

KIC 004149684

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})
004149684-01	OBS	6388.01	4.320850	132.418394	75433.9	4.255	6209.7	4764.4	1.08	6098	47.97	526.39
004149684-02	OBS	No	4.320836	134.588278	8815.4	3.000	1015.6	-1.0	1.08	6098	10.16	526.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004149684-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004149684-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

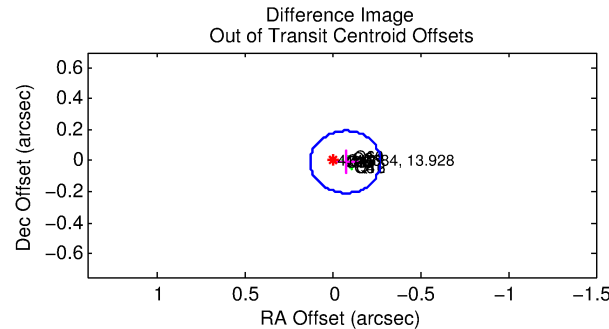
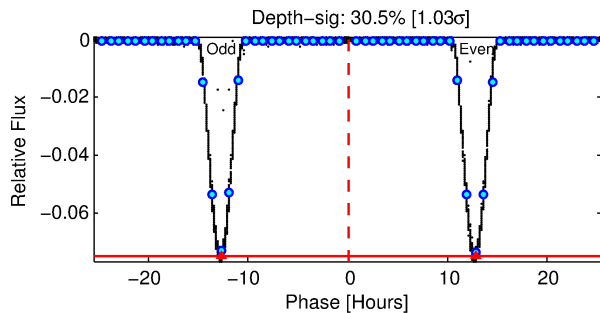
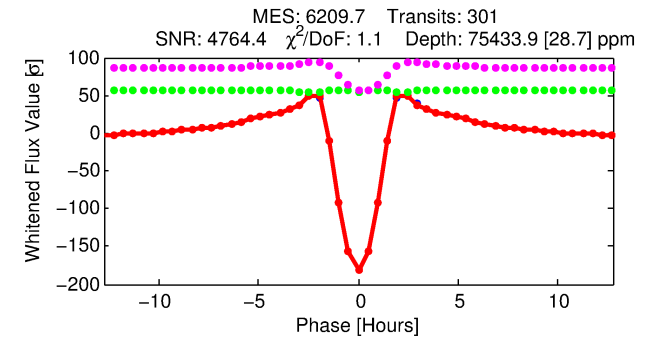
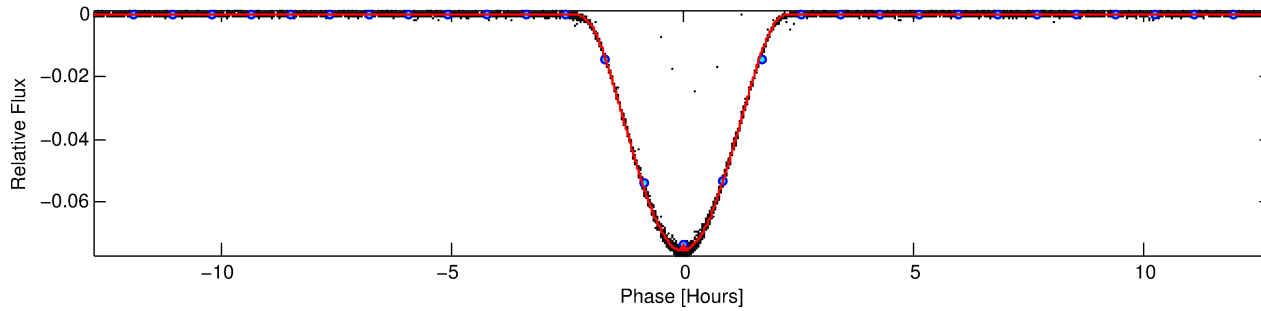
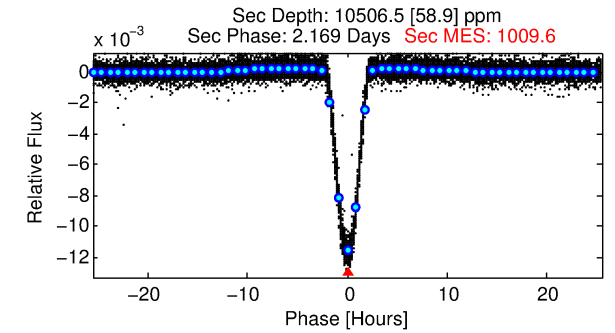
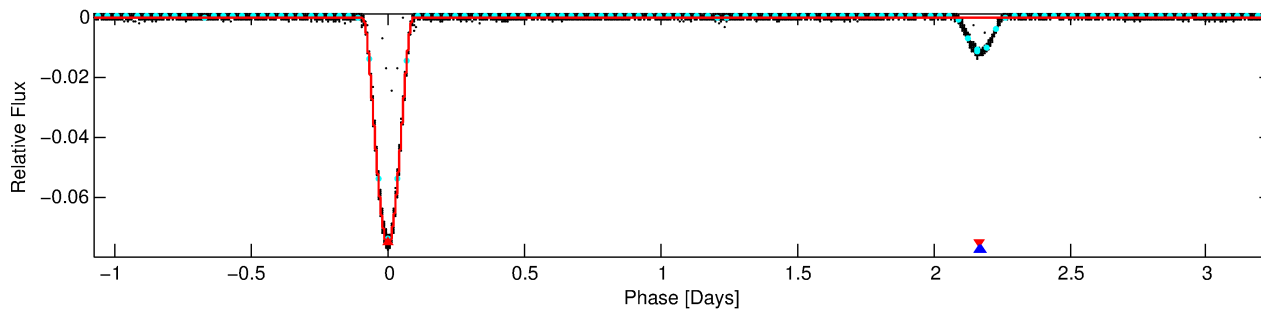
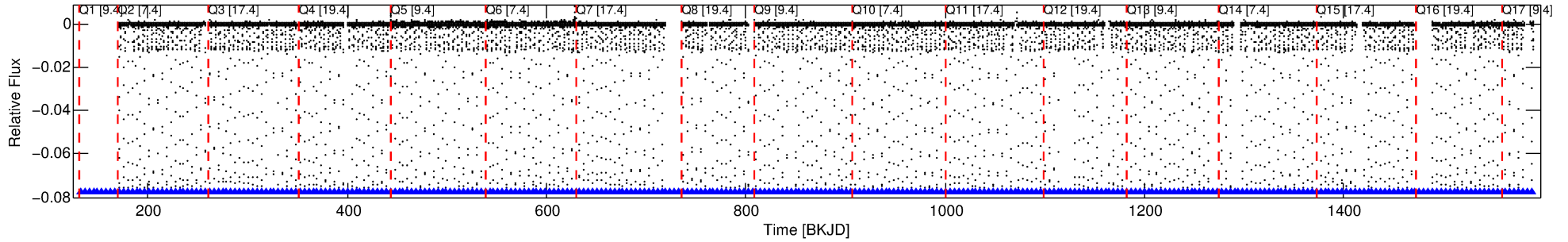
Ephemeris Match Information For 004149684-01

No Significant Match Found

DV One-Page Summary

KIC: 4149684 Candidate: 1 of 2 Period: 4.321 d
KOI: K06388.01 Corr: 0.999

Kp: 13.93 R*: 1.08 Rs Teff: 6098.0 K Logg: 4.38 Fe/H: -0.080



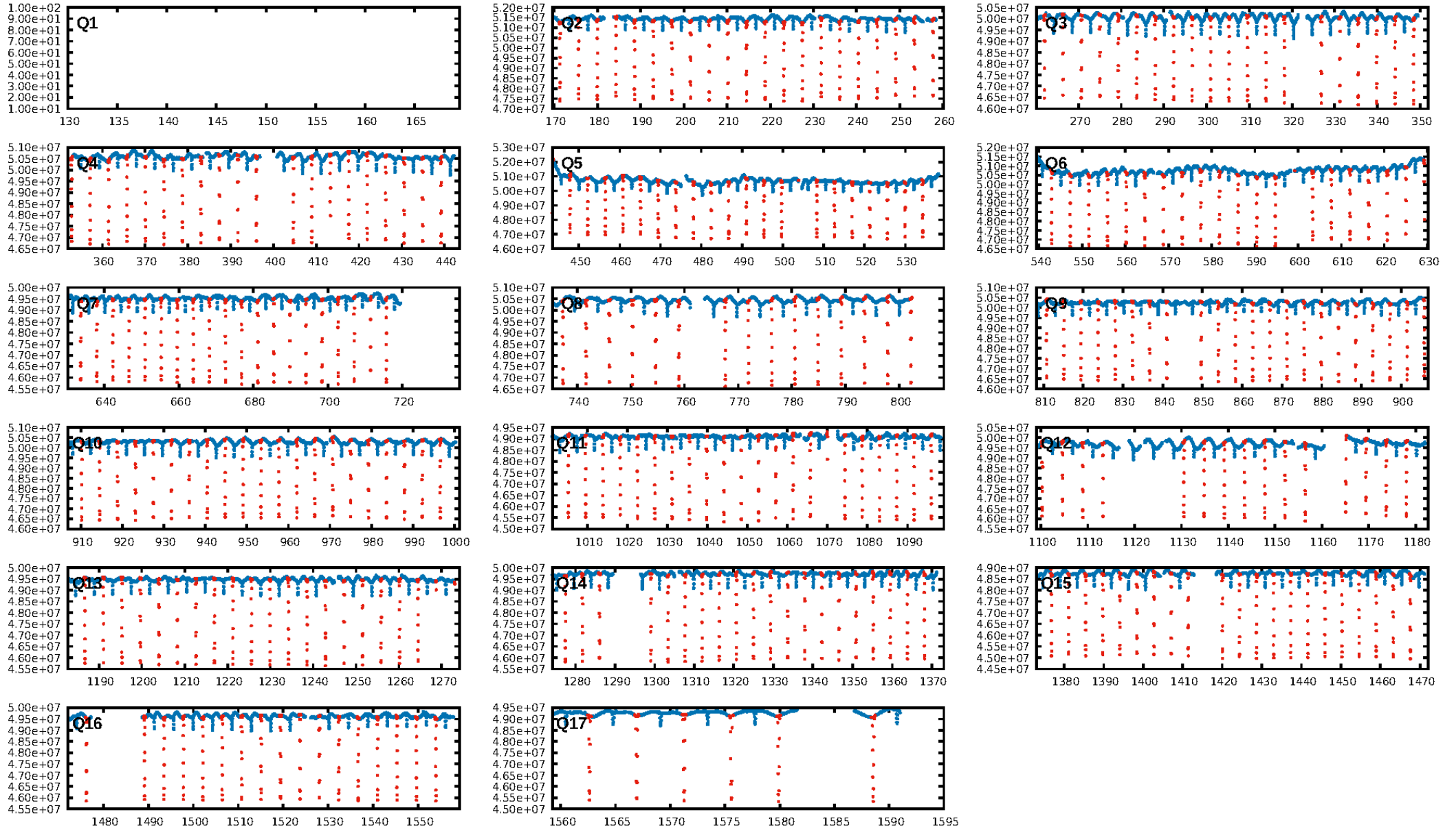
DV Fit Results:

Period = 4.32085 [0.00000] d
Epoch = 132.4184 [0.0000] BKJD
Rp/R* = 0.4059 [0.0079]
a/R* = 7.99 [0.00]
b = 0.97 [0.01]
Seff = 526.39 [219.76]
Teq = 1221 [127] K
Rp = 47.97 [15.53] Re
a = 0.0525 [0.0141] AU
Ag = 6.93 [2.70] [2.20σ]
Teffp = 3064 [122] K [10.43σ]

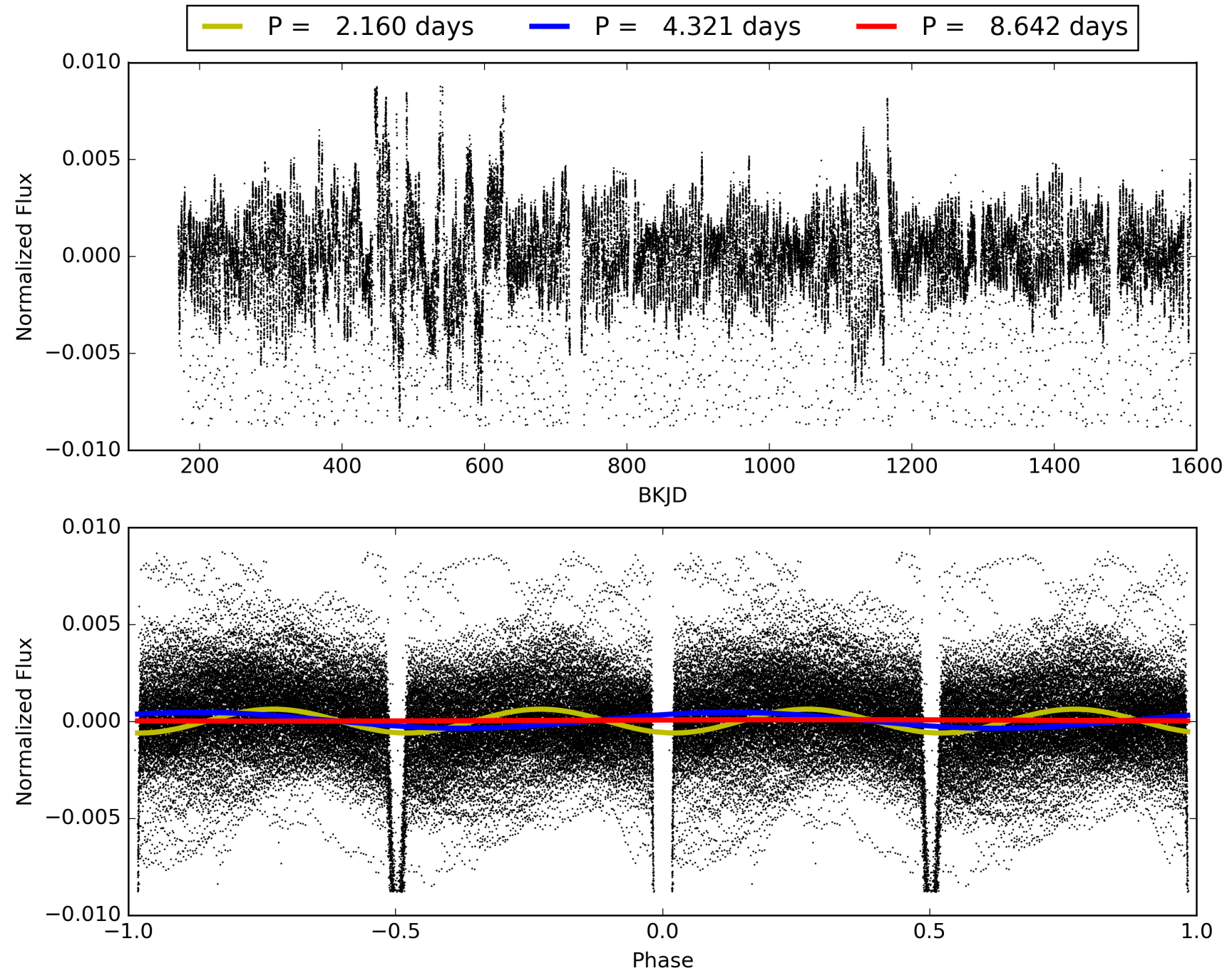
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [295/295]
GhostDiagnostic-chr: 4.655
Centroid-sig: 0.0%
Centroid-so: 0.067 arcsec [53.69σ]
OotOffset-rm: 0.072 arcsec [1.08σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.075 arcsec [1.11σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 004149684-01, PDC Light Curves

