

KIC 008374494

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})
008374494-01	OBS	1133.01	5.251935	136.738727	9081.0	5.013	319.5	216.2	0.87	5542	15.21	194.45
008374494-02	OBS	No	5.251905	134.159948	1200.9	4.501	59.5	56.3	0.87	5542	3.76	194.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374494-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
008374494-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 008374494-01

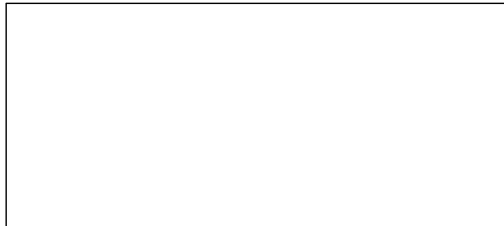
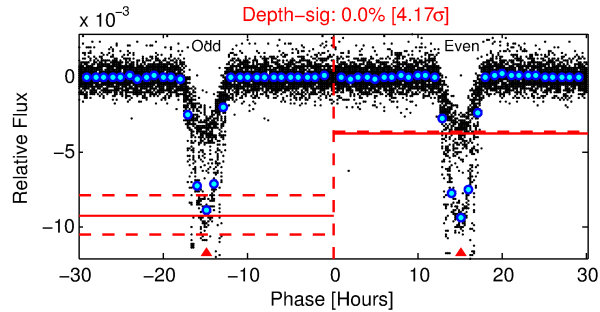
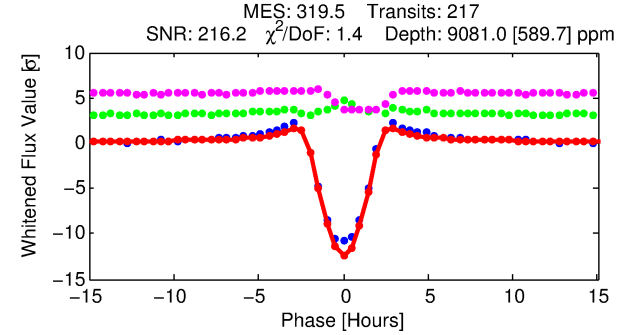
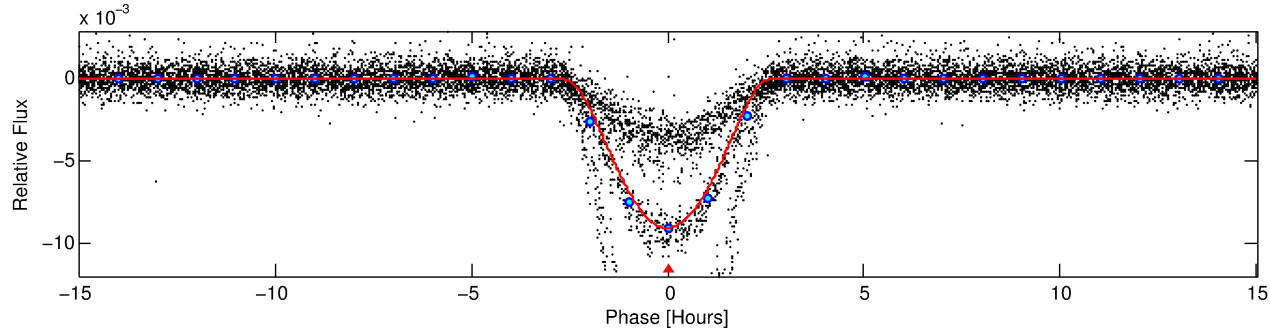
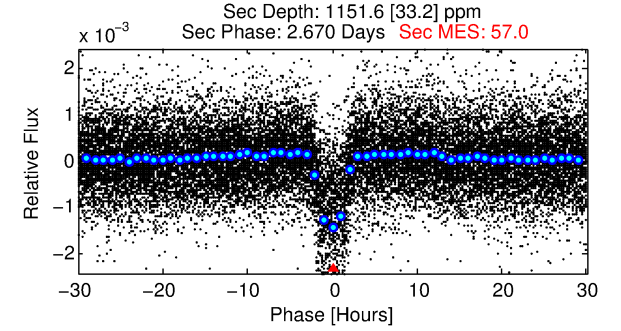
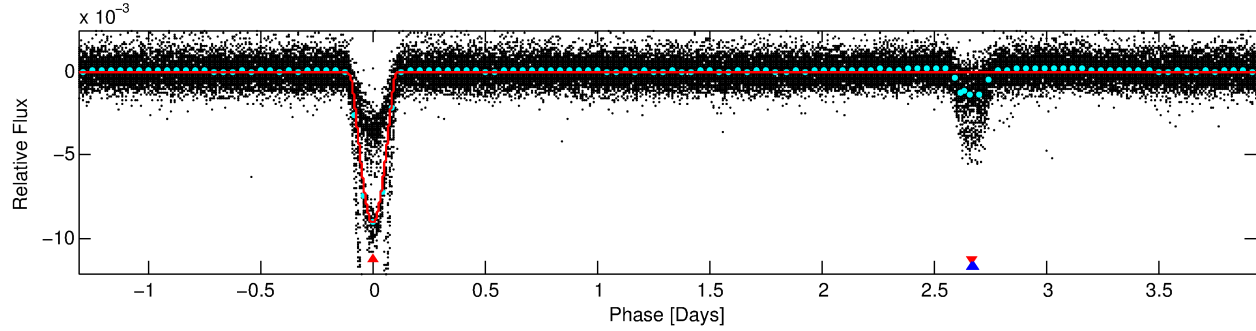
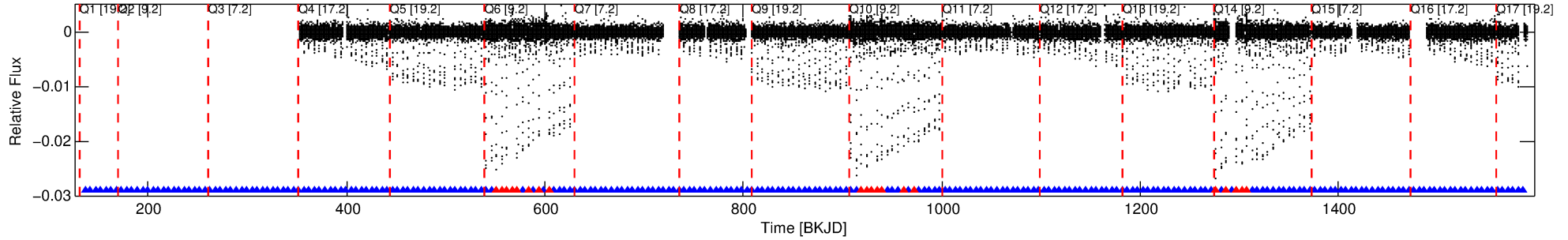
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008374494-01	8374494	7026.01	8374499	1:1	8.3	-1	-2	14.91	15.75	33.31	Direct-PRF	0	0.16	0.09

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8374494 Candidate: 1 of 2 Period: 5.252 d
KOI: K01133.01 Corr: 0.948

Kp: 15.76 R*: 0.87 Rs Teff: 5542.0 K Logg: 4.52 Fe/H: 0.000



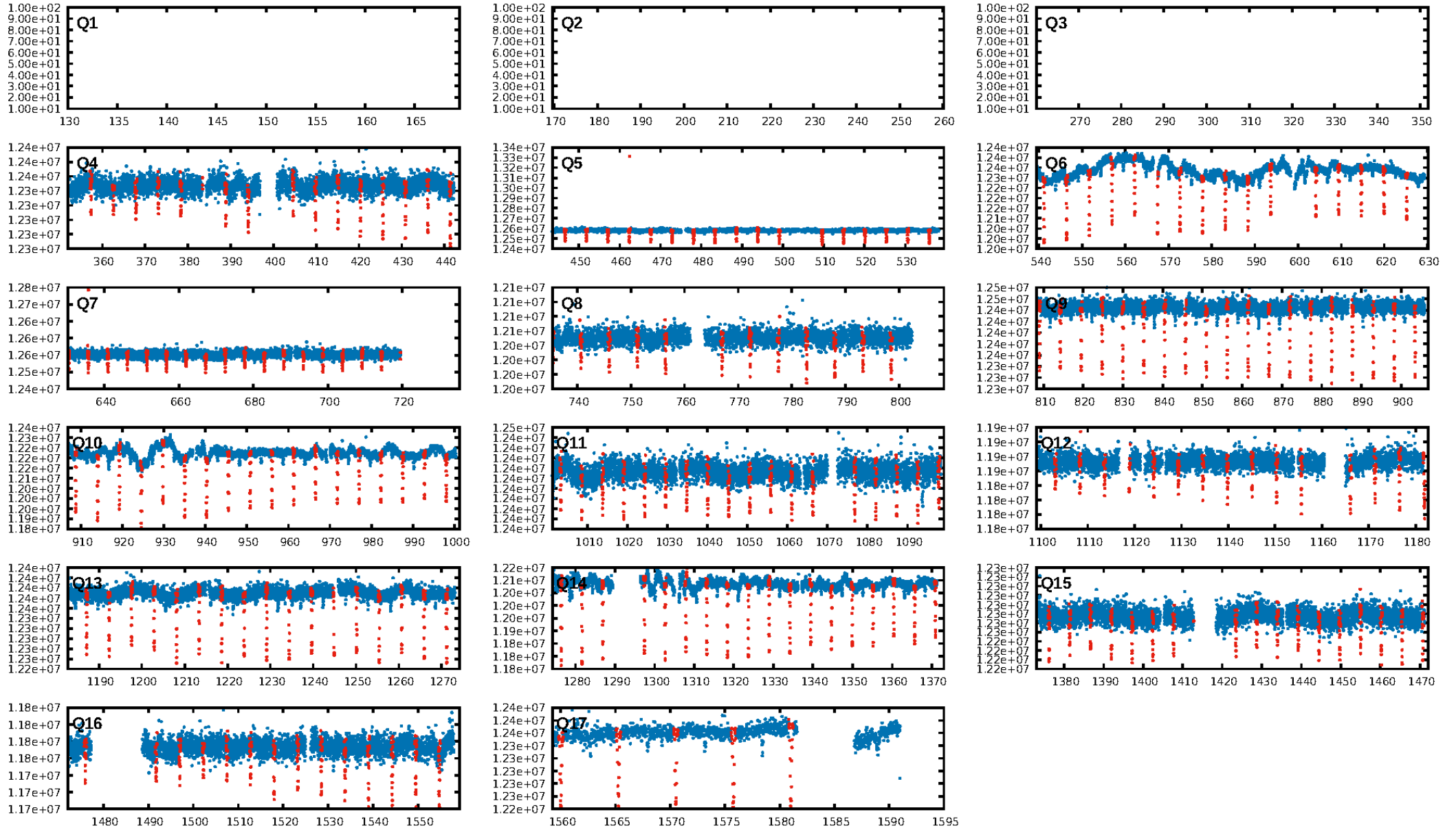
DV Fit Results:

Period = 5.25194 [0.00000] d
Epoch = 136.7387 [0.0005] BKJD
Rp/R* = 0.1599 [0.0298]
a/R* = 4.82 [0.12]
b = 1.00 [0.03]
Seff = 194.45 [64.86]
Teq = 952 [79] K
Rp = 15.21 [4.85] Re
a = 0.0575 [0.0123] AU
Ag = 9.05 [4.37] [1.84σ]
Teffp = 2553 [253] K [6.04σ]

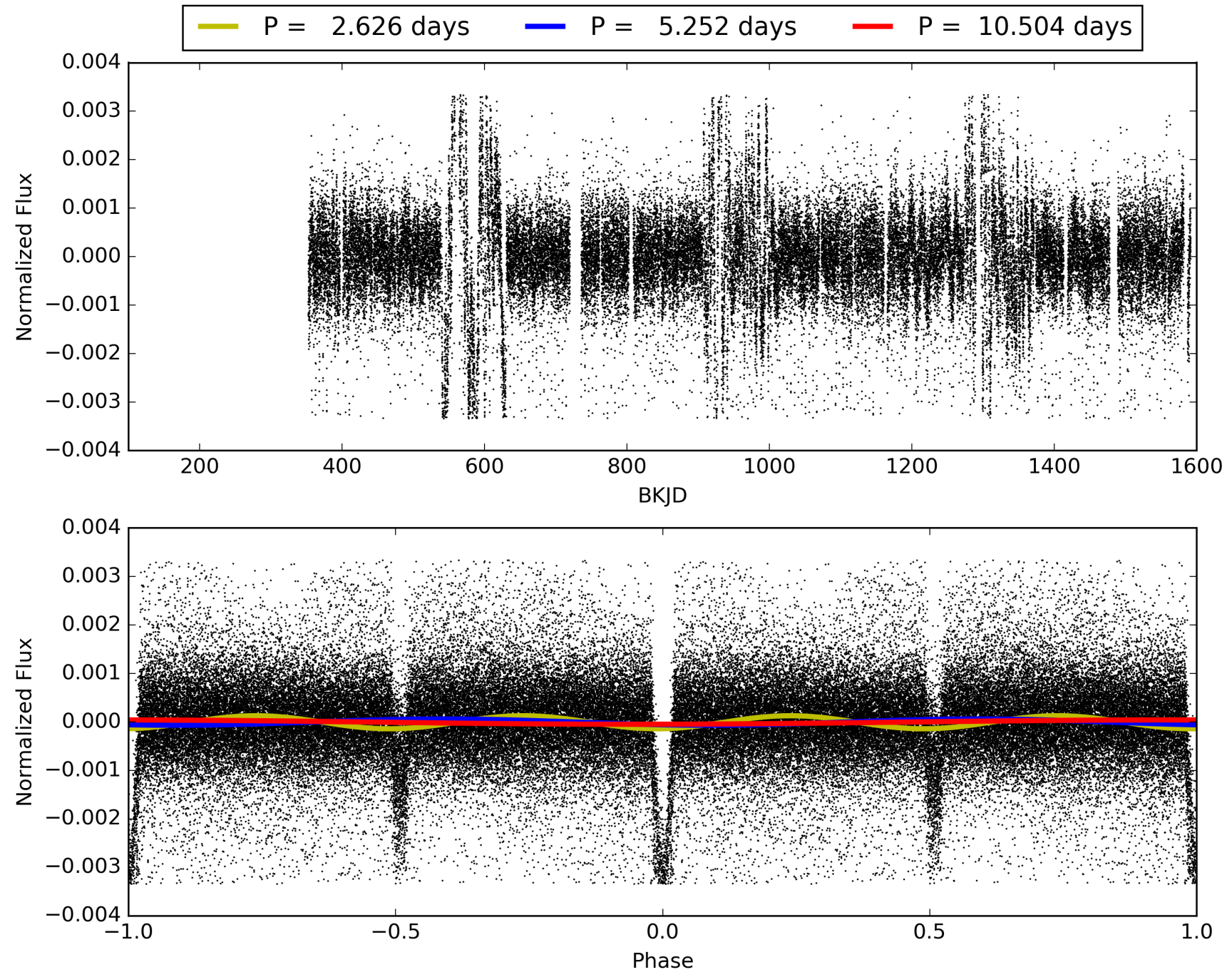
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.91 [192/212]
GhostDiagnostic-chr: -0.5573
Centroid-sig: 0.0%
Centroid-so: 70.243 arcsec [1647.21σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [14/14]

