

KIC 010984090

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})
010984090-01	OBS	0112.01	51.079283	134.101364	741.5	6.676	105.5	99.9	1.02	5833	3.10	15.20
010984090-02	OBS	0112.02	3.709189	133.987977	126.4	2.751	41.3	44.9	1.02	5833	1.36	501.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010984090-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
010984090-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

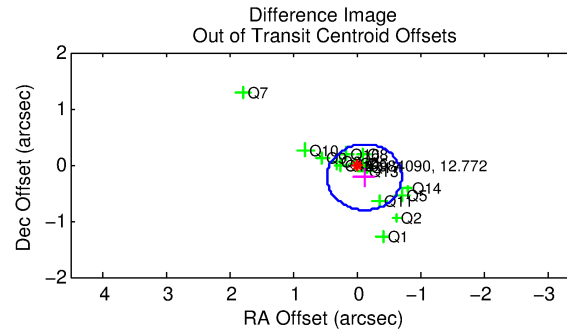
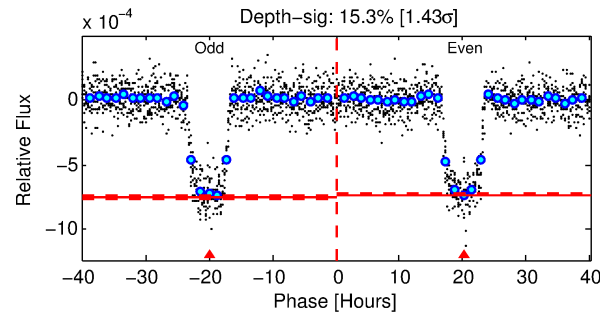
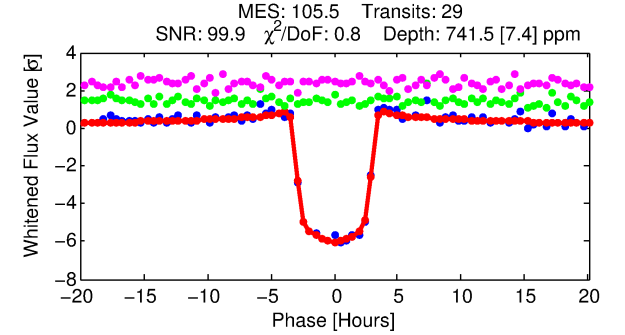
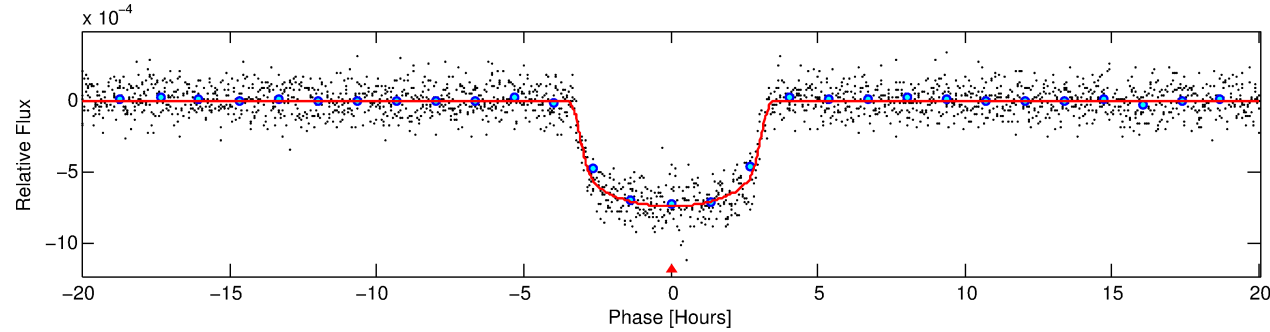
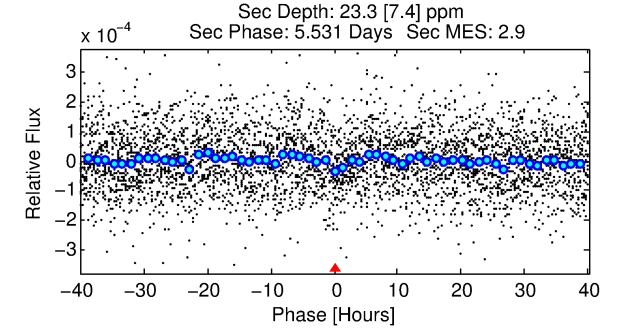
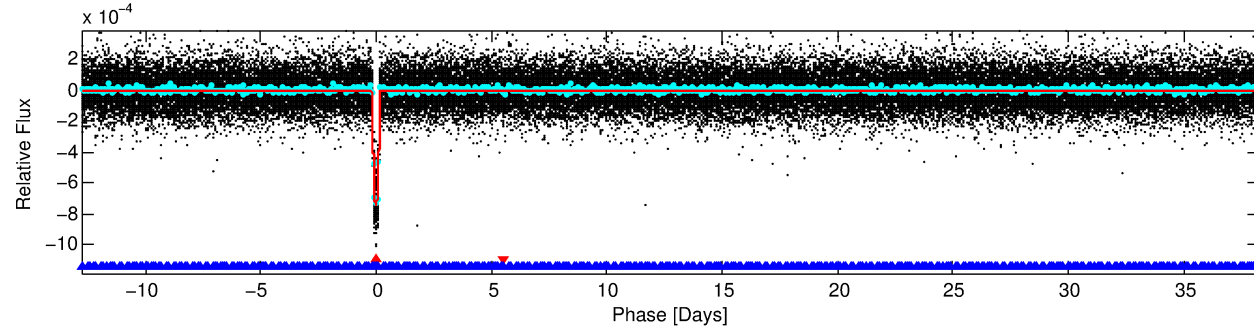
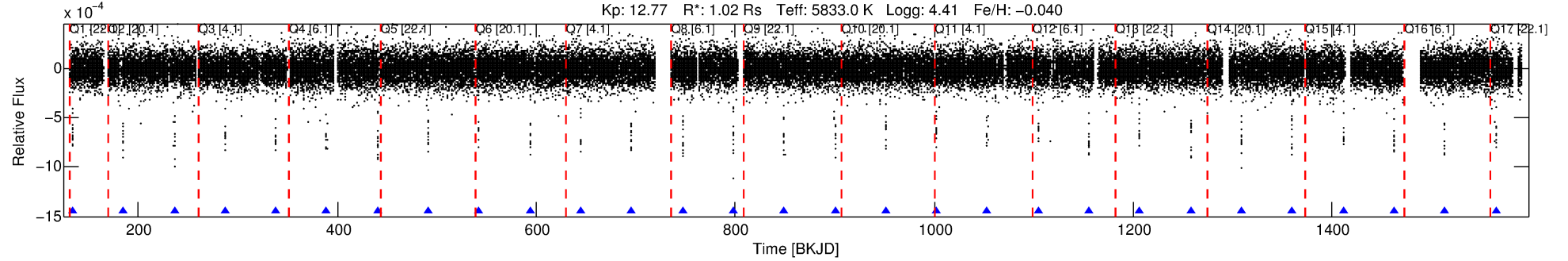
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010984090-01

No Significant Match Found

DV One-Page Summary

KIC: 10984090 Candidate: 1 of 2 Period: 51.079 d
KOI: K00112.01 Corr: 0.977



DV Fit Results:

Period = 51.07928 [0.00007] d
Epoch = 134.1014 [0.0012] BKJD
Rp/R* = 0.0278 [0.0008]
a/R* = 37.10 [4.58]
b = 0.81 [0.05]
Seff = 15.20 [3.25]
Teq = 503 [27] K
Rp = 3.10 [0.44] Re
a = 0.2670 [0.0341] AU
Ag = 94.95 [35.93] [2.61σ]
Teffp = 2430 [202] K [9.46σ]

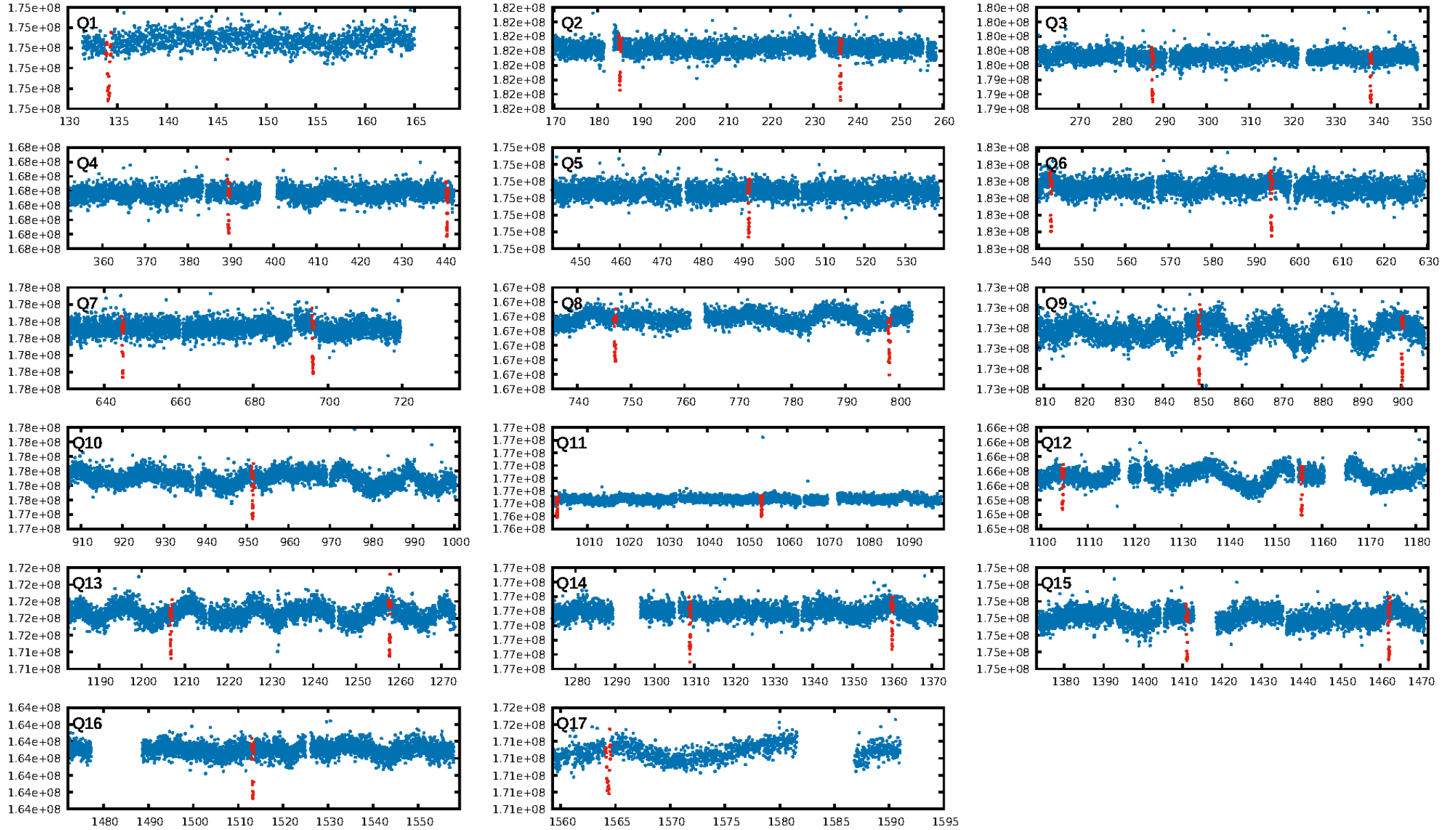
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [157.44σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 83.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [27/27]
GhostDiagnostic-chr: 5.852
Centroid-sig: 25.5%
Centroid-so: 0.064 arcsec [0.54σ]
OotOffset-rm: 0.254 arcsec [1.30σ]
KicOffset-rm: 0.275 arcsec [1.36σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.81 [13/16]

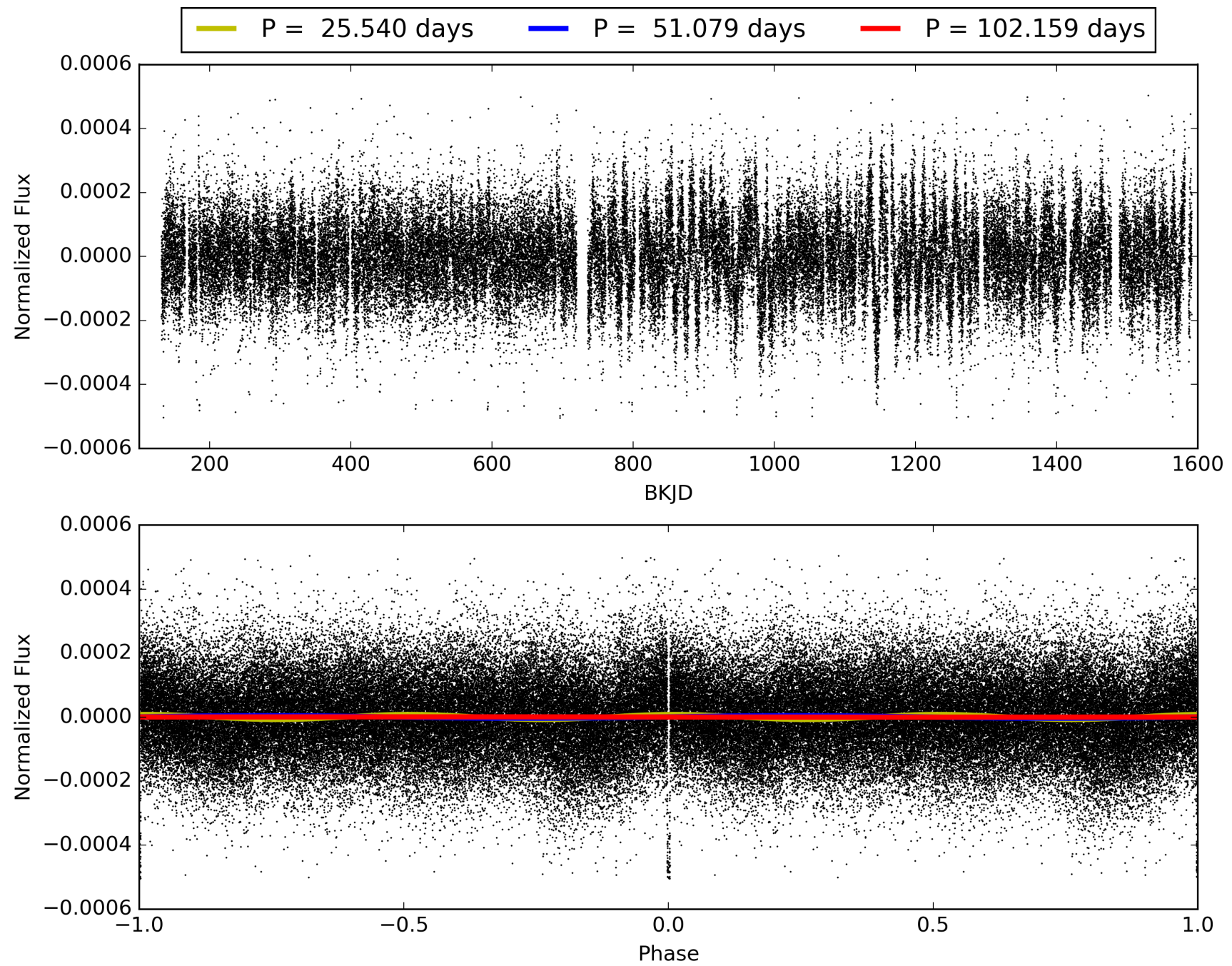
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:34:31 Z

