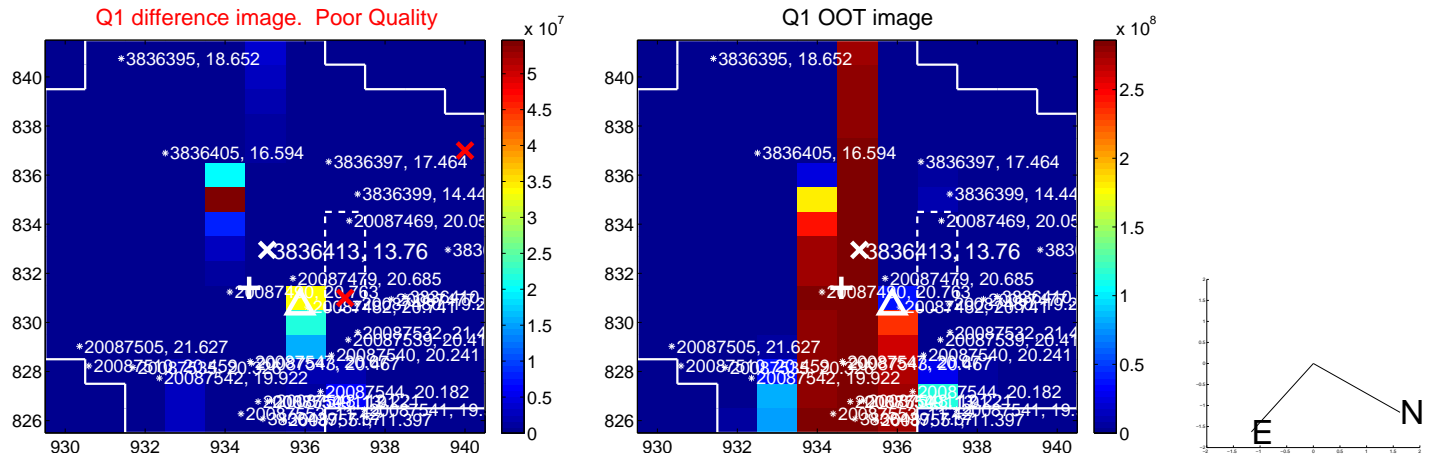
The OOT PRF centroid is offset from the target star catalog position by about 10.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.580 ± 1.665	1.55	-1.585 ± 1.191	-2.036 ± 1.227
PRF-fit source offset from KIC position	1.711 ± 1.632	1.05	-1.701 ± 1.513	-0.181 ± 1.285
photometric centroid source offset	2.61 ± 0.00	6448.25	2.06 ± 0.00	1.61 ± 0.00

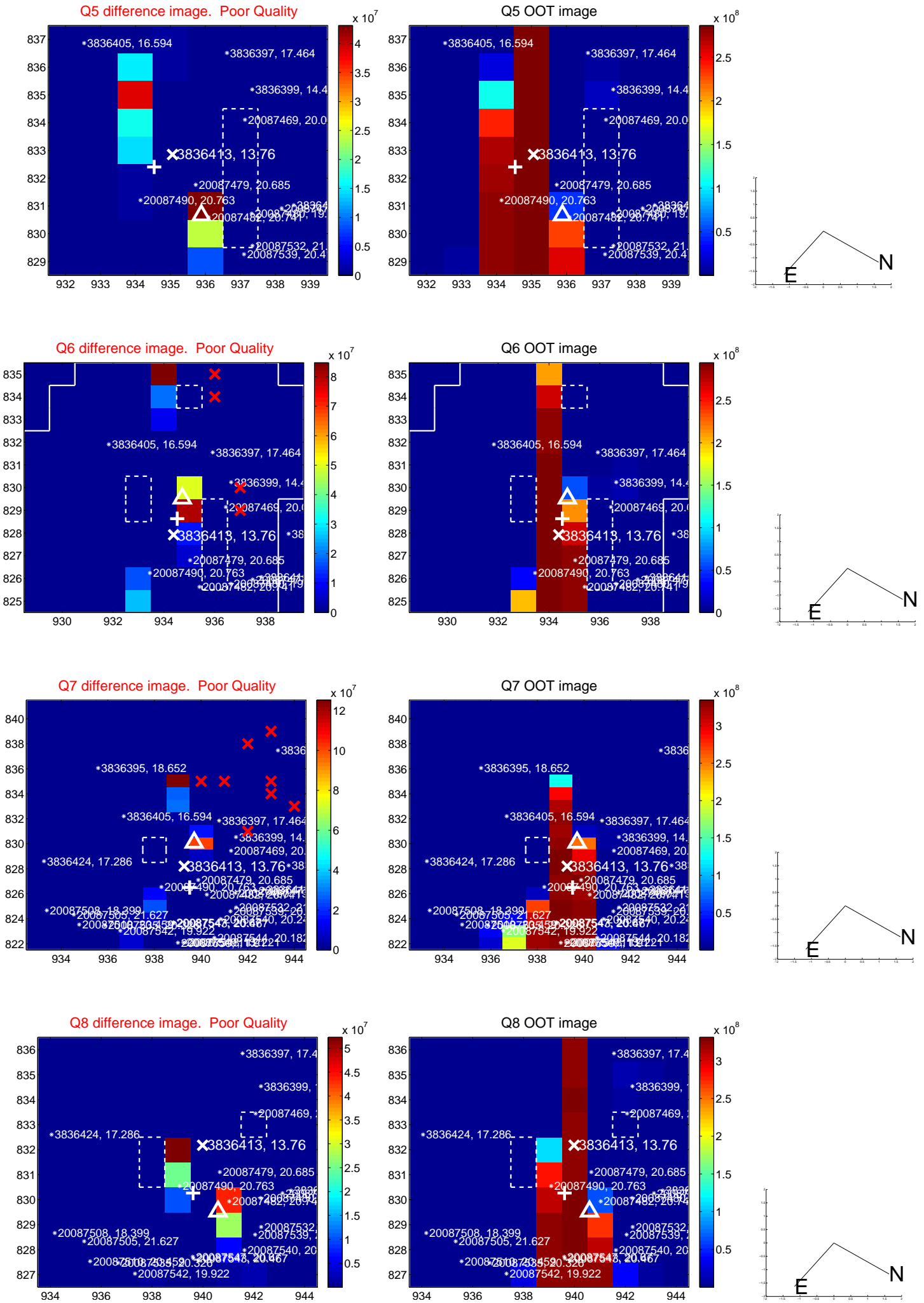


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

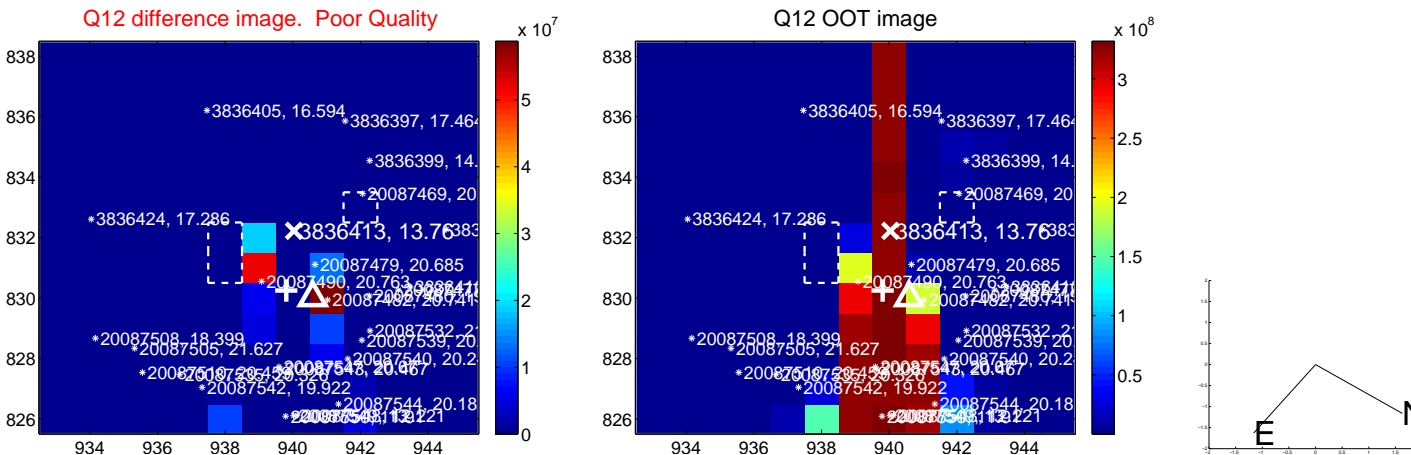
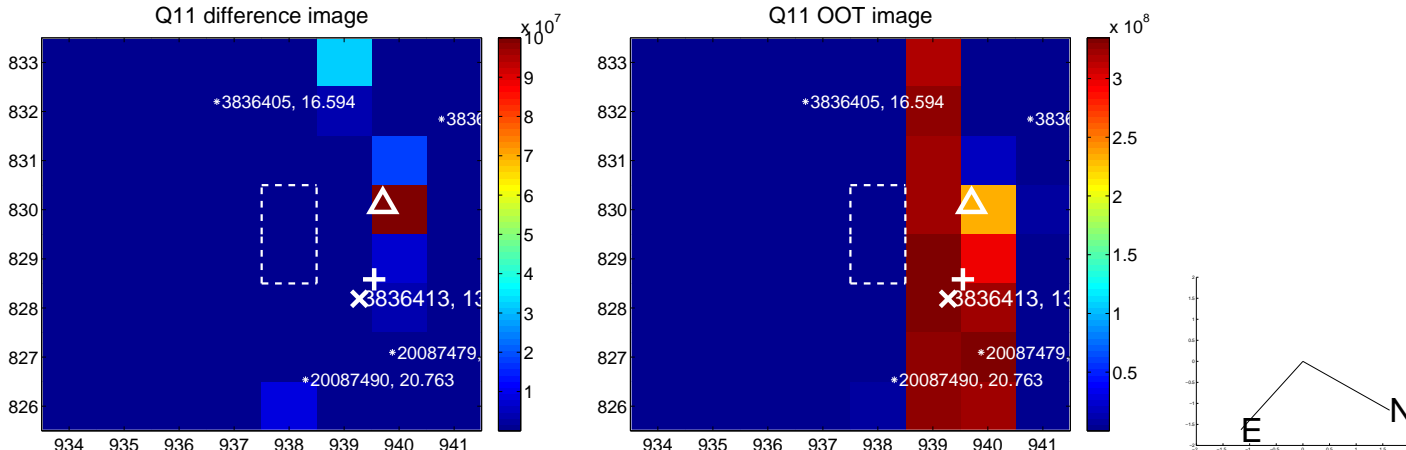
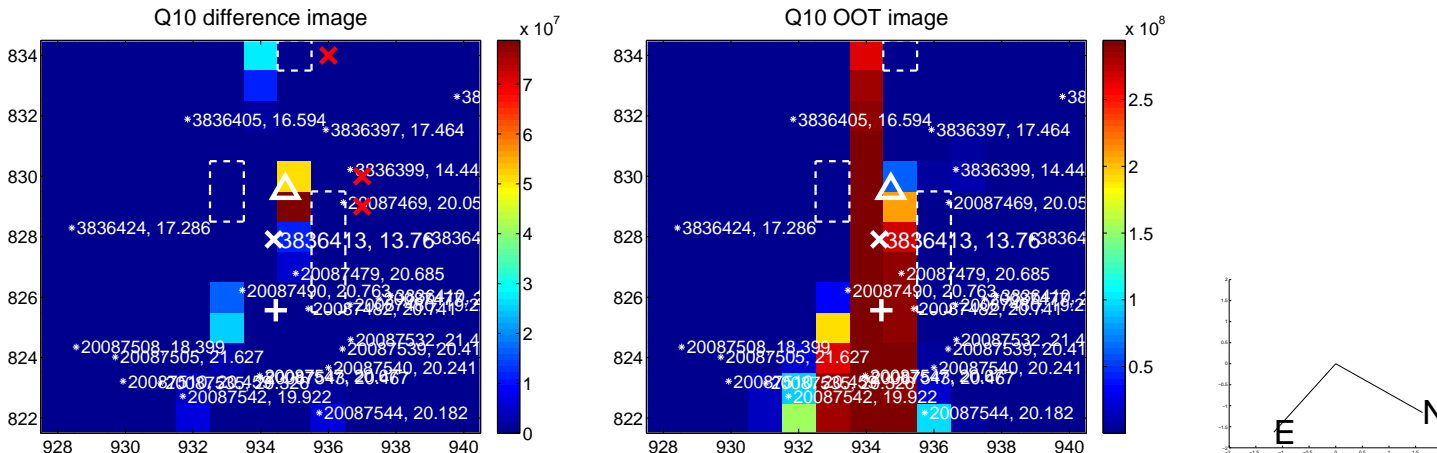
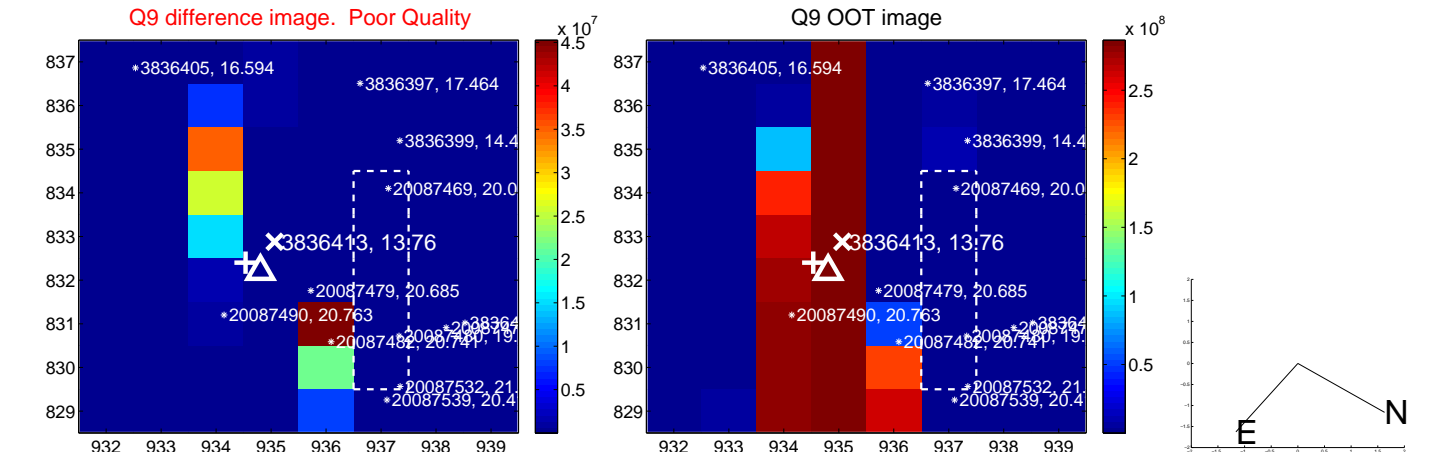
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