TCE 008374494-01, PDC Light Curves

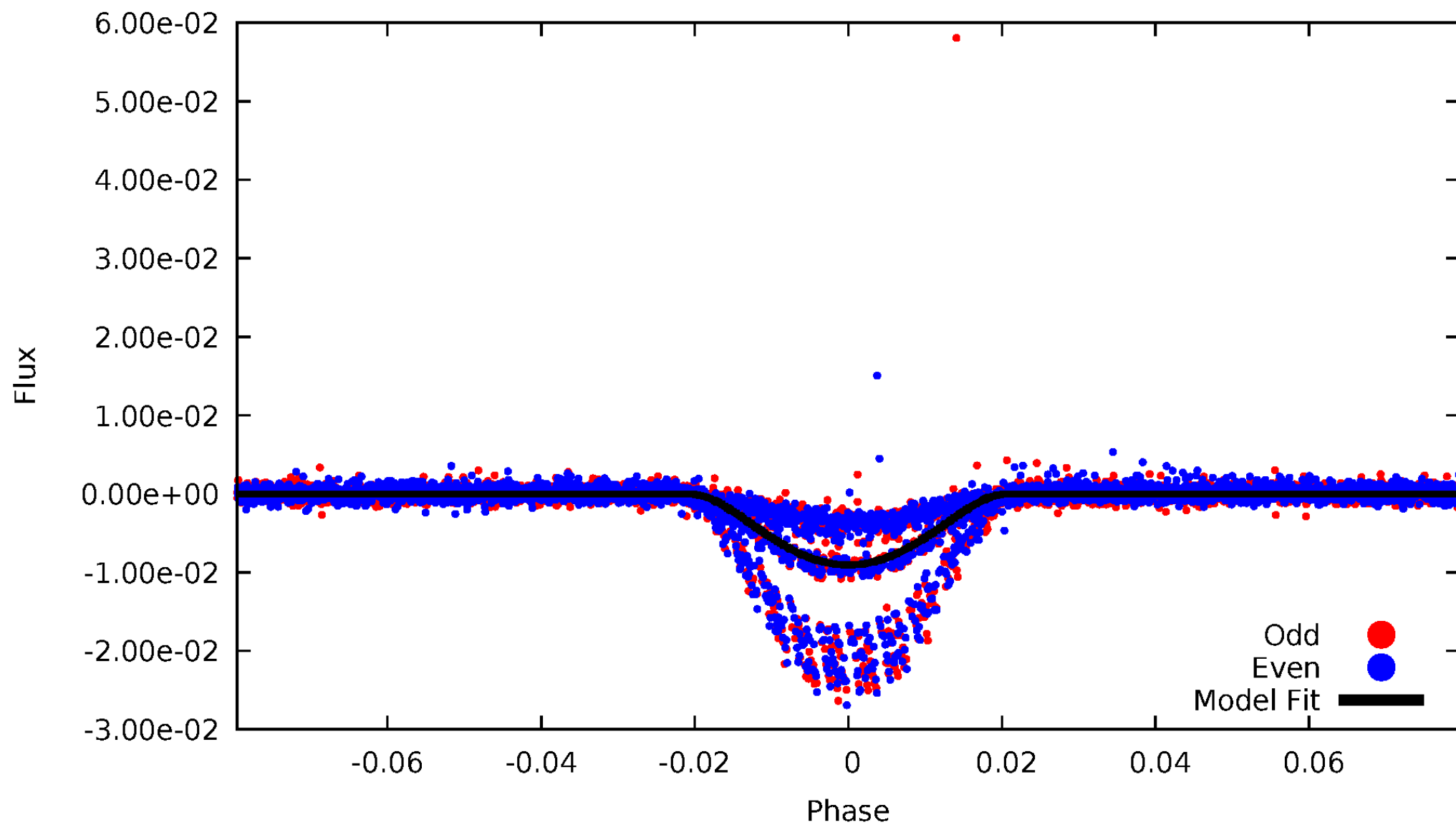


TCE 008374494-01



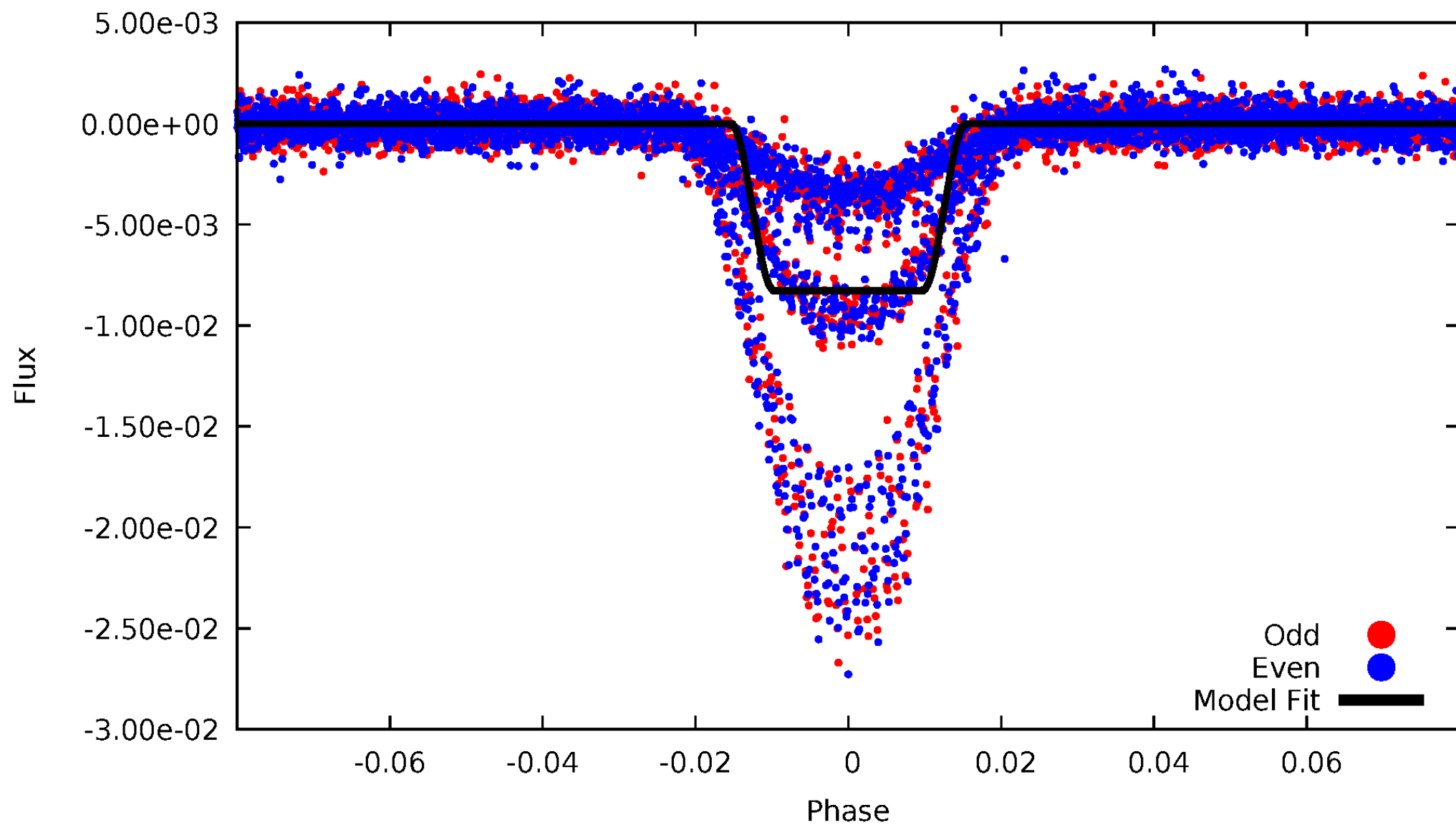
DV Odd/Even

TCE 008374494-01



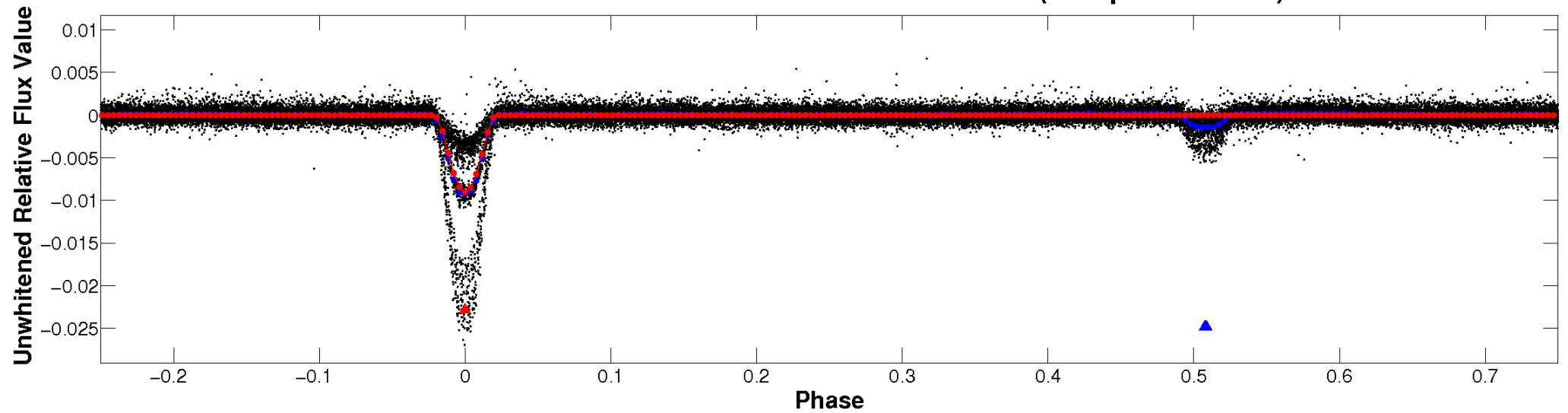
ALT Odd/Even

TCE 008374494-01

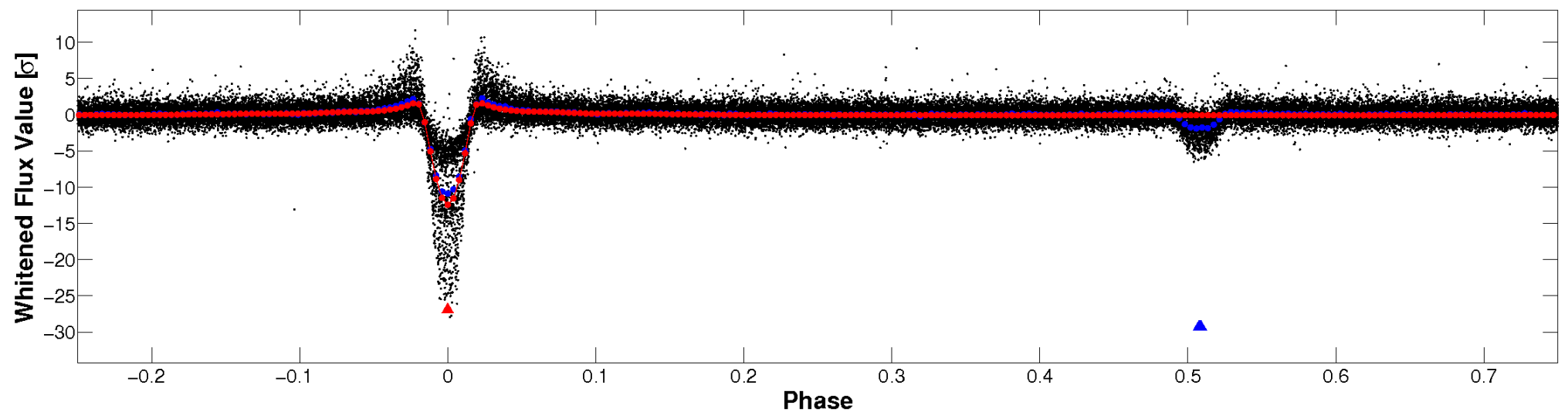


Non-Whitened Vs. Whitened Light Curve

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

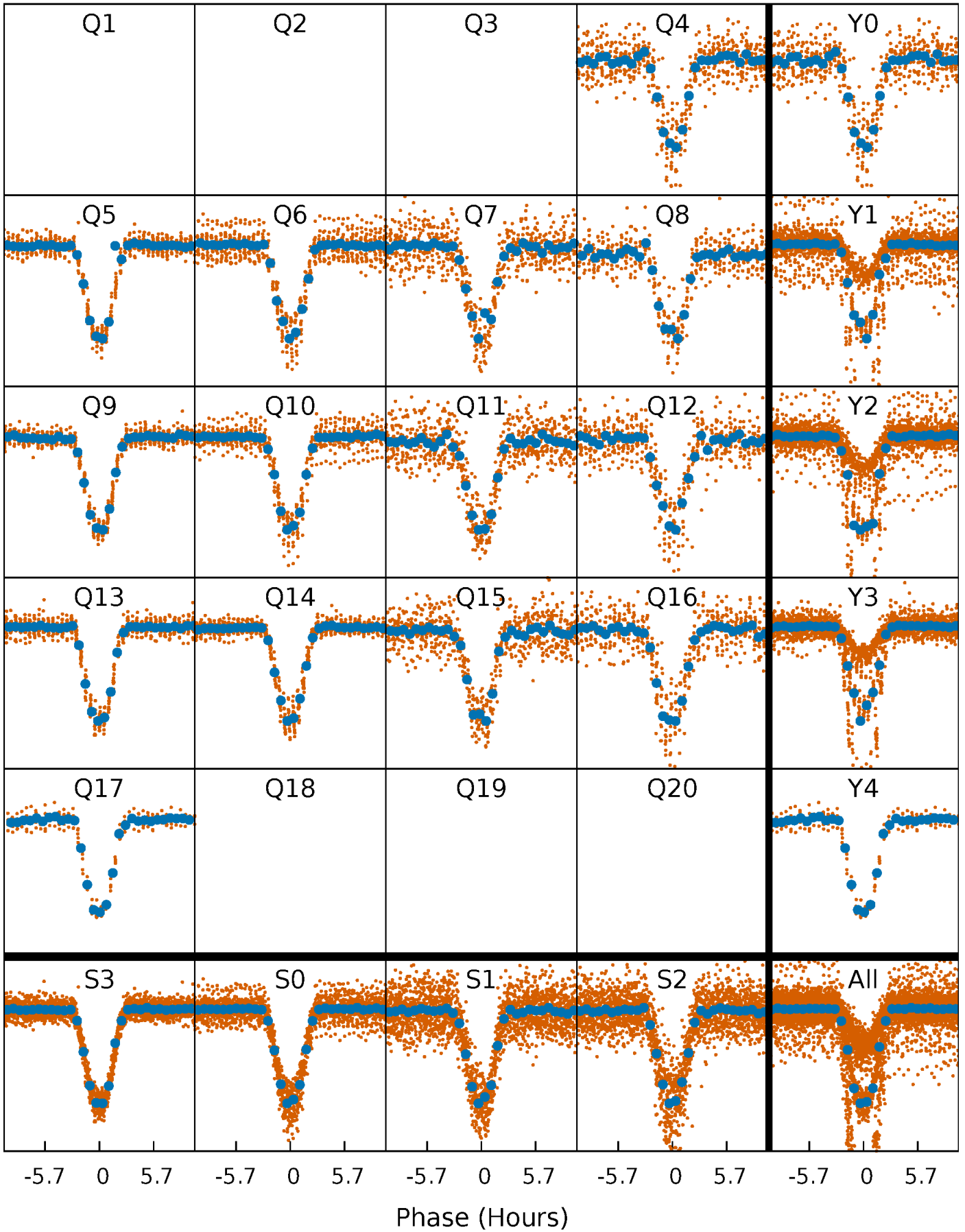


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



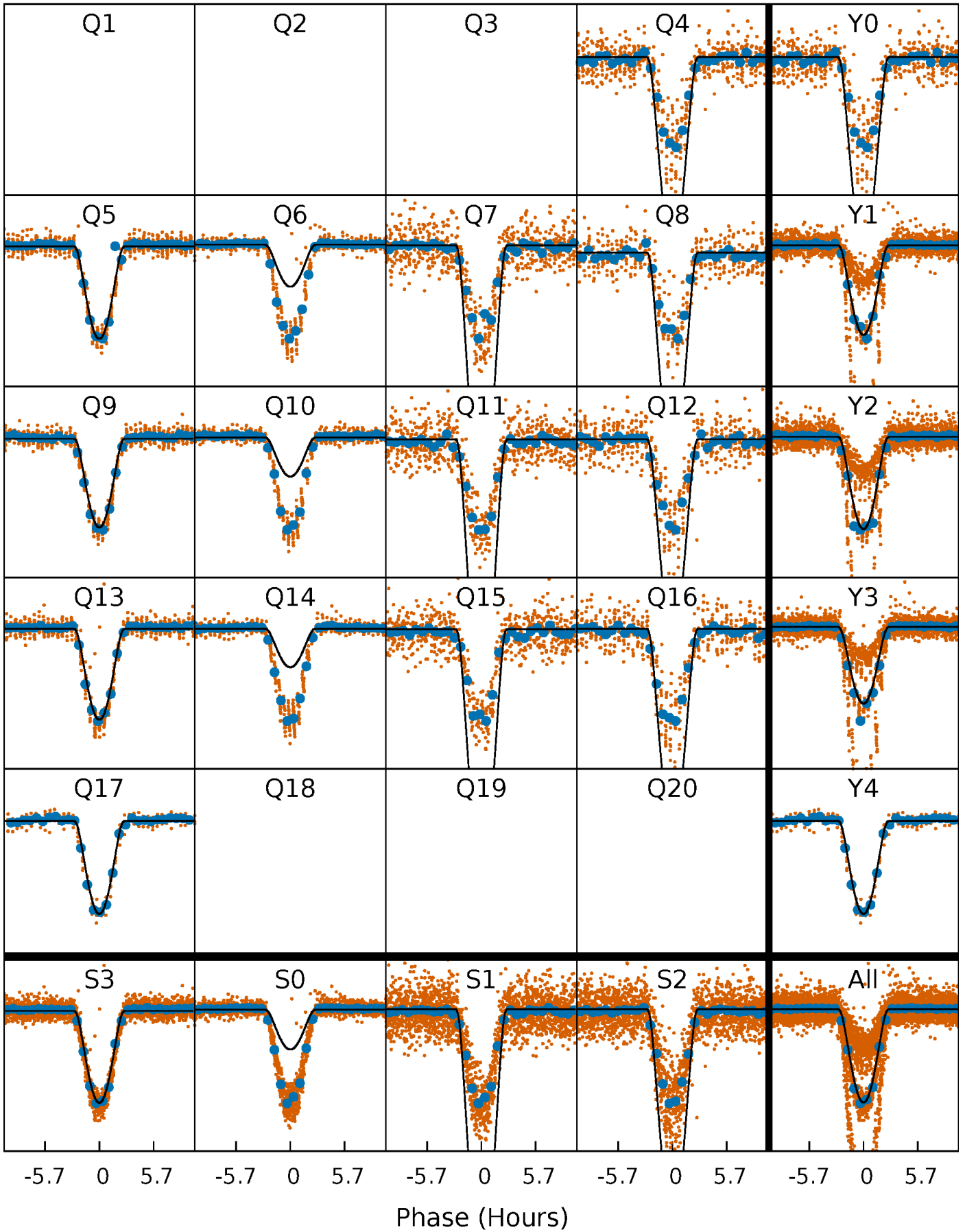
PDC Quarter-Phased Transit Curves

TCE 008374494-01 P= 5.251935 Days $T_0=136.738727$ (BKJD)



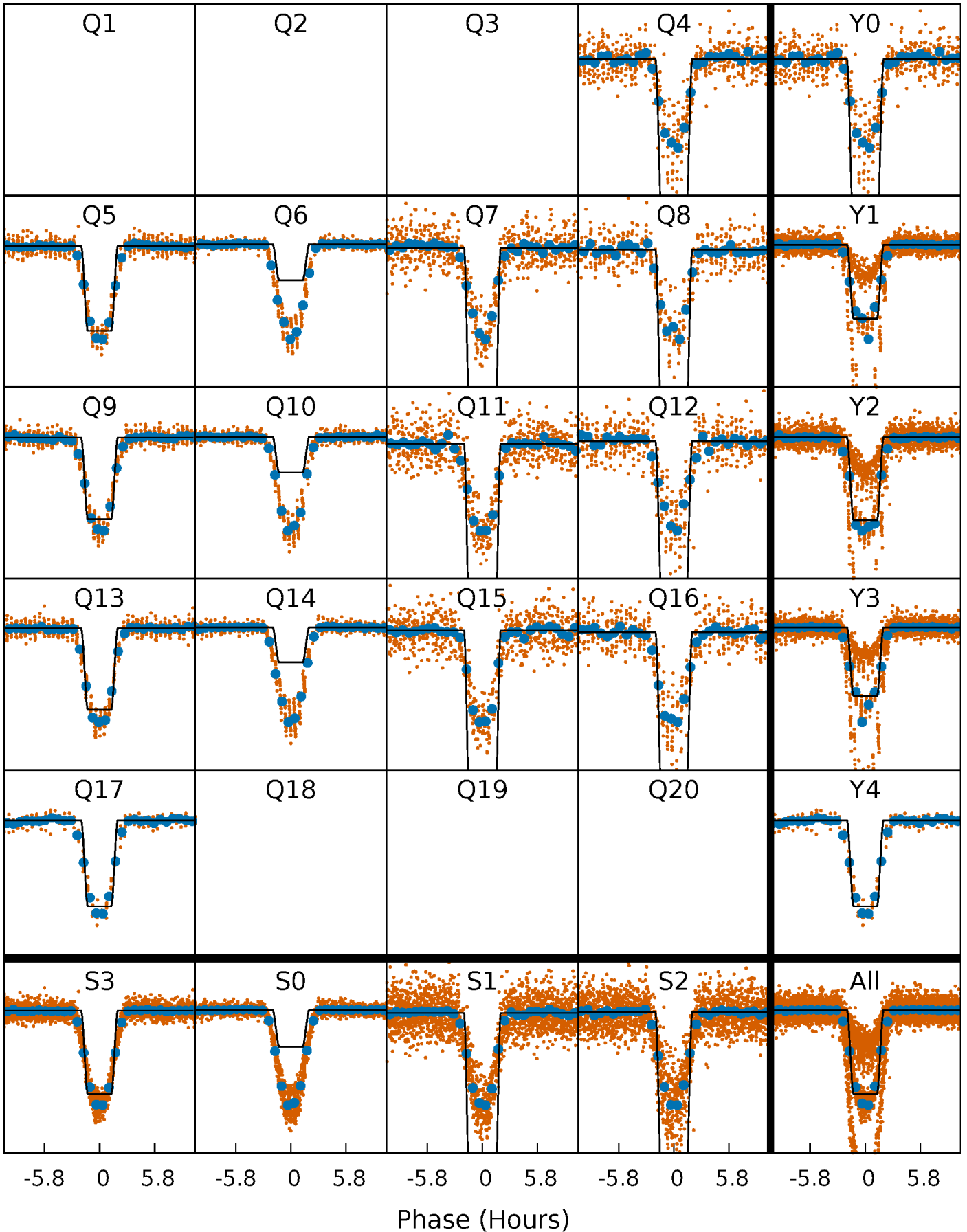
DV Quarter-Phased Transit Curves

TCE 008374494-01 P= 5.251935 Days $T_0=136.738727$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