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

TCE 010984090-01, PDC Light Curves

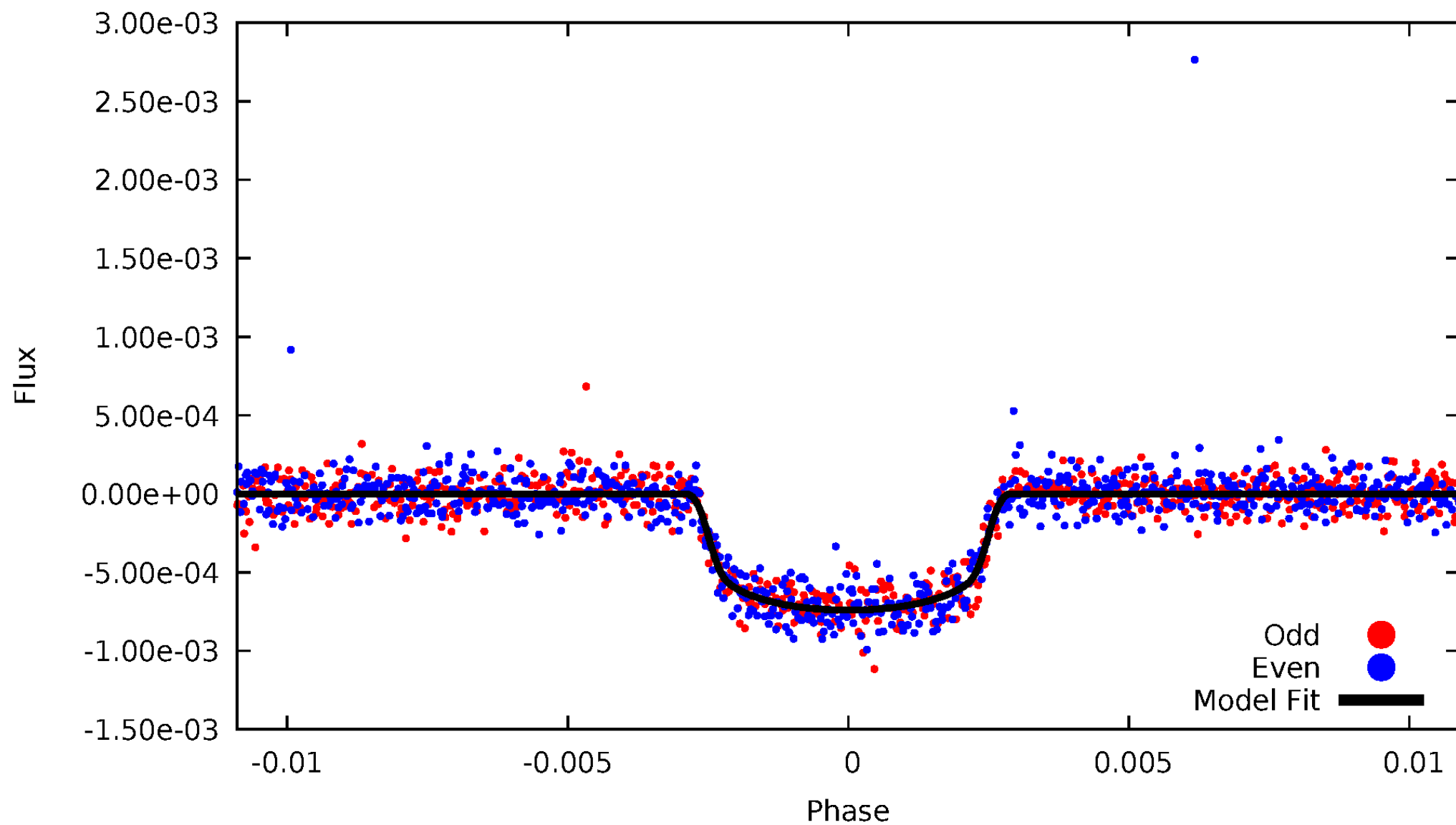


TCE 010984090-01



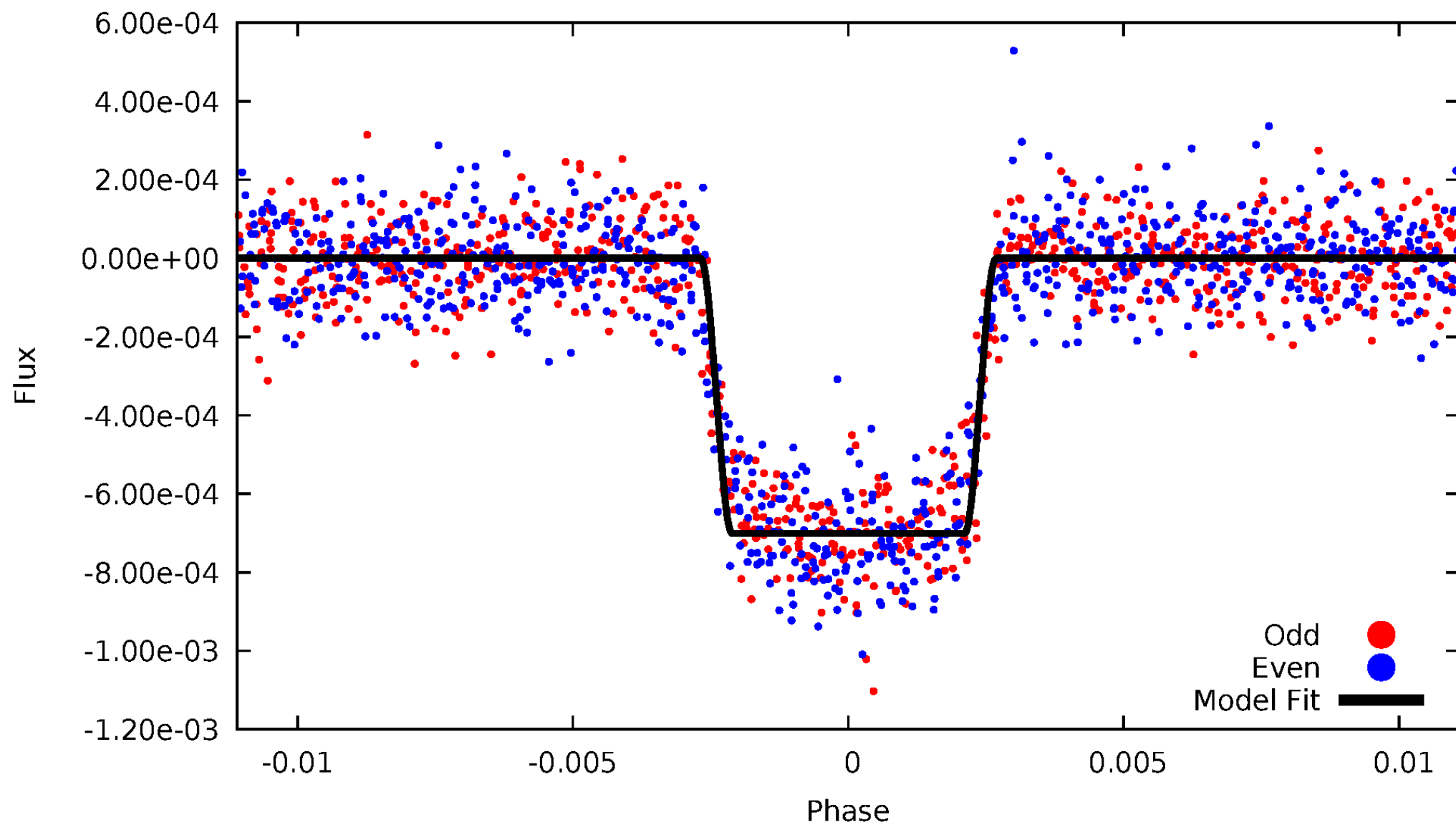
DV Odd/Even

TCE 010984090-01



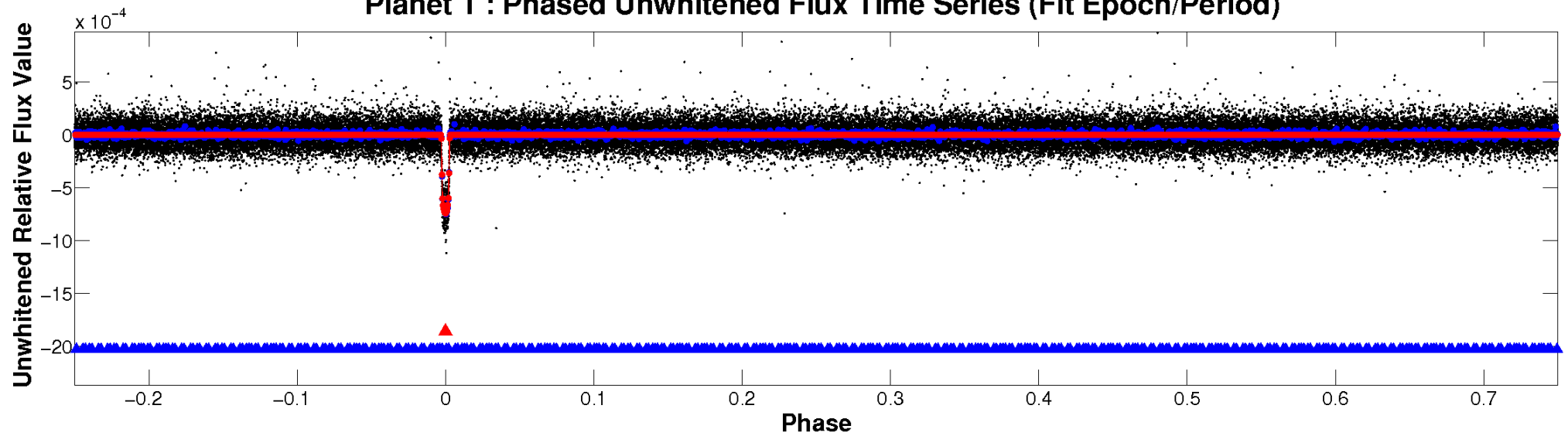
ALT Odd/Even

TCE 010984090-01

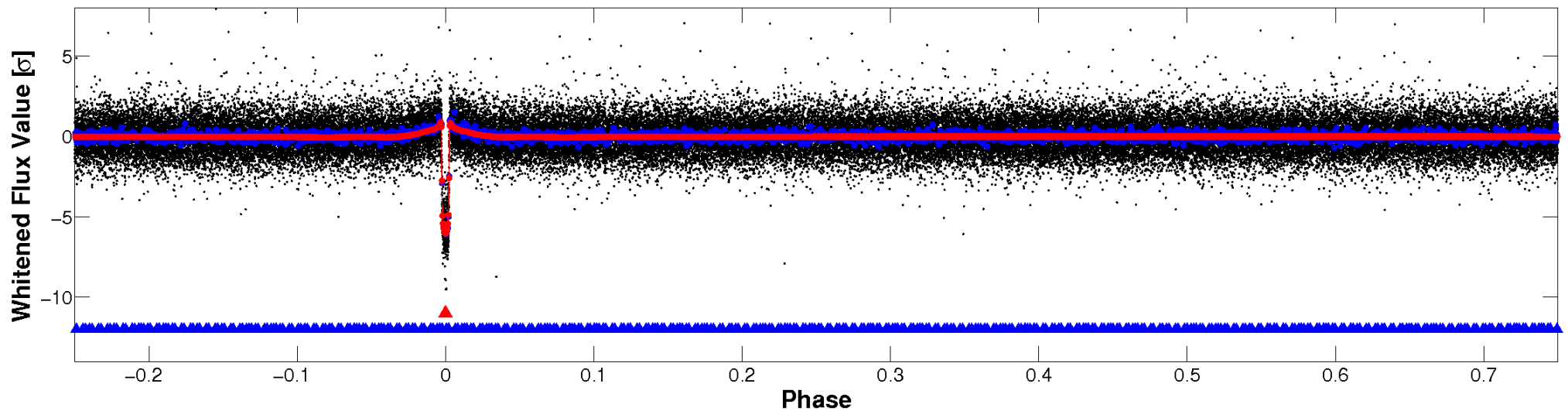


Non-Whitened Vs. Whitened Light Curve

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

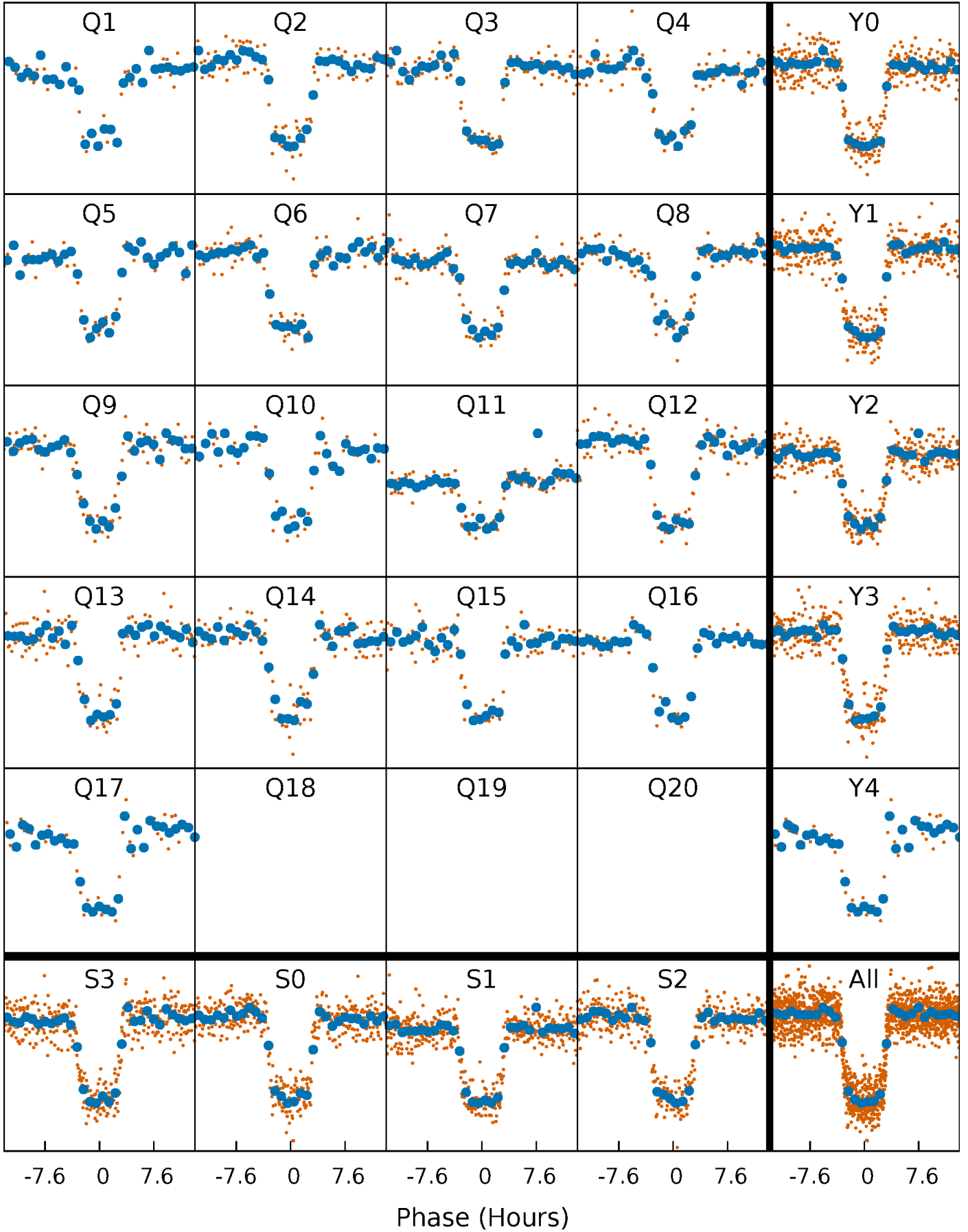


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



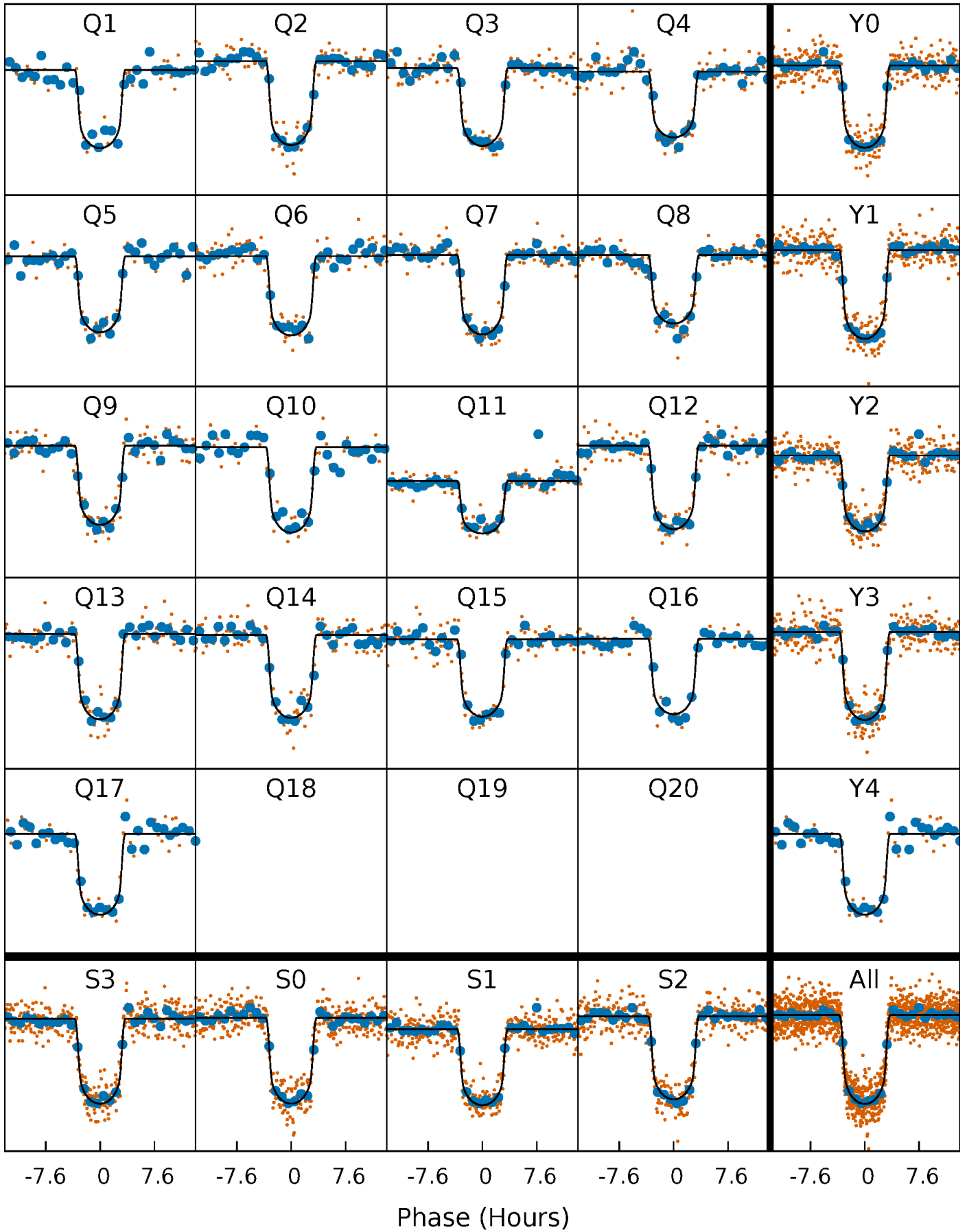
PDC Quarter-Phased Transit Curves

TCE 010984090-01 P= 51.079283 Days $T_0=134.101364$ (BKJD)