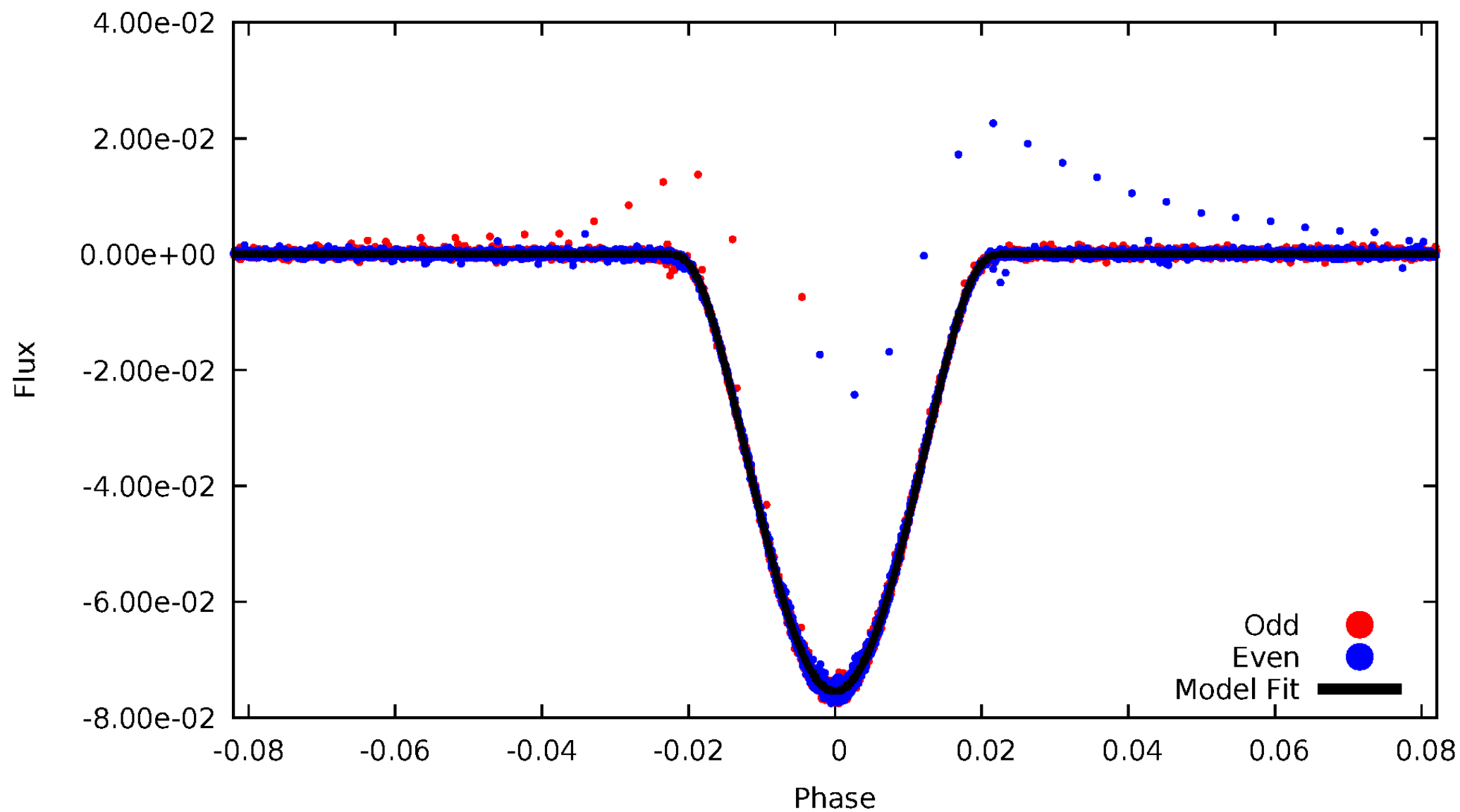


TCE 004149684-01



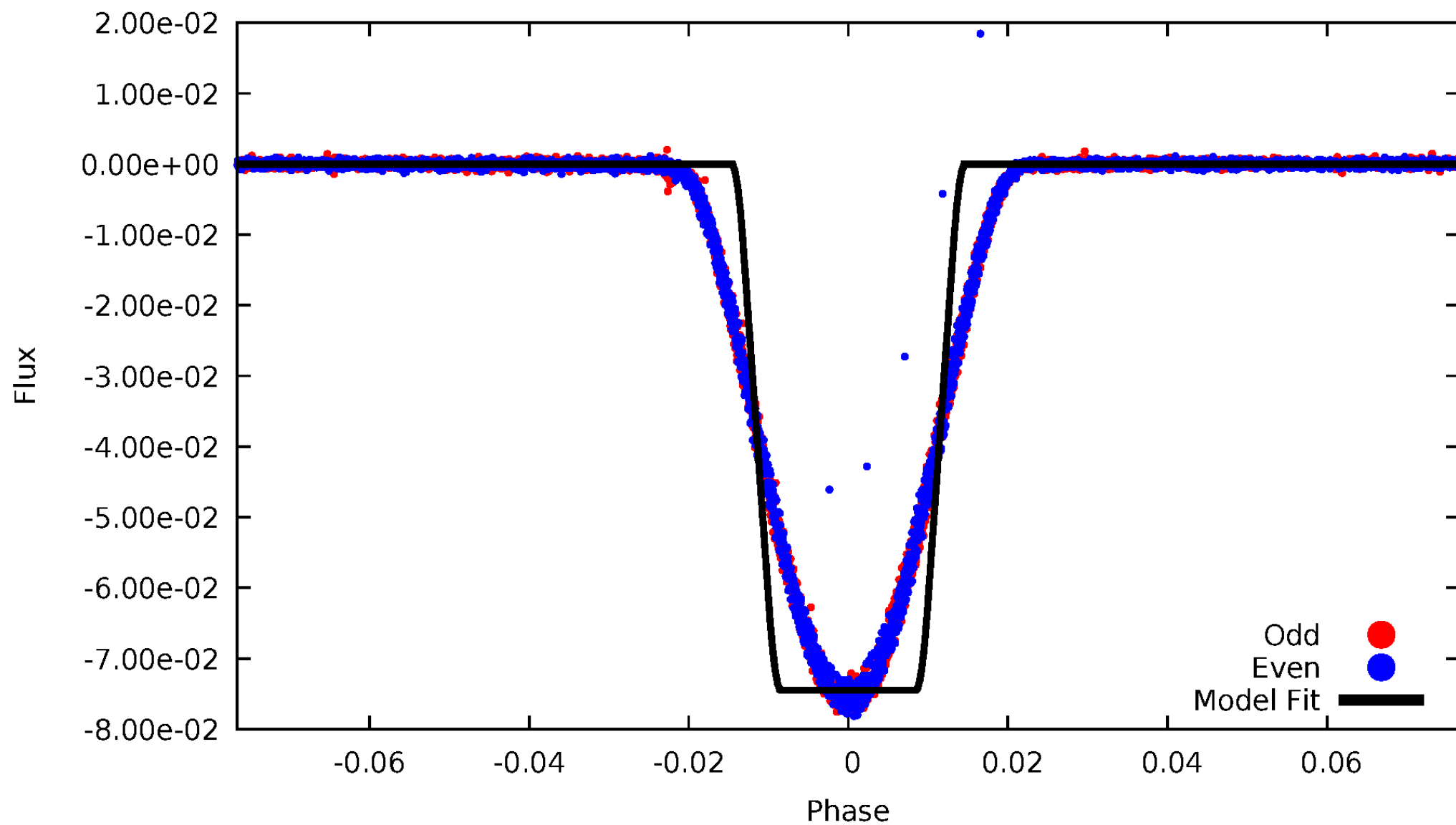
DV Odd/Even

TCE 004149684-01



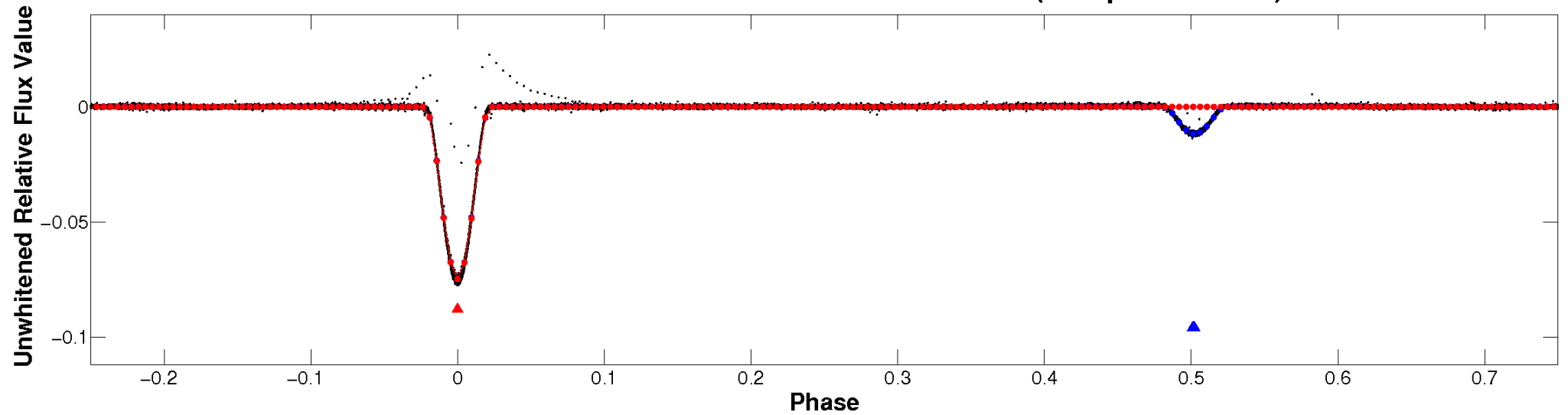
ALT Odd/Even

TCE 004149684-01

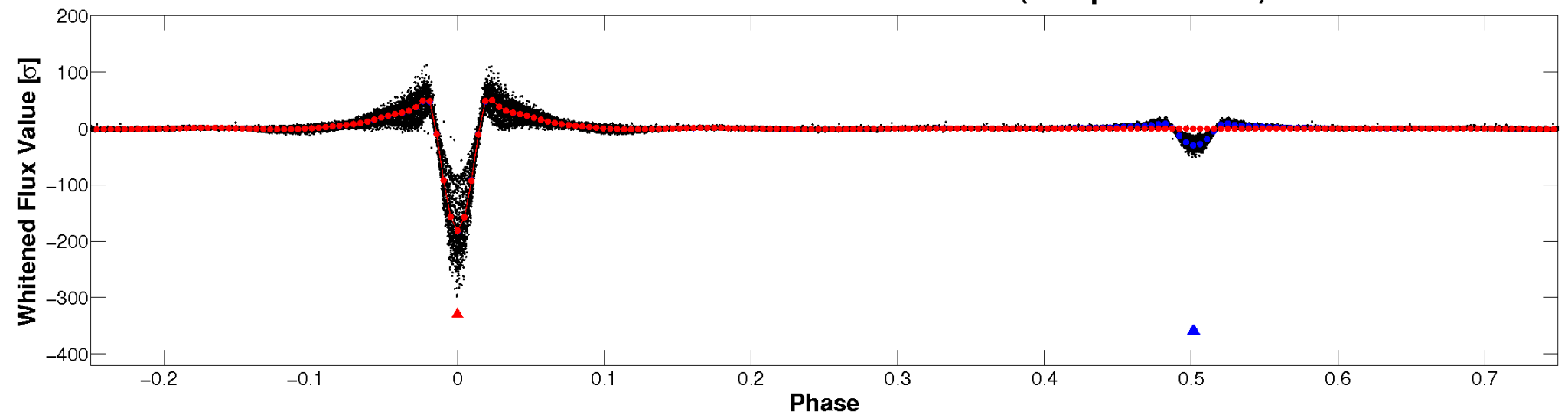


Non-Whitened Vs. Whitened Light Curve

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

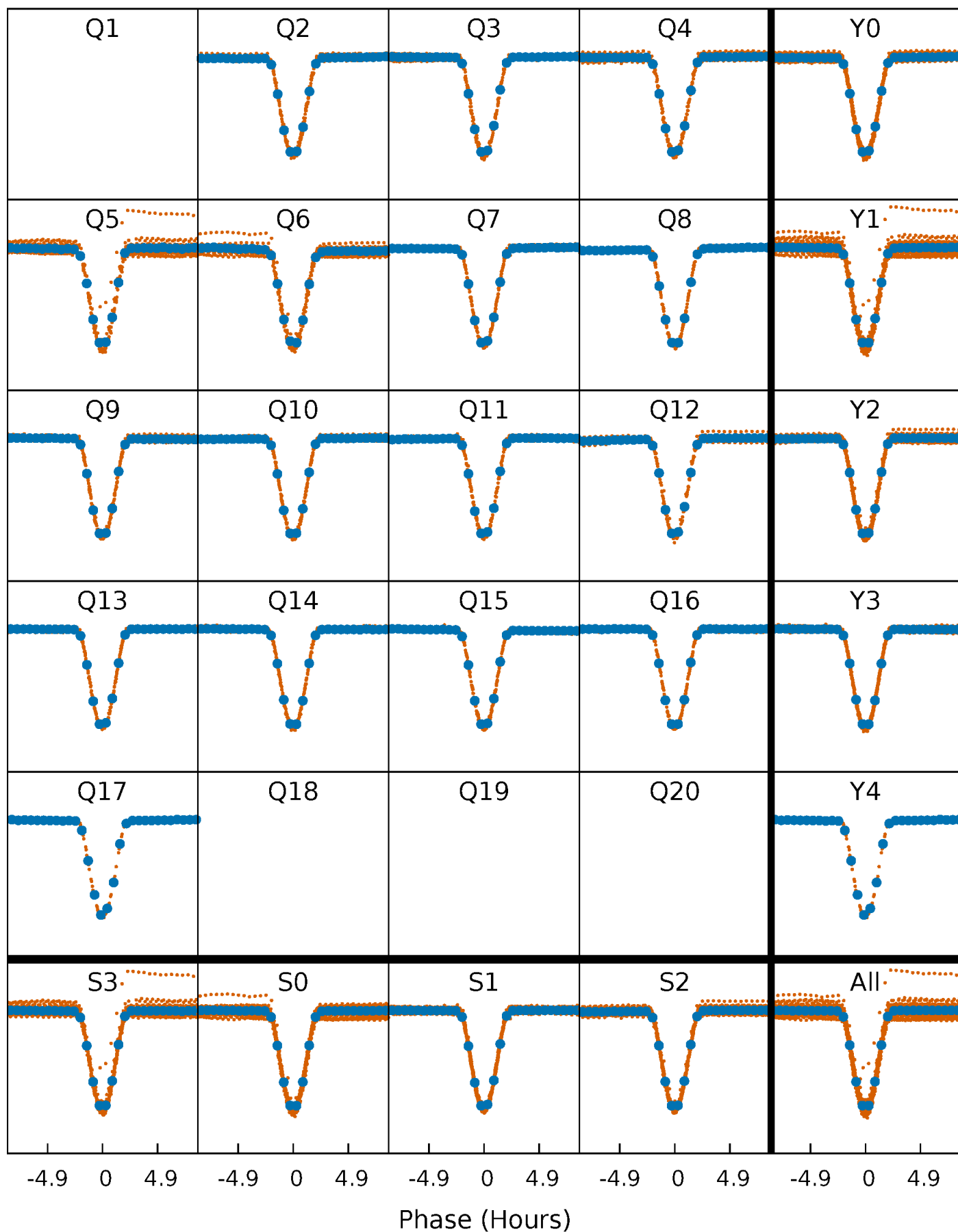


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



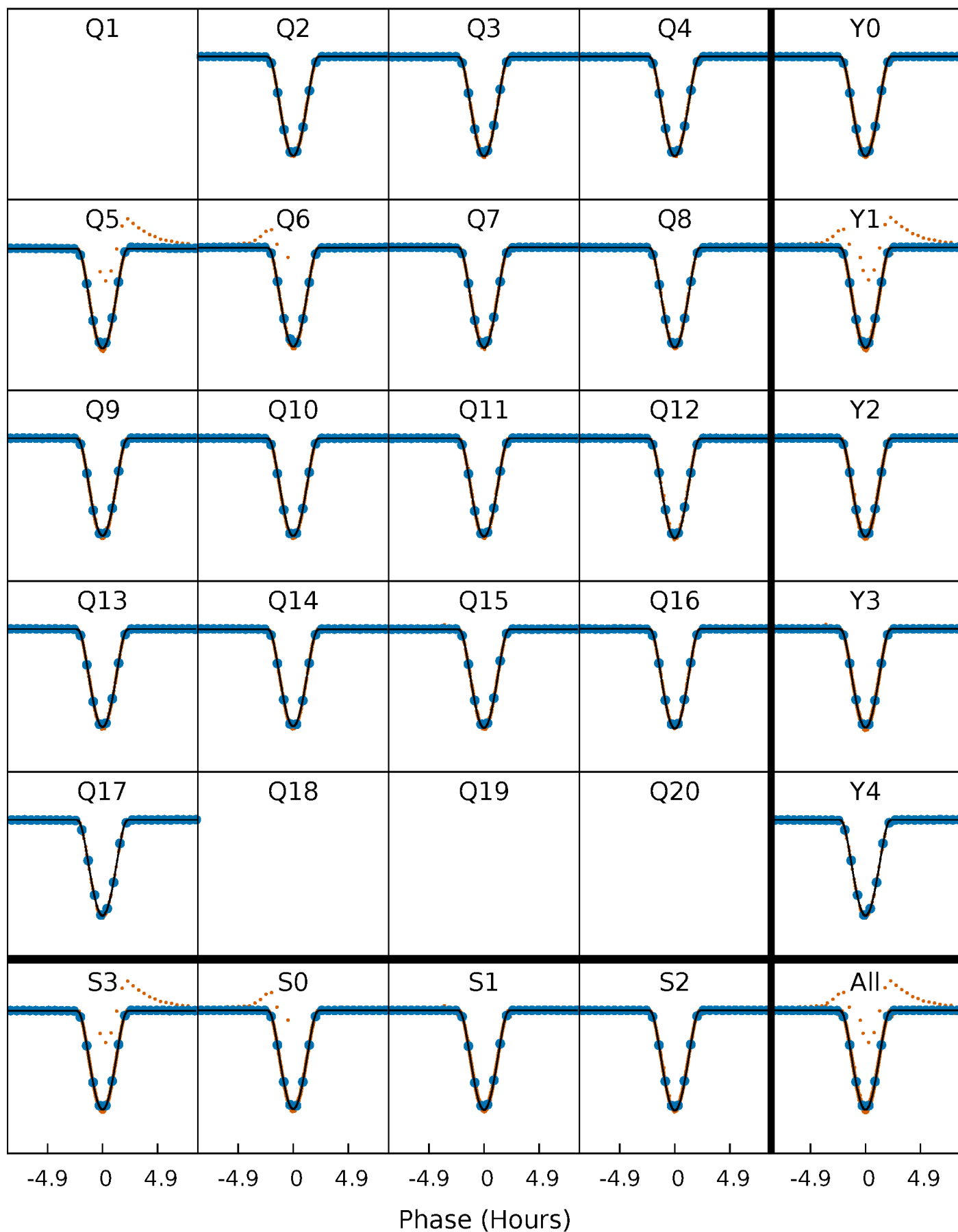
PDC Quarter-Phased Transit Curves

TCE 004149684-01 P= 4.320850 Days $T_0=132.418394$ (BKJD)



