

KIC 006023332

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})
006023332-01	OBS	No	171.286757	160.893401	2716.3	2.879	14.9	13.1	0.65	4484	3.29	0.56
006023332-02	OBS	No	230.481441	172.970421	1736.5	6.473	15.5	6.2	0.65	4484	2.59	0.38
006023332-03	OBS	No	196.582340	142.088168	2141.5	2.700	16.7	8.8	0.65	4484	2.95	0.47
006023332-04	OBS	No	357.316067	203.995042	812.2	2.523	16.9	4.3	0.65	4484	2.04	0.21
006023332-05	OBS	No	387.928464	169.038829	1792.7	5.149	12.6	7.1	0.65	4484	3.01	0.19
006023332-06	OBS	No	371.670922	235.781589	712.6	3.265	14.2	3.5	0.65	4484	1.74	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006023332-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006023332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006023332-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
006023332-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006023332-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
006023332-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

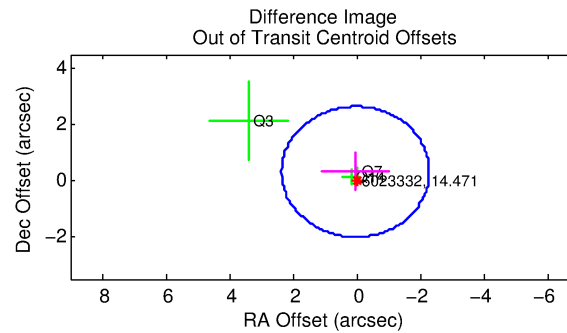
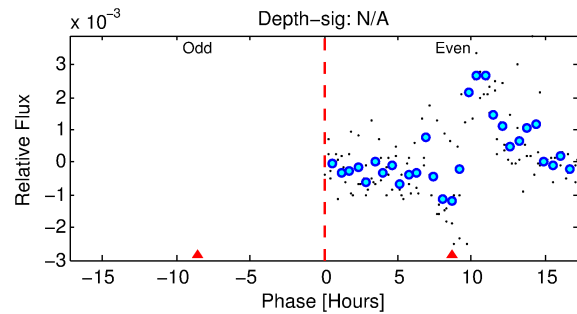
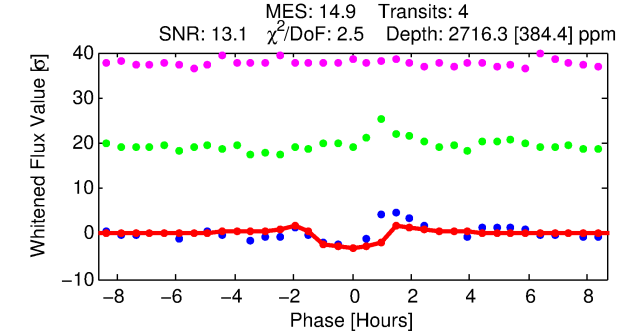
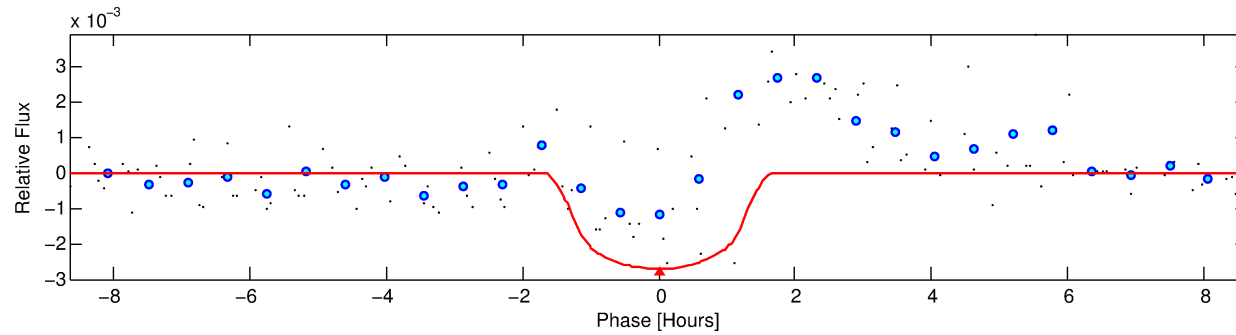
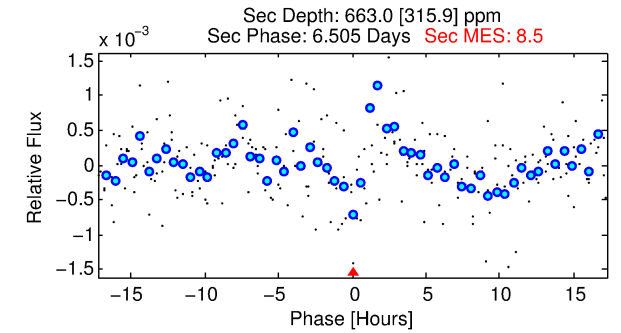
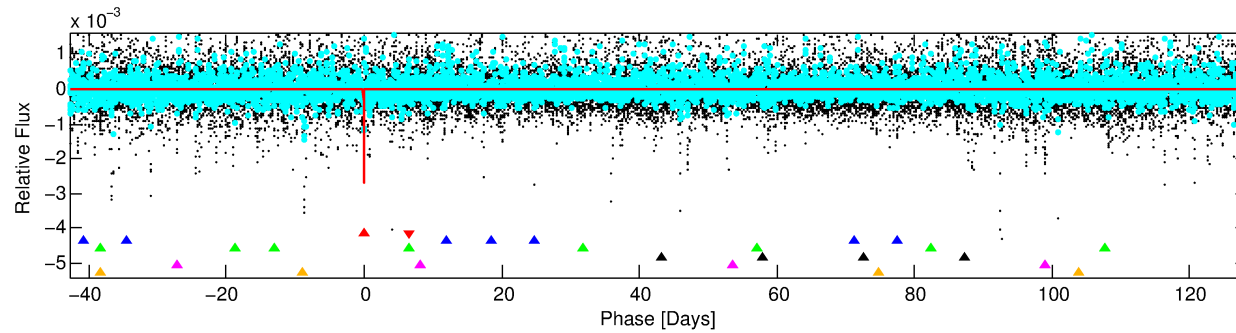
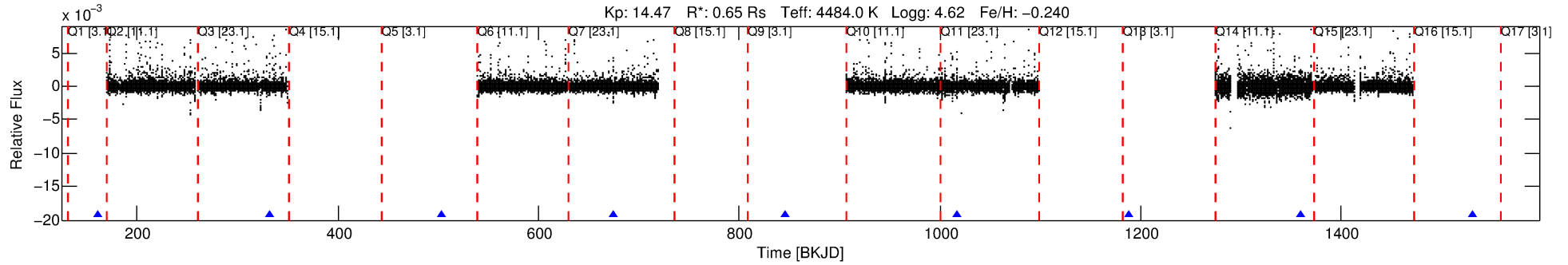
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006023332-01

No Significant Match Found

DV One-Page Summary

KIC: 6023332 Candidate: 1 of 6 Period: 171.287 d



DV Fit Results:

Period = 171.28676 [0.00162] d
Epoch = 160.8934 [0.0064] BKJD
Rp/R* = 0.0466 [0.0755]
a/R* = 454.37 [2216.00]
b = 0.31 [14.63]
Seff = 0.57 [0.09]
Teq = 221 [9] K
Rp = 3.29 [5.35] Re
a = 0.5187 [0.0386] AU
Ag = 9053.43 [29684.37] [0.30] σ
Teffp = 3335 [2734] K [1.14] σ

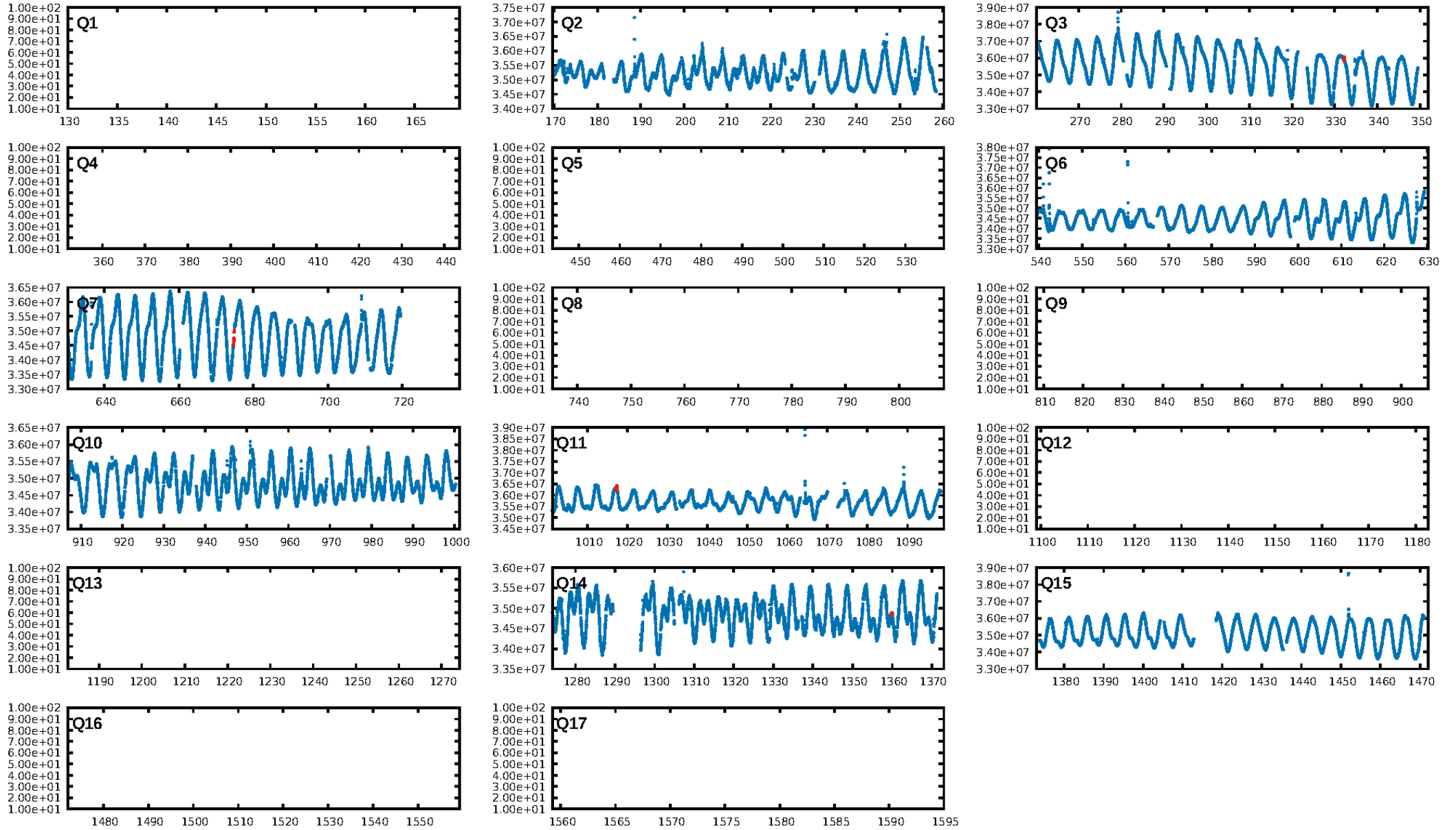
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [153.79] σ
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 2.2%
Bootstrap-pfa: 2.47e-17
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.042
Centroid-sig: 89.5%
Centroid-so: 0.407 arcsec [1.03] σ
OotOffset-rm: 0.317 arcsec [0.41] σ
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.383 arcsec [0.88] σ
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [4/4]

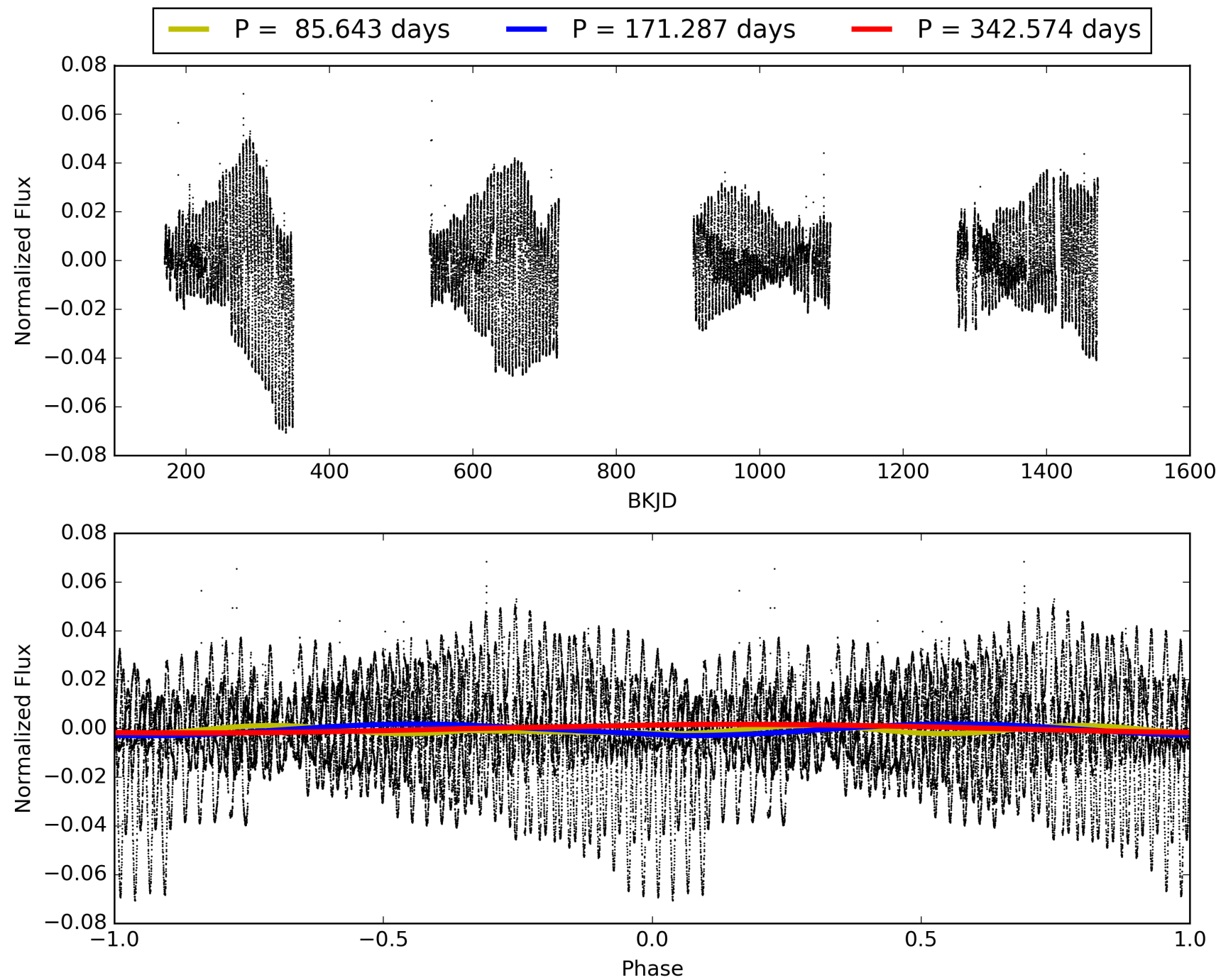
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:26:15 Z

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

TCE 006023332-01, PDC Light Curves

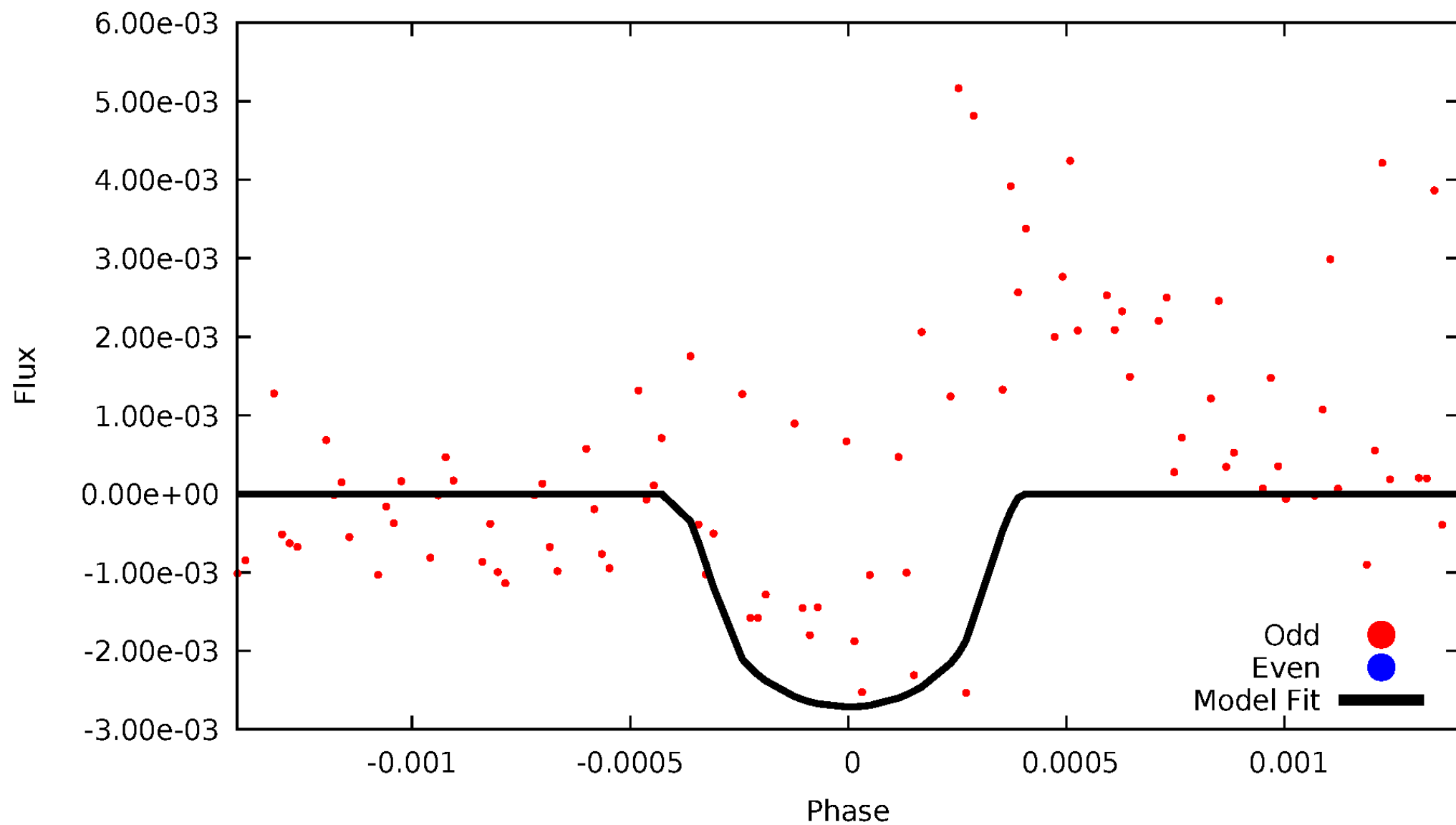


TCE 006023332-01



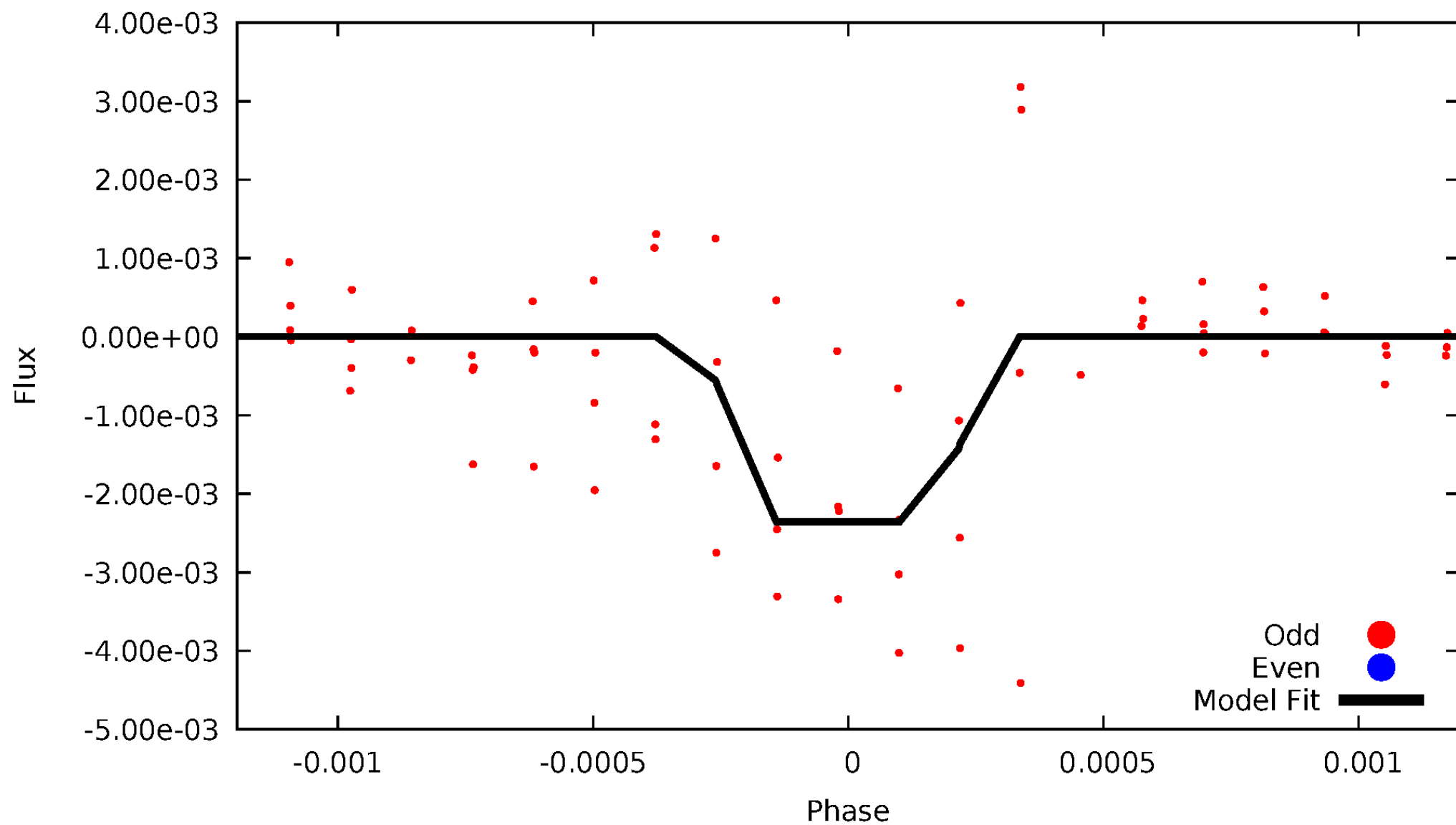
DV Odd/Even

TCE 00602332-01



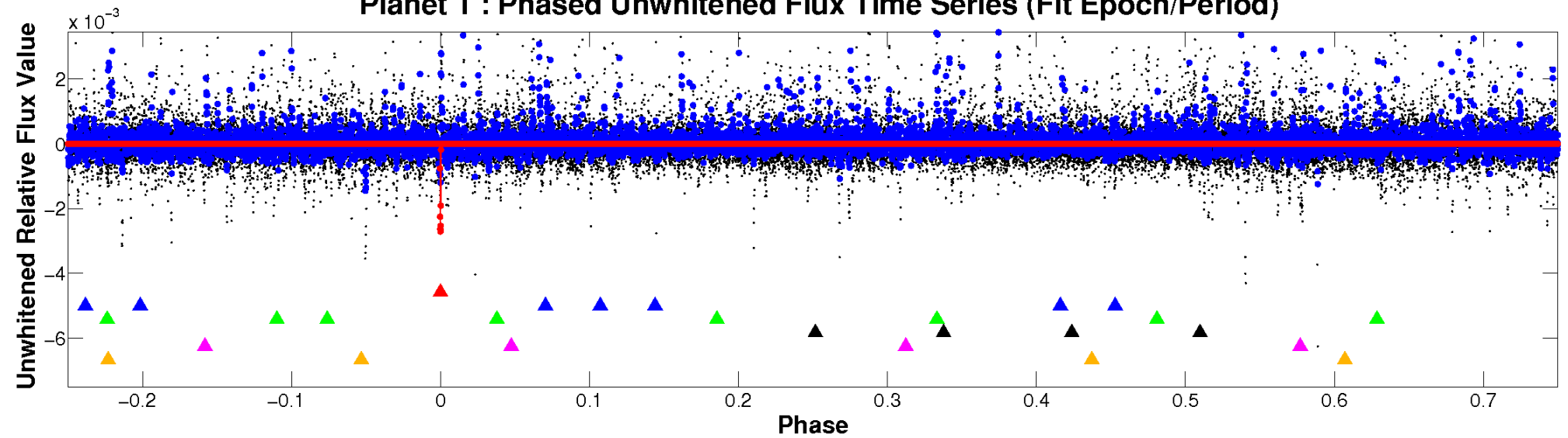
ALT Odd/Even

TCE 006023332-01

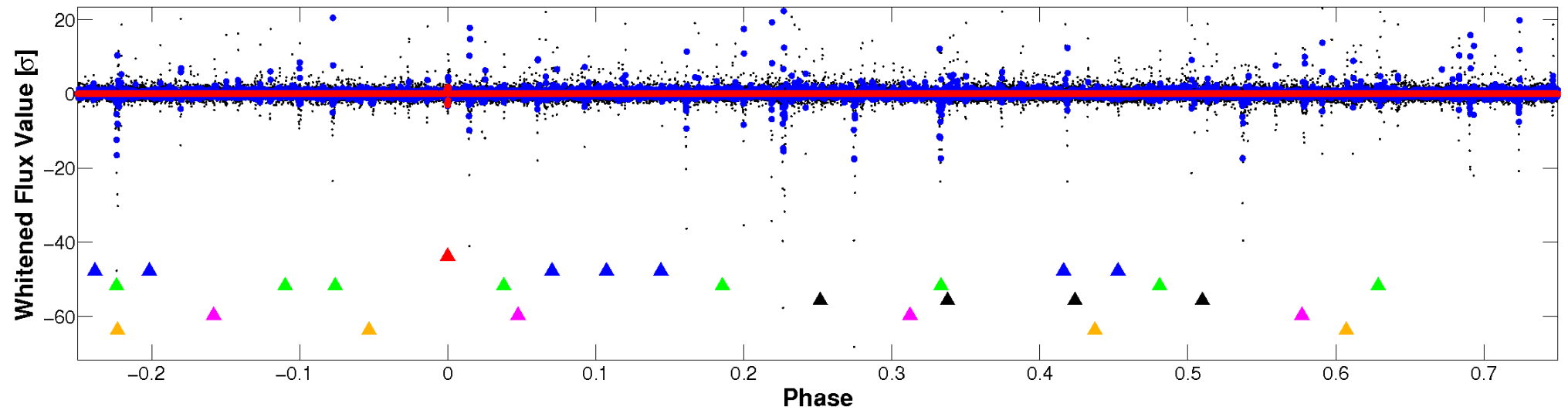


Non-Whitened Vs. Whitened Light Curve

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

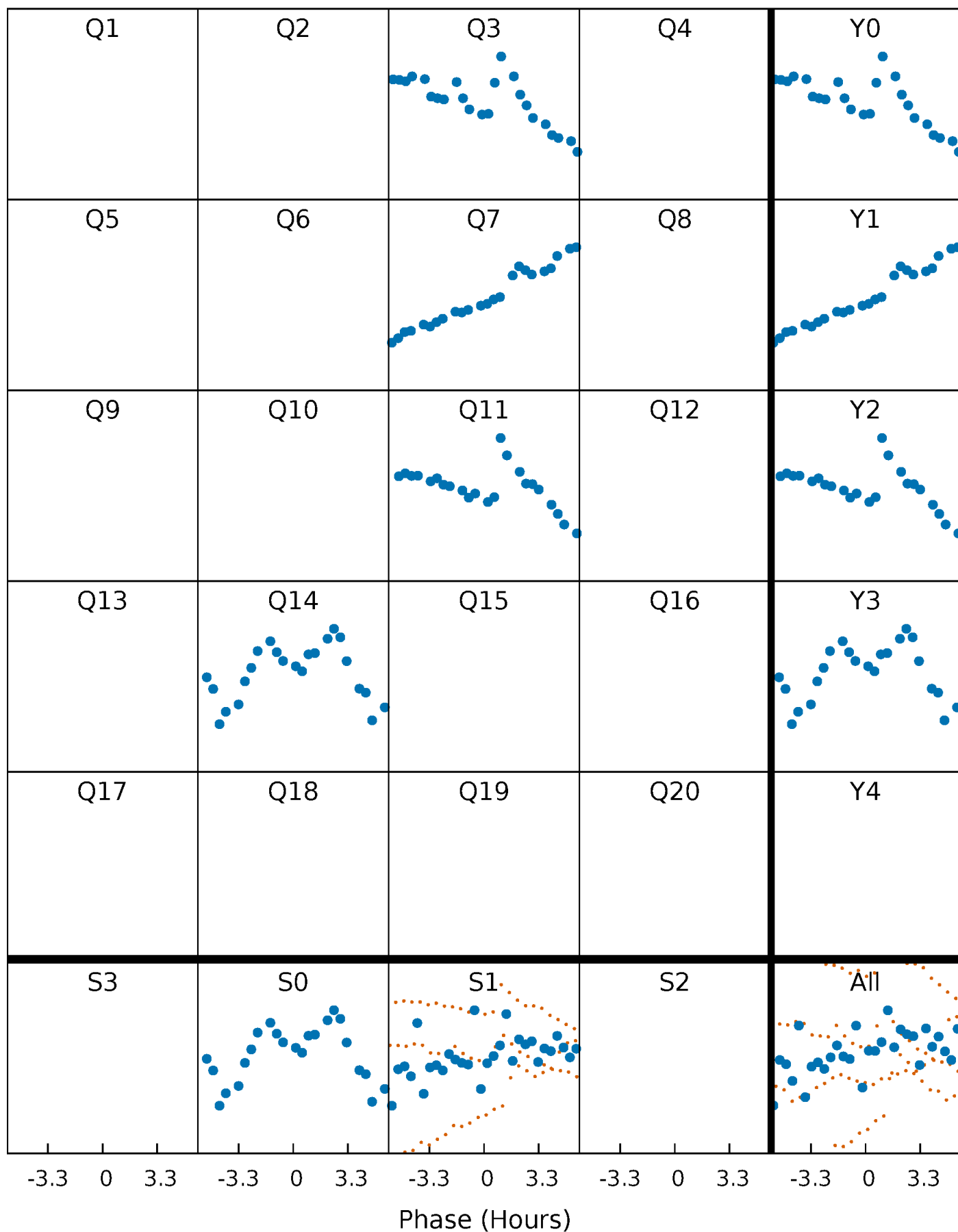


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



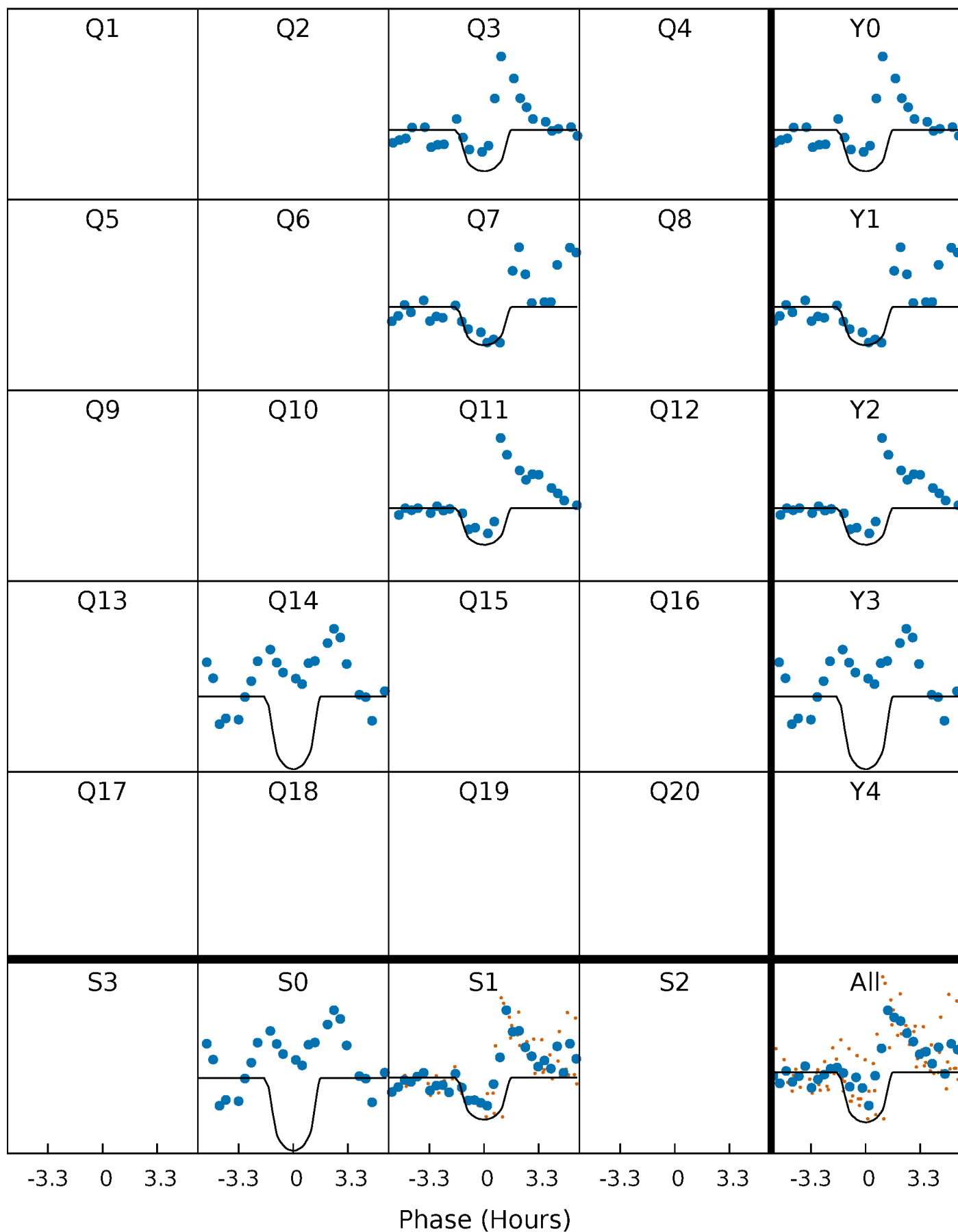
PDC Quarter-Phased Transit Curves

TCE 006023332-01 P=171.286757 Days $T_0=160.893402$ (BKJD)



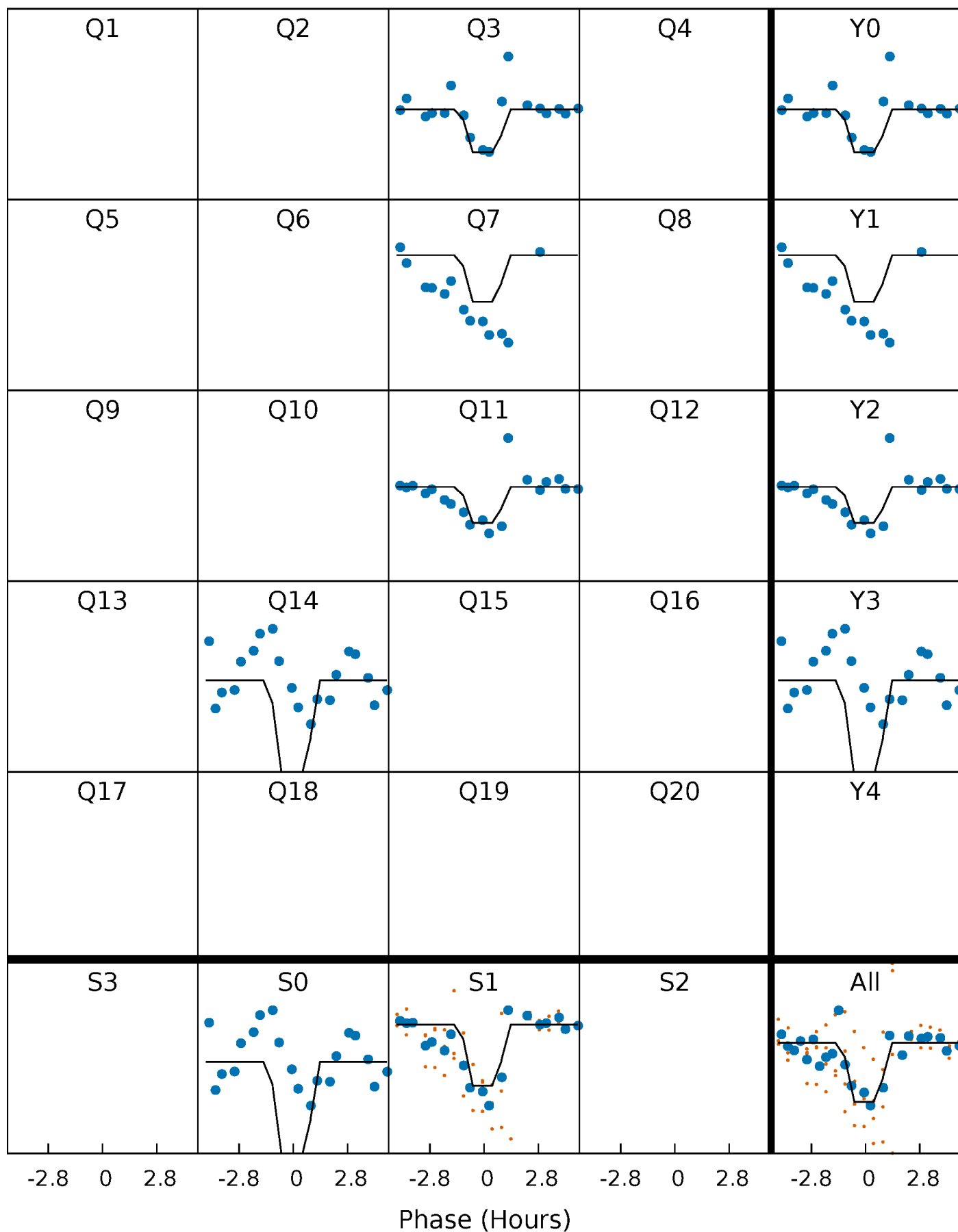
DV Quarter-Phased Transit Curves

TCE 006023332-01 P=171.286757 Days $T_0=160.893402$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

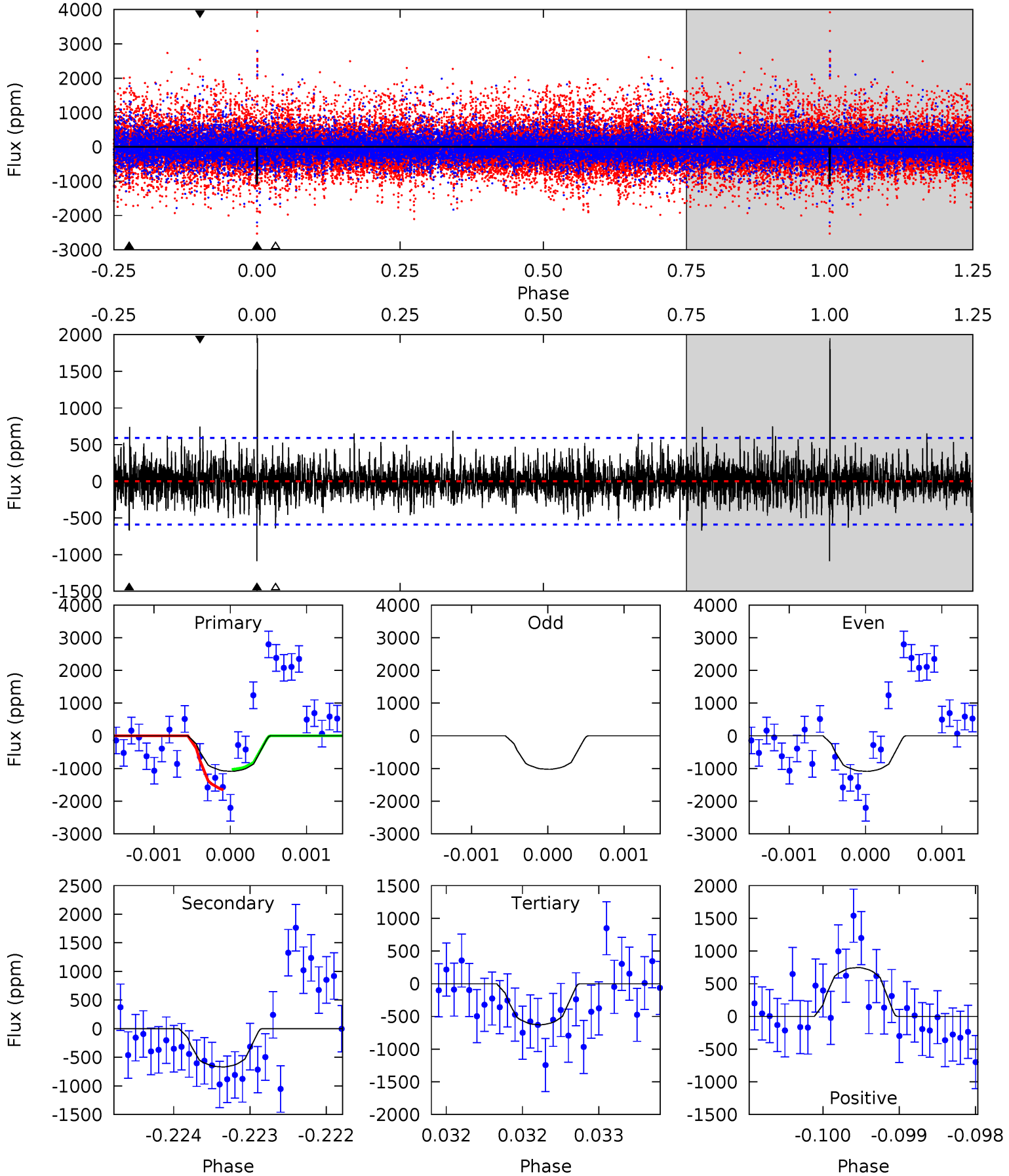
TCE 006023332-01 P=171.285330 Days $T_0=160.885995$ (BKJD)



DV Model-Shift Uniqueness Test

006023332-01, P = 171.286757 Days, E = 160.893402 Days

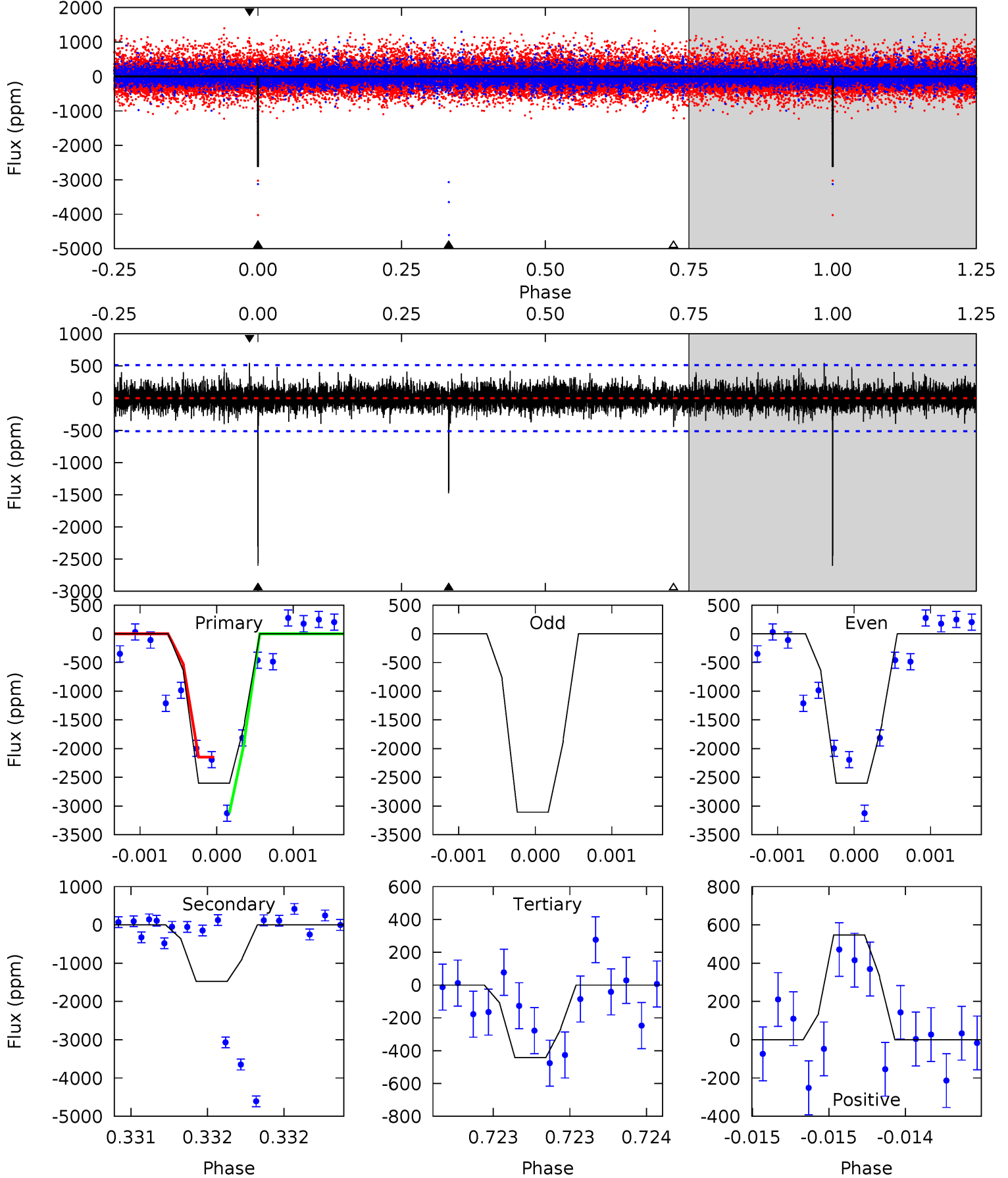
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	6.23	5.86	6.96	5.50	3.36	1.52	4.29	3.18	0.37	-0.73	0.35	5.47	0.64	0



Alt Model-Shift Uniqueness Test

006023332-01, P = 171.285330 Days, E = 160.885995 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	16.0	4.78	5.93	5.54	3.43	1.12	23.4	22.2	11.2	10.0	3.20	0.97	0.17	5.21



Stellar Parameters For KIC 006023332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4484^{+121}_{-134}	$4.617^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.648^{+0.046}_{-0.061}$	$0.634^{+0.070}_{-0.051}$	$3.280^{+0.763}_{-0.349}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-9%	+11%/-8%	+23%/-11%
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 006023332-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-669 ± 107	$5.05^{+4.24}_{-3.34}$	307^{+10}_{-10}	3157^{+1417}_{-478}	3806^{+30579}_{-2661}
Alt.	-1476 ± 92	$5.22^{+4.46}_{-3.37}$	306^{+10}_{-10}	3554^{+1679}_{-607}	7950^{+55344}_{-5595}

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

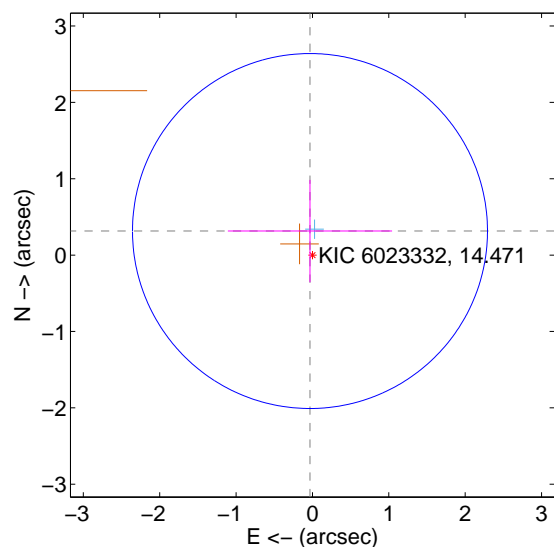
Supplemental centroid analysis for 006023332-01. Kepler magnitude: 14.47. Transit SNR 13.11

There are 1 quarters with good PRF difference image offsets

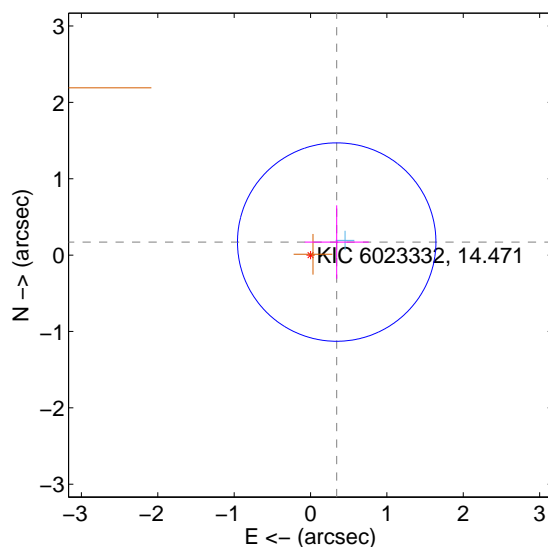
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.317 ± 0.775	0.41	0.032 ± 1.075	0.315 ± 0.670
PRF-fit source offset from KIC position	0.383 ± 0.433	0.88	-0.343 ± 0.420	0.171 ± 0.480
photometric centroid source offset	0.41 ± 0.39	1.03	-0.33 ± 0.40	-0.24 ± 0.39

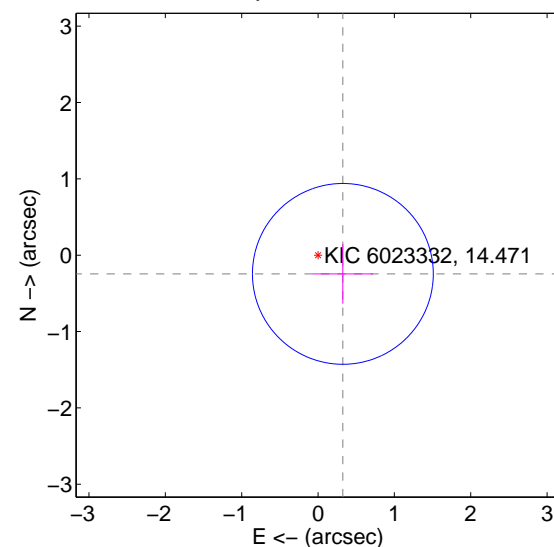
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



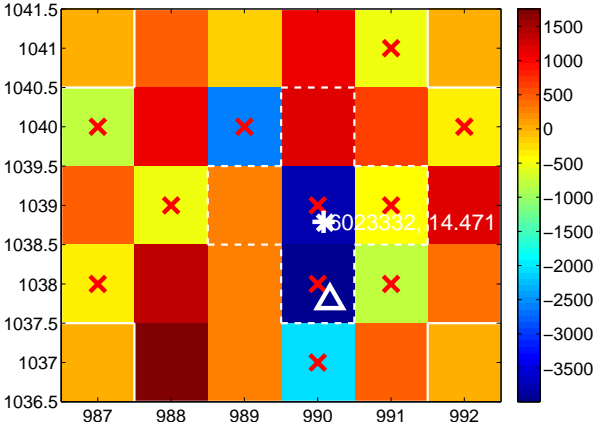
Q2 no difference image



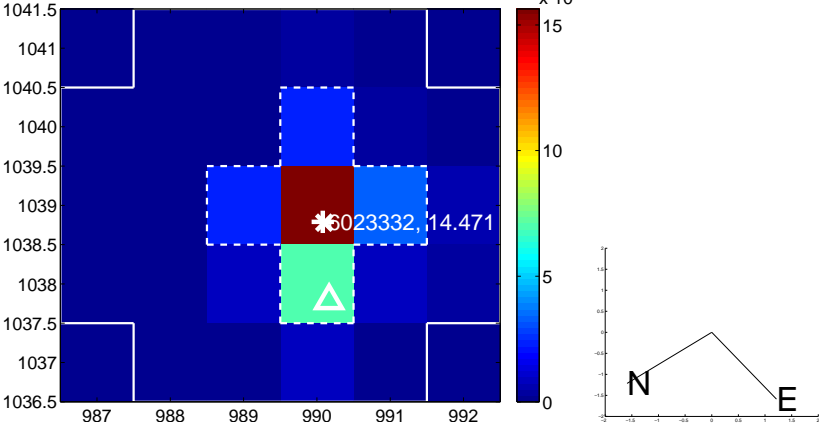
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



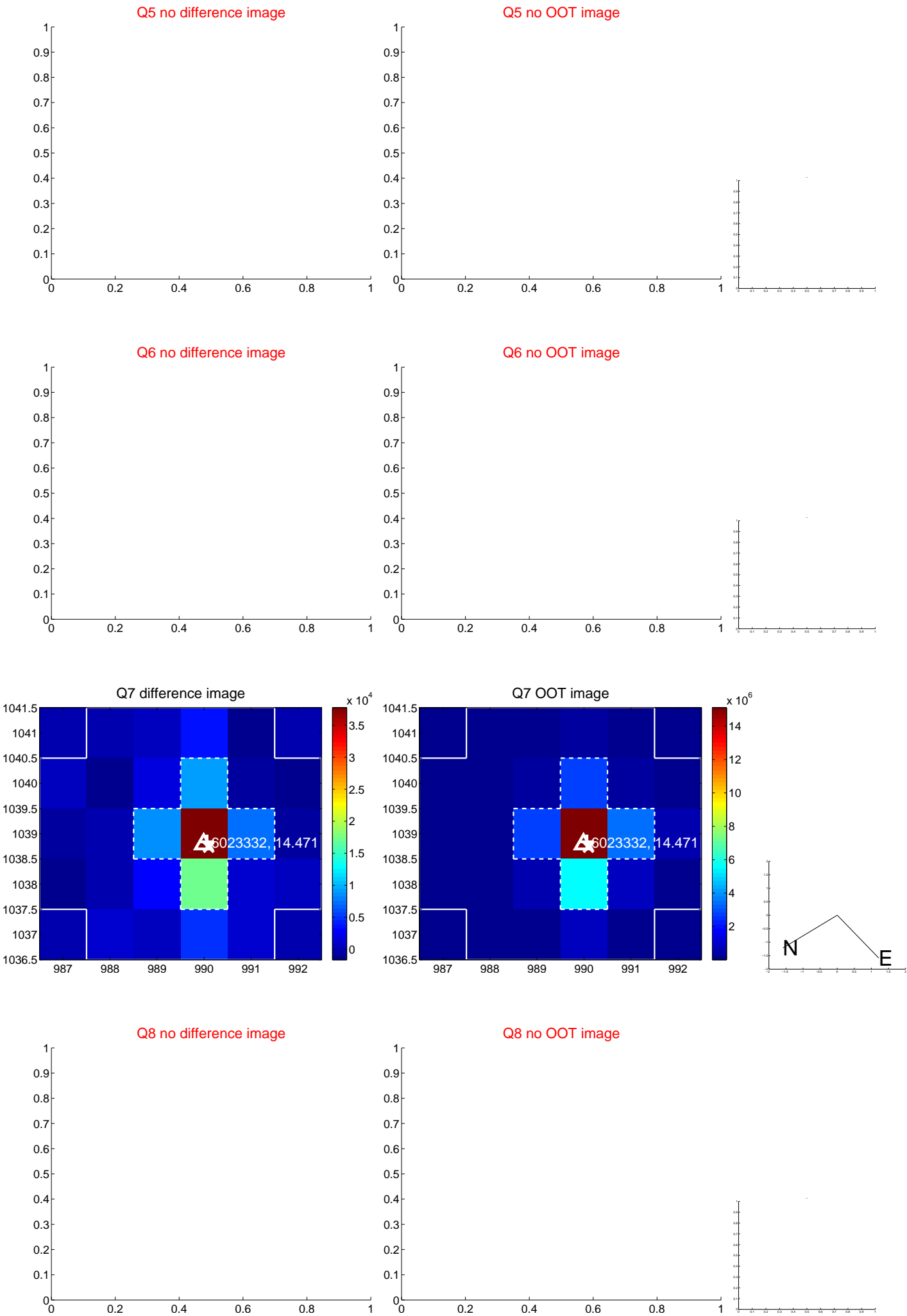
Q4 no difference image



Q4 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.