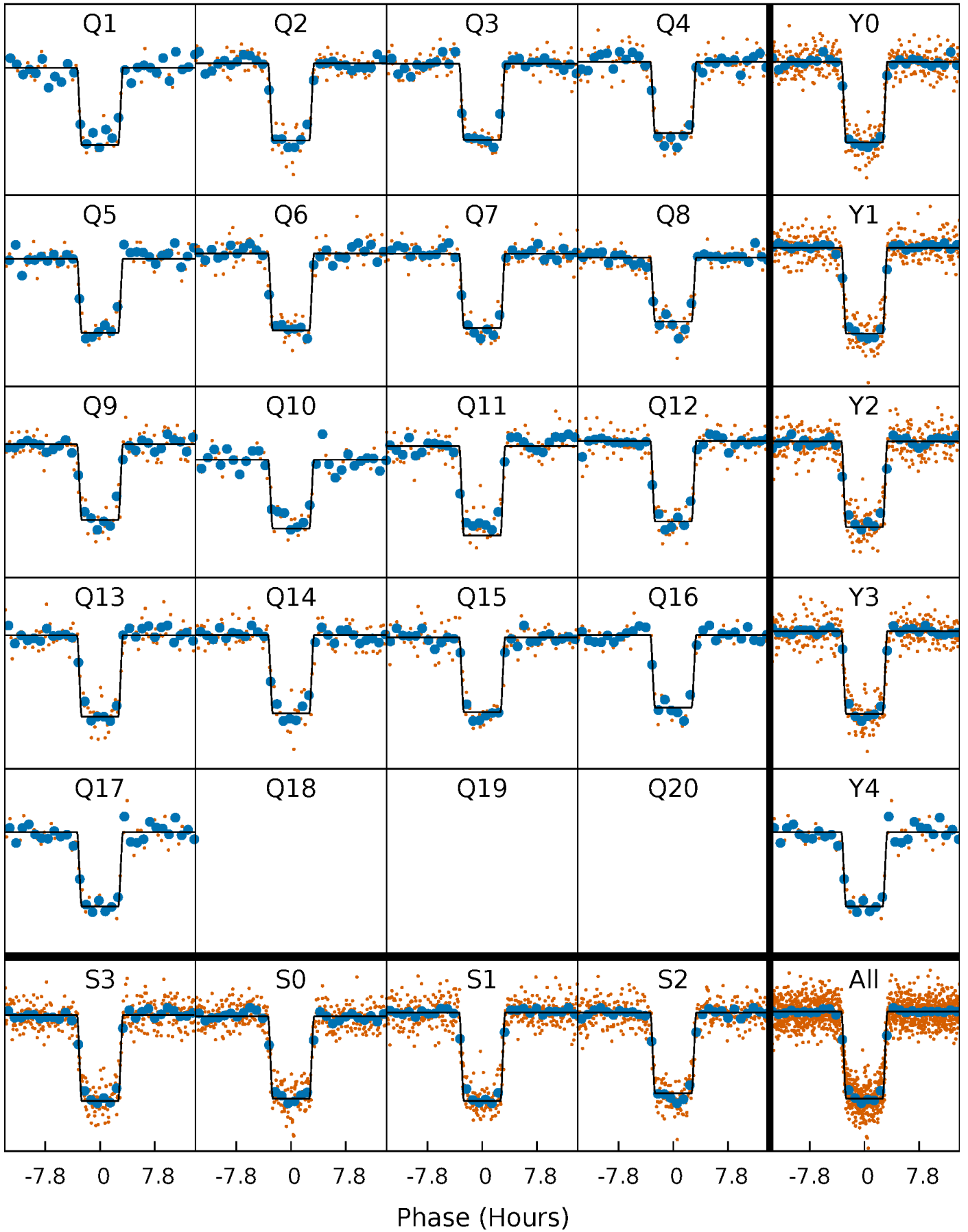
DV Quarter-Phased Transit Curves

TCE 010984090-01 P= 51.079283 Days $T_0=134.101364$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

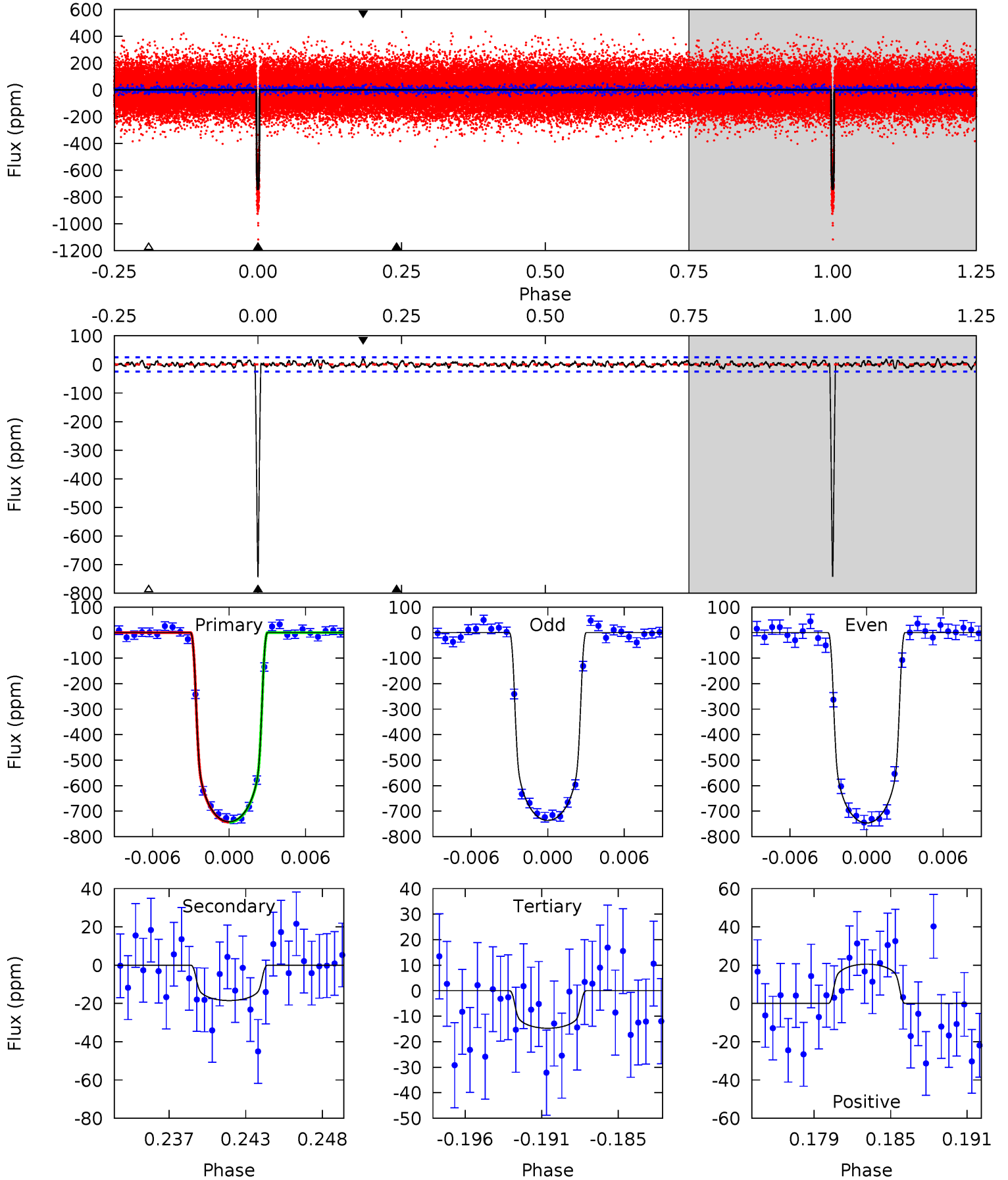
TCE 010984090-01 P= 51.078946 Days $T_0=134.106105$ (BKJD)



DV Model-Shift Uniqueness Test

010984090-01, P = 51.079283 Days, E = 83.022081 Days

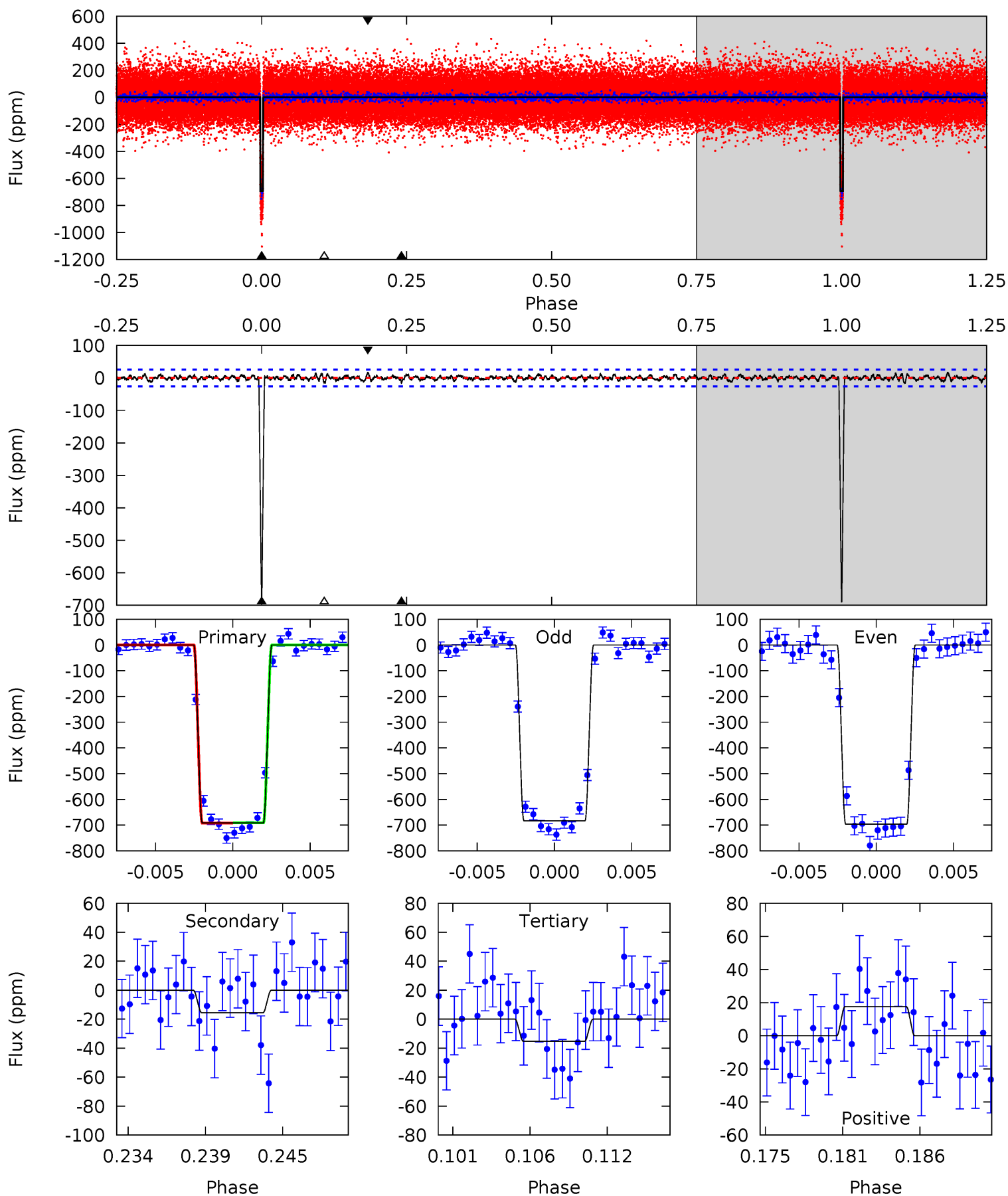
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
152.3	3.80	3.02	4.21	5.13	2.76	1.18	149.2	148.0	0.77	-0.42	1.06	0.99	0.03	0.07



Alt Model-Shift Uniqueness Test

010984090-01, P = 51.078946 Days, E = 83.027159 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
137.6	3.10	3.03	3.51	5.15	2.79	0.95	134.6	134.1	0.07	-0.41	1.32	0.99	0.02	0.13



Stellar Parameters For KIC 010984090

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5833^{+105}_{-117}	$4.407^{+0.085}_{-0.114}$	$-0.040^{+0.150}_{-0.150}$	$1.022^{+0.143}_{-0.107}$	$0.974^{+0.066}_{-0.066}$	$1.283^{+0.409}_{-0.406}$
	+2%/-2%	+2%/-3%	+375%/-375%	+14%/-10%	+7%/-7%	+32%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010984090-01 / KOI 0112.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-18 ± 5	$3.11^{+0.27}_{-0.22}$	704^{+30}_{-26}	2973^{+109}_{-137}	74^{+25}_{-21}
Alt.	-16 ± 5	$2.97^{+0.26}_{-0.21}$	706^{+30}_{-26}	2940^{+132}_{-160}	67^{+28}_{-24}

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 $A_{obs} \gg 1.0$

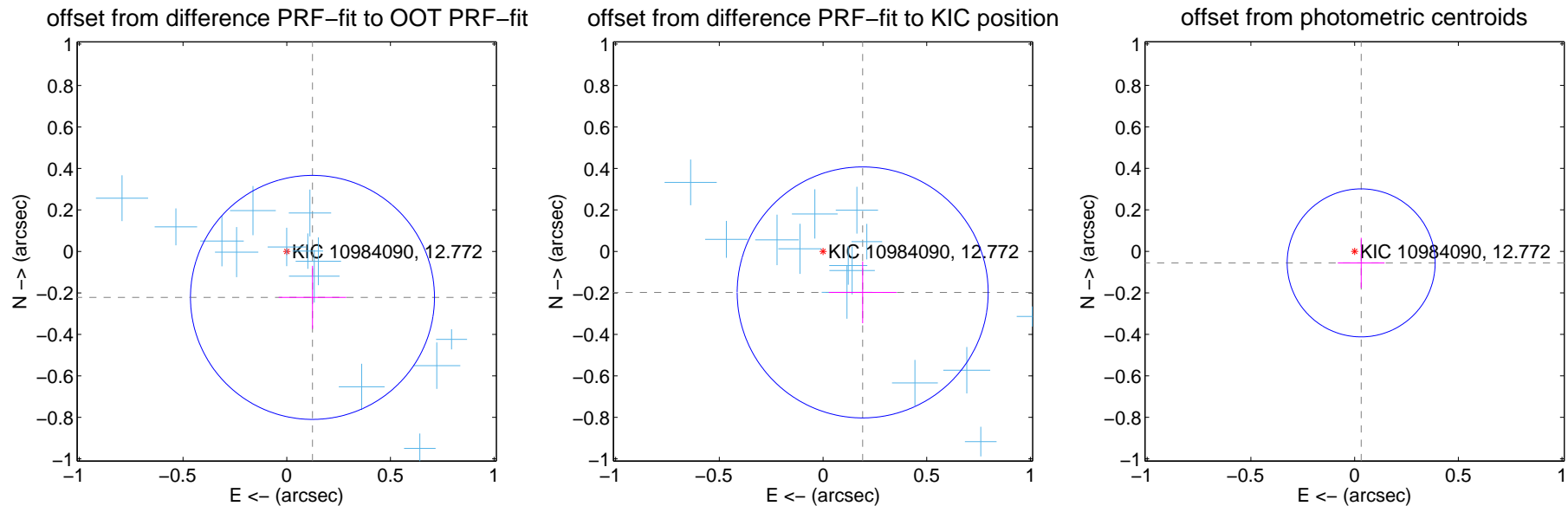
DV Centroid Data

Supplemental centroid analysis for 010984090-01. Kepler magnitude: 12.77. Transit SNR 99.86

There are 16 quarters with good PRF difference image offsets

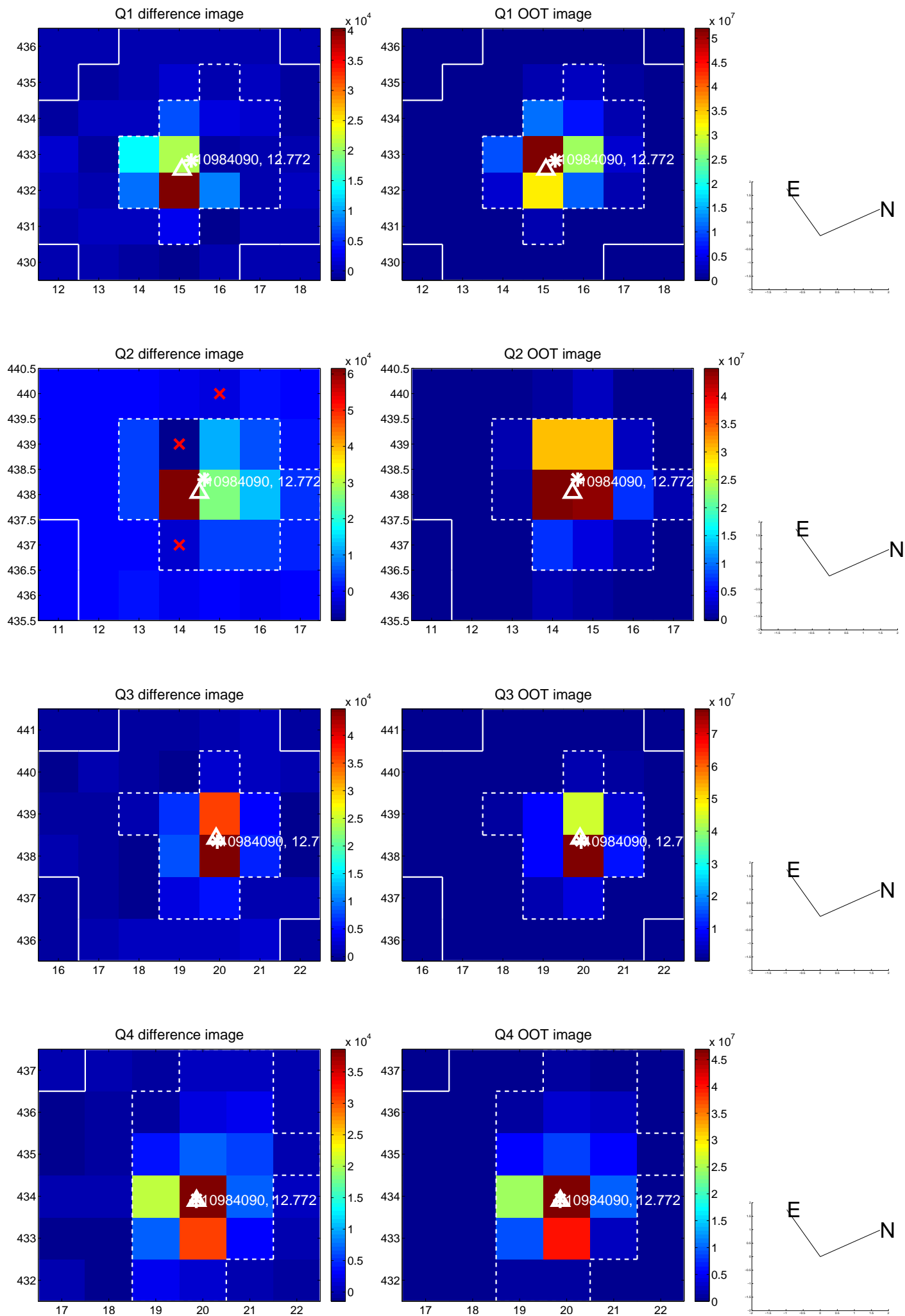
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.254 ± 0.196	1.30	-0.124 ± 0.163	-0.222 ± 0.152
PRF-fit source offset from KIC position	0.275 ± 0.202	1.36	-0.191 ± 0.163	-0.198 ± 0.148
photometric centroid source offset	0.06 ± 0.12	0.54	-0.03 ± 0.11	-0.06 ± 0.12

