

KIC 006698670

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})
006698670-01	OBS	6760.01	10.815890	139.793616	45520.3	4.759	6393.0	5852.4	1.51	6269	32.60	329.01
006698670-02	OBS	No	10.815896	135.422438	870.4	4.779	126.0	124.6	1.51	6269	5.12	329.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006698670-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
006698670-02	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.

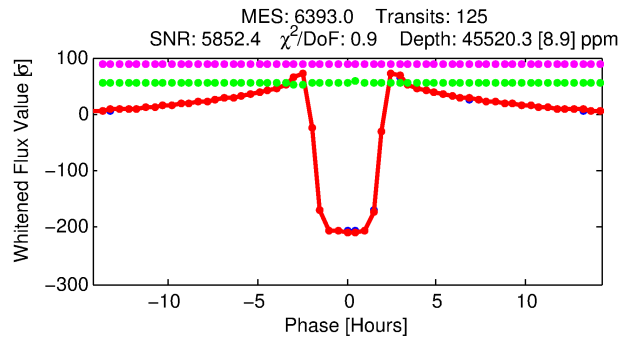
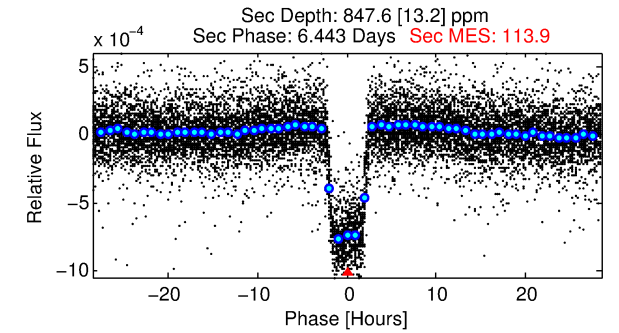
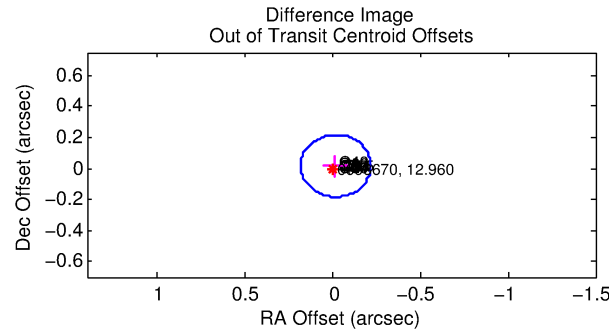
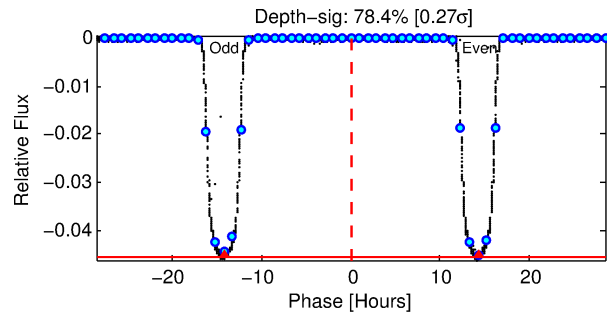
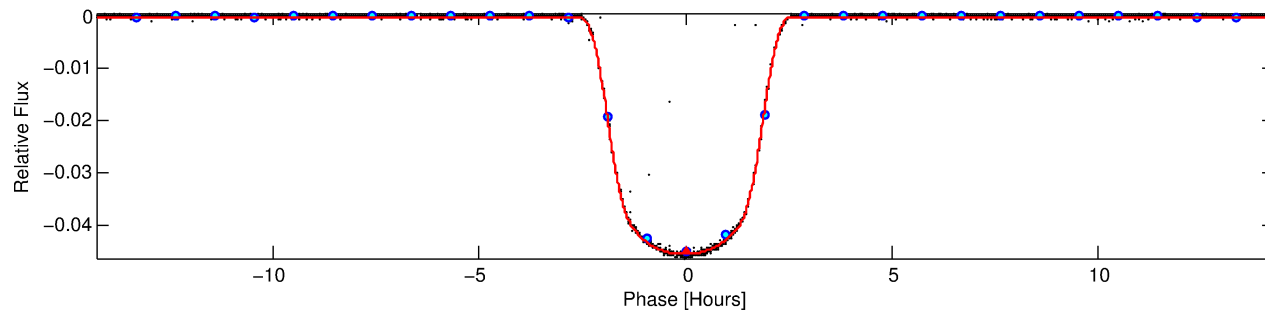
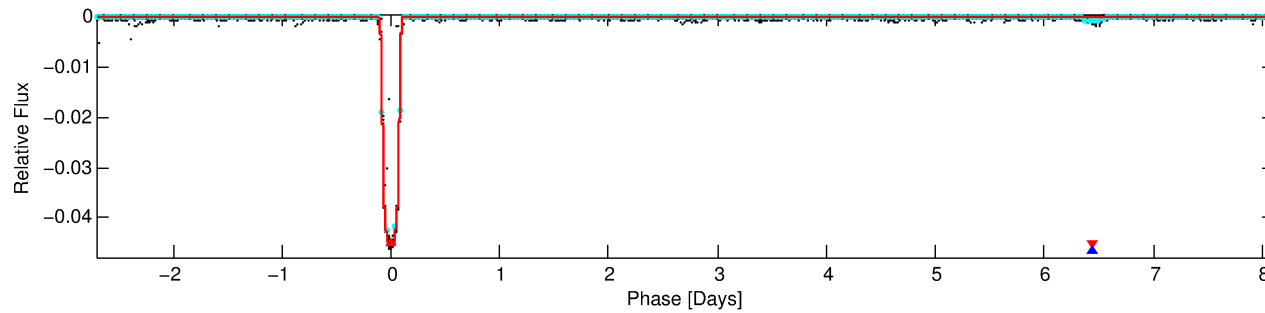
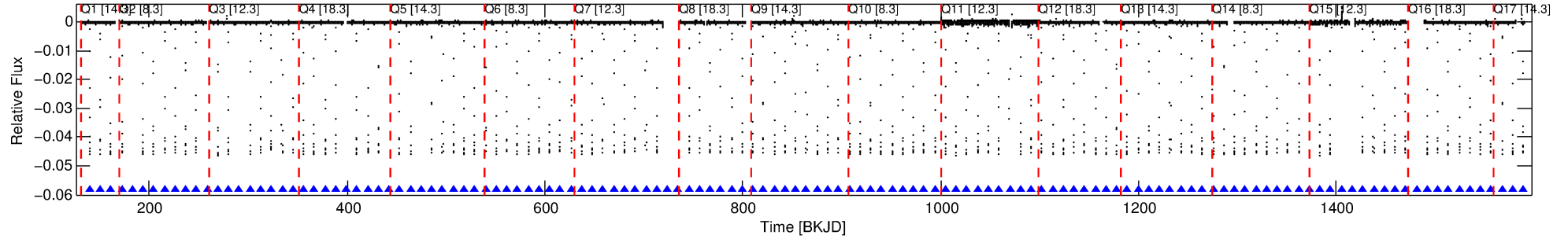
Ephemeris Match Information For 006698670-01

No Significant Match Found

DV One-Page Summary

KIC: 6698670 Candidate: 1 of 2 Period: 10.816 d
KOI: K06760.01 Corr: 0.998

Kp: 12.96 R*: 1.51 Rs Teff: 6269.0 K Logg: 4.11 Fe/H: -0.280



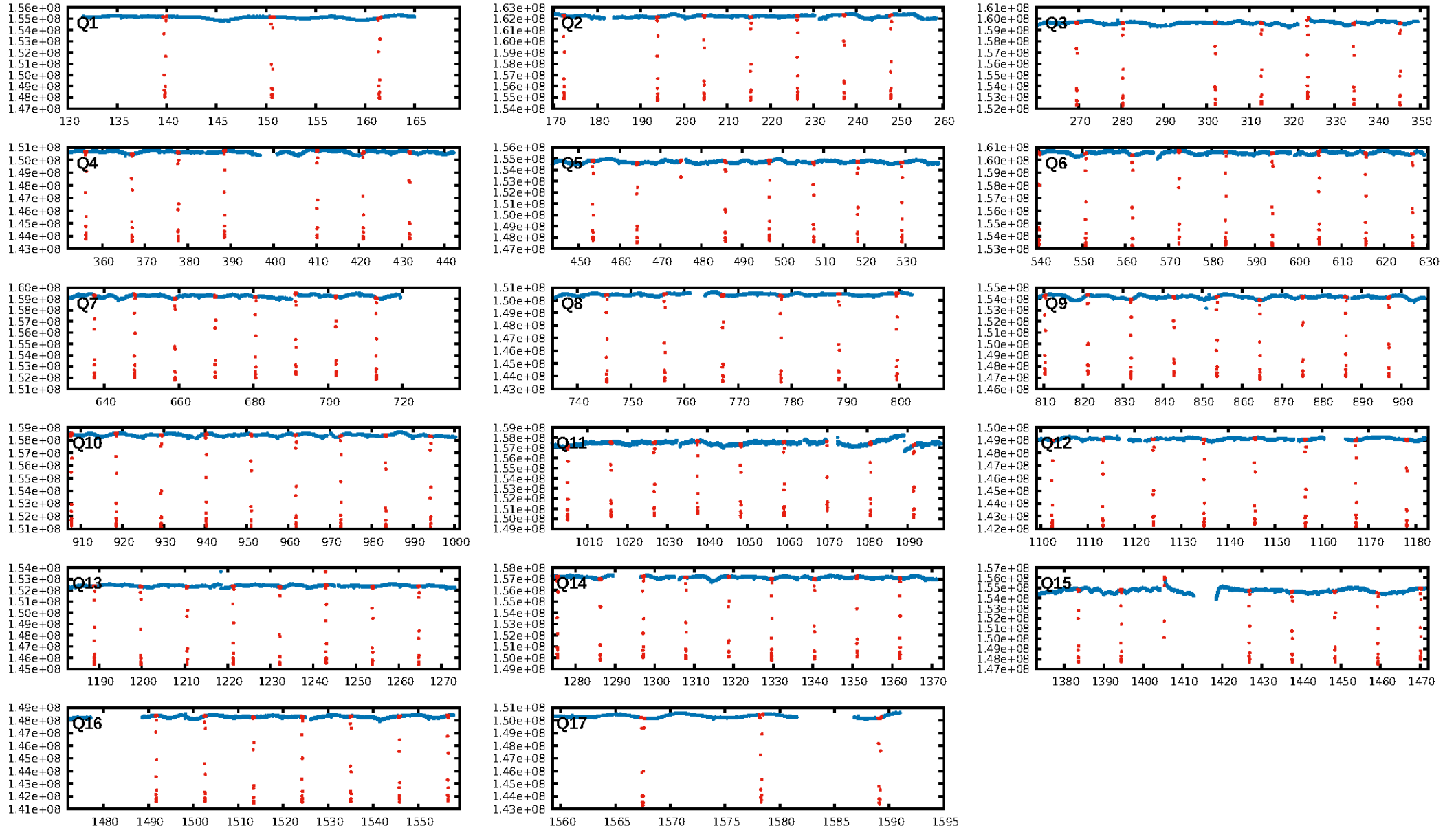
DV Fit Results:

Period = 10.81589 [0.00000] d
Epoch = 139.7936 [0.0000] BKJD
Rp/R* = 0.1981 [0.0000]
a/R* = 20.23 [0.01]
b = 0.28 [0.00]
Seff = 329.01 [133.23]
Teq = 1086 [110] K
Rp = 32.60 [8.43] Re
a = 0.0978 [0.0240] AU
Ag = 4.20 [1.64] [1.95σ]
Teffp = 2403 [66] K [10.28σ]

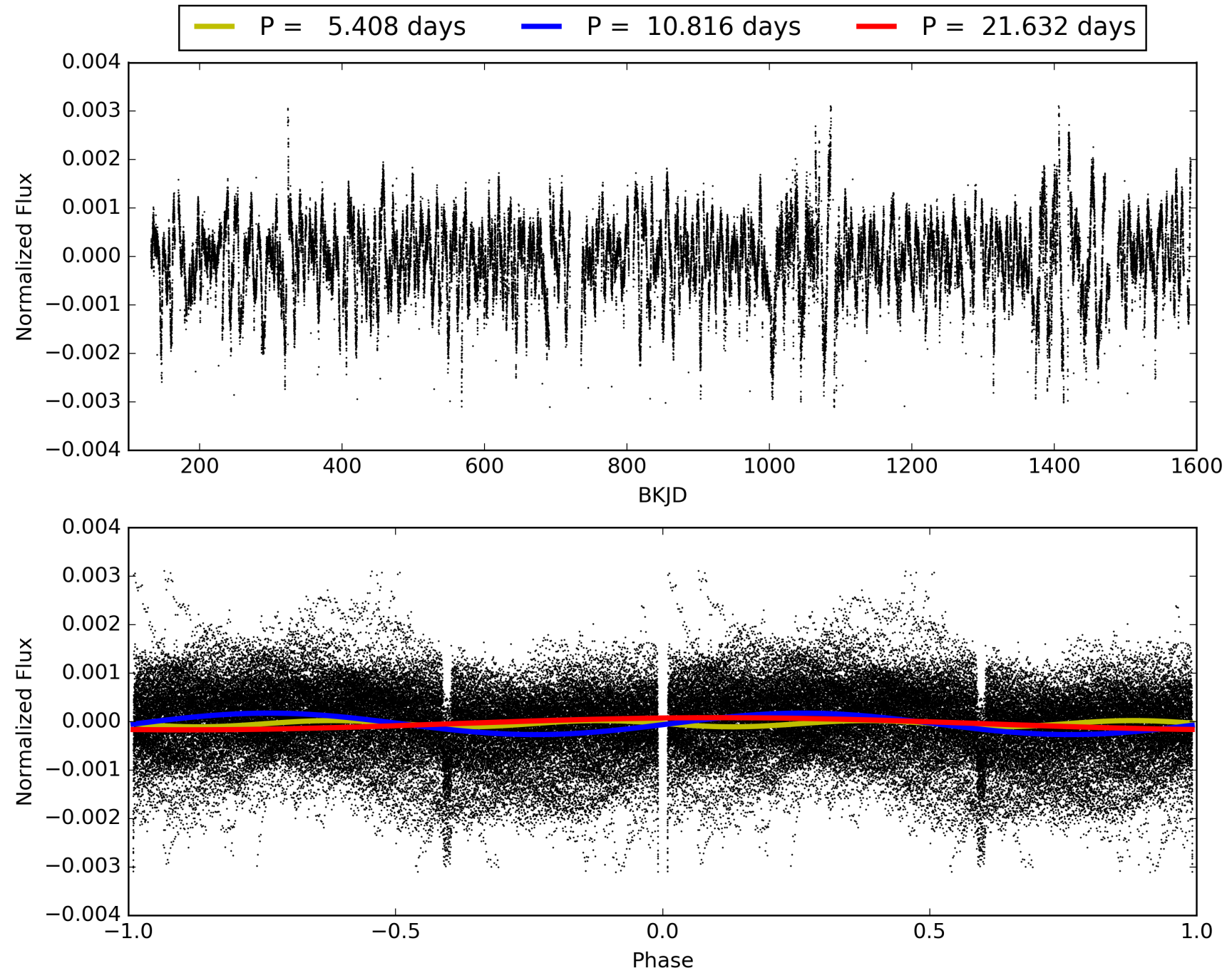
DV Diagnostic Results:

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: 1.00 [119/119]
GhostDiagnostic-chr: 8.602
Centroid-sig: 0.0%
Centroid-so: 0.216 arcsec [198.94σ]
OotOffset-rm: 0.025 arcsec [0.37σ]
KicOffset-rm: 0.125 arcsec [1.87σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006698670-01, PDC Light Curves

