

KIC 012252424

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})
012252424-01	OBS	0153.02	4.754004	133.300695	739.6	2.727	129.7	132.1	0.69	4728	2.32	85.51
012252424-02	OBS	0153.01	8.925081	139.713586	961.4	2.746	122.1	122.1	0.69	4728	2.48	36.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012252424-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012252424-02	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.

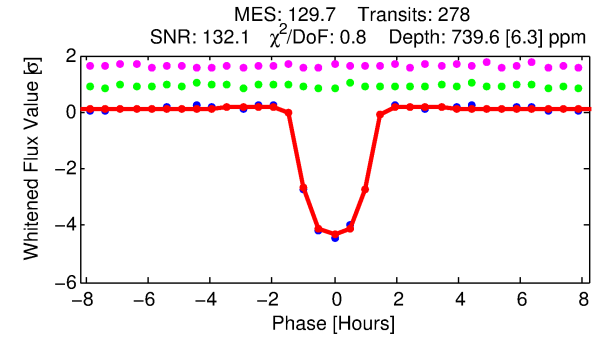
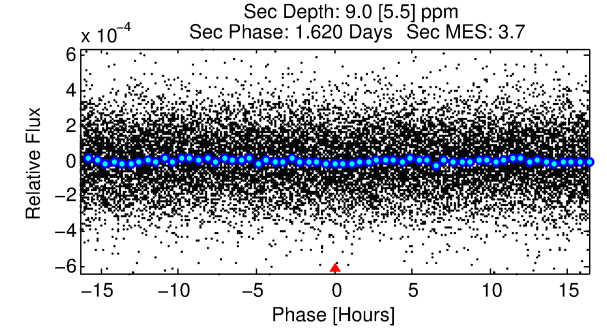
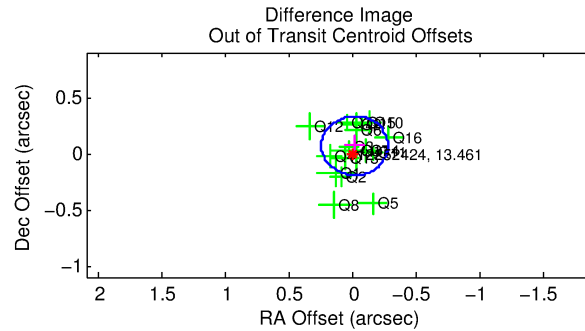
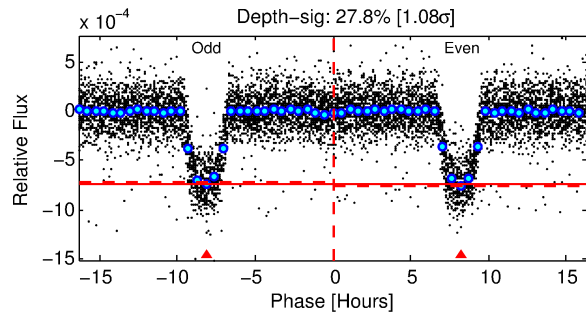
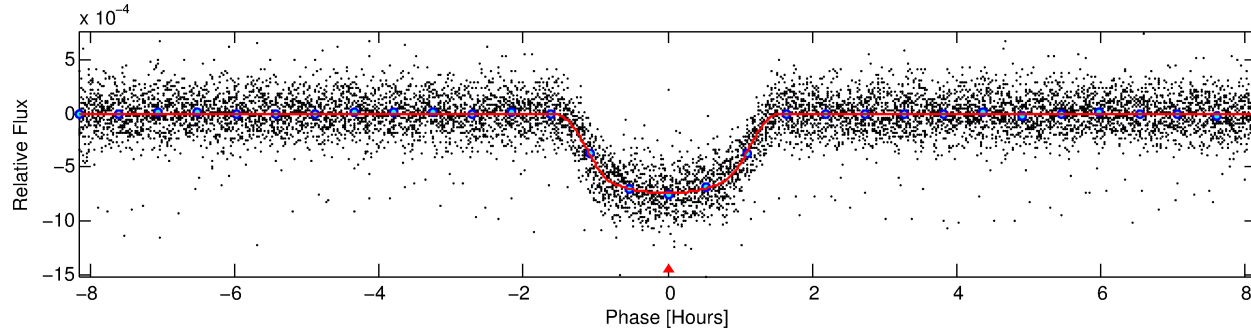
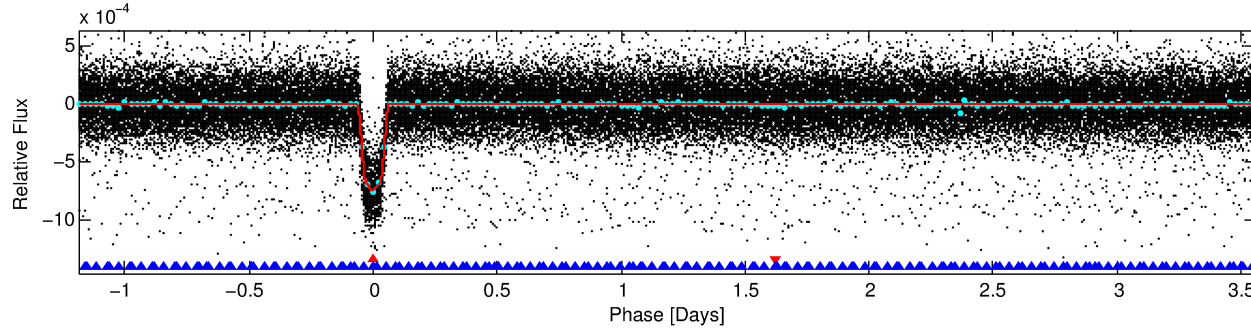
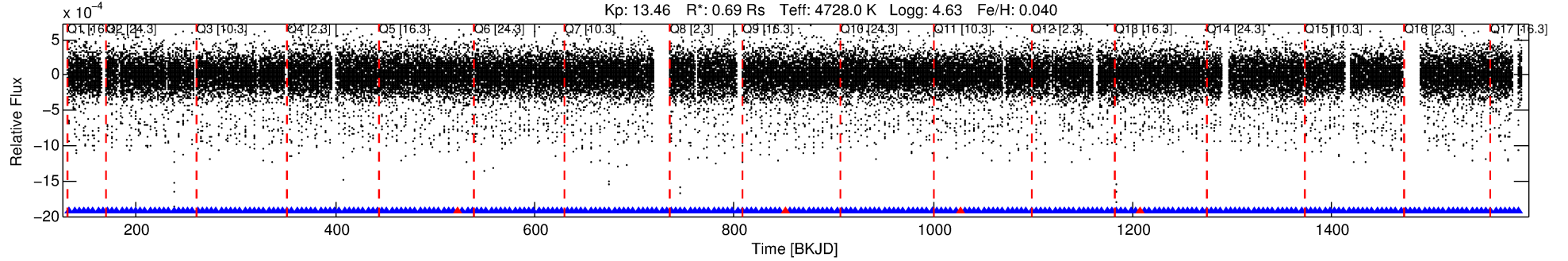
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012252424-01

No Significant Match Found

DV One-Page Summary

KIC: 12252424 Candidate: 1 of 2 Period: 4.754 d
KOI: K00153.02 Name: Kepler-113b Corr: 0.958



DV Fit Results:

Period = 4.75400 [0.00000] d
Epoch = 133.3007 [0.0004] BKJD
Rp/R* = 0.0307 [0.0009]
a/R* = 6.75 [0.69]
b = 0.90 [0.02]
Seff = 85.51 [10.11]
Teq = 775 [23] K
Rp = 2.32 [0.18] Re
a = 0.0501 [0.0030] AU
Ag = 2.32 [1.43] [0.92 σ]
Teffp = 1479 [228] K [3.07 σ]

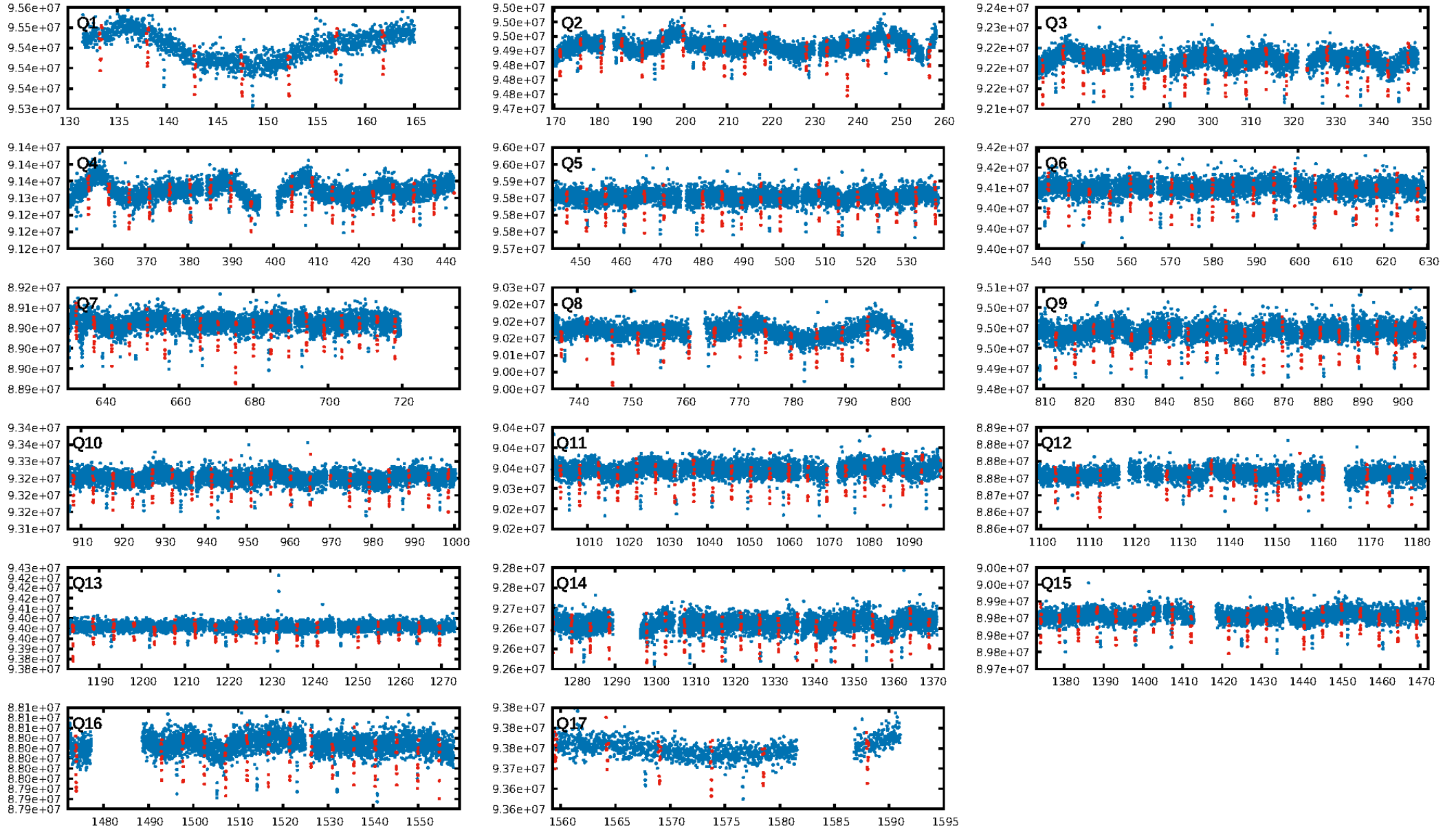
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [25.87 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [261/265]
GhostDiagnostic-chr: 6.266
Centroid-sig: 4.8%
Centroid-so: 0.075 arcsec [0.68 σ]
OotOffset-rm: 0.069 arcsec [0.79 σ]
KicOffset-rm: 0.262 arcsec [3.15 σ]
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]

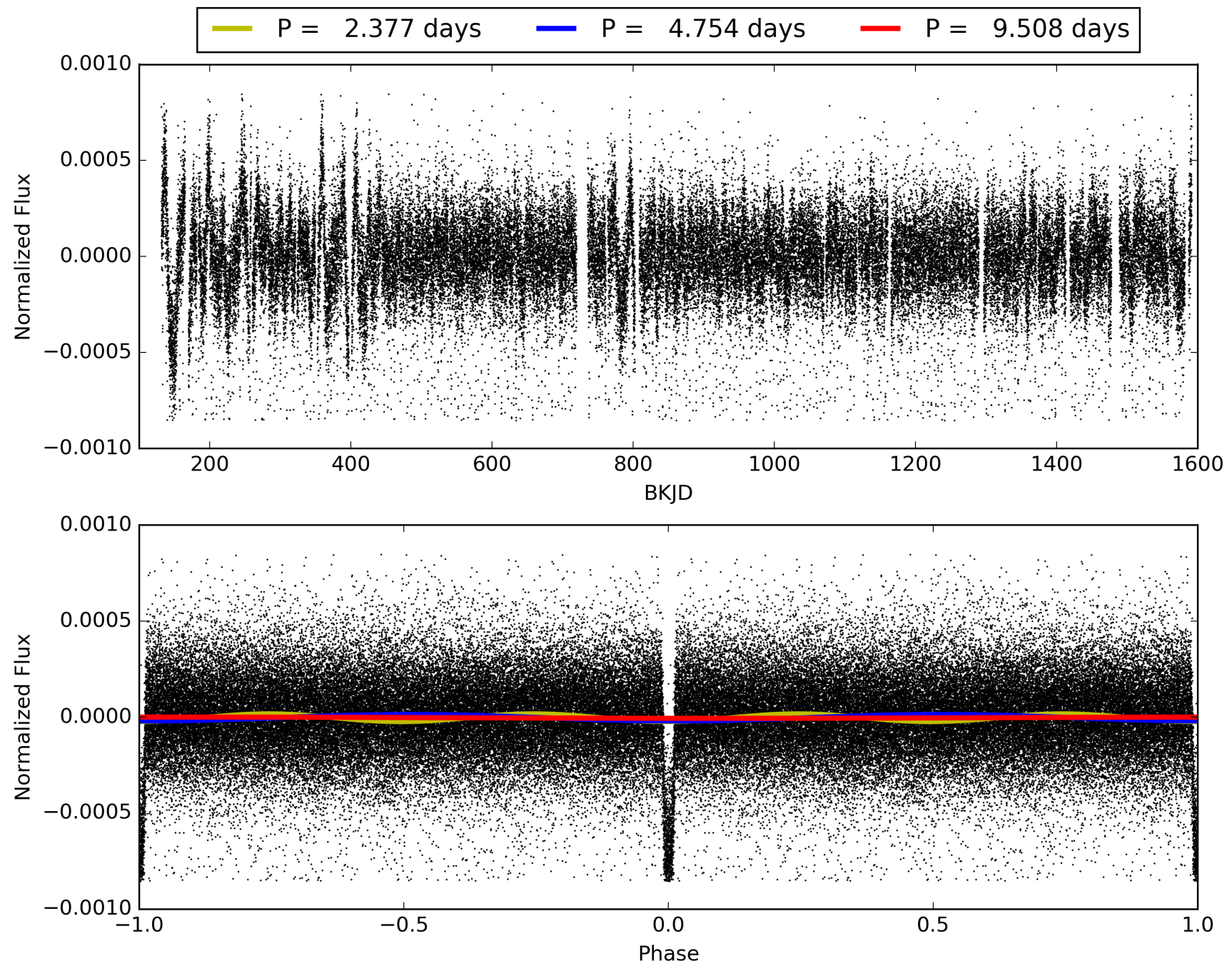
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:09:09 Z