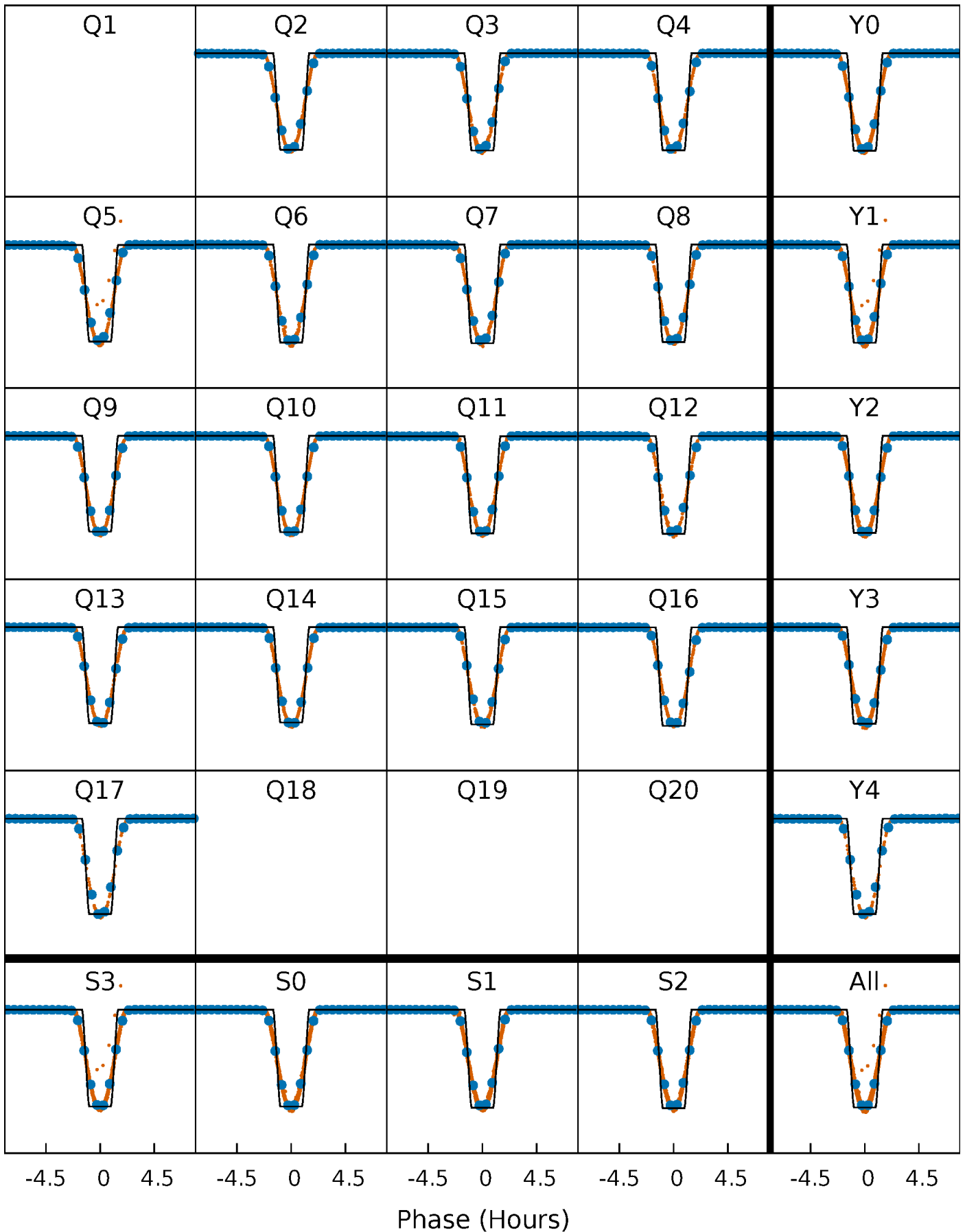
DV Quarter-Phased Transit Curves

TCE 004149684-01 P= 4.320850 Days $T_0=132.418394$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

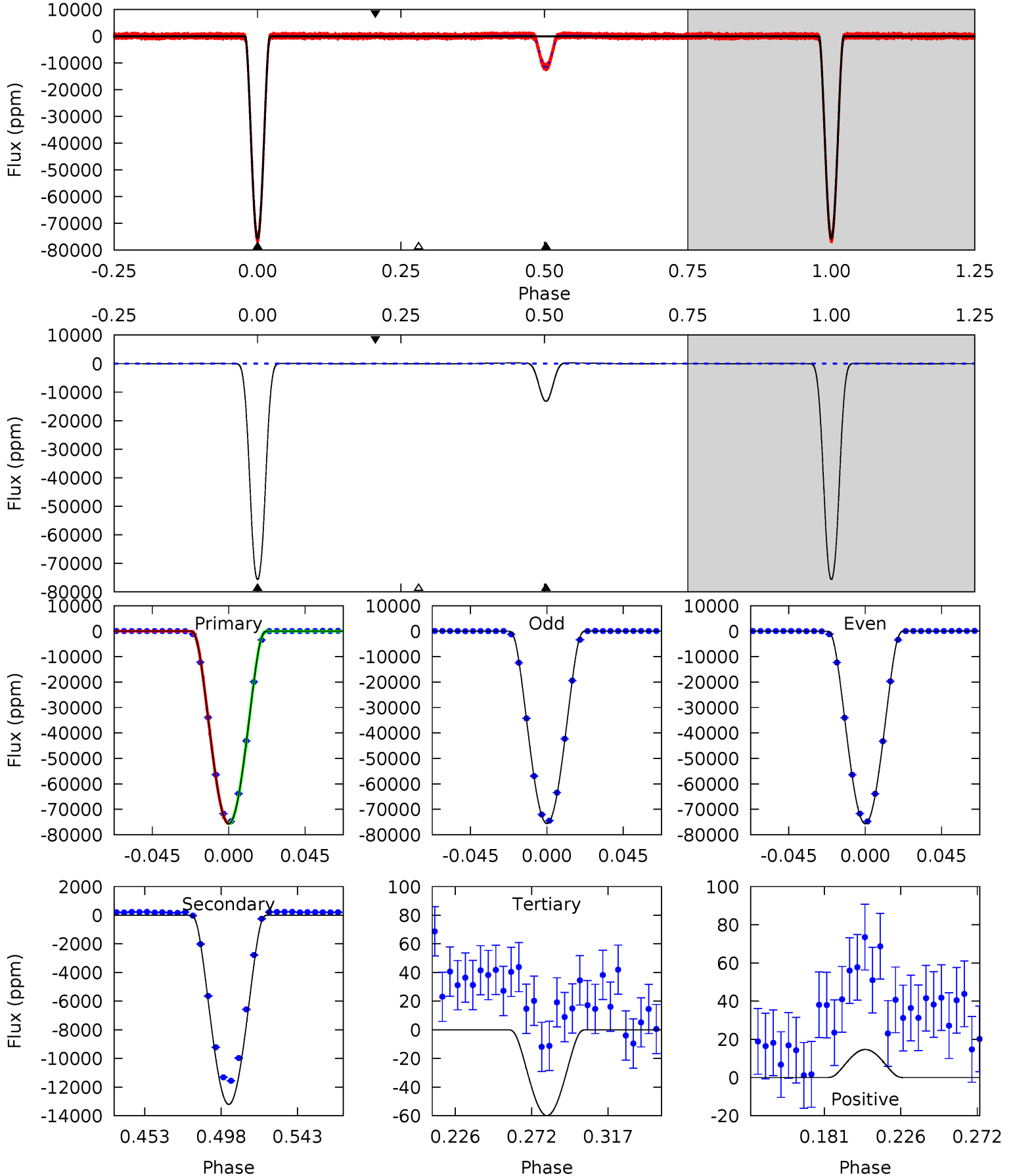
TCE 004149684-01 P= 4.320836 Days $T_0=132.420701$ (BKJD)



DV Model-Shift Uniqueness Test

004149684-01, P = 4.320850 Days, E = 132.418394 Days

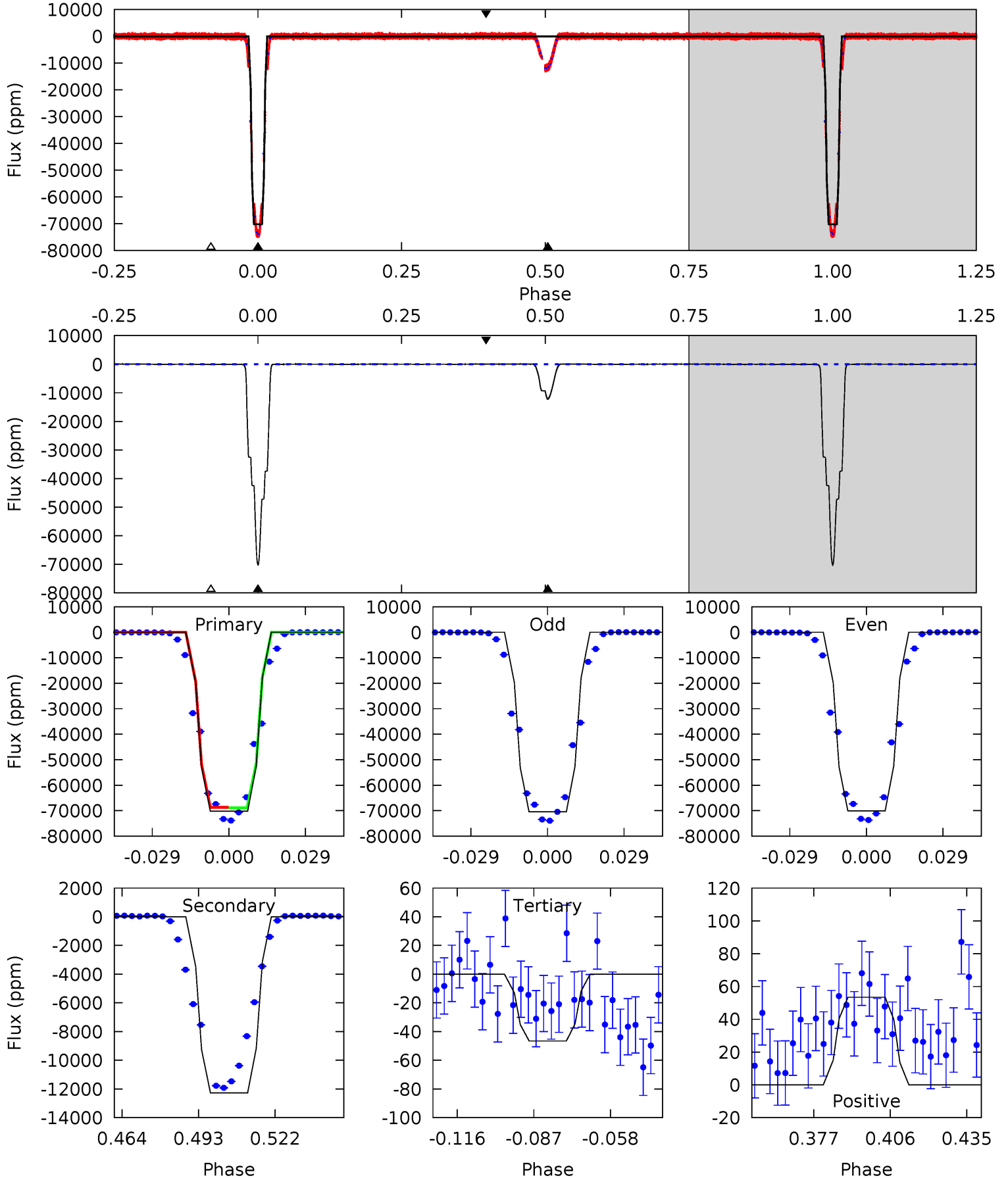
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11782	2058	9.34	2.29	4.73	2.00	11.3	11773	11780	2048	2055	5.59	0.99	0.00	6.25



Alt Model-Shift Uniqueness Test

004149684-01, P = 4.320836 Days, E = 132.420701 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5476	956.9	3.63	4.17	4.82	2.18	2.06	5473	5472	953.3	952.8	13.6	1.00	0.00	0



Stellar Parameters For KIC 004149684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6098^{+193}_{-236}	$4.384^{+0.090}_{-0.210}$	$-0.080^{+0.250}_{-0.300}$	$1.083^{+0.350}_{-0.150}$	$1.034^{+0.166}_{-0.120}$	$1.147^{+0.537}_{-0.583}$
	+3%/-4%	+2%/-5%	+312%/-375%	+32%/-14%	+16%/-12%	+47%/-51%
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 004149684-01 / KOI 6388.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13209±6	$48.98^{+8.26}_{-4.28}$	1731^{+134}_{-100}	3660^{+83}_{-95}	$8.336^{+1.714}_{-1.938}$
Alt.	-12271±13	$32.95^{+6.06}_{-3.06}$	1731^{+141}_{-100}	4155^{+115}_{-127}	17^{+3}_{-4}

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 $A_{obs} \gg 1.0$

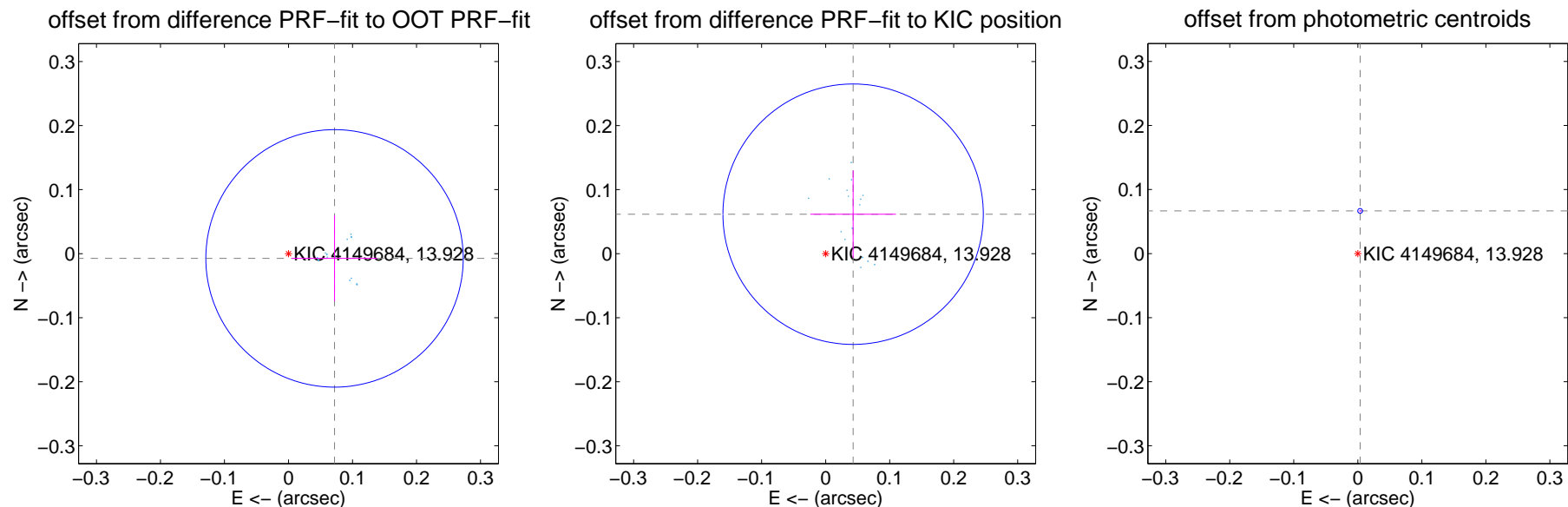
DV Centroid Data

Supplemental centroid analysis for 004149684-01. Kepler magnitude: 13.93. Transit SNR 4764.45

There are 16 quarters with good PRF difference image offsets

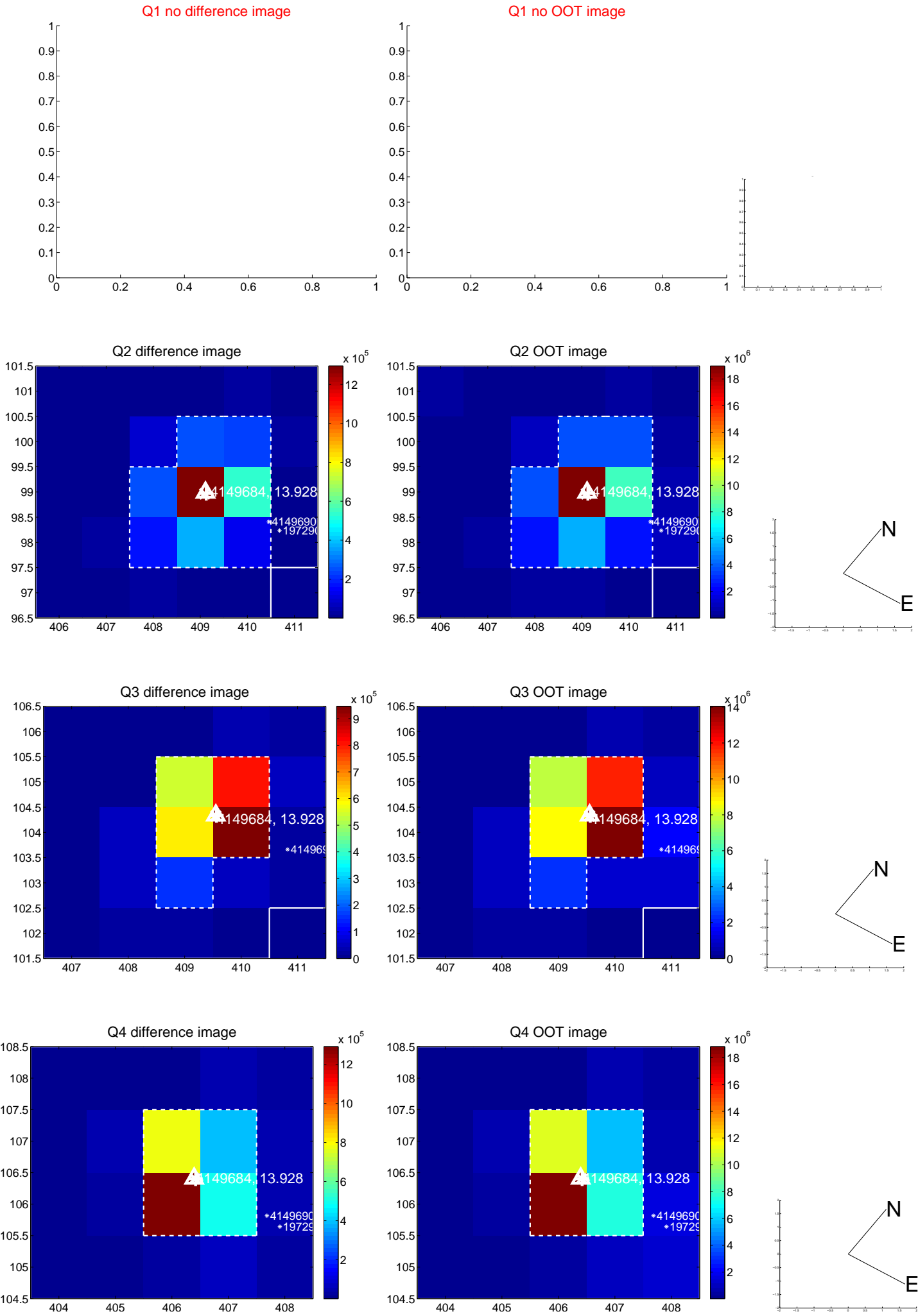
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.072 ± 0.067	1.08	-0.072 ± 0.067	-0.007 ± 0.067
PRF-fit source offset from KIC position	0.075 ± 0.068	1.11	-0.043 ± 0.067	0.062 ± 0.068
photometric centroid source offset	0.07 ± 0.00	53.69	-0.00 ± 0.00	0.07 ± 0.00

