

KIC 009446824

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})
009446824-01	OBS	1382.01	4.202334	133.308844	46248.1	3.729	1821.2	1455.2	1.09	6185	23.67	571.40
009446824-02	OBS	No	4.202337	135.409692	1375.4	3.570	51.5	56.3	1.09	6185	4.50	571.40
009446824-03	OBS	No	310.617135	278.794827	1626.3	15.935	8.4	6.0	1.09	6185	4.43	1.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009446824-01	OBS	FP	0.09	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009446824-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009446824-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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.

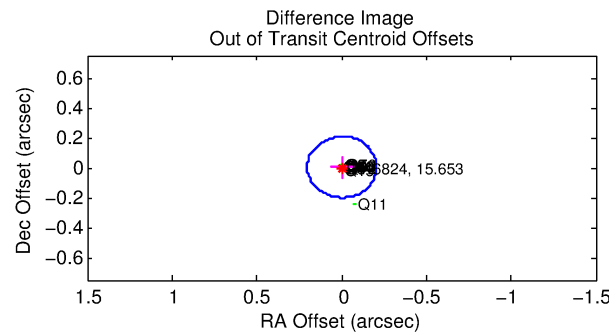
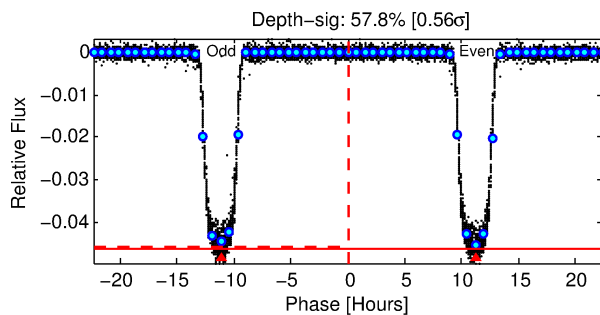
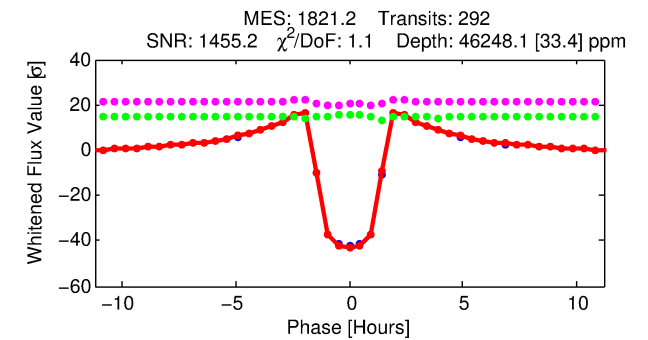
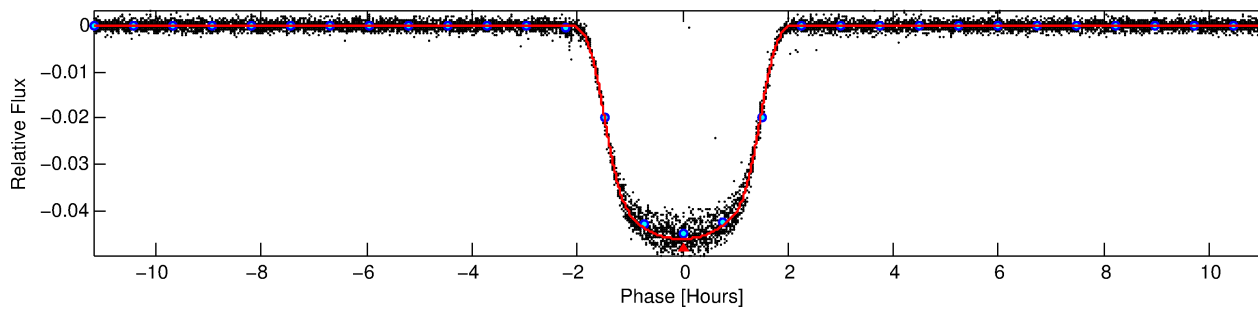
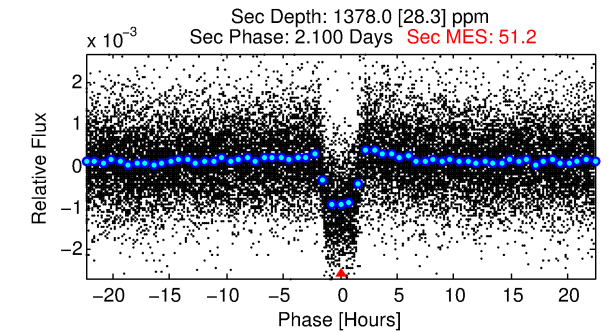
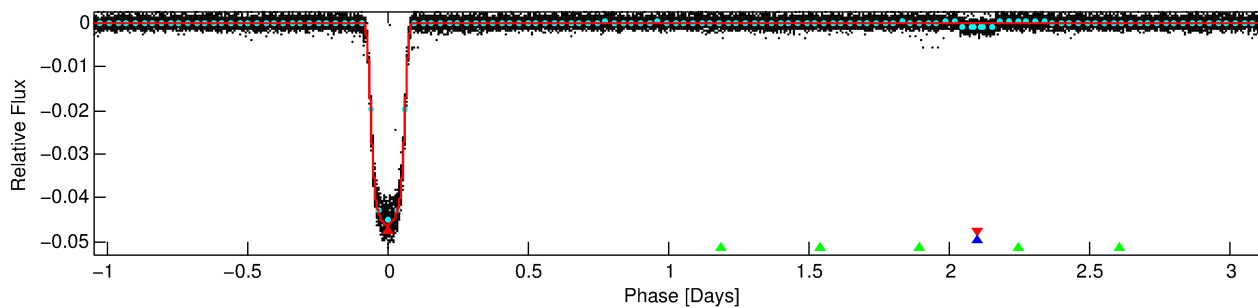
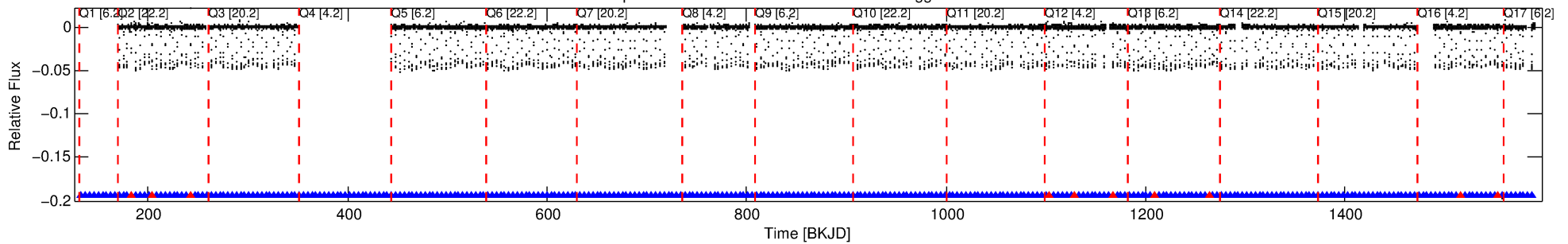
Ephemeris Match Information For 009446824-01

No Significant Match Found

DV One-Page Summary

KIC: 9446824 Candidate: 1 of 3 Period: 4.202 d
KOI: K01382.01 Corr: 0.998

Kp: 15.65 R*: 1.09 Rs Teff: 6185.0 K Logg: 4.40 Fe/H: -0.040



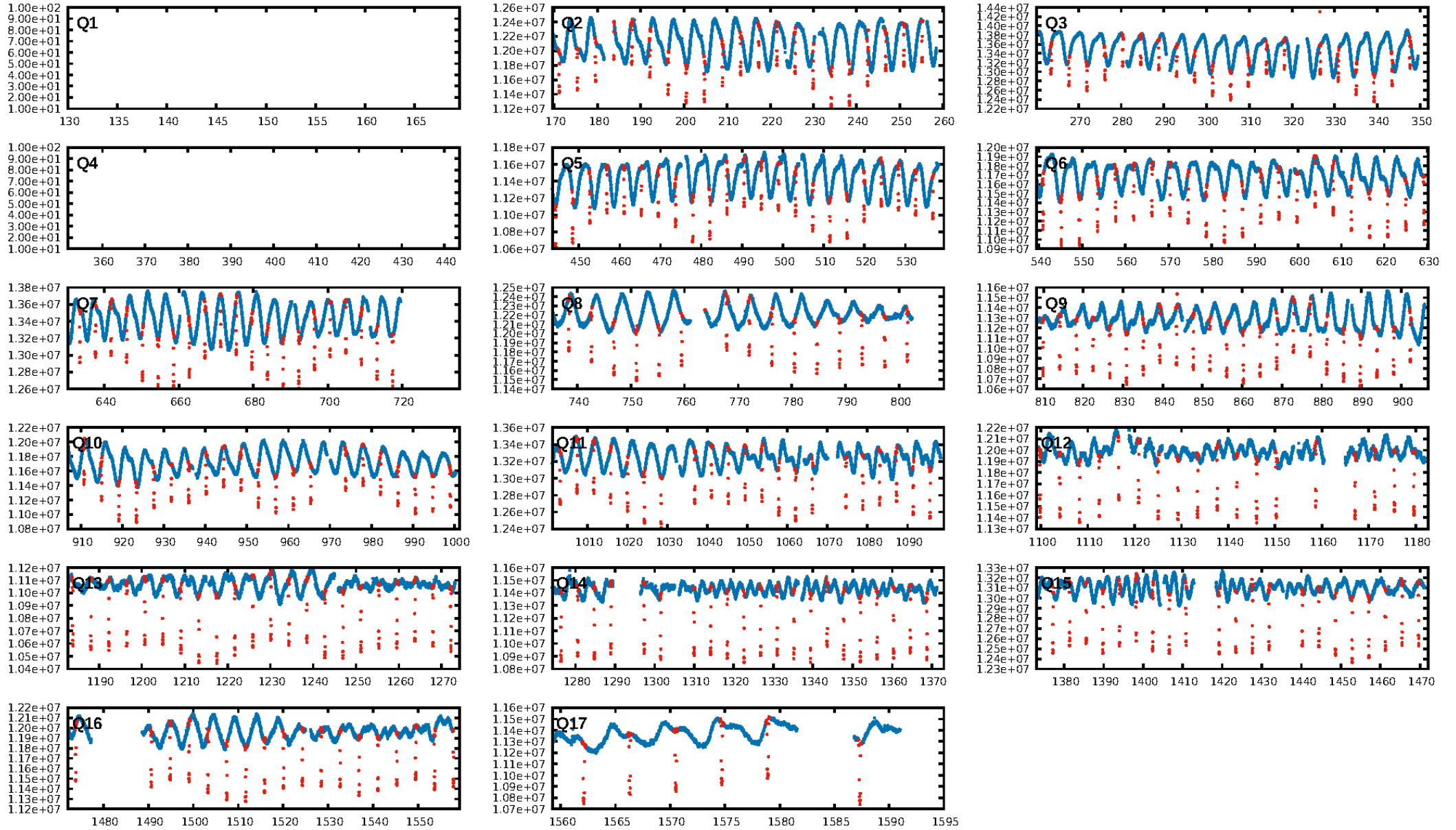
DV Fit Results:

Period = 4.20233 [0.00000] d
Epoch = 133.3088 [0.0000] BKJD
Rp/R* = 0.1983 [0.0002]
a/R* = 10.19 [0.03]
b = 0.21 [0.01]
Seff = 571.40 [246.84]
Teq = 1247 [135] K
Rp = 23.67 [7.75] Re
a = 0.0524 [0.0144] AU
Ag = 3.72 [1.48] [1.83σ]
Teffp = 2676 [113] K [8.14σ]

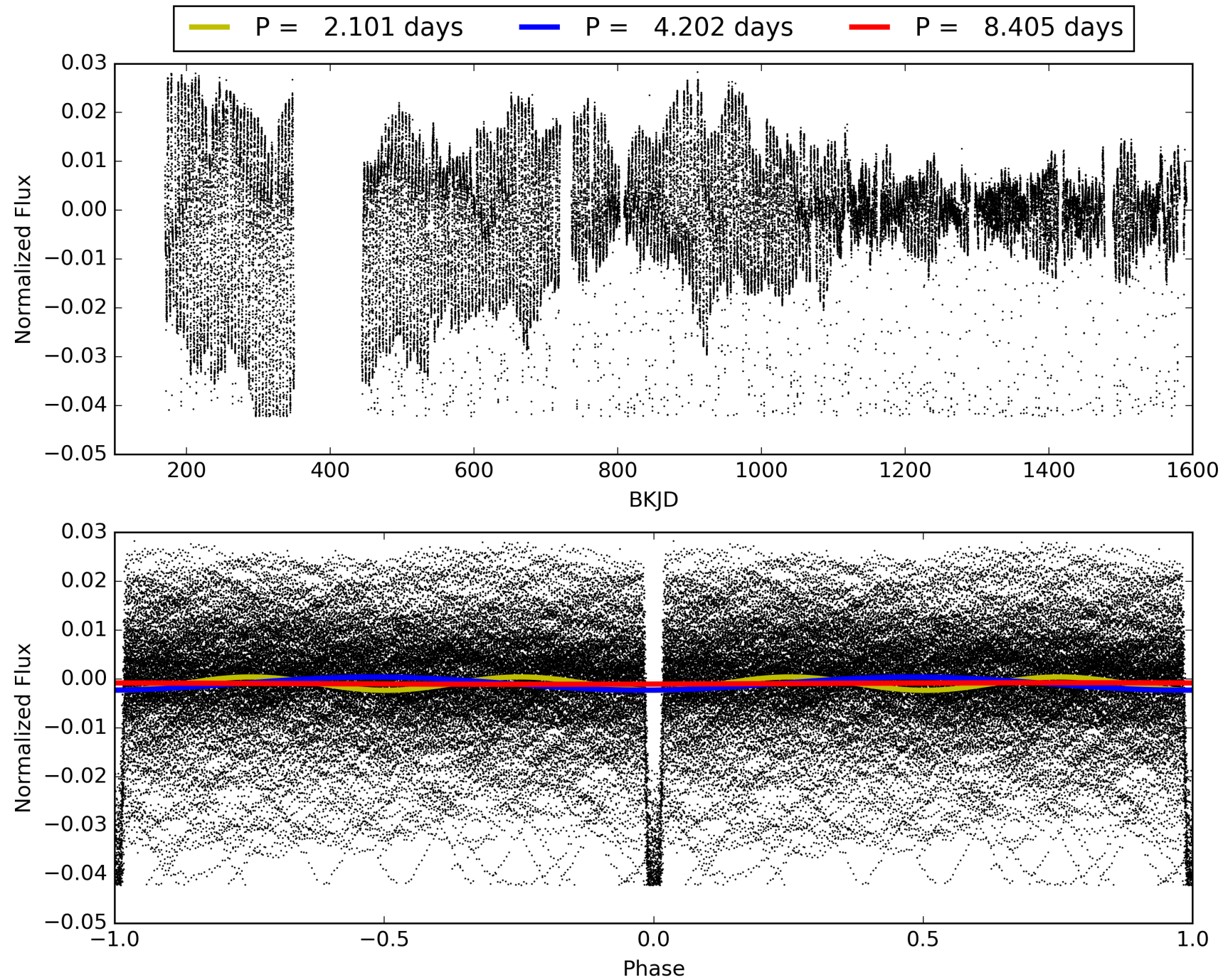
DV Diagnostic Results:

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: 0.97 [276/286]
GhostDiagnostic-chr: 2.294
Centroid-sig: 5.2%
Centroid-so: 0.112 arcsec [17.90σ]
OotOffset-rm: 0.004 arcsec [0.05σ]
KicOffset-rm: 0.026 arcsec [0.37σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [15/15]

TCE 009446824-01, PDC Light Curves

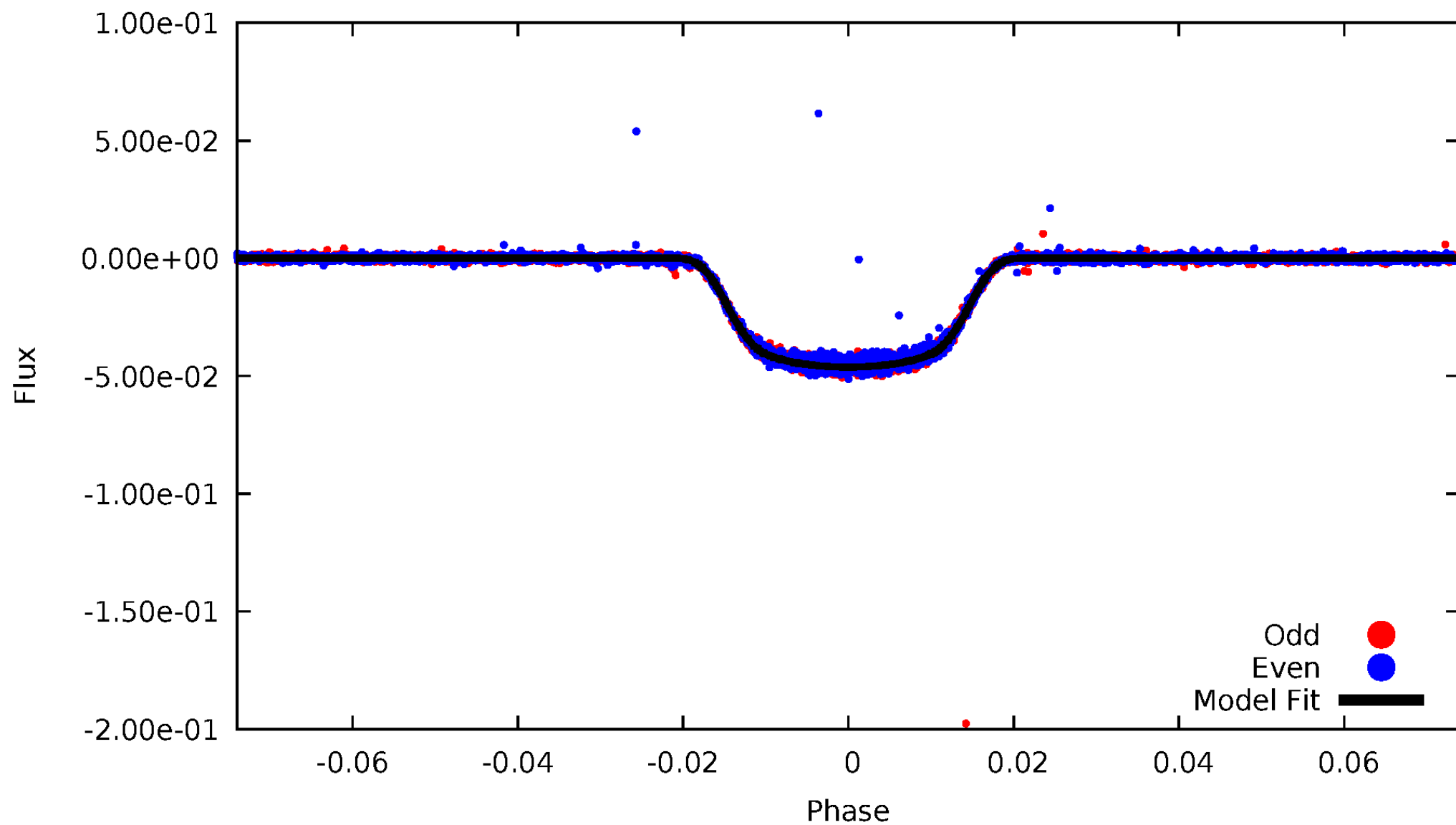


TCE 009446824-01



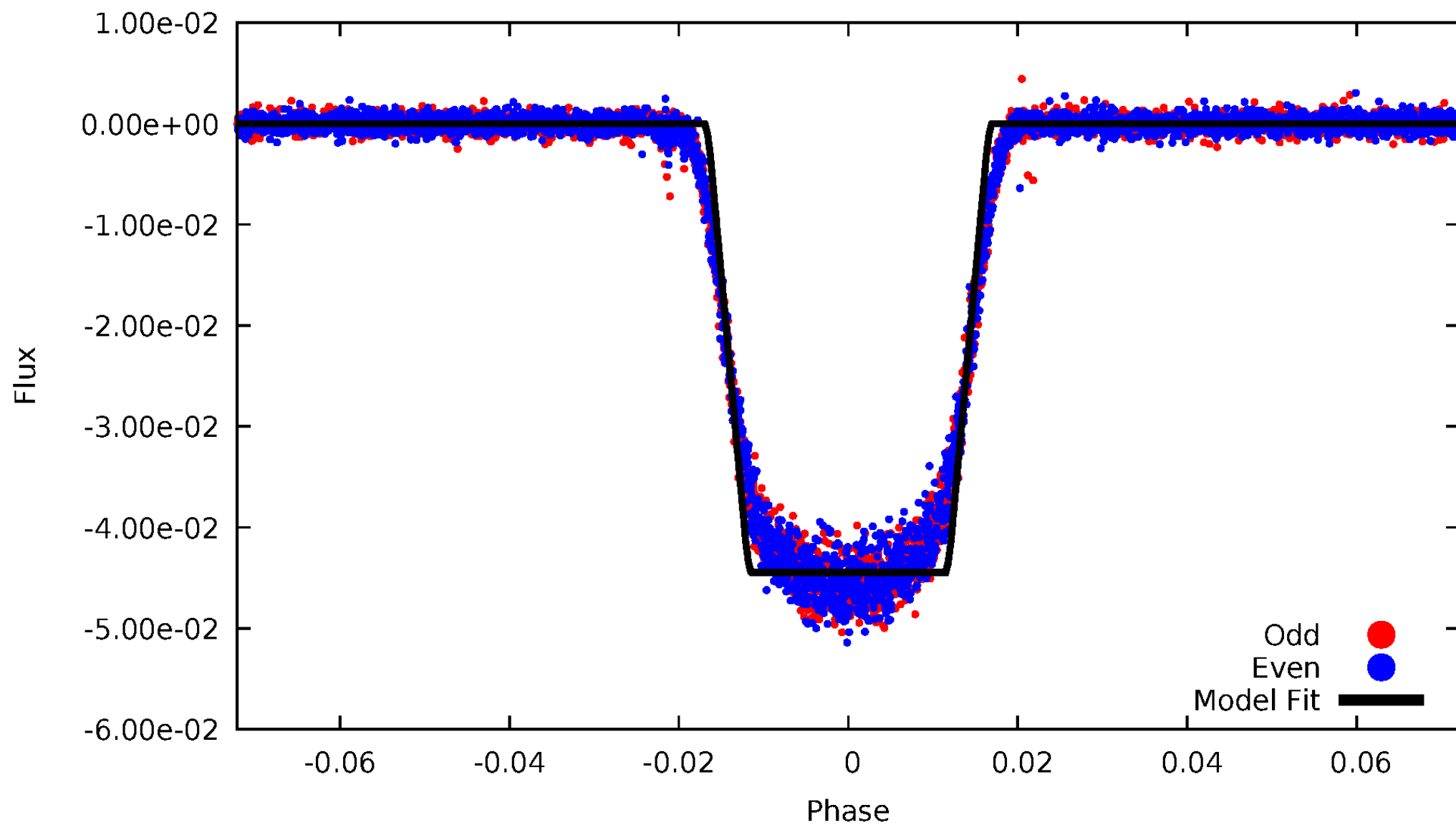
DV Odd/Even

TCE 009446824-01



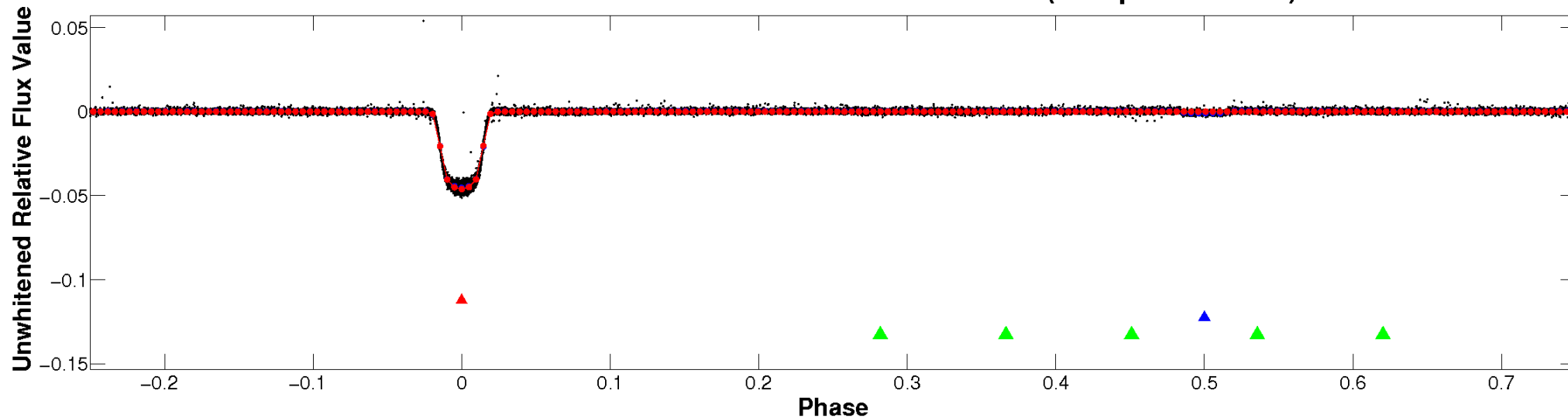
ALT Odd/Even

TCE 009446824-01

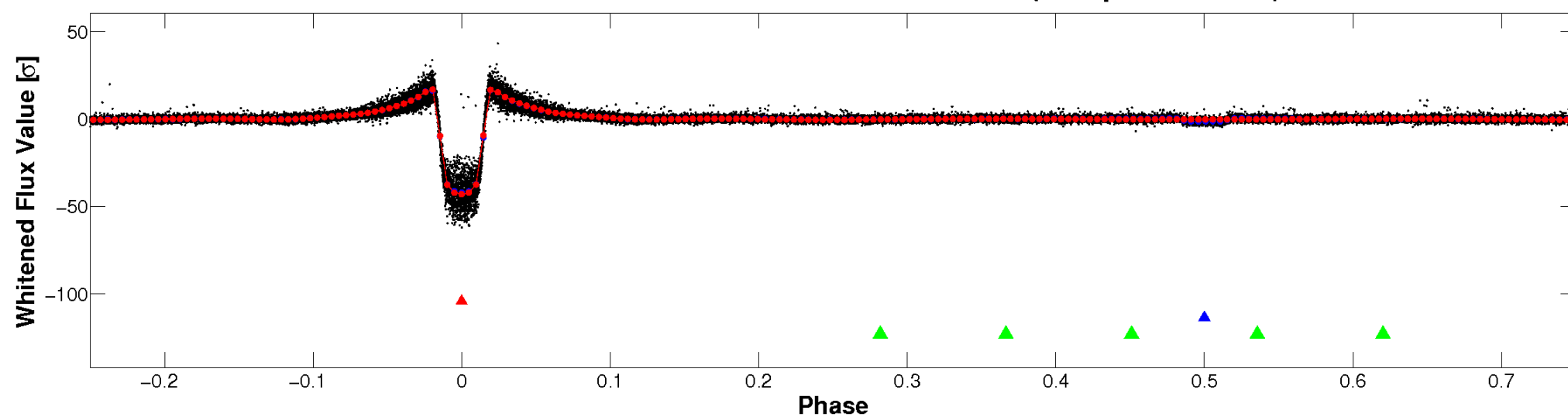


Non-Whitened Vs. Whitened Light Curve

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

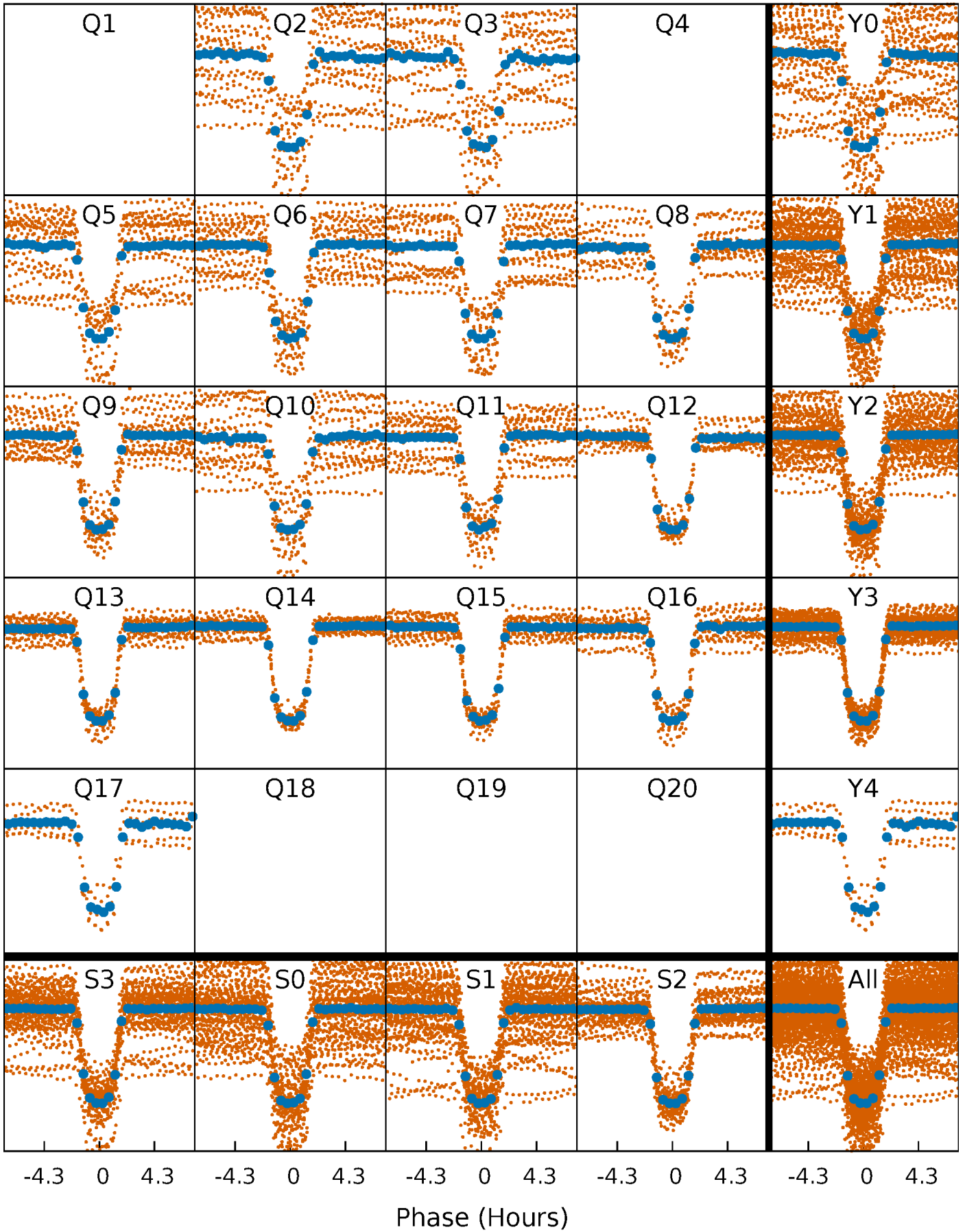


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



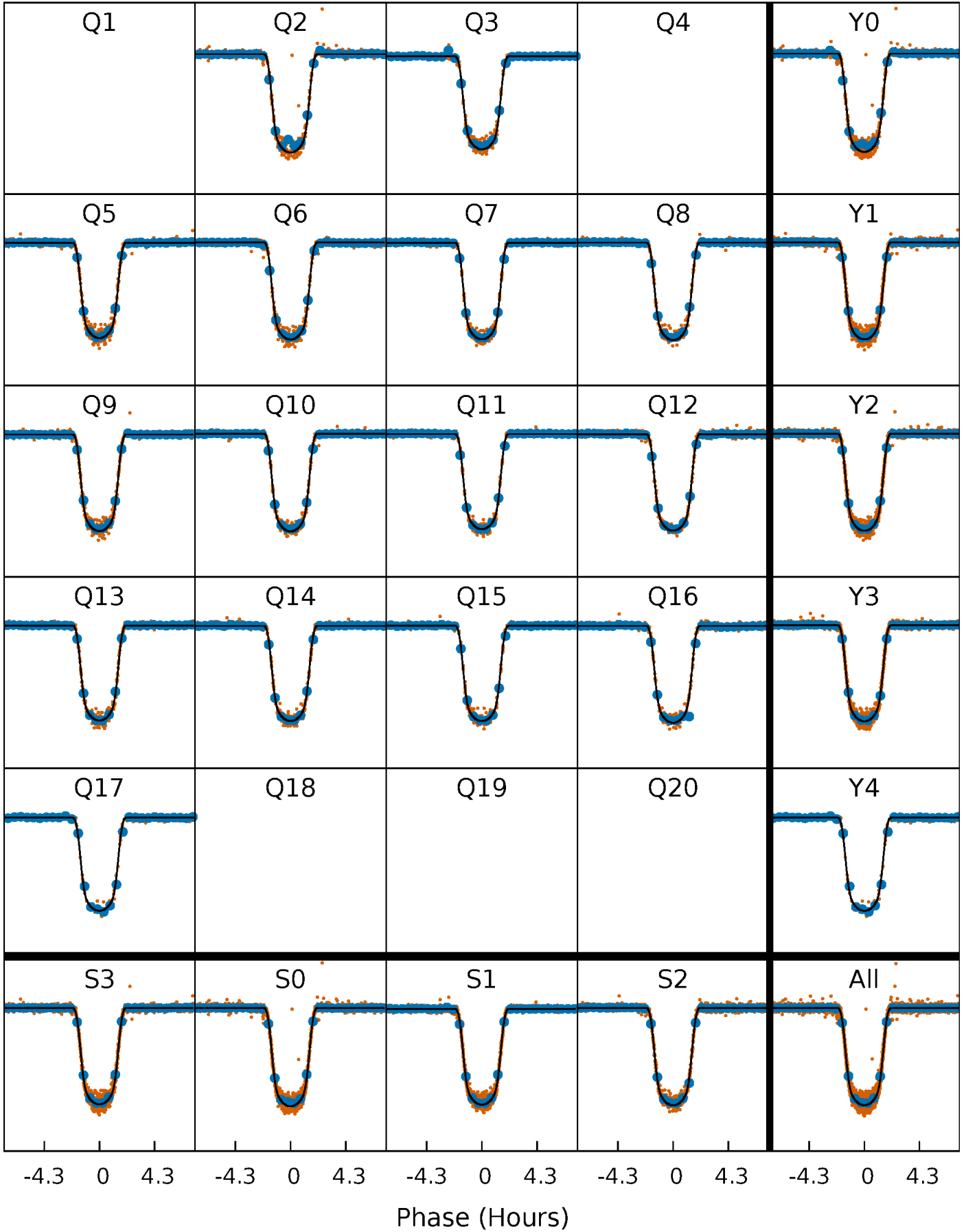
PDC Quarter-Phased Transit Curves

TCE 009446824-01 P= 4.202334 Days $T_0=133.308844$ (BKJD)



