

KIC 002307206

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})
002307206-01	OBS	3549.01	204.029097	253.543620	416203.6	12.000	2607.3	-1.0	0.81	5553	43.98	1.29
002307206-02	OBS	No	204.032699	152.963439	207344.3	11.656	1297.7	924.0	0.81	5553	40.15	1.29
002307206-03	OBS	No	411.059240	252.419304	1293.4	12.572	24.6	7.8	0.81	5553	2.86	0.51
002307206-04	OBS	No	204.083960	257.485301	2665.8	82.460	23.3	24.2	0.81	5553	7.91	1.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002307206-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
002307206-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
002307206-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002307206-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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 002307206-01

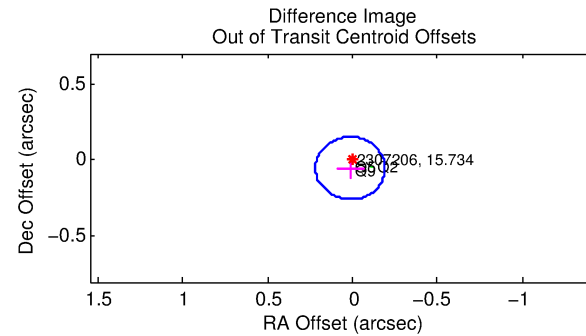
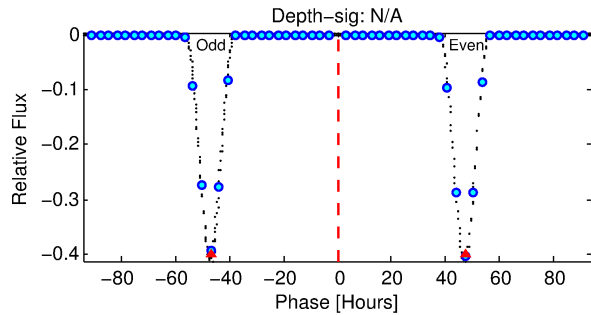
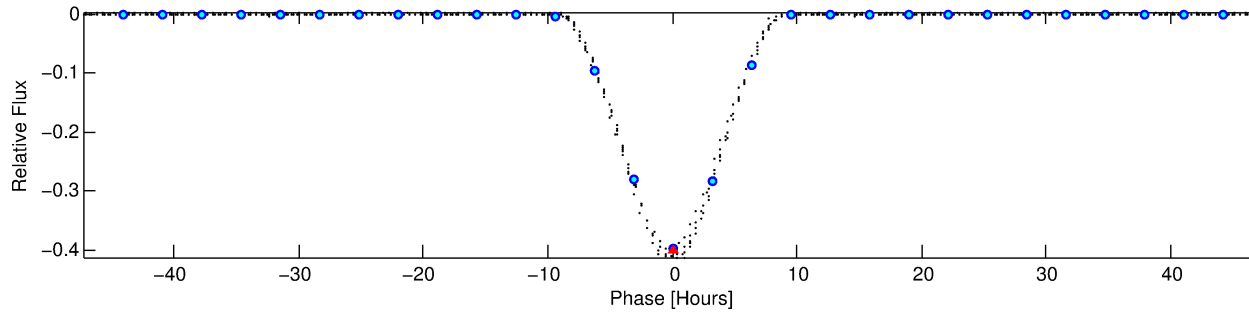
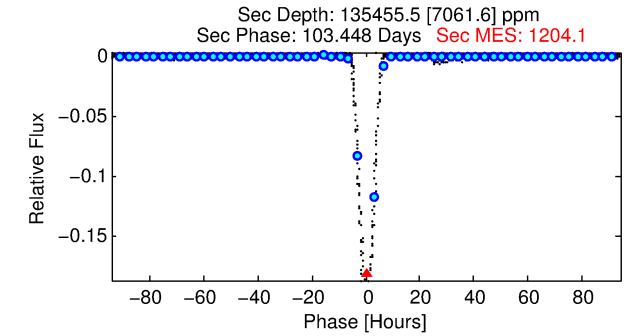
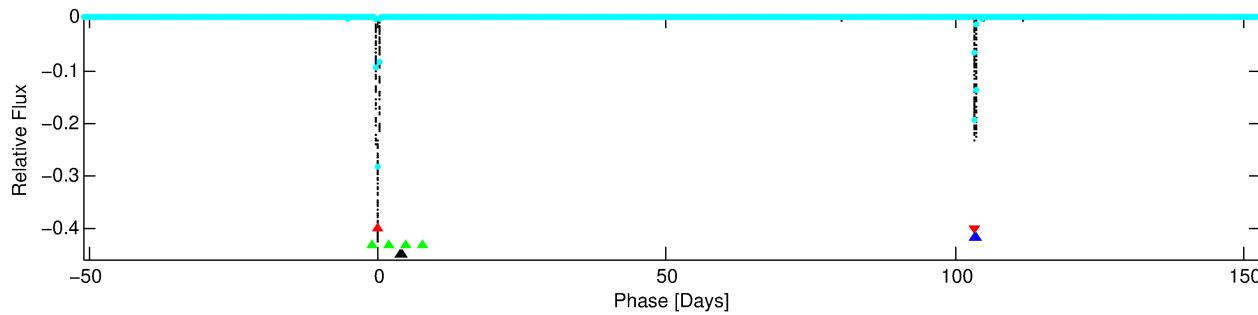
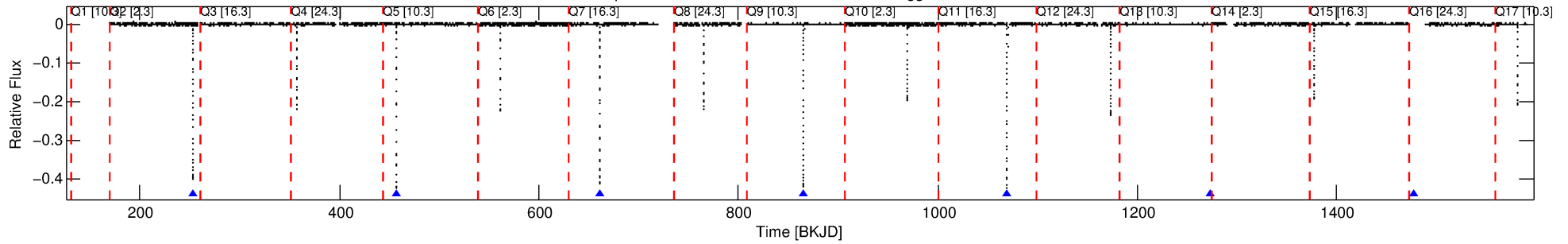
No Significant Match Found

DV One-Page Summary

KIC: 2307206 Candidate: 1 of 4 Period: 204.029 d

KOI: K03549.01 Corr: 0.819

Kp: 15.73 R*: 0.81 Rs Teff: 5553.0 K Logg: 4.58 Fe/H: -0.160



TPS TCE Results:

Period = 204.02910 d
Epoch = 253.5436 BKJD

DV fit results are unavailable

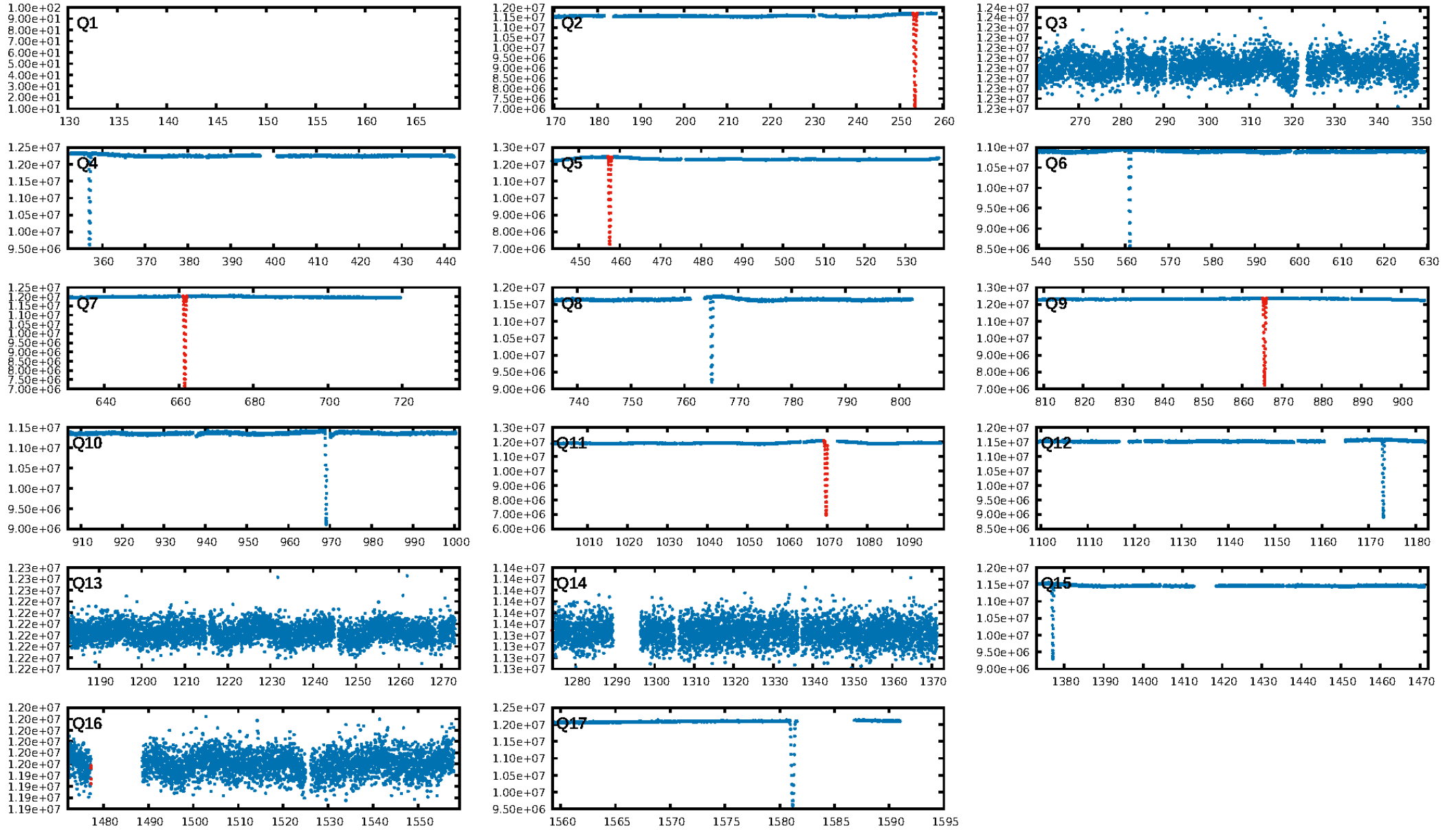
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.4% [0.01 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 3.624
Centroid-sig: 0.0%
Centroid-so: 0.774 arcsec [278.16 σ]
OotOffset-rm: 0.055 arcsec [0.80 σ]
KicOffset-rm: 0.150 arcsec [2.17 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.67 [2/3]

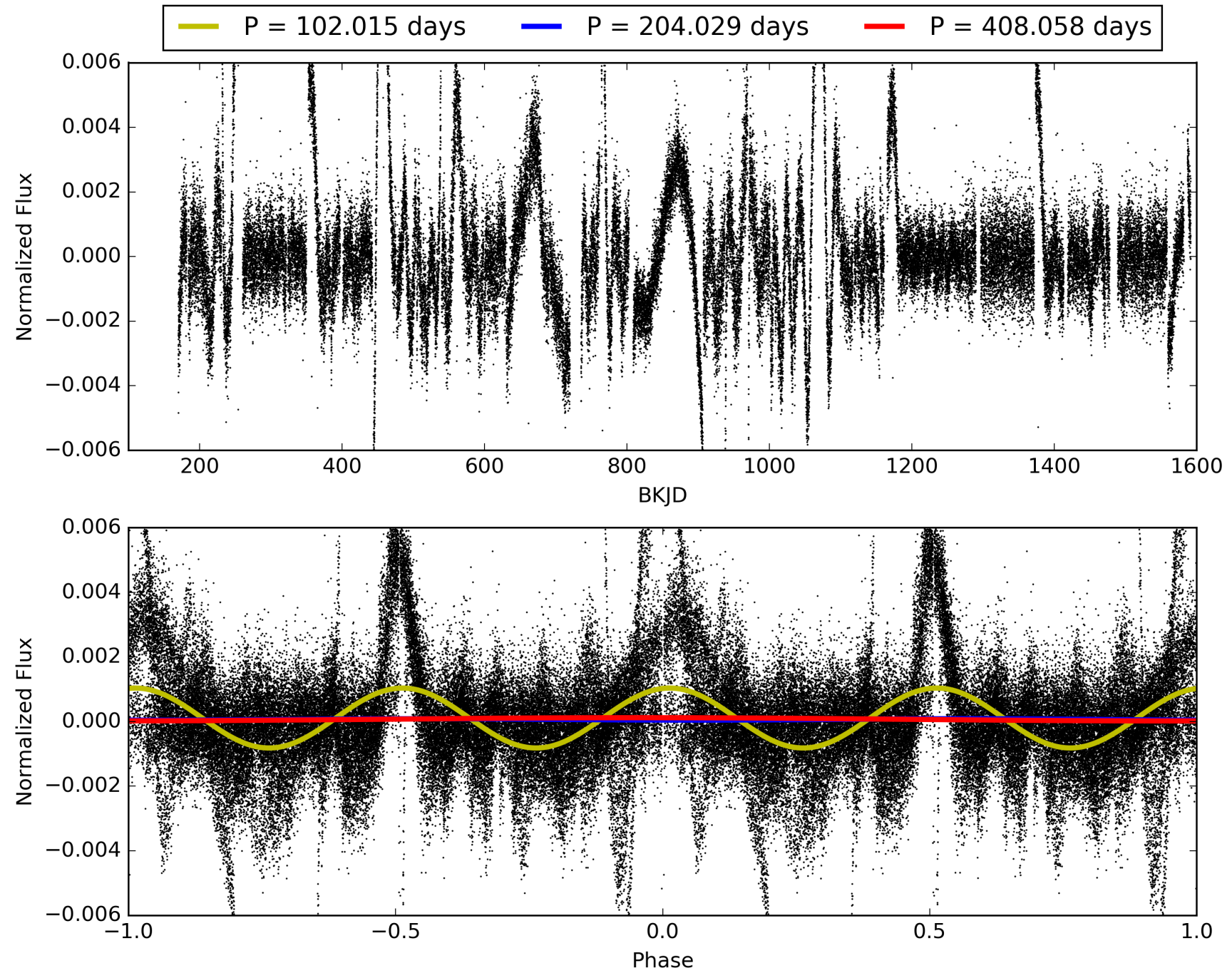
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:57:04 Z

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

TCE 002307206-01, PDC Light Curves

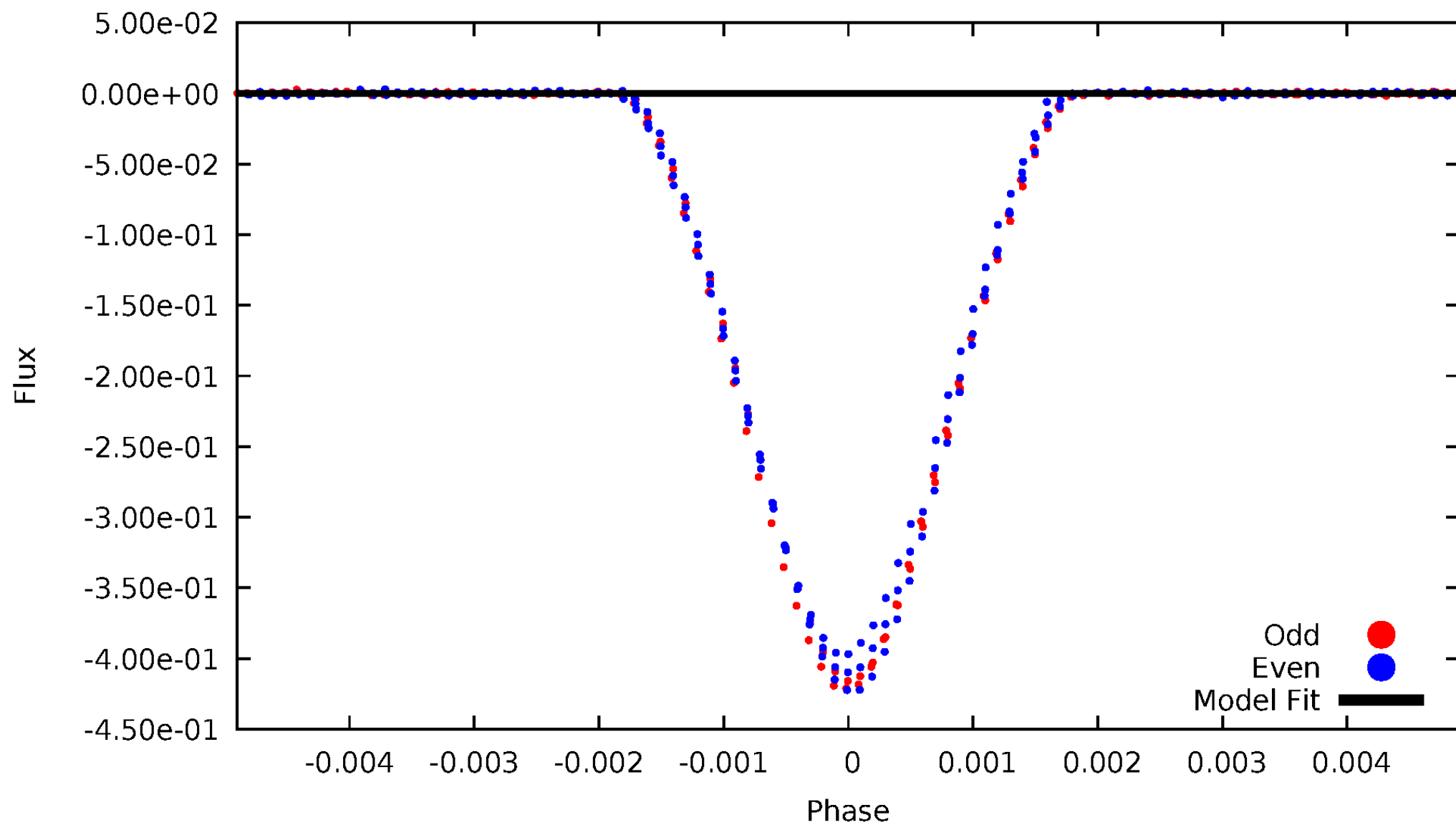


TCE 002307206-01



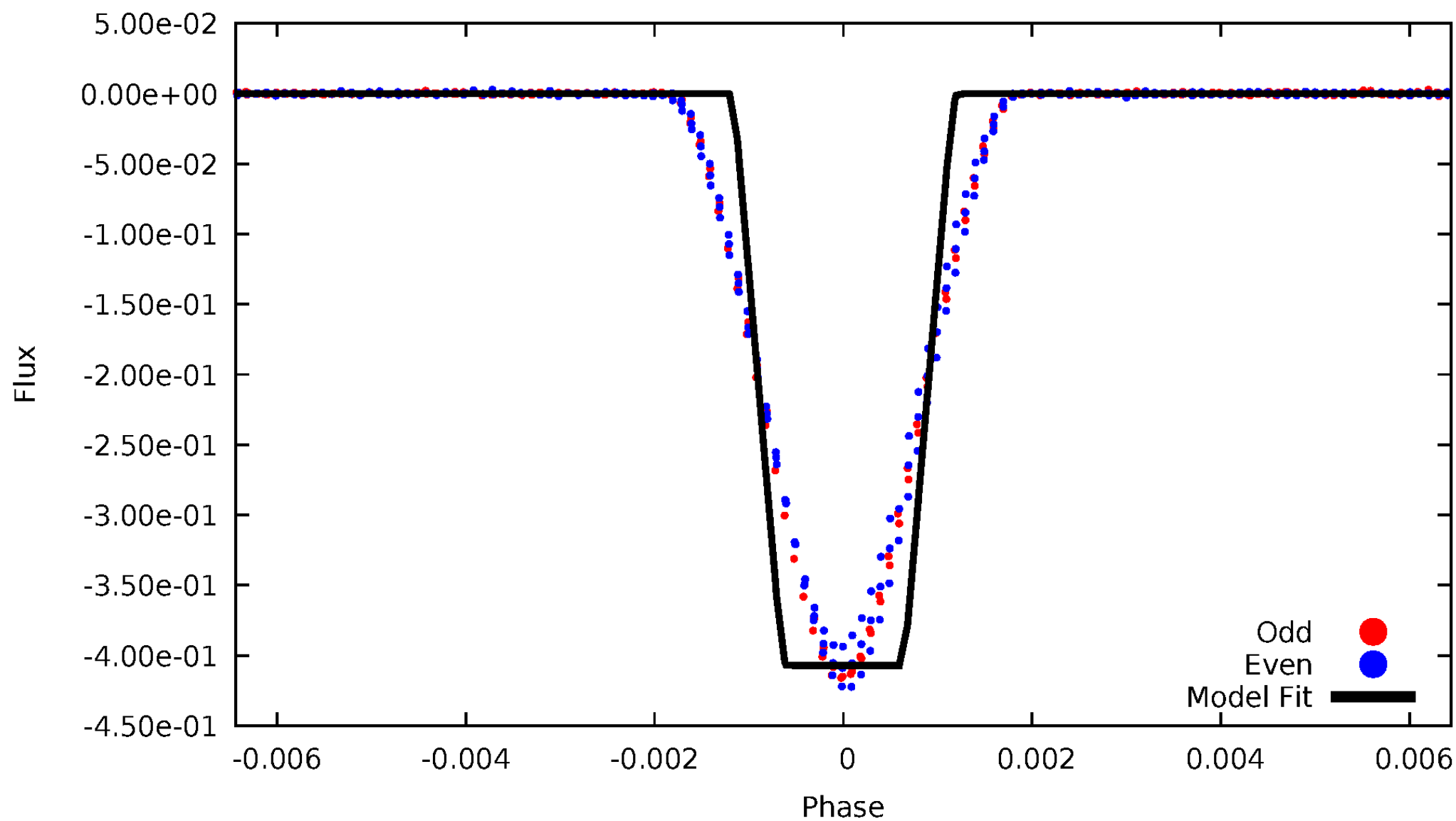
DV Odd/Even

TCE 002307206-01



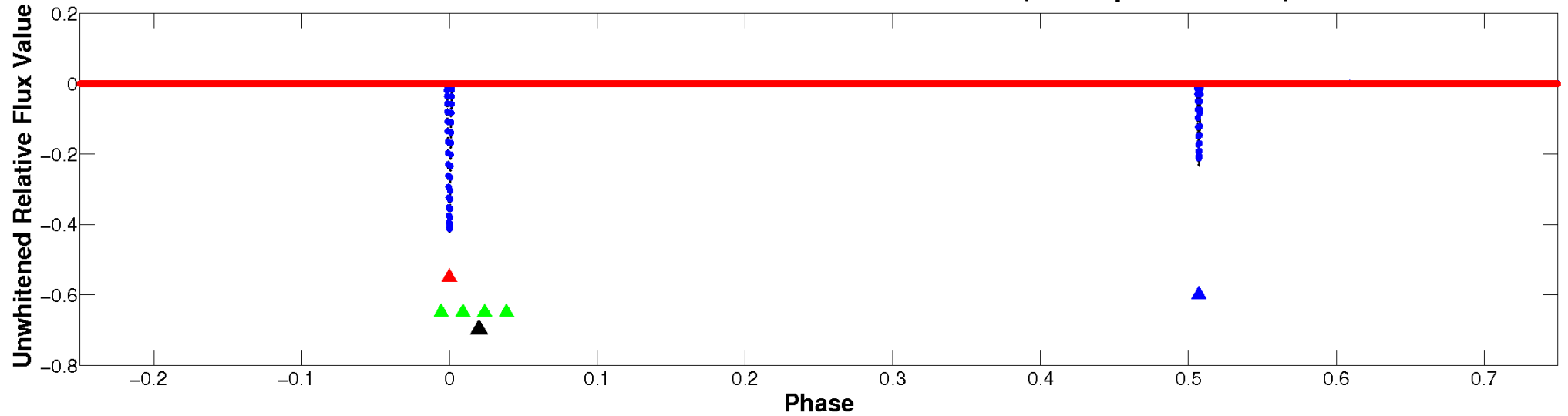
ALT Odd/Even

TCE 002307206-01



Non-Whitened Vs. Whitened Light Curve

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

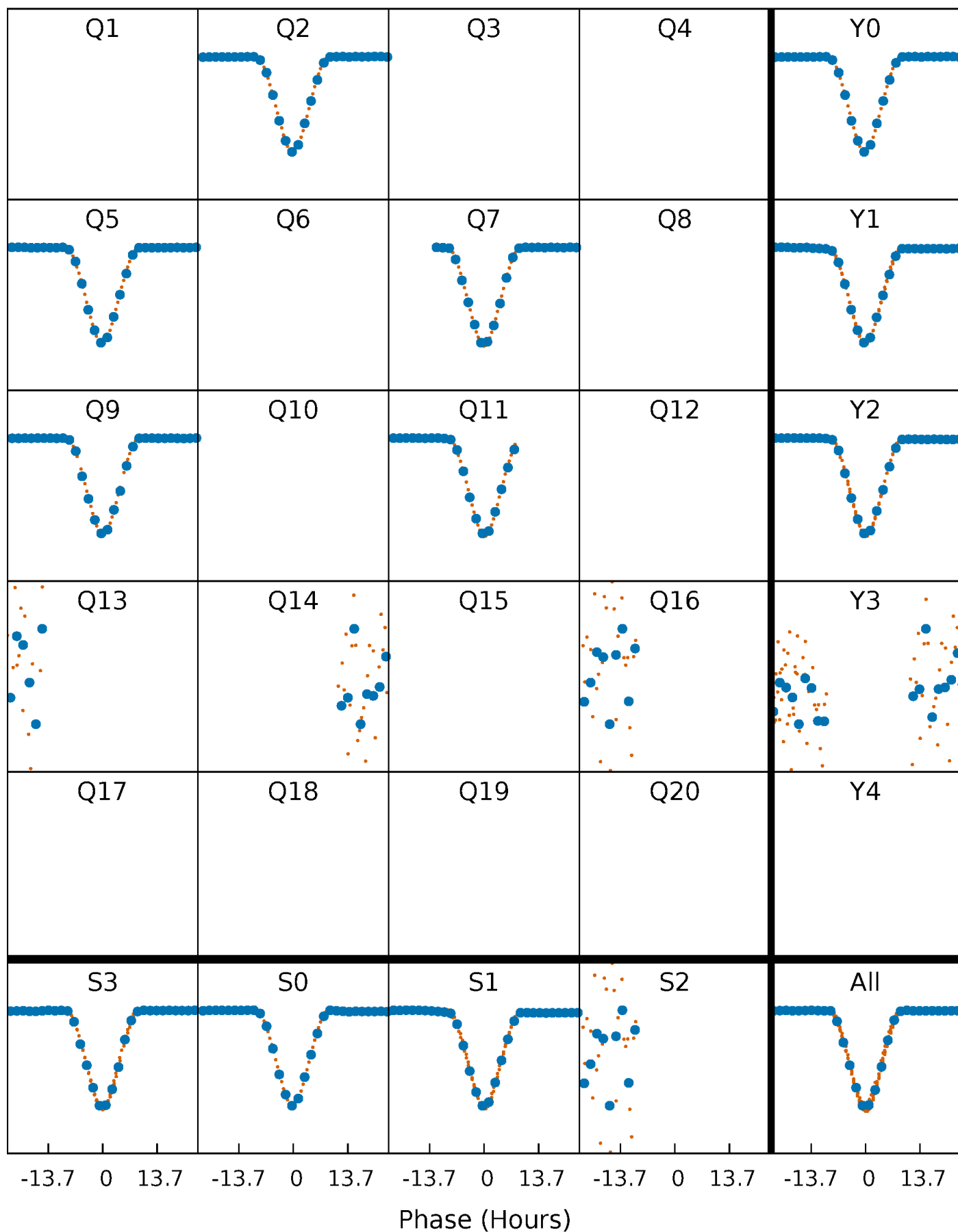


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



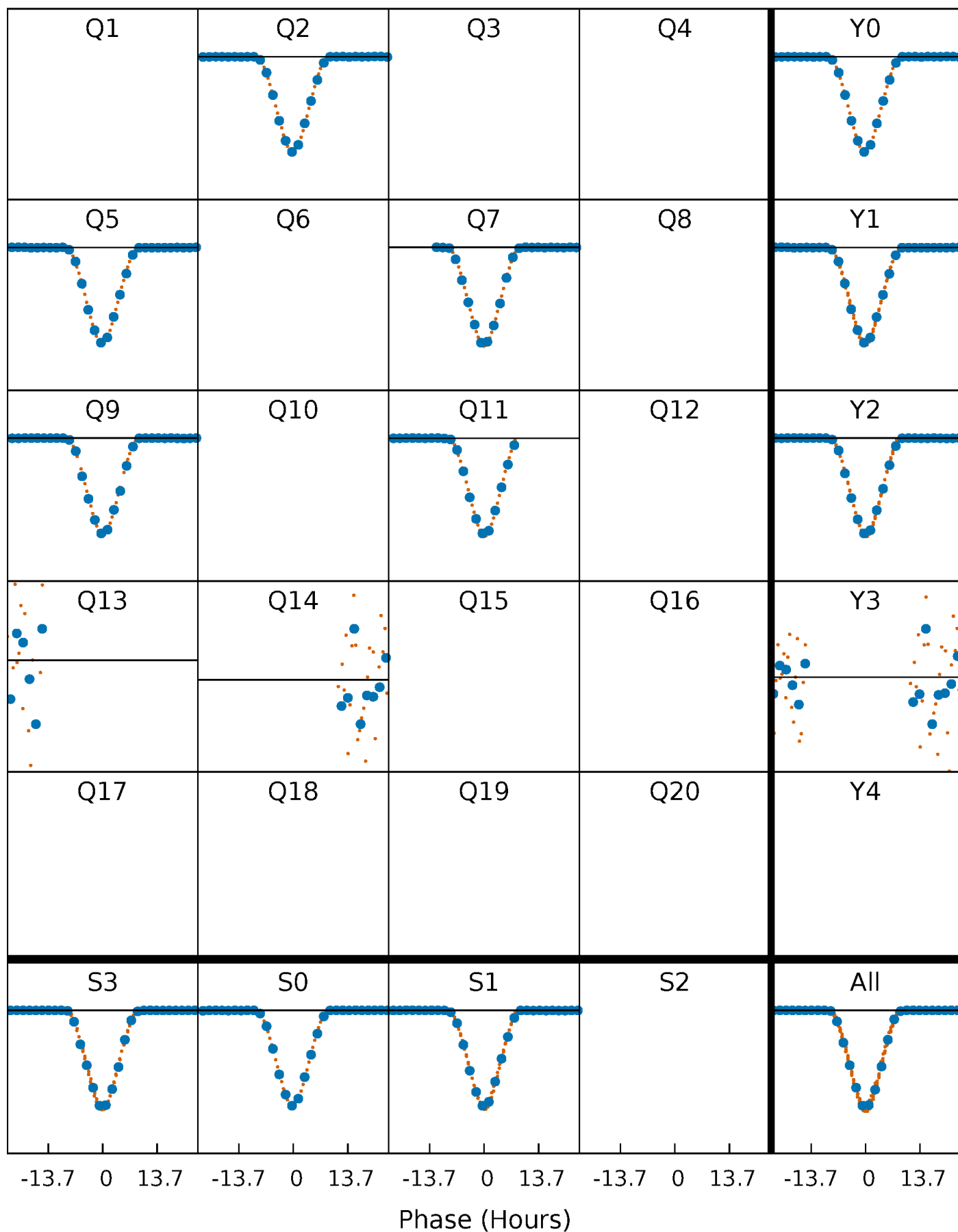
PDC Quarter-Phased Transit Curves

TCE 002307206-01 P=204.029097 Days $T_0=253.543620$ (BKJD)



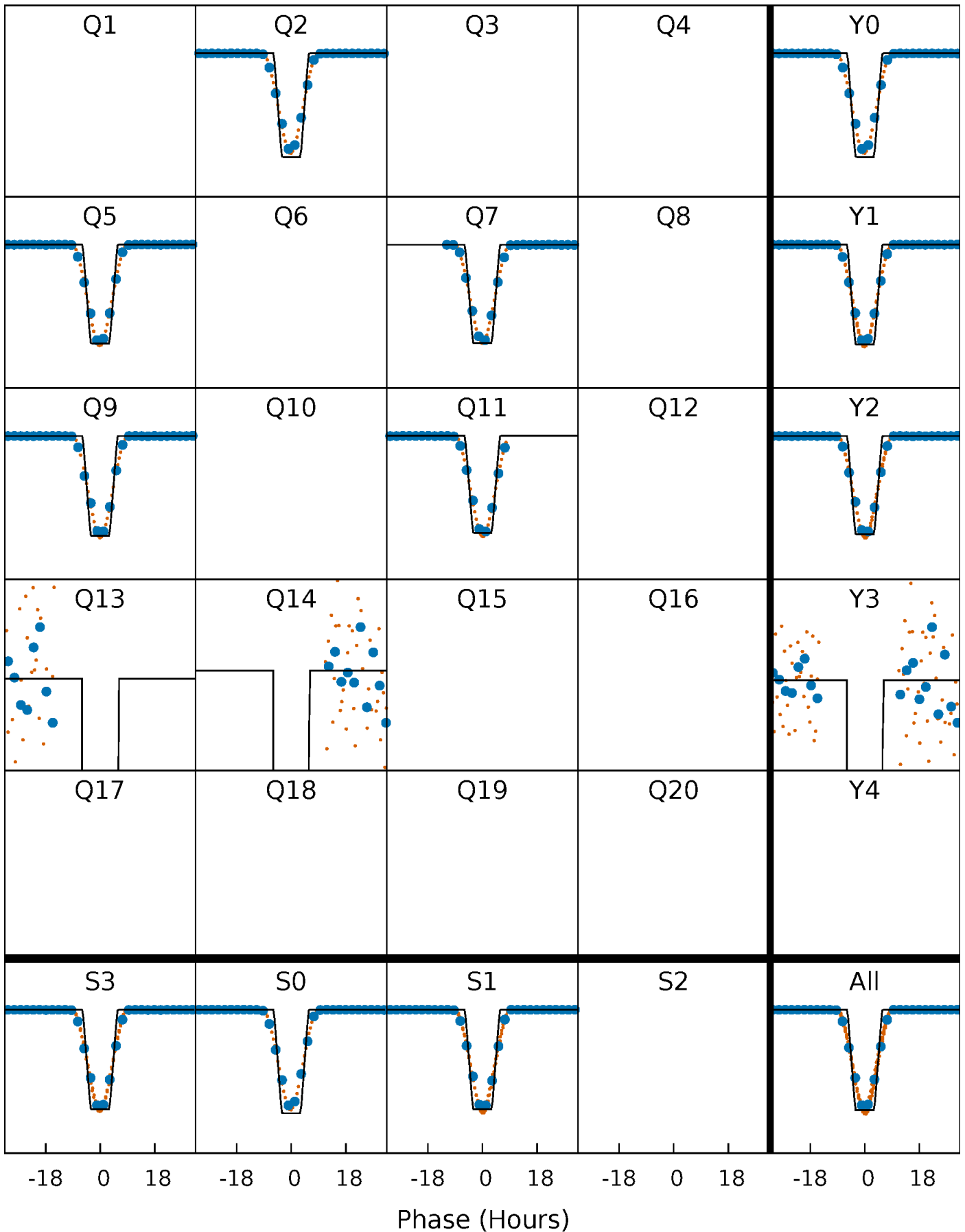
DV Quarter-Phased Transit Curves

TCE 002307206-01 P=204.029097 Days $T_0=253.543620$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

