

KIC 007777416

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})
007777416-01	OBS	3960.01	5.091164	132.746011	944.4	3.942	25.8	29.0	0.86	5718	5.17	218.17
007777416-02	OBS	No	2.545554	132.645655	973.1	3.383	26.7	27.8	0.86	5718	4.68	549.75
007777416-03	OBS	No	3.506212	131.749385	326.2	12.500	7.2	-1.0	0.86	5718	1.54	358.72
007777416-04	OBS	No	61.802449	143.598388	595.1	16.214	8.9	6.9	0.86	5718	2.54	7.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007777416-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
007777416-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
007777416-03	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007777416-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

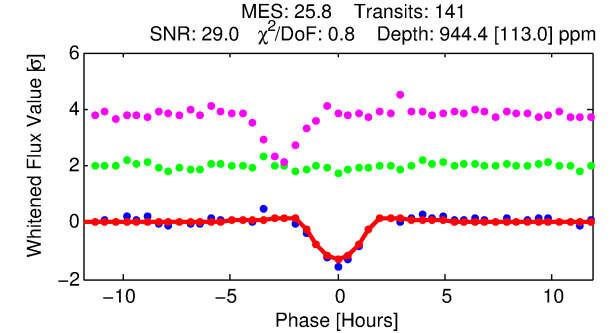
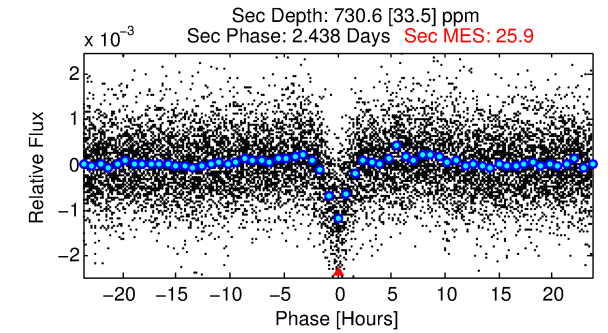
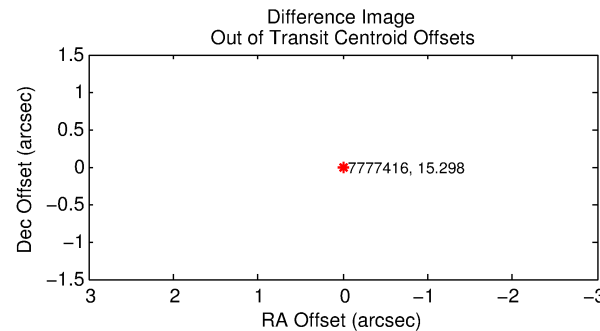
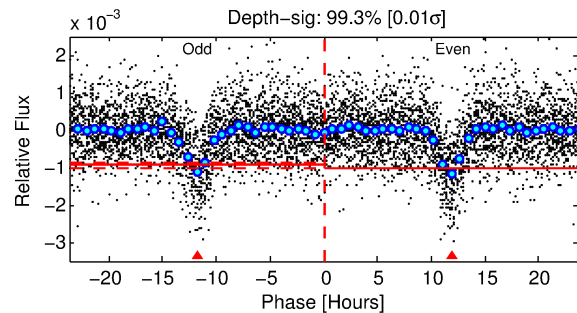
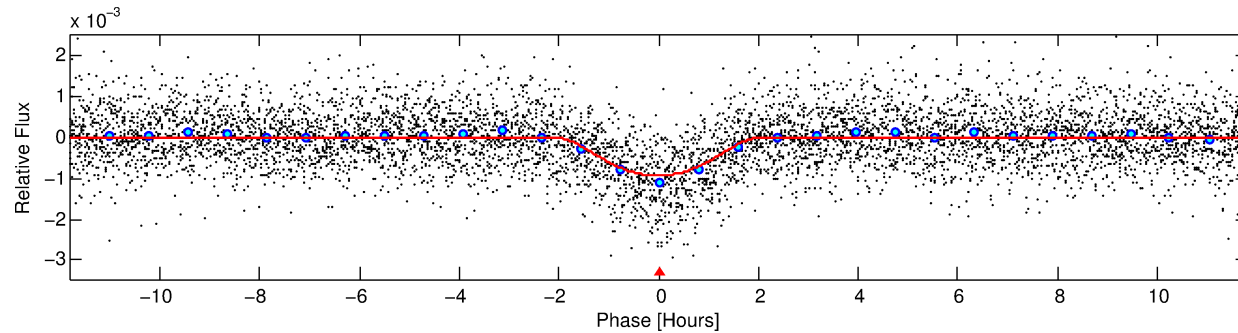
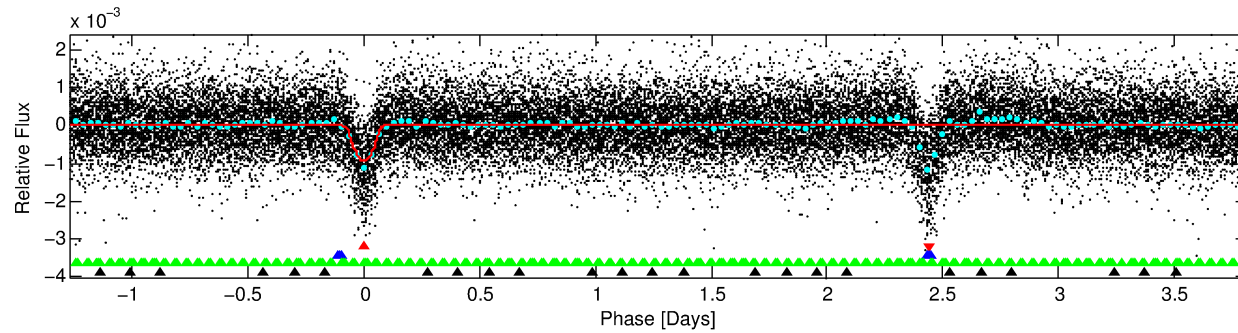
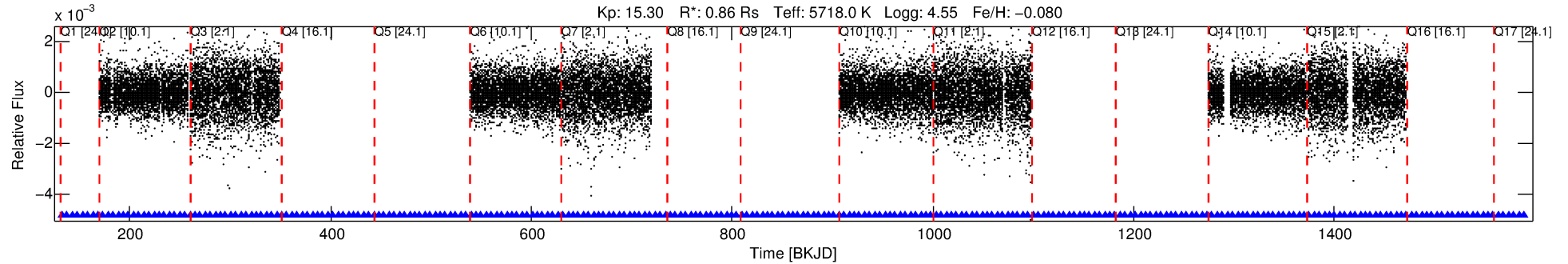
Ephemeris Match Information For 007777416-01

No Significant Match Found

DV One-Page Summary

KIC: 7777416 Candidate: 1 of 4 Period: 5.091 d
KOI: K03960 Corr: No Ephemeris Match

Kp: 15.30 R*: 0.86 Rs Teff: 5718.0 K Logg: 4.55 Fe/H: -0.080



DV Fit Results:

Period = 5.09116 [0.00002] d
Epoch = 132.7460 [0.0026] BKJD
Rp/R* = 0.0549 [0.0731]
a/R* = 3.48 [0.99]
b = 1.00 [0.11]
Seff = 218.17 [79.51]
Teq = 980 [89] K
Rp = 5.17 [7.04] Re
a = 0.0572 [0.0135] AU
Ag = 49.14 [131.86] [0.37σ]
Teff = 4012 [2673] K [1.13σ]

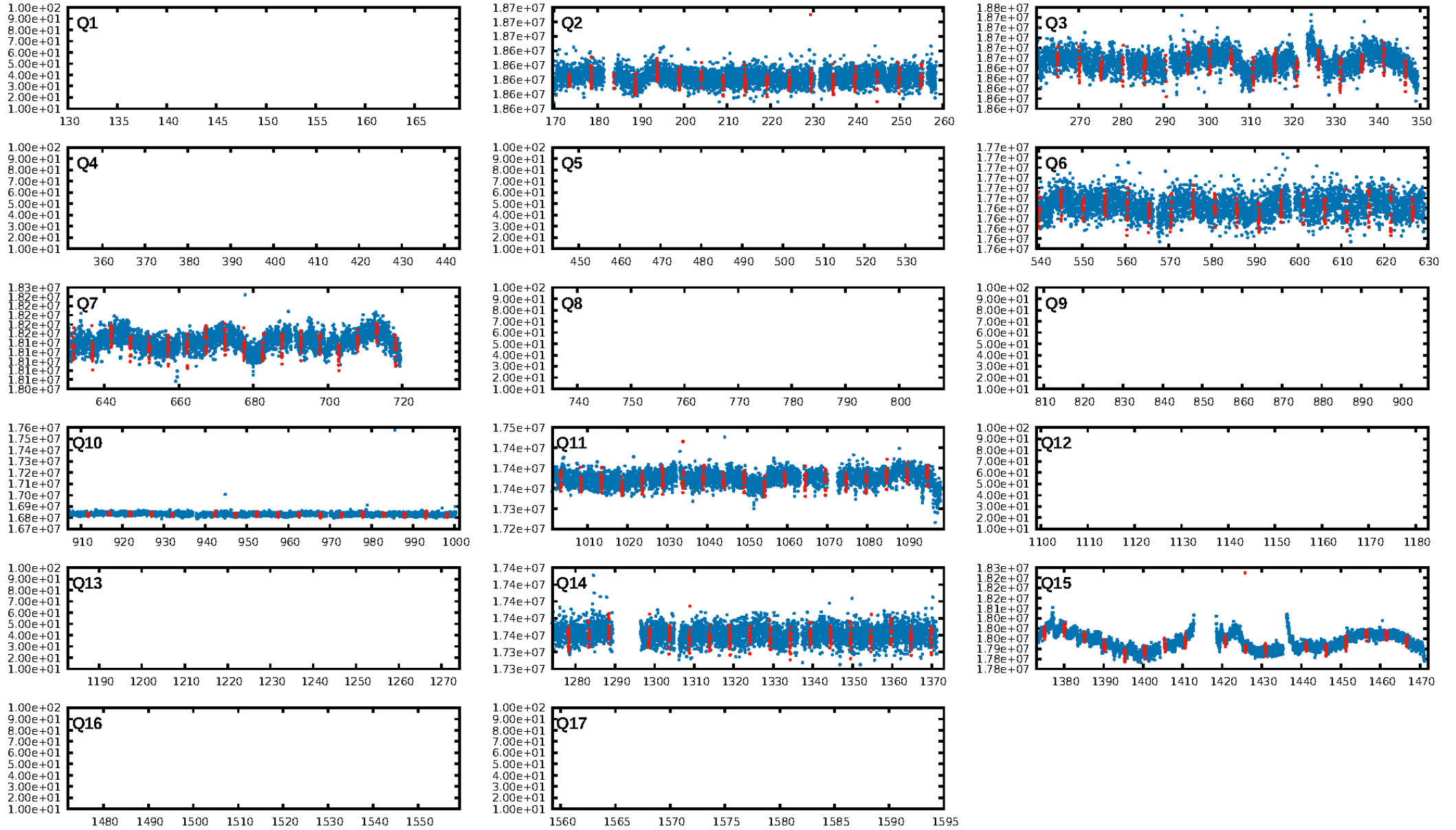
DV Diagnostic Results:

ShortPeriod-sig: 99.6% [2.90σ]
LongPeriod-sig: 100.0% [81.57σ]
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.18e-113
RollingBand-fgt: 1.00 [141/141]
GhostDiagnostic-chr: 0.05346
Centroid-sig: N/A
Centroid-so: 3.183 arcsec [31.15σ]
OotOffset-rm: N/A
KicOffset-rm: 4.440 arcsec [30.51σ]
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.00 [0/8]

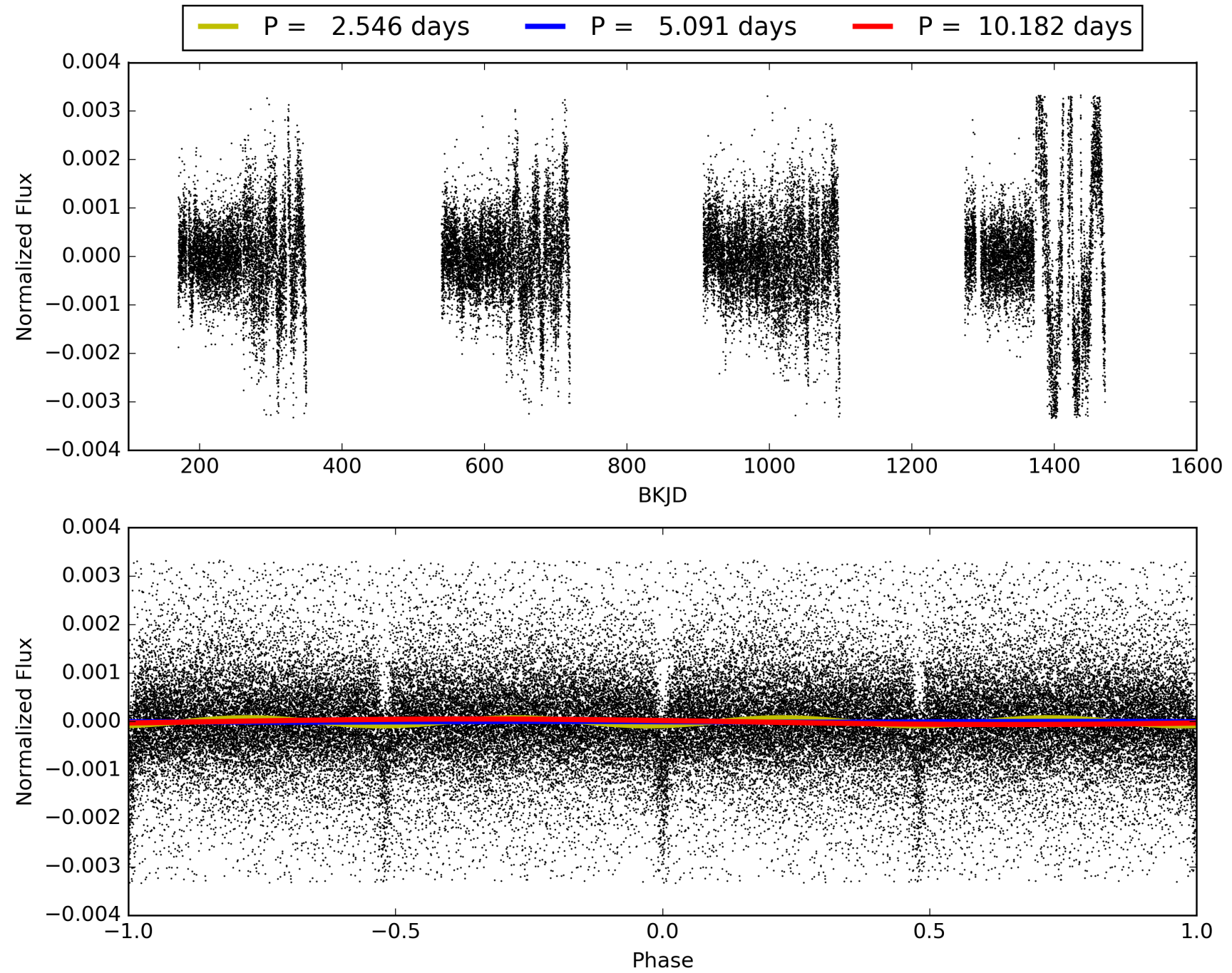
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:38:49 Z

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

TCE 007777416-01, PDC Light Curves

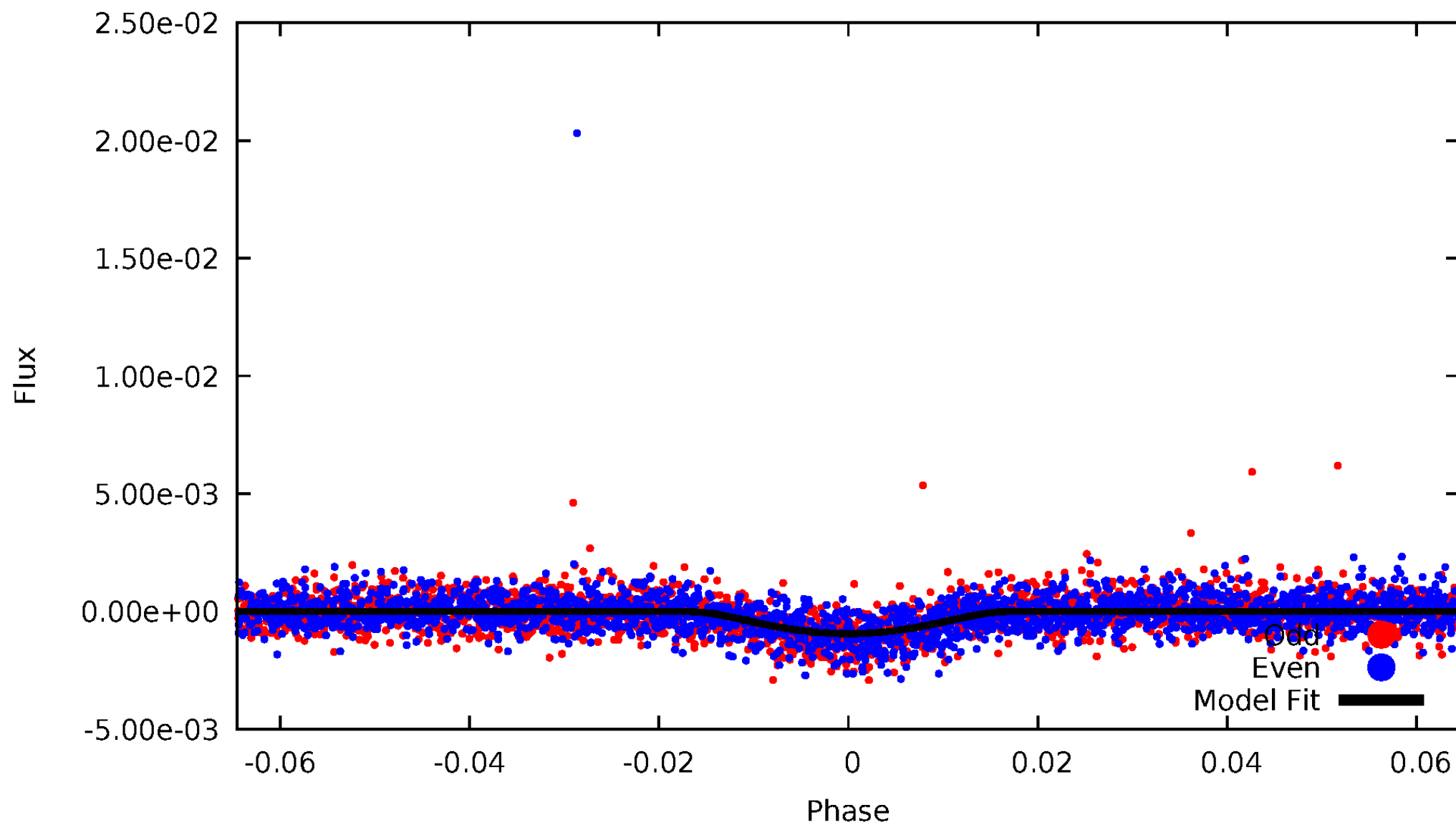


TCE 007777416-01



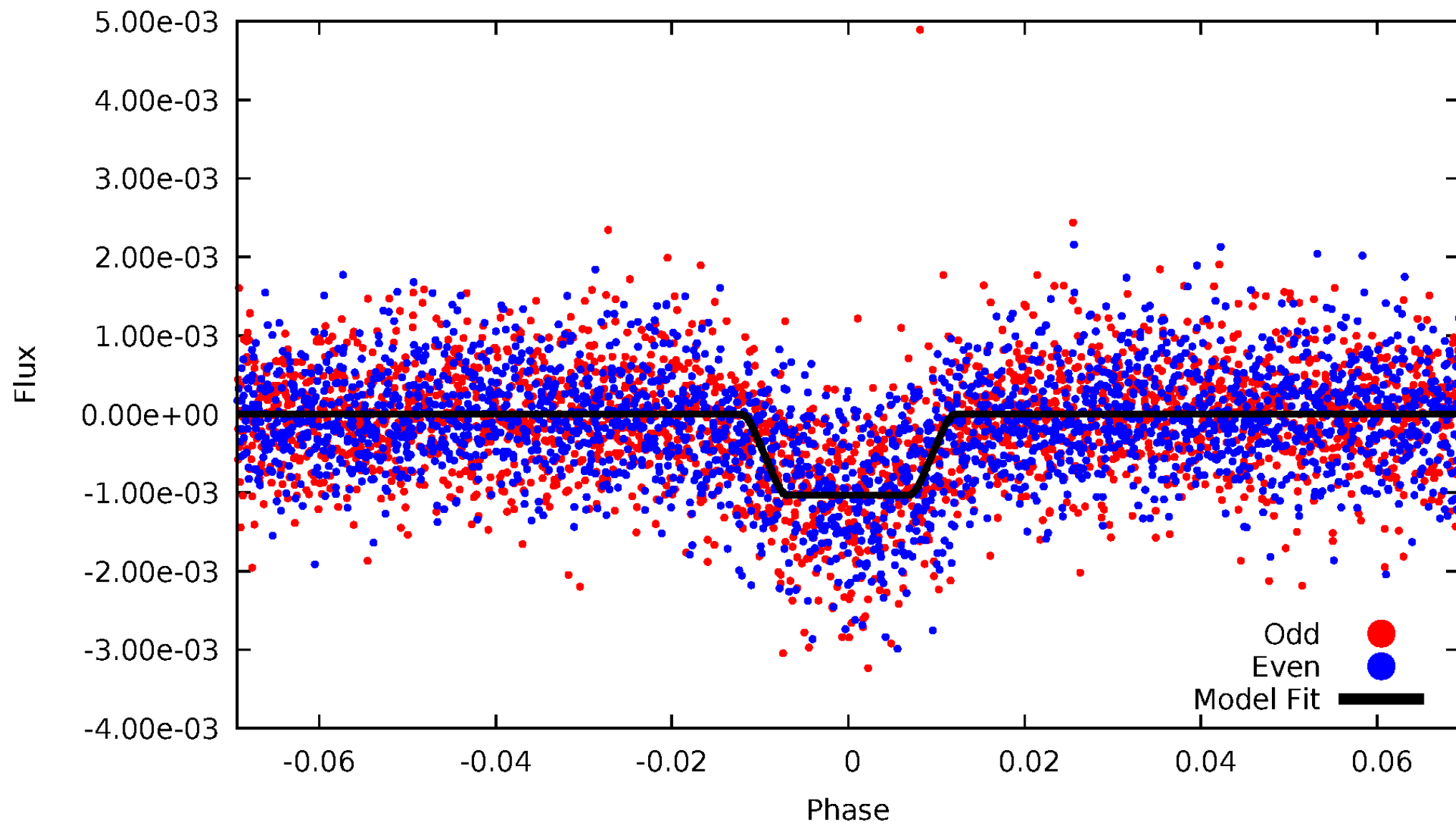
DV Odd/Even

TCE 007777416-01

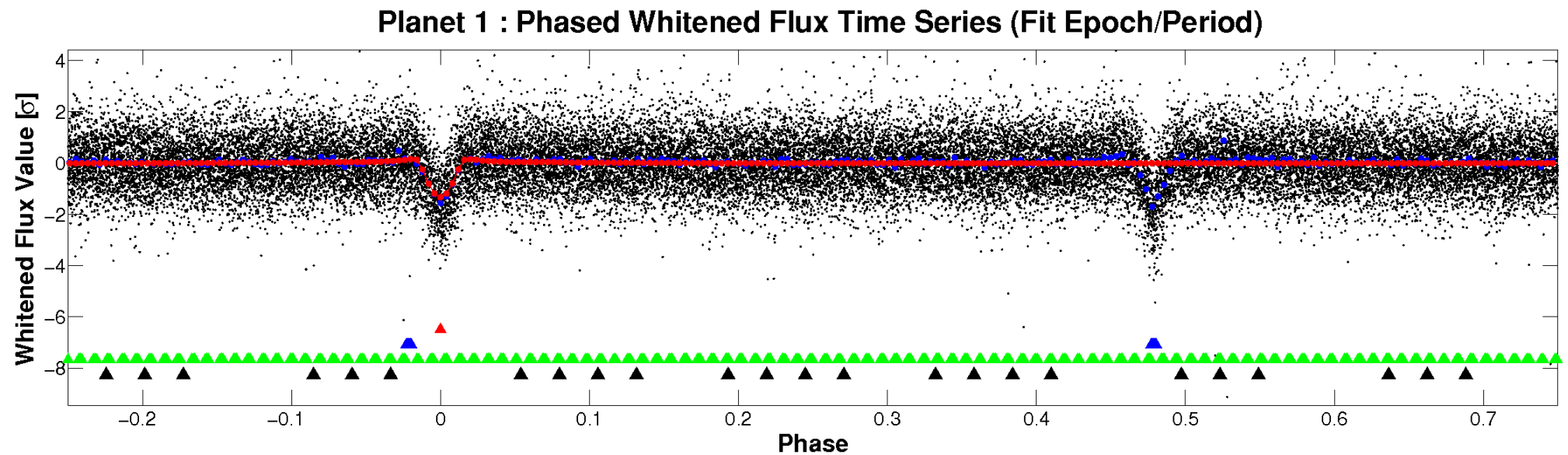
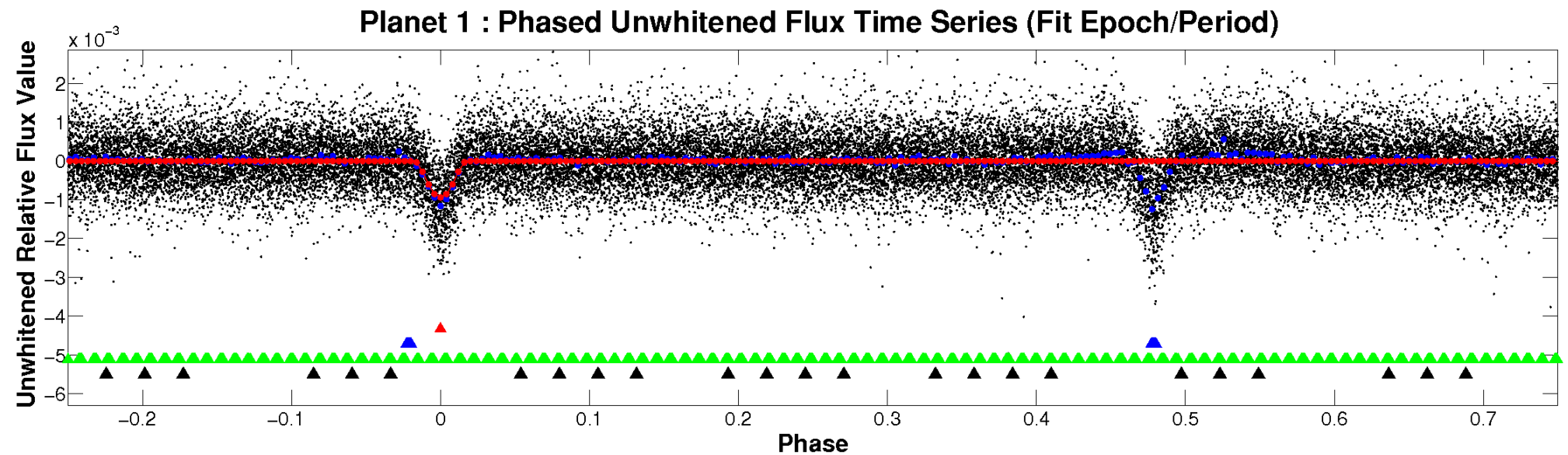


ALT Odd/Even

TCE 007777416-01

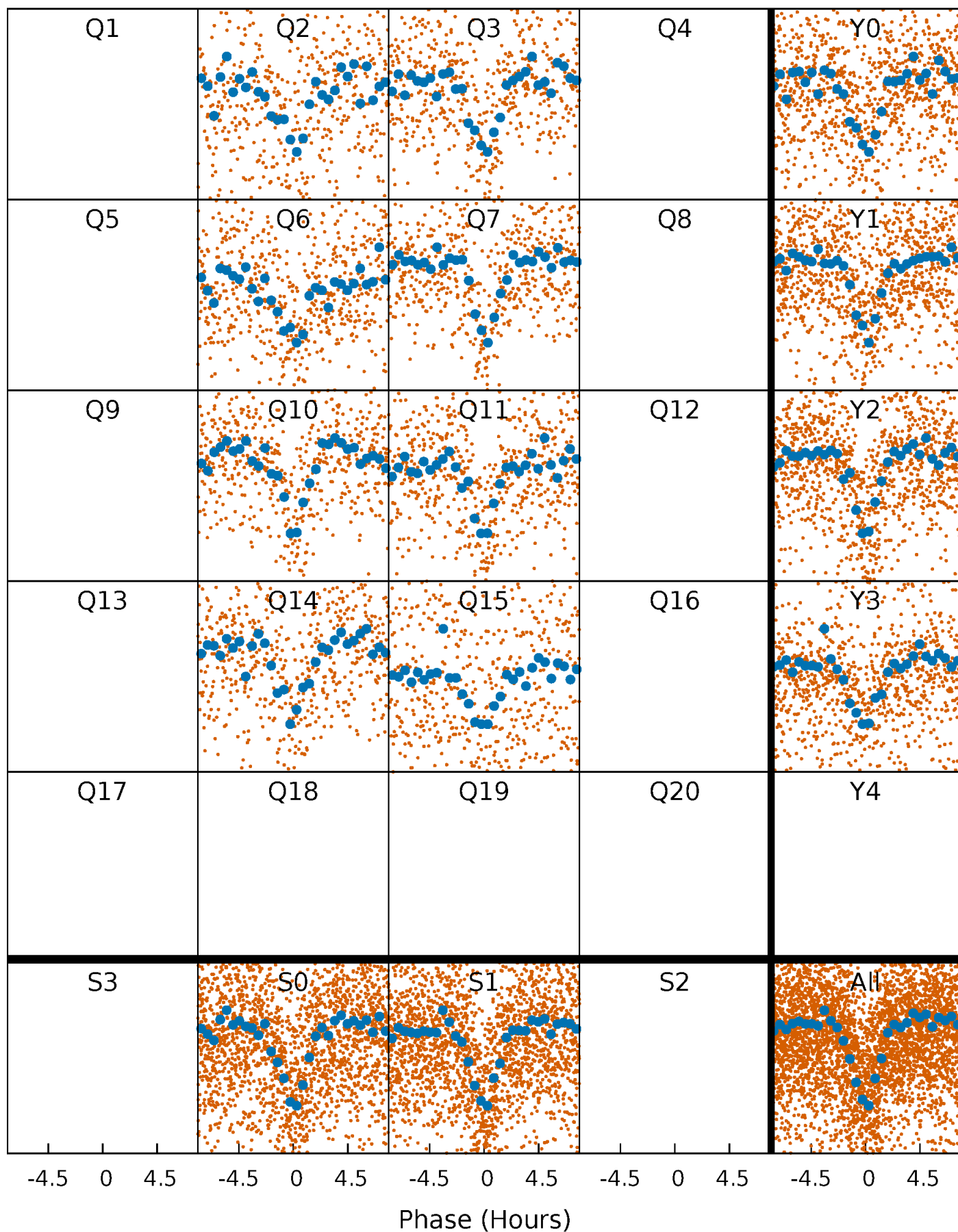


Non-Whitened Vs. Whitened Light Curve



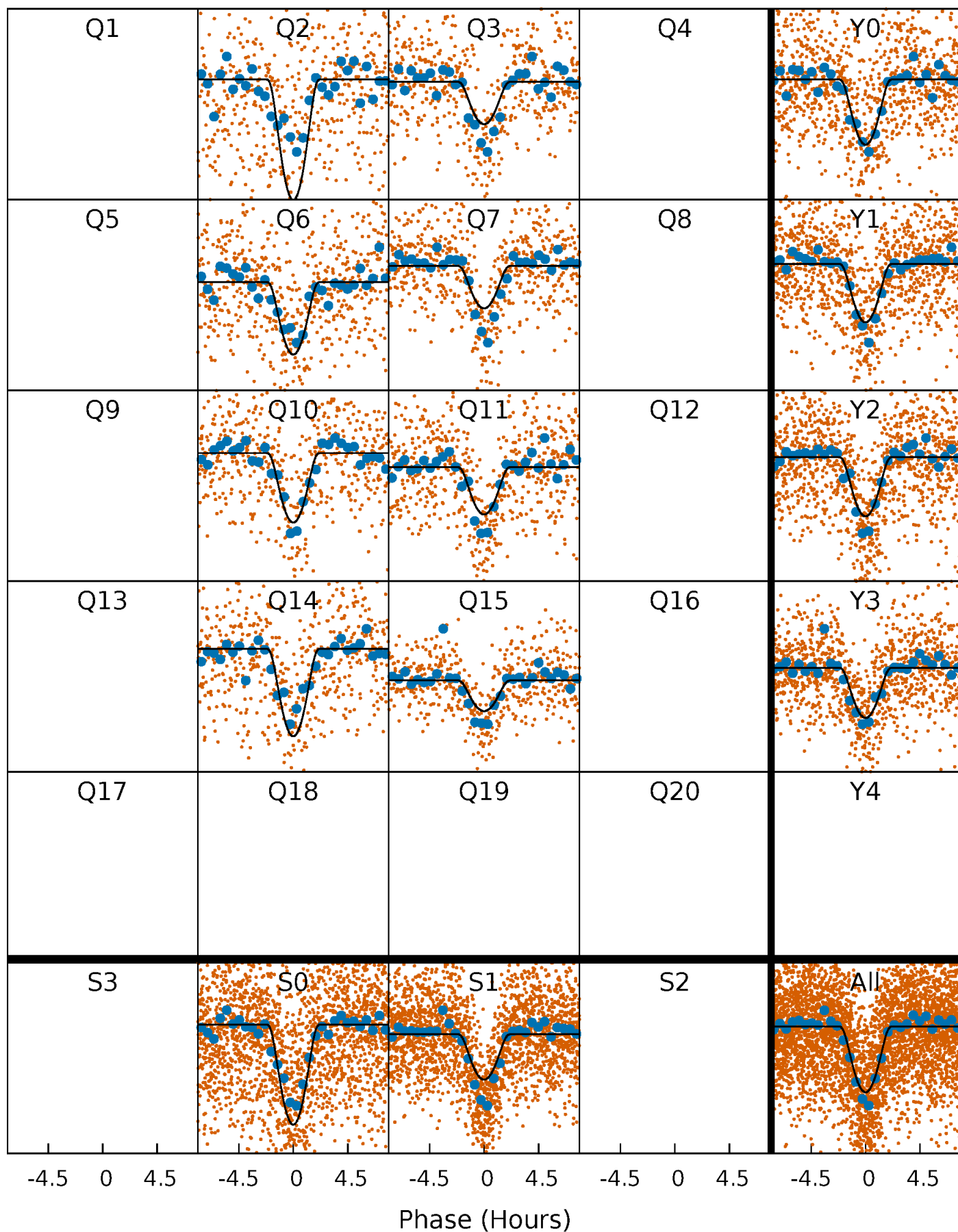
PDC Quarter-Phased Transit Curves

TCE 007777416-01 P= 5.091164 Days $T_0=132.746011$ (BKJD)



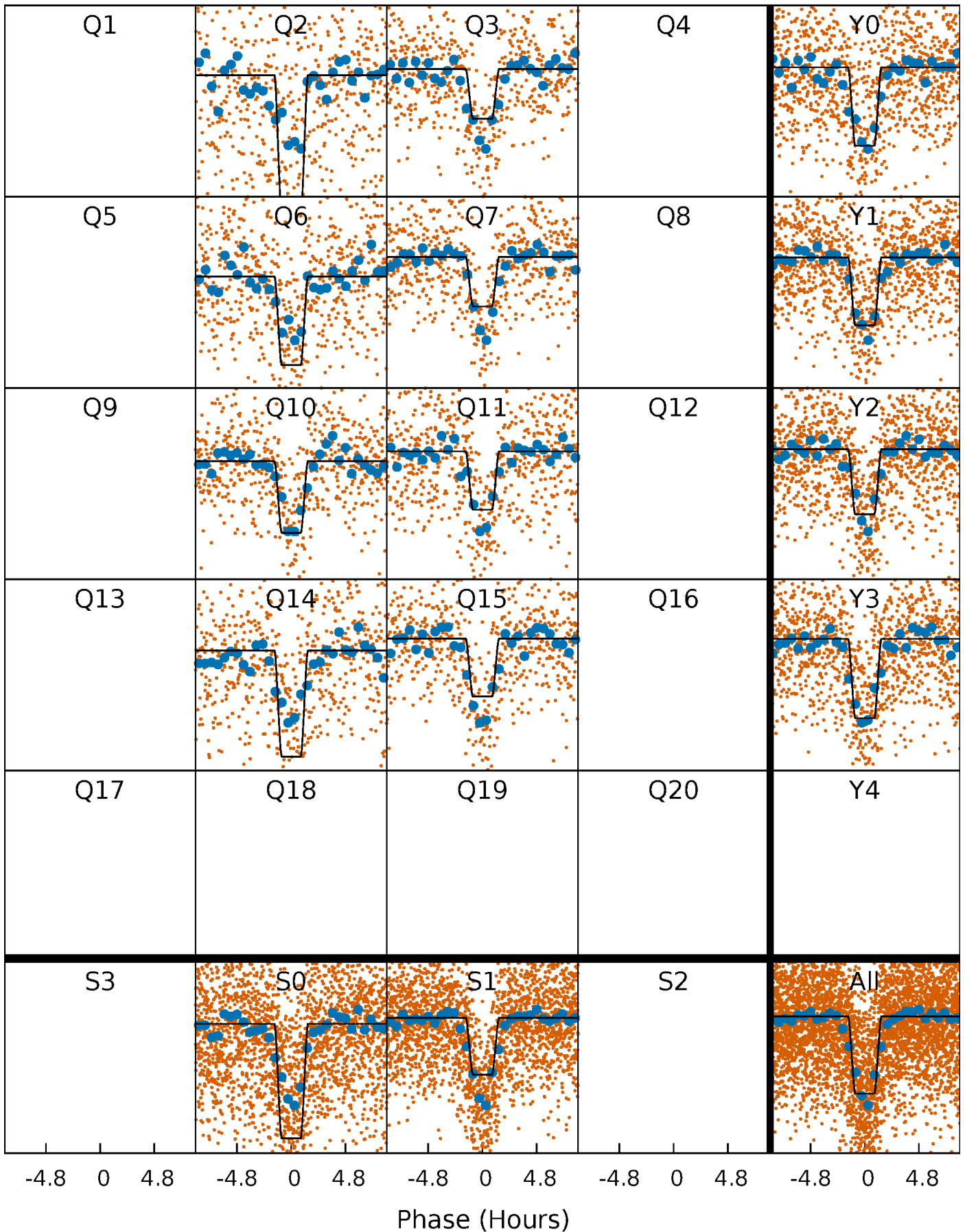
DV Quarter-Phased Transit Curves

TCE 007777416-01 P= 5.091164 Days $T_0=132.746011$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

