

KIC 006102338

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})
006102338-01	OBS	No	419.925961	212.703475	2484.9	8.395	12.5	7.3	0.23	3319	1.21	0.01
006102338-02	OBS	No	409.253228	240.905944	1788.9	4.025	11.2	6.6	0.23	3319	1.04	0.01
006102338-03	OBS	No	324.882613	278.009165	2003.0	3.505	9.8	5.9	0.23	3319	1.04	0.02
006102338-04	OBS	No	562.982448	225.085748	2185.0	2.406	11.4	6.8	0.23	3319	1.07	0.01
006102338-05	OBS	No	389.919958	263.610505	2083.6	12.214	8.5	6.9	0.23	3319	1.08	0.01
006102338-06	OBS	No	447.701235	196.821343	2534.4	4.655	10.3	9.3	0.23	3319	1.17	0.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006102338-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
006102338-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-03	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—CENT_FEW_DIFFS
006102338-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006102338-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

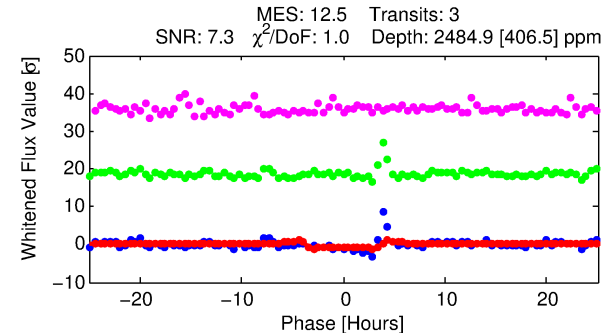
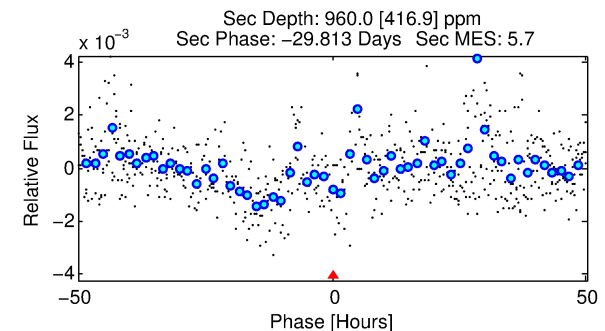
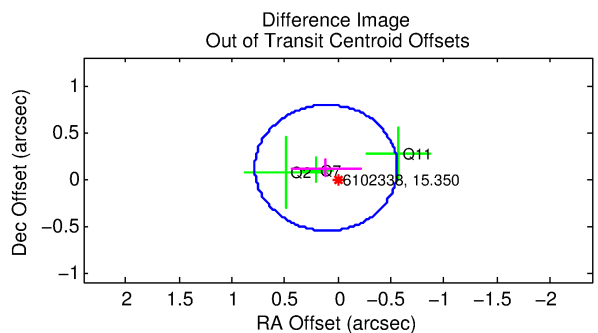
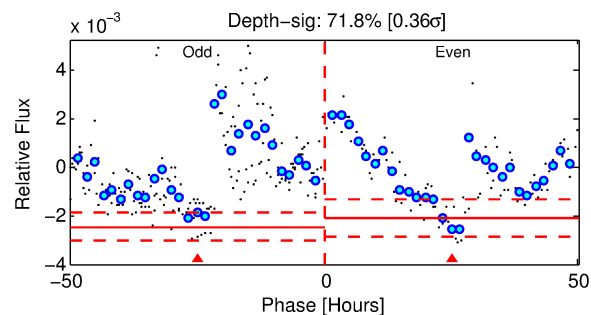
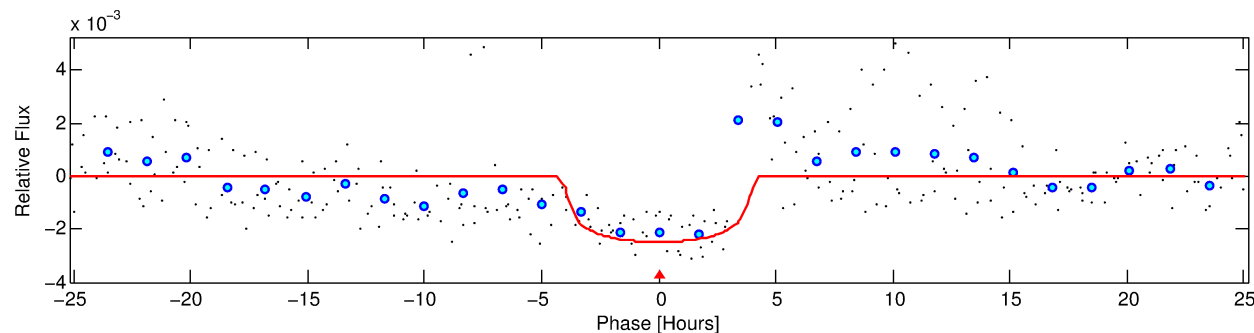
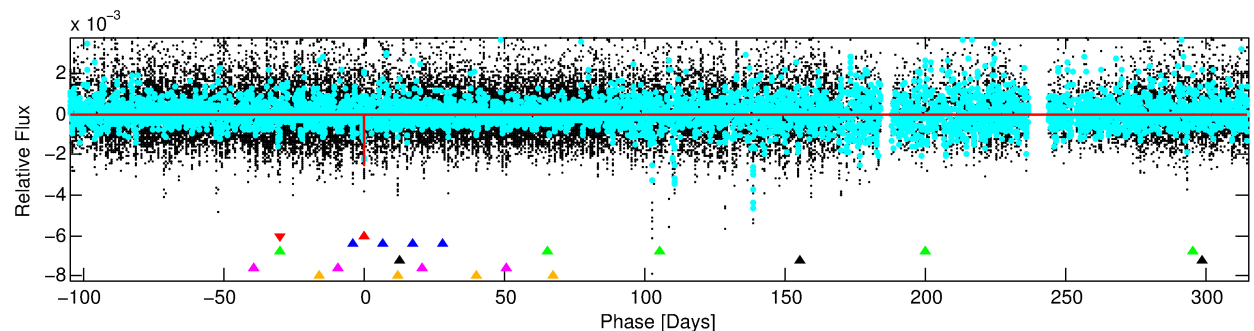
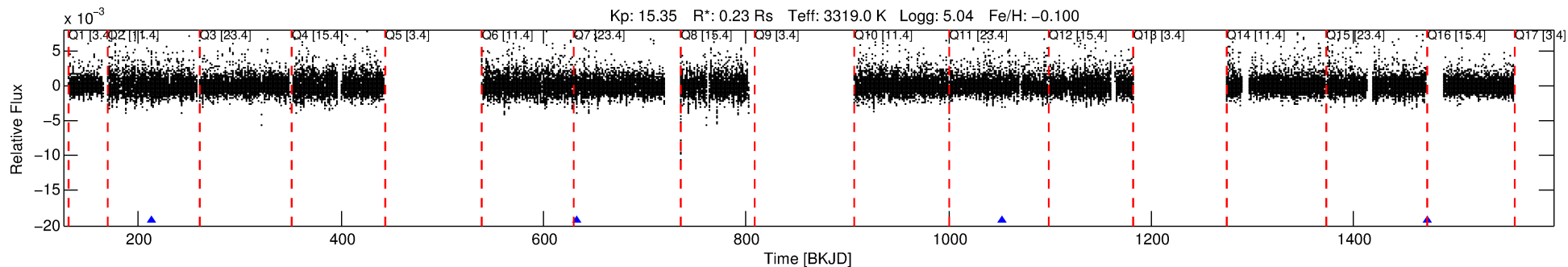
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006102338-01

No Significant Match Found

DV One-Page Summary

KIC: 6102338 Candidate: 1 of 6 Period: 419.926 d



DV Fit Results:

Period = 419.92596 [0.00710] d
Epoch = 212.7035 [0.0105] BKJD
Rp/R* = 0.0477 [0.0111]
a/R* = 322.47 [278.19]
b = 0.62 [0.87]
Seff = 0.01 [0.00]
Teq = 87 [5] K
Rp = 1.21 [0.40] Re
a = 0.6564 [0.1096] AU
Ag = 156295.03 [103750.43] [1.51]
Teffp = 2676 [431] K [6.01 σ]

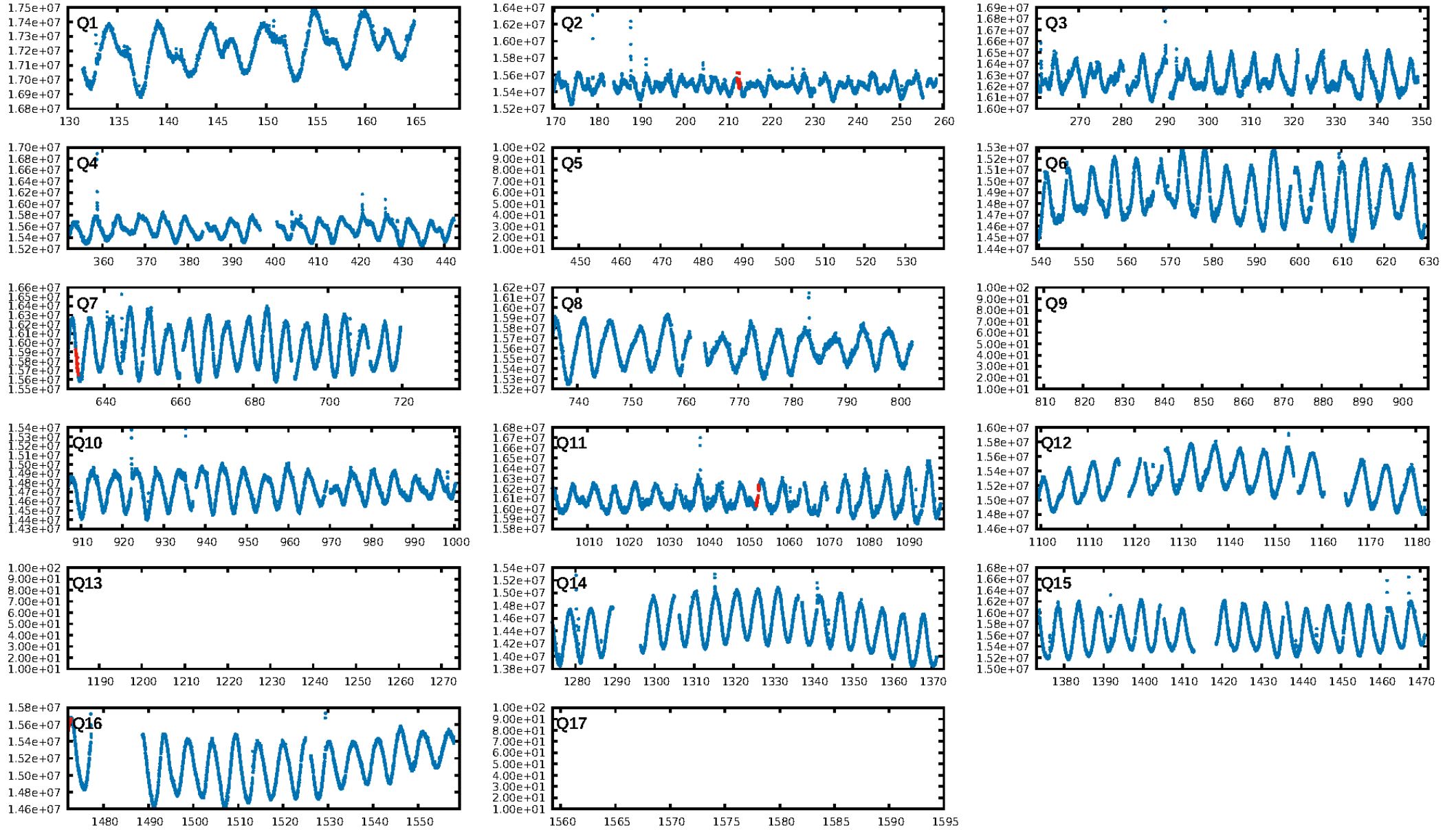
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.51 σ]
LongPeriod-sig: 100.0% [69.45 σ]
ModelChiSquare2-sig: 32.2%
ModelChiSquareGof-sig: 97.3%
Bootstrap-pfa: 7.40e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.08
Centroid-sig: 1.6%
Centroid-so: 1.100 arcsec [1.73 σ]
OotOffset-rm: 0.161 arcsec [0.72 σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.504 arcsec [2.88 σ]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

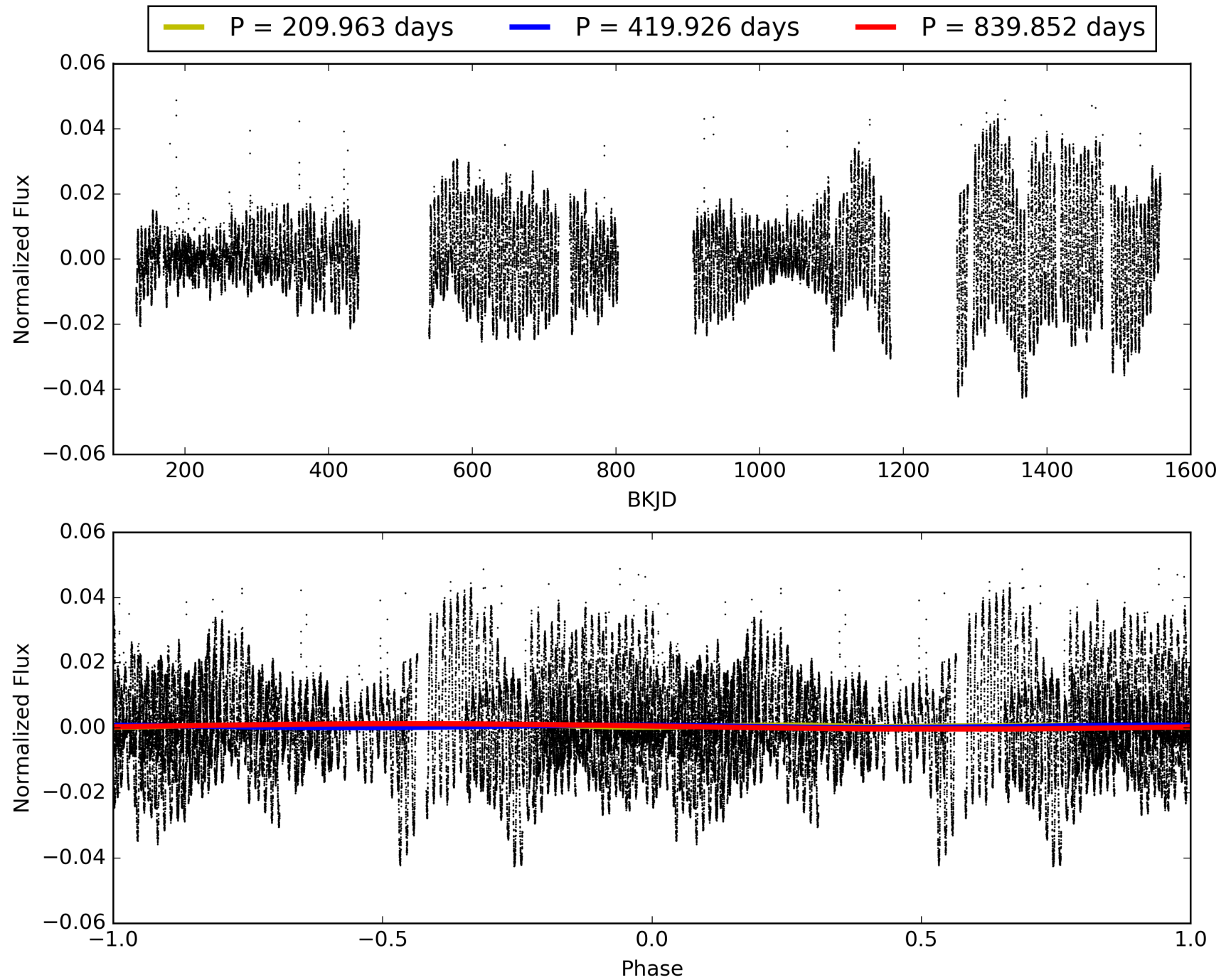
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:00:04 Z

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

TCE 006102338-01, PDC Light Curves

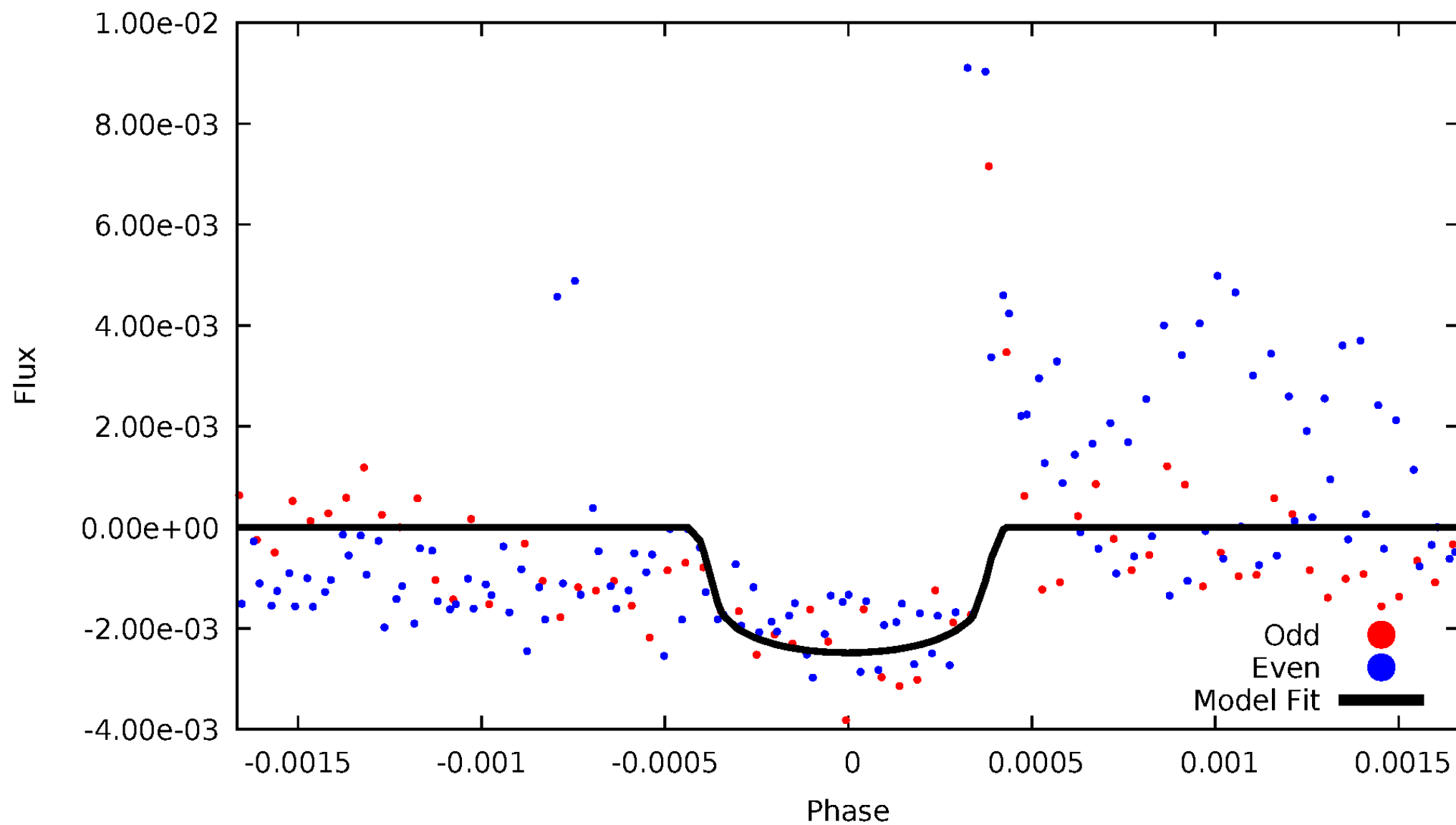


TCE 006102338-01



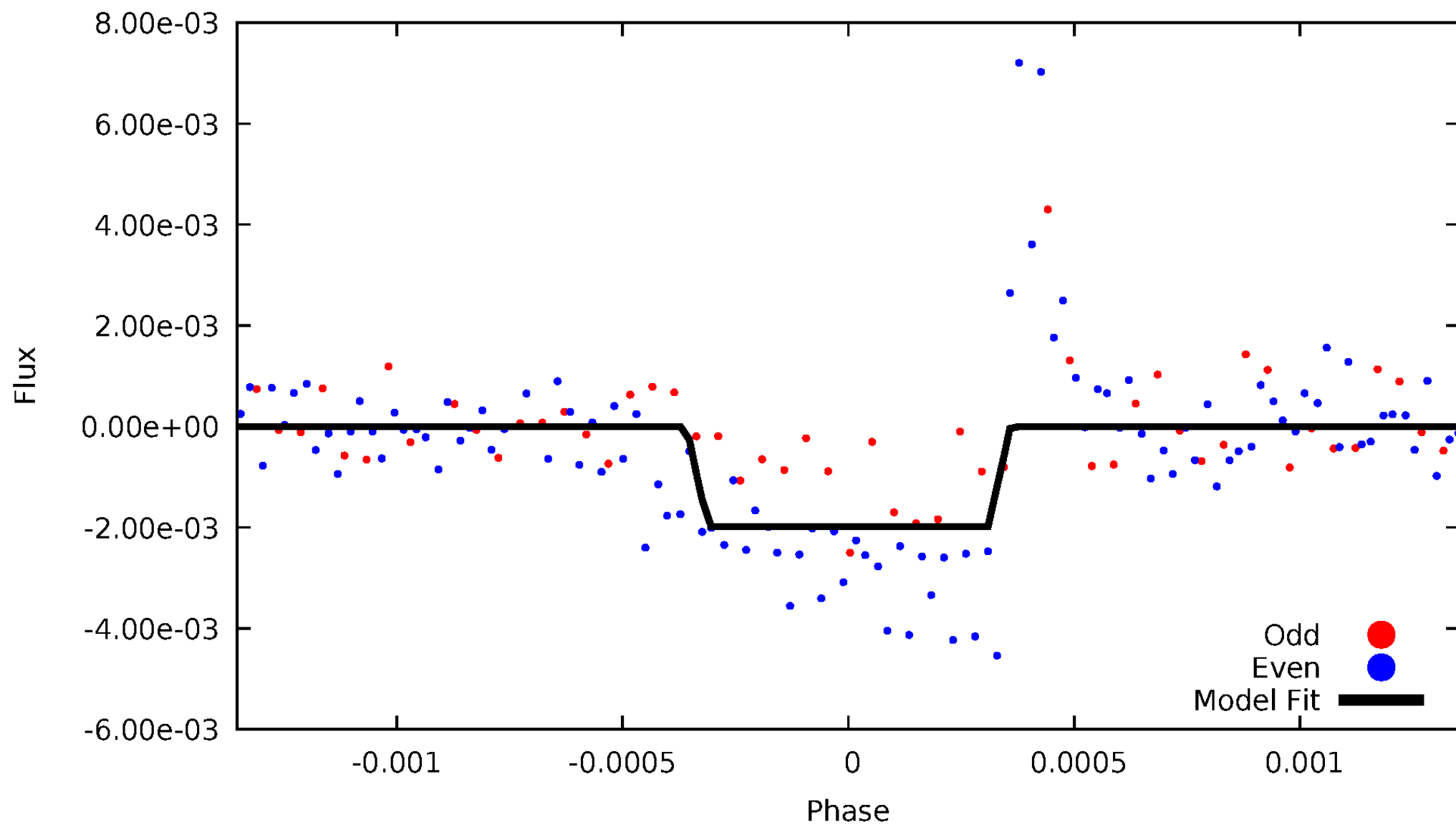
DV Odd/Even

TCE 006102338-01

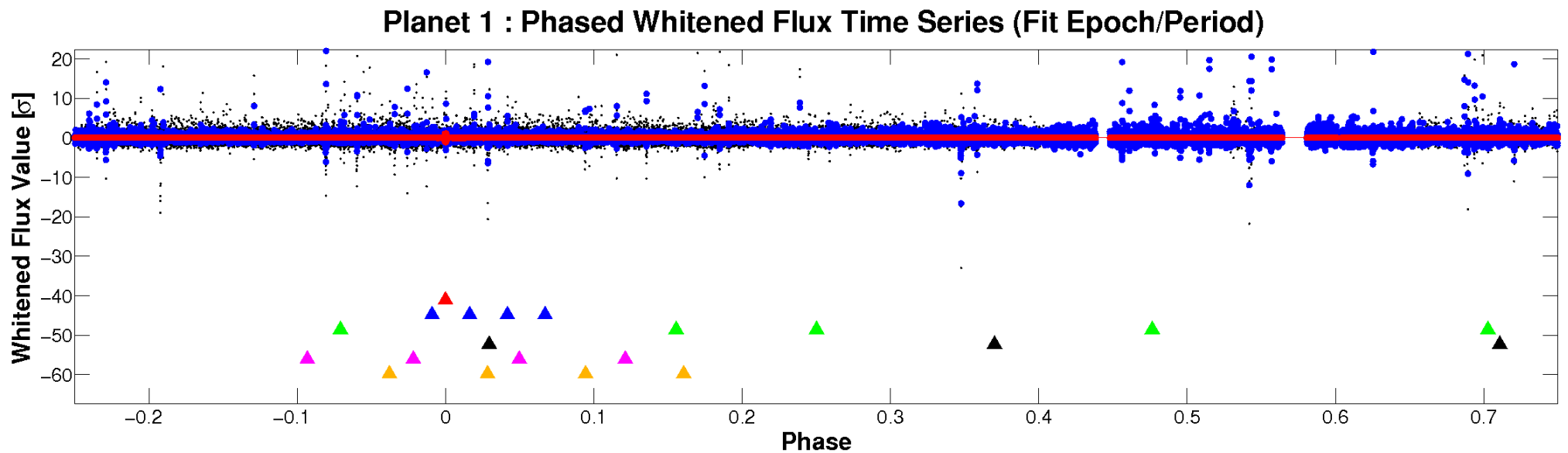
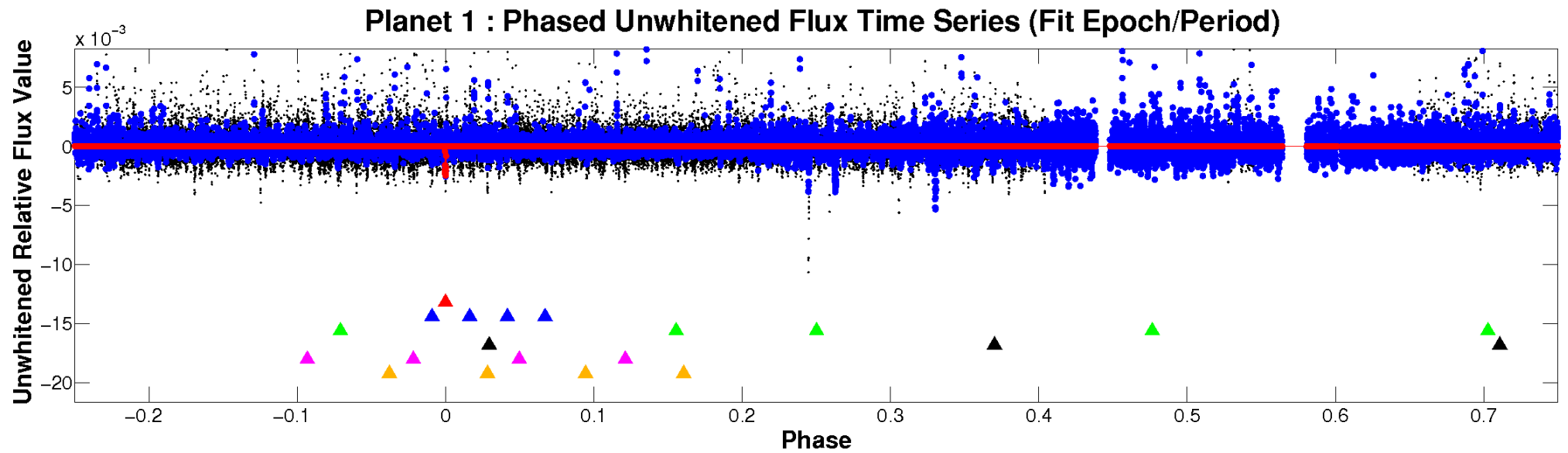


ALT Odd/Even

TCE 006102338-01

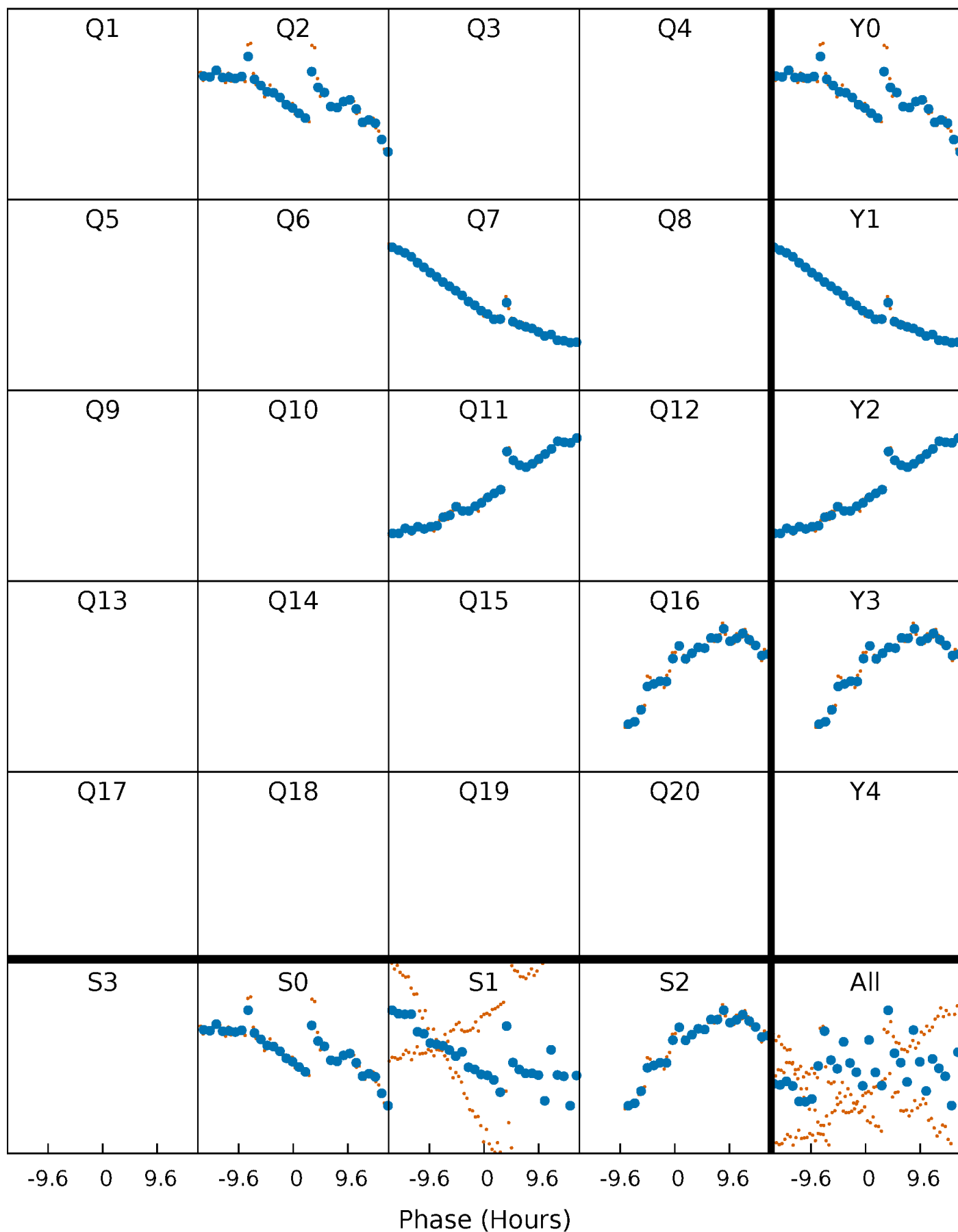


Non-Whitened Vs. Whitened Light Curve



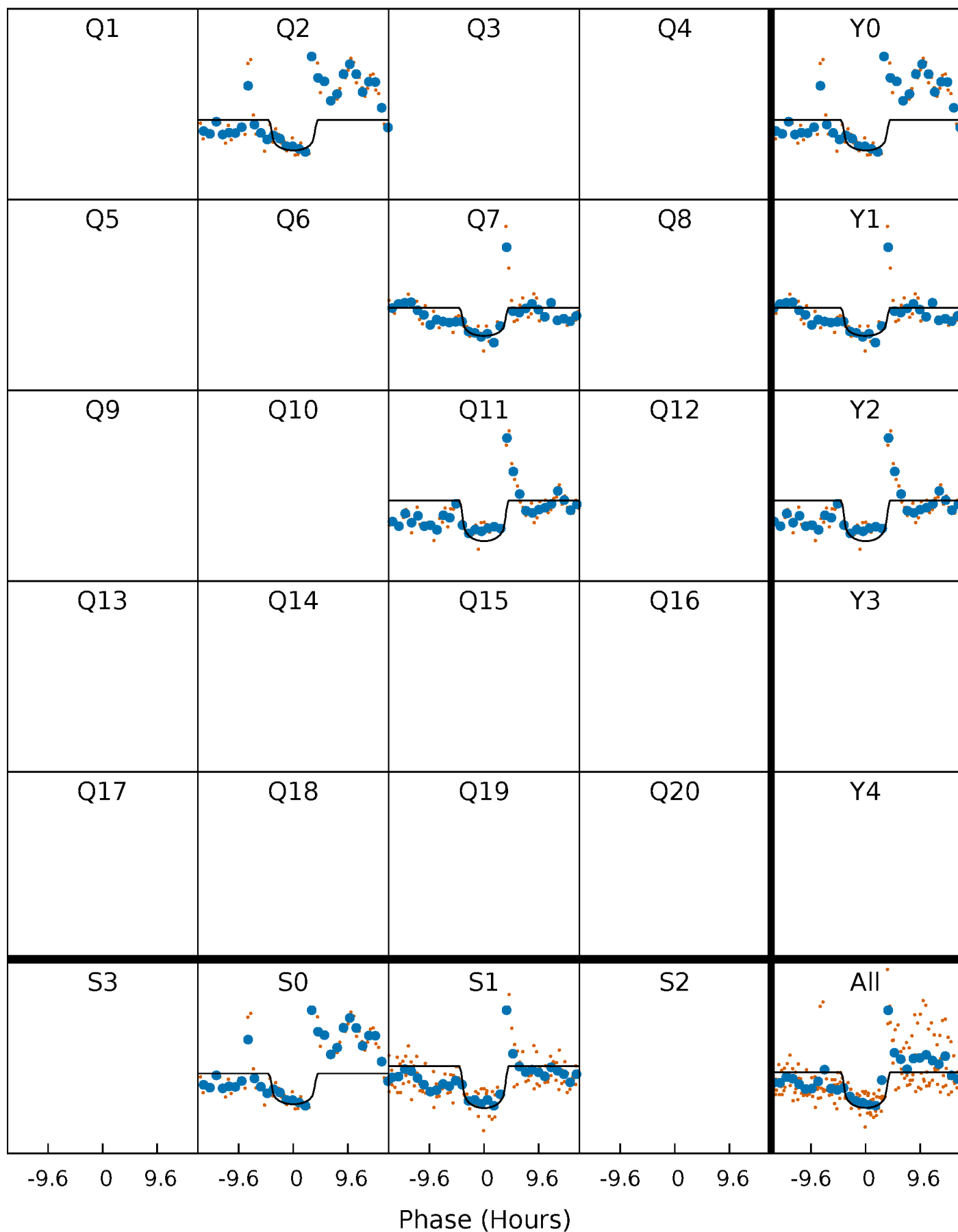
PDC Quarter-Phased Transit Curves

TCE 006102338-01 P=419.925961 Days $T_0=212.703475$ (BKJD)



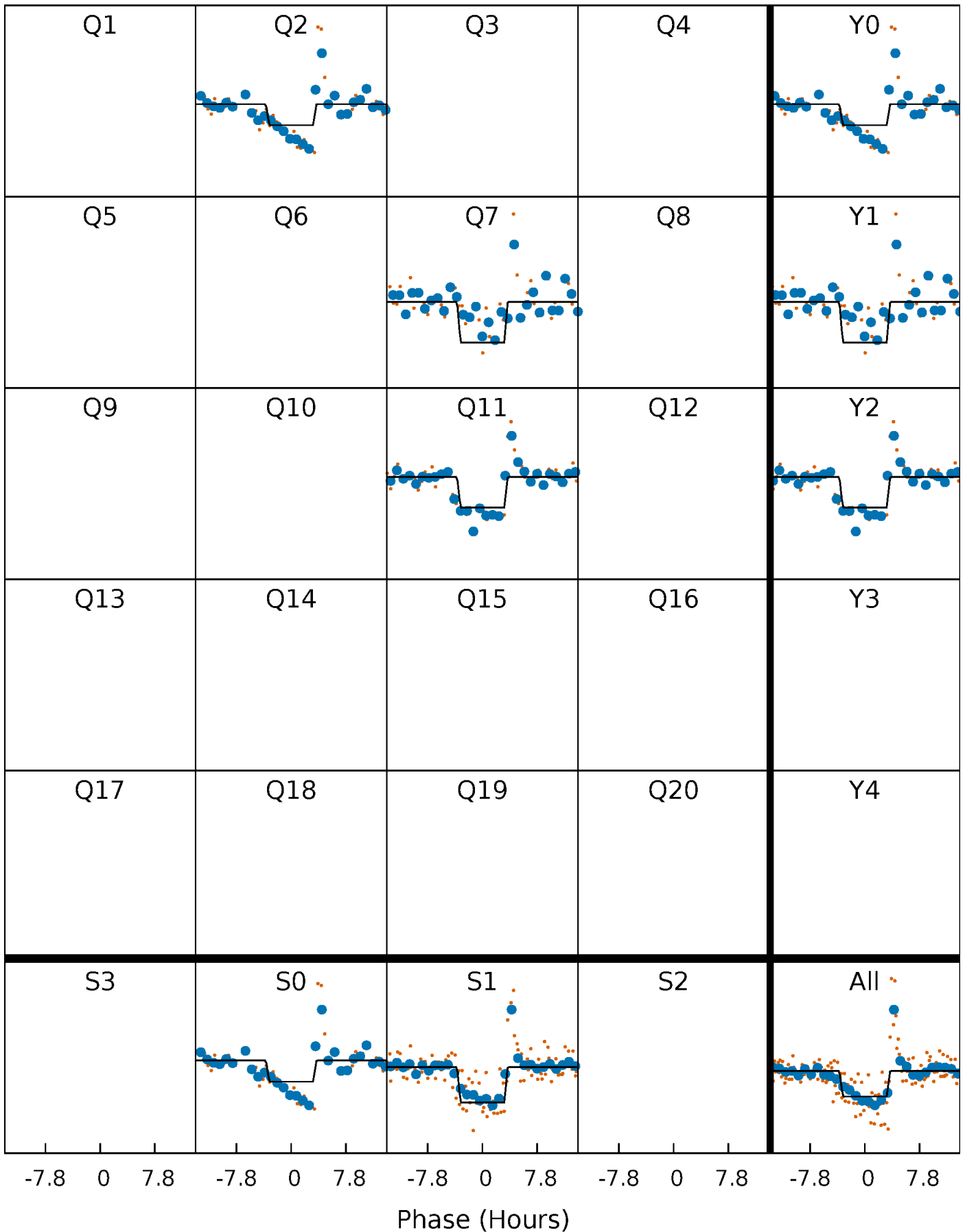
DV Quarter-Phased Transit Curves

TCE 006102338-01 P=419.925961 Days $T_0=212.703475$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

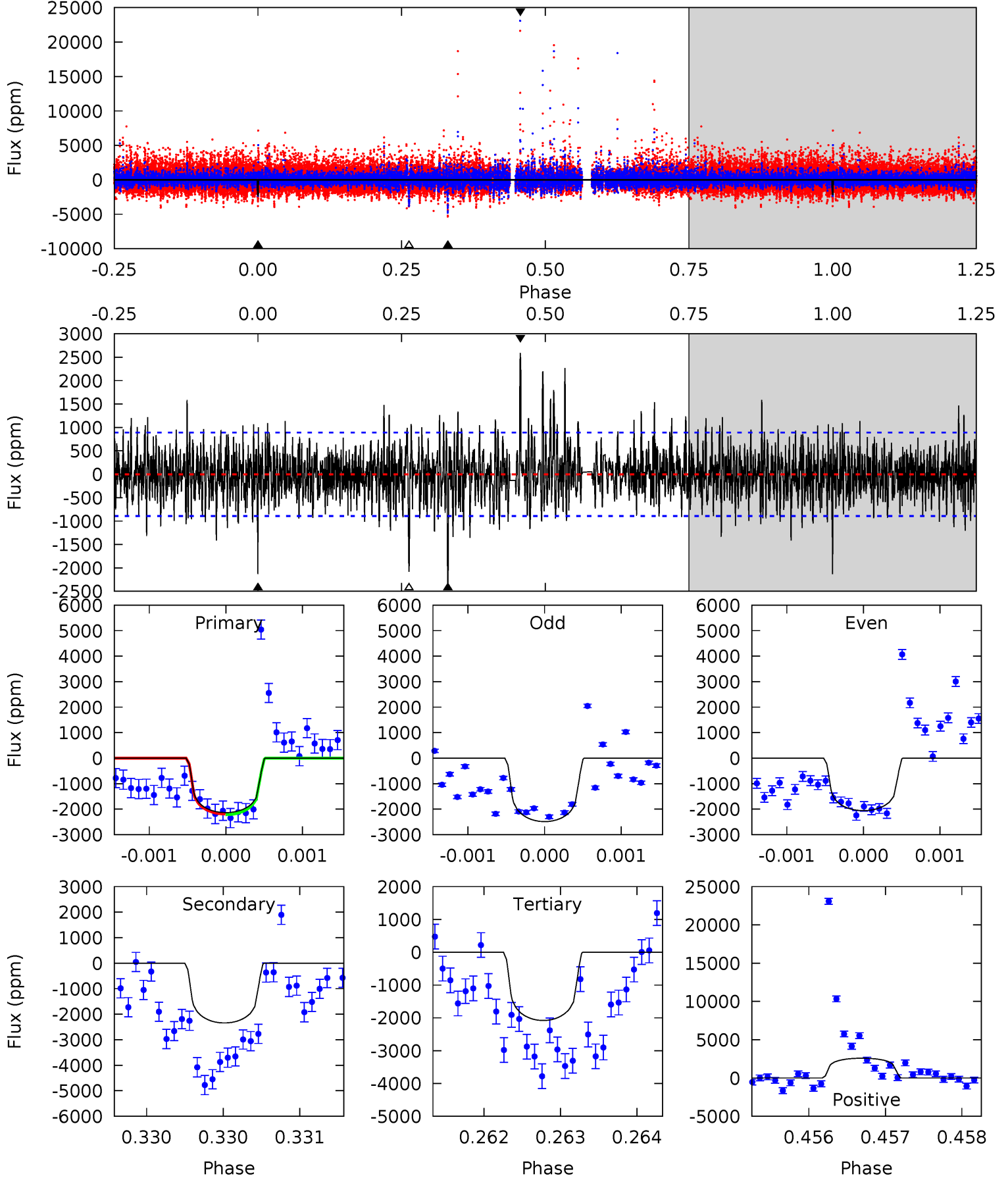
TCE 006102338-01 P=419.943714 Days $T_0=212.681366$ (BKJD)



DV Model-Shift Uniqueness Test

006102338-01, P = 419.925961 Days, E = 212.703475 Days

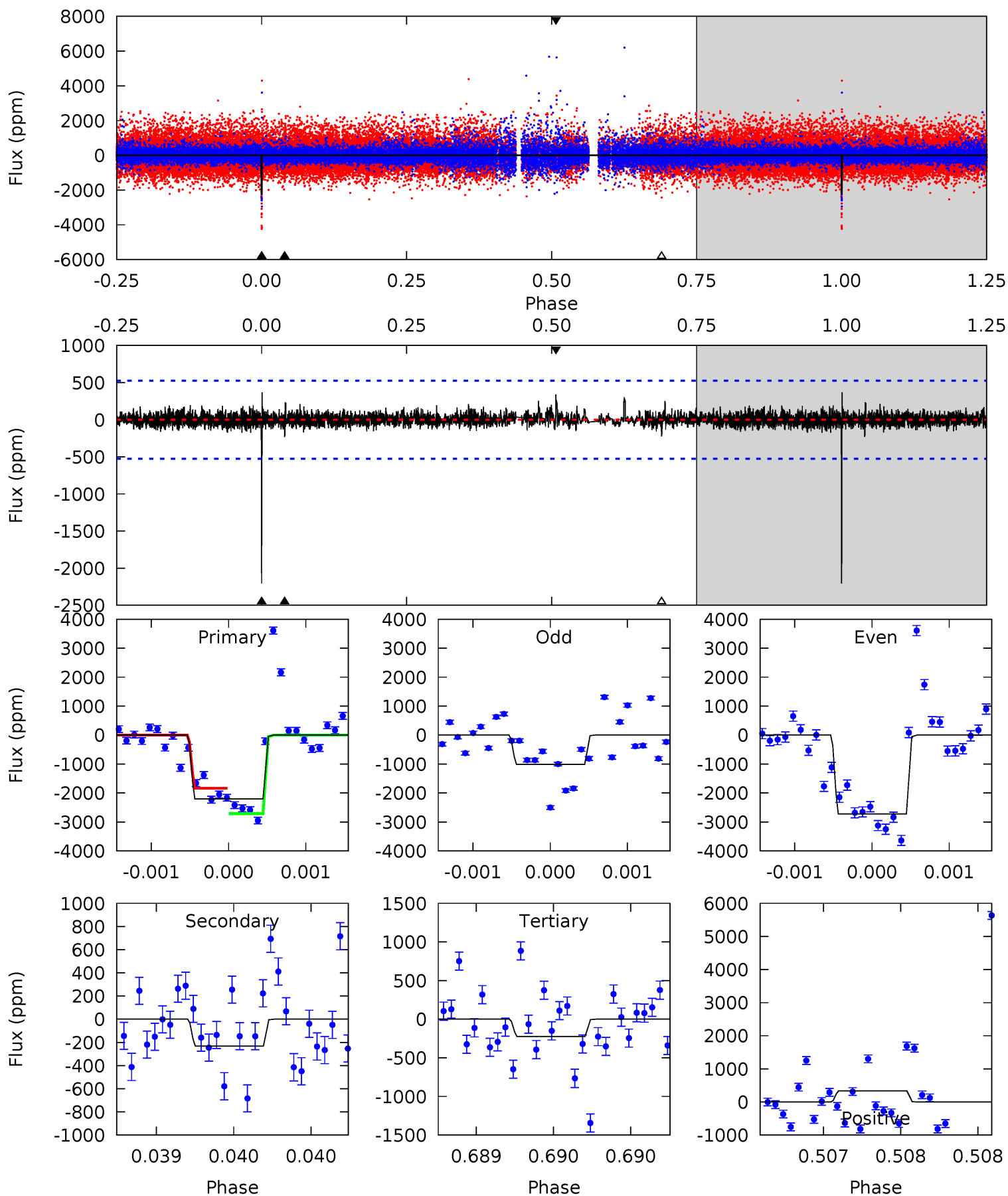
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	14.4	12.8	15.9	5.48	3.34	2.66	0.33	-2.80	1.62	-1.51	1.09	0.96	0.52	0.08



Alt Model-Shift Uniqueness Test

006102338-01, P = 419.943714 Days, E = 212.681366 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	2.43	2.35	3.56	5.52	3.39	0.55	20.8	19.6	0.08	-1.13	8.56	0.89	0.14	4.56



Stellar Parameters For KIC 006102338

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3319^{+84}_{-59}	$5.037^{+0.070}_{-0.070}$	$-0.100^{+0.100}_{-0.100}$	$0.232^{+0.055}_{-0.045}$	$0.214^{+0.072}_{-0.048}$	$24.060^{+11.430}_{-7.728}$
	+3%/-2%	+1%/-1%	+100%/-100%	+24%/-19%	+34%/-22%	+48%/-32%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 006102338-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2343 ± 162	$1.21^{+0.34}_{-0.31}$	122^{+5}_{-5}	3347^{+322}_{-212}	$383584^{+272825}_{-140610}$
Alt.	-232 ± 95	$1.14^{+0.32}_{-0.30}$	122^{+5}_{-5}	2490^{+212}_{-186}	44234^{+39516}_{-22719}

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

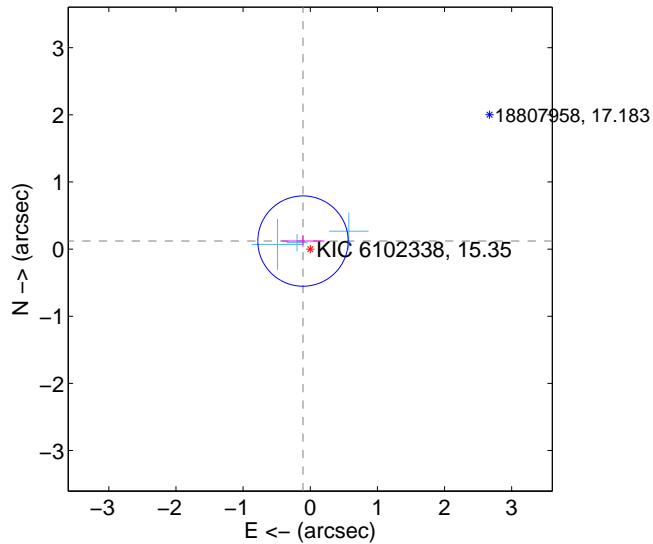
Supplemental centroid analysis for 006102338-01. Kepler magnitude: 15.35. Transit SNR 7.34

There are 3 quarters with good PRF difference image offsets

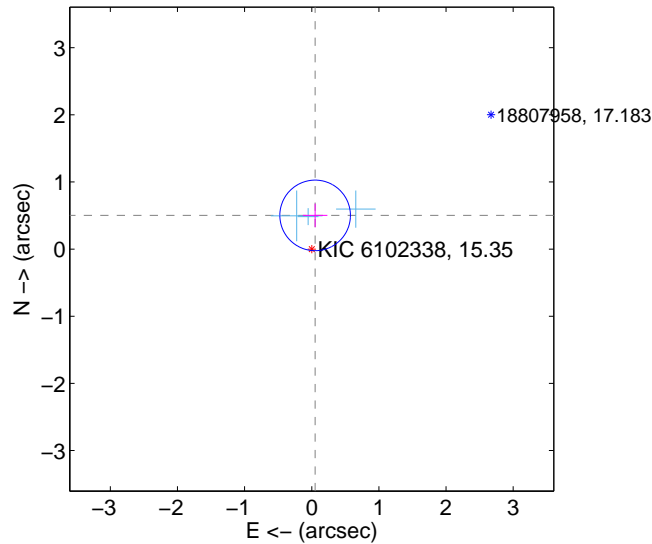
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.161 ± 0.224	0.72	0.108 ± 0.321	0.119 ± 0.084
PRF-fit source offset from KIC position	0.504 ± 0.175	2.88	-0.050 ± 0.182	0.502 ± 0.175
photometric centroid source offset	1.10 ± 0.63	1.73	-0.84 ± 0.61	-0.71 ± 0.67

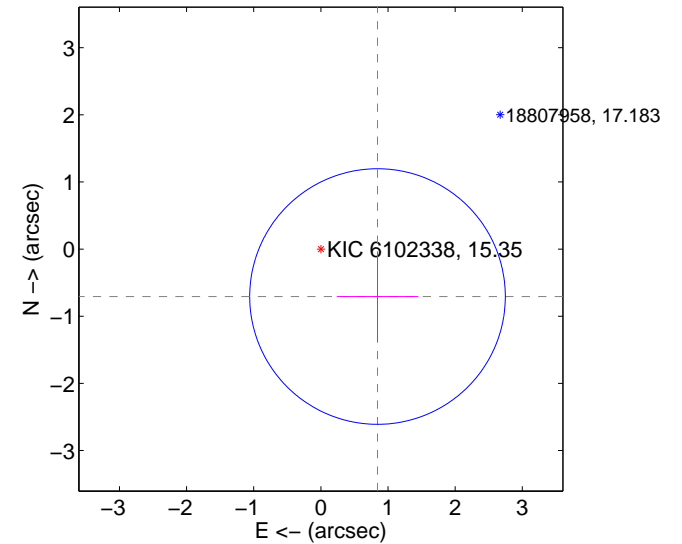
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

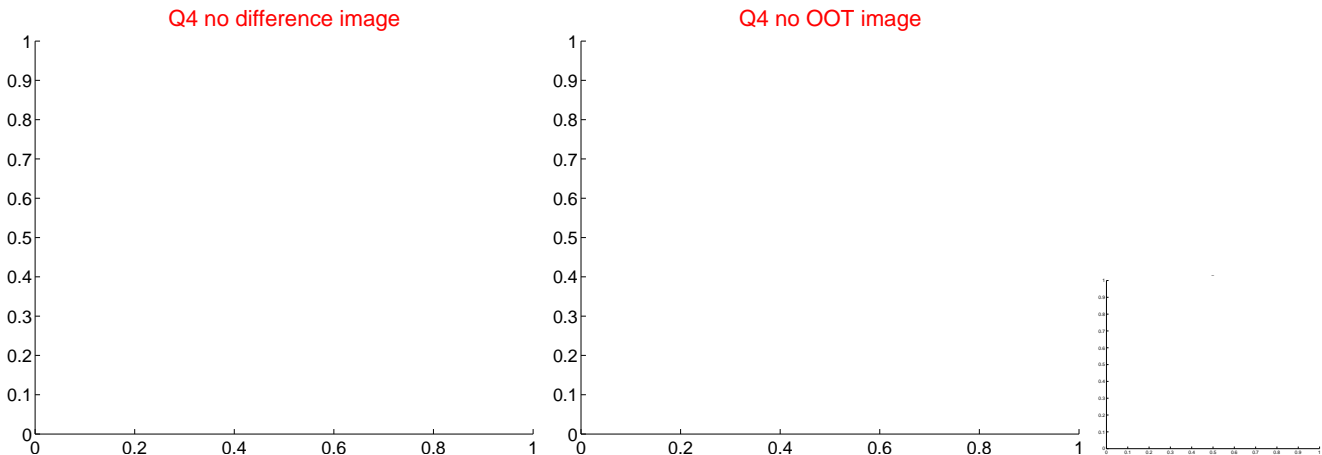
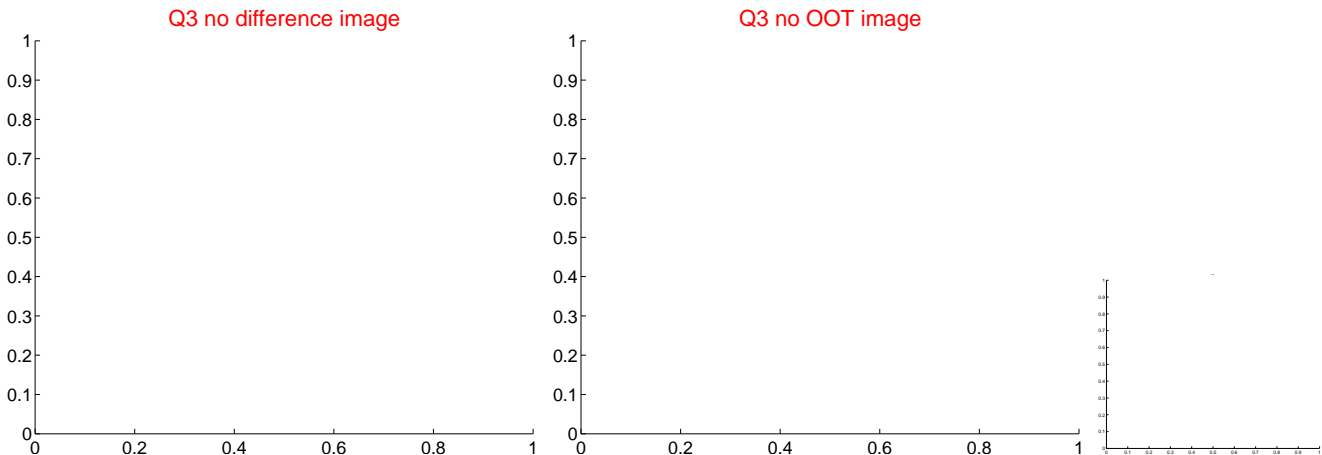
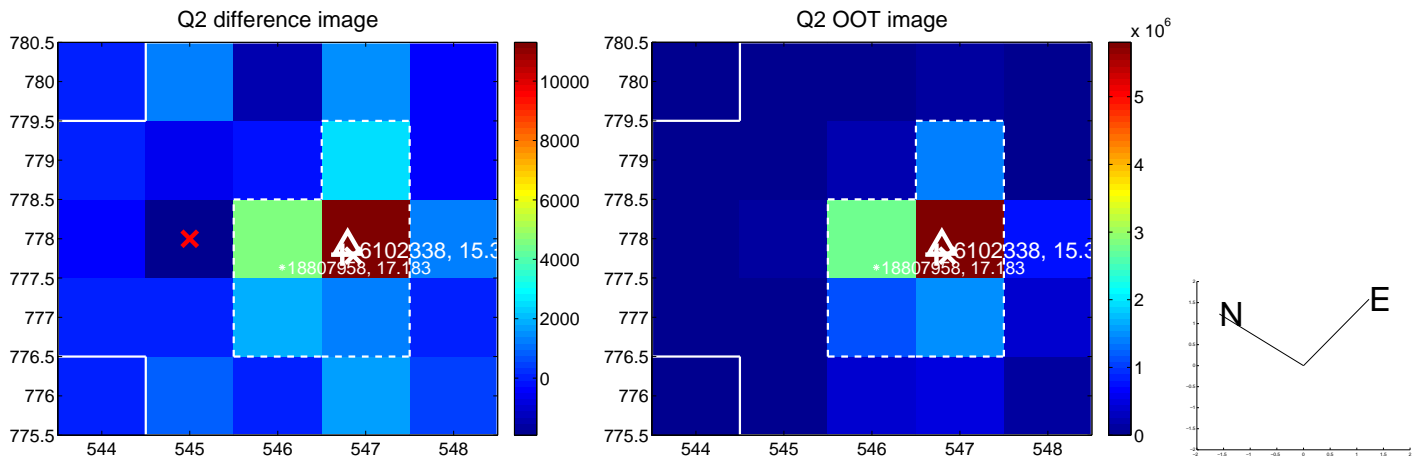
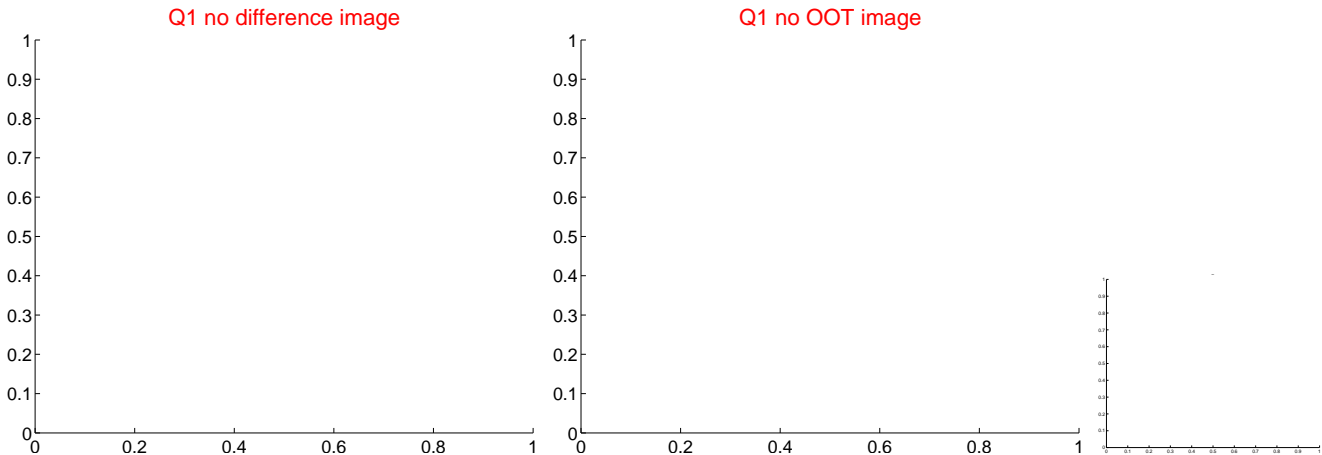


offset from photometric centroids



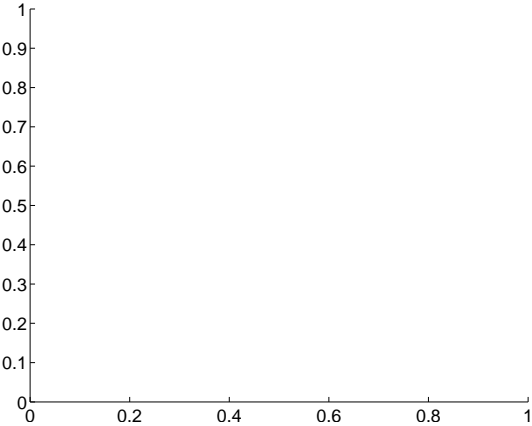
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