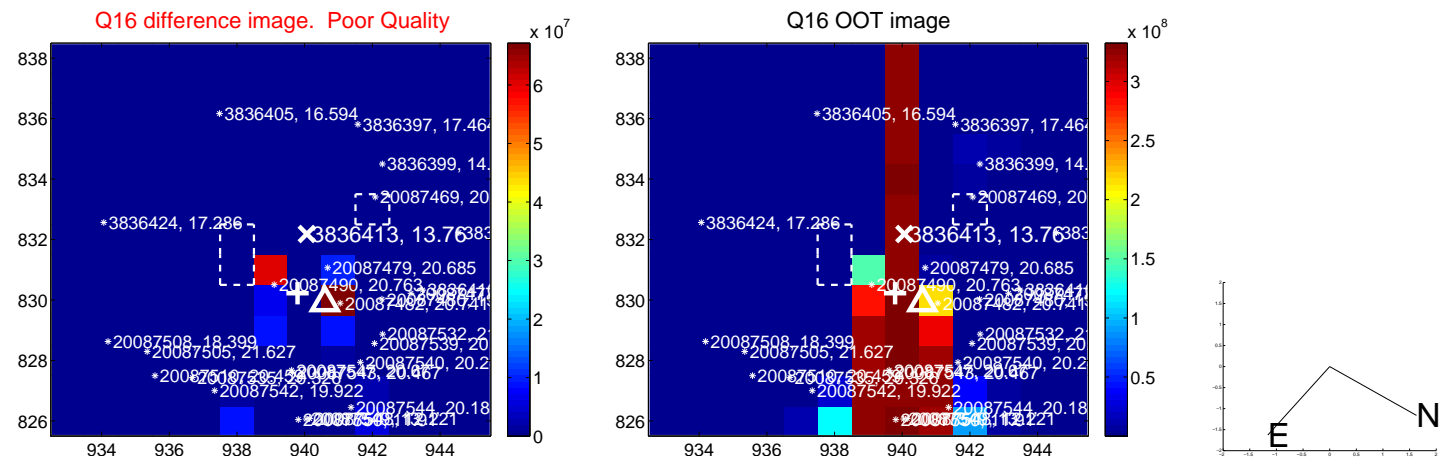
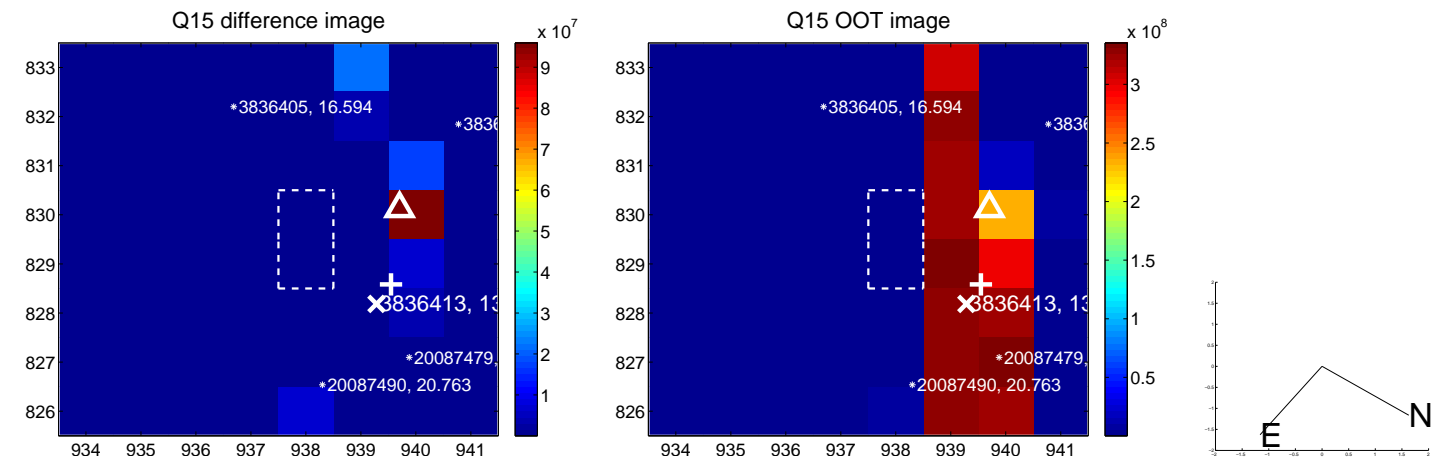
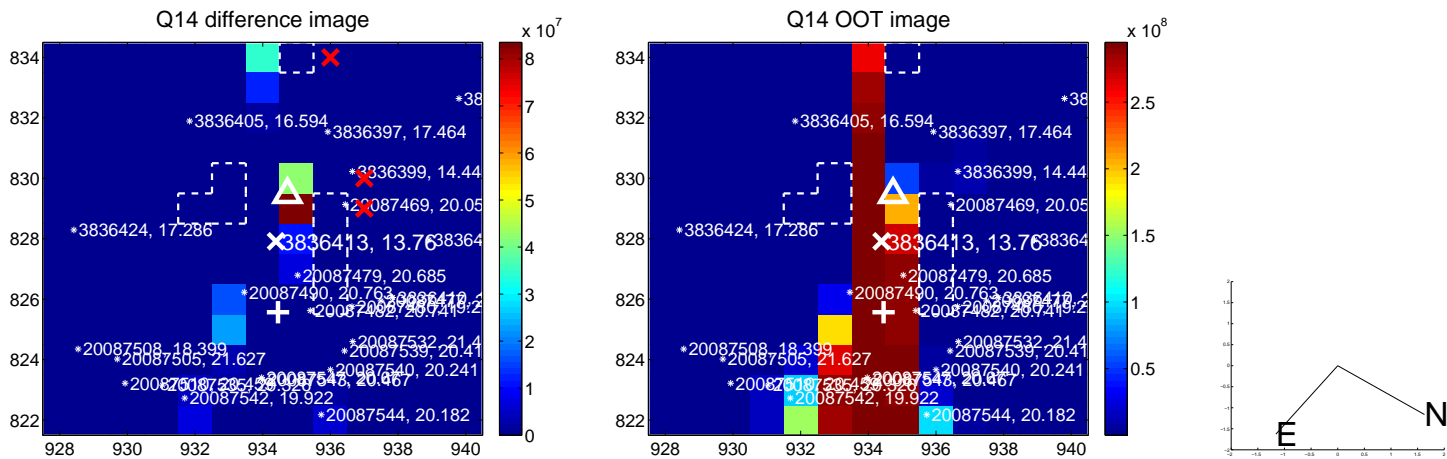
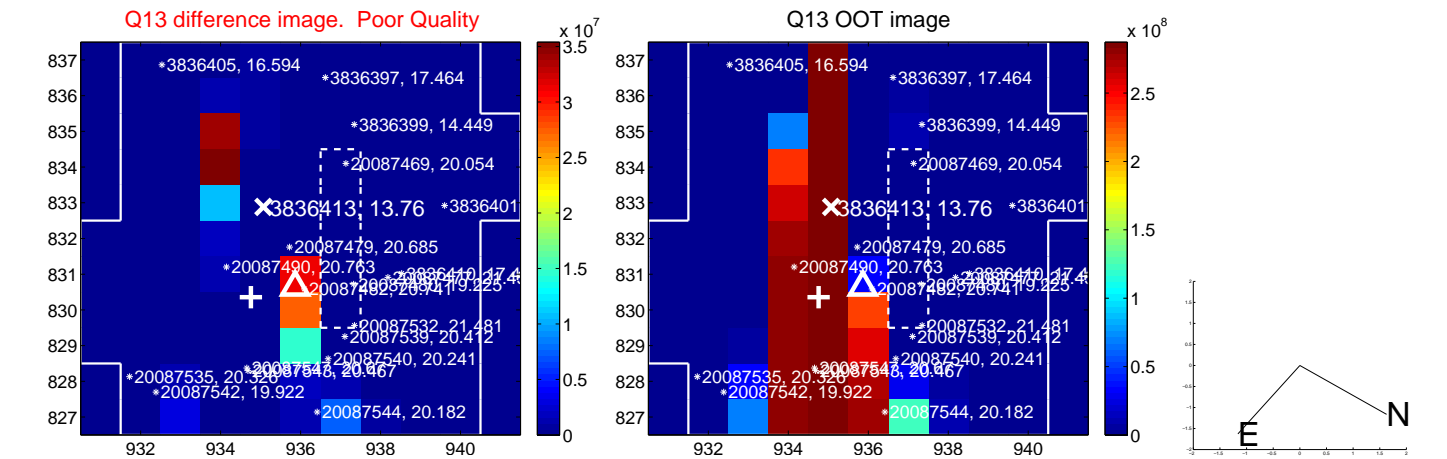
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



