

KIC 004036736

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})
004036736-01	OBS	No	288.131062	223.215311	1156.1	3.236	11.8	7.7	2.09	5288	6.99	4.03
004036736-02	OBS	No	385.575277	447.465314	1680.6	4.907	15.8	6.7	2.09	5288	8.56	2.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004036736-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
004036736-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST

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

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

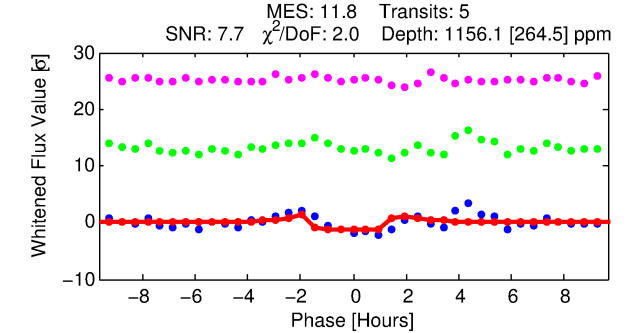
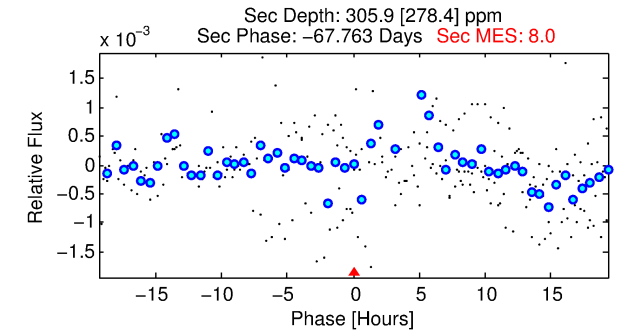
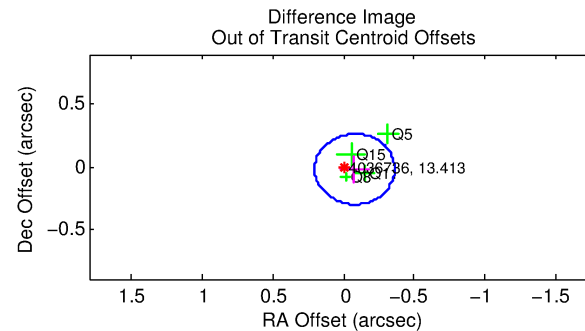
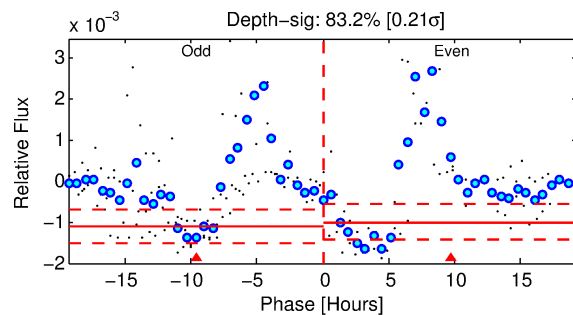
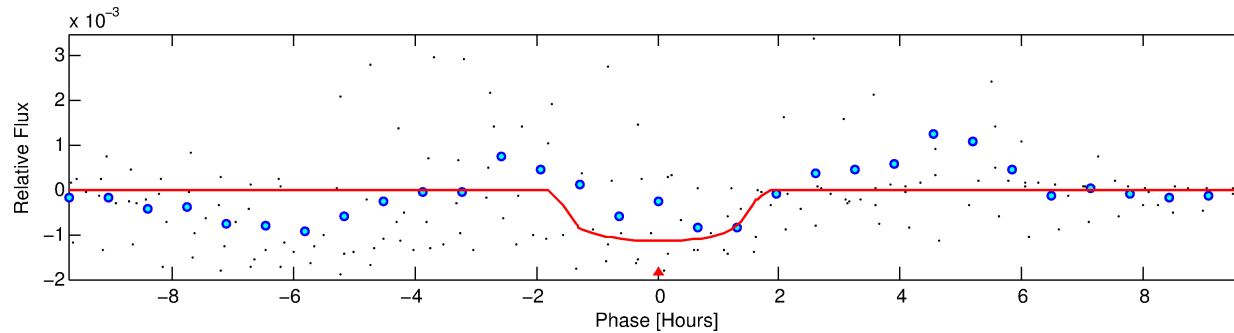
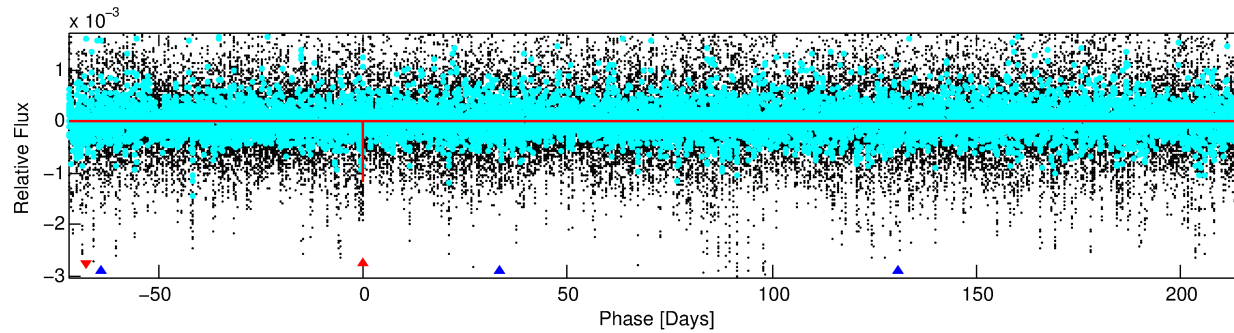
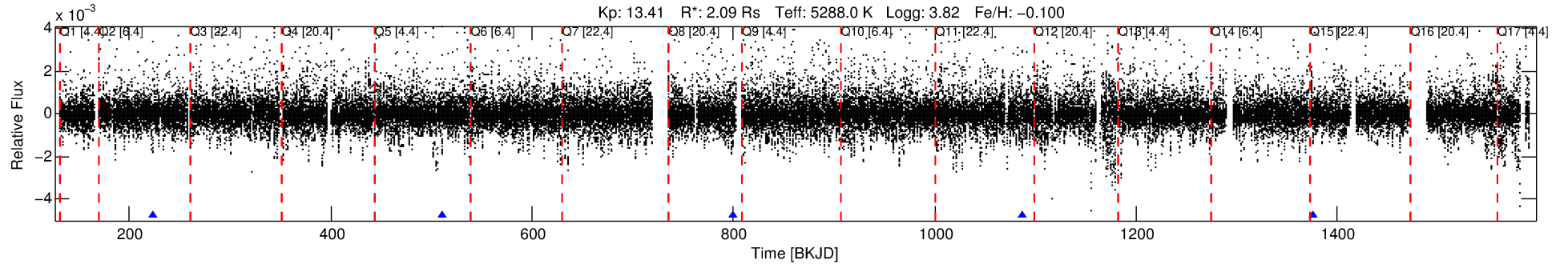
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004036736-01

No Significant Match Found

DV One-Page Summary

KIC: 4036736 Candidate: 1 of 2 Period: 288.131 d



DV Fit Results:

Period = 288.13106 [0.00276] d
Epoch = 223.2153 [0.0074] BKJD
Rp/R* = 0.0306 [0.0938]
a/R* = 692.30 [8085.96]
b = 0.16 [71.21]
Seff = 4.03 [4.60]
Teq = 361 [103] K
Rp = 6.99 [21.86] Re
a = 0.8722 [0.5859] AU
Ag = 2620.60 [16501.78] [0.16 σ]
Teff = 3998 [6192] K [0.59 σ]

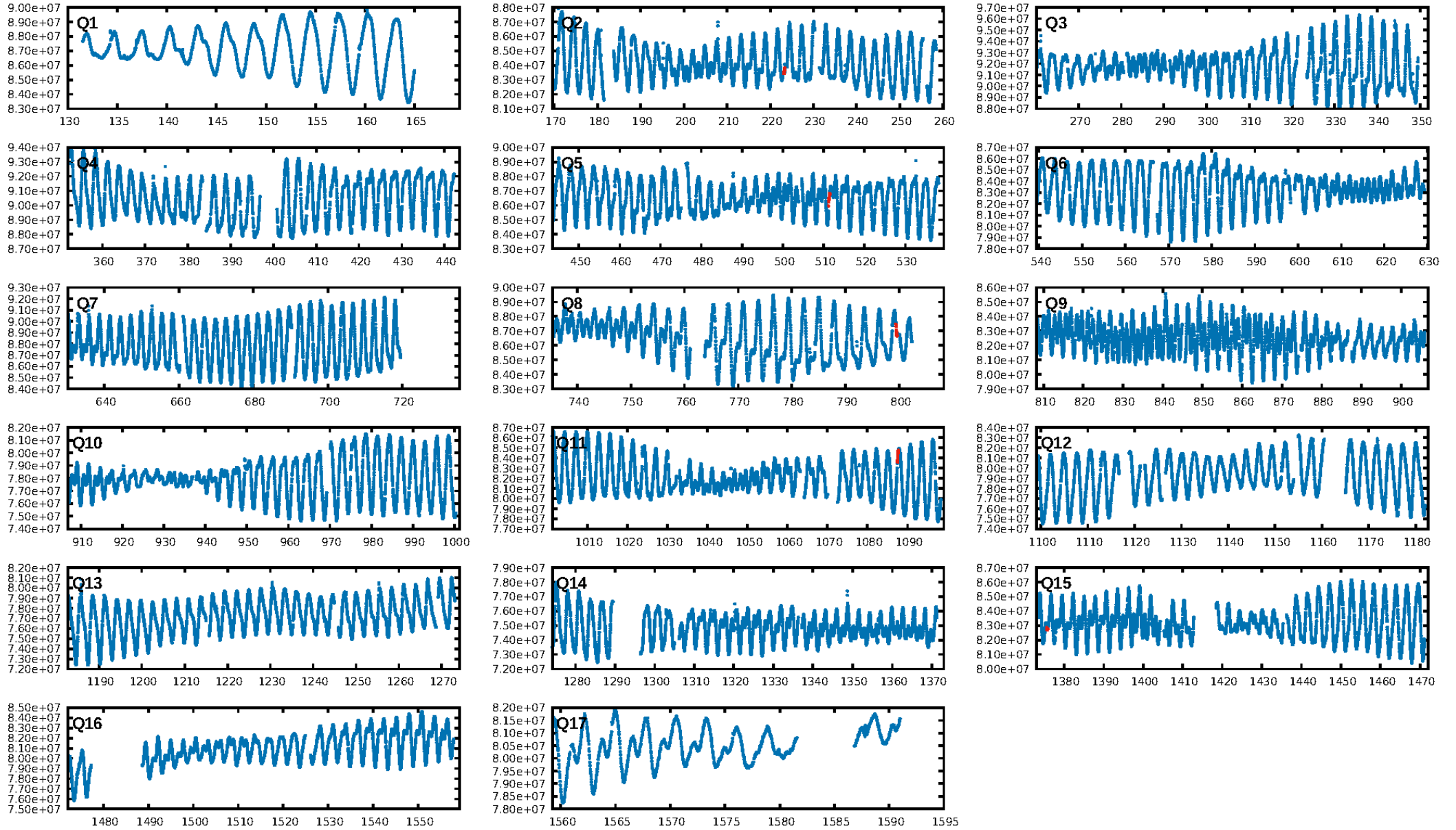
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [397.85 σ]
ModelChiSquare2-sig: 18.1%
ModelChiSquareGof-sig: 52.1%
Bootstrap-pfa: 8.12e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 5.089
Centroid-sig: 43.0%
Centroid-so: 0.443 arcsec [0.78 σ]
OotOffset-rm: 0.081 arcsec [0.86 σ]
KicOffset-rm: 0.042 arcsec [0.46 σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

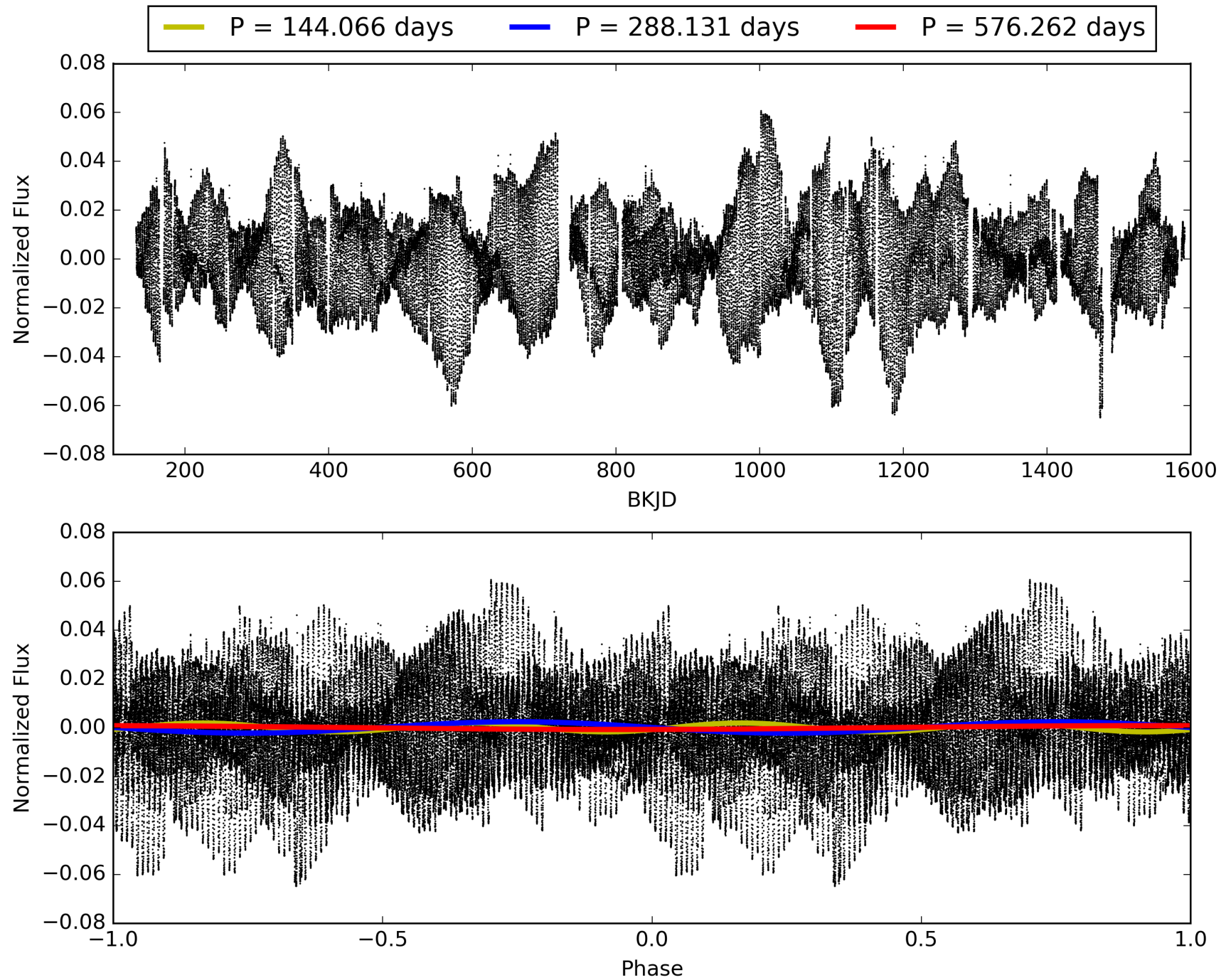
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:51:05 Z

