

KIC 004634135

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})
004634135-01	OBS	3328.01	63.900739	189.467728	17994.7	8.073	201.6	165.3	0.63	5204	14.82	3.69
004634135-02	OBS	No	63.915487	154.818823	17793.0	5.763	160.1	138.0	0.63	5204	13.95	3.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004634135-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004634135-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

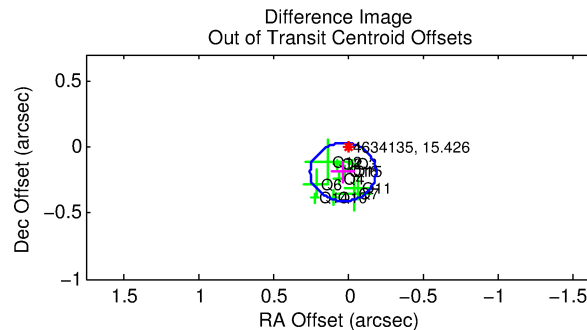
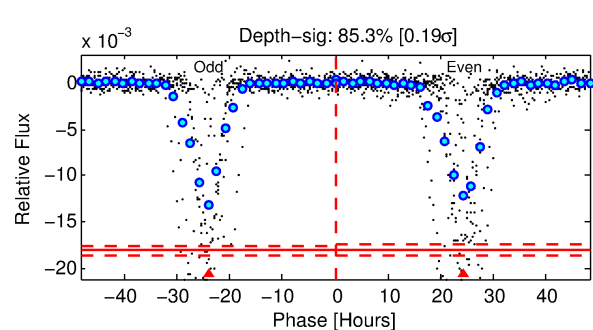
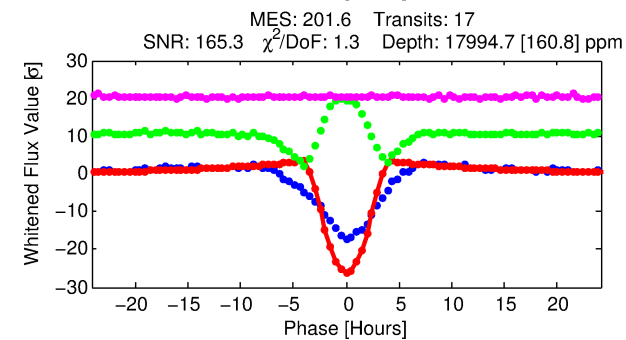
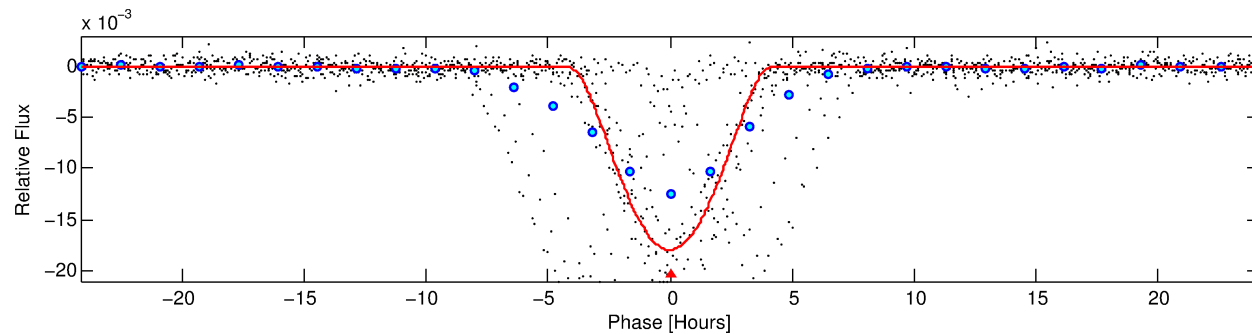
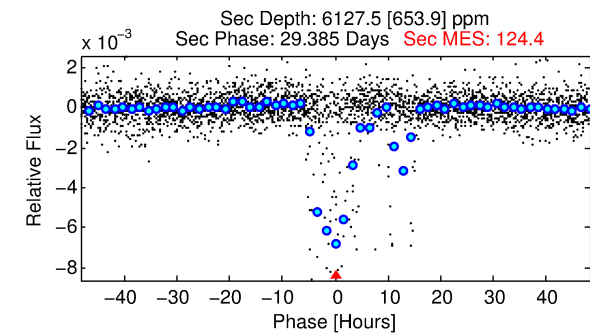
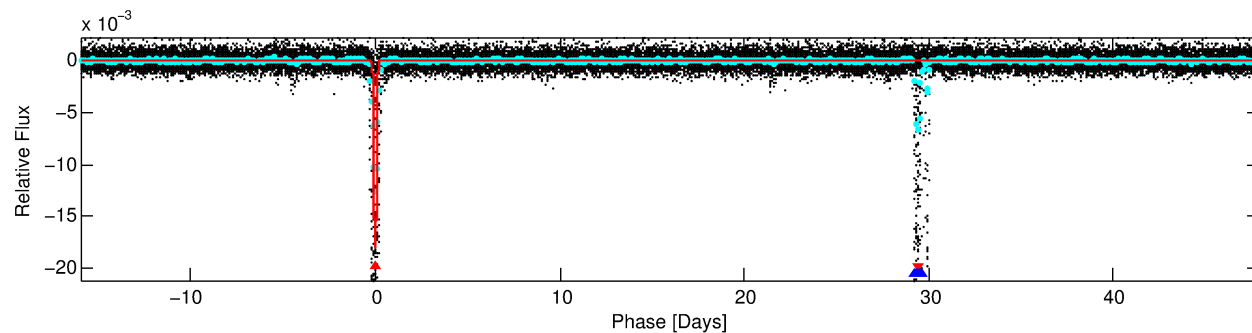
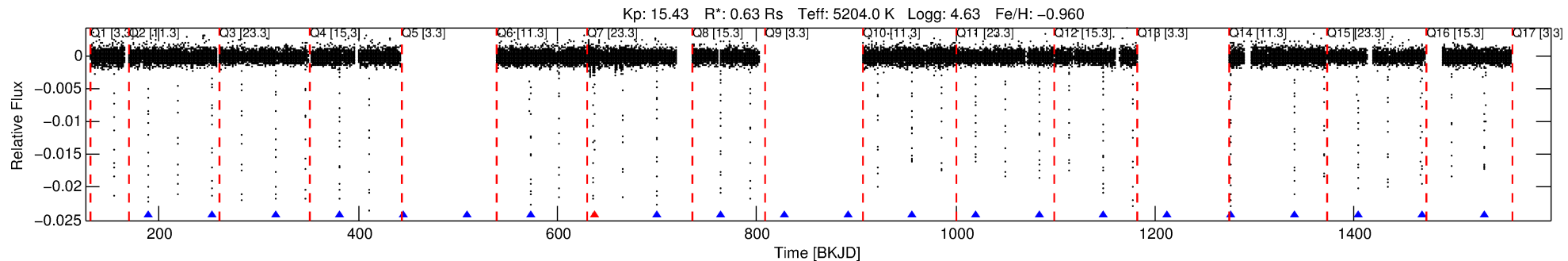
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004634135-01

No Significant Match Found

DV One-Page Summary

KIC: 4634135 Candidate: 1 of 2 Period: 63.901 d
KOI: K03328.01 Corr: 0.961



DV Fit Results:

Period = 63.90074 [0.00006] d
Epoch = 189.4677 [0.0008] BKJD
Rp/R* = 0.2143 [0.0563]
a/R* = 42.19 [1.21]
b = 0.99 [0.08]
Seff = 3.69 [0.61]
Teq = 353 [15] K
Rp = 14.82 [4.07] Re
a = 0.2676 [0.0195] AU
Ag = 1098.29 [602.13] [1.82σ]
Teff = 3145 [432] K [6.46σ]

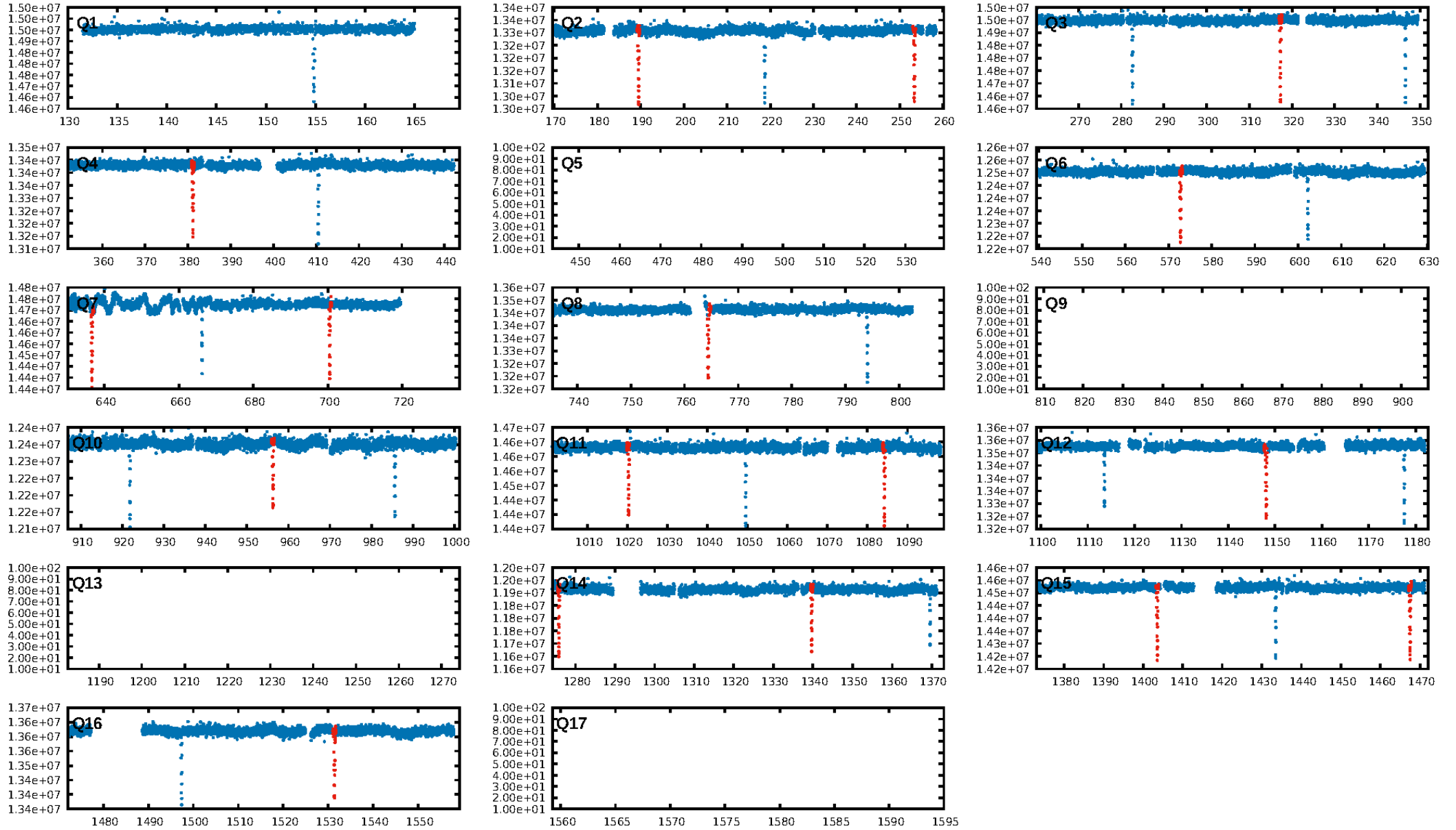
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 2.8% [0.04σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.94 [16/17]
GhostDiagnostic-chr: 2.355
Centroid-sig: 0.0%
Centroid-so: 0.088 arcsec [1.73σ]
OotOffset-rm: 0.194 arcsec [2.65σ]
KicOffset-rm: 0.265 arcsec [3.50σ]
OotOffset-st: 4/4/3/0 [11]
KicOffset-st: 4/4/3/0 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [11/11]

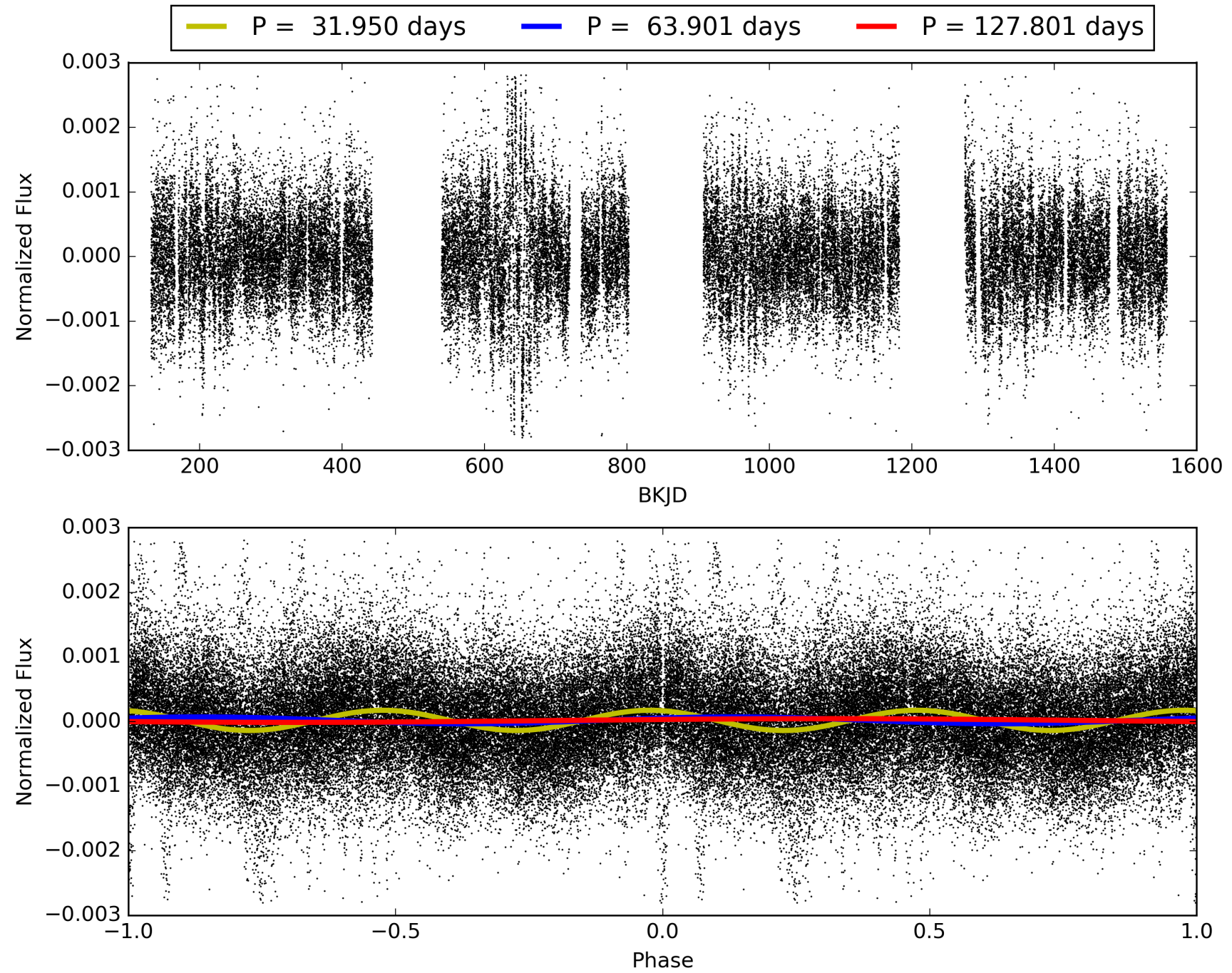
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 03:07:16 Z

