

KIC 008364115

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})
008364115-01	OBS	6056.01	7.735905	137.988431	456.0	4.441	52.5	55.5	0.86	5927	3.63	144.95
008364115-02	OBS	No	7.735914	134.207162	387.5	4.708	42.0	46.4	0.86	5927	3.31	144.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008364115-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008364115-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—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 008364115-01

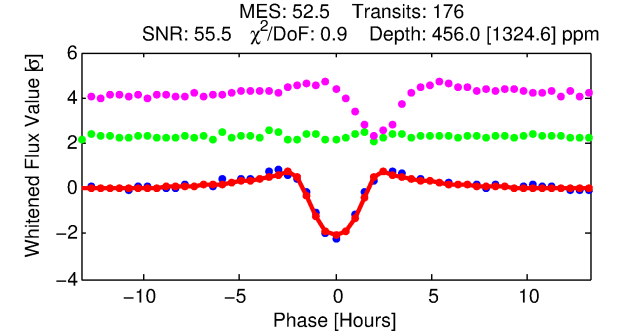
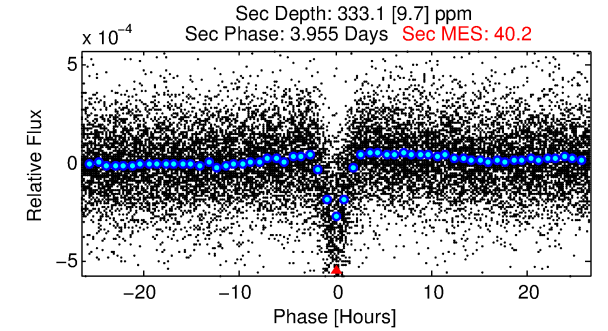
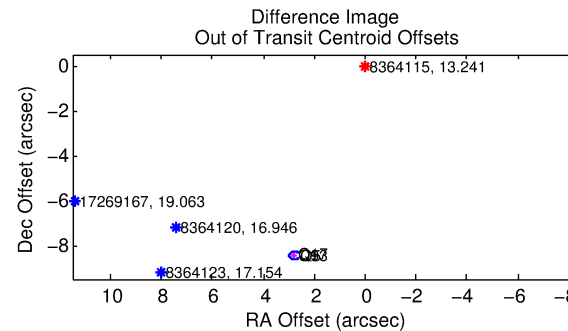
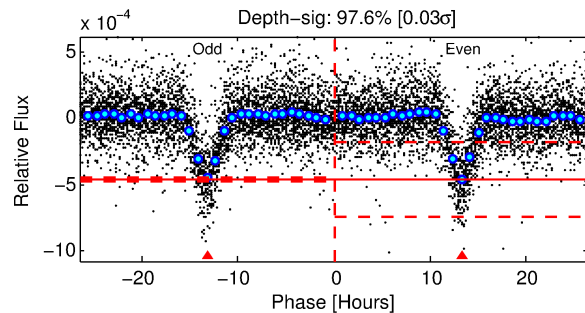
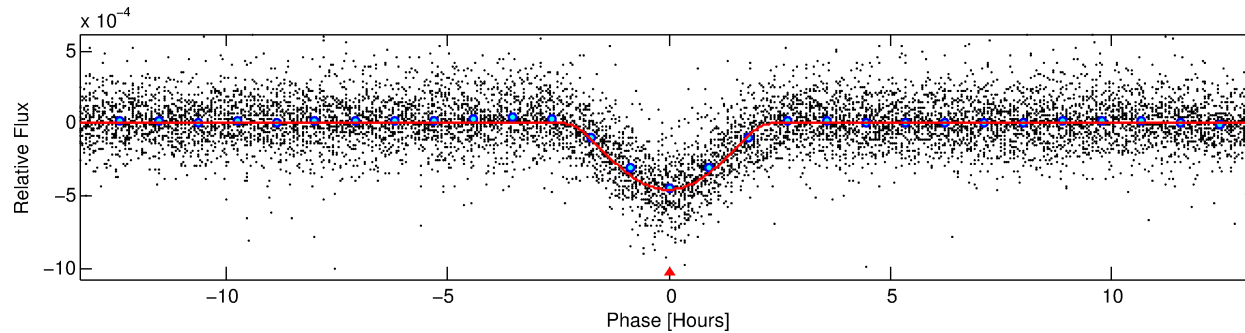
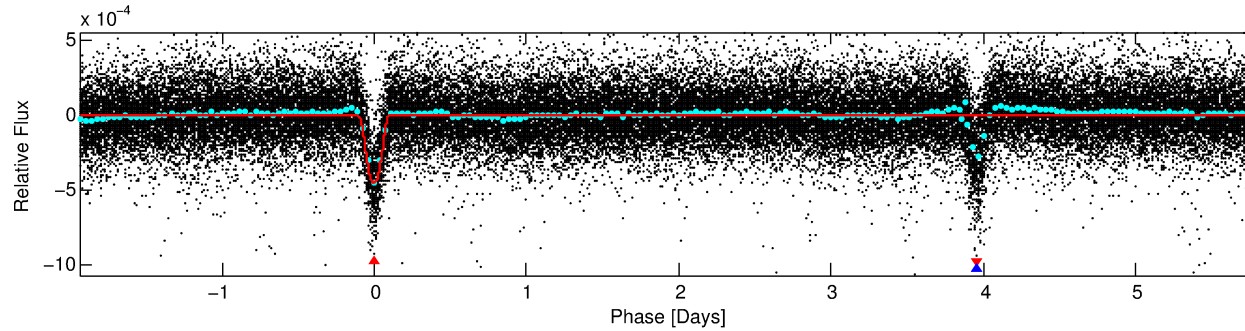
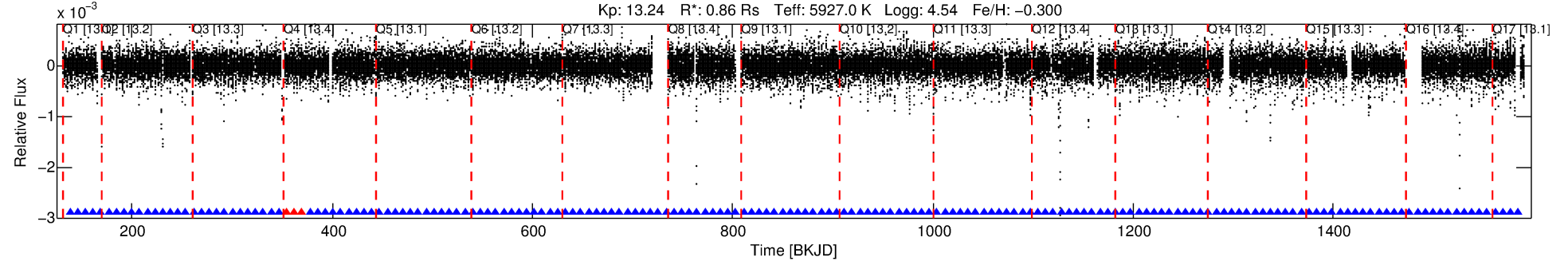
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008364115-01	8364115	7024.01	8364119	1:1	19.3	-2	4	12.41	13.24	697.92	Direct-PRF	0	0.03	0.03

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: 8364115 Candidate: 1 of 2 Period: 7.736 d
KOI: K06056.01 Corr: 0.978

Kp: 13.24 R*: 0.86 Rs Teff: 5927.0 K Logg: 4.54 Fe/H: -0.300



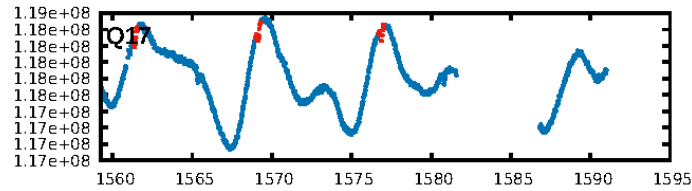
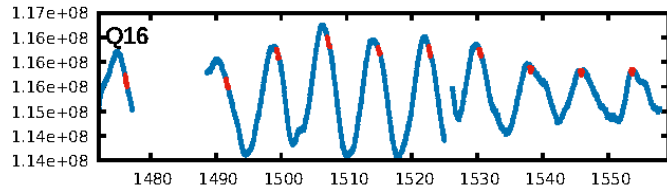
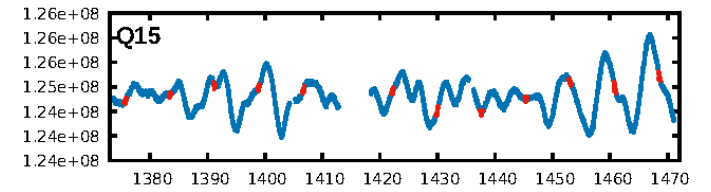
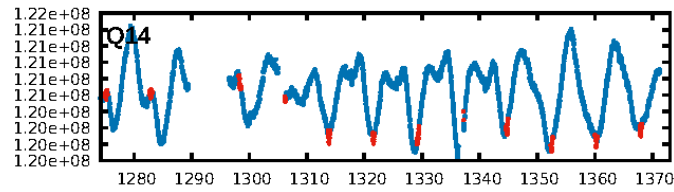
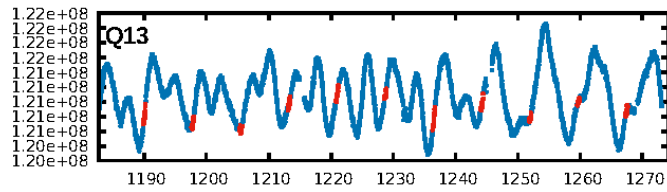
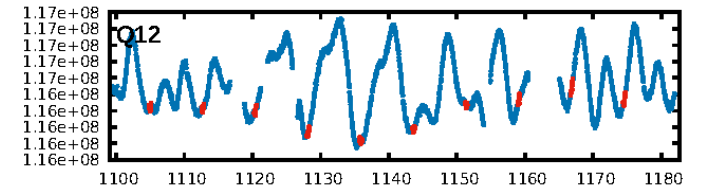
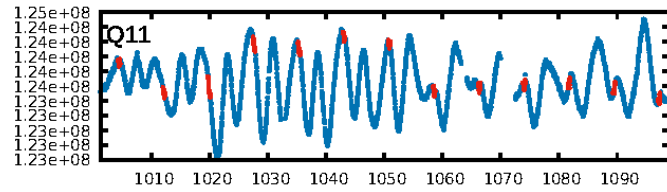
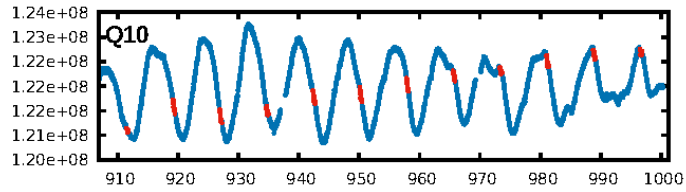
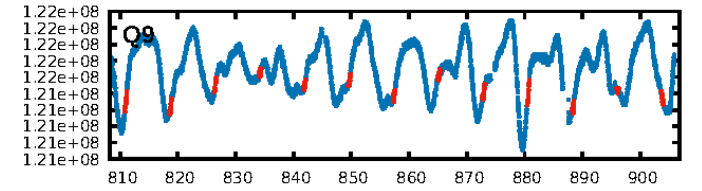
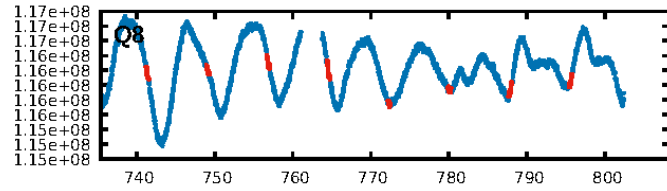
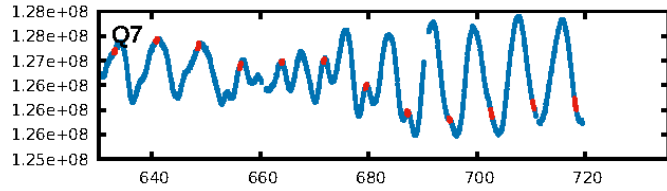
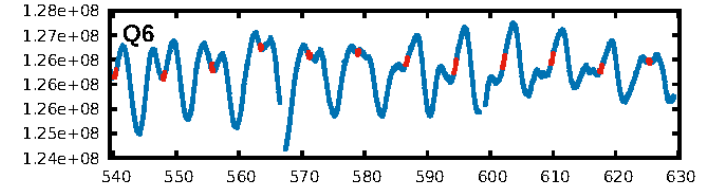
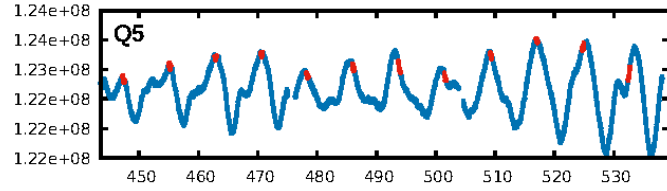
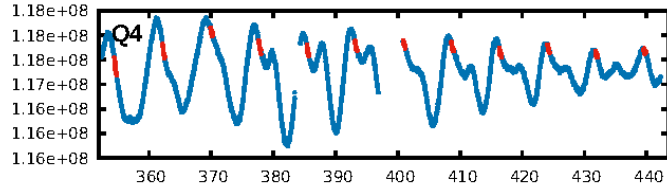
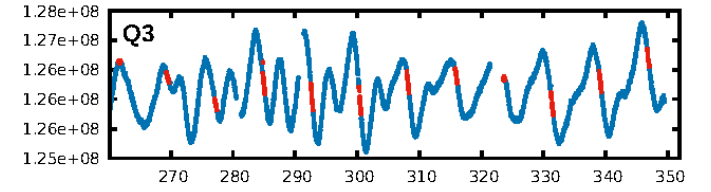
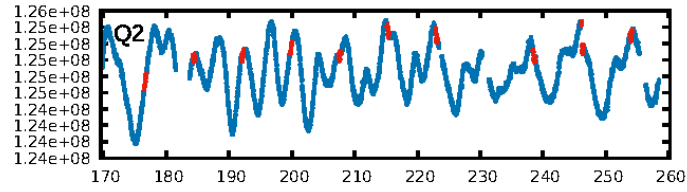
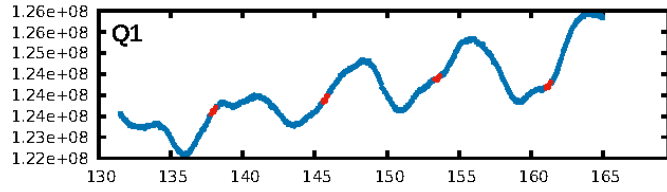
DV Fit Results:

Period = 7.73591 [0.00001] d
Epoch = 137.9884 [0.0014] BKJD
Rp/R* = 0.0387 [0.0190]
a/R* = 3.87 [0.45]
b = 1.00 [0.05]
Seff = 144.95 [57.85]
Teq = 885 [88] K
Rp = 3.63 [2.10] Re
a = 0.0751 [0.0196] AU
Ag = 78.58 [82.82] [0.94σ]
Teff = 4073 [1005] K [3.16σ]

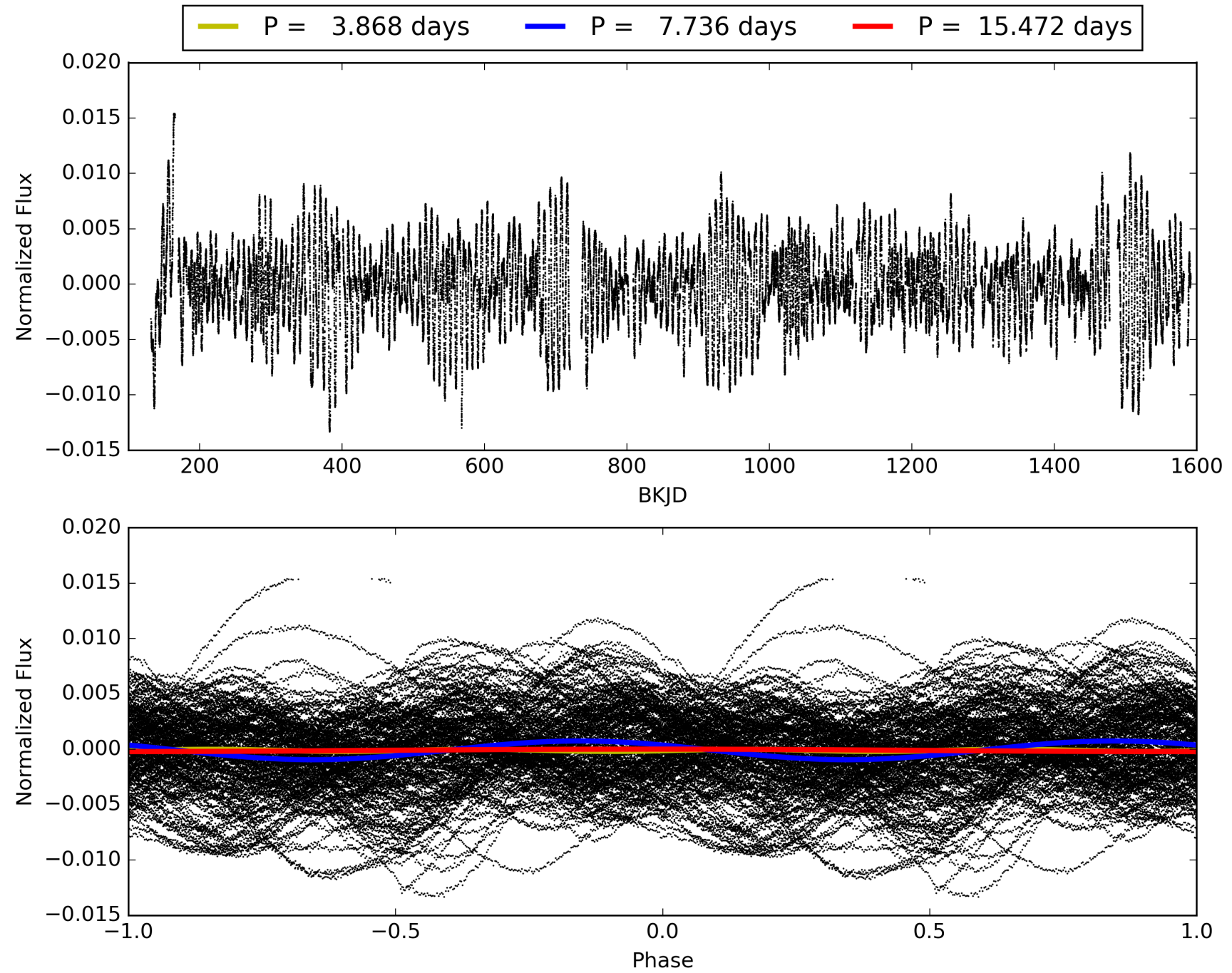
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [166/169]
GhostDiagnostic-chr: -0.1692
Centroid-sig: 0.0%
Centroid-so: 45.532 arcsec [288.40σ]
OotOffset-rm: 8.899 arcsec [129.51σ]
KicOffset-rm: 9.052 arcsec [129.18σ]
OotOffset-st: 0/0/0/4 [4]
KicOffset-st: 0/0/0/4 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008364115-01, PDC Light Curves

