

KIC 012367464

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})
012367464-01	OBS	6250.01	1.853212	132.248972	12057.8	1.696	1993.0	1687.5	1.72	6384	23.30	4603.03
012367464-02	OBS	No	0.926608	132.249230	324.7	1.206	38.8	57.4	1.72	6384	3.64	11598.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012367464-01	OBS	PC	0.99	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—MOD_SEC_ALT—PLANET_OCCULT_ALT—HAS_SEC_TCE
012367464-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

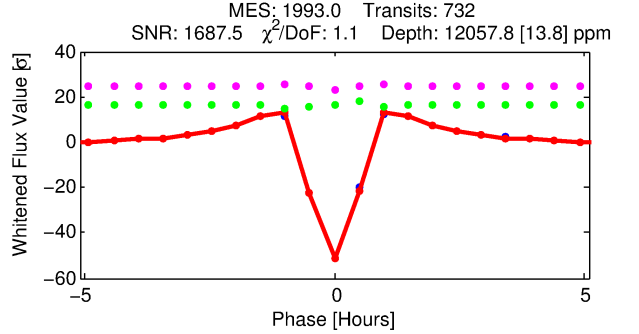
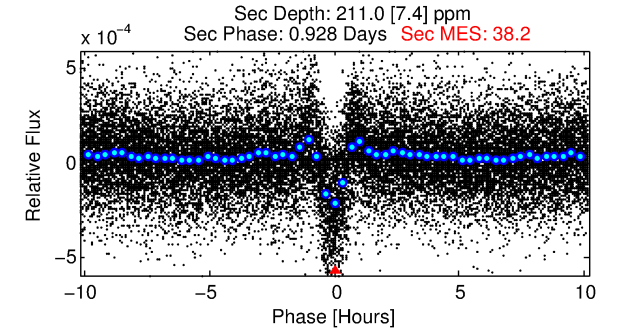
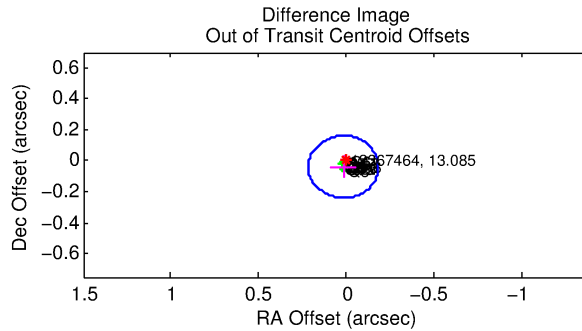
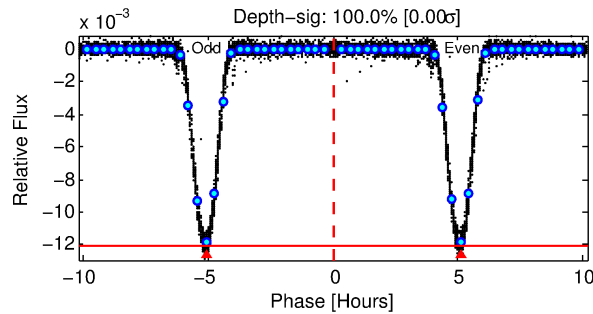
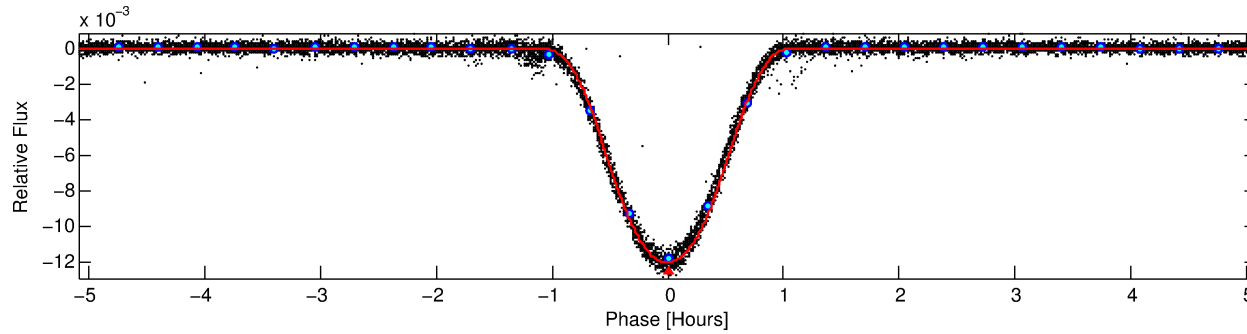
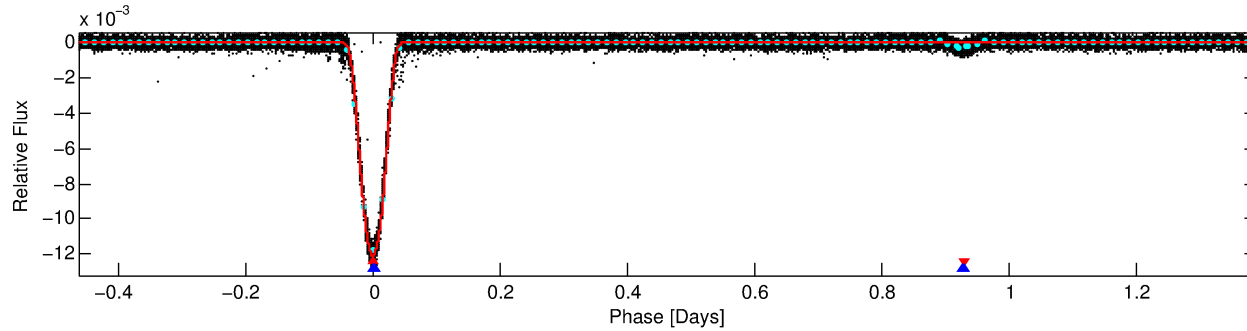
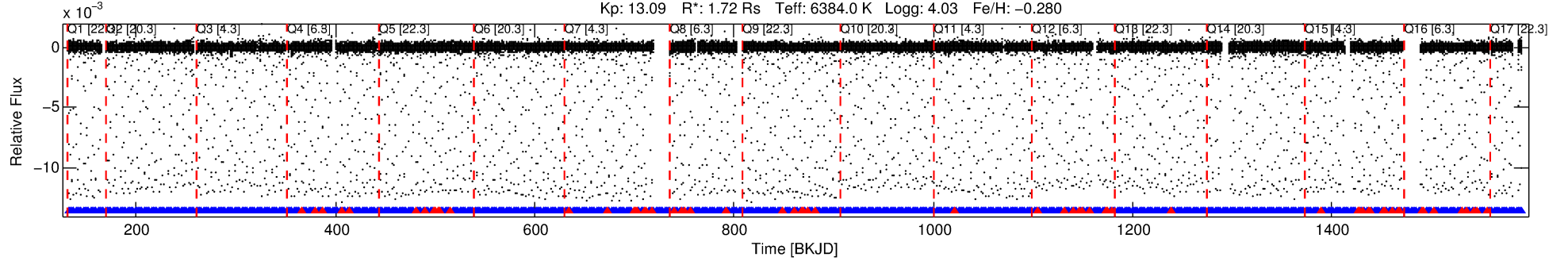
Ephemeris Match Information For 012367464-01

No Significant Match Found

DV One-Page Summary

KIC: 12367464 Candidate: 1 of 2 Period: 1.853 d
KOI: K06250.01 Corr: 0.976

Kp: 13.09 R*: 1.72 Rs Teff: 6384.0 K Logg: 4.03 Fe/H: -0.280



DV Fit Results:

Period = 1.85321 [0.00000] d
Epoch = 132.2490 [0.0000] BKJD
Rp/R* = 0.1244 [0.0007]
a/R* = 5.71 [0.02]
b = 0.90 [0.00]
Seff = 4603.03 [2583.28]
Teff = 2100 [295] K
Rp = 23.30 [8.94] Re
a = 0.0309 [0.0108] AU
Ag = 0.20 [0.11] [-7.19σ]
Teffp = 2181 [80] K [0.27σ]

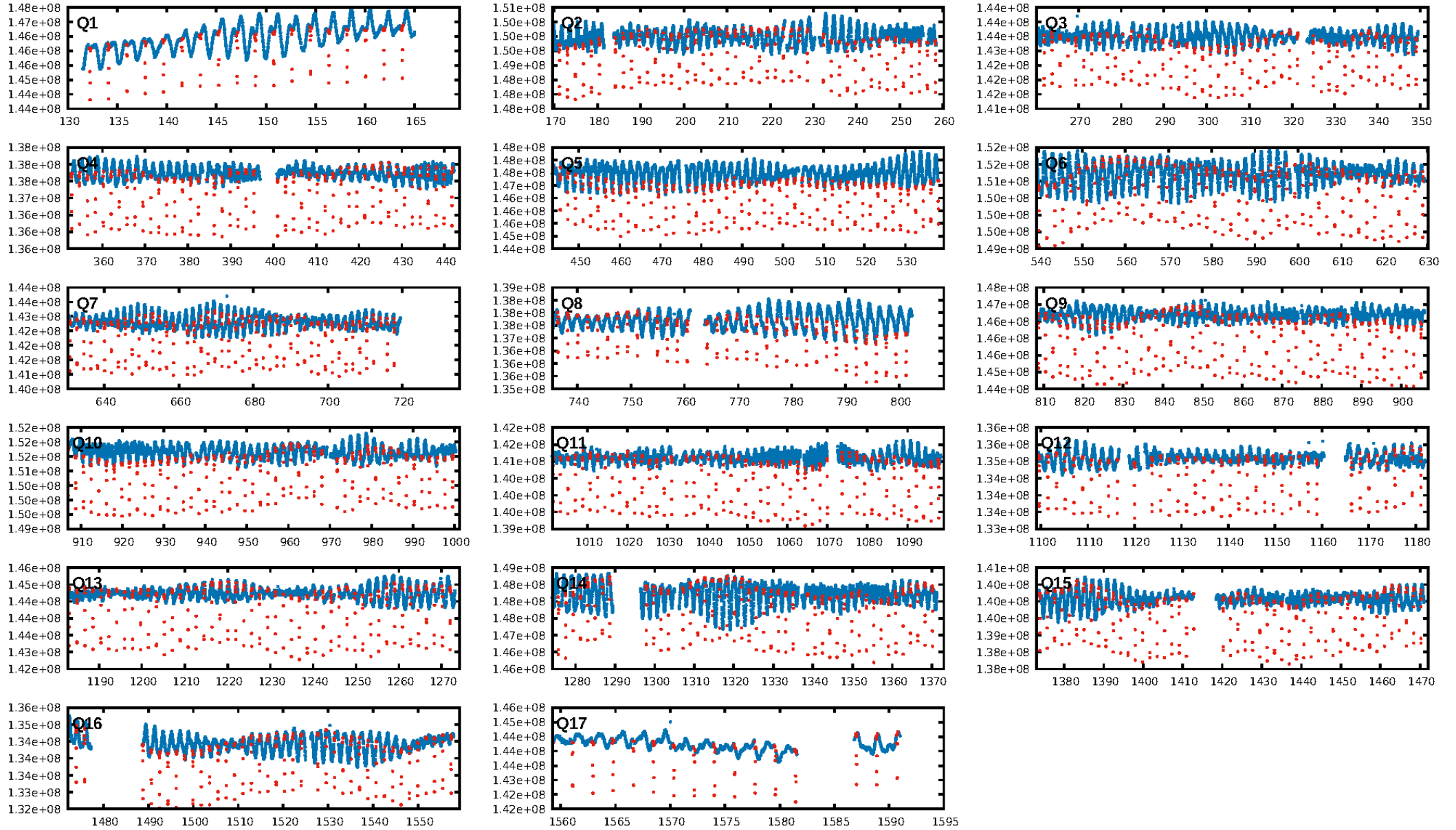
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.69σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.91 [637/698]
GhostDiagnostic-chr: 3.33
Centroid-sig: 0.0%
Centroid-so: 0.326 arcsec [48.49σ]
OotOffset-rm: 0.042 arcsec [0.64σ]
KicOffset-rm: 0.097 arcsec [1.43σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

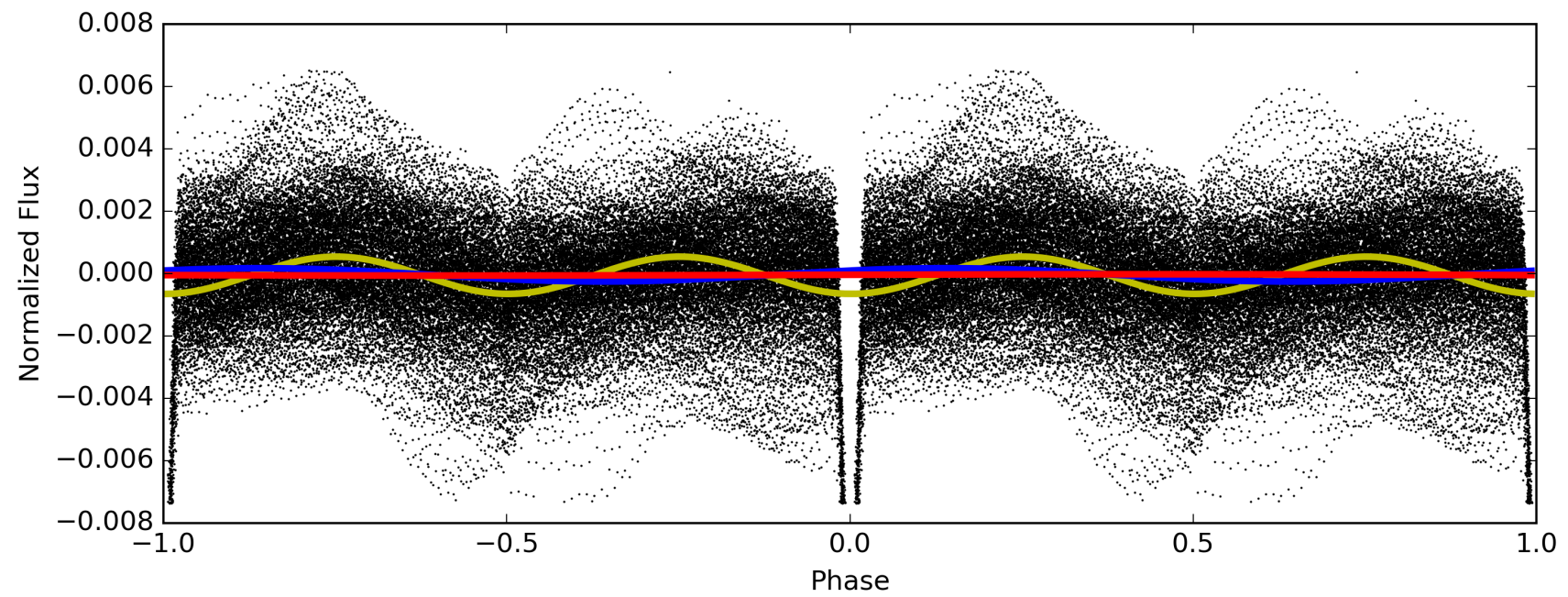
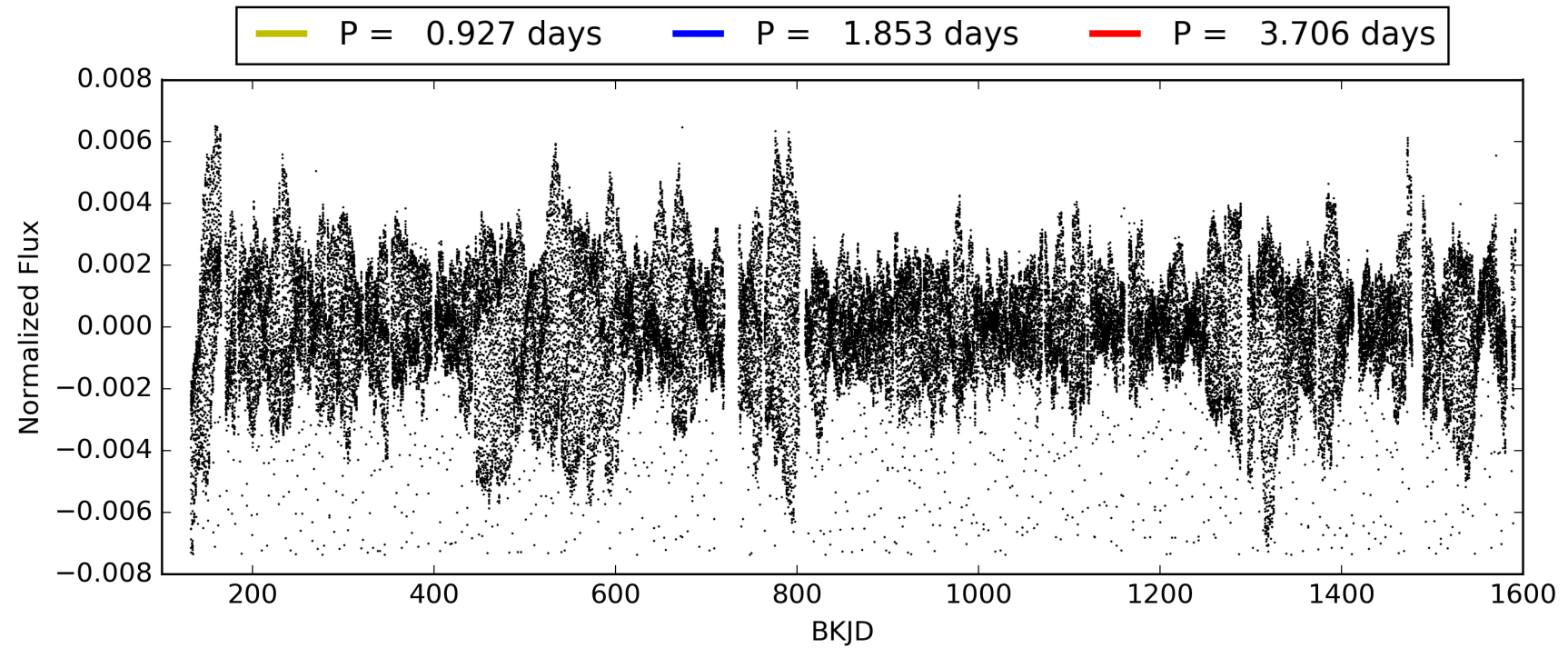
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:32:16 Z

