

KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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.

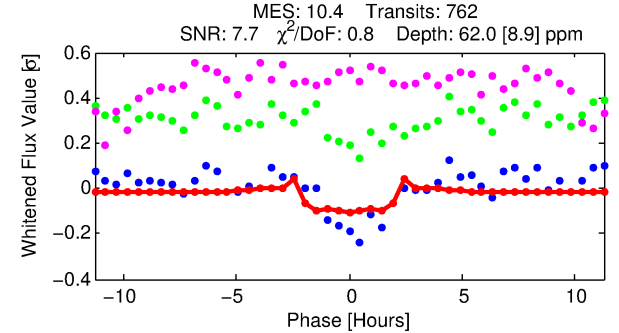
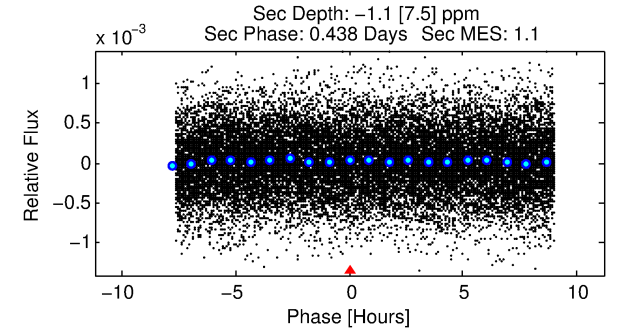
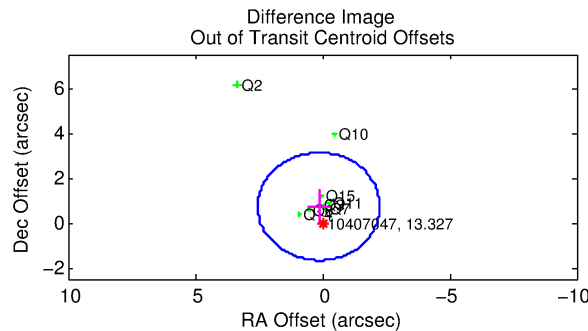
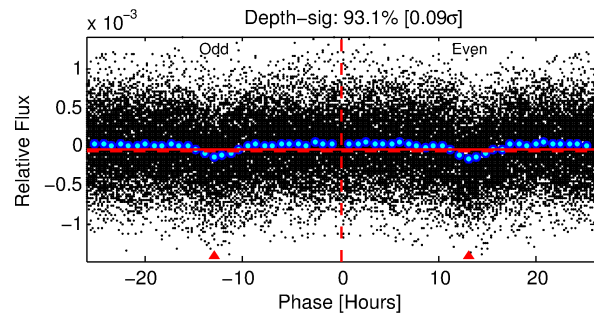
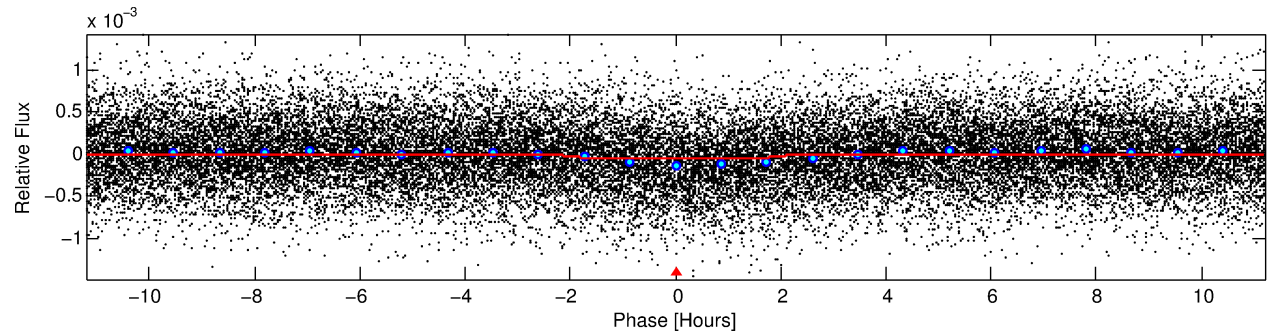
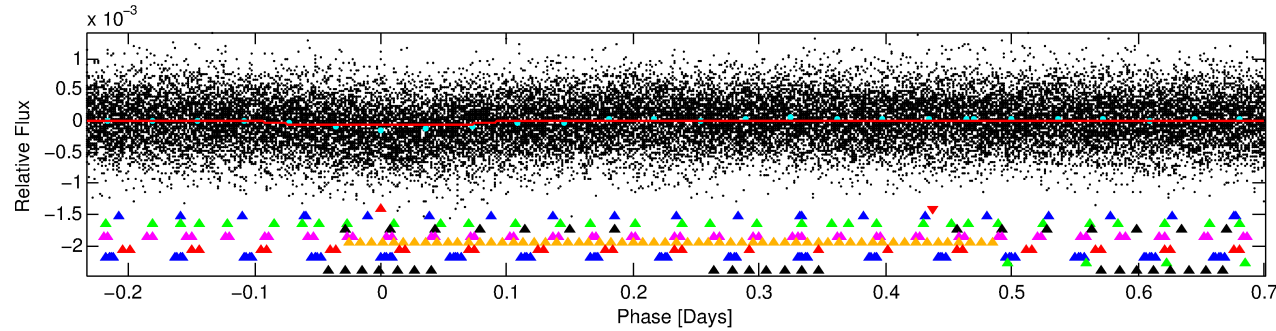
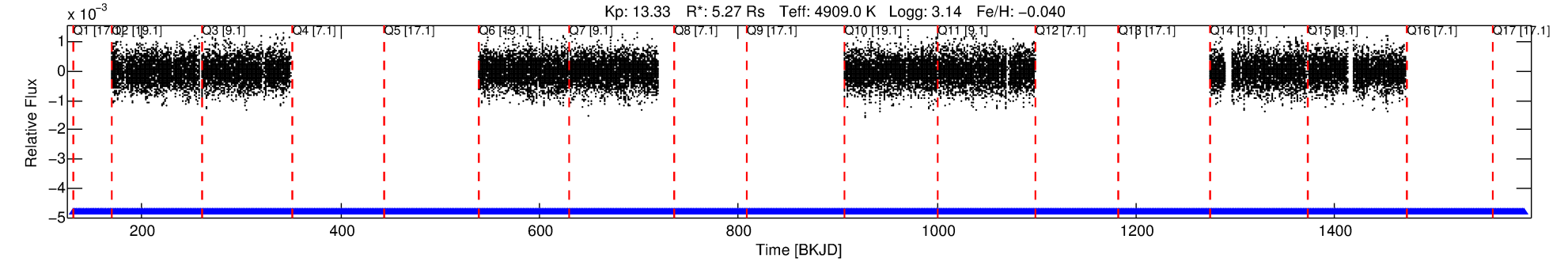
Ephemeris Match Information For 010407047-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (")	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
010407047-01	10407047	V2083-Cyg-pri	10342012	1:2	232.4	59	-5	6.90	13.32	3198.70	Direct-PRF	0	2.85	3.60

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10407047 Candidate: 1 of 10 Period: 0.934 d
KOI: K07321.01 Corr: 0.809



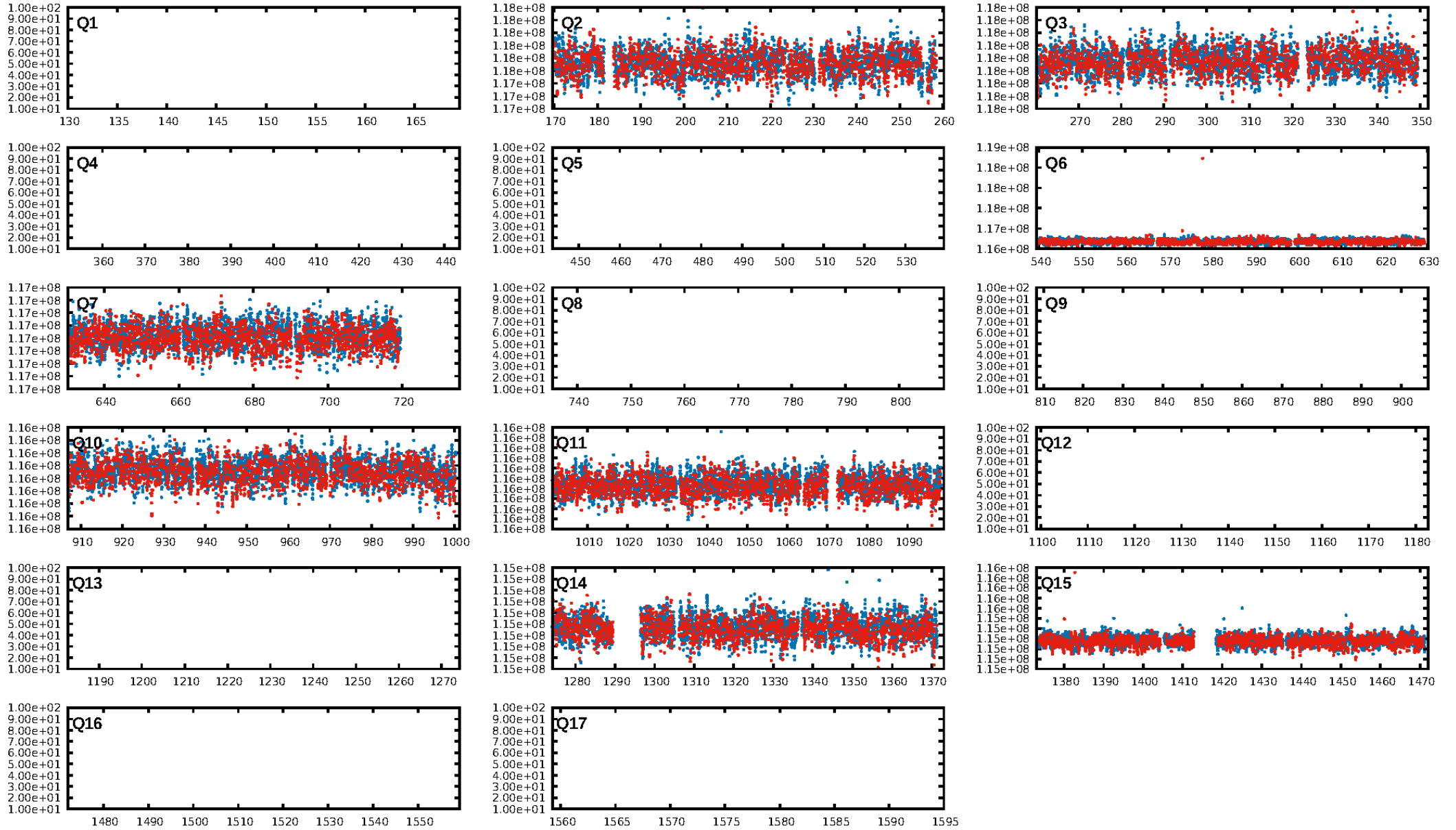
DV Fit Results:

Period = 0.93369 [0.00001] d
Epoch = 131.5601 [0.0031] BKJD
Rp/R* = 0.0073 [0.0038]
a/R* = 1.60 [1.74]
b = 0.51 [2.63]
Seff = N/A
Teq = N/A
Rp = 4.19 [2.78] Re
a = N/A
Ag = N/A
Teffp = N/A

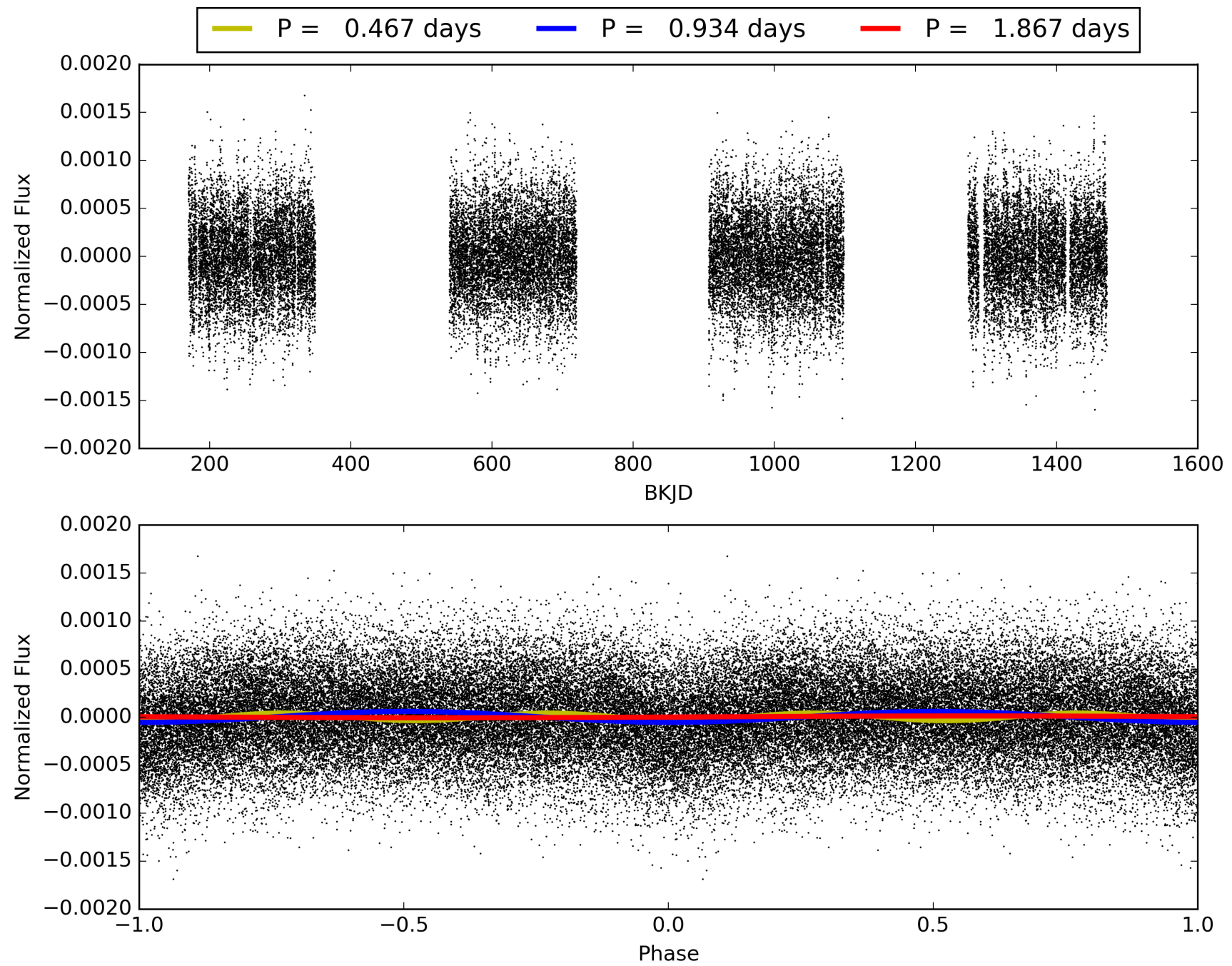
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [62.01 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [762/762]
GhostDiagnostic-chr: 0.02767
Centroid-sig: 0.0%
Centroid-so: 1.800 arcsec [5.00 σ]
OotOffset-rm: 0.740 arcsec [0.93 σ]
KicOffset-rm: 0.889 arcsec [1.06 σ]
OotOffset-st: 4/4/0/0 [8]
KicOffset-st: 4/4/0/0 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 010407047-01, PDC Light Curves

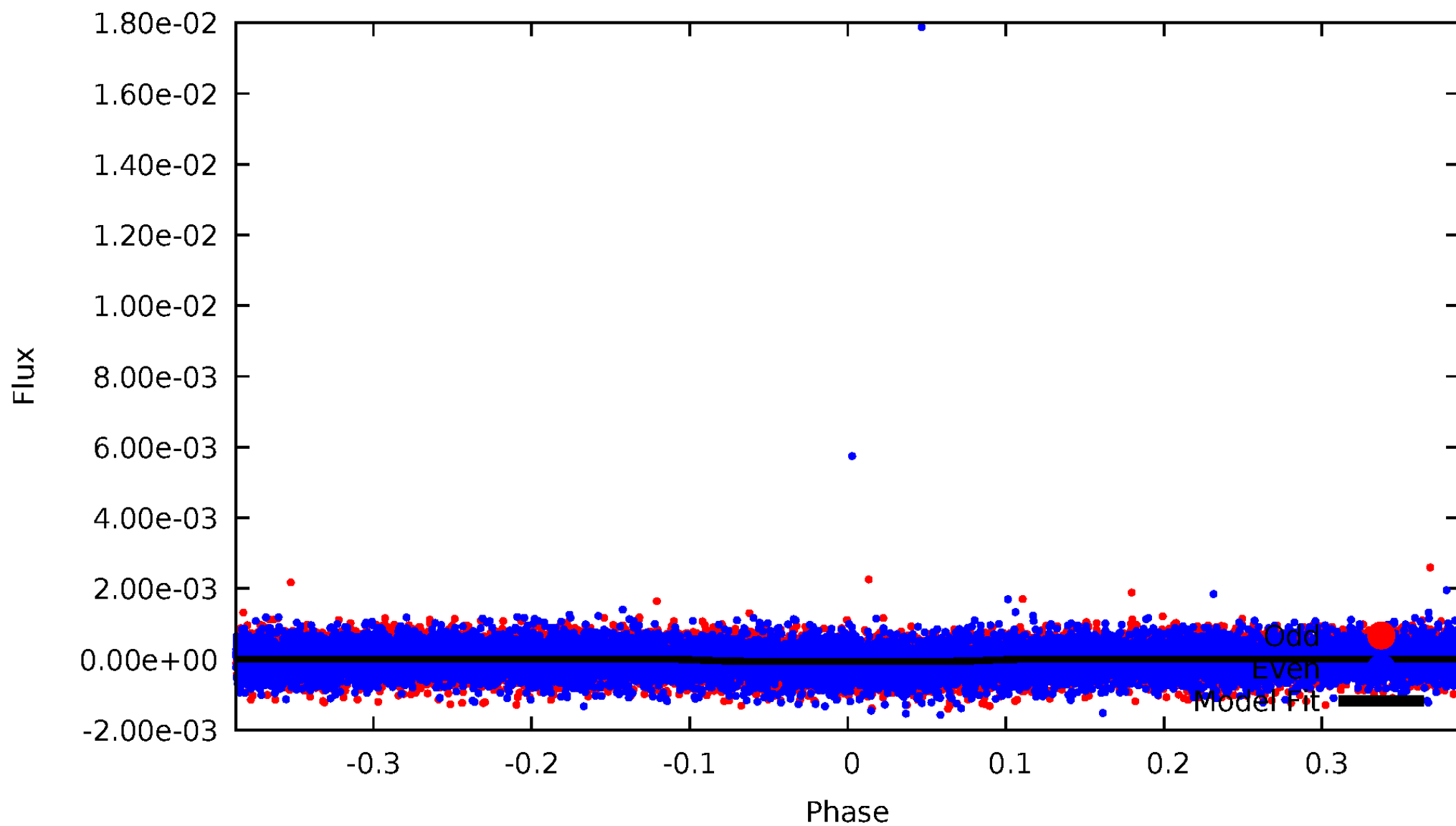


TCE 010407047-01



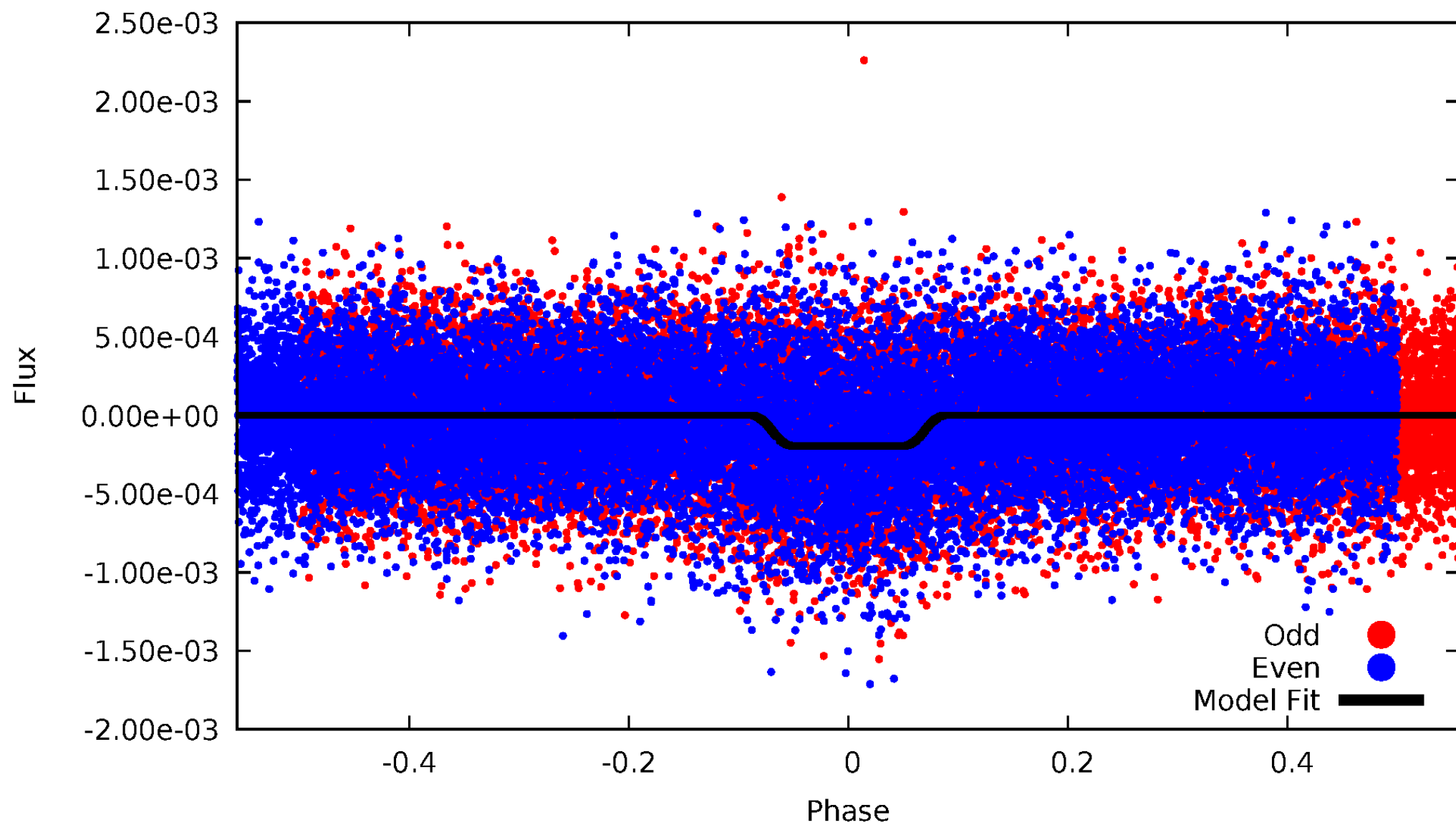
DV Odd/Even

TCE 010407047-01

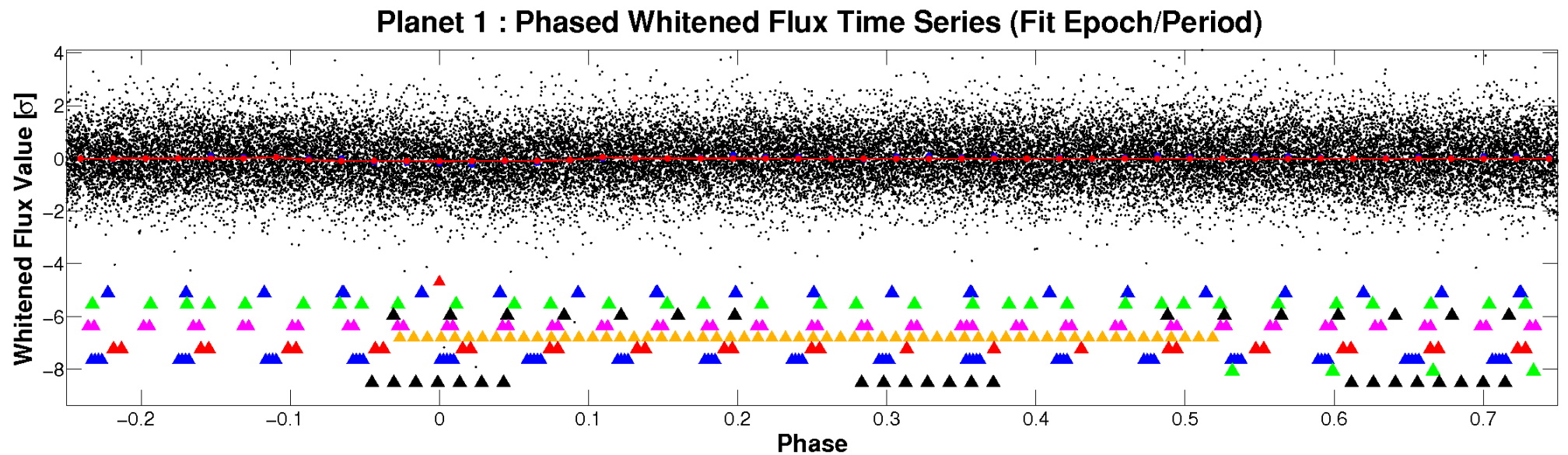
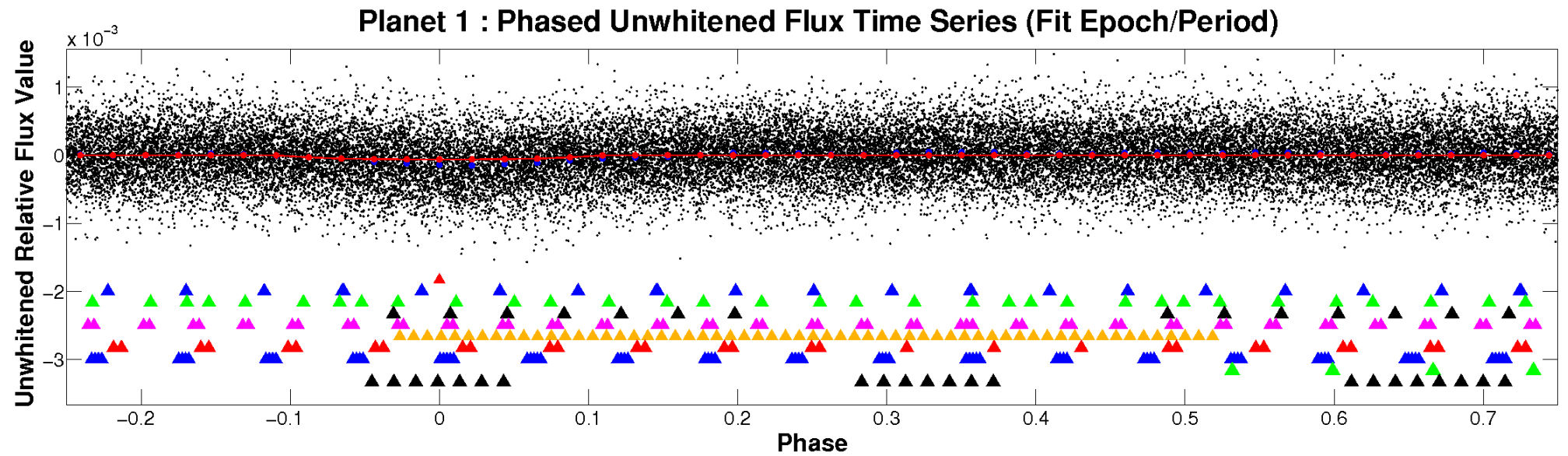