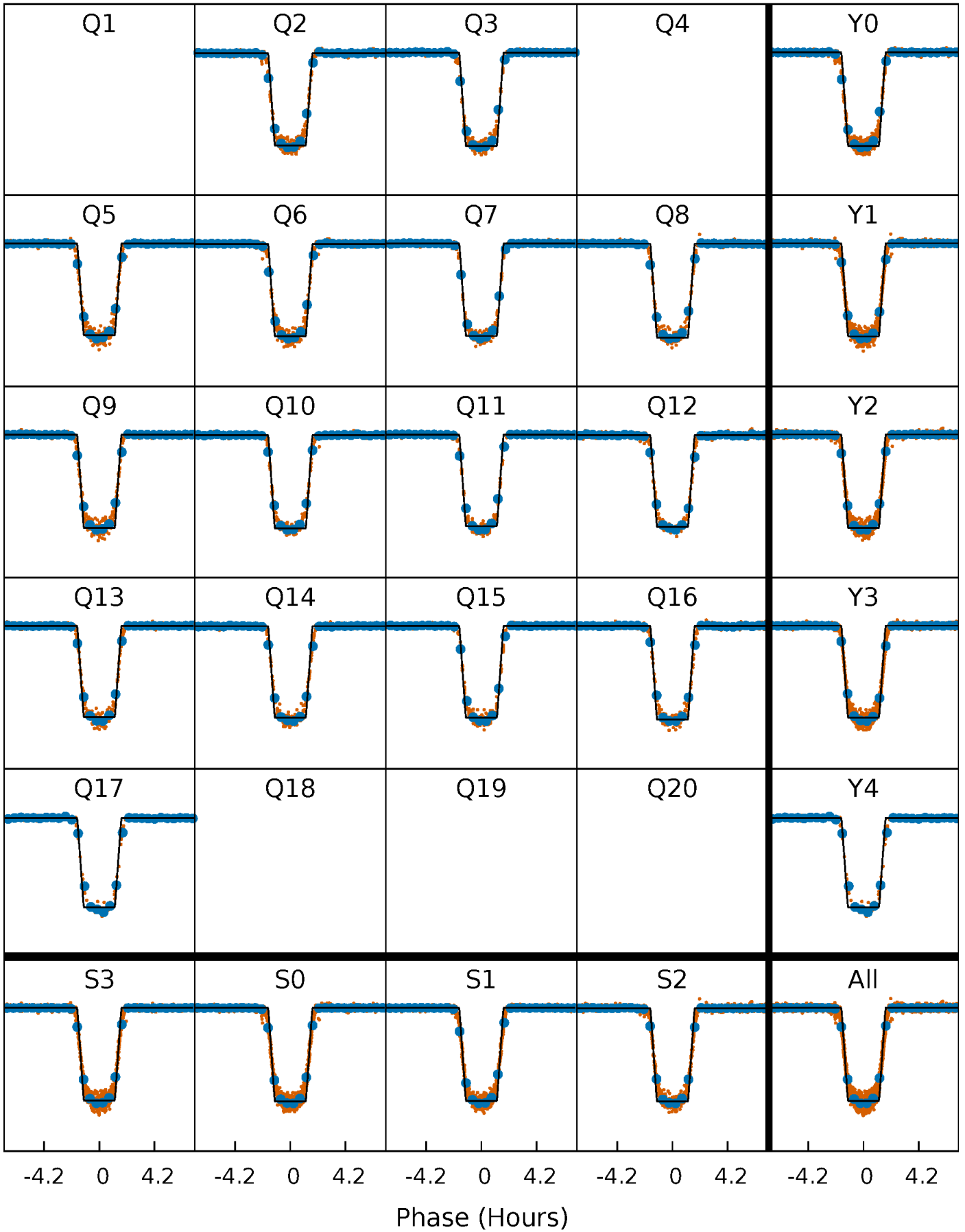
DV Quarter-Phased Transit Curves

TCE 009446824-01 P= 4.202334 Days $T_0=133.308844$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

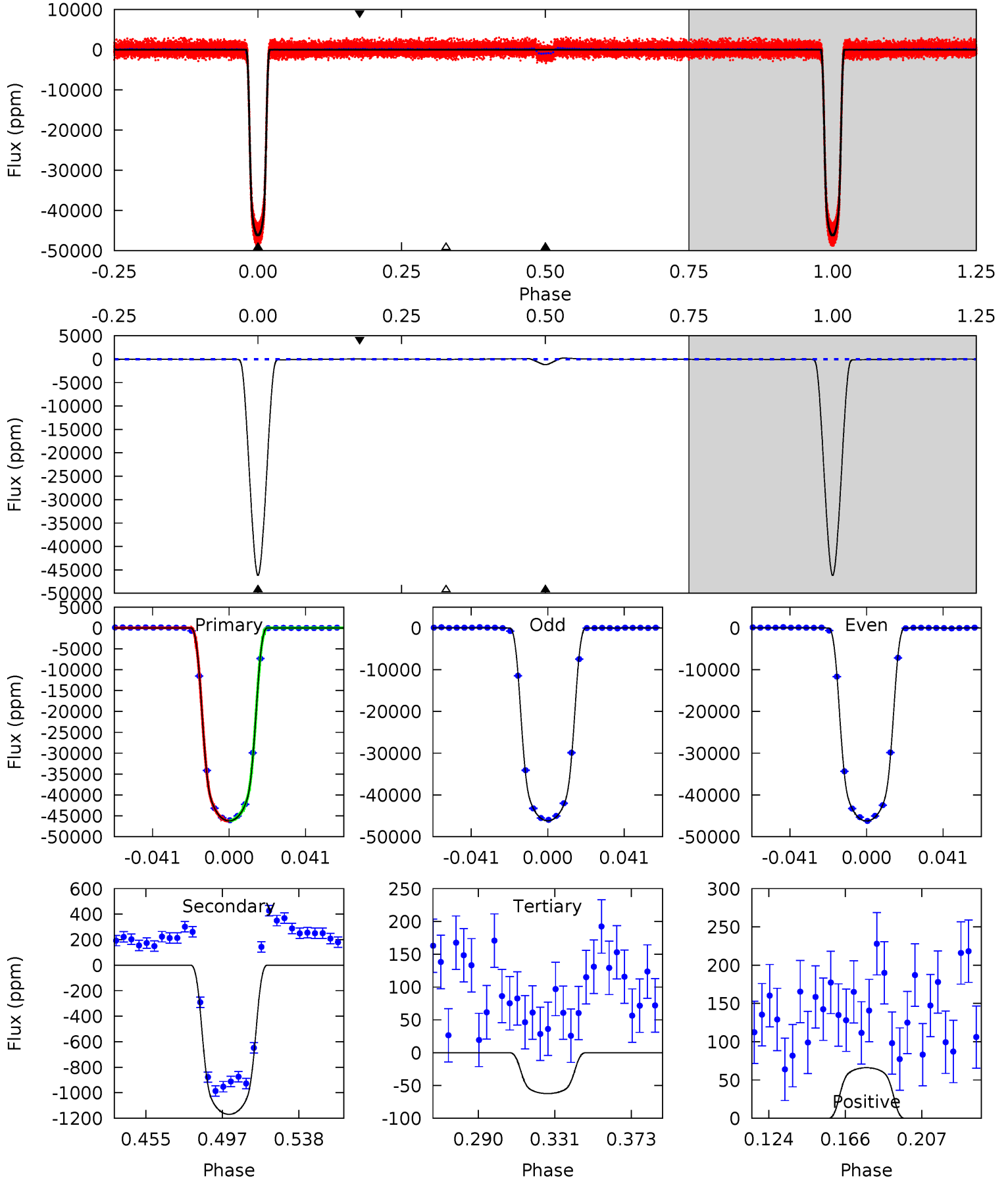
TCE 009446824-01 P= 4.202325 Days $T_0=133.310206$ (BKJD)



DV Model-Shift Uniqueness Test

009446824-01, P = 4.202334 Days, E = 133.308844 Days

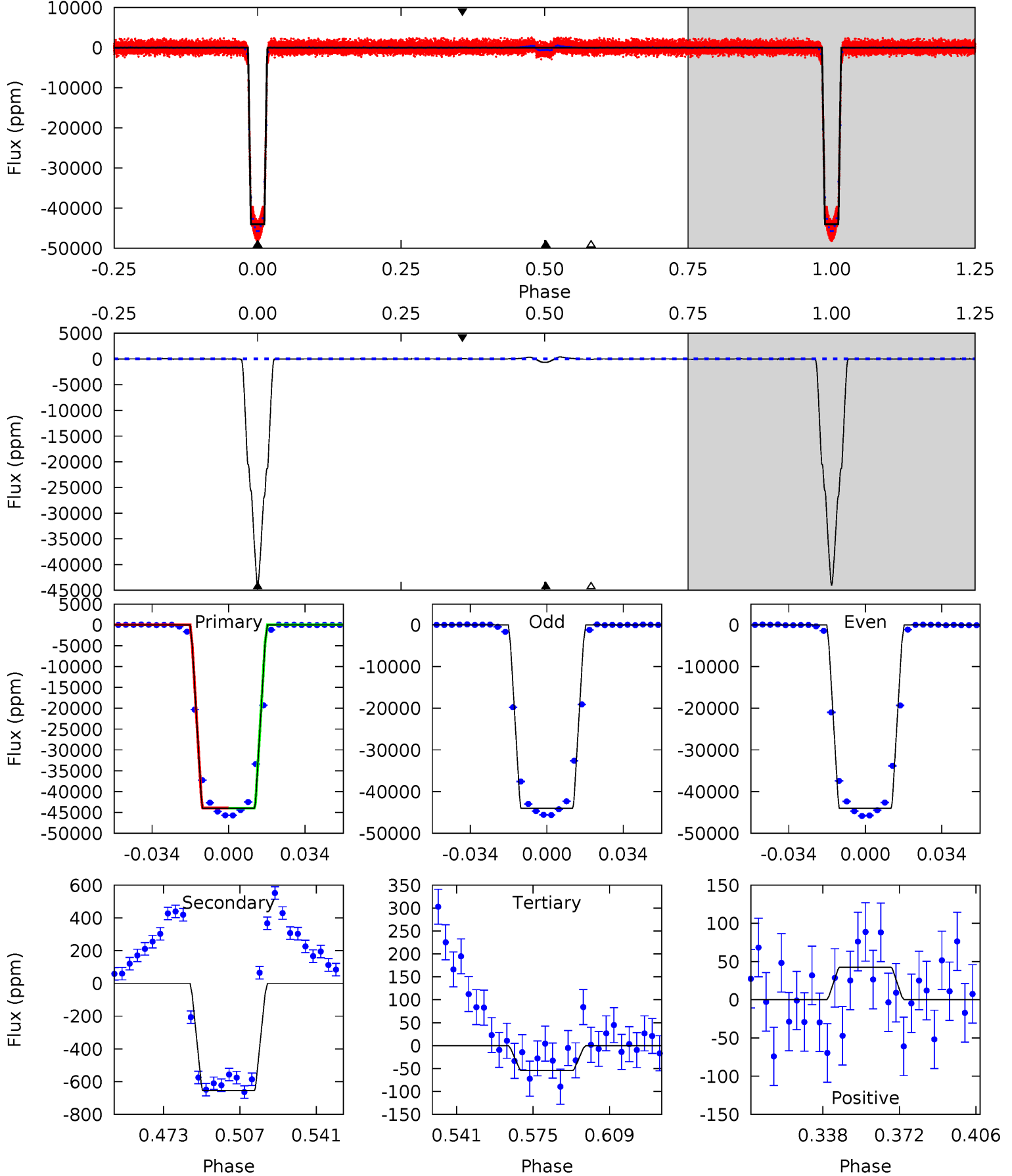
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3044	77.0	4.11	4.35	4.75	2.04	3.06	3039	3039	72.9	72.7	1.46	0.99	0.01	2.23



Alt Model-Shift Uniqueness Test

009446824-01, P = 4.202325 Days, E = 133.310206 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2585	38.4	3.19	2.49	4.79	2.12	2.10	2581	2582	35.3	36.0	1.14	1.00	0.01	0



Stellar Parameters For KIC 009446824

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+194}_{-259}	$4.396^{+0.072}_{-0.217}$	$-0.040^{+0.250}_{-0.300}$	$1.094^{+0.358}_{-0.154}$	$1.083^{+0.168}_{-0.137}$	$1.166^{+0.459}_{-0.629}$
	+3%/-4%	+2%/-5%	+625%/-750%	+33%/-14%	+16%/-13%	+39%/-54%
Source	PHO1	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 009446824-01 / KOI 1382.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1169 ± 15	$24.32^{+4.16}_{-2.23}$	1771^{+147}_{-97}	3118^{+59}_{-82}	$2.947^{+0.509}_{-0.740}$
Alt.	-655 ± 17	$25.97^{+4.48}_{-2.43}$	1774^{+141}_{-101}	2775^{+54}_{-67}	$1.459^{+0.275}_{-0.369}$

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 $A_{obs} \gg 1.0$

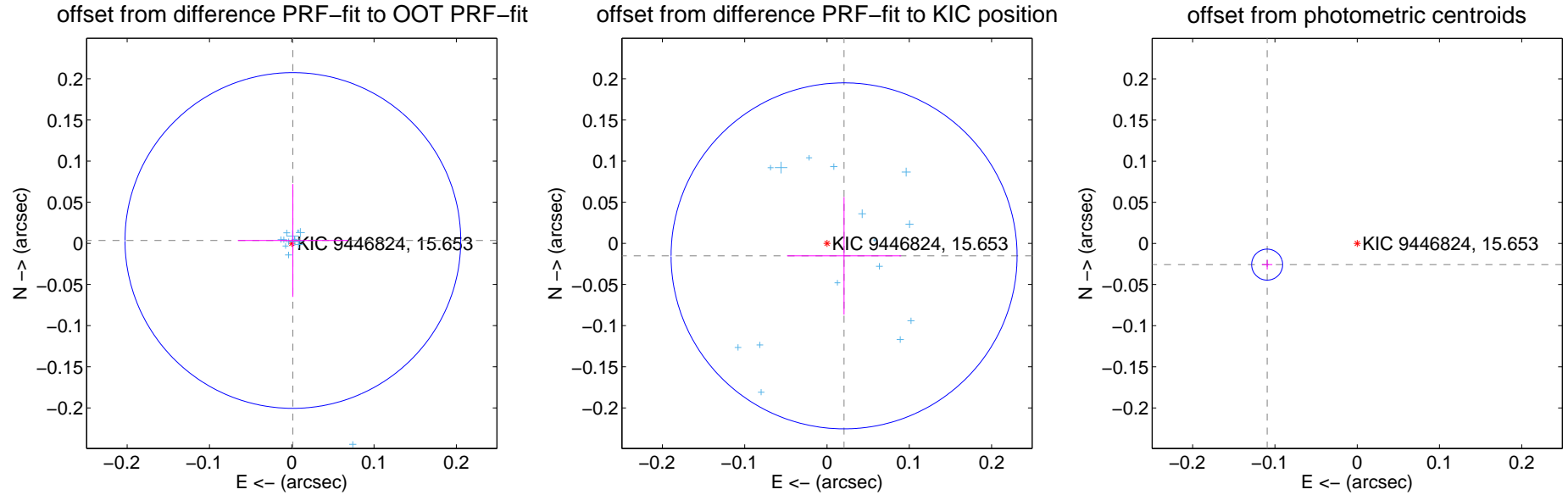
DV Centroid Data

Supplemental centroid analysis for 009446824-01. Kepler magnitude: 15.65. Transit SNR 1455.17

There are 15 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.004 ± 0.068	0.05	-0.001 ± 0.067	0.003 ± 0.069
PRF-fit source offset from KIC position	0.026 ± 0.070	0.37	-0.021 ± 0.069	-0.015 ± 0.071
photometric centroid source offset	0.11 ± 0.01	17.90	0.11 ± 0.01	-0.03 ± 0.01



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

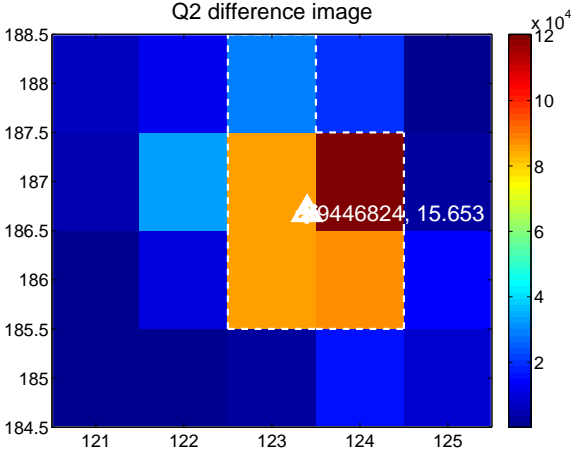
Q1 no difference image



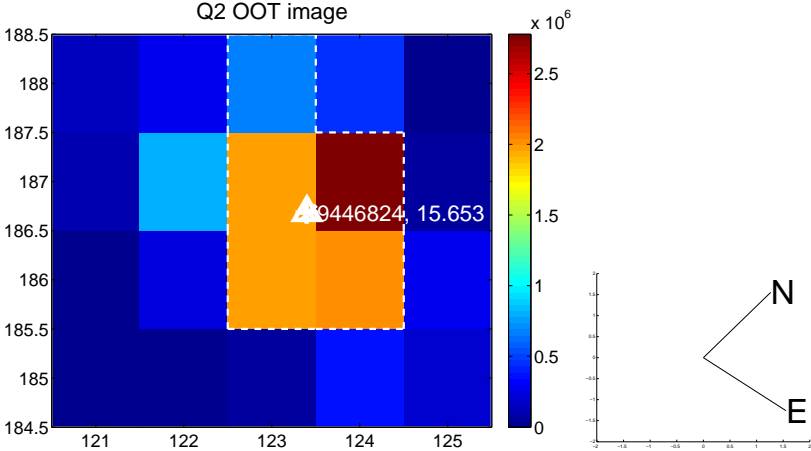
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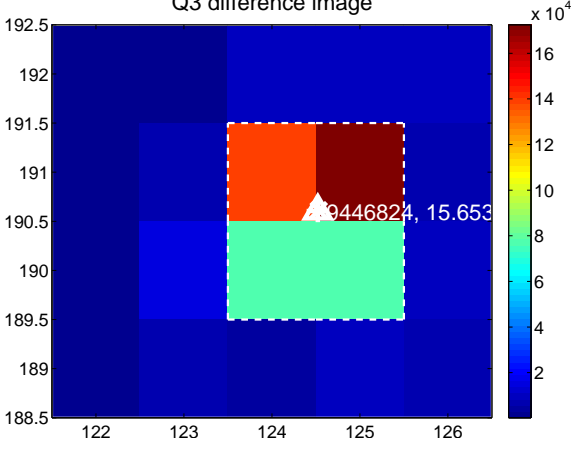
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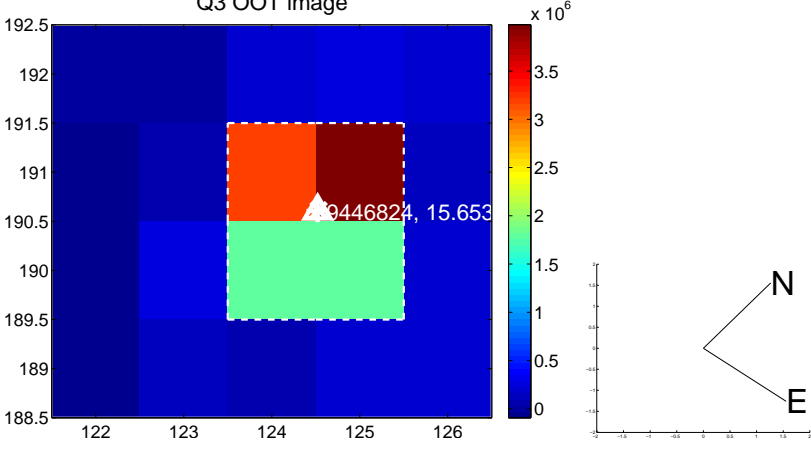
Q2 OOT image



Q3 difference image



Q3 OOT image



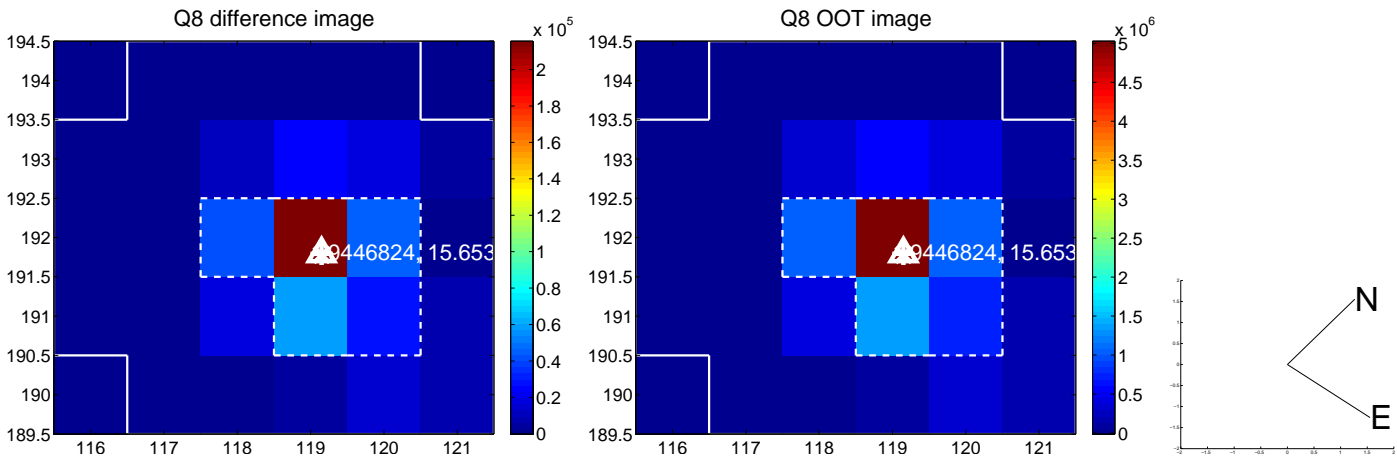
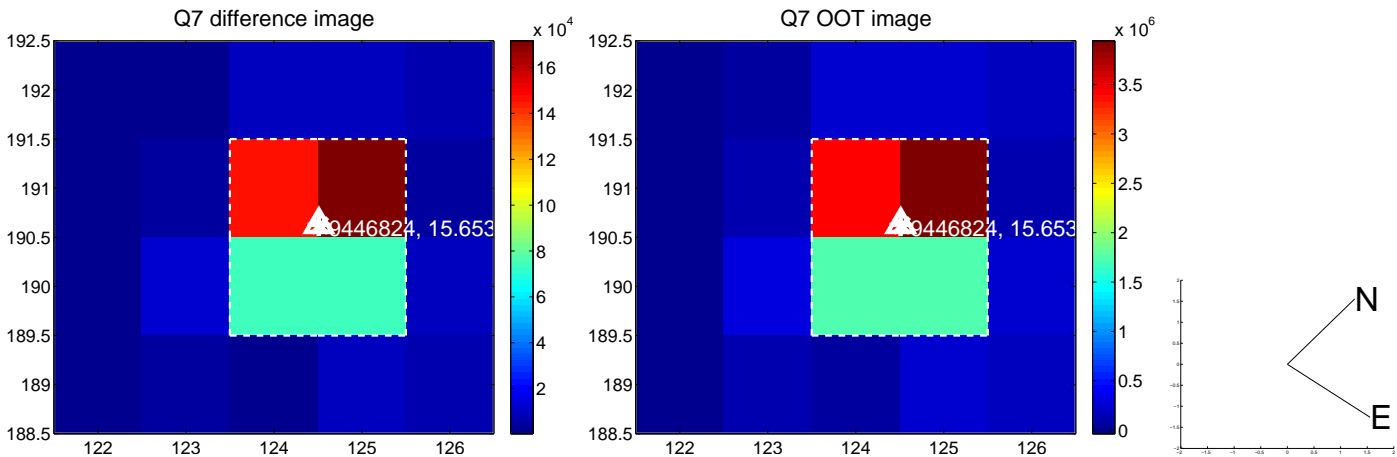
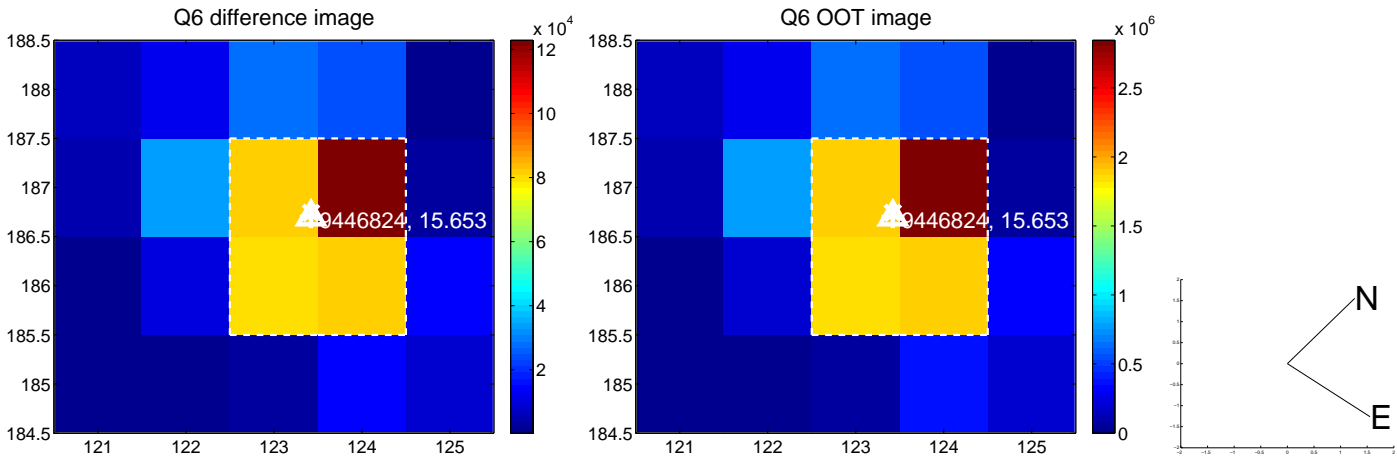
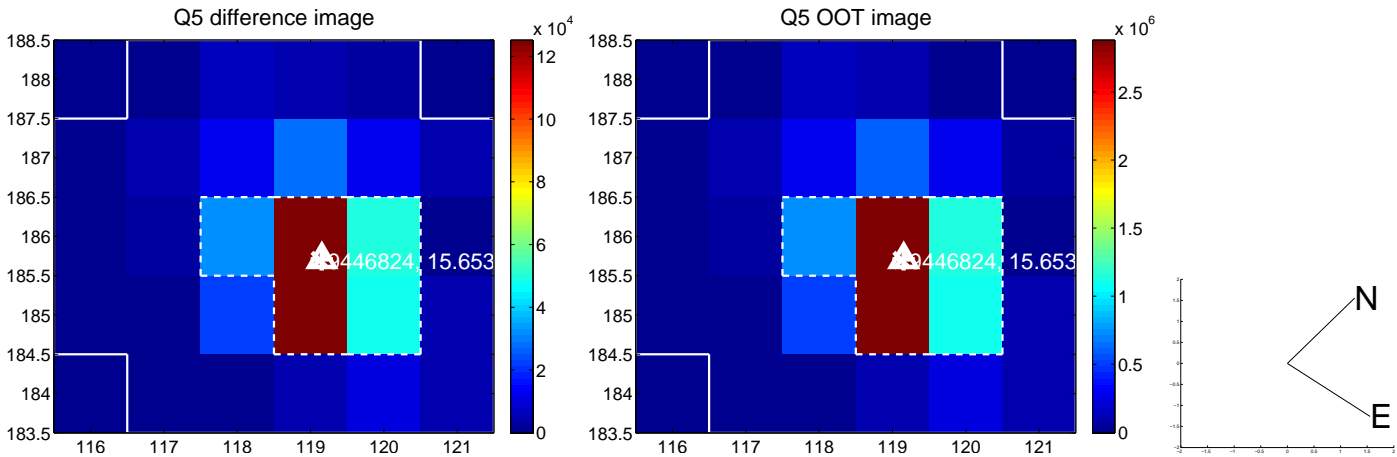
Q4 no difference image



