

KIC 004386047

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})
004386047-01	OBS	3659.01	2.900613	133.422965	162931.9	3.749	1399.6	1007.6	0.93	5977	38.44	652.84
004386047-02	OBS	No	2.900585	131.984952	11789.6	2.500	86.6	-1.0	0.93	5977	10.12	652.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004386047-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
004386047-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

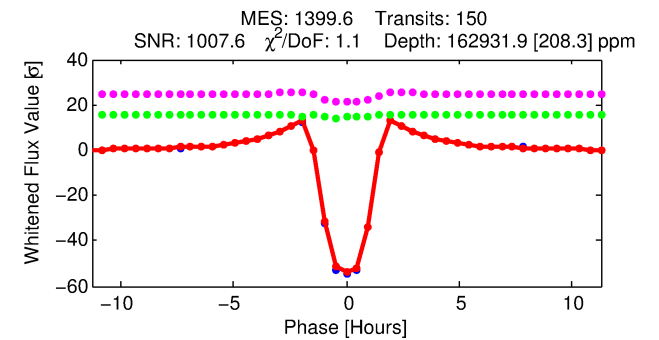
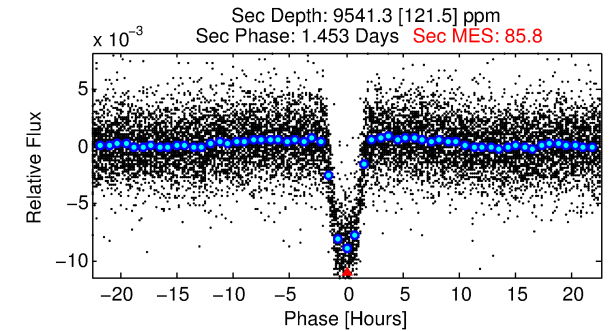
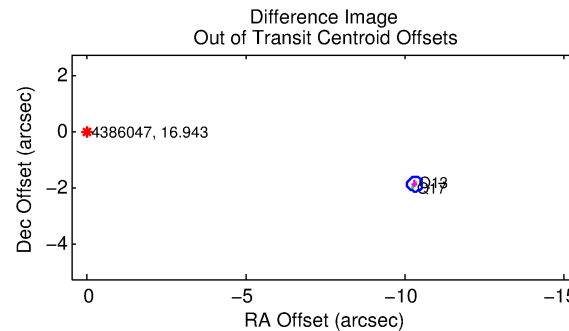
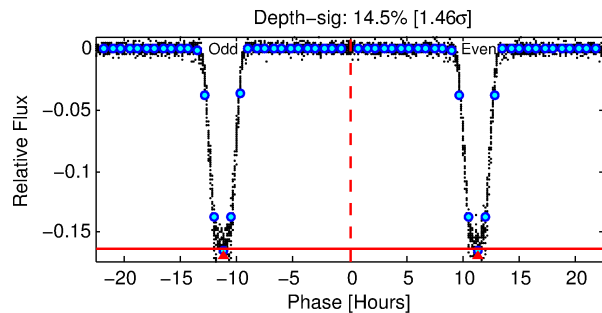
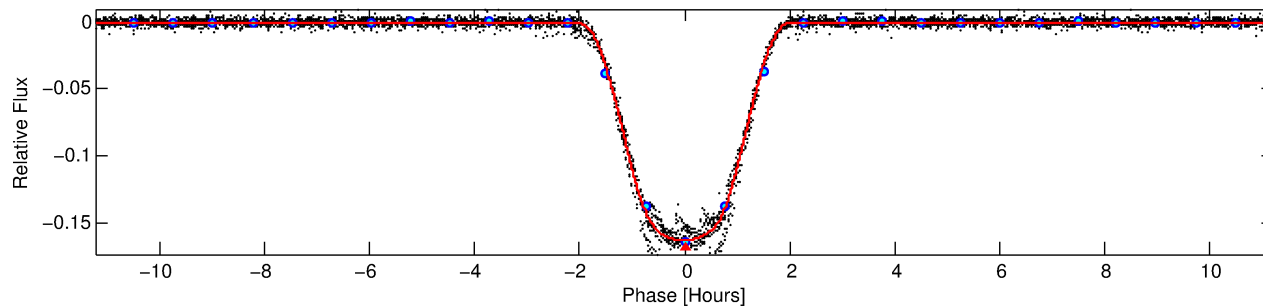
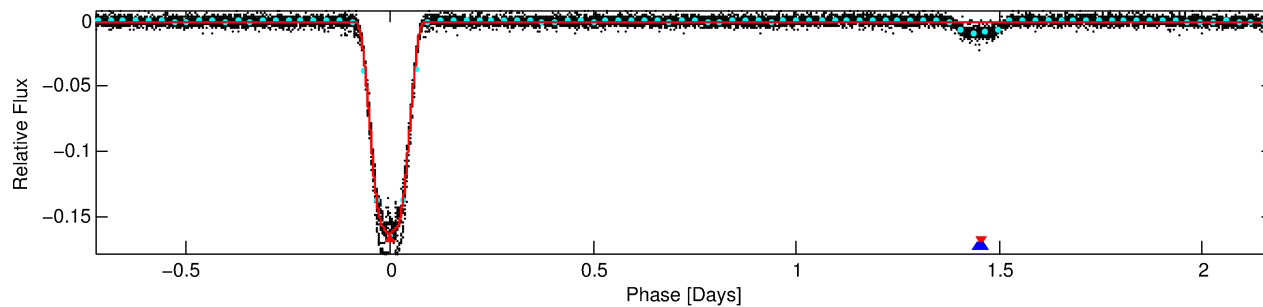
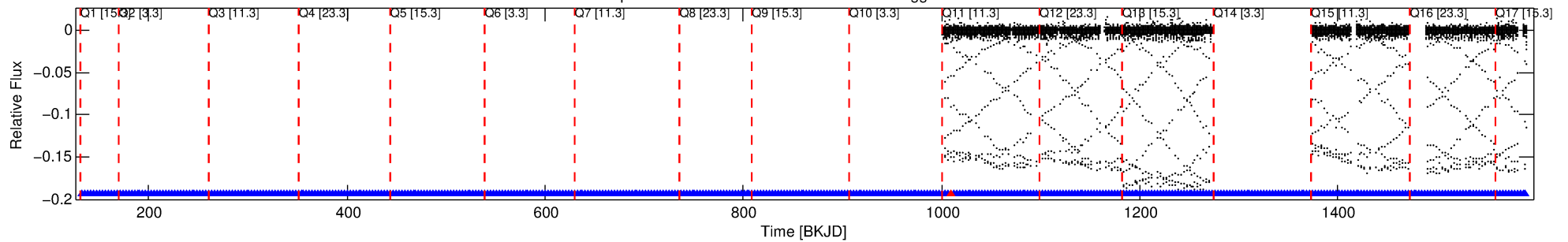
Ephemeris Match Information For 004386047-01

No Significant Match Found

DV One-Page Summary

KIC: 4386047 Candidate: 1 of 2 Period: 2.901 d
KOI: K03659.01 Corr: 0.998

Kp: 16.94 R*: 0.93 Rs Teff: 5977.0 K Logg: 4.47 Fe/H: -0.300



DV Fit Results:

Period = 2.90061 [0.00000] d
Epoch = 133.4230 [0.0001] BKJD
Rp/R* = 0.3784 [0.0003]
a/R* = 7.92 [0.02]
b = 0.35 [0.00]
Seff = 652.84 [246.94]
Teq = 1289 [122] K
Rp = 38.44 [11.44] Re
a = 0.0390 [0.0096] AU
Ag = 5.39 [1.90] [2.32σ]
Teffp = 3037 [107] K [10.79σ]

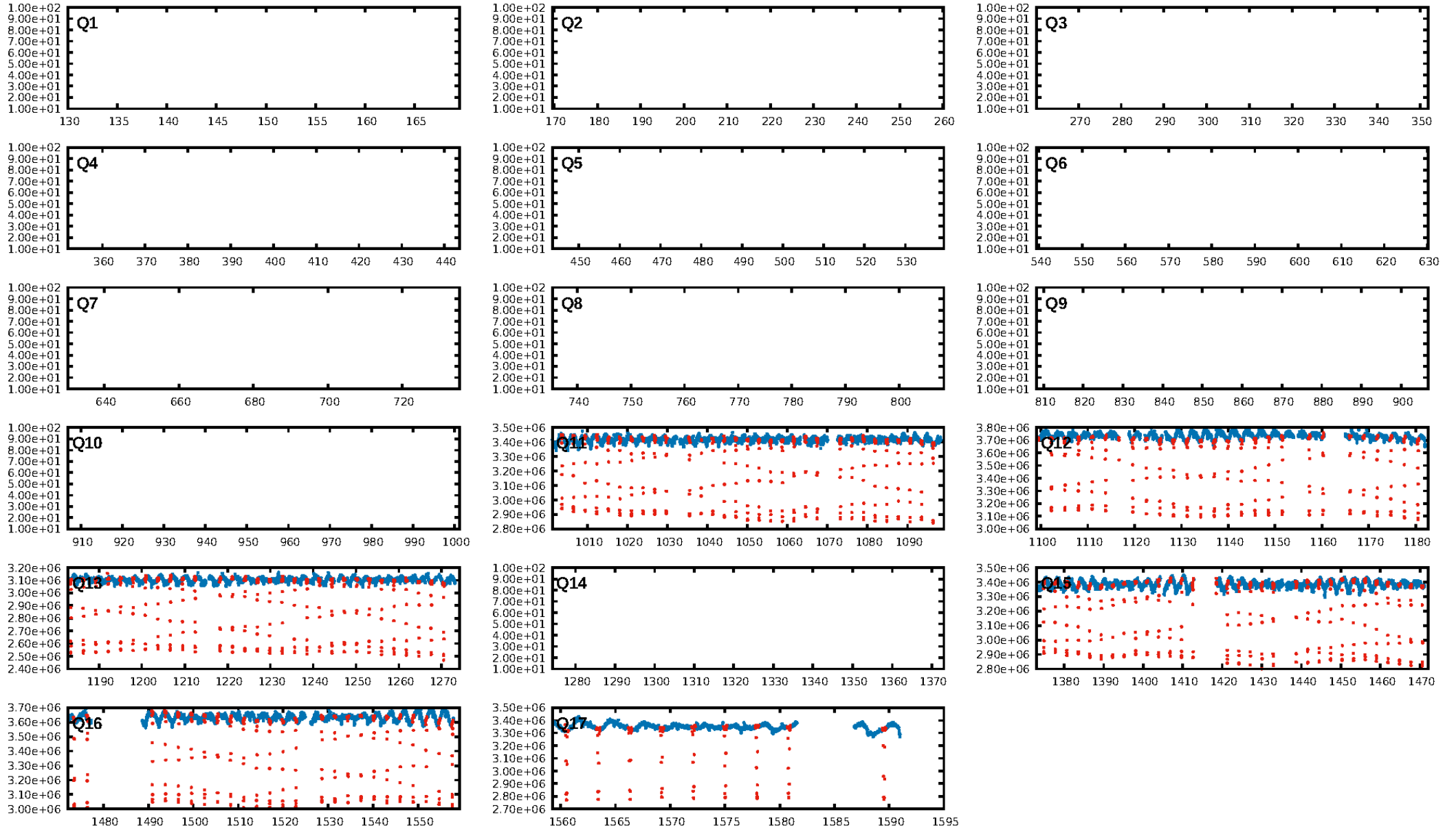
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [140/141]
GhostDiagnostic-chr: 6.8
Centroid-sig: 0.0%
Centroid-so: 1.593 arcsec [338.46σ]
OotOffset-rm: 10.465 arcsec [122.53σ]
KicOffset-rm: 0.077 arcsec [1.13σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

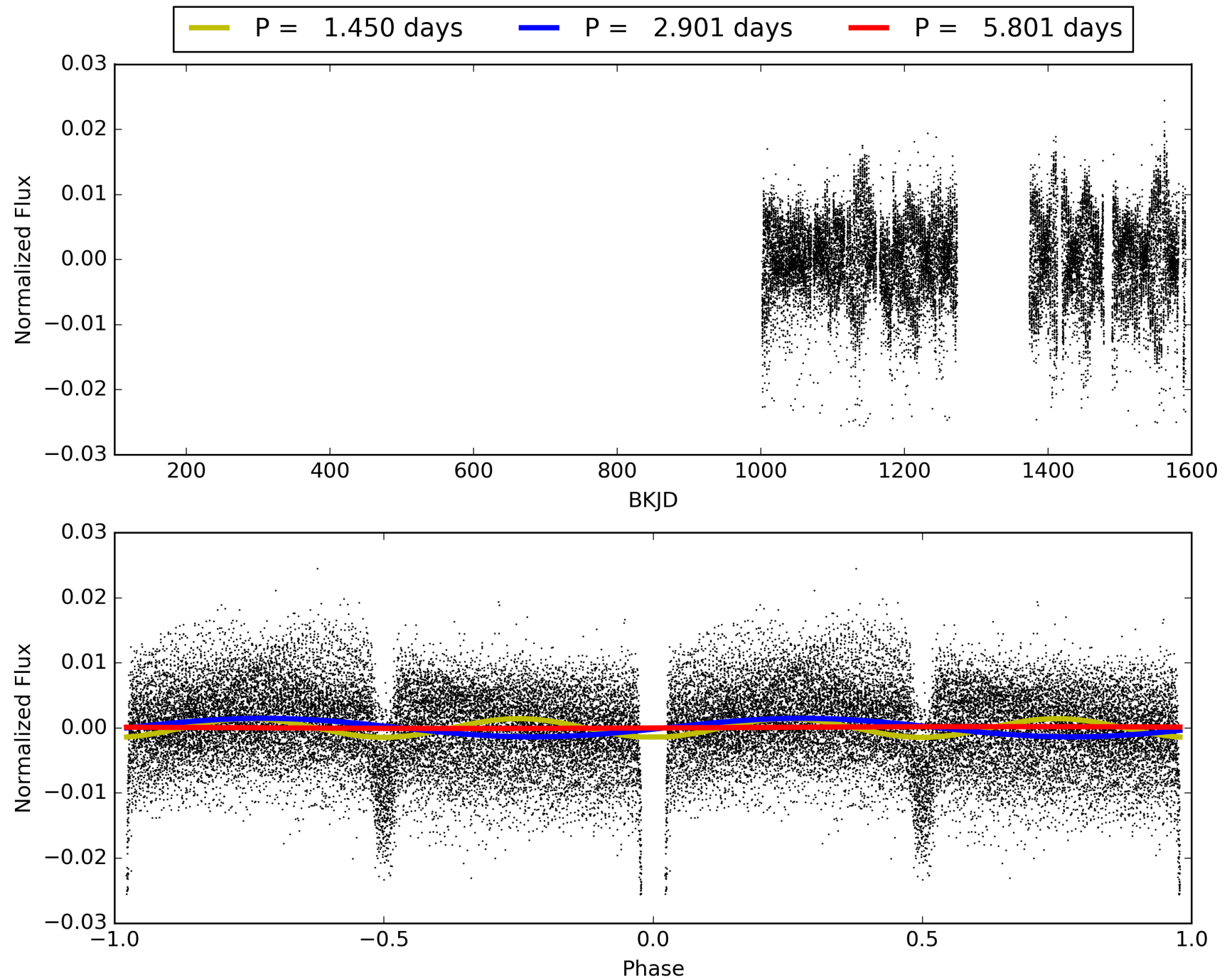
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:04:19 Z