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

TCE 012252424-01, PDC Light Curves

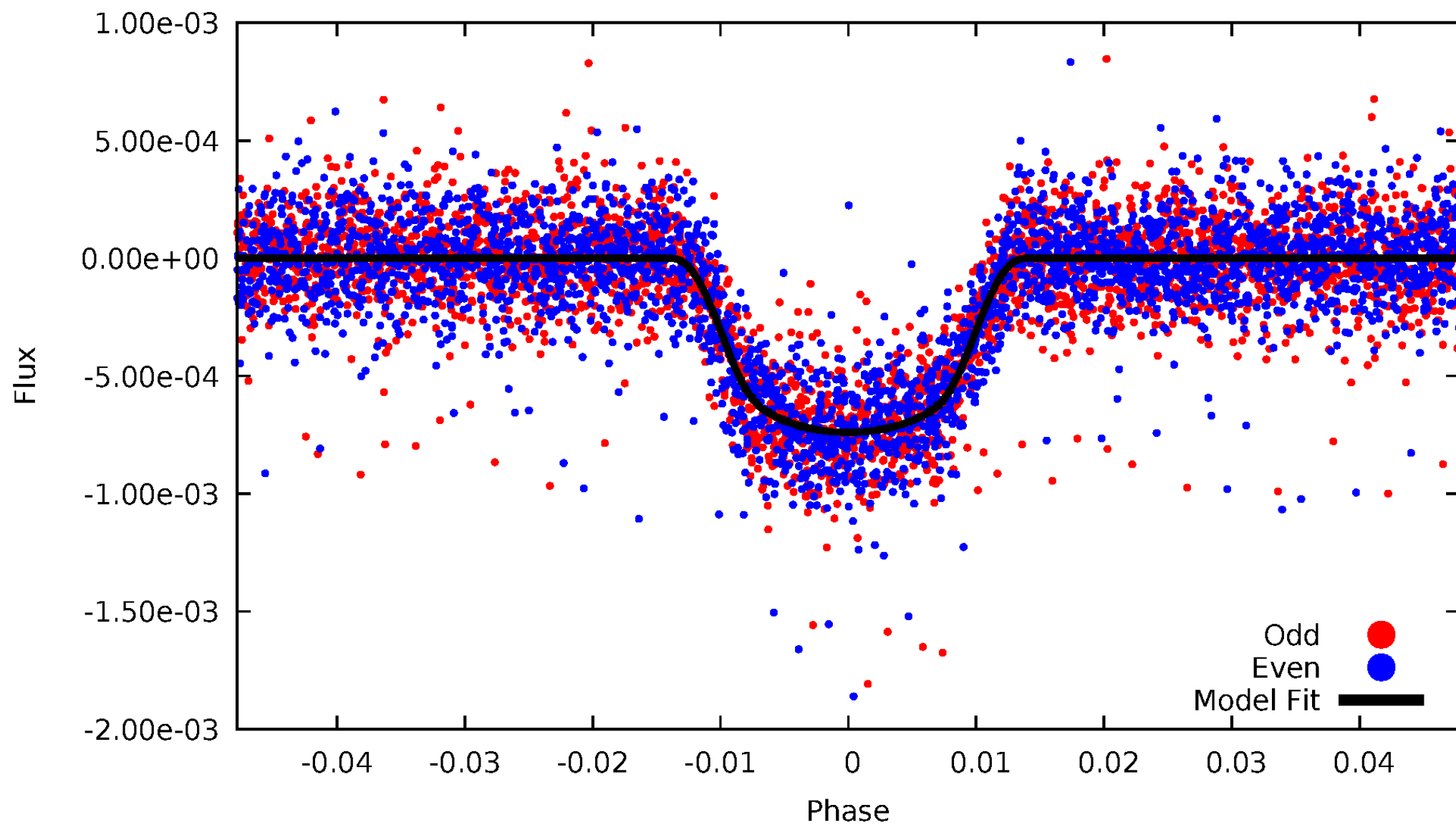


TCE 012252424-01



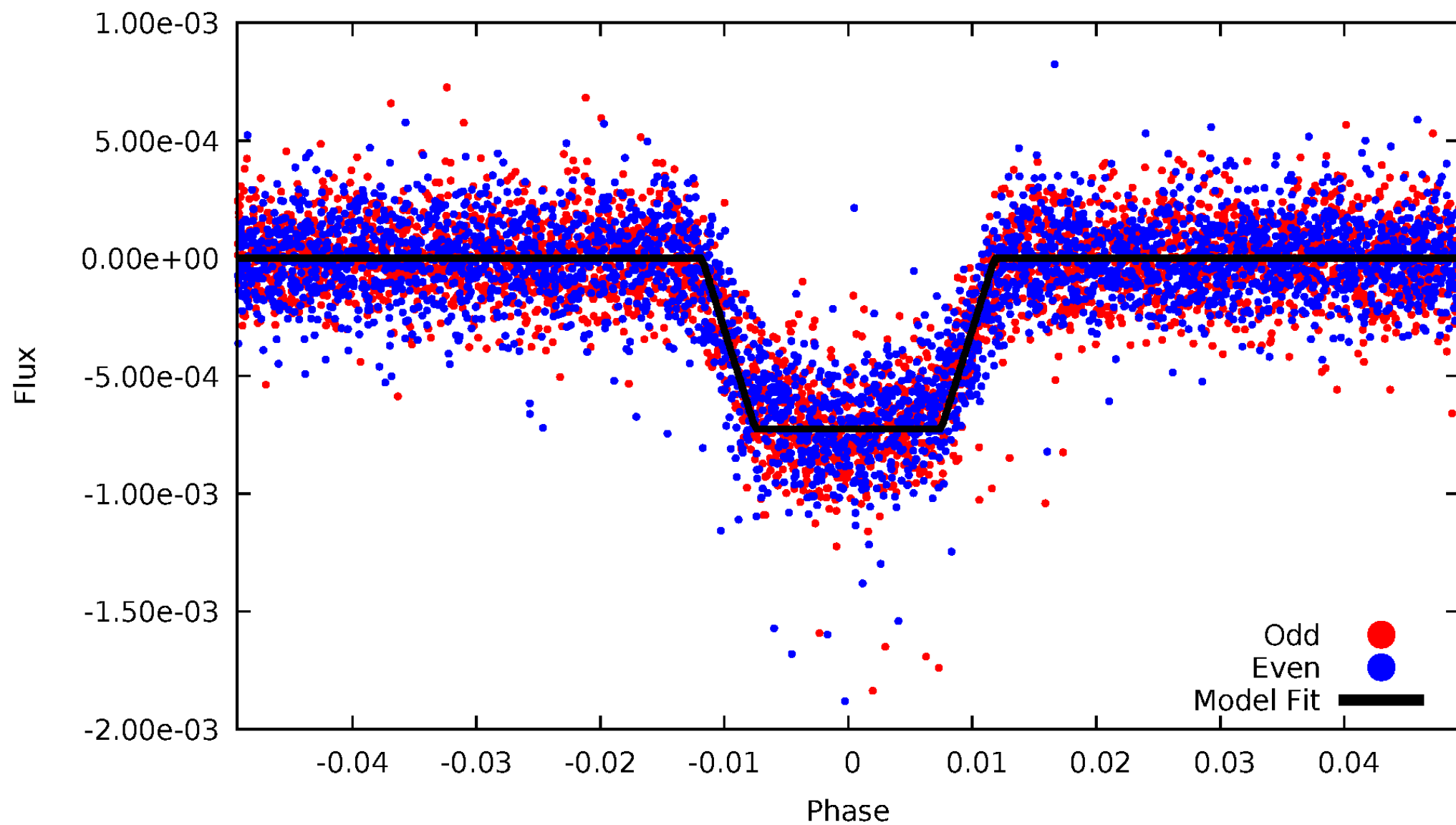
DV Odd/Even

TCE 012252424-01



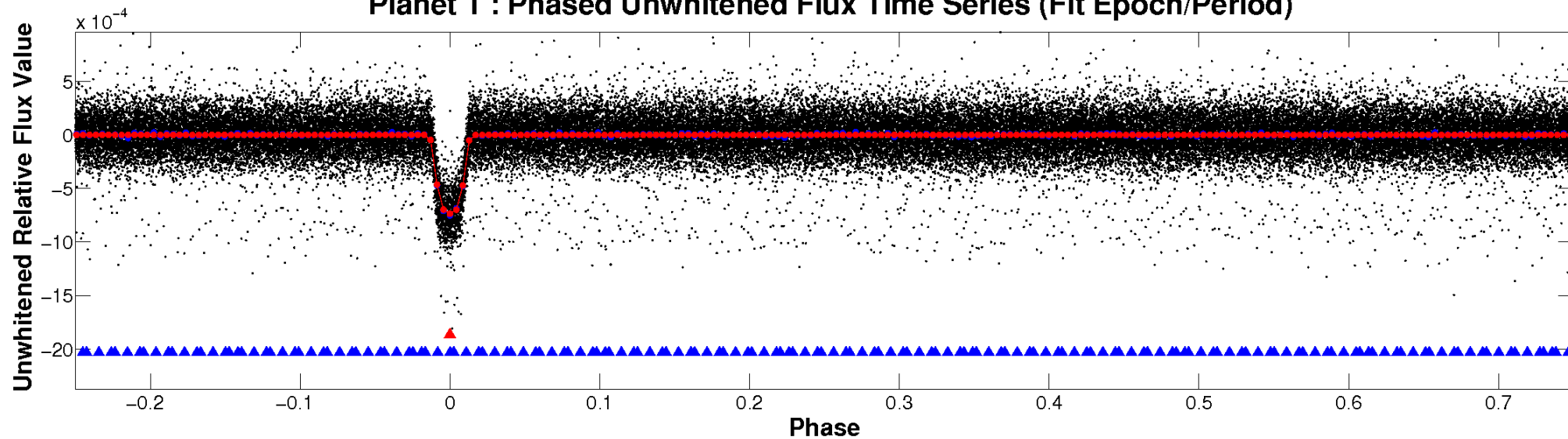
ALT Odd/Even

TCE 012252424-01

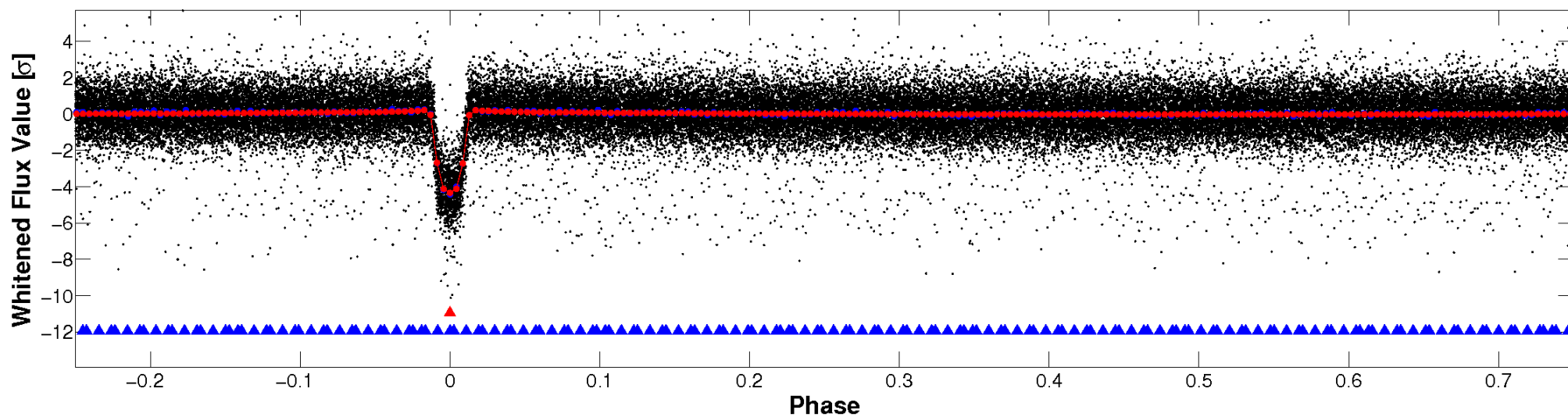


Non-Whitened Vs. Whitened Light Curve

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

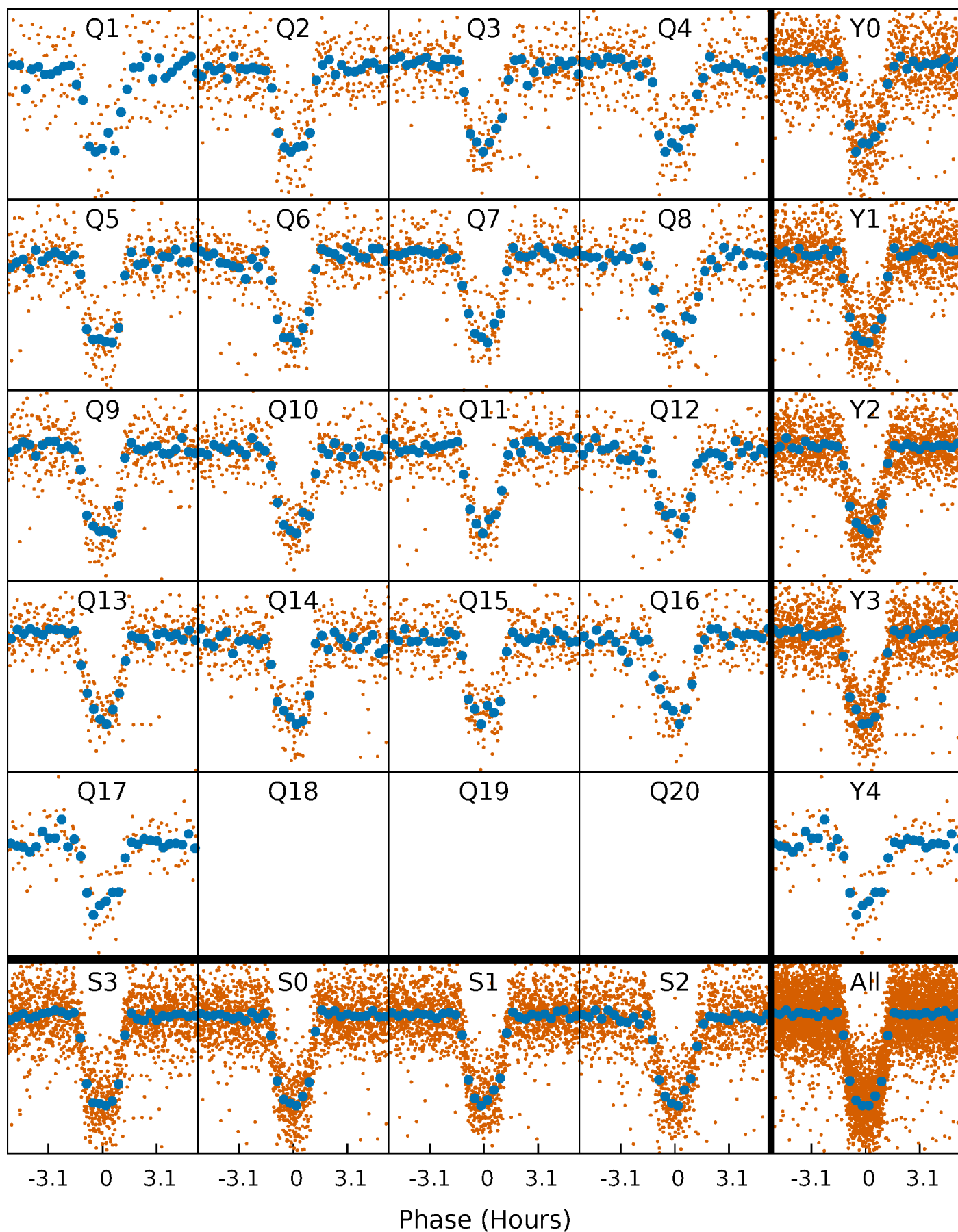


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



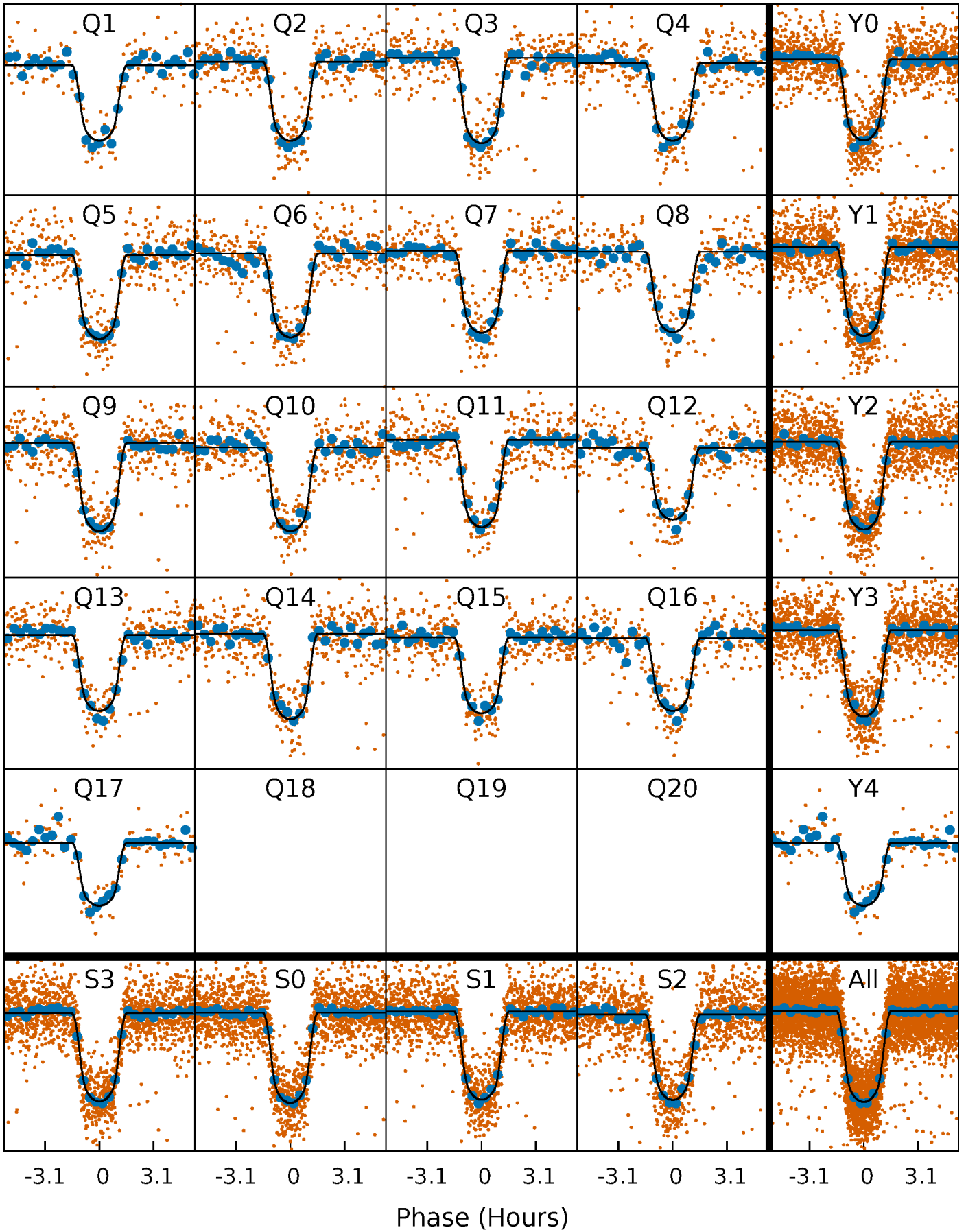
PDC Quarter-Phased Transit Curves

TCE 012252424-01 P= 4.754004 Days $T_0=133.300695$ (BKJD)



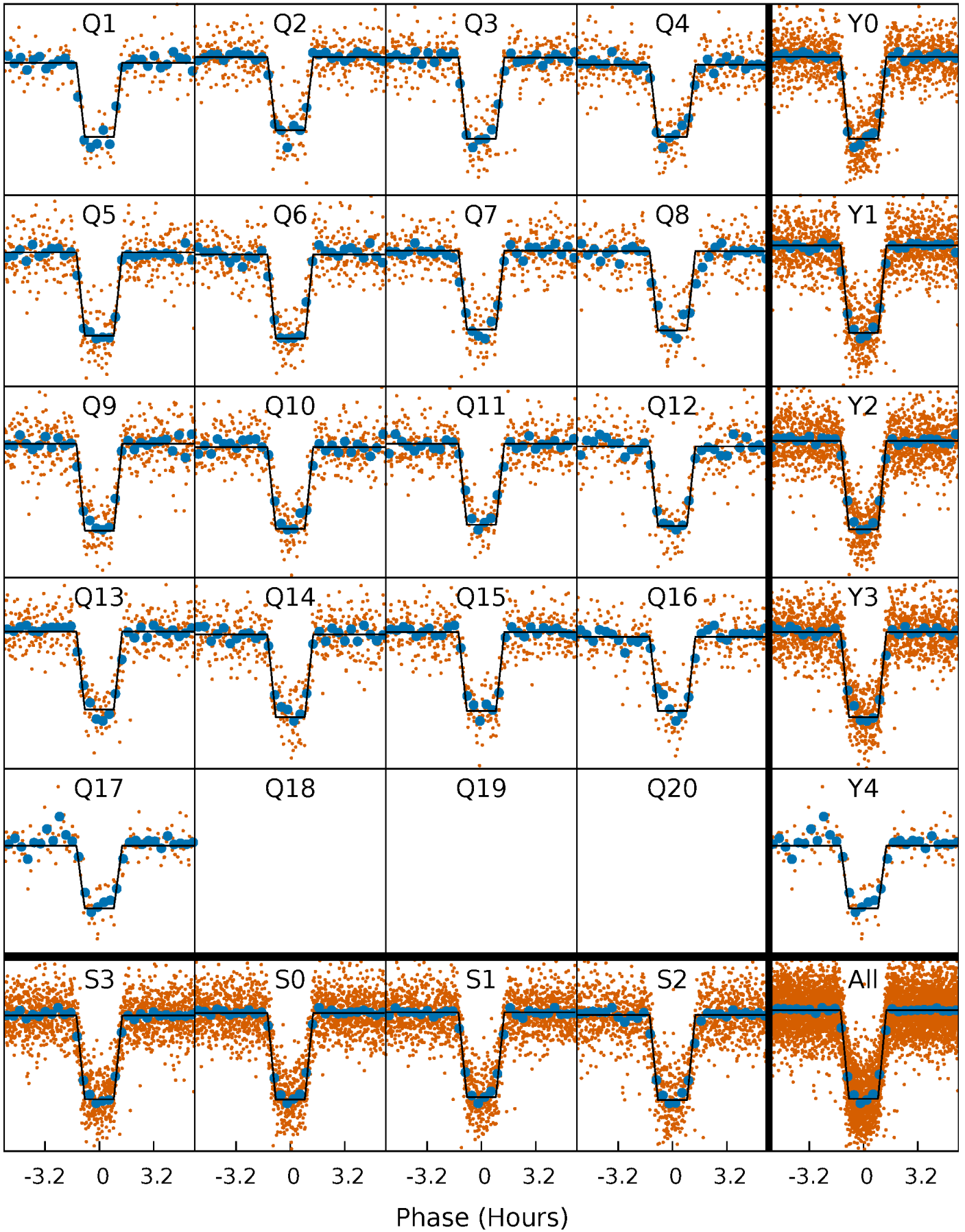
DV Quarter-Phased Transit Curves

TCE 012252424-01 P= 4.754004 Days $T_0=133.300695$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