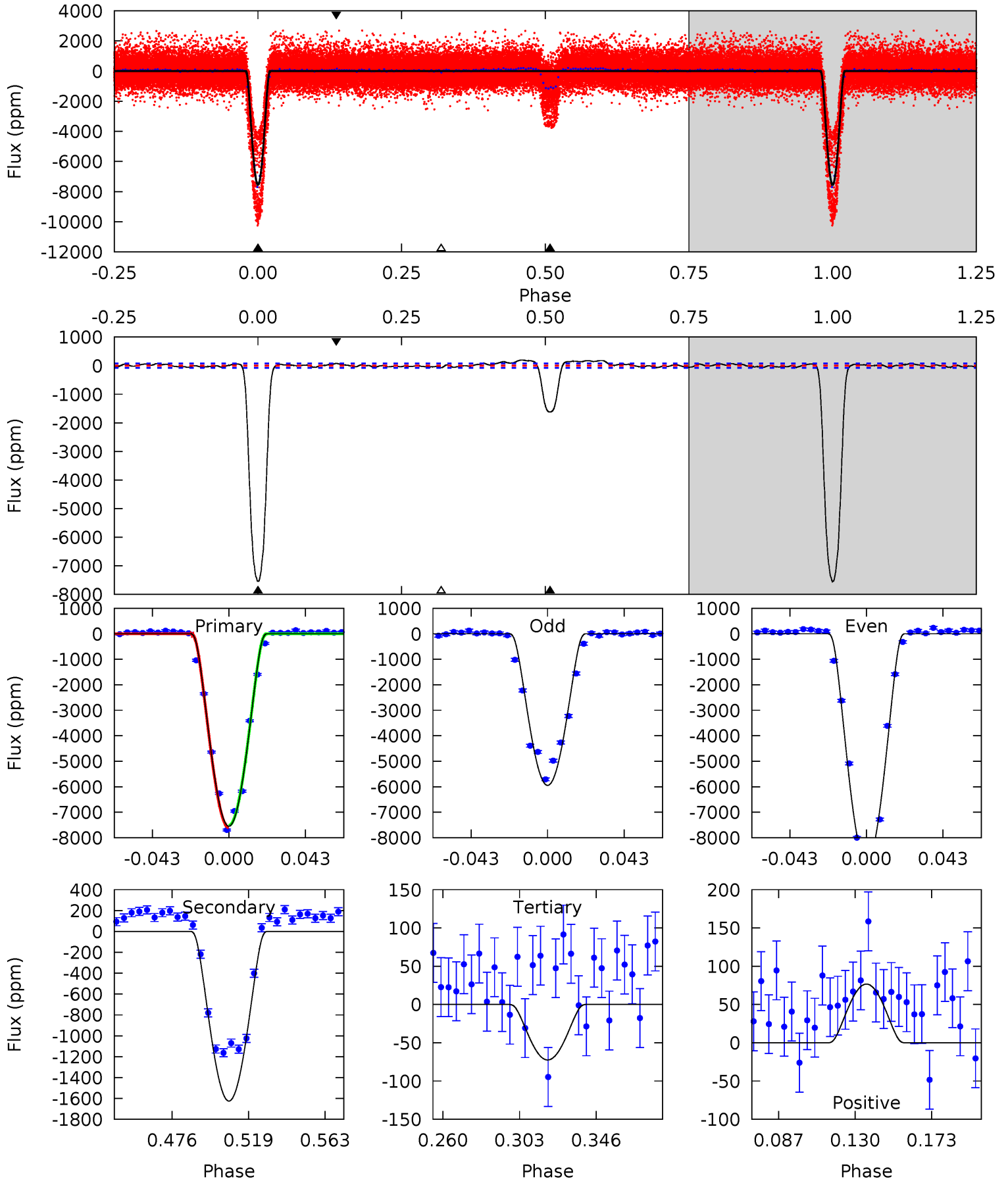
TCE 008374494-01 P= 5.251924 Days $T_0=136.740200$ (BKJD)



DV Model-Shift Uniqueness Test

008374494-01, P = 5.251935 Days, E = 136.738727 Days

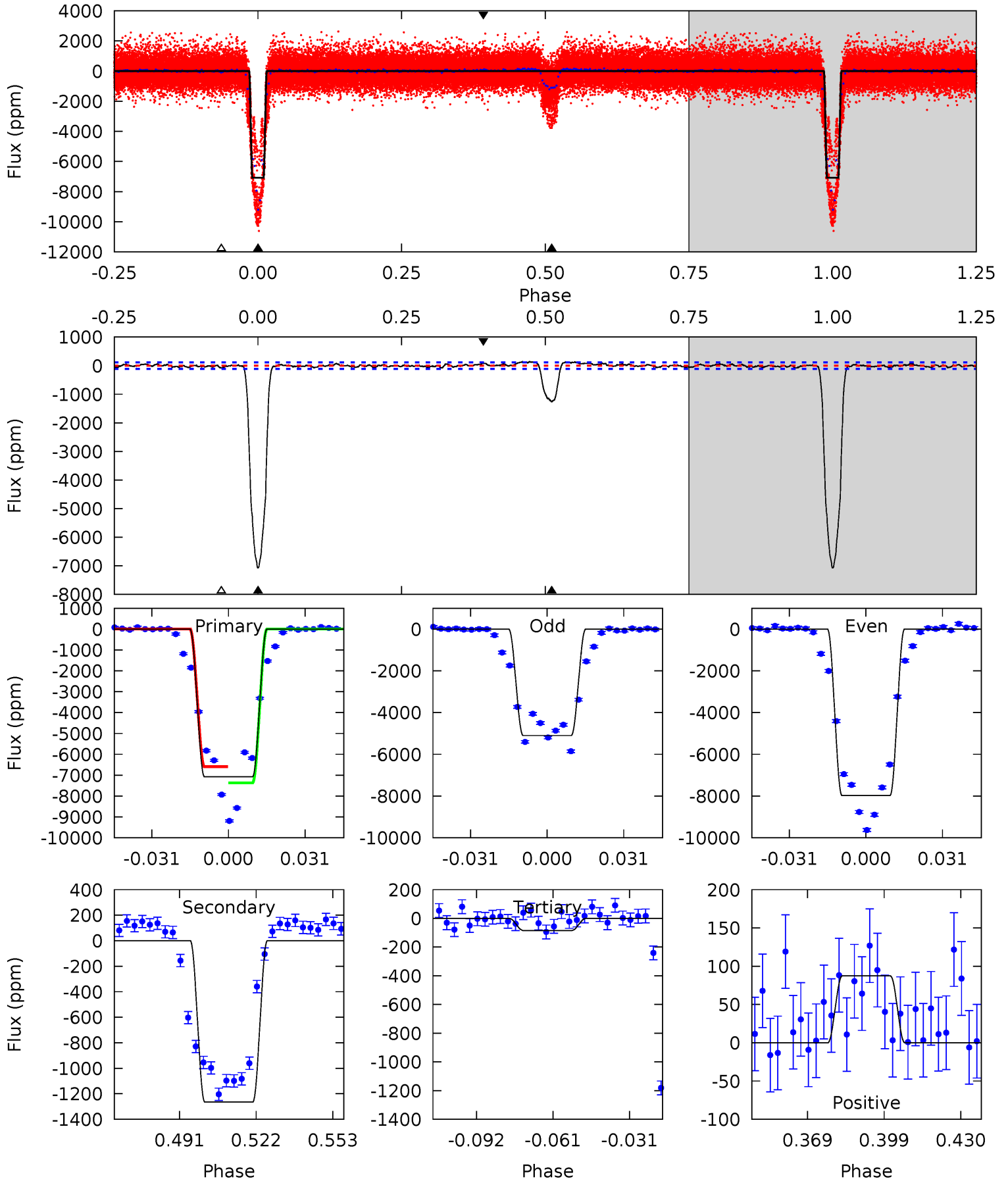
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
463.1	99.7	4.45	4.70	4.74	2.02	3.68	458.6	458.4	95.3	95.0	90.6	1.61	0.03	0



Alt Model-Shift Uniqueness Test

008374494-01, P = 5.251924 Days, E = 136.740200 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
298.8	53.4	3.56	3.69	4.81	2.16	1.75	295.2	295.1	49.8	49.7	61.0	1.14	0.02	0



Stellar Parameters For KIC 008374494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5542^{+182}_{-182}	$4.520^{+0.055}_{-0.165}$	$0.000^{+0.250}_{-0.300}$	$0.872^{+0.226}_{-0.090}$	$0.919^{+0.102}_{-0.092}$	$1.950^{+0.459}_{-0.868}$
	+3%/-3%	+1%/-4%	+inf%/-inf%	+26%/-10%	+11%/-10%	+24%/-45%
Source	KIC0	KIC0	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 008374494-01 / KOI 1133.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1625 ± 16	$15.72^{+3.79}_{-3.02}$	1352^{+80}_{-70}	3301^{+242}_{-181}	12^{+6}_{-4}
Alt.	-1264 ± 24	$8.82^{+3.32}_{-2.95}$	1356^{+82}_{-69}	3853^{+555}_{-391}	29^{+36}_{-14}

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

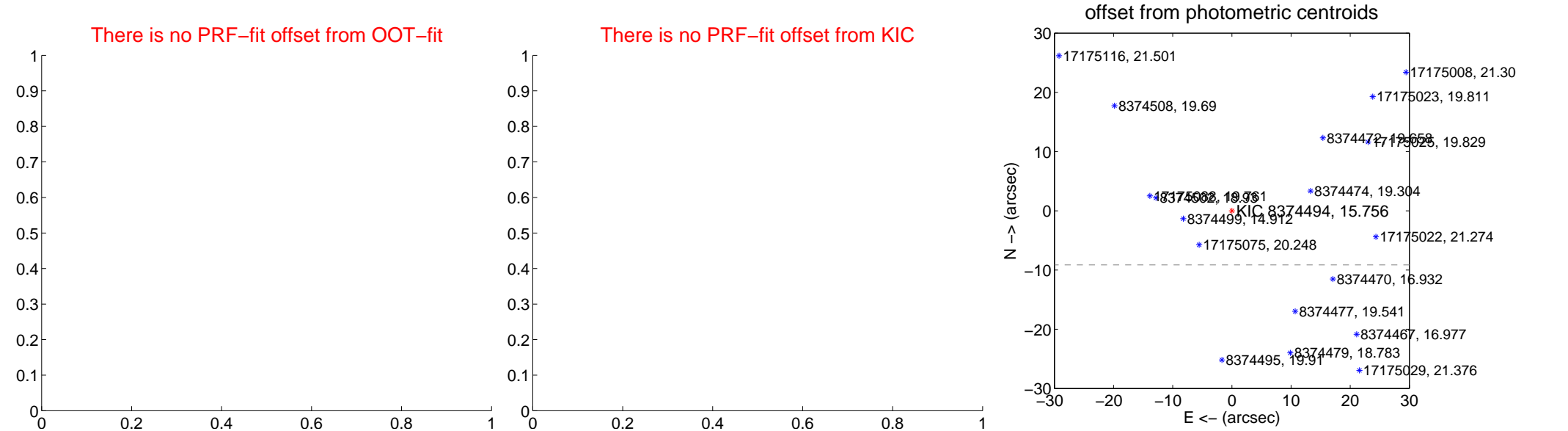
DV Centroid Data

Supplemental centroid analysis for 008374494-01. Kepler magnitude: 15.76. Transit SNR 216.21

There are 0 quarters with good PRF difference image offsets

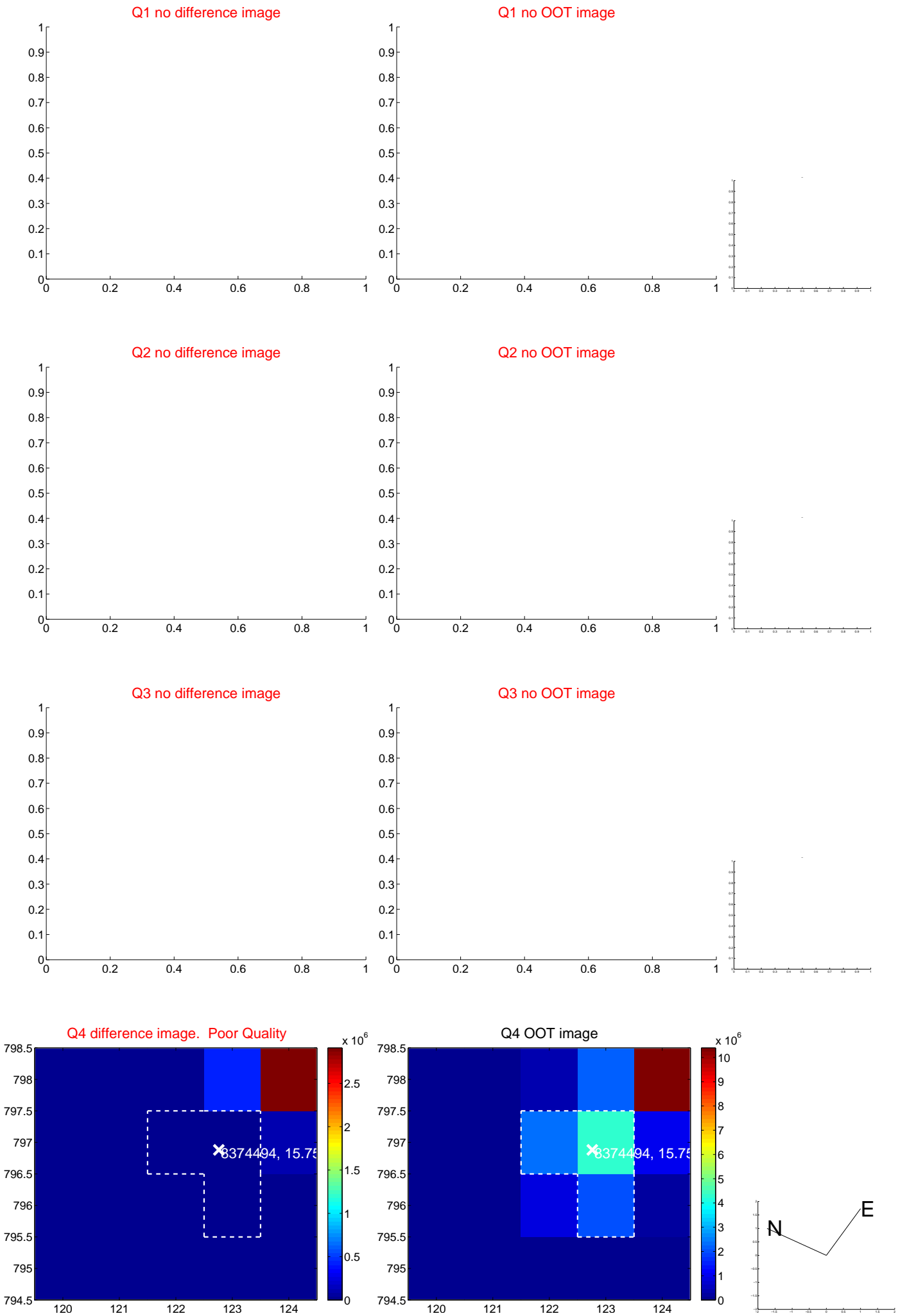
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	70.25 ± 0.04	1647.20	69.65 ± 0.04	-9.14 ± 0.02

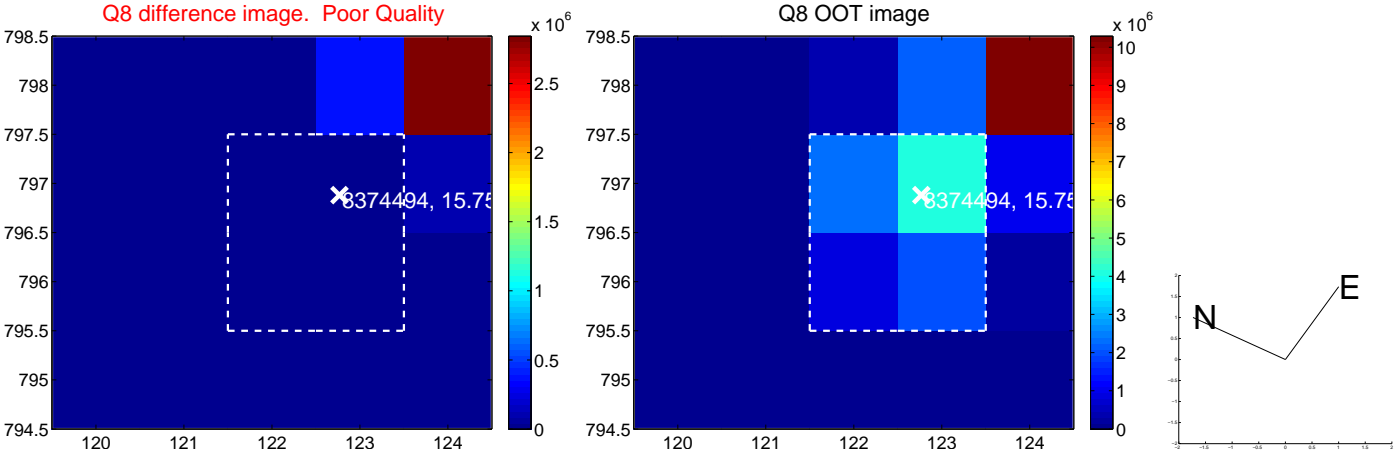
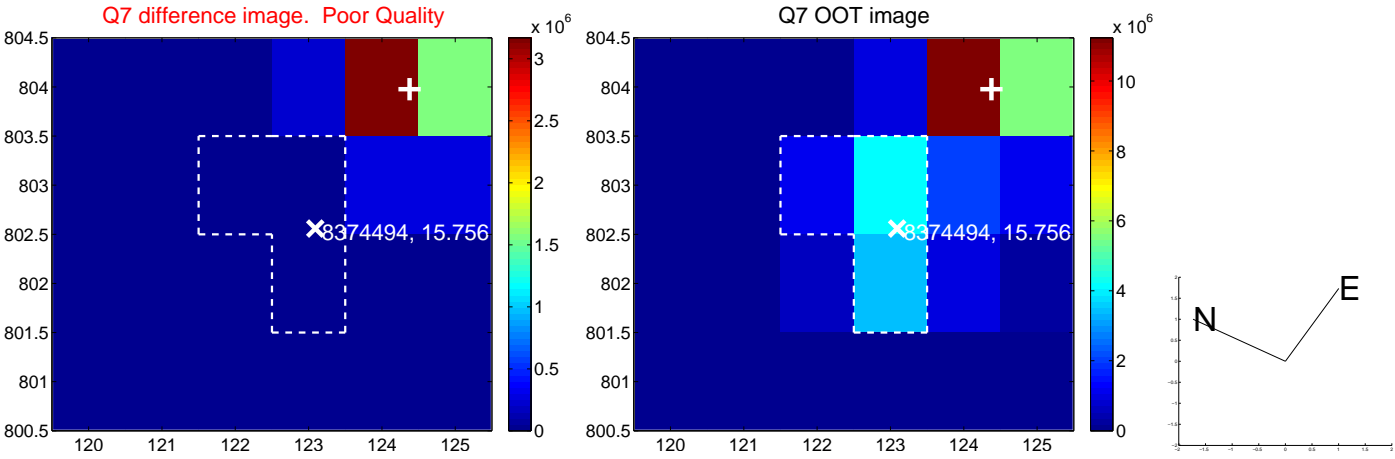
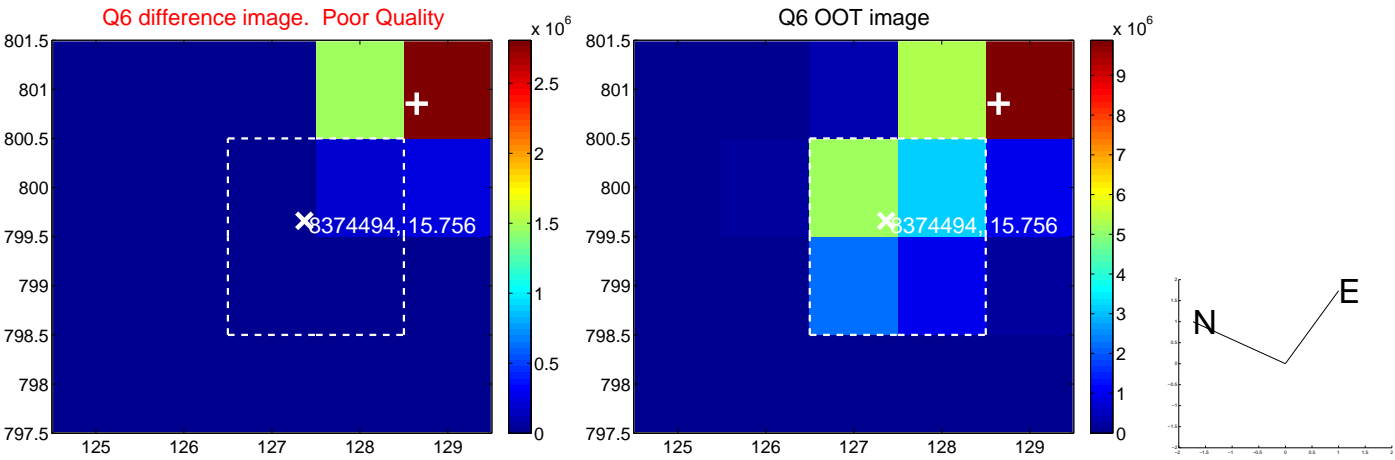
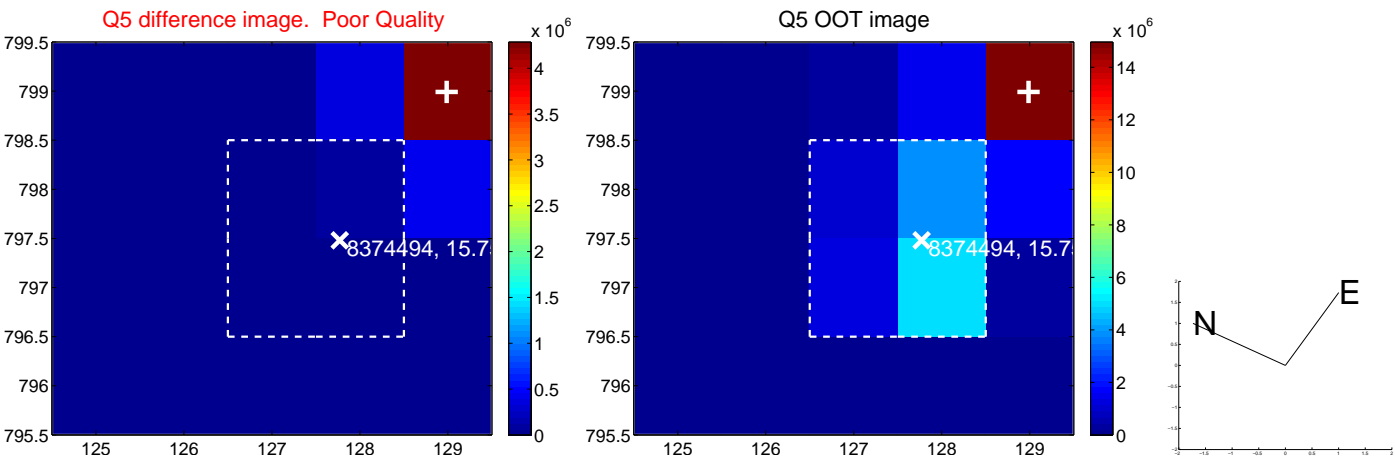