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

TCE 004634135-01, PDC Light Curves

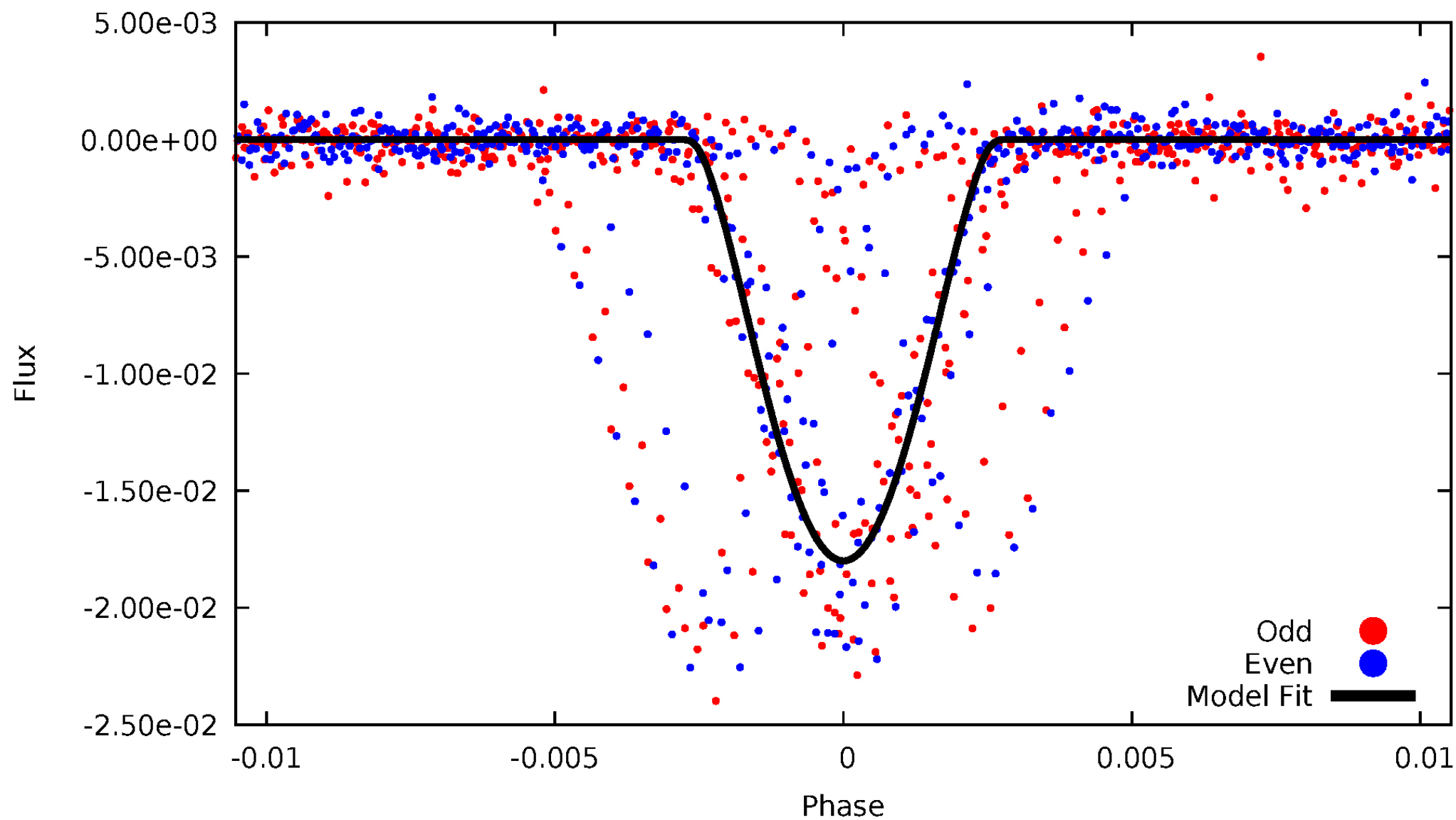


TCE 004634135-01



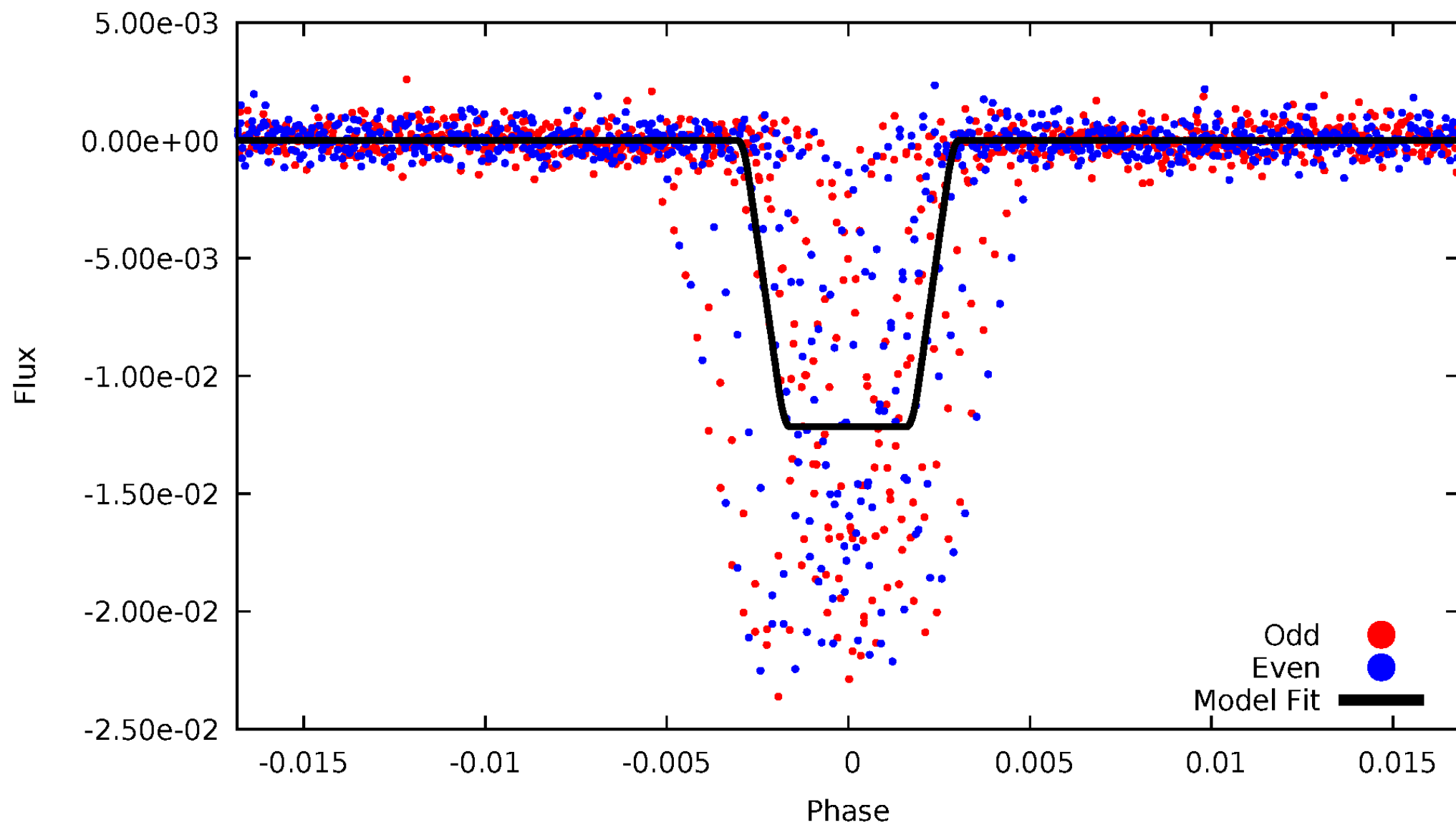
DV Odd/Even

TCE 004634135-01



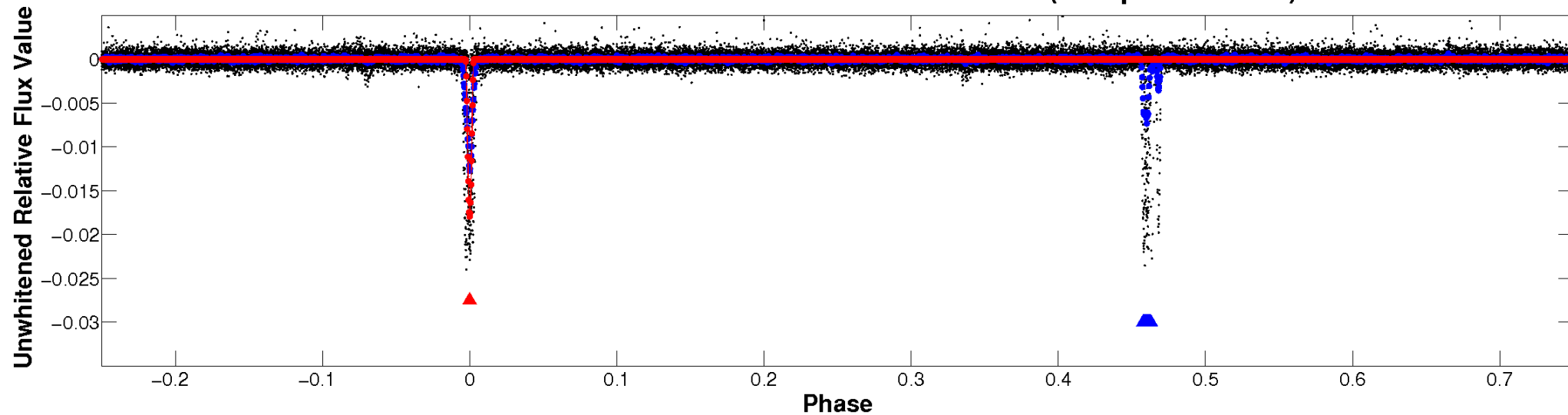
ALT Odd/Even

TCE 004634135-01

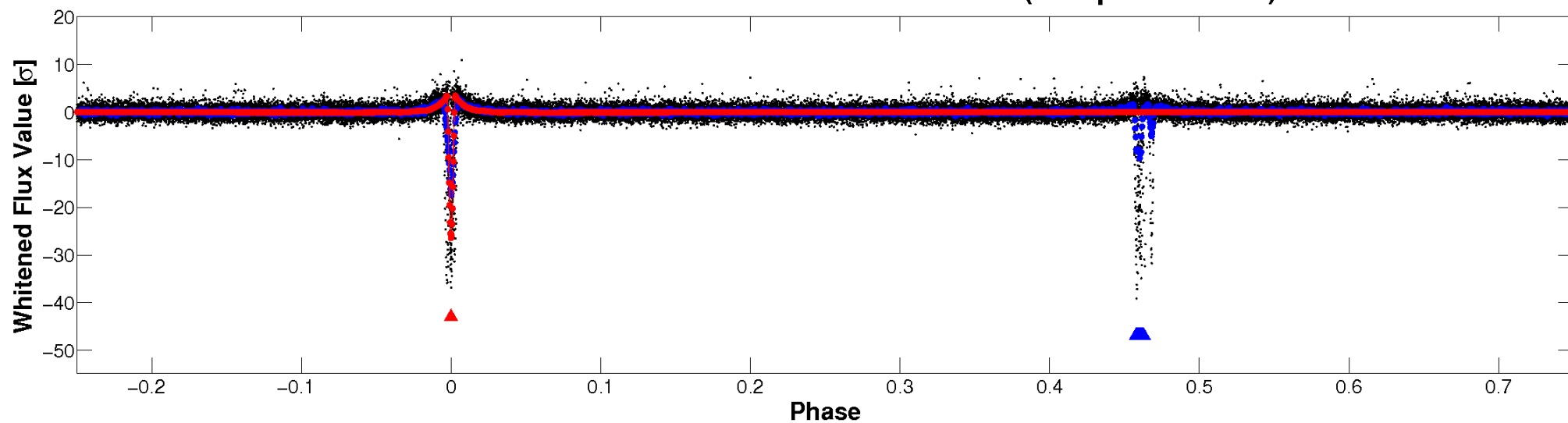


Non-Whitened Vs. Whitened Light Curve

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

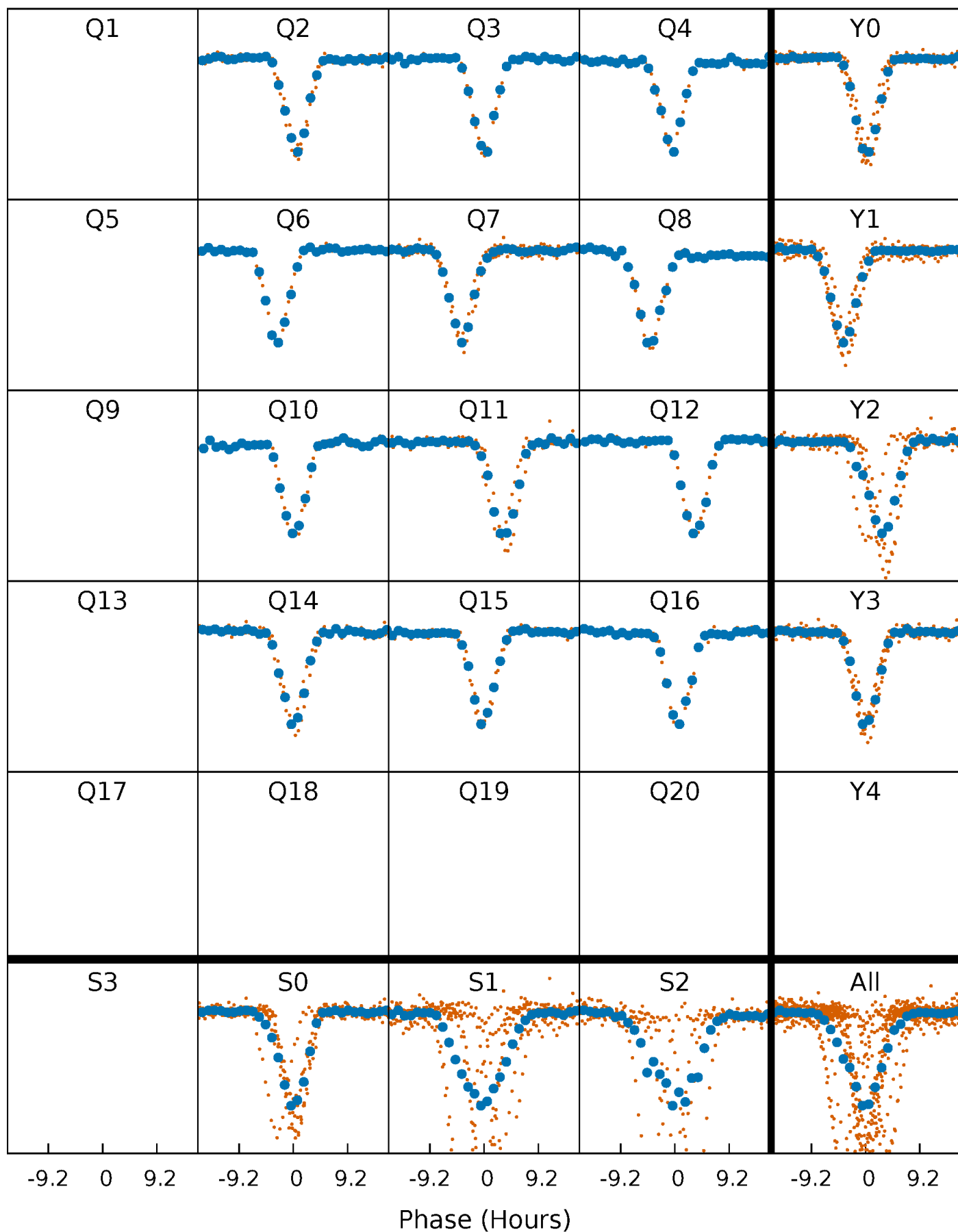


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



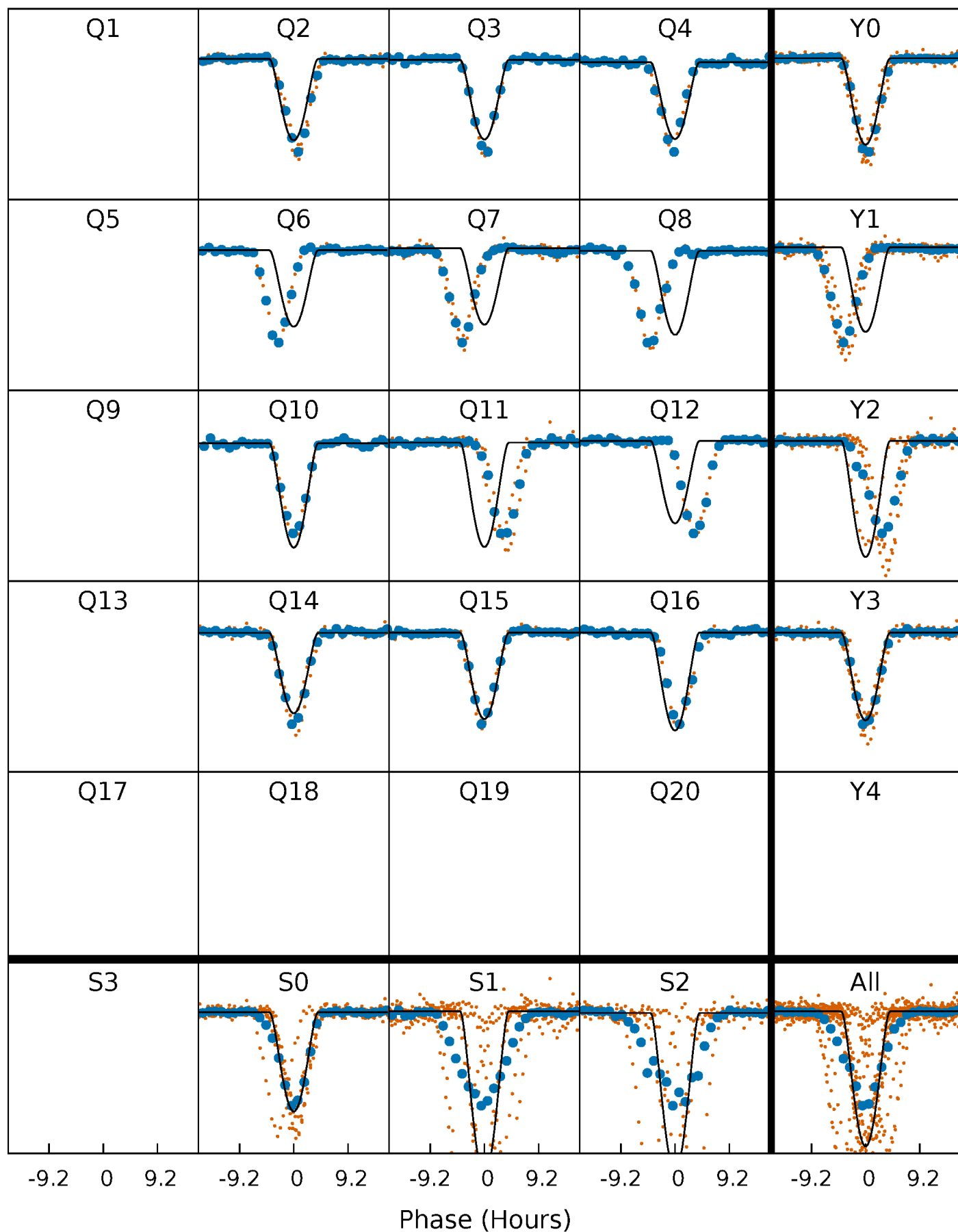
PDC Quarter-Phased Transit Curves

TCE 004634135-01 P= 63.900739 Days $T_0=189.467728$ (BKJD)



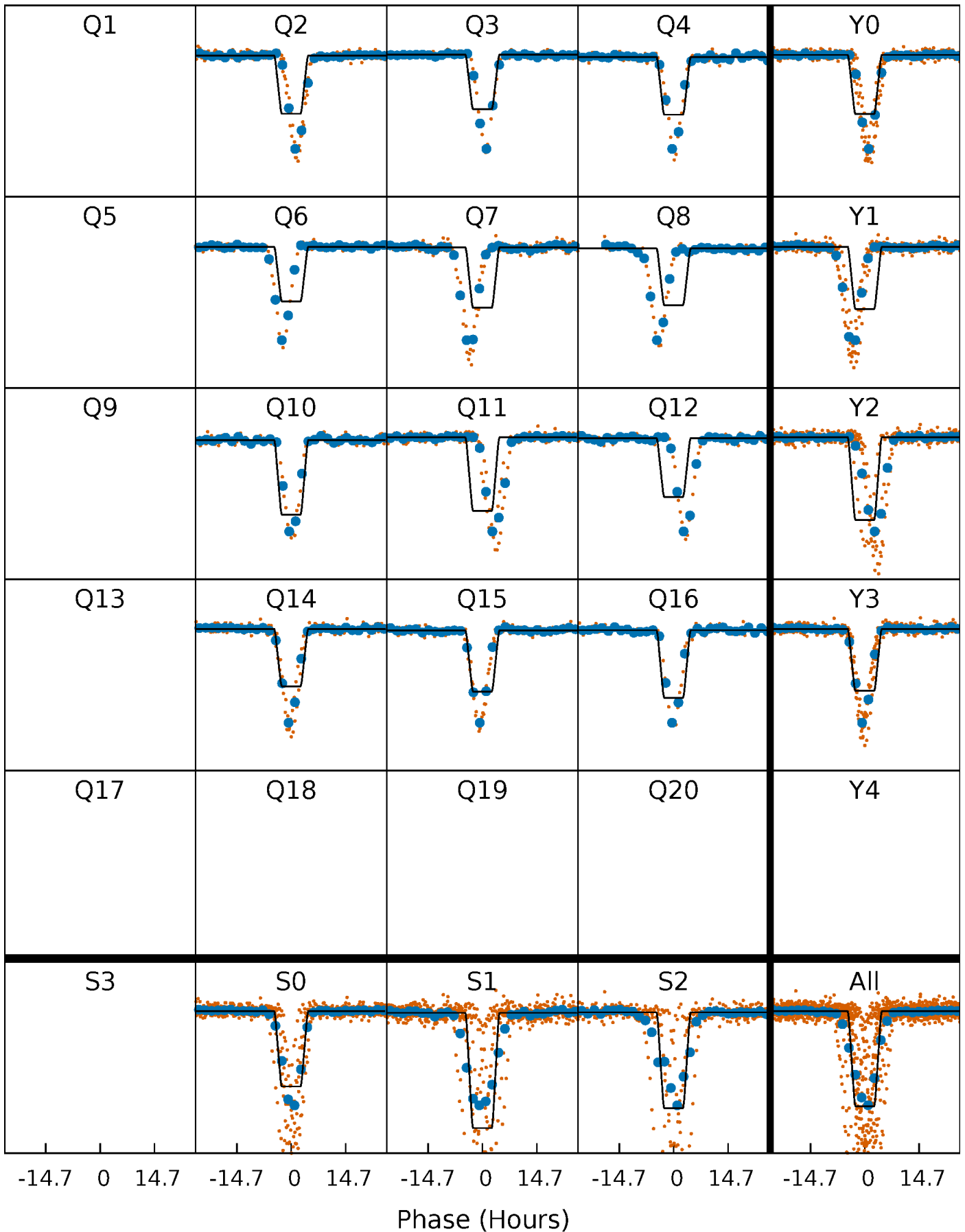
DV Quarter-Phased Transit Curves

TCE 004634135-01 P= 63.900739 Days $T_0=189.467728$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