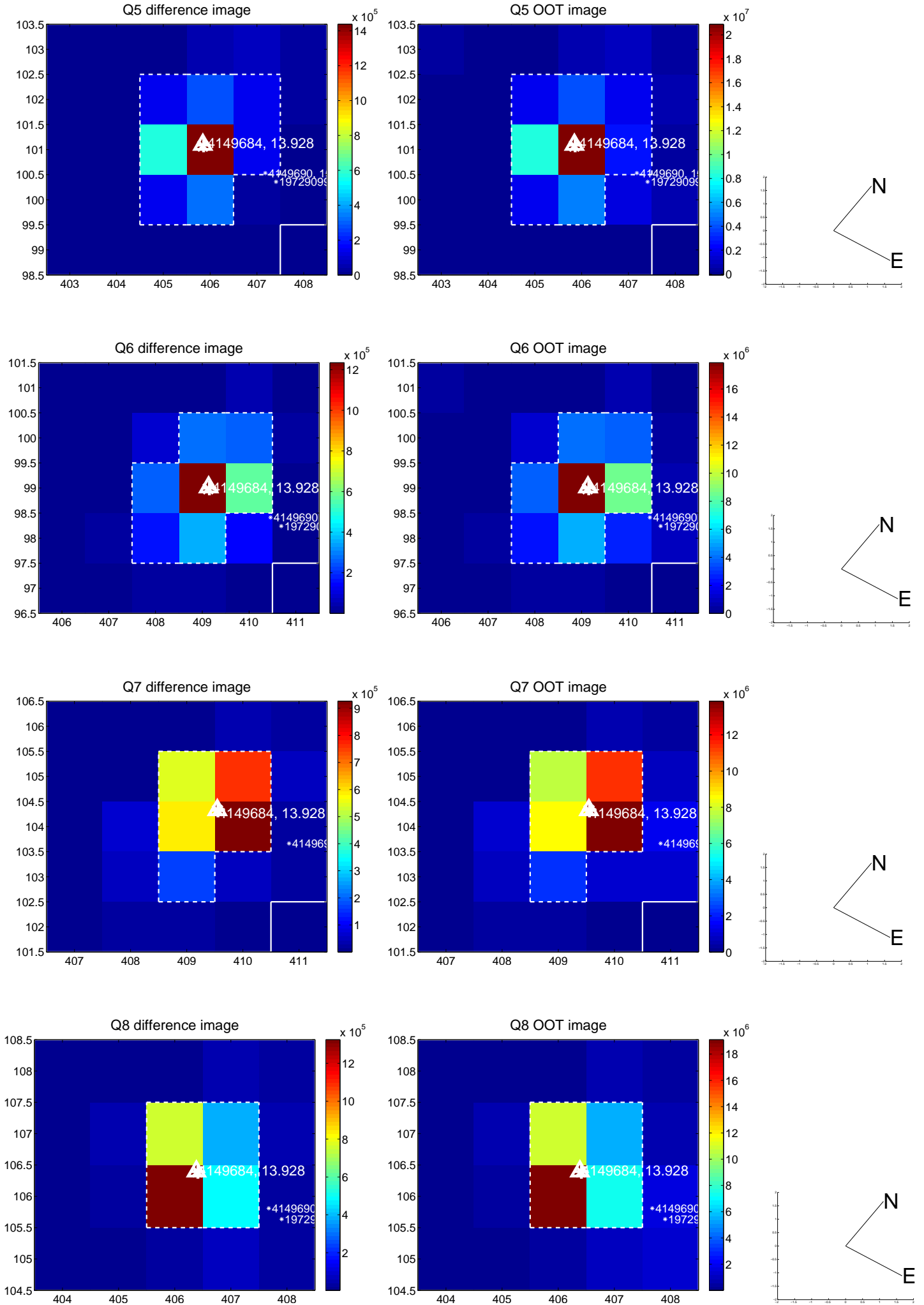


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

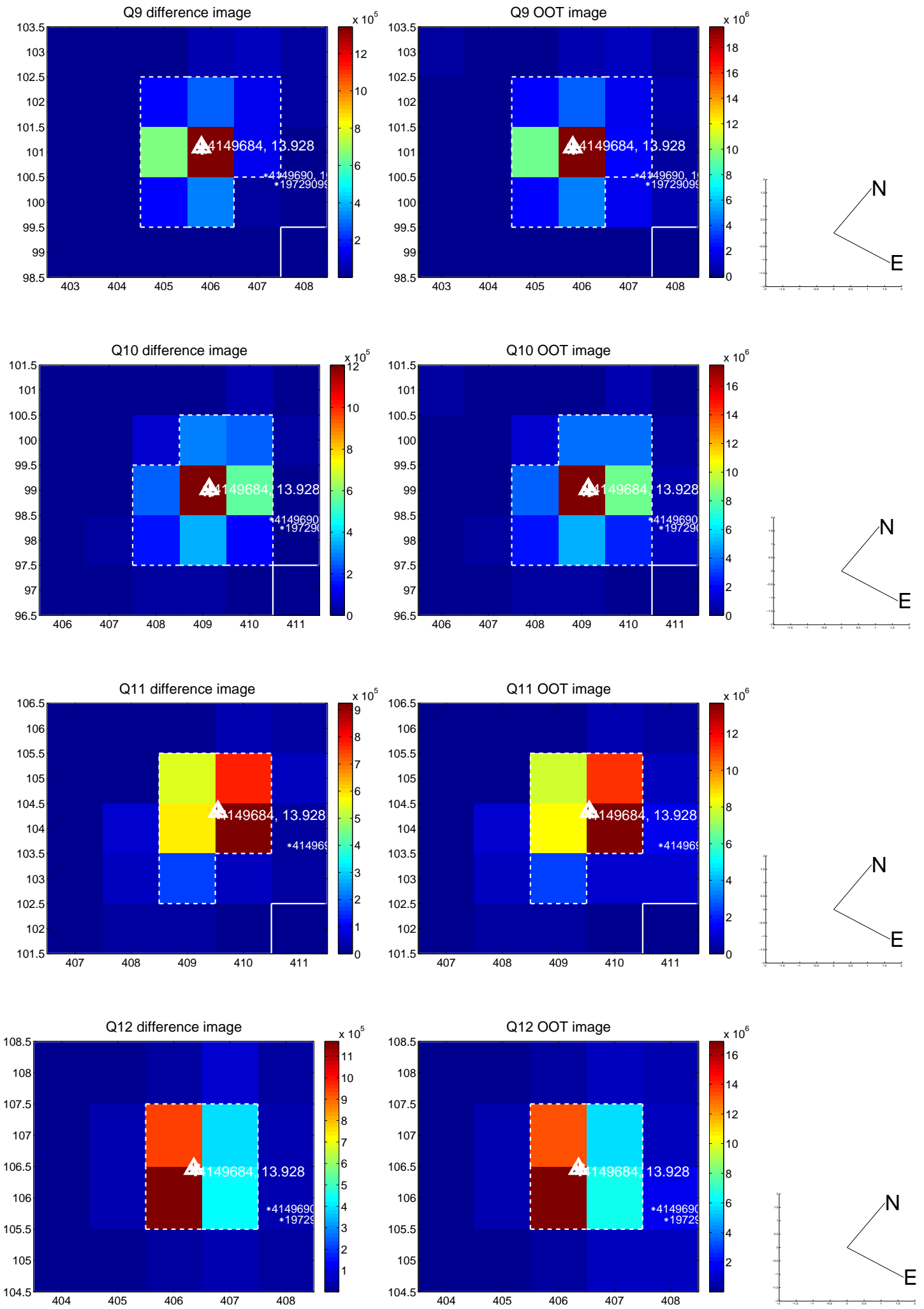
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



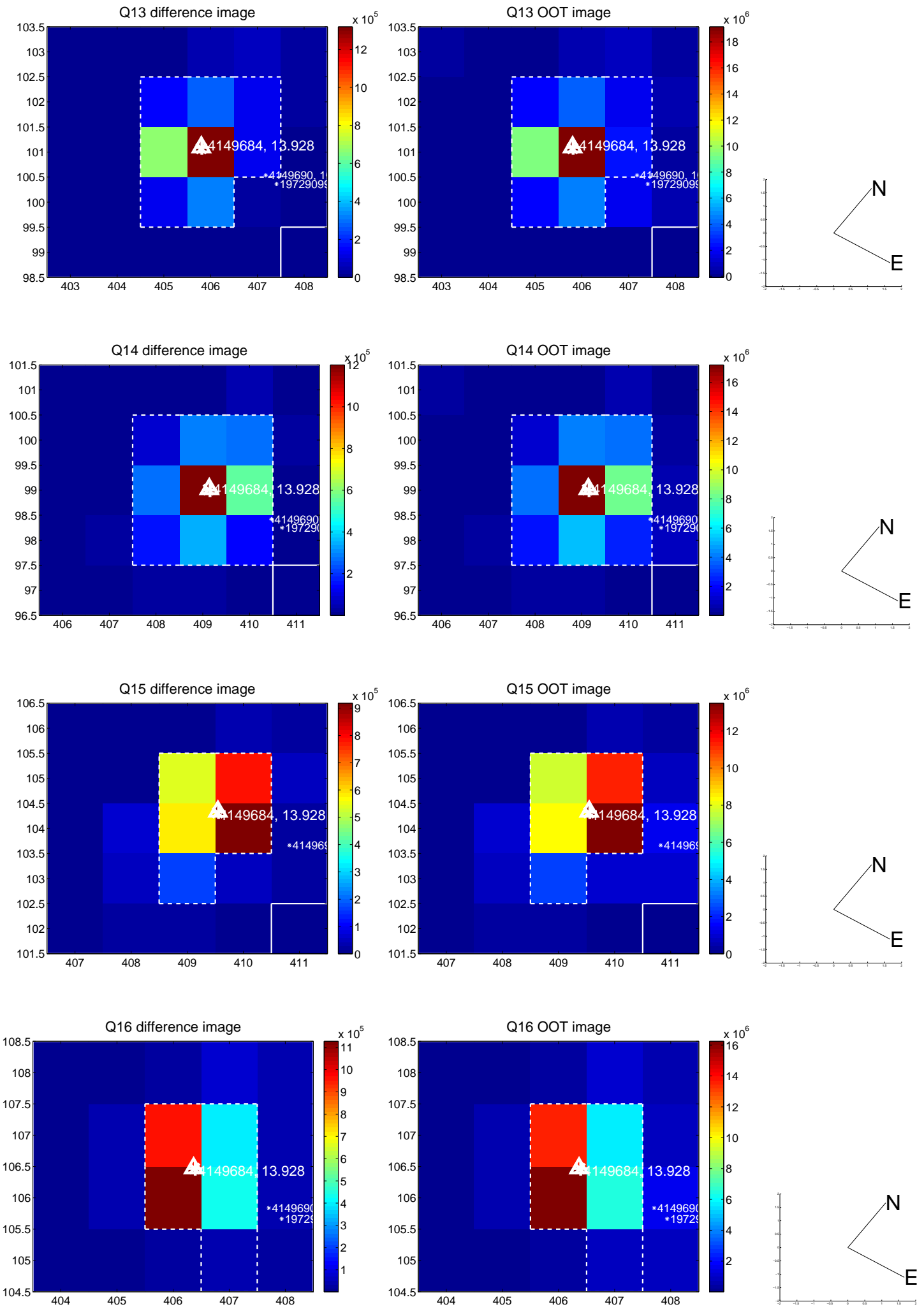
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



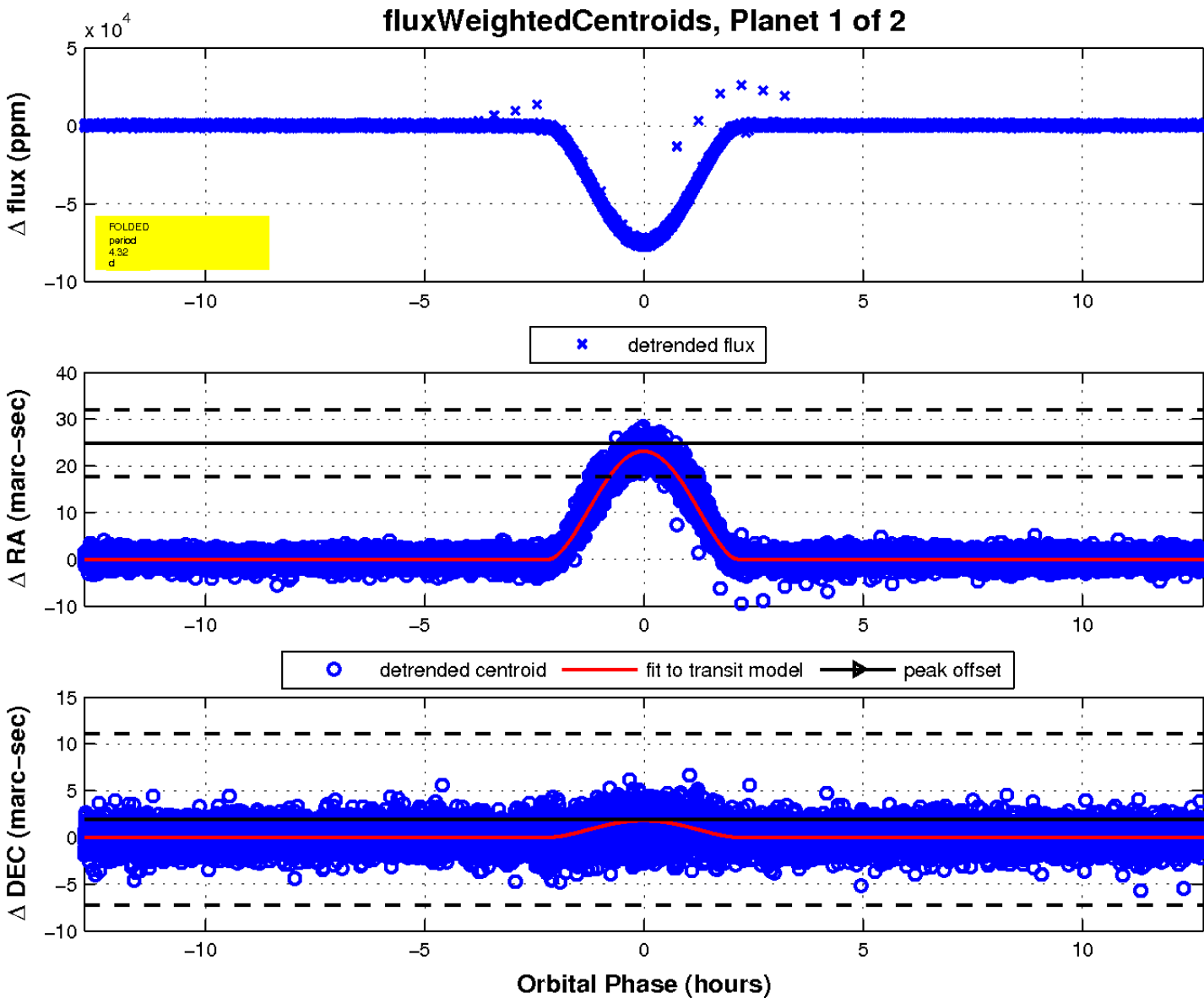
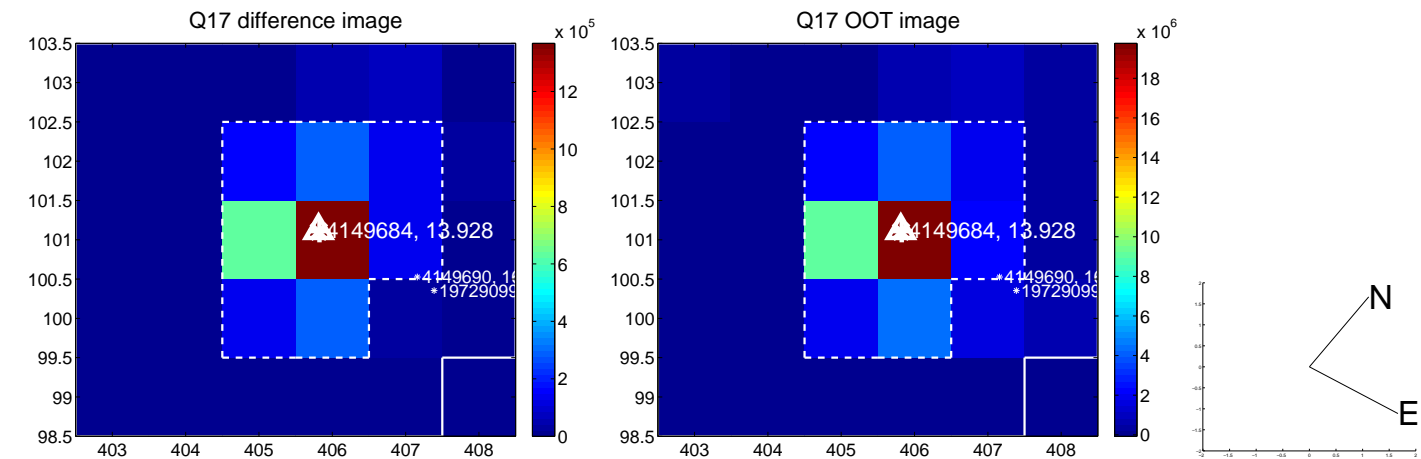
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