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

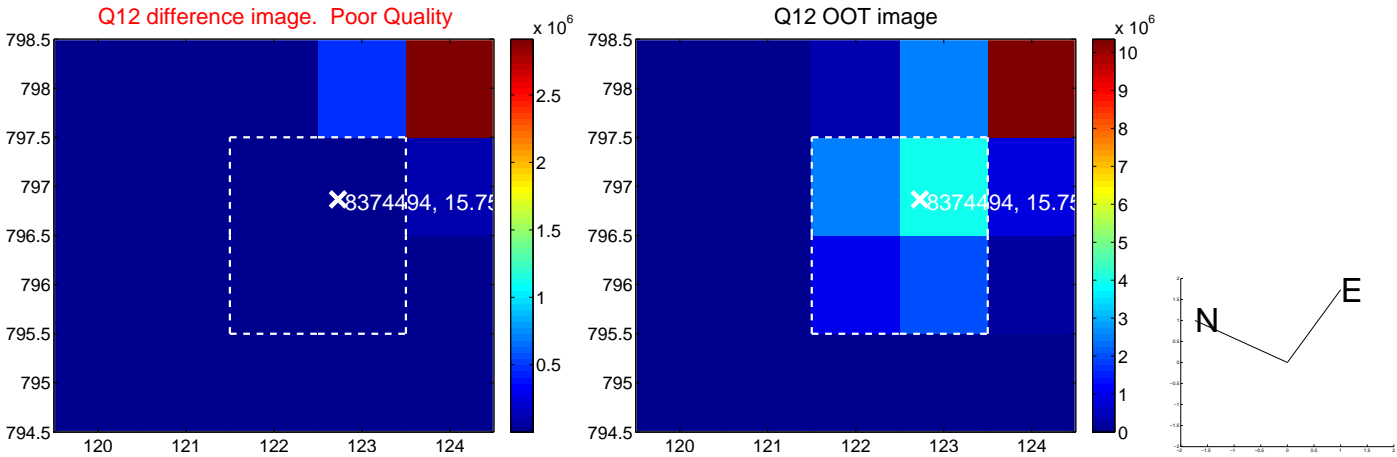
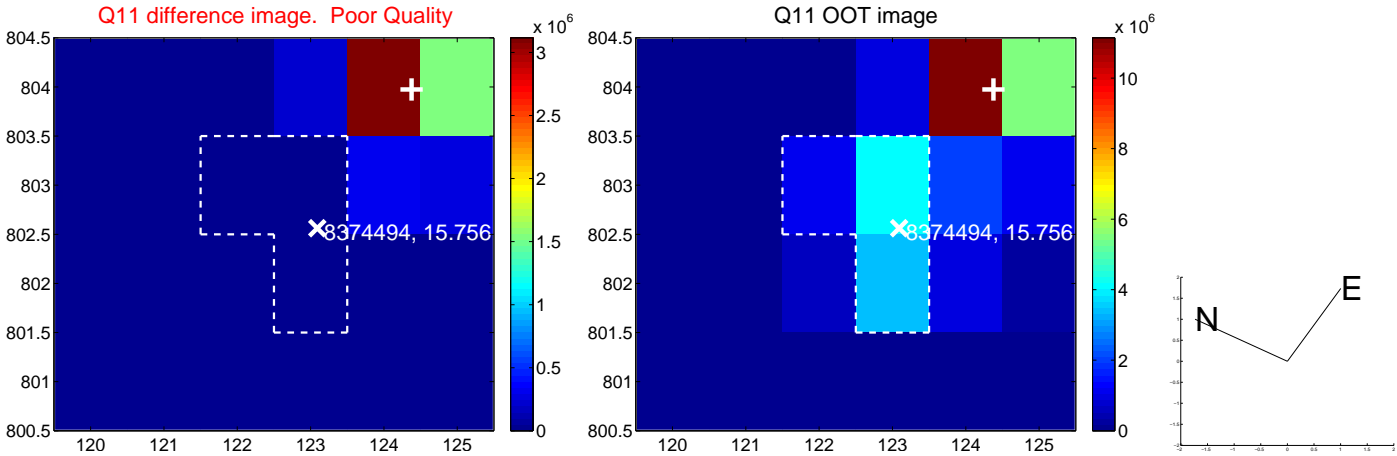
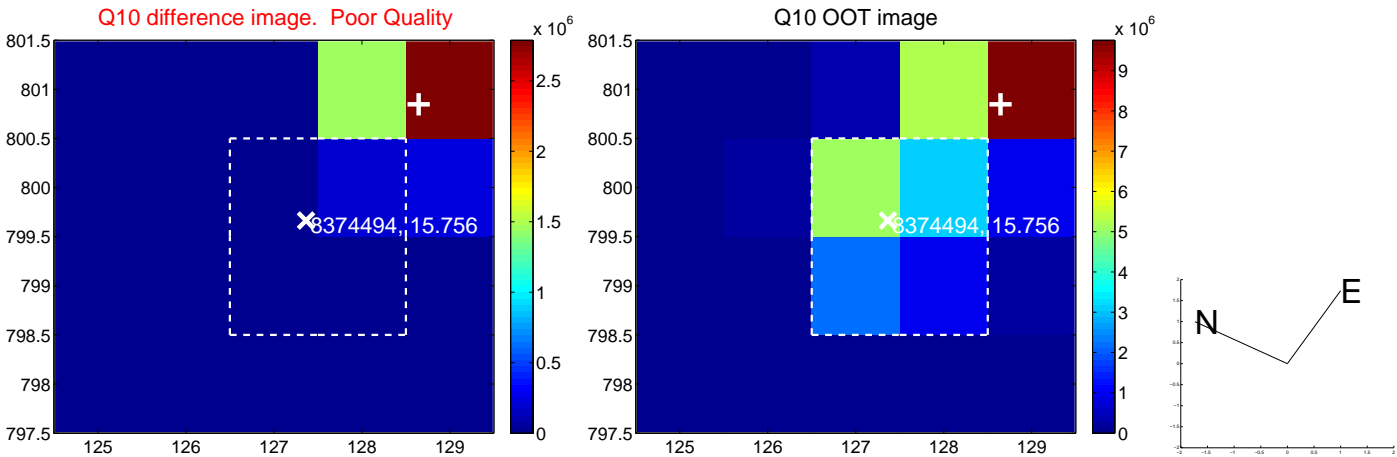
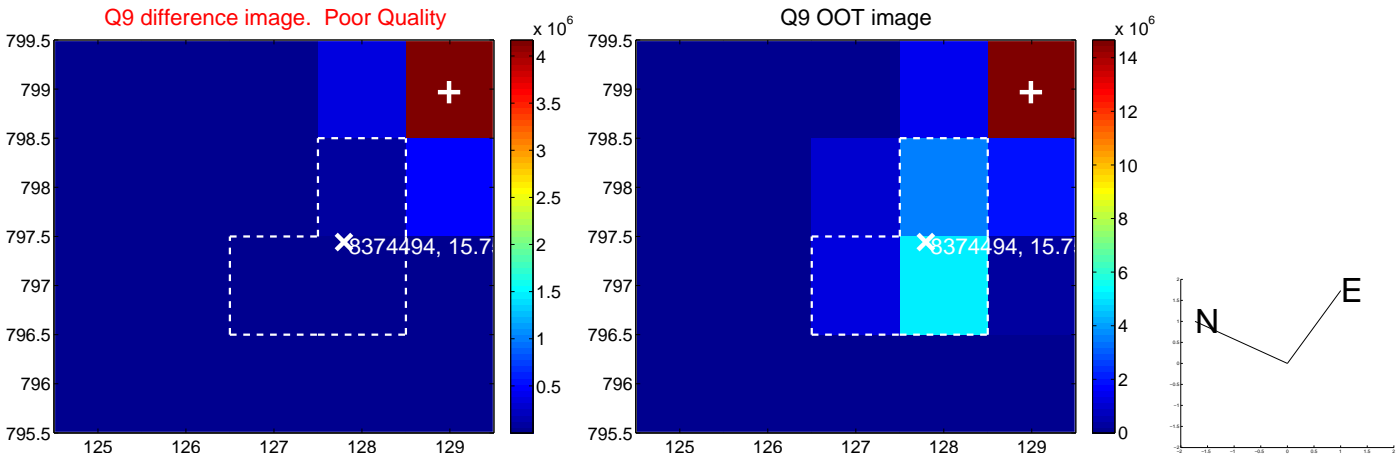
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



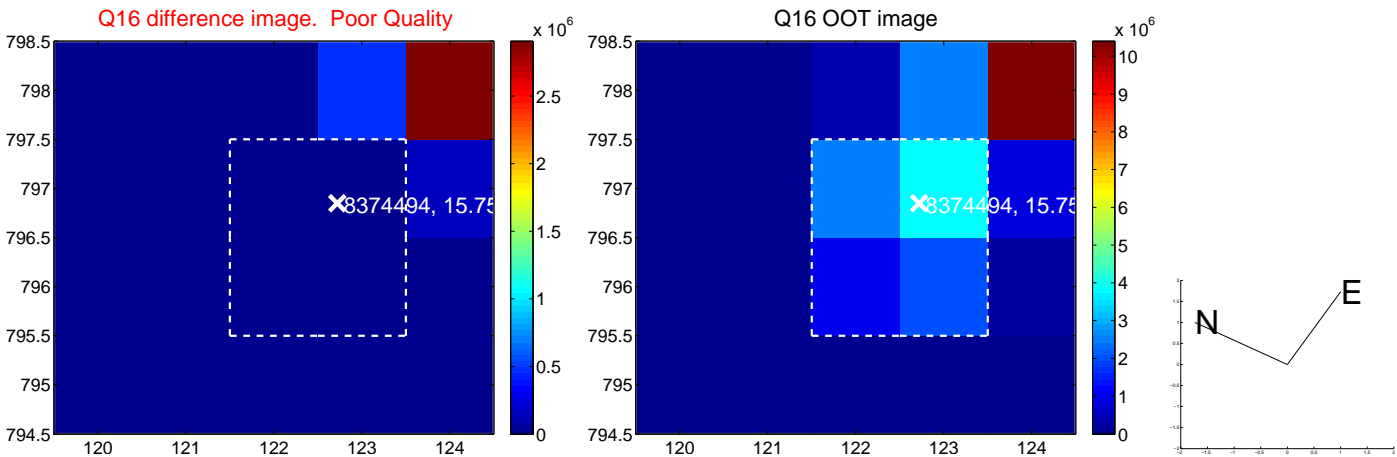
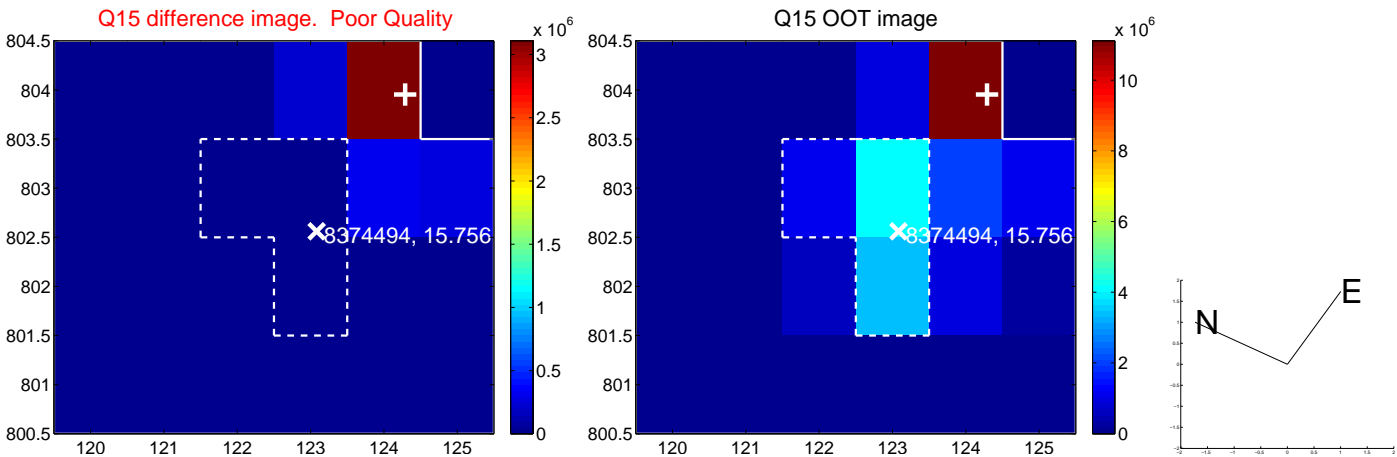
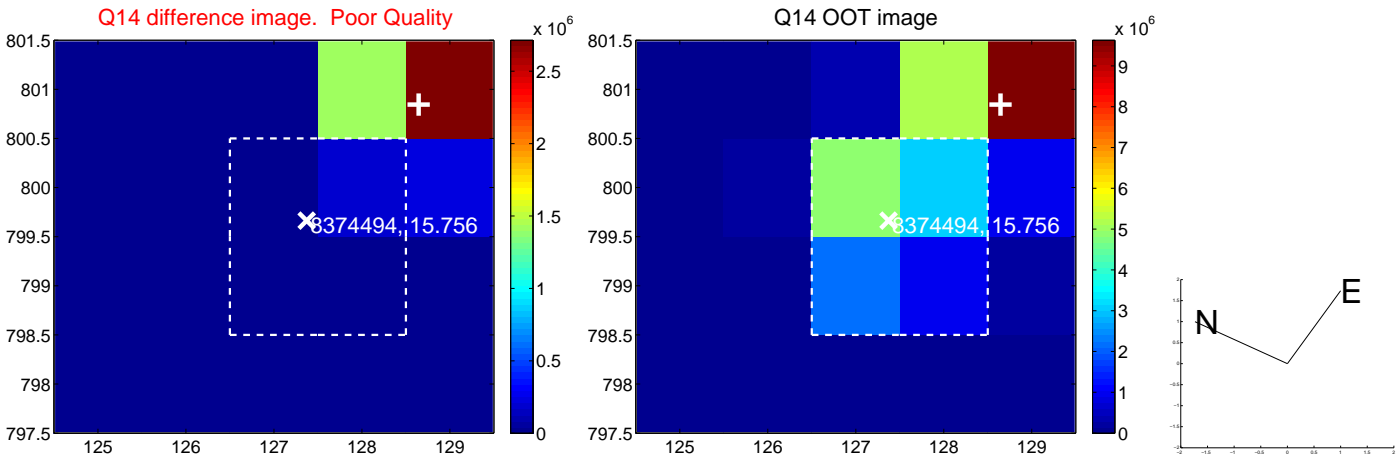
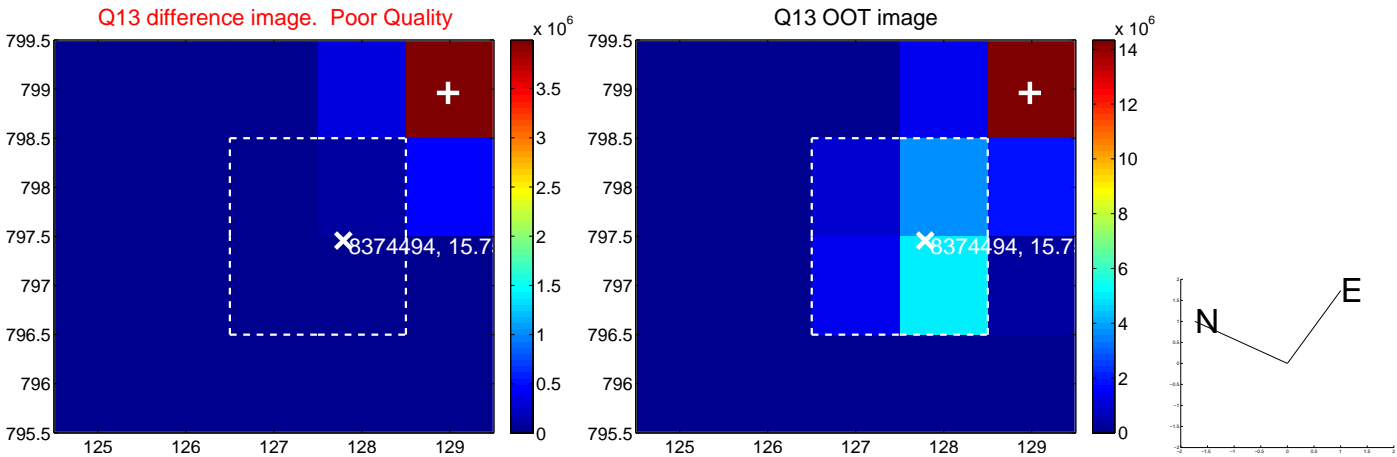
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