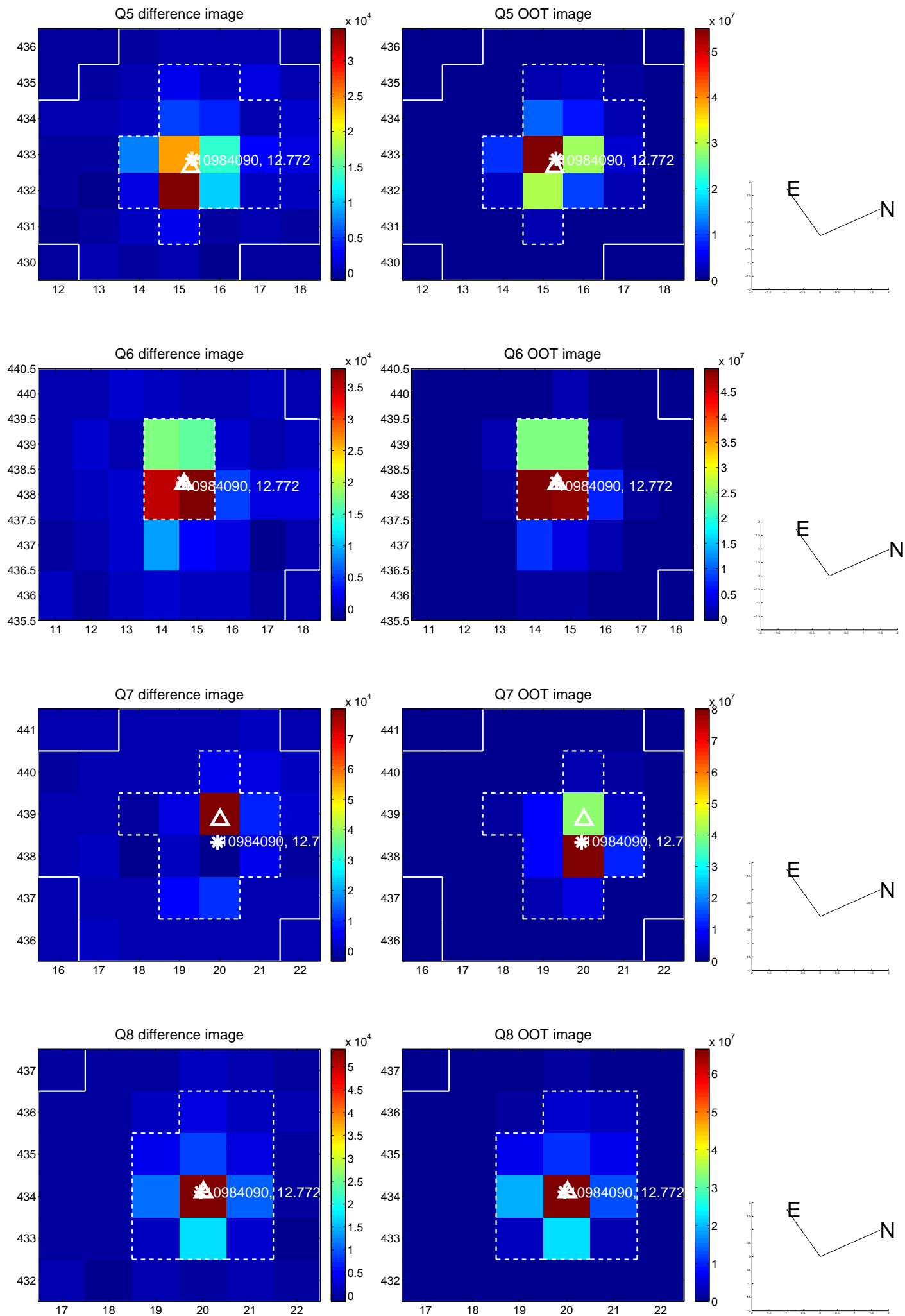


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

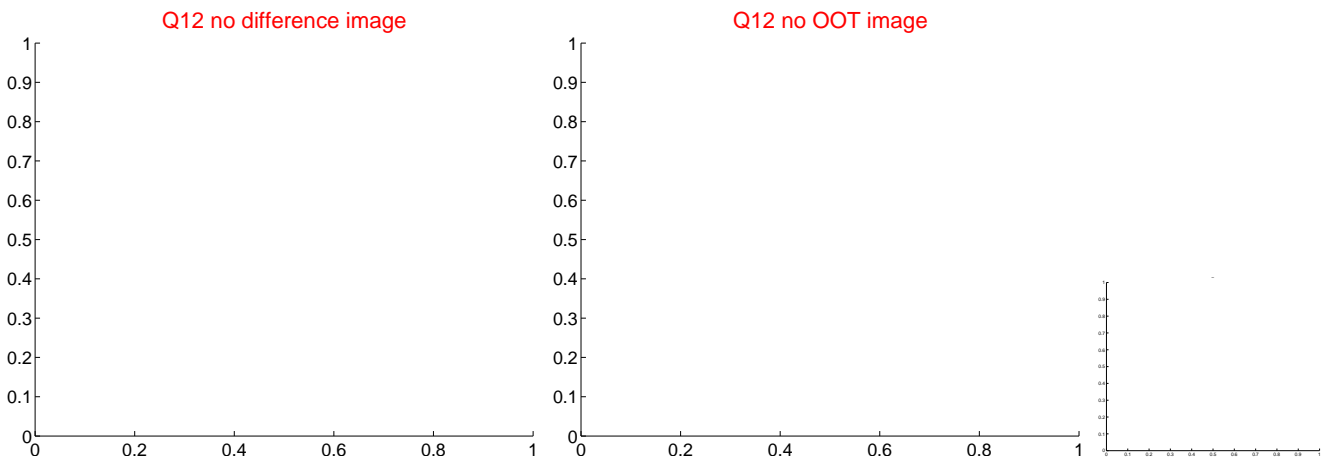
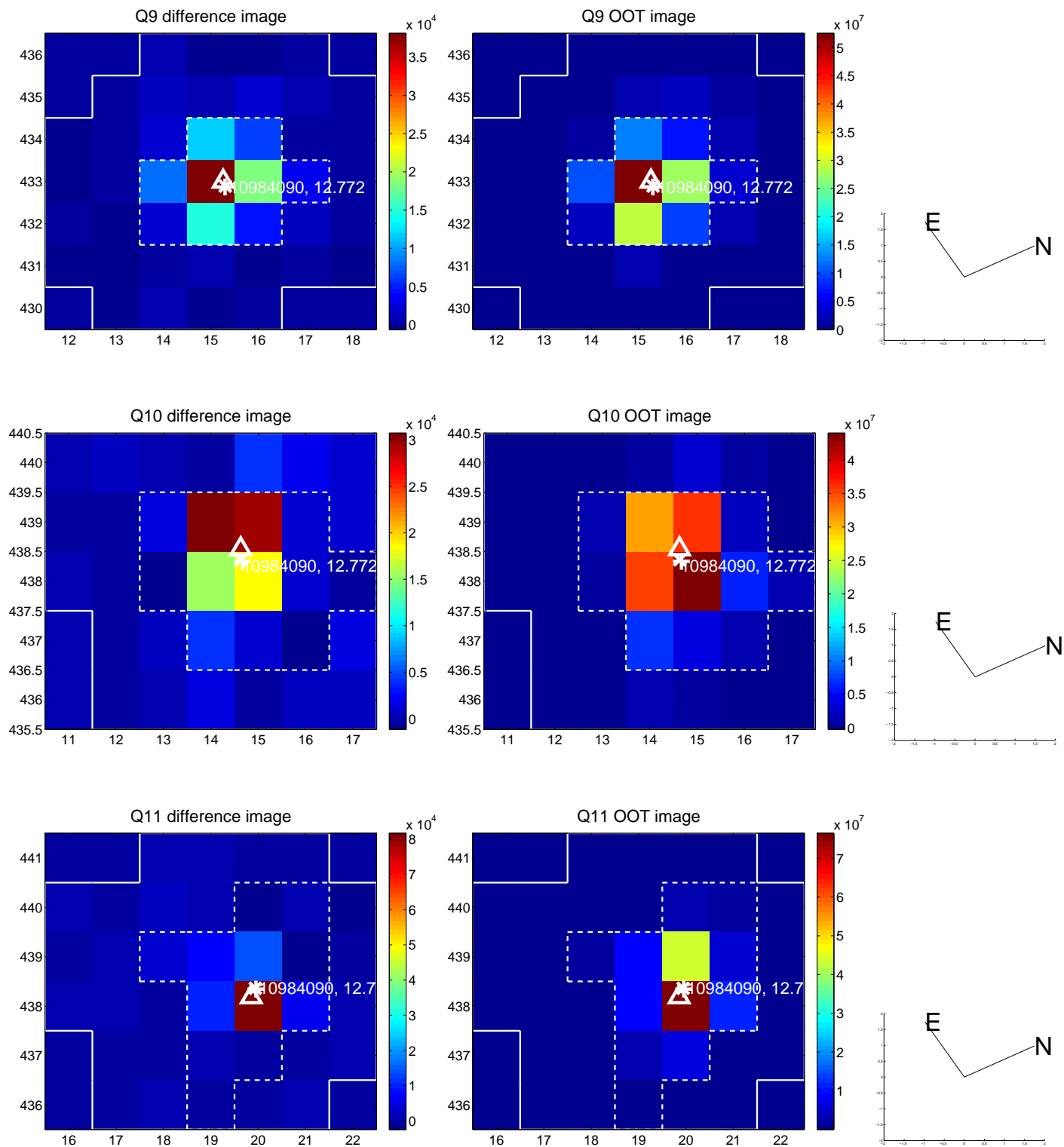
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



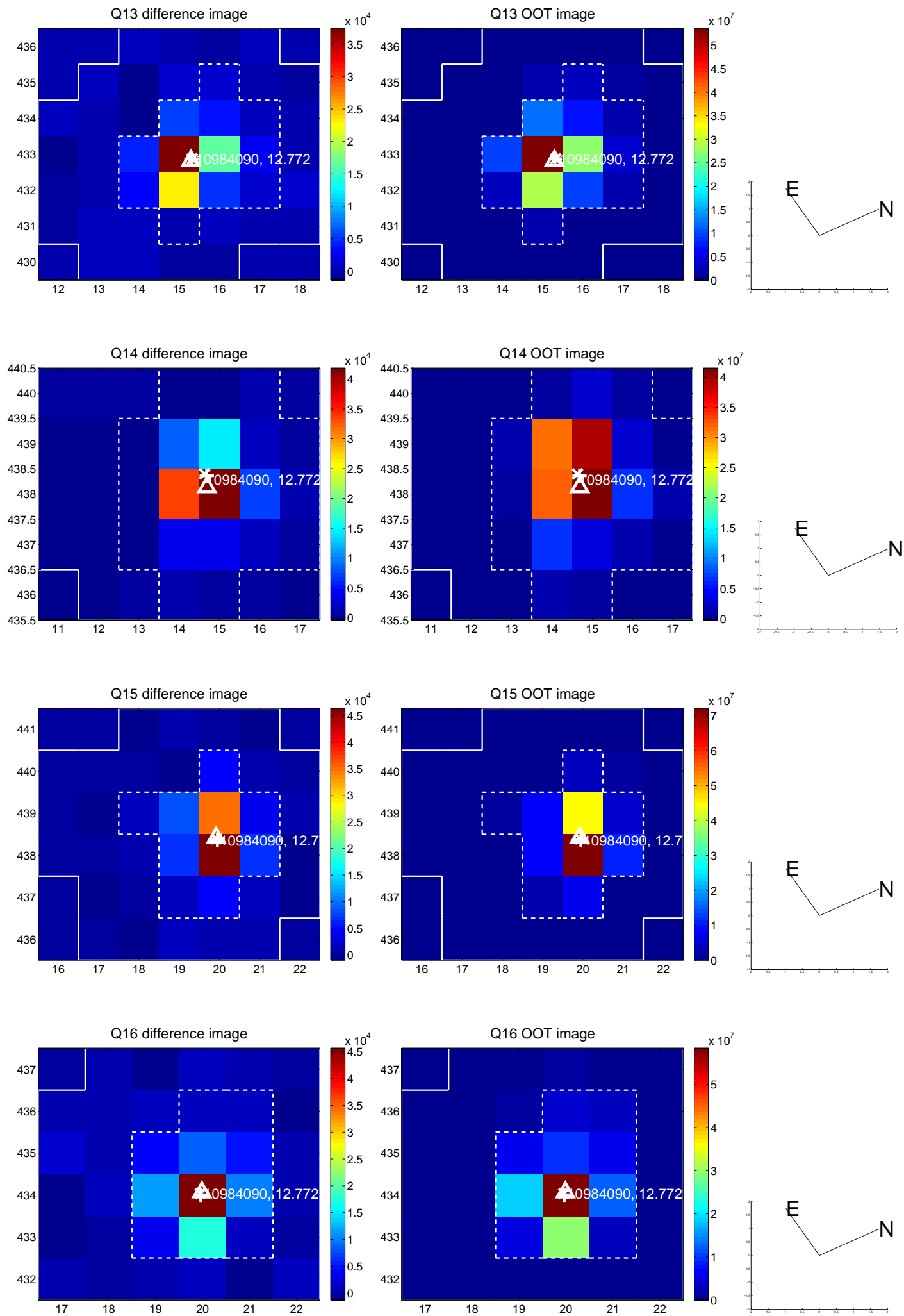
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



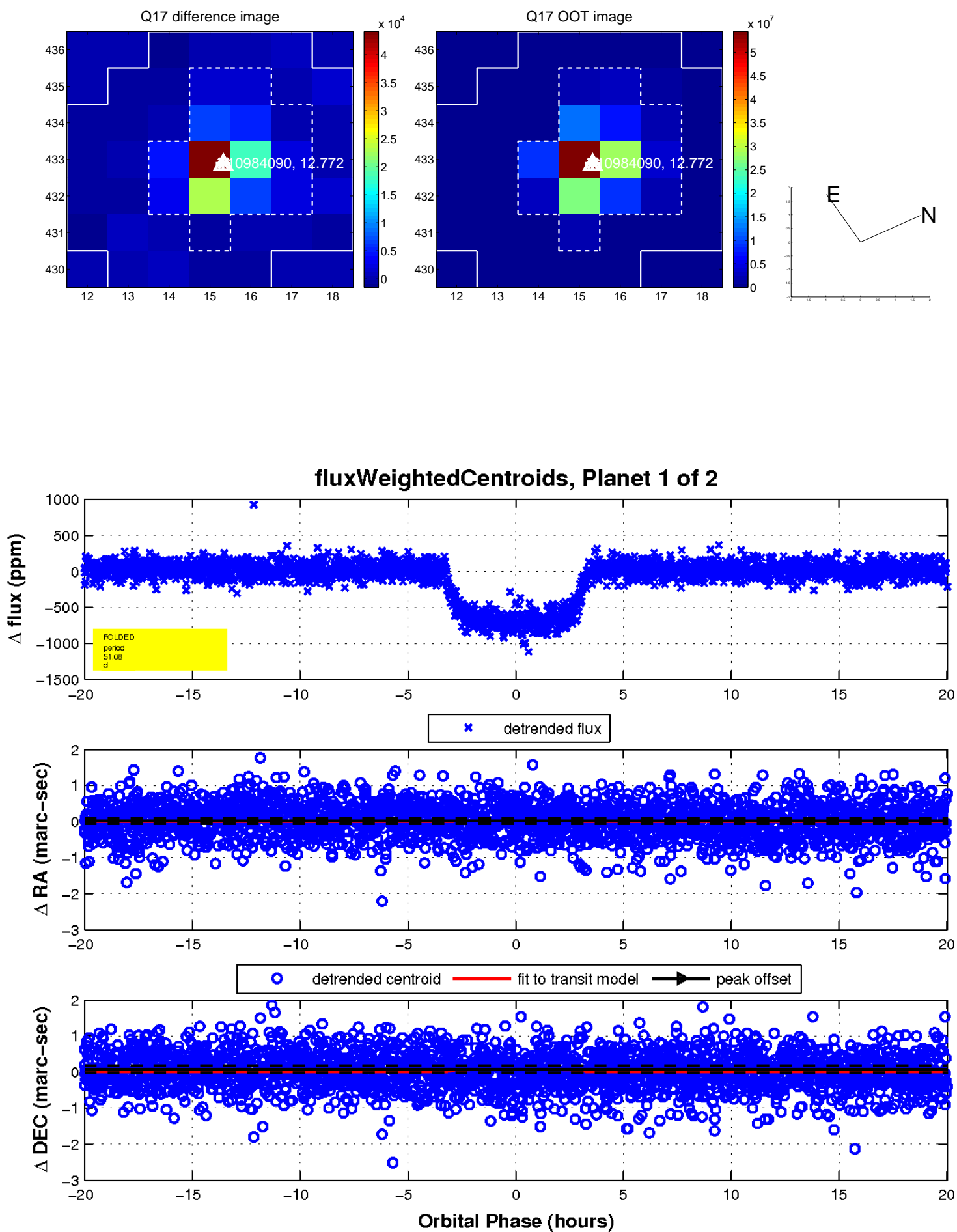
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