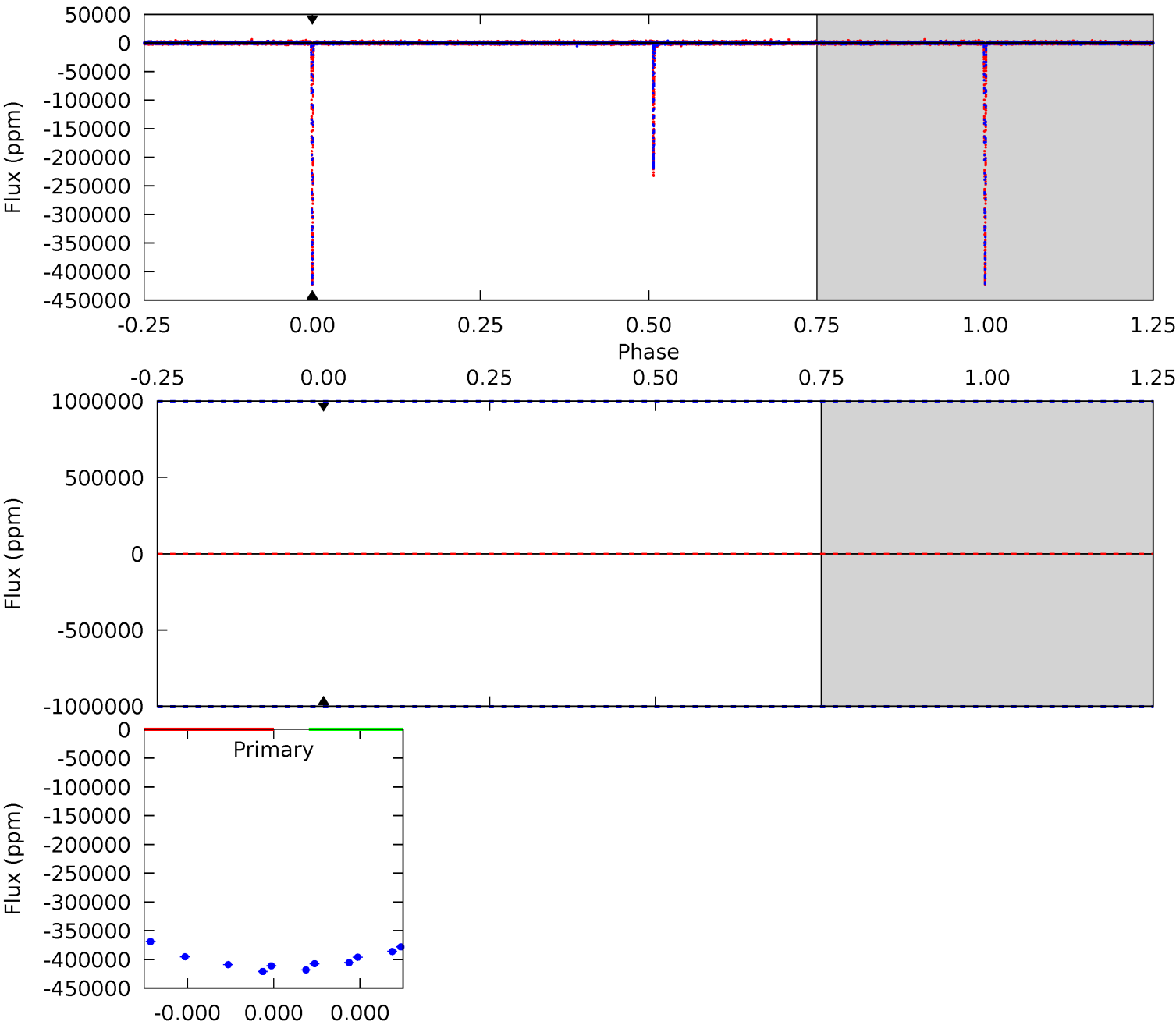
TCE 002307206-01 P=204.029097 Days $T_0=253.544625$ (BKJD)



DV Model-Shift Uniqueness Test

002307206-01, P = 204.029097 Days, E = 49.514523 Days

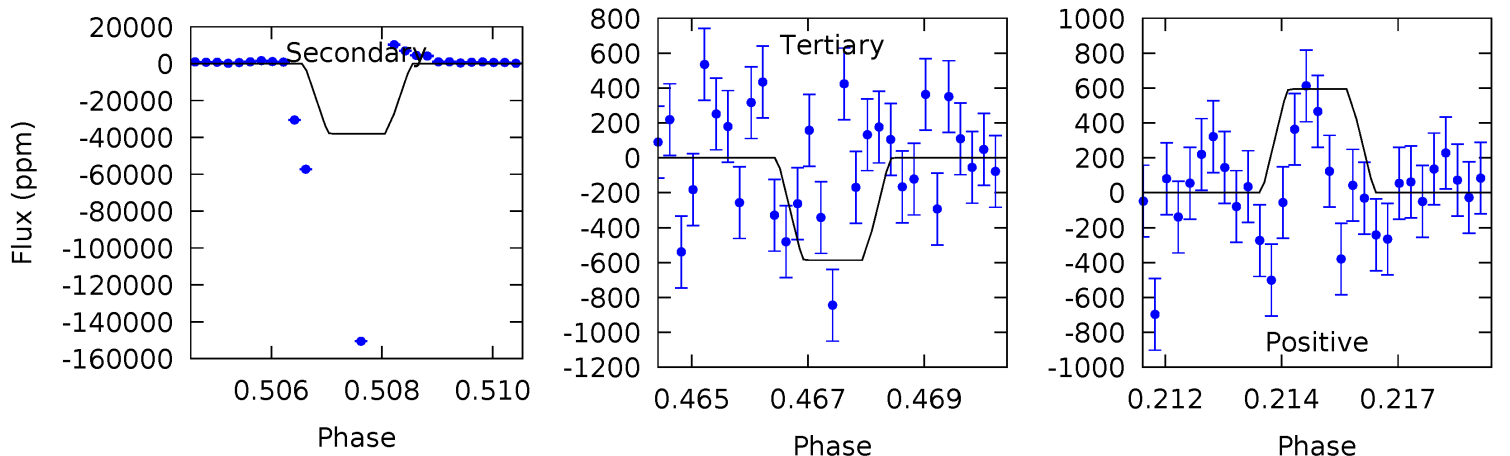
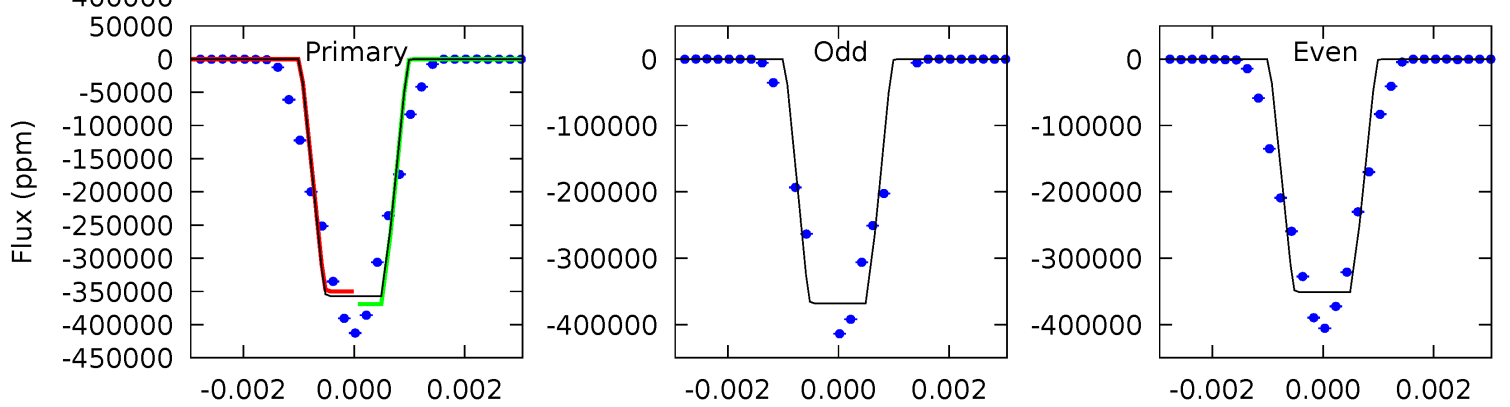
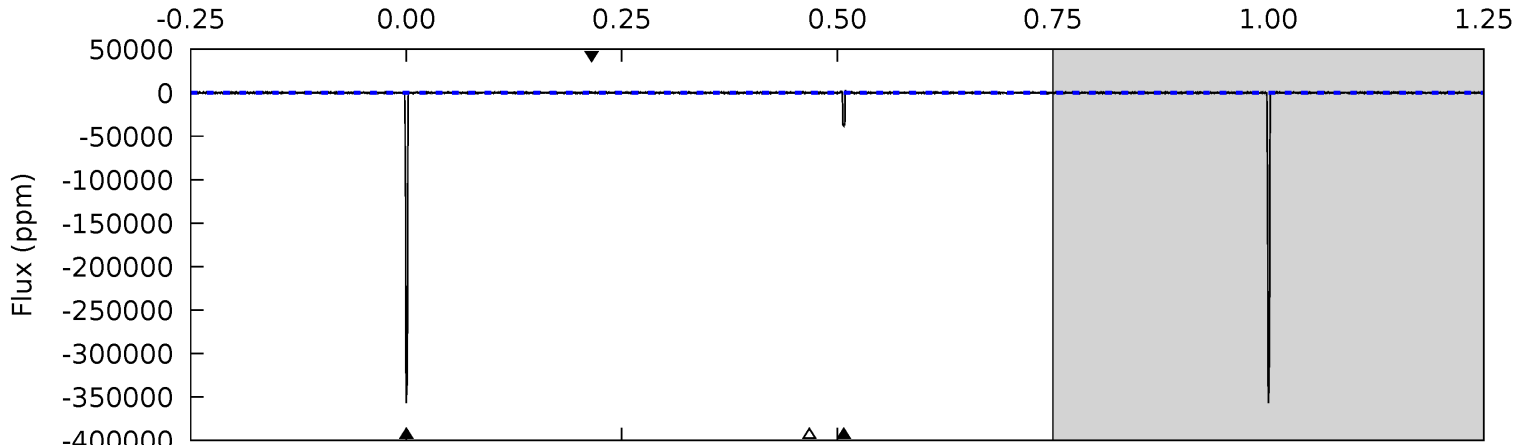
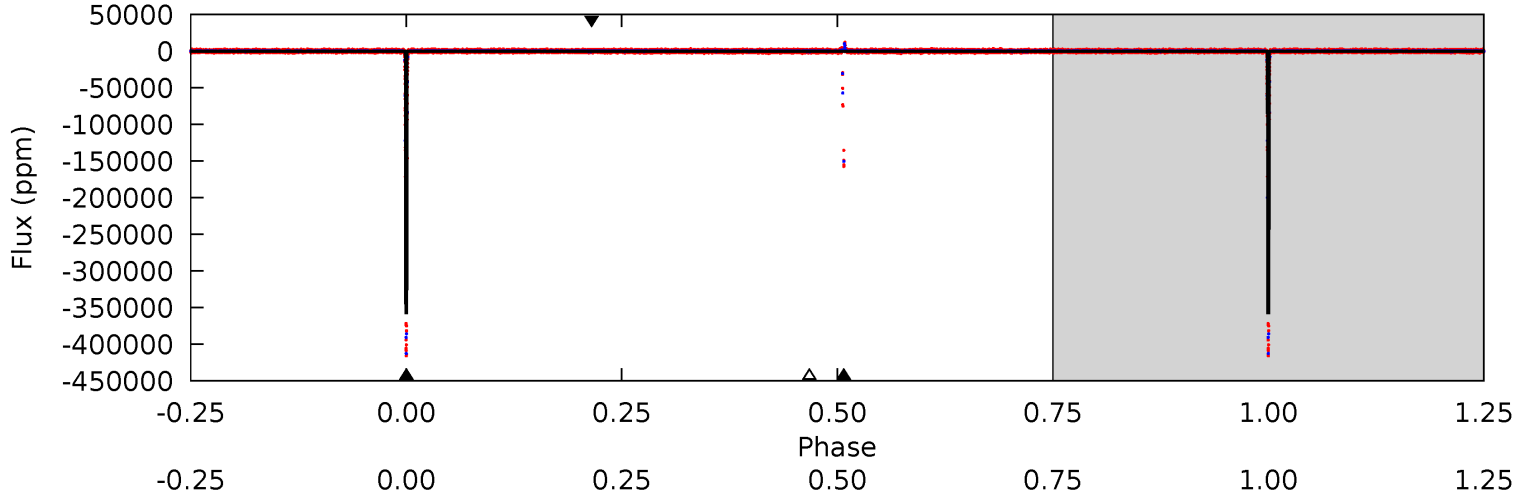
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002307206-01, P = 204.029097 Days, E = 49.515528 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2893	308.3	4.75	4.81	5.29	3.03	1.17	2888	2888	303.5	303.5	69.5	1.00	0.01	0



Stellar Parameters For KIC 002307206

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5553^{+166}_{-166}	$4.577^{+0.036}_{-0.144}$	$-0.160^{+0.300}_{-0.300}$	$0.806^{+0.176}_{-0.070}$	$0.903^{+0.083}_{-0.111}$	$2.425^{+0.461}_{-0.989}$
	+3%/-3%	+1%/-3%	+188%/-188%	+22%/-9%	+9%/-12%	+19%/-41%
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 002307206-01 / KOI 3549.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$45.47^{+10.83}_{-9.90}$	387^{+21}_{-16}	-2731^{+7369}_{-1793}	$-410.197^{+12098.376}_{-10309.808}$
Alt.	-38049 ± 123	$58.17^{+11.10}_{-9.98}$	388^{+20}_{-16}	3560^{+213}_{-185}	2693^{+1198}_{-739}

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

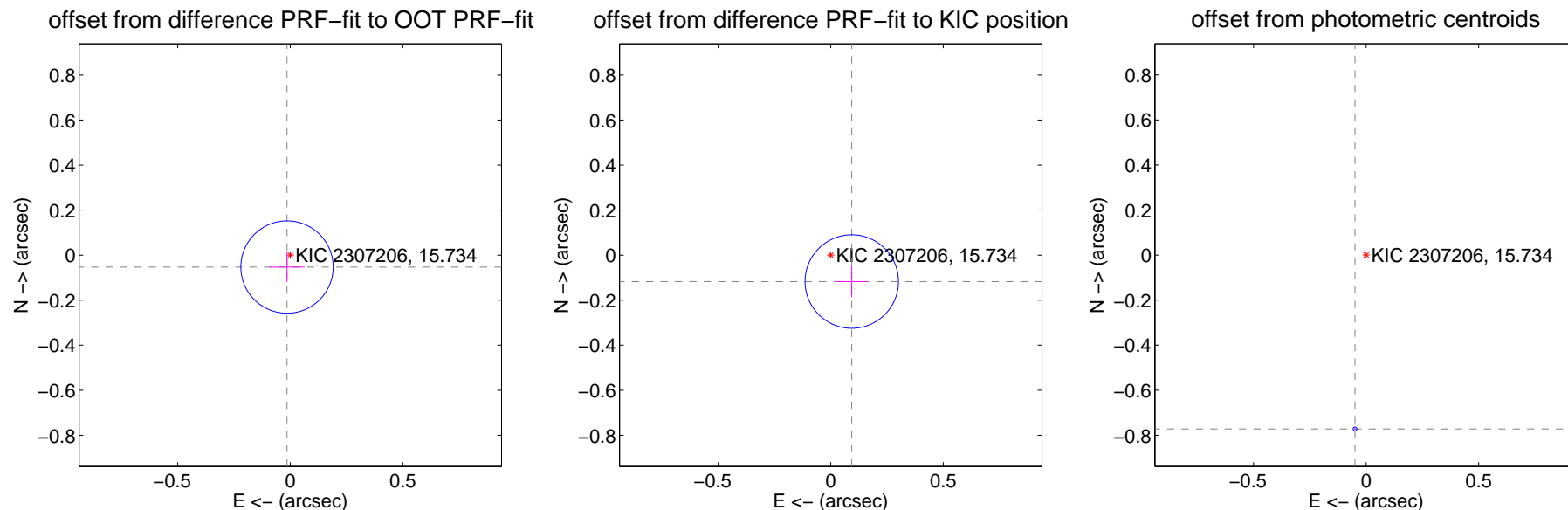
DV Centroid Data

Supplemental centroid analysis for 002307206-01. Kepler magnitude: 15.73. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

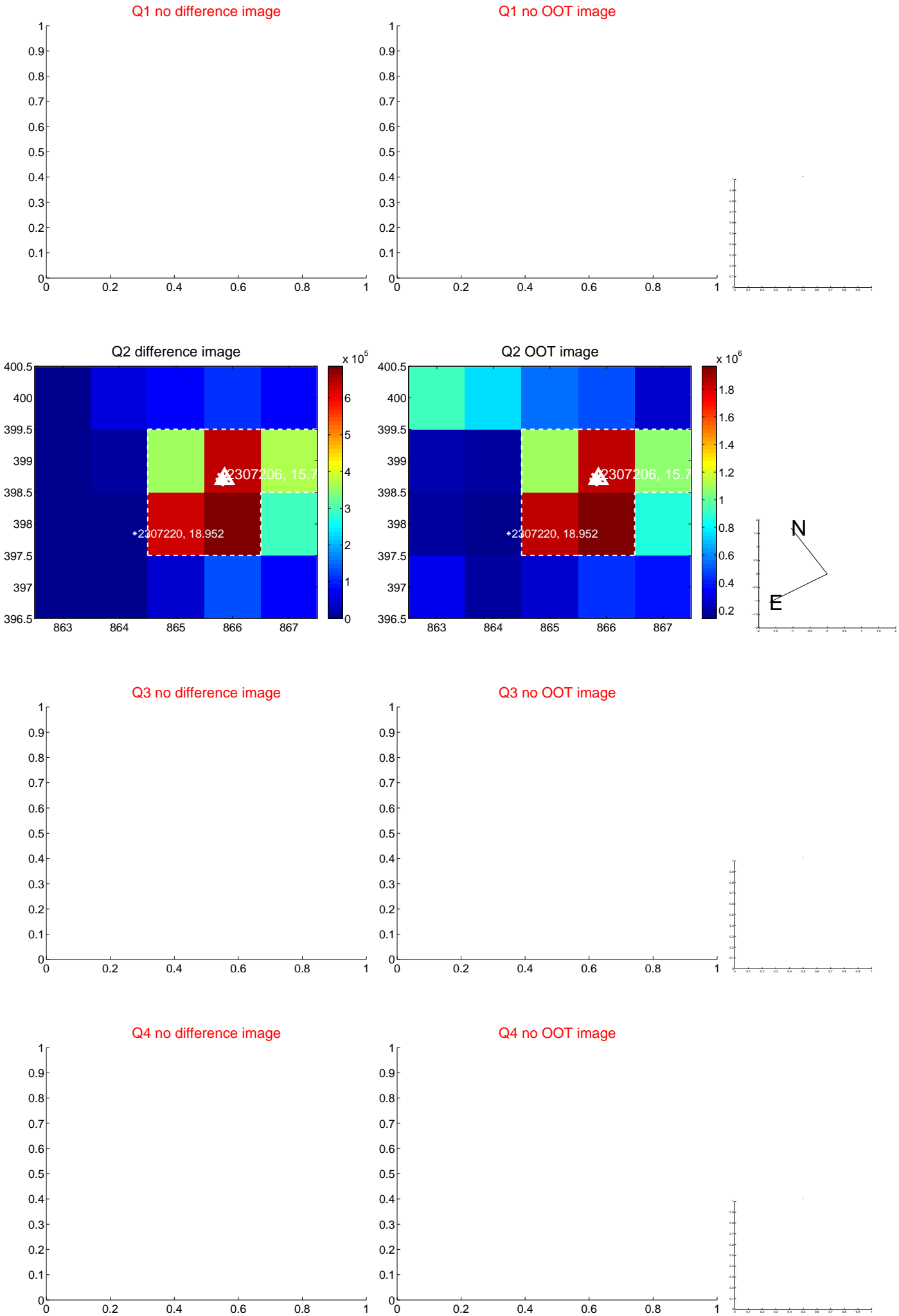
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.068	0.80	0.014 ± 0.078	-0.053 ± 0.067
PRF-fit source offset from KIC position	0.150 ± 0.069	2.17	-0.093 ± 0.067	-0.117 ± 0.070
photometric centroid source offset	0.77 ± 0.00	278.16	0.05 ± 0.00	-0.77 ± 0.00

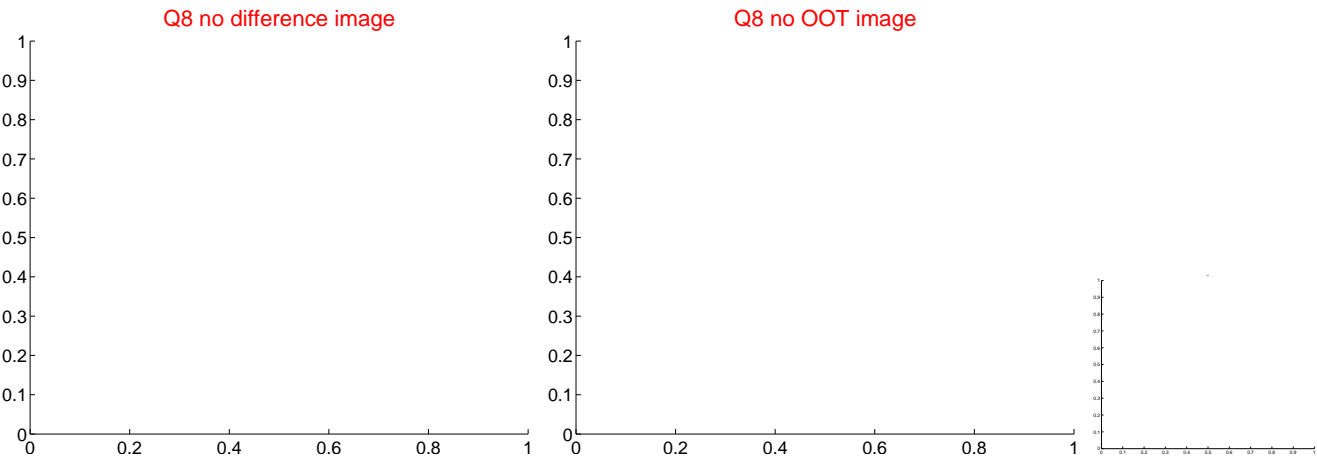
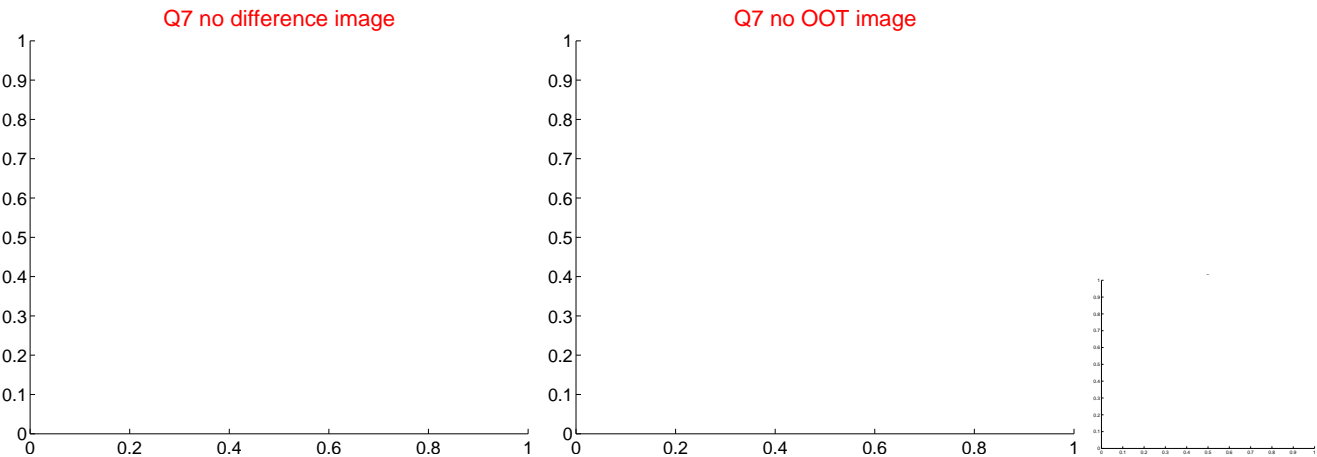
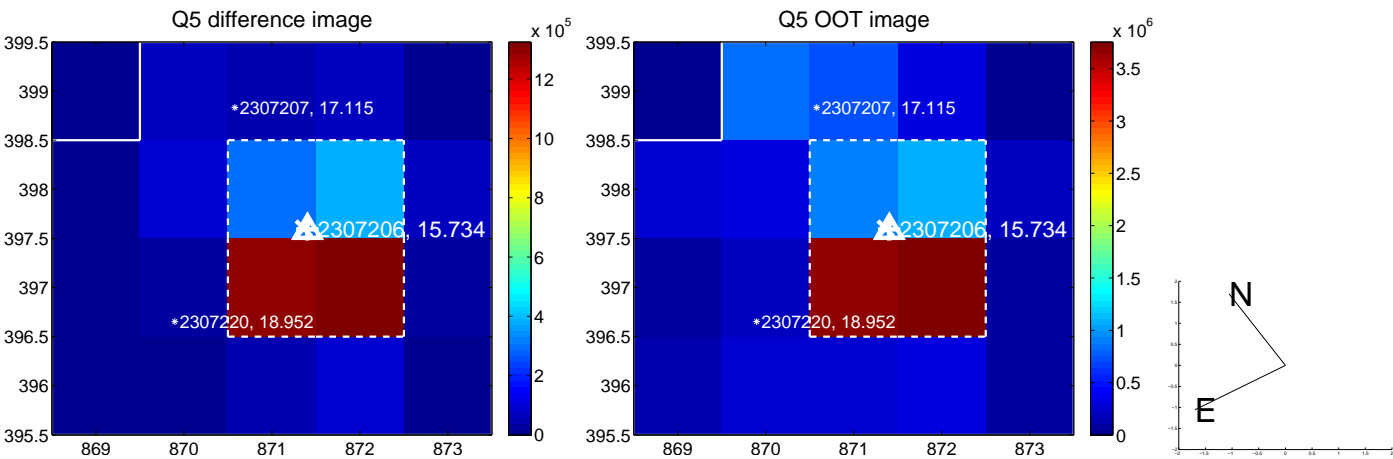


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

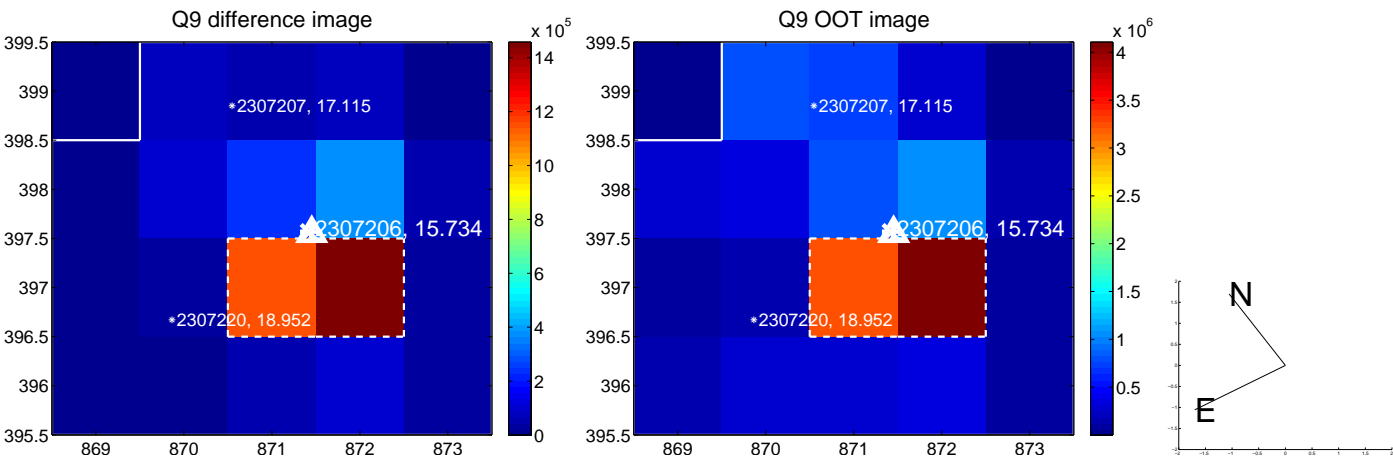
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



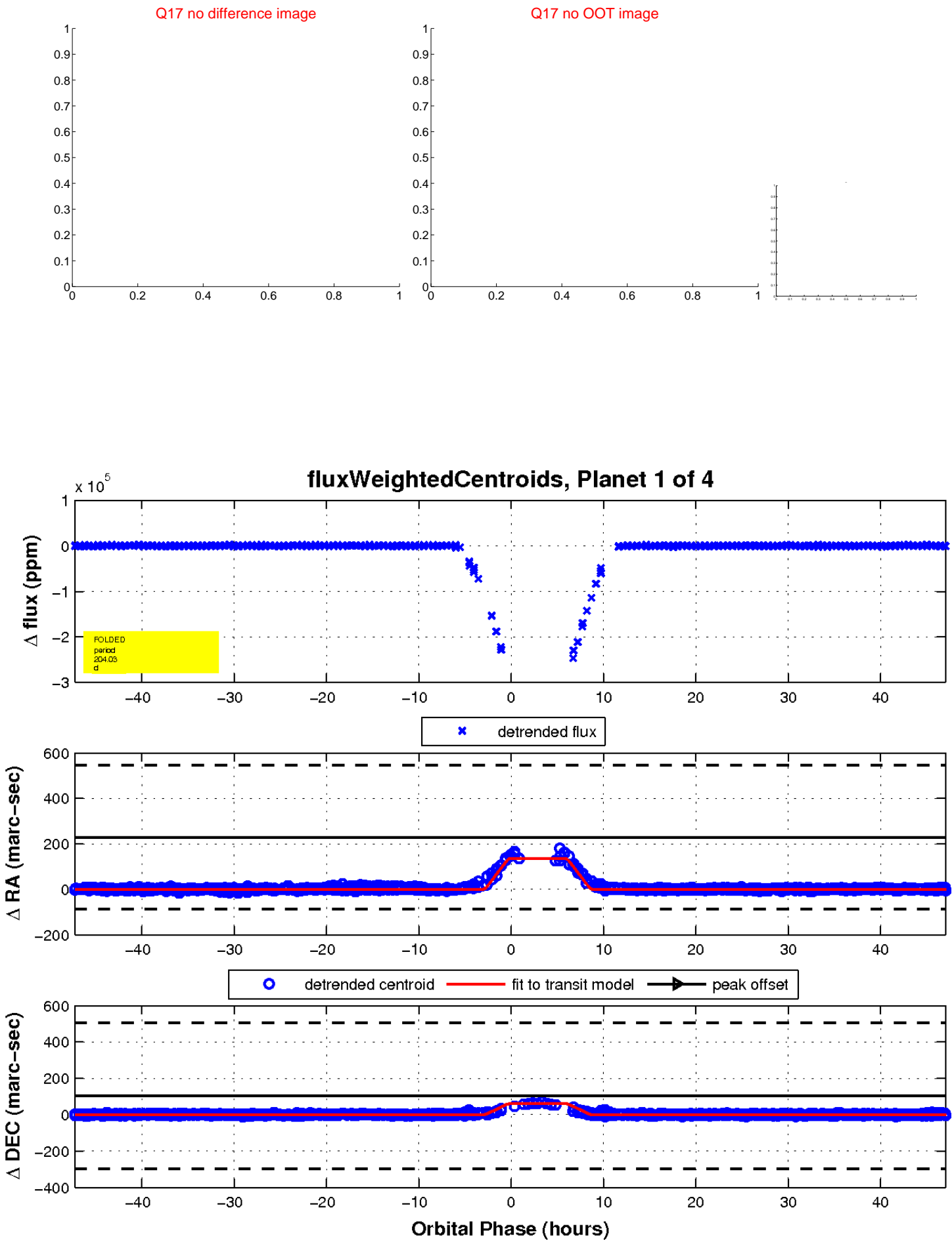
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