ALT Odd/Even

TCE 010407047-01

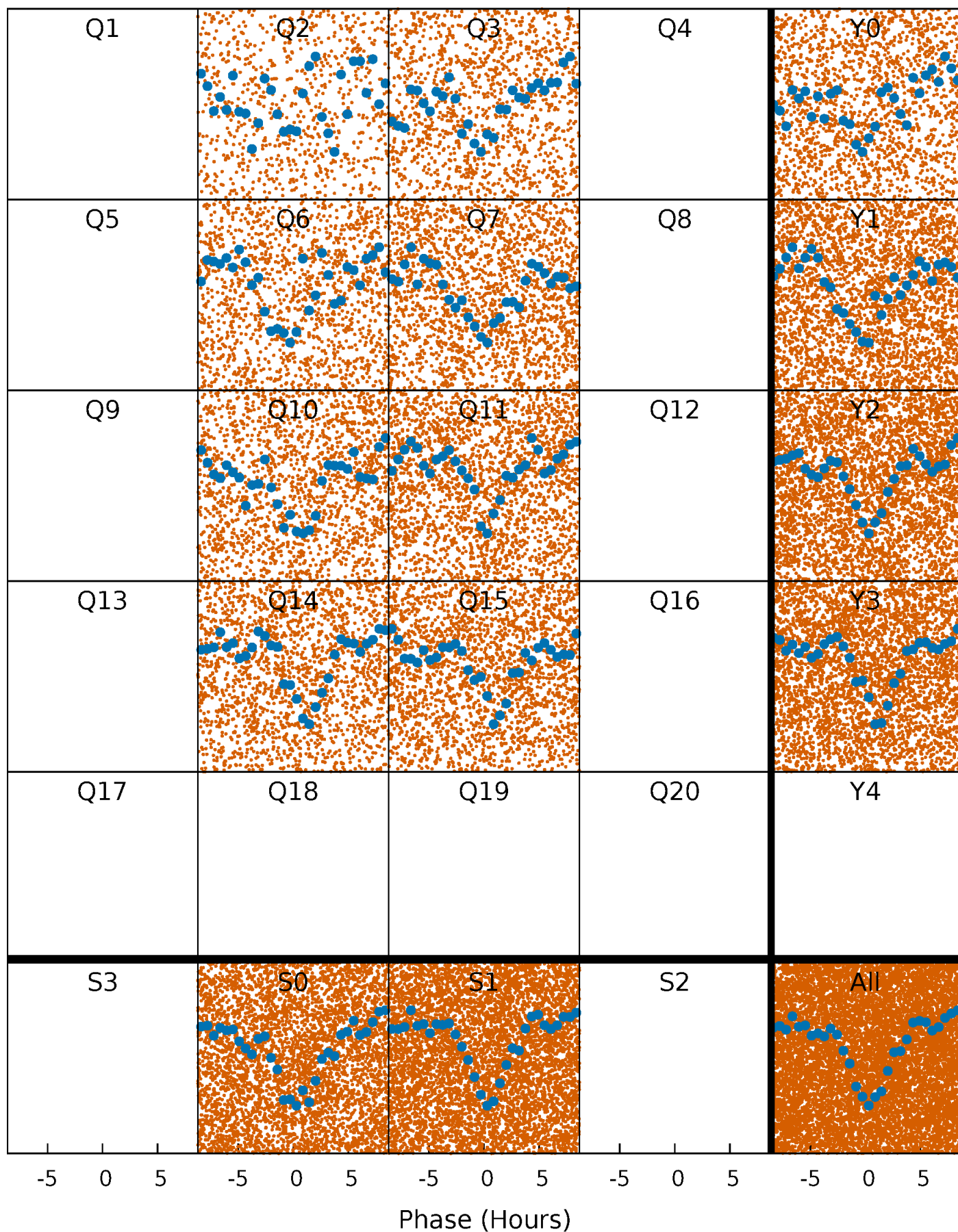


Non-Whitened Vs. Whitened Light Curve



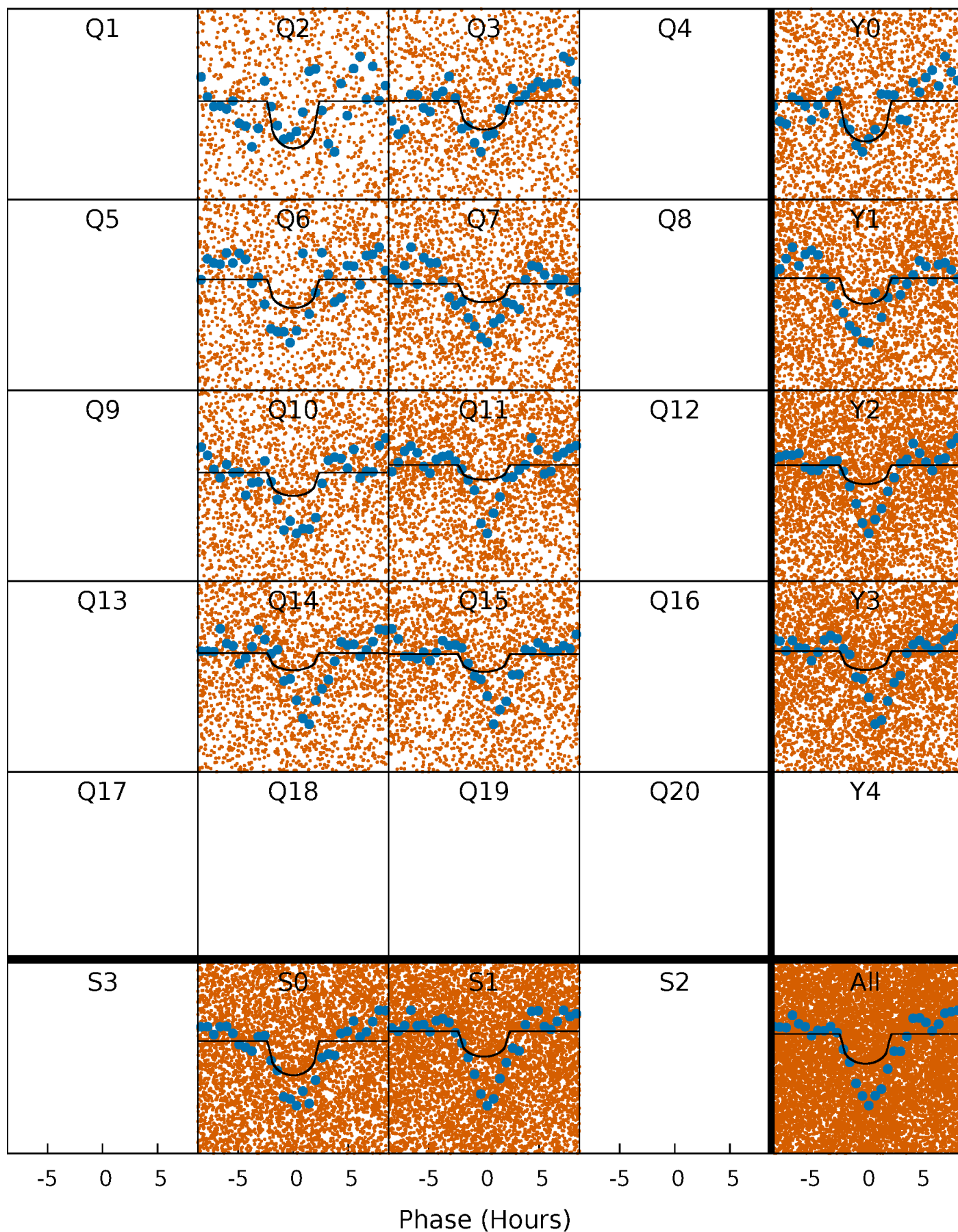
PDC Quarter-Phased Transit Curves

TCE 010407047-01 P= 0.933687 Days $T_0=131.560086$ (BKJD)



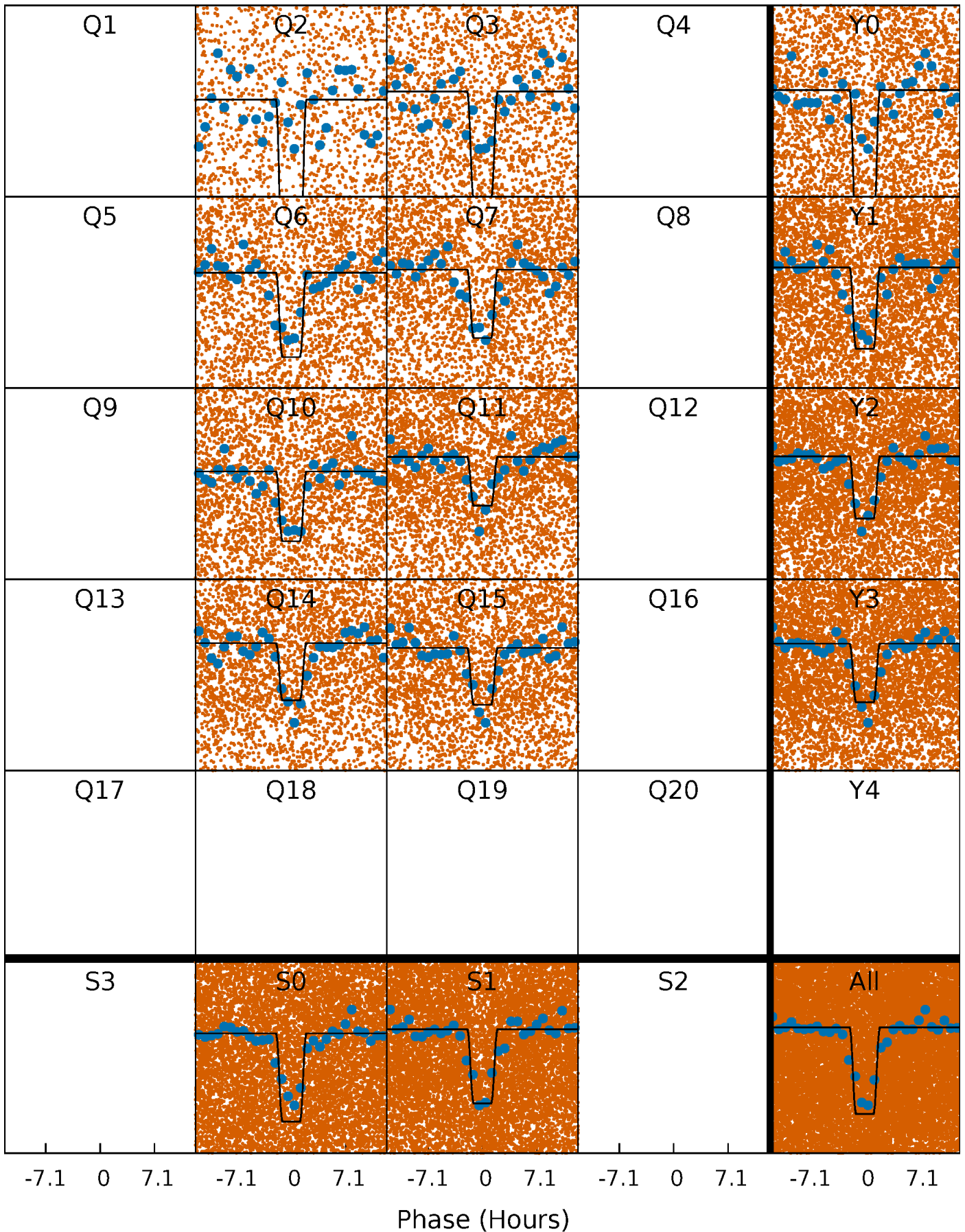
DV Quarter-Phased Transit Curves

TCE 010407047-01 P= 0.933687 Days $T_0=131.560086$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

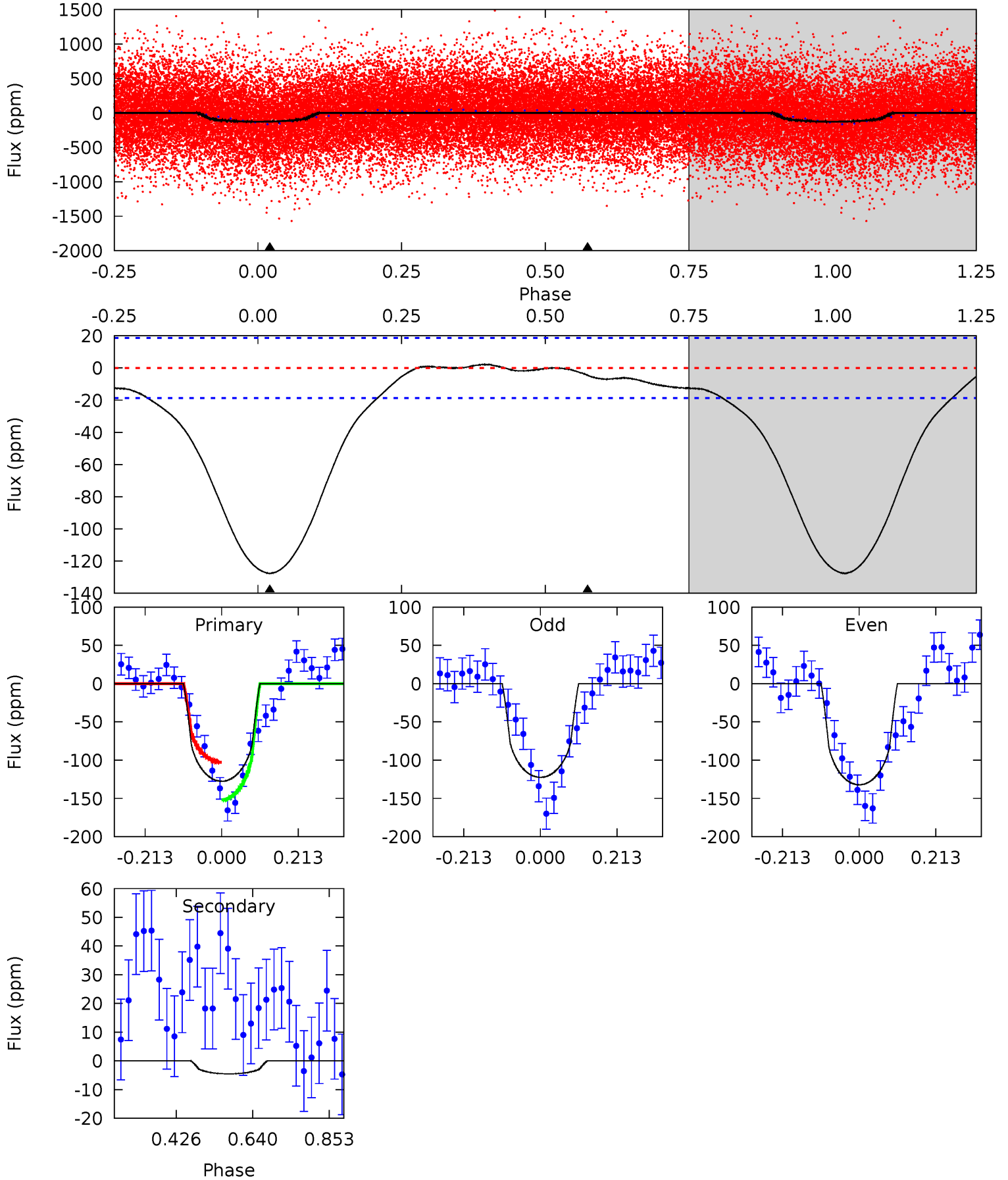
TCE 010407047-01 P= 0.933732 Days $T_0=131.537903$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-01, P = 0.933687 Days, E = 131.560086 Days

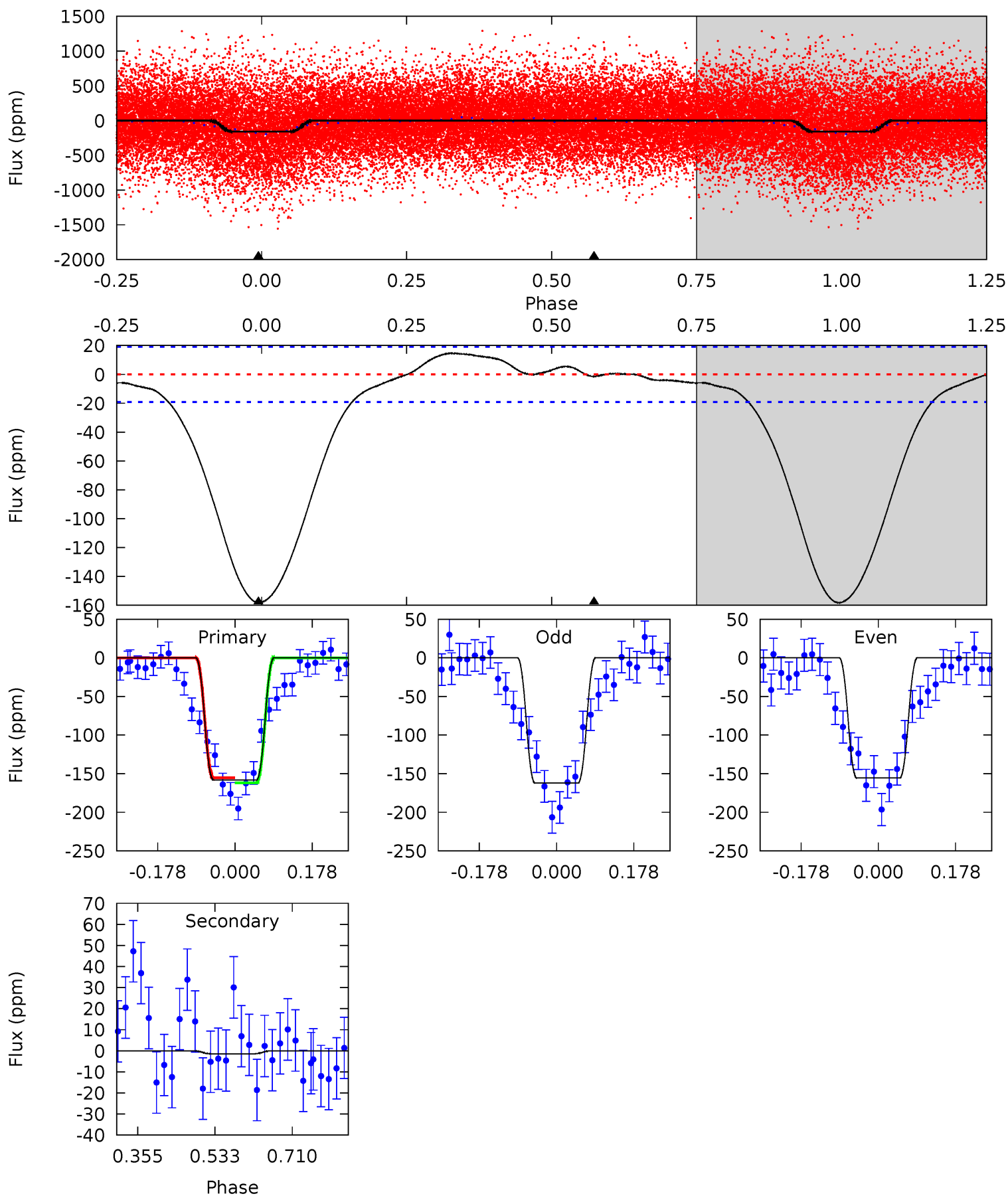
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.0	1.06	0	0	4.40	1.24	1.39	30.0	30.0	1.06	1.06	1.13	1.16	0.02	5.66



Alt Model-Shift Uniqueness Test

010407047-01, P = 0.933732 Days, E = 131.537903 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.8	0.33	0	0	4.44	1.35	2.23	36.8	36.8	0.33	0.33	0.75	0.97	0.08	0.74



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-01 / KOI 7321.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 4	$4.16^{+2.33}_{-2.04}$	4797^{+541}_{-598}	-3921^{+978}_{-436}	$0.053^{+0.192}_{-0.050}$
Alt.	-1 ± 4	$7.69^{+3.35}_{-2.27}$	4787^{+549}_{-557}	-4103^{+356}_{-354}	$0.005^{+0.020}_{-0.016}$

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

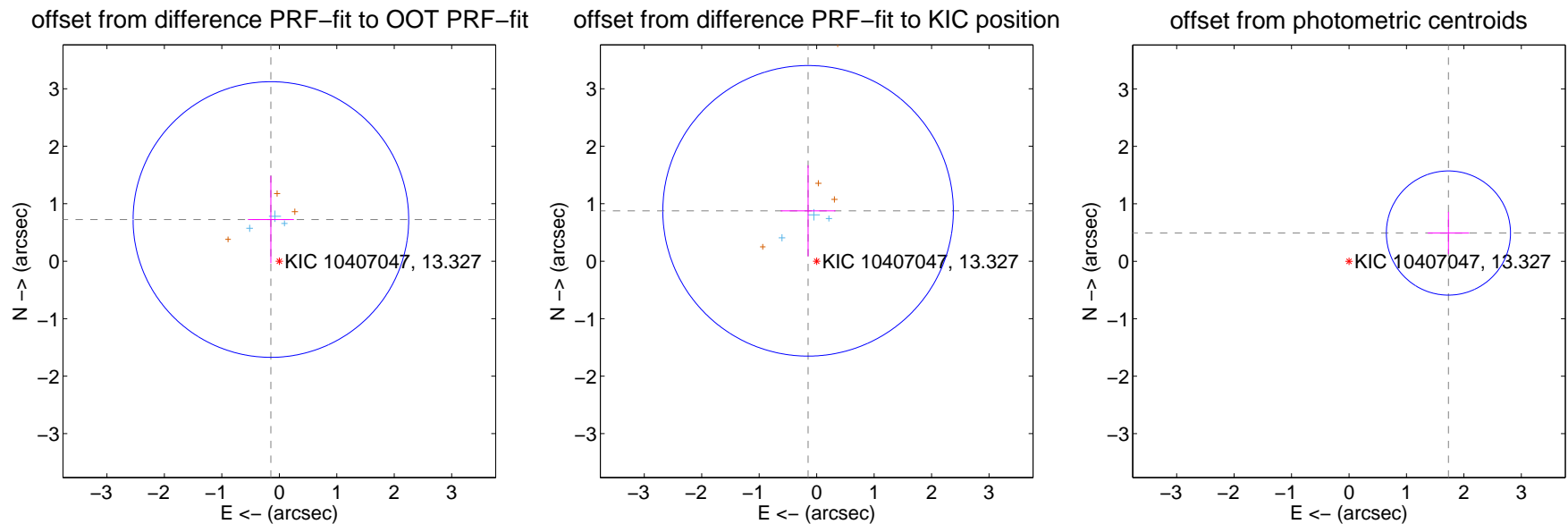
DV Centroid Data

Supplemental centroid analysis for 010407047-01. Kepler magnitude: 13.33. Transit SNR 7.69

There are 3 quarters with good PRF difference image offsets

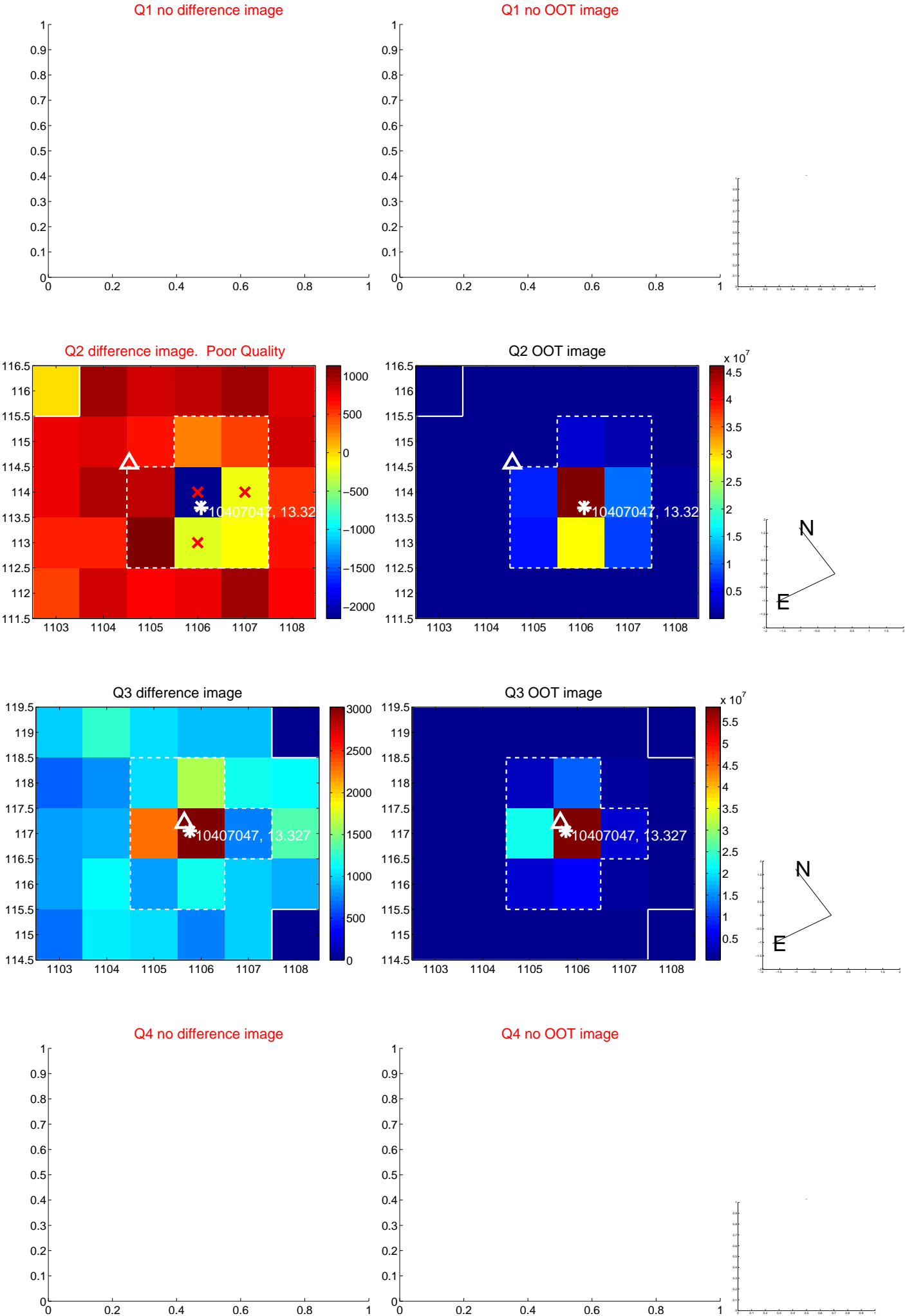
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.740 ± 0.800	0.93	0.146 ± 0.400	0.725 ± 0.760
PRF-fit source offset from KIC position	0.889 ± 0.843	1.06	0.149 ± 0.477	0.877 ± 0.793
photometric centroid source offset	1.80 ± 0.36	5.00	-1.73 ± 0.36	0.49 ± 0.37



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.



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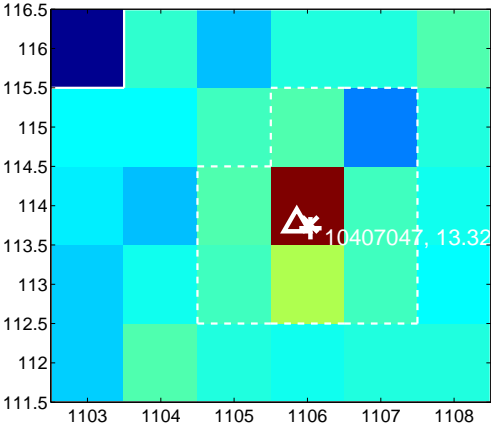
Q5 no difference image



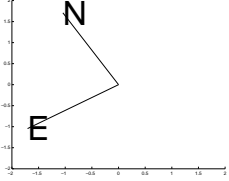
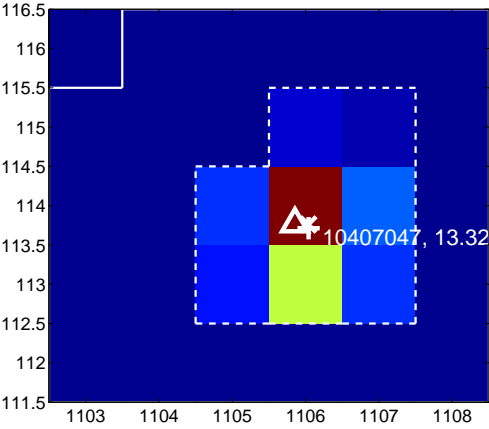
Q5 no OOT image



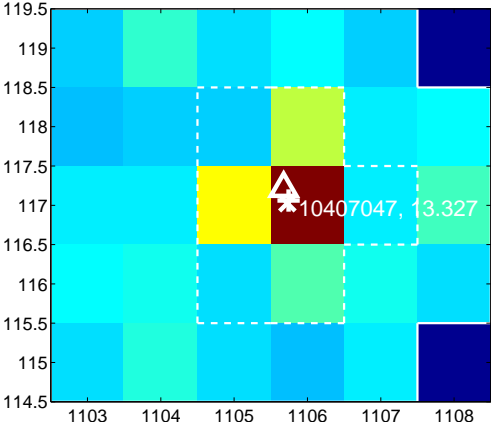
Q6 difference image



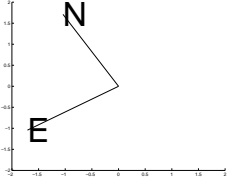
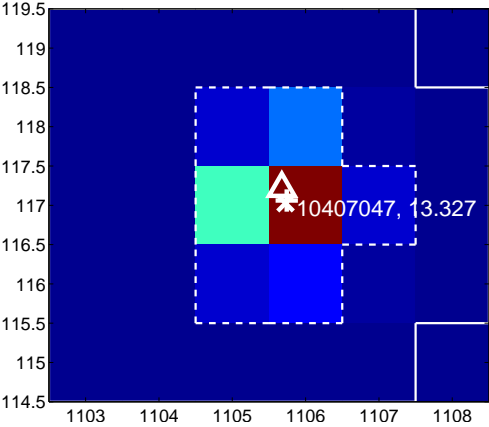
Q6 OOT image



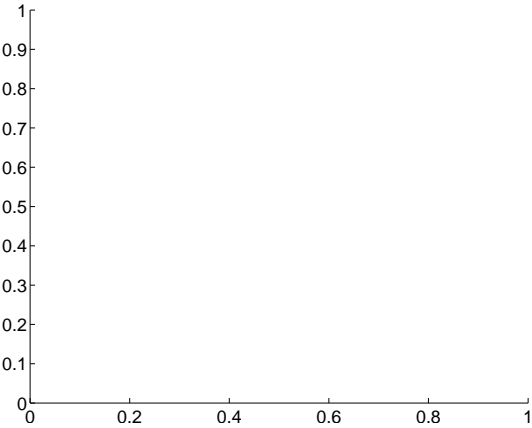
Q7 difference image



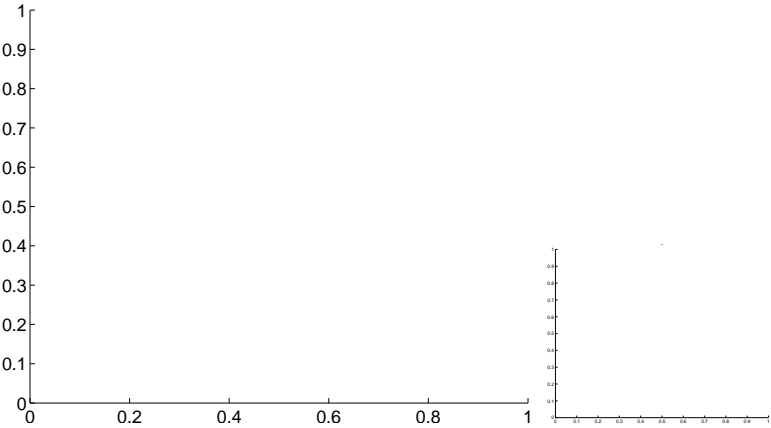
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