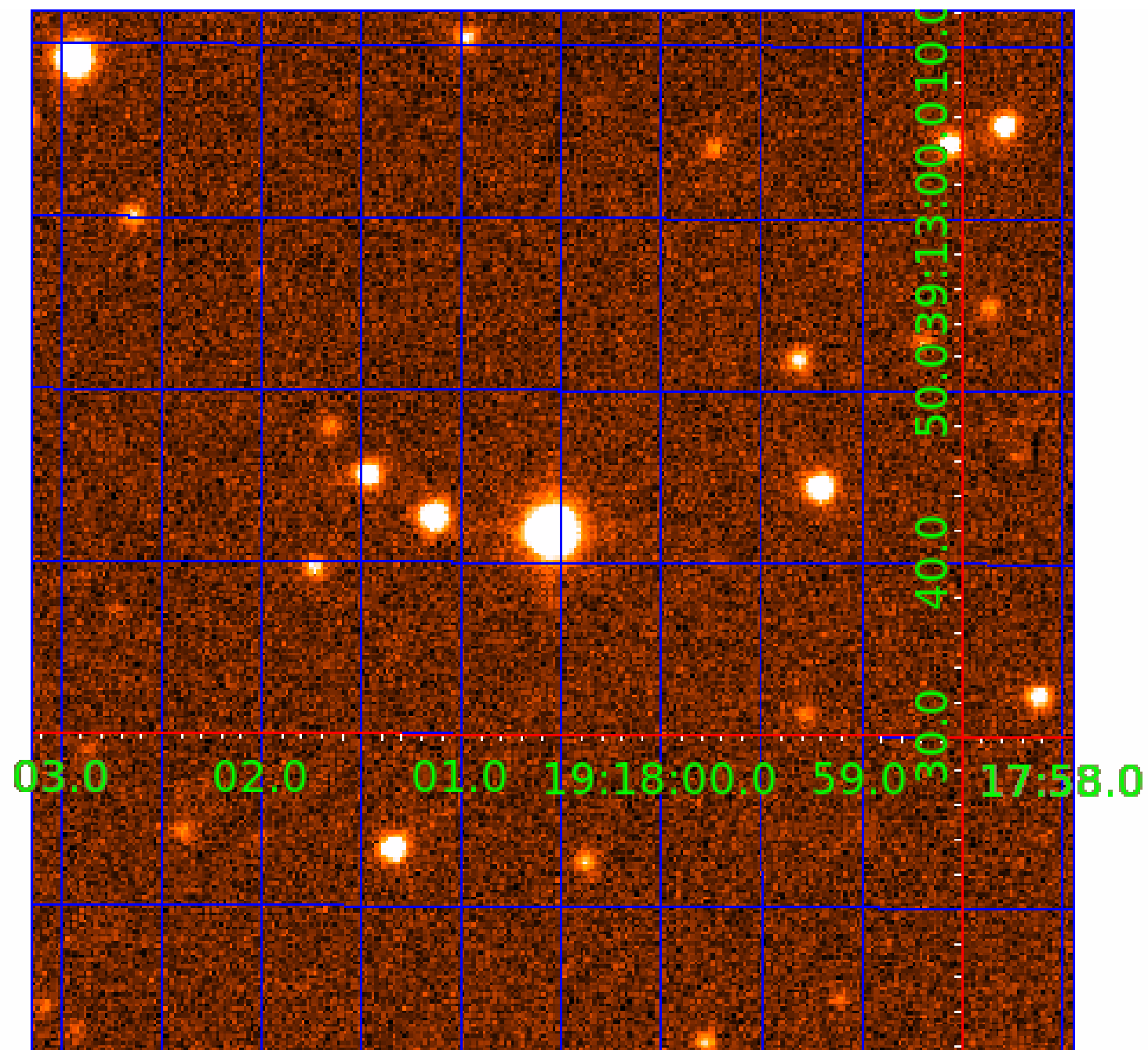


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004149684

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})
004149684-01	OBS	6388.01	4.320850	132.418394	75433.9	4.255	6209.7	4764.4	1.08	6098	47.97	526.39
004149684-02	OBS	No	4.320836	134.588278	8815.4	3.000	1015.6	-1.0	1.08	6098	10.16	526.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004149684-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004149684-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

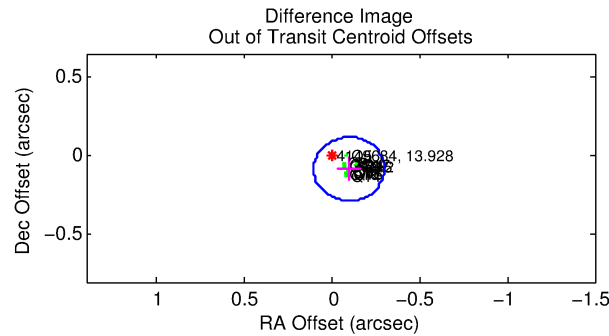
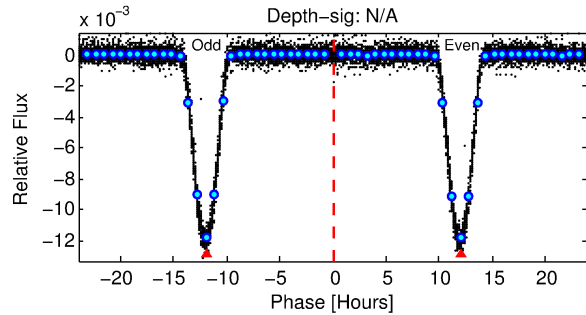
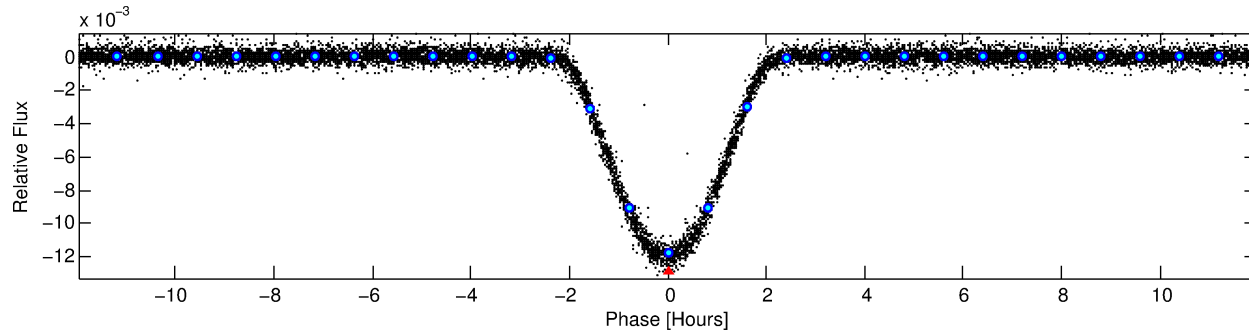
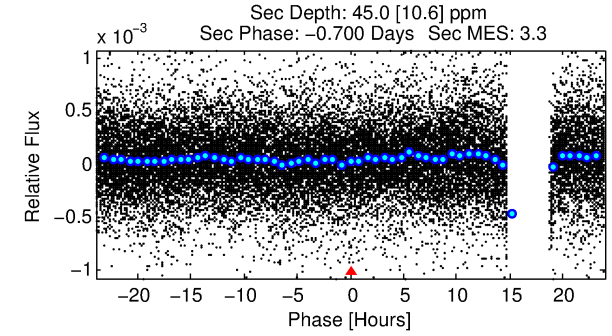
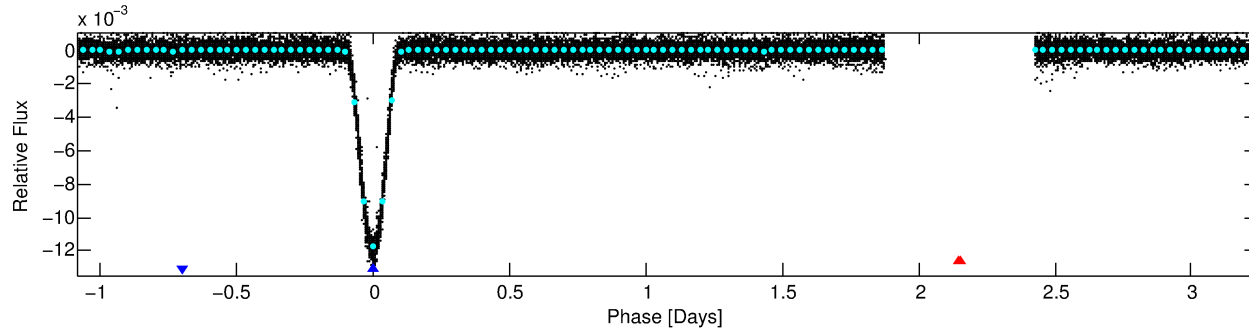
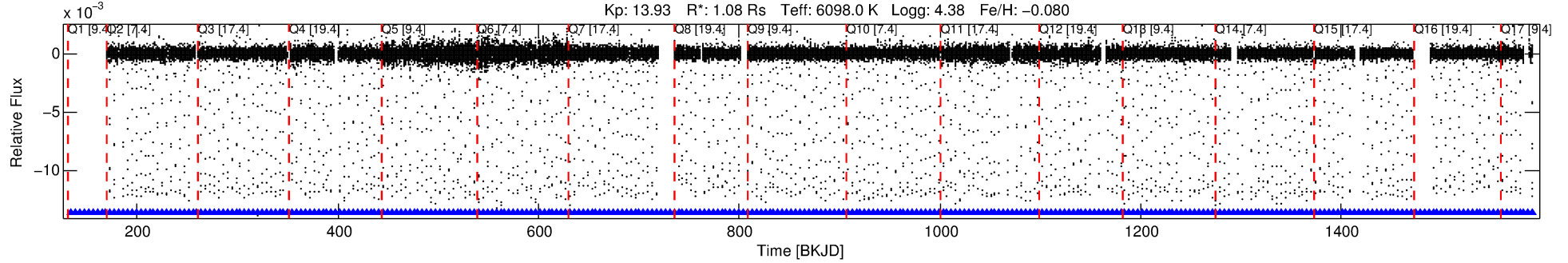
Ephemeris Match Information For 004149684-02

No Significant Match Found

DV One-Page Summary

KIC: 4149684 Candidate: 2 of 2 Period: 4.321 d
KOI: K06388 Corr: No Ephemeris Match

Kp: 13.93 R*: 1.08 Rs Teff: 6098.0 K Logg: 4.38 Fe/H: -0.080



TPS TCE Results:

Period = 4.32084 d
Epoch = 134.5883 BKJD

DV fit results are unavailable

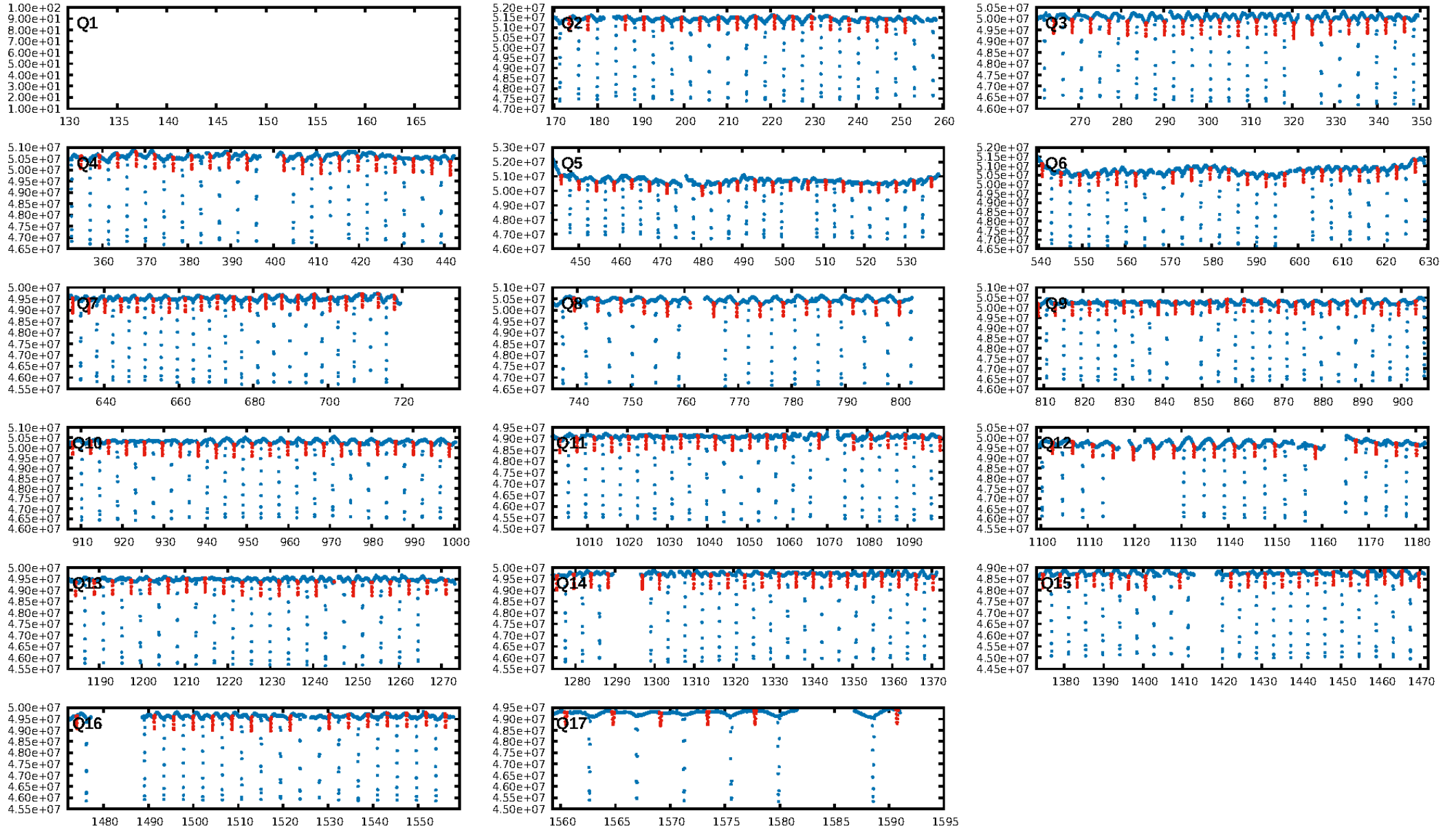
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [294/294]
GhostDiagnostic-chr: 3.454
Centroid-sig: 0.0%
Centroid-so: 0.044 arcsec [6.37σ]
OotOffset-rm: 0.128 arcsec [1.90σ]
KicOffset-rm: 0.074 arcsec [1.10σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

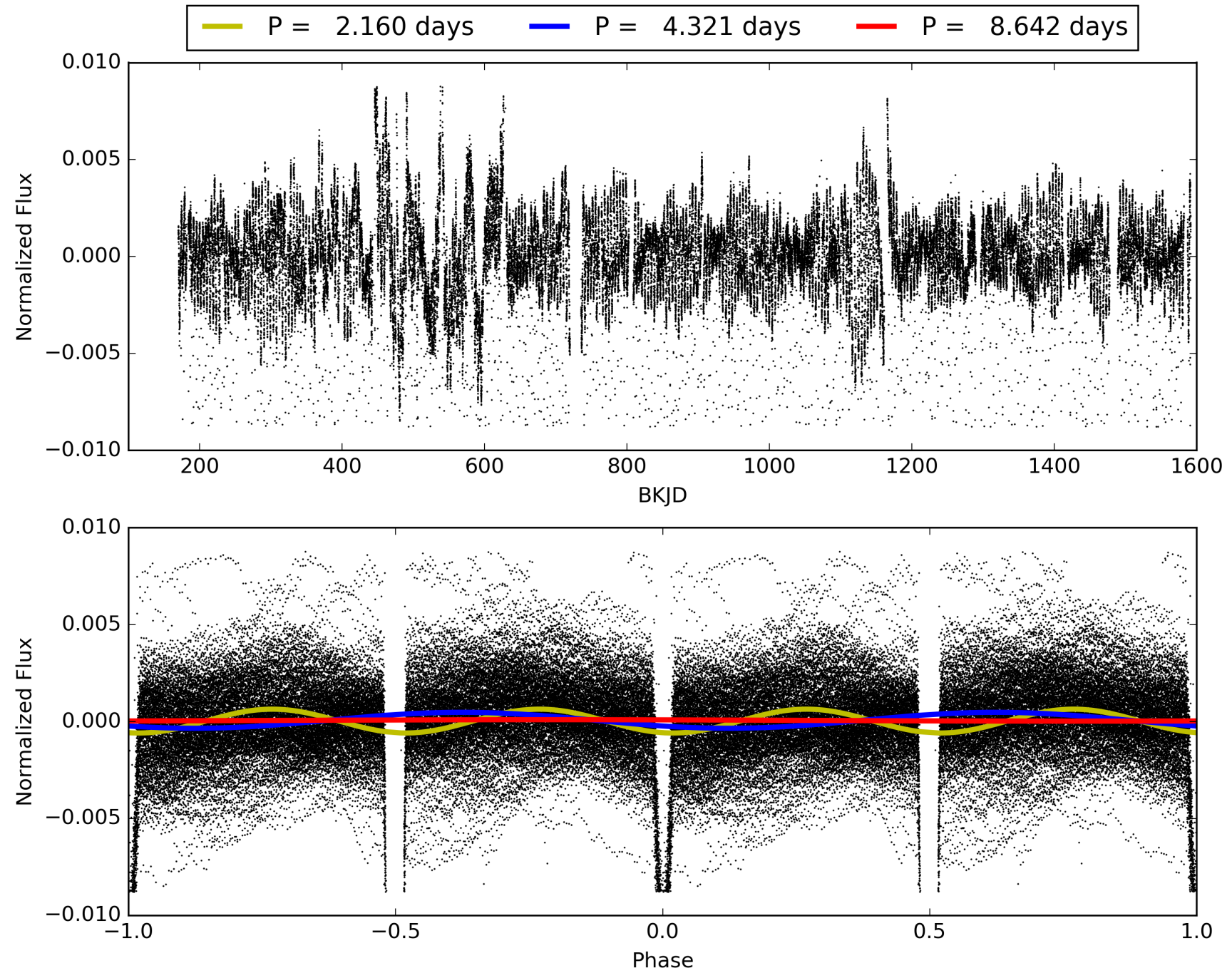
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:08:49 Z