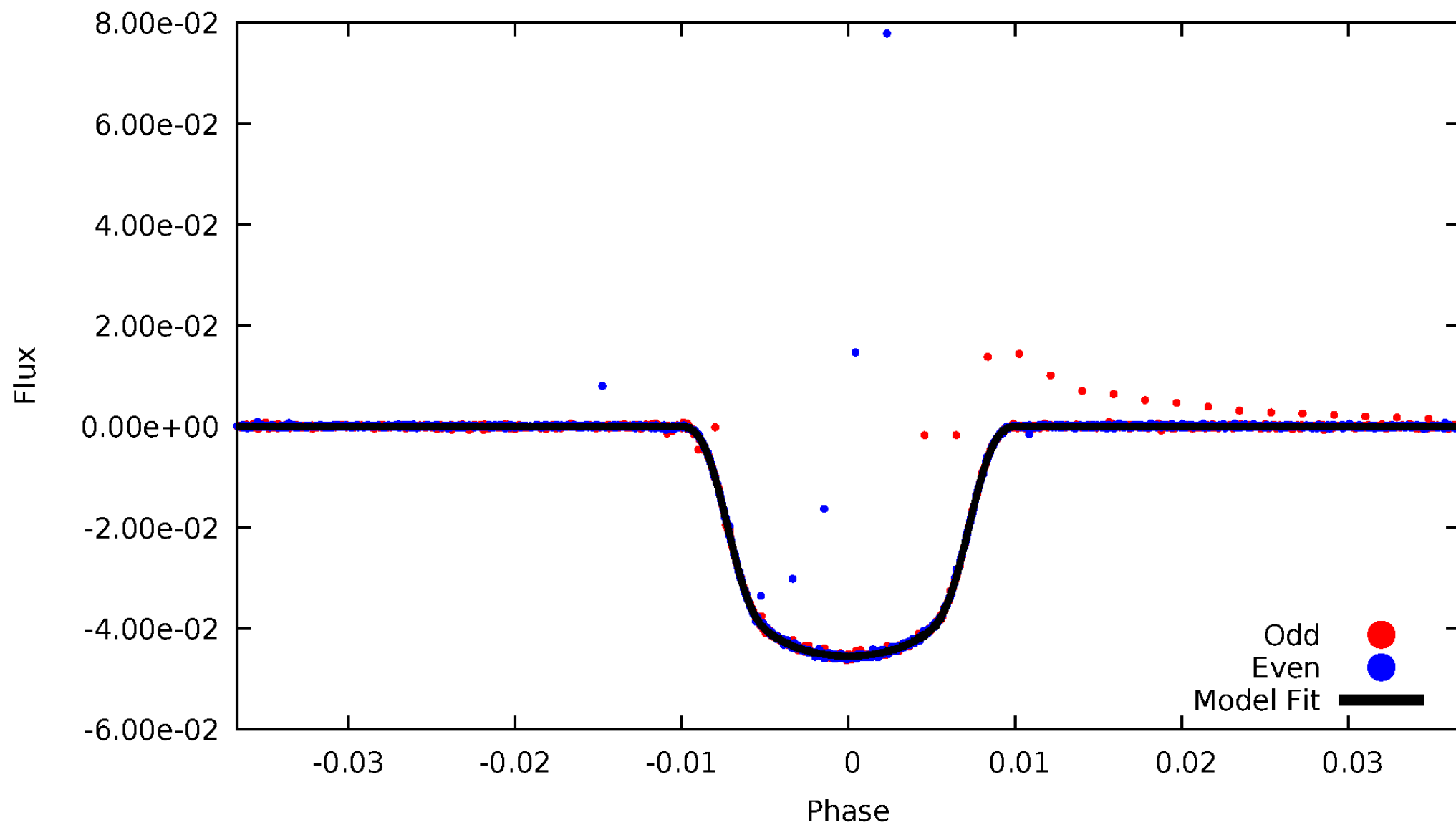


TCE 006698670-01



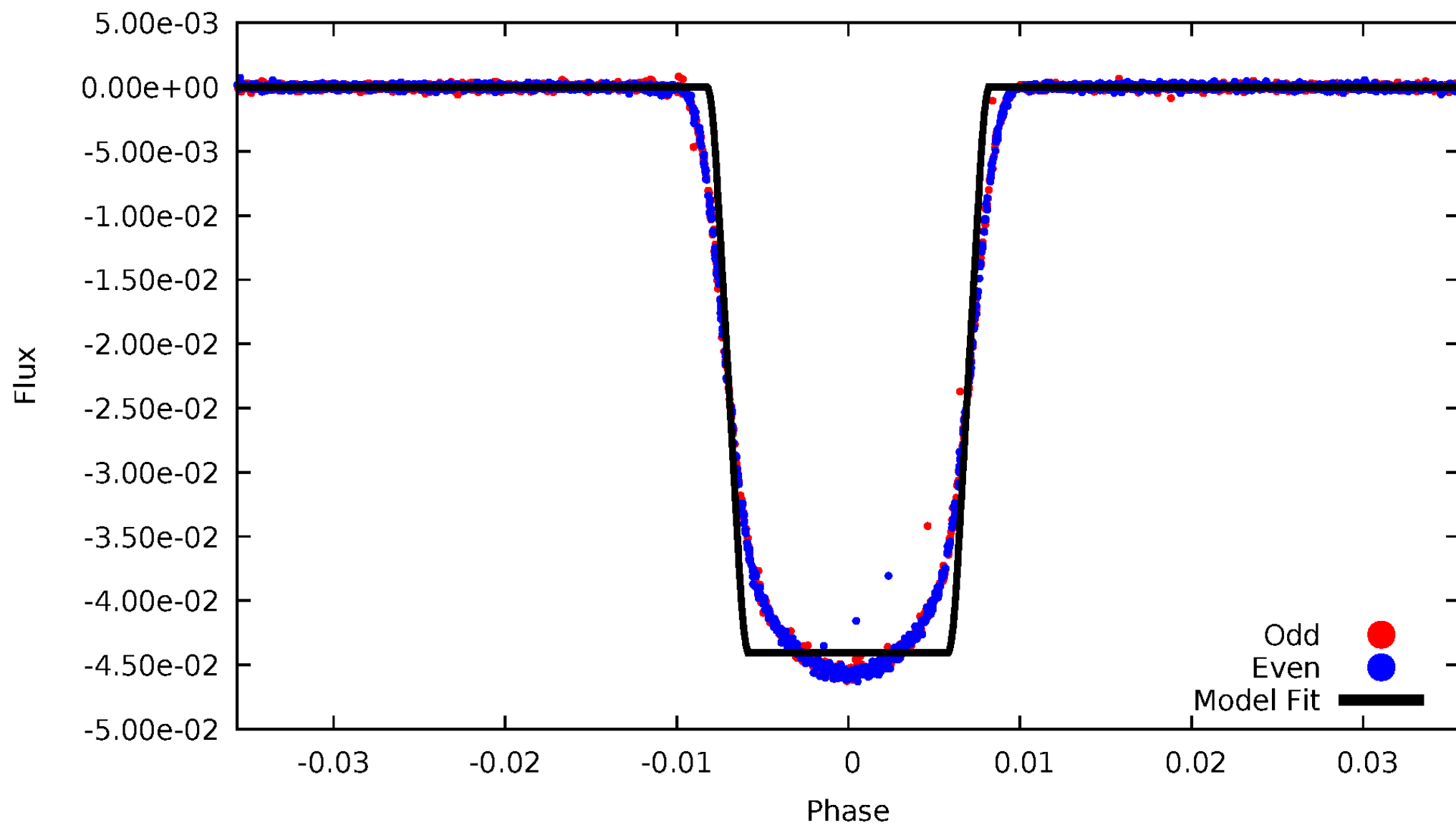
DV Odd/Even

TCE 006698670-01



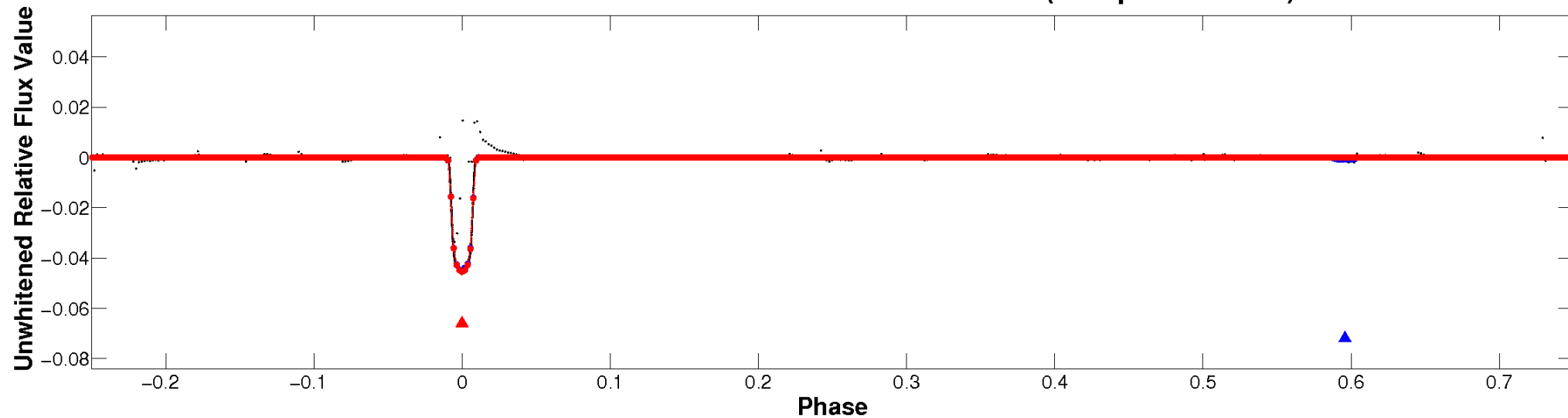
ALT Odd/Even

TCE 006698670-01

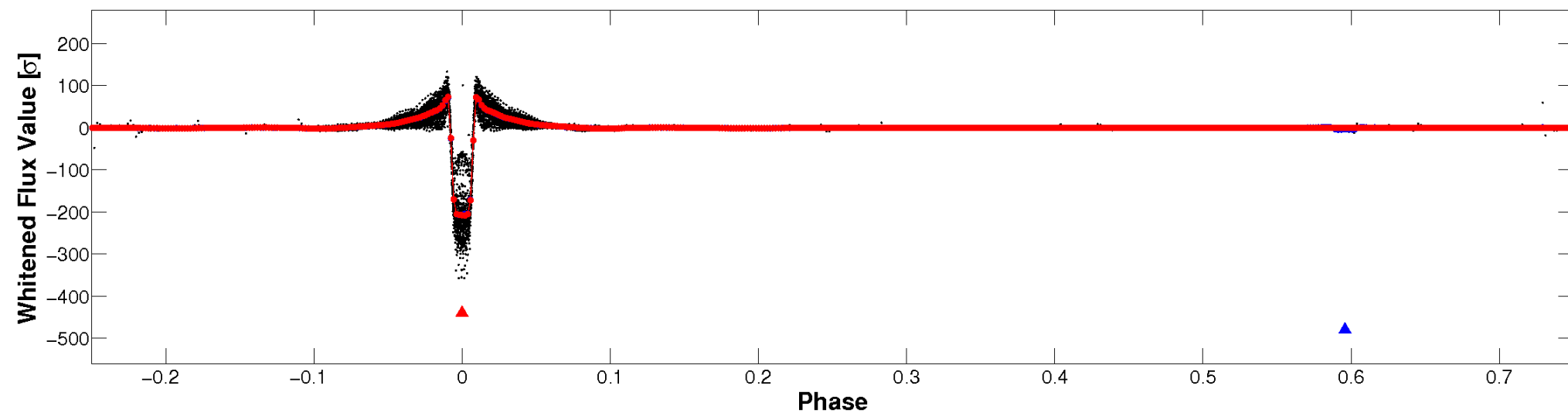


Non-Whitened Vs. Whitened Light Curve

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

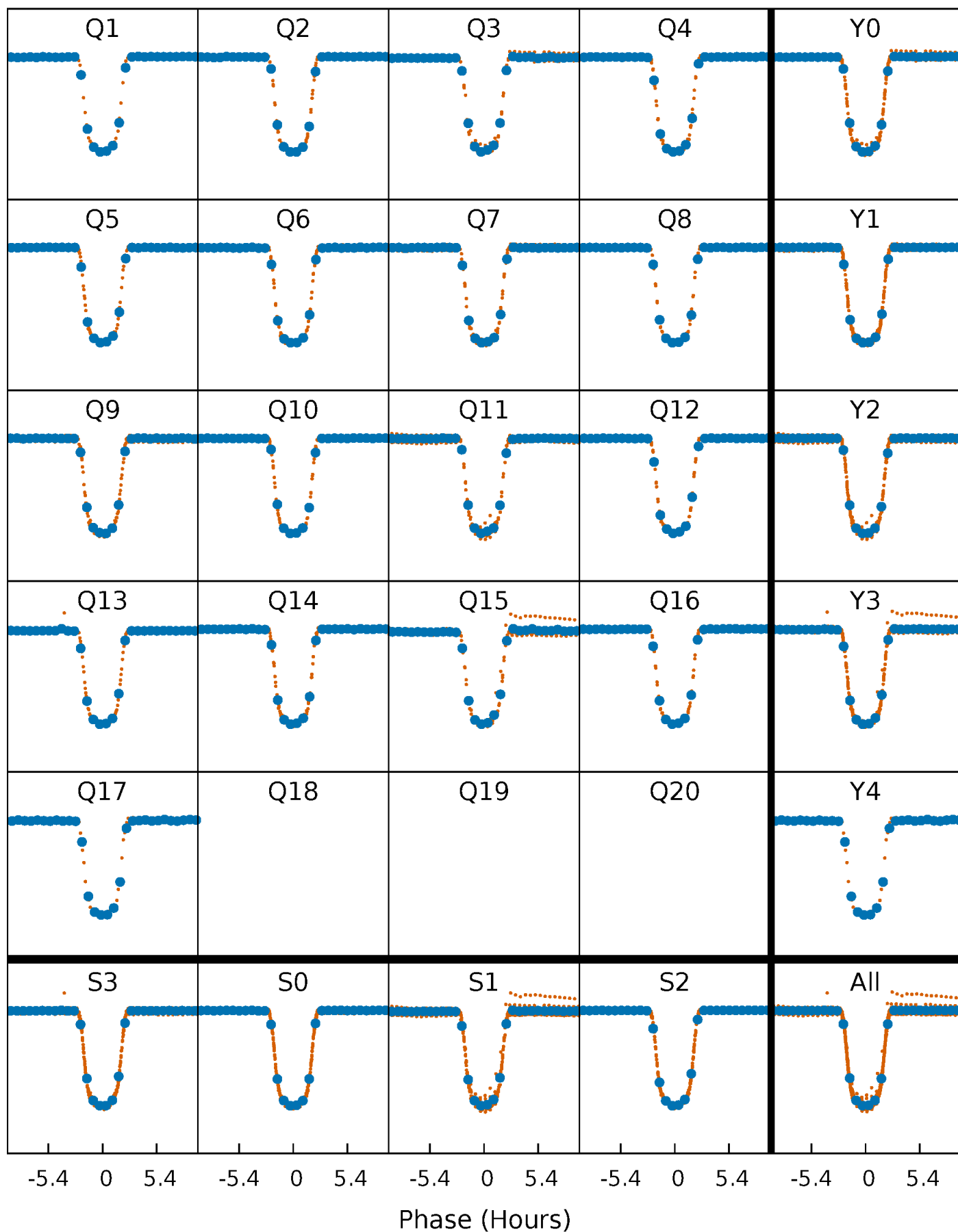


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



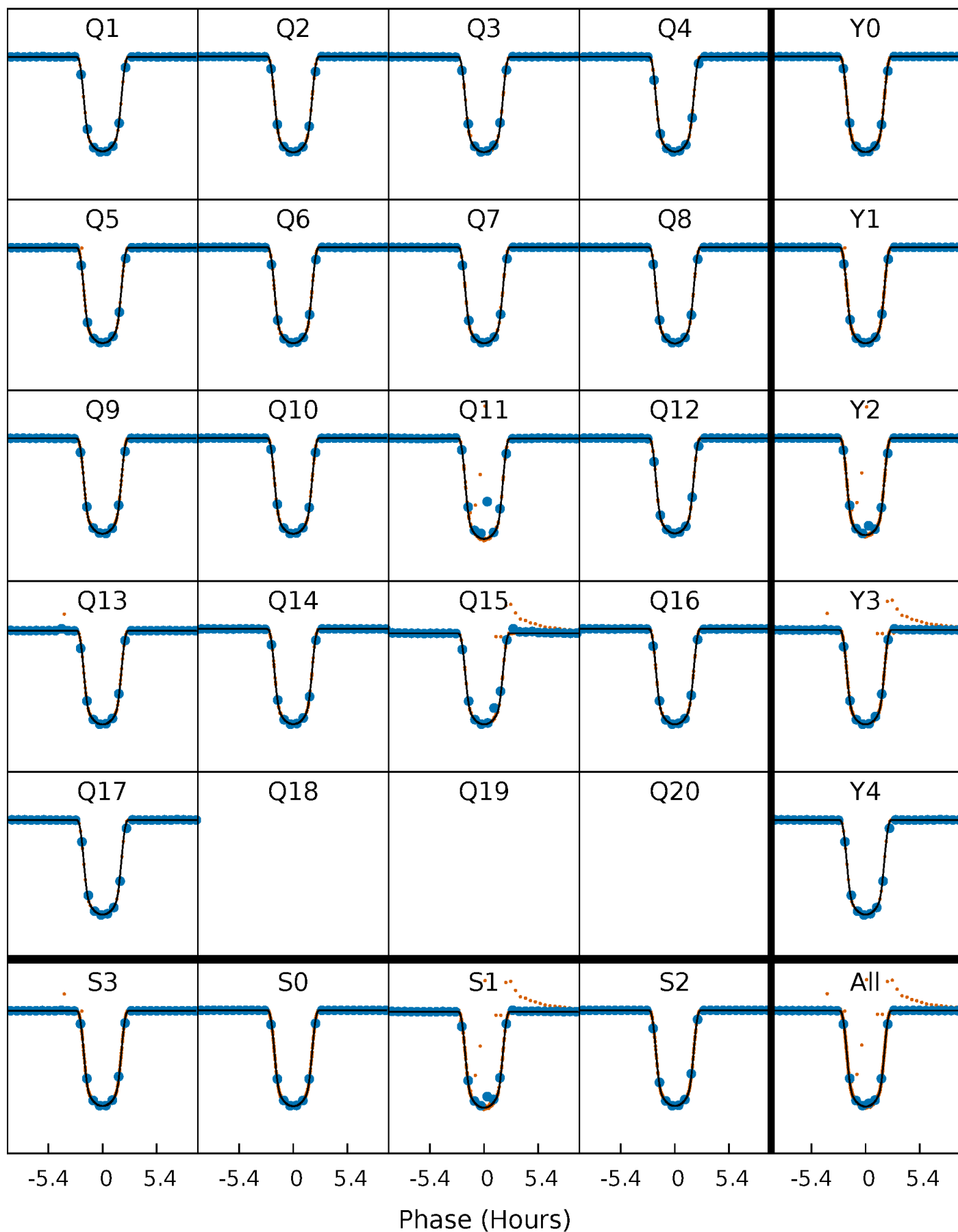
PDC Quarter-Phased Transit Curves

TCE 006698670-01 P= 10.815890 Days $T_0=139.793616$ (BKJD)