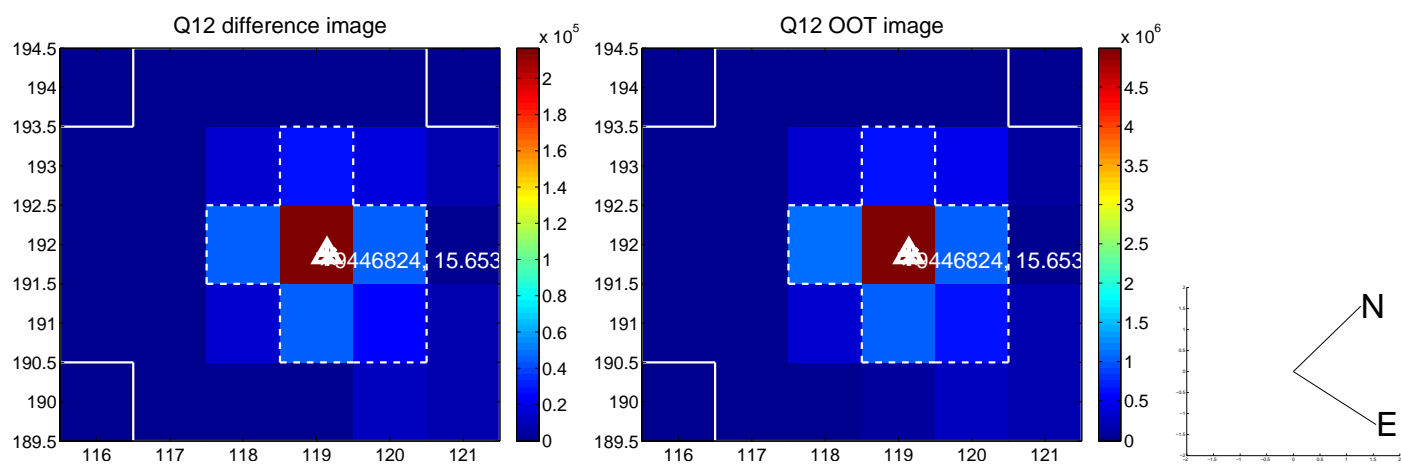
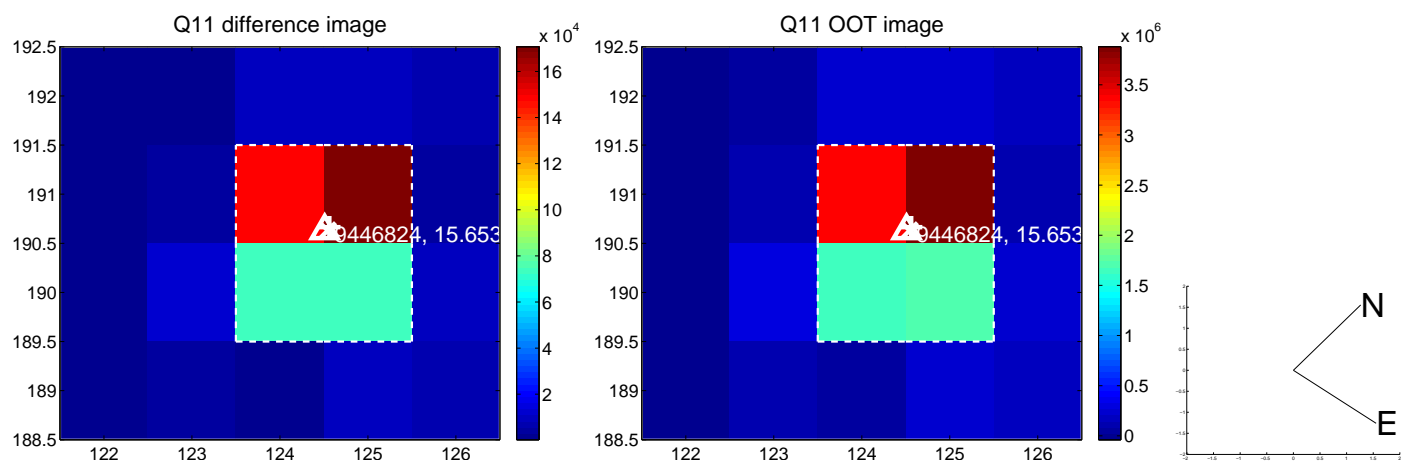
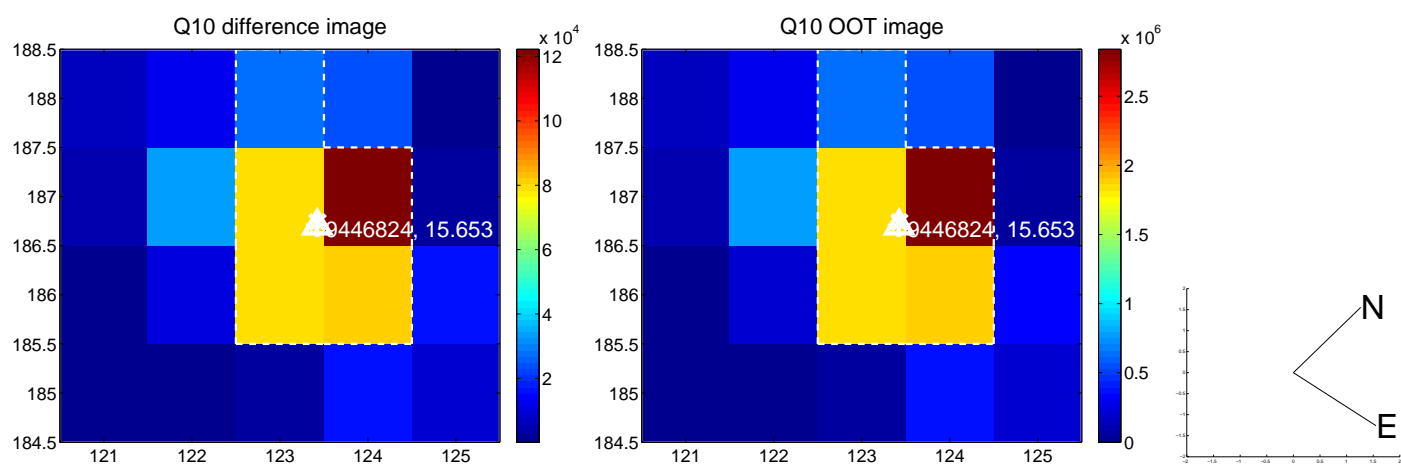
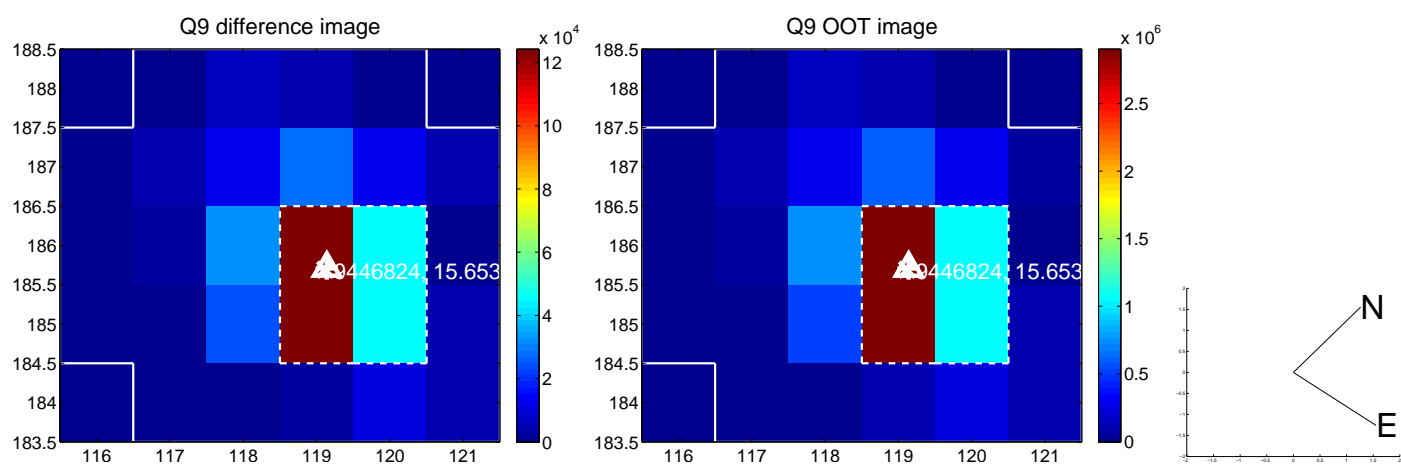
Q4 no OOT image



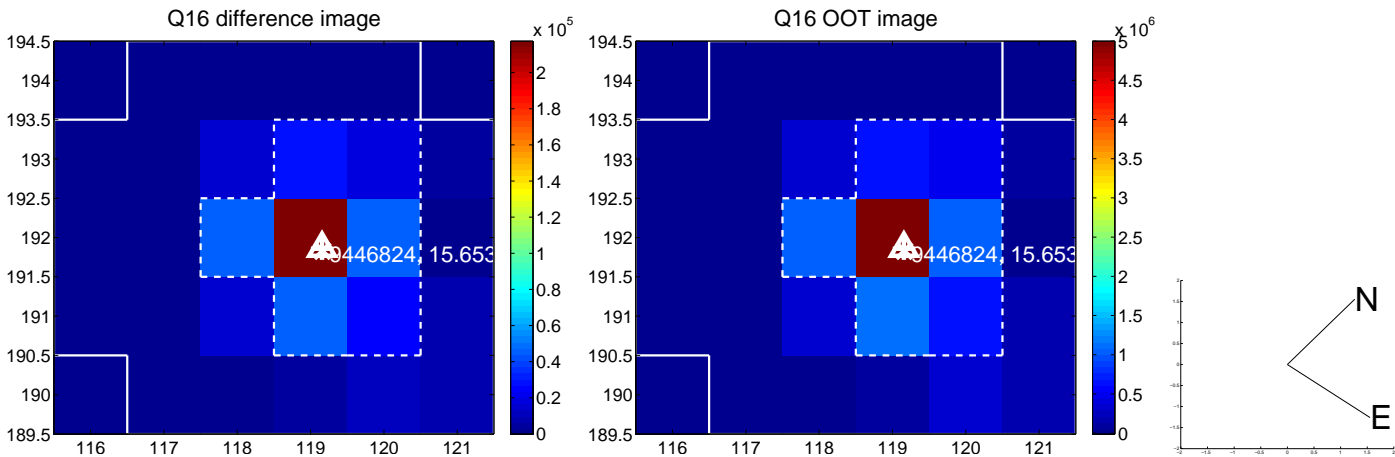
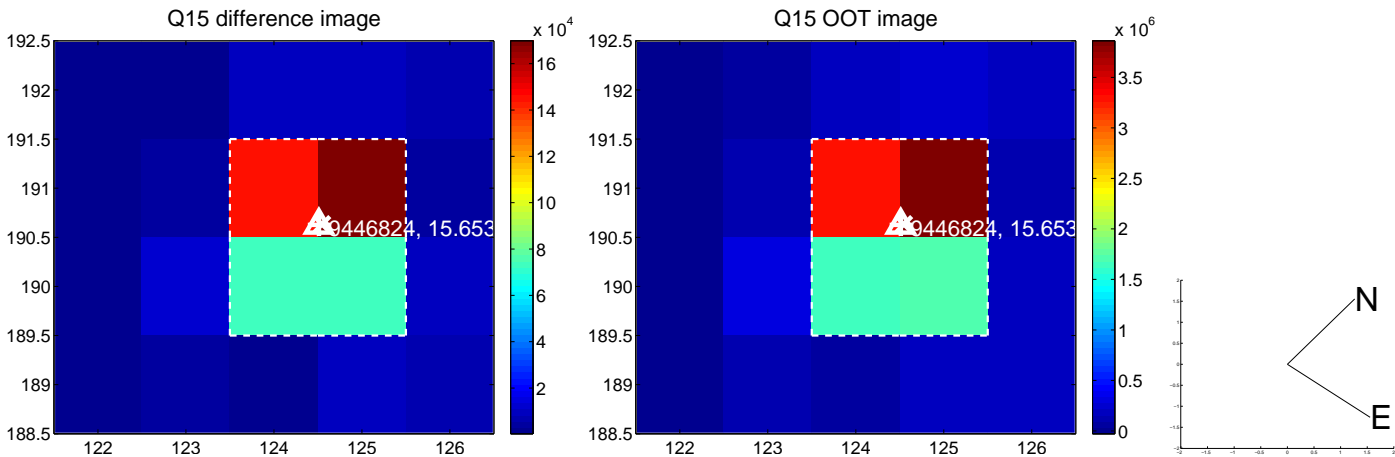
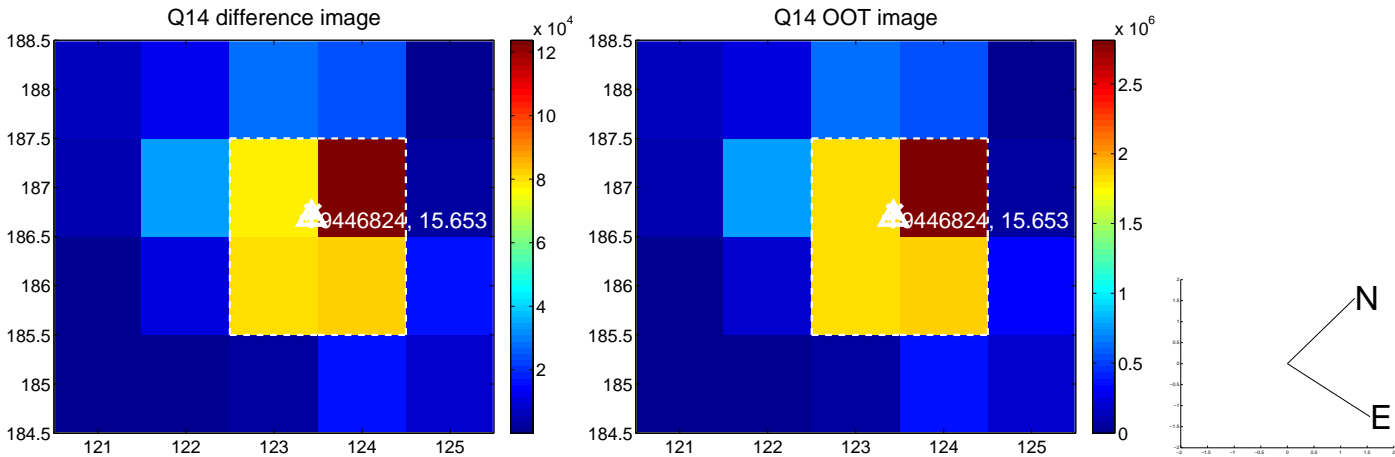
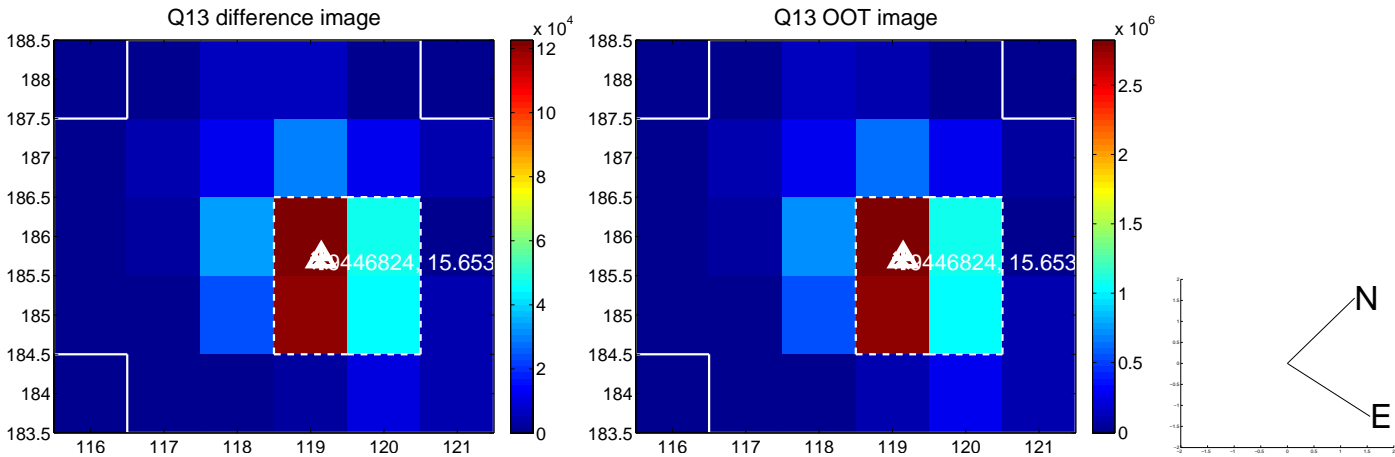
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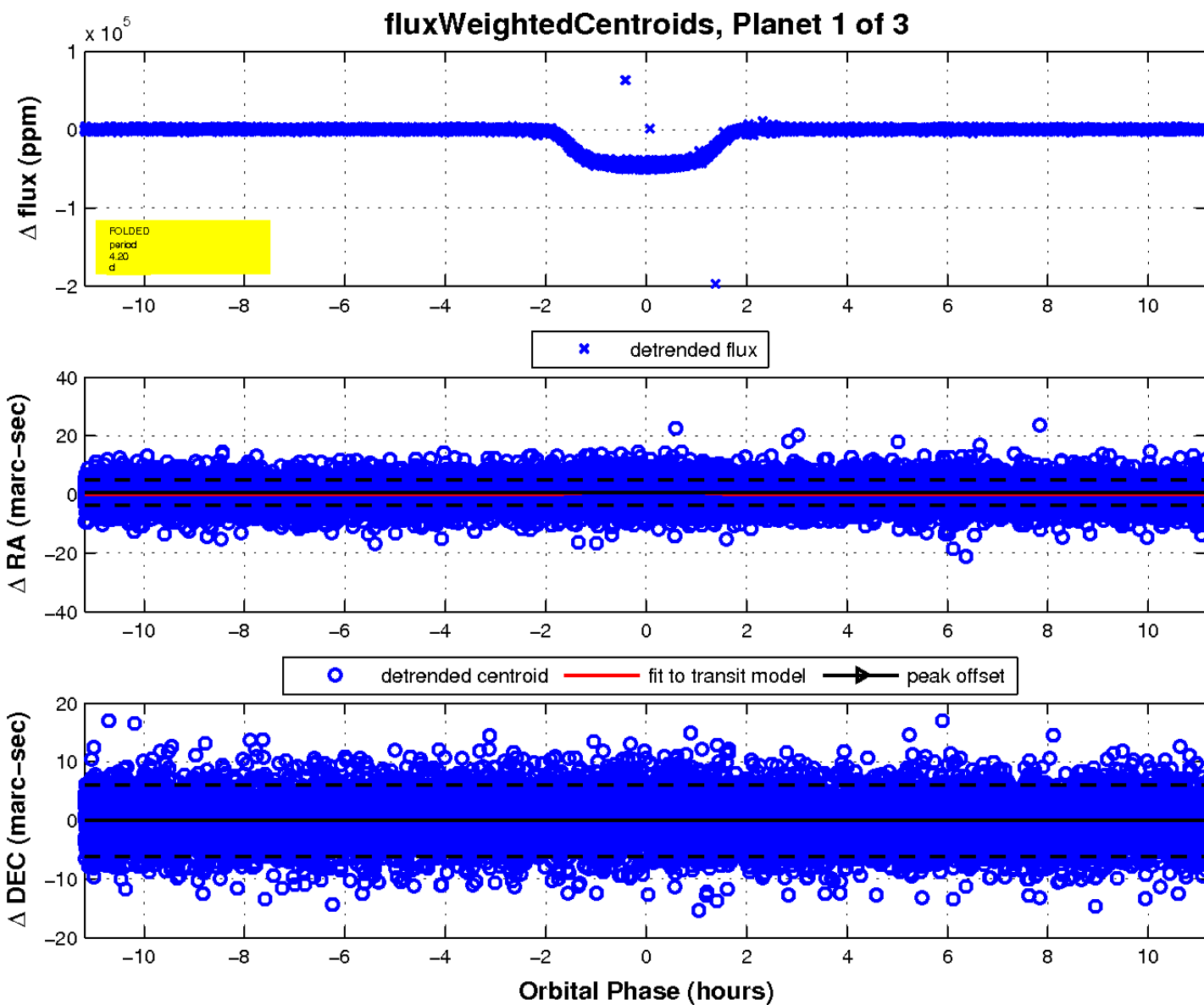
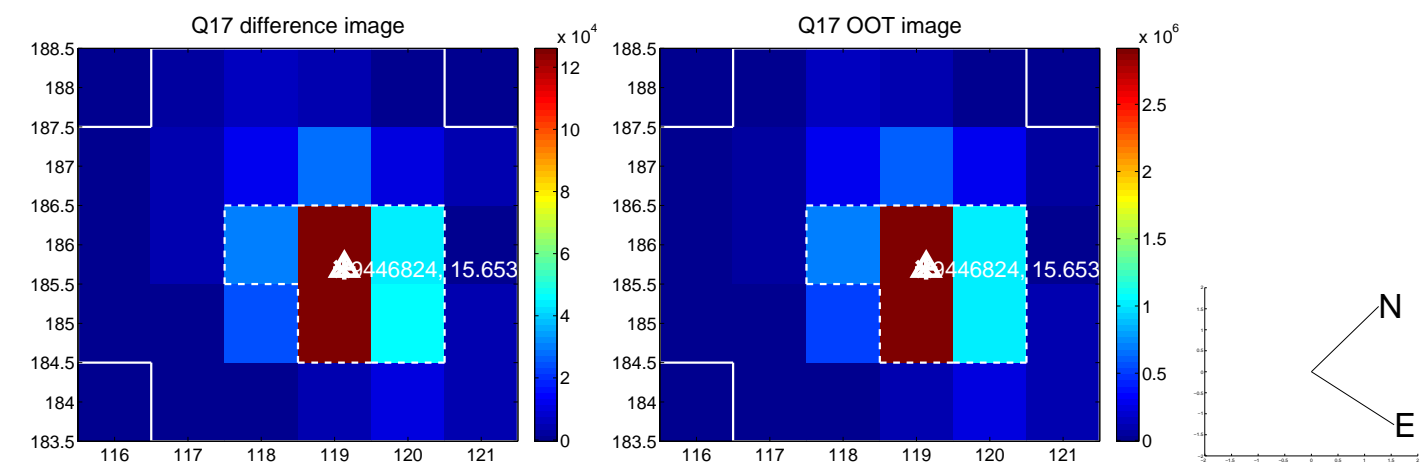
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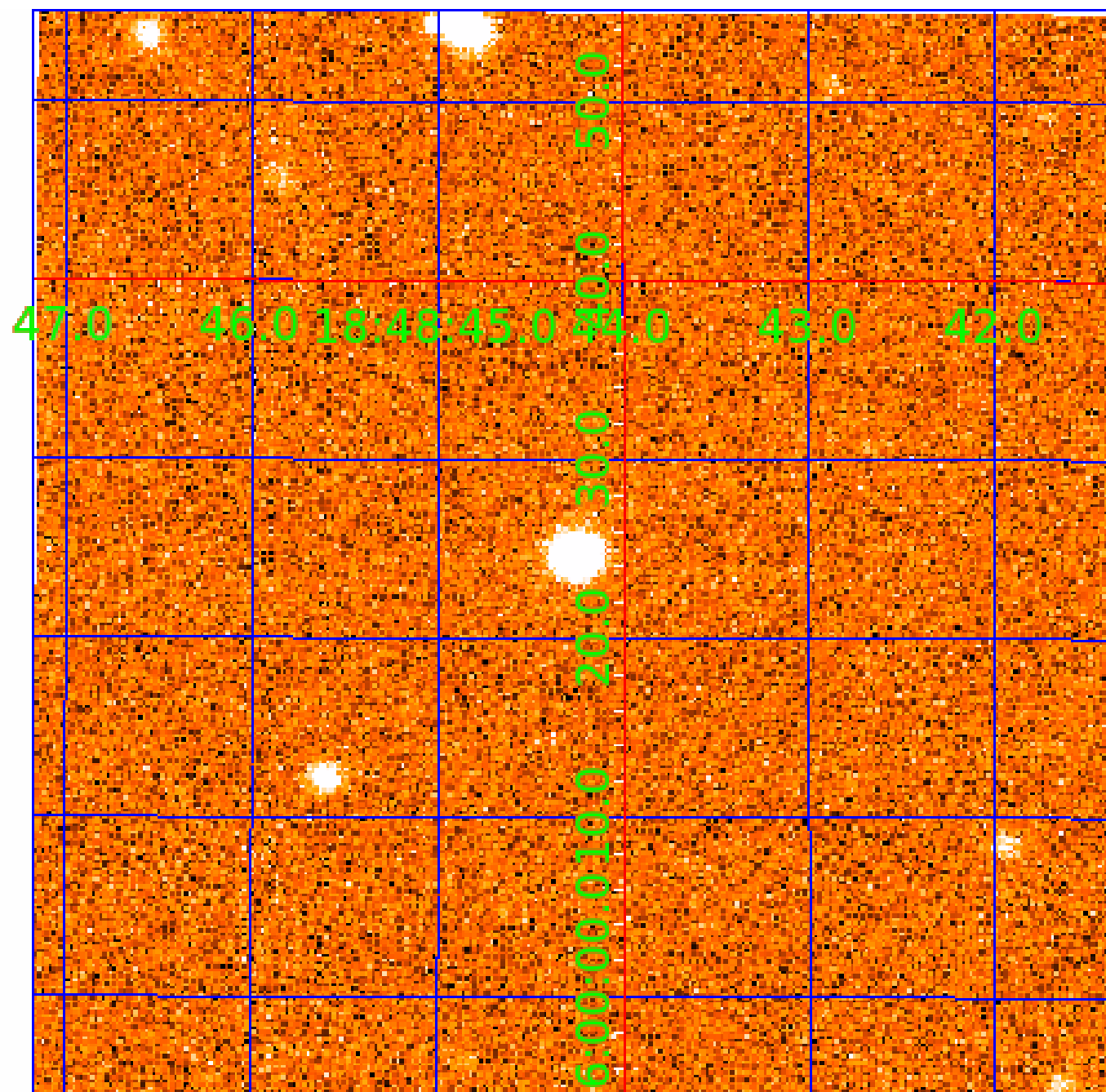


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009446824

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})
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009446824-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009446824-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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.

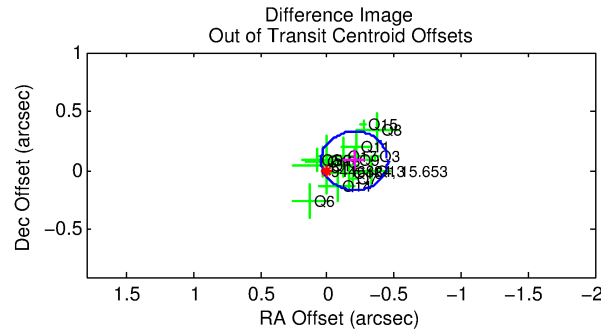
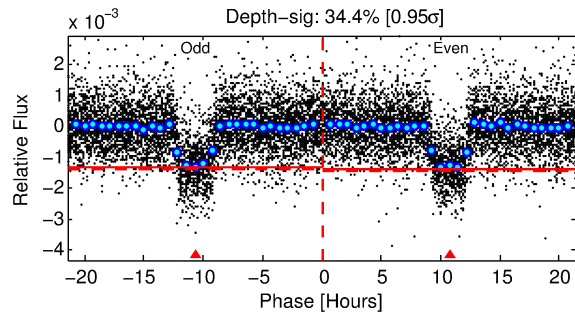
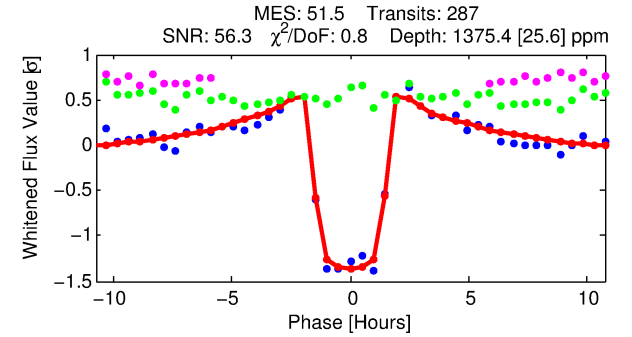
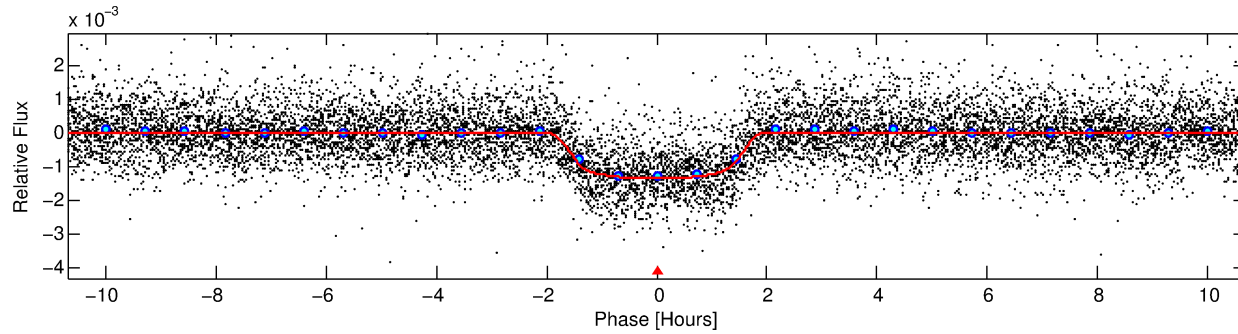
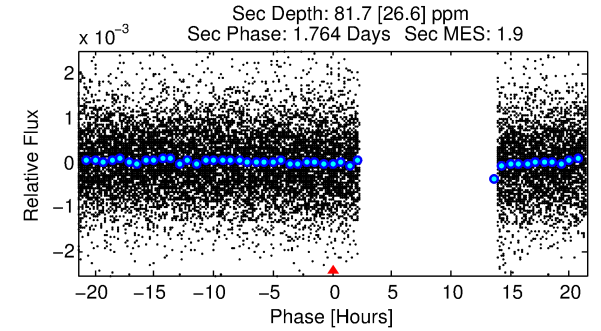
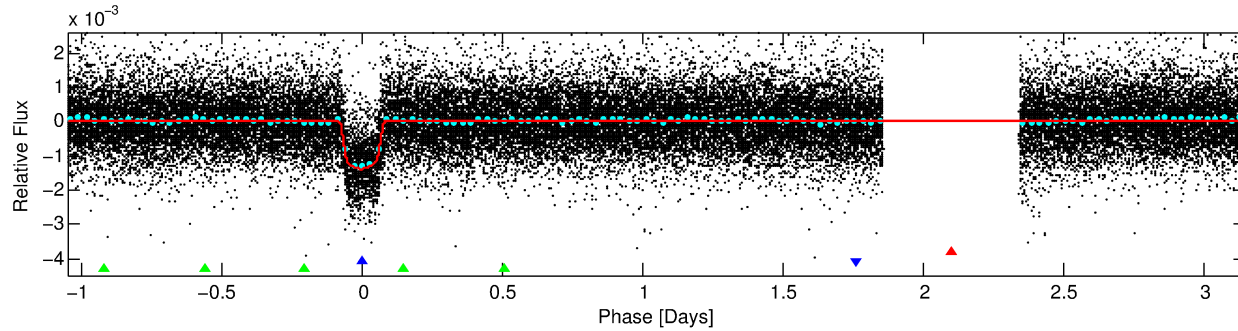
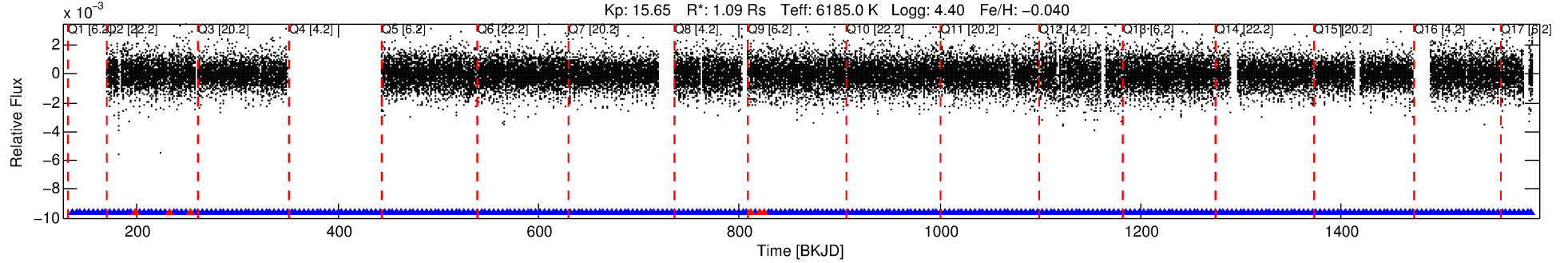
Ephemeris Match Information For 009446824-02

No Significant Match Found

DV One-Page Summary

KIC: 9446824 Candidate: 2 of 3 Period: 4.202 d
KOI: K01382 Corr: No Ephemeris Match

Kp: 15.65 R*: 1.09 Rs Teff: 6185.0 K Logg: 4.40 Fe/H: -0.040



DV Fit Results:

Period = 4.20234 [0.00000] d
Epoch = 135.4097 [0.0008] BKJD
Rp/R* = 0.0377 [0.0018]
a/R* = 5.98 [1.33]
b = 0.80 [0.10]
Seff = 571.40 [246.84]
Teq = 1247 [135] K
Rp = 4.50 [1.49] Re
a = 0.0524 [0.0144] AU
Ag = 6.10 [3.19] [1.60σ]
Teffp = 3030 [286] K [5.63σ]