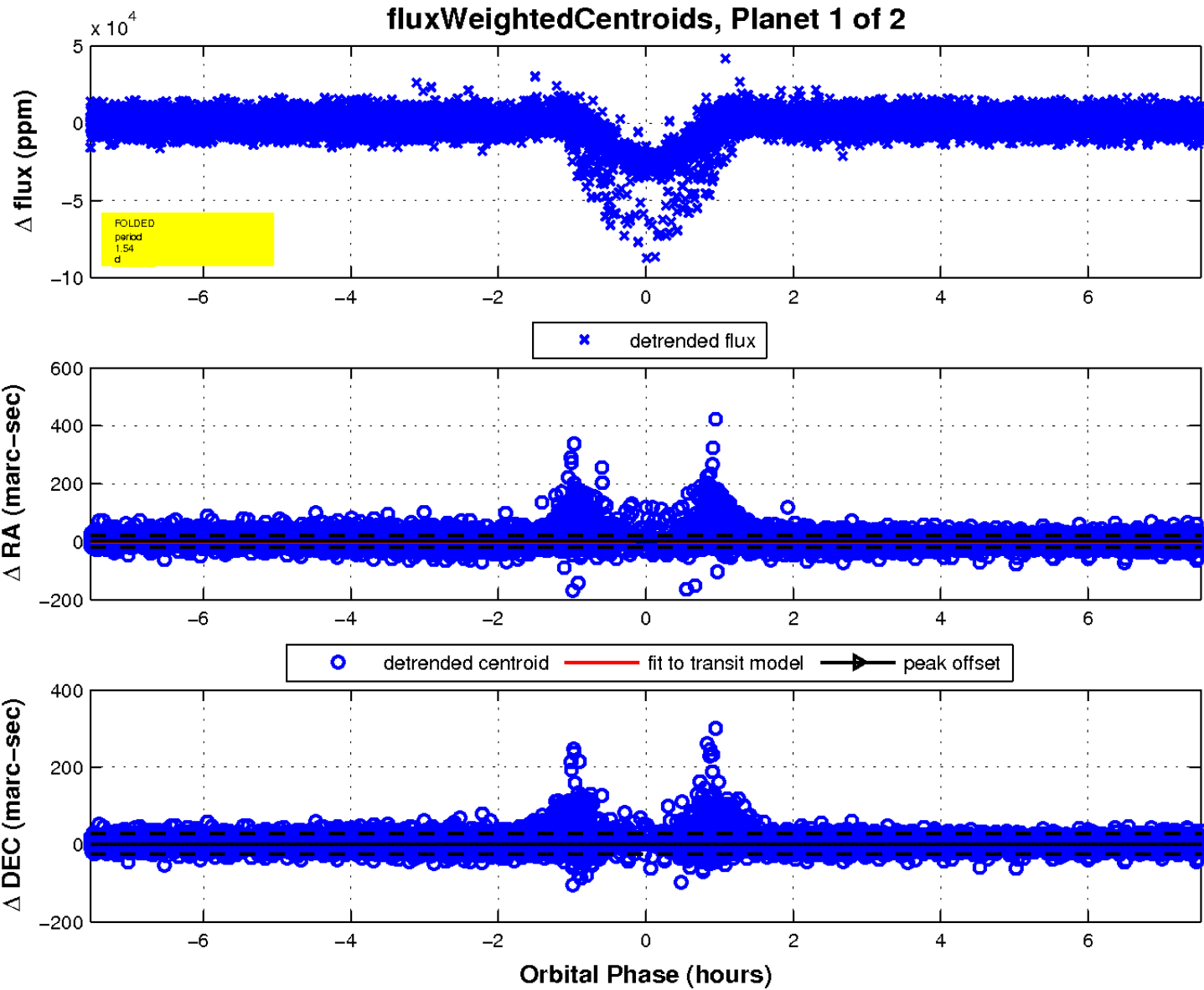
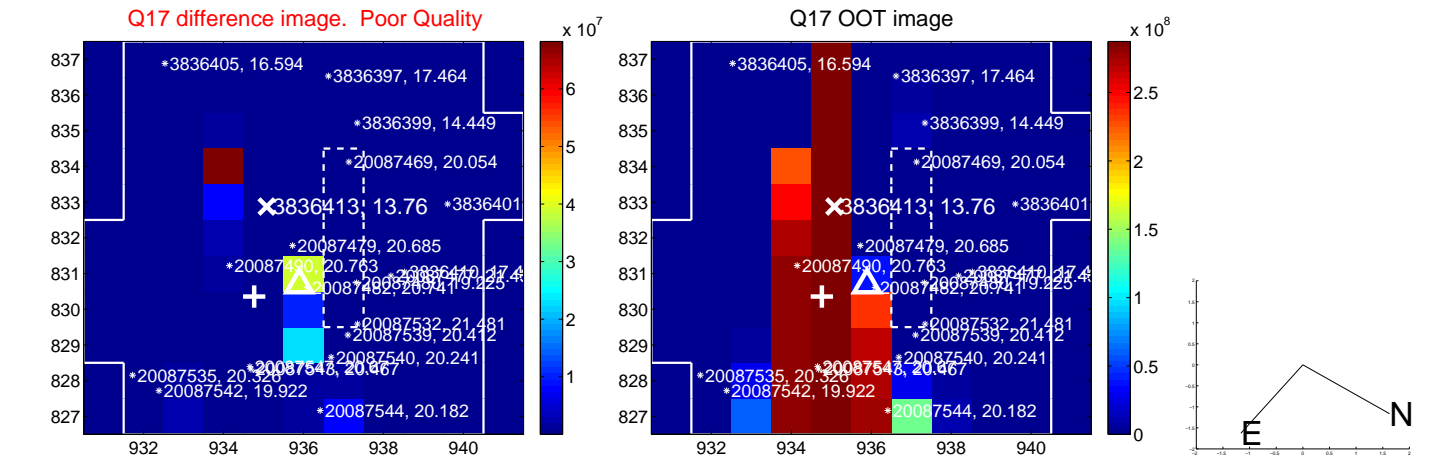
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



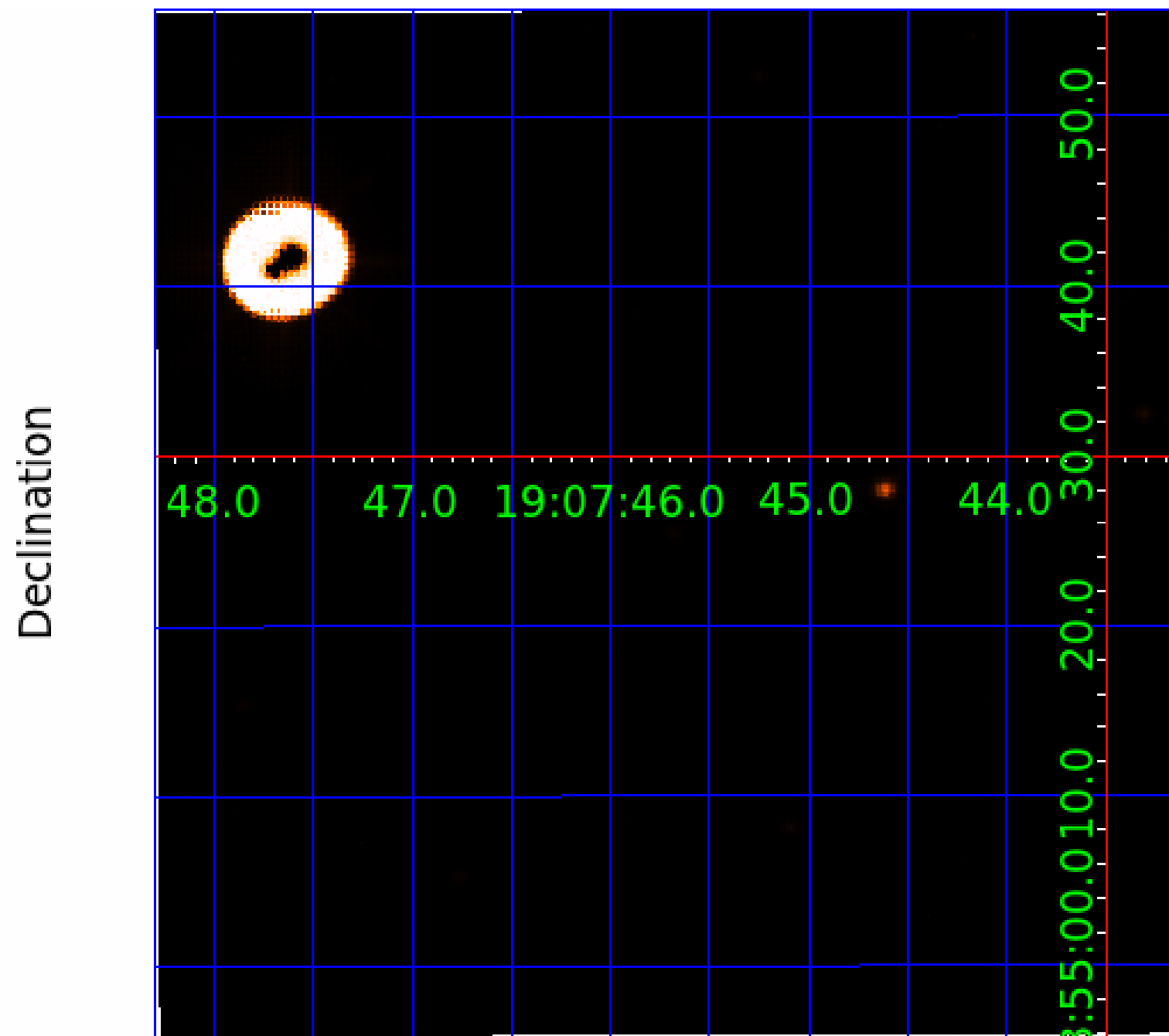
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003836413

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})
003836413-01	OBS	6363.01	1.540378	132.003888	43467.8	2.512	704.6	379.0	1.00	5780	23.05	1467.02
003836413-02	OBS	No	0.770197	131.995369	17391.0	1.500	40.5	-1.0	1.00	5780	13.14	3696.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003836413-01	OBS	FP	0.00	0	1	1	1	SWEET_EB—MOD_SEC_DV—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
003836413-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—CENT_NOFITS—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 003836413-02

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
003836413-02	3836413	6364.01	3836439	1:2	27.2	7	0	7.57	13.76	4.07	Direct-PRF	0	0.31	0.09

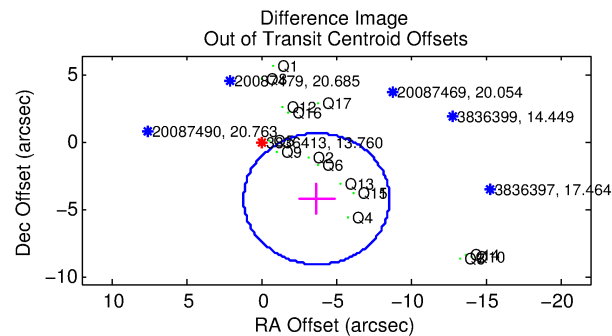
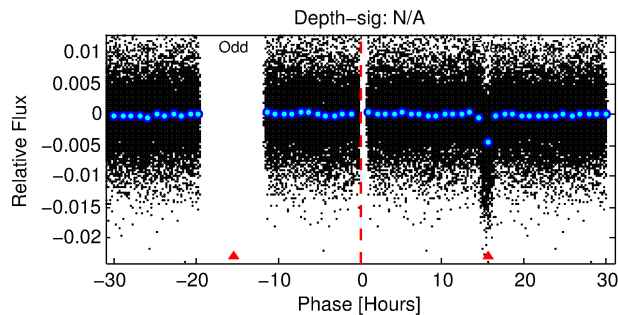
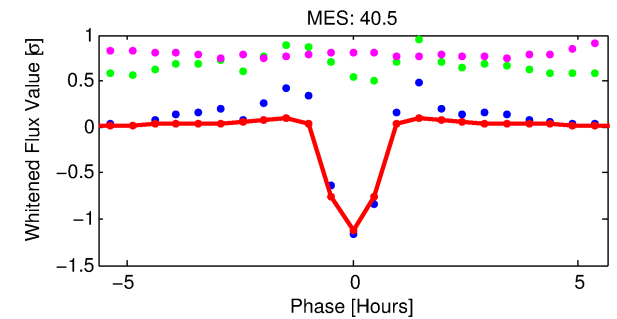
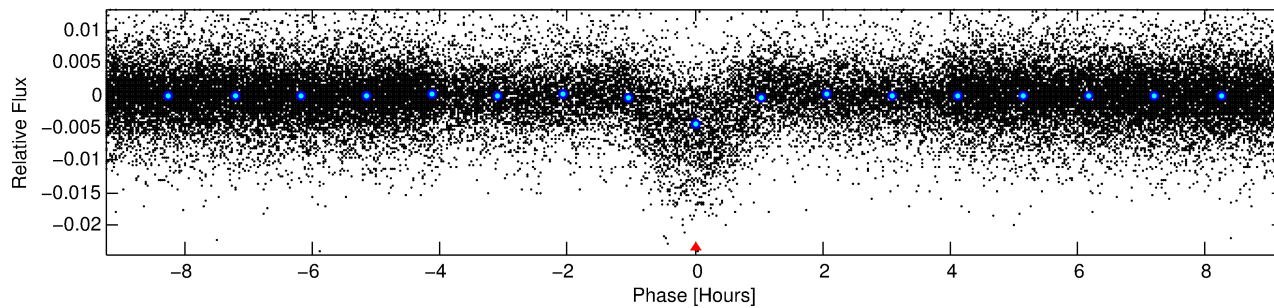
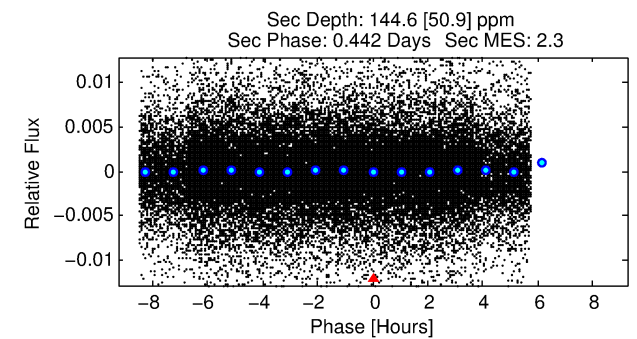
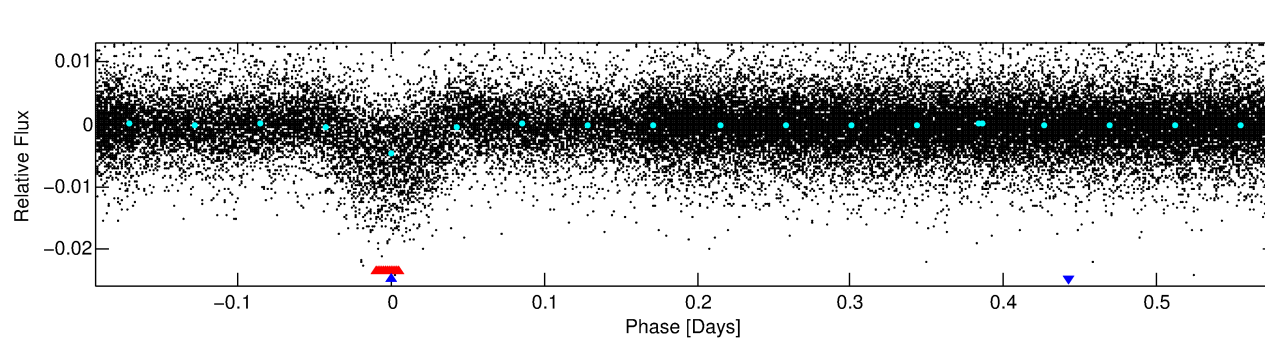
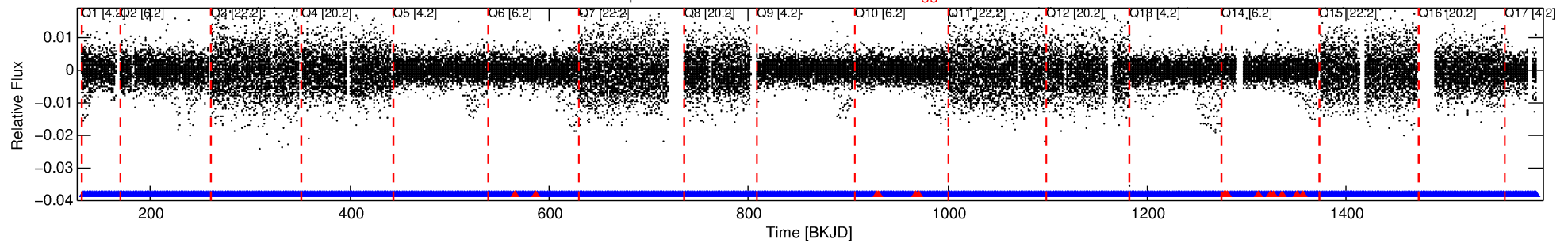
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 3836413 Candidate: 2 of 2 Period: 0.770 d