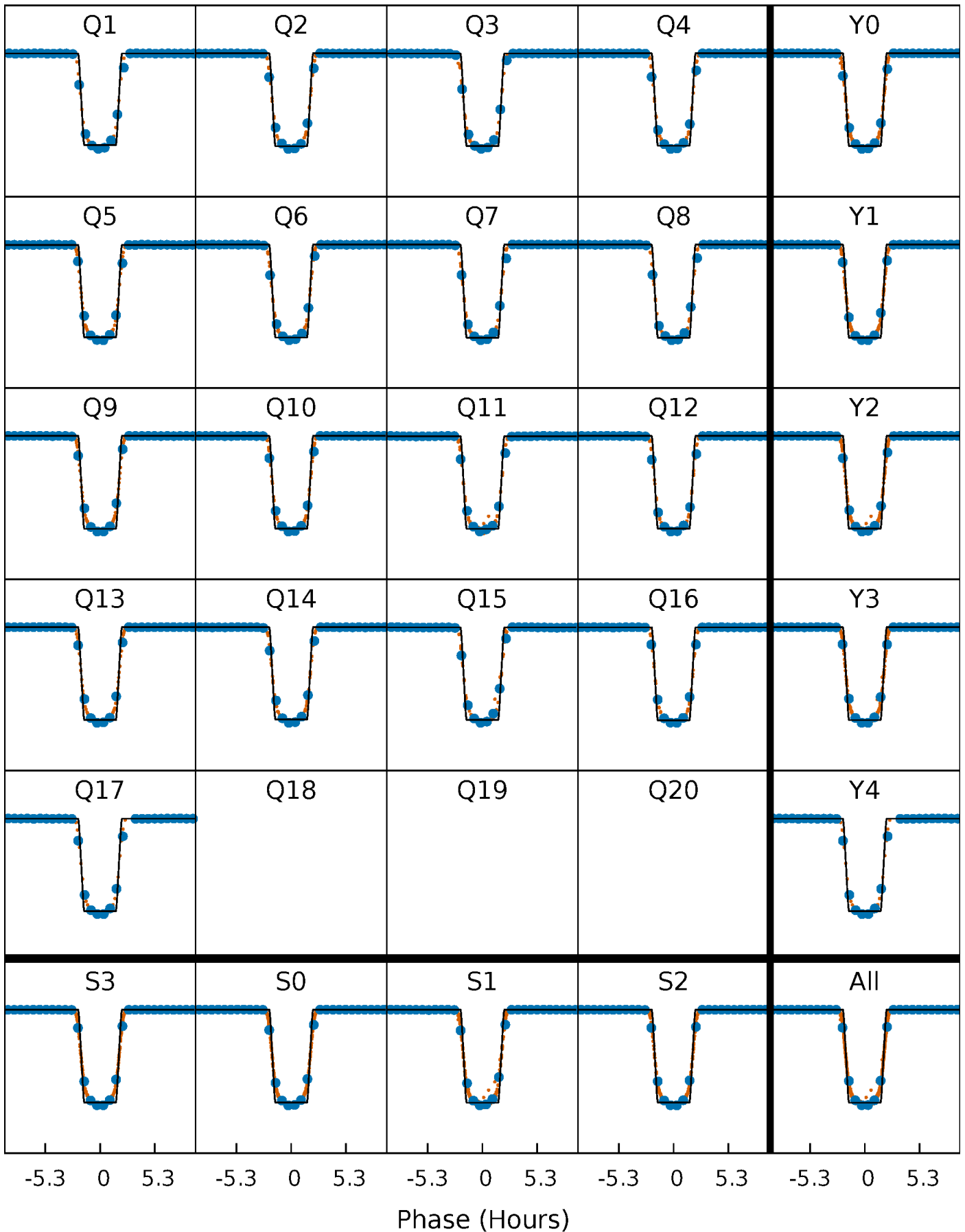
DV Quarter-Phased Transit Curves

TCE 006698670-01 P= 10.815890 Days $T_0=139.793616$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

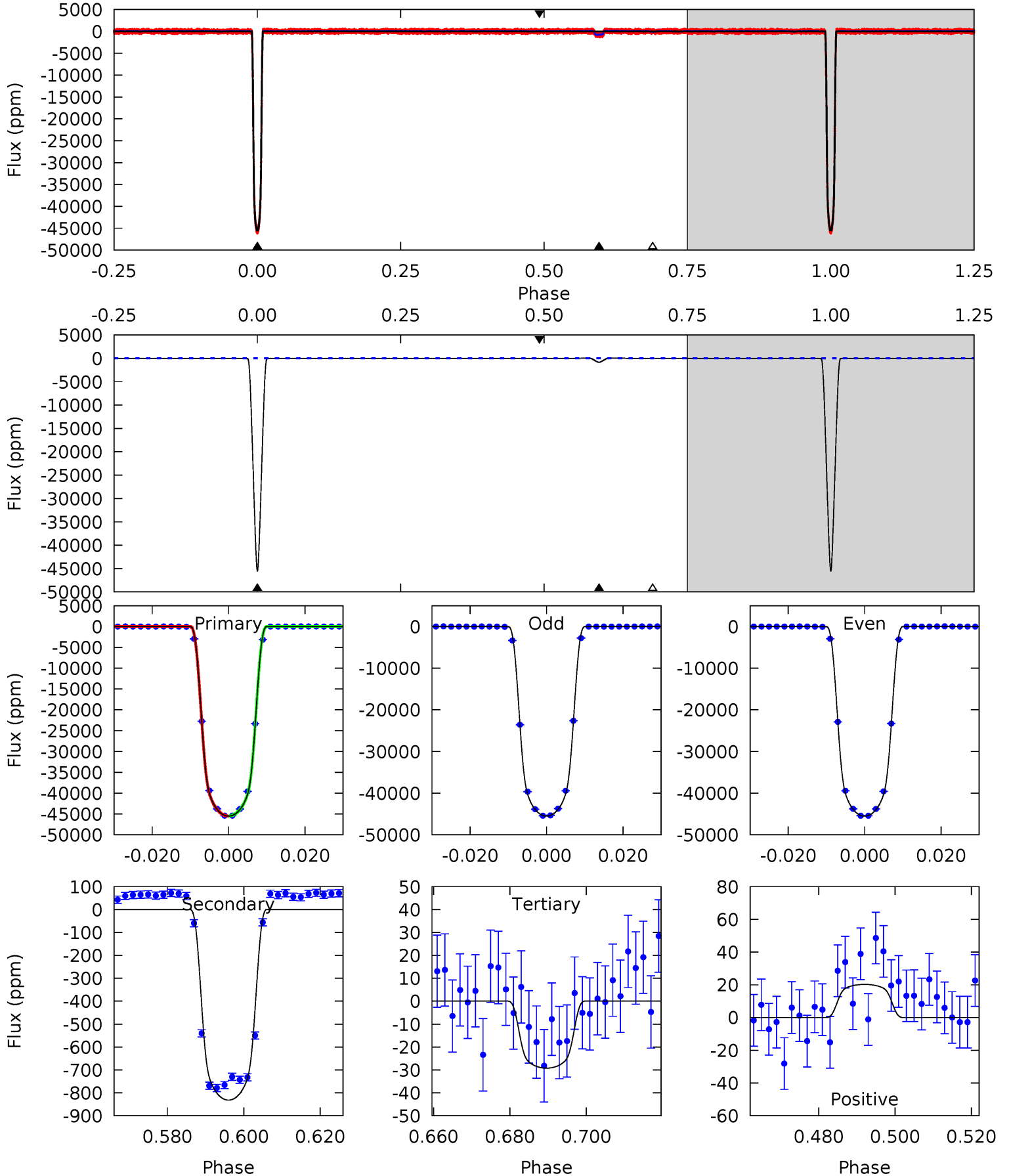
TCE 006698670-01 P= 10.815882 Days $T_0=139.794115$ (BKJD)



DV Model-Shift Uniqueness Test

006698670-01, P = 10.815890 Days, E = 128.977726 Days

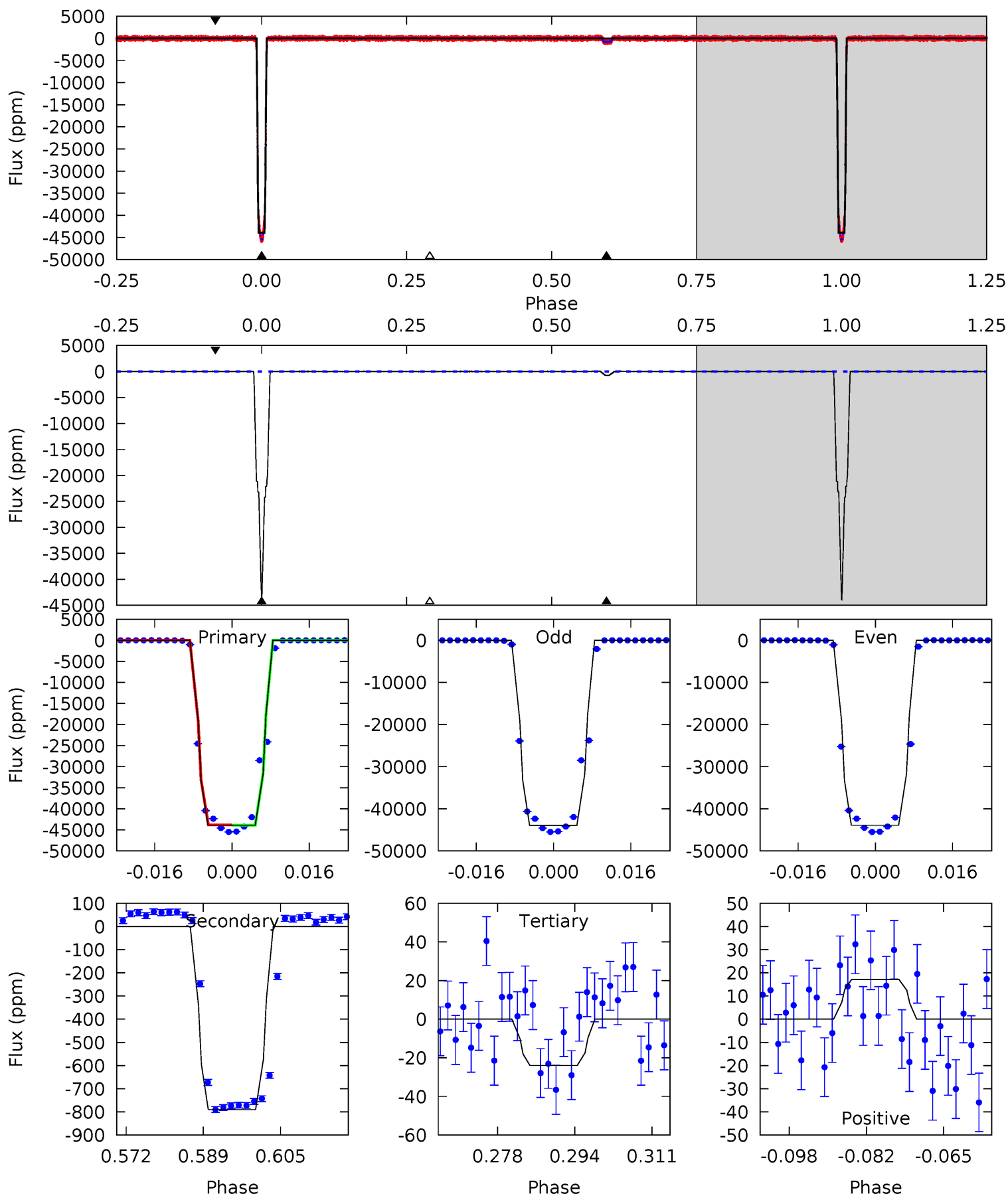
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10383	189.7	6.67	4.61	4.89	2.33	3.45	10376	10378	183.1	185.1	0.88	0.98	0.00	1.79



Alt Model-Shift Uniqueness Test

006698670-01, P = 10.815882 Days, E = 128.978233 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7687	138.4	4.20	3.00	4.93	2.40	1.63	7683	7684	134.2	135.3	3.60	1.00	0.00	3.89



Stellar Parameters For KIC 006698670

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6269^{+170}_{-170}	$4.109^{+0.228}_{-0.123}$	$-0.280^{+0.300}_{-0.300}$	$1.508^{+0.319}_{-0.390}$	$1.065^{+0.180}_{-0.135}$	$0.438^{+0.560}_{-0.155}$
	+3%/-3%	+6%/-3%	+107%/-107%	+21%/-26%	+17%/-13%	+128%/-35%
Source	PHO1	FLK73	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 006698670-01 / KOI 6760.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-832 ± 4	$32.46^{+4.17}_{-4.58}$	1509^{+90}_{-112}	3016^{+47}_{-49}	$4.212^{+1.359}_{-0.810}$
Alt.	-790 ± 6	$34.26^{+4.54}_{-5.06}$	1508^{+92}_{-111}	2942^{+46}_{-47}	$3.567^{+1.188}_{-0.684}$

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

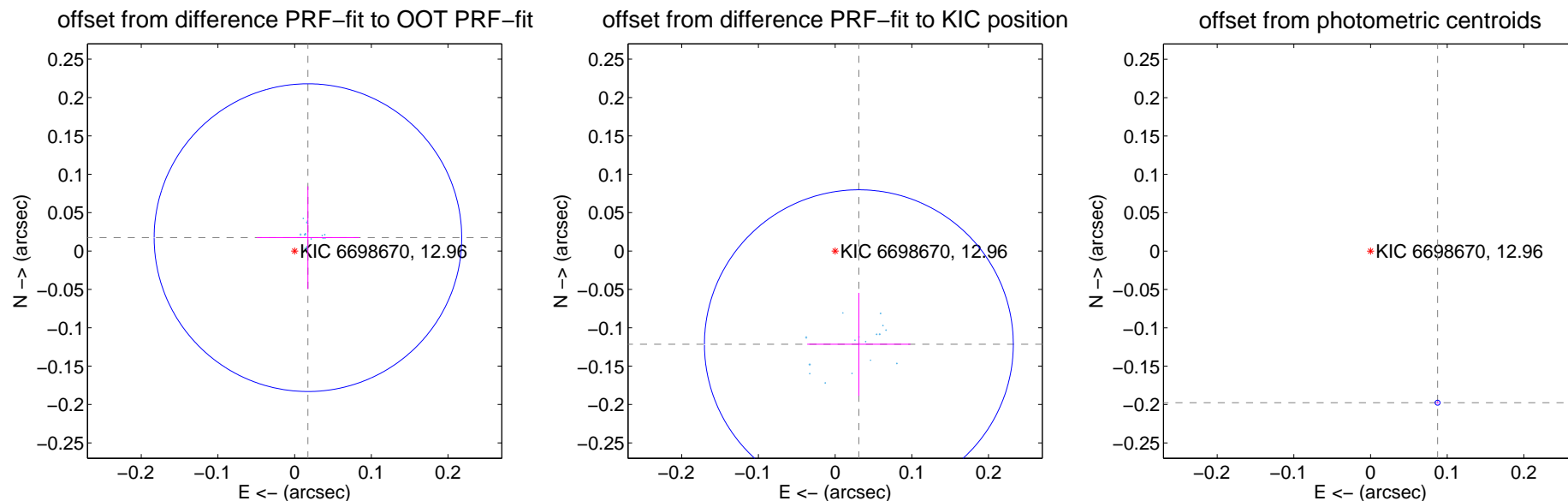
DV Centroid Data

Supplemental centroid analysis for 006698670-01. Kepler magnitude: 12.96. Transit SNR 5852.39

There are 17 quarters with good PRF difference image offsets

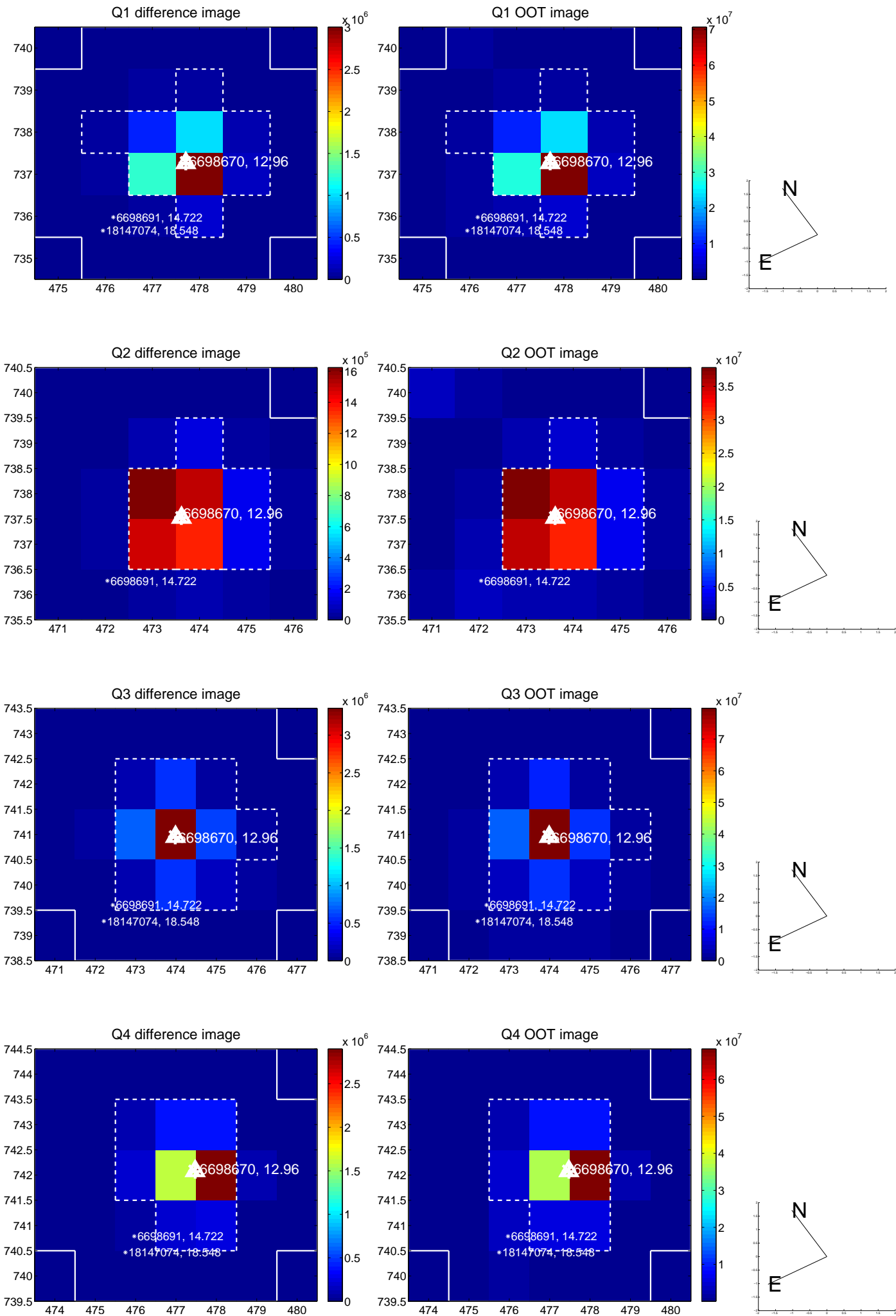
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.025 ± 0.067	0.37	-0.017 ± 0.067	0.017 ± 0.067
PRF-fit source offset from KIC position	0.125 ± 0.067	1.87	-0.031 ± 0.067	-0.122 ± 0.067
photometric centroid source offset	0.22 ± 0.00	198.94	-0.09 ± 0.00	-0.20 ± 0.00