Q9 no difference image



Q9 no OOT image



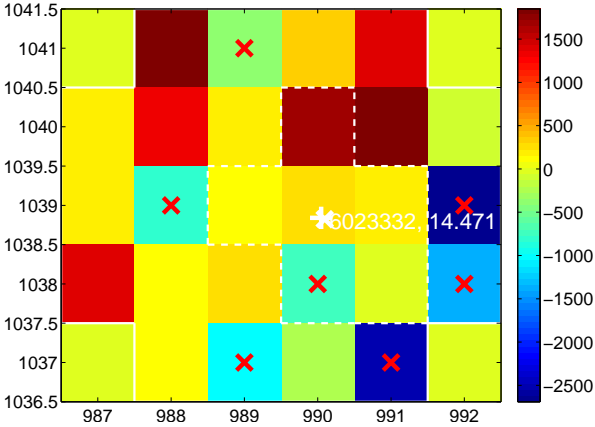
Q10 no difference image



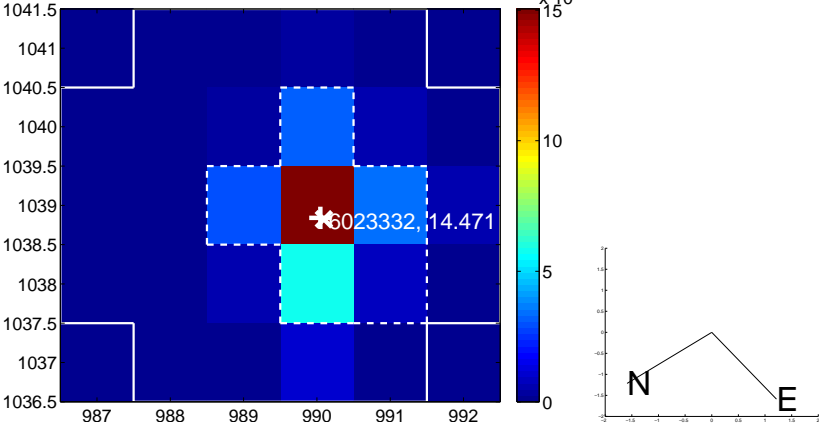
Q10 no OOT image



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.

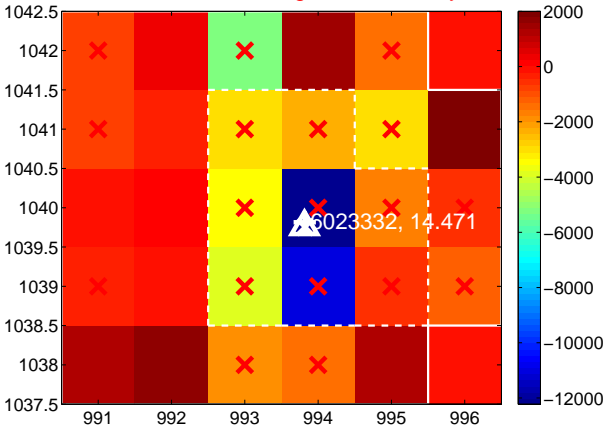
Q13 no difference image



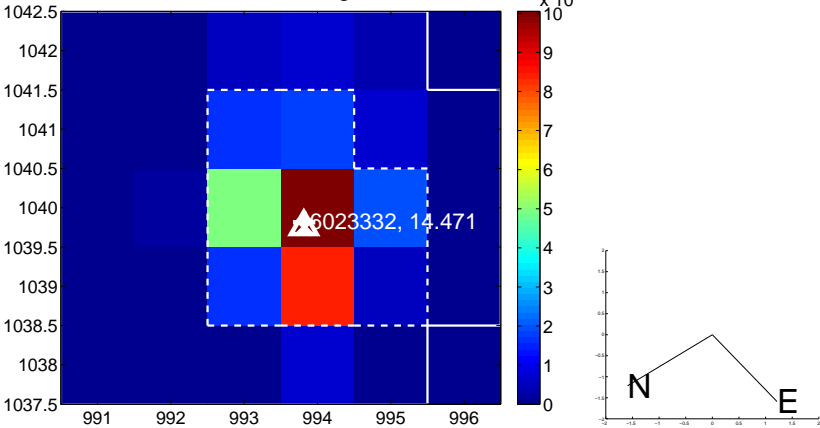
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



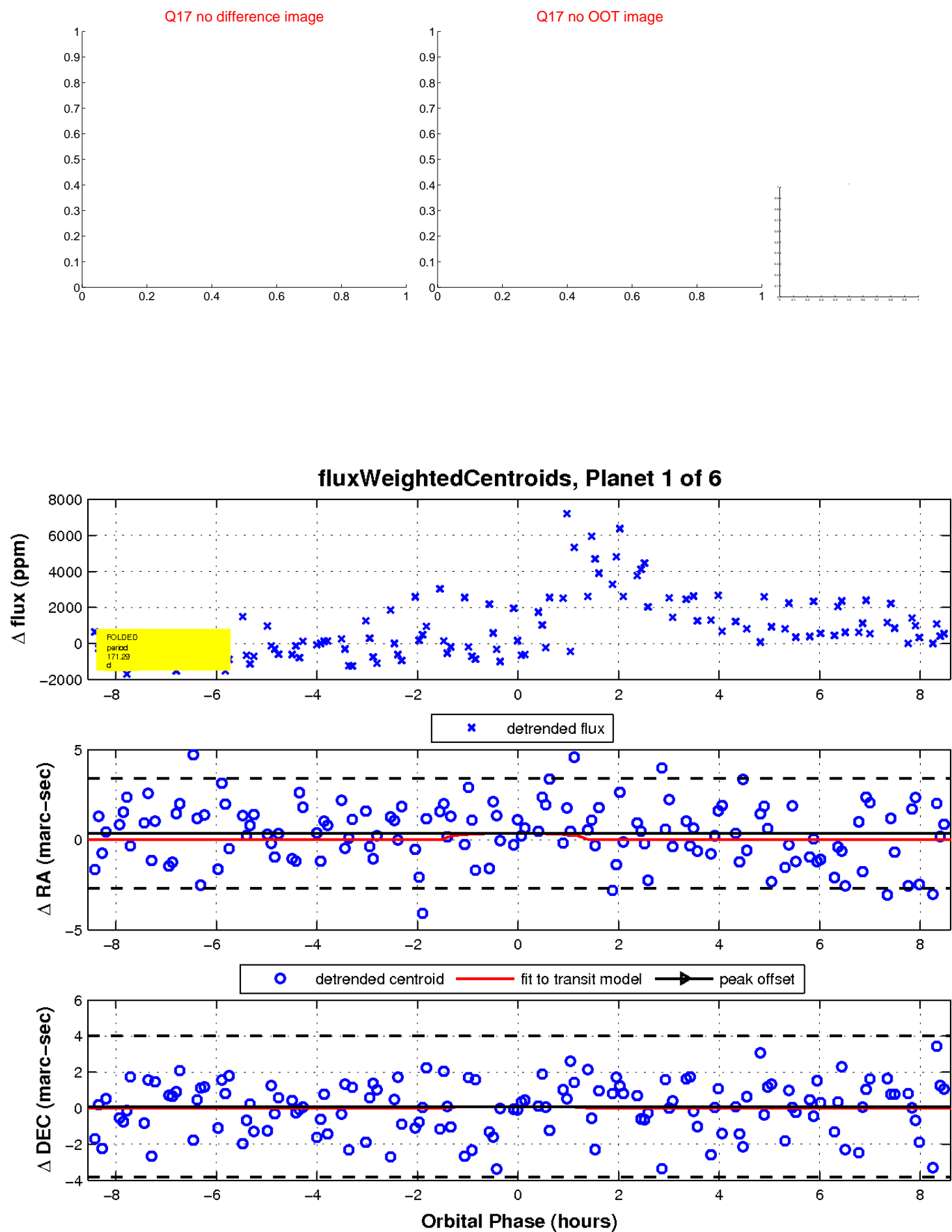
Q16 no difference image



Q16 no OOT image

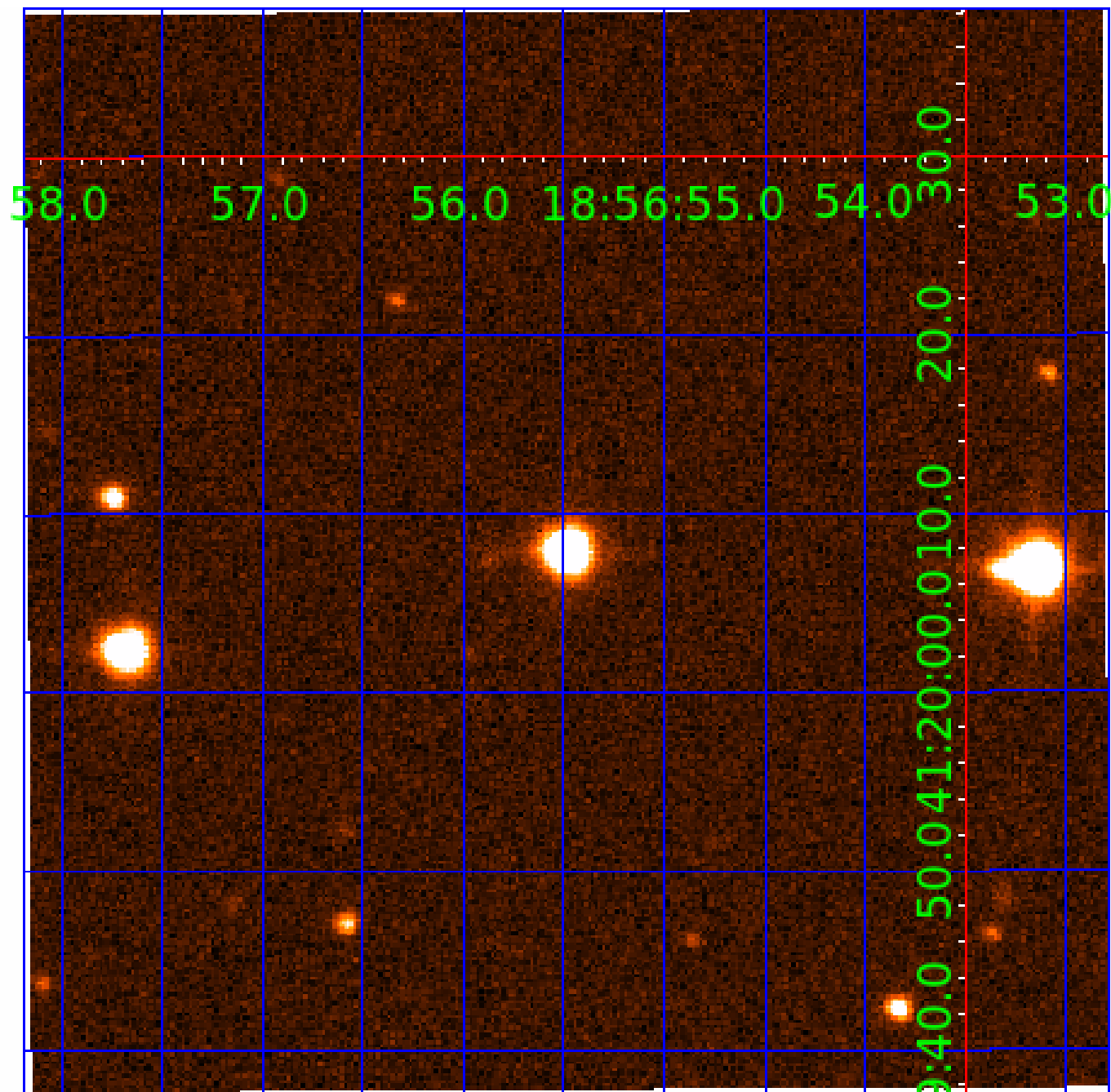


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006023332

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})
006023332-01	OBS	No	171.286757	160.893401	2716.3	2.879	14.9	13.1	0.65	4484	3.29	0.56
006023332-02	OBS	No	230.481441	172.970421	1736.5	6.473	15.5	6.2	0.65	4484	2.59	0.38
006023332-03	OBS	No	196.582340	142.088168	2141.5	2.700	16.7	8.8	0.65	4484	2.95	0.47
006023332-04	OBS	No	357.316067	203.995042	812.2	2.523	16.9	4.3	0.65	4484	2.04	0.21
006023332-05	OBS	No	387.928464	169.038829	1792.7	5.149	12.6	7.1	0.65	4484	3.01	0.19
006023332-06	OBS	No	371.670922	235.781589	712.6	3.265	14.2	3.5	0.65	4484	1.74	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006023332-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006023332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006023332-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
006023332-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006023332-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
006023332-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

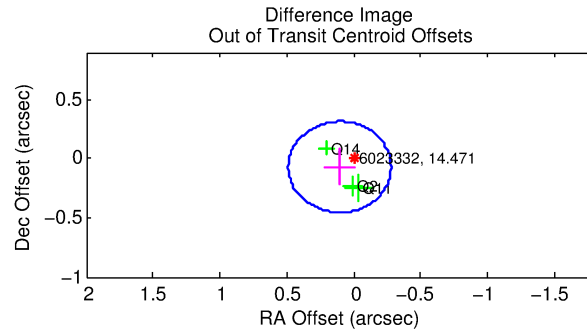
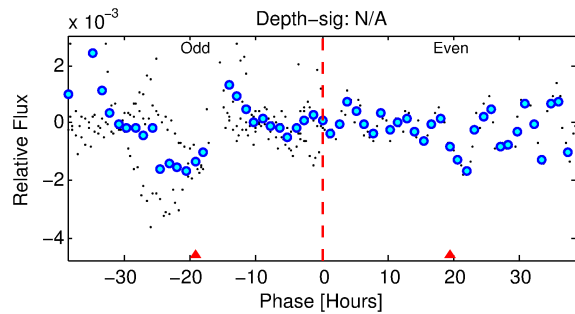
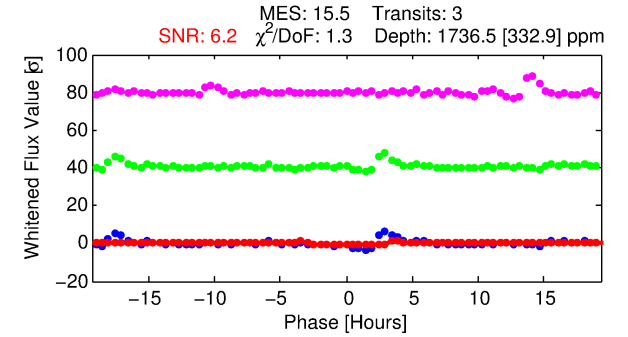
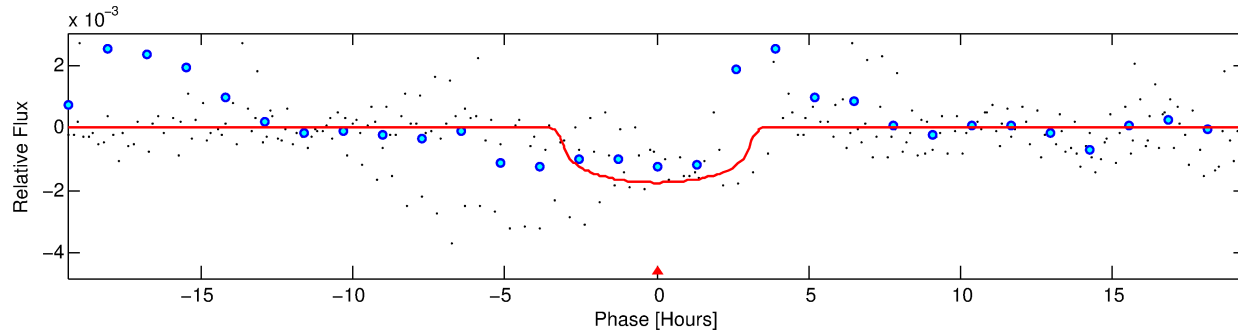
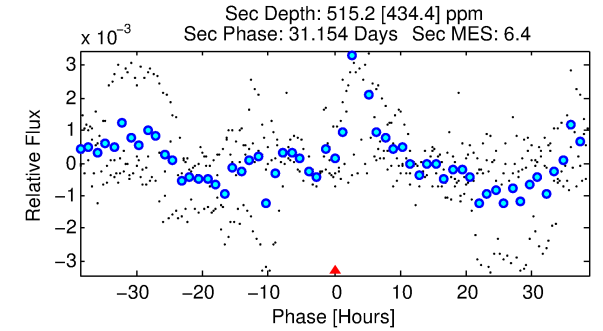
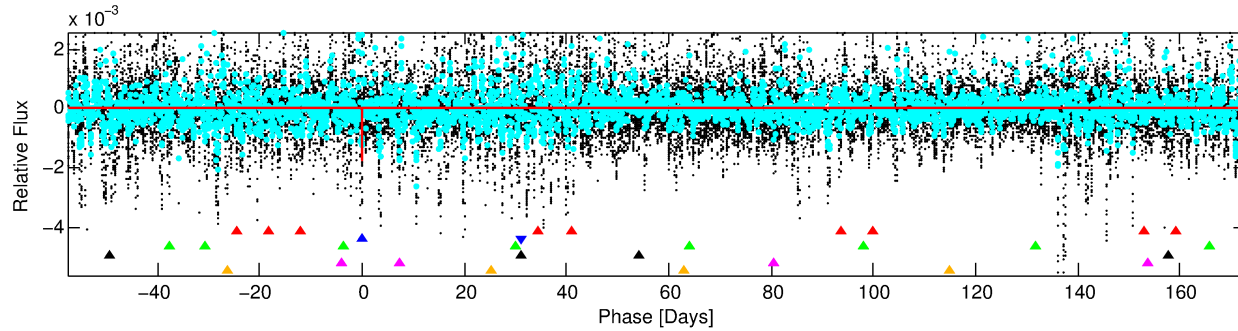
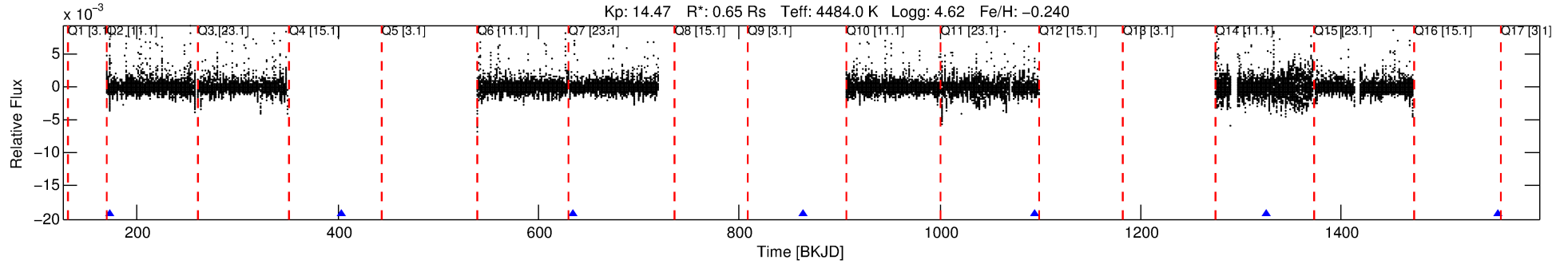
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006023332-02

No Significant Match Found

DV One-Page Summary

KIC: 6023332 Candidate: 2 of 6 Period: 230.481 d



DV Fit Results:

Period = 230.48144 [0.00241] d
Epoch = 172.9704 [0.0083] BKJD
Rp/R* = 0.0367 [0.0383]
a/R* = 279.57 [884.63]
b = 0.14 [23.37]
Seff = 0.38 [0.06]
Teq = 200 [8] K
Rp = 2.59 [2.72] Re
a = 0.6322 [0.0470] AU
Ag = 16845.52 [37995.32] [0.44] σ
Teff = 3528 [1990] K [1.67] σ

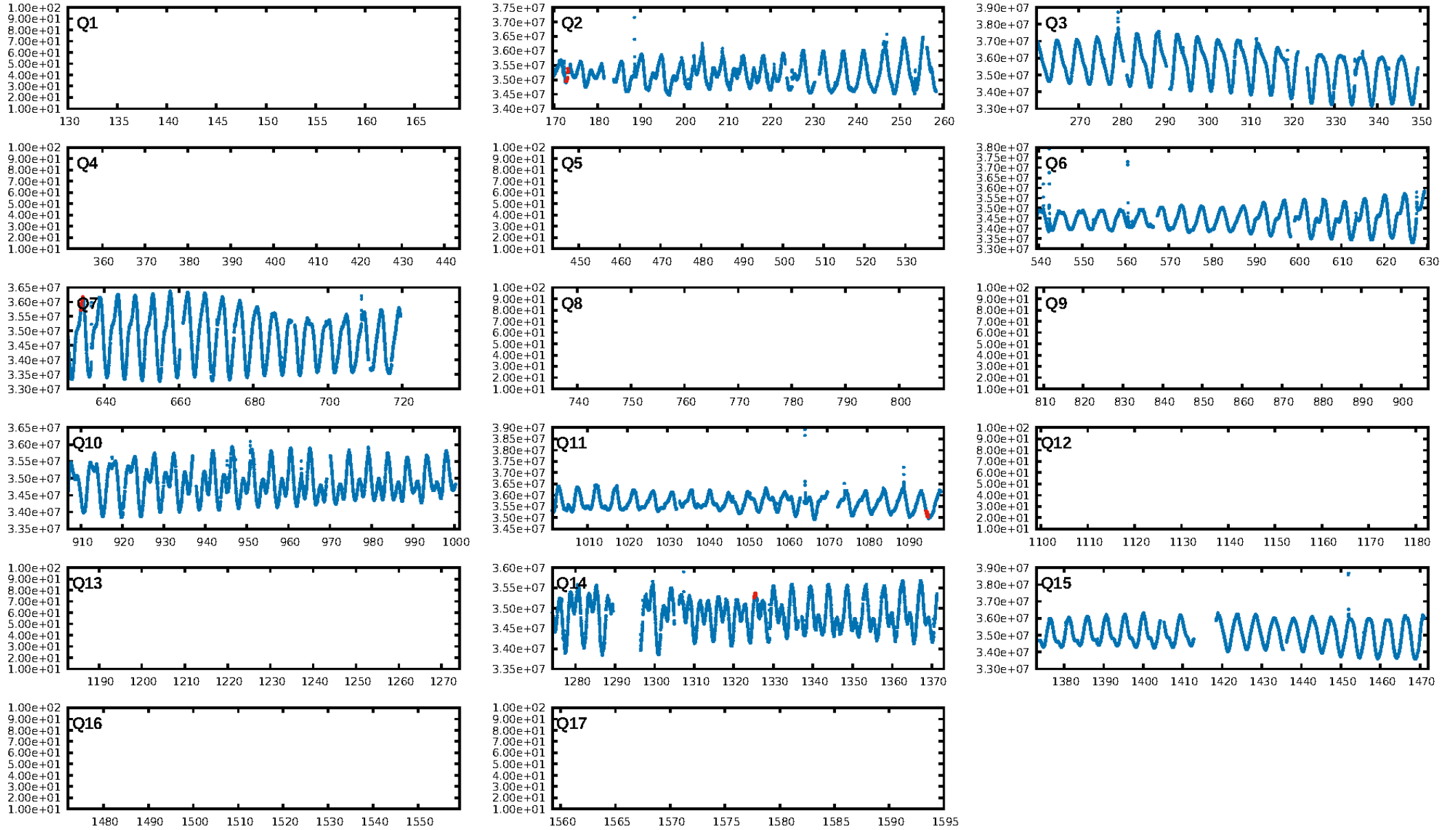
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [115.99] σ
LongPeriod-sig: 100.0% [438.14] σ
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 84.9%
Bootstrap-pfa: 3.14e-16
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.069
Centroid-sig: 17.9%
Centroid-so: 0.753 arcsec [1.53] σ
OotOffset-rm: 0.128 arcsec [1.00] σ
OotOffset-st: 2/1/0/0 [3]
KicOffset-rm: 0.304 arcsec [1.70] σ
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

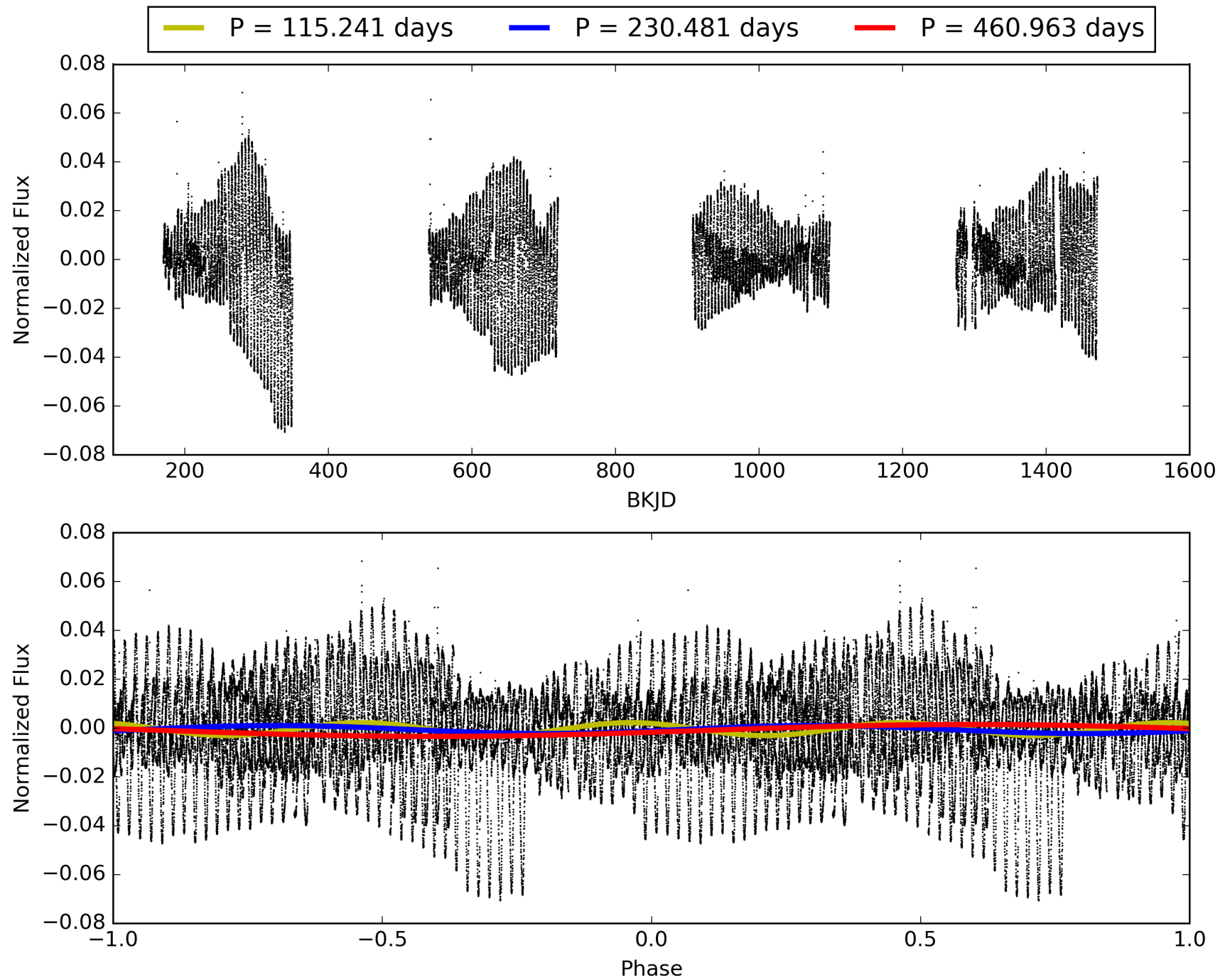
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:26:21 Z

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

TCE 006023332-02, PDC Light Curves

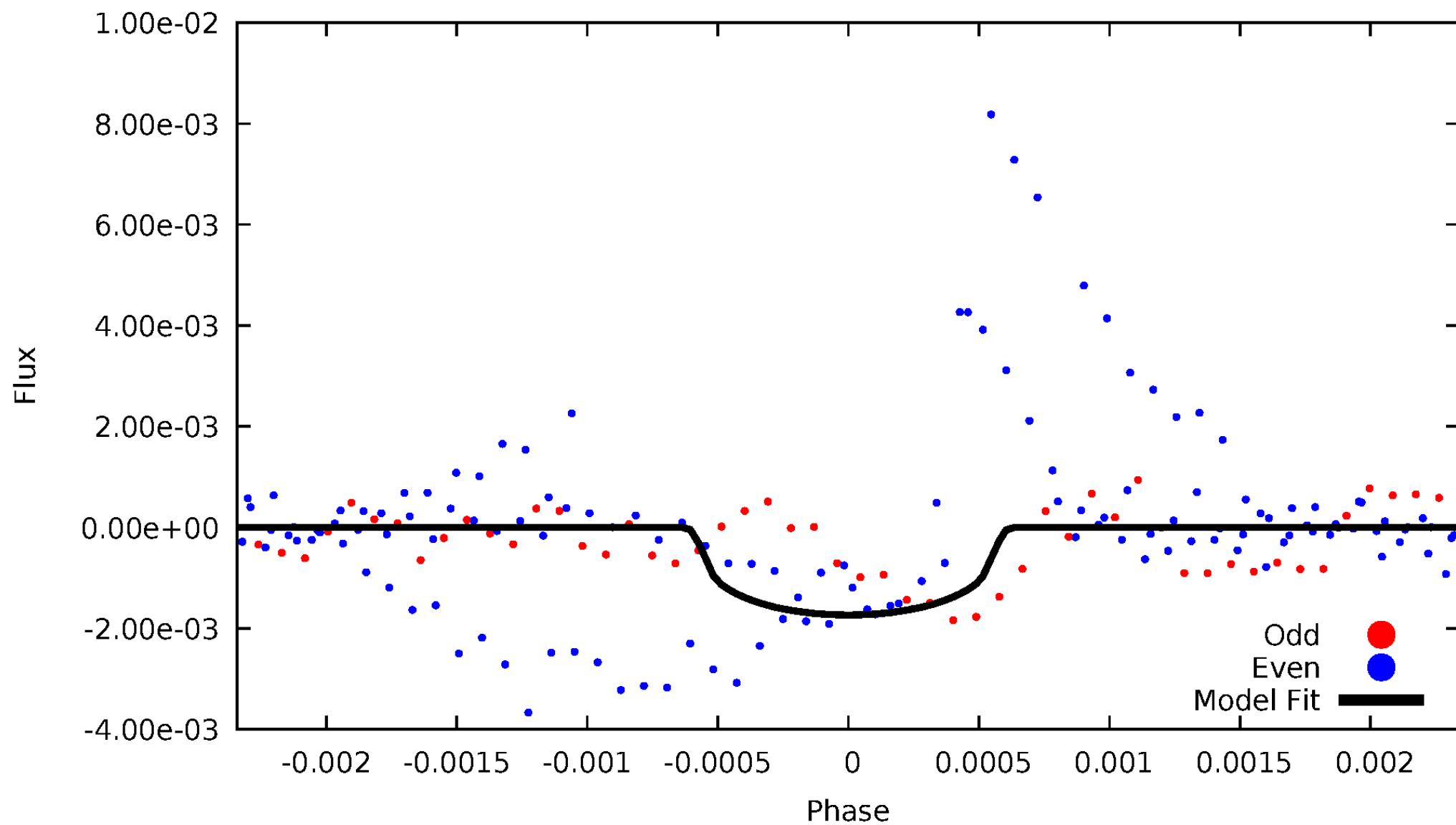


TCE 006023332-02



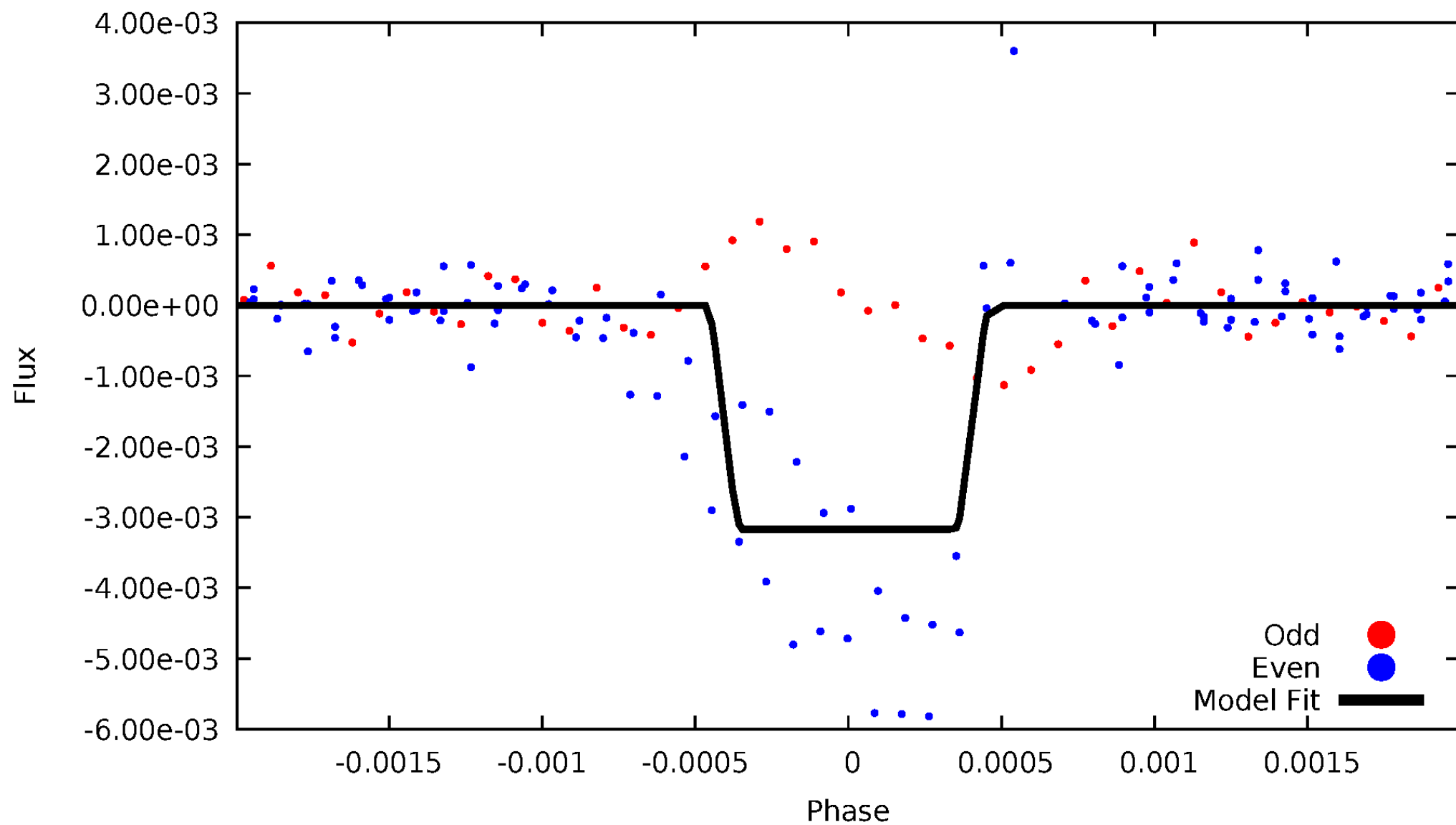
DV Odd/Even

TCE 006023332-02



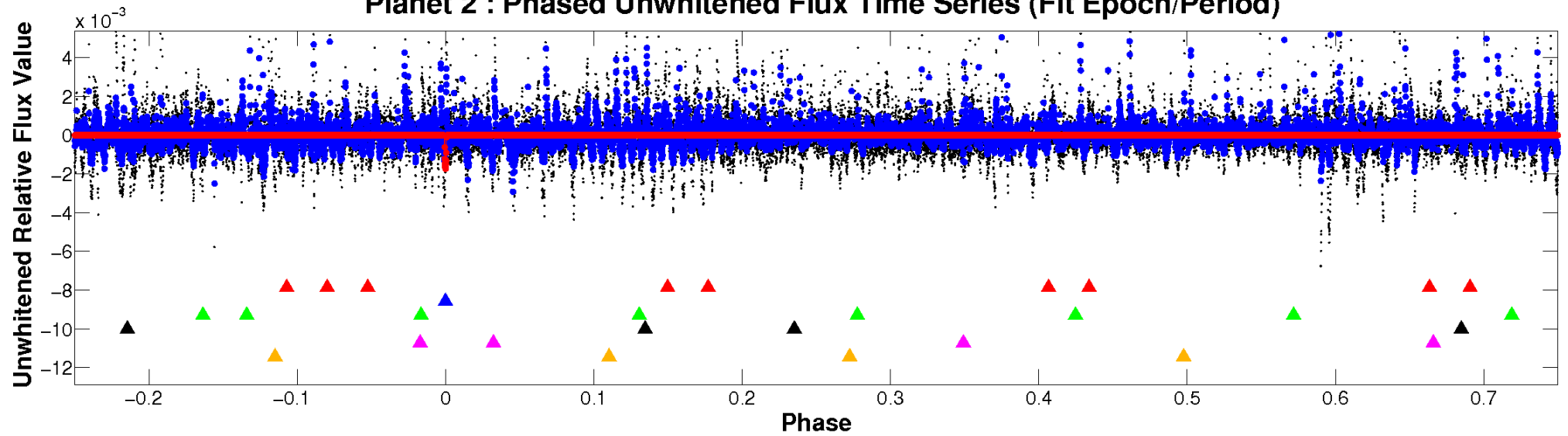
ALT Odd/Even

TCE 006023332-02

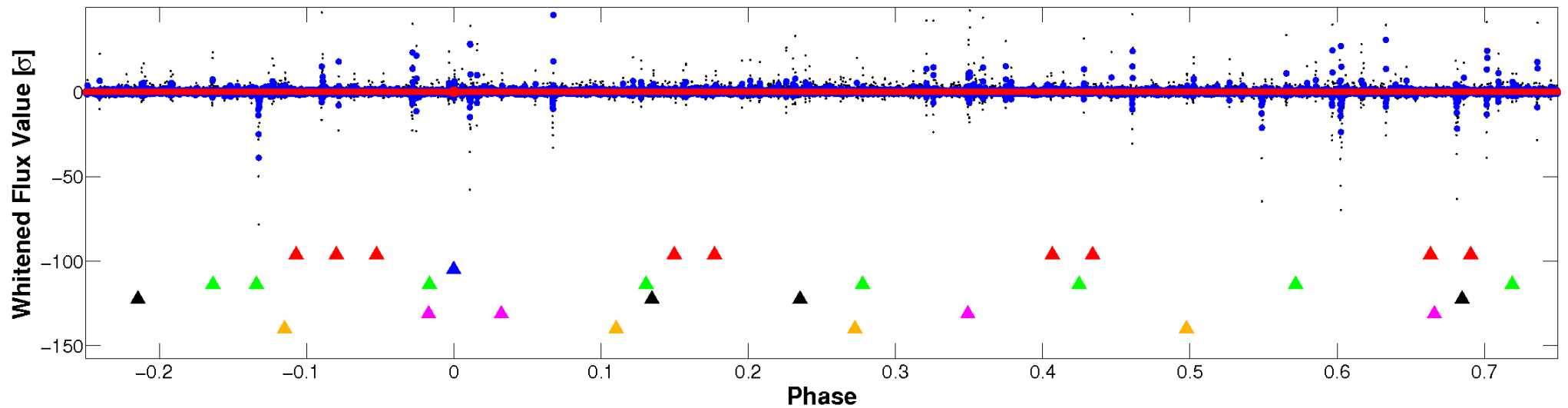


Non-Whitened Vs. Whitened Light Curve

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

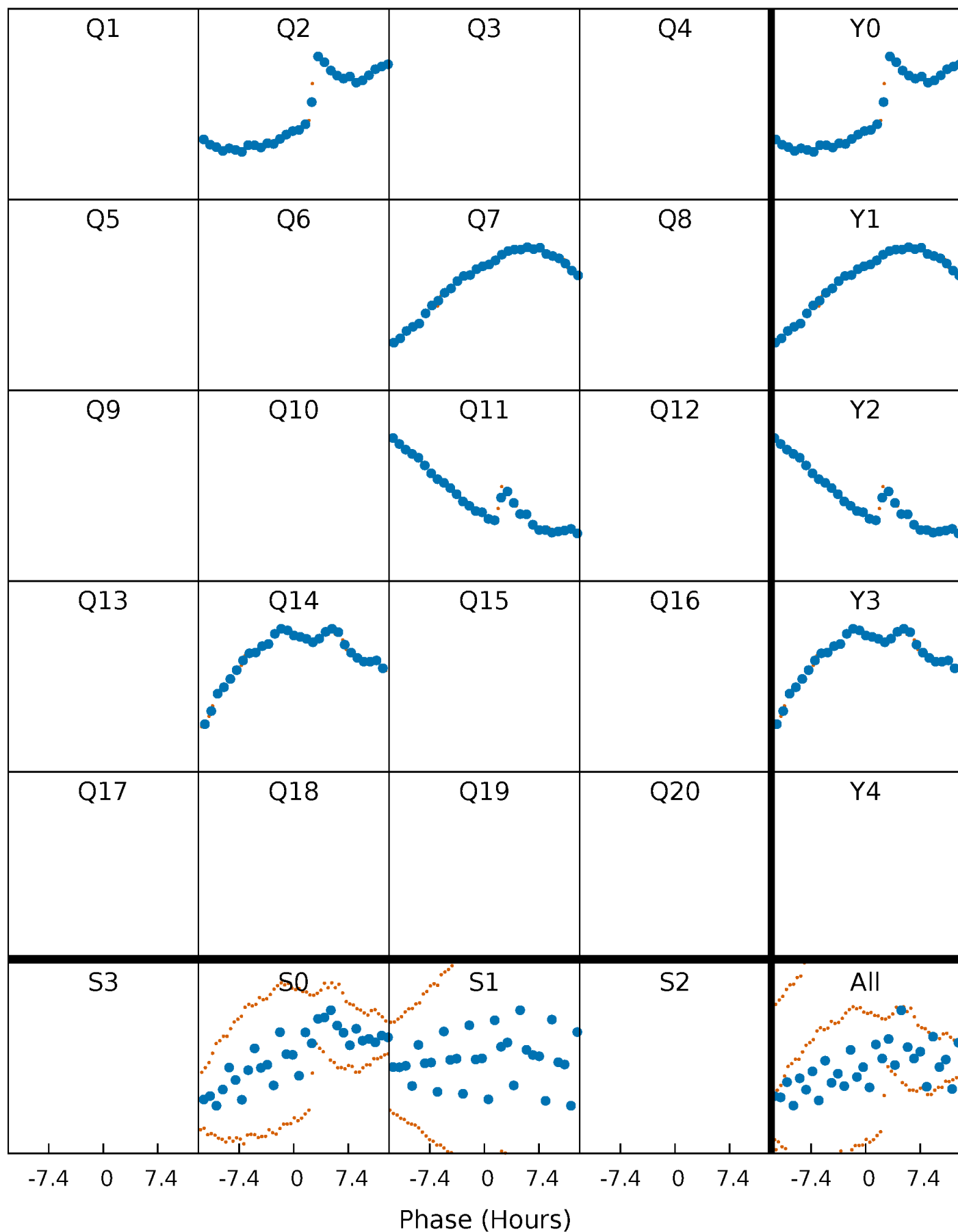


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



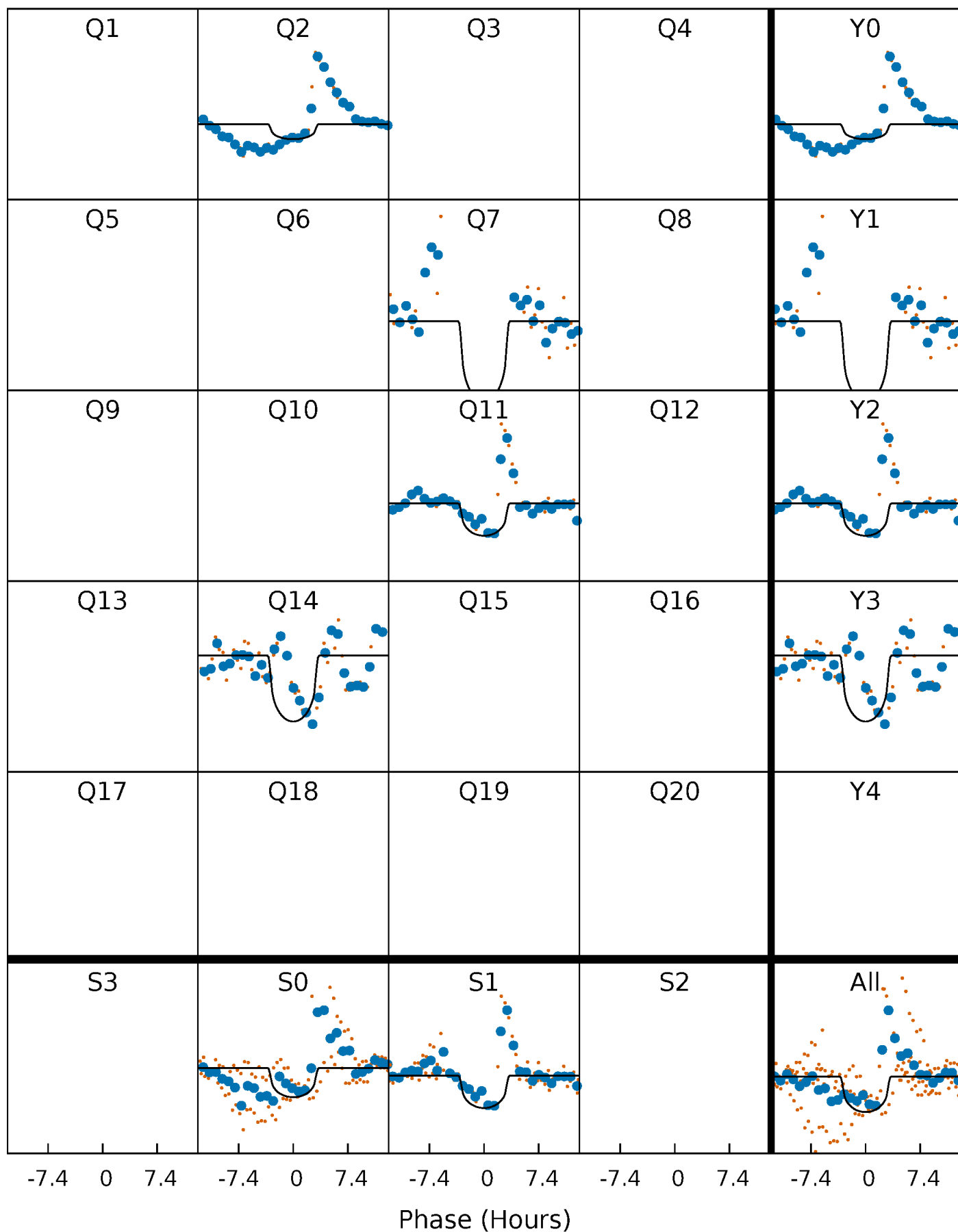
PDC Quarter-Phased Transit Curves

TCE 006023332-02 P=230.481441 Days $T_0=172.970421$ (BKJD)



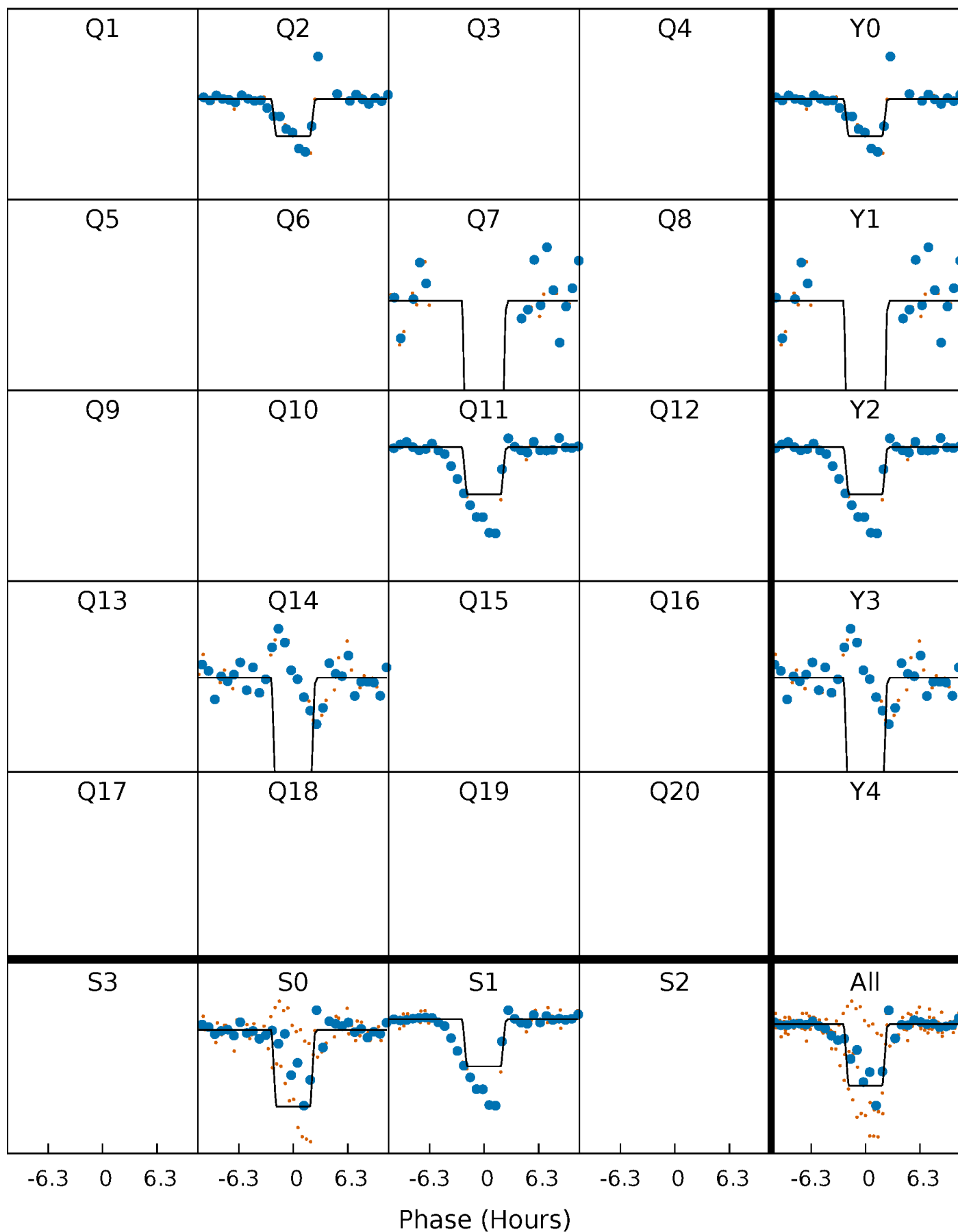
DV Quarter-Phased Transit Curves

TCE 006023332-02 P=230.481441 Days $T_0=172.970421$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

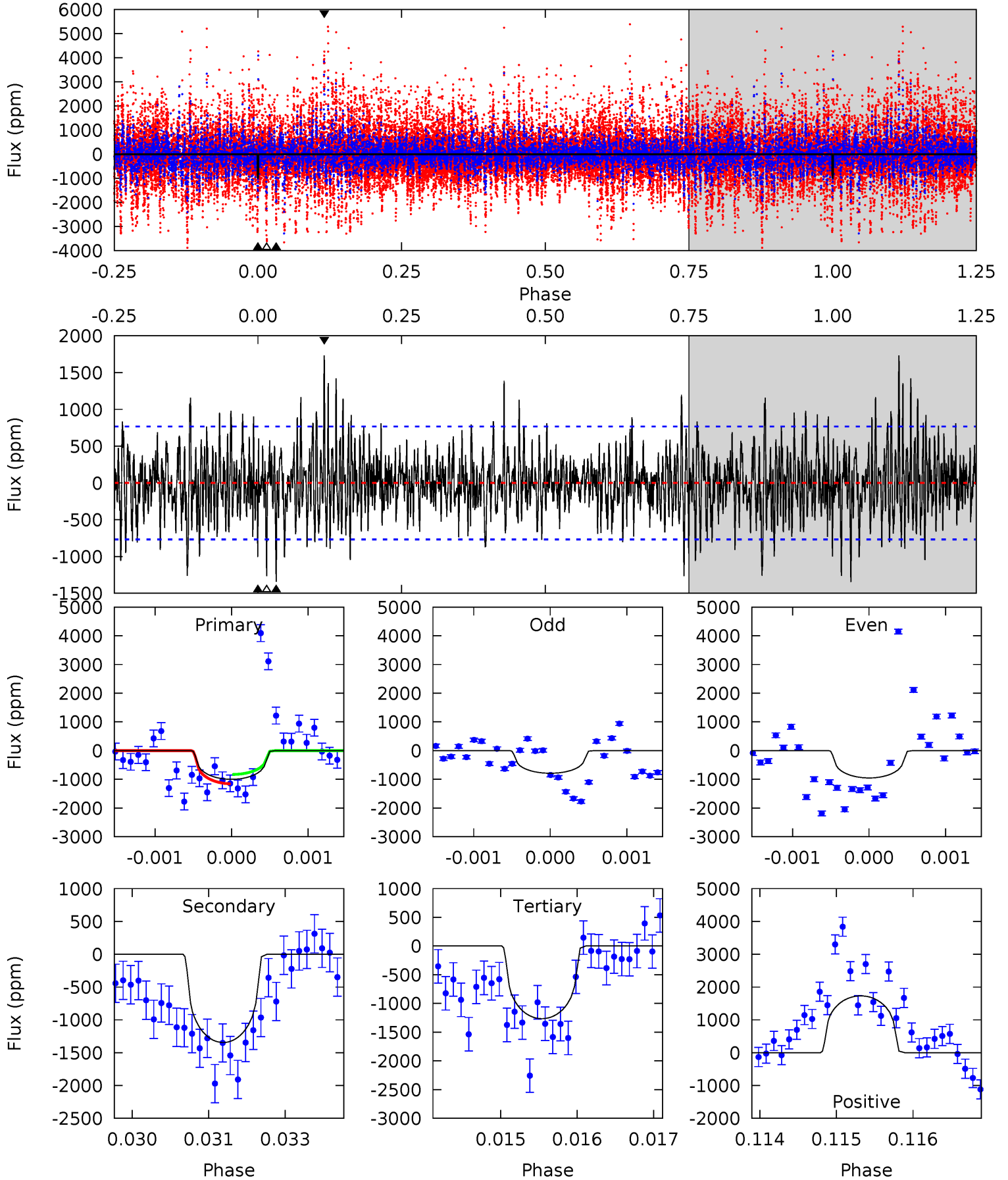
TCE 006023332-02 P=230.480267 Days $T_0=172.972009$ (BKJD)