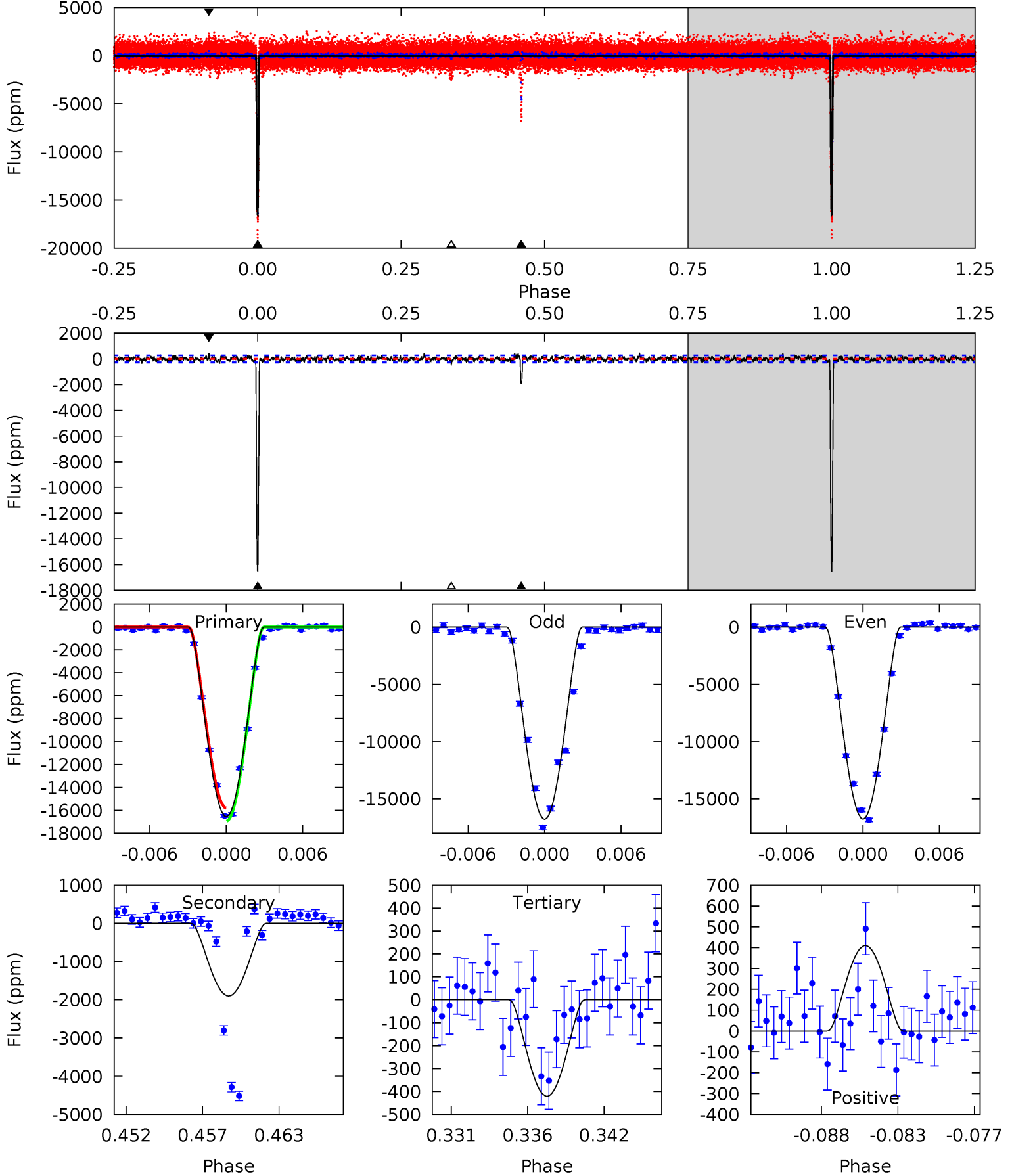
TCE 004634135-01 P= 63.903931 Days $T_0=189.427268$ (BKJD)



DV Model-Shift Uniqueness Test

004634135-01, P = 63.900739 Days, E = 125.566989 Days

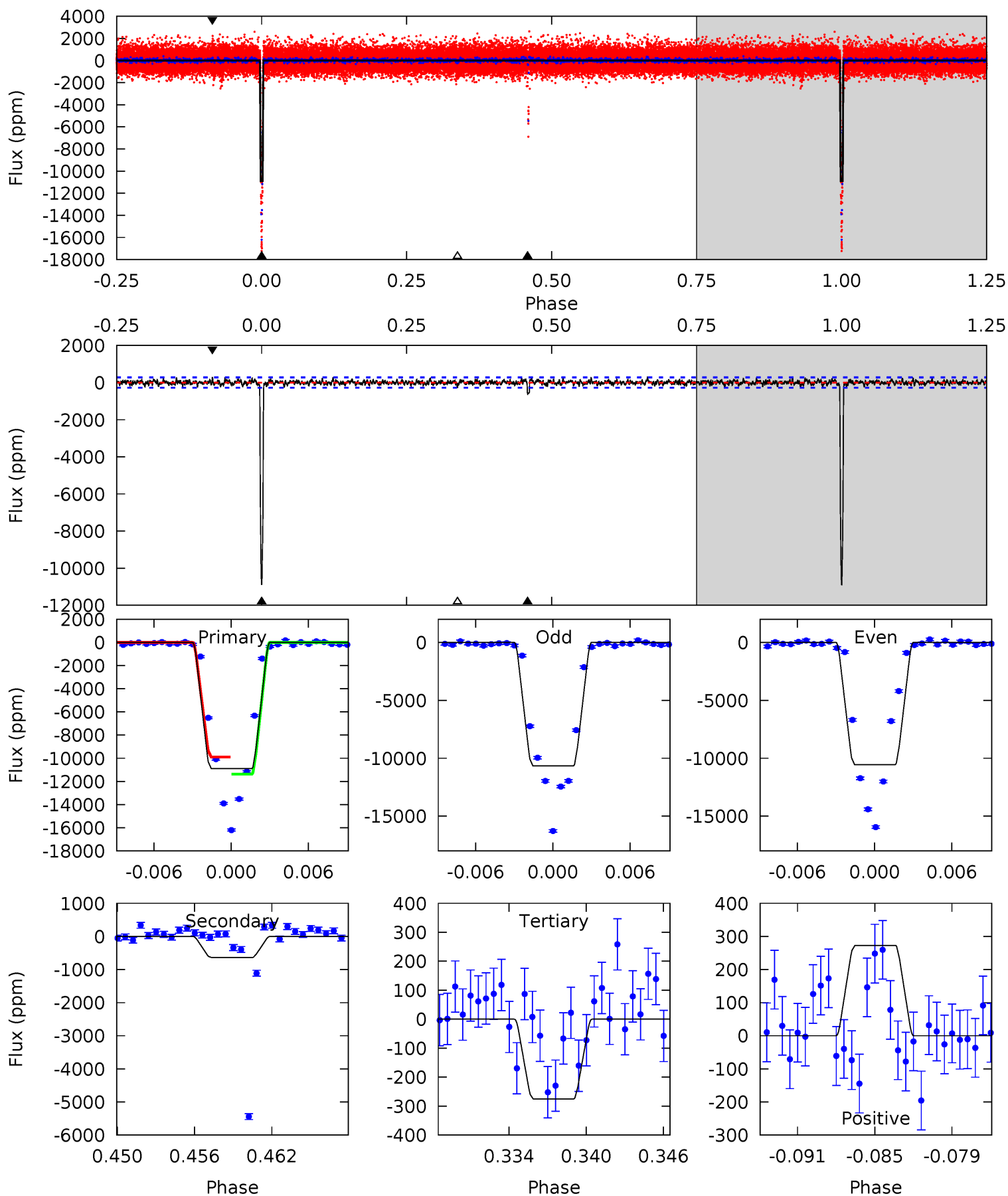
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
311.0	35.8	7.91	7.71	5.14	2.78	1.98	303.1	303.3	27.9	28.1	0.23	0.86	0.02	0



Alt Model-Shift Uniqueness Test

004634135-01, P = 63.903931 Days, E = 125.523337 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
200.9	11.8	5.07	5.03	5.12	2.74	1.42	195.8	195.8	6.71	6.75	0.96	0.93	0.02	0



Stellar Parameters For KIC 004634135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5204^{+157}_{-157}	$4.630^{+0.066}_{-0.039}$	$-0.960^{+0.300}_{-0.300}$	$0.634^{+0.050}_{-0.050}$	$0.624^{+0.055}_{-0.024}$	$3.453^{+0.910}_{-0.555}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-8%	+9%/-4%	+26%/-16%
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 004634135-01 / KOI 3328.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1901 ± 53	$14.54^{+4.08}_{-3.88}$	491^{+19}_{-18}	3013^{+276}_{-210}	359^{+311}_{-139}
Alt.	-639 ± 54	$7.63^{+4.02}_{-3.66}$	491^{+18}_{-18}	3098^{+690}_{-334}	440^{+1208}_{-250}

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 $A_{obs} \gg 1.0$

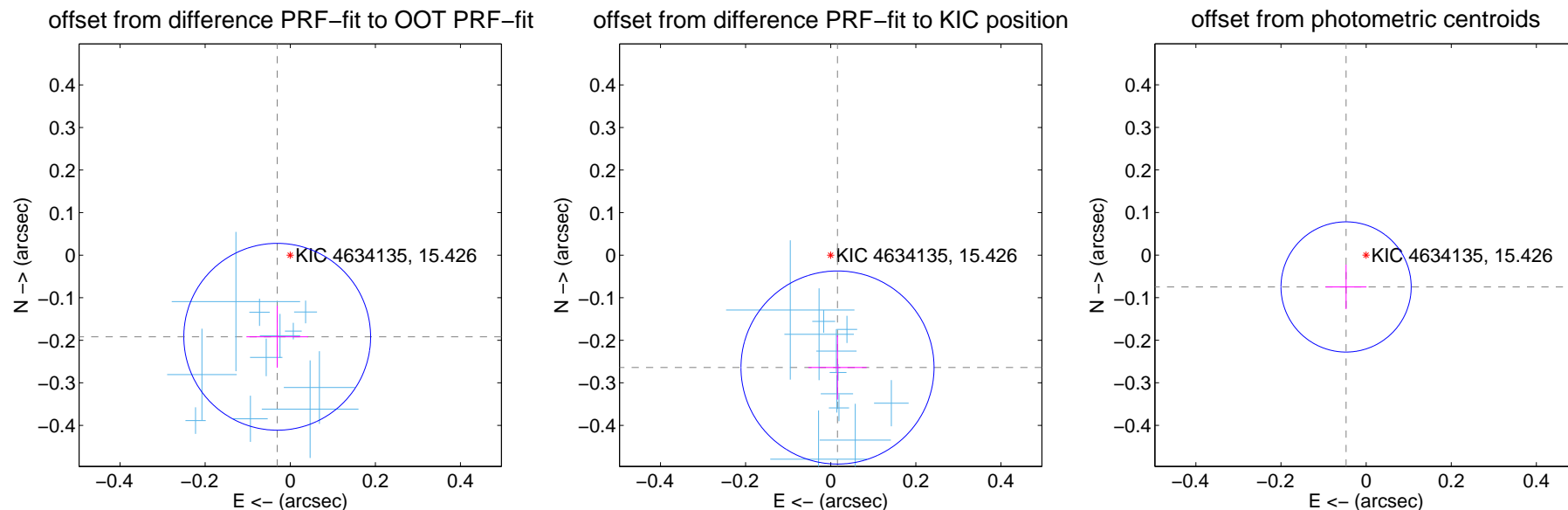
DV Centroid Data

Supplemental centroid analysis for 004634135-01. Kepler magnitude: 15.43. Transit SNR 165.33

There are 11 quarters with good PRF difference image offsets

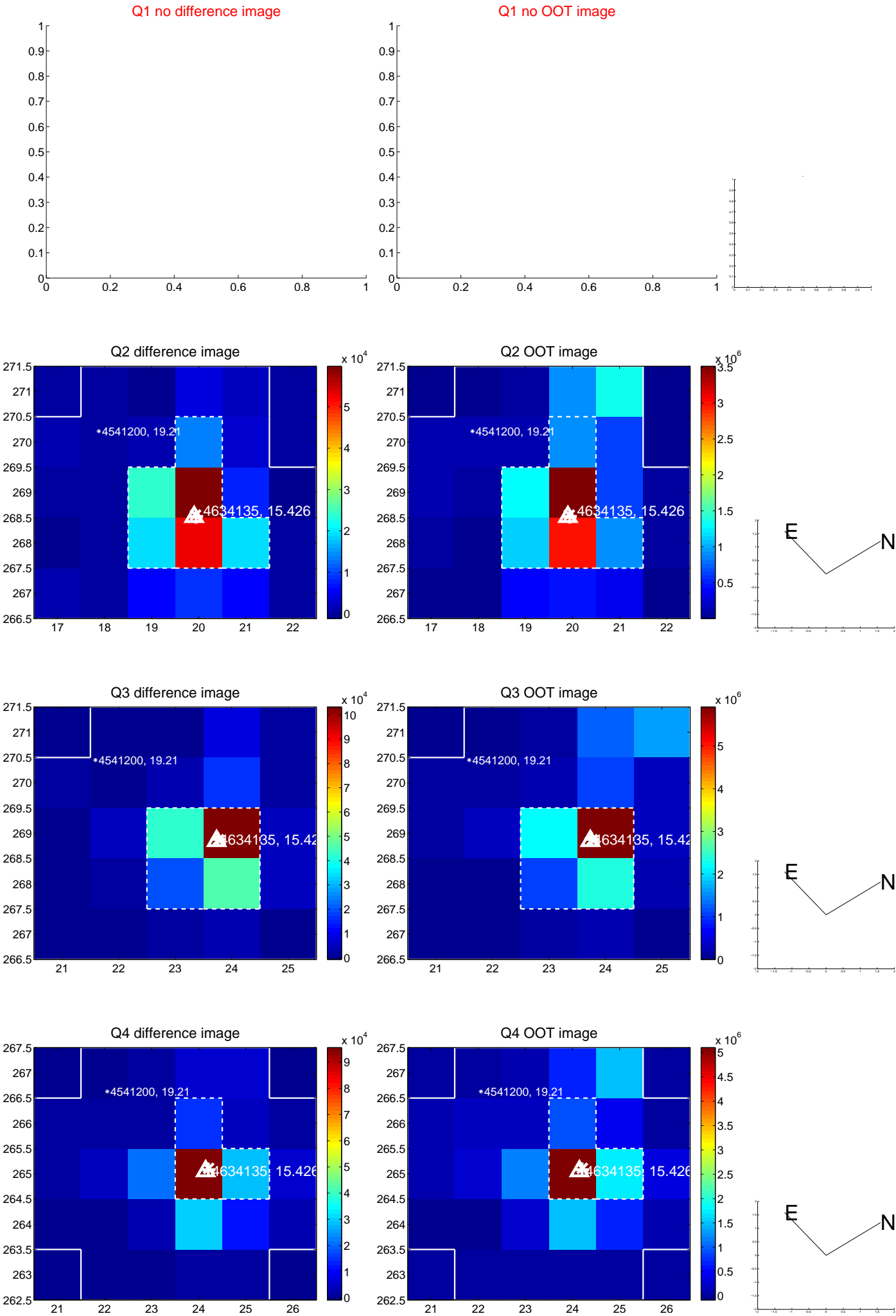
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.194 ± 0.073	2.65	0.031 ± 0.072	-0.192 ± 0.073
PRF-fit source offset from KIC position	0.265 ± 0.076	3.50	-0.016 ± 0.069	-0.264 ± 0.075
photometric centroid source offset	0.09 ± 0.05	1.73	0.05 ± 0.05	-0.07 ± 0.05