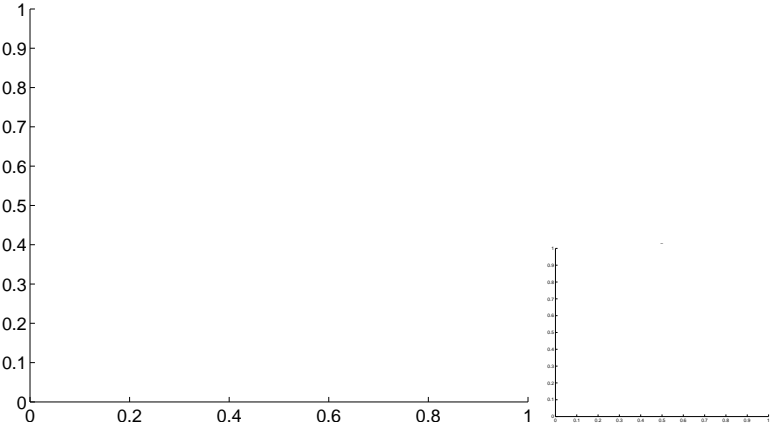


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

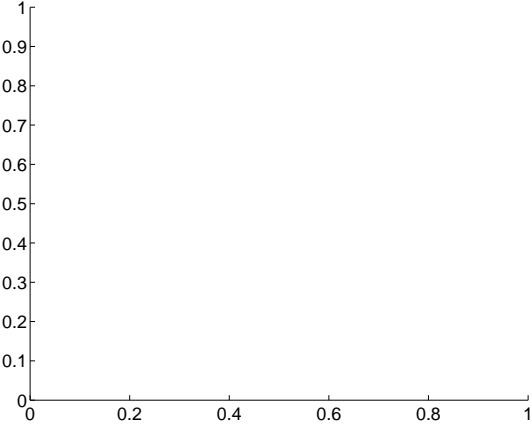
Q5 no difference image



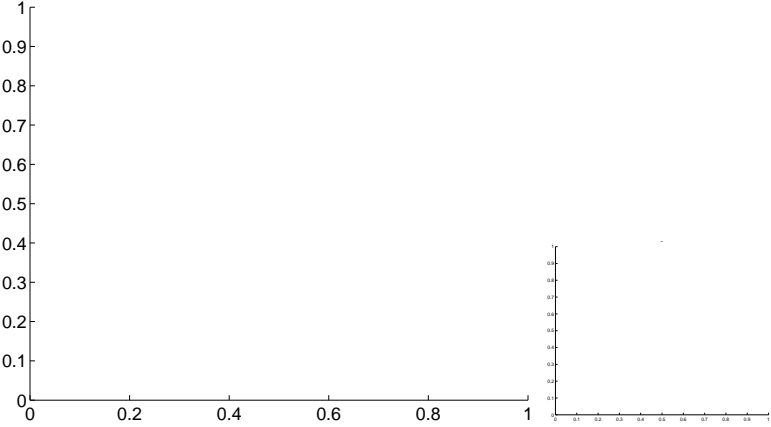
Q5 no OOT image



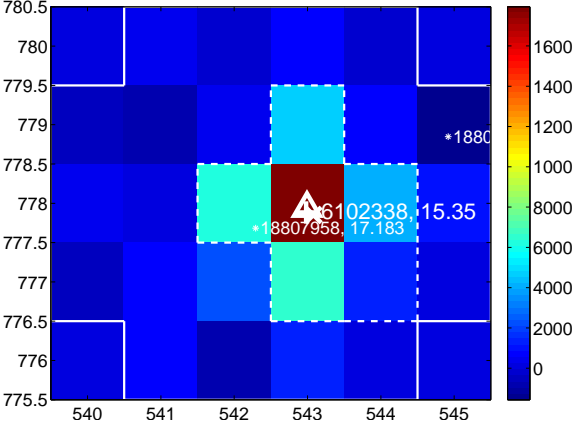
Q6 no difference image



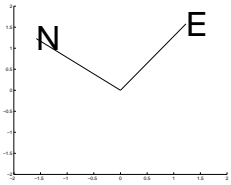
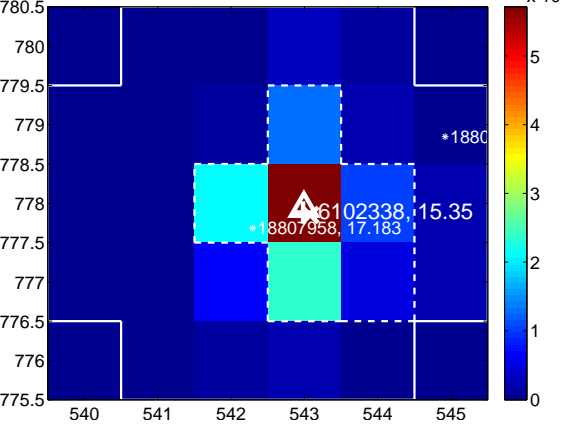
Q6 no OOT image



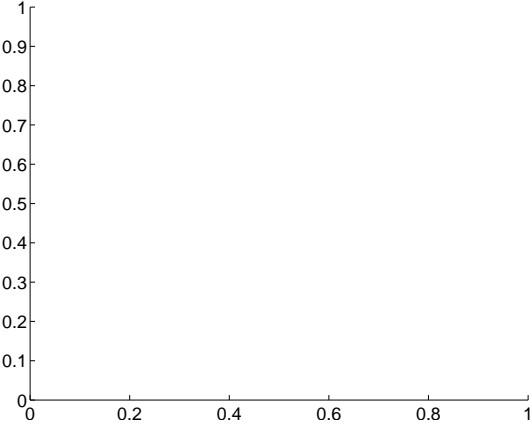
Q7 difference image



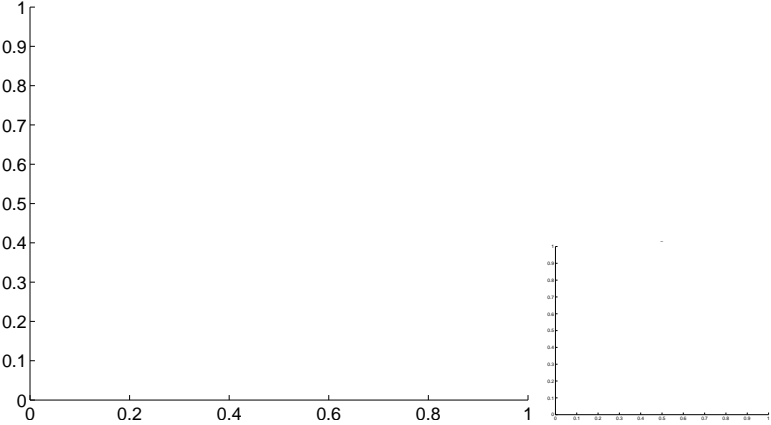
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

Q9 no difference image



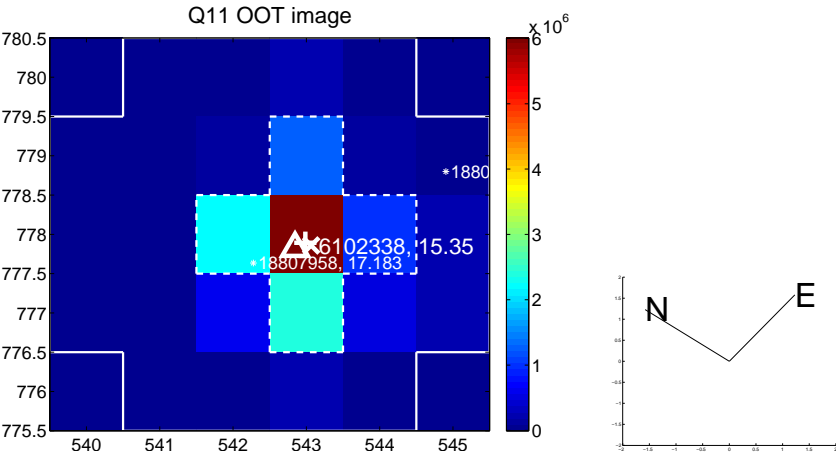
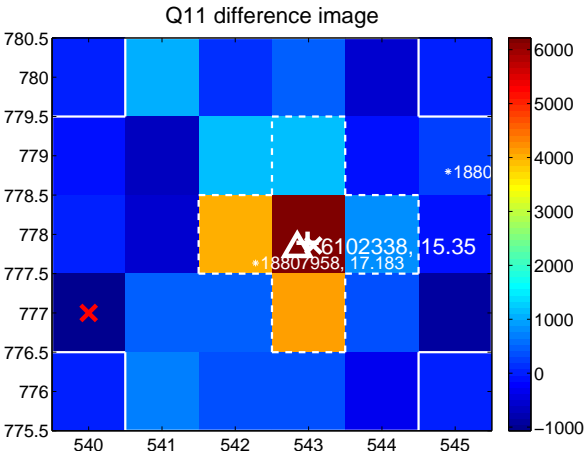
Q9 no OOT image



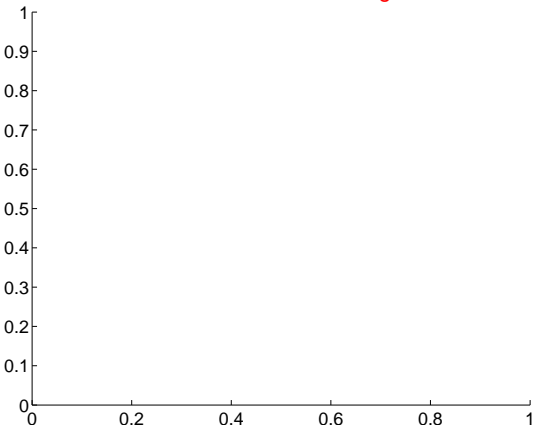
Q10 no difference image



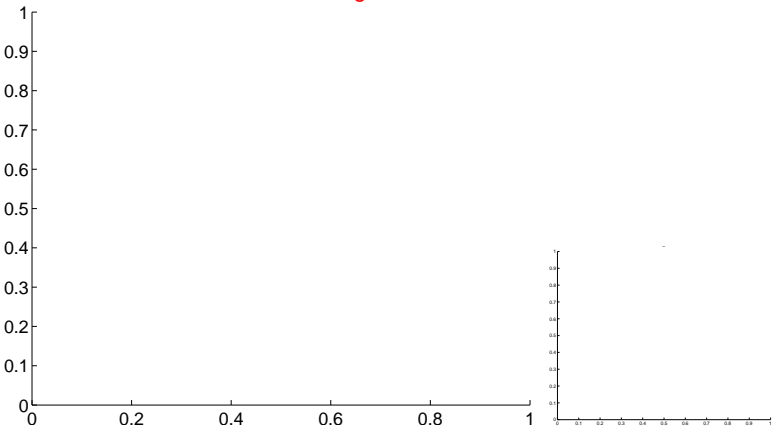
Q10 no OOT image



Q12 no difference image



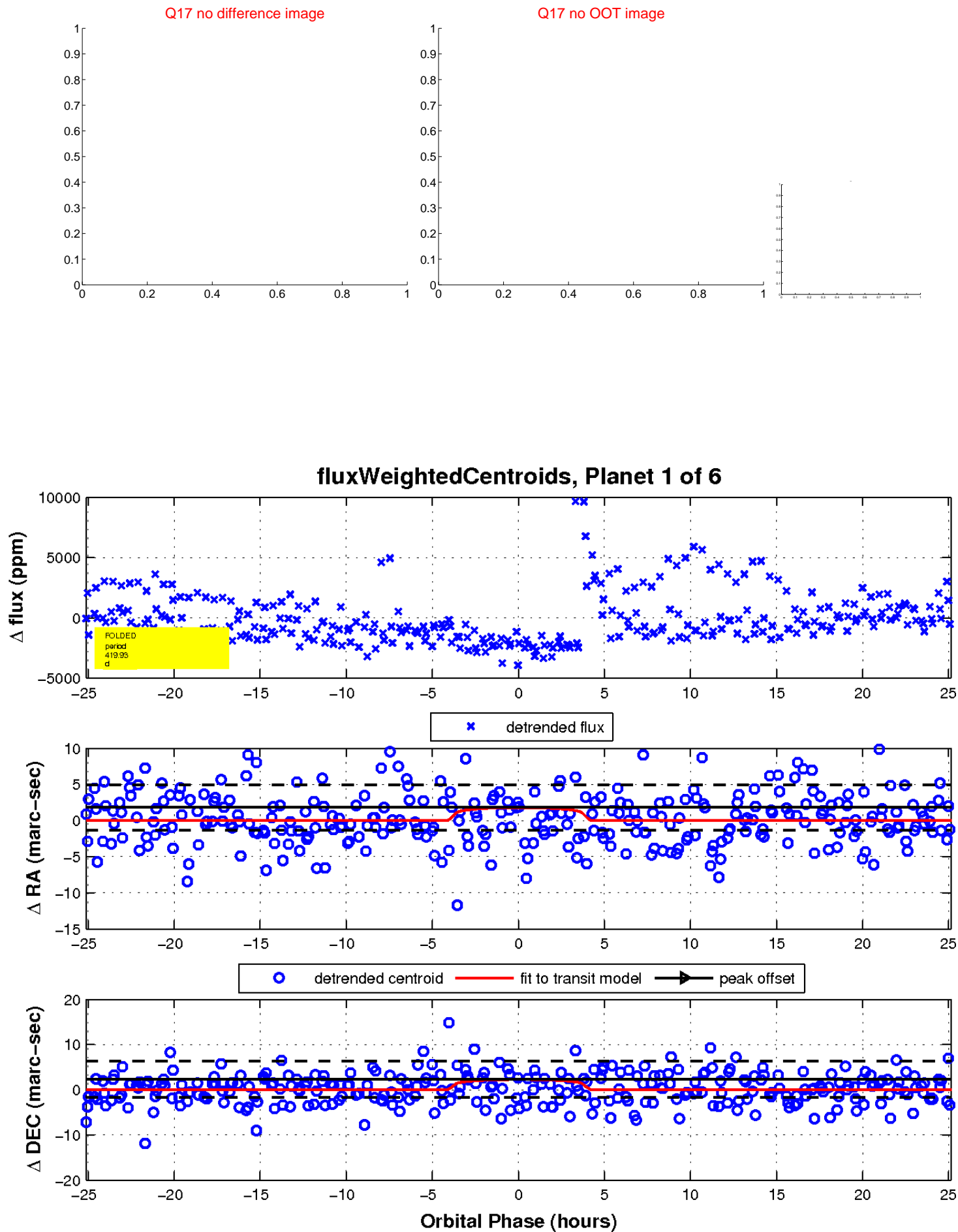
Q12 no OOT image



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

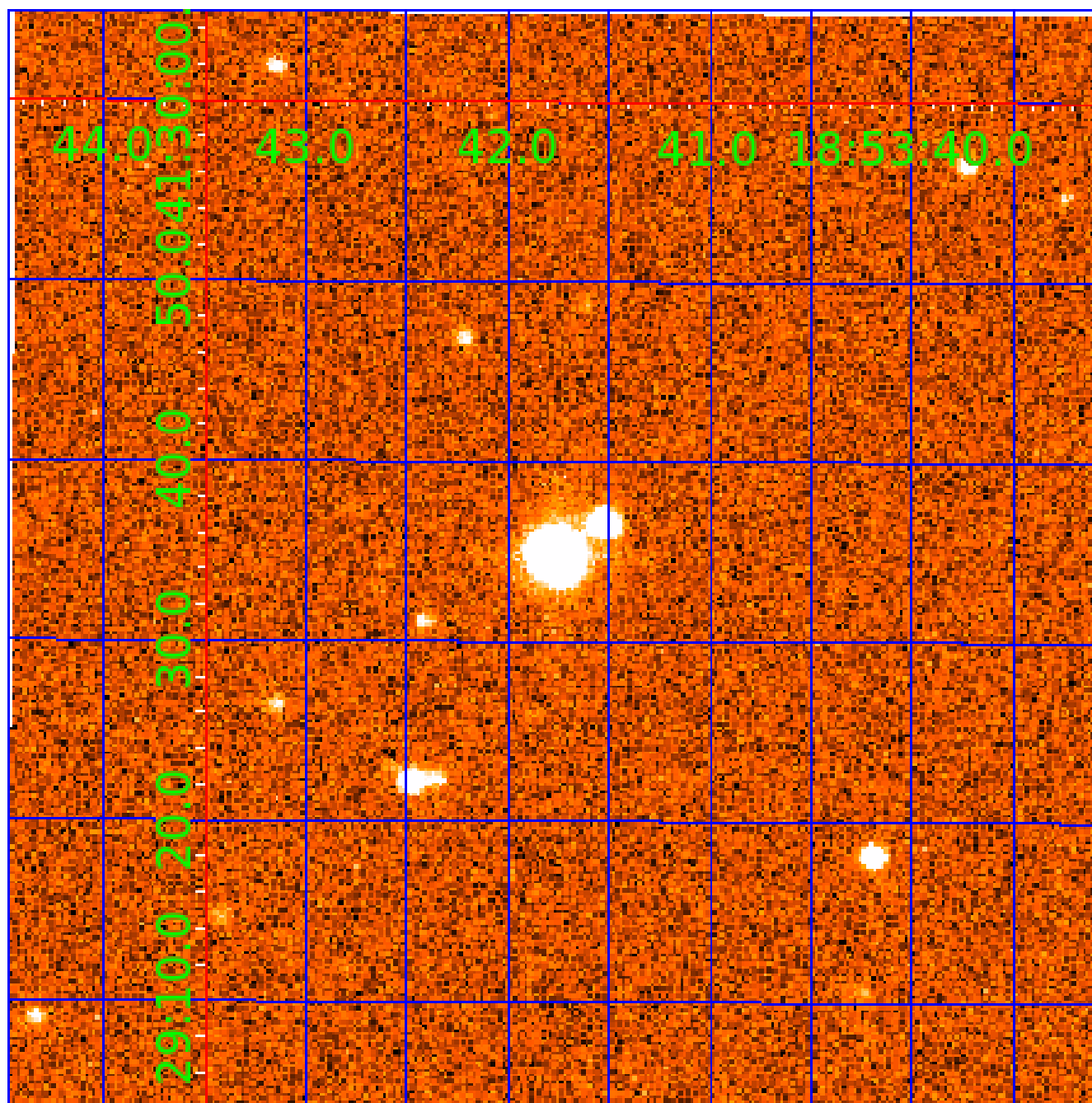


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006102338

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006102338-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-03	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—CENT_FEW_DIFFS
006102338-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006102338-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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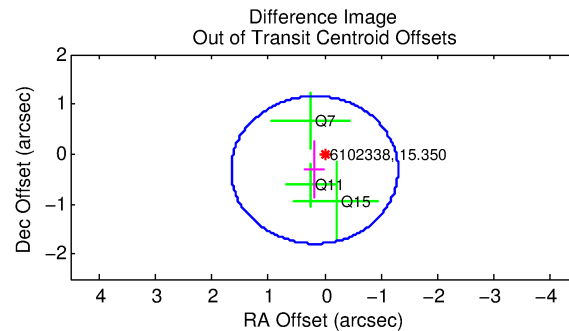
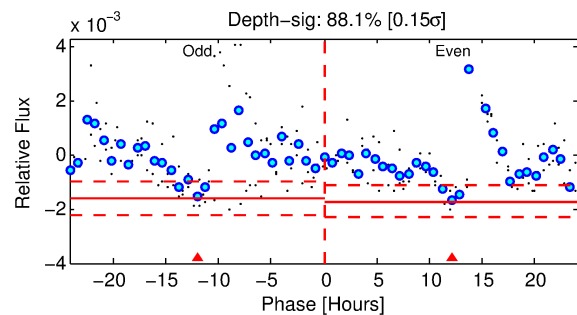
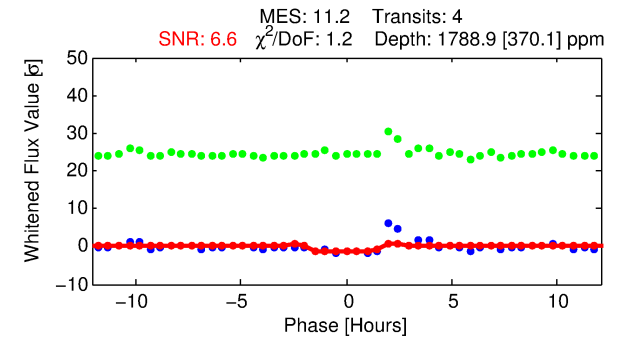
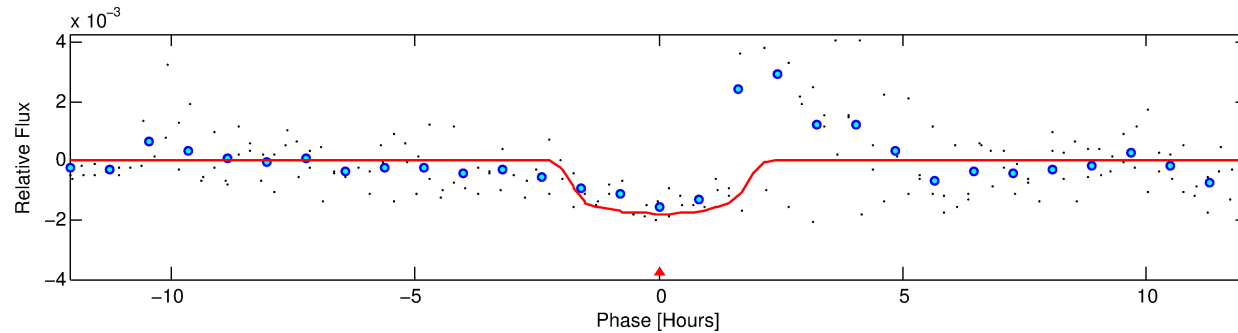
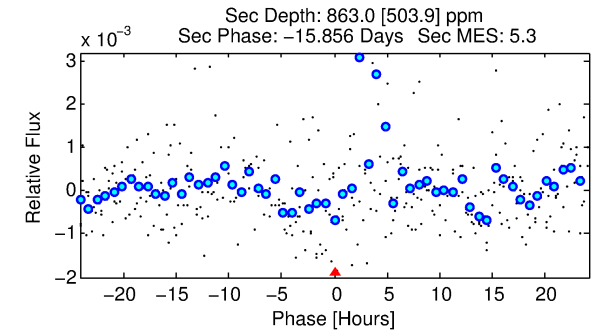
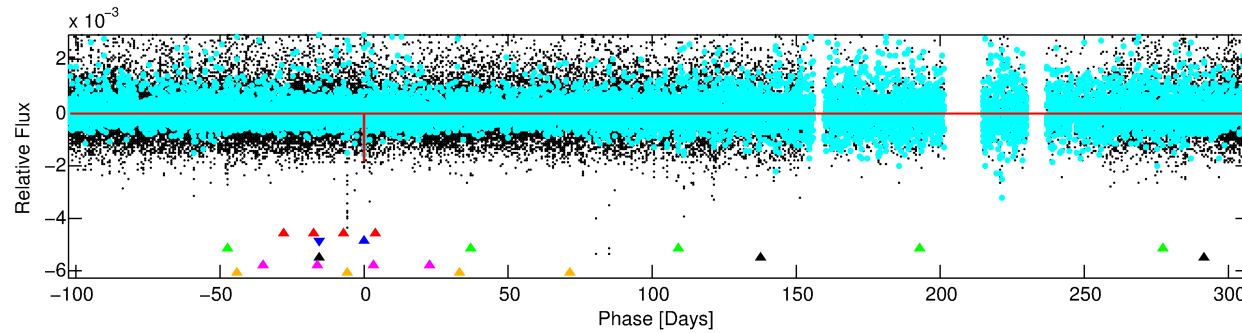
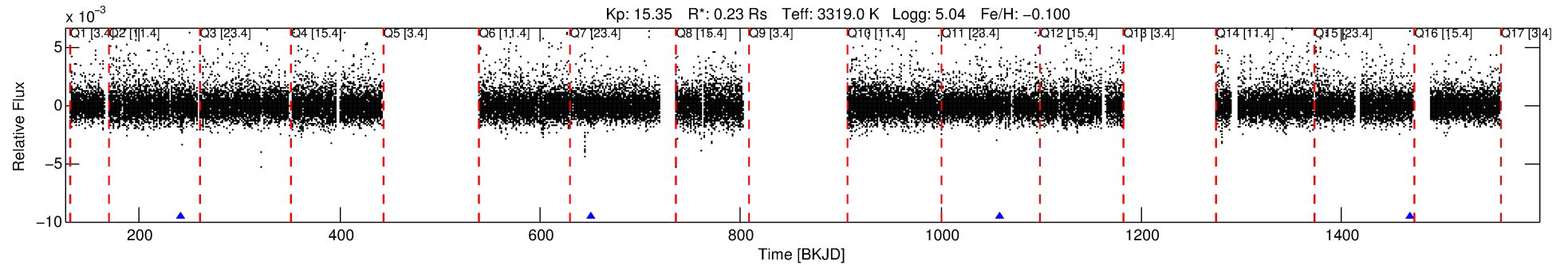
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006102338-02

No Significant Match Found

DV One-Page Summary

KIC: 6102338 Candidate: 2 of 6 Period: 409.253 d



DV Fit Results:

Period = 409.25323 [0.00462] d
Epoch = 240.9059 [0.0101] BKJD
Rp/R* = 0.0409 [0.0354]
a/R* = 621.28 [2283.92]
b = 0.67 [3.09]
Seff = 0.01 [0.00]
Teq = 88 [5] K
Rp = 1.04 [0.93] Re
a = 0.6452 [0.1077] AU
Ag = 184263.57 [338549.69] [0.54 σ]
Teffp = 2813 [1287] K [2.12 σ]

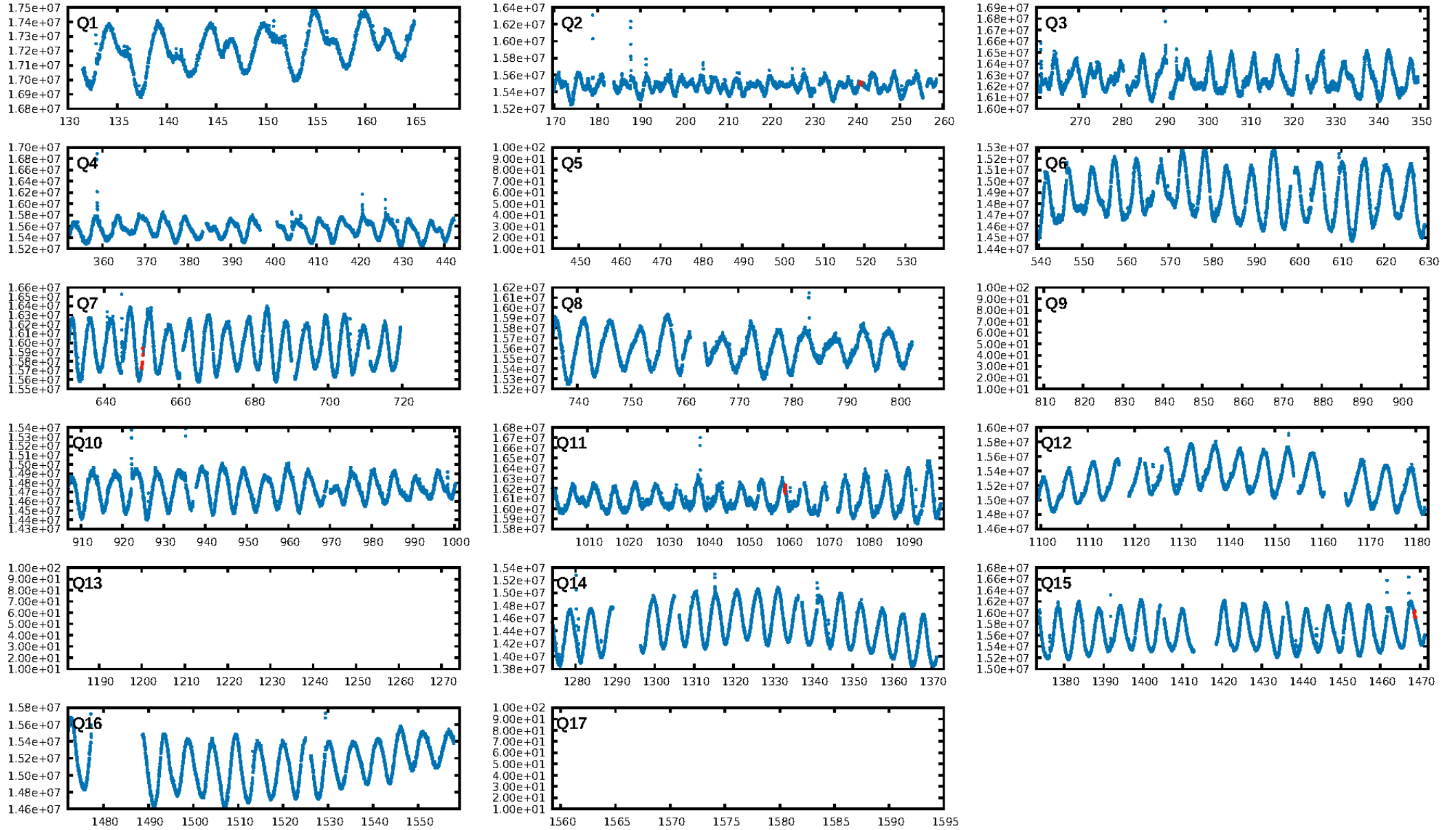
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.08 σ]
LongPeriod-sig: 100.0% [27.51 σ]
ModelChiSquare2-sig: 41.3%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 1.48e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.373
Centroid-sig: 75.5%
Centroid-so: 0.848 arcsec [0.79 σ]
OotOffset-rm: 0.363 arcsec [0.74 σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-rm: 0.087 arcsec [0.23 σ]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [4/4]

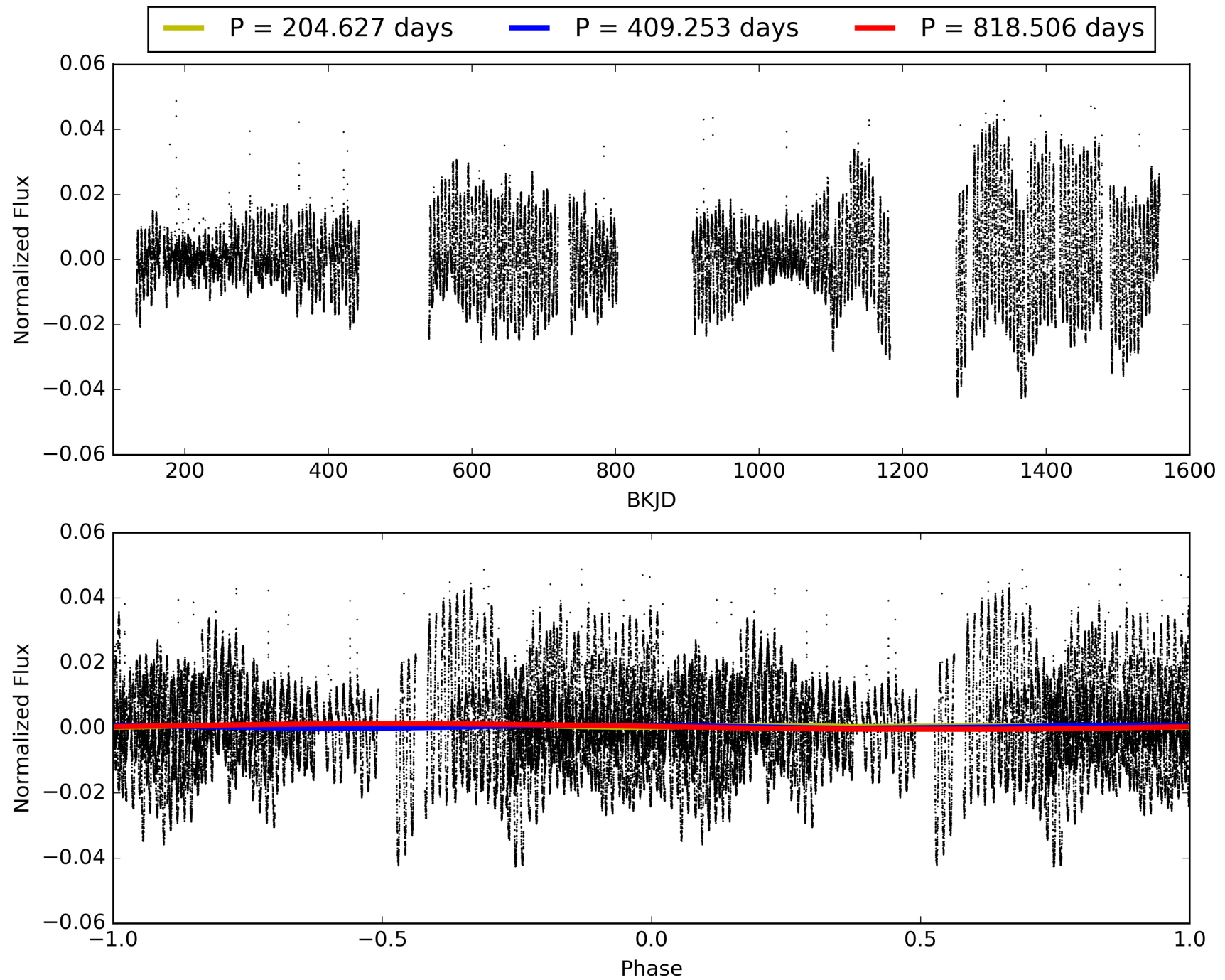
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:00:24 Z

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

TCE 006102338-02, PDC Light Curves

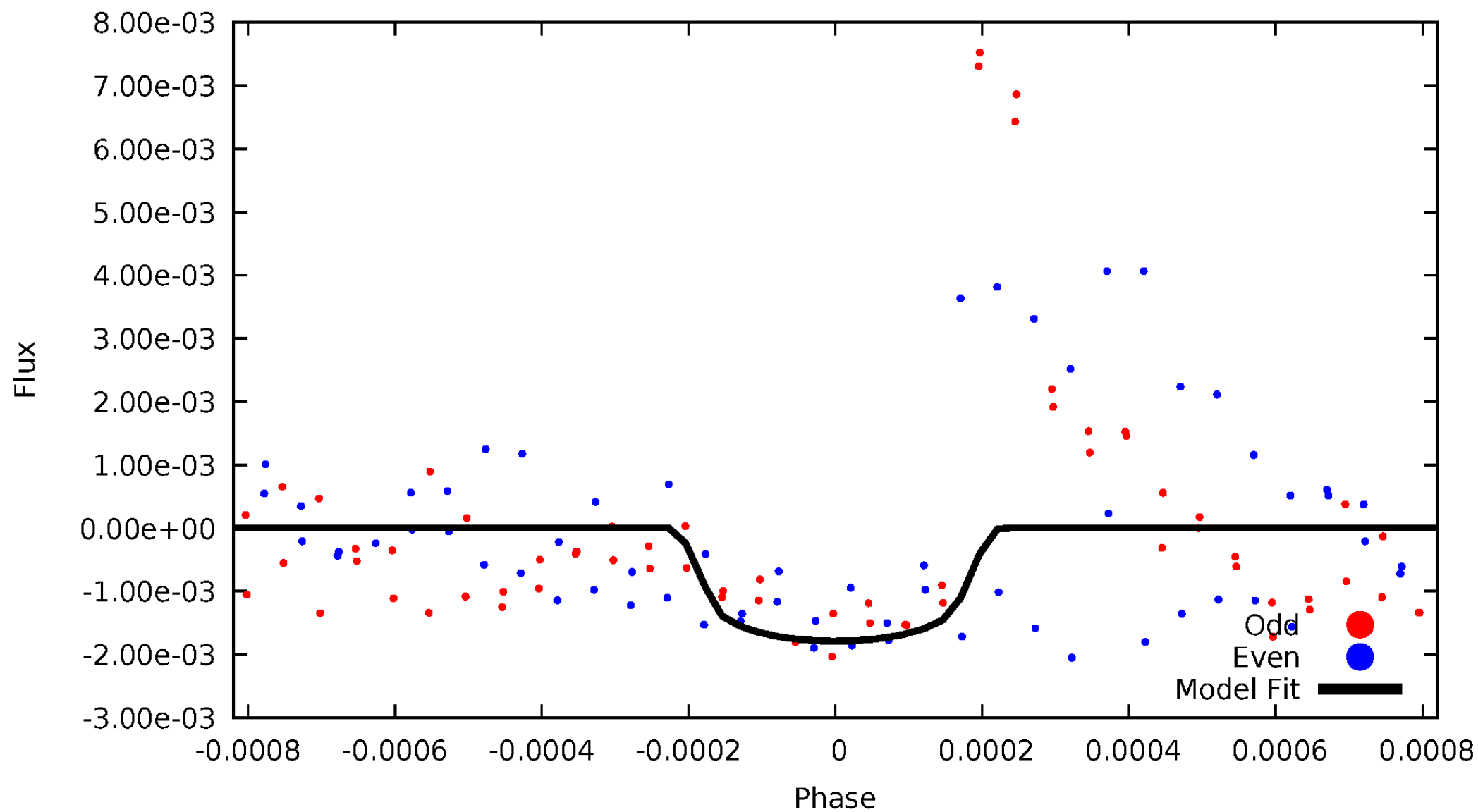


TCE 006102338-02



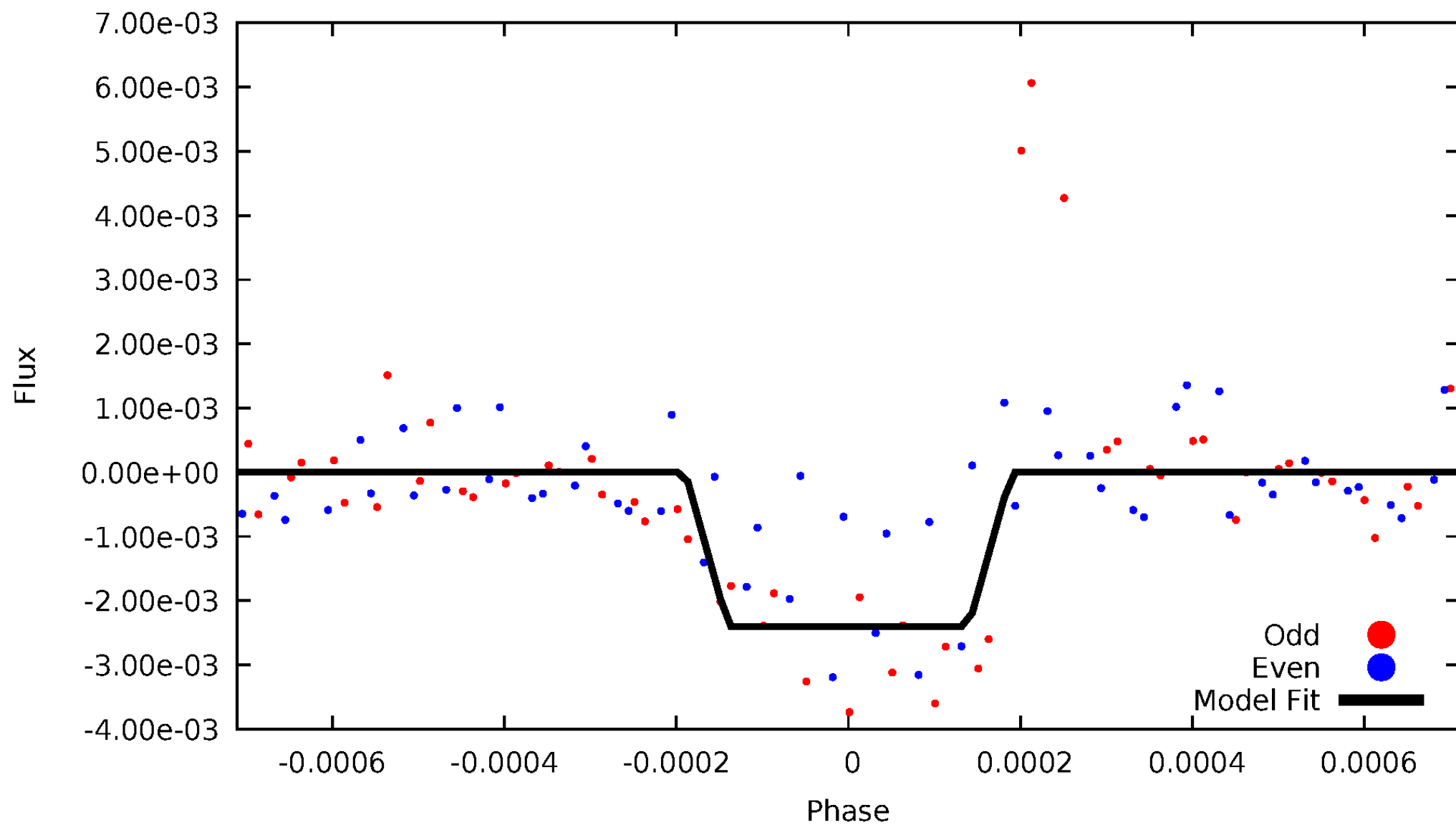
DV Odd/Even

TCE 006102338-02



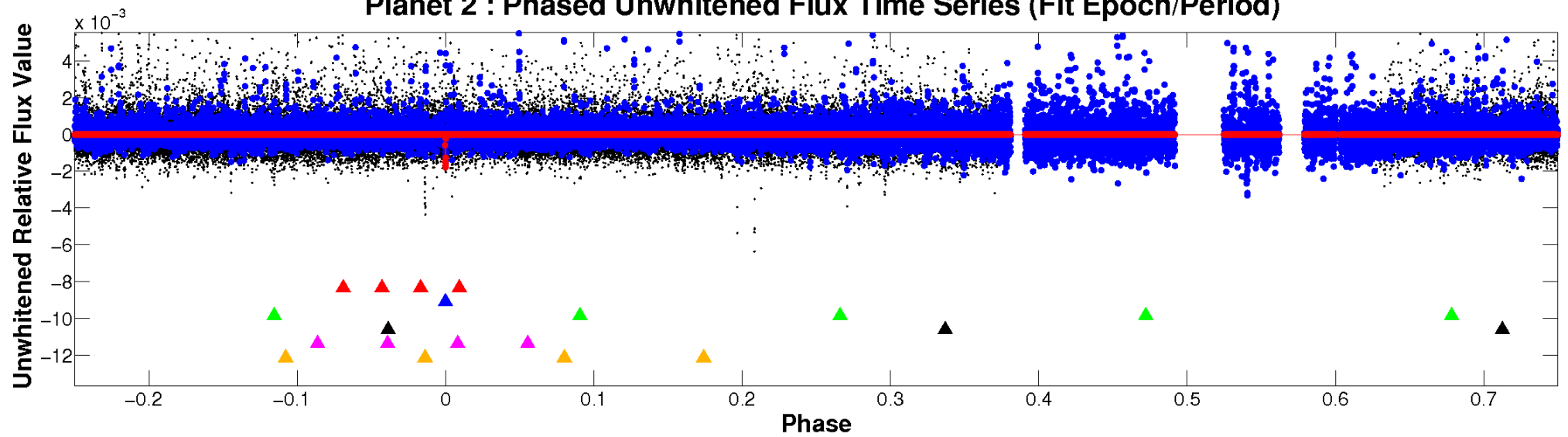
ALT Odd/Even

TCE 006102338-02

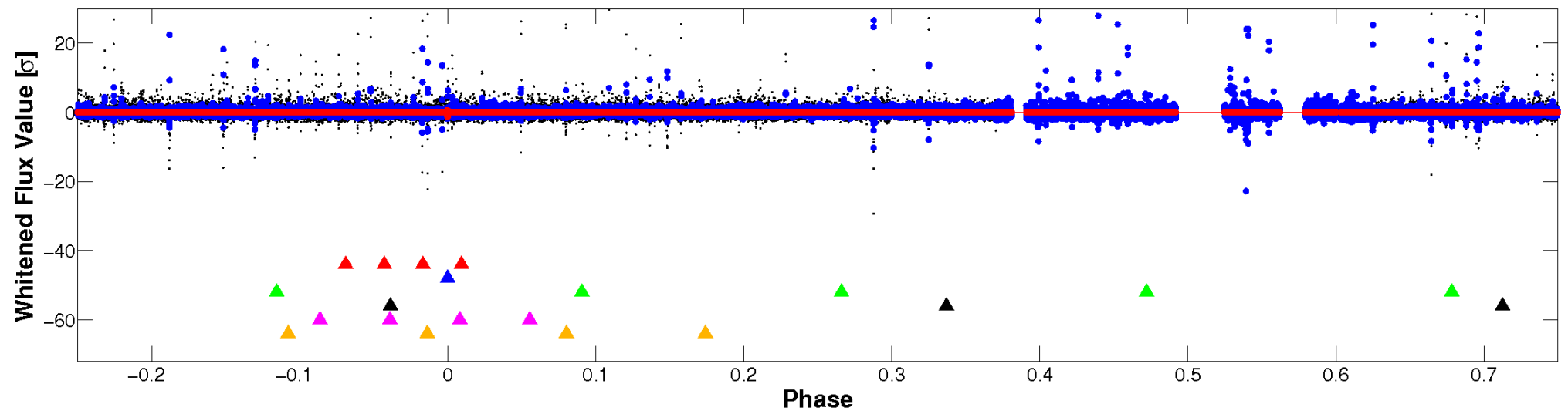


Non-Whitened Vs. Whitened Light Curve

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

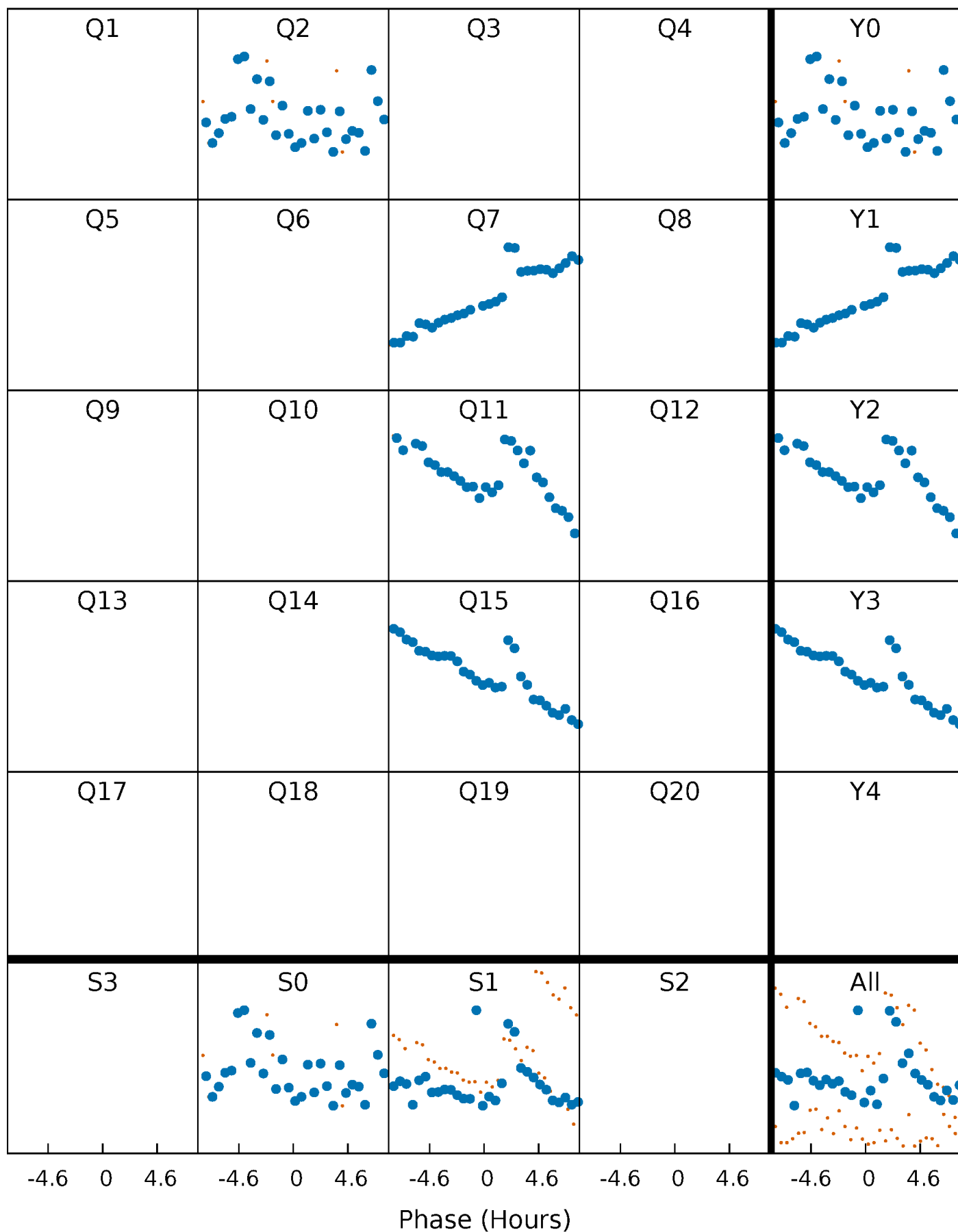


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



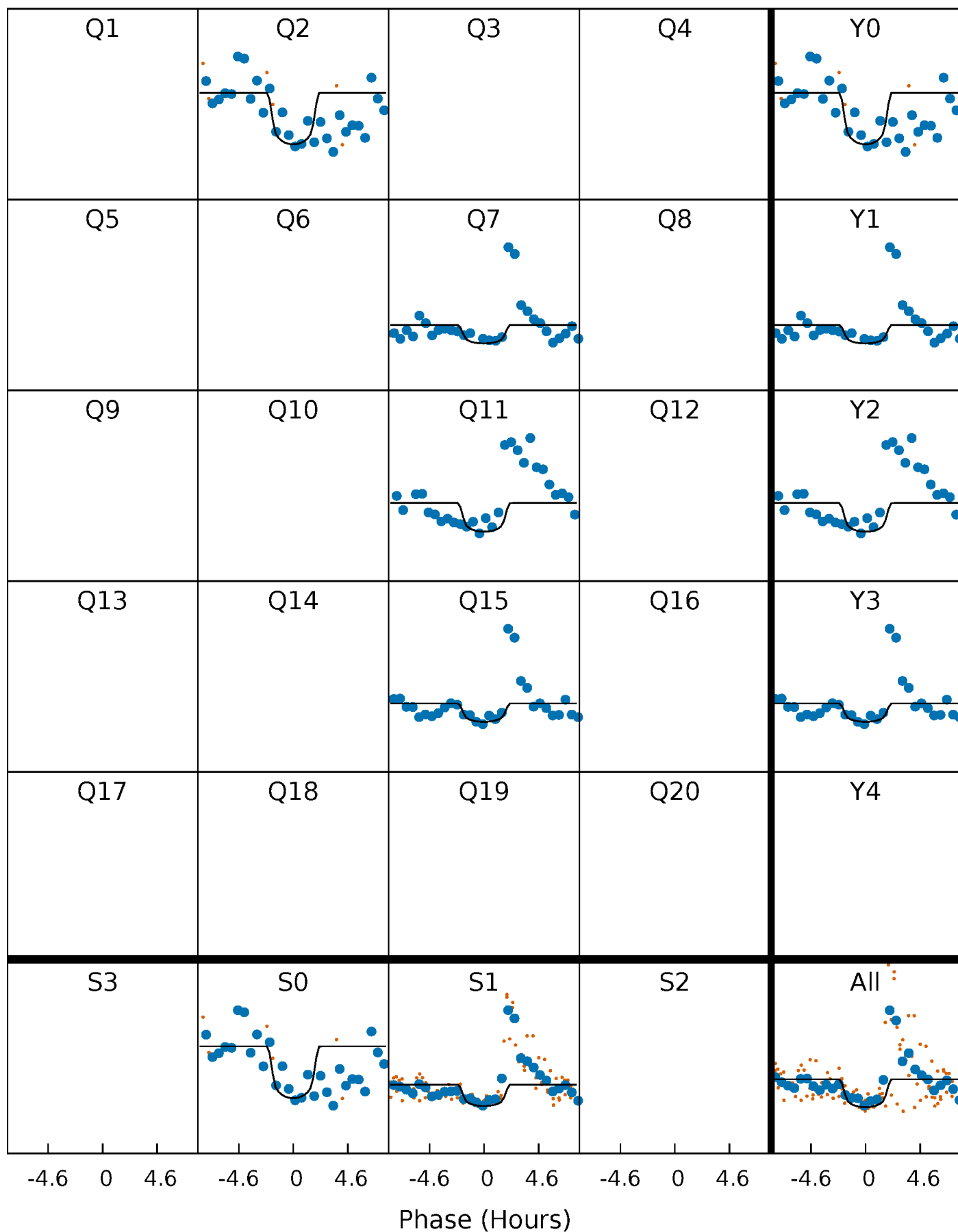
PDC Quarter-Phased Transit Curves

TCE 006102338-02 P=409.253228 Days $T_0=240.905944$ (BKJD)