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

TCE 004386047-01, PDC Light Curves

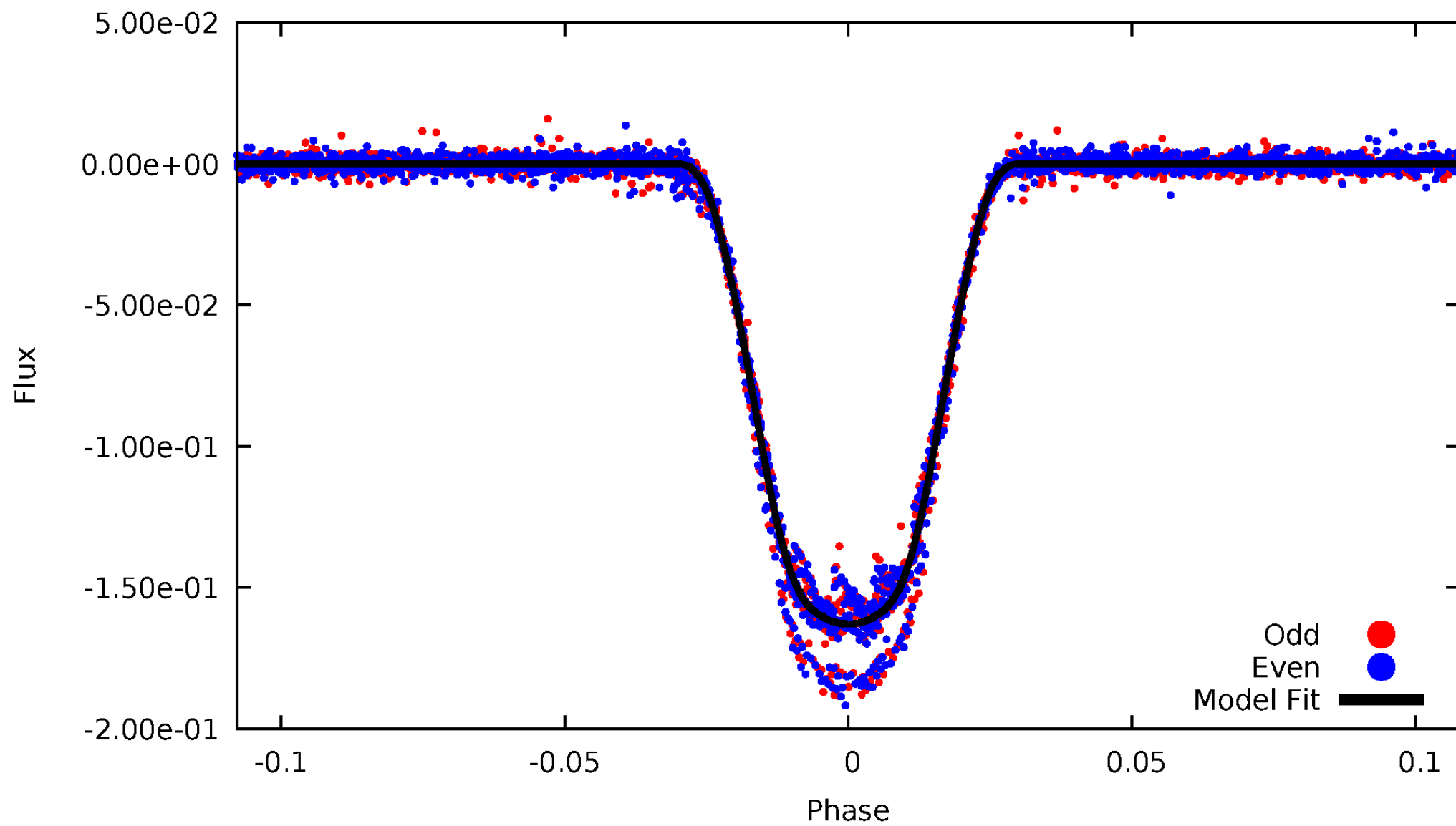


TCE 004386047-01



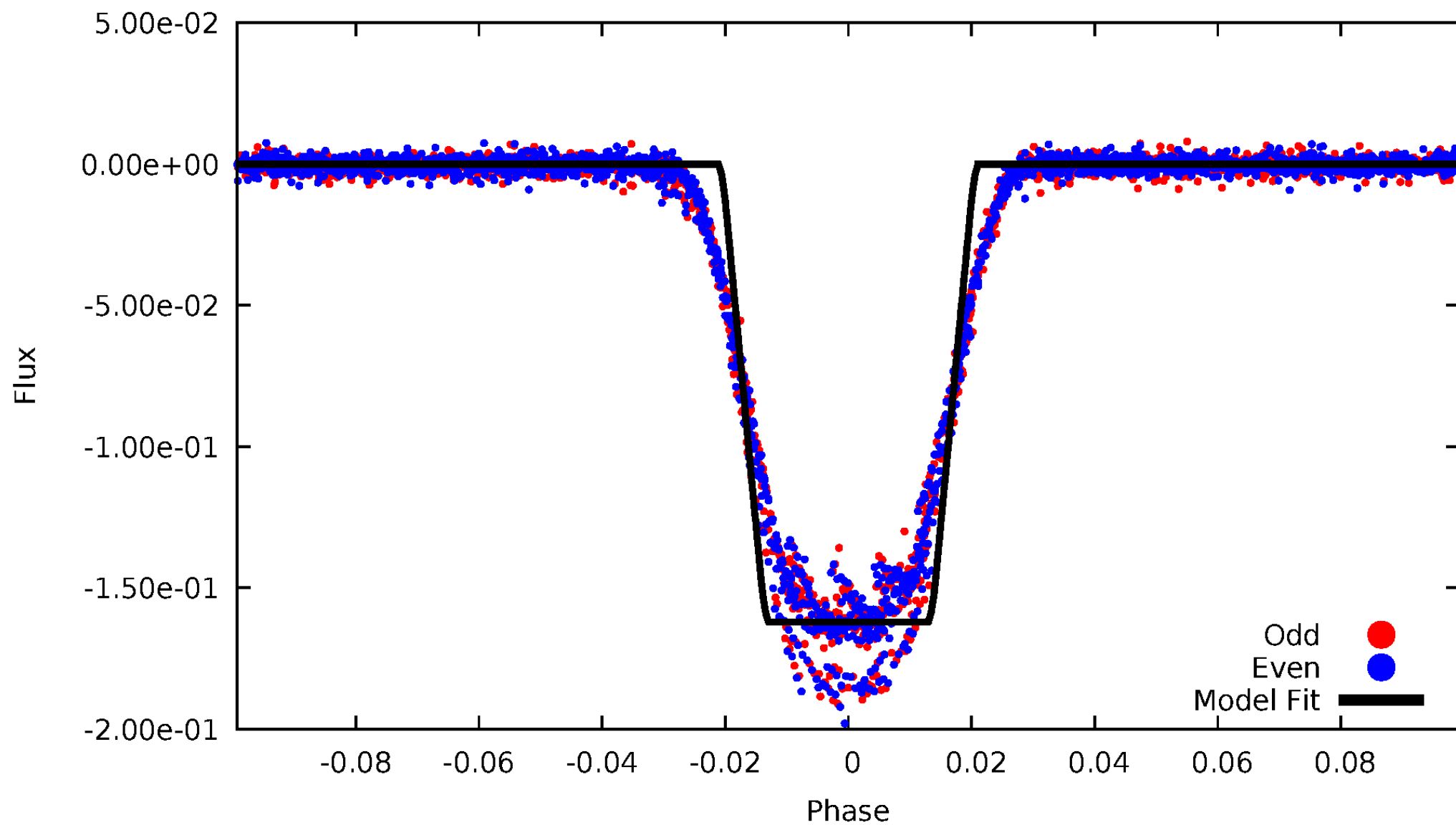
DV Odd/Even

TCE 004386047-01



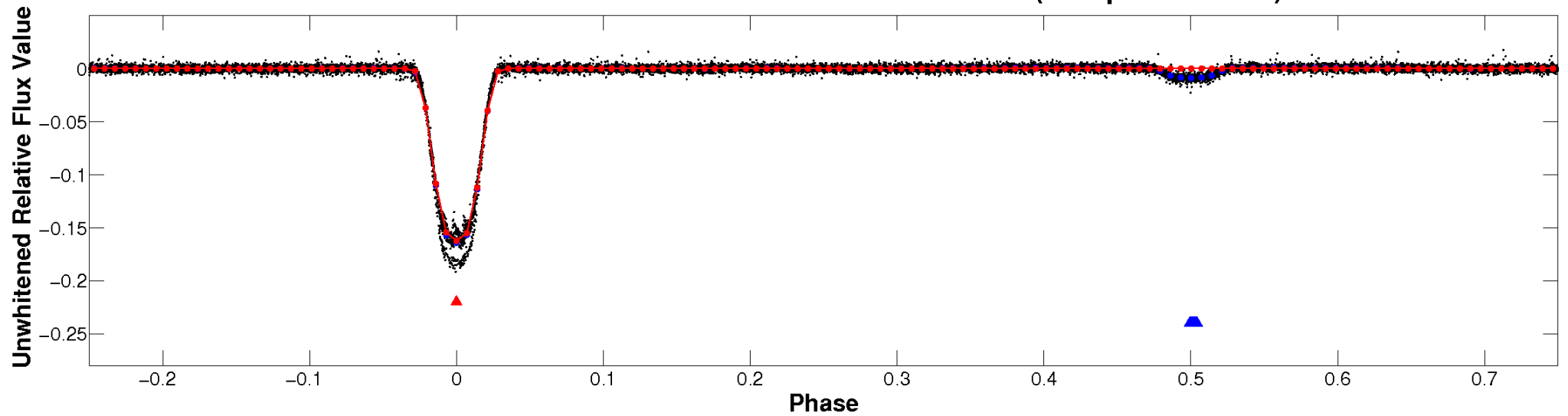
ALT Odd/Even

TCE 004386047-01

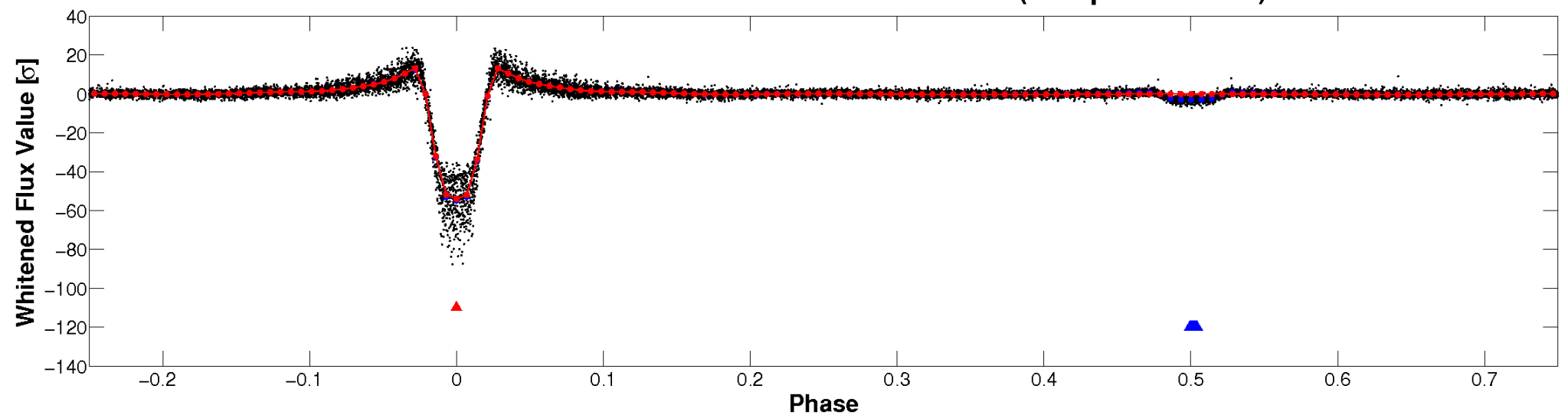


Non-Whitened Vs. Whitened Light Curve

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

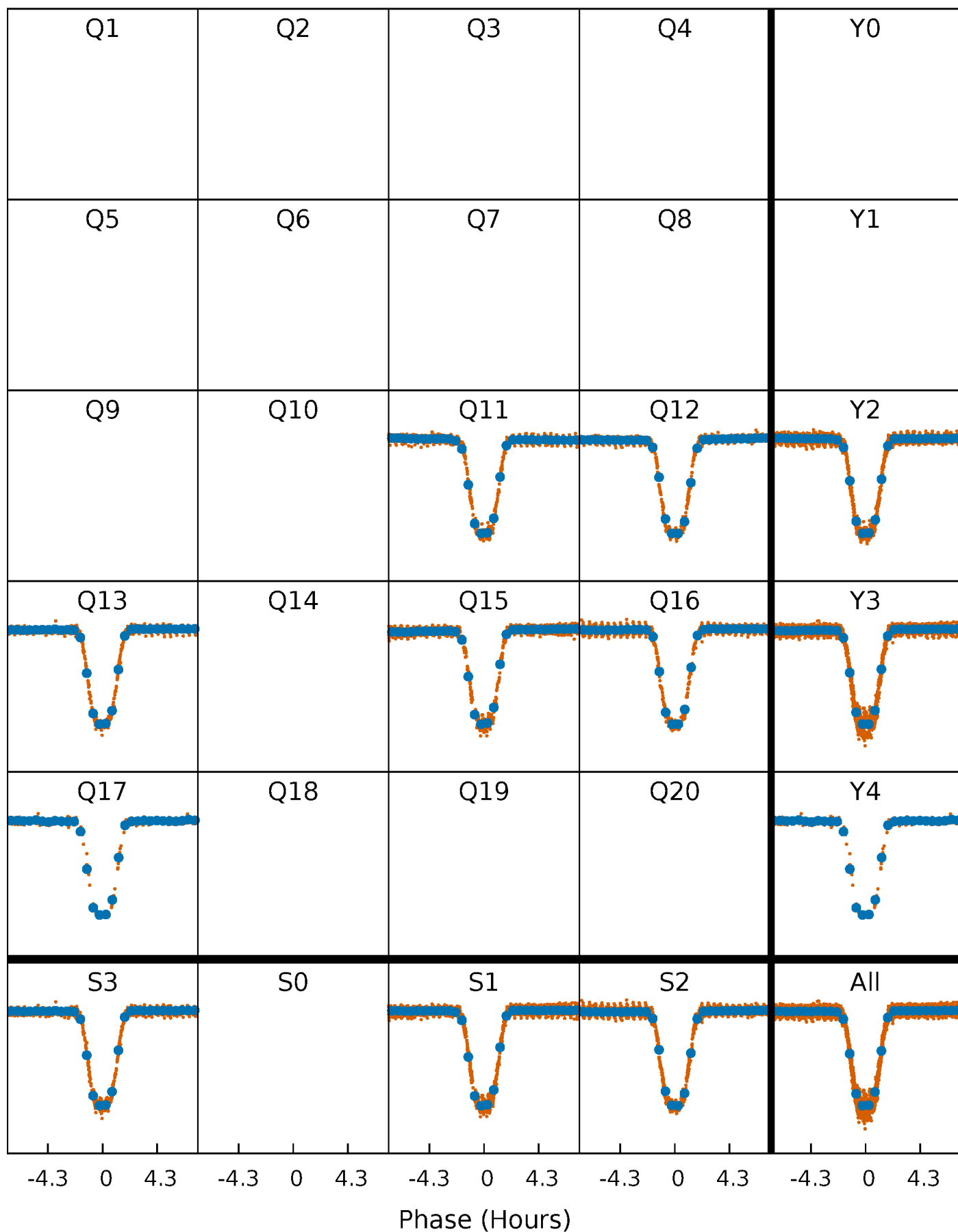


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



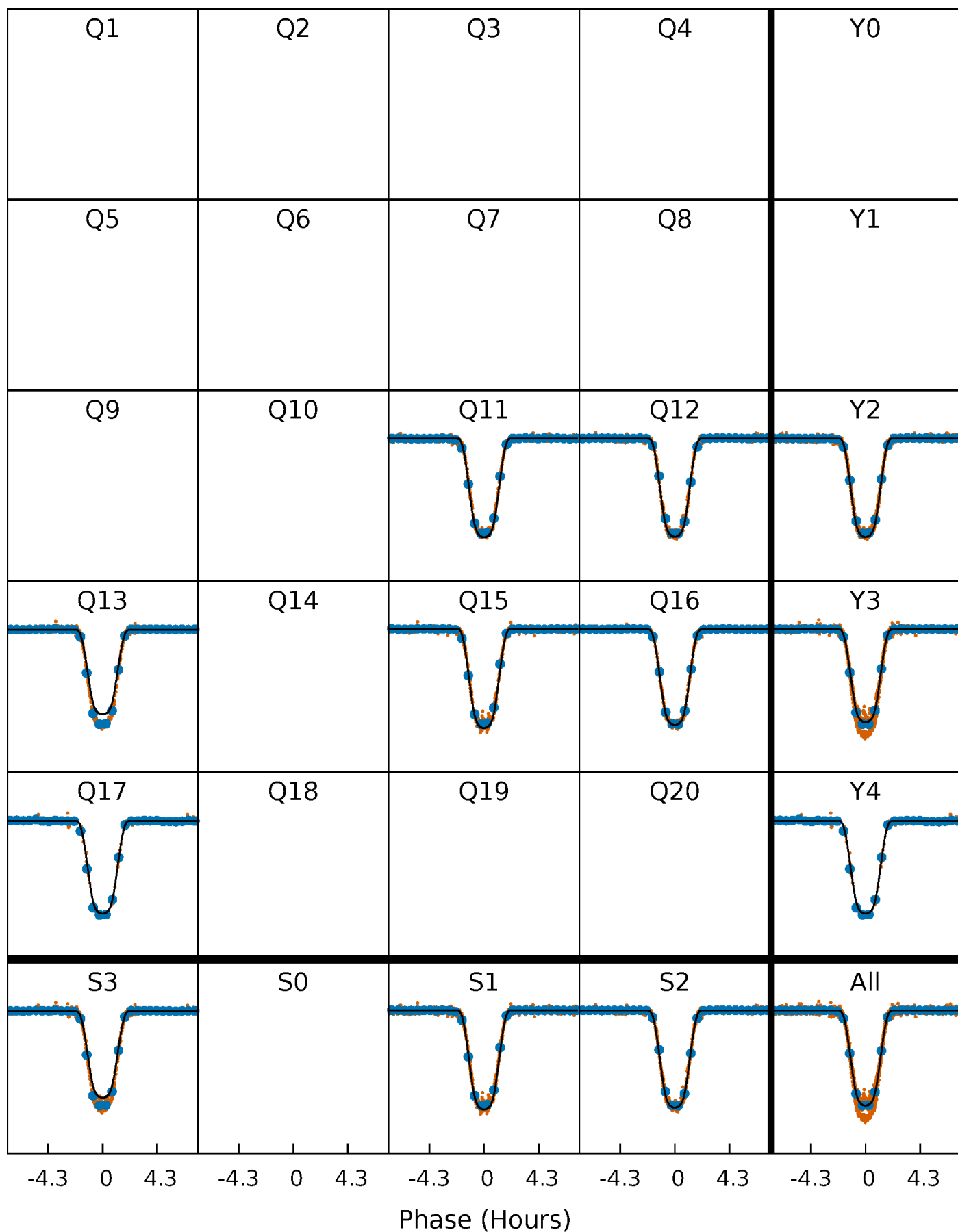
PDC Quarter-Phased Transit Curves

TCE 004386047-01 P= 2.900613 Days $T_0=133.422965$ (BKJD)