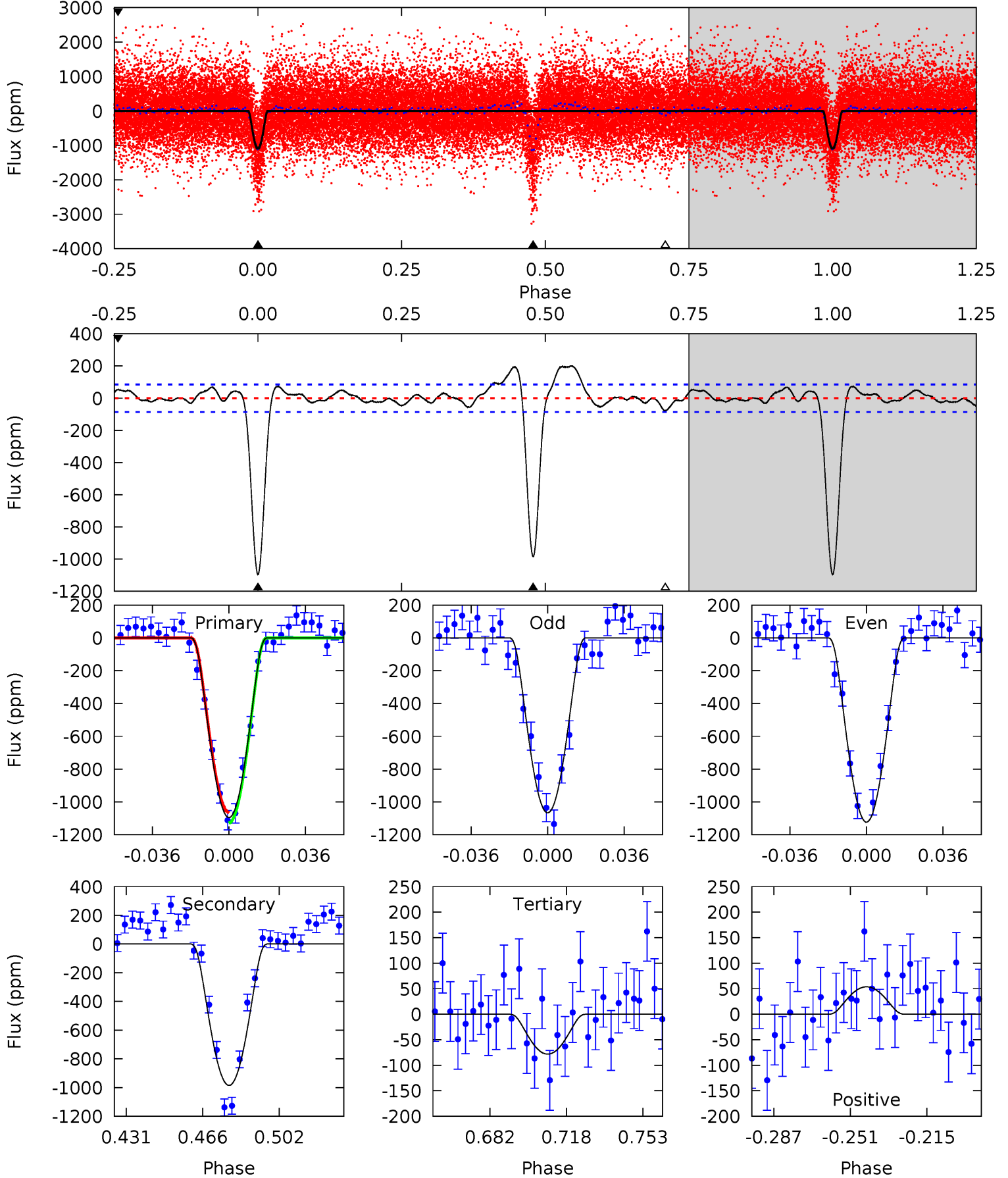
TCE 007777416-01 P= 5.091148 Days $T_0=132.747521$ (BKJD)



DV Model-Shift Uniqueness Test

007777416-01, P = 5.091164 Days, E = 132.746011 Days

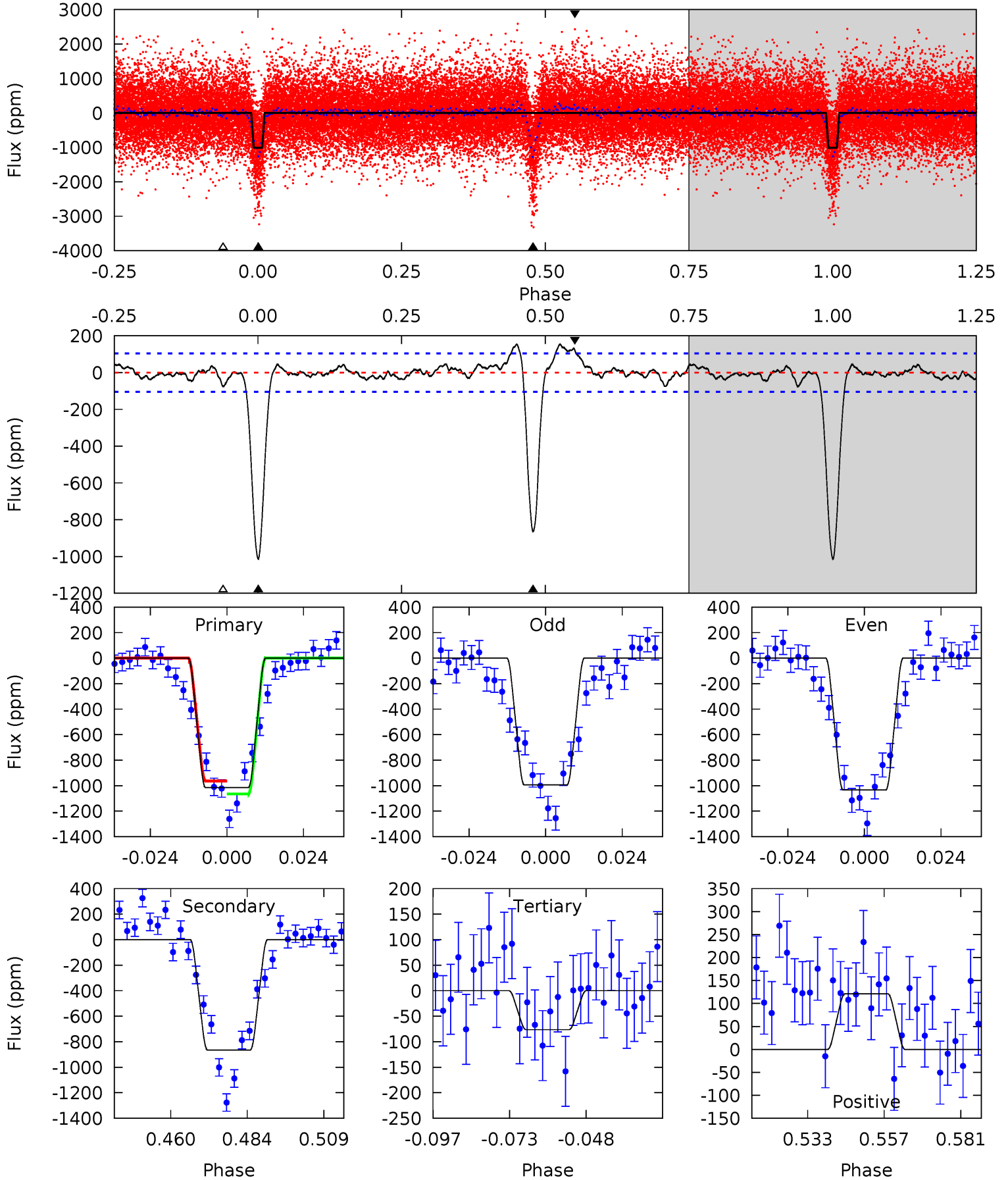
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.3	55.1	4.37	3.00	4.78	2.10	3.03	56.9	58.3	50.7	52.1	1.59	1.03	0.16	1.78



Alt Model-Shift Uniqueness Test

007777416-01, P = 5.091148 Days, E = 132.747521 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.0	40.1	3.54	5.61	4.85	2.25	1.85	43.5	41.4	36.5	34.5	0.92	1.10	0.13	2.37



Stellar Parameters For KIC 007777416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5718^{+169}_{-186}	$4.549^{+0.035}_{-0.184}$	$-0.080^{+0.300}_{-0.300}$	$0.863^{+0.246}_{-0.082}$	$0.960^{+0.104}_{-0.115}$	$2.107^{+0.384}_{-1.021}$
	+3%/-3%	+1%/-4%	+375%/-375%	+29%/-10%	+11%/-12%	+18%/-48%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007777416-01 / KOI 3960.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-985 ± 18	$7.49^{+6.55}_{-5.00}$	1404^{+89}_{-67}	4005^{+2310}_{-756}	31^{+244}_{-22}
Alt.	-865 ± 22	$6.09^{+6.06}_{-3.98}$	1401^{+101}_{-67}	4184^{+2379}_{-841}	40^{+300}_{-30}

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

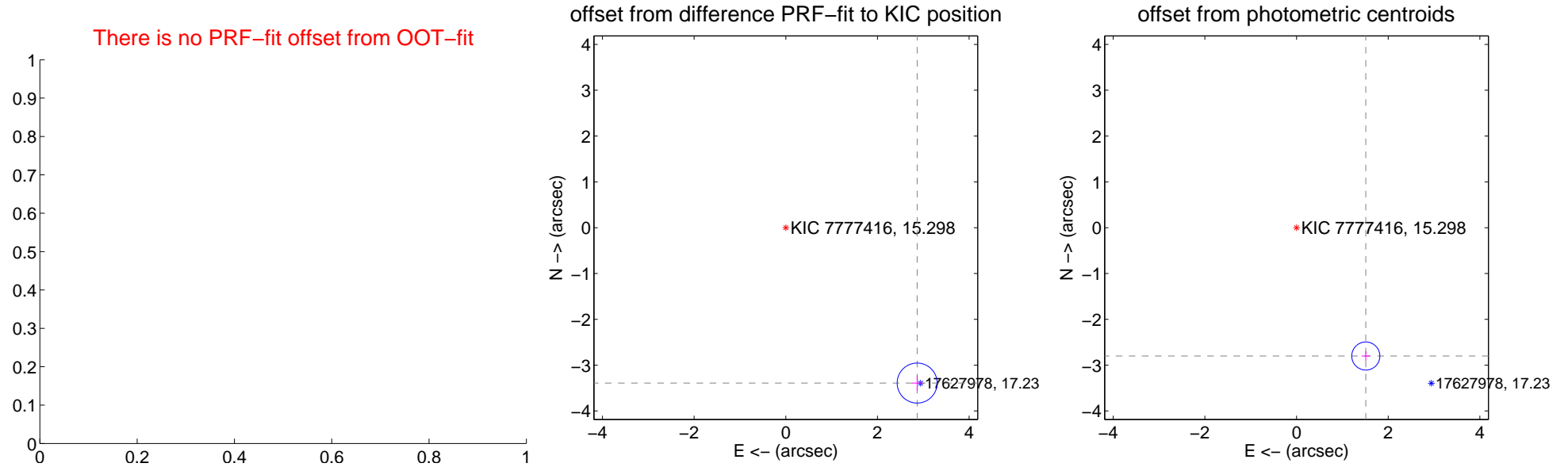
DV Centroid Data

Supplemental centroid analysis for 007777416-01. Kepler magnitude: 15.30. Transit SNR 29.05

There are 4 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	4.440 ± 0.146	30.51	-2.866 ± 0.109	-3.391 ± 0.167
photometric centroid source offset	3.18 ± 0.10	31.15	-1.51 ± 0.09	-2.80 ± 0.10



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.

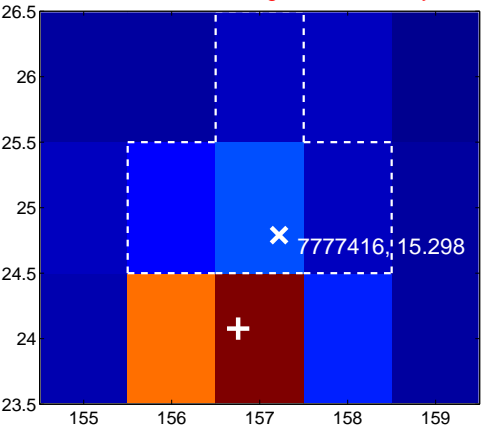
Q1 no difference image



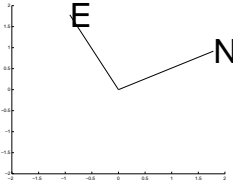
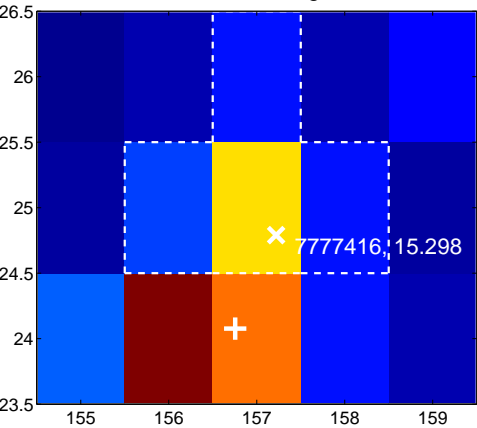
Q1 no OOT image



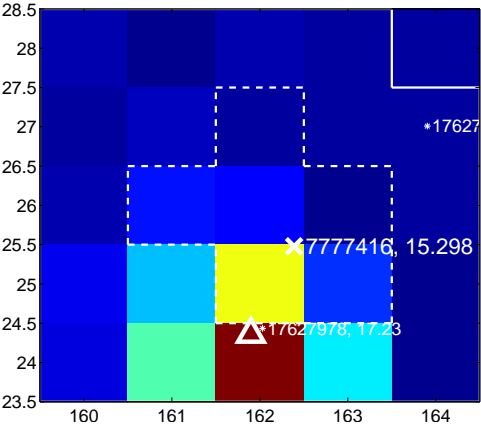
Q2 difference image. Poor Quality



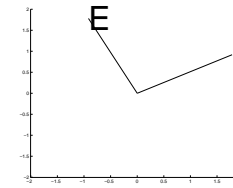
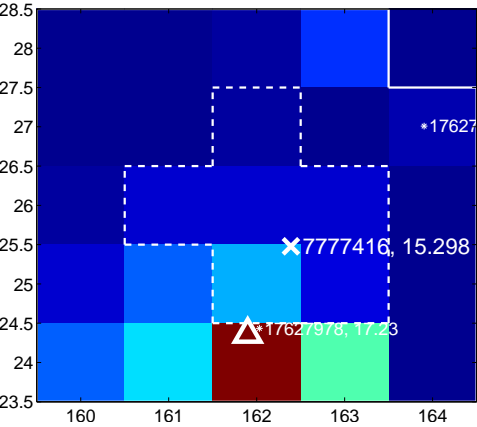
Q2 OOT image



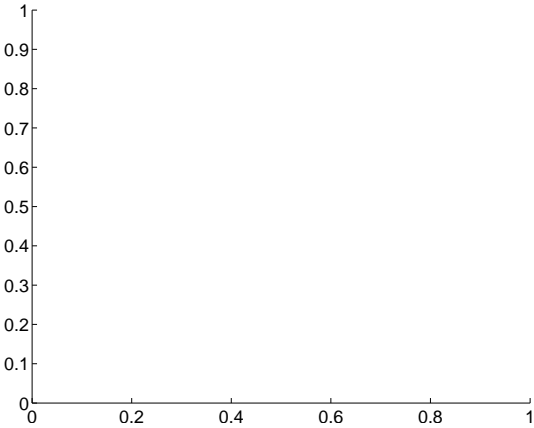
Q3 difference image



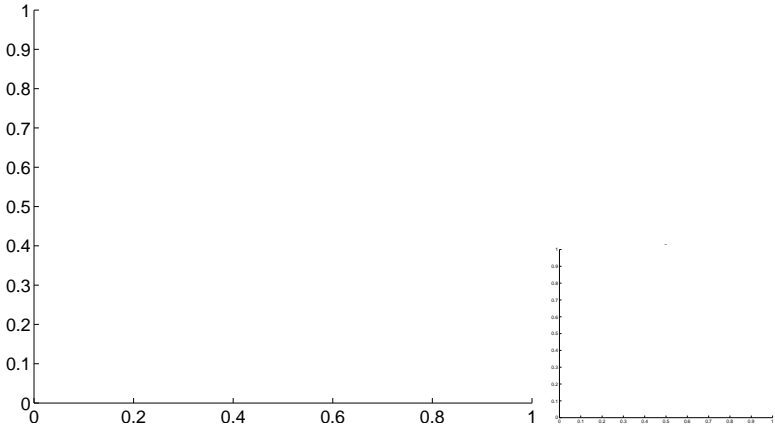
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

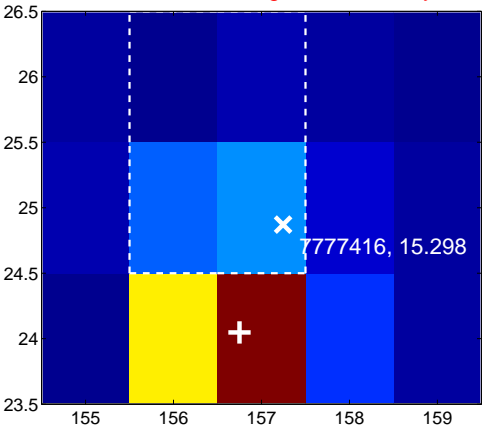
Q5 no difference image



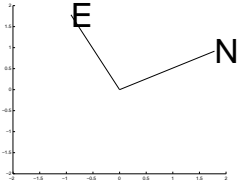
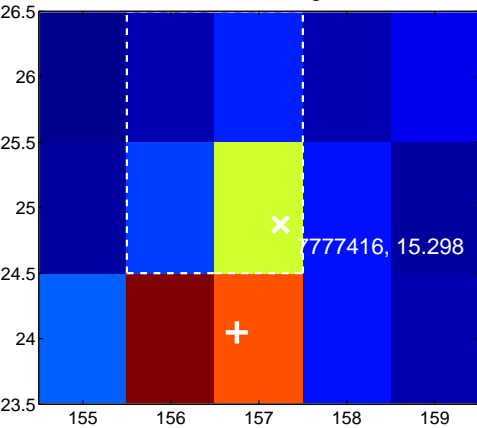
Q5 no OOT image



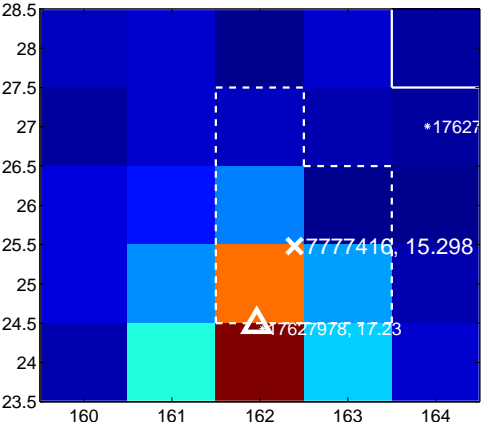
Q6 difference image. Poor Quality



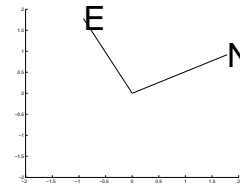
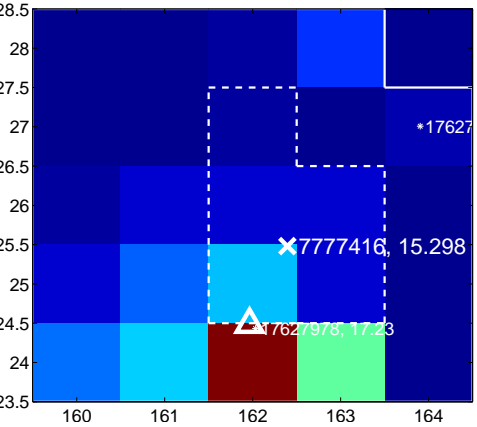
Q6 OOT image



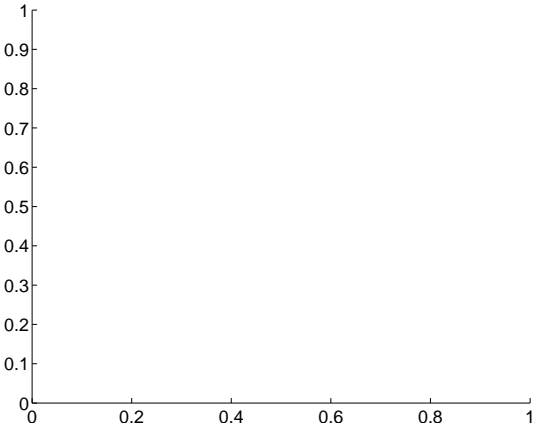
Q7 difference image



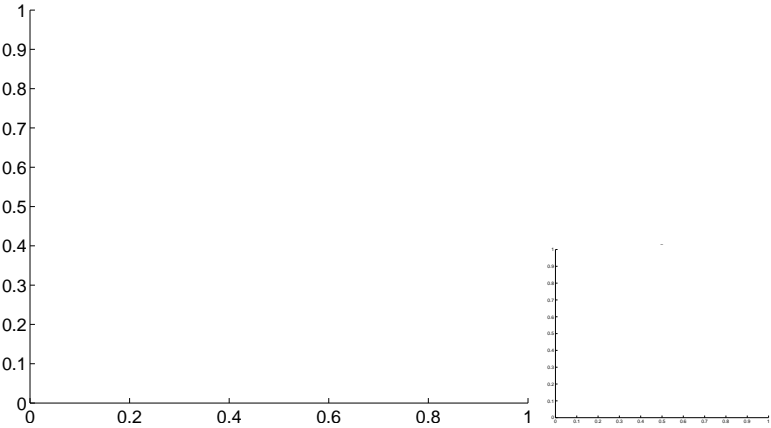
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

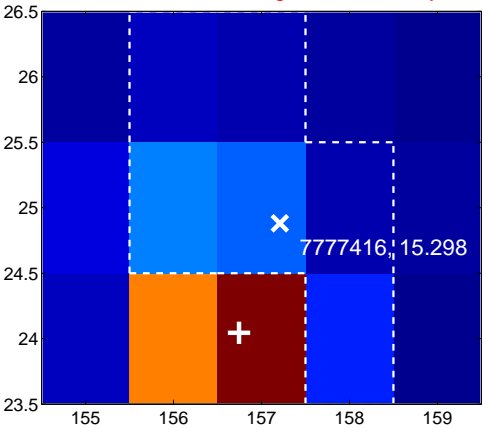
Q9 no difference image



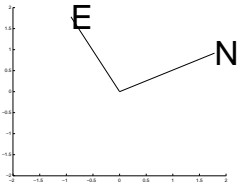
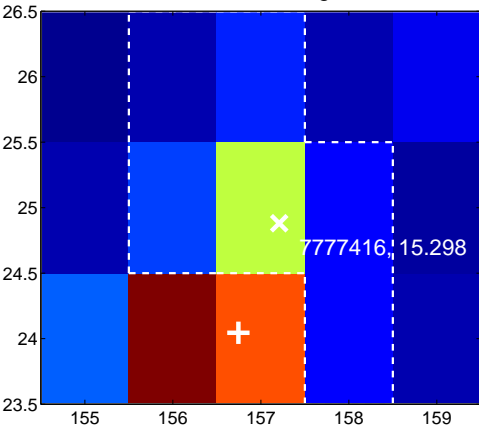
Q9 no OOT image



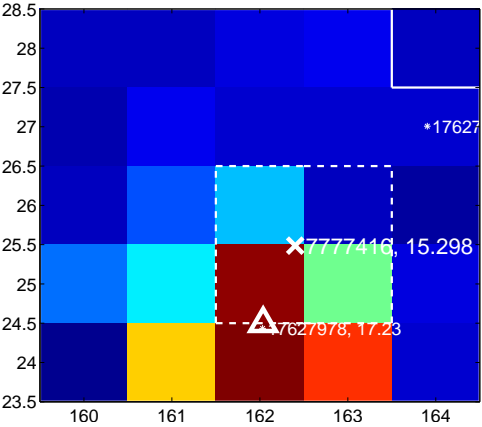
Q10 difference image. Poor Quality



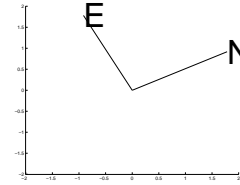
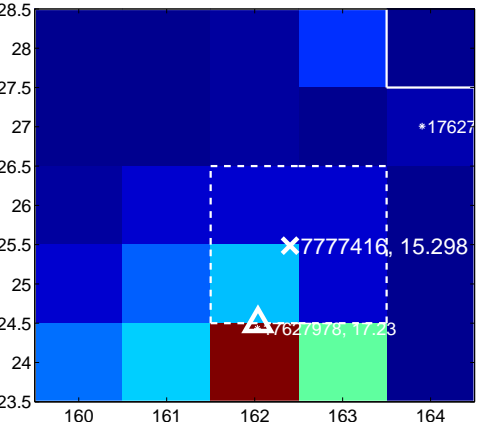
Q10 OOT image



Q11 difference image



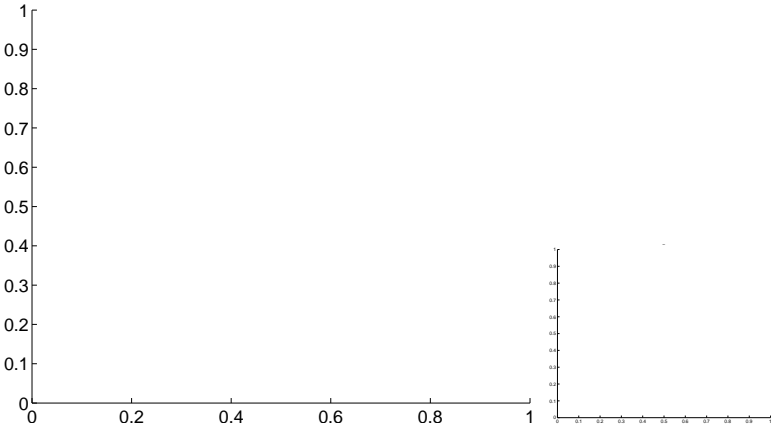
Q11 OOT image



Q12 no difference image



Q12 no OOT image

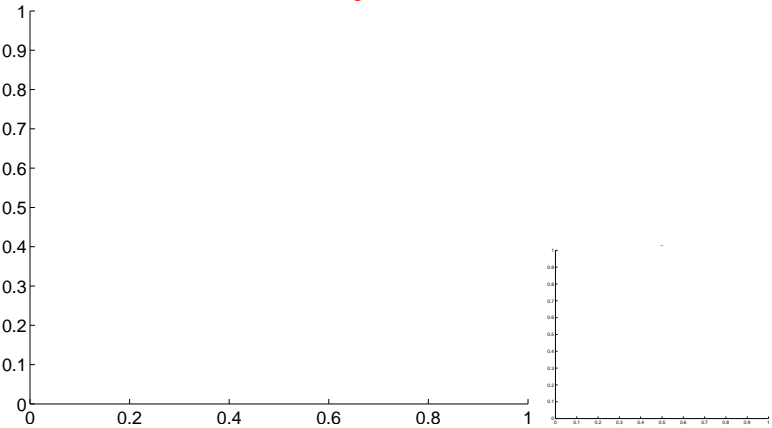


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

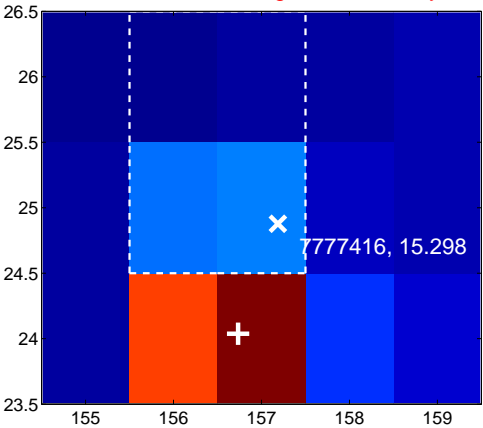
Q13 no difference image



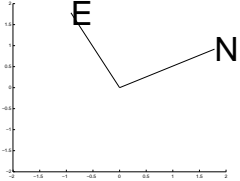
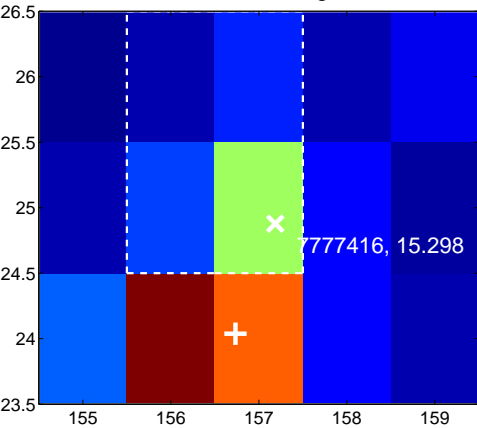
Q13 no OOT image



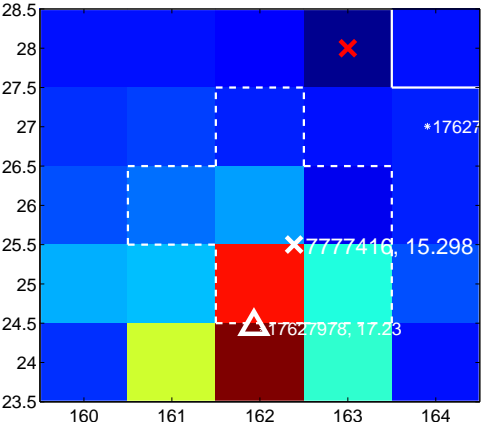
Q14 difference image. Poor Quality



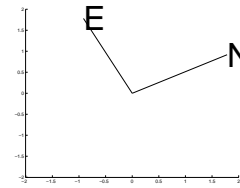
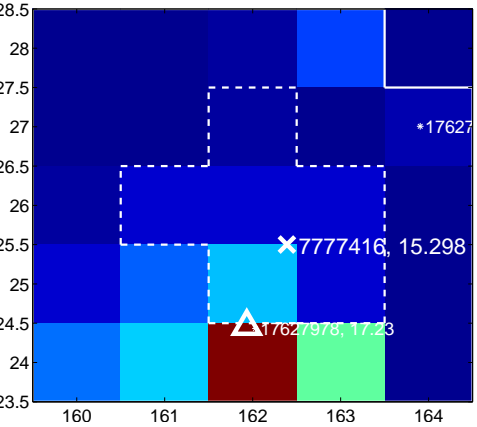
Q14 OOT image