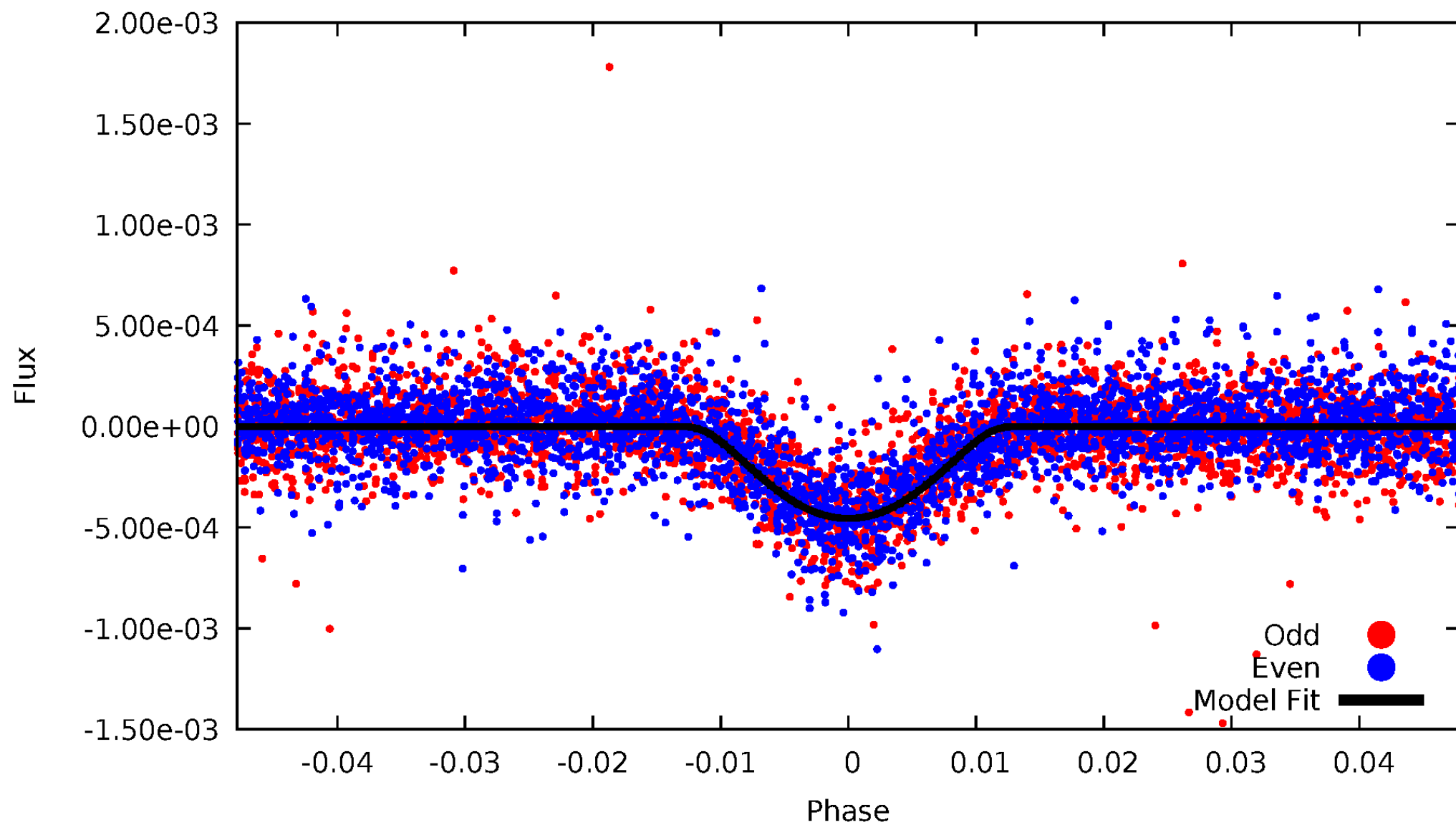


TCE 008364115-01



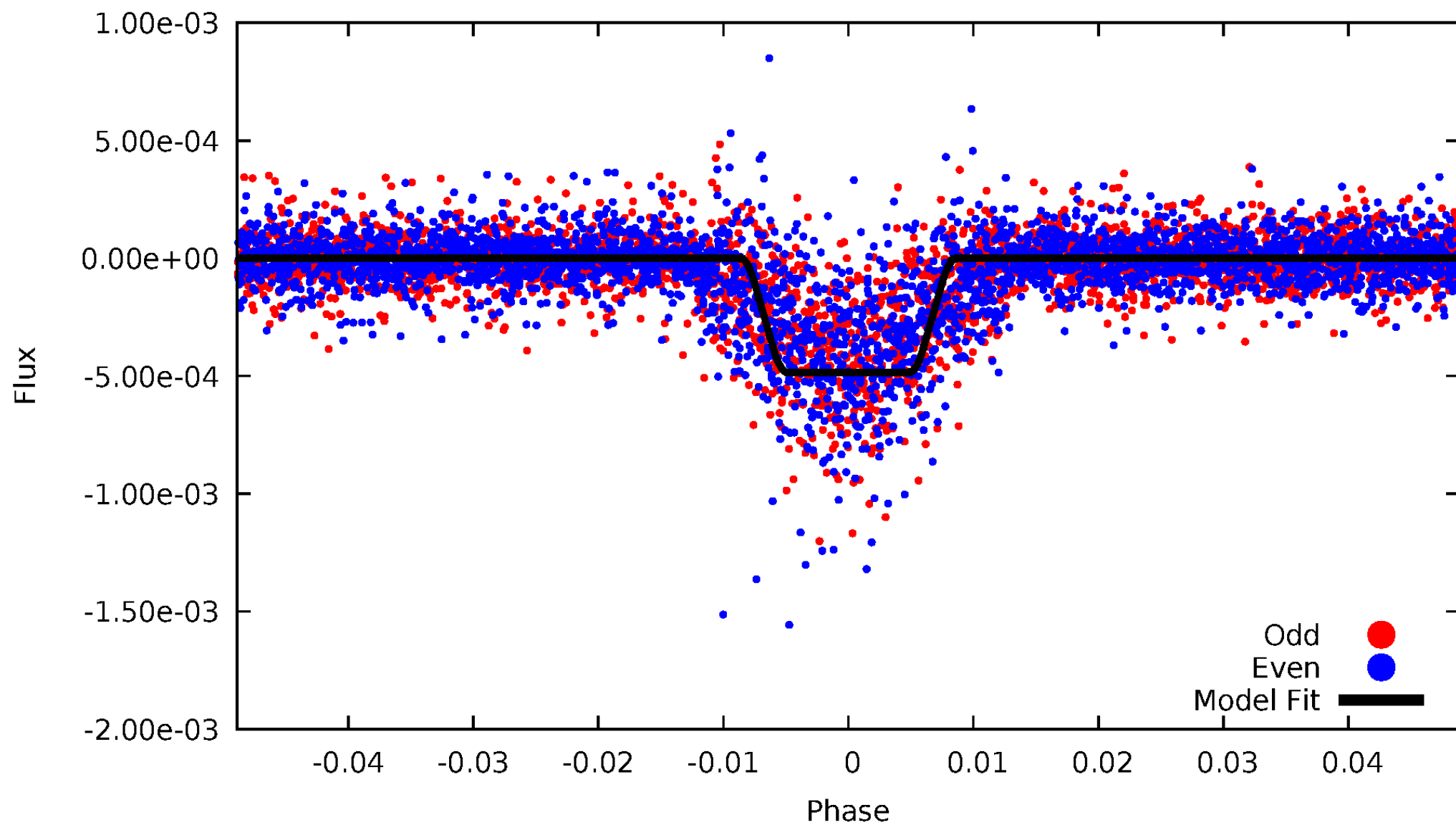
DV Odd/Even

TCE 008364115-01



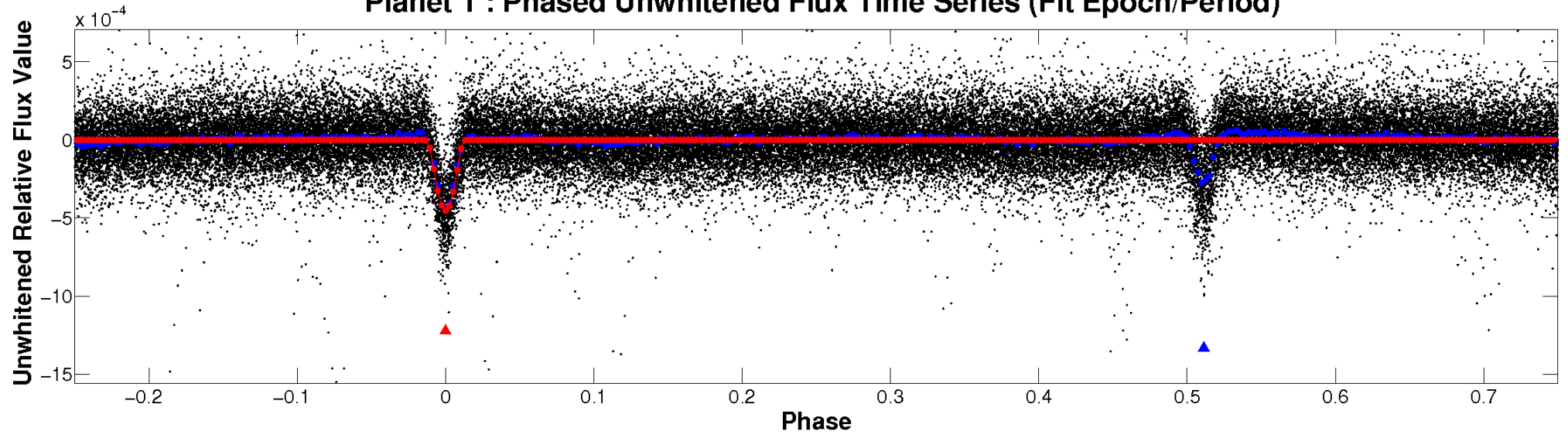
ALT Odd/Even

TCE 008364115-01

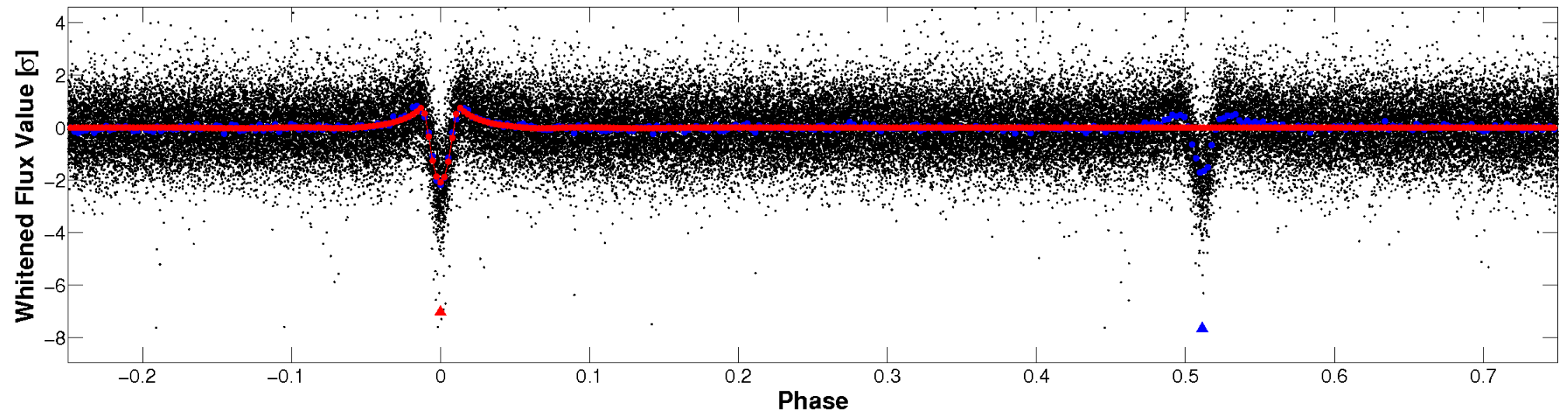


Non-Whitened Vs. Whitened Light Curve

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

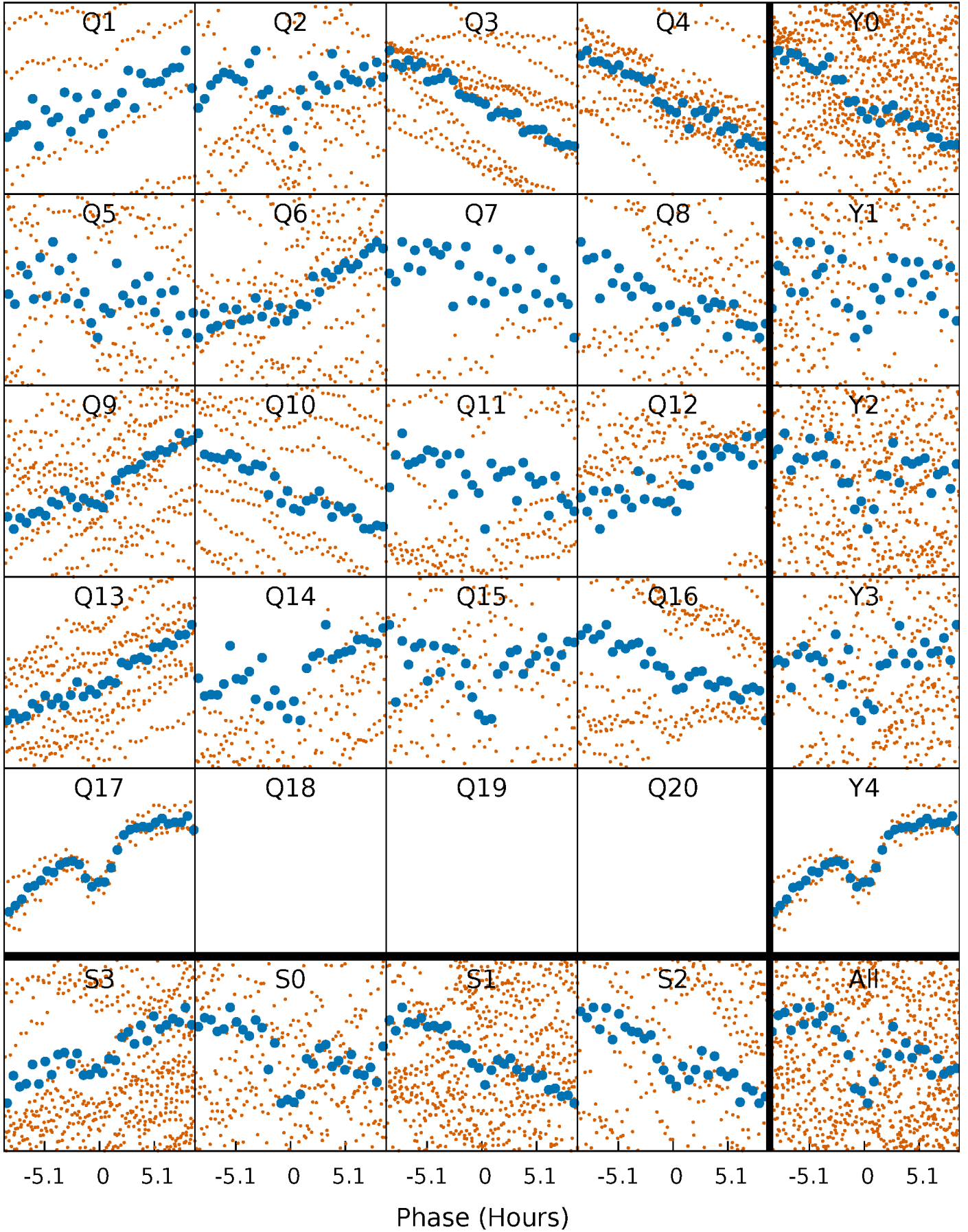


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



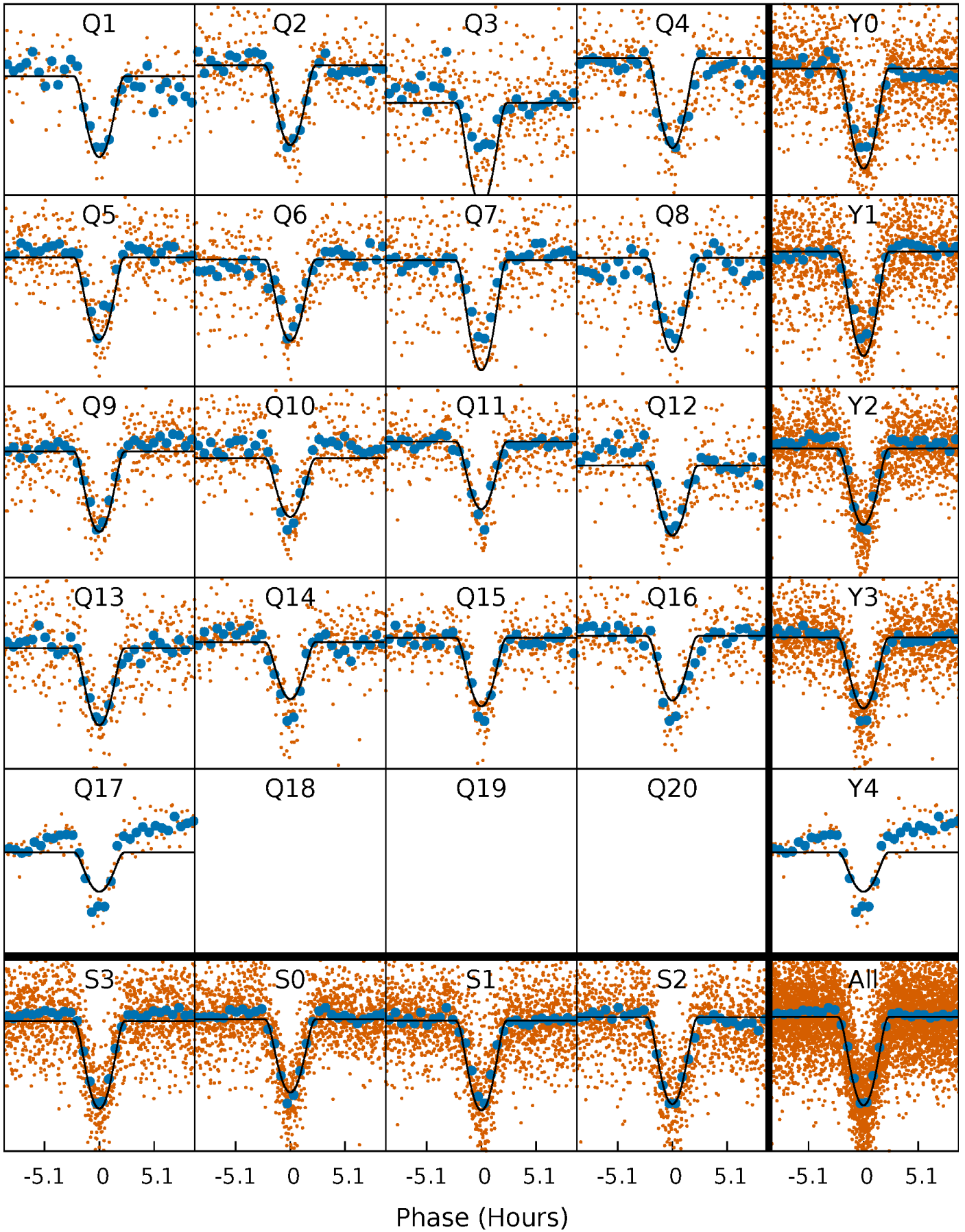
PDC Quarter-Phased Transit Curves

TCE 008364115-01 P= 7.735905 Days $T_0=137.988431$ (BKJD)