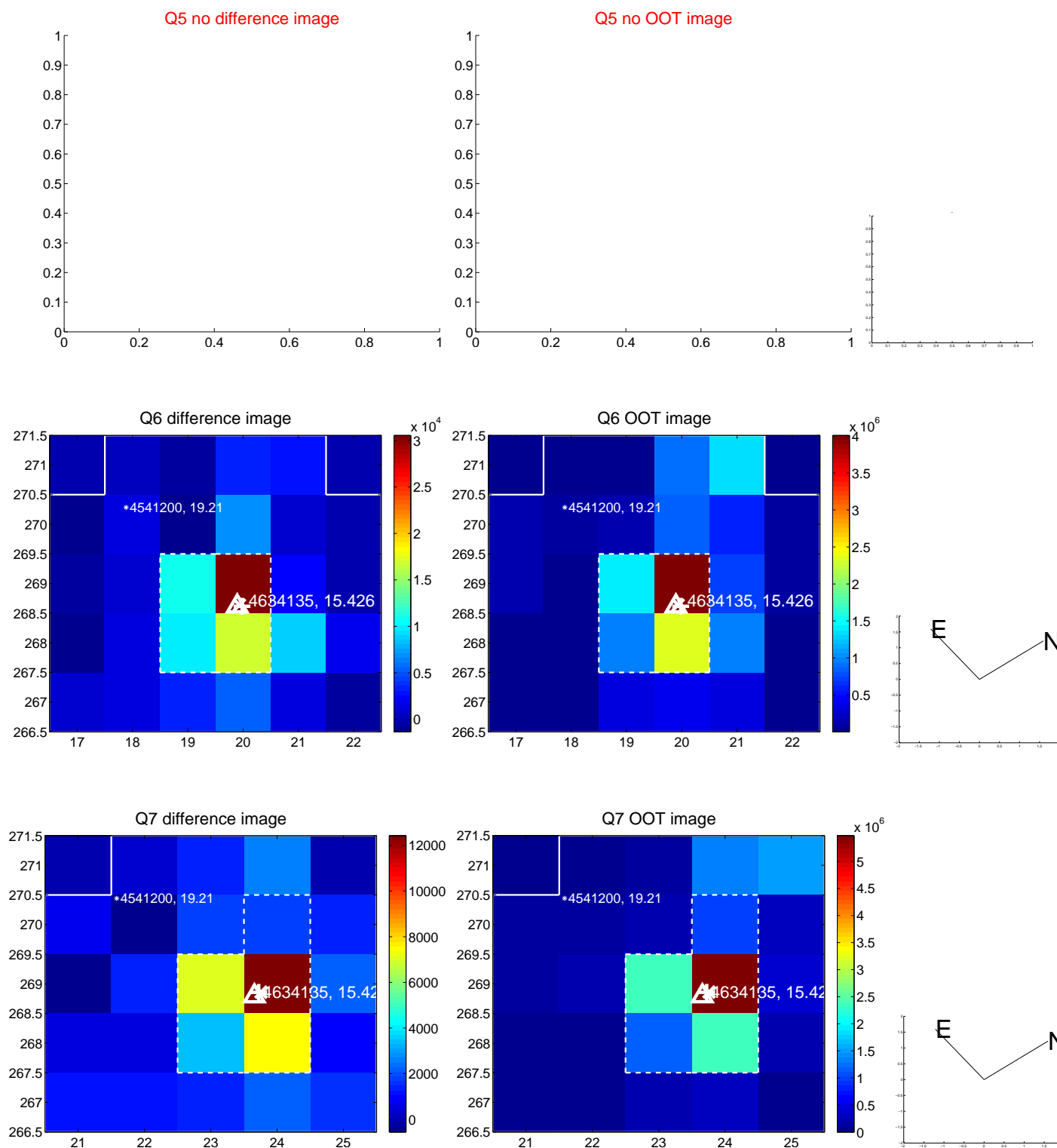


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

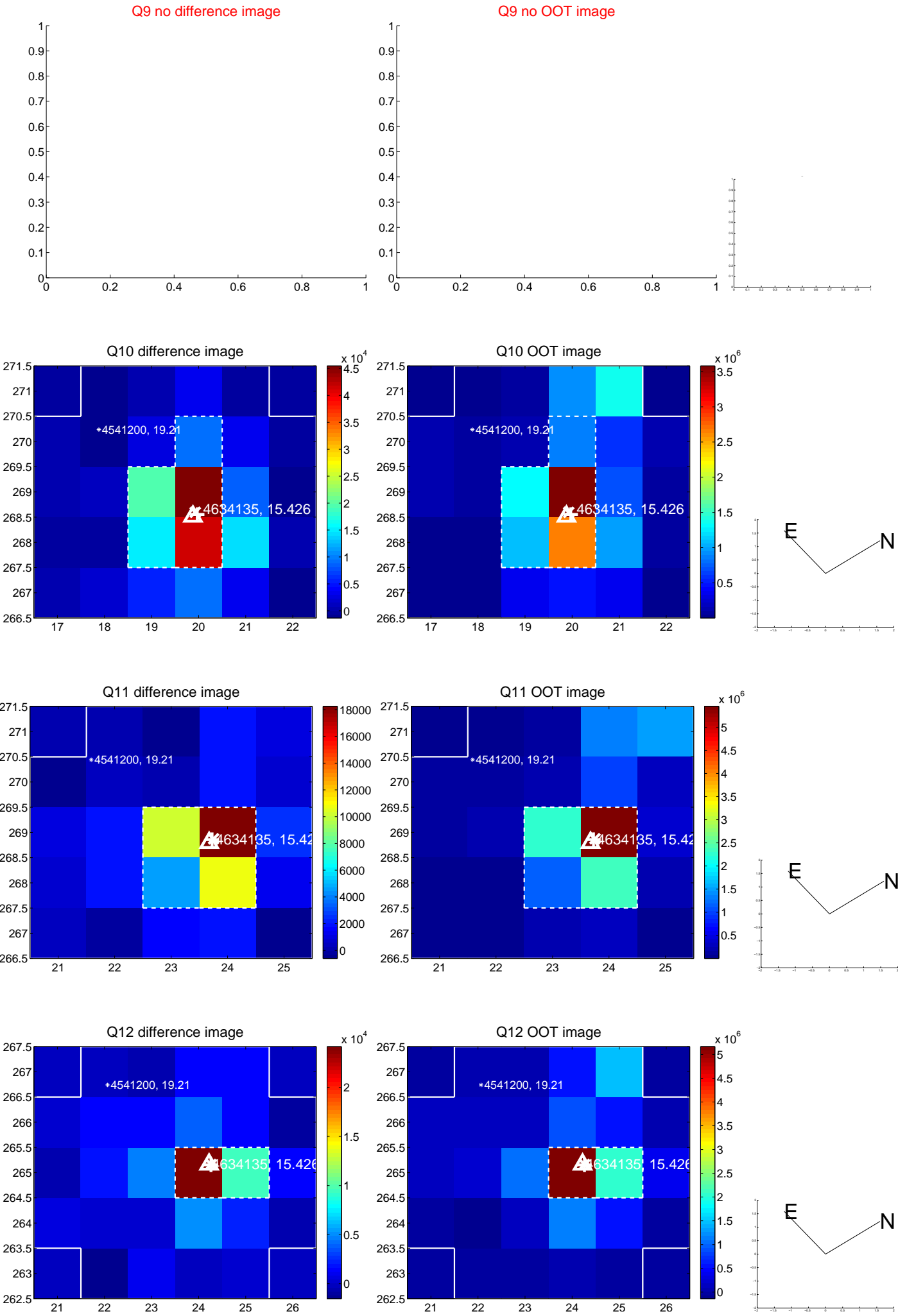
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



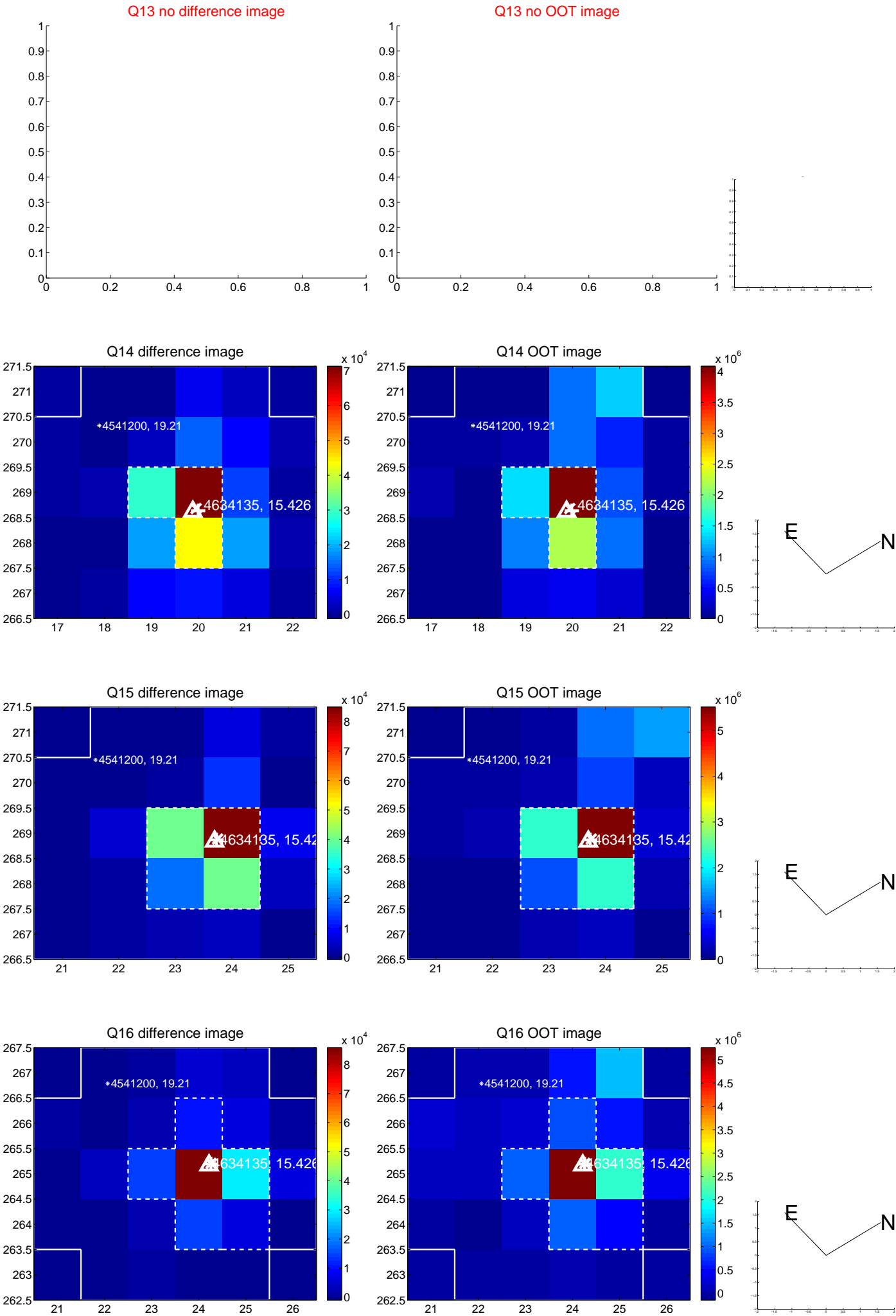
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



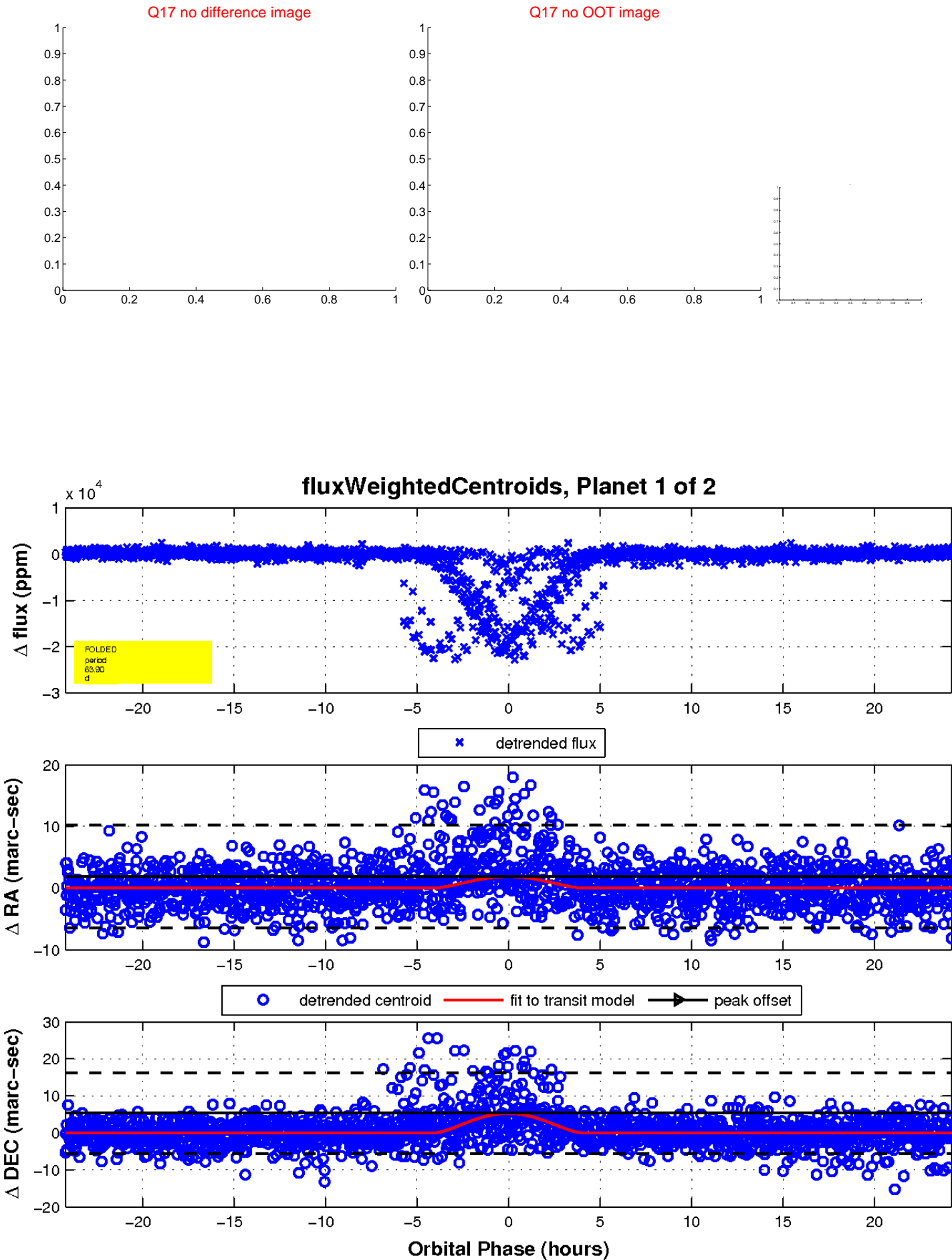
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

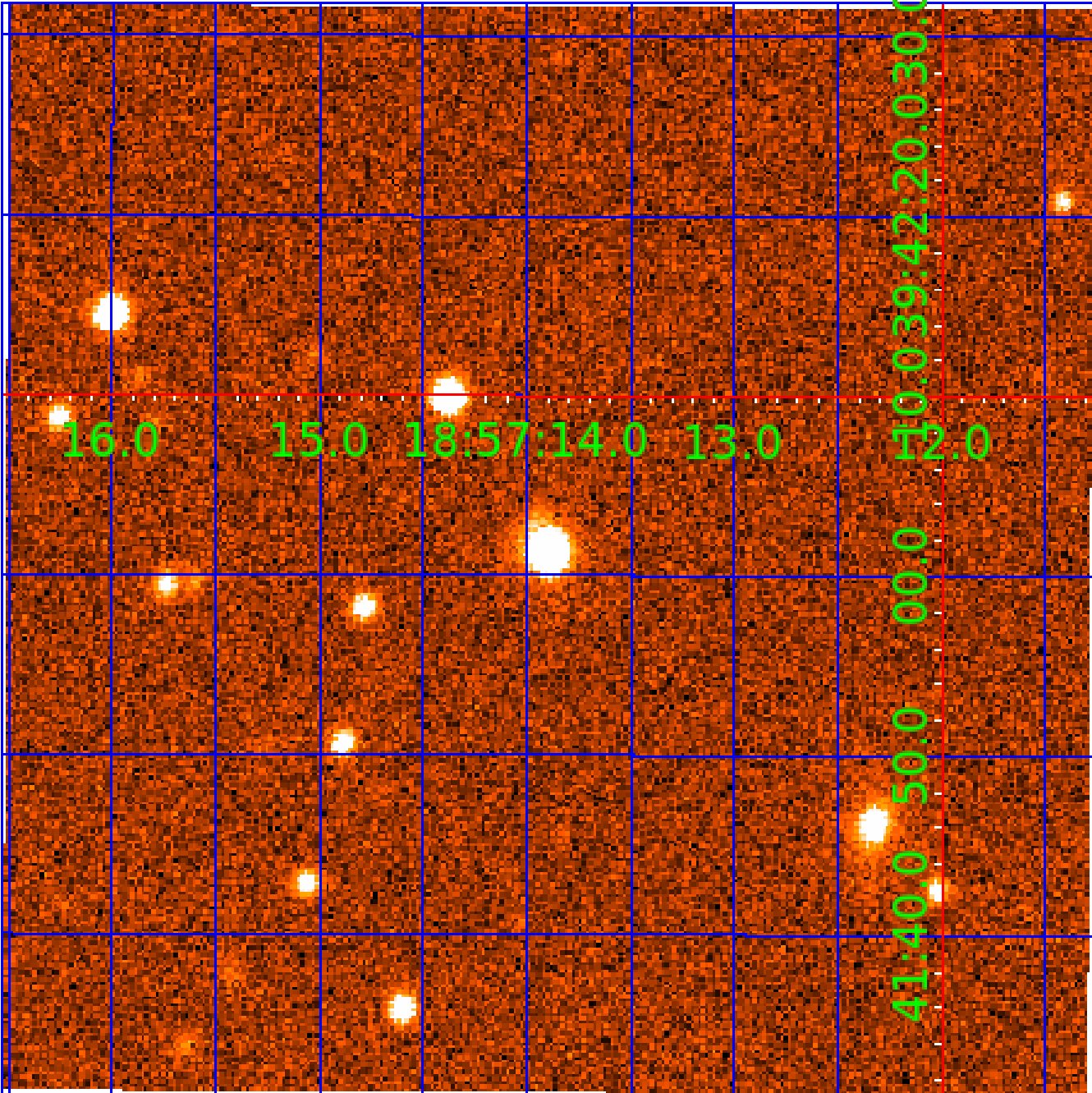


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004634135

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})
004634135-01	OBS	3328.01	63.900739	189.467728	17994.7	8.073	201.6	165.3	0.63	5204	14.82	3.69
004634135-02	OBS	No	63.915487	154.818823	17793.0	5.763	160.1	138.0	0.63	5204	13.95	3.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004634135-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004634135-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