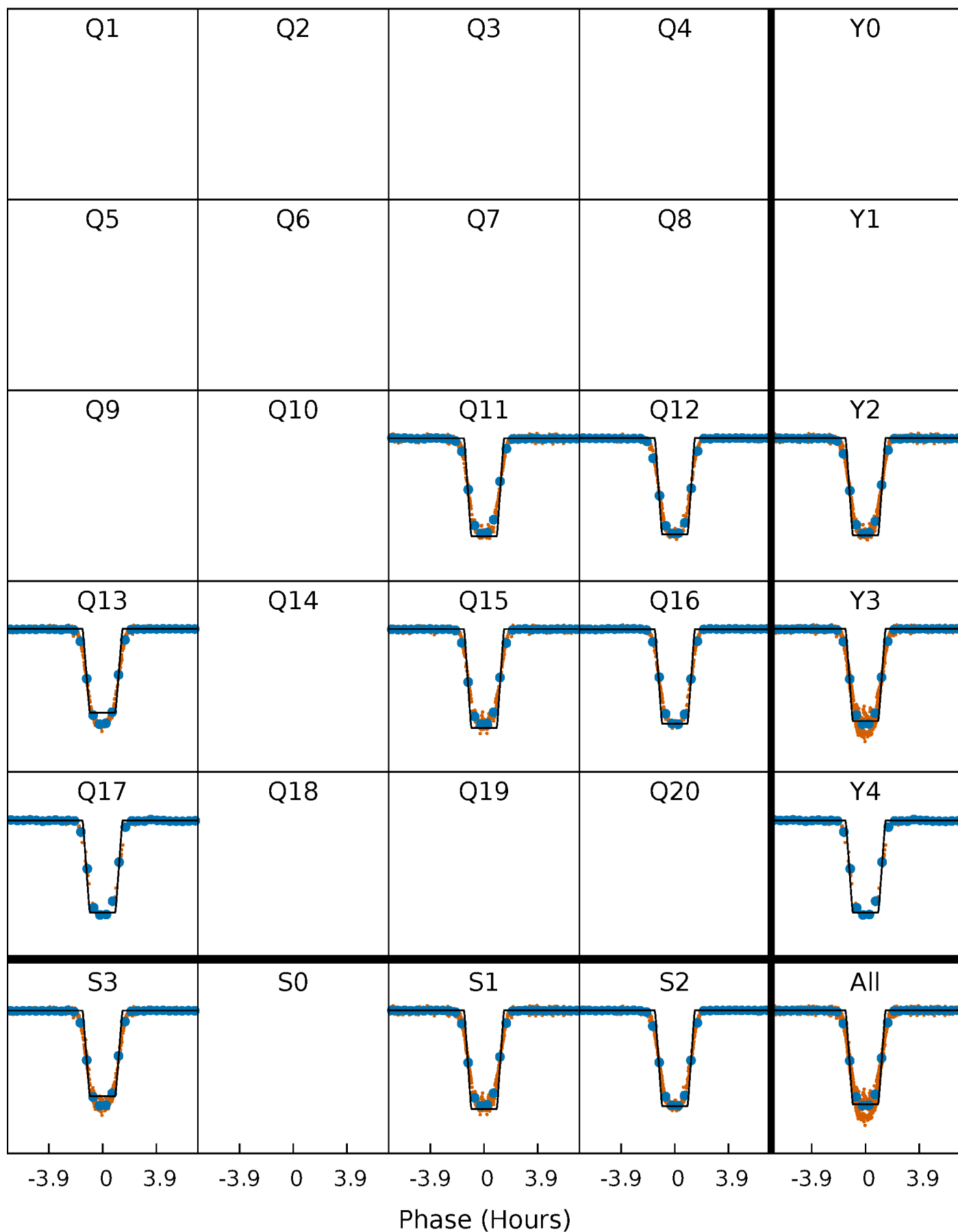
DV Quarter-Phased Transit Curves

TCE 004386047-01 P= 2.900613 Days $T_0=133.422965$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

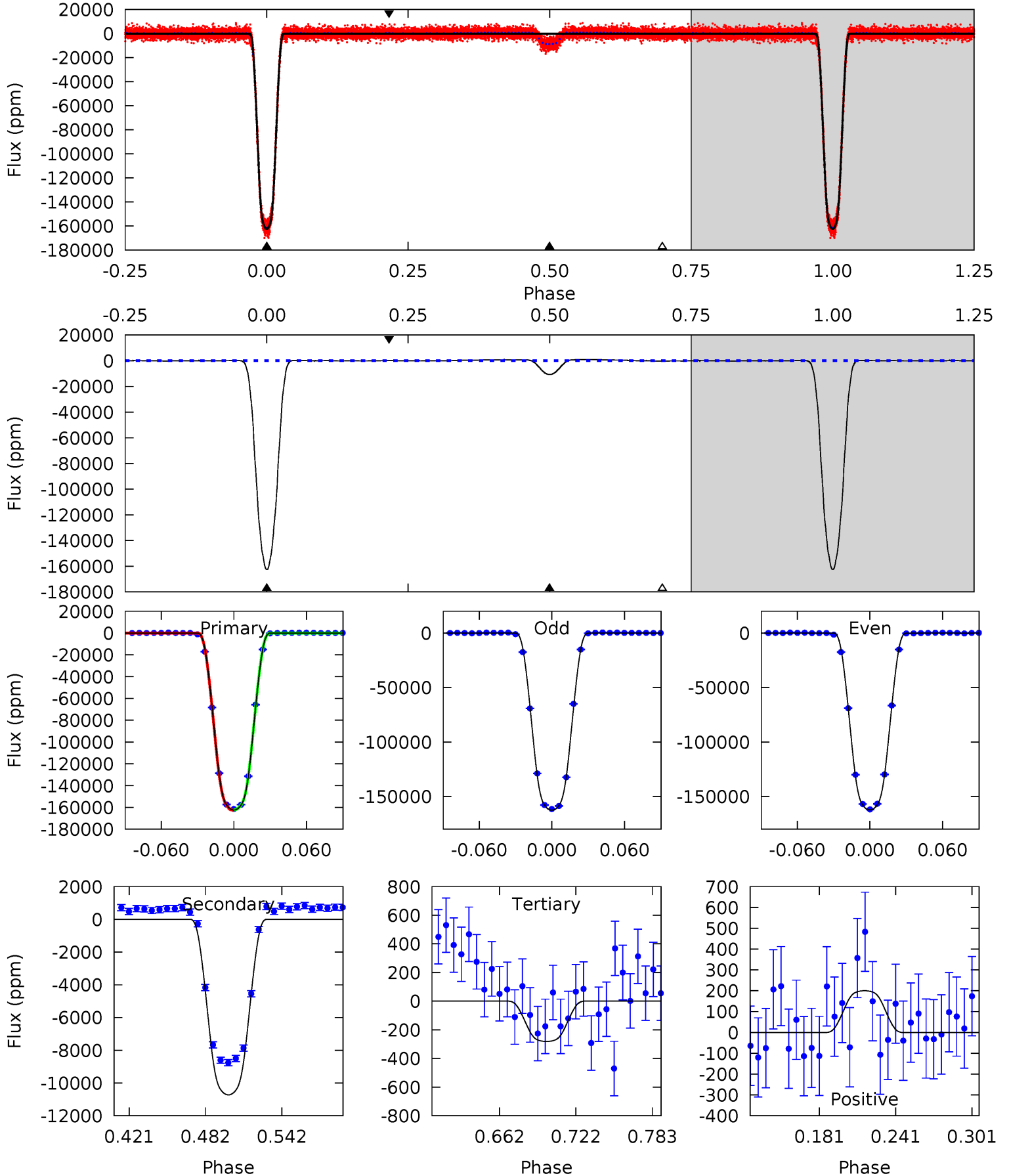
TCE 004386047-01 P= 2.900605 Days $T_0=133.426415$ (BKJD)



DV Model-Shift Uniqueness Test

004386047-01, P = 2.900613 Days, E = 133.422965 Days

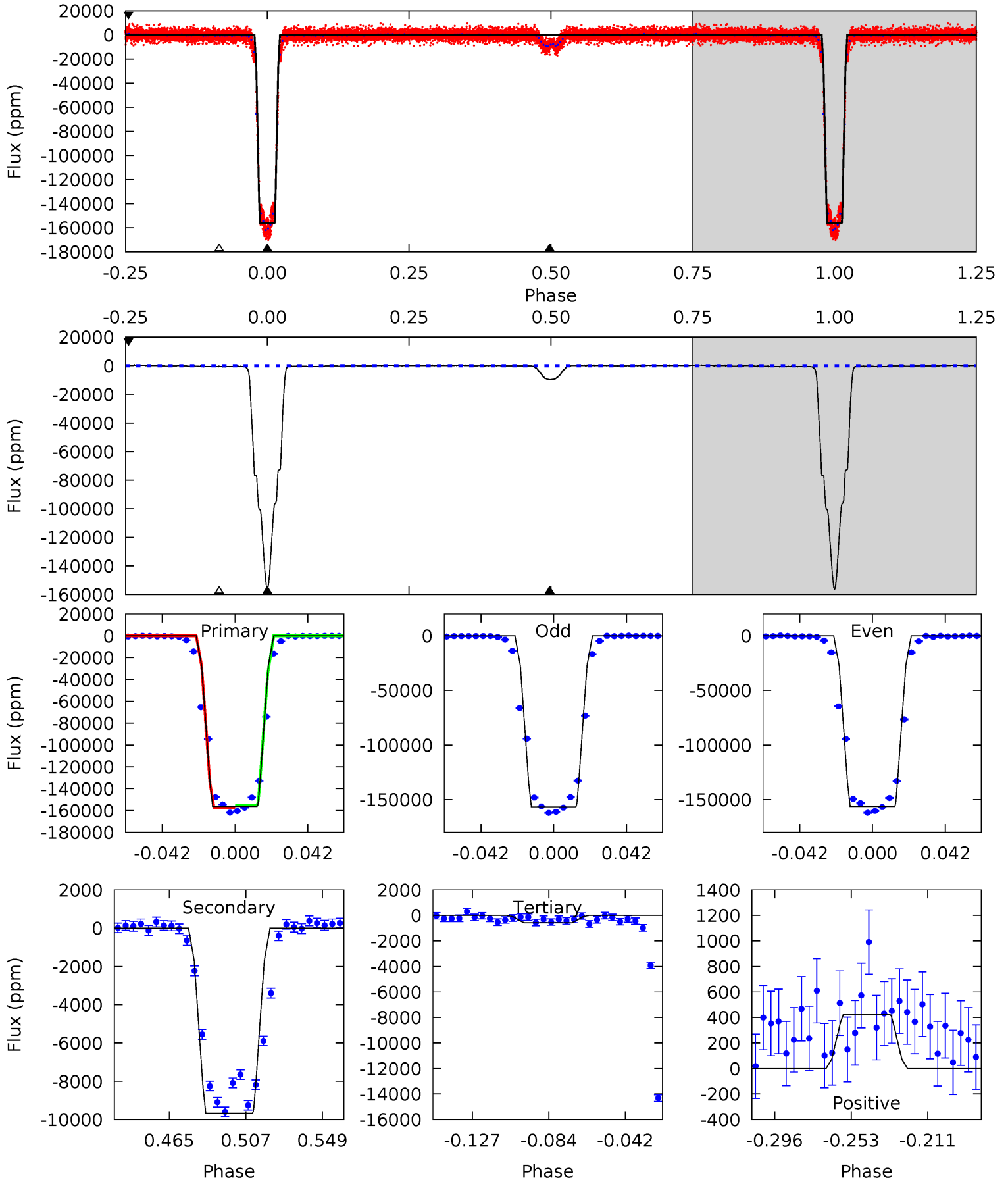
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2490	164.4	4.31	3.07	4.67	1.88	4.53	2485	2487	160.1	161.3	2.27	1.01	0.01	3.38



Alt Model-Shift Uniqueness Test

004386047-01, P = 2.900605 Days, E = 133.426415 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1438	88.9	5.26	3.89	4.74	2.03	2.11	1433	1435	83.7	85.0	1.25	1.01	0.00	8.94



Stellar Parameters For KIC 004386047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5977^{+188}_{-209}	$4.472^{+0.081}_{-0.189}$	$-0.300^{+0.300}_{-0.300}$	$0.931^{+0.277}_{-0.119}$	$0.940^{+0.118}_{-0.106}$	$1.638^{+0.588}_{-0.841}$
	+3%/-3%	+2%/-4%	+100%/-100%	+30%/-13%	+13%/-11%	+36%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004386047-01 / KOI 3659.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-10724 ± 65	$38.69^{+6.08}_{-2.66}$	1821^{+126}_{-95}	3555^{+71}_{-85}	$5.950^{+0.866}_{-1.392}$
Alt.	-9661 ± 109	$41.62^{+6.77}_{-3.20}$	1826^{+135}_{-95}	3426^{+66}_{-79}	$4.641^{+0.753}_{-1.090}$

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 $A_{obs} \gg 1.0$

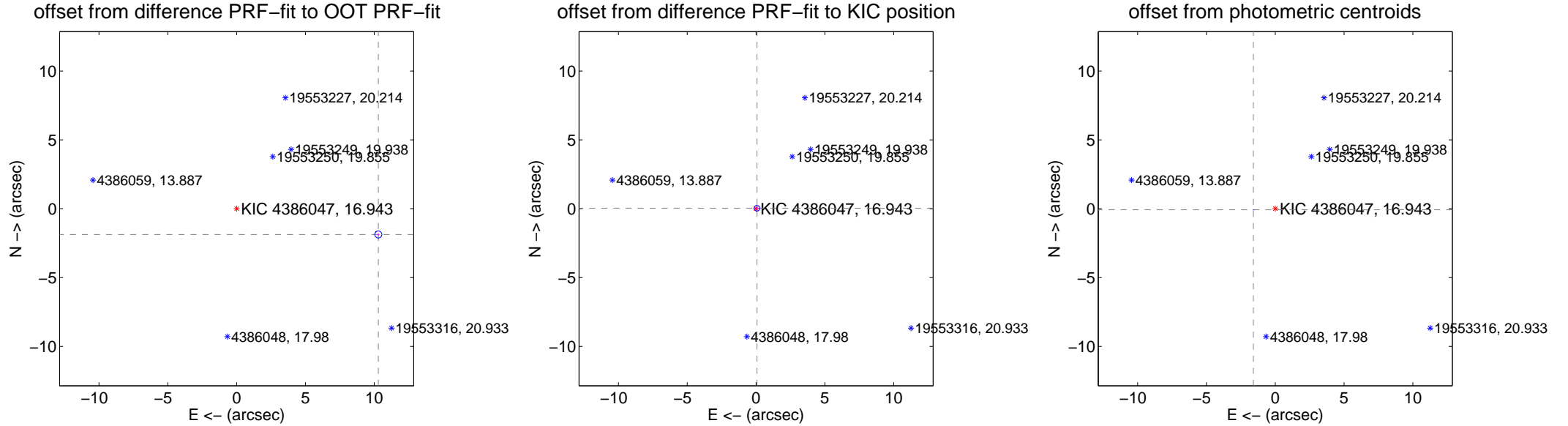
DV Centroid Data

Supplemental centroid analysis for 004386047-01. Kepler magnitude: 16.94. Transit SNR 1007.64

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 10.35 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.465 ± 0.085	122.53	-10.296 ± 0.085	-1.871 ± 0.105
PRF-fit source offset from KIC position	0.077 ± 0.068	1.13	-0.068 ± 0.067	0.037 ± 0.074
photometric centroid source offset	1.59 ± 0.00	338.46	1.59 ± 0.00	-0.08 ± 0.00