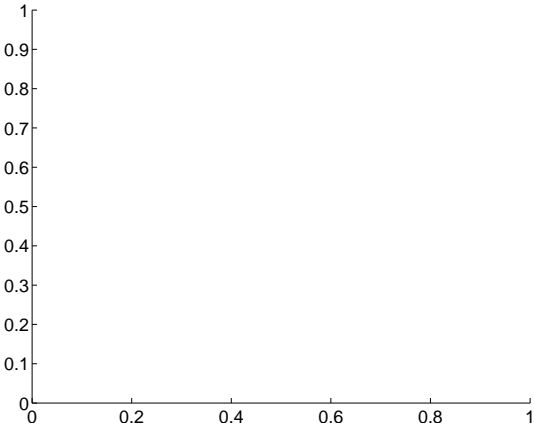
Q15 difference image



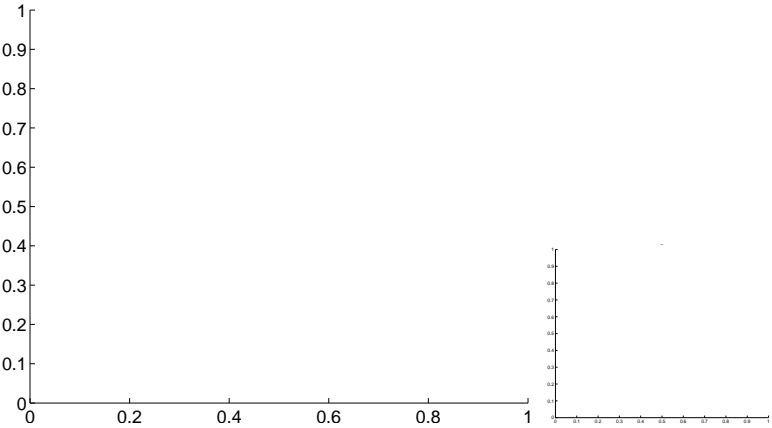
Q15 OOT image



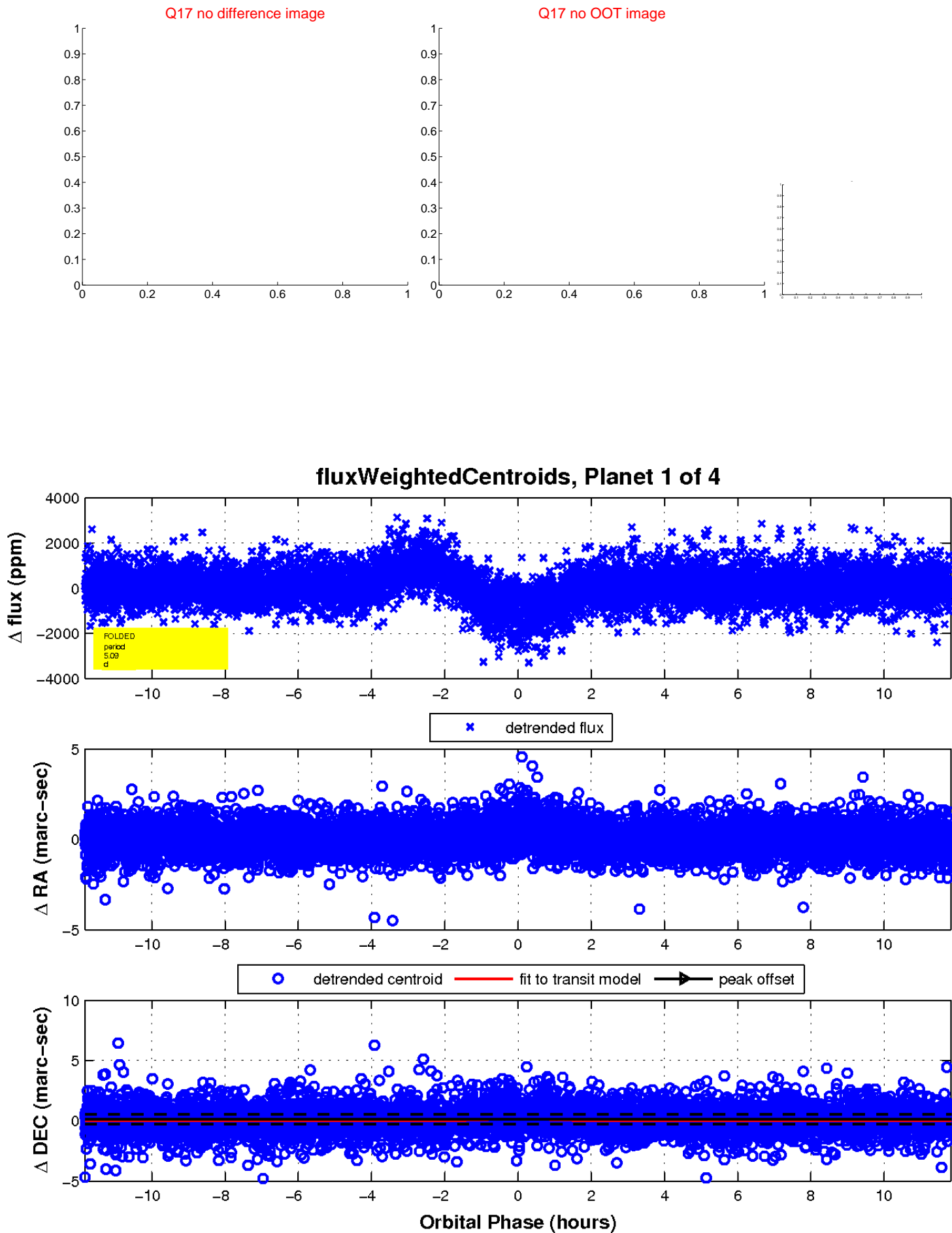
Q16 no difference image



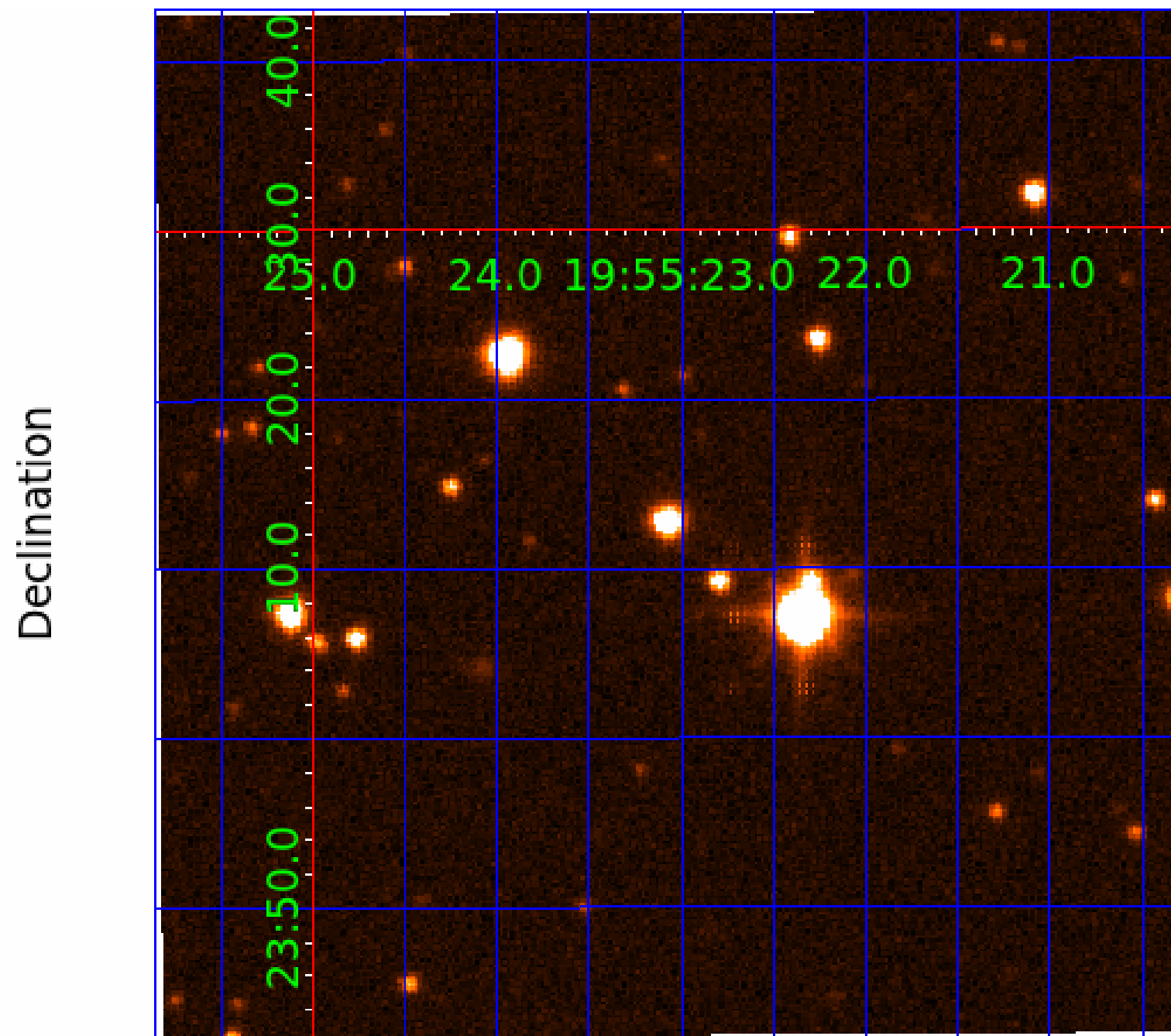
Q16 no OOT image



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



UKIRT Image



KIC 007777416

Q1-17 DR25 TCE Parameters

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

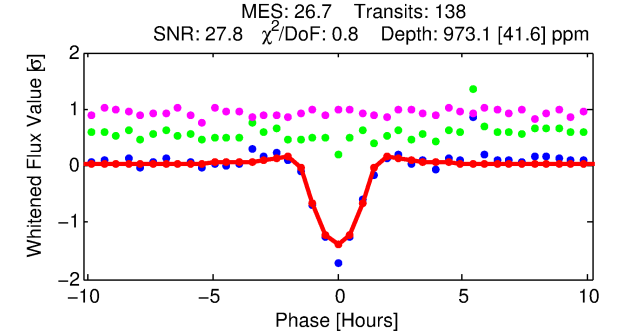
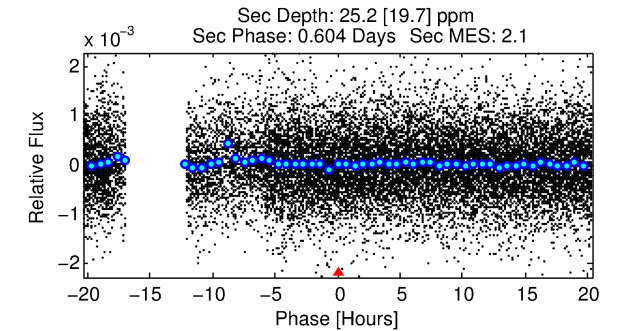
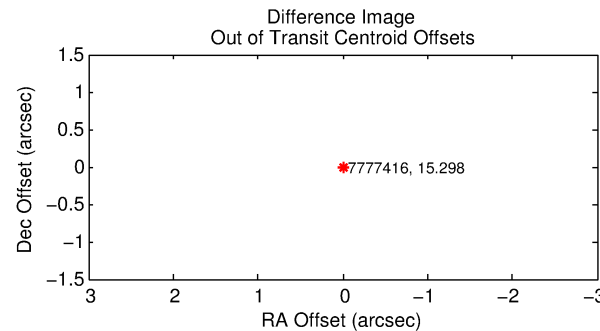
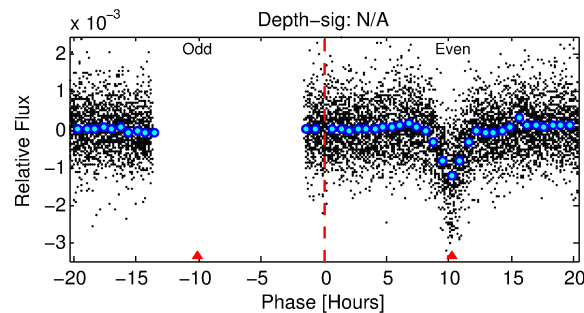
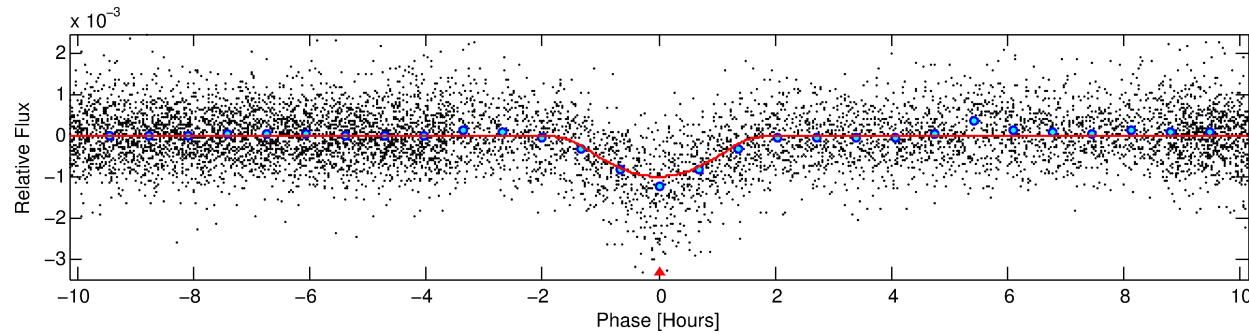
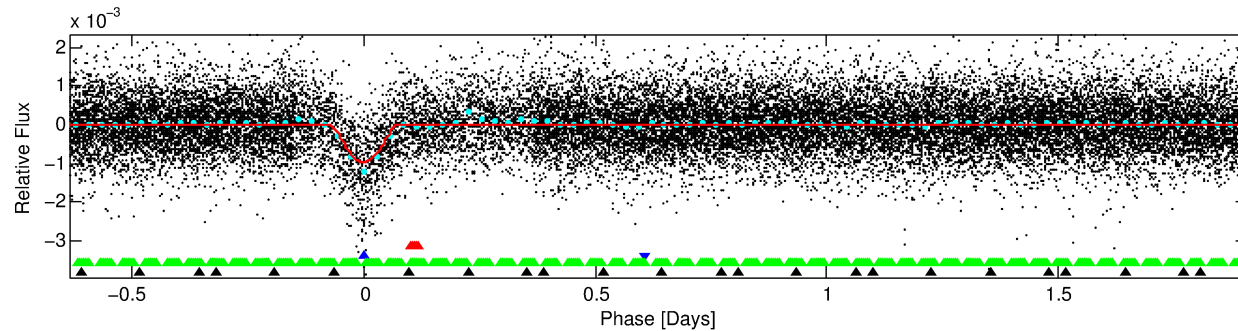
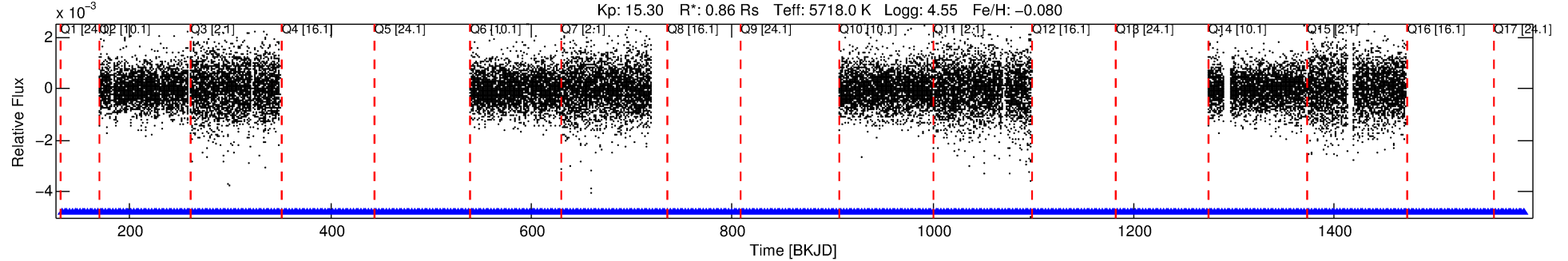
Ephemeris Match Information For 007777416-02

No Significant Match Found

DV One-Page Summary

KIC: 7777416 Candidate: 2 of 4 Period: 2.546 d
KOI: K03960 Corr: No Ephemeris Match

Kp: 15.30 R*: 0.86 Rs Teff: 5718.0 K Logg: 4.55 Fe/H: -0.080



DV Fit Results:

Period = 2.54555 [0.00001] d
Epoch = 132.6457 [0.0019] BKJD
Rp/R* = 0.0497 [0.0465]
a/R* = 2.25 [0.46]
b = 0.99 [0.08]
Seff = 549.75 [200.36]
Teq = 1235 [112] K
Rp = 4.68 [4.57] Re
a = 0.0360 [0.0085] AU
Ag = 0.82 [1.68] [-0.11σ]
Teffp = 1816 [921] K [0.63σ]

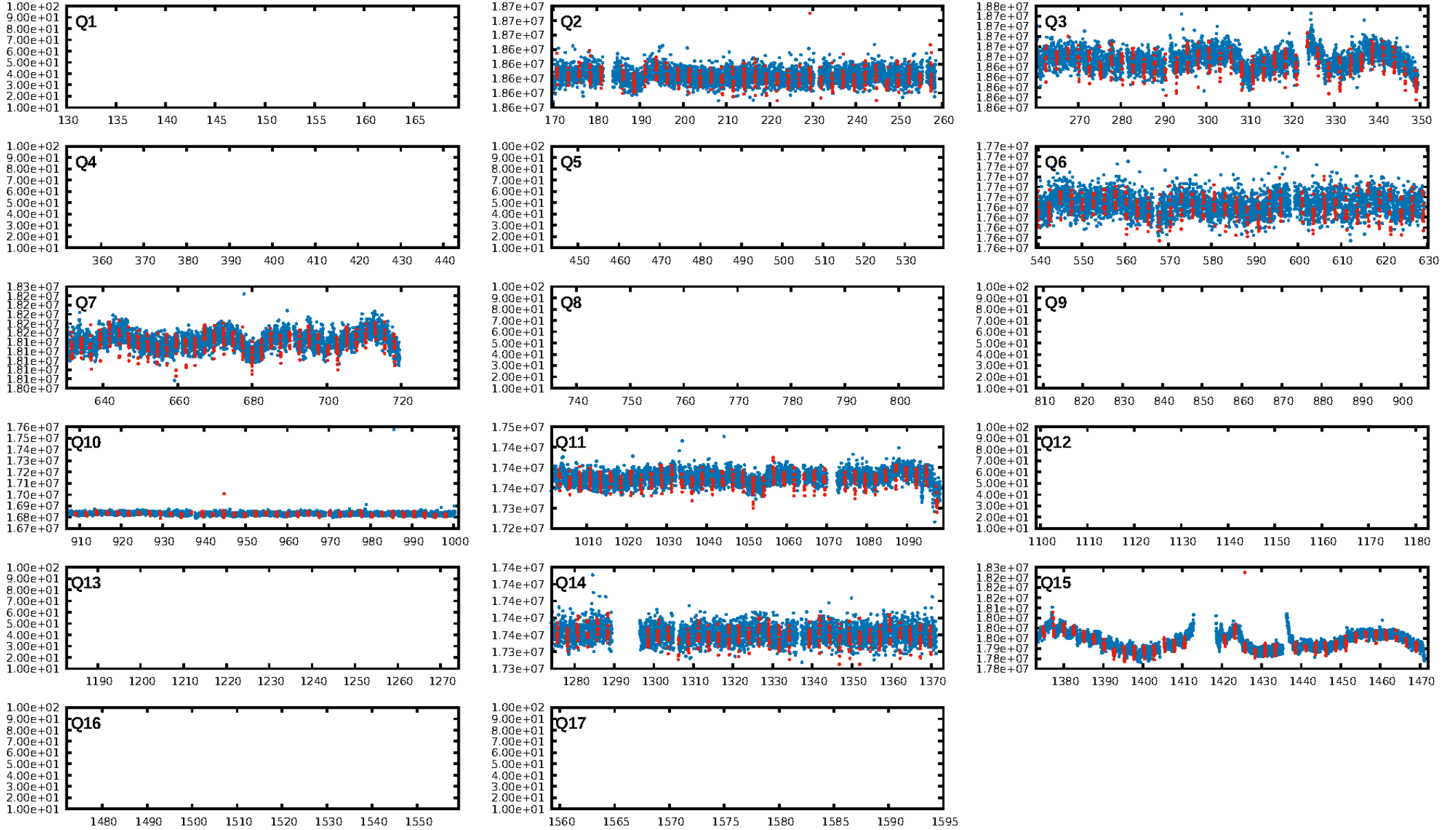
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 92.5% [1.78σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.80e-125
RollingBand-fgt: 1.00 [138/138]
GhostDiagnostic-chr: 0.06714
Centroid-sig: N/A
Centroid-so: 3.022 arcsec [40.49σ]
OotOffset-rm: N/A
KicOffset-rm: 4.321 arcsec [34.19σ]
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [8/8]

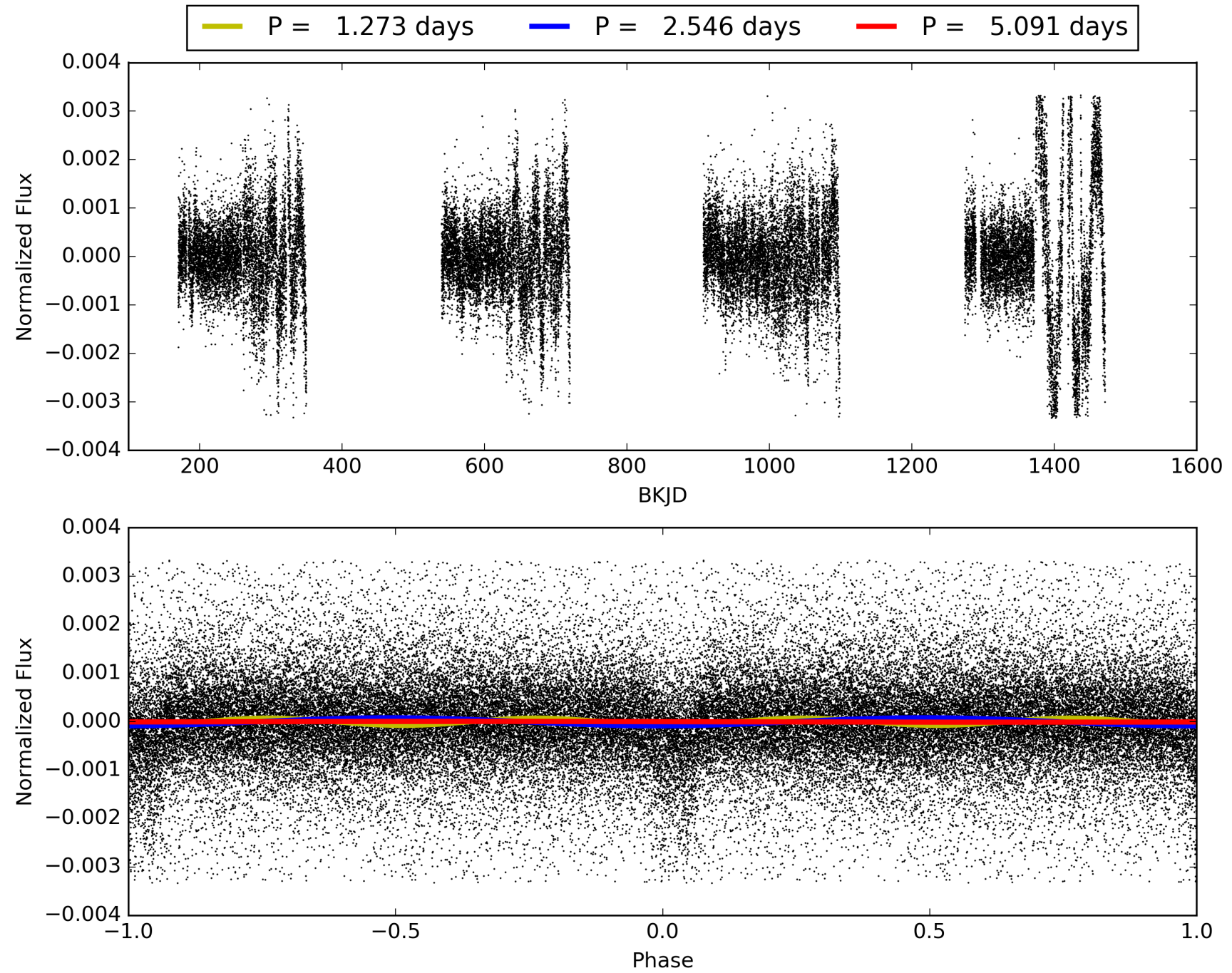
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:38:55 Z

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

TCE 007777416-02, PDC Light Curves

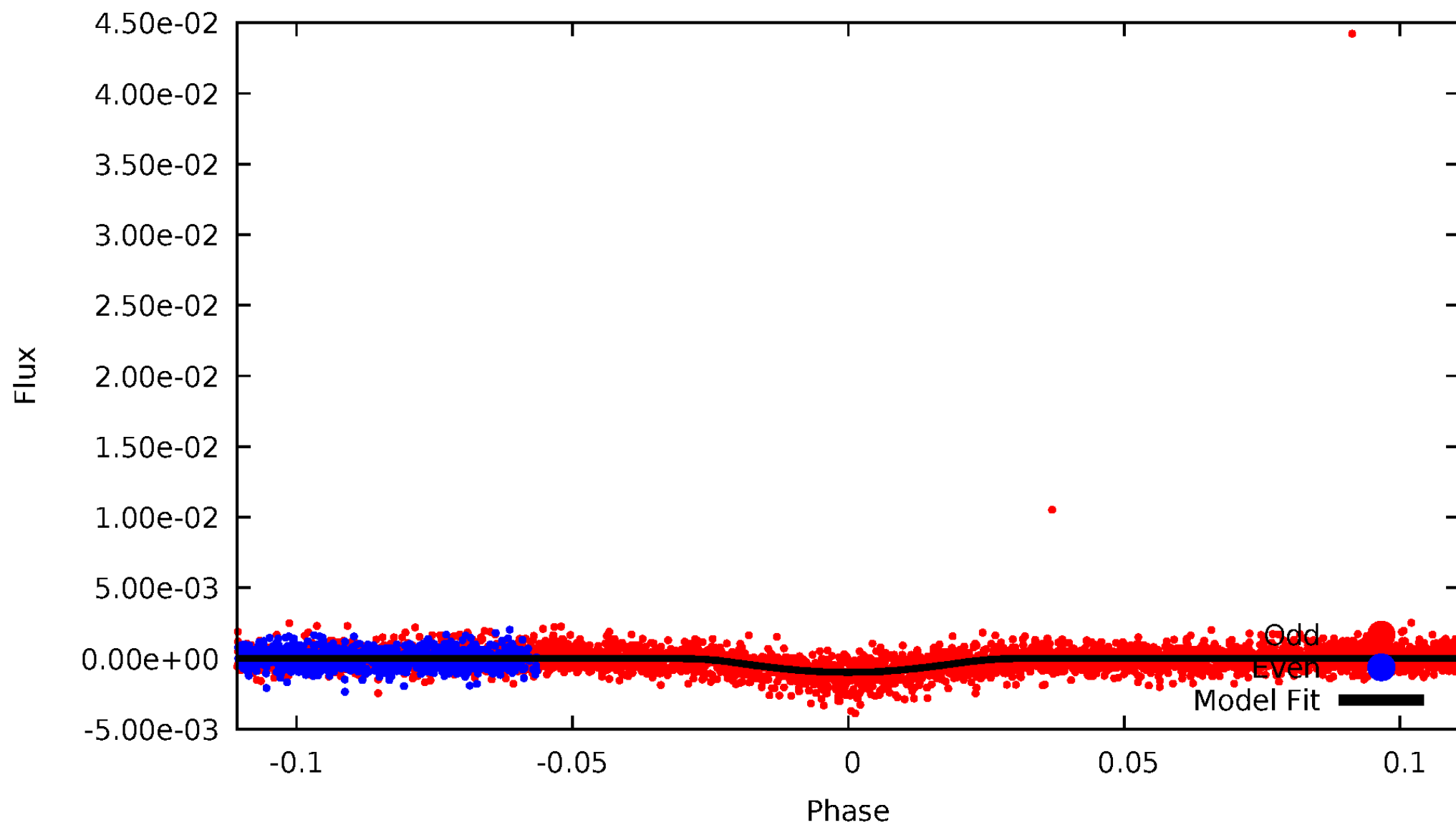


TCE 007777416-02



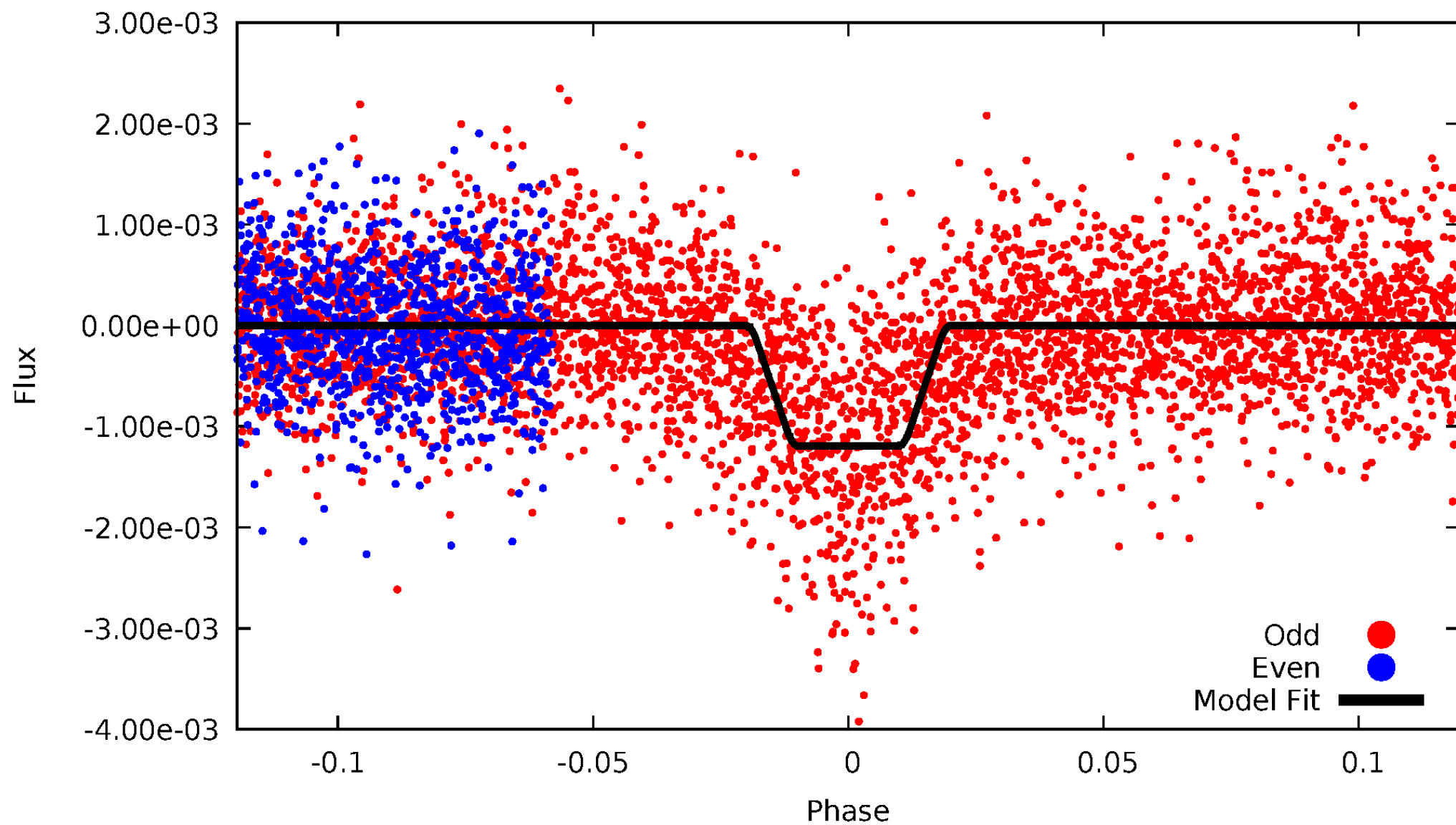
DV Odd/Even

TCE 007777416-02



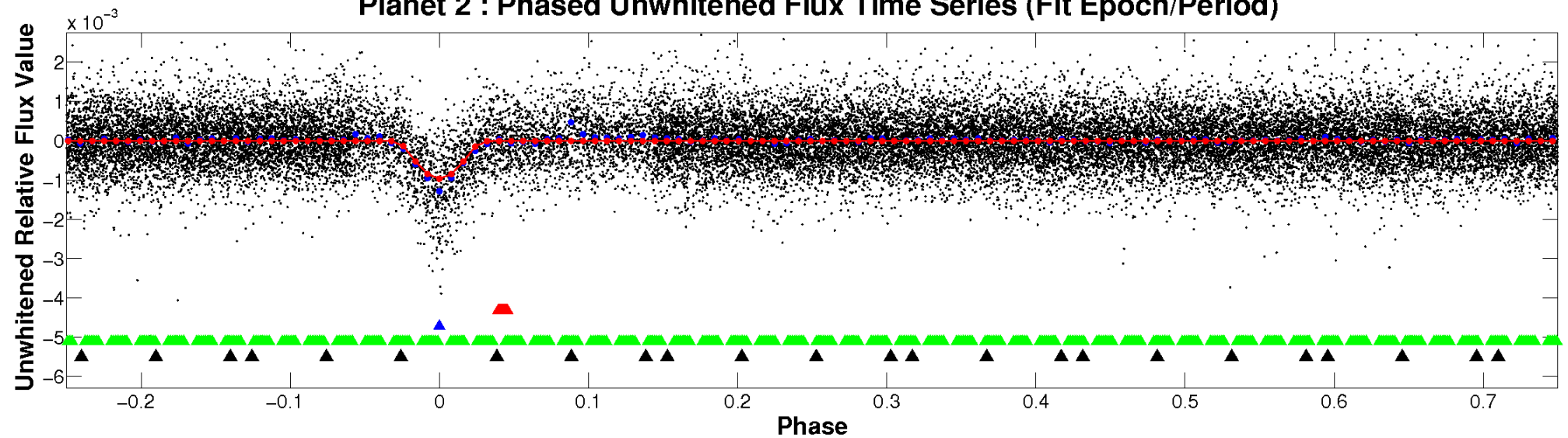
ALT Odd/Even

TCE 007777416-02

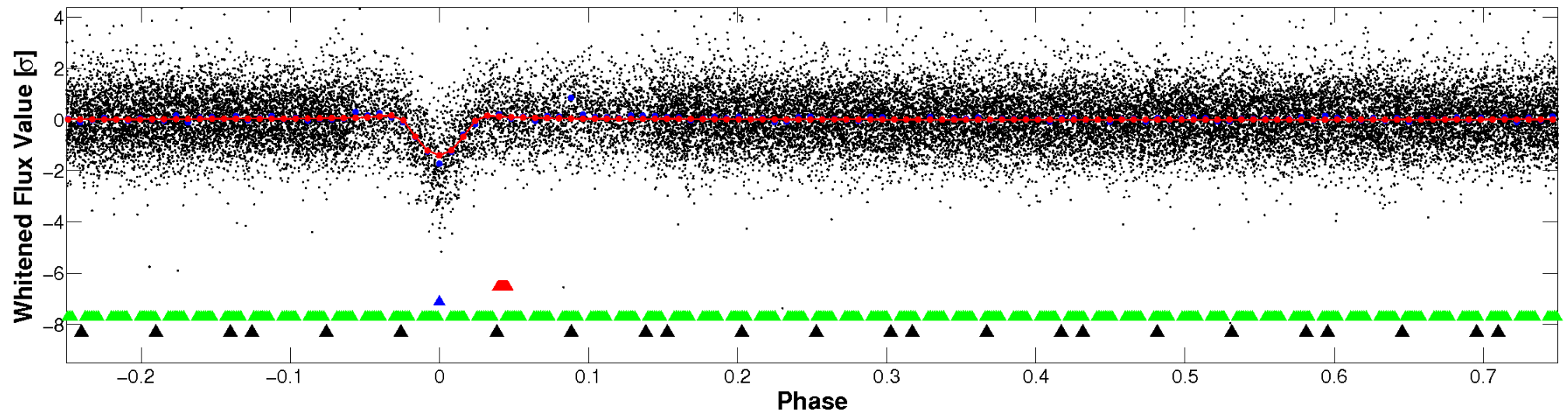


Non-Whitened Vs. Whitened Light Curve

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

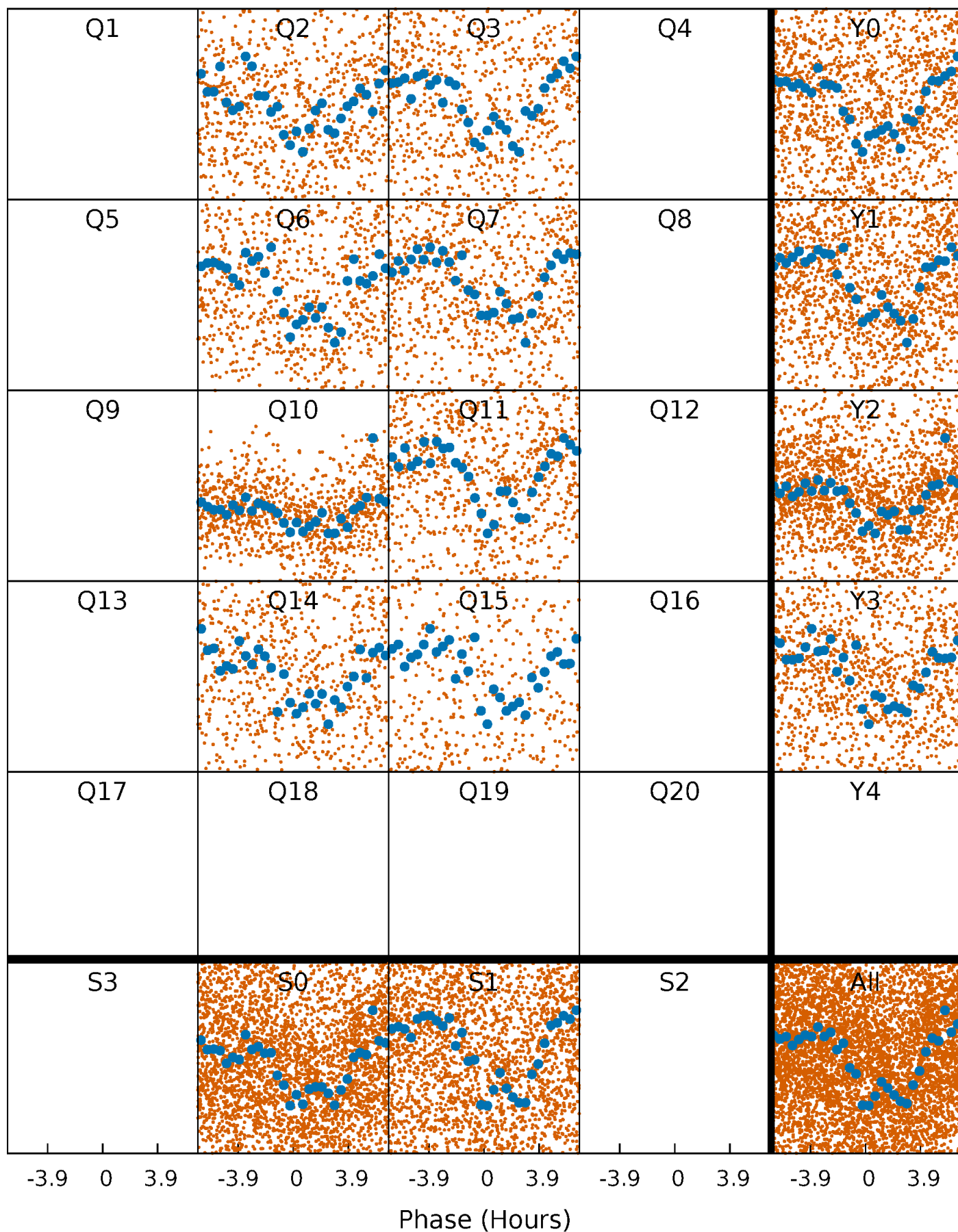


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



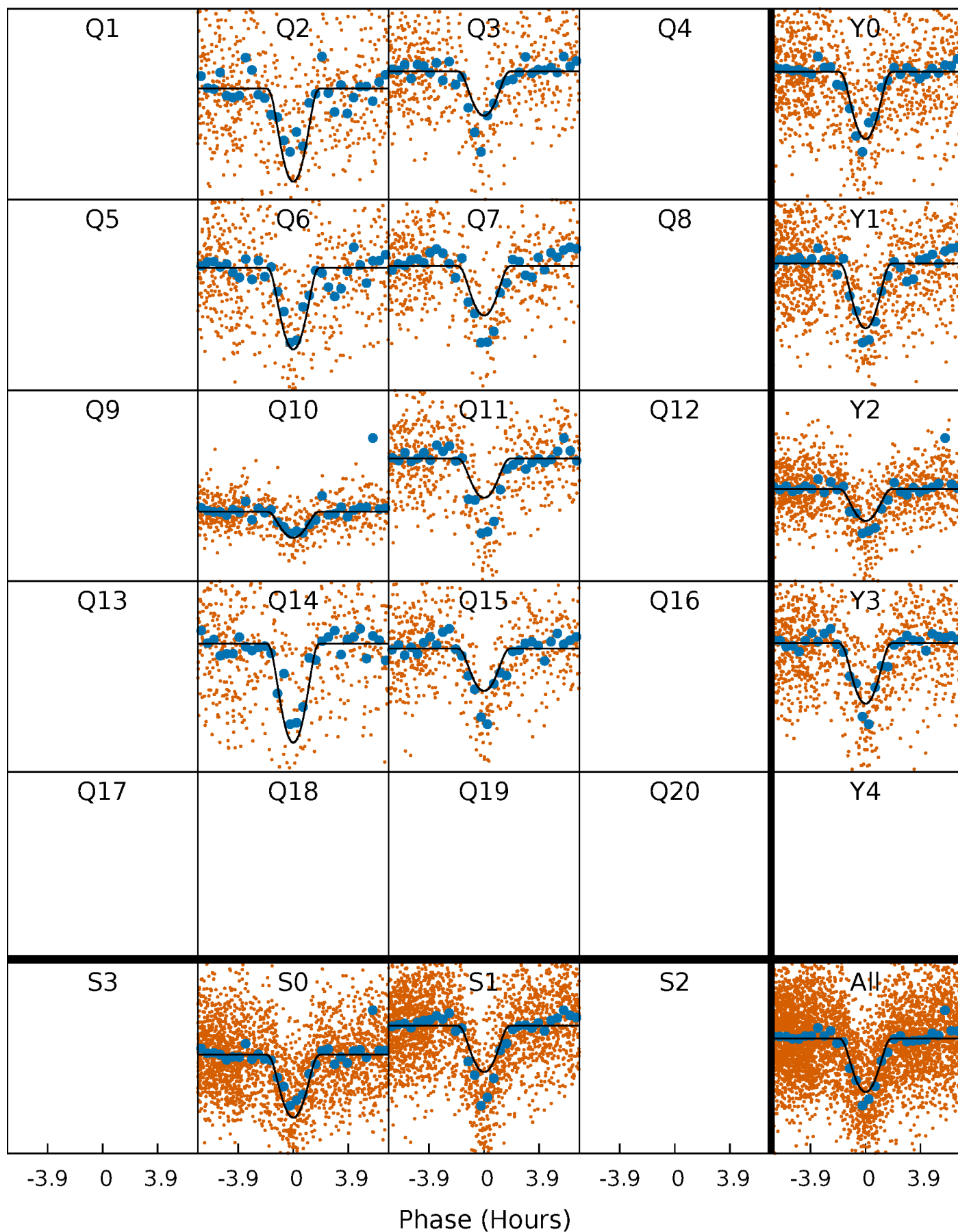
PDC Quarter-Phased Transit Curves

TCE 007777416-02 $P = 2.545554$ Days $T_0 = 132.645655$ (BKJD)



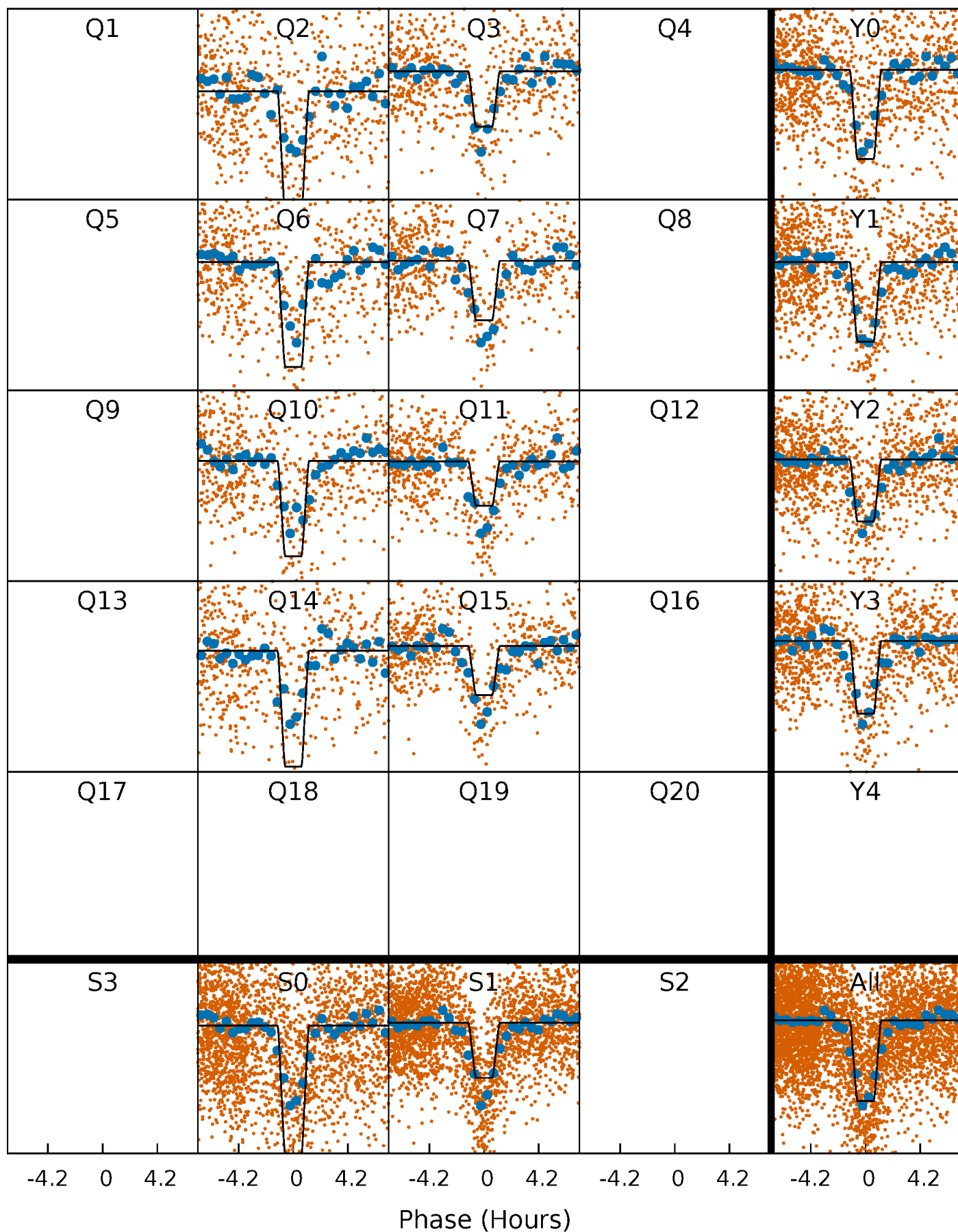
DV Quarter-Phased Transit Curves

TCE 007777416-02 P= 2.545554 Days $T_0=132.645655$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