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

TCE 004036736-01, PDC Light Curves

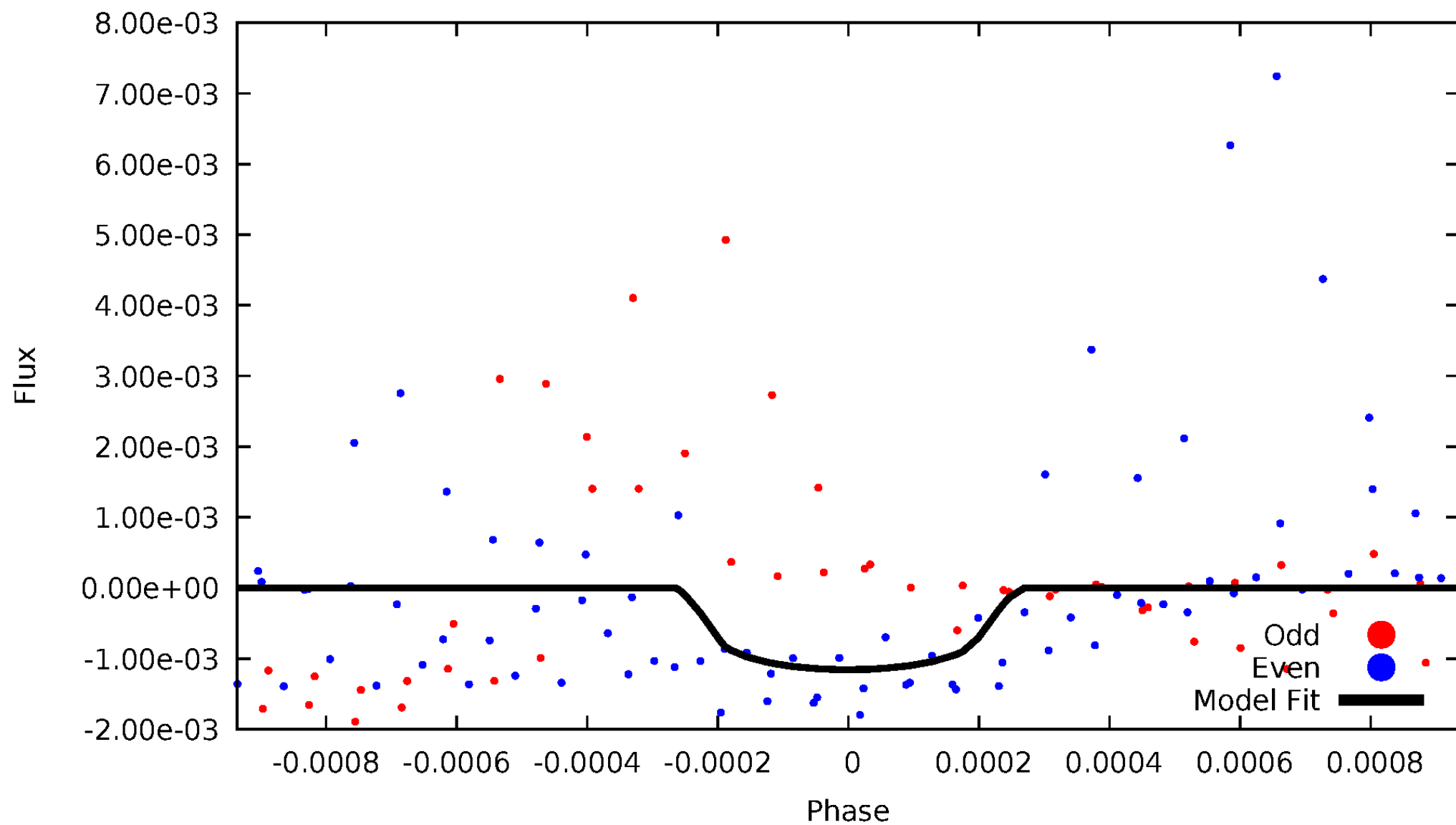


TCE 004036736-01



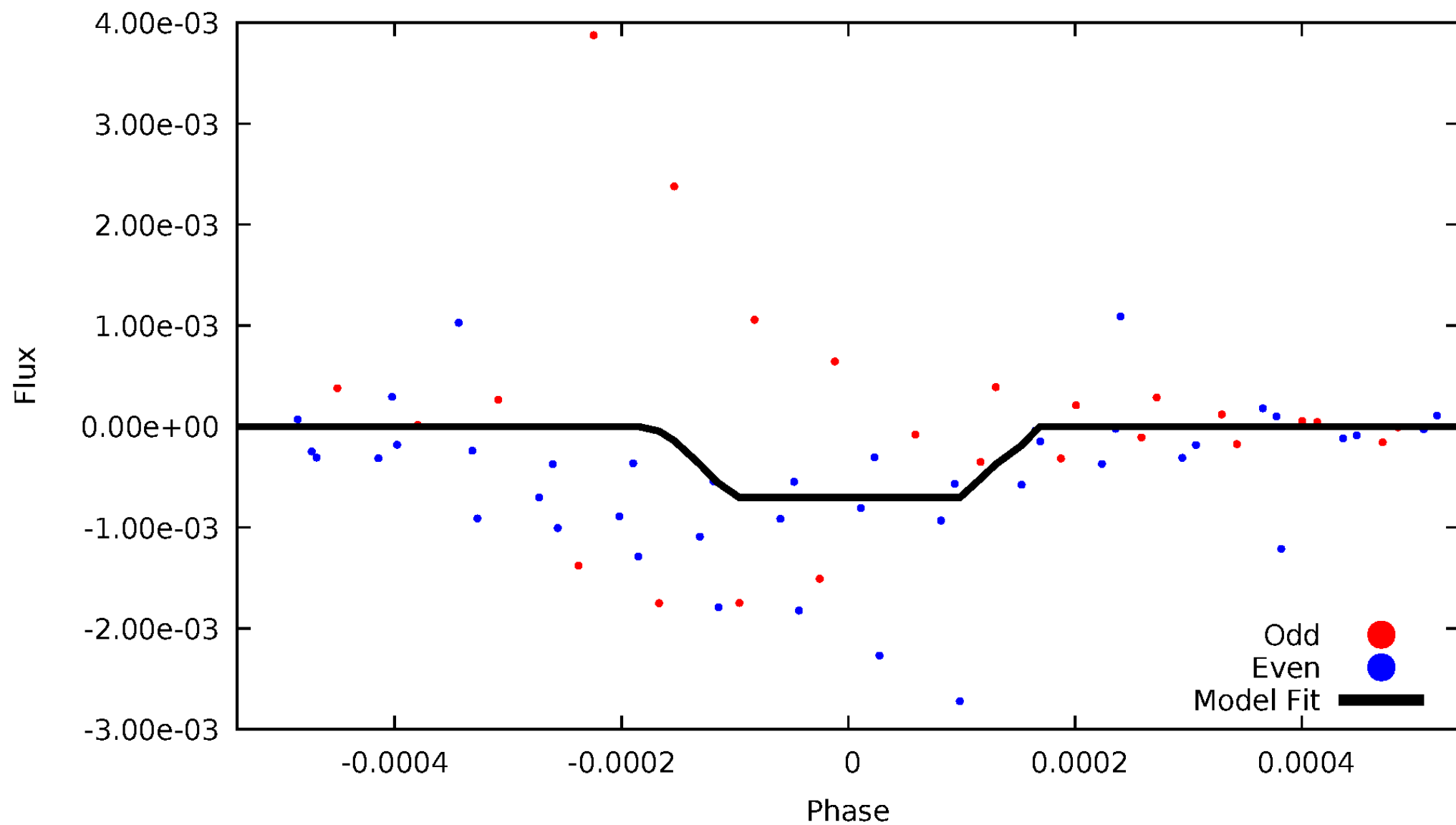
DV Odd/Even

TCE 004036736-01



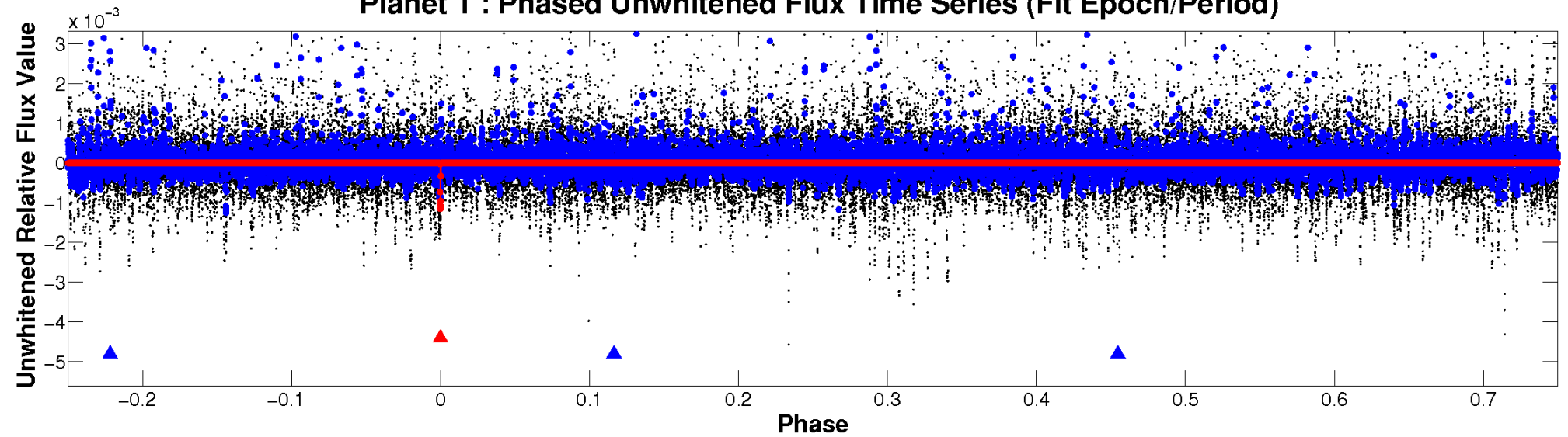
ALT Odd/Even

TCE 004036736-01

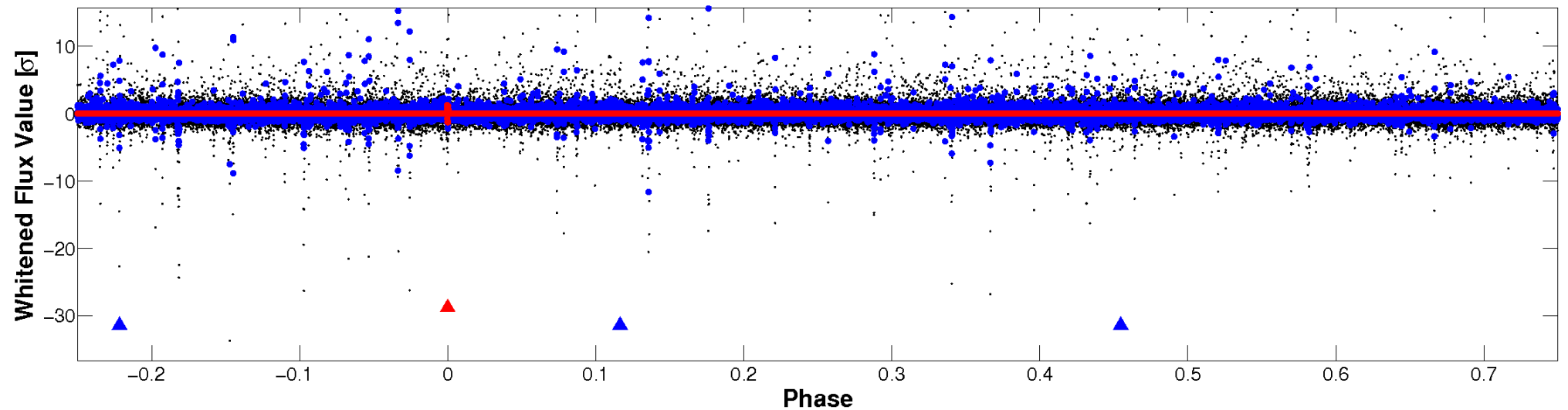


Non-Whitened Vs. Whitened Light Curve

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

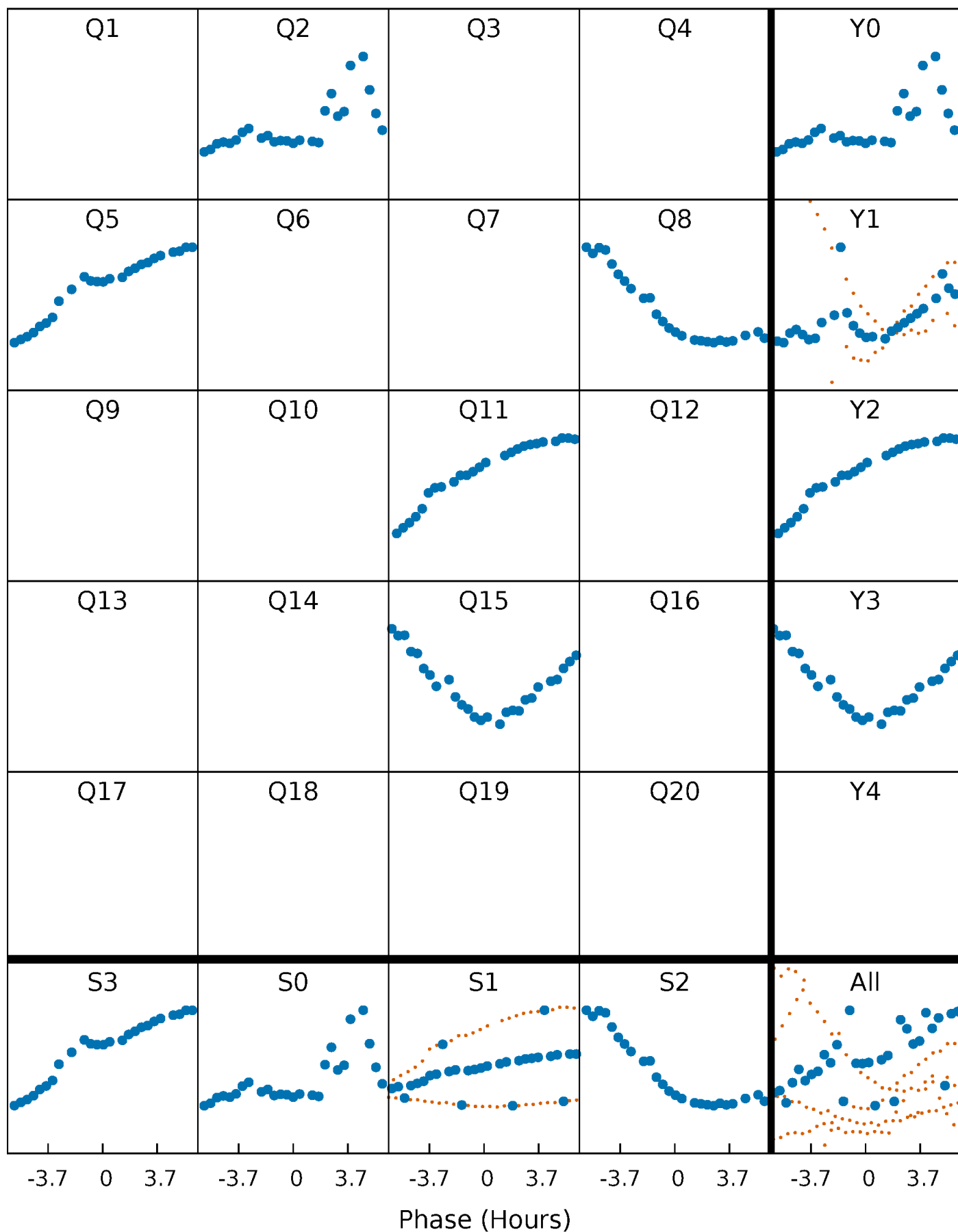


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



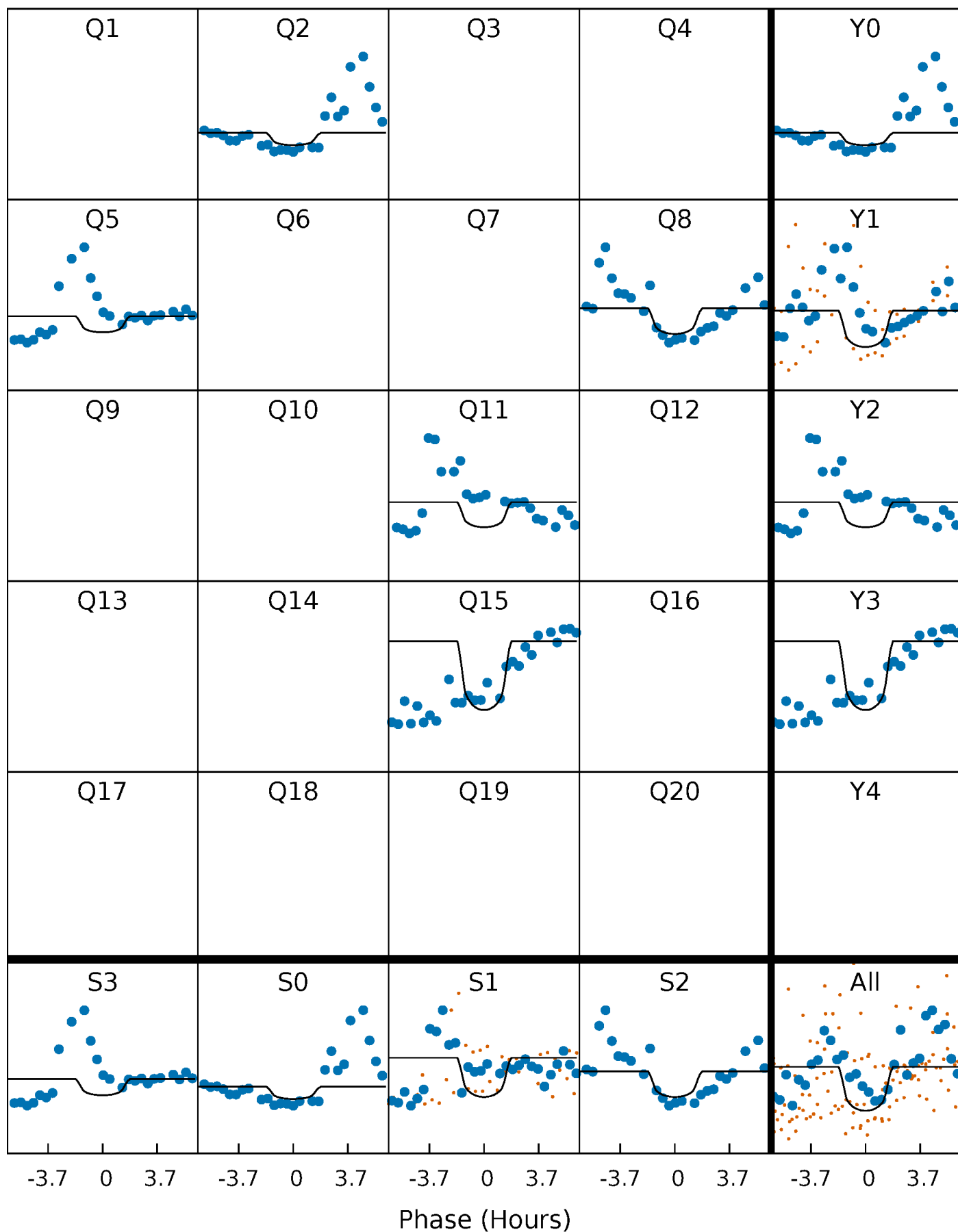
PDC Quarter-Phased Transit Curves

TCE 004036736-01 P=288.131062 Days $T_0=223.215311$ (BKJD)