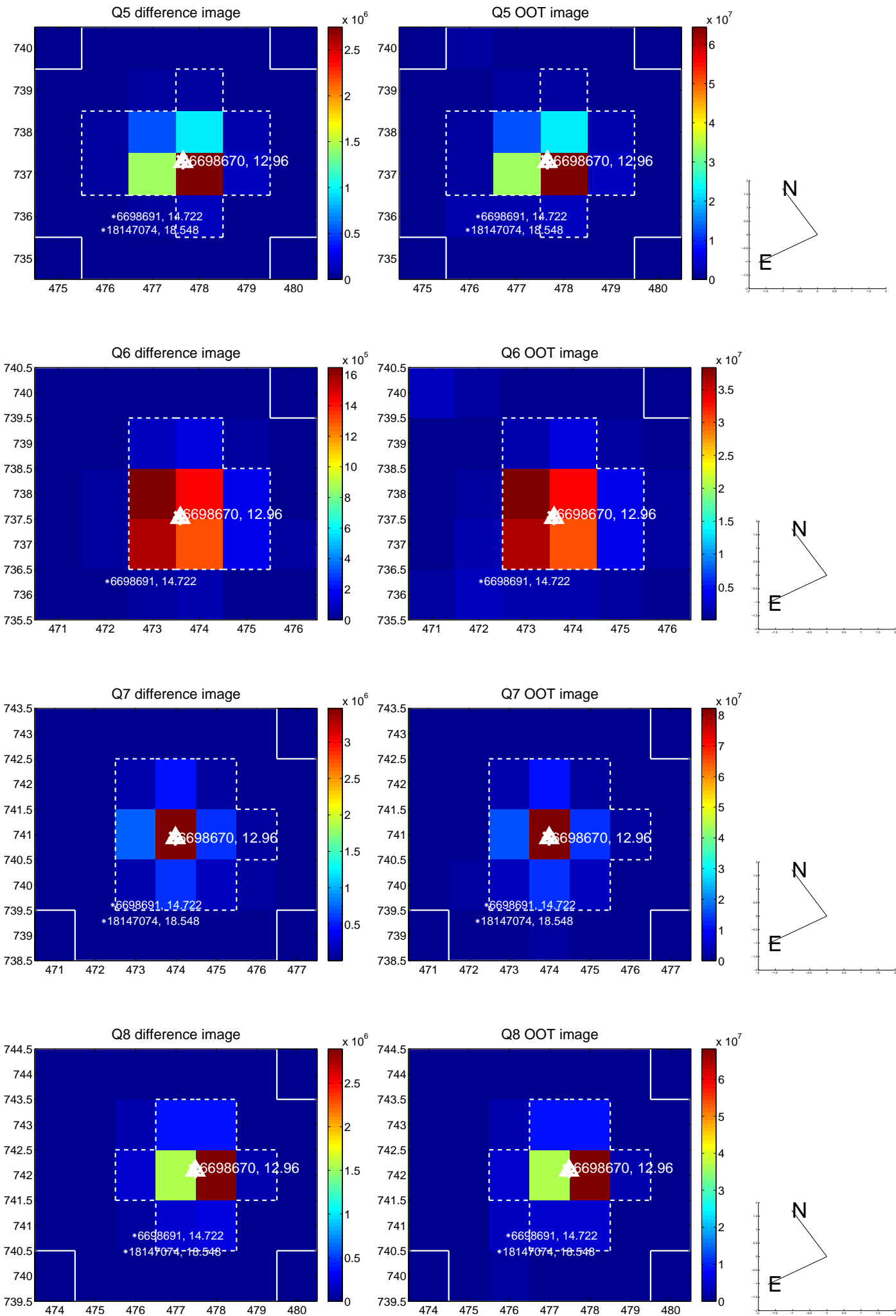


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

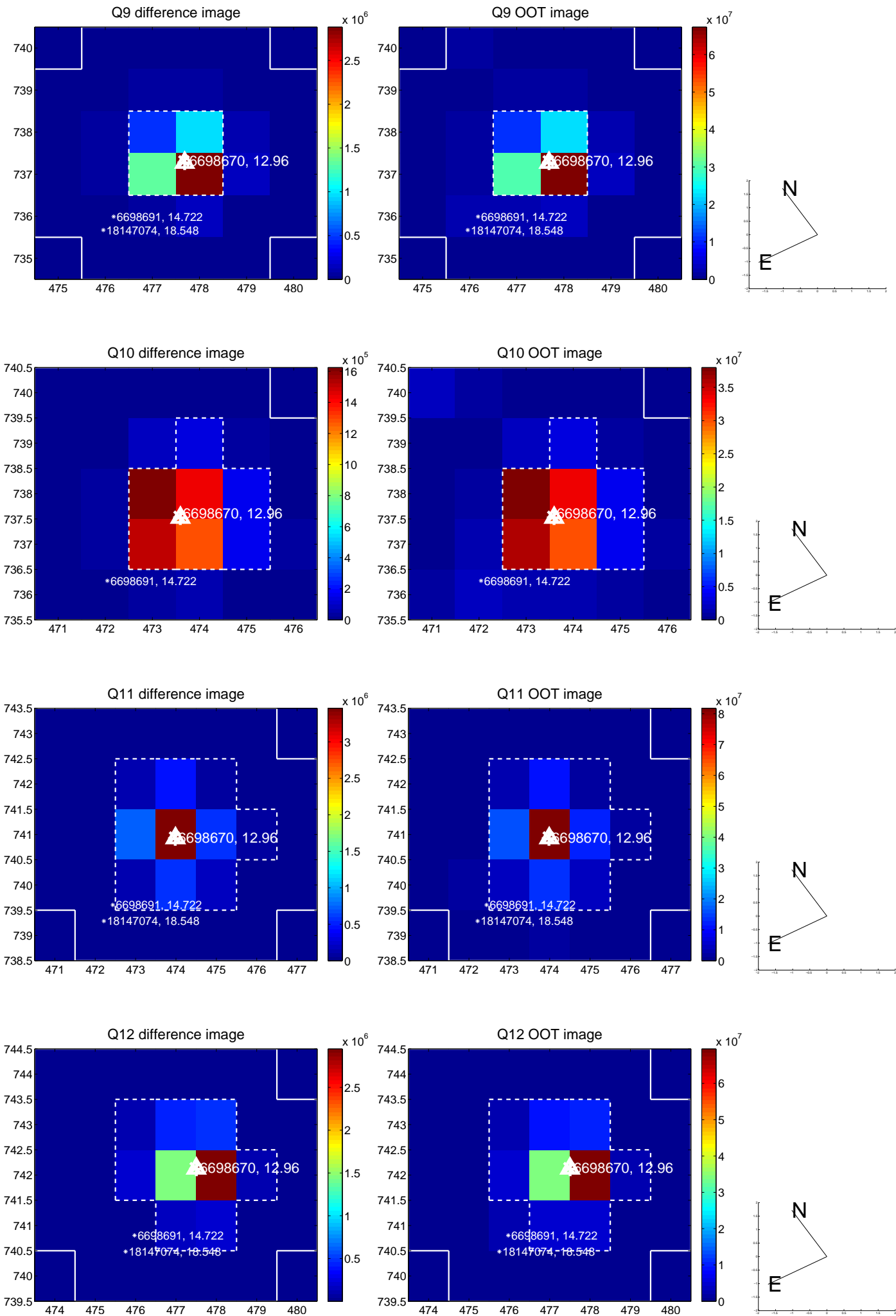
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



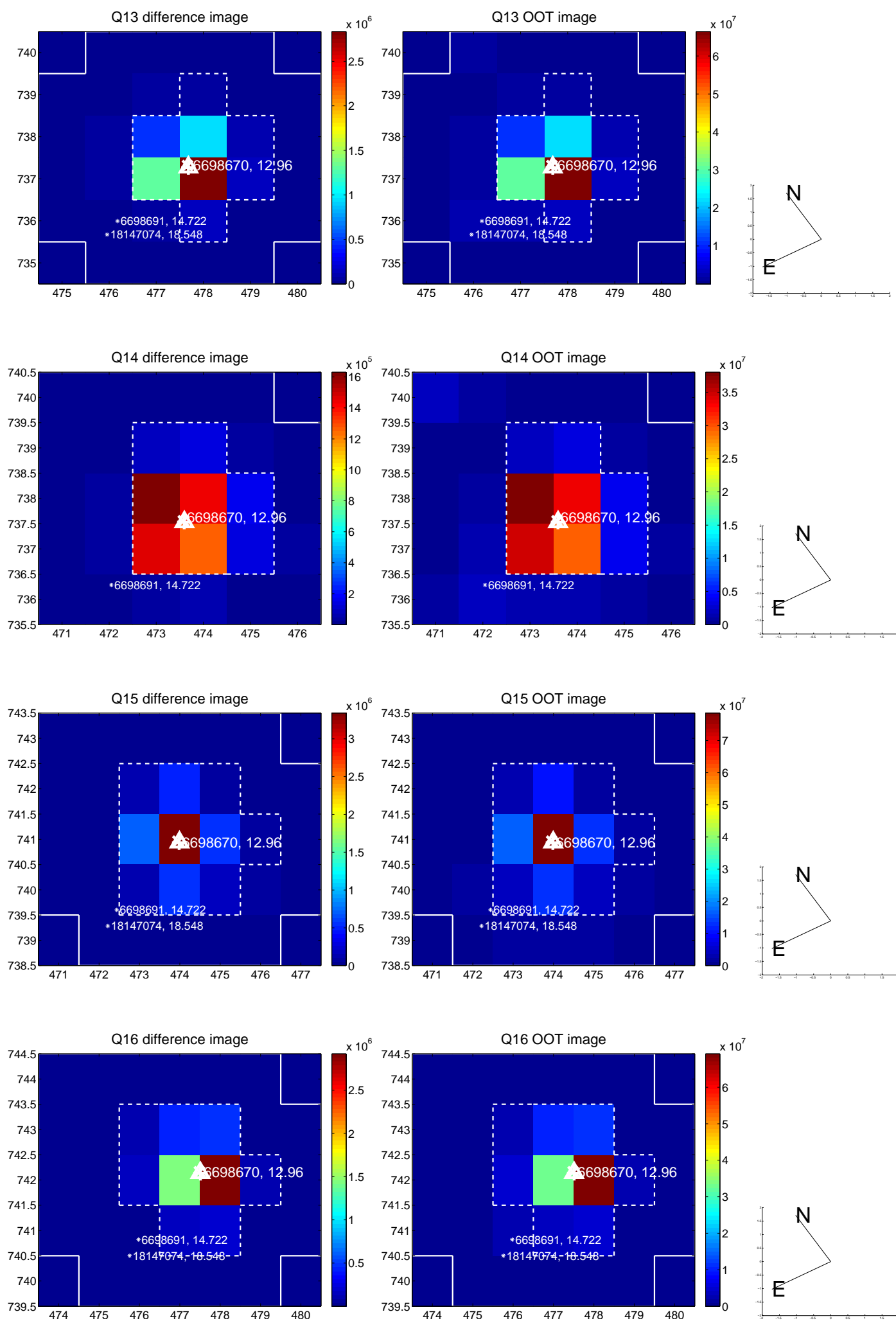
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



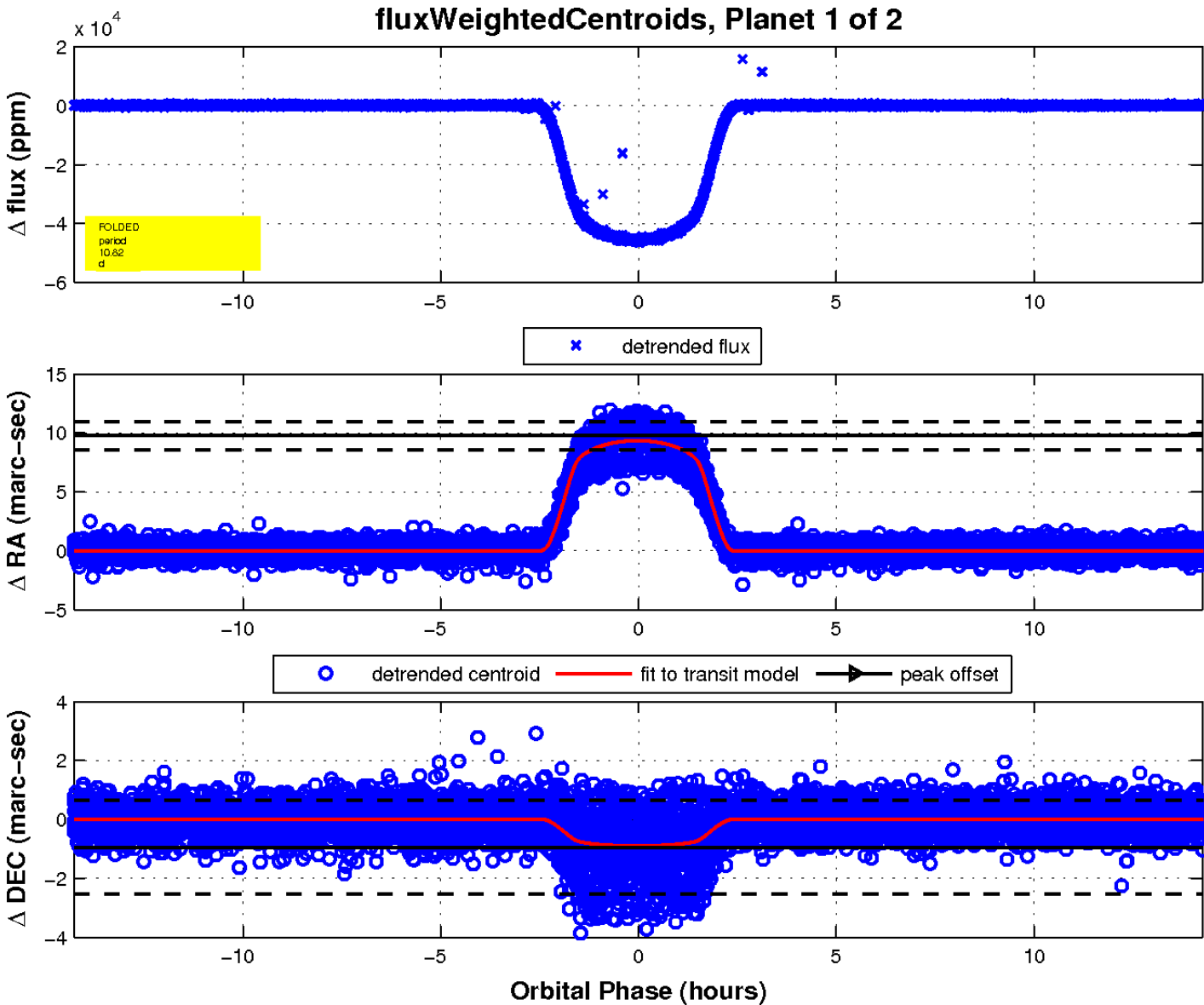
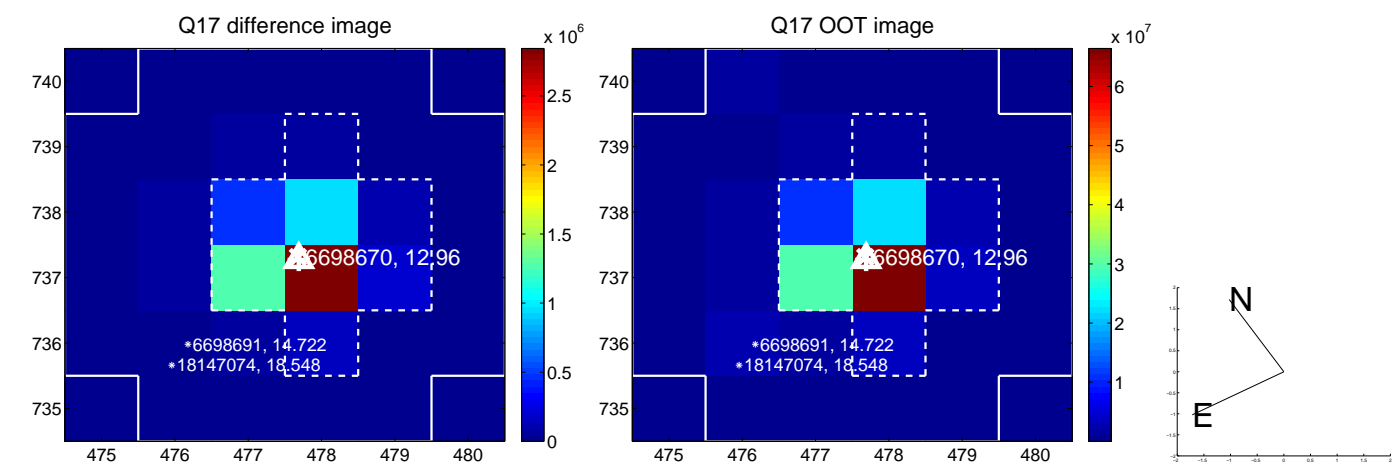
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

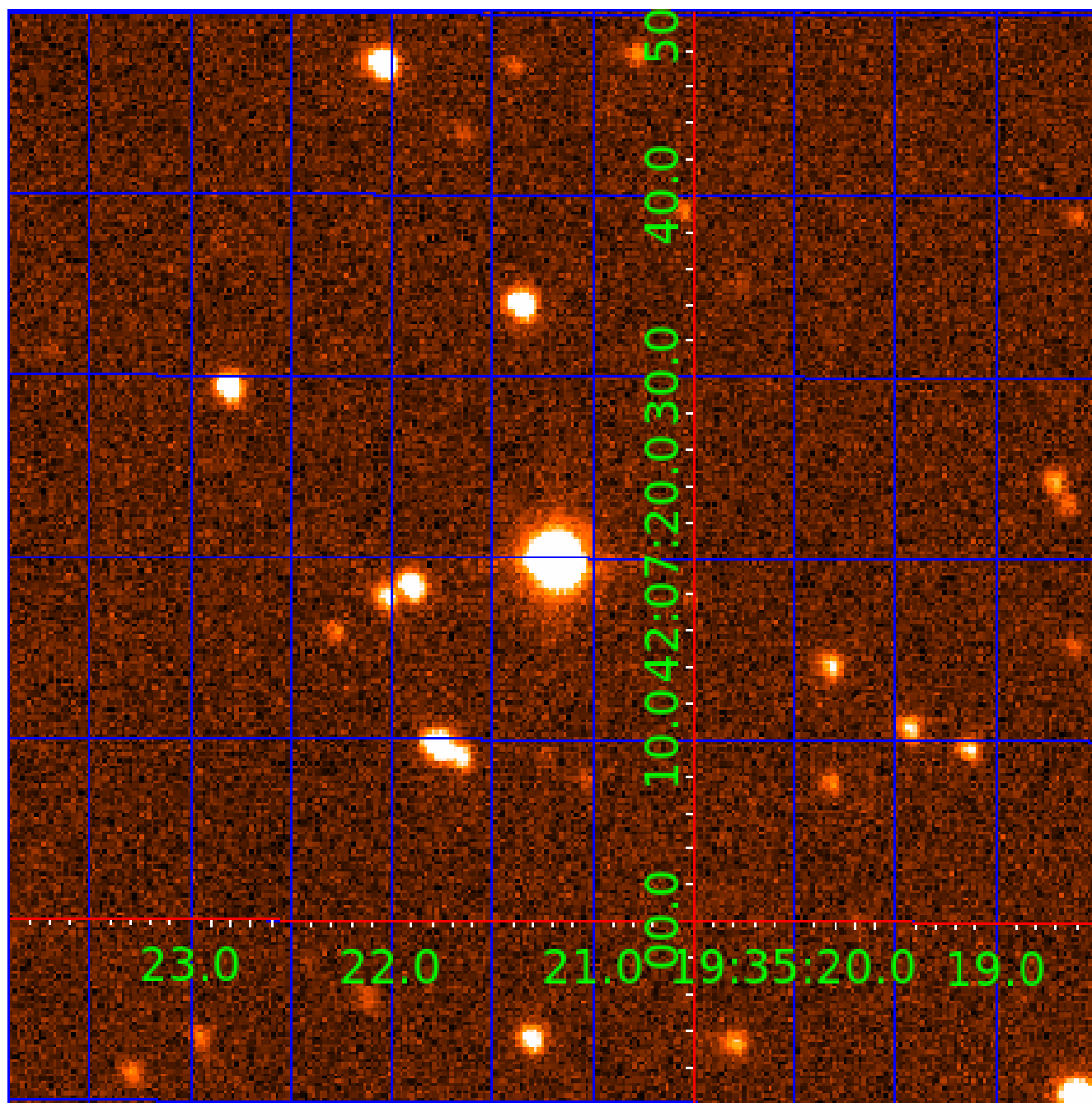


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006698670

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})
006698670-01	OBS	6760.01	10.815890	139.793616	45520.3	4.759	6393.0	5852.4	1.51	6269	32.60	329.01
006698670-02	OBS	No	10.815896	135.422438	870.4	4.779	126.0	124.6	1.51	6269	5.12	329.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006698670-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
006698670-02	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 006698670-02