KOI: K06363 Corr: No Ephemeris Match

Kp: 13.76 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



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% [6.32σ]

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 0.98 [822/837]

GhostDiagnostic-chr: -0.9869

Centroid-sig: 0.0%

Centroid-so: 2.641 arcsec [2886.42σ]

OotOffset-rm: 5.583 arcsec [3.44σ]

KicOffset-rm: 4.677 arcsec [2.83σ]

OotOffset-st: 4/4/4/5 [17]

KicOffset-st: 4/4/4/5 [17]

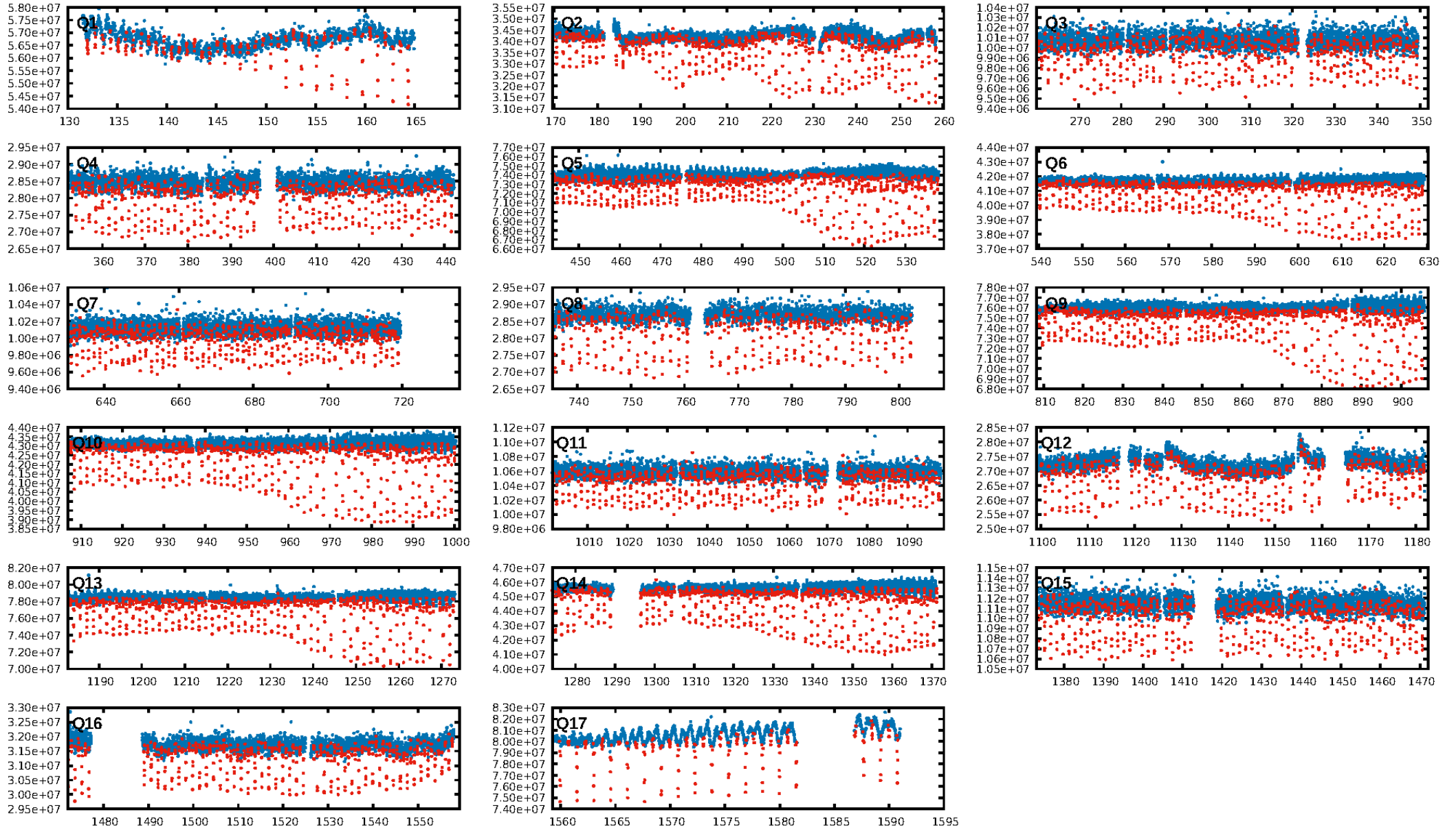
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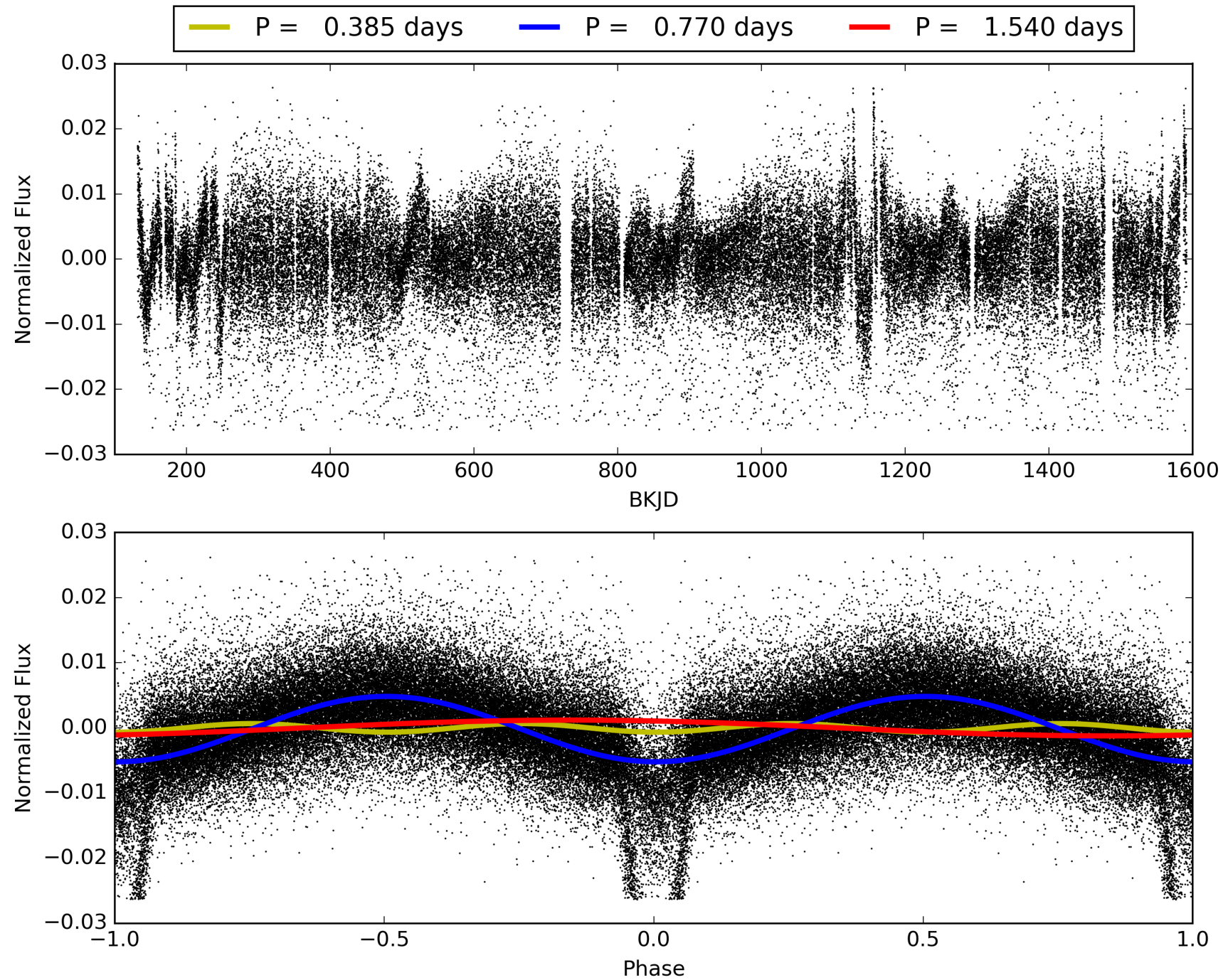
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:59:30 Z