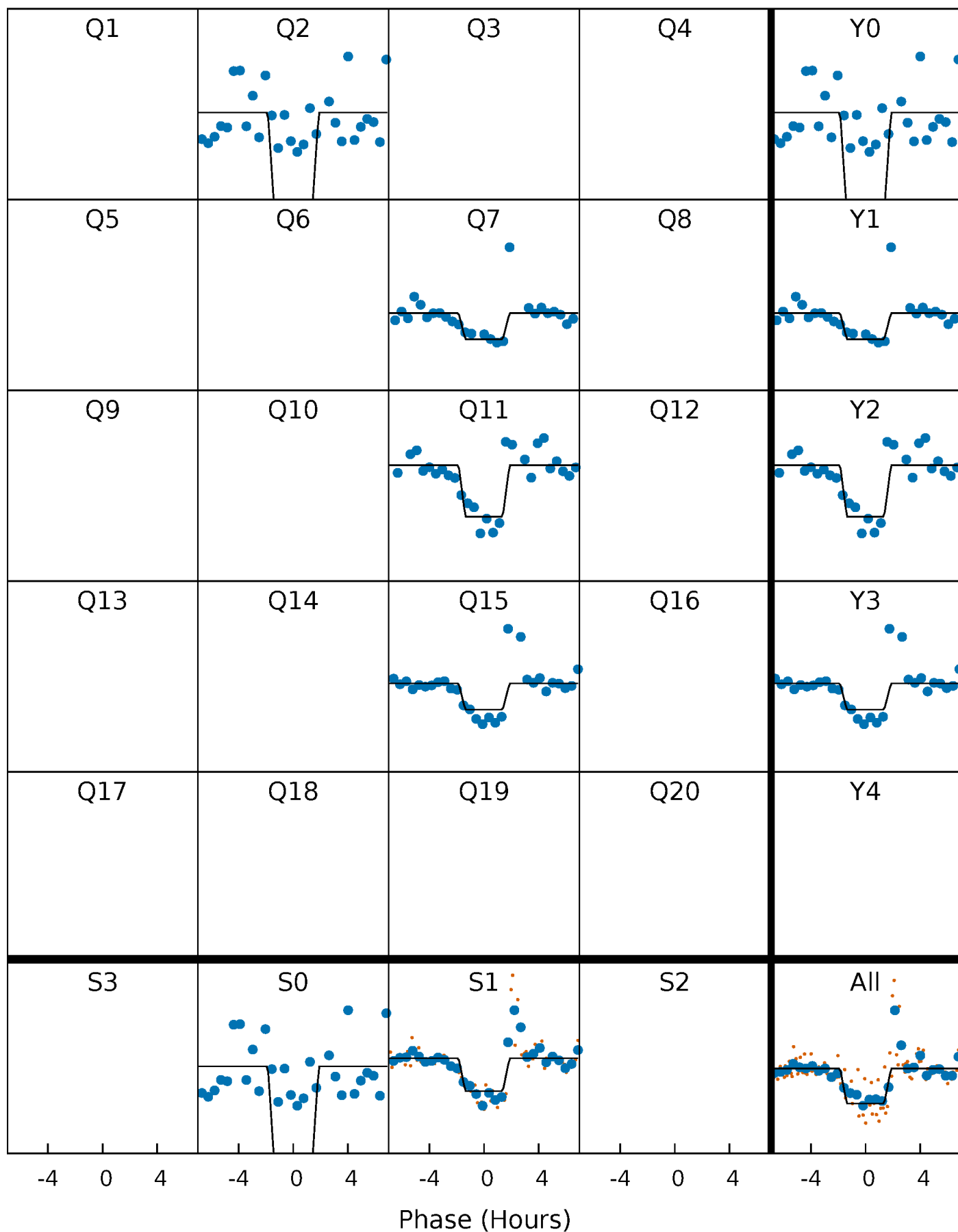
DV Quarter-Phased Transit Curves

TCE 006102338-02 $P=409.253228$ Days $T_0=240.905944$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

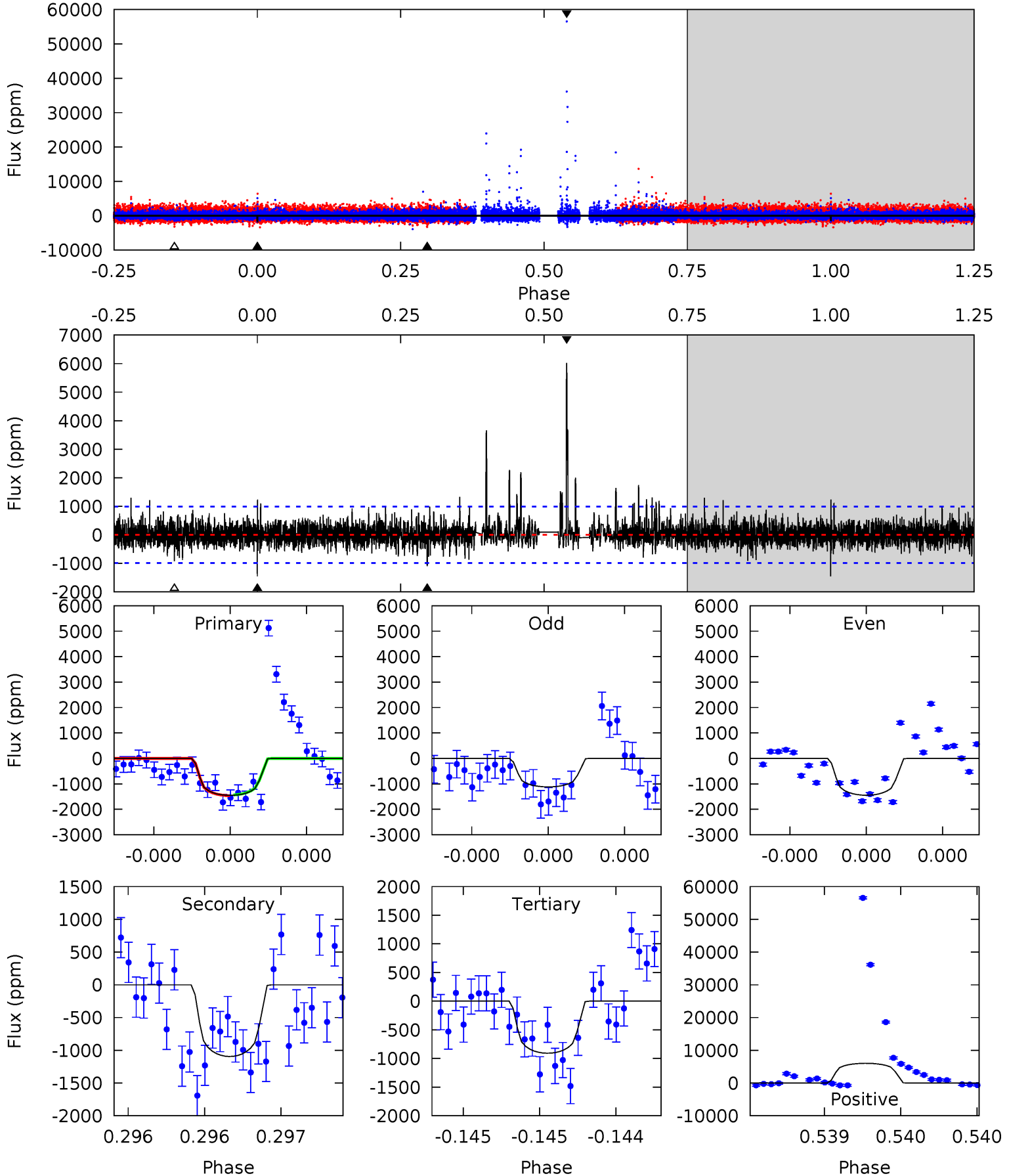
TCE 006102338-02 P=409.255376 Days $T_0=240.897195$ (BKJD)



DV Model-Shift Uniqueness Test

006102338-02, P = 409.253228 Days, E = 240.905944 Days

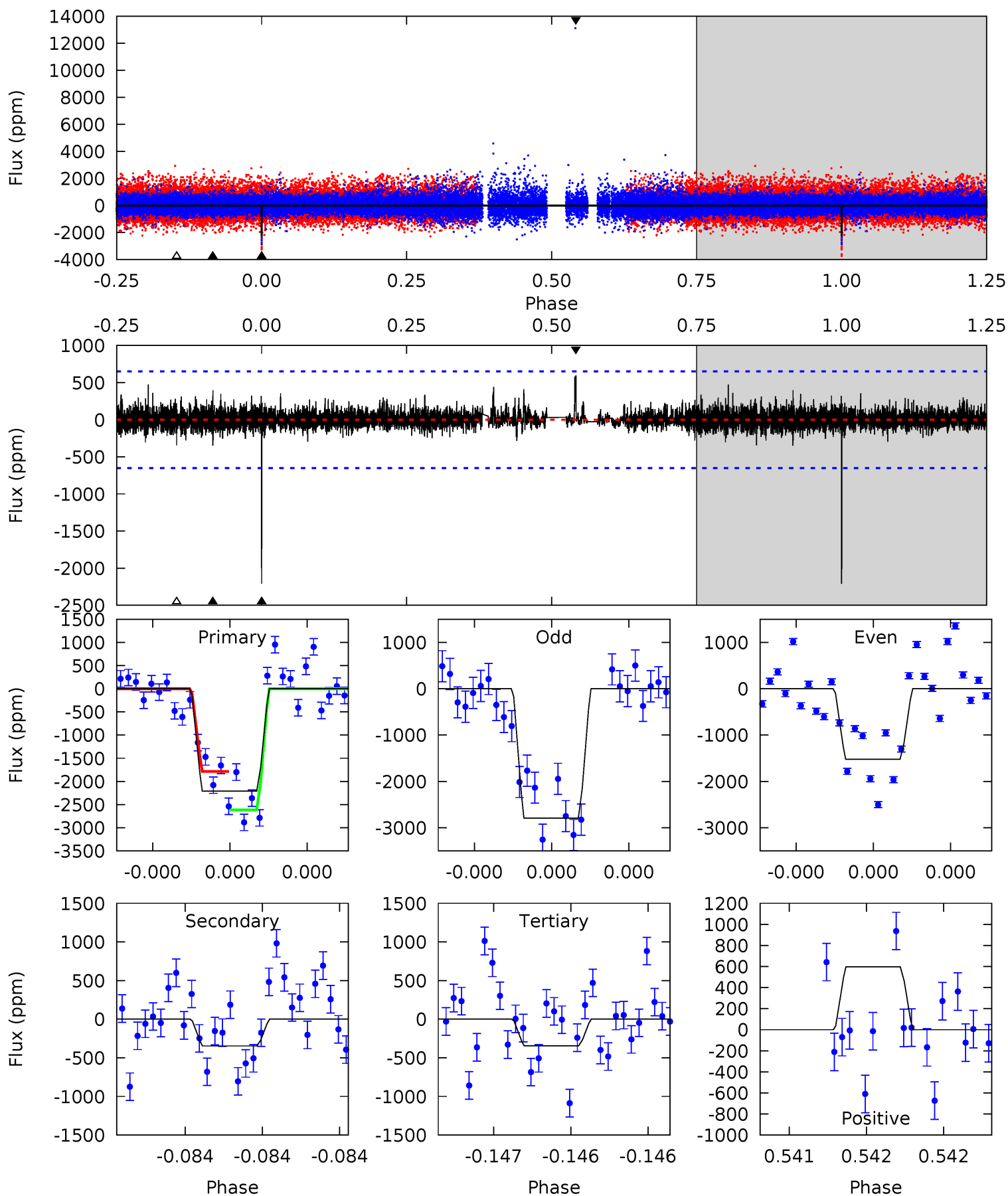
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.20	6.19	5.13	34.0	5.59	3.51	1.83	3.07	-25.8	1.05	-27.8	0.88	1.05	0.81	0.08



Alt Model-Shift Uniqueness Test

006102338-02, P = 409.255376 Days, E = 240.897195 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	2.98	2.98	5.14	5.62	3.55	0.69	16.1	13.9	0.00	-2.16	5.53	0.89	0.21	3.60



Stellar Parameters For KIC 006102338

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3319^{+84}_{-59}	$5.037^{+0.070}_{-0.070}$	$-0.100^{+0.100}_{-0.100}$	$0.232^{+0.055}_{-0.045}$	$0.214^{+0.072}_{-0.048}$	$24.060^{+11.430}_{-7.728}$
	+3%/-2%	+1%/-1%	+100%/-100%	+24%/-19%	+34%/-22%	+48%/-32%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 006102338-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1095 ± 177	$1.16^{+0.90}_{-0.72}$	123^{+5}_{-4}	3025^{+1102}_{-413}	$185128^{+1032173}_{-125560}$
Alt.	-346 ± 116	$1.37^{+0.88}_{-0.79}$	123^{+5}_{-5}	2474^{+615}_{-280}	$40051^{+171907}_{-26024}$

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

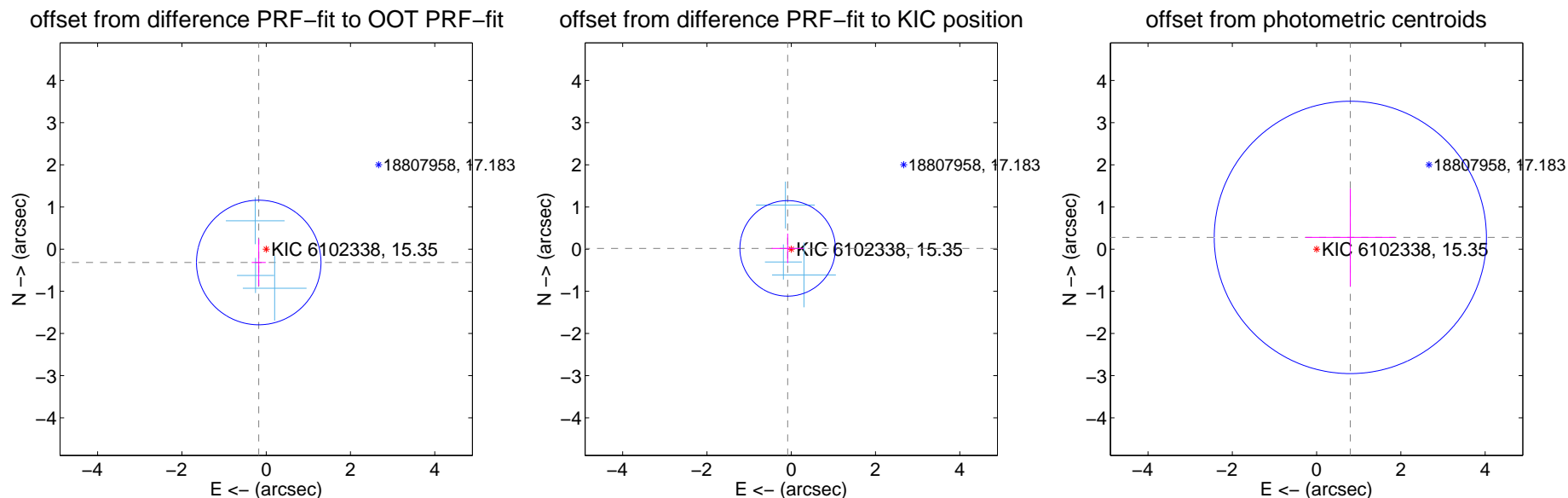
DV Centroid Data

Supplemental centroid analysis for 006102338-02. Kepler magnitude: 15.35. Transit SNR 6.62

There are 3 quarters with good PRF difference image offsets

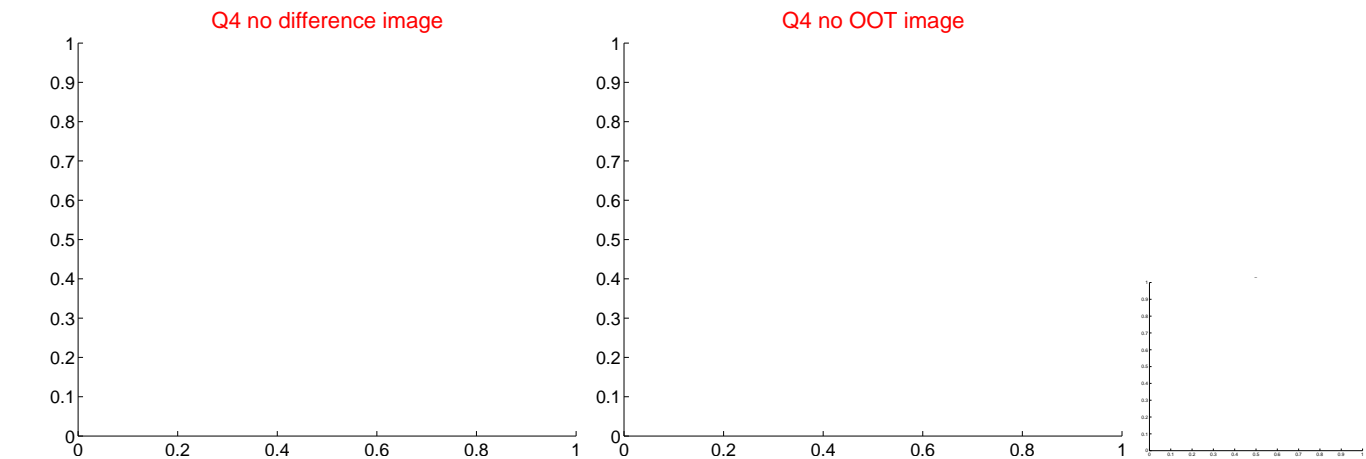
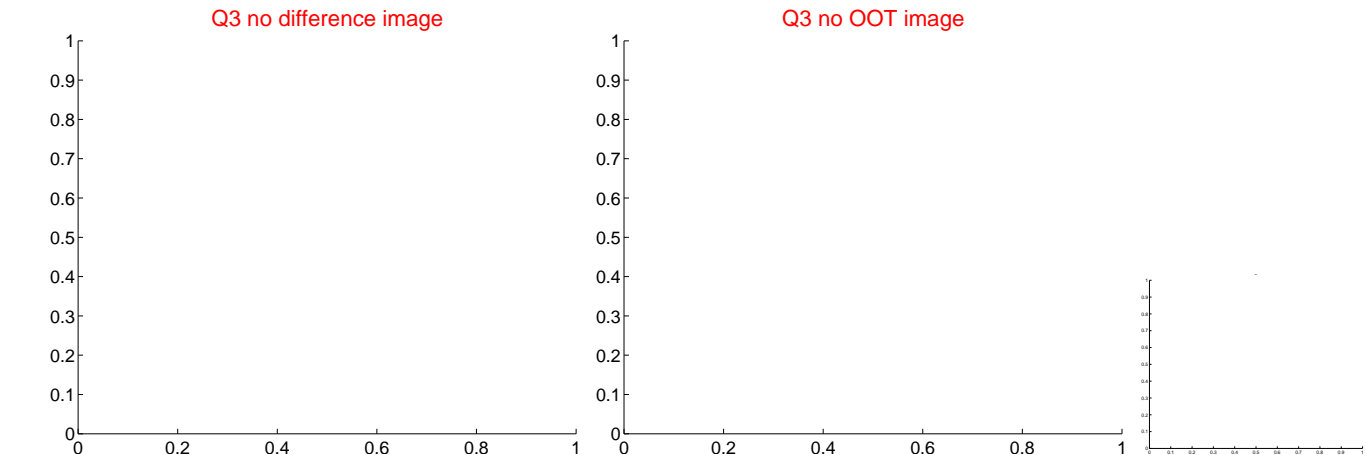
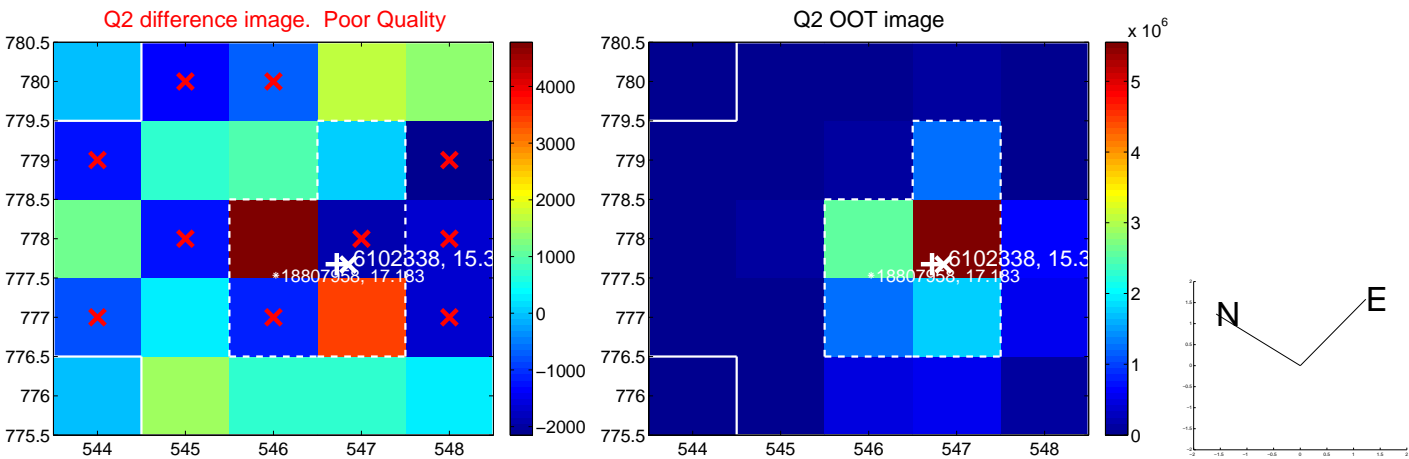
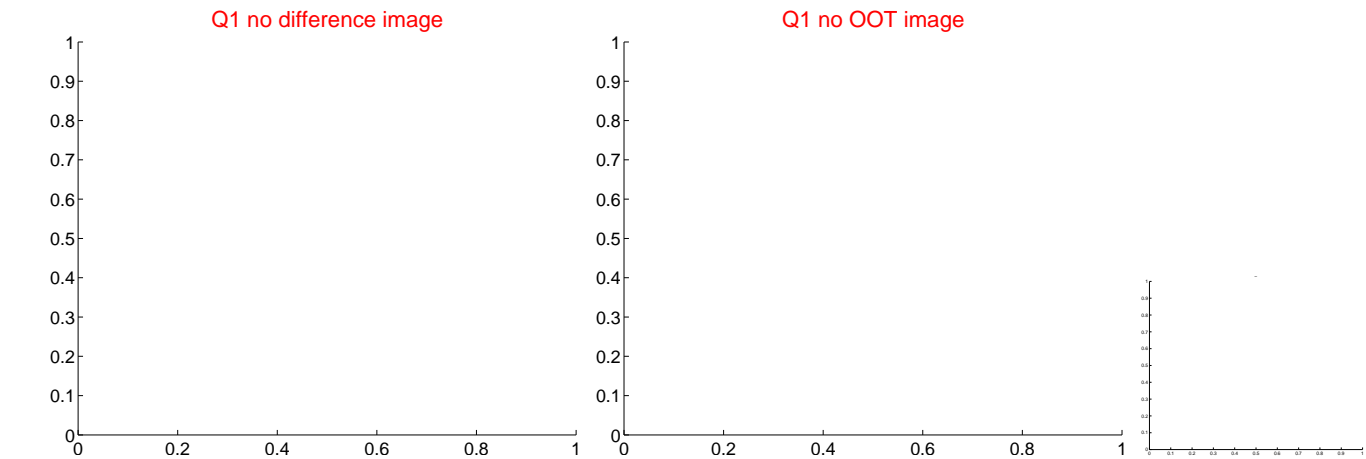
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.363 ± 0.492	0.74	0.177 ± 0.166	-0.316 ± 0.557
PRF-fit source offset from KIC position	0.087 ± 0.378	0.23	0.085 ± 0.379	0.019 ± 0.351
photometric centroid source offset	0.85 ± 1.08	0.79	-0.80 ± 1.07	0.28 ± 1.16

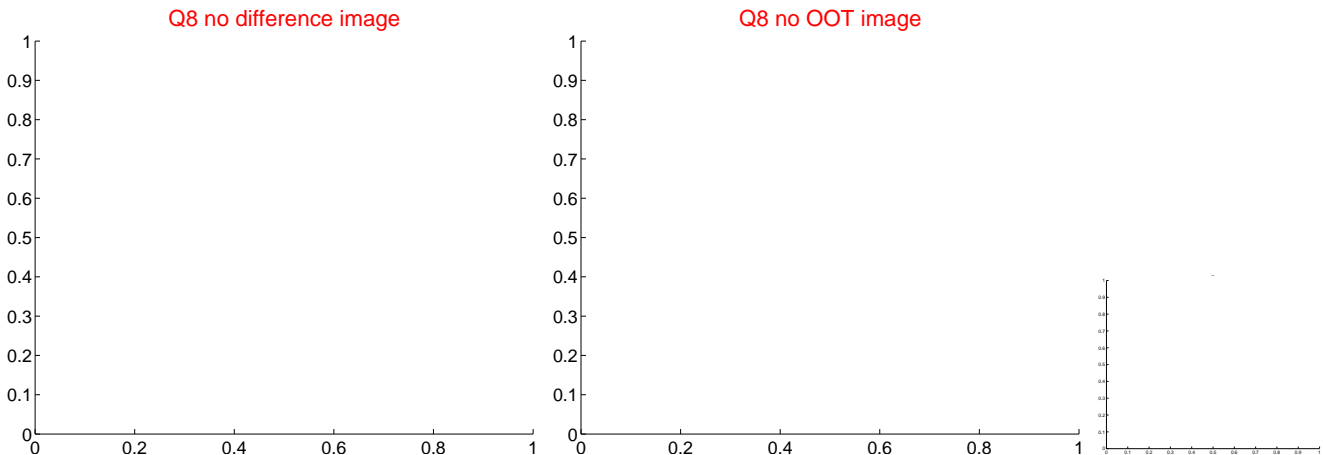
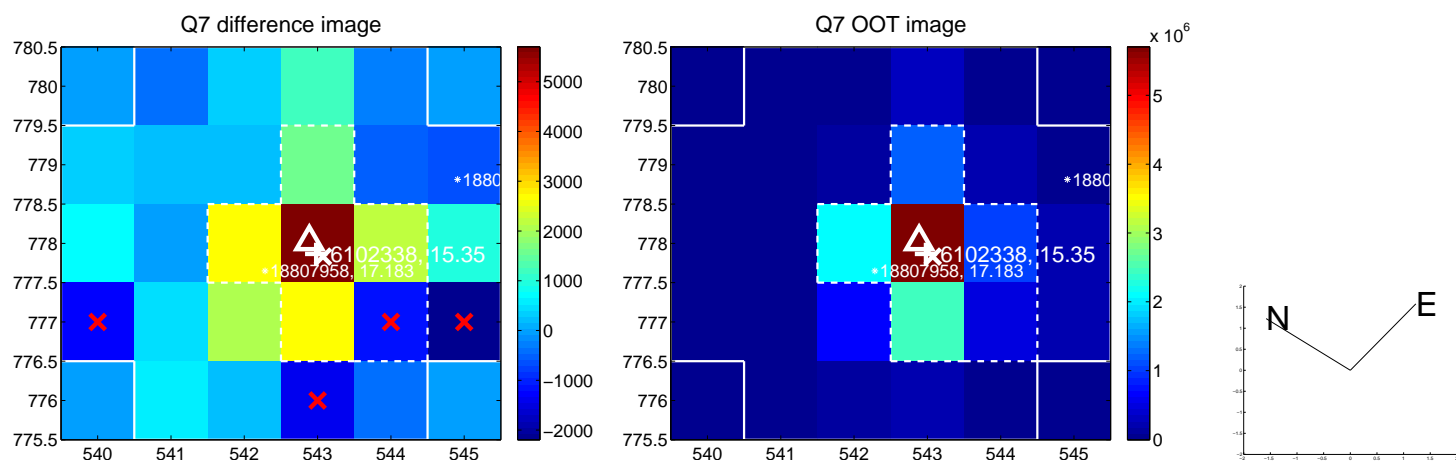
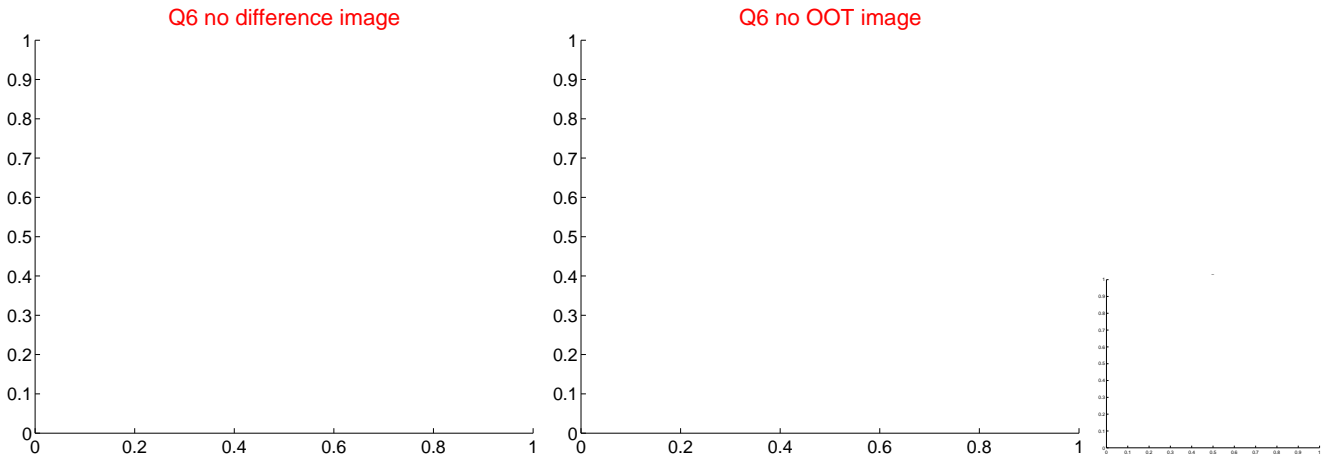
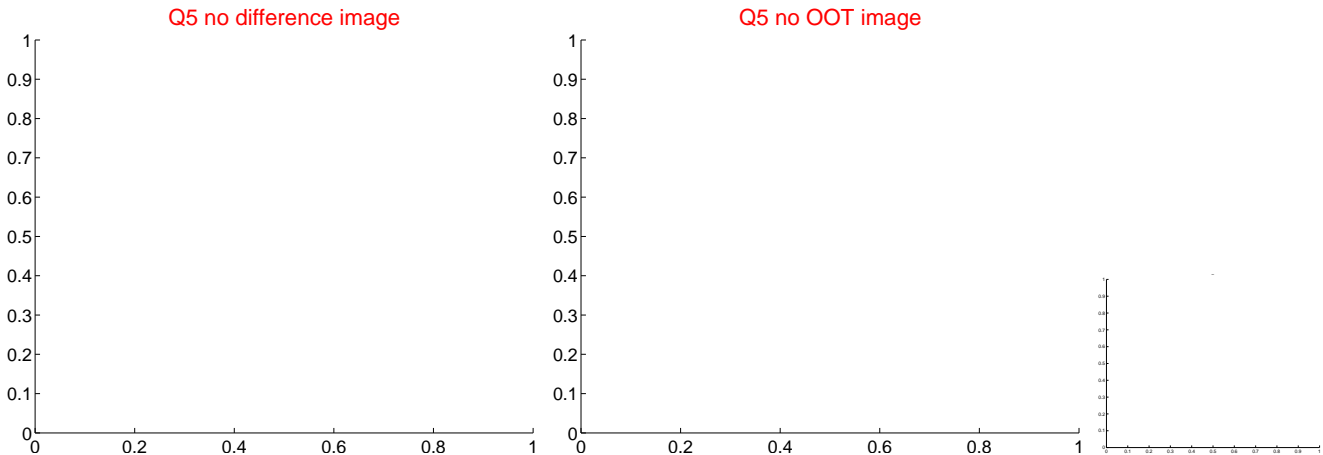


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

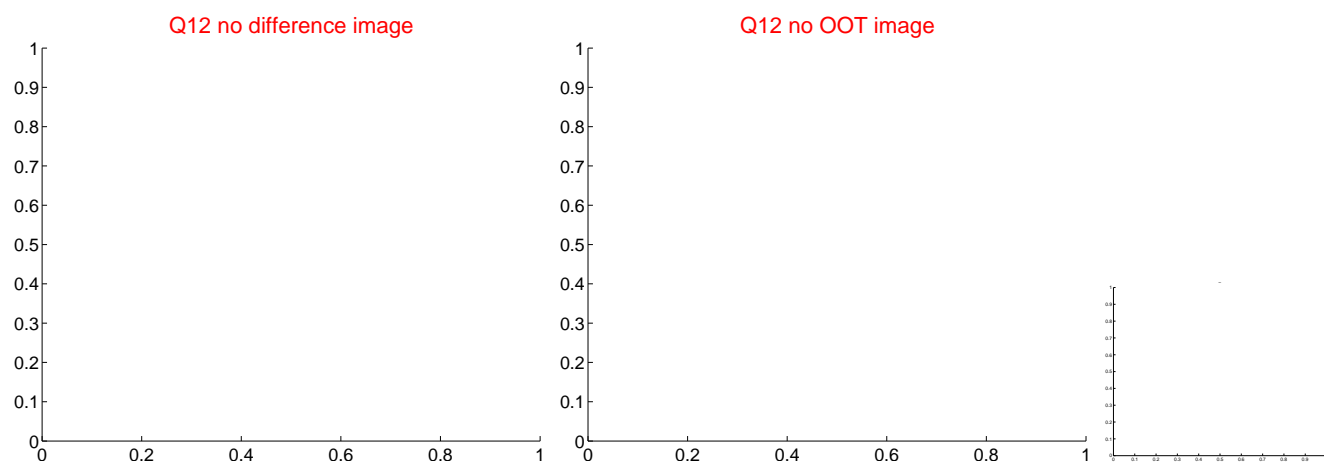
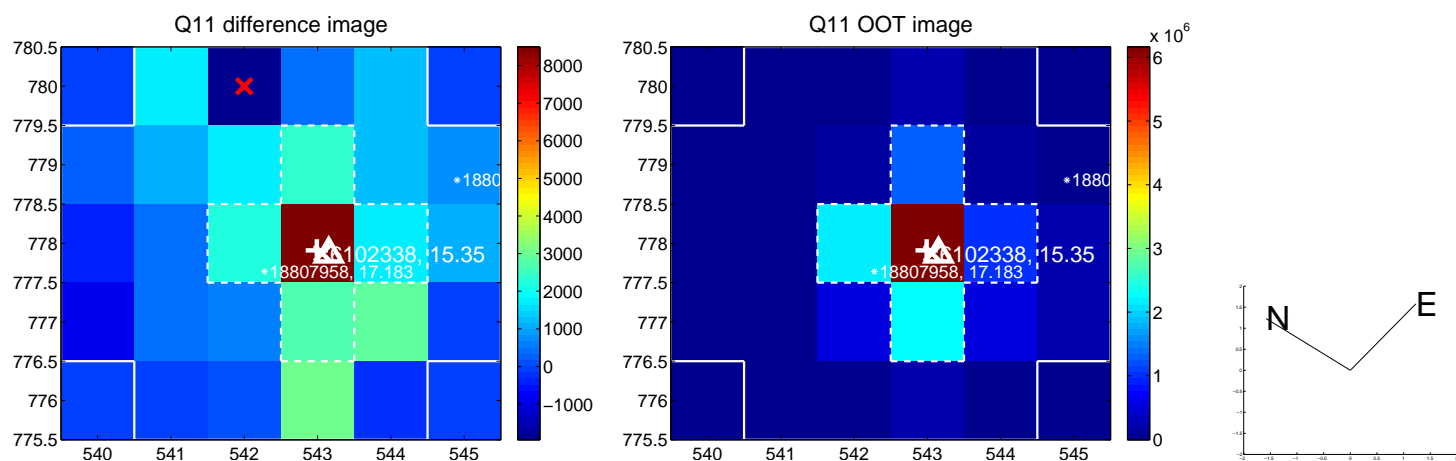
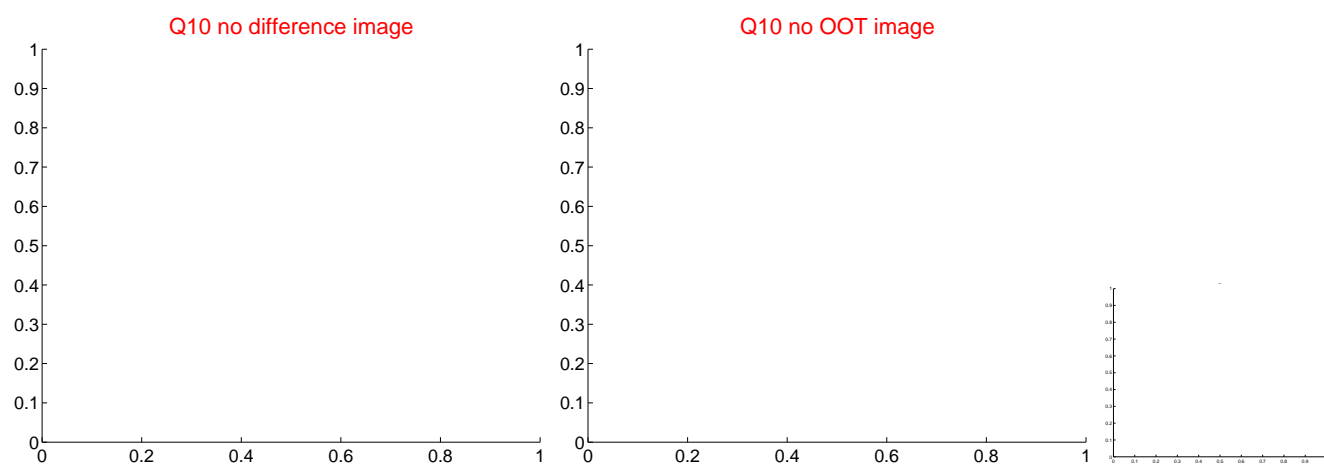
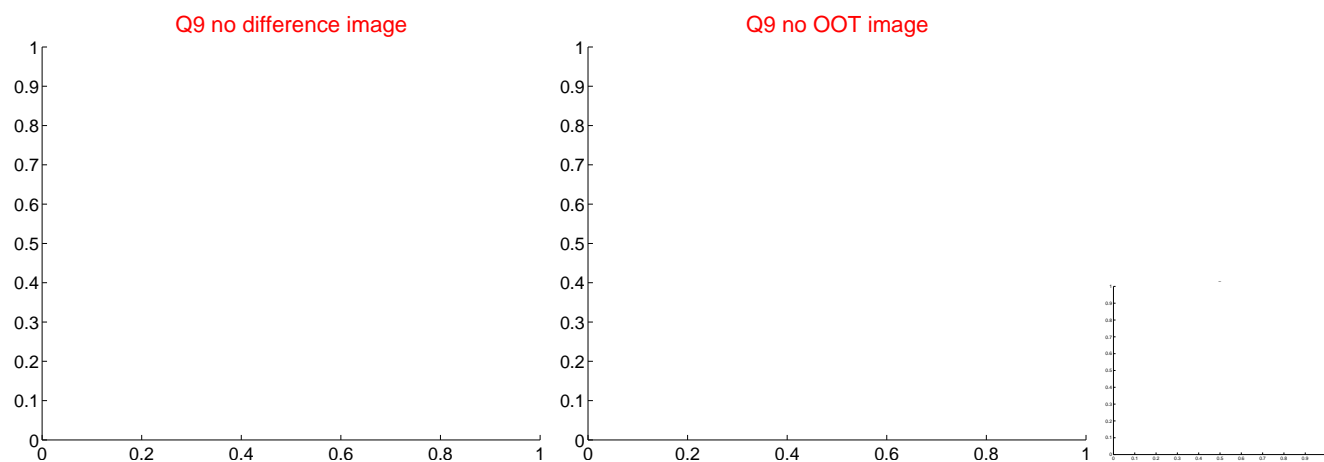
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q13 no difference image



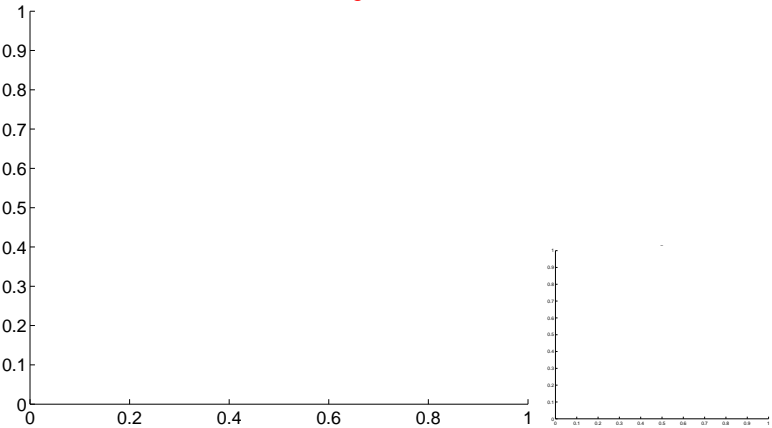
Q13 no OOT image



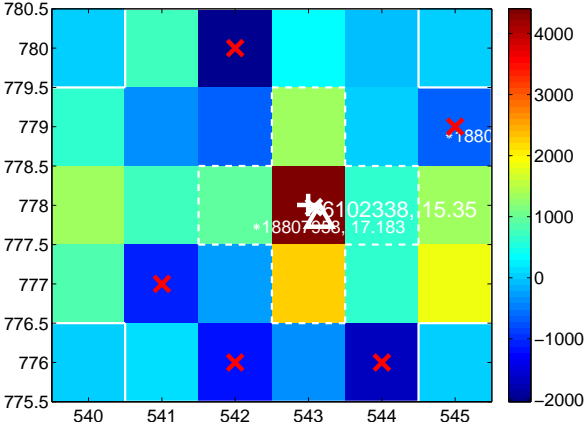
Q14 no difference image



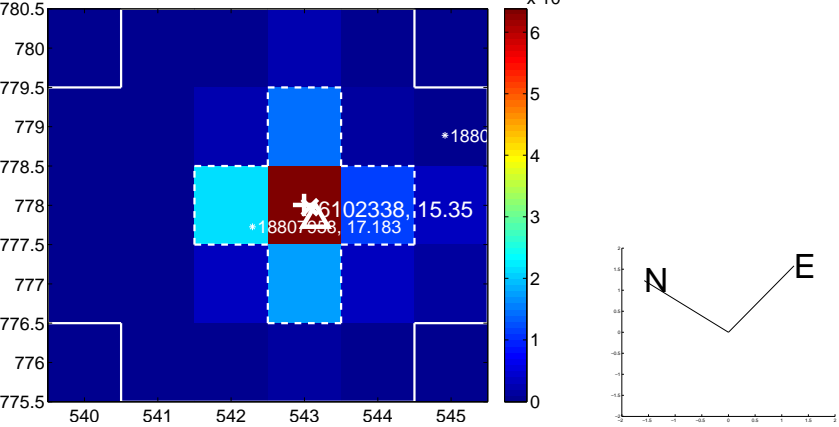
Q14 no OOT image



Q15 difference image



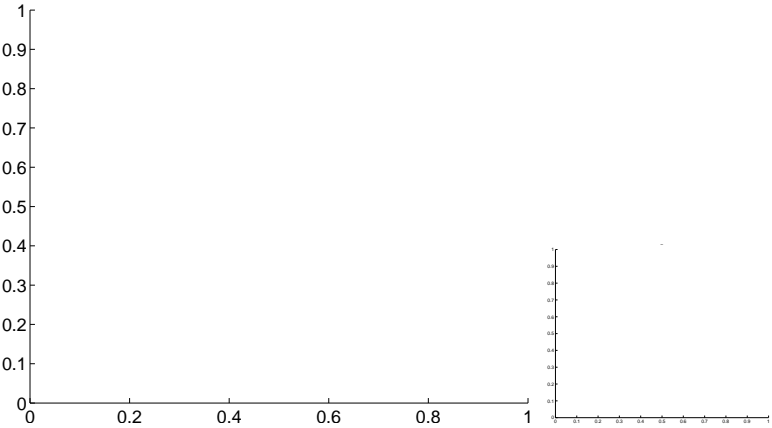
Q15 OOT image



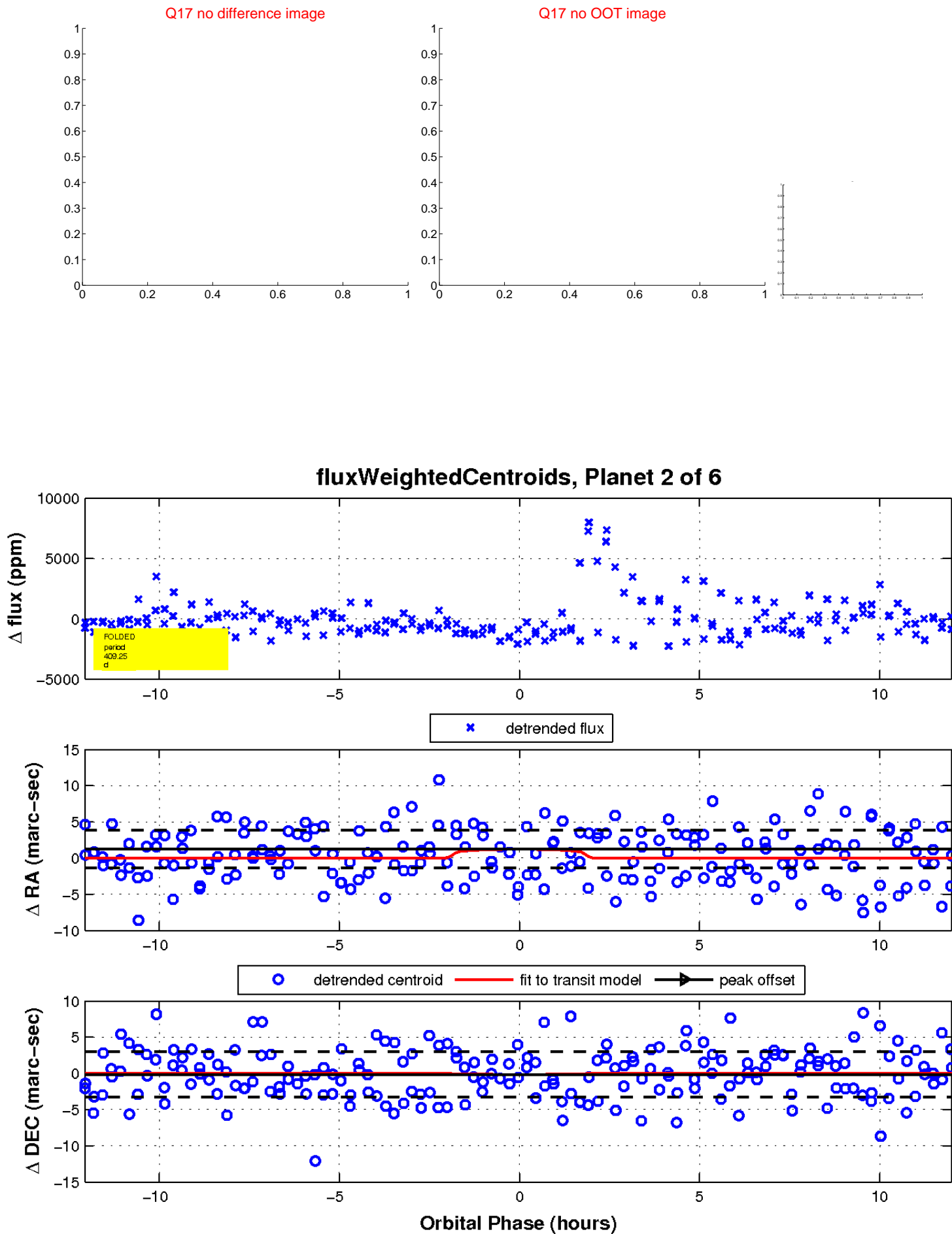
Q16 no difference image



Q16 no OOT image

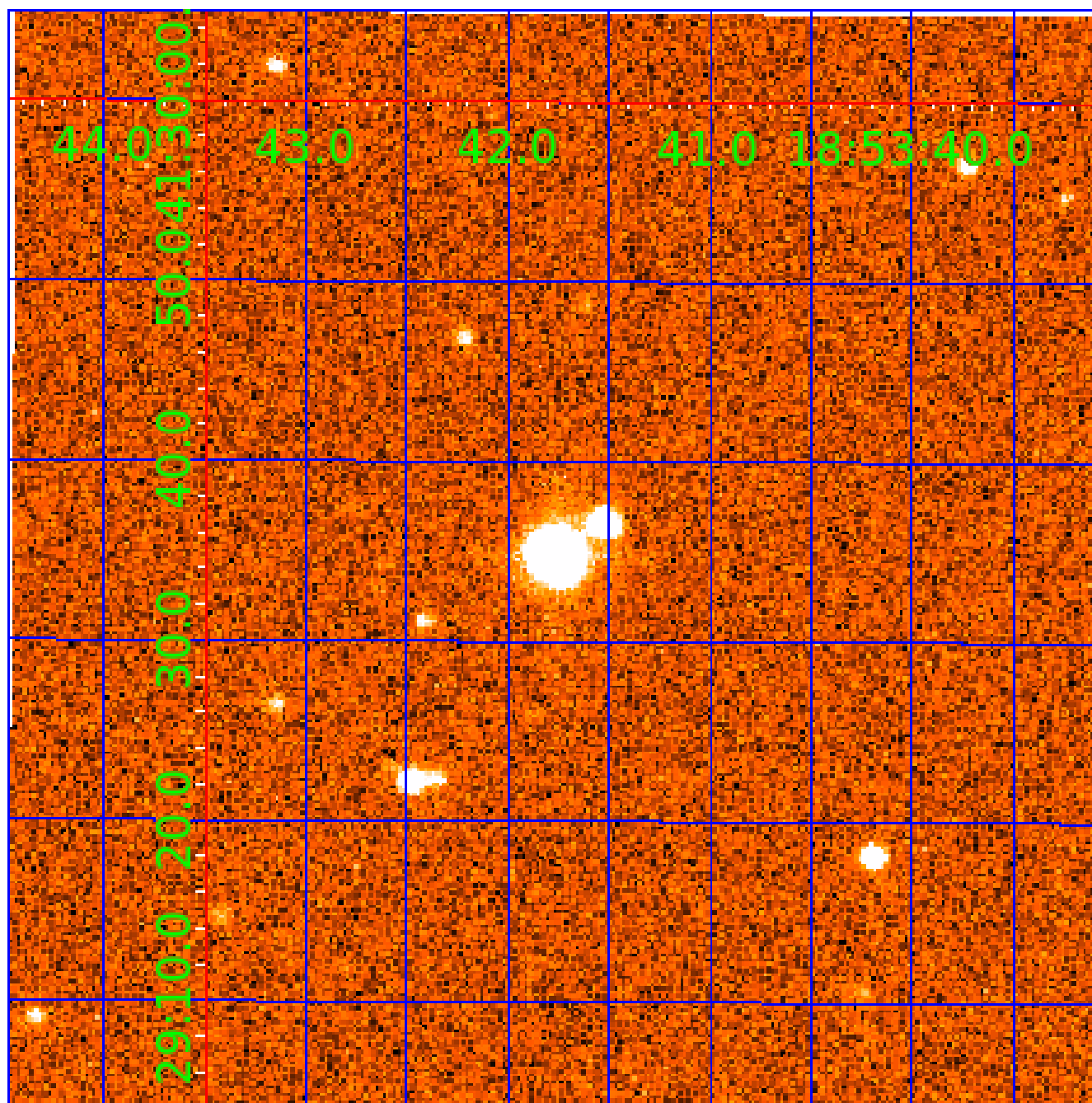


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006102338

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})
006102338-01	OBS	No	419.925961	212.703475	2484.9	8.395	12.5	7.3	0.23	3319	1.21	0.01
006102338-02	OBS	No	409.253228	240.905944	1788.9	4.025	11.2	6.6	0.23	3319	1.04	0.01
006102338-03	OBS	No	324.882613	278.009165	2003.0	3.505	9.8	5.9	0.23	3319	1.04	0.02
006102338-04	OBS	No	562.982448	225.085748	2185.0	2.406	11.4	6.8	0.23	3319	1.07	0.01
006102338-05	OBS	No	389.919958	263.610505	2083.6	12.214	8.5	6.9	0.23	3319	1.08	0.01
006102338-06	OBS	No	447.701235	196.821343	2534.4	4.655	10.3	9.3	0.23	3319	1.17	0.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006102338-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
006102338-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-03	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—CENT_FEW_DIFFS
006102338-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006102338-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

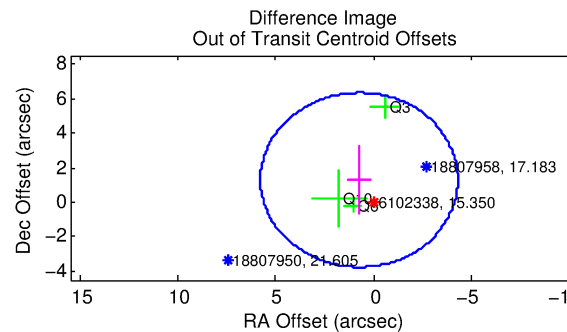
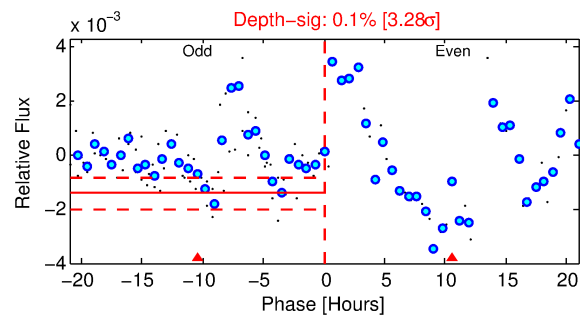
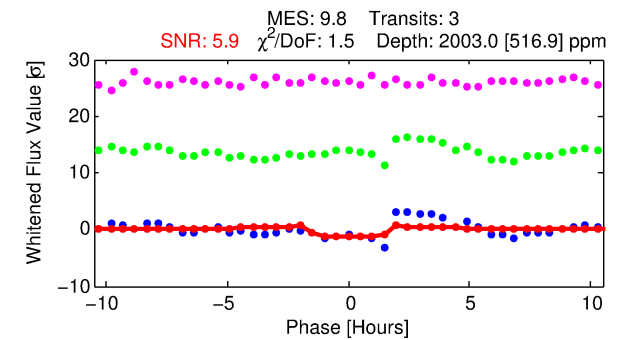
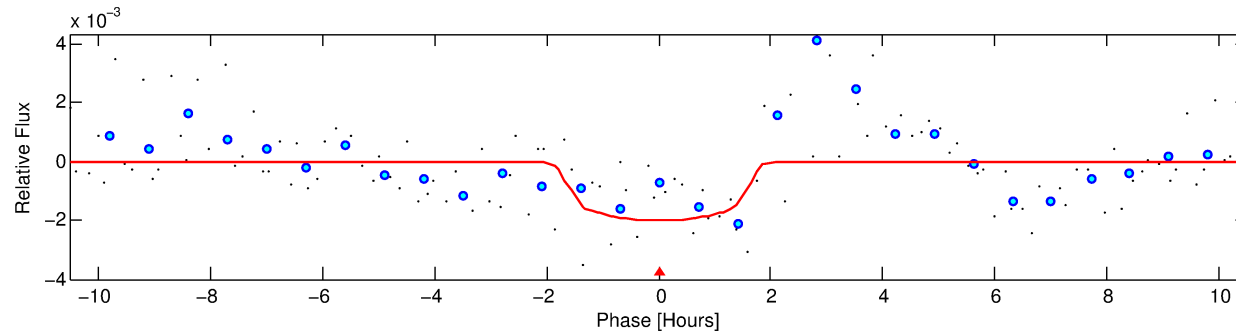
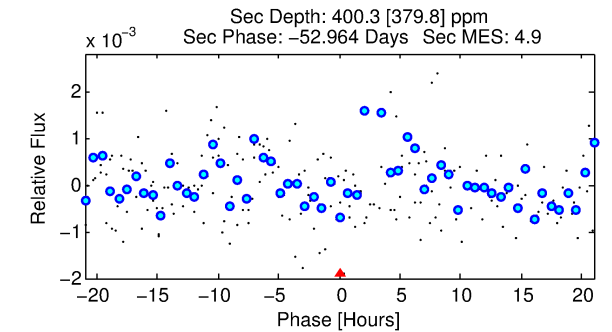
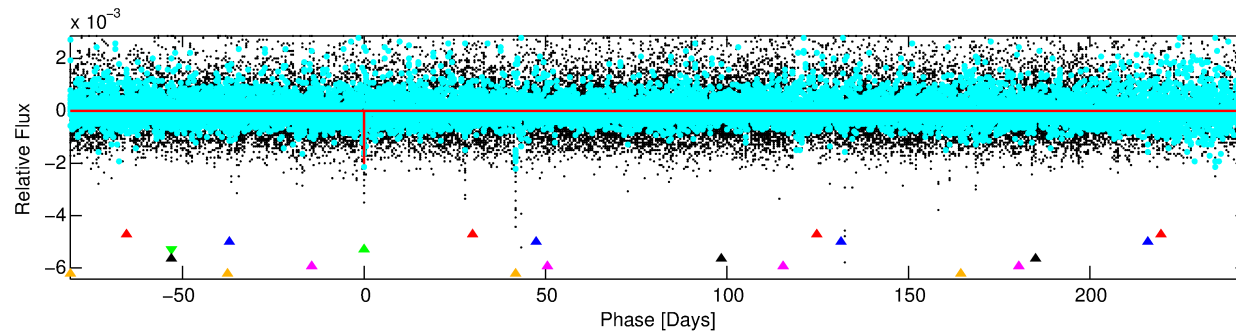
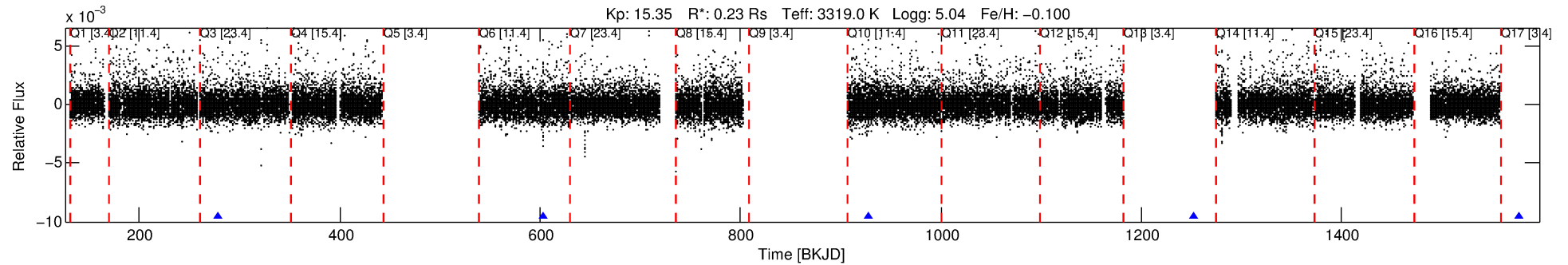
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006102338-03