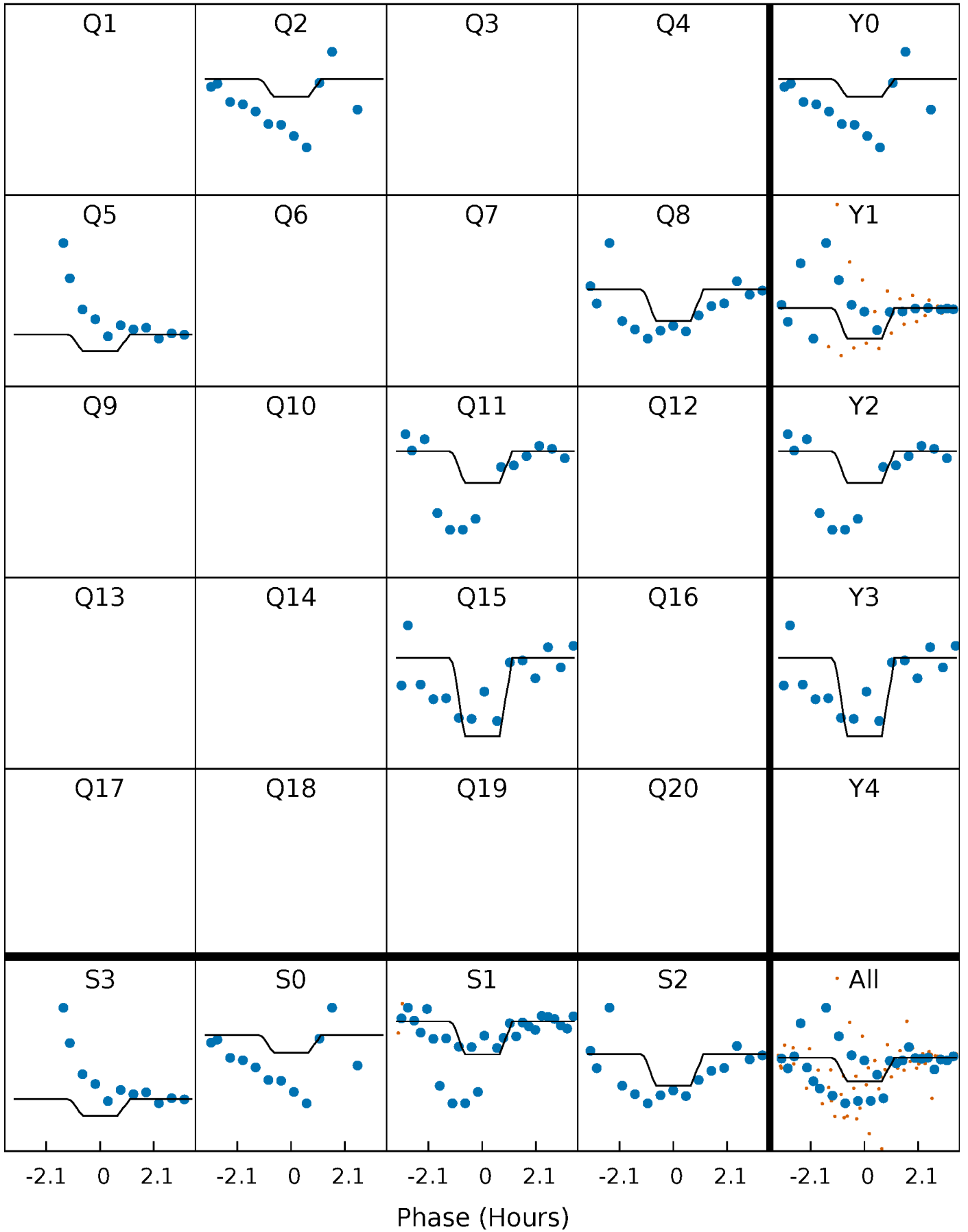
DV Quarter-Phased Transit Curves

TCE 004036736-01 P=288.131062 Days $T_0=223.215311$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

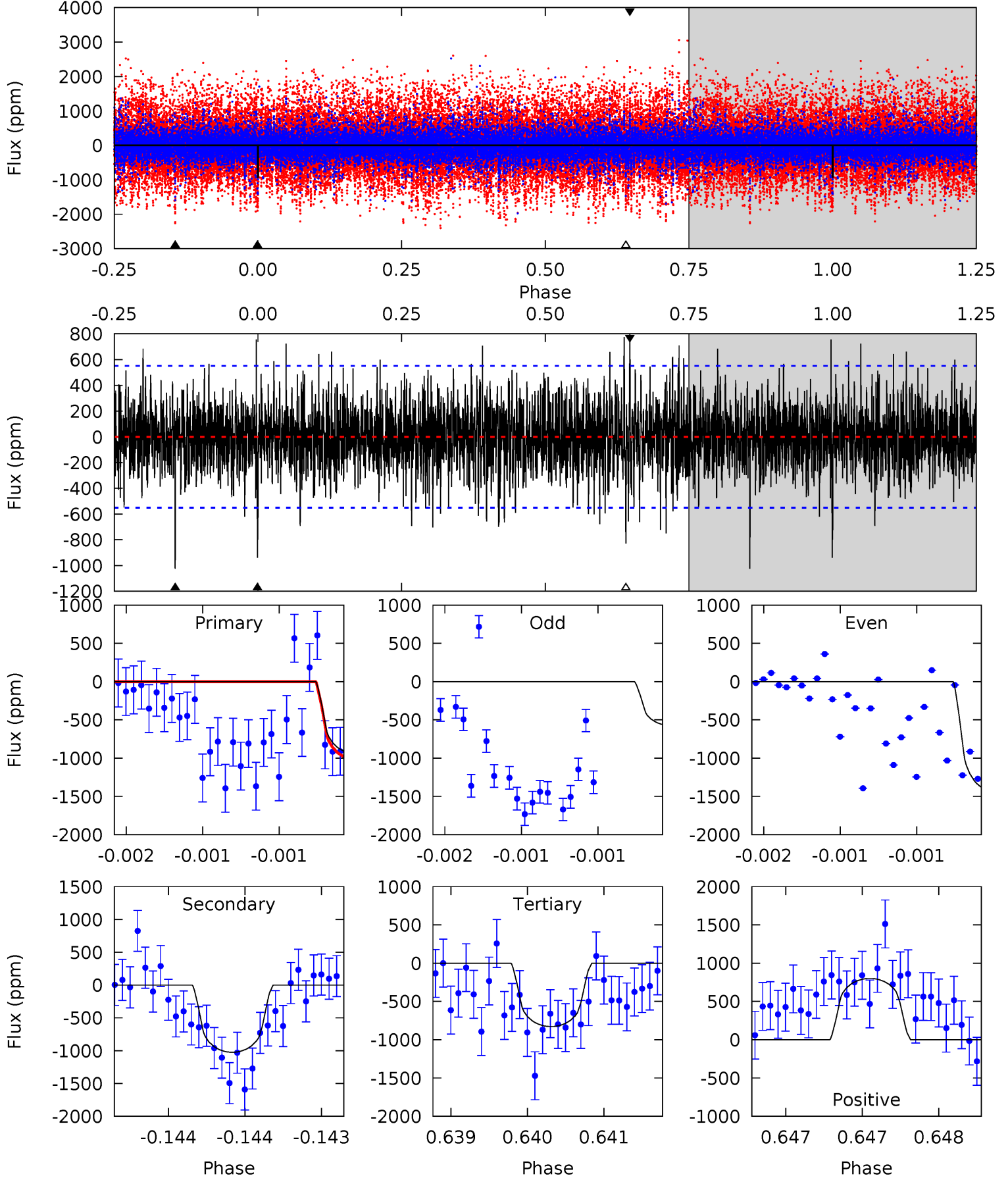
TCE 004036736-01 P=288.124002 Days $T_0=223.253393$ (BKJD)



DV Model-Shift Uniqueness Test

004036736-01, P = 288.131062 Days, E = 223.215311 Days

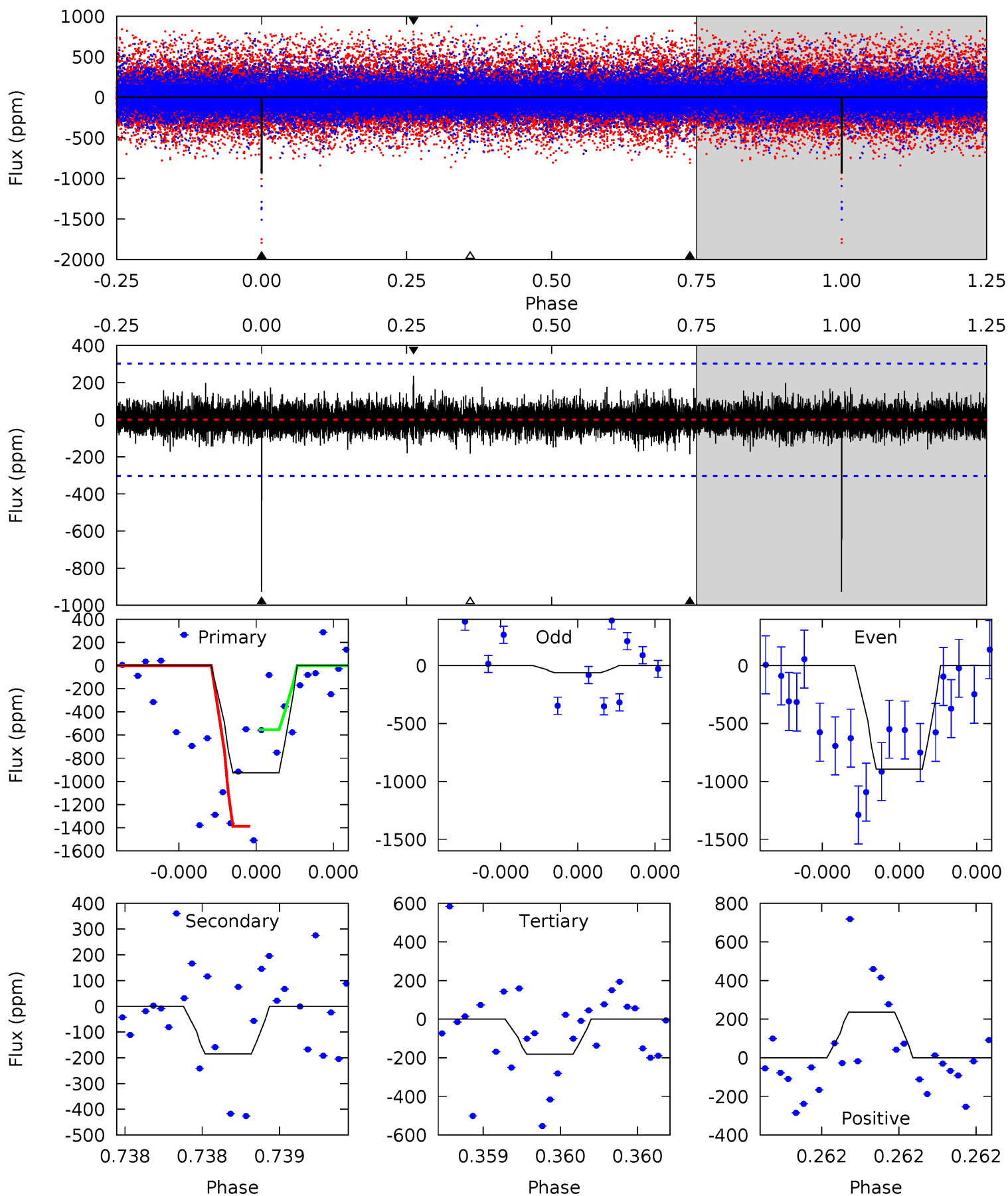
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.49	10.4	8.37	8.09	5.57	3.48	2.02	1.12	1.40	1.99	2.27	3.78	0.51	0.44	0.61



Alt Model-Shift Uniqueness Test

004036736-01, P = 288.124002 Days, E = 223.253393 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	3.45	3.39	4.40	5.65	3.60	0.81	13.9	12.9	0.06	-0.95	7.89	0.90	0.20	0



Stellar Parameters For KIC 004036736

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5288^{+167}_{-148}	$3.824^{+0.686}_{-0.294}$	$-0.100^{+0.350}_{-0.250}$	$2.093^{+0.873}_{-1.310}$	$1.065^{+0.196}_{-0.239}$	$0.164^{+1.991}_{-0.088}$
	+3%/-3%	+18%/-8%	+350%/-250%	+42%/-63%	+18%/-22%	+1218%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004036736-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1024 ± 99	$16.44^{+18.44}_{-11.52}$	501^{+66}_{-79}	3718^{+2334}_{-667}	1627^{+17225}_{-1262}
Alt.	-185 ± 54	$16.08^{+18.77}_{-11.36}$	507^{+64}_{-87}	2927^{+1222}_{-488}	302^{+3047}_{-240}

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

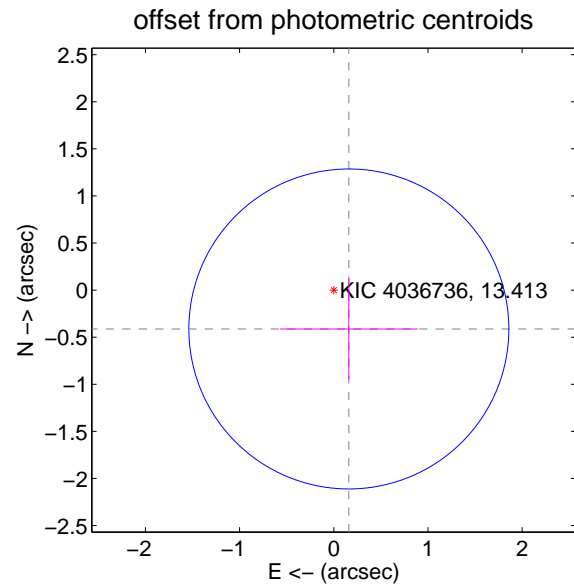
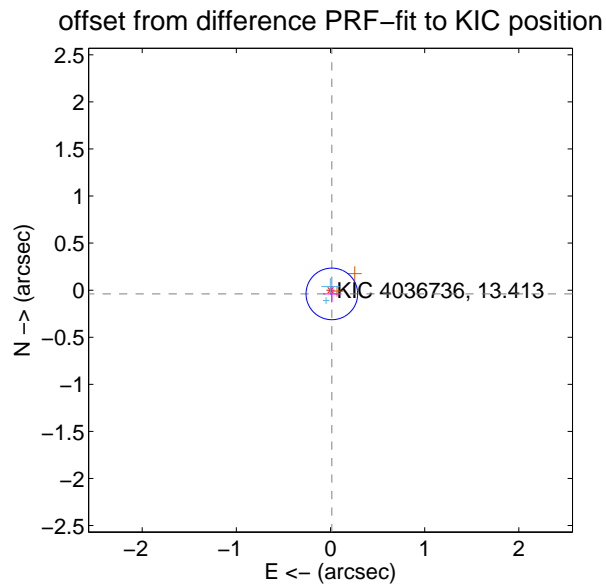
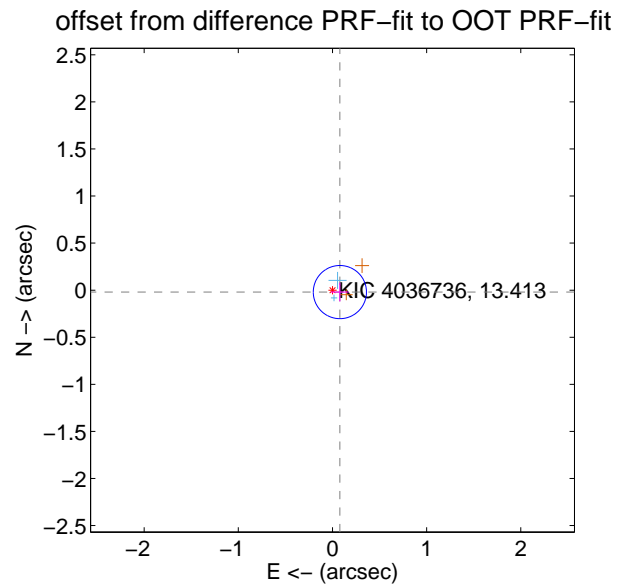
DV Centroid Data

Supplemental centroid analysis for 004036736-01. Kepler magnitude: 13.41. Transit SNR 7.72

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.081 ± 0.094	0.86	-0.079 ± 0.094	-0.020 ± 0.100
PRF-fit source offset from KIC position	0.042 ± 0.091	0.46	-0.014 ± 0.094	-0.040 ± 0.091
photometric centroid source offset	0.44 ± 0.57	0.78	-0.16 ± 0.73	-0.41 ± 0.54