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

TCE 003836413-02, PDC Light Curves

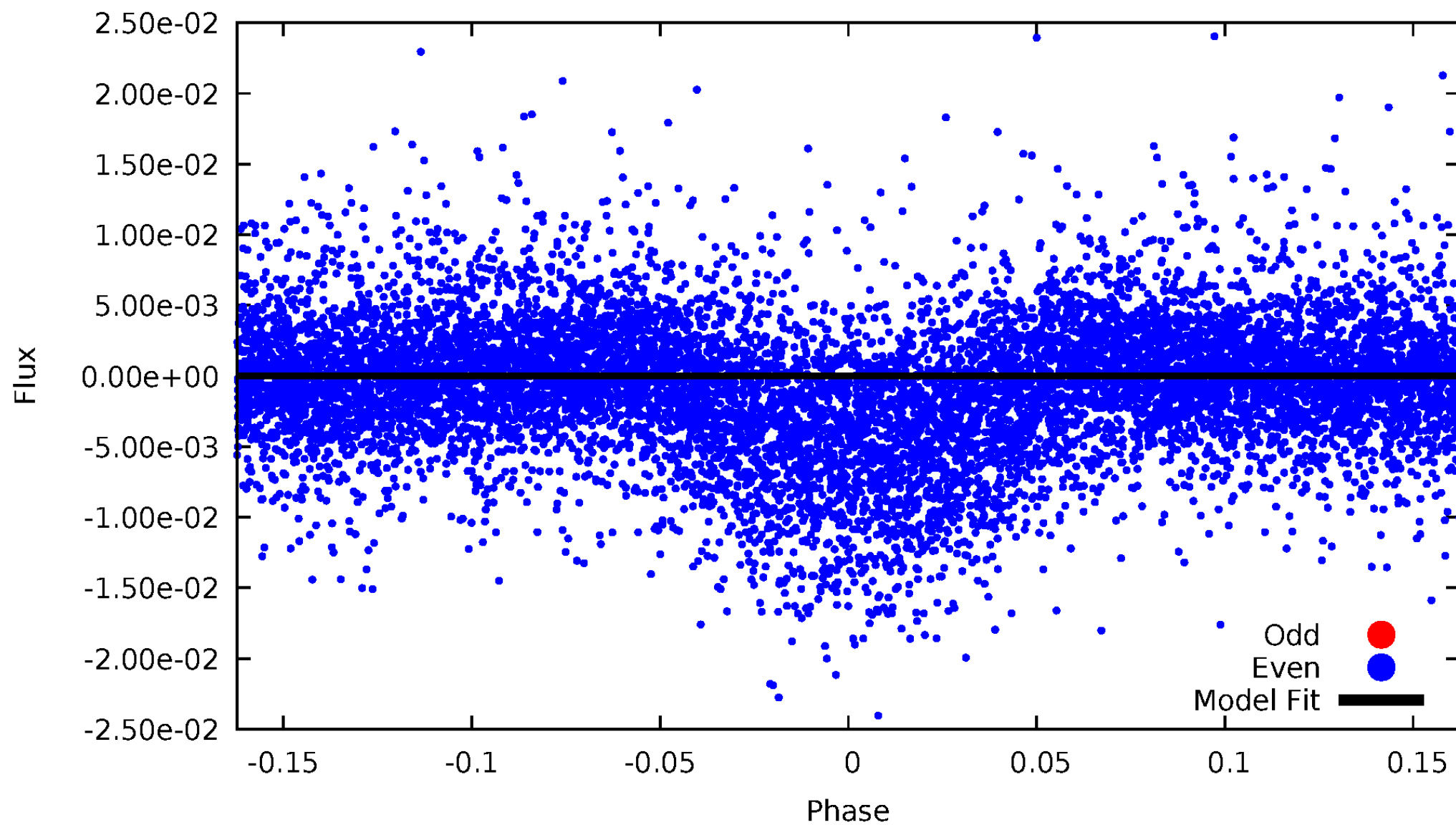


TCE 003836413-02



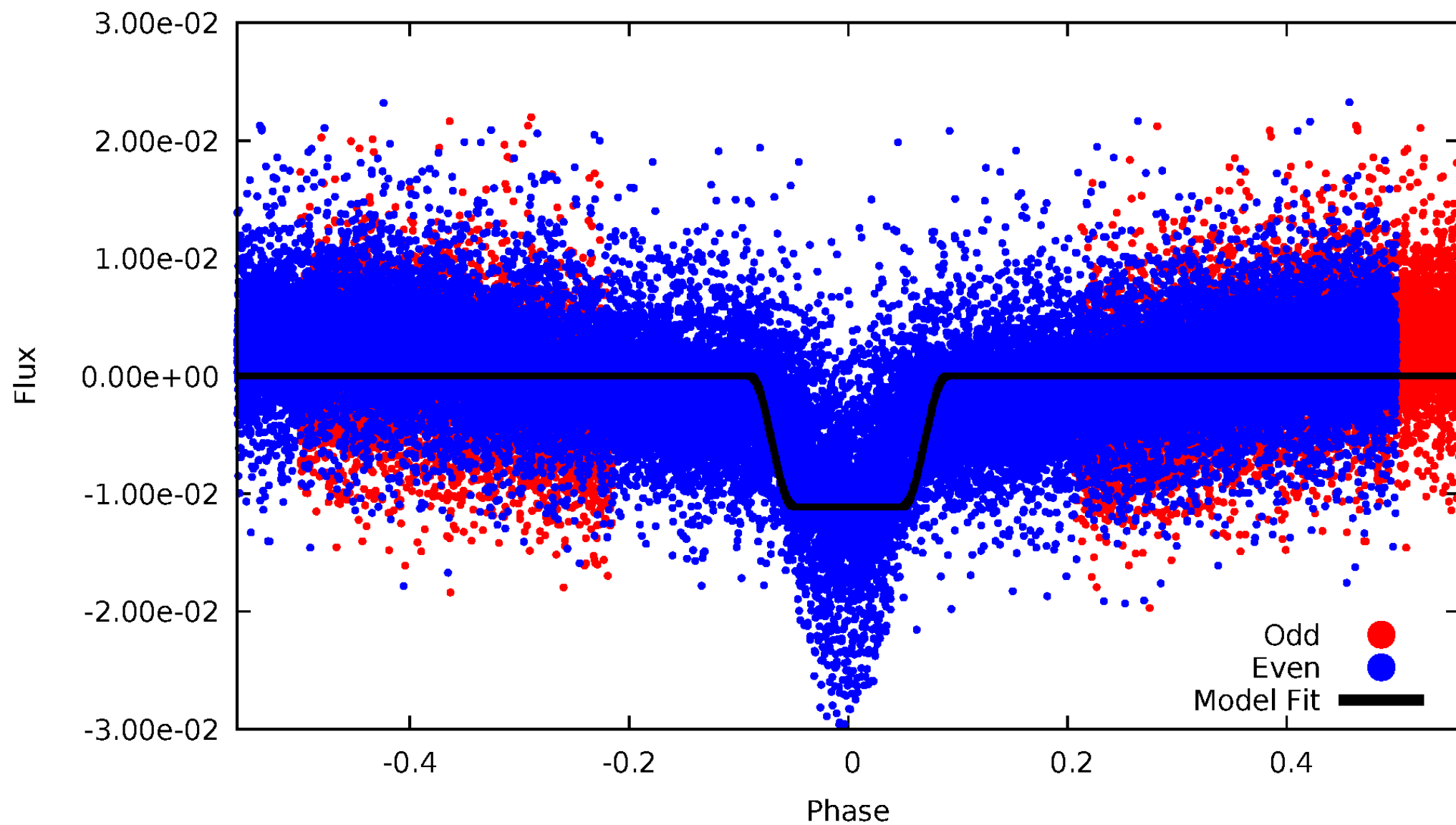
DV Odd/Even

TCE 003836413-02



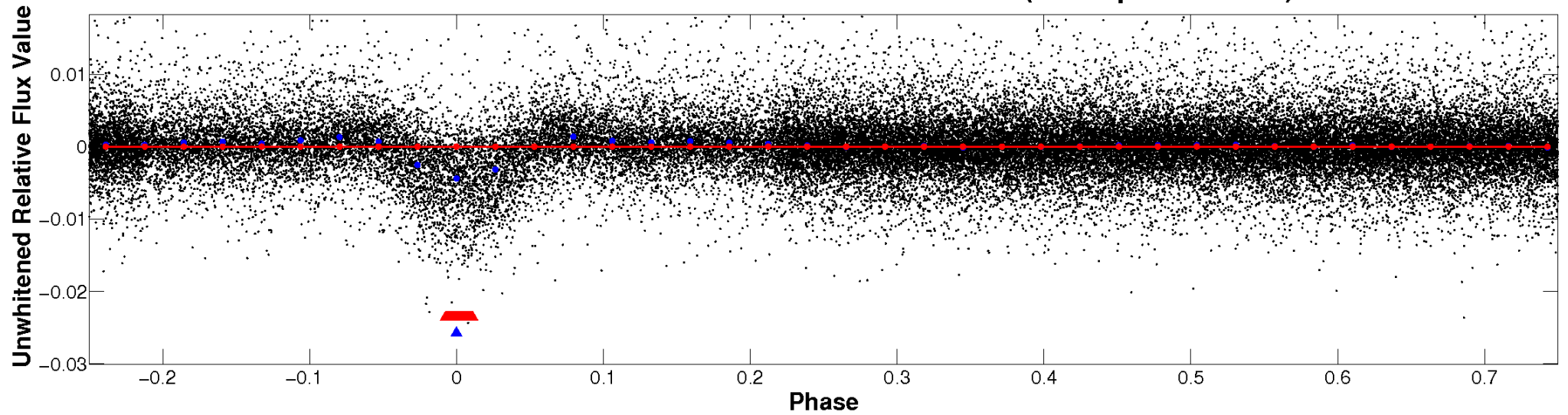
ALT Odd/Even

TCE 003836413-02



Non-Whitened Vs. Whitened Light Curve

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

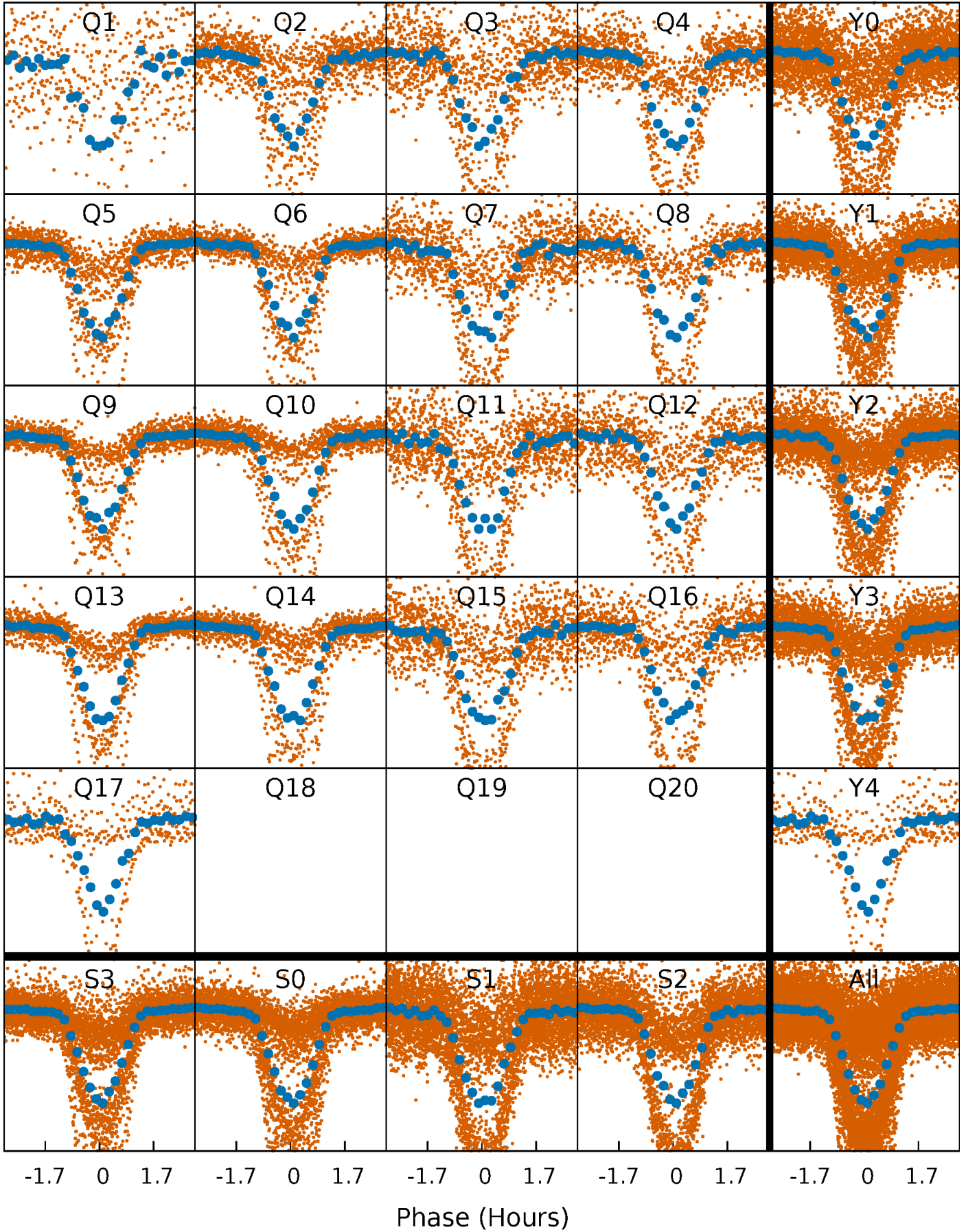


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



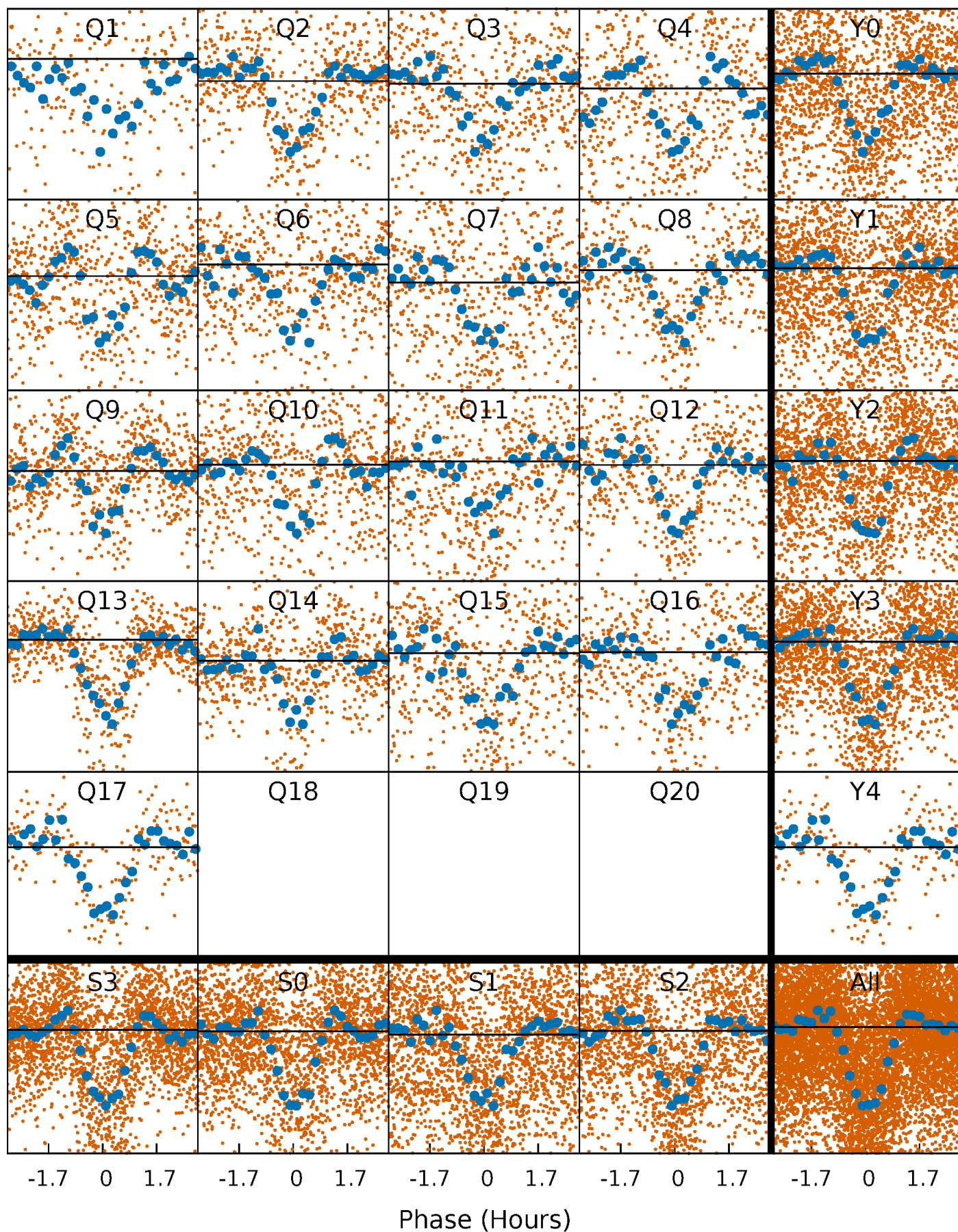
PDC Quarter-Phased Transit Curves

TCE 003836413-02 P= 0.770197 Days $T_0=131.995369$ (BKJD)