No Significant Match Found

DV One-Page Summary

KIC: 6102338 Candidate: 3 of 6 Period: 324.883 d



DV Fit Results:

Period = 324.88261 [0.00771] d
Epoch = 278.0092 [0.0110] BKJD
Rp/R* = 0.0412 [0.0830]
a/R* = 688.72 [6096.73]
b = 0.37 [20.60]
Seff = 0.02 [0.00]
Teq = 95 [5] K
Rp = 1.04 [2.12] Re
a = 0.5531 [0.0923] AU
Ag = 61798.69 [255880.79] [0.24 σ]
Teffp = 2312 [2391] K [0.93 σ]

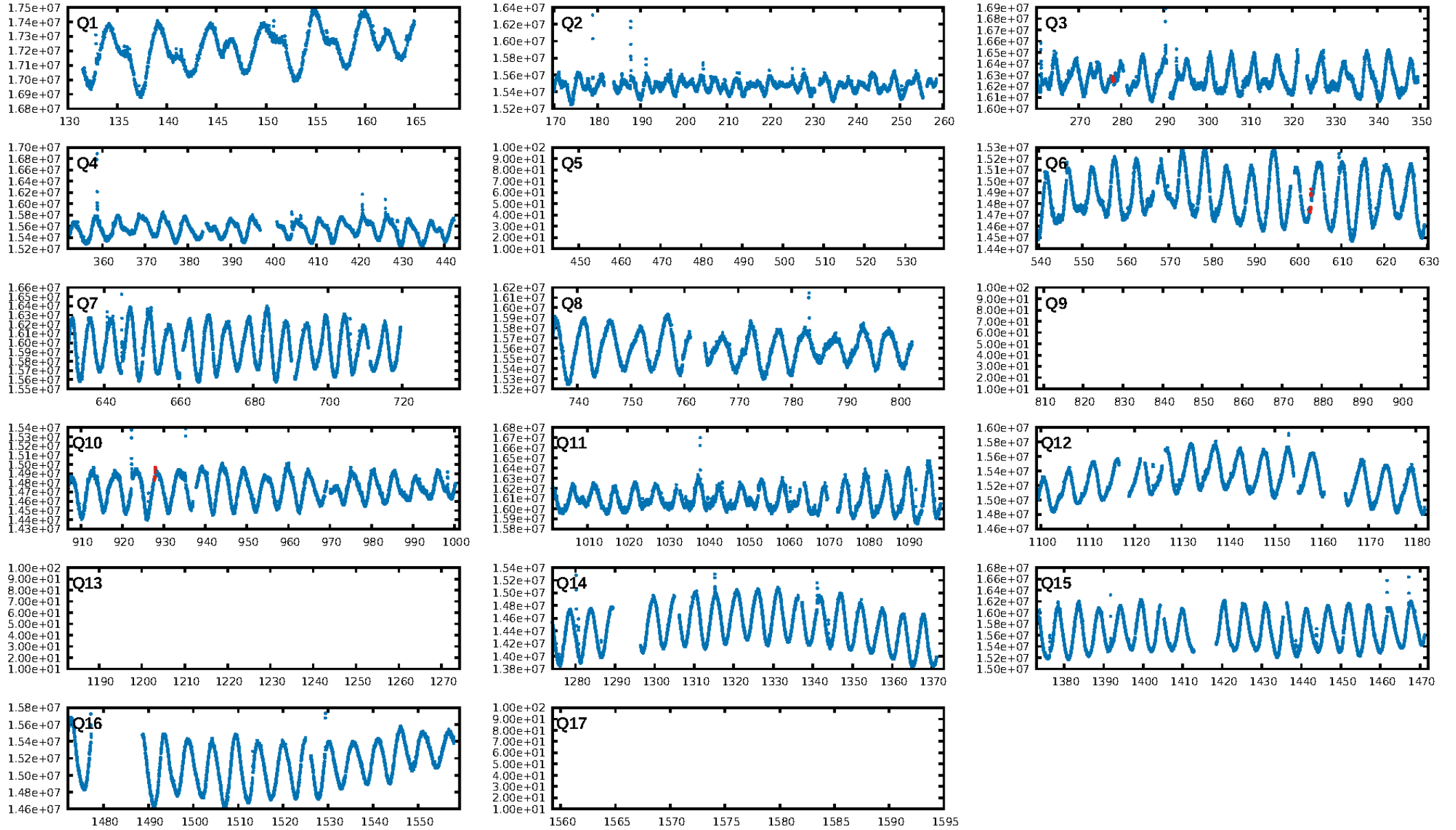
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [122.84 σ]
ModelChiSquare2-sig: 10.8%
ModelChiSquareGof-sig: 74.3%
Bootstrap-pfa: 5.45e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.598
Centroid-sig: 94.8%
Centroid-so: 0.468 arcsec [0.40 σ]
OotOffset-rm: 1.486 arcsec [0.88 σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-rm: 1.720 arcsec [0.94 σ]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

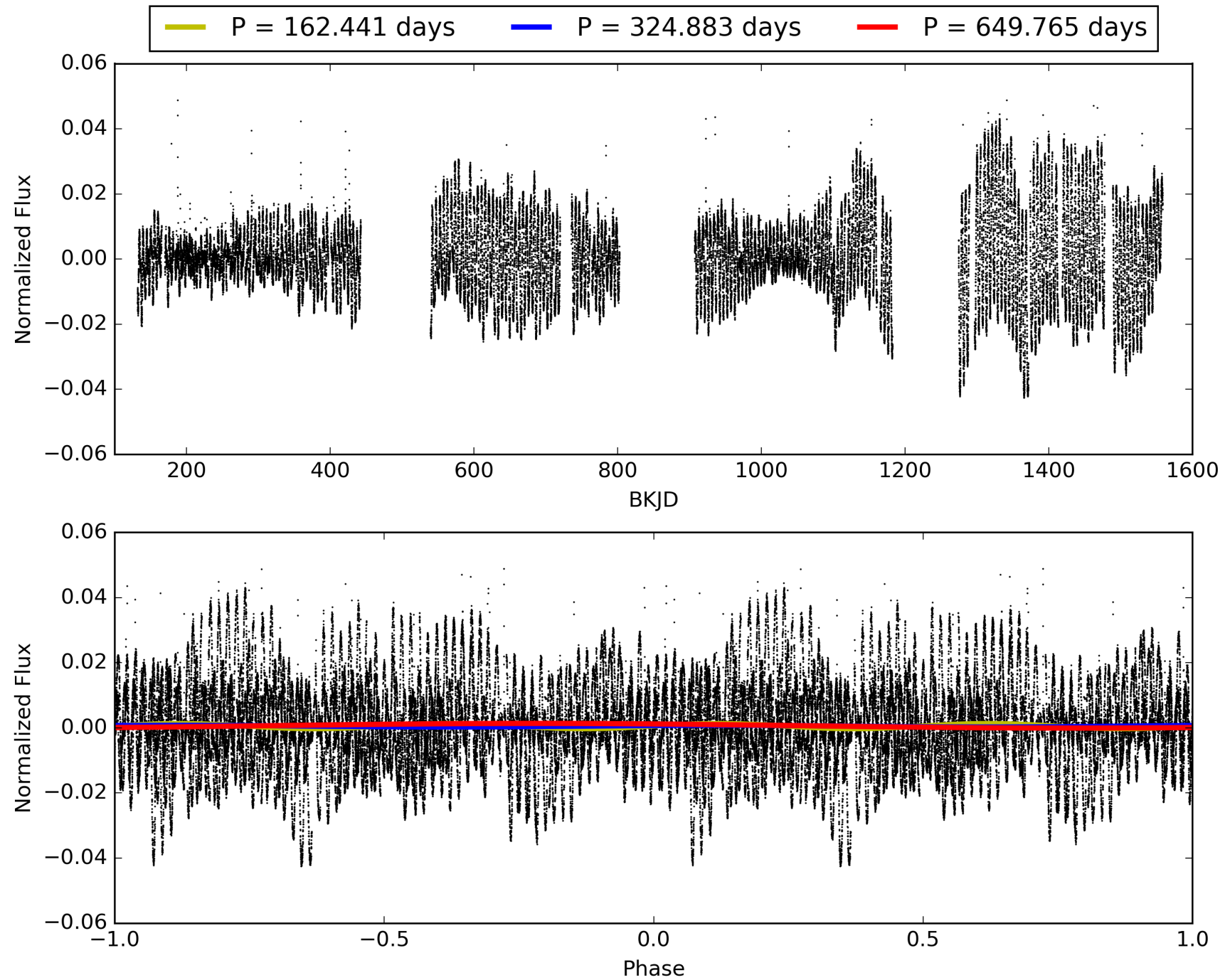
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:00:37 Z

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

TCE 006102338-03, PDC Light Curves

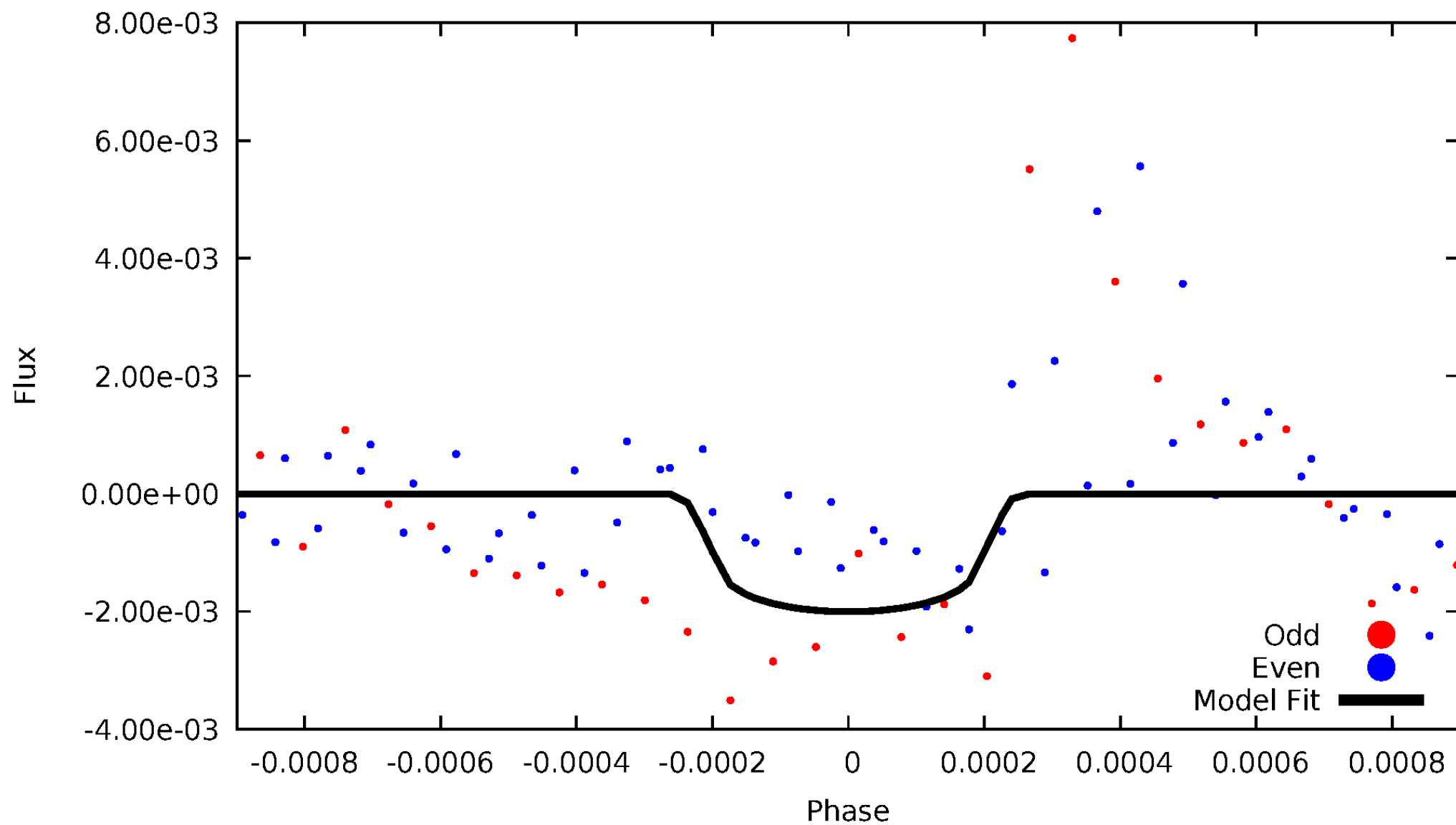


TCE 006102338-03



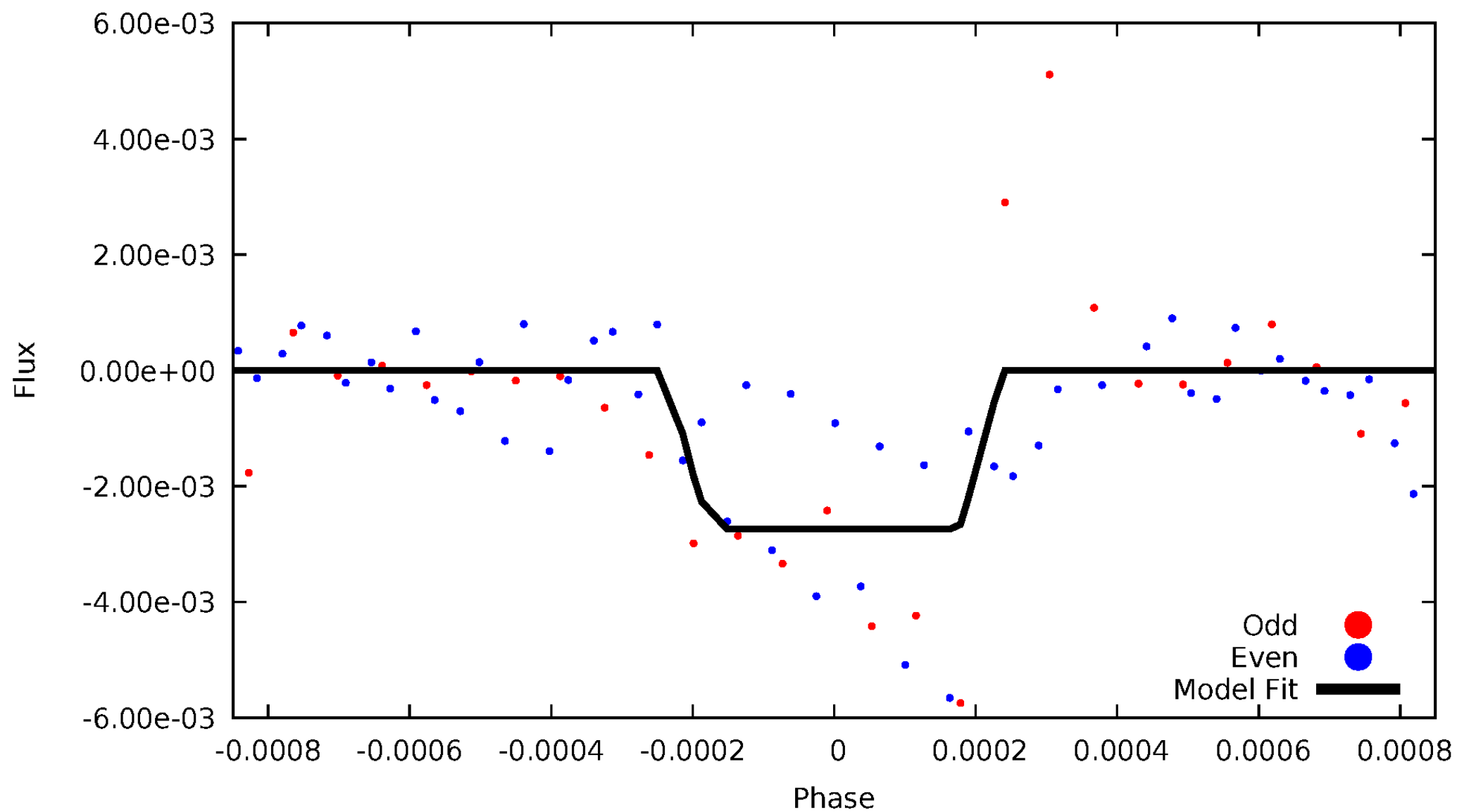
DV Odd/Even

TCE 006102338-03

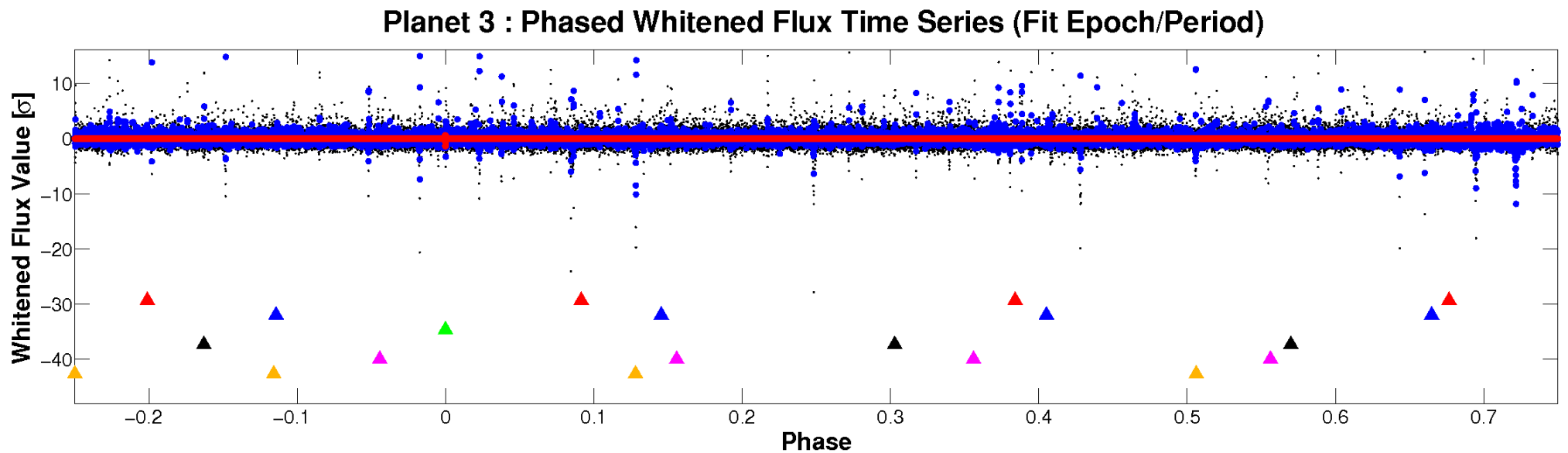
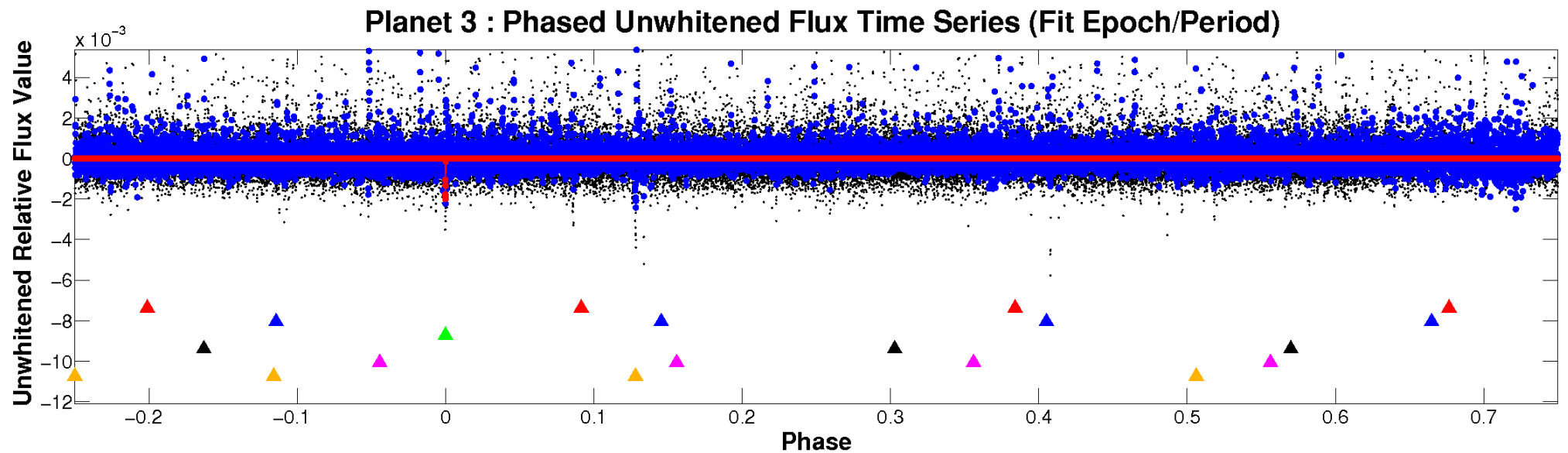


ALT Odd/Even

TCE 006102338-03

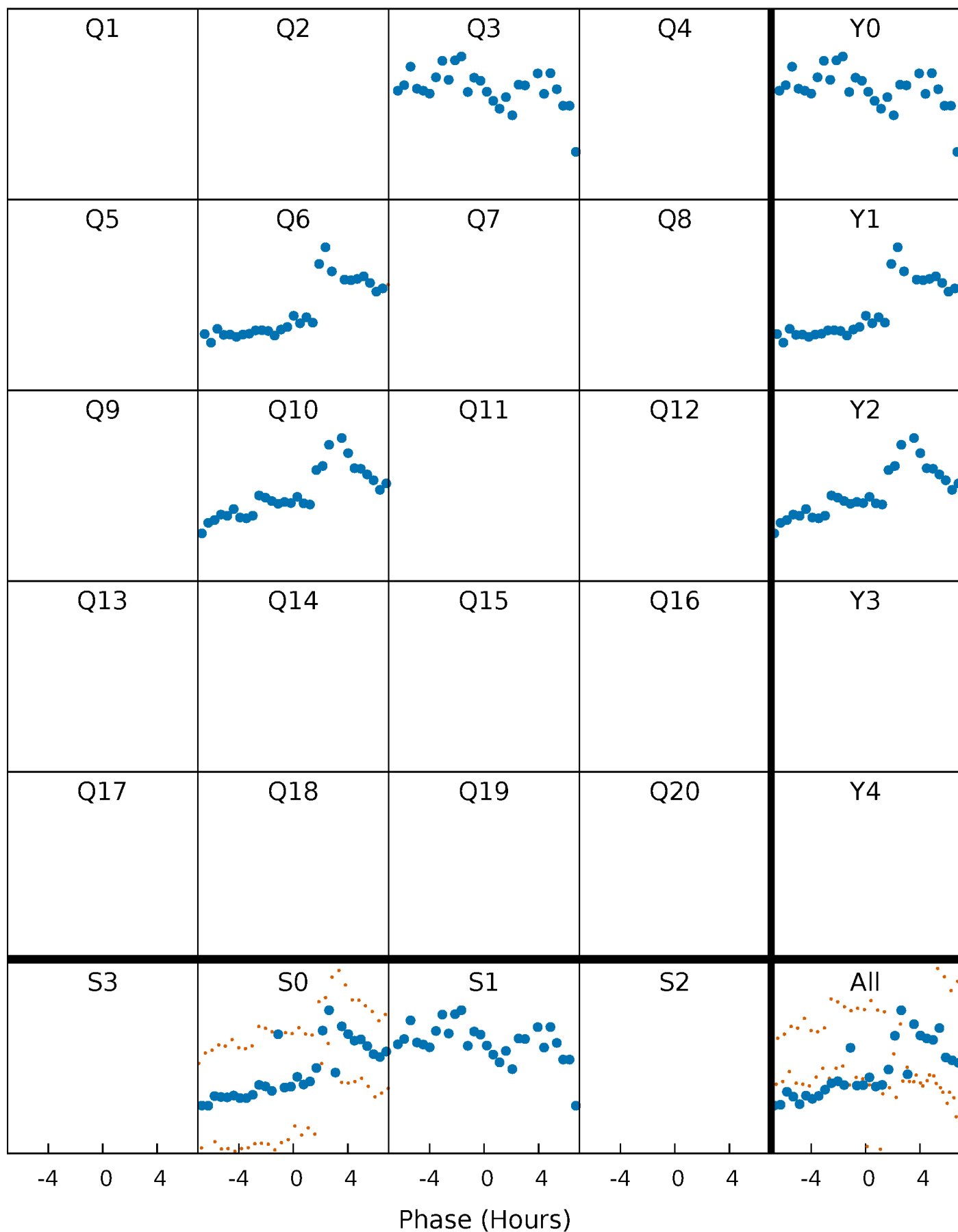


Non-Whitened Vs. Whitened Light Curve



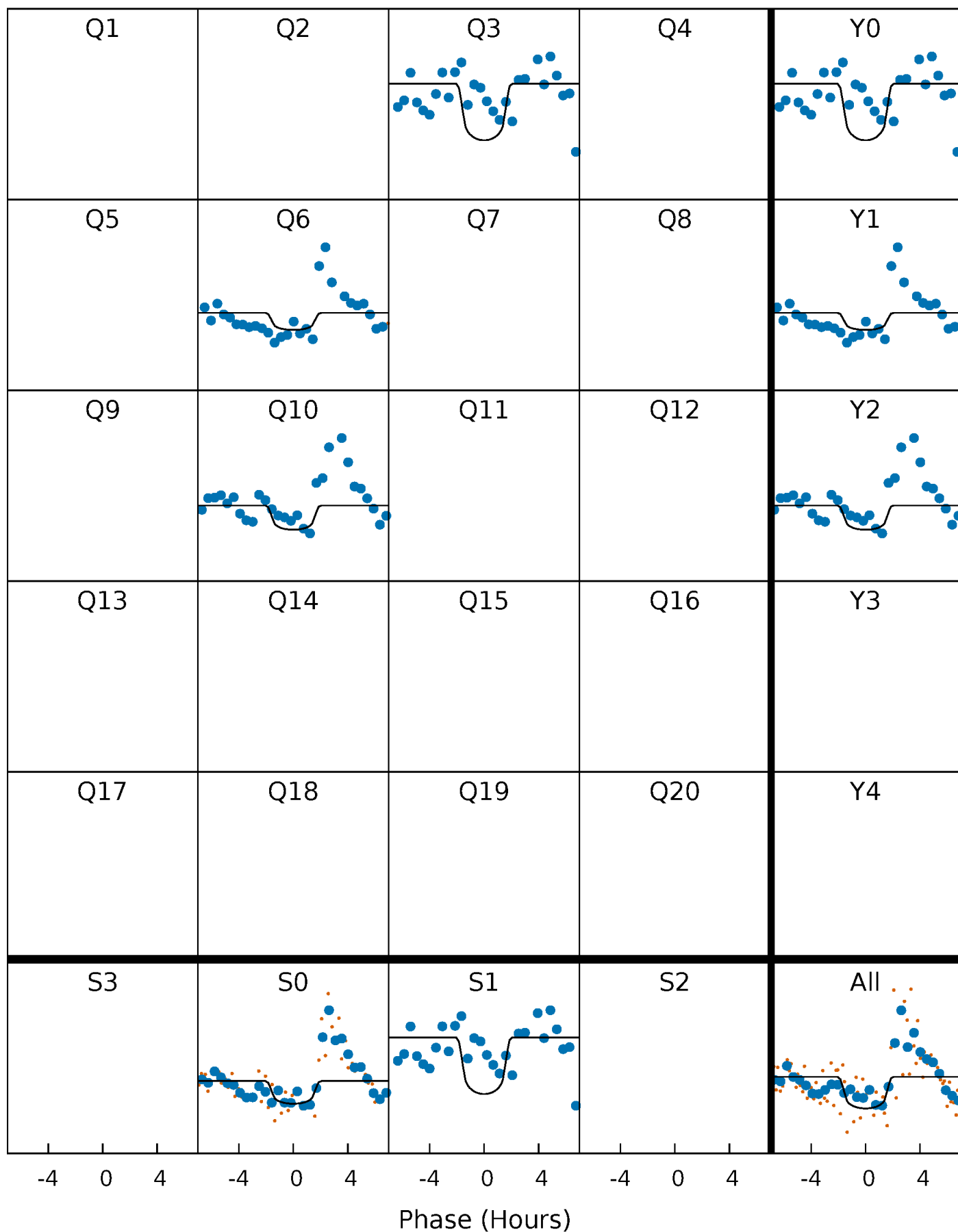
PDC Quarter-Phased Transit Curves

TCE 006102338-03 P=324.882613 Days $T_0=278.009165$ (BKJD)



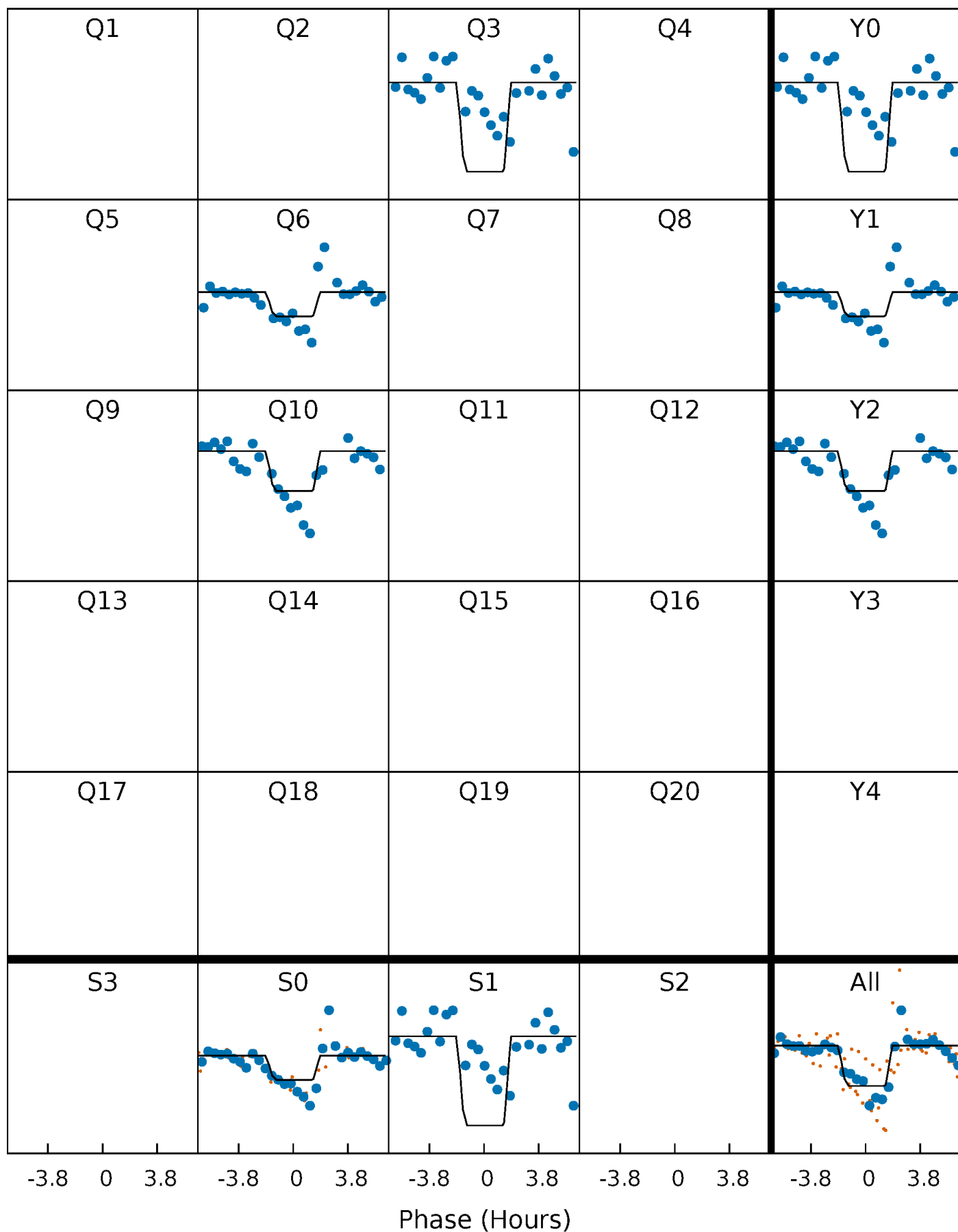
DV Quarter-Phased Transit Curves

TCE 006102338-03 P=324.882613 Days $T_0=278.009165$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

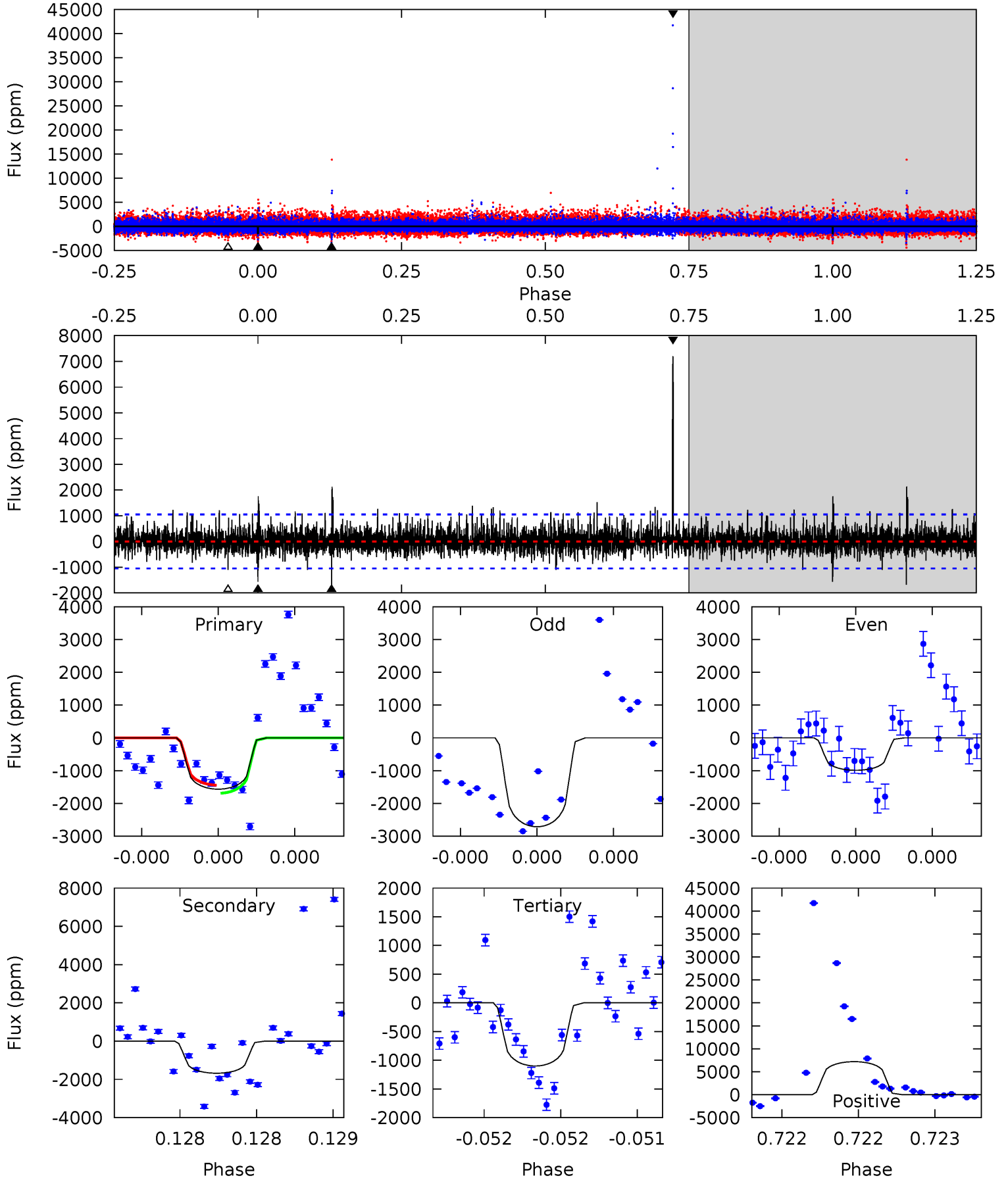
TCE 006102338-03 P=324.879071 Days $T_0=278.020878$ (BKJD)



DV Model-Shift Uniqueness Test

006102338-03, P = 324.882613 Days, E = 278.009165 Days

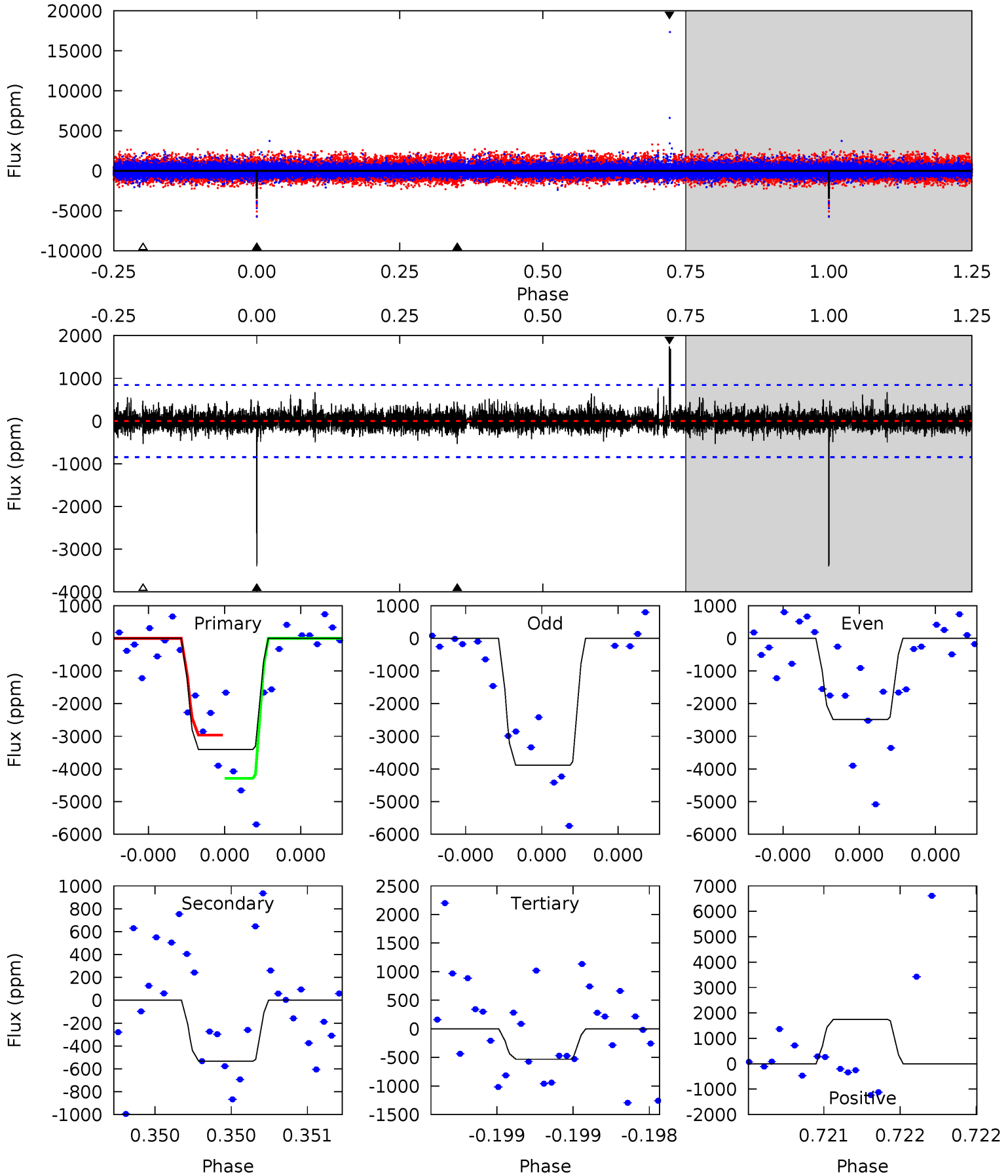
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.34	8.94	5.86	38.3	5.58	3.49	1.78	2.48	-30.0	3.08	-29.4	3.78	1.15	0.81	0.65



Alt Model-Shift Uniqueness Test

006102338-03, P = 324.879071 Days, E = 278.020878 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	3.53	3.53	11.6	5.60	3.51	0.86	19.0	11.0	0.00	-8.04	5.12	0.76	0.34	4.27



Stellar Parameters For KIC 006102338

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3319^{+84}_{-59}	$5.037^{+0.070}_{-0.070}$	$-0.100^{+0.100}_{-0.100}$	$0.232^{+0.055}_{-0.045}$	$0.214^{+0.072}_{-0.048}$	$24.060^{+11.430}_{-7.728}$
	+3%/-2%	+1%/-1%	+100%/-100%	+24%/-19%	+34%/-22%	+48%/-32%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 006102338-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1677 ± 188	$2.03^{+1.66}_{-1.38}$	133^{+6}_{-5}	2759^{+1096}_{-378}	$68791^{+607457}_{-48076}$
Alt.	-532 ± 151	$2.11^{+1.89}_{-1.40}$	133^{+6}_{-5}	2353^{+806}_{-301}	$19390^{+175104}_{-14036}$

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

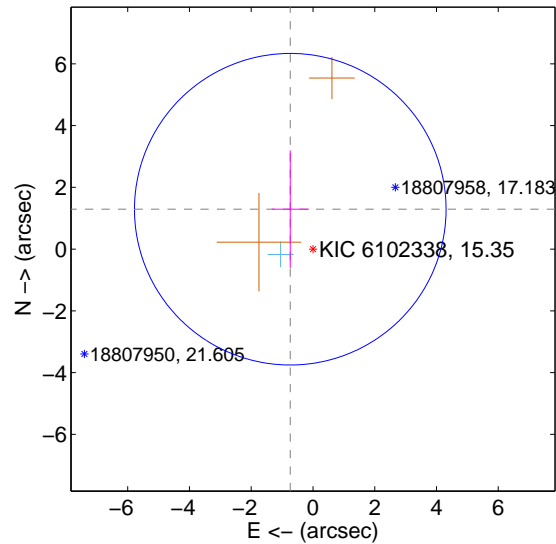
Supplemental centroid analysis for 006102338-03. Kepler magnitude: 15.35. Transit SNR 5.89

There are 1 quarters with good PRF difference image offsets

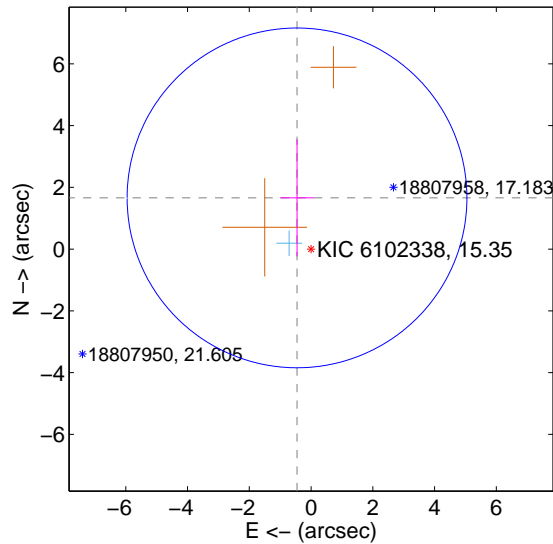
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.486 ± 1.682	0.88	0.735 ± 0.602	1.291 ± 1.904
PRF-fit source offset from KIC position	1.720 ± 1.834	0.94	0.455 ± 0.549	1.658 ± 1.895
photometric centroid source offset	0.47 ± 1.18	0.40	-0.33 ± 1.13	0.33 ± 1.22

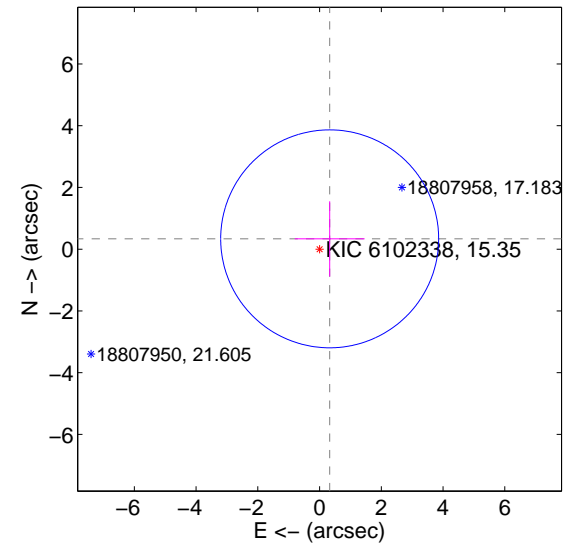
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

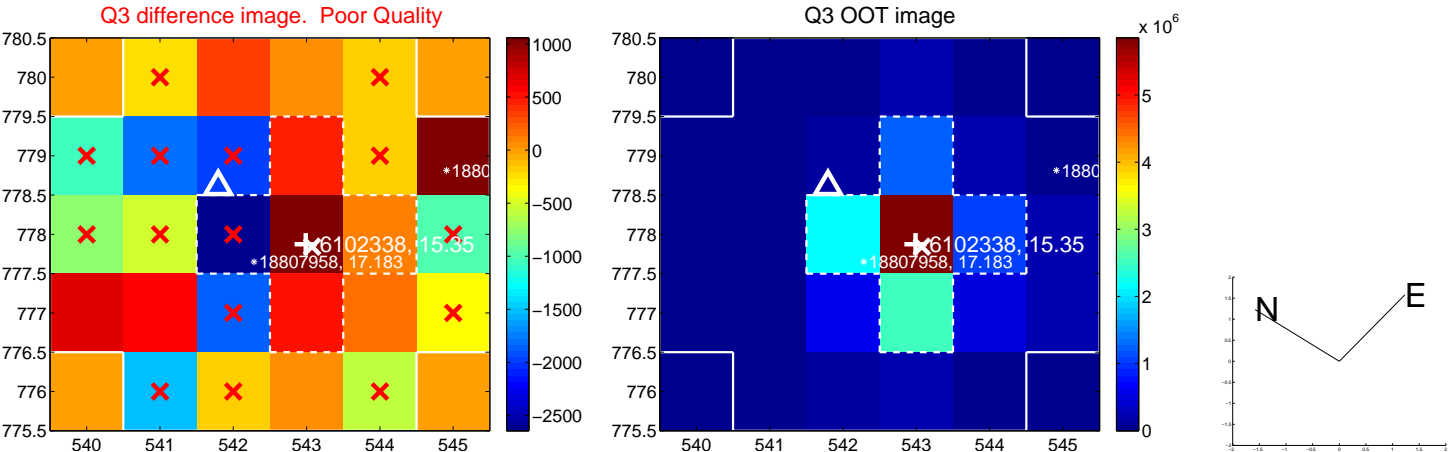


offset from photometric centroids

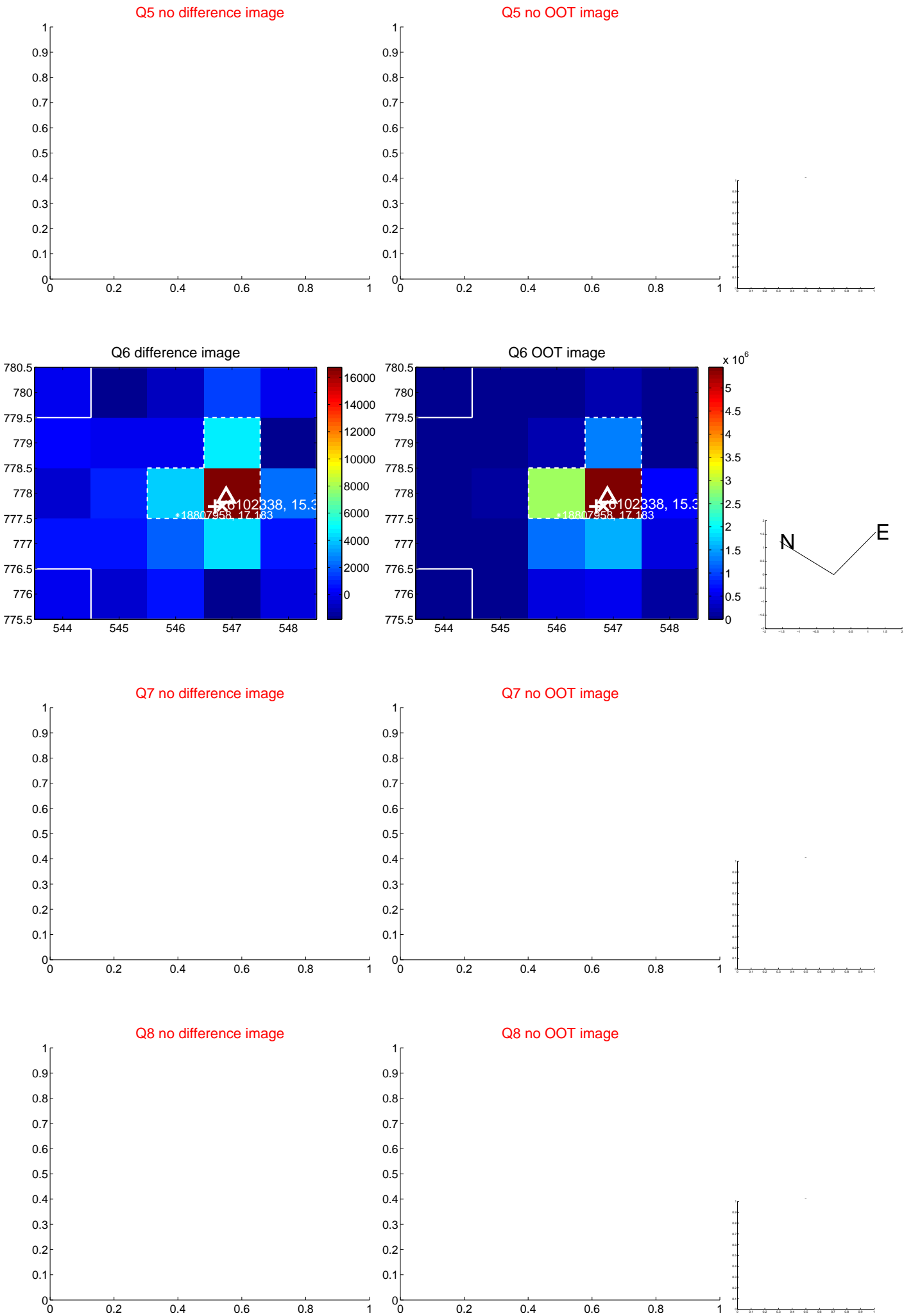


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

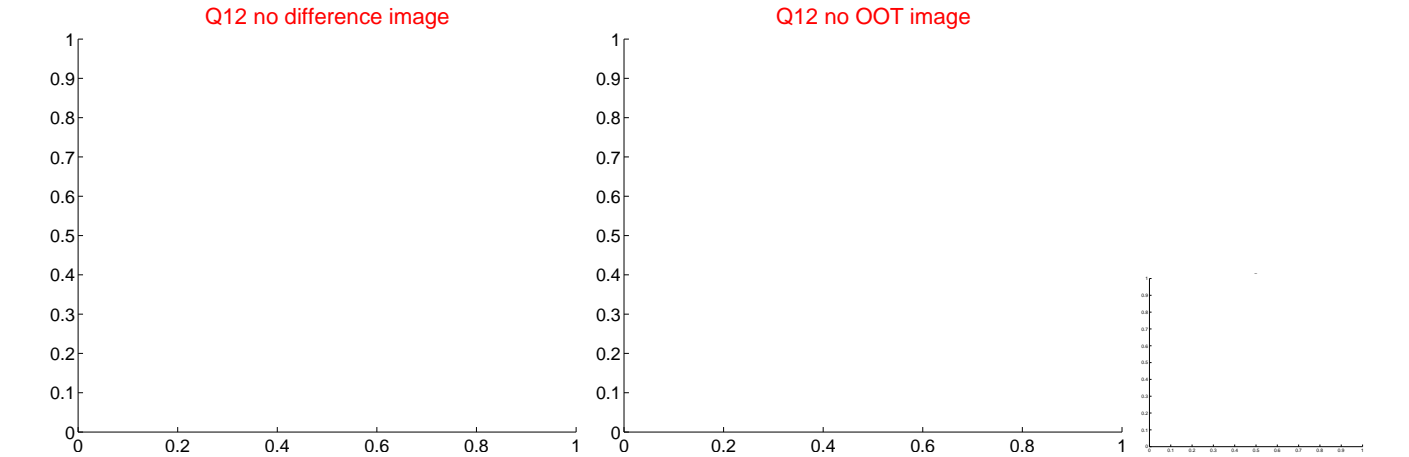
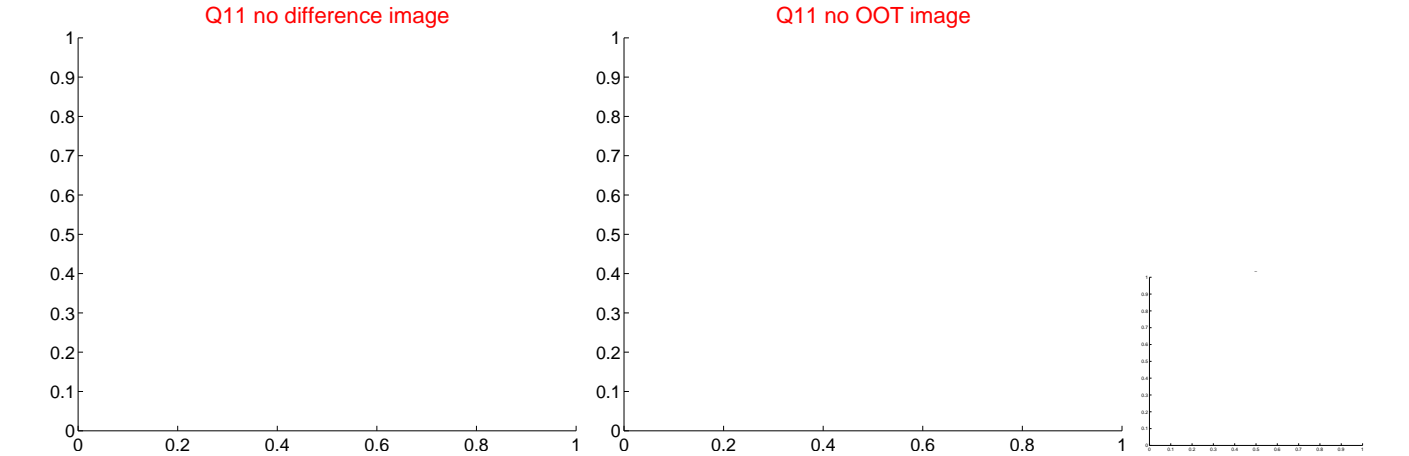
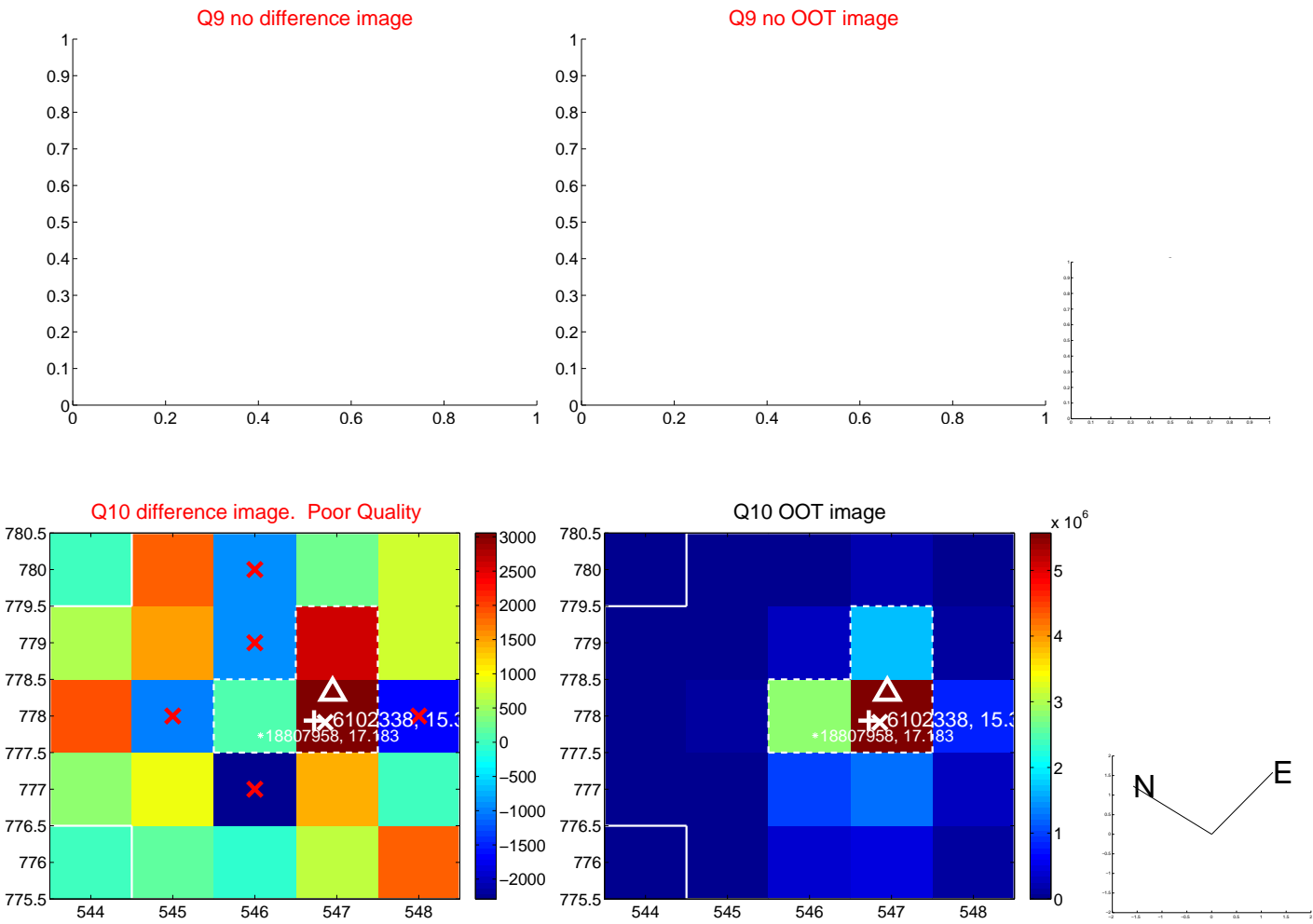
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