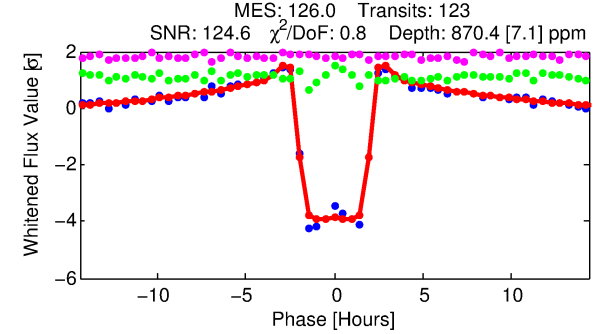
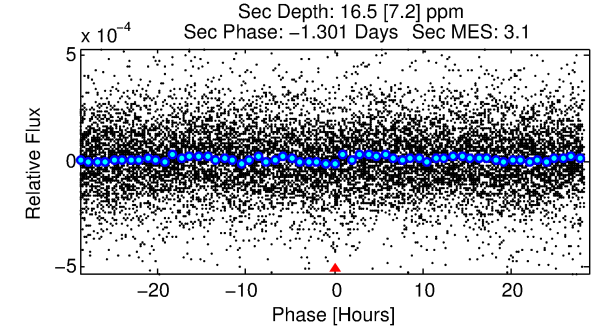
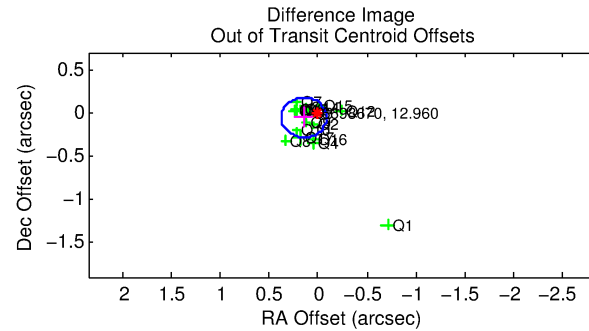
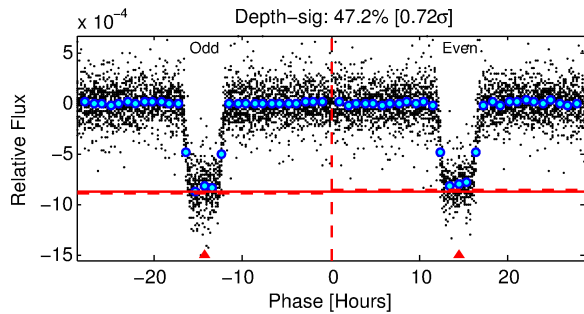
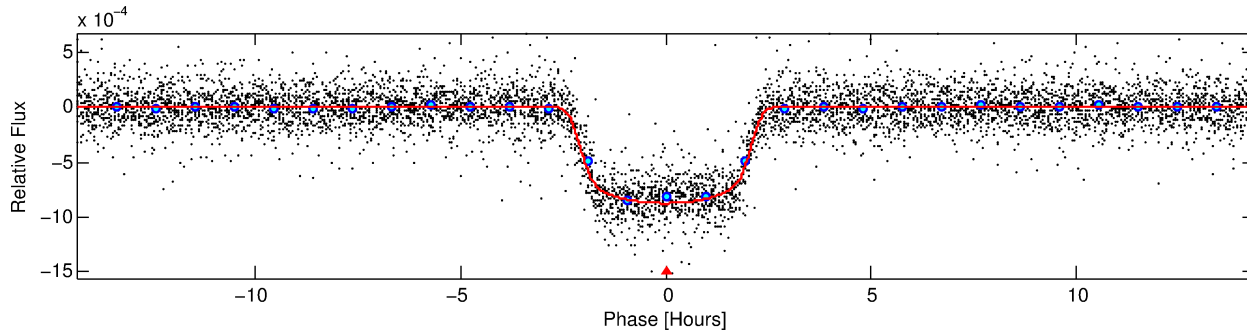
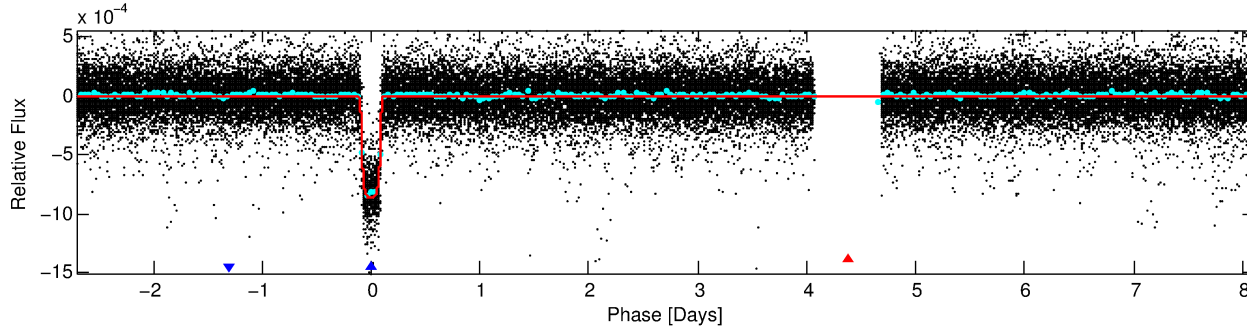
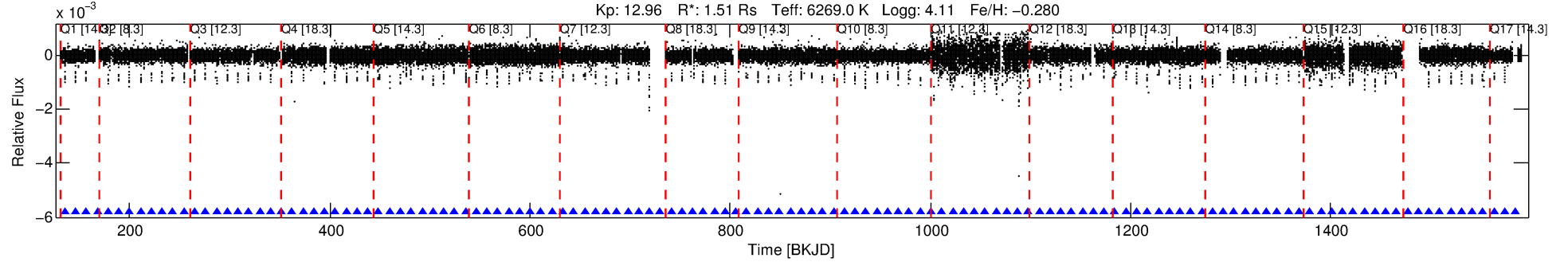
No Significant Match Found

DV One-Page Summary

KIC: 6698670 Candidate: 2 of 2 Period: 10.816 d

KOI: K06760 Corr: No Ephemeris Match

Kp: 12.96 R*: 1.51 Rs Teff: 6269.0 K Logg: 4.11 Fe/H: -0.280



DV Fit Results:

Period = 10.81590 [0.00001] d
Epoch = 135.4224 [0.0005] BKJD
Rp/R* = 0.0311 [0.0003]
a/R* = 9.41 [0.43]
b = 0.88 [0.01]
Seff = 329.01 [133.23]
Teq = 1086 [110] K
Rp = 5.13 [1.33] Re
a = 0.0978 [0.0240] AU
Ag = 3.30 [1.93] [1.19σ]
Teffp = 2263 [254] K [4.26σ]

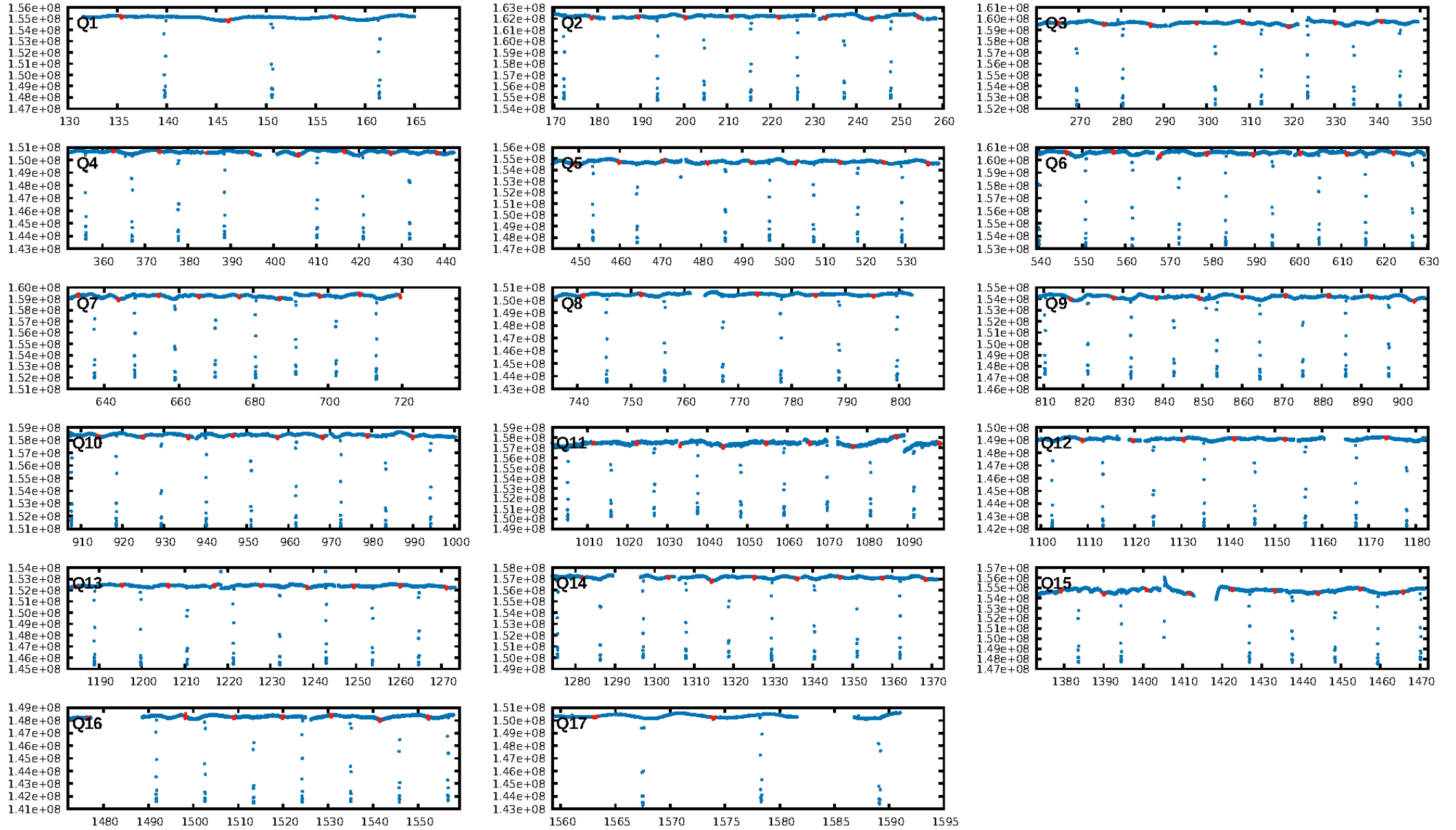
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [118/118]
GhostDiagnostic-chr: 3.022
Centroid-sig: 11.7%
Centroid-so: 0.186 arcsec [3.53σ]
OotOffset-rm: 0.157 arcsec [2.04σ]
KicOffset-rm: 0.240 arcsec [2.93σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

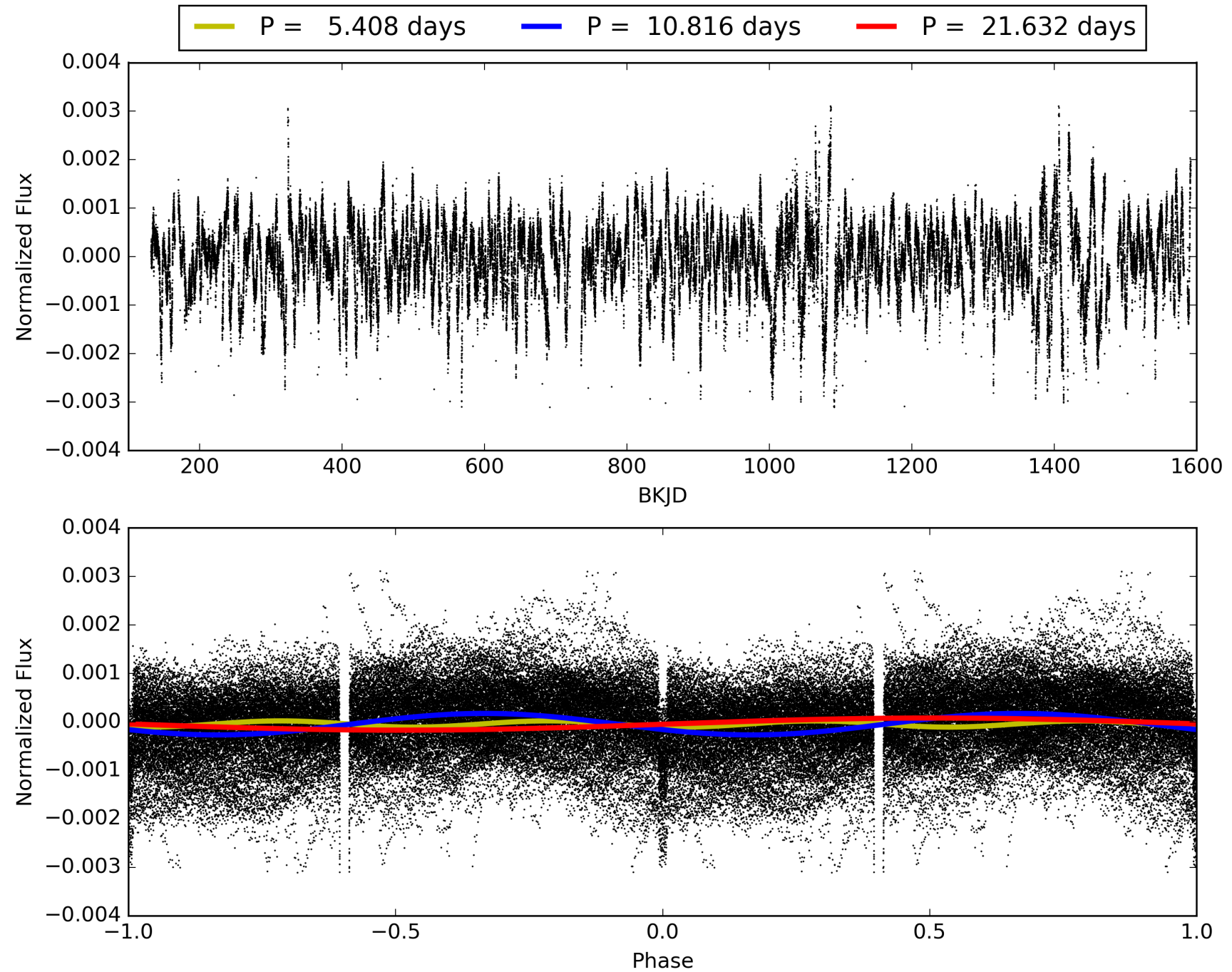
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:08:04 Z