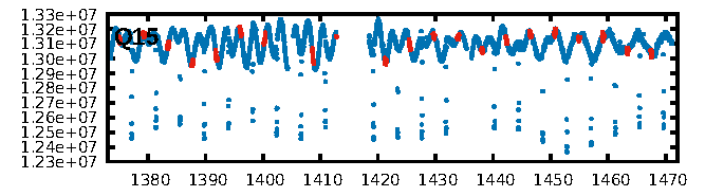
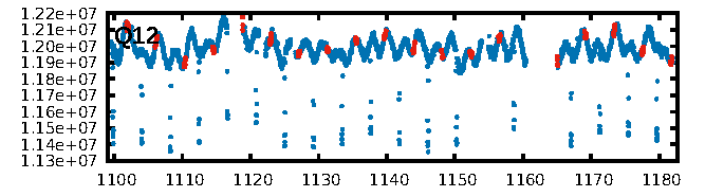
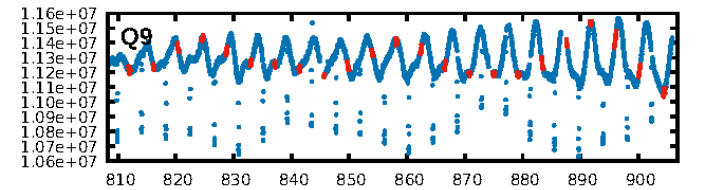
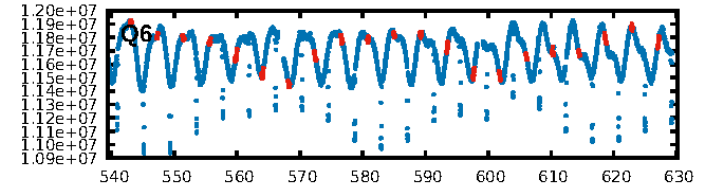
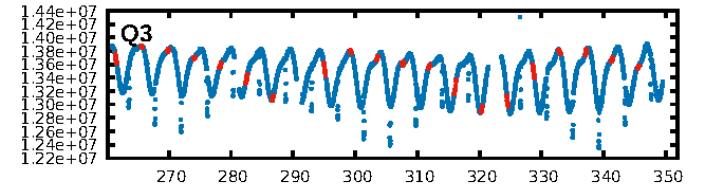
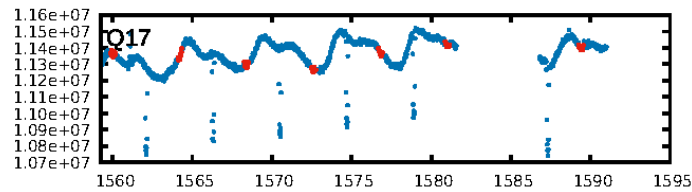
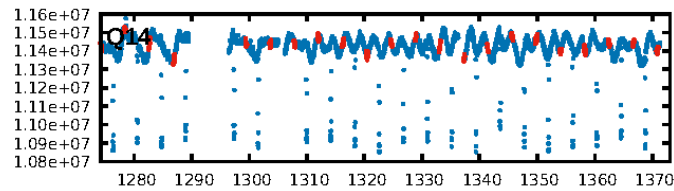
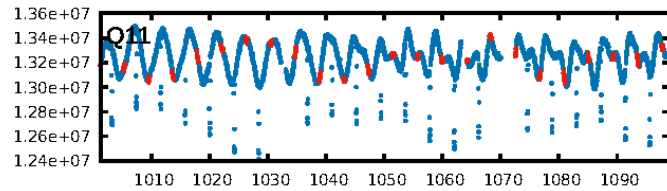
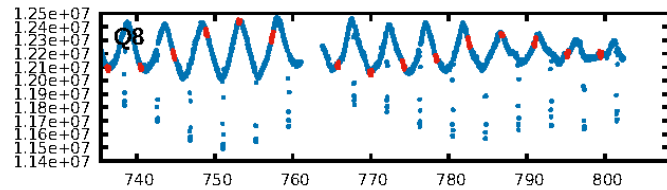
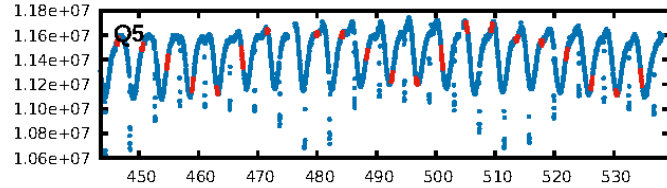
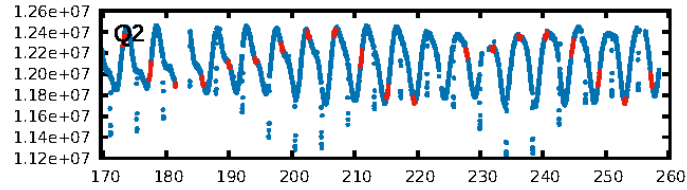
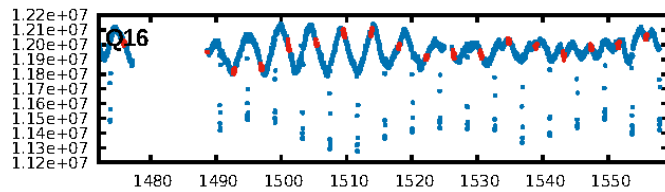
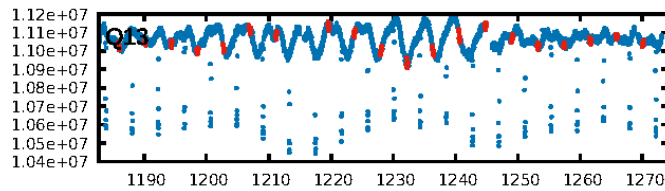
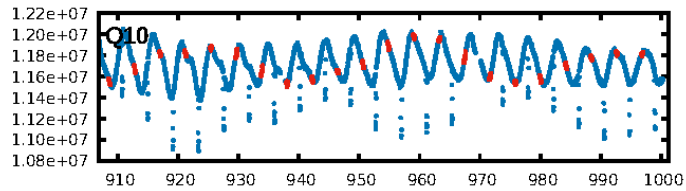
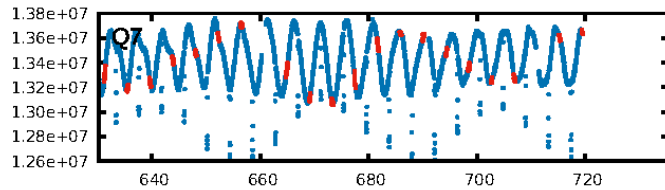
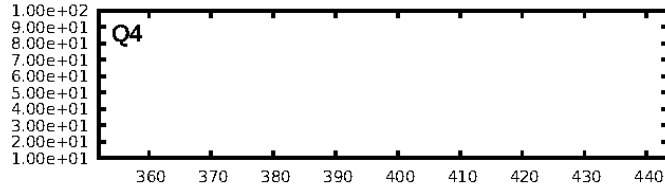
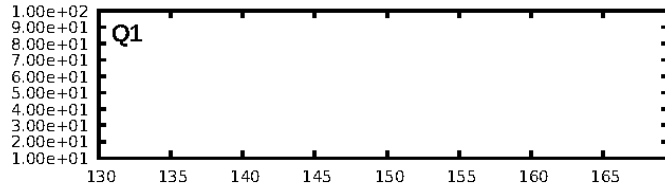
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [450.33σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [274/280]
GhostDiagnostic-chr: 1.83
Centroid-sig: 64.6%
Centroid-so: 0.146 arcsec [0.74σ]
OotOffset-rm: 0.218 arcsec [2.62σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.325 arcsec [3.57σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [15/15]

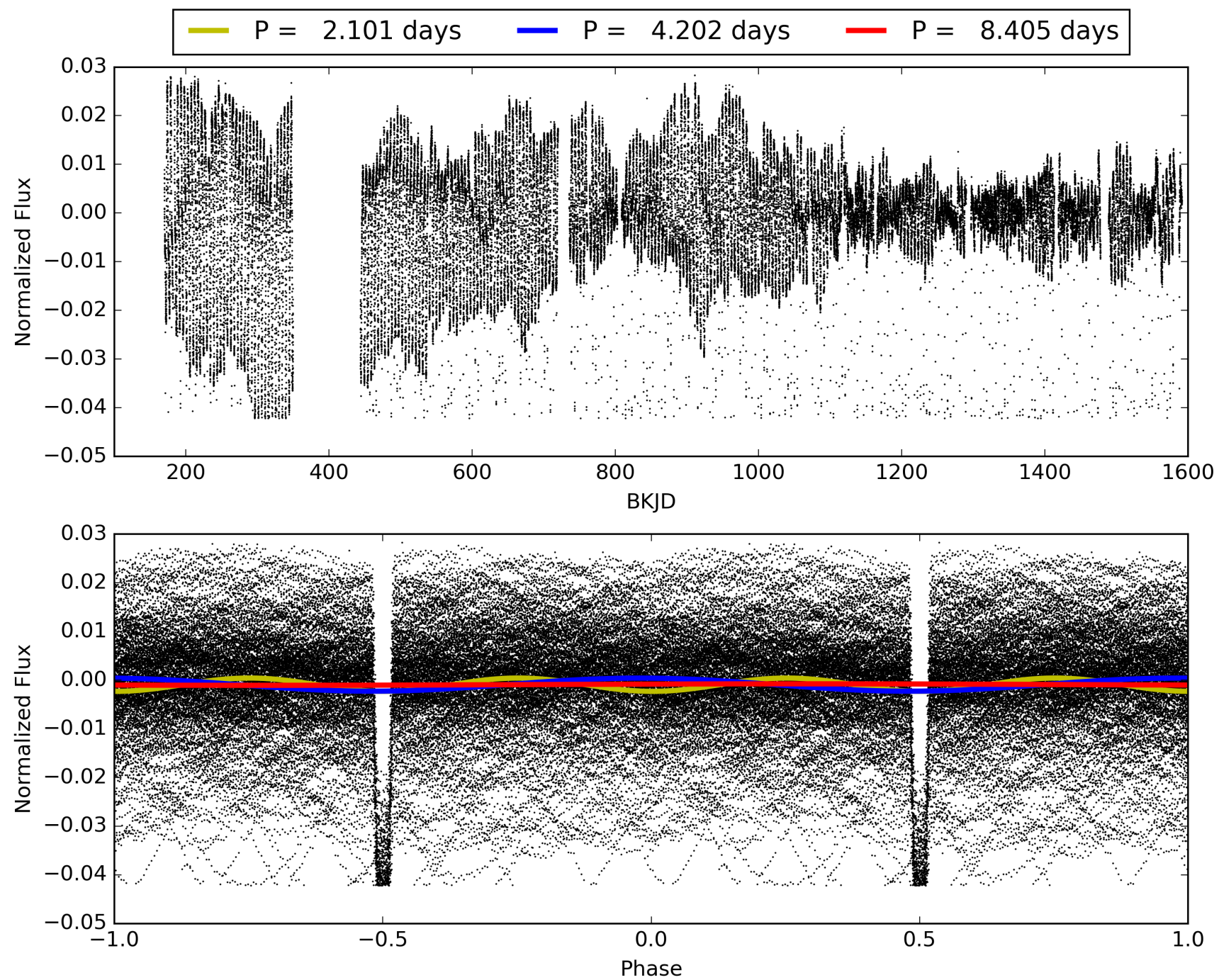
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:54:25 Z

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

TCE 009446824-02, PDC Light Curves

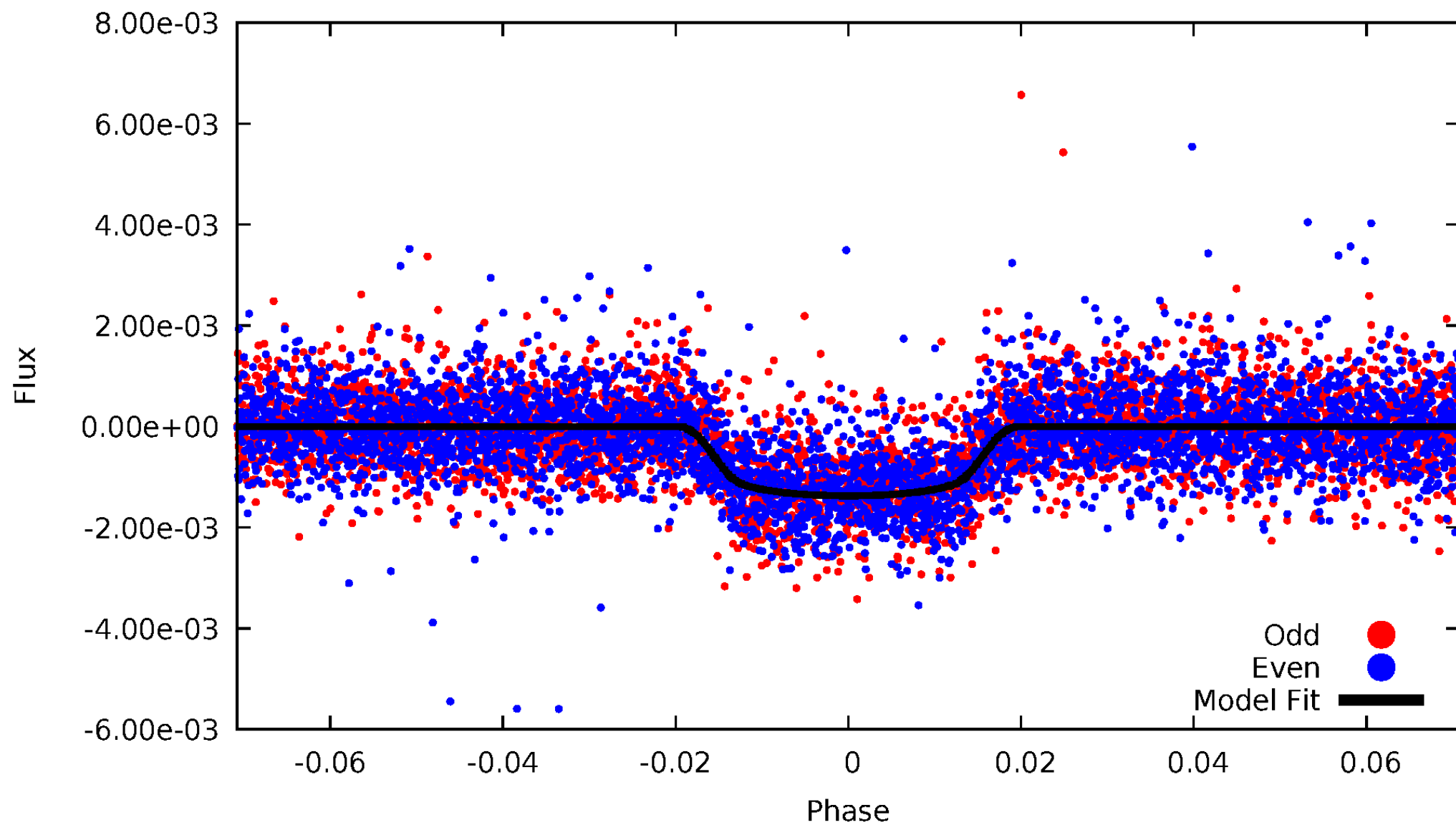


TCE 009446824-02



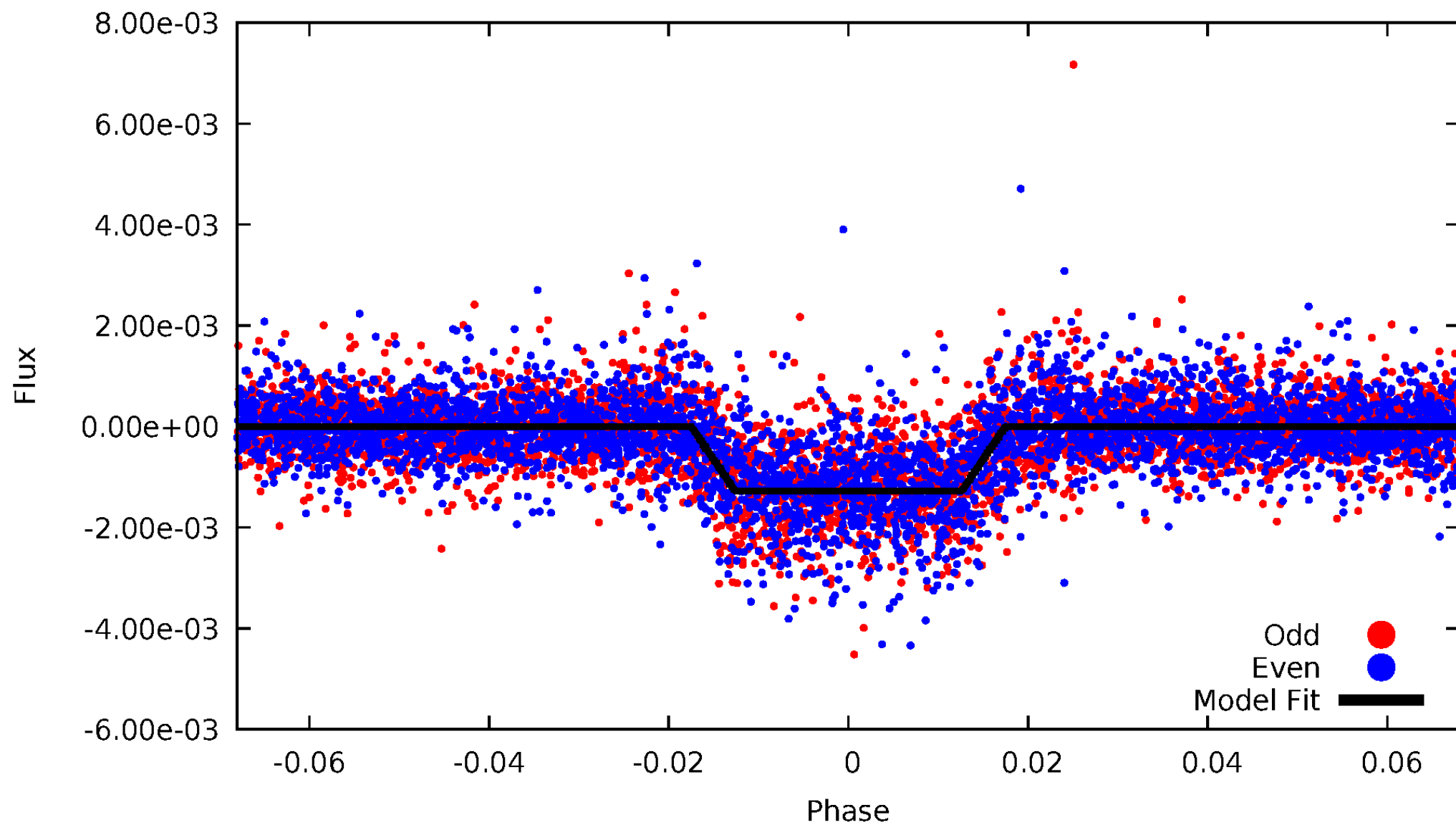
DV Odd/Even

TCE 009446824-02



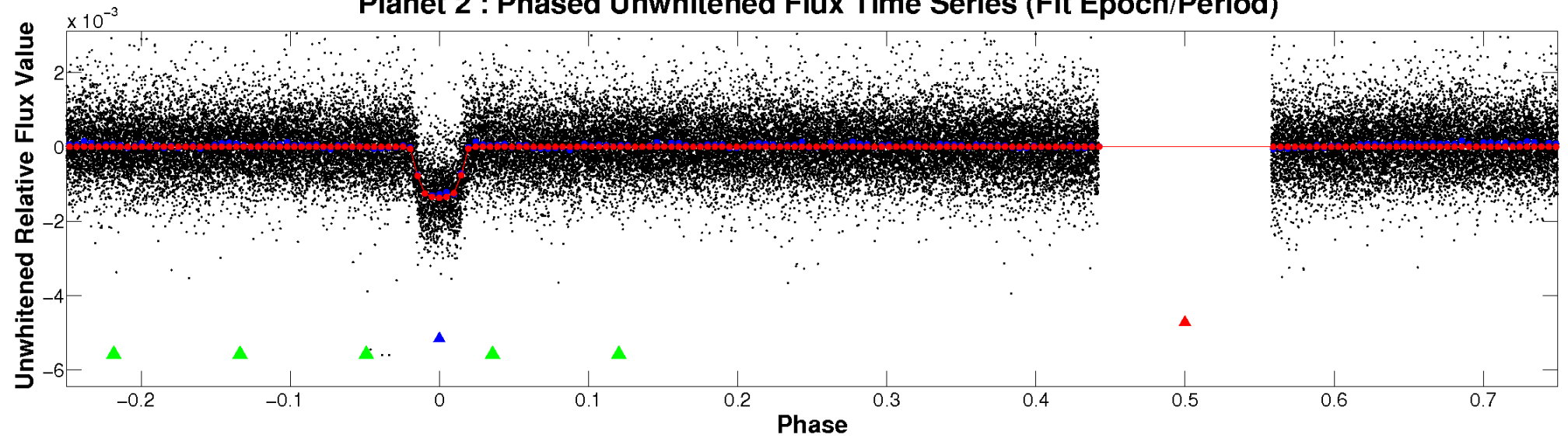
ALT Odd/Even

TCE 009446824-02

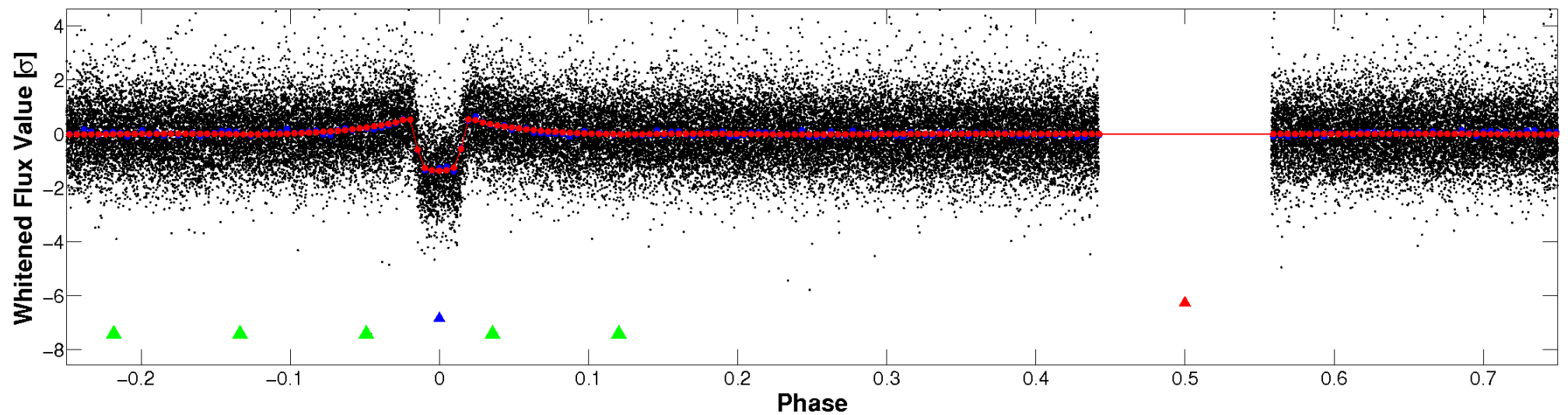


Non-Whitened Vs. Whitened Light Curve

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

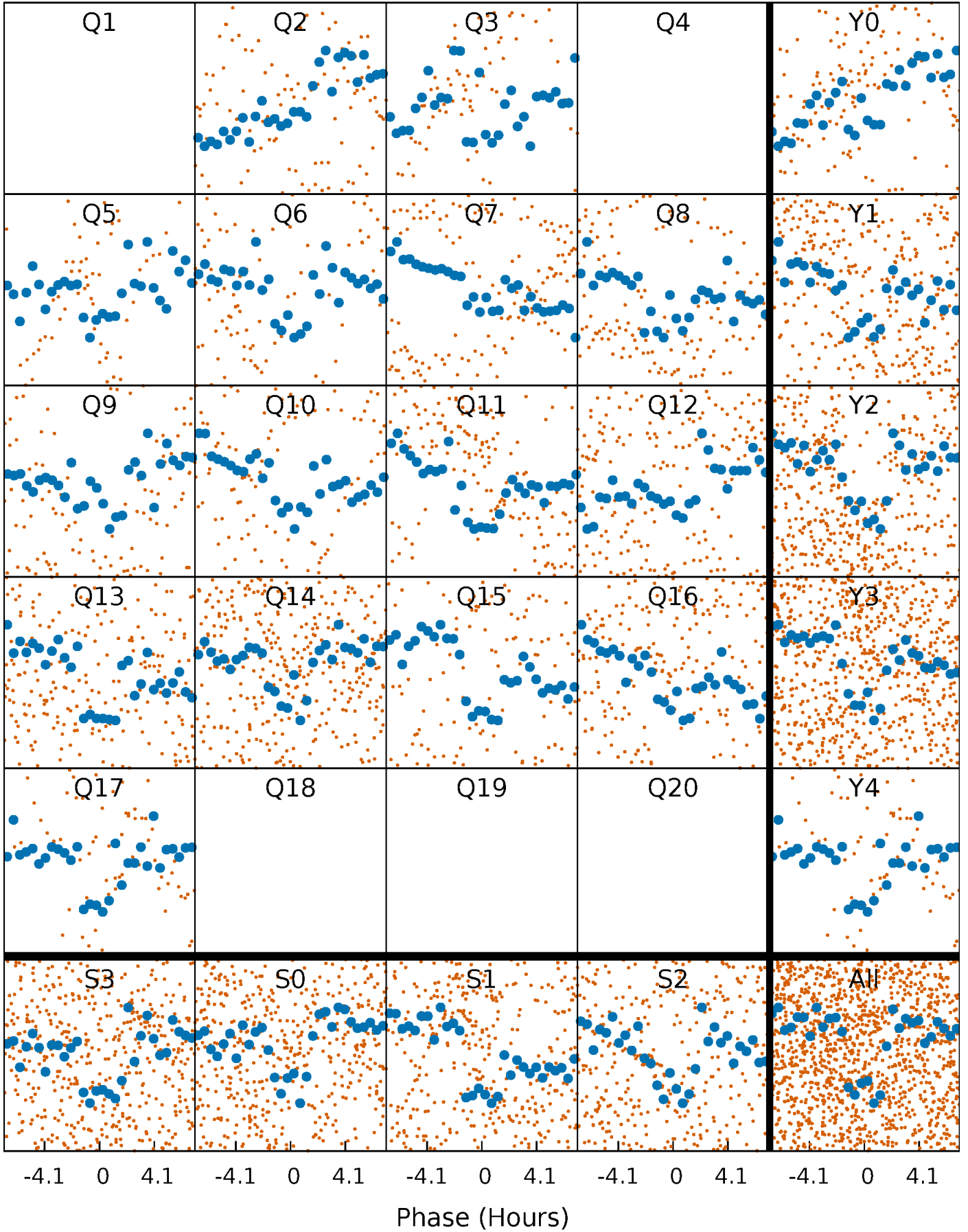


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



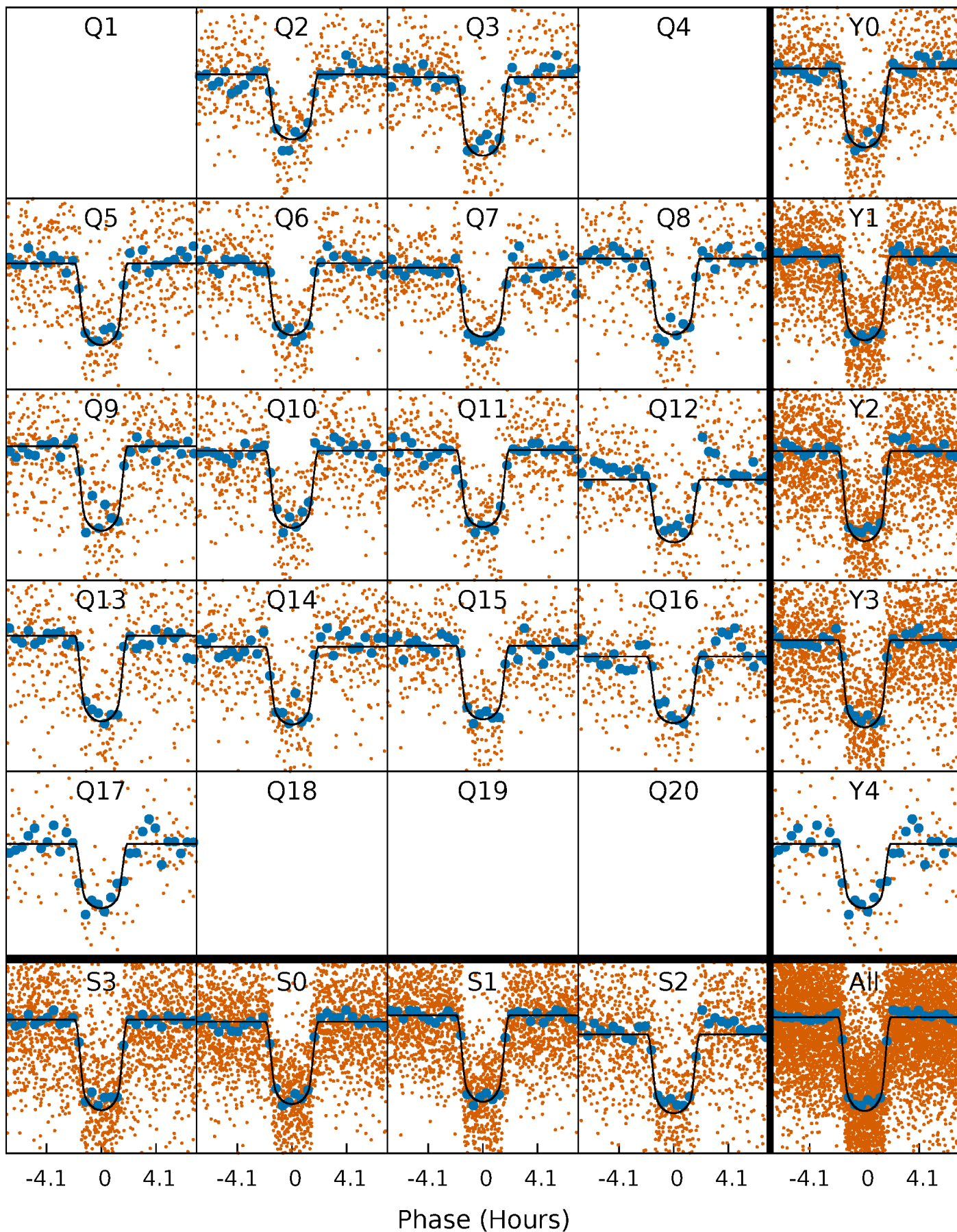
PDC Quarter-Phased Transit Curves

TCE 009446824-02 P= 4.202337 Days $T_0=135.409692$ (BKJD)



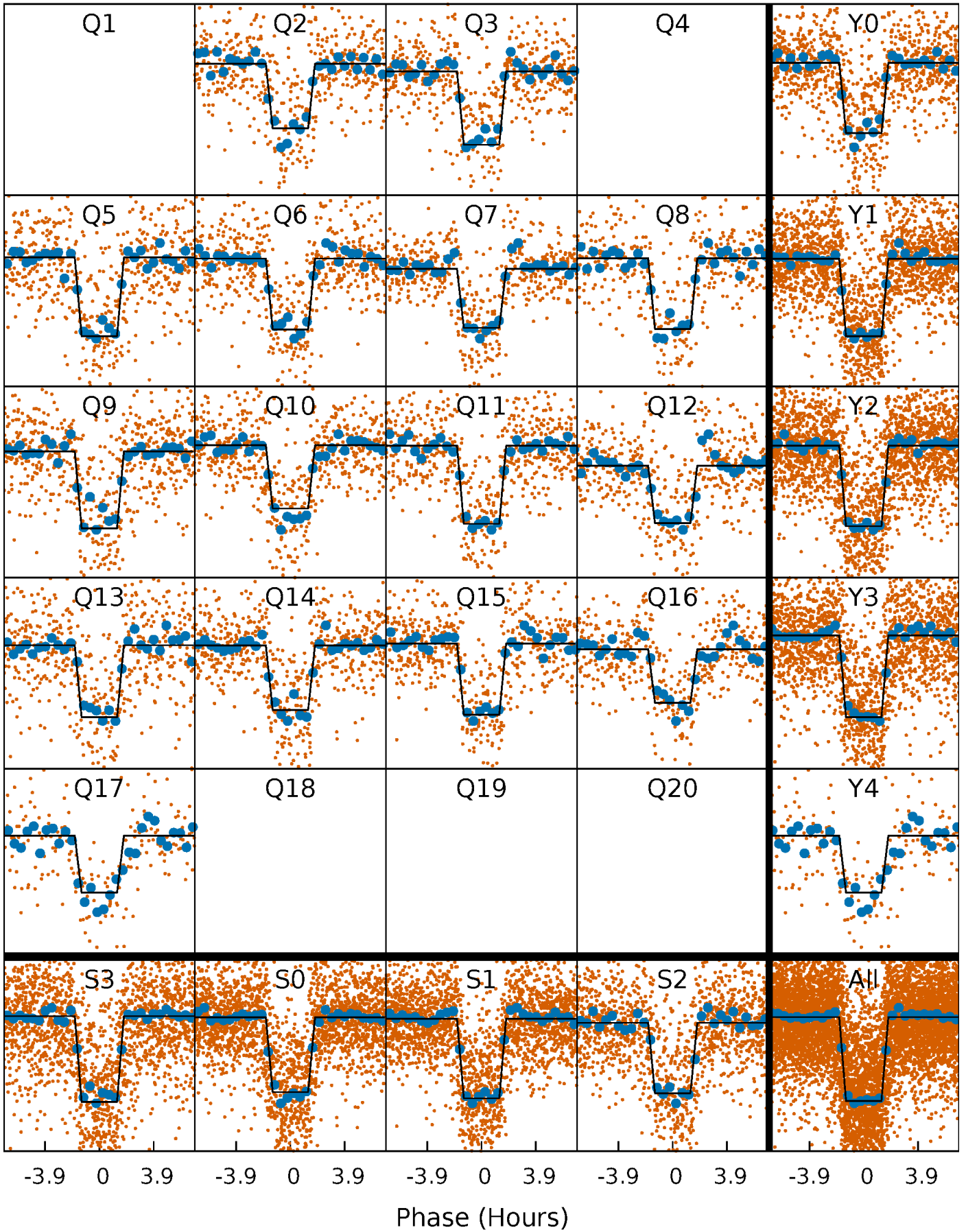
DV Quarter-Phased Transit Curves

TCE 009446824-02 P= 4.202337 Days $T_0=135.409692$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