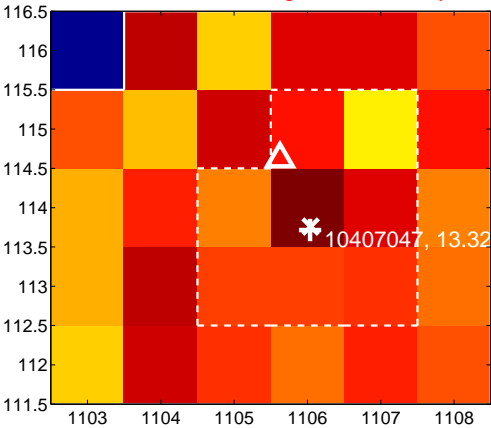
Q9 no difference image



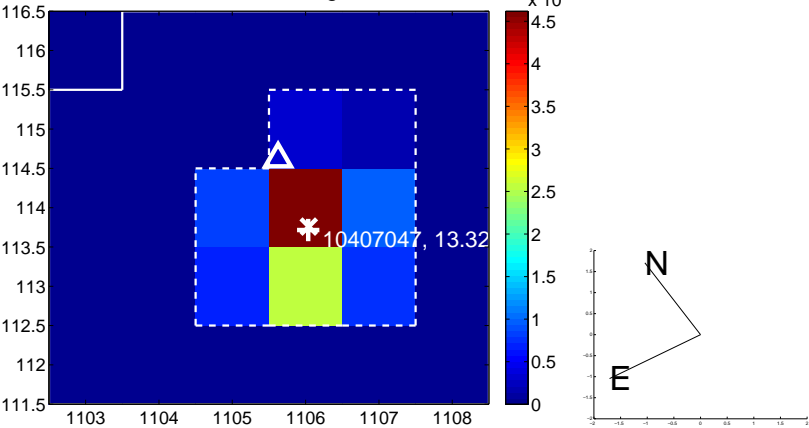
Q9 no OOT image



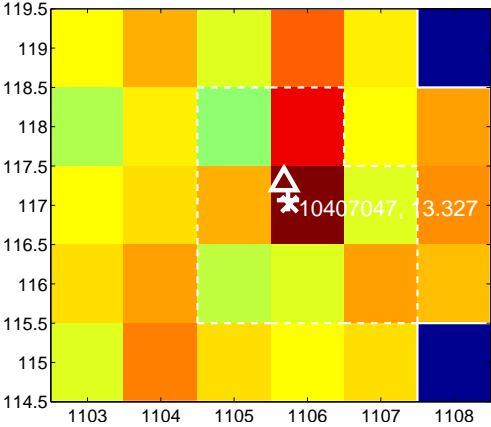
Q10 difference image. Poor Quality



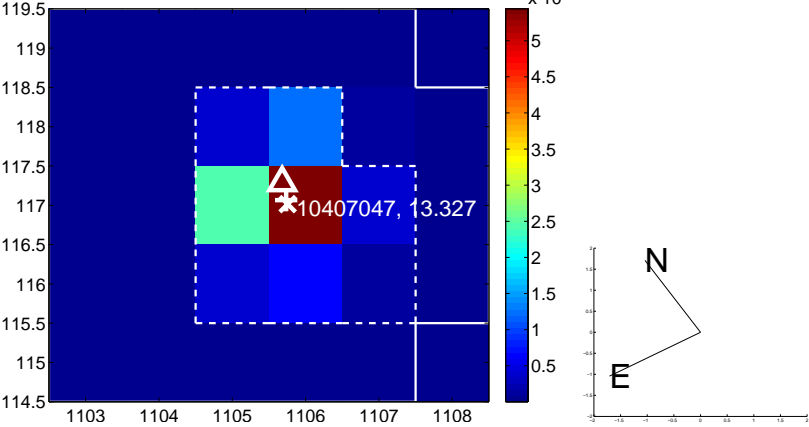
Q10 OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

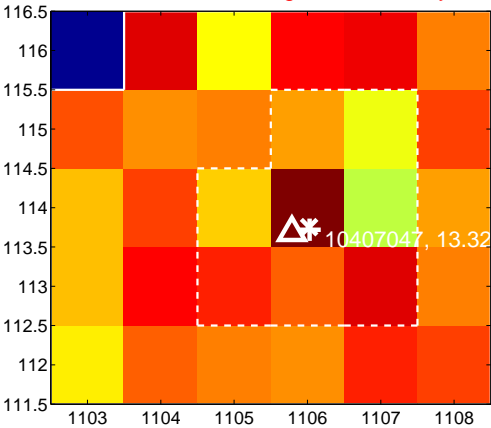
Q13 no difference image



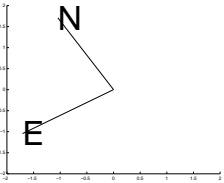
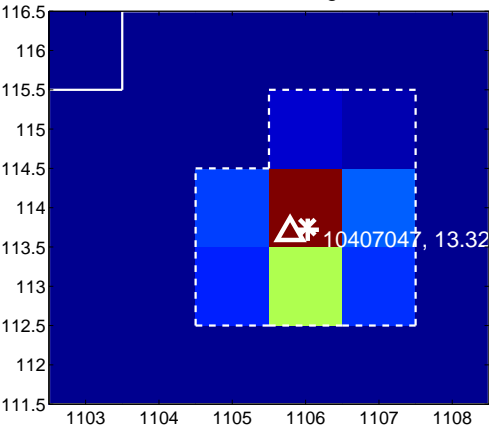
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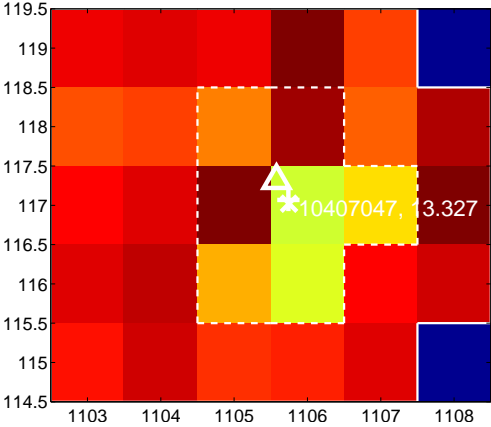
Q14 difference image. Poor Quality



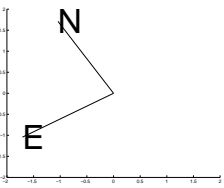
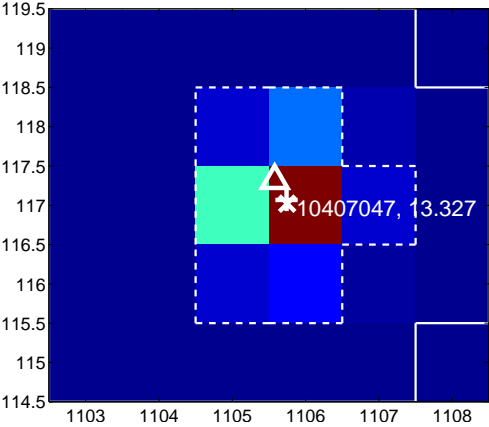
Q14 OOT image



Q15 difference image. Poor Quality



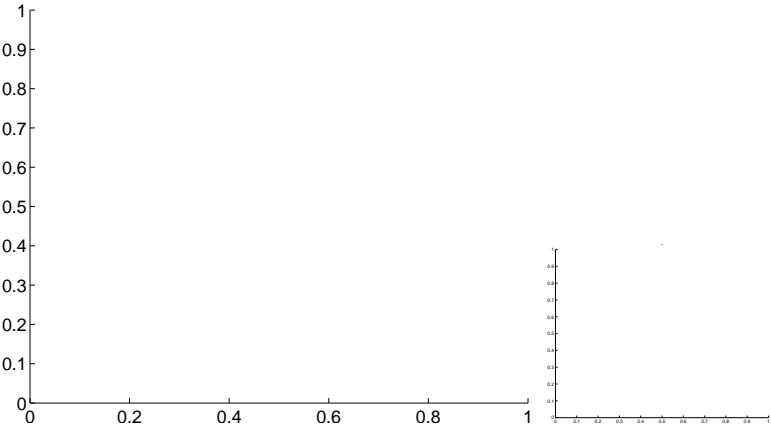
Q15 OOT image



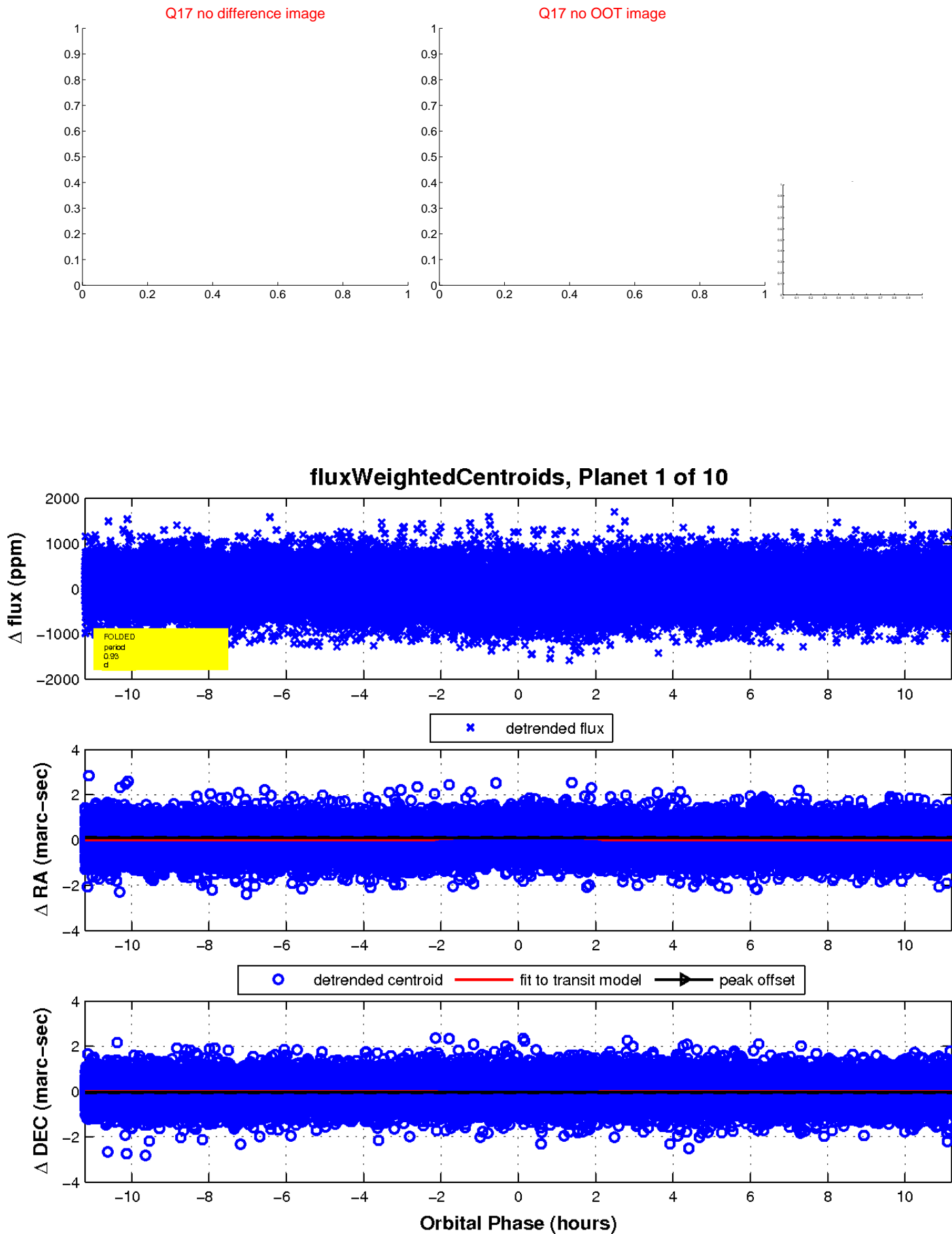
Q16 no difference image



Q16 no OOT image

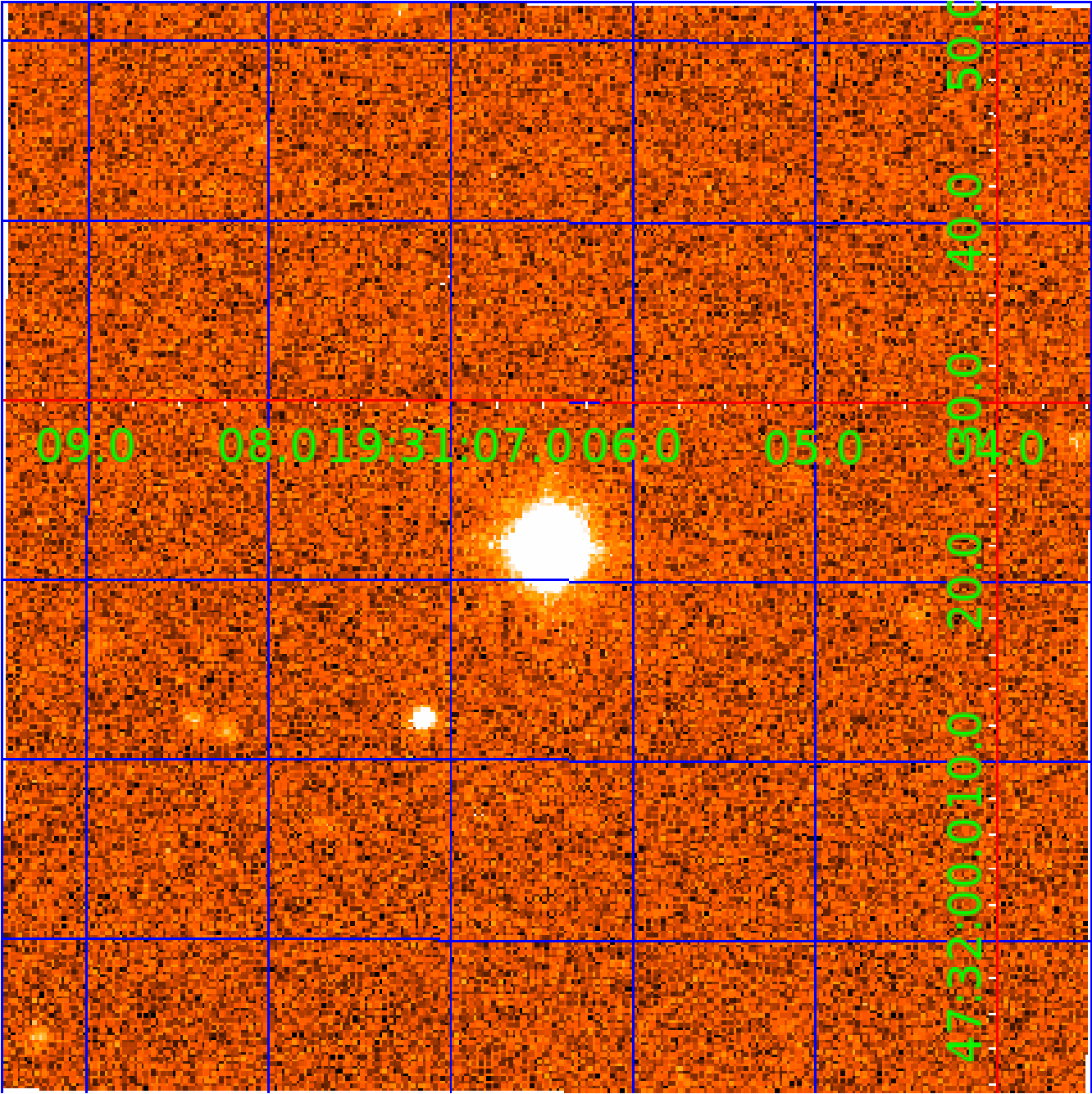


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UKIRT Image

Declination



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010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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.

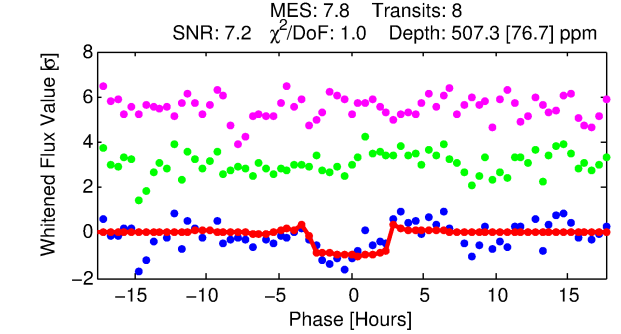
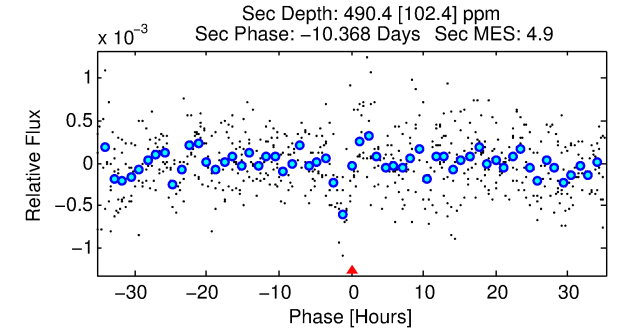
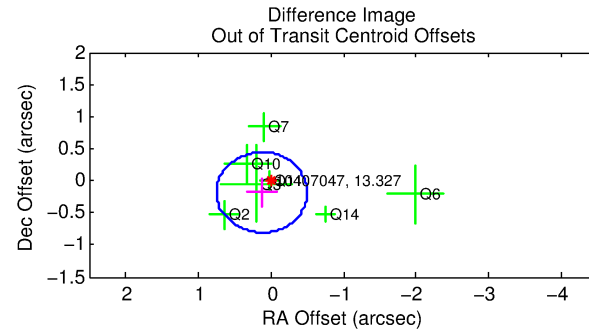
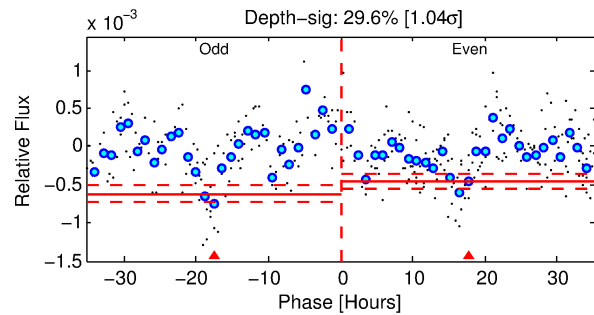
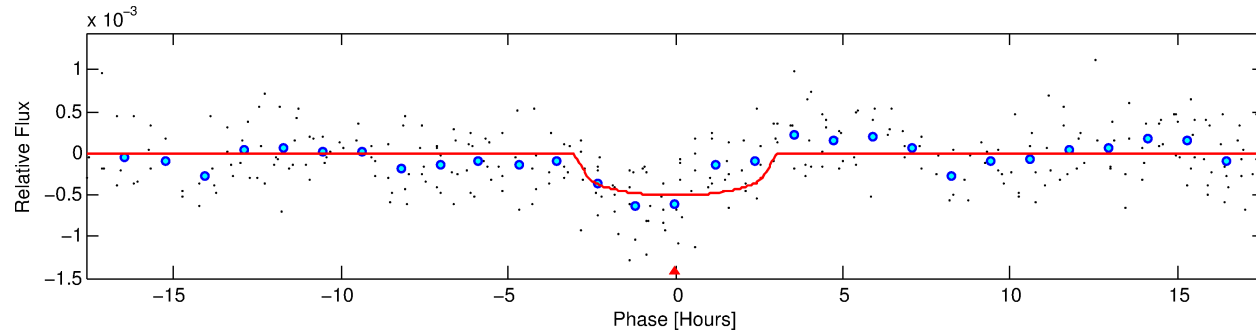
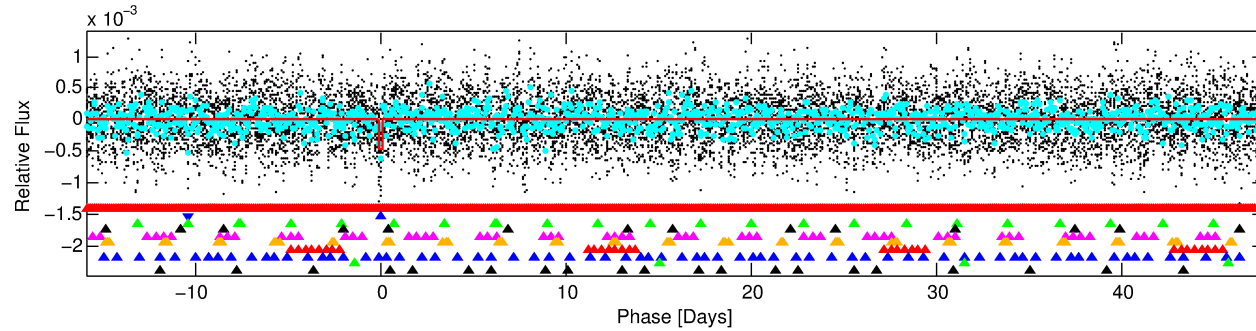
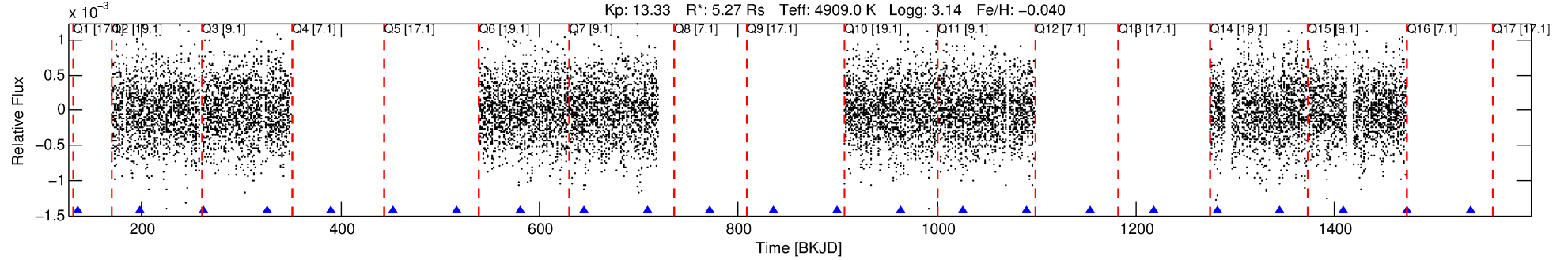
Ephemeris Match Information For 010407047-02

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 2 of 10 Period: 63.687 d
KOI: K07321 Corr: No Ephemeris Match

Kp: 13.33 R*: 5.27 Rs Teff: 4909.0 K Logg: 3.14 Fe/H: -0.040



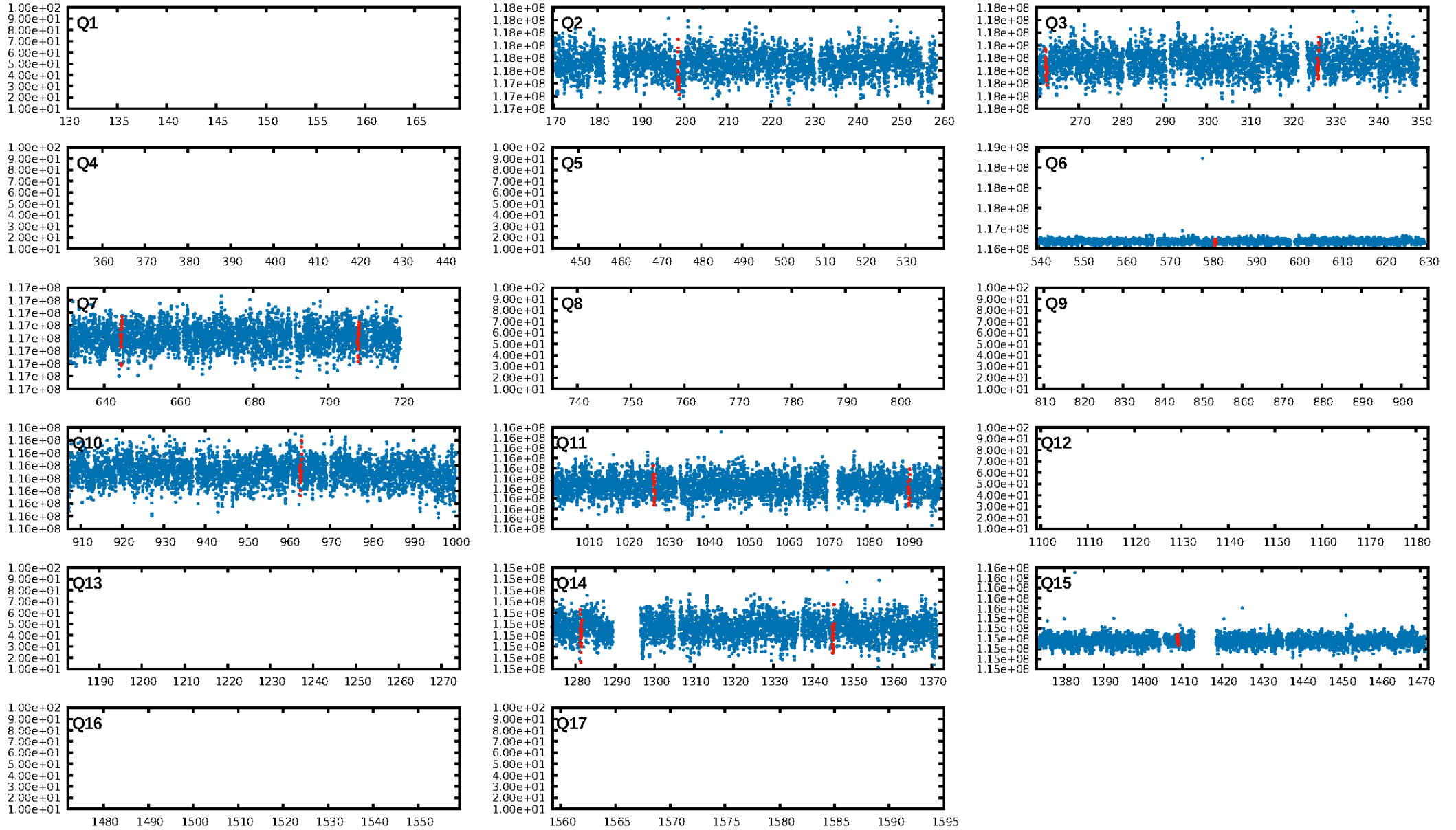
DV Fit Results:

Period = 63.68725 [0.00121] d
Epoch = 135.0384 [0.0150] BKJD
Rp/R* = 0.0219 [0.0162]
a/R* = 62.93 [160.93]
b = 0.68 [2.02]
Seff = 119.34 [81.71]
Teq = 843 [144] K
Rp = 12.58 [10.66] Re
a = 0.3481 [0.1442] AU
Ag = 206.66 [338.75] [0.61σ]
Teff = 4941 [1849] K [2.21σ]

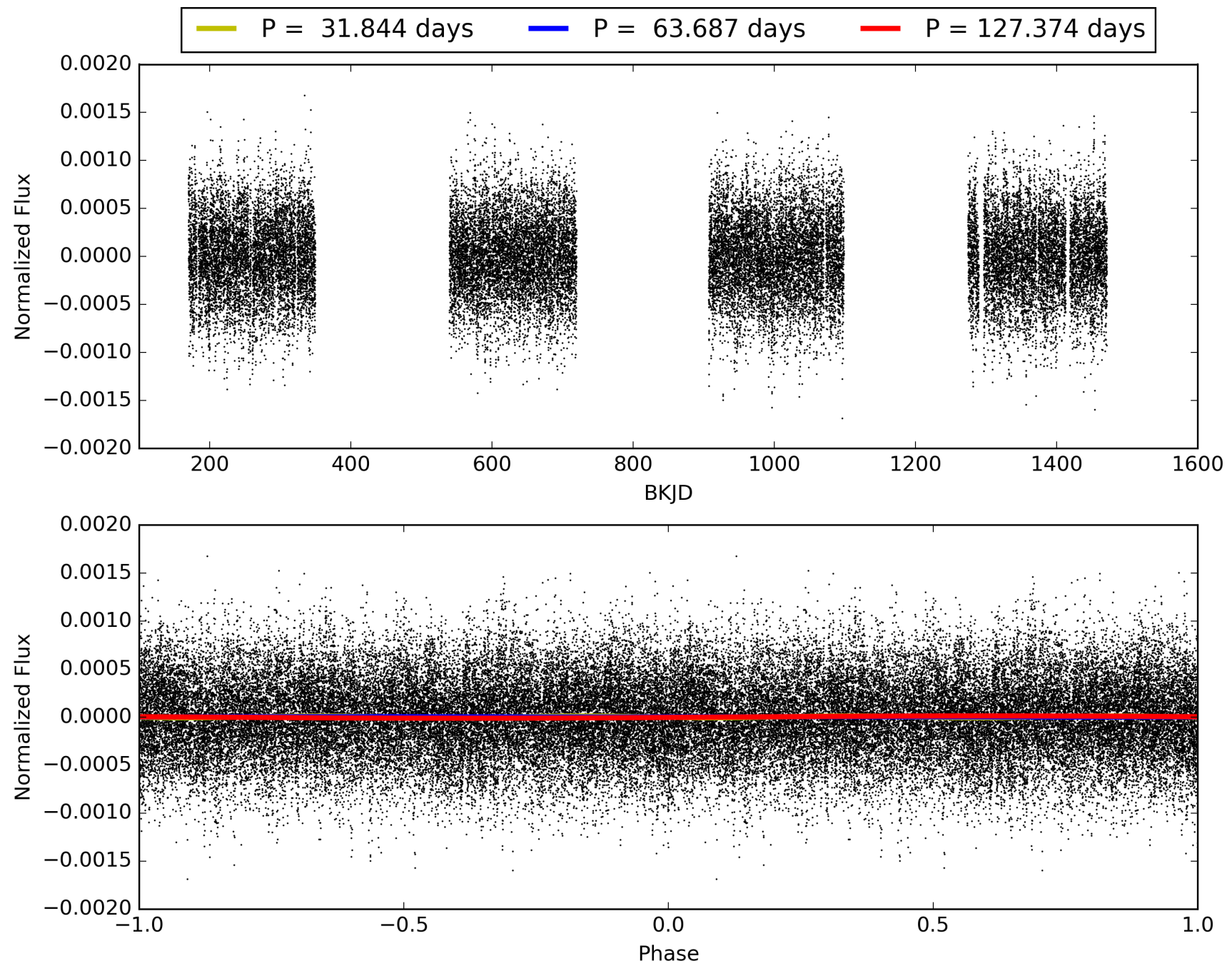
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.78σ]
LongPeriod-sig: 100.0% [8.74σ]
ModelChiSquare2-sig: 44.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 5.755
Centroid-sig: 74.8%
Centroid-so: 0.285 arcsec [0.90σ]
OotOffset-rm: 0.220 arcsec [1.06σ]
KicOffset-rm: 0.228 arcsec [0.85σ]
OotOffset-st: 4/3/0/0 [7]
KicOffset-st: 4/3/0/0 [7]
DiffImageQuality-fgm: 0.86 [6/7]
DiffImageOverlap-fno: 0.00 [0/8]