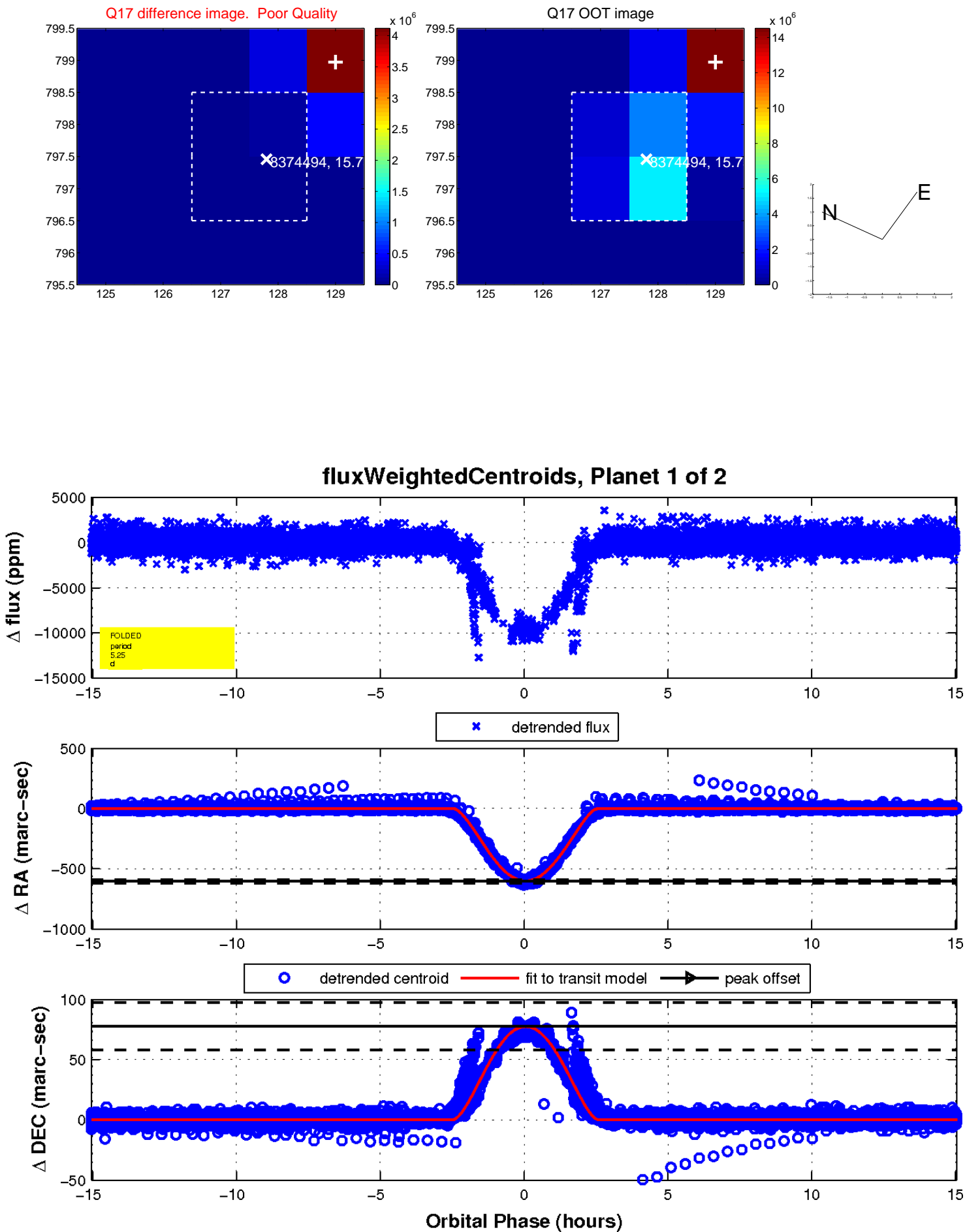
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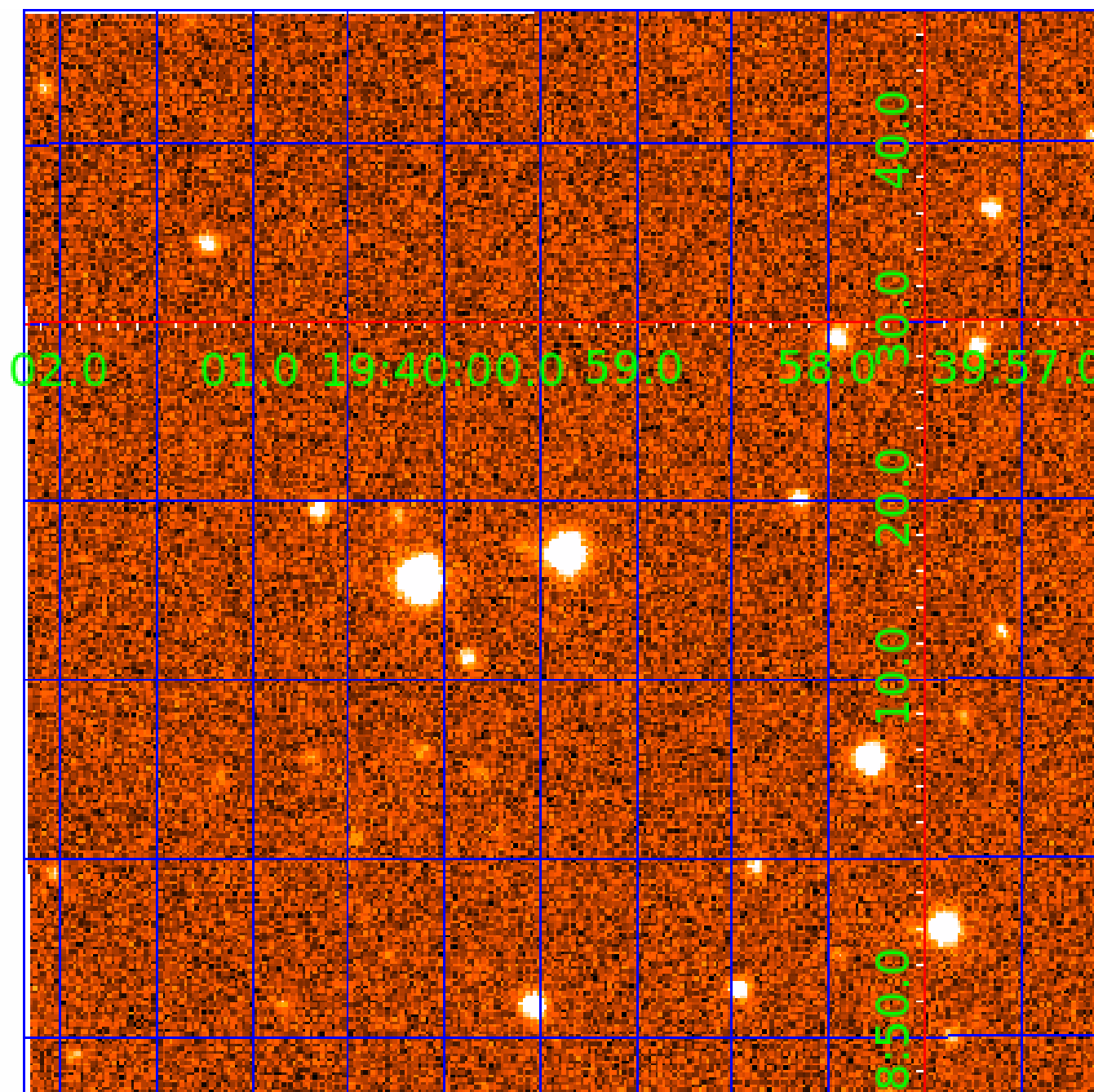


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008374494

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})
008374494-01	OBS	1133.01	5.251935	136.738727	9081.0	5.013	319.5	216.2	0.87	5542	15.21	194.45
008374494-02	OBS	No	5.251905	134.159948	1200.9	4.501	59.5	56.3	0.87	5542	3.76	194.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374494-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
008374494-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 008374494-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008374494-02	8374494	008374499-sec	8374499	1:1	8.3	-1	-2	14.91	15.75	46.46	Direct-PRF	0	0.13	0.09

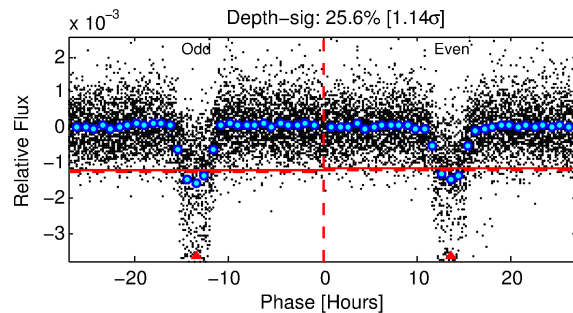
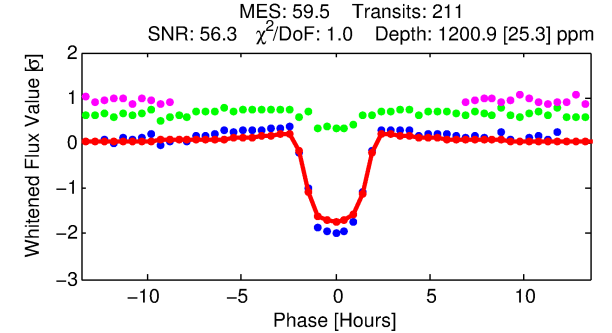
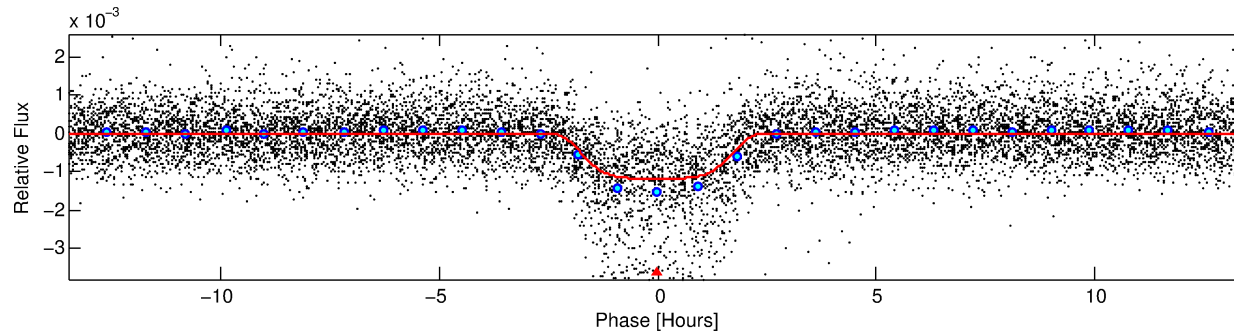
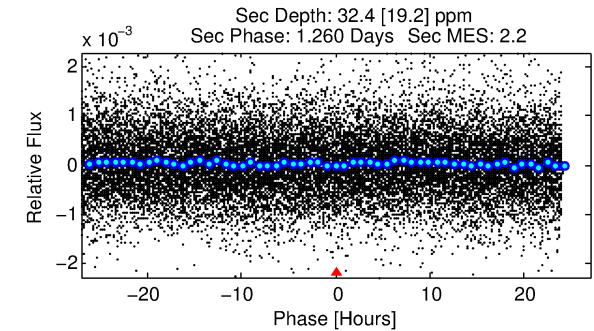
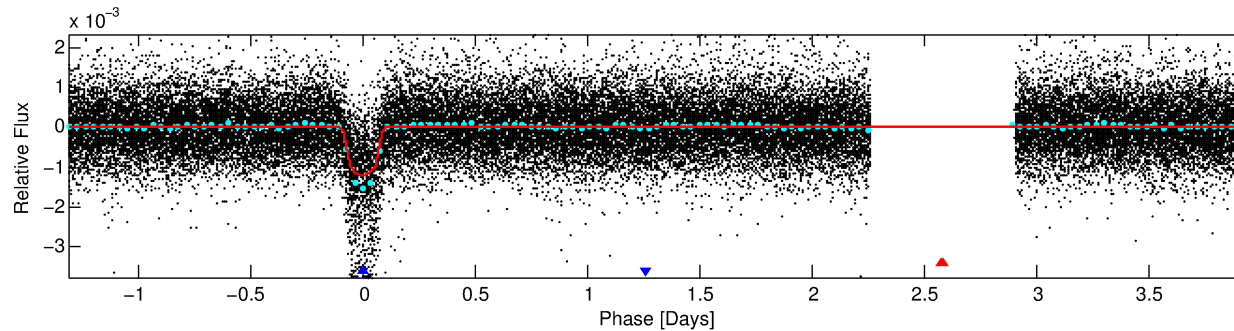
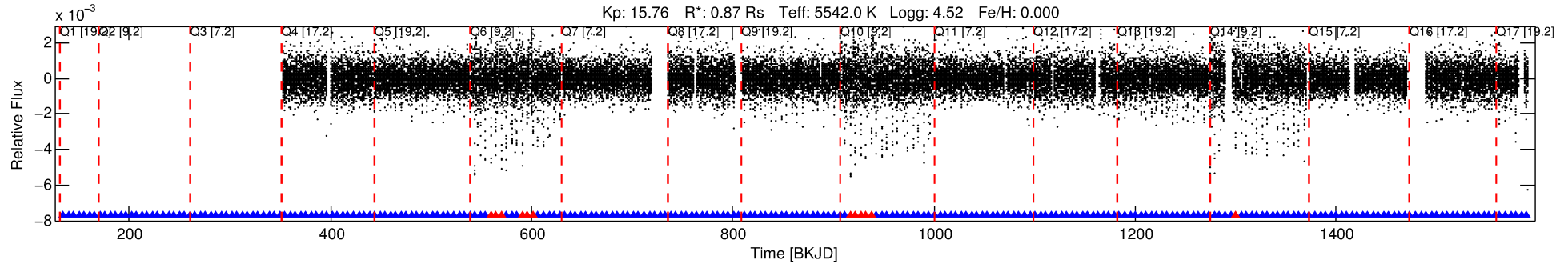
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8374494 Candidate: 2 of 2 Period: 5.252 d

KOI: K01133 Corr: No Ephemeris Match

Kp: 15.76 R*: 0.87 Rs Teff: 5542.0 K Logg: 4.52 Fe/H: 0.000



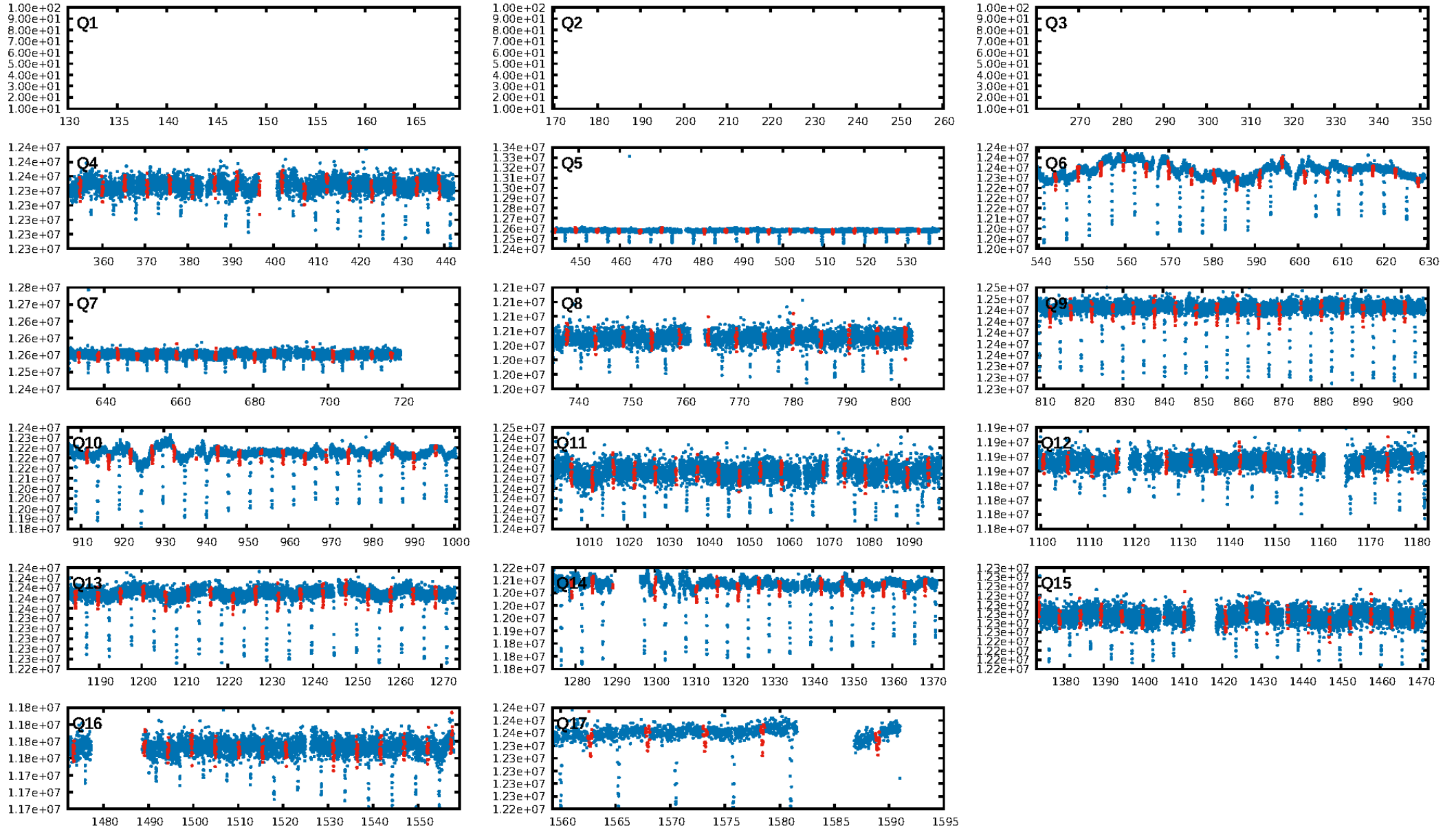
DV Fit Results:

Period = 5.25190 [0.00001] d
Epoch = 134.1599 [0.0020] BKJD
Rp/R* = 0.0395 [0.0008]
a/R* = 4.27 [0.27]
b = 0.93 [0.01]
Seff = 194.45 [64.86]
Teff = 952 [79] K
Rp = 3.76 [0.98] Re
a = 0.0575 [0.0123] AU
Ag = 4.18 [2.79] [1.14σ]
Teffp = 2105 [320] K [3.50σ]