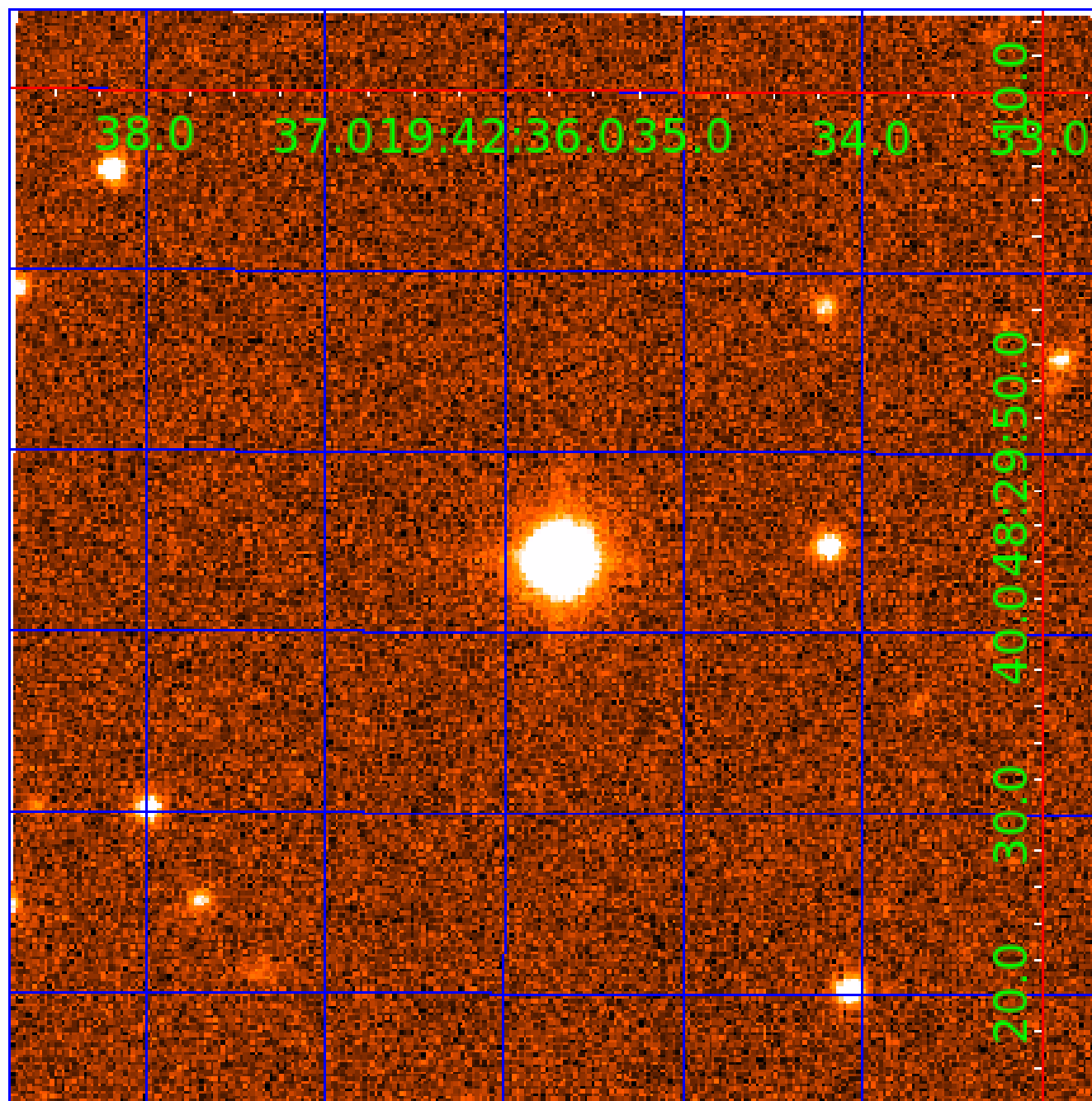


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010984090

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})
010984090-01	OBS	0112.01	51.079283	134.101364	741.5	6.676	105.5	99.9	1.02	5833	3.10	15.20
010984090-02	OBS	0112.02	3.709189	133.987977	126.4	2.751	41.3	44.9	1.02	5833	1.36	501.64

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010984090-01	OBS	PC	0.99	0	0	0	0	NO_COMMENT
010984090-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

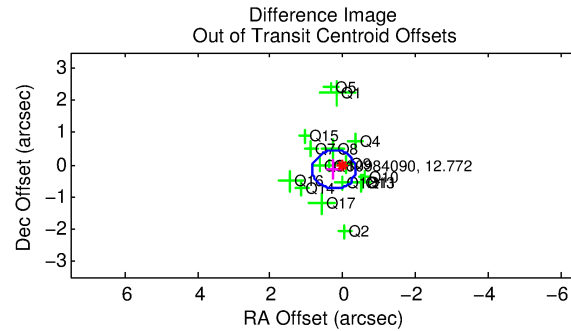
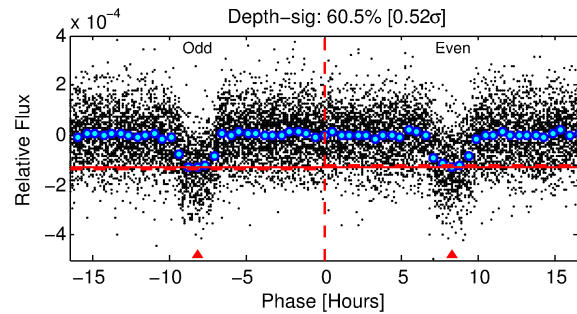
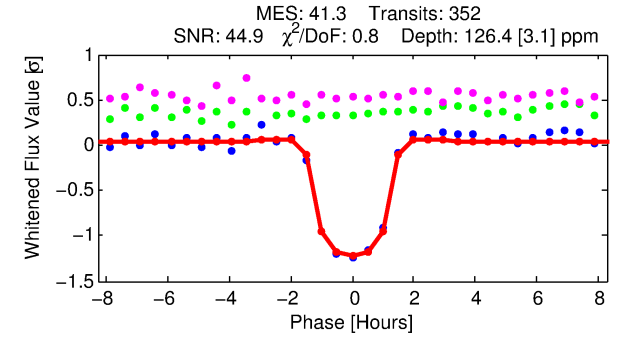
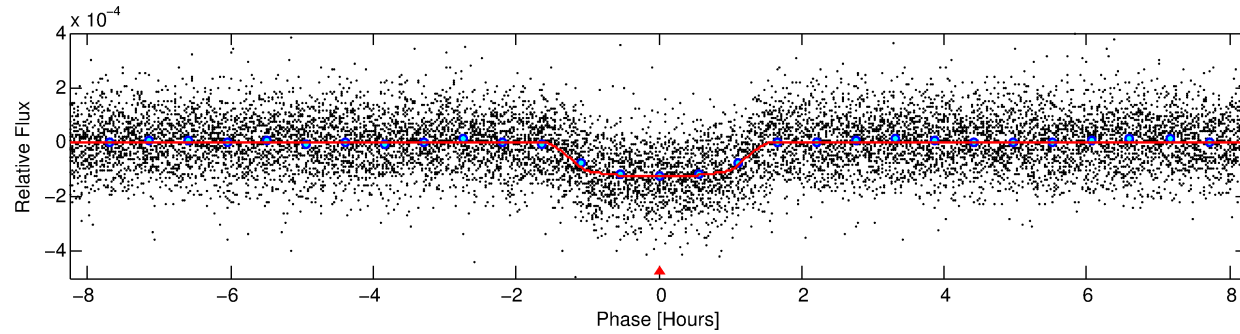
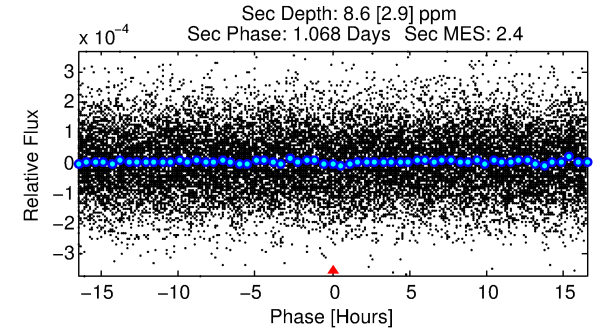
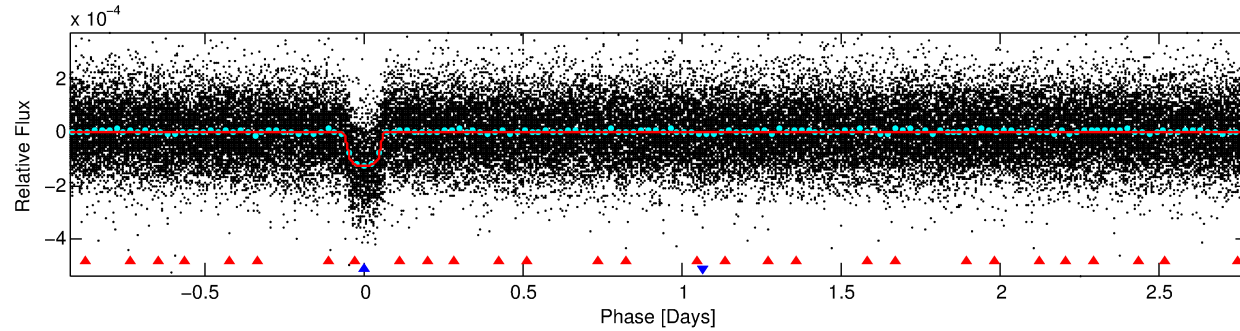
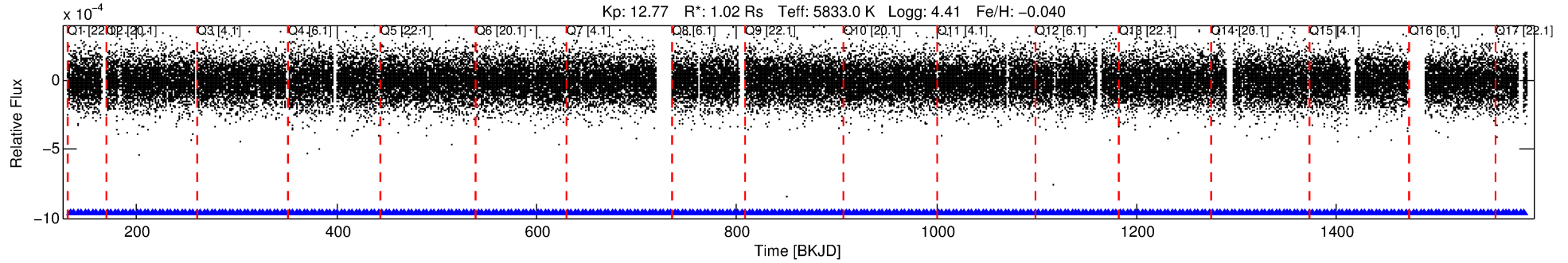
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010984090-02

No Significant Match Found

DV One-Page Summary

KIC: 10984090 Candidate: 2 of 2 Period: 3.709 d
KOI: K00112.02 Corr: 0.962



DV Fit Results:

Period = 3.70919 [0.00001] d
Epoch = 133.9880 [0.0010] BKJD
Rp/R* = 0.0122 [0.0018]
a/R* = 4.84 [3.31]
b = 0.90 [0.15]
Seff = 501.64 [107.31]
Teq = 1207 [65] K
Rp = 1.36 [0.28] Re
a = 0.0465 [0.0059] AU
Ag = 5.49 [2.66] [1.69σ]
Teffp = 2857 [320] K [5.05σ]

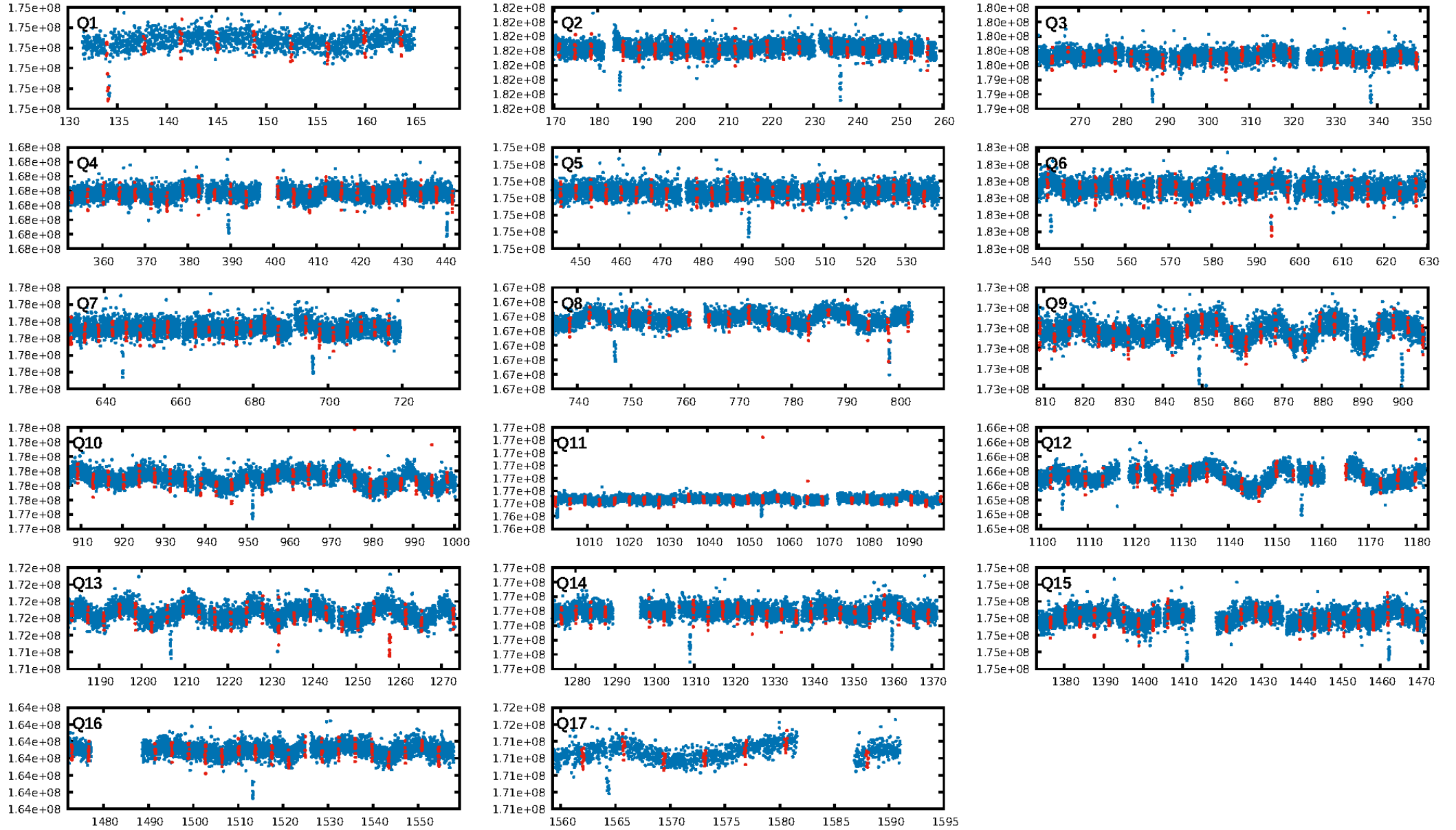
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [157.44σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [337/337]
GhostDiagnostic-chr: 6.654
Centroid-sig: 0.9%
Centroid-so: 0.577 arcsec [2.06σ]
OotOffset-rm: 0.287 arcsec [1.44σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.206 arcsec [1.00σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

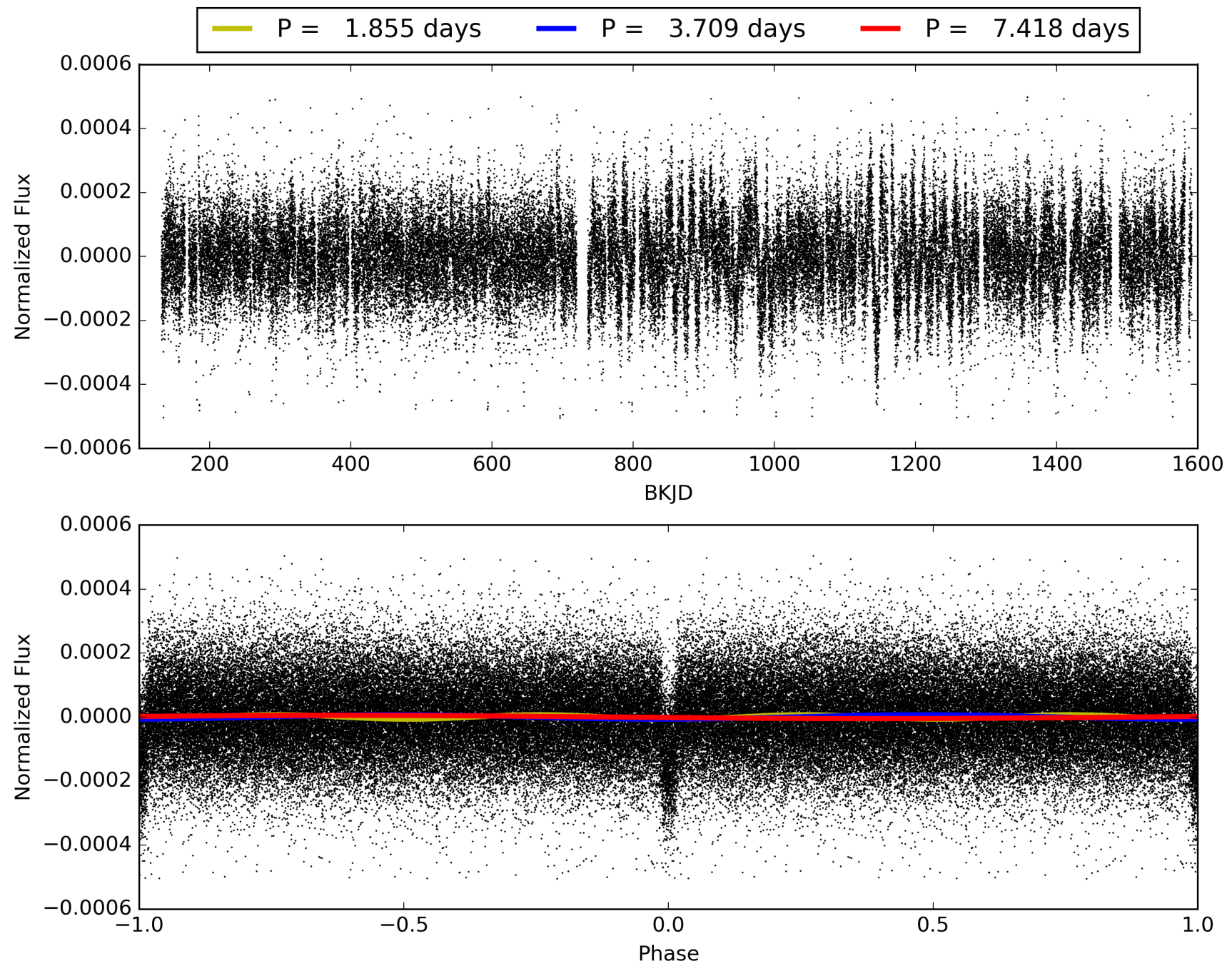
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:34:37 Z