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

TCE 012367464-01, PDC Light Curves

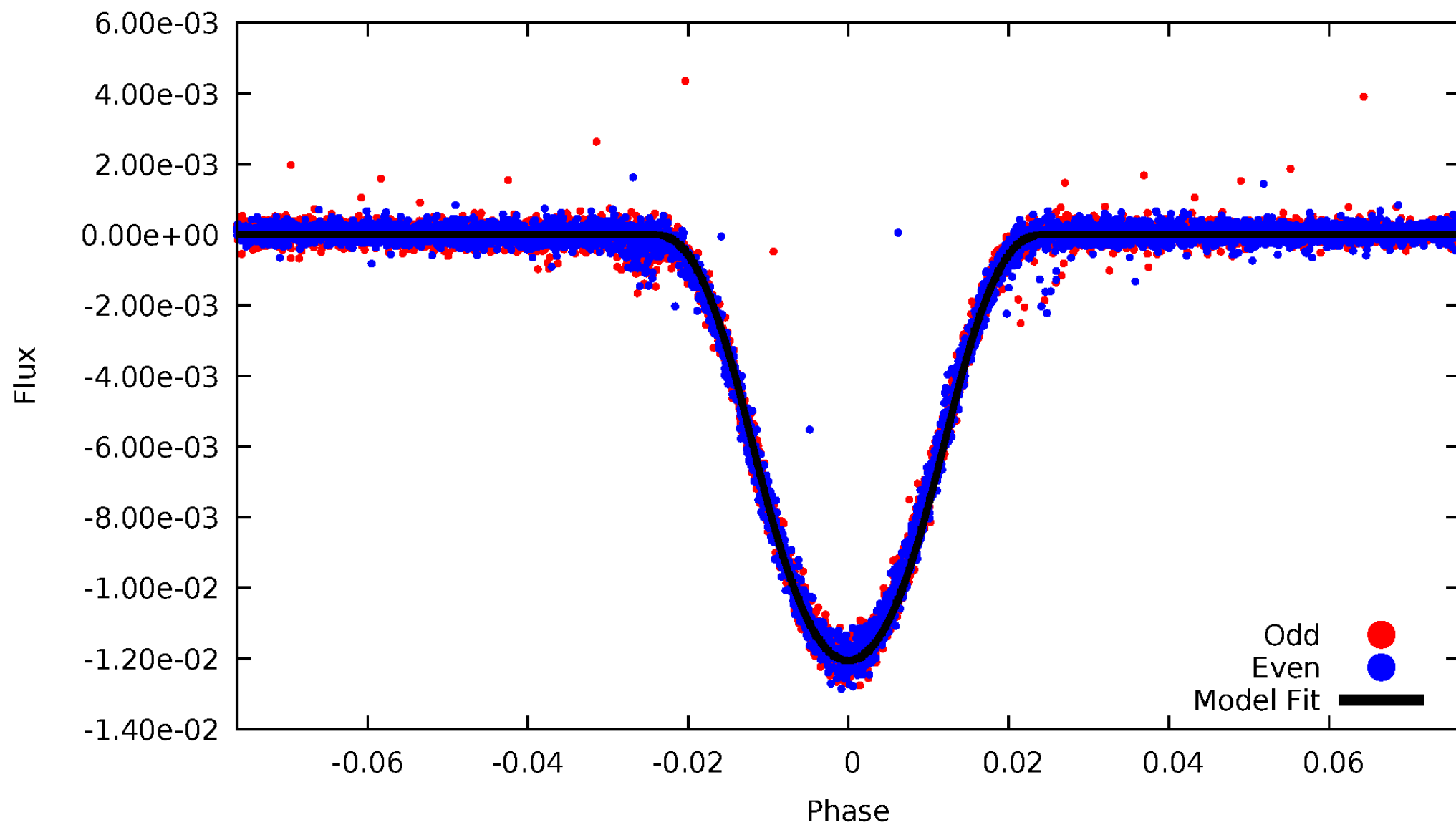


TCE 012367464-01



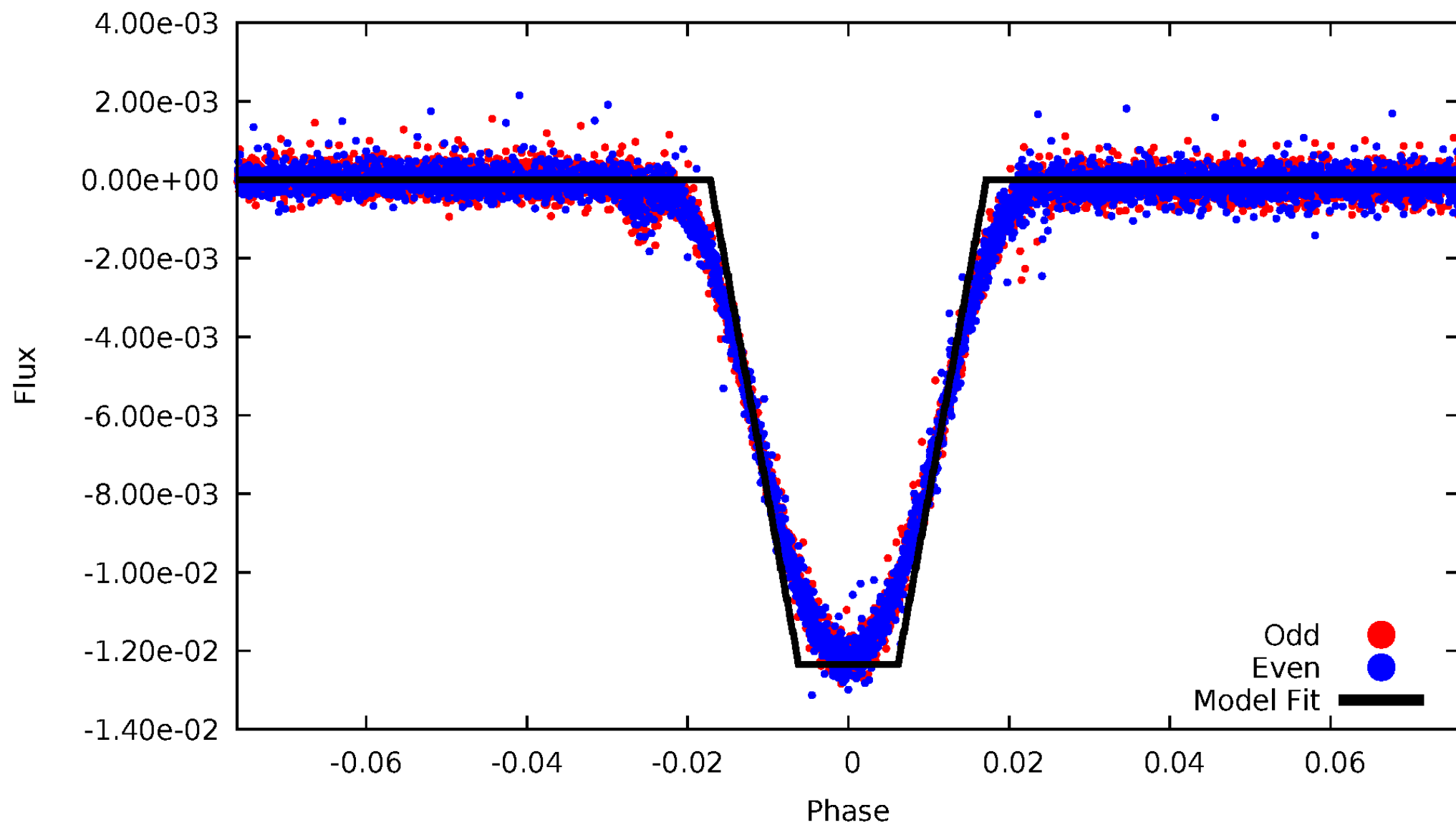
DV Odd/Even

TCE 012367464-01



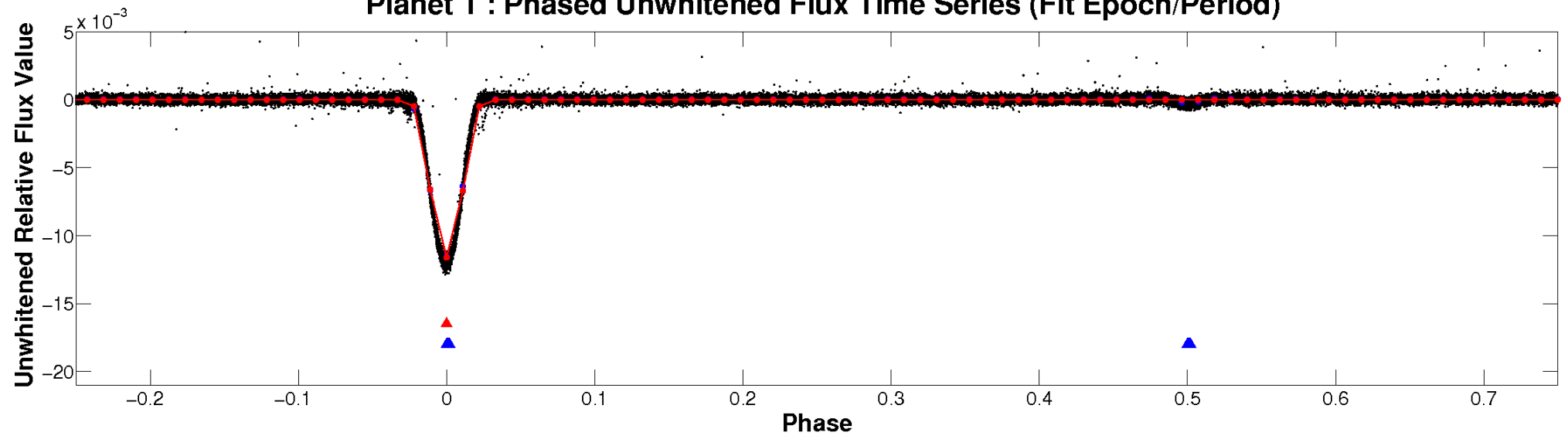
ALT Odd/Even

TCE 012367464-01

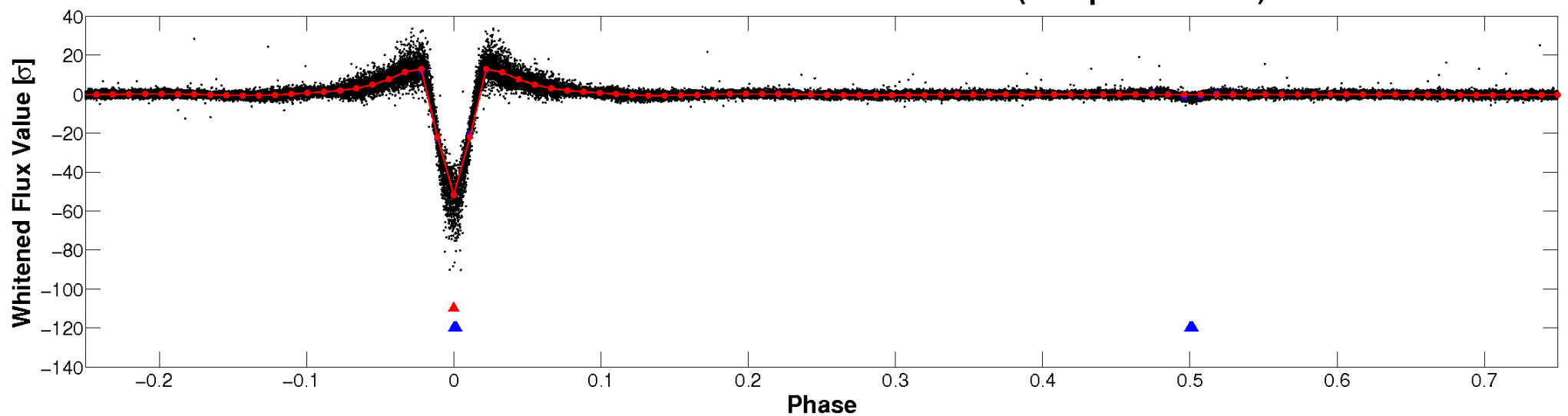


Non-Whitened Vs. Whitened Light Curve

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

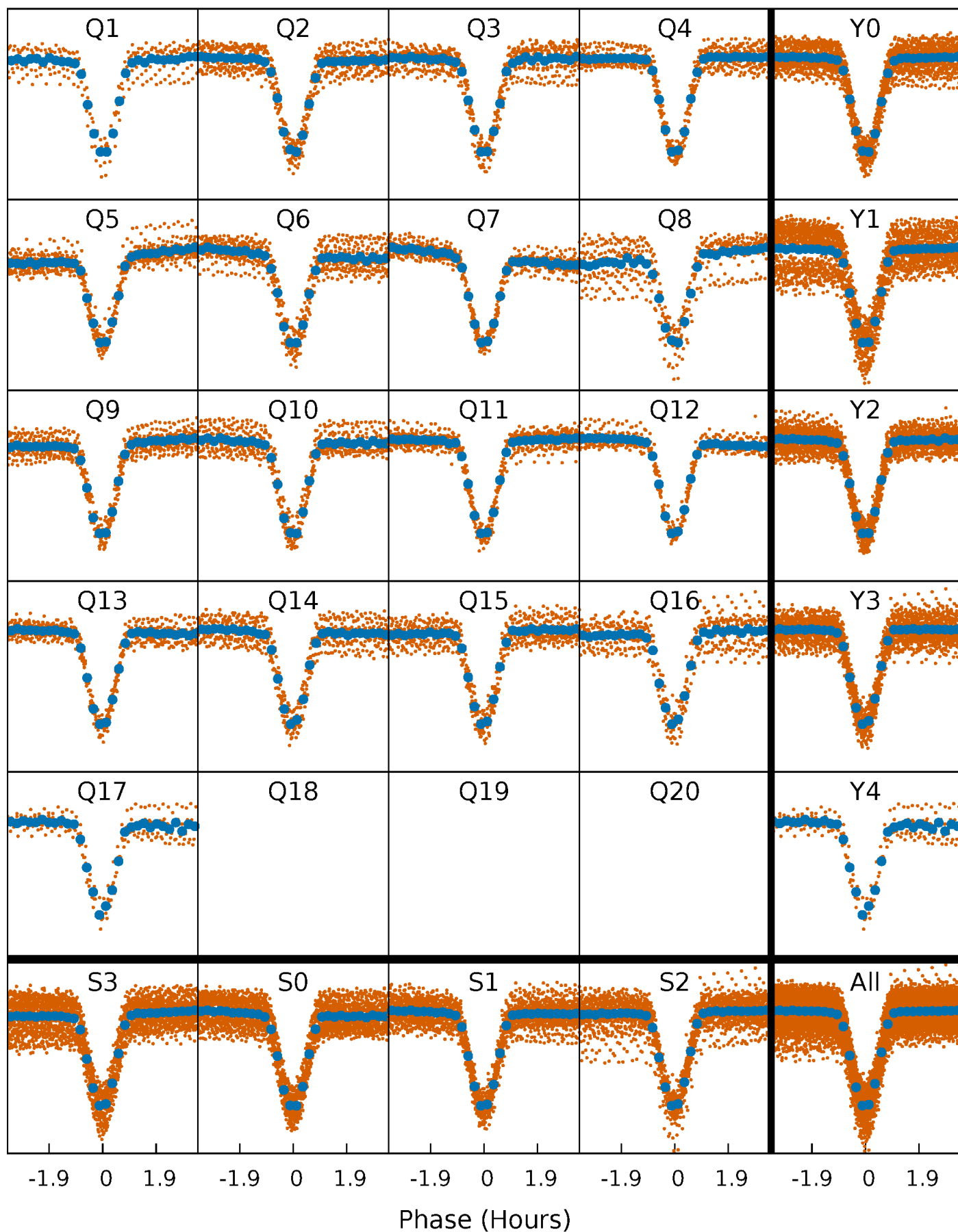


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



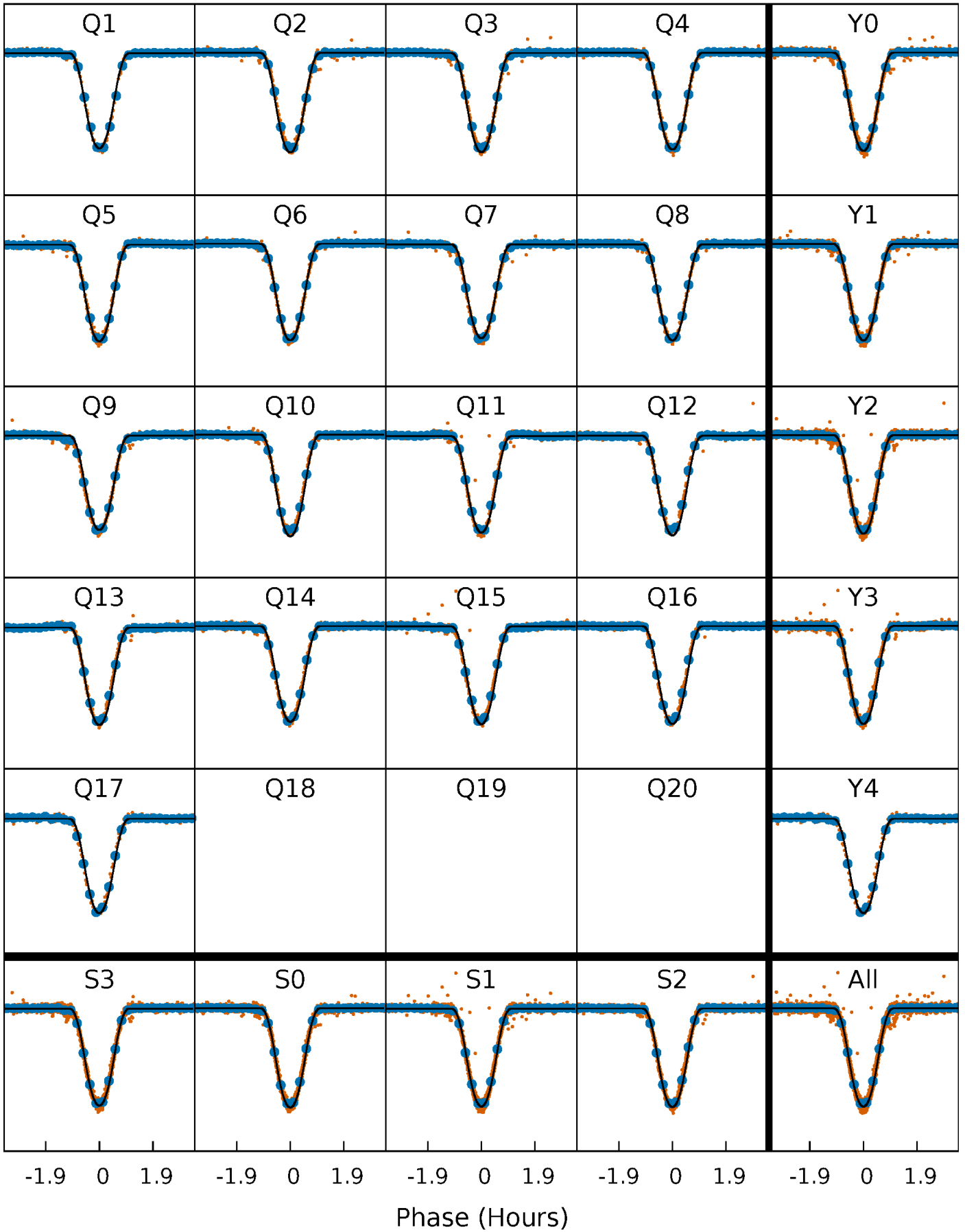
PDC Quarter-Phased Transit Curves

TCE 012367464-01 P= 1.853212 Days $T_0=132.248972$ (BKJD)