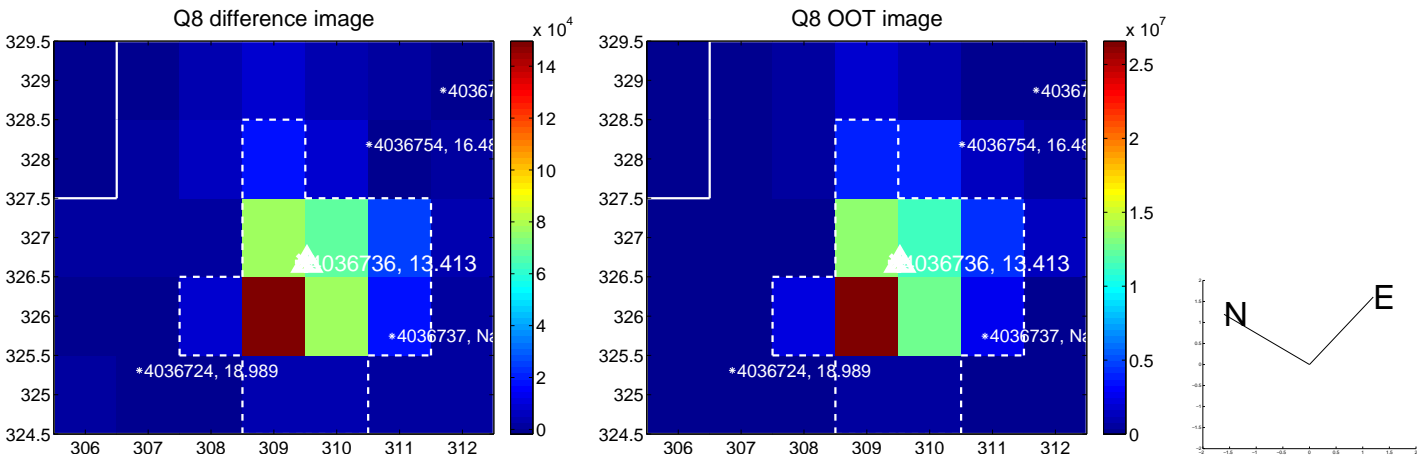
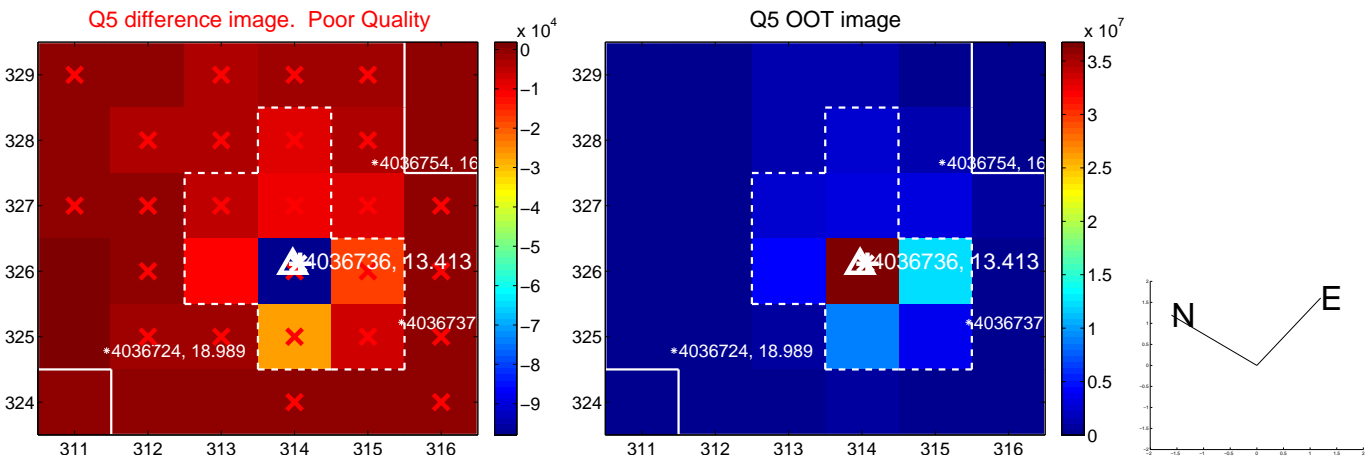


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

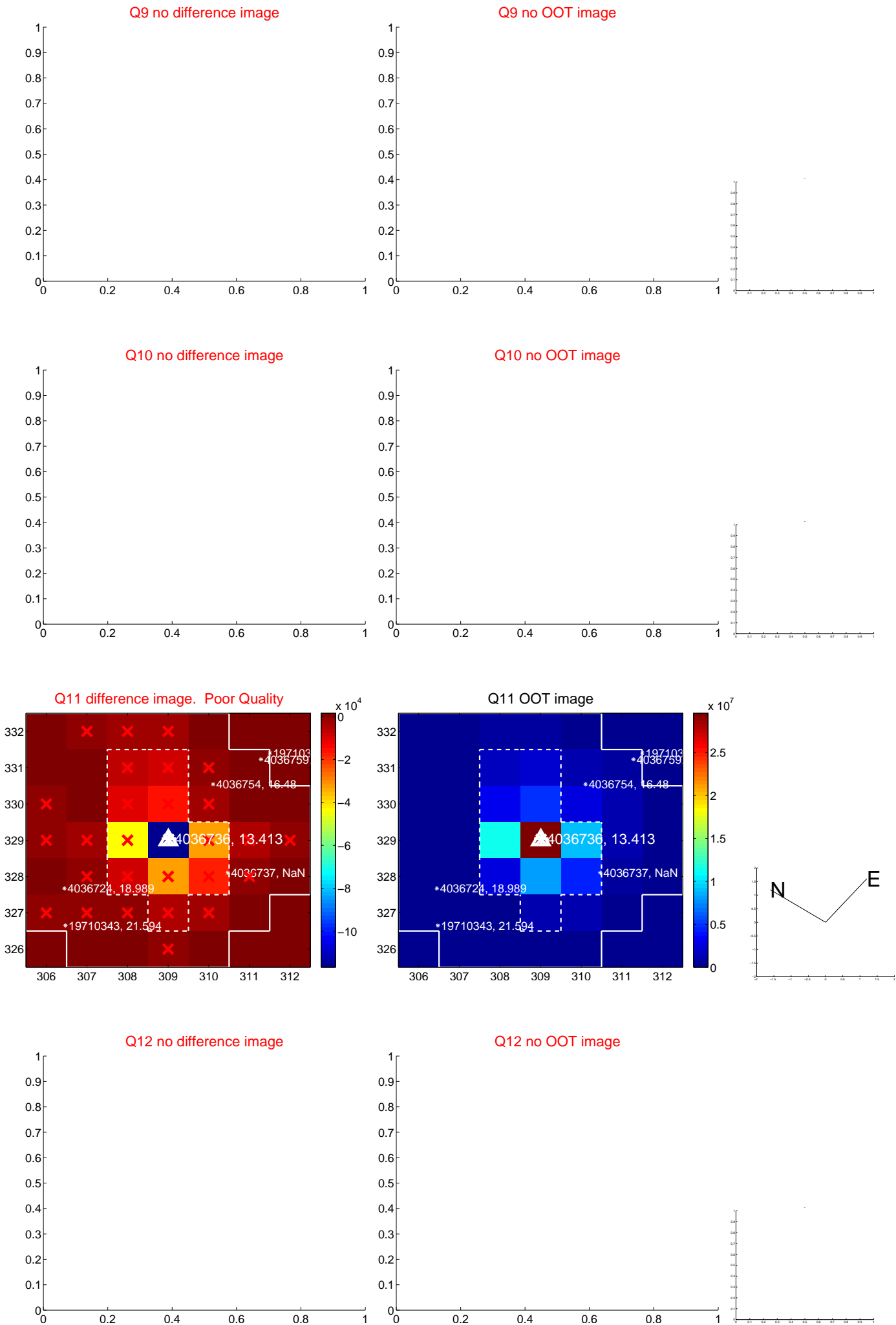
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

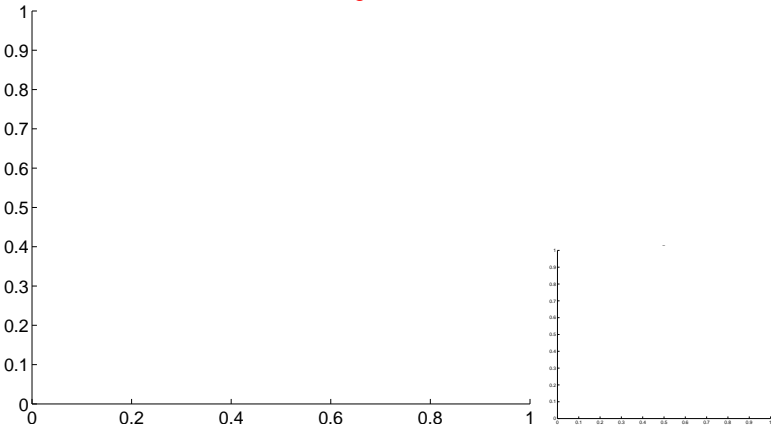


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q13 no difference image



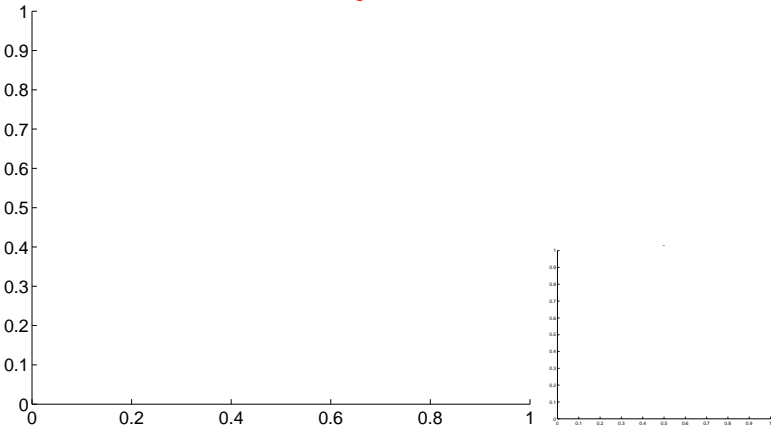
Q13 no OOT image



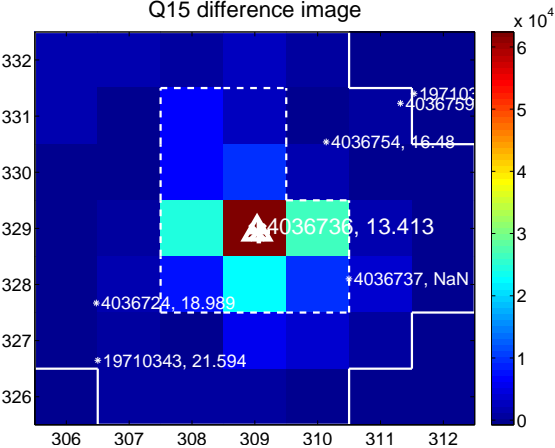
Q14 no difference image



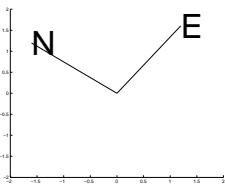
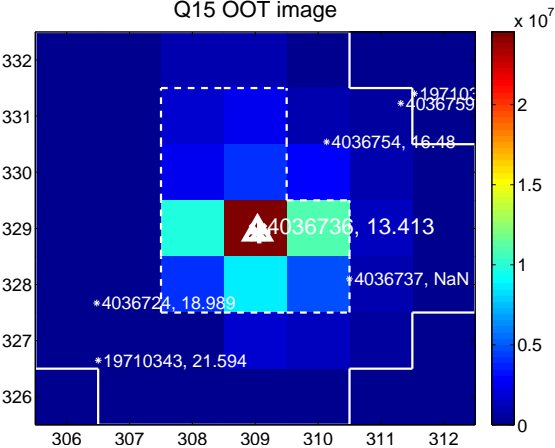
Q14 no OOT image