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

TCE 010984090-02, PDC Light Curves

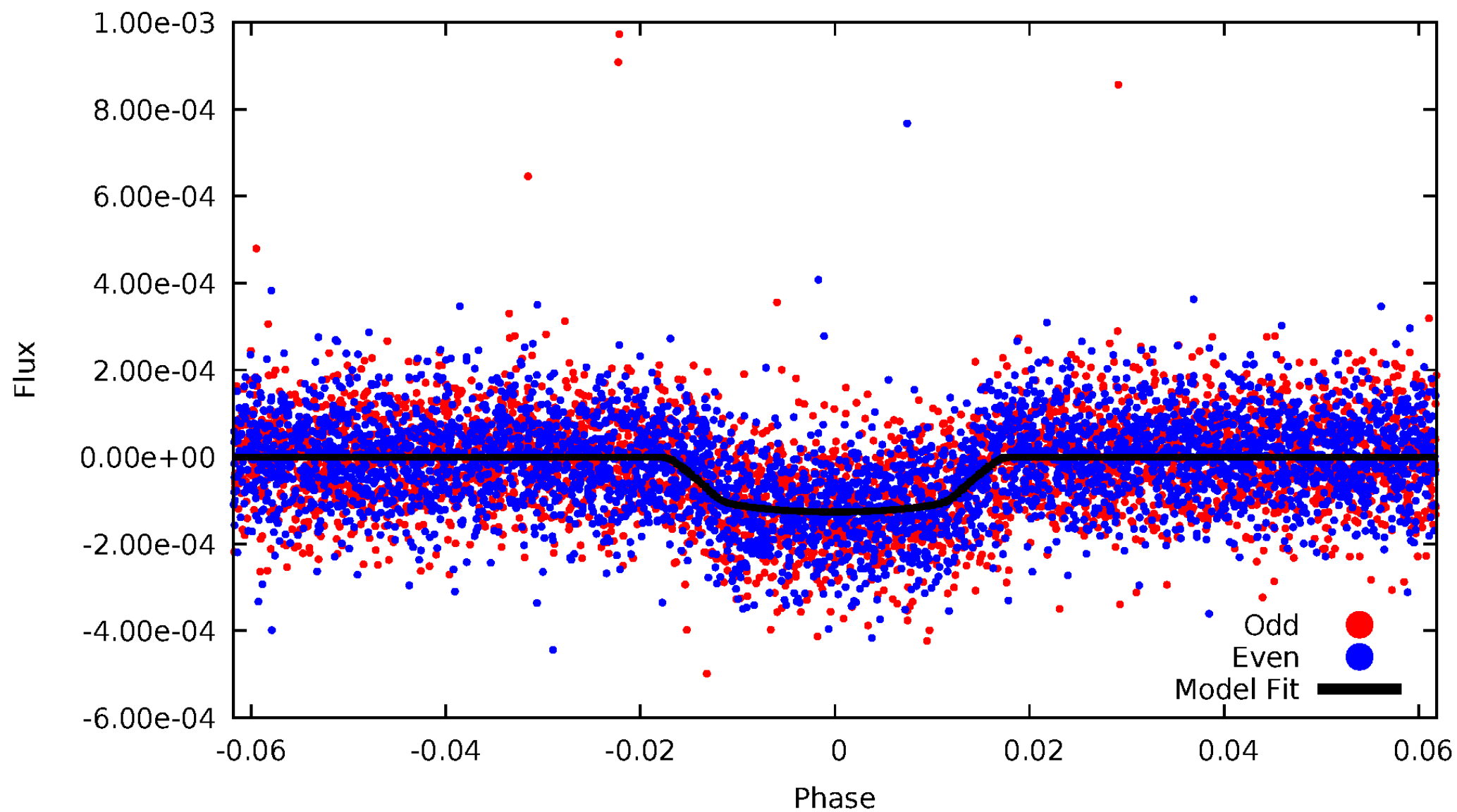


TCE 010984090-02



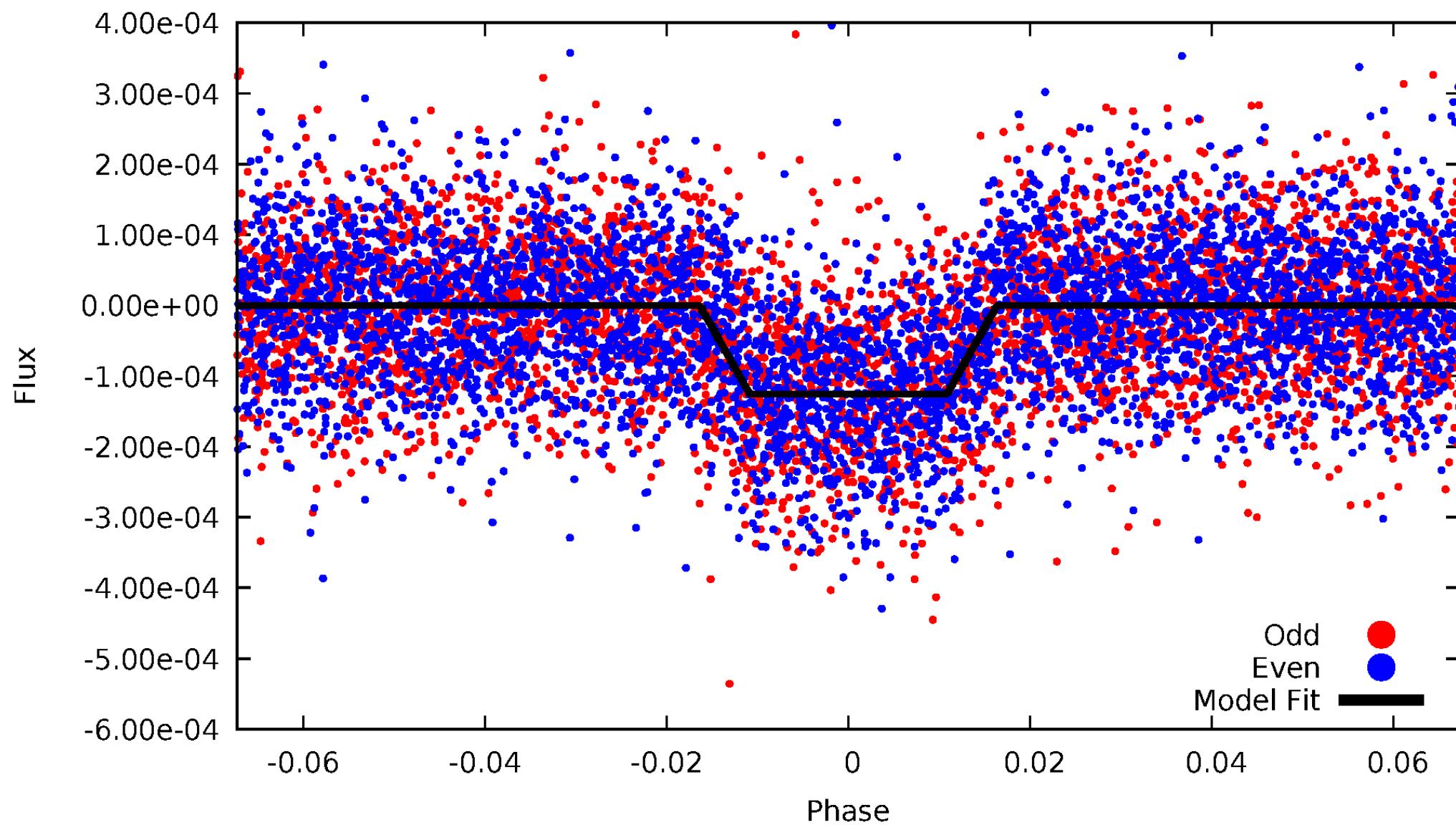
DV Odd/Even

TCE 010984090-02



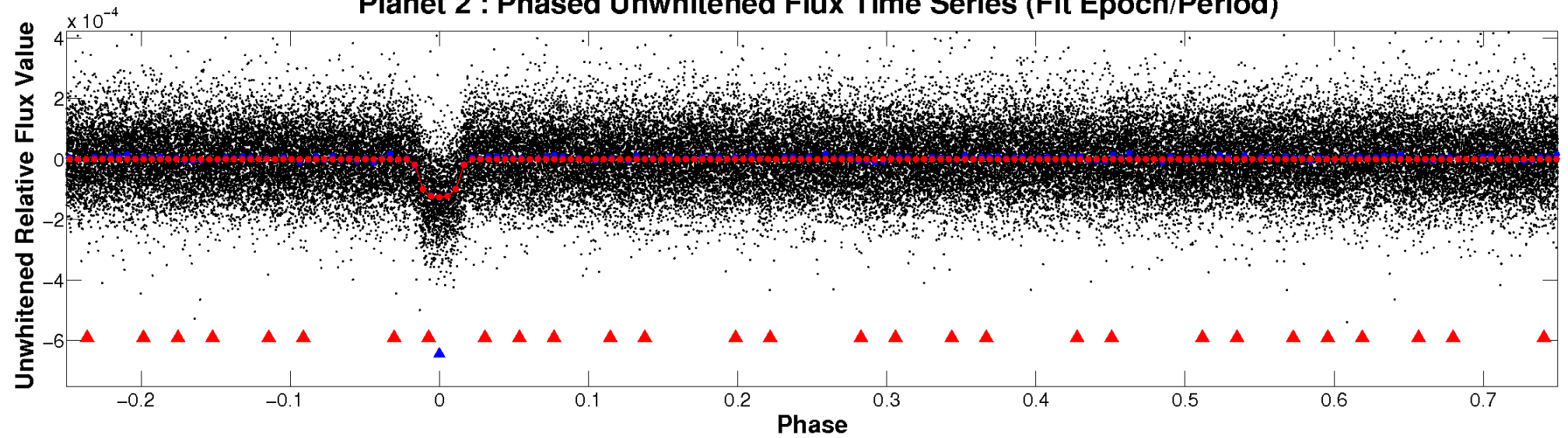
ALT Odd/Even

TCE 010984090-02

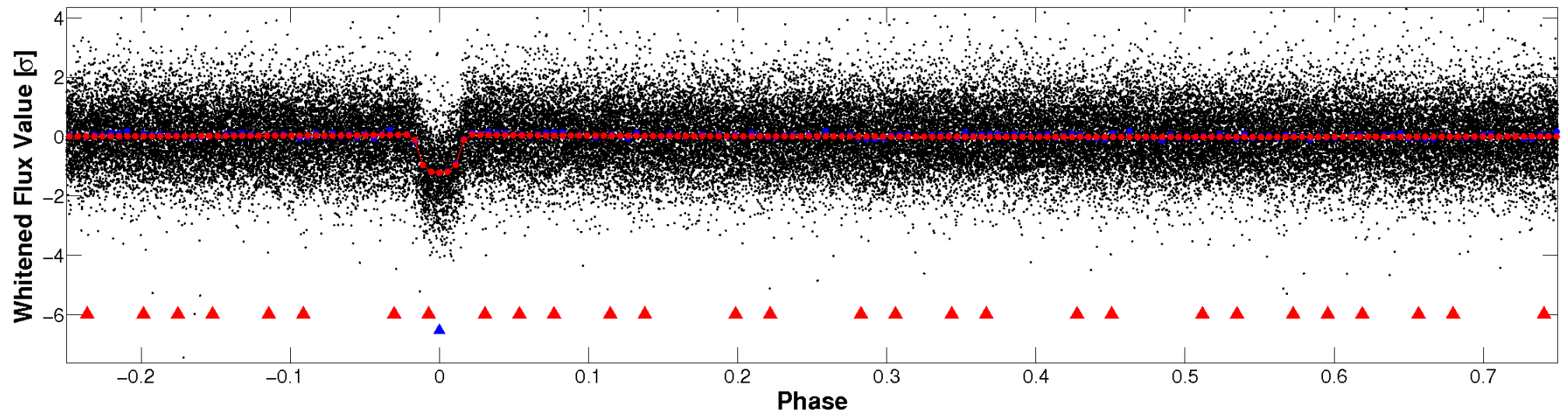


Non-Whitened Vs. Whitened Light Curve

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

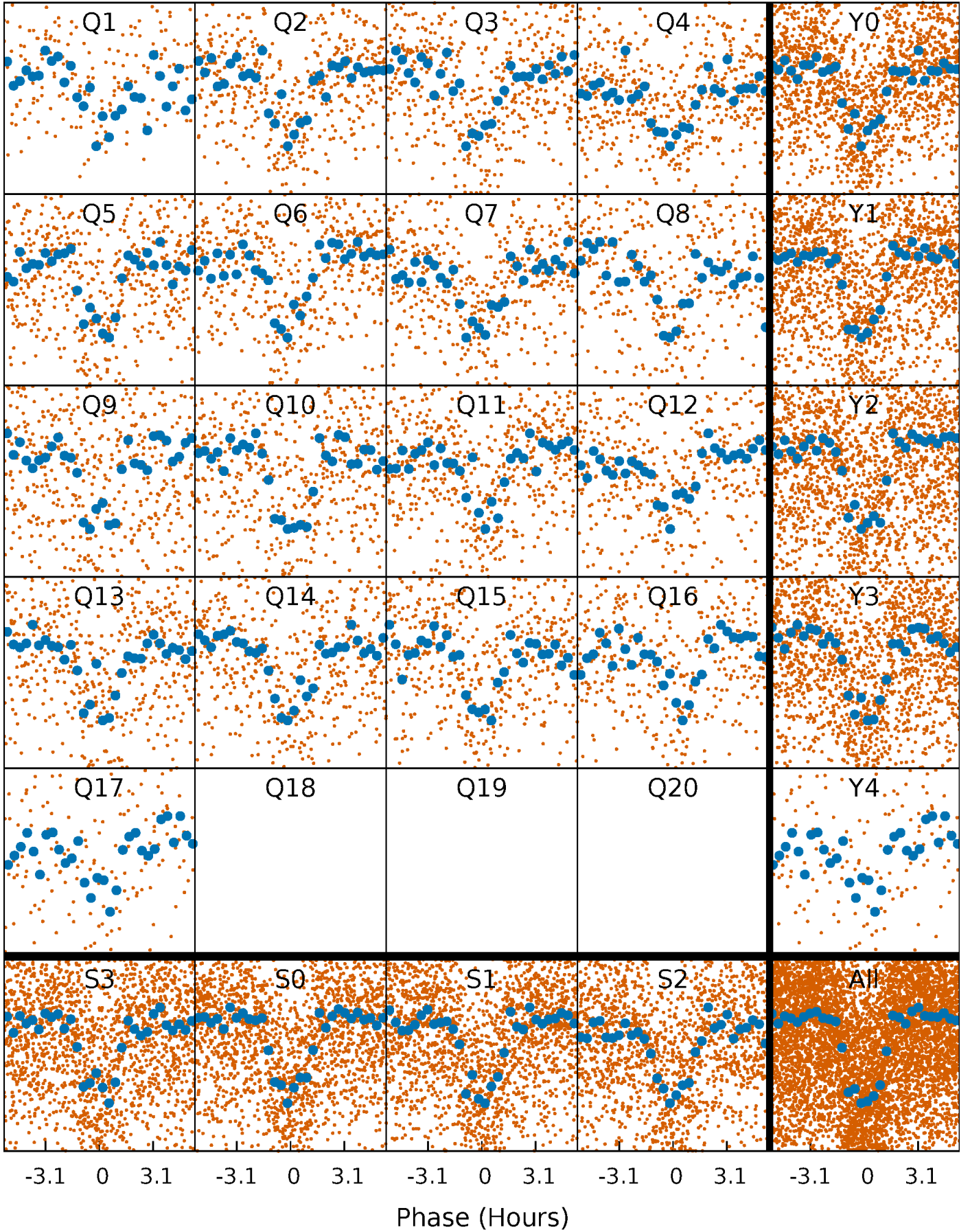


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



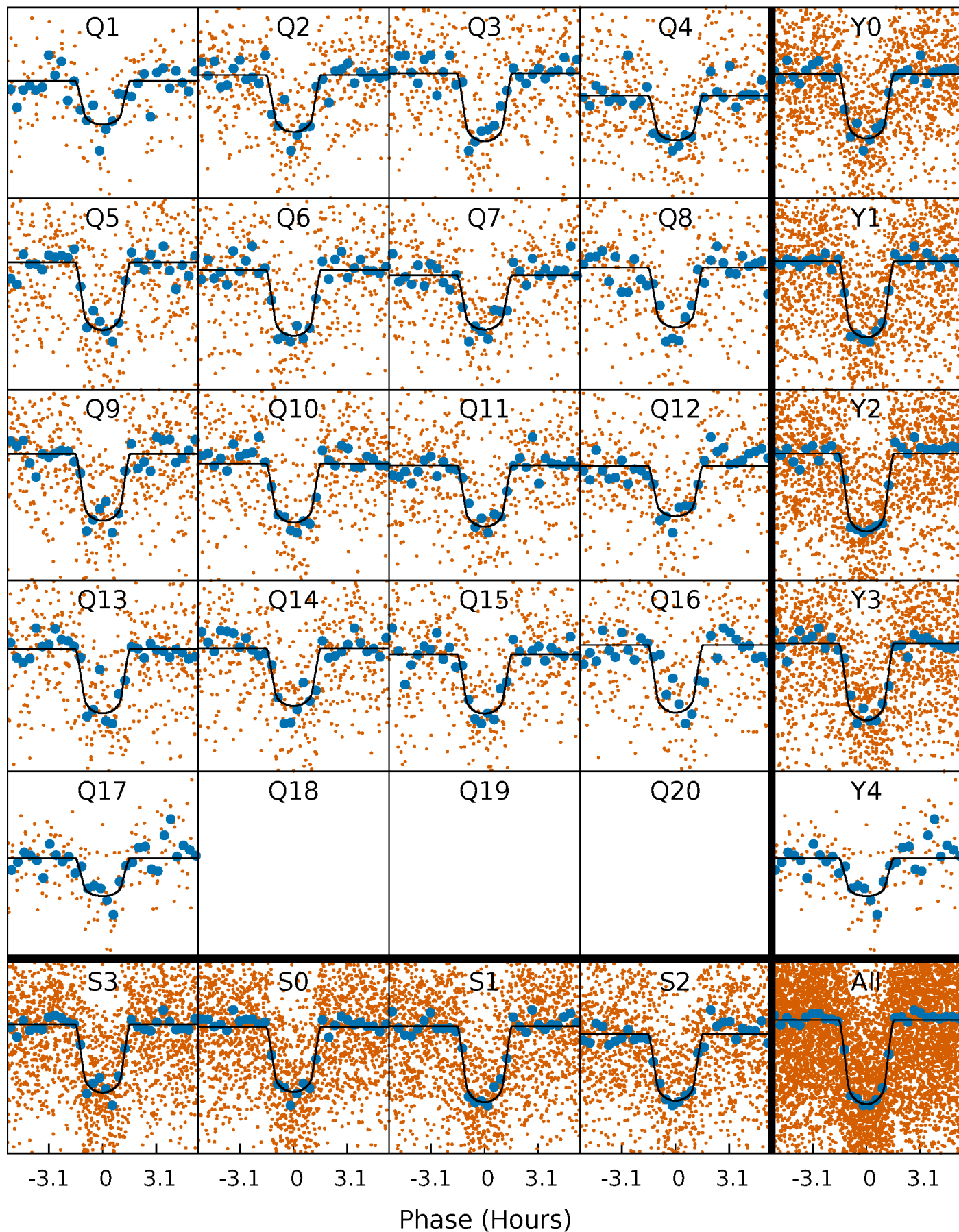
PDC Quarter-Phased Transit Curves

TCE 010984090-02 $P = 3.709189$ Days $T_0 = 133.987977$ (BKJD)