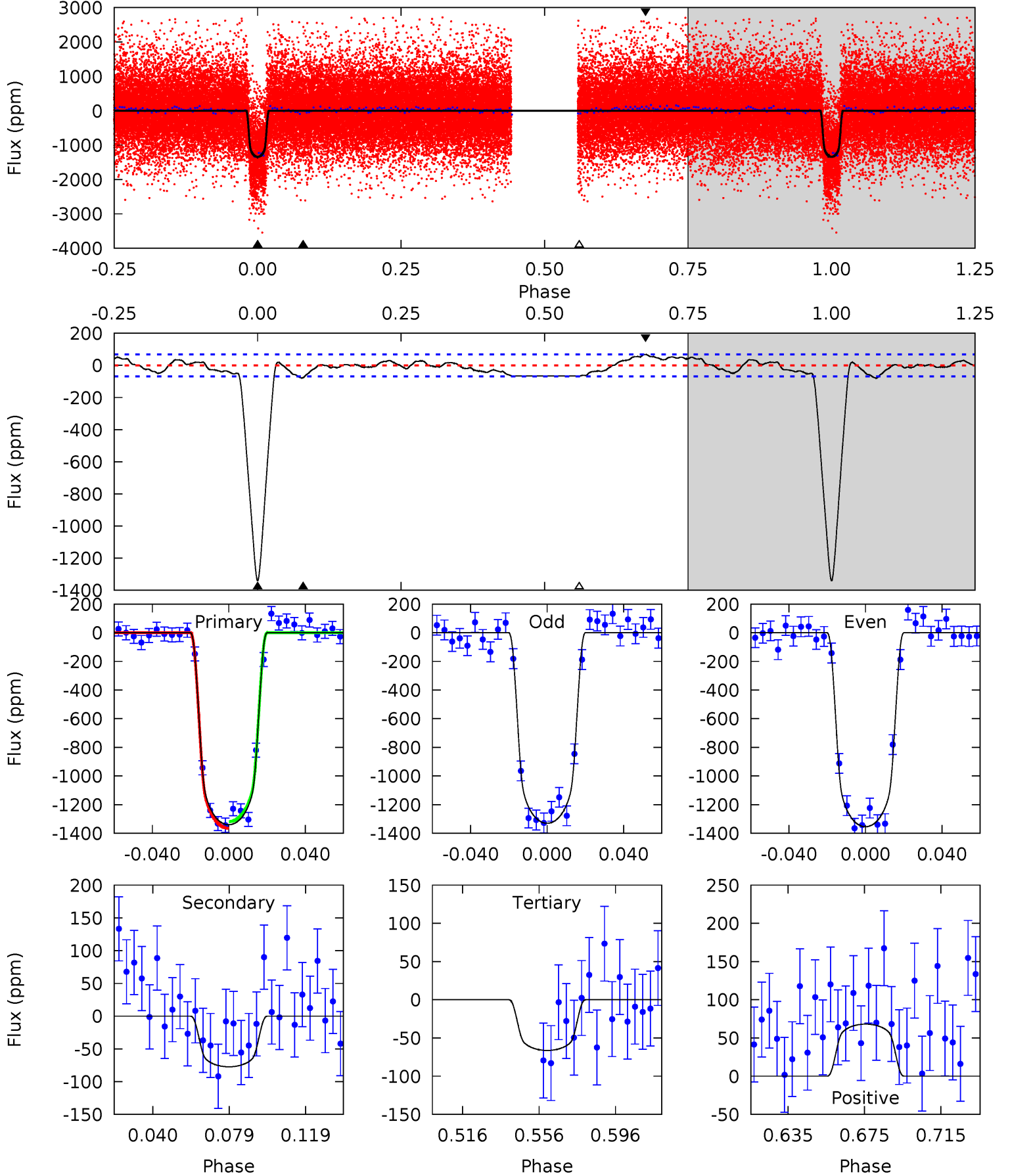
TCE 009446824-02 P= 4.202320 Days $T_0=135.412949$ (BKJD)



DV Model-Shift Uniqueness Test

009446824-02, P = 4.202337 Days, E = 135.409692 Days

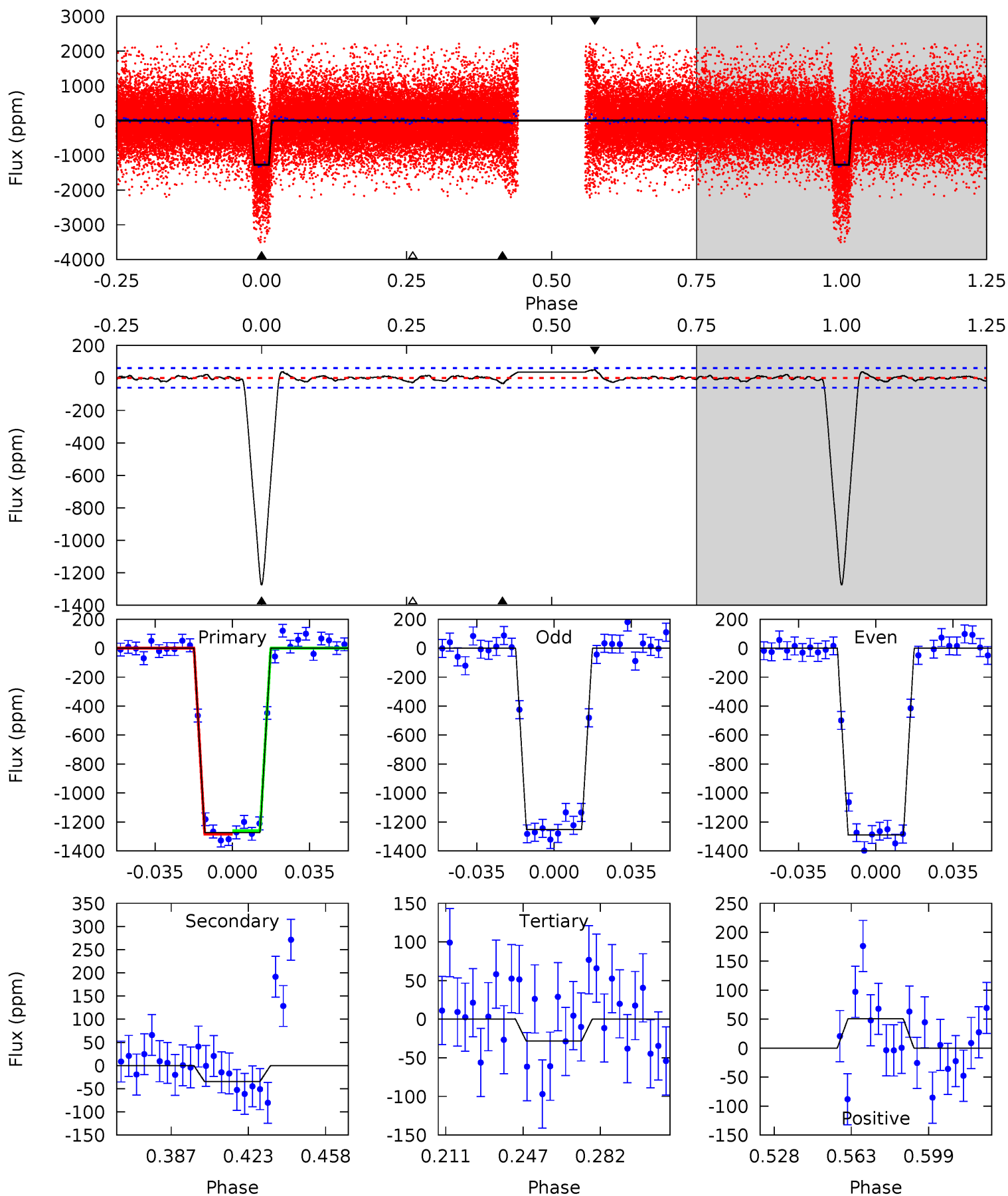
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.8	5.35	4.59	4.71	4.75	2.06	2.23	88.2	88.1	0.76	0.64	0.84	0.99	0.05	1.62



Alt Model-Shift Uniqueness Test

009446824-02, P = 4.202320 Days, E = 135.412949 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
100.4	2.72	2.22	3.98	4.78	2.11	1.00	98.2	96.4	0.50	-1.26	1.49	1.06	0.04	0.97



Stellar Parameters For KIC 009446824

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+194}_{-259}	$4.396^{+0.072}_{-0.217}$	$-0.040^{+0.250}_{-0.300}$	$1.094^{+0.358}_{-0.154}$	$1.083^{+0.168}_{-0.137}$	$1.166^{+0.459}_{-0.629}$
	+3%/-4%	+2%/-5%	+625%/-750%	+33%/-14%	+16%/-13%	+39%/-54%
Source	PHO1	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 009446824-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-77 ± 14	$4.65^{+0.77}_{-0.48}$	1771^{+129}_{-91}	3434^{+149}_{-156}	$5.152^{+1.789}_{-1.484}$
Alt.	-35 ± 13	$4.45^{+0.79}_{-0.51}$	1783^{+139}_{-107}	3059^{+197}_{-221}	$2.522^{+1.230}_{-1.029}$

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

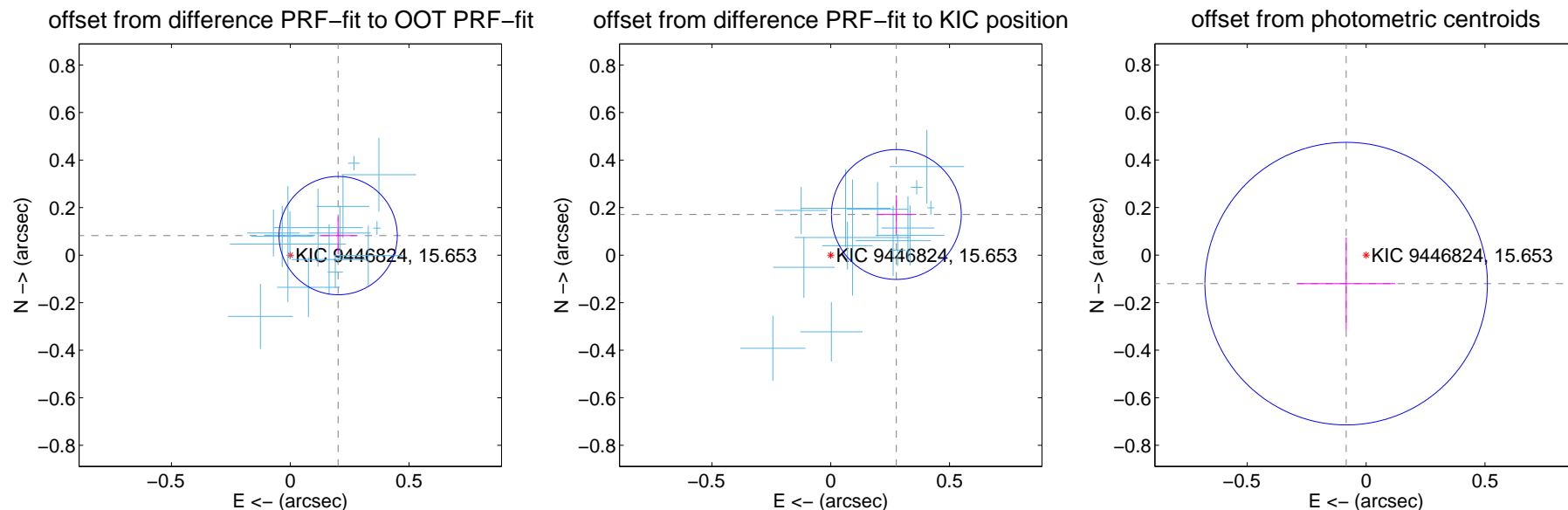
DV Centroid Data

Supplemental centroid analysis for 009446824-02. Kepler magnitude: 15.65. Transit SNR 56.28

There are 15 quarters with good PRF difference image offsets

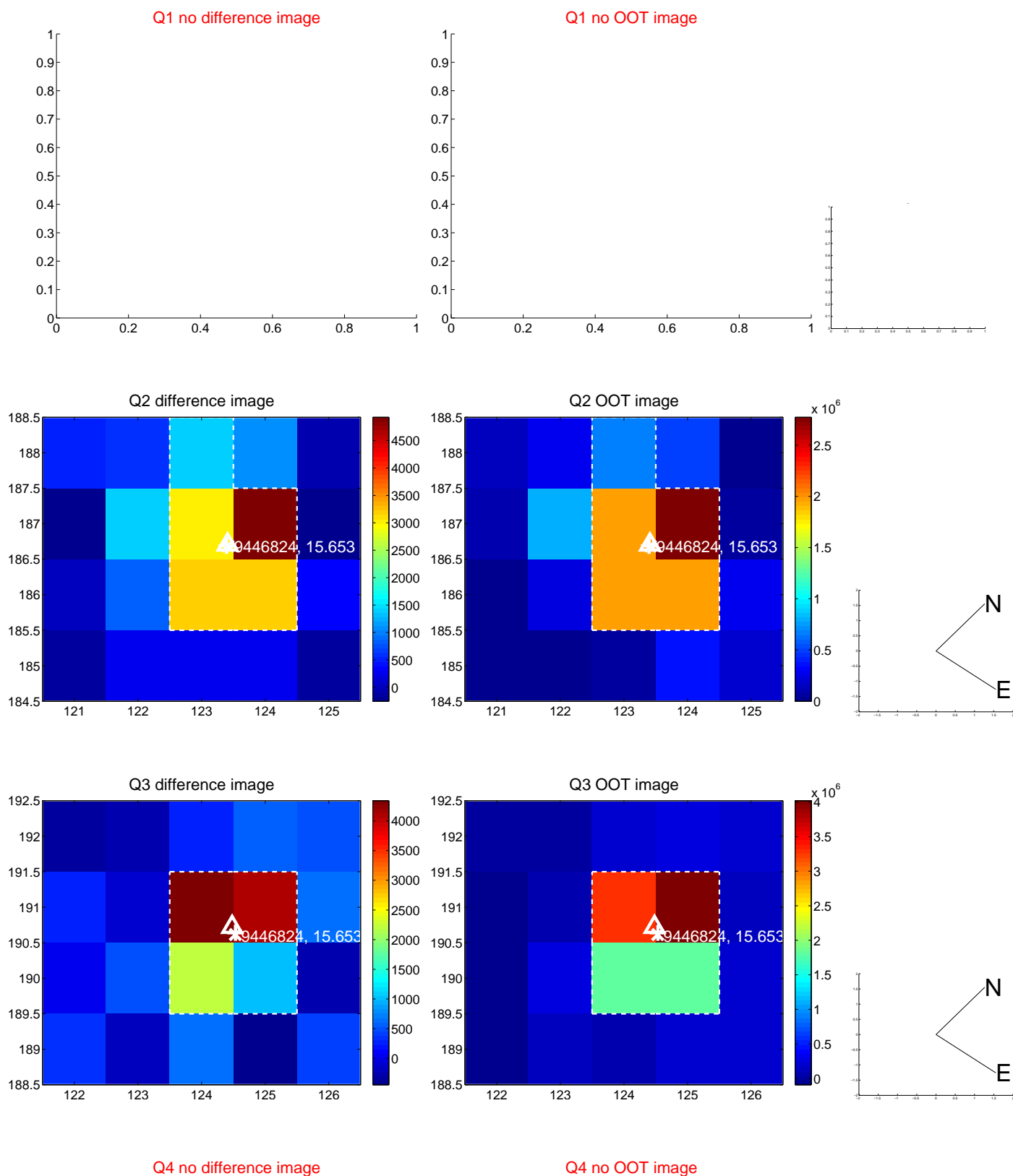
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.218 ± 0.083	2.62	-0.201 ± 0.079	0.082 ± 0.079
PRF-fit source offset from KIC position	0.325 ± 0.091	3.57	-0.276 ± 0.084	0.171 ± 0.081
photometric centroid source offset	0.15 ± 0.20	0.74	0.08 ± 0.21	-0.12 ± 0.19

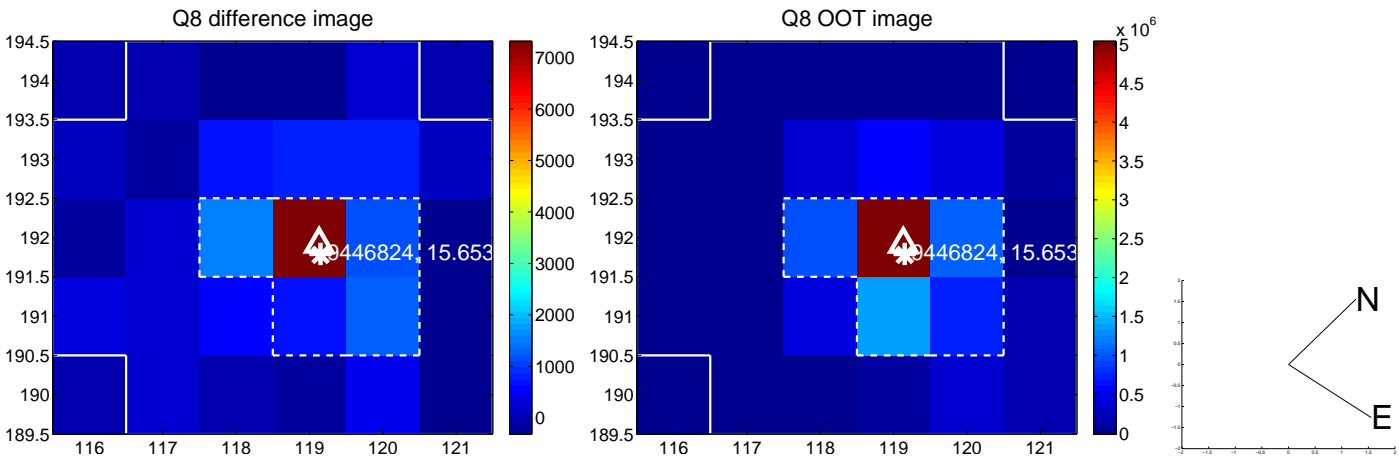
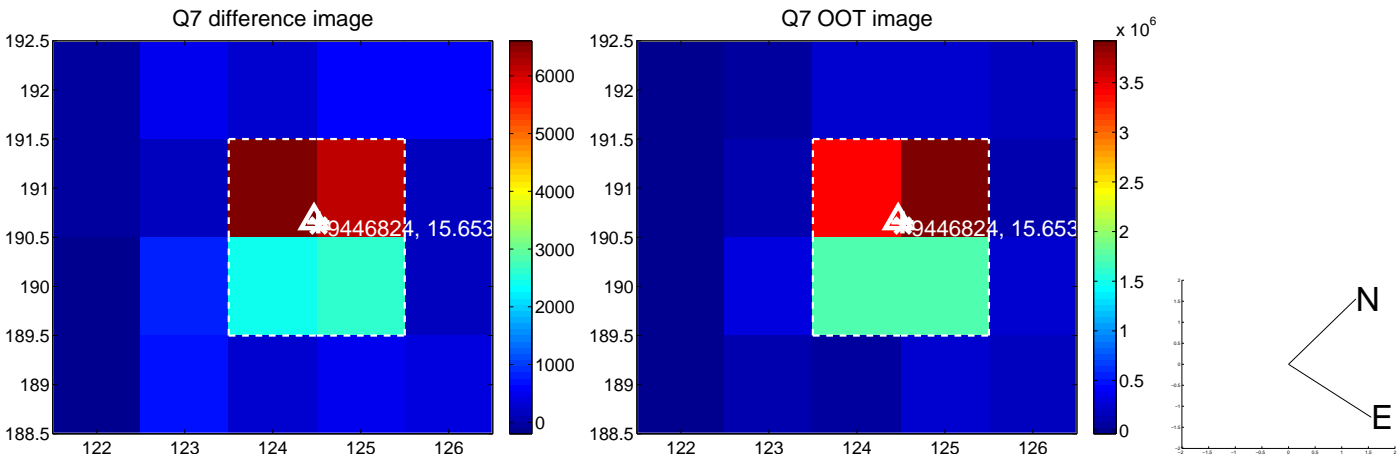
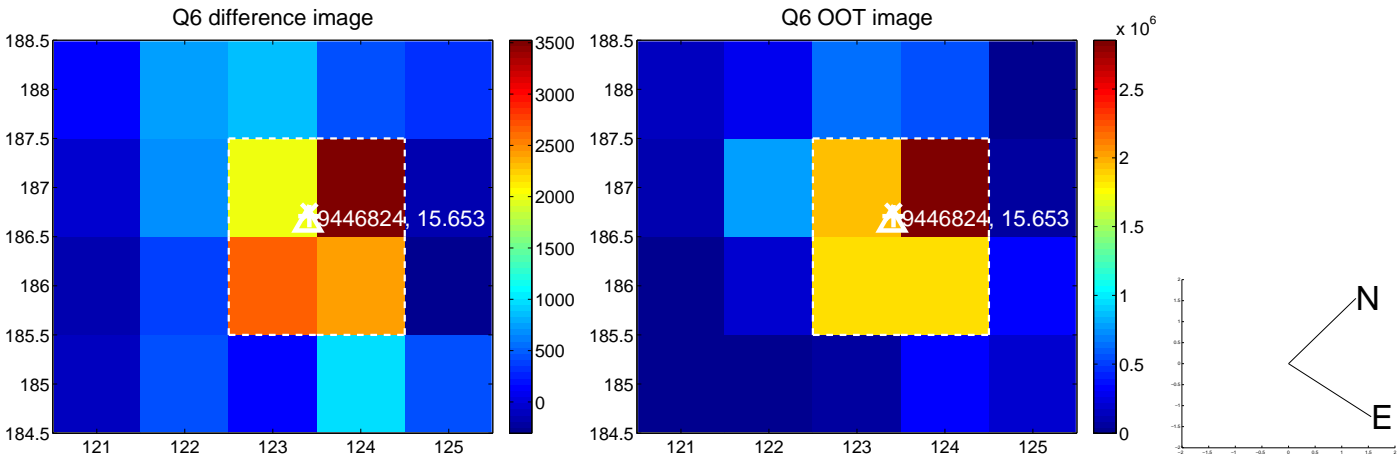
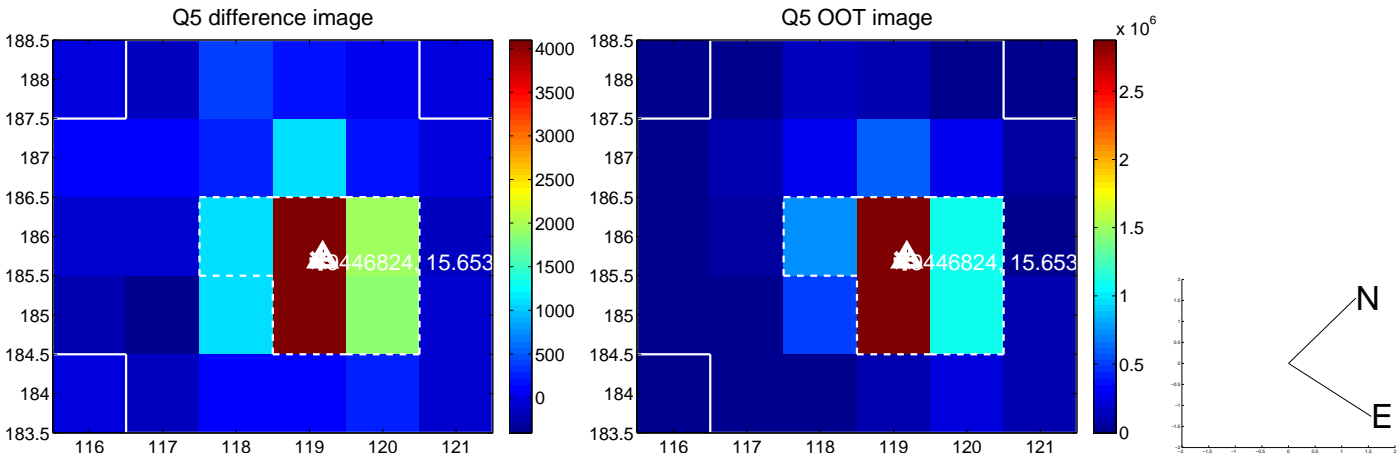


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

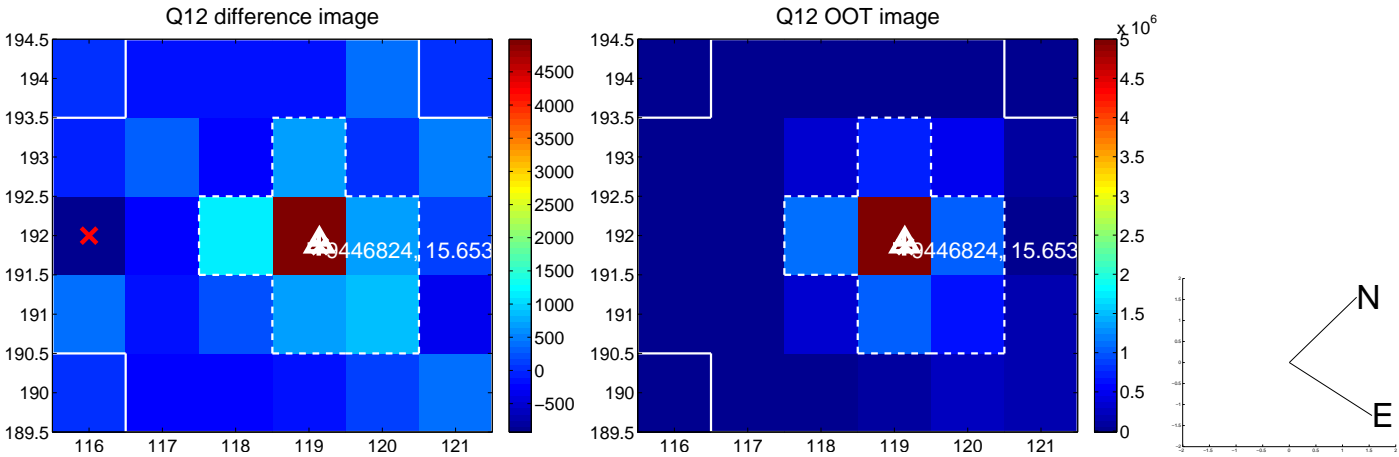
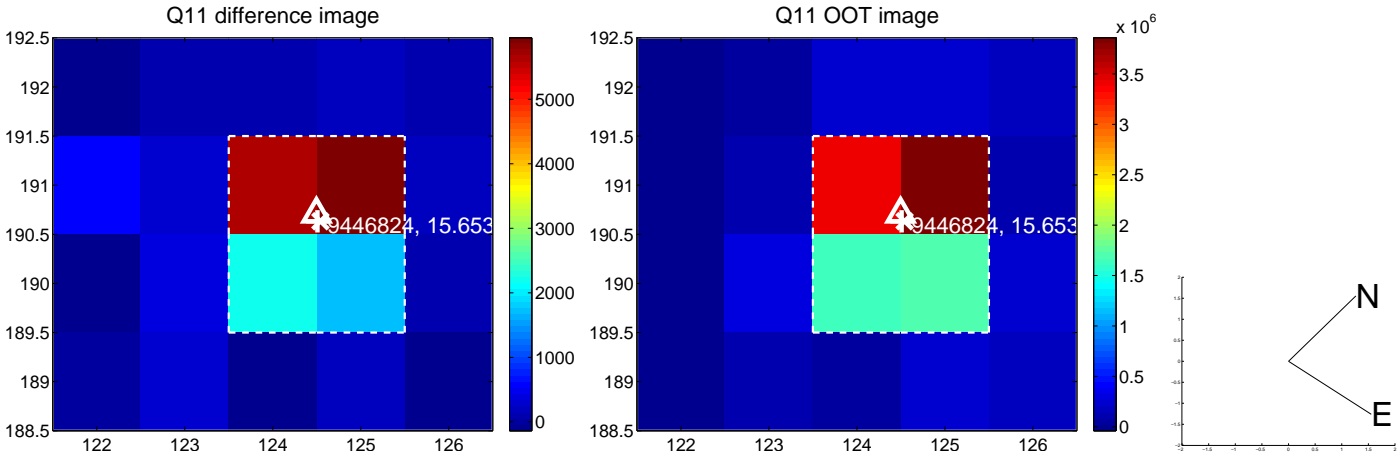
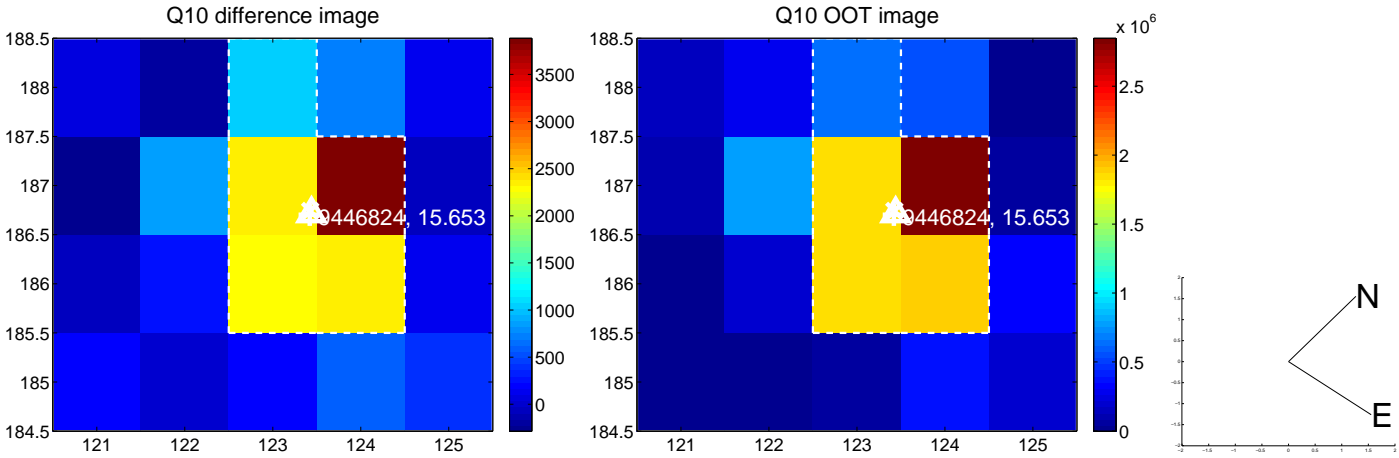
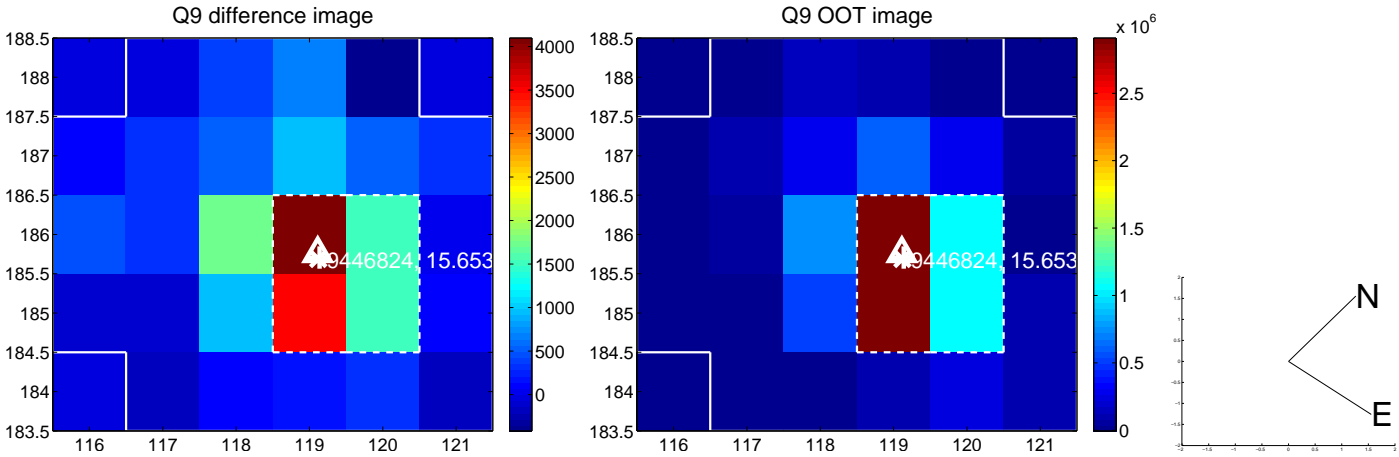
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