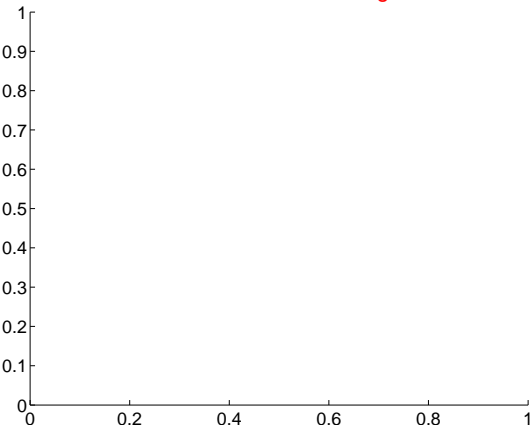
Q15 difference image



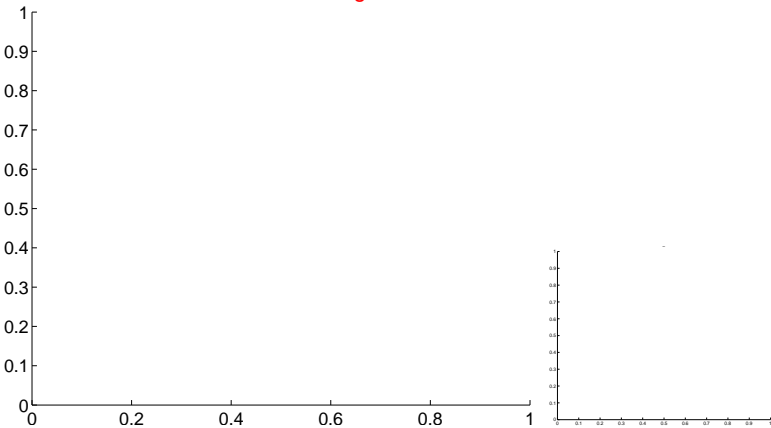
Q15 OOT image



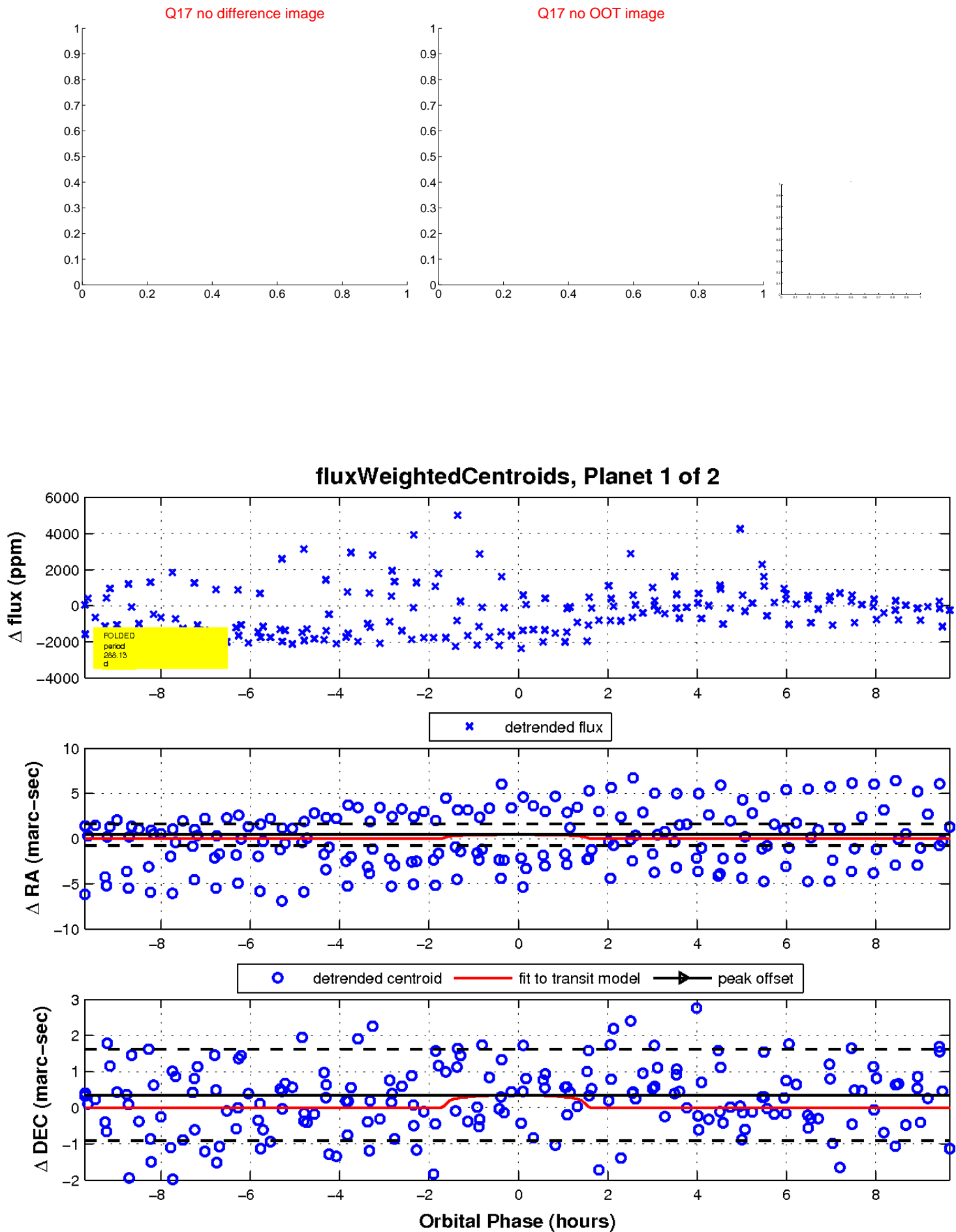
Q16 no difference image



Q16 no OOT image

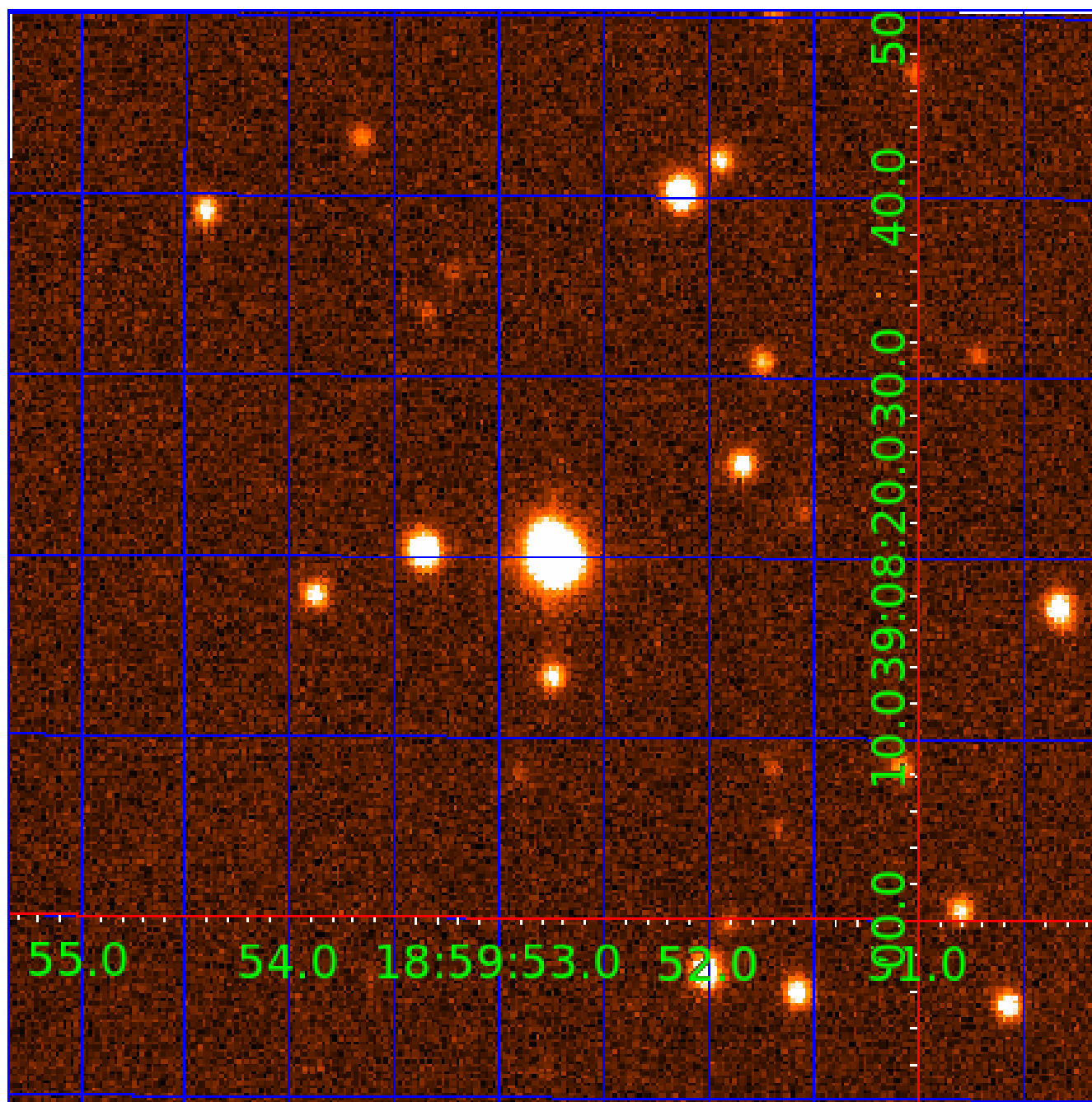


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004036736

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})
004036736-01	OBS	No	288.131062	223.215311	1156.1	3.236	11.8	7.7	2.09	5288	6.99	4.03
004036736-02	OBS	No	385.575277	447.465314	1680.6	4.907	15.8	6.7	2.09	5288	8.56	2.74

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004036736-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—CENT_FEW_DIFFS
004036736-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST

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

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

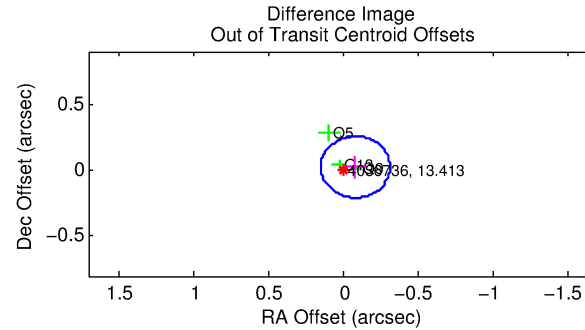
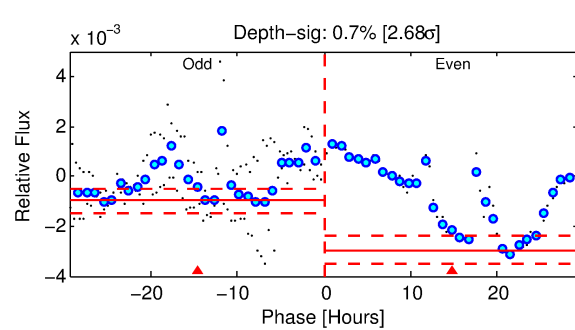
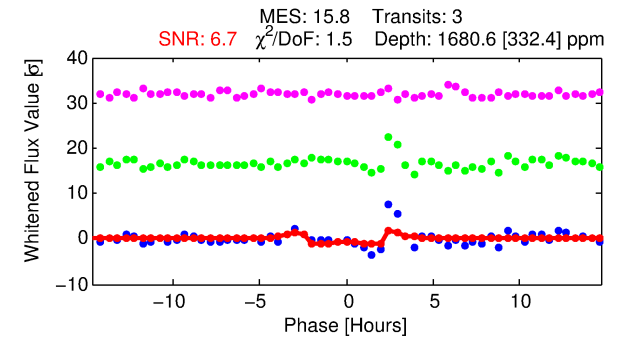
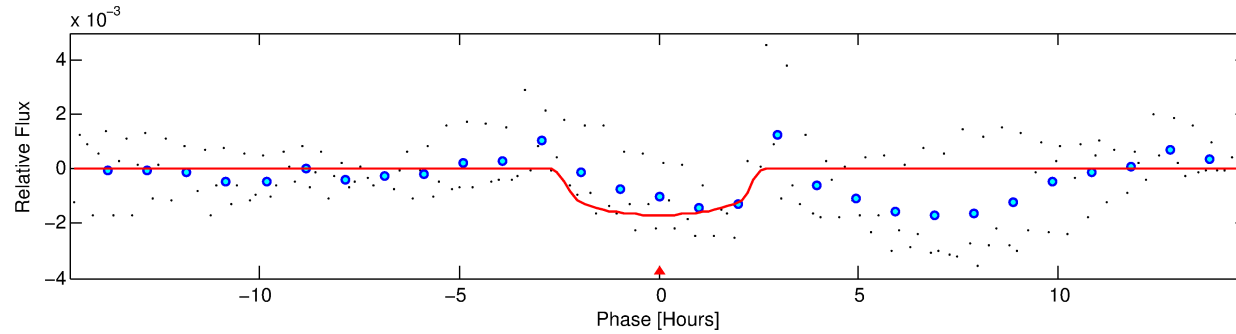
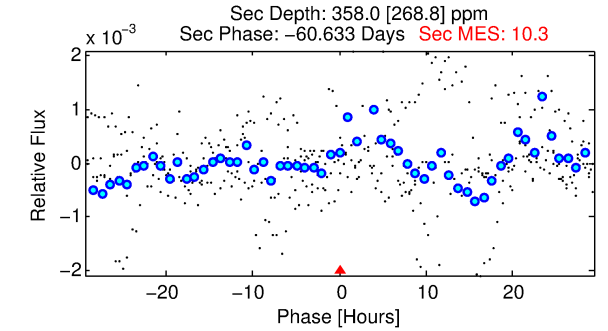
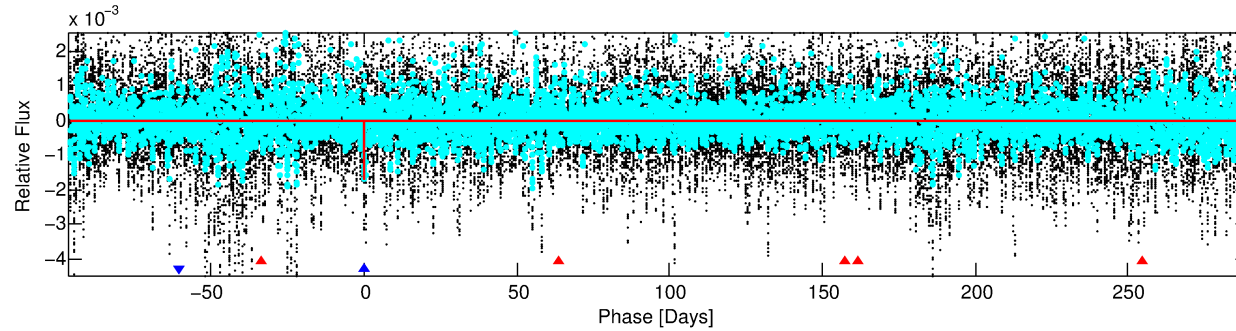
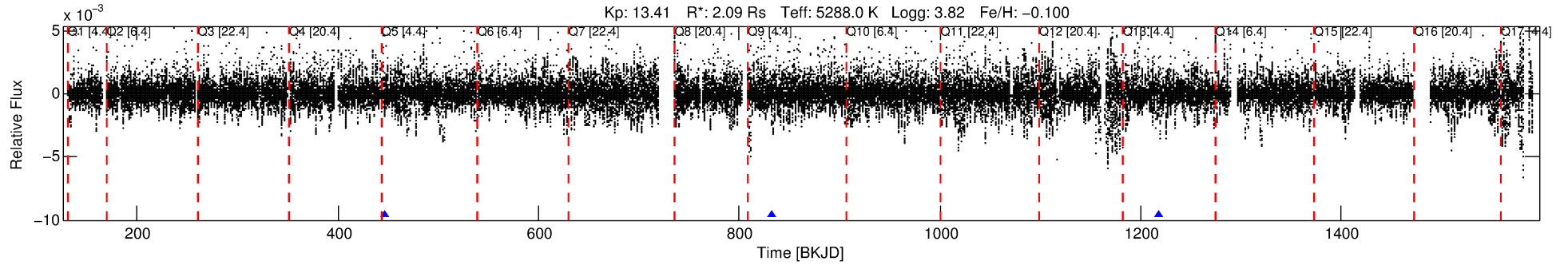
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004036736-02

No Significant Match Found

DV One-Page Summary

KIC: 4036736 Candidate: 2 of 2 Period: 385.575 d



DV Fit Results:

Period = 385.57528 [0.00506] d
Epoch = 447.4653 [0.0059] BKJD
Rp/R* = 0.0375 [0.0516]
a/R* = 580.52 [2965.76]
b = 0.38 [11.88]
Seff = 2.74 [3.12]
Teq = 328 [93] K
Rp = 8.56 [12.95] Re
a = 1.0591 [0.7115] AU
Ag = 3016.45 [9265.98] [0.33 σ]
Teffp = 3758 [2685] K [1.28 σ]

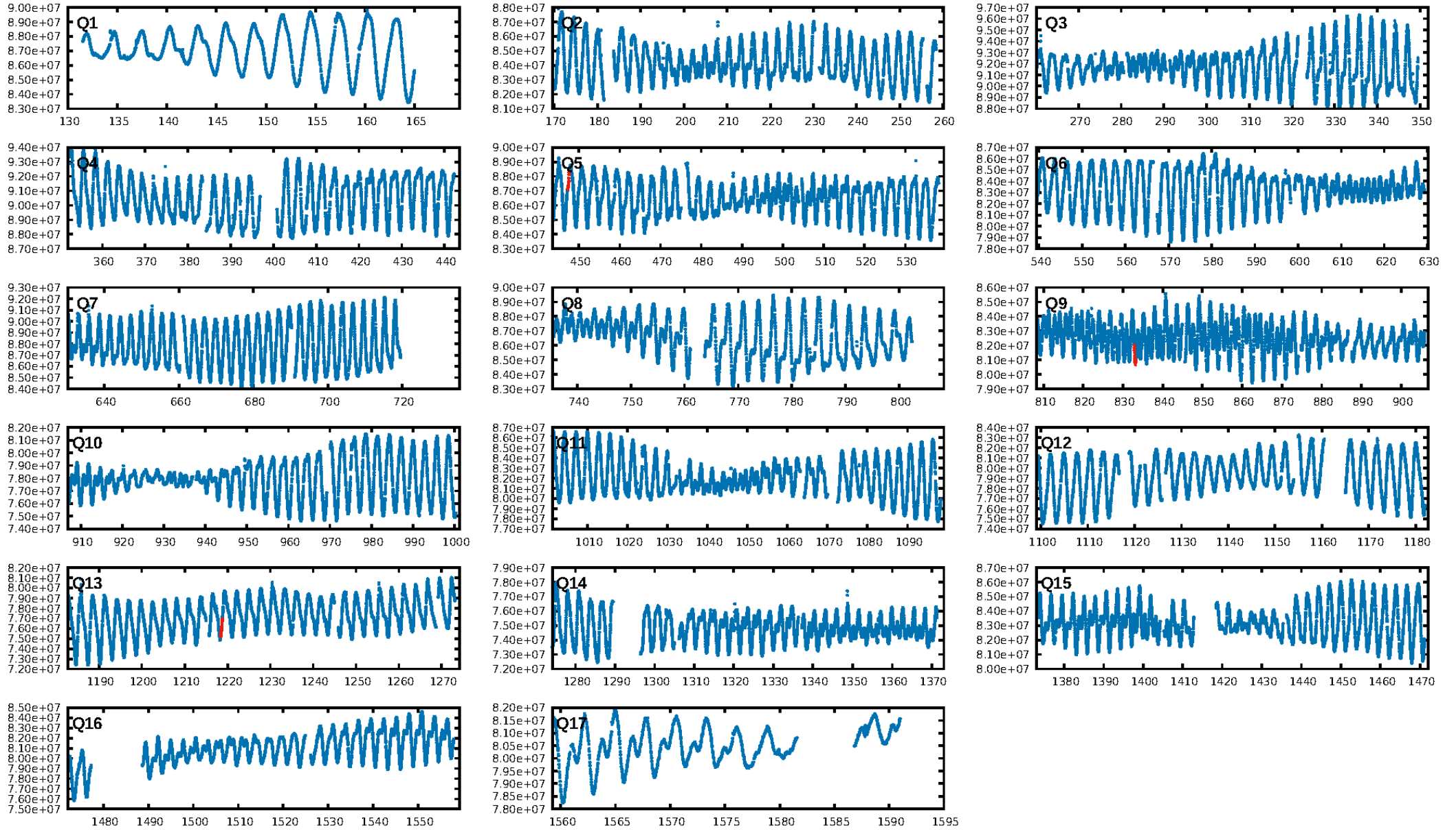
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [397.85 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.2%
ModelChiSquareGof-sig: 34.0%
Bootstrap-pfa: 2.24e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.02146
Centroid-sig: 6.2%
Centroid-so: 0.640 arcsec [0.93 σ]
OotOffset-rm: 0.088 arcsec [1.13 σ]
KicOffset-rm: 0.031 arcsec [0.21 σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

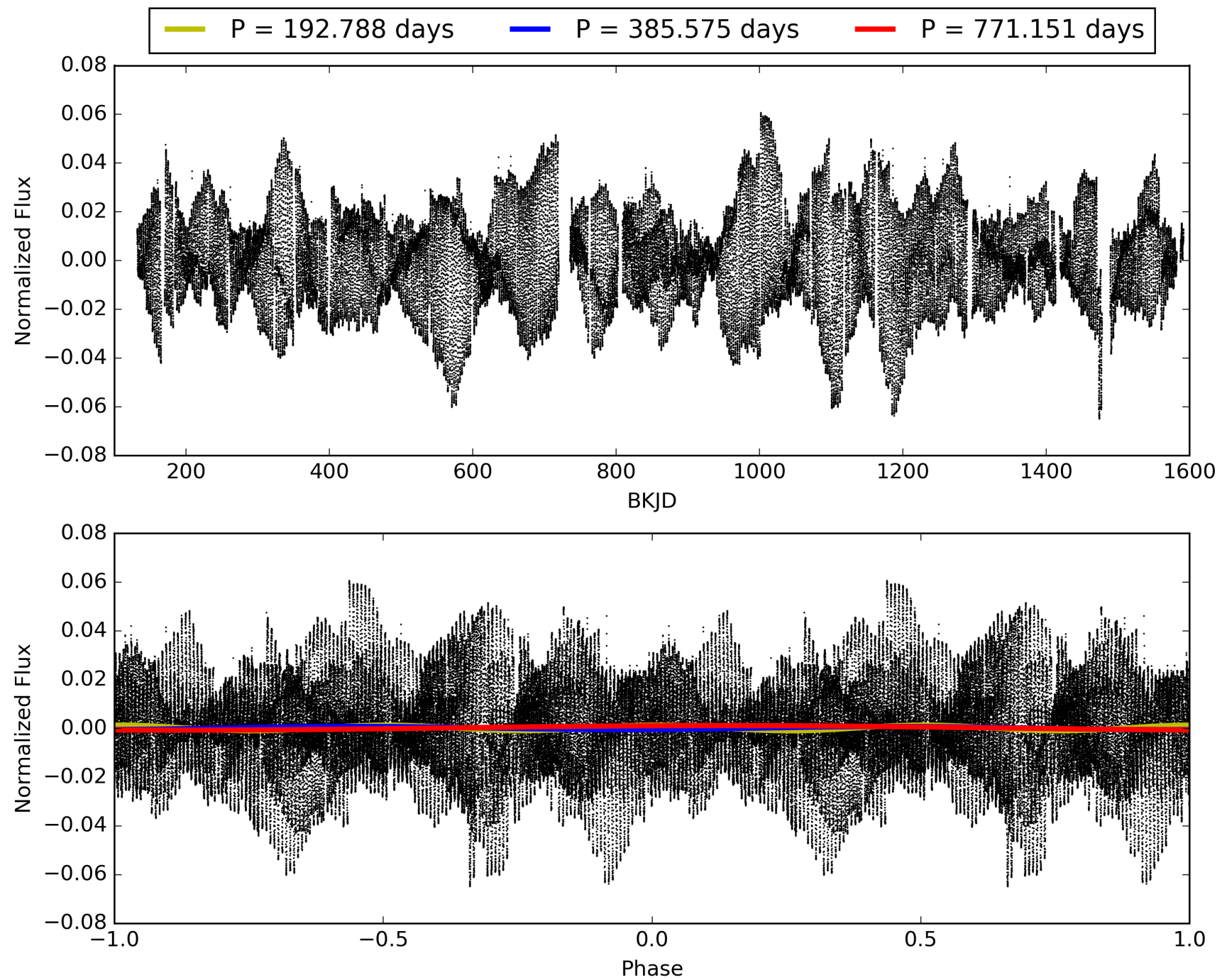
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:51:19 Z