TCE 010407047-02, PDC Light Curves

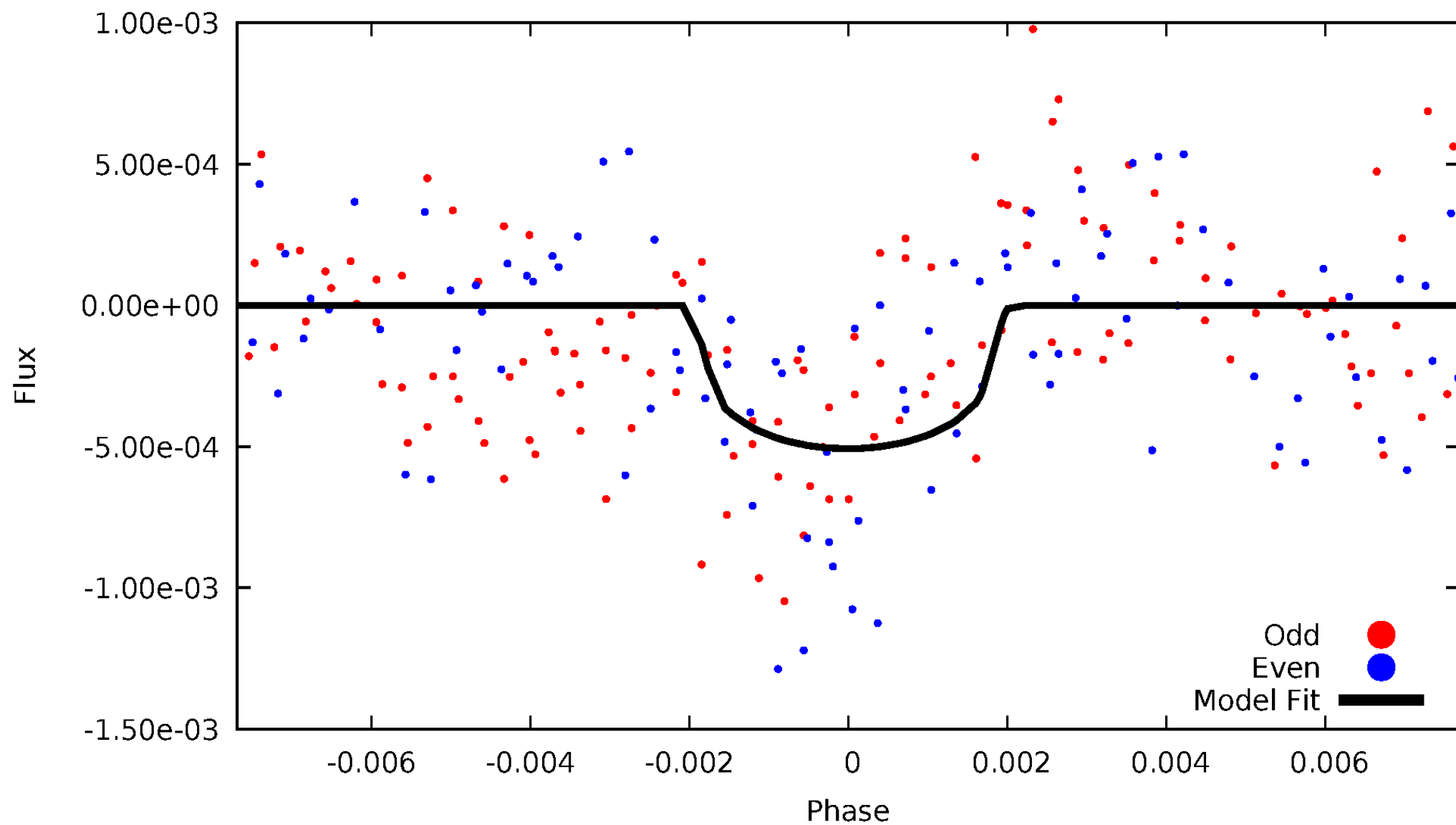


TCE 010407047-02



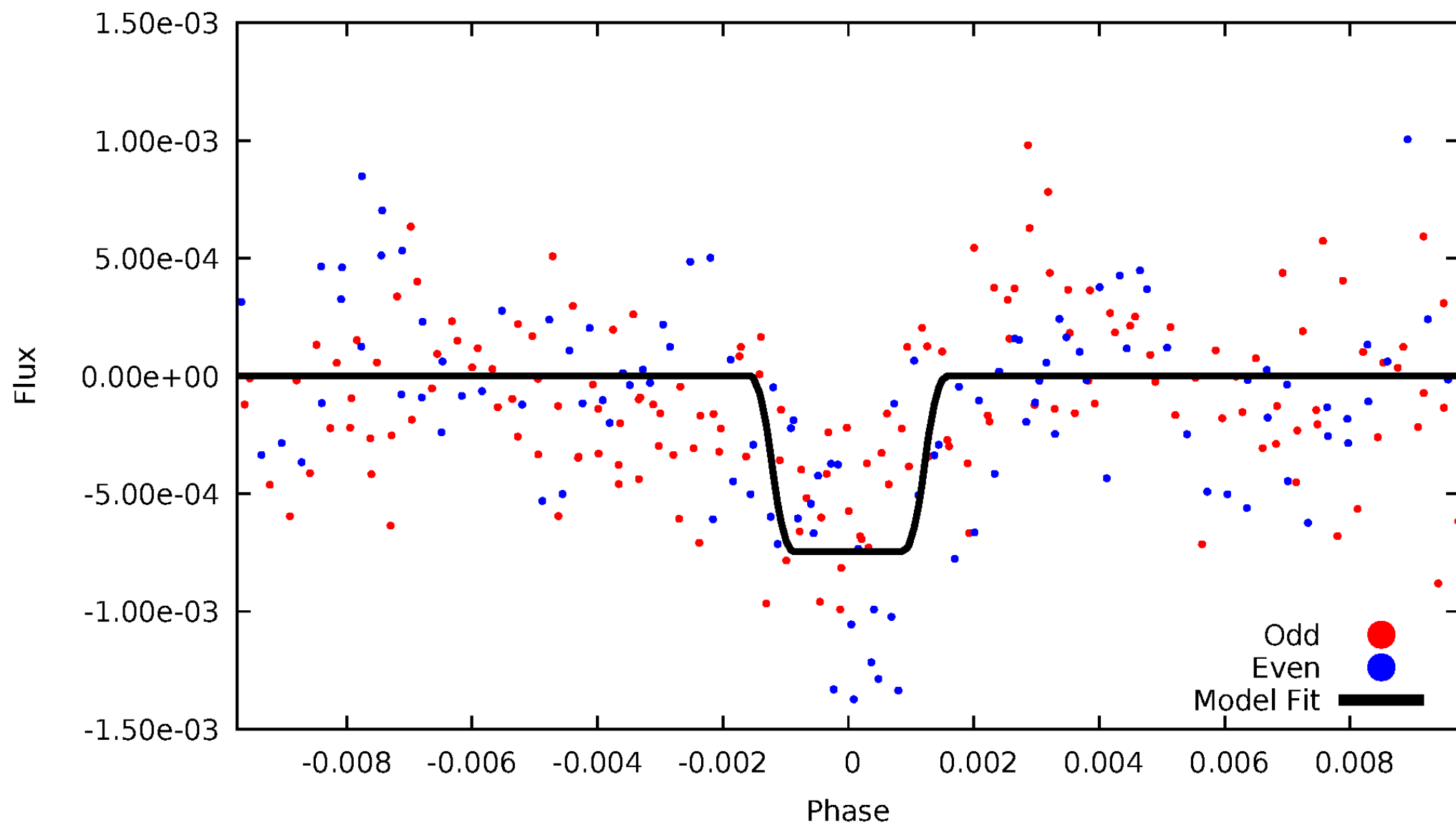
DV Odd/Even

TCE 010407047-02



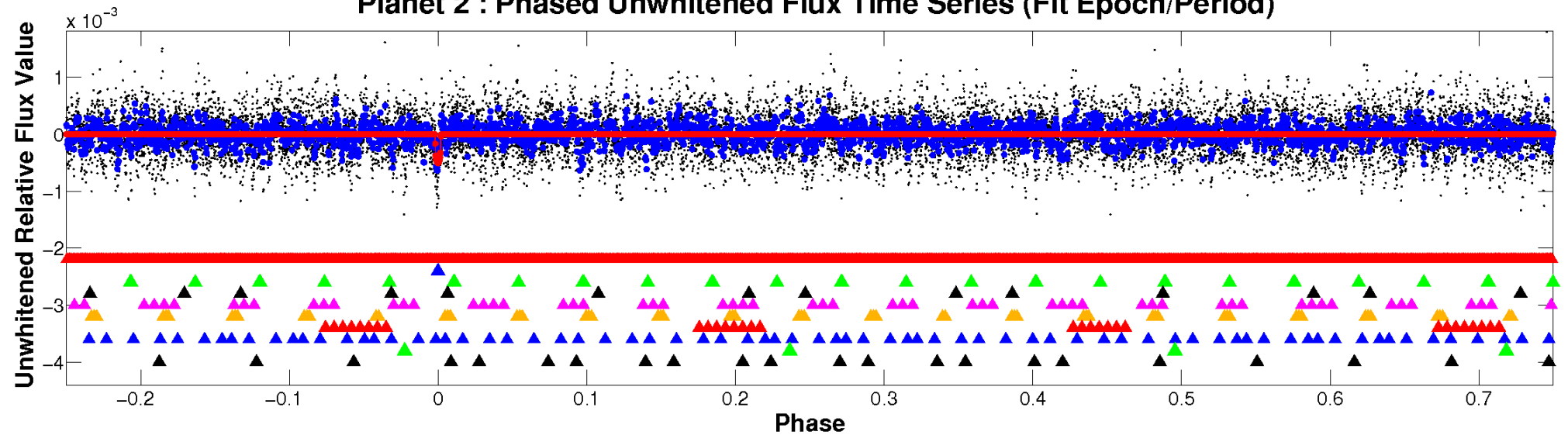
ALT Odd/Even

TCE 010407047-02

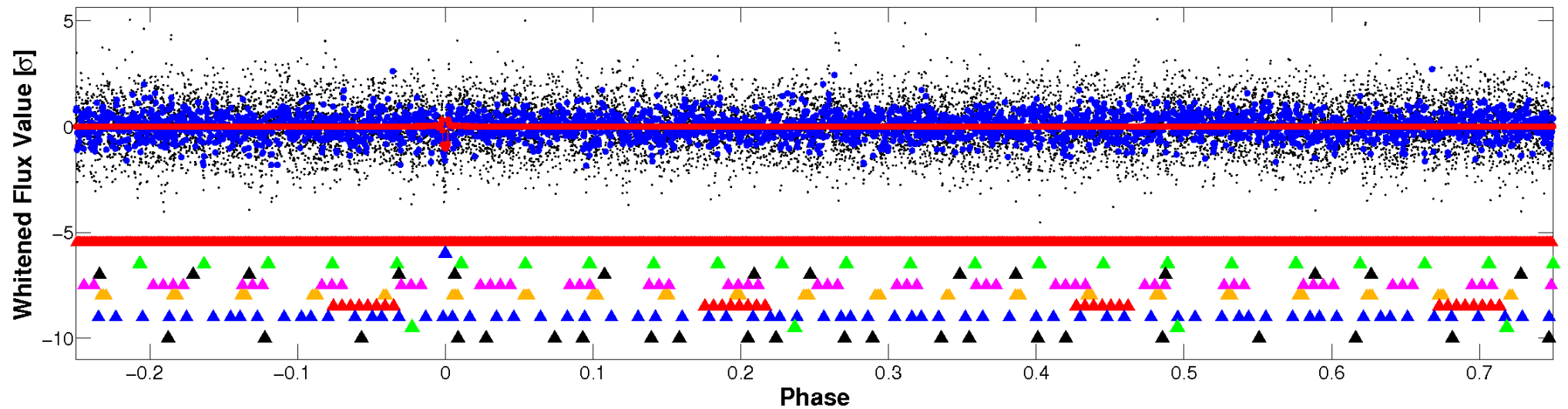


Non-Whitened Vs. Whitened Light Curve

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

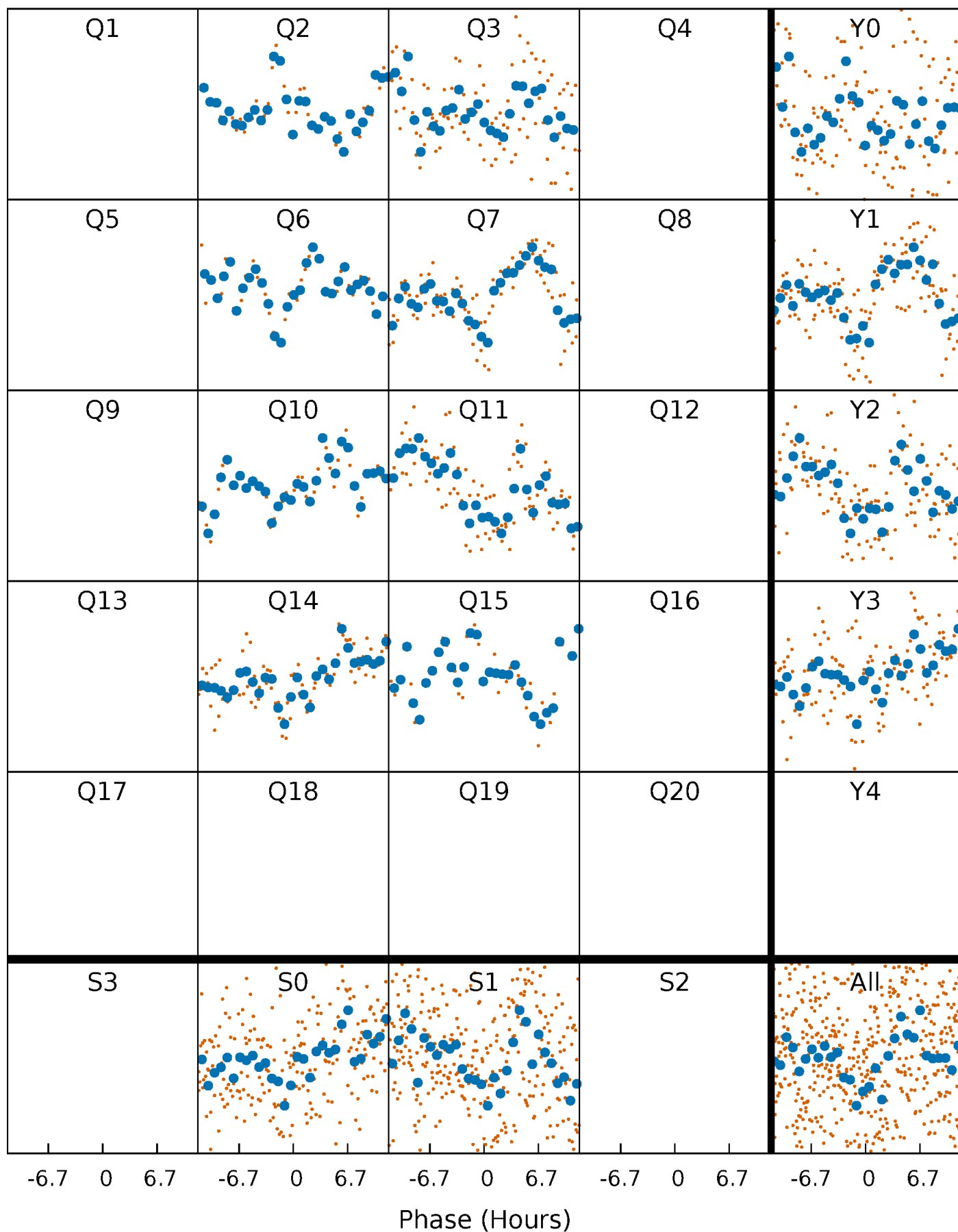


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



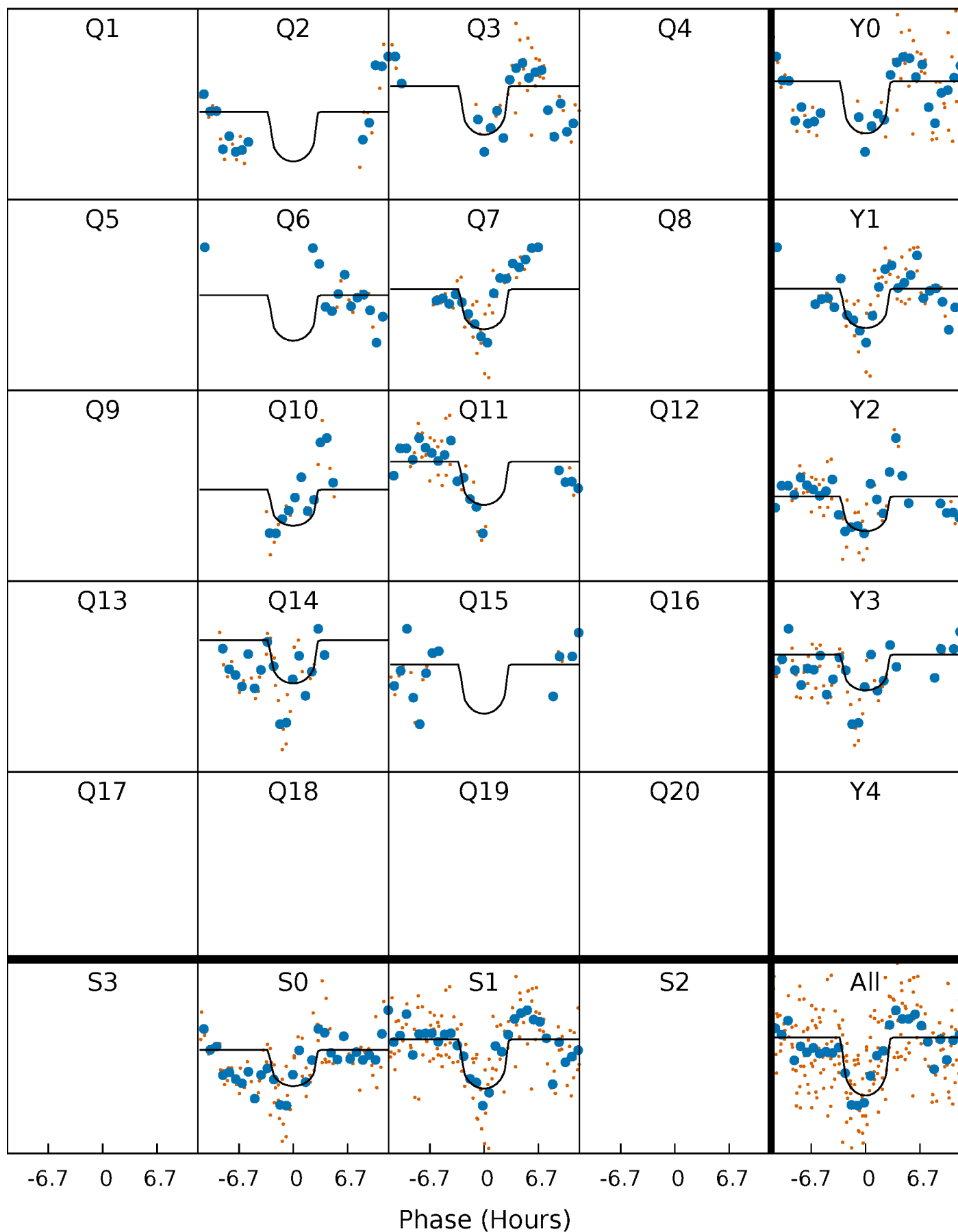
PDC Quarter-Phased Transit Curves

TCE 010407047-02 P= 63.687250 Days $T_0=135.038375$ (BKJD)



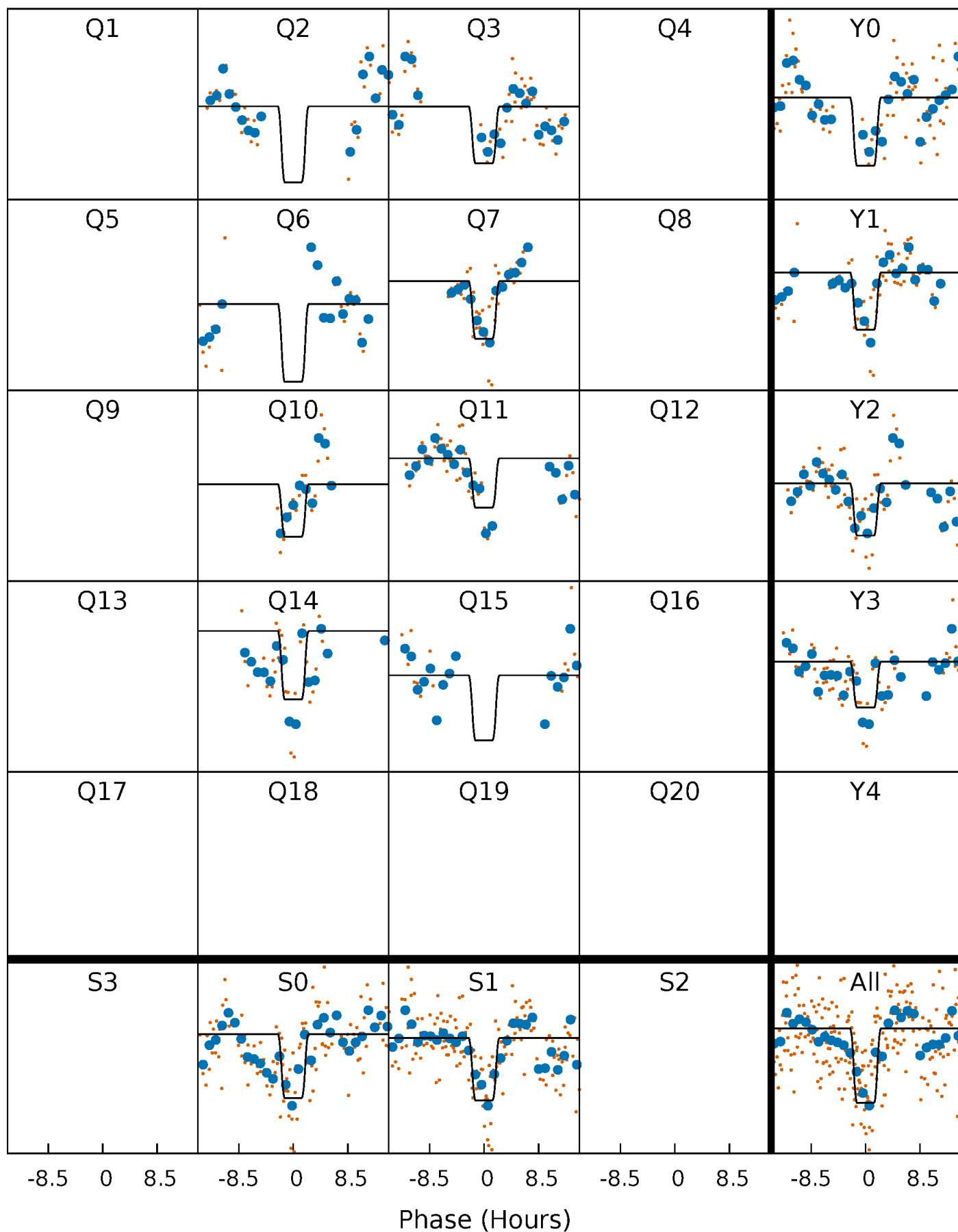
DV Quarter-Phased Transit Curves

TCE 010407047-02 $P = 63.687250$ Days $T_0 = 135.038375$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

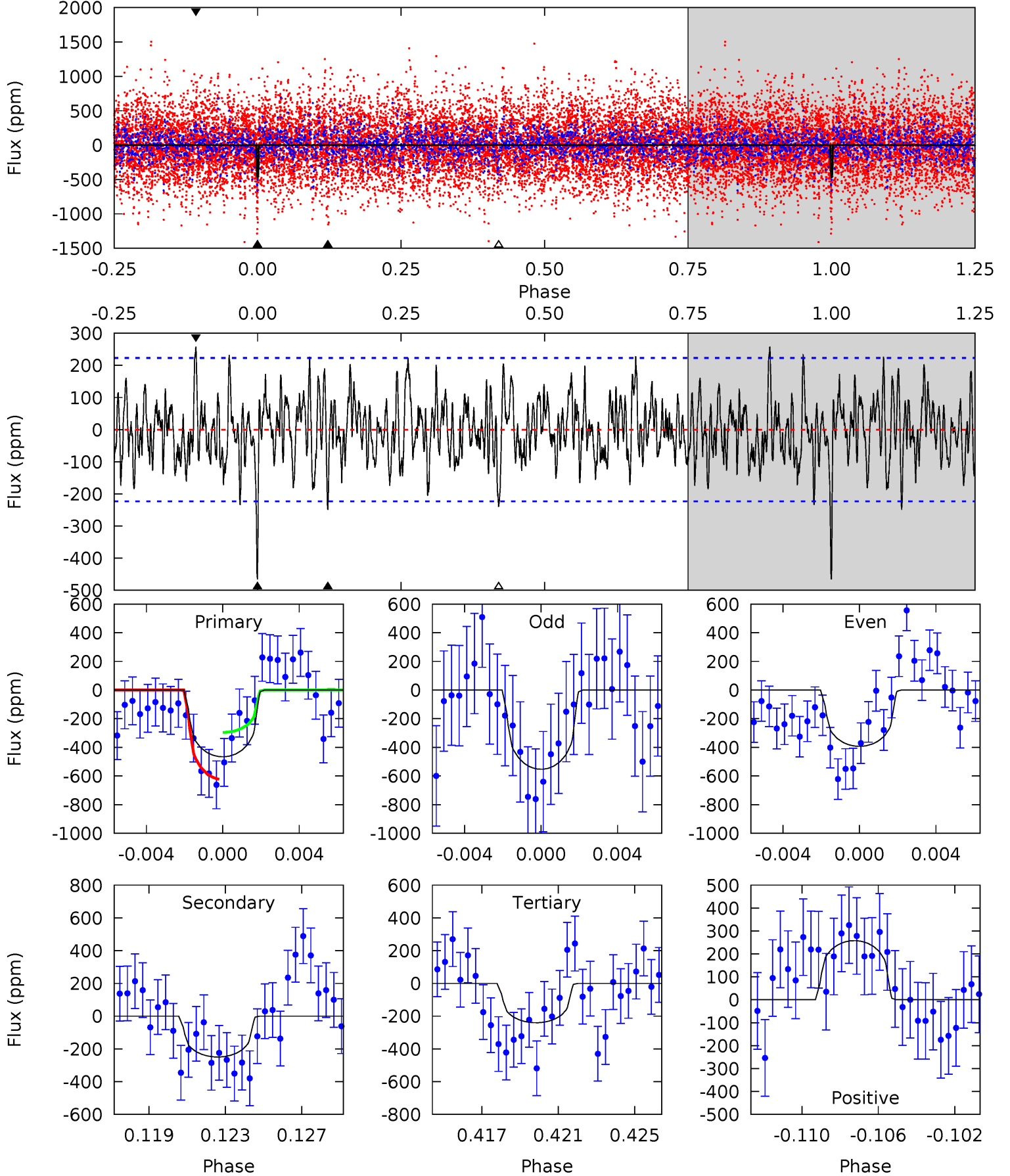
TCE 010407047-02 P= 63.685845 Days $T_0=135.022301$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-02, P = 63.687250 Days, E = 135.038375 Days

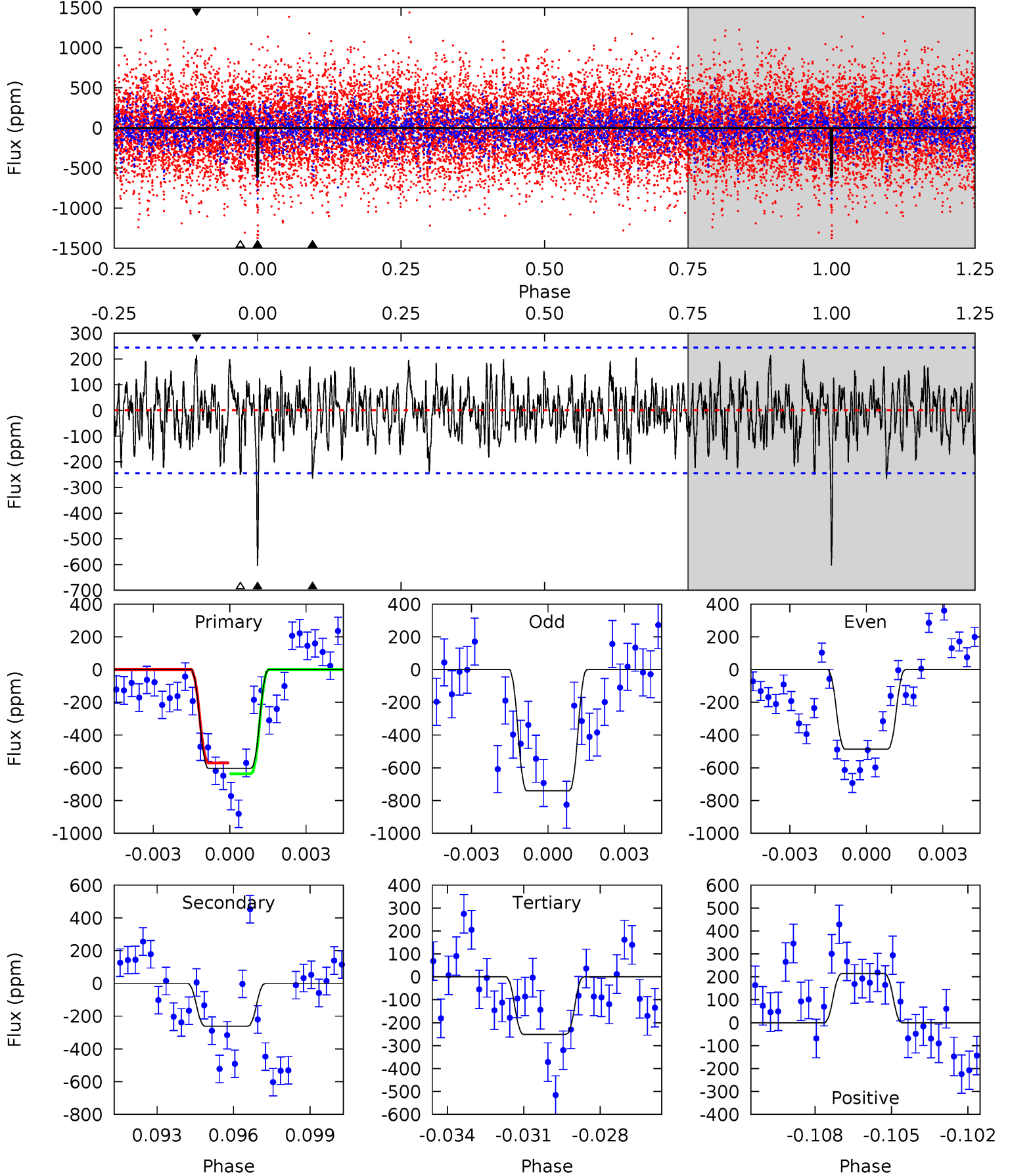
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	5.81	5.59	6.00	5.20	2.87	1.92	5.25	4.85	0.21	-0.19	1.86	0.78	0.36	3.80