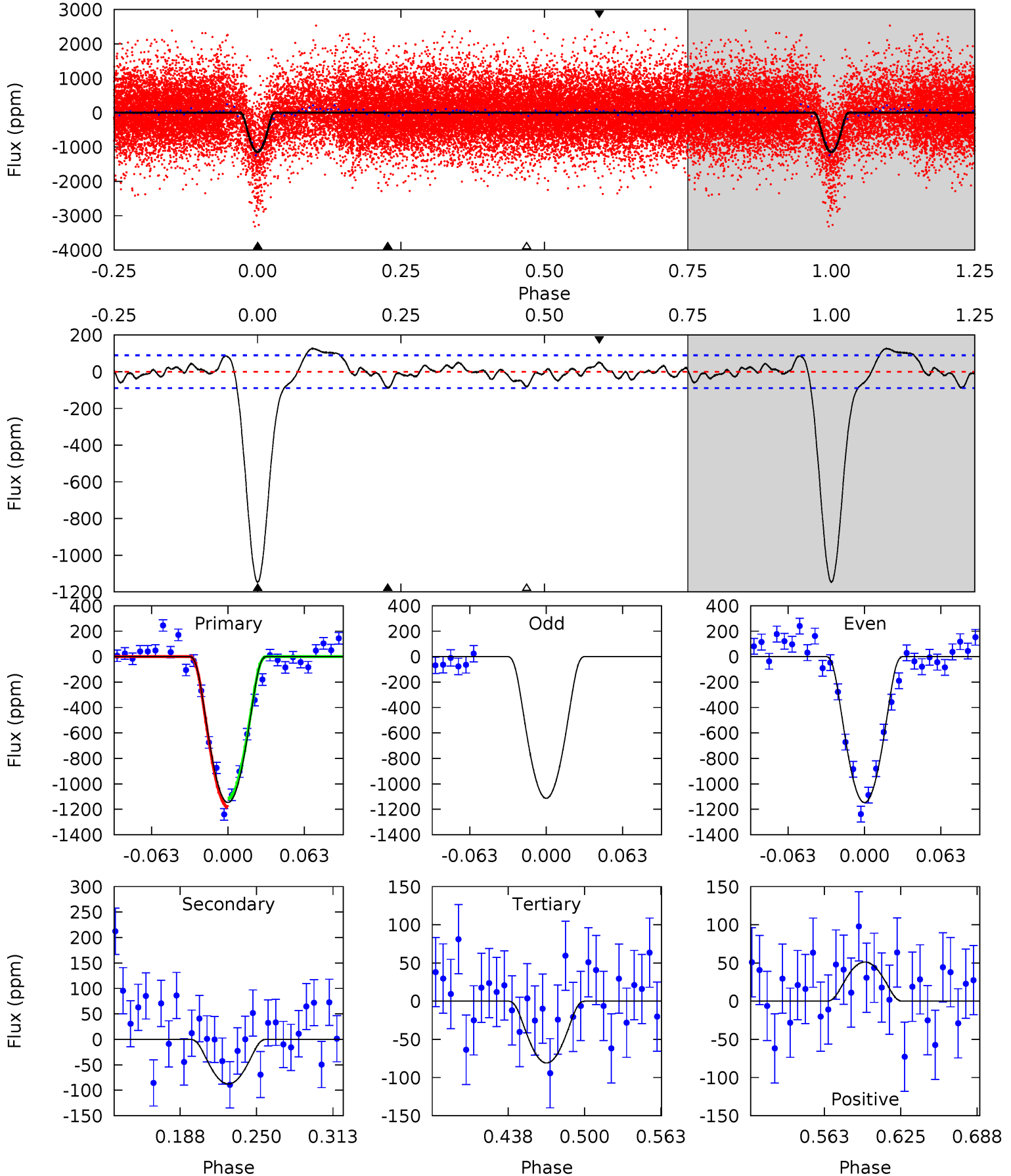
TCE 007777416-02 $P = 2.545587$ Days $T_0 = 132.636887$ (BKJD)



DV Model-Shift Uniqueness Test

007777416-02, P = 2.545554 Days, E = 132.645655 Days

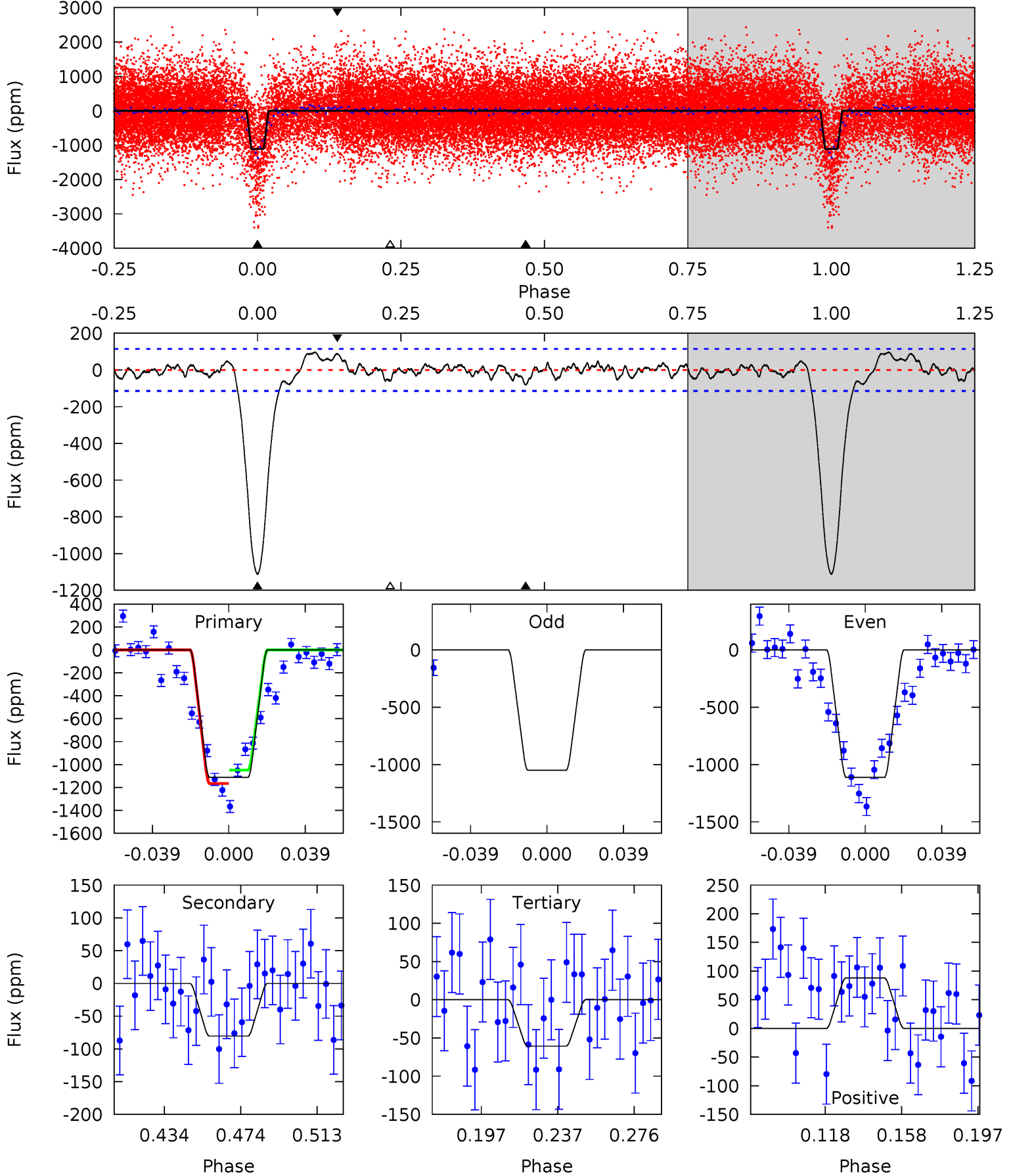
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.7	4.56	4.21	2.67	4.66	1.86	1.83	55.5	57.0	0.35	1.89	1.01	1.10	0.10	1.76



Alt Model-Shift Uniqueness Test

007777416-02, P = 2.545587 Days, E = 132.636887 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.1	3.34	2.52	3.65	4.76	2.06	1.18	43.6	42.5	0.82	-0.31	1.51	1.06	0.08	2.41



Stellar Parameters For KIC 007777416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5718^{+169}_{-186}	$4.549^{+0.035}_{-0.184}$	$-0.080^{+0.300}_{-0.300}$	$0.863^{+0.246}_{-0.082}$	$0.960^{+0.104}_{-0.115}$	$2.107^{+0.384}_{-1.021}$
	+3%/-3%	+1%/-4%	+375%/-375%	+29%/-10%	+11%/-12%	+18%/-48%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007777416-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-88 ± 19	$5.57^{+4.76}_{-3.58}$	1759^{+115}_{-77}	2876^{+1146}_{-547}	$1.938^{+11.572}_{-1.393}$
Alt.	-80 ± 24	$4.98^{+4.09}_{-3.16}$	1765^{+112}_{-82}	3008^{+1247}_{-635}	$2.320^{+14.992}_{-1.691}$

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

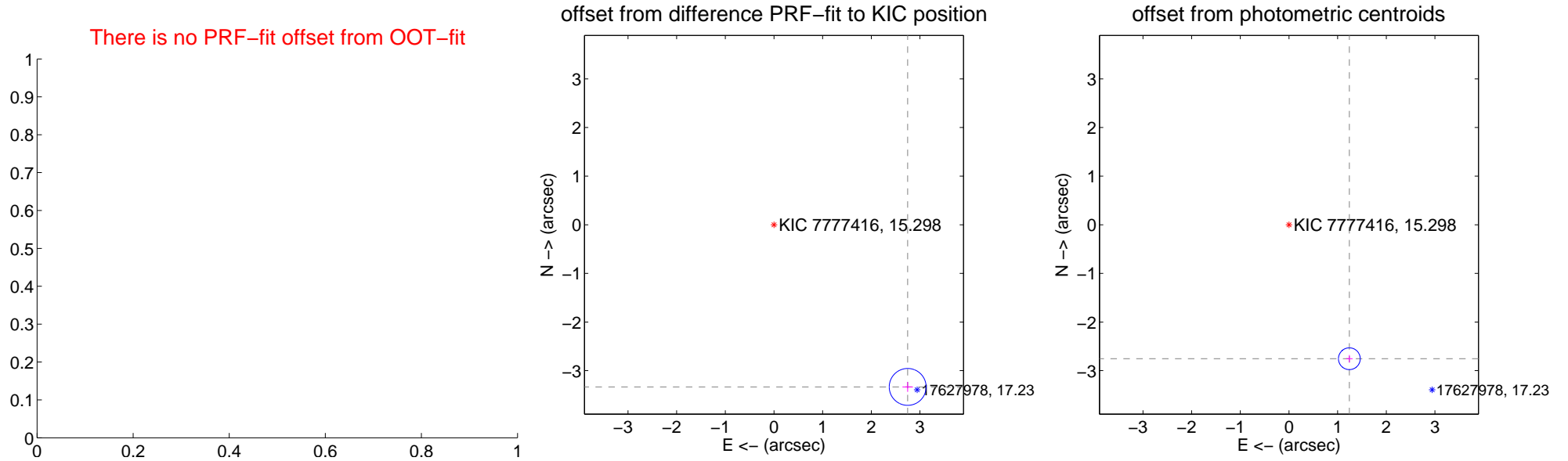
DV Centroid Data

Supplemental centroid analysis for 007777416-02. Kepler magnitude: 15.30. Transit SNR 27.83

There are 4 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	4.321 ± 0.126	34.19	-2.748 ± 0.108	-3.335 ± 0.102
photometric centroid source offset	3.02 ± 0.07	40.49	-1.24 ± 0.07	-2.76 ± 0.08



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.

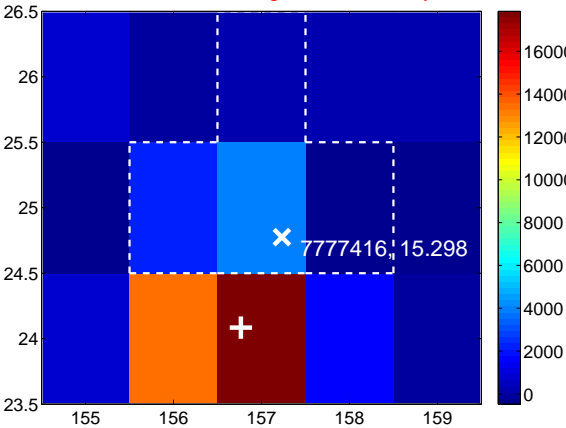
Q1 no difference image



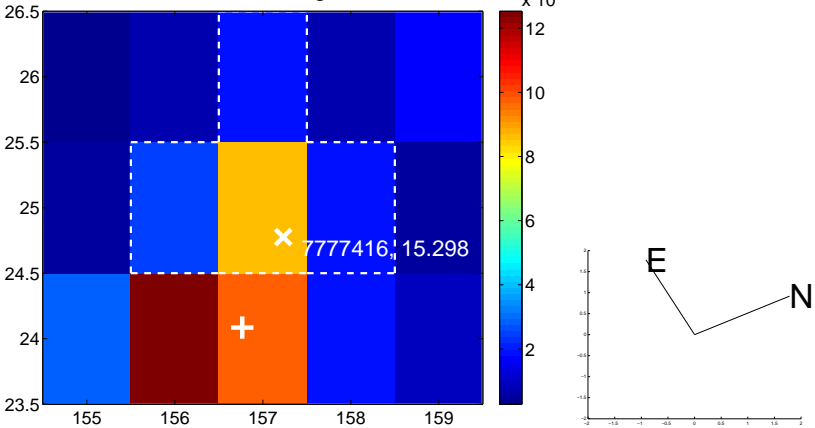
Q1 no OOT image



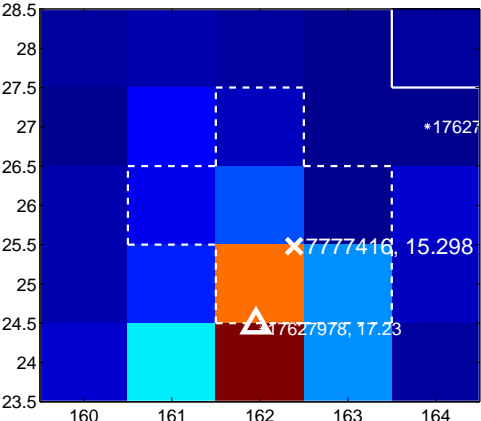
Q2 difference image. Poor Quality



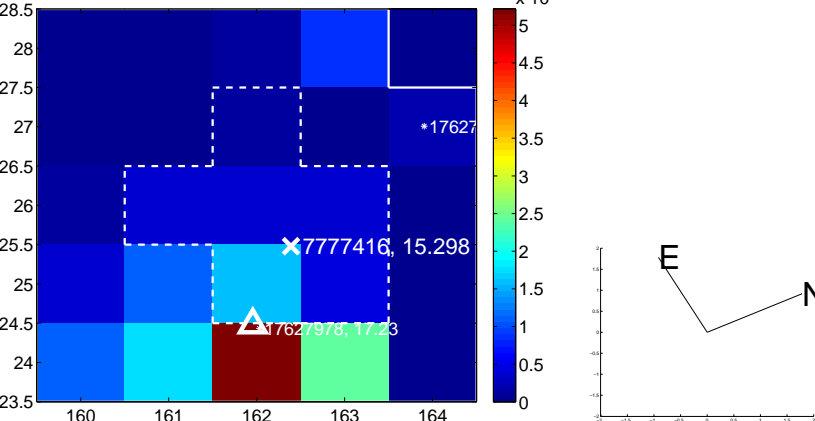
Q2 OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

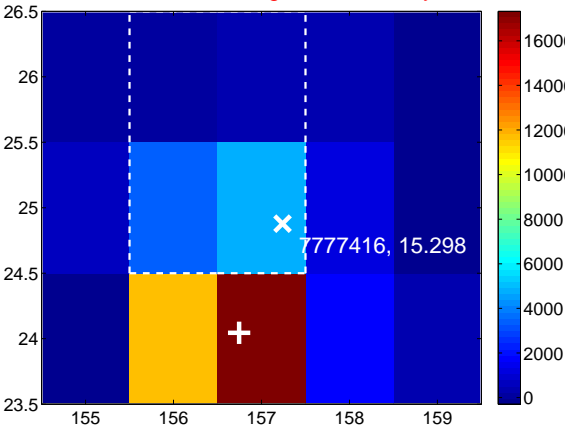
Q5 no difference image



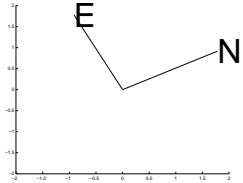
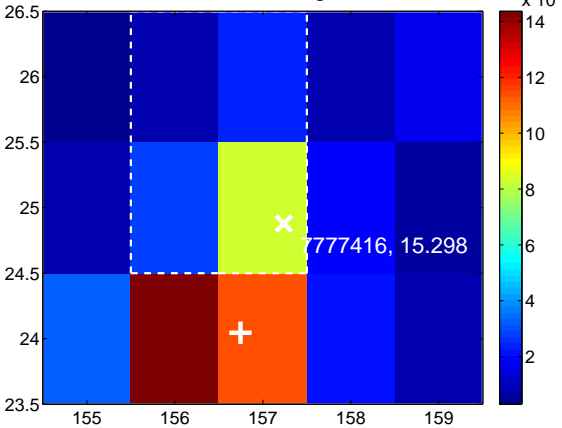
Q5 no OOT image



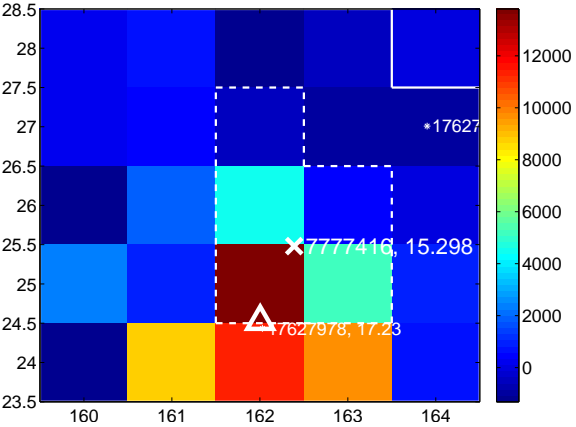
Q6 difference image. Poor Quality



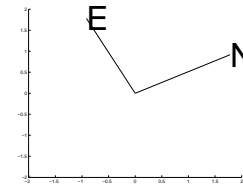
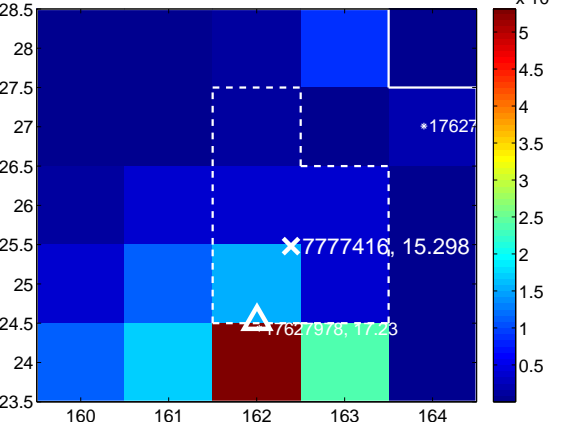
Q6 OOT image



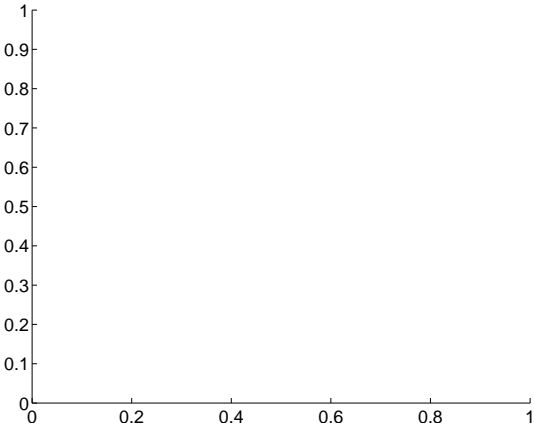
Q7 difference image



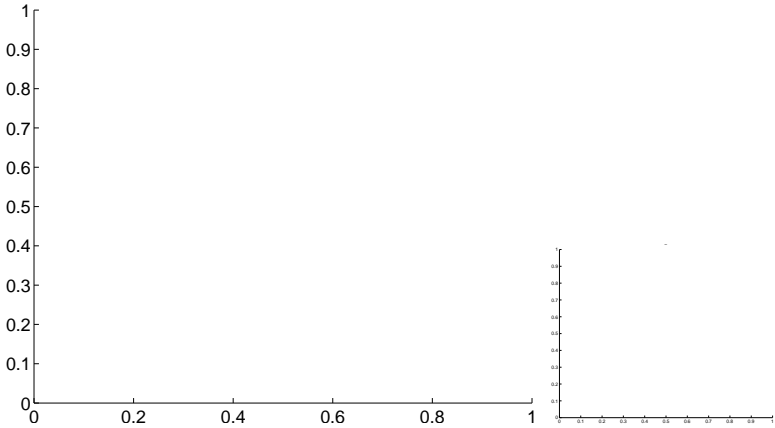
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

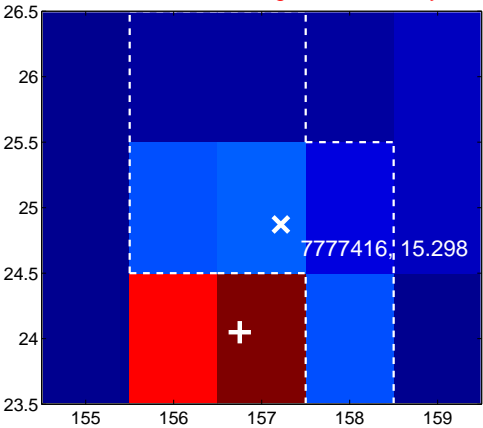
Q9 no difference image



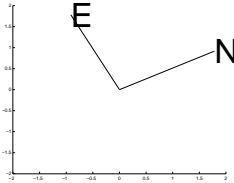
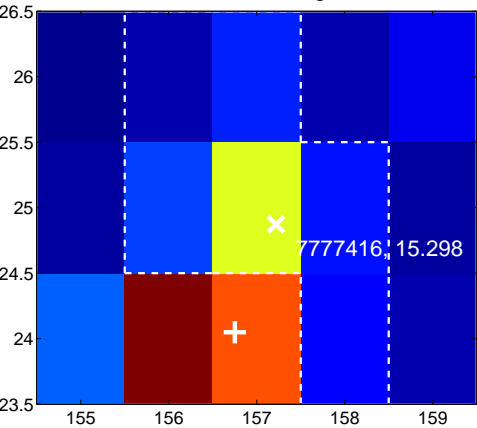
Q9 no OOT image



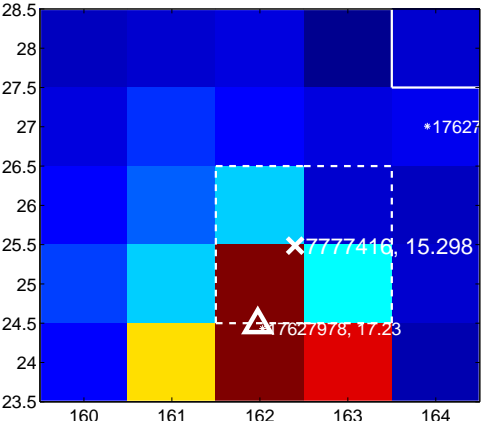
Q10 difference image. Poor Quality



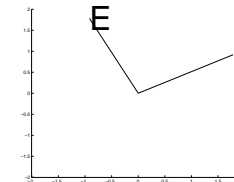
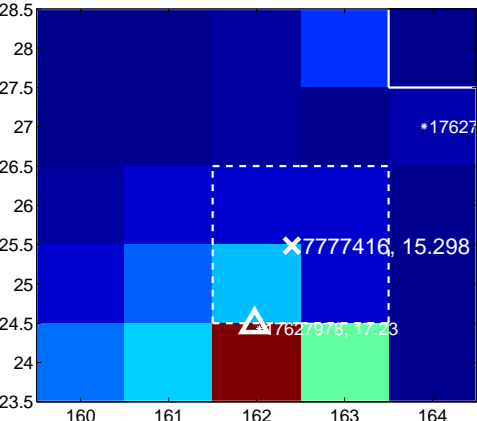
Q10 OOT image



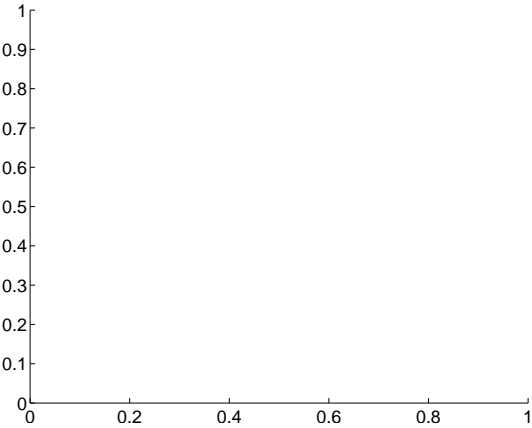
Q11 difference image



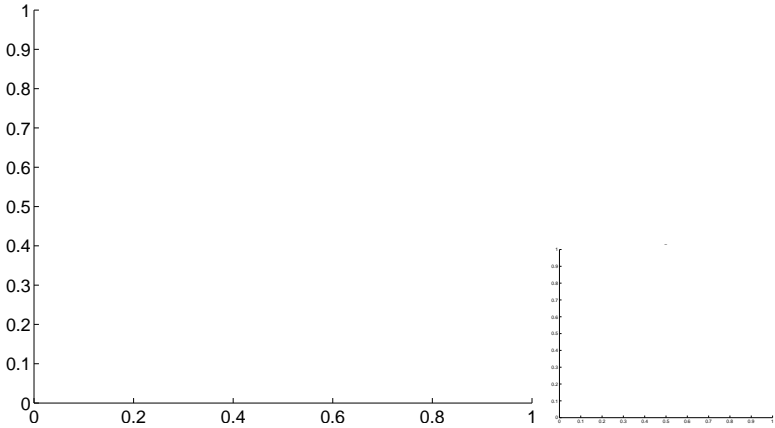
Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

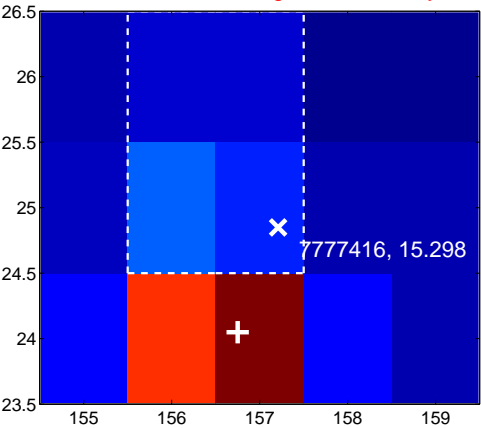
Q13 no difference image



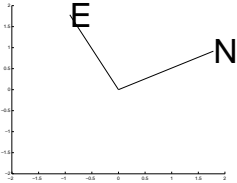
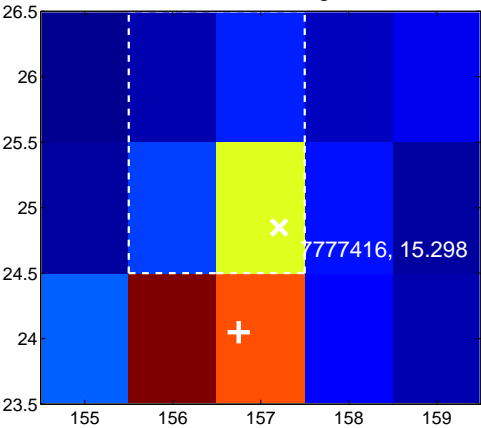
Q13 no OOT image



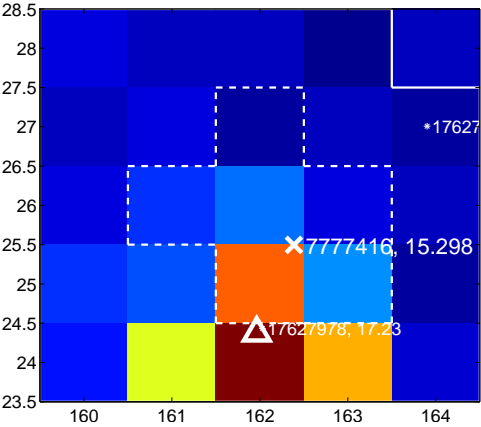
Q14 difference image. Poor Quality



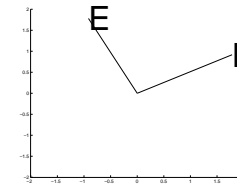
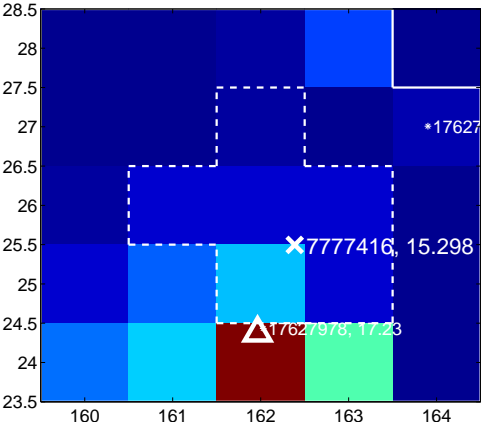
Q14 OOT image



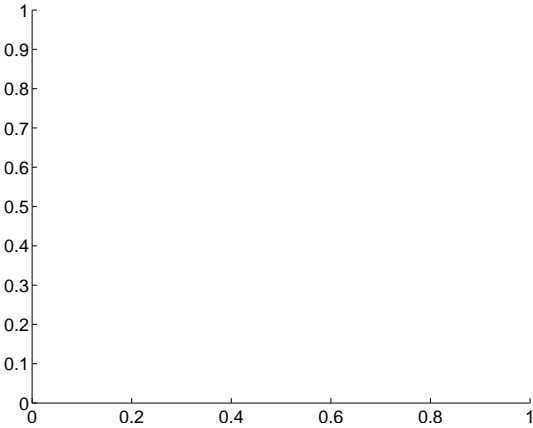
Q15 difference image



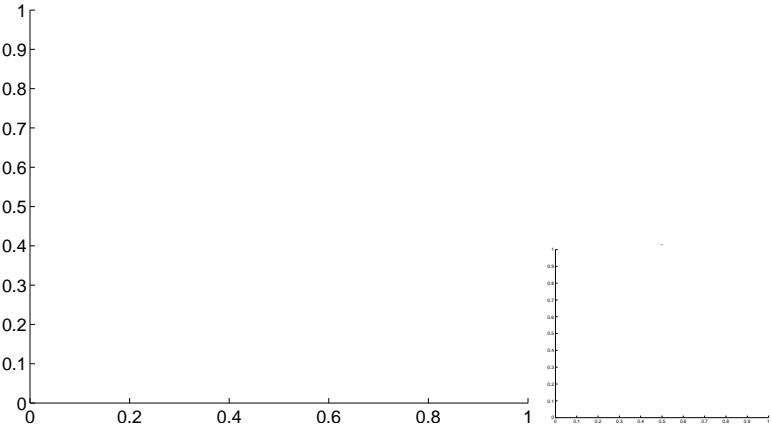
Q15 OOT image



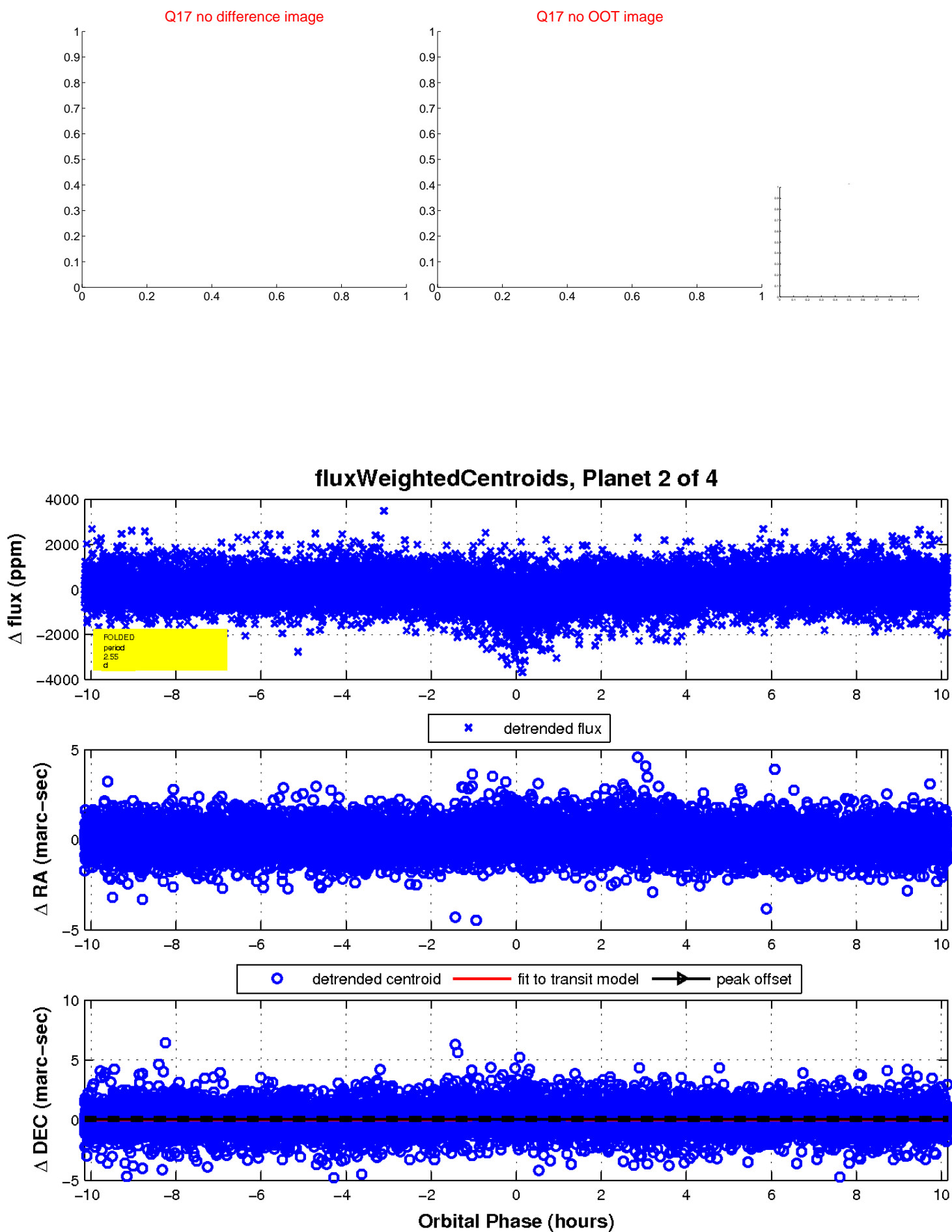
Q16 no difference image



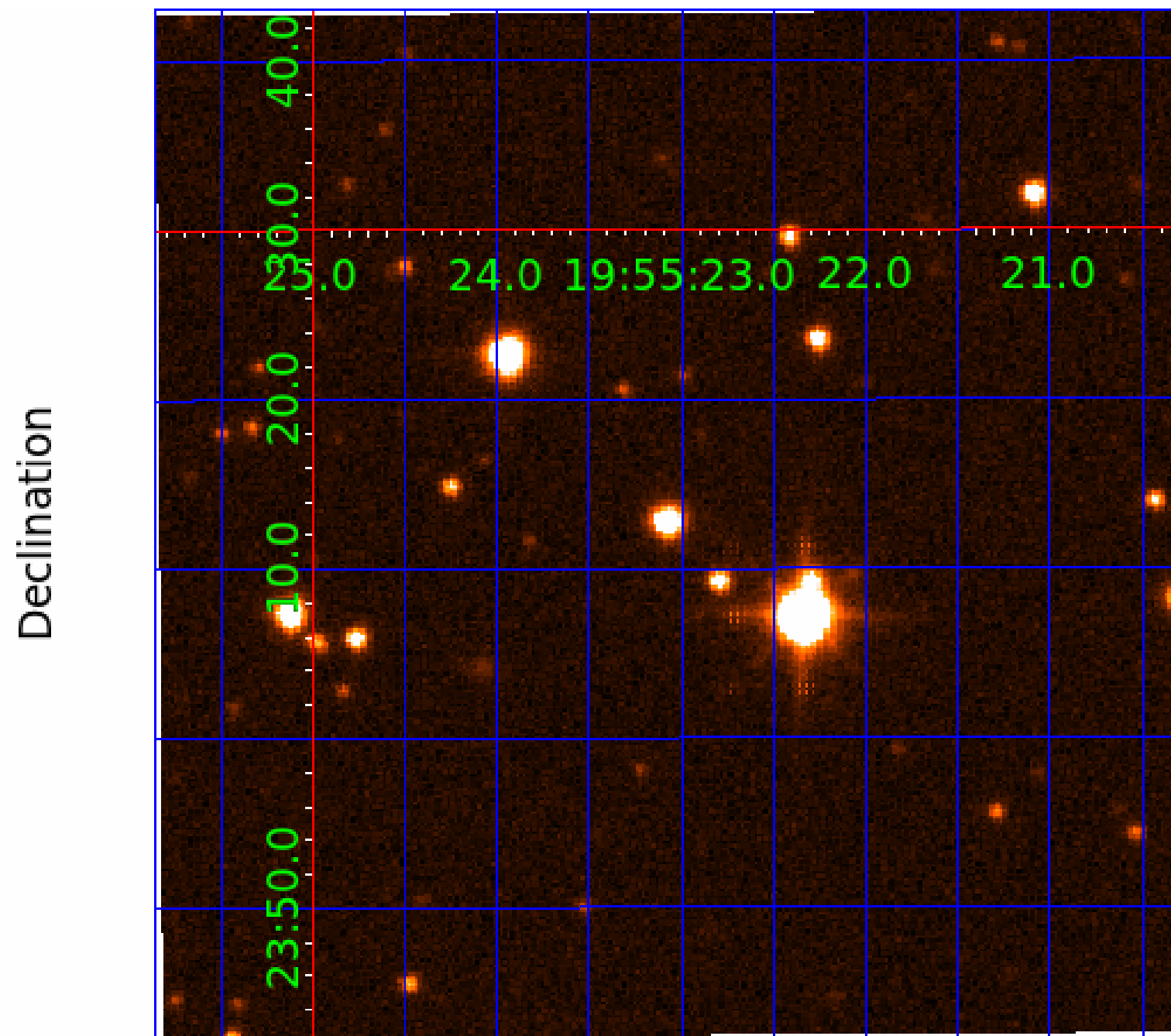
Q16 no OOT image



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



UKIRT Image



KIC 007777416

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})
007777416-01	OBS	3960.01	5.091164	132.746011	944.4	3.942	25.8	29.0	0.86	5718	5.17	218.17
007777416-02	OBS	No	2.545554	132.645655	973.1	3.383	26.7	27.8	0.86	5718	4.68	549.75
007777416-03	OBS	No	3.506212	131.749385	326.2	12.500	7.2	-1.0	0.86	5718	1.54	358.72
007777416-04	OBS	No	61.802449	143.598388	595.1	16.214	8.9	6.9	0.86	5718	2.54	7.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007777416-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
007777416-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
007777416-03	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007777416-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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.