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

TCE 006698670-02, PDC Light Curves

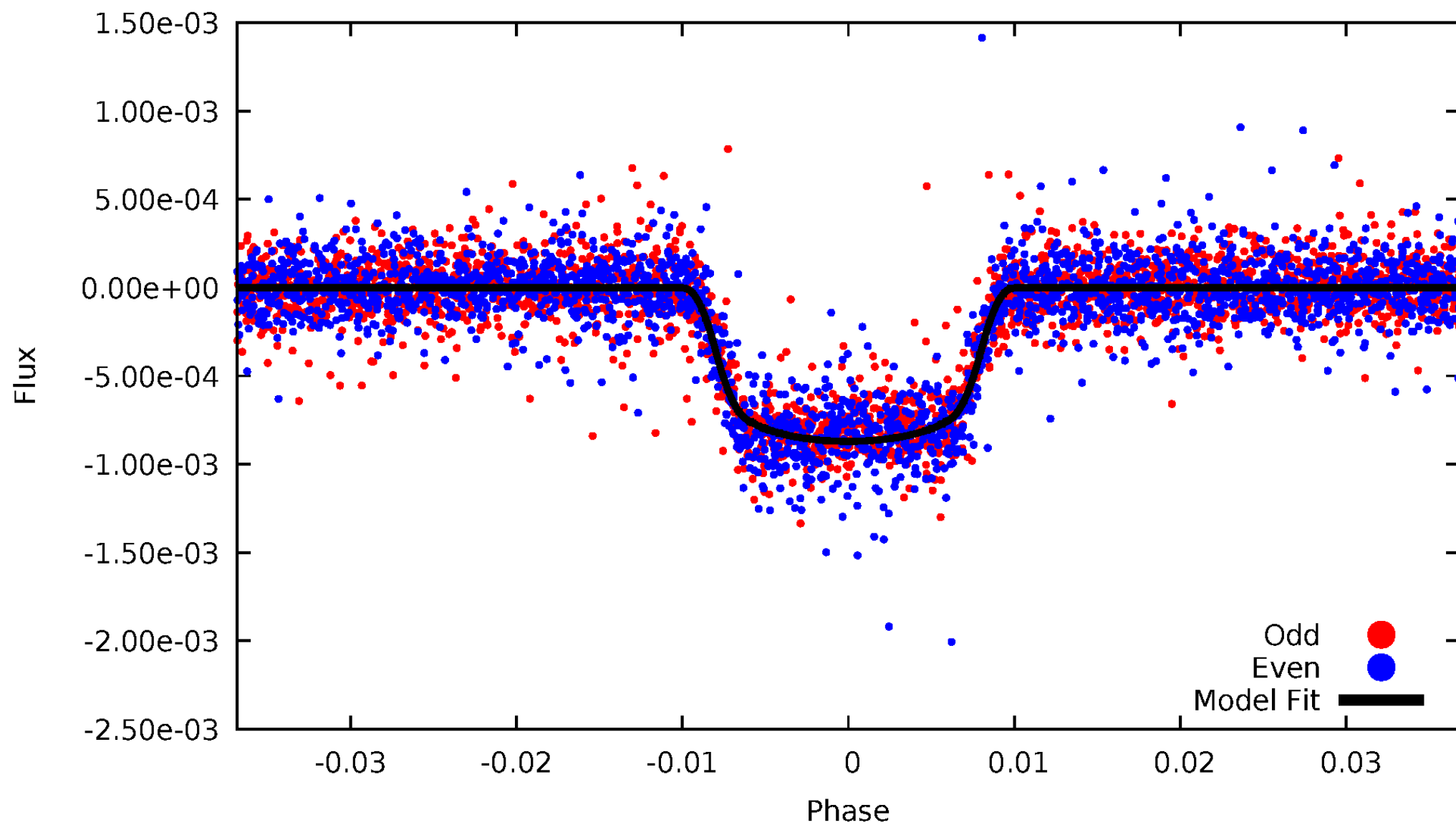


TCE 006698670-02



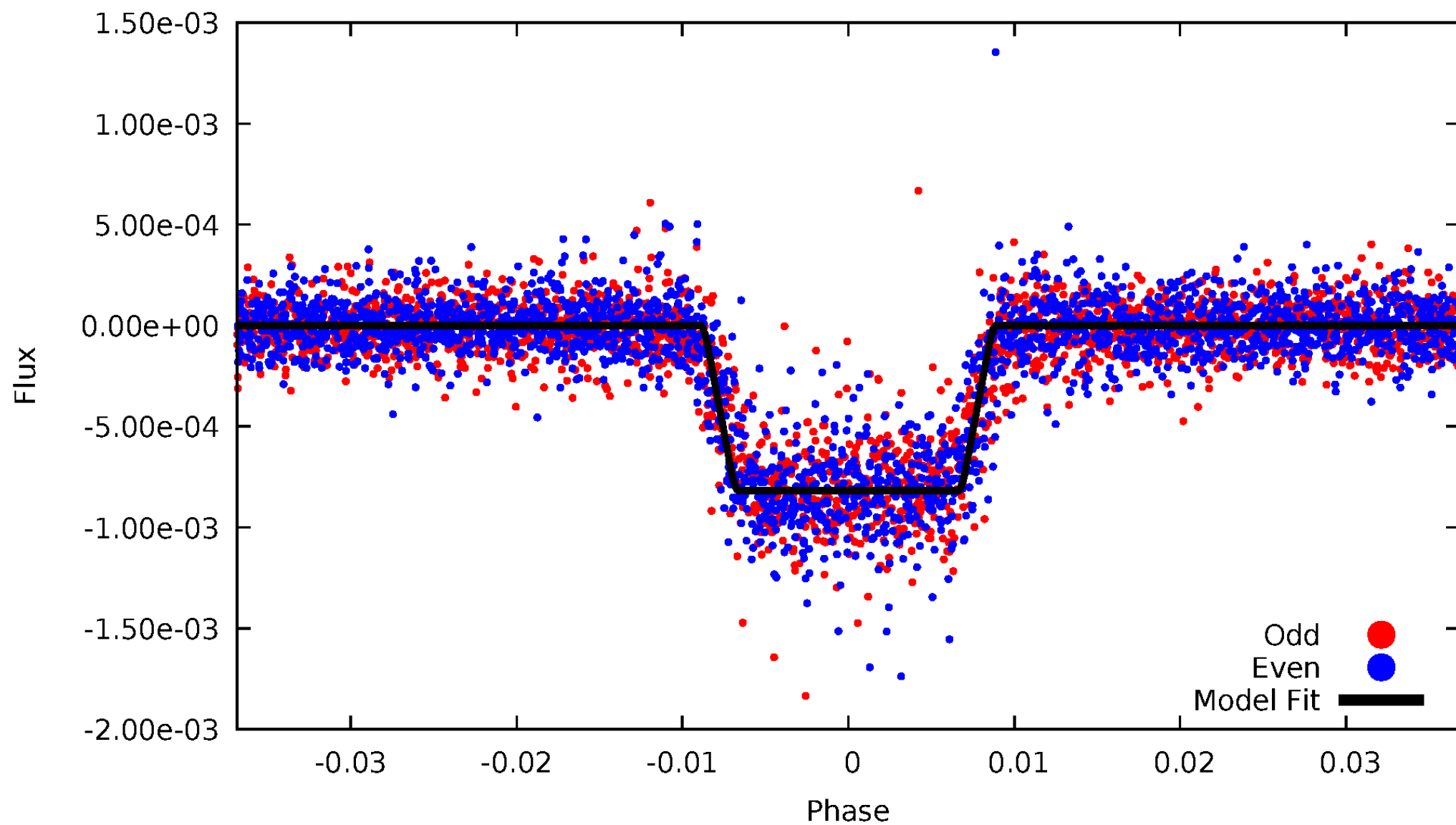
DV Odd/Even

TCE 006698670-02



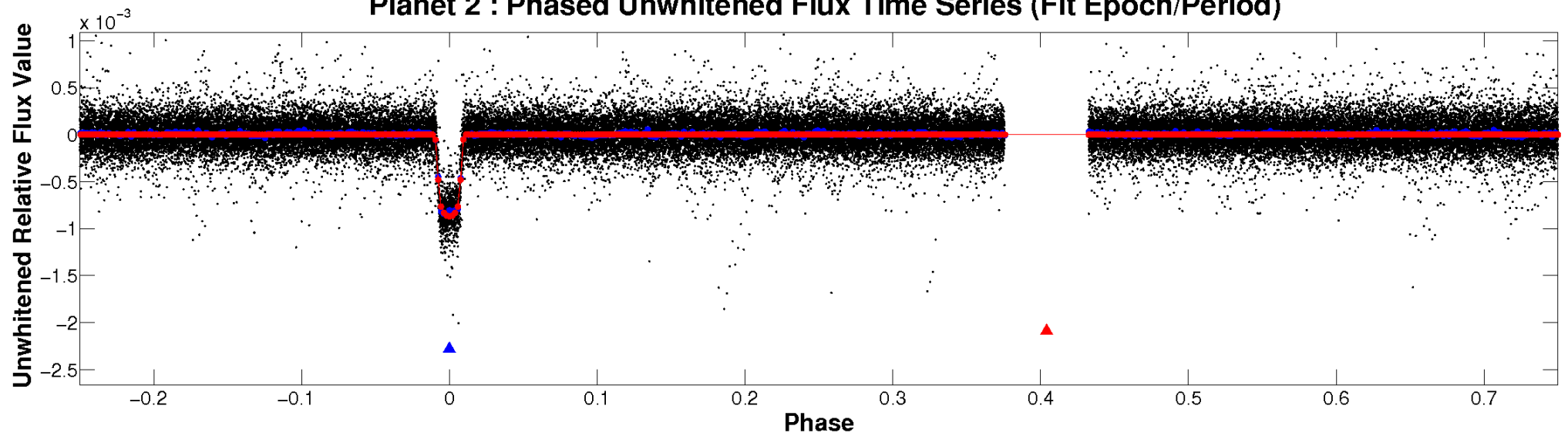
ALT Odd/Even

TCE 006698670-02

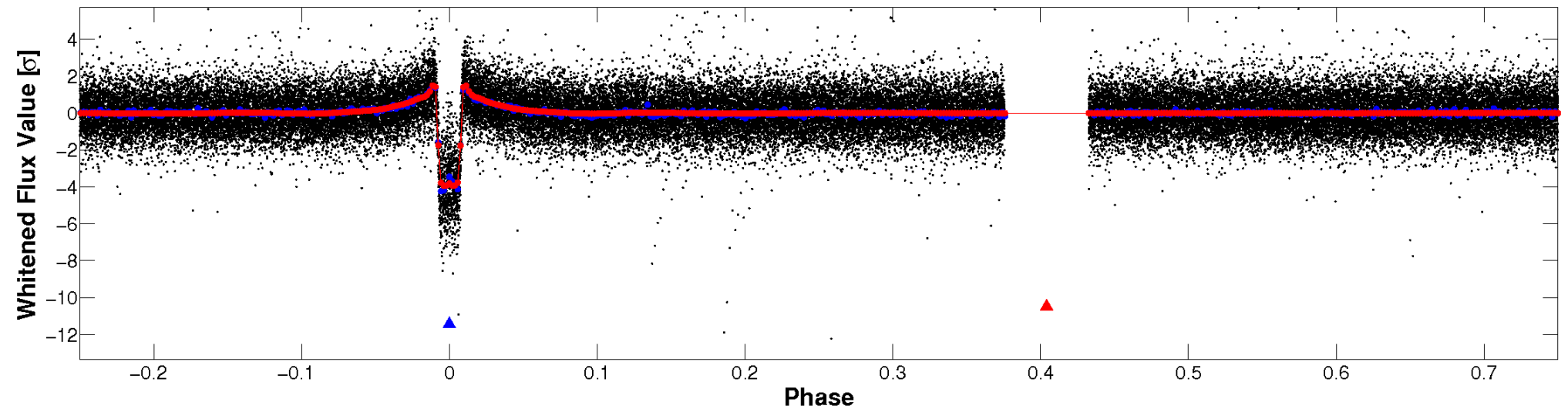


Non-Whitened Vs. Whitened Light Curve

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

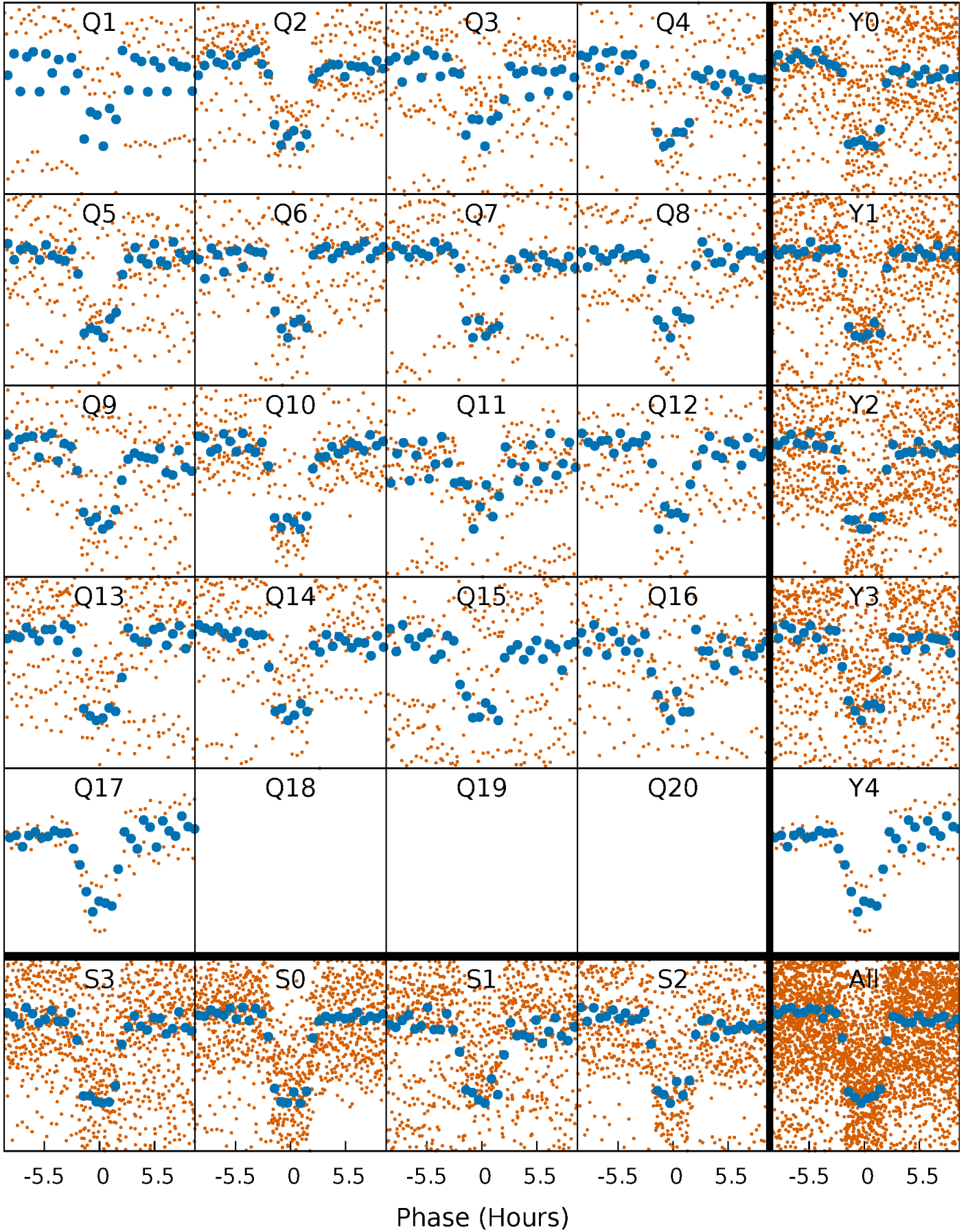


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



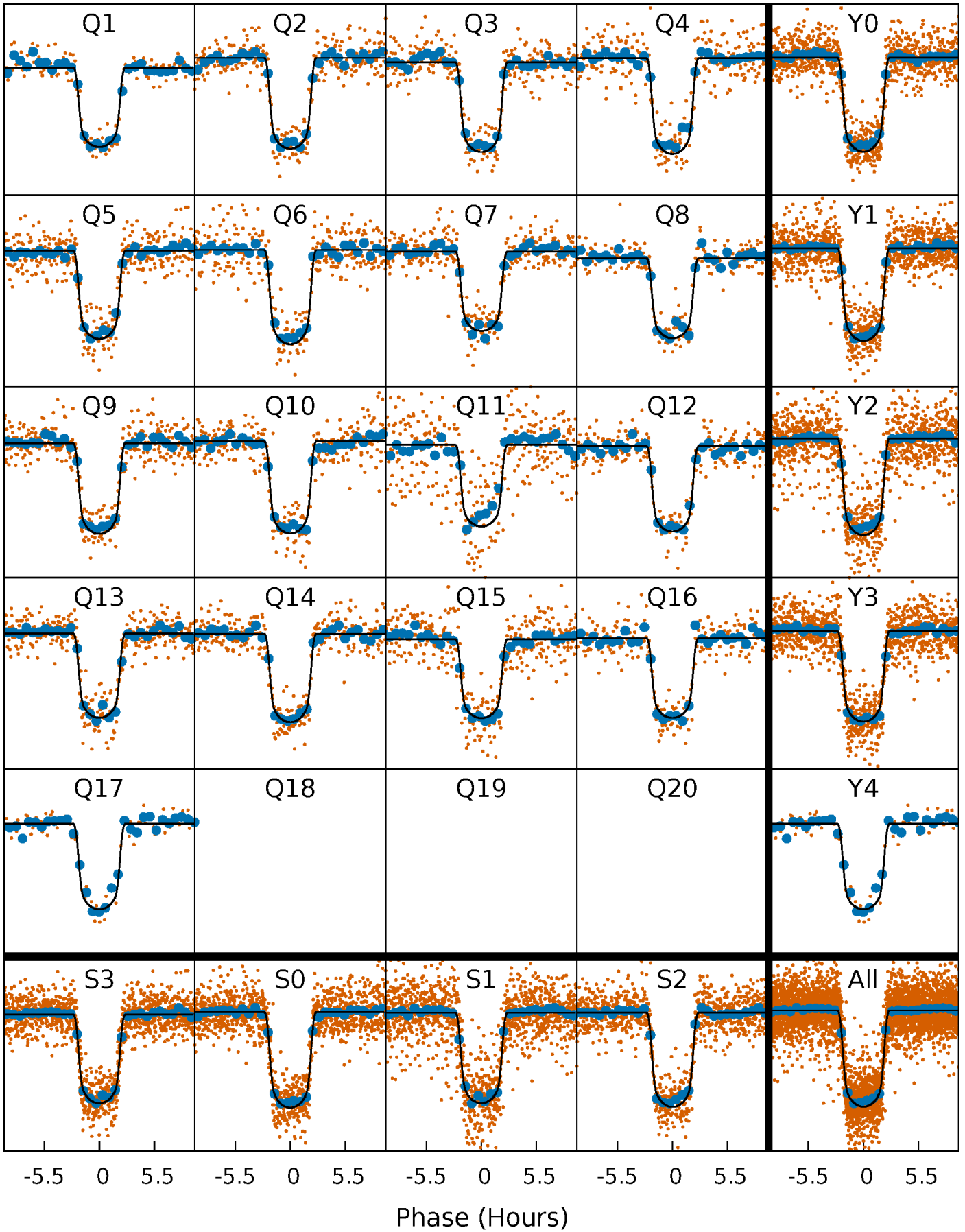
PDC Quarter-Phased Transit Curves

TCE 006698670-02 P= 10.815896 Days $T_0=135.422438$ (BKJD)