Alt Model-Shift Uniqueness Test

010407047-02, $P = 63.685845$ Days, $E = 135.022301$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	5.62	5.38	4.60	5.25	2.96	1.70	7.57	8.34	0.23	1.01	2.71	0.92	0.26	0.71



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-250 ± 43	$13.25^{+9.91}_{-7.75}$	1165^{+128}_{-134}	4113^{+1773}_{-603}	93^{+451}_{-61}
Alt.	-262 ± 47	$15.02^{+10.10}_{-8.10}$	1164^{+126}_{-147}	3973^{+1313}_{-569}	77^{+285}_{-51}

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 $A_{obs} \gg 1.0$

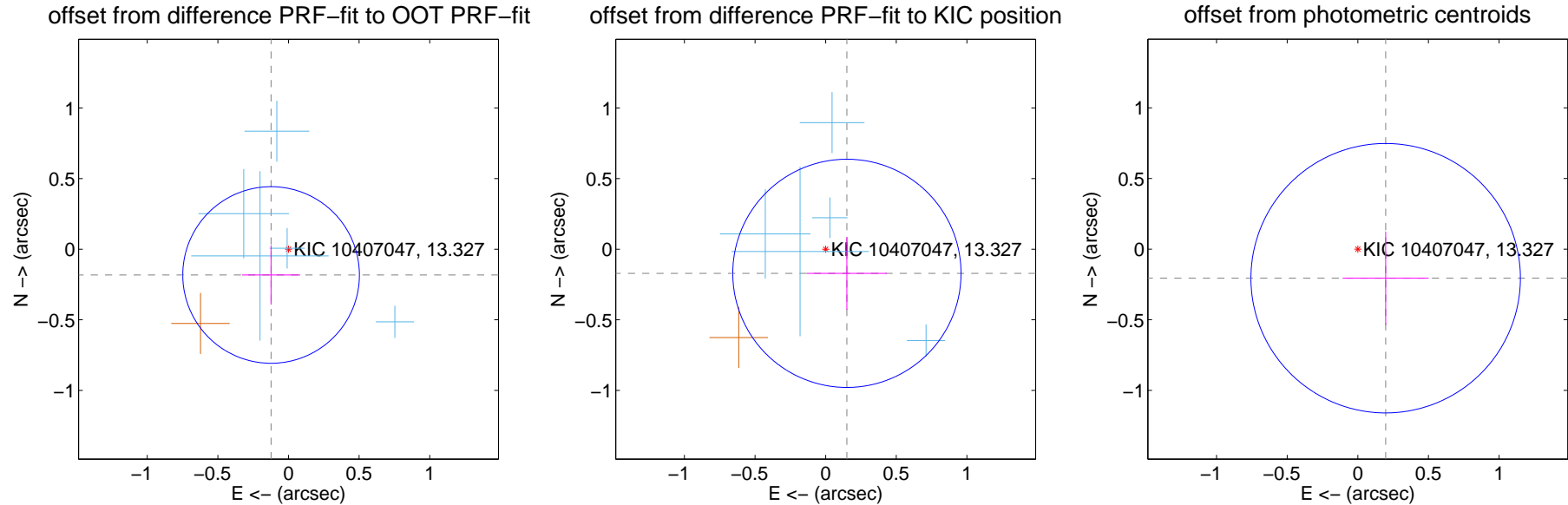
DV Centroid Data

Supplemental centroid analysis for 010407047-02. Kepler magnitude: 13.33. Transit SNR 7.22

There are 6 quarters with good PRF difference image offsets

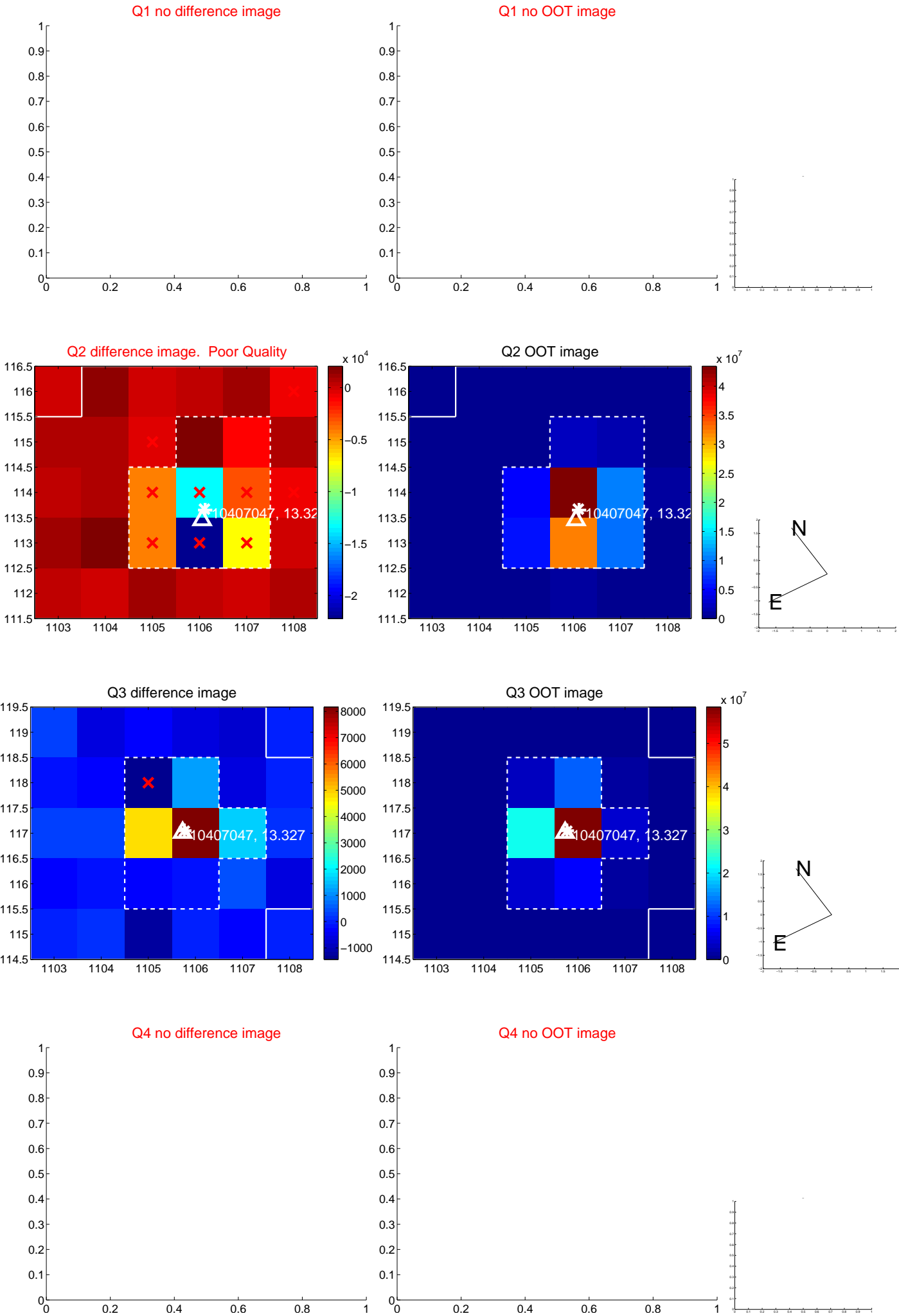
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.220 ± 0.208	1.06	0.123 ± 0.206	-0.183 ± 0.210
PRF-fit source offset from KIC position	0.228 ± 0.269	0.85	-0.150 ± 0.283	-0.171 ± 0.258
photometric centroid source offset	0.29 ± 0.32	0.90	-0.20 ± 0.30	-0.21 ± 0.33



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

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



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

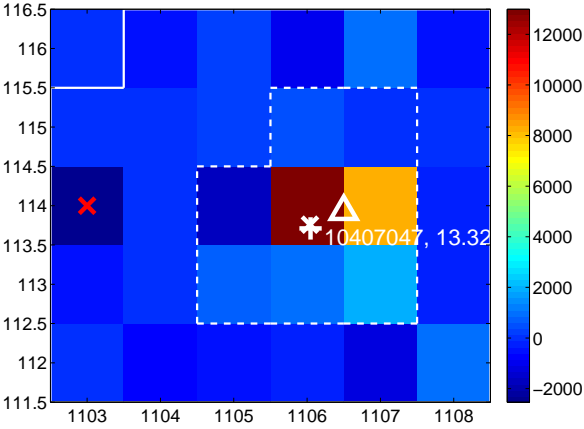
Q5 no difference image



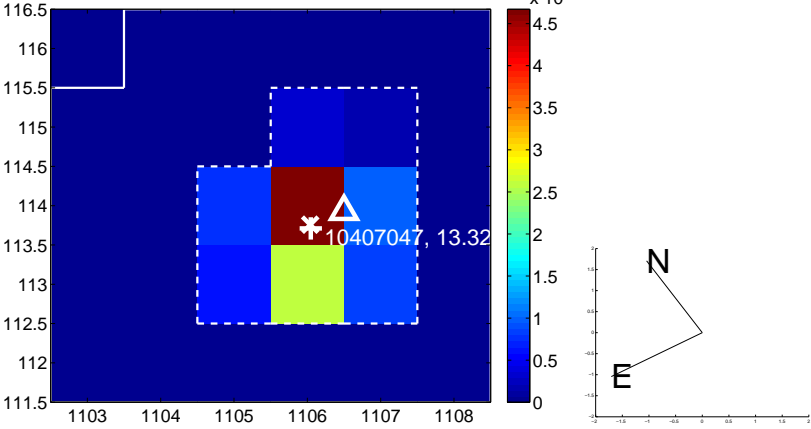
Q5 no OOT image



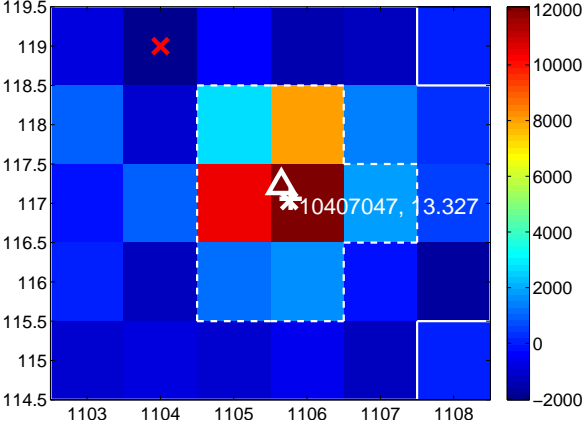
Q6 difference image



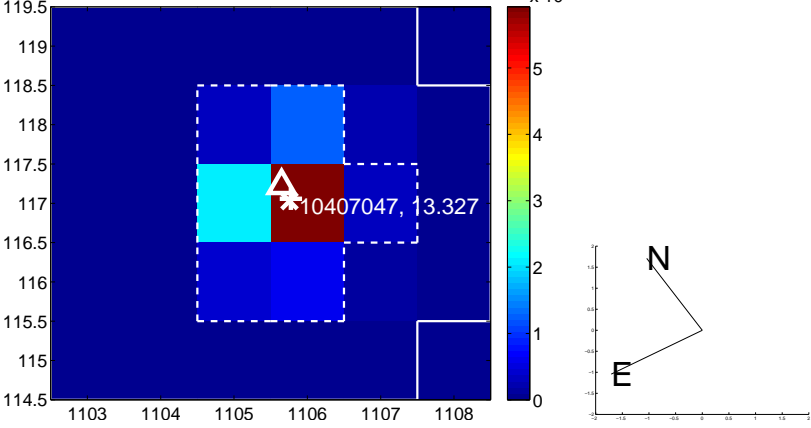
Q6 OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image

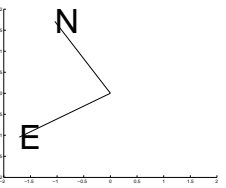
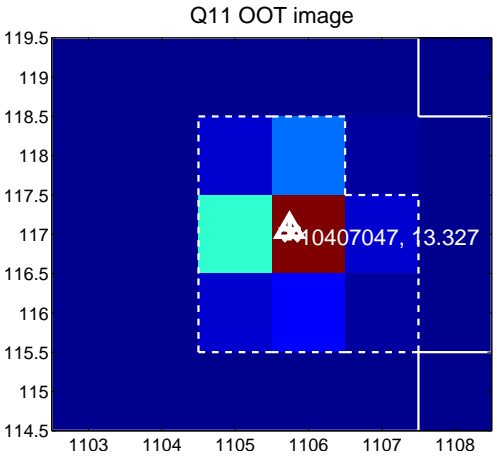
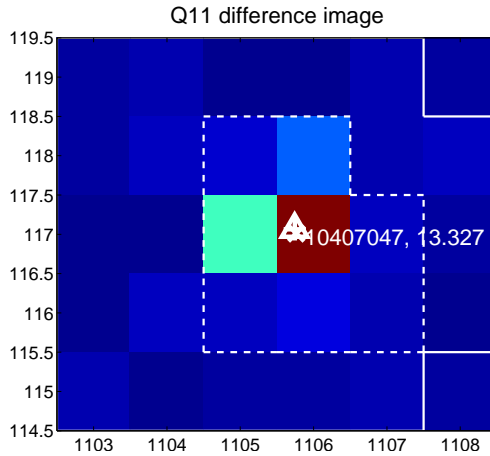
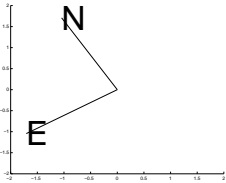
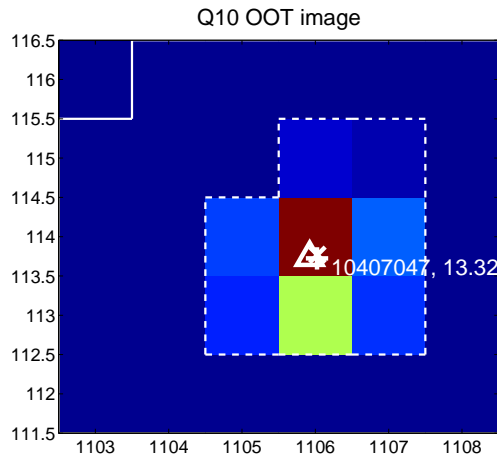
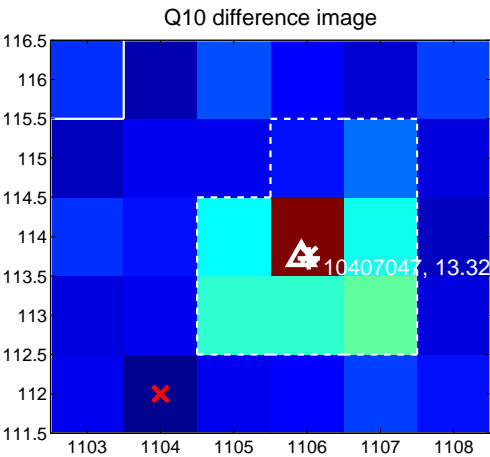