DV Model-Shift Uniqueness Test

006023332-02, P = 230.481441 Days, E = 172.970421 Days

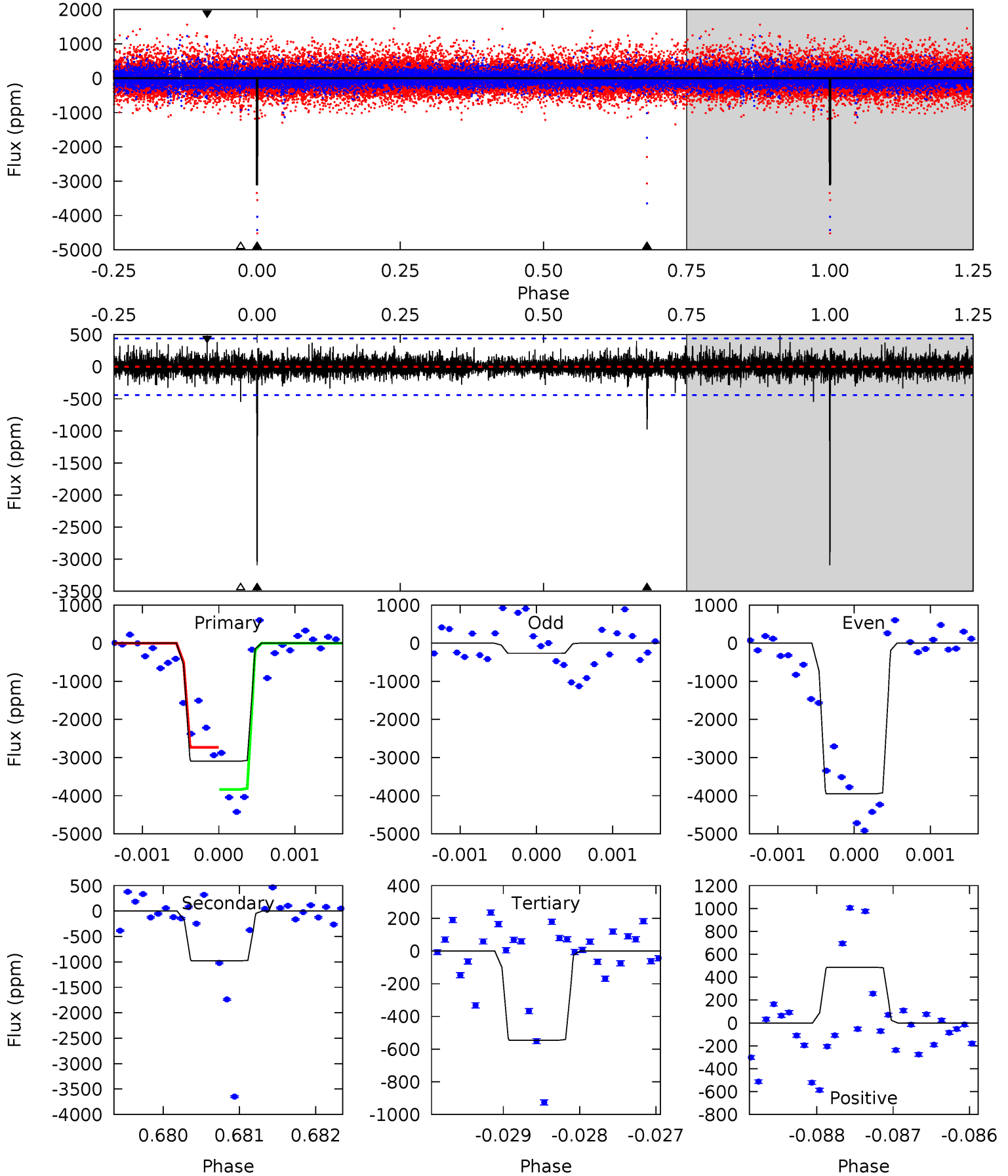
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.07	9.50	8.93	12.2	5.42	3.24	2.45	-1.86	-5.15	0.57	-2.73	0.42	1.00	0.56	1.16



Alt Model-Shift Uniqueness Test

006023332-02, P = 230.480267 Days, E = 172.972009 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.2	12.1	6.74	6.01	5.46	3.31	1.04	31.5	32.2	5.34	6.07	30.2	0.80	0.14	6.99



Stellar Parameters For KIC 006023332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4484^{+121}_{-134}	$4.617^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.648^{+0.046}_{-0.061}$	$0.634^{+0.070}_{-0.051}$	$3.280^{+0.763}_{-0.349}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-9%	+11%/-8%	+23%/-11%
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 006023332-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1345 ± 142	$3.09^{+2.25}_{-1.95}$	278^{+9}_{-9}	4180^{+2229}_{-719}	$31397^{+195461}_{-20677}$
Alt.	-977 ± 81	$4.31^{+2.67}_{-2.45}$	278^{+9}_{-9}	3534^{+1303}_{-466}	12007^{+49982}_{-7582}

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 $A_{obs} \gg 1.0$

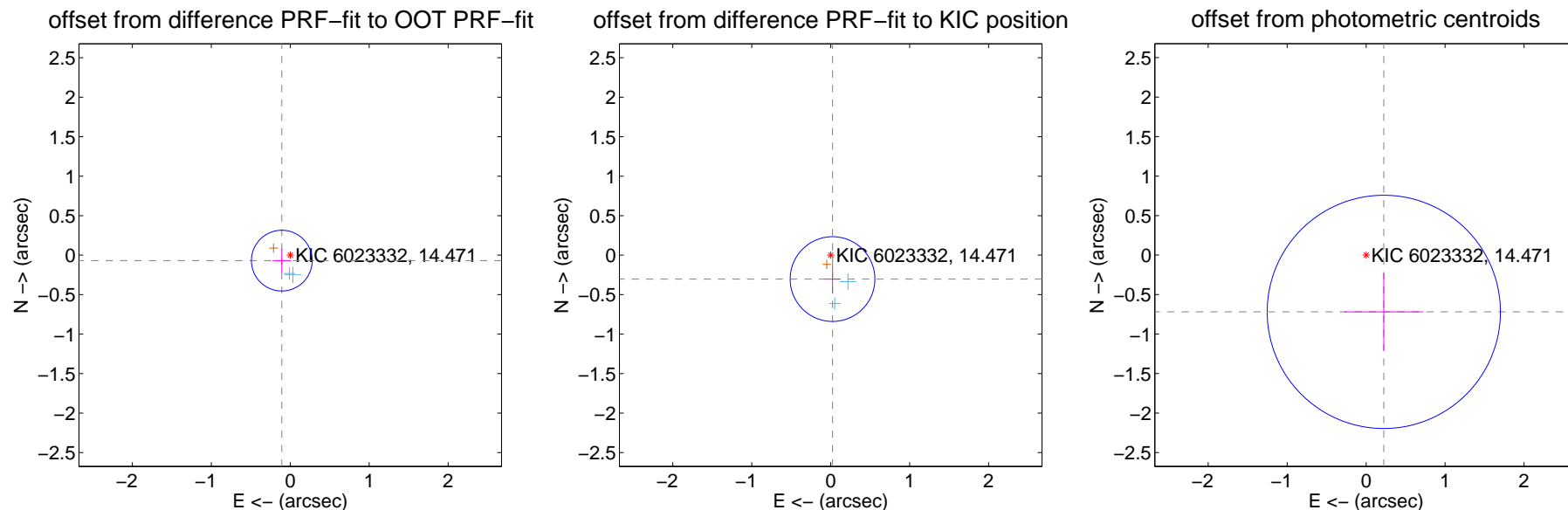
DV Centroid Data

Supplemental centroid analysis for 006023332-02. Kepler magnitude: 14.47. Transit SNR 6.17

There are 2 quarters with good PRF difference image offsets

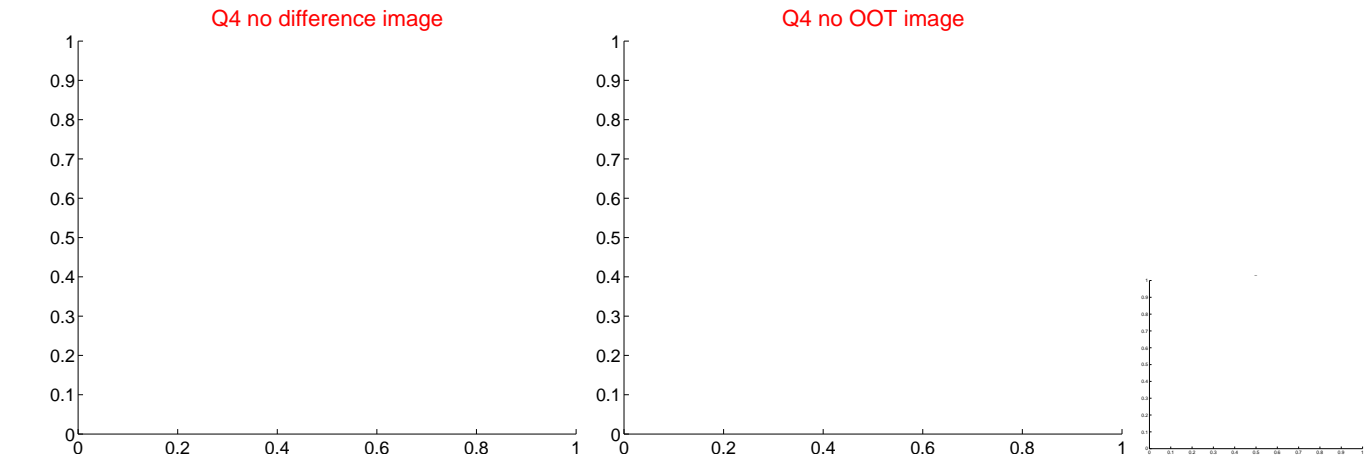
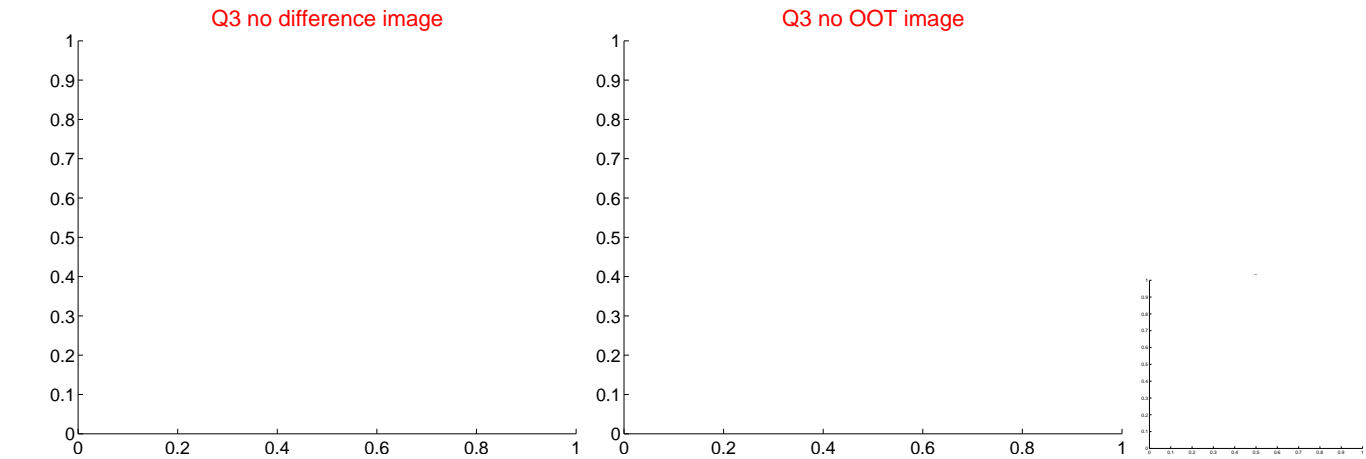
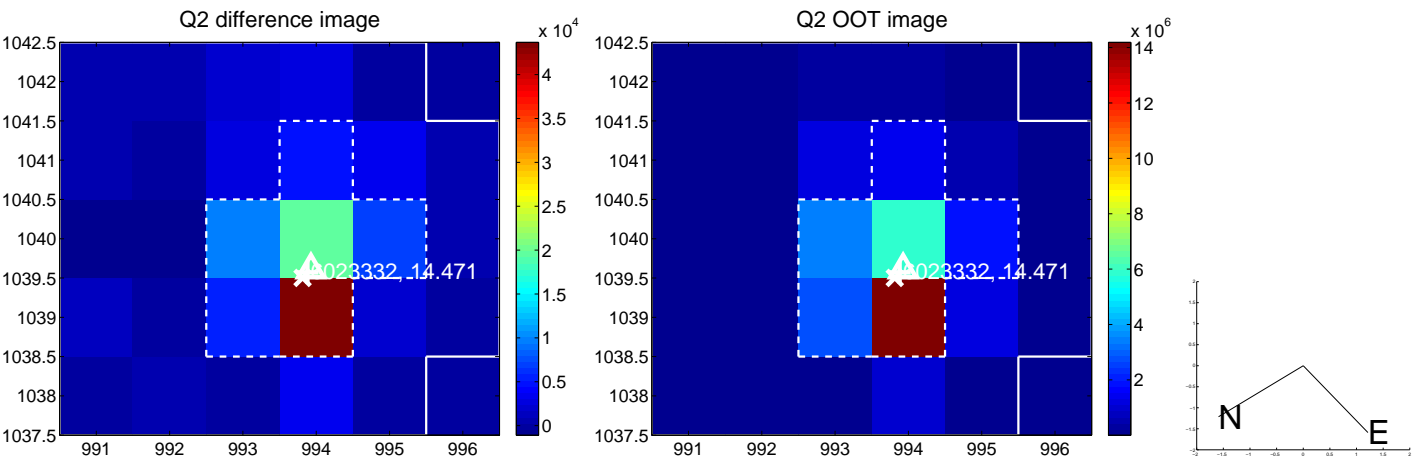
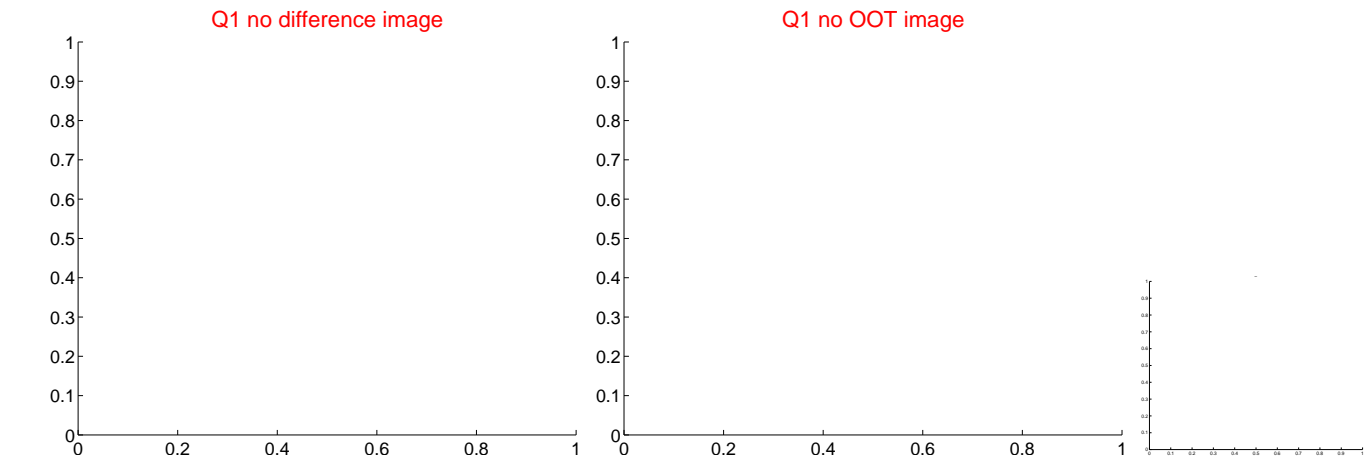
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.128 ± 0.128	1.00	0.107 ± 0.117	-0.069 ± 0.152
PRF-fit source offset from KIC position	0.304 ± 0.179	1.70	-0.023 ± 0.099	-0.303 ± 0.179
photometric centroid source offset	0.75 ± 0.49	1.53	-0.22 ± 0.50	-0.72 ± 0.49



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.

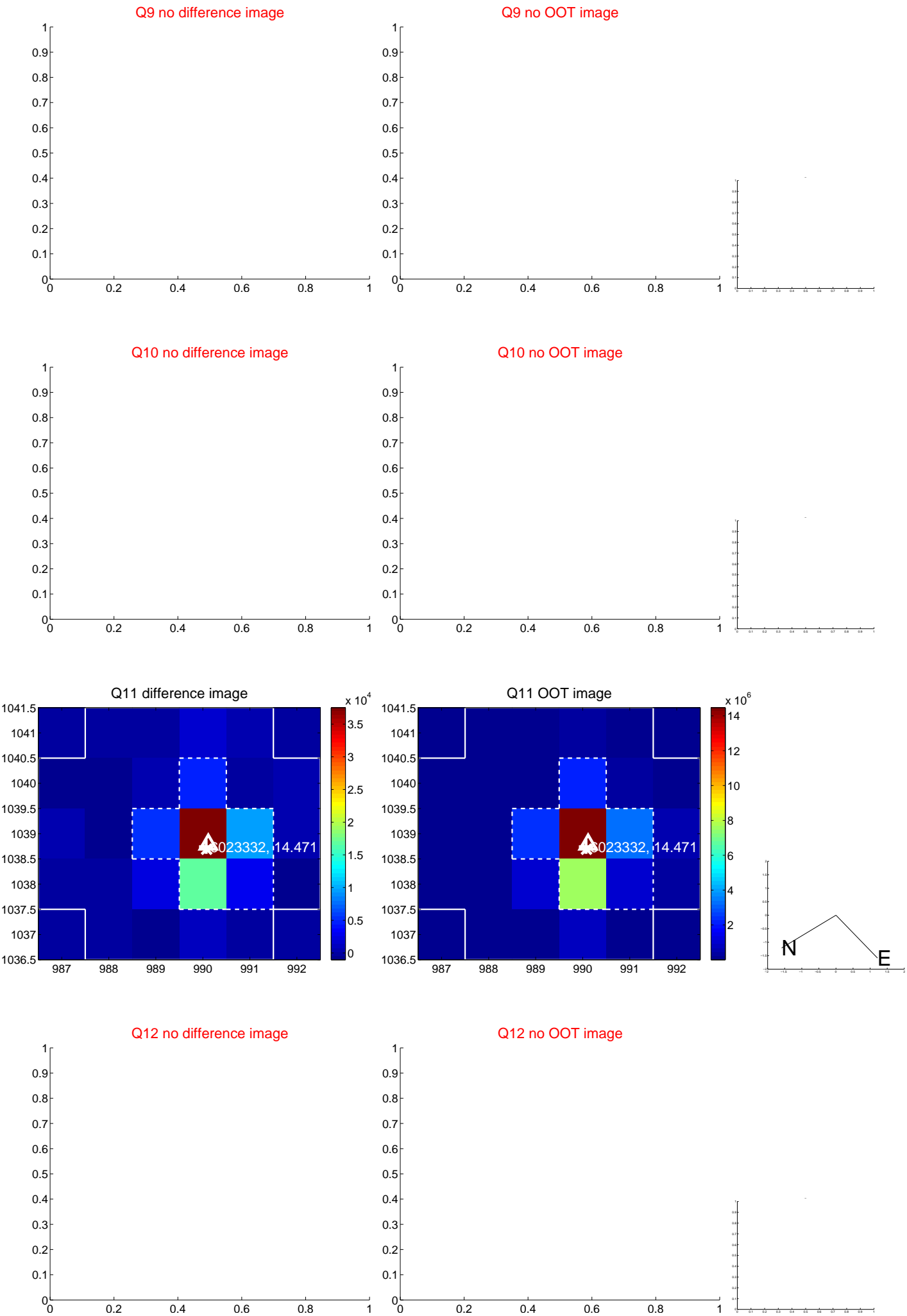
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



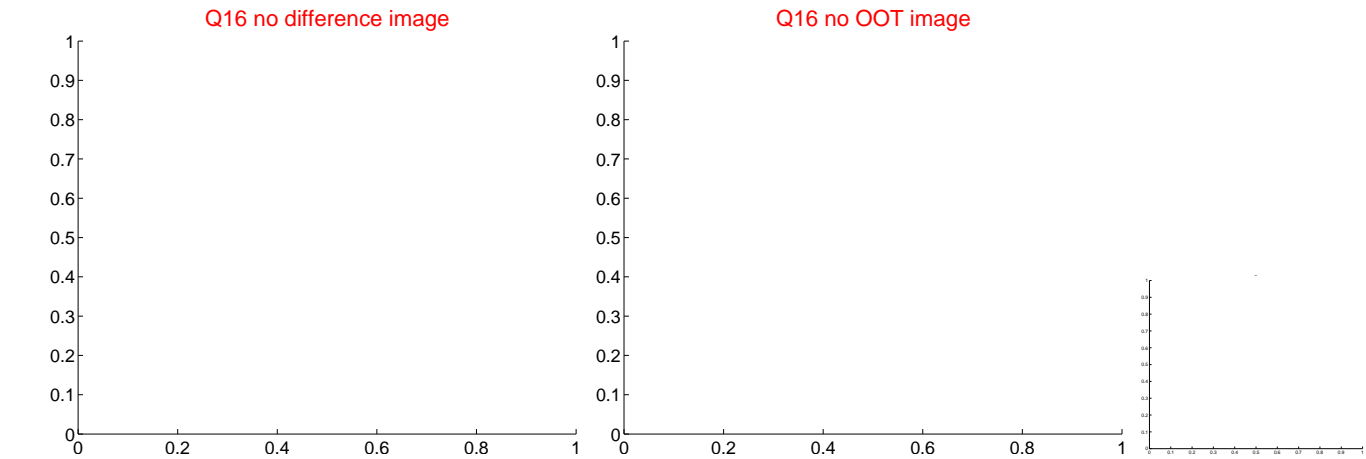
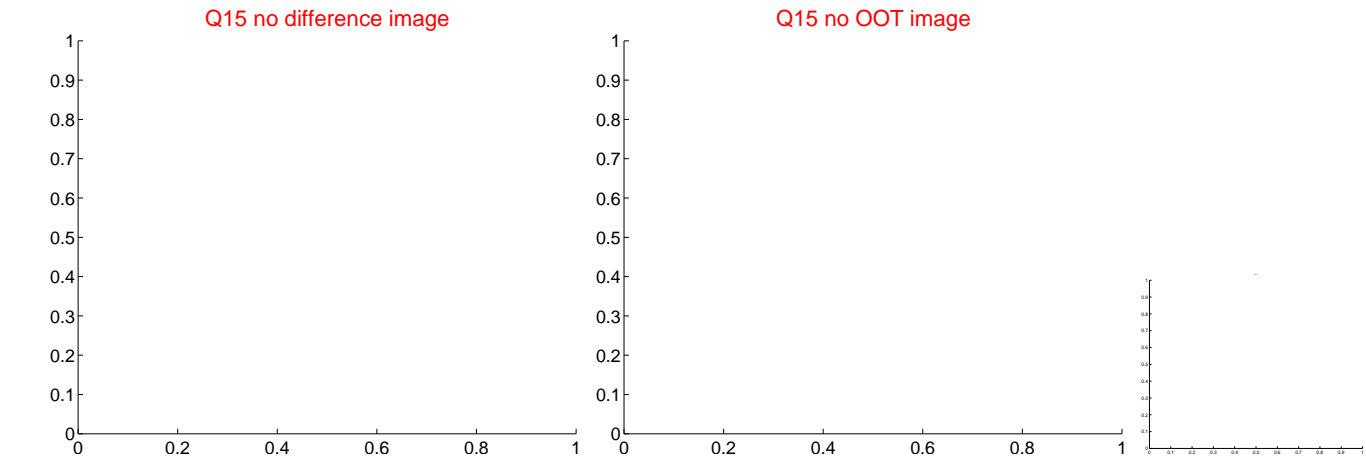
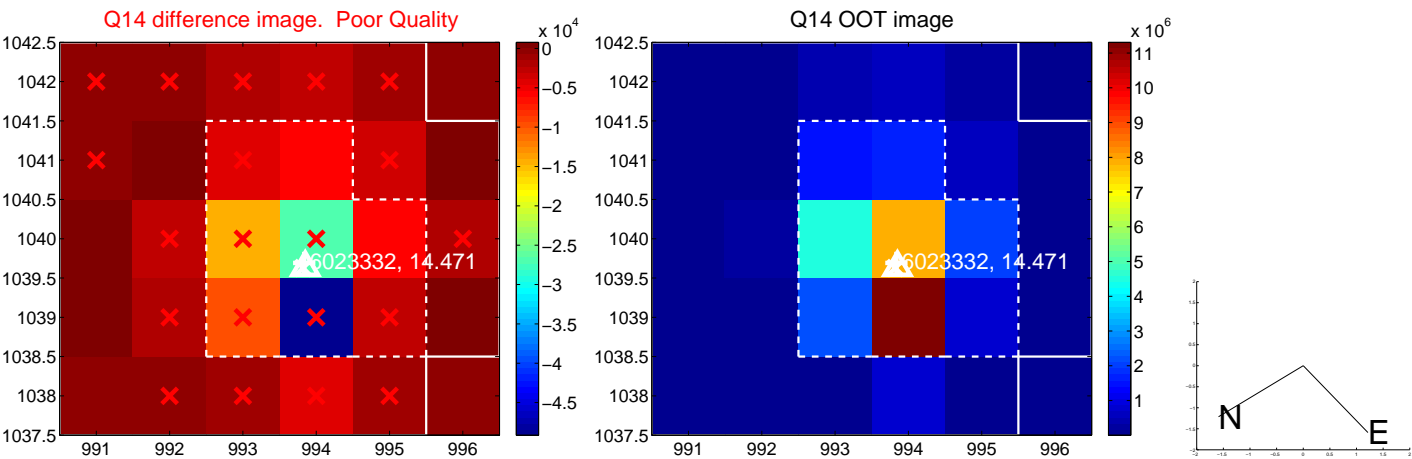
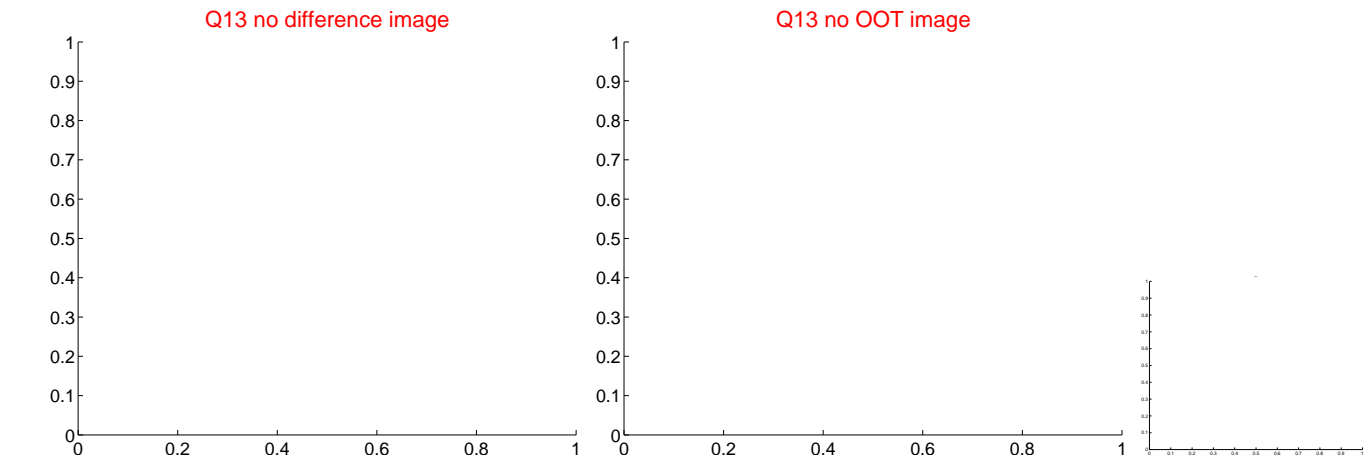
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



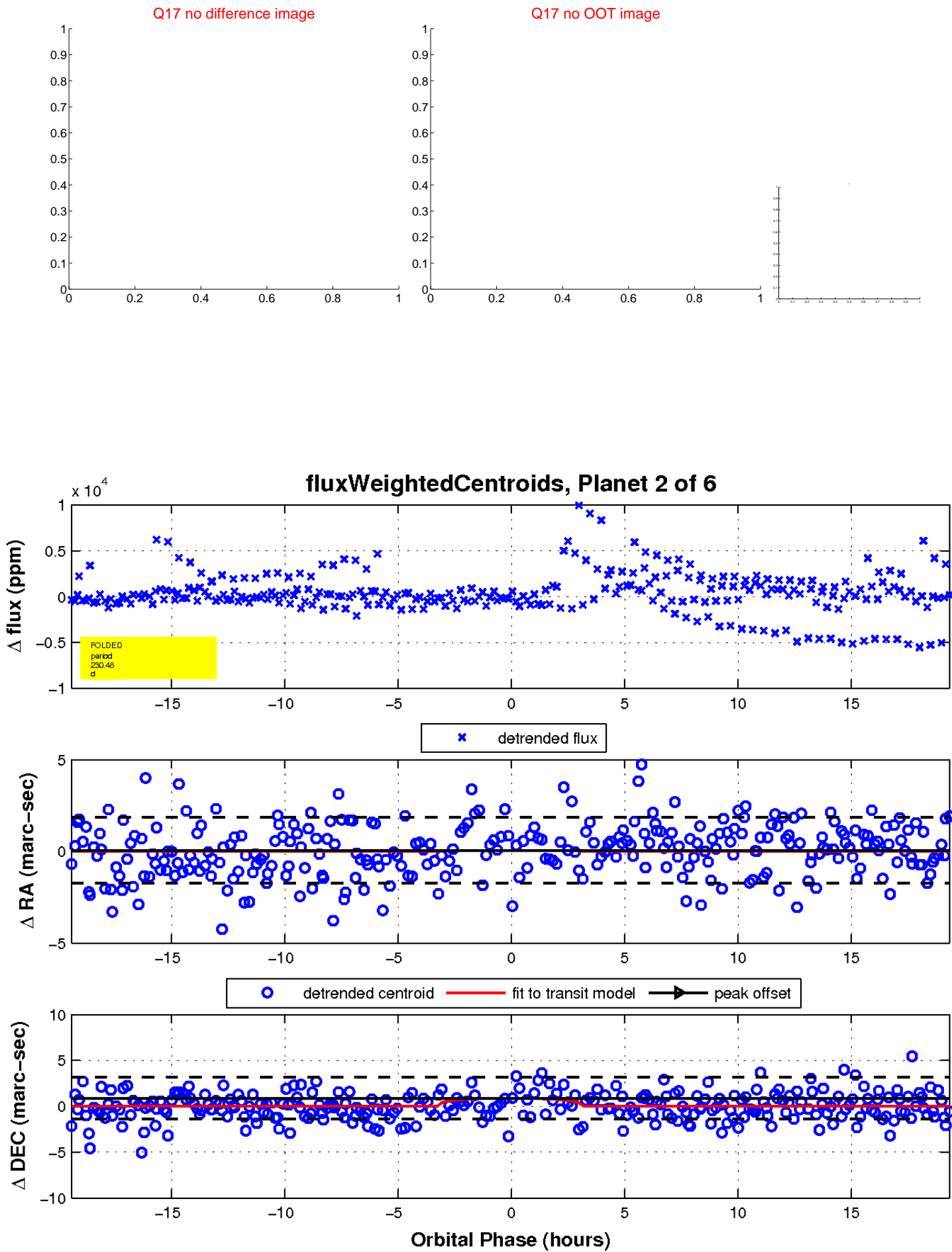
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

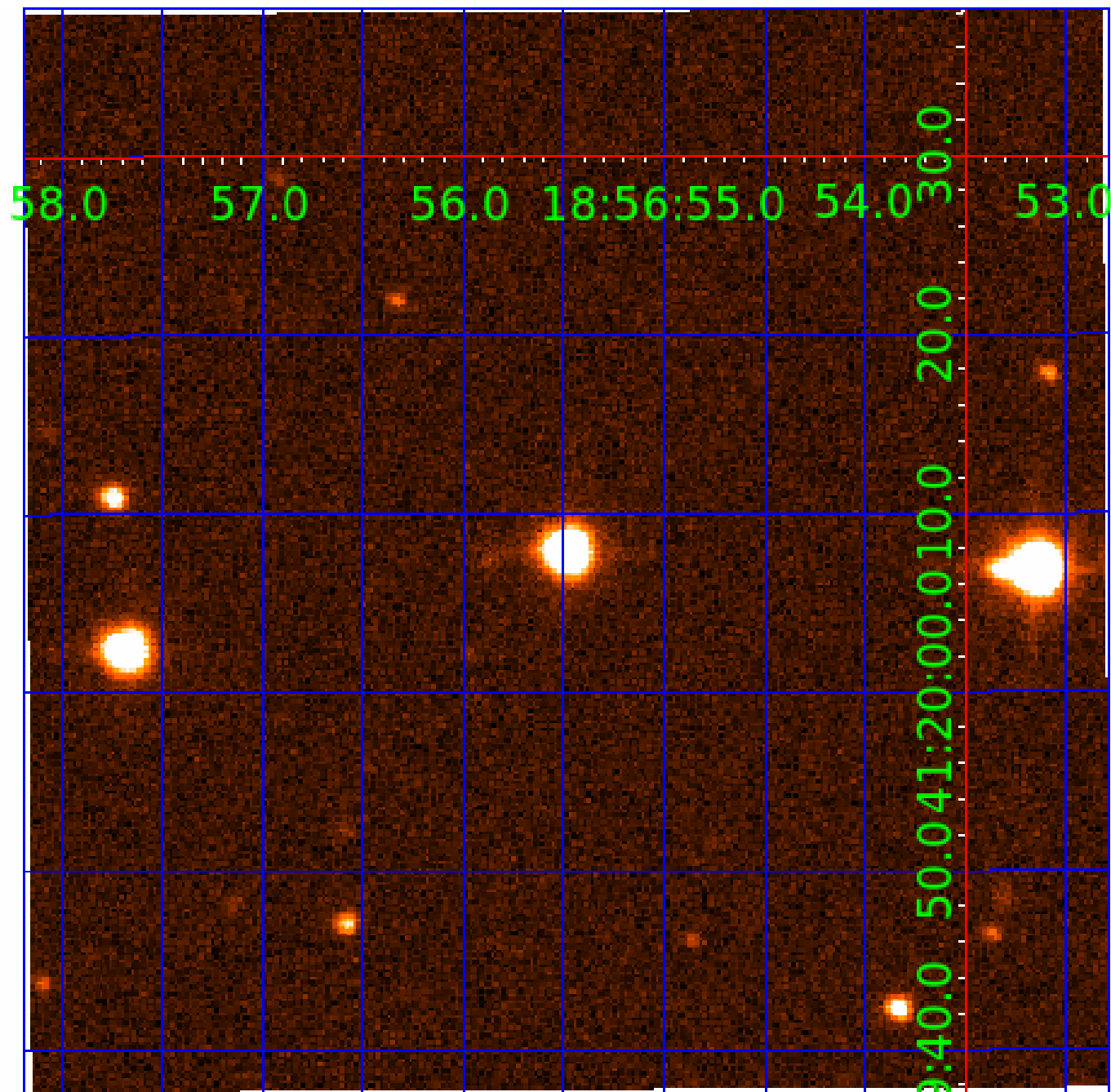


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006023332

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})
006023332-01	OBS	No	171.286757	160.893401	2716.3	2.879	14.9	13.1	0.65	4484	3.29	0.56
006023332-02	OBS	No	230.481441	172.970421	1736.5	6.473	15.5	6.2	0.65	4484	2.59	0.38
006023332-03	OBS	No	196.582340	142.088168	2141.5	2.700	16.7	8.8	0.65	4484	2.95	0.47
006023332-04	OBS	No	357.316067	203.995042	812.2	2.523	16.9	4.3	0.65	4484	2.04	0.21
006023332-05	OBS	No	387.928464	169.038829	1792.7	5.149	12.6	7.1	0.65	4484	3.01	0.19
006023332-06	OBS	No	371.670922	235.781589	712.6	3.265	14.2	3.5	0.65	4484	1.74	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006023332-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006023332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006023332-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
006023332-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006023332-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
006023332-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

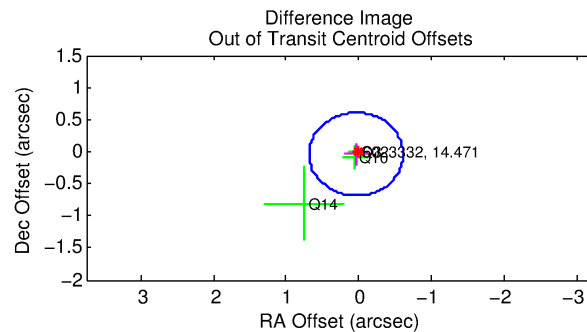
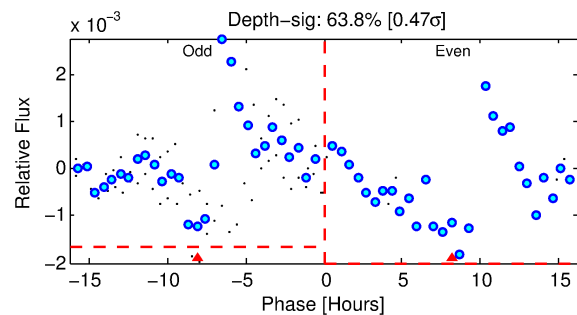
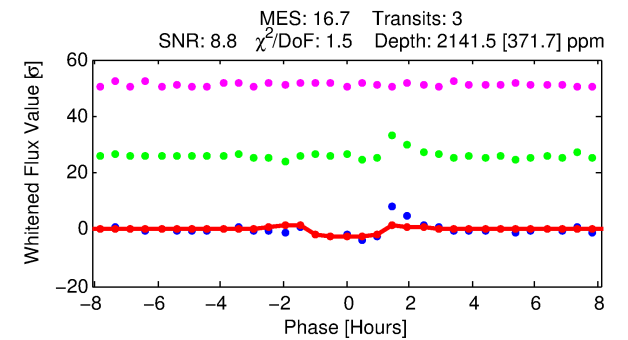
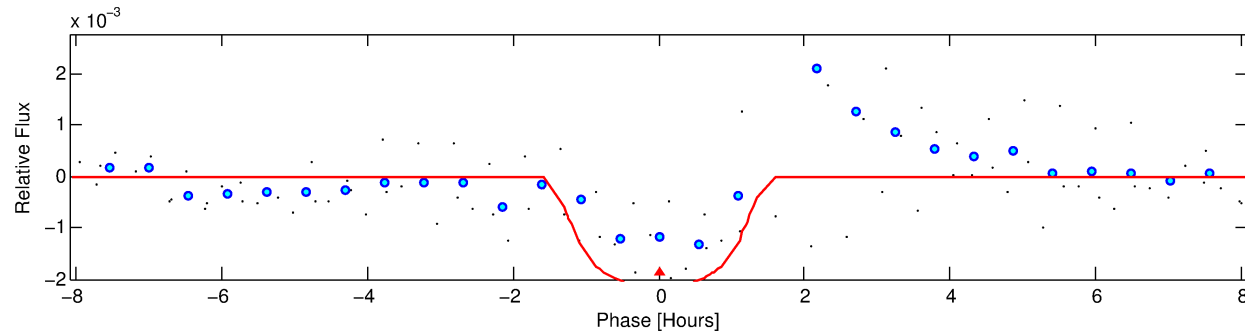
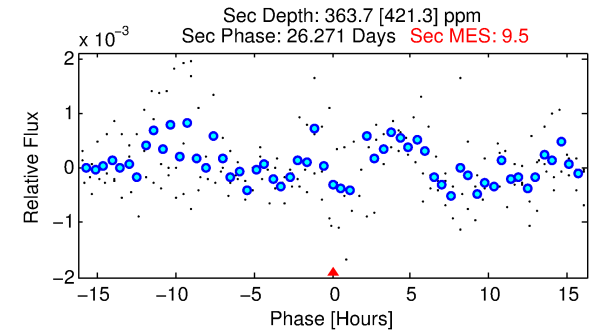
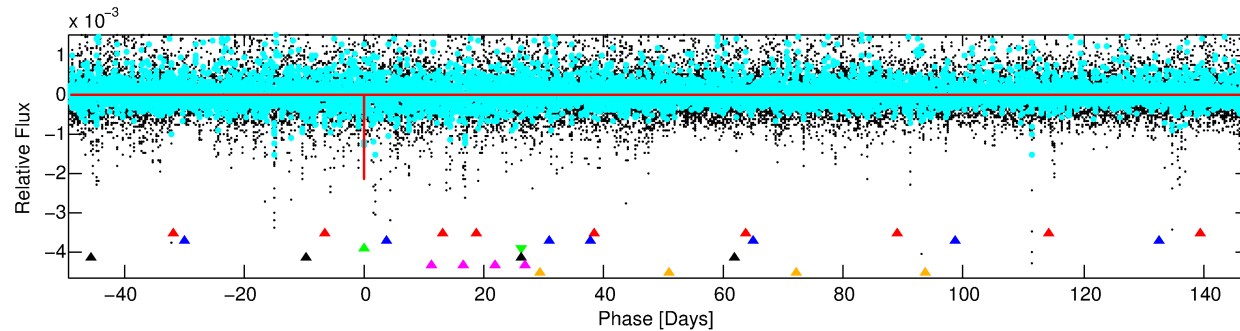
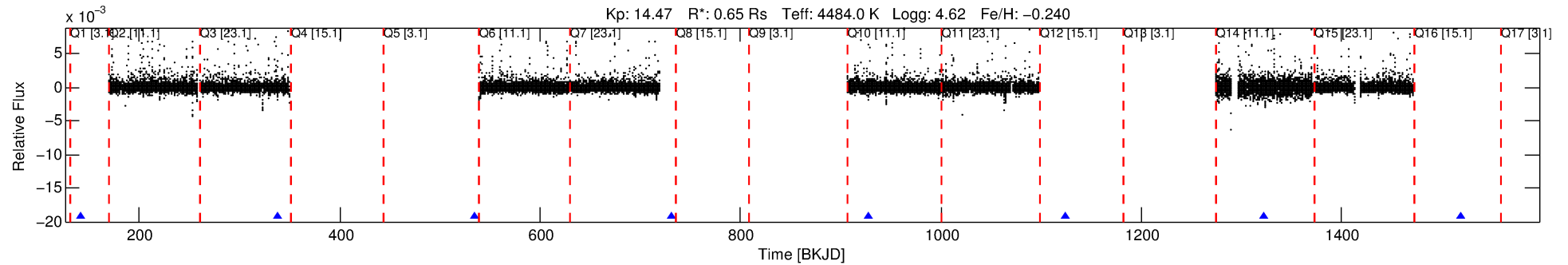
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006023332-03

No Significant Match Found

DV One-Page Summary

KIC: 6023332 Candidate: 3 of 6 Period: 196.582 d



DV Fit Results:

Period = 196.58234 [0.00130] d
Epoch = 142.0882 [0.0052] BKJD
Rp/R* = 0.0417 [0.1089]
a/R* = 543.01 [4277.43]
b = 0.36 [19.37]
Seff = 0.47 [0.07]
Teq = 211 [8] K
Rp = 2.95 [7.71] Re
a = 0.5686 [0.0423] AU
Ag = 7446.90 [39874.17] [0.19 σ]
Teffp = 3033 [4061] K [0.69 σ]

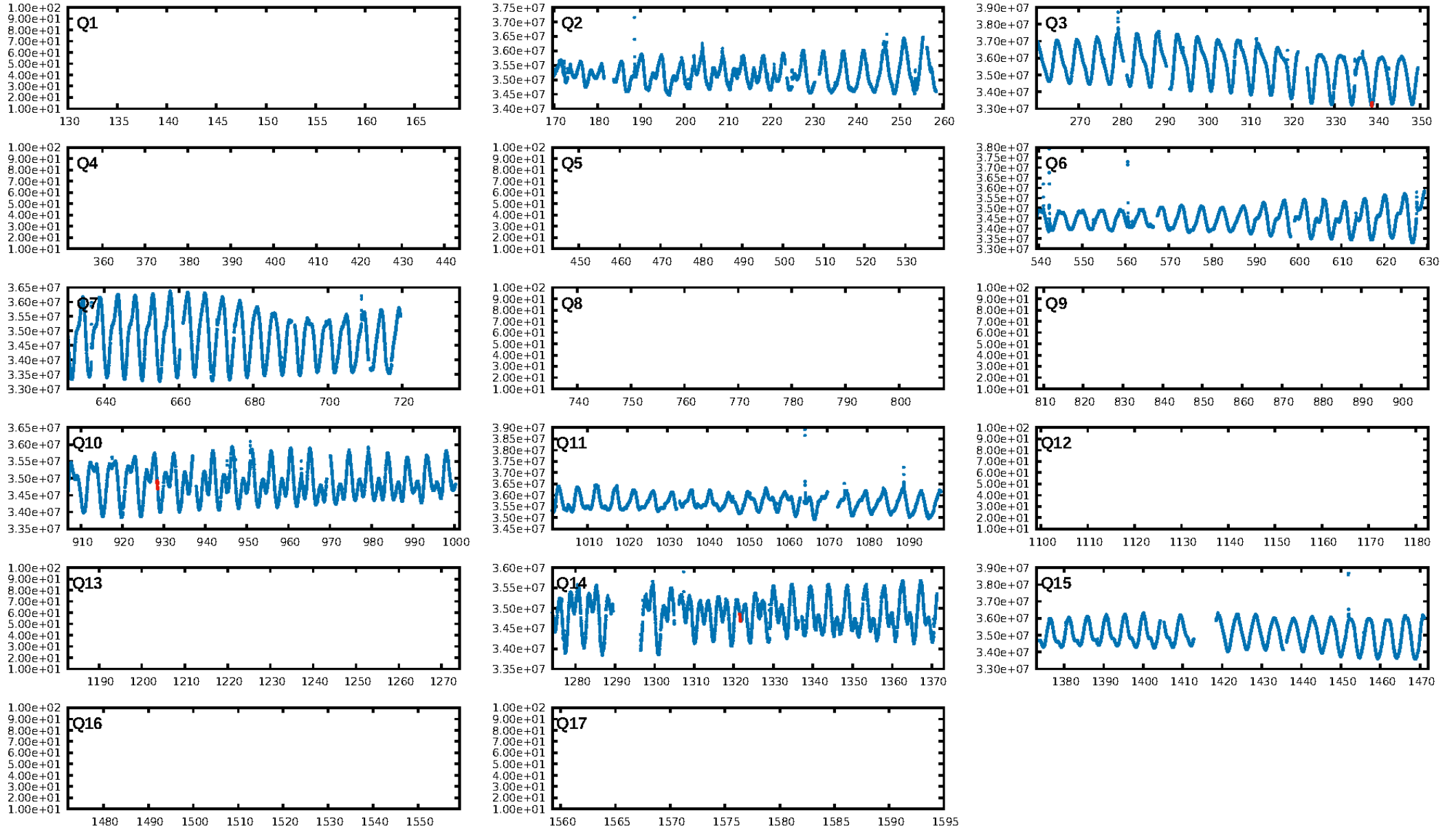
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [153.79 σ]
LongPeriod-sig: 100.0% [115.99 σ]
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 15.7%
Bootstrap-pfa: 2.86e-19
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 10.07
Centroid-sig: 63.6%
Centroid-so: 0.345 arcsec [0.56 σ]
OotOffset-rm: 0.055 arcsec [0.25 σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-rm: 0.095 arcsec [0.31 σ]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

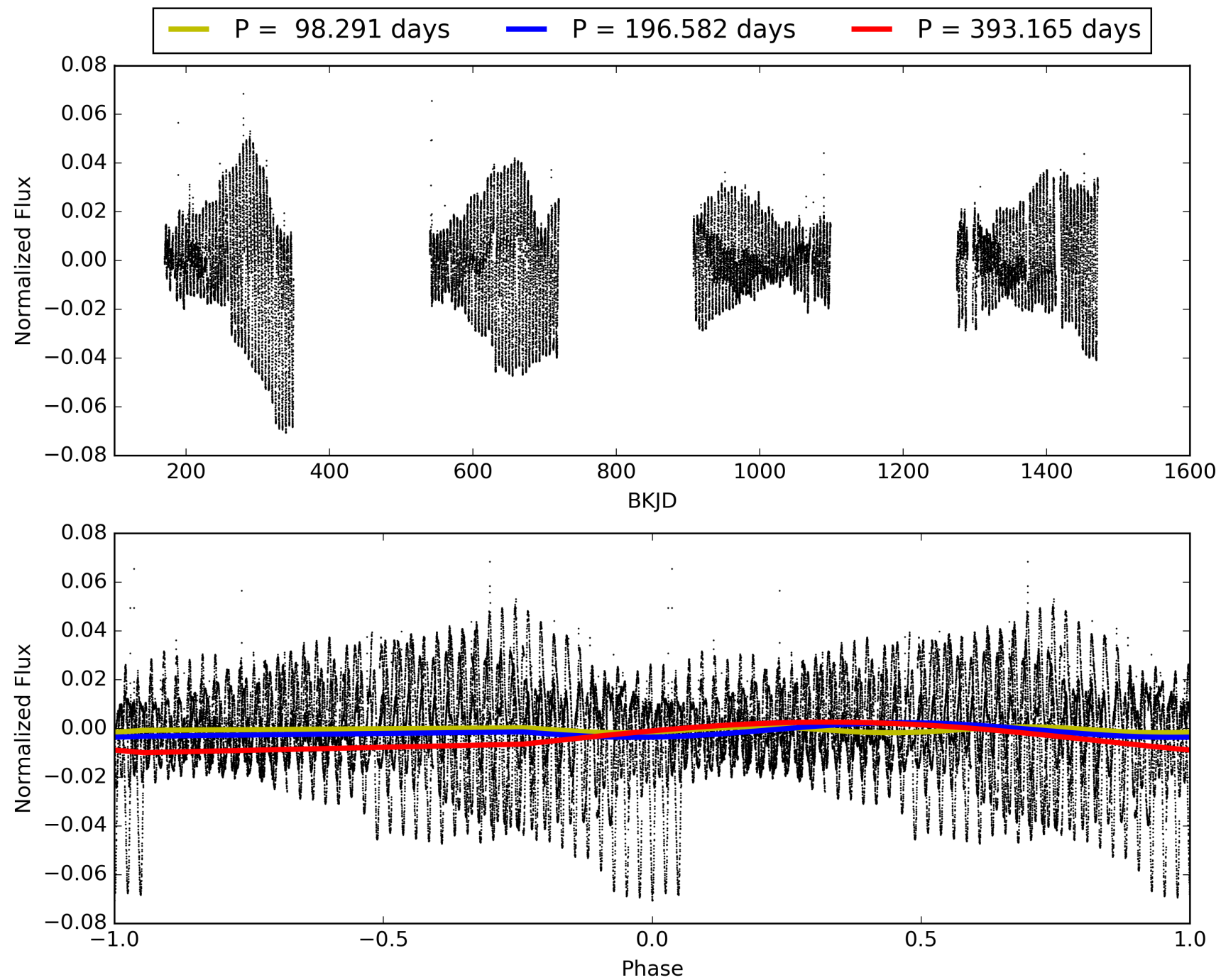
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:26:30 Z