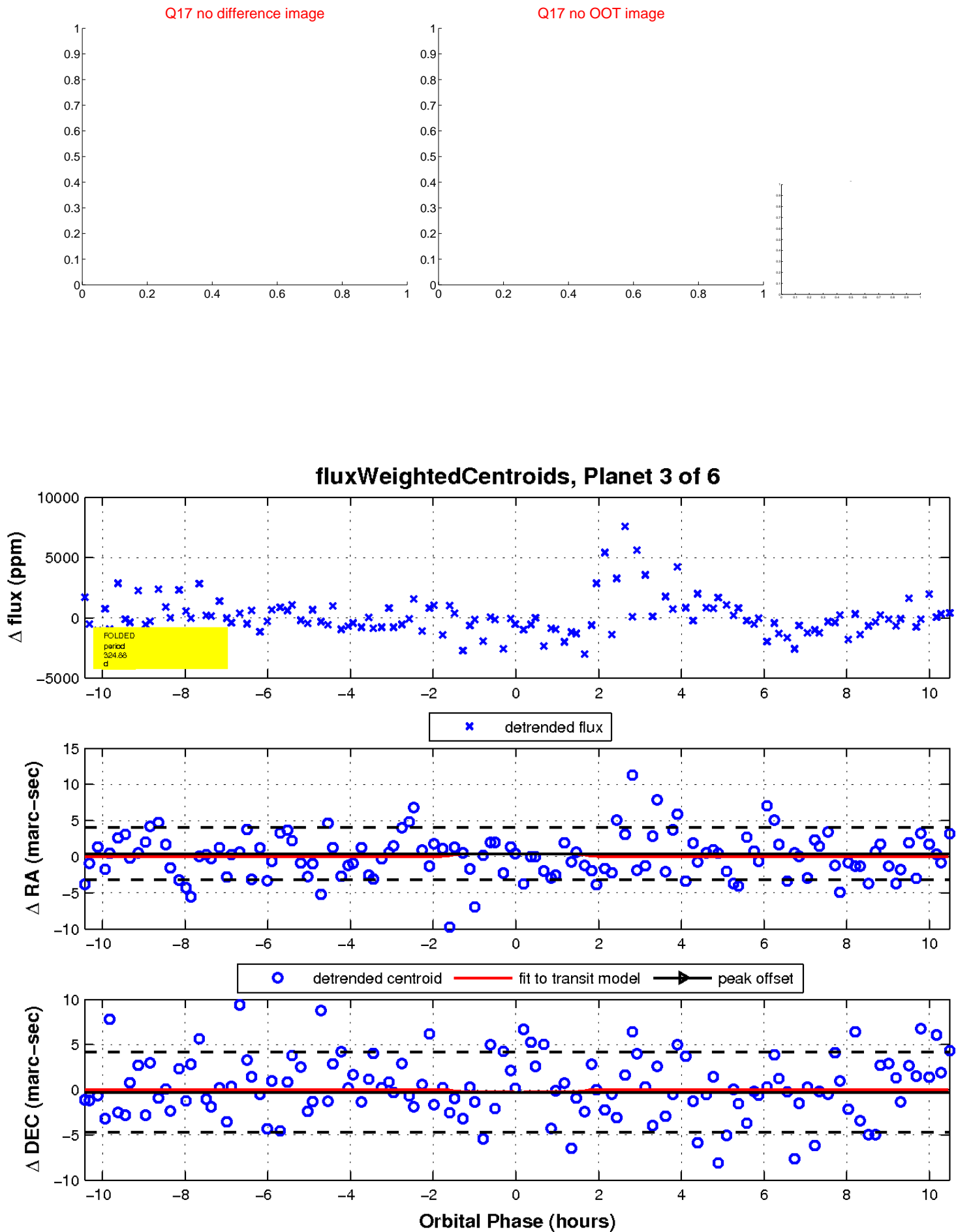
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

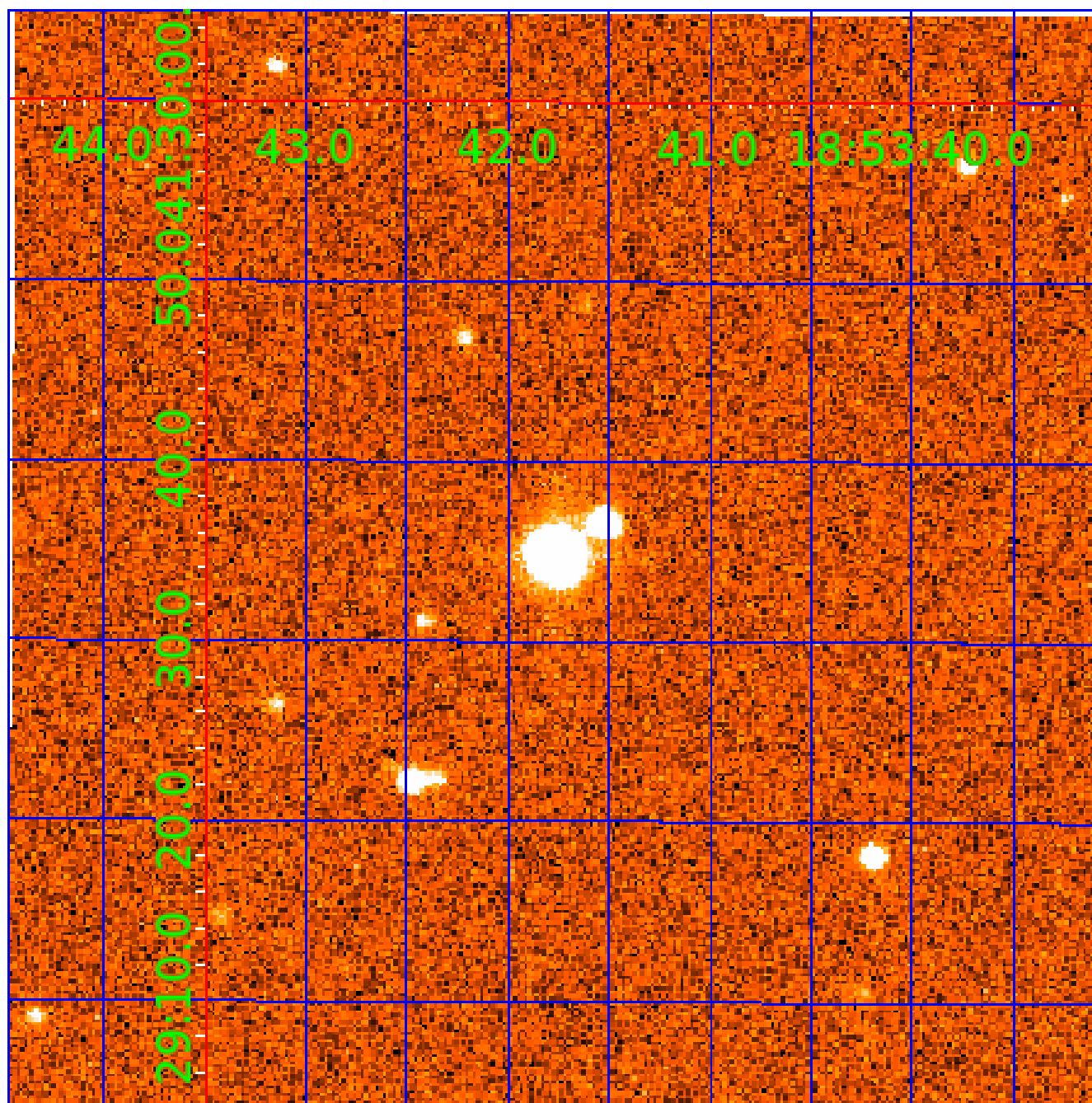


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006102338

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})
006102338-01	OBS	No	419.925961	212.703475	2484.9	8.395	12.5	7.3	0.23	3319	1.21	0.01
006102338-02	OBS	No	409.253228	240.905944	1788.9	4.025	11.2	6.6	0.23	3319	1.04	0.01
006102338-03	OBS	No	324.882613	278.009165	2003.0	3.505	9.8	5.9	0.23	3319	1.04	0.02
006102338-04	OBS	No	562.982448	225.085748	2185.0	2.406	11.4	6.8	0.23	3319	1.07	0.01
006102338-05	OBS	No	389.919958	263.610505	2083.6	12.214	8.5	6.9	0.23	3319	1.08	0.01
006102338-06	OBS	No	447.701235	196.821343	2534.4	4.655	10.3	9.3	0.23	3319	1.17	0.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006102338-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
006102338-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-03	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—CENT_FEW_DIFFS
006102338-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006102338-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

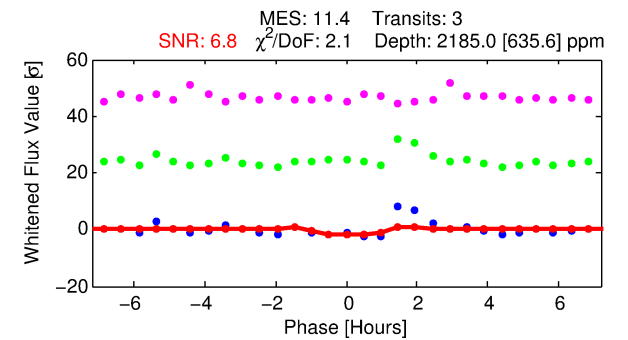
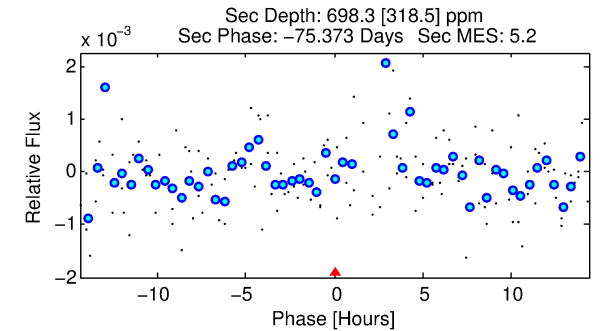
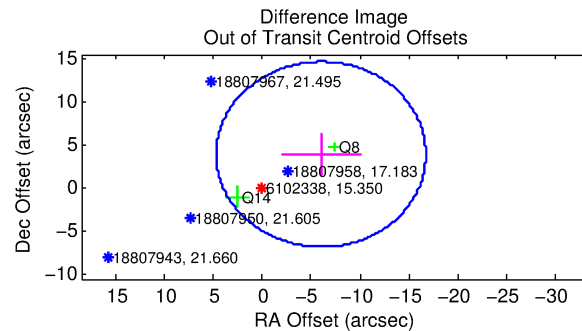
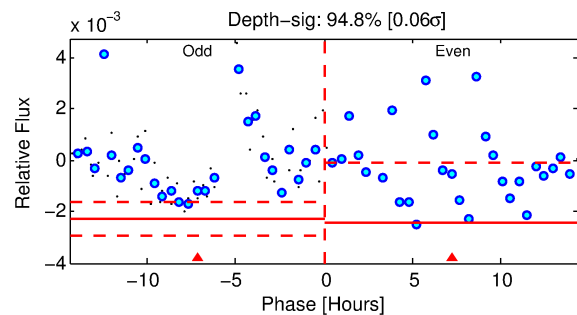
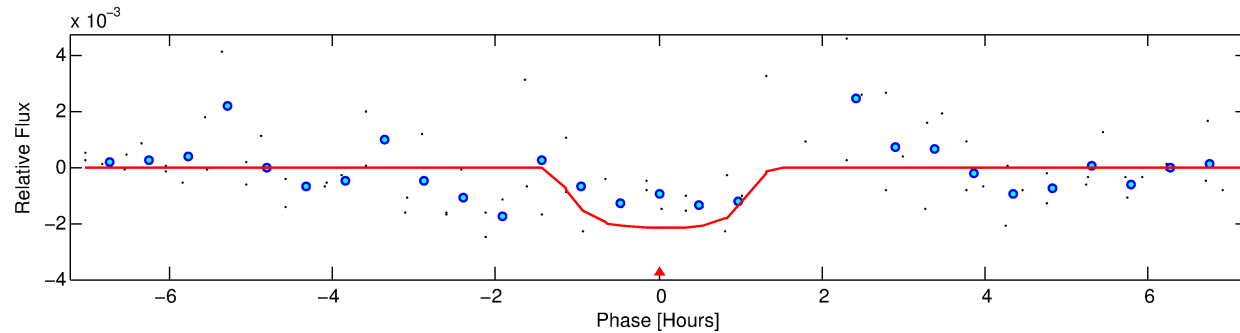
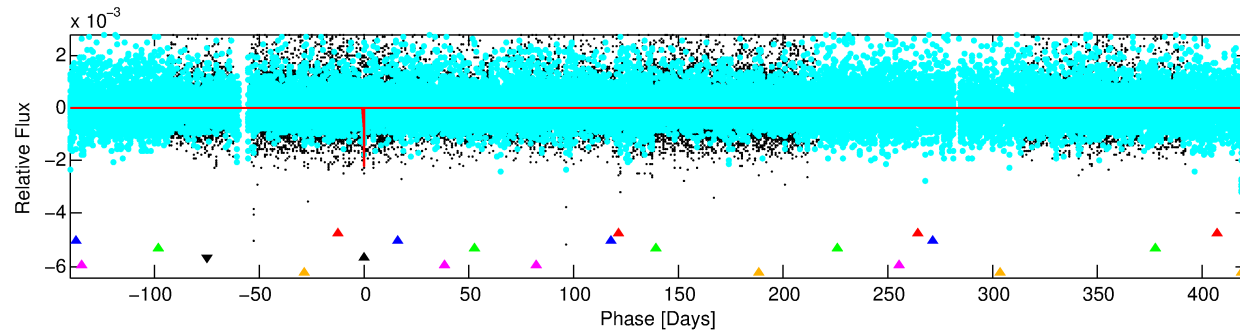
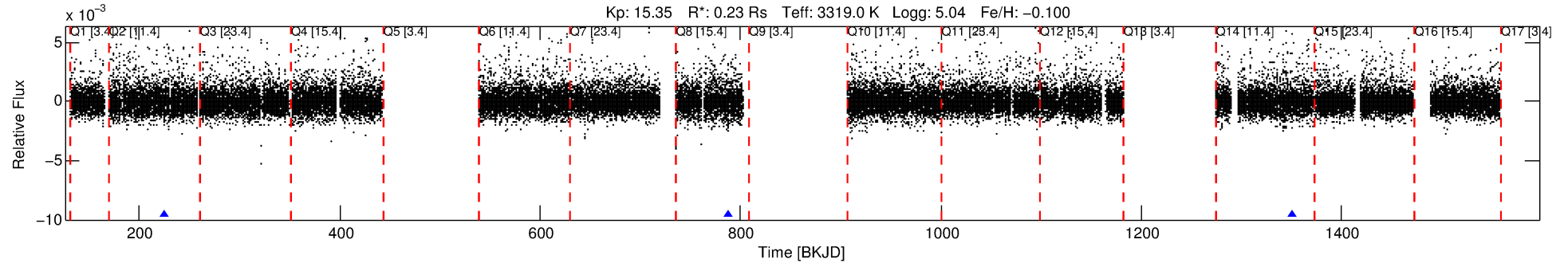
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006102338-04

No Significant Match Found

DV One-Page Summary

KIC: 6102338 Candidate: 4 of 6 Period: 562.982 d



DV Fit Results:

Period = 562.98245 [0.00687] d
Epoch = 225.0857 [0.0112] BKJD
Rp/R* = 0.0424 [0.1701]
a/R* = 1860.82 [33320.16]
b = 0.06 [313.90]
Seff = 0.01 [0.00]
Teq = 79 [4] K
Rp = 1.07 [4.31] Re
a = 0.7980 [0.1332] AU
Ag = 212099.87 [1703619.19] [0.12 σ]
Teffp = 2619 [5259] K [0.48 σ]

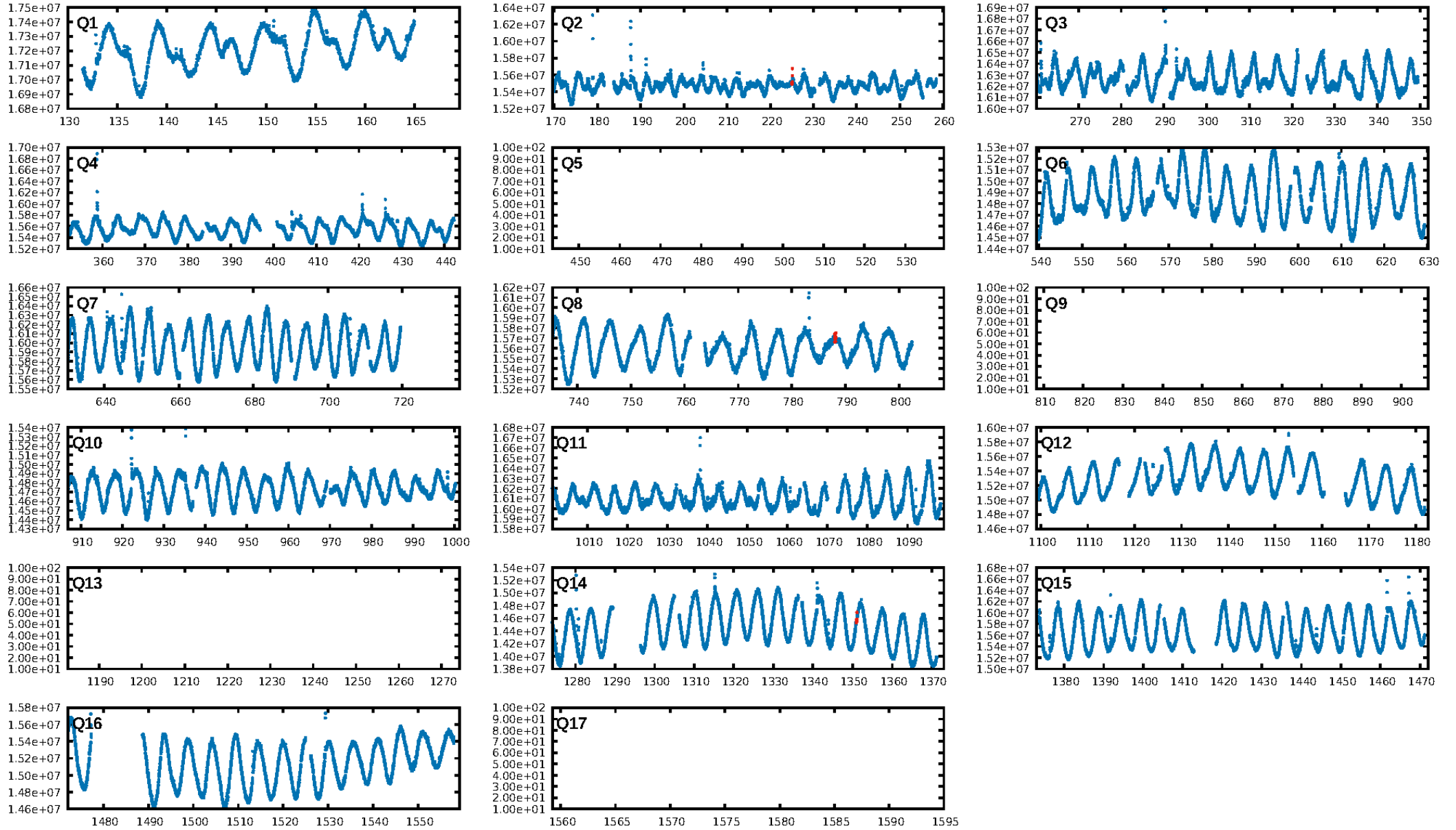
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [528.02 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 18.0%
ModelChiSquareGof-sig: 27.8%
Bootstrap-pfa: 2.81e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.287
Centroid-sig: 94.8%
Centroid-so: 0.035 arcsec [0.03 σ]
OotOffset-rm: 7.168 arcsec [2.00 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 7.308 arcsec [2.12 σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

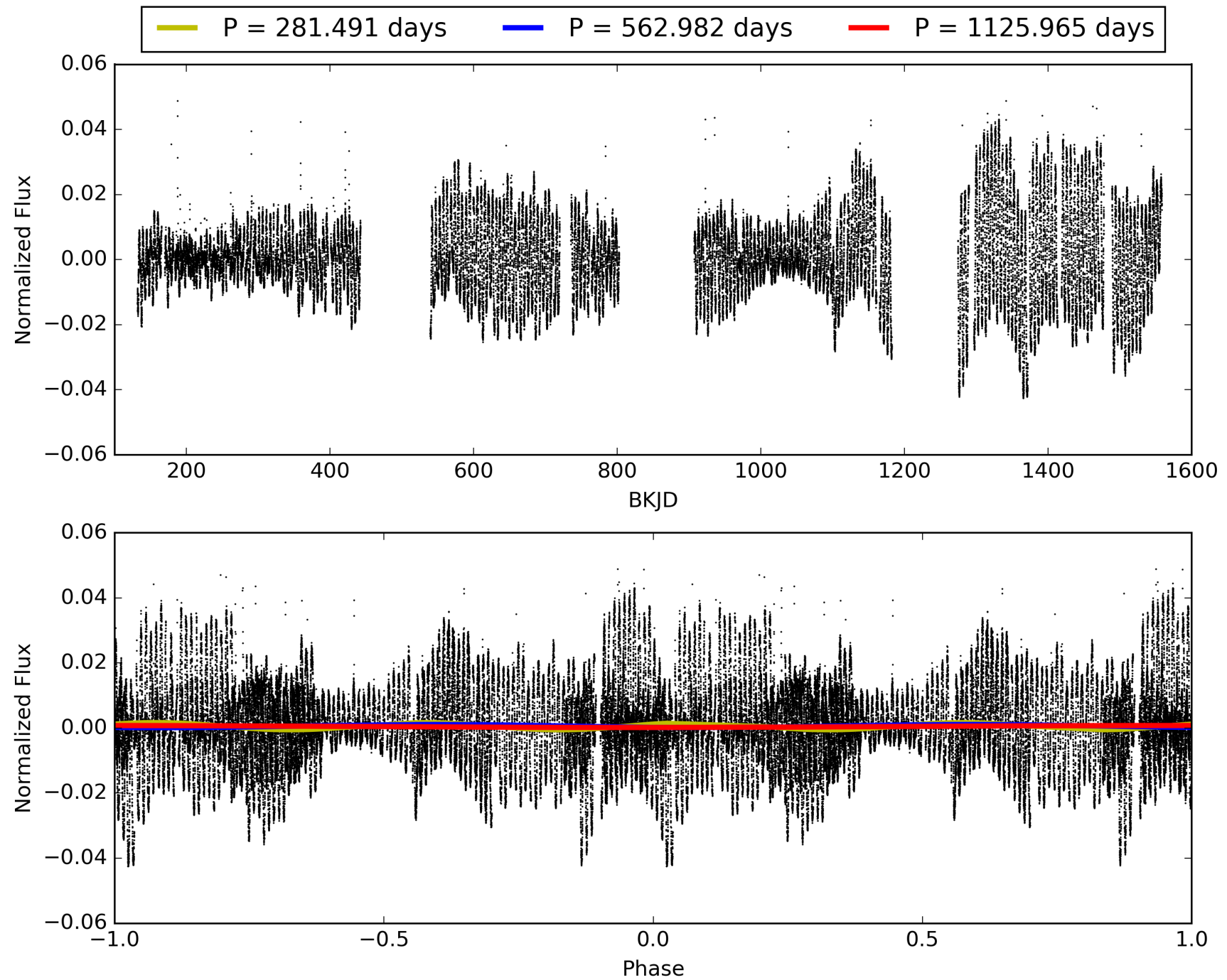
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:01:07 Z

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

TCE 006102338-04, PDC Light Curves

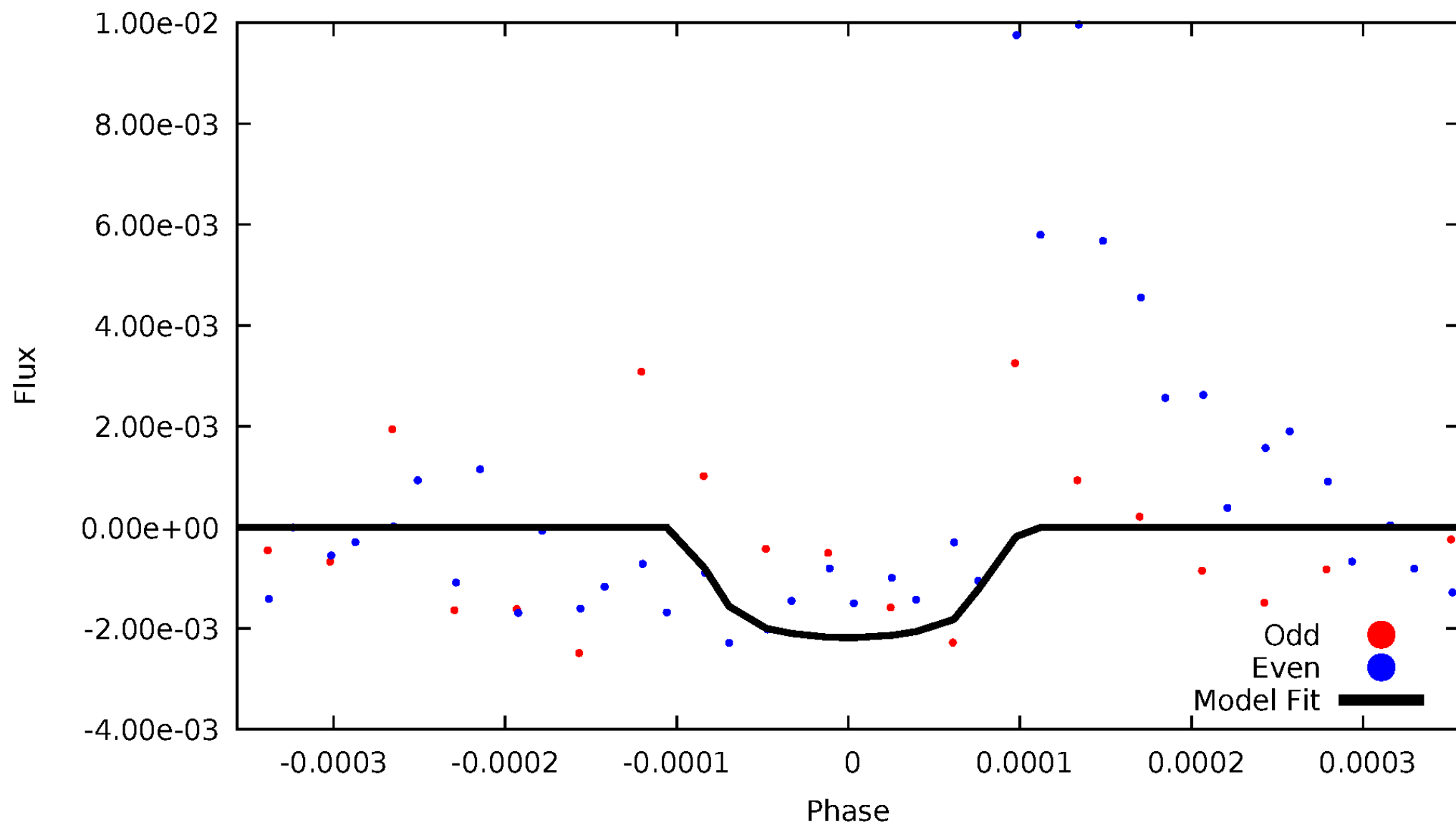


TCE 006102338-04



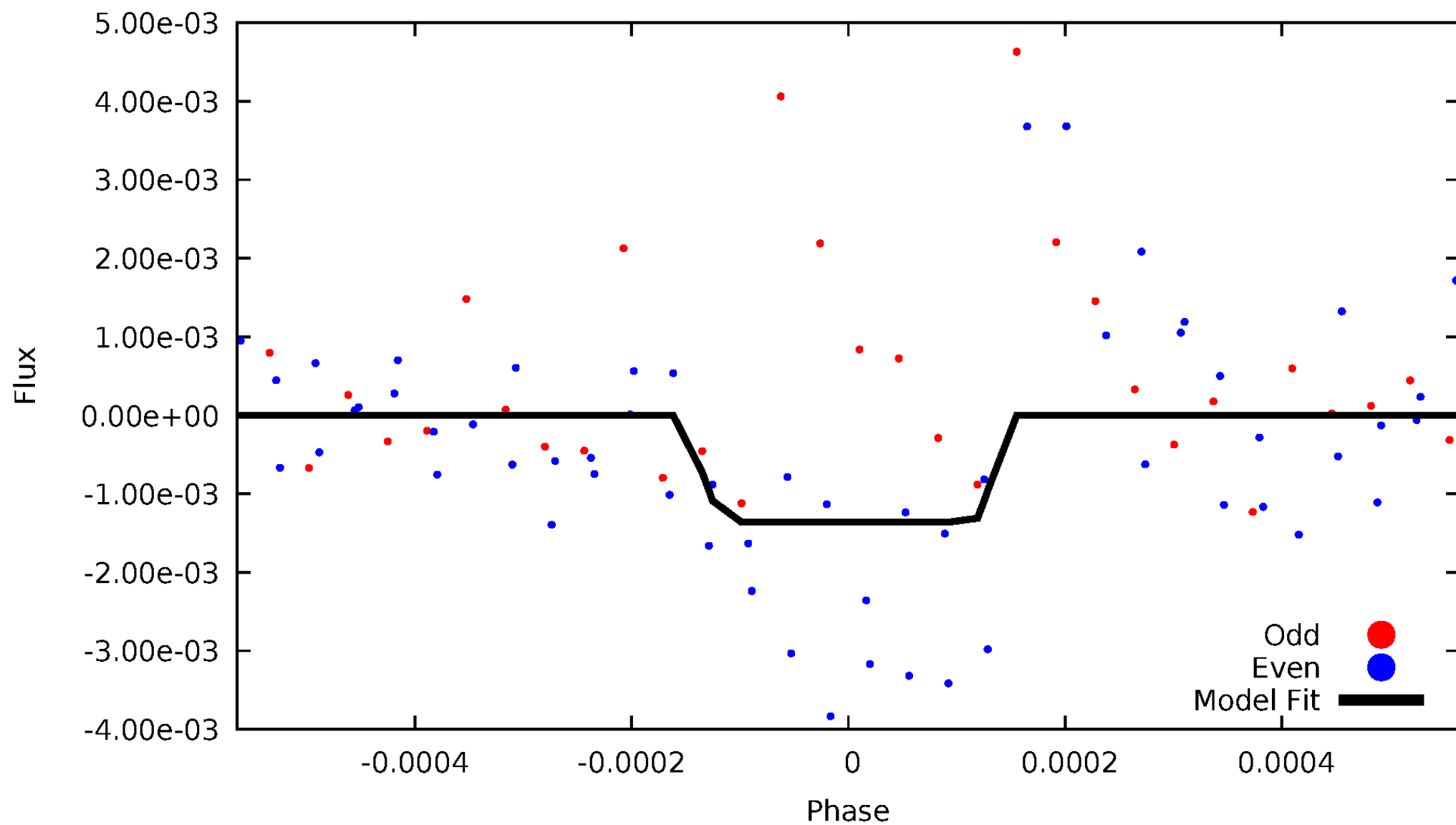
DV Odd/Even

TCE 006102338-04



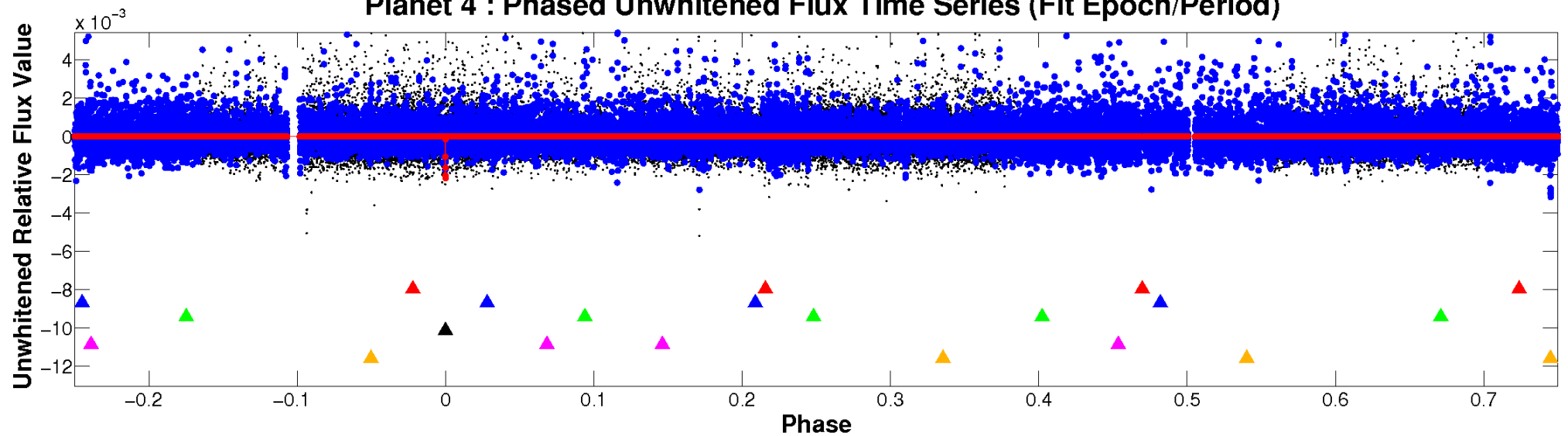
ALT Odd/Even

TCE 006102338-04

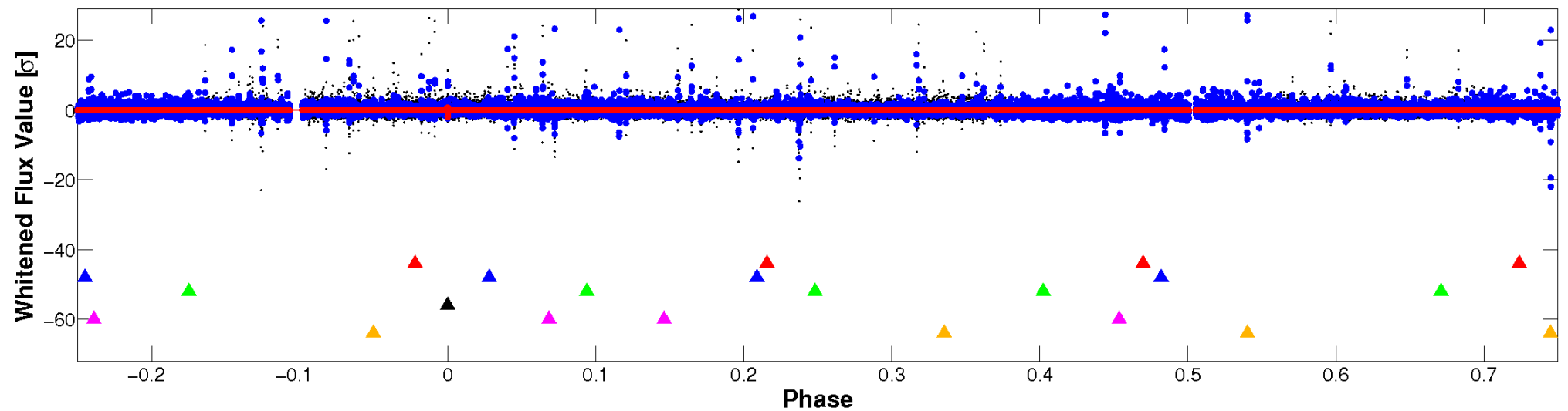


Non-Whitened Vs. Whitened Light Curve

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

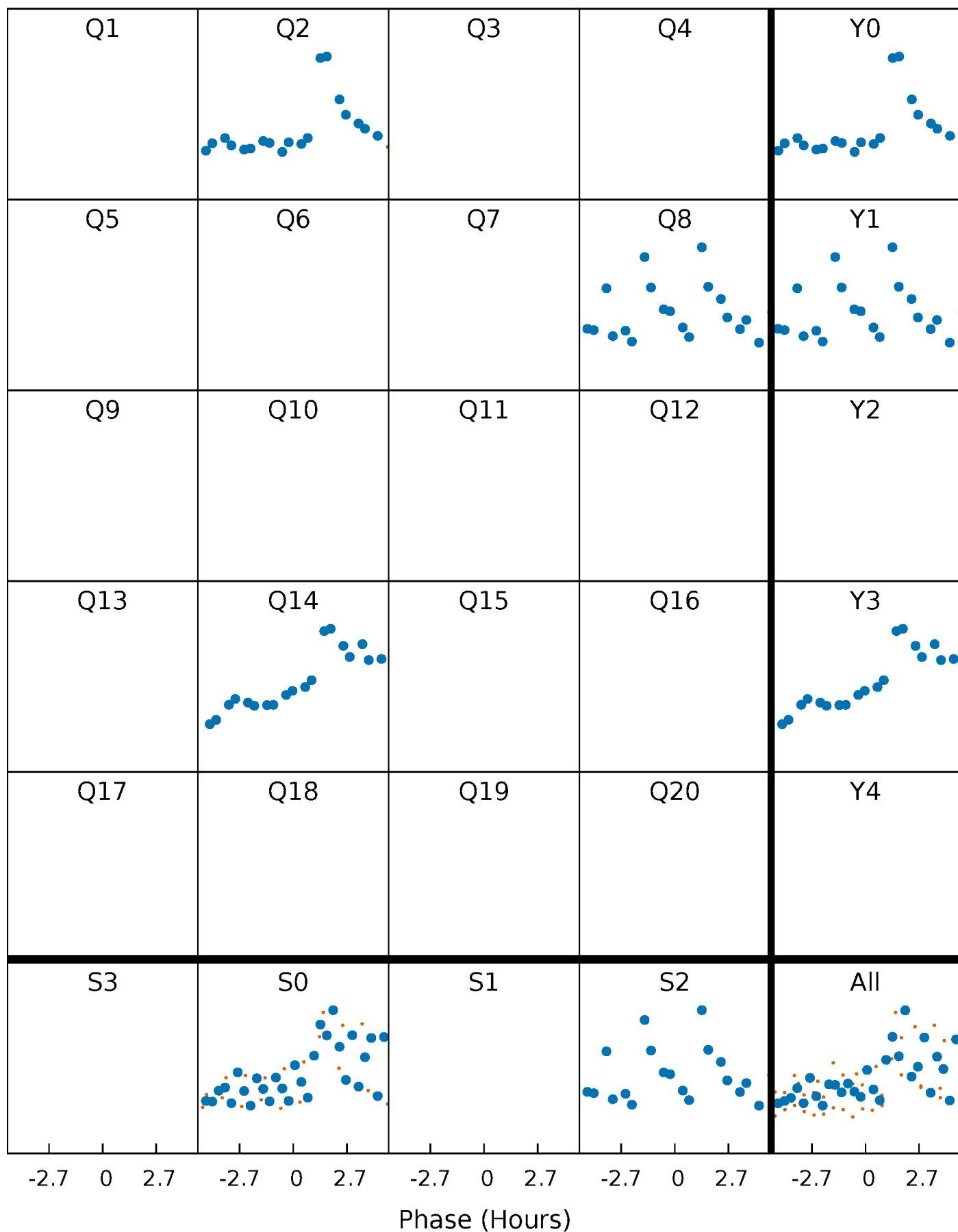


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



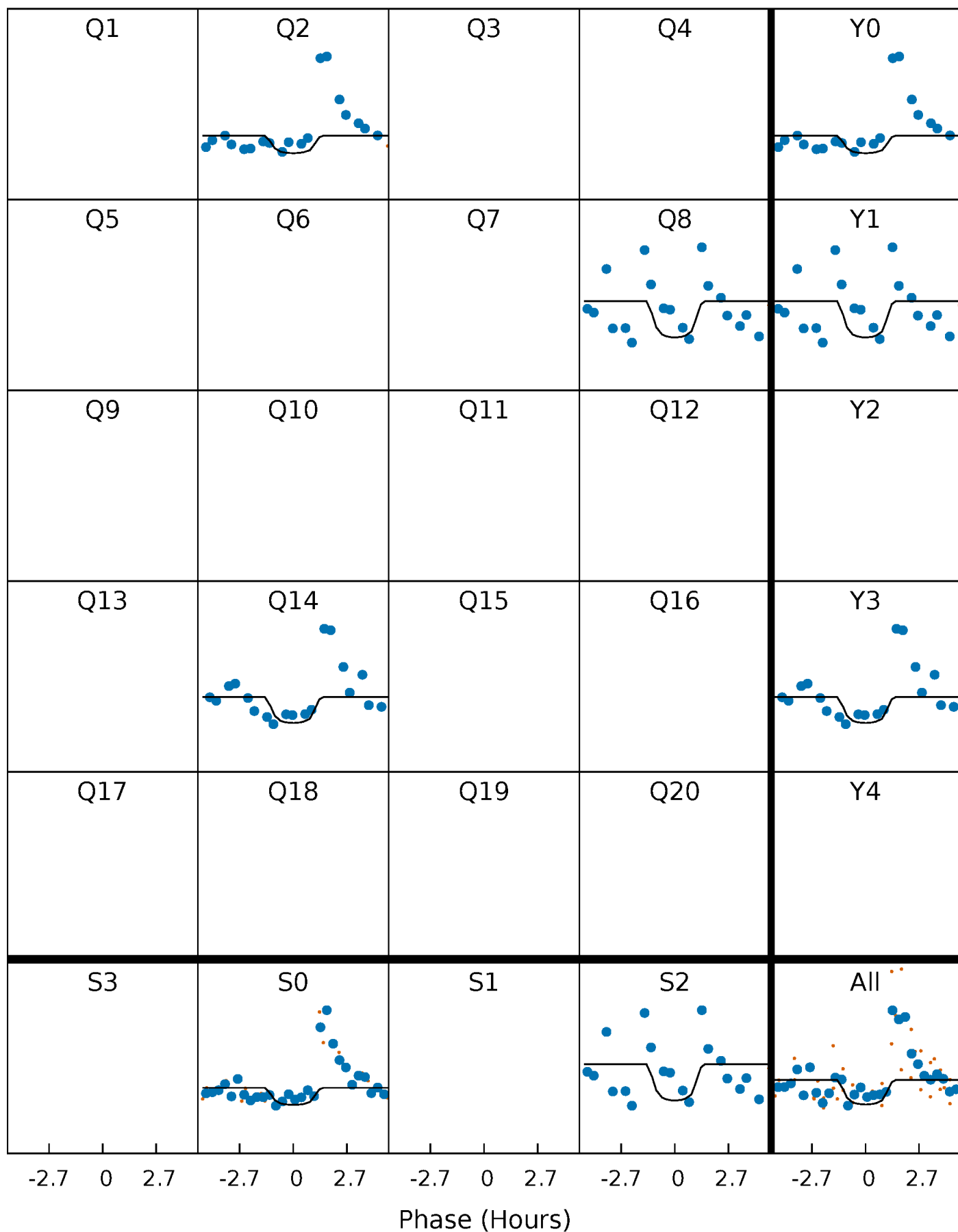
PDC Quarter-Phased Transit Curves

TCE 006102338-04 P=562.982448 Days $T_0=225.085748$ (BKJD)



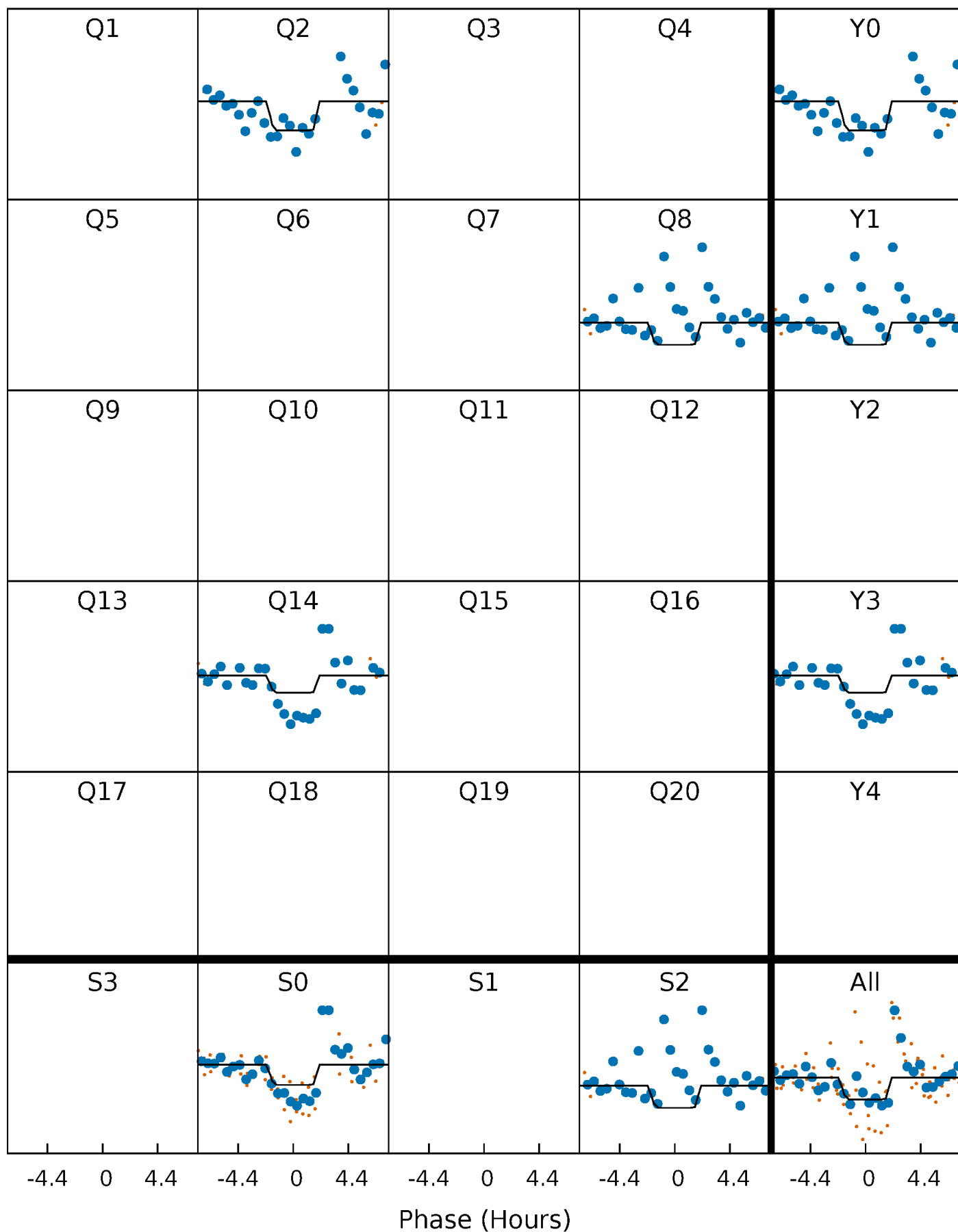
DV Quarter-Phased Transit Curves

TCE 006102338-04 P=562.982448 Days $T_0=225.085748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

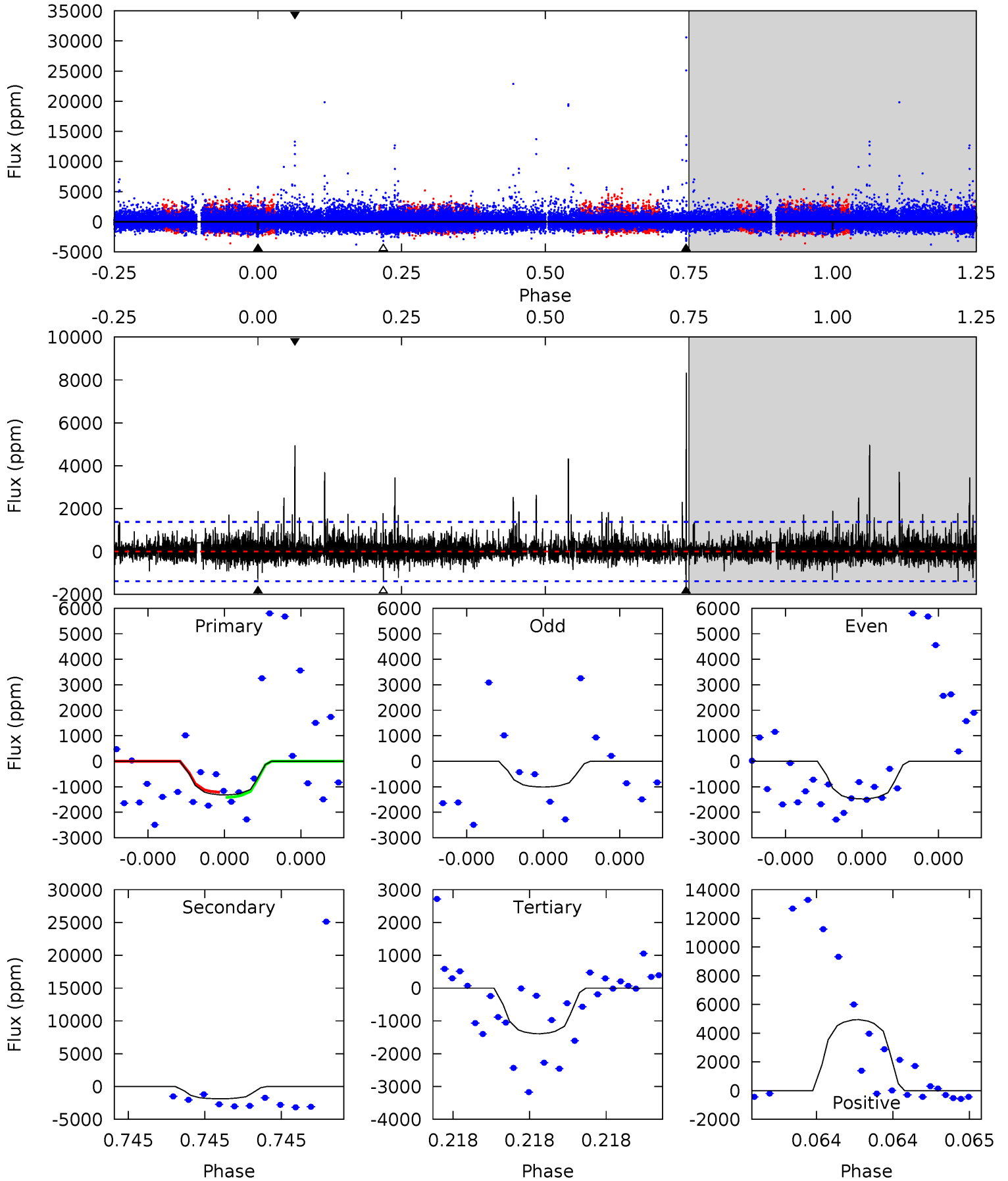
TCE 006102338-04 P=562.985445 Days $T_0=225.049910$ (BKJD)



DV Model-Shift Uniqueness Test

006102338-04, P = 562.982448 Days, E = 225.085748 Days

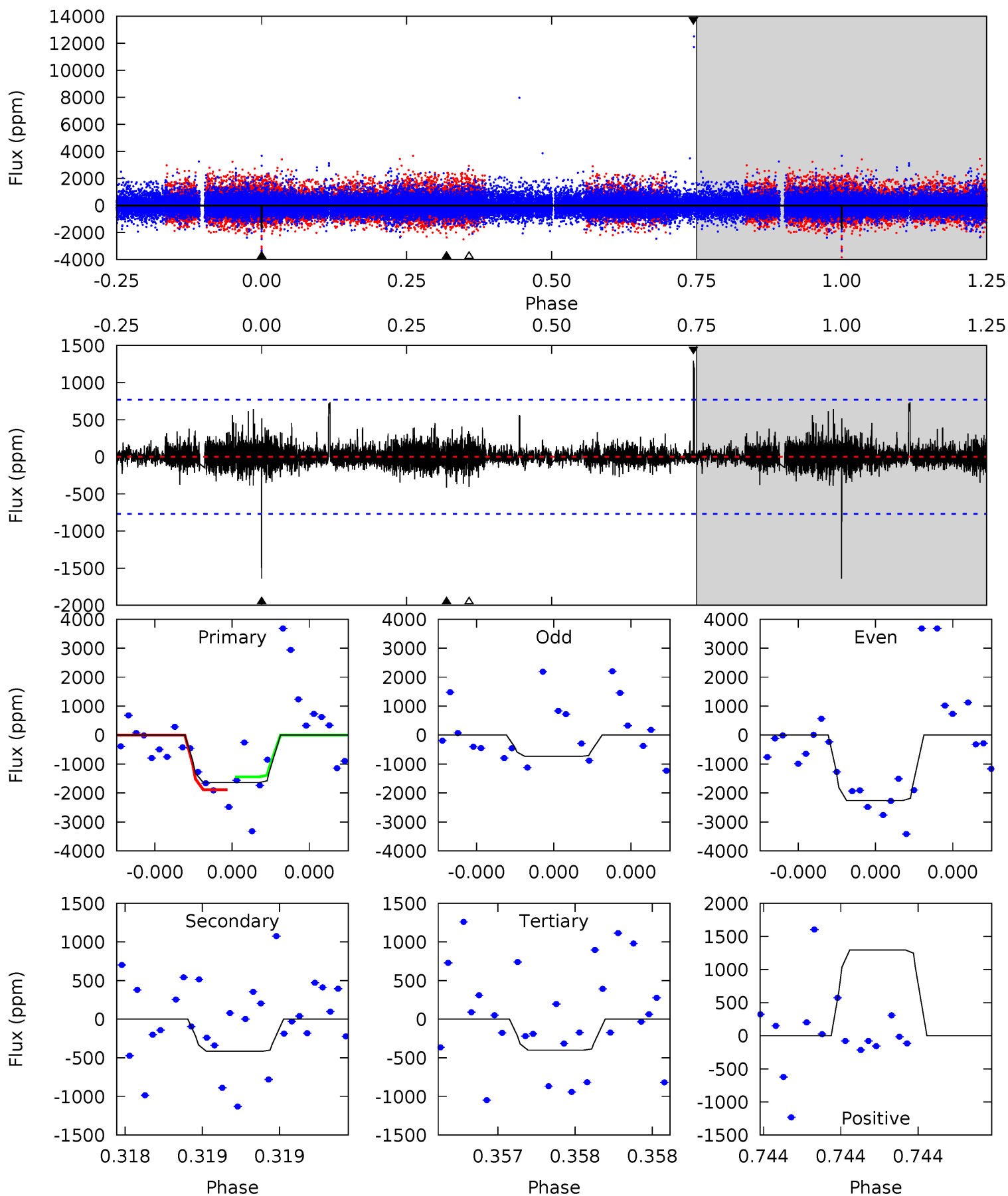
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.49	7.76	5.78	20.5	5.75	3.74	1.47	-0.29	-15.0	1.98	-12.8	0.78	1.23	0.82	0.42