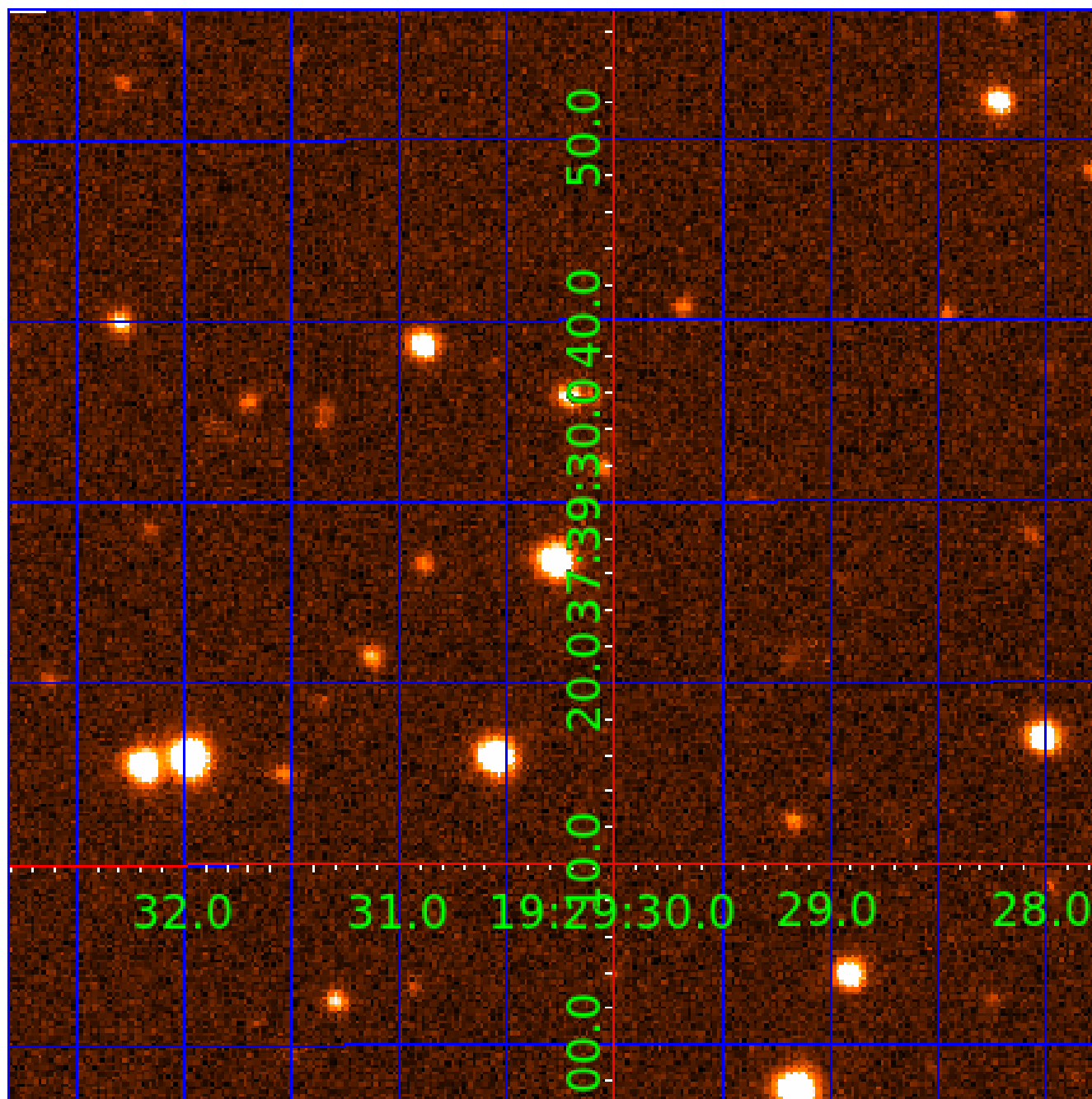


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002307206

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})
002307206-01	OBS	3549.01	204.029097	253.543620	416203.6	12.000	2607.3	-1.0	0.81	5553	43.98	1.29
002307206-02	OBS	No	204.032699	152.963439	207344.3	11.656	1297.7	924.0	0.81	5553	40.15	1.29
002307206-03	OBS	No	411.059240	252.419304	1293.4	12.572	24.6	7.8	0.81	5553	2.86	0.51
002307206-04	OBS	No	204.083960	257.485301	2665.8	82.460	23.3	24.2	0.81	5553	7.91	1.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002307206-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
002307206-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
002307206-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002307206-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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 002307206-02

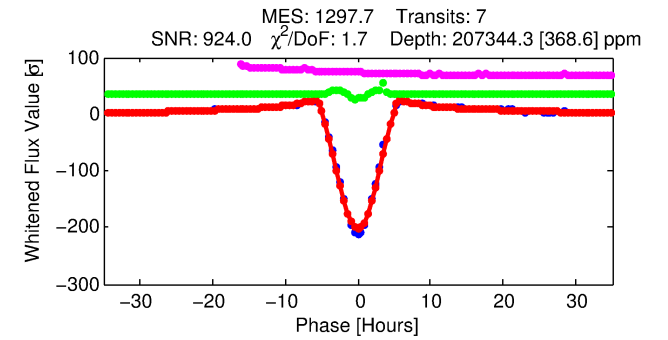
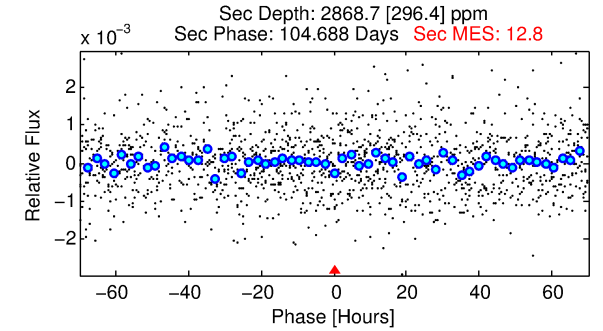
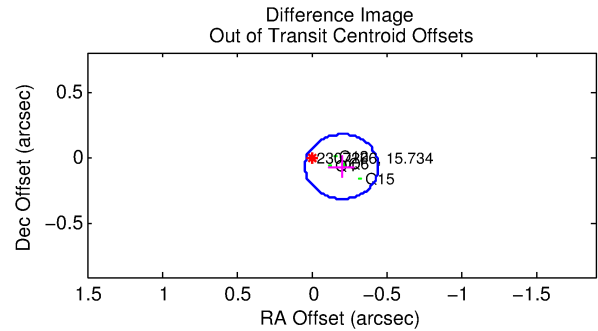
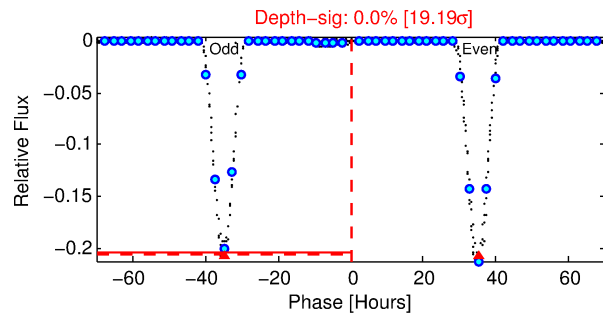
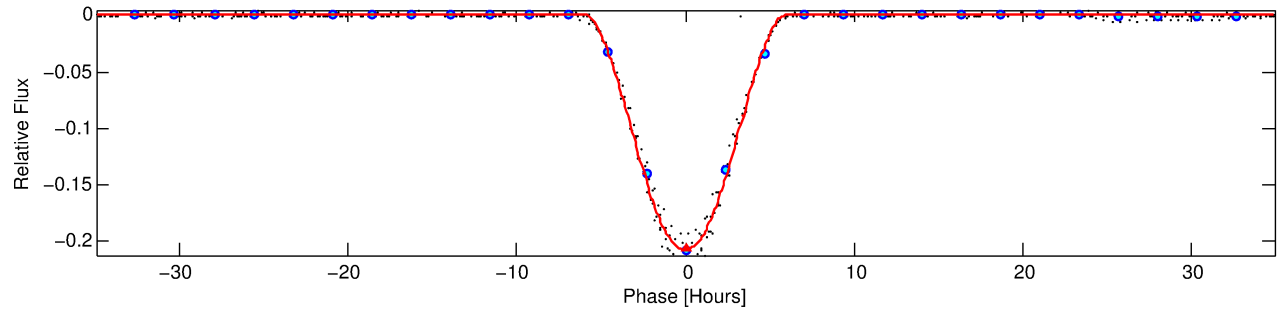
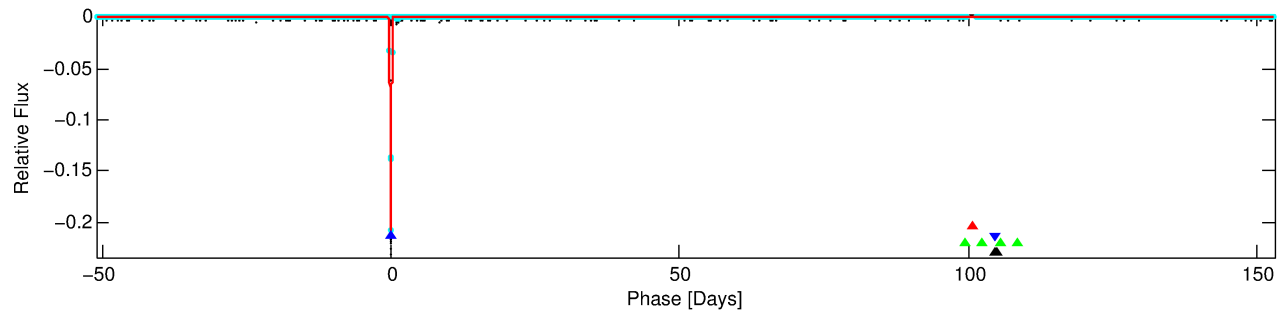
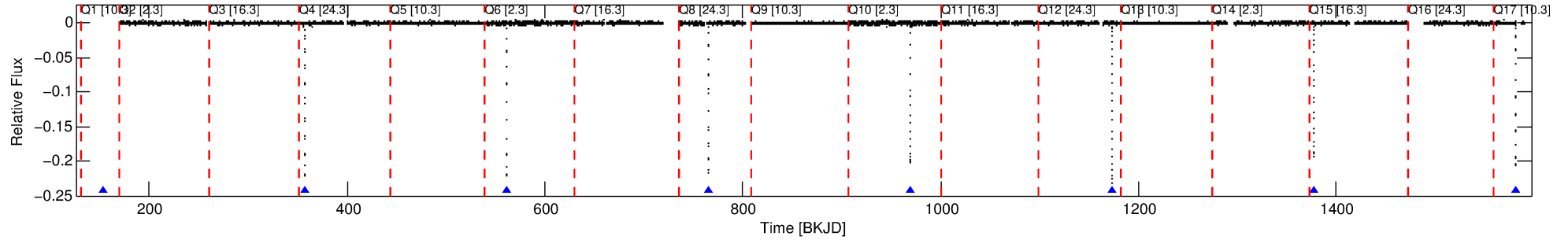
No Significant Match Found

DV One-Page Summary

KIC: 2307206 Candidate: 2 of 4 Period: 204.033 d

KOI: K03549 Corr: No Ephemeris Match

Kp: 15.73 R*: 0.81 Rs Teff: 5553.0 K Logg: 4.58 Fe/H: -0.160



DV Fit Results:

Period = 204.03270 [0.00006] d
Epoch = 152.9634 [0.0003] BKJD
Rp/R* = 0.4565 [0.0036]
a/R* = 177.11 [0.28]
b = 0.61 [0.01]
Seff = 1.30 [0.38]
Teq = 272 [20] K
Rp = 40.15 [8.77] Re
a = 0.6537 [0.1195] AU
Ag = 418.33 [119.04] [3.51σ]
Teffp = 1902 [76] K [20.88σ]

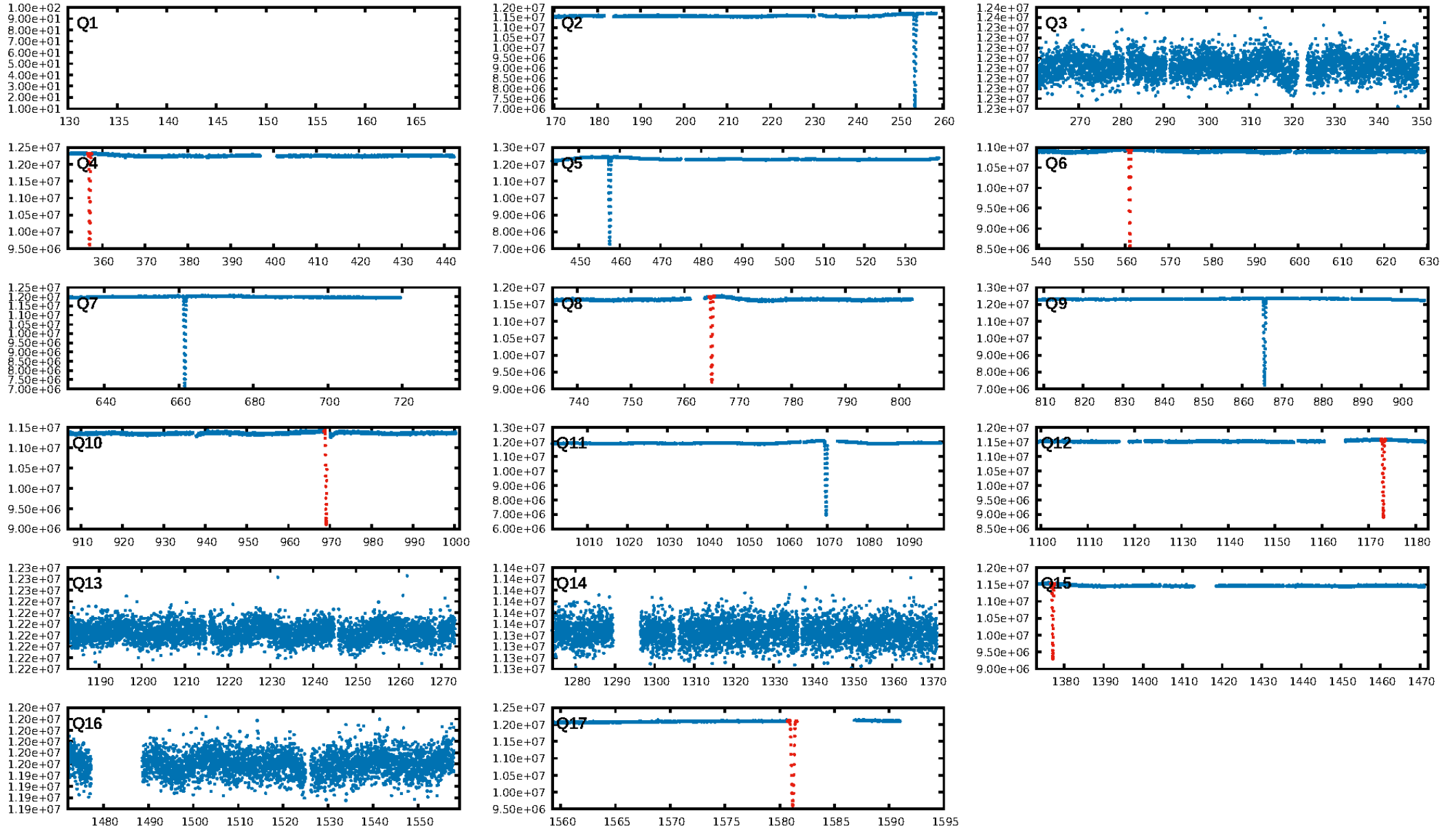
DV Diagnostic Results:

ShortPeriod-sig: 0.4% [0.01σ]
LongPeriod-sig: 1.2% [0.01σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 79.5%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 4.204
Centroid-sig: 0.0%
Centroid-so: 0.964 arcsec [157.16σ]
OotOffset-rm: 0.212 arcsec [2.61σ]
KicOffset-rm: 0.192 arcsec [2.29σ]
OotOffset-st: 1/1/2/0 [4]
KicOffset-st: 1/1/2/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [4/4]

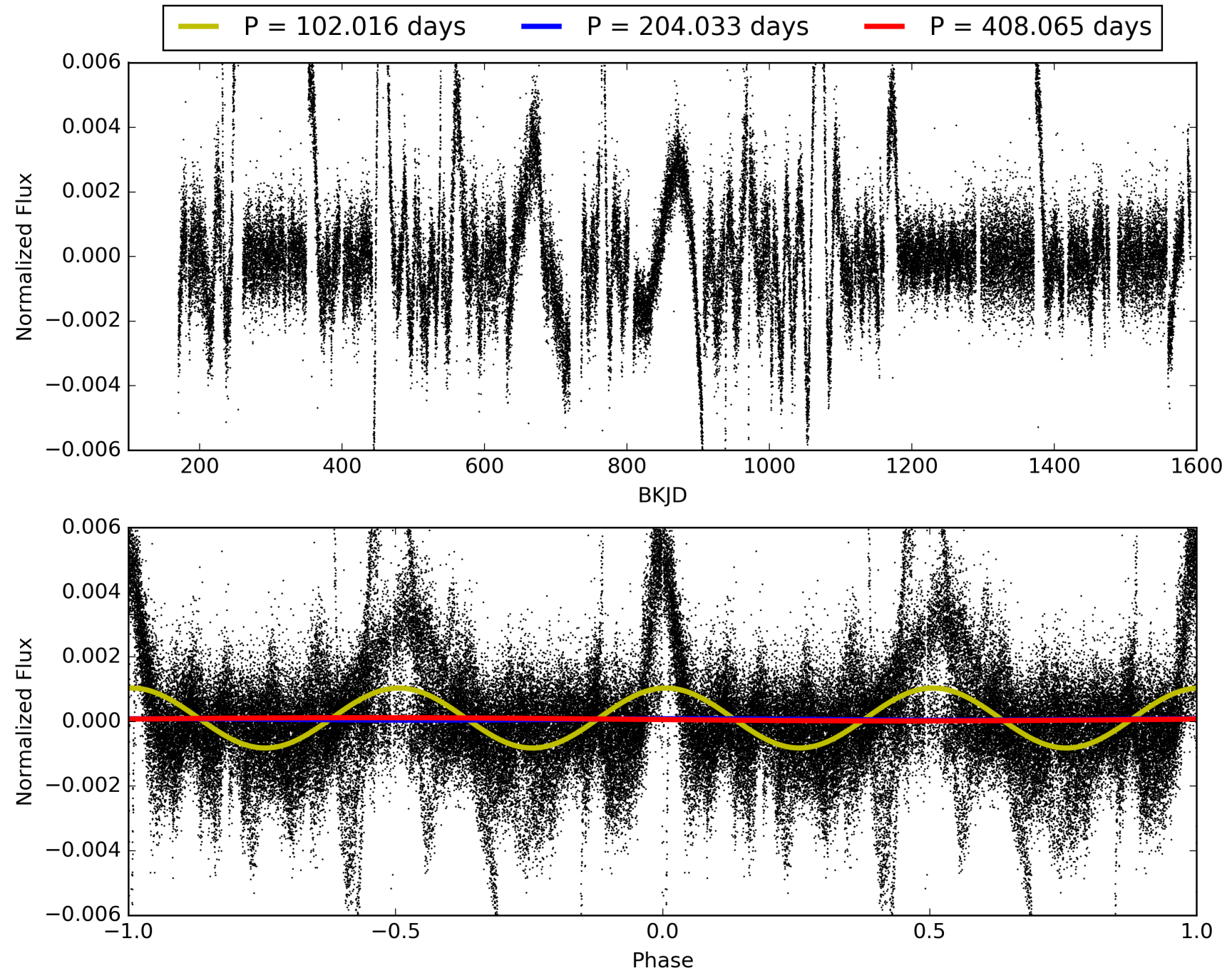
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:57:10 Z

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

TCE 002307206-02, PDC Light Curves

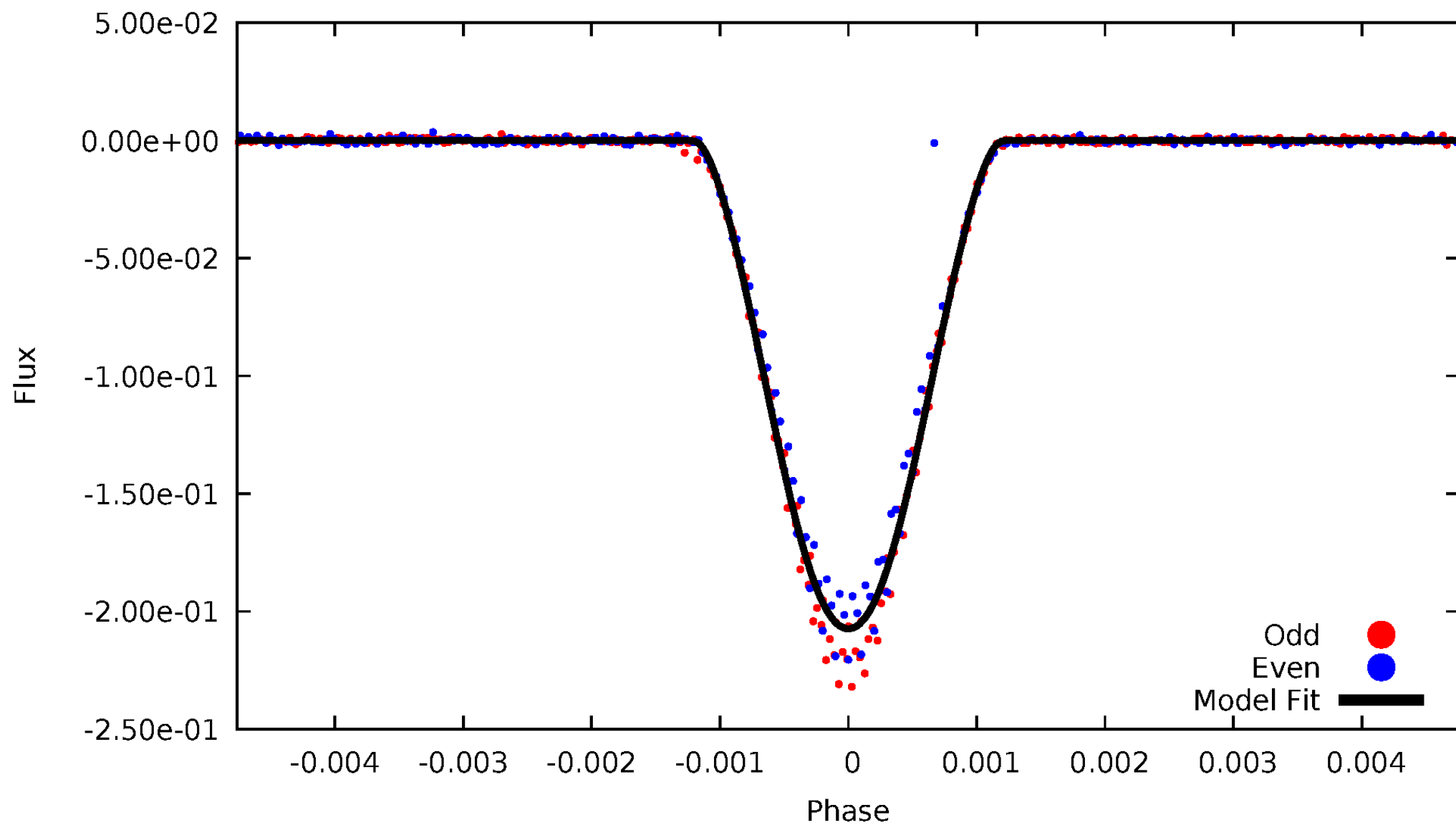


TCE 002307206-02



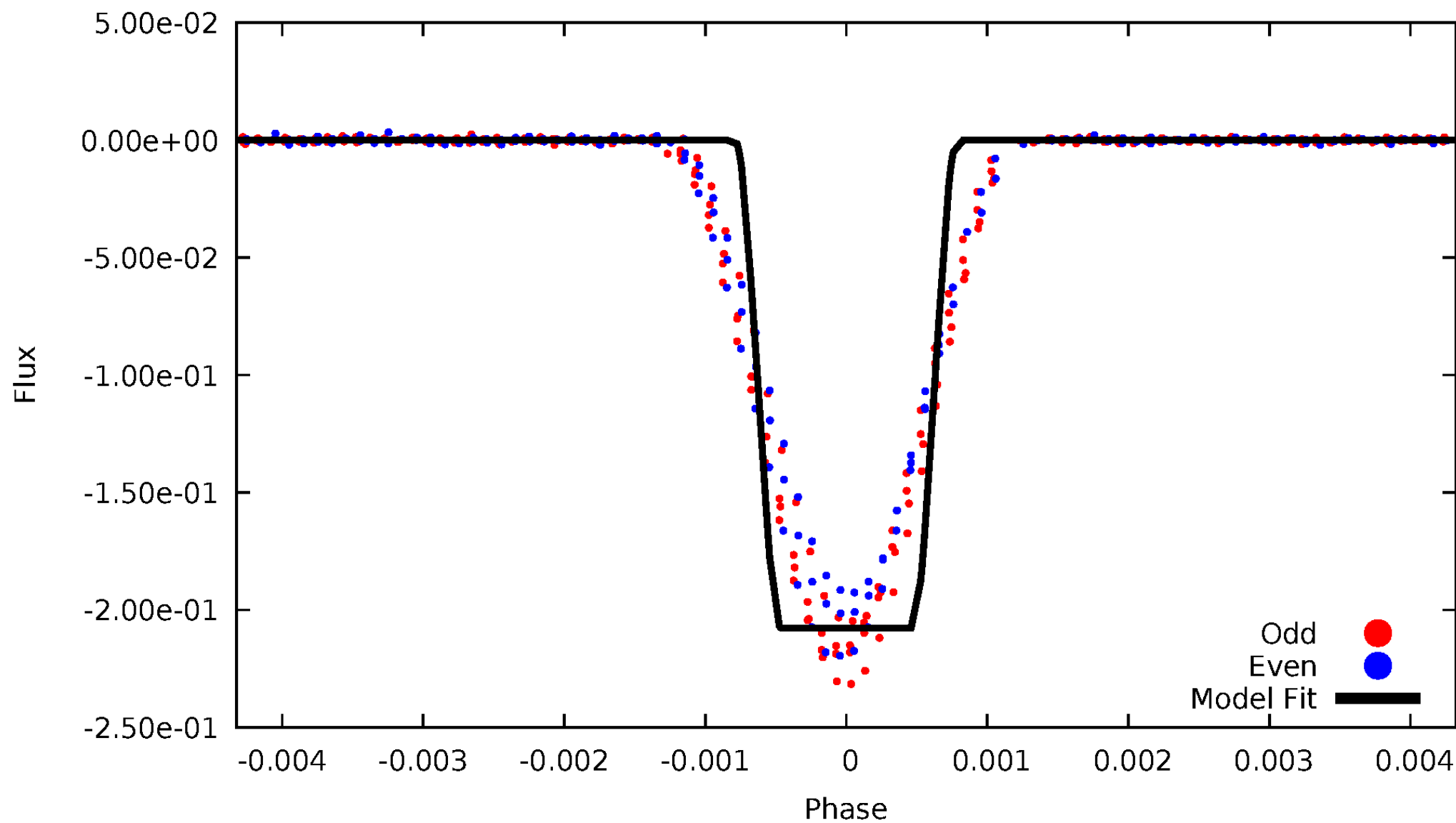
DV Odd/Even

TCE 002307206-02



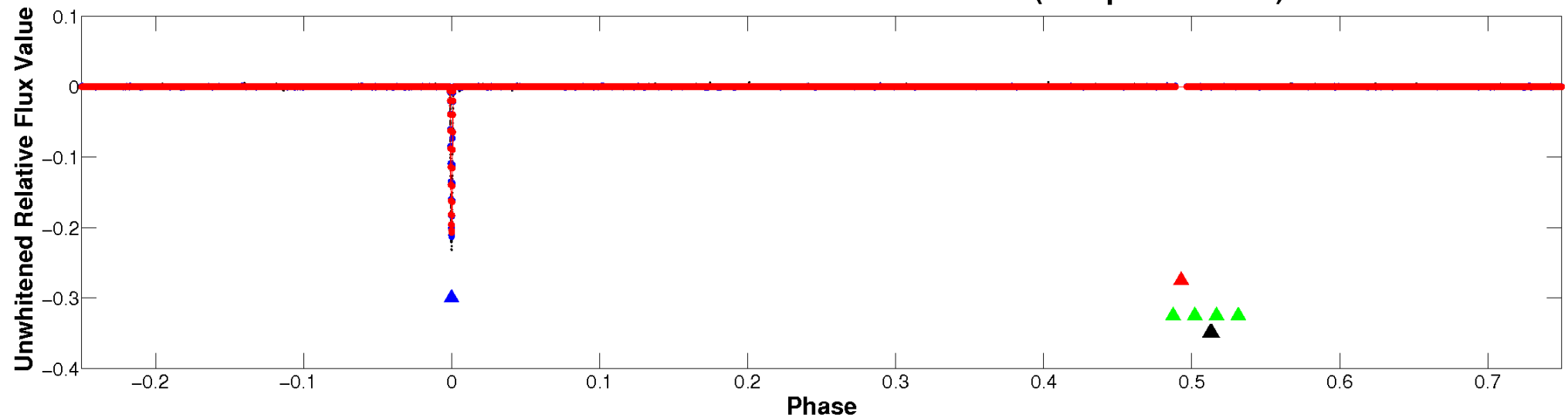
ALT Odd/Even

TCE 002307206-02

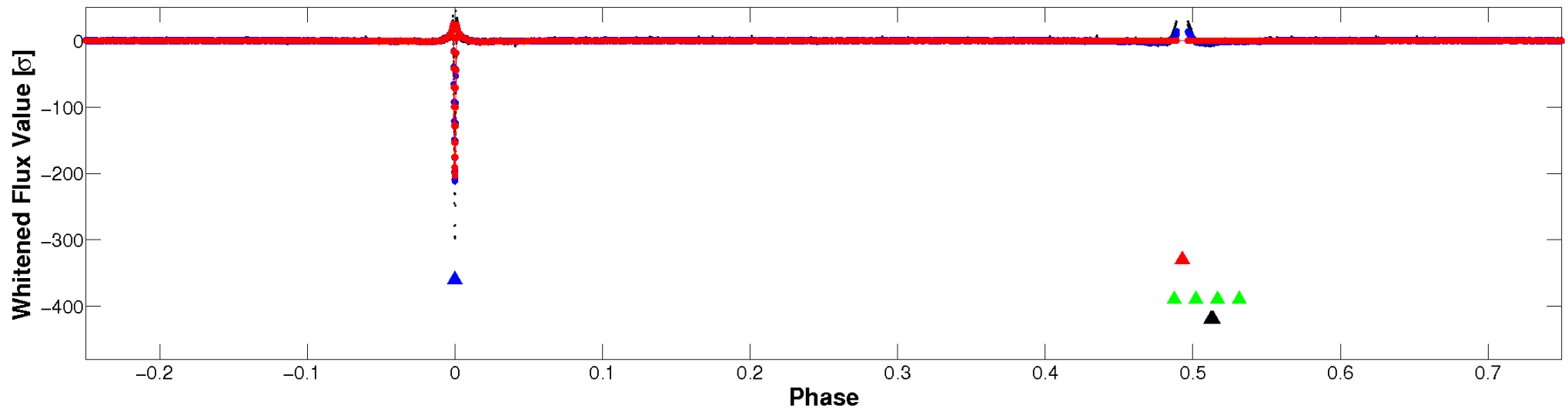


Non-Whitened Vs. Whitened Light Curve

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

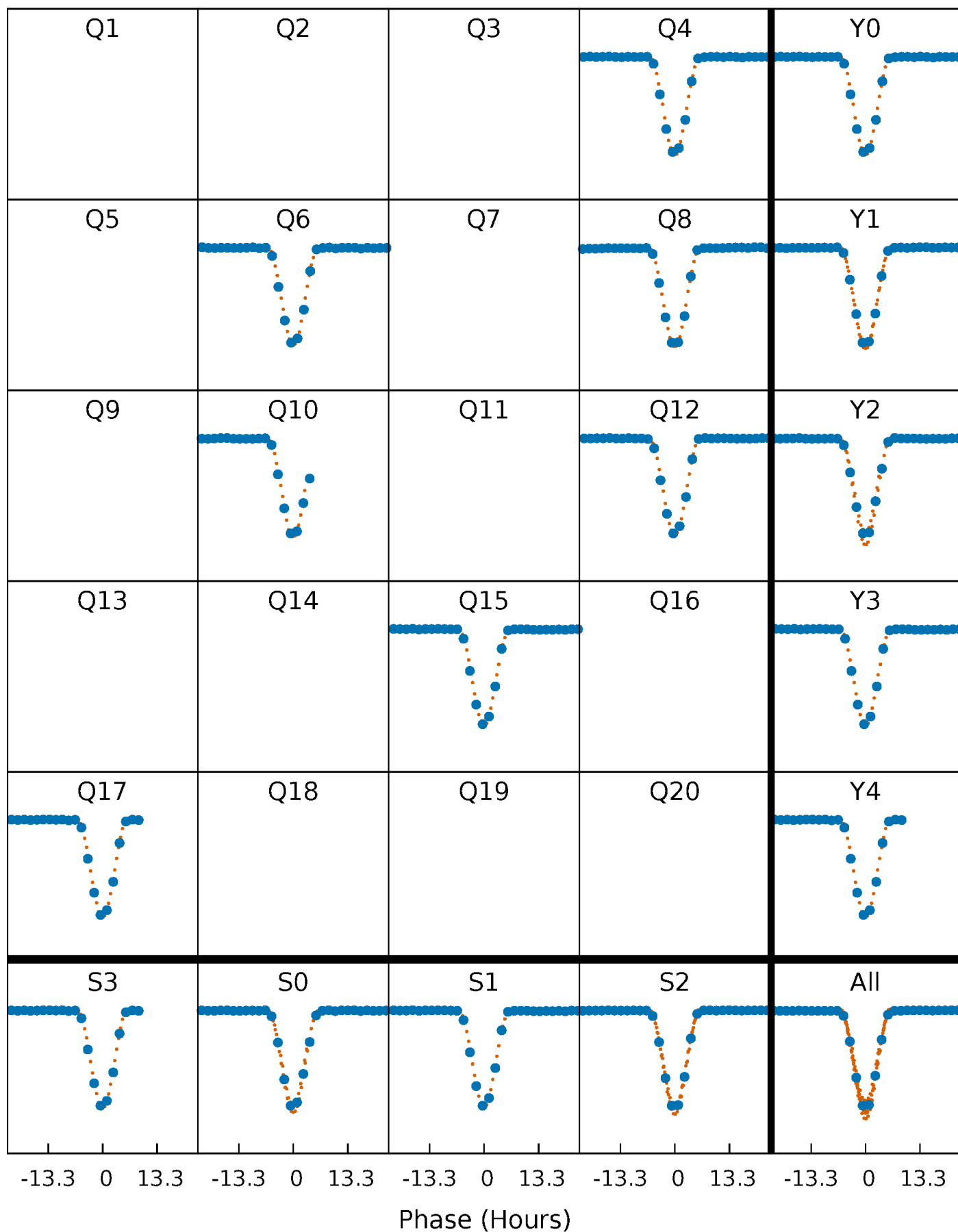


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



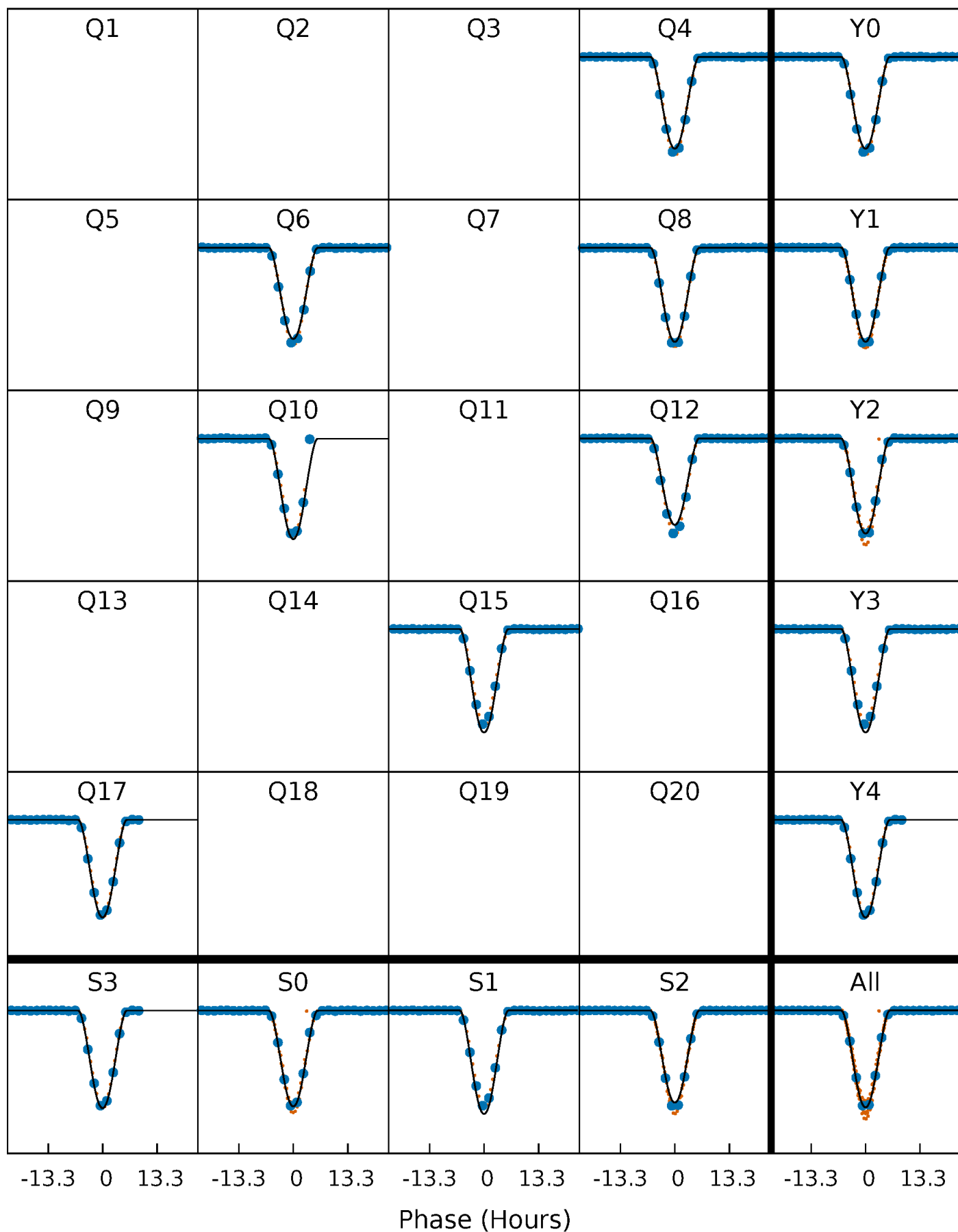
PDC Quarter-Phased Transit Curves

TCE 002307206-02 P=204.032699 Days $T_0=152.963439$ (BKJD)