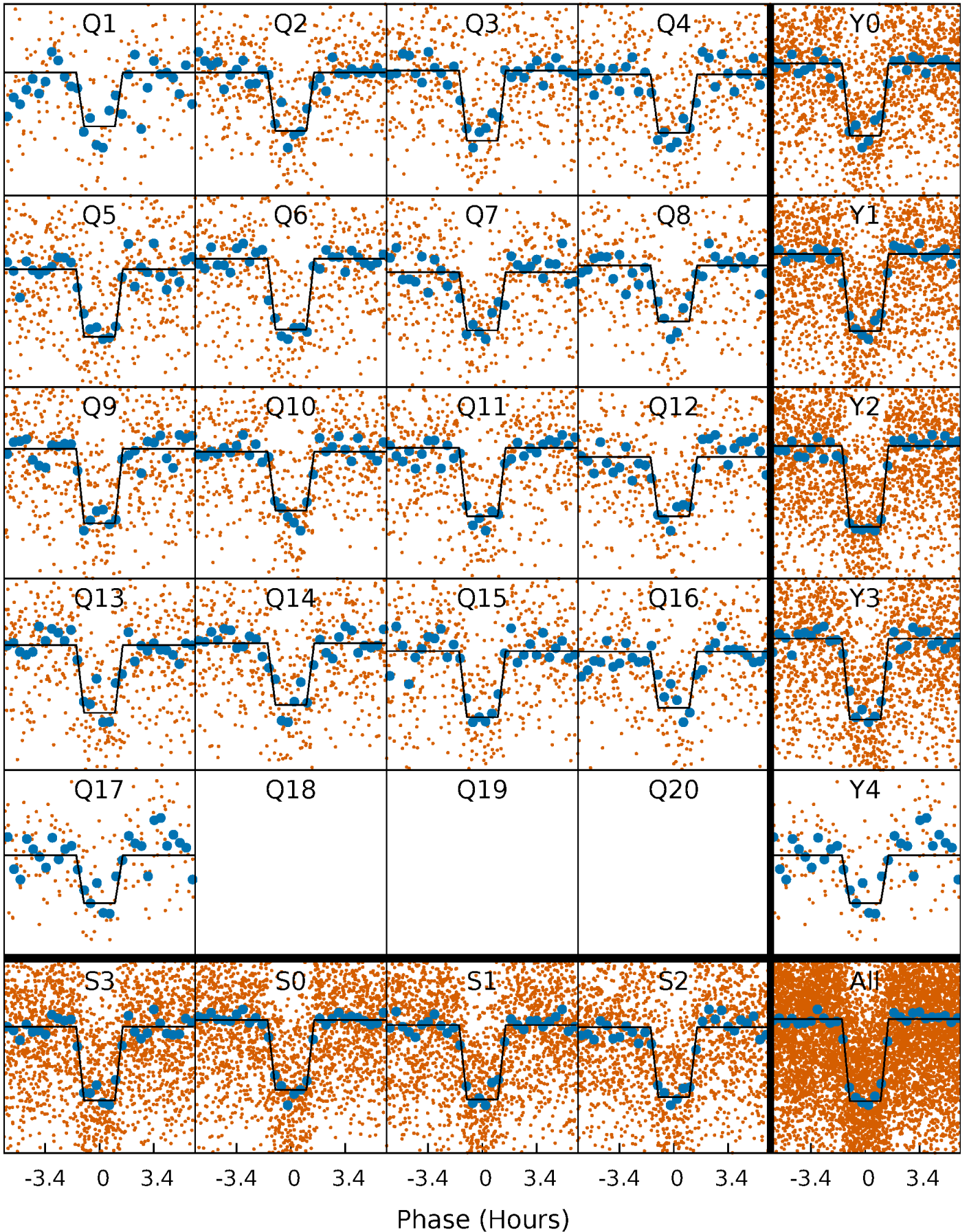
DV Quarter-Phased Transit Curves

TCE 010984090-02 P= 3.709189 Days $T_0=133.987977$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

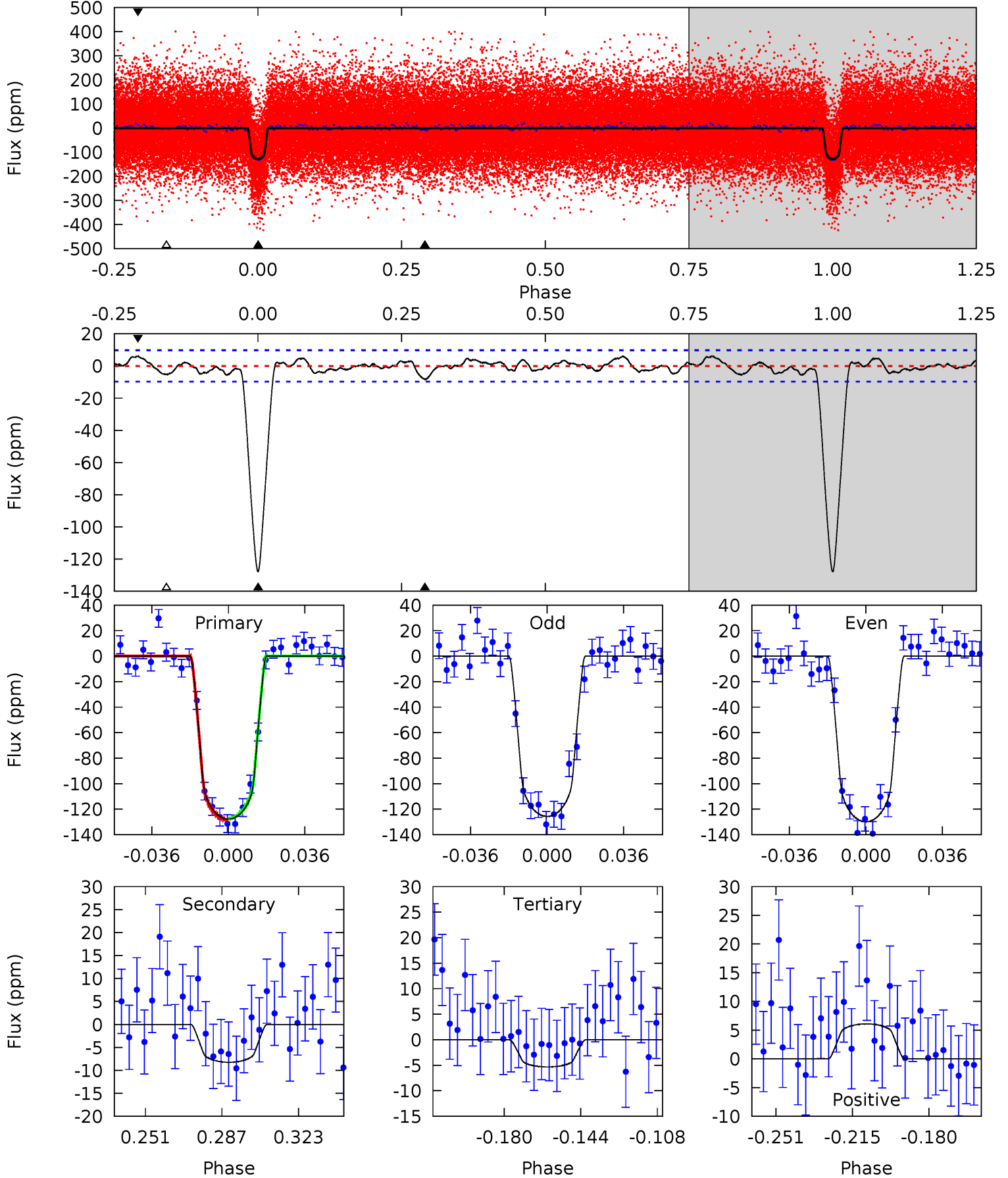
TCE 010984090-02 P= 3.709192 Days $T_0=133.987394$ (BKJD)



DV Model-Shift Uniqueness Test

010984090-02, P = 3.709189 Days, E = 130.278788 Days

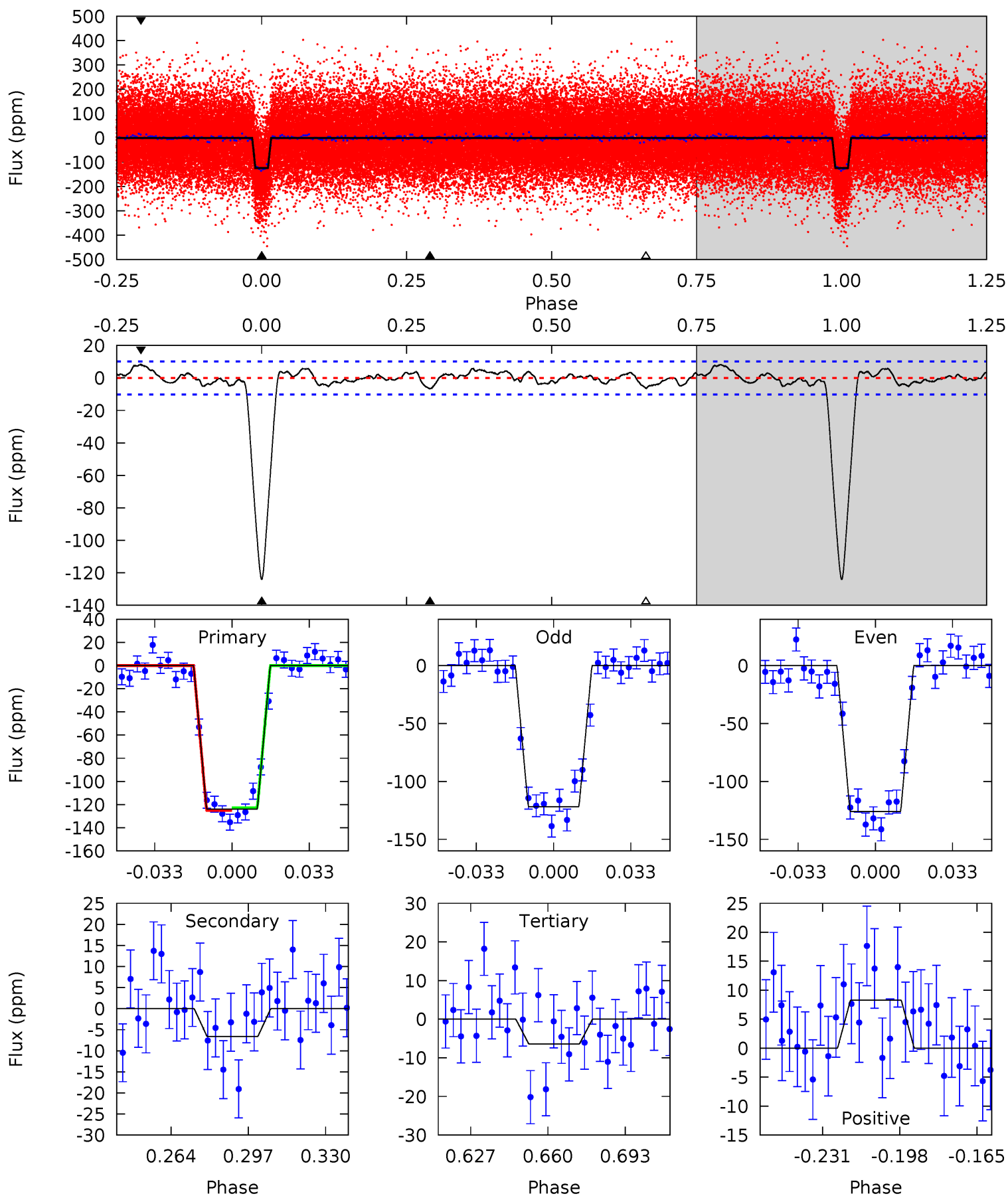
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.5	4.03	2.61	2.98	4.78	2.10	1.30	59.9	59.5	1.43	1.05	1.03	0.98	0.05	0.37



Alt Model-Shift Uniqueness Test

010984090-02, P = 3.709192 Days, E = 130.278202 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.4	3.12	3.02	3.91	4.79	2.13	1.42	55.3	54.5	0.10	-0.79	1.00	0.99	0.06	0.56



Stellar Parameters For KIC 010984090

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5833^{+105}_{-117}	$4.407^{+0.085}_{-0.114}$	$-0.040^{+0.150}_{-0.150}$	$1.022^{+0.143}_{-0.107}$	$0.974^{+0.066}_{-0.066}$	$1.283^{+0.409}_{-0.406}$
	+2%/-2%	+2%/-3%	+375%/-375%	+14%/-10%	+7%/-7%	+32%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010984090-02 / KOI 0112.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$1.36^{+0.25}_{-0.22}$	1689^{+72}_{-65}	3325^{+222}_{-203}	$5.257^{+2.653}_{-1.895}$
Alt.	-7 ± 2	$1.25^{+0.23}_{-0.21}$	1693^{+70}_{-64}	3296^{+253}_{-233}	$4.855^{+2.886}_{-1.886}$

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

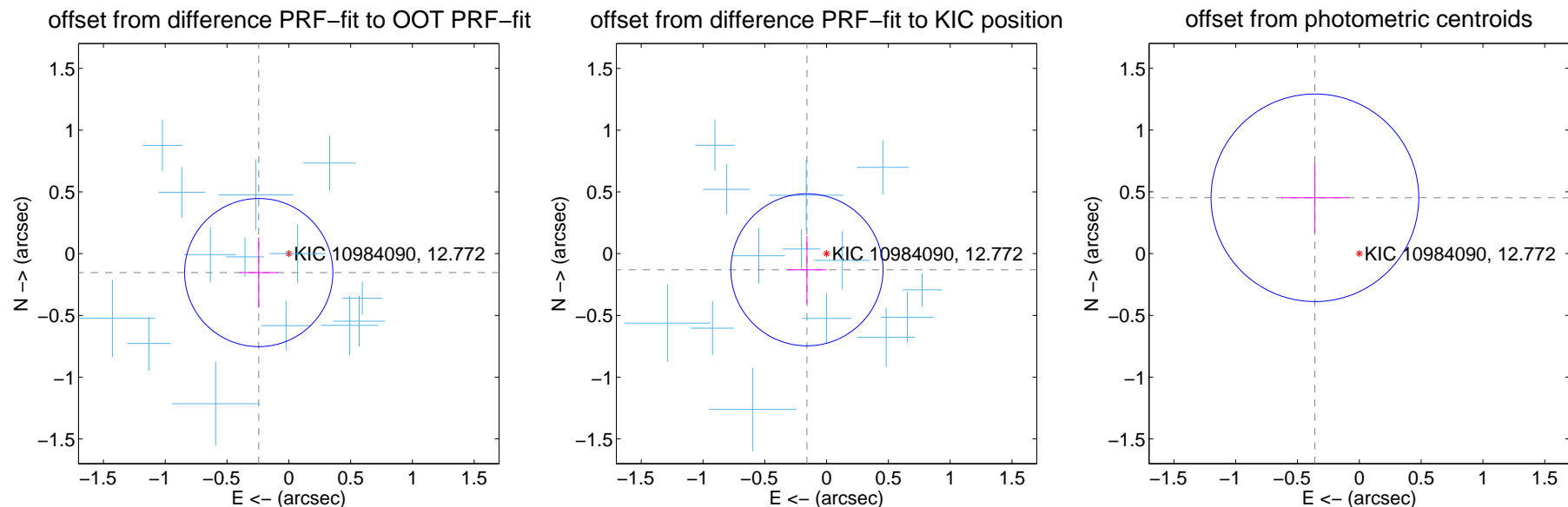
DV Centroid Data

Supplemental centroid analysis for 010984090-02. Kepler magnitude: 12.77. Transit SNR 44.92

There are 17 quarters with good PRF difference image offsets

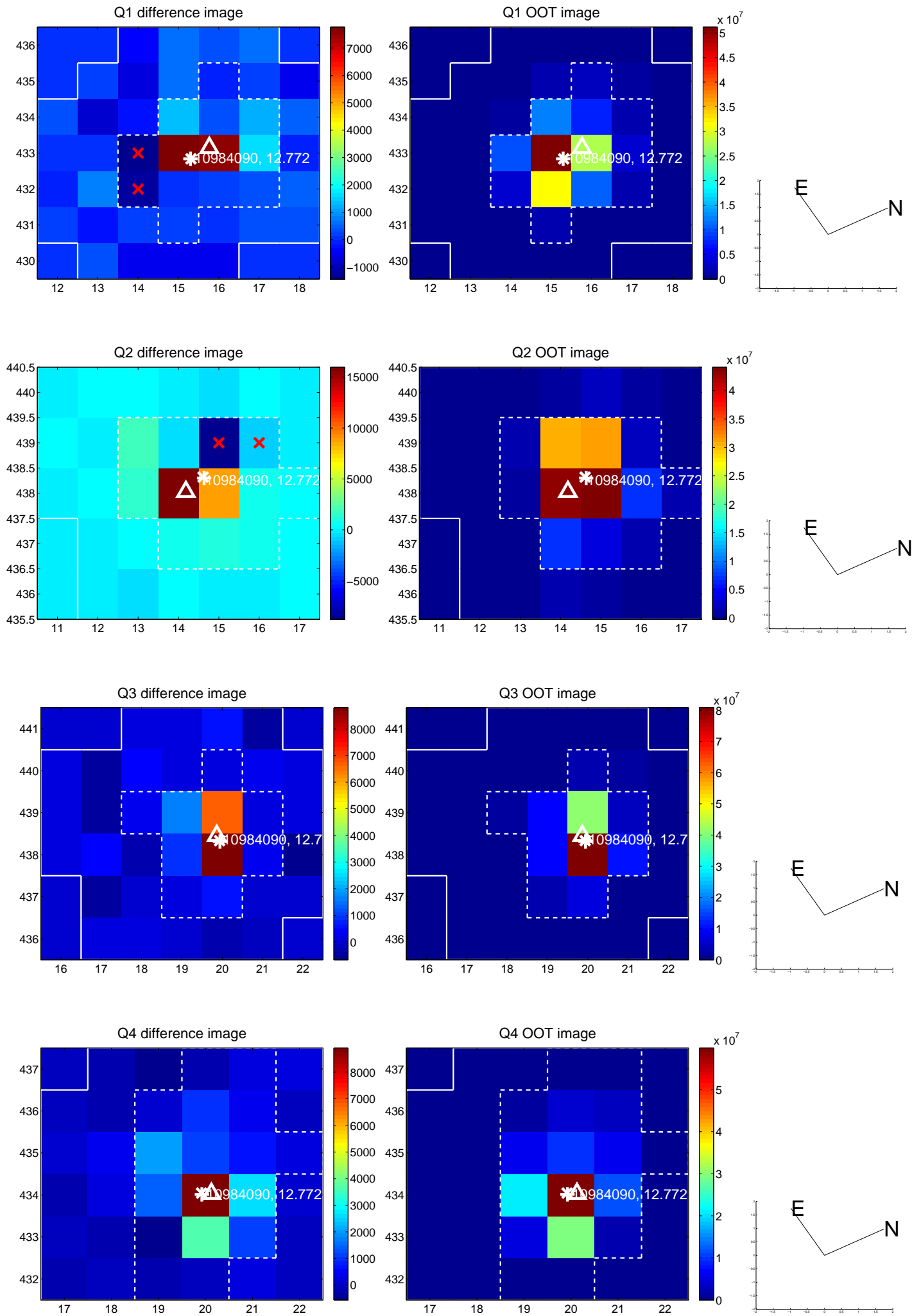
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.287 ± 0.200	1.44	0.243 ± 0.157	-0.153 ± 0.284
PRF-fit source offset from KIC position	0.206 ± 0.205	1.00	0.159 ± 0.159	-0.131 ± 0.274
photometric centroid source offset	0.58 ± 0.28	2.06	0.36 ± 0.27	0.45 ± 0.28