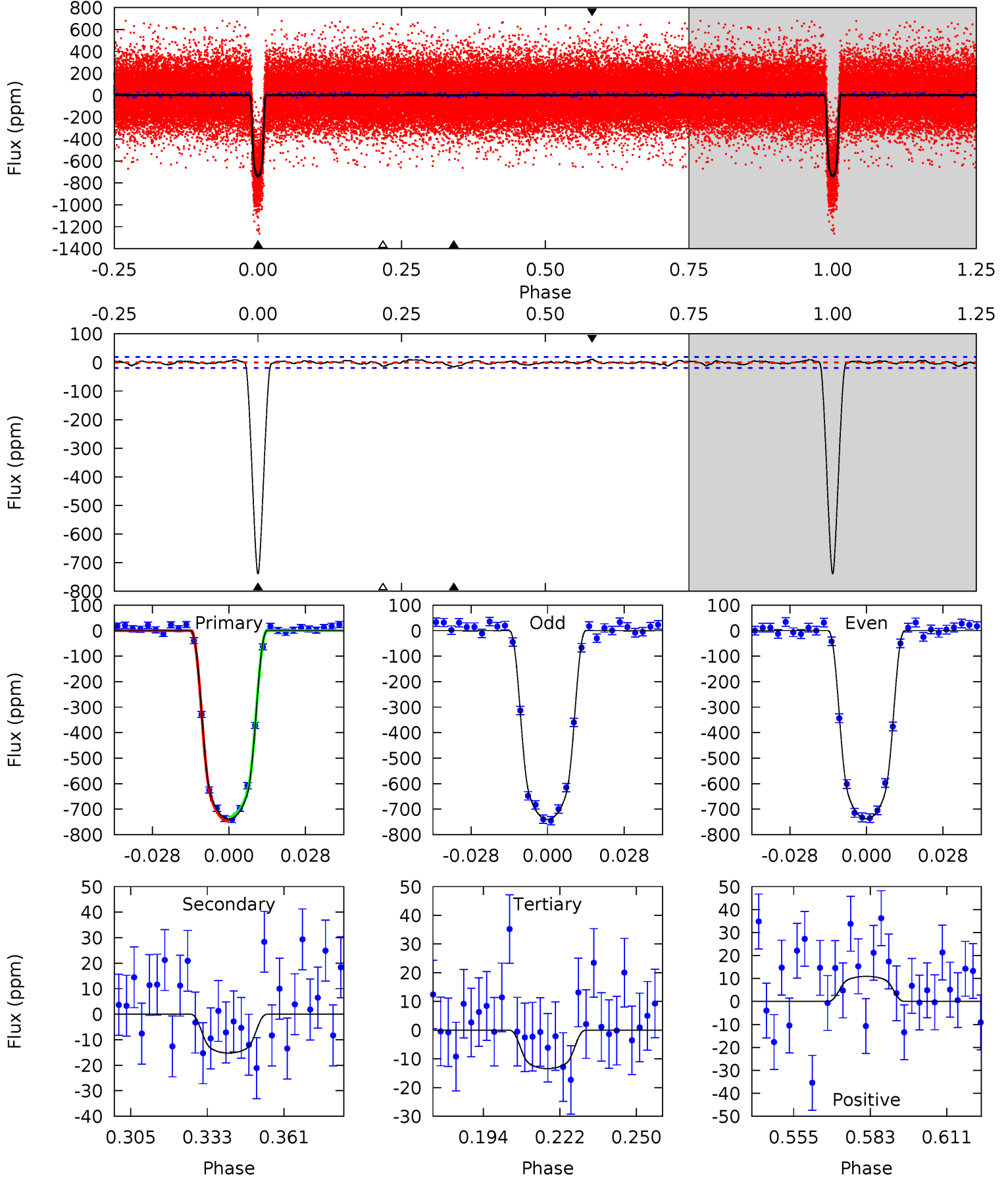
TCE 012252424-01 P= 4.753977 Days $T_0=133.304515$ (BKJD)



DV Model-Shift Uniqueness Test

012252424-01, P = 4.754004 Days, E = 128.546691 Days

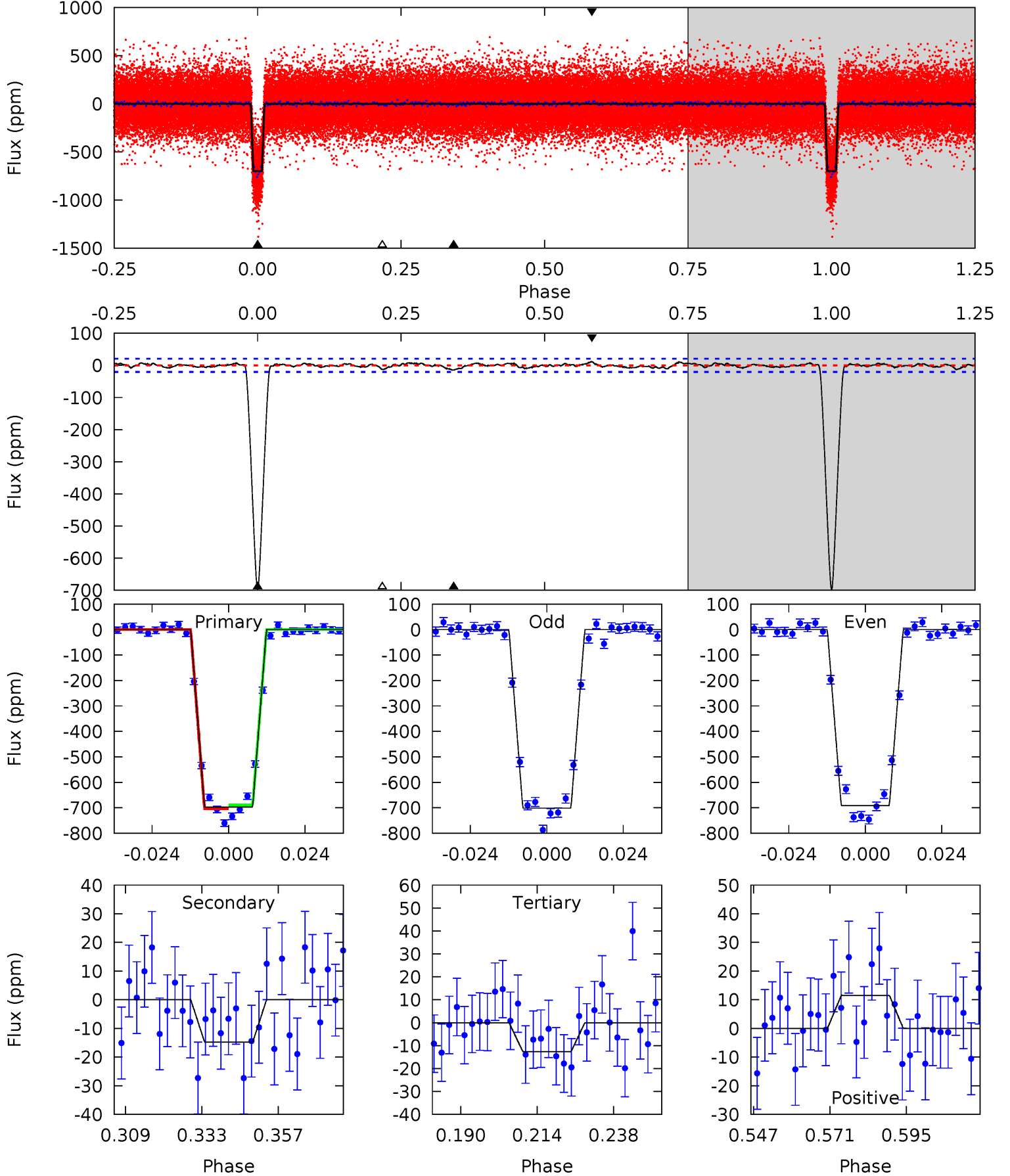
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
187.4	3.87	3.40	2.78	4.83	2.20	1.14	184.0	184.7	0.47	1.09	0.31	1.01	0.01	1.89



Alt Model-Shift Uniqueness Test

012252424-01, P = 4.753977 Days, E = 128.550538 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
164.8	3.48	2.99	2.72	4.86	2.26	1.05	161.8	162.1	0.49	0.76	1.16	1.02	0.02	1.68



Stellar Parameters For KIC 012252424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4728^{+94}_{-94}	$4.628^{+0.012}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.693^{+0.049}_{-0.021}$	$0.768^{+0.031}_{-0.047}$	$3.249^{+0.185}_{-0.610}$
	+2%/-2%	+0%/-1%	+375%/-375%	+7%/-3%	+4%/-6%	+6%/-19%
Source	SPE61	SPE61	SPE61	DSEP		

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

Secondary Eclipse Parameters for KIC 012252424-01 / KOI 0153.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-15 ± 4	$2.37^{+0.11}_{-0.11}$	1093^{+28}_{-24}	2471^{+82}_{-102}	$3.773^{+1.051}_{-1.071}$
Alt.	-15 ± 4	$2.08^{+0.10}_{-0.09}$	1094^{+24}_{-24}	2549^{+91}_{-117}	$4.735^{+1.377}_{-1.414}$

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

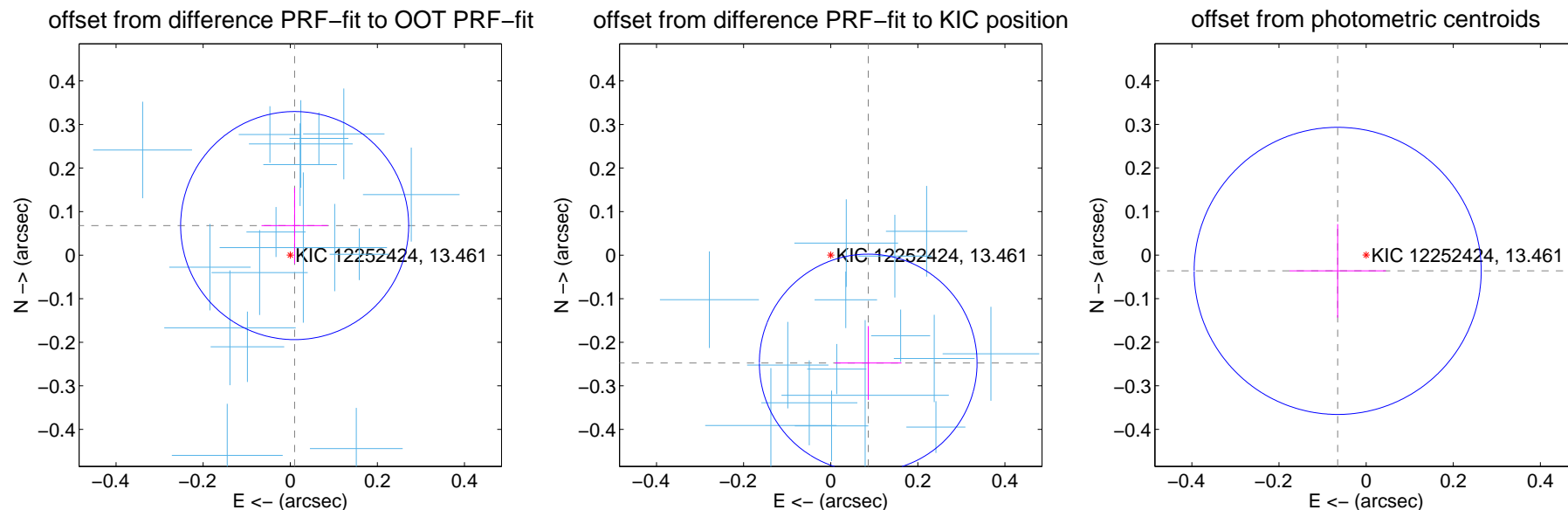
DV Centroid Data

Supplemental centroid analysis for 012252424-01. Kepler magnitude: 13.46. Transit SNR 132.09

There are 17 quarters with good PRF difference image offsets

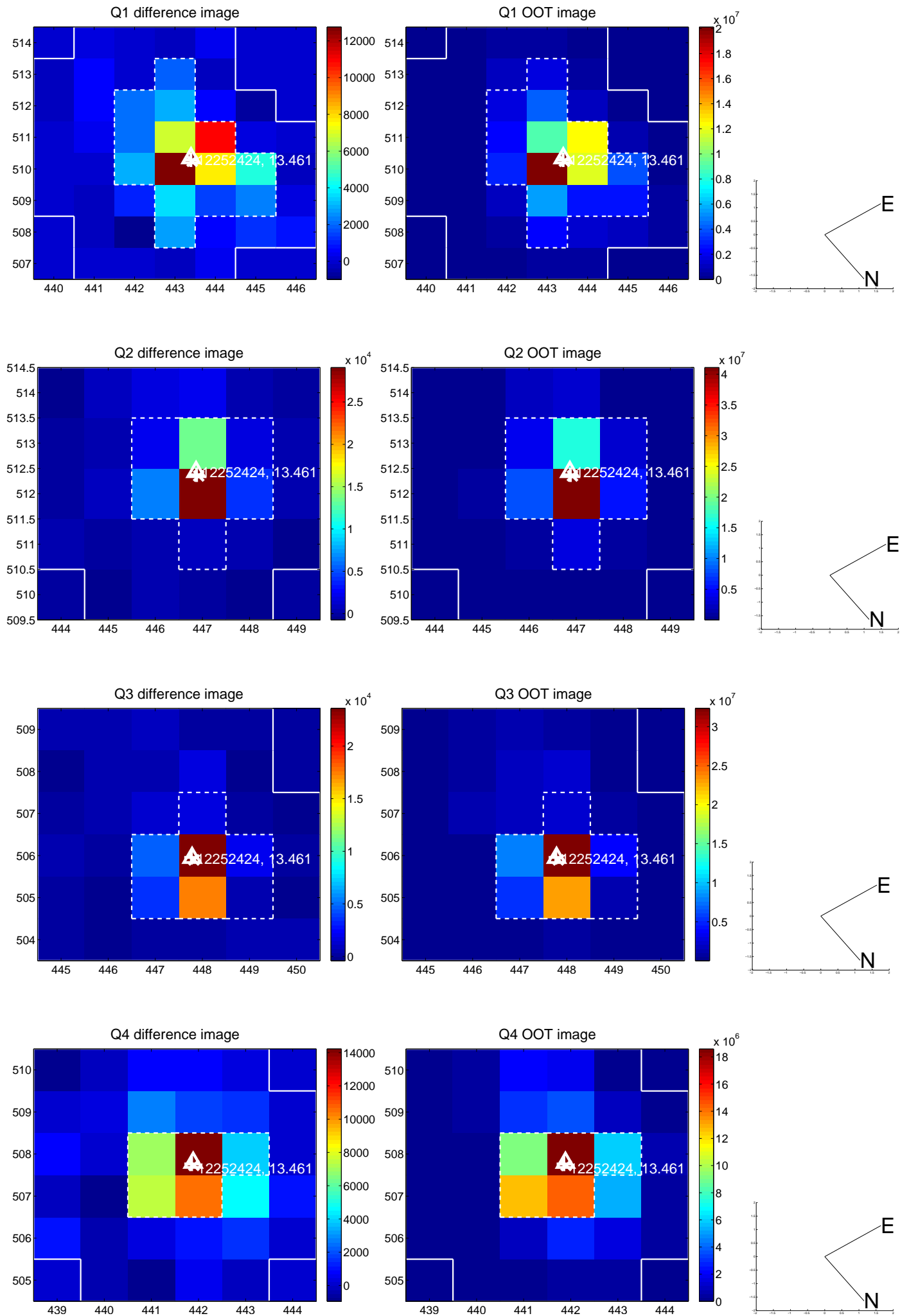
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.069 ± 0.087	0.79	-0.010 ± 0.076	0.068 ± 0.087
PRF-fit source offset from KIC position	0.262 ± 0.083	3.15	-0.086 ± 0.076	-0.248 ± 0.085
photometric centroid source offset	0.07 ± 0.11	0.68	0.07 ± 0.11	-0.04 ± 0.11