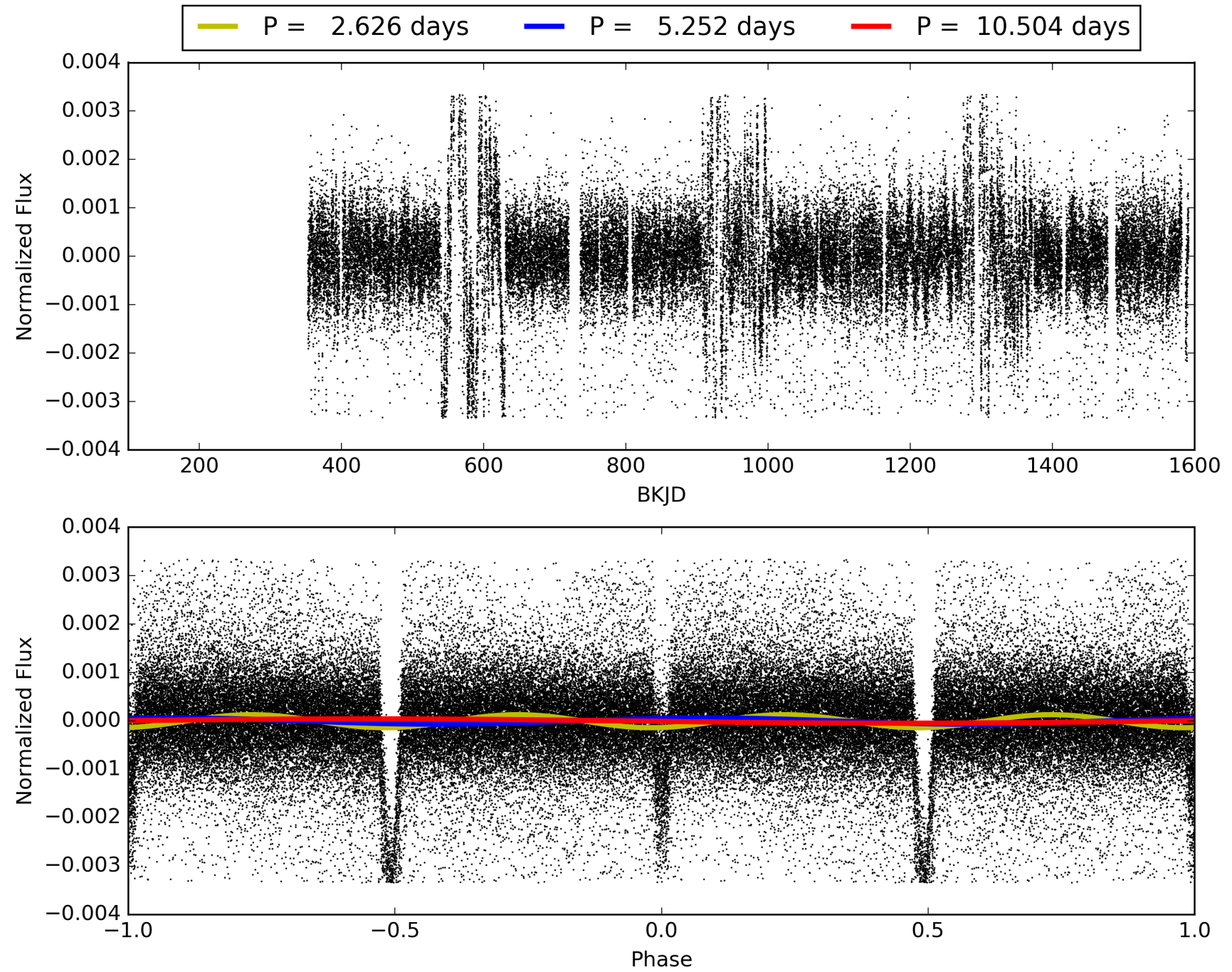
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.94 [194/206]
GhostDiagnostic-chr: -0.5116
Centroid-sig: 0.0%
Centroid-so: 84.969 arcsec [289.84σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [14/14]

TCE 008374494-02, PDC Light Curves

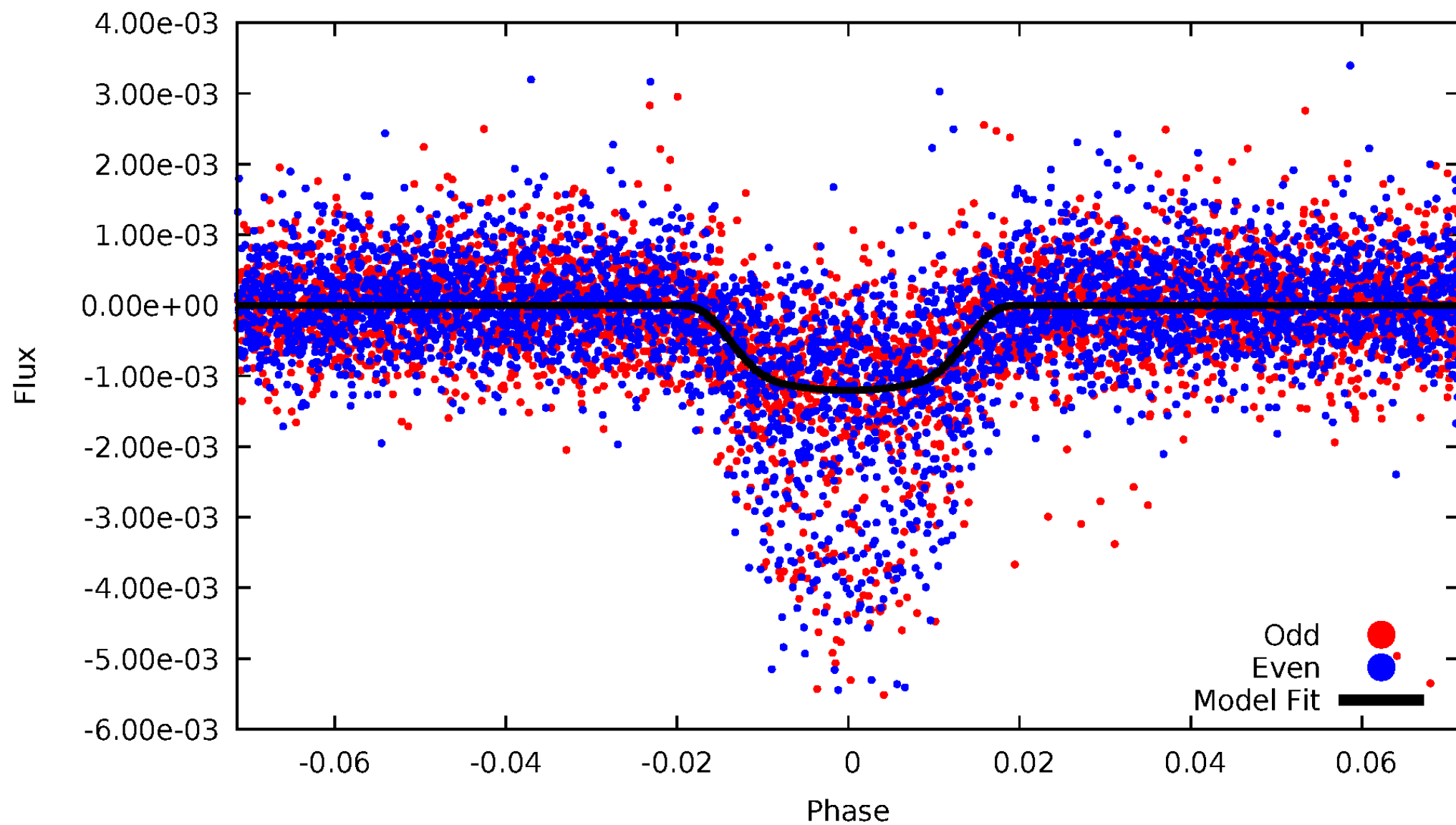


TCE 008374494-02



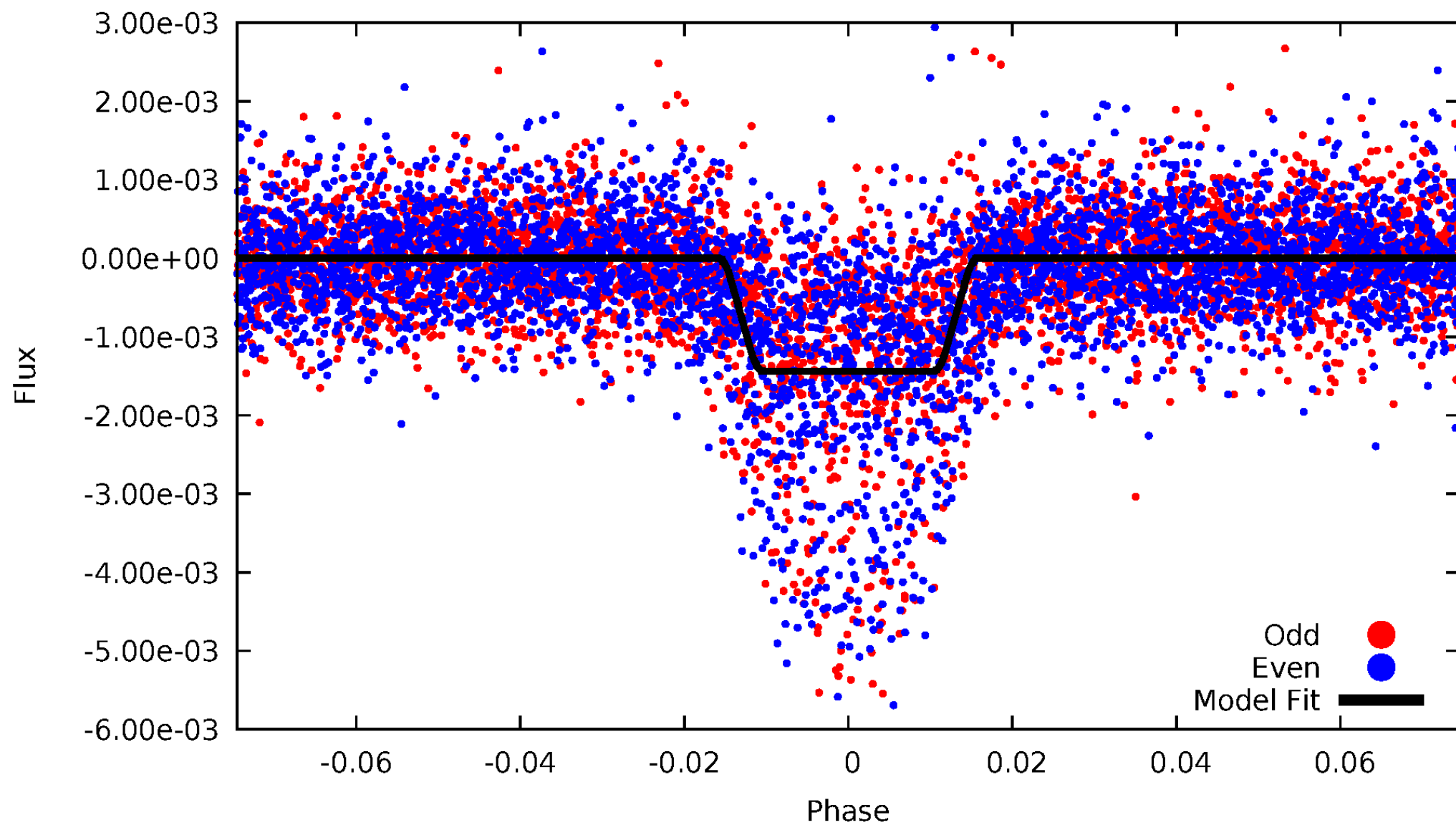
DV Odd/Even

TCE 008374494-02



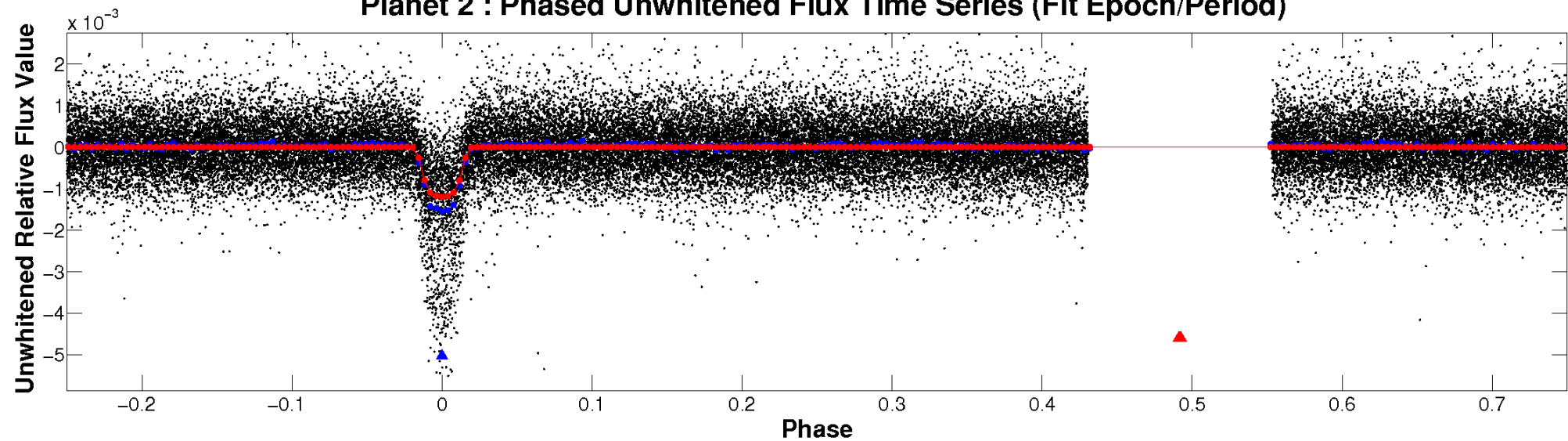
ALT Odd/Even

TCE 008374494-02

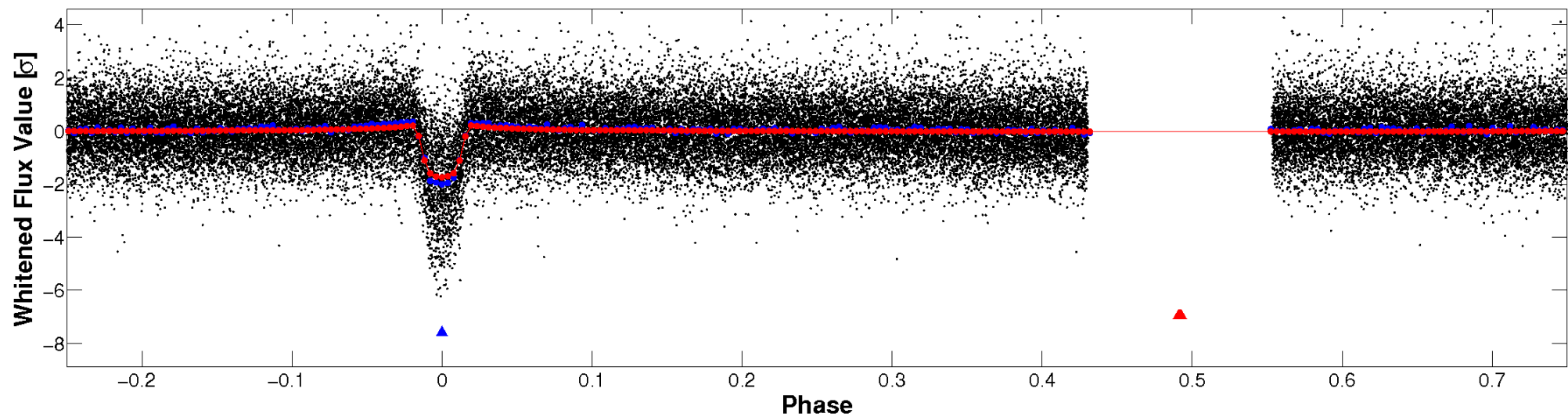


Non-Whitened Vs. Whitened Light Curve

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

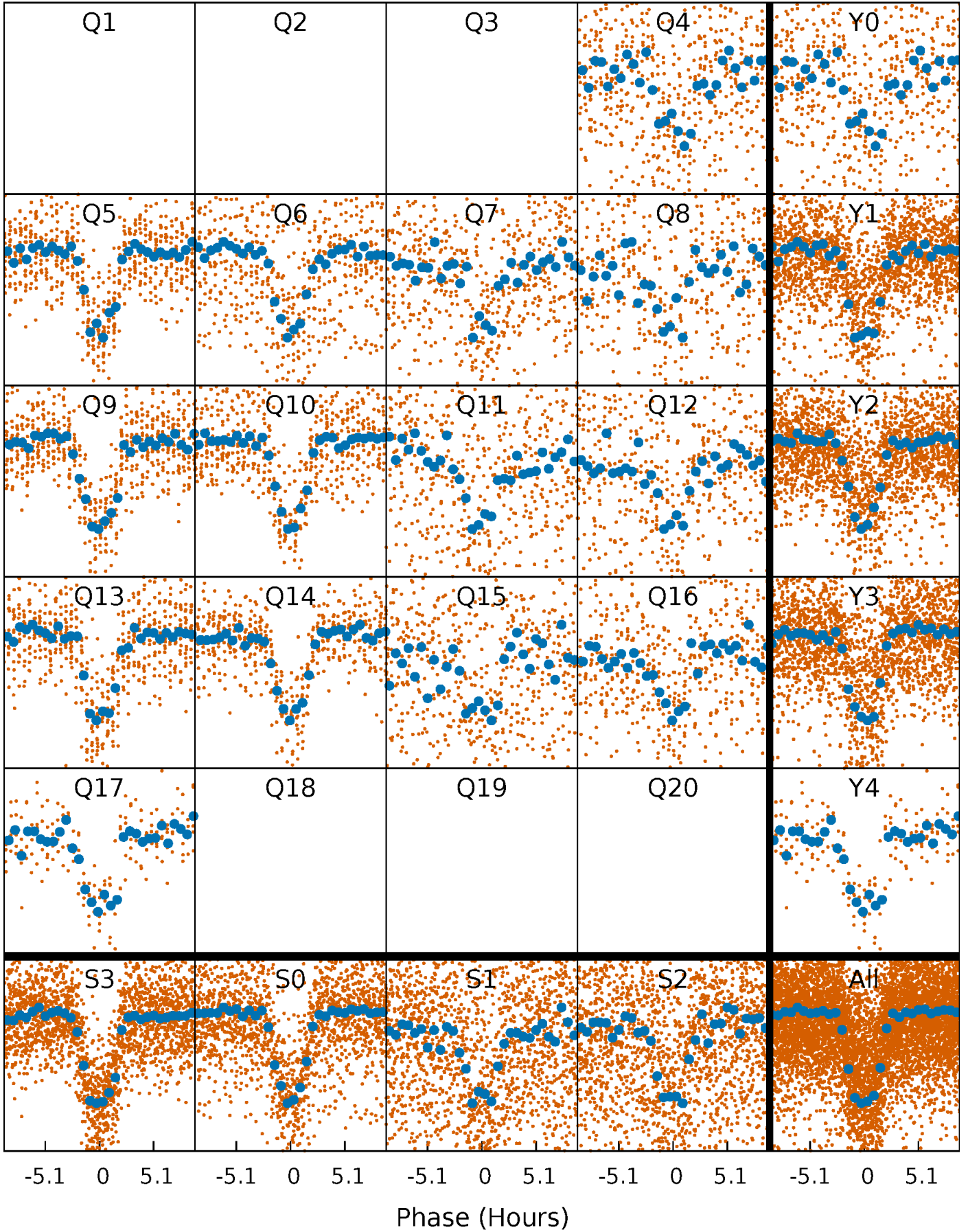


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



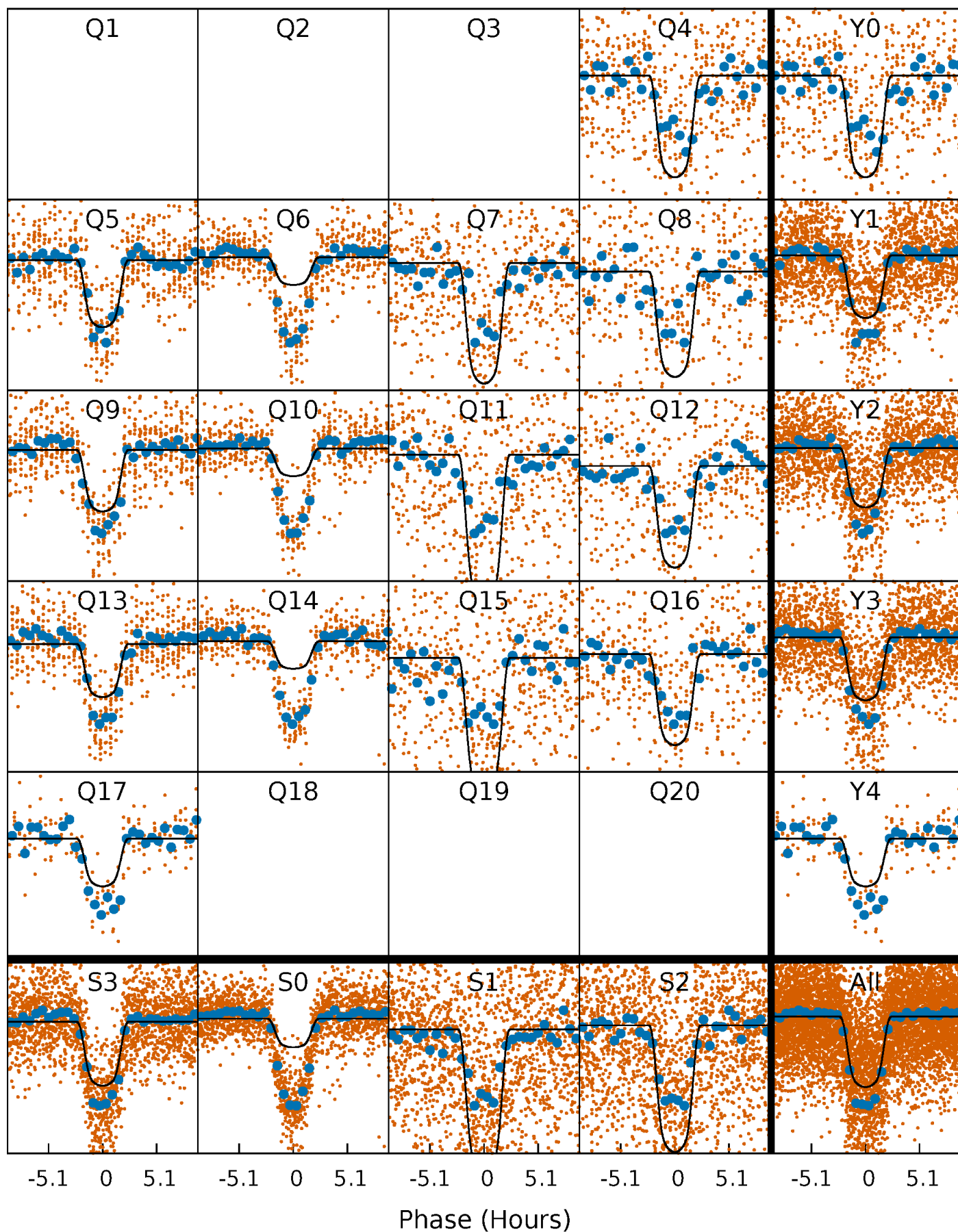
PDC Quarter-Phased Transit Curves

TCE 008374494-02 P= 5.251905 Days $T_0=134.159948$ (BKJD)