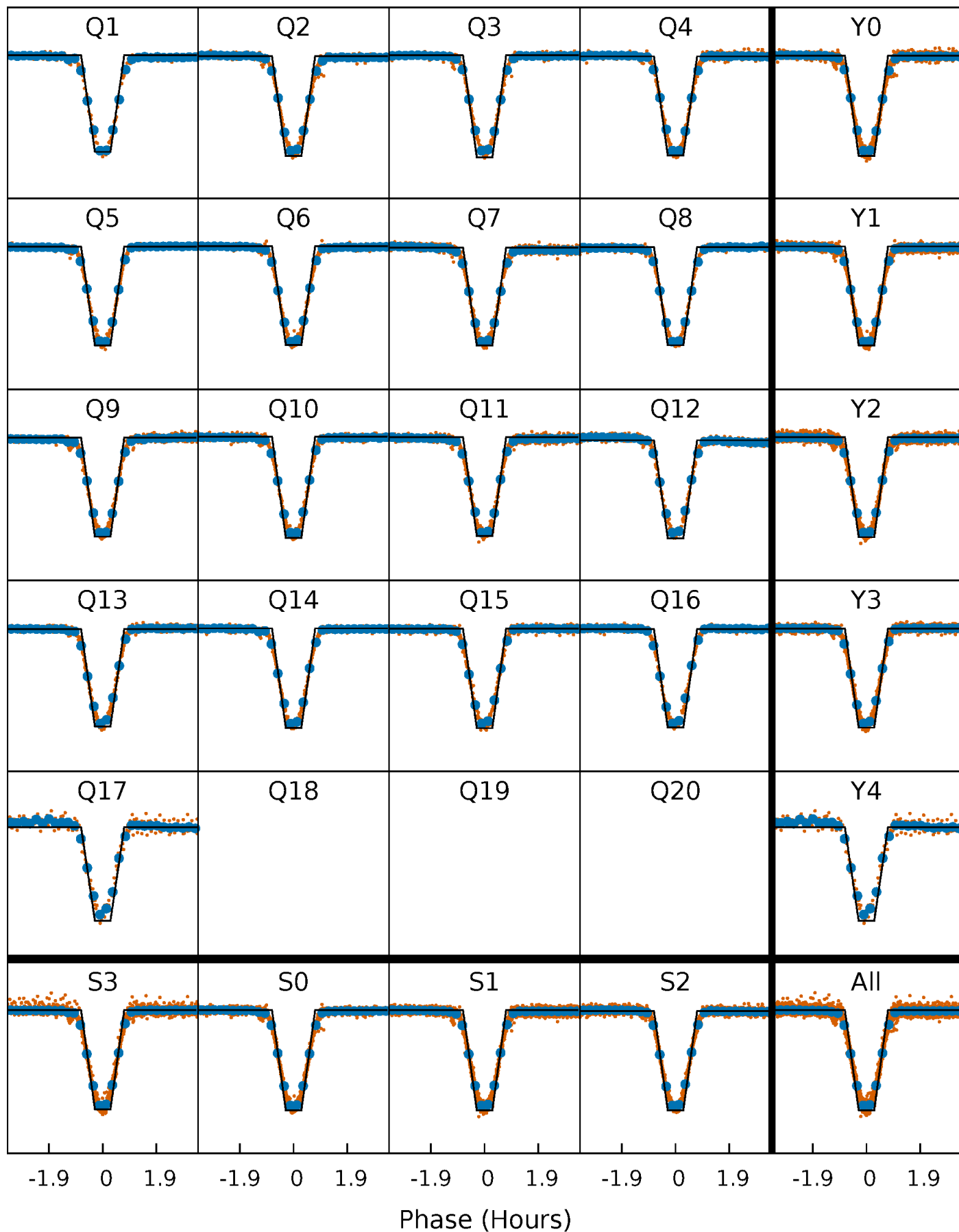
DV Quarter-Phased Transit Curves

TCE 012367464-01 P= 1.853212 Days $T_0=132.248972$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

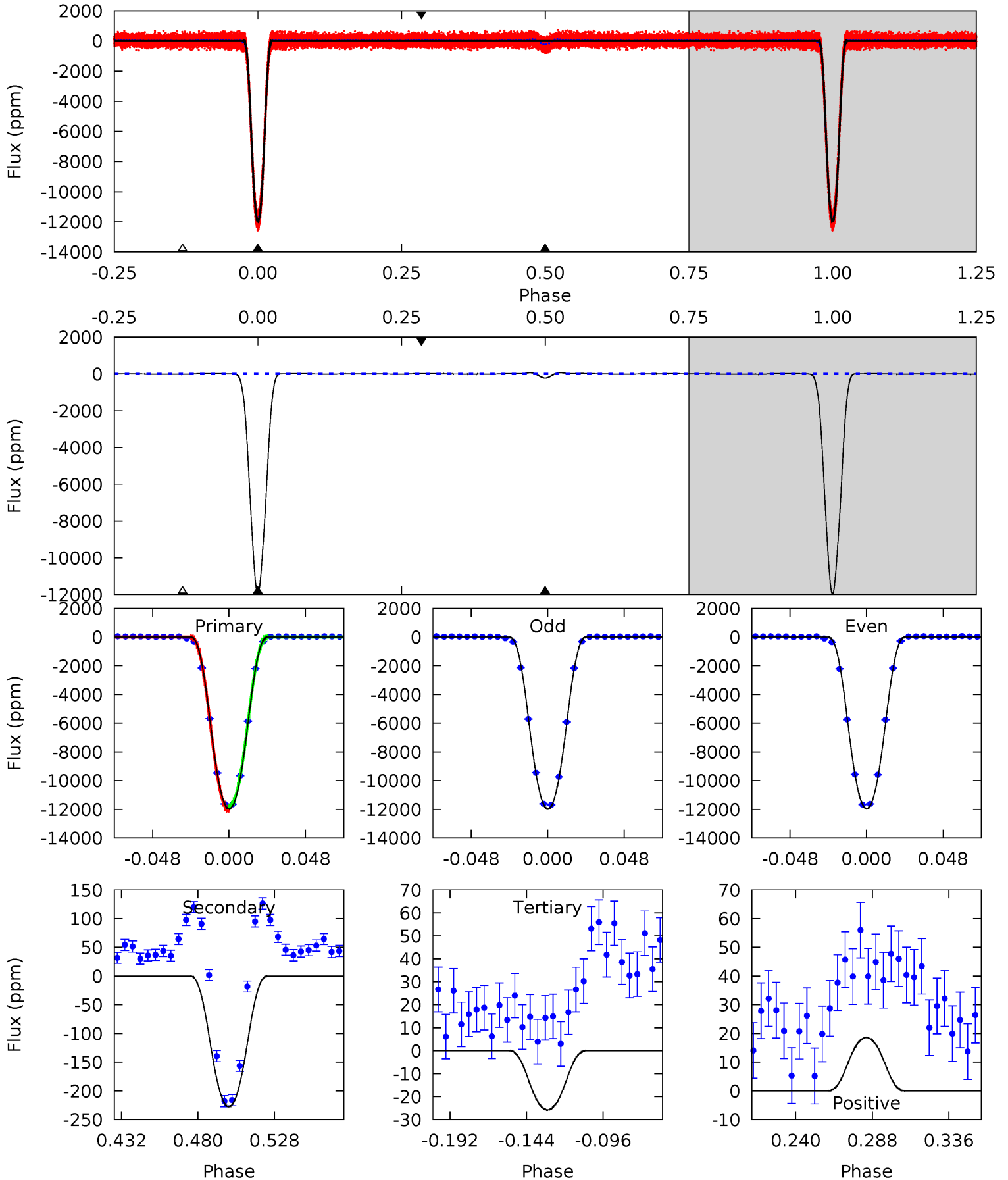
TCE 012367464-01 P= 1.853211 Days $T_0=132.249042$ (BKJD)



DV Model-Shift Uniqueness Test

012367464-01, P = 1.853212 Days, E = 130.395760 Days

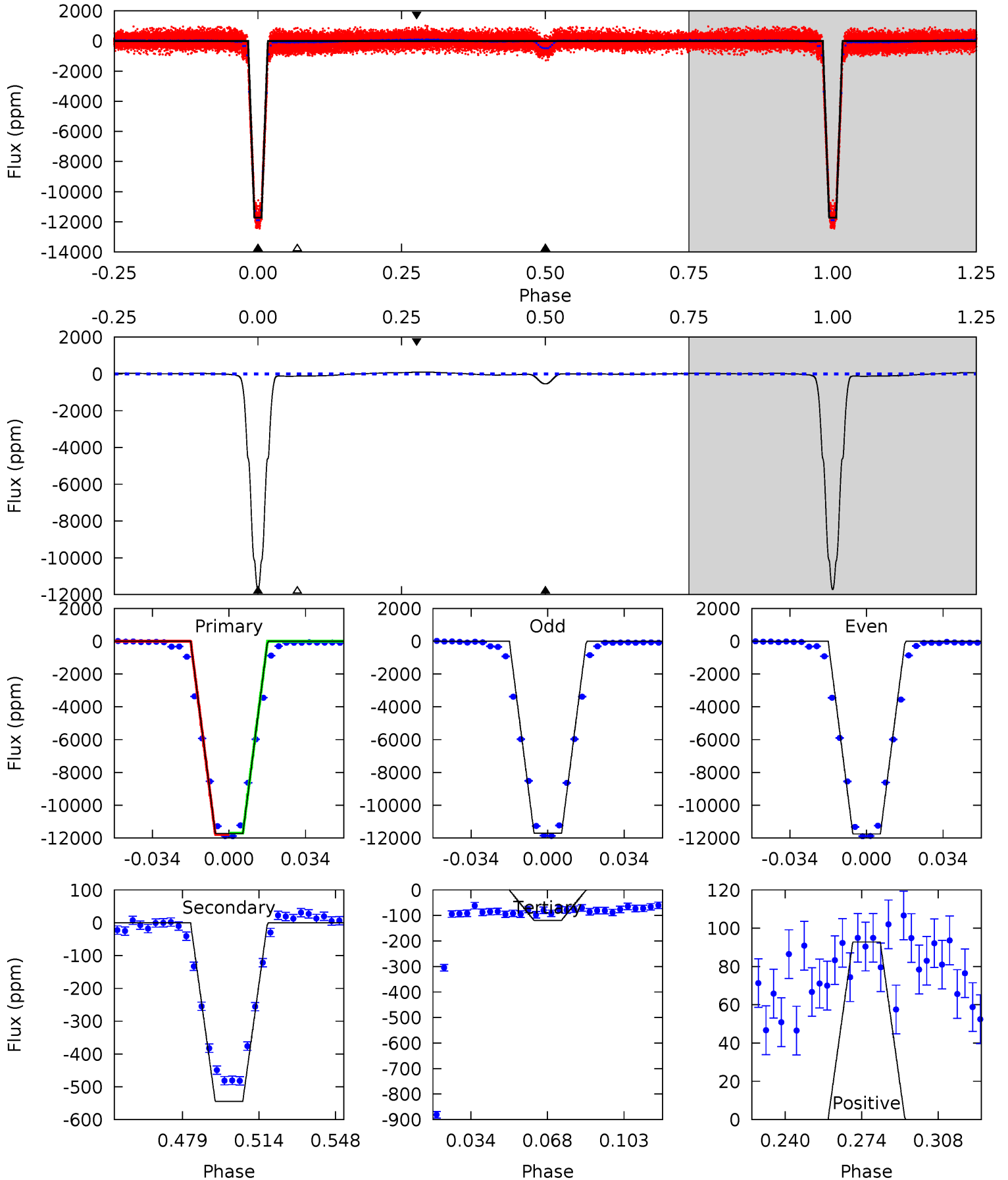
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3907	74.3	8.41	6.07	4.72	1.98	4.27	3899	3901	65.9	68.2	2.17	1.00	0.01	48.6



Alt Model-Shift Uniqueness Test

012367464-01, P = 1.853211 Days, E = 130.395831 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2045	95.0	20.8	16.2	4.78	2.12	9.15	2025	2029	74.2	78.9	3.67	1.00	0.01	0



Stellar Parameters For KIC 012367464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6384^{+181}_{-227}	$4.026^{+0.312}_{-0.144}$	$-0.280^{+0.250}_{-0.300}$	$1.716^{+0.439}_{-0.658}$	$1.140^{+0.188}_{-0.169}$	$0.318^{+0.714}_{-0.152}$
	+3%/-4%	+8%/-4%	+89%/-107%	+26%/-38%	+16%/-15%	+224%/-48%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012367464-01 / KOI 6250.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-228 ± 3	$23.22^{+3.20}_{-4.60}$	2888^{+229}_{-279}	-2511^{+4748}_{-283}	$0.228^{+0.110}_{-0.052}$
Alt.	-545 ± 6	$20.73^{+2.66}_{-4.13}$	2888^{+219}_{-279}	3135^{+131}_{-129}	$0.677^{+0.344}_{-0.145}$

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

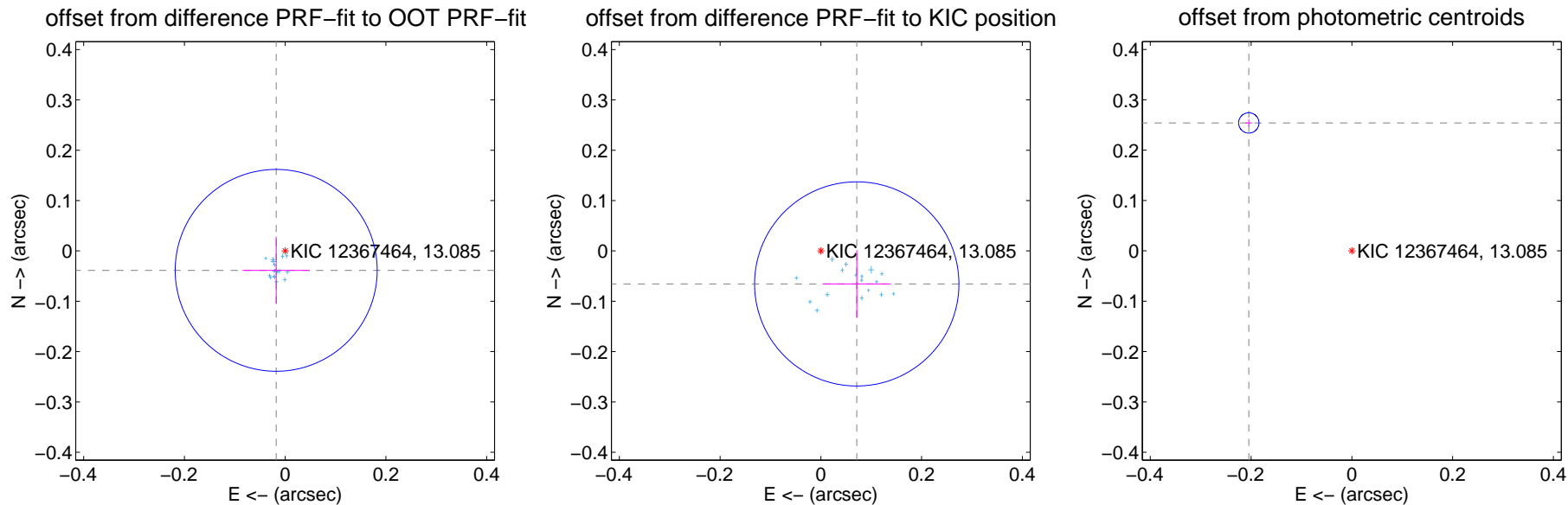
DV Centroid Data

Supplemental centroid analysis for 012367464-01. Kepler magnitude: 13.09. Transit SNR 1687.45

There are 17 quarters with good PRF difference image offsets

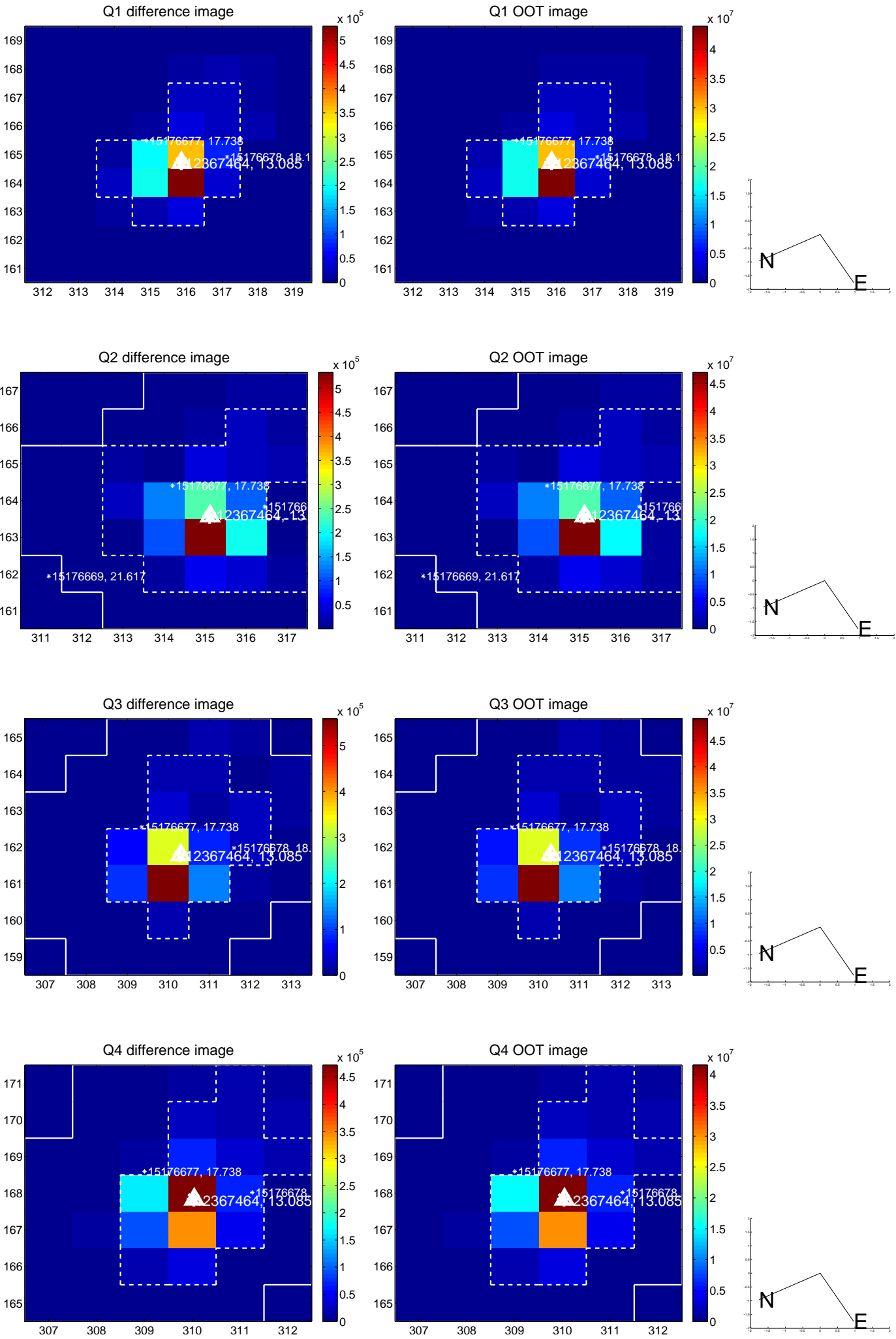
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.042 ± 0.067	0.64	0.018 ± 0.067	-0.039 ± 0.067
PRF-fit source offset from KIC position	0.097 ± 0.068	1.43	-0.071 ± 0.068	-0.066 ± 0.067
photometric centroid source offset	0.33 ± 0.01	48.49	0.20 ± 0.01	0.25 ± 0.01