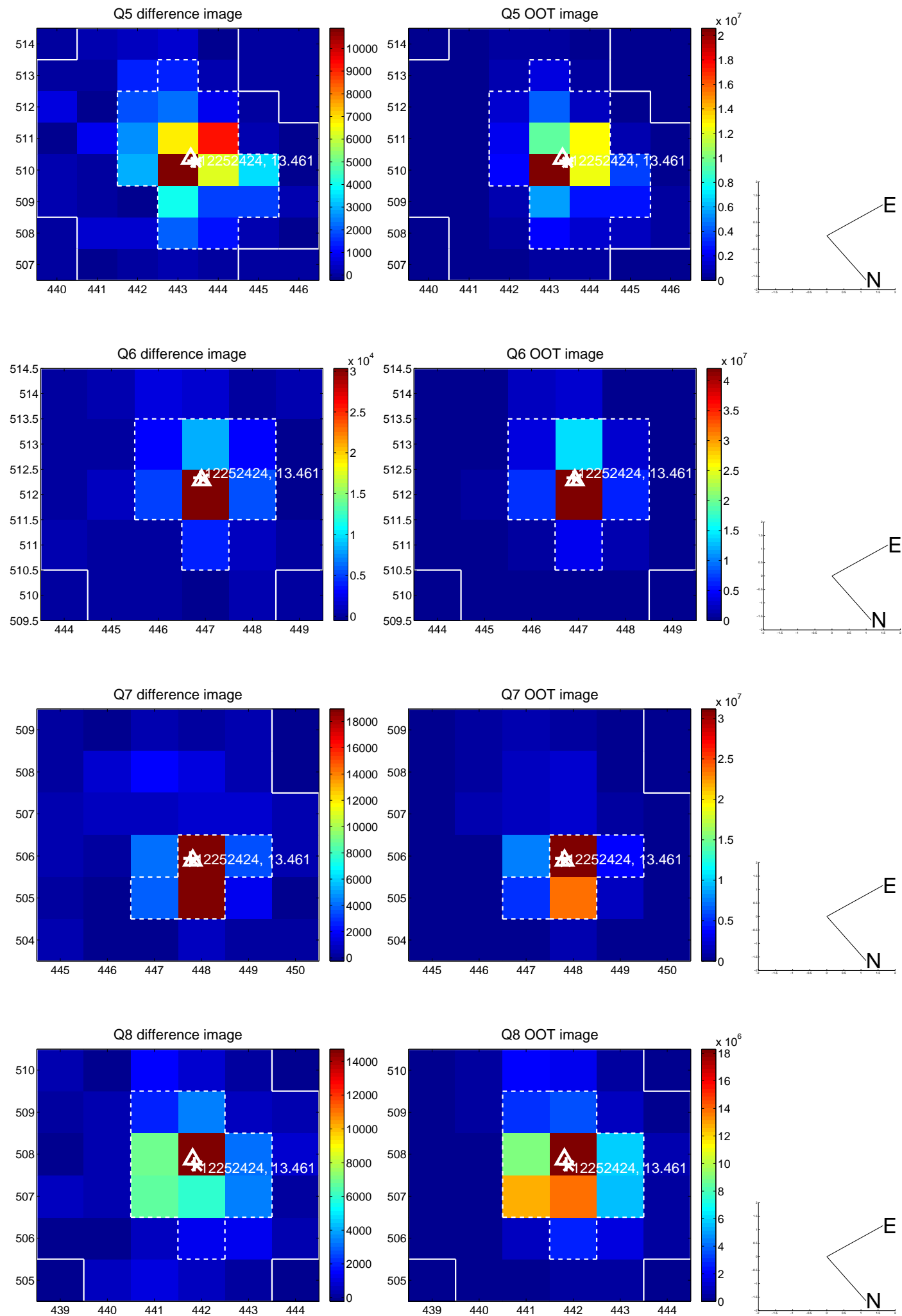


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

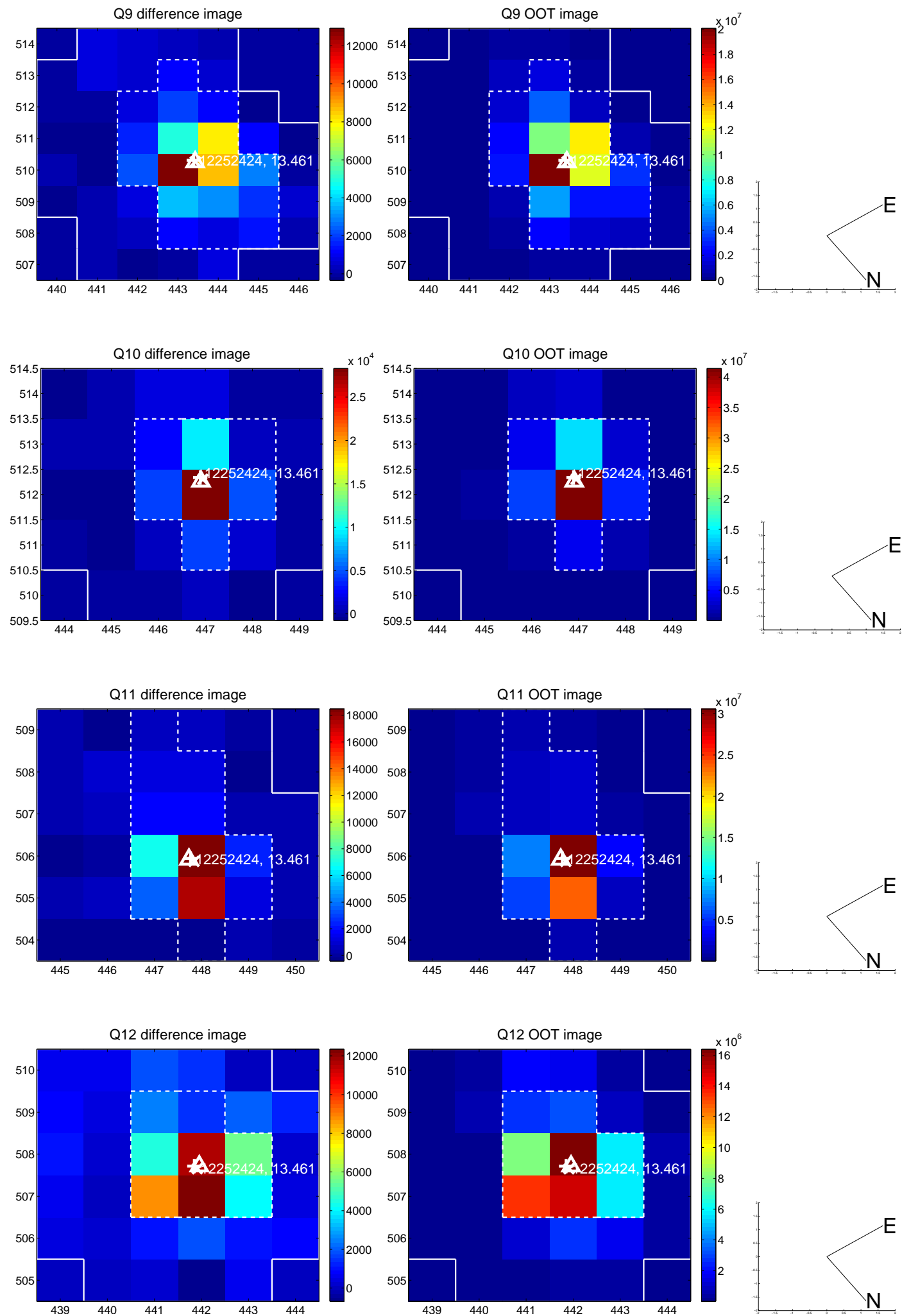
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



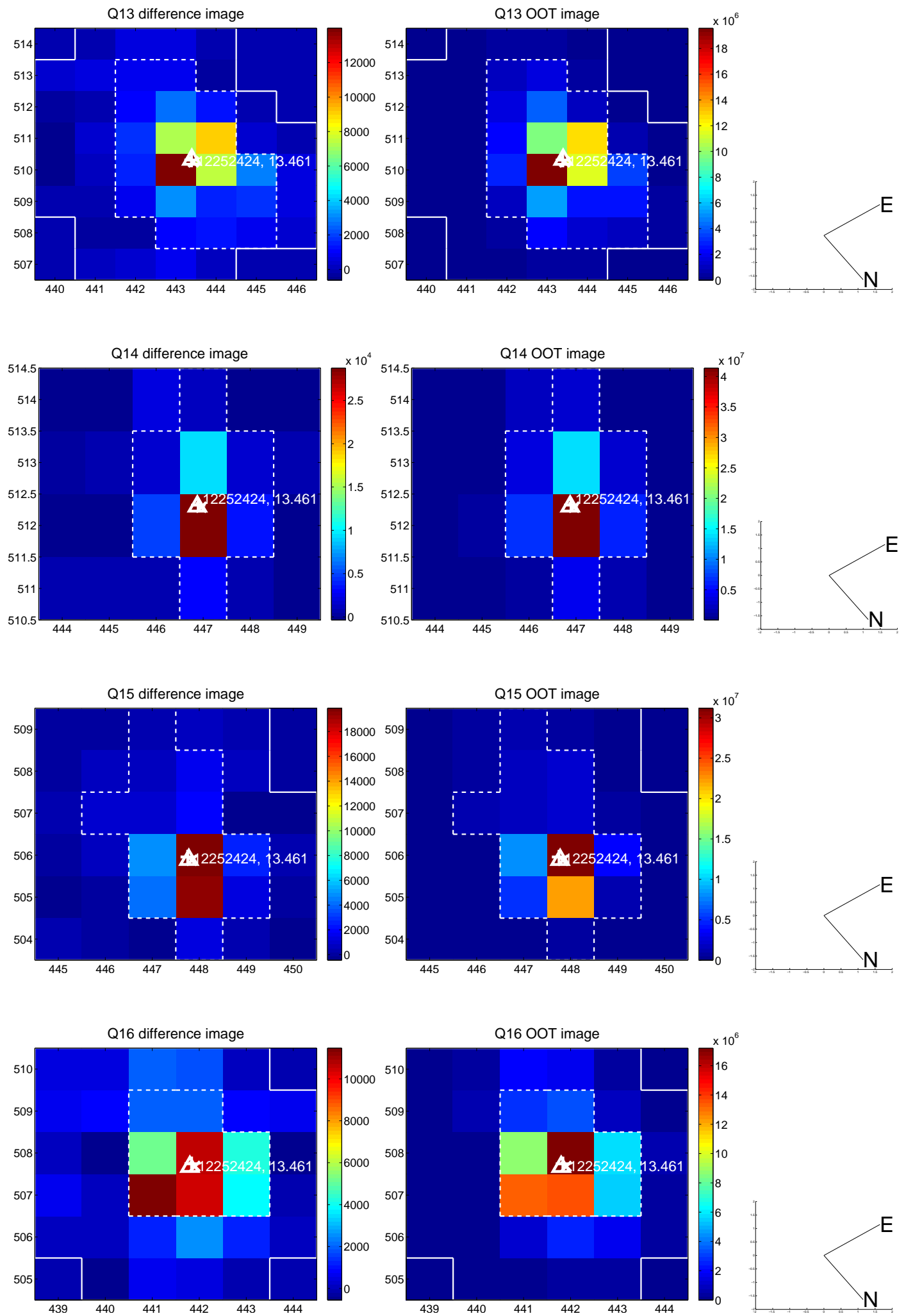
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



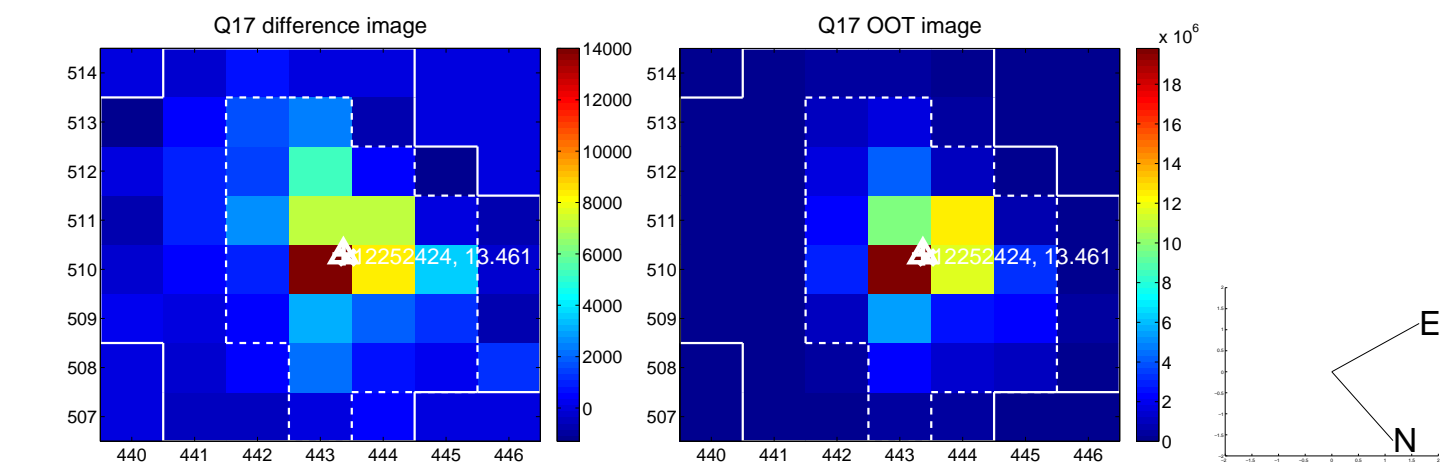
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



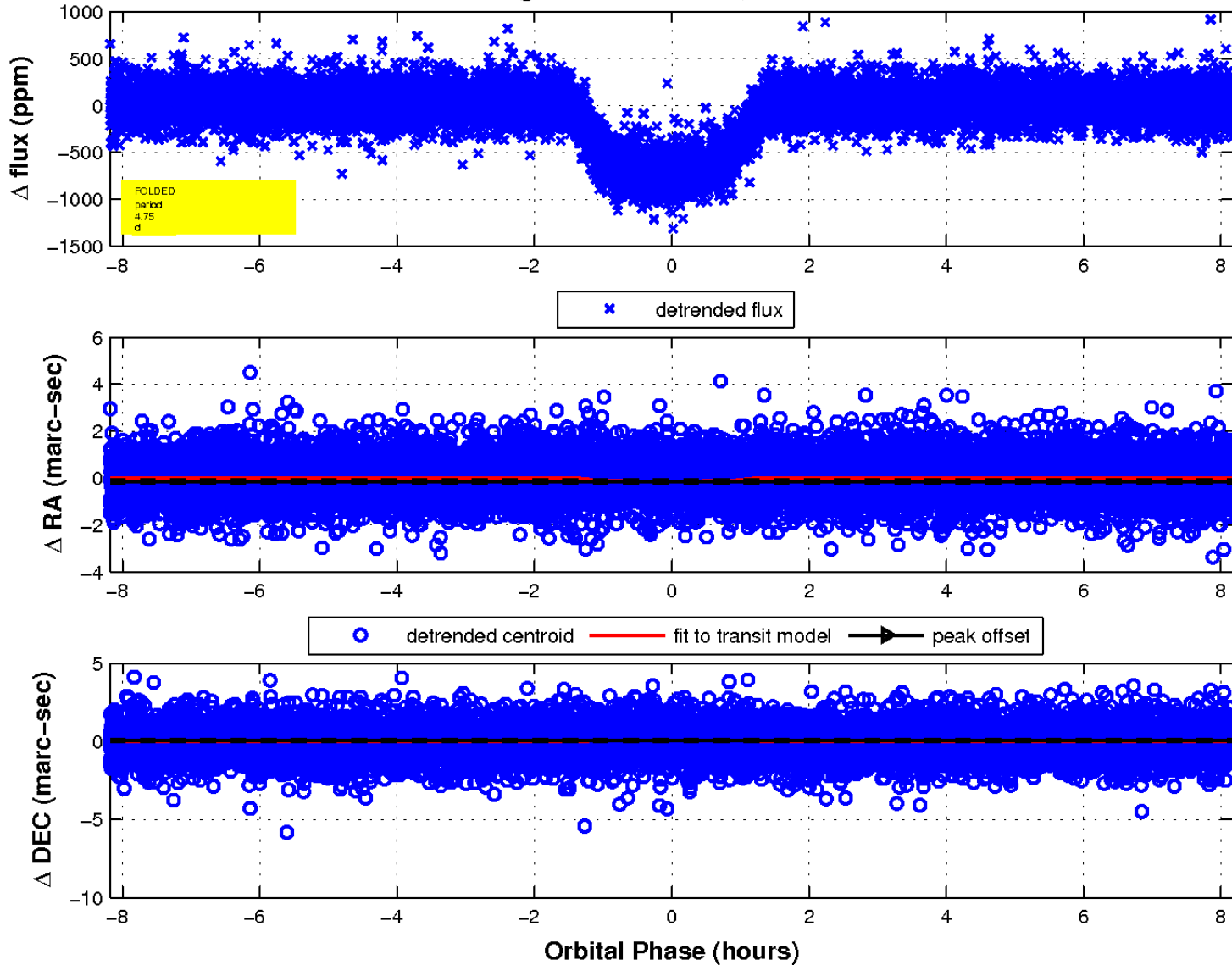
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

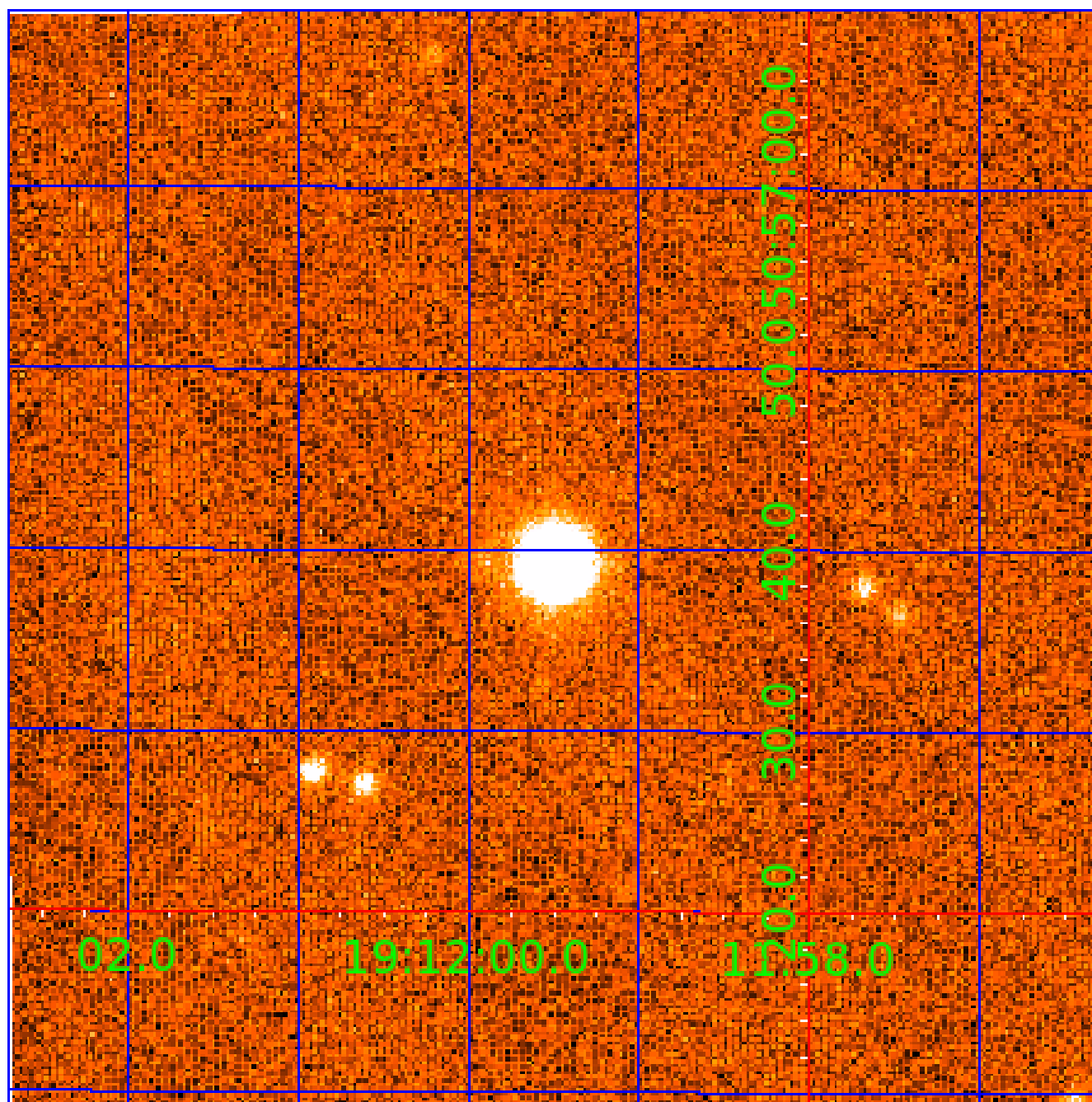


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 012252424

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})
012252424-01	OBS	0153.02	4.754004	133.300695	739.6	2.727	129.7	132.1	0.69	4728	2.32	85.51
012252424-02	OBS	0153.01	8.925081	139.713586	961.4	2.746	122.1	122.1	0.69	4728	2.48	36.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012252424-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012252424-02	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.