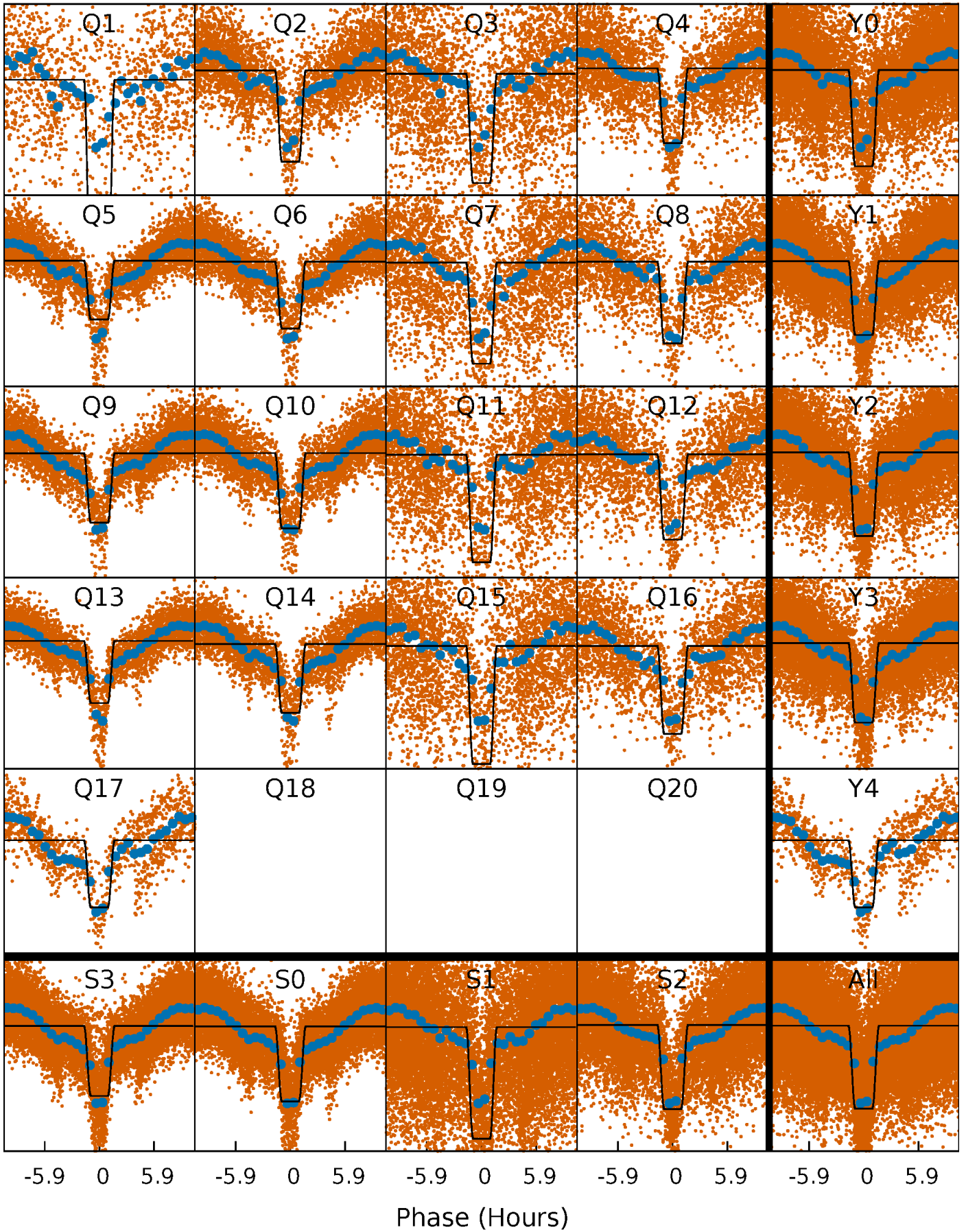
DV Quarter-Phased Transit Curves

TCE 003836413-02 P= 0.770197 Days $T_0=131.995369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

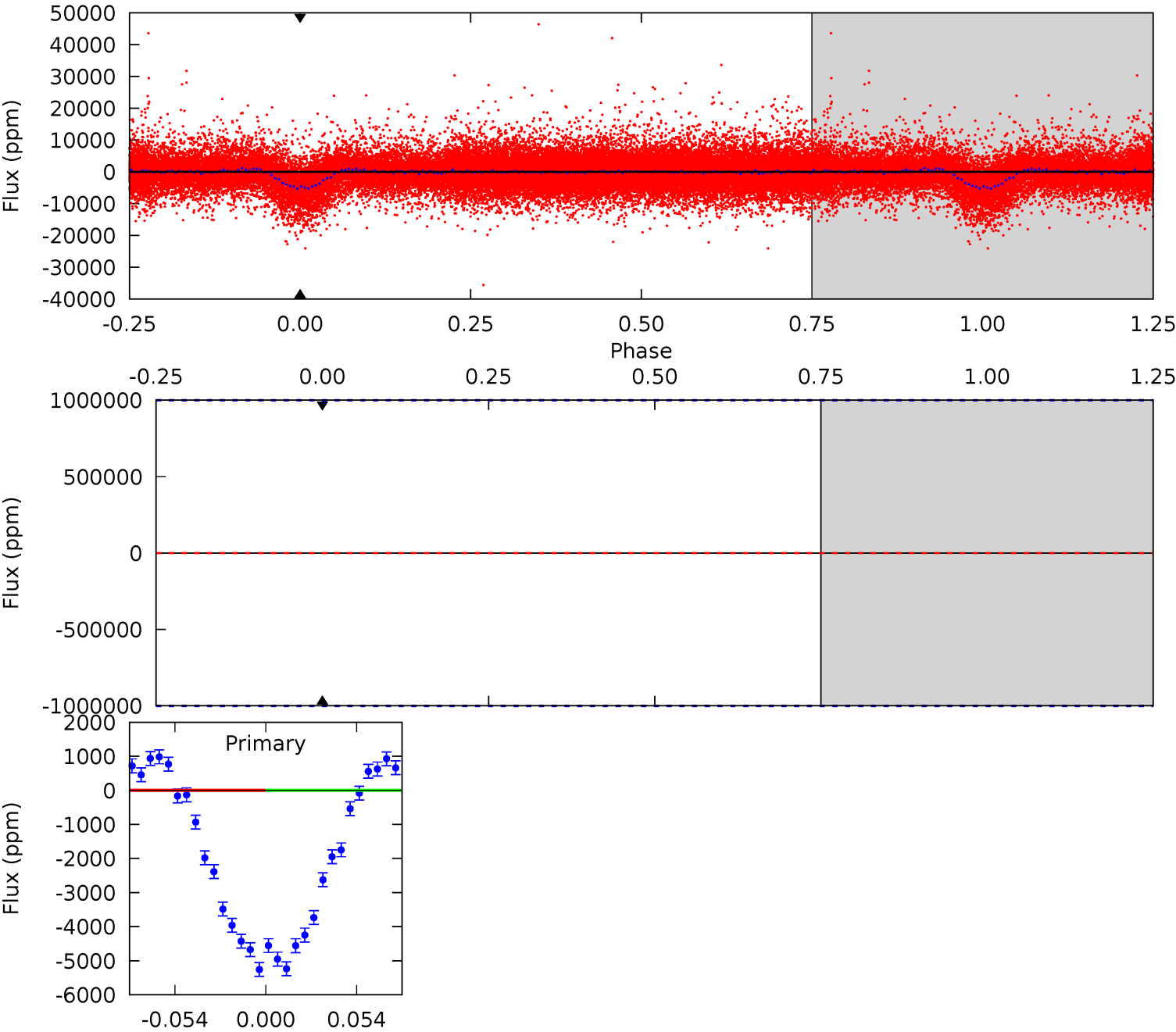
TCE 003836413-02 P= 0.770197 Days $T_0=131.999048$ (BKJD)



DV Model-Shift Uniqueness Test

003836413-02, P = 0.770197 Days, E = 131.225172 Days

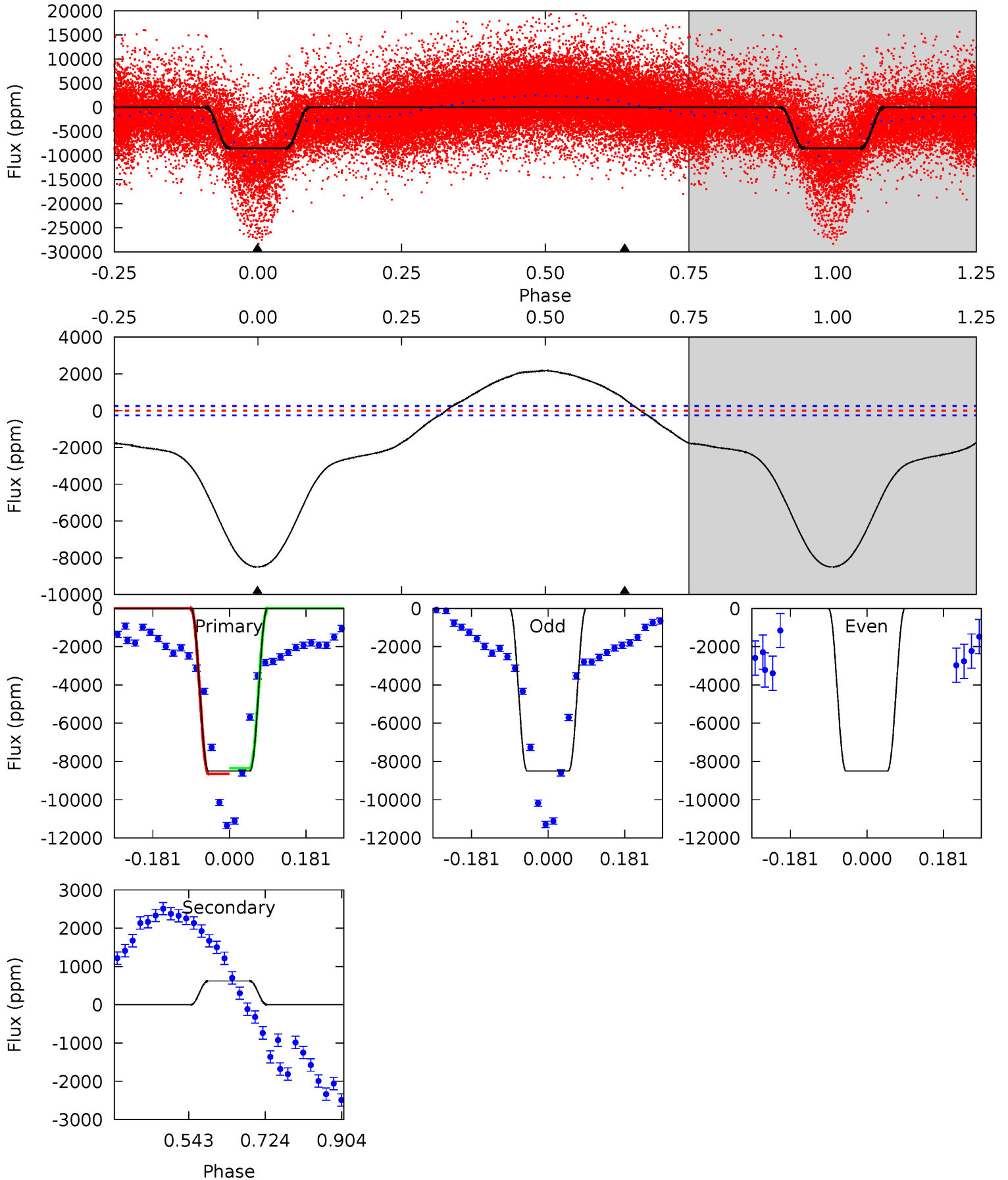
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003836413-02, P = 0.770197 Days, E = 131.228851 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
149.0	-10.9	0	0	4.44	1.34	25.3	149.0	149.0	-10.9	-10.9	0	1.07	0.20	2.60