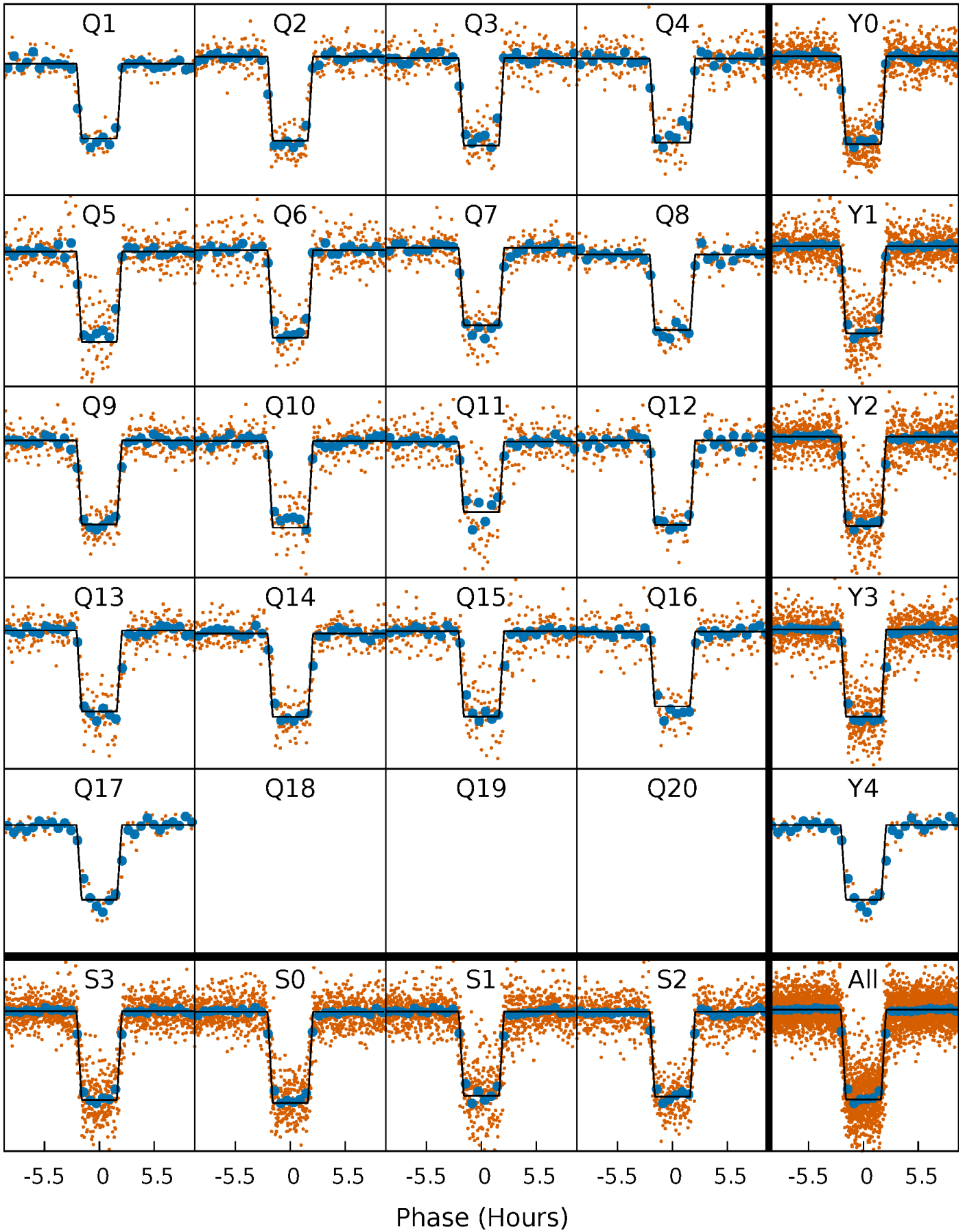
DV Quarter-Phased Transit Curves

TCE 006698670-02 $P = 10.815896$ Days $T_0 = 135.422438$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

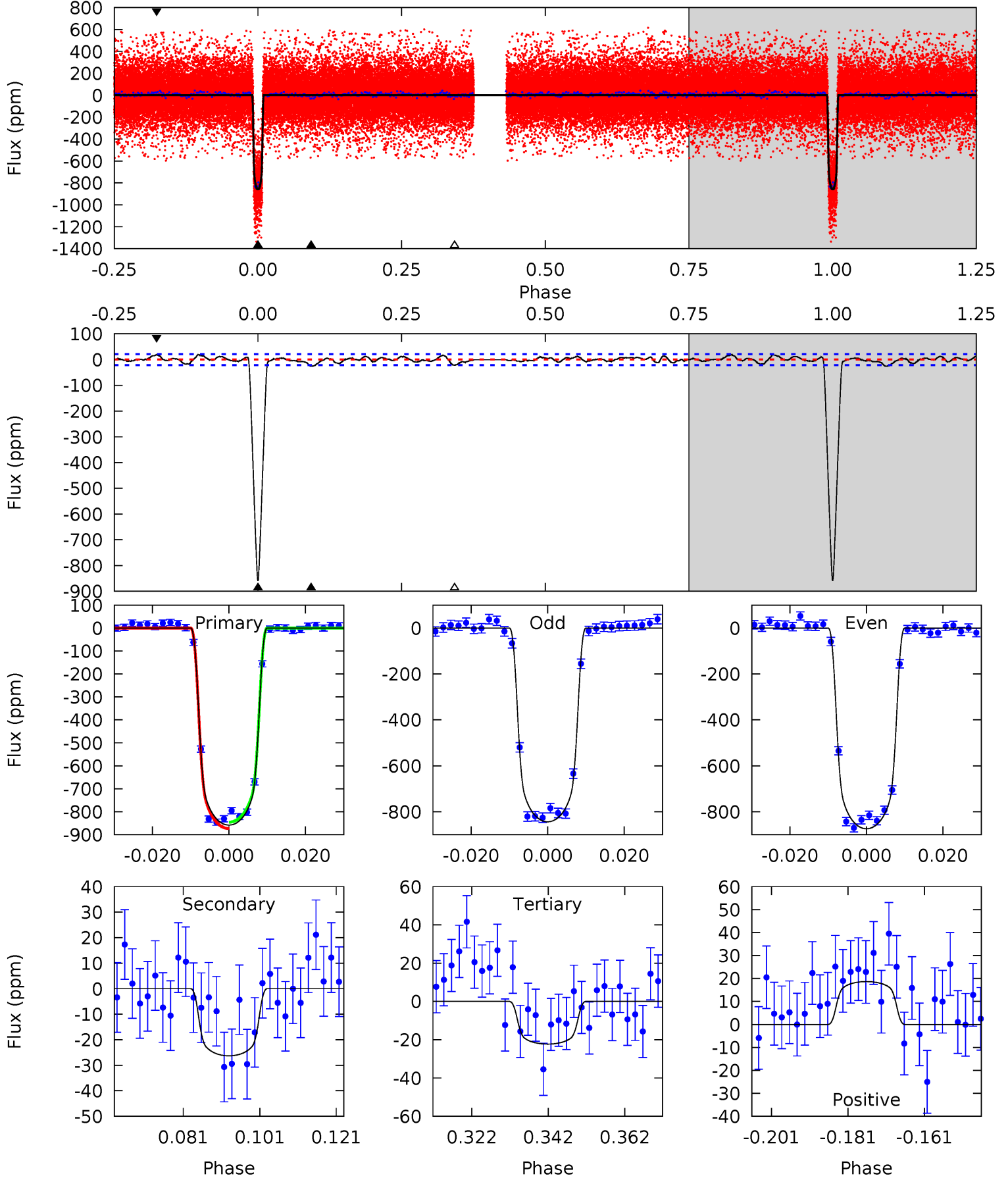
TCE 006698670-02 $P = 10.815755$ Days $T_0 = 135.431396$ (BKJD)



DV Model-Shift Uniqueness Test

006698670-02, P = 10.815896 Days, E = 124.606542 Days

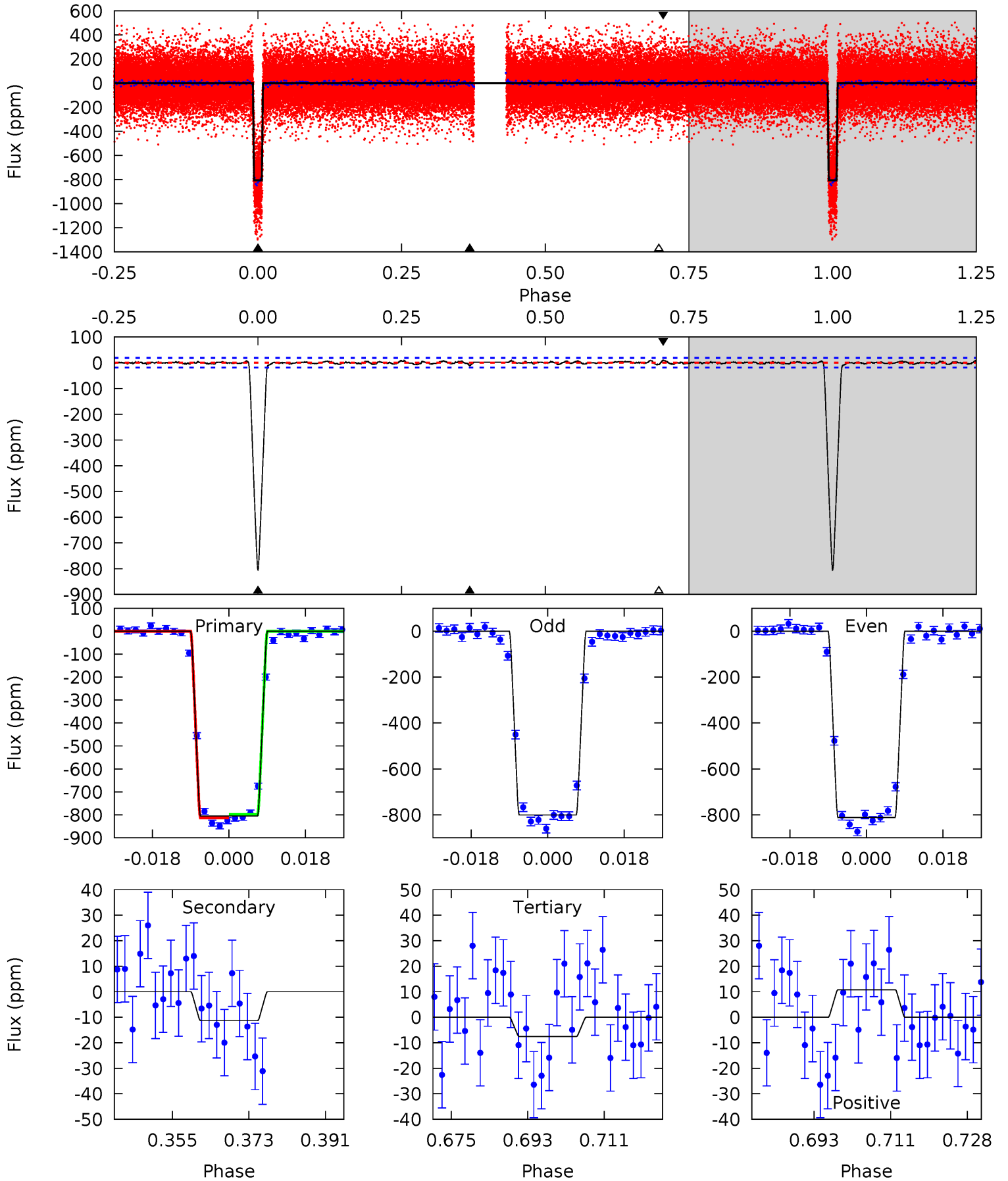
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
197.3	6.05	5.12	4.29	4.89	2.32	1.71	192.2	193.0	0.93	1.76	3.50	0.99	0.02	3.20



Alt Model-Shift Uniqueness Test

006698670-02, P = 10.815755 Days, E = 124.615641 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
211.4	2.98	1.99	2.84	4.91	2.37	0.81	209.4	208.6	0.99	0.14	1.51	0.99	0.01	0



Stellar Parameters For KIC 006698670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6269^{+170}_{-170}	$4.109^{+0.228}_{-0.123}$	$-0.280^{+0.300}_{-0.300}$	$1.508^{+0.319}_{-0.390}$	$1.065^{+0.180}_{-0.135}$	$0.438^{+0.560}_{-0.155}$
	+3%/-3%	+6%/-3%	+107%/-107%	+21%/-26%	+17%/-13%	+128%/-35%
Source	PHO1	FLK73	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 006698670-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-26 ± 4	$5.10^{+0.62}_{-0.79}$	1505^{+102}_{-119}	3133^{+92}_{-103}	$5.476^{+2.129}_{-1.377}$
Alt.	-11 ± 4	$4.62^{+0.63}_{-0.62}$	1498^{+96}_{-111}	2820^{+135}_{-172}	$2.796^{+1.319}_{-1.067}$

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 $A_{obs} \gg 1.0$

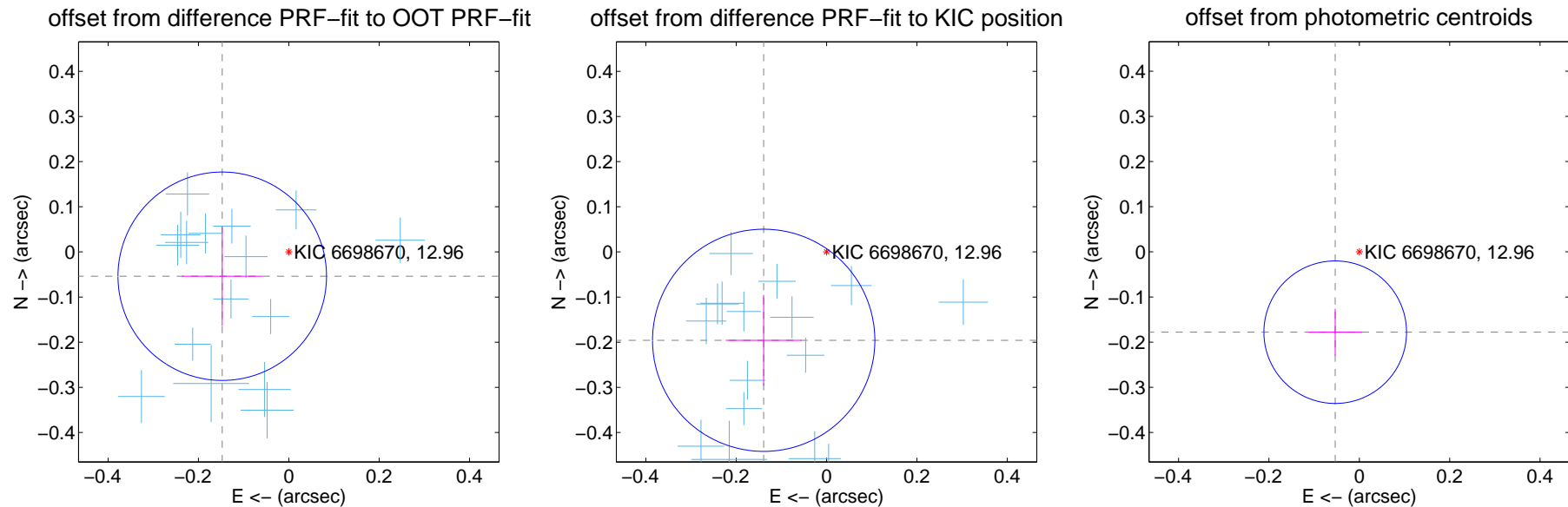
DV Centroid Data

Supplemental centroid analysis for 006698670-02. Kepler magnitude: 12.96. Transit SNR 124.56

There are 17 quarters with good PRF difference image offsets

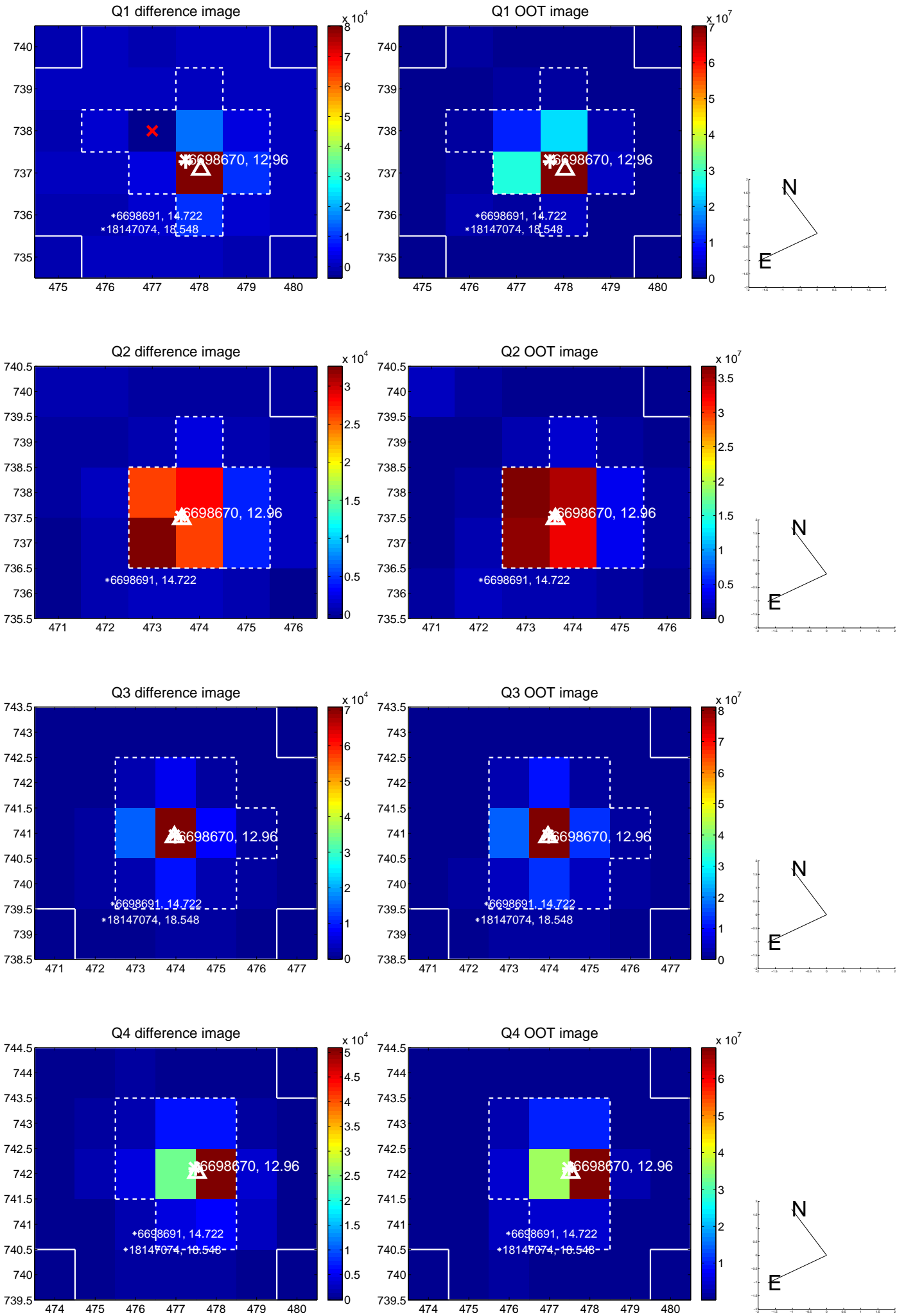
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.157 ± 0.077	2.04	0.147 ± 0.089	-0.054 ± 0.109
PRF-fit source offset from KIC position	0.240 ± 0.082	2.93	0.139 ± 0.084	-0.196 ± 0.101
photometric centroid source offset	0.19 ± 0.05	3.53	0.05 ± 0.06	-0.18 ± 0.05