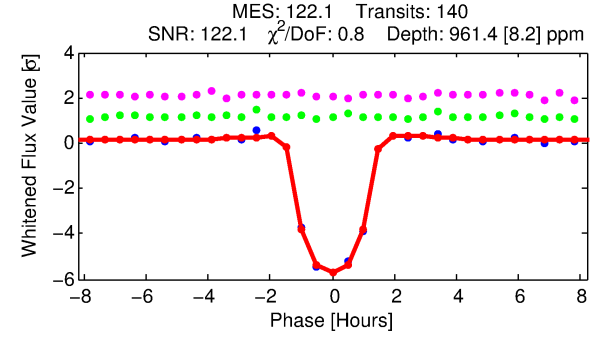
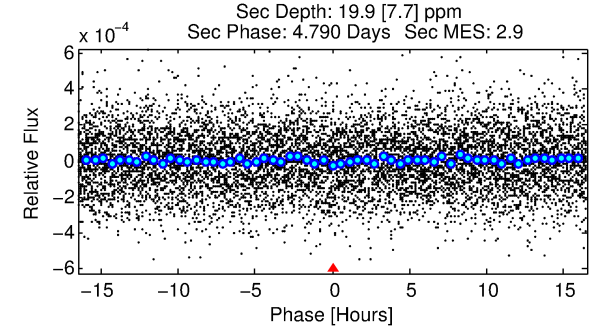
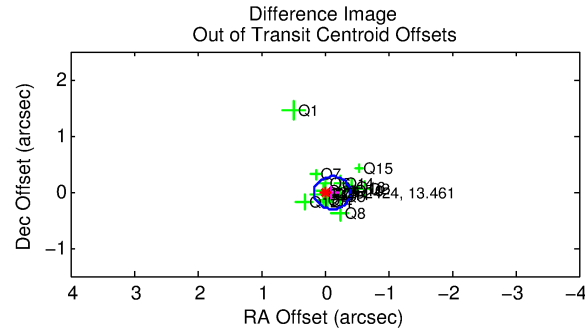
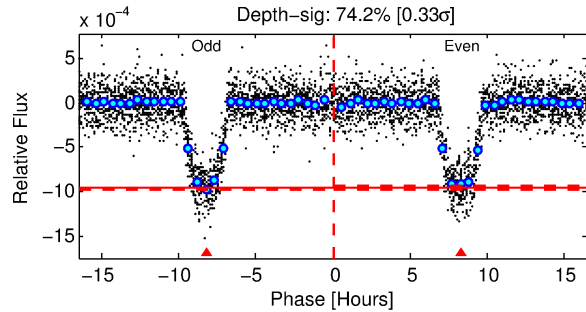
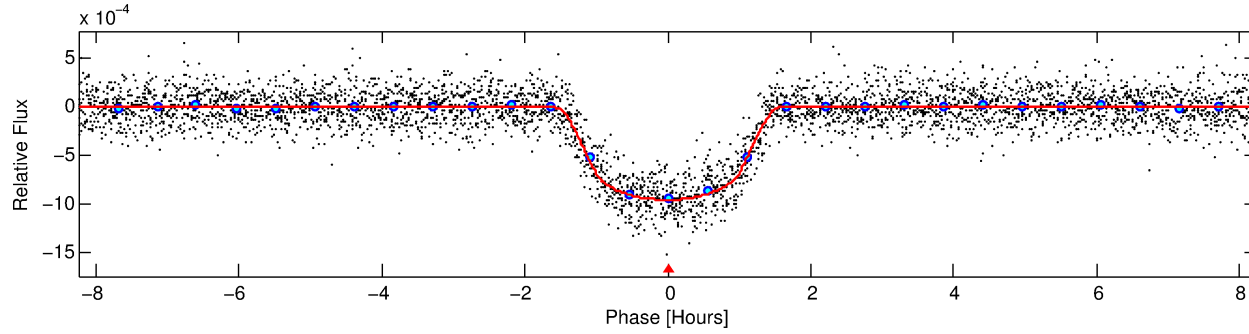
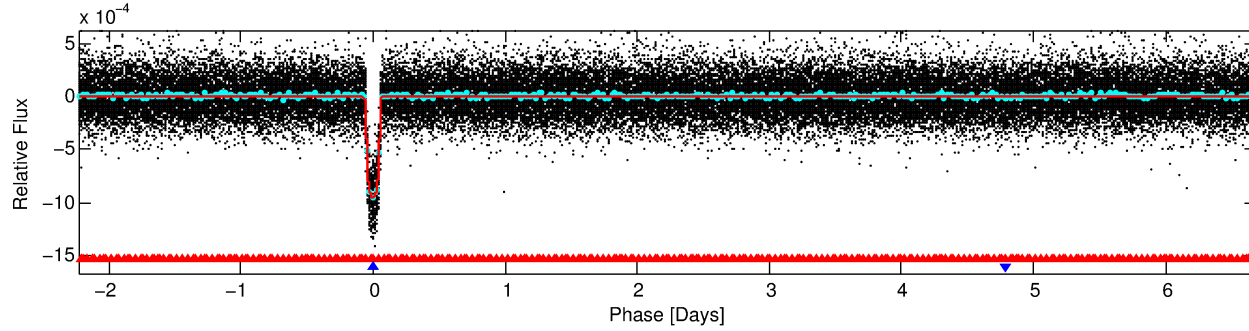
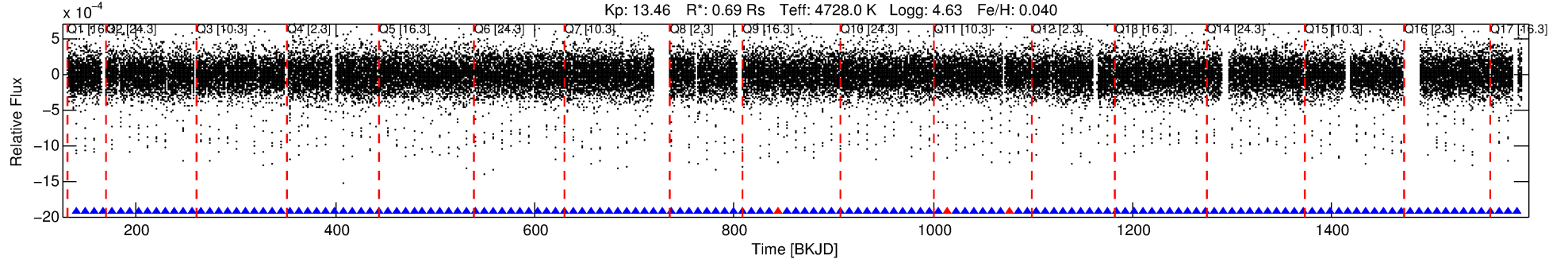
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012252424-02

No Significant Match Found

DV One-Page Summary

KIC: 12252424 Candidate: 2 of 2 Period: 8.925 d
KOI: K00153.01 Name: Kepler-113c Corr: 0.994



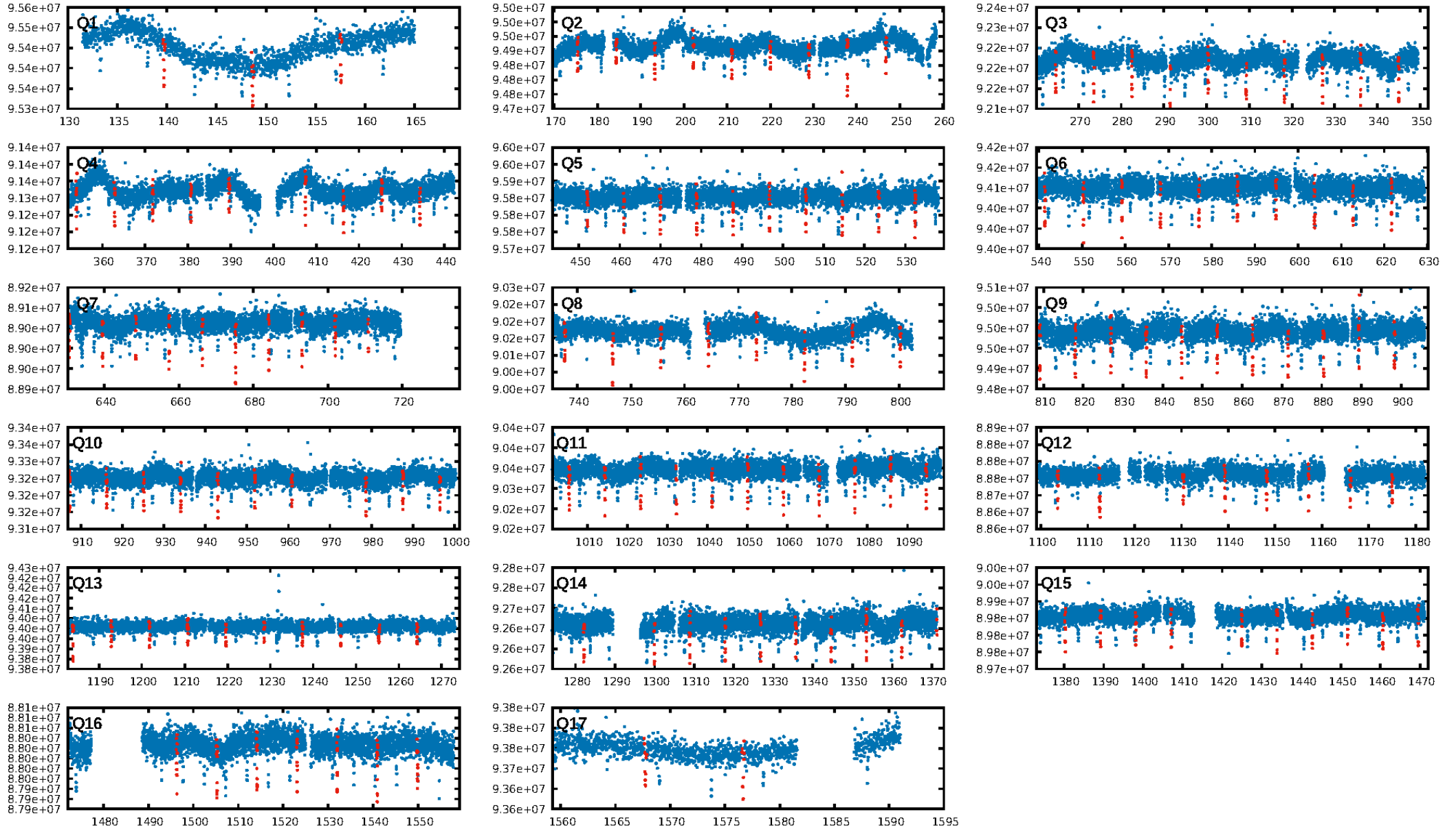
DV Fit Results:

Period = 8.92508 [0.00001] d
Epoch = 139.7136 [0.0005] BKJD
Rp/R* = 0.0328 [0.0021]
a/R* = 15.18 [3.36]
b = 0.83 [0.08]
Seff = 36.92 [4.36]
Teq = 629 [19] K
Rp = 2.48 [0.24] Re
a = 0.0763 [0.0046] AU
Ag = 10.39 [4.33] [2.17 σ]
Teffp = 1745 [181] K [6.13 σ]

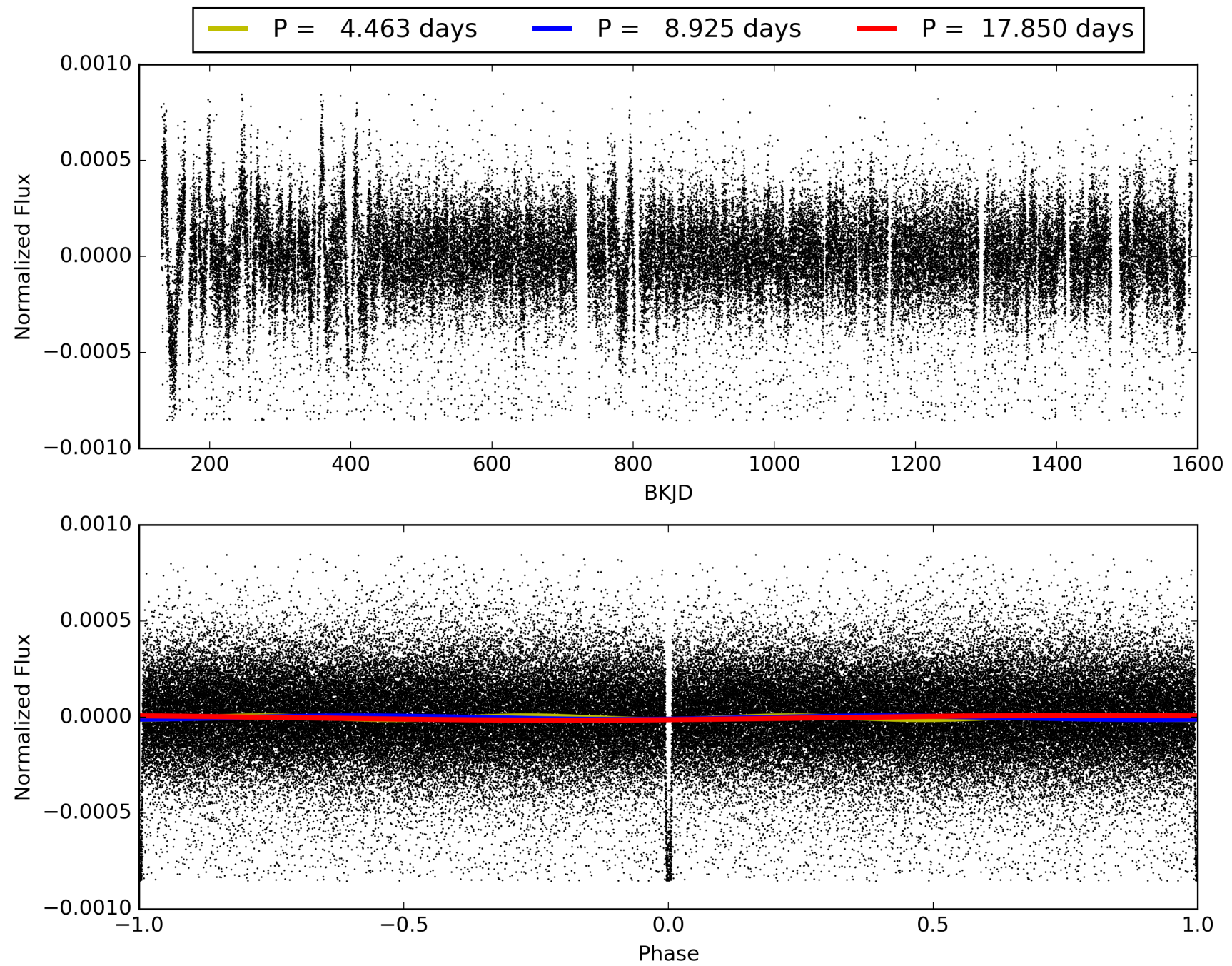
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.87 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [132/135]
GhostDiagnostic-chr: 5.591
Centroid-sig: 12.4%
Centroid-so: 0.061 arcsec [0.54 σ]
OotOffset-rm: 0.116 arcsec [1.20 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.348 arcsec [2.68 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012252424-02, PDC Light Curves