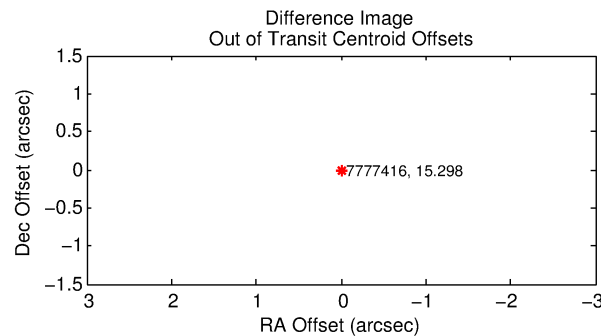
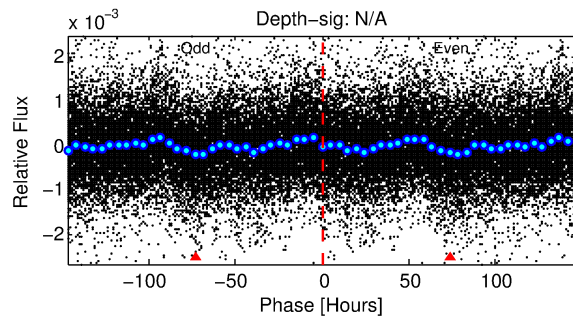
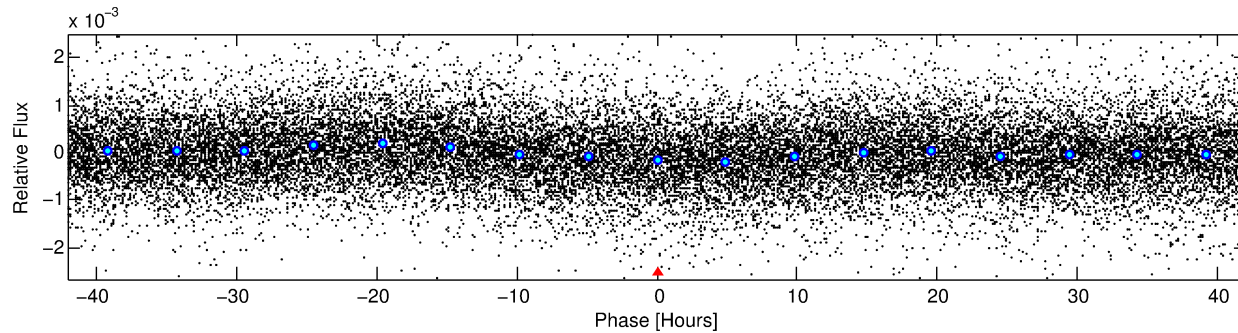
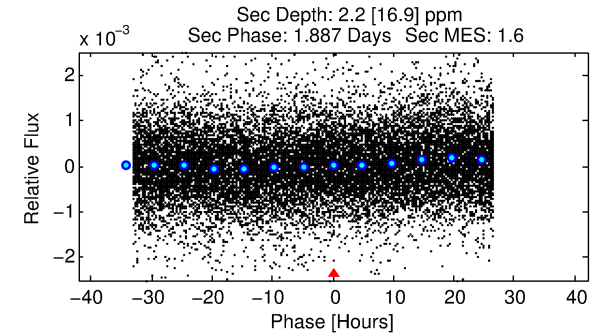
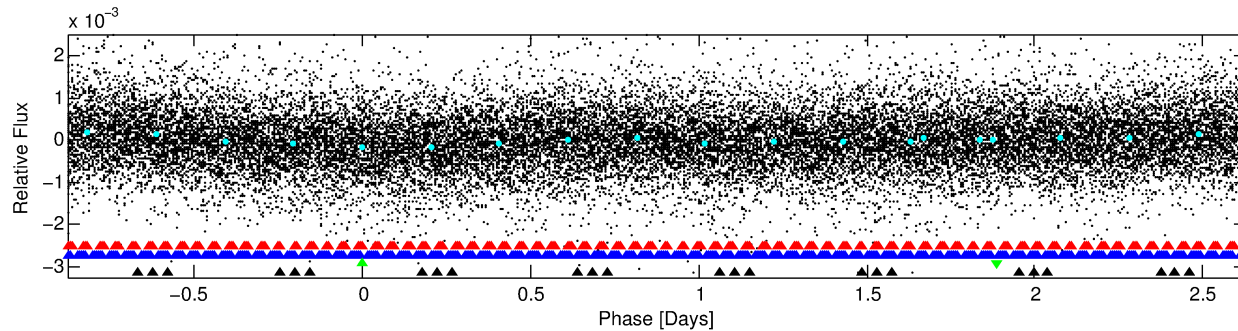
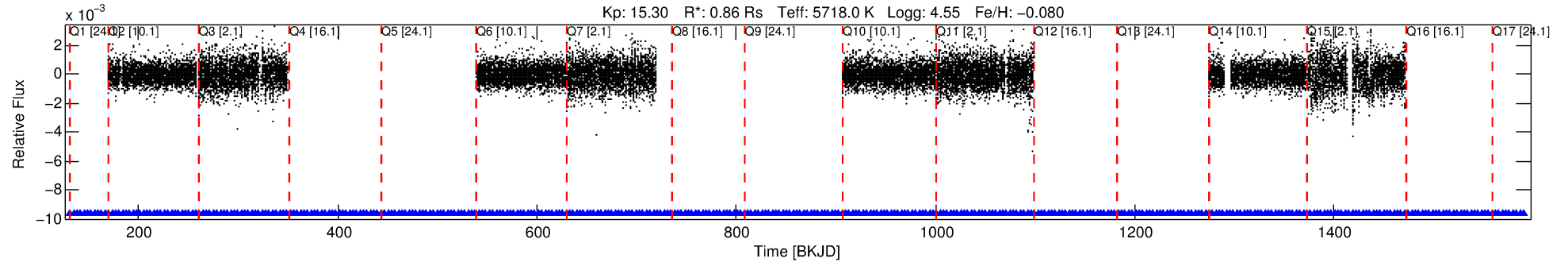
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007777416-03

No Significant Match Found

DV One-Page Summary

KIC: 7777416 Candidate: 3 of 4 Period: 3.506 d
KOI: K03960 Corr: No Ephemeris Match



TPS TCE Results:

Period = 3.50621 d
Epoch = 131.7494 BKJD

DV fit results are unavailable

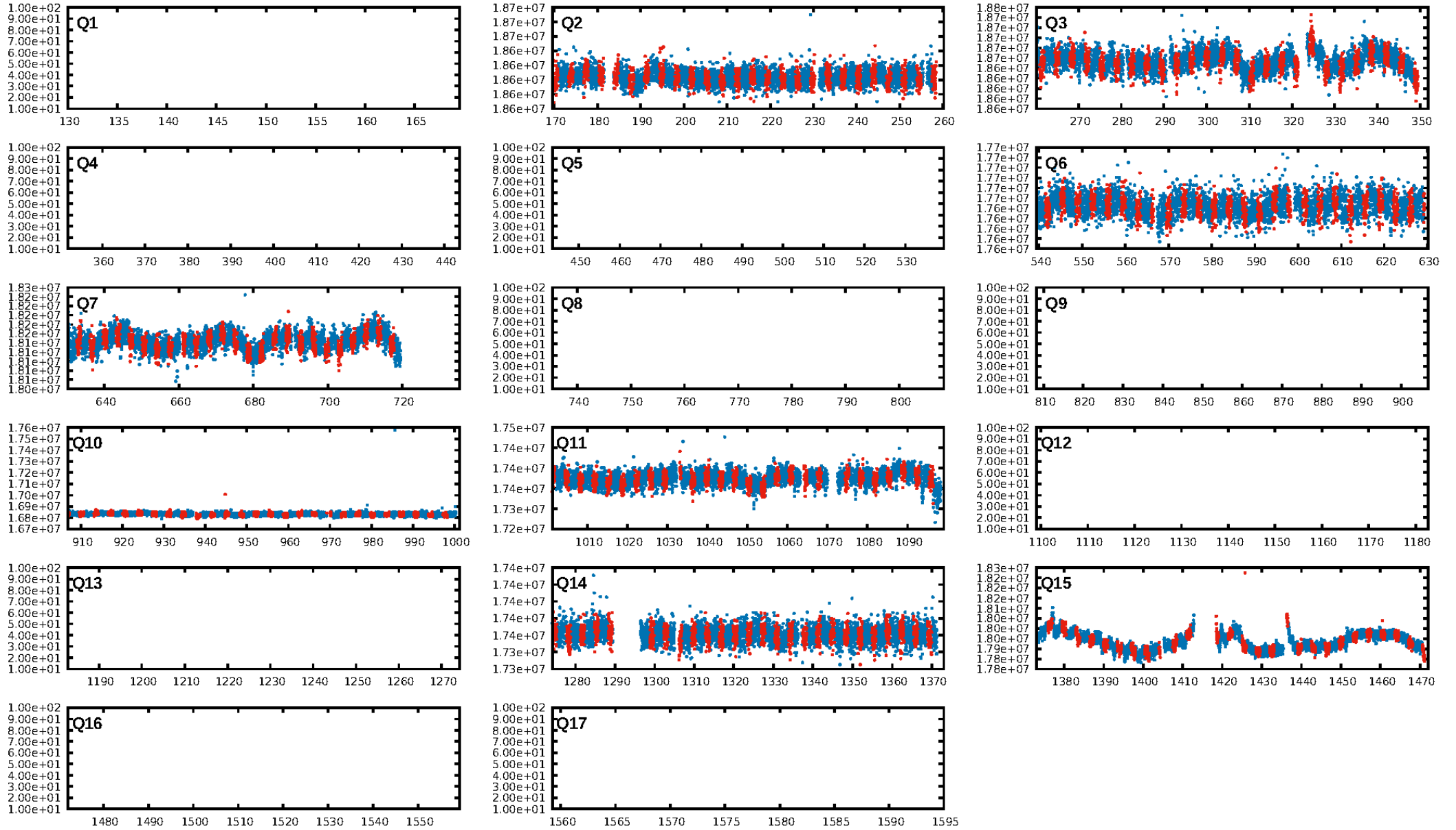
DV Diagnostic Results:

ShortPeriod-sig: 92.5% [1.78 σ]
LongPeriod-sig: 99.6% [2.90 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.94e-12
RollingBand-fgt: 1.00 [210/210]
GhostDiagnostic-chr: -1.635
Centroid-sig: N/A
Centroid-so: 3.759 arcsec [15.35 σ]
OotOffset-rm: N/A
KicOffset-rm: 7.067 arcsec [5.63 σ]
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/2/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/8]

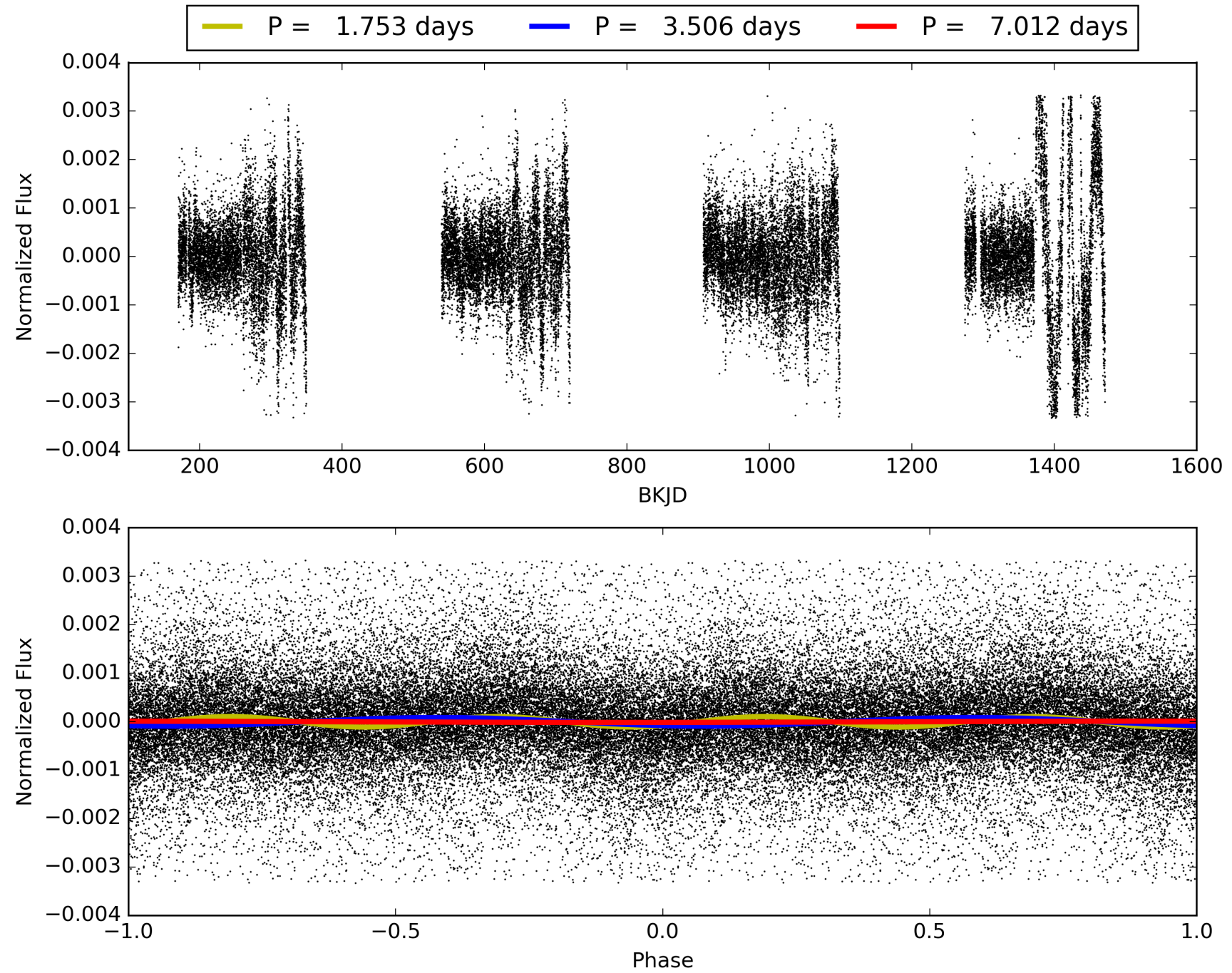
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:39:04 Z

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

TCE 007777416-03, PDC Light Curves

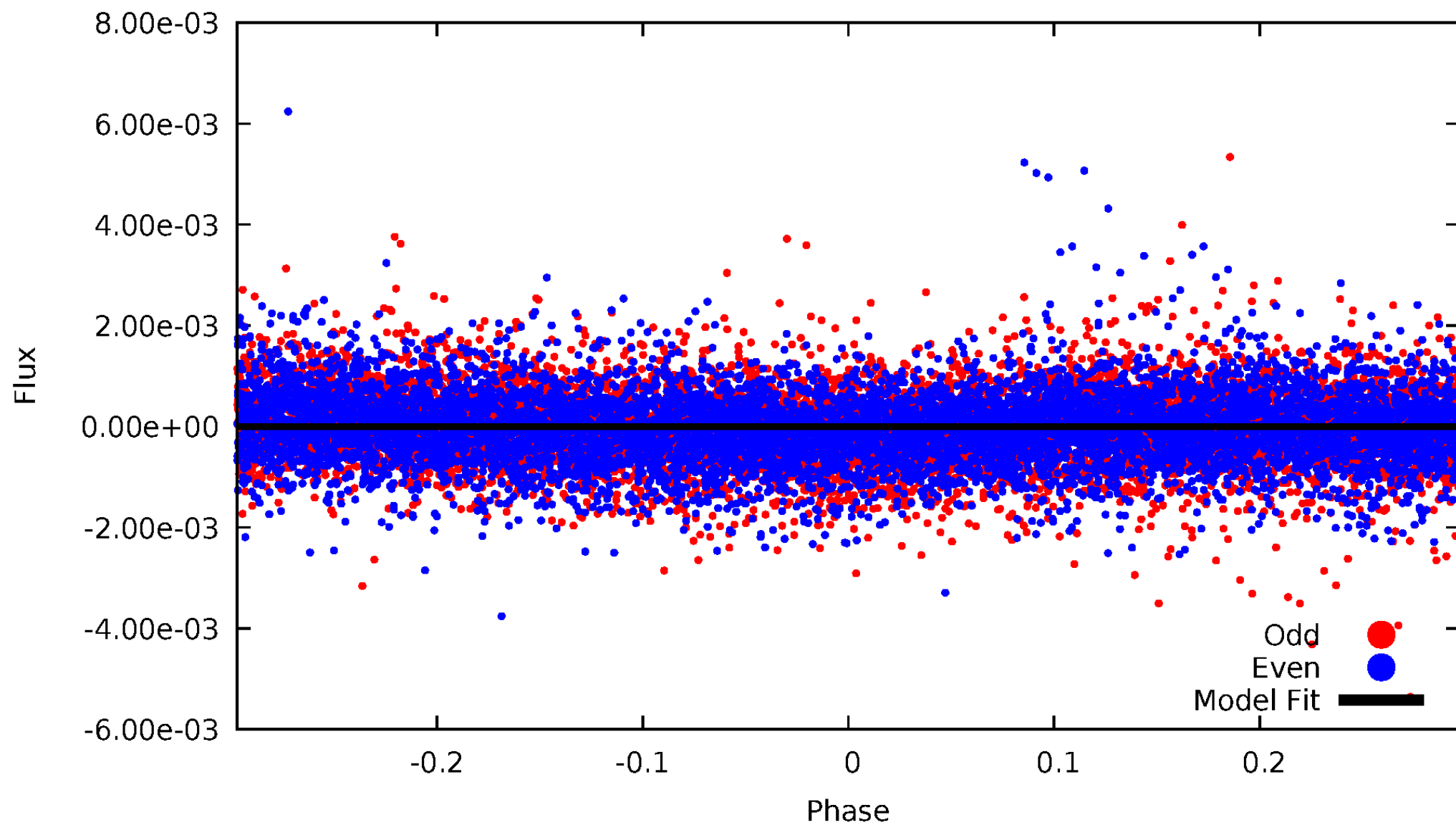


TCE 007777416-03



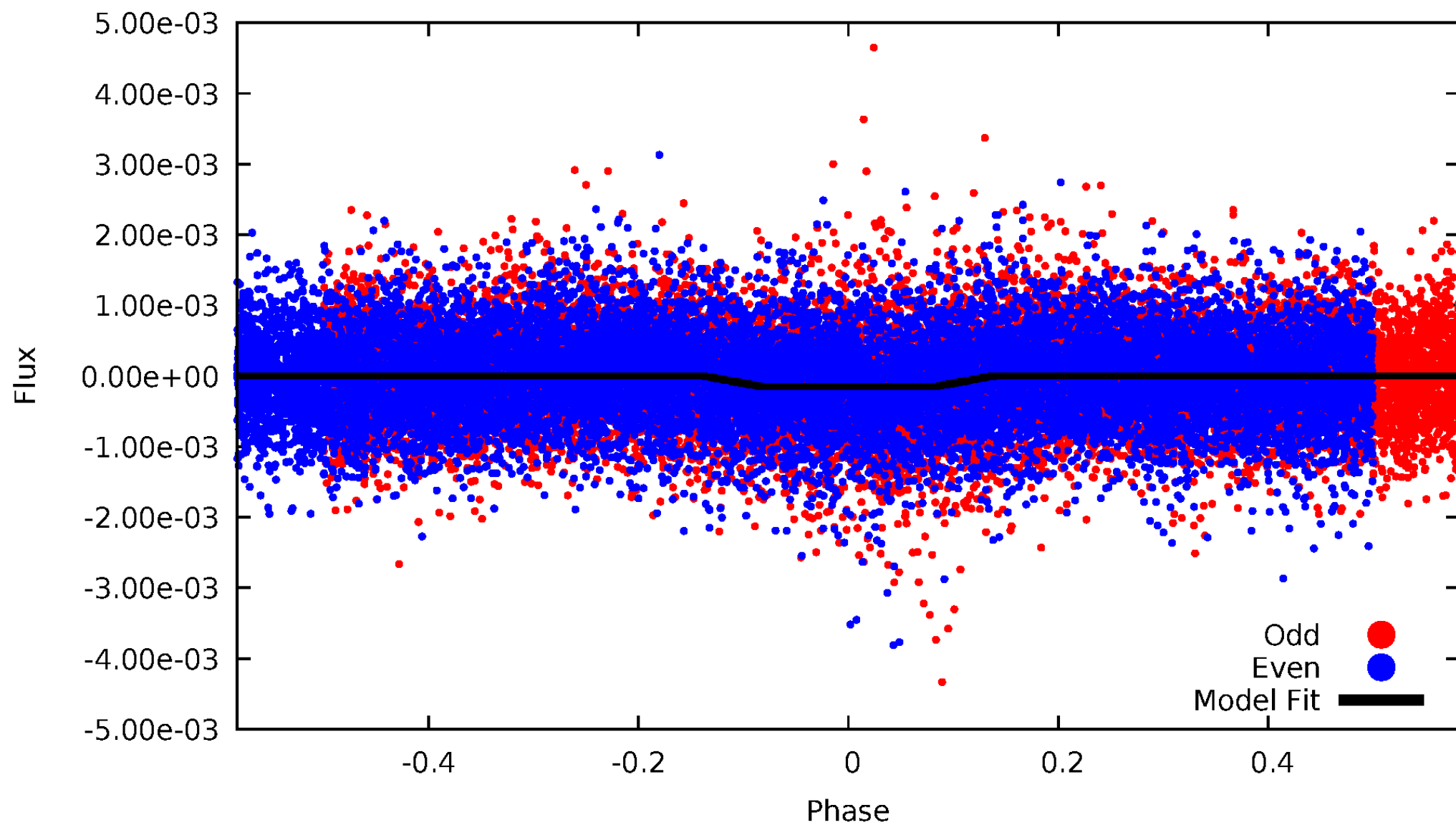
DV Odd/Even

TCE 007777416-03



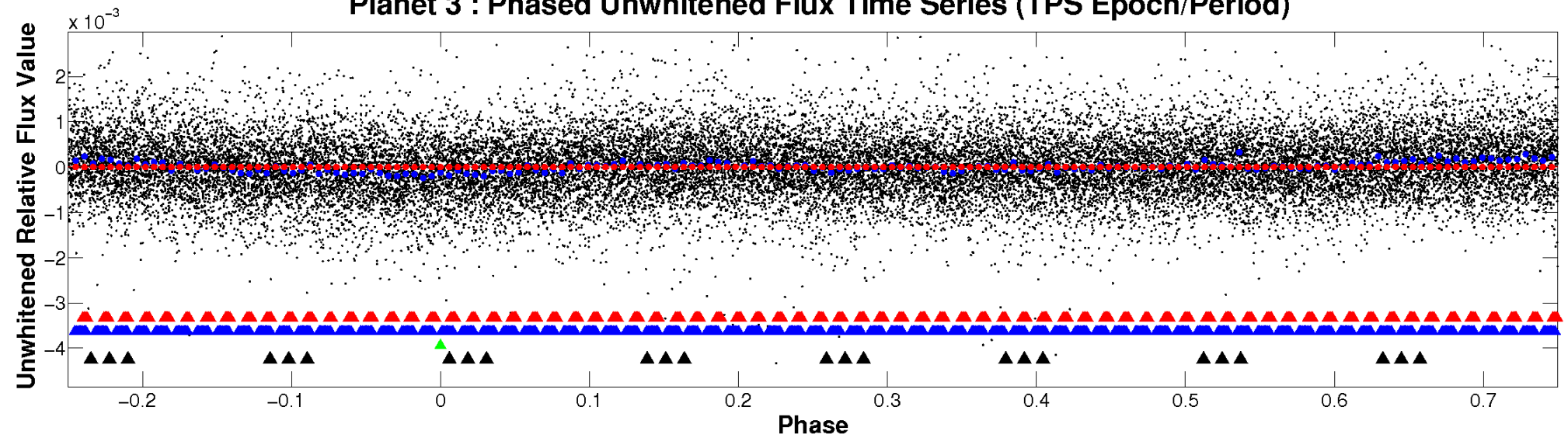
ALT Odd/Even

TCE 007777416-03

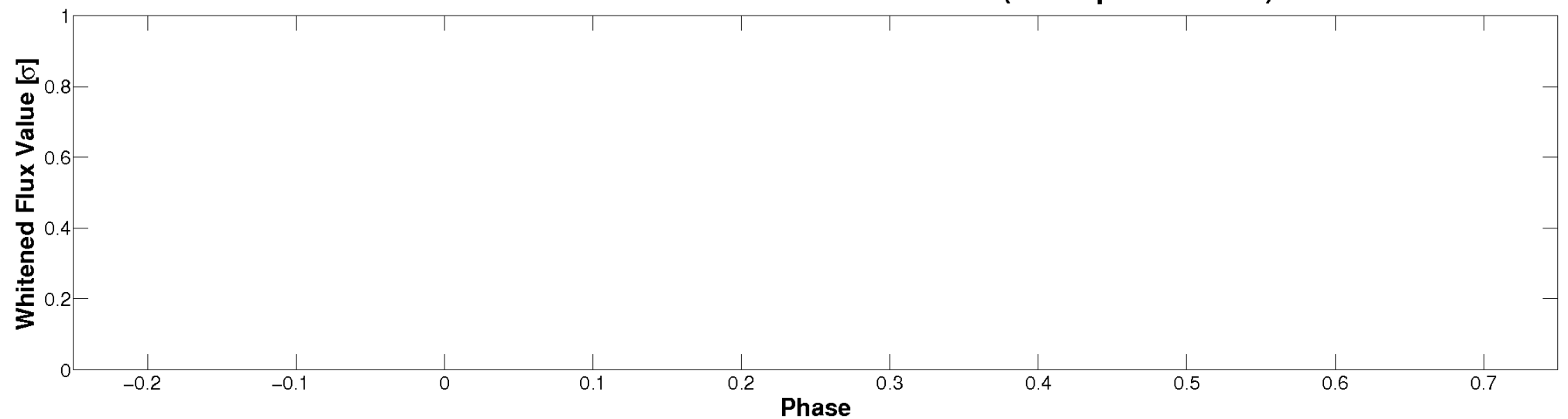


Non-Whitened Vs. Whitened Light Curve

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

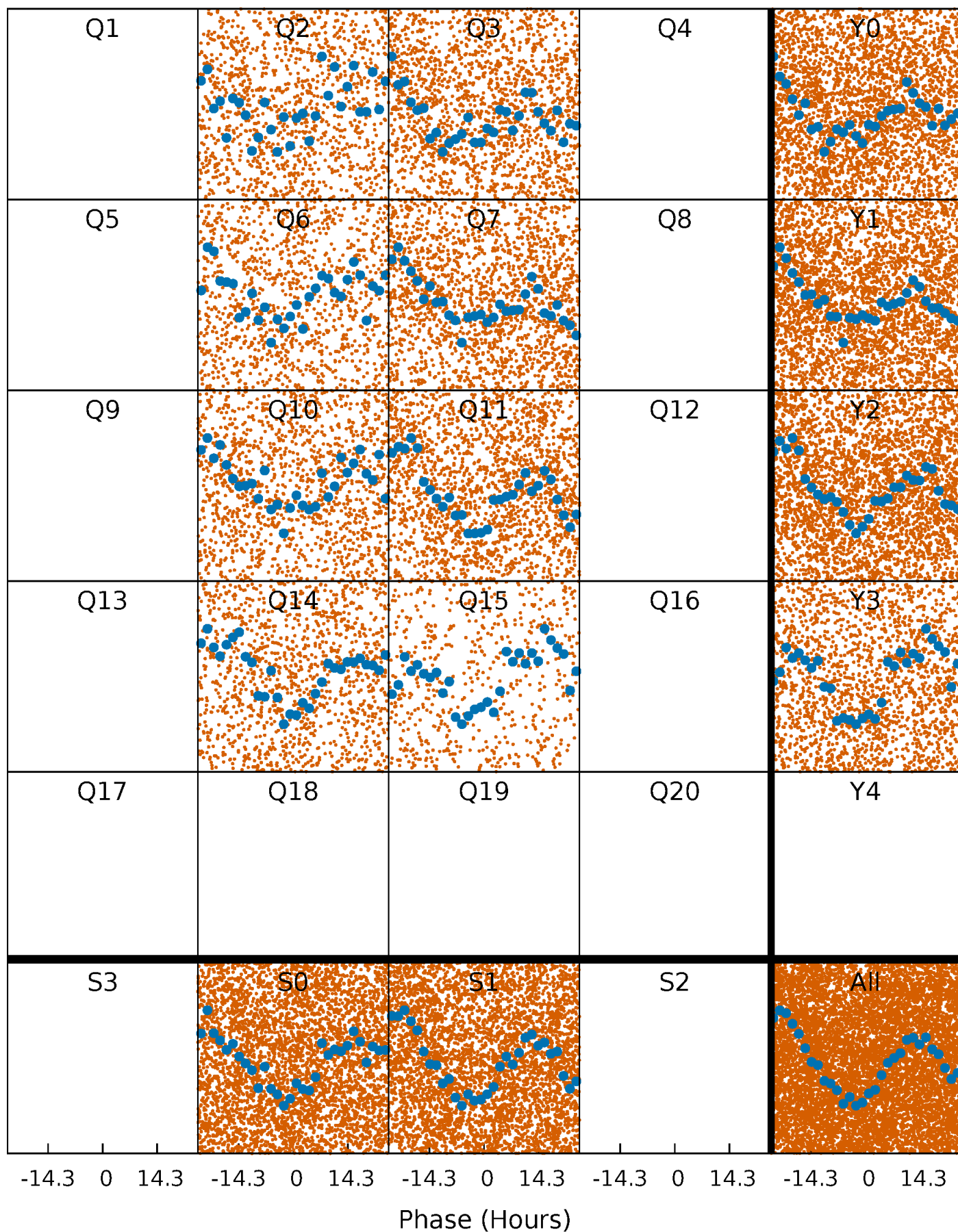


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



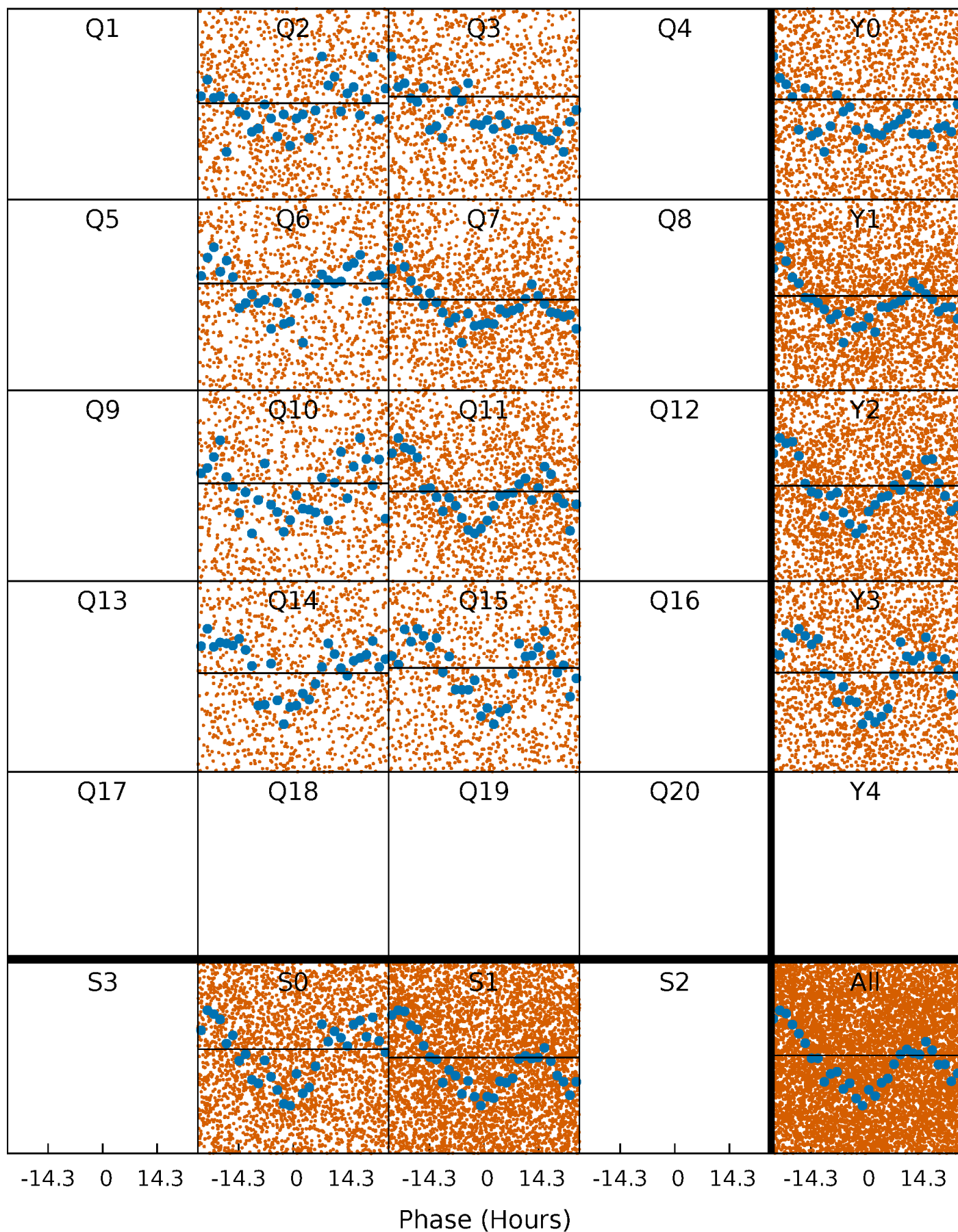
PDC Quarter-Phased Transit Curves

TCE 007777416-03 P= 3.506212 Days $T_0=131.749385$ (BKJD)



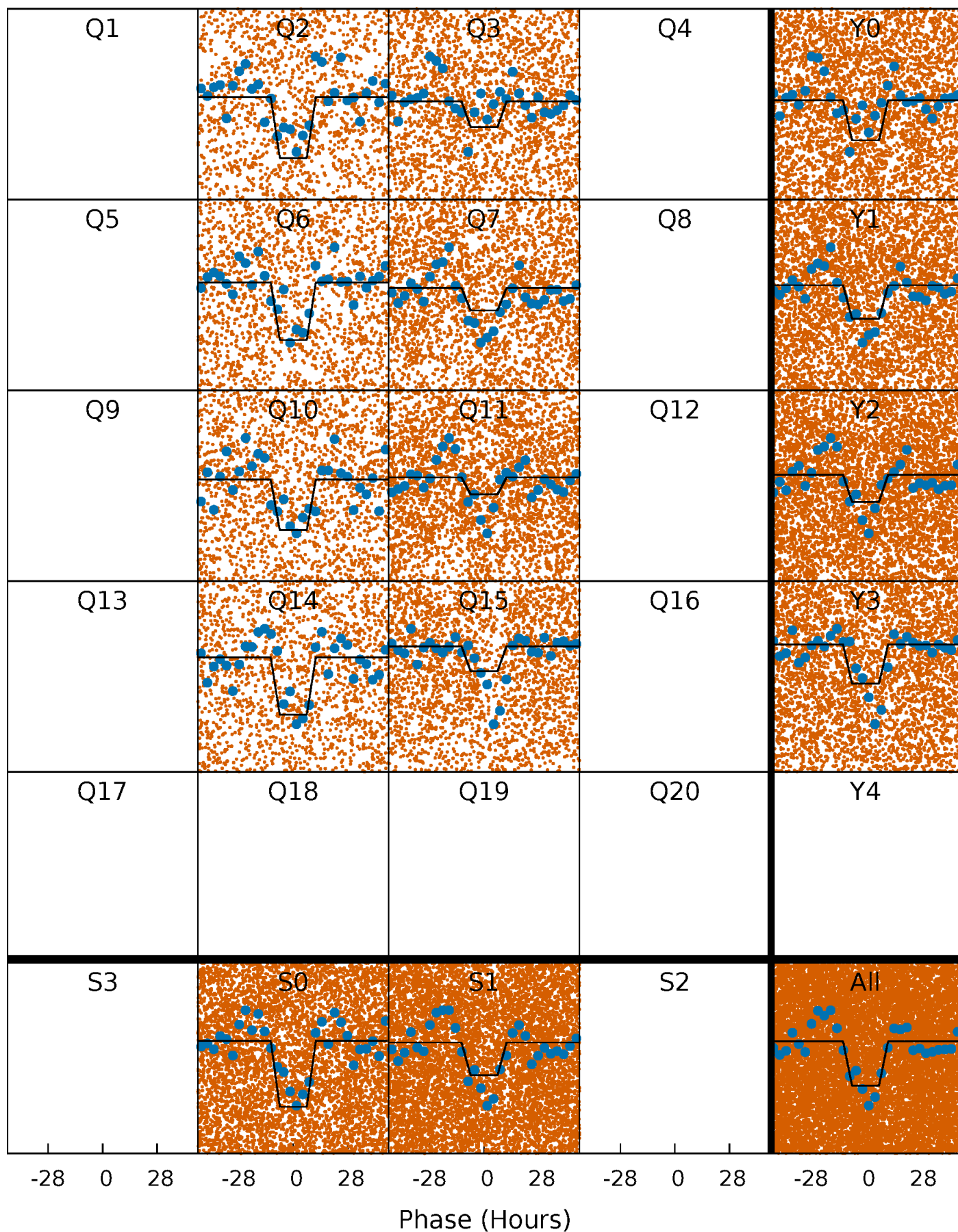
DV Quarter-Phased Transit Curves

TCE 007777416-03 $P = 3.506212$ Days $T_0 = 131.749385$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