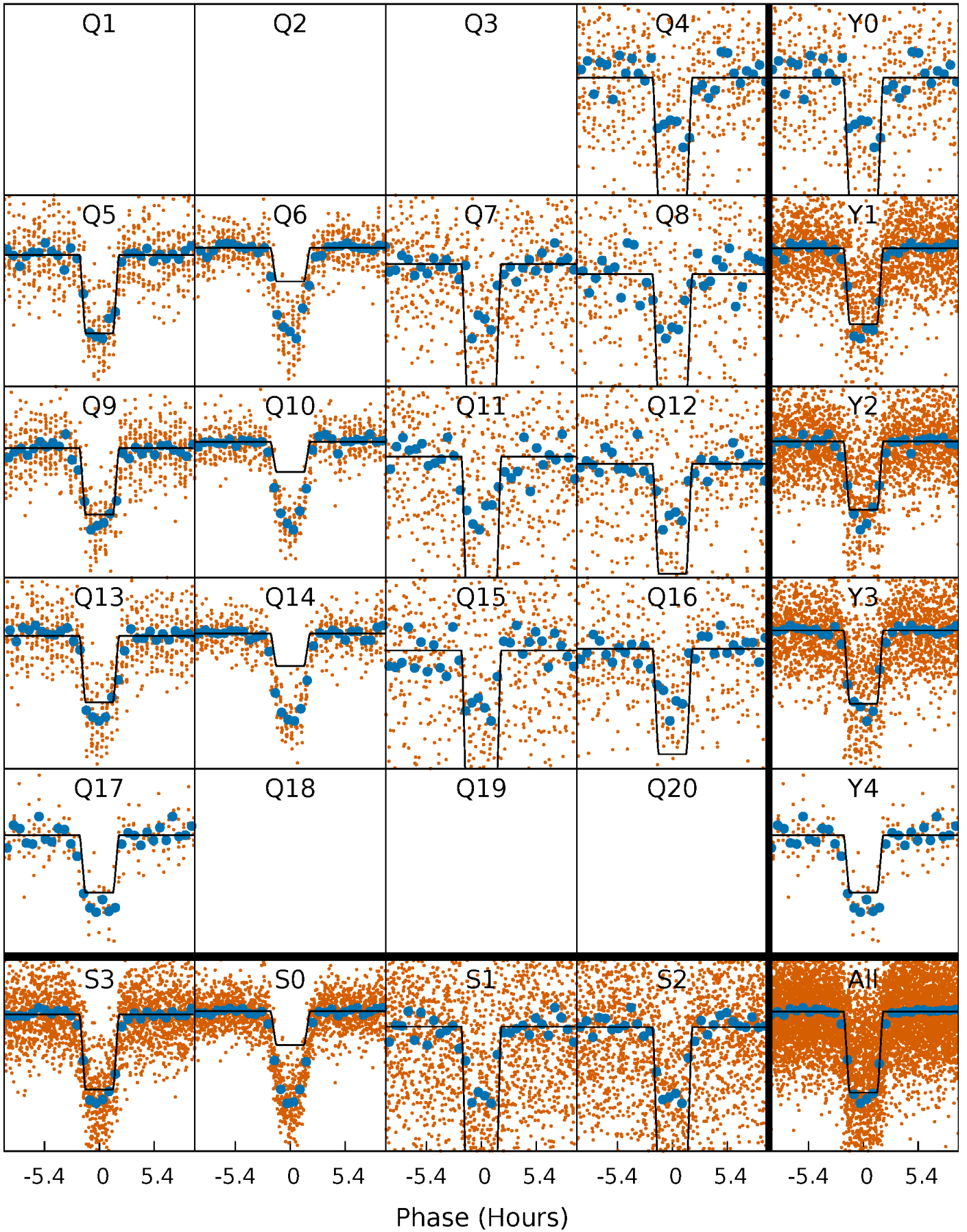
DV Quarter-Phased Transit Curves

TCE 008374494-02 P= 5.251905 Days $T_0=134.159948$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

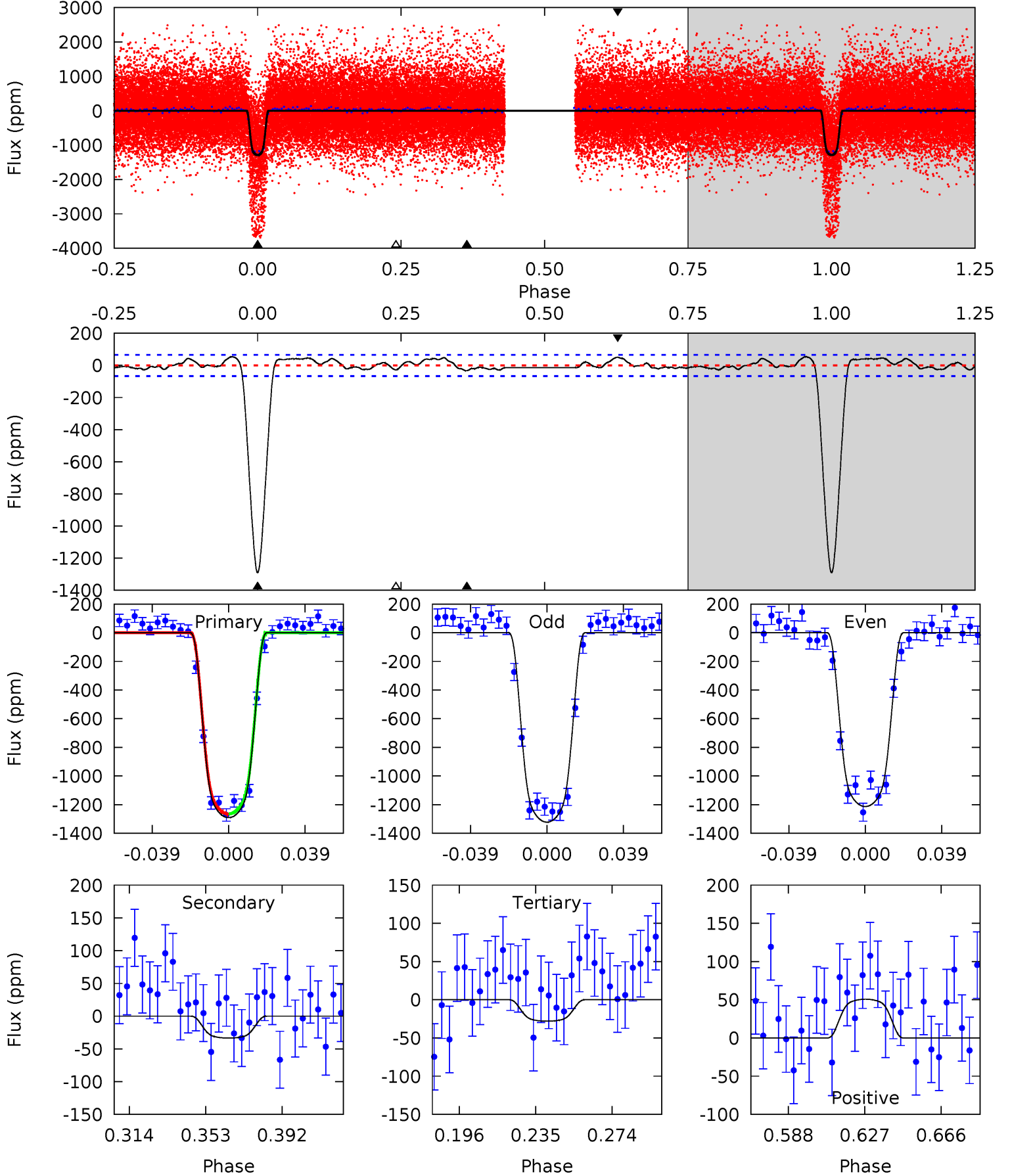
TCE 008374494-02 P= 5.251924 Days $T_0=134.156714$ (BKJD)



DV Model-Shift Uniqueness Test

008374494-02, P = 5.251905 Days, E = 134.159948 Days

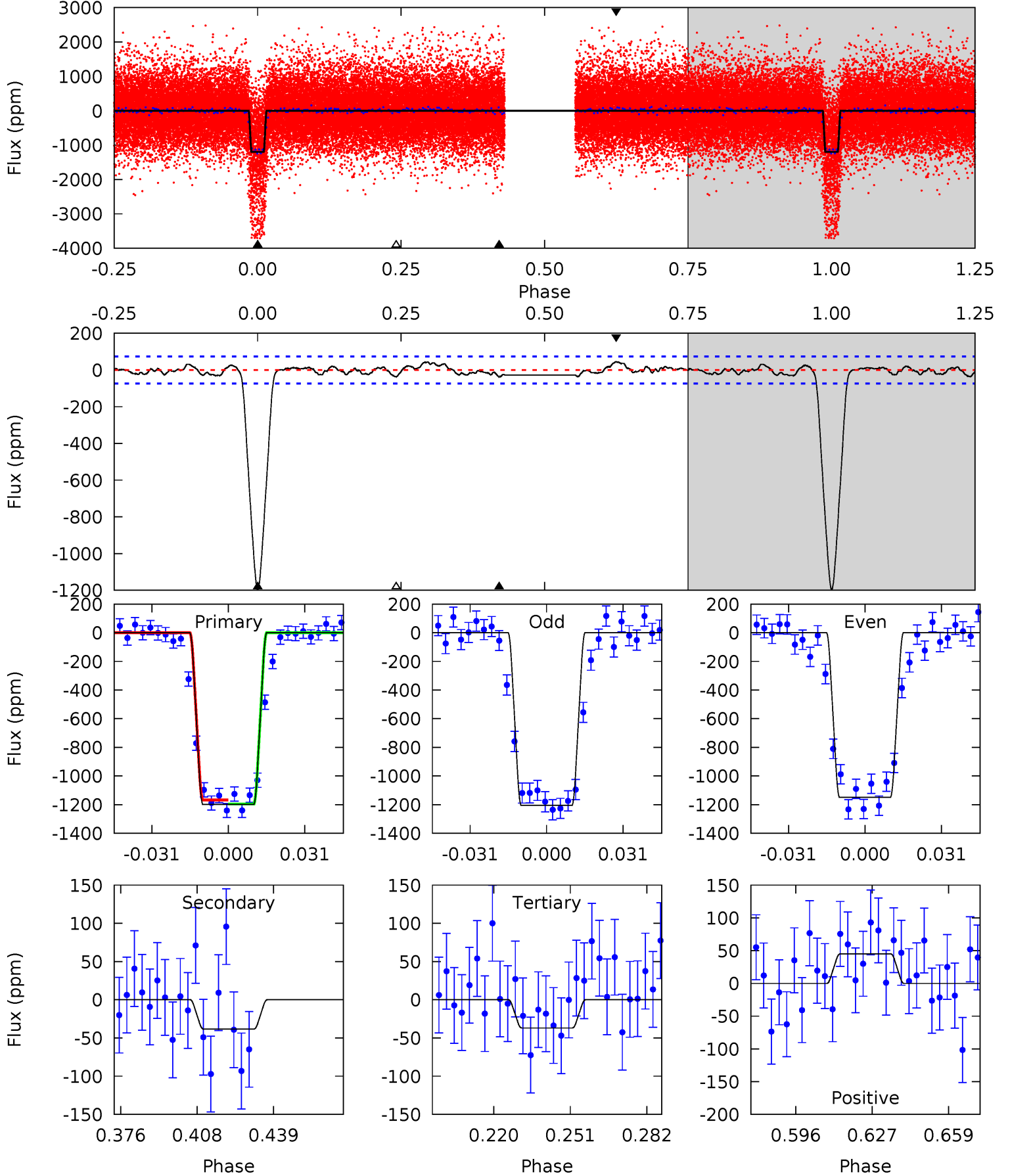
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.1	2.41	2.02	3.66	4.76	2.06	1.66	91.0	89.4	0.39	-1.24	3.93	1.40	0.04	0.05



Alt Model-Shift Uniqueness Test

008374494-02, P = 5.251924 Days, E = 134.156714 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.3	2.50	2.41	2.94	4.80	2.15	1.17	75.9	75.3	0.09	-0.44	1.80	1.47	0.04	0.90



Stellar Parameters For KIC 008374494

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5542^{+182}_{-182}	$4.520^{+0.055}_{-0.165}$	$0.000^{+0.250}_{-0.300}$	$0.872^{+0.226}_{-0.090}$	$0.919^{+0.102}_{-0.092}$	$1.950^{+0.459}_{-0.868}$
	+3%/-3%	+1%/-4%	+inf%/-inf%	+26%/-10%	+11%/-10%	+24%/-45%
Source	KIC0	KIC0	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 008374494-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 14	$3.83^{+0.50}_{-0.29}$	1353^{+85}_{-67}	2813^{+166}_{-232}	$3.966^{+2.016}_{-1.736}$
Alt.	-38 ± 15	$3.68^{+0.49}_{-0.26}$	1352^{+82}_{-65}	2888^{+165}_{-226}	$4.884^{+2.211}_{-2.194}$

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

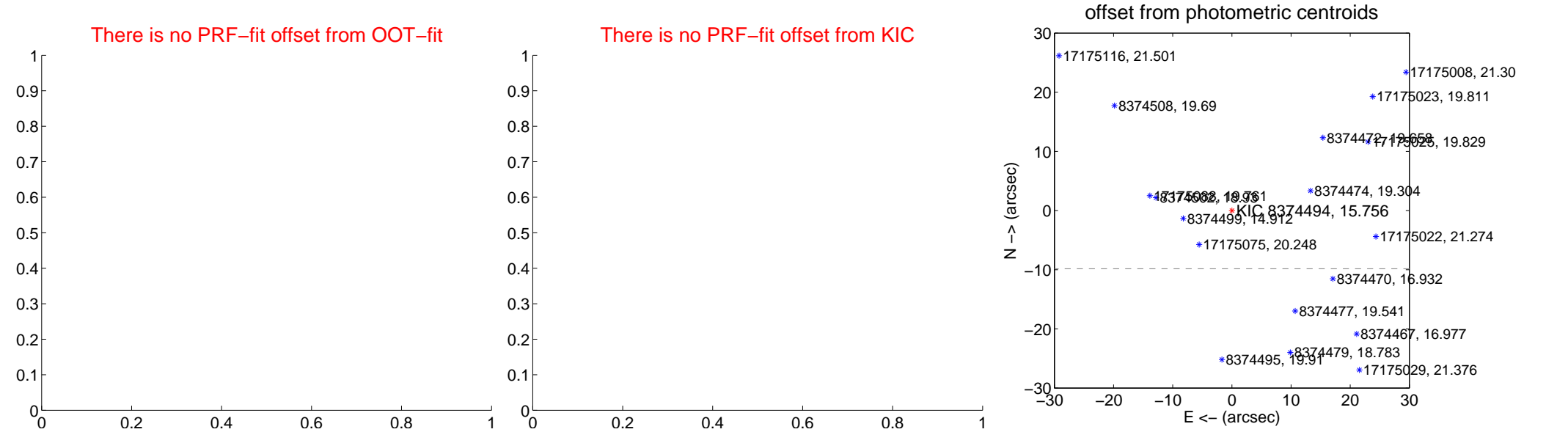
DV Centroid Data

Supplemental centroid analysis for 008374494-02. Kepler magnitude: 15.76. Transit SNR 56.29

There are 0 quarters with good PRF difference image offsets

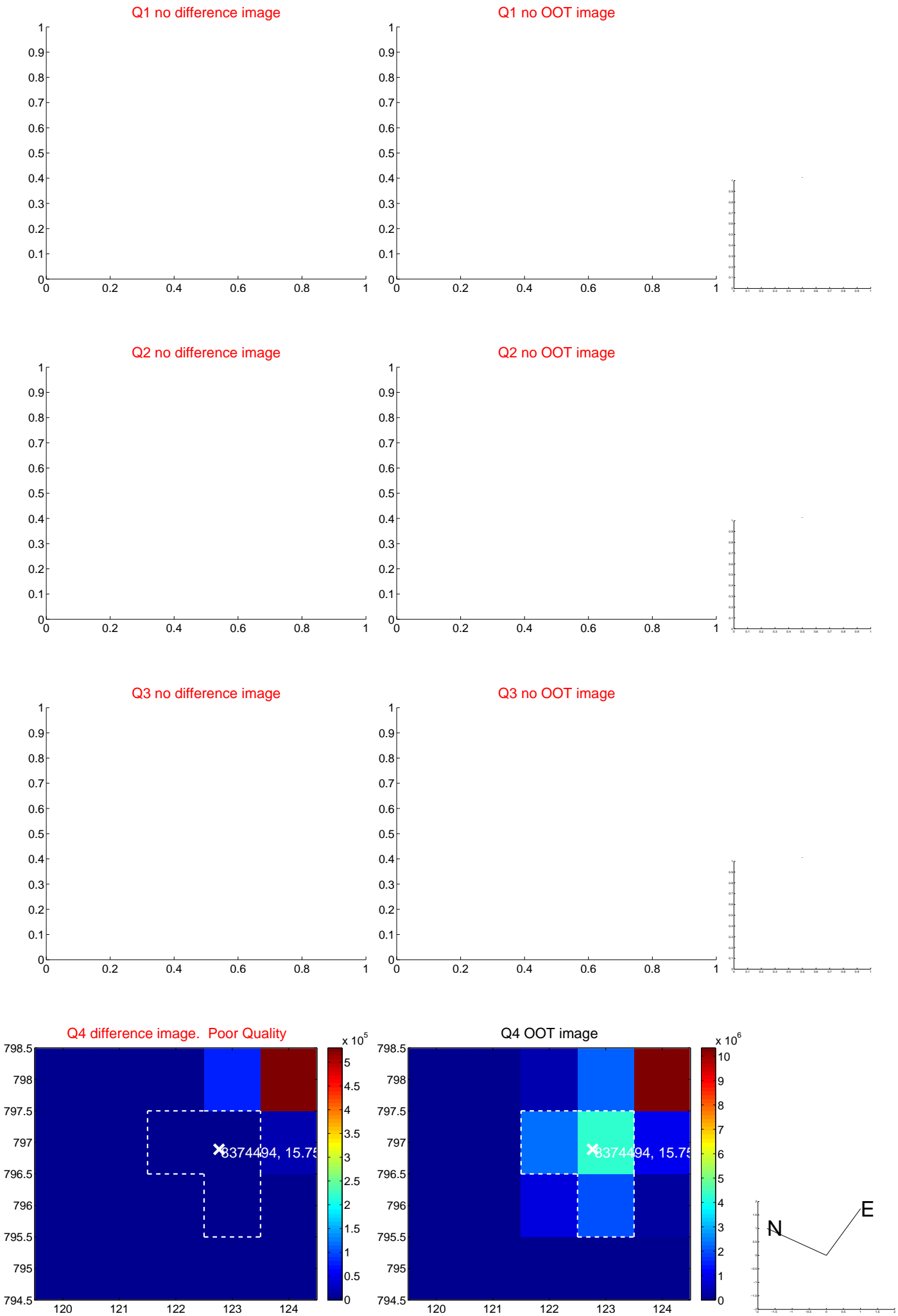
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	84.97 ± 0.29	289.84	84.40 ± 0.29	-9.83 ± 0.15