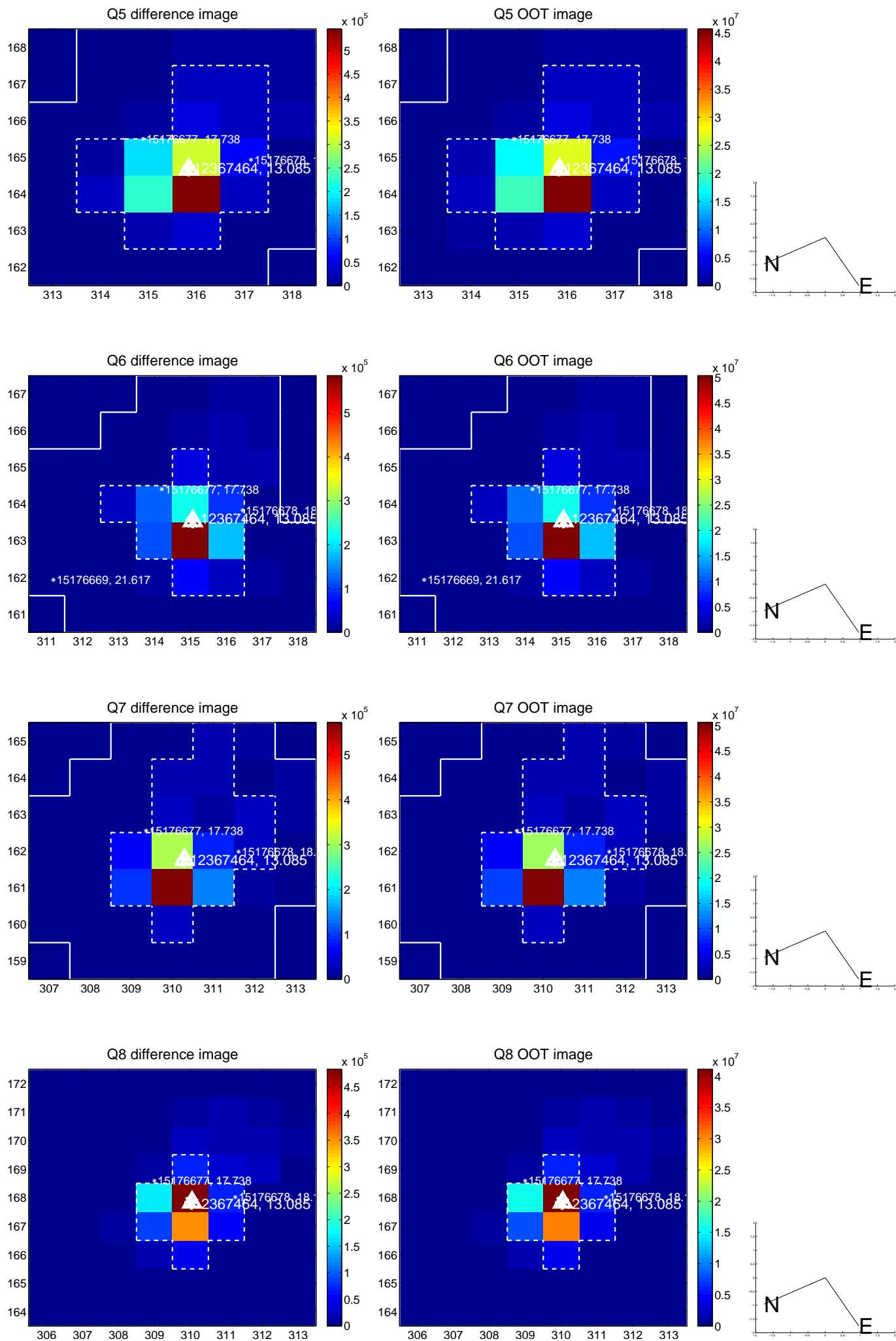


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

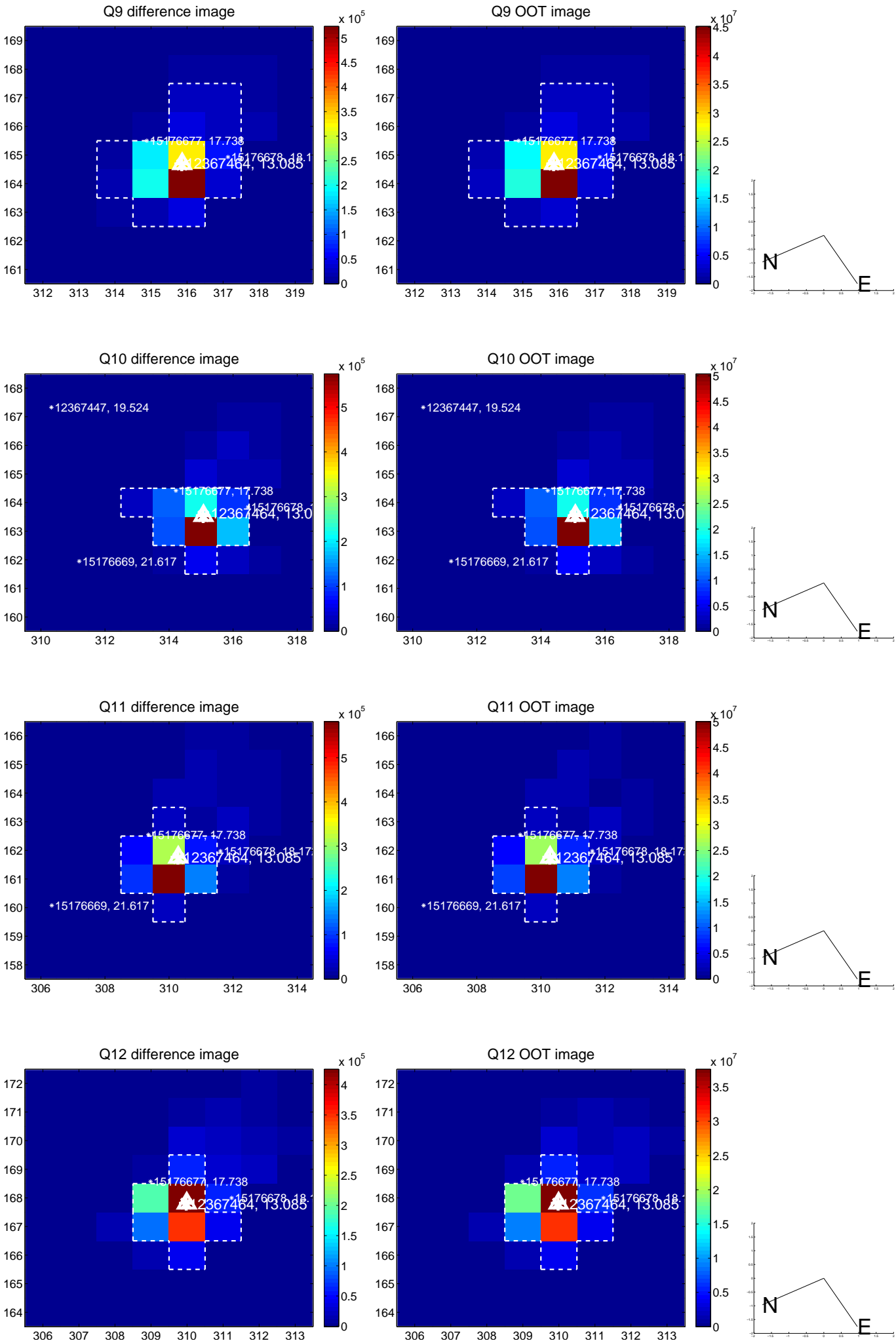
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



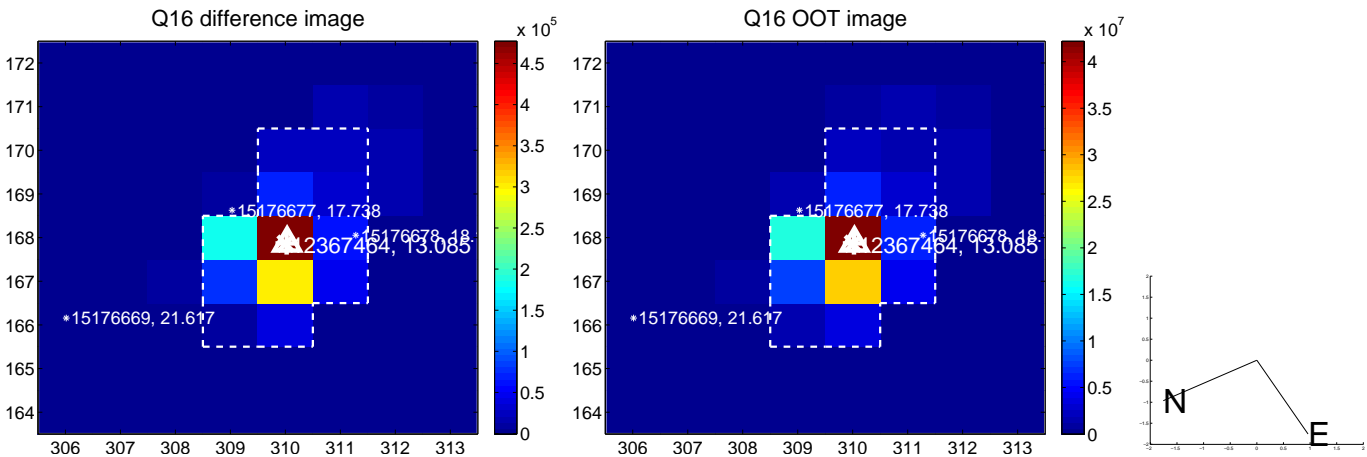
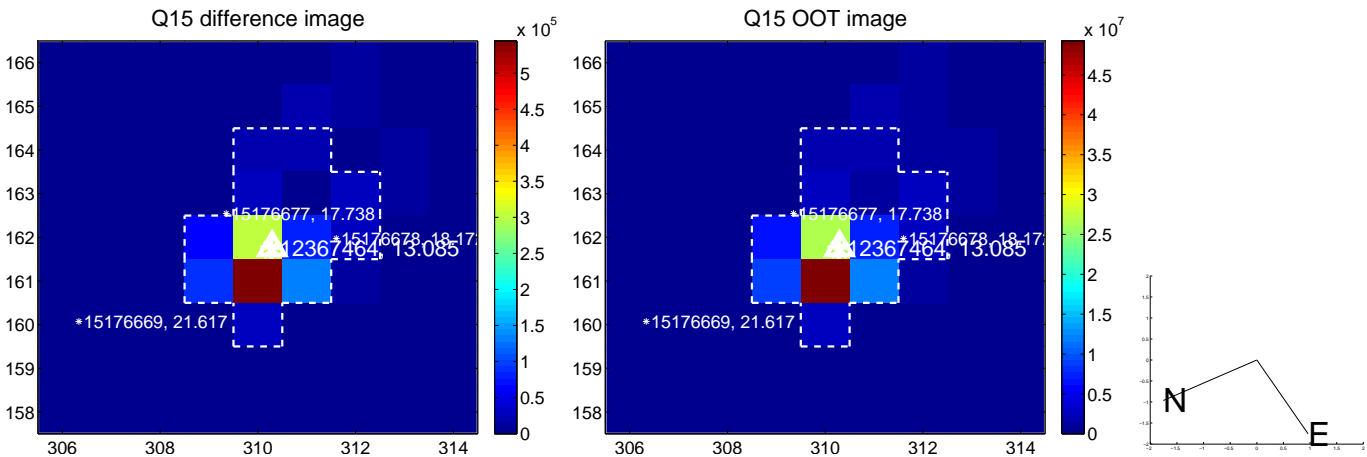
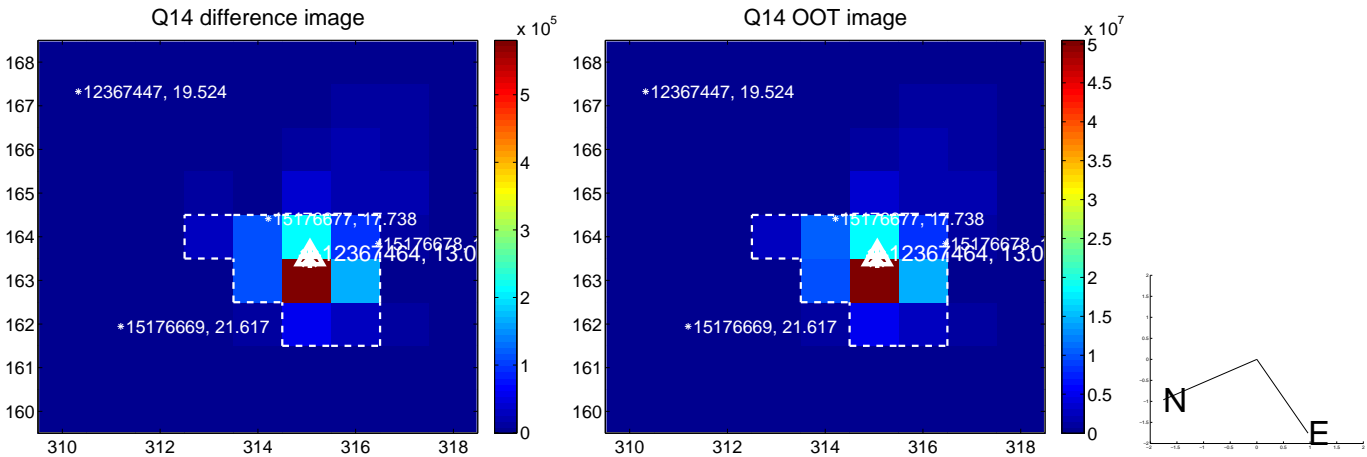
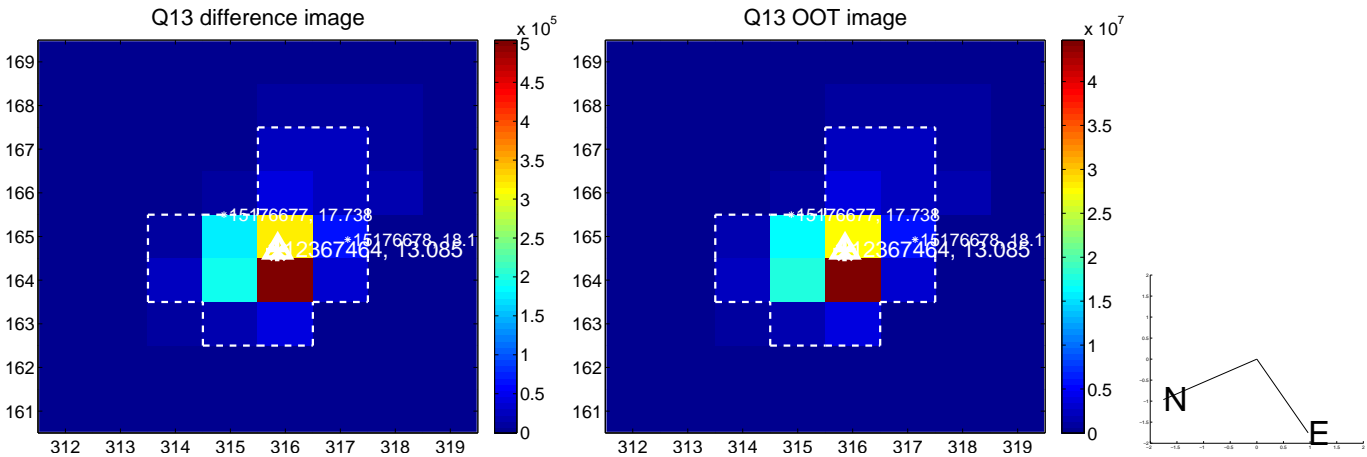
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



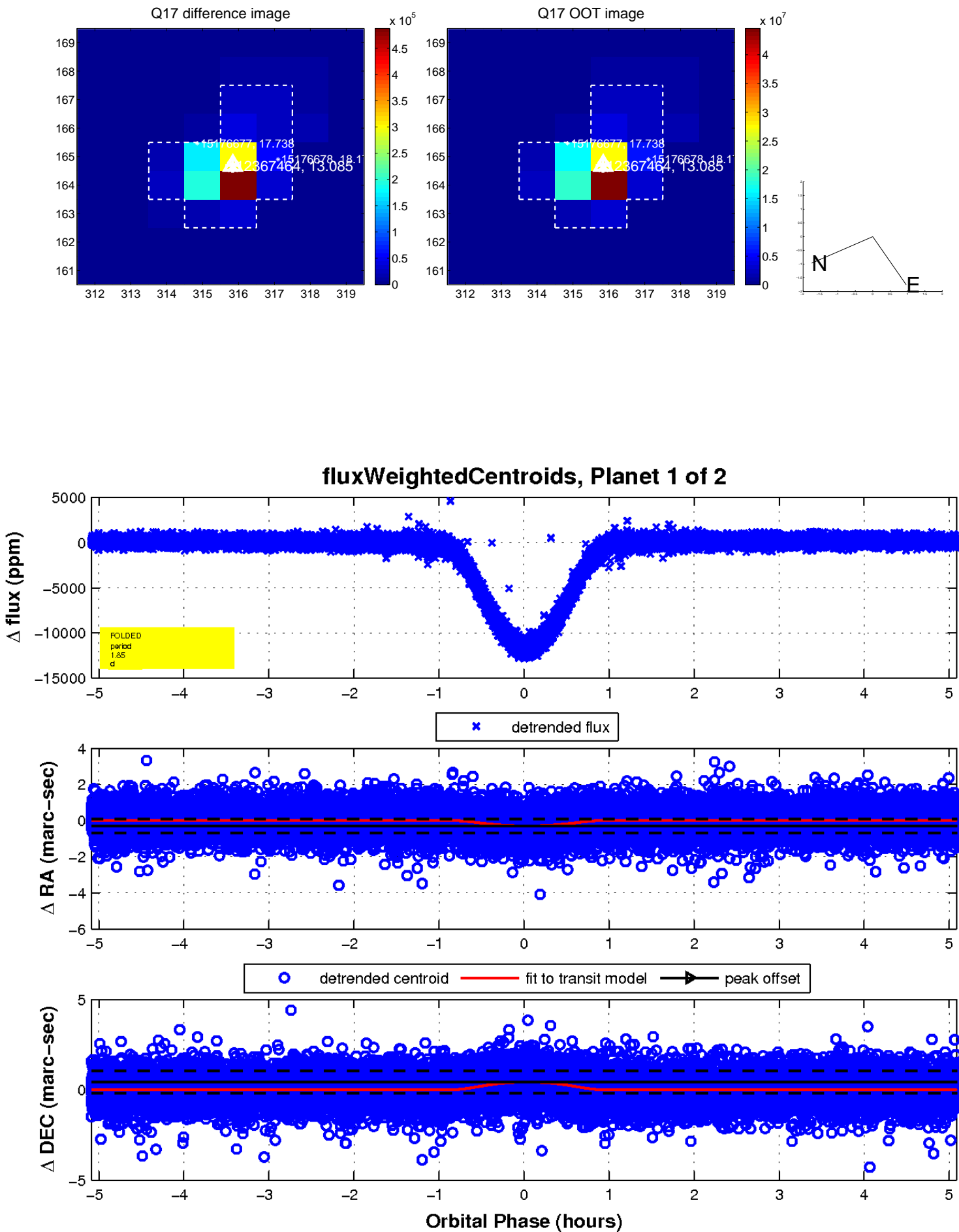
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