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

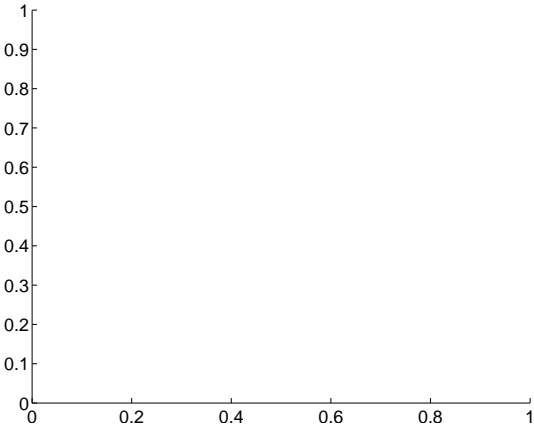
Q9 no difference image



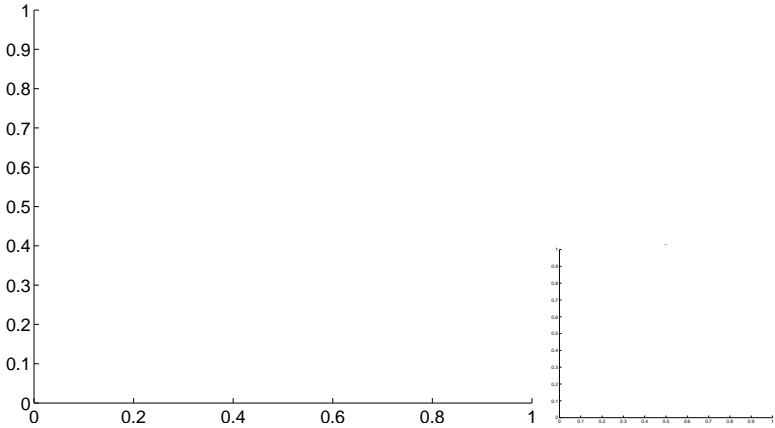
Q9 no OOT image



Q12 no difference image



Q12 no OOT image

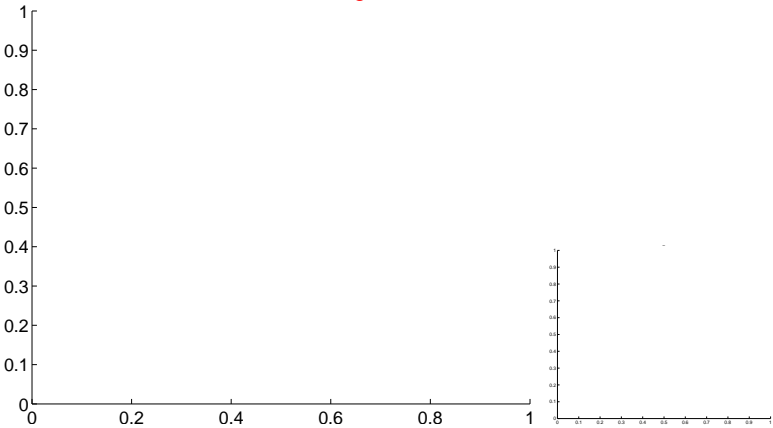


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

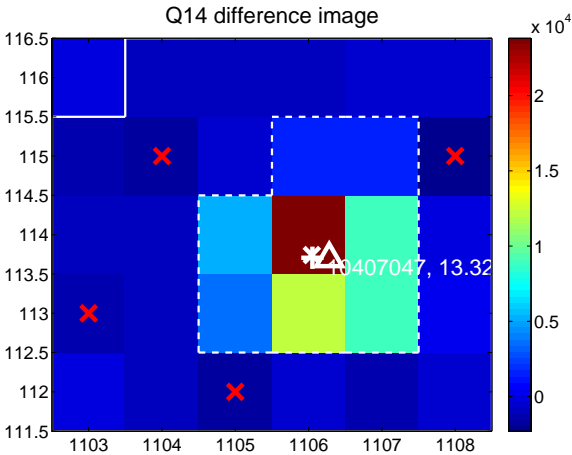
Q13 no difference image



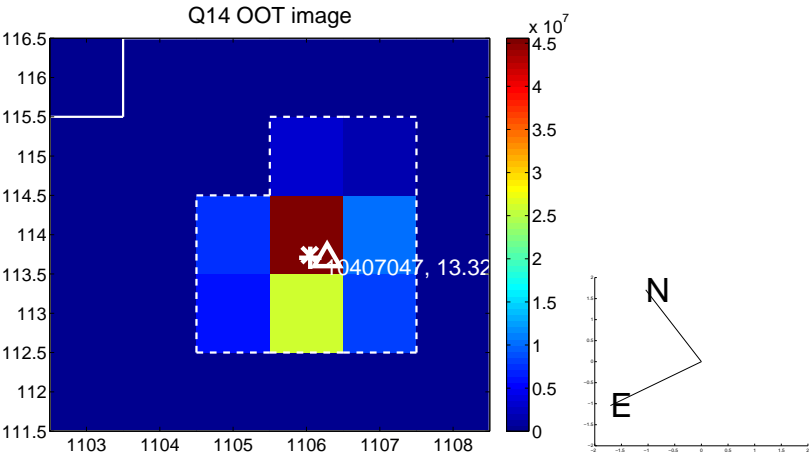
Q13 no OOT image



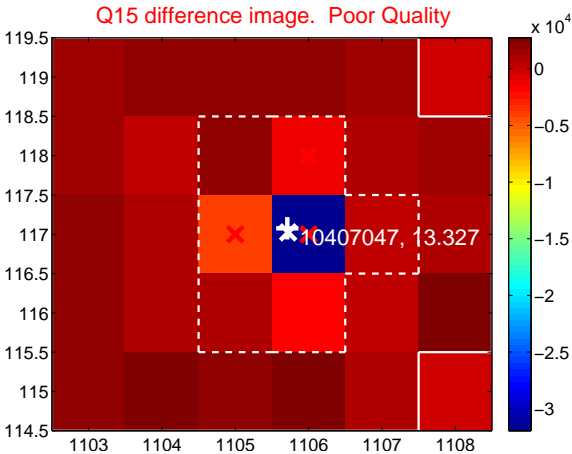
Q14 difference image



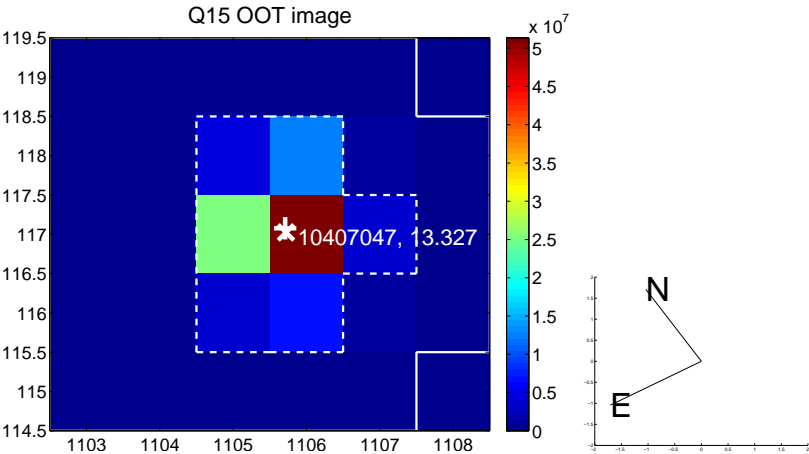
Q14 OOT image



Q15 difference image. Poor Quality



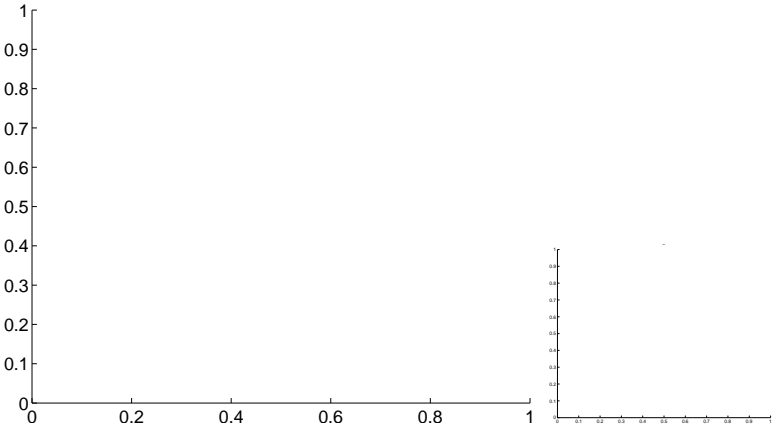
Q15 OOT image



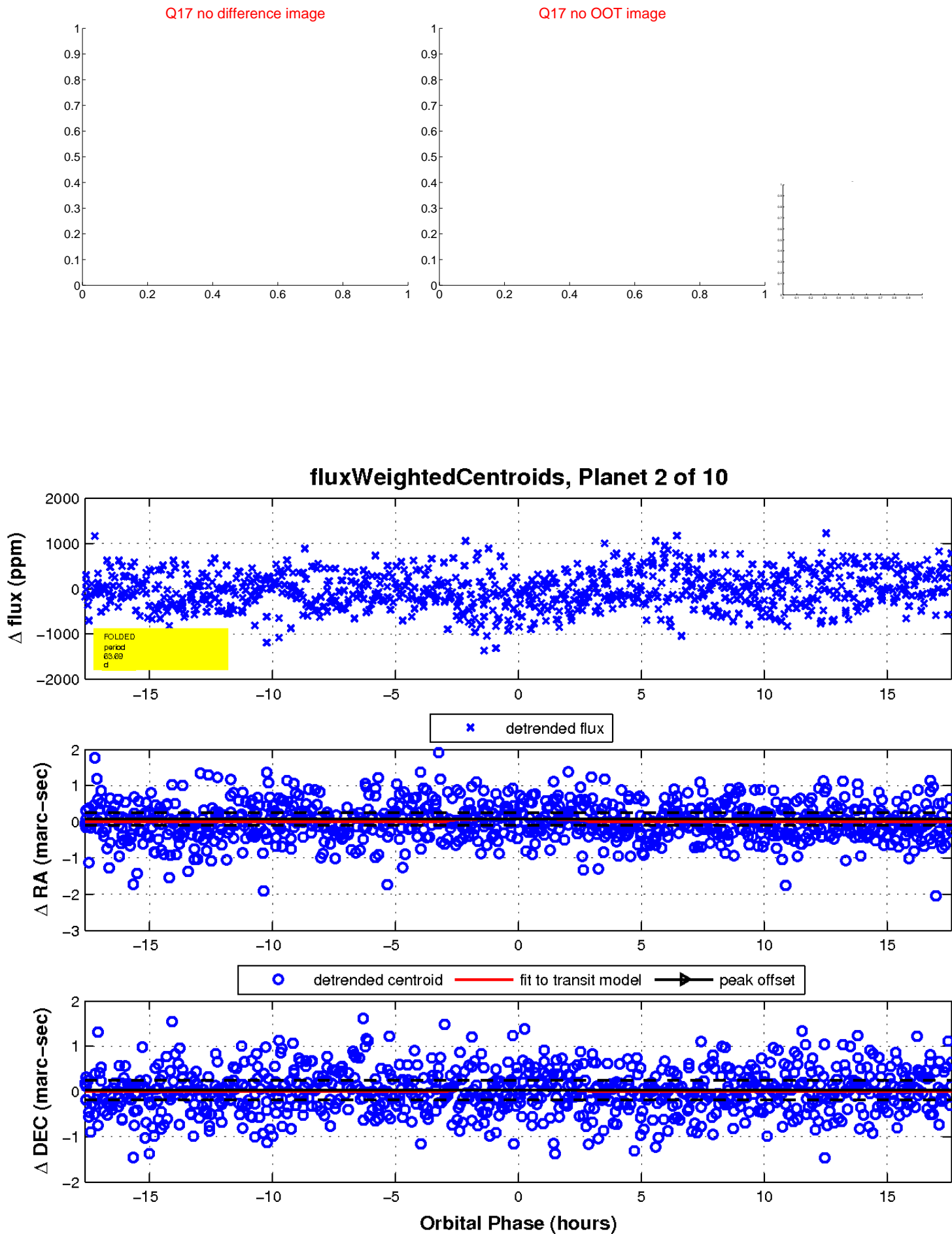
Q16 no difference image



Q16 no OOT image

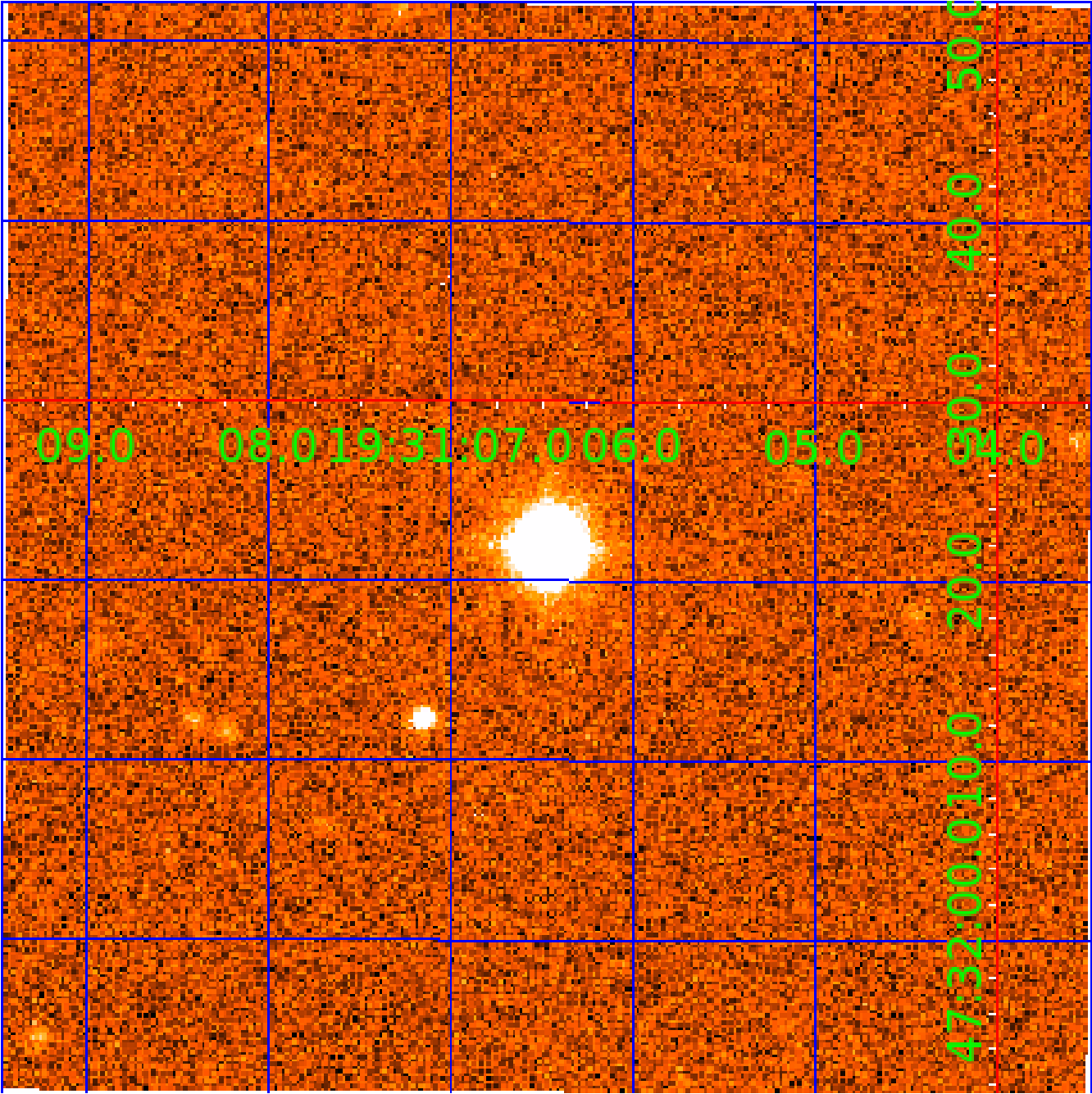


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

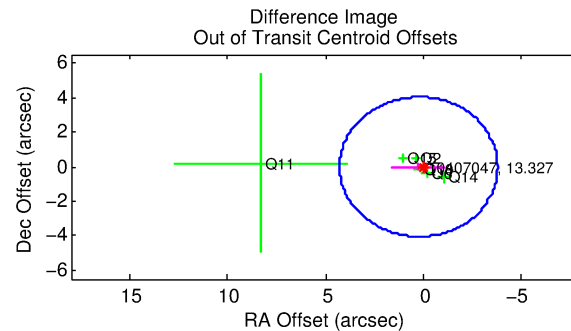
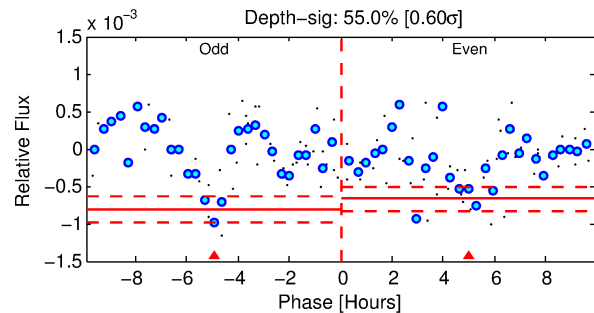
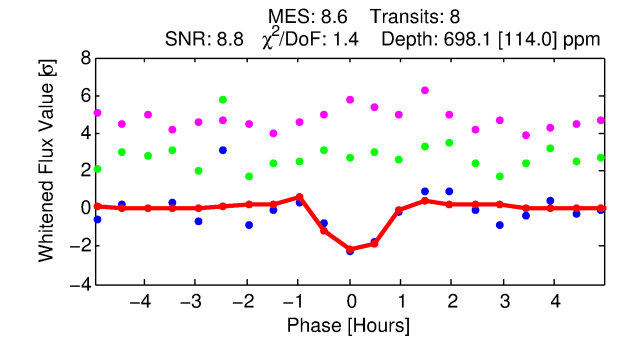
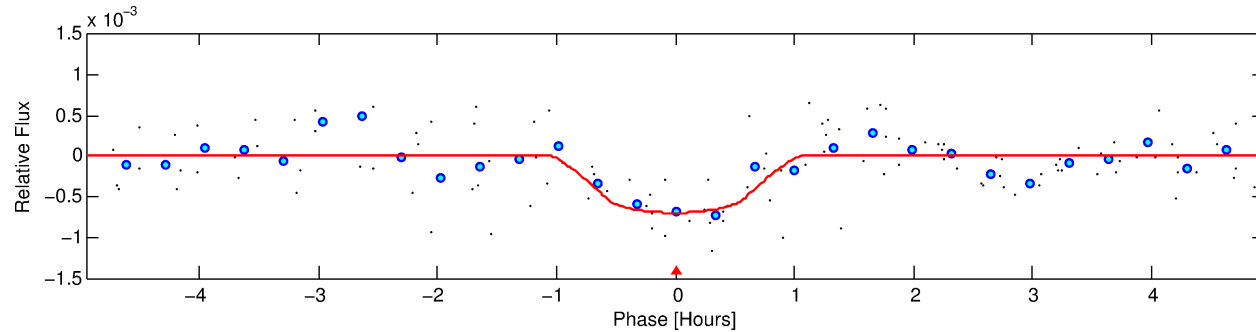
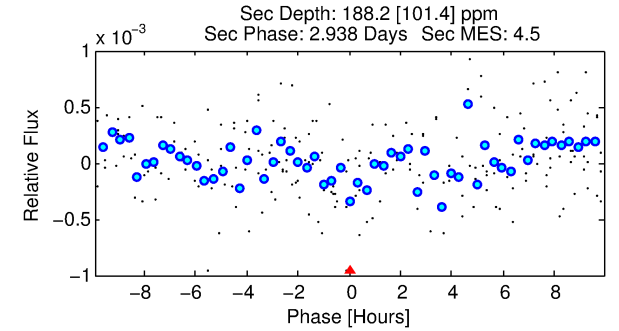
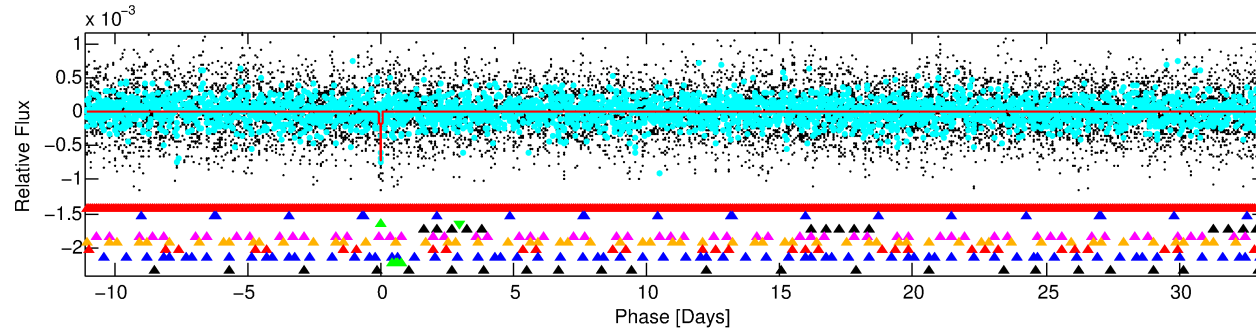
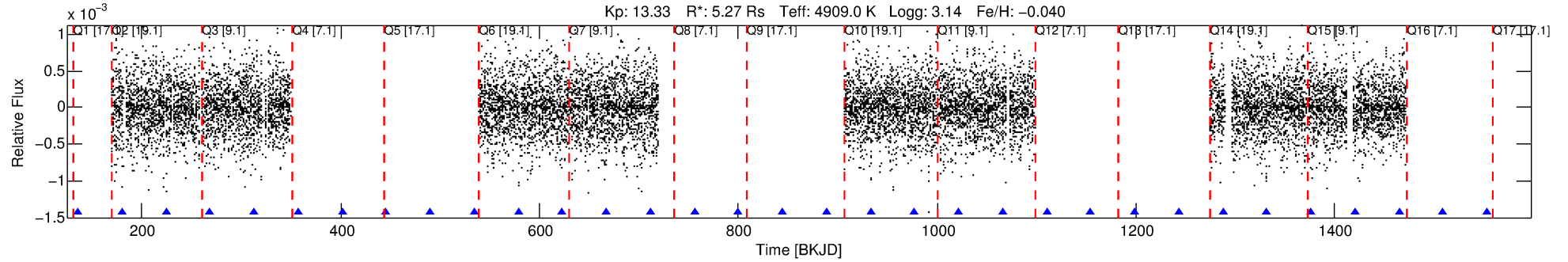
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010407047-03

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 3 of 10 Period: 44.302 d
KOI: K07321 Corr: No Ephemeris Match



DV Fit Results:

Period = 44.30232 [0.00031] d
Epoch = 135.7471 [0.0057] BKJD
Rp/R* = 0.0250 [0.0732]
a/R* = 171.30 [1674.48]
b = 0.59 [10.91]
Seff = 193.62 [132.57]
Teq = 951 [163] K
Rp = 14.41 [42.56] Re
a = 0.2733 [0.1132] AU
Ag = 37.24 [220.13] [0.16σ]
Teffp = 3633 [5335] K [0.50σ]

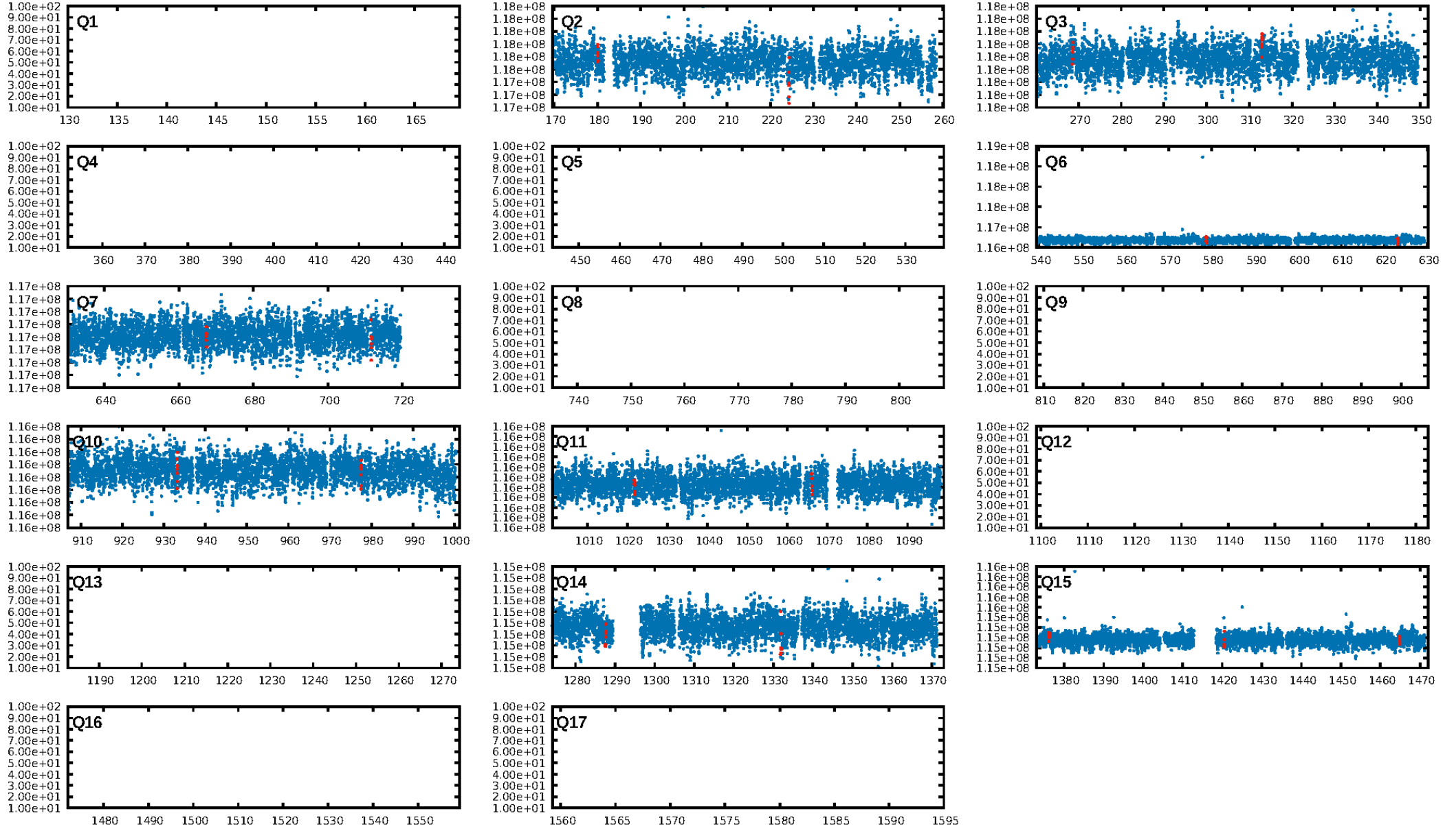
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [198.78σ]
LongPeriod-sig: 100.0% [33.97σ]
ModelChiSquare2-sig: 6.9%
ModelChiSquareGof-sig: 91.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -0.005288
Centroid-sig: 35.1%
Centroid-so: 0.421 arcsec [1.20σ]
OotOffset-rm: 0.237 arcsec [0.18σ]
KicOffset-rm: 0.307 arcsec [0.29σ]
OotOffset-st: 4/2/0/0 [6]
KicOffset-st: 4/2/0/0 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.75 [6/8]

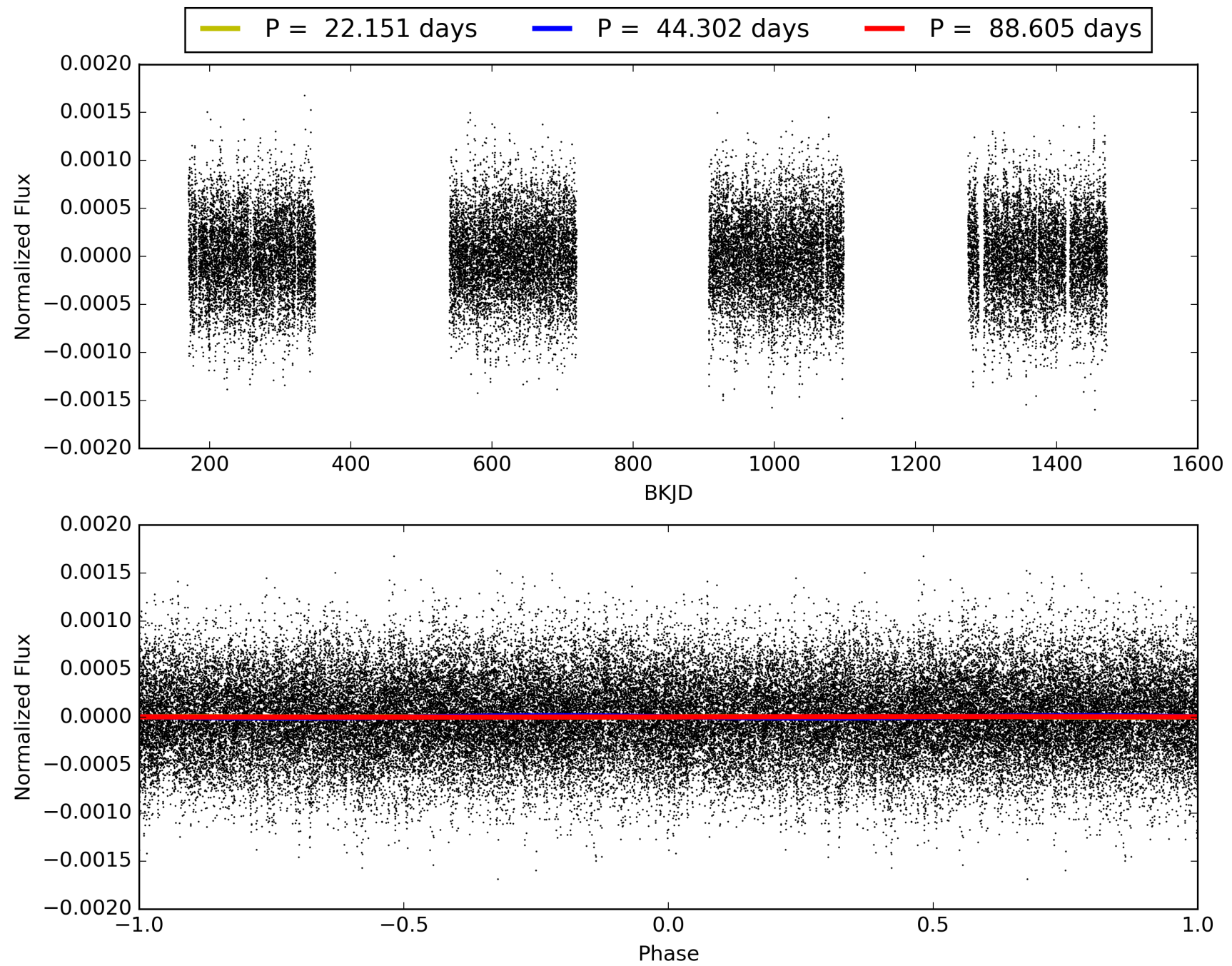
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:28:20 Z