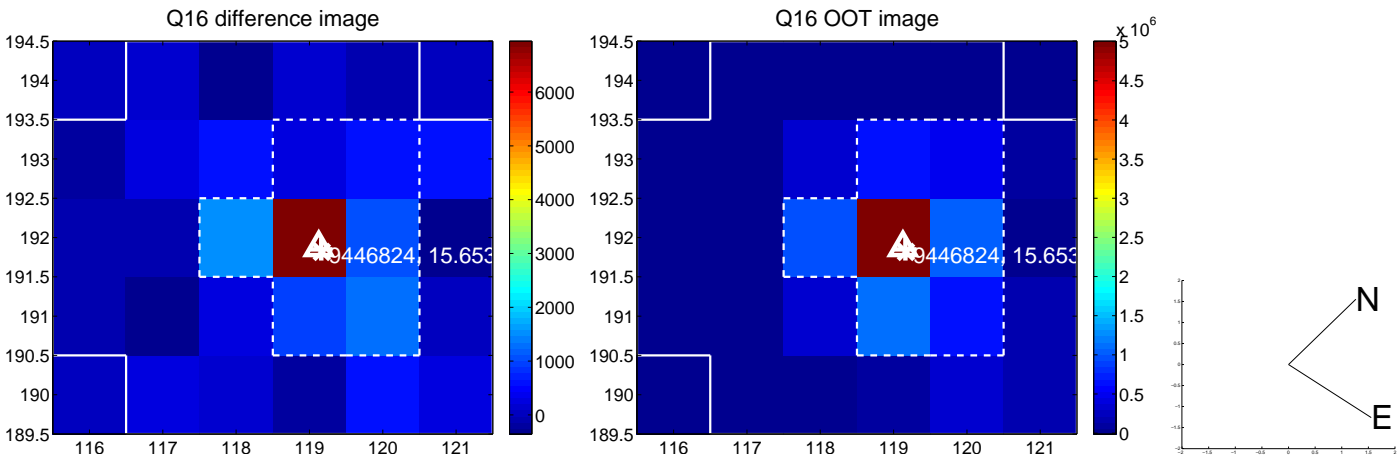
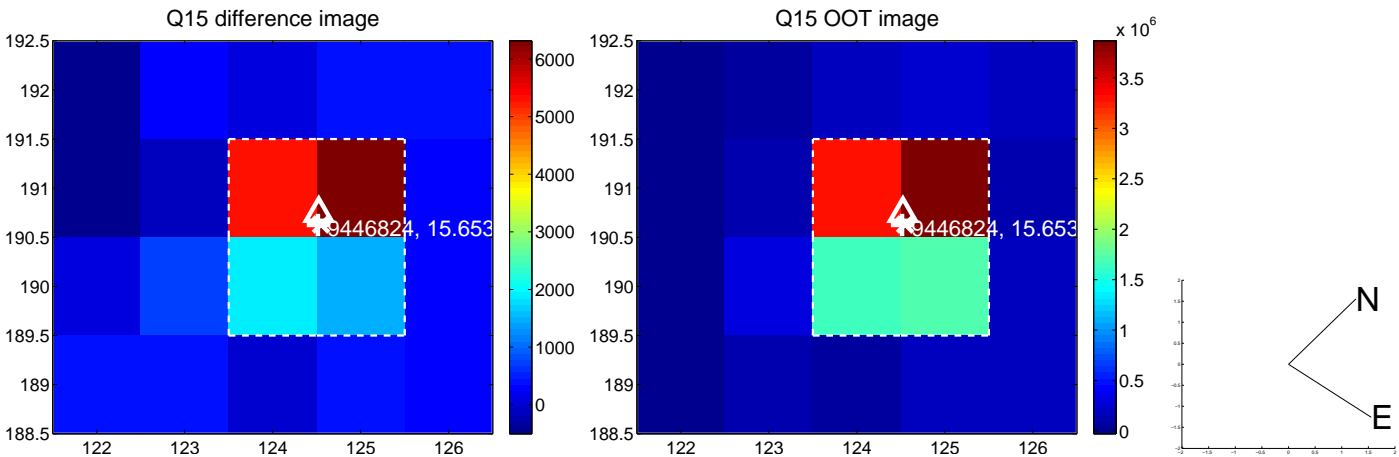
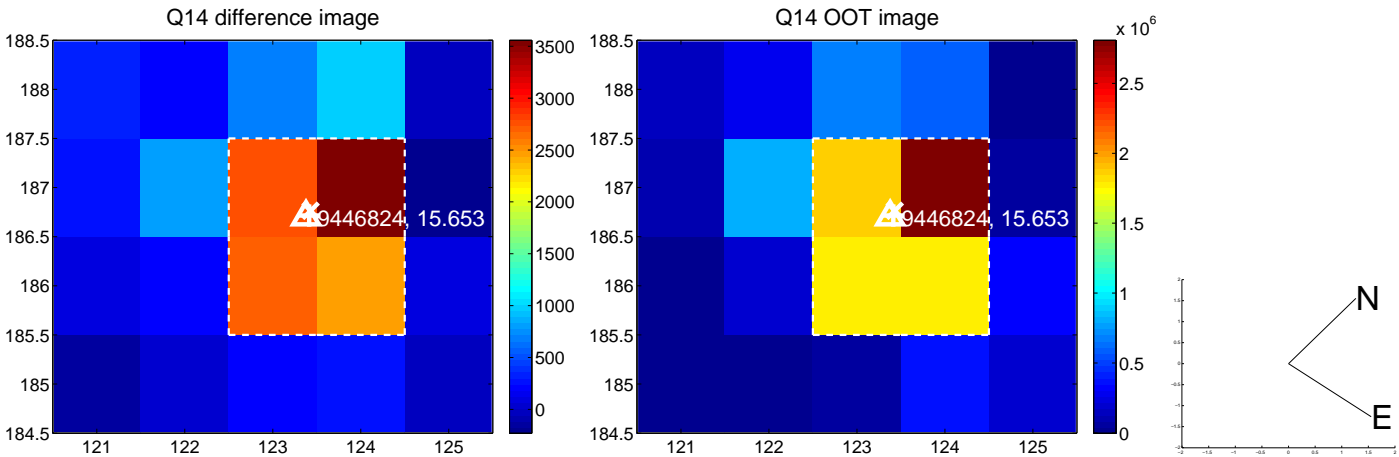
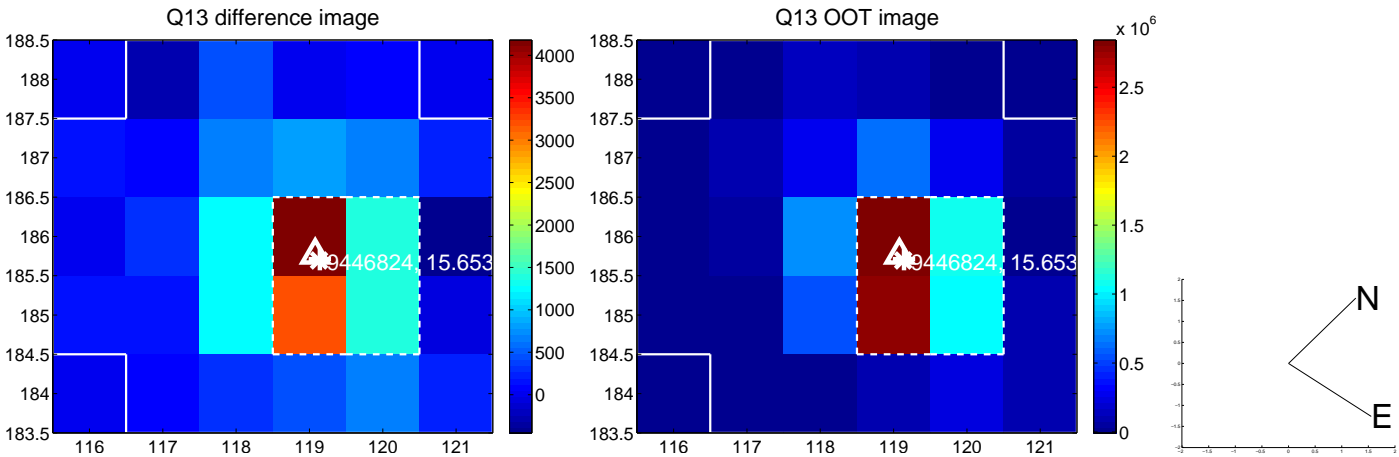
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



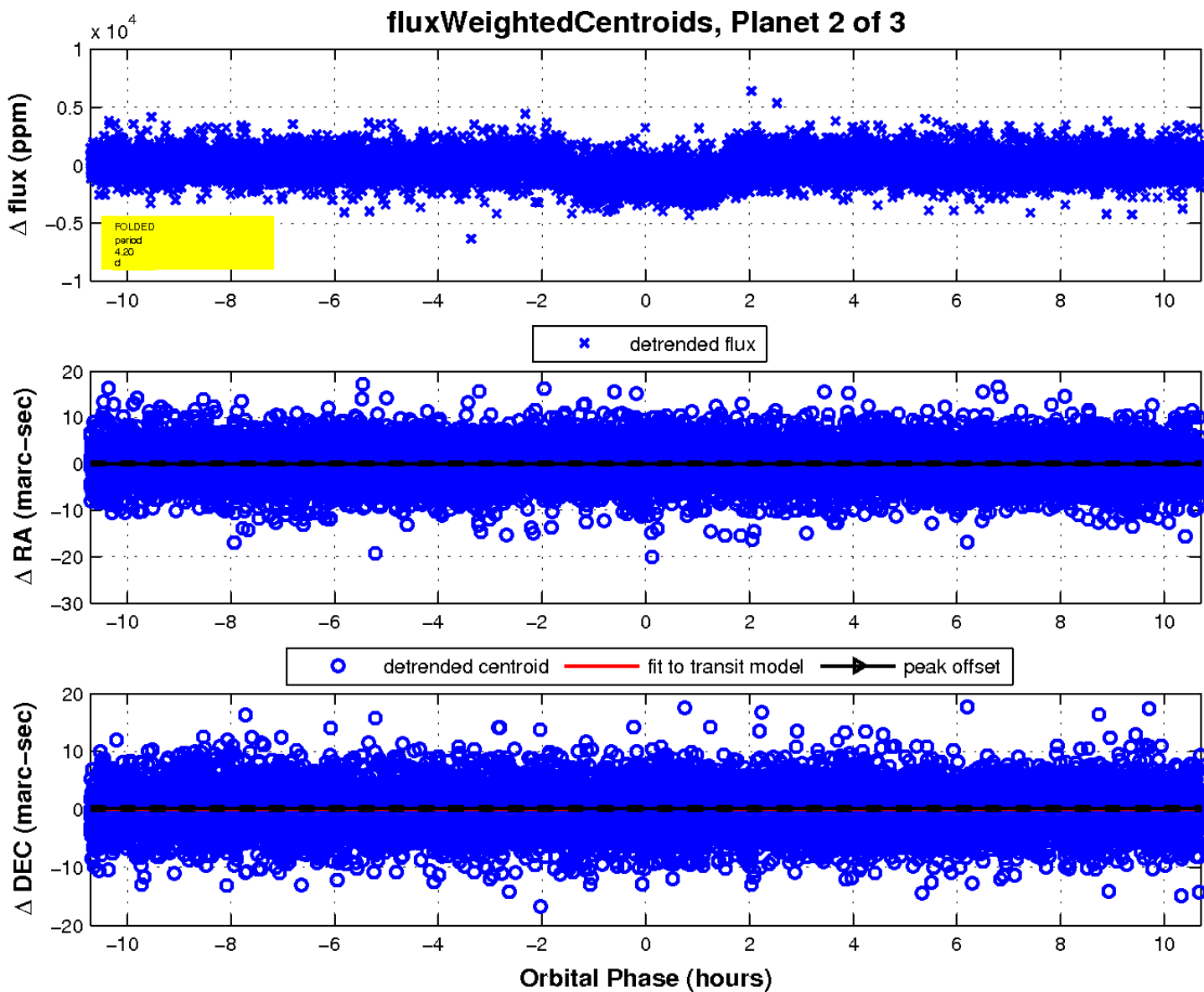
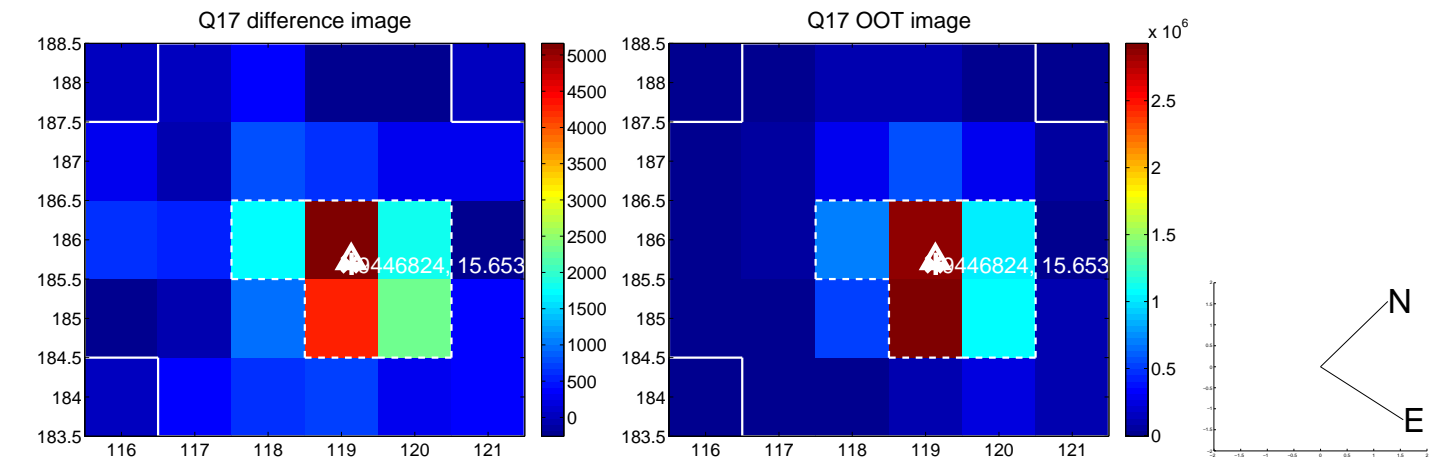
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

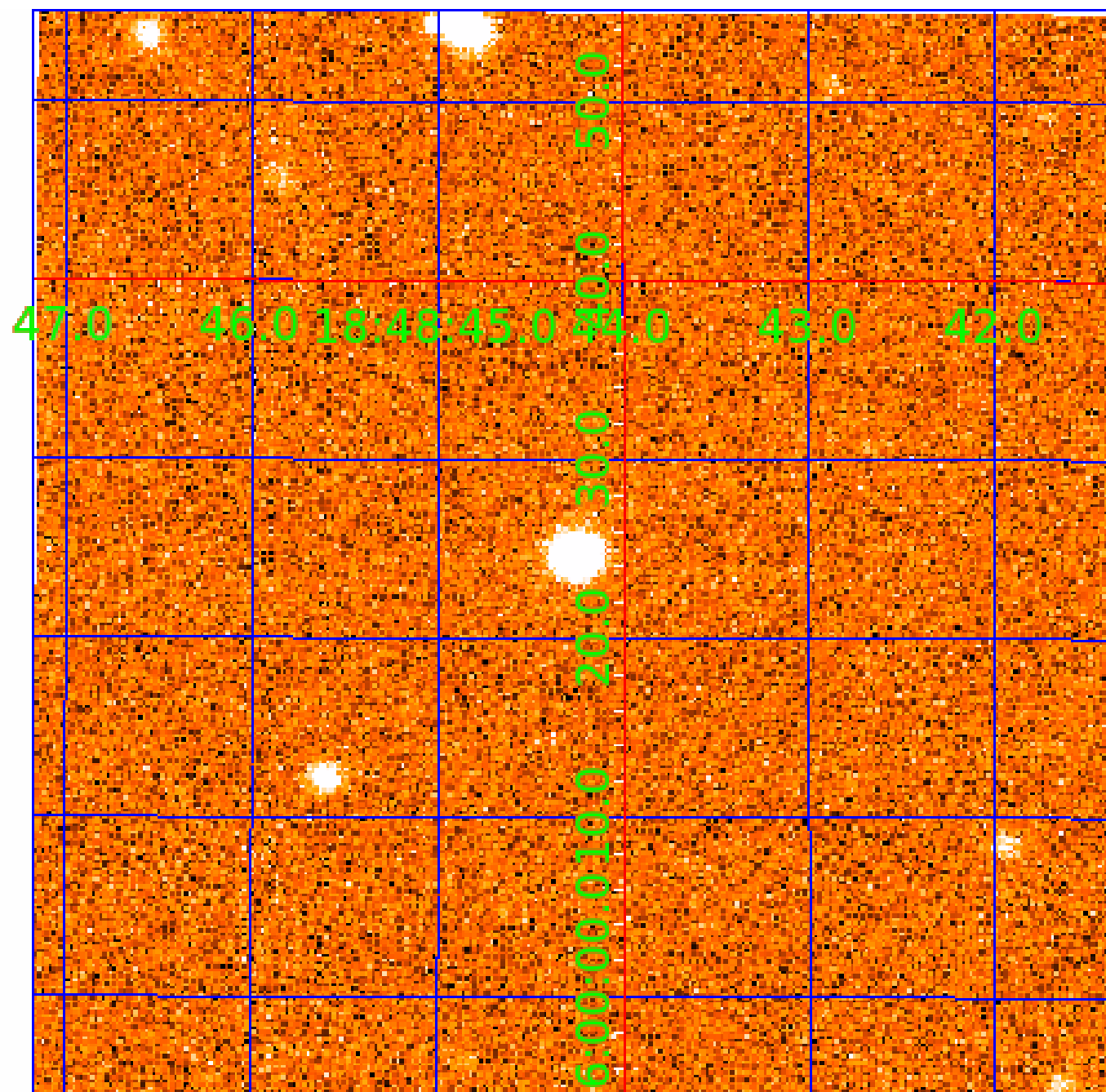


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009446824

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})
009446824-01	OBS	1382.01	4.202334	133.308844	46248.1	3.729	1821.2	1455.2	1.09	6185	23.67	571.40
009446824-02	OBS	No	4.202337	135.409692	1375.4	3.570	51.5	56.3	1.09	6185	4.50	571.40
009446824-03	OBS	No	310.617135	278.794827	1626.3	15.935	8.4	6.0	1.09	6185	4.43	1.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009446824-01	OBS	FP	0.09	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009446824-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
009446824-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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.

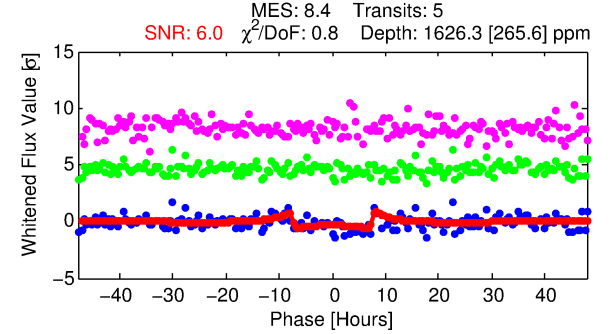
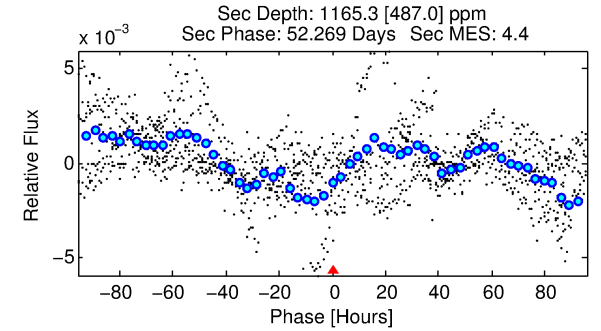
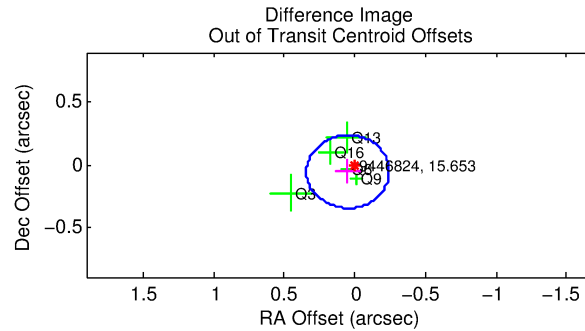
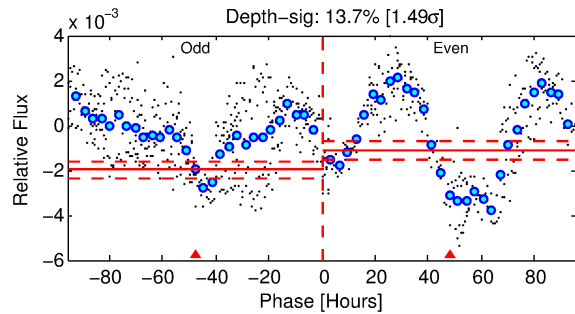
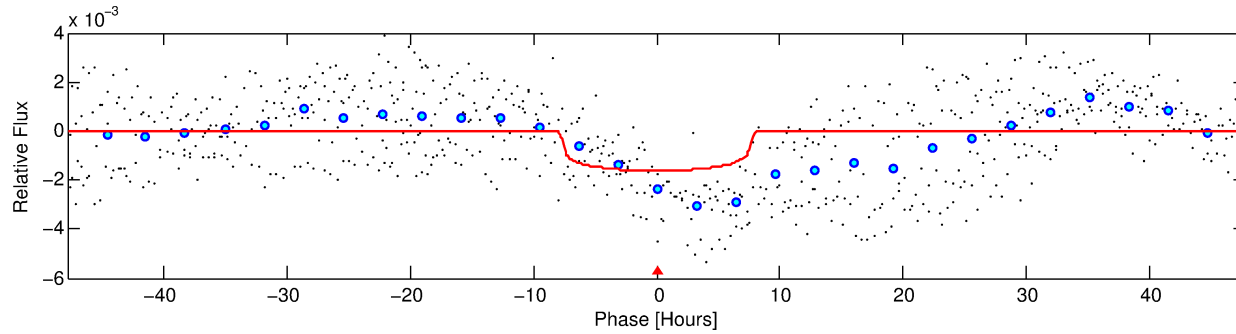
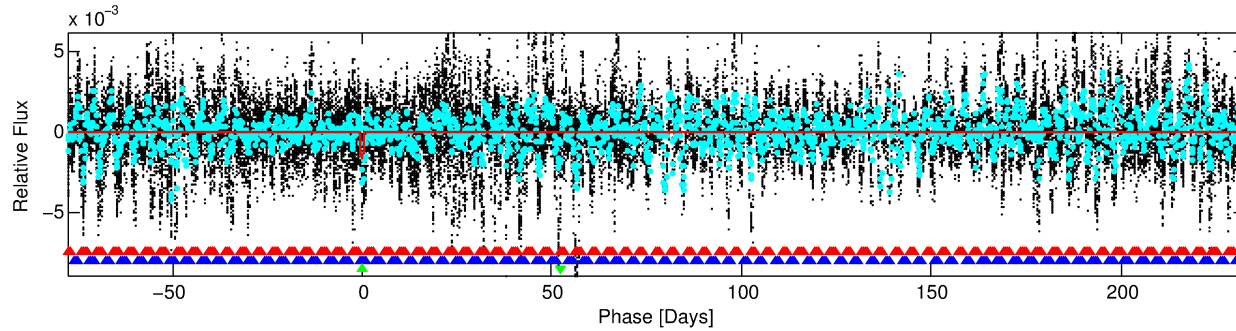
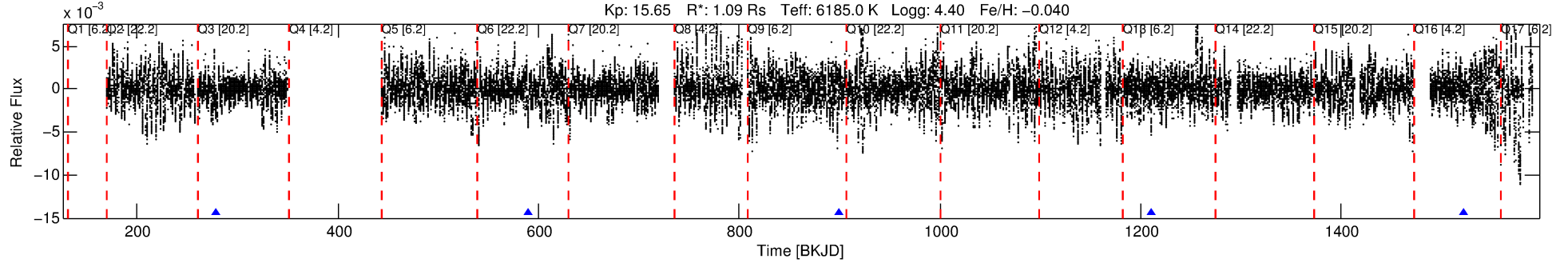
Ephemeris Match Information For 009446824-03

No Significant Match Found

DV One-Page Summary

KIC: 9446824 Candidate: 3 of 3 Period: 310.617 d
KOI: K01382 Corr: No Ephemeris Match

Kp: 15.65 R*: 1.09 Rs Teff: 6185.0 K Logg: 4.40 Fe/H: -0.040



DV Fit Results:

Period = 310.61713 [0.00526] d
Epoch = 278.7948 [0.0141] BKJD
Rp/R* = 0.0372 [0.0079]
a/R* = 149.76 [133.98]
b = 0.25 [3.30]
Seff = 1.84 [0.80]
Teq = 297 [32] K
Rp = 4.44 [1.73] Re
a = 0.9230 [0.2533] AU
Ag = 27762.19 [19870.57] [1.40σ]
Teffp = 5929 [916] K [6.15σ]

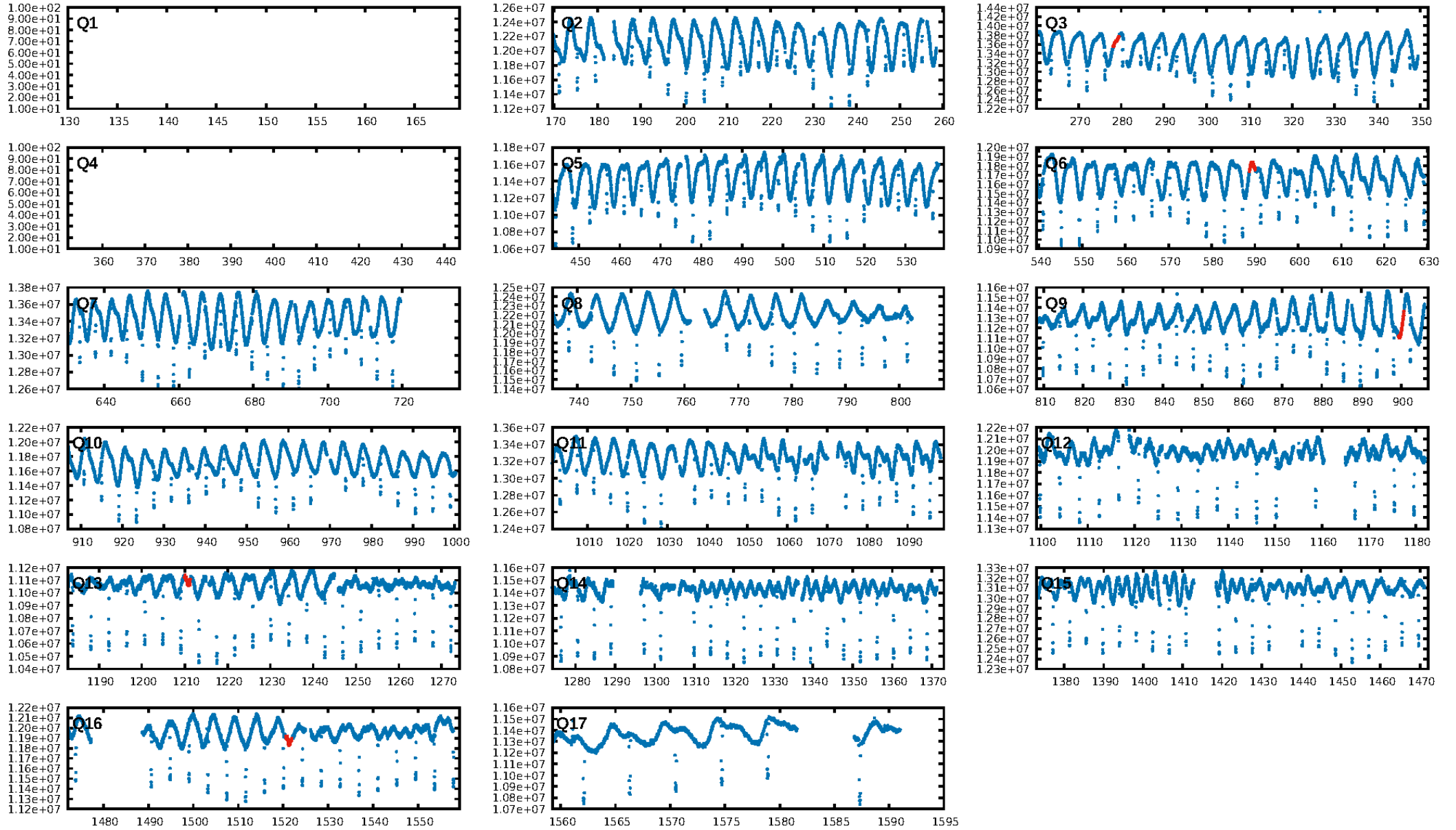
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [450.33σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 10.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.52e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.5476
Centroid-sig: 60.4%
Centroid-so: 0.407 arcsec [0.61σ]
OotOffset-rm: 0.075 arcsec [0.77σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-rm: 0.143 arcsec [1.69σ]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/5]

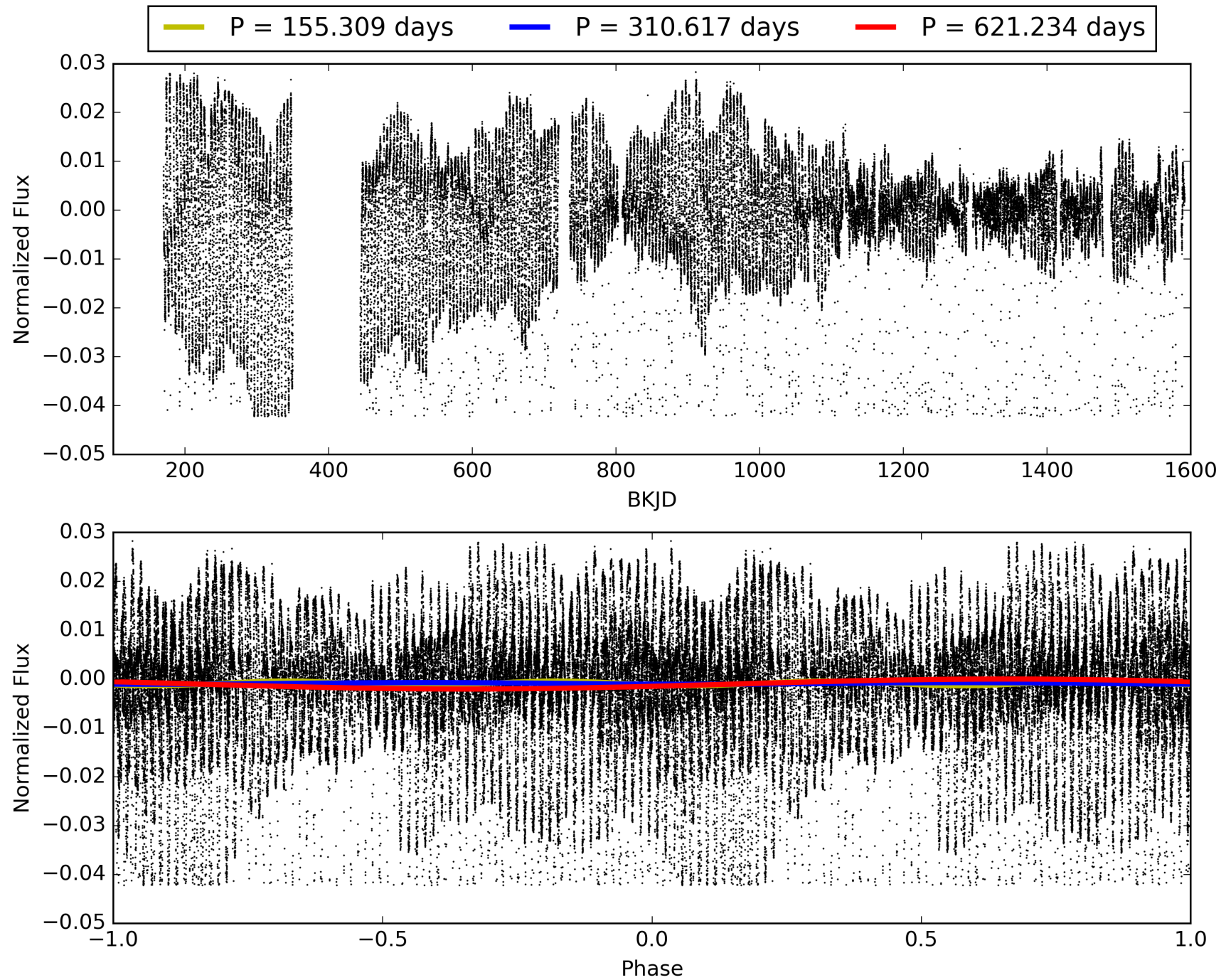
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:54:33 Z