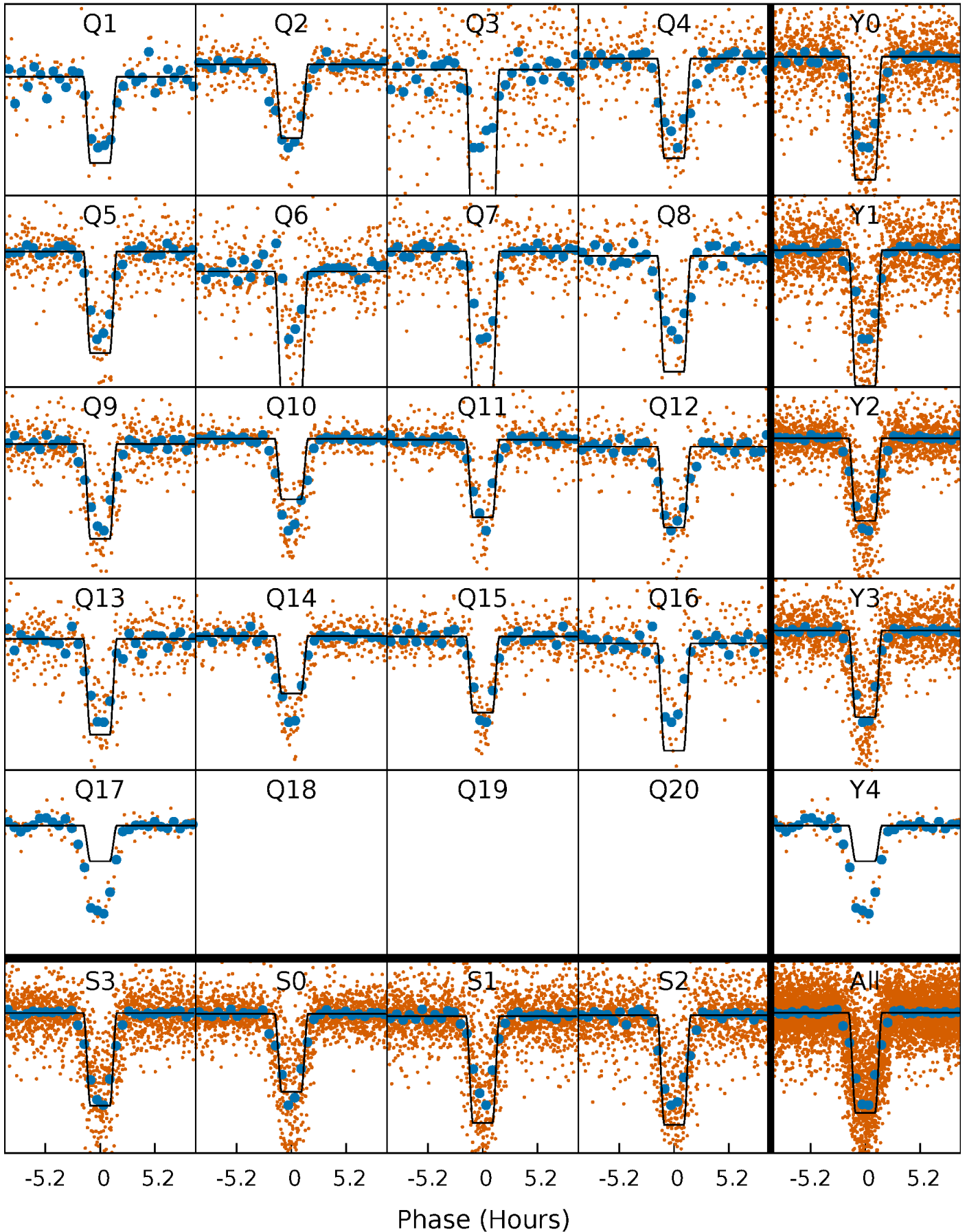
DV Quarter-Phased Transit Curves

TCE 008364115-01 P= 7.735905 Days $T_0=137.988431$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

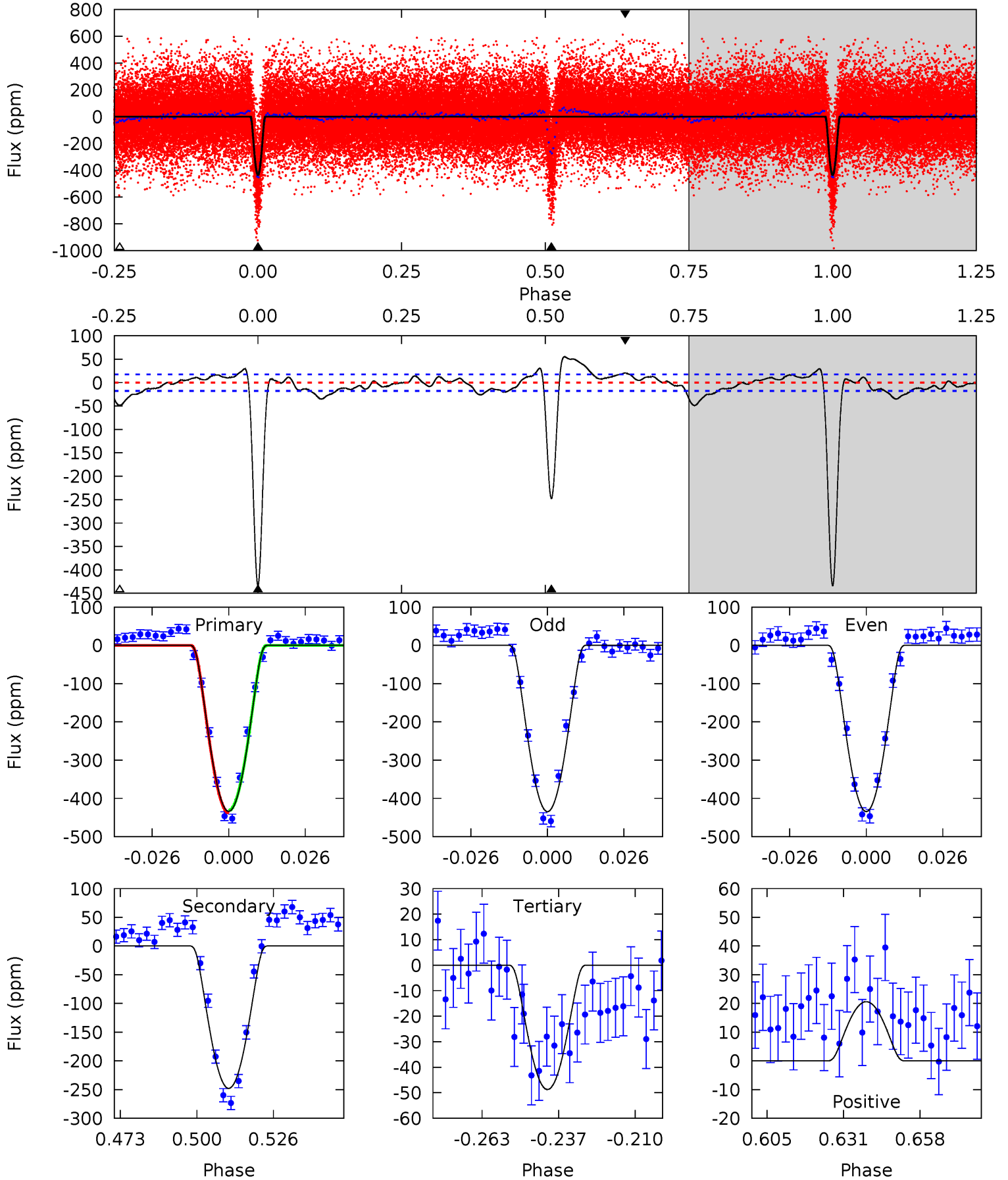
TCE 008364115-01 P= 7.735958 Days $T_0=137.981792$ (BKJD)



DV Model-Shift Uniqueness Test

008364115-01, P = 7.735905 Days, E = 130.252526 Days

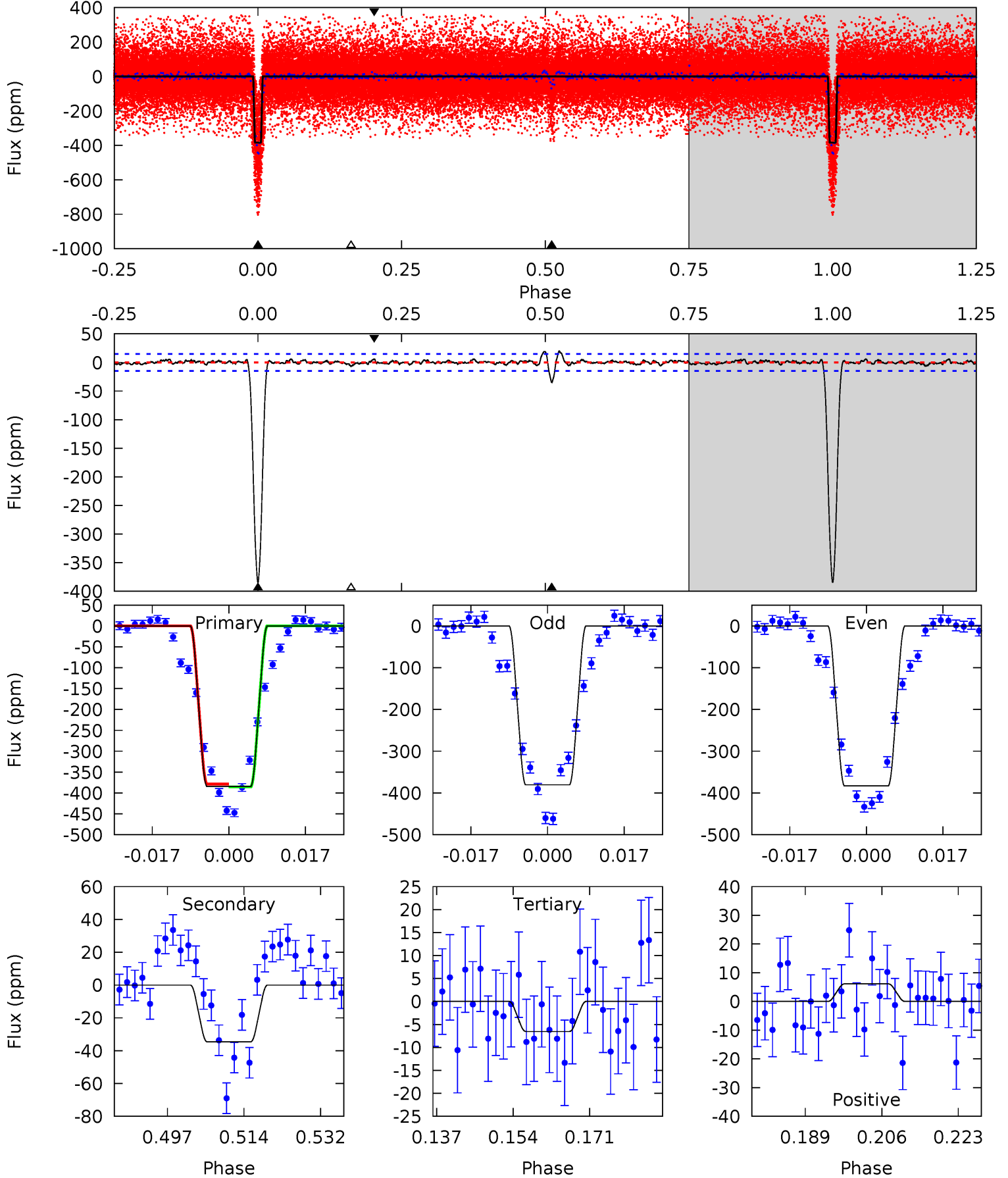
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
118.0	67.4	13.3	5.61	4.84	2.22	4.71	104.7	112.4	54.2	61.8	0.02	0.96	0.11	0.83



Alt Model-Shift Uniqueness Test

008364115-01, P = 7.735958 Days, E = 130.245834 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
127.8	11.5	2.17	2.04	4.92	2.38	0.77	125.6	125.7	9.33	9.46	0.42	1.05	0.05	0



Stellar Parameters For KIC 008364115

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5927^{+141}_{-159}	$4.544^{+0.038}_{-0.212}$	$-0.300^{+0.300}_{-0.300}$	$0.860^{+0.264}_{-0.070}$	$0.944^{+0.110}_{-0.121}$	$2.090^{+0.441}_{-1.125}$
	+2%/-3%	+1%/-5%	+100%/-100%	+31%/-8%	+12%/-13%	+21%/-54%
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 008364115-01 / KOI 6056.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-248 ± 4	$4.02^{+1.93}_{-1.85}$	1269^{+96}_{-57}	4013^{+1084}_{-497}	46^{+117}_{-25}
Alt.	-35 ± 3	$2.48^{+1.74}_{-1.52}$	1268^{+86}_{-56}	3378^{+1373}_{-487}	17^{+98}_{-12}

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 $A_{obs} \gg 1.0$

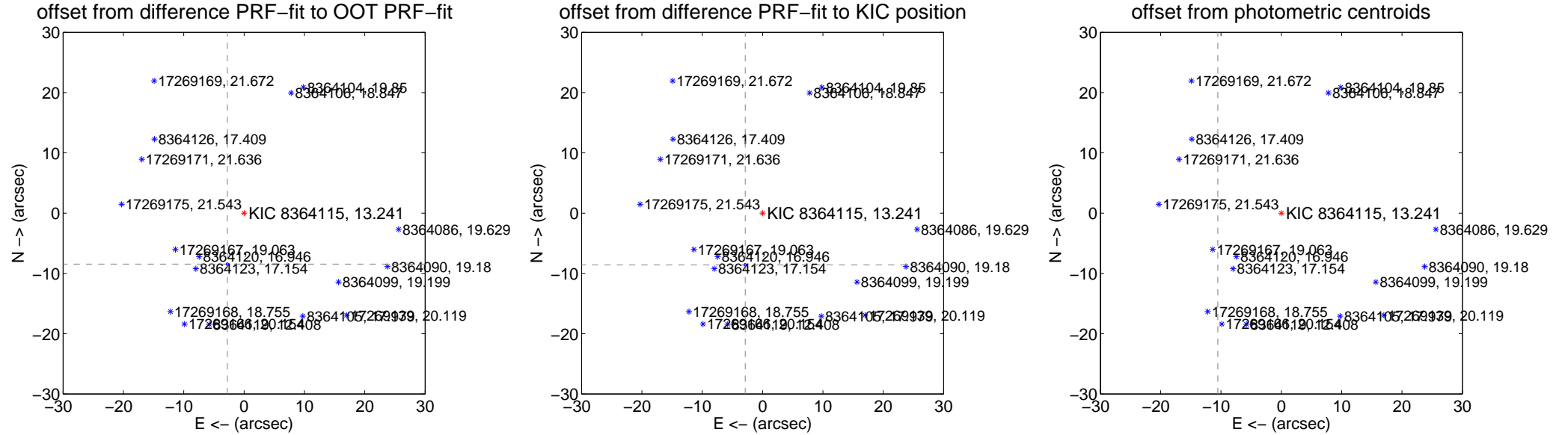
DV Centroid Data

Supplemental centroid analysis for 008364115-01. Kepler magnitude: 13.24. Transit SNR 55.47

There are 4 quarters with good PRF difference image offsets

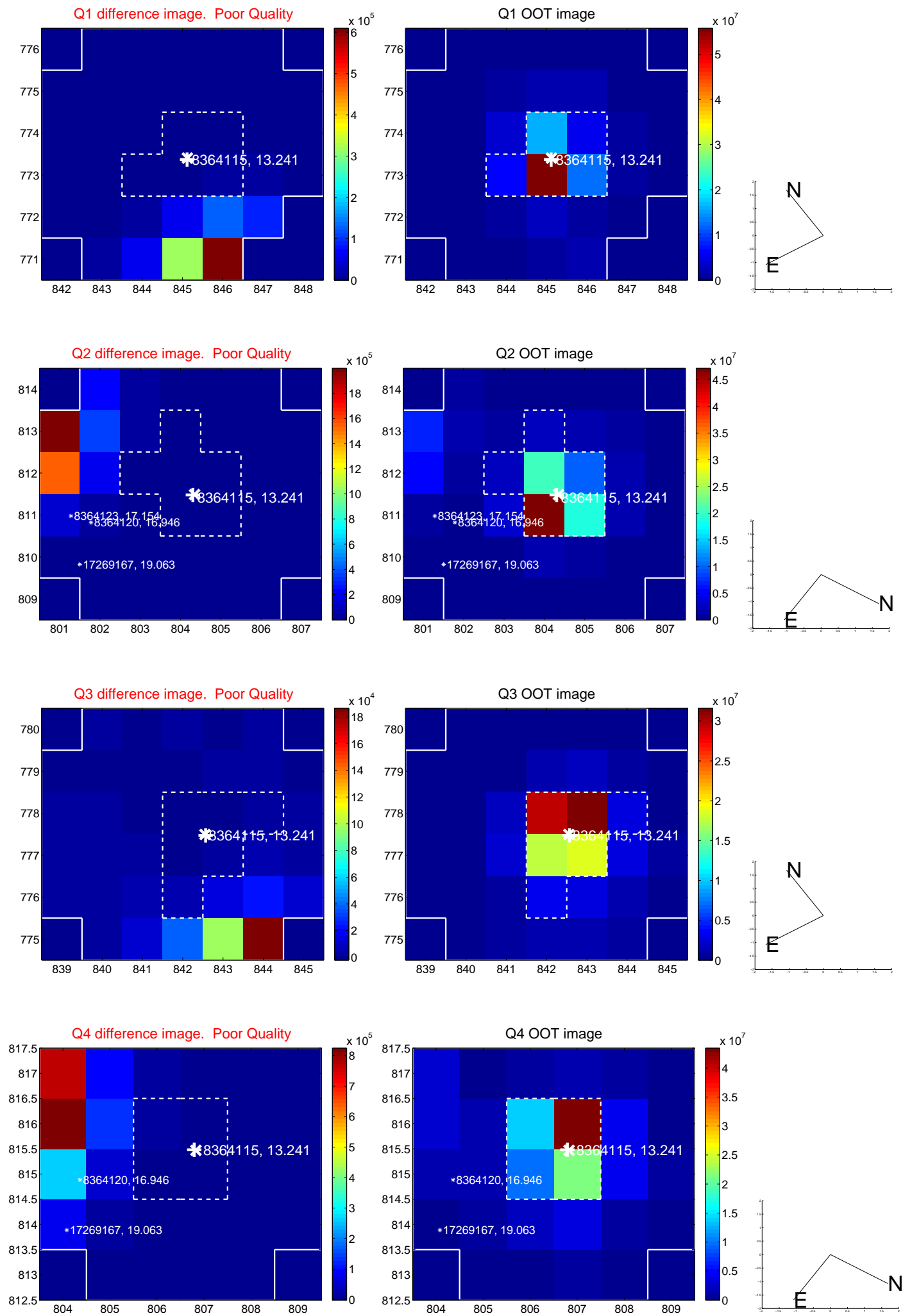
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.899 \pm 0.069	129.51	2.778 \pm 0.070	-8.454 \pm 0.069
PRF-fit source offset from KIC position	9.052 \pm 0.070	129.18	2.877 \pm 0.073	-8.582 \pm 0.070
photometric centroid source offset	45.53 \pm 0.16	288.40	10.52 \pm 0.16	-44.30 \pm 0.16