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

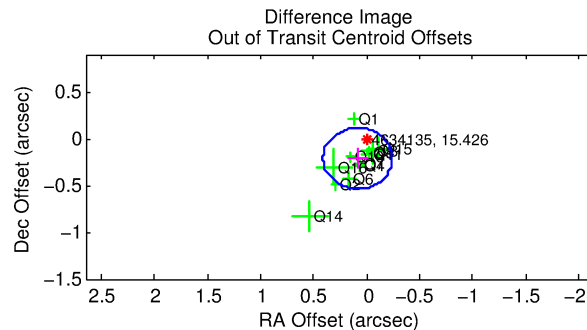
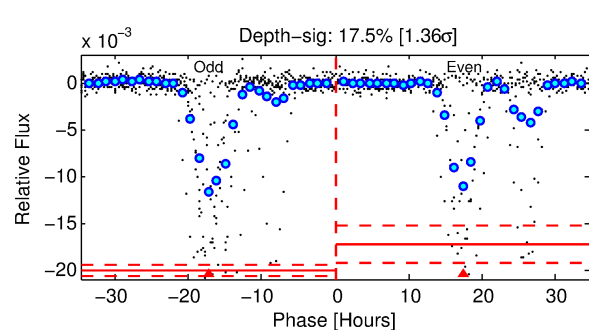
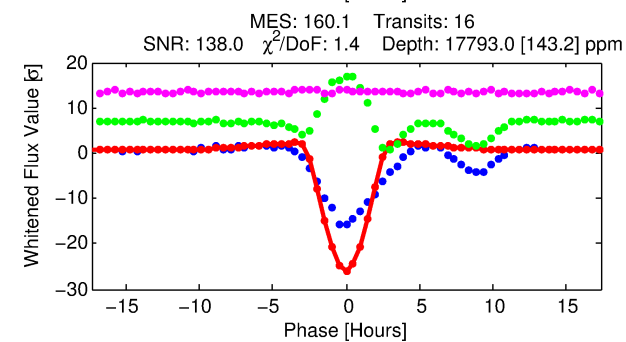
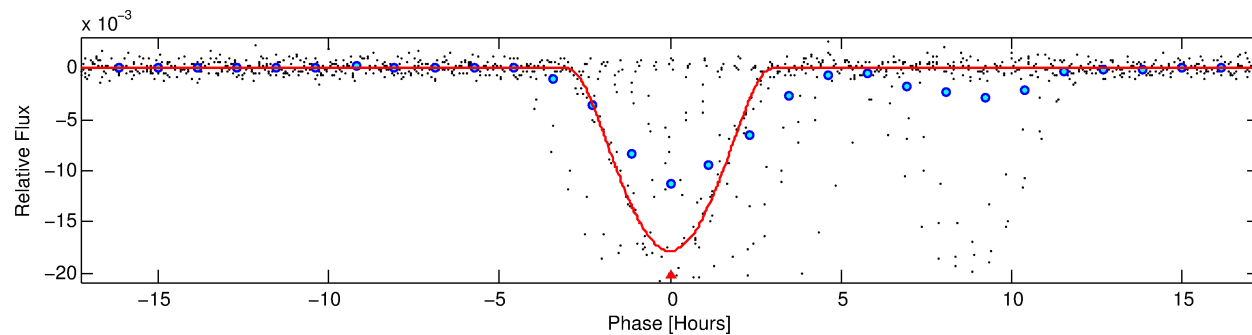
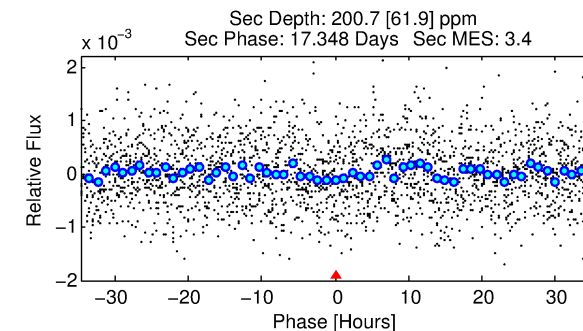
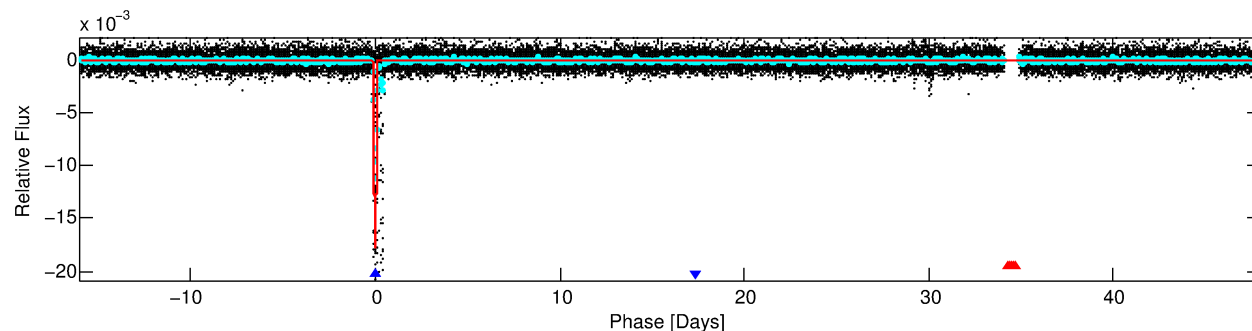
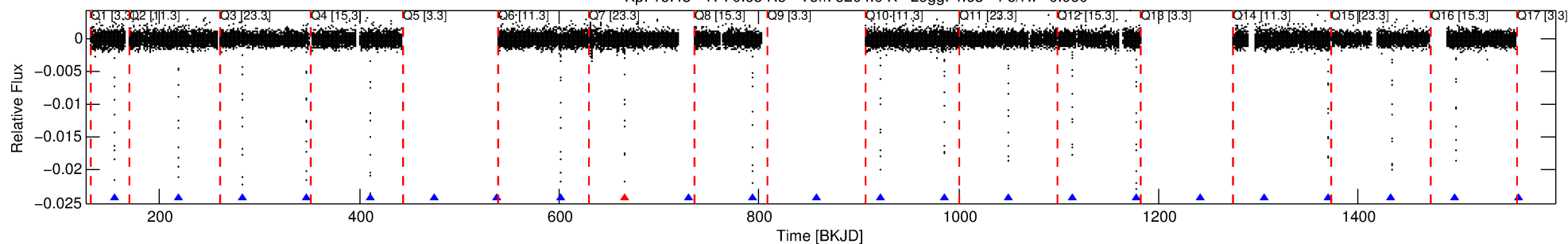
Ephemeris Match Information For 004634135-02

No Significant Match Found

DV One-Page Summary

KIC: 4634135 Candidate: 2 of 2 Period: 63.915 d
KOI: K03328 Corr: No Ephemeris Match

Kp: 15.43 R*: 0.63 Rs Teff: 5204.0 K Logg: 4.63 Fe/H: -0.960



DV Fit Results:

Period = 63.91549 [0.00007] d
Epoch = 154.8188 [0.0008] BKJD
Rp/R* = 0.2016 [0.0629]
a/R* = 59.28 [2.44]
b = 0.98 [0.09]
Seff = 3.69 [0.61]
Teq = 353 [15] K
Rp = 13.95 [4.49] Re
a = 0.2676 [0.0195] AU
Ag = 40.65 [28.69] [1.38σ]
Teff = 1380 [244] K [4.20σ]

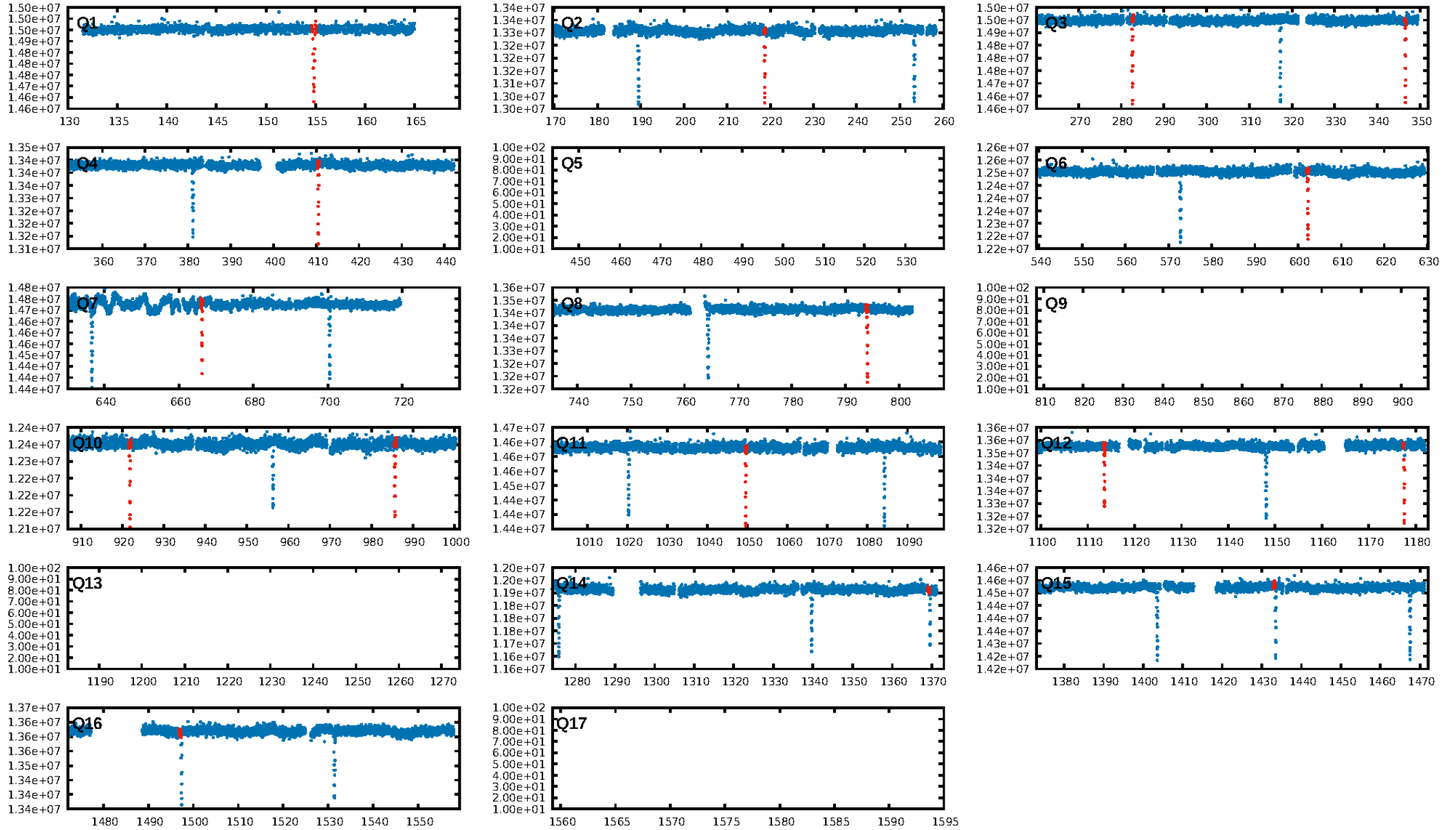
DV Diagnostic Results:

ShortPeriod-sig: 2.8% [0.04σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 98.4%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.93 [14/15]
GhostDiagnostic-chr: 2.882
Centroid-sig: 0.0%
Centroid-so: 0.049 arcsec [0.81σ]
OotOffset-rm: 0.229 arcsec [2.11σ]
KicOffset-rm: 0.292 arcsec [2.64σ]
OotOffset-st: 4/4/3/1 [12]
KicOffset-st: 4/4/3/1 [12]
DiffImageQuality-fgm: 0.75 [9/12]
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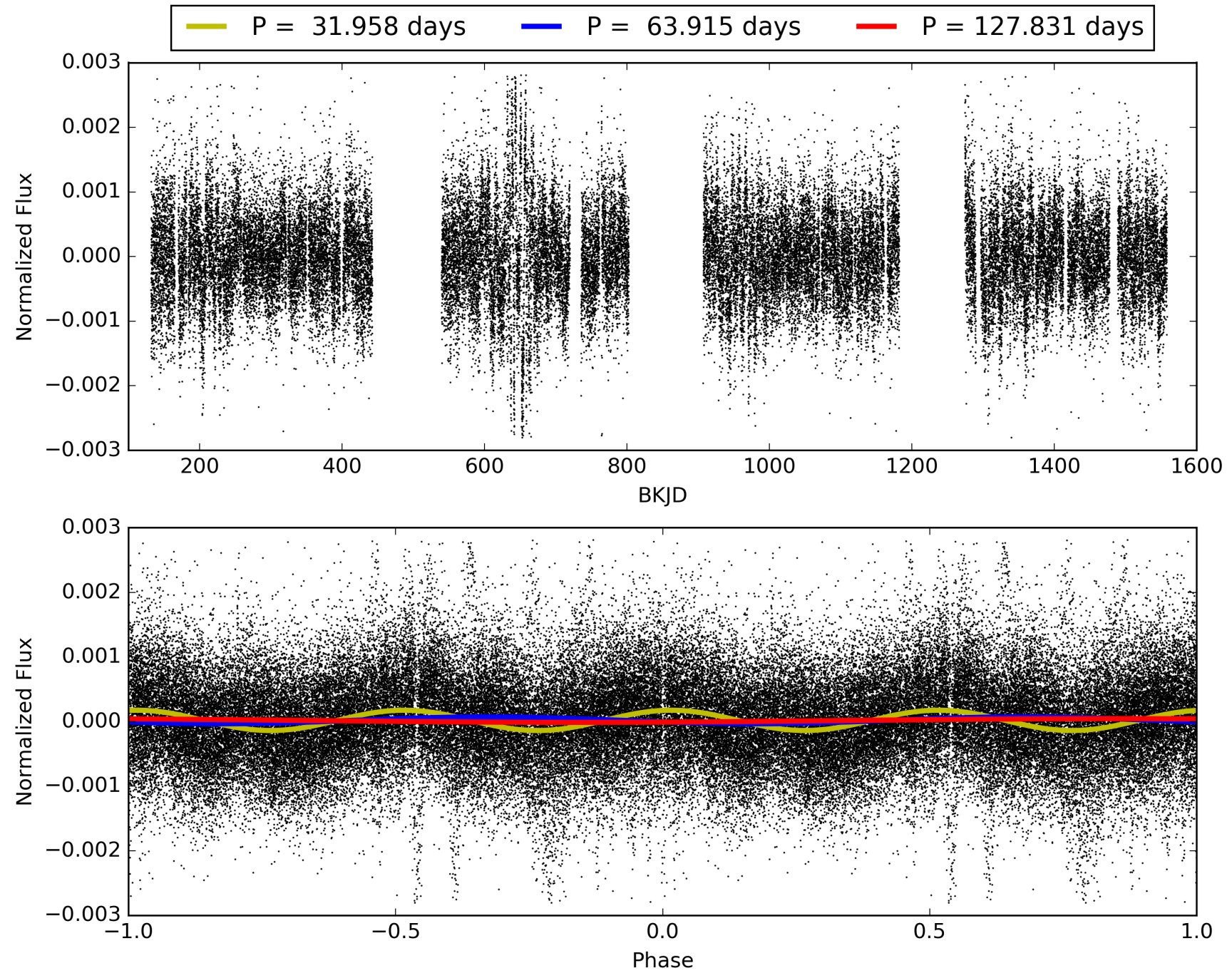
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 03:07:22 Z