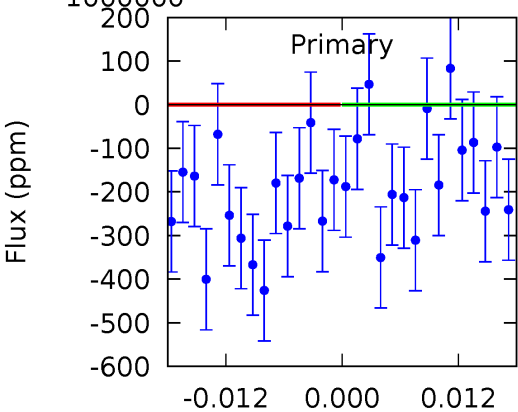
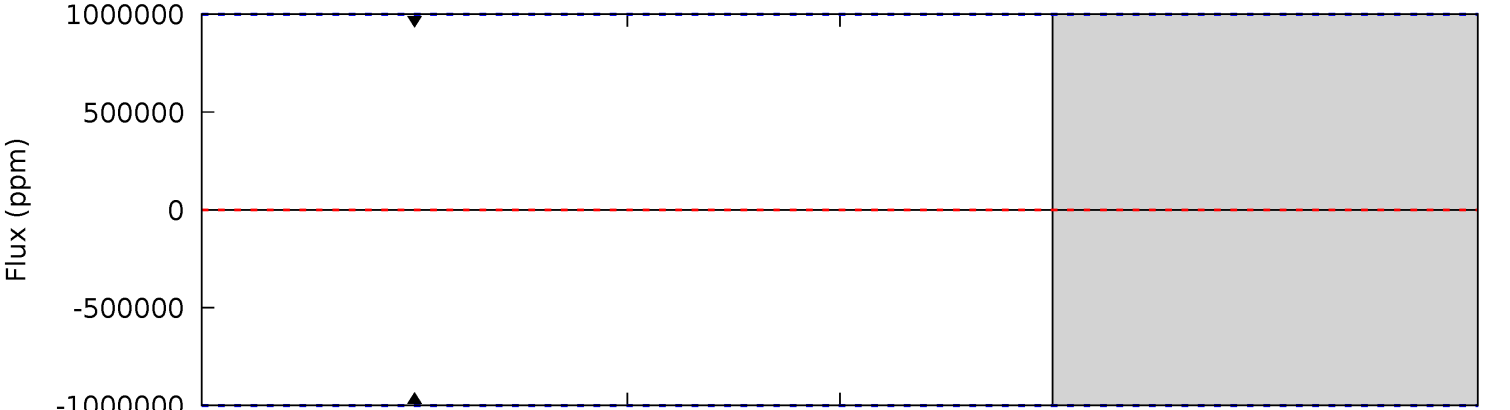
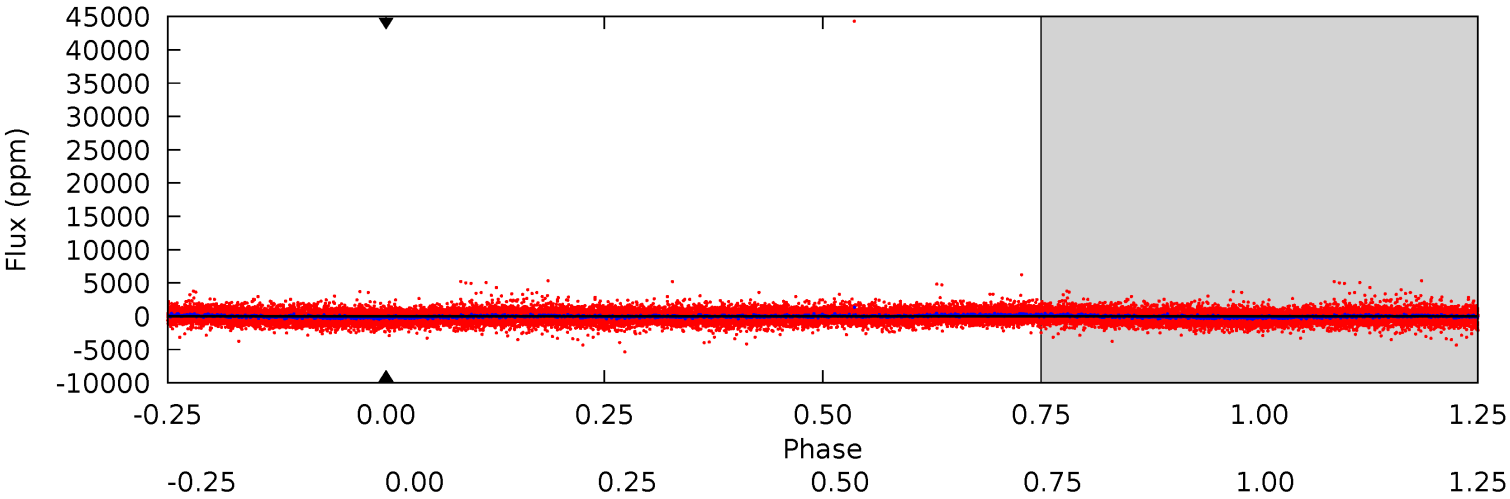
TCE 007777416-03 P= 3.506212 Days $T_0=131.593181$ (BKJD)



DV Model-Shift Uniqueness Test

007777416-03, P = 3.506212 Days, E = 131.749385 Days

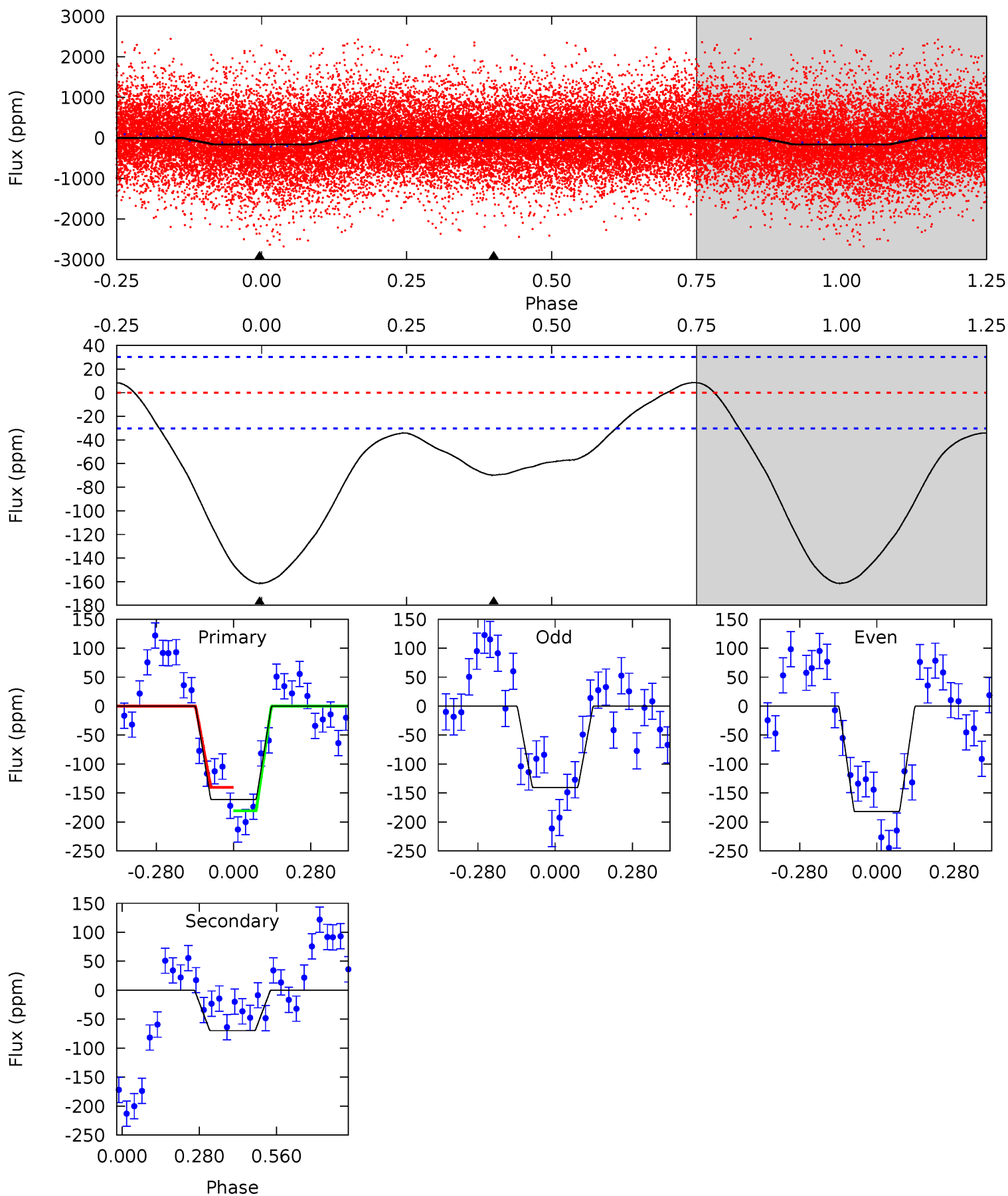
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007777416-03, P = 3.506212 Days, E = 131.593181 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	10.00	0	0	4.34	1.08	1.04	23.1	23.1	10.00	10.00	2.96	0.84	0.05	2.82



Stellar Parameters For KIC 007777416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5718^{+169}_{-186}	$4.549^{+0.035}_{-0.184}$	$-0.080^{+0.300}_{-0.300}$	$0.863^{+0.246}_{-0.082}$	$0.960^{+0.104}_{-0.115}$	$2.107^{+0.384}_{-1.021}$
	+3%/-3%	+1%/-4%	+375%/-375%	+29%/-10%	+11%/-12%	+18%/-48%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007777416-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$7.26^{+7.65}_{-5.04}$	1590^{+105}_{-74}	4914^{+17625}_{-24236}	52^{+4211}_{-3438}
Alt.	-70 ± 7	$7.55^{+6.97}_{-5.34}$	1589^{+90}_{-70}	2580^{+1298}_{-722}	$1.281^{+14.373}_{-0.934}$

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 $A_{obs} \gg 1.0$

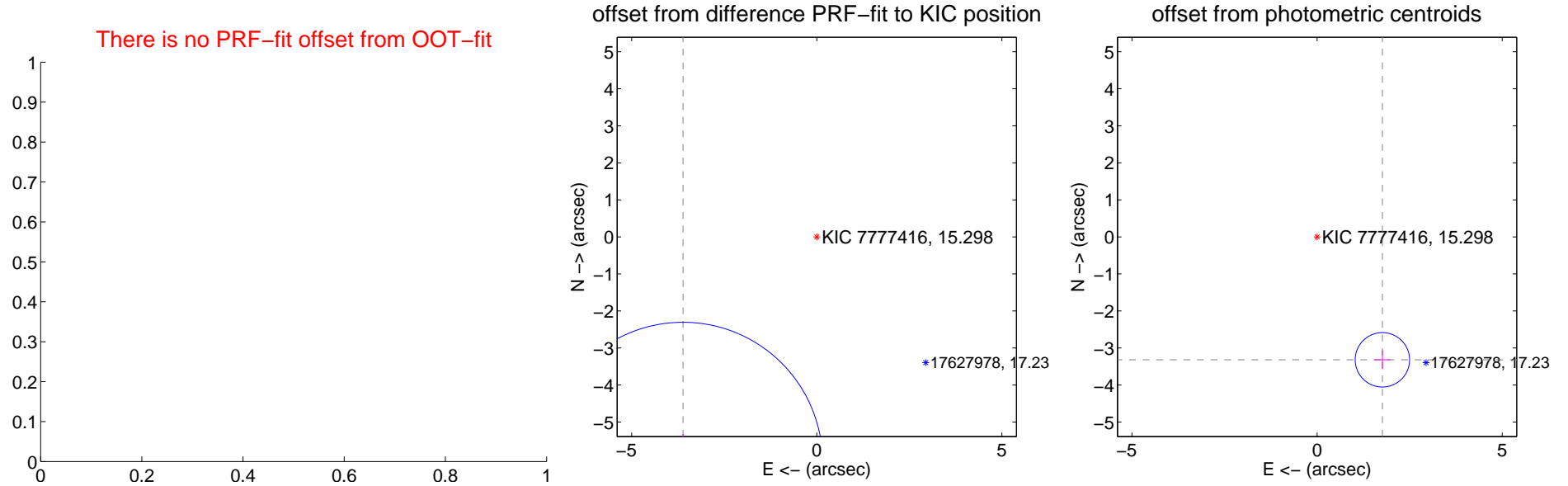
DV Centroid Data

Supplemental centroid analysis for 007777416-03. Kepler magnitude: 15.30. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

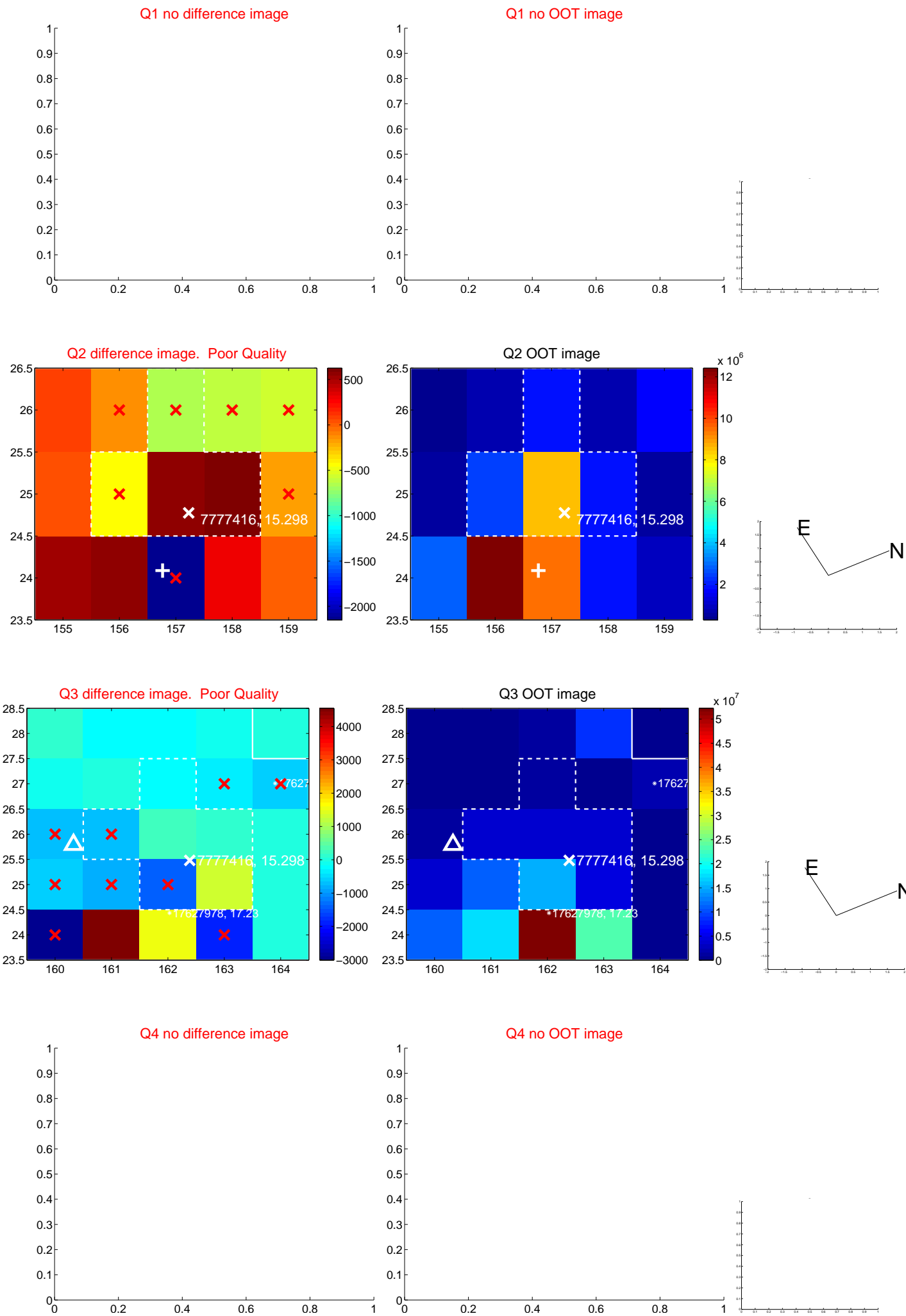
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	7.067 ± 1.256	5.63	3.612 ± 1.203	-6.074 ± 0.748
photometric centroid source offset	3.76 ± 0.24	15.35	-1.76 ± 0.22	-3.32 ± 0.25



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.

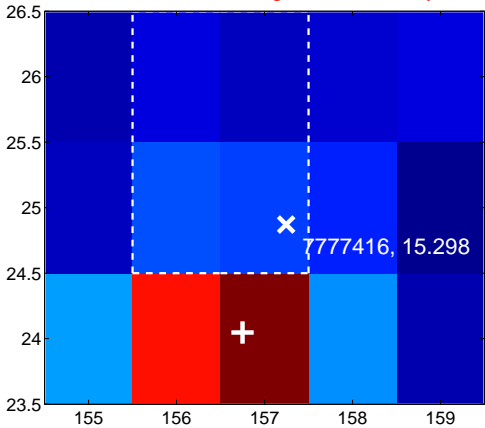
Q5 no difference image



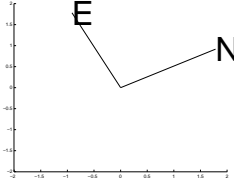
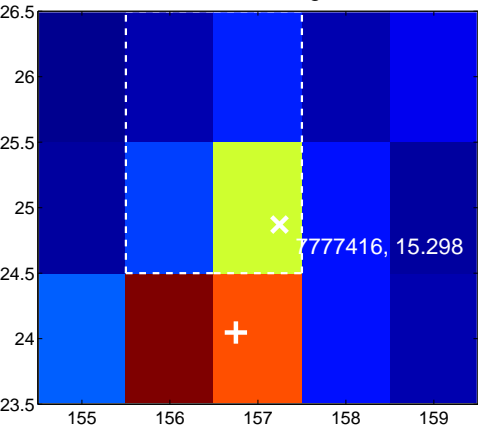
Q5 no OOT image



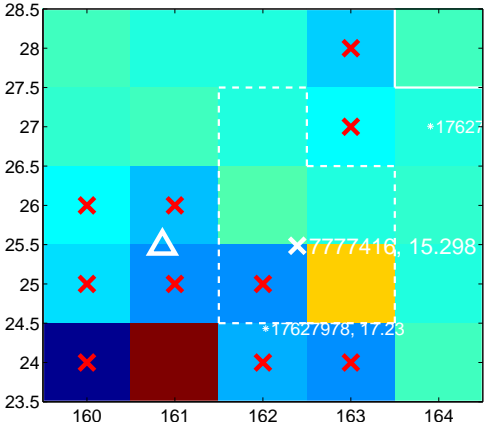
Q6 difference image. Poor Quality



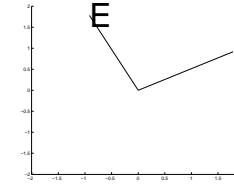
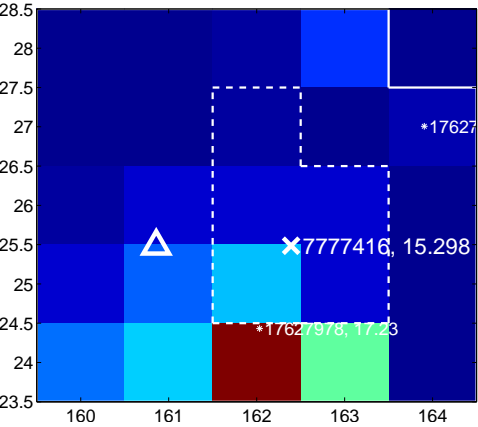
Q6 OOT image



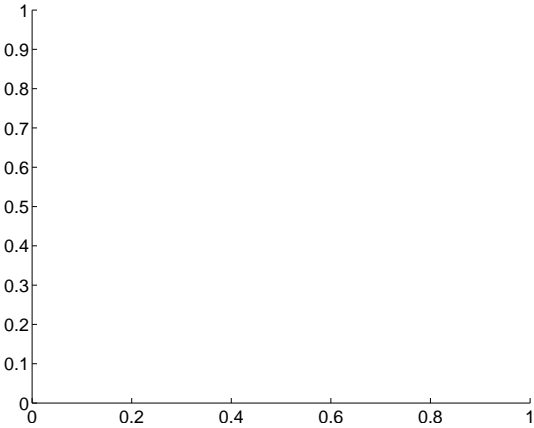
Q7 difference image. Poor Quality



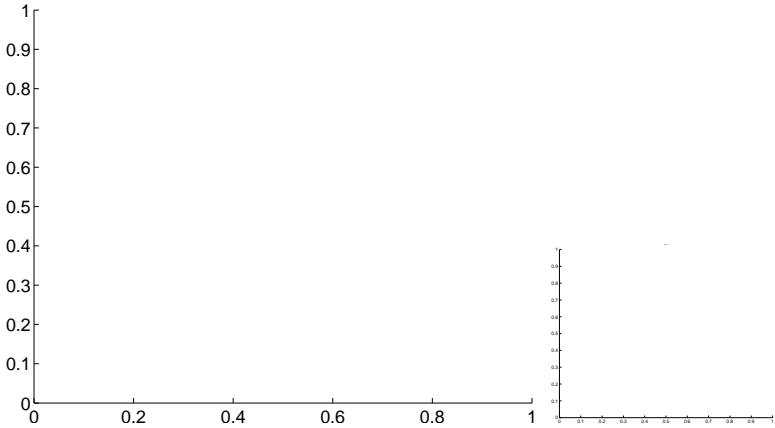
Q7 OOT image



Q8 no difference image



Q8 no OOT image

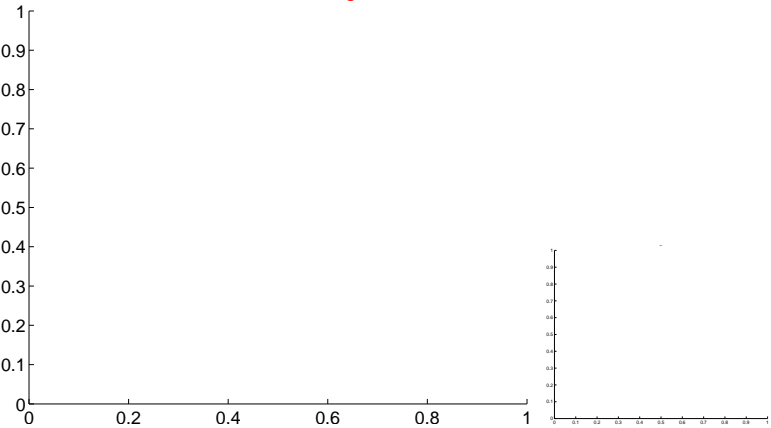


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

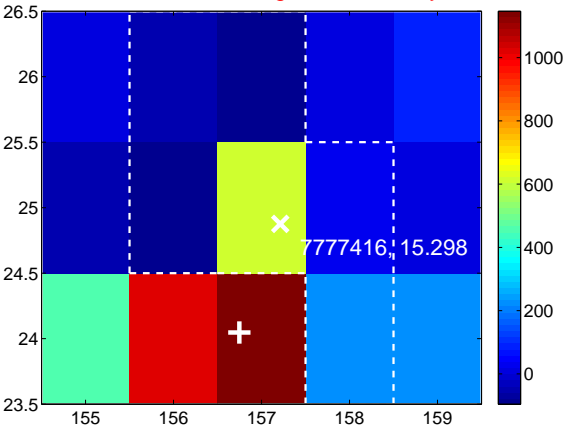
Q9 no difference image



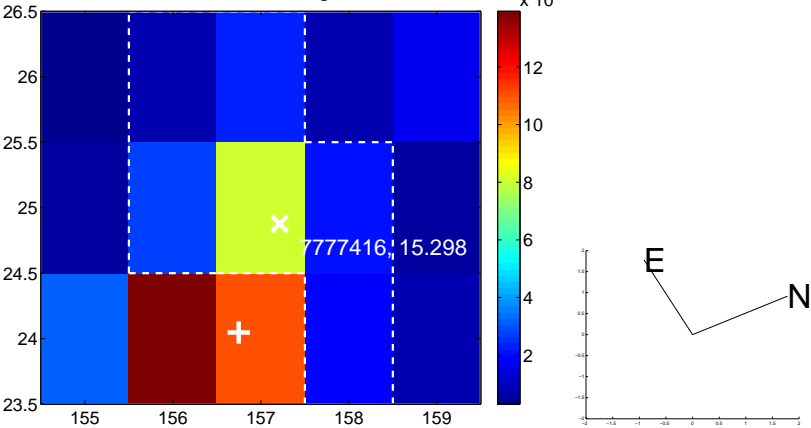
Q9 no OOT image



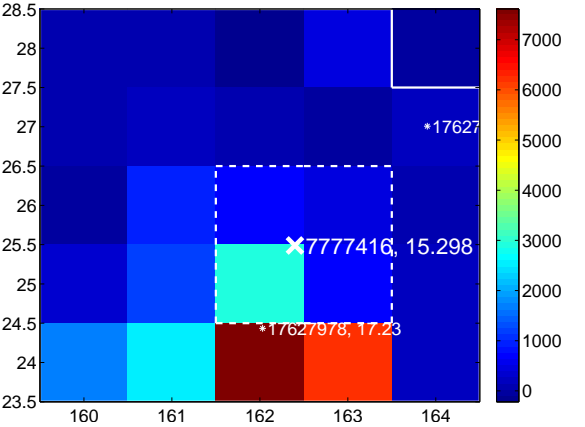
Q10 difference image. Poor Quality



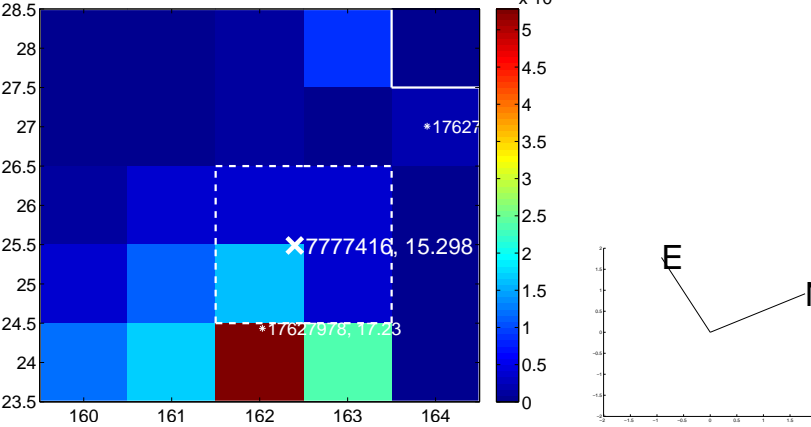
Q10 OOT image



Q11 difference image. Poor Quality



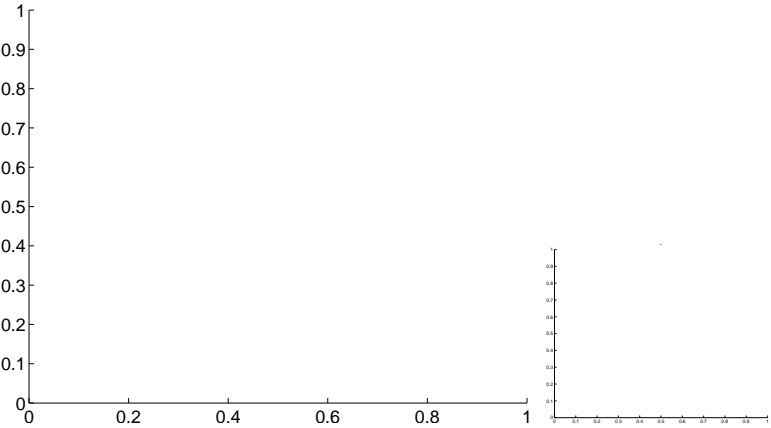
Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

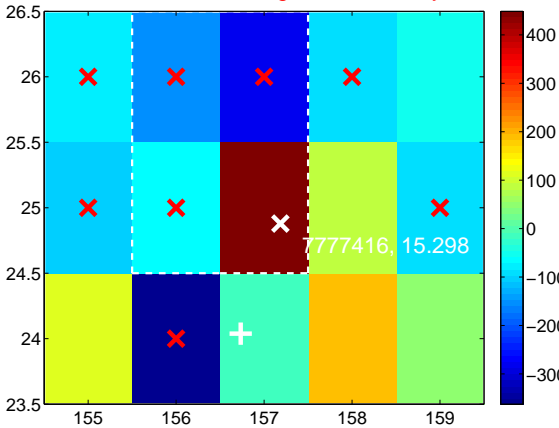
Q13 no difference image



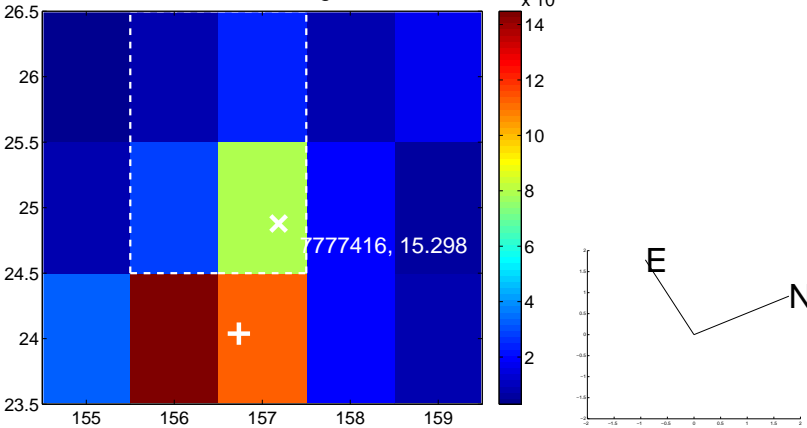
Q13 no OOT image



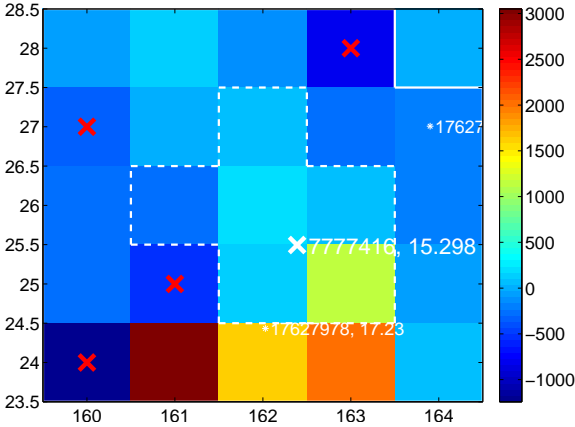
Q14 difference image. Poor Quality



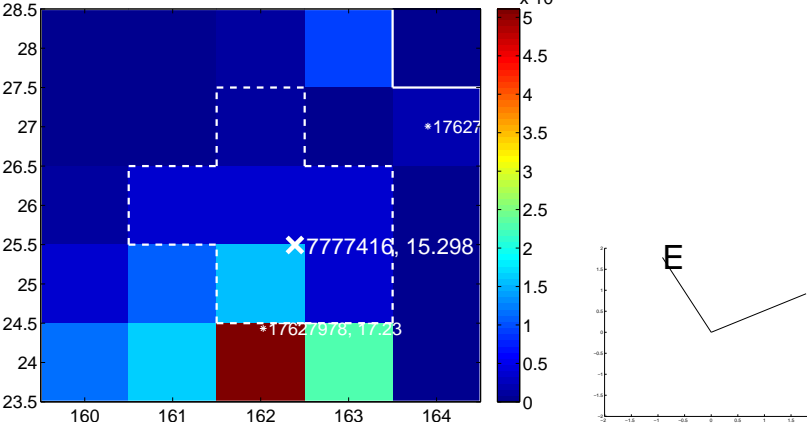
Q14 OOT image



Q15 difference image. Poor Quality



Q15 OOT image



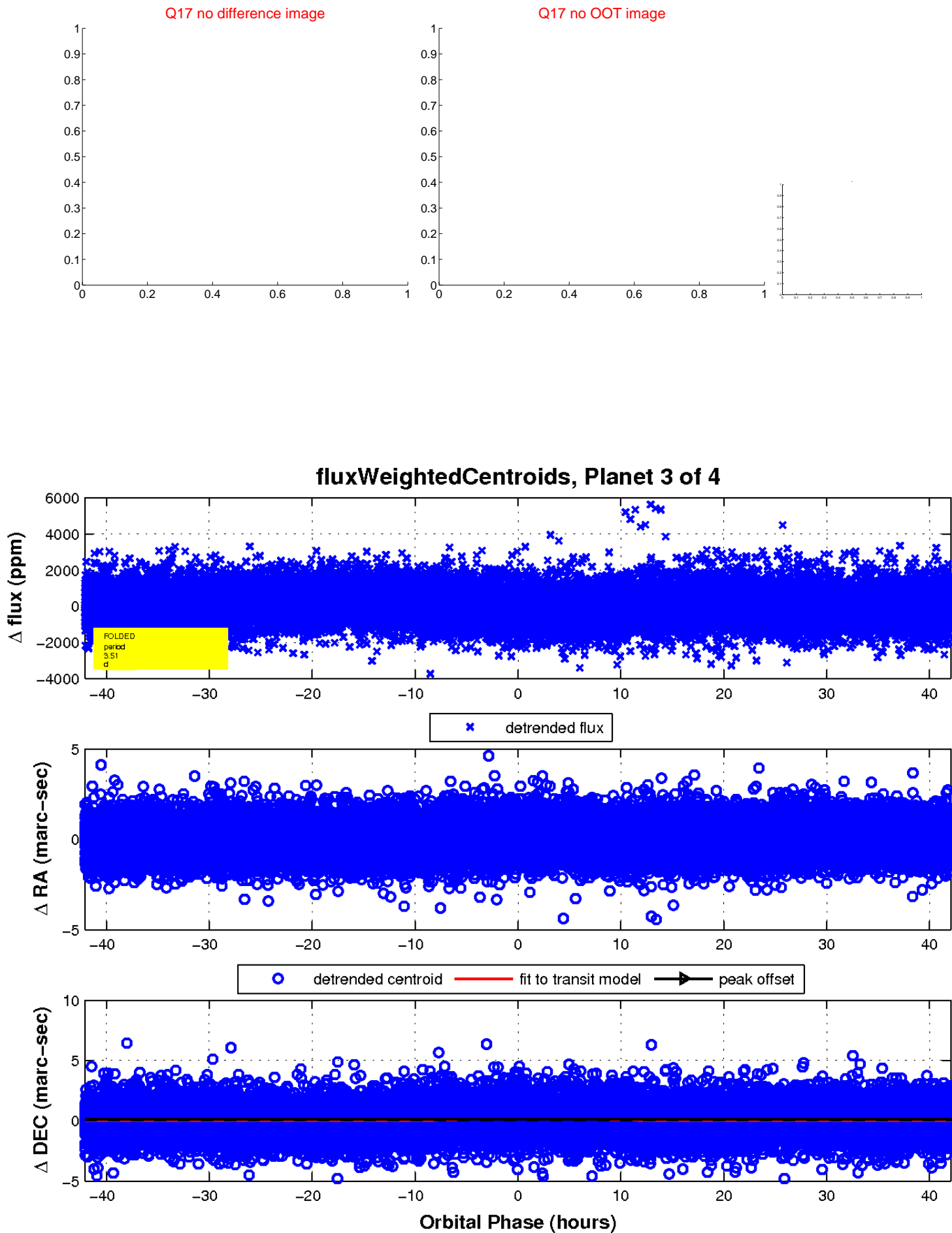
Q16 no difference image



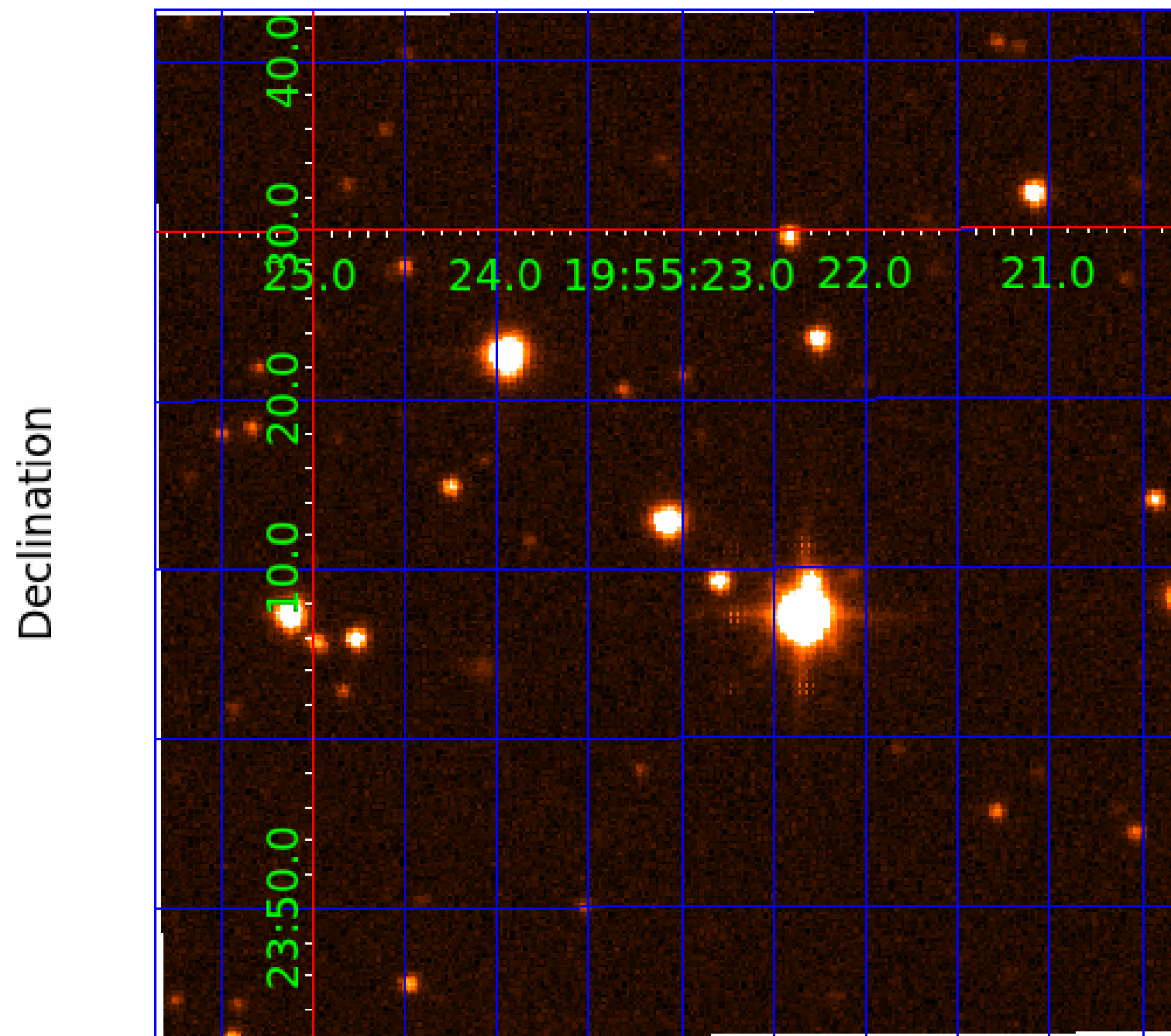
Q16 no OOT image



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



UKIRT Image



KIC 007777416

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})
007777416-01	OBS	3960.01	5.091164	132.746011	944.4	3.942	25.8	29.0	0.86	5718	5.17	218.17
007777416-02	OBS	No	2.545554	132.645655	973.1	3.383	26.7	27.8	0.86	5718	4.68	549.75
007777416-03	OBS	No	3.506212	131.749385	326.2	12.500	7.2	-1.0	0.86	5718	1.54	358.72
007777416-04	OBS	No	61.802449	143.598388	595.1	16.214	8.9	6.9	0.86	5718	2.54	7.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007777416-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
007777416-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_KIC_POS—HALO_GHOST
007777416-03	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007777416-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—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 007777416-04