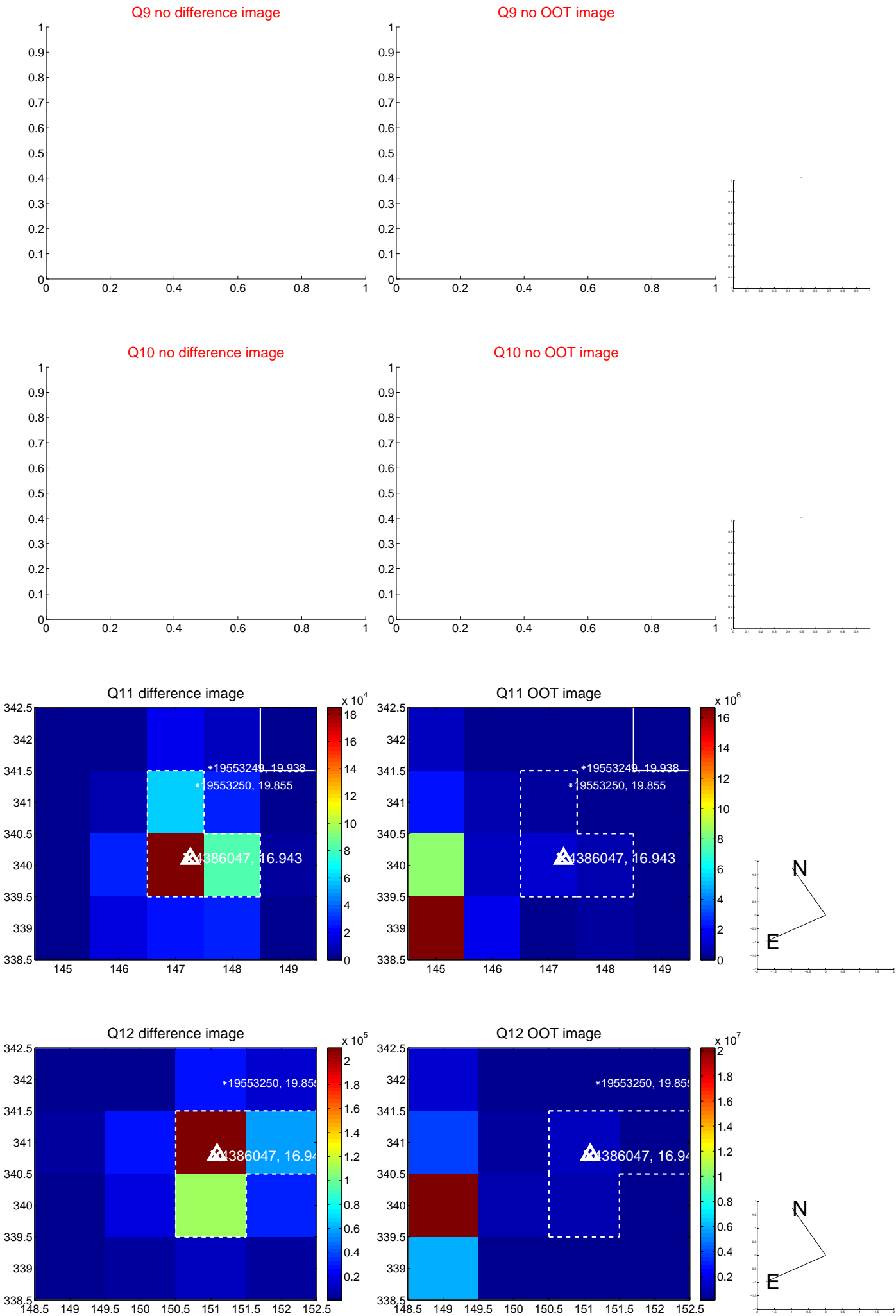
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



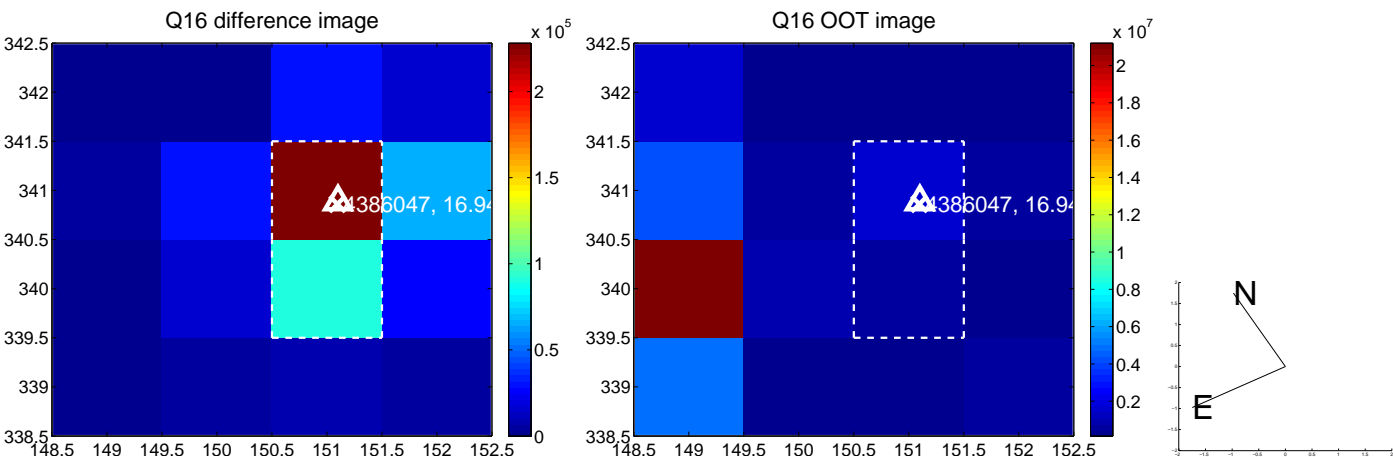
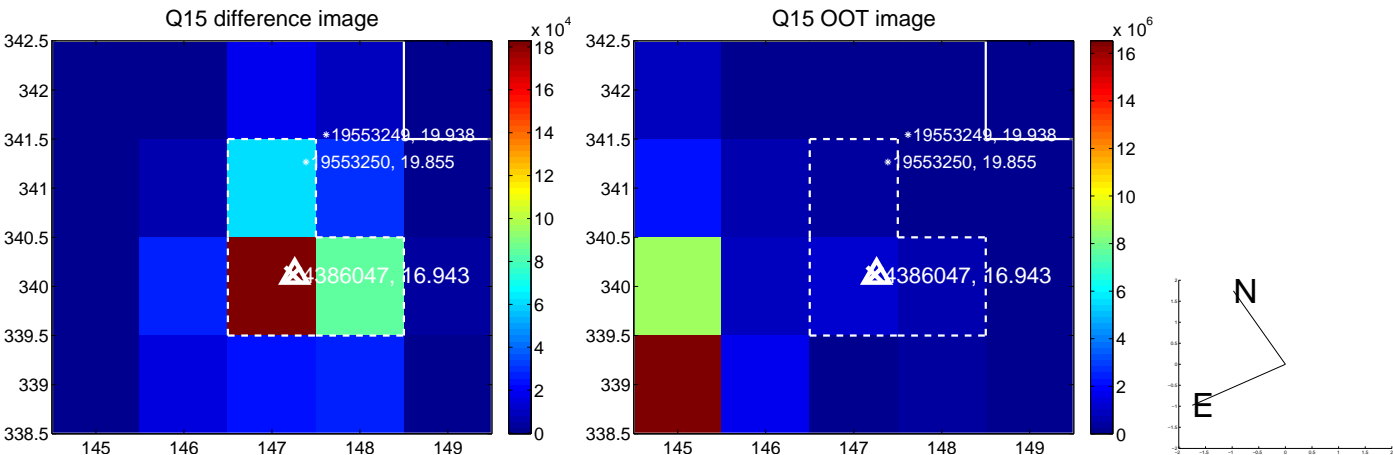
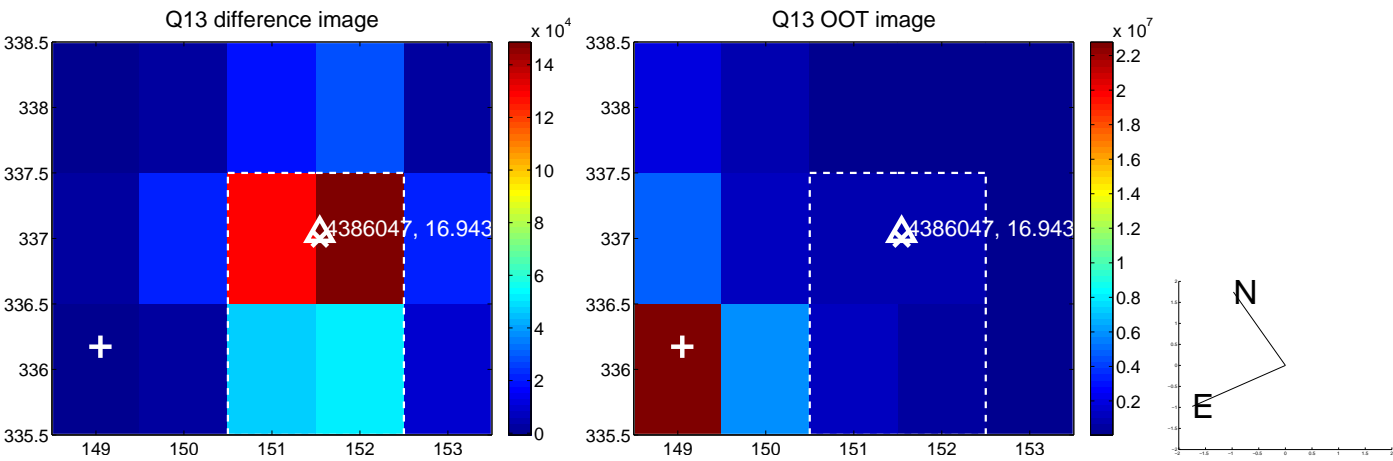
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



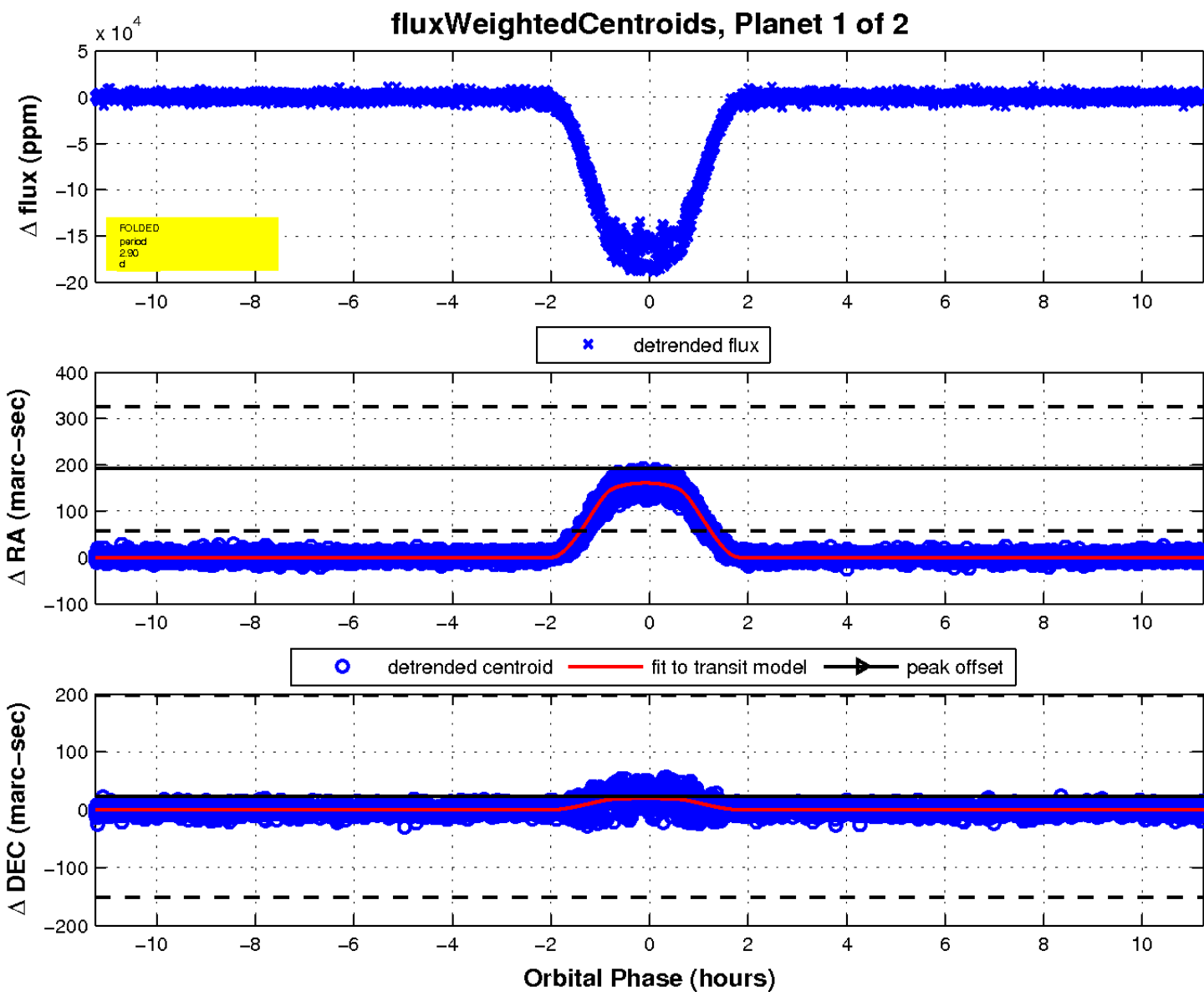
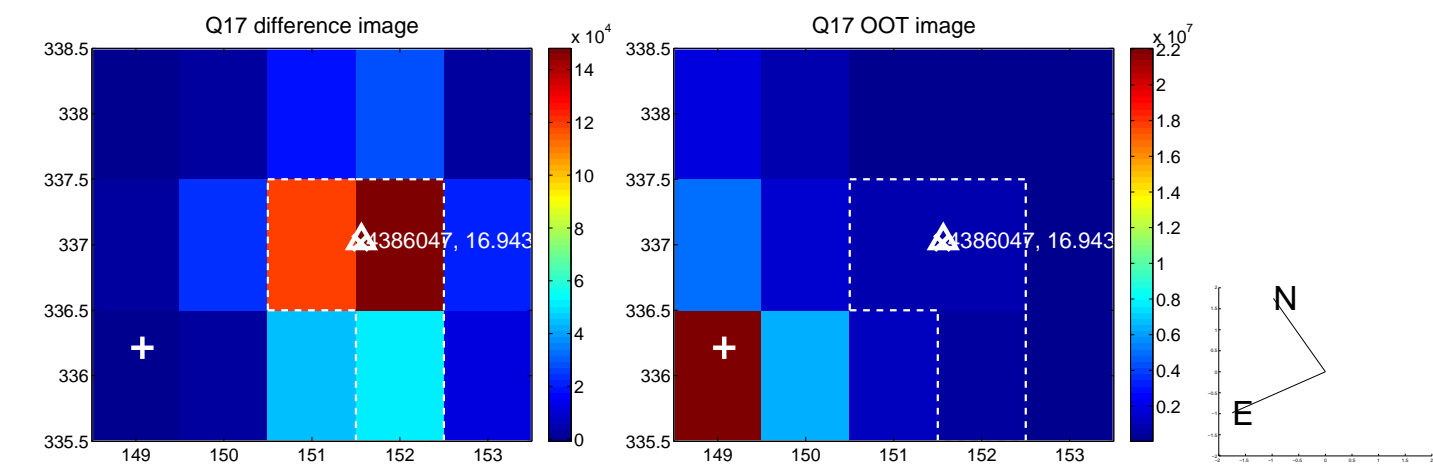
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

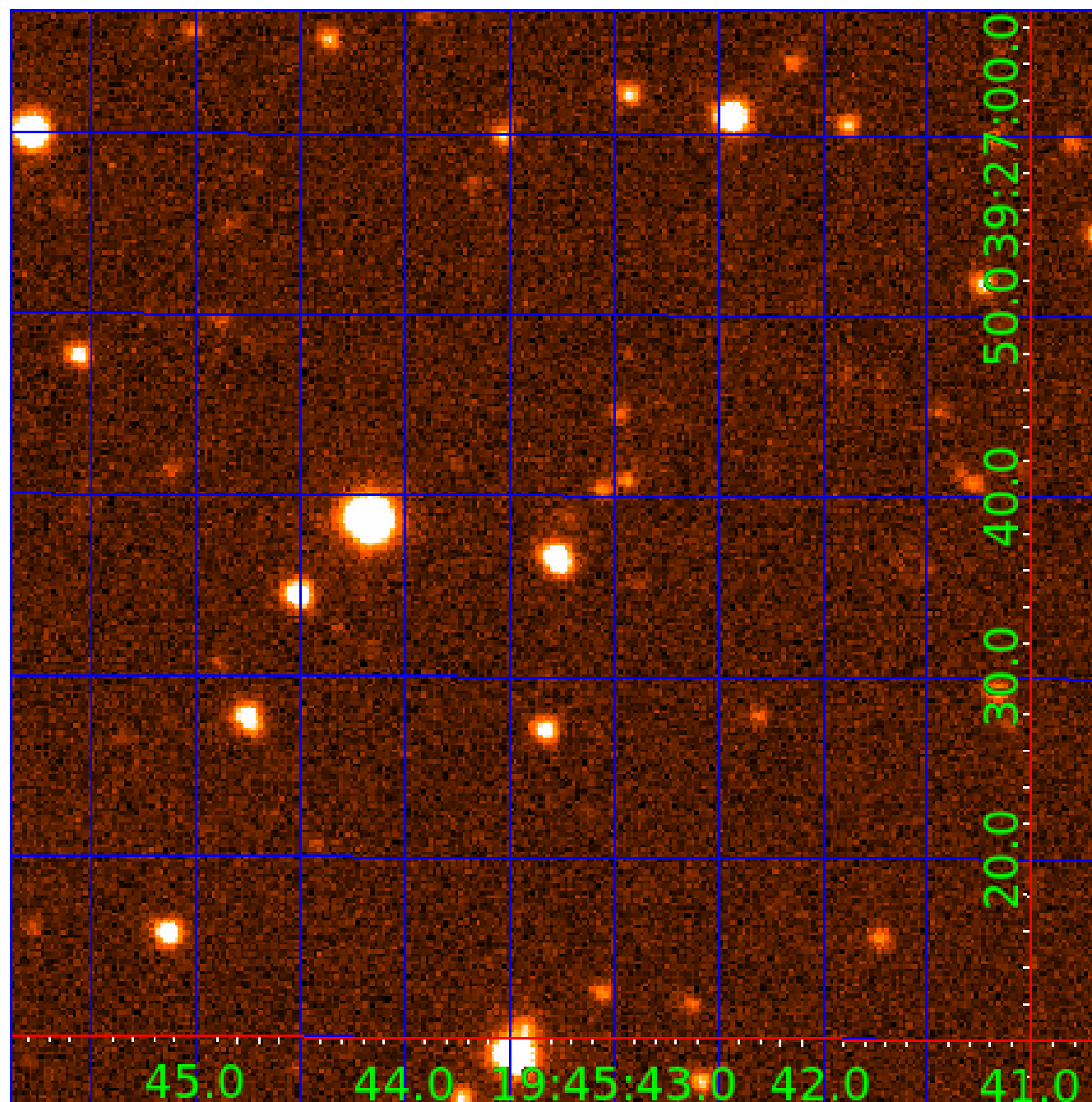


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004386047

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})
004386047-01	OBS	3659.01	2.900613	133.422965	162931.9	3.749	1399.6	1007.6	0.93	5977	38.44	652.84
004386047-02	OBS	No	2.900585	131.984952	11789.6	2.500	86.6	-1.0	0.93	5977	10.12	652.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004386047-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
004386047-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