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

TCE 006023332-03, PDC Light Curves

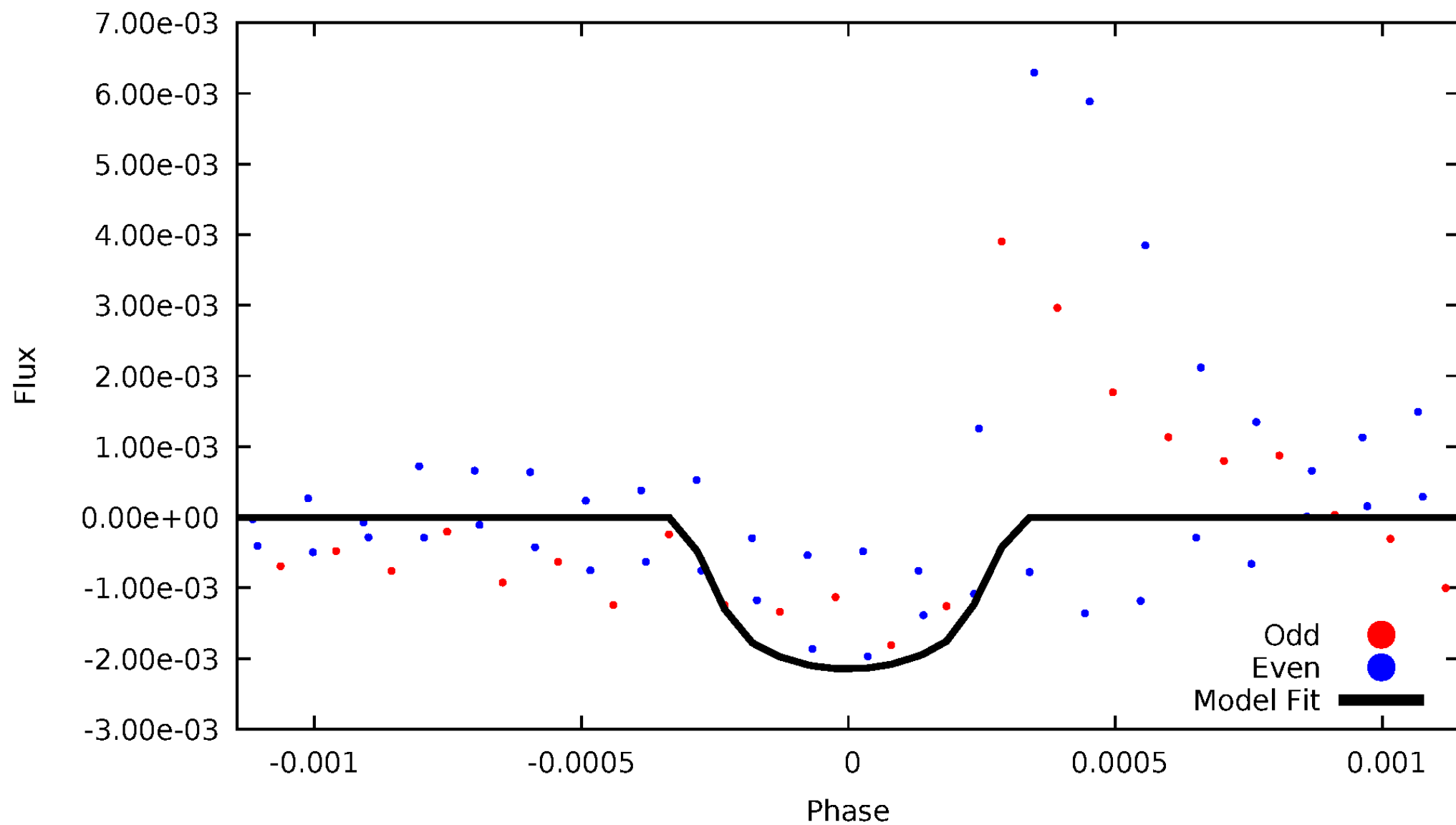


TCE 006023332-03



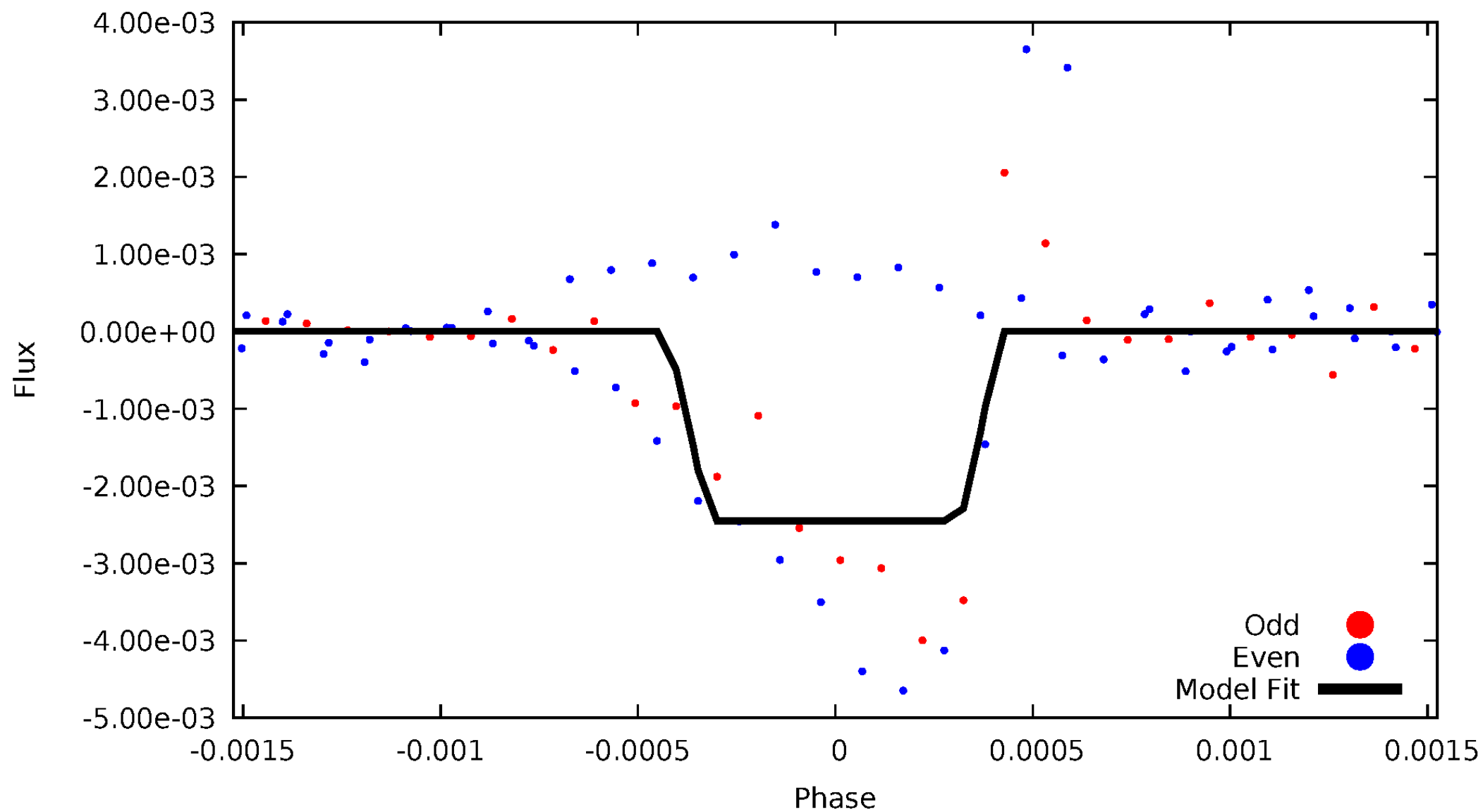
DV Odd/Even

TCE 006023332-03



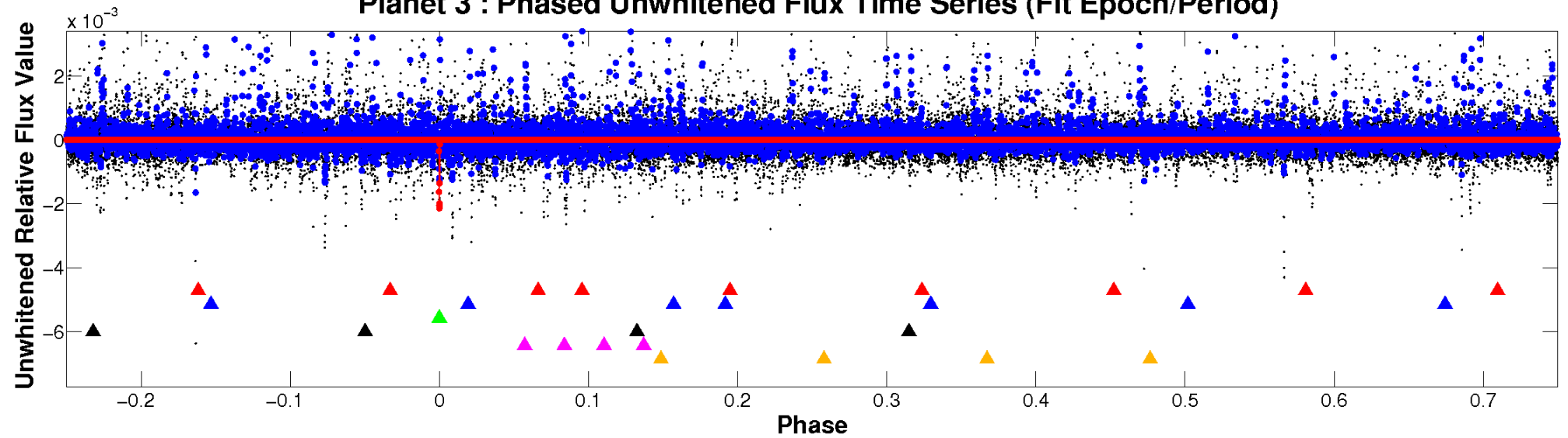
ALT Odd/Even

TCE 006023332-03

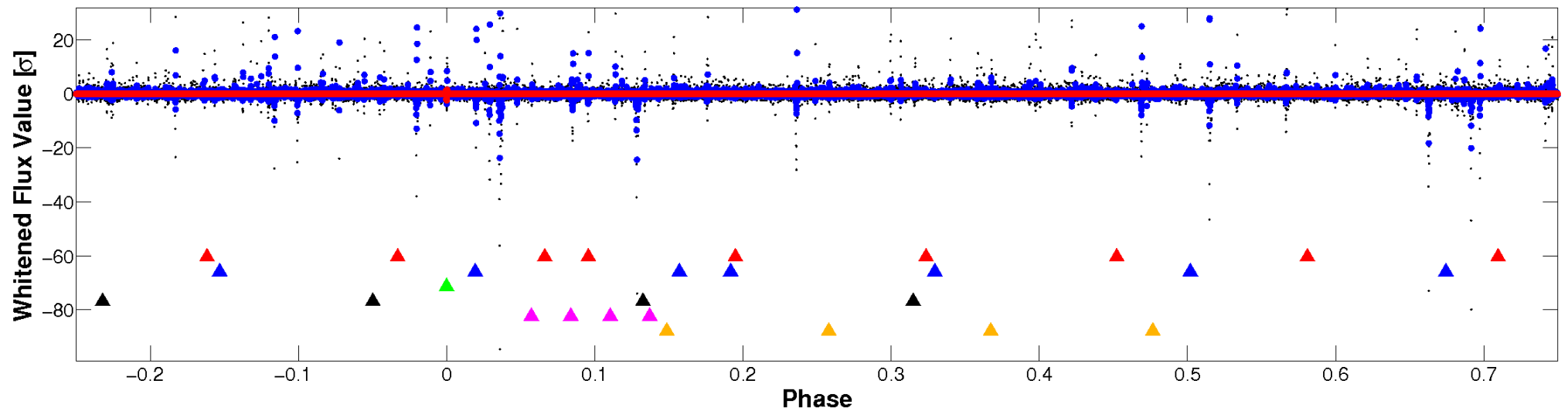


Non-Whitened Vs. Whitened Light Curve

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

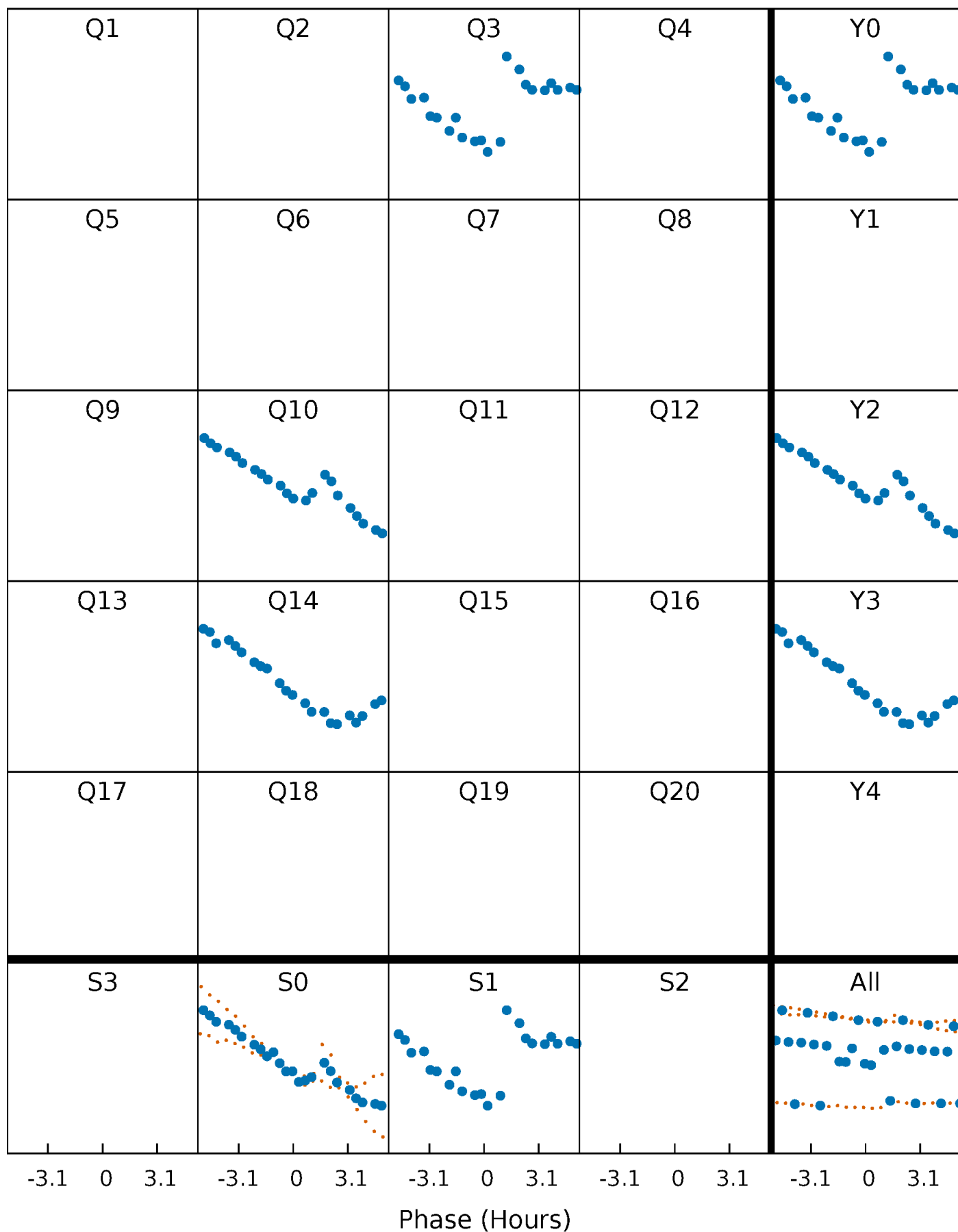


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



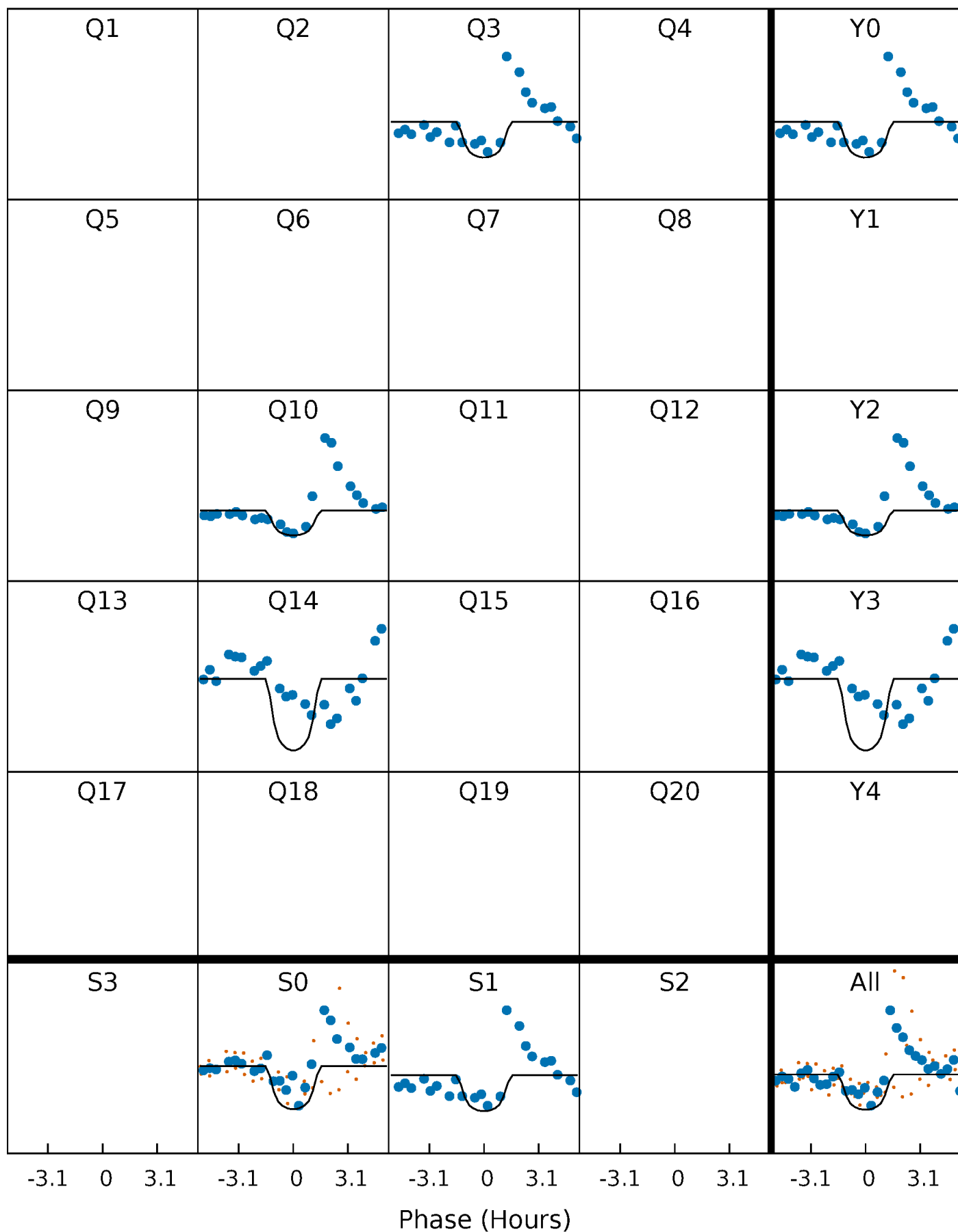
PDC Quarter-Phased Transit Curves

TCE 006023332-03 $P=196.582340$ Days $T_0=142.088168$ (BKJD)



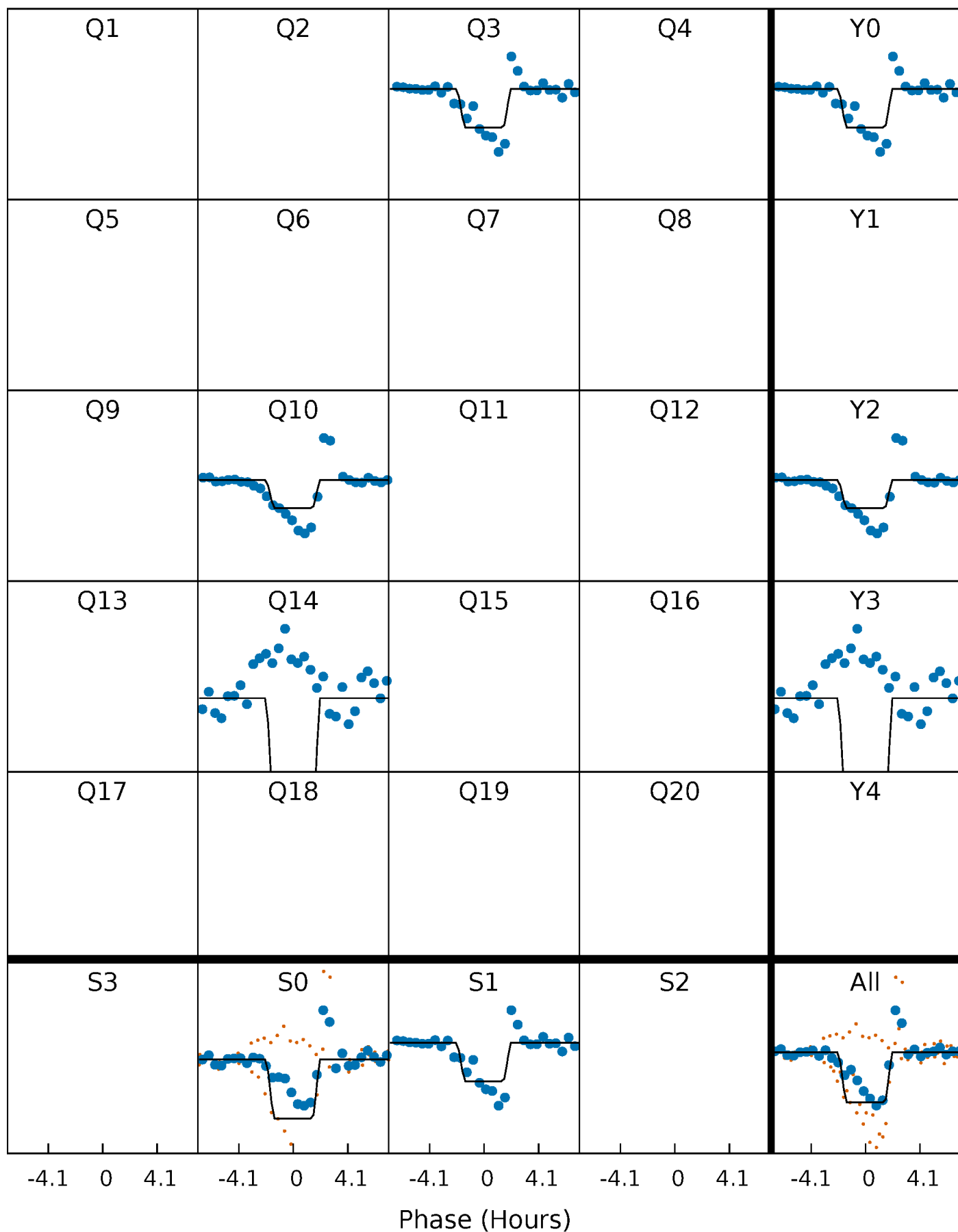
DV Quarter-Phased Transit Curves

TCE 006023332-03 $P=196.582340$ Days $T_0=142.088168$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

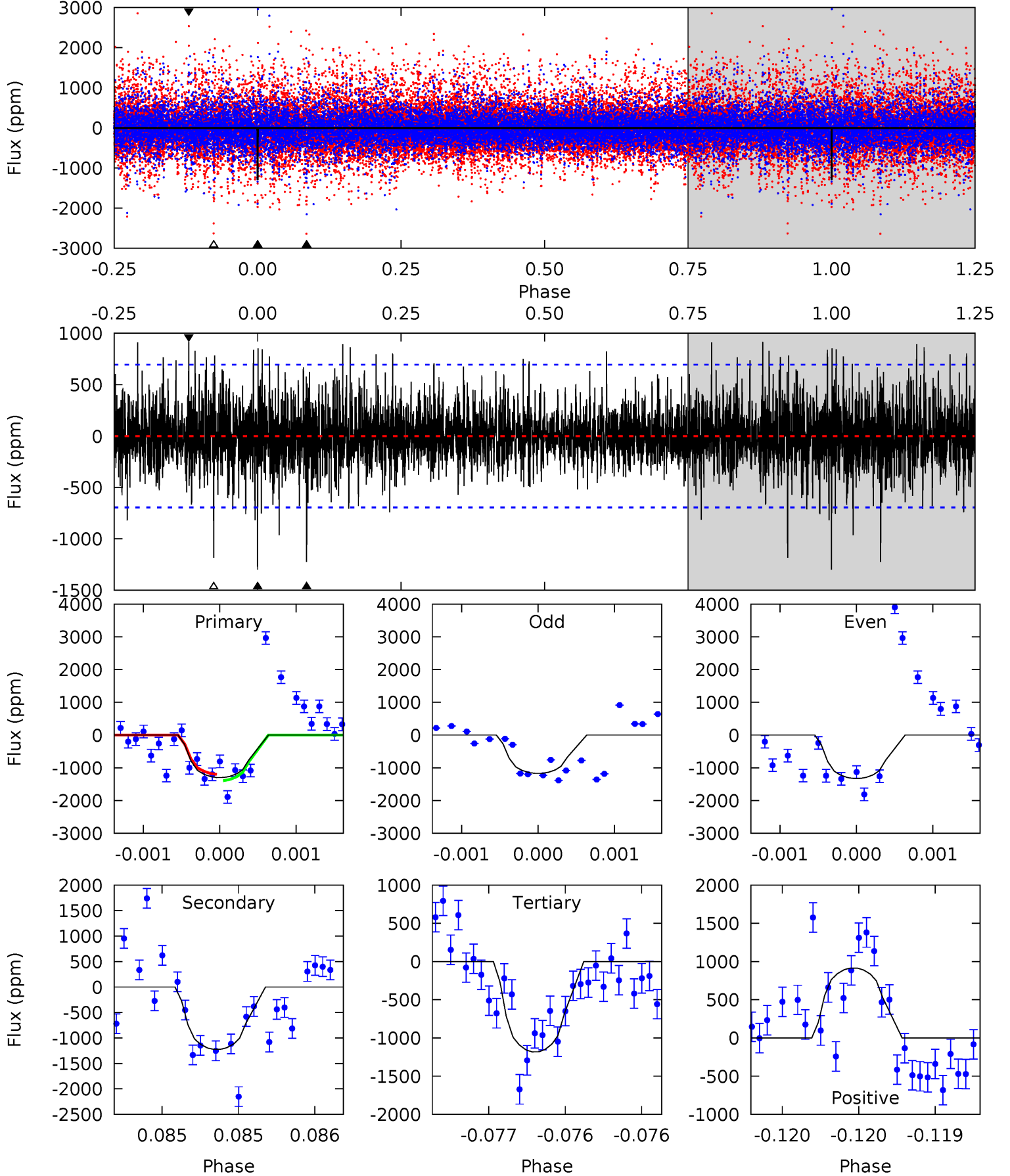
TCE 006023332-03 P=196.582684 Days $T_0=142.060170$ (BKJD)



DV Model-Shift Uniqueness Test

006023332-03, P = 196.582340 Days, E = 142.088168 Days

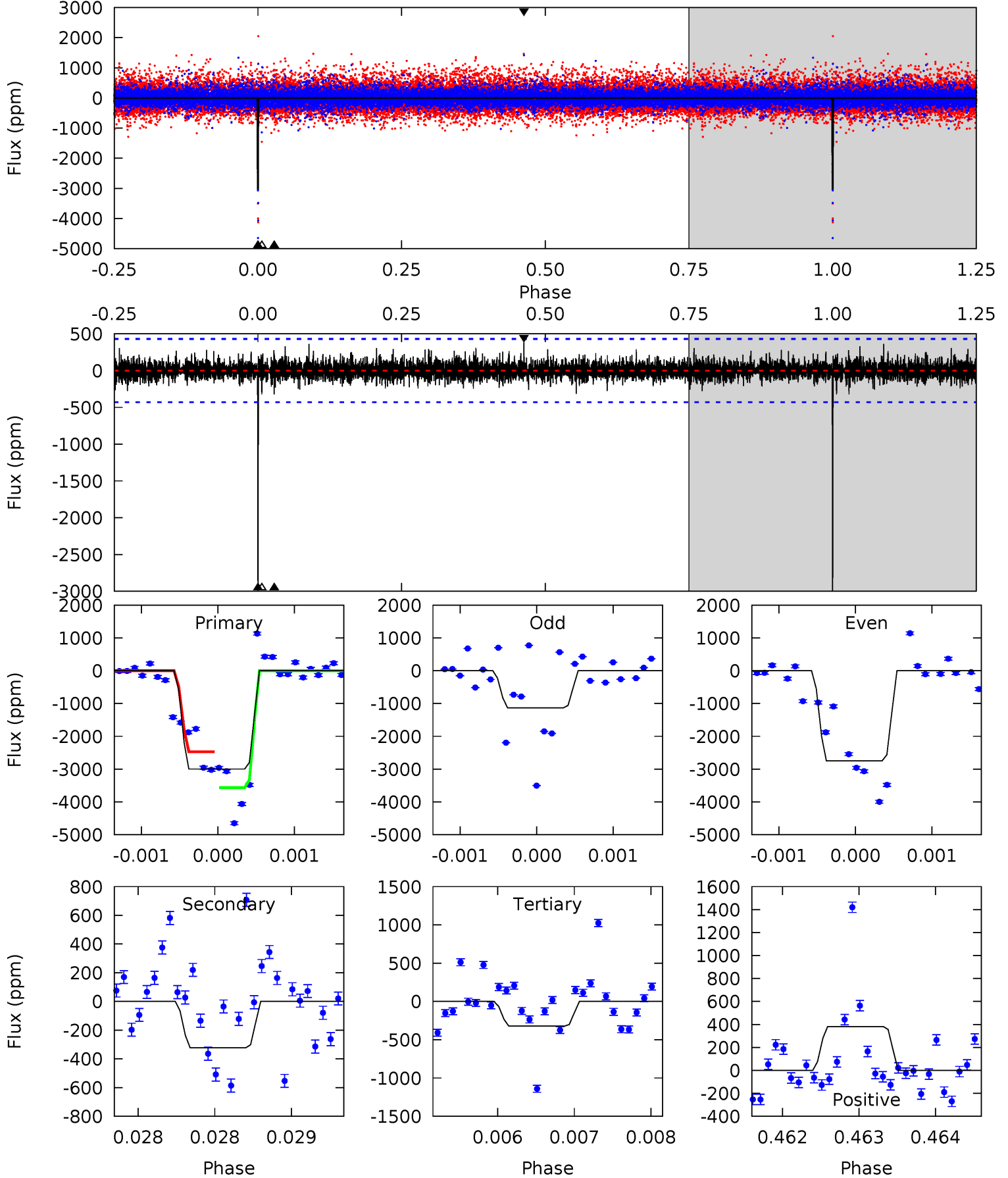
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	9.75	9.41	7.28	5.54	3.43	1.68	0.92	3.05	0.33	2.46	0.52	0.86	0.41	0.78



Alt Model-Shift Uniqueness Test

006023332-03, P = 196.582684 Days, E = 142.060170 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.3	4.12	4.11	4.87	5.49	3.36	0.96	34.2	33.4	0.01	-0.75	12.0	0.67	0.11	7.30



Stellar Parameters For KIC 006023332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4484^{+121}_{-134}	$4.617^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.648^{+0.046}_{-0.061}$	$0.634^{+0.070}_{-0.051}$	$3.280^{+0.763}_{-0.349}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-9%	+11%/-8%	+23%/-11%
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 006023332-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1224 ± 126	$6.30^{+6.22}_{-4.21}$	293^{+10}_{-10}	3251^{+1497}_{-577}	5327^{+43202}_{-3944}
Alt.	-323 ± 78	$6.46^{+6.24}_{-4.21}$	294^{+9}_{-10}	2679^{+912}_{-420}	1354^{+9718}_{-1014}

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 $A_{obs} \gg 1.0$

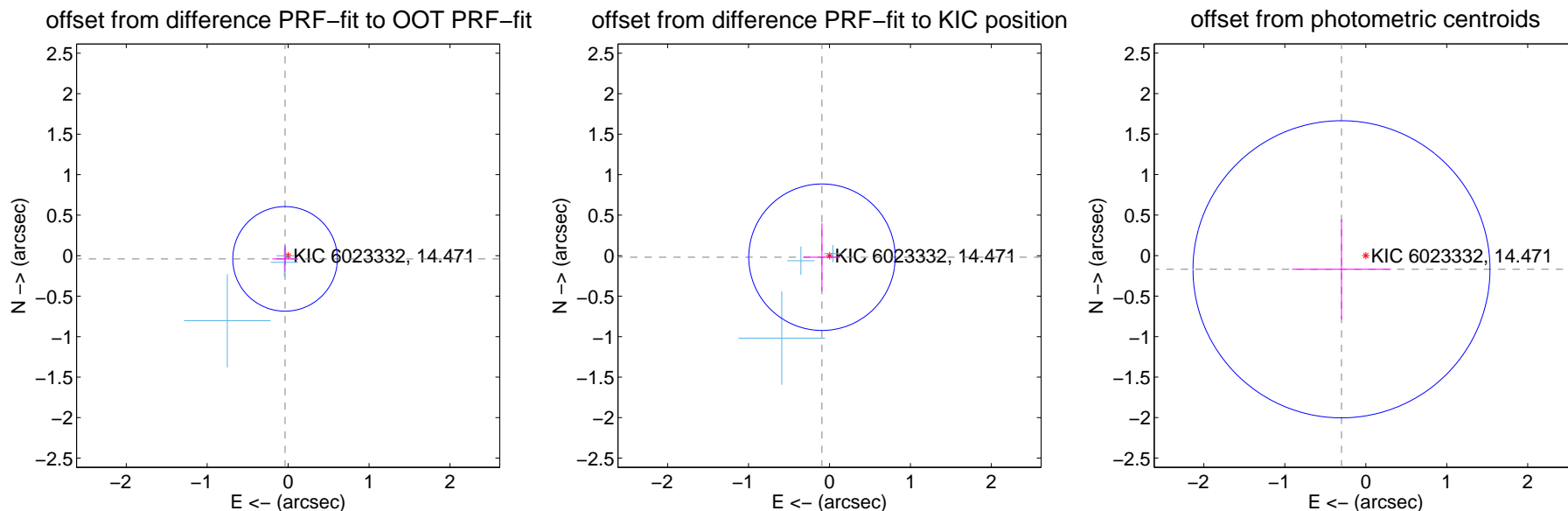
DV Centroid Data

Supplemental centroid analysis for 006023332-03. Kepler magnitude: 14.47. Transit SNR 8.83

There are 3 quarters with good PRF difference image offsets

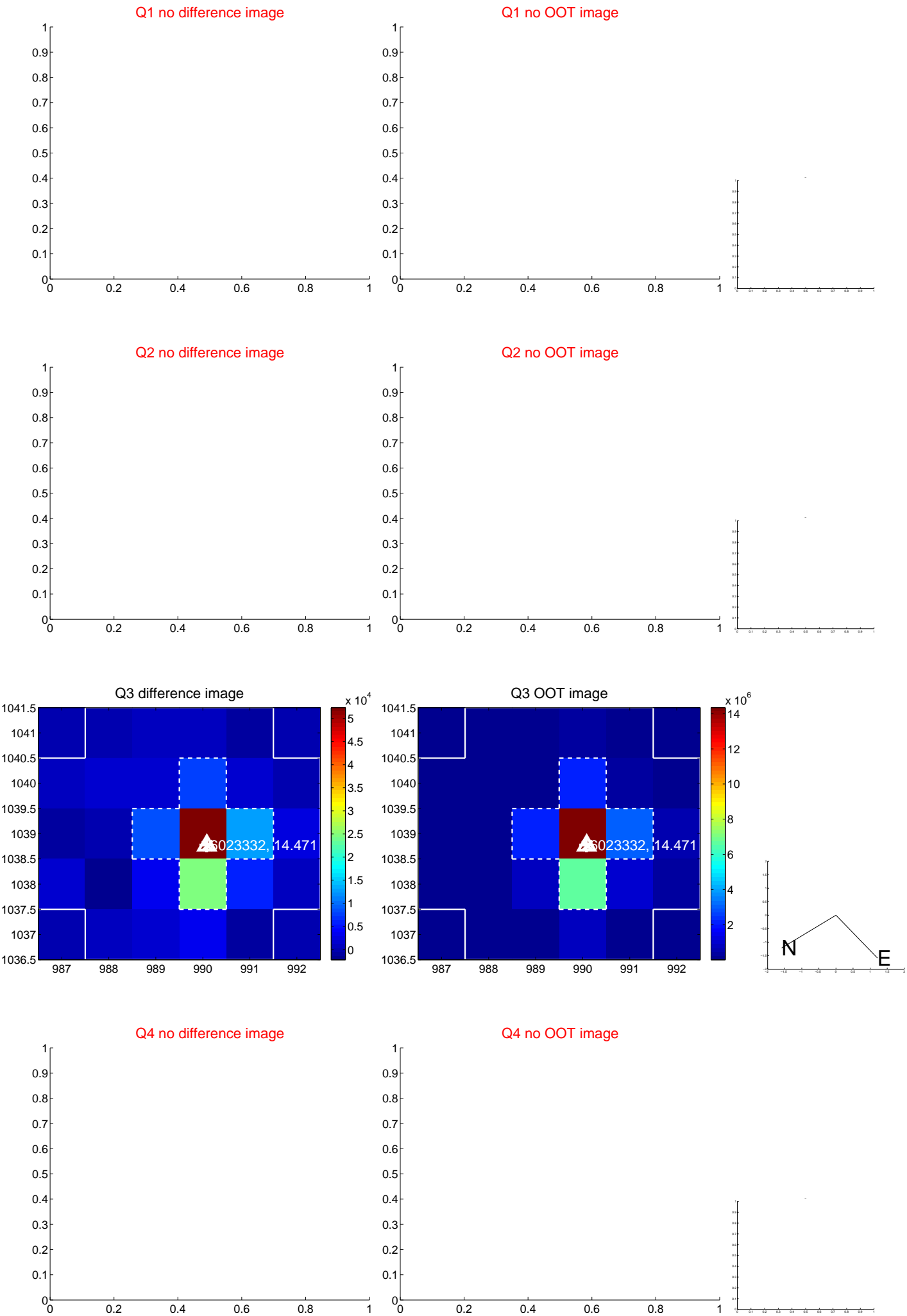
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.055 ± 0.215	0.25	0.038 ± 0.157	-0.040 ± 0.163
PRF-fit source offset from KIC position	0.095 ± 0.302	0.31	0.093 ± 0.228	-0.019 ± 0.420
photometric centroid source offset	0.34 ± 0.61	0.56	0.30 ± 0.61	-0.17 ± 0.62



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

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



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

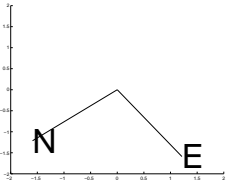
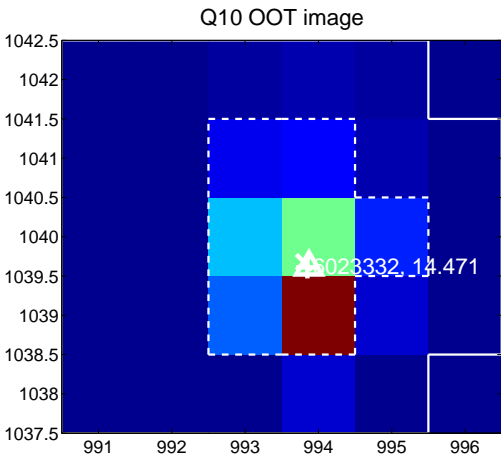
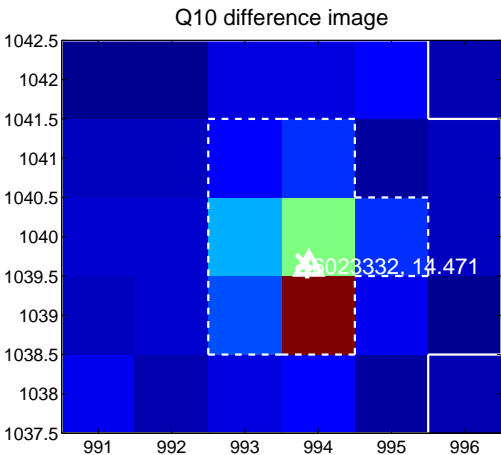


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

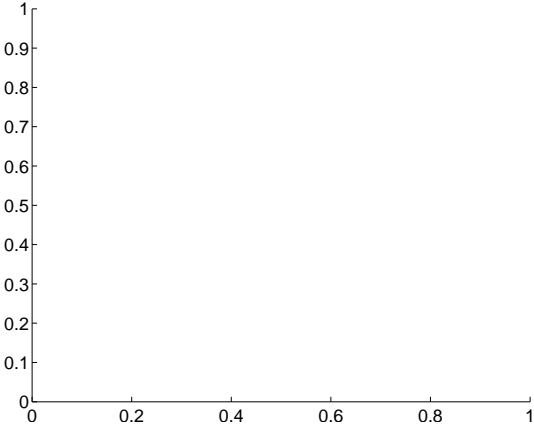
Q9 no difference image



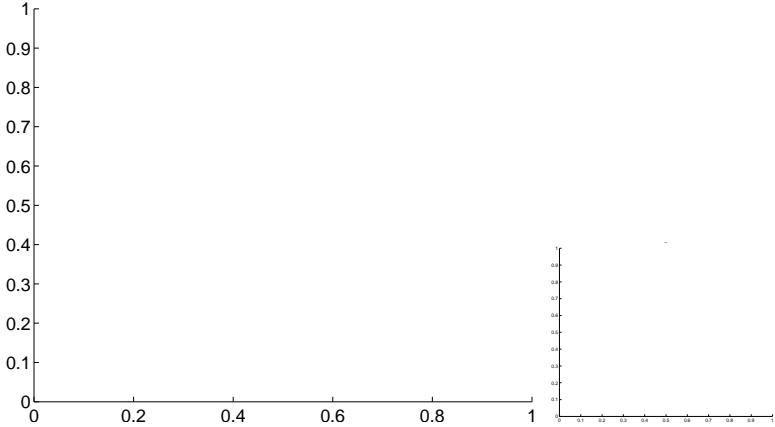
Q9 no OOT image



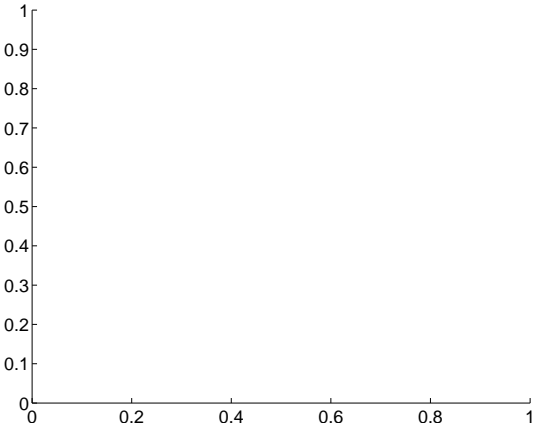
Q11 no difference image



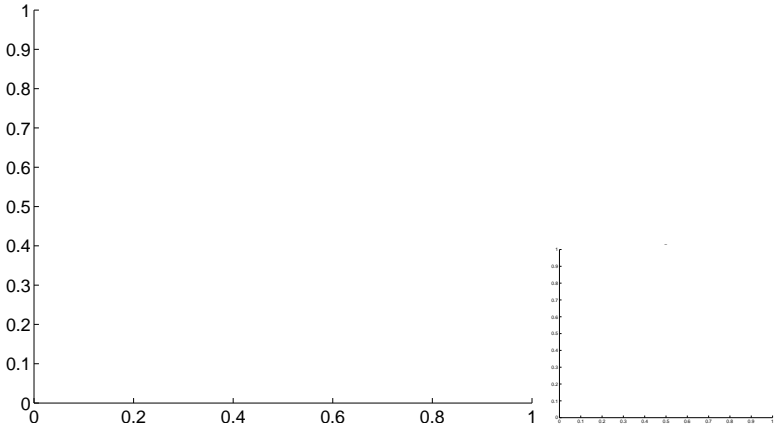
Q11 no OOT image



Q12 no difference image



Q12 no OOT image

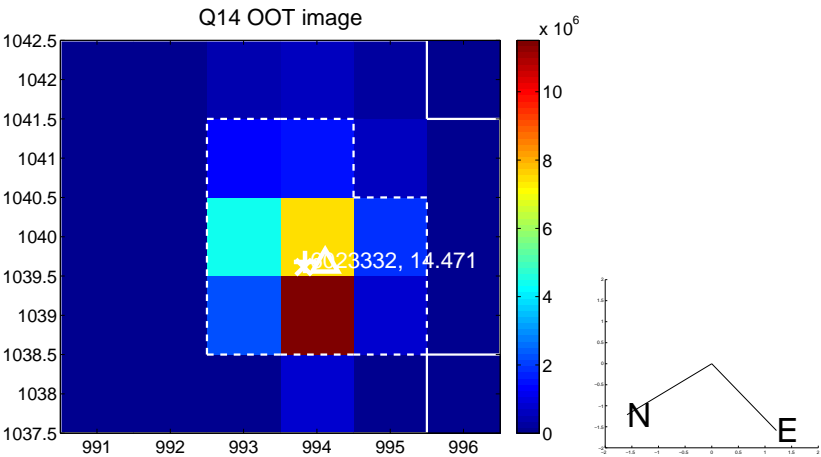
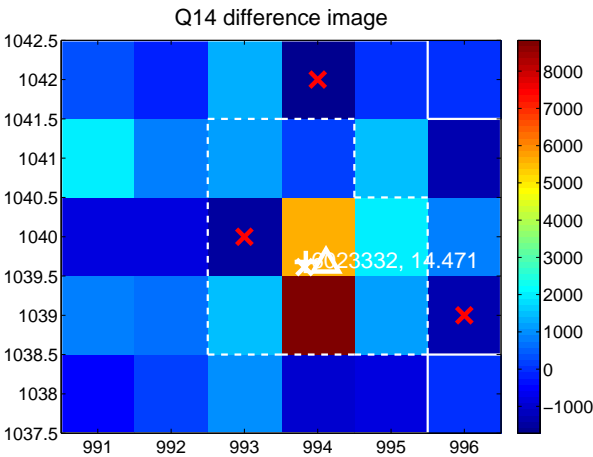


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

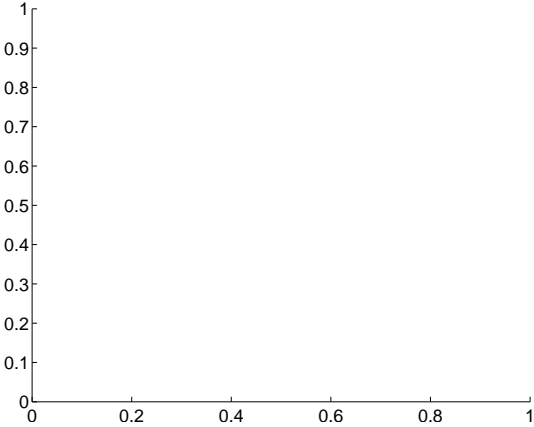
Q13 no difference image



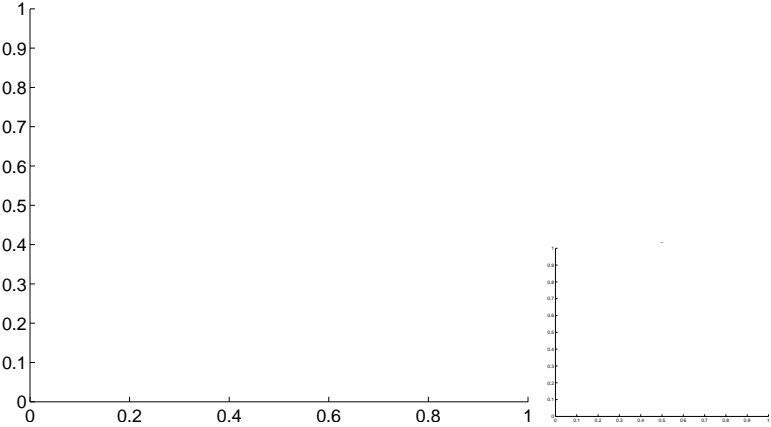
Q13 no OOT image



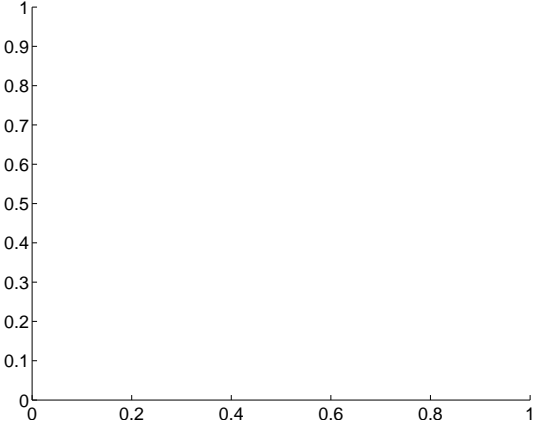
Q15 no difference image



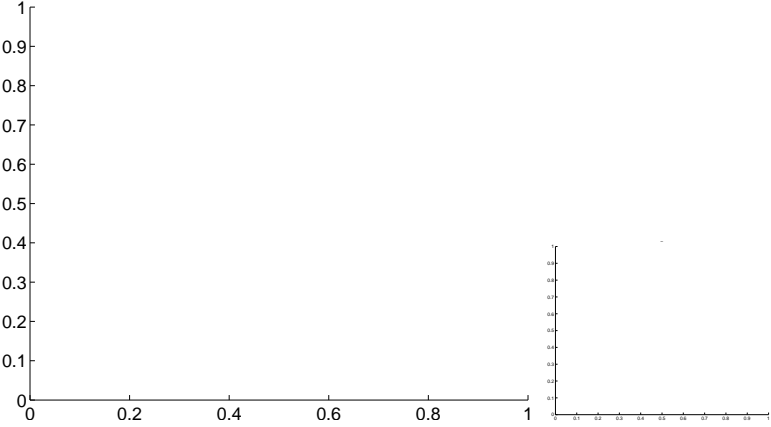
Q15 no OOT image



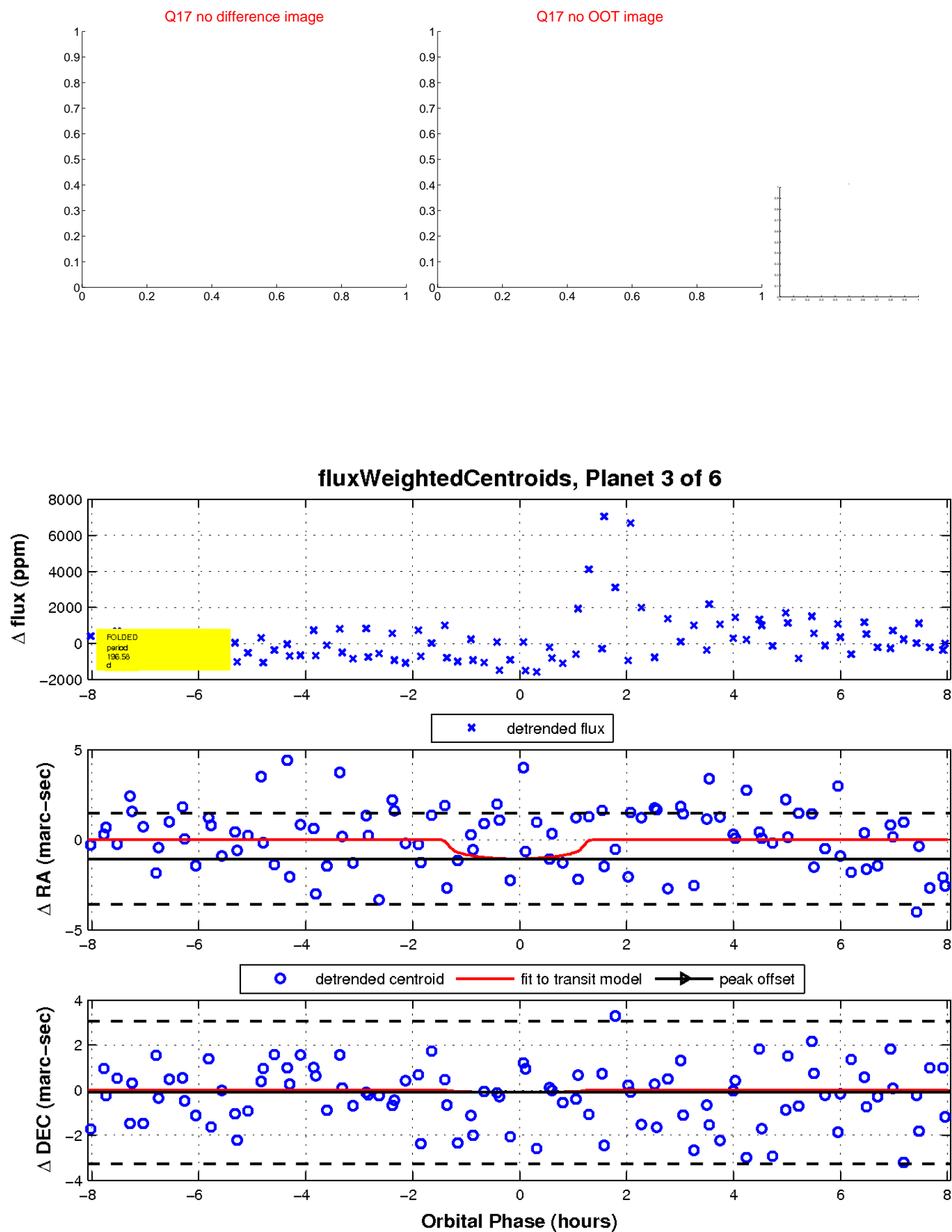
Q16 no difference image



Q16 no OOT image

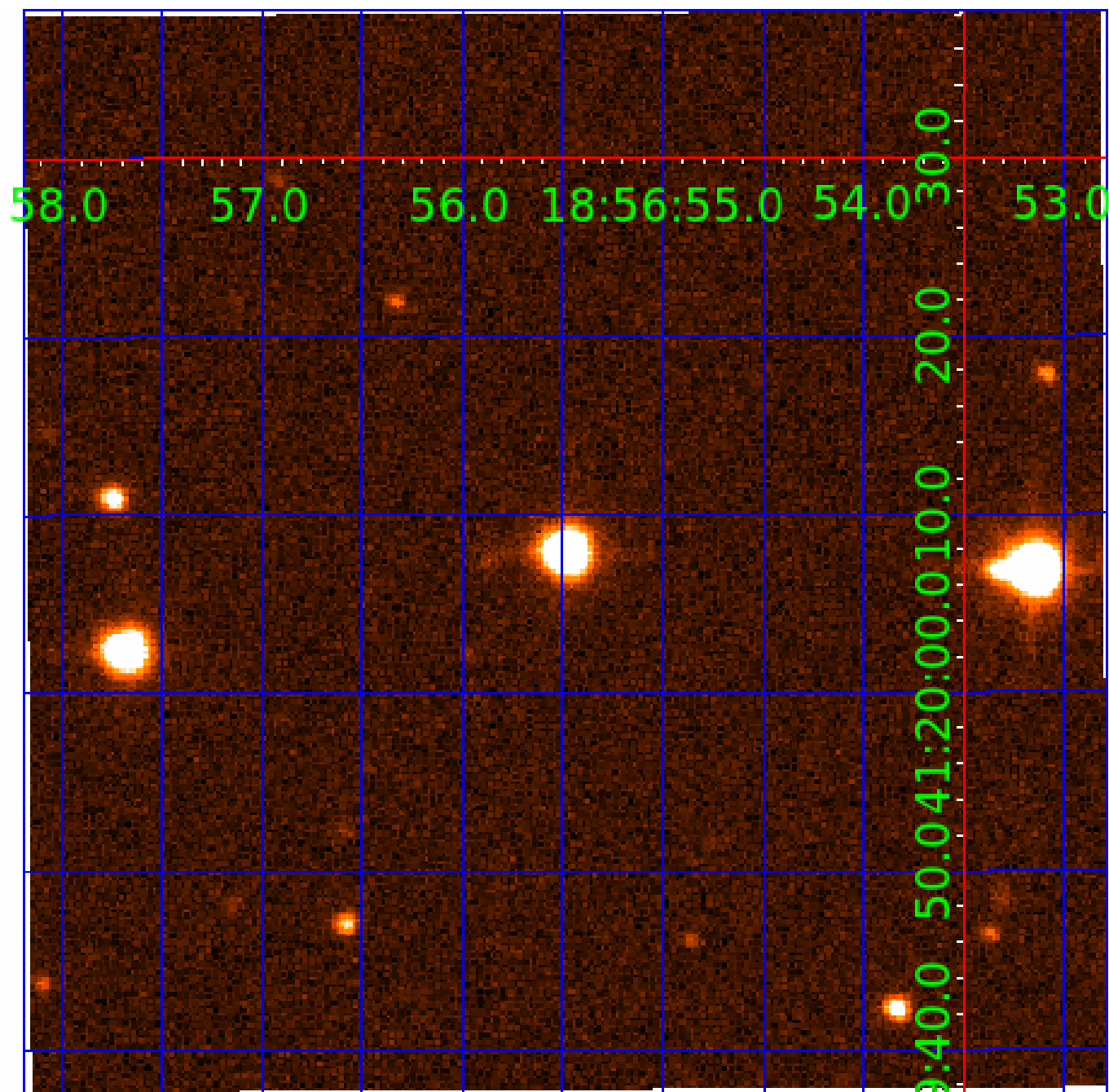


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006023332

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})
006023332-01	OBS	No	171.286757	160.893401	2716.3	2.879	14.9	13.1	0.65	4484	3.29	0.56
006023332-02	OBS	No	230.481441	172.970421	1736.5	6.473	15.5	6.2	0.65	4484	2.59	0.38
006023332-03	OBS	No	196.582340	142.088168	2141.5	2.700	16.7	8.8	0.65	4484	2.95	0.47
006023332-04	OBS	No	357.316067	203.995042	812.2	2.523	16.9	4.3	0.65	4484	2.04	0.21
006023332-05	OBS	No	387.928464	169.038829	1792.7	5.149	12.6	7.1	0.65	4484	3.01	0.19
006023332-06	OBS	No	371.670922	235.781589	712.6	3.265	14.2	3.5	0.65	4484	1.74	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006023332-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006023332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006023332-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
006023332-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006023332-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
006023332-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