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

TCE 010407047-03, PDC Light Curves

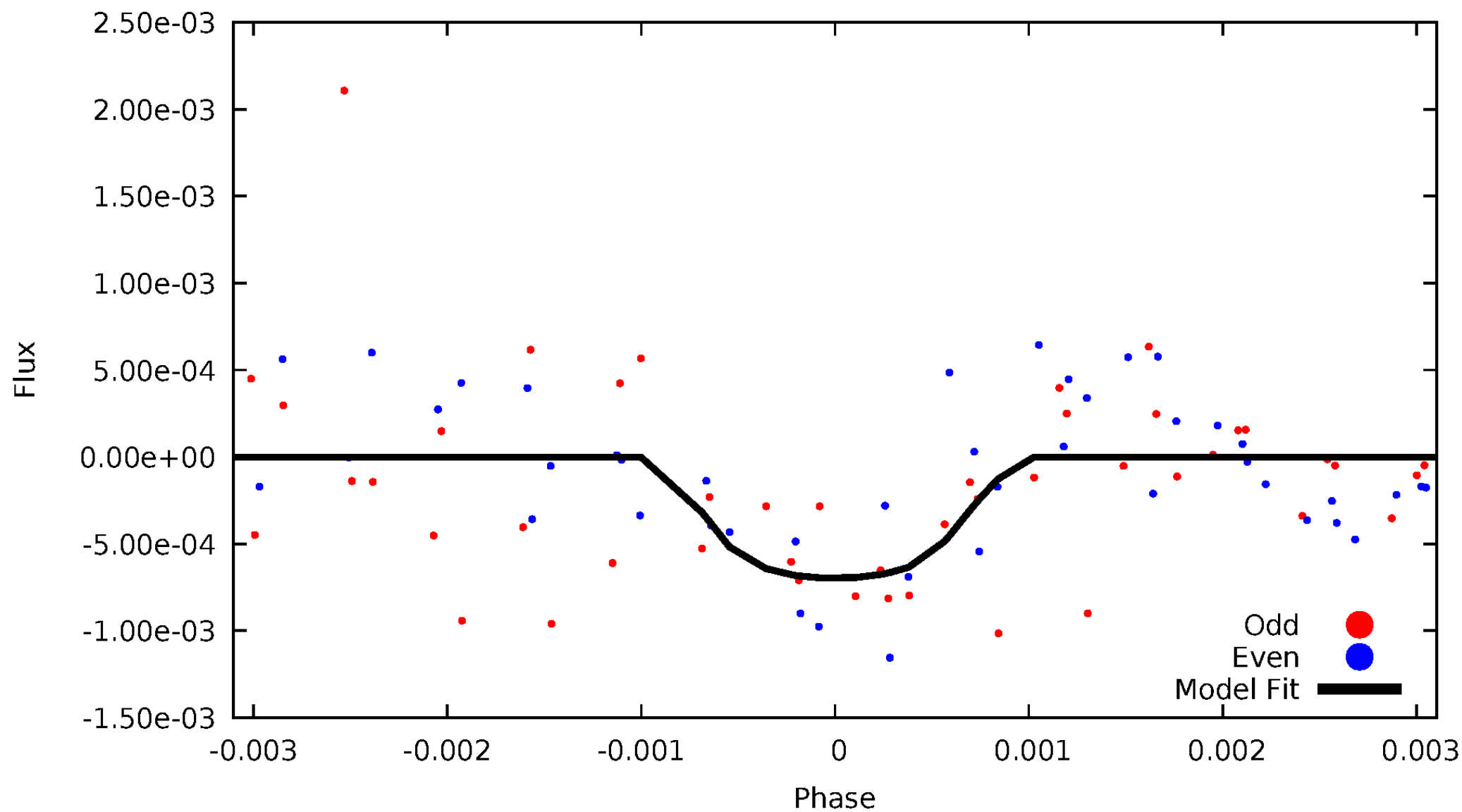


TCE 010407047-03



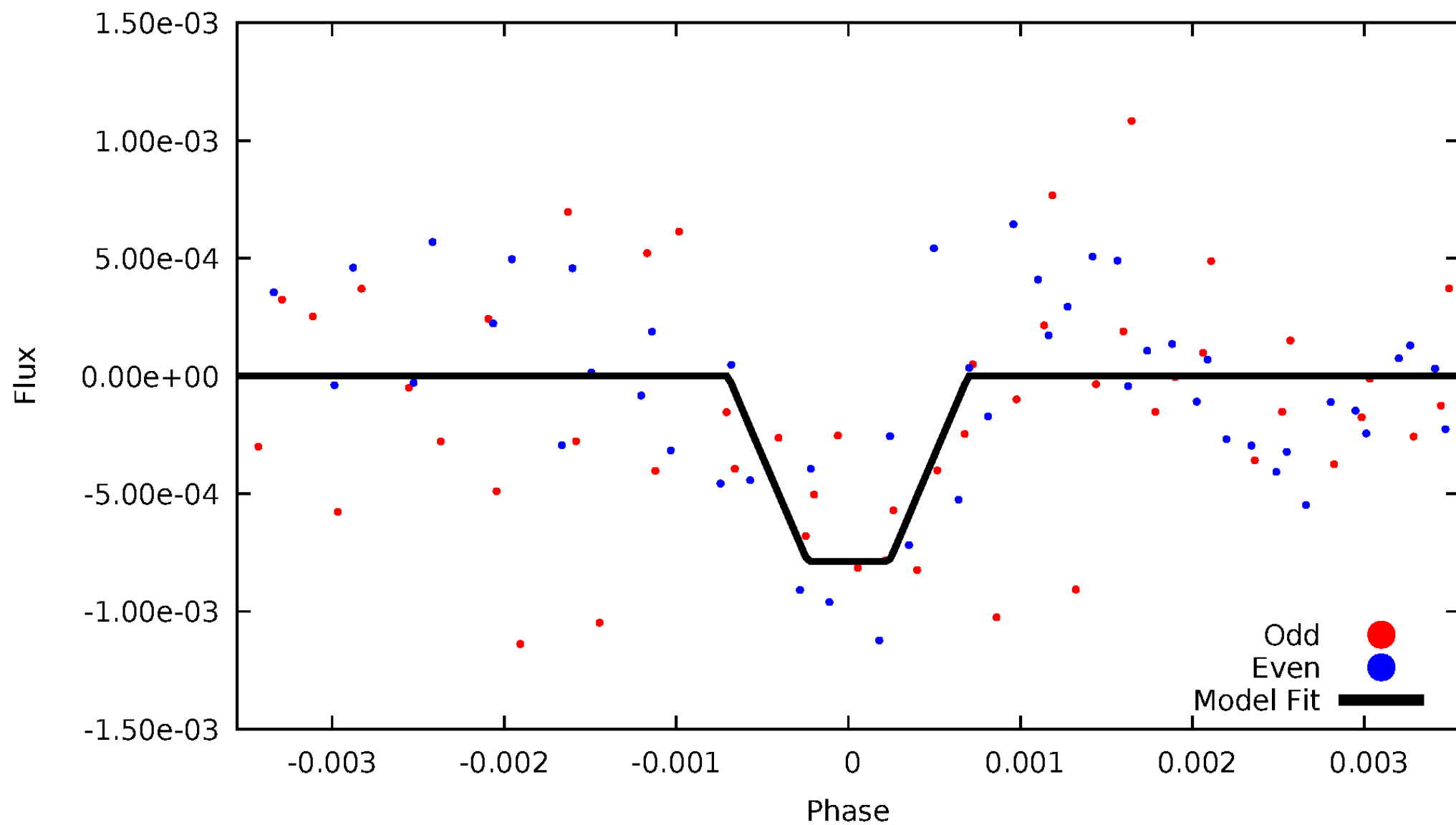
DV Odd/Even

TCE 010407047-03



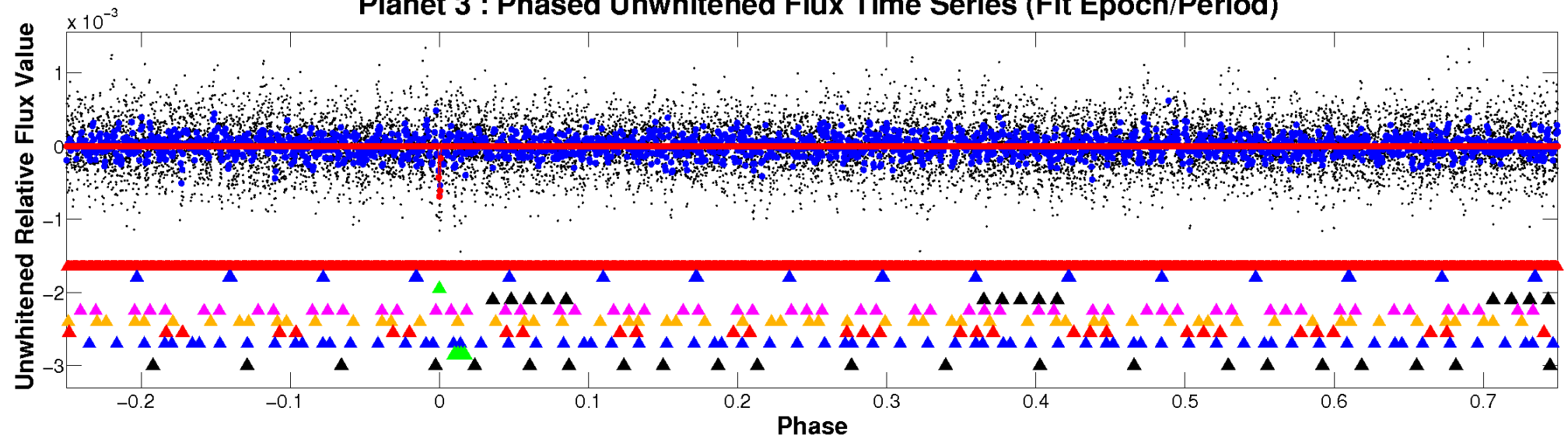
ALT Odd/Even

TCE 010407047-03

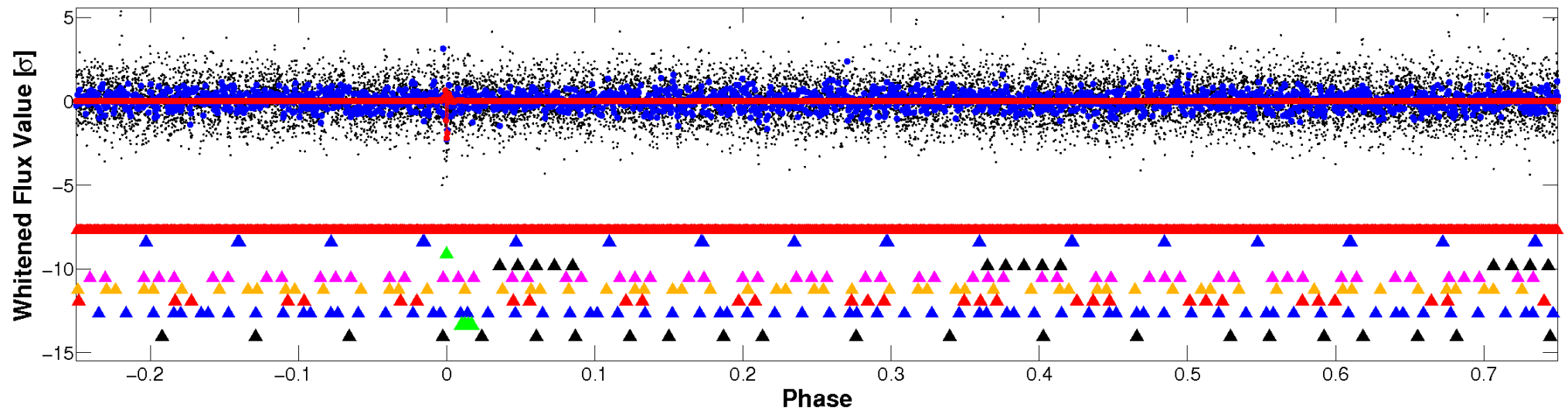


Non-Whitened Vs. Whitened Light Curve

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

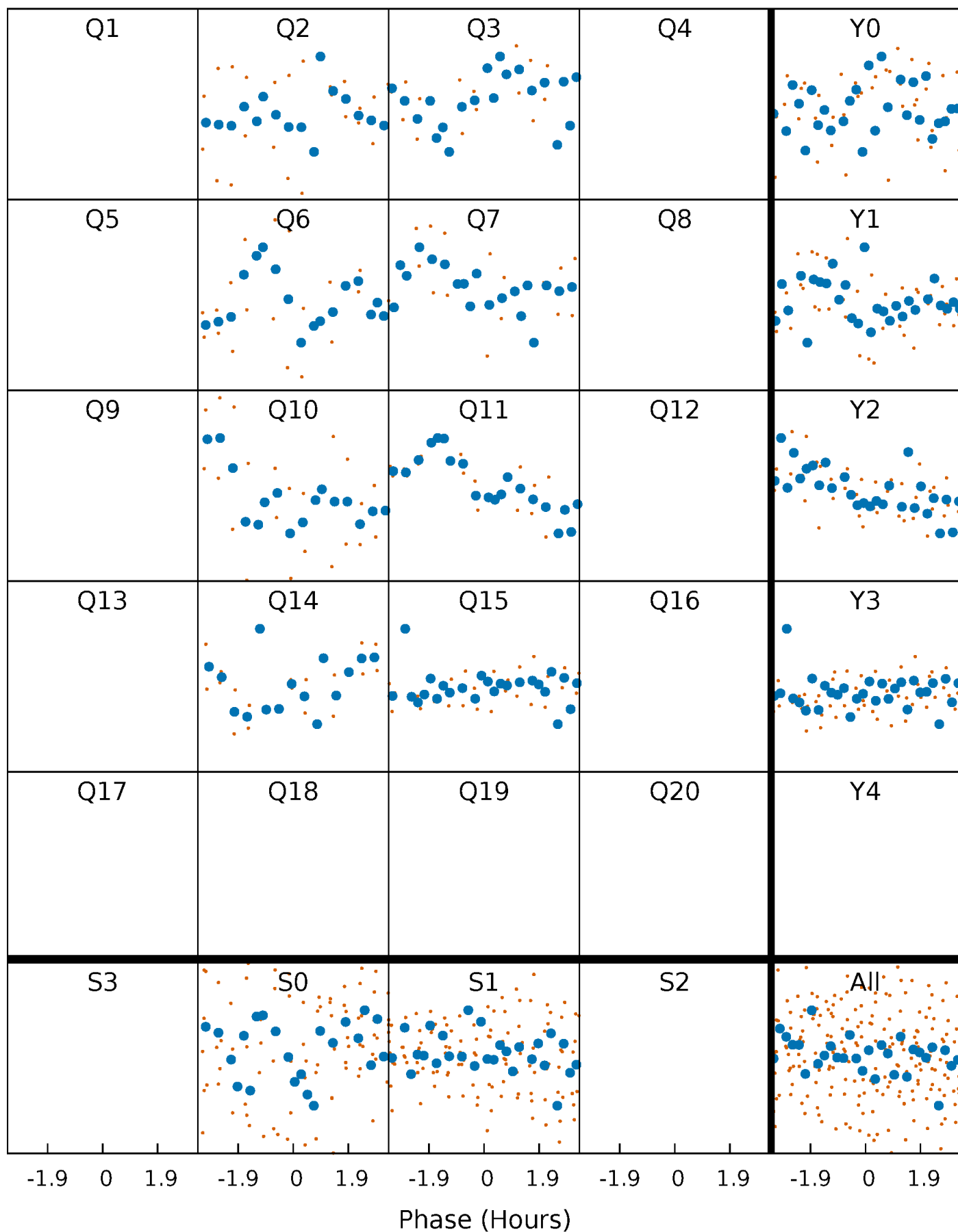


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



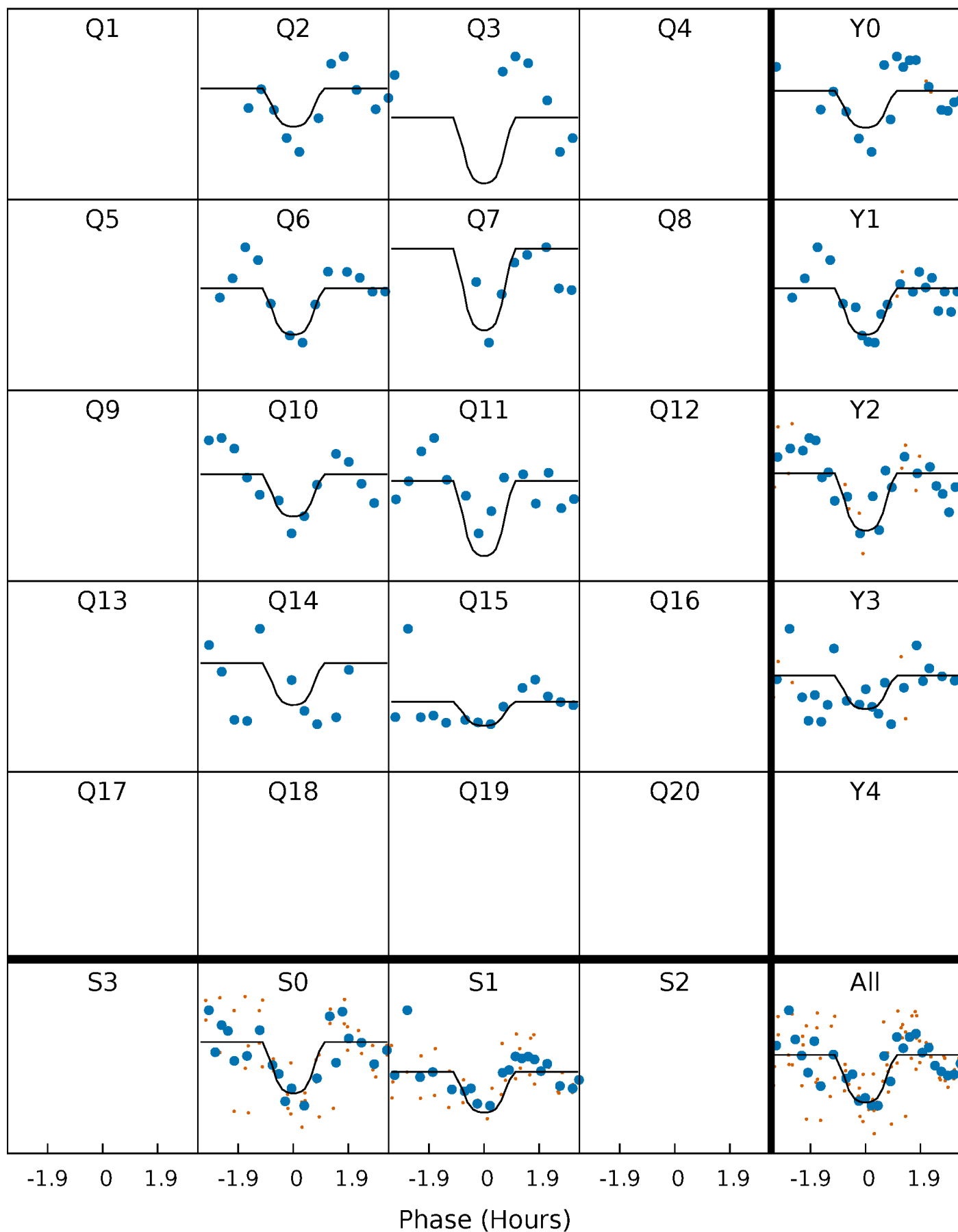
PDC Quarter-Phased Transit Curves

TCE 010407047-03 $P = 44.302319$ Days $T_0 = 135.747098$ (BKJD)



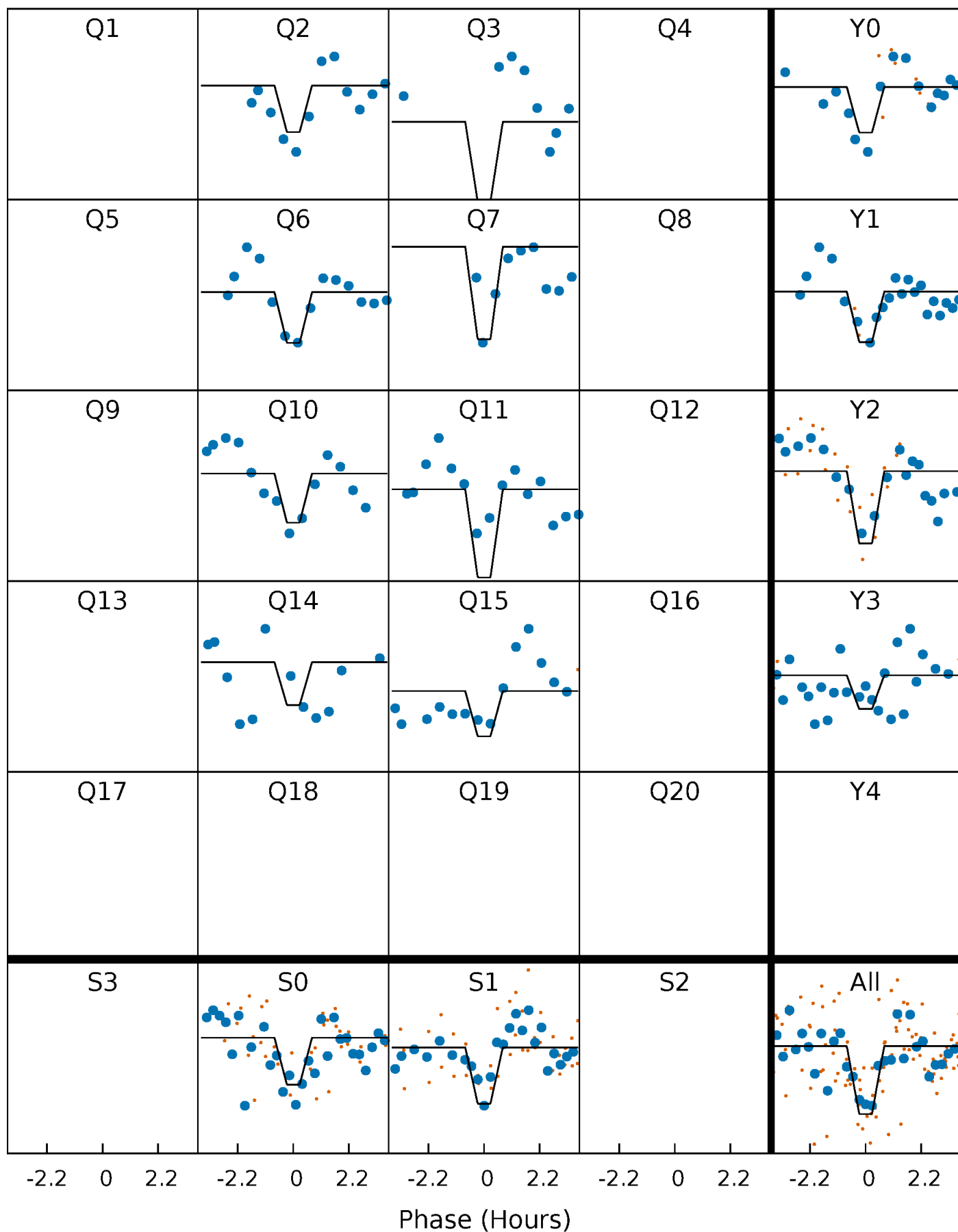
DV Quarter-Phased Transit Curves

TCE 010407047-03 $P = 44.302319$ Days $T_0 = 135.747098$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

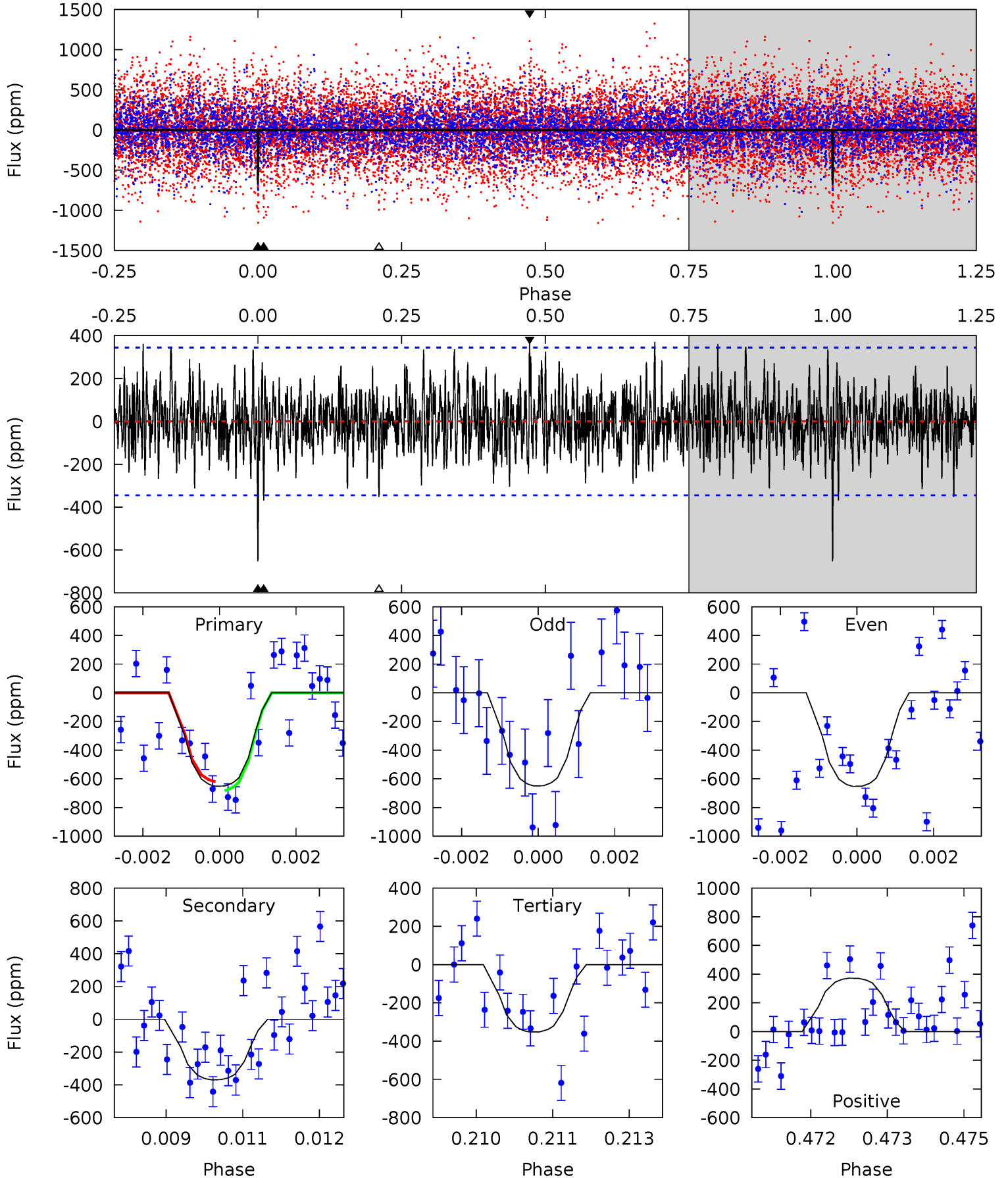
TCE 010407047-03 P= 44.302106 Days $T_0=135.752070$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-03, P = 44.302319 Days, E = 135.747098 Days

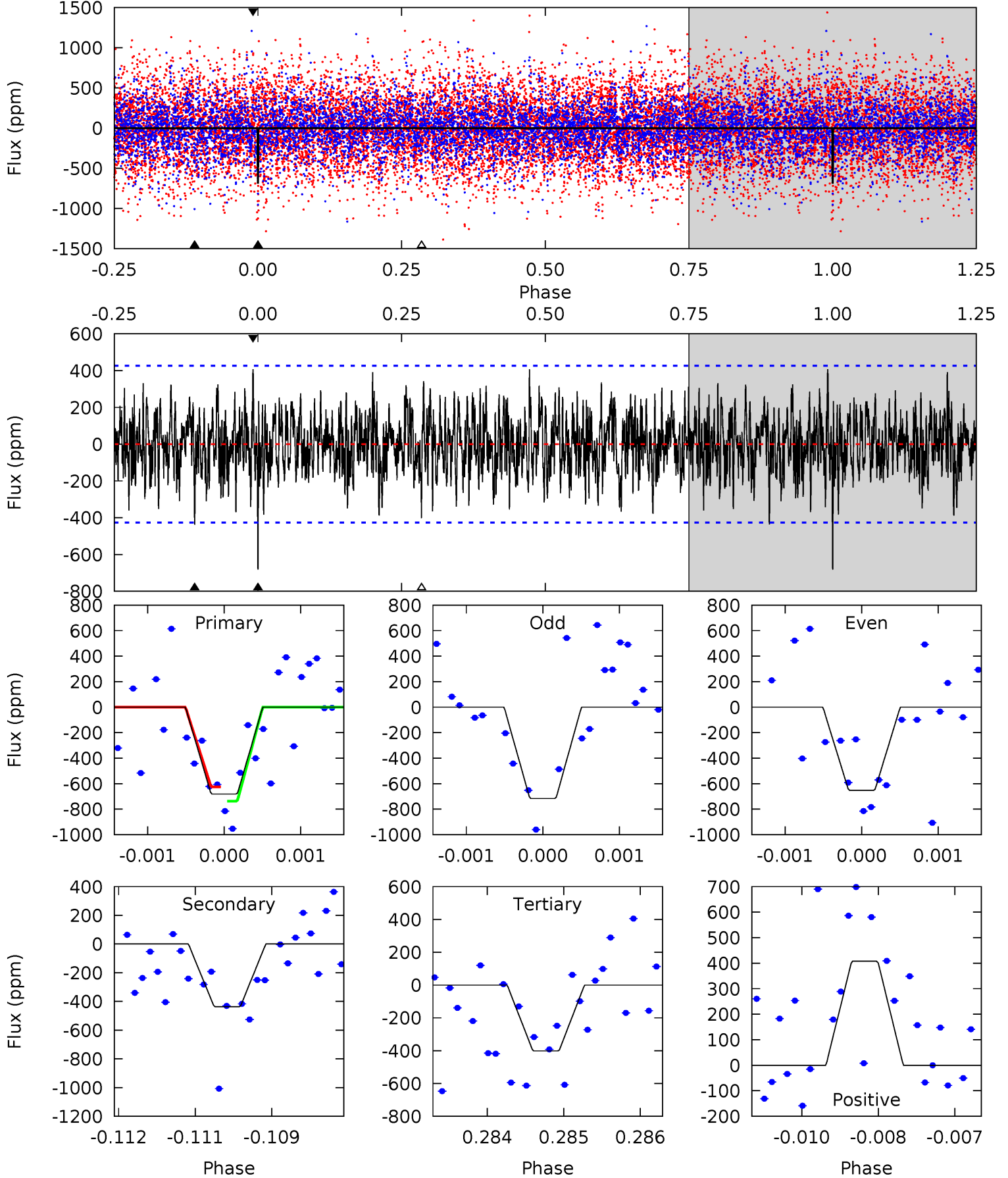
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	5.77	5.50	5.81	5.38	3.17	1.73	4.67	4.36	0.26	-0.04	0.02	1.03	0.36	0.49



Alt Model-Shift Uniqueness Test

010407047-03, P = 44.302106 Days, E = 135.752070 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.60	5.52	5.07	5.15	5.39	3.20	1.71	3.54	3.46	0.45	0.37	0.40	0.98	0.37	0.70



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-369 ± 64	$32.99^{+34.81}_{-23.46}$	1314^{+144}_{-154}	3251^{+1754}_{-583}	14^{+161}_{-10}
Alt.	-437 ± 79	$34.02^{+36.39}_{-23.45}$	1319^{+156}_{-153}	3331^{+1739}_{-595}	15^{+138}_{-12}

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

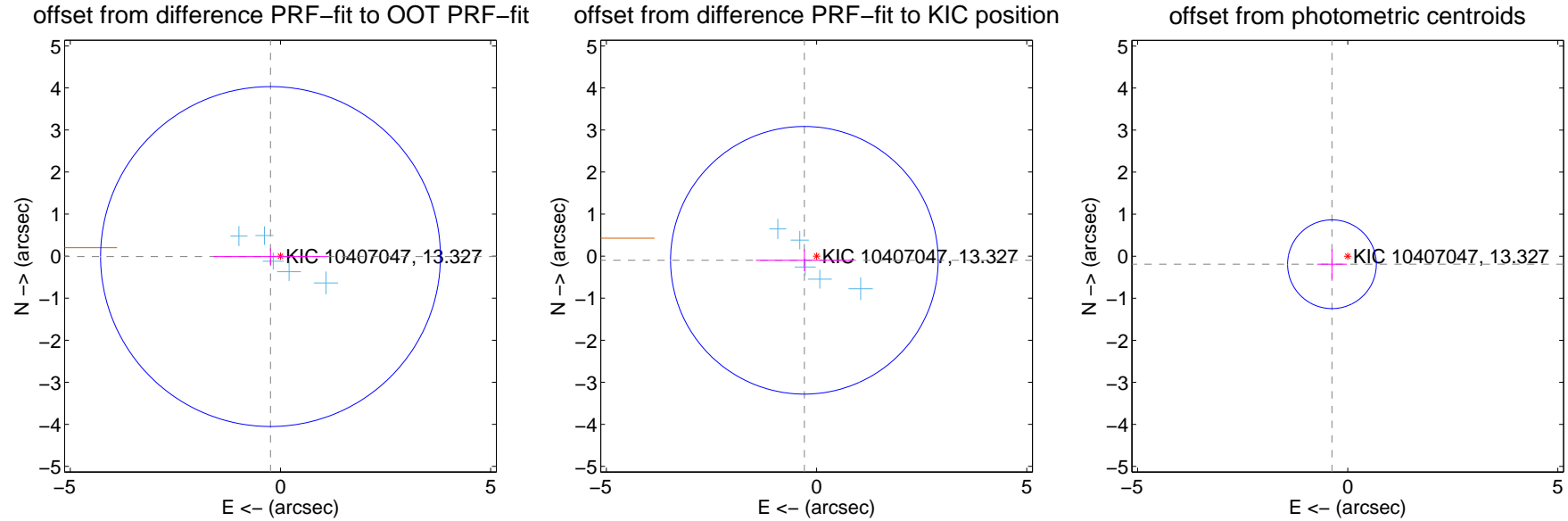
DV Centroid Data

Supplemental centroid analysis for 010407047-03. Kepler magnitude: 13.33. Transit SNR 8.81

There are 5 quarters with good PRF difference image offsets

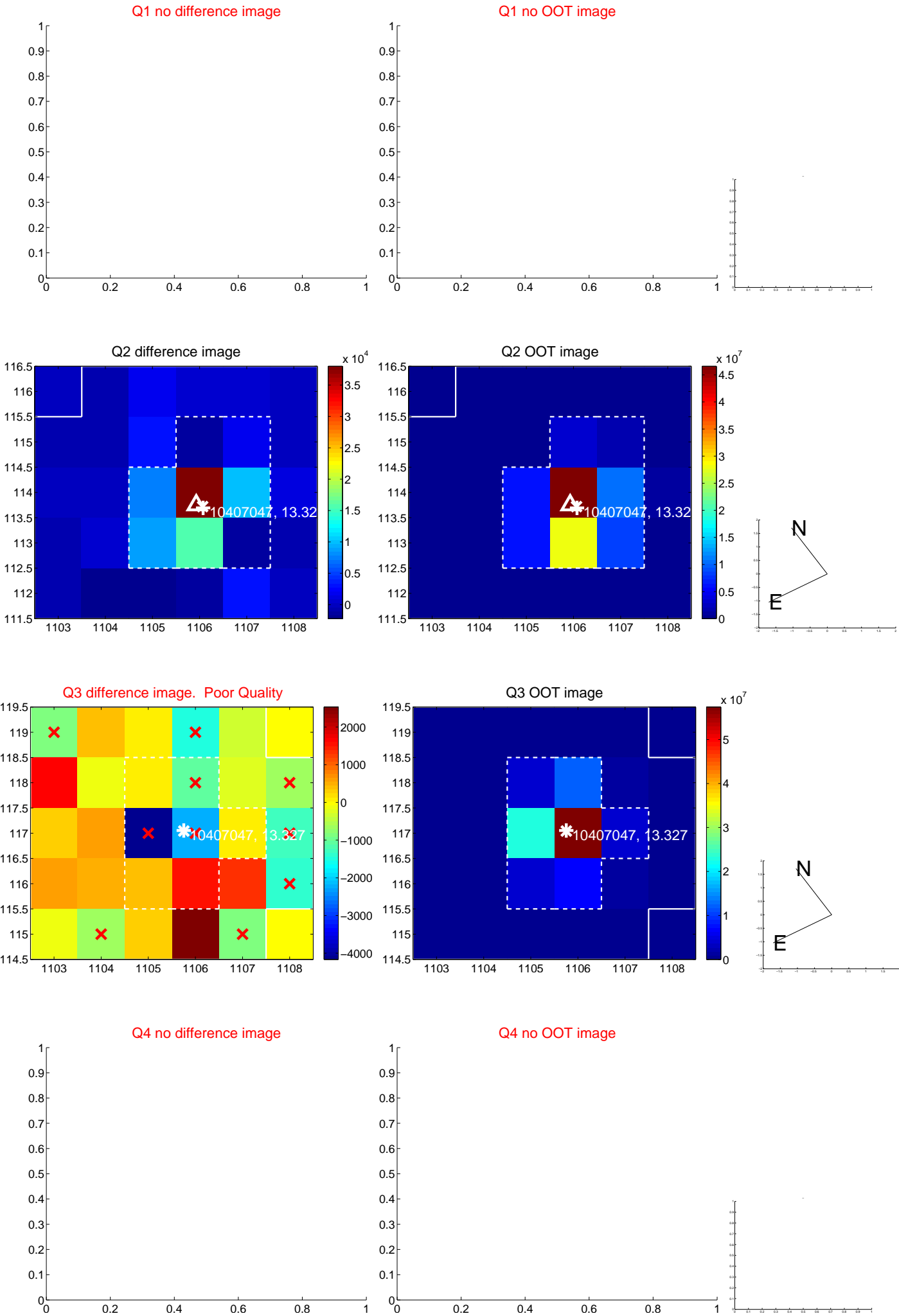
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.237 ± 1.347	0.18	0.237 ± 1.352	-0.010 ± 0.195
PRF-fit source offset from KIC position	0.307 ± 1.061	0.29	0.291 ± 1.152	-0.099 ± 0.262
photometric centroid source offset	0.42 ± 0.35	1.20	0.37 ± 0.35	-0.19 ± 0.35

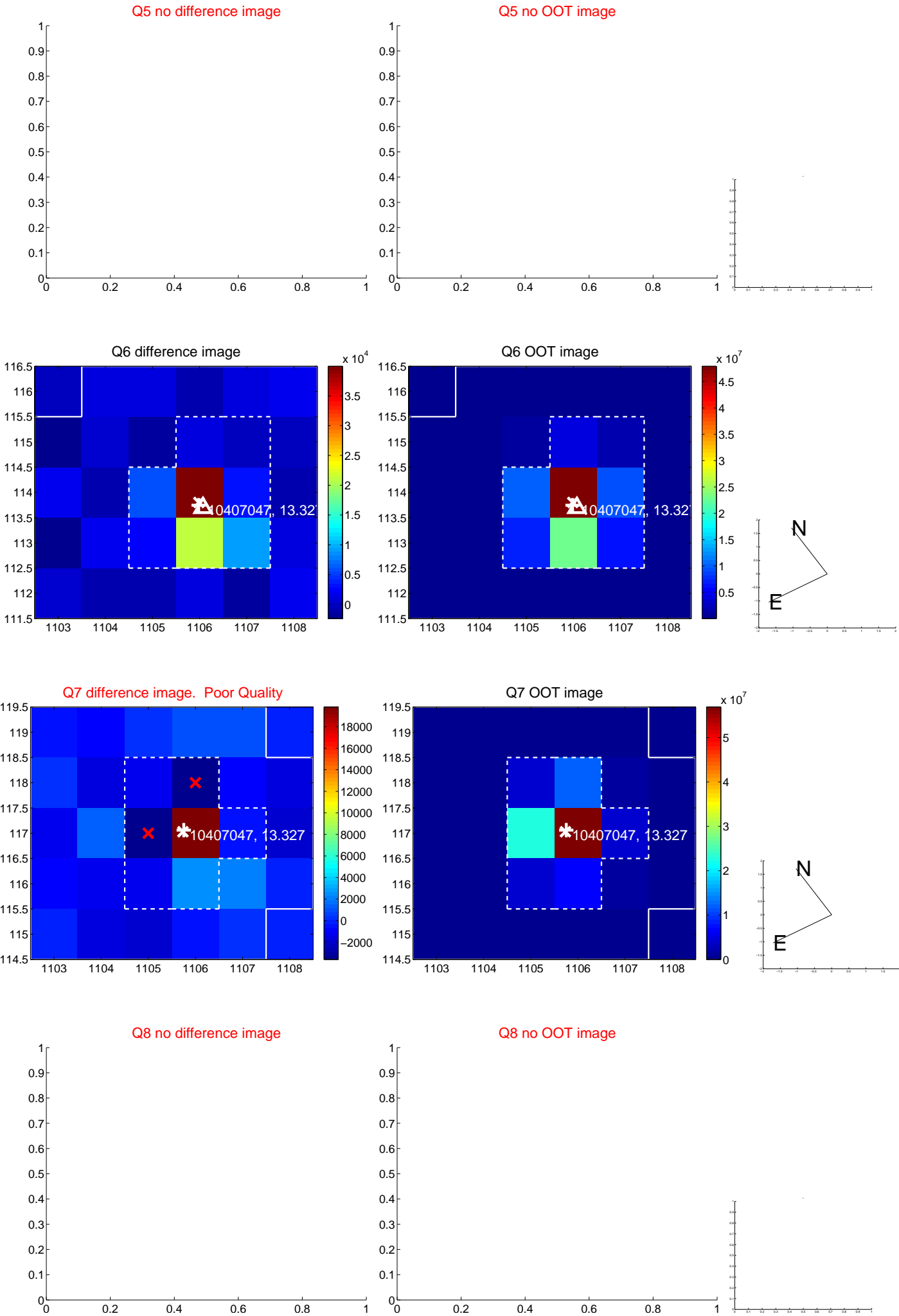


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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