Alt Model-Shift Uniqueness Test

006102338-04, P = 562.985445 Days, E = 225.049910 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	3.07	2.96	9.56	5.68	3.65	0.70	9.16	2.56	0.11	-6.49	5.43	0.86	0.44	1.65



Stellar Parameters For KIC 006102338

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3319^{+84}_{-59}	$5.037^{+0.070}_{-0.070}$	$-0.100^{+0.100}_{-0.100}$	$0.232^{+0.055}_{-0.045}$	$0.214^{+0.072}_{-0.048}$	$24.060^{+11.430}_{-7.728}$
	+3%/-2%	+1%/-1%	+100%/-100%	+24%/-19%	+34%/-22%	+48%/-32%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 006102338-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1869 ± 241	$3.22^{+3.60}_{-2.12}$	111^{+5}_{-4}	2488^{+835}_{-395}	$63416^{+483442}_{-48920}$
Alt.	-416 ± 135	$3.37^{+3.34}_{-2.33}$	111^{+5}_{-4}	2080^{+645}_{-288}	$12476^{+117628}_{-9674}$

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 $A_{obs} \gg 1.0$

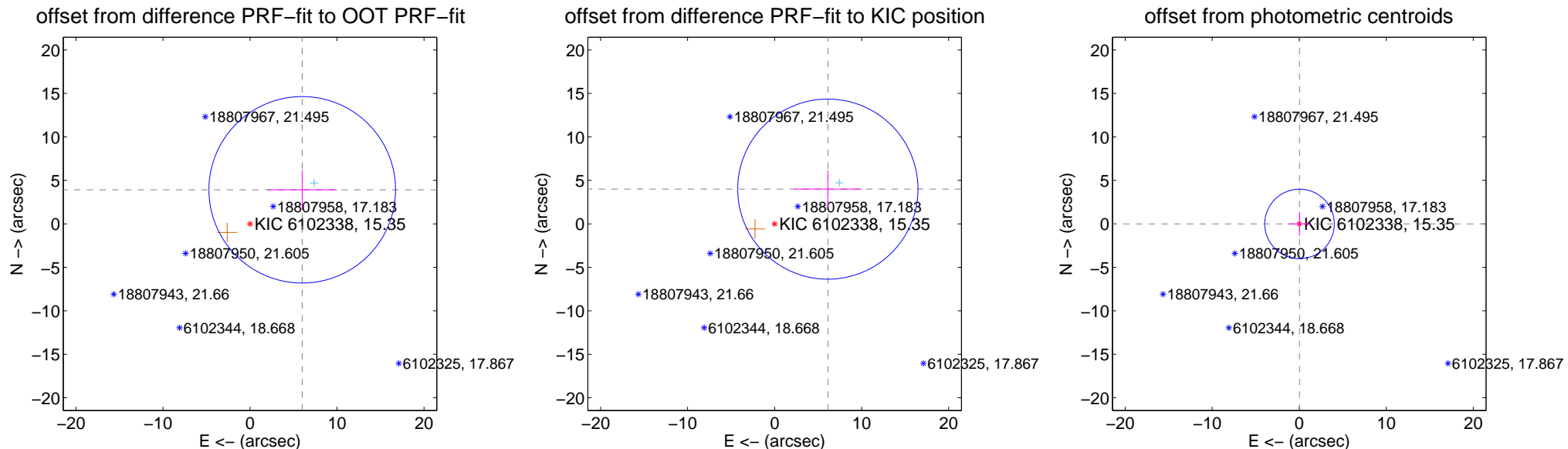
DV Centroid Data

Supplemental centroid analysis for 006102338-04. Kepler magnitude: 15.35. Transit SNR 6.76

There are 1 quarters with good PRF difference image offsets

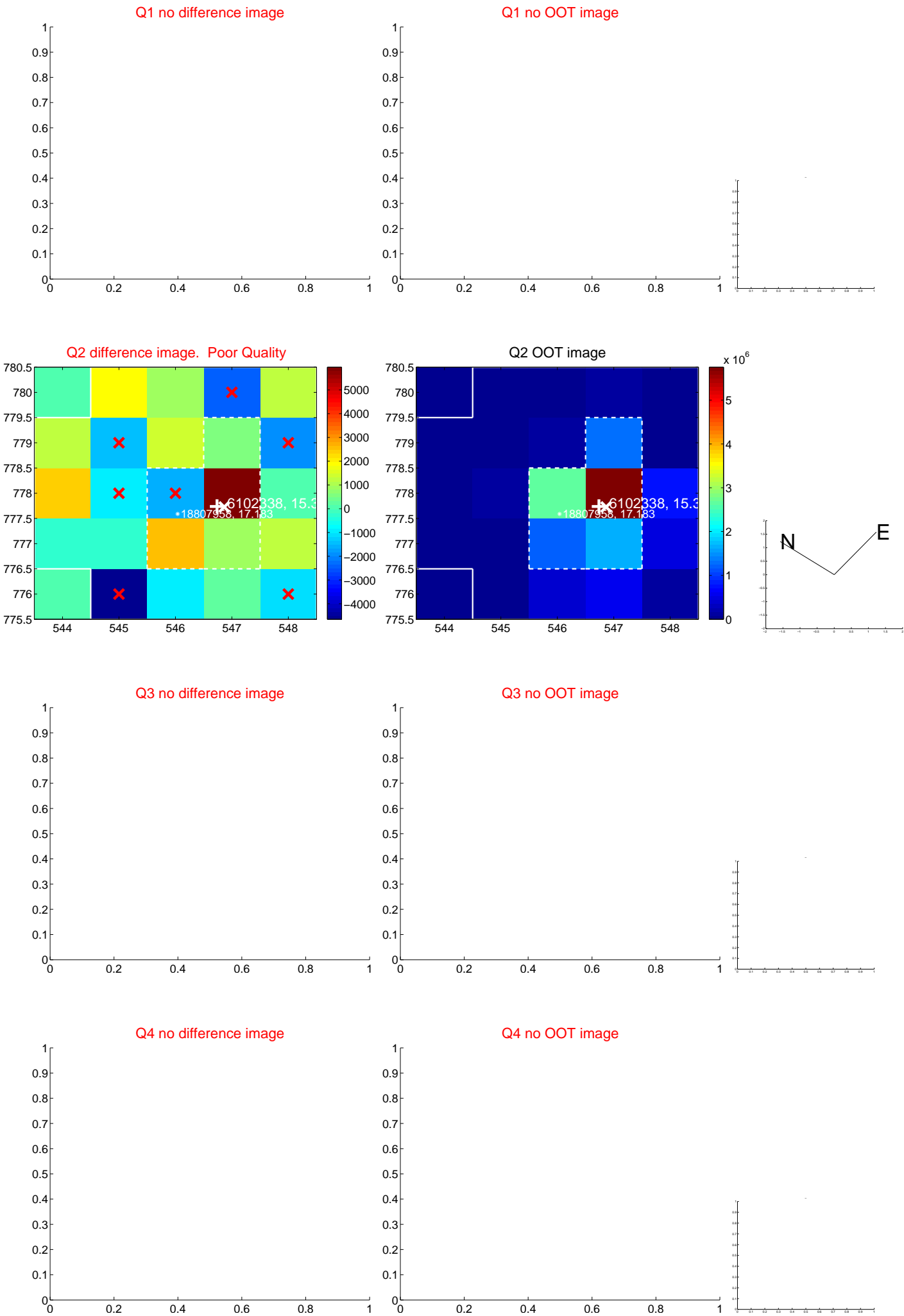
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.168 ± 3.575	2.00	-6.003 ± 3.999	3.918 ± 2.291
PRF-fit source offset from KIC position	7.308 ± 3.454	2.12	-6.119 ± 3.881	3.996 ± 2.138
photometric centroid source offset	0.03 ± 1.33	0.03	-0.03 ± 1.33	-0.01 ± 1.38



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

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



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

Q5 no difference image



Q5 no OOT image



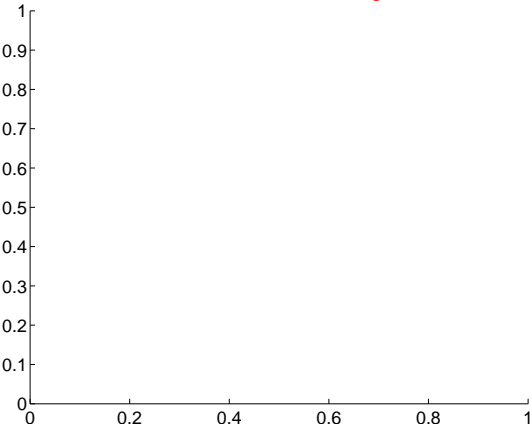
Q6 no difference image



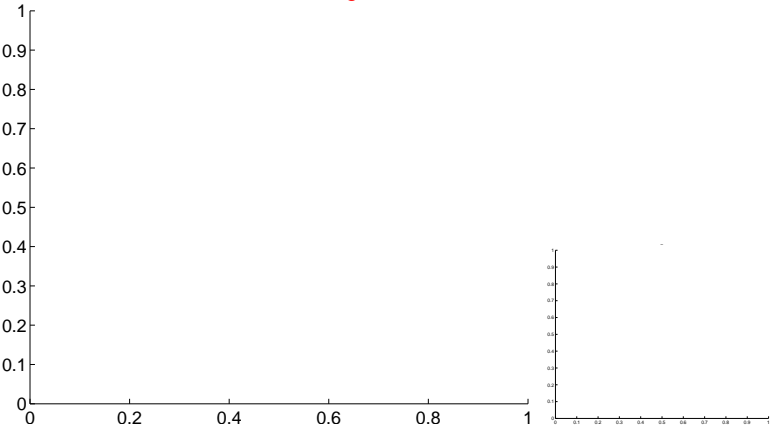
Q6 no OOT image



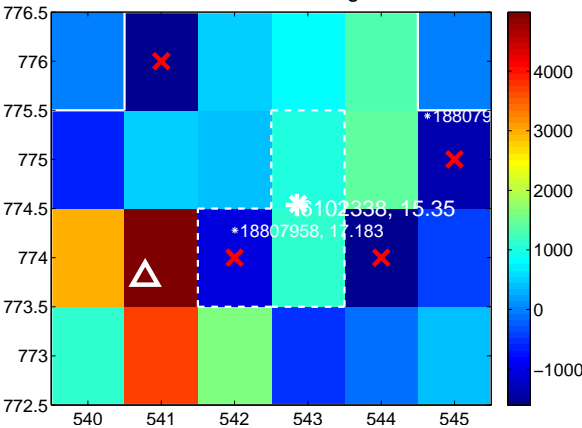
Q7 no difference image



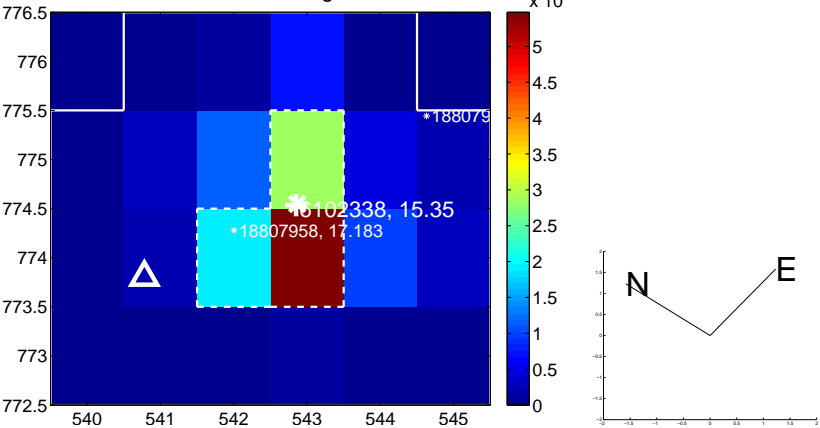
Q7 no OOT image



Q8 difference image



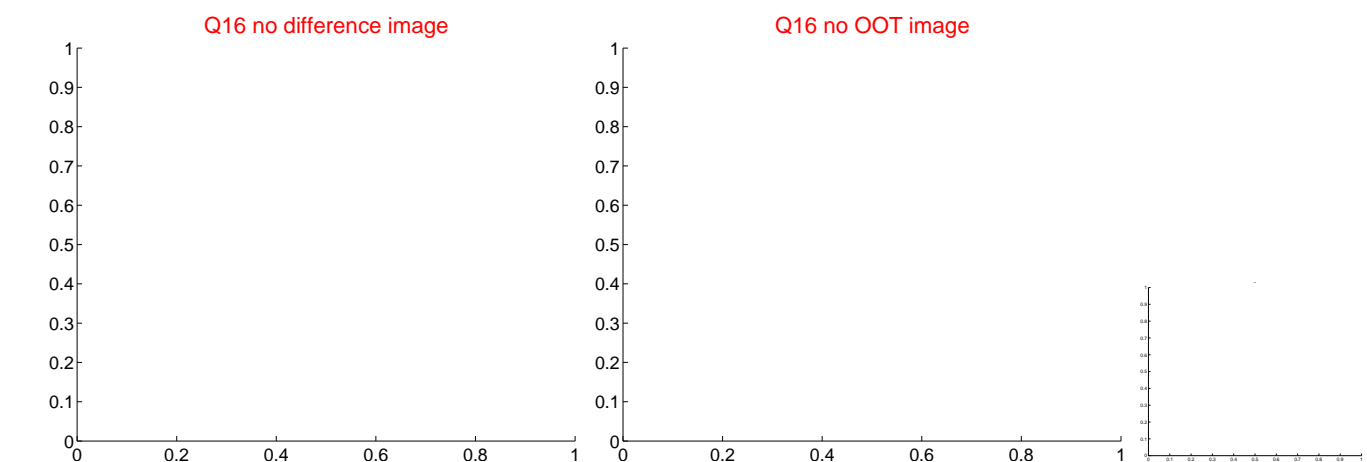
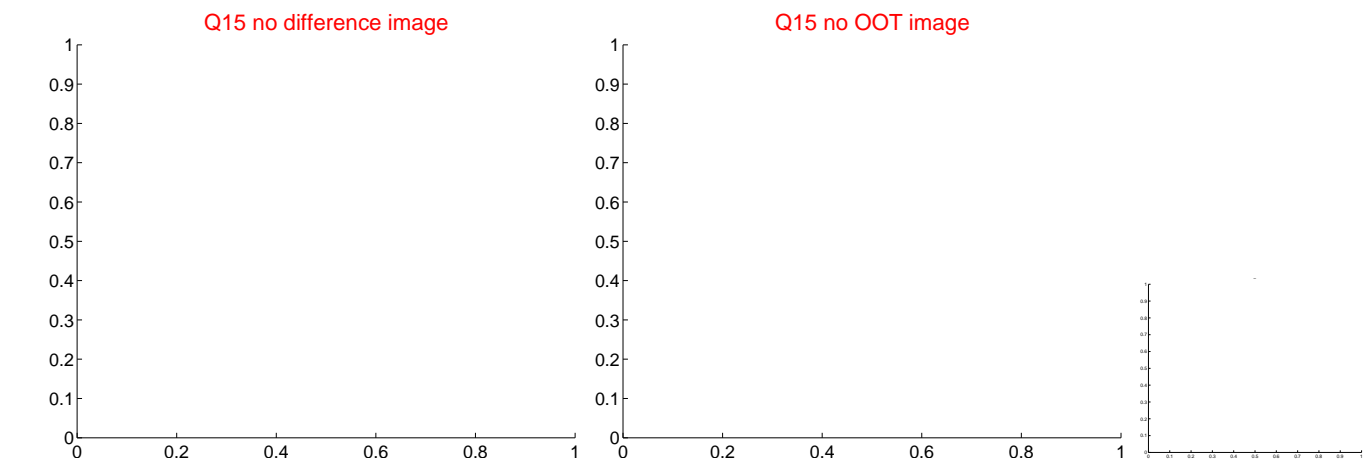
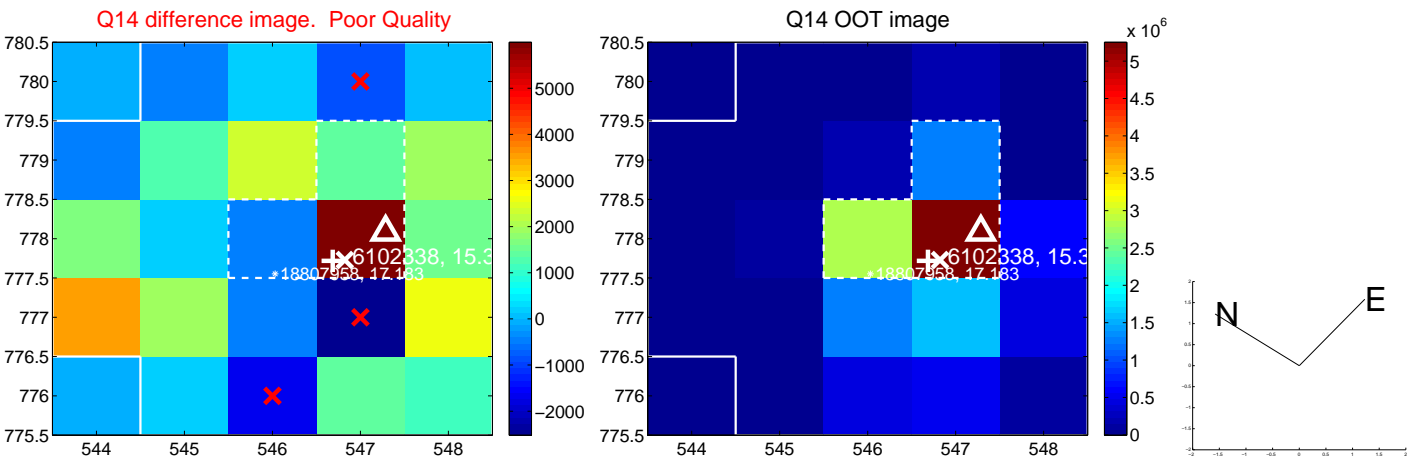
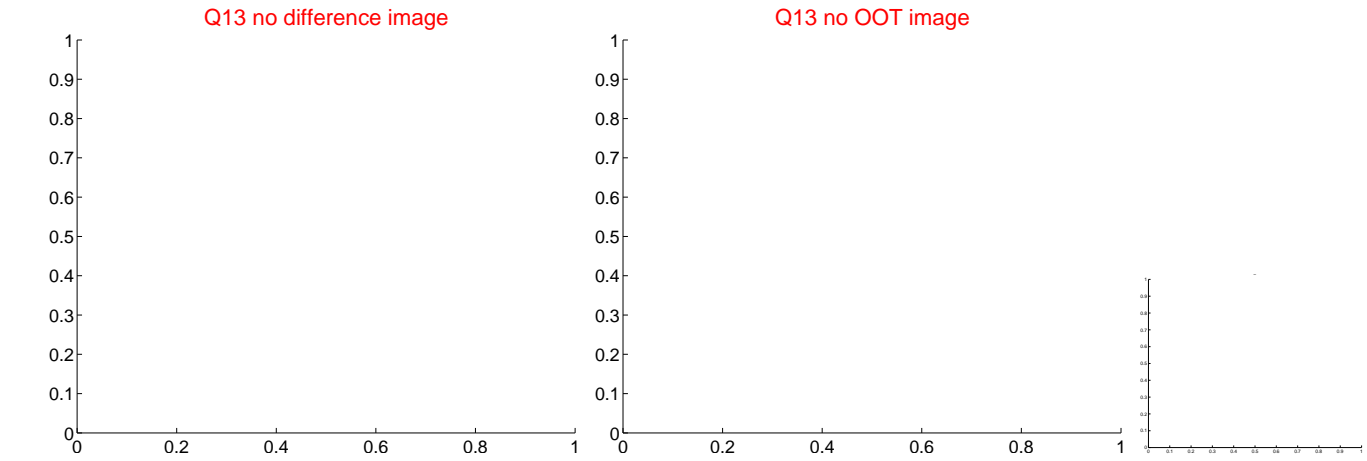
Q8 OOT image



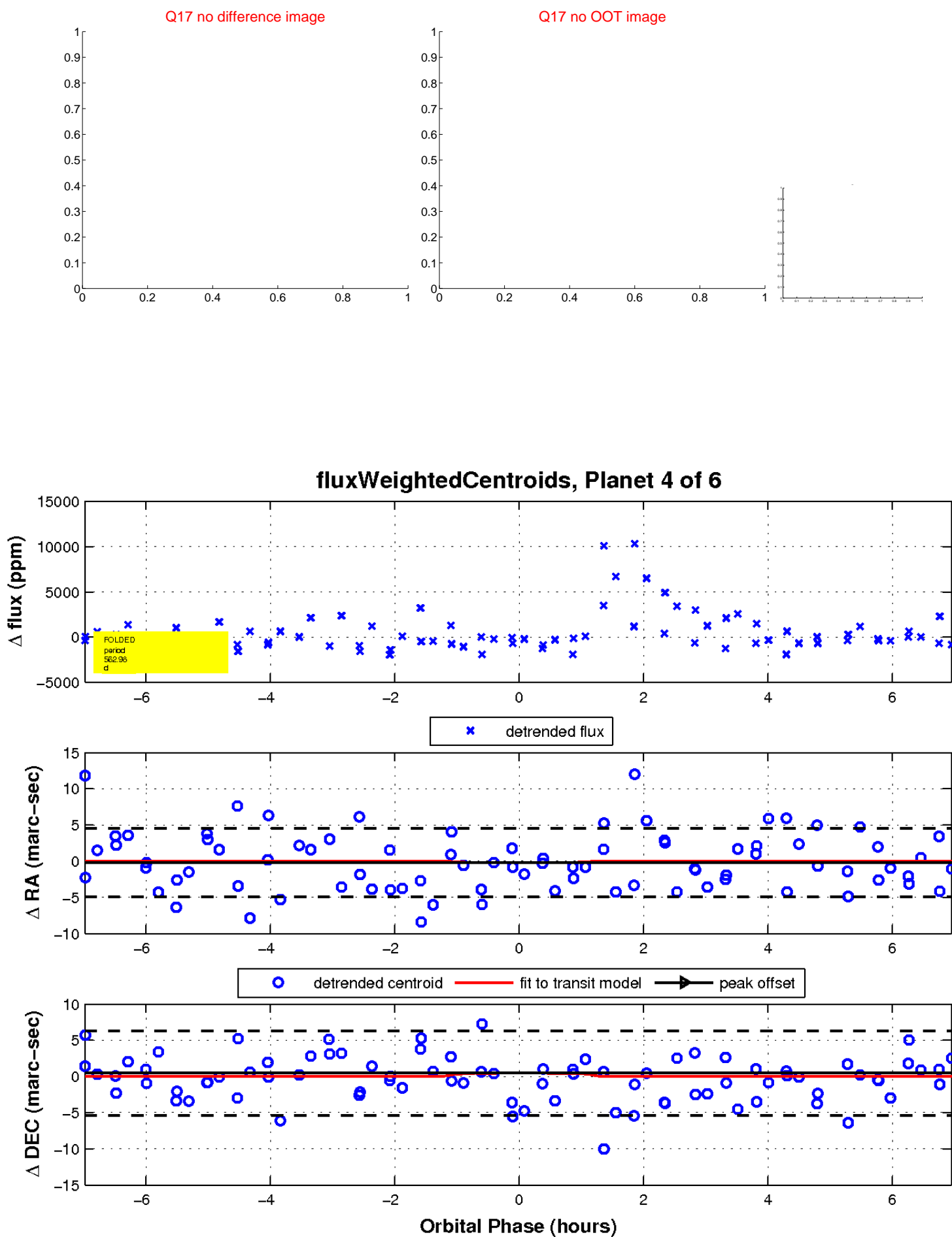
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

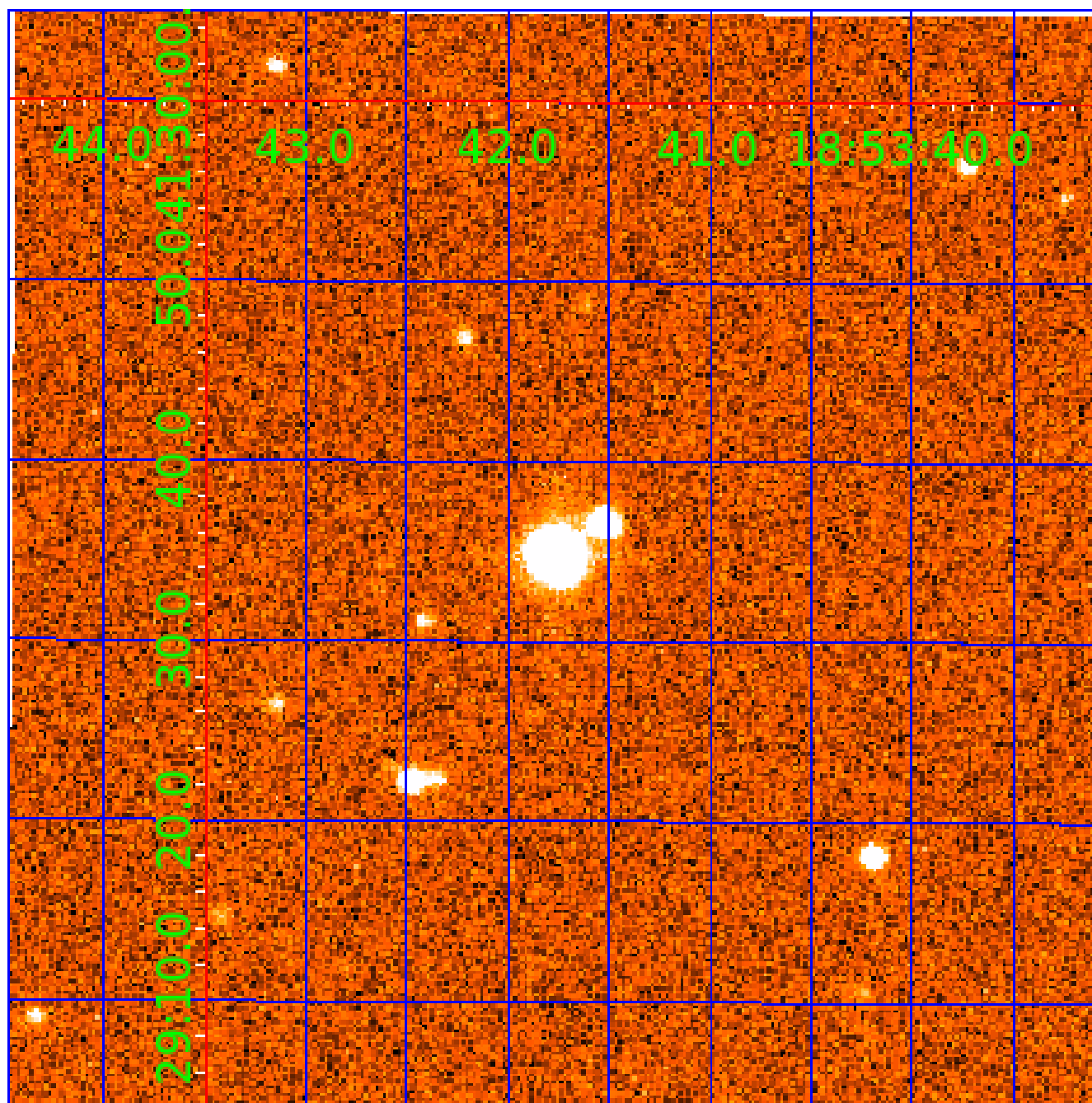


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006102338

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})
006102338-01	OBS	No	419.925961	212.703475	2484.9	8.395	12.5	7.3	0.23	3319	1.21	0.01
006102338-02	OBS	No	409.253228	240.905944	1788.9	4.025	11.2	6.6	0.23	3319	1.04	0.01
006102338-03	OBS	No	324.882613	278.009165	2003.0	3.505	9.8	5.9	0.23	3319	1.04	0.02
006102338-04	OBS	No	562.982448	225.085748	2185.0	2.406	11.4	6.8	0.23	3319	1.07	0.01
006102338-05	OBS	No	389.919958	263.610505	2083.6	12.214	8.5	6.9	0.23	3319	1.08	0.01
006102338-06	OBS	No	447.701235	196.821343	2534.4	4.655	10.3	9.3	0.23	3319	1.17	0.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006102338-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
006102338-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-03	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—CENT_FEW_DIFFS
006102338-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006102338-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

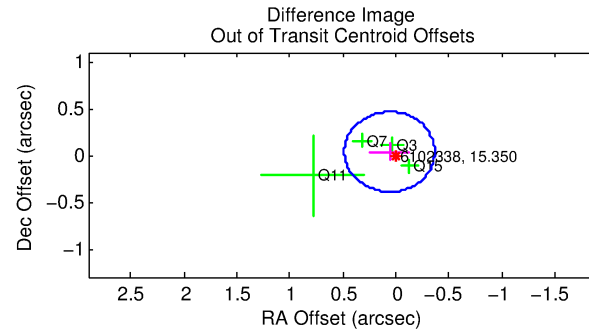
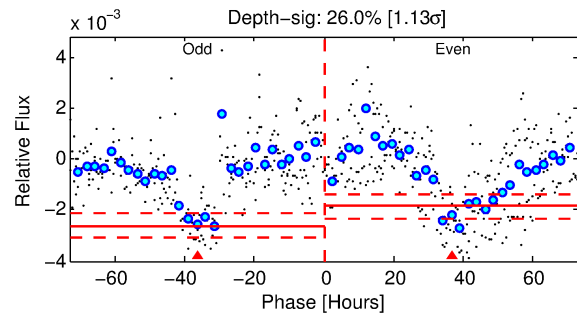
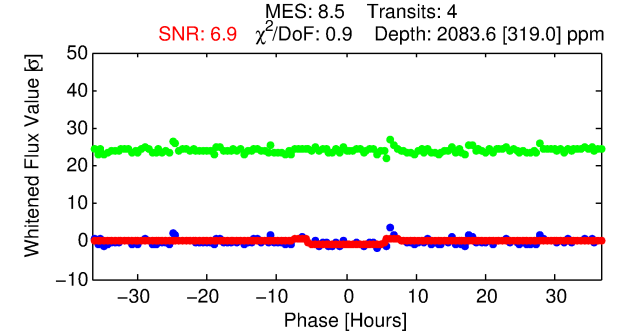
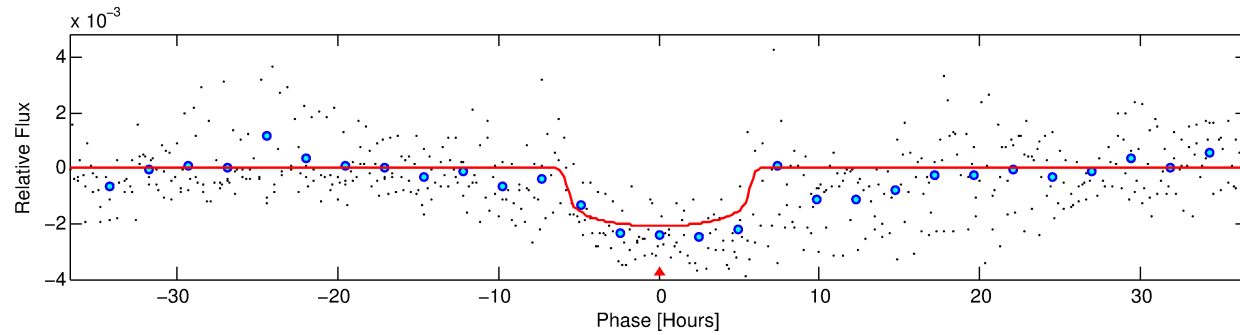
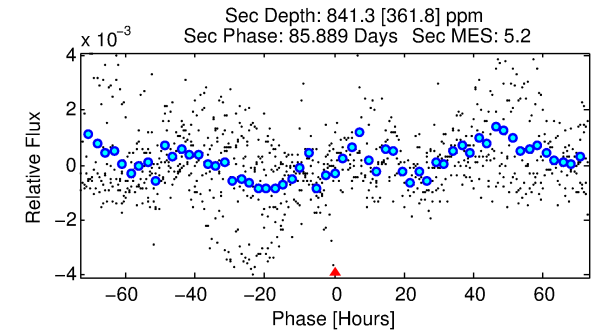
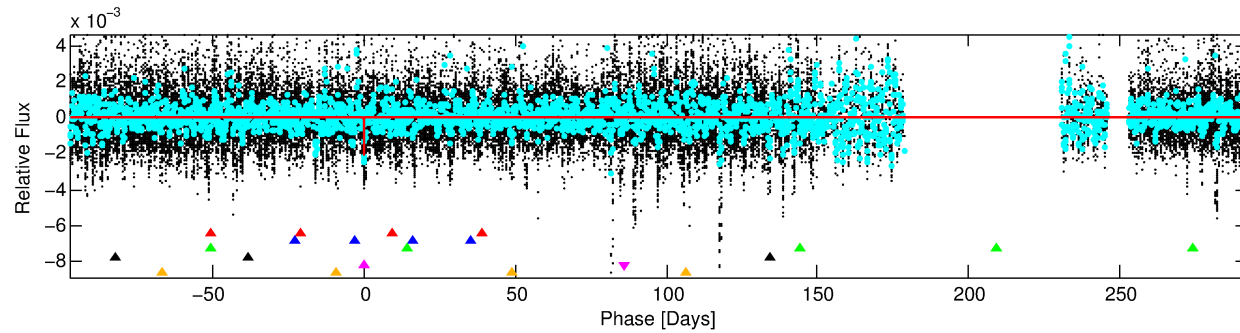
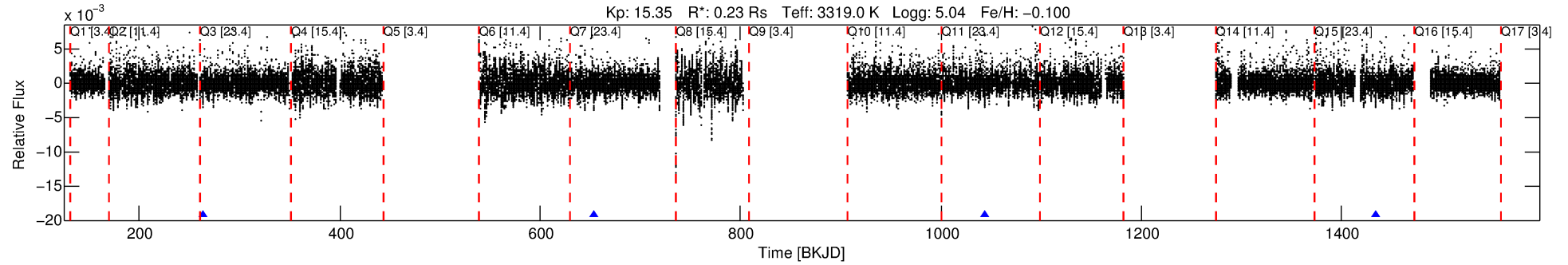
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006102338-05

No Significant Match Found

DV One-Page Summary

KIC: 6102338 Candidate: 5 of 6 Period: 389.920 d



DV Fit Results:

Period = 389.91996 [0.00491] d
Epoch = 263.6105 [0.0096] BKJD
Rp/R* = 0.0427 [0.0072]
a/R* = 222.93 [134.03]
b = 0.50 [0.90]
Seff = 0.01 [0.00]
Teq = 89 [5] K
Rp = 1.08 [0.31] Re
a = 0.6247 [0.1043] AU
Ag = 154651.31 [89637.77] [1.73 σ]
Teffp = 2736 [381] K [6.95 σ]

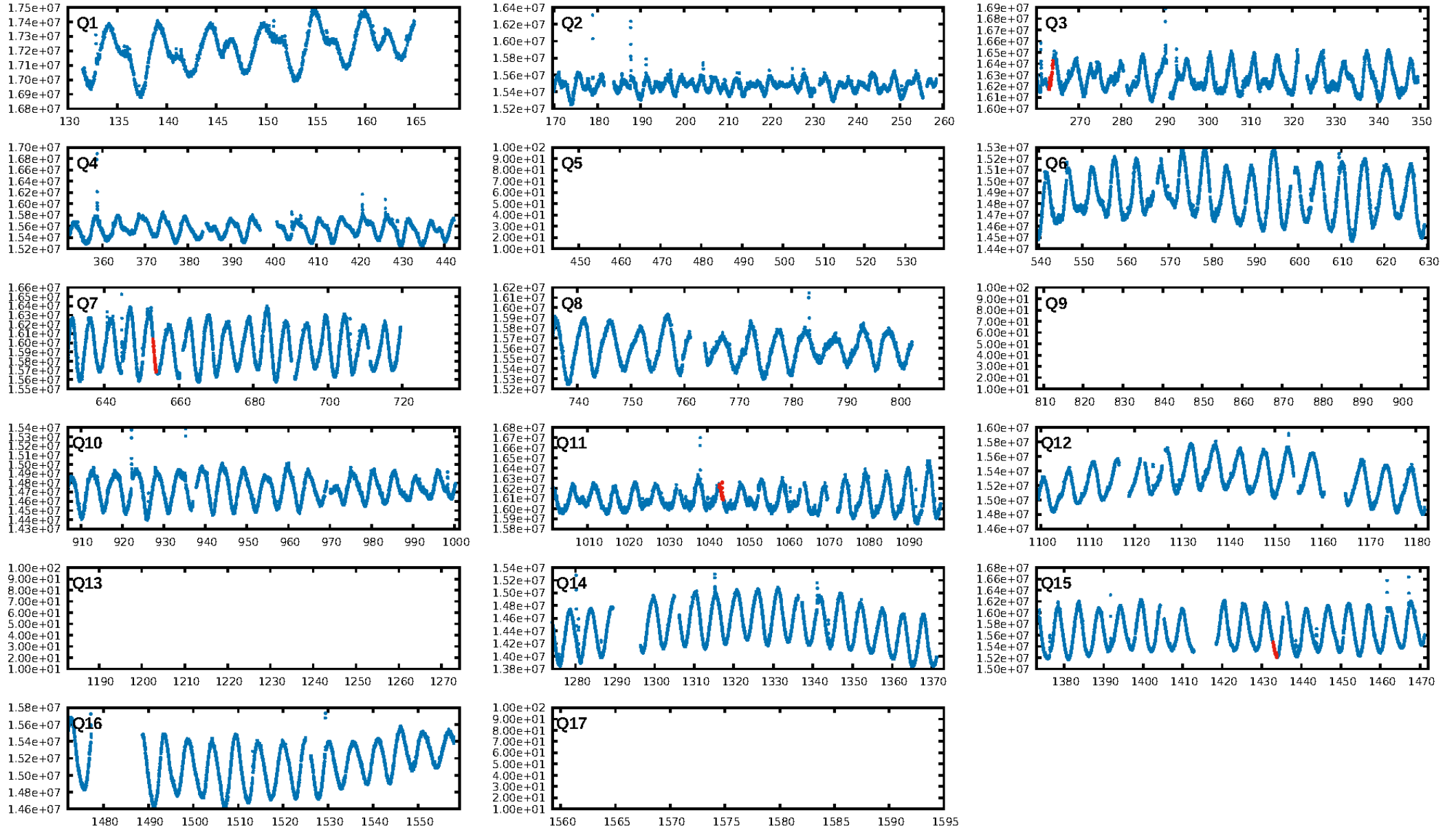
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [122.84 σ]
LongPeriod-sig: 100.0% [36.08 σ]
ModelChiSquare2-sig: 73.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.34e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.807
Centroid-sig: 7.2%
Centroid-so: 0.851 arcsec [1.61 σ]
OotOffset-rm: 0.069 arcsec [0.49 σ]
OotOffset-st: 0/4/0/0 [4]
KicOffset-rm: 0.388 arcsec [3.00 σ]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [4/4]

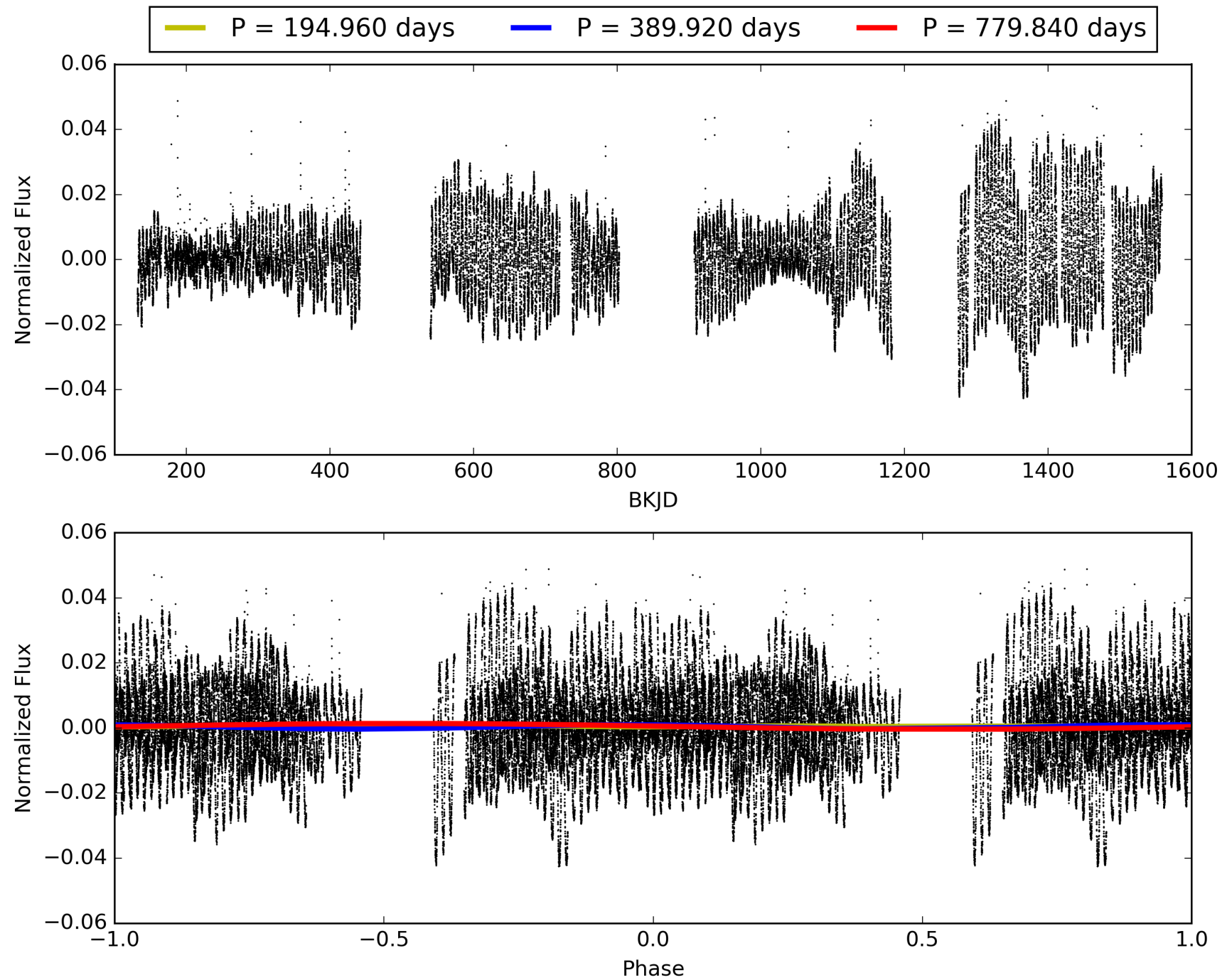
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:01:16 Z

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

TCE 006102338-05, PDC Light Curves

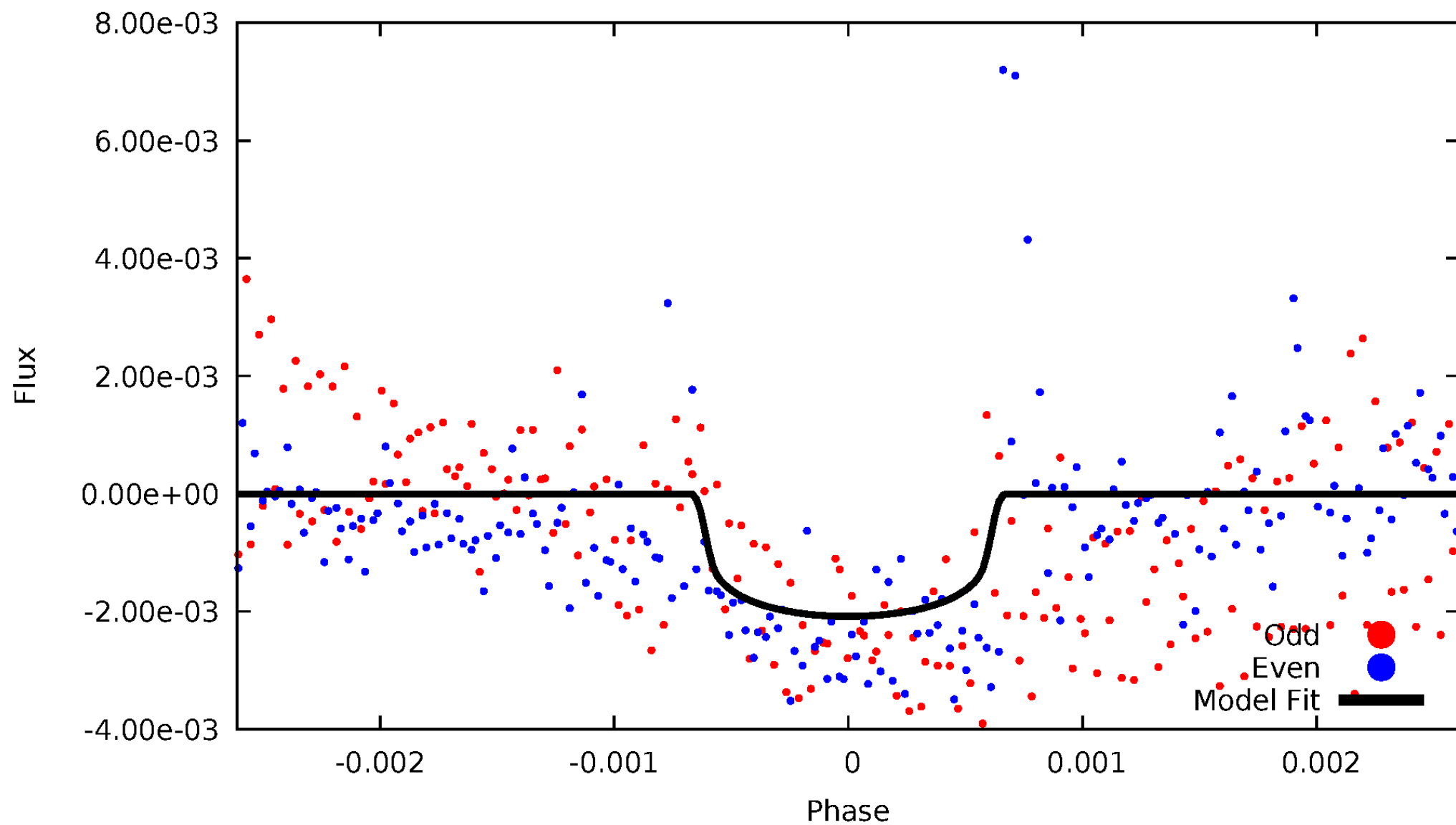


TCE 006102338-05



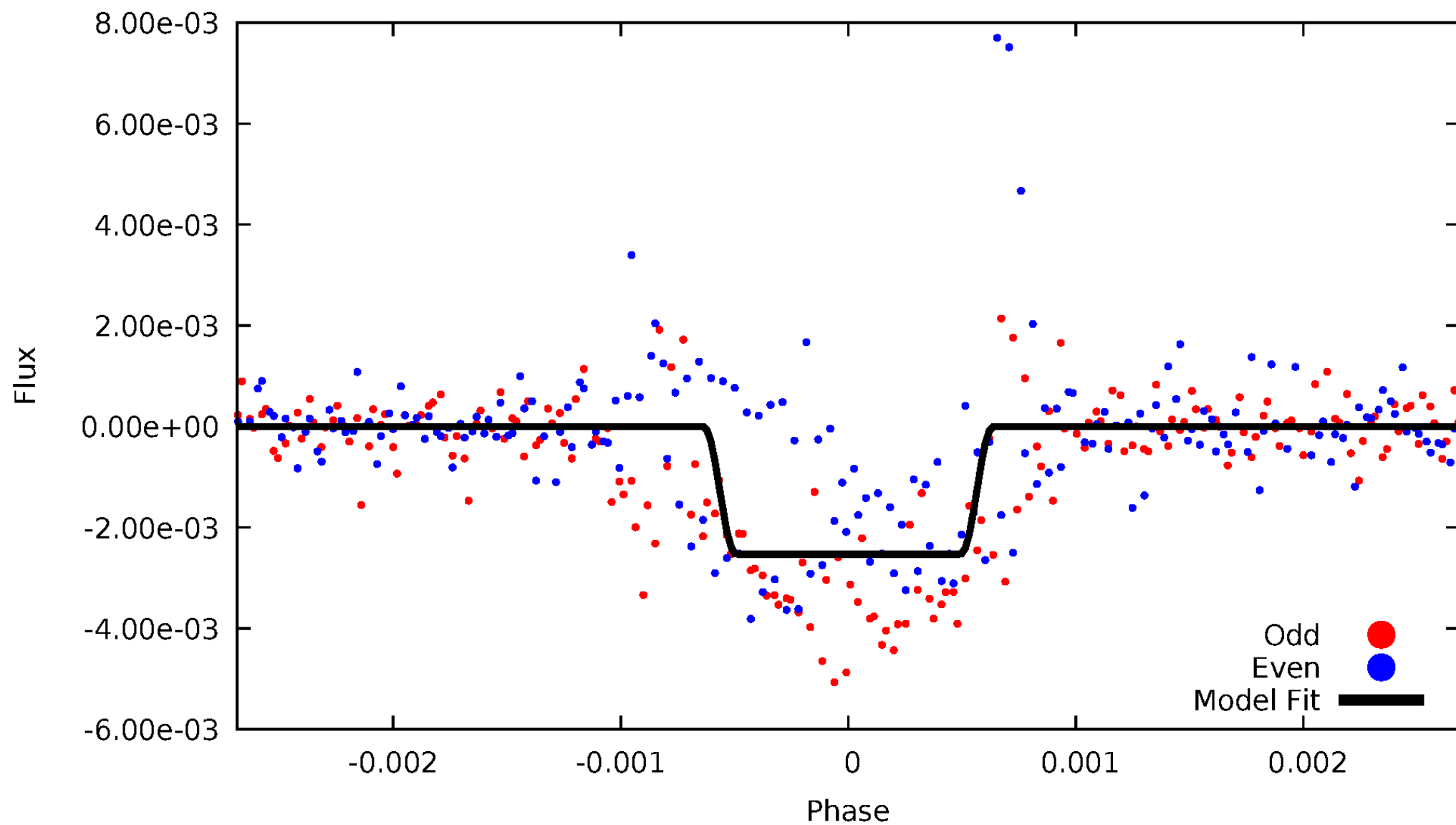
DV Odd/Even

TCE 006102338-05



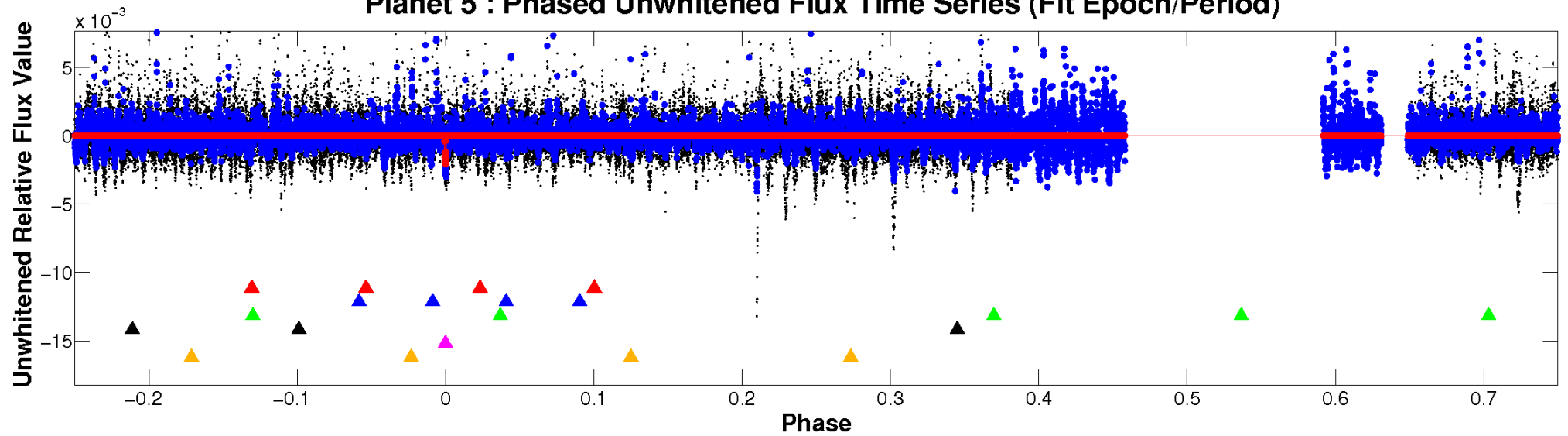
ALT Odd/Even

TCE 006102338-05

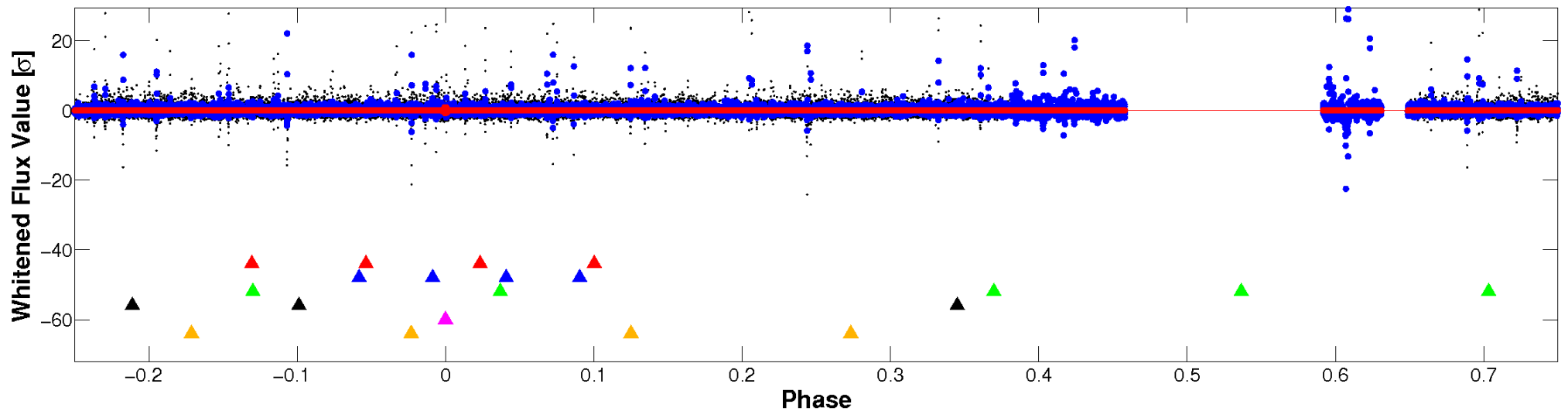


Non-Whitened Vs. Whitened Light Curve

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

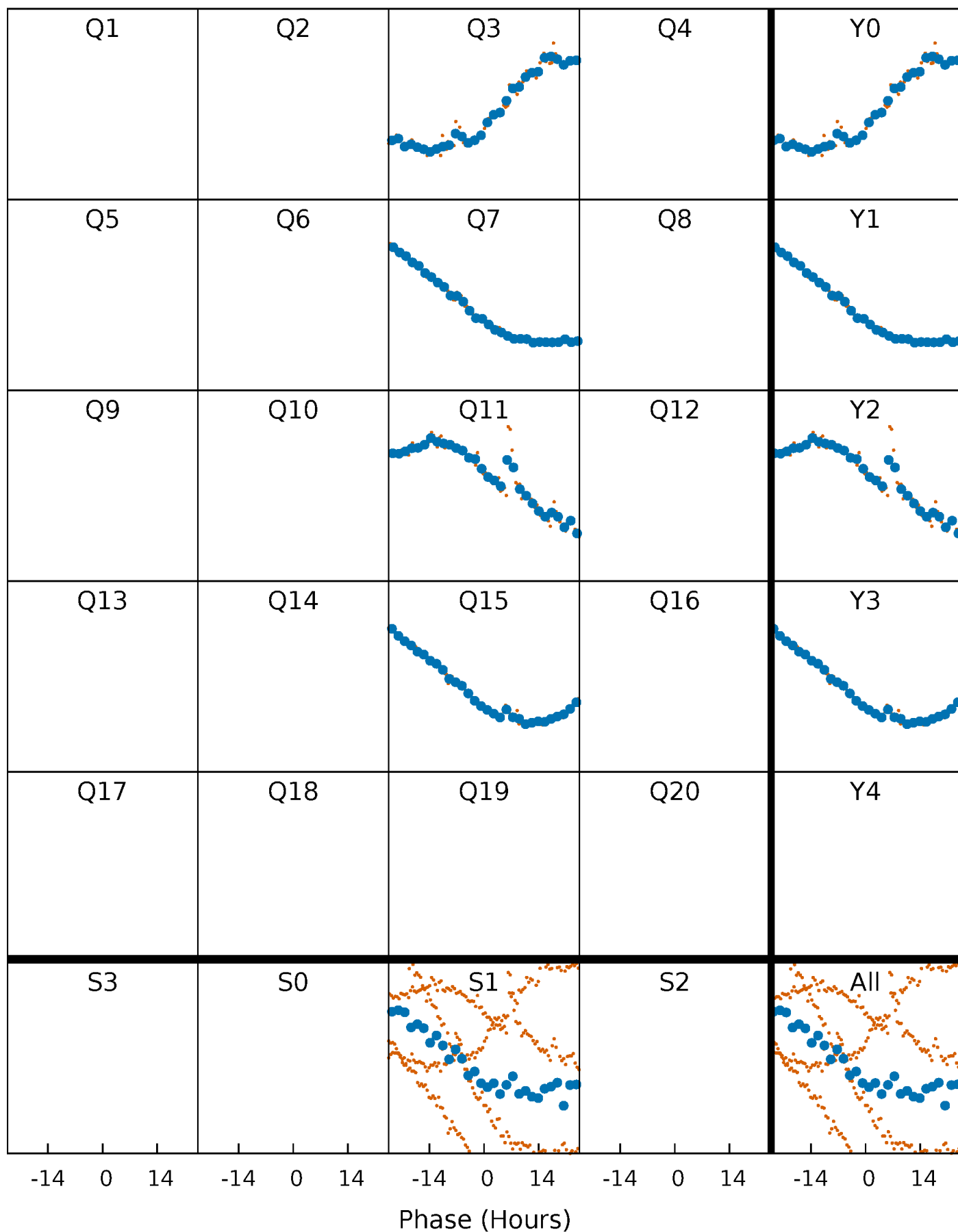


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



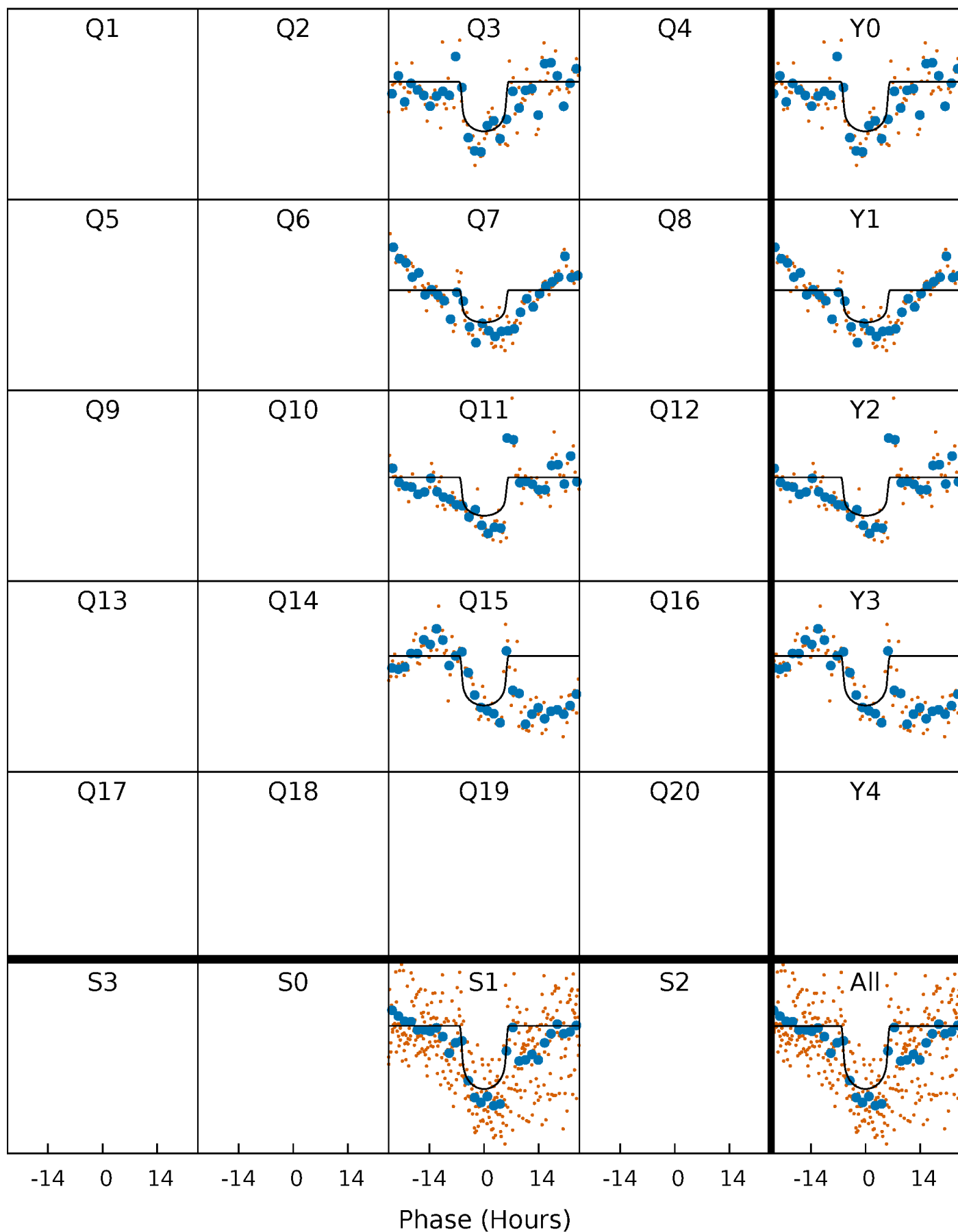
PDC Quarter-Phased Transit Curves

TCE 006102338-05 $P=389.919958$ Days $T_0=263.610505$ (BKJD)