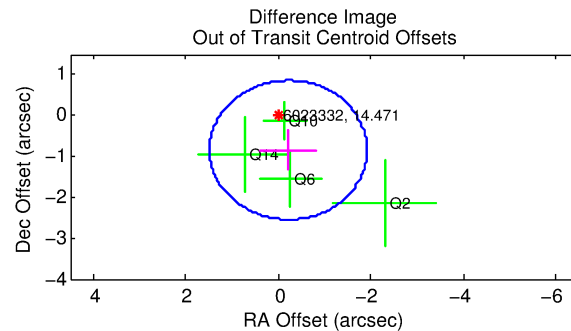
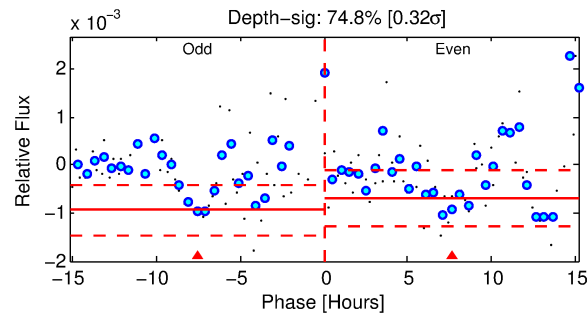
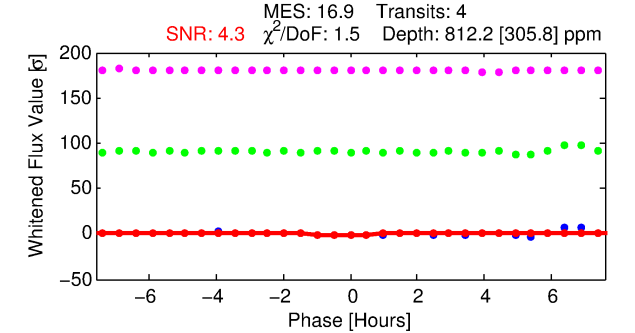
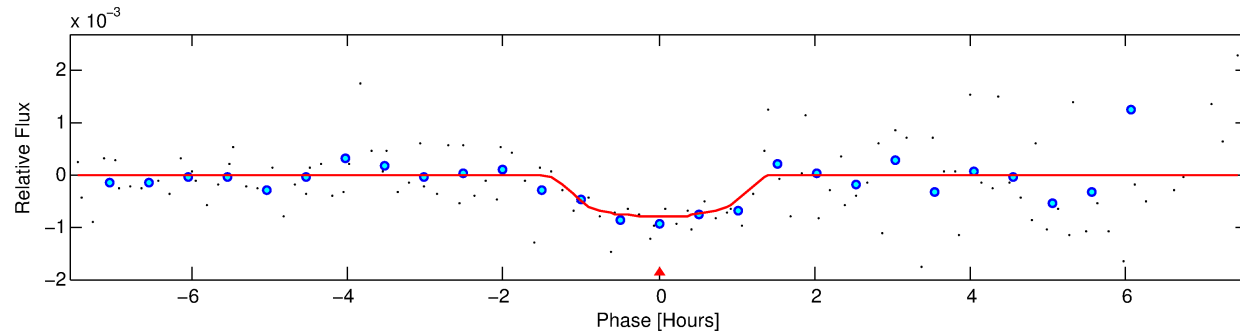
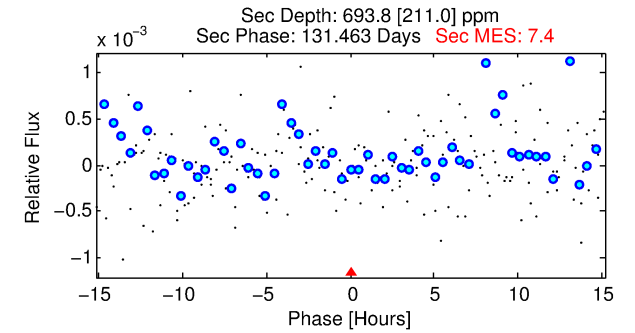
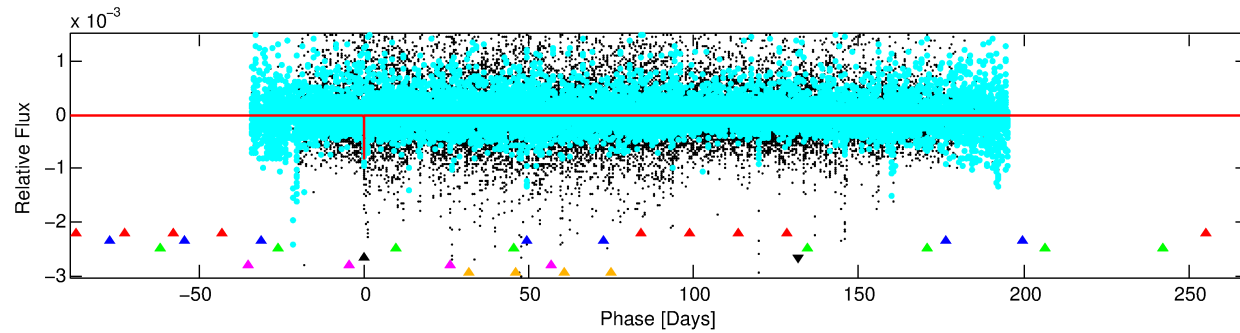
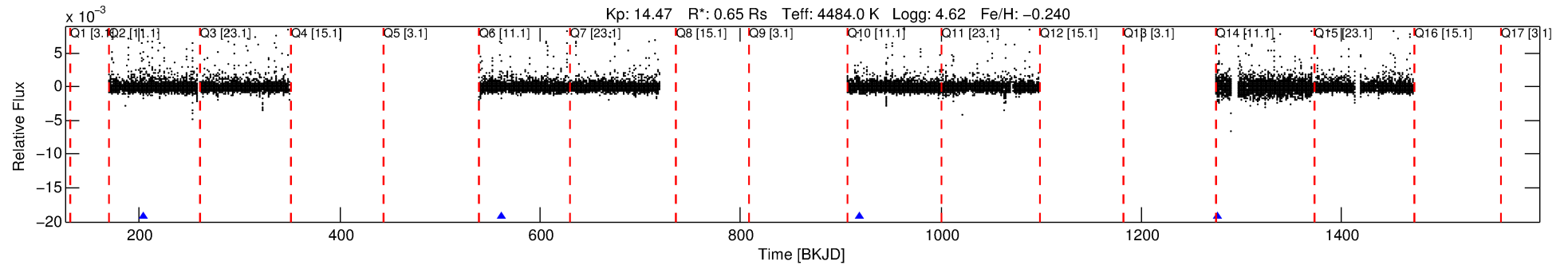
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006023332-04

No Significant Match Found

DV One-Page Summary

KIC: 6023332 Candidate: 4 of 6 Period: 357.316 d



DV Fit Results:

Period = 357.31607 [0.00769] d
Epoch = 203.9950 [0.0133] BKJD
Rp/R* = 0.0289 [0.0859]
a/R* = 739.67 [7143.60]
b = 0.77 [5.32]
Seff = 0.21 [0.03]
Teq = 173 [7] K
Rp = 2.04 [6.08] Re
a = 0.8468 [0.0630] AU
Ag = 65600.34 [390893.83] [0.17 σ]
Teffp = 4282 [6379] K [0.64 σ]

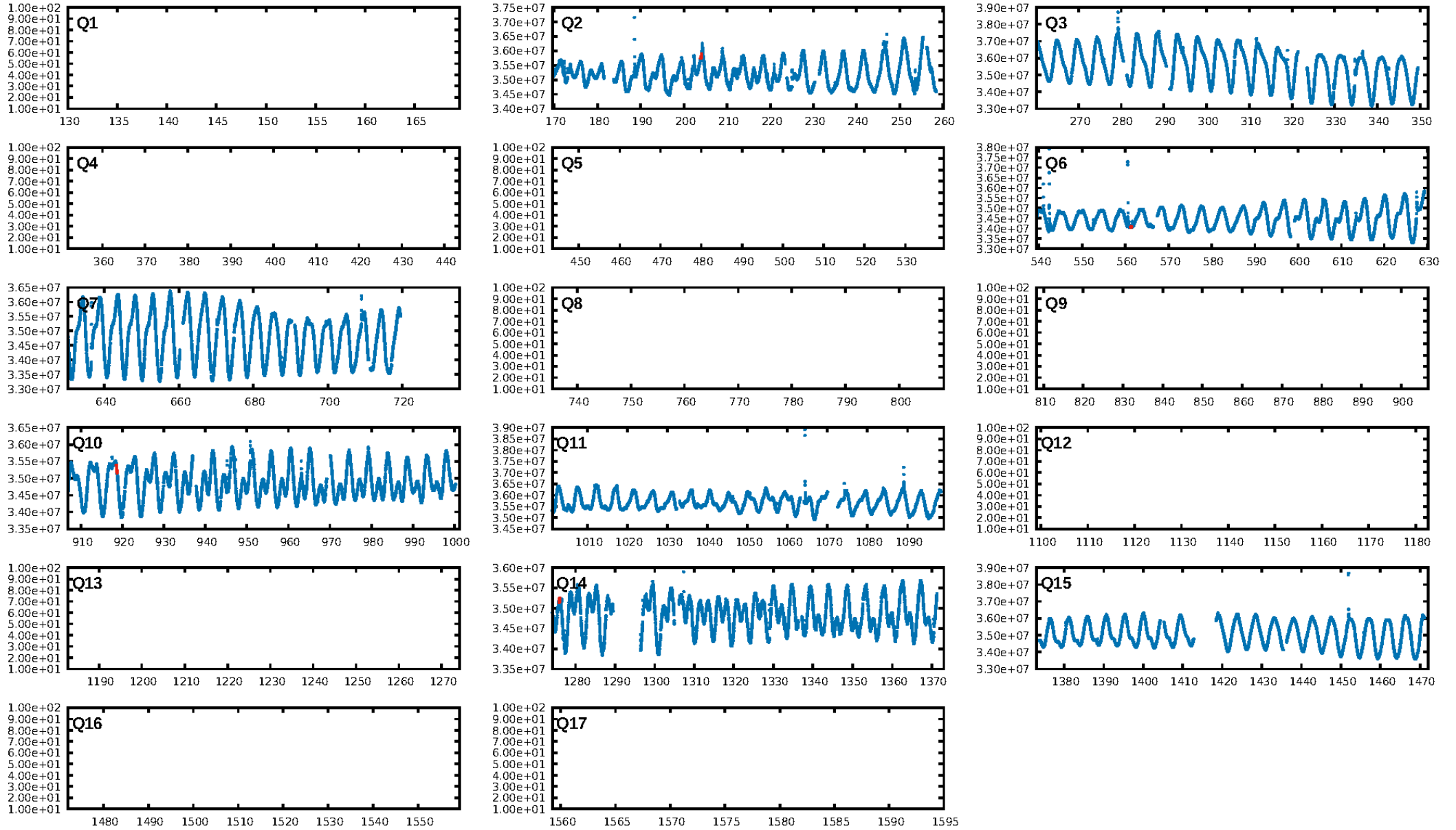
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [438.14 σ]
LongPeriod-sig: 100.0% [83.50 σ]
ModelChiSquare2-sig: 17.3%
ModelChiSquareGof-sig: 98.8%
Bootstrap-pfa: 8.43e-17
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.1471
Centroid-sig: 13.5%
Centroid-so: 1.975 arcsec [1.32 σ]
OotOffset-rm: 0.869 arcsec [1.53 σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-rm: 1.014 arcsec [1.70 σ]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [4/4]

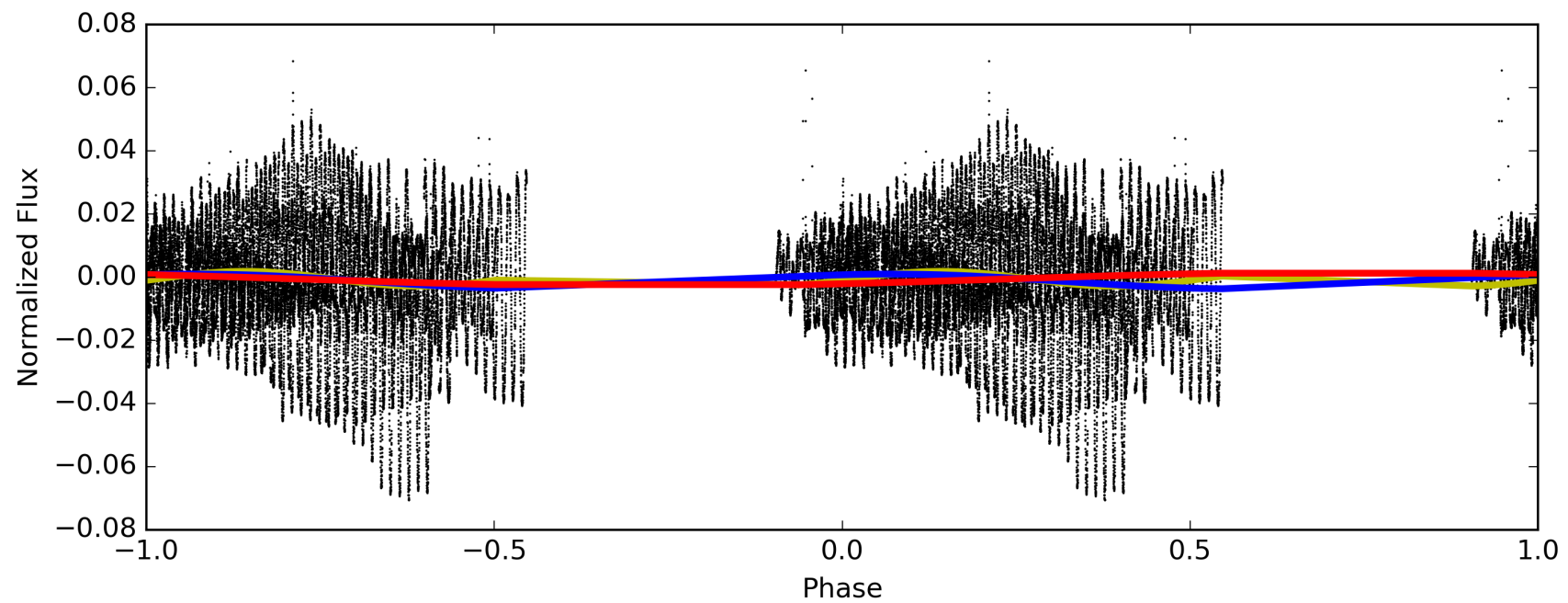
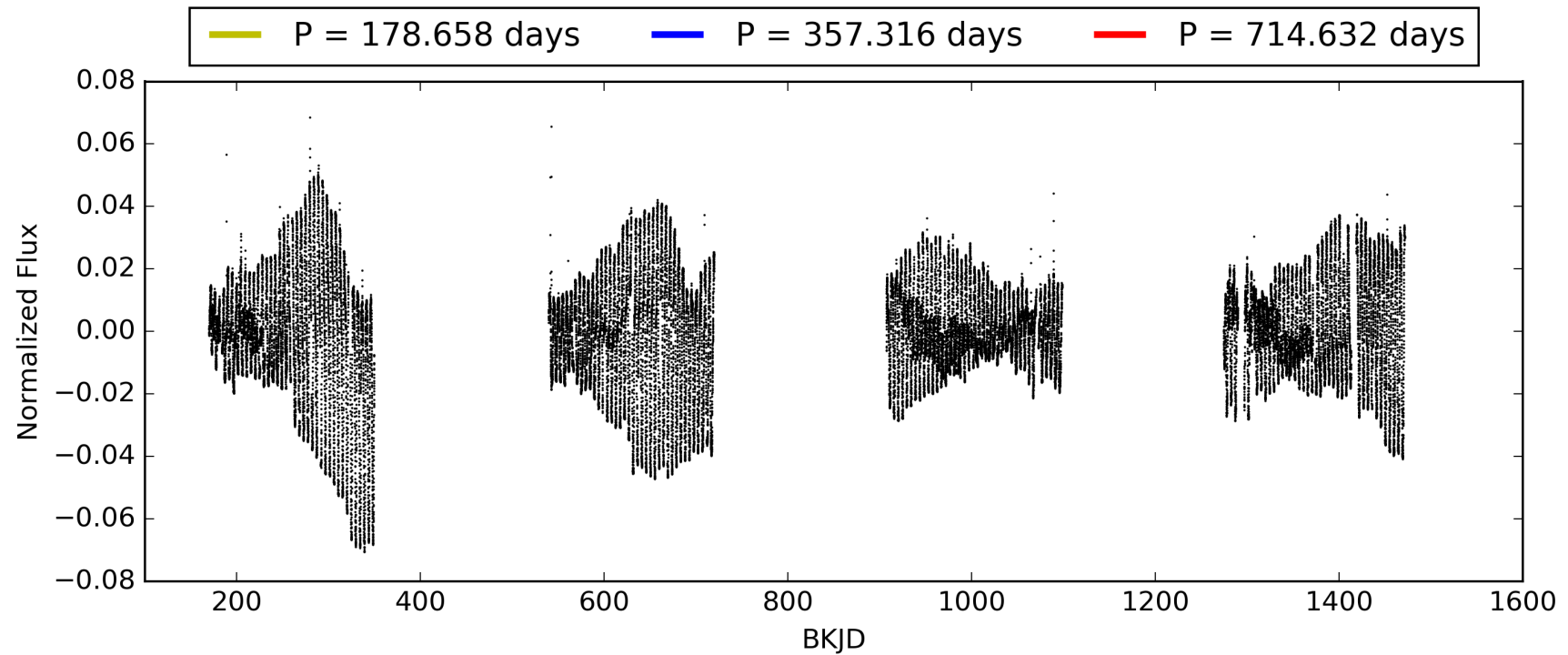
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:26:42 Z

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

TCE 006023332-04, PDC Light Curves

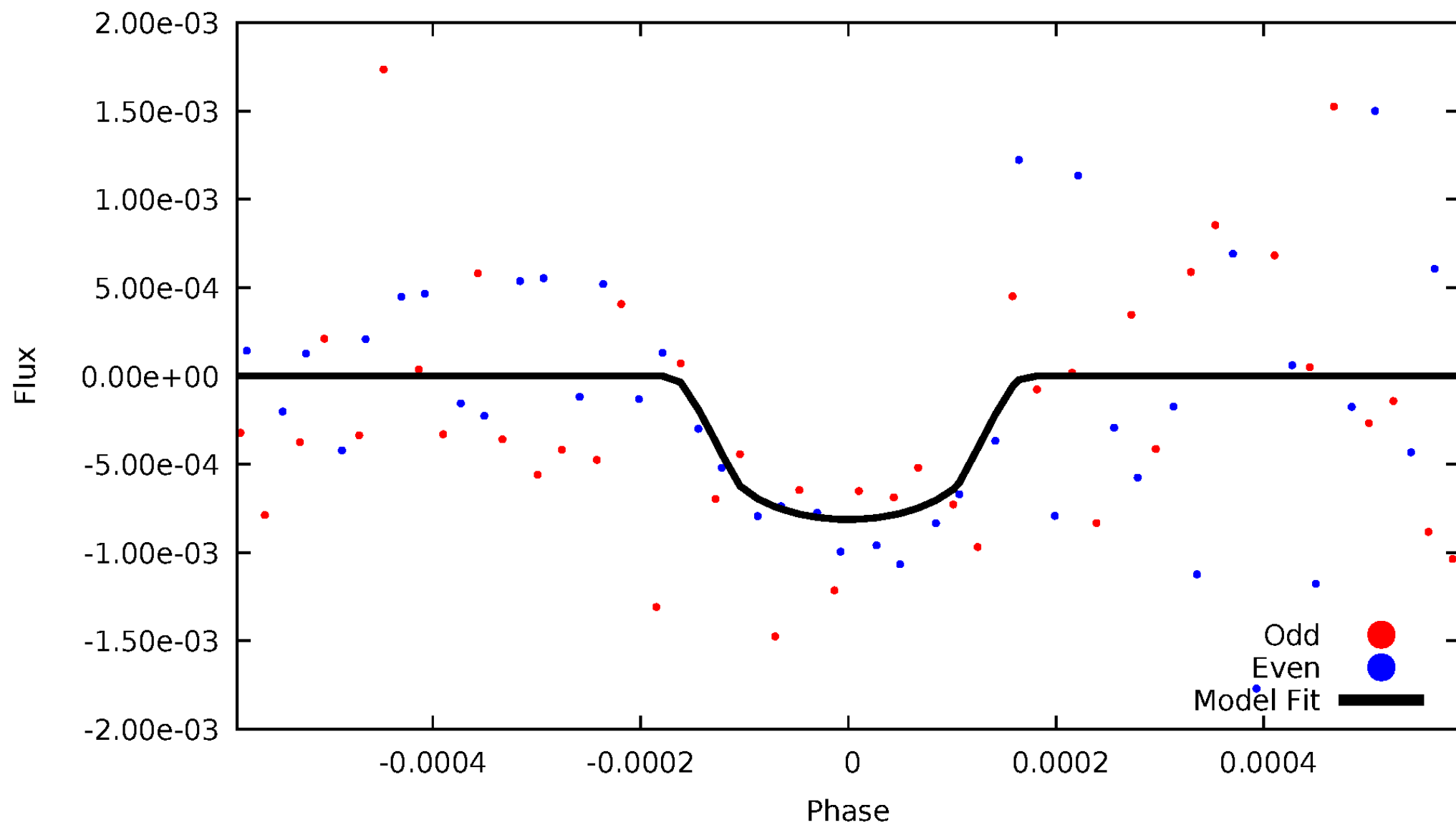


TCE 006023332-04



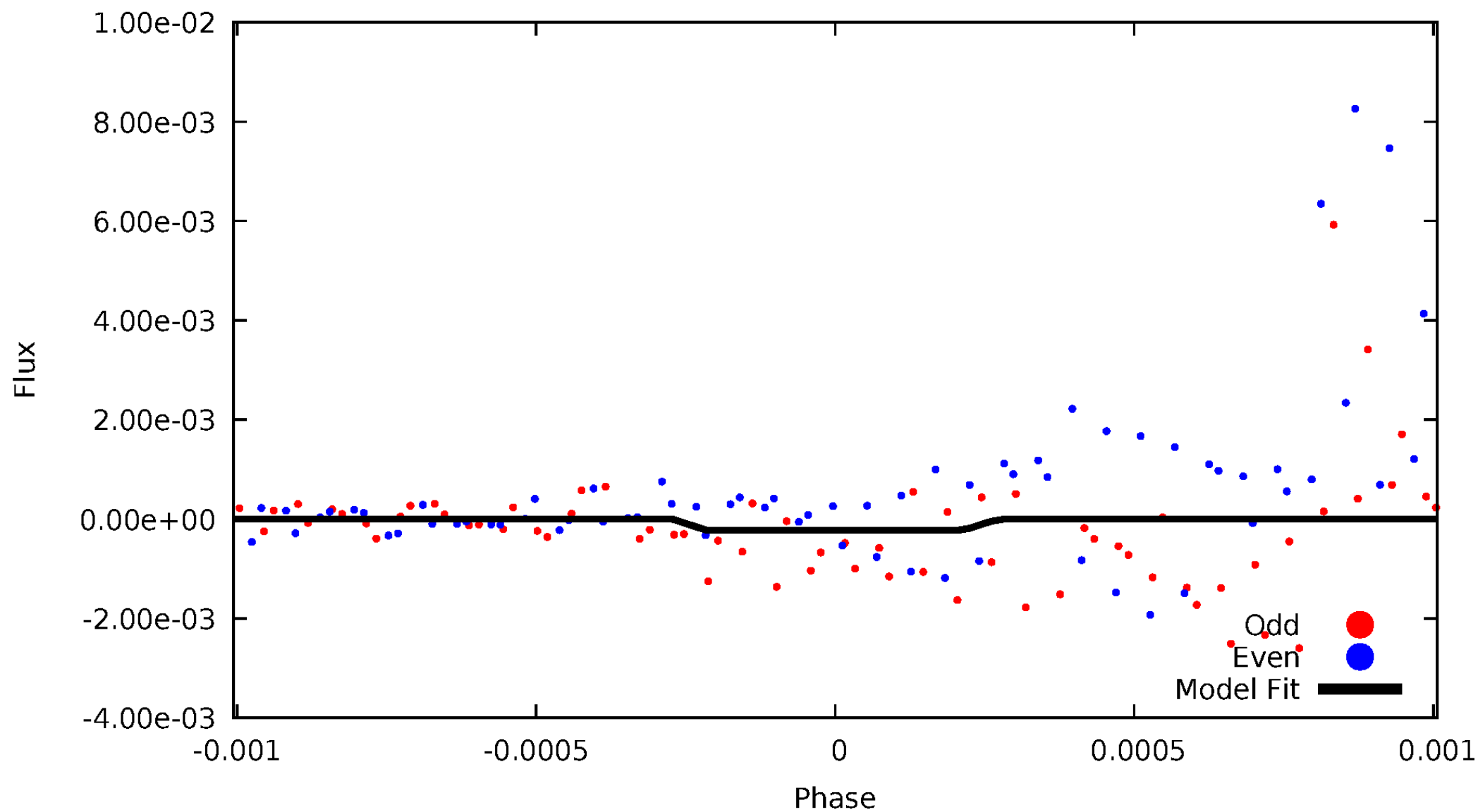
DV Odd/Even

TCE 00602332-04



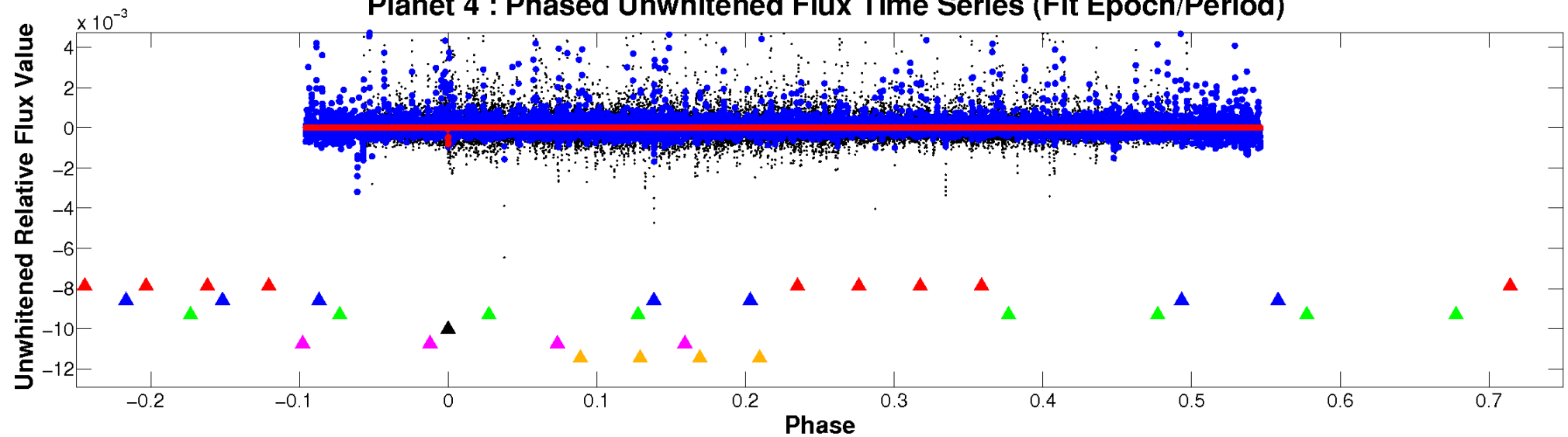
ALT Odd/Even

TCE 006023332-04

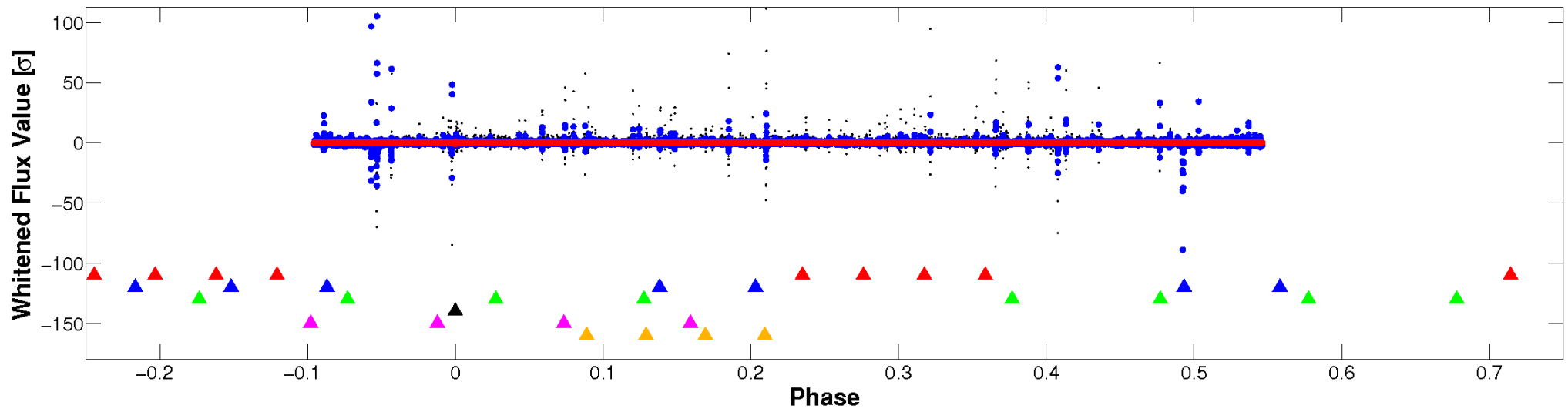


Non-Whitened Vs. Whitened Light Curve

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

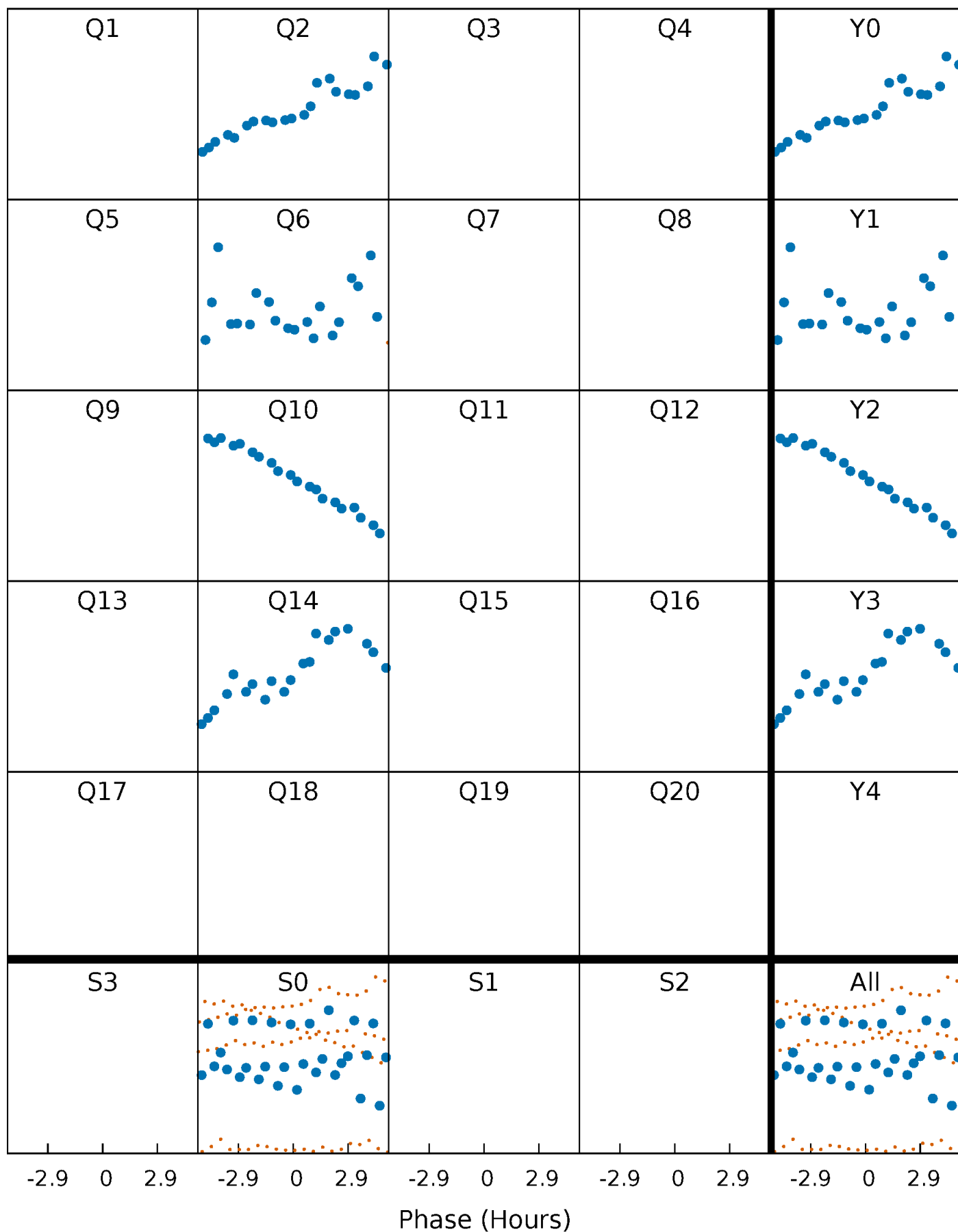


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



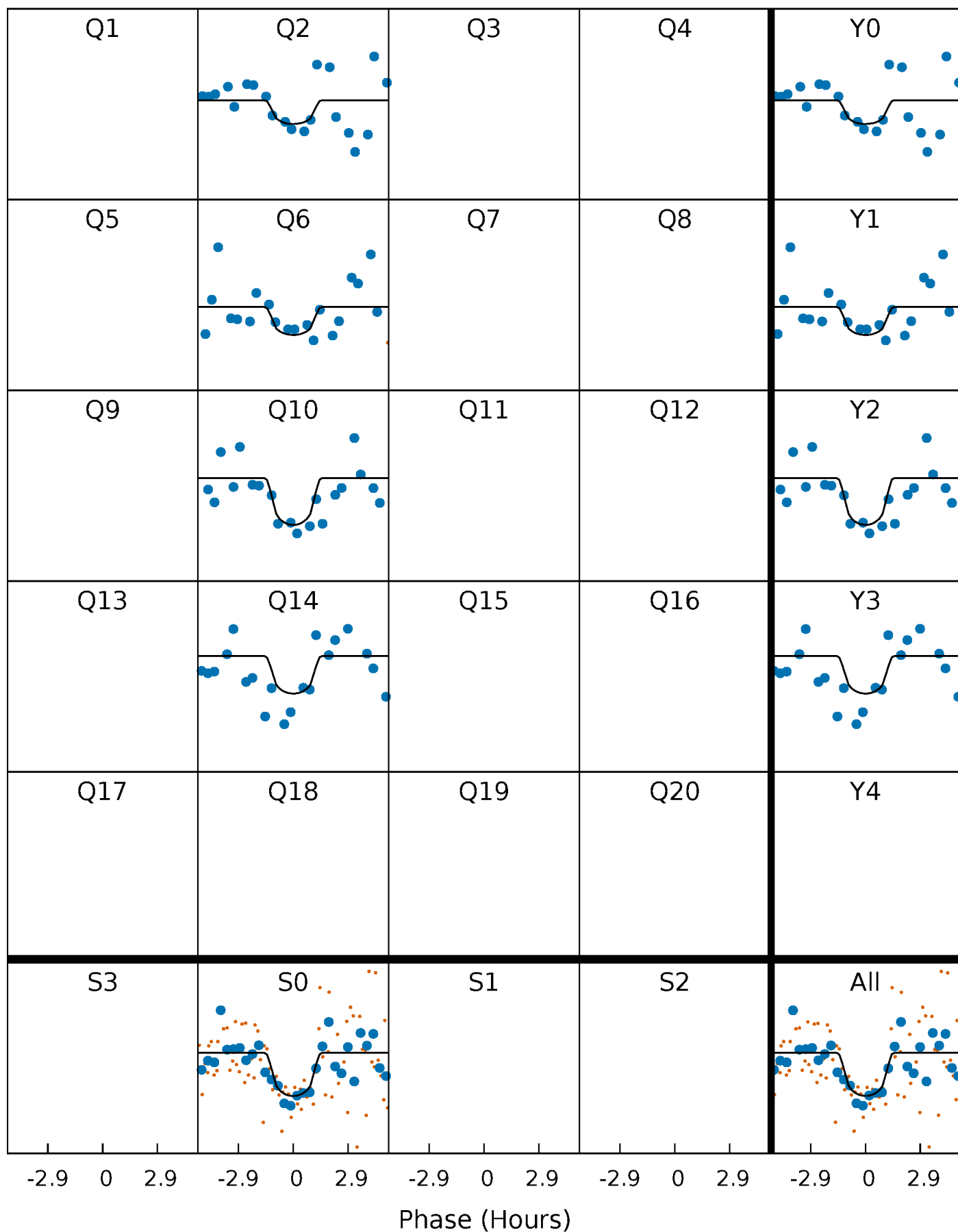
PDC Quarter-Phased Transit Curves

TCE 006023332-04 P=357.316067 Days $T_0=203.995042$ (BKJD)



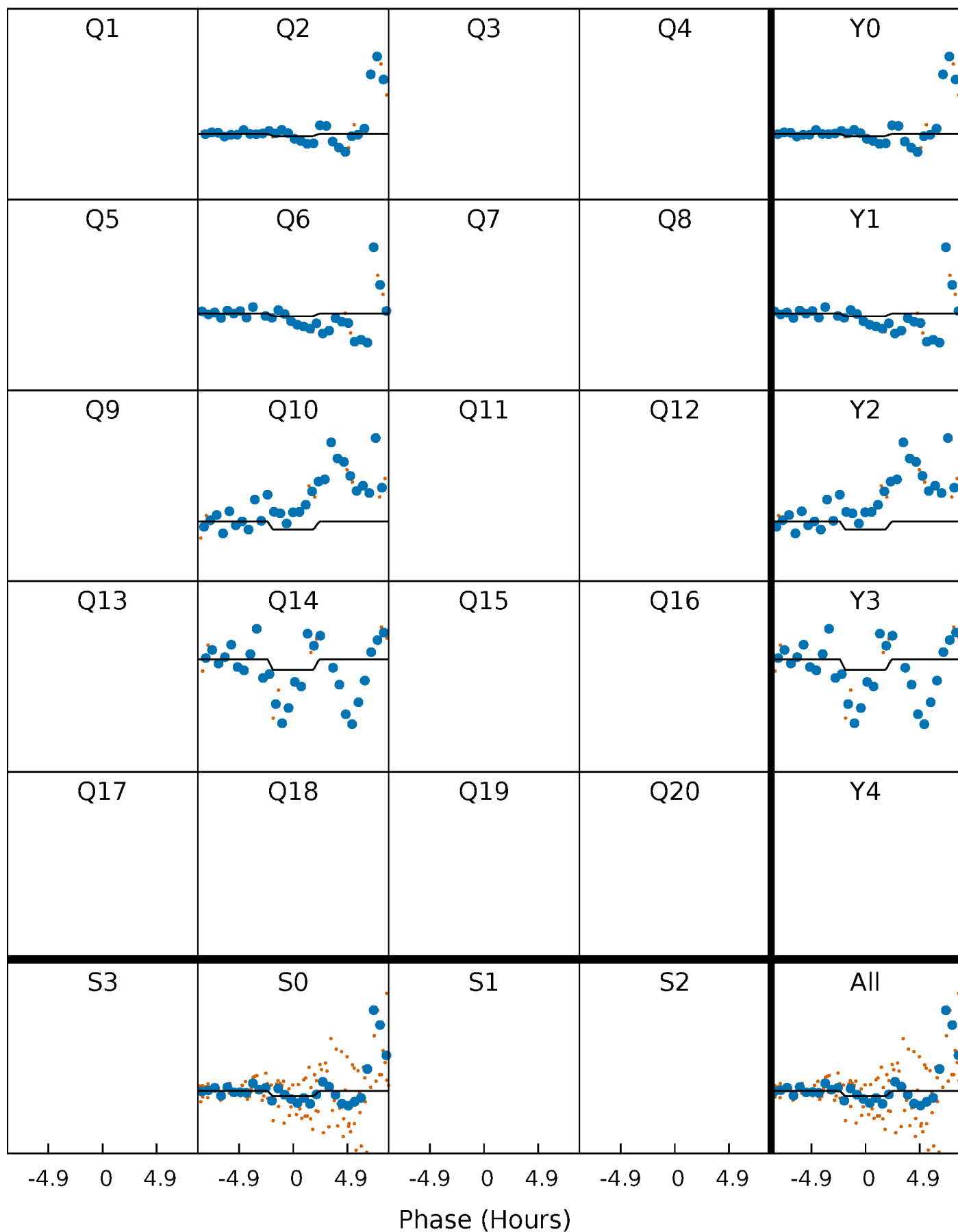
DV Quarter-Phased Transit Curves

TCE 006023332-04 $P=357.316067$ Days $T_0=203.995042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

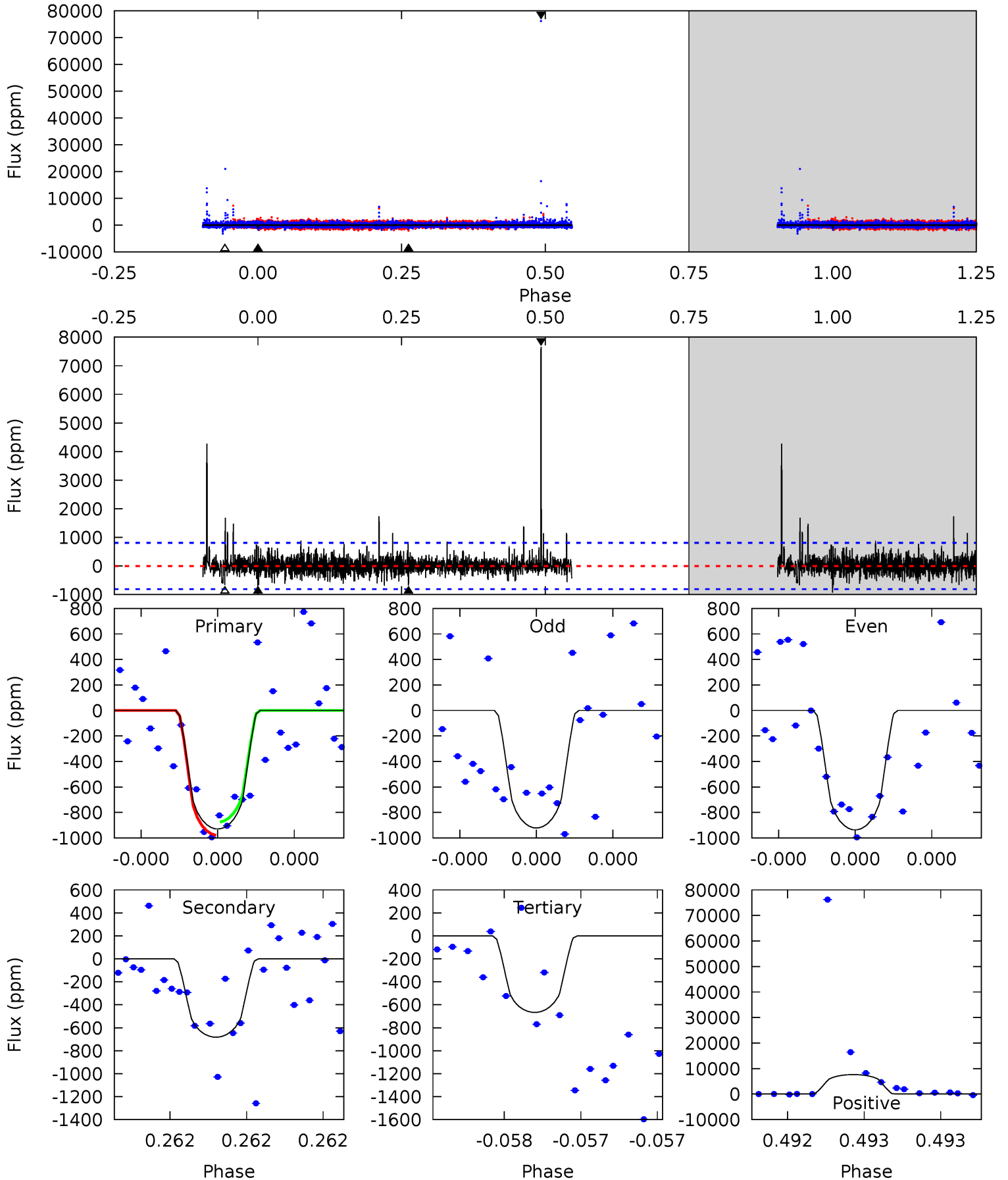
TCE 006023332-04 P=357.335286 Days $T_0=203.947246$ (BKJD)



DV Model-Shift Uniqueness Test

006023332-04, P = 357.316067 Days, E = 203.995042 Days

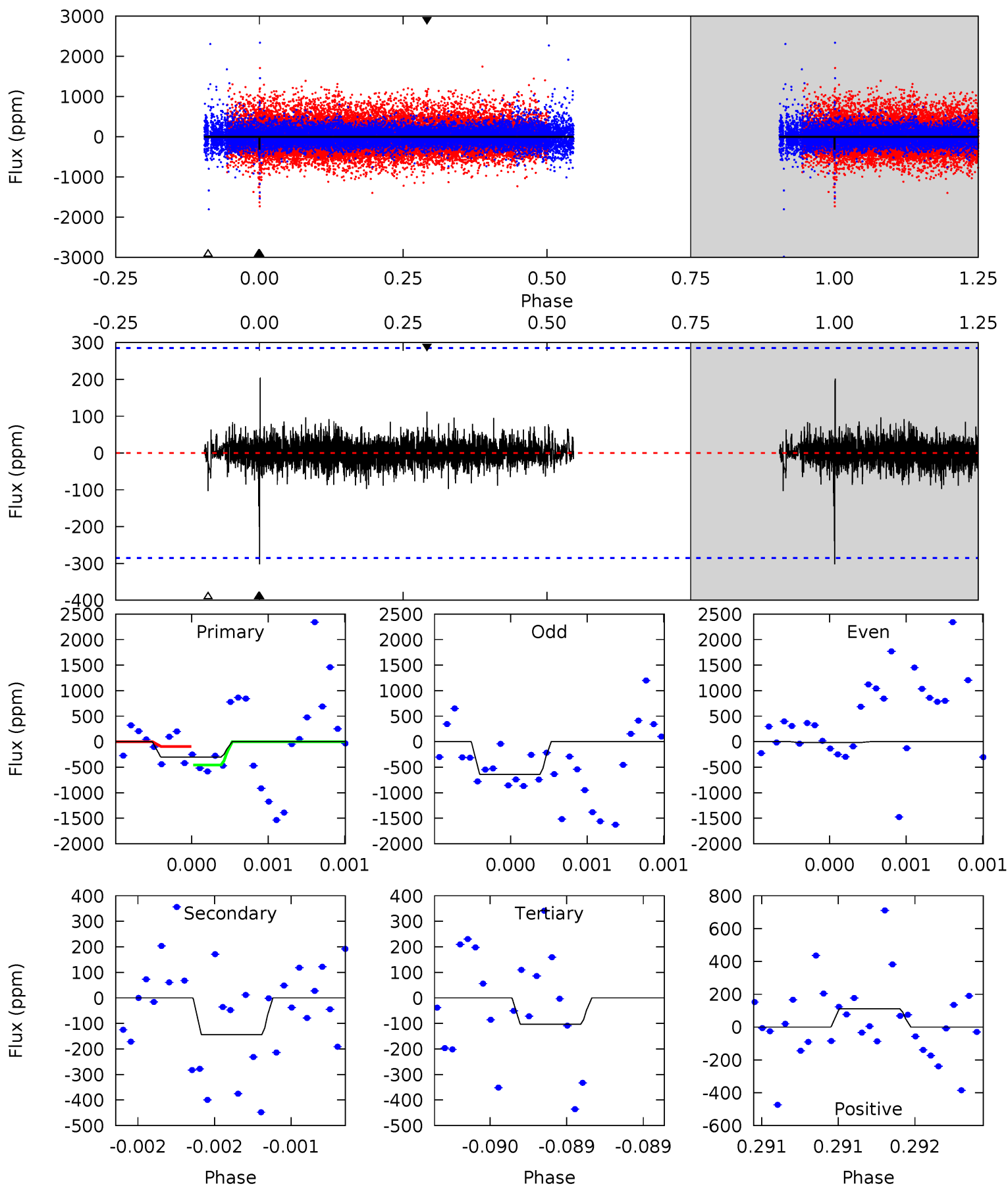
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.49	4.76	4.66	53.5	5.65	3.59	1.89	1.83	-47.0	0.11	-48.7	0.03	0.99	0.89	0.38



Alt Model-Shift Uniqueness Test

006023332-04, P = 357.335286 Days, E = 203.947246 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.90	2.82	2.02	2.18	5.56	3.46	0.49	3.88	3.71	0.80	0.63	6.05	0.68	0.40	3.48



Stellar Parameters For KIC 006023332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4484^{+121}_{-134}	$4.617^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.648^{+0.046}_{-0.061}$	$0.634^{+0.070}_{-0.051}$	$3.280^{+0.763}_{-0.349}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-9%	+11%/-8%	+23%/-11%
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 006023332-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-682 ± 143	$4.87^{+5.01}_{-3.32}$	240^{+8}_{-8}	3209^{+1585}_{-542}	11513^{+94698}_{-8703}
Alt.	-144 ± 51	$4.50^{+5.08}_{-3.05}$	241^{+7}_{-8}	2638^{+1025}_{-422}	2782^{+23737}_{-2176}

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 $A_{obs} \gg 1.0$

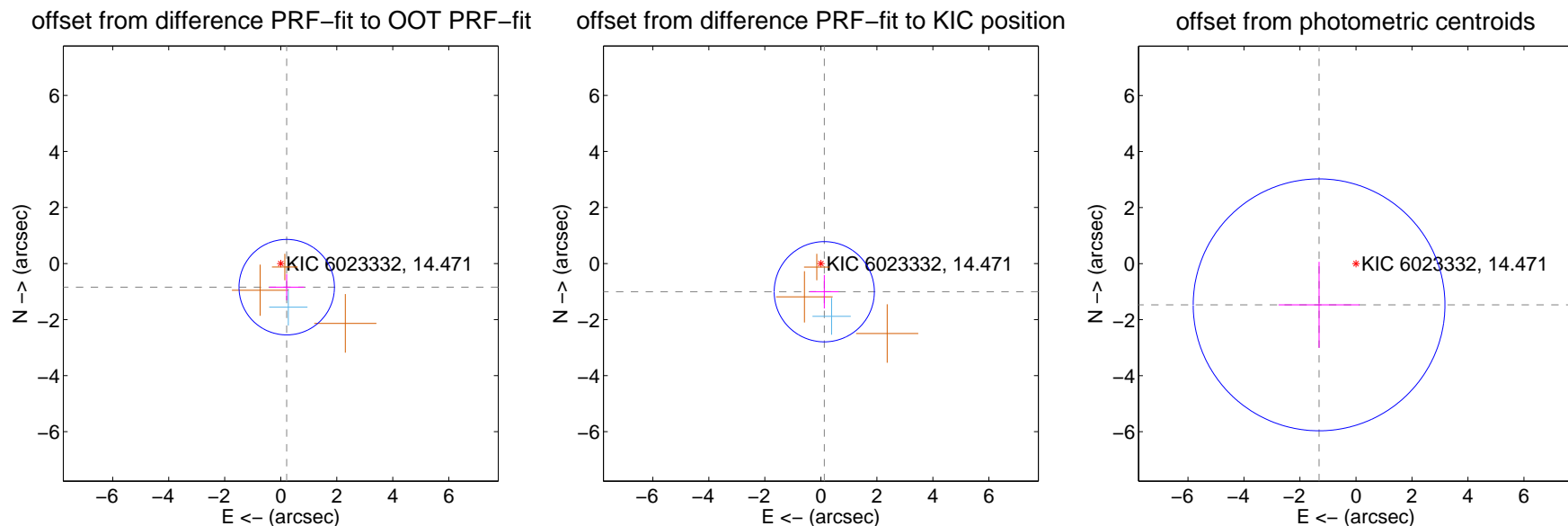
DV Centroid Data

Supplemental centroid analysis for 006023332-04. Kepler magnitude: 14.47. Transit SNR 4.32

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.869 ± 0.568	1.53	-0.213 ± 0.621	-0.843 ± 0.468
PRF-fit source offset from KIC position	1.014 ± 0.596	1.70	-0.122 ± 0.512	-1.006 ± 0.597
photometric centroid source offset	1.98 ± 1.50	1.32	1.32 ± 1.45	-1.47 ± 1.54



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

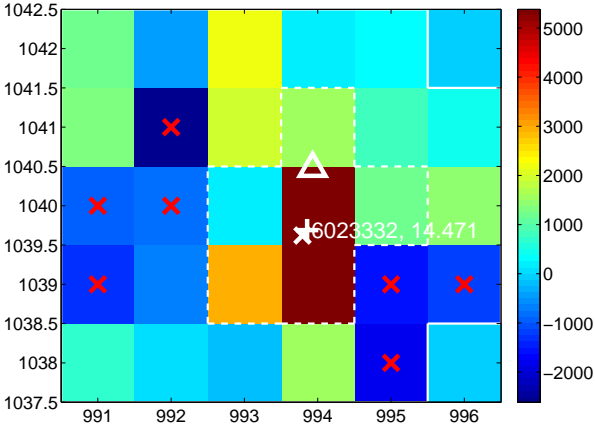
Q1 no difference image



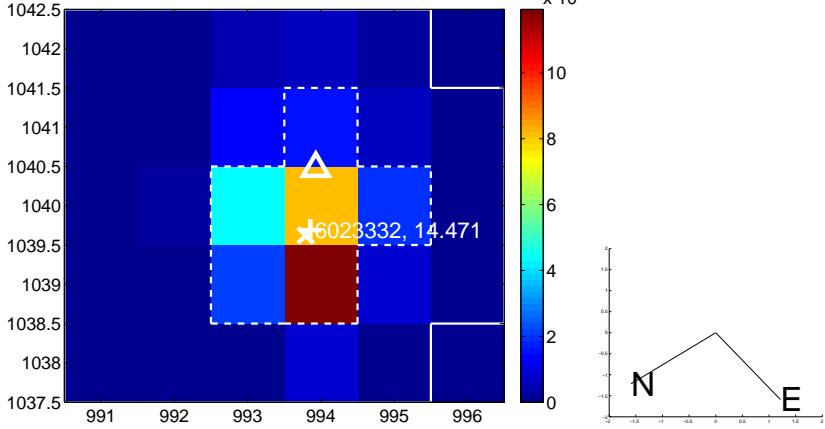
Q1 no OOT image



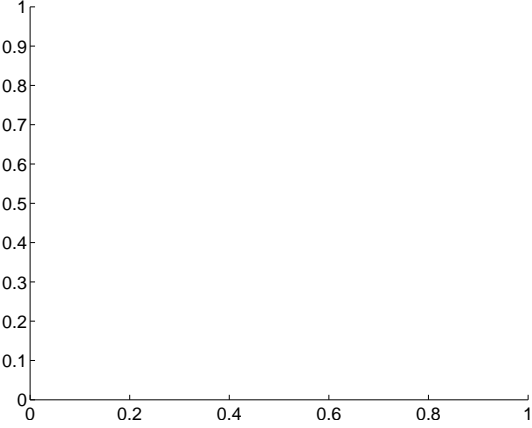
Q2 difference image. Poor Quality



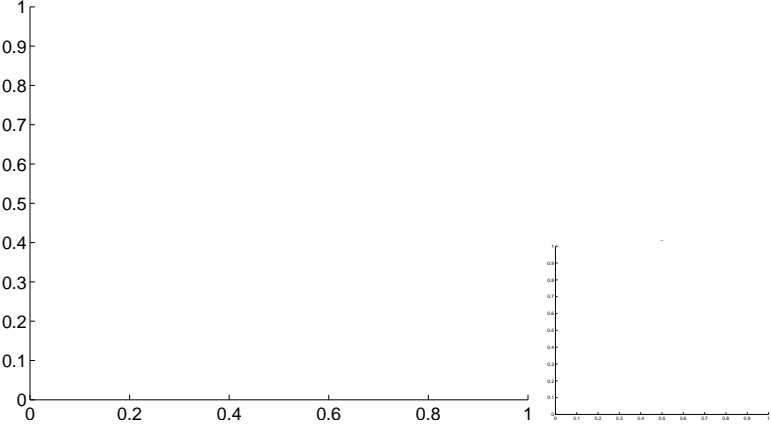
Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image

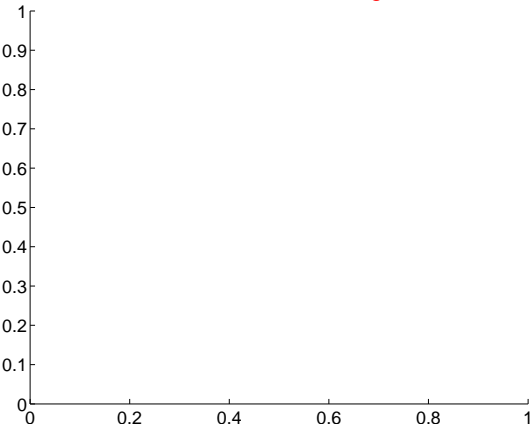


Q4 no OOT image

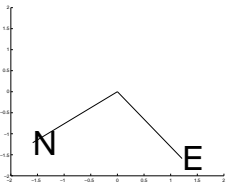
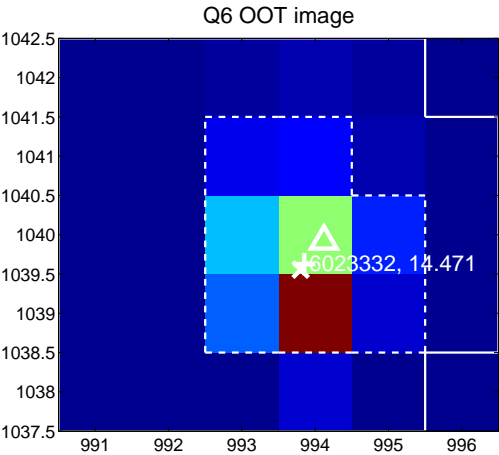
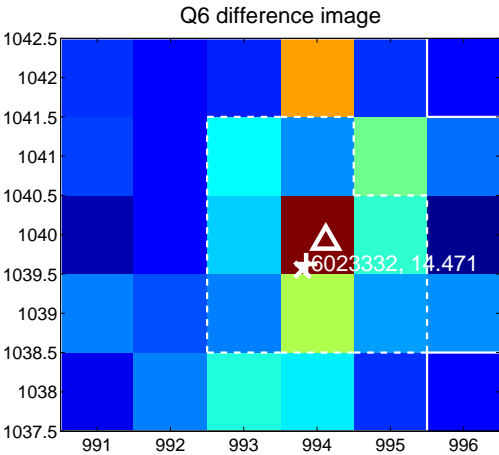
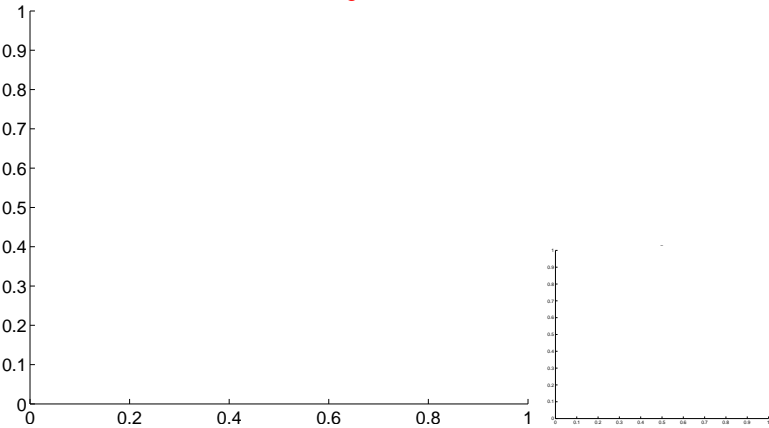