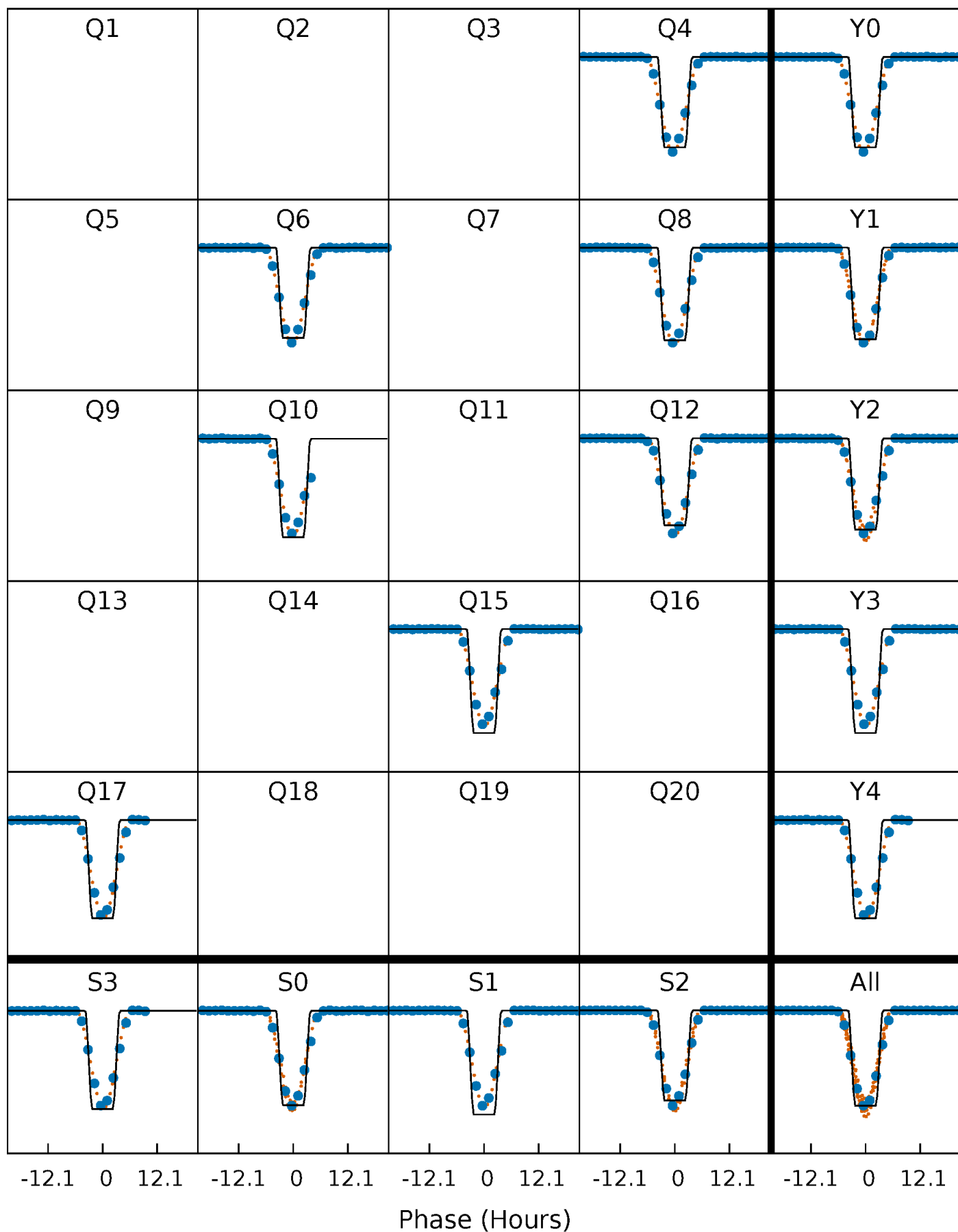
DV Quarter-Phased Transit Curves

TCE 002307206-02 P=204.032699 Days $T_0=152.963439$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

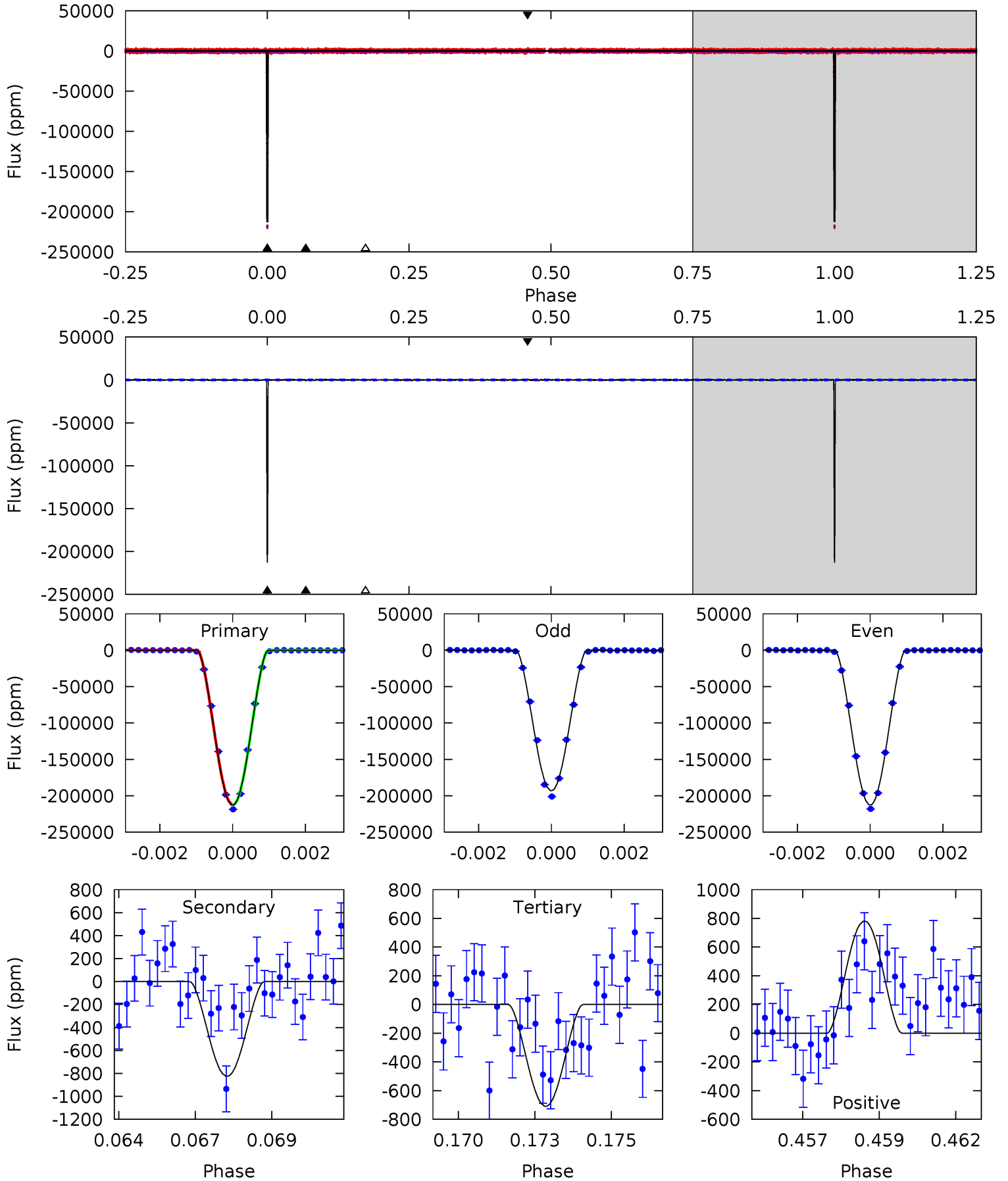
TCE 002307206-02 P=204.029097 Days $T_0=152.979967$ (BKJD)



DV Model-Shift Uniqueness Test

002307206-02, P = 204.032699 Days, E = 152.963439 Days

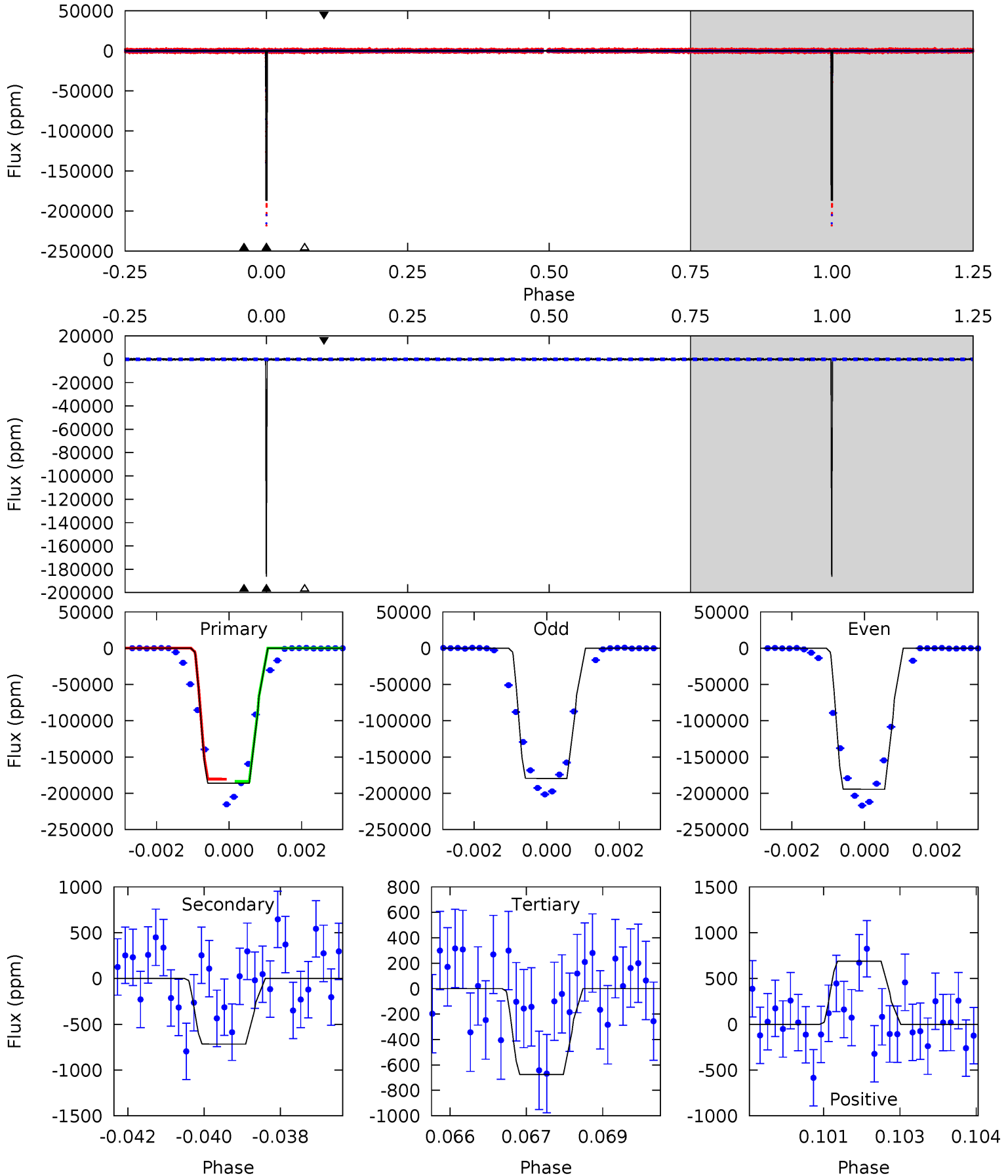
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2493	9.66	8.31	9.15	5.29	3.03	2.37	2485	2484	1.35	0.51	118.2	0.97	0.00	3.31



Alt Model-Shift Uniqueness Test

002307206-02, P = 204.029097 Days, E = 152.979967 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1287	4.95	4.67	4.75	5.37	3.16	1.16	1282	1282	0.29	0.20	61.8	0.98	0.00	0



Stellar Parameters For KIC 002307206

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5553^{+166}_{-166}	$4.577^{+0.036}_{-0.144}$	$-0.160^{+0.300}_{-0.300}$	$0.806^{+0.176}_{-0.070}$	$0.903^{+0.083}_{-0.111}$	$2.425^{+0.461}_{-0.989}$
	+3%/-3%	+1%/-3%	+188%/-188%	+22%/-9%	+9%/-12%	+19%/-41%
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 002307206-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-825 ± 85	$41.14^{+4.73}_{-2.71}$	388^{+21}_{-17}	2309^{+41}_{-46}	111^{+19}_{-20}
Alt.	-717 ± 145	$41.00^{+4.56}_{-2.52}$	388^{+20}_{-17}	2272^{+62}_{-63}	97^{+25}_{-25}

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

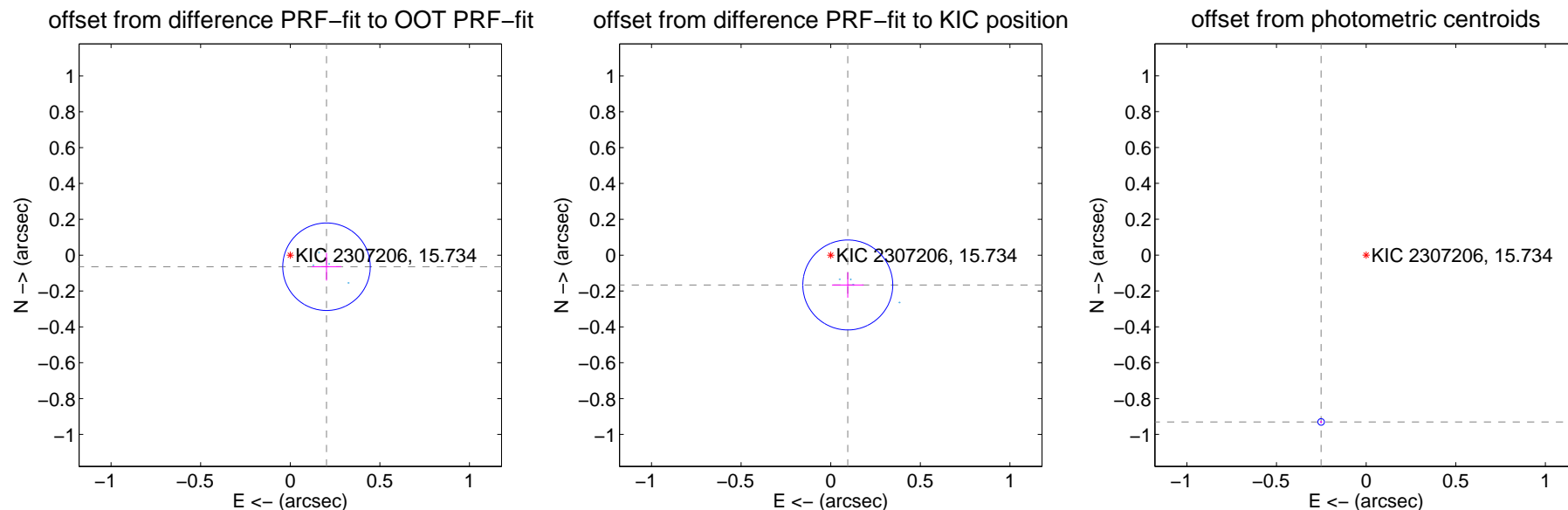
DV Centroid Data

Supplemental centroid analysis for 002307206-02. Kepler magnitude: 15.73. Transit SNR 923.98

There are 4 quarters with good PRF difference image offsets

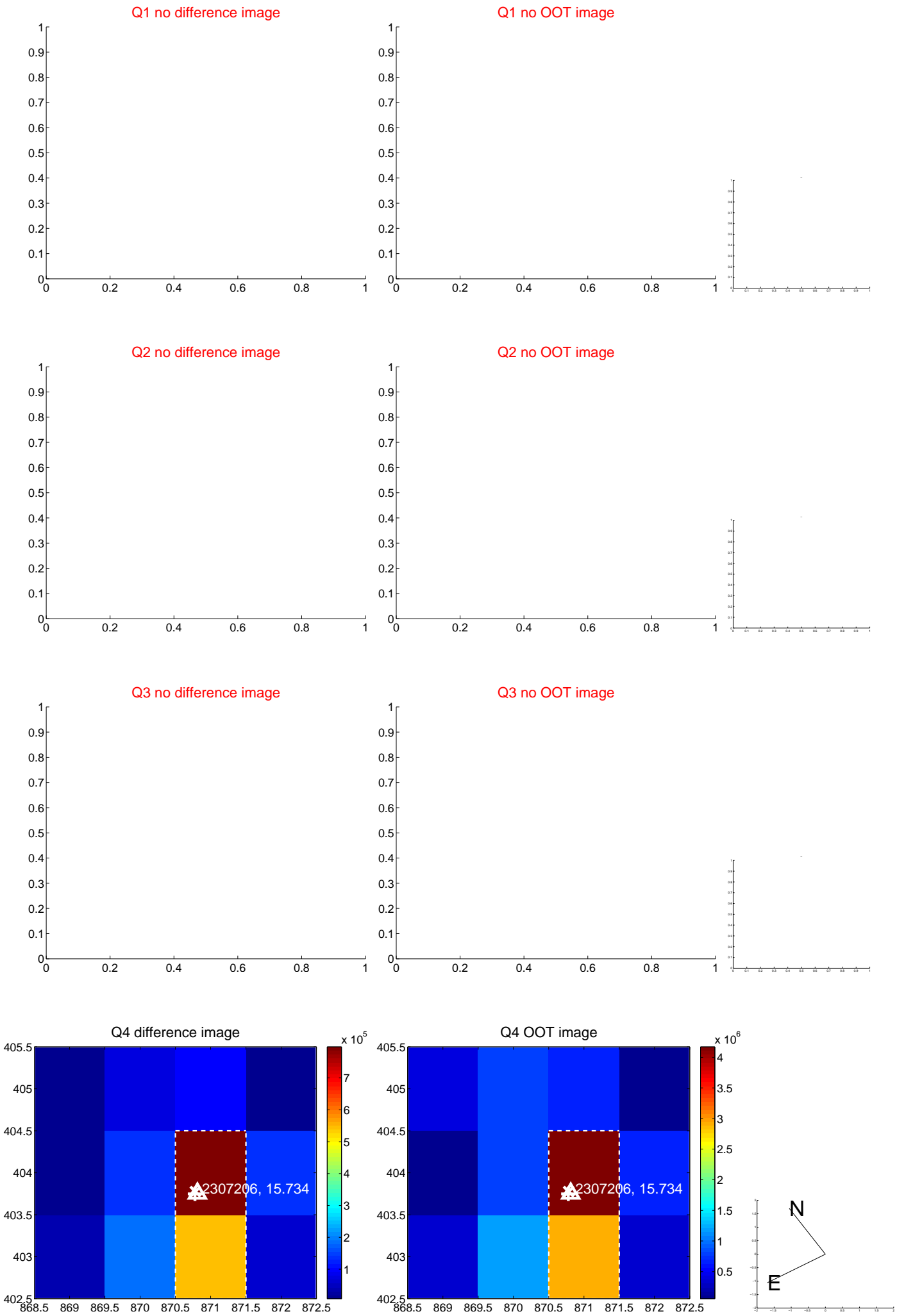
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.212 ± 0.081	2.61	-0.202 ± 0.082	-0.065 ± 0.077
PRF-fit source offset from KIC position	0.192 ± 0.084	2.29	-0.095 ± 0.089	-0.166 ± 0.071
photometric centroid source offset	0.96 ± 0.01	157.16	0.25 ± 0.01	-0.93 ± 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.

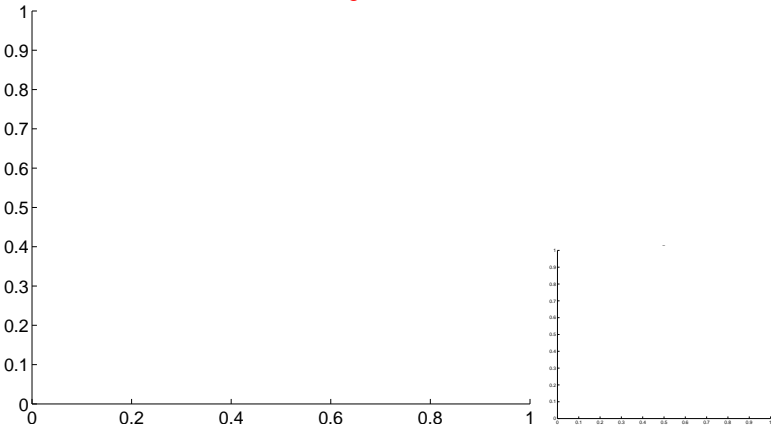


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

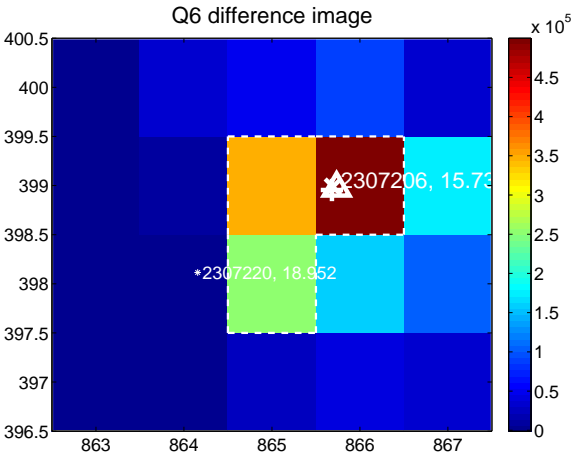
Q5 no difference image



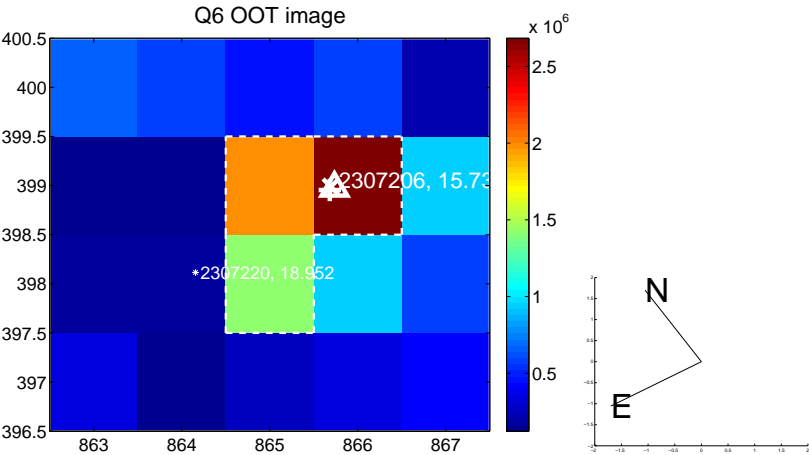
Q5 no OOT image



Q6 difference image



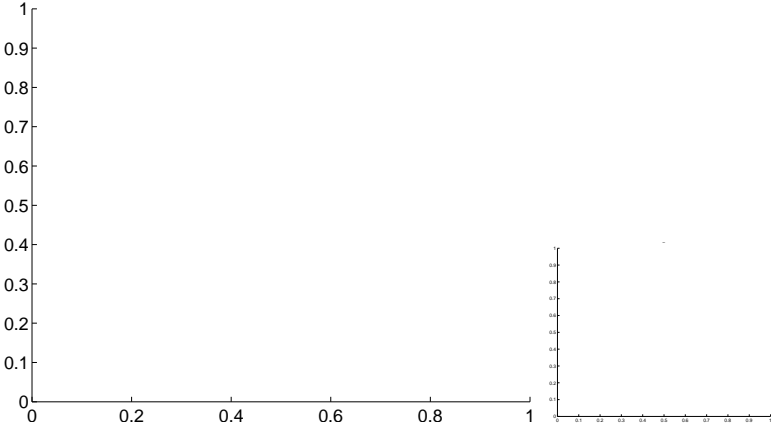
Q6 OOT image



Q7 no difference image



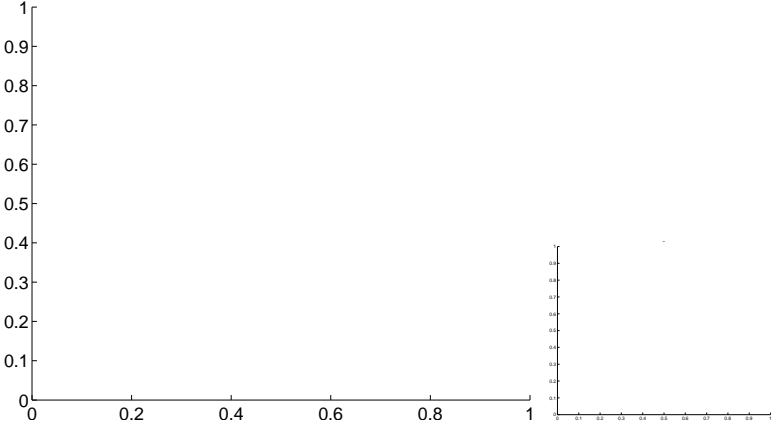
Q7 no OOT image



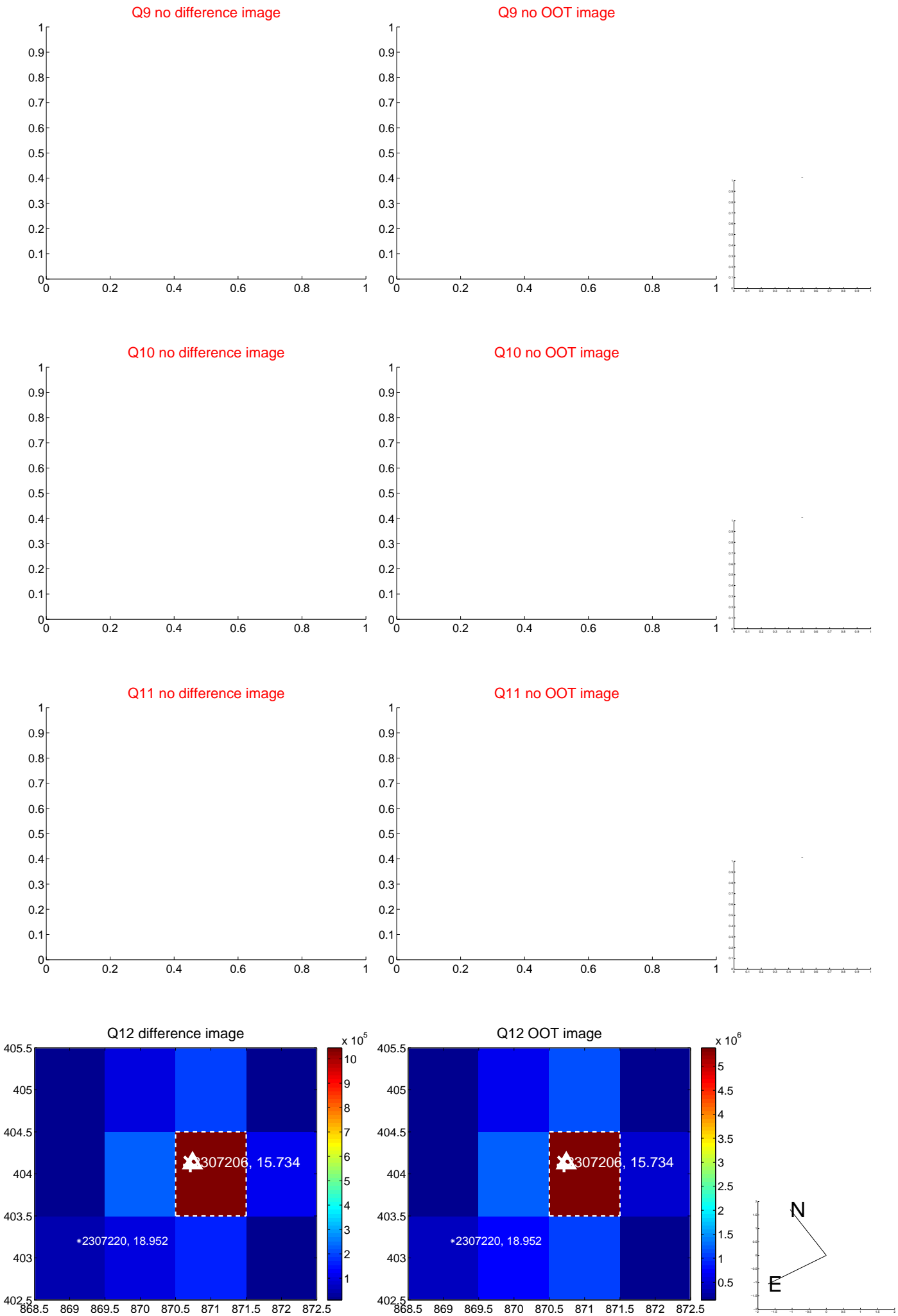
Q8 no difference image



Q8 no OOT image



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

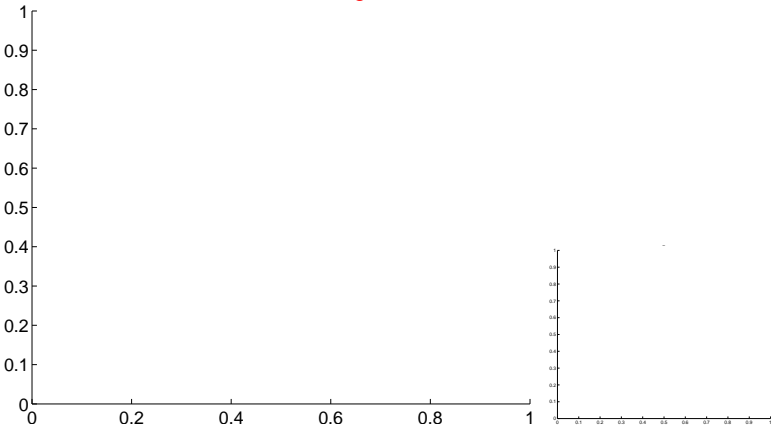


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q13 no difference image



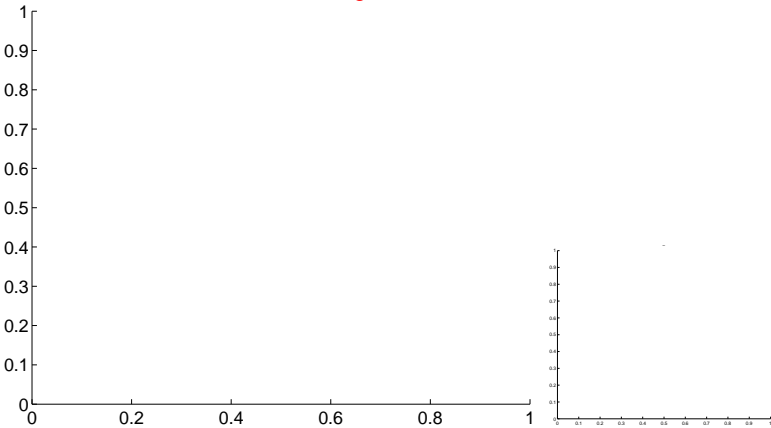
Q13 no OOT image



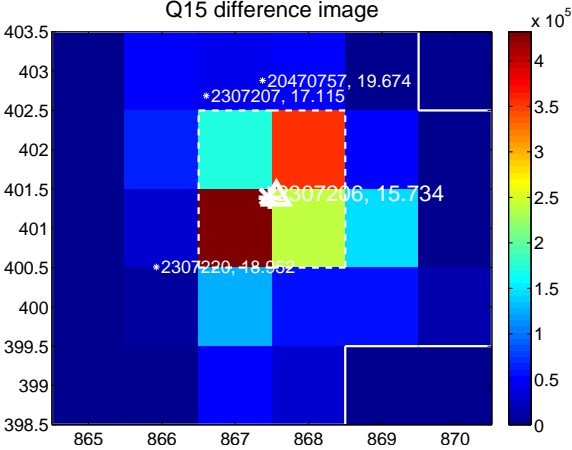
Q14 no difference image



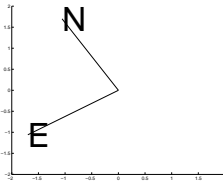
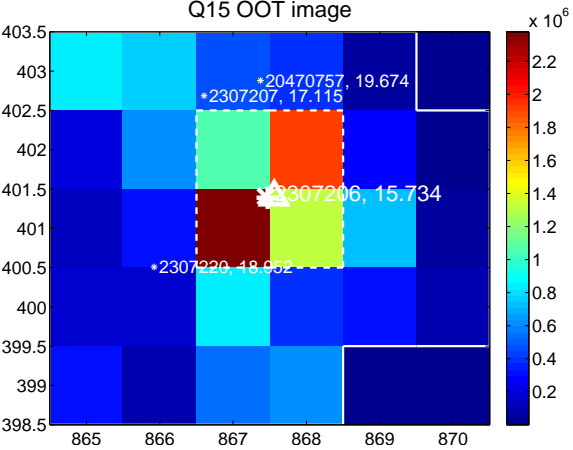
Q14 no OOT image