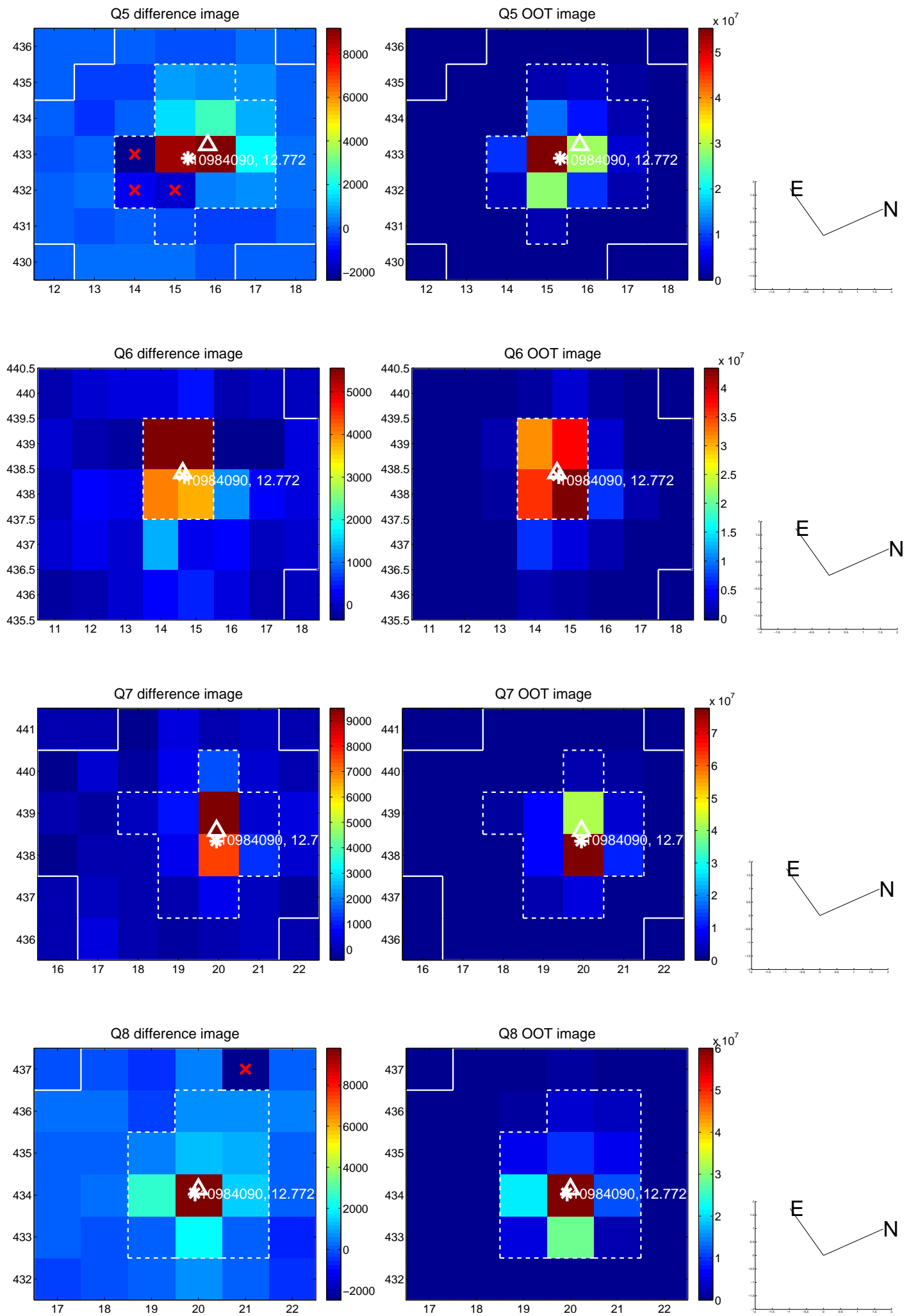


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

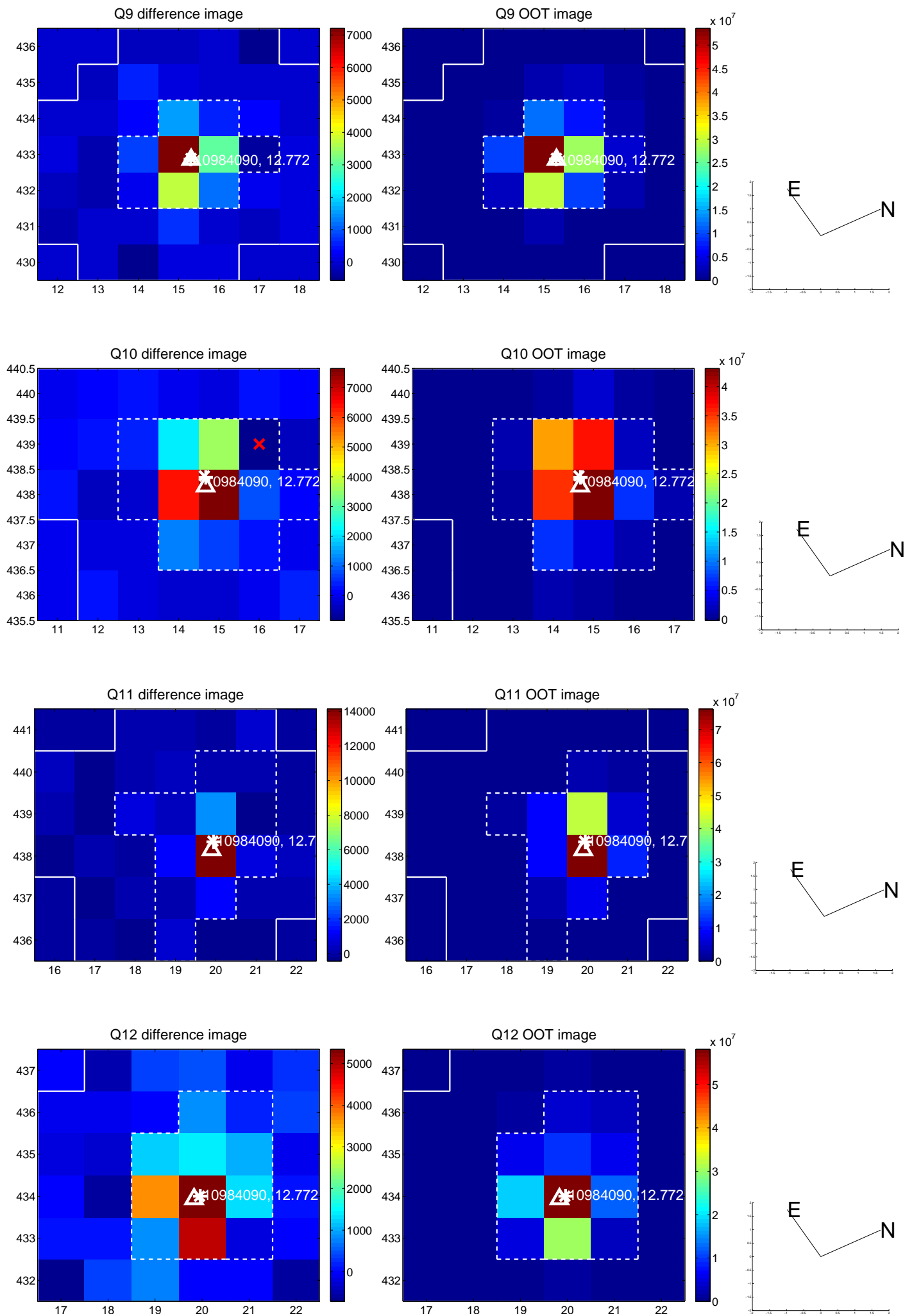
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



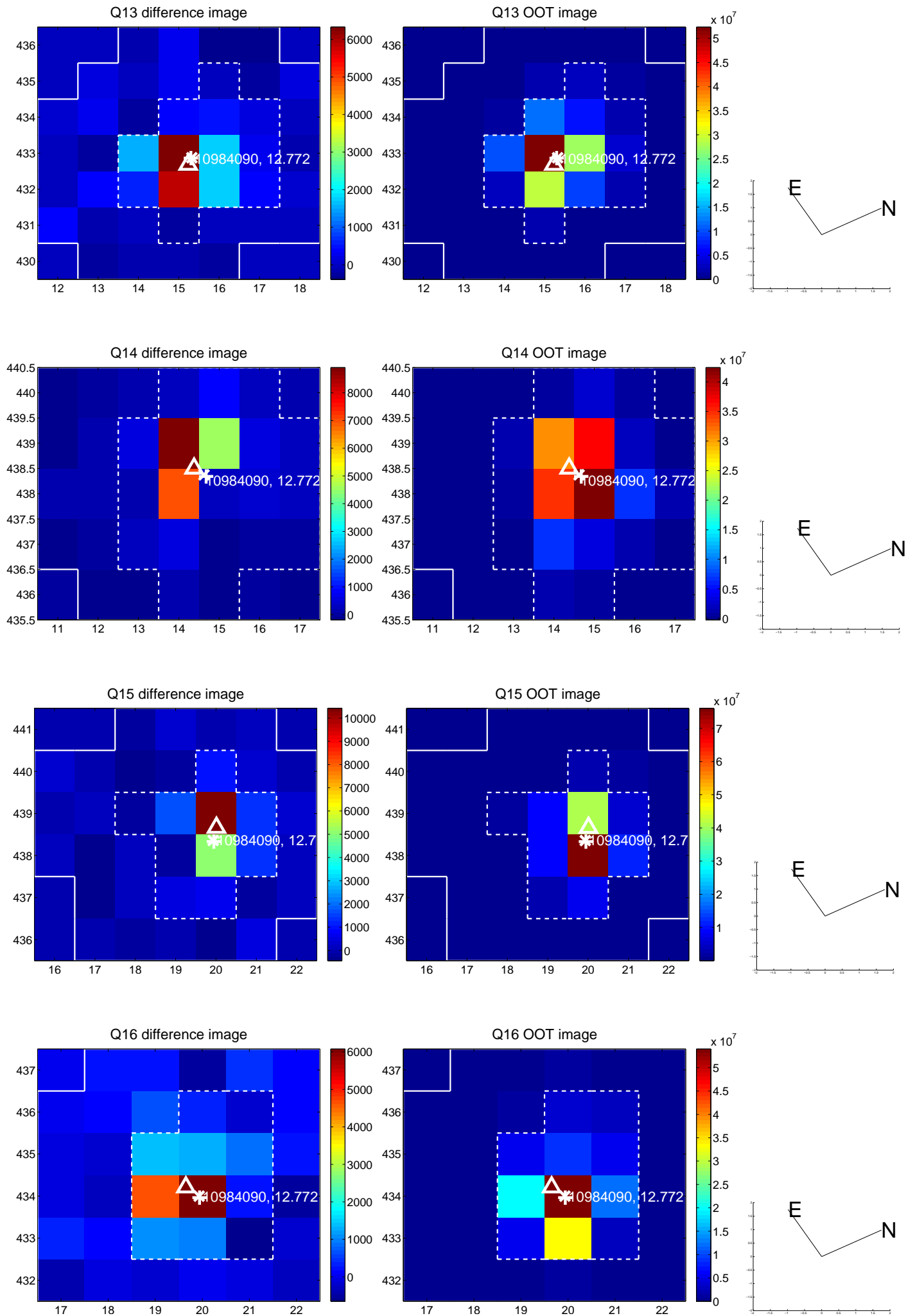
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



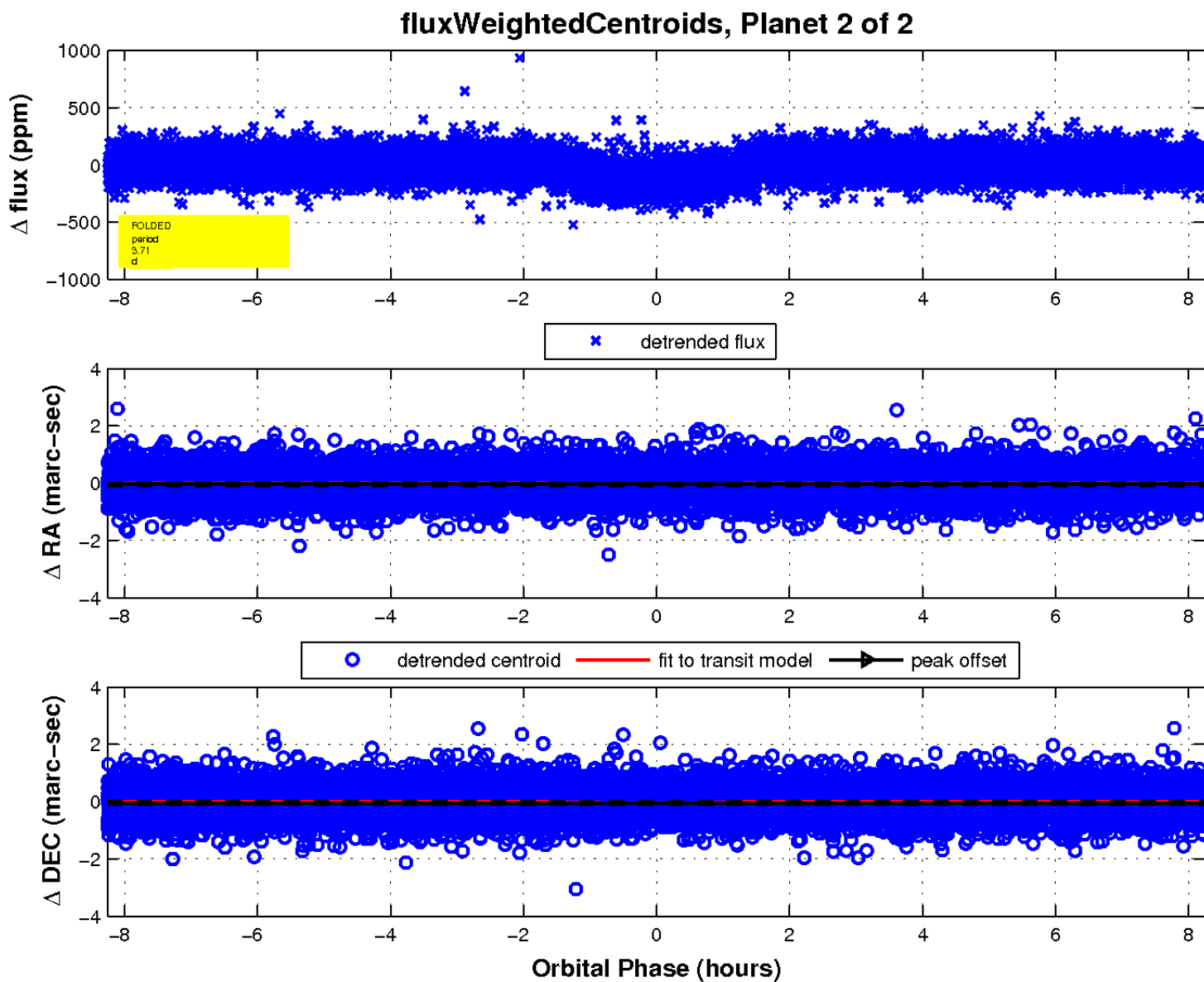
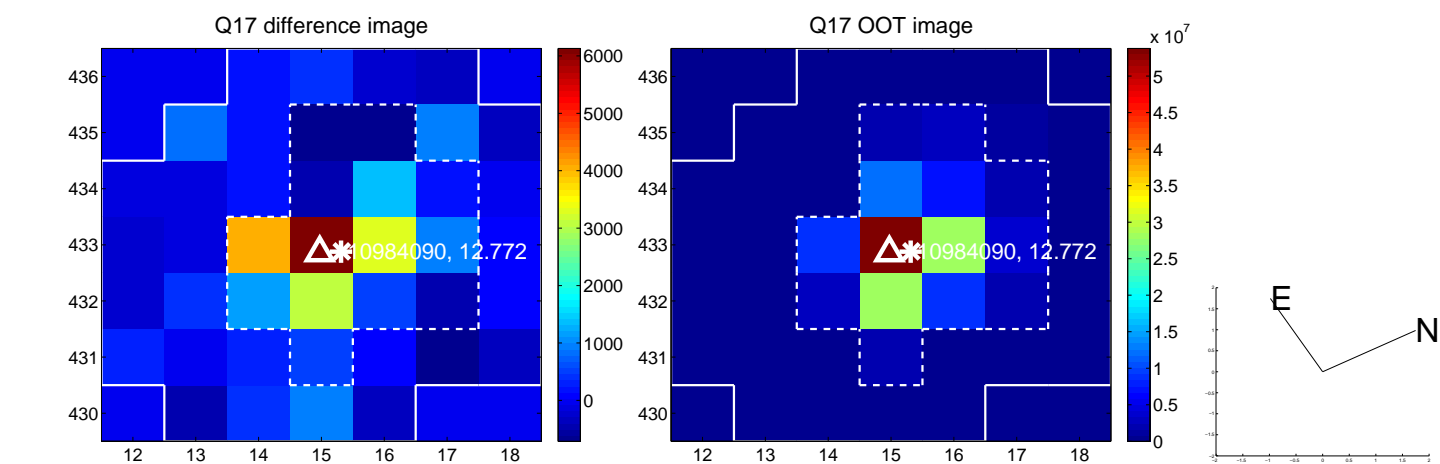
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