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

TCE 004149684-02, PDC Light Curves

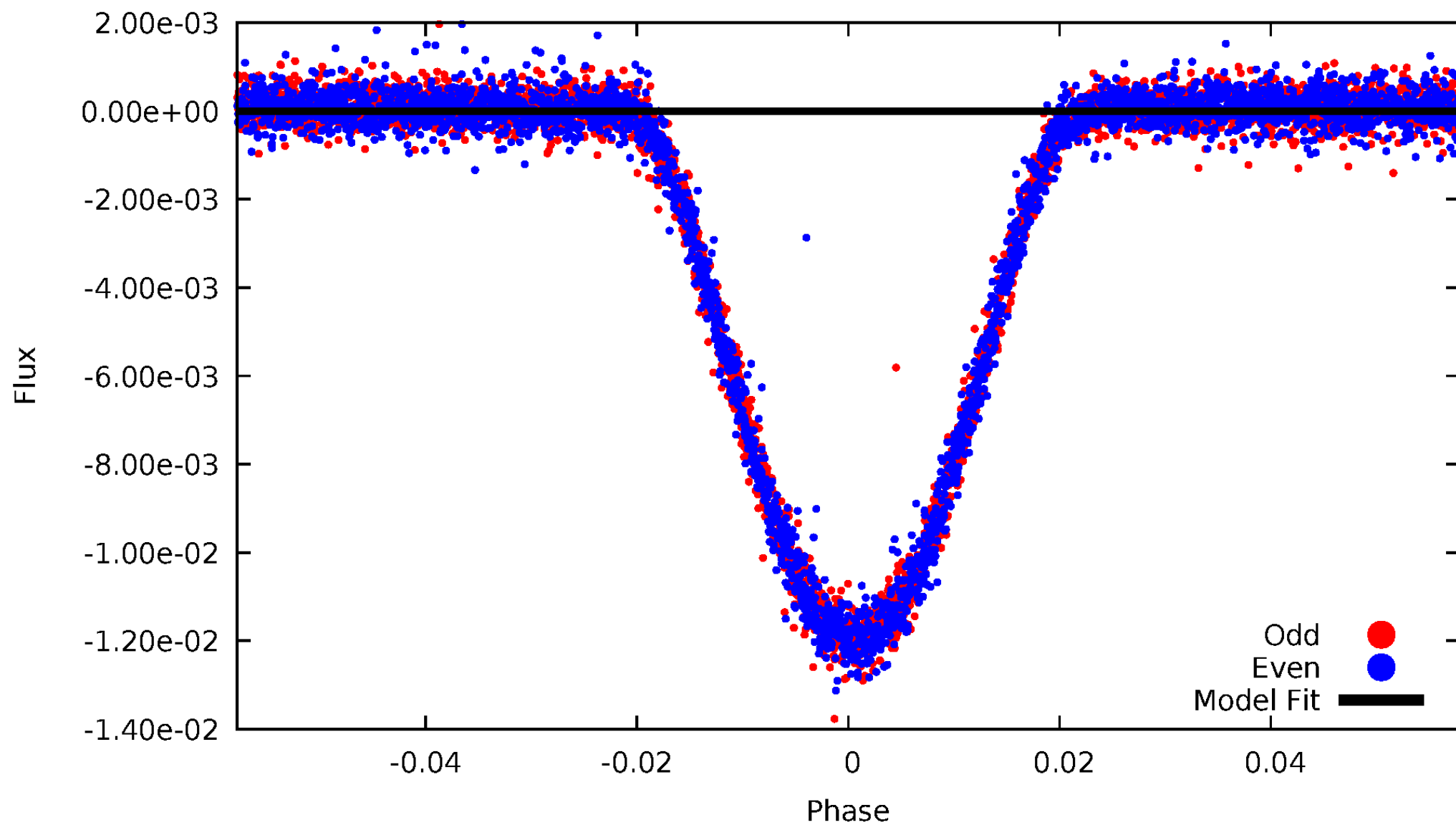


TCE 004149684-02



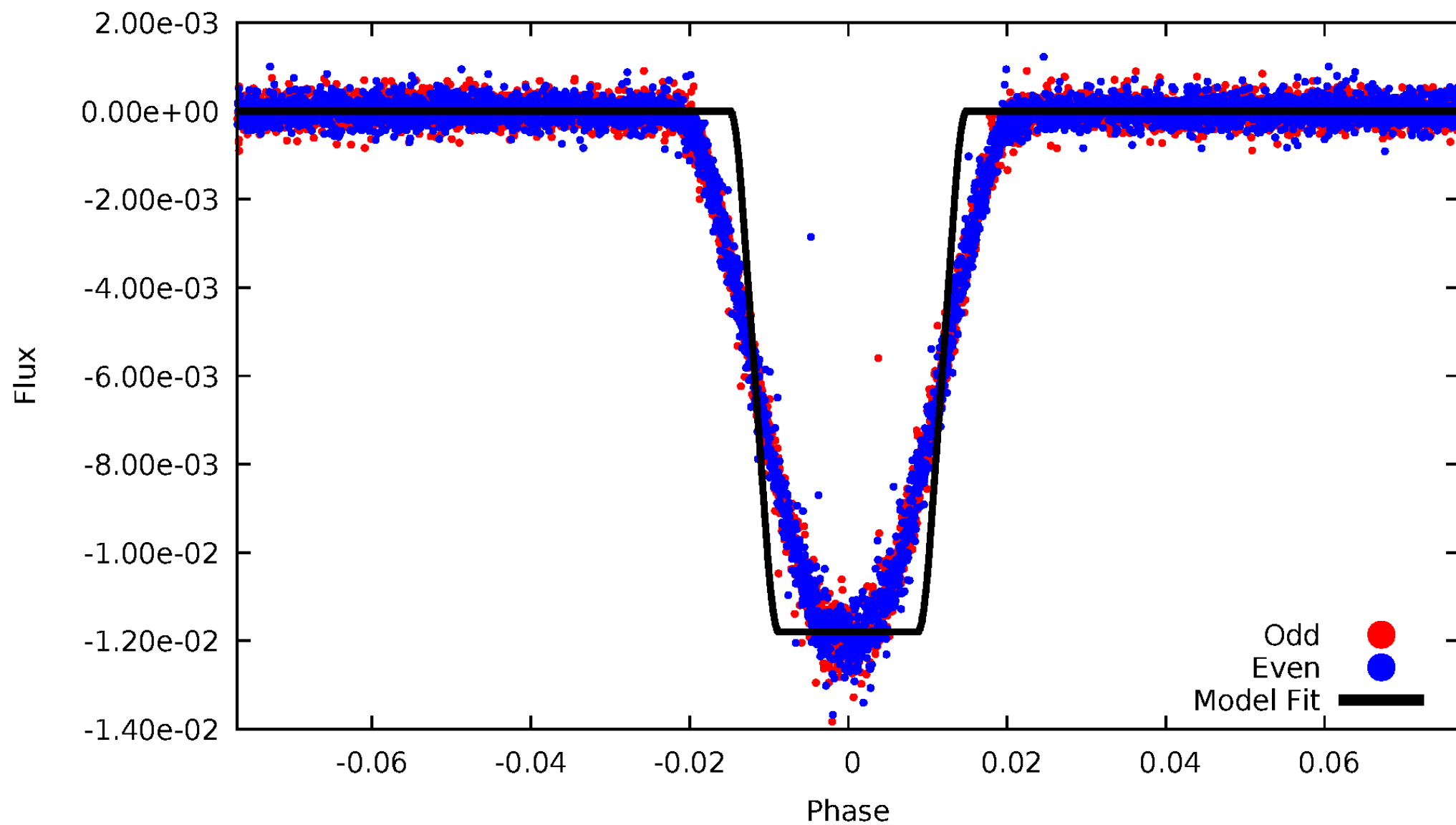
DV Odd/Even

TCE 004149684-02



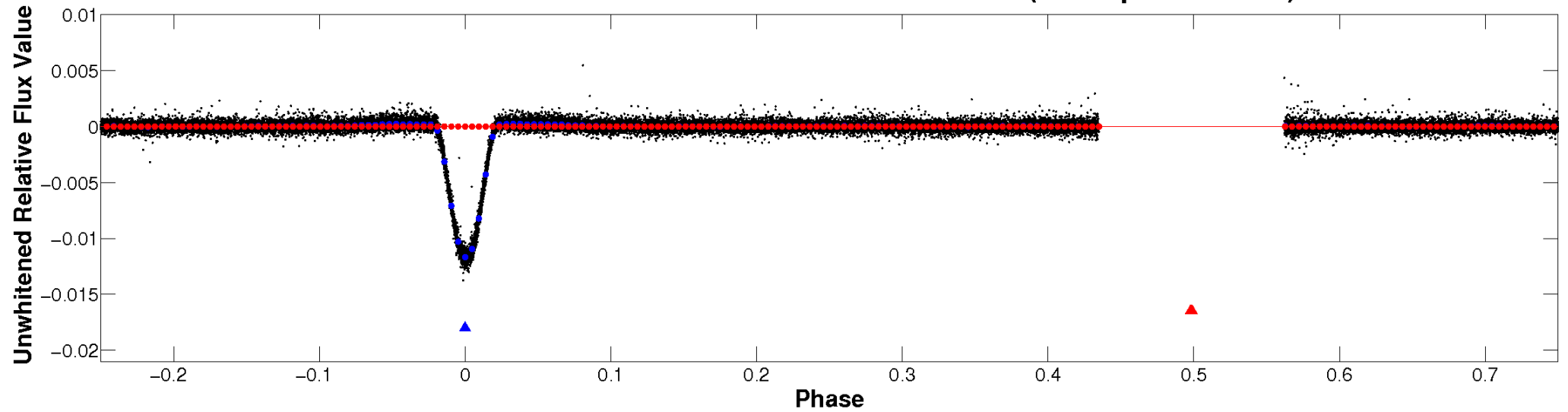
ALT Odd/Even

TCE 004149684-02



Non-Whitened Vs. Whitened Light Curve

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

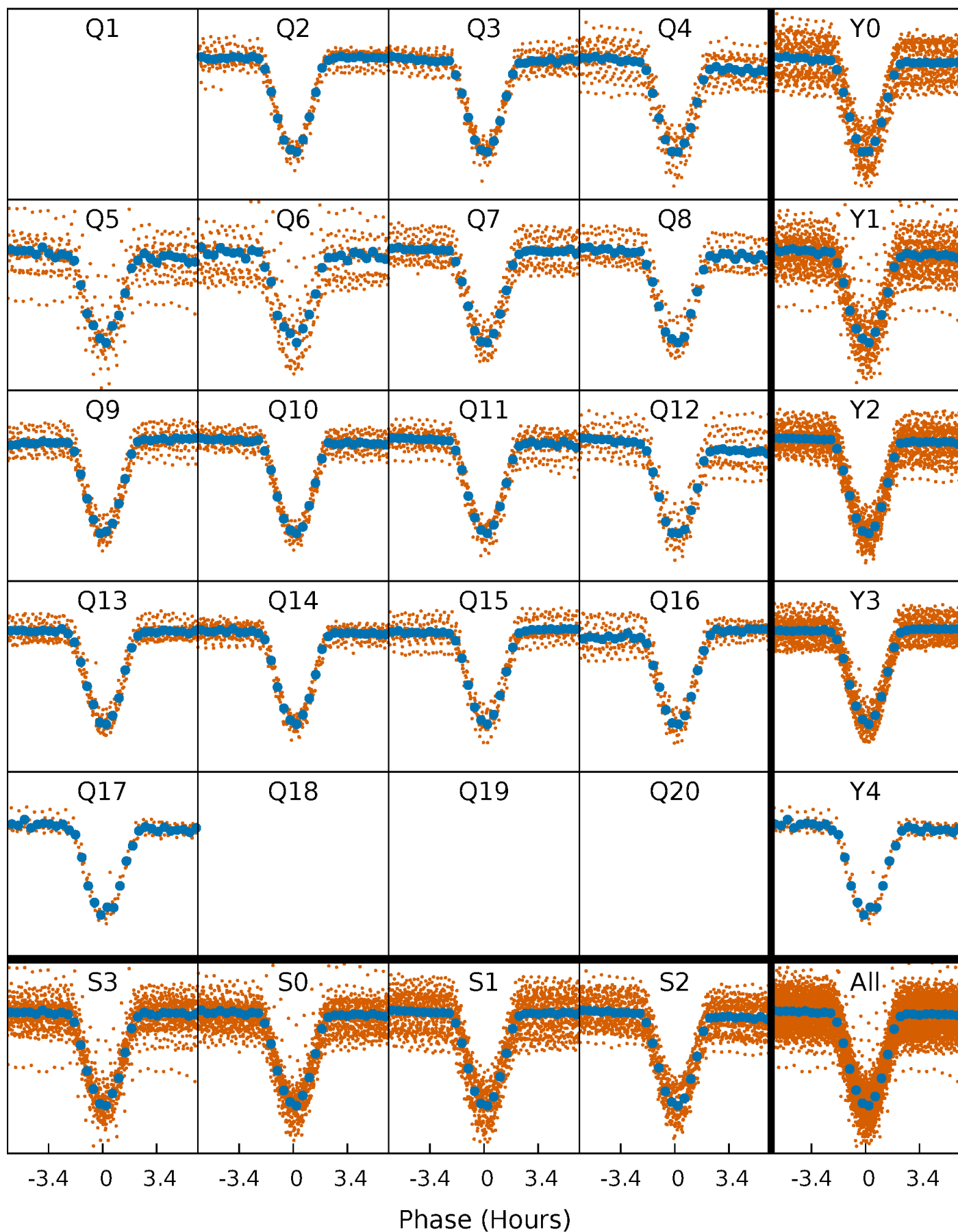


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



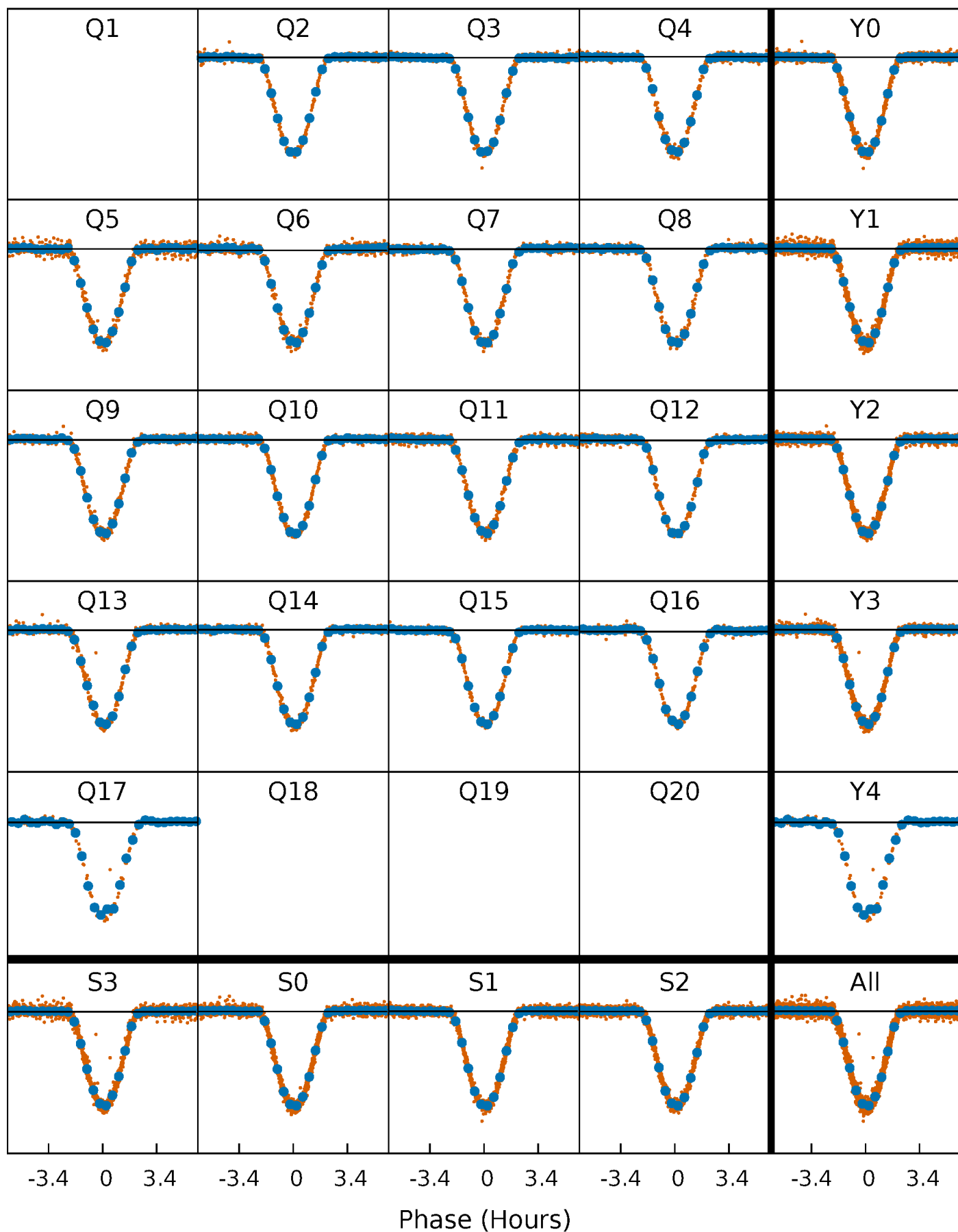
PDC Quarter-Phased Transit Curves

TCE 004149684-02 P= 4.320836 Days $T_0=134.588278$ (BKJD)