Q15 difference image



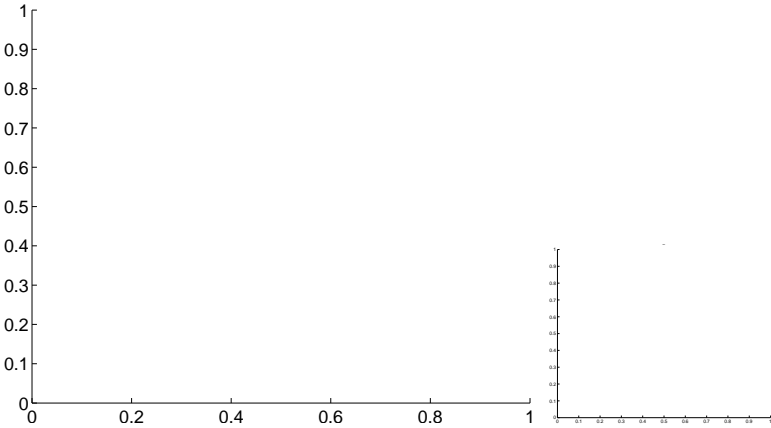
Q15 OOT image



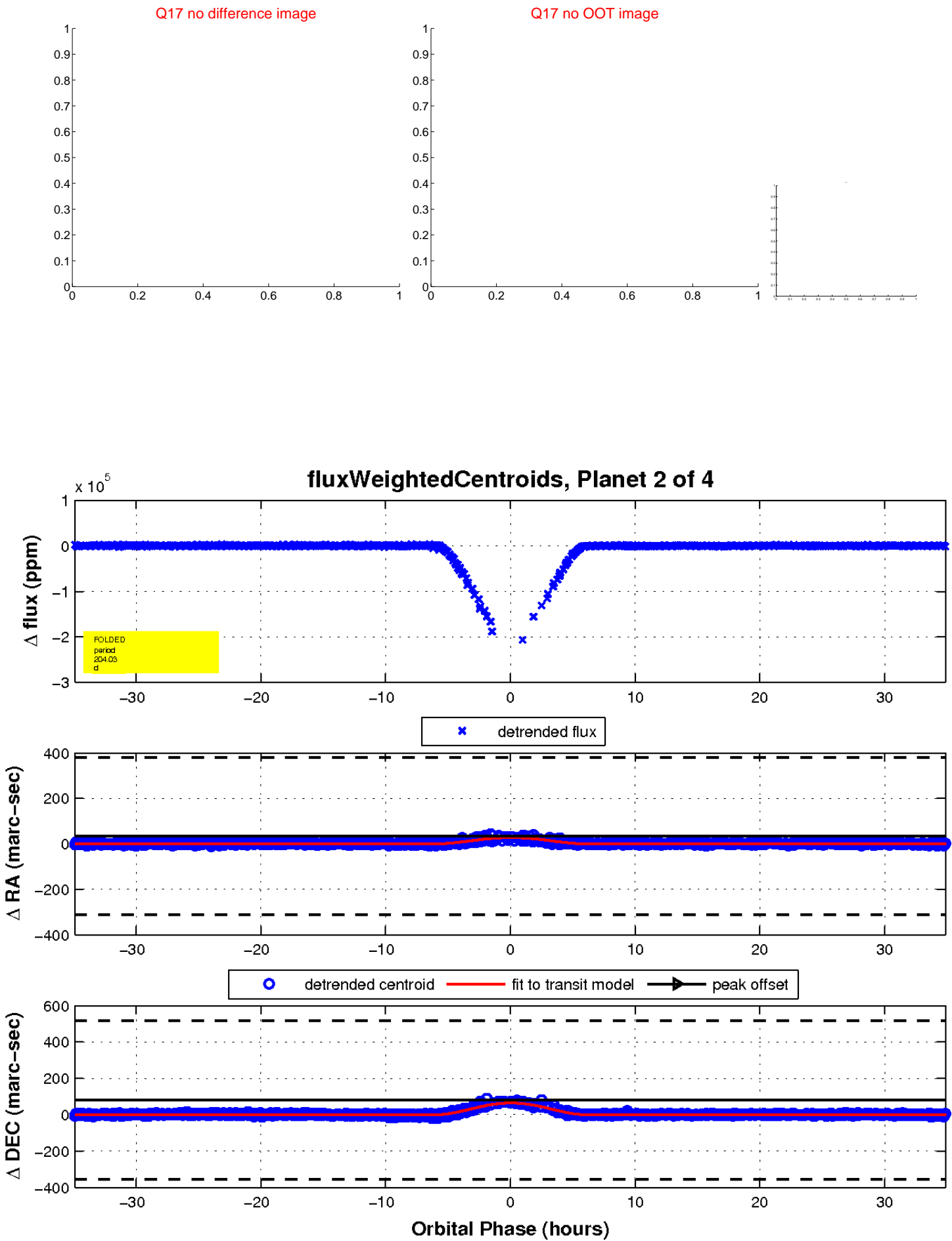
Q16 no difference image



Q16 no OOT image

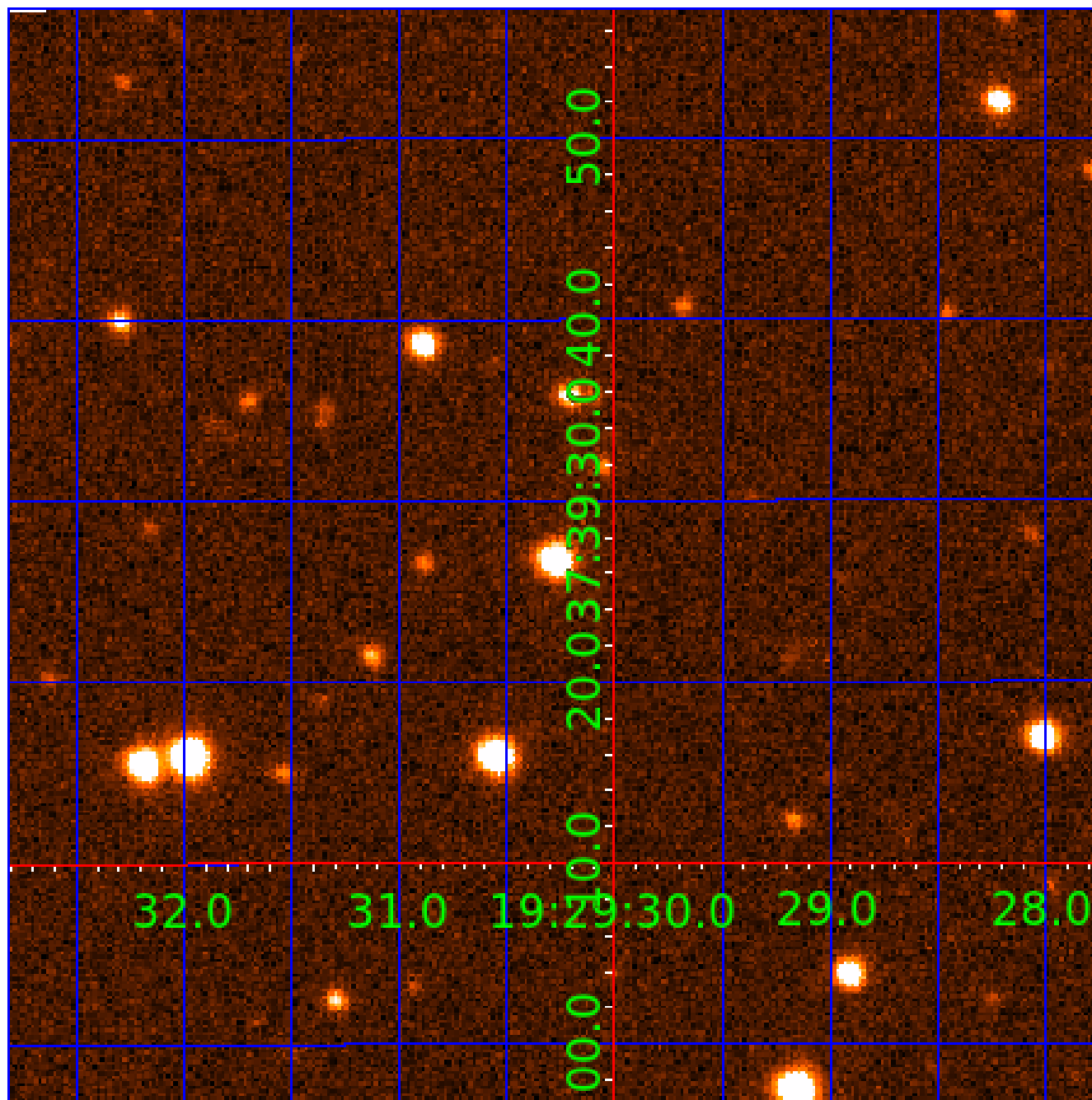


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002307206

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})
002307206-01	OBS	3549.01	204.029097	253.543620	416203.6	12.000	2607.3	-1.0	0.81	5553	43.98	1.29
002307206-02	OBS	No	204.032699	152.963439	207344.3	11.656	1297.7	924.0	0.81	5553	40.15	1.29
002307206-03	OBS	No	411.059240	252.419304	1293.4	12.572	24.6	7.8	0.81	5553	2.86	0.51
002307206-04	OBS	No	204.083960	257.485301	2665.8	82.460	23.3	24.2	0.81	5553	7.91	1.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002307206-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
002307206-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
002307206-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002307206-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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.

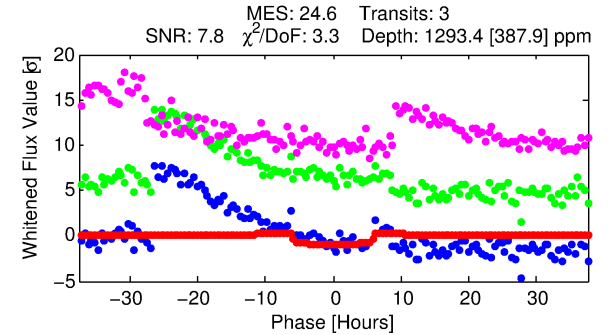
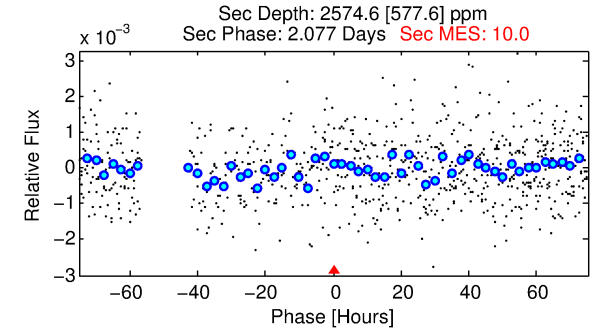
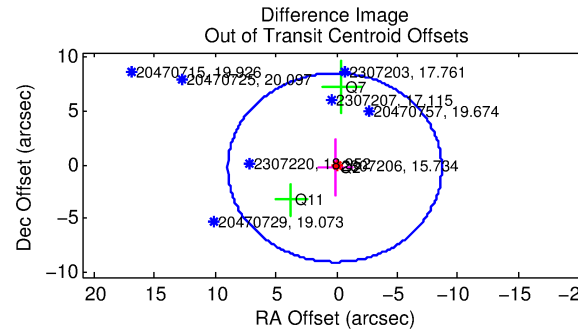
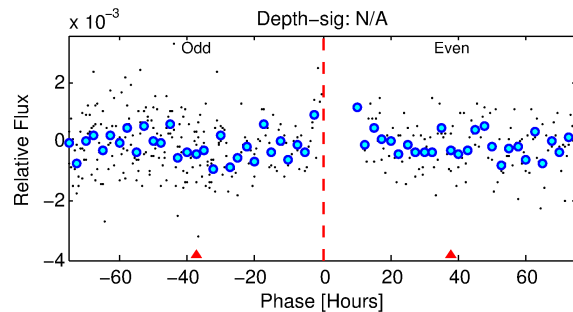
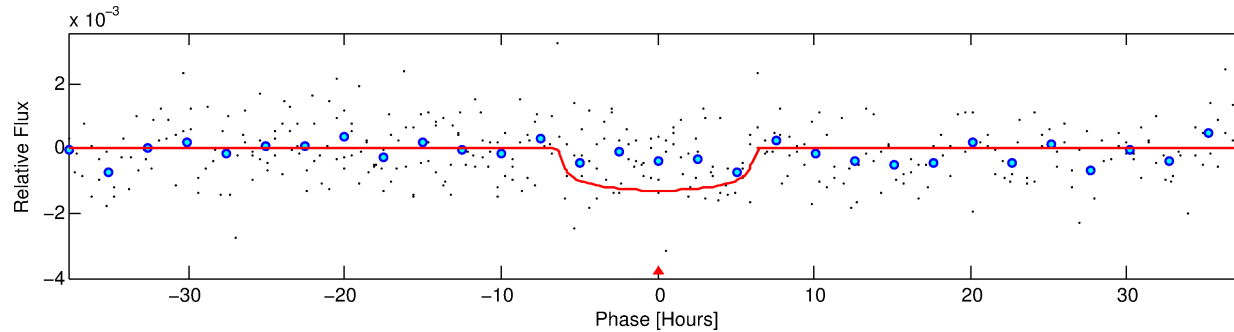
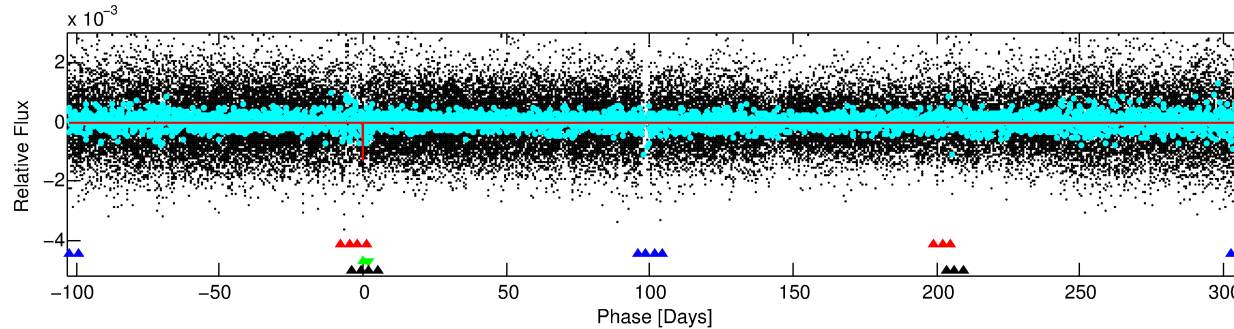
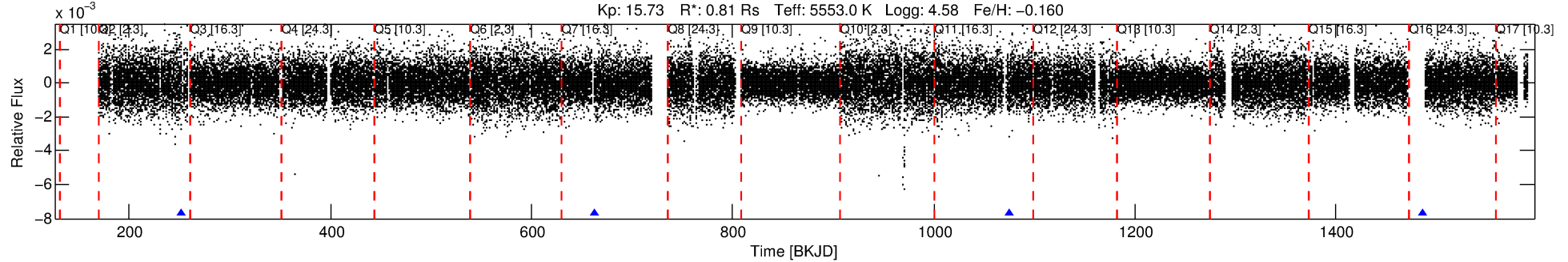
Ephemeris Match Information For 002307206-03

No Significant Match Found

DV One-Page Summary

KIC: 2307206 Candidate: 3 of 4 Period: 411.059 d
KOI: K03549 Corr: No Ephemeris Match

Kp: 15.73 R*: 0.81 Rs Teff: 5553.0 K Logg: 4.58 Fe/H: -0.160



DV Fit Results:

Period = 411.05924 [0.03247] d
Epoch = 252.4193 [0.0440] BKJD
Rp/R* = 0.0325 [0.0702]
a/R* = 257.76 [2334.49]
b = 0.03 [270.27]
Seff = 0.51 [0.15]
Teq = 215 [16] K
Rp = 2.86 [6.21] Re
a = 1.0428 [0.1906] AU
Ag = 188880.49 [819833.42] [0.23σ]
Teffp = 6942 [7522] K [0.89σ]

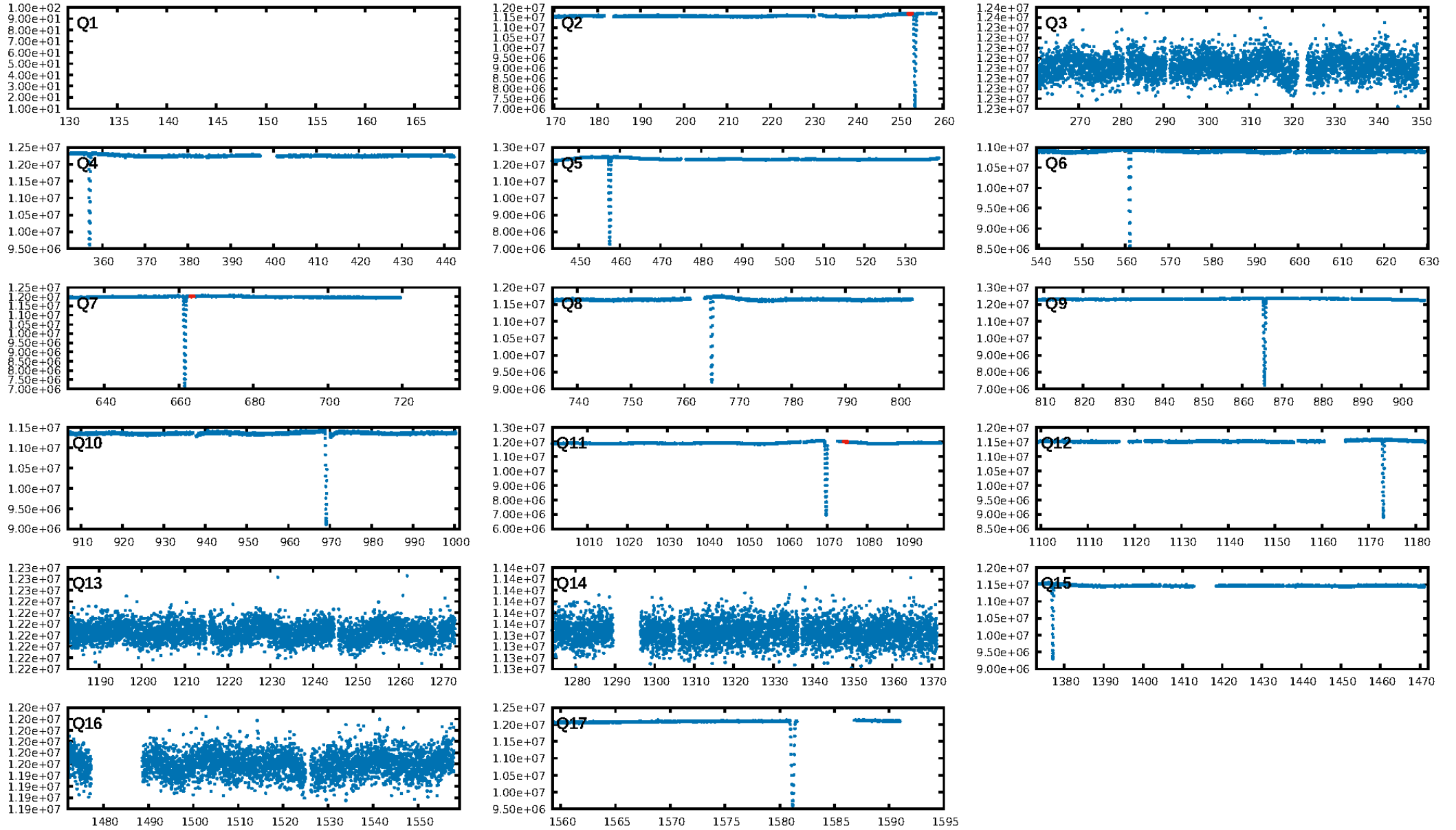
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [59.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.3%
Bootstrap-pfa: 1.37e-143
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.6826
Centroid-sig: 0.0%
Centroid-so: 4.136 arcsec [3.07σ]
OotOffset-rm: 0.309 arcsec [0.11σ]
KicOffset-rm: 0.353 arcsec [0.11σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/3]

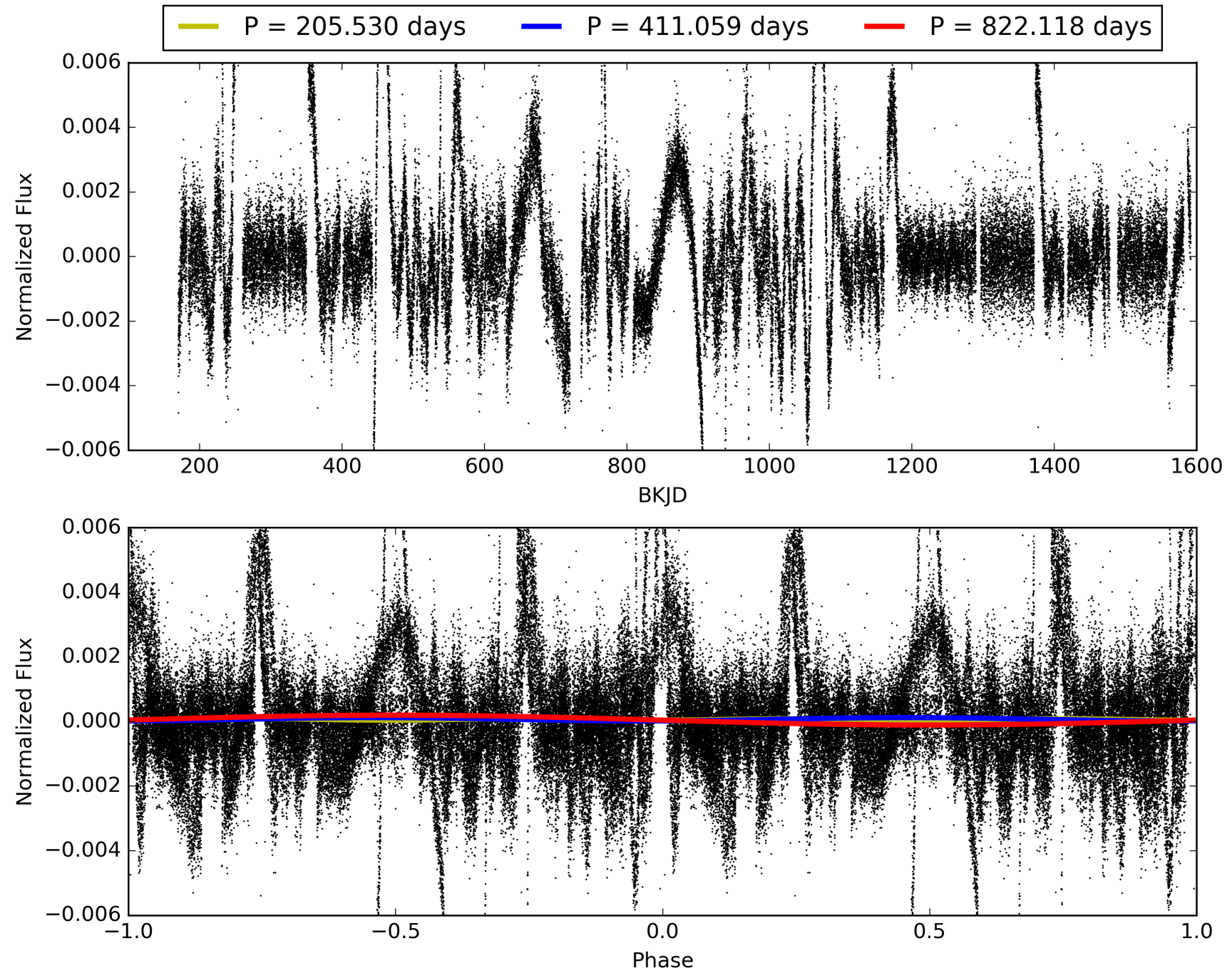
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:57:17 Z