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

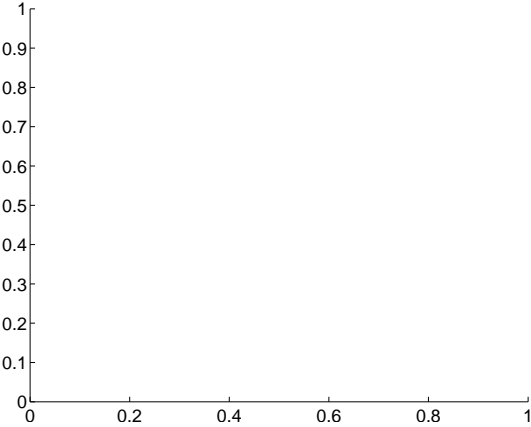
Q5 no difference image



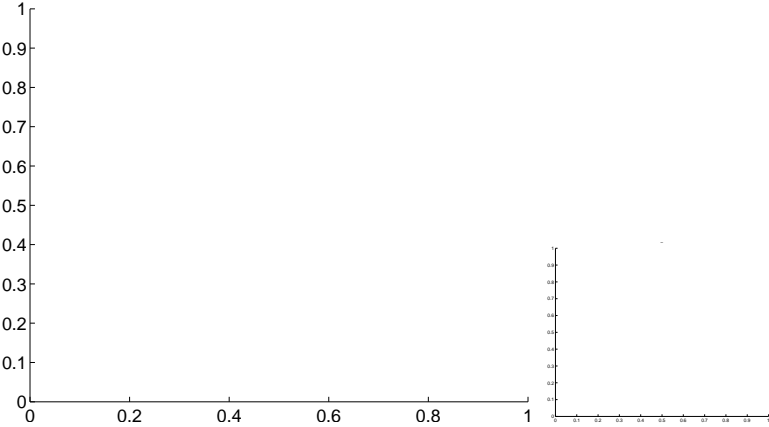
Q5 no OOT image



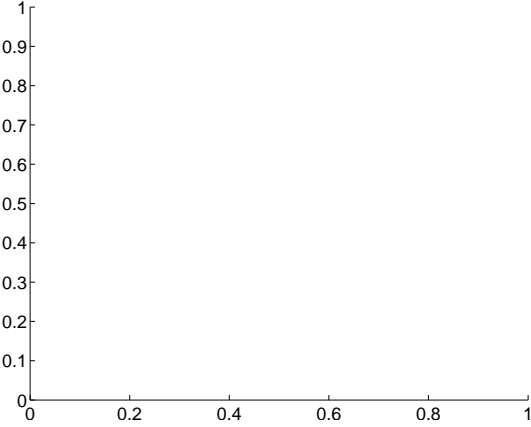
Q7 no difference image



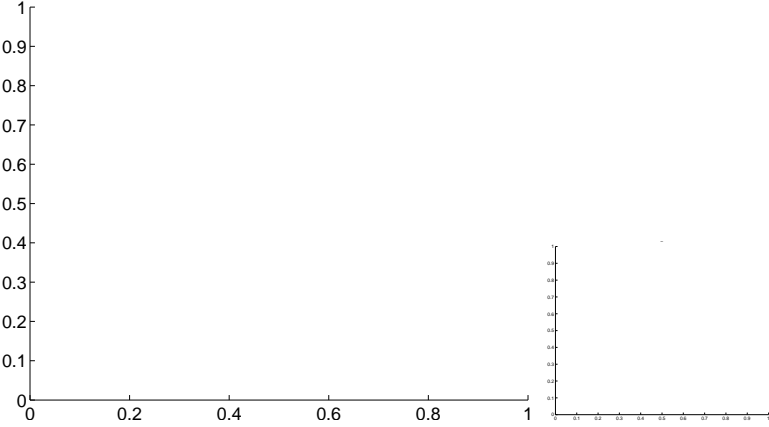
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

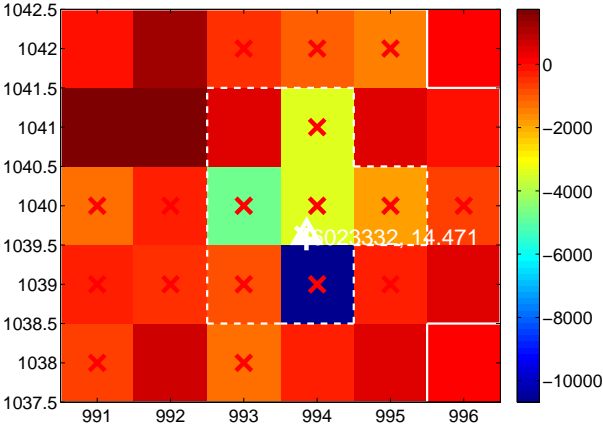
Q9 no difference image



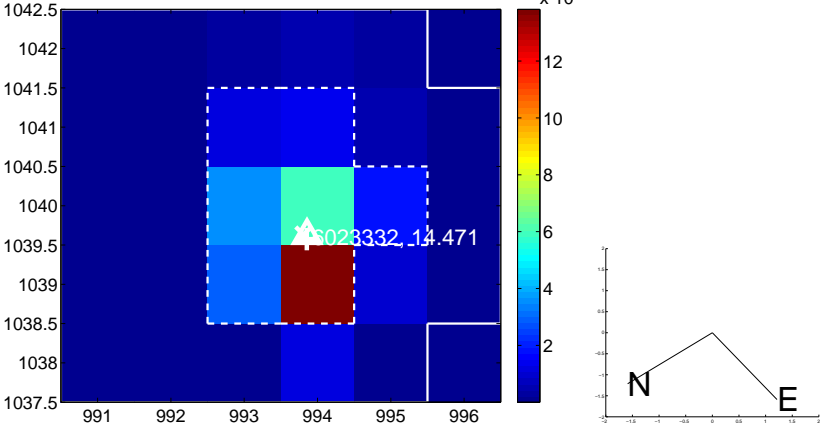
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image

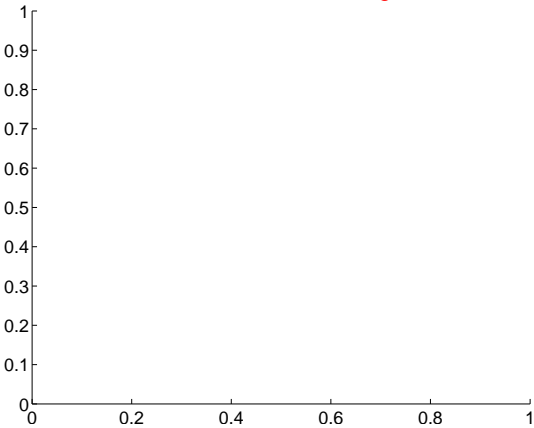


Q12 no OOT image

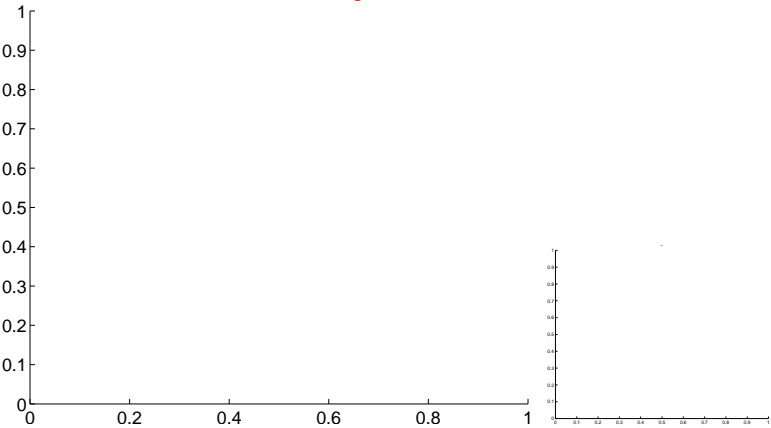


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

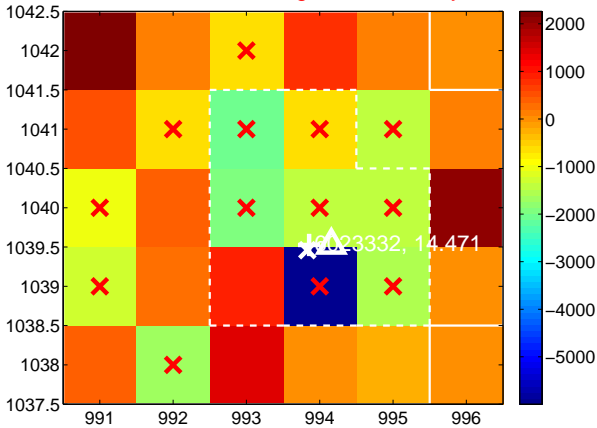
Q13 no difference image



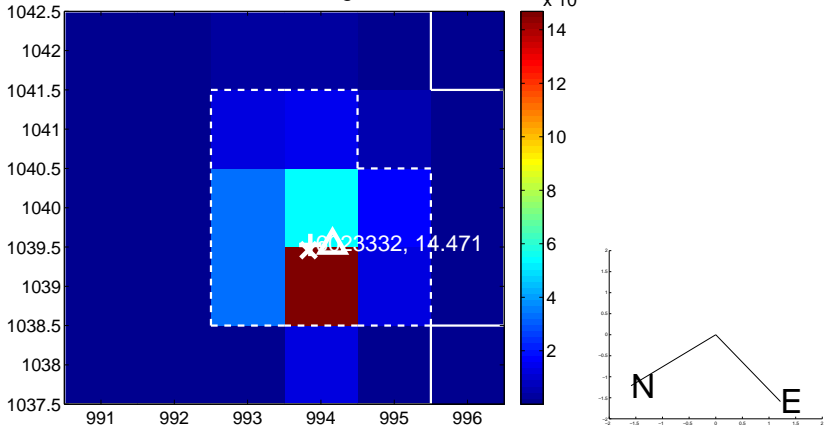
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



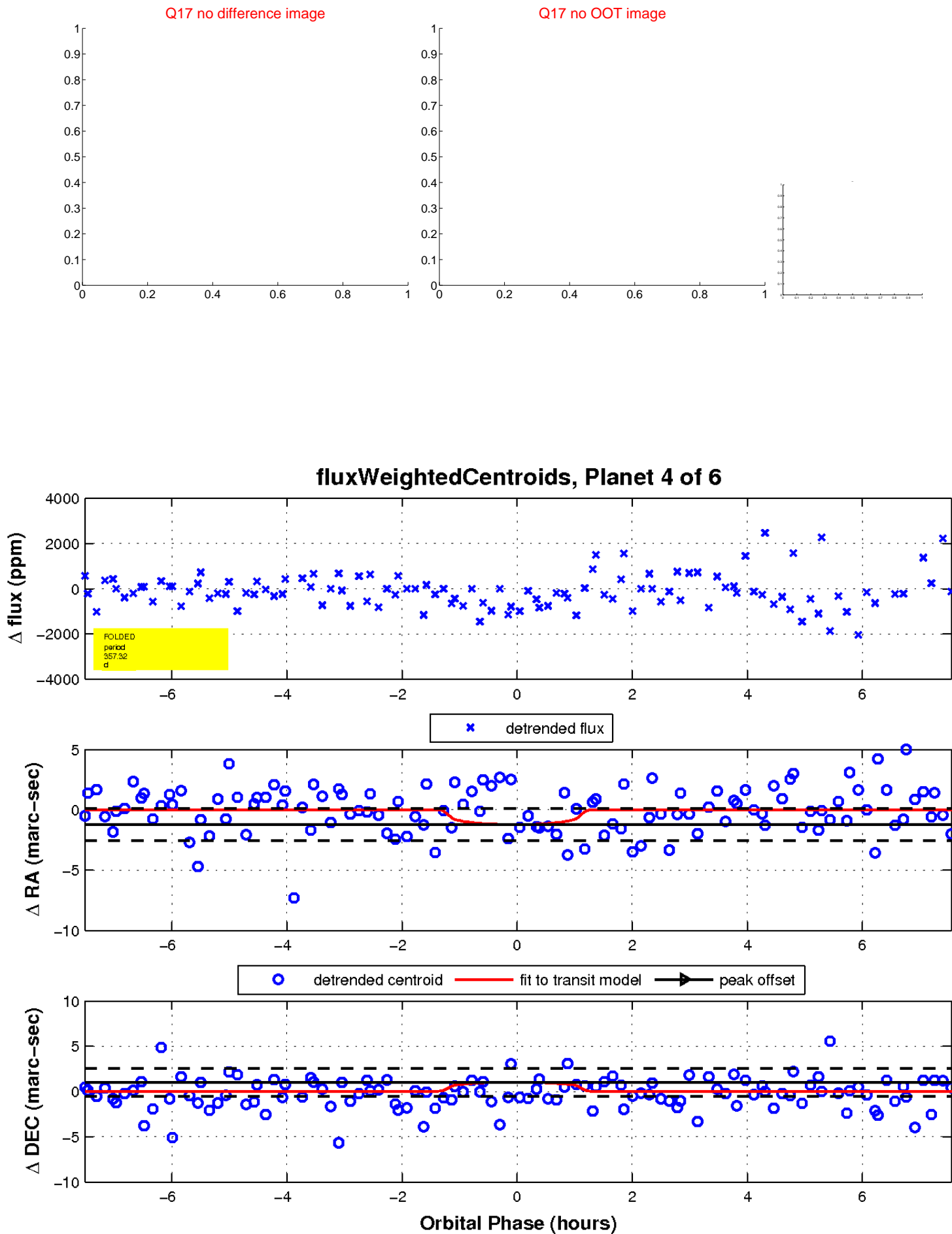
Q16 no difference image



Q16 no OOT image

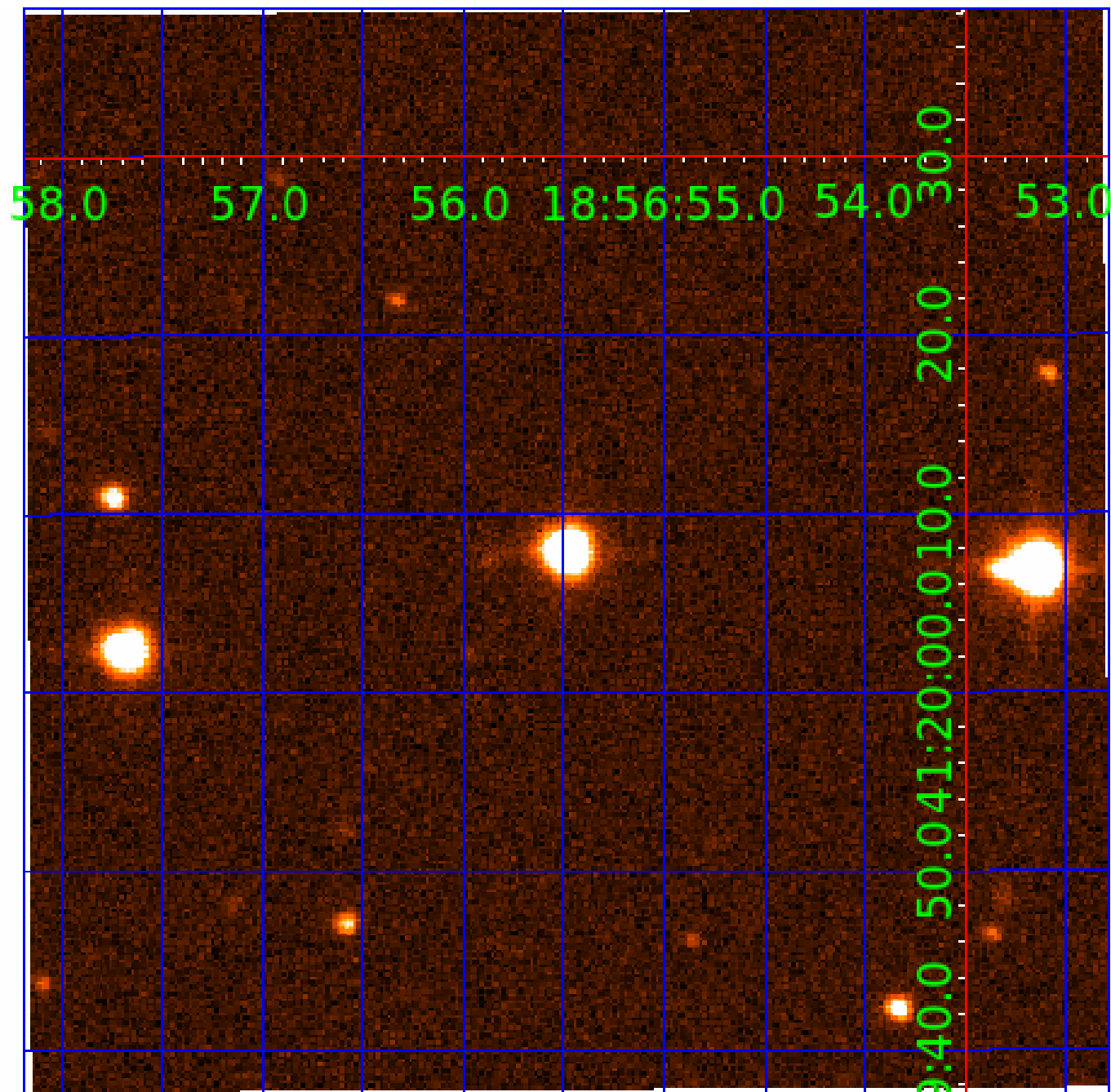


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006023332

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})
006023332-01	OBS	No	171.286757	160.893401	2716.3	2.879	14.9	13.1	0.65	4484	3.29	0.56
006023332-02	OBS	No	230.481441	172.970421	1736.5	6.473	15.5	6.2	0.65	4484	2.59	0.38
006023332-03	OBS	No	196.582340	142.088168	2141.5	2.700	16.7	8.8	0.65	4484	2.95	0.47
006023332-04	OBS	No	357.316067	203.995042	812.2	2.523	16.9	4.3	0.65	4484	2.04	0.21
006023332-05	OBS	No	387.928464	169.038829	1792.7	5.149	12.6	7.1	0.65	4484	3.01	0.19
006023332-06	OBS	No	371.670922	235.781589	712.6	3.265	14.2	3.5	0.65	4484	1.74	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006023332-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006023332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006023332-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
006023332-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006023332-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
006023332-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

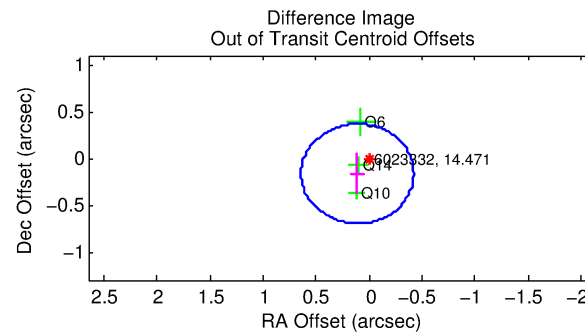
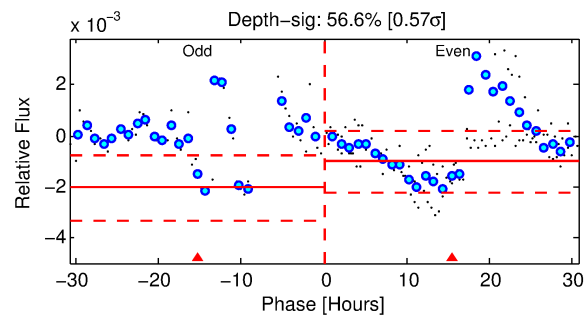
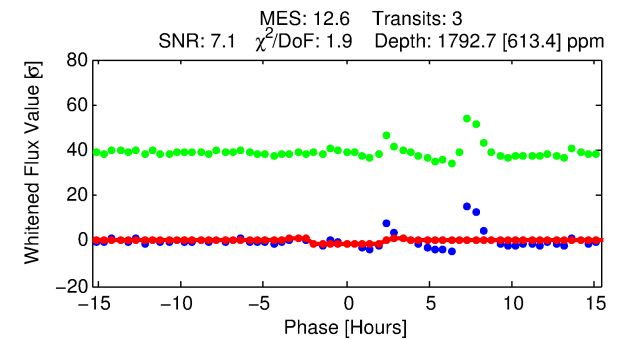
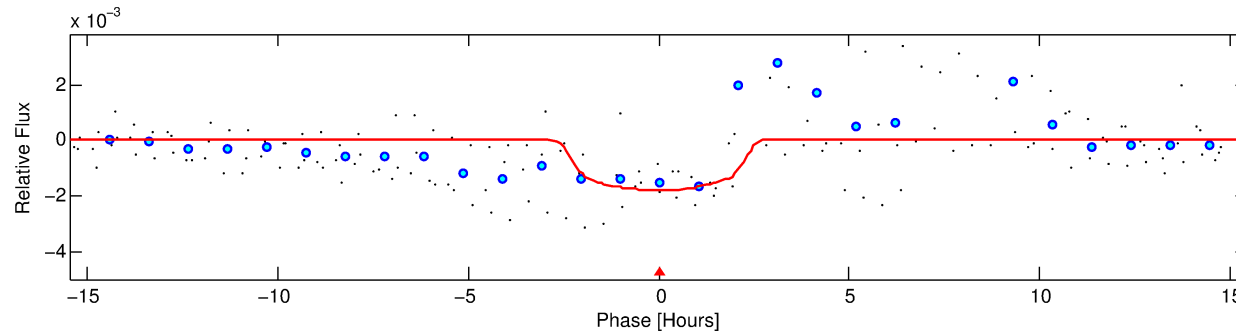
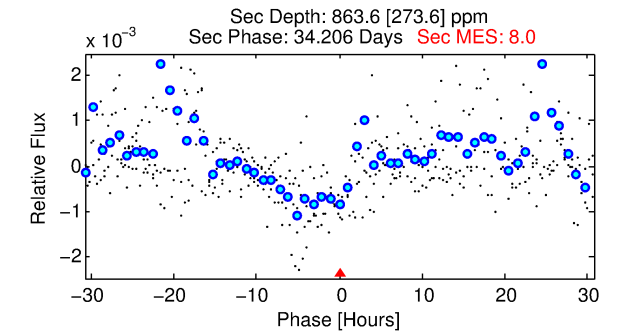
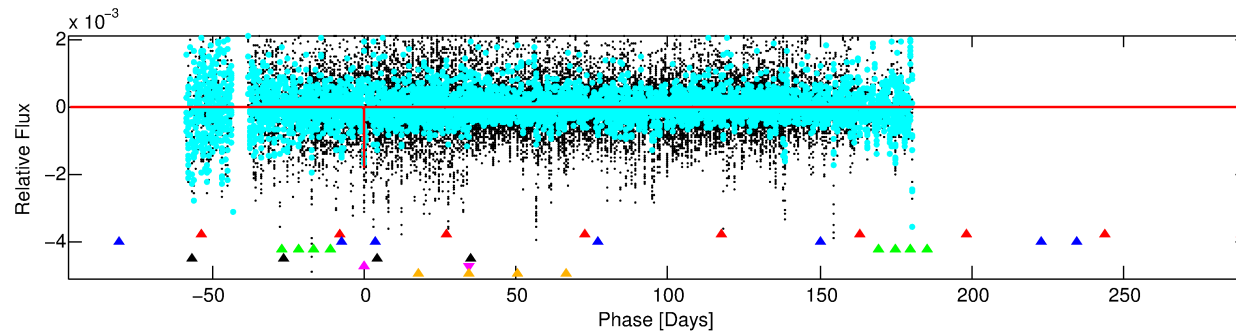
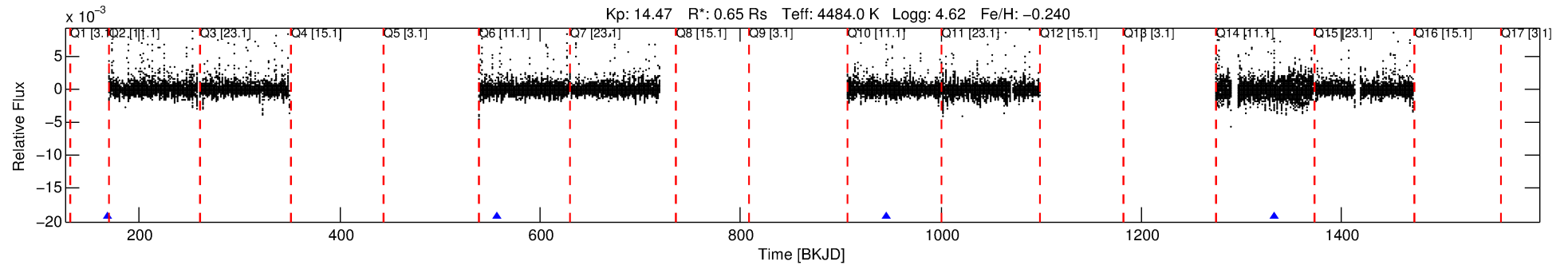
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006023332-05

No Significant Match Found

DV One-Page Summary

KIC: 6023332 Candidate: 5 of 6 Period: 387.928 d



DV Fit Results:

Period = 387.92846 [0.01218] d
Epoch = 169.0388 [0.0242] BKJD
Rp/R* = 0.0426 [0.0341]
a/R* = 412.58 [1006.62]
b = 0.76 [1.42]
Seff = 0.19 [0.03]
Teq = 168 [7] K
Rp = 3.01 [2.43] Re
a = 0.8945 [0.0665] AU
Ag = 41970.88 [68729.64] [0.61 σ]
Teffp = 3726 [1527] K [2.33 σ]

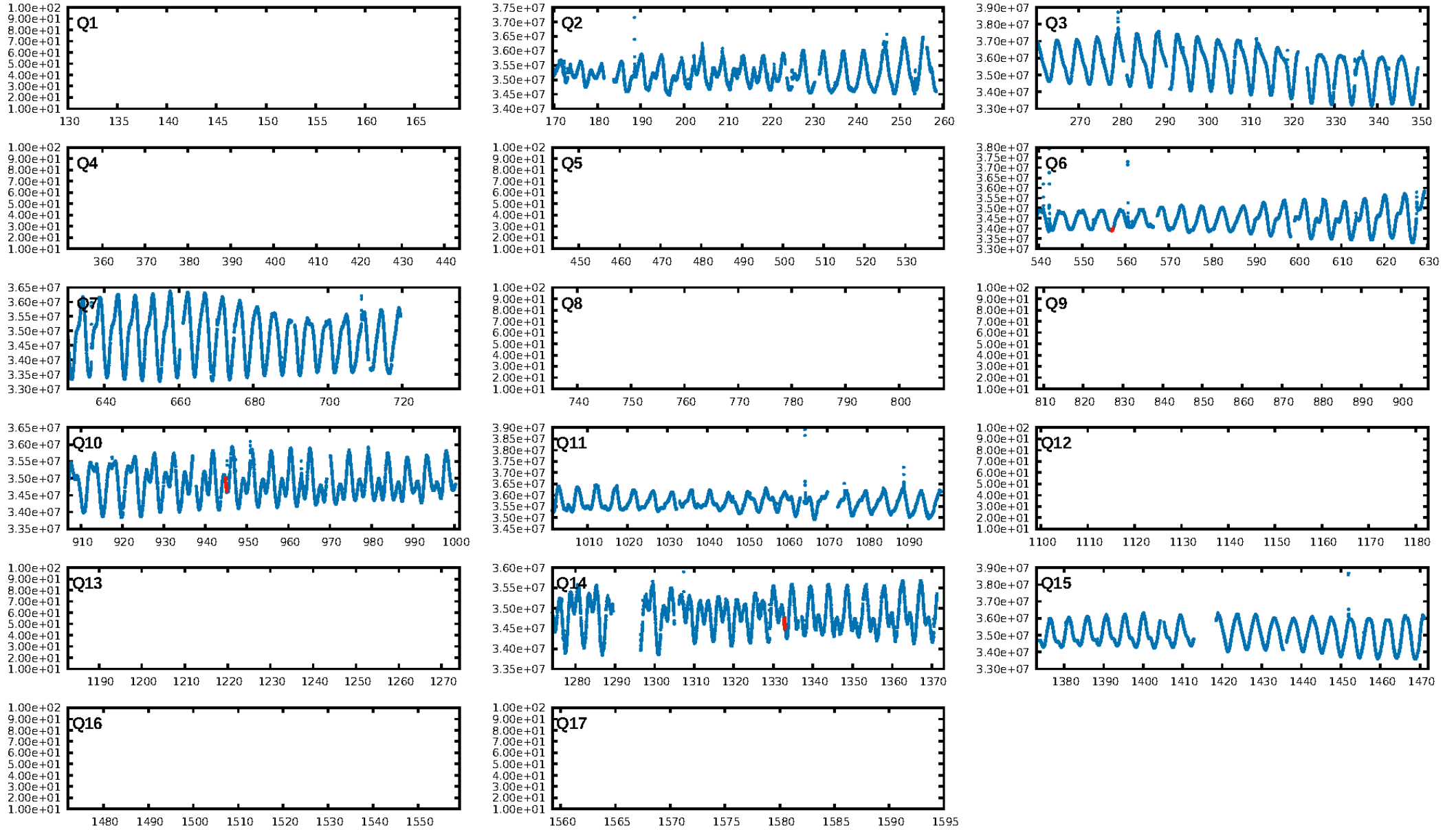
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 24.6%
Bootstrap-pfa: 1.96e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.21
Centroid-sig: 3.7%
Centroid-so: 1.115 arcsec [1.84 σ]
OotOffset-rm: 0.198 arcsec [1.12 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 0.326 arcsec [2.04 σ]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

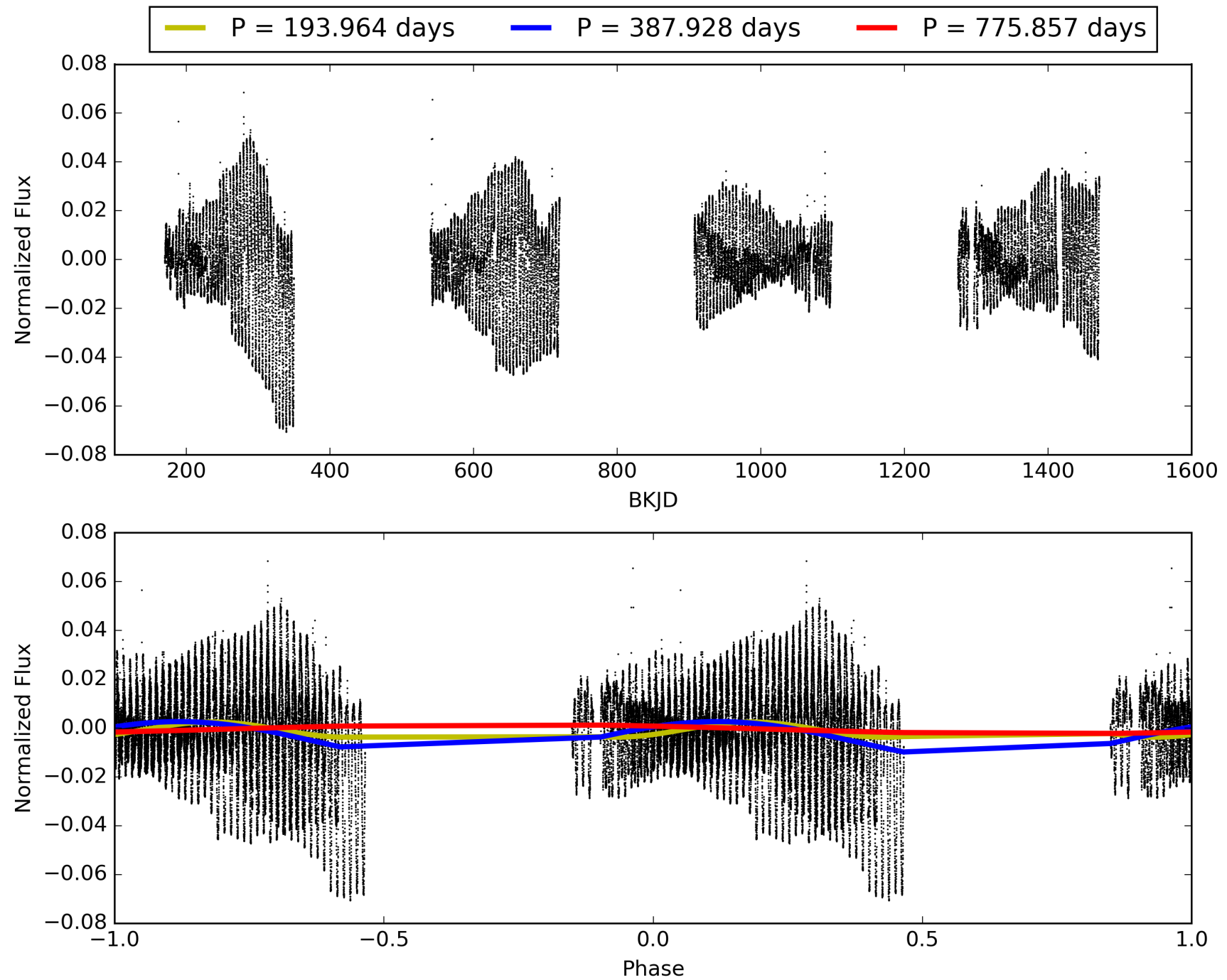
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:26:50 Z

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

TCE 006023332-05, PDC Light Curves

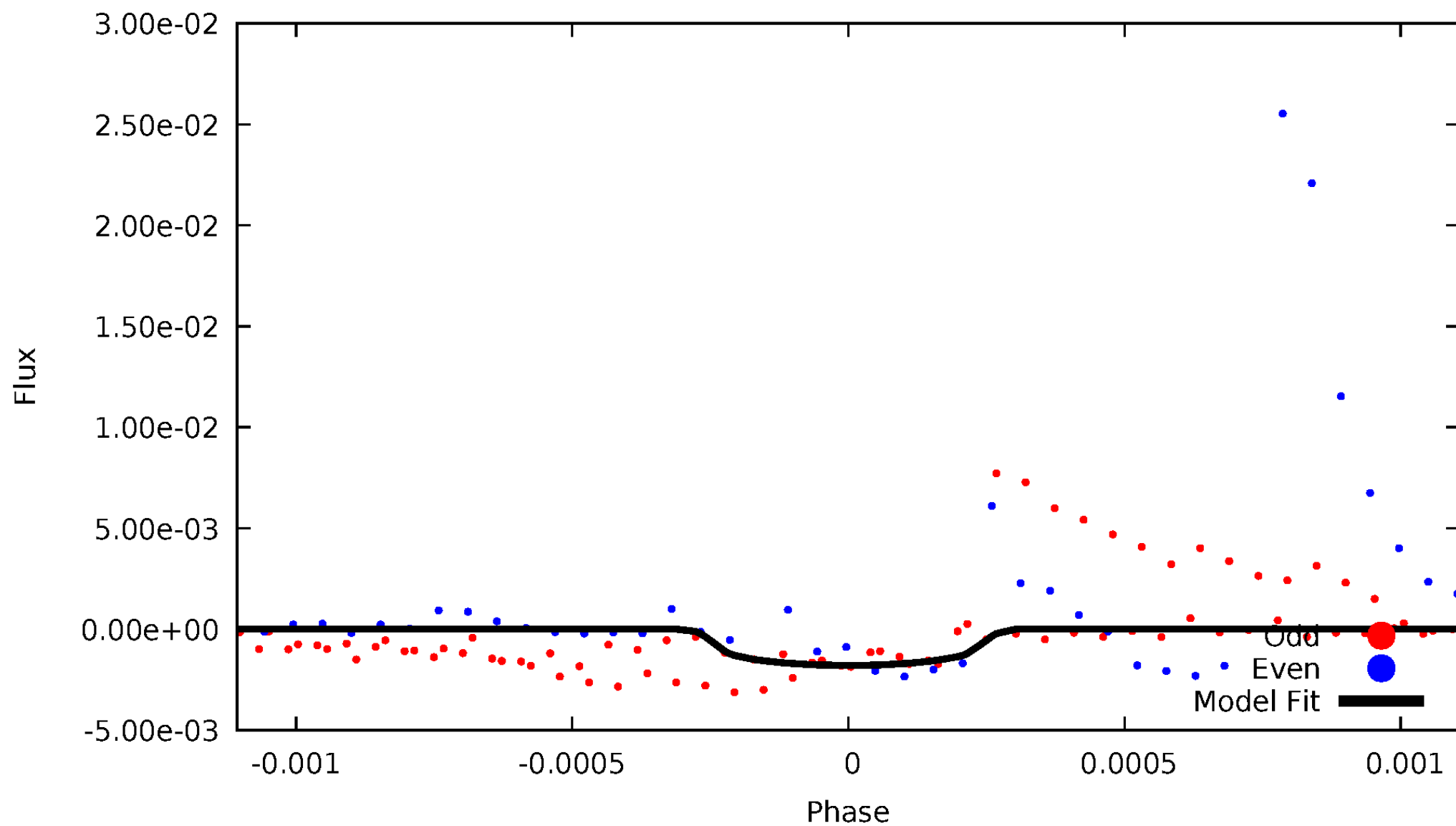


TCE 006023332-05



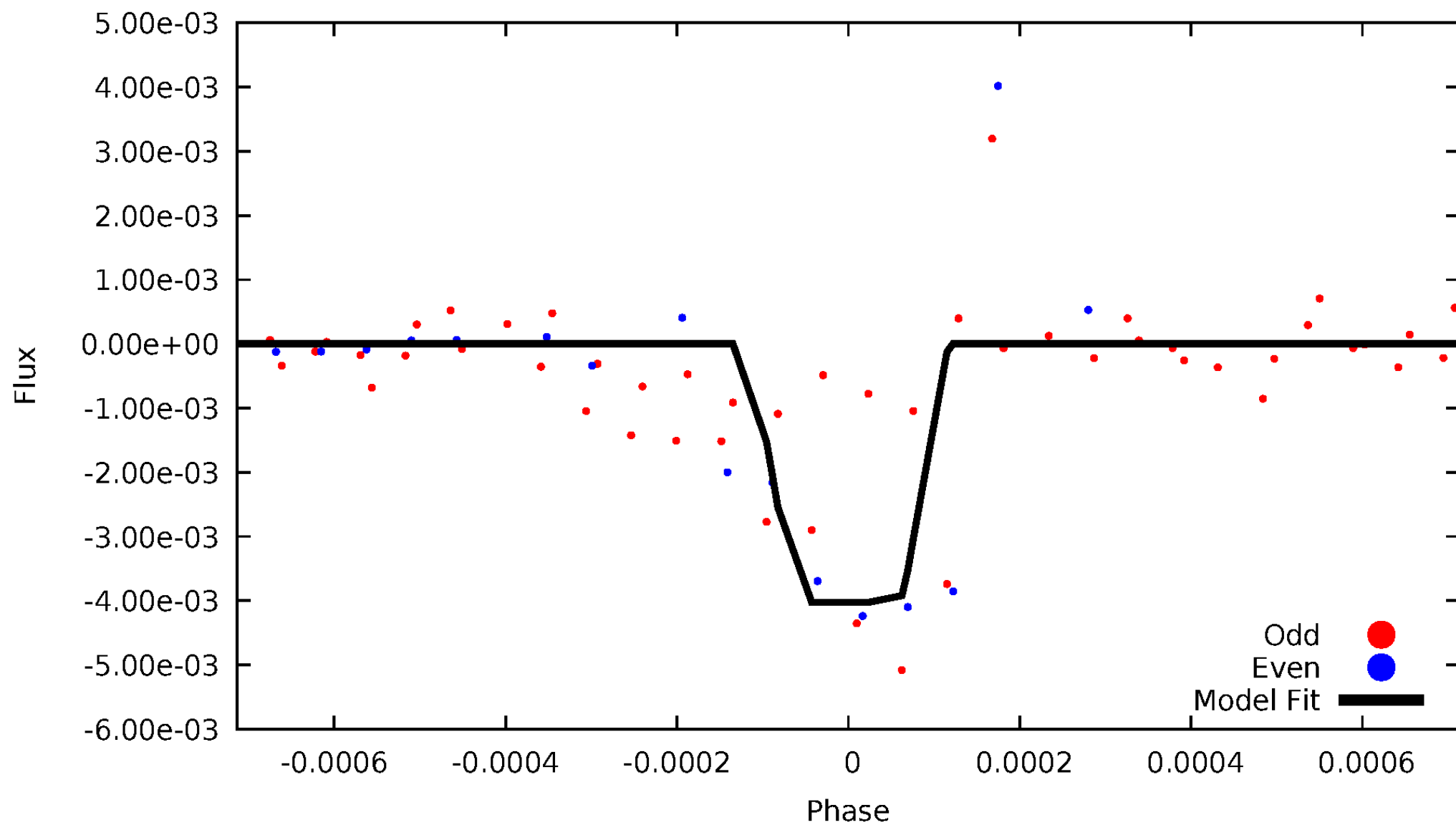
DV Odd/Even

TCE 006023332-05



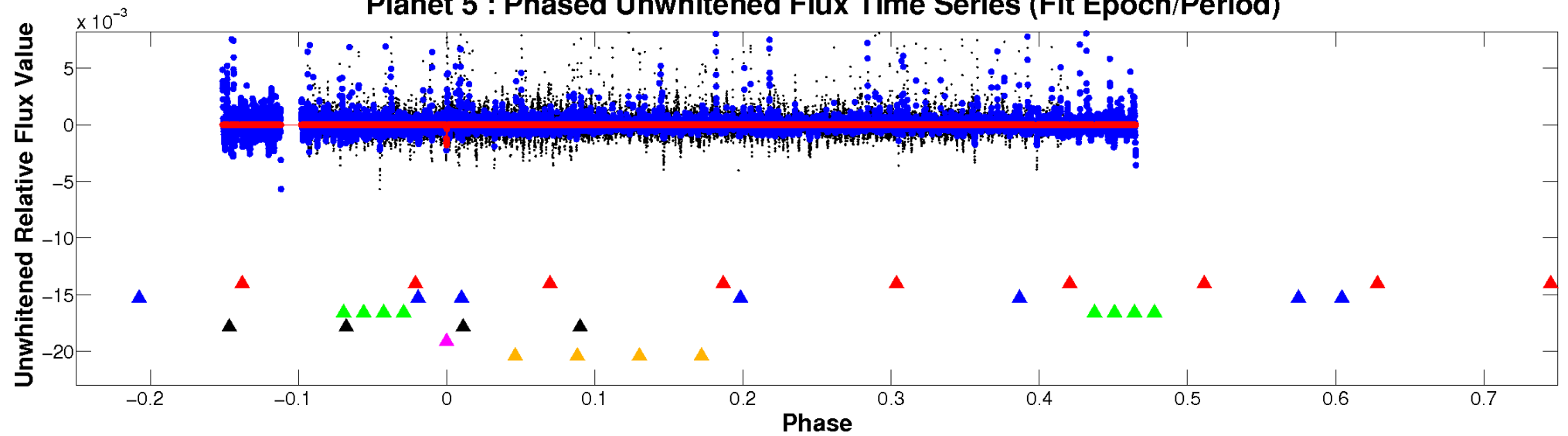
ALT Odd/Even

TCE 006023332-05

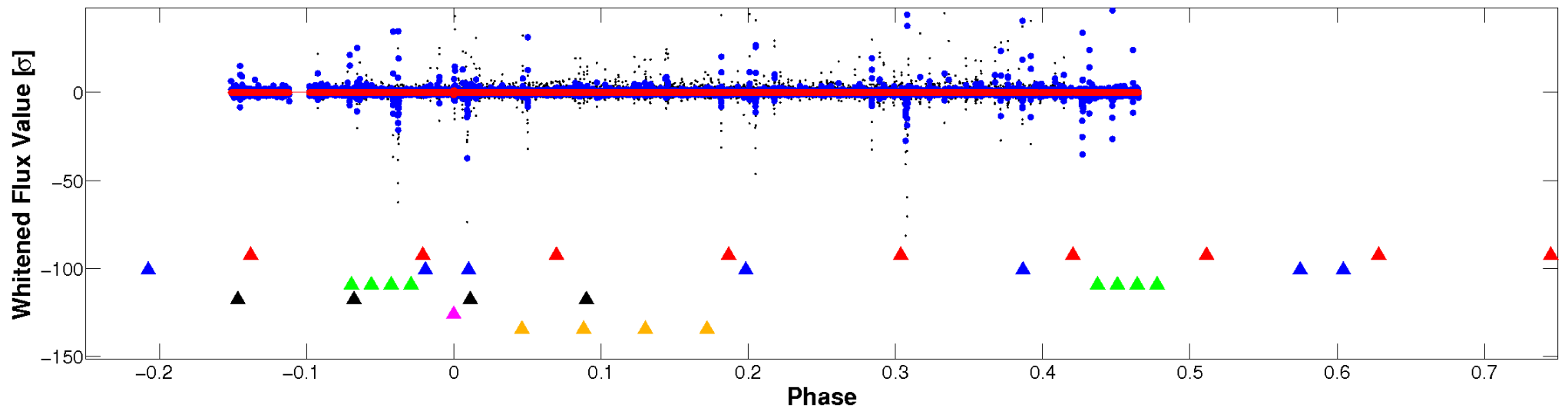


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

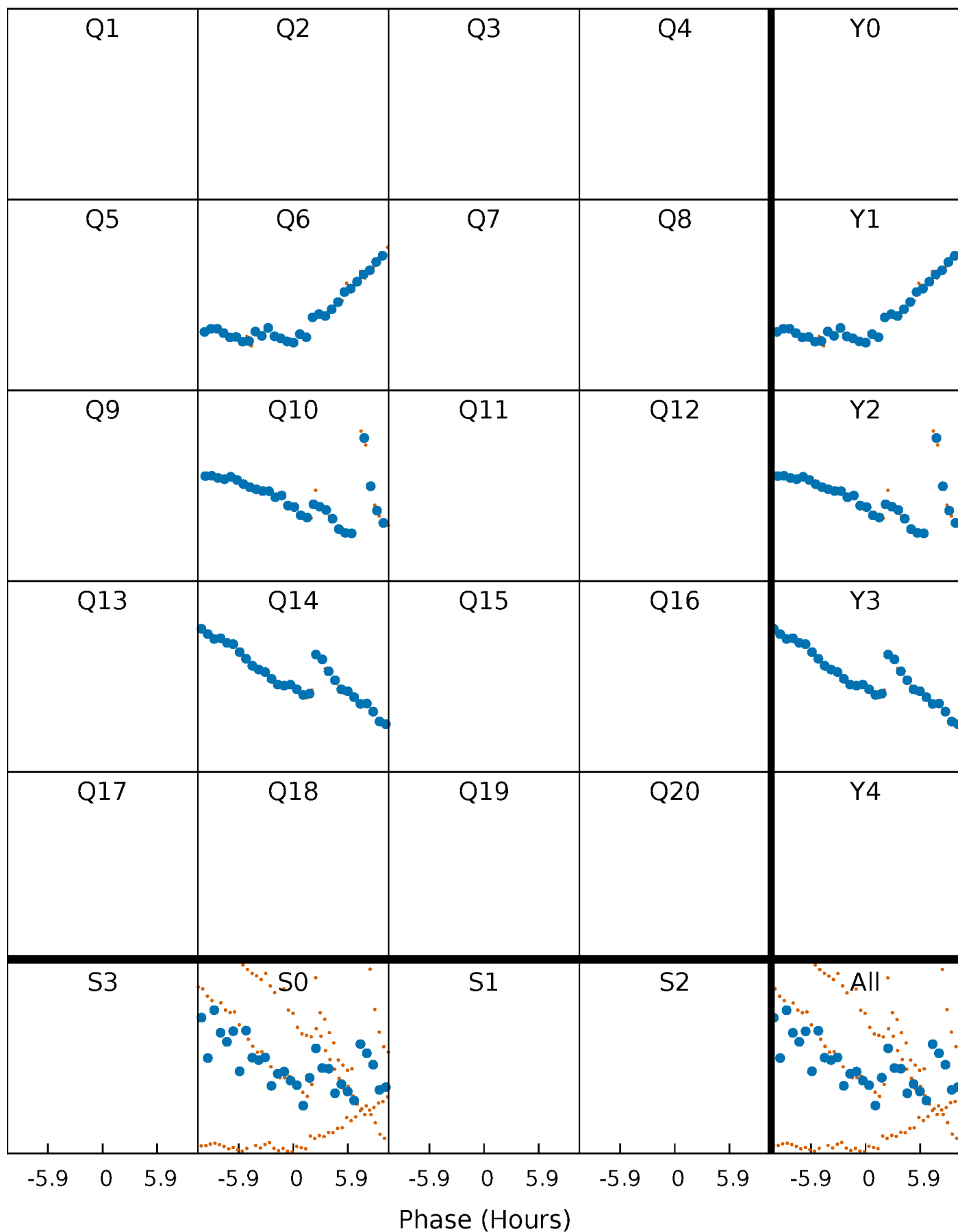


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



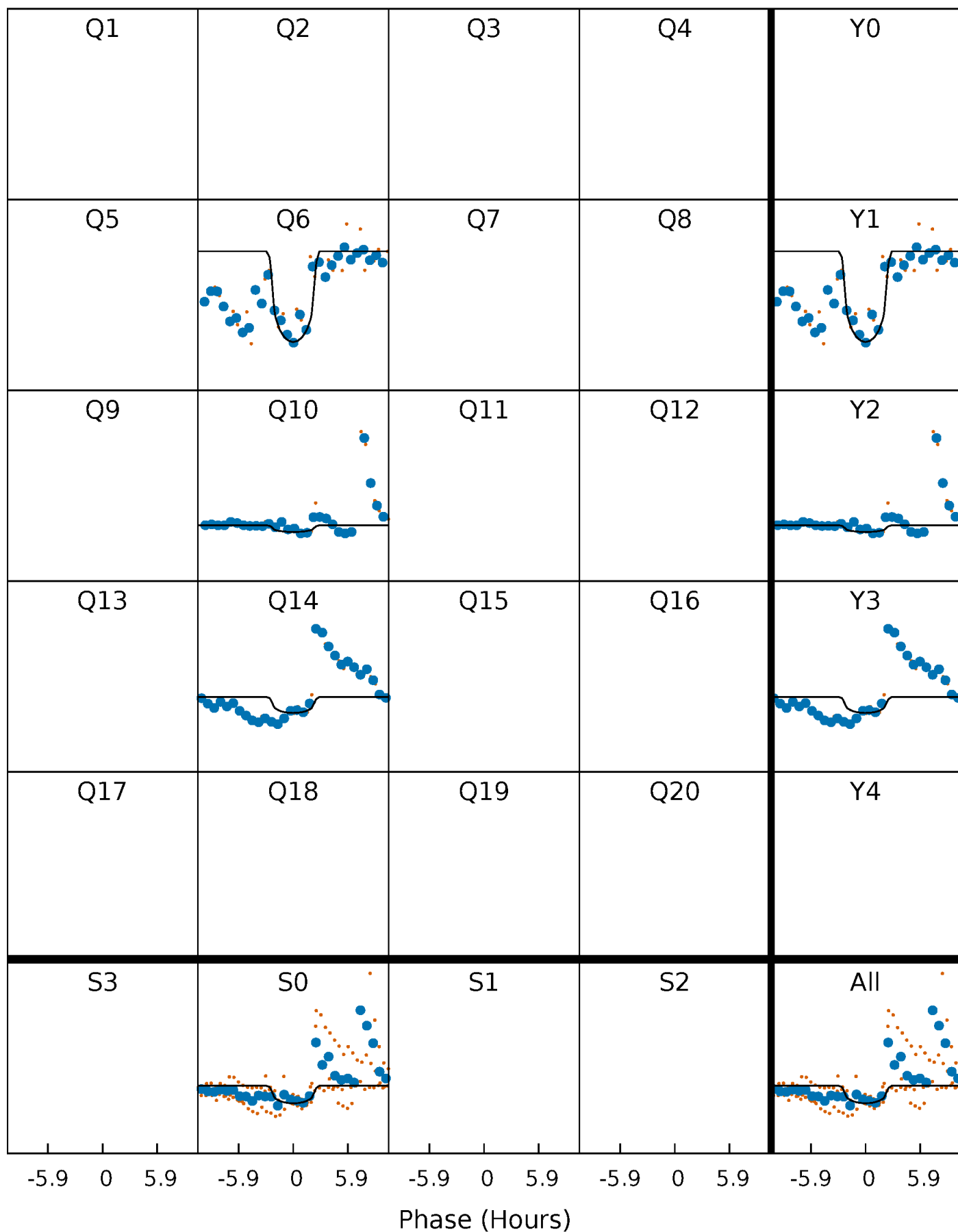
PDC Quarter-Phased Transit Curves

TCE 006023332-05 $P=387.928464$ Days $T_0=169.038829$ (BKJD)



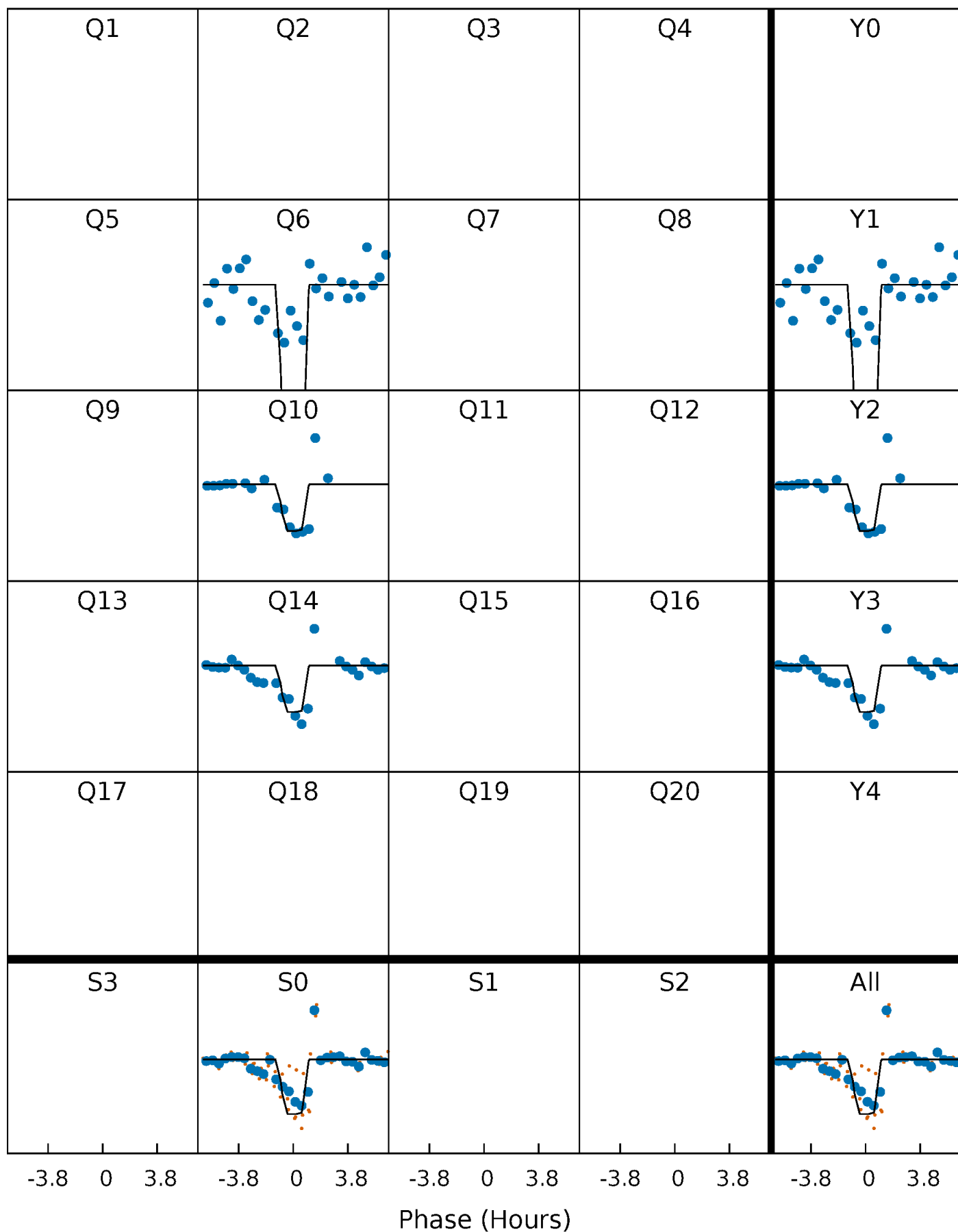
DV Quarter-Phased Transit Curves

TCE 006023332-05 $P=387.928464$ Days $T_0=169.038829$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