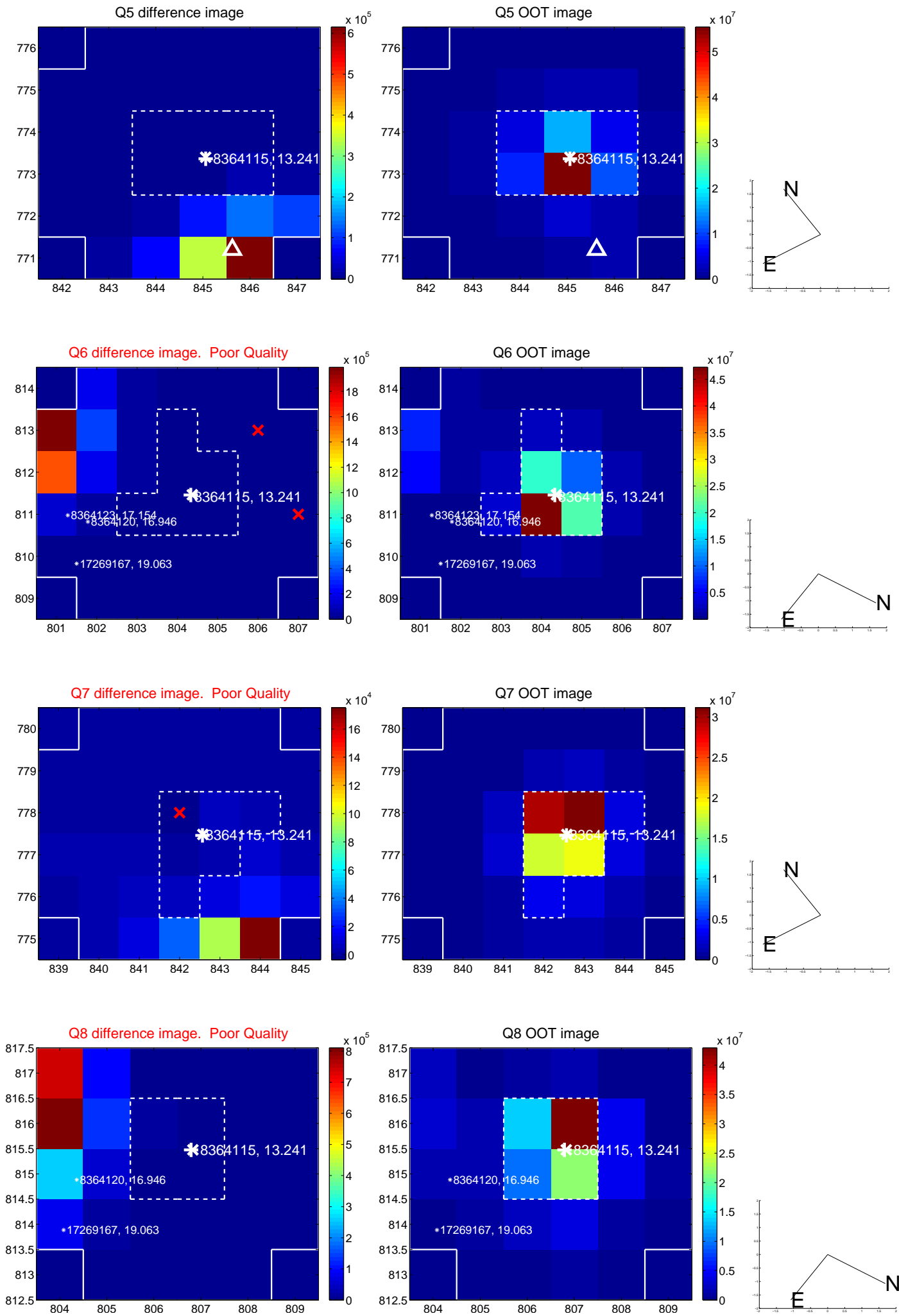


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

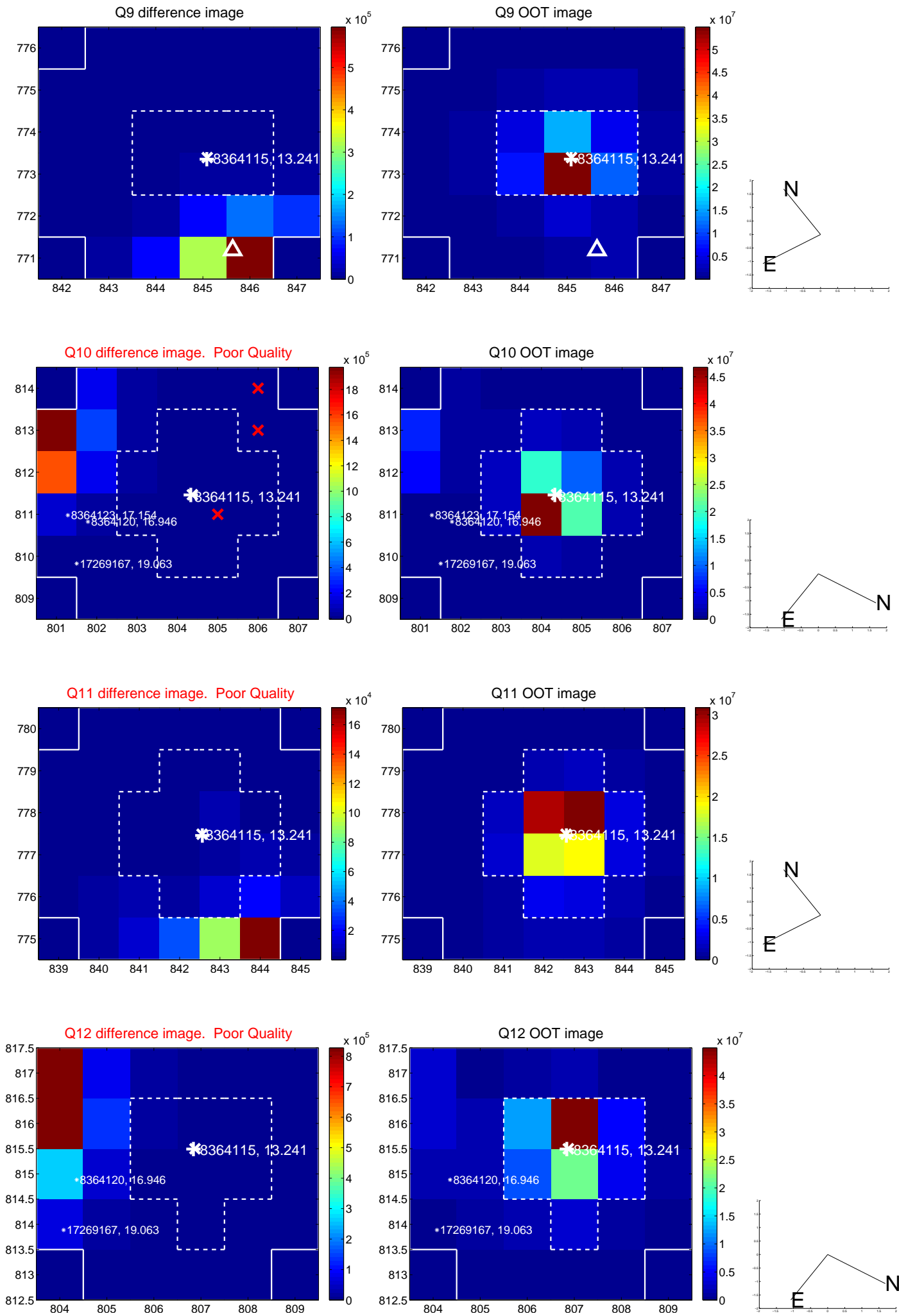
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



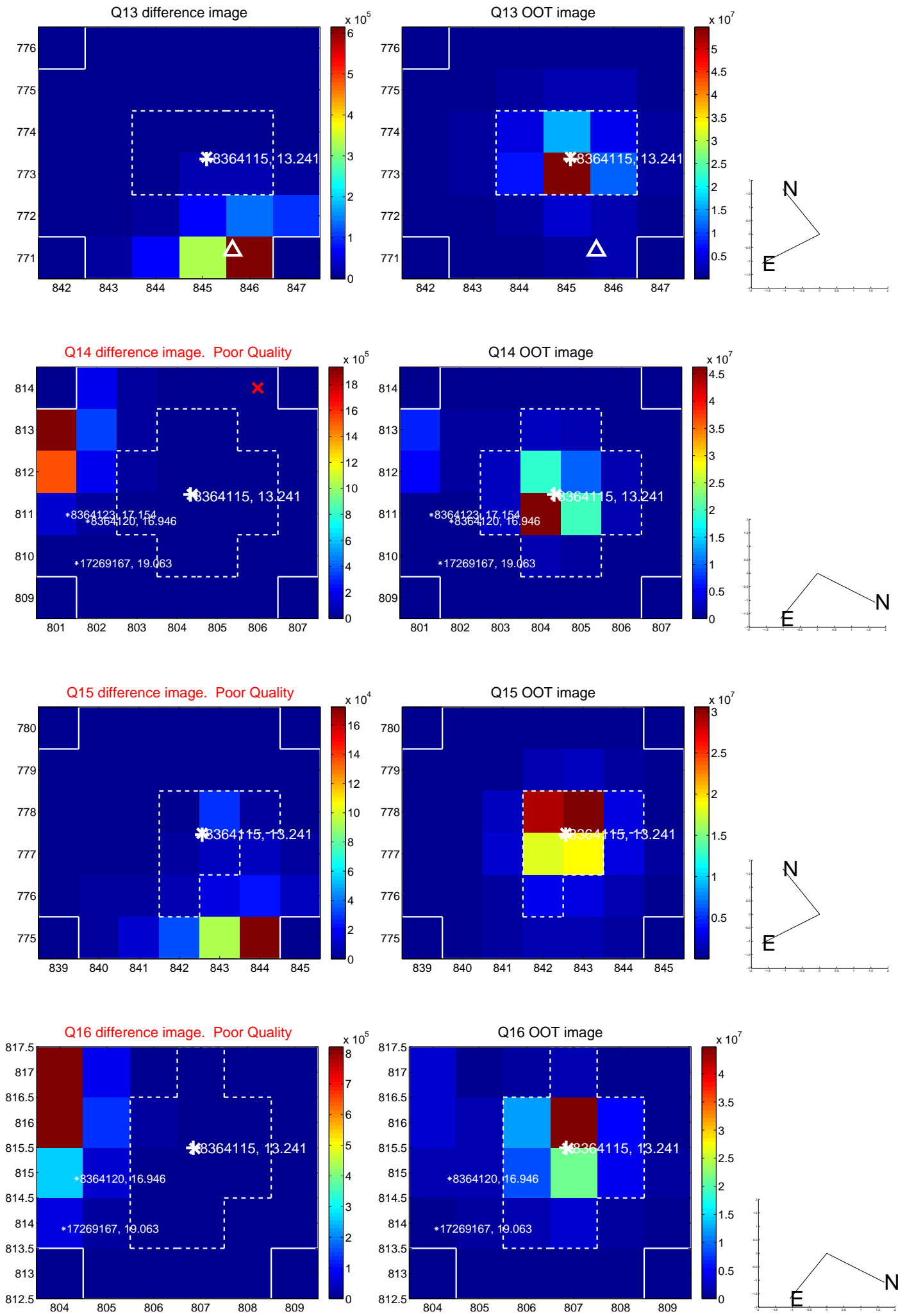
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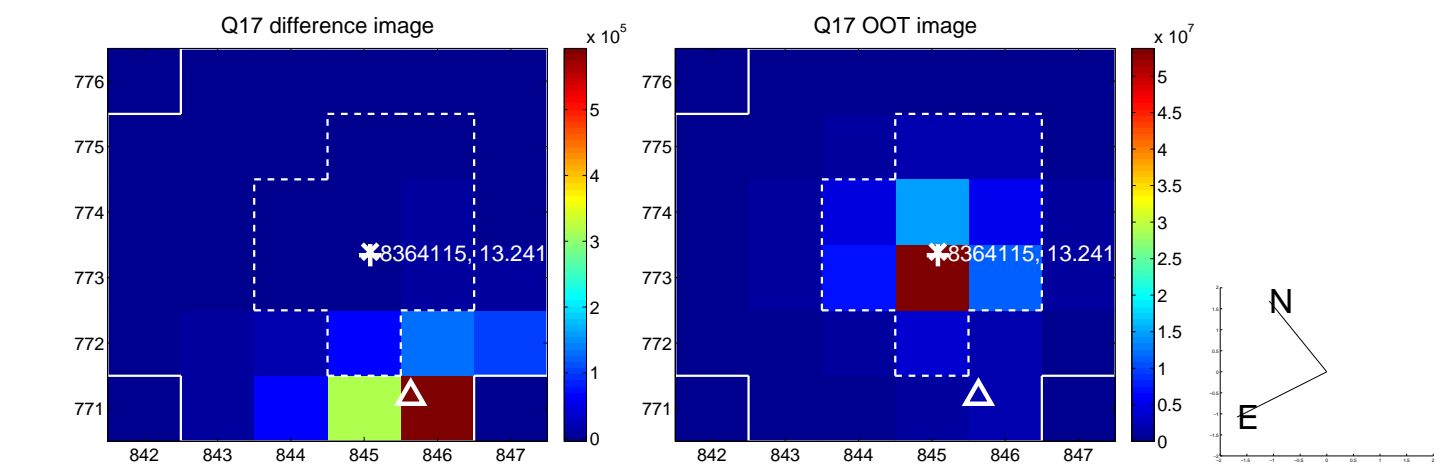
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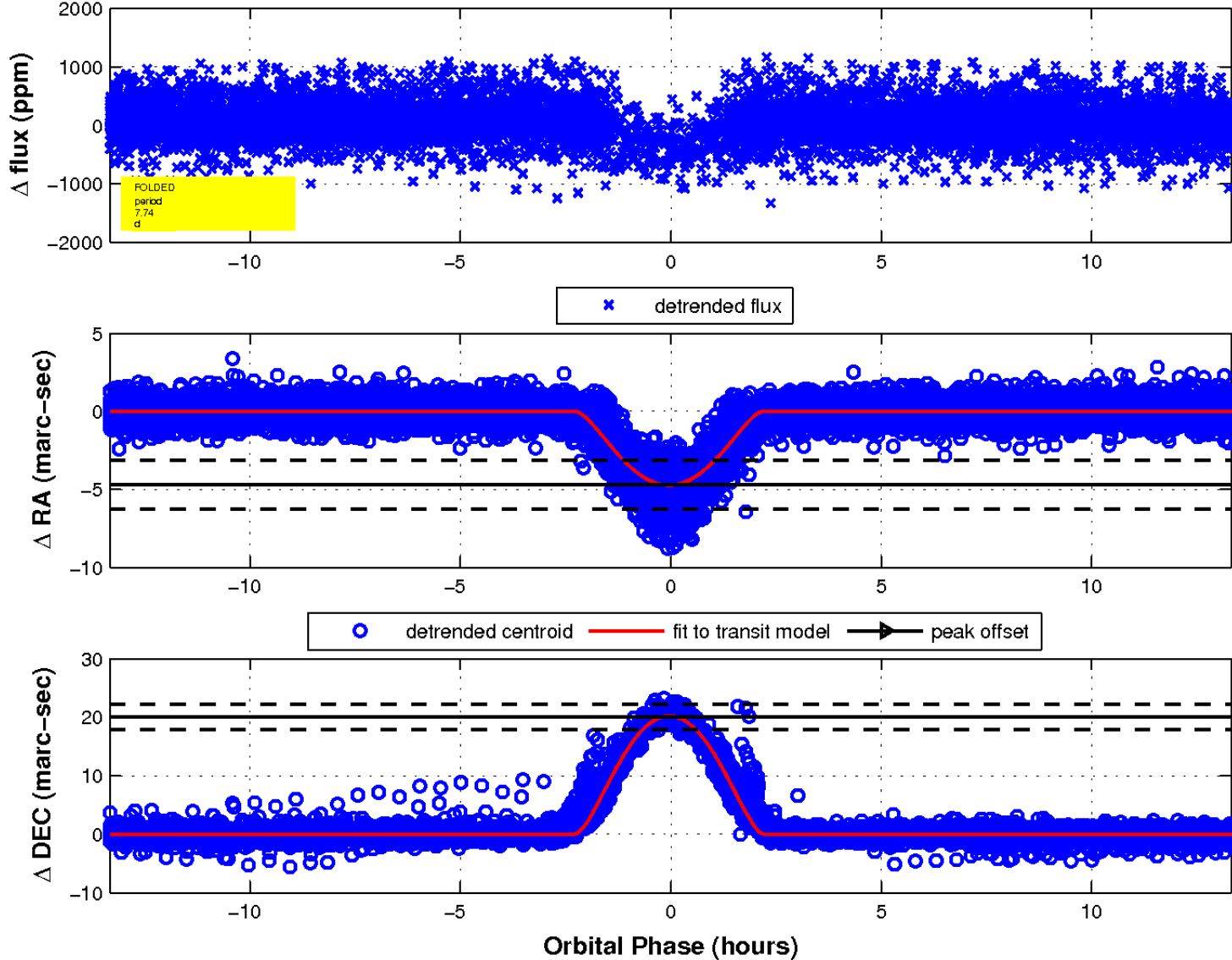
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

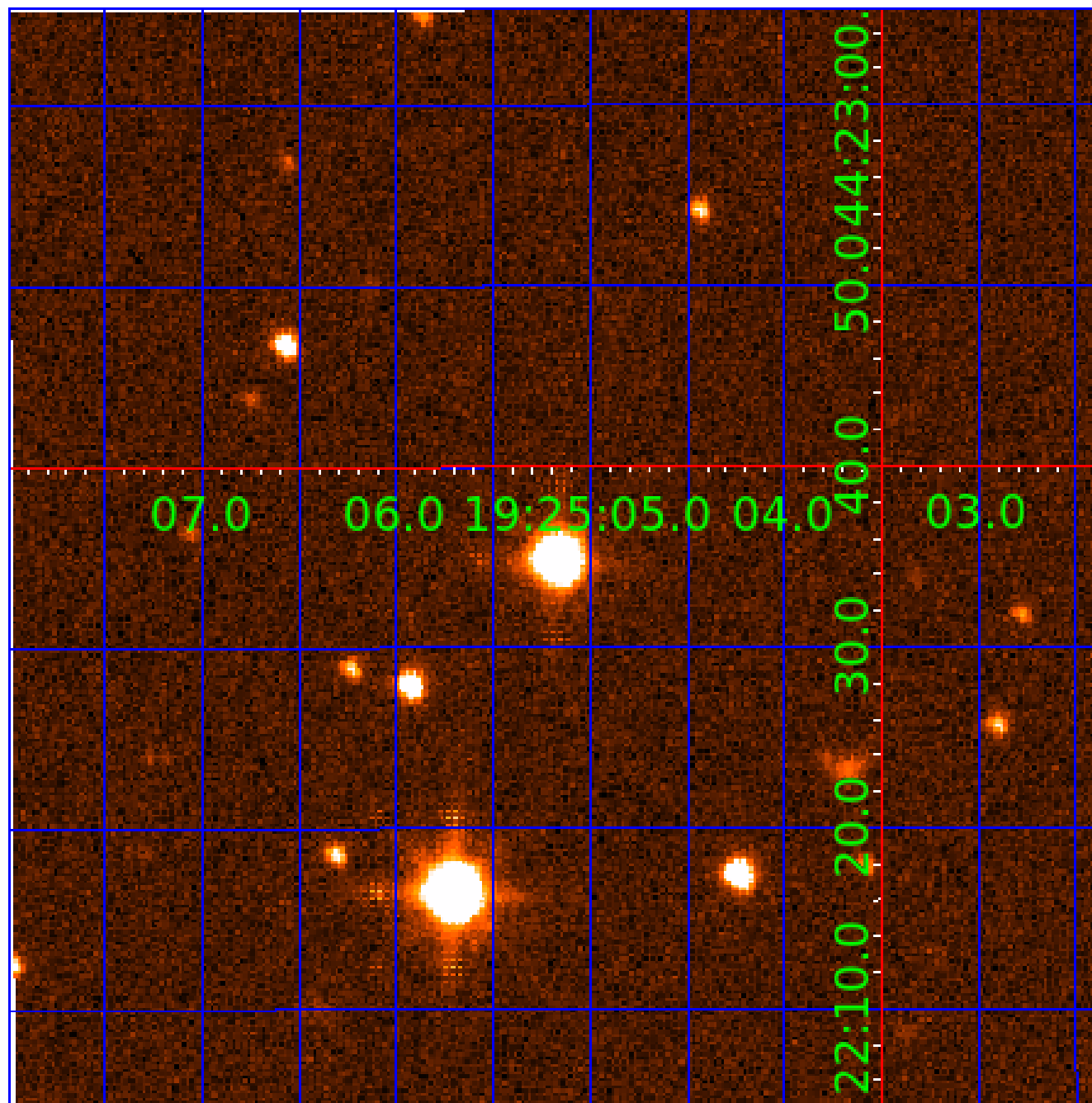


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008364115

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})
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008364115-02	OBS	No	7.735914	134.207162	387.5	4.708	42.0	46.4	0.86	5927	3.31	144.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008364115-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008364115-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—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 008364115-02