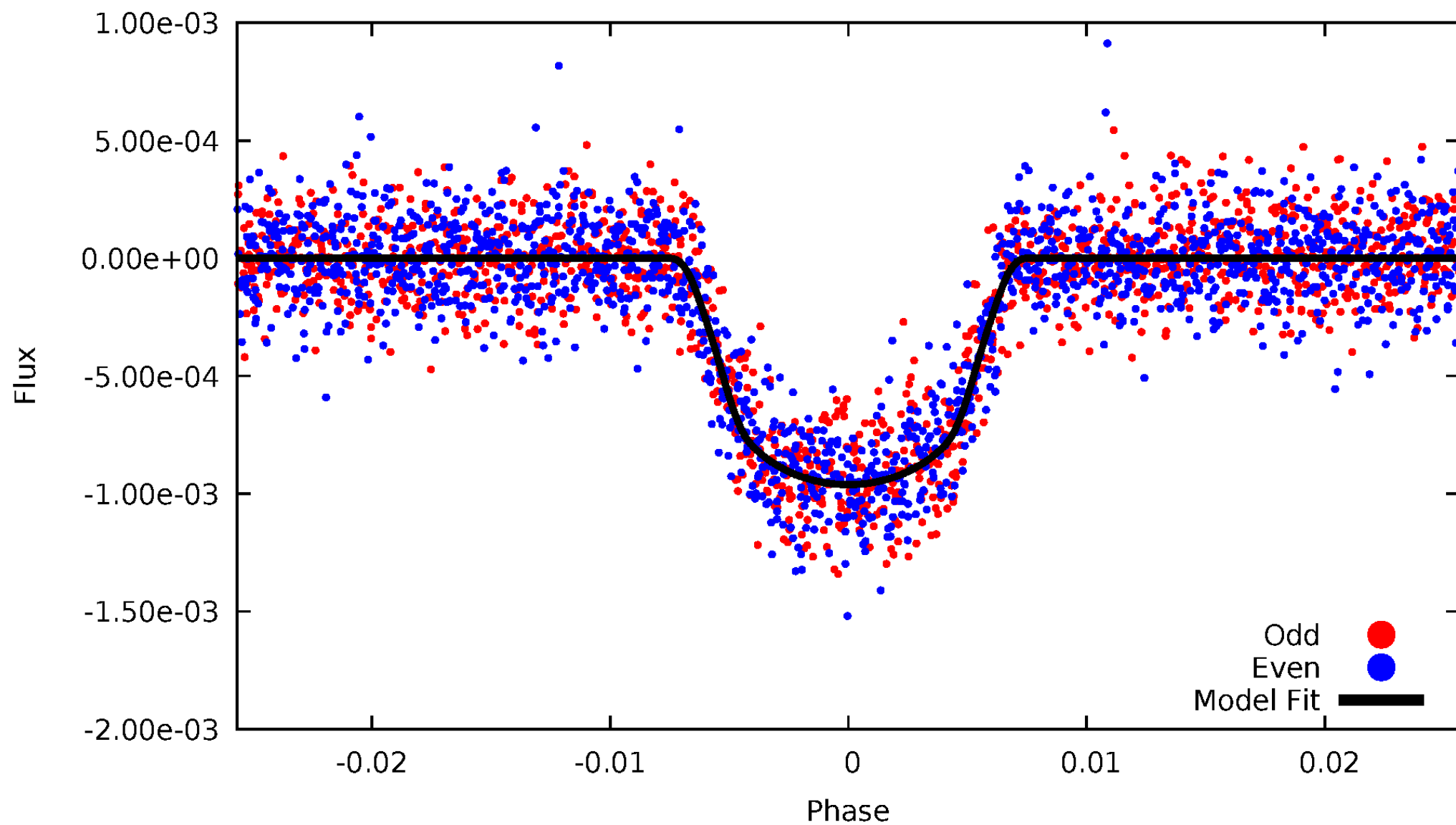


TCE 012252424-02



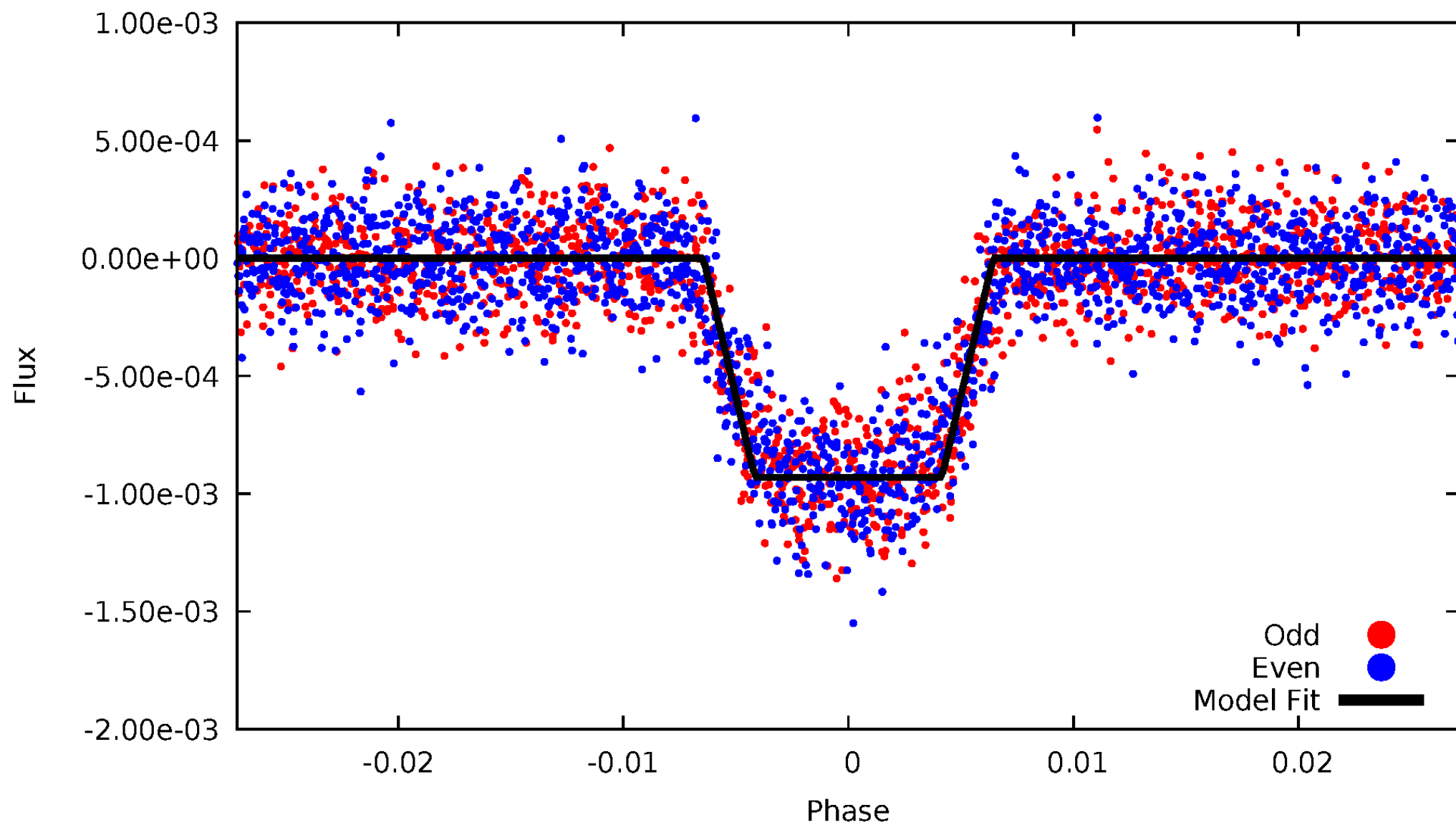
DV Odd/Even

TCE 012252424-02



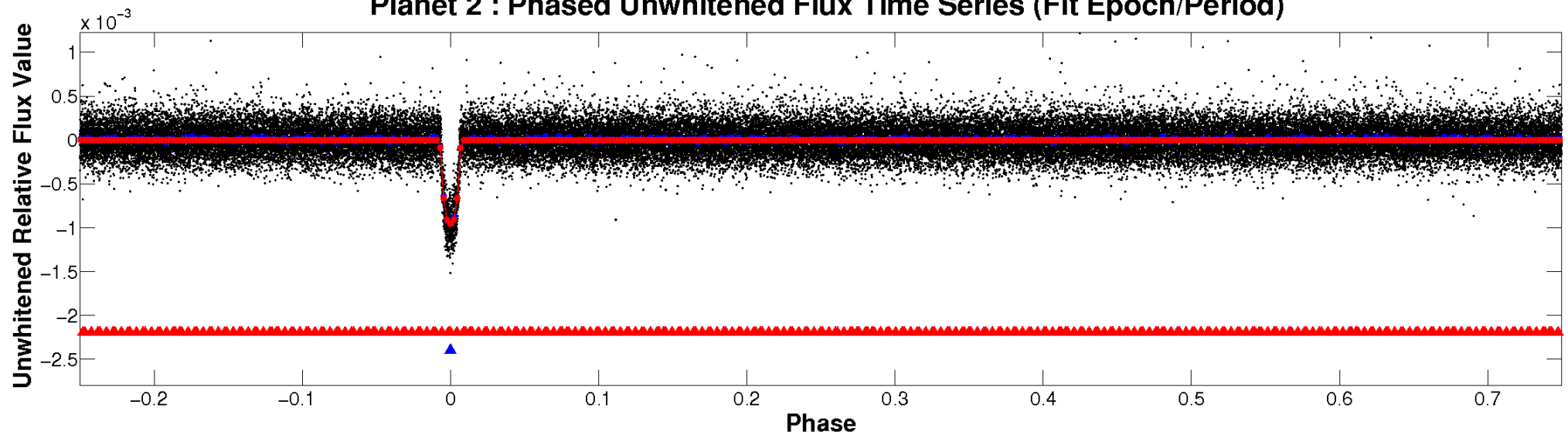
ALT Odd/Even

TCE 012252424-02

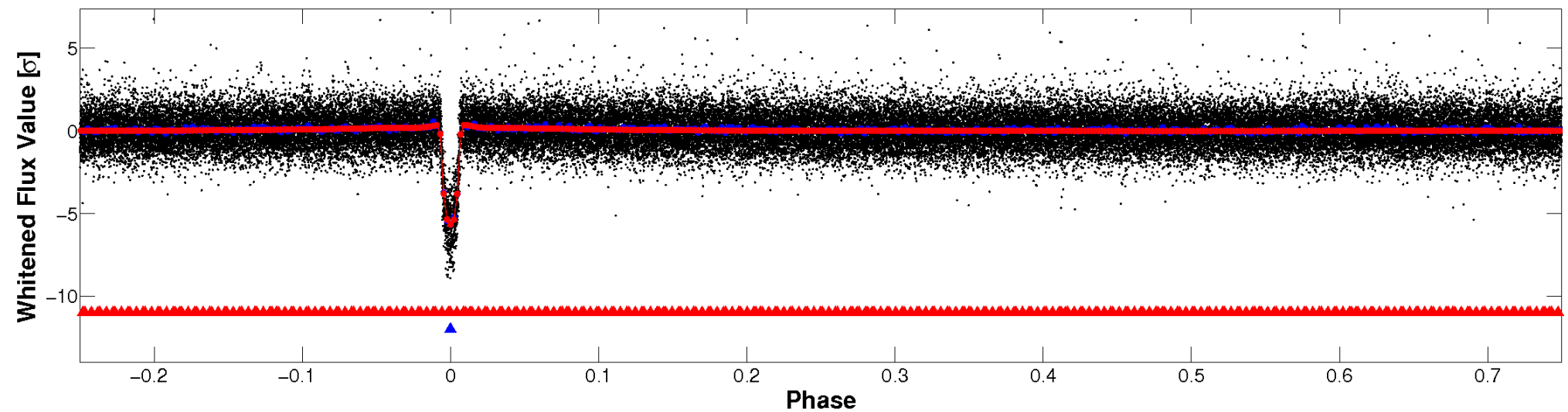


Non-Whitened Vs. Whitened Light Curve

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

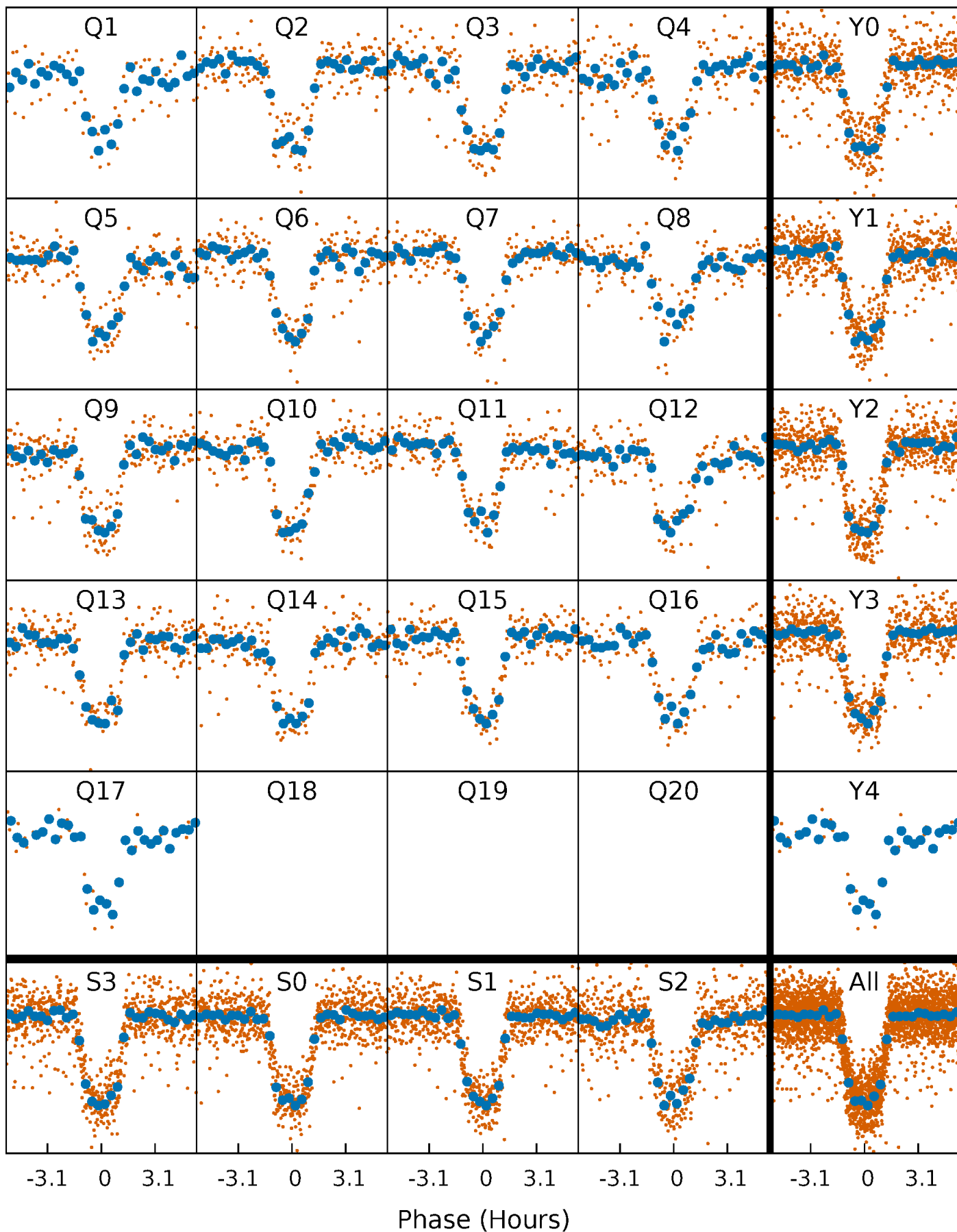


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



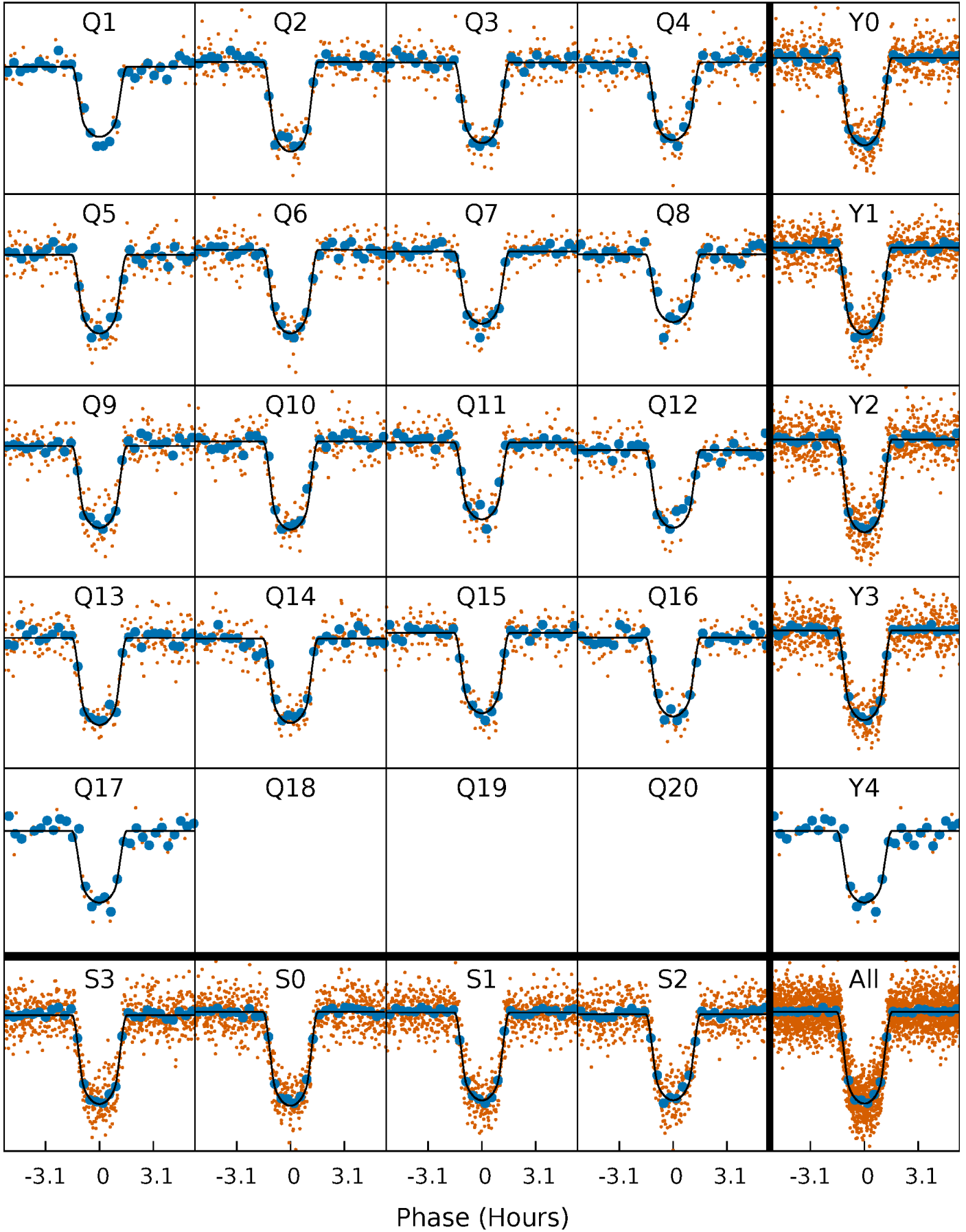
PDC Quarter-Phased Transit Curves

TCE 012252424-02 P= 8.925081 Days $T_0=139.713586$ (BKJD)



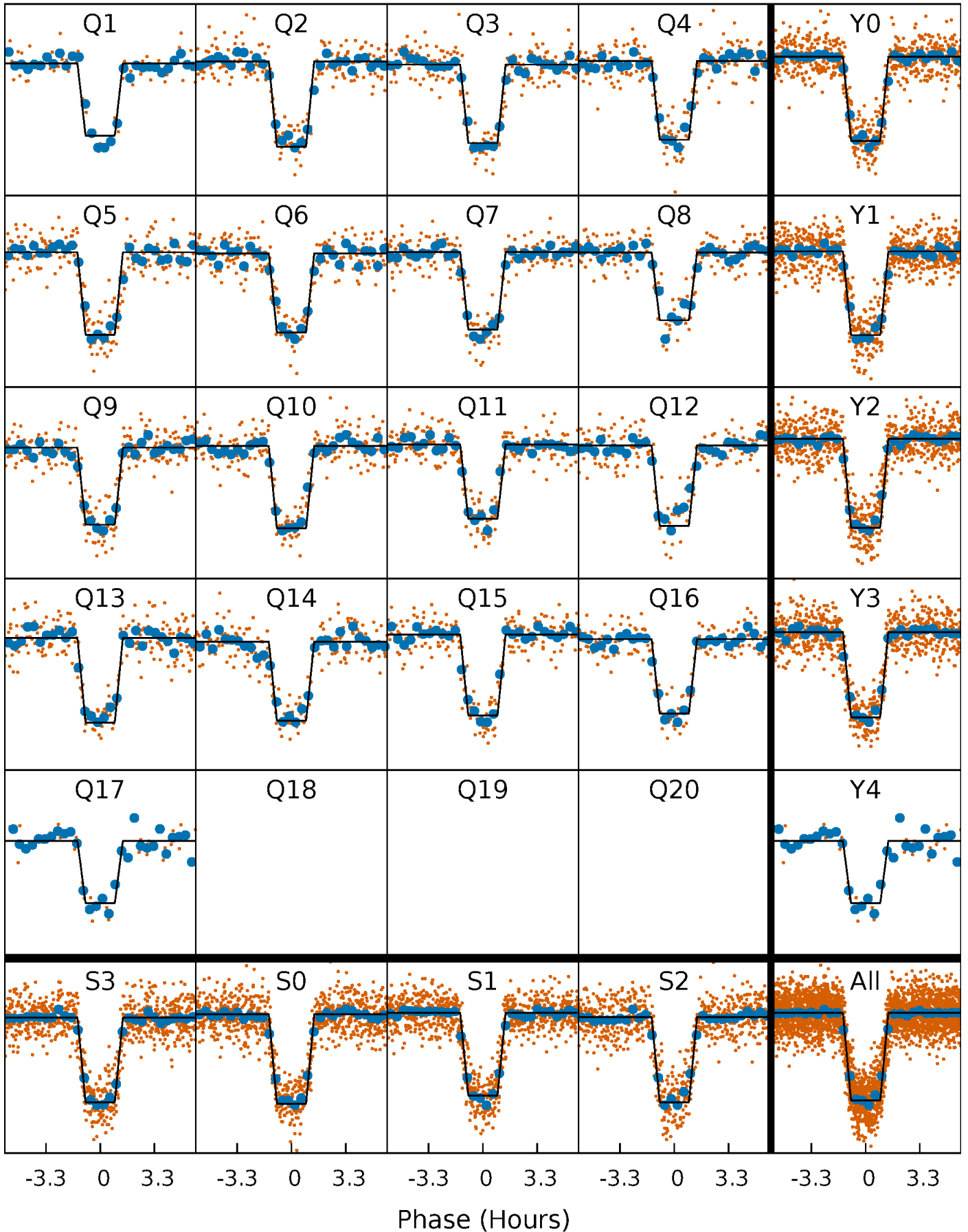
DV Quarter-Phased Transit Curves

TCE 012252424-02 P= 8.925081 Days $T_0=139.713586$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

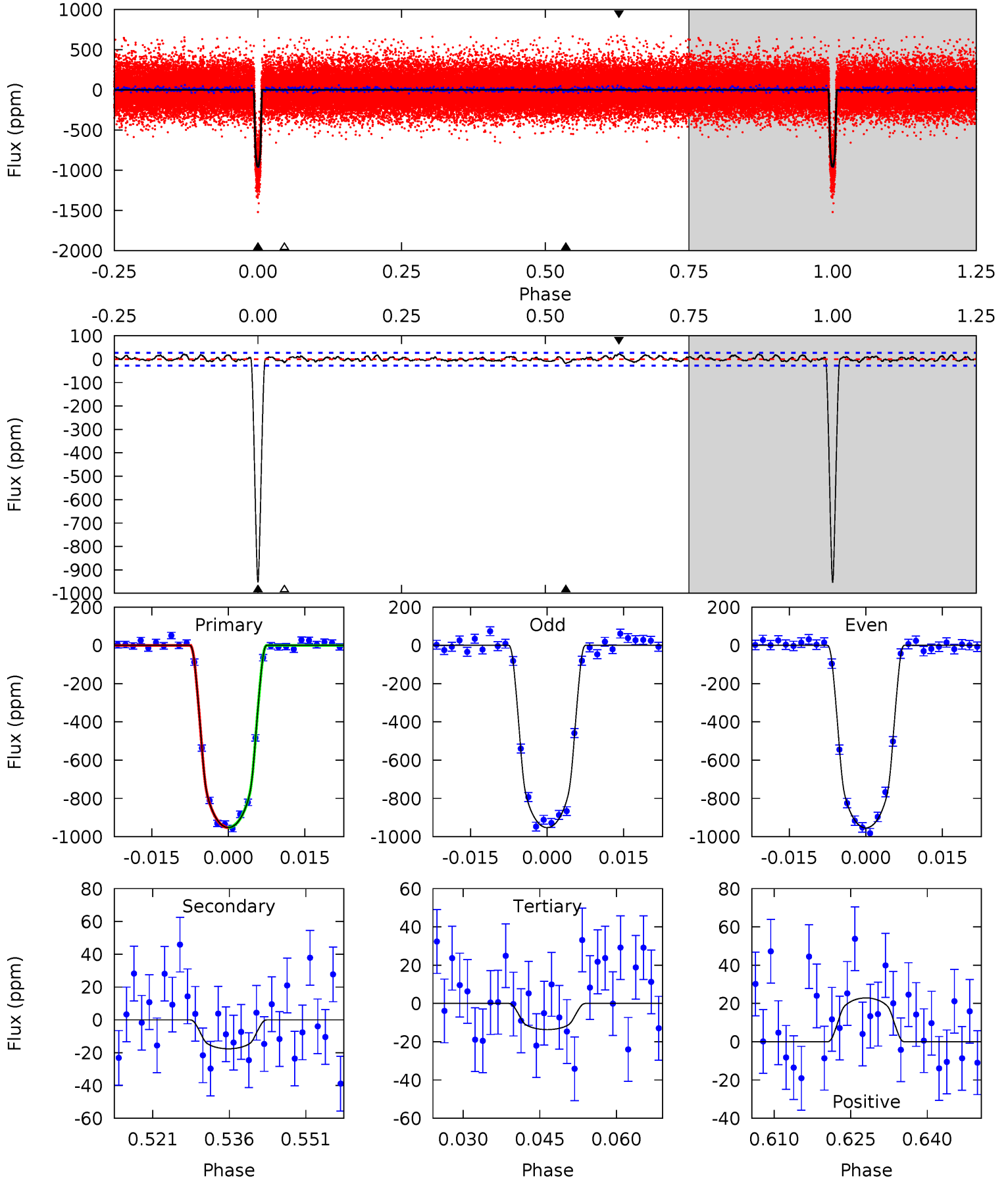
TCE 012252424-02 P= 8.925130 Days $T_0=139.709910$ (BKJD)