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

TCE 004036736-02, PDC Light Curves

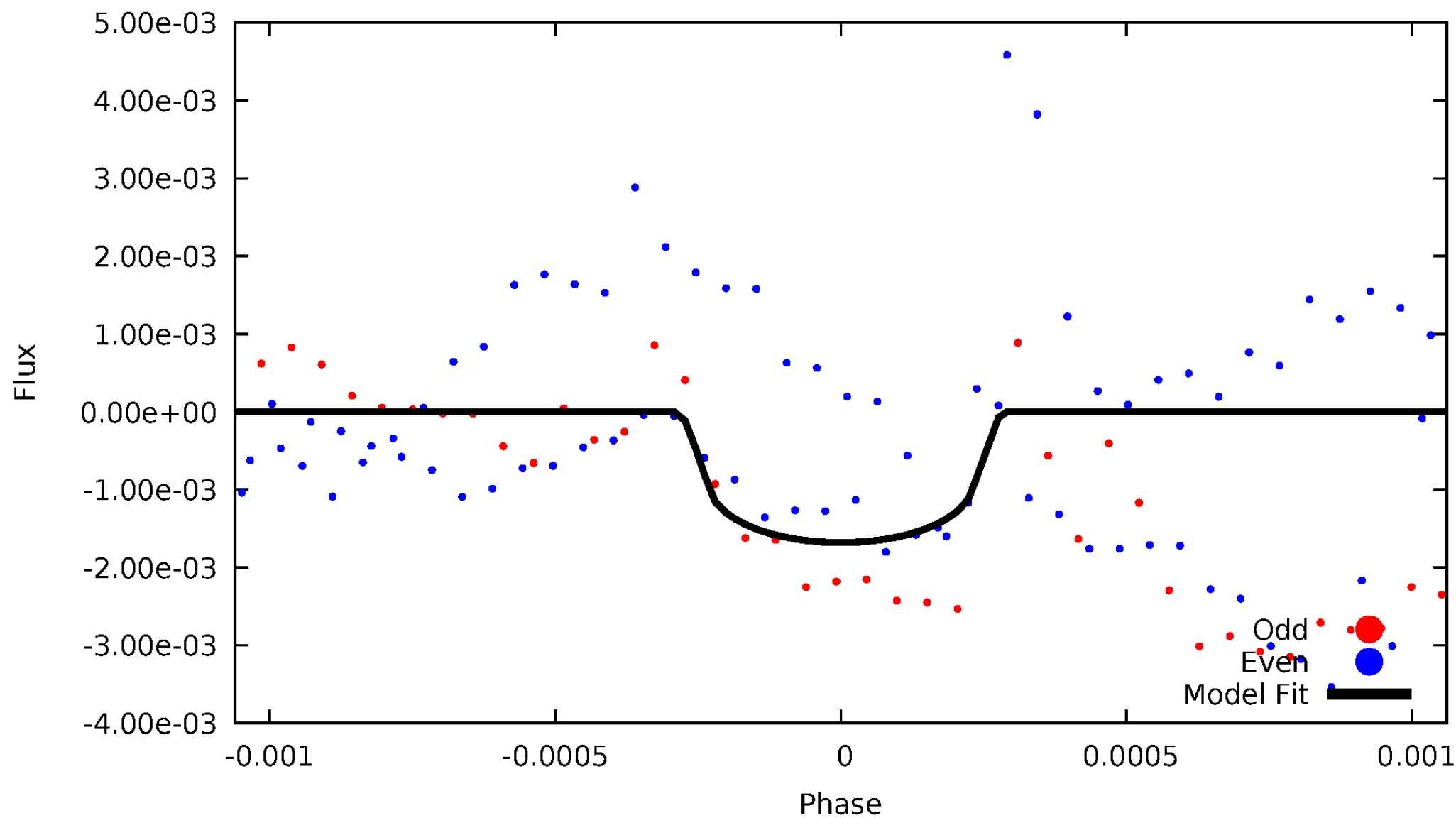


TCE 004036736-02



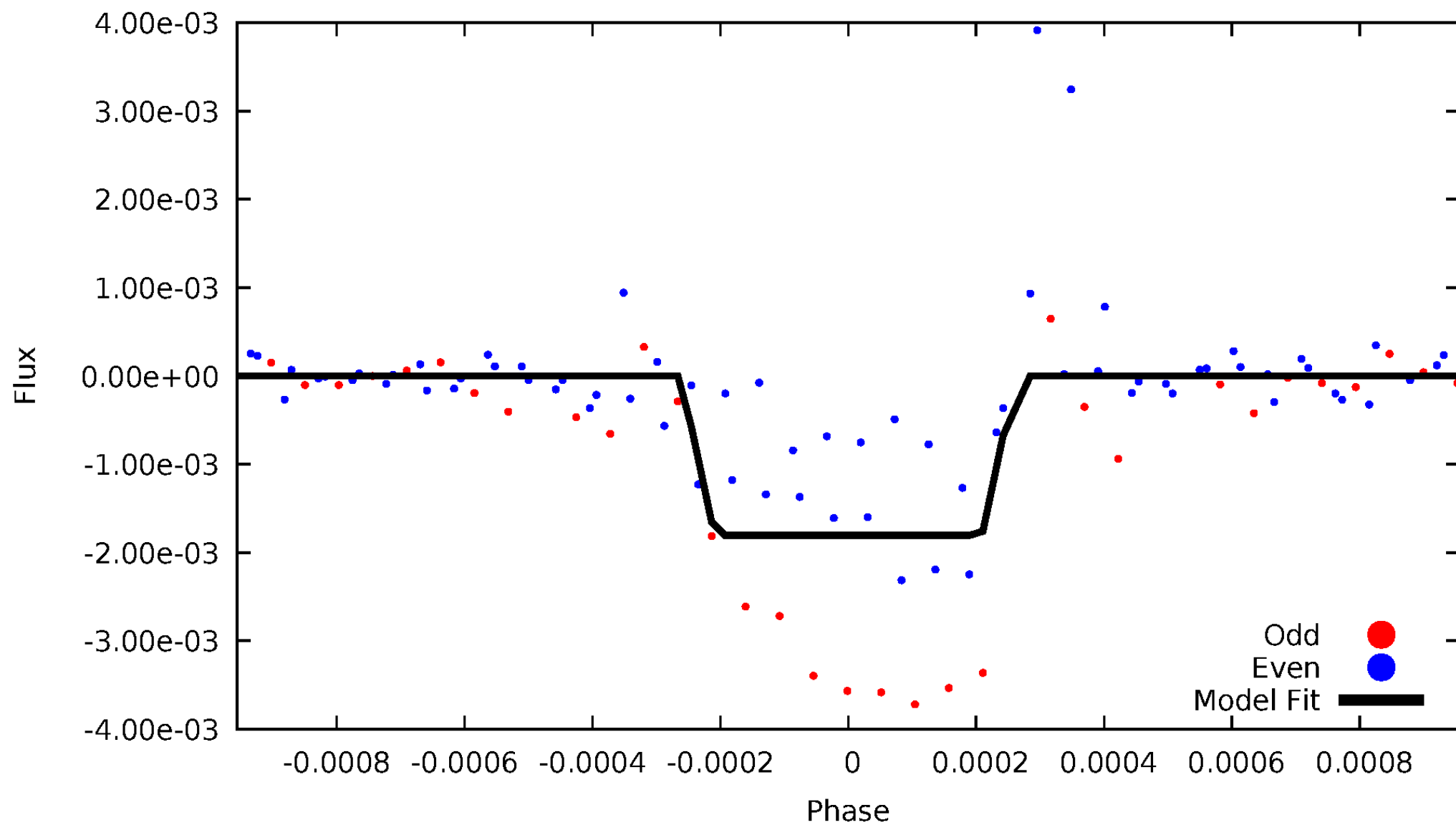
DV Odd/Even

TCE 004036736-02



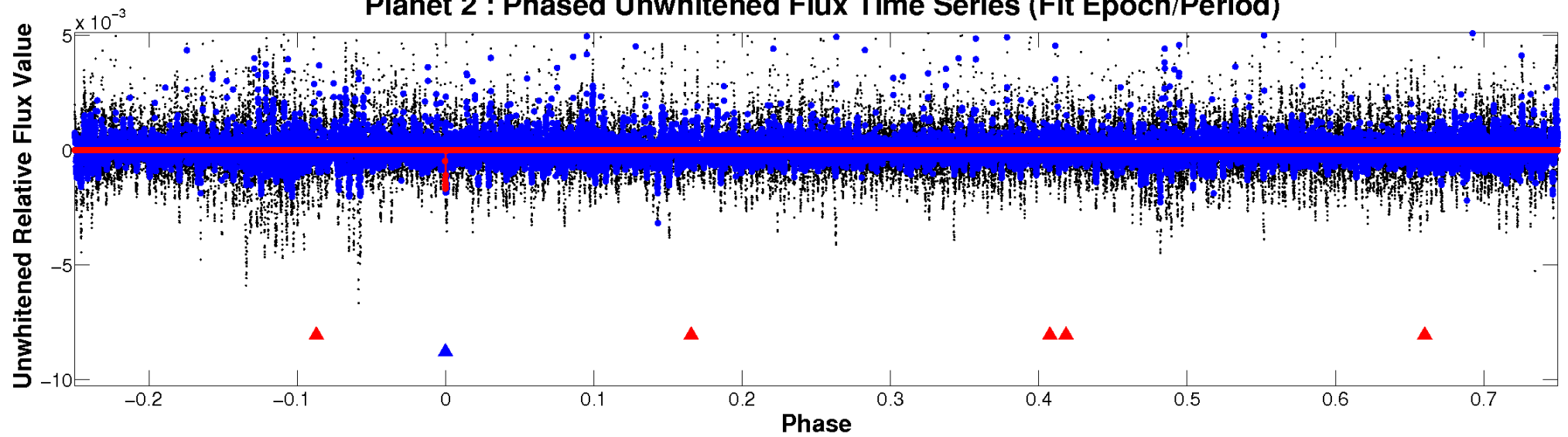
ALT Odd/Even

TCE 004036736-02

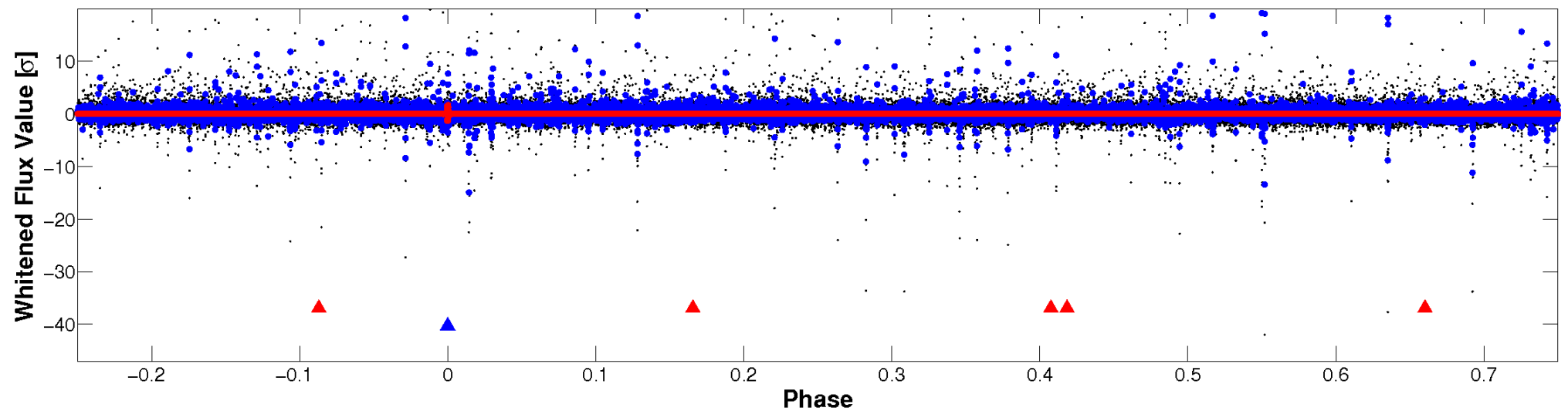


Non-Whitened Vs. Whitened Light Curve

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

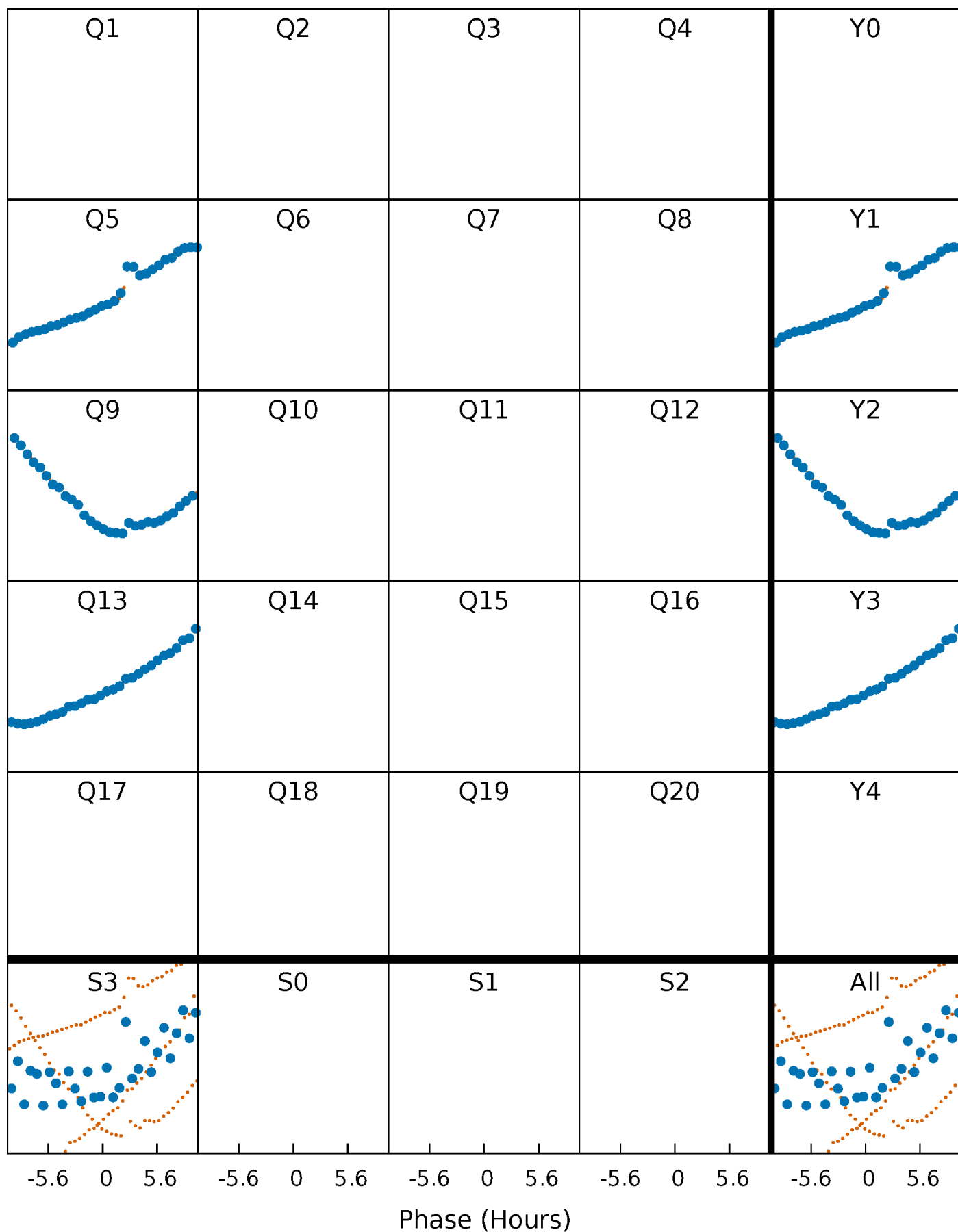


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



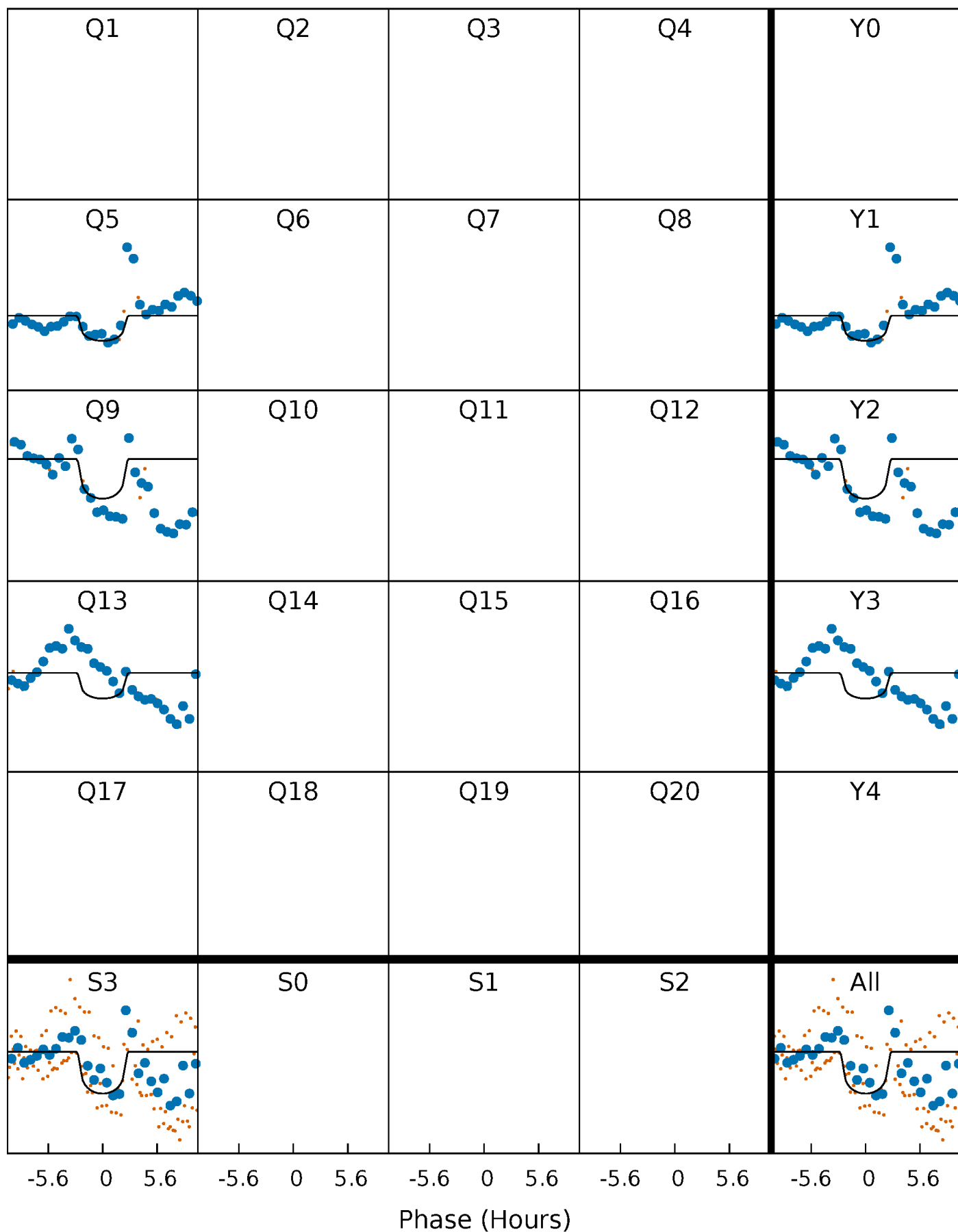
PDC Quarter-Phased Transit Curves

TCE 004036736-02 $P=385.575277$ Days $T_0=447.465314$ (BKJD)



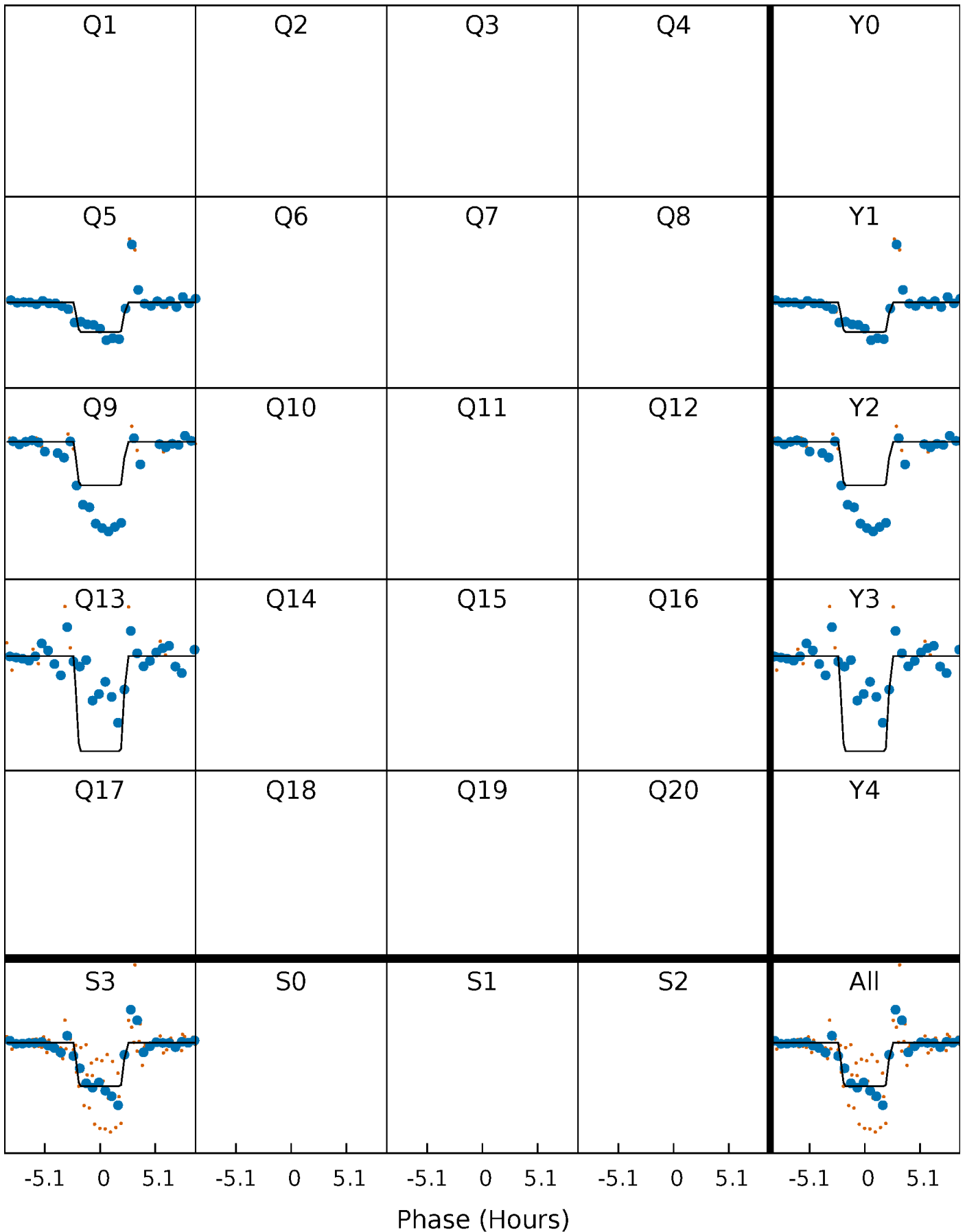
DV Quarter-Phased Transit Curves

TCE 004036736-02 $P=385.575277$ Days $T_0=447.465314$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

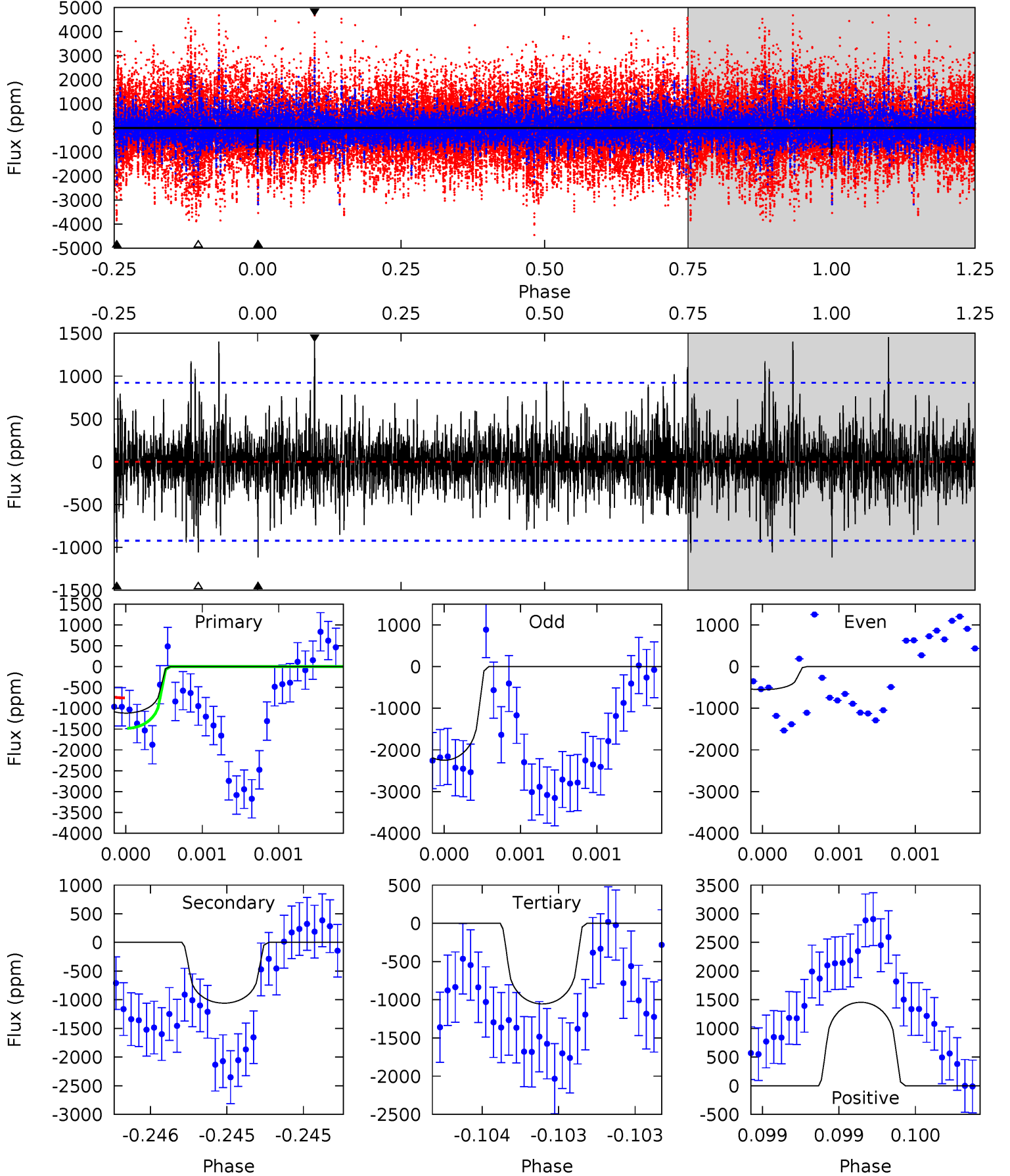
TCE 004036736-02 P=385.574466 Days $T_0=447.463633$ (BKJD)



DV Model-Shift Uniqueness Test