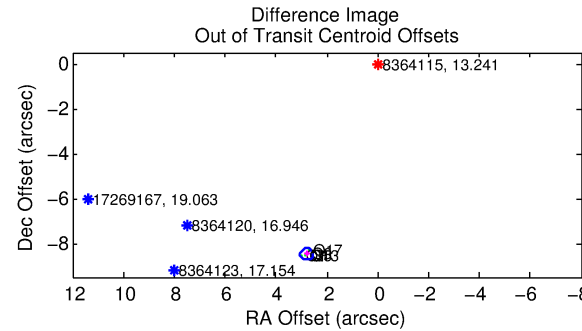
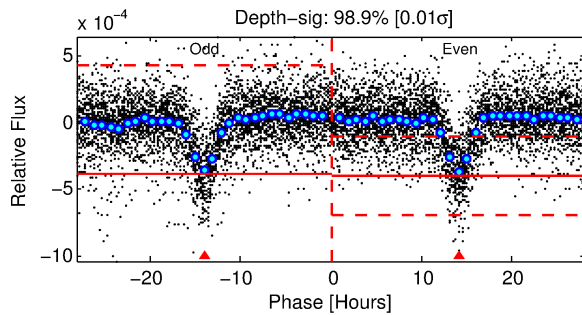
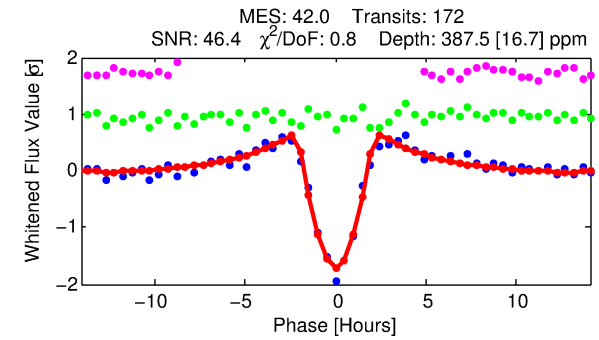
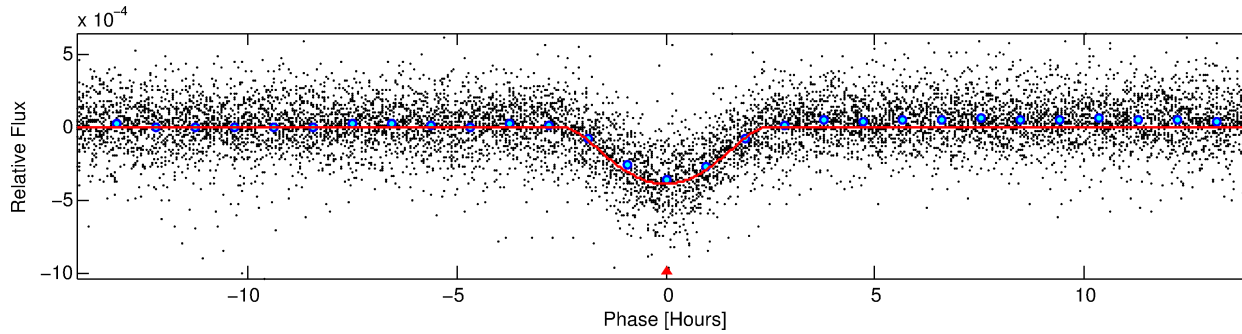
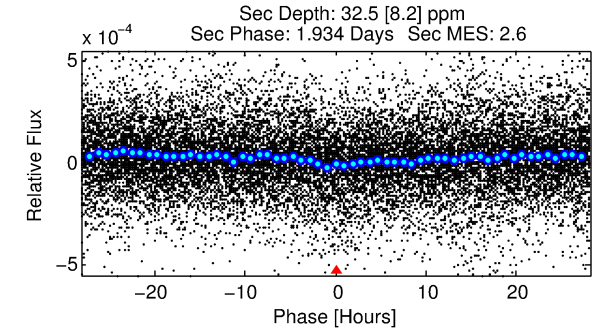
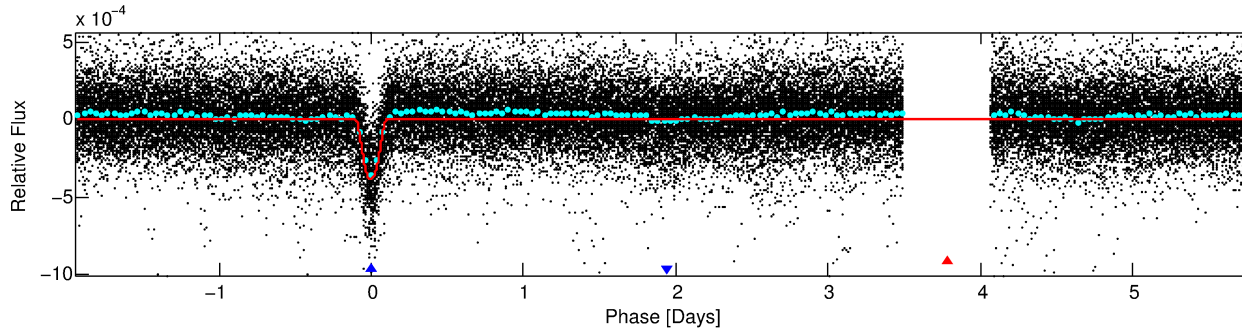
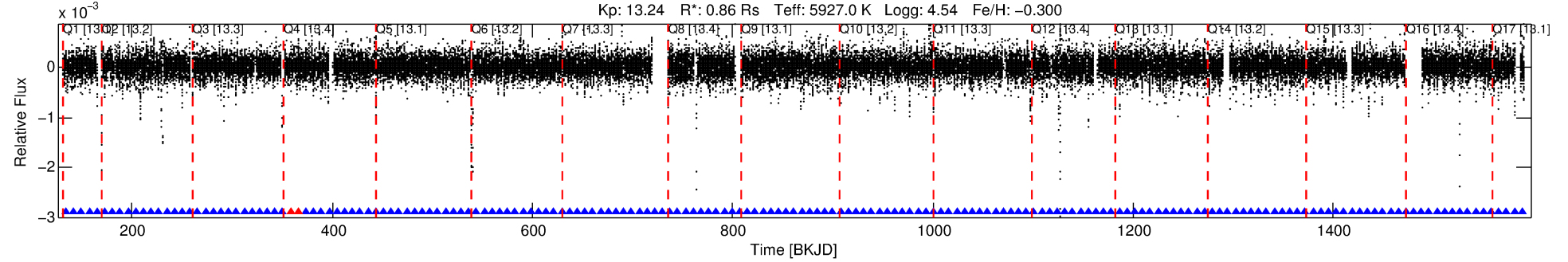
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008364115-02	8364115	008364119-02	8364119	1:1	19.3	-2	4	12.41	13.24	708.86	Direct-PRF	0	0.10	0.01

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: 8364115 Candidate: 2 of 2 Period: 7.736 d
KOI: K06056 Corr: No Ephemeris Match

Kp: 13.24 R*: 0.86 Rs Teff: 5927.0 K Logg: 4.54 Fe/H: -0.300



DV Fit Results:

Period = 7.73591 [0.00002] d
Epoch = 134.2072 [0.0017] BKJD
Rp/R* = 0.0353 [0.0186]
a/R* = 3.55 [0.45]
b = 1.00 [0.03]
Seff = 144.95 [57.85]
Teq = 885 [88] K
Rp = 3.32 [2.02] Re
a = 0.0751 [0.0196] AU
Ag = 9.16 [10.55] [0.77σ]
Teff = 2380 [649] K [2.28σ]

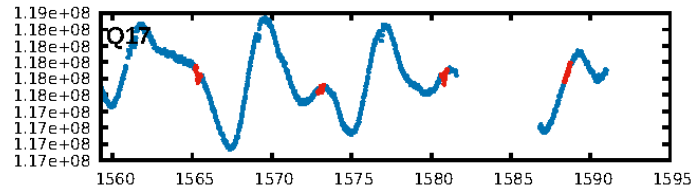
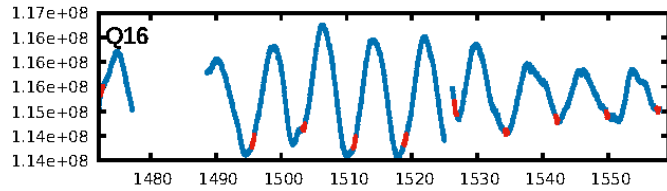
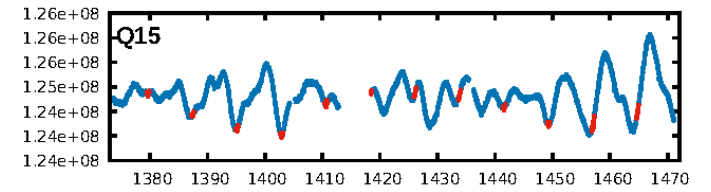
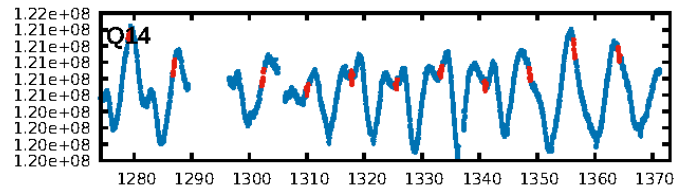
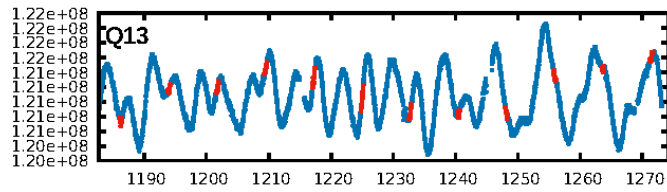
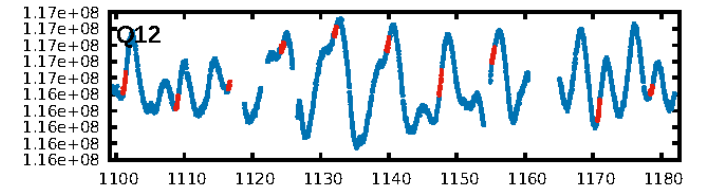
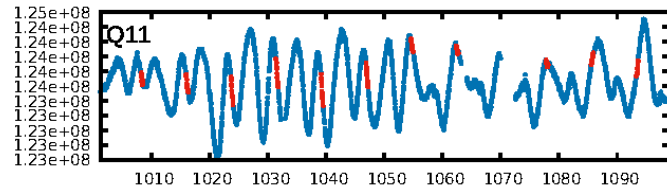
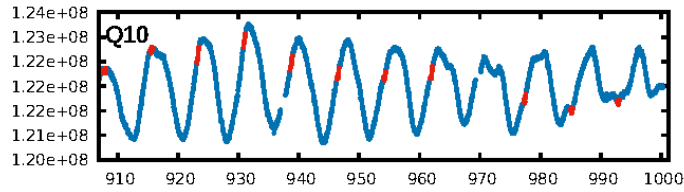
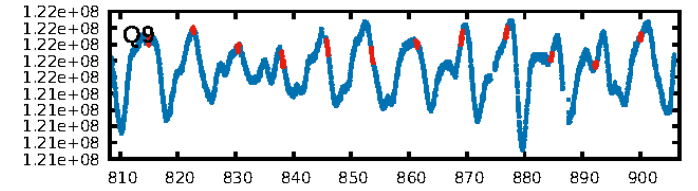
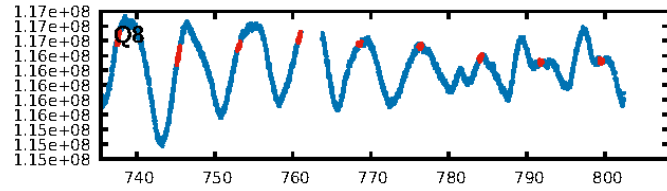
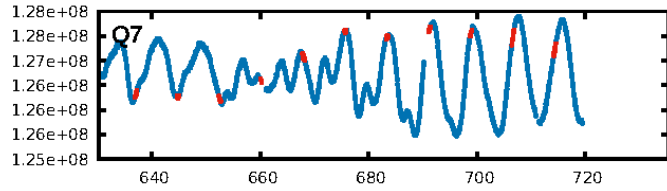
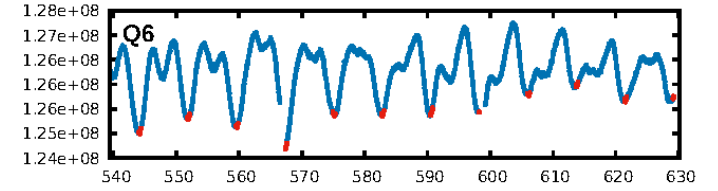
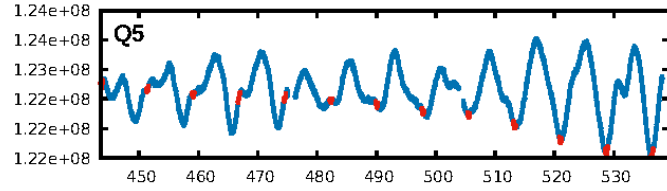
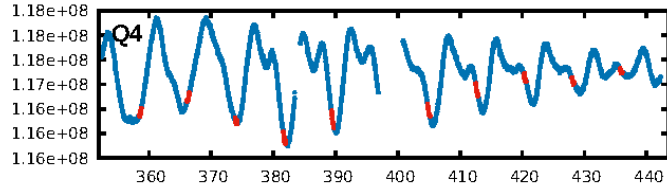
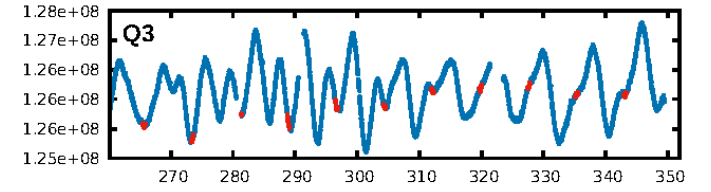
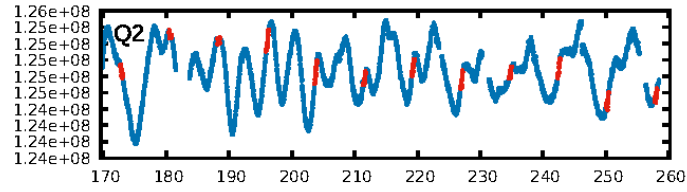
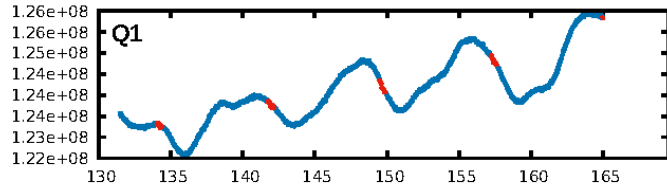
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 2.76e-300
RollingBand-fgt: 0.99 [162/164]
GhostDiagnostic-chr: -0.1899
Centroid-sig: 0.0%
Centroid-so: 47.357 arcsec [253.52σ]
OotOffset-rm: 8.925 arcsec [106.56σ]
KicOffset-rm: 9.075 arcsec [116.45σ]
OotOffset-st: 0/0/0/5 [5]
KicOffset-st: 0/0/0/5 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [17/17]

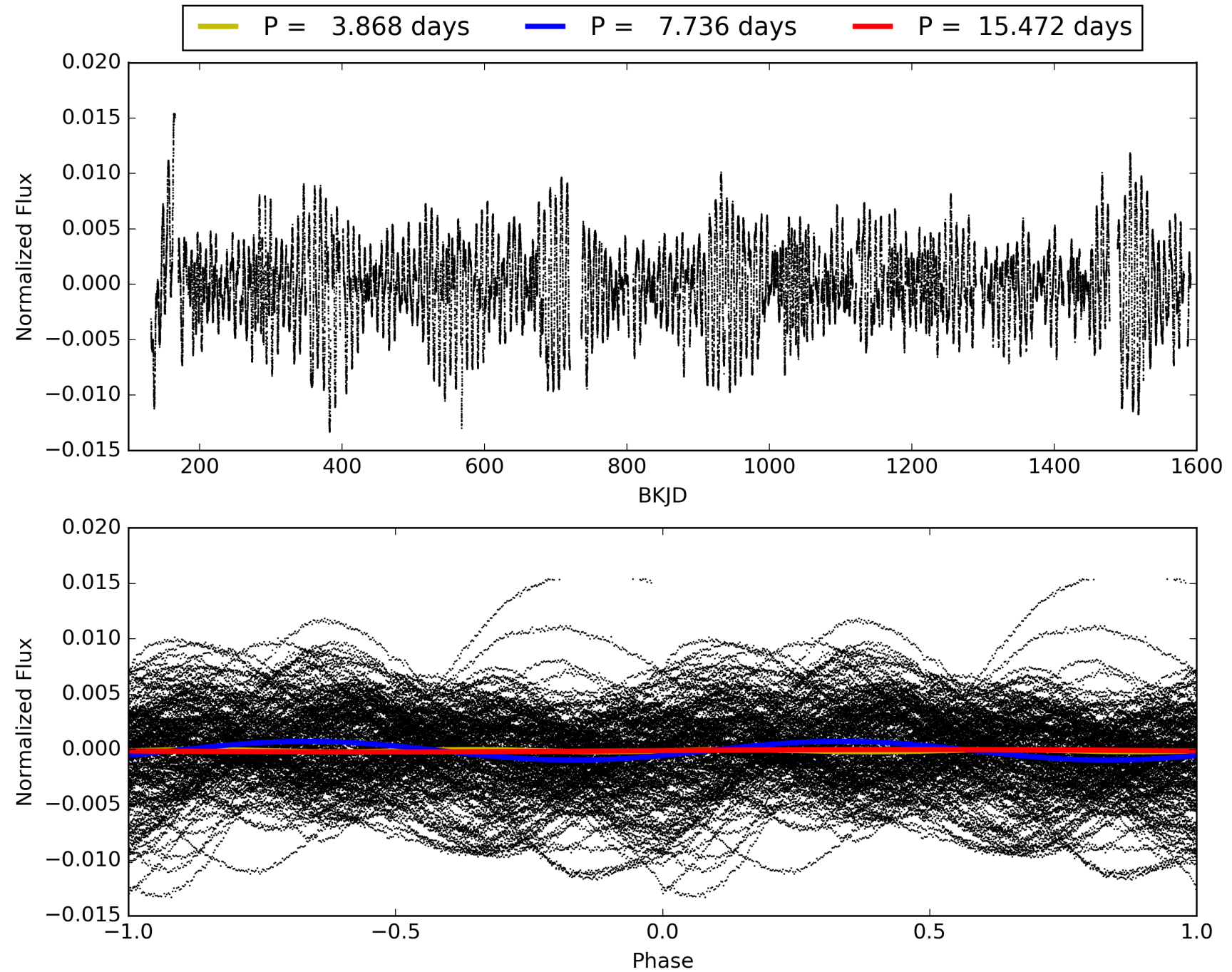
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:12:52 Z