DV Model-Shift Uniqueness Test

012252424-02, P = 8.925081 Days, E = 130.788505 Days

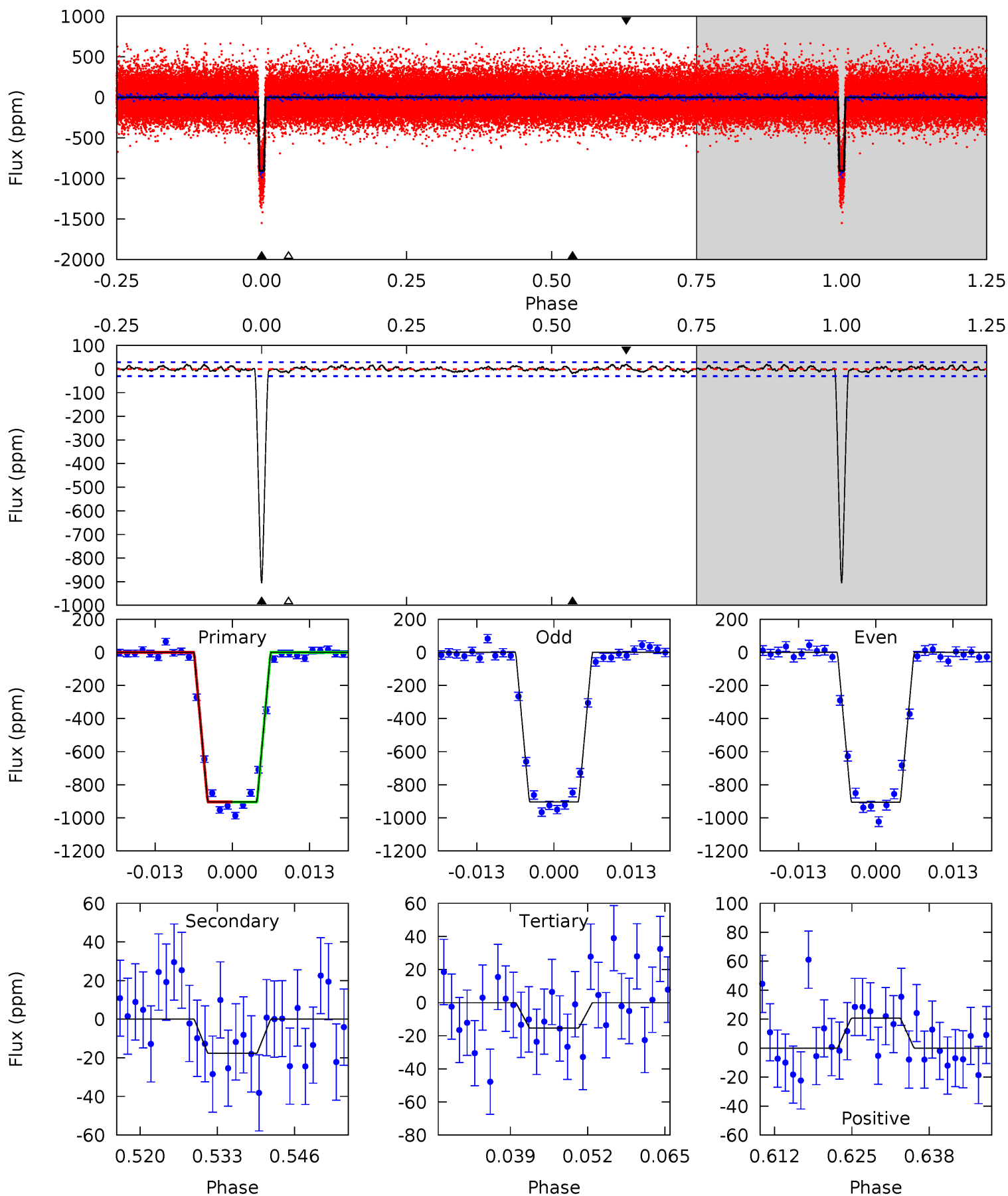
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
172.1	3.19	2.47	4.14	4.95	2.44	1.29	169.7	168.0	0.72	-0.95	0.12	1.00	0.02	0.10



Alt Model-Shift Uniqueness Test

012252424-02, P = 8.925130 Days, E = 130.784780 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
152.7	2.98	2.59	3.48	4.98	2.48	1.17	150.1	149.2	0.40	-0.49	0.11	1.00	0.02	0.04



Stellar Parameters For KIC 012252424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4728^{+94}_{-94}	$4.628^{+0.012}_{-0.048}$	$0.040^{+0.150}_{-0.150}$	$0.693^{+0.049}_{-0.021}$	$0.768^{+0.031}_{-0.047}$	$3.249^{+0.185}_{-0.610}$
	+2%/-2%	+0%/-1%	+375%/-375%	+7%/-3%	+4%/-6%	+6%/-19%
Source	SPE61	SPE61	SPE61	DSEP		

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

Secondary Eclipse Parameters for KIC 012252424-02 / KOI 0153.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 6	$2.54^{+0.17}_{-0.17}$	885^{+23}_{-18}	2485^{+112}_{-110}	$8.805^{+3.265}_{-2.692}$
Alt.	-18 ± 6	$2.36^{+0.20}_{-0.18}$	884^{+22}_{-18}	2538^{+106}_{-133}	10^{+4}_{-3}

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

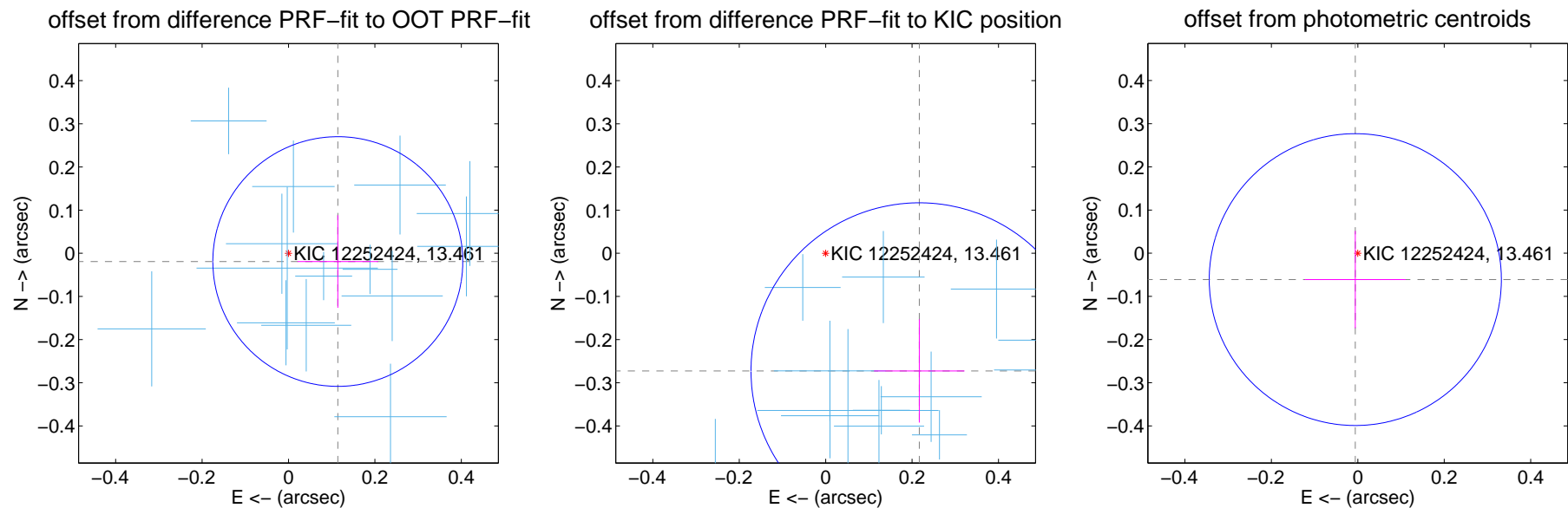
DV Centroid Data

Supplemental centroid analysis for 012252424-02. Kepler magnitude: 13.46. Transit SNR 122.12

There are 17 quarters with good PRF difference image offsets

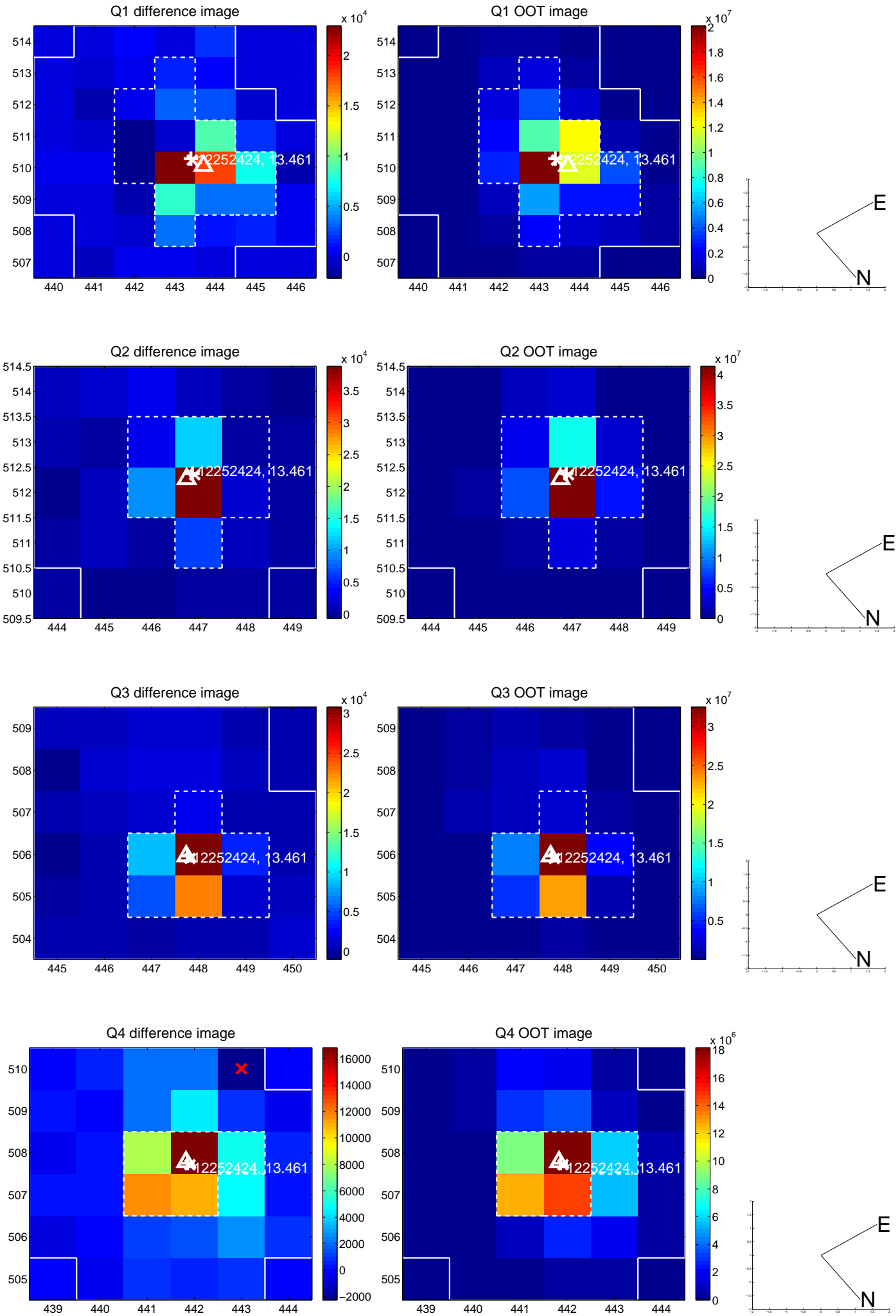
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.116 ± 0.096	1.20	-0.114 ± 0.093	-0.019 ± 0.107
PRF-fit source offset from KIC position	0.348 ± 0.130	2.68	-0.217 ± 0.105	-0.272 ± 0.120
photometric centroid source offset	0.06 ± 0.11	0.54	0.01 ± 0.12	-0.06 ± 0.11