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

TCE 002307206-03, PDC Light Curves

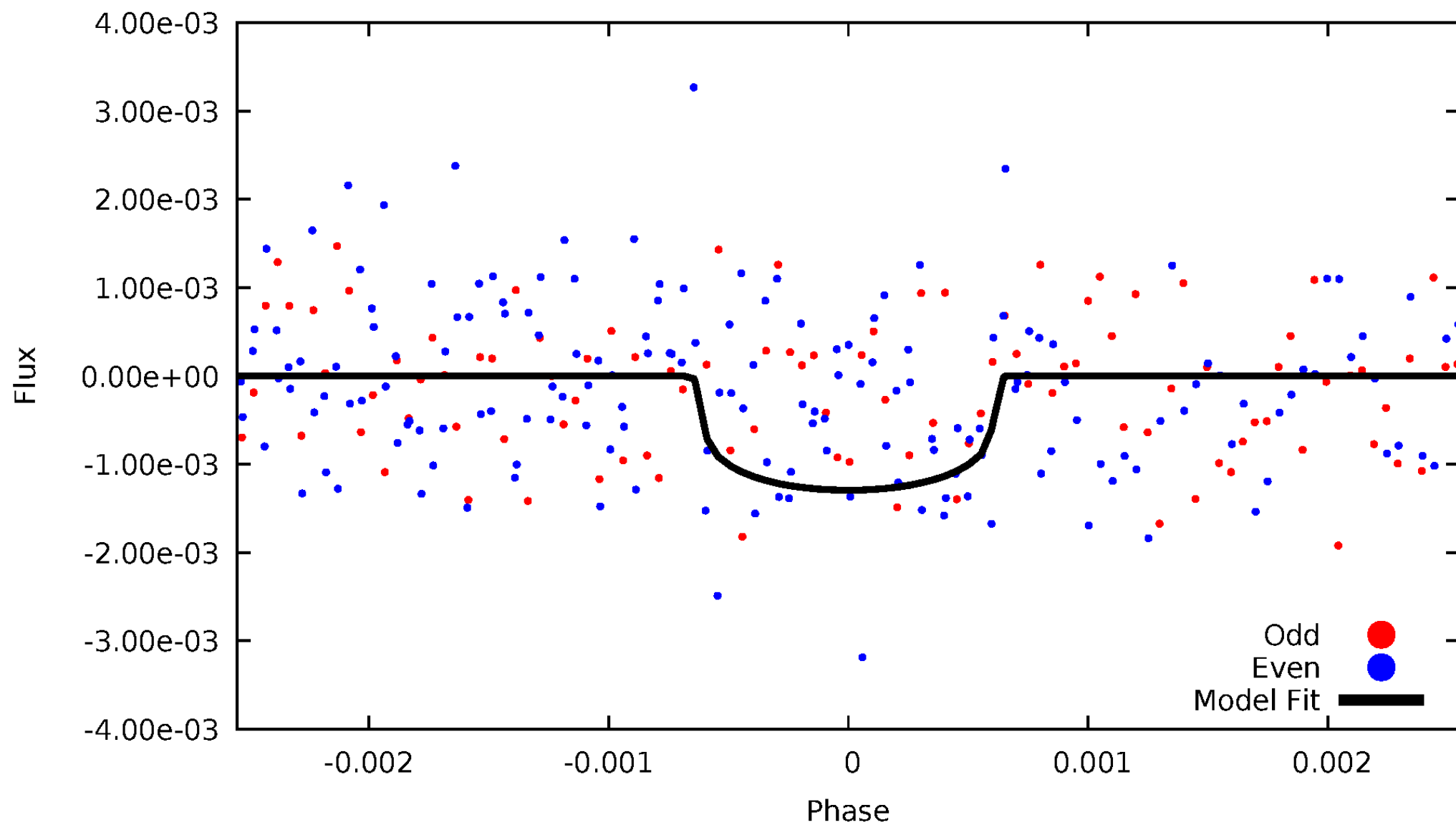


TCE 002307206-03



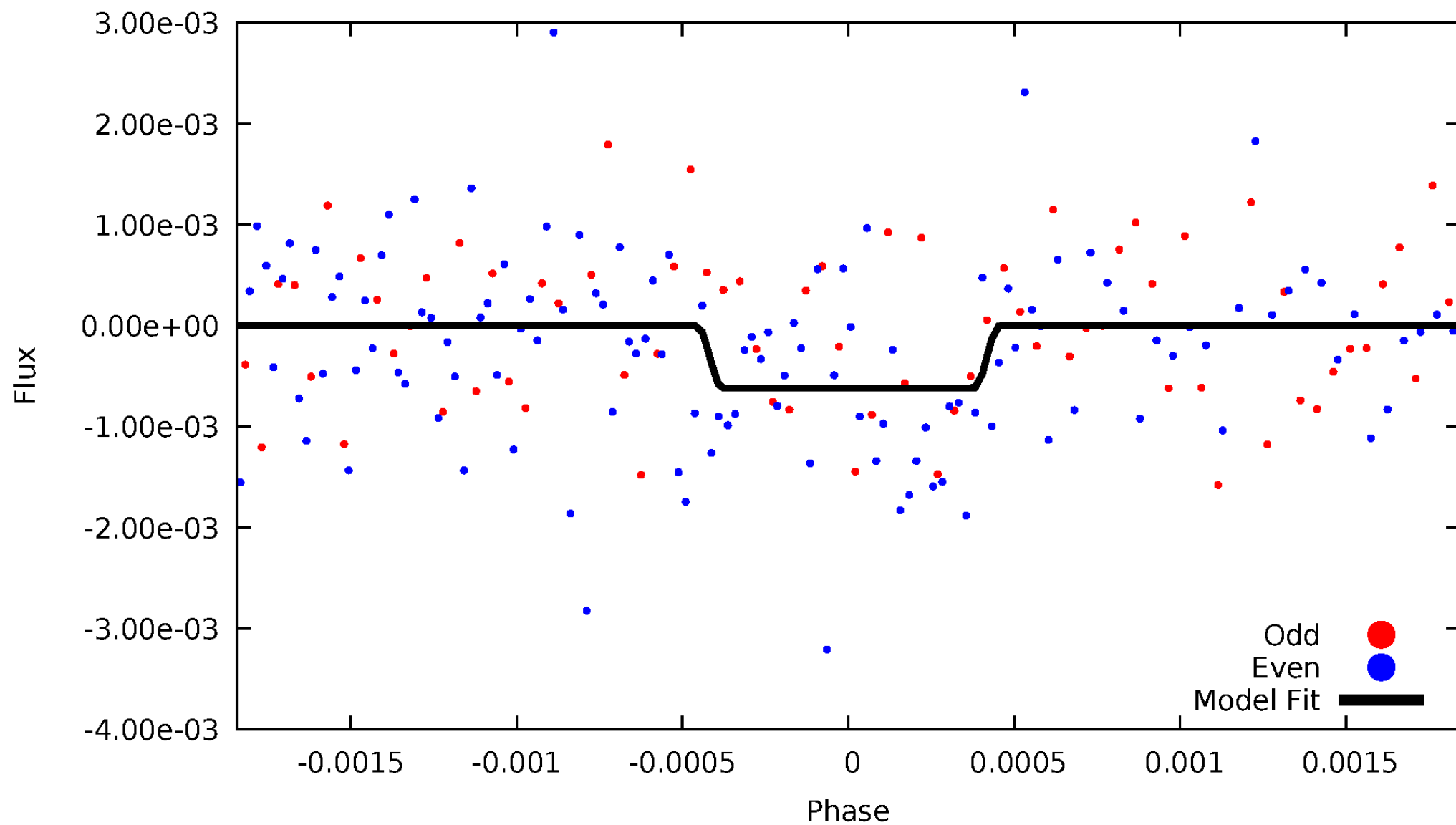
DV Odd/Even

TCE 002307206-03



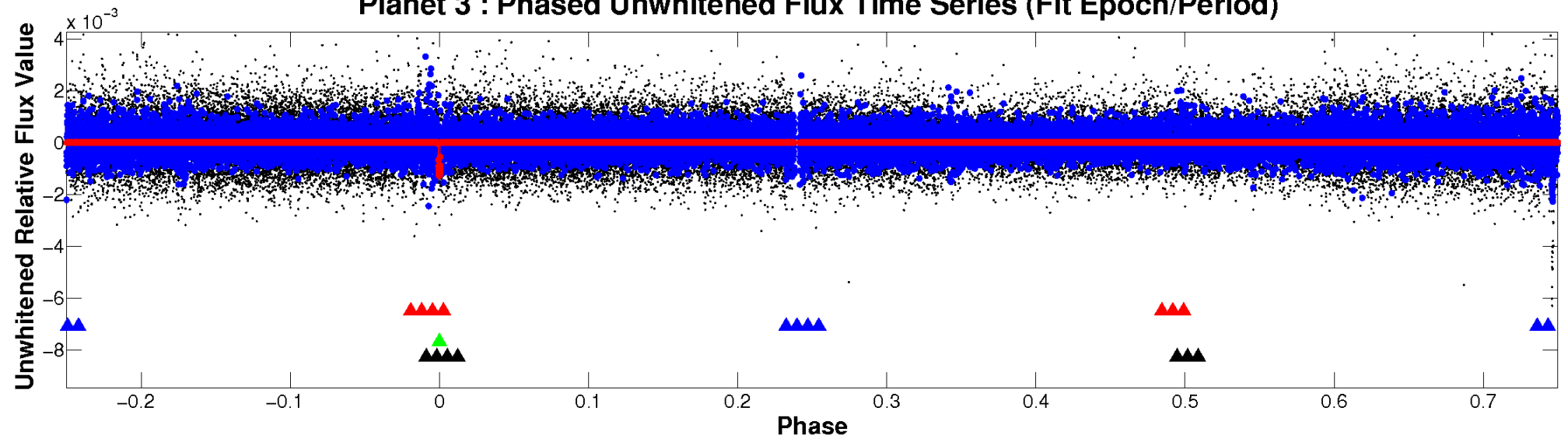
ALT Odd/Even

TCE 002307206-03

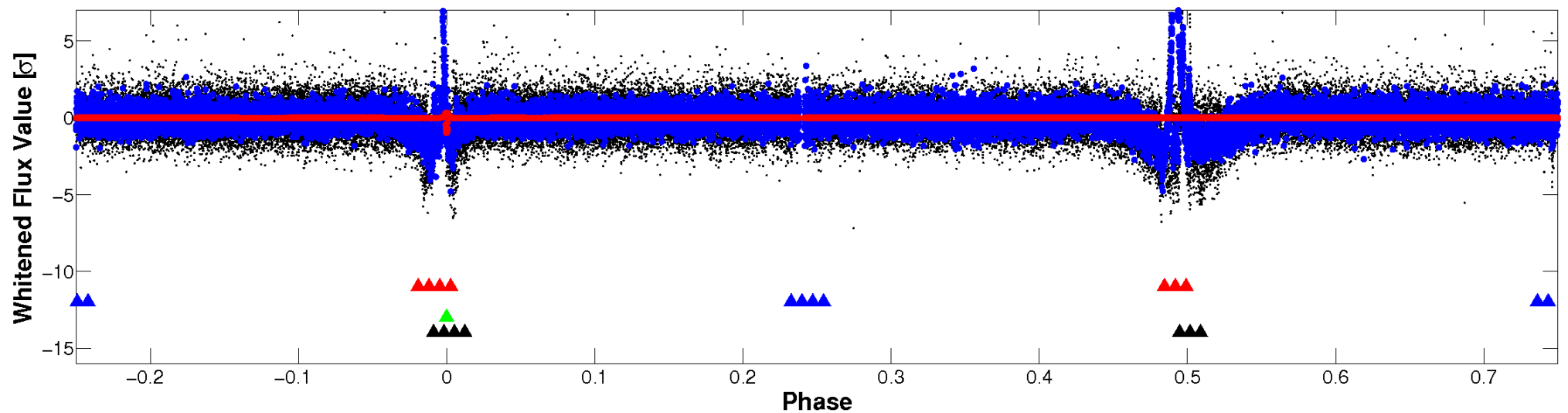


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

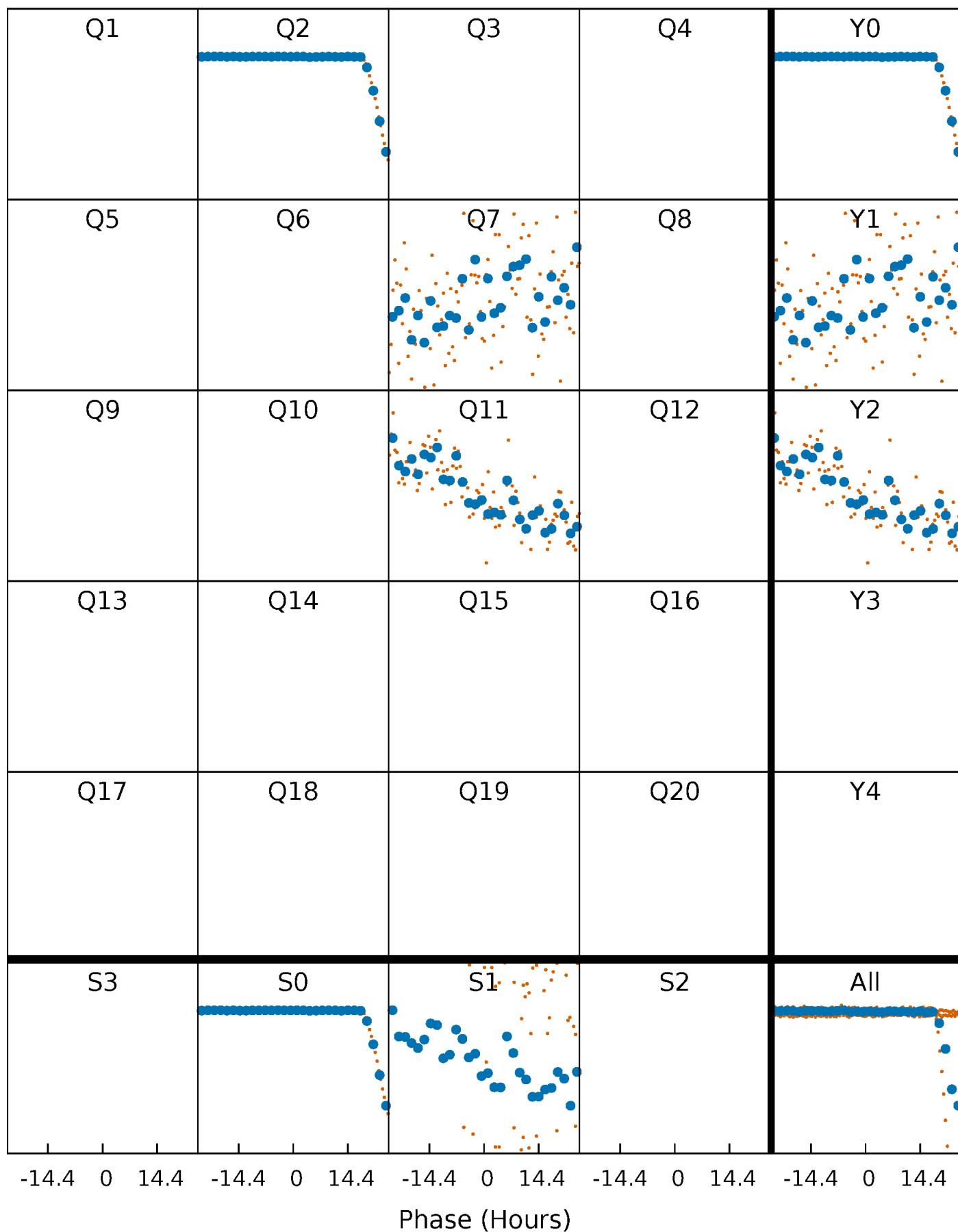


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



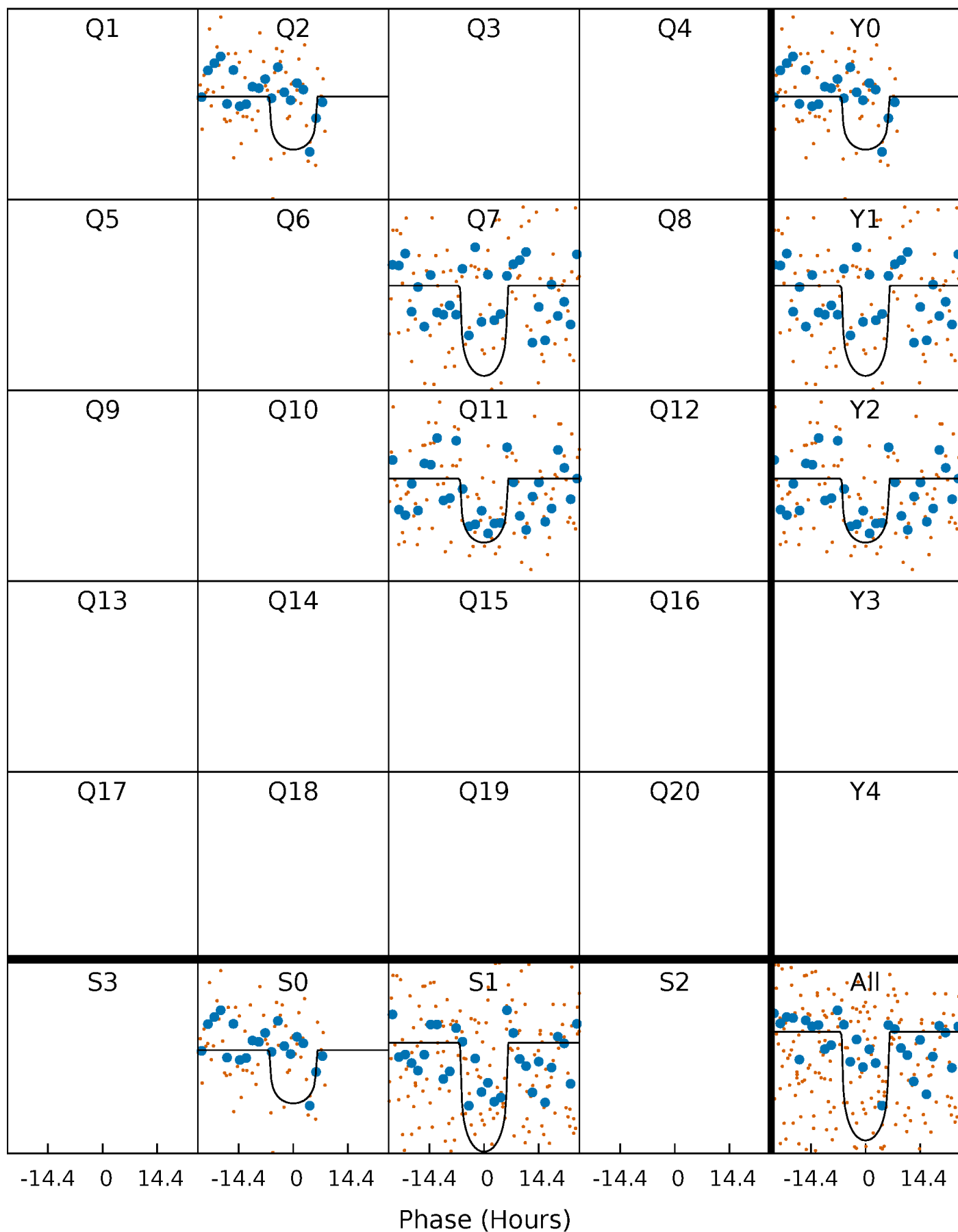
PDC Quarter-Phased Transit Curves

TCE 002307206-03 $P=411.059240$ Days $T_0=252.419304$ (BKJD)



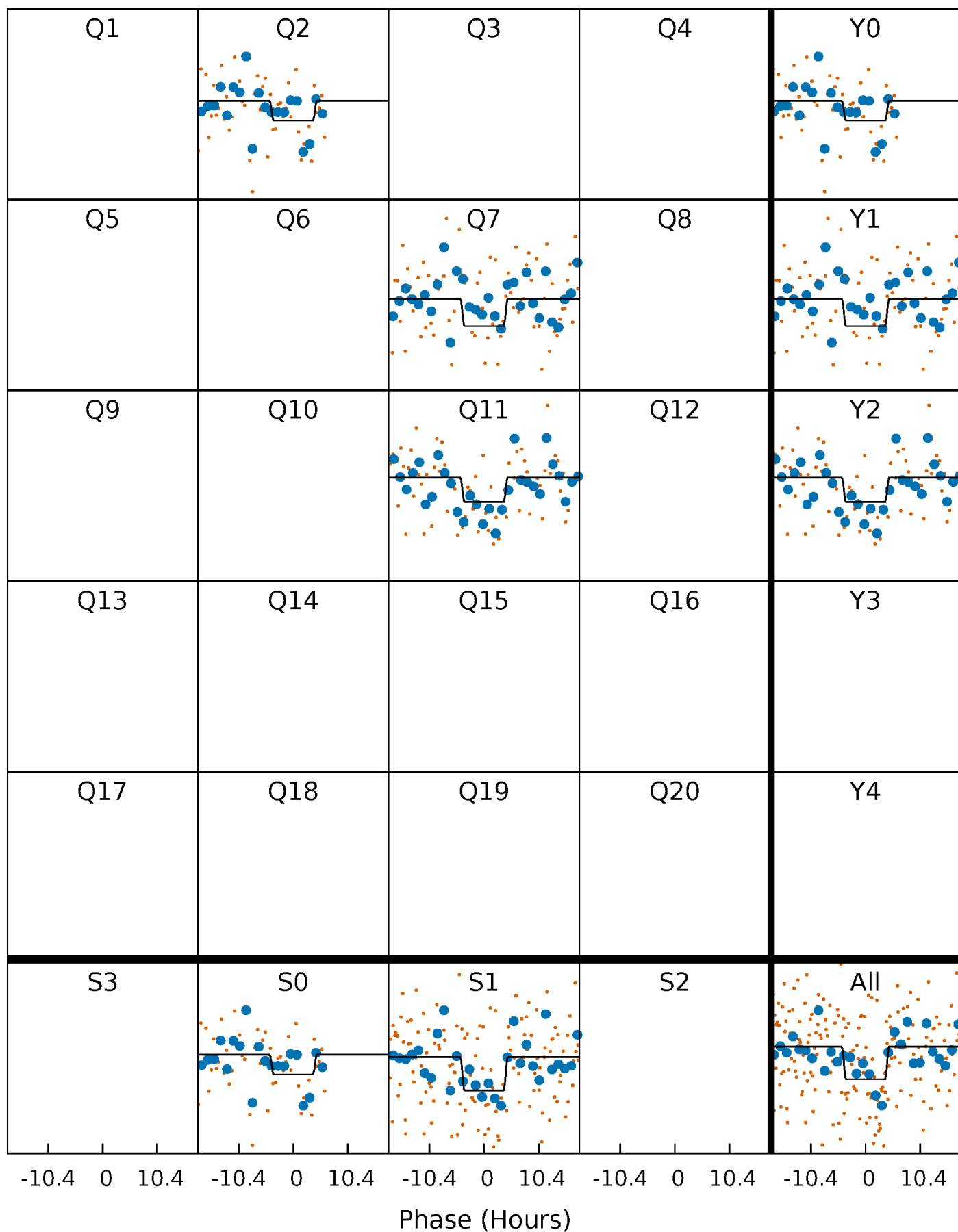
DV Quarter-Phased Transit Curves

TCE 002307206-03 P=411.059240 Days $T_0=252.419304$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

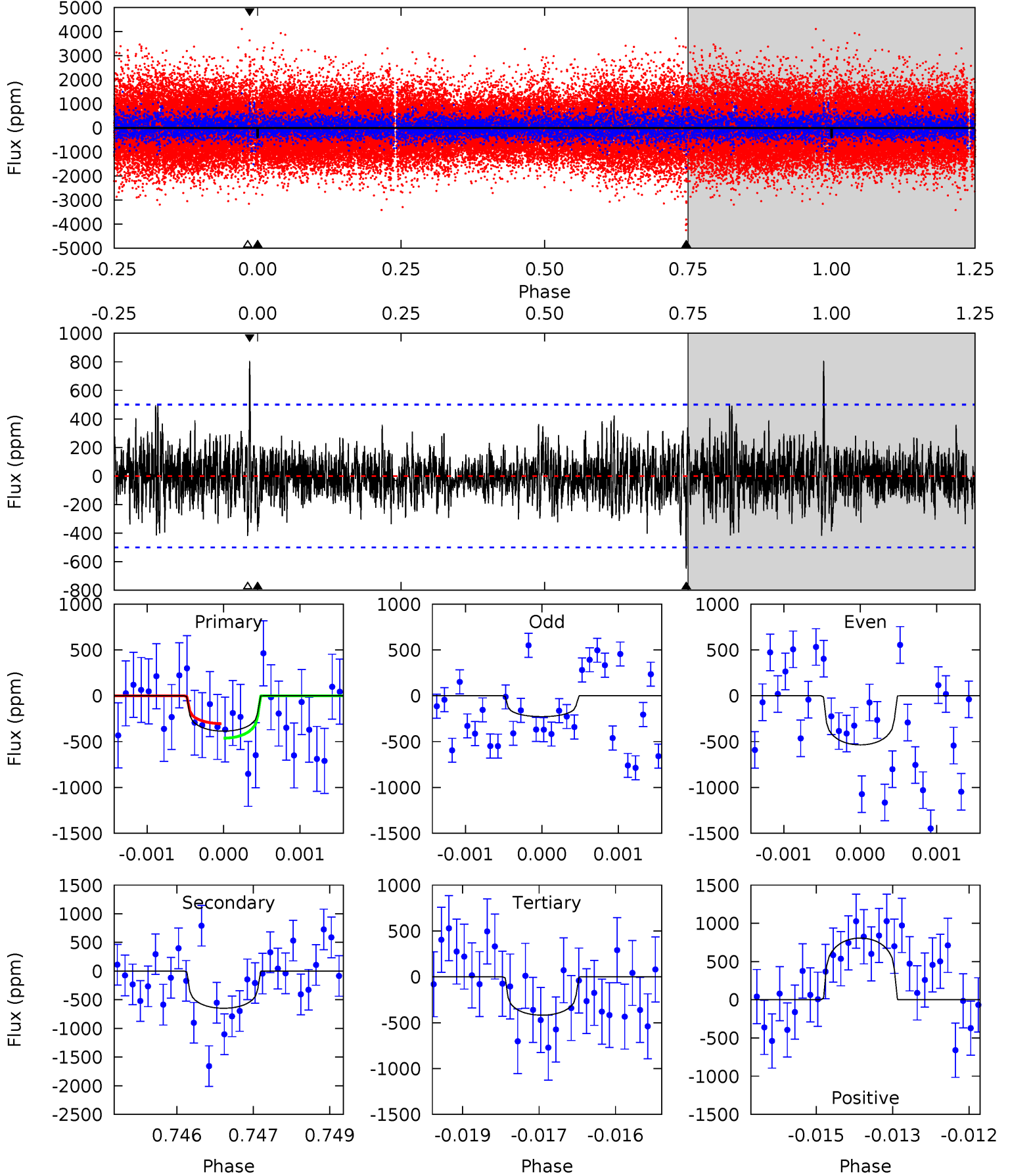
TCE 002307206-03 $P=411.034682$ Days $T_0=252.519188$ (BKJD)



DV Model-Shift Uniqueness Test

002307206-03, P = 411.059240 Days, E = 252.419304 Days

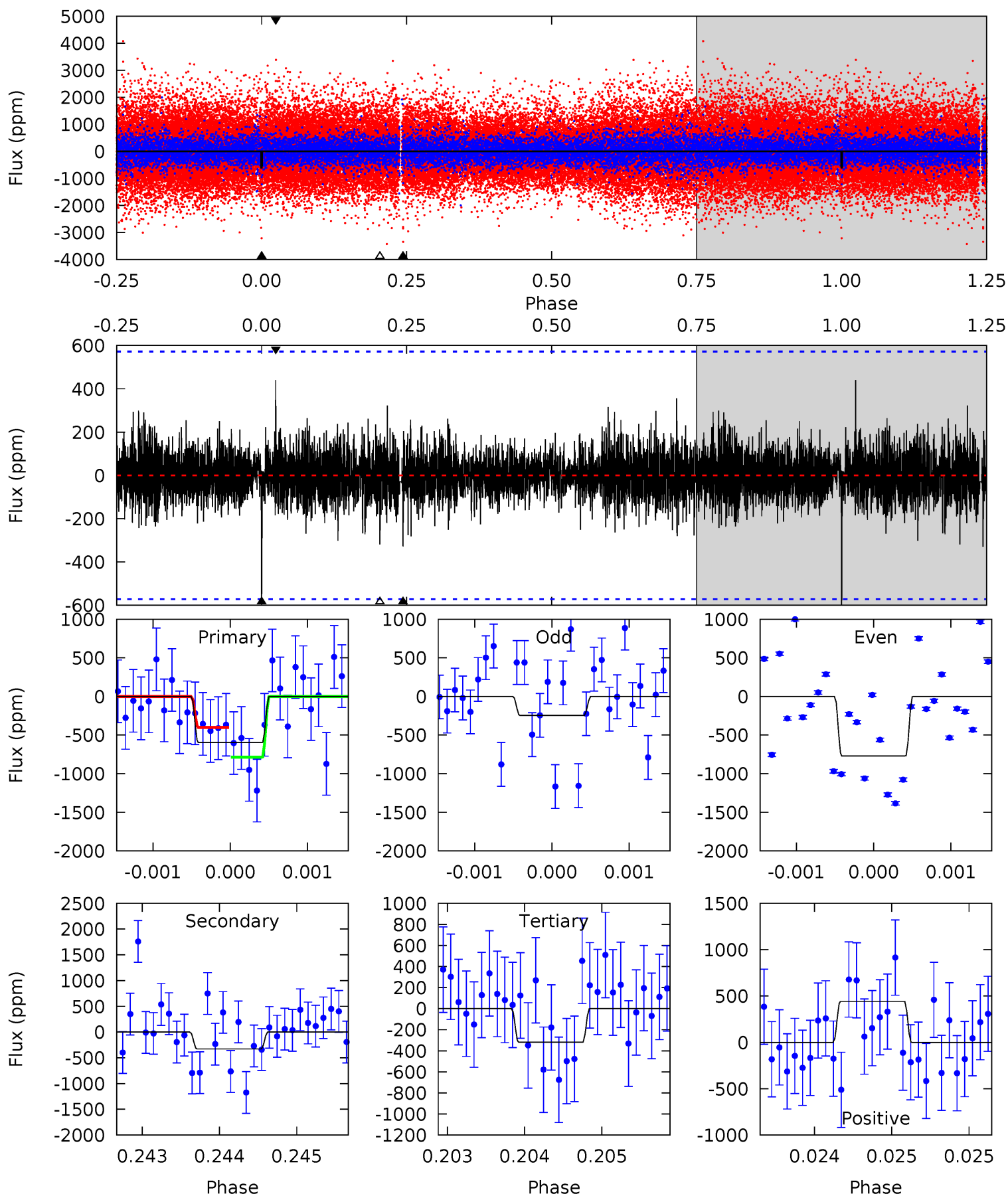
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.17	7.00	4.52	8.72	5.40	3.21	1.33	-0.35	-4.55	2.49	-1.71	1.59	1.90	0.55	0.85



Alt Model-Shift Uniqueness Test

002307206-03, P = 411.034682 Days, E = 252.519188 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.70	3.13	3.05	4.22	5.47	3.32	0.76	2.65	1.48	0.09	-1.08	2.37	1.02	0.43	1.84



Stellar Parameters For KIC 002307206

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5553^{+166}_{-166}	$4.577^{+0.036}_{-0.144}$	$-0.160^{+0.300}_{-0.300}$	$0.806^{+0.176}_{-0.070}$	$0.903^{+0.083}_{-0.111}$	$2.425^{+0.461}_{-0.989}$
	+3%/-3%	+1%/-3%	+188%/-188%	+22%/-9%	+9%/-12%	+19%/-41%
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 002307206-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-648 ± 93	$5.58^{+5.40}_{-3.91}$	306^{+16}_{-11}	3894^{+2542}_{-739}	$12218^{+120524}_{-9180}$
Alt.	-328 ± 105	$5.11^{+5.49}_{-3.43}$	308^{+14}_{-14}	3550^{+1947}_{-678}	6897^{+59255}_{-5307}

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

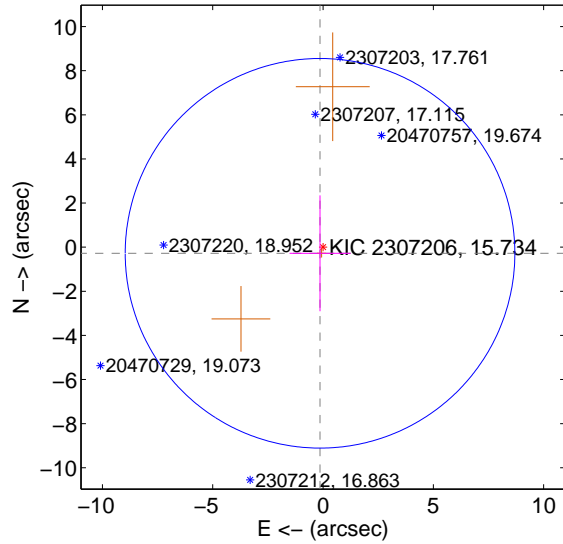
Supplemental centroid analysis for 002307206-03. Kepler magnitude: 15.73. Transit SNR 7.78

There are 0 quarters with good PRF difference image offsets

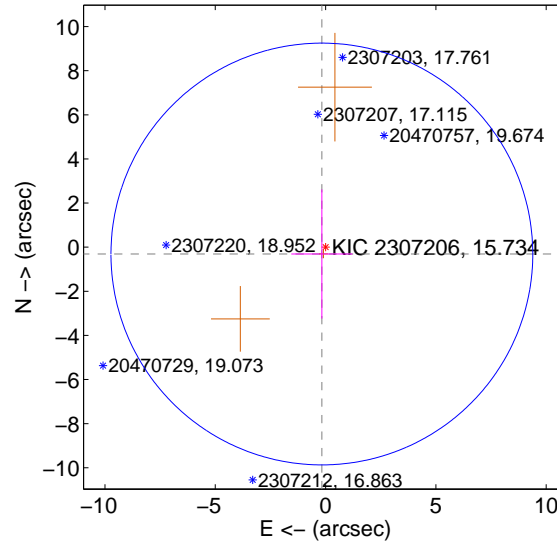
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.309 ± 2.944	0.11	0.136 ± 1.383	-0.278 ± 2.625
PRF-fit source offset from KIC position	0.353 ± 3.187	0.11	0.168 ± 1.387	-0.310 ± 2.927
photometric centroid source offset	4.14 ± 1.35	3.07	2.53 ± 1.45	-3.27 ± 1.28

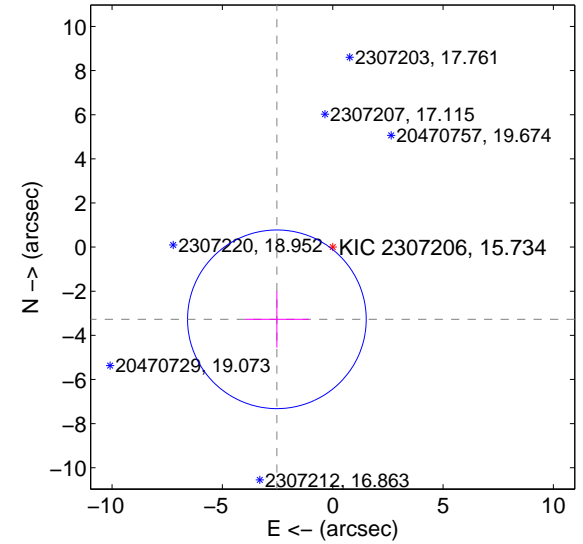
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

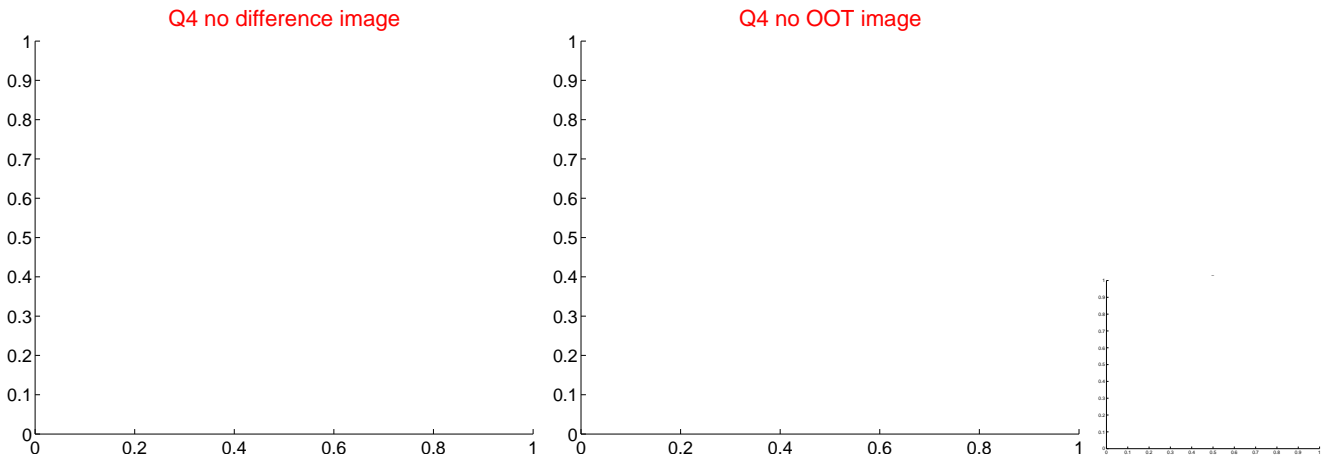
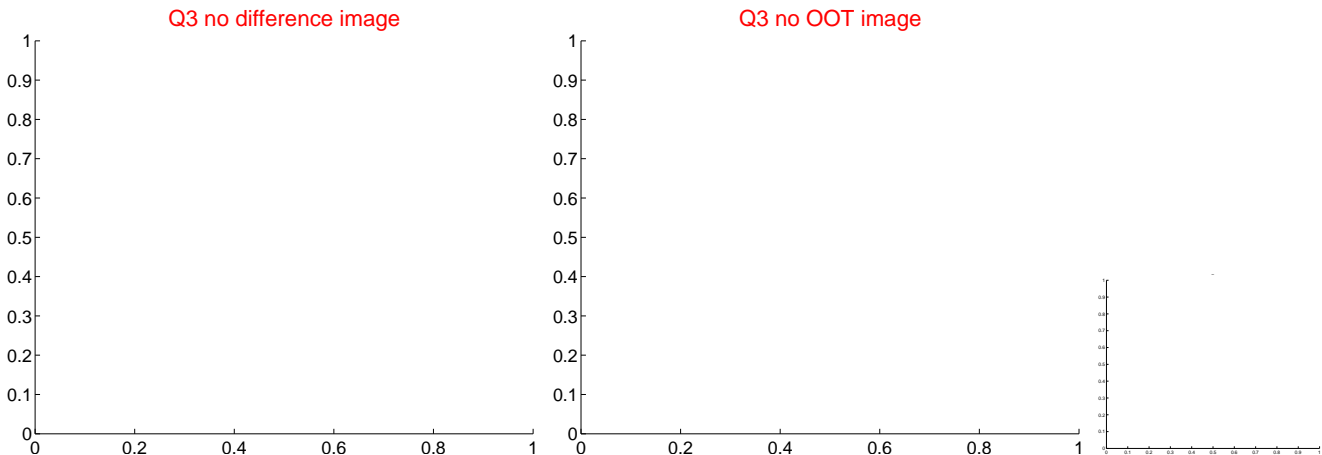
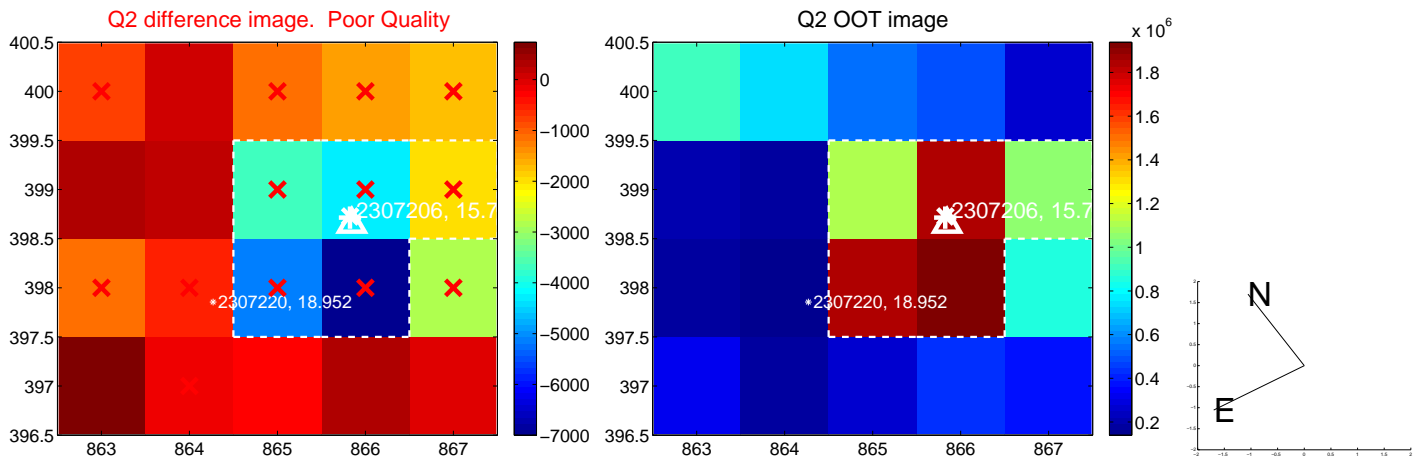
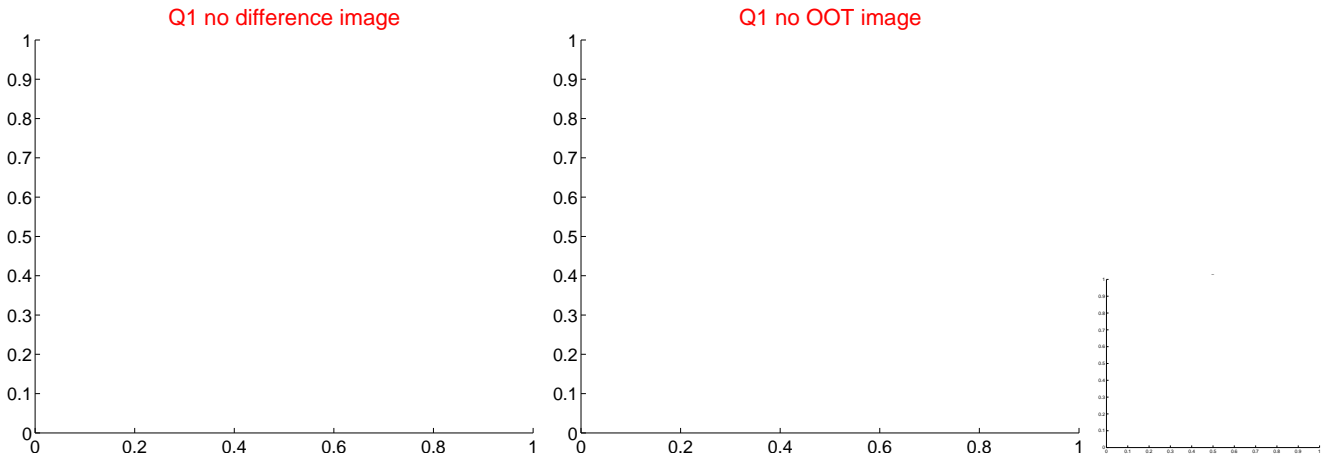


offset from photometric centroids



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 \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.