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

TCE 008364115-02, PDC Light Curves

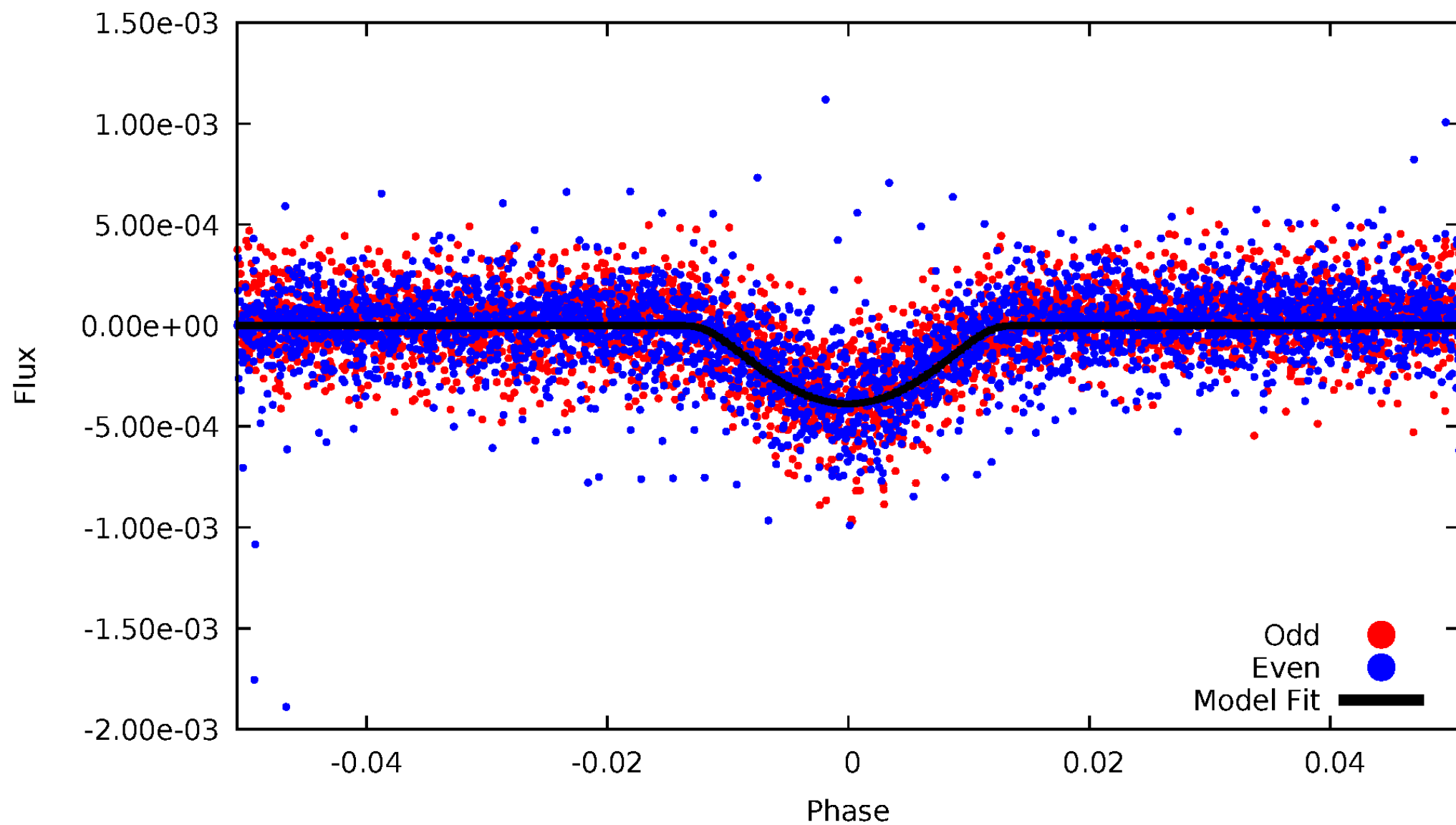


TCE 008364115-02



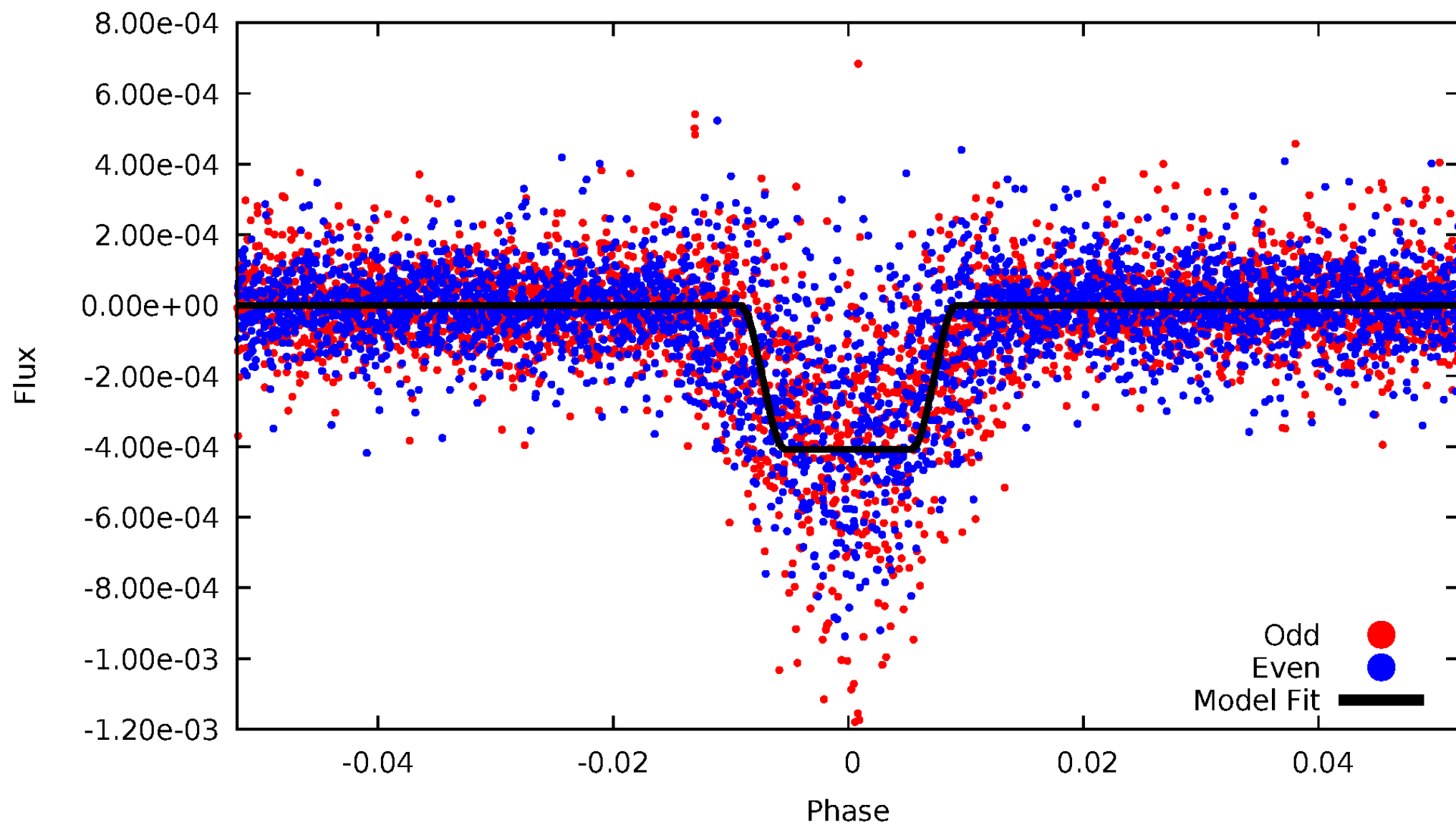
DV Odd/Even

TCE 008364115-02



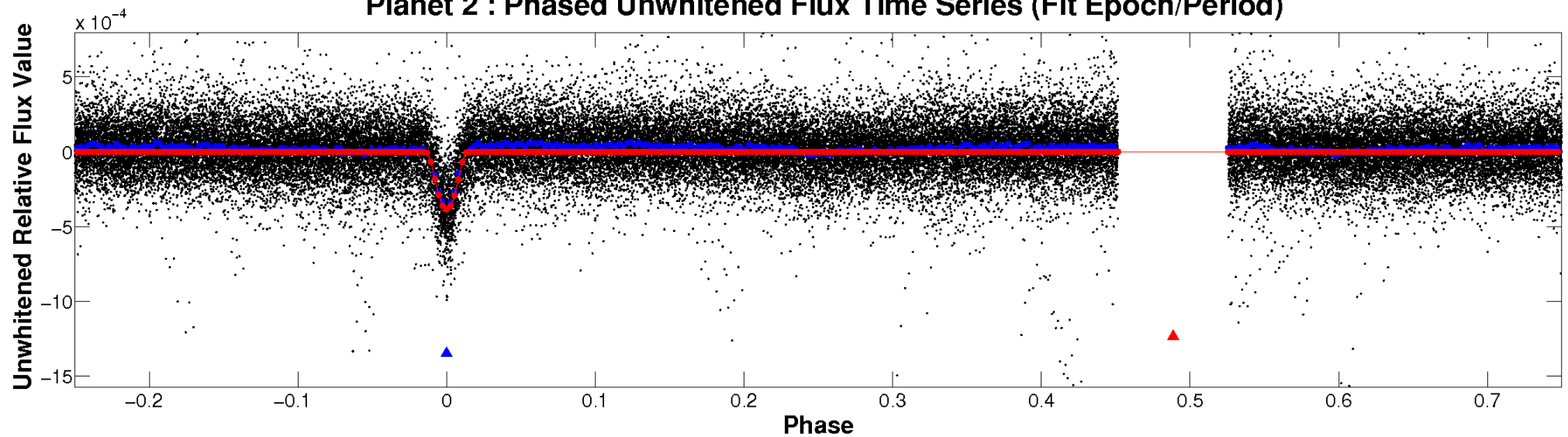
ALT Odd/Even

TCE 008364115-02

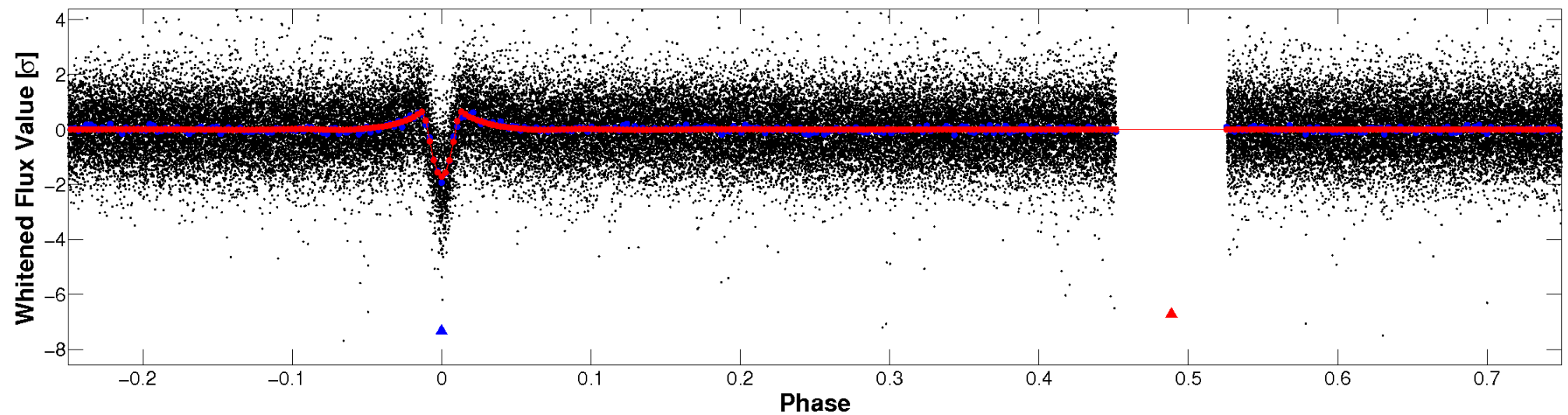


Non-Whitened Vs. Whitened Light Curve

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

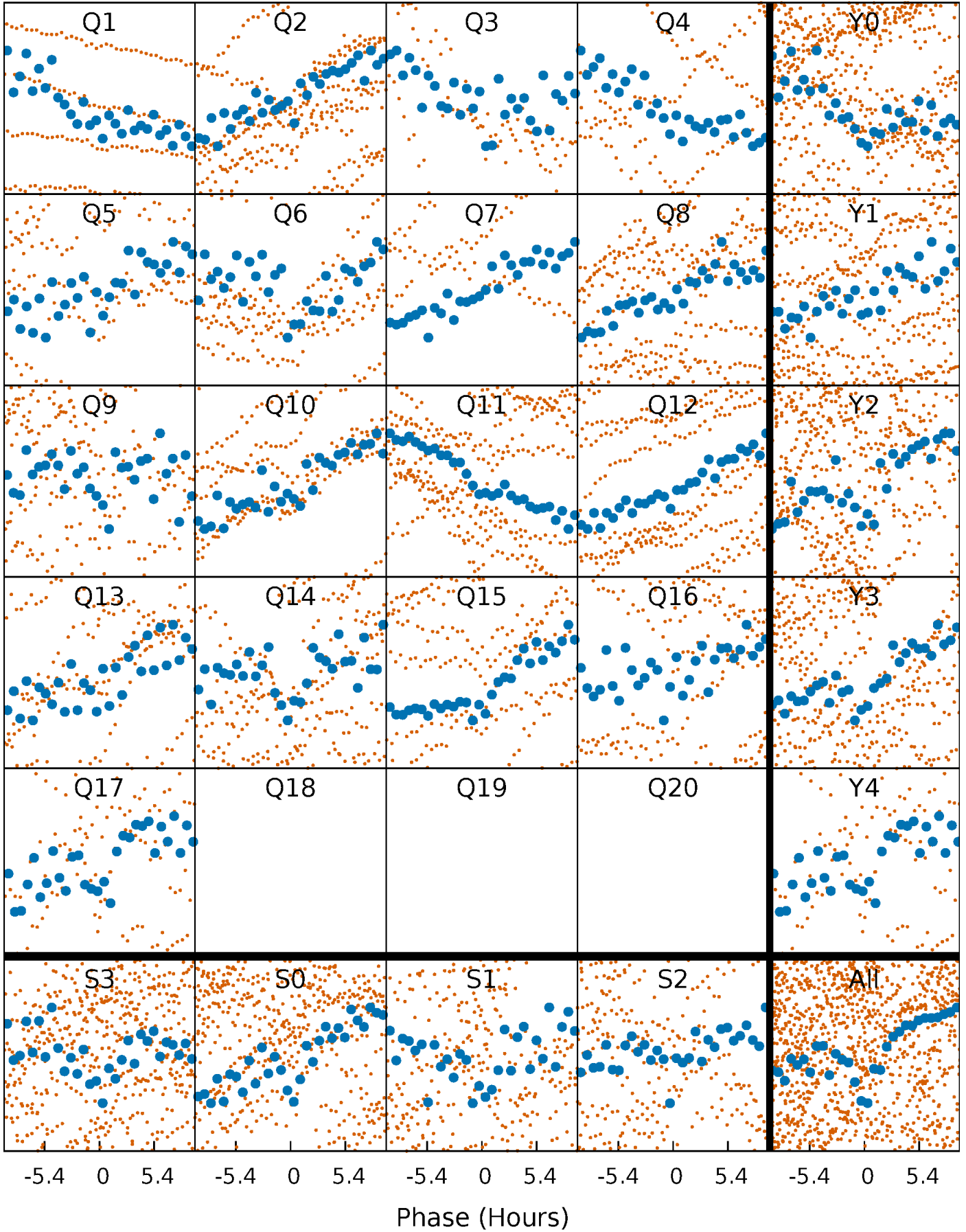


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



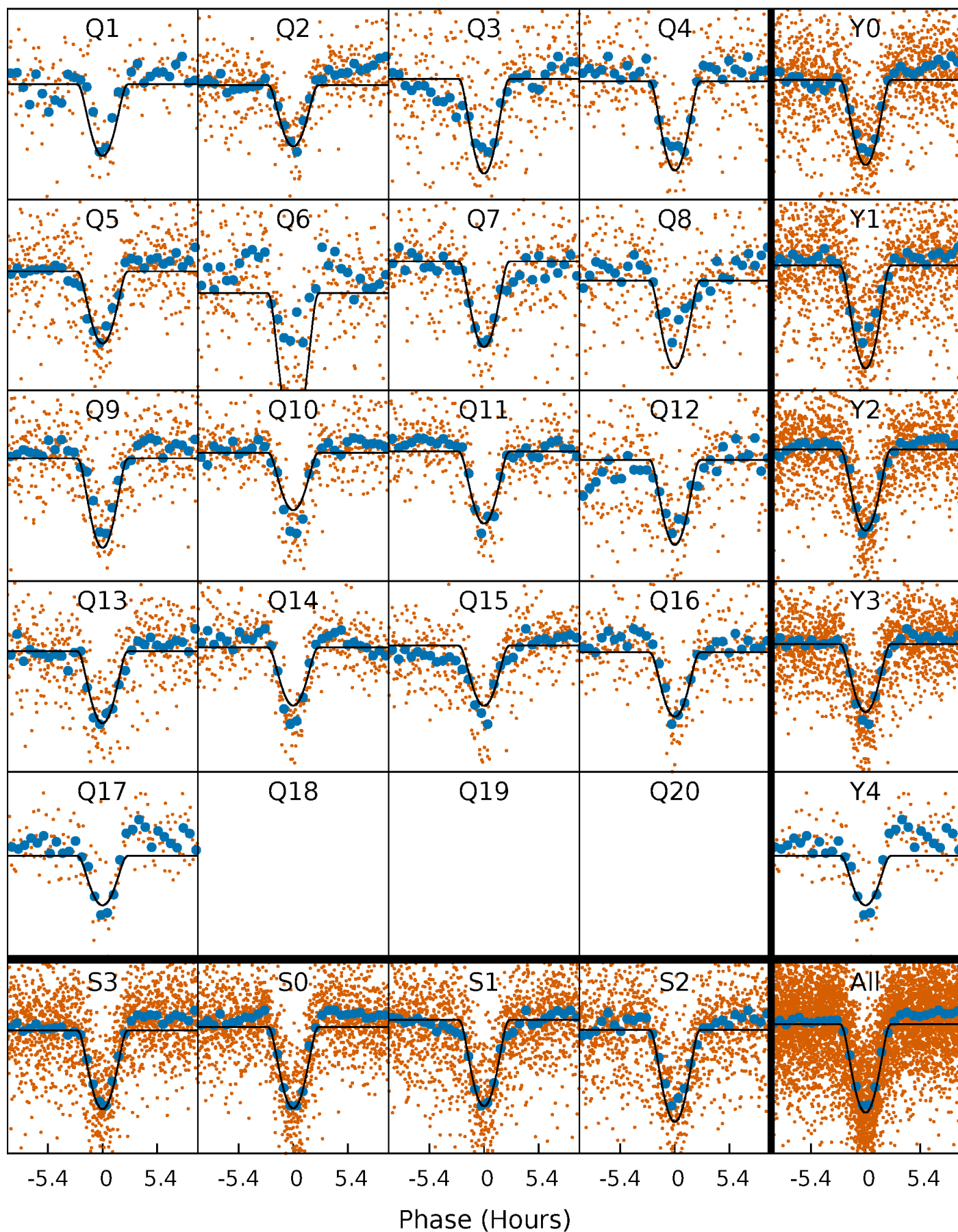
PDC Quarter-Phased Transit Curves

TCE 008364115-02 P= 7.735914 Days $T_0=134.207162$ (BKJD)