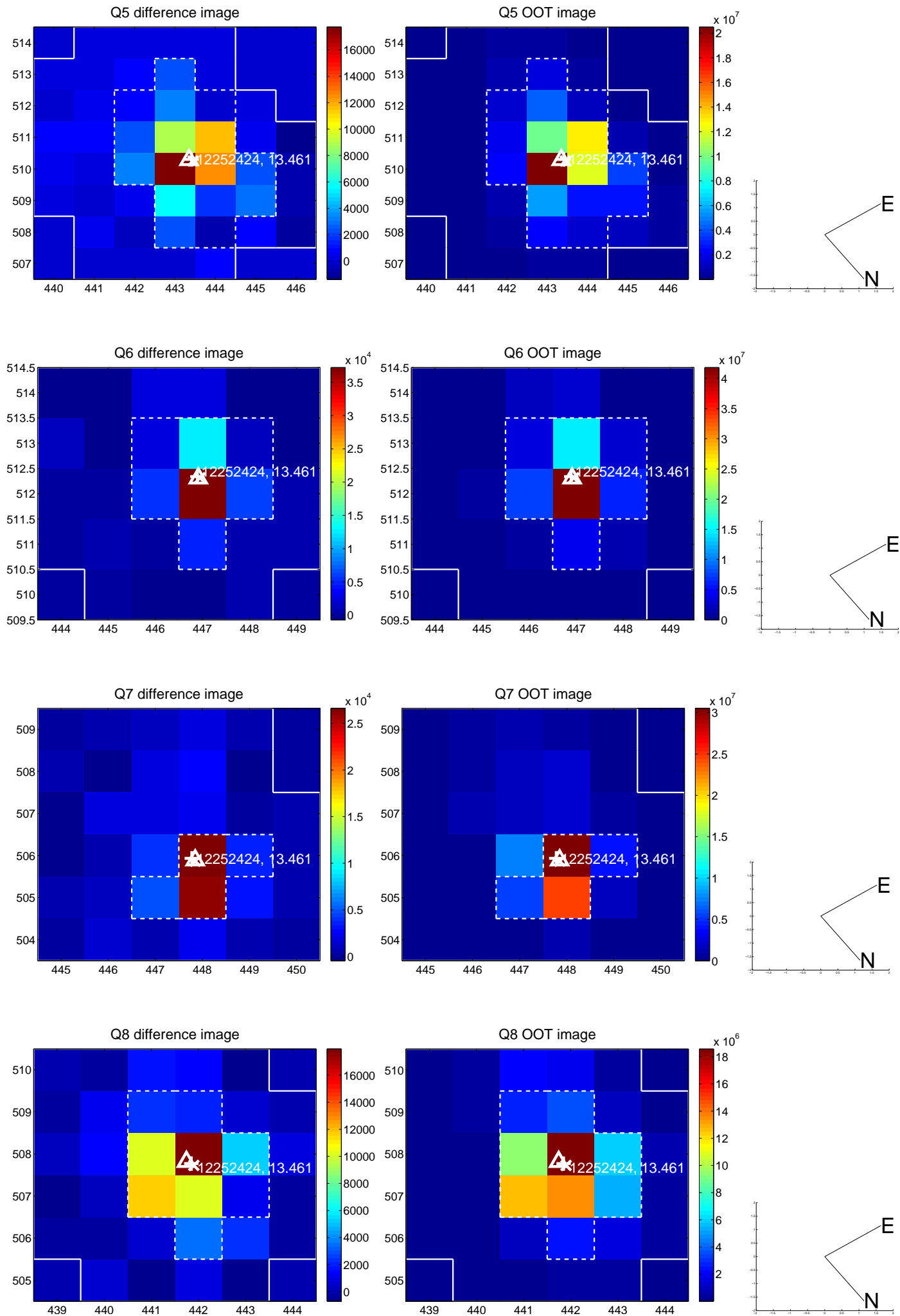


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

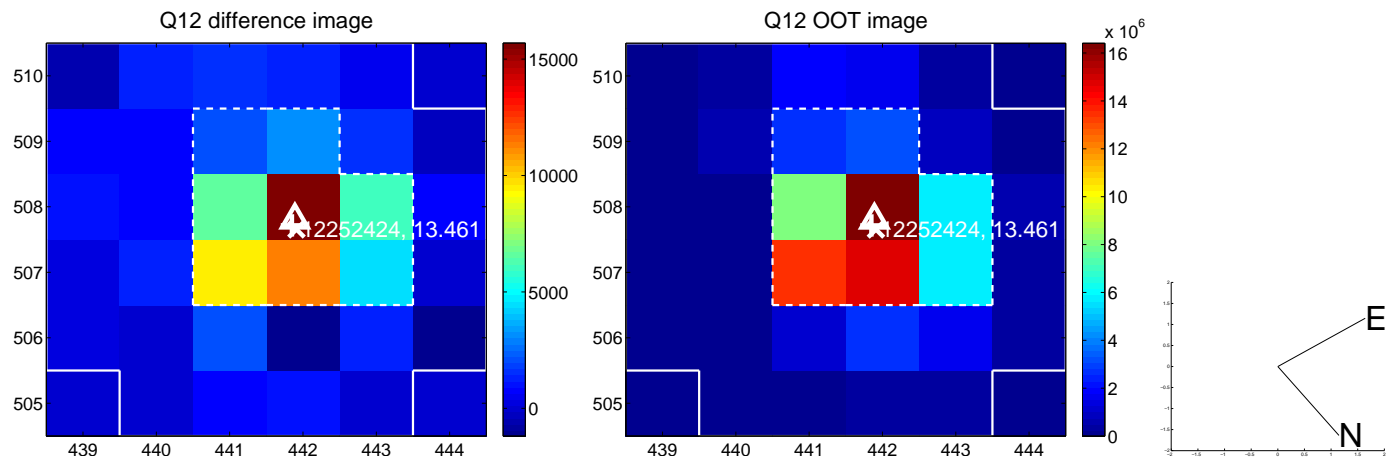
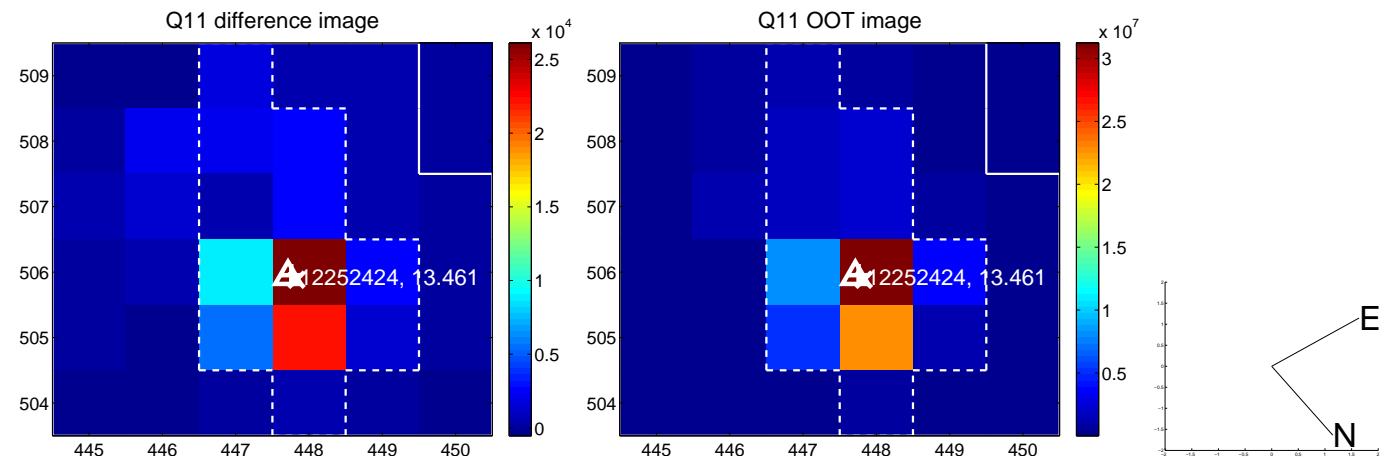
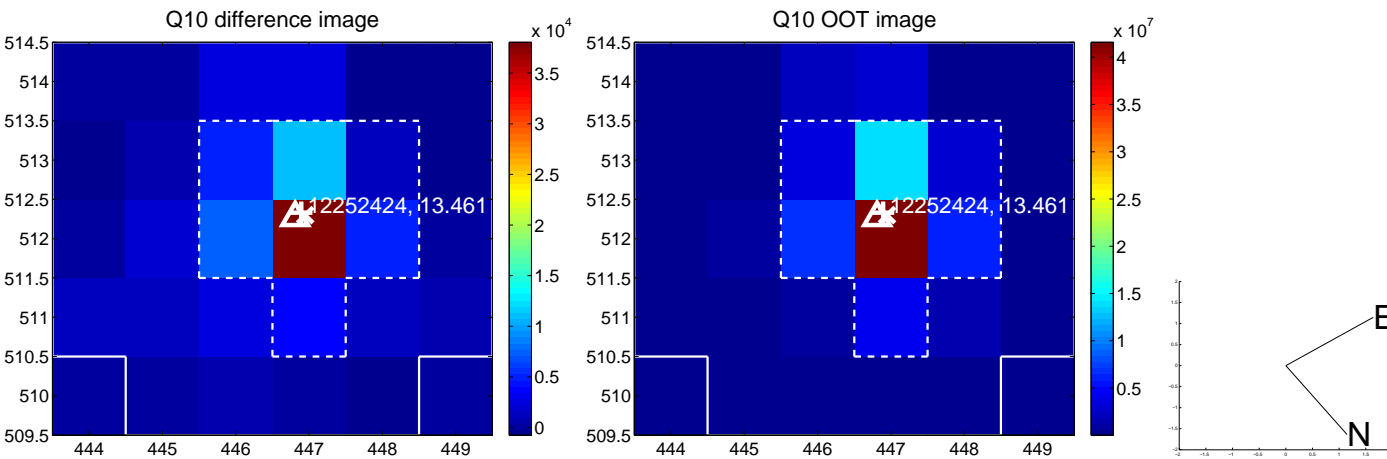
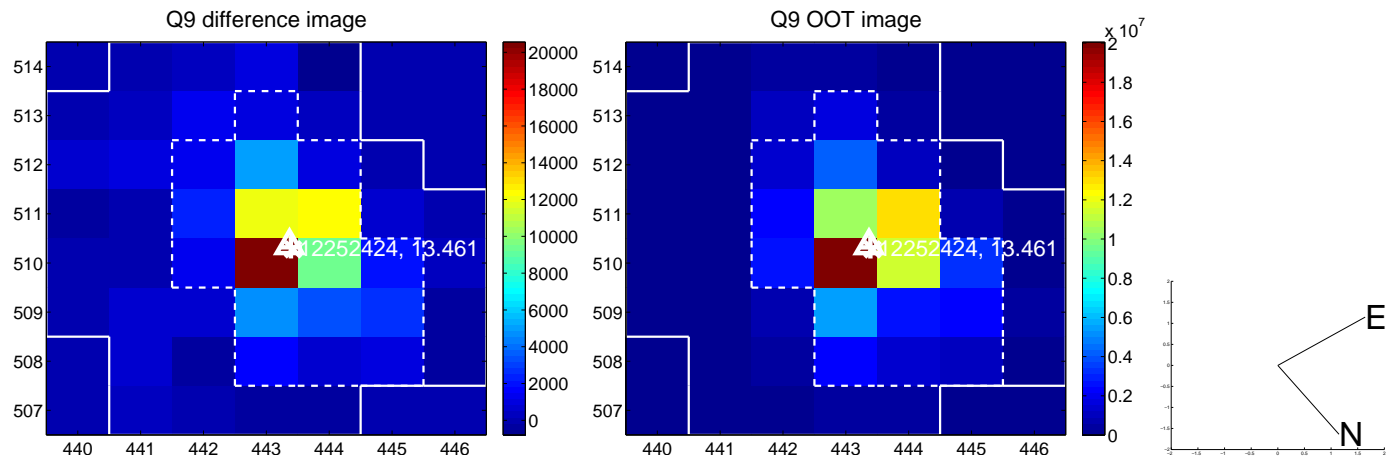
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



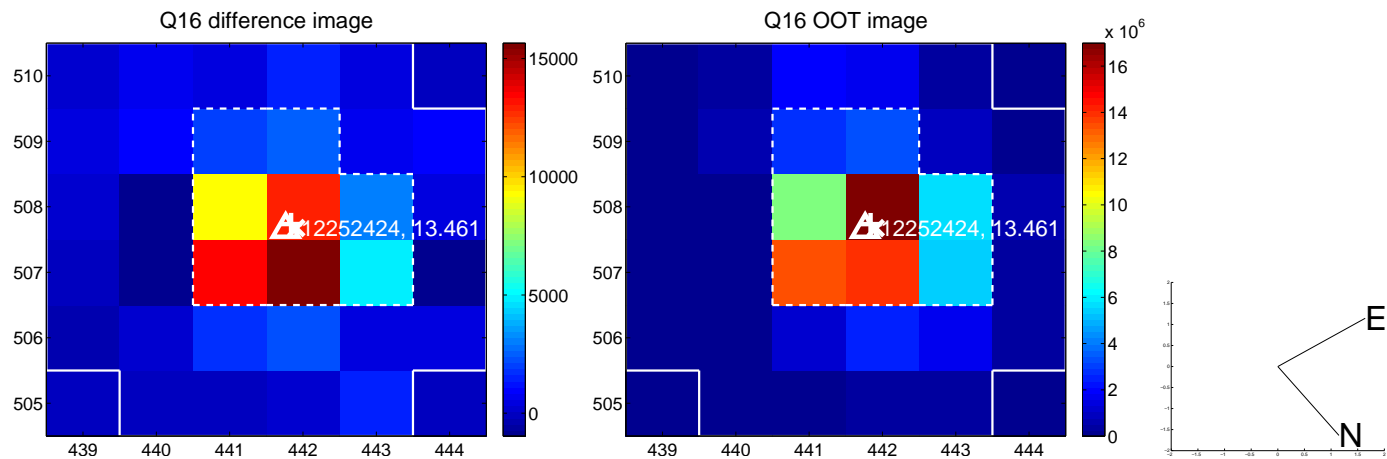
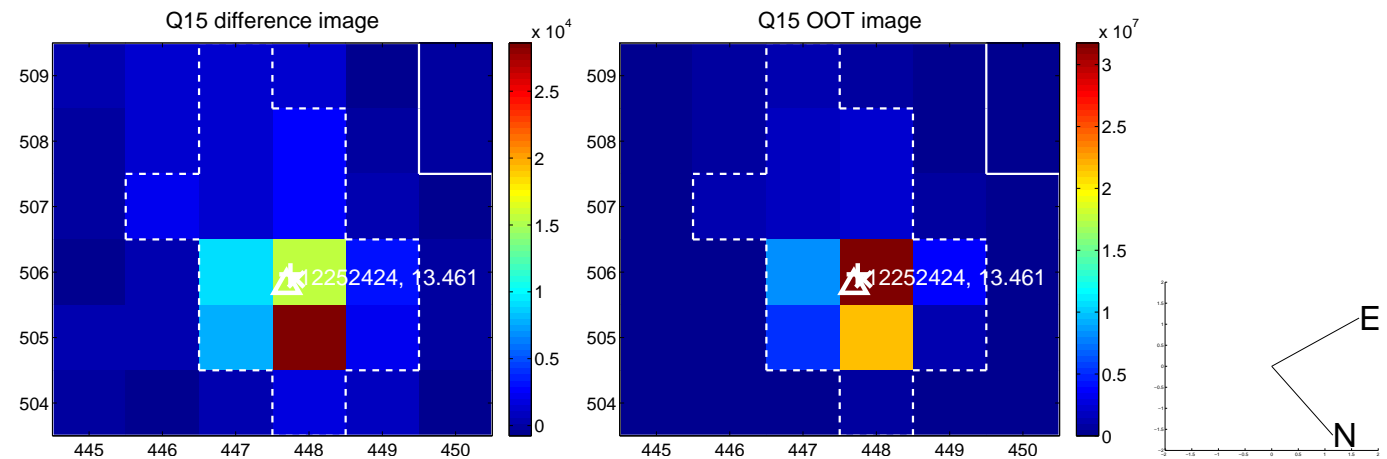
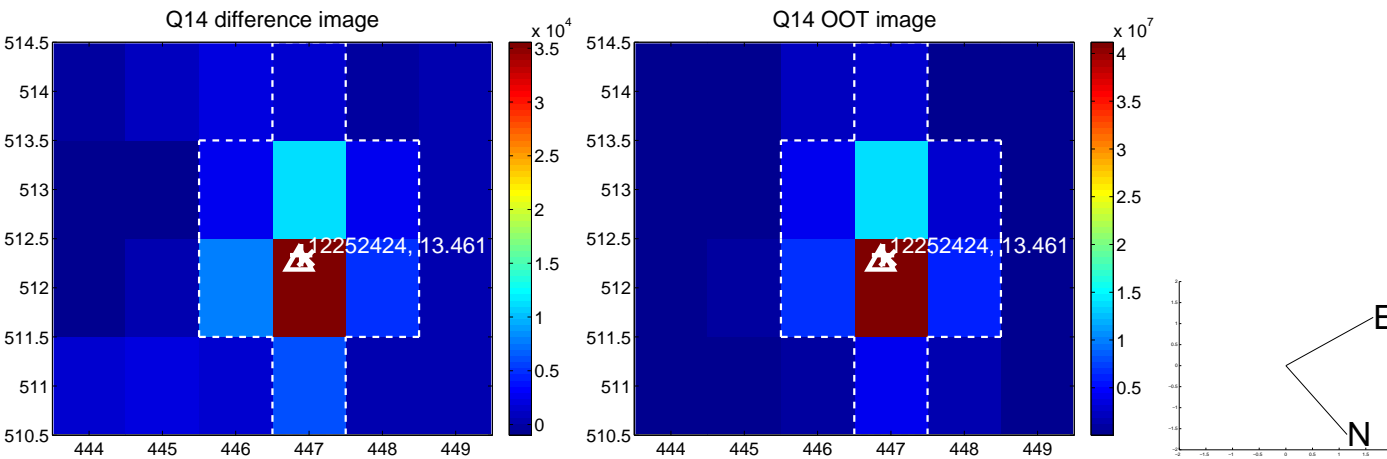
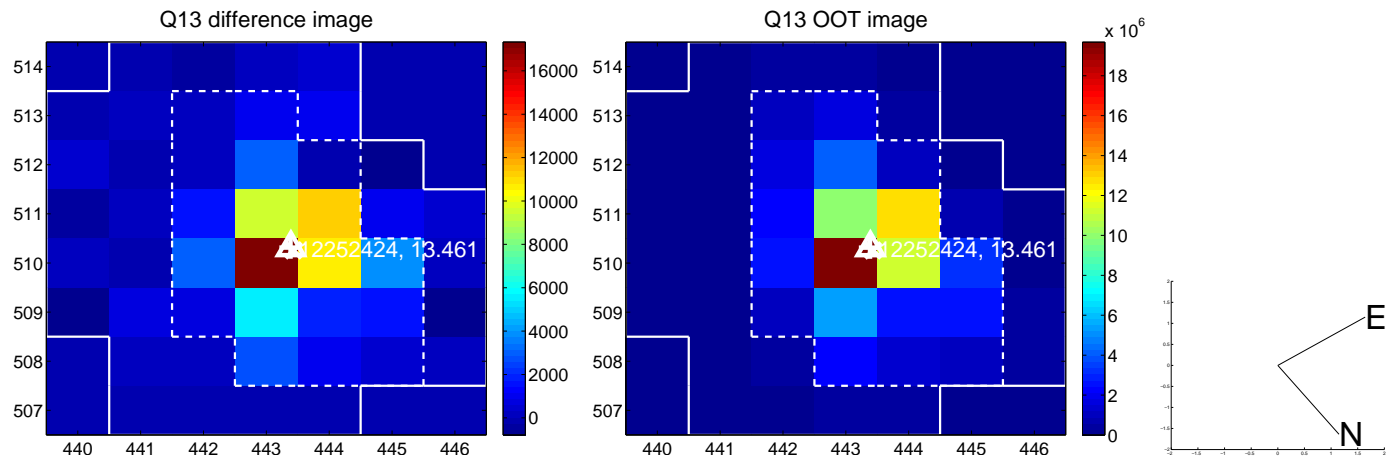
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



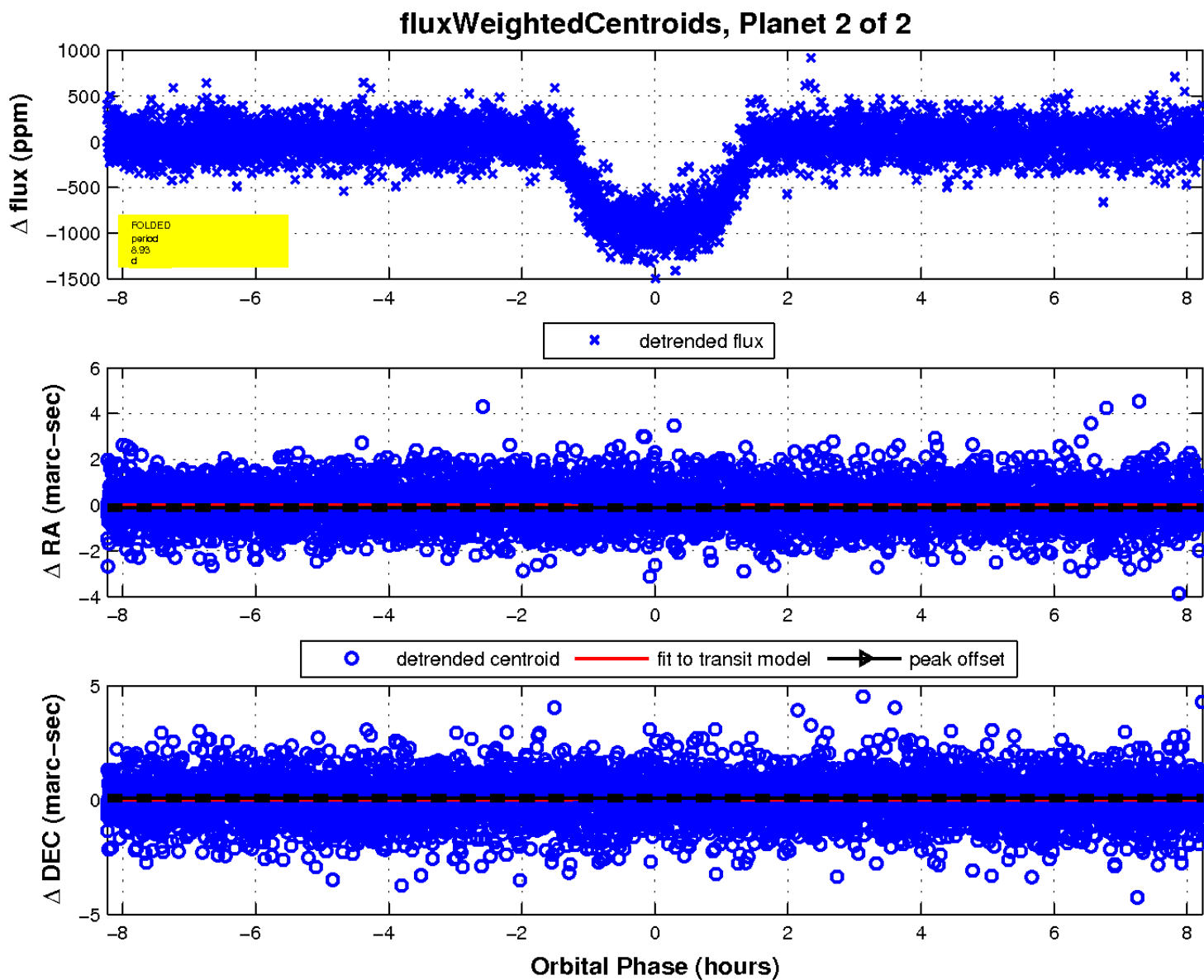
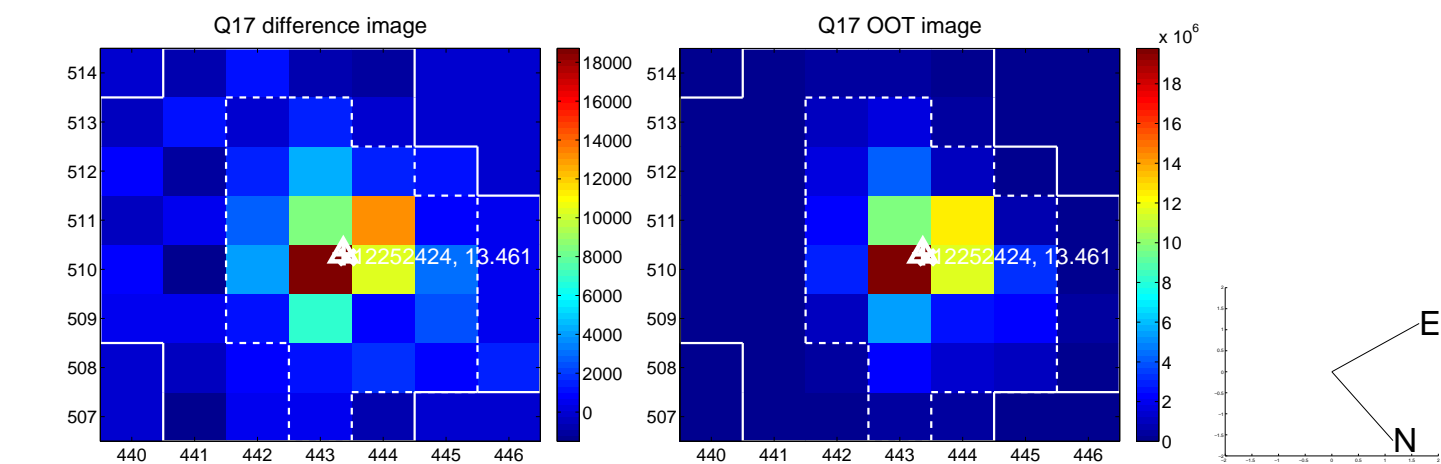
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