Q5 no difference image



Q5 no OOT image



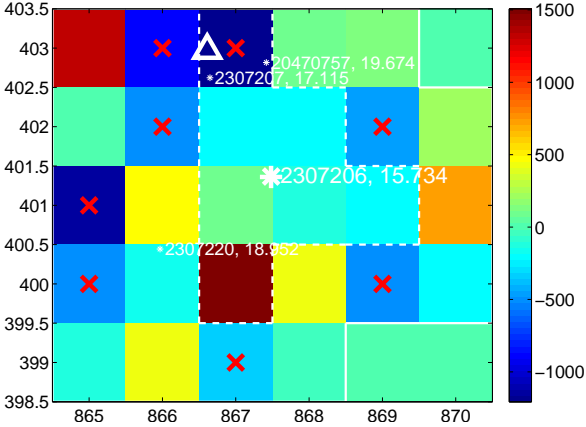
Q6 no difference image



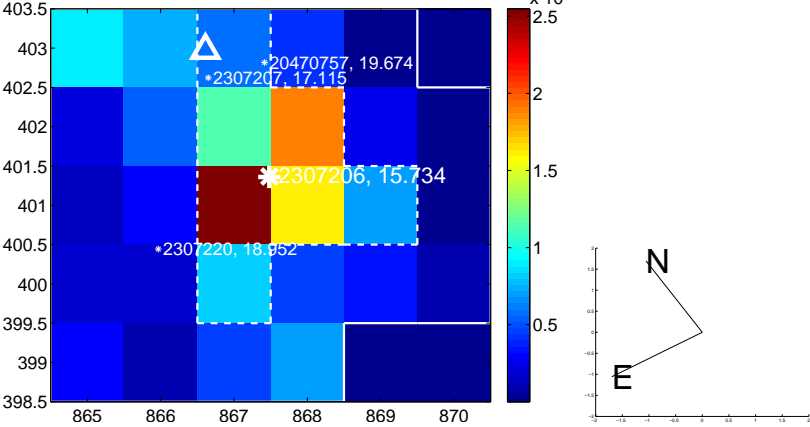
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

Q9 no difference image



Q9 no OOT image



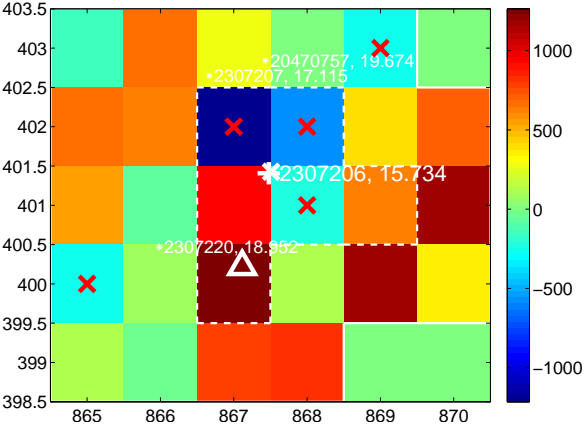
Q10 no difference image



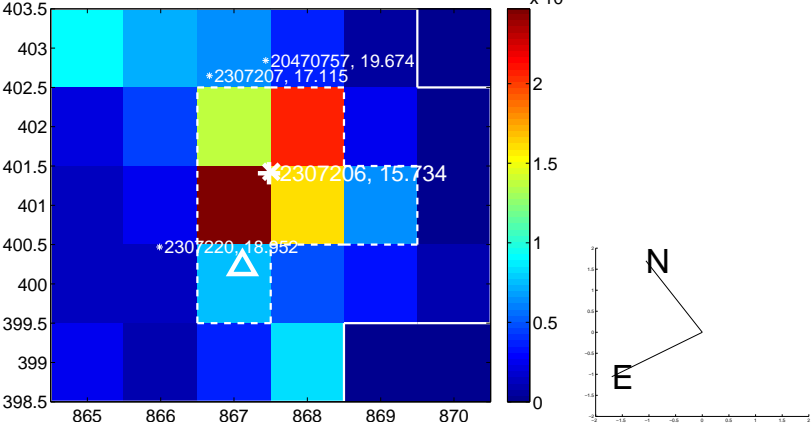
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



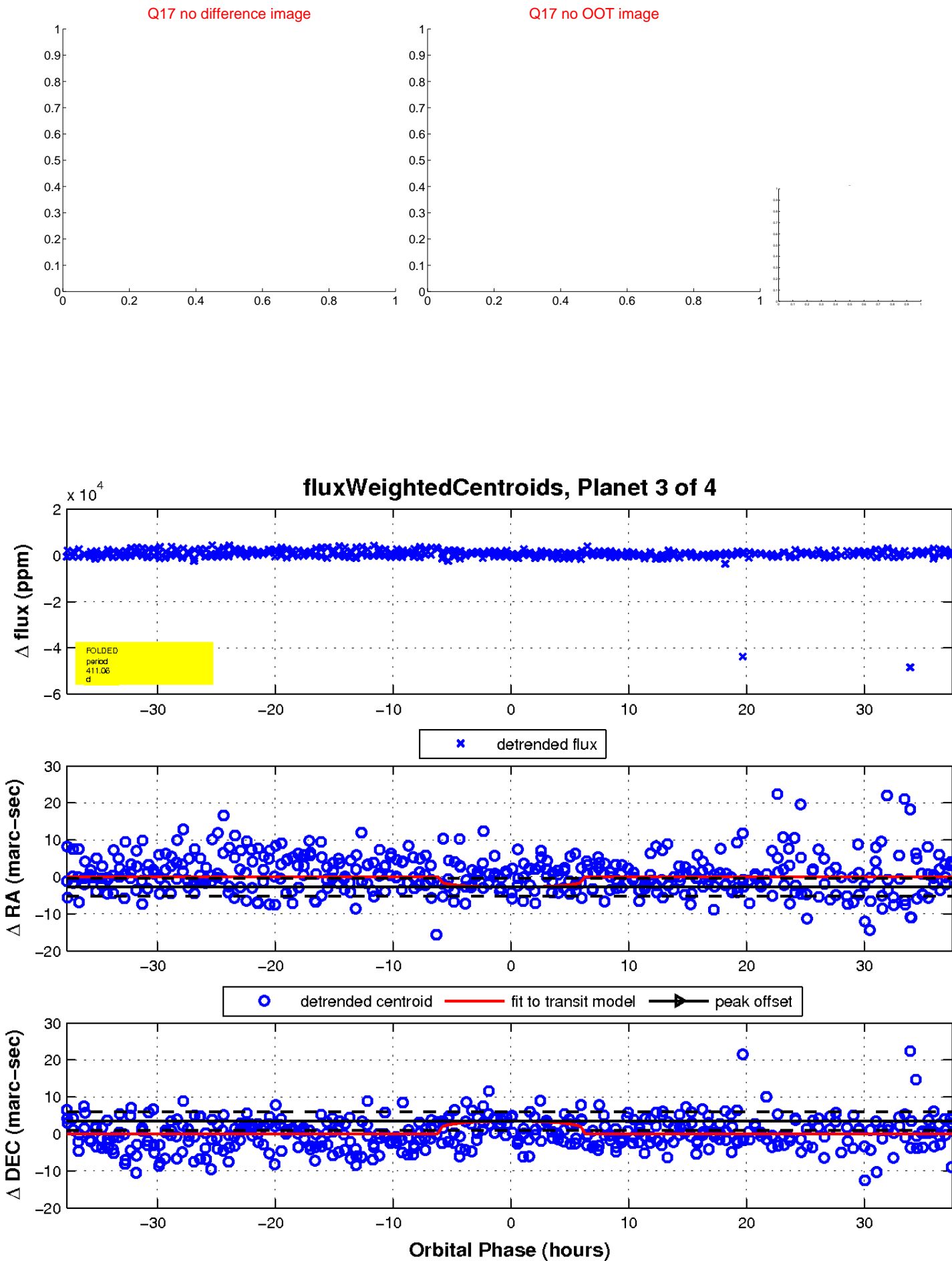
Q12 no OOT image



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

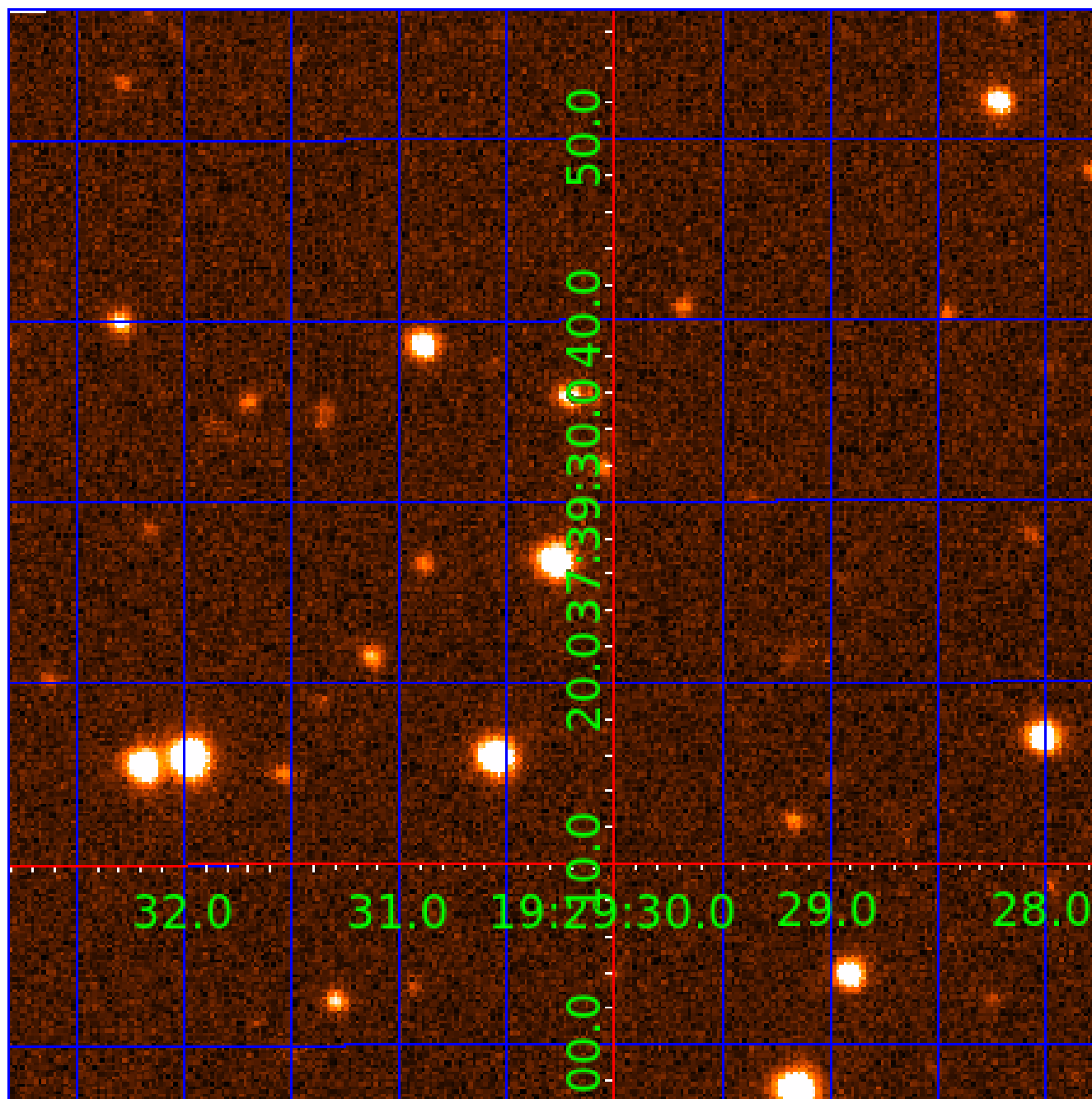


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002307206

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})
002307206-01	OBS	3549.01	204.029097	253.543620	416203.6	12.000	2607.3	-1.0	0.81	5553	43.98	1.29
002307206-02	OBS	No	204.032699	152.963439	207344.3	11.656	1297.7	924.0	0.81	5553	40.15	1.29
002307206-03	OBS	No	411.059240	252.419304	1293.4	12.572	24.6	7.8	0.81	5553	2.86	0.51
002307206-04	OBS	No	204.083960	257.485301	2665.8	82.460	23.3	24.2	0.81	5553	7.91	1.29

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002307206-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
002307206-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
002307206-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
002307206-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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 002307206-04

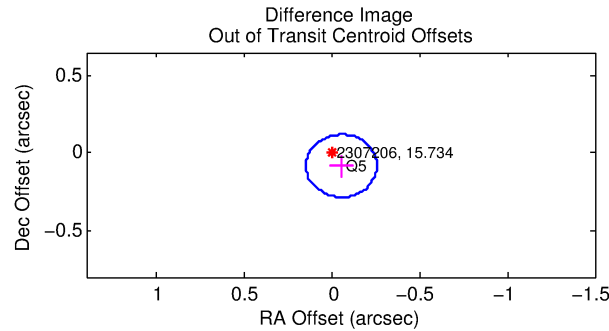
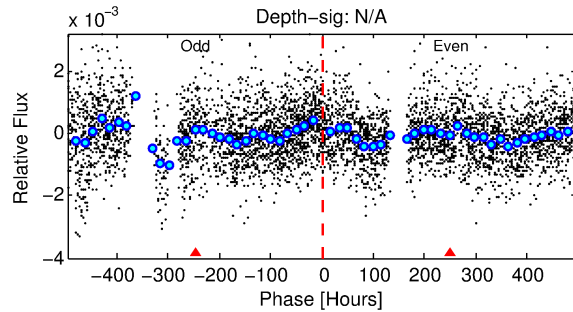
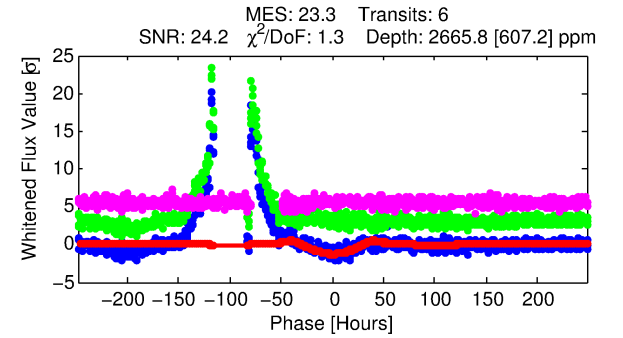
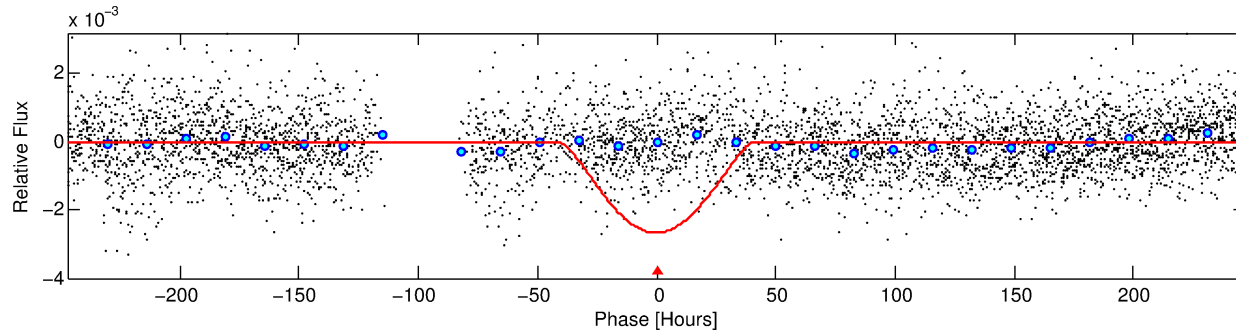
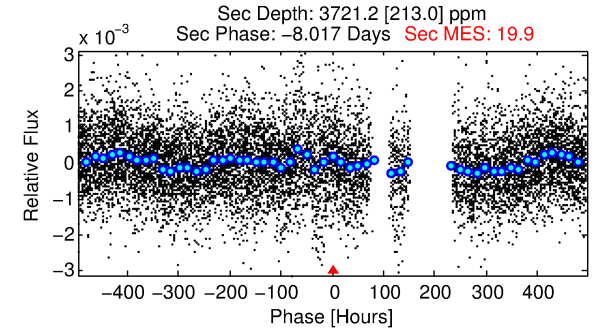
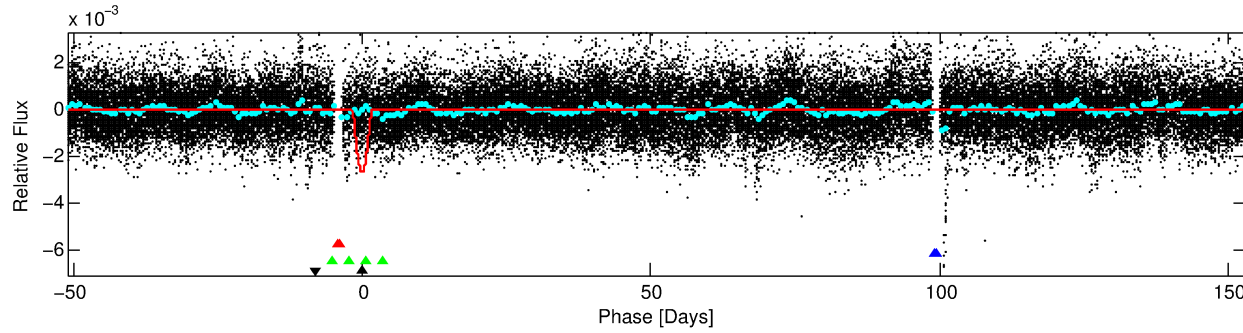
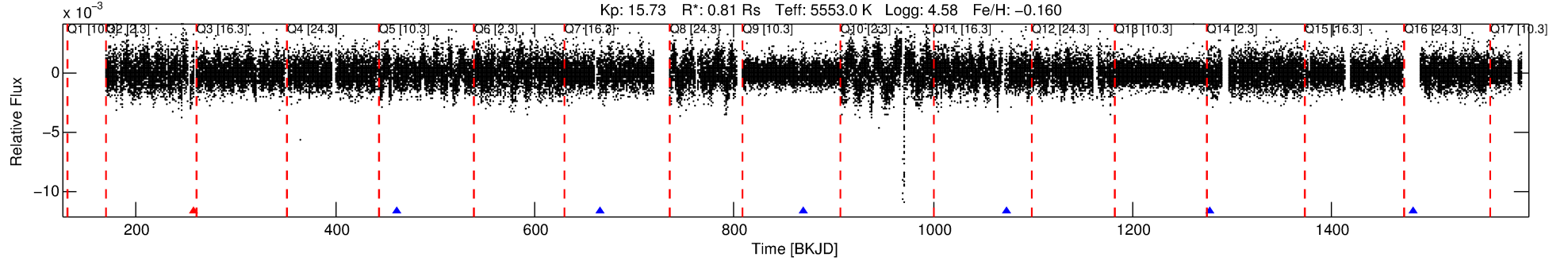
No Significant Match Found

DV One-Page Summary

KIC: 2307206 Candidate: 4 of 4 Period: 204.084 d

KOI: K03549 Corr: No Ephemeris Match

Kp: 15.73 R*: 0.81 Rs Teff: 5553.0 K Logg: 4.58 Fe/H: -0.160



DV Fit Results:

Period = 204.08396 [0.02933] d
Epoch = 257.4853 [0.0970] BKJD
Rp/R* = 0.0899 [0.1089]
a/R* = 8.26 [2.02]
b = 1.00 [0.14]
Seff = 1.29 [0.38]
Teq = 272 [20] K
Rp = 7.91 [9.73] Re
a = 0.6538 [0.1195] AU
Ag = 13992.07 [34091.23] [0.41σ]
Teffp = 4574 [2773] K [1.55σ]

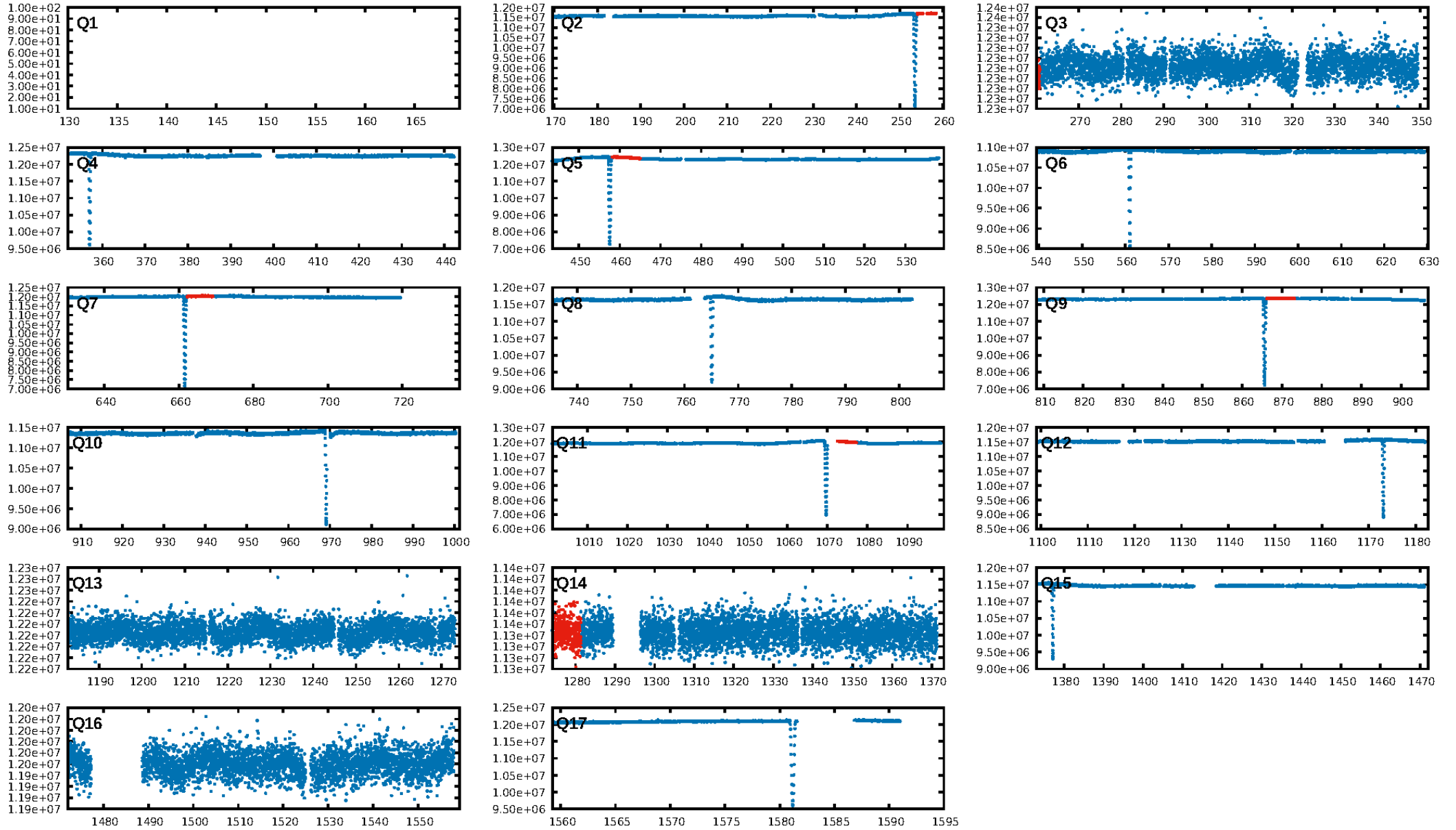
DV Diagnostic Results:

ShortPeriod-sig: 1.2% [0.01σ]
LongPeriod-sig: 100.0% [59.55σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: 1.59e-107
RollingBand-fgt: 0.83 [5/6]
GhostDiagnostic-chr: 3.539
Centroid-sig: 5.4%
Centroid-so: 0.486 arcsec [2.48σ]
OotOffset-rm: 0.098 arcsec [1.46σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-rm: 0.255 arcsec [3.79σ]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/1]

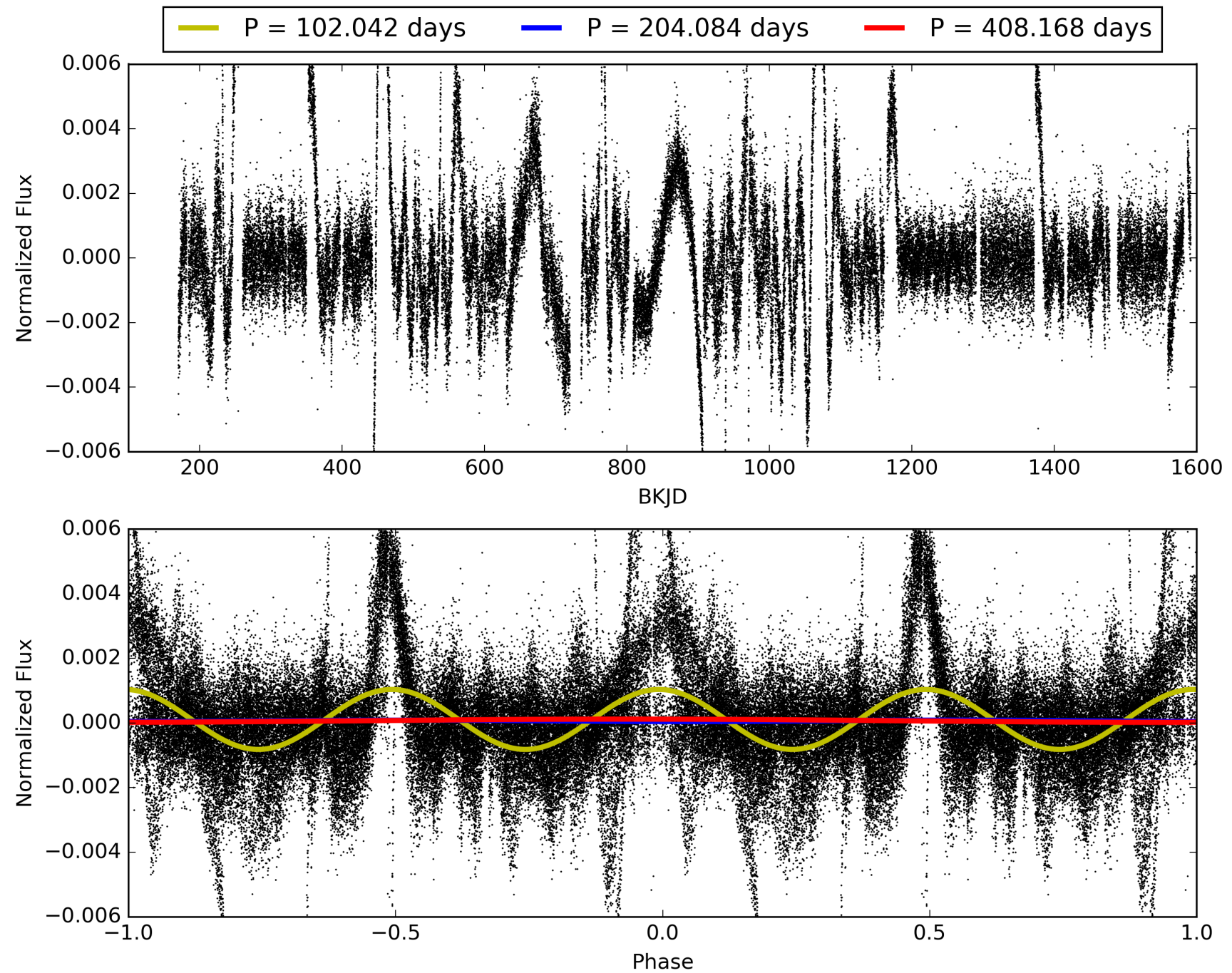
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:57:26 Z