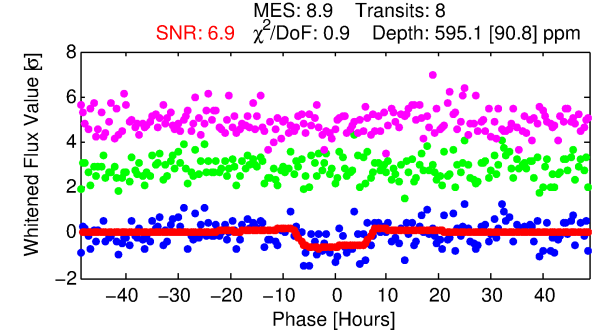
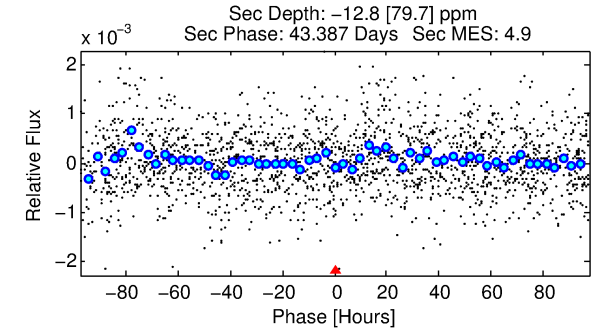
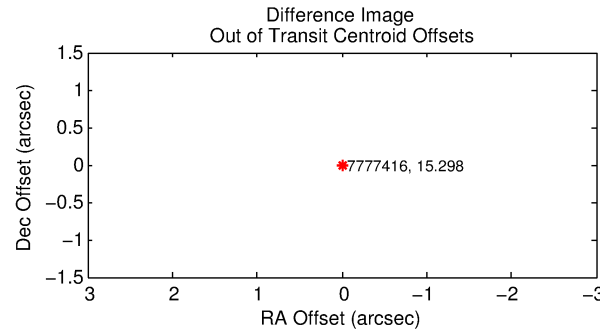
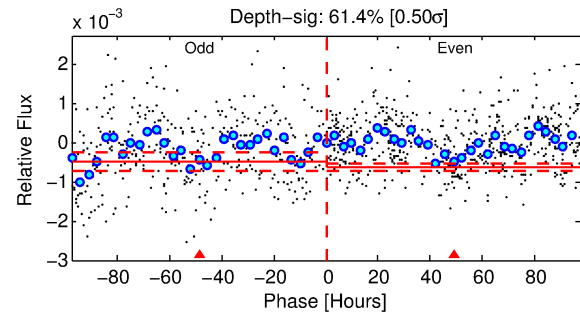
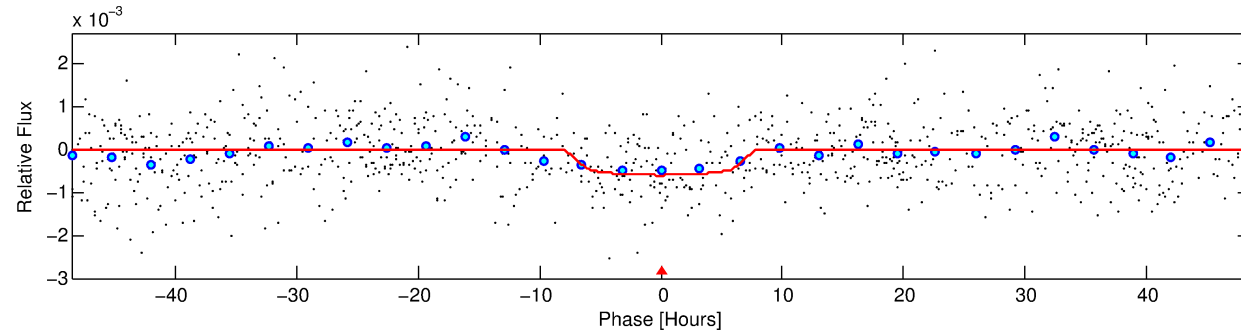
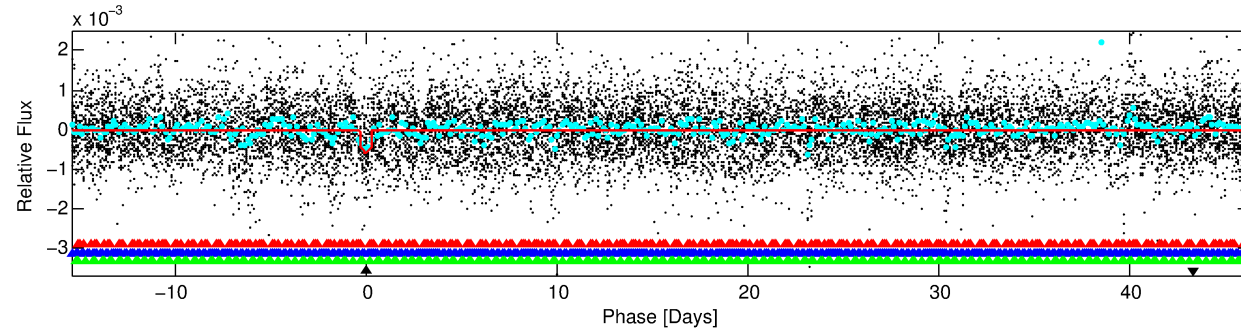
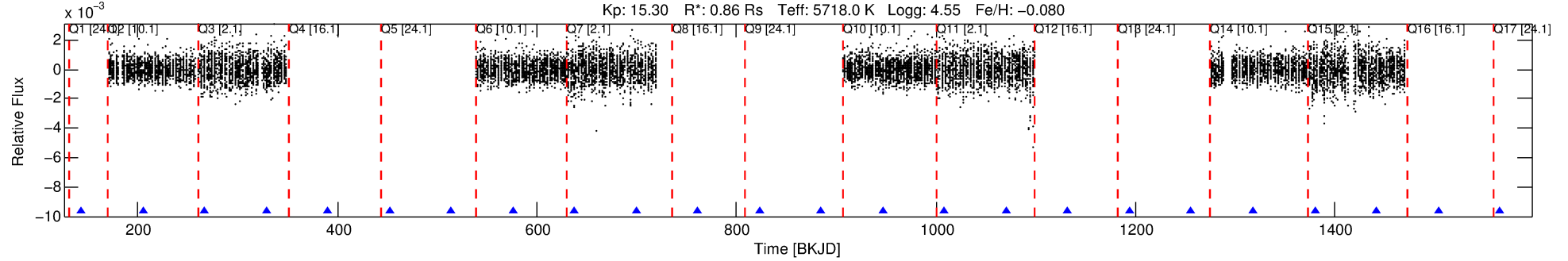
No Significant Match Found

DV One-Page Summary

KIC: 7777416 Candidate: 4 of 4 Period: 61.802 d

KOI: K03960 Corr: No Ephemeris Match

Kp: 15.30 R*: 0.86 Rs Teff: 5718.0 K Logg: 4.55 Fe/H: -0.080



DV Fit Results:

Period = 61.80245 [0.00380] d
Epoch = 143.5984 [0.0487] BKJD
Rp/R* = 0.0270 [0.0038]
a/R* = 13.69 [7.14]
b = 0.91 [0.10]
Seff = 7.82 [2.85]
Teq = 426 [39] K
Rp = 2.54 [0.81] Re
a = 0.3020 [0.0715] AU
Ag = N/A
Teffp = N/A

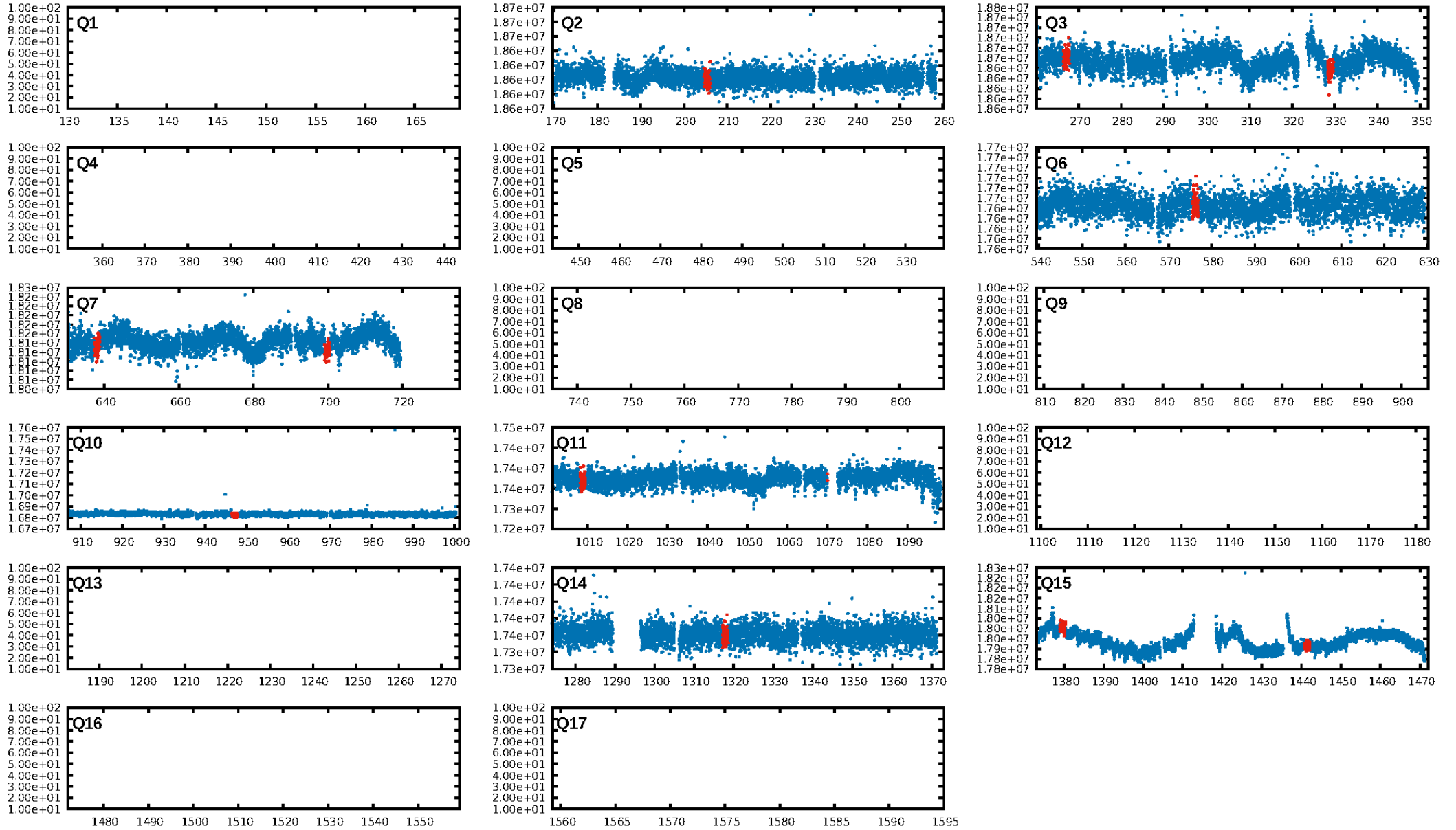
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [81.57σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 8.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.10e-15
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -18.96
Centroid-sig: N/A
Centroid-so: 2.648 arcsec [7.93σ]
OotOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-rm: 4.601 arcsec [10.46σ]
KicOffset-st: 0/2/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/7]

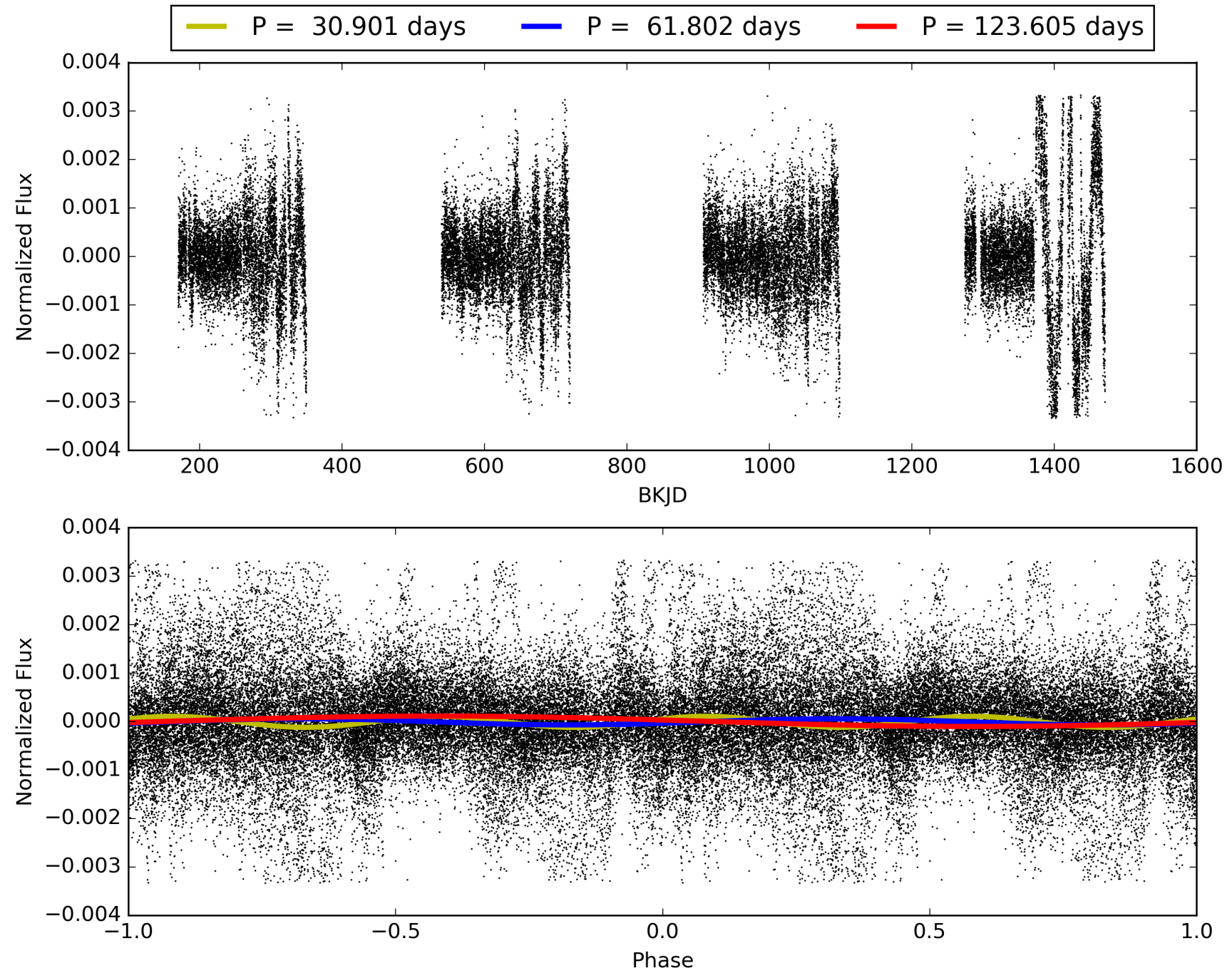
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:39:11 Z

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

TCE 007777416-04, PDC Light Curves

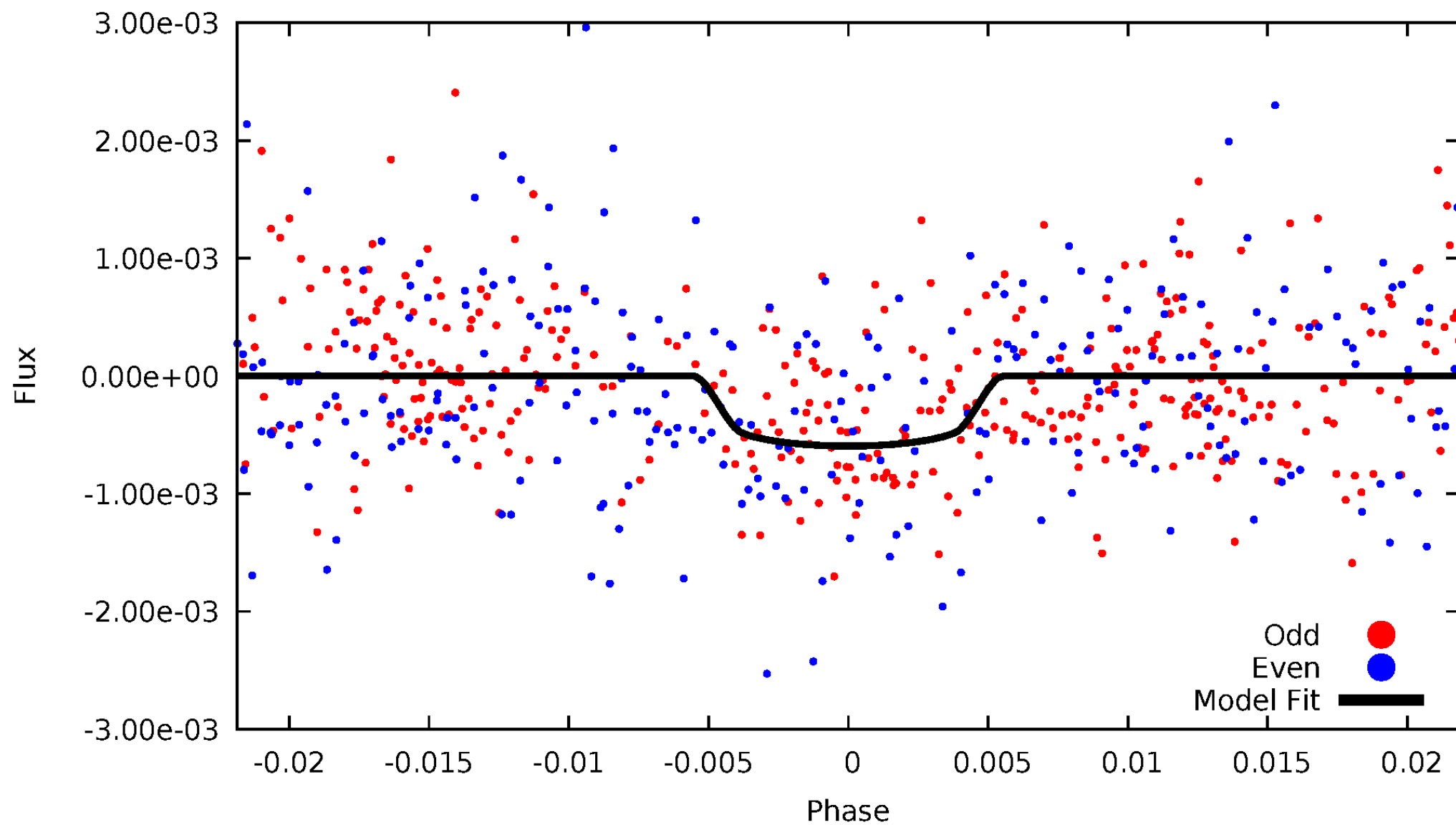


TCE 007777416-04



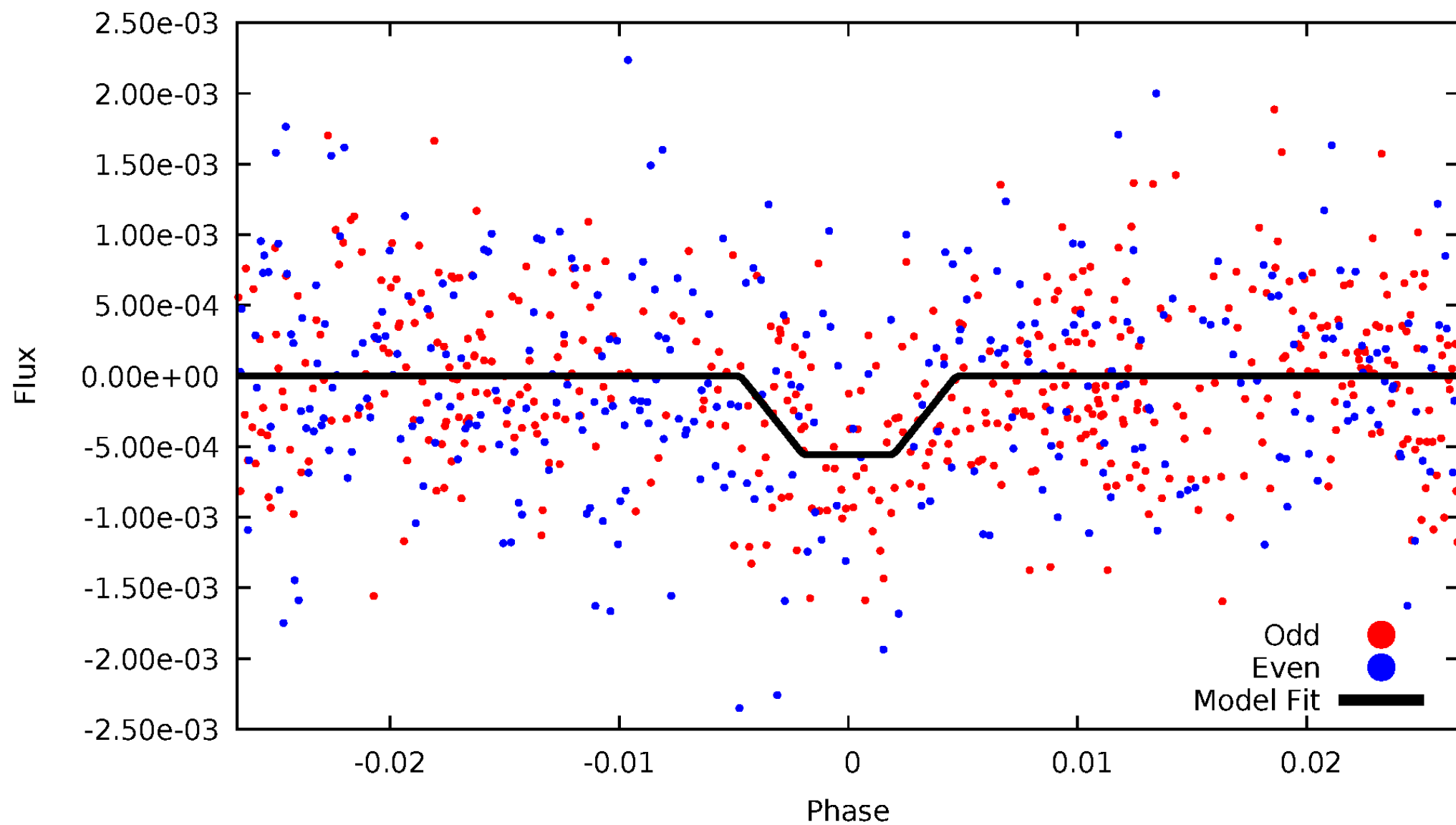
DV Odd/Even

TCE 007777416-04



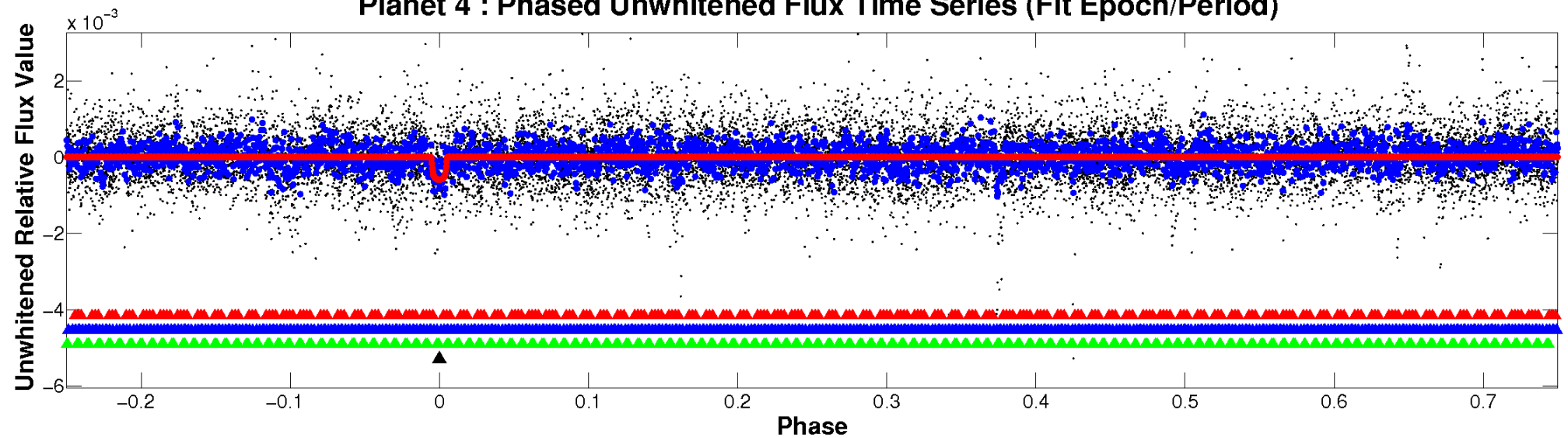
ALT Odd/Even

TCE 007777416-04

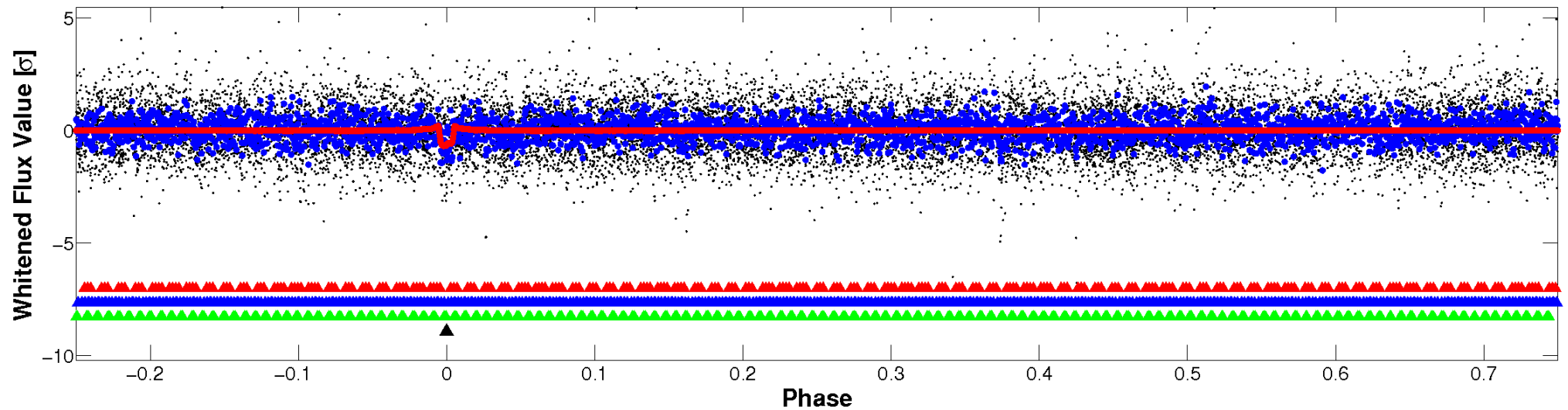


Non-Whitened Vs. Whitened Light Curve

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

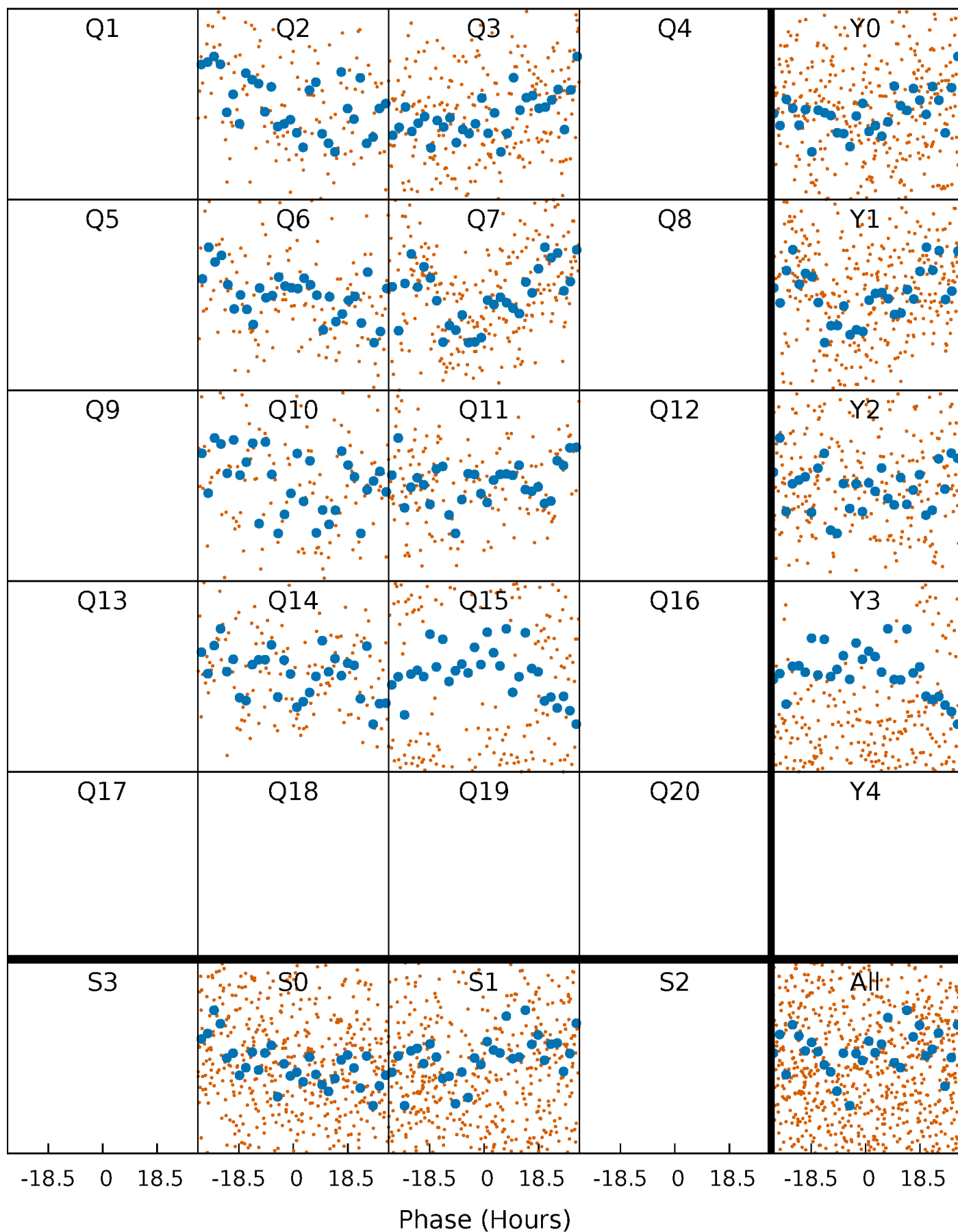


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



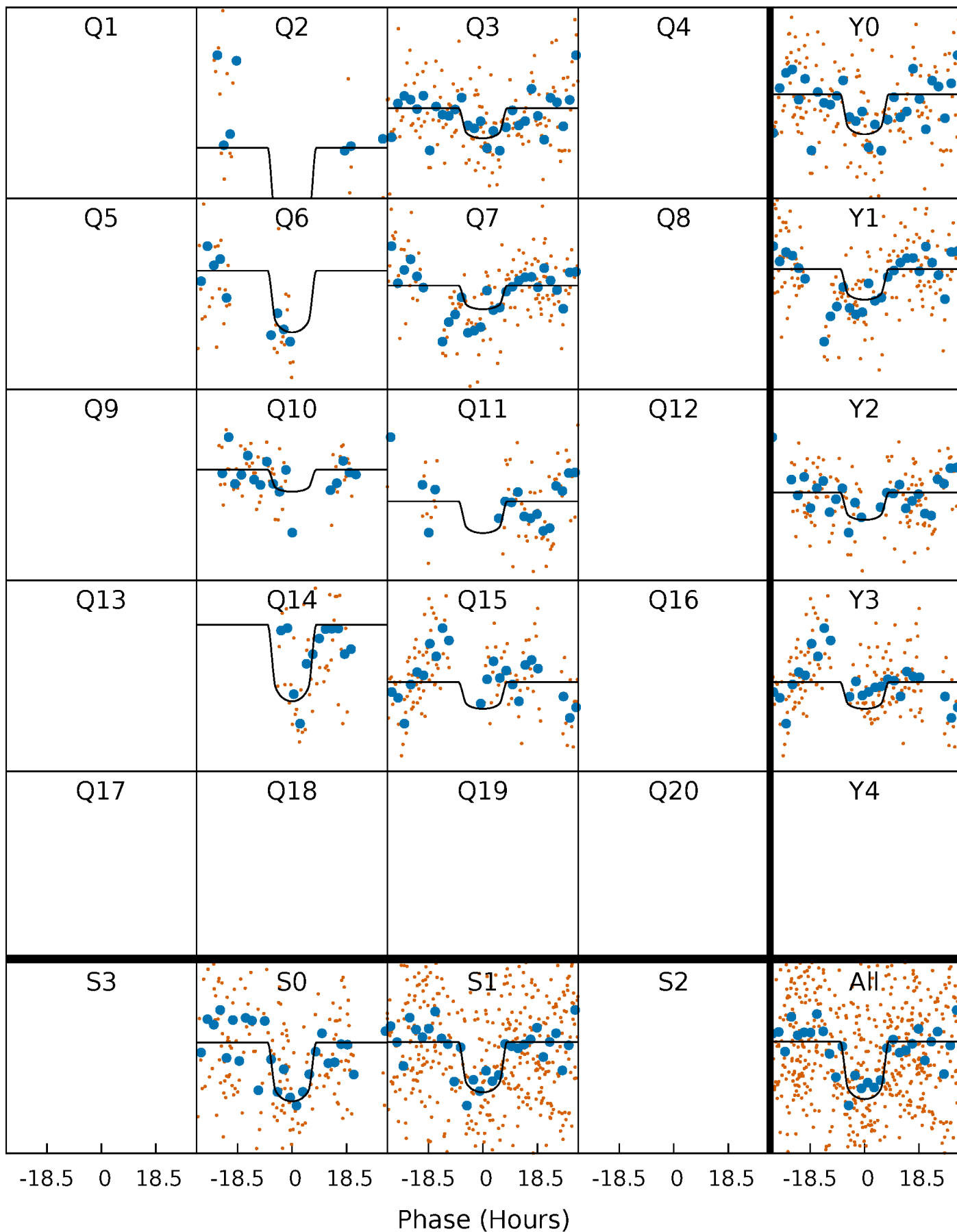
PDC Quarter-Phased Transit Curves

TCE 007777416-04 P= 61.802449 Days $T_0=143.598388$ (BKJD)



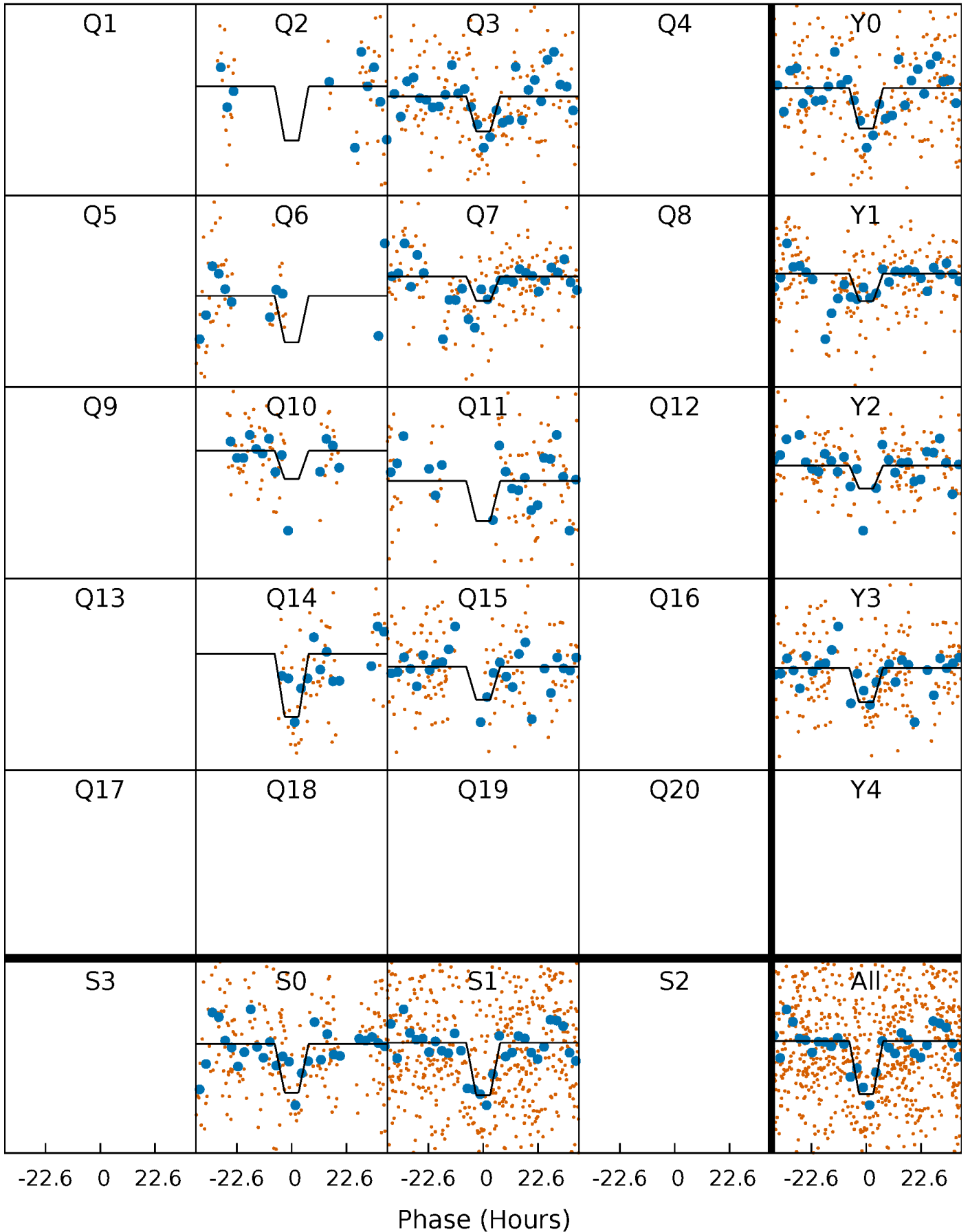
DV Quarter-Phased Transit Curves

TCE 007777416-04 P= 61.802449 Days $T_0=143.598388$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