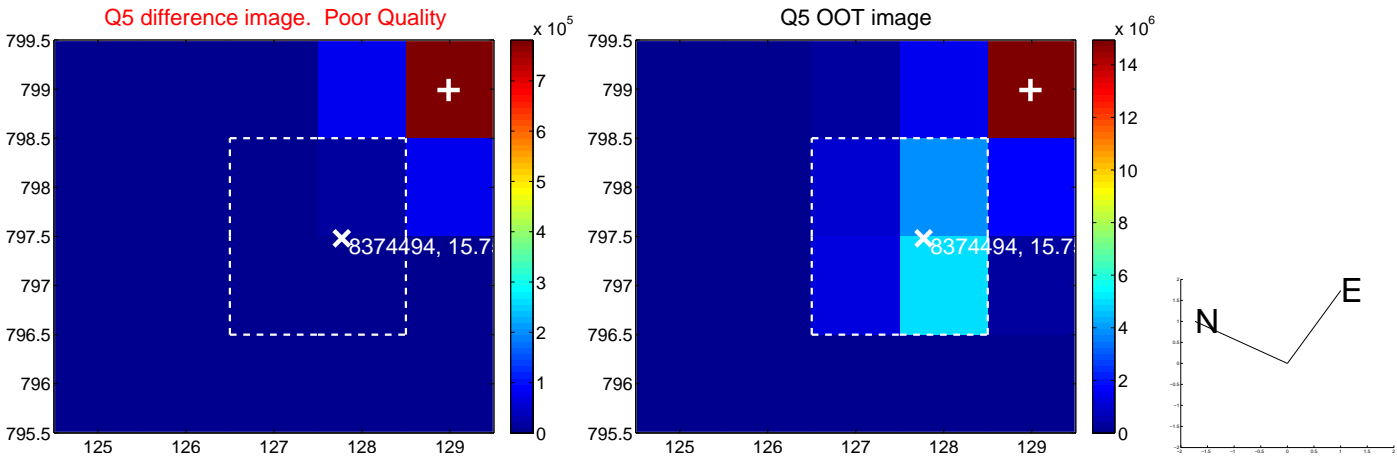


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

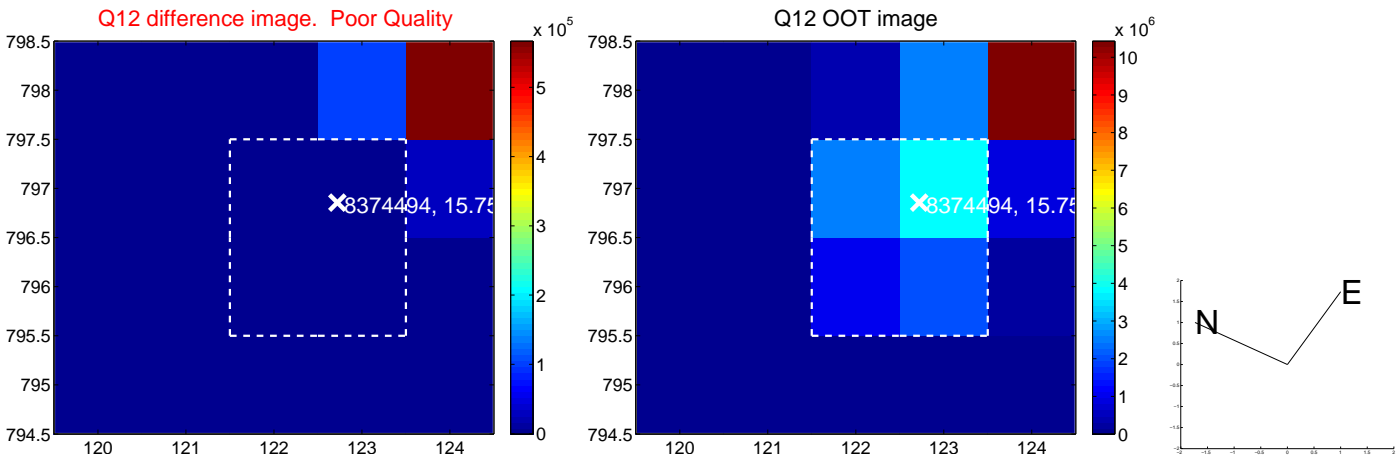
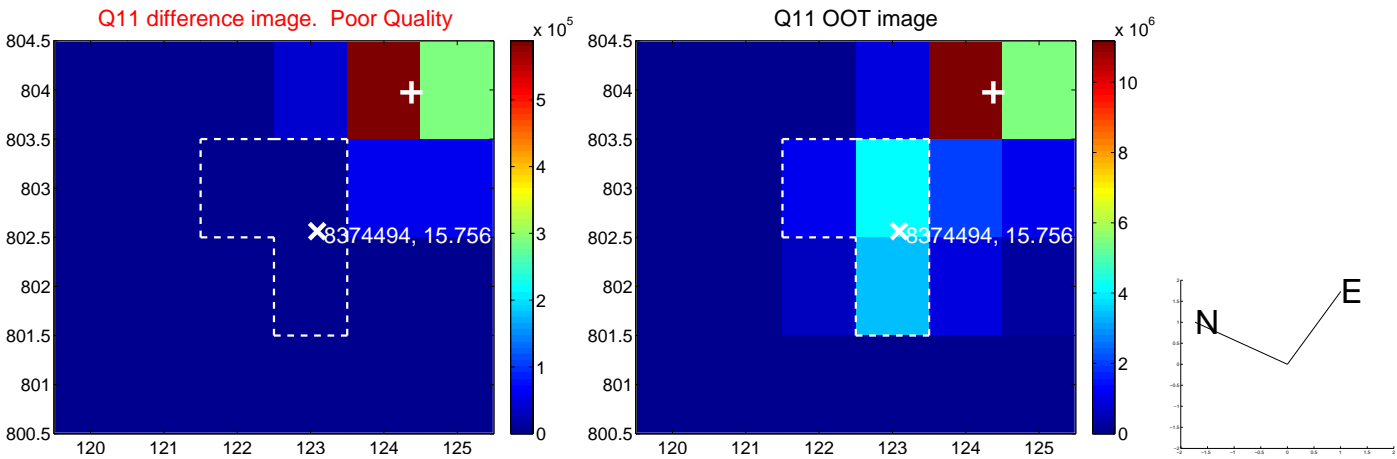
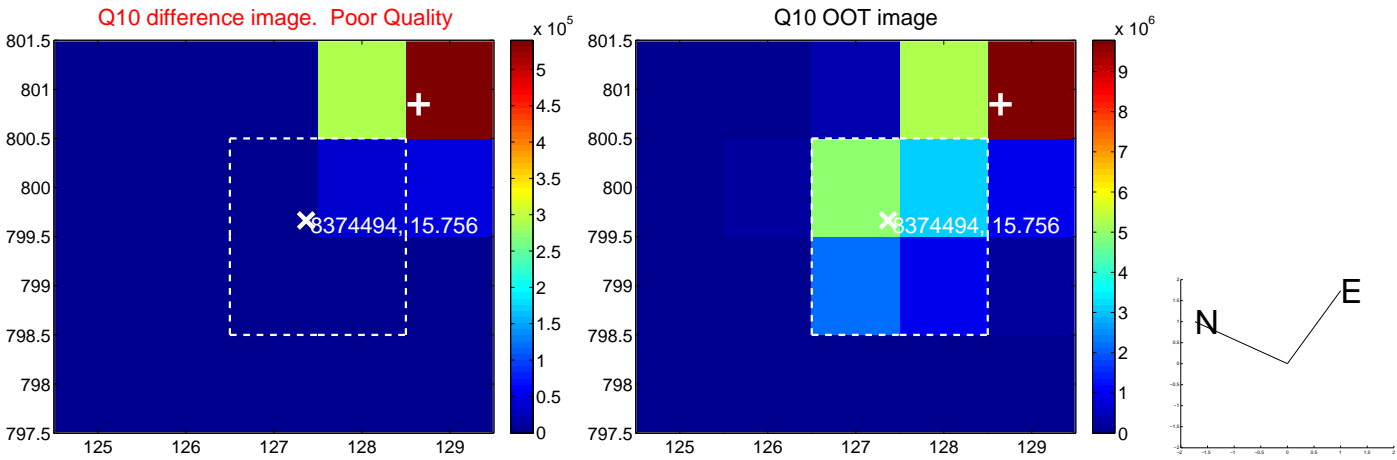
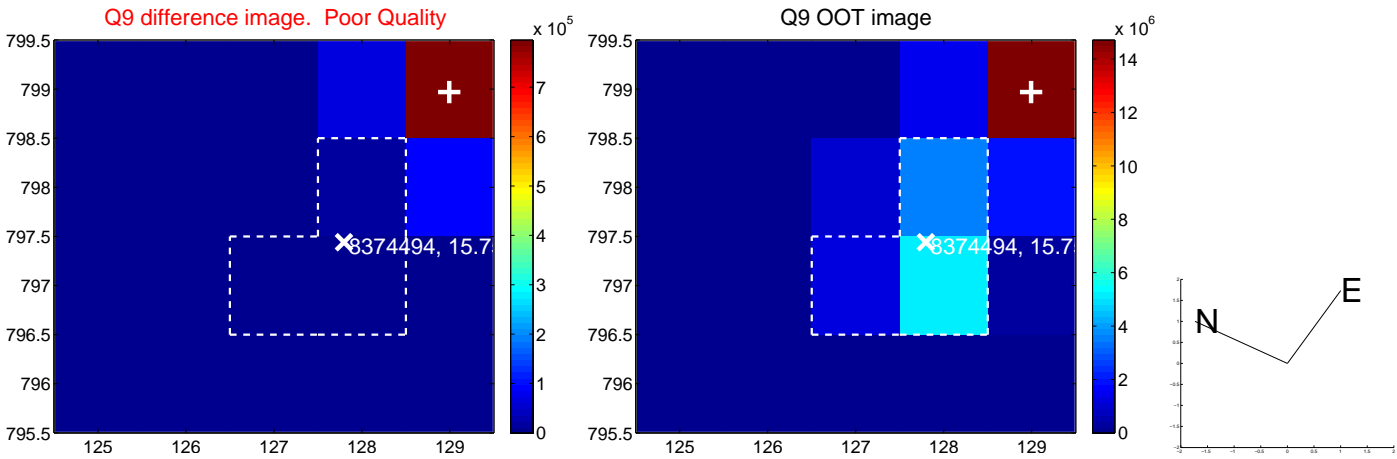
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



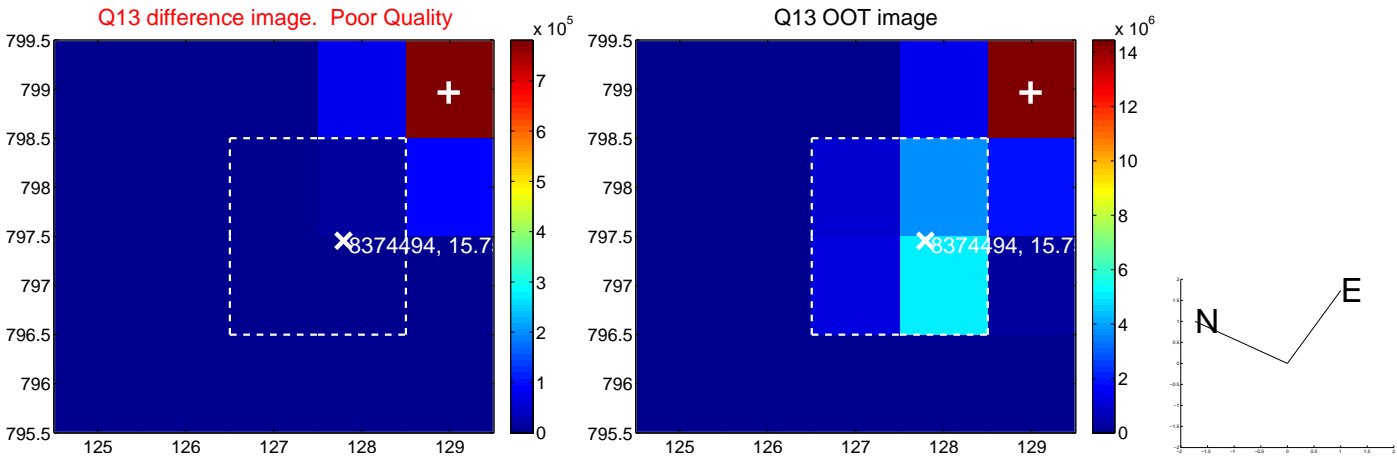
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



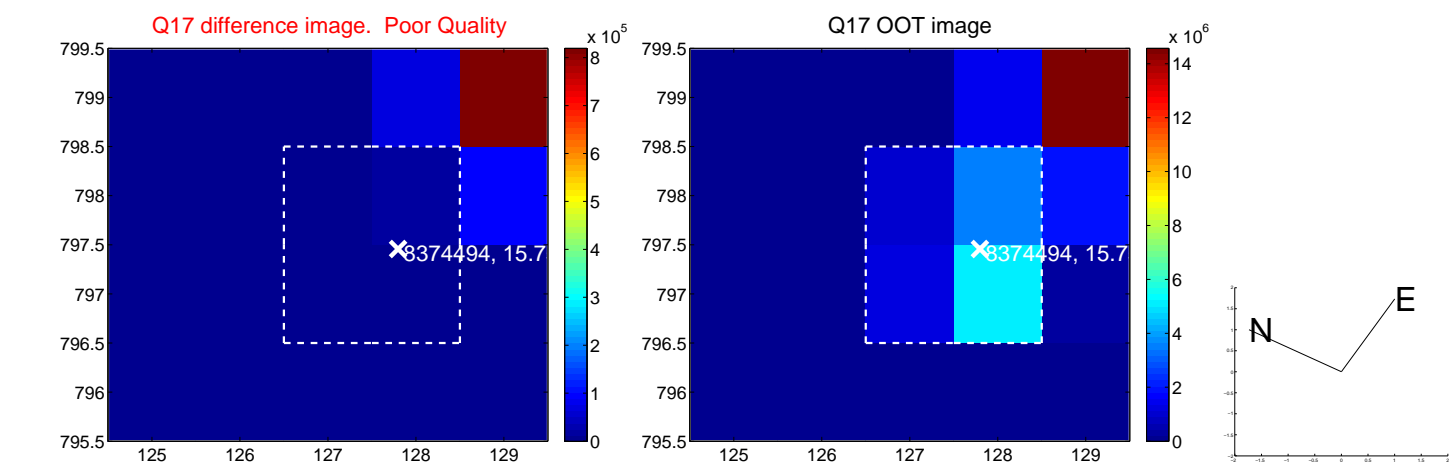
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



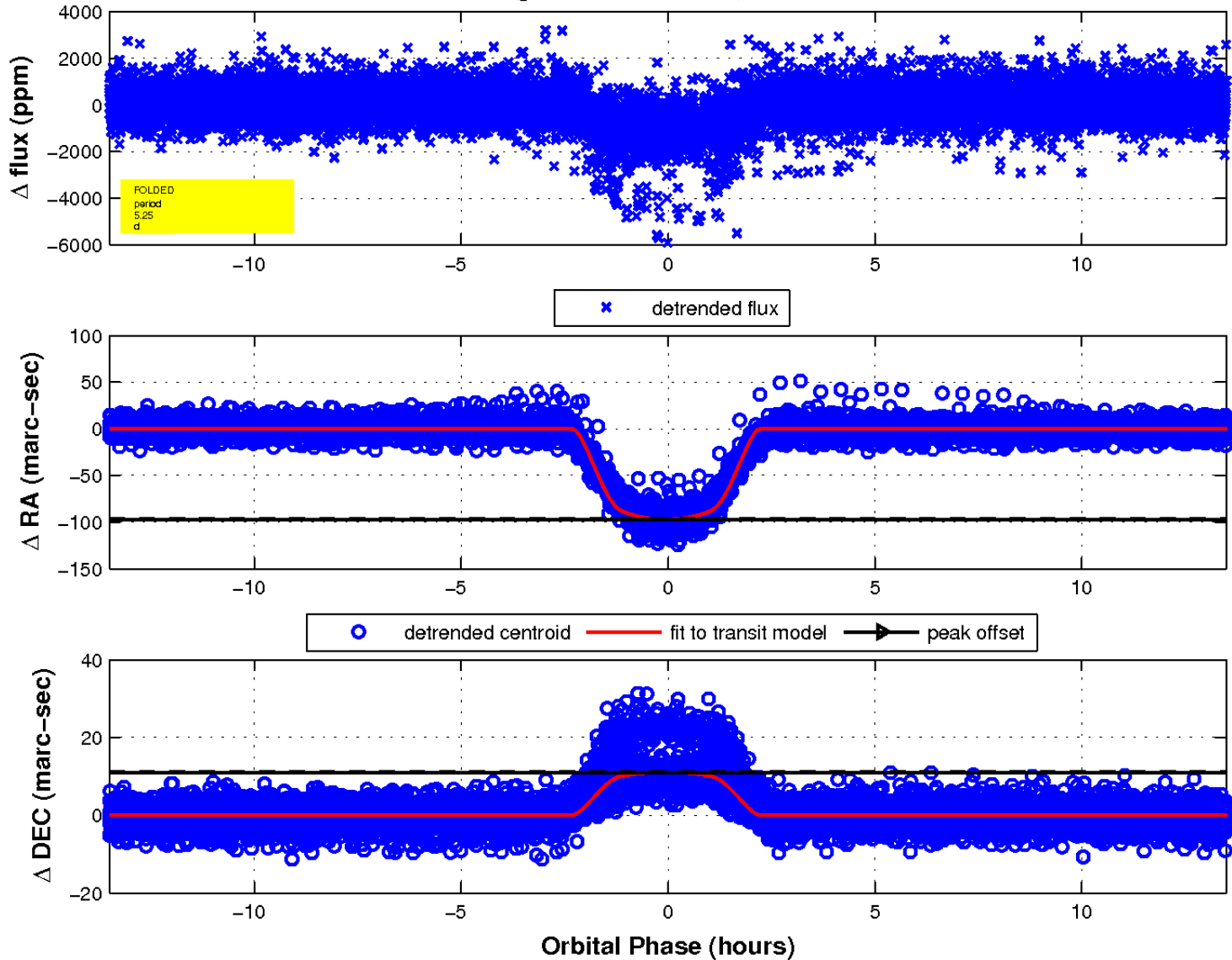
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