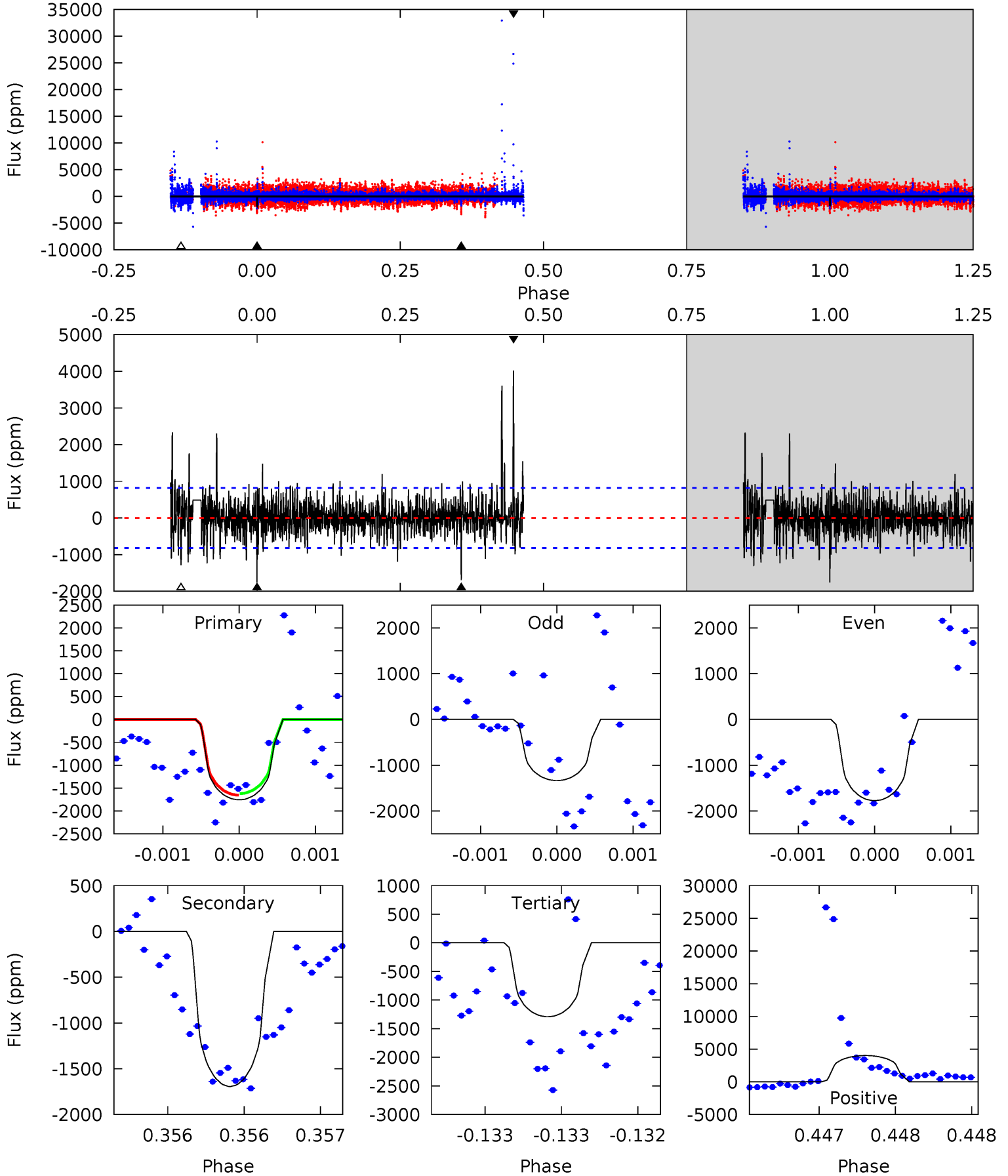
TCE 006023332-05 $P=387.934442$ Days $T_0=169.059743$ (BKJD)



DV Model-Shift Uniqueness Test

006023332-05, P = 387.928464 Days, E = 169.038829 Days

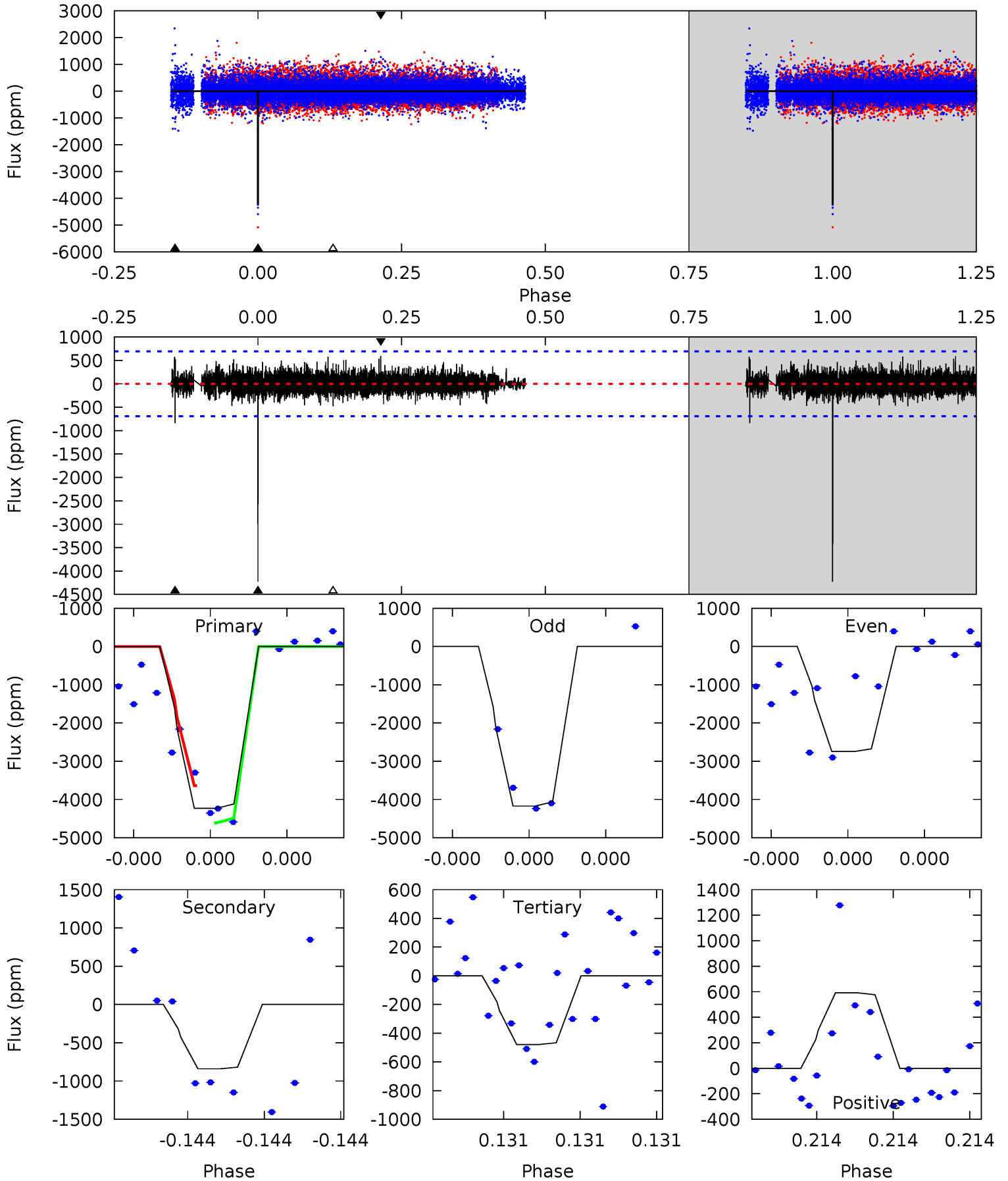
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	11.5	8.77	27.3	5.56	3.46	2.46	3.16	-15.4	2.73	-15.8	1.07	1.04	0.70	0.11



Alt Model-Shift Uniqueness Test

006023332-05, P = 387.934442 Days, E = 169.059743 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.0	6.95	3.96	4.89	5.73	3.71	0.99	31.0	30.1	2.99	2.06	6.53	0.75	0.12	0



Stellar Parameters For KIC 006023332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4484^{+121}_{-134}	$4.617^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.648^{+0.046}_{-0.061}$	$0.634^{+0.070}_{-0.051}$	$3.280^{+0.763}_{-0.349}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-9%	+11%/-8%	+23%/-11%
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 006023332-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1694 ± 147	$3.23^{+2.36}_{-1.83}$	234^{+7}_{-8}	4329^{+1879}_{-811}	$72349^{+323063}_{-47811}$
Alt.	-840 ± 121	$4.45^{+2.56}_{-2.14}$	234^{+8}_{-8}	3411^{+862}_{-428}	19252^{+51737}_{-11749}

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 $A_{obs} \gg 1.0$

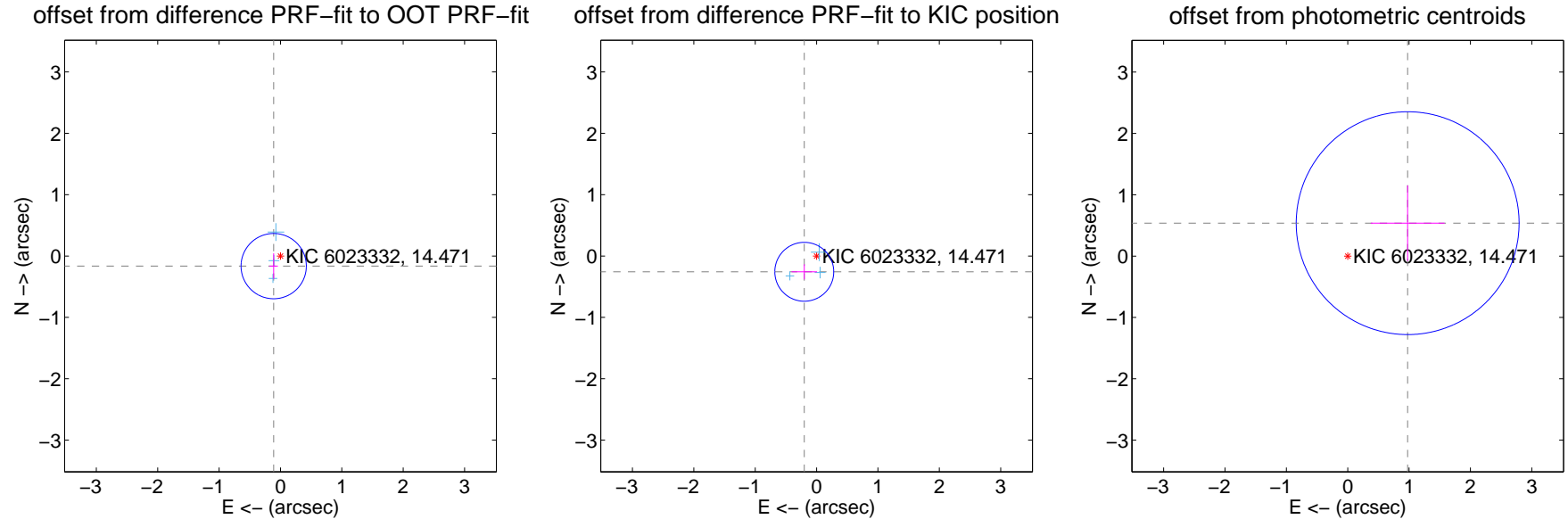
DV Centroid Data

Supplemental centroid analysis for 006023332-05. Kepler magnitude: 14.47. Transit SNR 7.12

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.198 ± 0.177	1.12	0.110 ± 0.068	-0.165 ± 0.209
PRF-fit source offset from KIC position	0.326 ± 0.160	2.04	0.201 ± 0.207	-0.257 ± 0.123
photometric centroid source offset	1.11 ± 0.61	1.84	-0.98 ± 0.60	0.54 ± 0.62

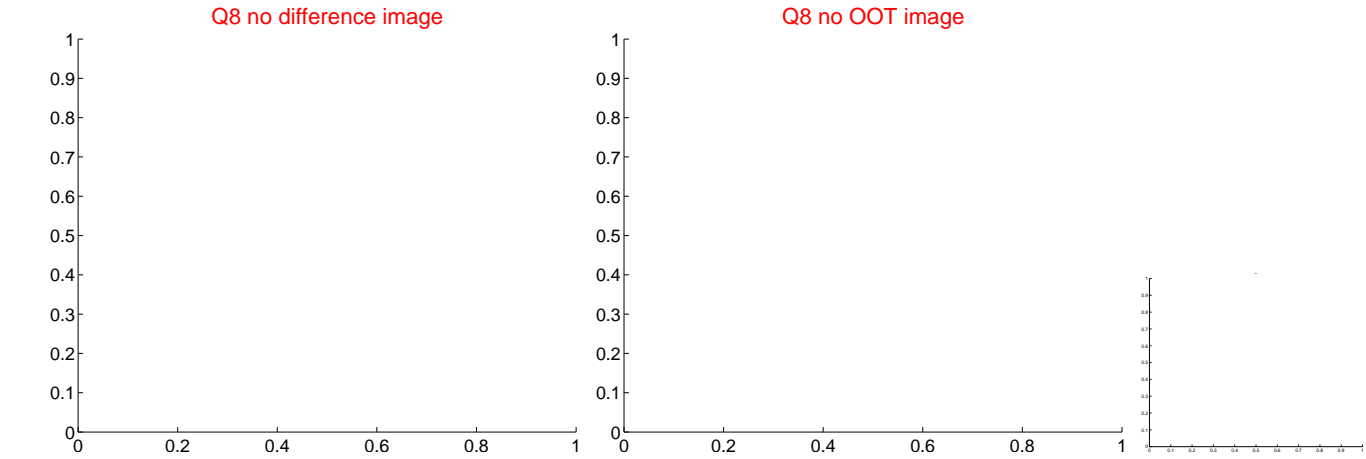
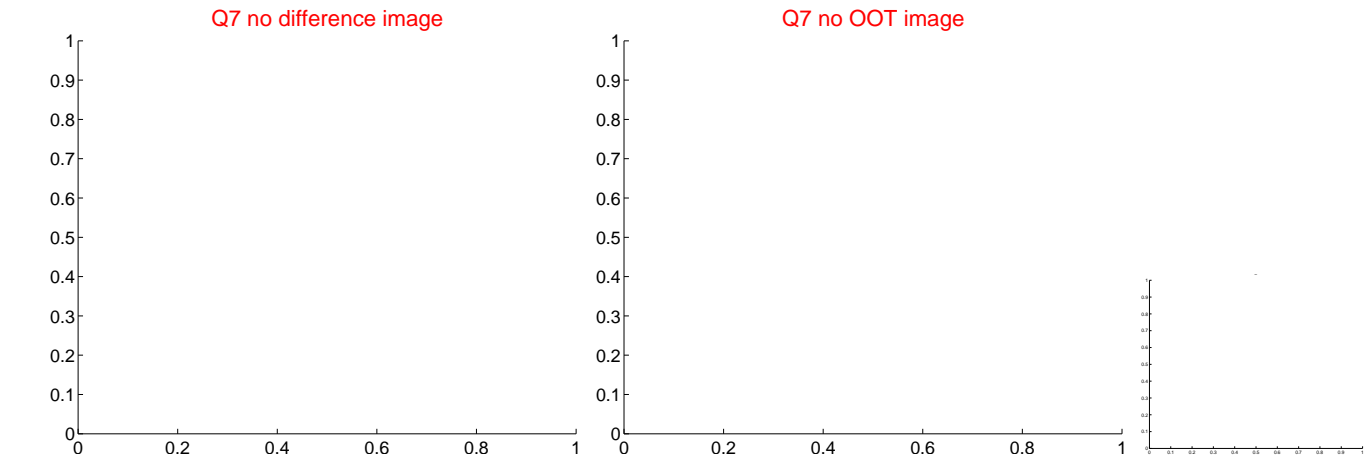
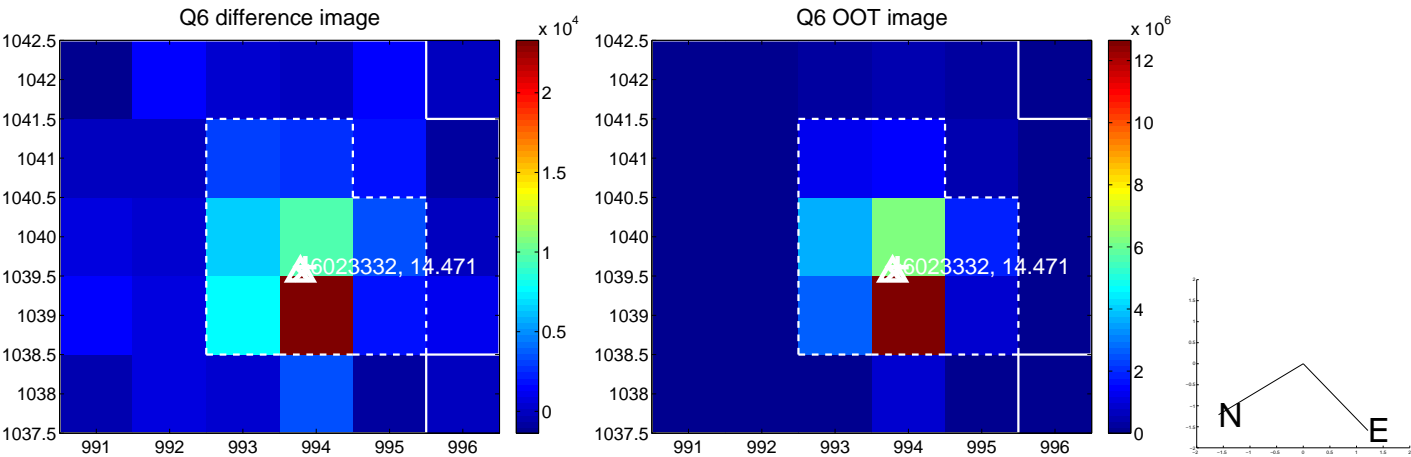
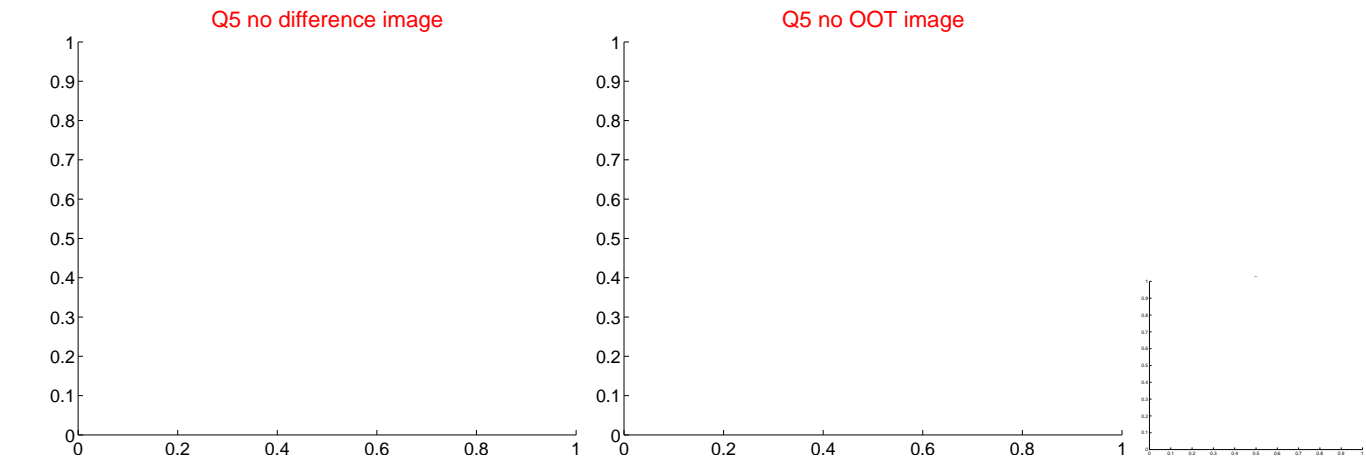


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

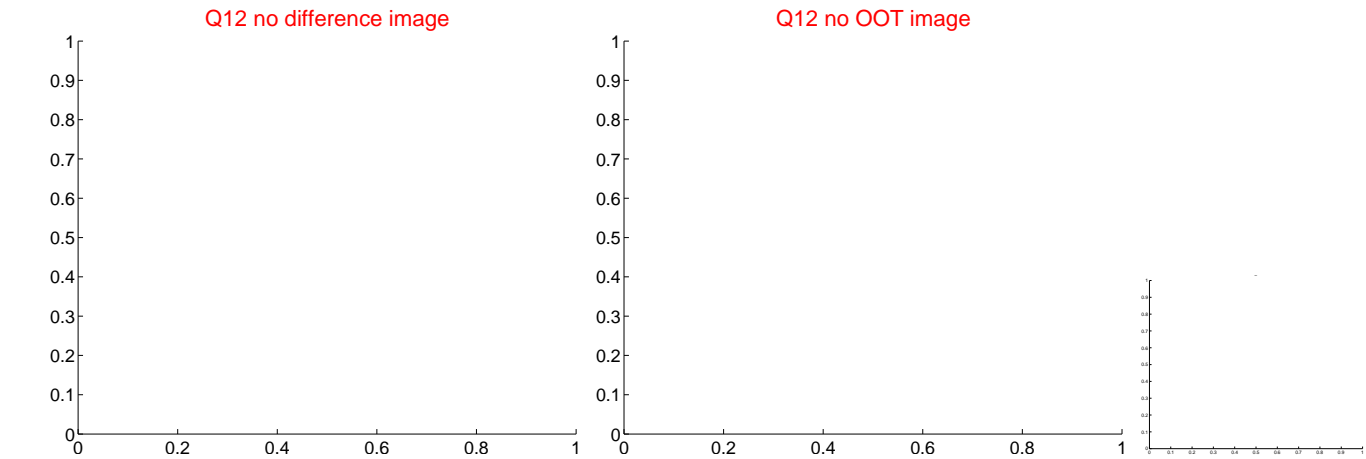
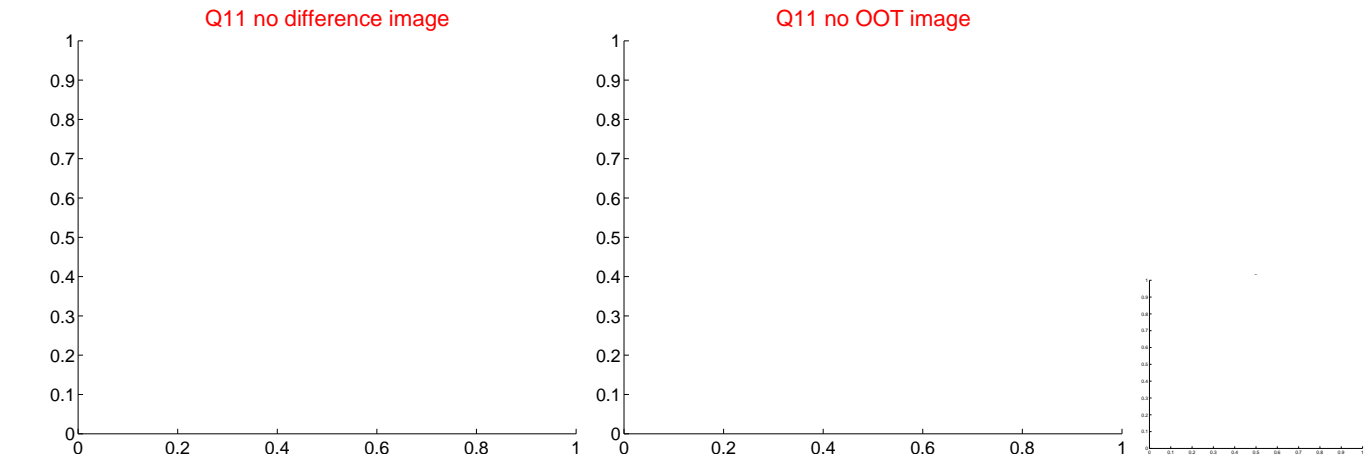
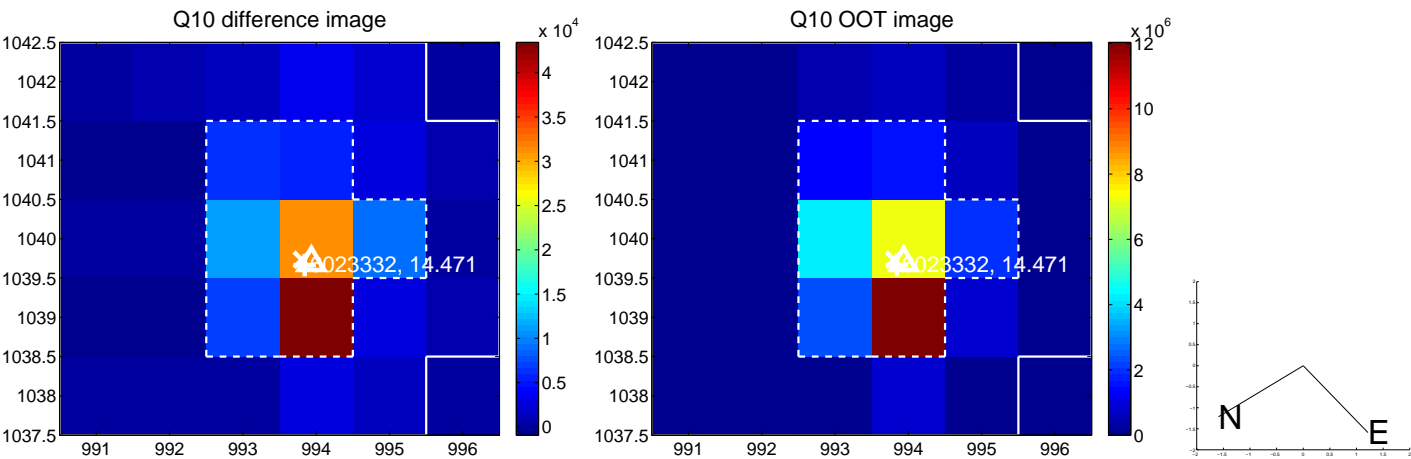
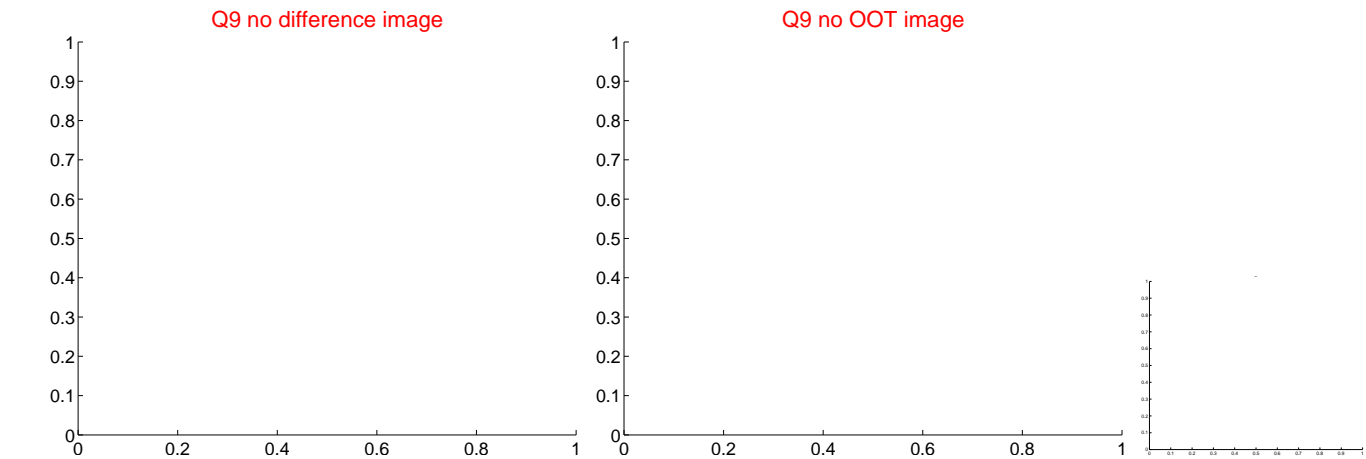
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

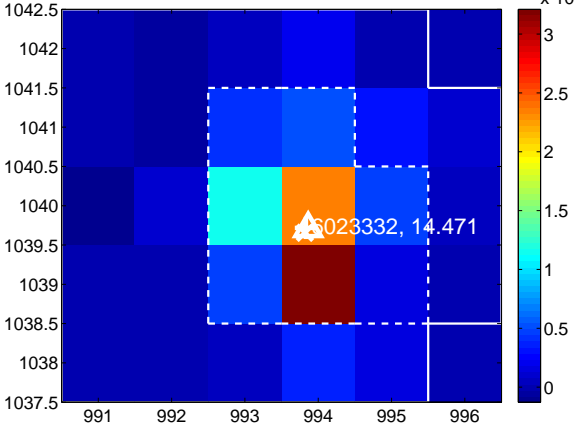
Q13 no difference image



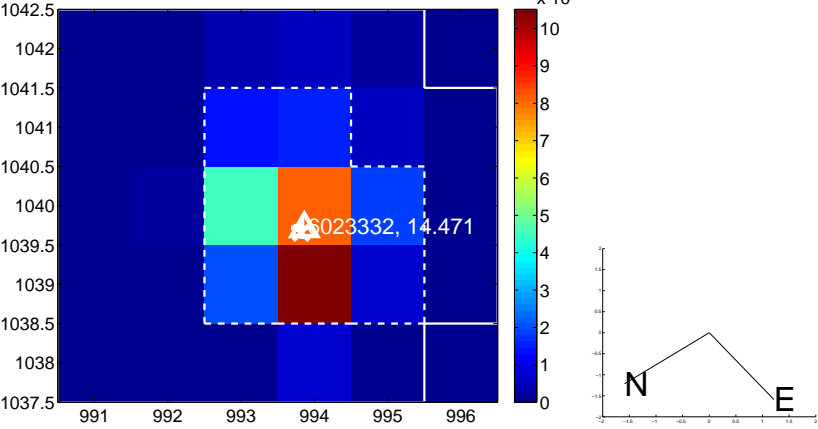
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



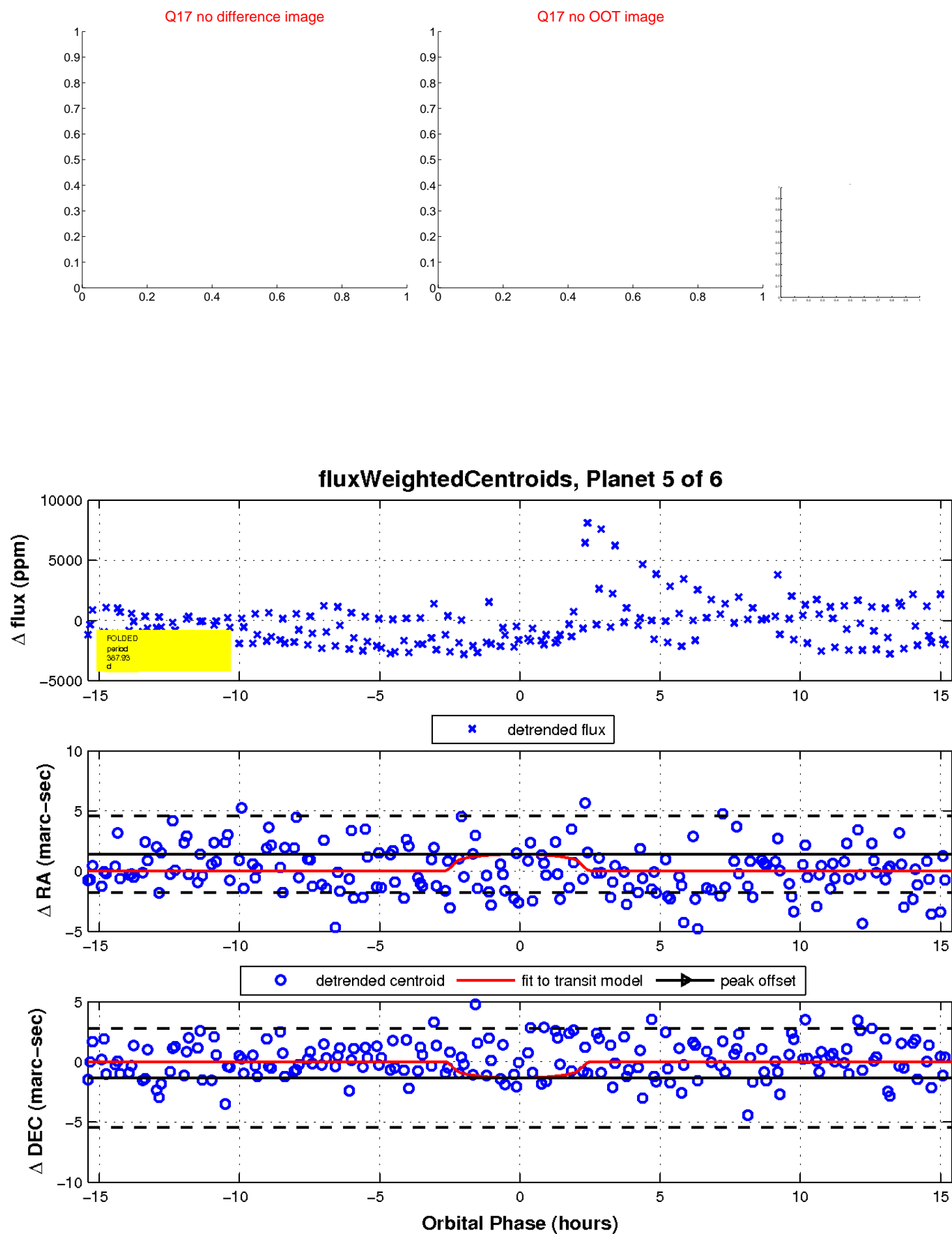
Q16 no difference image



Q16 no OOT image

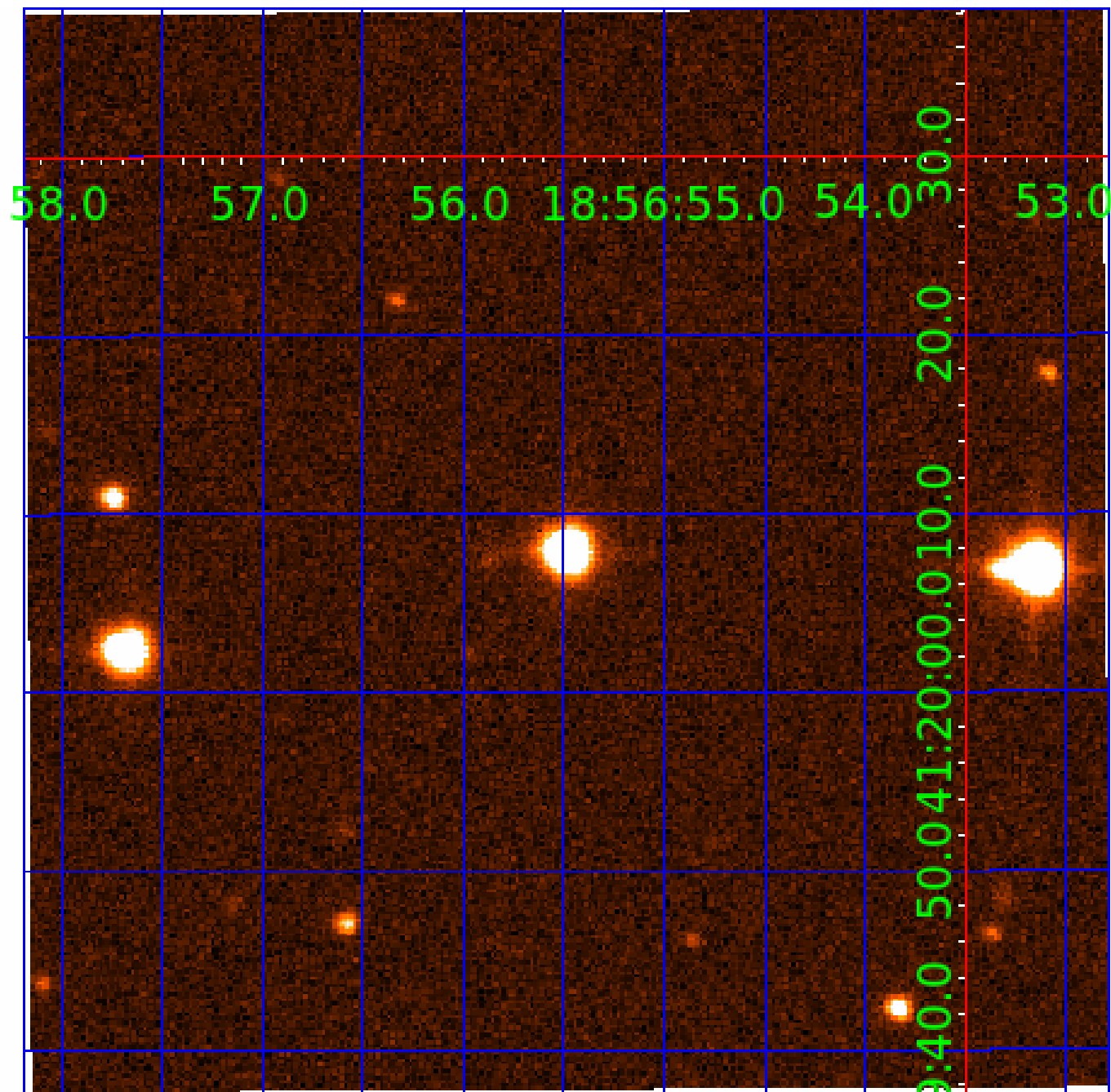


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006023332

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})
006023332-01	OBS	No	171.286757	160.893401	2716.3	2.879	14.9	13.1	0.65	4484	3.29	0.56
006023332-02	OBS	No	230.481441	172.970421	1736.5	6.473	15.5	6.2	0.65	4484	2.59	0.38
006023332-03	OBS	No	196.582340	142.088168	2141.5	2.700	16.7	8.8	0.65	4484	2.95	0.47
006023332-04	OBS	No	357.316067	203.995042	812.2	2.523	16.9	4.3	0.65	4484	2.04	0.21
006023332-05	OBS	No	387.928464	169.038829	1792.7	5.149	12.6	7.1	0.65	4484	3.01	0.19
006023332-06	OBS	No	371.670922	235.781589	712.6	3.265	14.2	3.5	0.65	4484	1.74	0.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006023332-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
006023332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006023332-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
006023332-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
006023332-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS
006023332-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

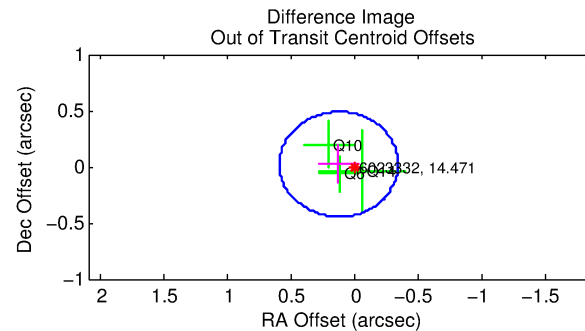
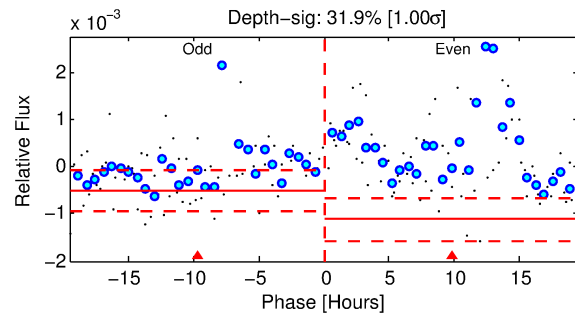
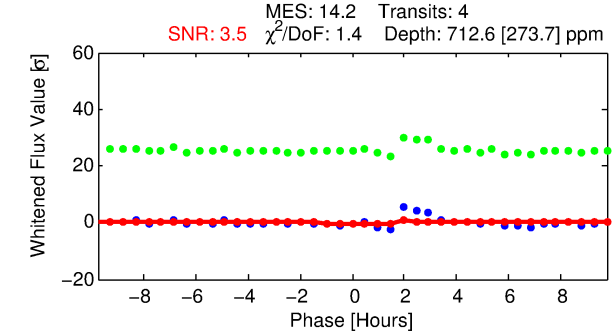
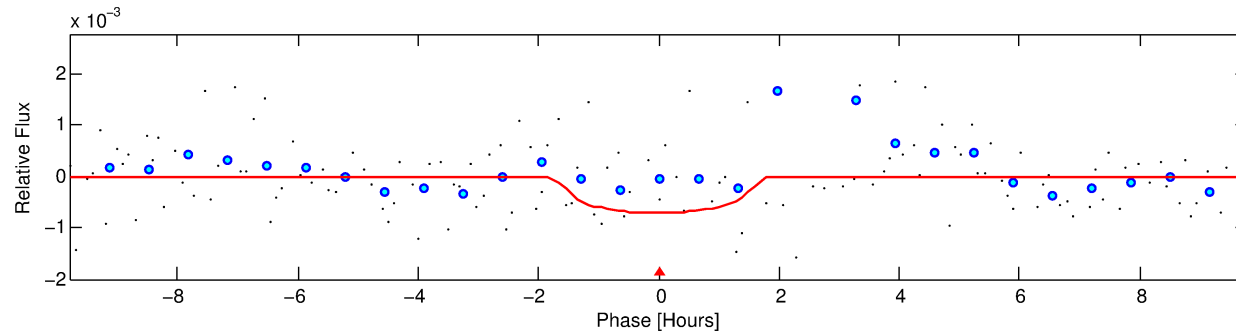
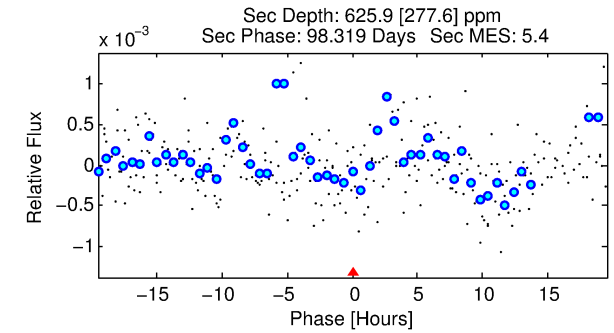
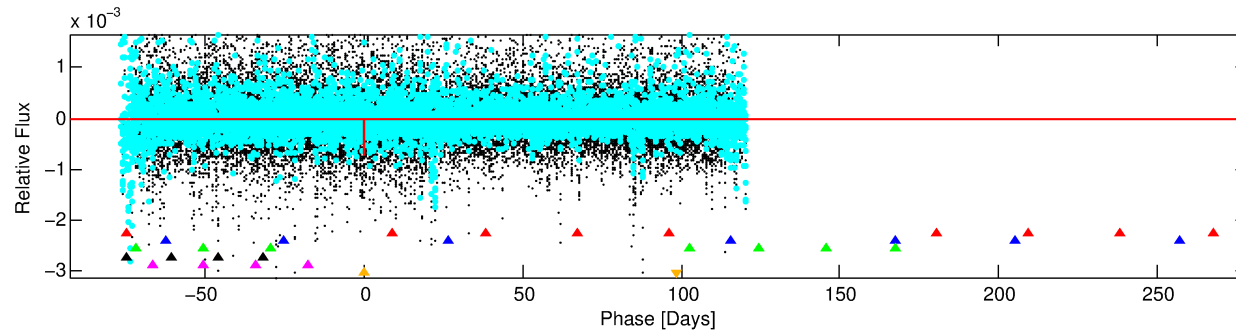
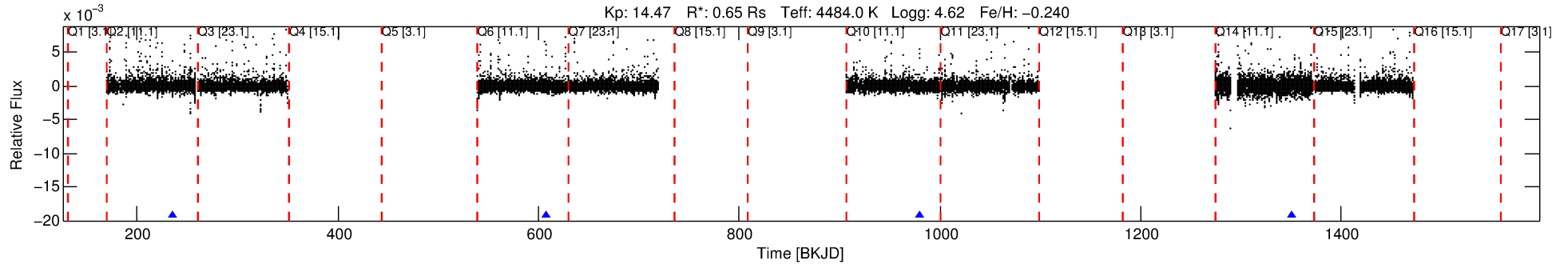
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006023332-06

No Significant Match Found

DV One-Page Summary

KIC: 6023332 Candidate: 6 of 6 Period: 371.671 d



DV Fit Results:

Period = 371.67092 [0.00854] d
Epoch = 235.7816 [0.0134] BKJD
Rp/R* = 0.0246 [0.0851]
a/R* = 776.95 [8252.60]
b = 0.50 [16.28]
Seff = 0.20 [0.03]
Teq = 171 [7] K
Rp = 1.74 [6.02] Re
a = 0.8693 [0.0647] AU
Ag = 86160.25 [597694.56] [0.14 σ]
Teffp = 4524 [7846] K [0.55 σ]

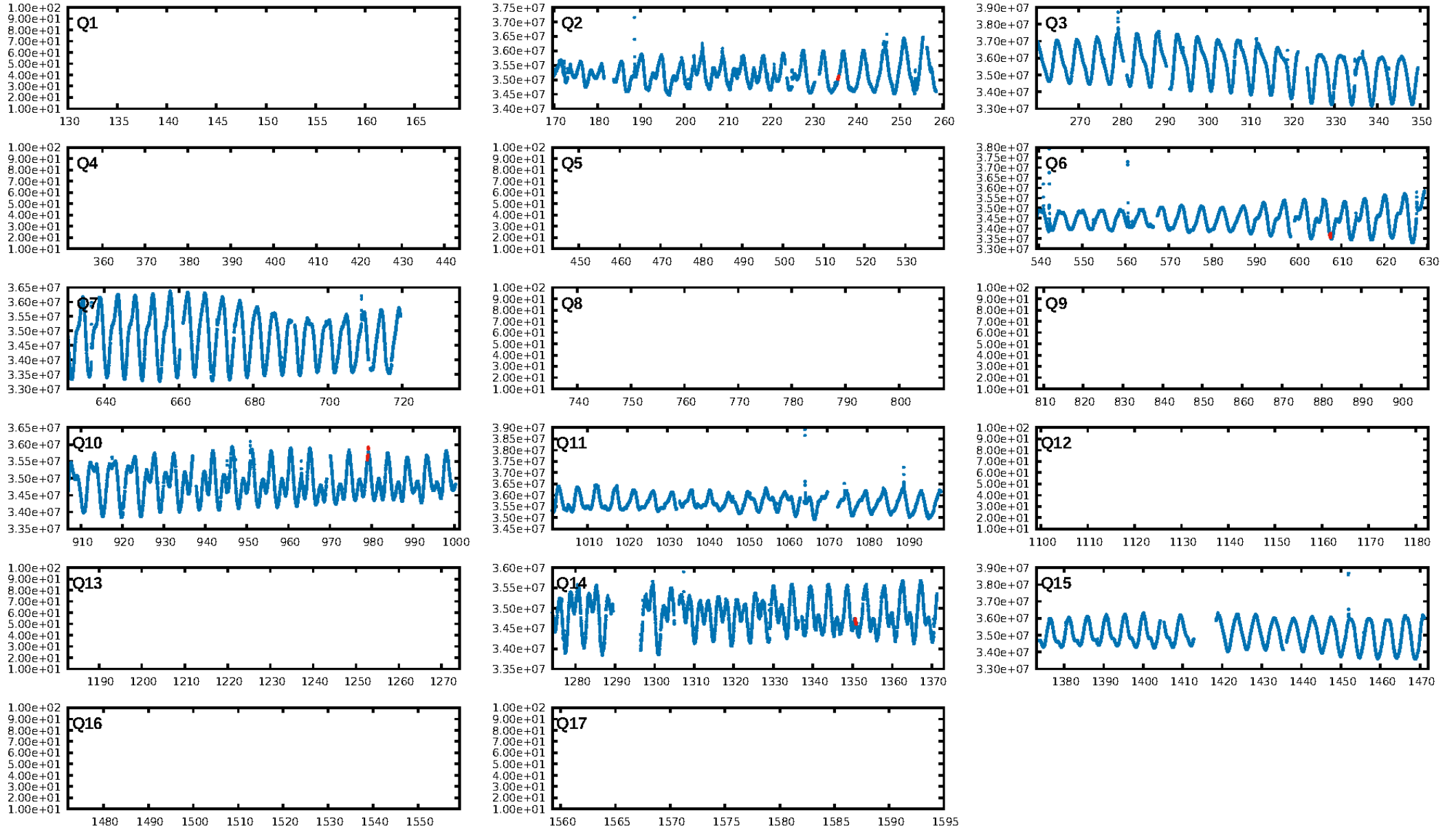
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [83.50 σ]
LongPeriod-sig: 100.0% [64.00 σ]
ModelChiSquare2-sig: 0.1%
a/R* = 776.95 [8252.60]
Bootstrap-pfa: 5.23e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.0562
Centroid-sig: 32.8%
Centroid-so: 1.477 arcsec [0.91 σ]
OotOffset-rm: 0.132 arcsec [0.85 σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-rm: 0.187 arcsec [0.82 σ]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [4/4]

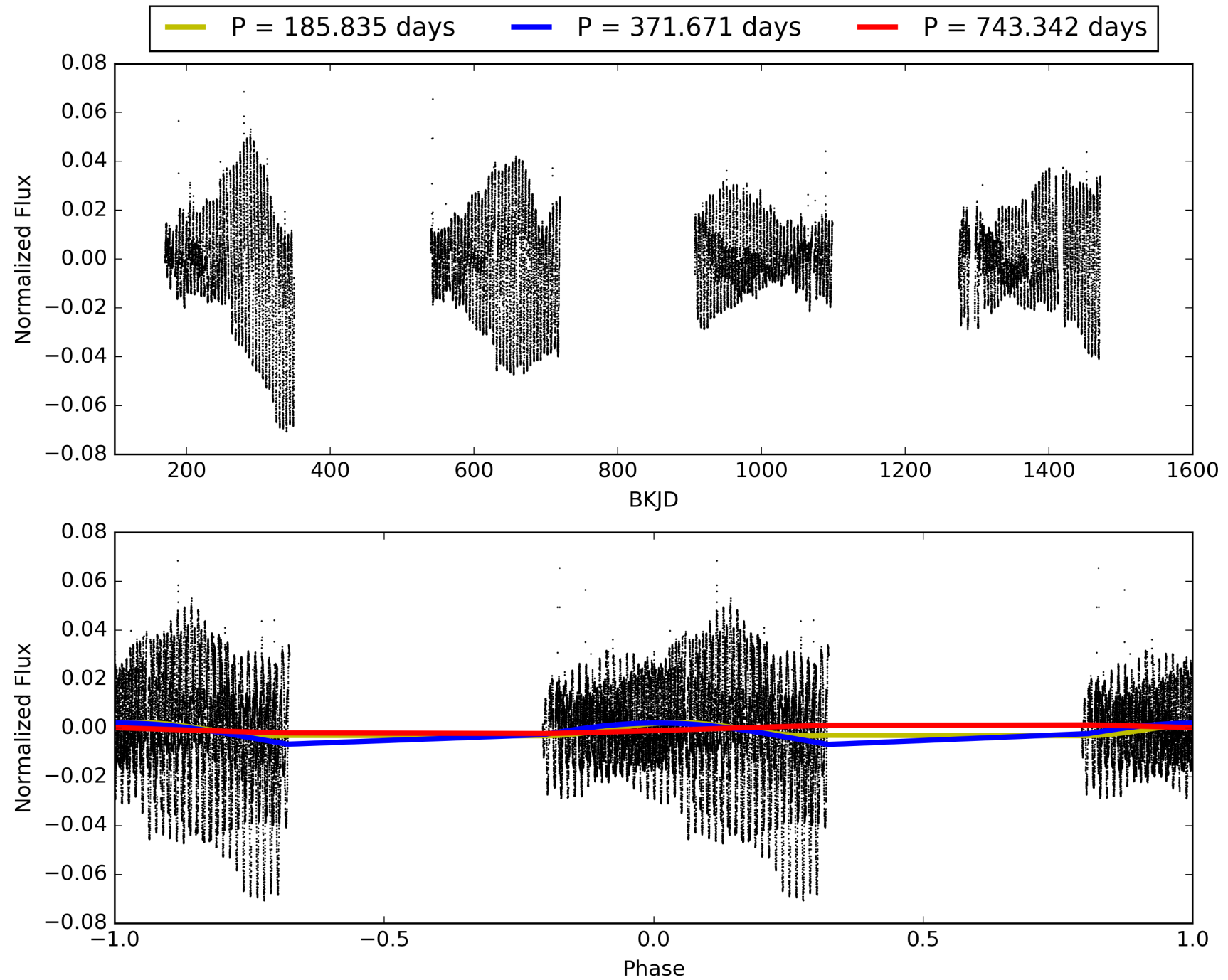
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:27:01 Z