Stellar Parameters For KIC 003836413

	$T_{\text{eff}}(K)$	$\log(g)$	[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 003836413-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$14.90^{+9.74}_{-9.01}$	2784^{+126}_{-133}	-4317^{+15082}_{-6142}	$-2.506^{+102.722}_{-91.206}$
Alt.	621 ± 57	$13.91^{+9.62}_{-8.25}$	2768^{+126}_{-122}	-3411^{+270}_{-949}	$-0.466^{+0.300}_{-2.433}$

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

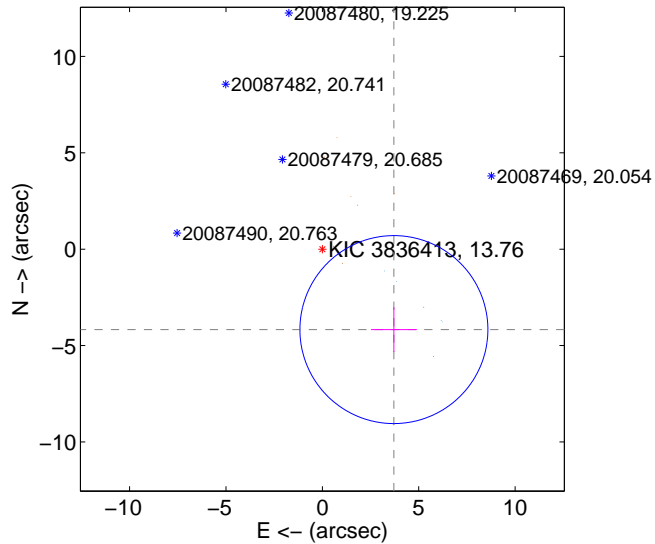
Supplemental centroid analysis for 003836413-02. Kepler magnitude: 13.76. Transit SNR -1.00

There are 6 quarters with good PRF difference image offsets

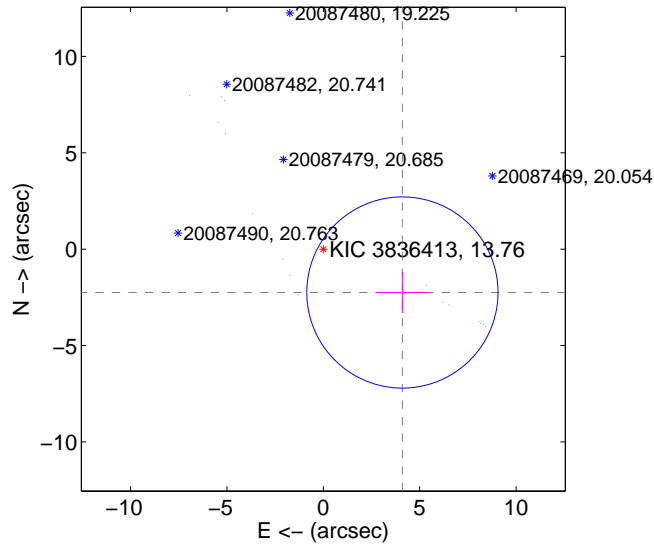
The OOT PRF centroid is offset from the target star catalog position by about 10.11 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.583 ± 1.625	3.44	-3.711 ± 1.191	-4.172 ± 1.159
PRF-fit source offset from KIC position	4.677 ± 1.653	2.83	-4.102 ± 1.359	-2.248 ± 1.067
photometric centroid source offset	2.64 ± 0.00	2886.42	2.07 ± 0.00	1.64 ± 0.00

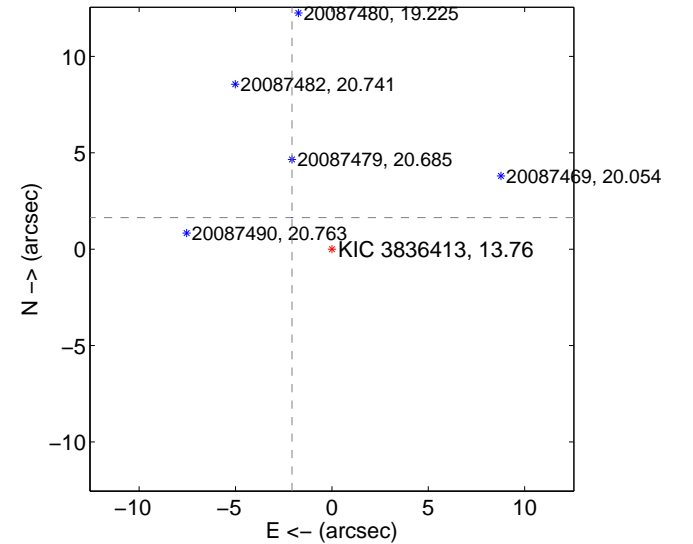
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