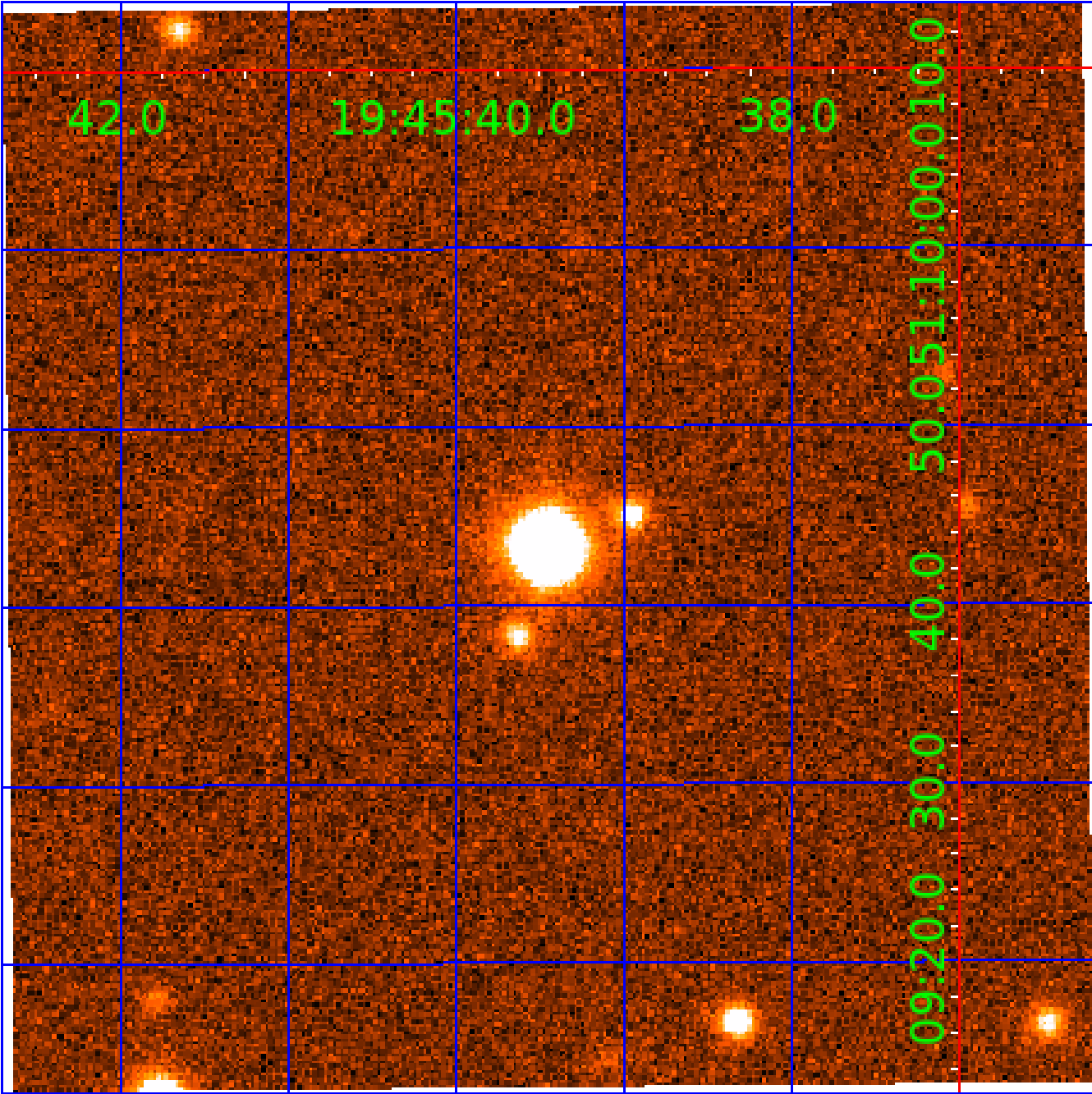


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012367464

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})
012367464-01	OBS	6250.01	1.853212	132.248972	12057.8	1.696	1993.0	1687.5	1.72	6384	23.30	4603.03
012367464-02	OBS	No	0.926608	132.249230	324.7	1.206	38.8	57.4	1.72	6384	3.64	11598.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012367464-01	OBS	PC	0.99	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—MOD_SEC_ALT—PLANET_OCCULT_ALT—HAS_SEC_TCE
012367464-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

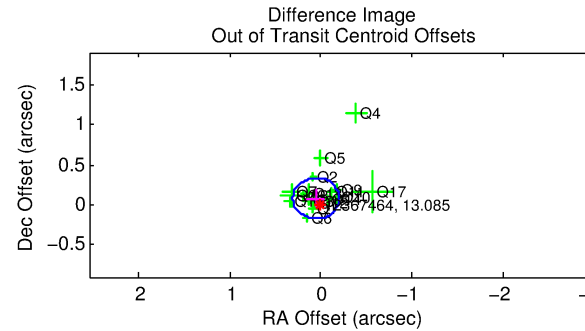
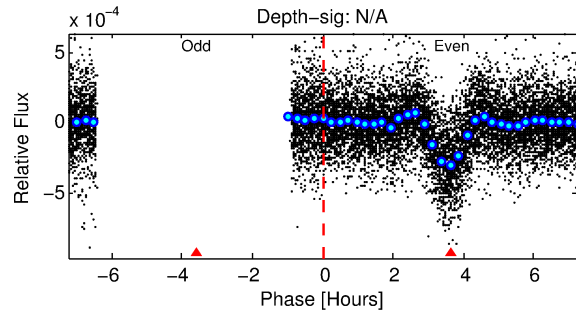
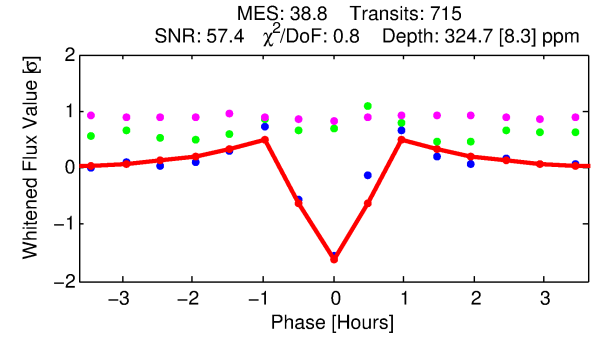
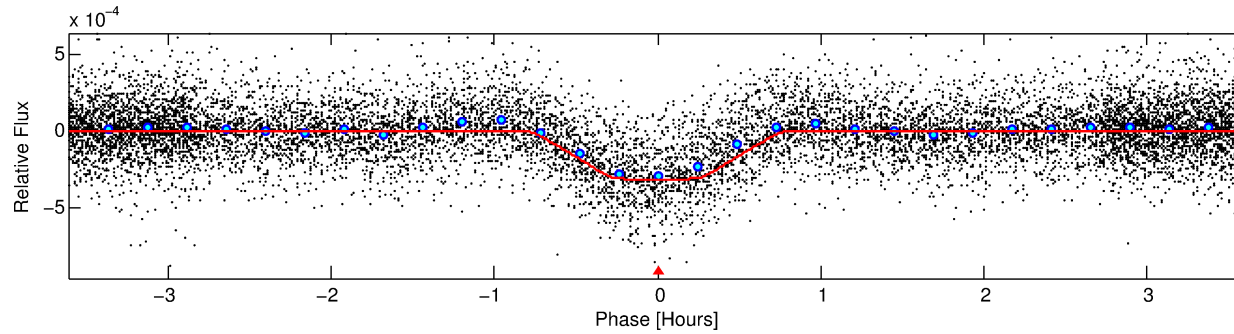
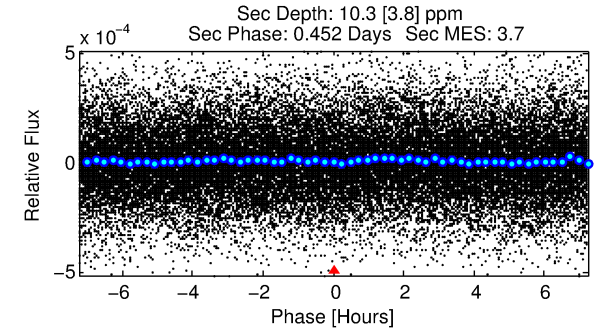
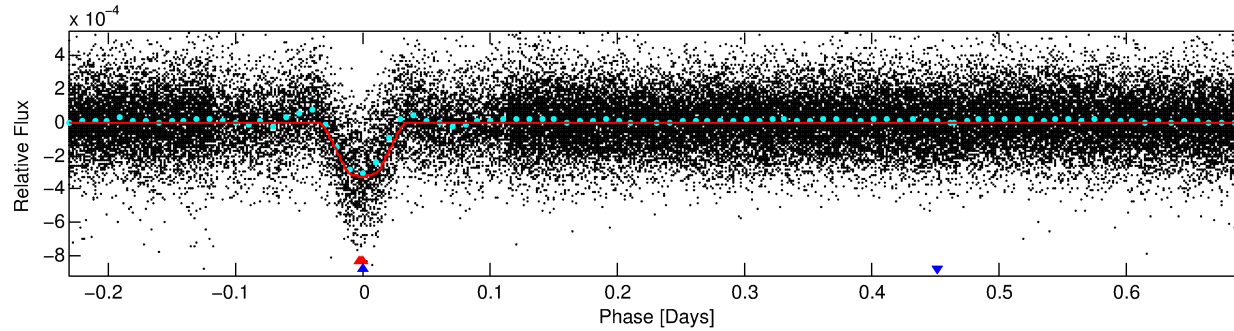
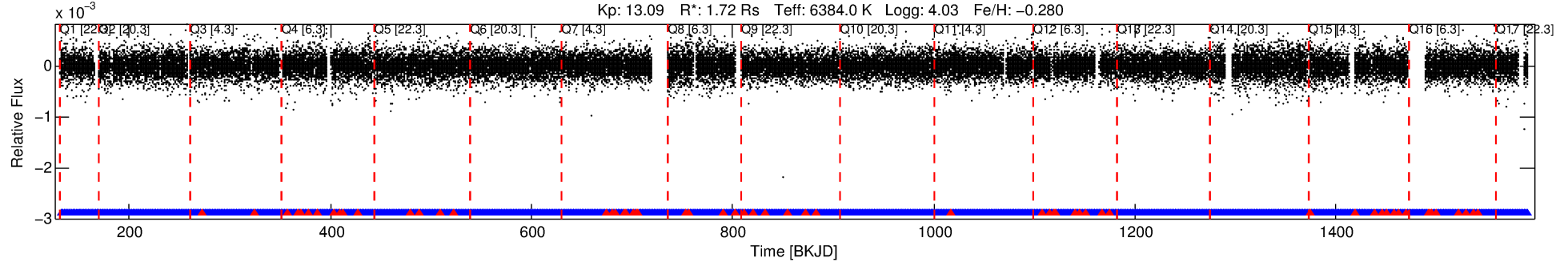
Ephemeris Match Information For 012367464-02

No Significant Match Found

DV One-Page Summary

KIC: 12367464 Candidate: 2 of 2 Period: 0.927 d
KOI: K06250 Corr: No Ephemeris Match

Kp: 13.09 R*: 1.72 Rs Teff: 6384.0 K Logg: 4.03 Fe/H: -0.280



DV Fit Results:

Period = 0.92661 [0.00000] d
Epoch = 132.2492 [0.0003] BKJD
Rp/R* = 0.0194 [0.0018]
a/R* = 2.96 [1.31]
b = 0.90 [0.11]
Seff = 11598.87 [6509.43]
Teq = 2646 [371] K
Rp = 3.64 [1.43] Re
a = 0.0194 [0.0068] AU
Ag = 0.16 [0.11] [-7.59σ]
Teffp = 2597 [281] K [-0.11σ]

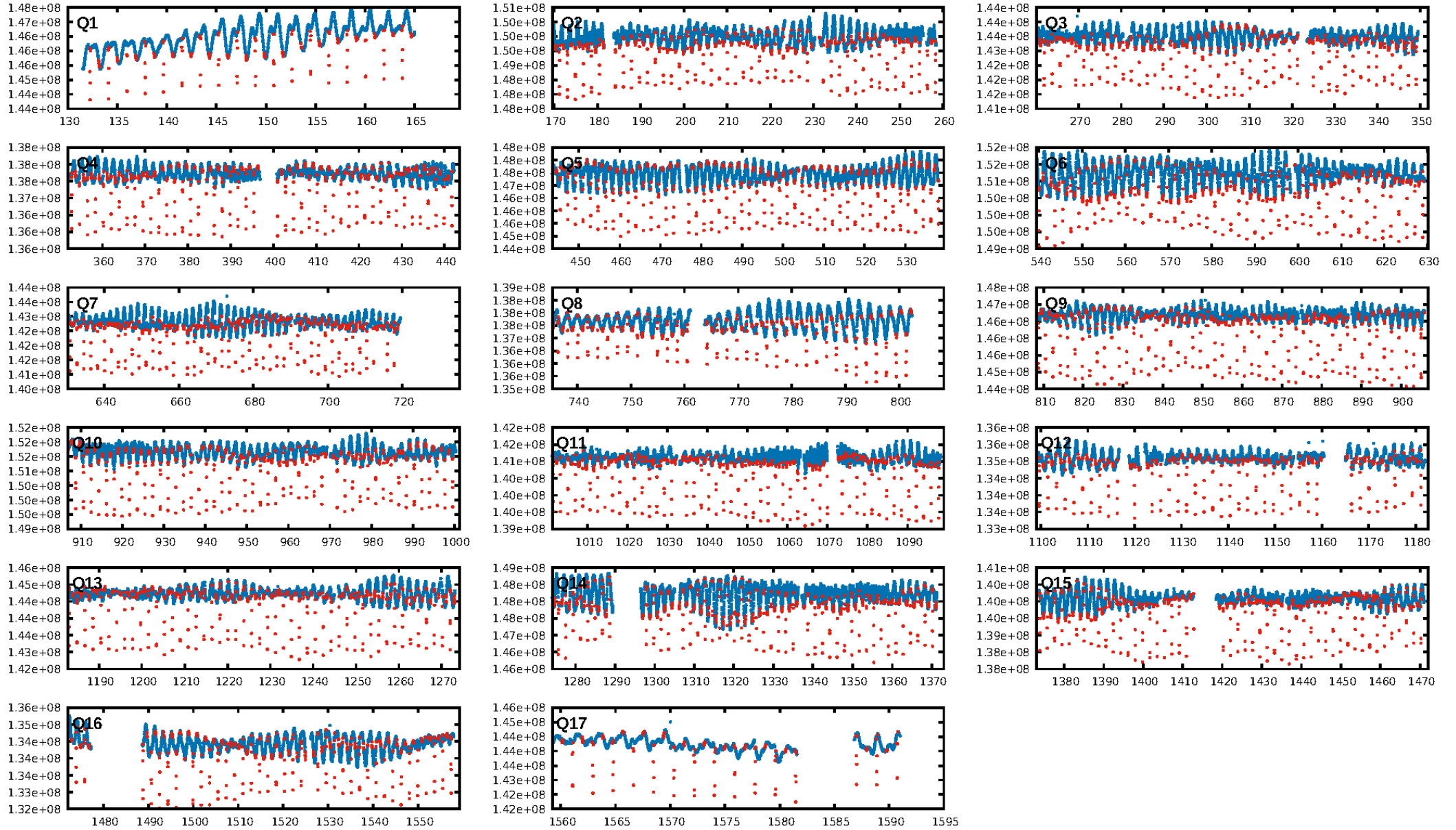
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [10.69σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.91 [624/683]
GhostDiagnostic-chr: 4.115
Centroid-sig: 0.0%
Centroid-so: 0.680 arcsec [3.89σ]
OotOffset-rm: 0.095 arcsec [1.12σ]
KicOffset-rm: 0.050 arcsec [0.48σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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DiffImageOverlap-fno: 1.00 [17/17]

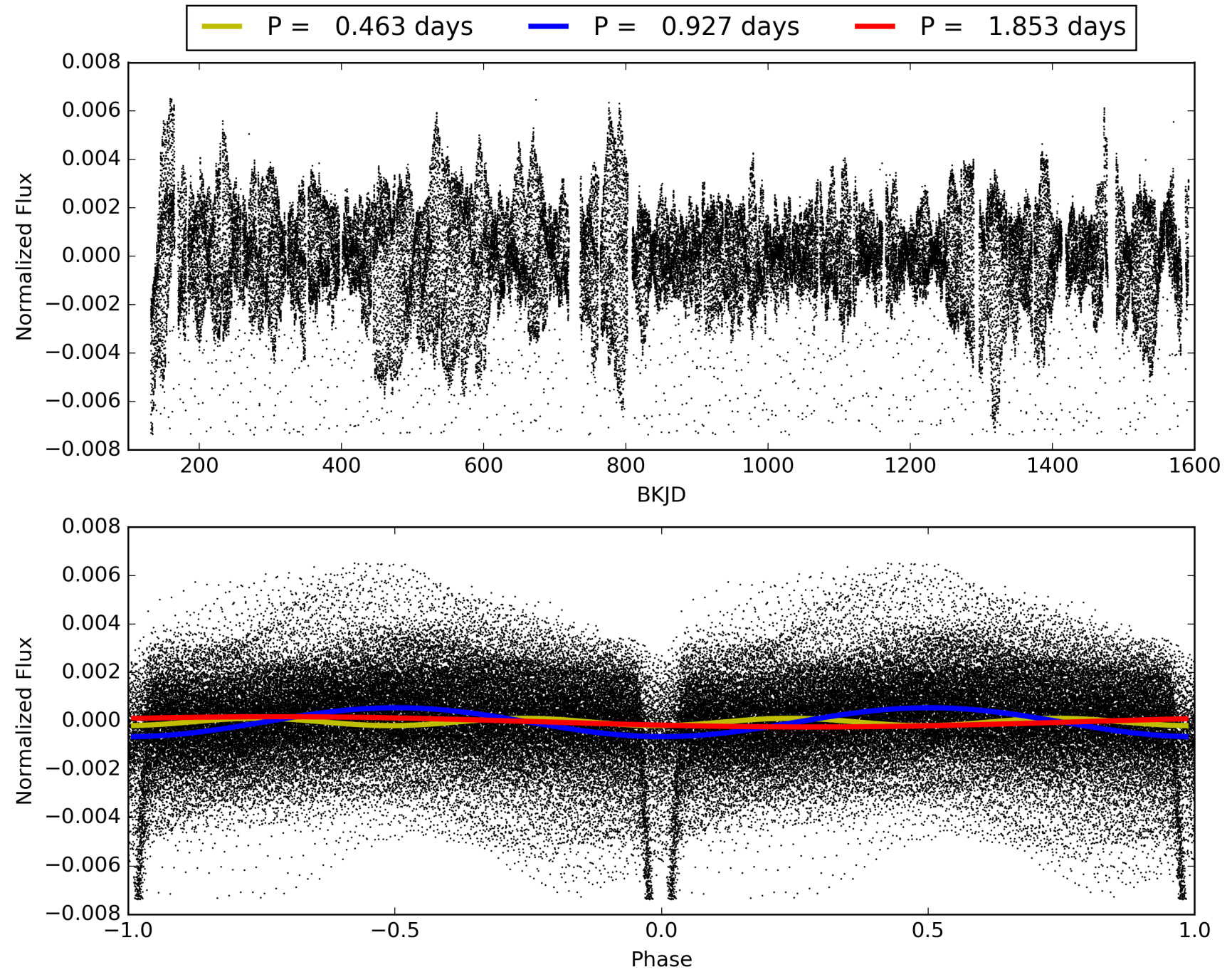
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012367464-02, PDC Light Curves