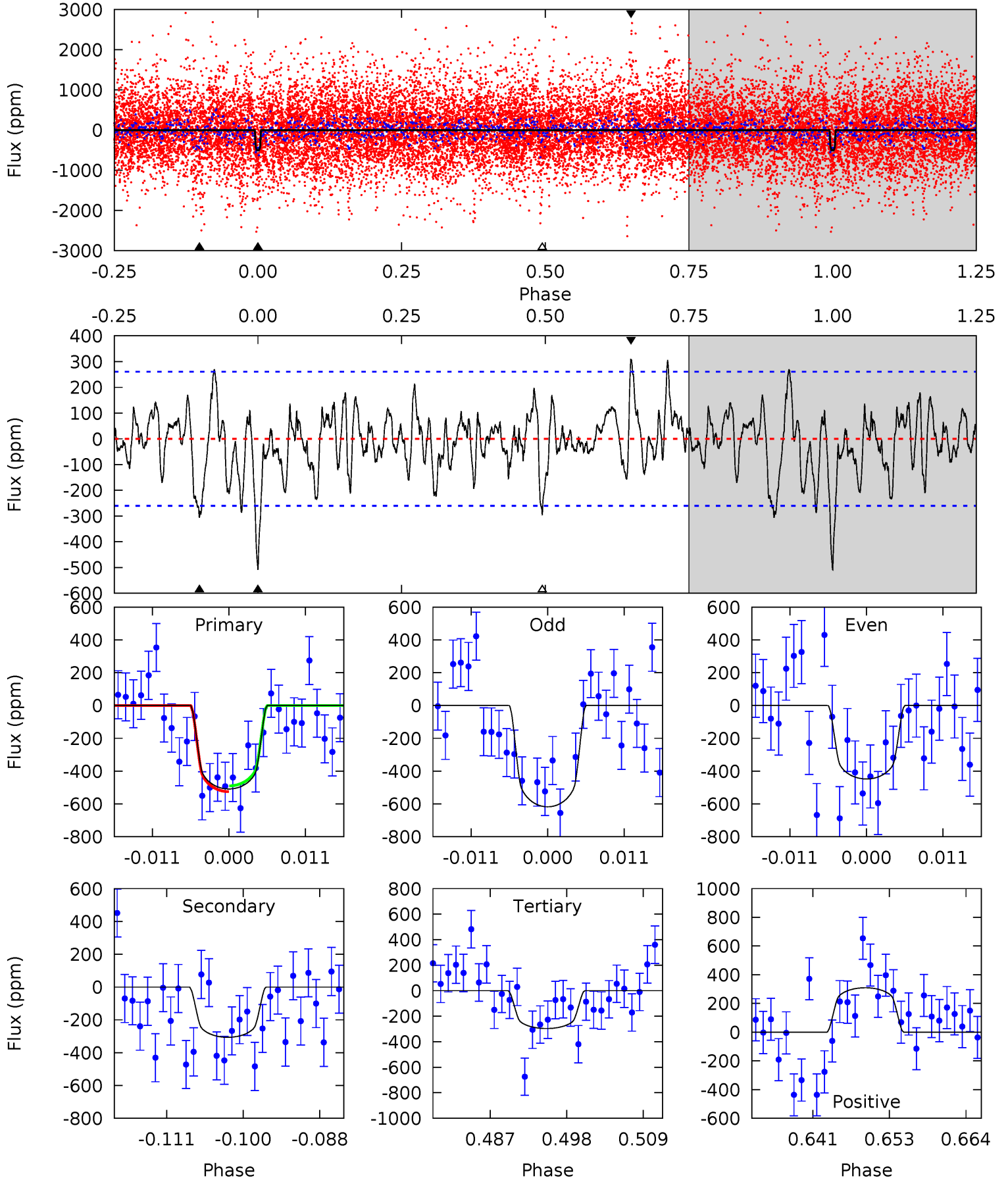
TCE 007777416-04 P= 61.794101 Days $T_0=143.778853$ (BKJD)



DV Model-Shift Uniqueness Test

007777416-04, P = 61.802449 Days, E = 143.598388 Days

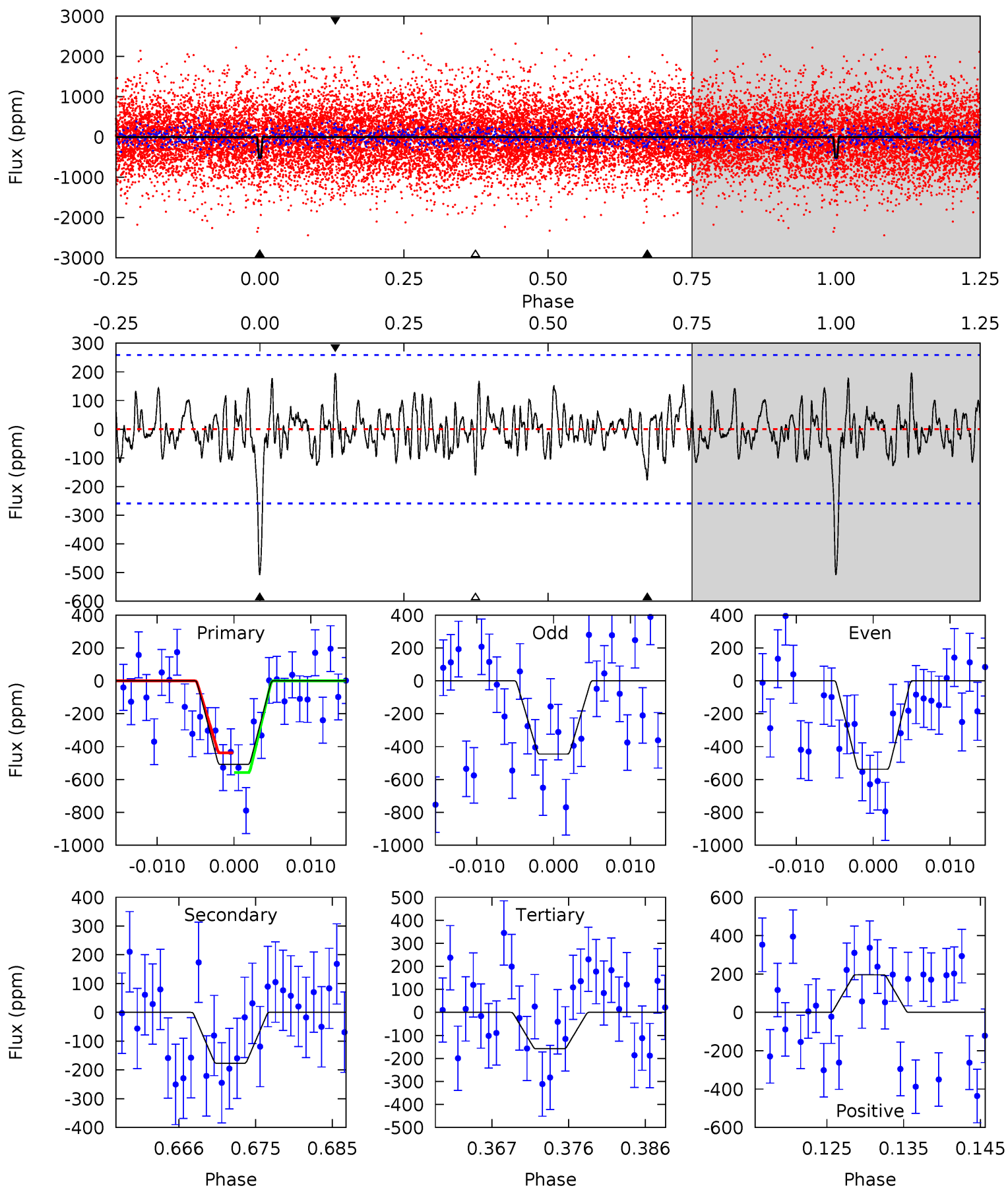
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.78	5.88	5.70	5.94	5.01	2.54	1.84	4.08	3.84	0.19	-0.06	1.56	0.96	0.38	0.34



Alt Model-Shift Uniqueness Test

007777416-04, P = 61.794101 Days, E = 143.778853 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.87	3.44	3.07	3.80	5.03	2.59	1.13	6.80	6.07	0.37	-0.37	0.85	1.02	0.28	1.16



Stellar Parameters For KIC 007777416

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5718^{+169}_{-186}	$4.549^{+0.035}_{-0.184}$	$-0.080^{+0.300}_{-0.300}$	$0.863^{+0.246}_{-0.082}$	$0.960^{+0.104}_{-0.115}$	$2.107^{+0.384}_{-1.021}$
	+3%/-3%	+1%/-4%	+375%/-375%	+29%/-10%	+11%/-12%	+18%/-48%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007777416-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-306 ± 52	$2.66^{+0.53}_{-0.44}$	610^{+40}_{-27}	4722^{+384}_{-319}	2137^{+957}_{-756}
Alt.	-177 ± 51	$2.31^{+0.48}_{-0.40}$	608^{+38}_{-29}	4433^{+424}_{-338}	1511^{+915}_{-503}

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 $A_{obs} \gg 1.0$

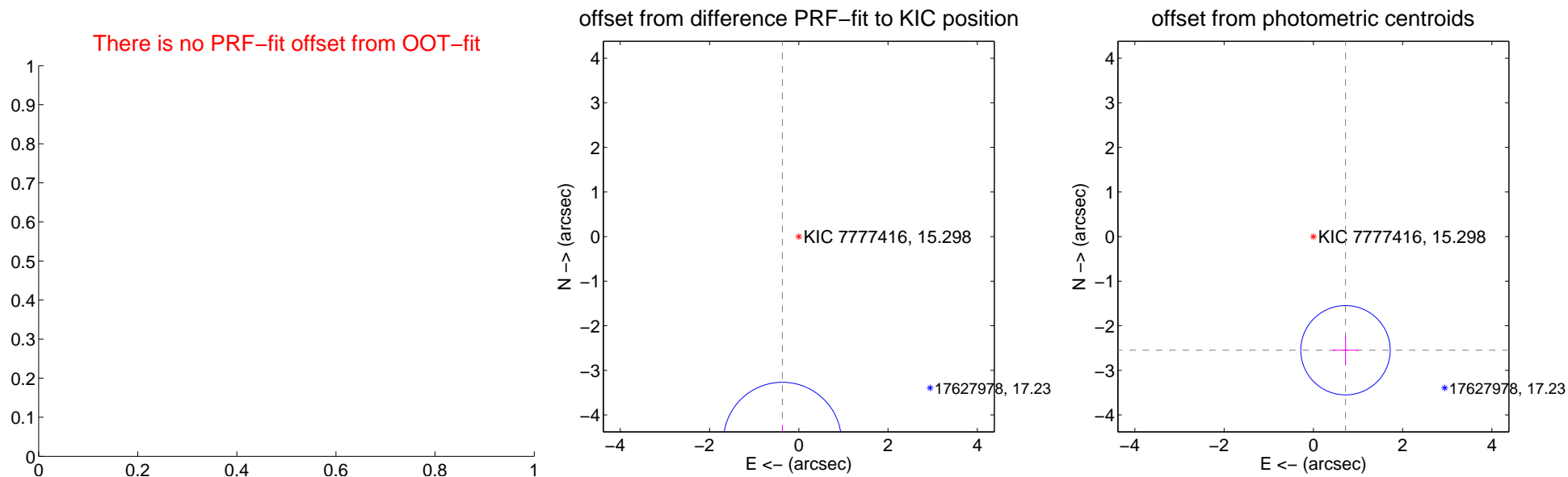
DV Centroid Data

Supplemental centroid analysis for 007777416-04. Kepler magnitude: 15.30. Transit SNR 6.95

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	4.601 ± 0.440	10.46	0.367 ± 1.009	-4.586 ± 0.362
photometric centroid source offset	2.65 ± 0.33	7.93	-0.72 ± 0.30	-2.55 ± 0.34



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.

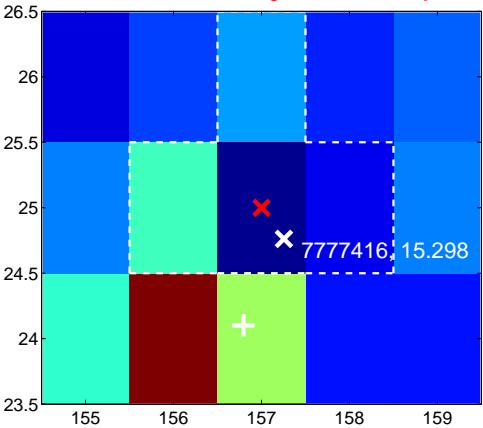
Q1 no difference image



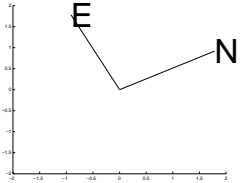
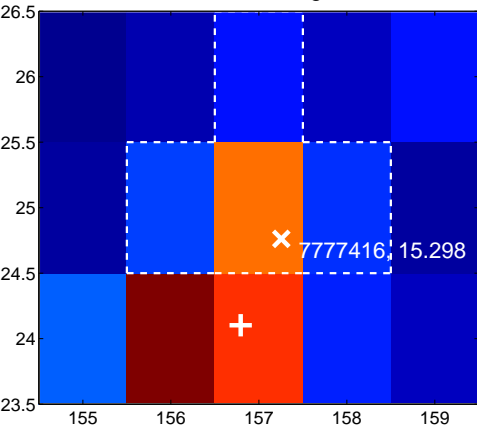
Q1 no OOT image



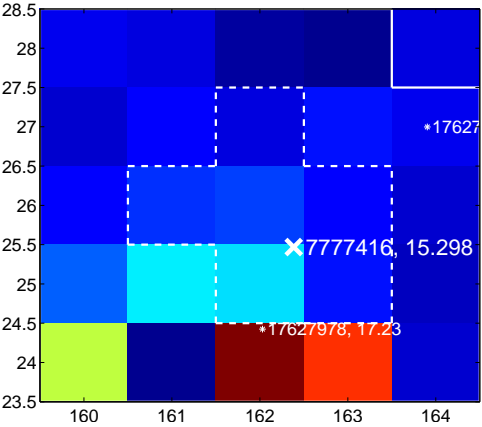
Q2 difference image. Poor Quality



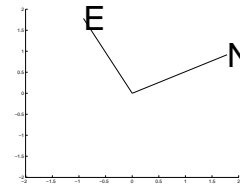
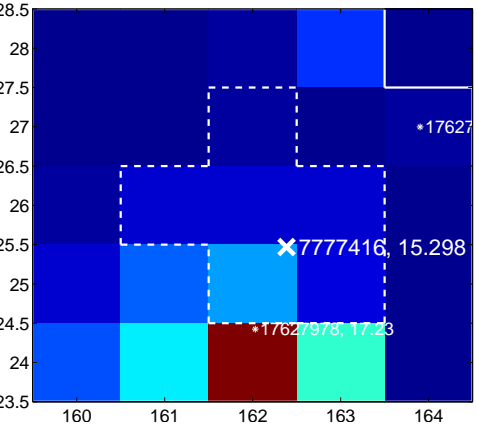
Q2 OOT image



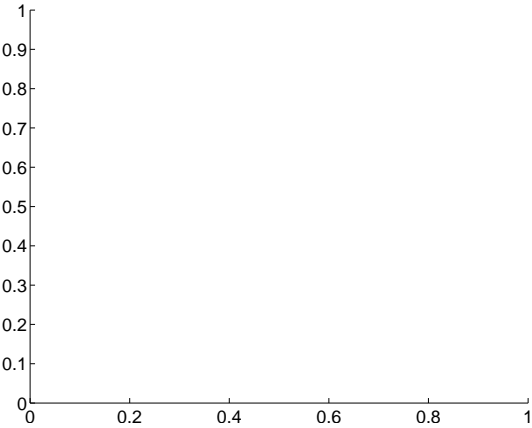
Q3 difference image. Poor Quality



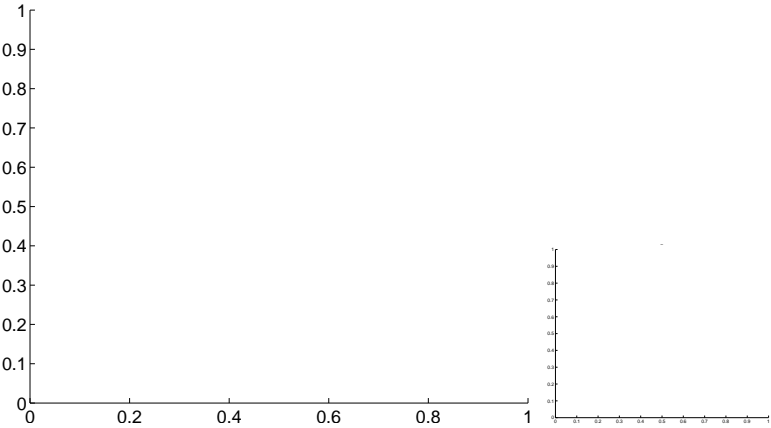
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

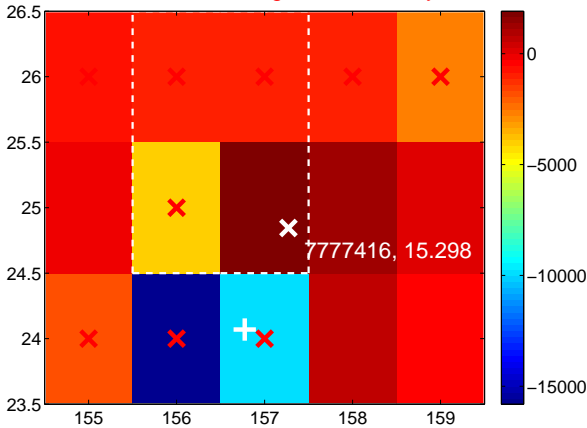
Q5 no difference image



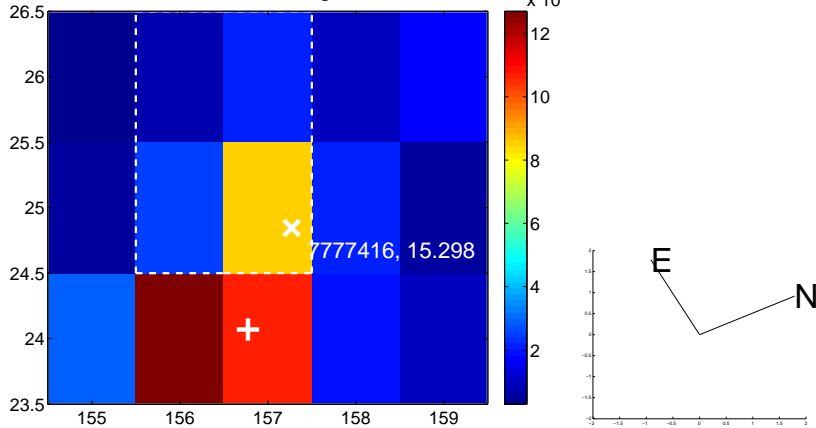
Q5 no OOT image



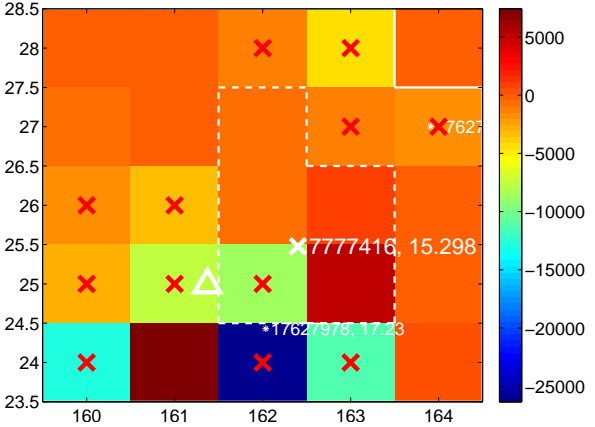
Q6 difference image. Poor Quality



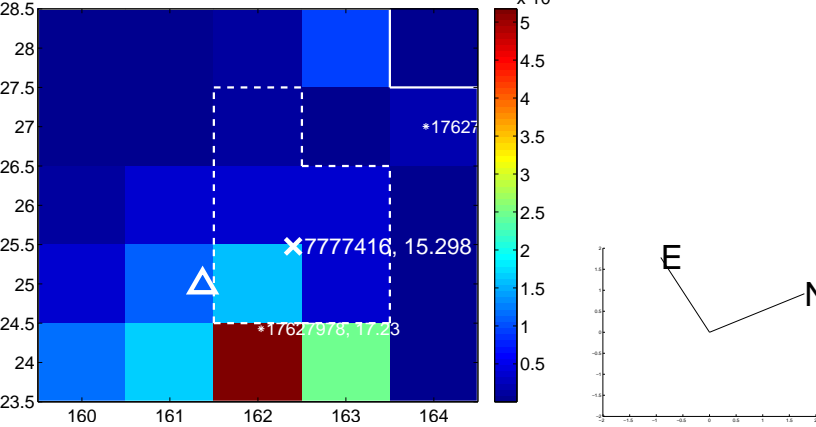
Q6 OOT image



Q7 difference image. Poor Quality



Q7 OOT image



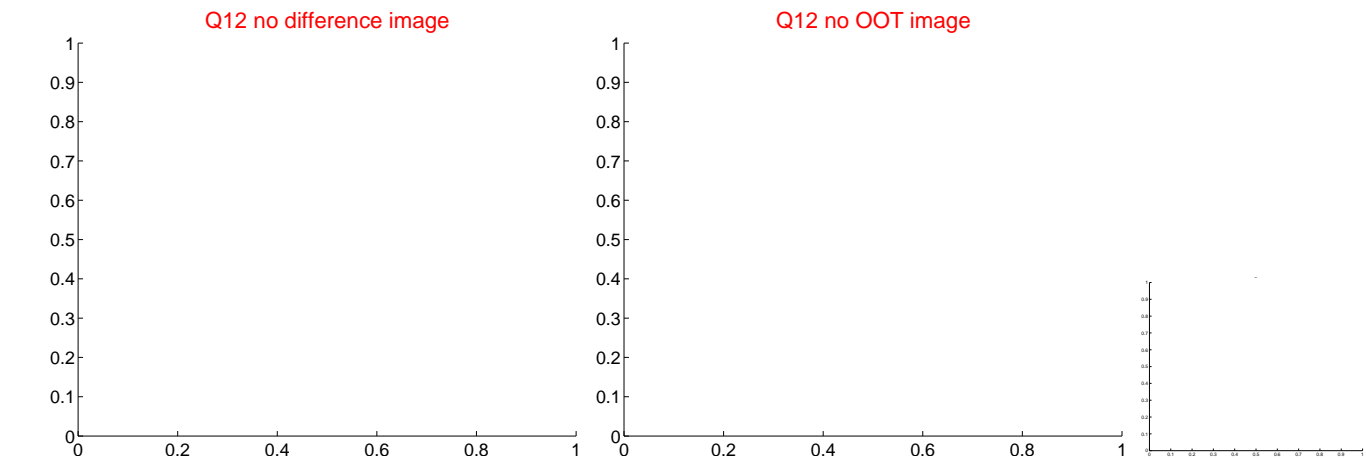
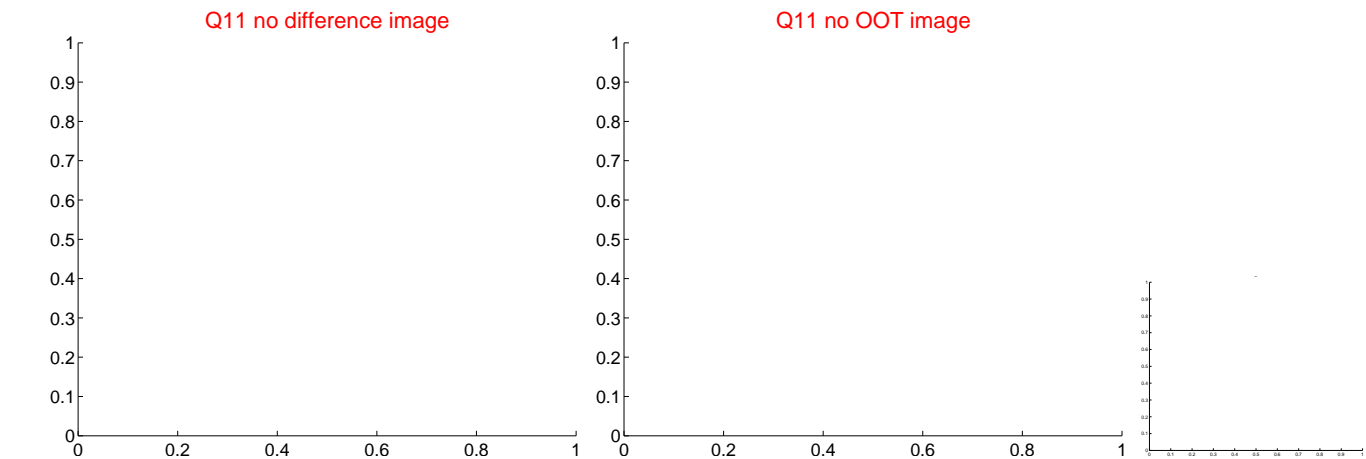
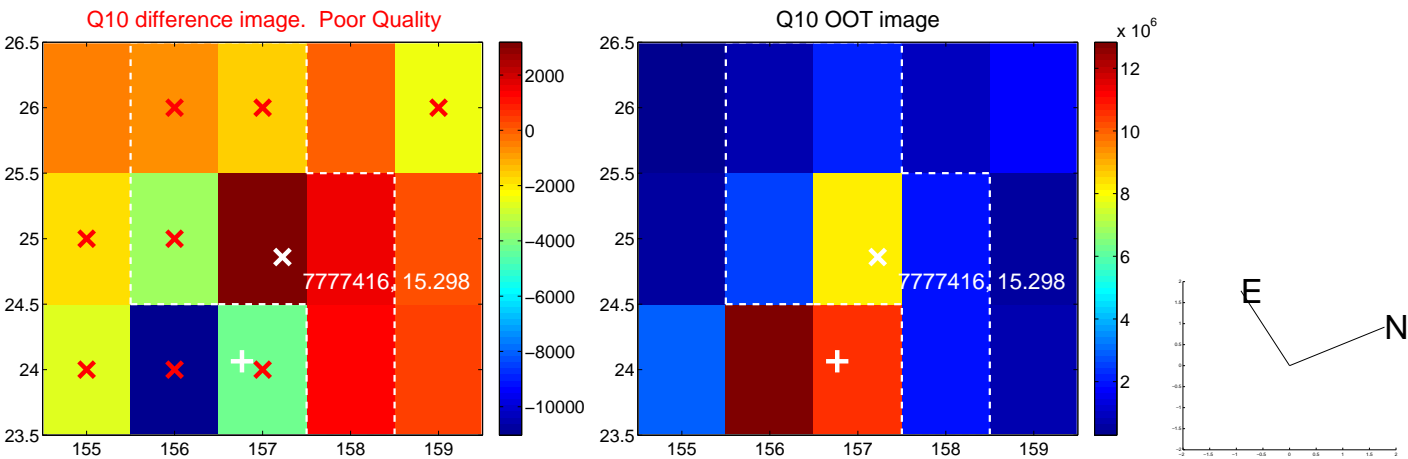
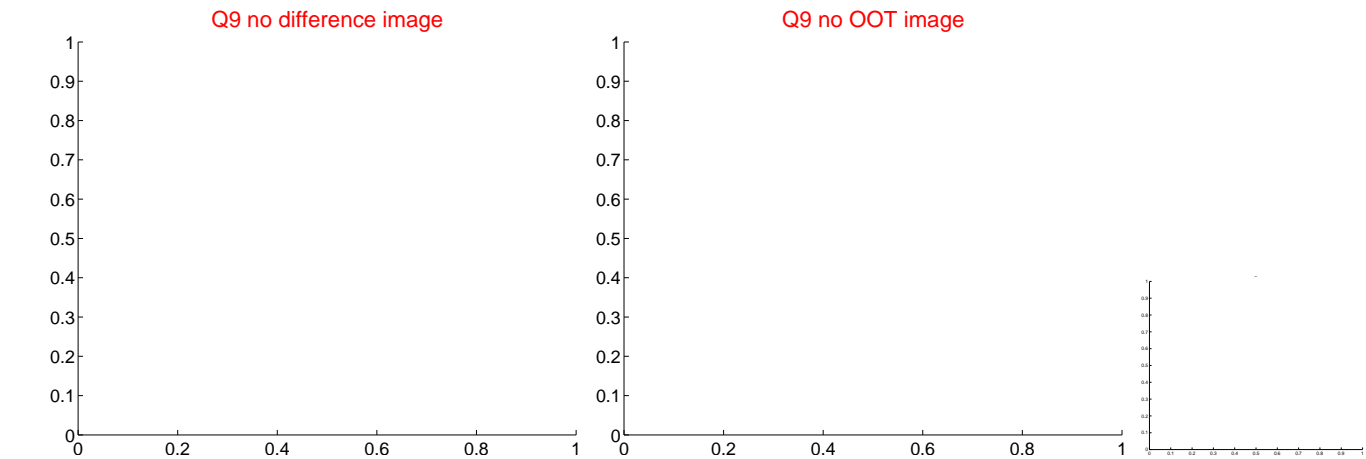
Q8 no difference image



Q8 no OOT image



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.

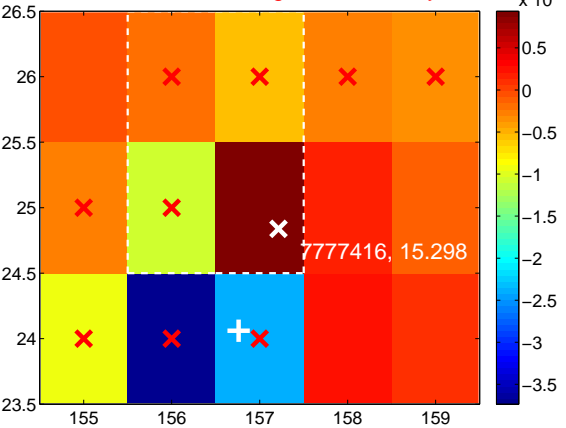
Q13 no difference image



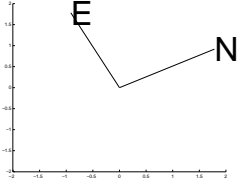
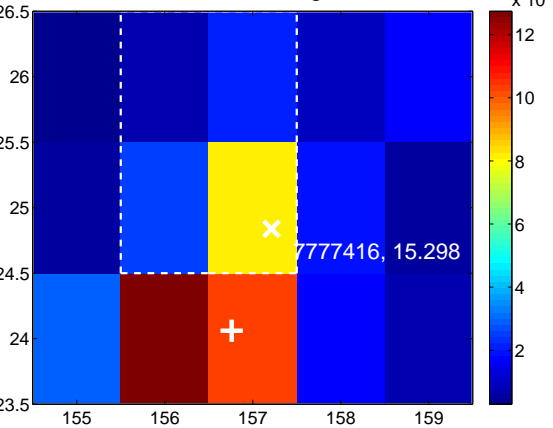
Q13 no OOT image



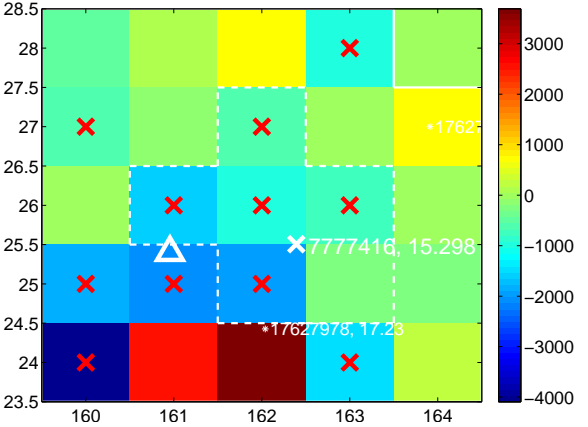
Q14 difference image. Poor Quality



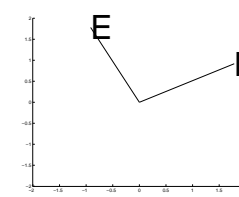
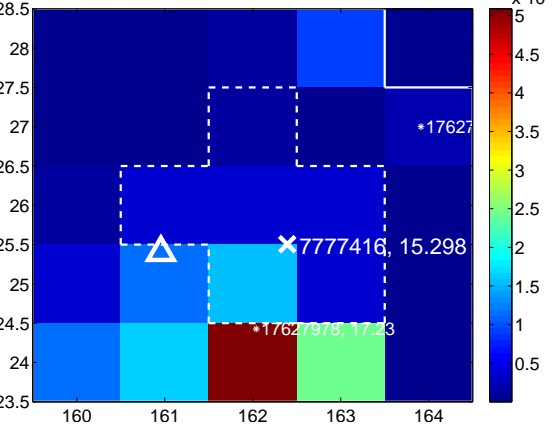
Q14 OOT image



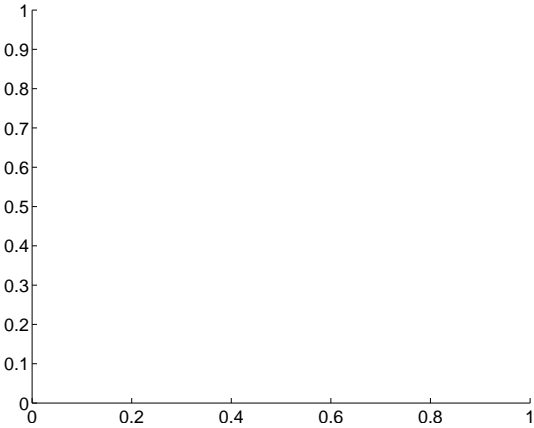
Q15 difference image. Poor Quality



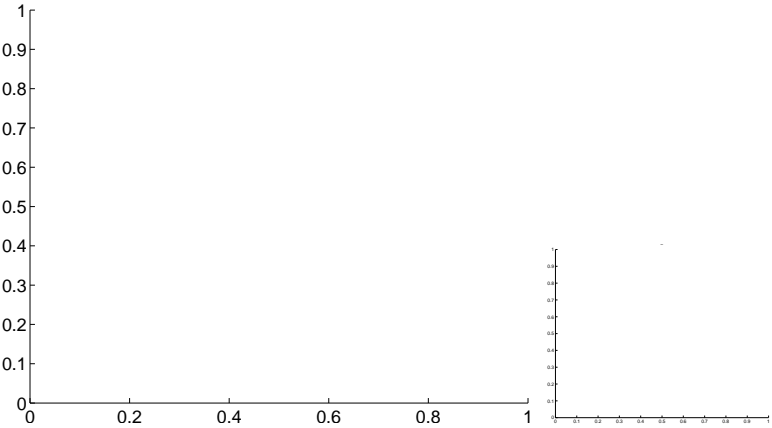
Q15 OOT image



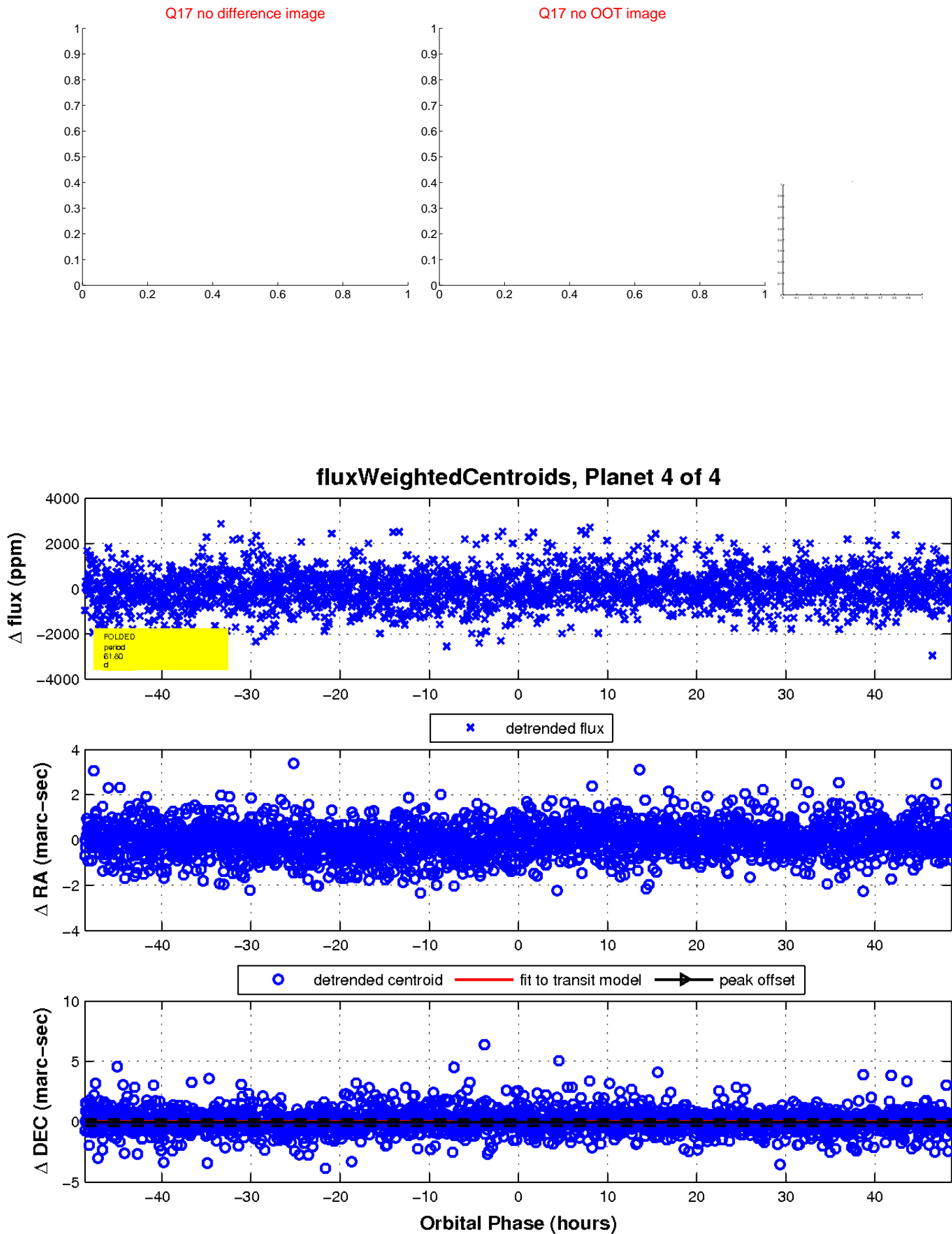
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