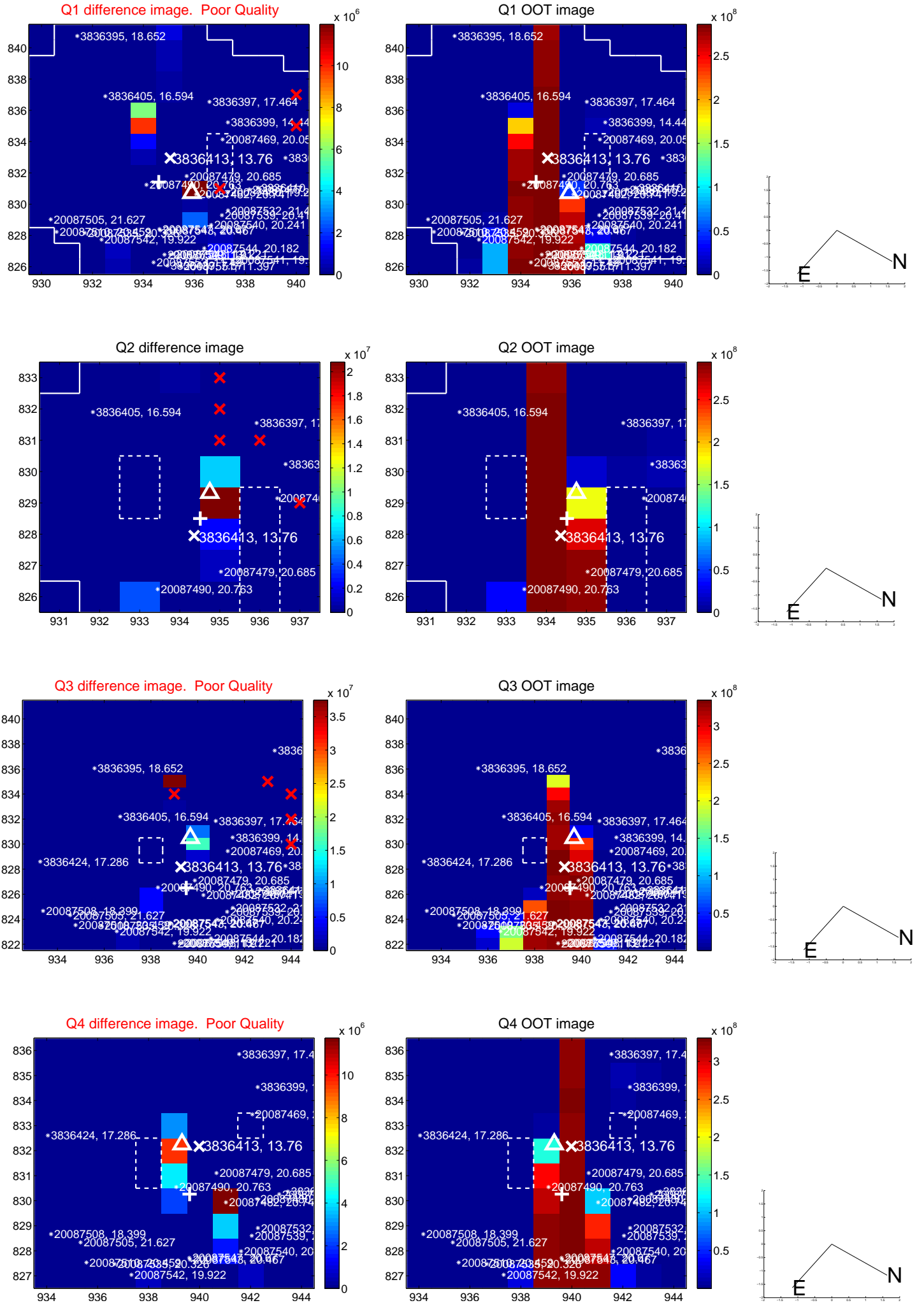


offset from photometric centroids

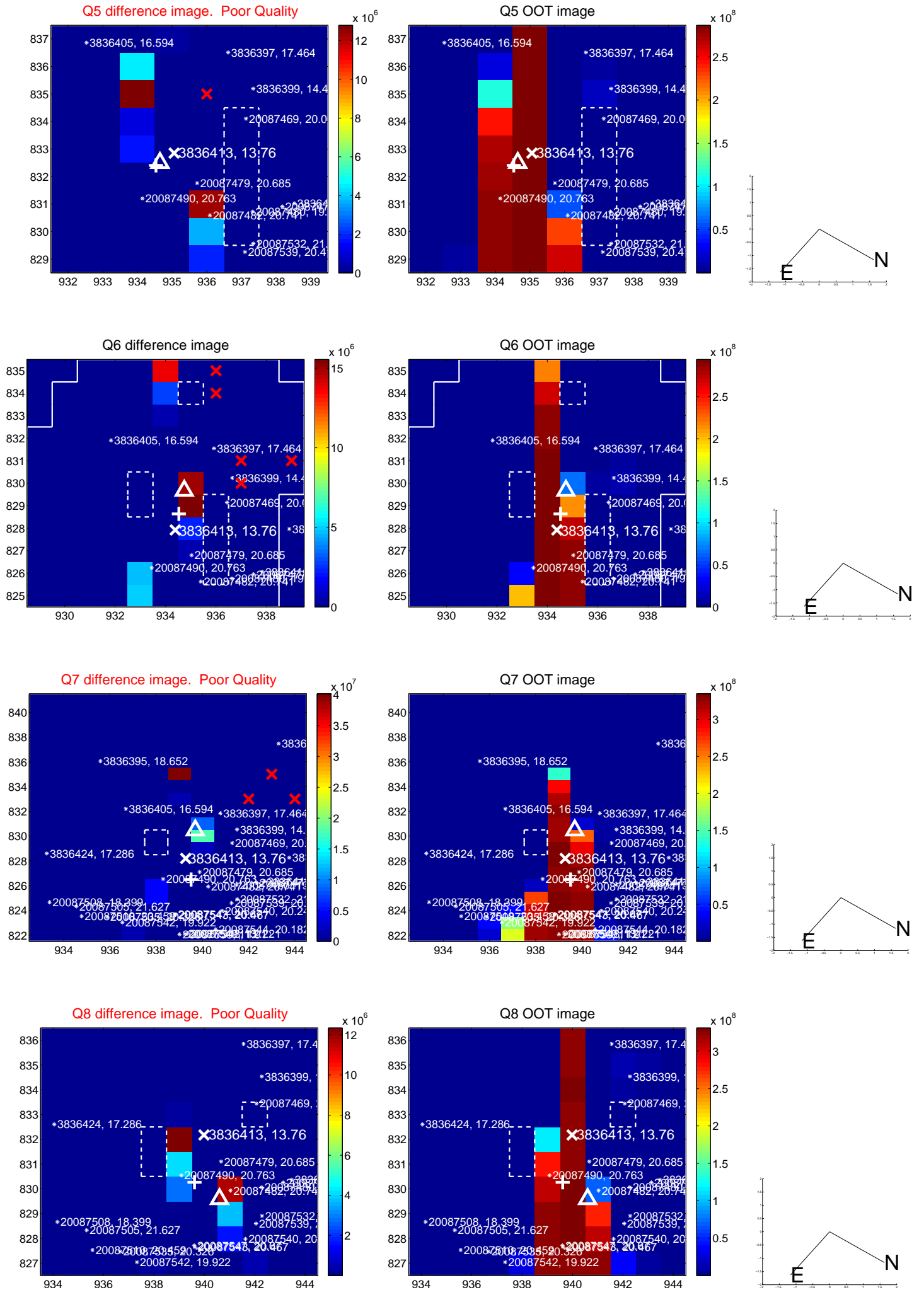


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

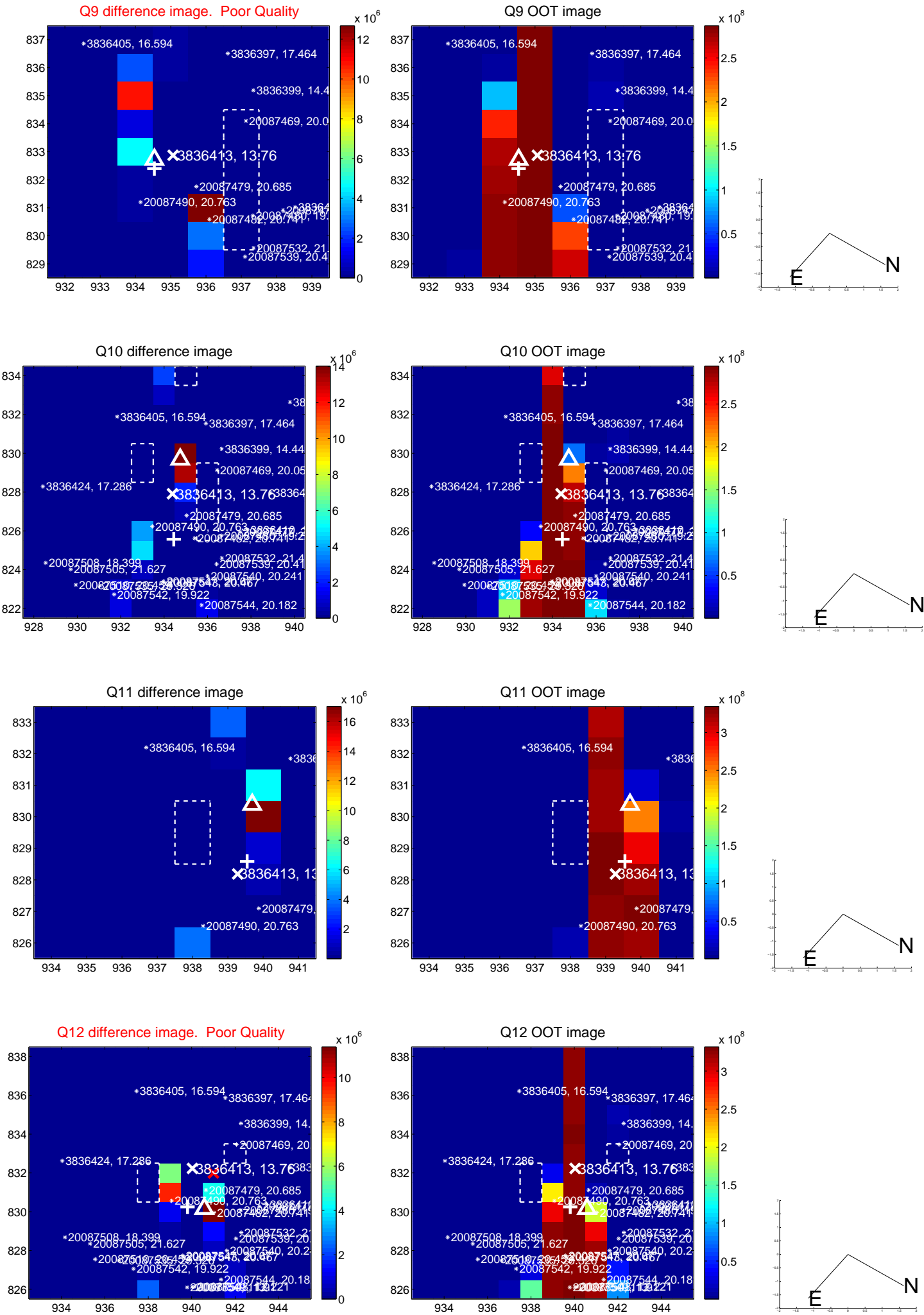
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



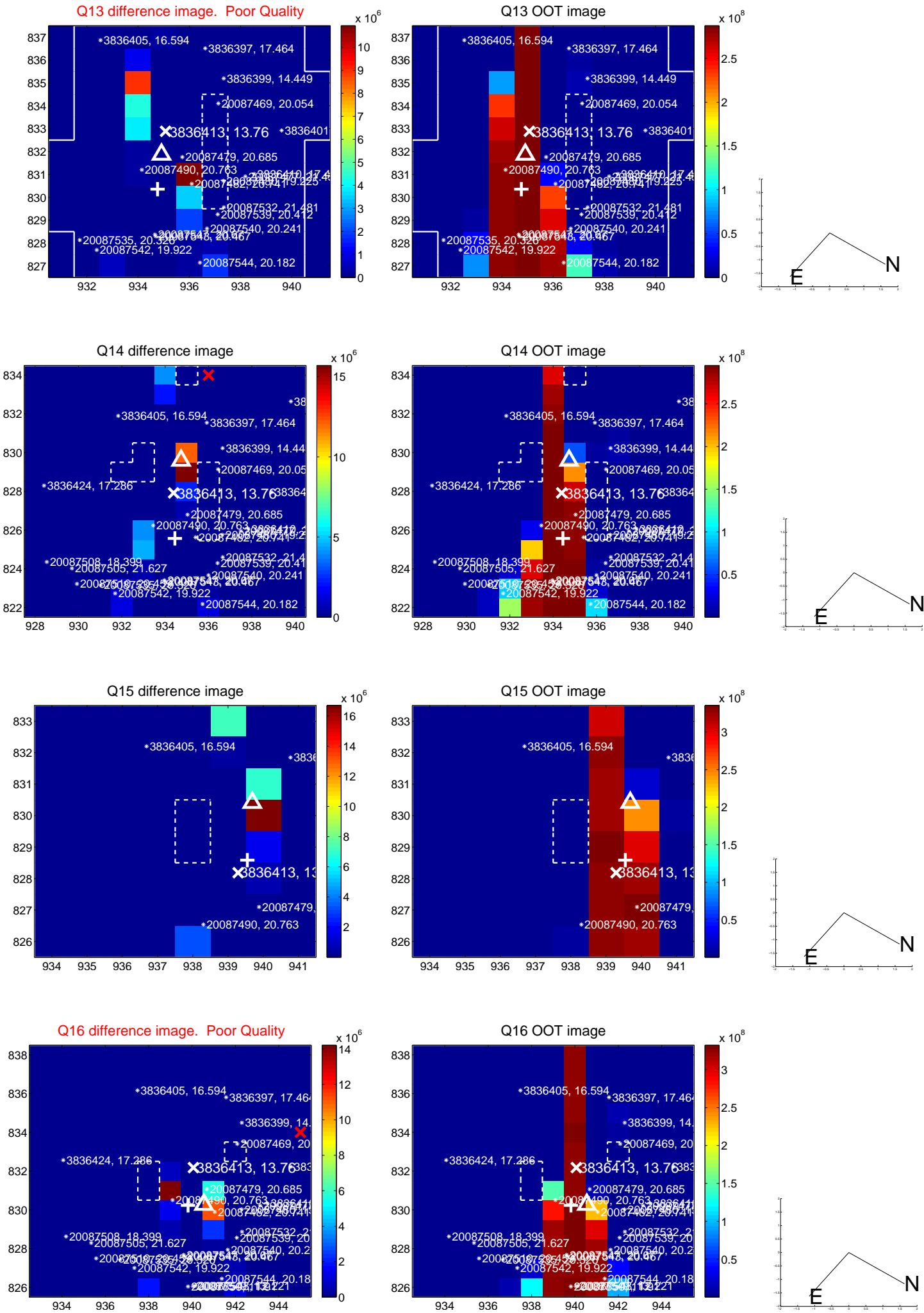
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



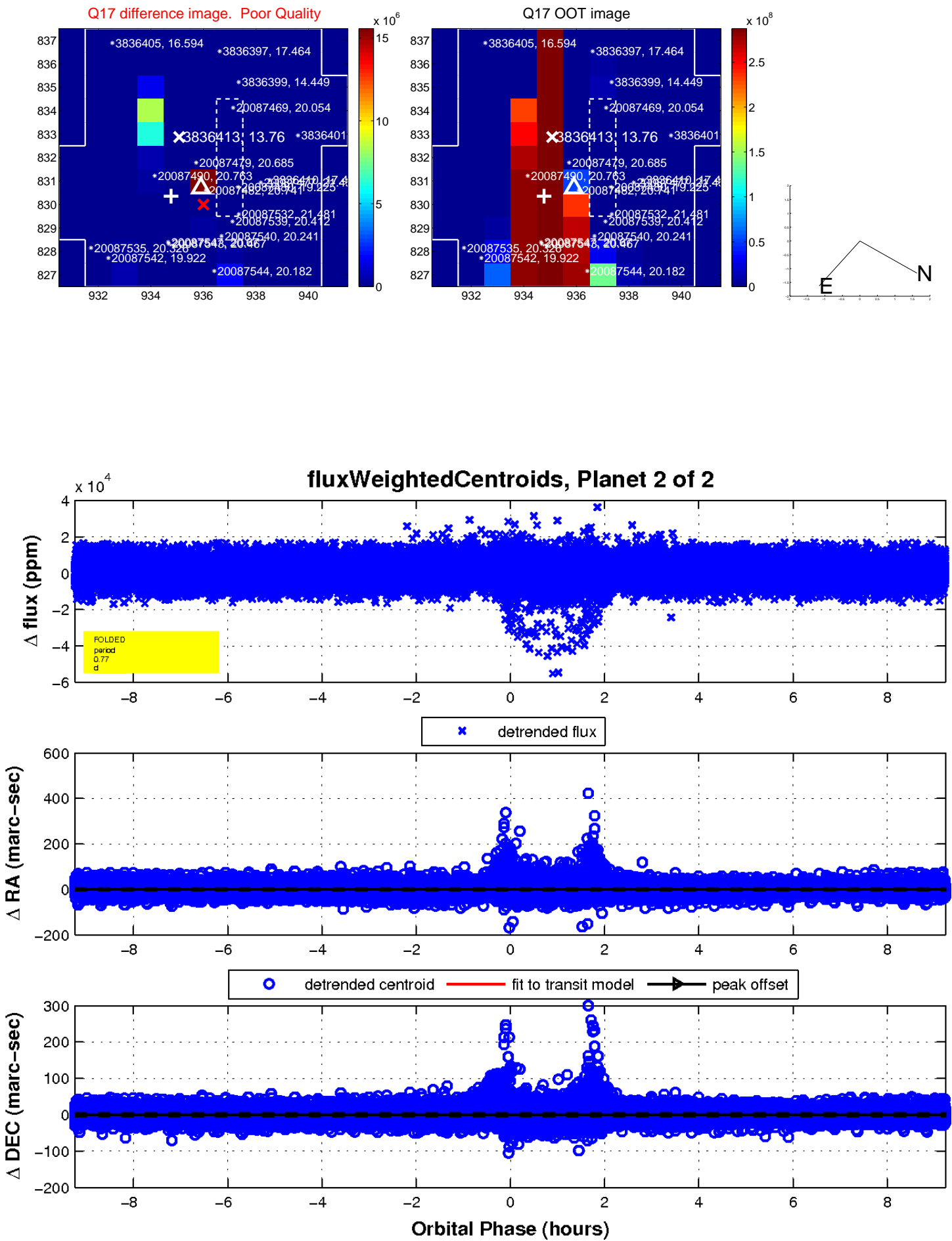
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