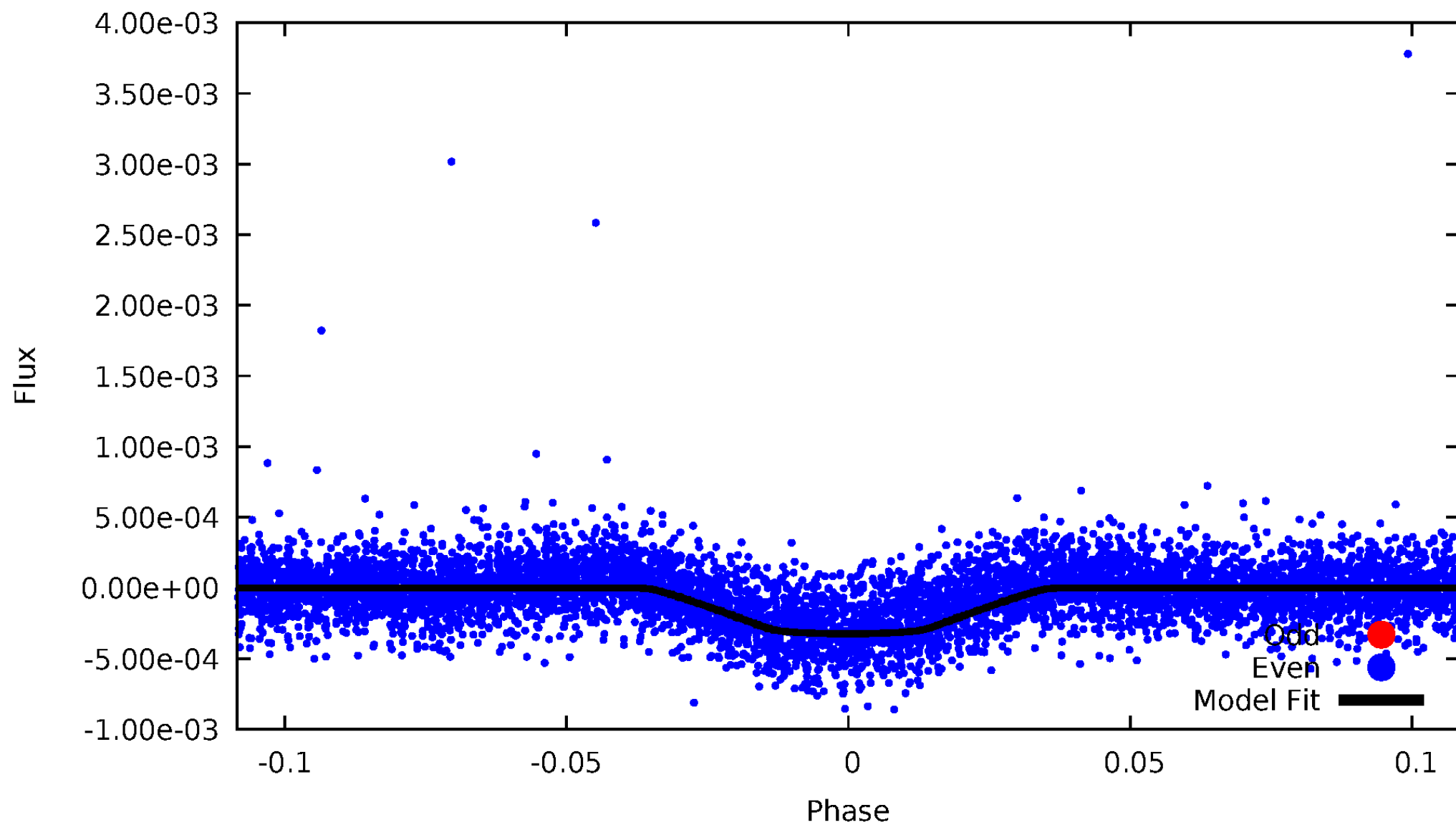


TCE 012367464-02



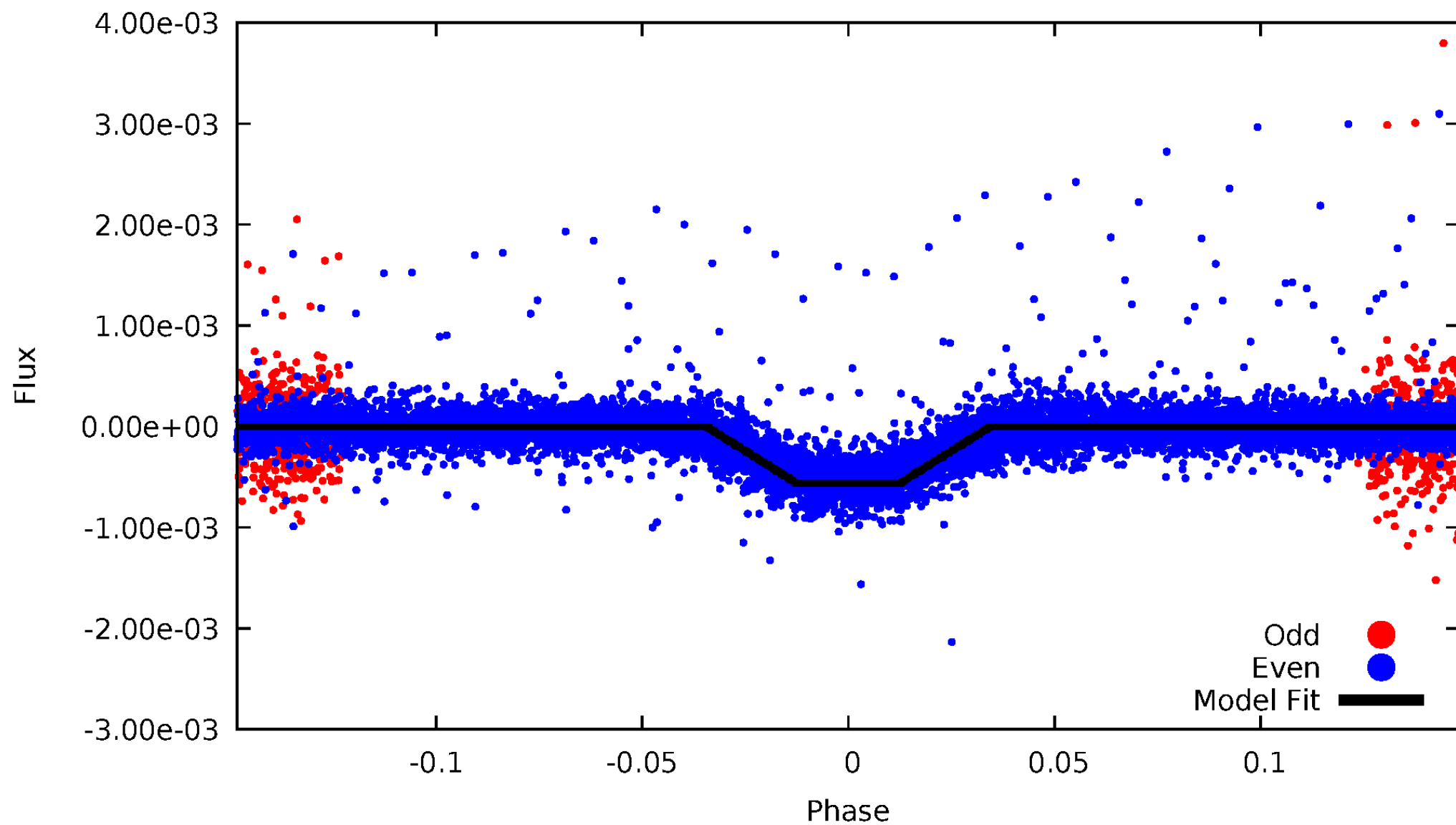
DV Odd/Even

TCE 012367464-02



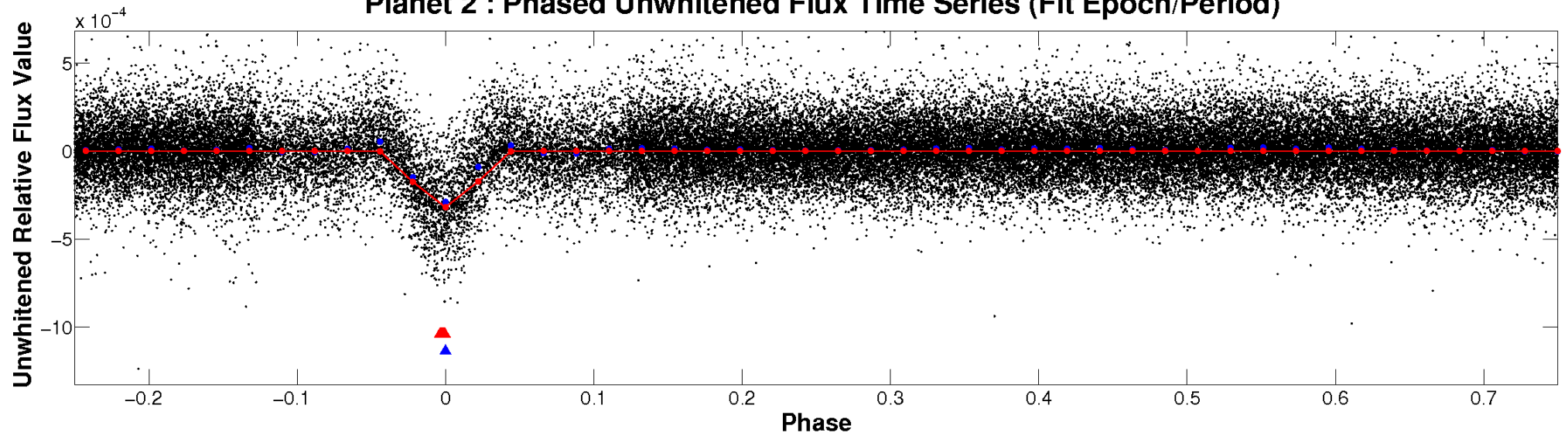
ALT Odd/Even

TCE 012367464-02

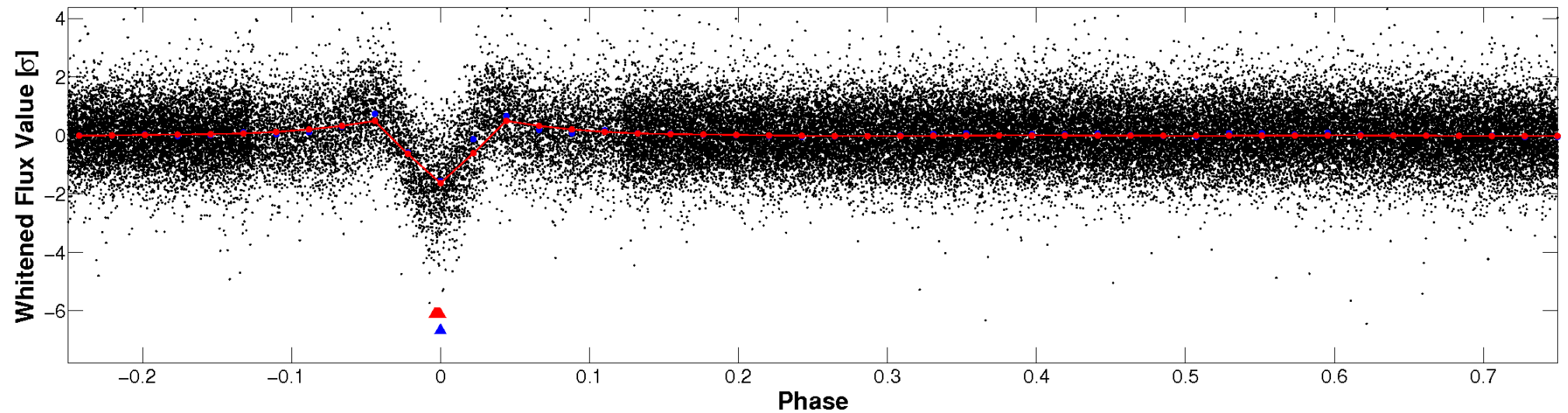


Non-Whitened Vs. Whitened Light Curve

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

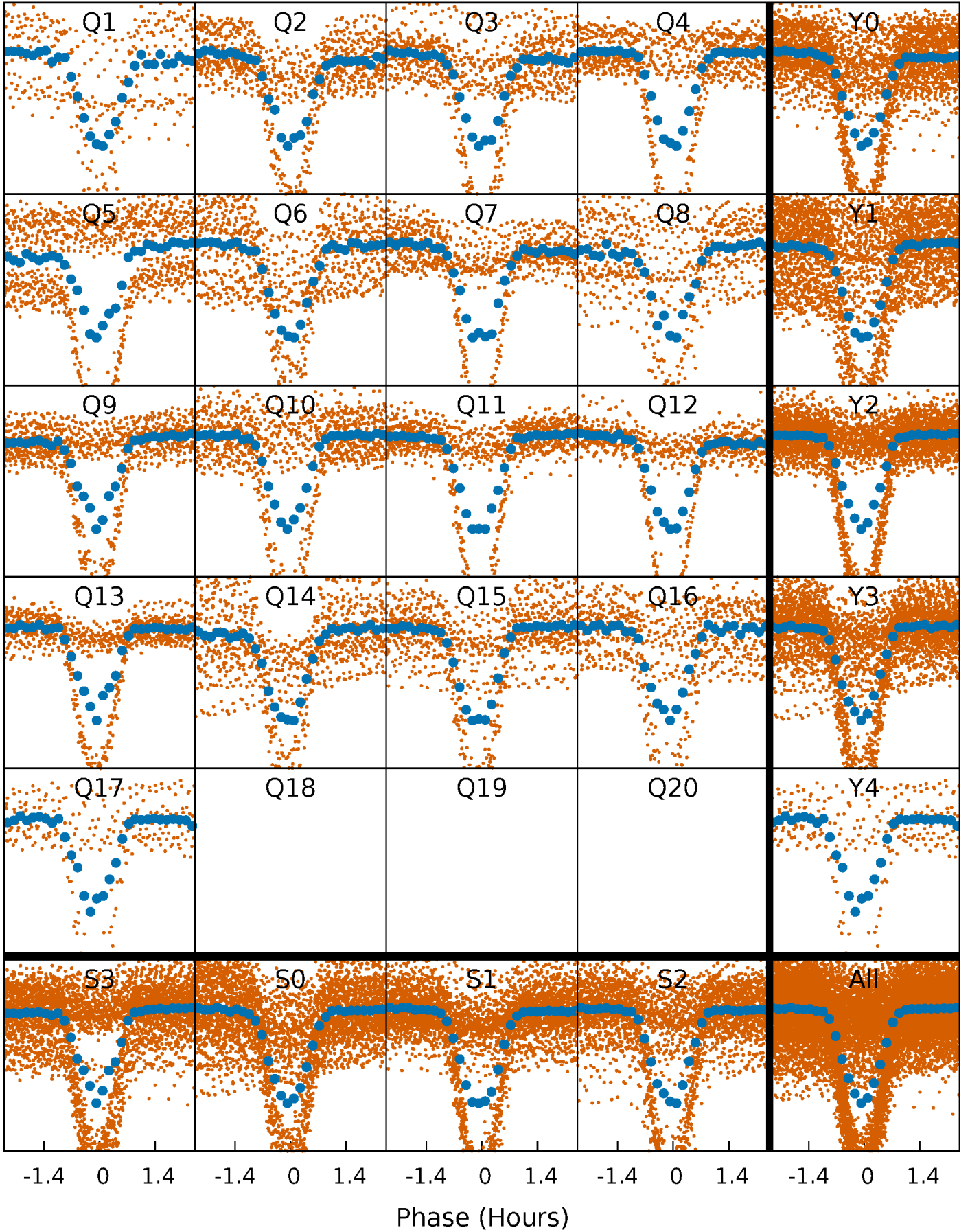


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



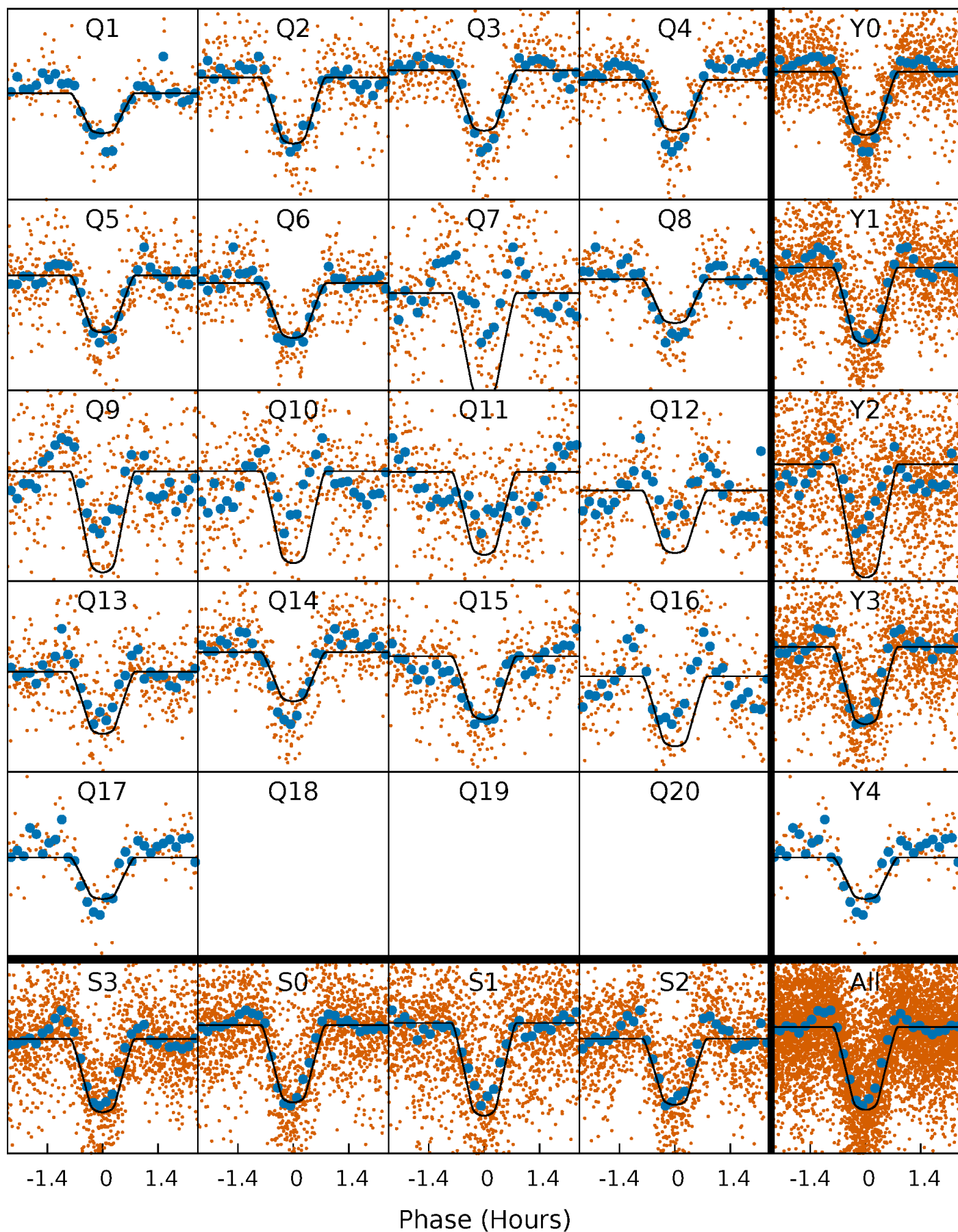
PDC Quarter-Phased Transit Curves

TCE 012367464-02 P= 0.926608 Days $T_0=132.249231$ (BKJD)