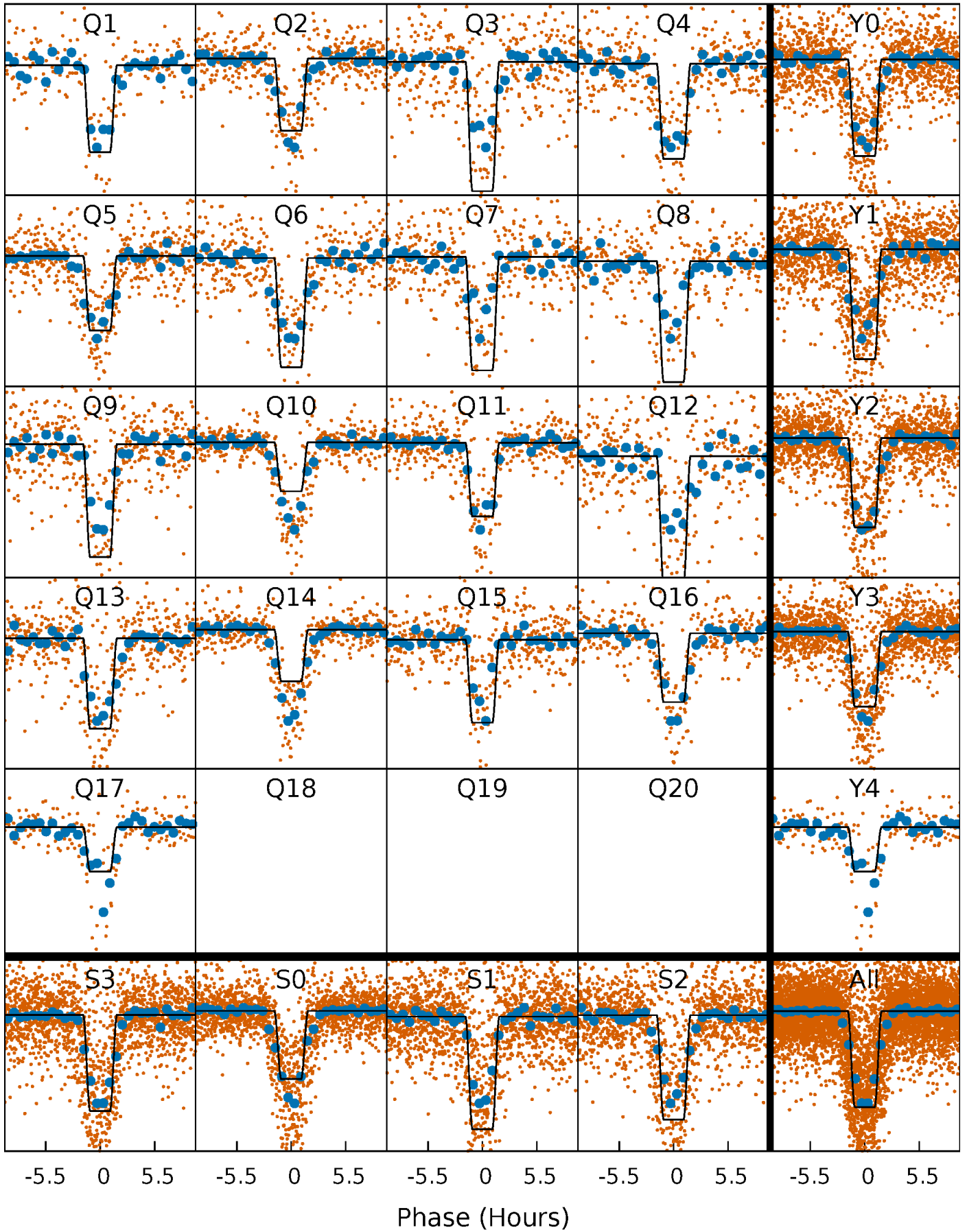
DV Quarter-Phased Transit Curves

TCE 008364115-02 P= 7.735914 Days $T_0=134.207162$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

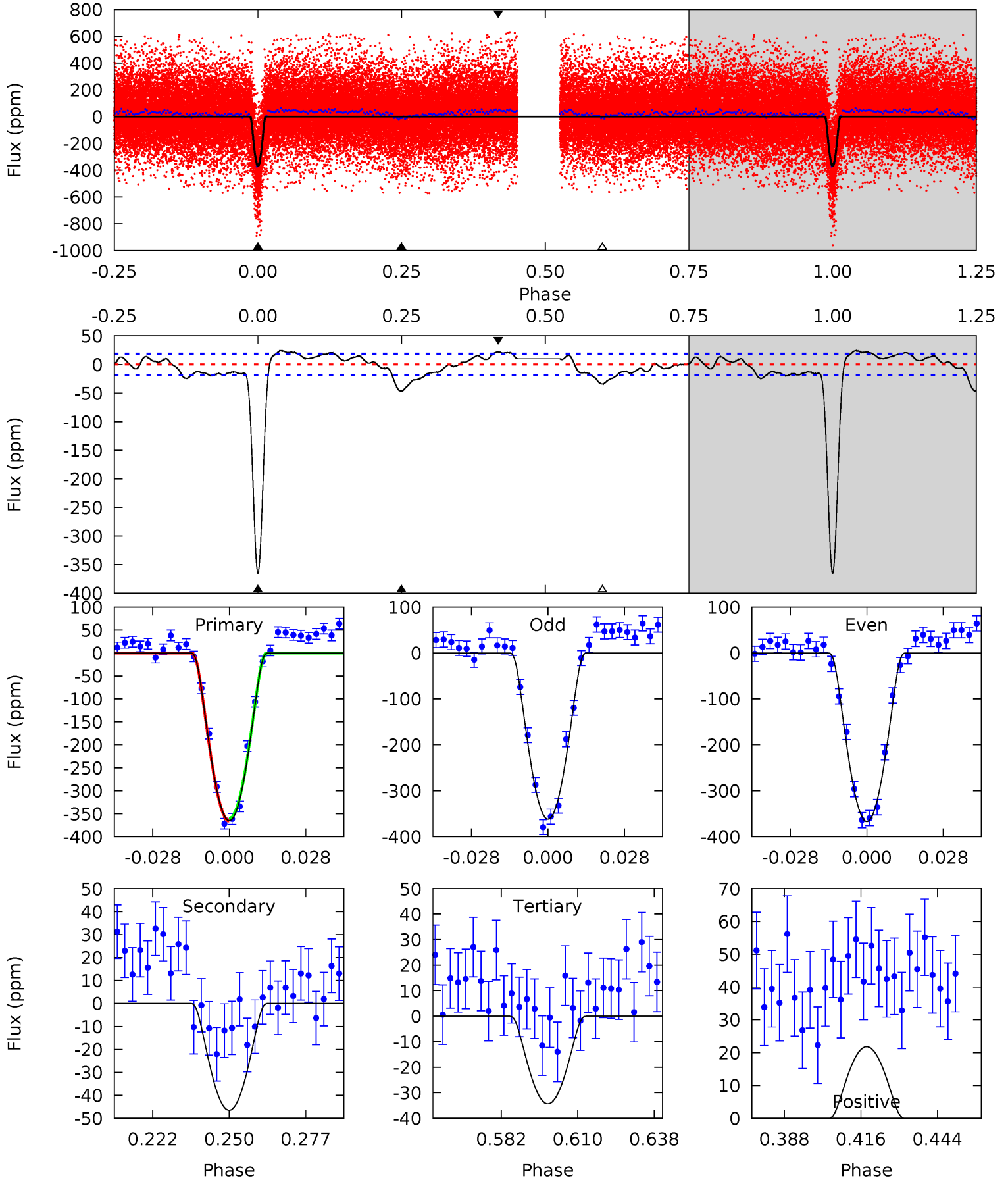
TCE 008364115-02 P= 7.735877 Days $T_0=134.211753$ (BKJD)



DV Model-Shift Uniqueness Test

008364115-02, P = 7.735914 Days, E = 126.471248 Days

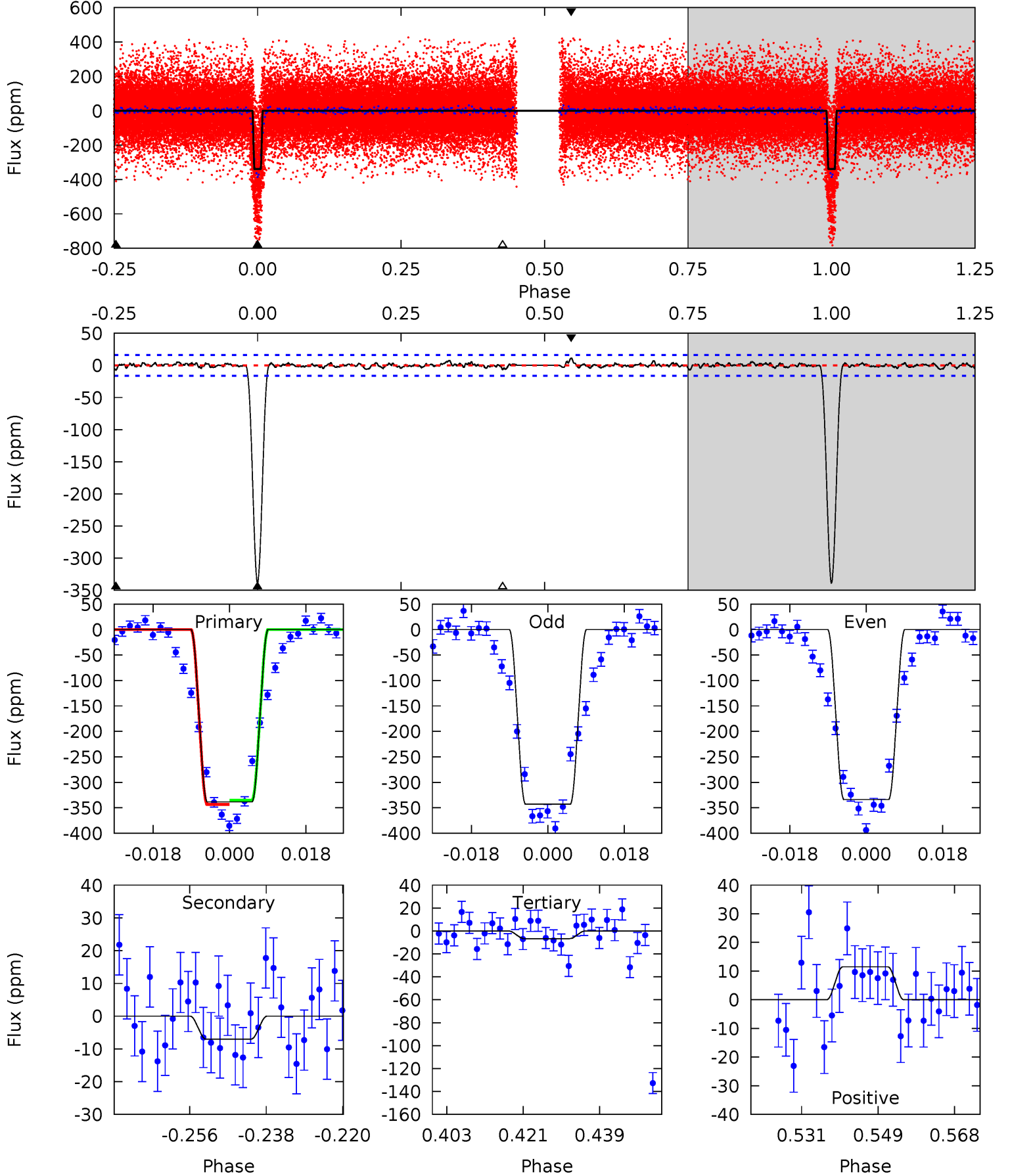
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
94.1	12.0	8.86	5.62	4.83	2.20	3.70	85.2	88.5	3.14	6.37	0.67	1.02	0.06	0.65



Alt Model-Shift Uniqueness Test

008364115-02, P = 7.735877 Days, E = 126.475876 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.0	2.14	2.04	3.50	4.91	2.36	0.72	100.9	99.5	0.10	-1.36	1.40	1.02	0.03	1.27



Stellar Parameters For KIC 008364115

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5927^{+141}_{-159}	$4.544^{+0.038}_{-0.212}$	$-0.300^{+0.300}_{-0.300}$	$0.860^{+0.264}_{-0.070}$	$0.944^{+0.110}_{-0.121}$	$2.090^{+0.441}_{-1.125}$
	+2%/-3%	+1%/-5%	+100%/-100%	+31%/-8%	+12%/-13%	+21%/-54%
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 008364115-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-47 ± 4	$3.64^{+1.88}_{-1.80}$	1268^{+92}_{-55}	3162^{+758}_{-360}	11^{+32}_{-6}
Alt.	-7 ± 3	$2.26^{+1.89}_{-1.43}$	1270^{+87}_{-51}	2719^{+950}_{-459}	$3.961^{+24.728}_{-2.905}$

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

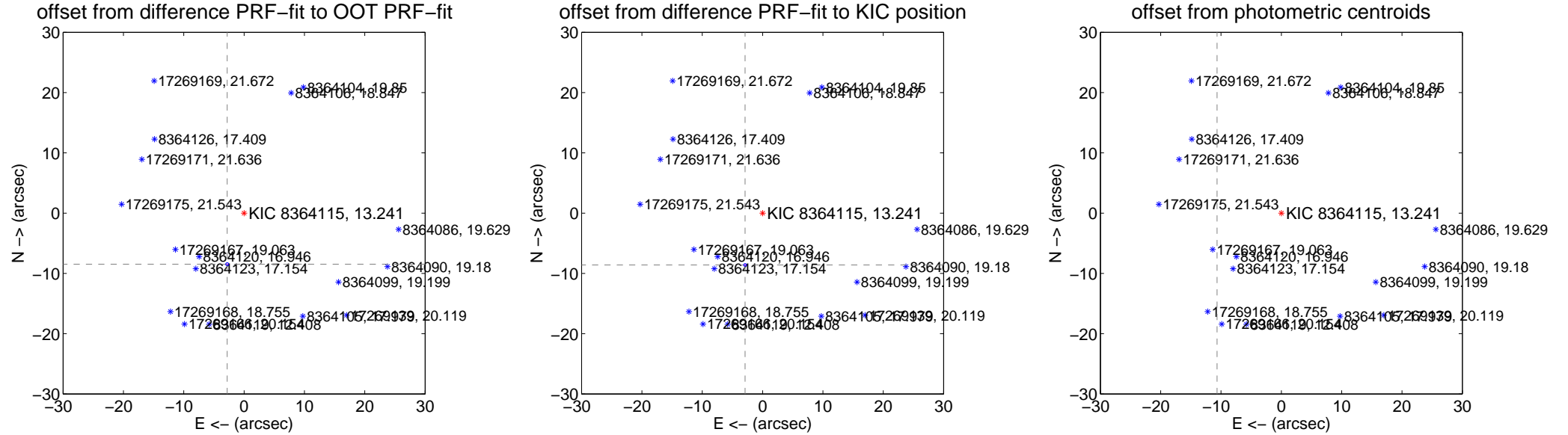
DV Centroid Data

Supplemental centroid analysis for 008364115-02. Kepler magnitude: 13.24. Transit SNR 46.44

There are 5 quarters with good PRF difference image offsets

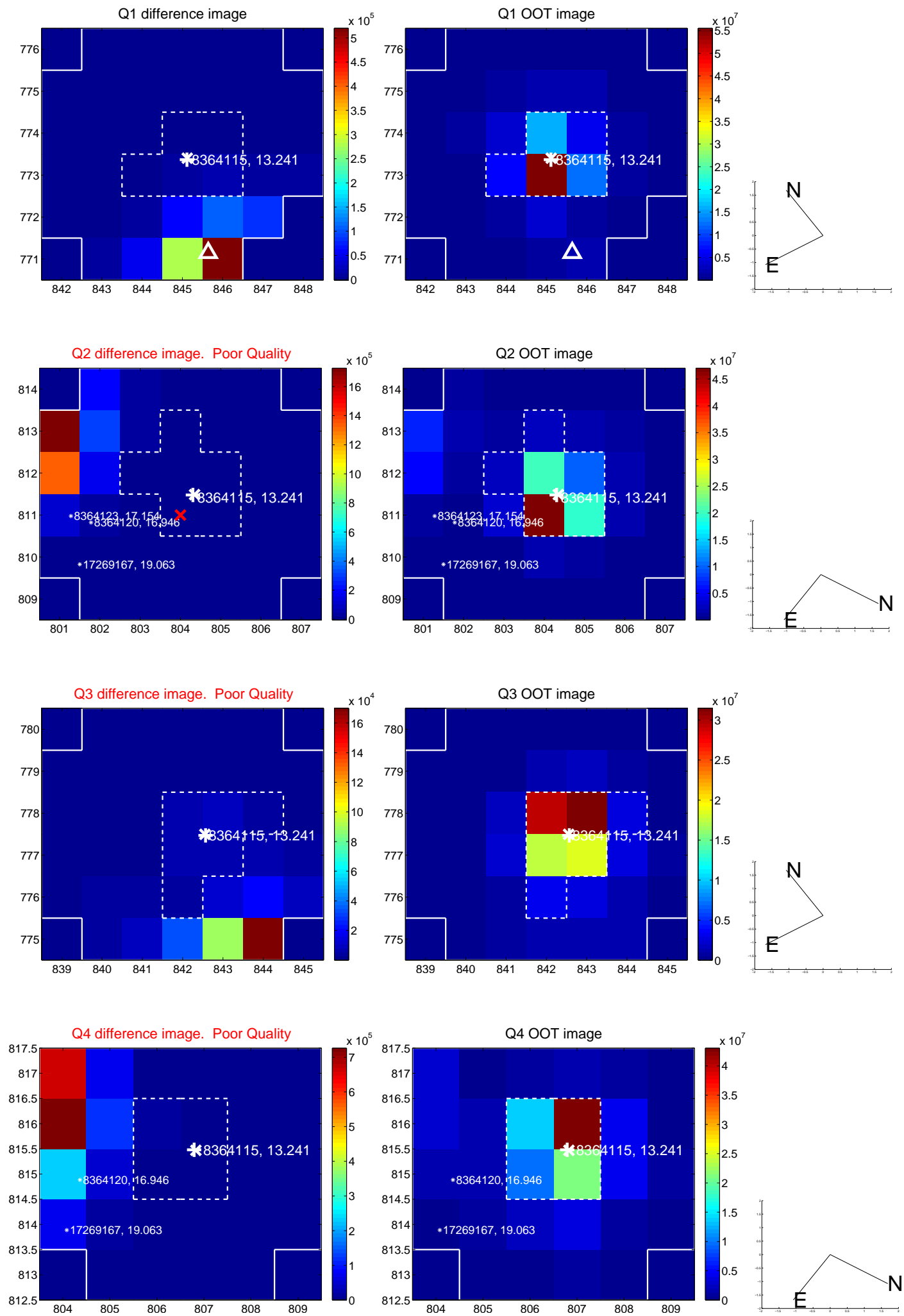
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.925 \pm 0.084	106.56	2.798 \pm 0.080	-8.475 \pm 0.078
PRF-fit source offset from KIC position	9.075 \pm 0.078	116.45	2.898 \pm 0.078	-8.600 \pm 0.078
photometric centroid source offset	47.36 \pm 0.19	253.52	10.65 \pm 0.18	-46.14 \pm 0.19