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

TCE 004634135-02, PDC Light Curves

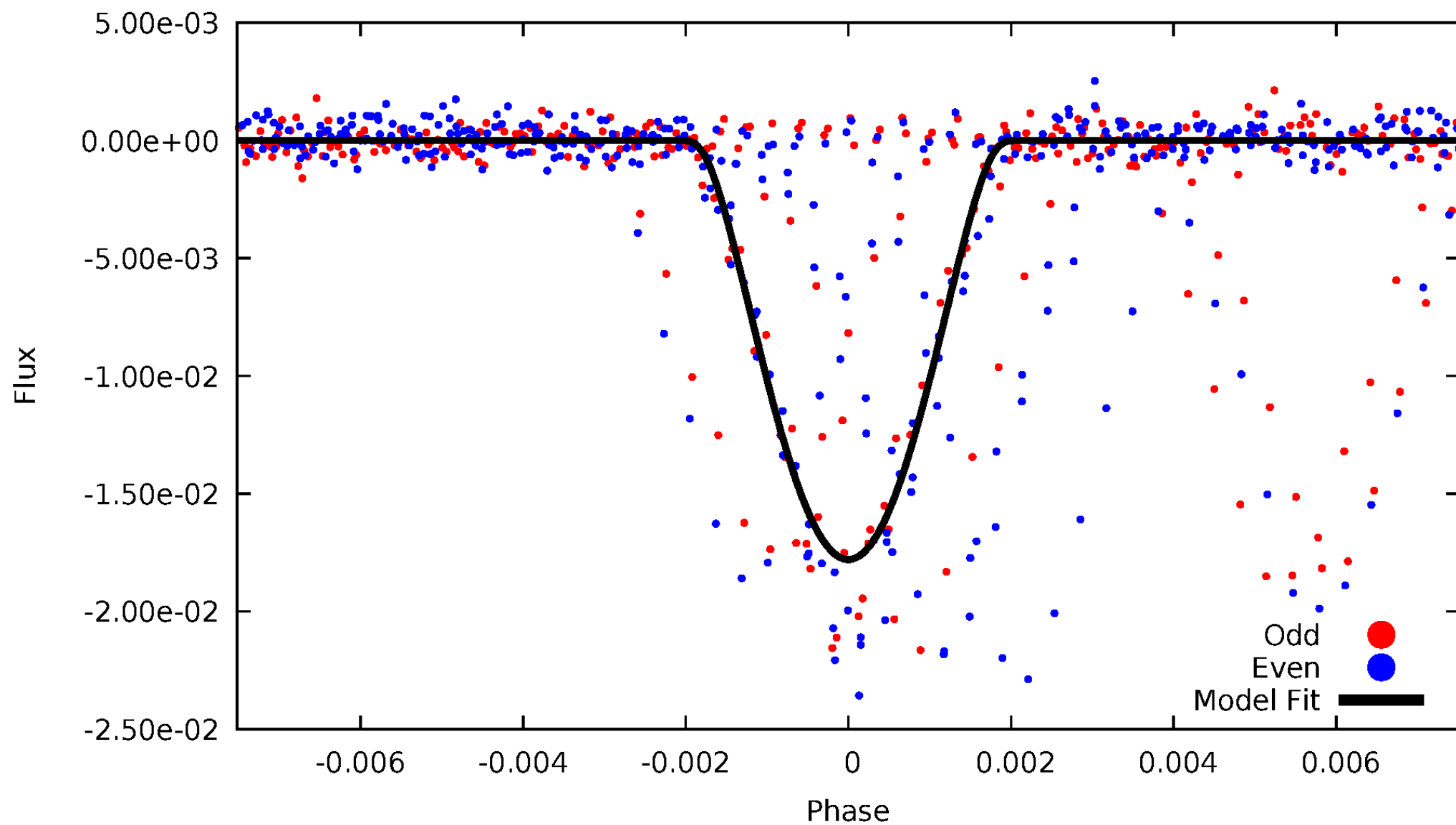


TCE 004634135-02



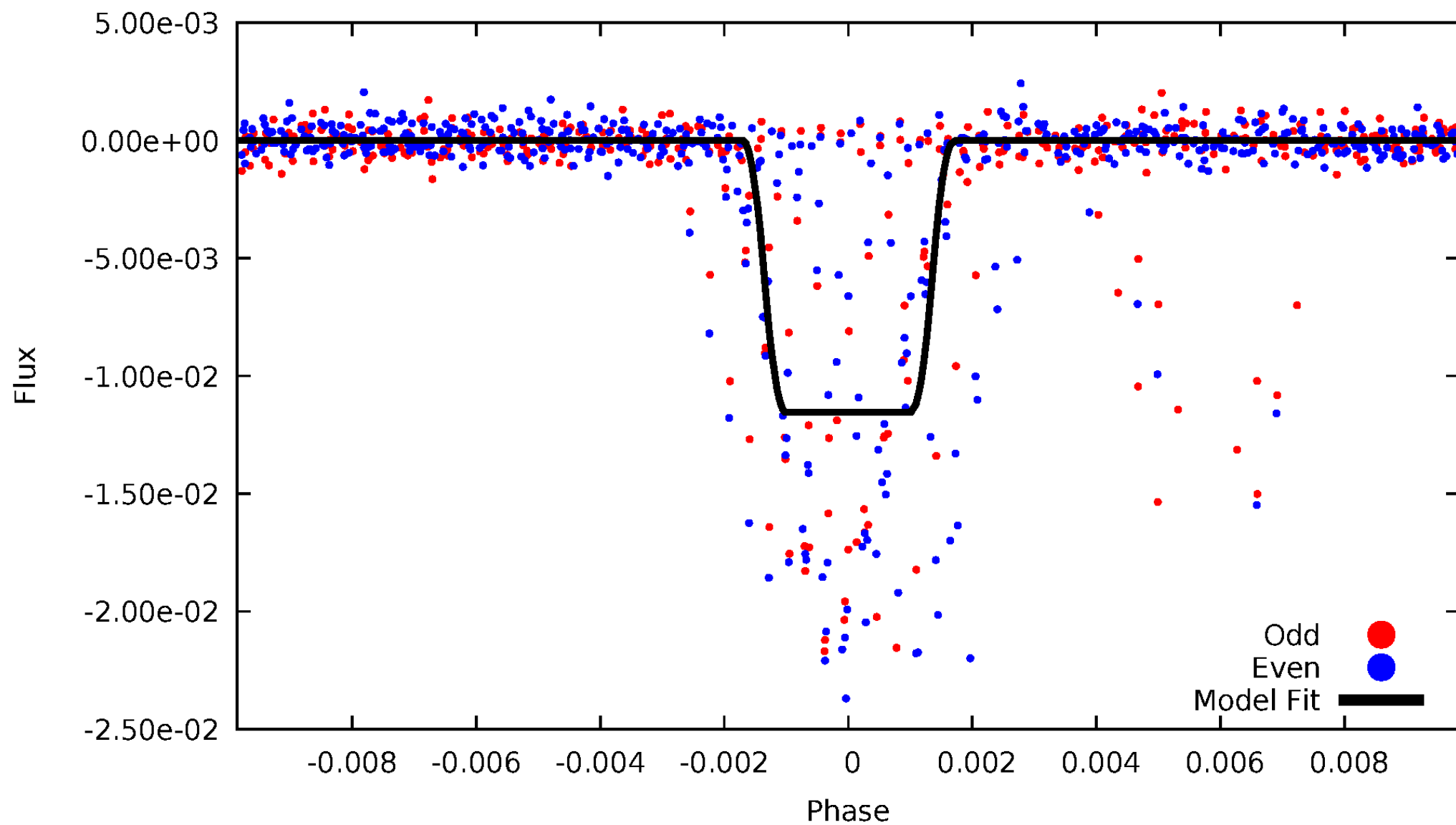
DV Odd/Even

TCE 004634135-02



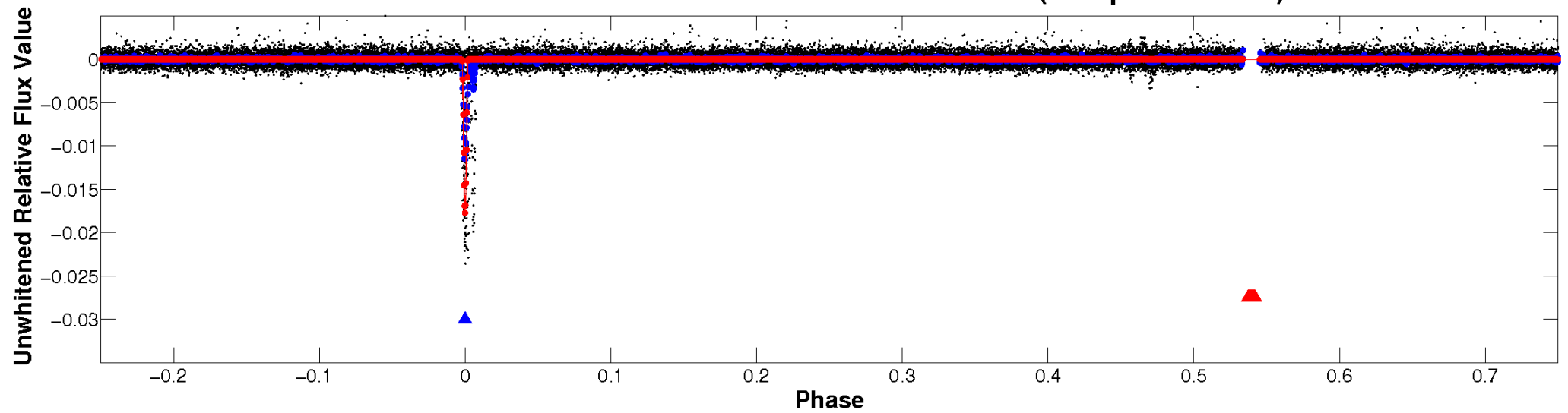
ALT Odd/Even

TCE 004634135-02

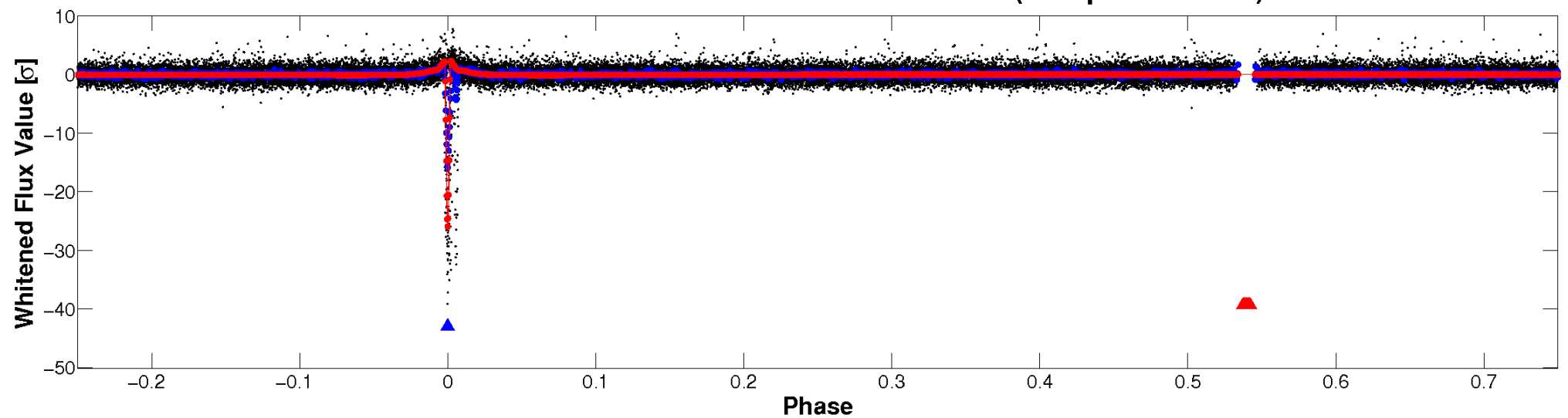


Non-Whitened Vs. Whitened Light Curve

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

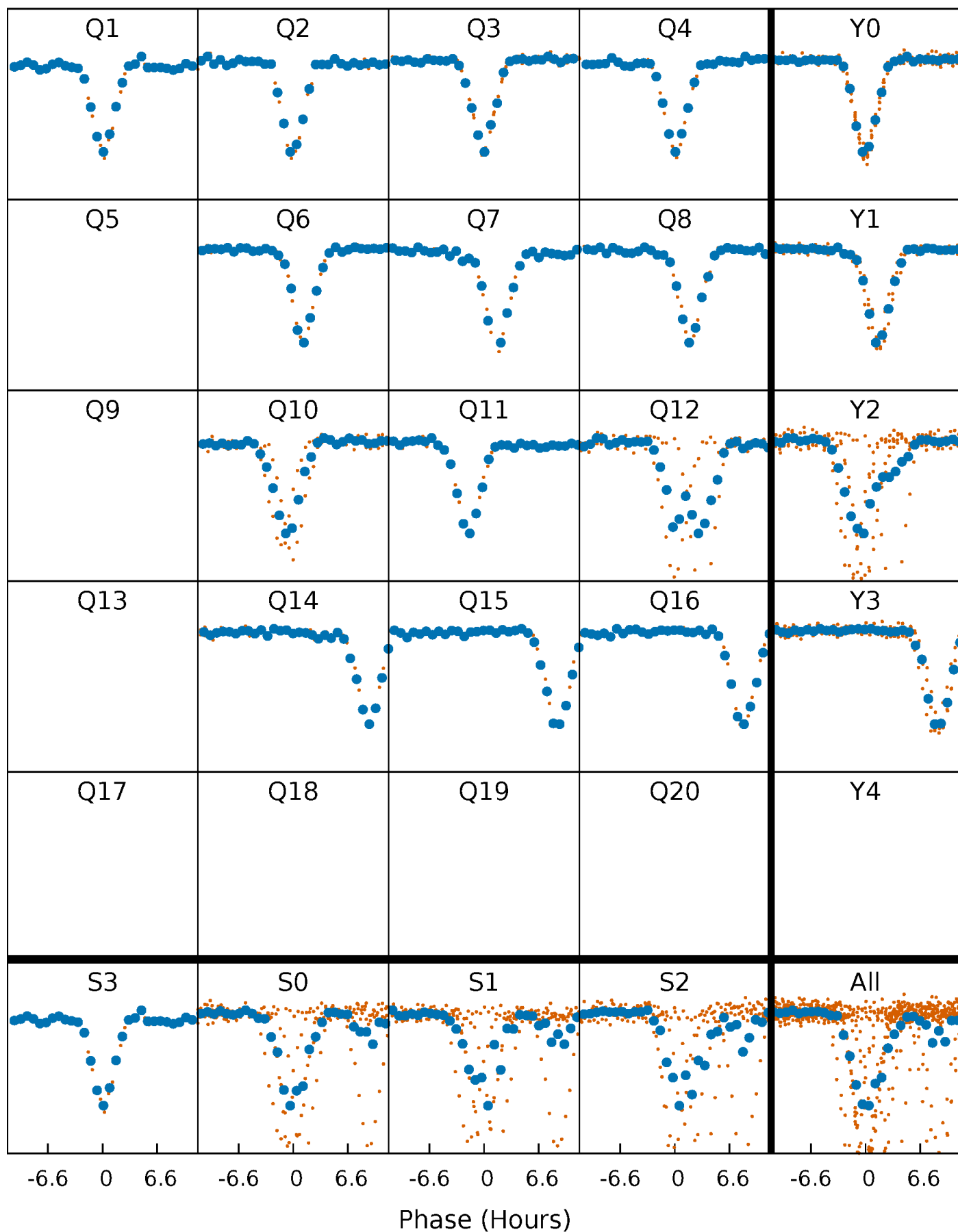


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



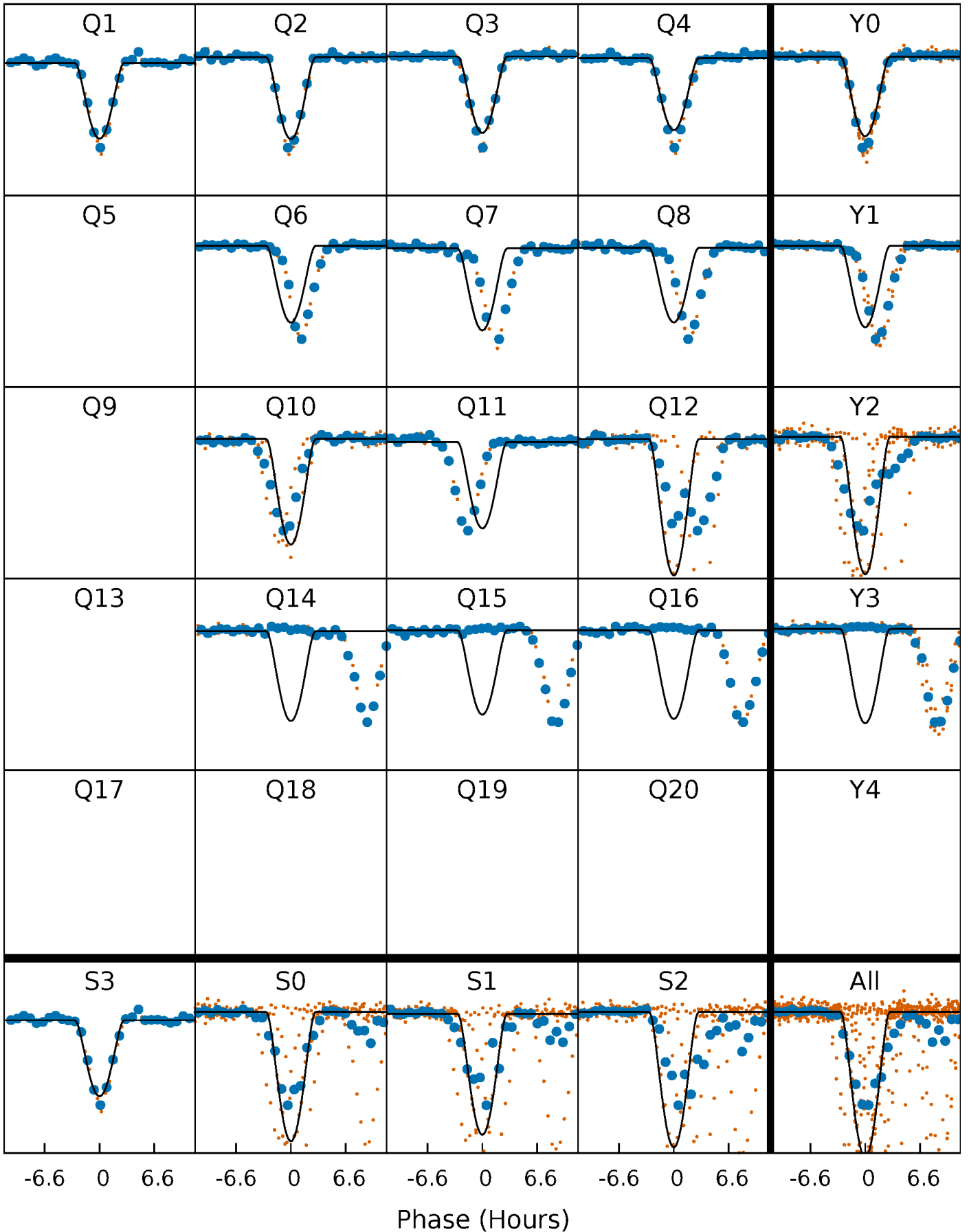
PDC Quarter-Phased Transit Curves

TCE 004634135-02 P= 63.915487 Days $T_0=154.818823$ (BKJD)



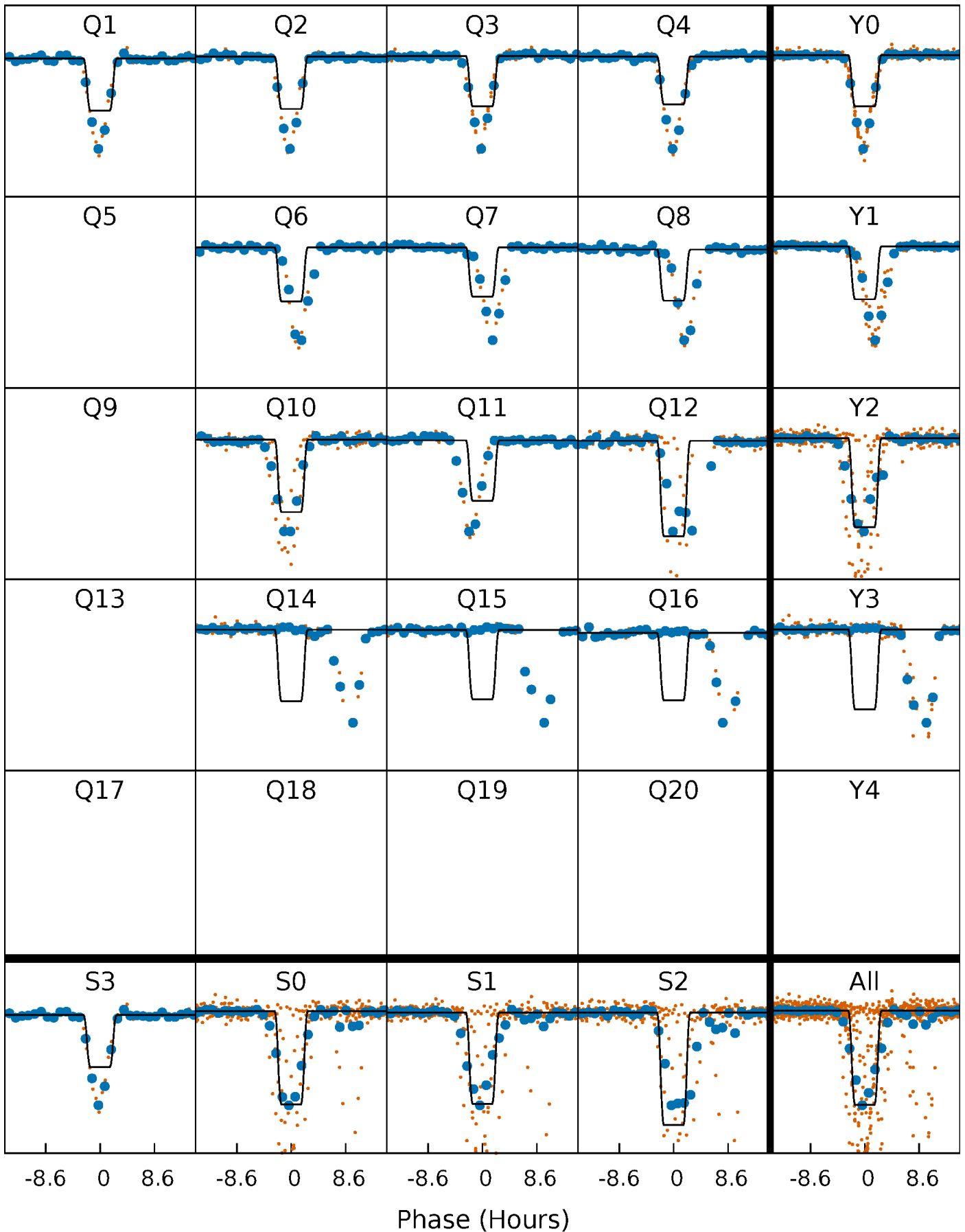
DV Quarter-Phased Transit Curves

TCE 004634135-02 P= 63.915487 Days $T_0=154.818823$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