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

TCE 006023332-06, PDC Light Curves

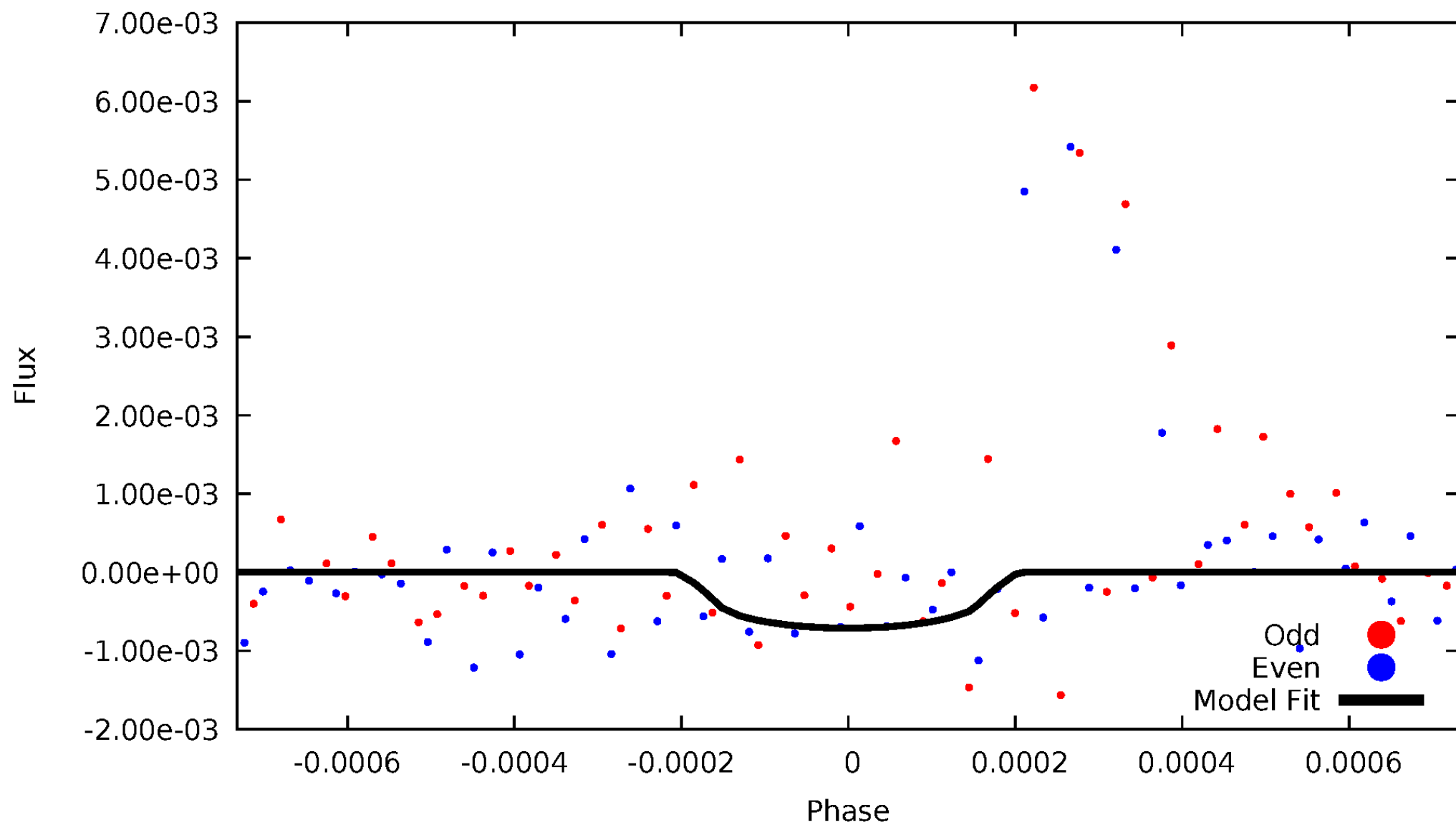


TCE 006023332-06



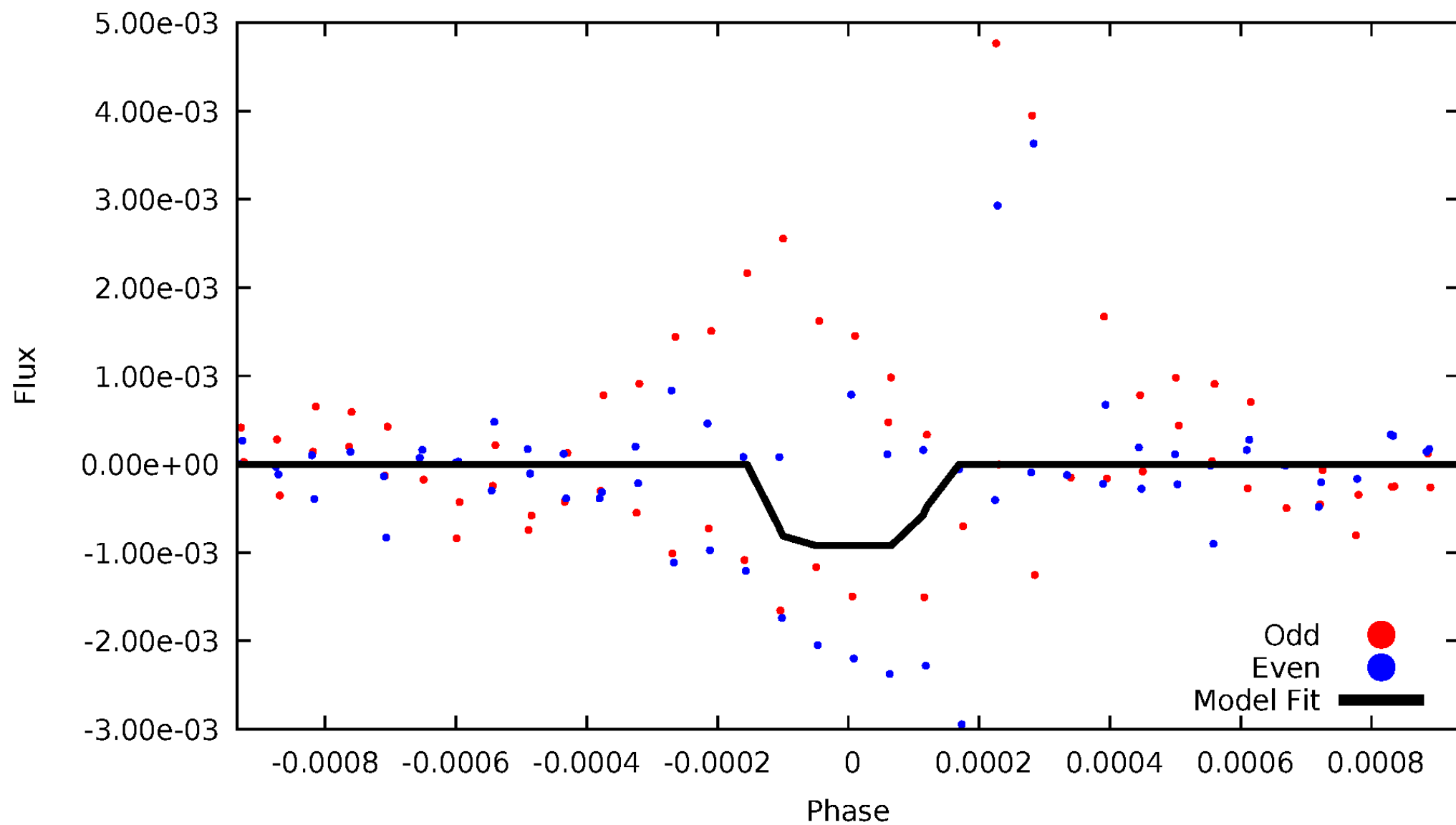
DV Odd/Even

TCE 006023332-06



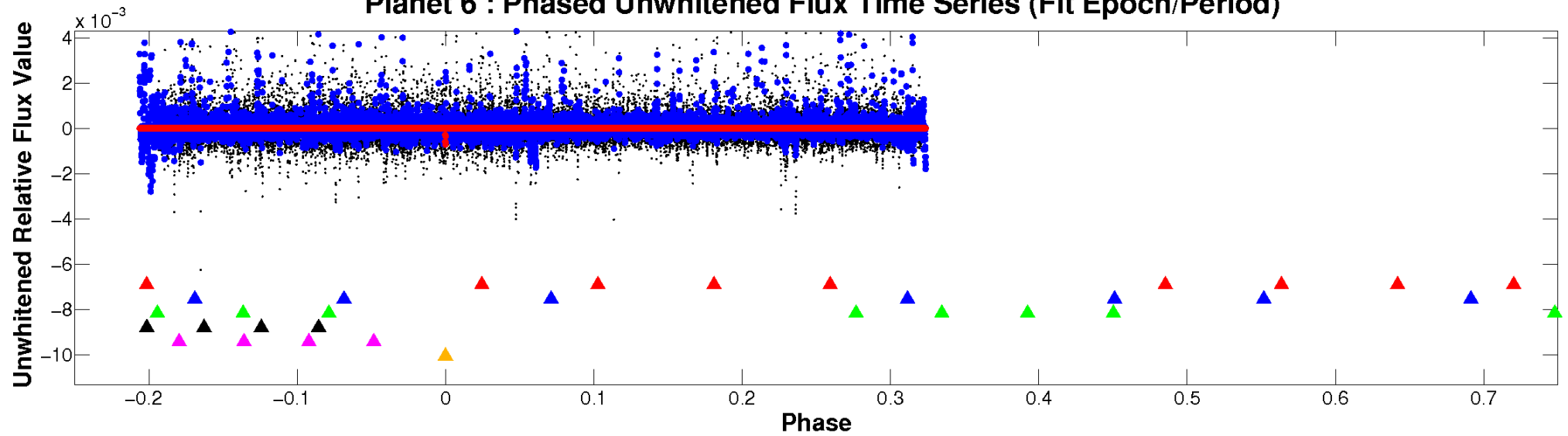
ALT Odd/Even

TCE 006023332-06

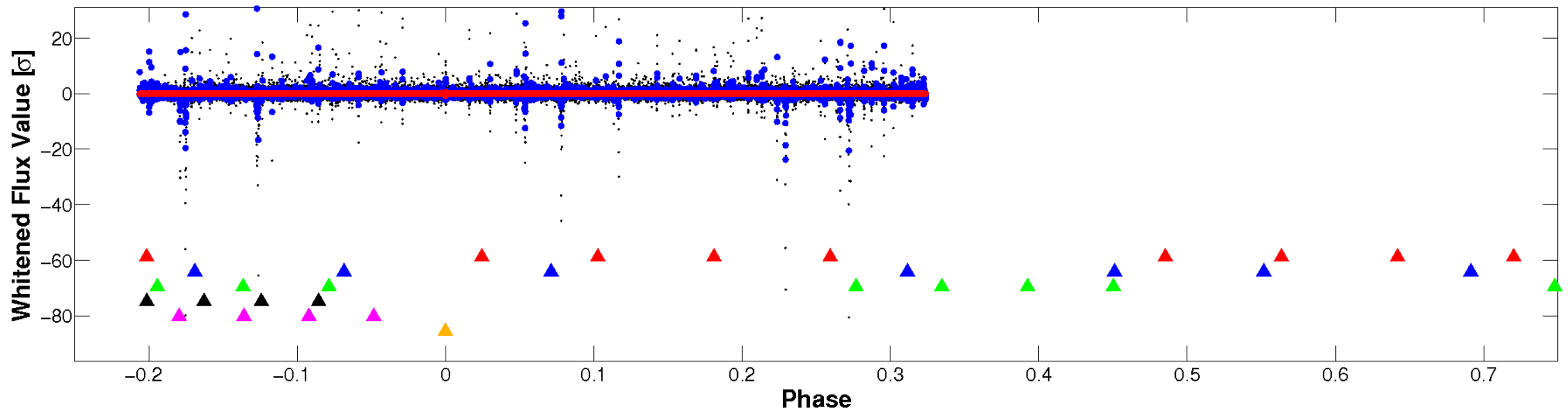


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

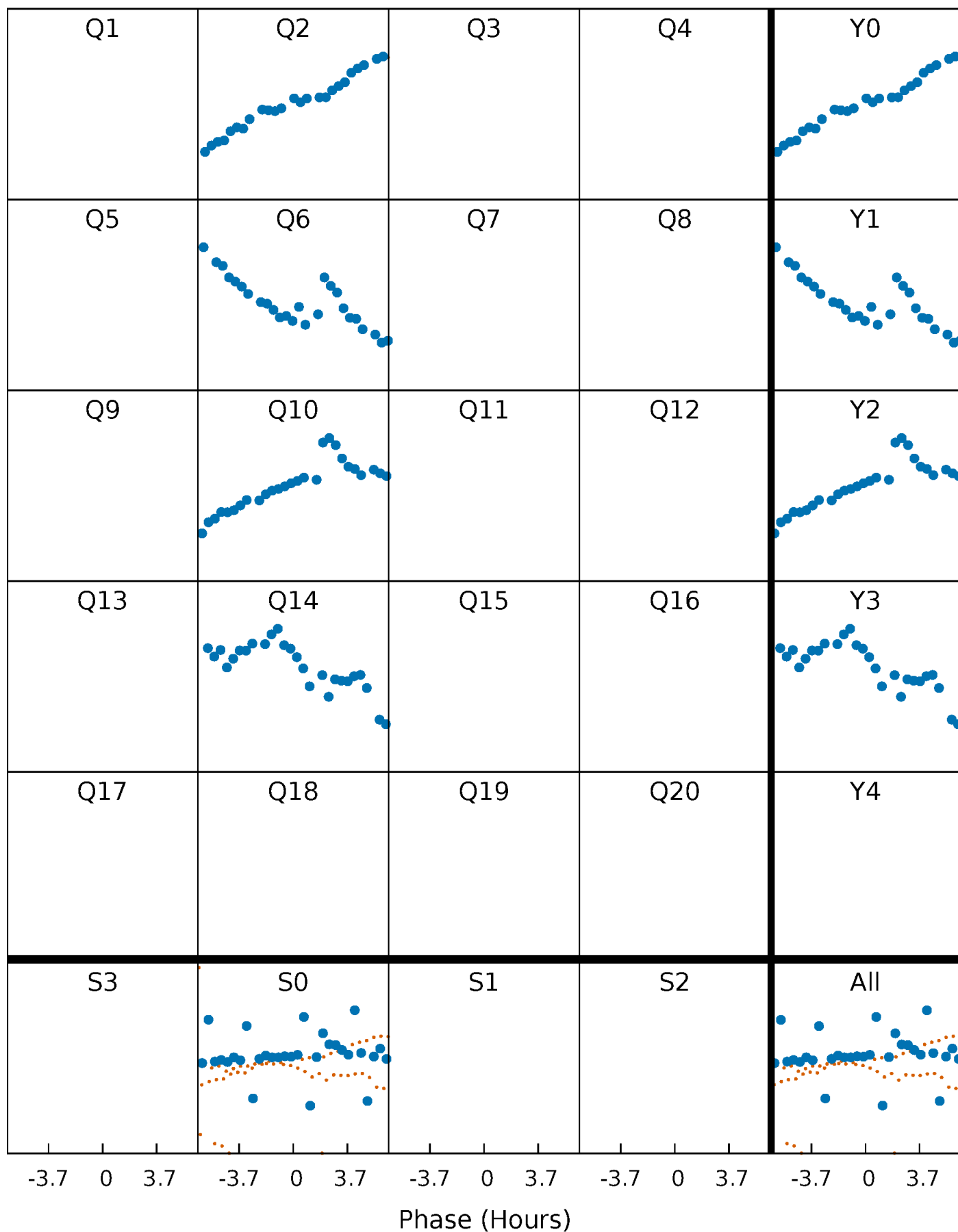


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



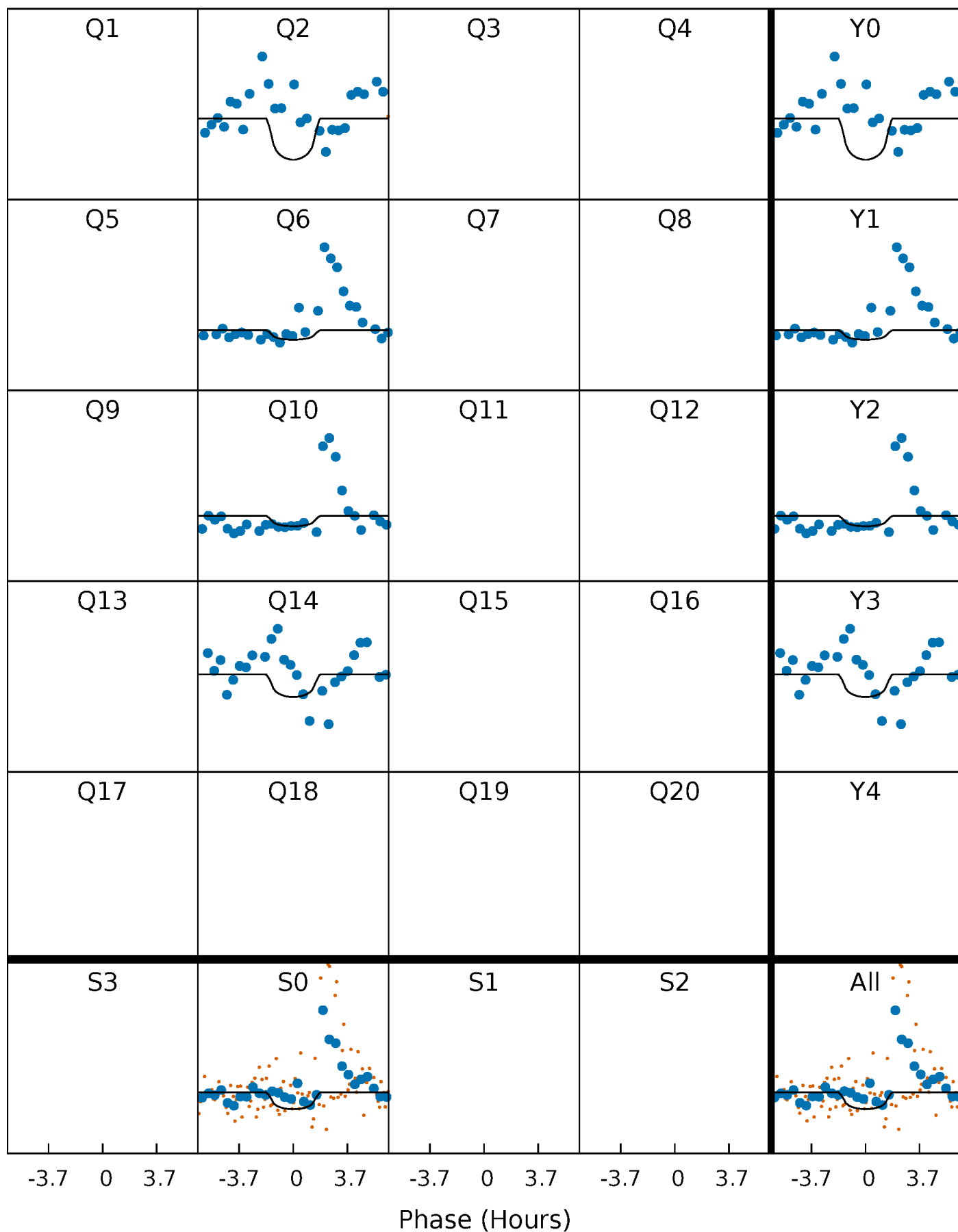
PDC Quarter-Phased Transit Curves

TCE 006023332-06 P=371.670922 Days $T_0=235.781589$ (BKJD)



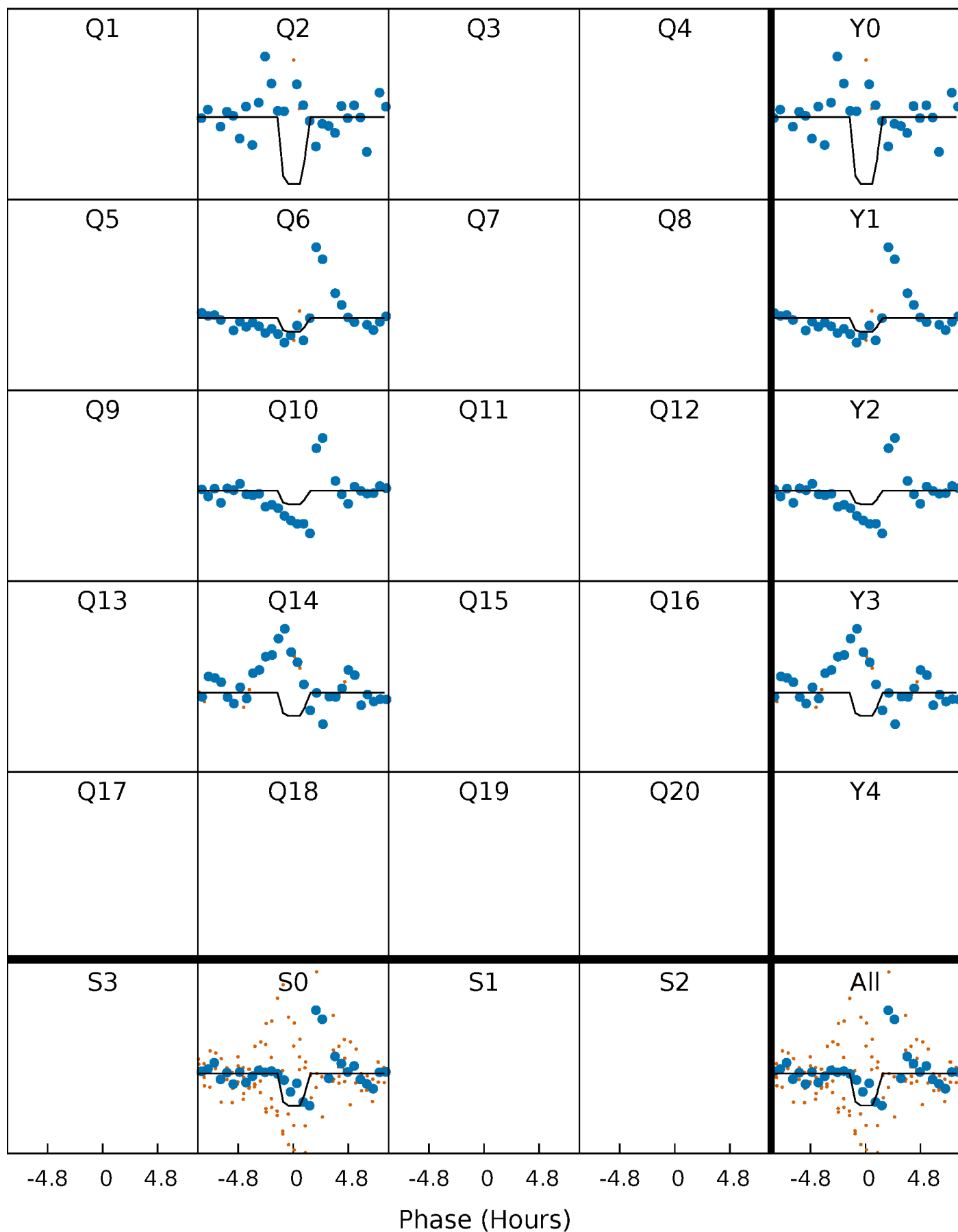
DV Quarter-Phased Transit Curves

TCE 006023332-06 P=371.670922 Days $T_0=235.781589$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

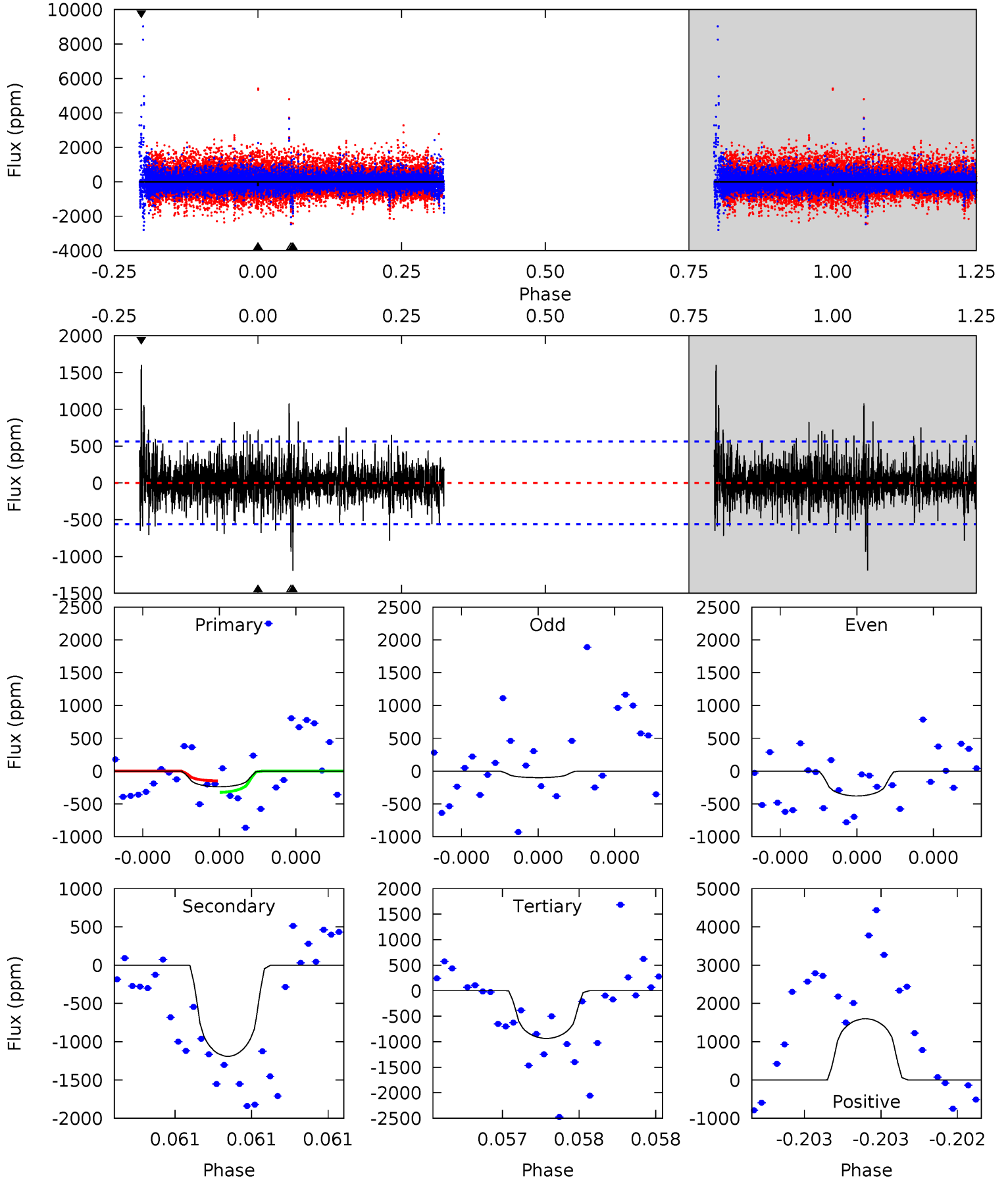
TCE 006023332-06 P=371.666023 Days $T_0=235.784994$ (BKJD)



DV Model-Shift Uniqueness Test

006023332-06, P = 371.670922 Days, E = 235.781589 Days

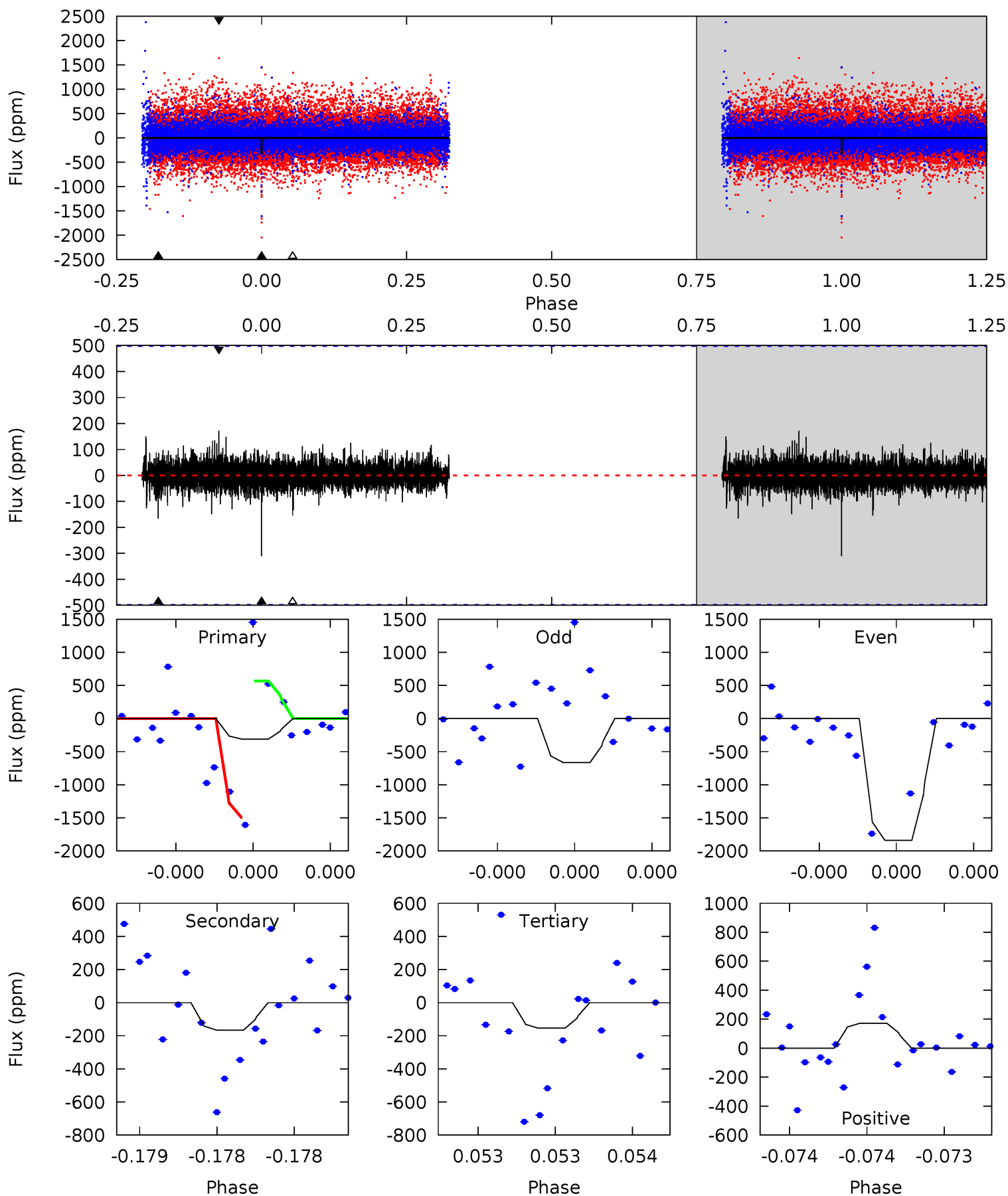
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.39	11.9	9.31	15.9	5.60	3.53	1.89	-6.93	-13.6	2.55	-4.09	1.17	-1.55	0.57	0.85



Alt Model-Shift Uniqueness Test

006023332-06, P = 371.666023 Days, E = 235.784994 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.52	1.88	1.74	1.94	5.65	3.59	0.34	1.77	1.57	0.14	-0.06	7.88	0.98	0.36	0



Stellar Parameters For KIC 006023332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4484^{+121}_{-134}	$4.617^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.648^{+0.046}_{-0.061}$	$0.634^{+0.070}_{-0.051}$	$3.280^{+0.763}_{-0.349}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-9%	+11%/-8%	+23%/-11%
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 006023332-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1191 ± 100	$4.62^{+4.63}_{-3.19}$	237^{+7}_{-8}	3569^{+2078}_{-687}	$23211^{+220858}_{-17292}$
Alt.	-166 ± 88	$4.87^{+4.87}_{-3.33}$	237^{+8}_{-9}	2608^{+1080}_{-451}	2519^{+25265}_{-1999}

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

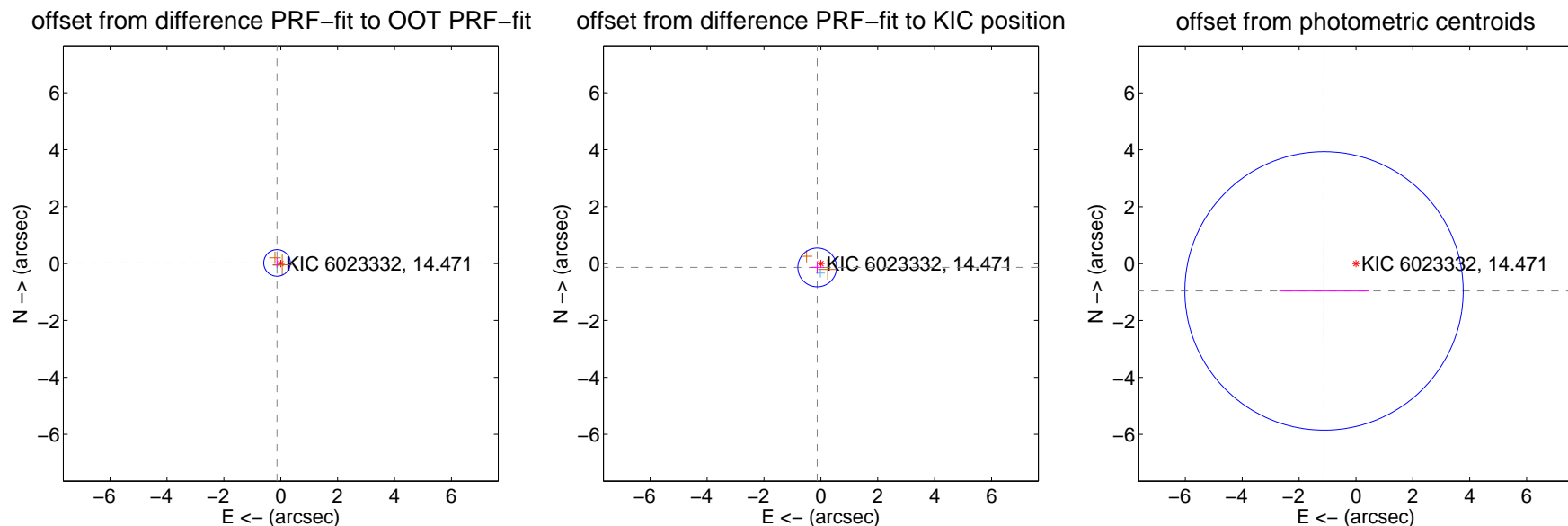
DV Centroid Data

Supplemental centroid analysis for 006023332-06. Kepler magnitude: 14.47. Transit SNR 3.50

There are 1 quarters with good PRF difference image offsets

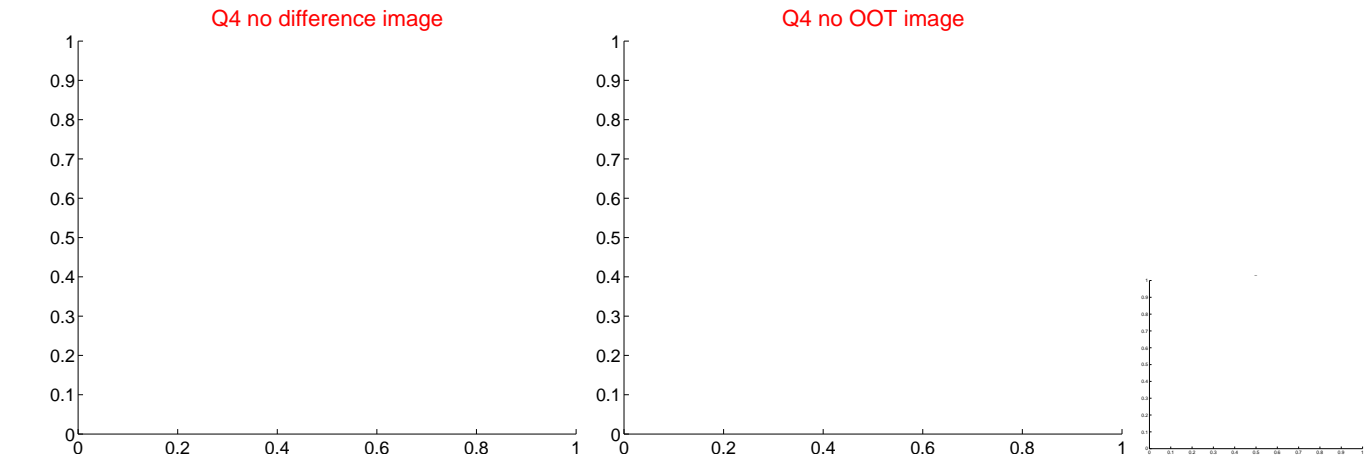
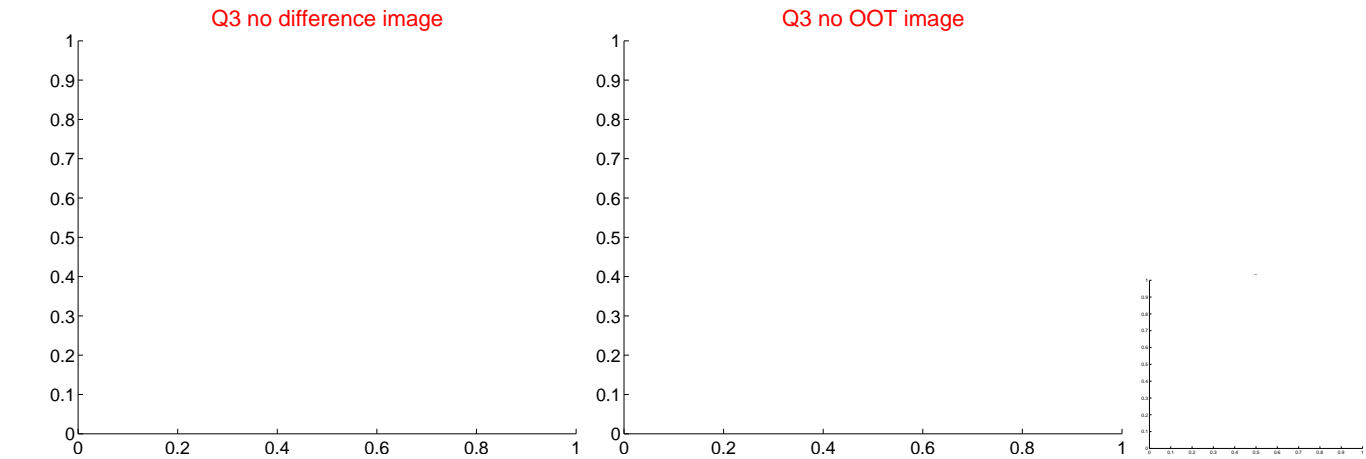
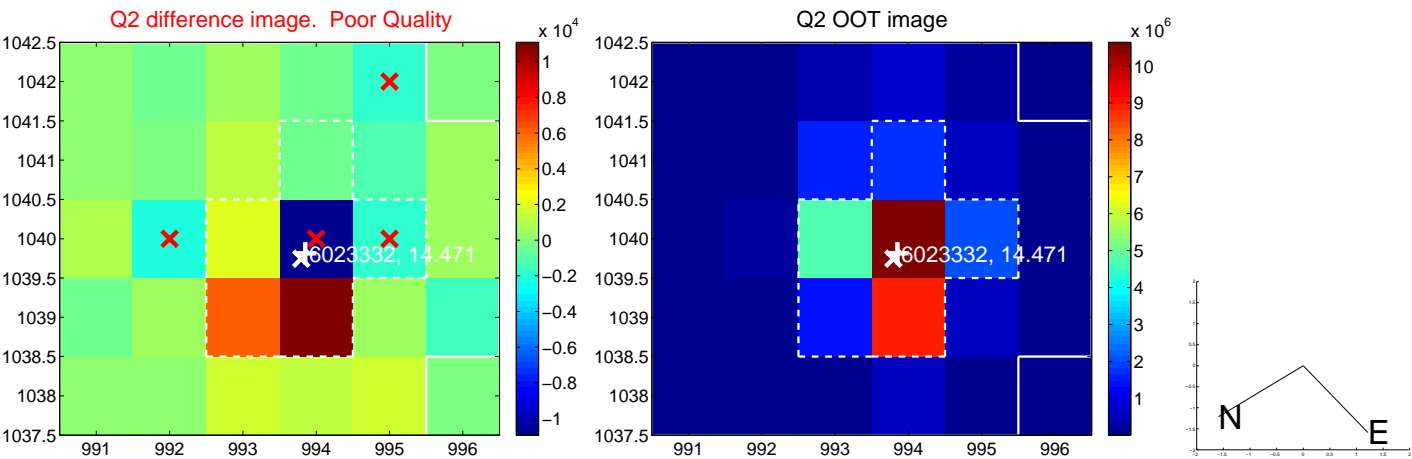
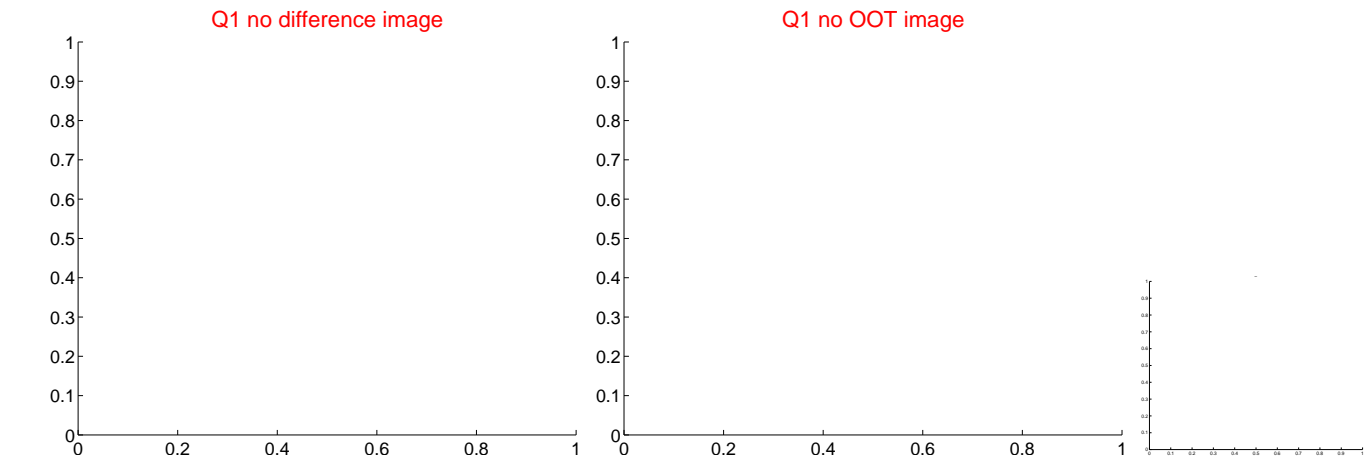
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.132 ± 0.156	0.85	0.131 ± 0.156	0.021 ± 0.165
PRF-fit source offset from KIC position	0.187 ± 0.227	0.82	0.127 ± 0.239	-0.136 ± 0.216
photometric centroid source offset	1.48 ± 1.63	0.91	1.12 ± 1.57	-0.96 ± 1.71



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.

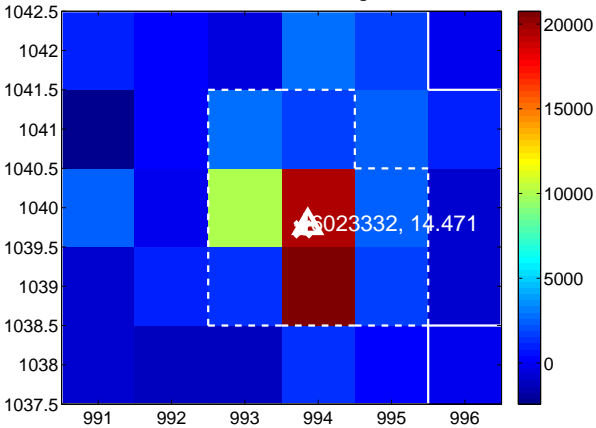
Q5 no difference image



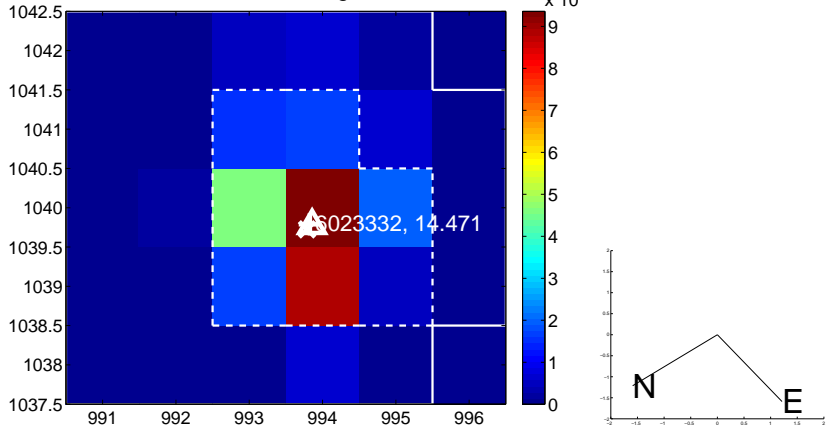
Q5 no OOT image



Q6 difference image



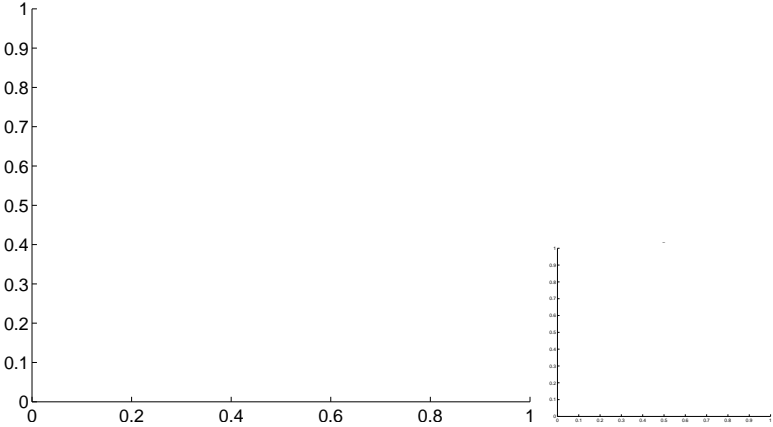
Q6 OOT image



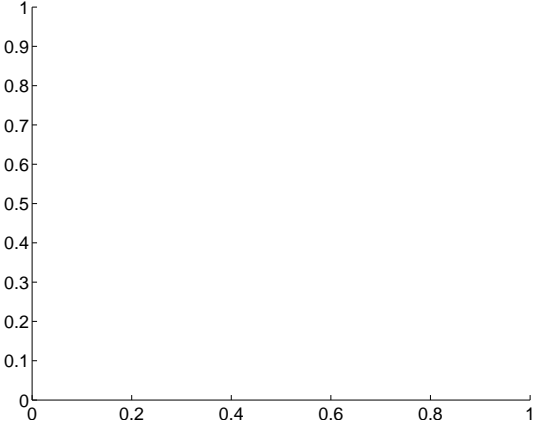
Q7 no difference image



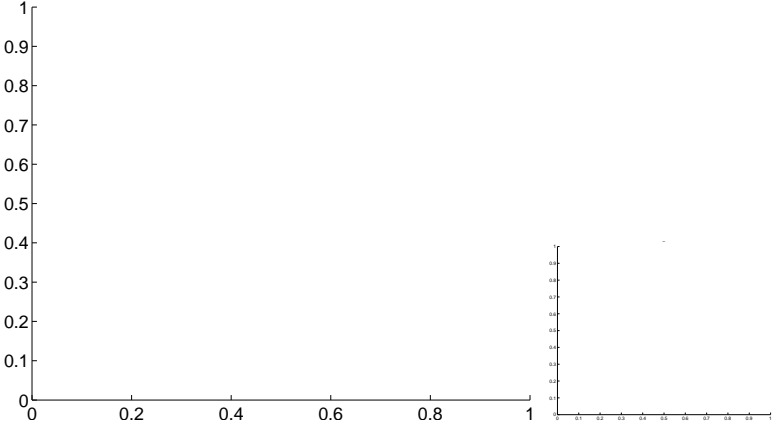
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

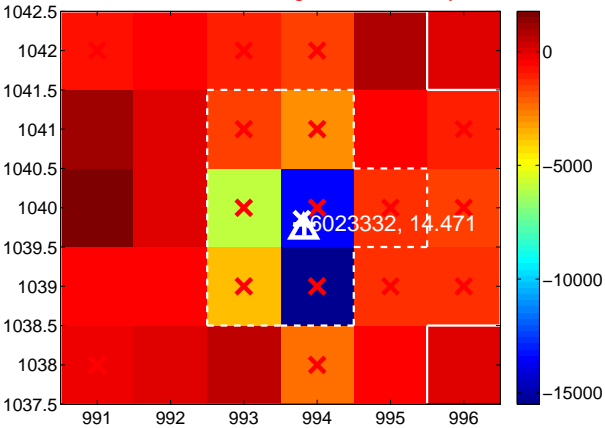
Q9 no difference image



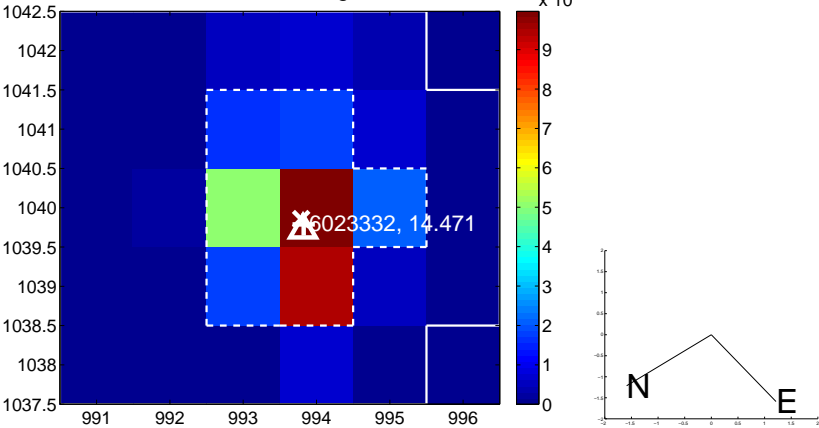
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image

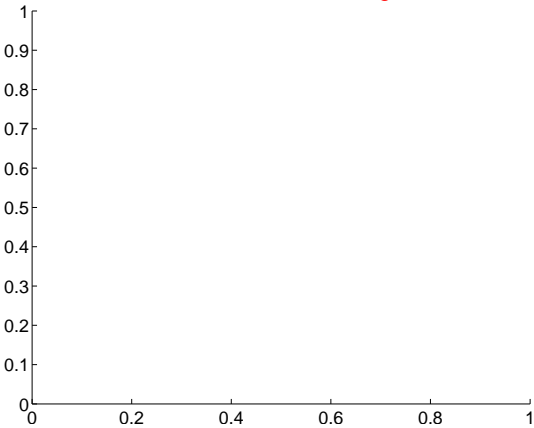


Q12 no OOT image

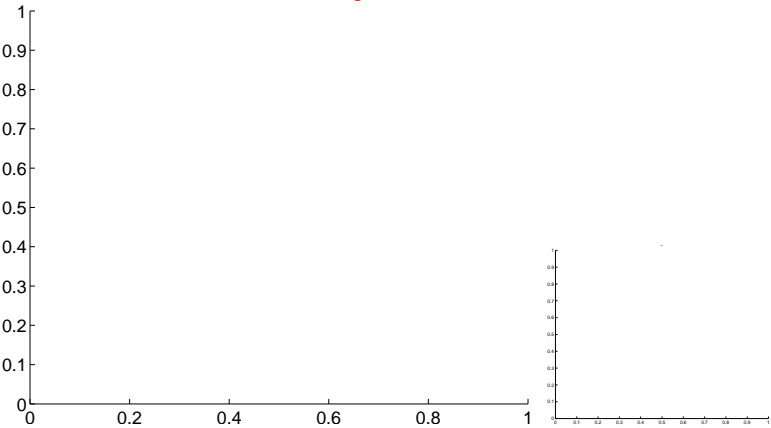


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

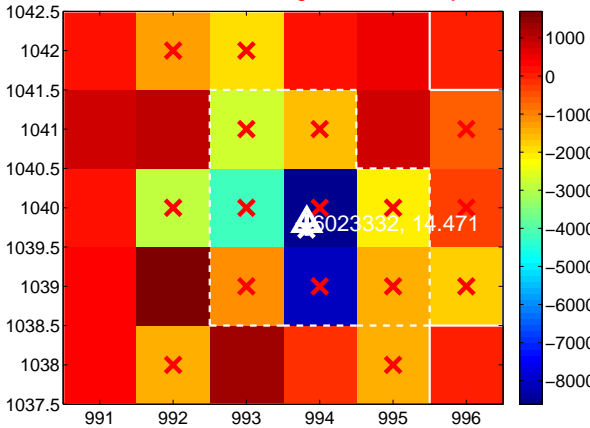
Q13 no difference image



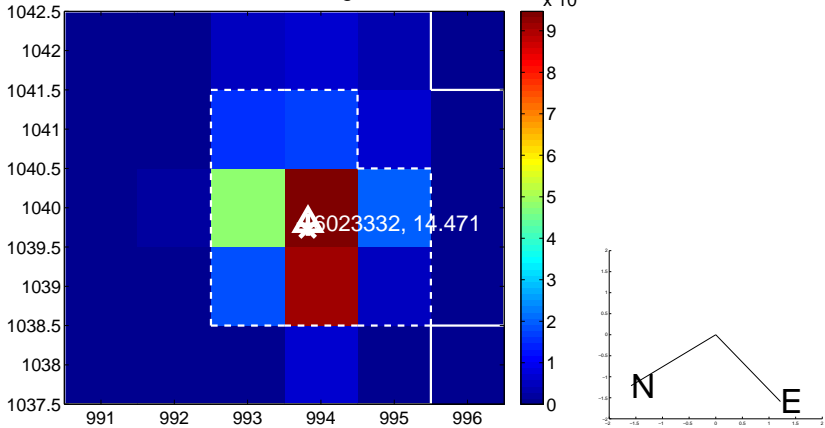
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



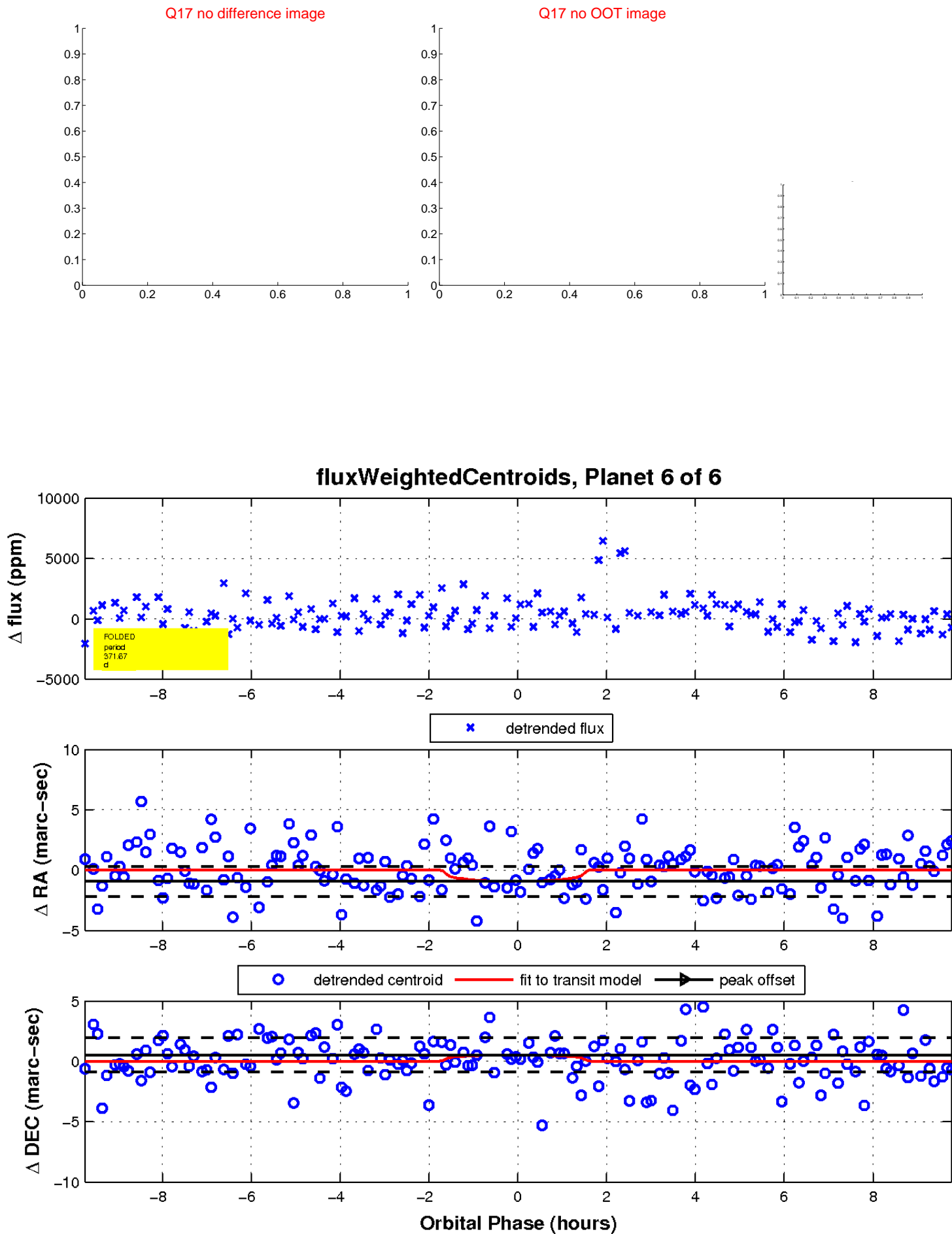
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