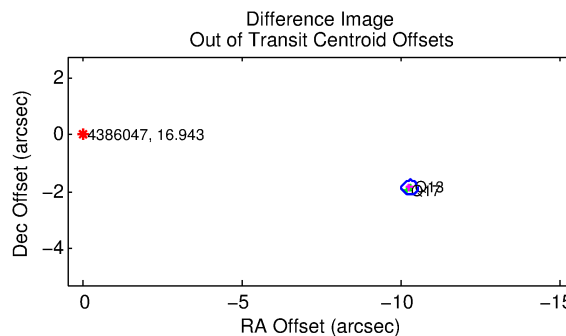
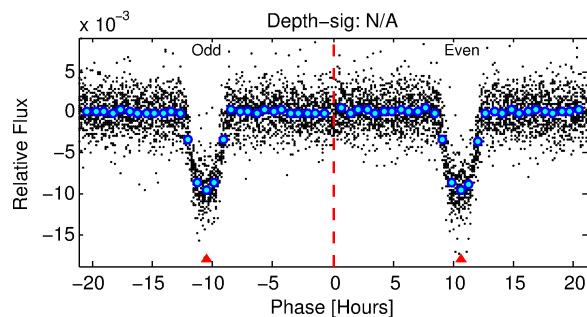
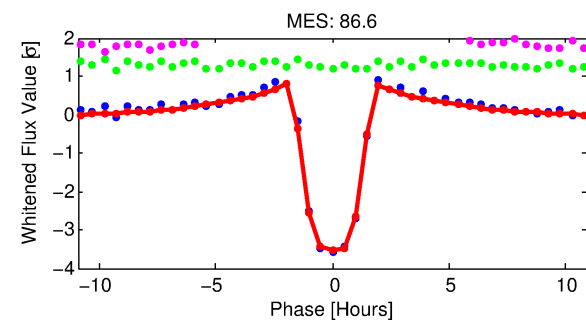
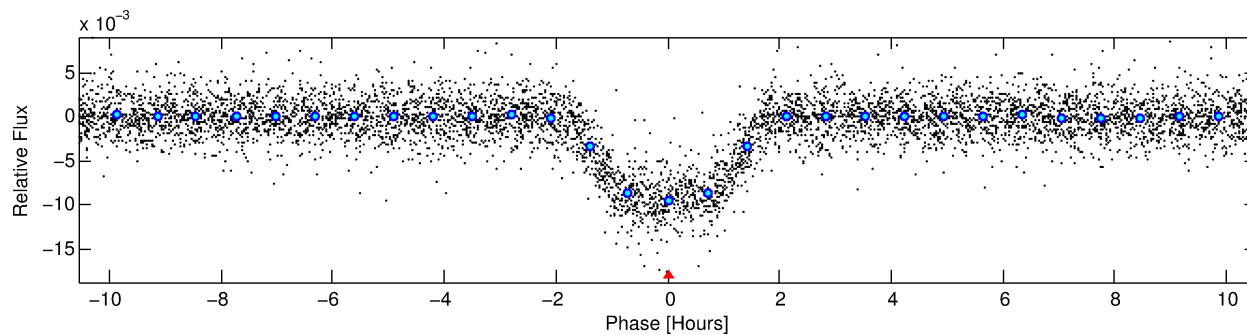
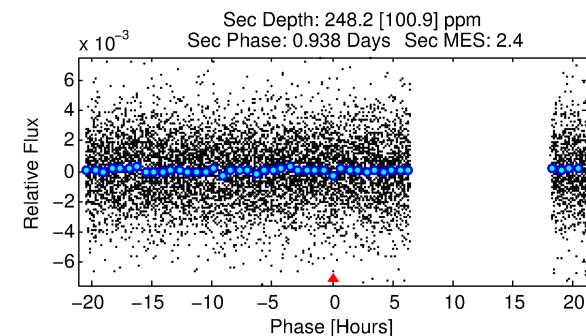
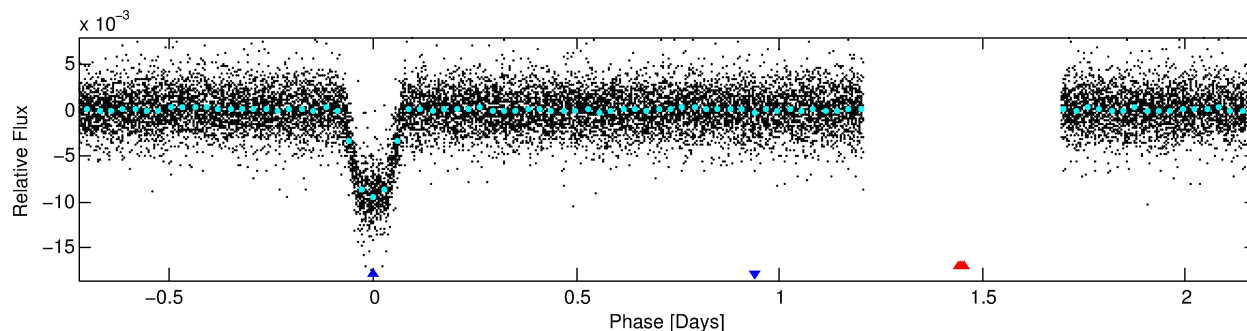
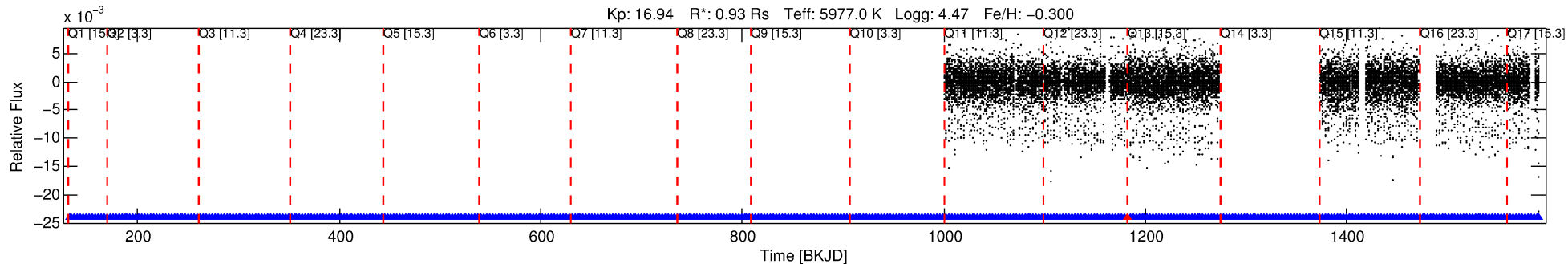
Ephemeris Match Information For 004386047-02

No Significant Match Found

DV One-Page Summary

KIC: 4386047 Candidate: 2 of 2 Period: 2.901 d
KOI: K03659 Corr: No Ephemeris Match

Kp: 16.94 R*: 0.93 Rs Teff: 5977.0 K Logg: 4.47 Fe/H: -0.300



TPS TCE Results:

Period = 2.90059 d
Epoch = 131.9850 BKJD

DV fit results are unavailable

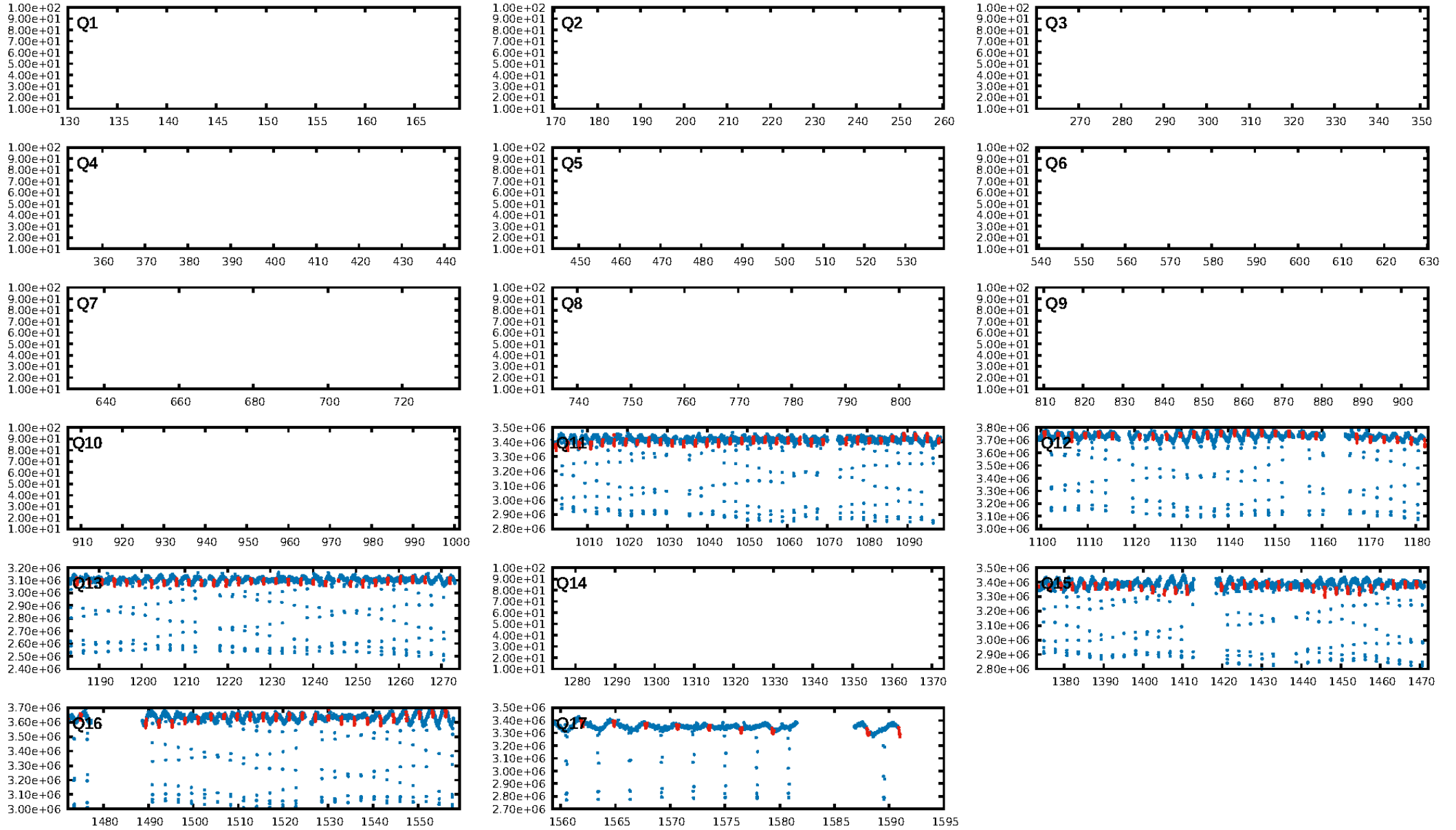
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [144/145]
GhostDiagnostic-chr: 1.738
Centroid-sig: 0.0%
Centroid-so: 1.691 arcsec [25.12σ]
OotOffset-rm: 10.427 arcsec [120.57σ]
KicOffset-rm: 0.076 arcsec [0.79σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/2/2/2 [6]
DiffImageQuality-fgm: 1.00 [6/6]
DiffImageOverlap-fno: 1.00 [6/6]

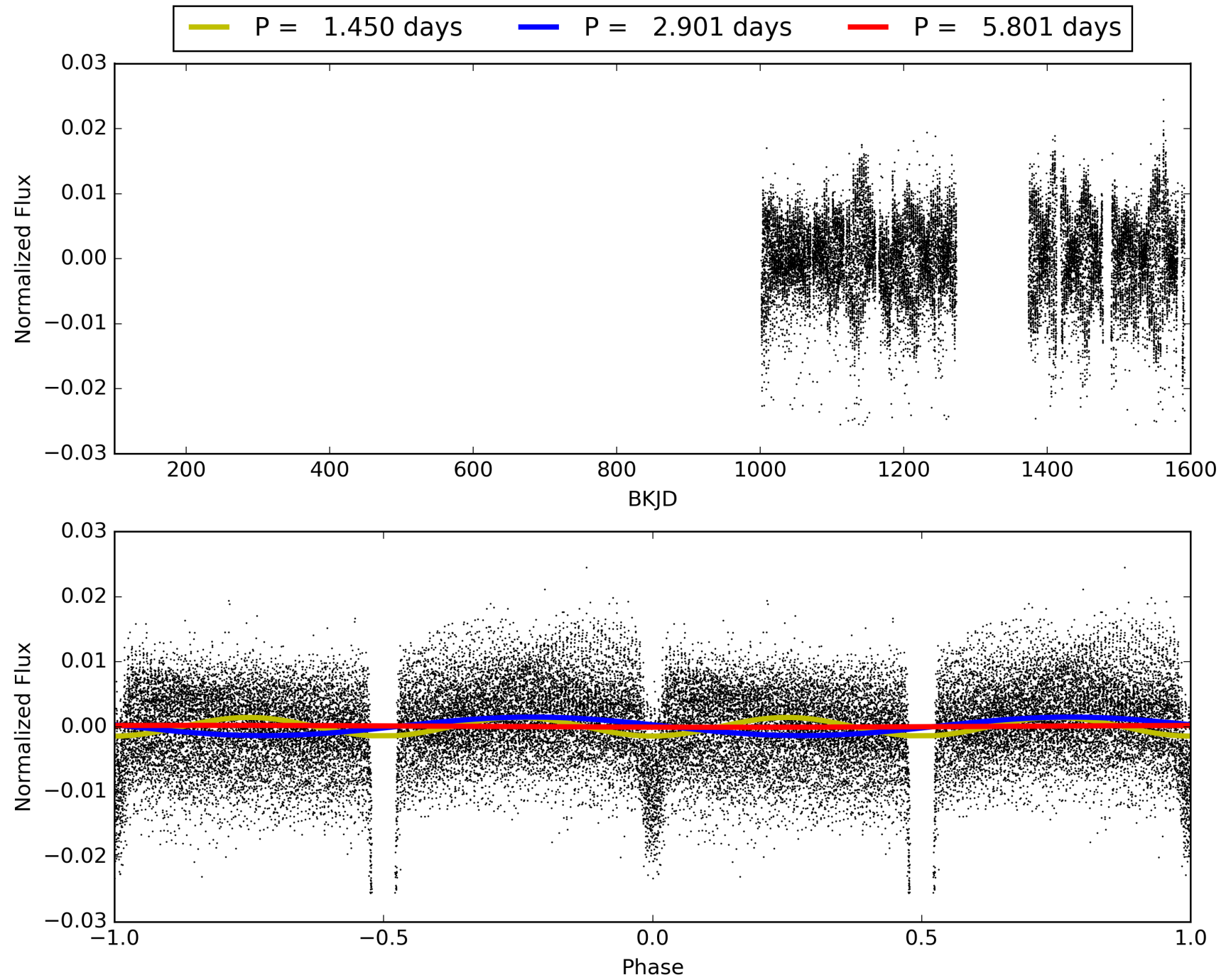
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:04:24 Z