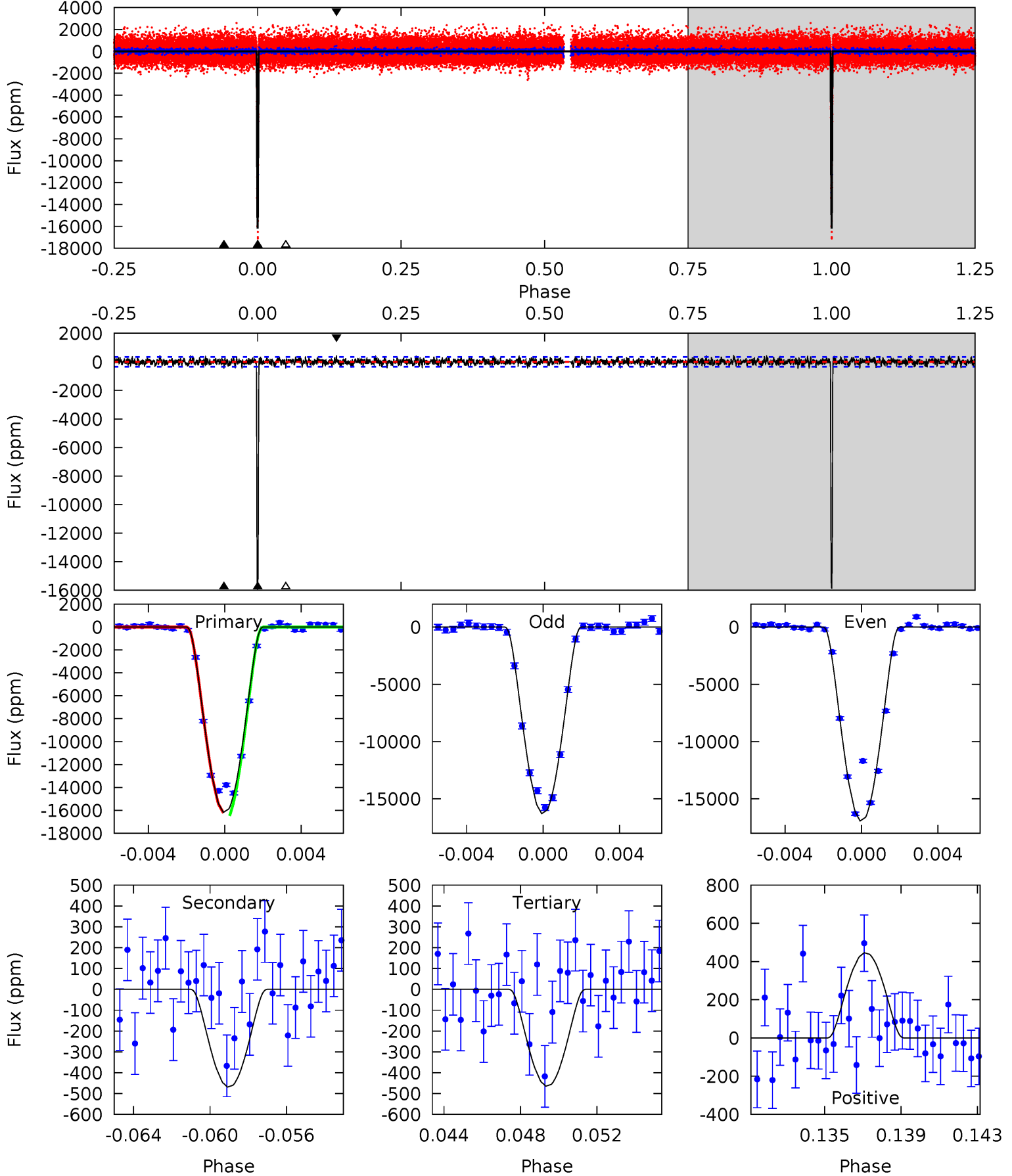
TCE 004634135-02 P= 63.914209 Days $T_0=154.834780$ (BKJD)



DV Model-Shift Uniqueness Test

004634135-02, P = 63.915487 Days, E = 90.903336 Days

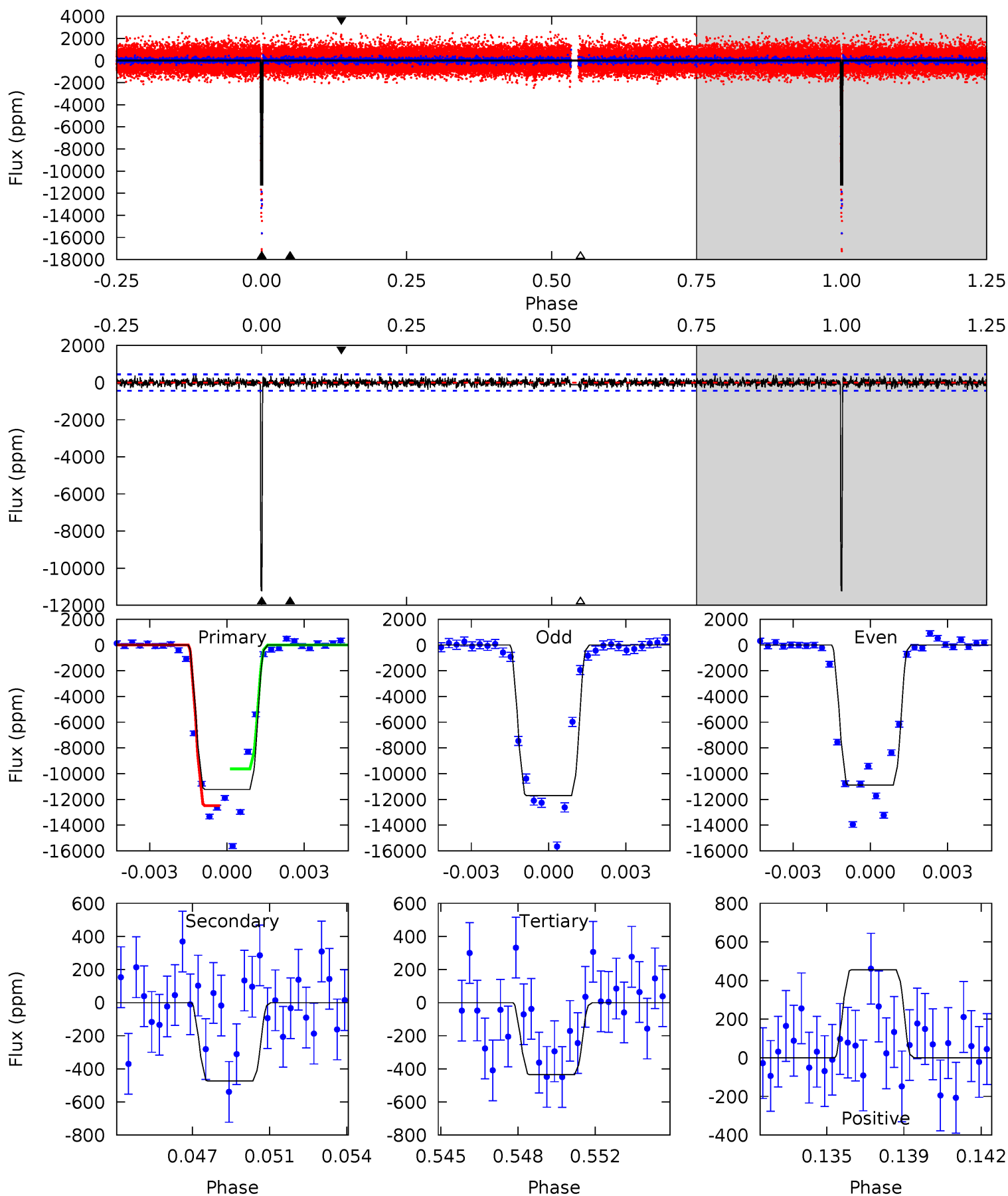
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
244.0	7.07	7.01	6.73	5.20	2.88	1.98	237.0	237.3	0.07	0.35	5.09	0.88	0.03	0



Alt Model-Shift Uniqueness Test

004634135-02, P = 63.914209 Days, E = 90.920571 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
132.5	5.60	5.13	5.38	5.23	2.93	1.31	127.4	127.2	0.46	0.22	4.87	0.83	0.04	0



Stellar Parameters For KIC 004634135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5204^{+157}_{-157}	$4.630^{+0.066}_{-0.039}$	$-0.960^{+0.300}_{-0.300}$	$0.634^{+0.050}_{-0.050}$	$0.624^{+0.055}_{-0.024}$	$3.453^{+0.910}_{-0.555}$
	+3%/-3%	+1%/-1%	+31%/-31%	+8%/-8%	+9%/-4%	+26%/-16%
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 004634135-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-460 ± 65	$13.86^{+4.24}_{-4.27}$	492^{+18}_{-18}	2525^{+260}_{-162}	95^{+109}_{-41}
Alt.	-474 ± 85	$7.46^{+4.51}_{-3.89}$	489^{+20}_{-15}	2988^{+723}_{-368}	335^{+1122}_{-208}

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

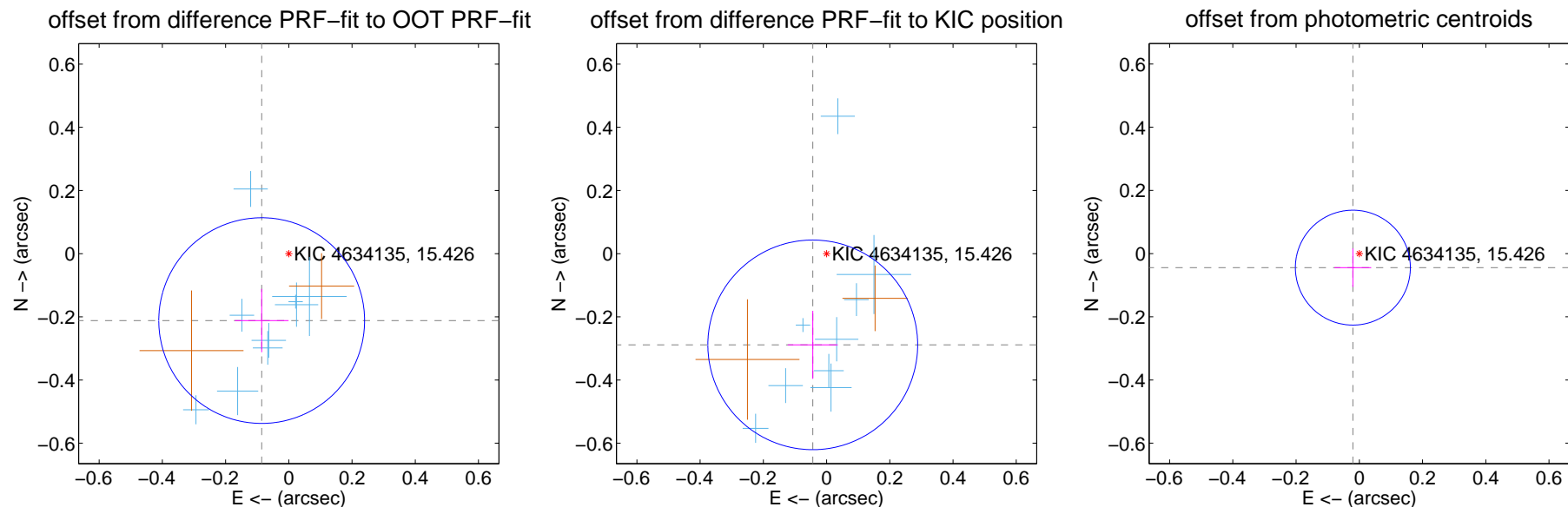
DV Centroid Data

Supplemental centroid analysis for 004634135-02. Kepler magnitude: 15.43. Transit SNR 137.96

There are 9 quarters with good PRF difference image offsets

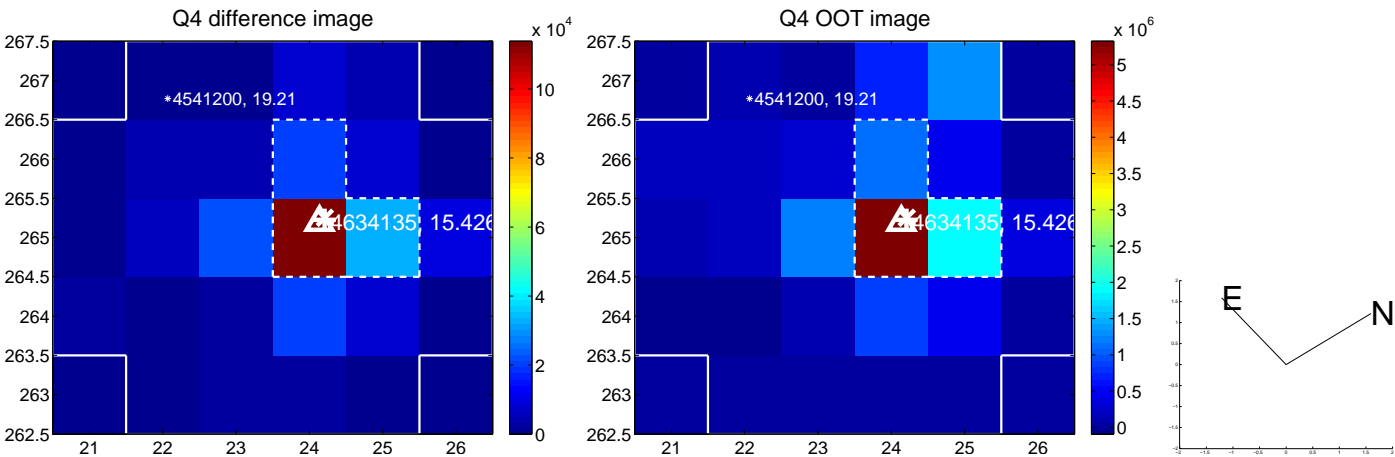
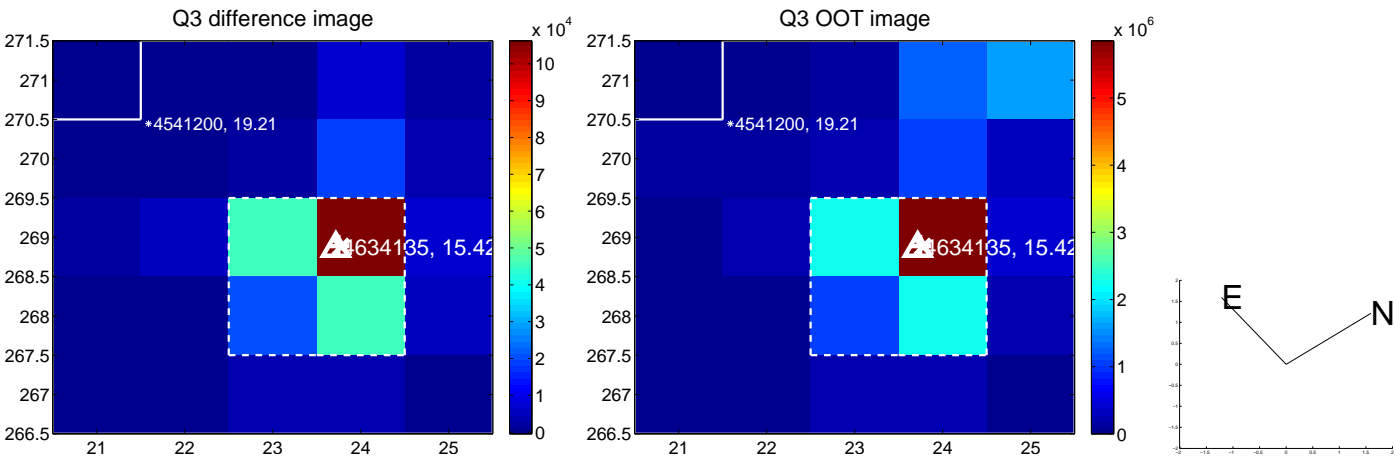
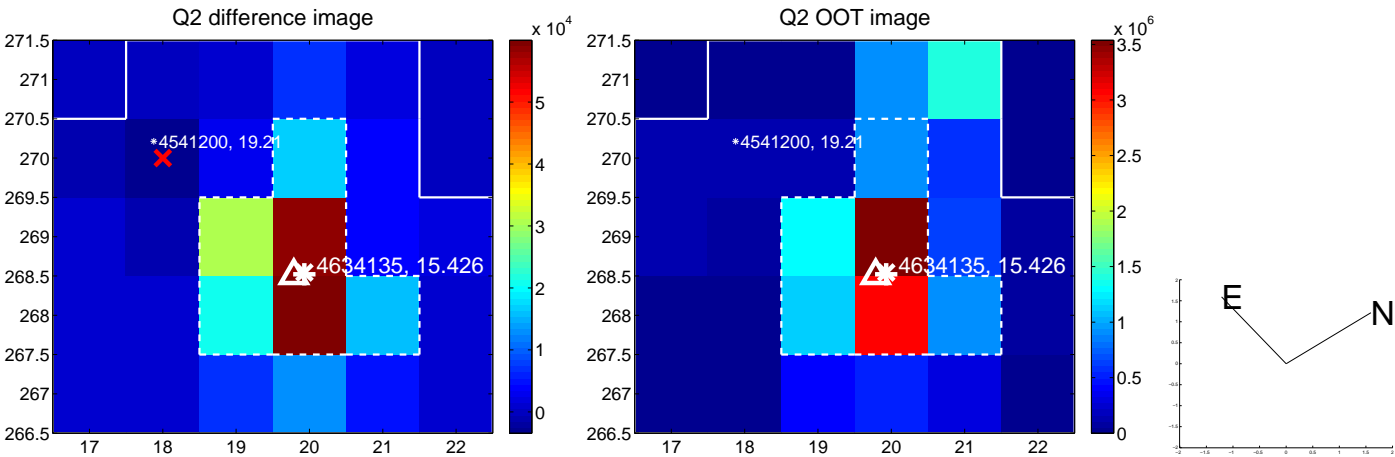
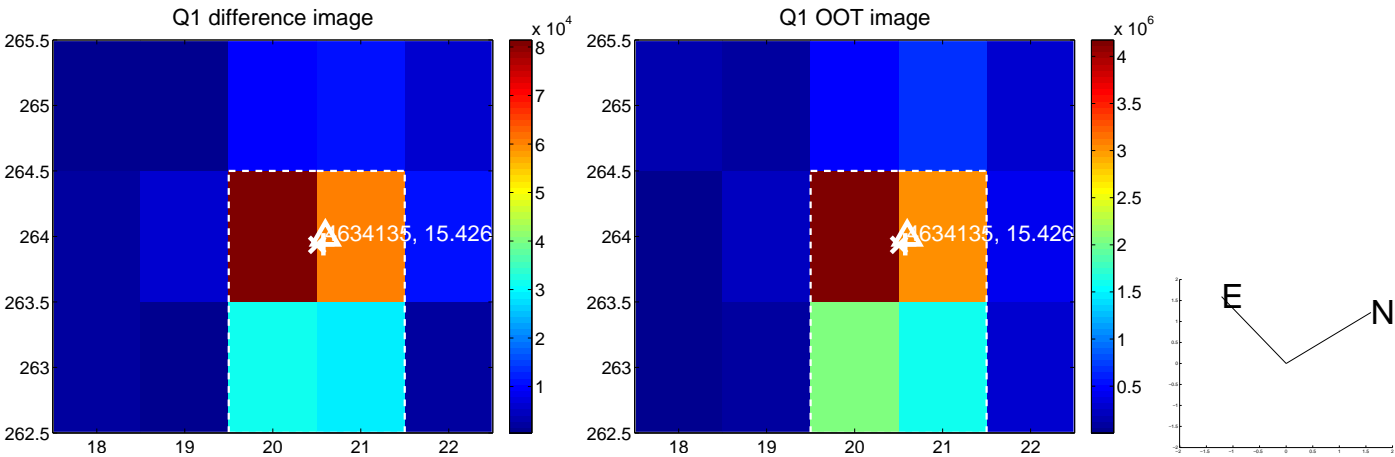
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.229 ± 0.109	2.11	0.086 ± 0.085	-0.212 ± 0.100
PRF-fit source offset from KIC position	0.292 ± 0.111	2.64	0.044 ± 0.079	-0.289 ± 0.108
photometric centroid source offset	0.05 ± 0.06	0.81	0.02 ± 0.06	-0.04 ± 0.06