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

TCE 002307206-04, PDC Light Curves

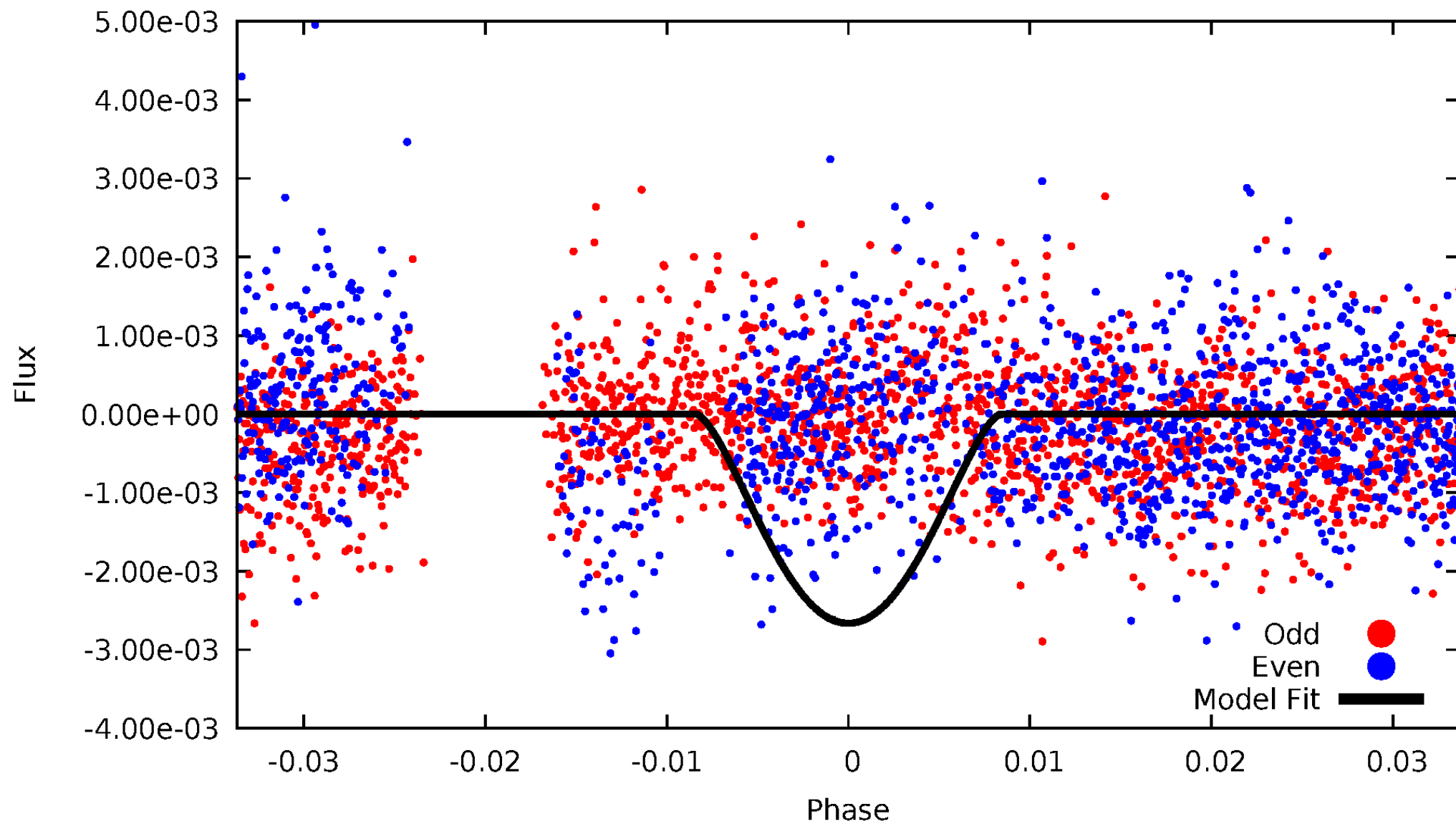


TCE 002307206-04



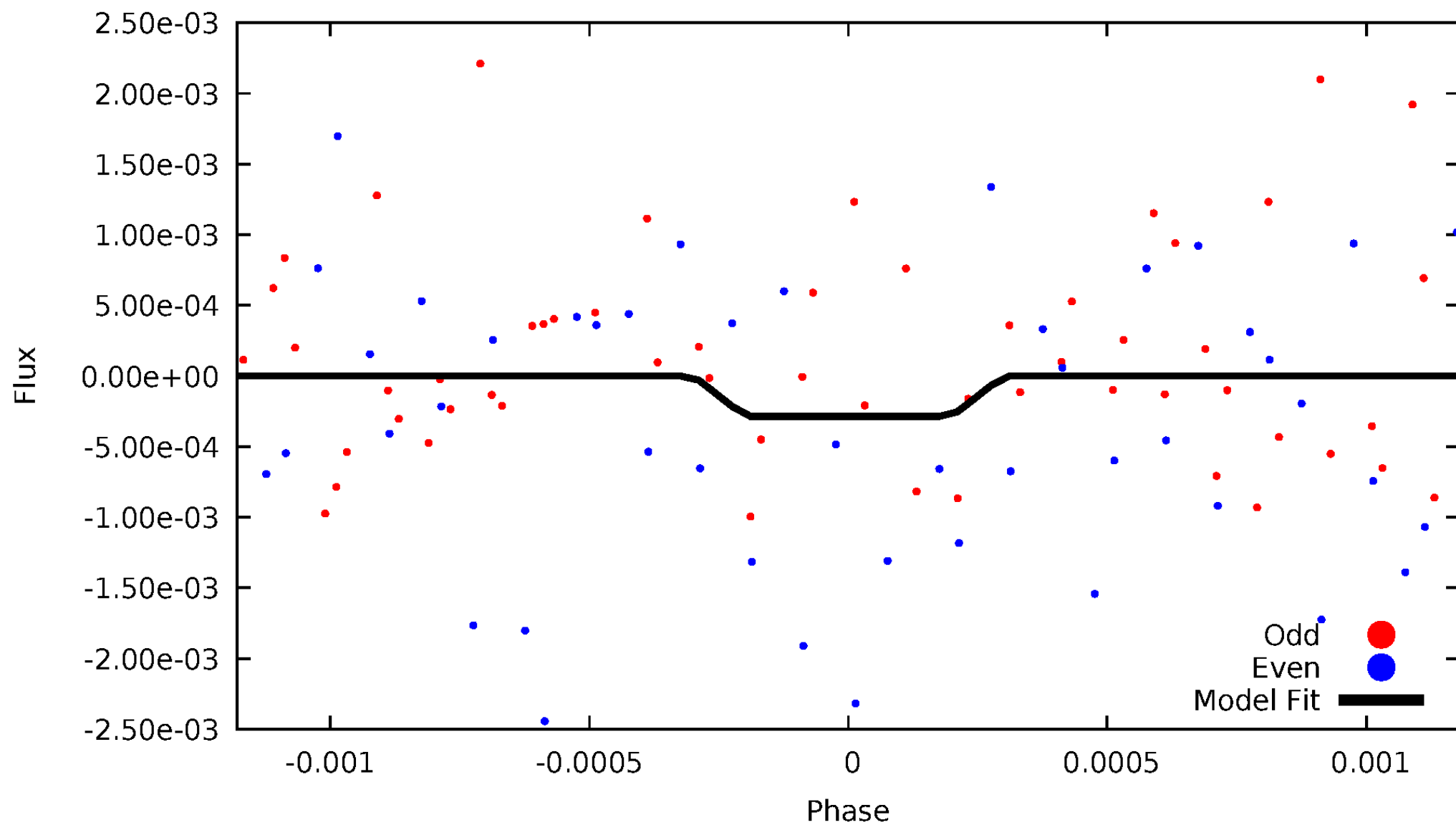
DV Odd/Even

TCE 002307206-04



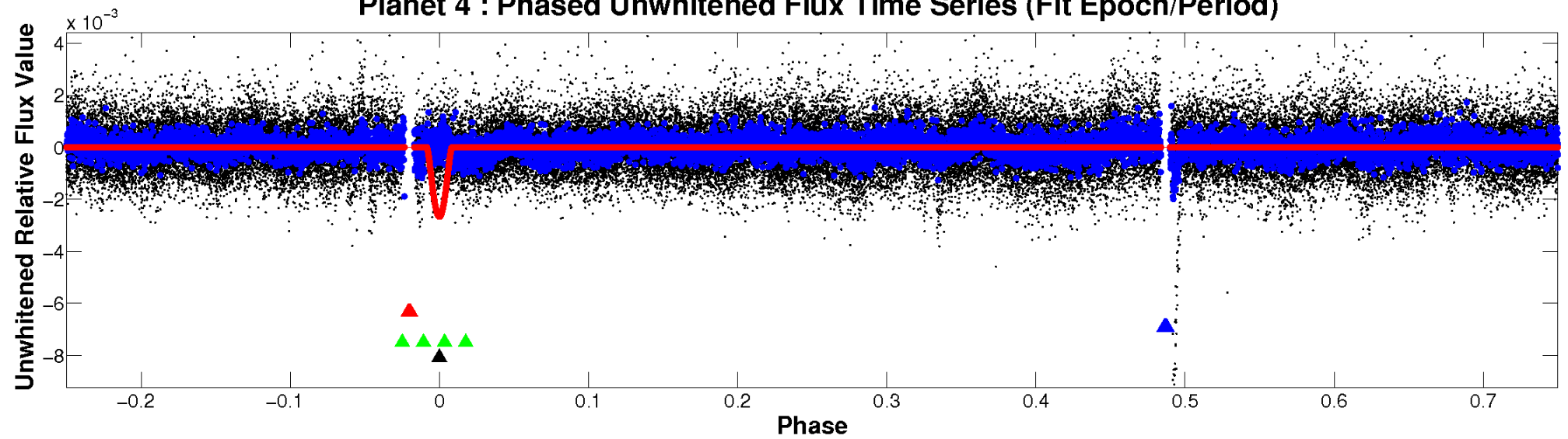
ALT Odd/Even

TCE 002307206-04

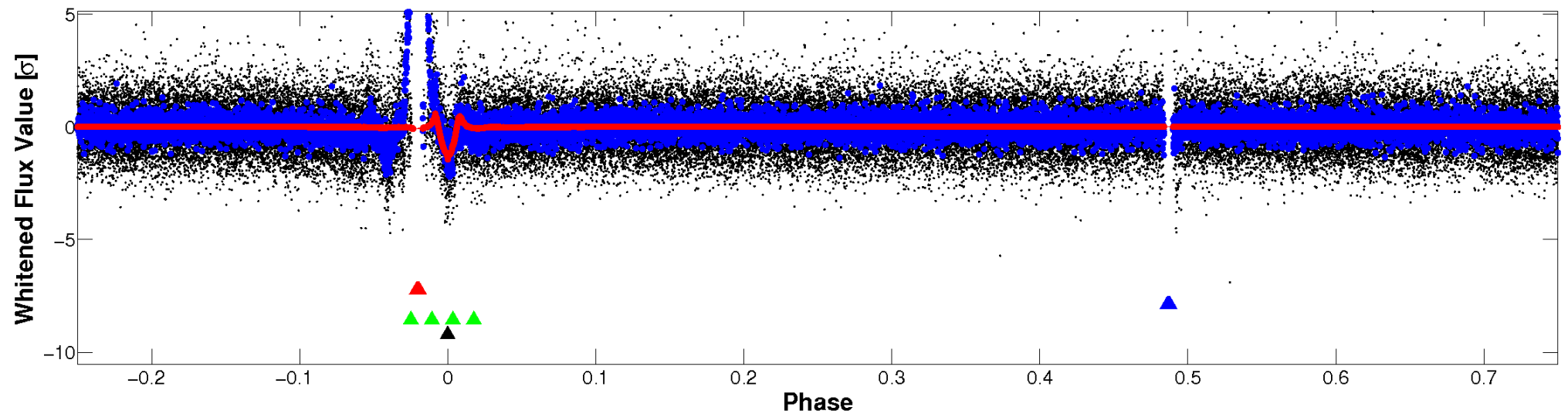


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

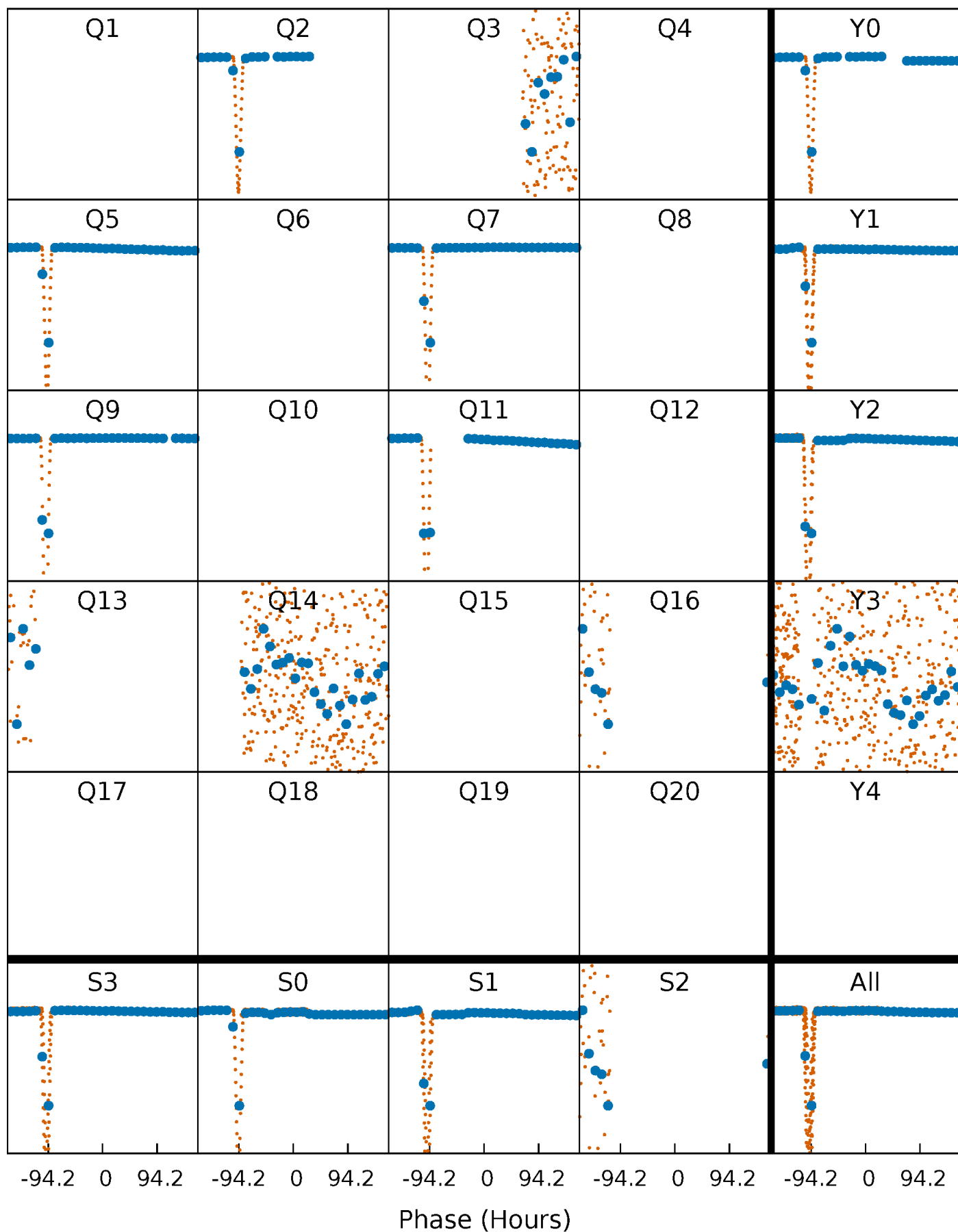


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



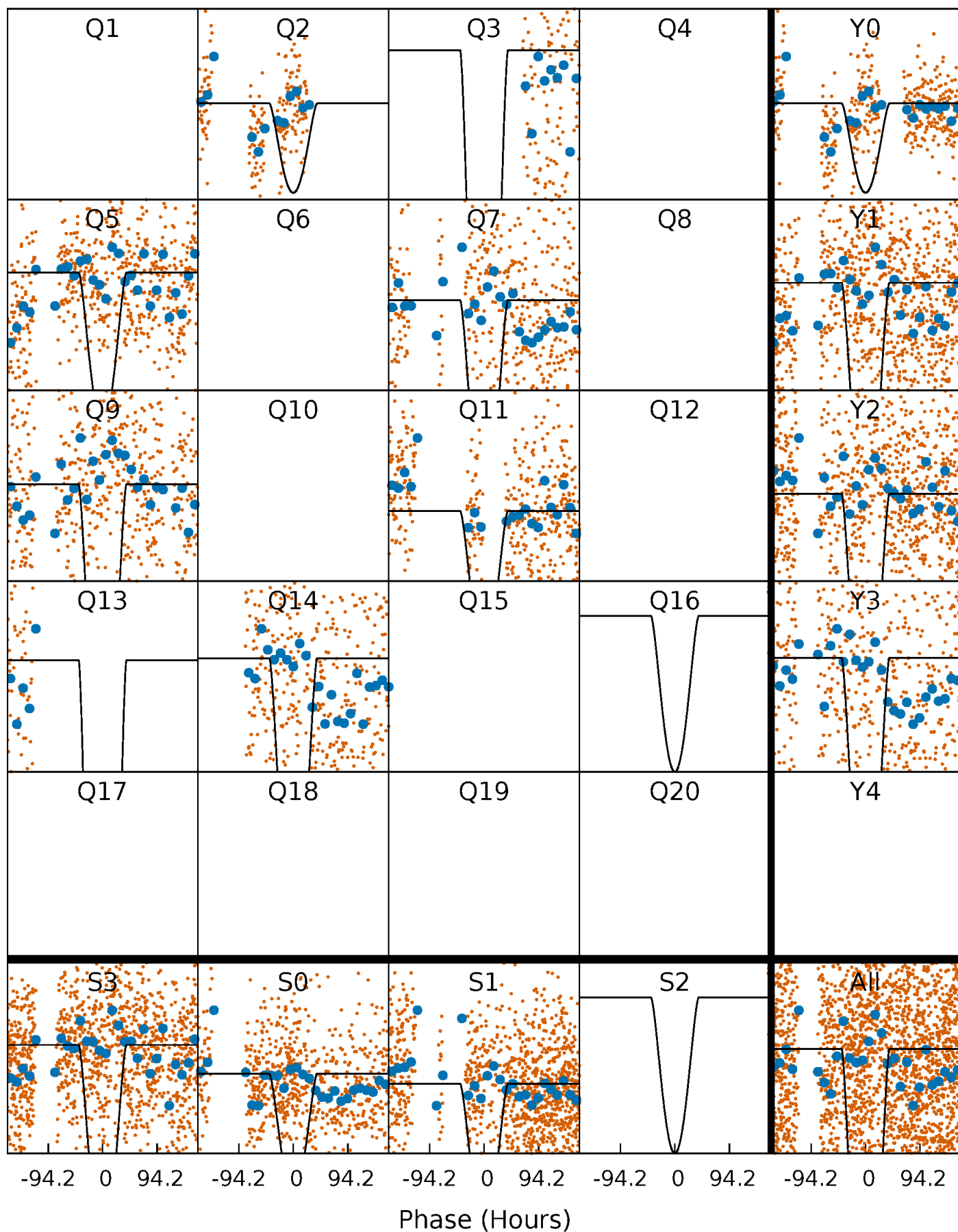
PDC Quarter-Phased Transit Curves

TCE 002307206-04 P=204.083960 Days $T_0=257.485301$ (BKJD)



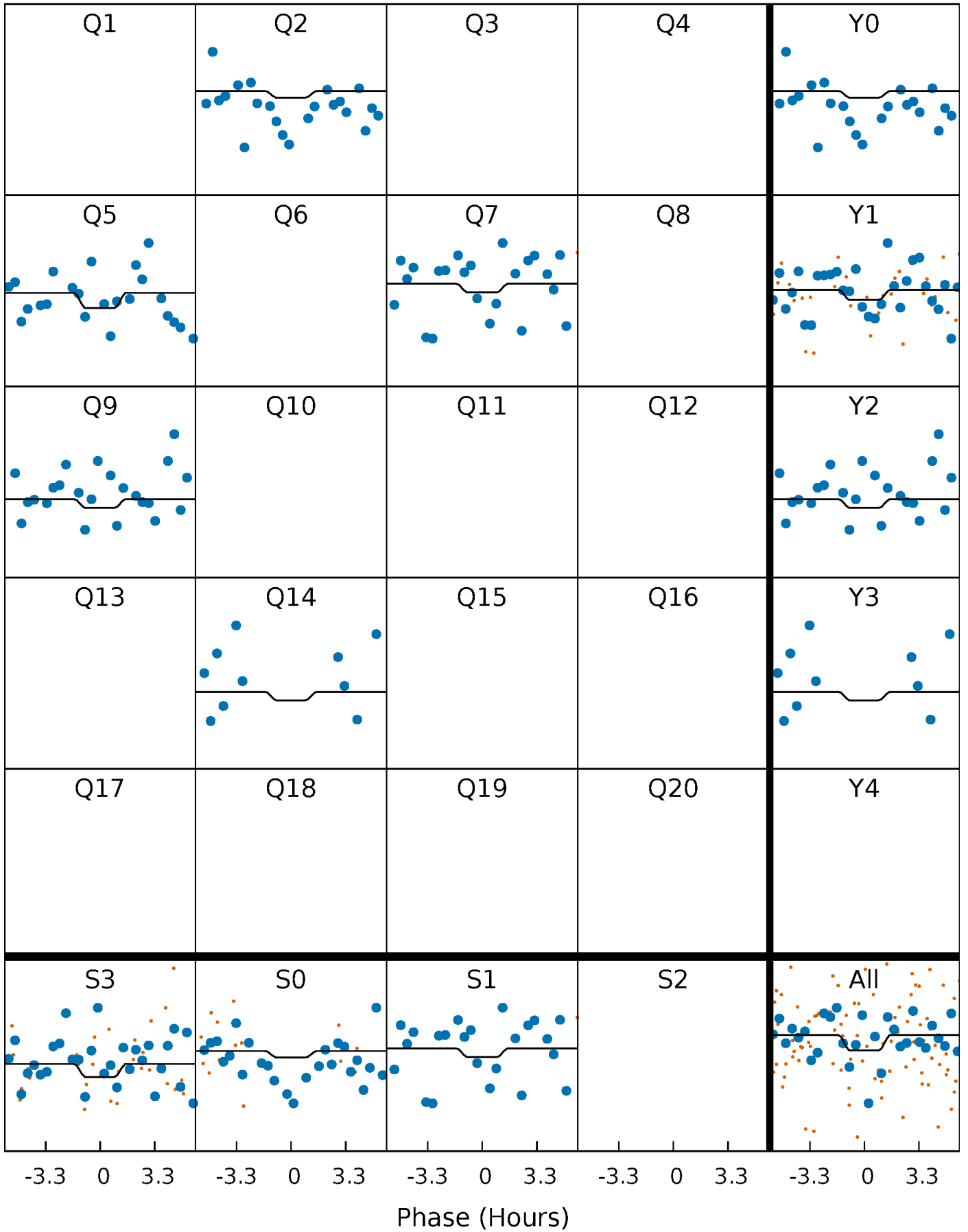
DV Quarter-Phased Transit Curves

TCE 002307206-04 P=204.083960 Days $T_0=257.485301$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

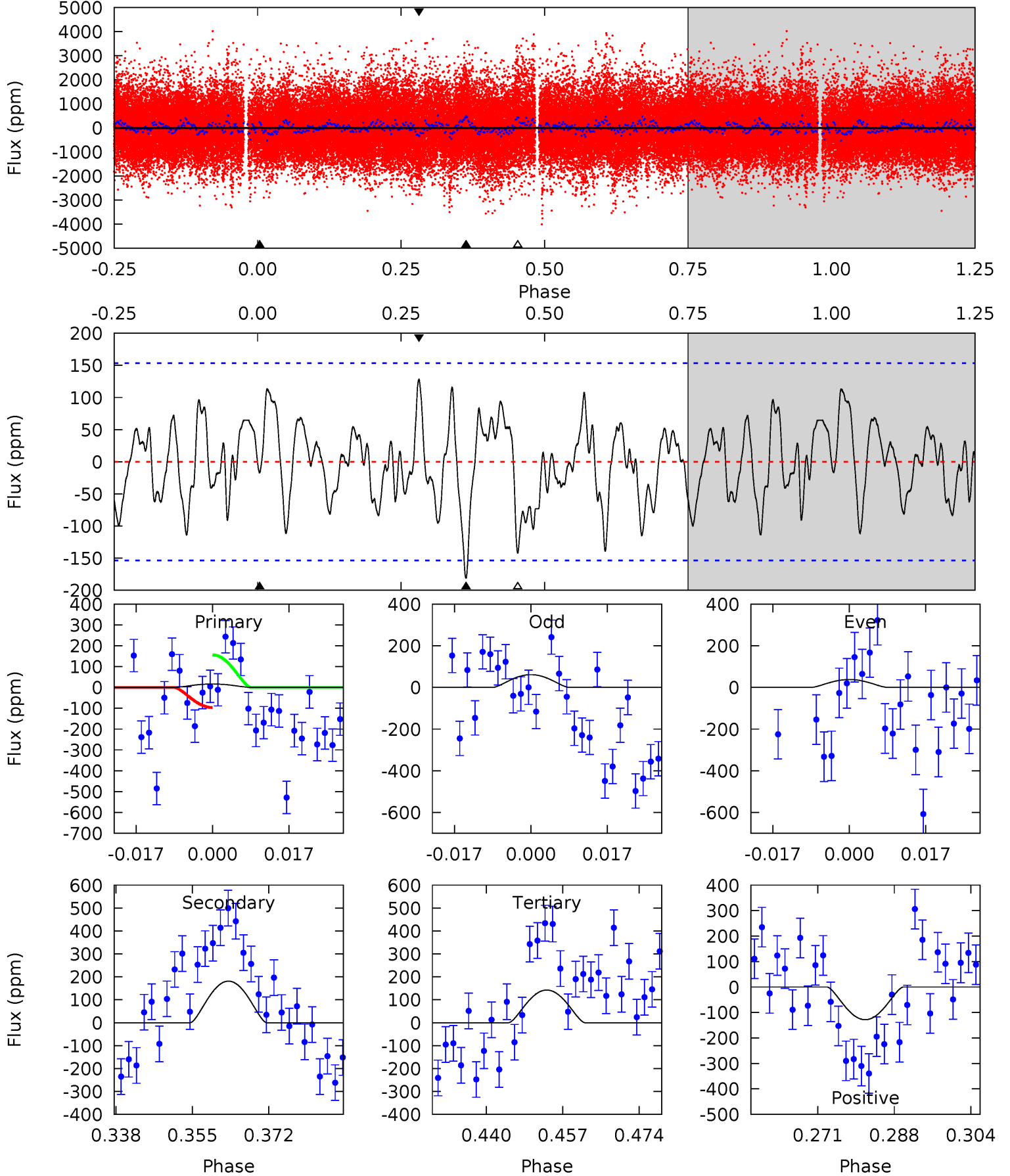
TCE 002307206-04 $P=204.390089$ Days $T_0=256.626182$ (BKJD)



DV Model-Shift Uniqueness Test

002307206-04, P = 204.083960 Days, E = 53.401341 Days

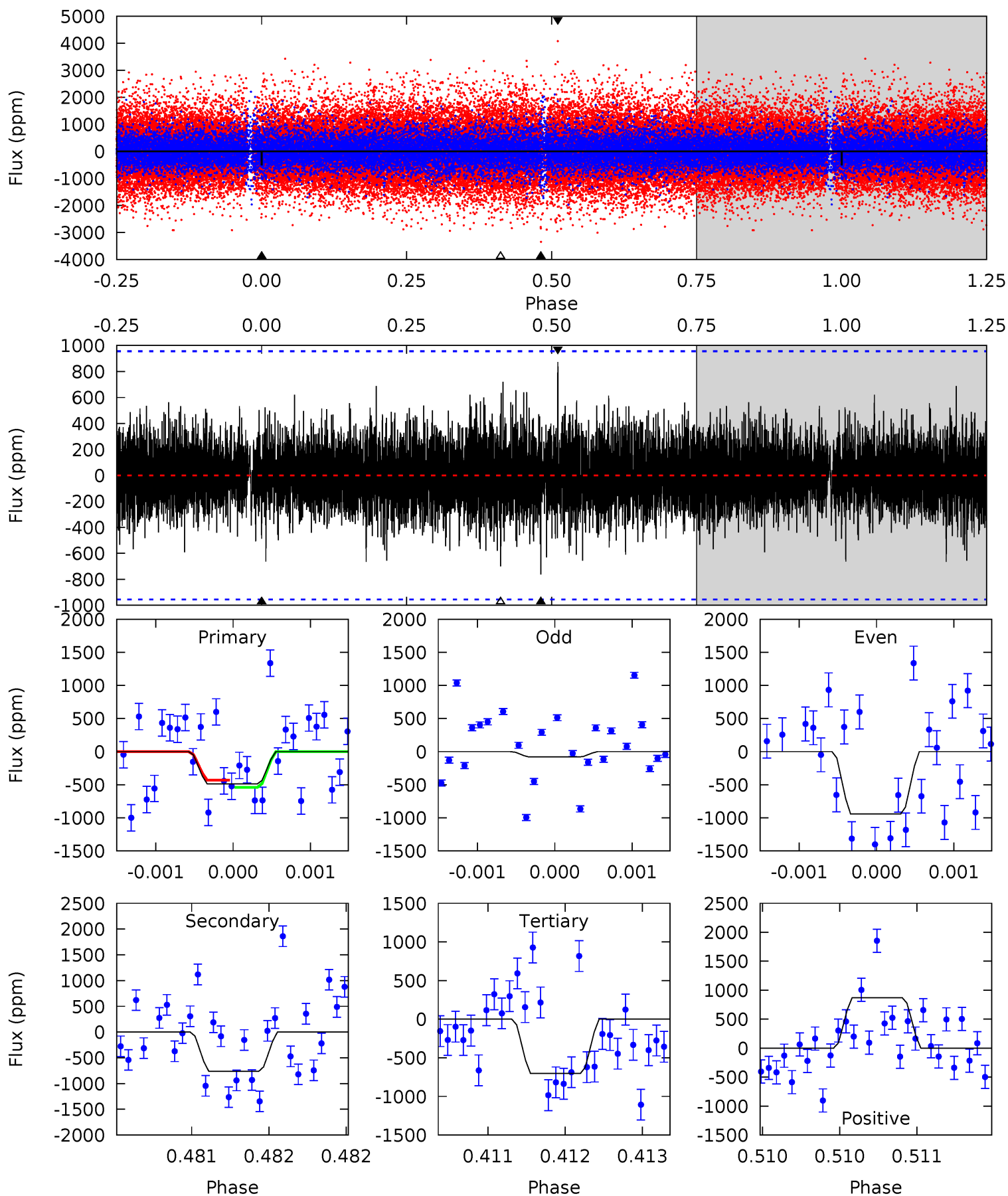
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.53	5.81	4.57	4.11	4.92	2.39	1.72	-4.04	-3.59	1.24	1.70	0.37	0.55	0.41	0.96



Alt Model-Shift Uniqueness Test

002307206-04, P = 204.390089 Days, E = 52.236093 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.83	4.42	4.07	5.07	5.55	3.45	1.06	-1.24	-2.24	0.35	-0.64	2.57	2.25	0.53	0.32



Stellar Parameters For KIC 002307206

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5553^{+166}_{-166}	$4.577^{+0.036}_{-0.144}$	$-0.160^{+0.300}_{-0.300}$	$0.806^{+0.176}_{-0.070}$	$0.903^{+0.083}_{-0.111}$	$2.425^{+0.461}_{-0.989}$
	+3%/-3%	+1%/-3%	+188%/-188%	+22%/-9%	+9%/-12%	+19%/-41%
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 002307206-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-181 ± 31	$10.56^{+9.32}_{-6.48}$	387^{+21}_{-16}	2673^{+853}_{-370}	377^{+2023}_{-271}
Alt.	-761 ± 172	$7.01^{+7.68}_{-4.76}$	387^{+21}_{-17}	3703^{+2188}_{-772}	3389^{+31455}_{-2622}

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

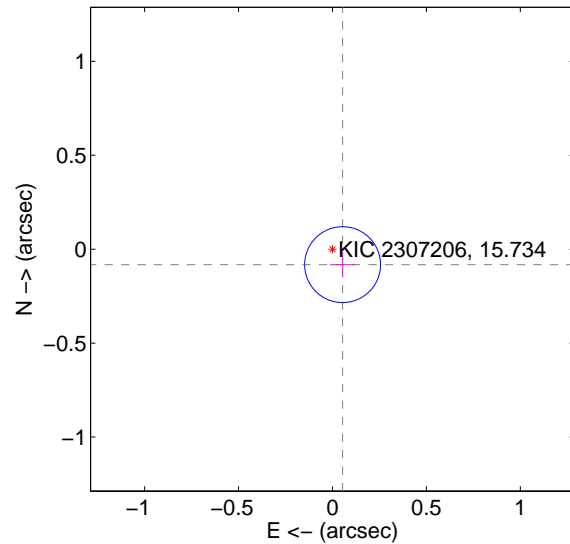
Supplemental centroid analysis for 002307206-04. Kepler magnitude: 15.73. Transit SNR 24.19

There are 0 quarters with good PRF difference image offsets

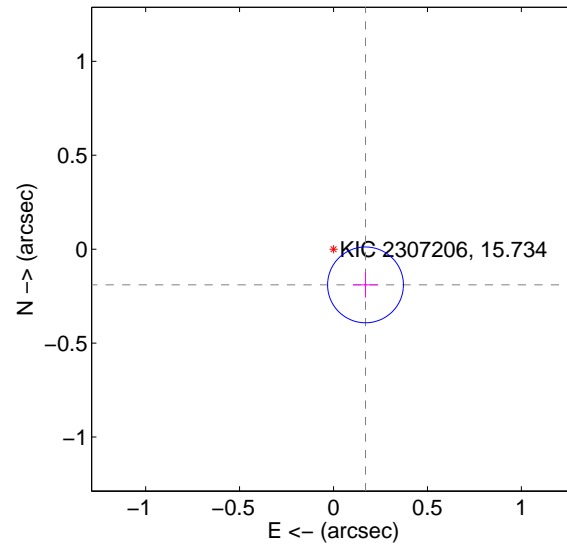
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.098 ± 0.067	1.46	-0.054 ± 0.067	-0.082 ± 0.067
PRF-fit source offset from KIC position	0.255 ± 0.067	3.79	-0.170 ± 0.067	-0.190 ± 0.067
photometric centroid source offset	0.49 ± 0.20	2.48	0.11 ± 0.20	-0.47 ± 0.20

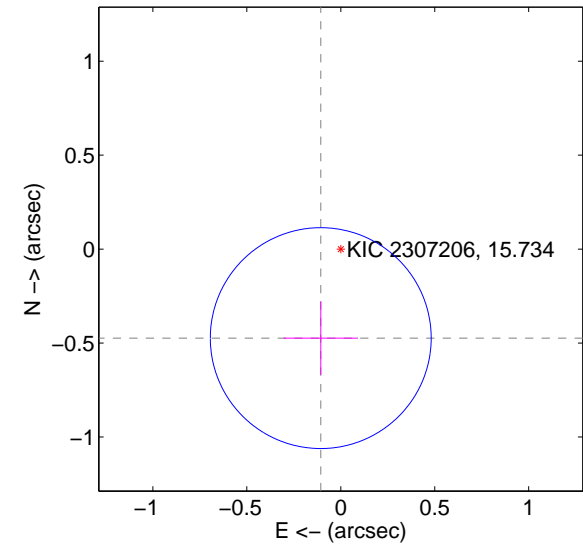
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

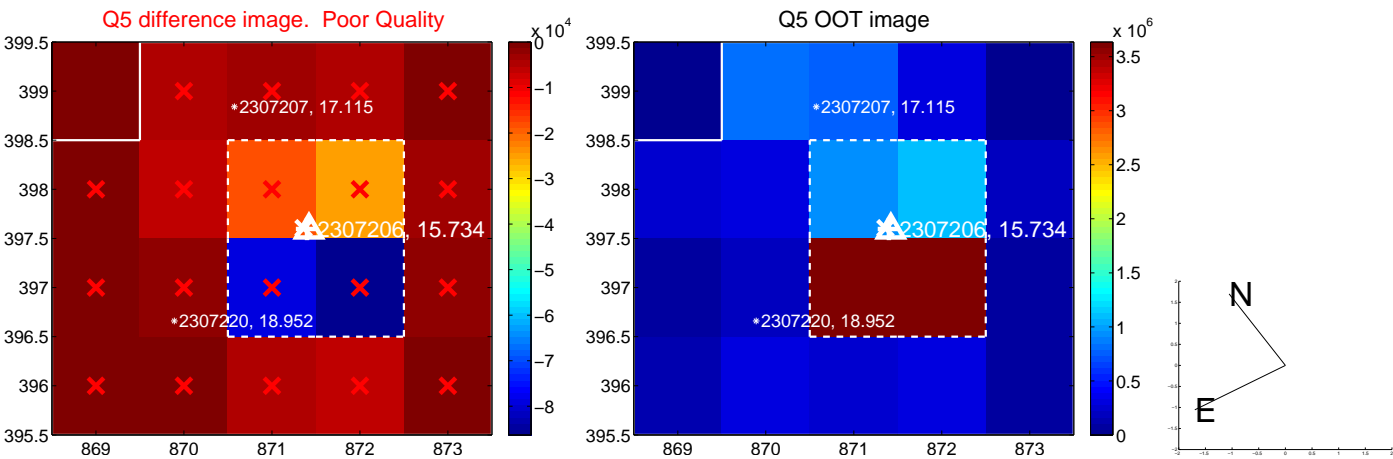


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



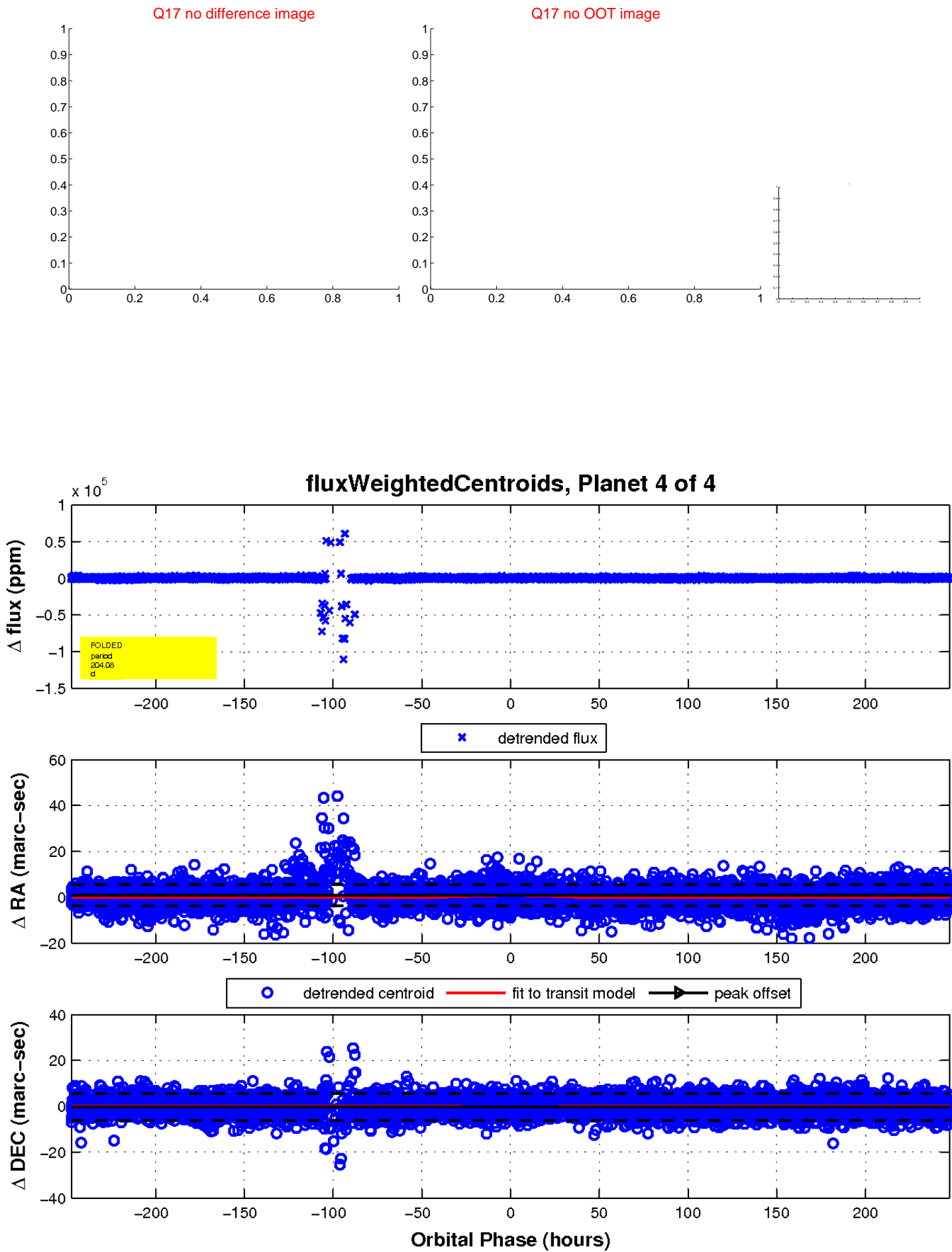
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