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

TCE 009446824-03, PDC Light Curves

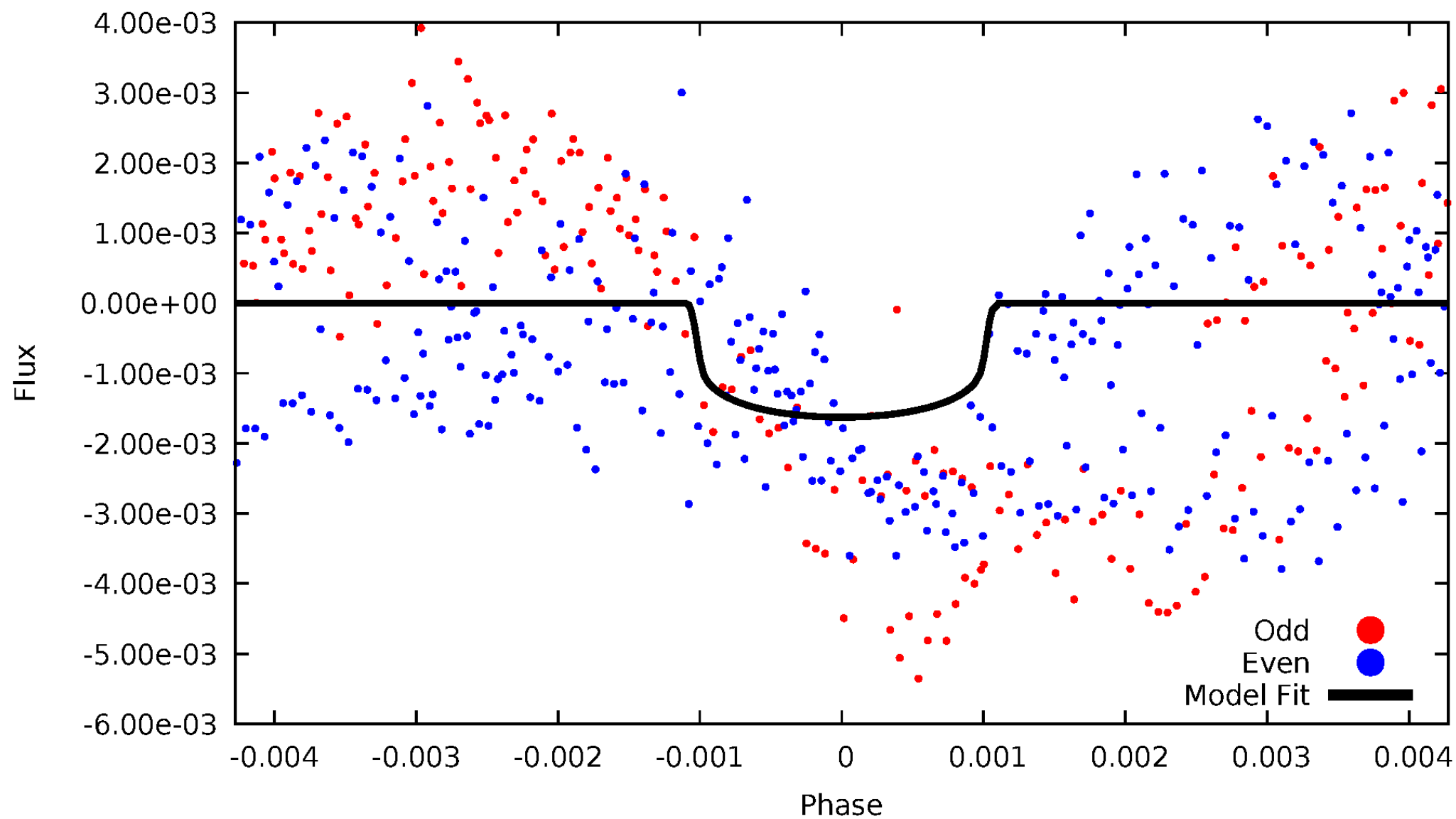


TCE 009446824-03



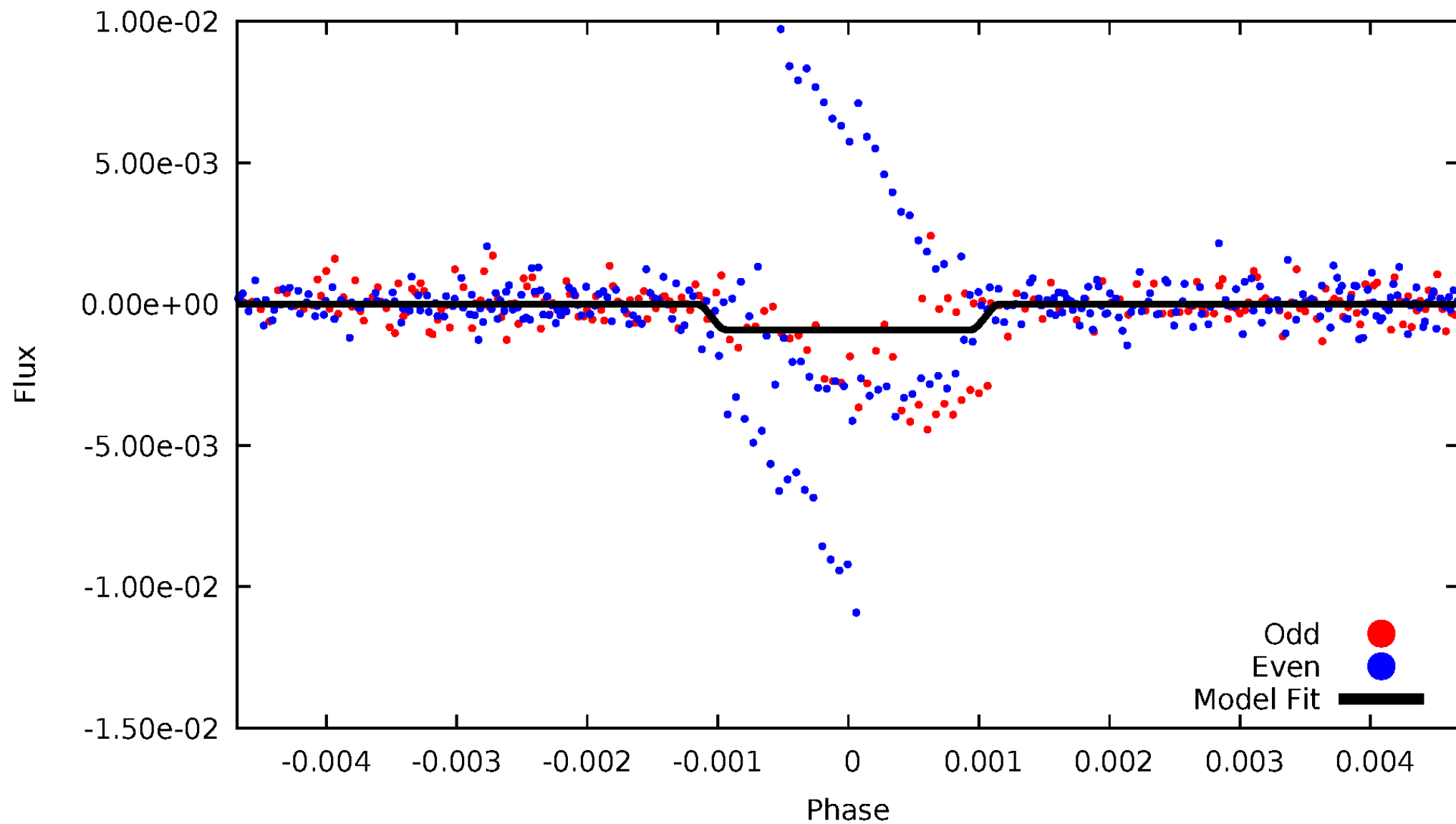
DV Odd/Even

TCE 009446824-03

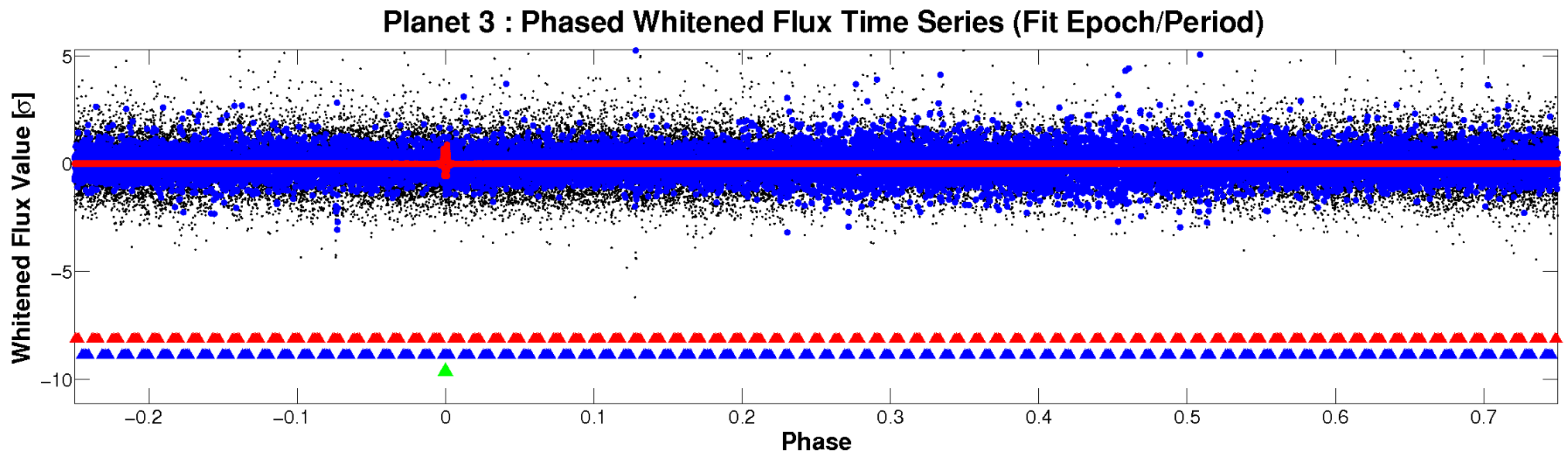
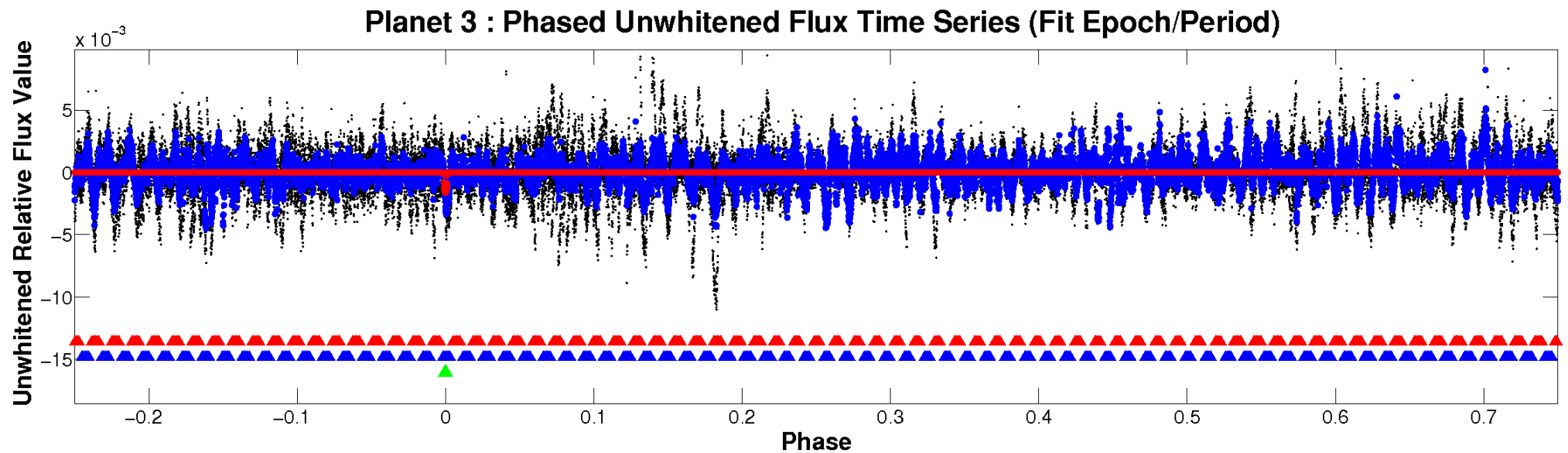


ALT Odd/Even

TCE 009446824-03

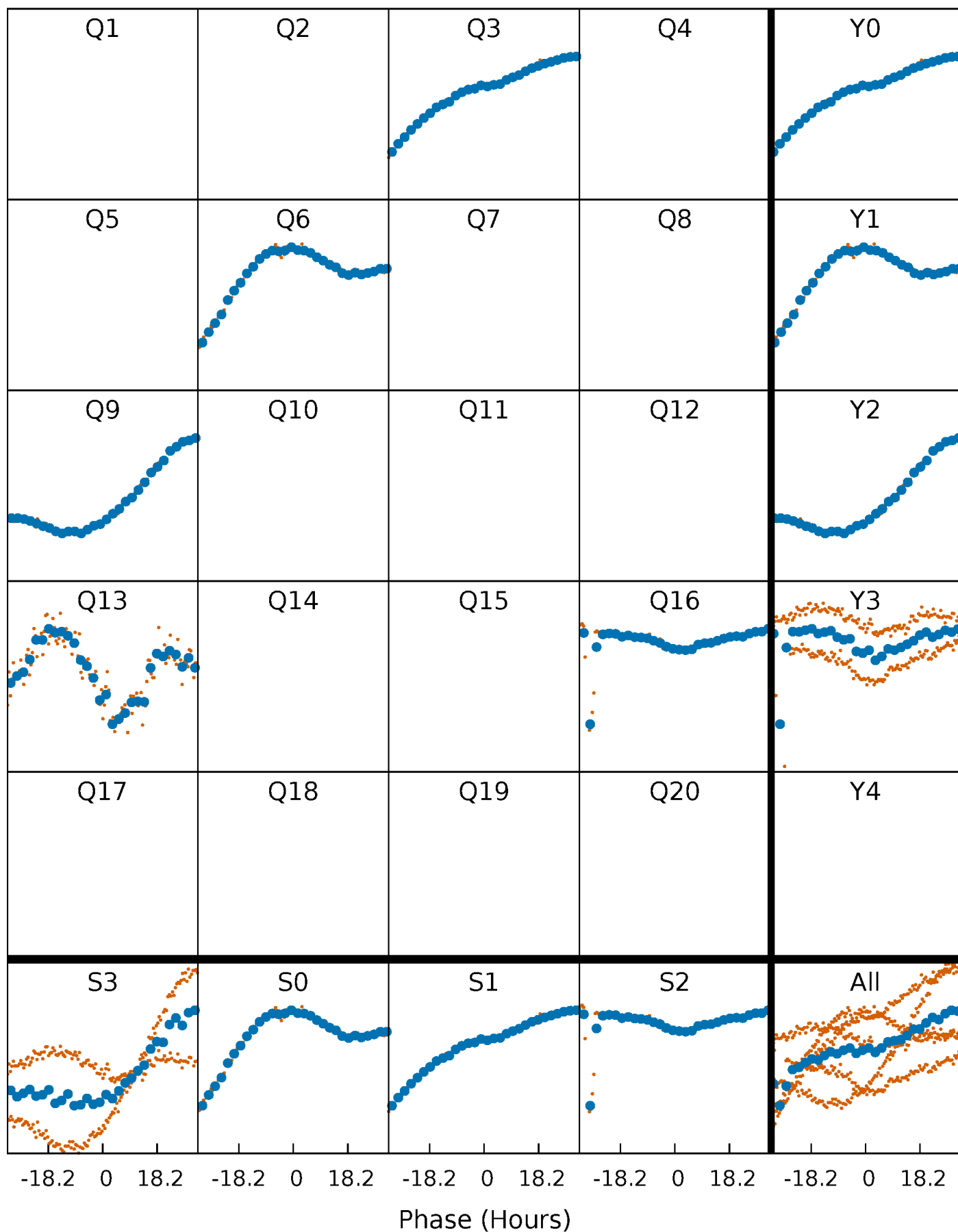


Non-Whitened Vs. Whitened Light Curve



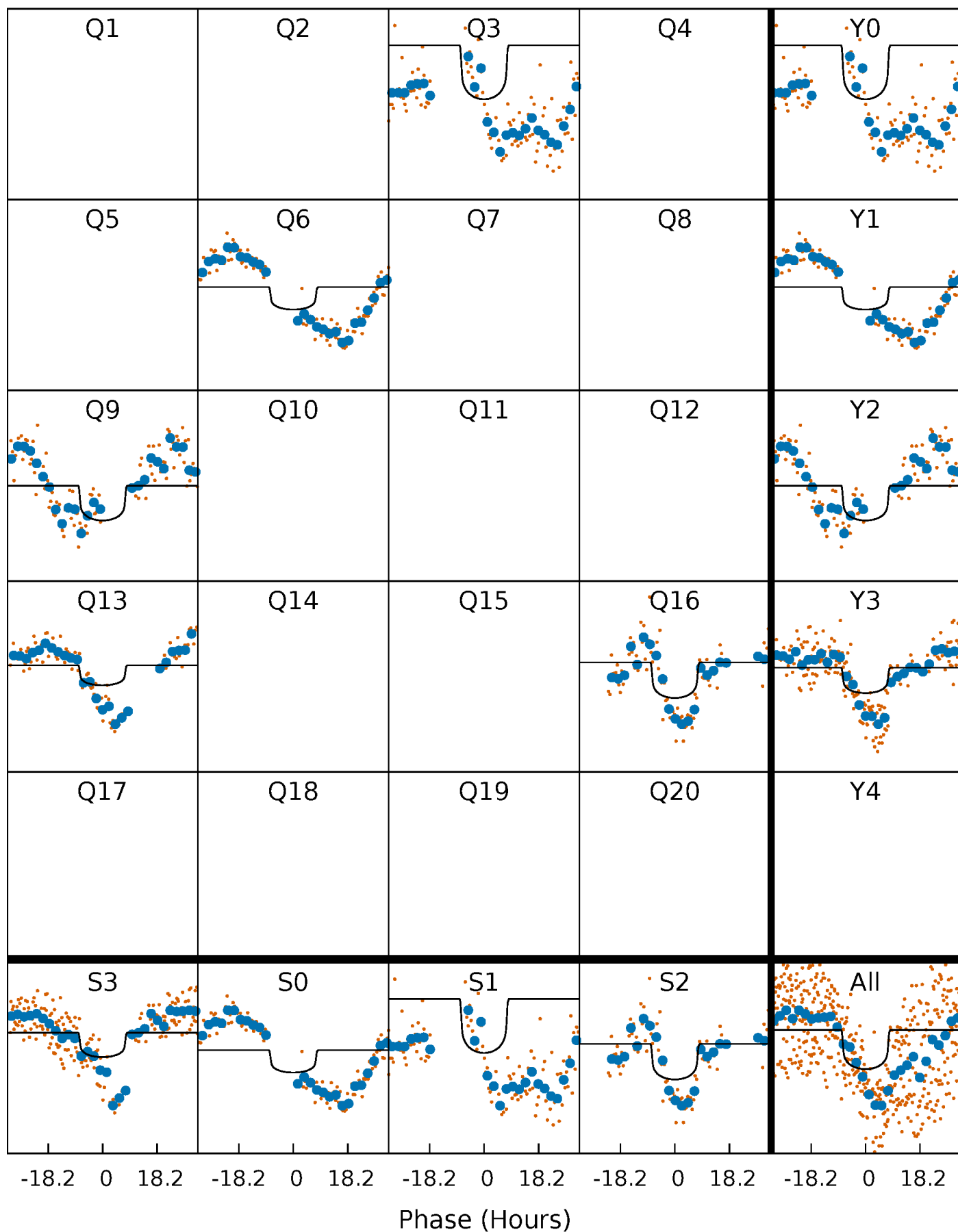
PDC Quarter-Phased Transit Curves

TCE 009446824-03 $P=310.617135$ Days $T_0=278.794827$ (BKJD)



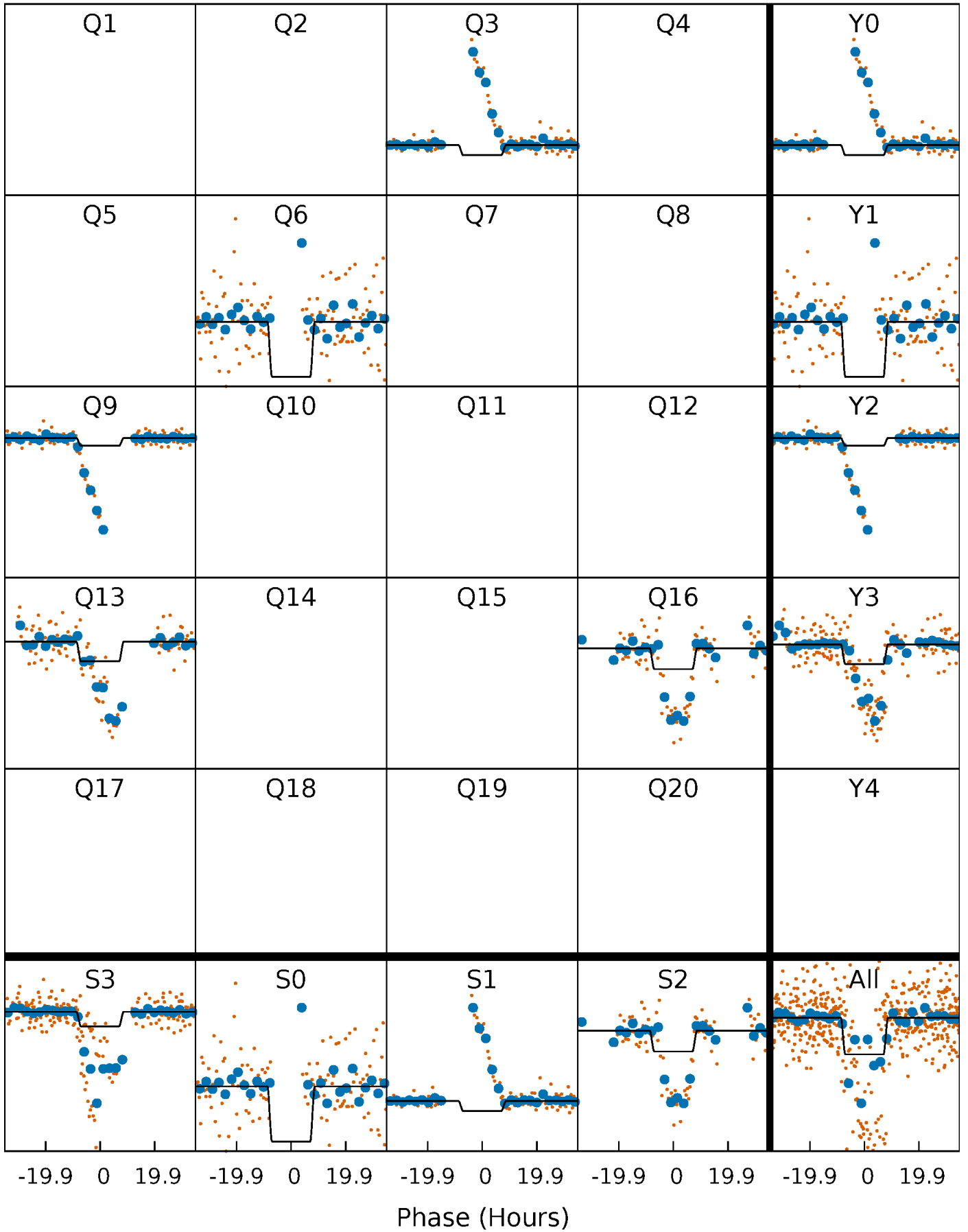
DV Quarter-Phased Transit Curves

TCE 009446824-03 $P=310.617135$ Days $T_0=278.794827$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

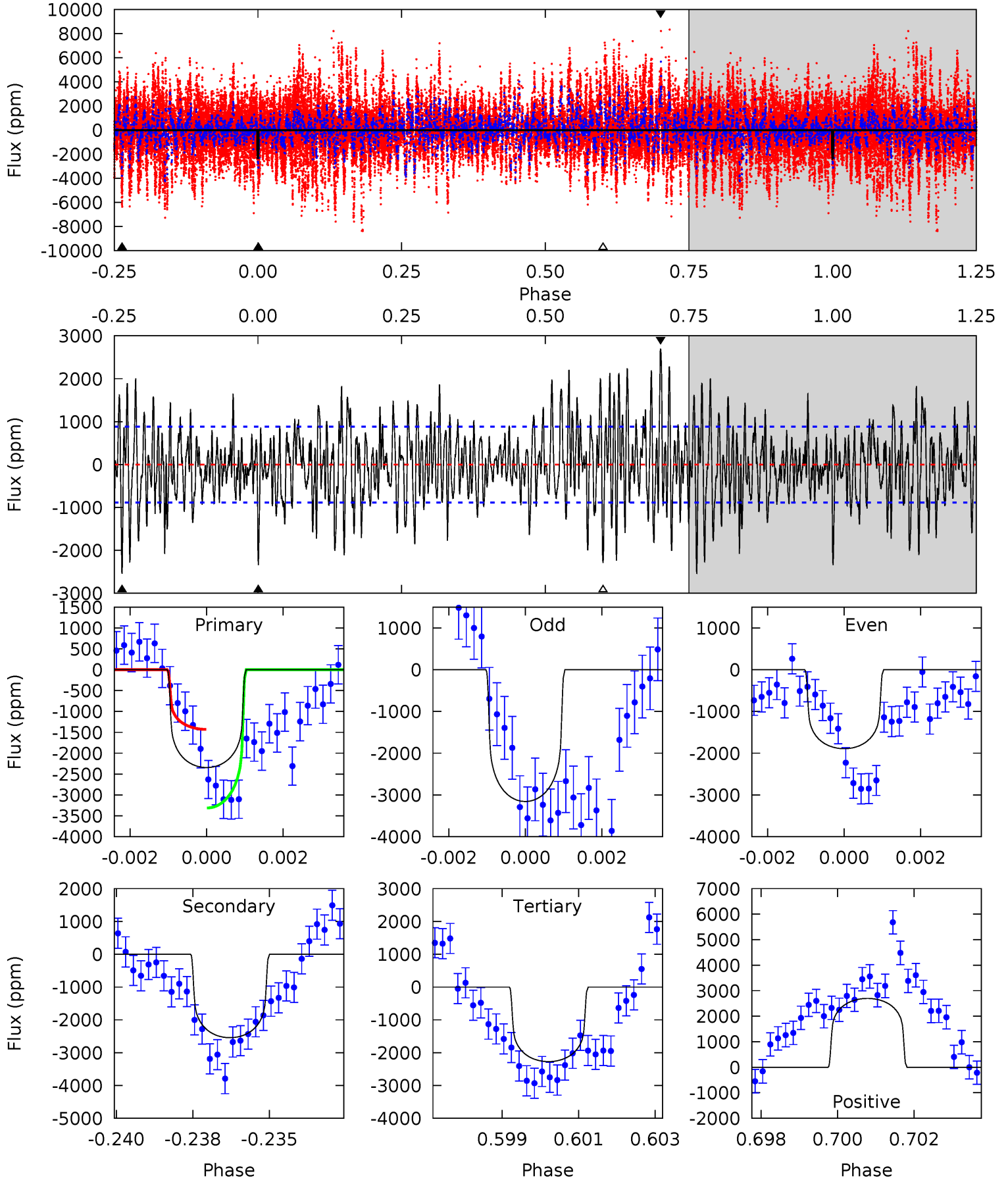
TCE 009446824-03 $P=310.644602$ Days $T_0=278.692409$ (BKJD)



DV Model-Shift Uniqueness Test

009446824-03, P = 310.617135 Days, E = 278.794827 Days

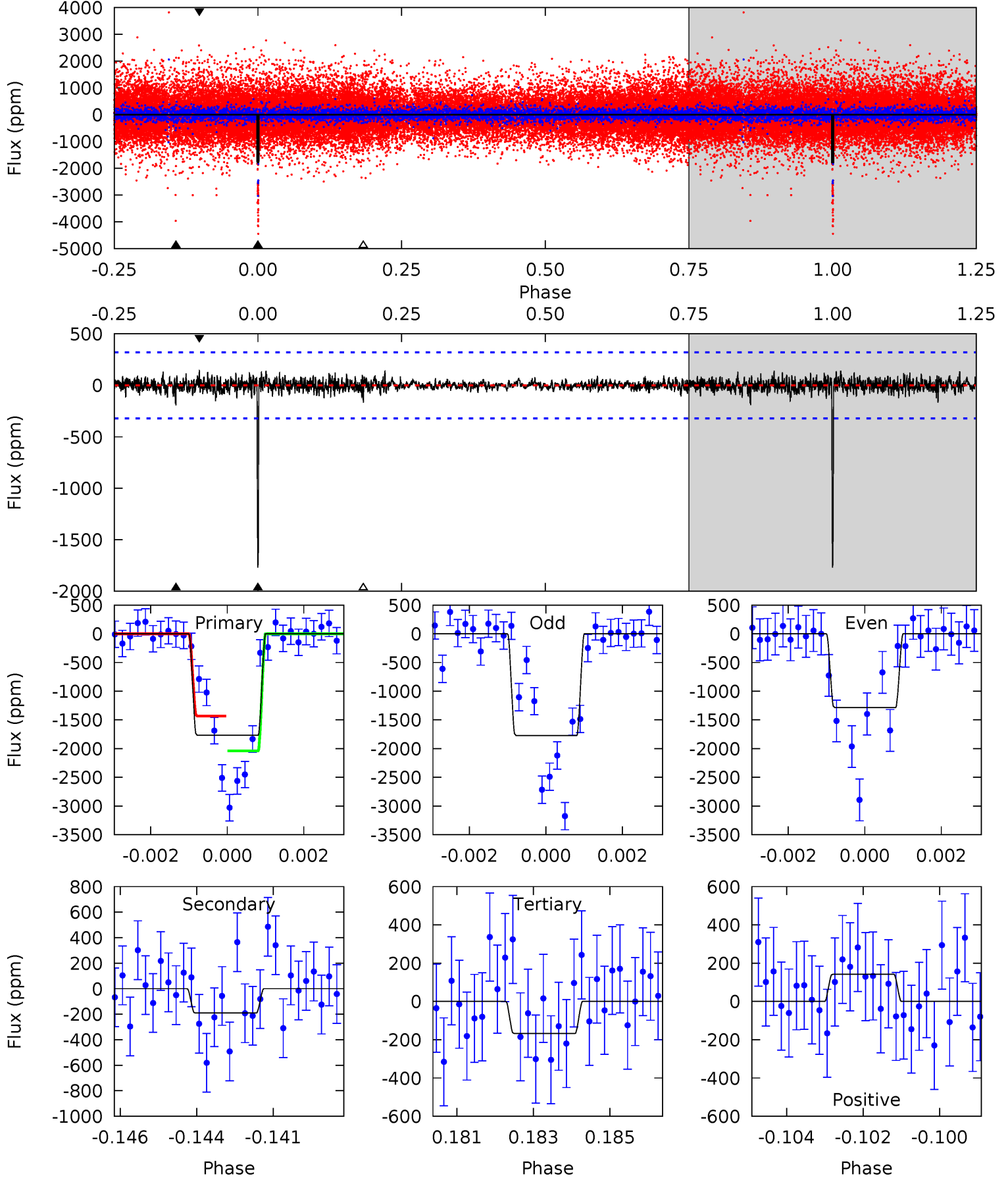
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	15.3	13.6	16.2	5.31	3.07	4.65	0.43	-2.12	1.63	-0.92	3.71	1.10	0.51	5.72