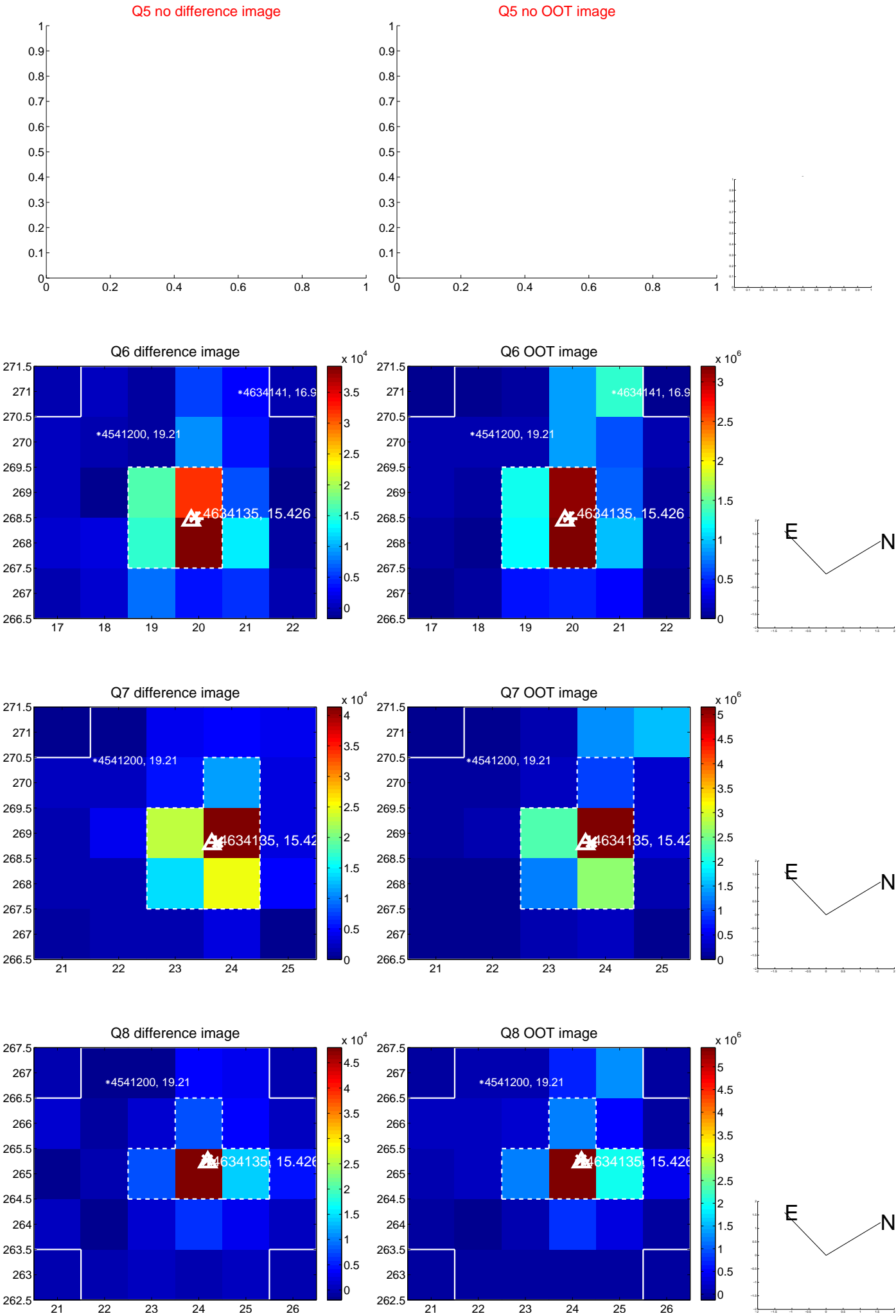


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

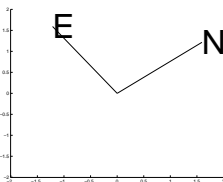
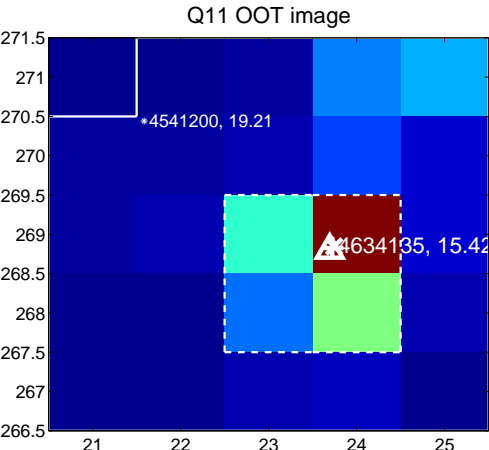
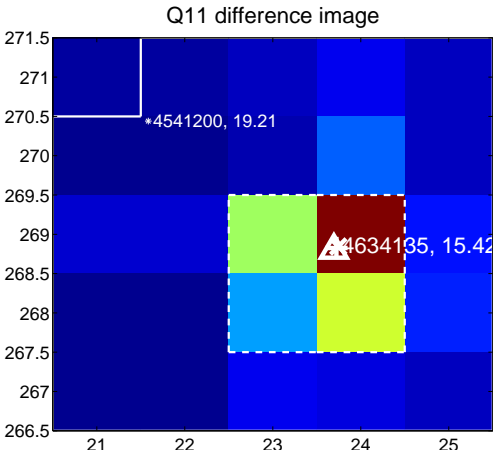
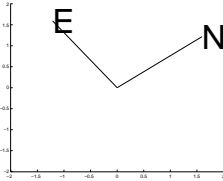
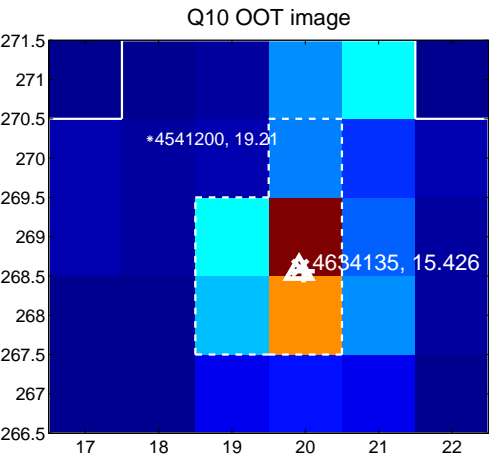
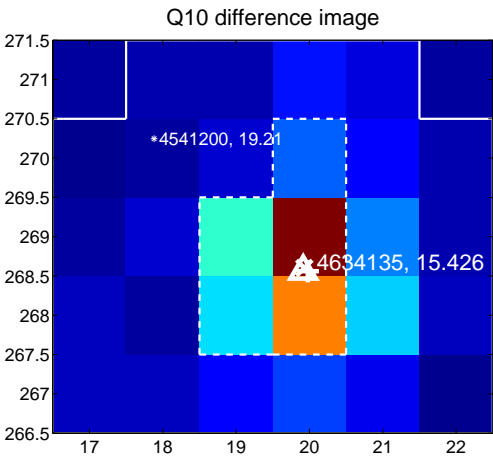


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

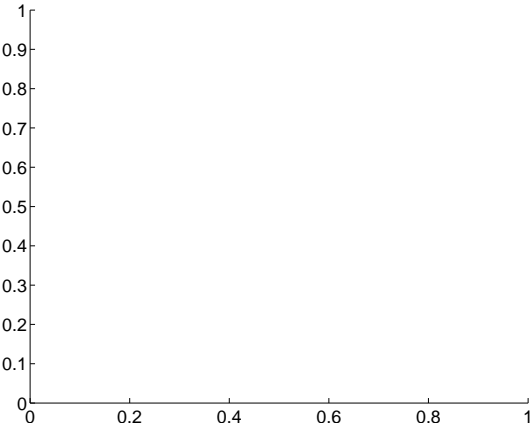
Q9 no difference image



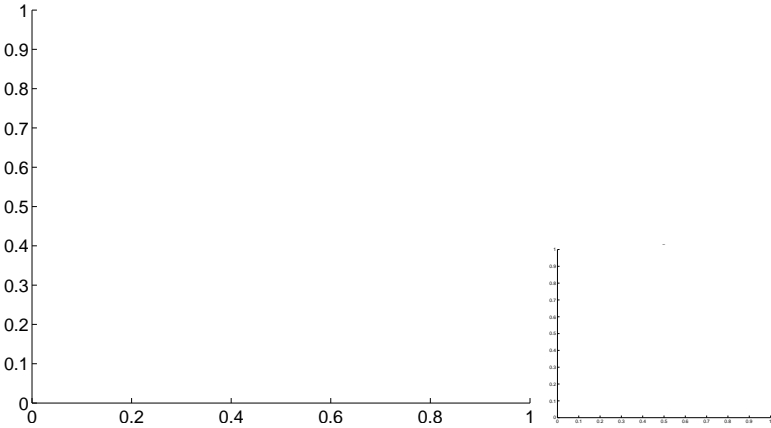
Q9 no OOT image



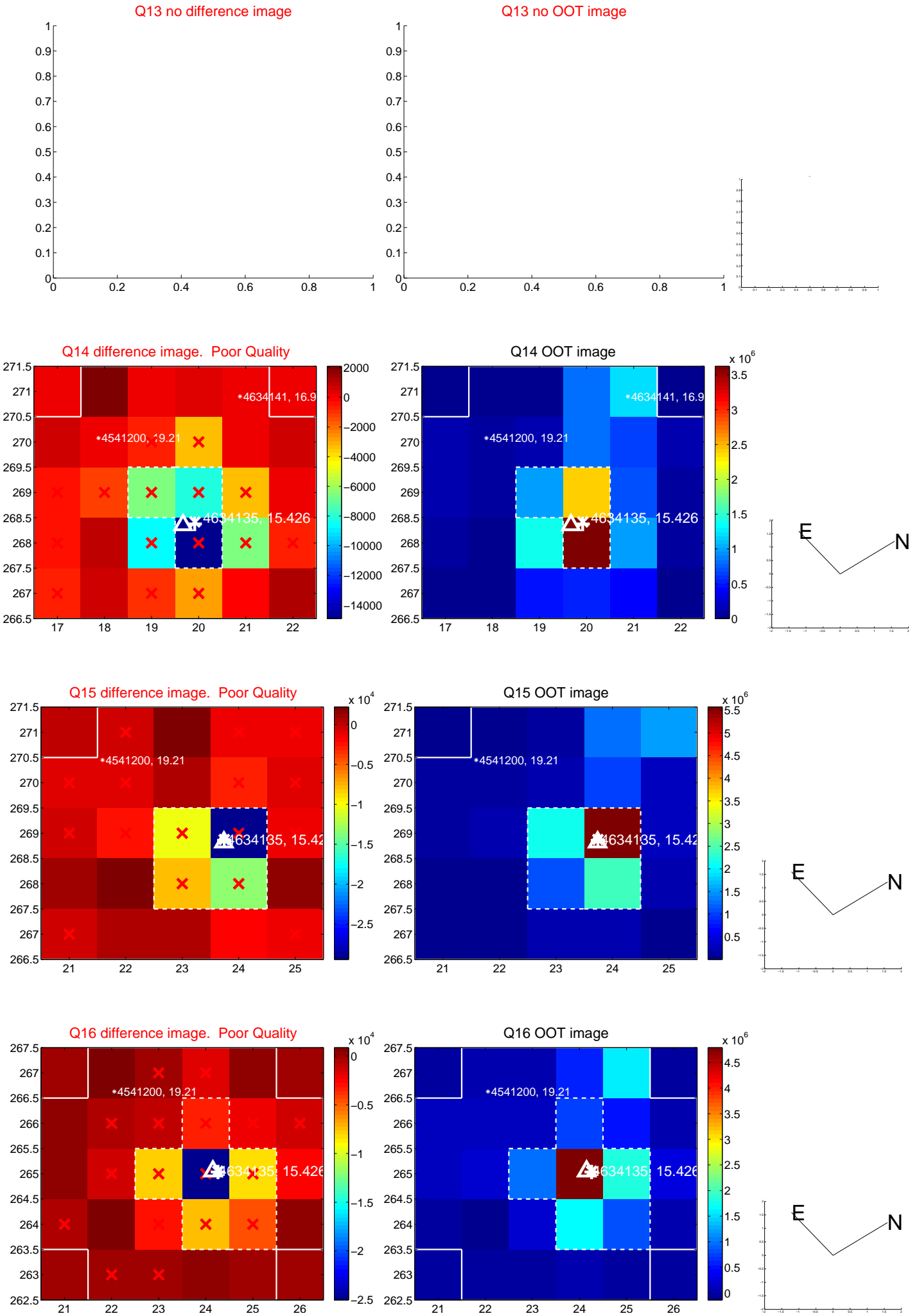
Q12 no difference image



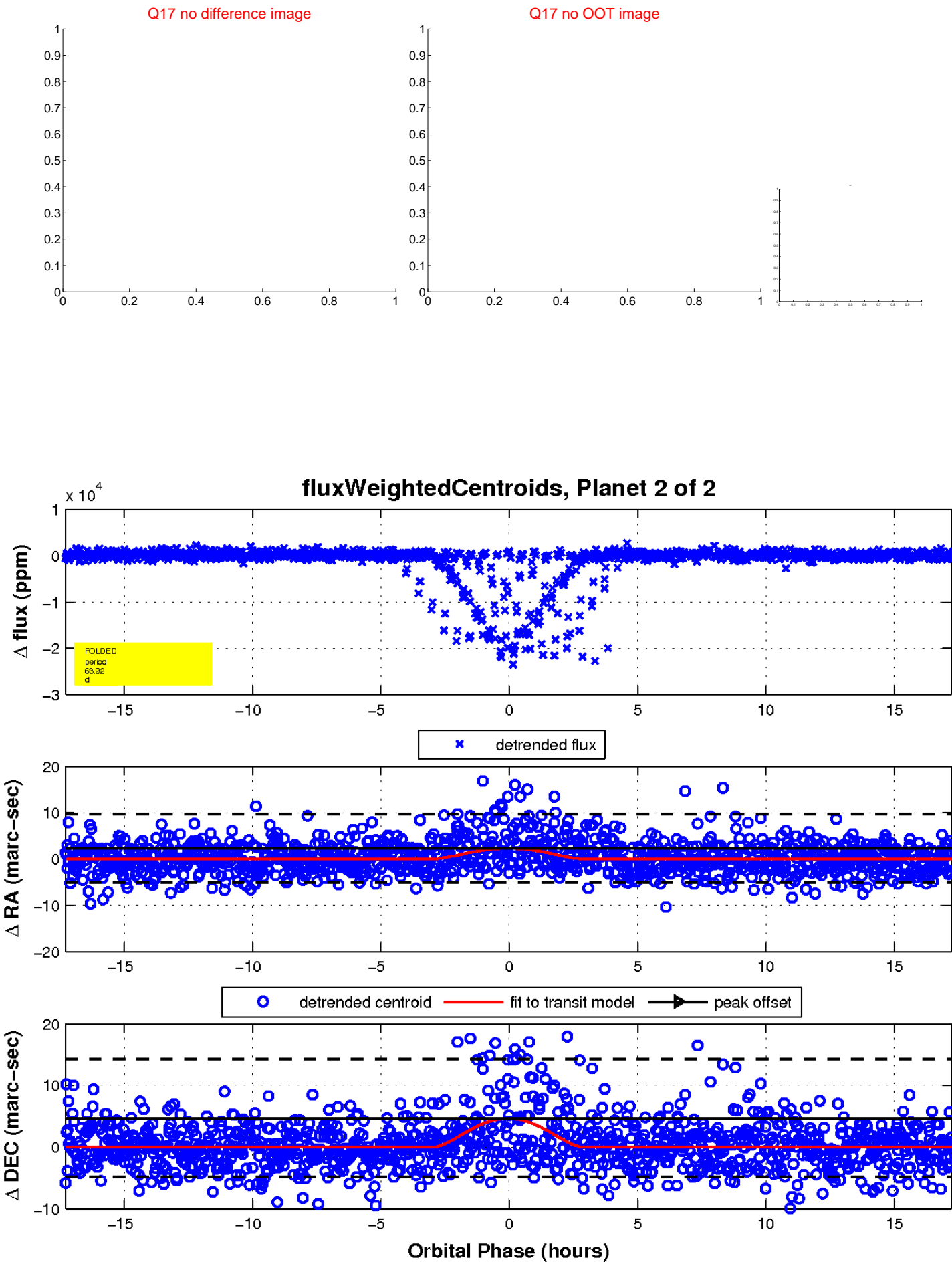
Q12 no OOT image



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