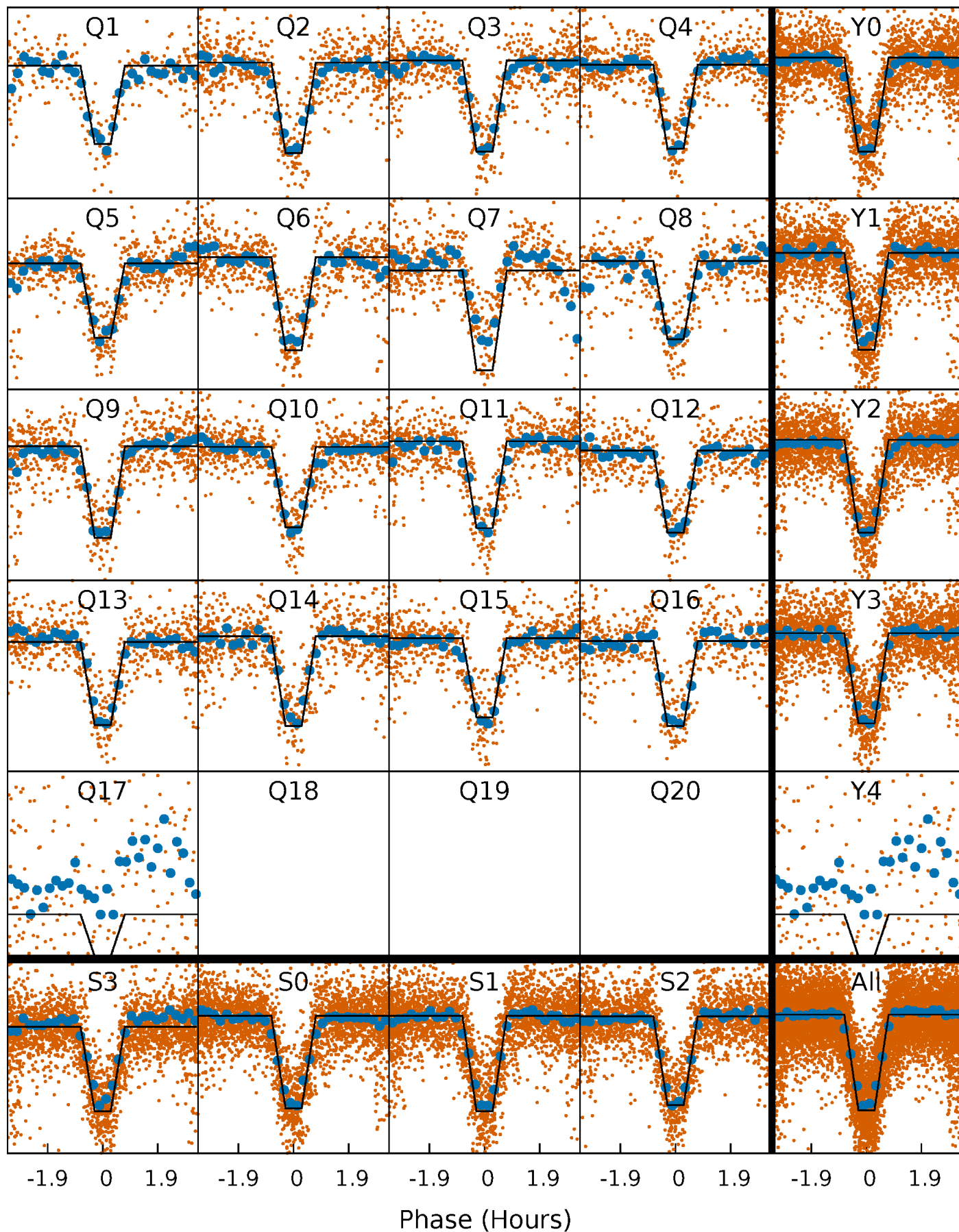
DV Quarter-Phased Transit Curves

TCE 012367464-02 P= 0.926608 Days $T_0=132.249231$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

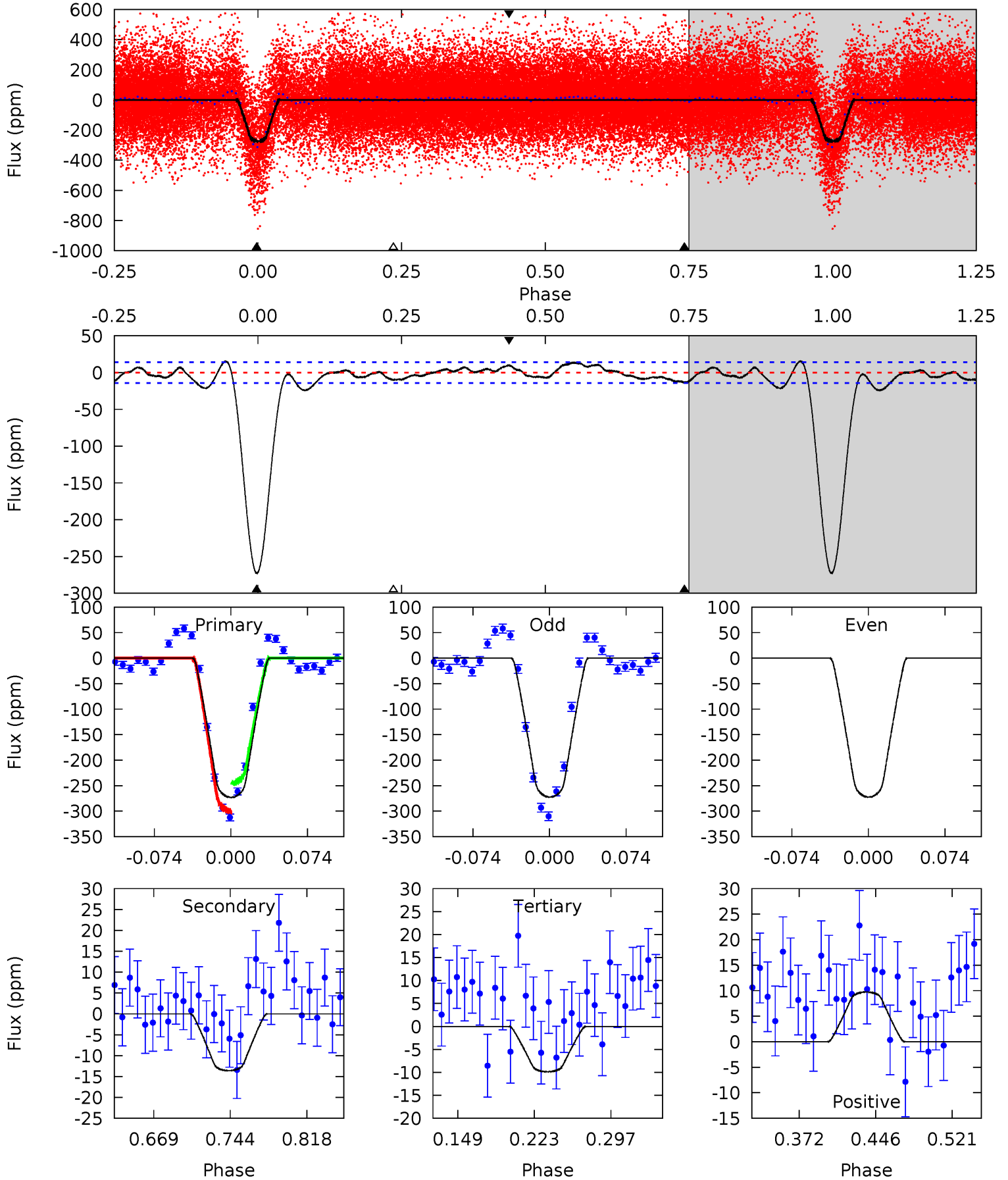
TCE 012367464-02 P= 0.926603 Days $T_0=132.250785$ (BKJD)



DV Model-Shift Uniqueness Test

012367464-02, P = 0.926608 Days, E = 131.322623 Days

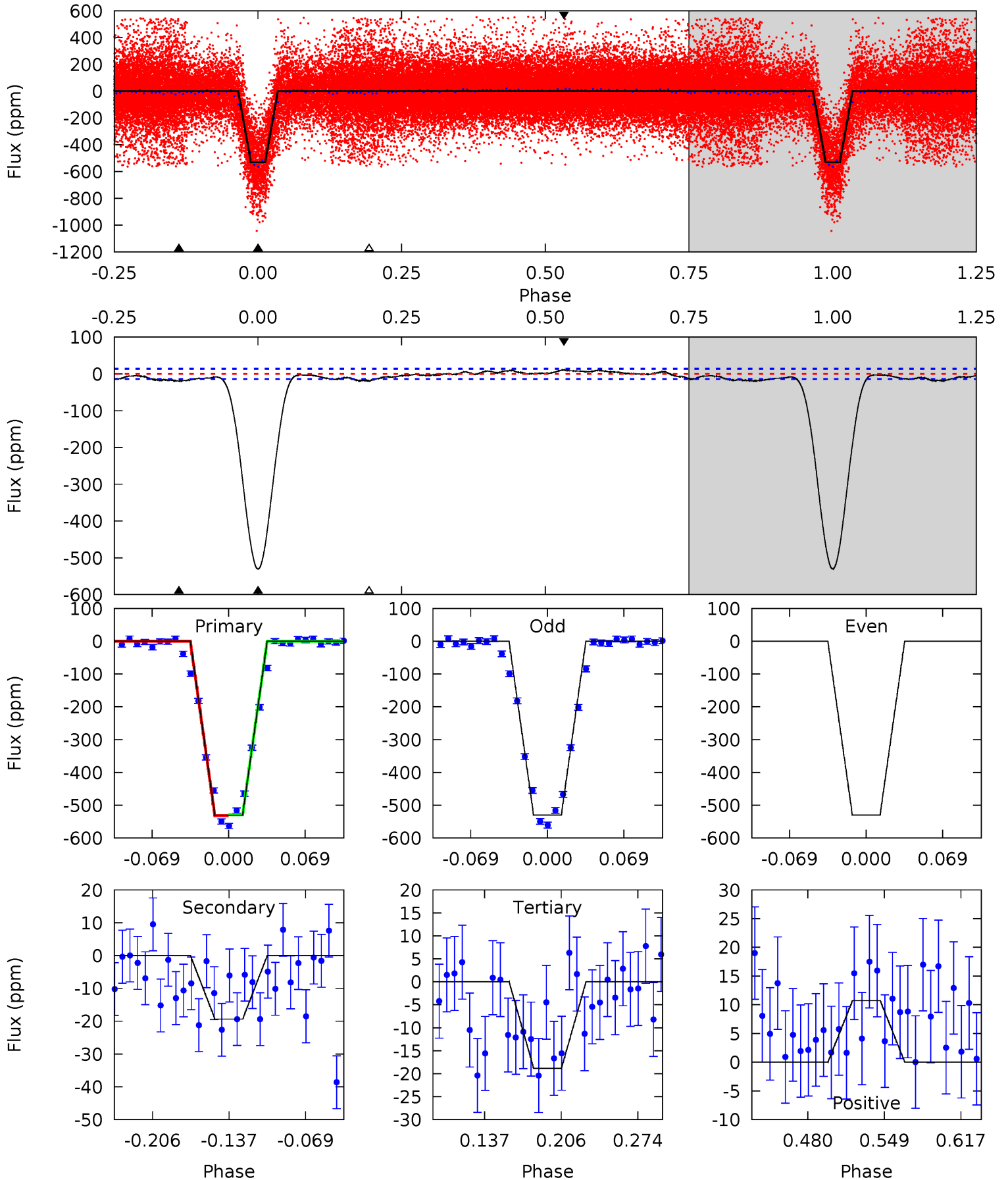
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.3	4.44	3.23	3.18	4.63	1.78	2.32	86.1	86.1	1.22	1.26	0	0.97	0.05	9.03



Alt Model-Shift Uniqueness Test

012367464-02, P = 0.926603 Days, E = 131.324182 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
176.4	6.44	6.27	3.56	4.64	1.82	2.43	170.1	172.8	0.17	2.88	0	0.98	0.02	0.42



Stellar Parameters For KIC 012367464

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6384^{+181}_{-227}	$4.026^{+0.312}_{-0.144}$	$-0.280^{+0.250}_{-0.300}$	$1.716^{+0.439}_{-0.658}$	$1.140^{+0.188}_{-0.169}$	$0.318^{+0.714}_{-0.152}$
	+3%/-4%	+8%/-4%	+89%/-107%	+26%/-38%	+16%/-15%	+224%/-48%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012367464-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-14 ± 3	$3.48^{+0.72}_{-0.67}$	3621^{+276}_{-343}	-2778^{+5473}_{-442}	$0.234^{+0.138}_{-0.084}$
Alt.	-19 ± 3	$4.39^{+0.77}_{-0.80}$	3657^{+267}_{-314}	-2907^{+5236}_{-339}	$0.212^{+0.108}_{-0.063}$

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 $A_{obs} \gg 1.0$

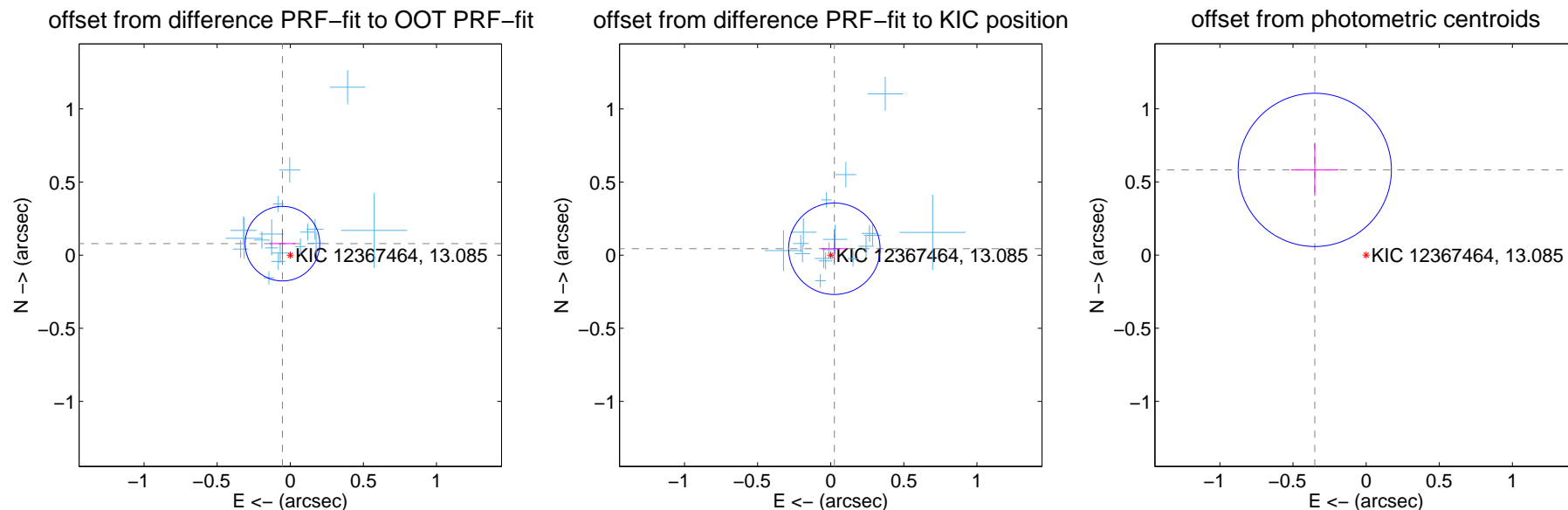
DV Centroid Data

Supplemental centroid analysis for 012367464-02. Kepler magnitude: 13.09. Transit SNR 57.37

There are 17 quarters with good PRF difference image offsets

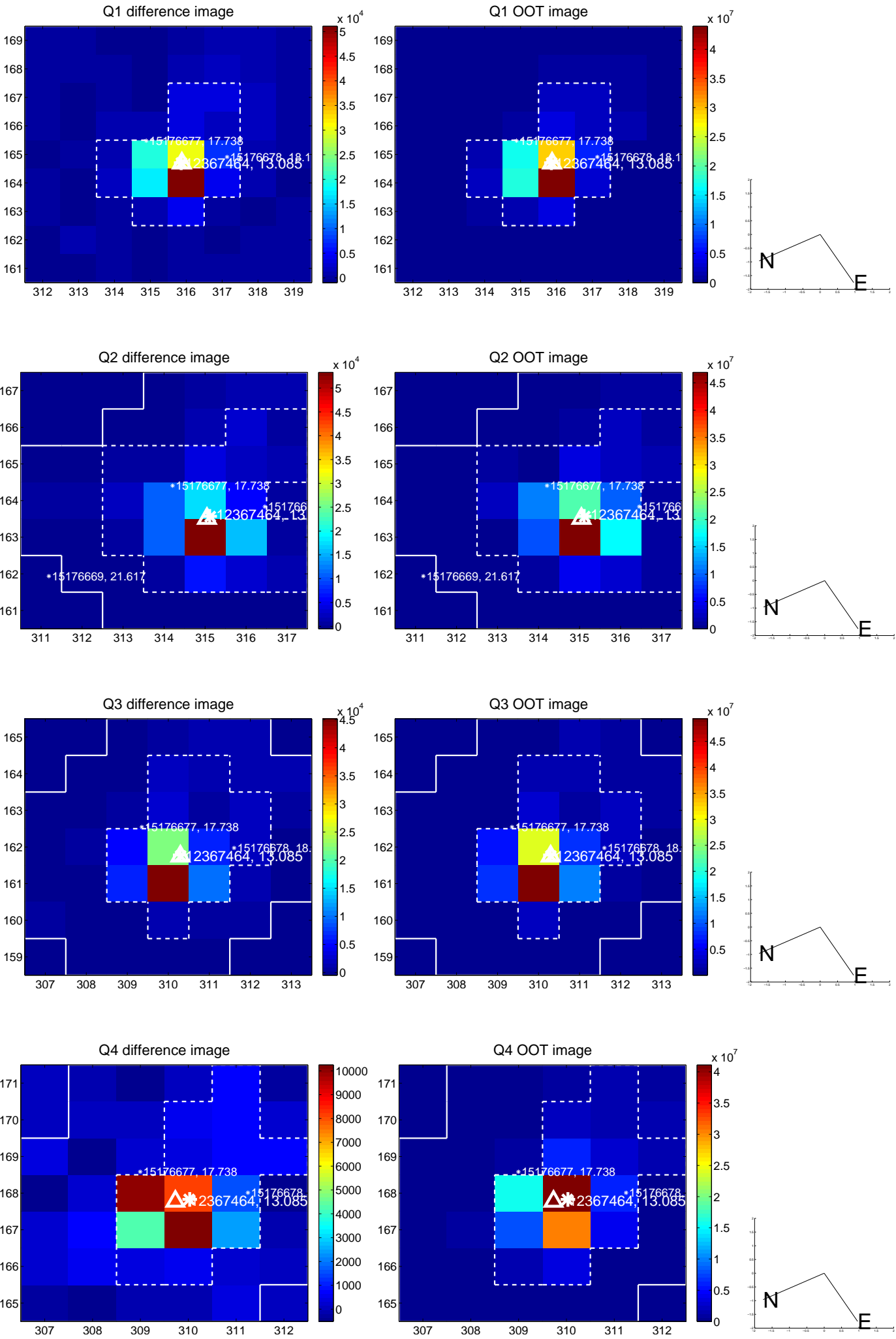
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.095 ± 0.085	1.12	0.053 ± 0.089	0.079 ± 0.099
PRF-fit source offset from KIC position	0.050 ± 0.104	0.48	-0.025 ± 0.088	0.044 ± 0.099
photometric centroid source offset	0.68 ± 0.17	3.89	0.35 ± 0.16	0.58 ± 0.18