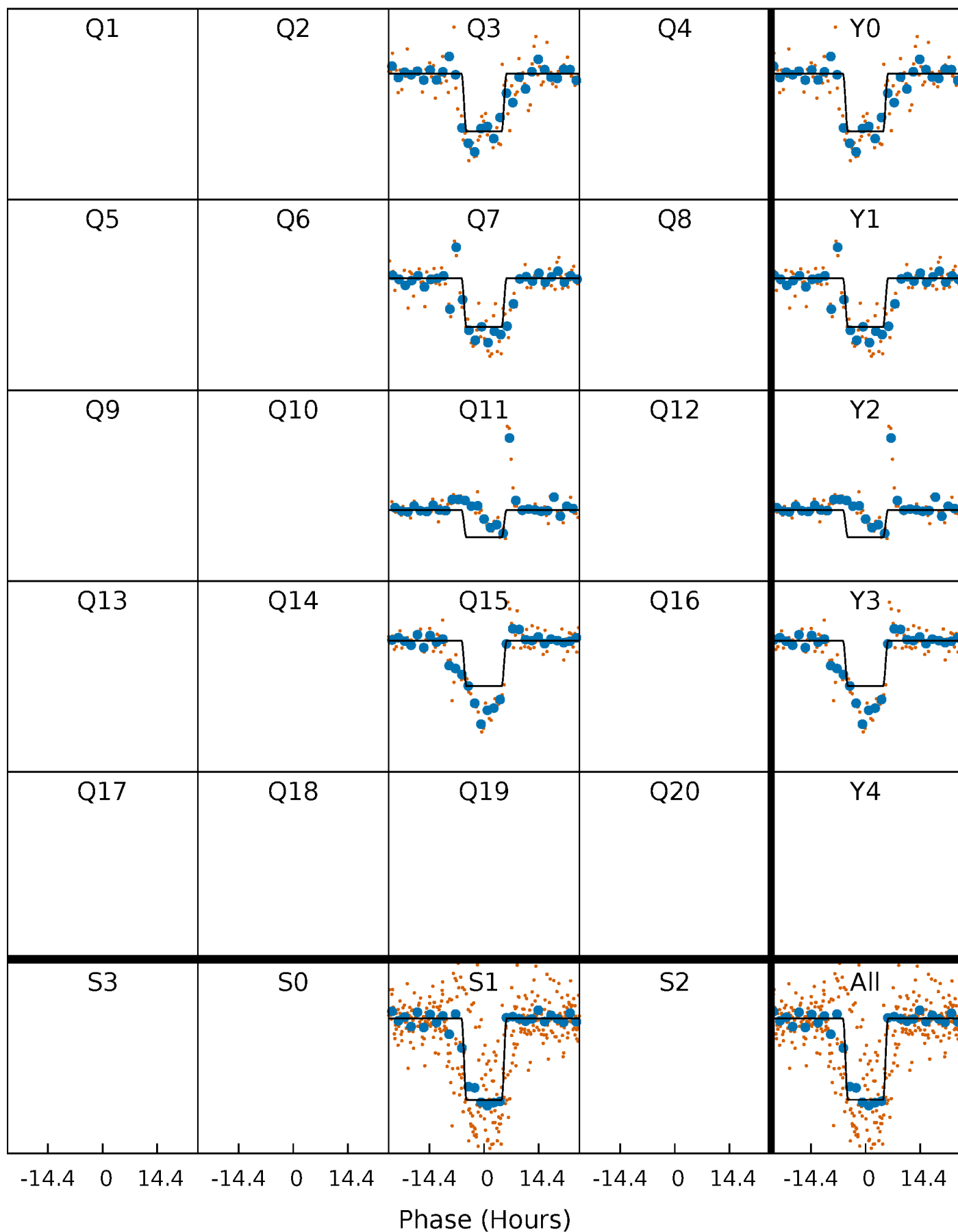
DV Quarter-Phased Transit Curves

TCE 006102338-05 $P=389.919958$ Days $T_0=263.610505$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

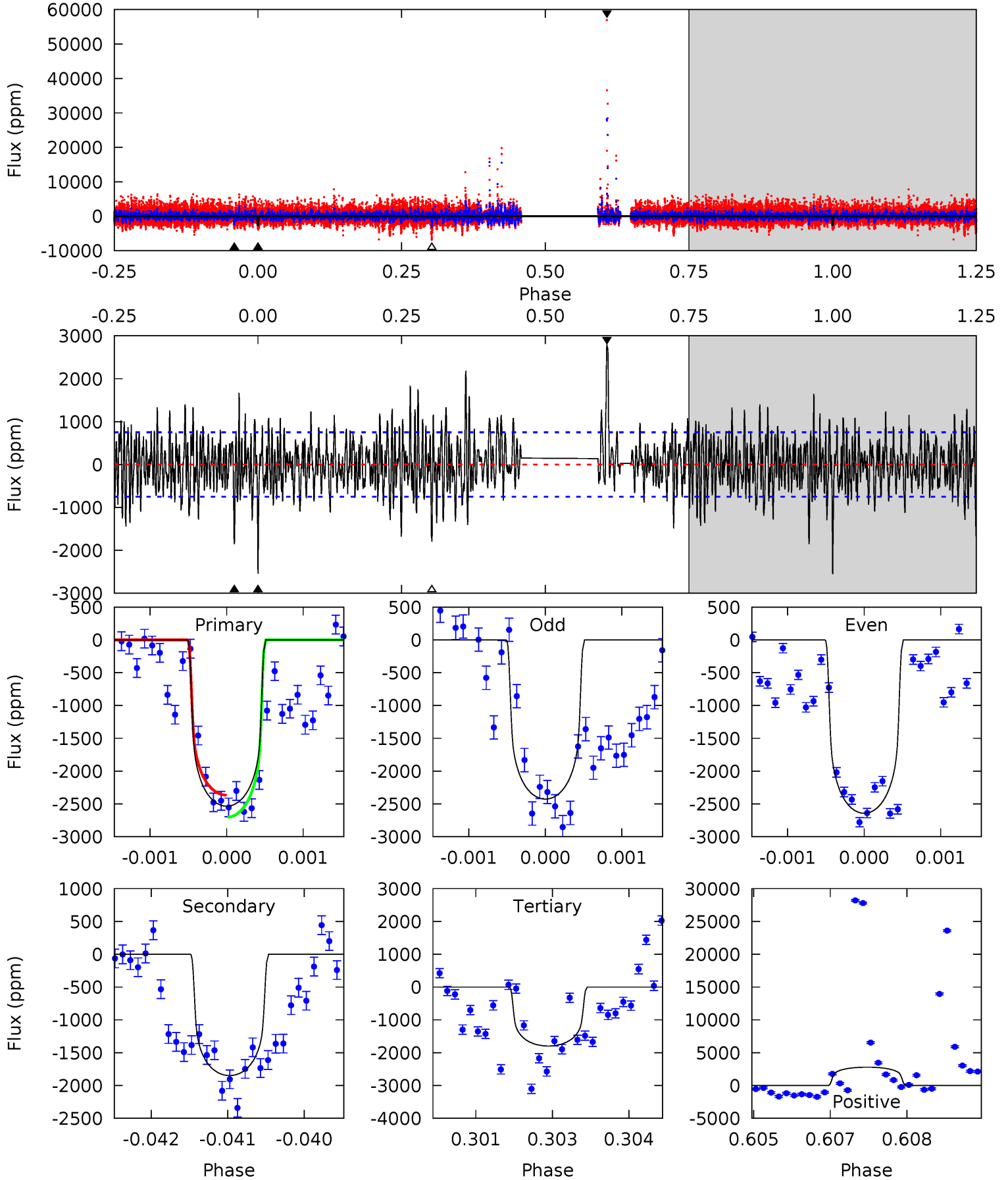
TCE 006102338-05 $P=389.885947$ Days $T_0=263.681207$ (BKJD)



DV Model-Shift Uniqueness Test

006102338-05, P = 389.919958 Days, E = 263.610505 Days

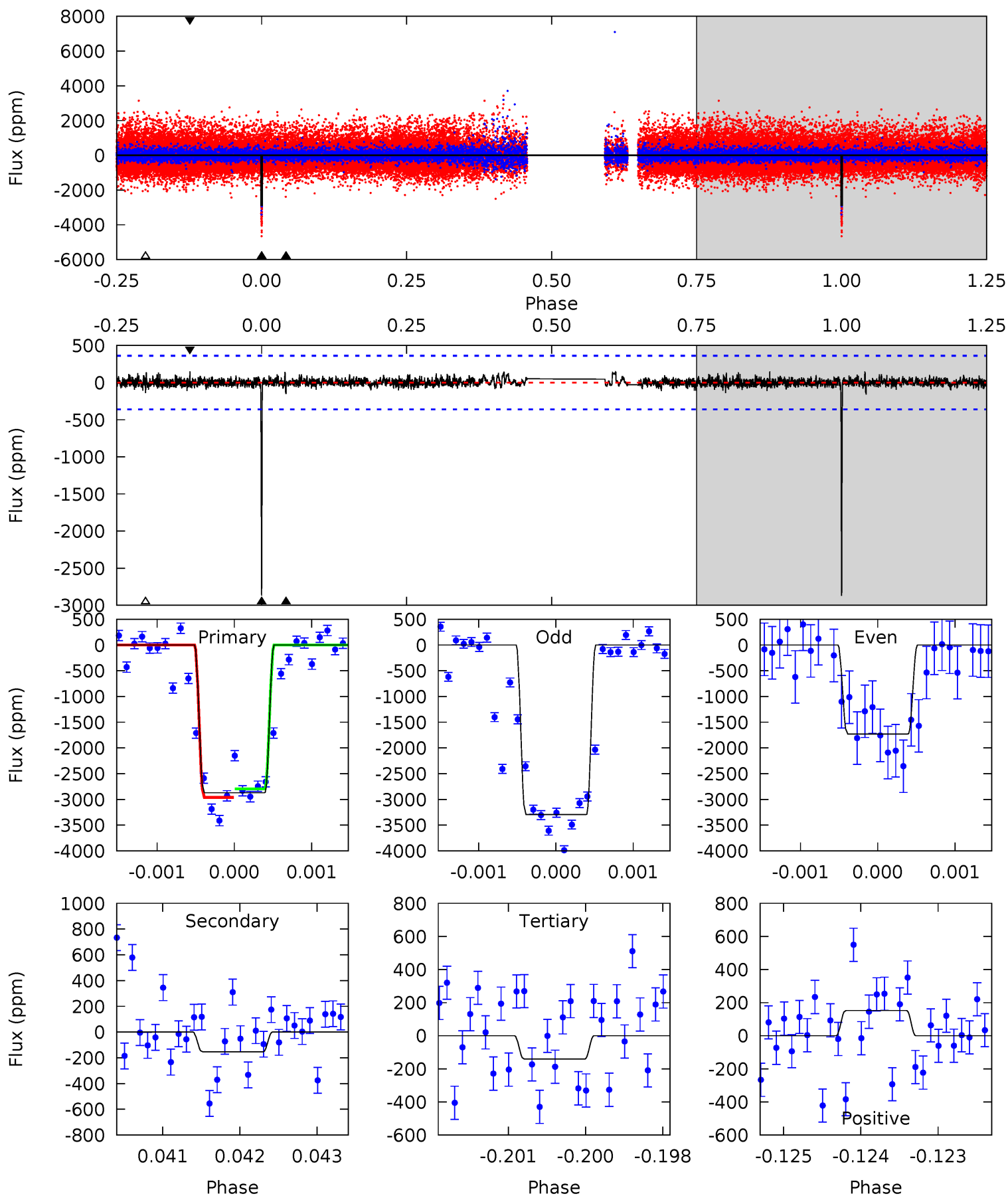
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	13.3	12.9	20.1	5.40	3.21	3.88	5.30	-1.85	0.37	-6.78	0.72	0.96	0.52	1.22



Alt Model-Shift Uniqueness Test

006102338-05, P = 389.885947 Days, E = 263.681207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.1	2.30	2.11	2.29	5.41	3.23	0.50	41.0	40.8	0.19	0.02	12.8	0.88	0.05	1.24



Stellar Parameters For KIC 006102338

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3319^{+84}_{-59}	$5.037^{+0.070}_{-0.070}$	$-0.100^{+0.100}_{-0.100}$	$0.232^{+0.055}_{-0.045}$	$0.214^{+0.072}_{-0.048}$	$24.060^{+11.430}_{-7.728}$
	+3%/-2%	+1%/-1%	+100%/-100%	+24%/-19%	+34%/-22%	+48%/-32%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 006102338-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1849 ± 139	$1.09^{+0.24}_{-0.22}$	125^{+5}_{-5}	3322^{+230}_{-156}	$330784^{+167345}_{-94483}$
Alt.	-153 ± 67	$1.28^{+0.26}_{-0.23}$	125^{+5}_{-5}	2305^{+141}_{-168}	20492^{+13007}_{-9845}

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

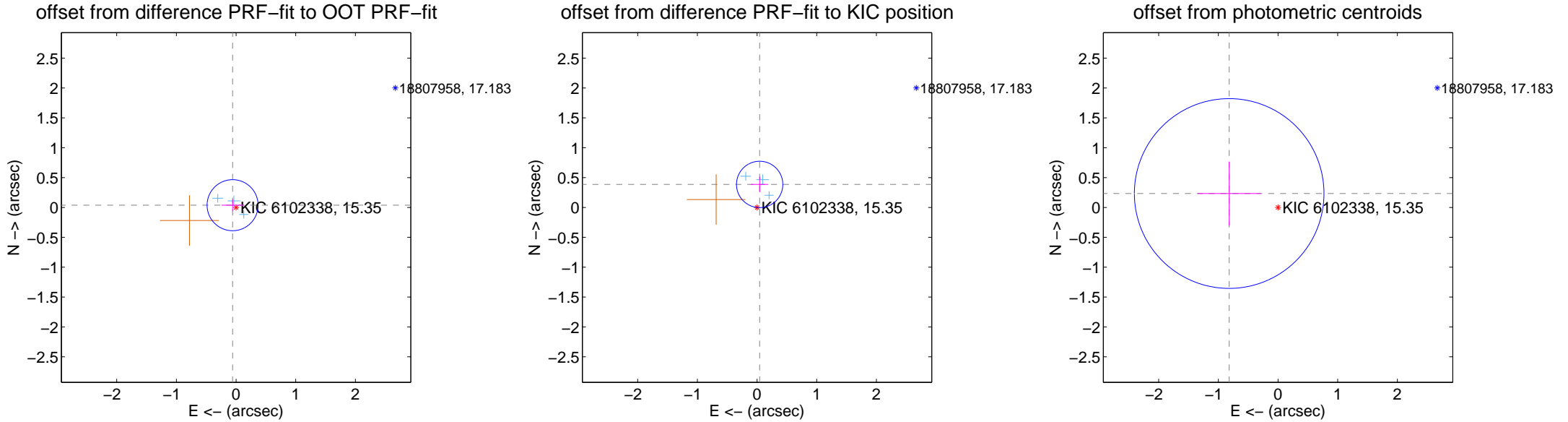
DV Centroid Data

Supplemental centroid analysis for 006102338-05. Kepler magnitude: 15.35. Transit SNR 6.93

There are 3 quarters with good PRF difference image offsets

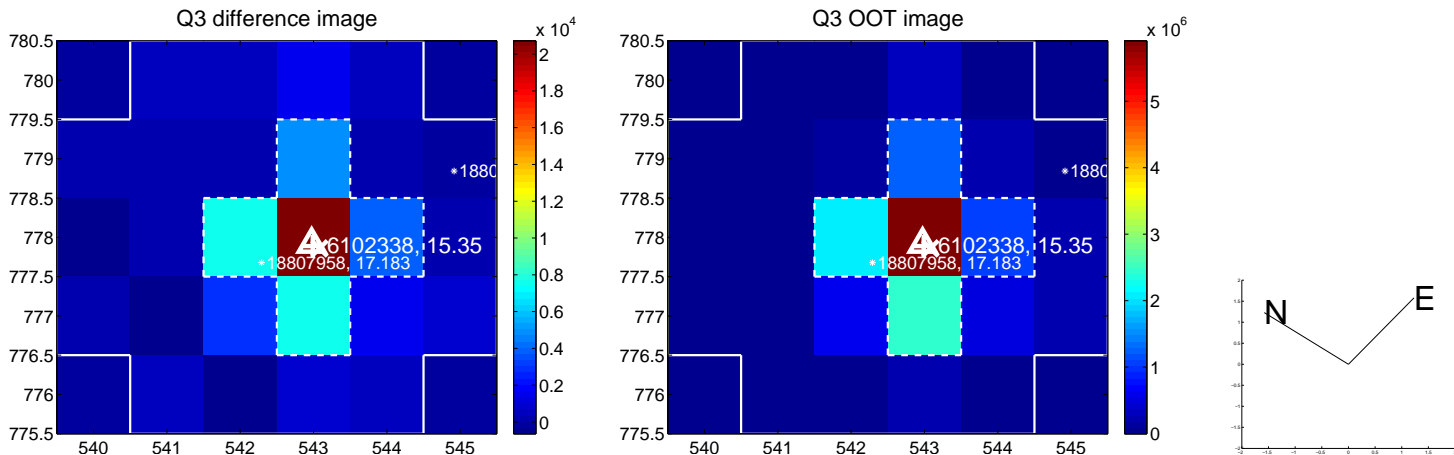
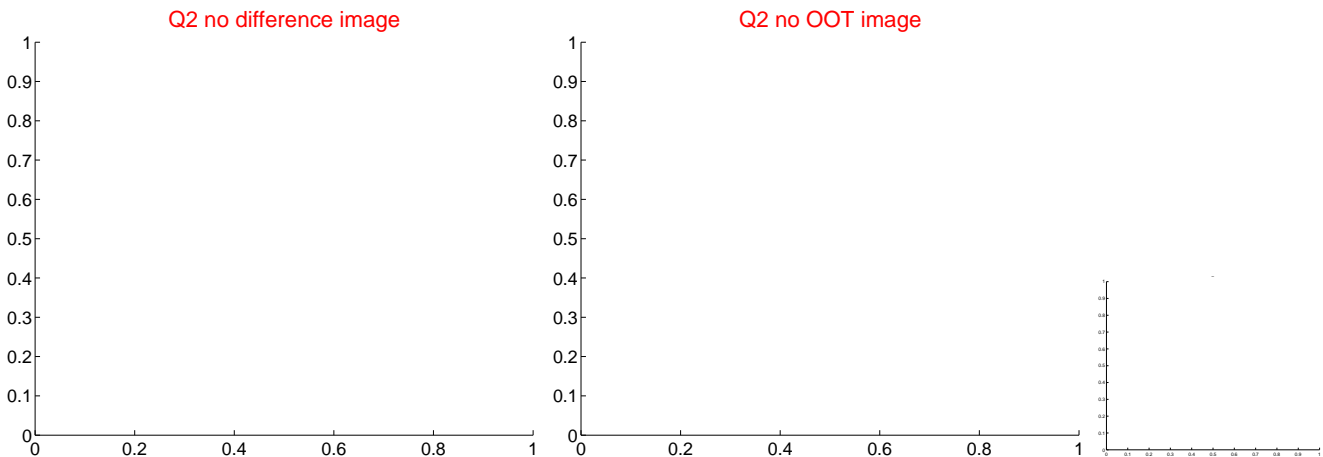
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.069 ± 0.142	0.49	0.058 ± 0.186	0.038 ± 0.093
PRF-fit source offset from KIC position	0.388 ± 0.129	3.00	-0.044 ± 0.145	0.386 ± 0.129
photometric centroid source offset	0.85 ± 0.53	1.61	0.82 ± 0.53	0.23 ± 0.53

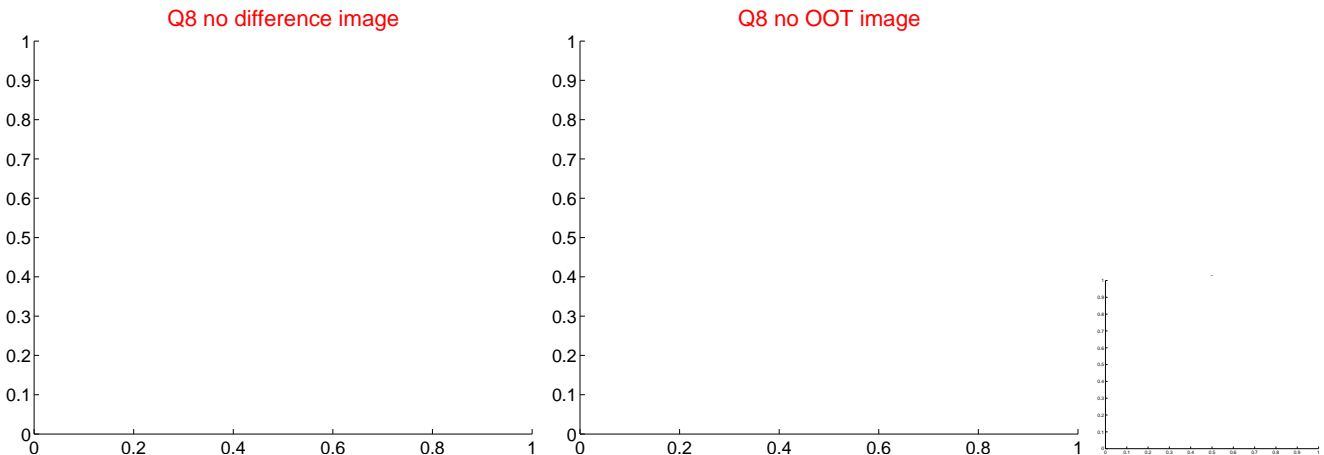
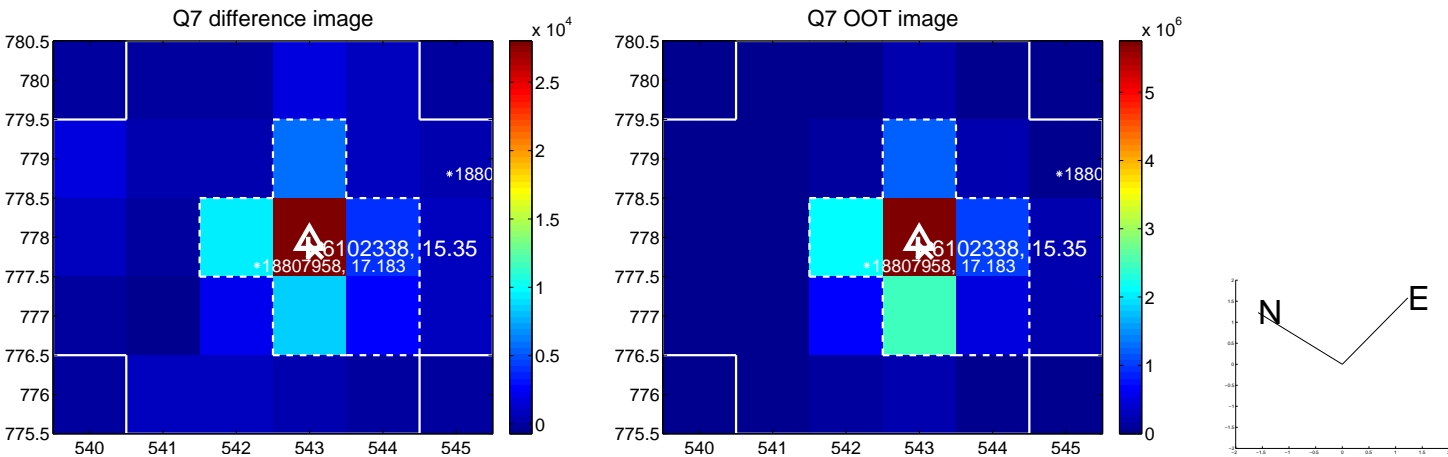
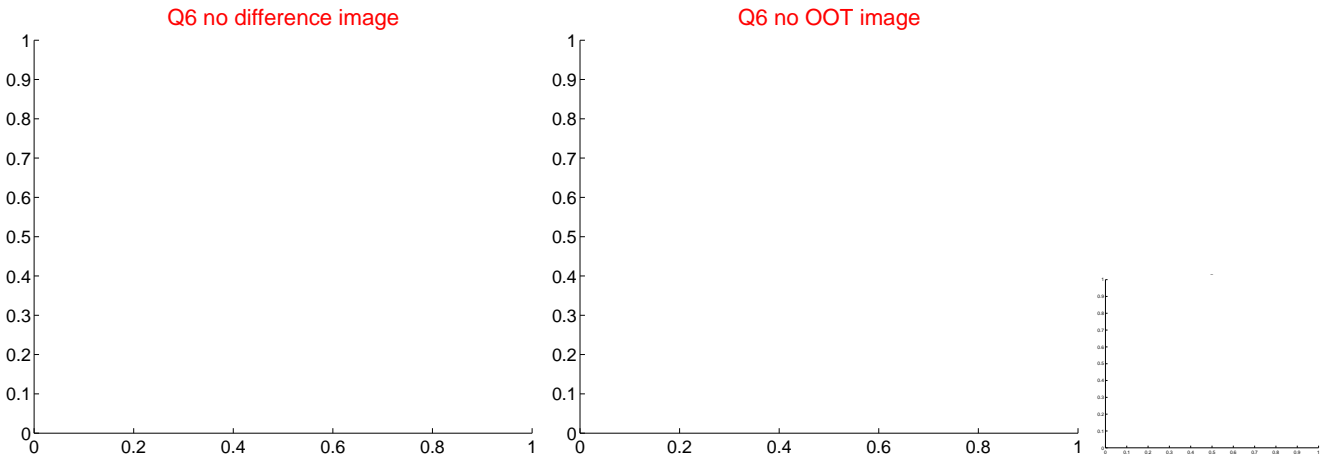
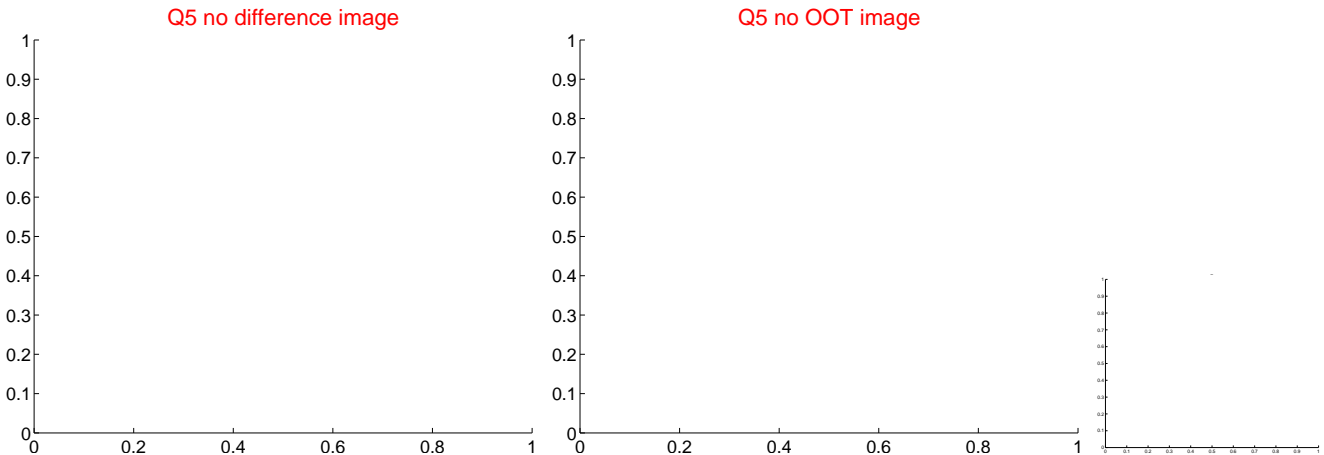


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

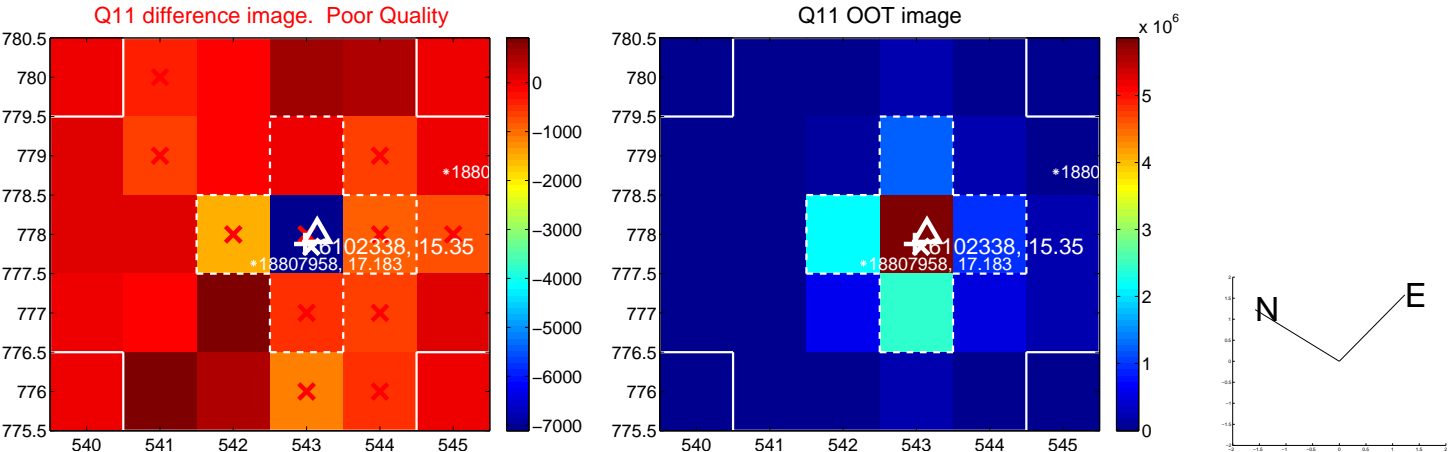
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



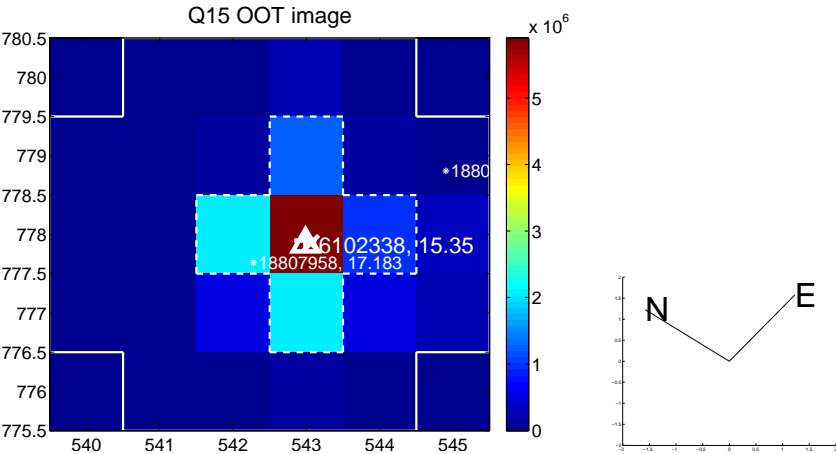
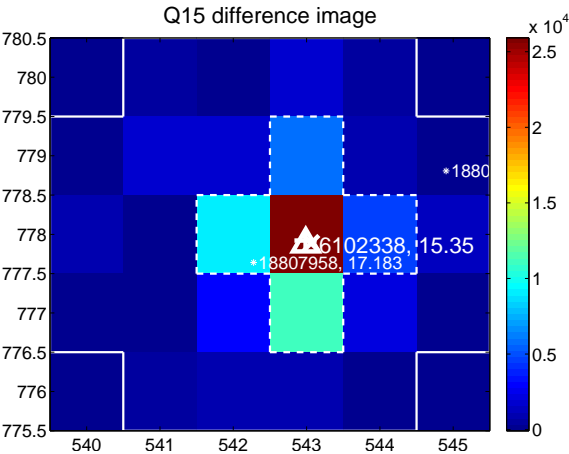
Q13 no OOT image



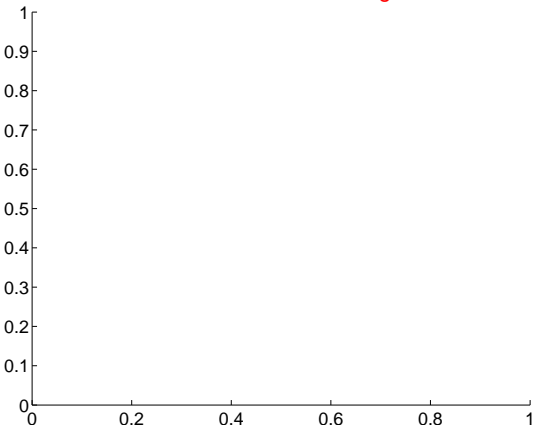
Q14 no difference image



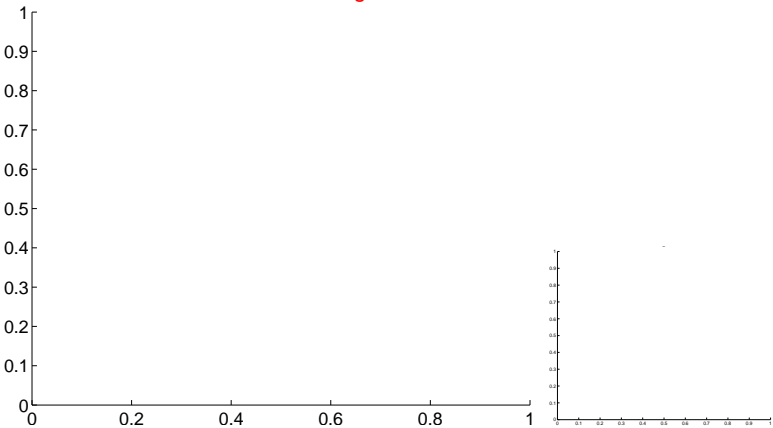
Q14 no OOT image



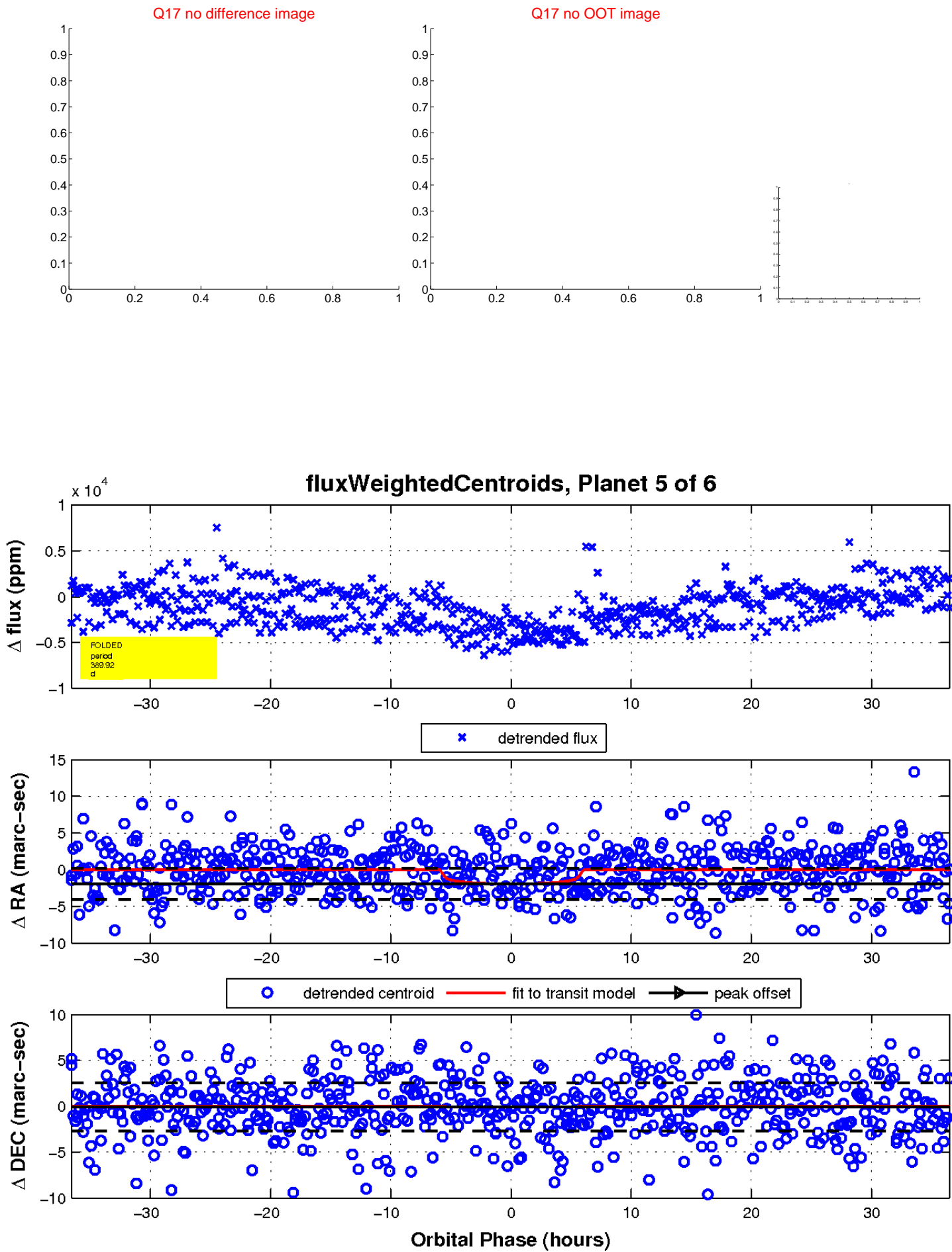
Q16 no difference image



Q16 no OOT image

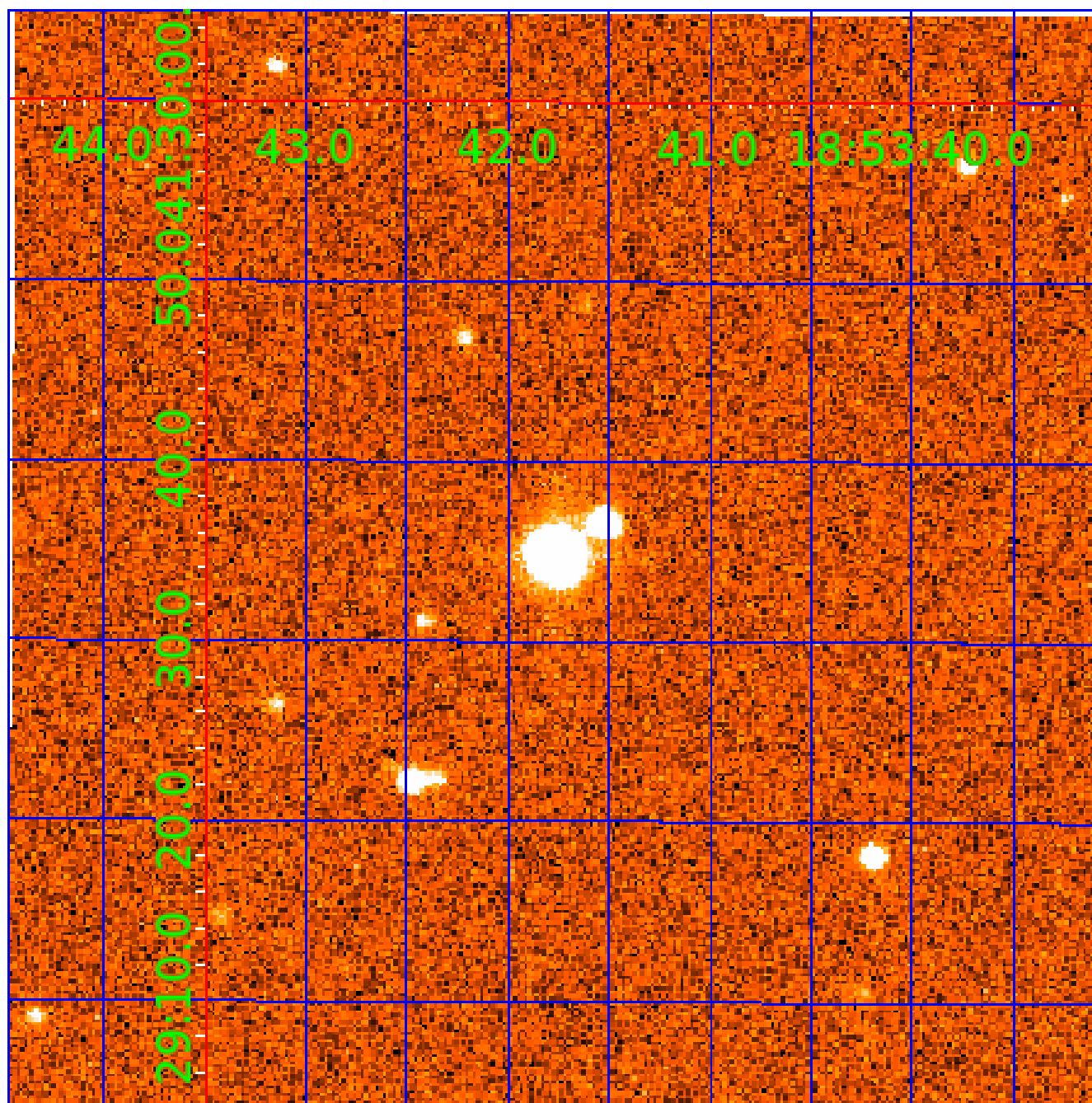


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006102338

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})
006102338-01	OBS	No	419.925961	212.703475	2484.9	8.395	12.5	7.3	0.23	3319	1.21	0.01
006102338-02	OBS	No	409.253228	240.905944	1788.9	4.025	11.2	6.6	0.23	3319	1.04	0.01
006102338-03	OBS	No	324.882613	278.009165	2003.0	3.505	9.8	5.9	0.23	3319	1.04	0.02
006102338-04	OBS	No	562.982448	225.085748	2185.0	2.406	11.4	6.8	0.23	3319	1.07	0.01
006102338-05	OBS	No	389.919958	263.610505	2083.6	12.214	8.5	6.9	0.23	3319	1.08	0.01
006102338-06	OBS	No	447.701235	196.821343	2534.4	4.655	10.3	9.3	0.23	3319	1.17	0.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006102338-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_KIC_POS
006102338-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-03	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—CENT_FEW_DIFFS
006102338-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006102338-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
006102338-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

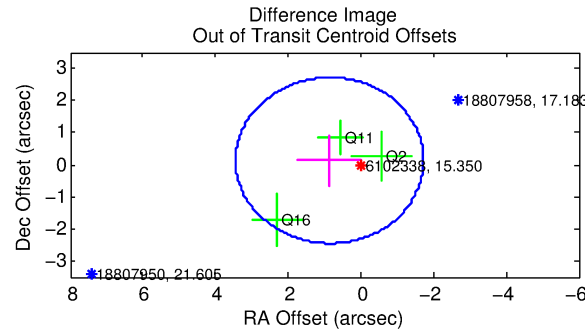
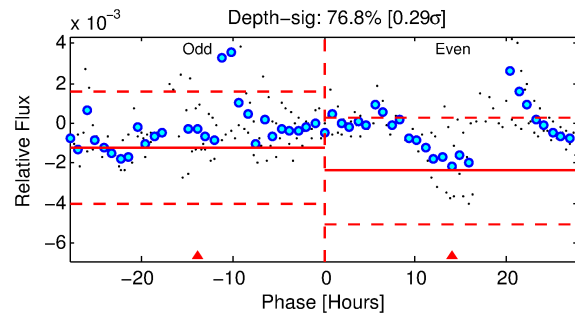
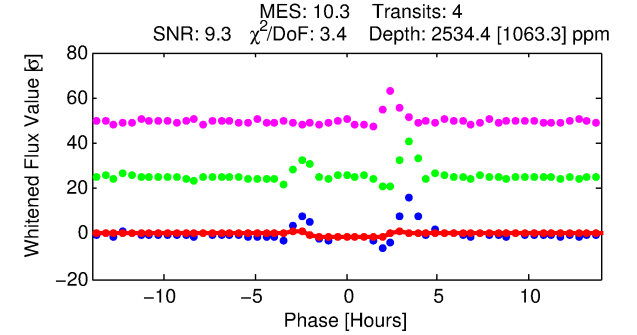
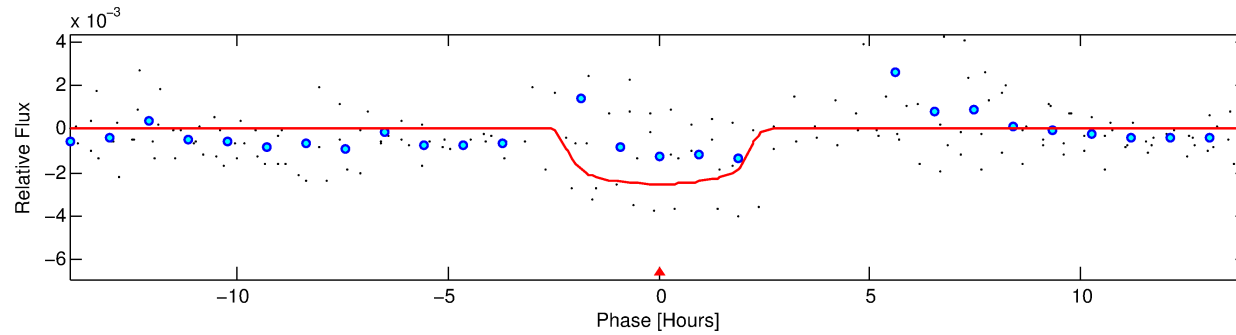
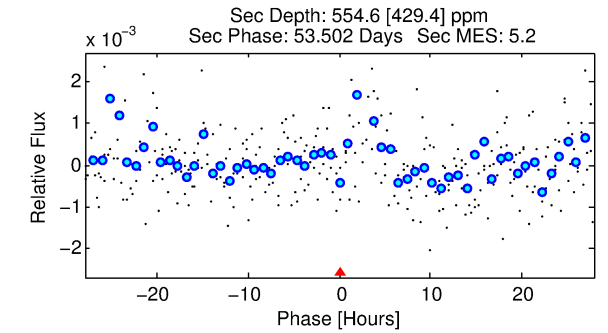
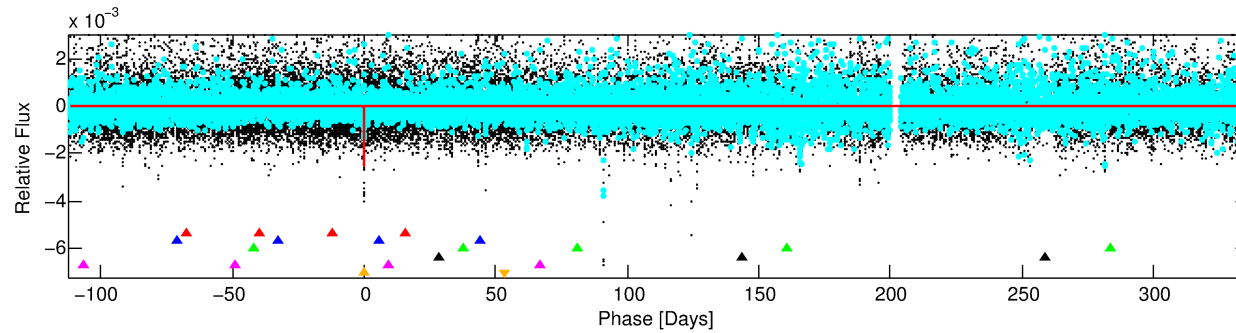
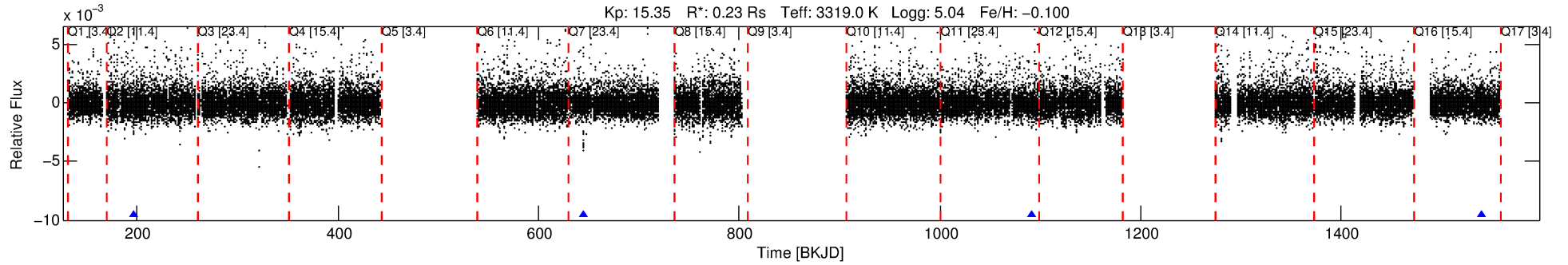
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006102338-06

No Significant Match Found

DV One-Page Summary

KIC: 6102338 Candidate: 6 of 6 Period: 447.701 d



DV Fit Results:

Period = 447.70123 [0.01204] d
Epoch = 196.8213 [0.0226] BKJD
Rp/R* = 0.0460 [0.1057]
a/R* = 740.29 [7445.43]
b = 0.28 [33.01]
Seff = 0.01 [0.00]
Teq = 85 [5] K
Rp = 1.17 [2.69] Re
a = 0.6850 [0.1143] AU
Ag = 105432.87 [491515.60] [0.21 σ]
Teffp = 2374 [2765] K [0.83 σ]