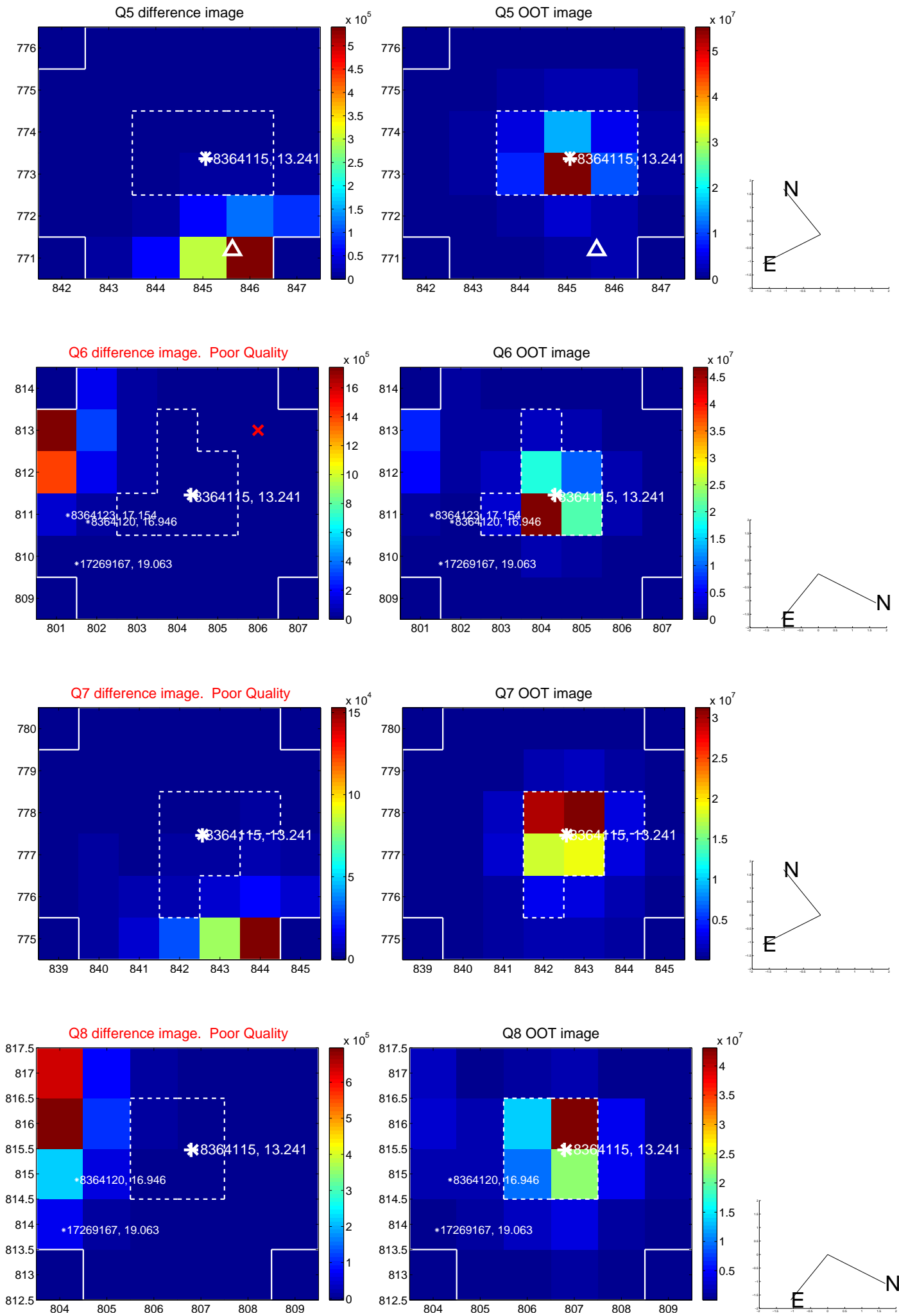


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

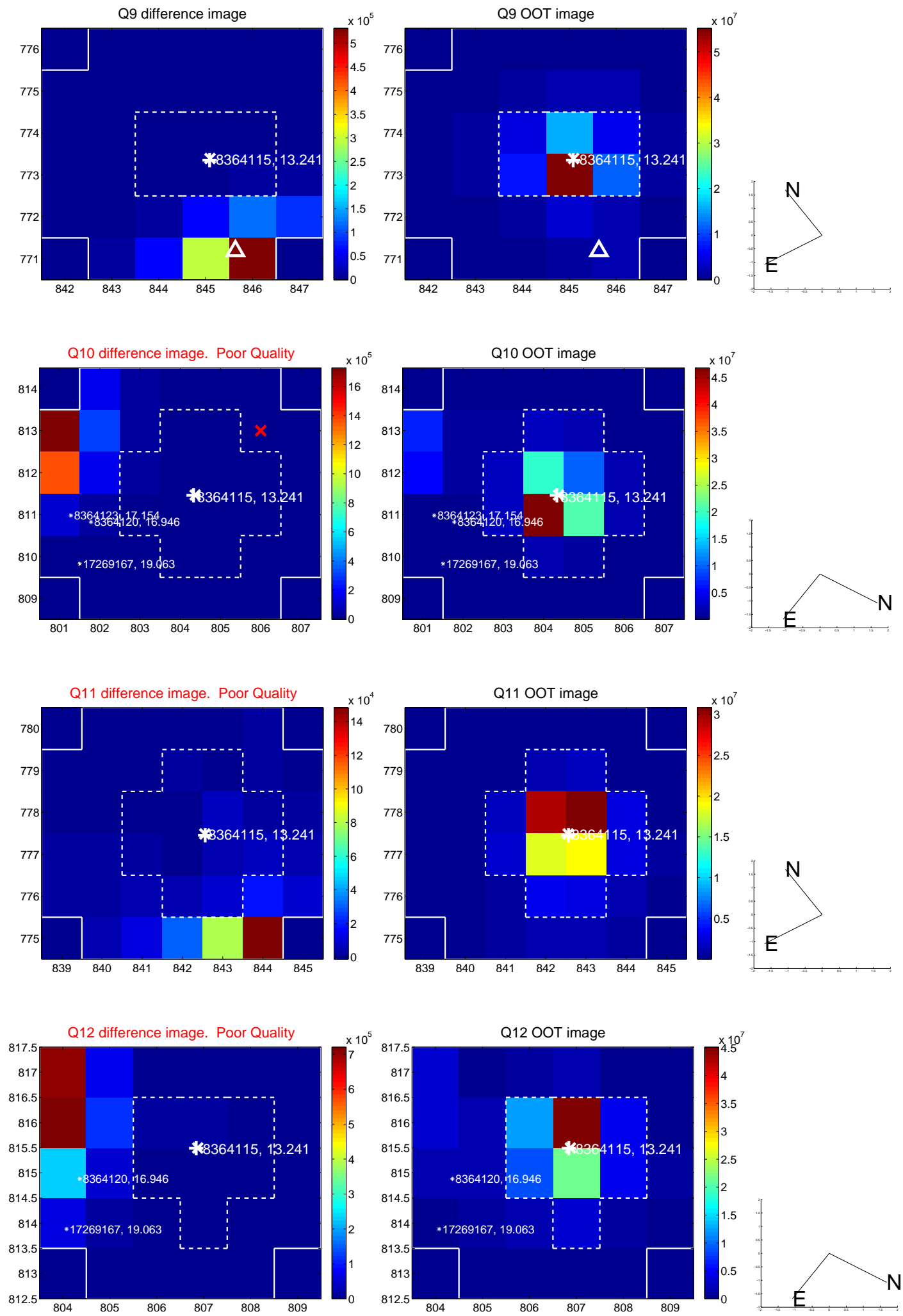
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



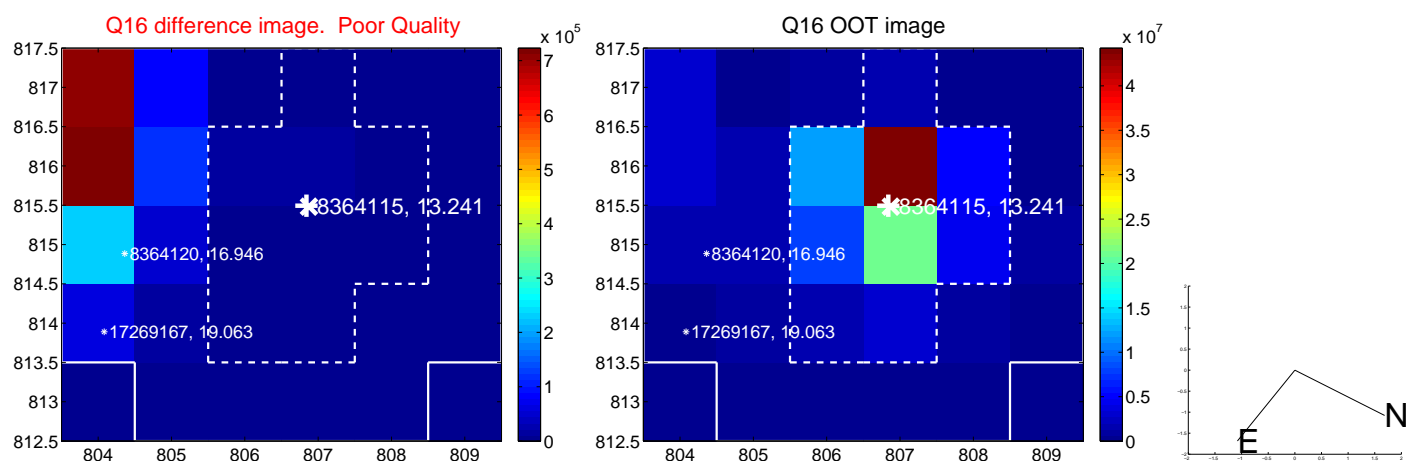
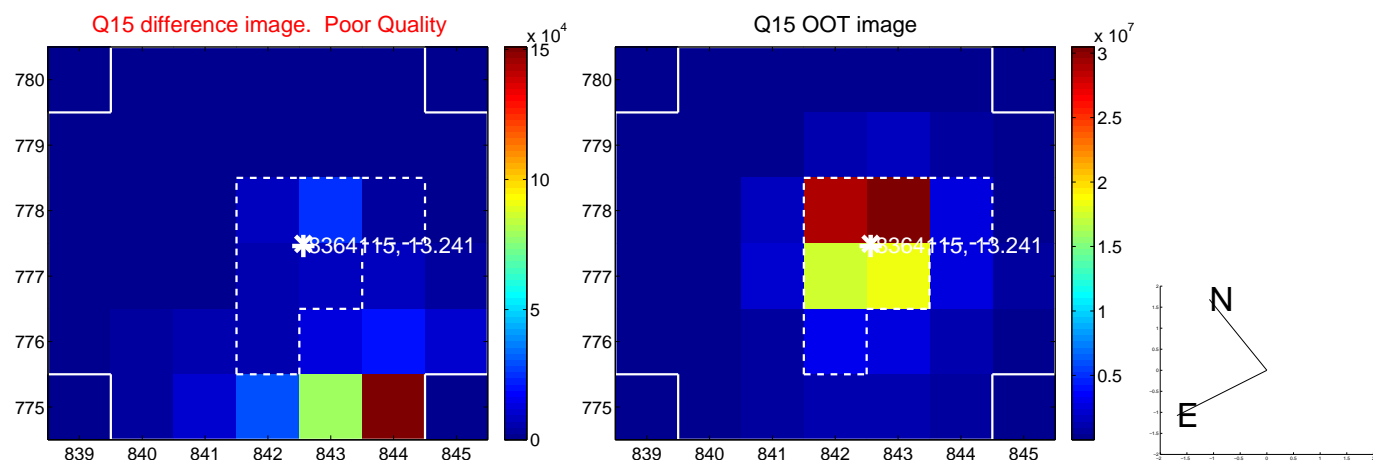
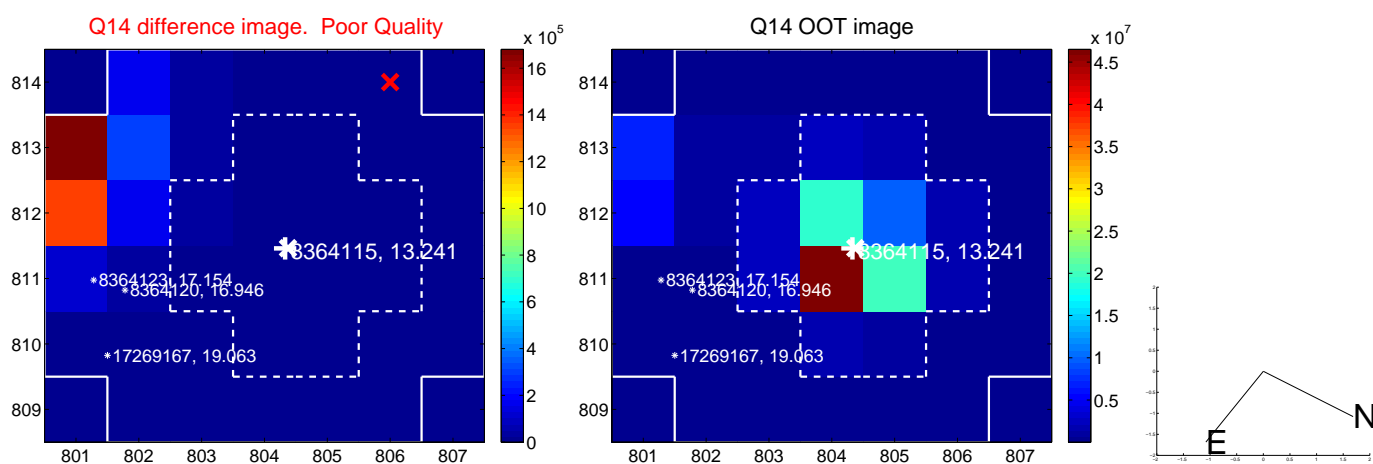
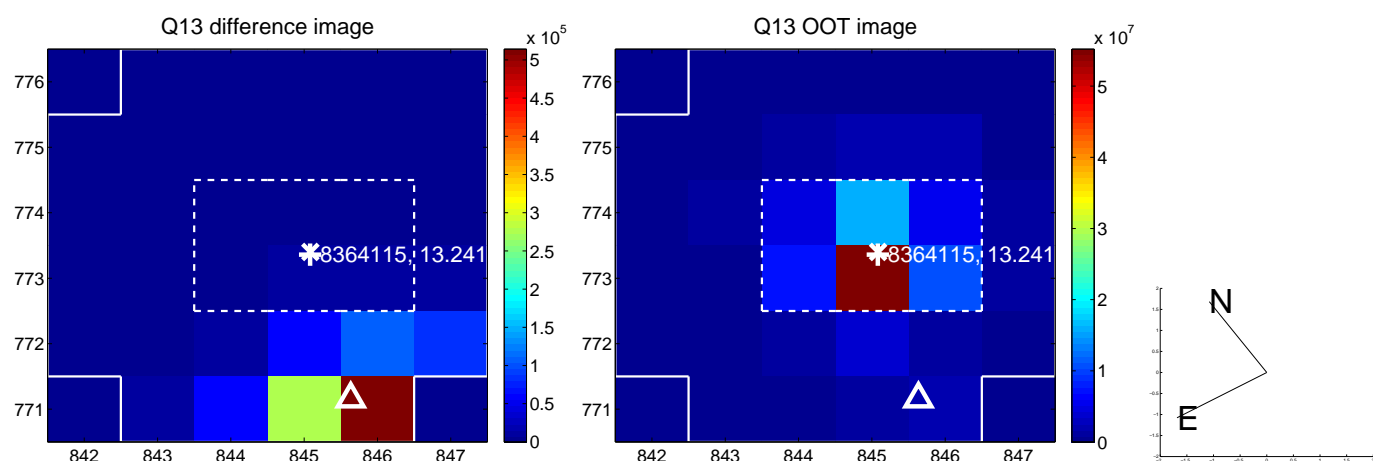
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



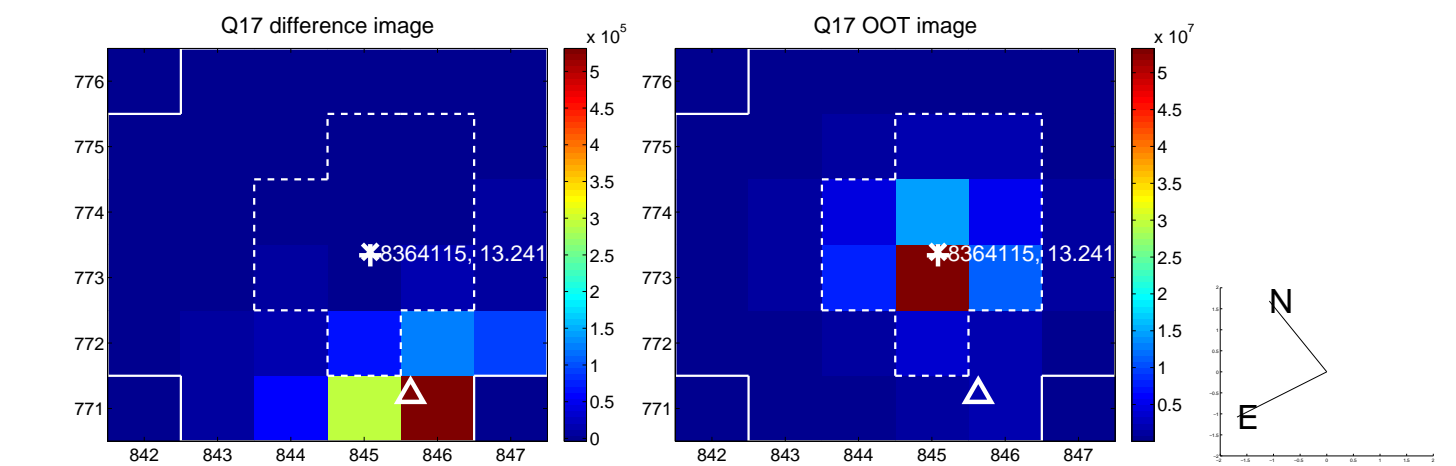
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



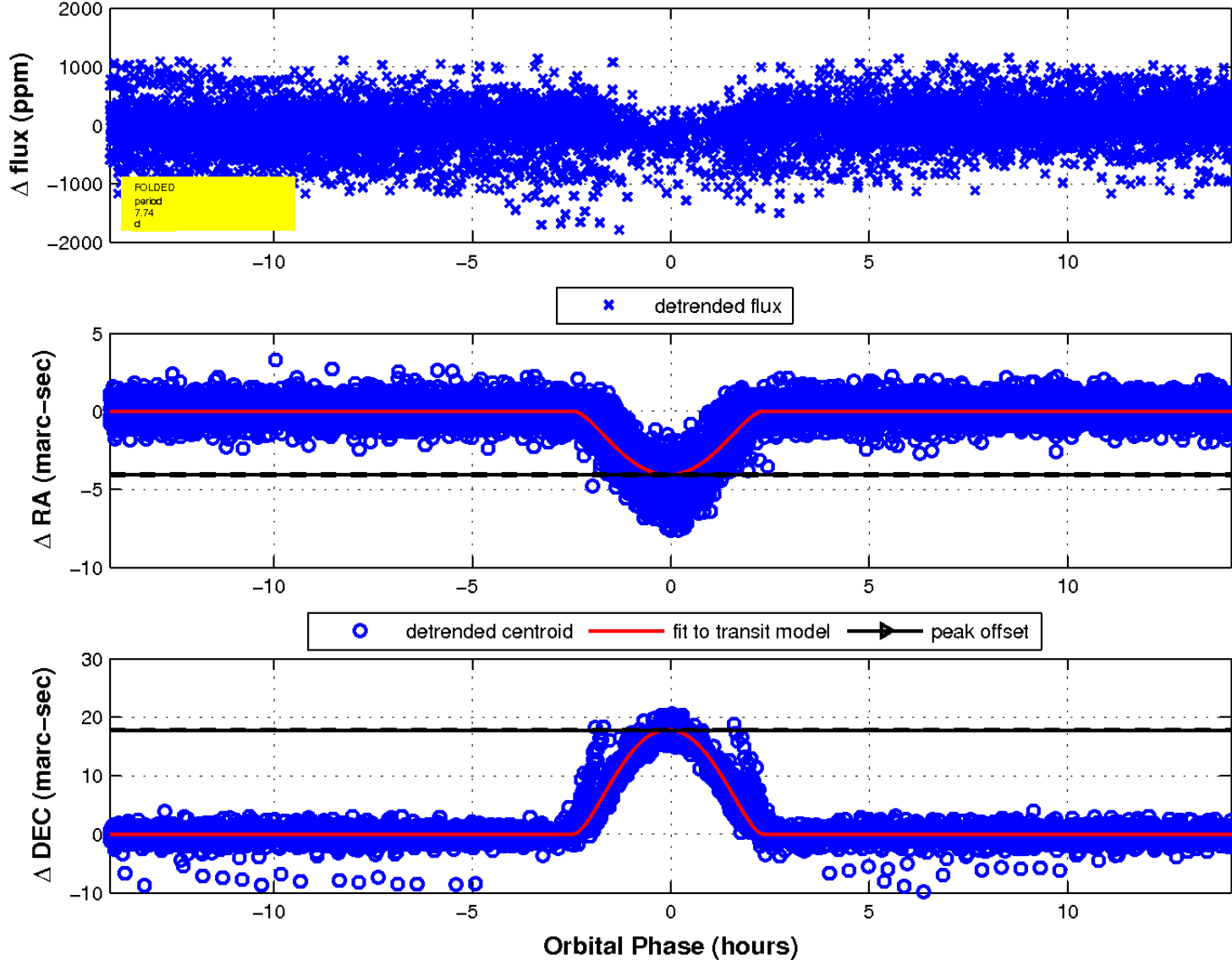
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