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

TCE 004386047-02, PDC Light Curves

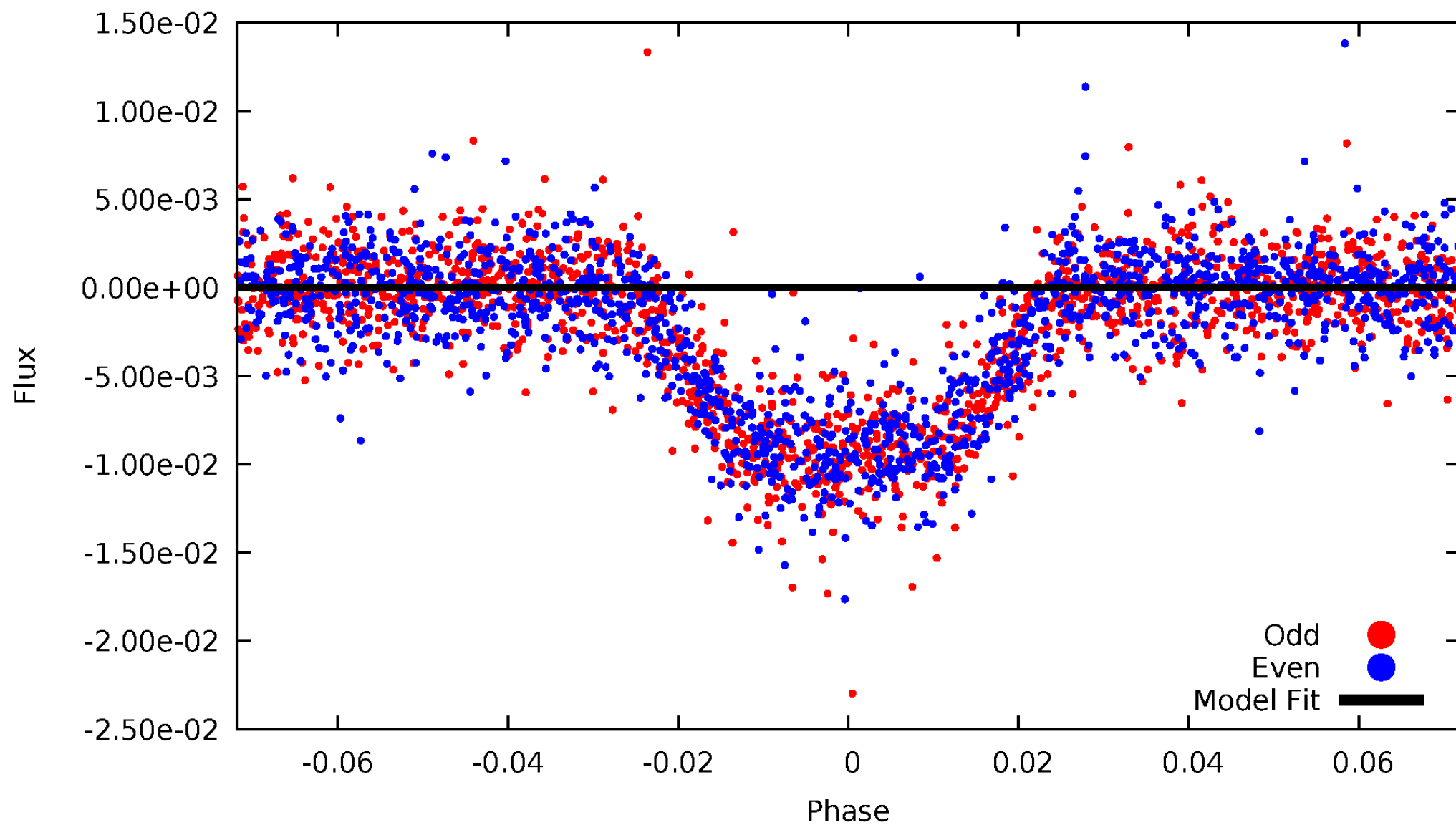


TCE 004386047-02



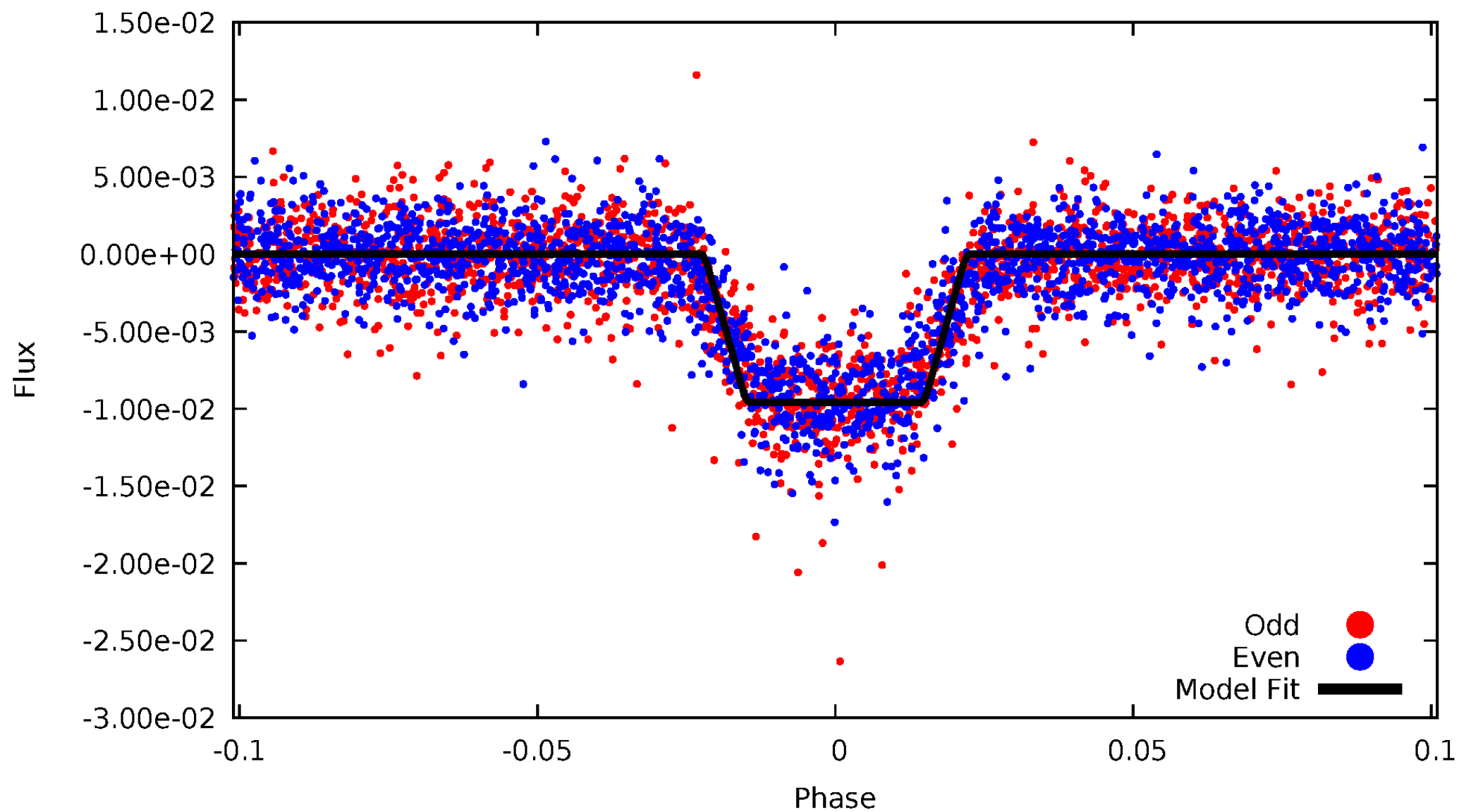
DV Odd/Even

TCE 004386047-02



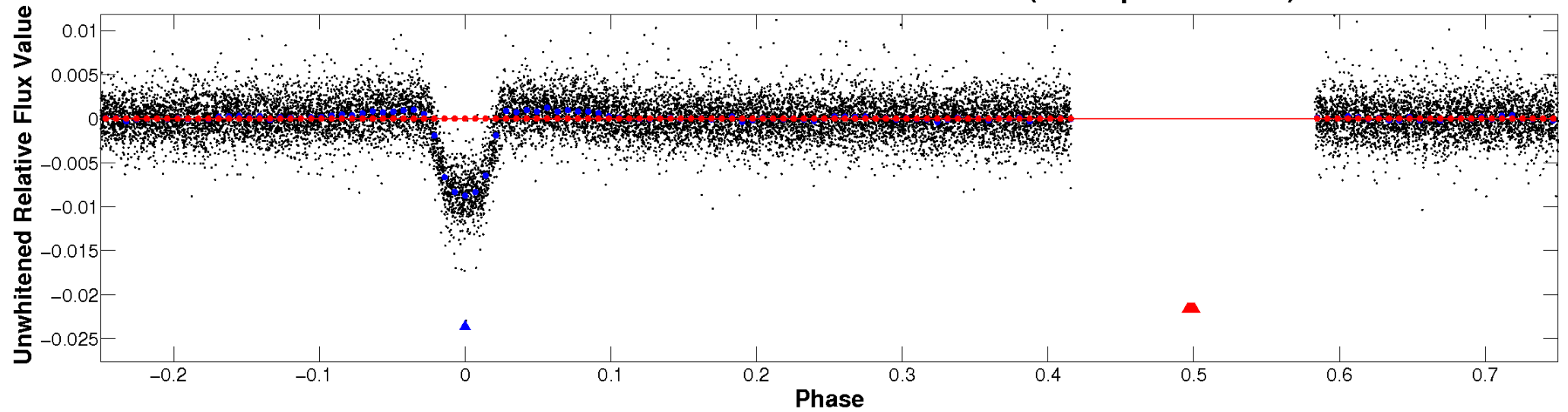
ALT Odd/Even

TCE 004386047-02



Non-Whitened Vs. Whitened Light Curve

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

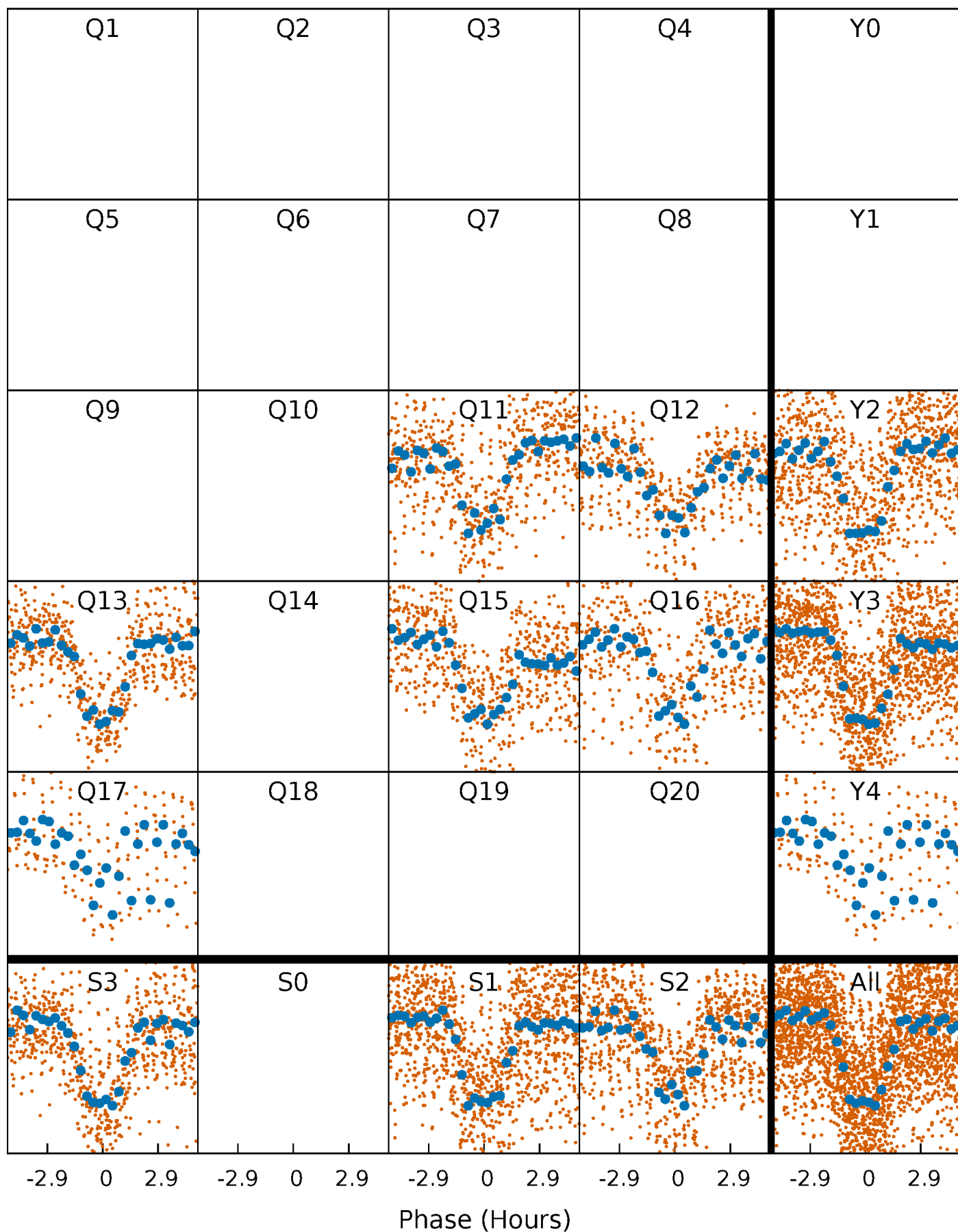


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



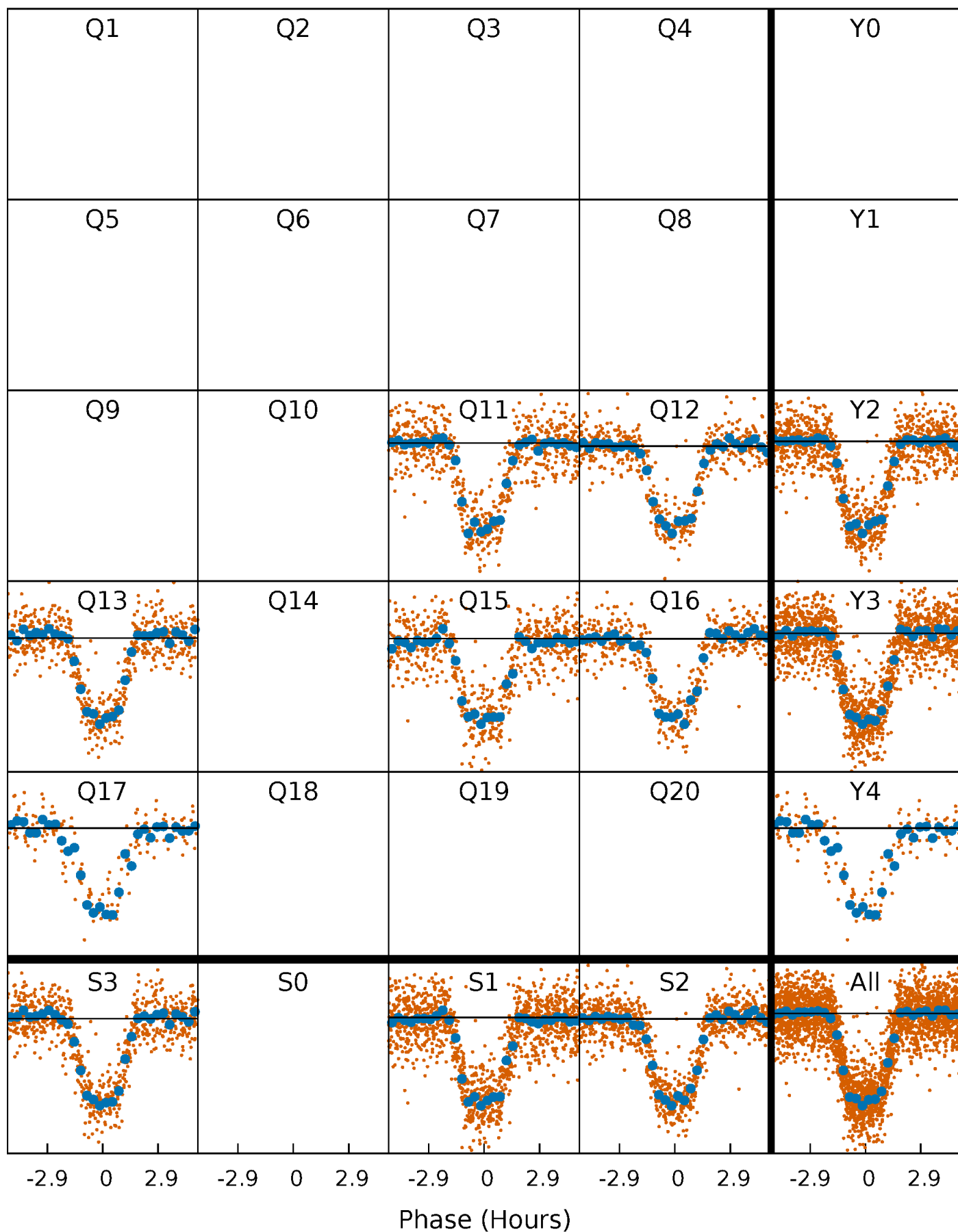
PDC Quarter-Phased Transit Curves

TCE 004386047-02 P= 2.900585 Days $T_0=131.984952$ (BKJD)