004036736-02, $P = 385.575277$ Days, $E = 61.890037$ Days

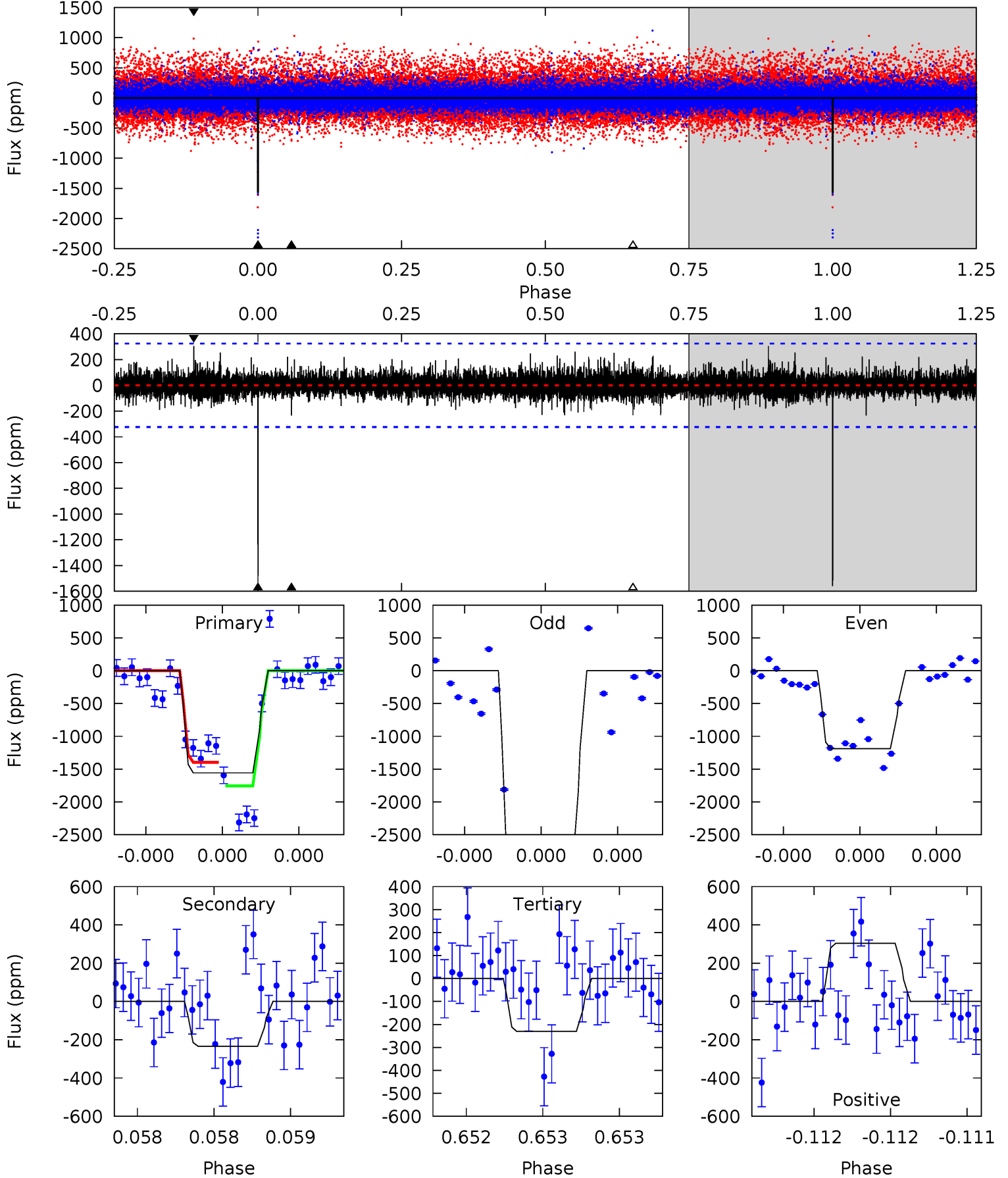
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.74	6.40	6.37	8.79	5.56	3.47	1.53	0.37	-2.05	0.03	-2.39	4.35	0.81	0.57	2.21



Alt Model-Shift Uniqueness Test

004036736-02, P = 385.574466 Days, E = 61.889167 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	4.02	3.97	5.23	5.58	3.49	0.86	22.8	21.6	0.05	-1.21	22.7	1.07	0.16	0



Stellar Parameters For KIC 004036736

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5288^{+167}_{-148}	$3.824^{+0.686}_{-0.294}$	$-0.100^{+0.350}_{-0.250}$	$2.093^{+0.873}_{-1.310}$	$1.065^{+0.196}_{-0.239}$	$0.164^{+1.991}_{-0.088}$
	+3%/-3%	+18%/-8%	+350%/-250%	+42%/-63%	+18%/-22%	+1218%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004036736-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1059 ± 166	$11.50^{+11.81}_{-7.79}$	459^{+59}_{-77}	4320^{+2797}_{-897}	4840^{+45678}_{-3636}
Alt.	-234 ± 58	$11.50^{+11.15}_{-7.80}$	454^{+59}_{-83}	3278^{+1577}_{-524}	1009^{+10333}_{-738}