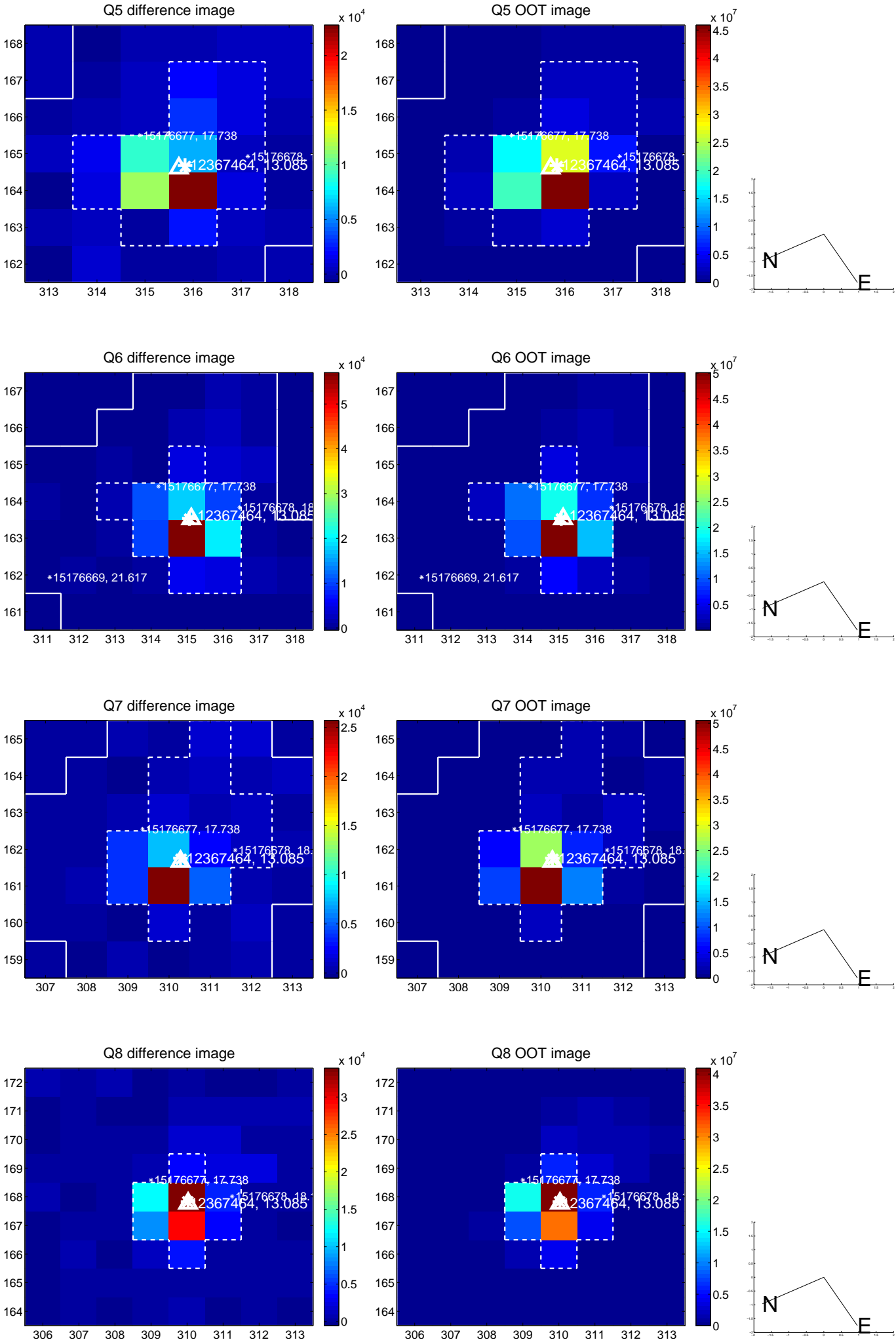


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

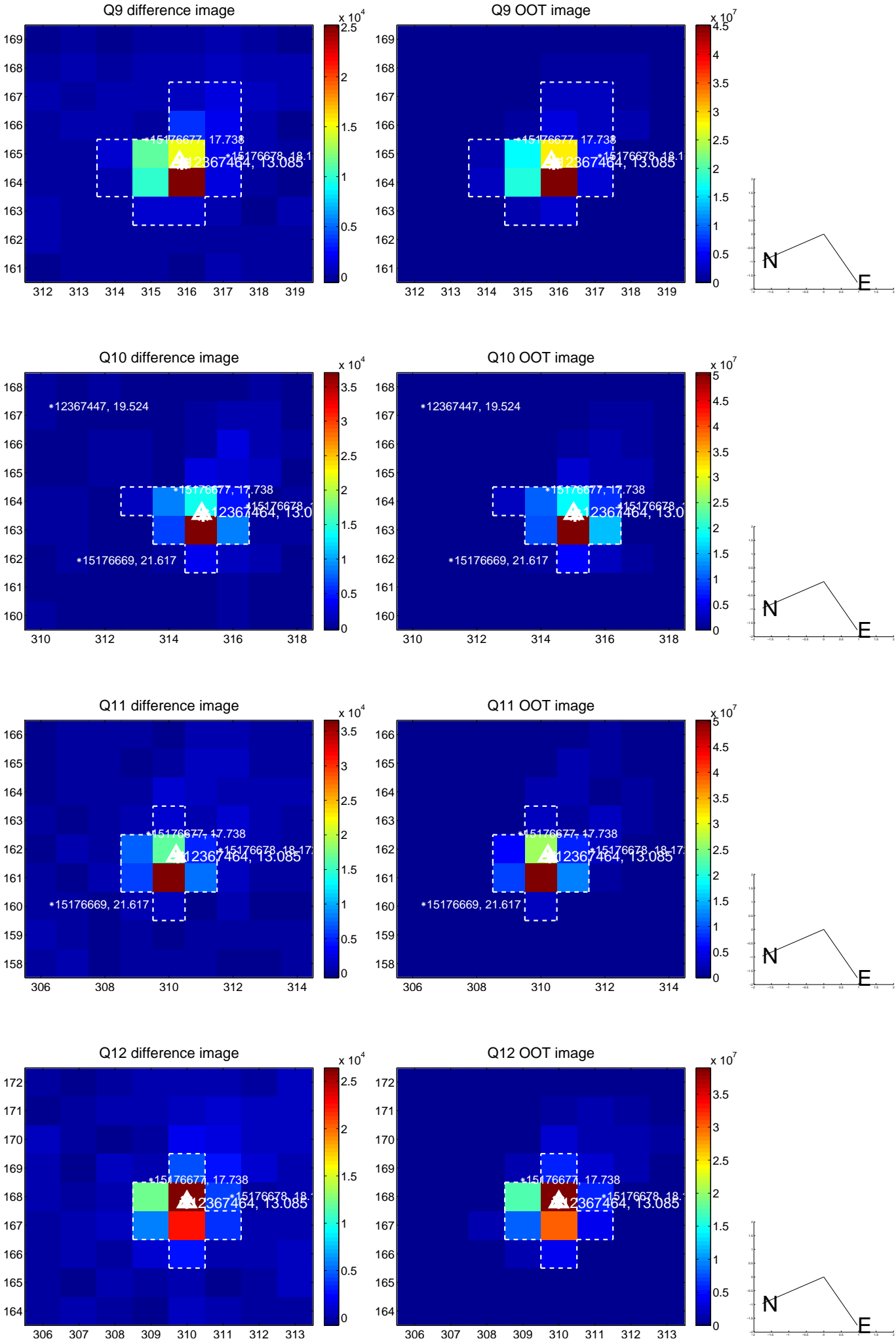
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



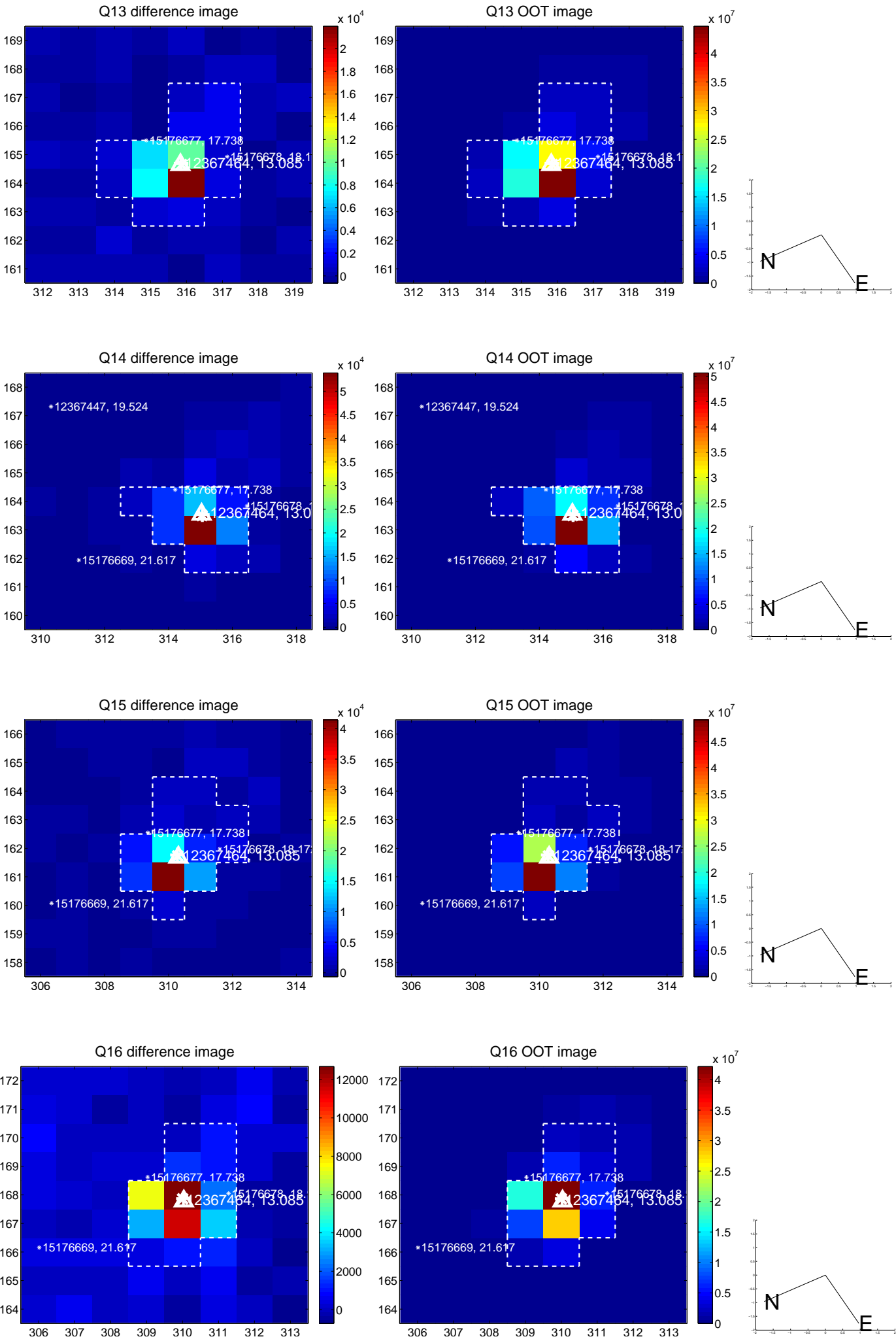
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



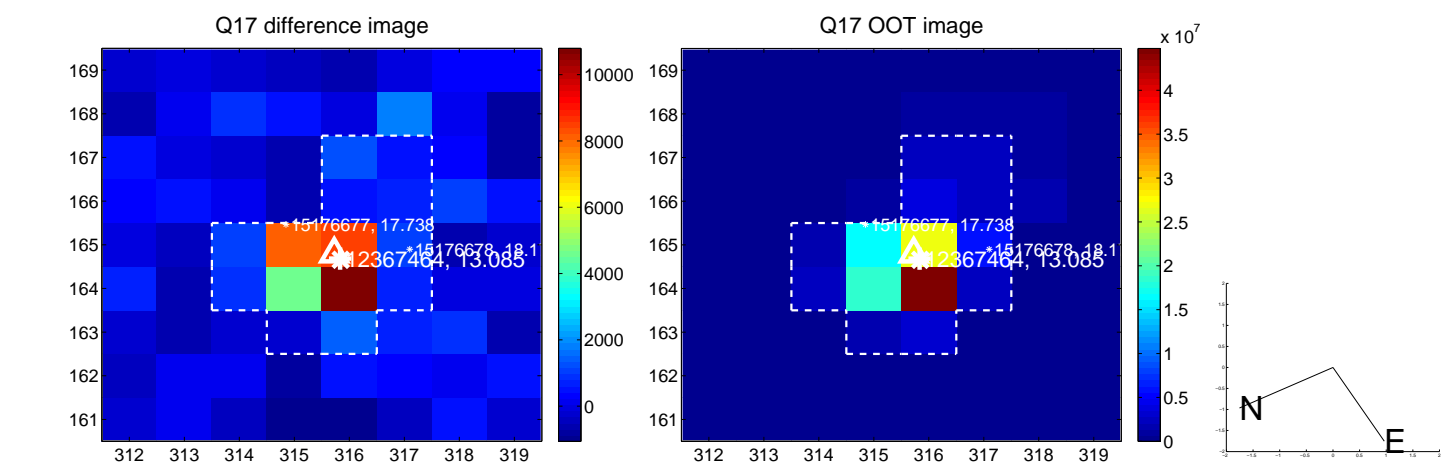
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



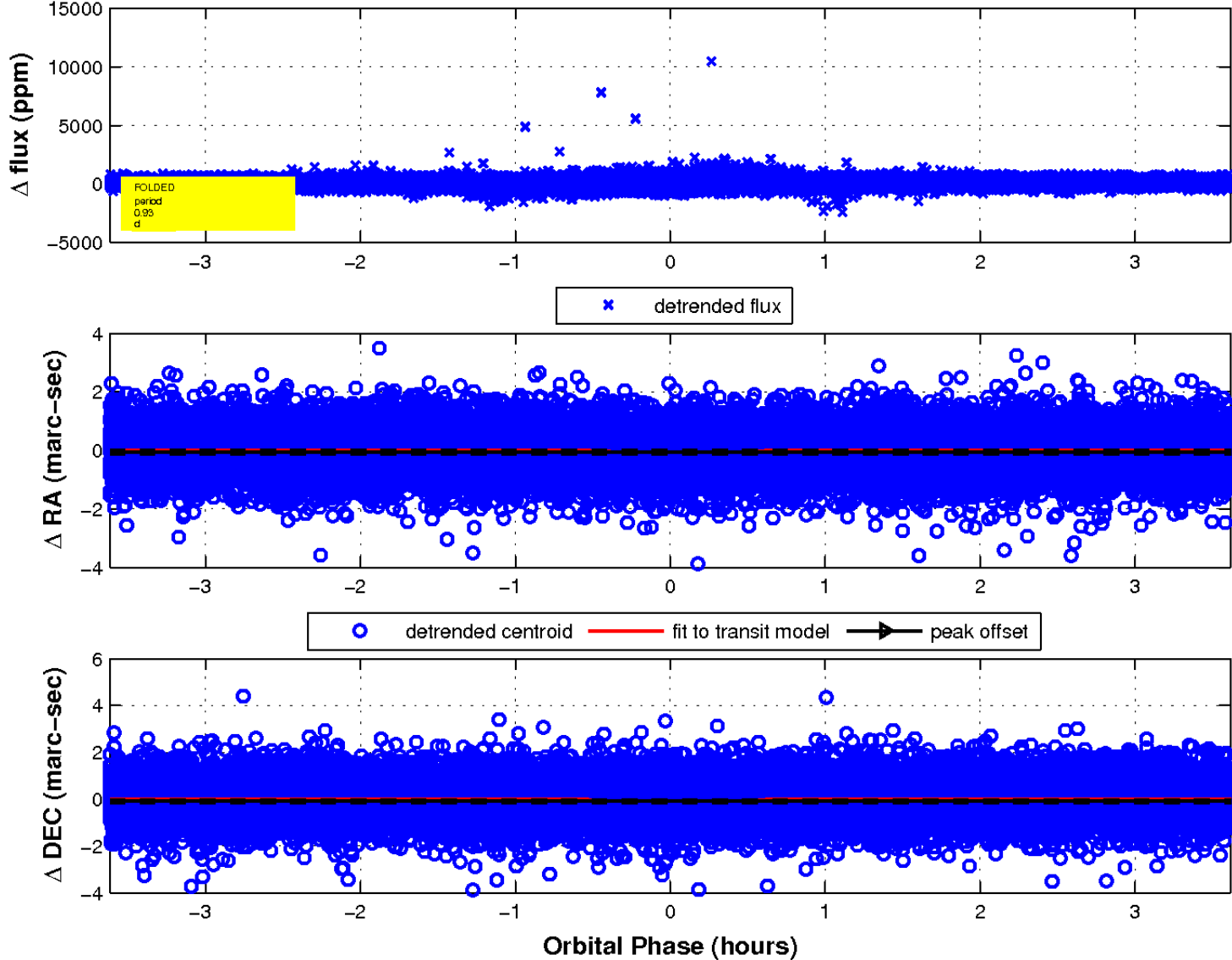
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