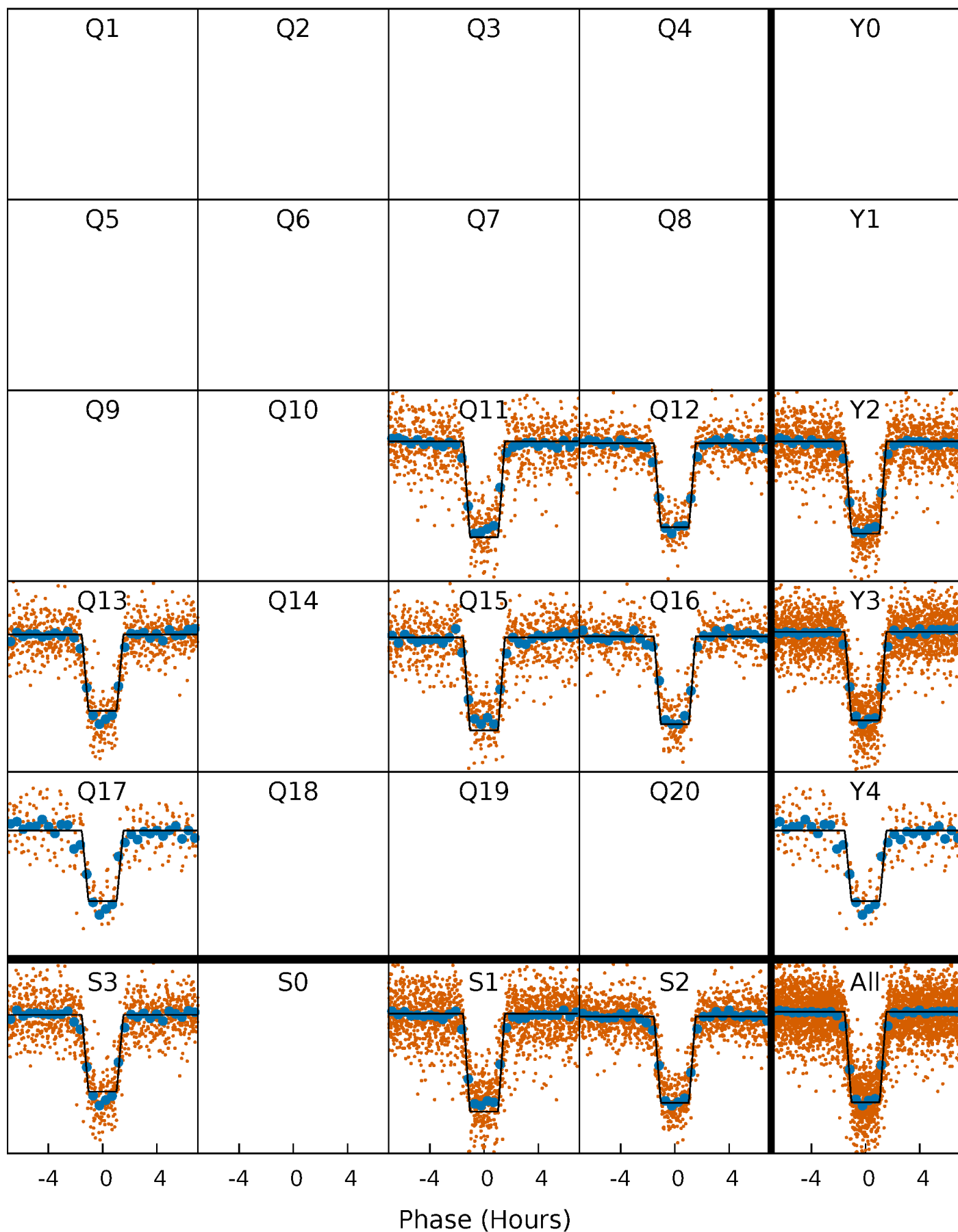
DV Quarter-Phased Transit Curves

TCE 004386047-02 $P = 2.900585$ Days $T_0 = 131.984952$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

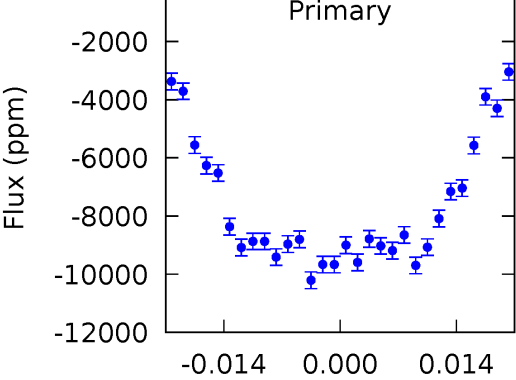
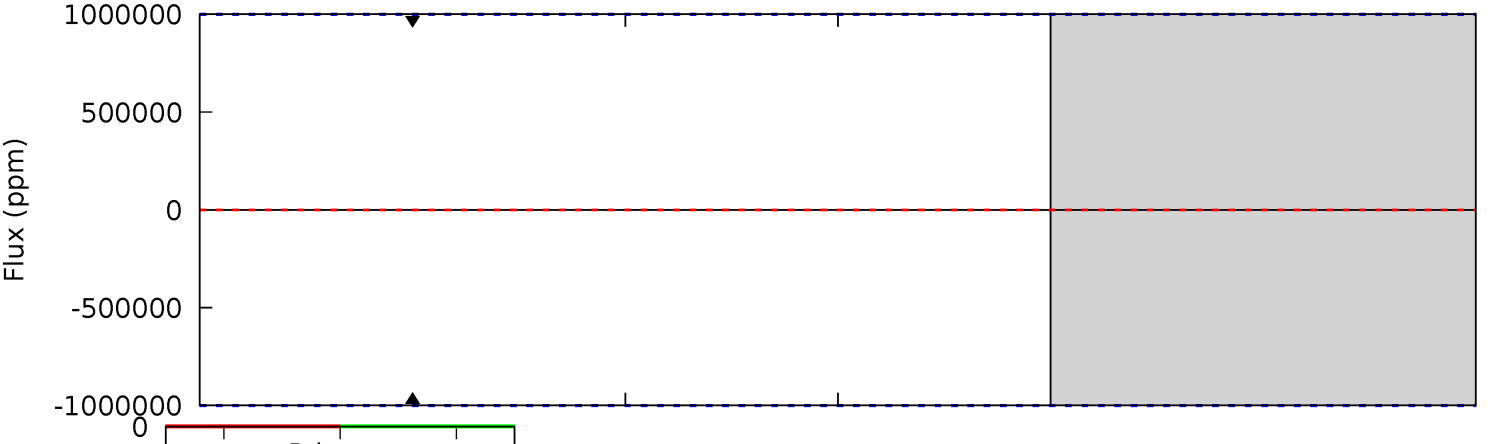
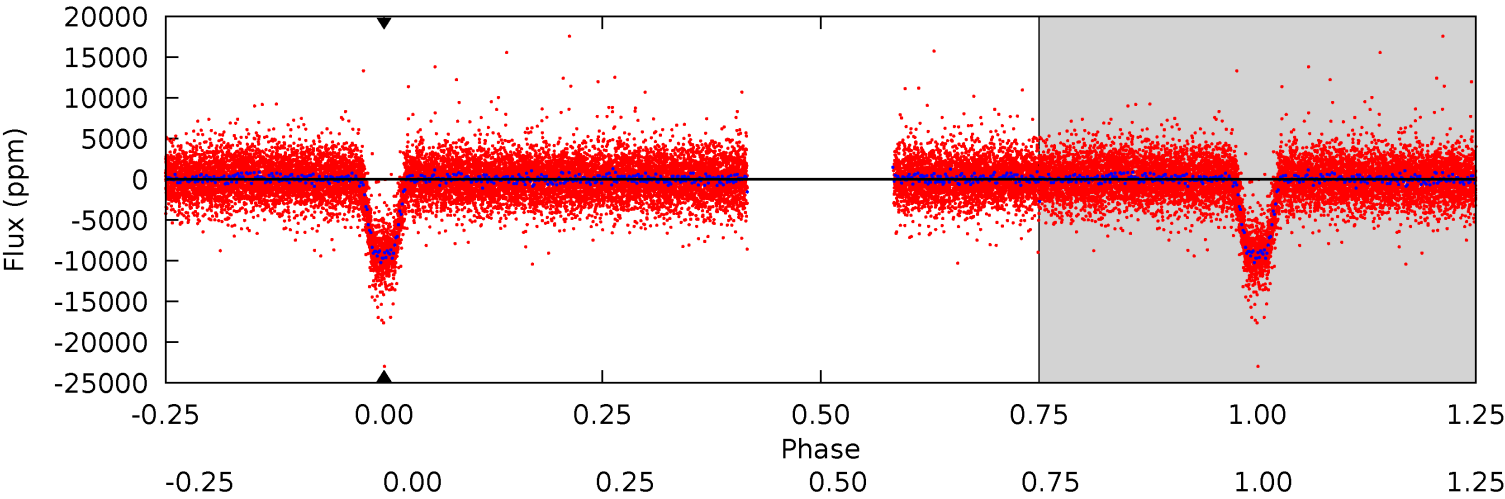
TCE 004386047-02 $P = 2.900585$ Days $T_0 = 131.984035$ (BKJD)



DV Model-Shift Uniqueness Test

004386047-02, P = 2.900585 Days, E = 131.984952 Days

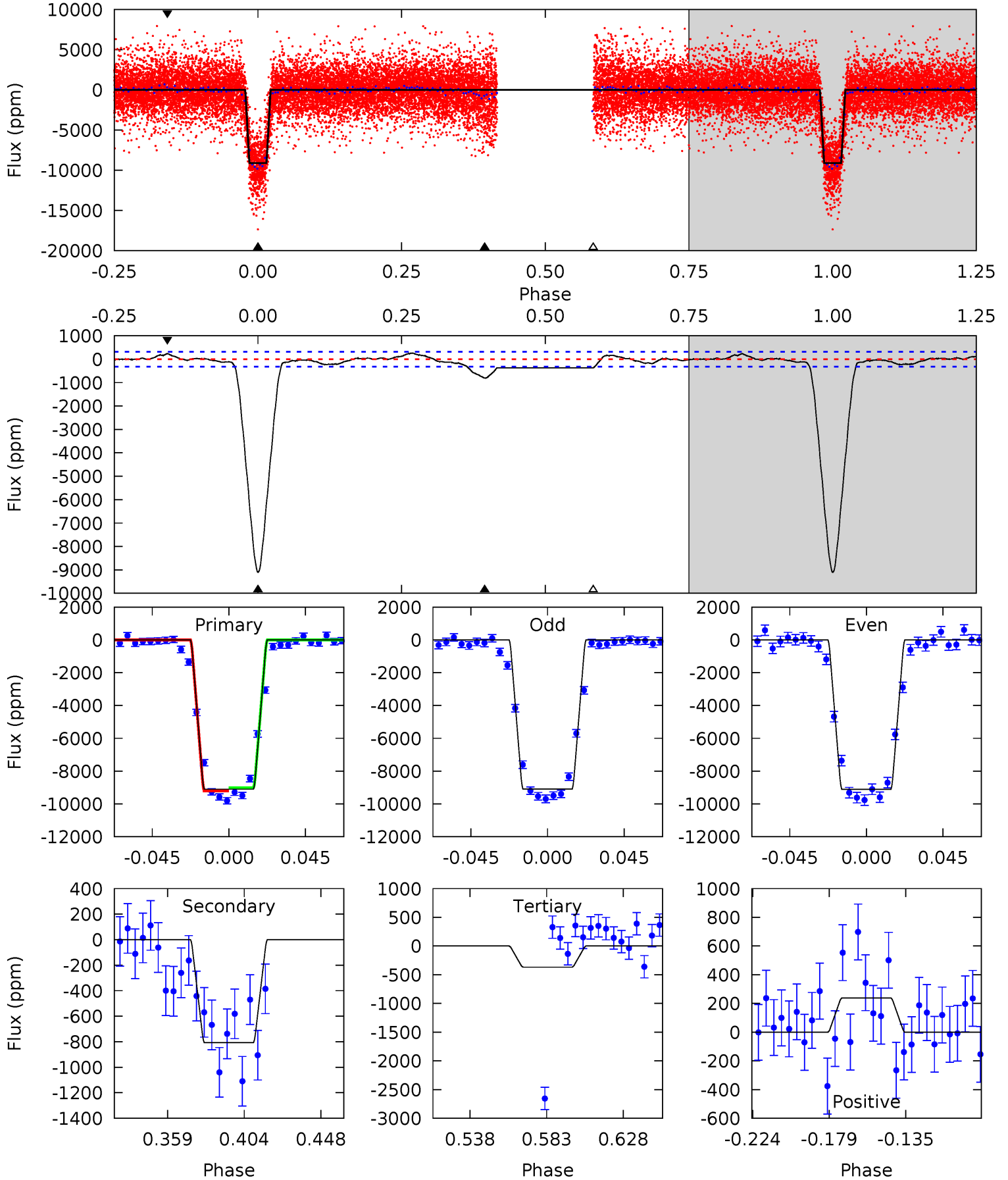
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004386047-02, P = 2.900585 Days, E = 131.984035 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
135.6	12.0	5.47	3.53	4.73	2.01	1.66	130.1	132.1	6.54	8.48	0.09	1.01	0.03	1.47



Stellar Parameters For KIC 004386047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5977^{+188}_{-209}	$4.472^{+0.081}_{-0.189}$	$-0.300^{+0.300}_{-0.300}$	$0.931^{+0.277}_{-0.119}$	$0.940^{+0.118}_{-0.106}$	$1.638^{+0.588}_{-0.841}$
	+3%/-3%	+2%/-4%	+100%/-100%	+30%/-13%	+13%/-11%	+36%/-51%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004386047-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$11.63^{+9.41}_{-7.22}$	1827^{+127}_{-101}	4988^{+9432}_{-17351}	33^{+999}_{-864}
Alt.	-807 ± 67	$12.20^{+9.91}_{-7.52}$	1824^{+127}_{-98}	3405^{+1505}_{-599}	$4.443^{+27.652}_{-3.056}$

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

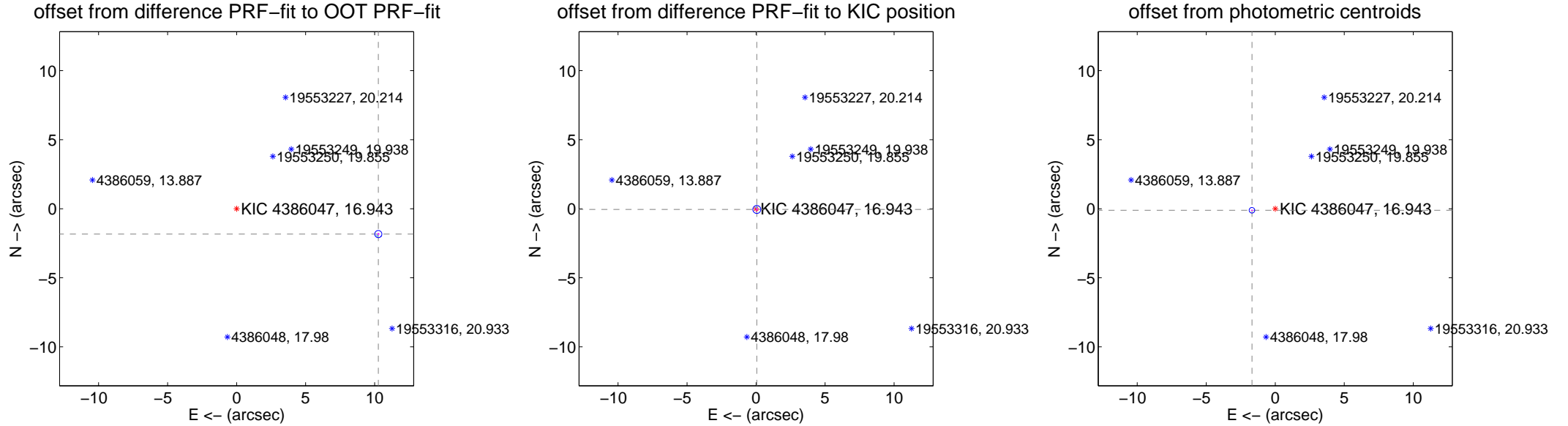
DV Centroid Data

Supplemental centroid analysis for 004386047-02. Kepler magnitude: 16.94. Transit SNR -1.00

There are 6 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 10.36 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.427 ± 0.086	120.57	-10.264 ± 0.086	-1.836 ± 0.093
PRF-fit source offset from KIC position	0.076 ± 0.096	0.79	-0.054 ± 0.072	-0.053 ± 0.116
photometric centroid source offset	1.69 ± 0.07	25.12	1.69 ± 0.07	-0.11 ± 0.04



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.