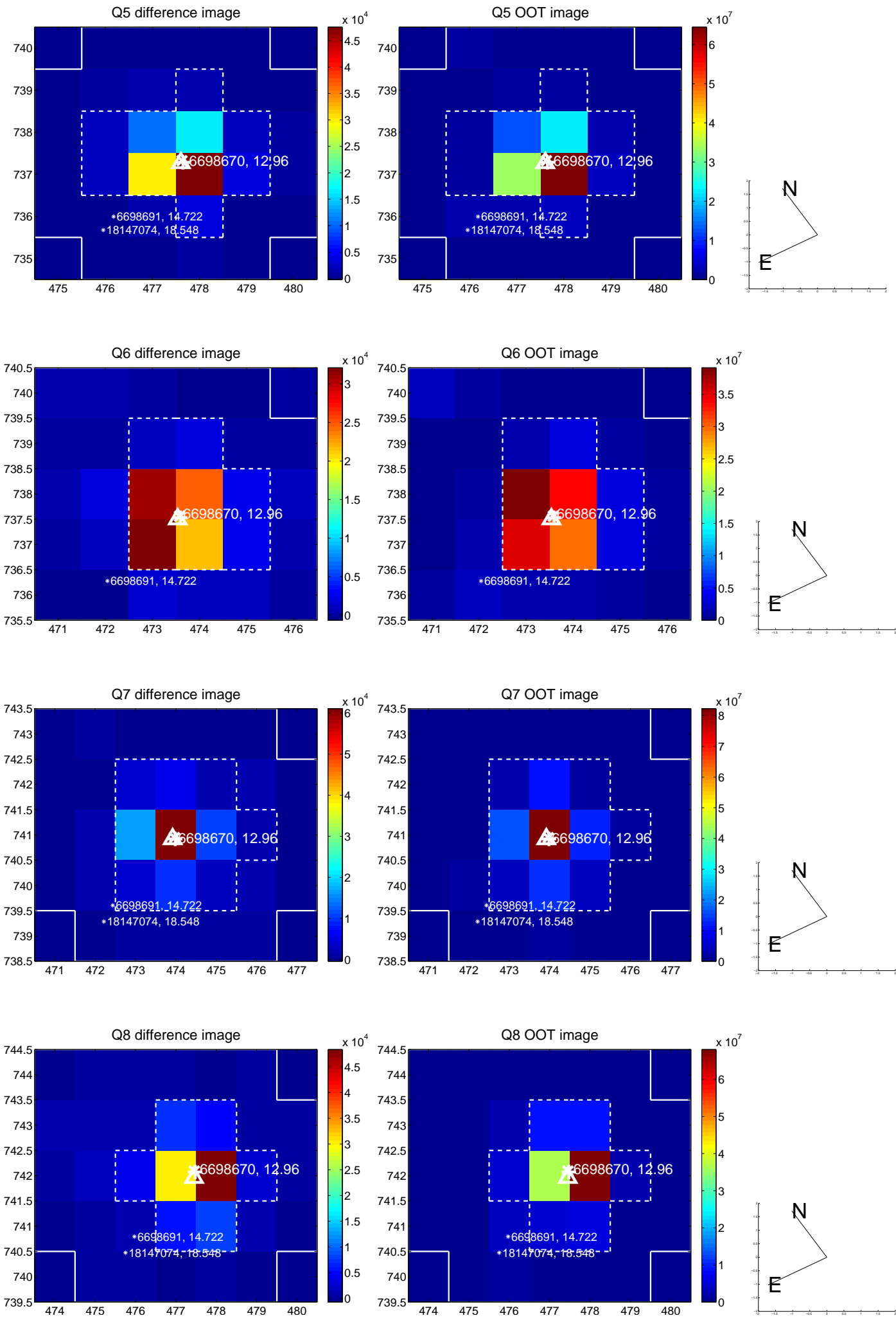


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

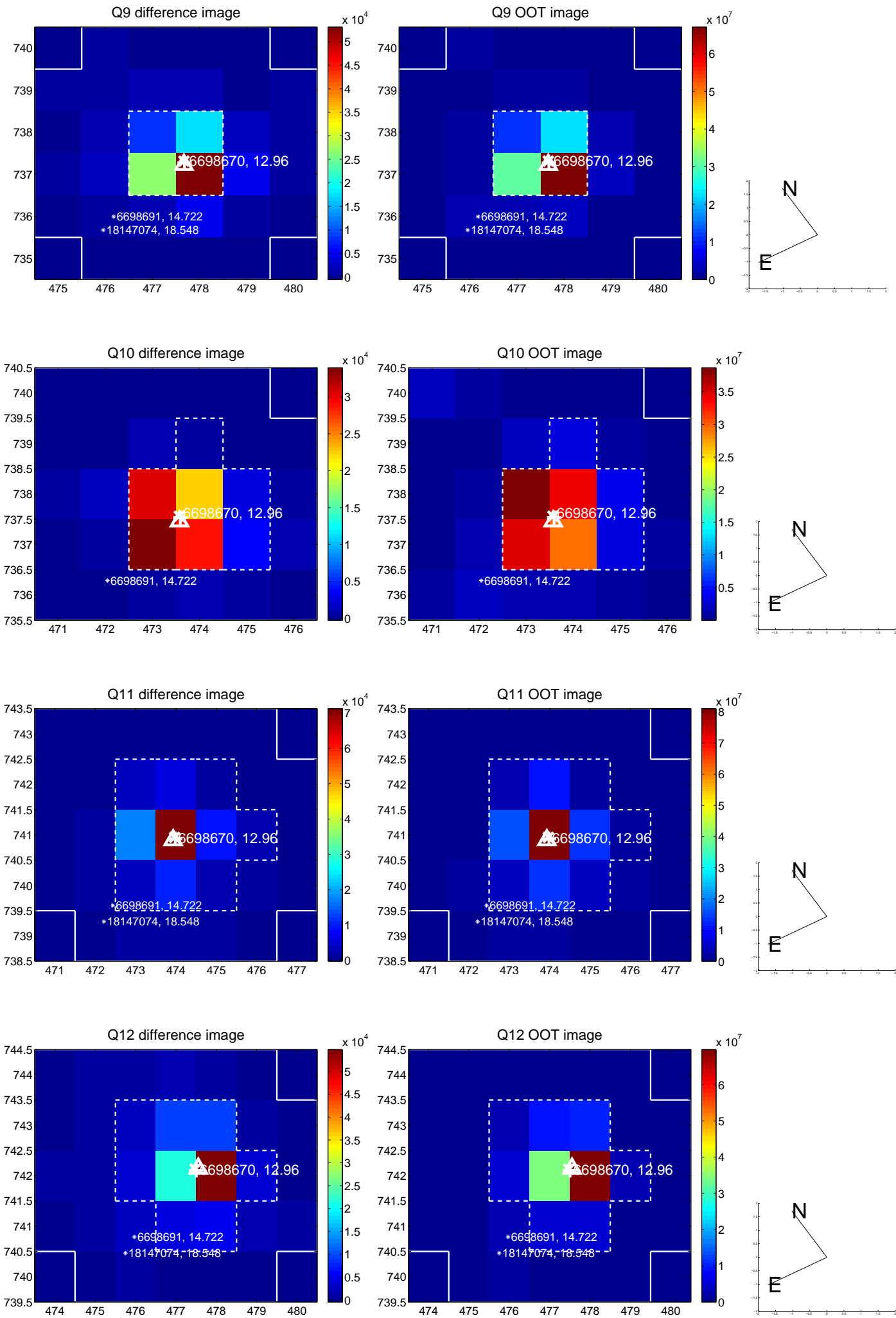
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



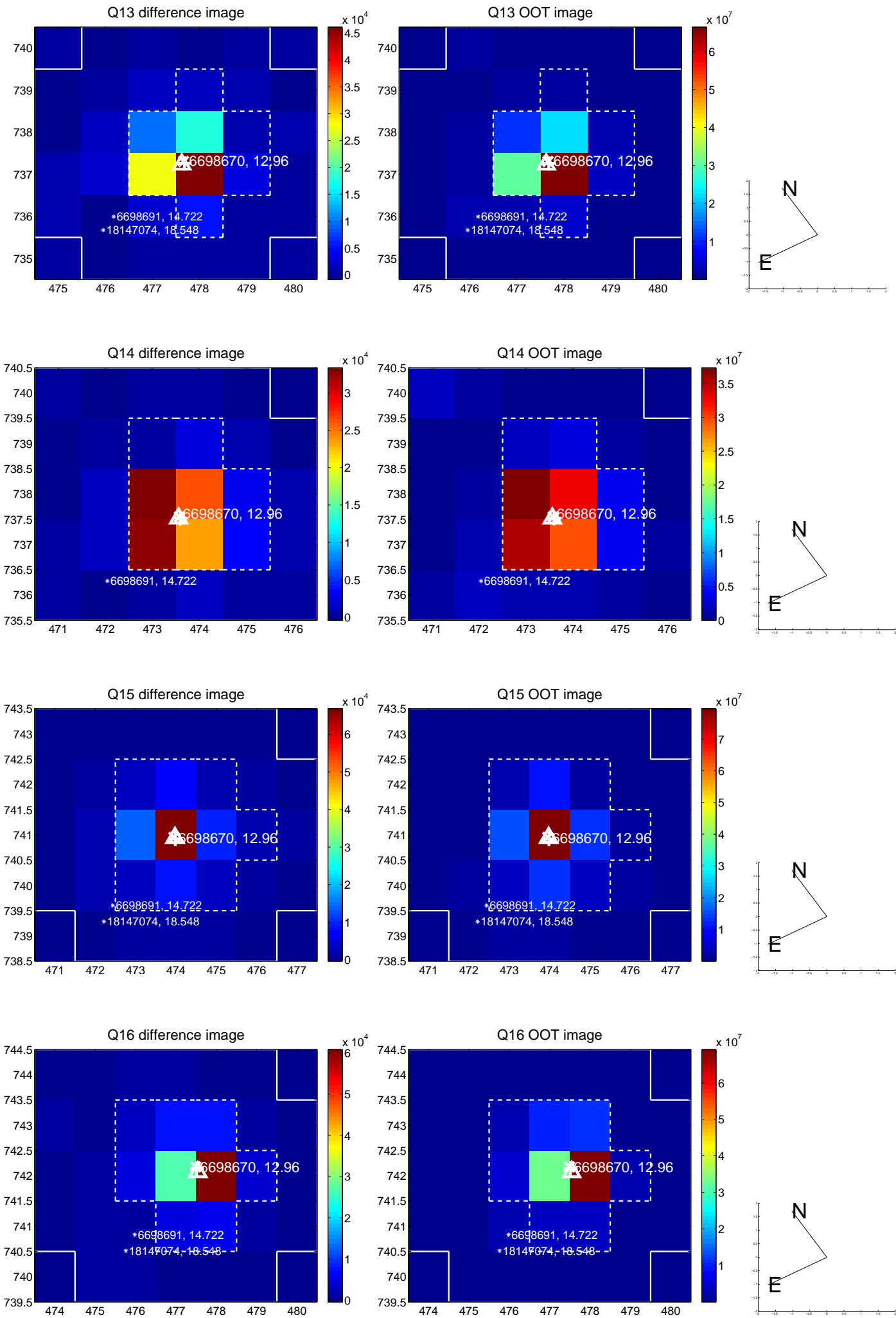
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



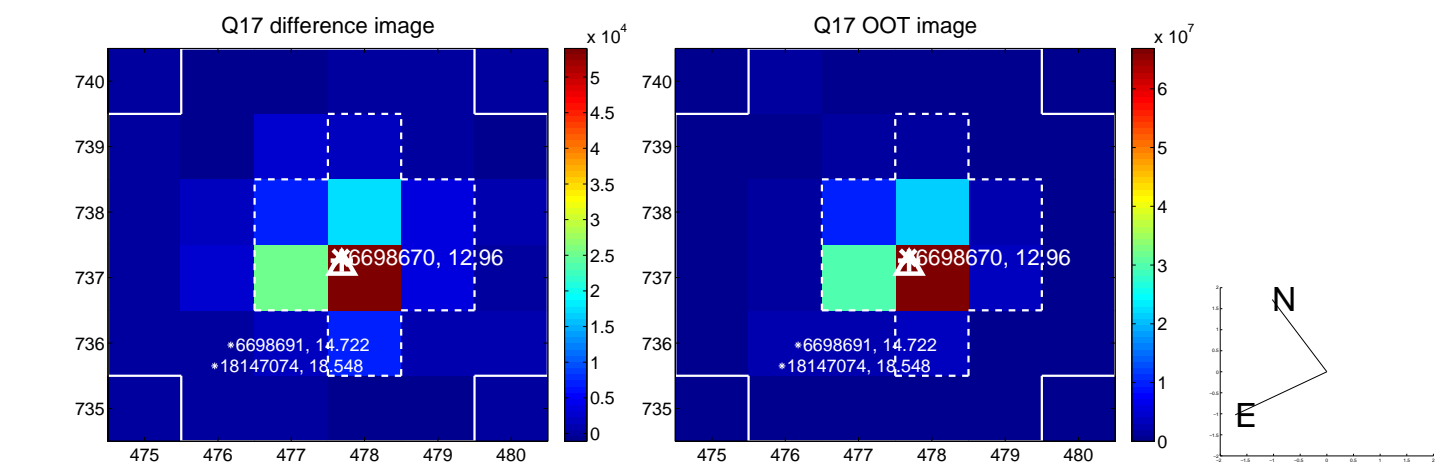
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



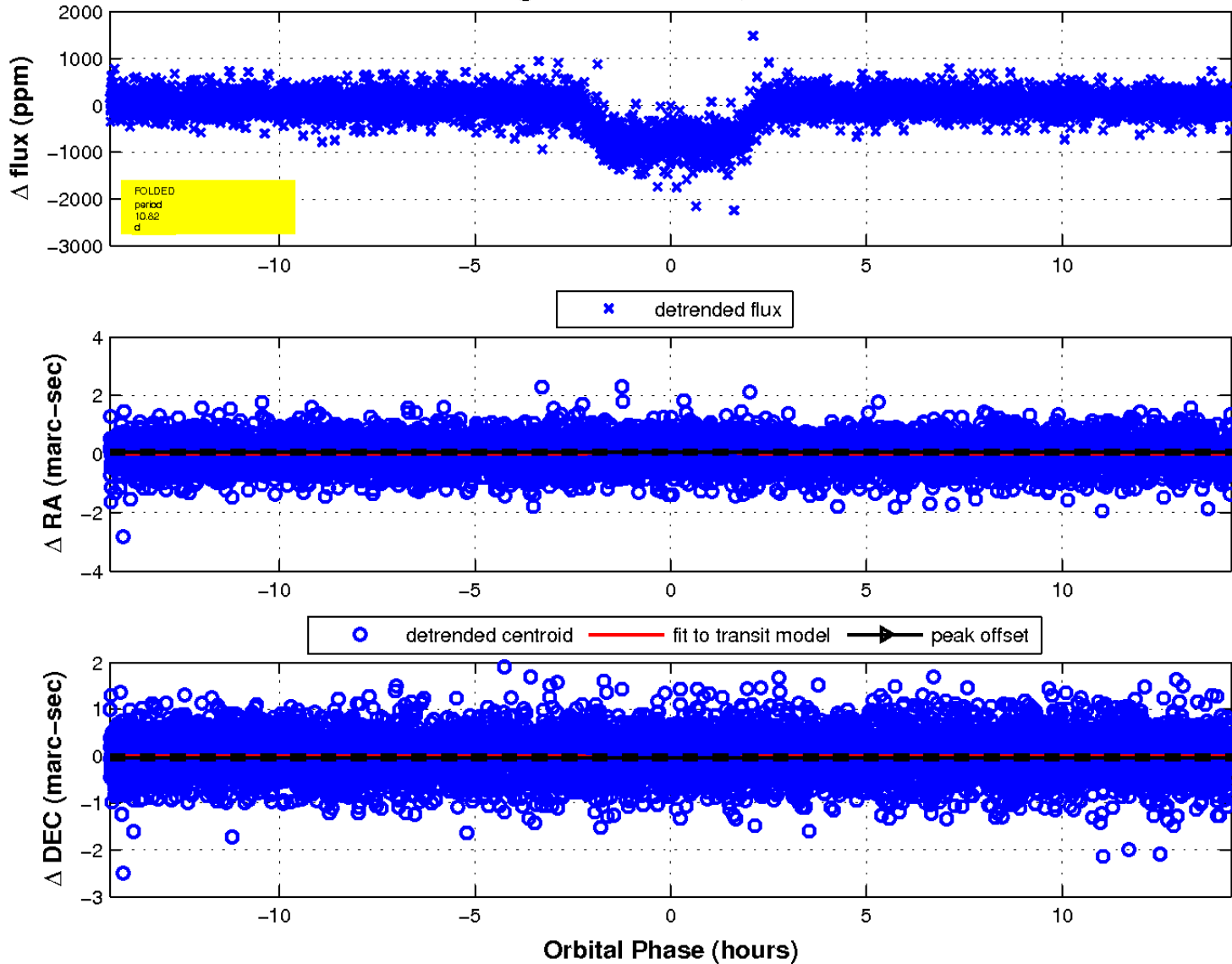
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