Alt Model-Shift Uniqueness Test

009446824-03, P = 310.644602 Days, E = 278.692409 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.2	3.15	2.76	2.35	5.30	3.05	0.60	26.5	26.9	0.39	0.80	4.31	0.53	0.07	0



Stellar Parameters For KIC 009446824

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+194}_{-259}	$4.396^{+0.072}_{-0.217}$	$-0.040^{+0.250}_{-0.300}$	$1.094^{+0.358}_{-0.154}$	$1.083^{+0.168}_{-0.137}$	$1.166^{+0.459}_{-0.629}$
	+3%/-4%	+2%/-5%	+625%/-750%	+33%/-14%	+16%/-13%	+39%/-54%
Source	PHO1	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 009446824-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2544 ± 166	$4.70^{+1.23}_{-1.05}$	424^{+32}_{-25}	7288^{+1064}_{-833}	53870^{+34672}_{-19565}
Alt.	-191 ± 60	$3.82^{+1.18}_{-1.09}$	423^{+36}_{-24}	4364^{+621}_{-450}	5934^{+6144}_{-2764}

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

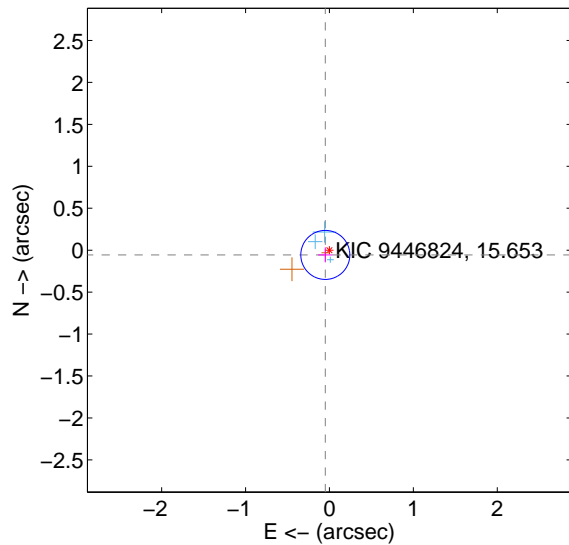
Supplemental centroid analysis for 009446824-03. Kepler magnitude: 15.65. Transit SNR 6.01

There are 3 quarters with good PRF difference image offsets

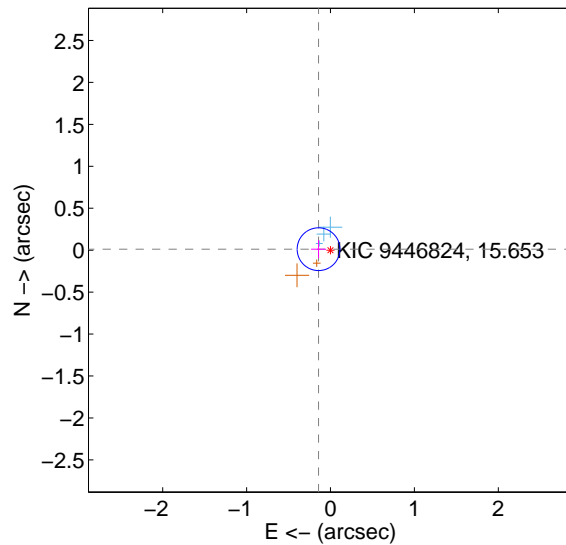
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.075 ± 0.097	0.77	0.050 ± 0.086	-0.057 ± 0.089
PRF-fit source offset from KIC position	0.143 ± 0.085	1.69	0.143 ± 0.089	0.012 ± 0.107
photometric centroid source offset	0.41 ± 0.67	0.61	0.11 ± 0.72	-0.39 ± 0.66

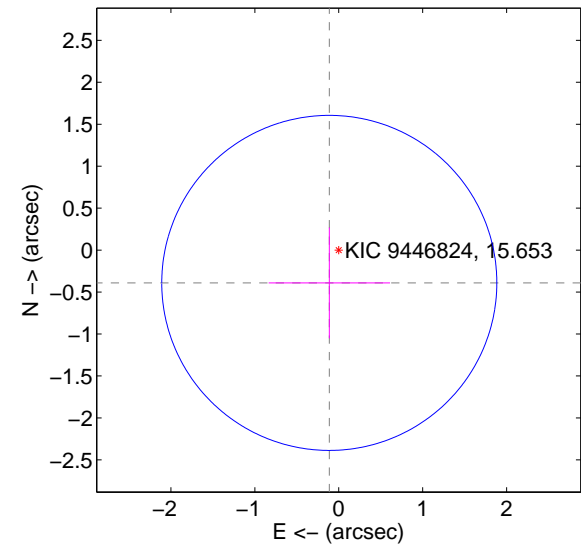
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

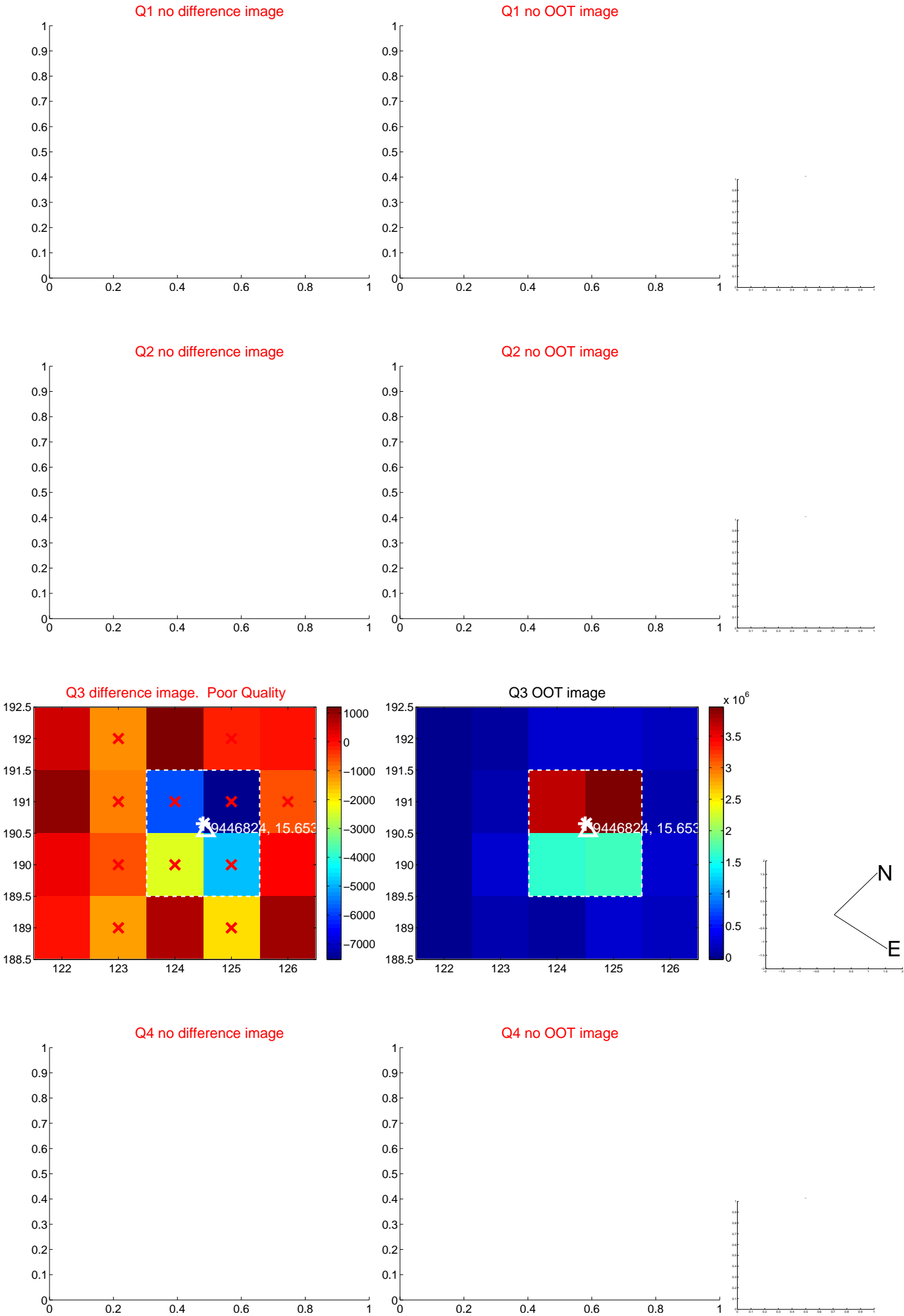


offset from photometric centroids

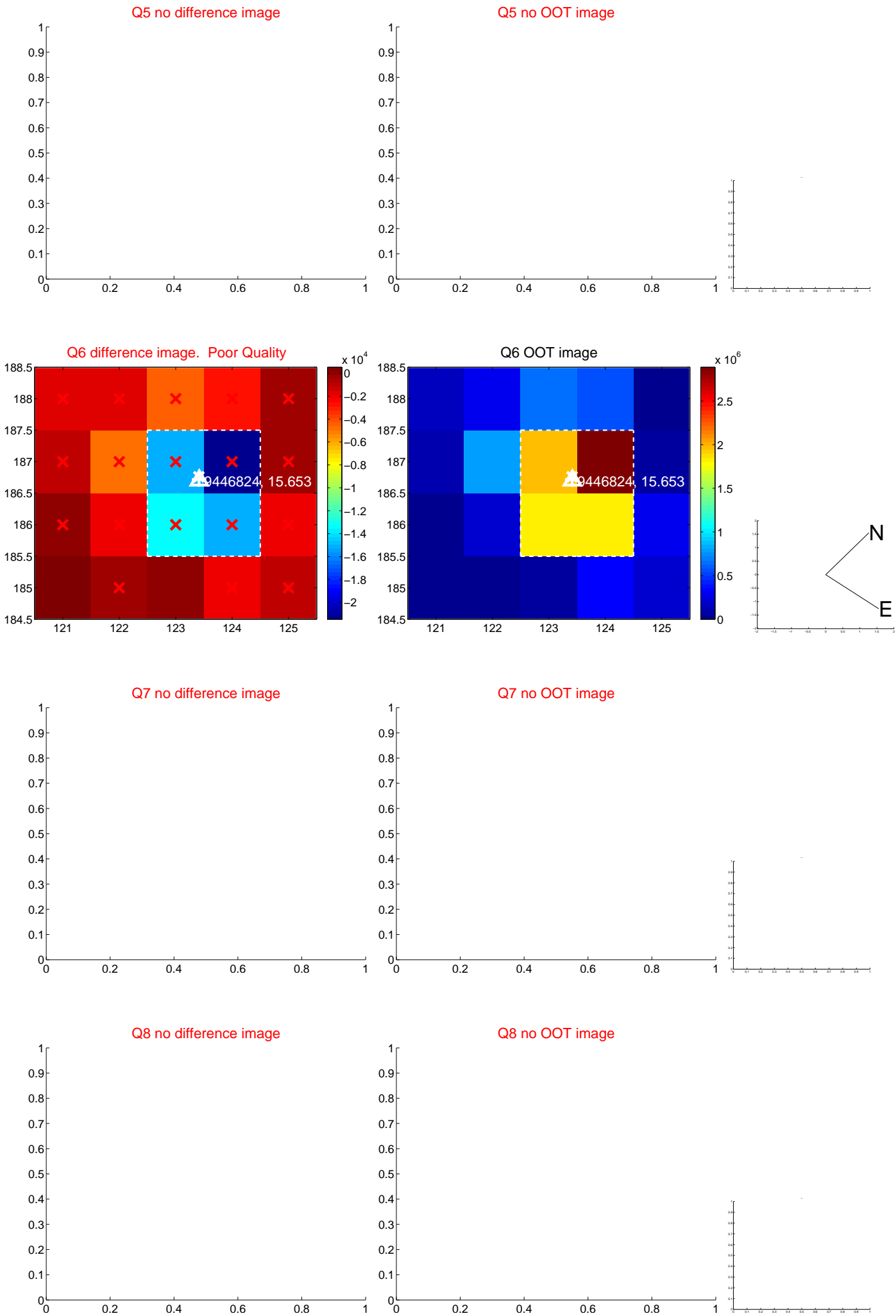


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

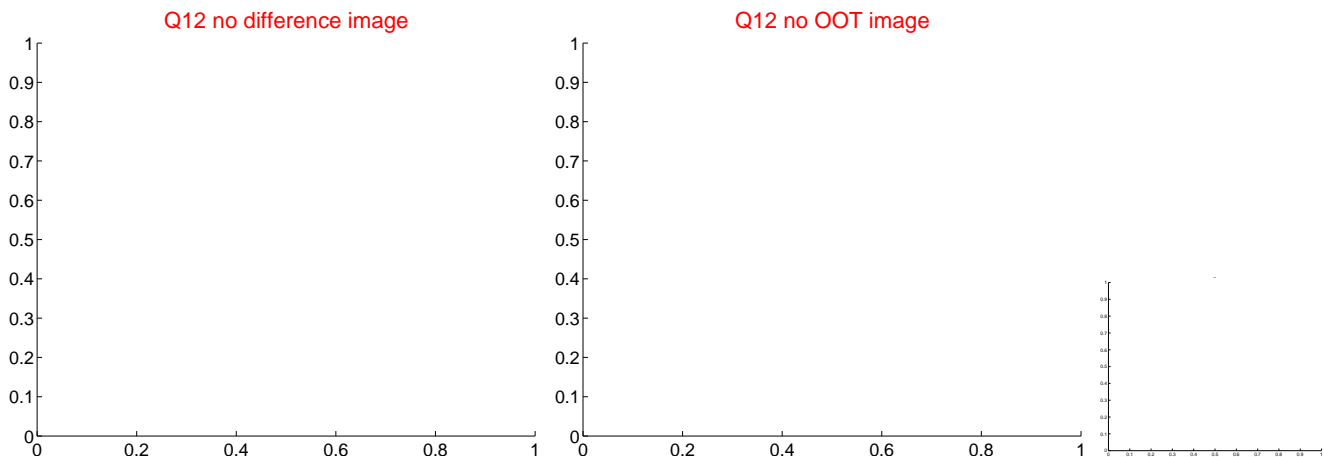
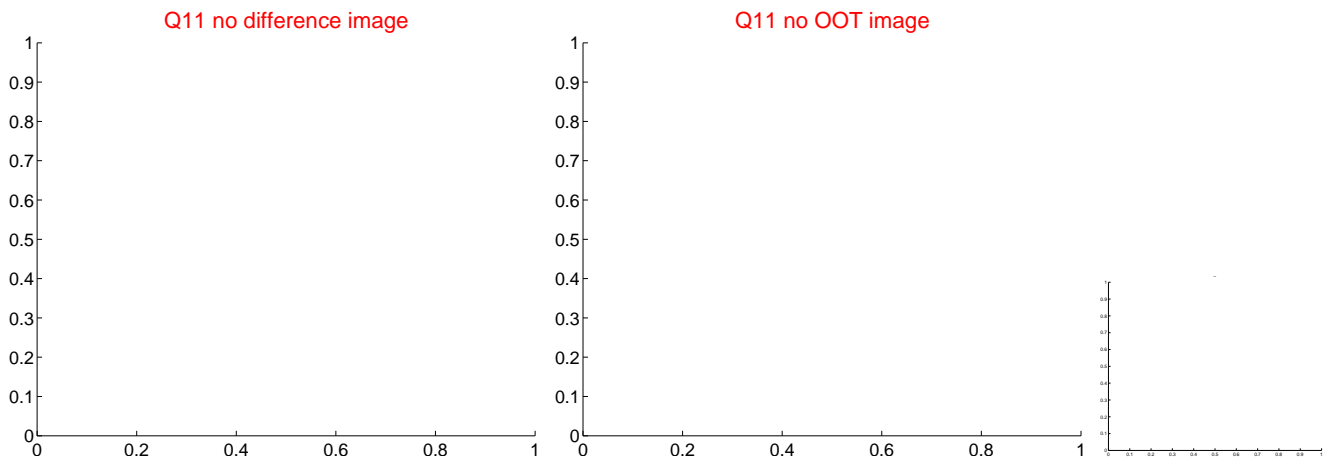
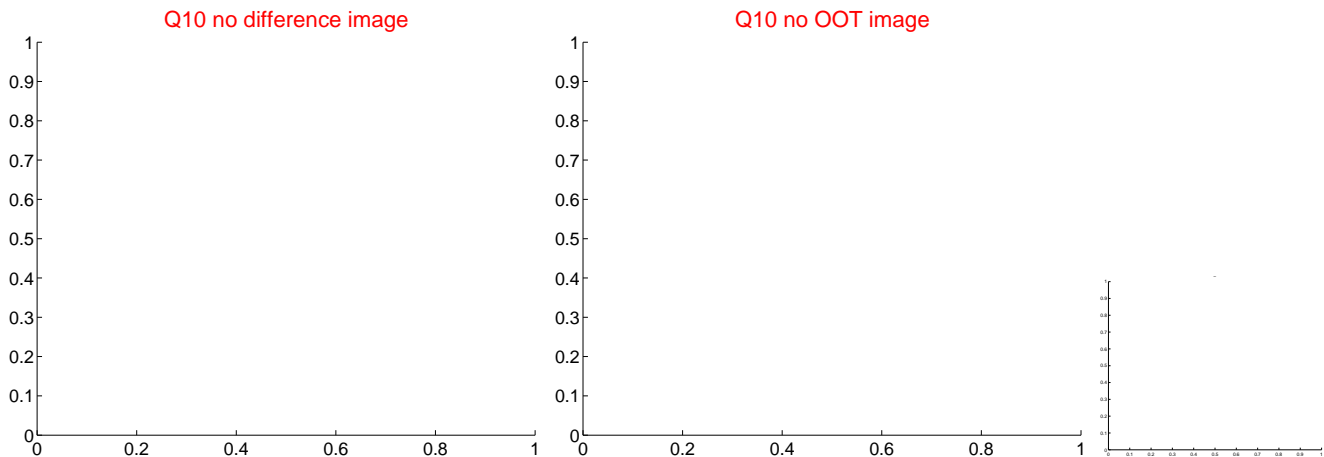
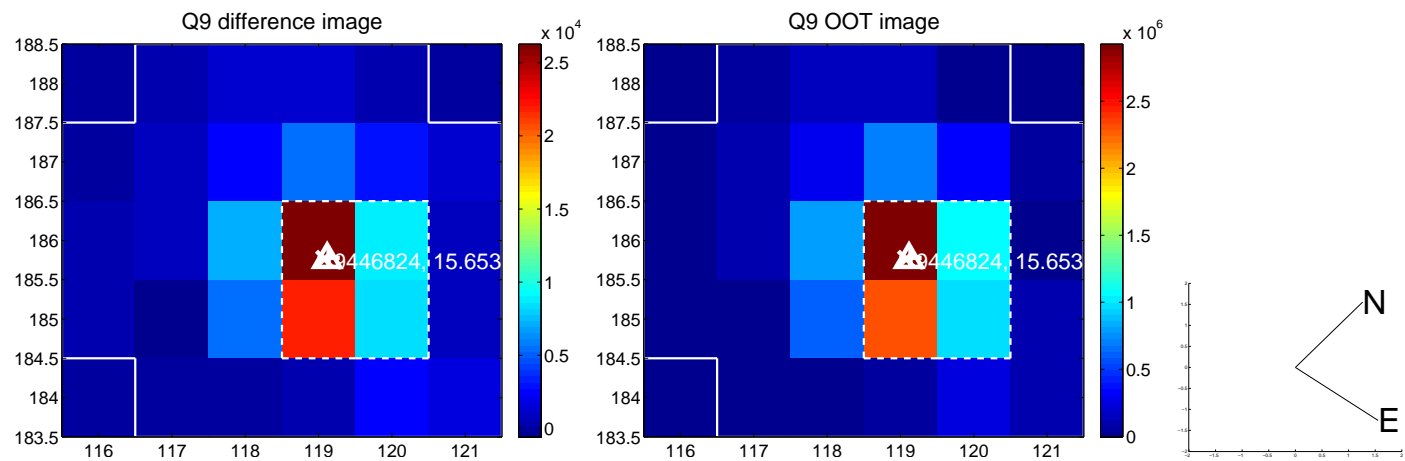
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



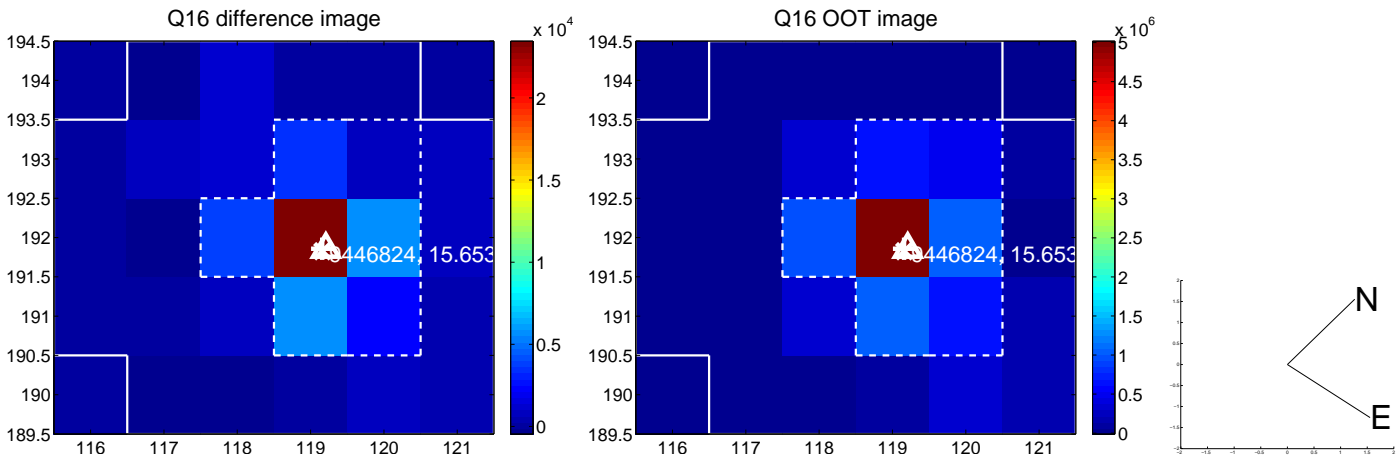
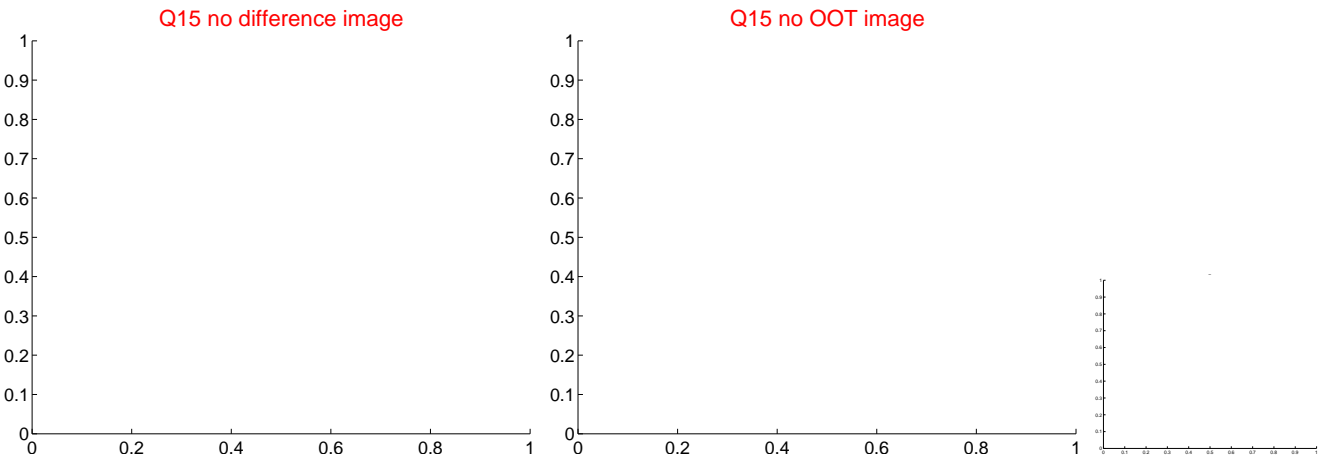
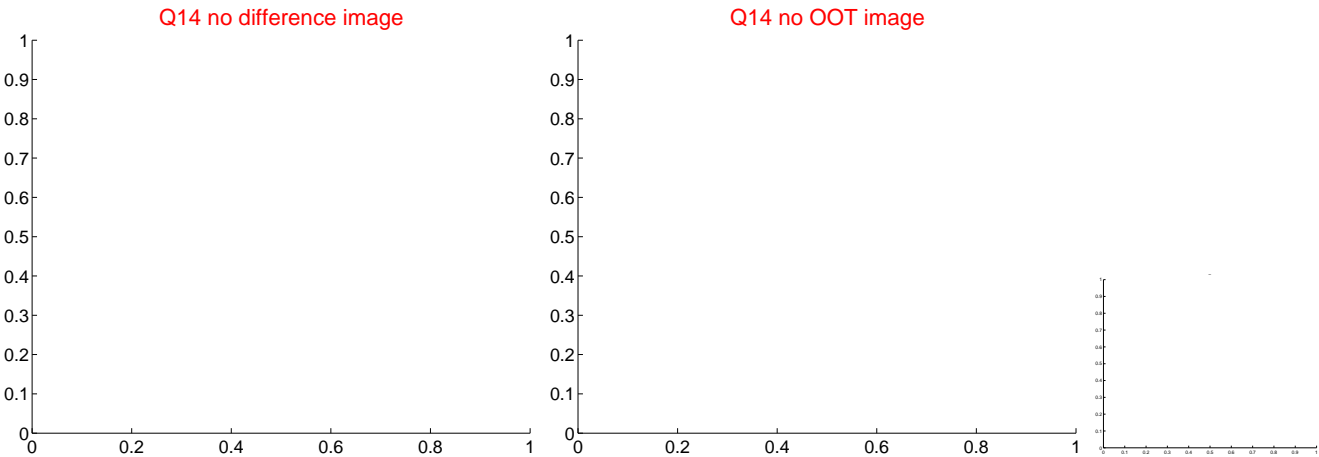
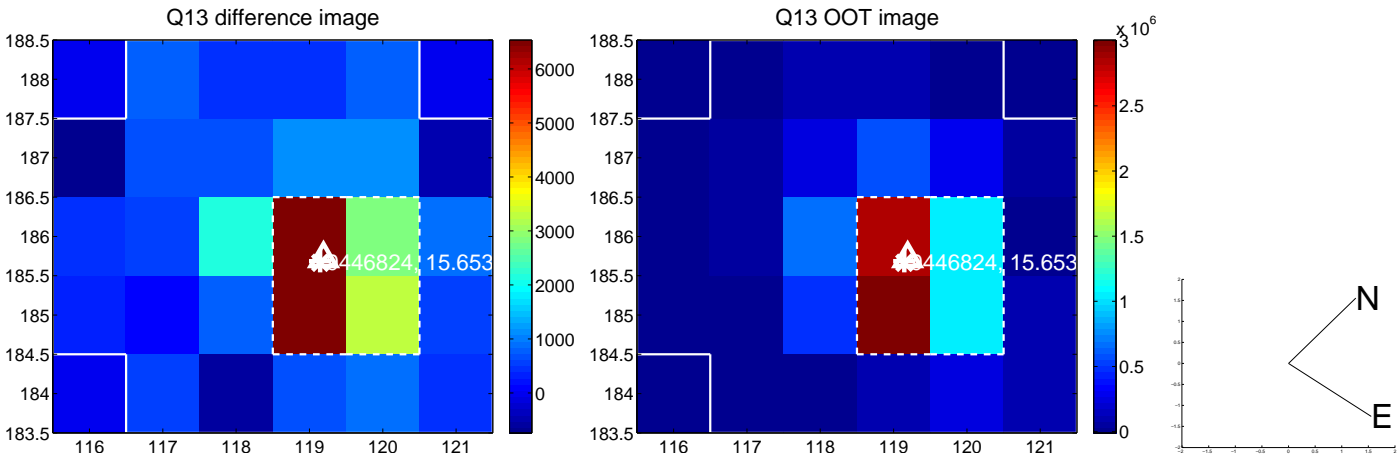
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



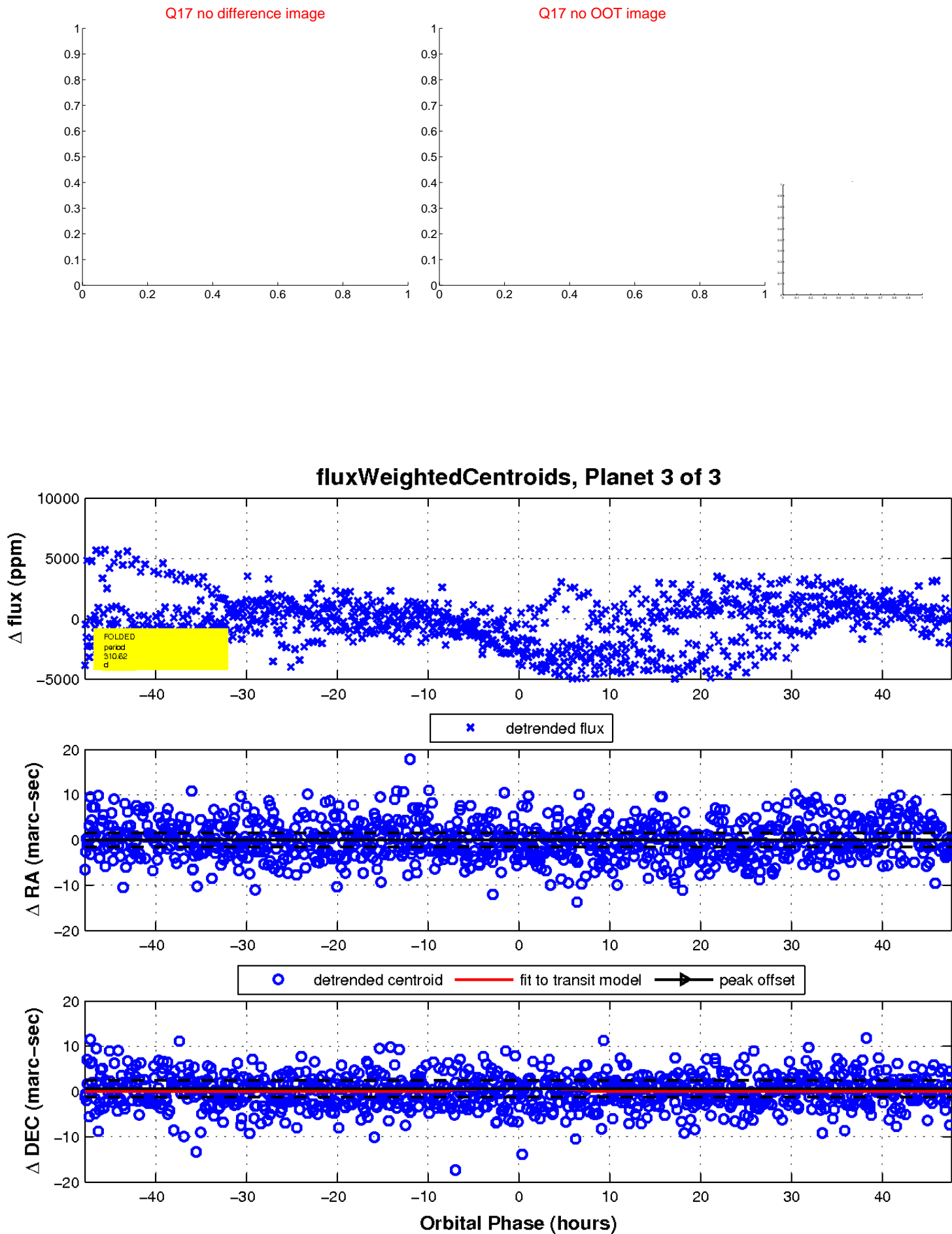
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