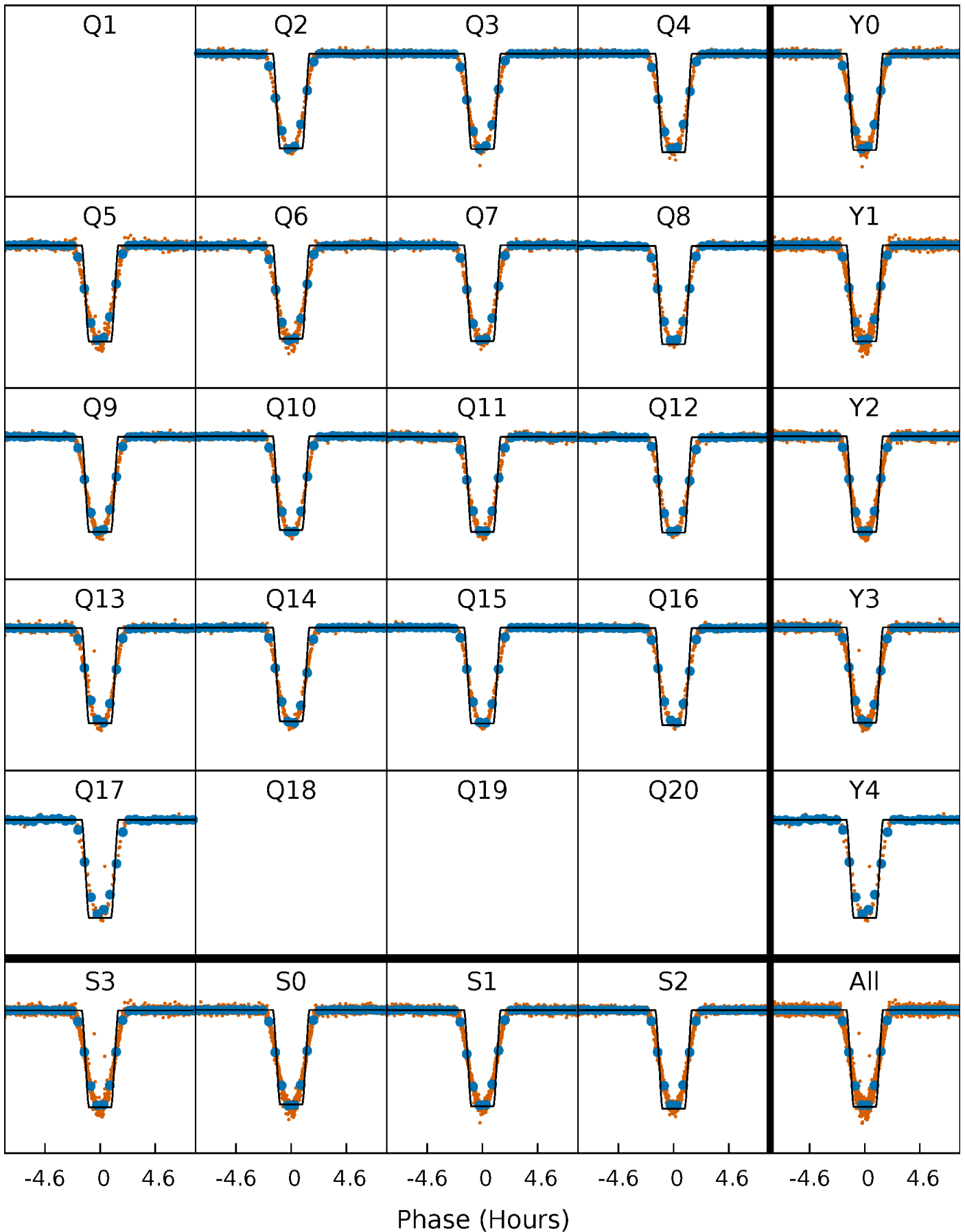
DV Quarter-Phased Transit Curves

TCE 004149684-02 P= 4.320836 Days $T_0=134.588278$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

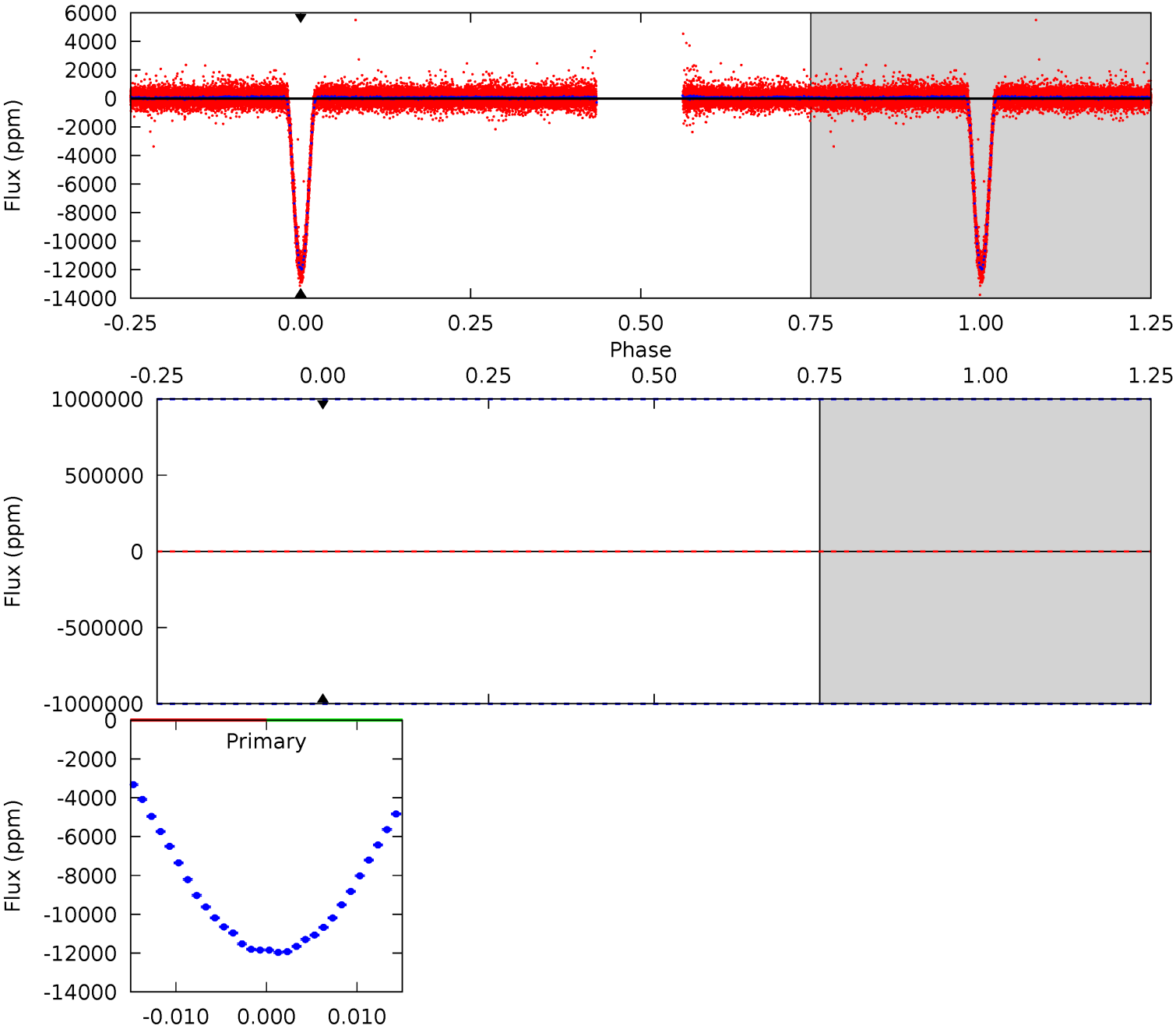
TCE 004149684-02 P= 4.320836 Days $T_0=134.591420$ (BKJD)



DV Model-Shift Uniqueness Test

004149684-02, P = 4.320836 Days, E = 134.588278 Days

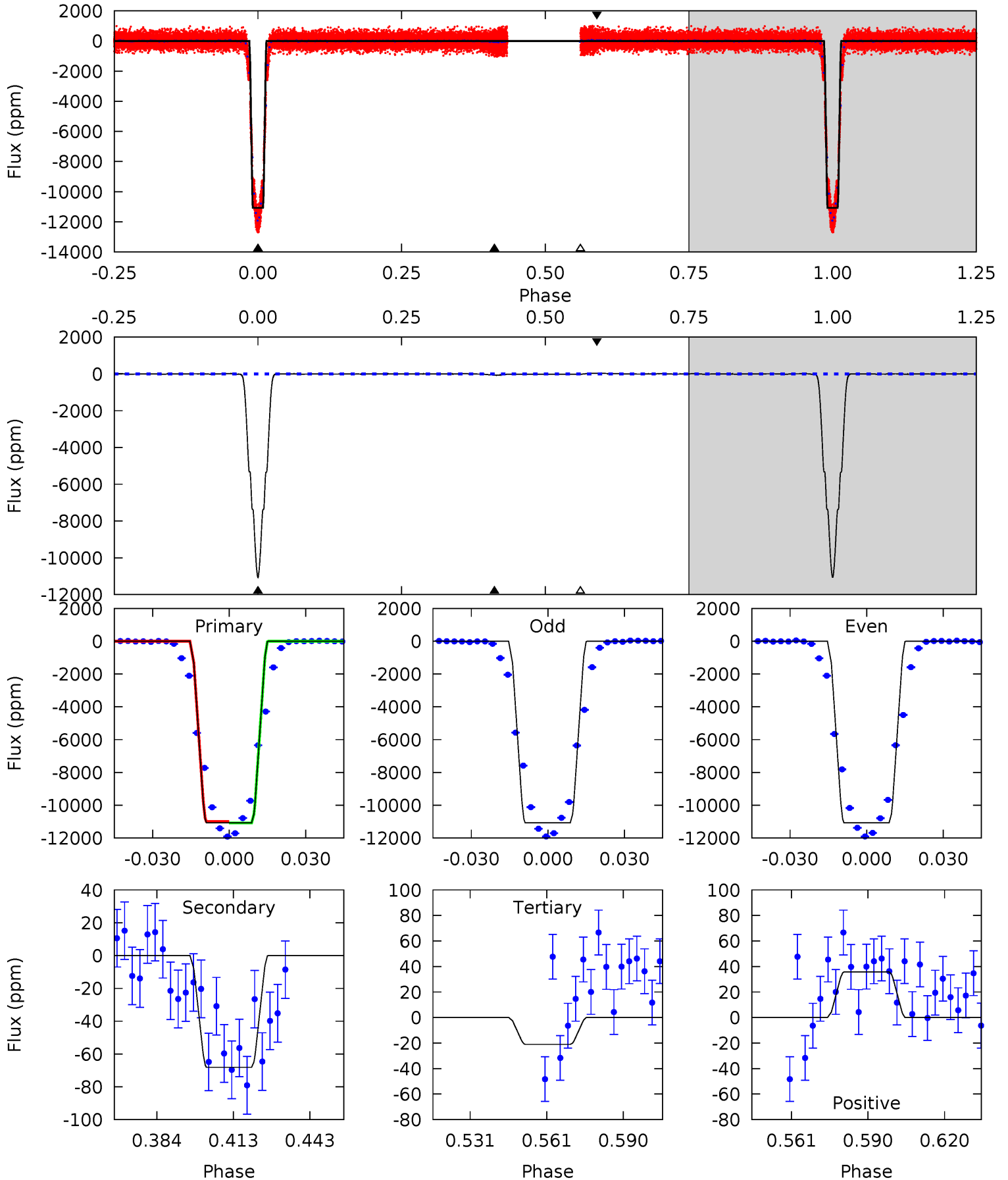
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004149684-02, P = 4.320836 Days, E = 134.591420 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1694	10.4	3.22	5.47	4.81	2.18	1.48	1691	1688	7.20	4.95	0.06	1.00	0.00	6.08



Stellar Parameters For KIC 004149684

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6098^{+193}_{-236}	$4.384^{+0.090}_{-0.210}$	$-0.080^{+0.250}_{-0.300}$	$1.083^{+0.350}_{-0.150}$	$1.034^{+0.166}_{-0.120}$	$1.147^{+0.537}_{-0.583}$
	+3%/-4%	+2%/-5%	+312%/-375%	+32%/-14%	+16%/-12%	+47%/-51%
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 004149684-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$12.81^{+11.54}_{-7.83}$	1725^{+138}_{-99}	-3598^{+18483}_{-11425}	$-8.175^{+1311.927}_{-1292.923}$
Alt.	-68 ± 7	$15.77^{+11.50}_{-9.85}$	1733^{+139}_{-96}	2103^{+1010}_{-4286}	$0.421^{+2.725}_{-0.288}$

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 $A_{obs} \gg 1.0$

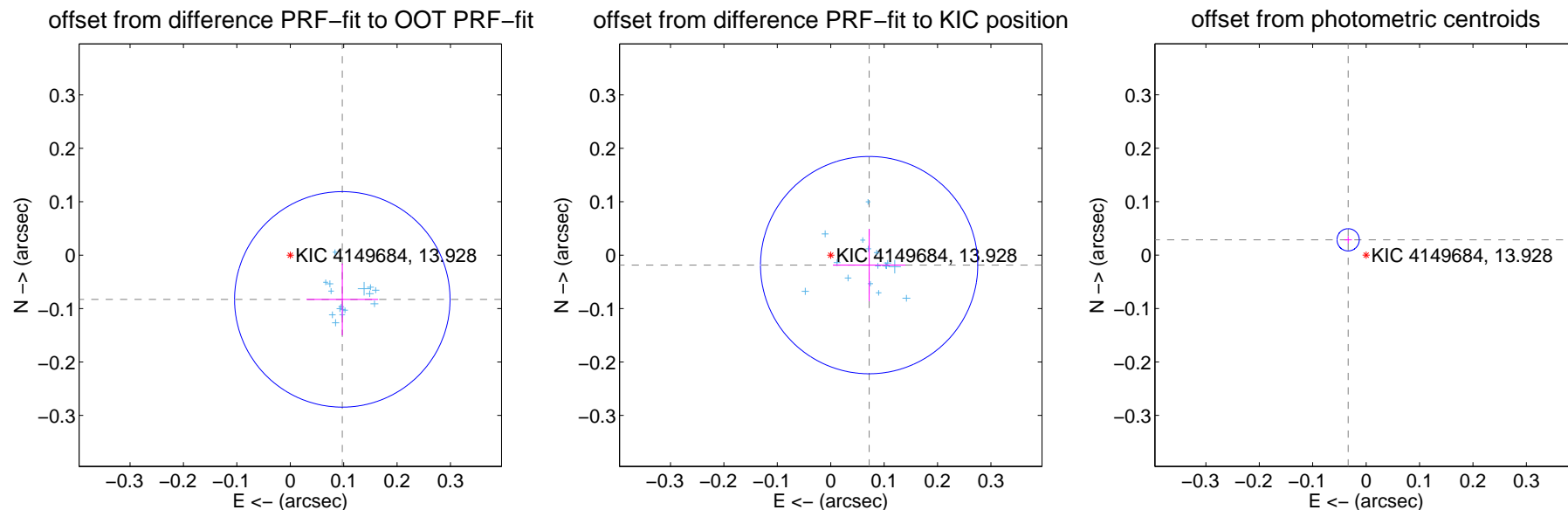
DV Centroid Data

Supplemental centroid analysis for 004149684-02. Kepler magnitude: 13.93. Transit SNR -1.00