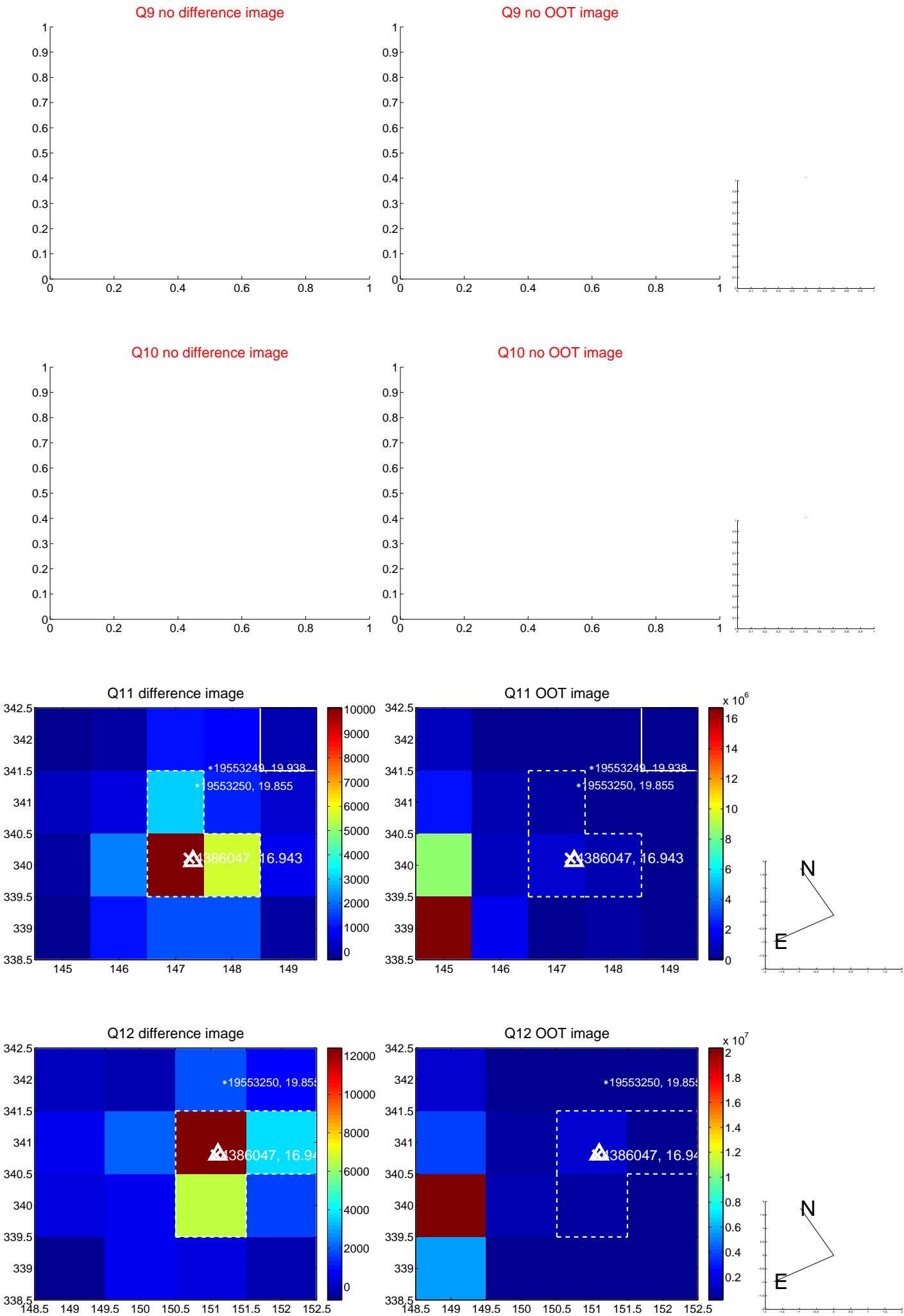
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



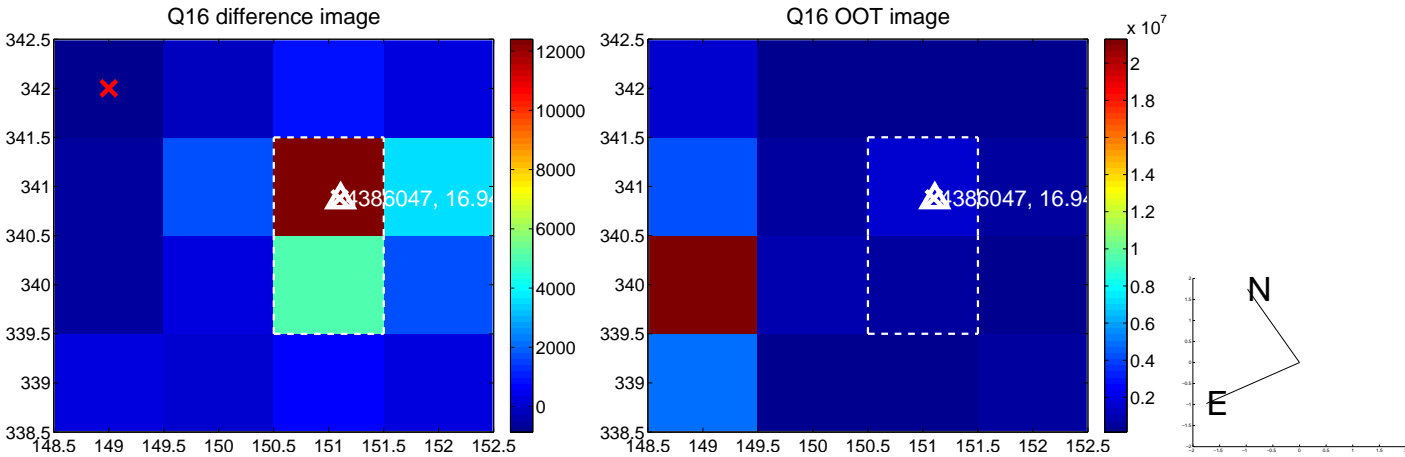
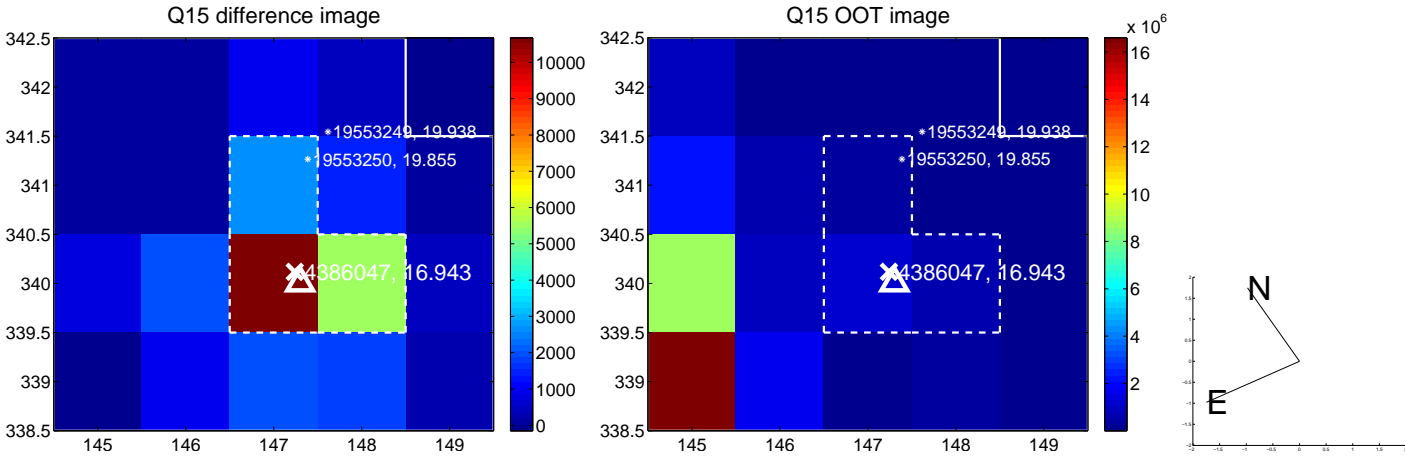
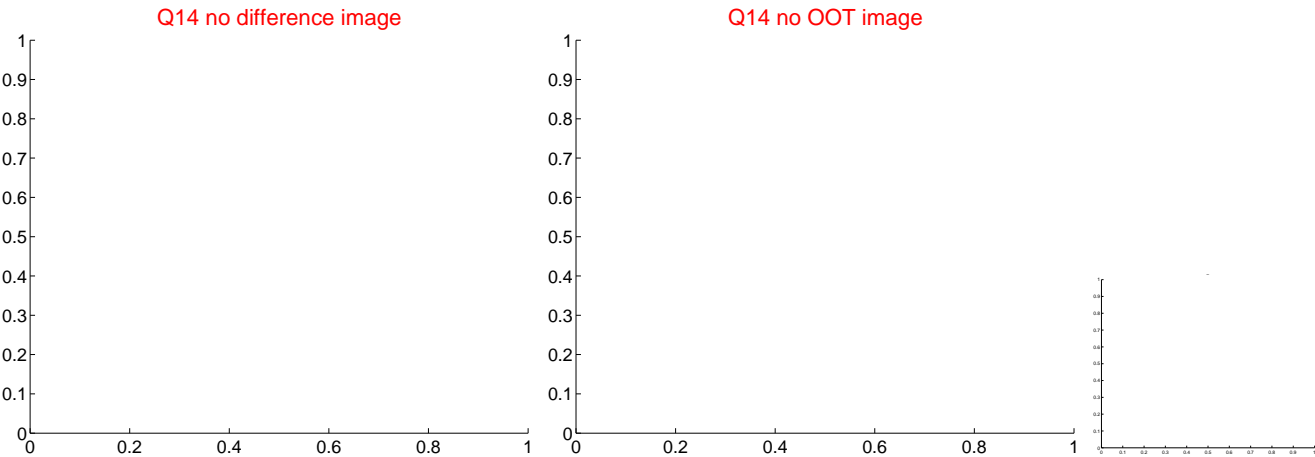
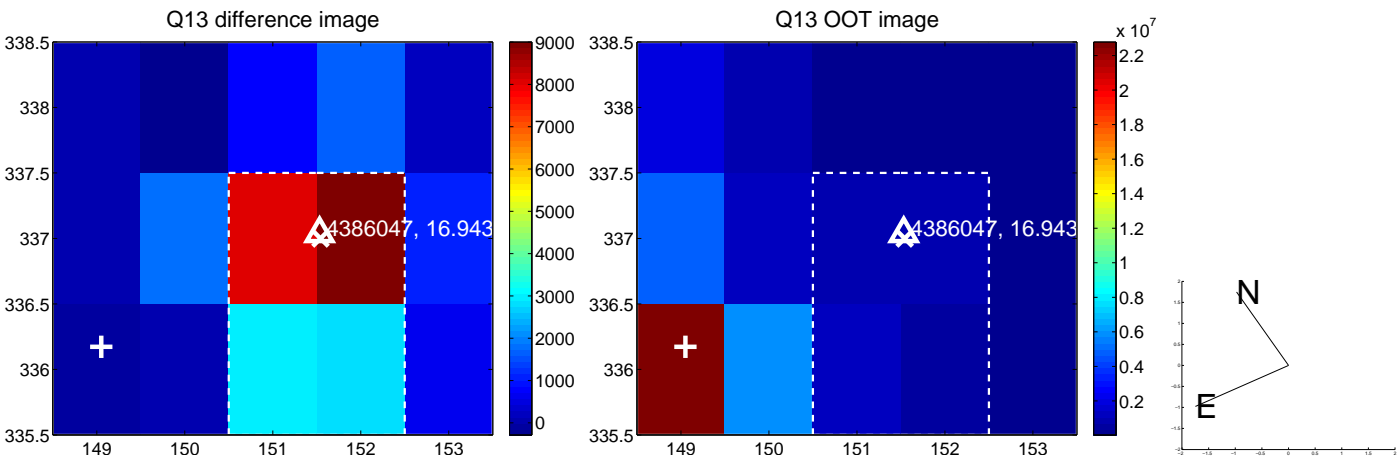
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



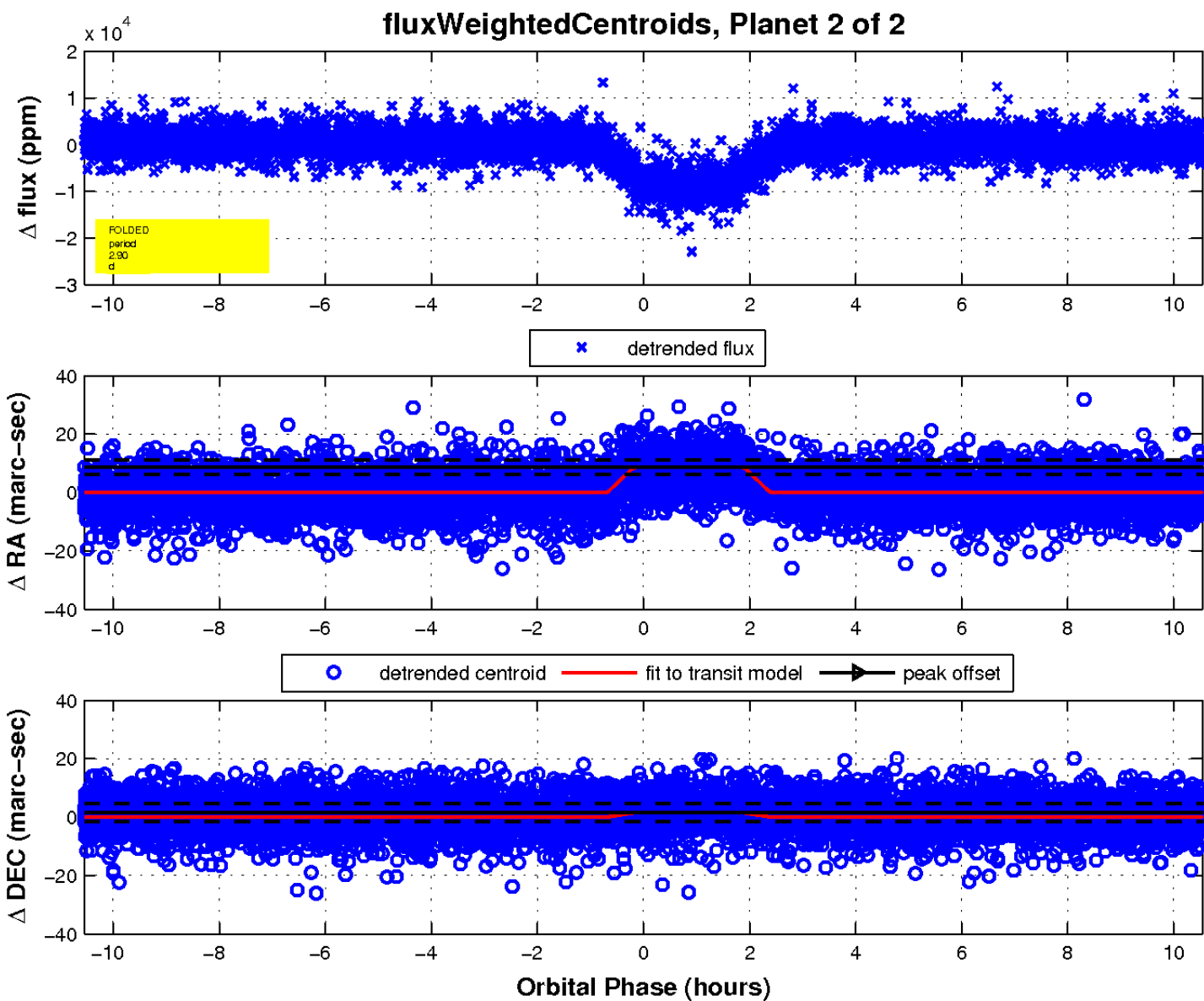
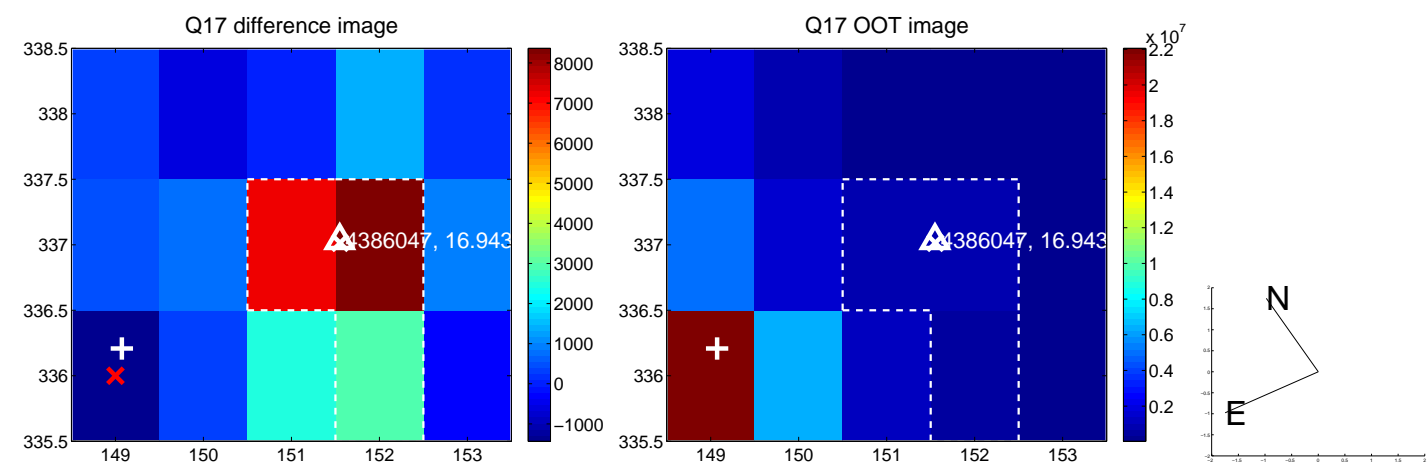
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