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 $A_{obs} \gg 1.0$

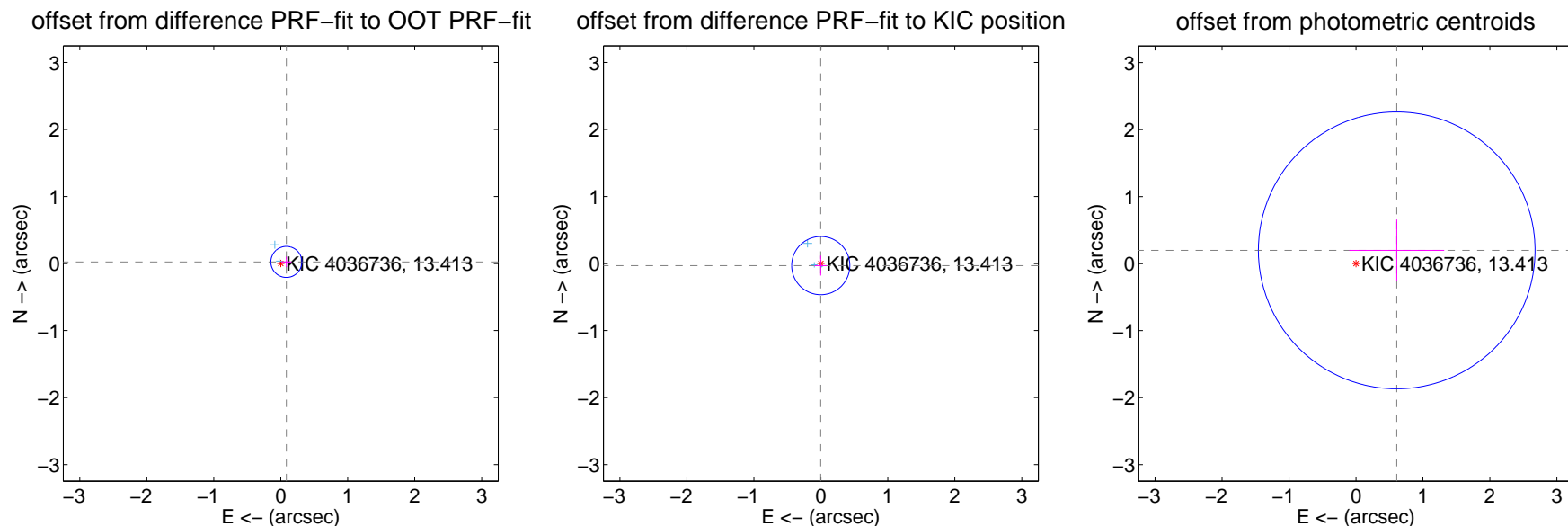
DV Centroid Data

Supplemental centroid analysis for 004036736-02. Kepler magnitude: 13.41. Transit SNR 6.68

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.088 ± 0.077	1.13	-0.084 ± 0.077	0.024 ± 0.078
PRF-fit source offset from KIC position	0.031 ± 0.145	0.21	0.002 ± 0.090	-0.031 ± 0.148
photometric centroid source offset	0.64 ± 0.69	0.93	-0.61 ± 0.71	0.20 ± 0.46

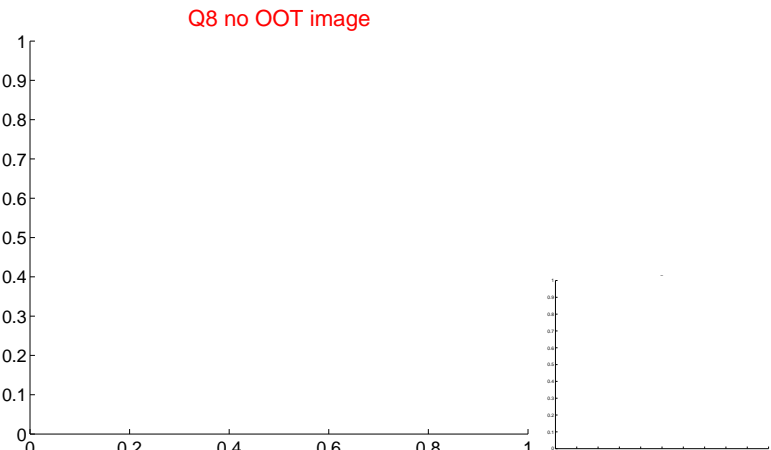
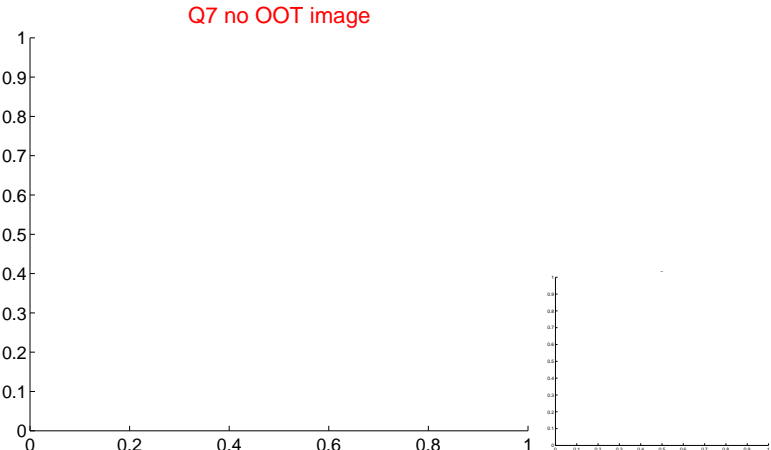
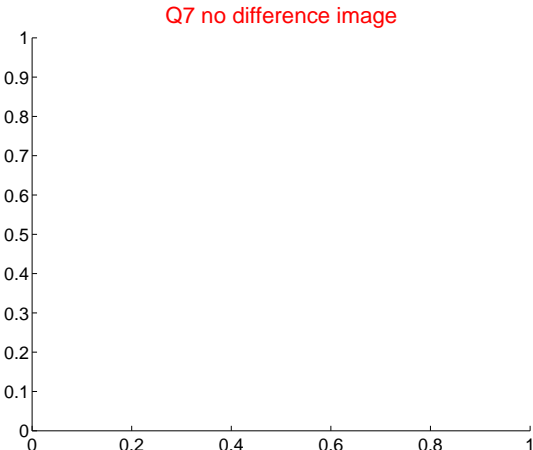
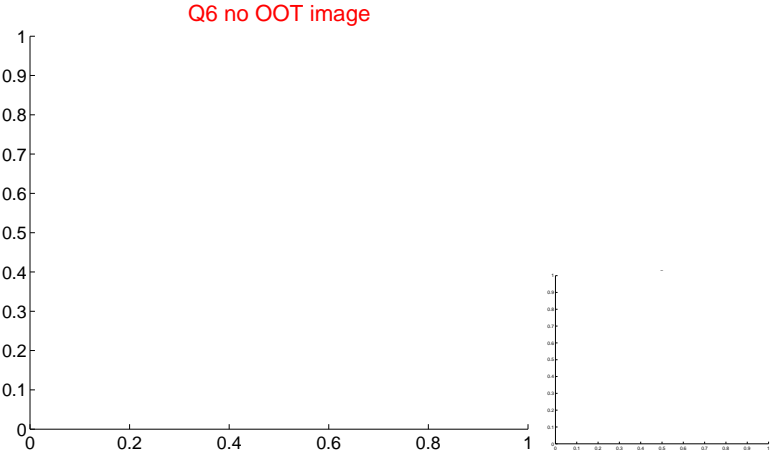
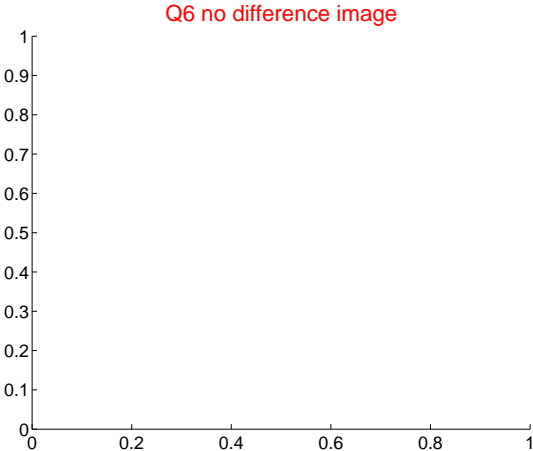
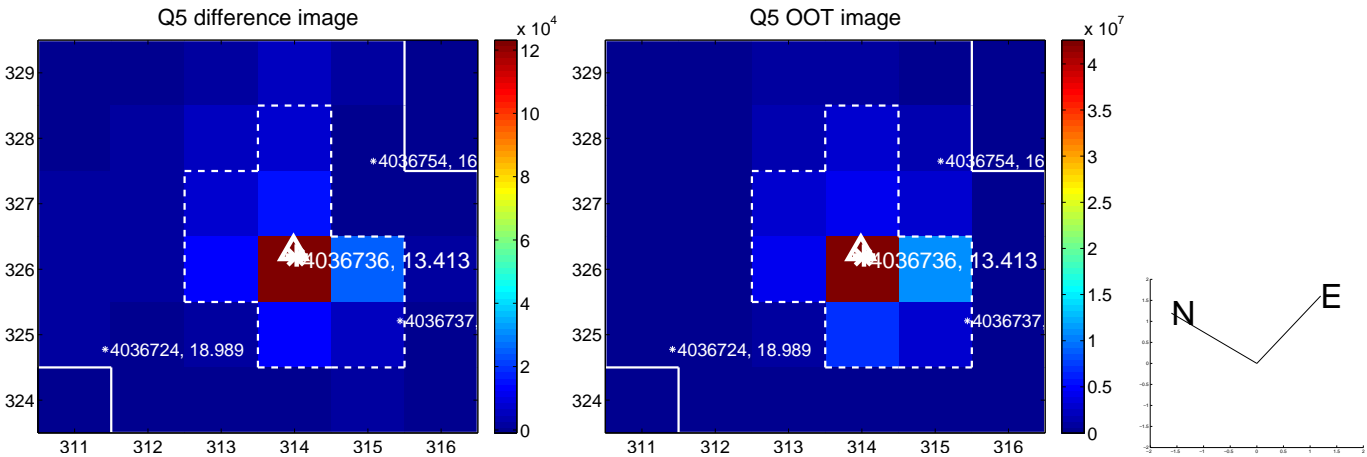


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

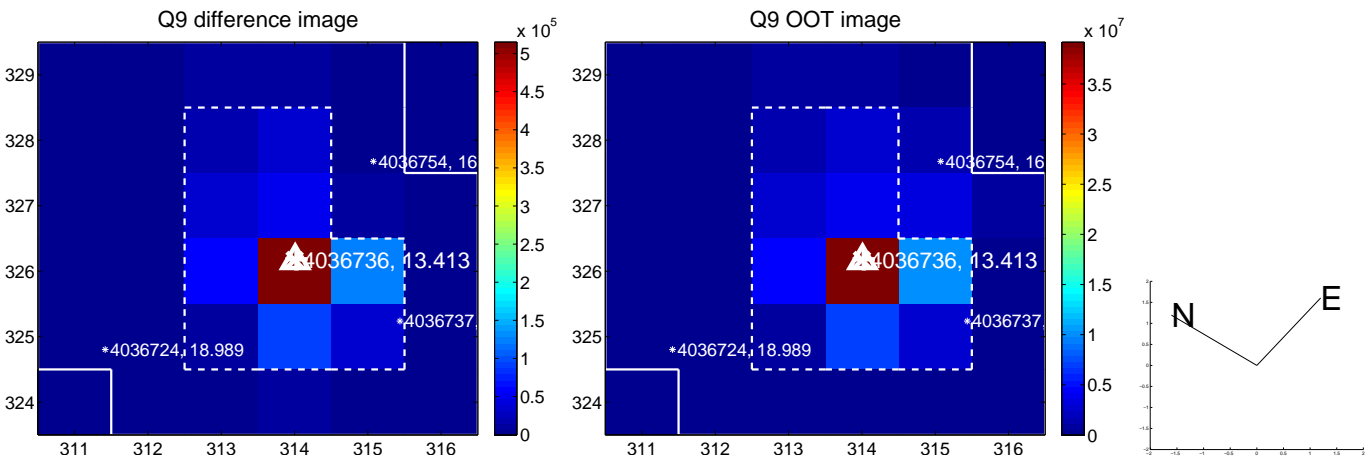
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



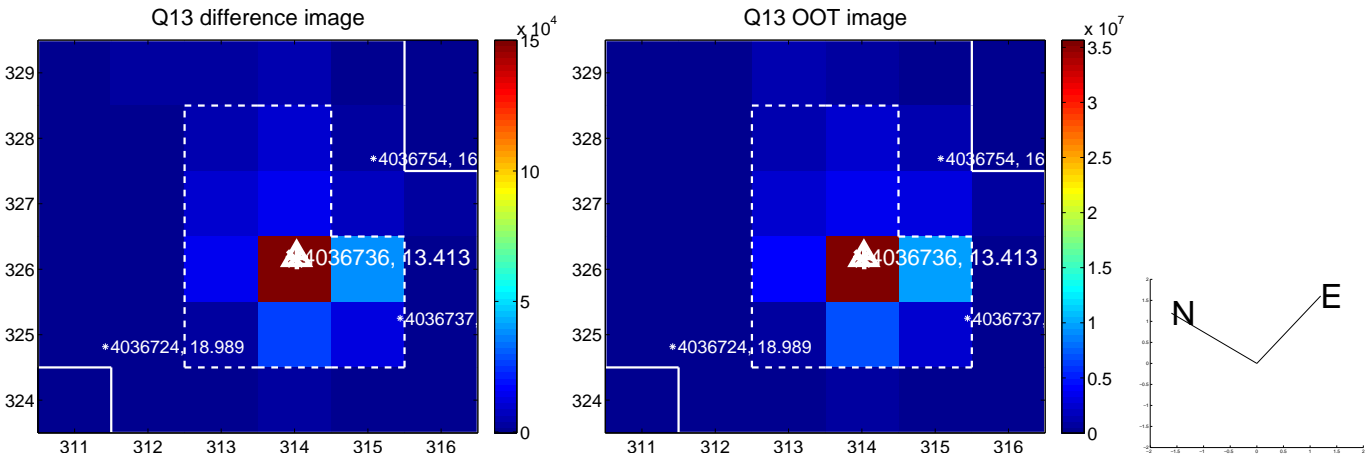
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



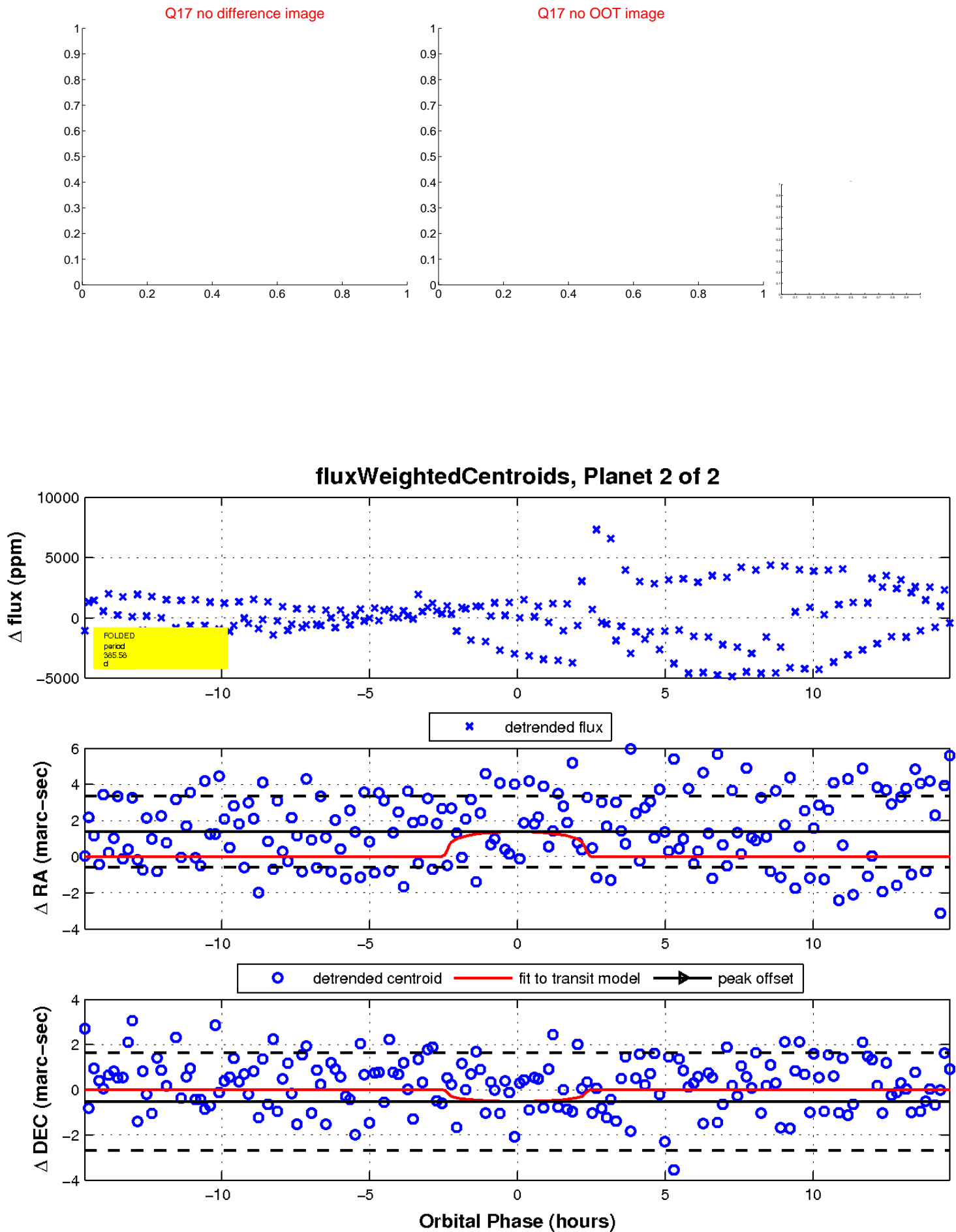
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