There are 16 quarters with good PRF difference image offsets

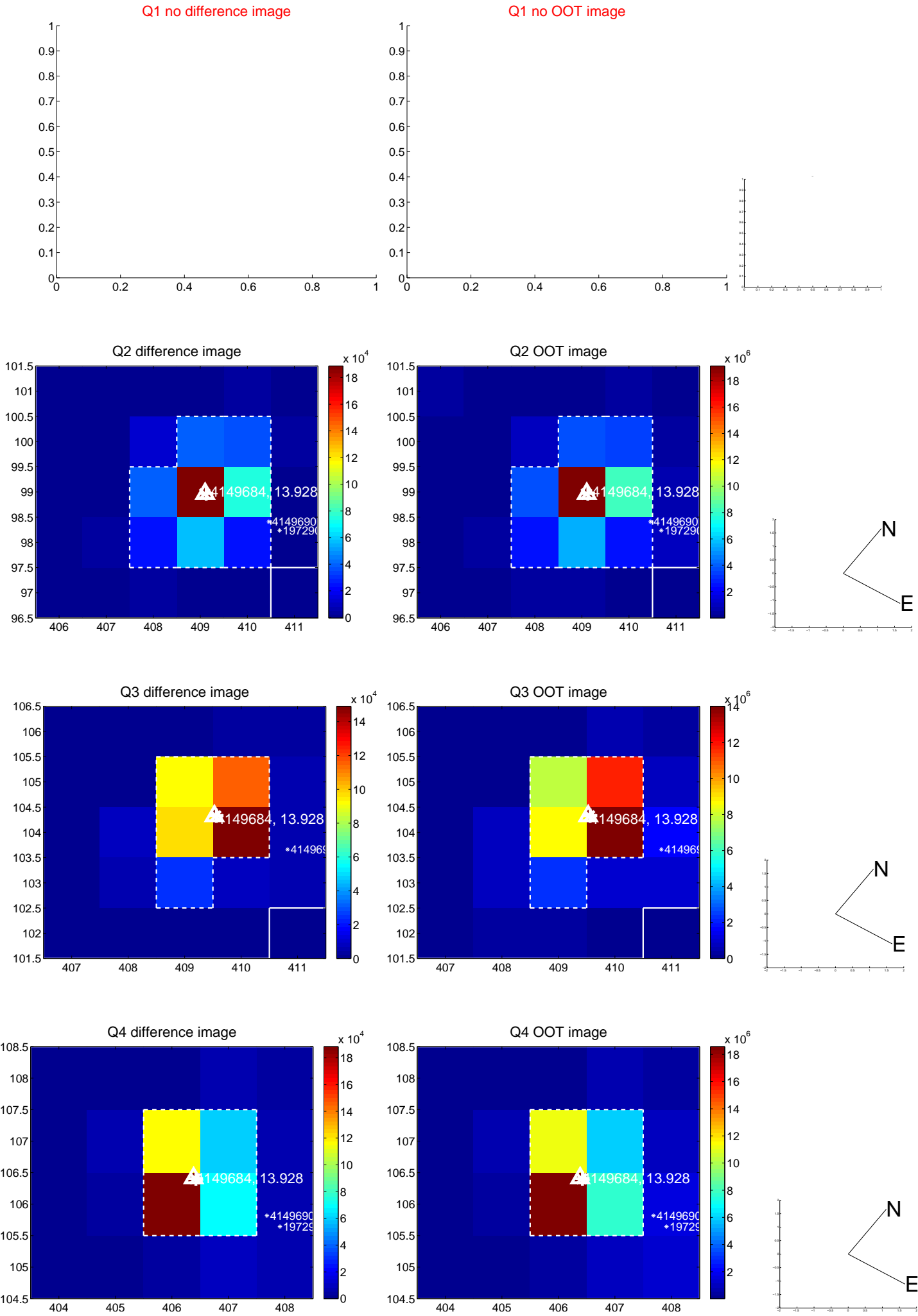
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.128 ± 0.067	1.90	-0.097 ± 0.067	-0.083 ± 0.067
PRF-fit source offset from KIC position	0.074 ± 0.068	1.10	-0.072 ± 0.068	-0.019 ± 0.067
photometric centroid source offset	0.04 ± 0.01	6.37	0.03 ± 0.01	0.03 ± 0.01

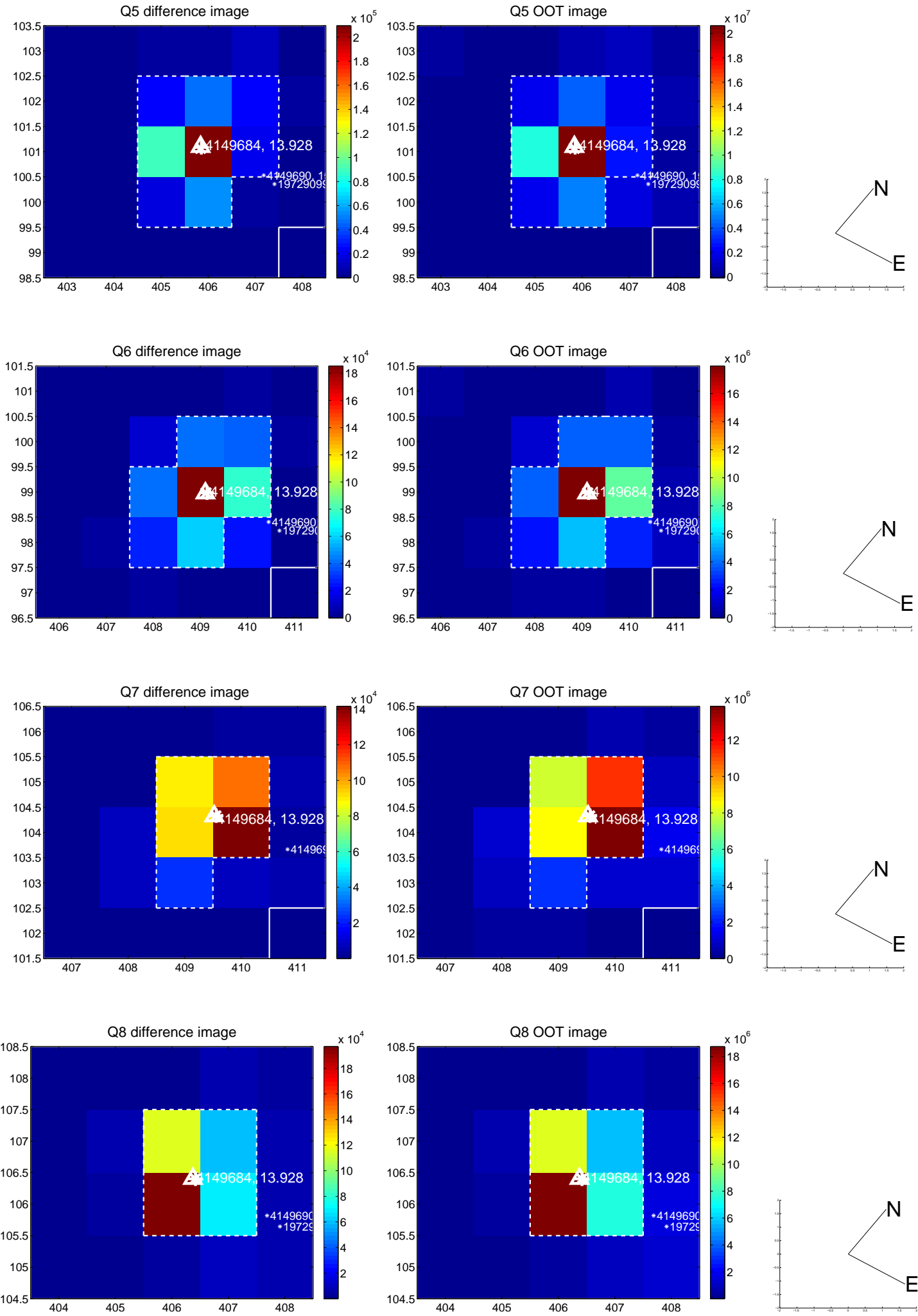


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

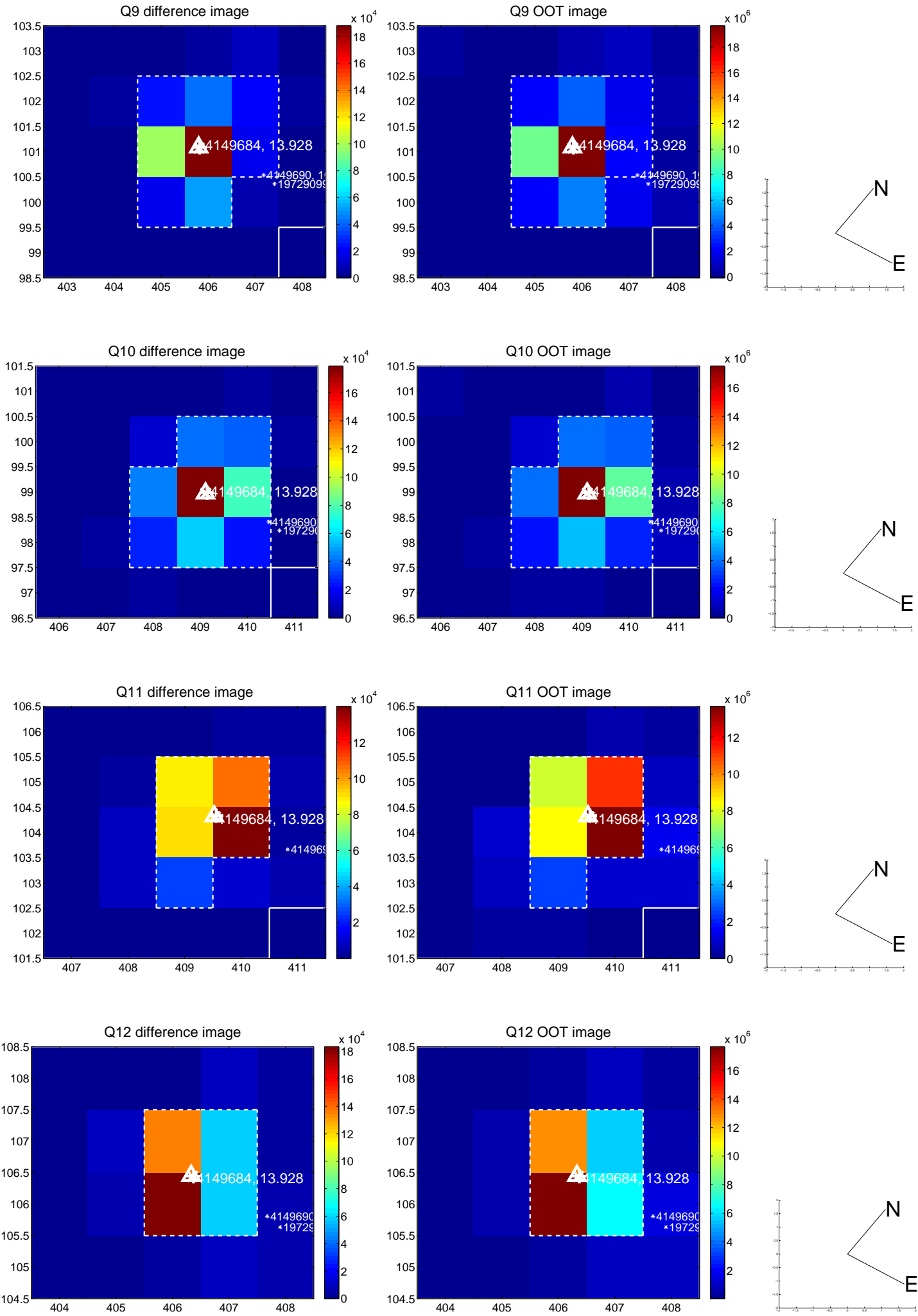
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



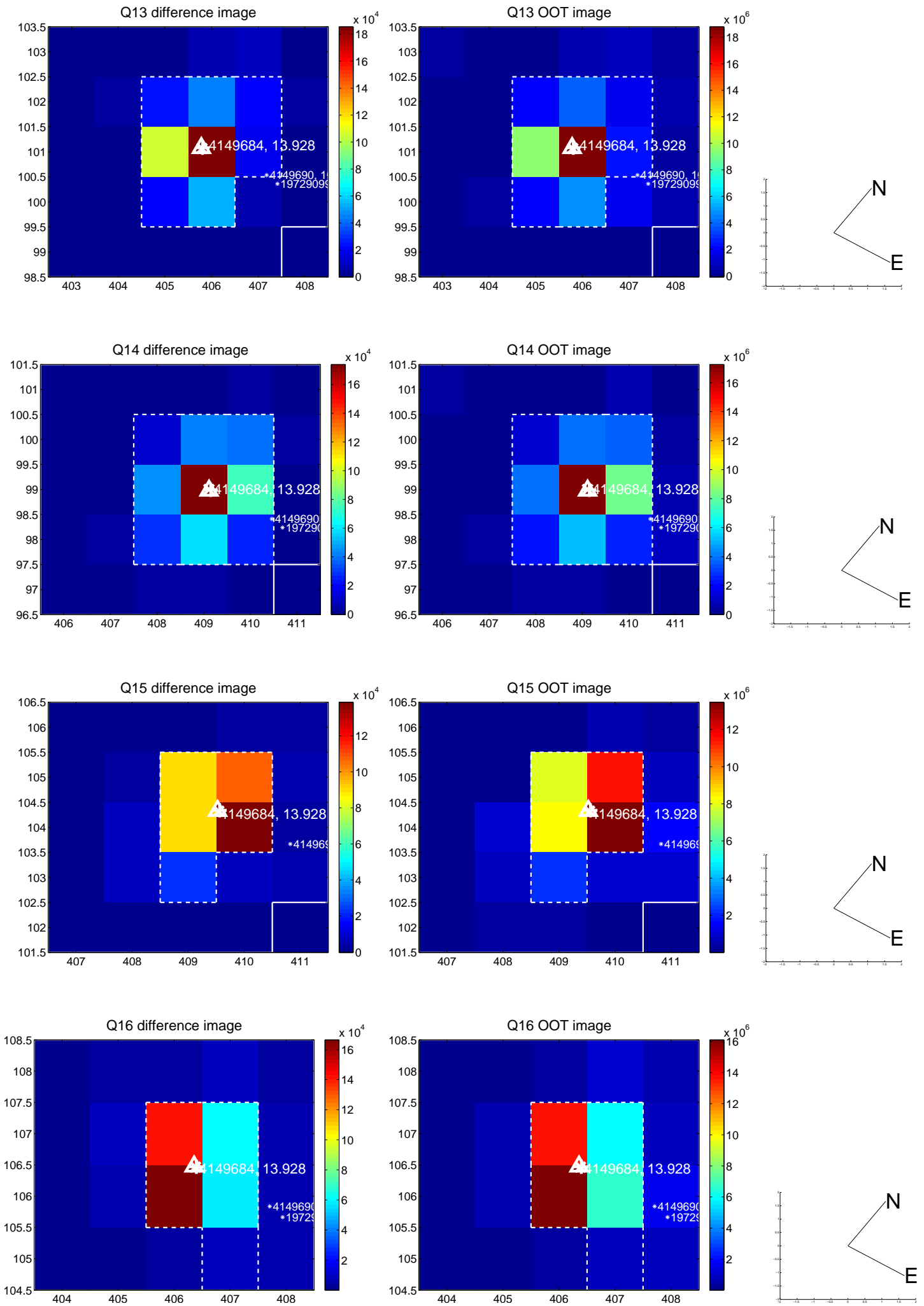
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



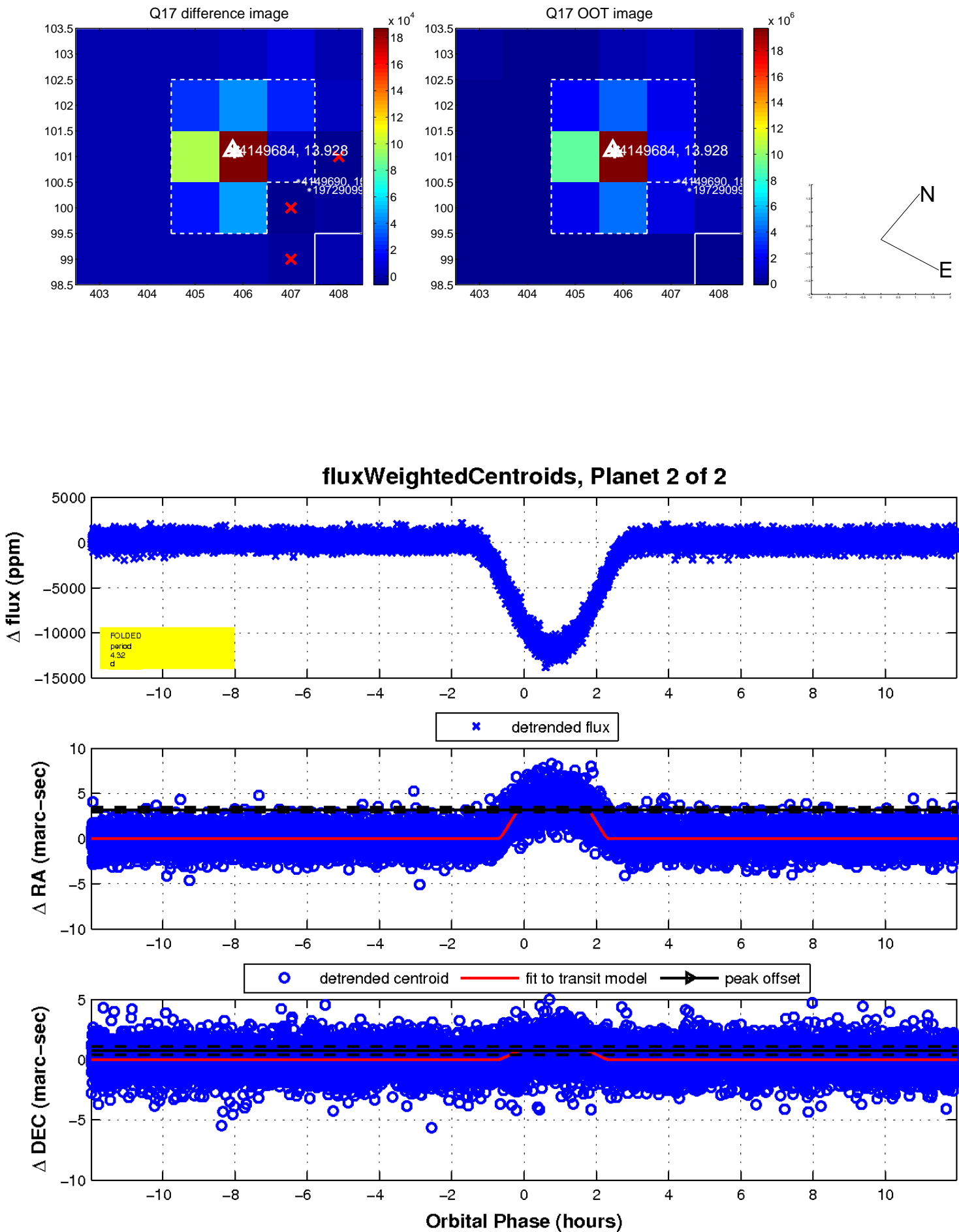
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