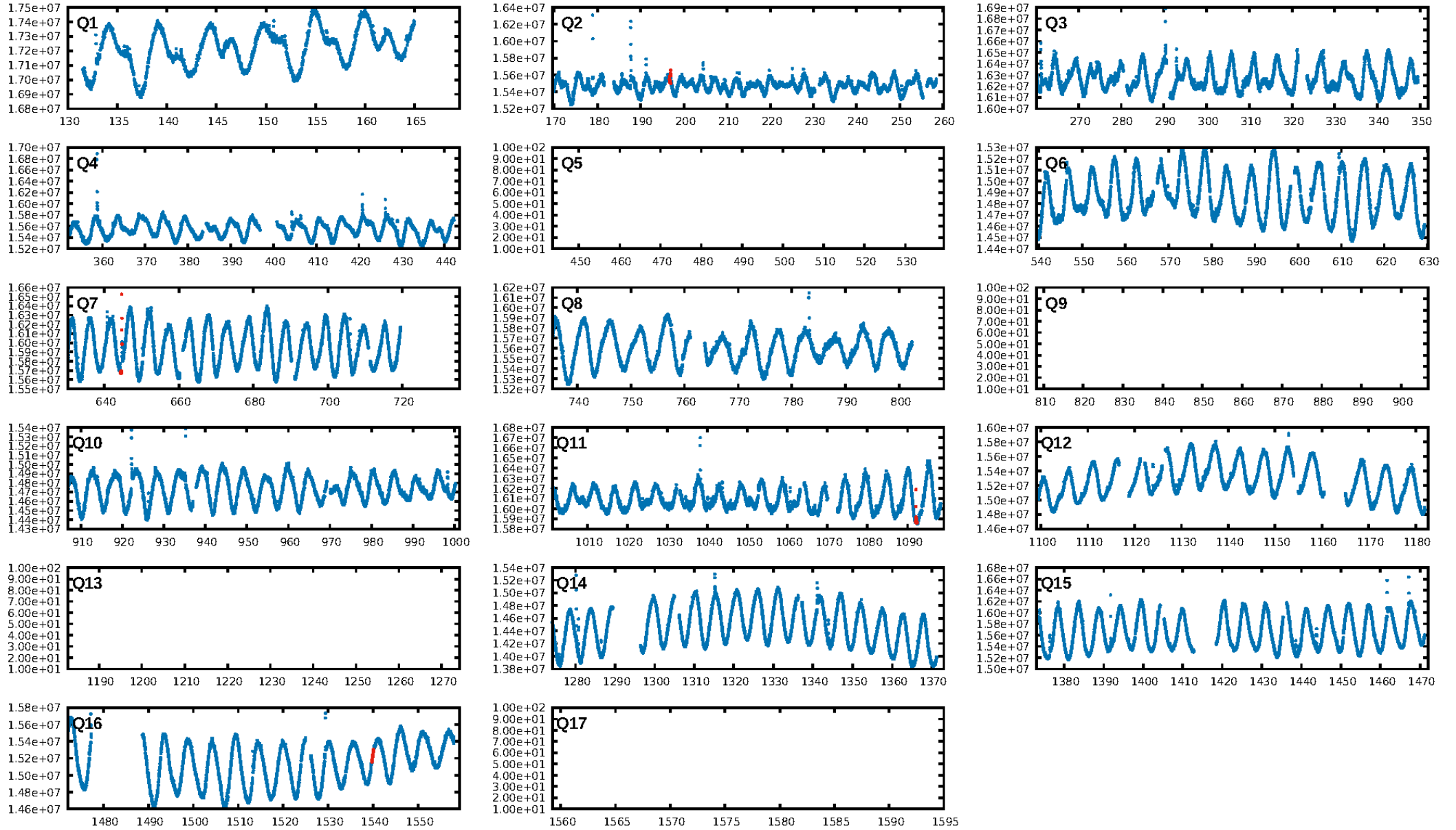
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [69.45 σ]
LongPeriod-sig: 100.0% [528.02 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.3%
Bootstrap-pfa: 2.55e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.528
Centroid-sig: 73.1%
Centroid-so: 0.249 arcsec [0.36 σ]
OotOffset-rm: 0.874 arcsec [1.01 σ]
KicOffset-rm: 0.858 arcsec [0.97 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

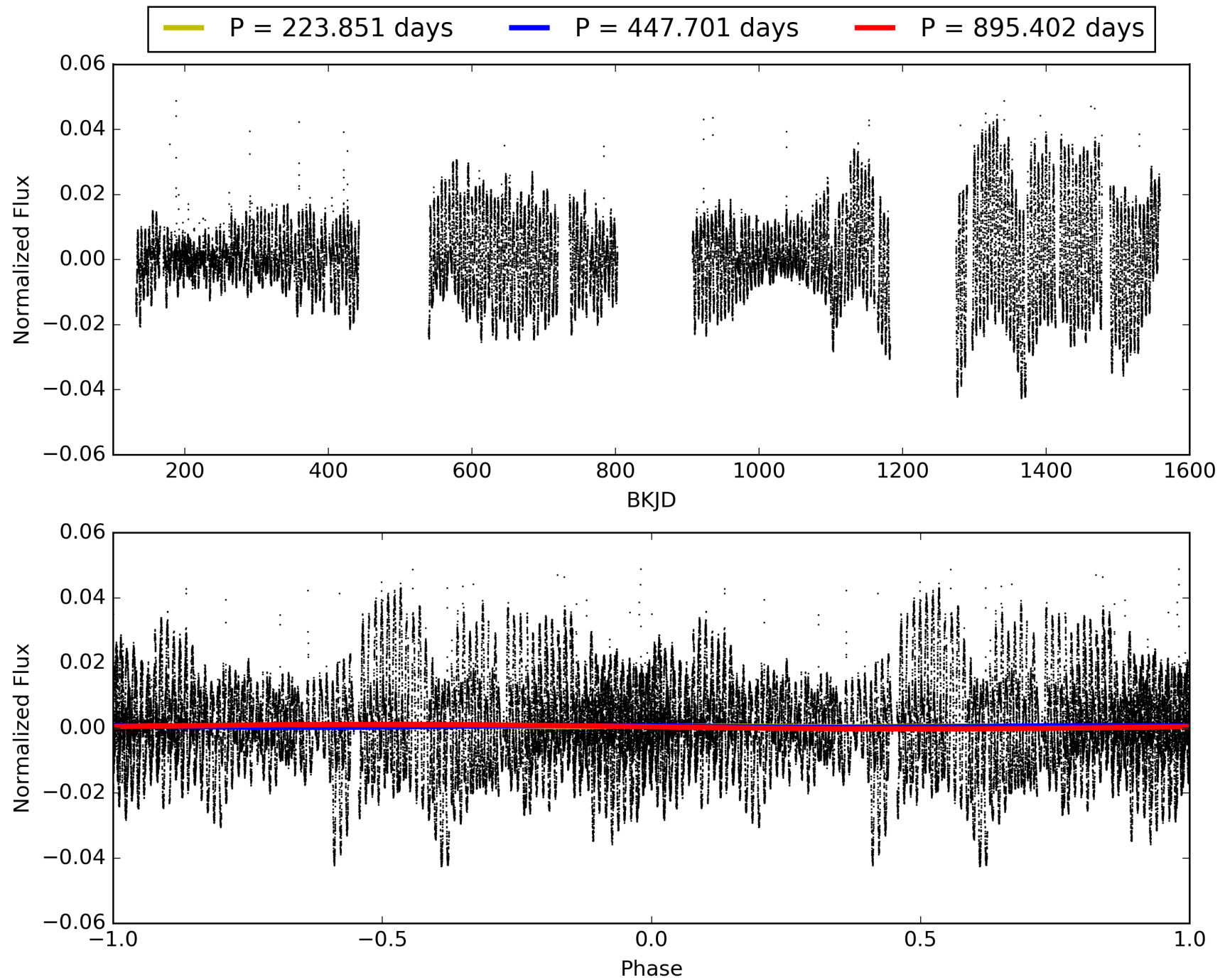
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:01:35 Z

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

TCE 006102338-06, PDC Light Curves

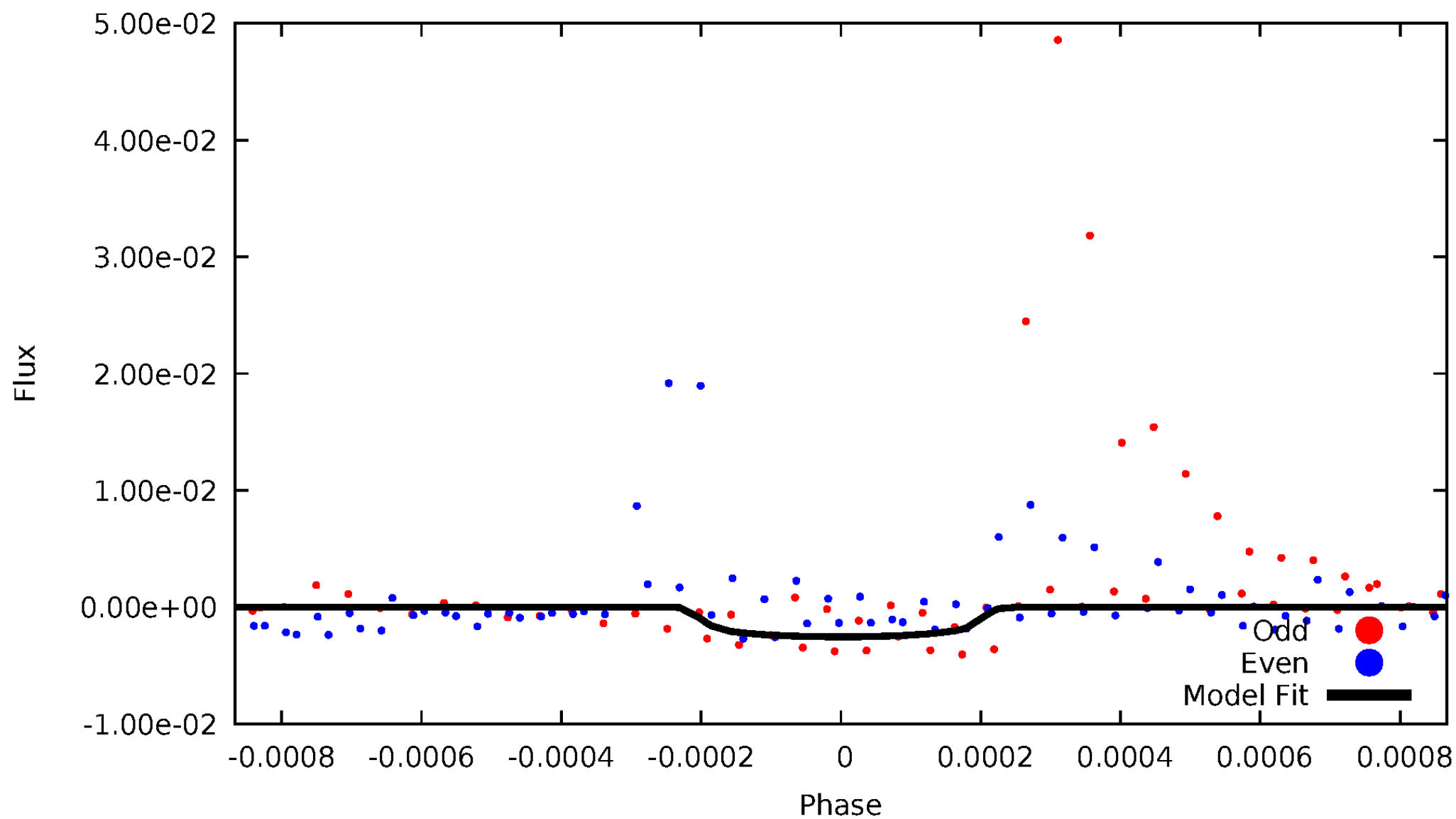


TCE 006102338-06



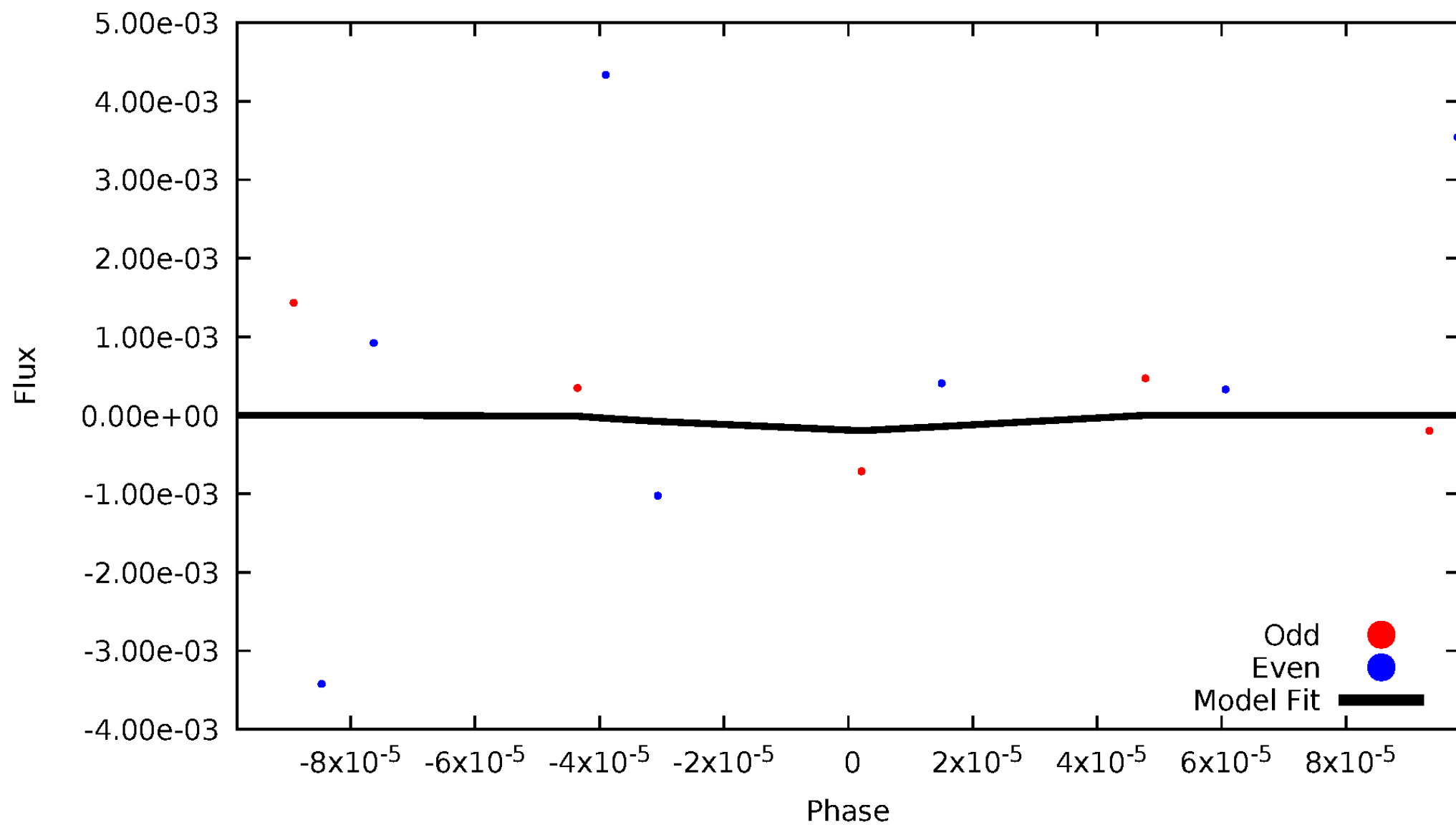
DV Odd/Even

TCE 006102338-06



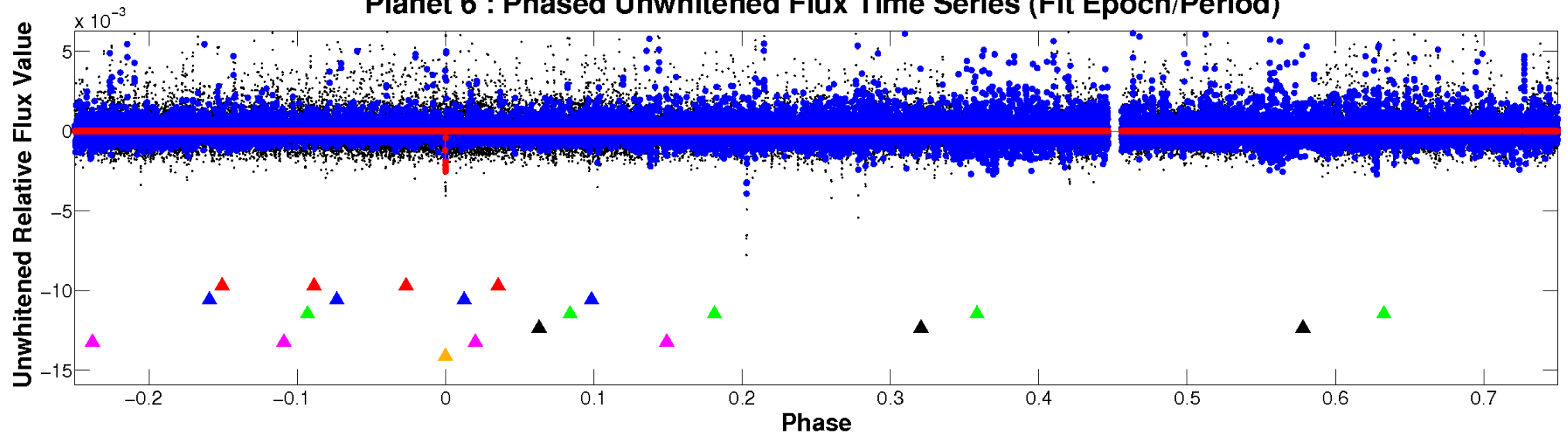
ALT Odd/Even

TCE 006102338-06

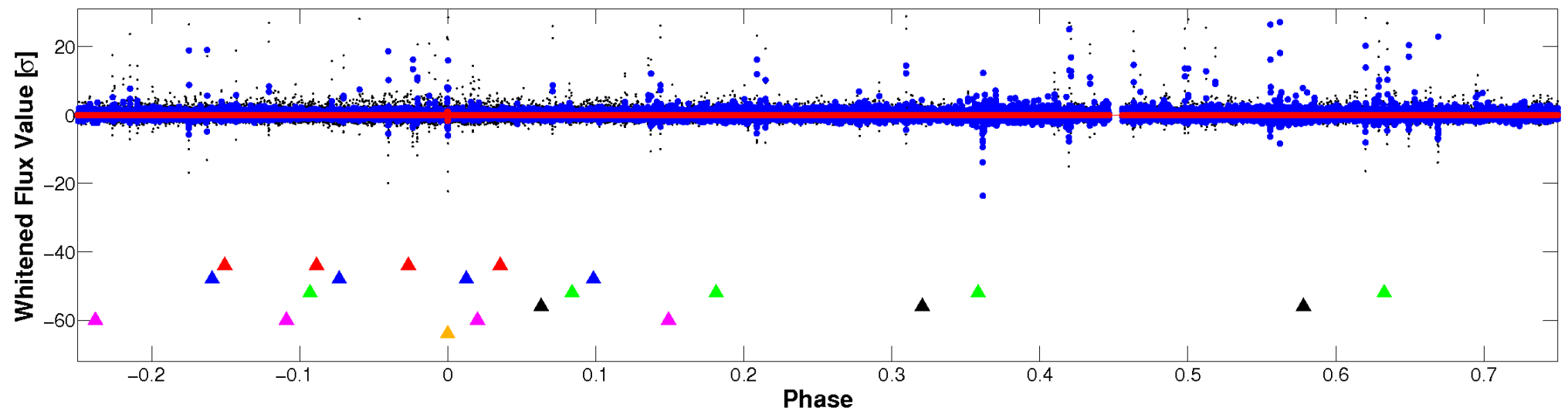


Non-Whitened Vs. Whitened Light Curve

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

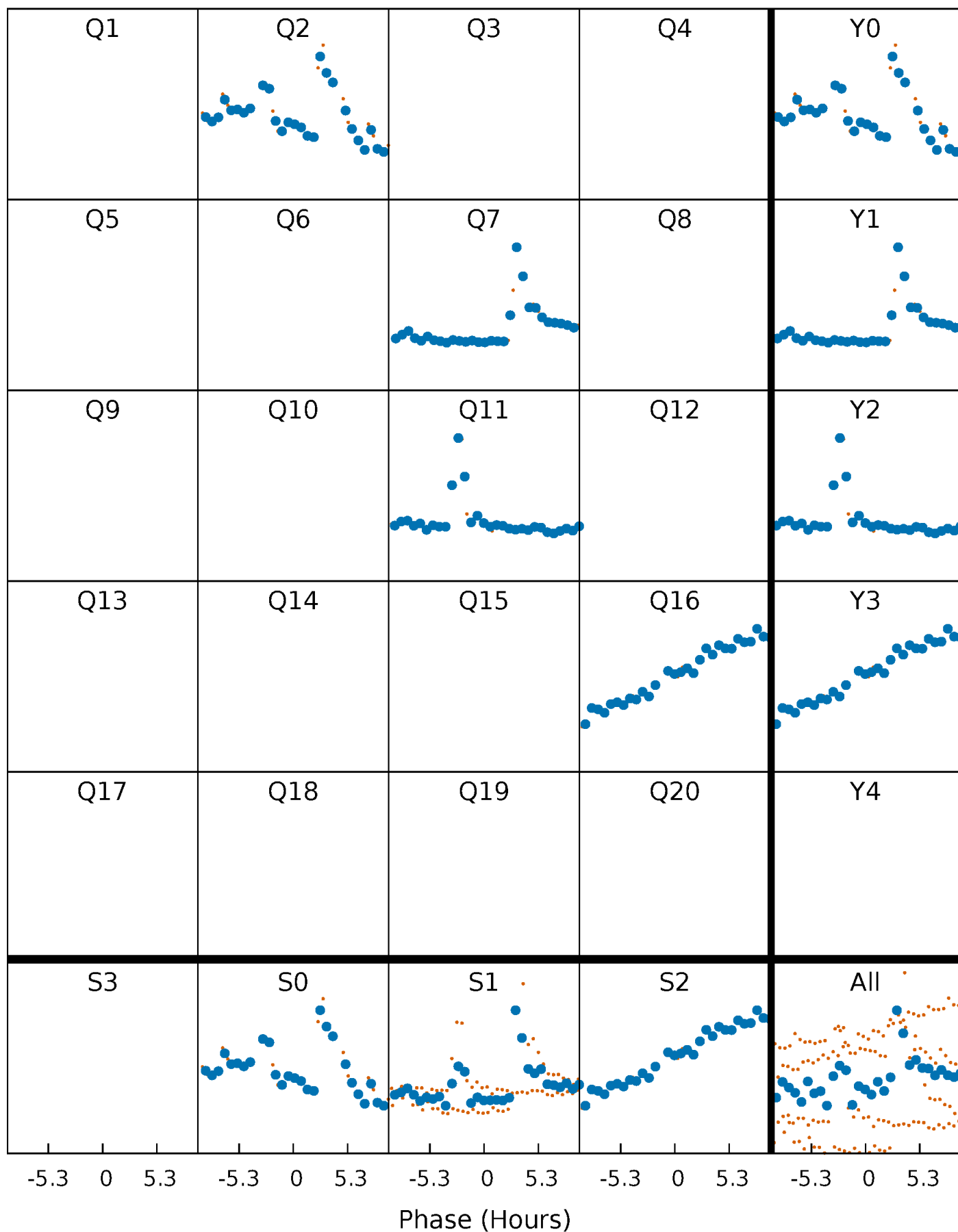


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



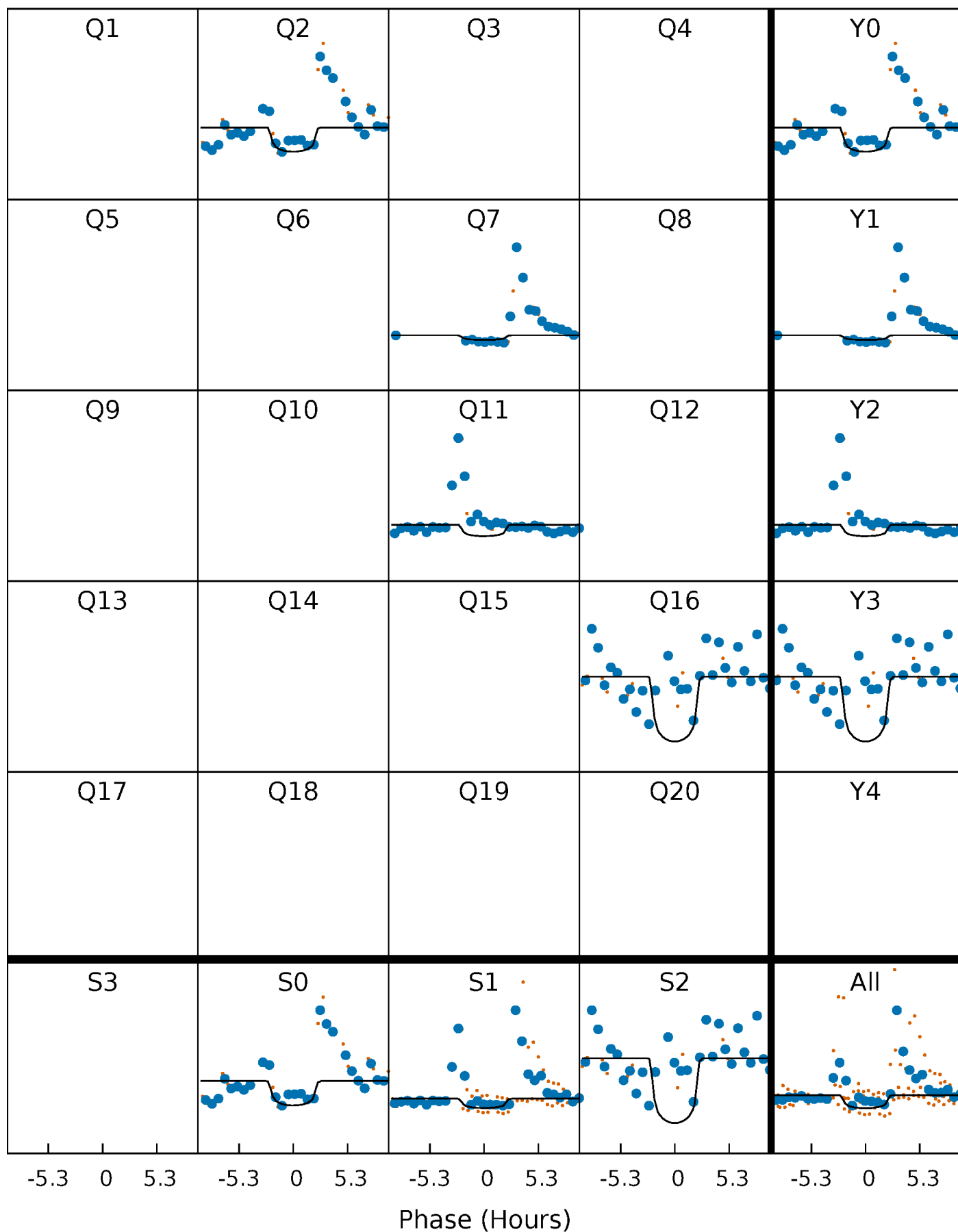
PDC Quarter-Phased Transit Curves

TCE 006102338-06 P=447.701235 Days $T_0=196.821343$ (BKJD)



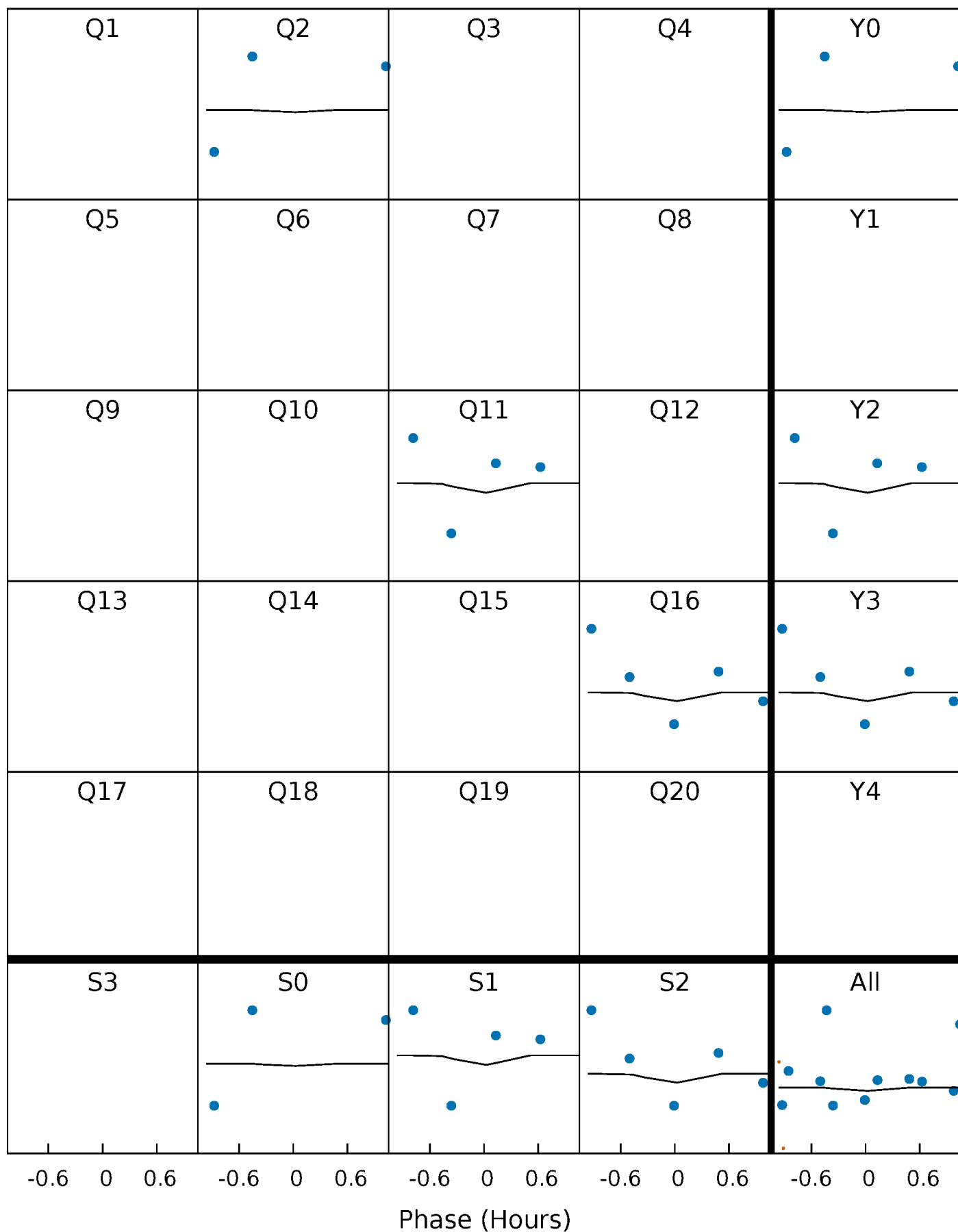
DV Quarter-Phased Transit Curves

TCE 006102338-06 P=447.701235 Days $T_0=196.821343$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

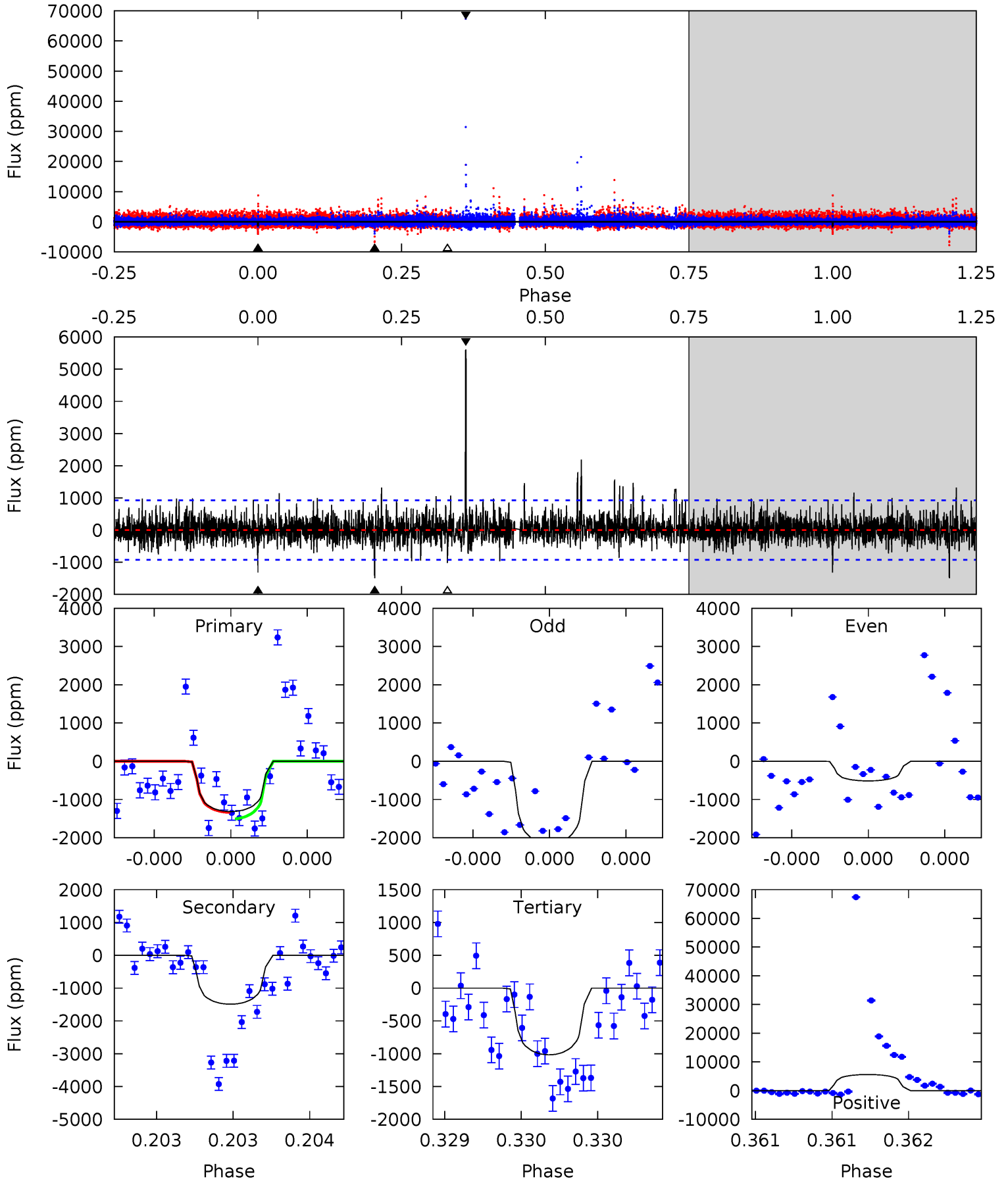
TCE 006102338-06 P=447.665244 Days $T_0=196.939814$ (BKJD)



DV Model-Shift Uniqueness Test

006102338-06, P = 447.701235 Days, E = 196.821343 Days

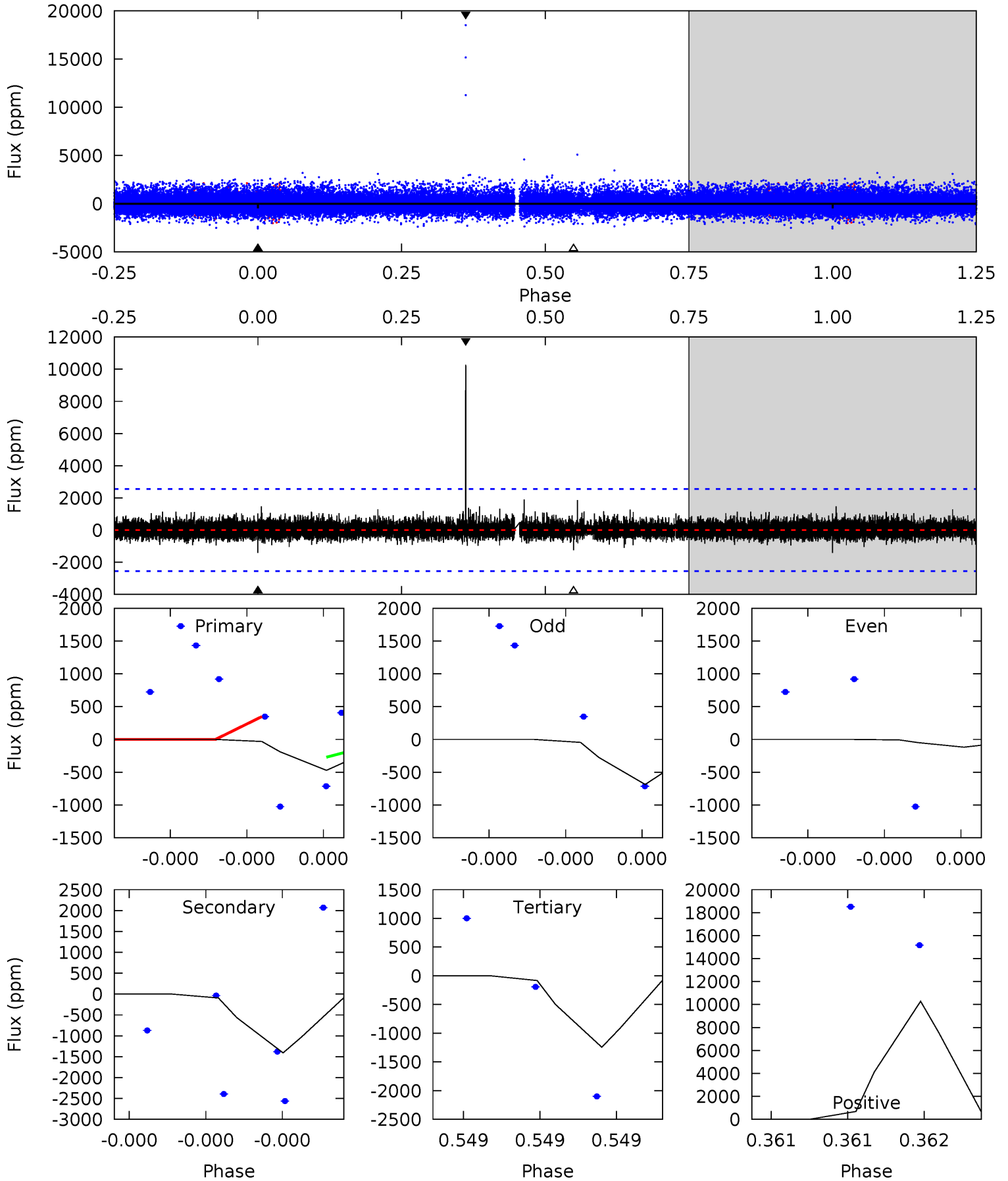
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.95	9.02	6.15	33.9	5.59	3.51	1.89	1.80	-26.0	2.87	-24.9	4.48	0.90	0.79	0.51



Alt Model-Shift Uniqueness Test

006102338-06, P = 447.665244 Days, E = 196.939814 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.10	3.28	2.91	24.0	5.95	4.04	0.63	-1.80	-22.9	0.38	-20.7	0.66	1.00	0.88	0



Stellar Parameters For KIC 006102338

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3319^{+84}_{-59}	$5.037^{+0.070}_{-0.070}$	$-0.100^{+0.100}_{-0.100}$	$0.232^{+0.055}_{-0.045}$	$0.214^{+0.072}_{-0.048}$	$24.060^{+11.430}_{-7.728}$
	+3%/-2%	+1%/-1%	+100%/-100%	+24%/-19%	+34%/-22%	+48%/-32%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 006102338-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1491 ± 165	$2.43^{+2.07}_{-1.58}$	119^{+5}_{-5}	2586^{+889}_{-358}	$63675^{+495192}_{-44852}$
Alt.	-1407 ± 428	$1.96^{+2.14}_{-1.43}$	120^{+5}_{-5}	2742^{+1338}_{-482}	$98697^{+1219496}_{-77278}$

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

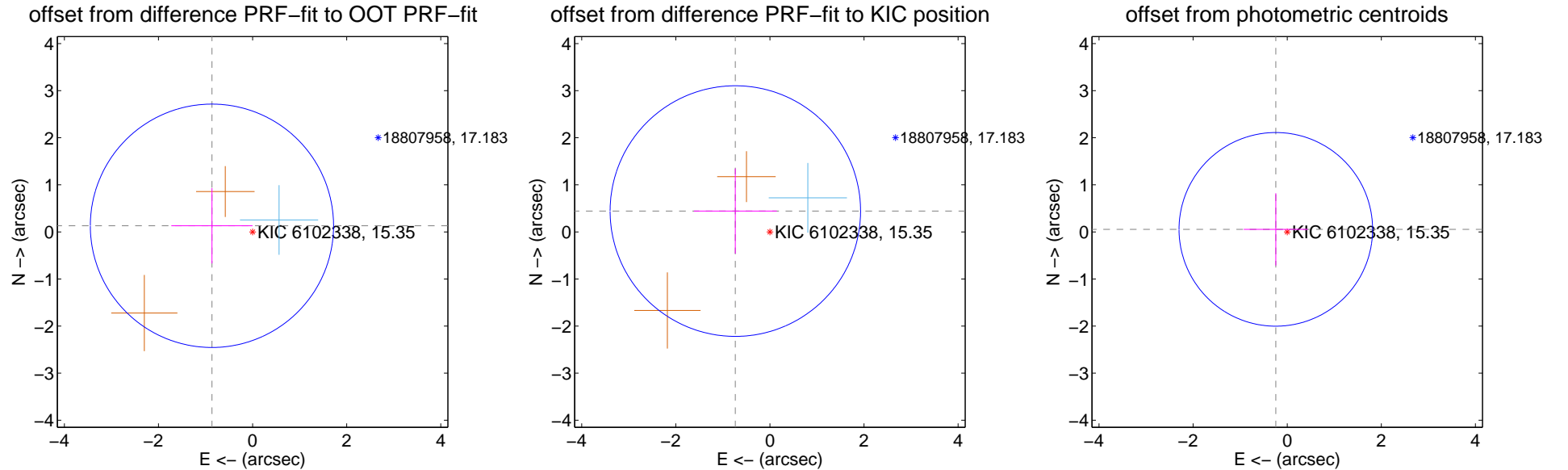
DV Centroid Data

Supplemental centroid analysis for 006102338-06. Kepler magnitude: 15.35. Transit SNR 9.27

There are 1 quarters with good PRF difference image offsets

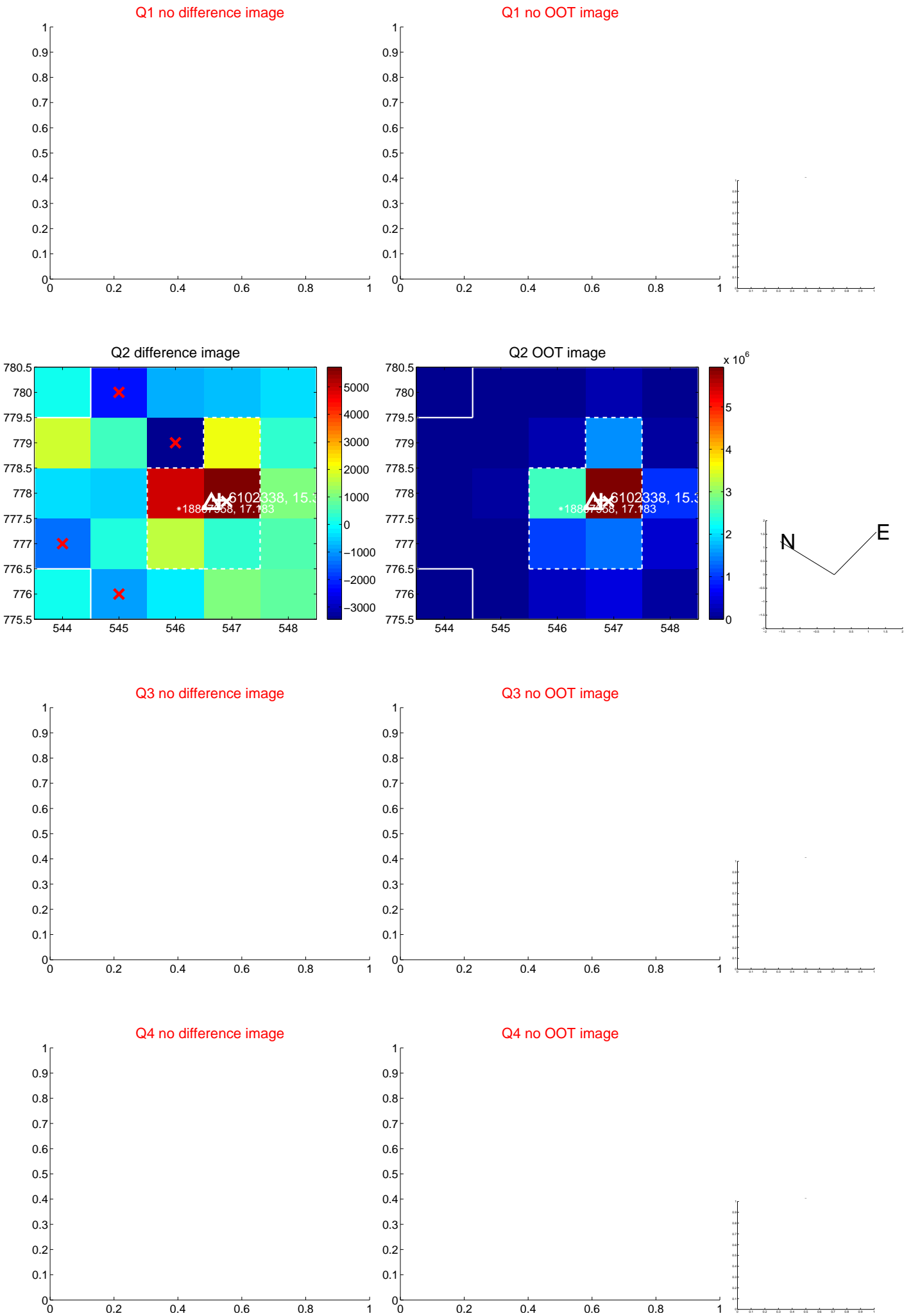
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.874 ± 0.862	1.01	0.864 ± 0.863	0.130 ± 0.799
PRF-fit source offset from KIC position	0.858 ± 0.887	0.97	0.735 ± 0.881	0.443 ± 0.904
photometric centroid source offset	0.25 ± 0.69	0.36	0.24 ± 0.68	0.05 ± 0.77



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.

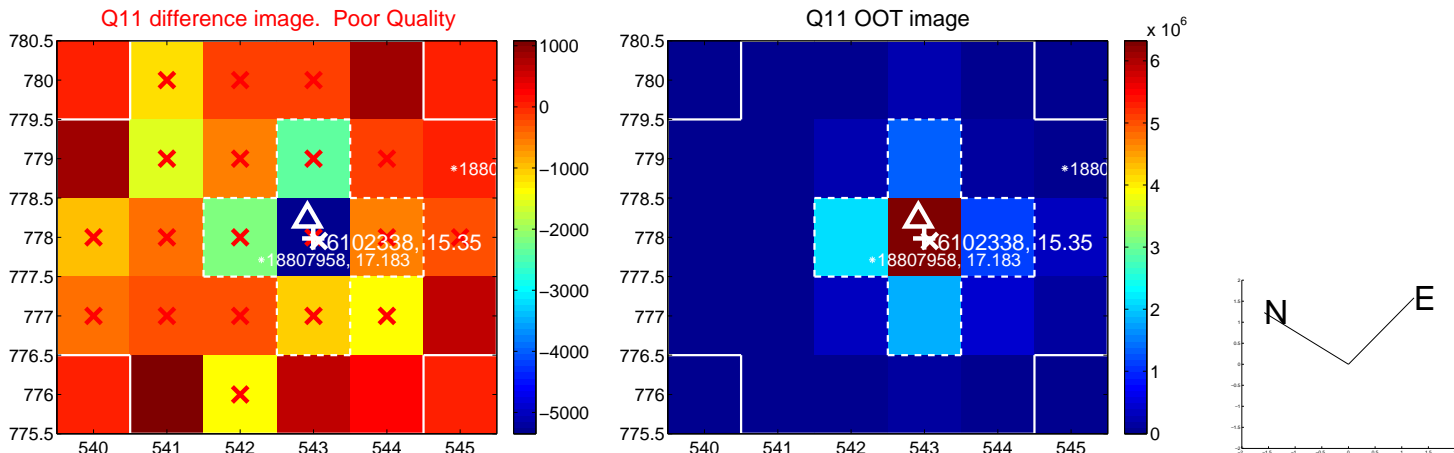
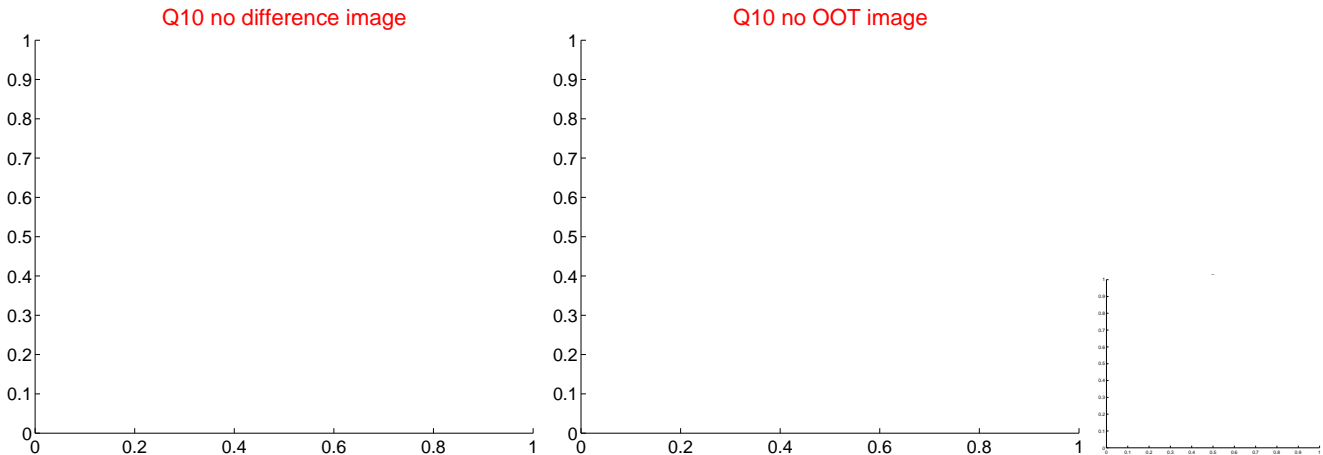
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



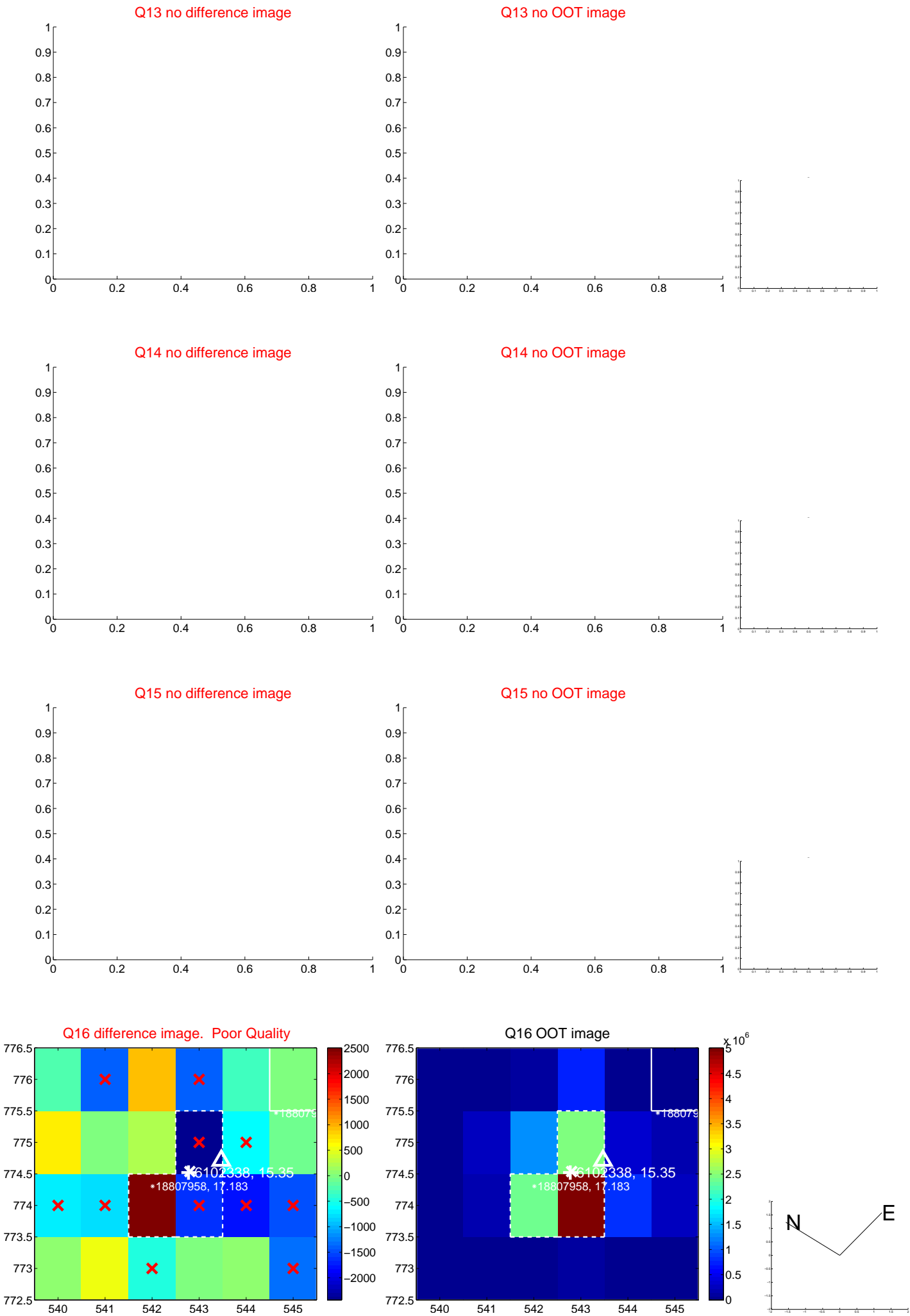
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



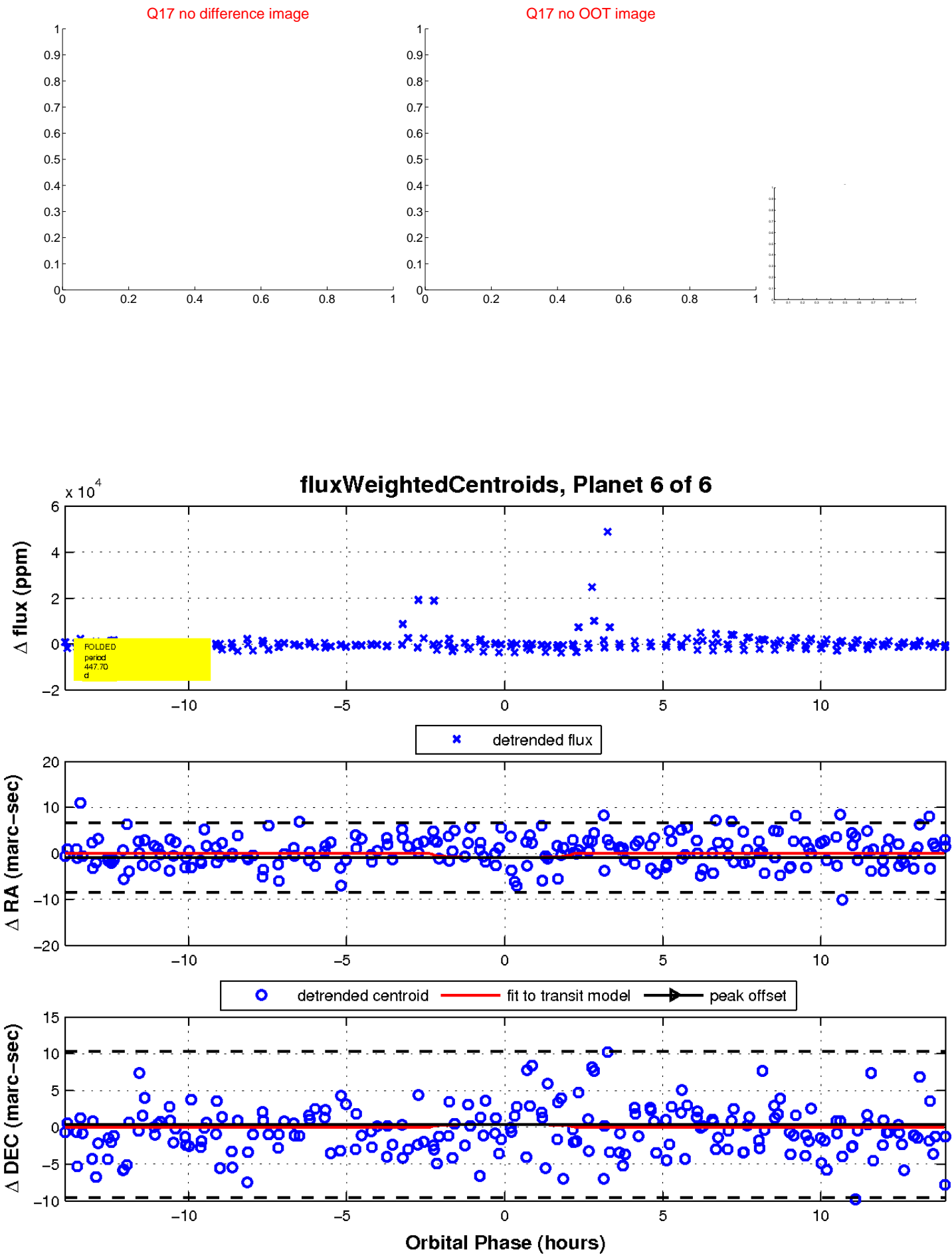
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