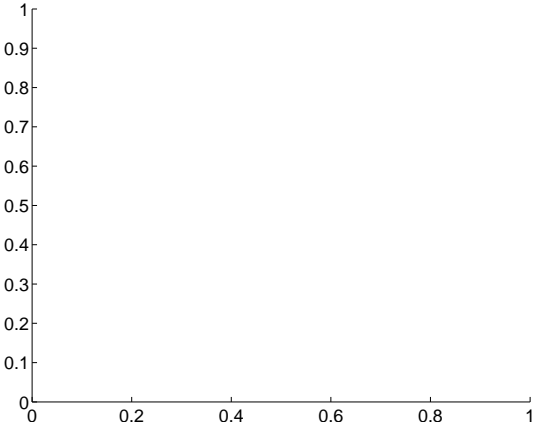


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

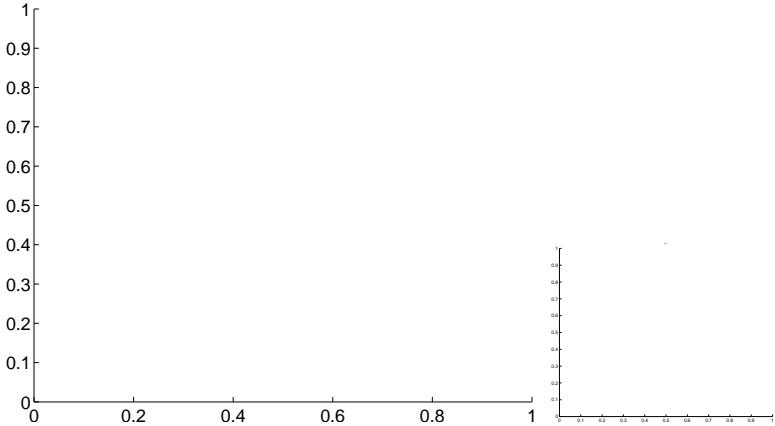


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

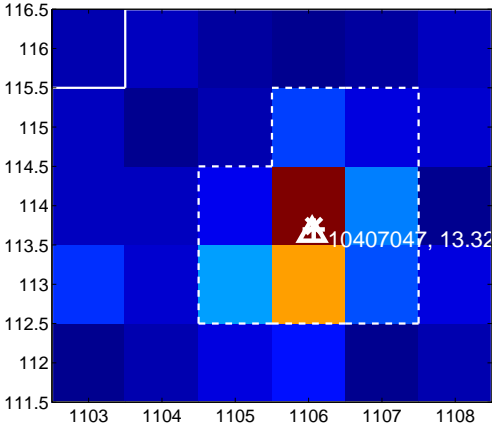
Q9 no difference image



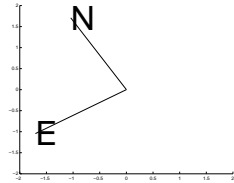
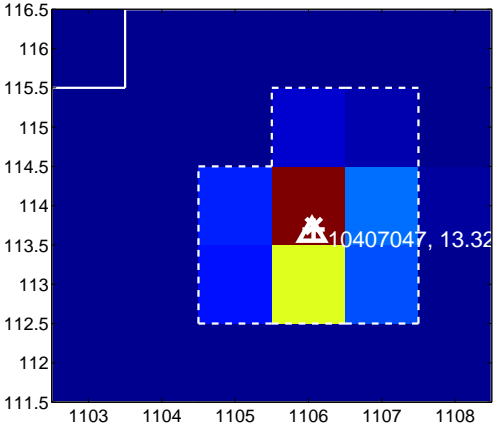
Q9 no OOT image



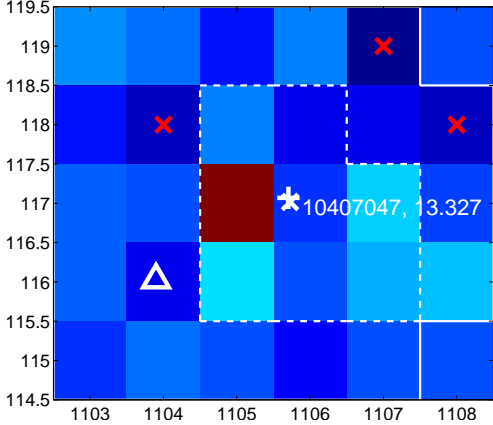
Q10 difference image



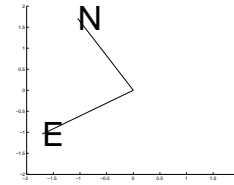
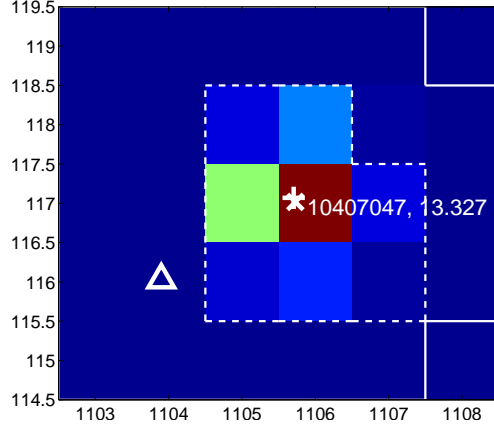
Q10 OOT image



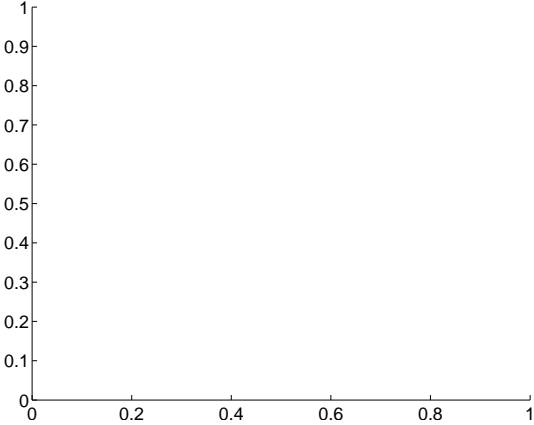
Q11 difference image. Poor Quality



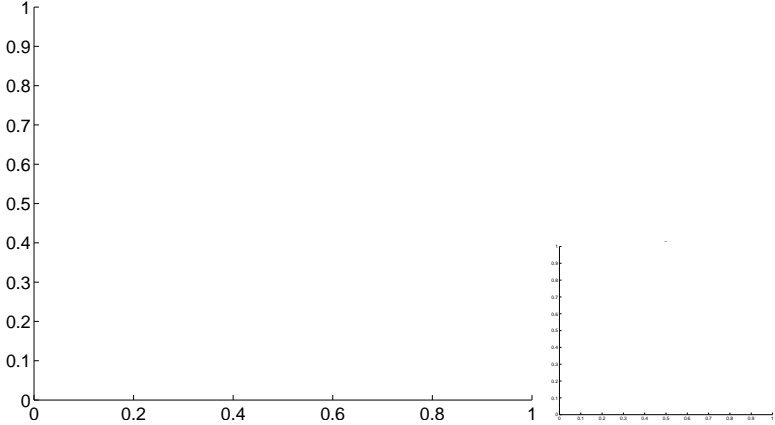
Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

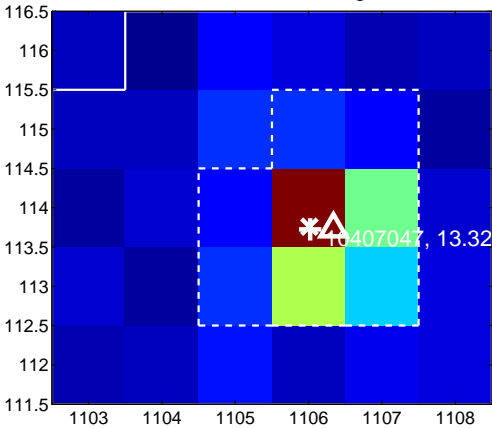
Q13 no difference image



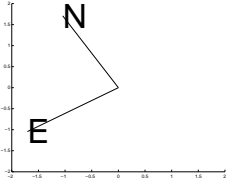
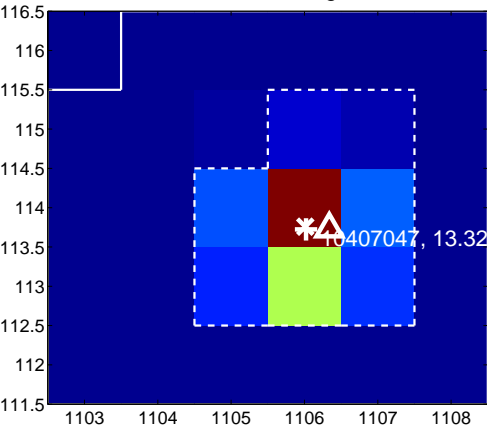
Q13 no OOT image



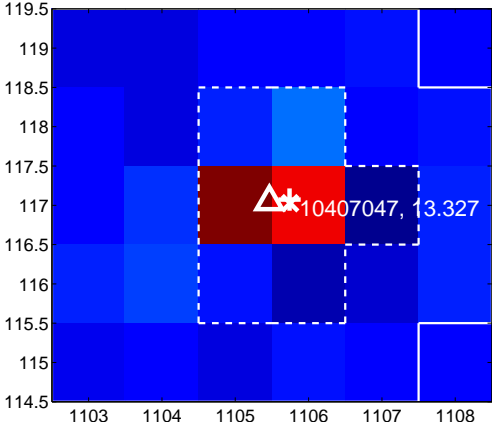
Q14 difference image



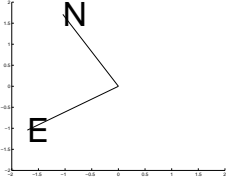
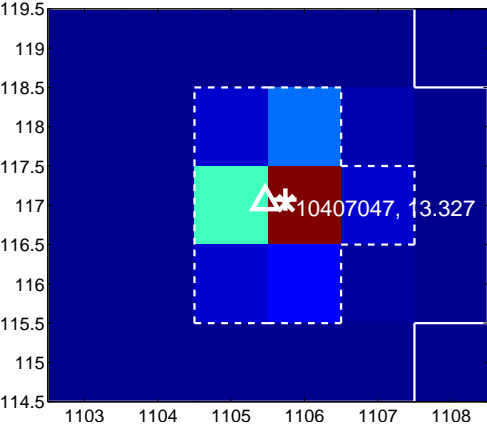
Q14 OOT image



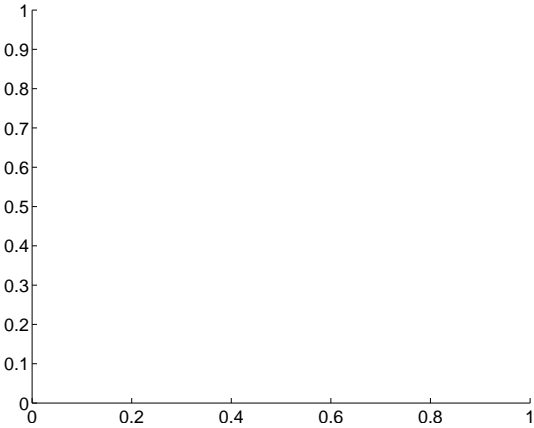
Q15 difference image



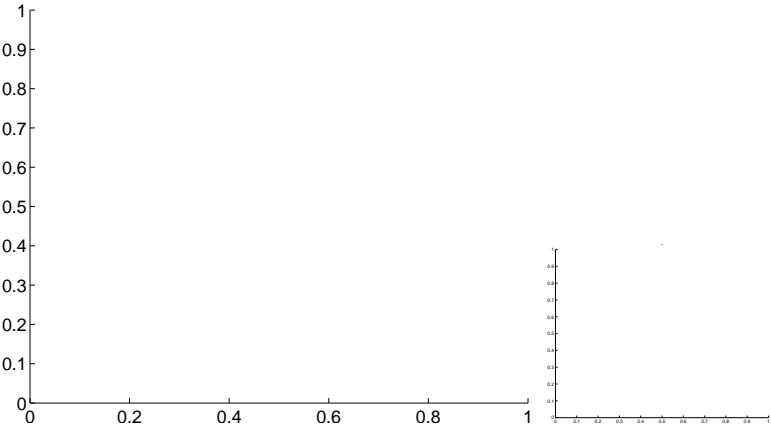
Q15 OOT image



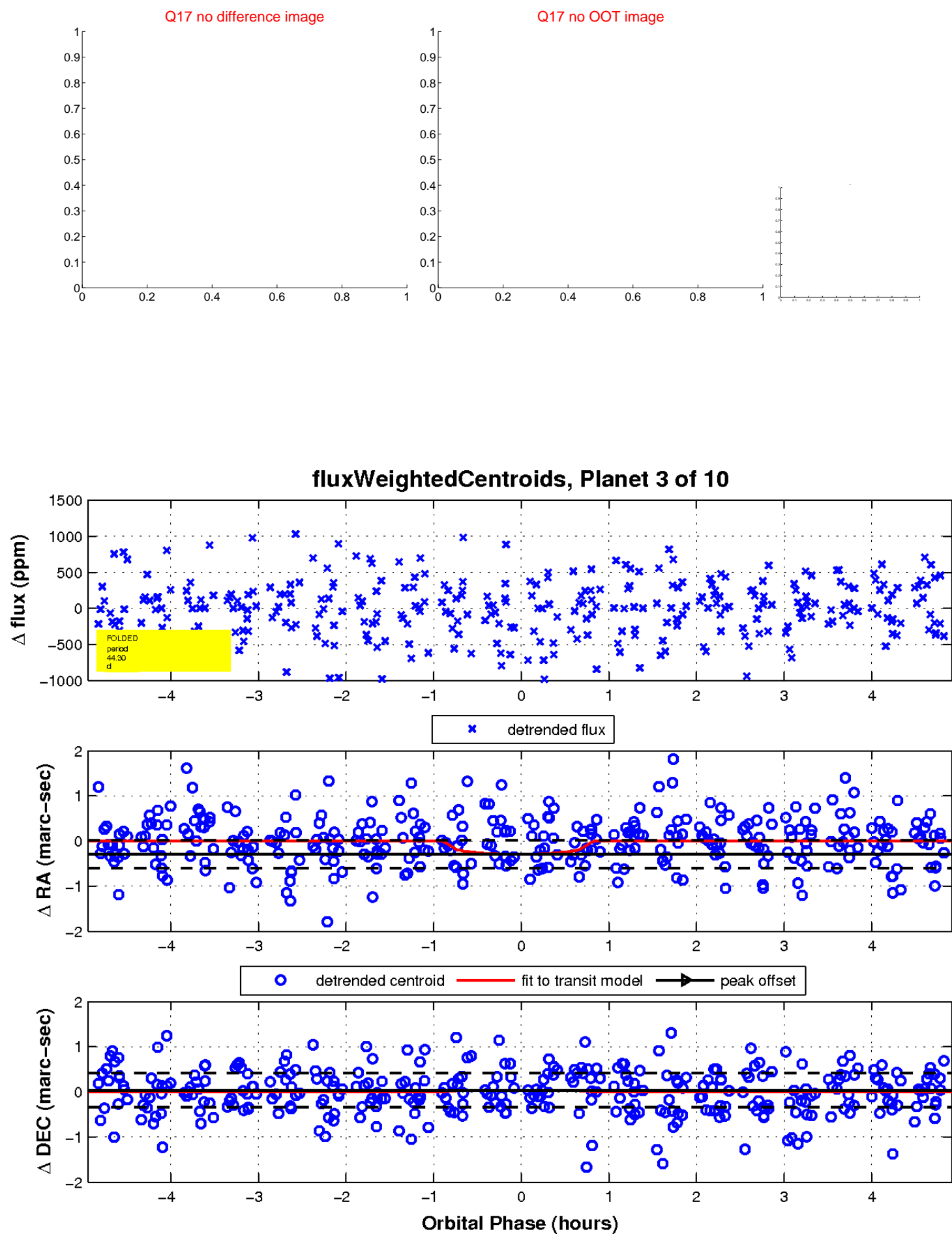
Q16 no difference image



Q16 no OOT image

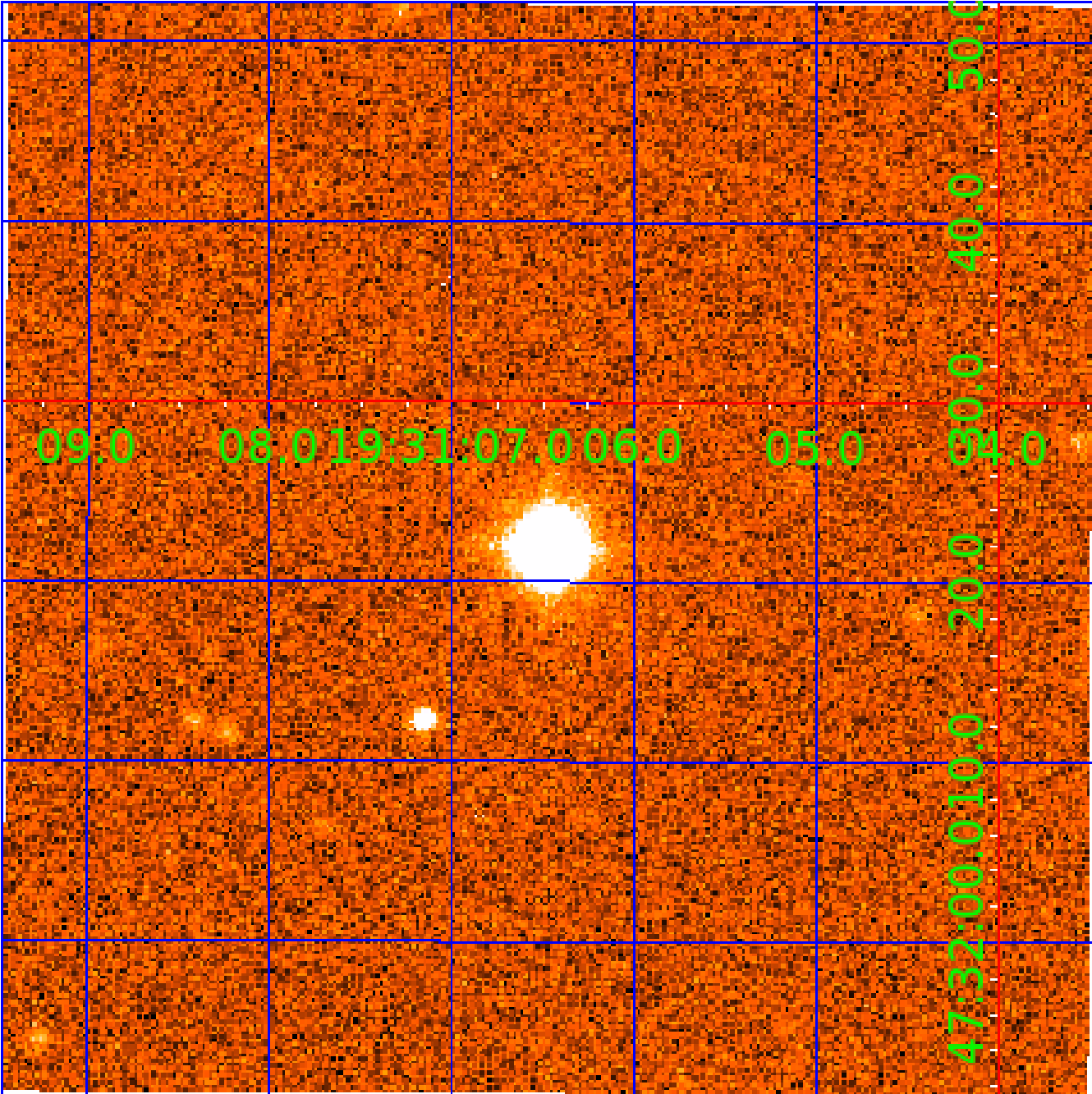


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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.

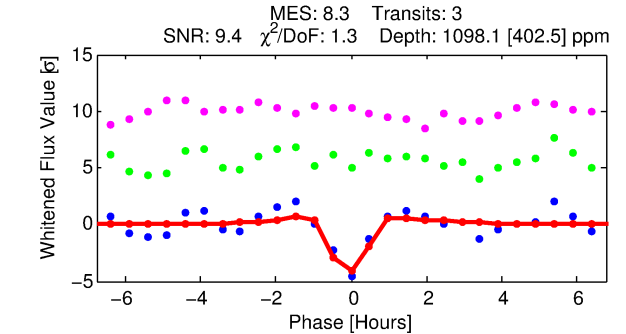
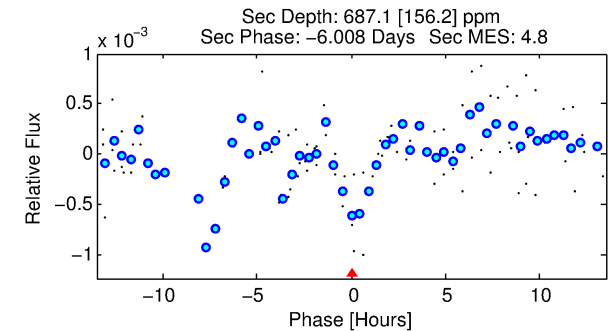
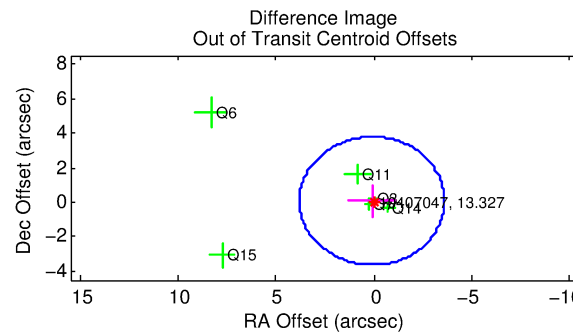
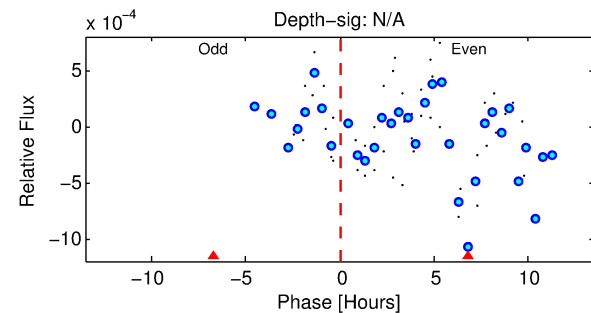
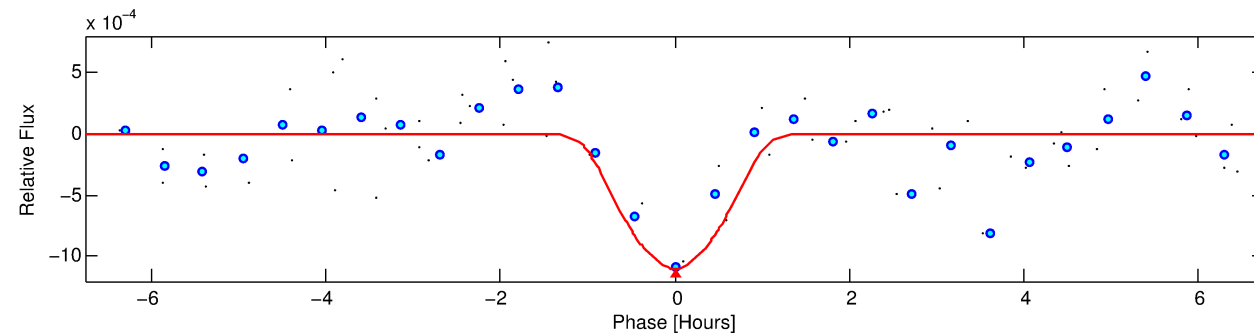
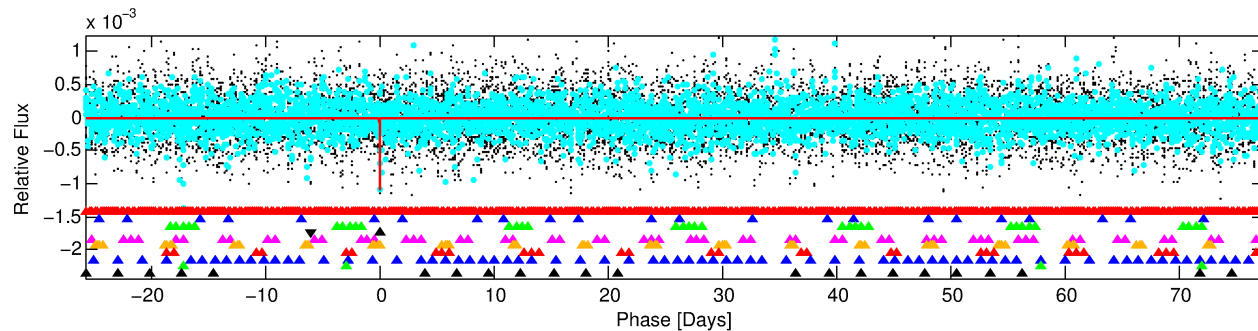
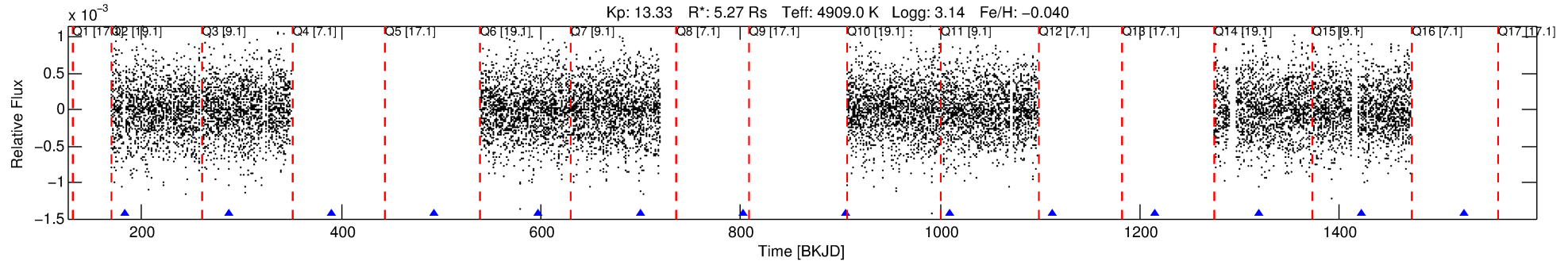
Ephemeris Match Information For 010407047-04

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 4 of 10 Period: 103.190 d
KOI: K07321 Corr: No Ephemeris Match

Kp: 13.33 R*: 5.27 Rs Teff: 4909.0 K Logg: 3.14 Fe/H: -0.040



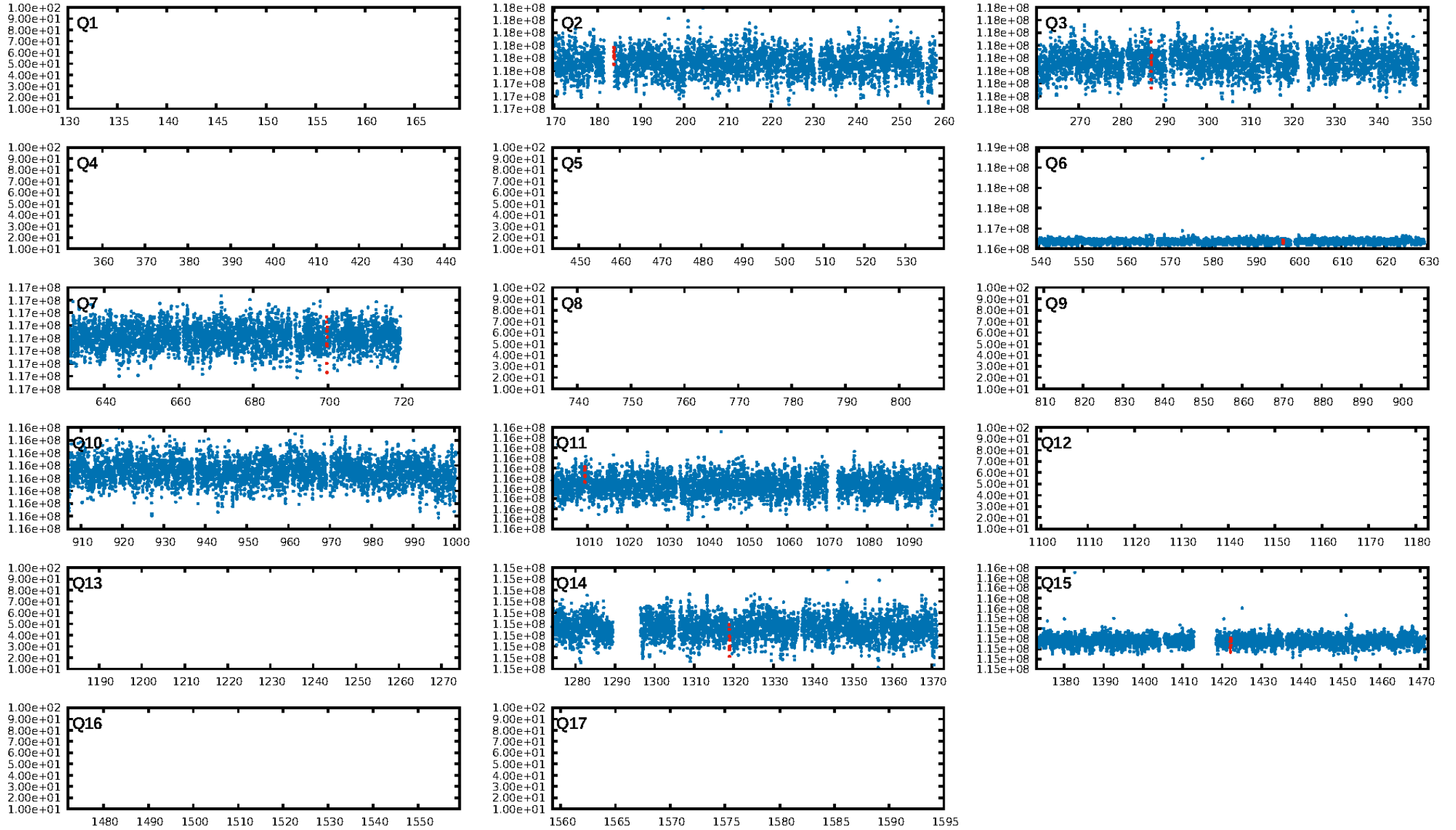
DV Fit Results:

Period = 103.19024 [0.00082] d
Epoch = 183.8178 [0.0055] BKJD
Rp/R* = 0.0615 [0.2587]
a/R* = 125.58 [121.15]
b = 1.00 [0.38]
Seff = 62.71 [42.94]
Teq = 718 [123] K
Rp = 35.38 [149.56] Re
a = 0.4802 [0.1989] AU
Ag = 69.65 [588.19] [0.12σ]
Teffp = 3205 [6745] K [0.37σ]

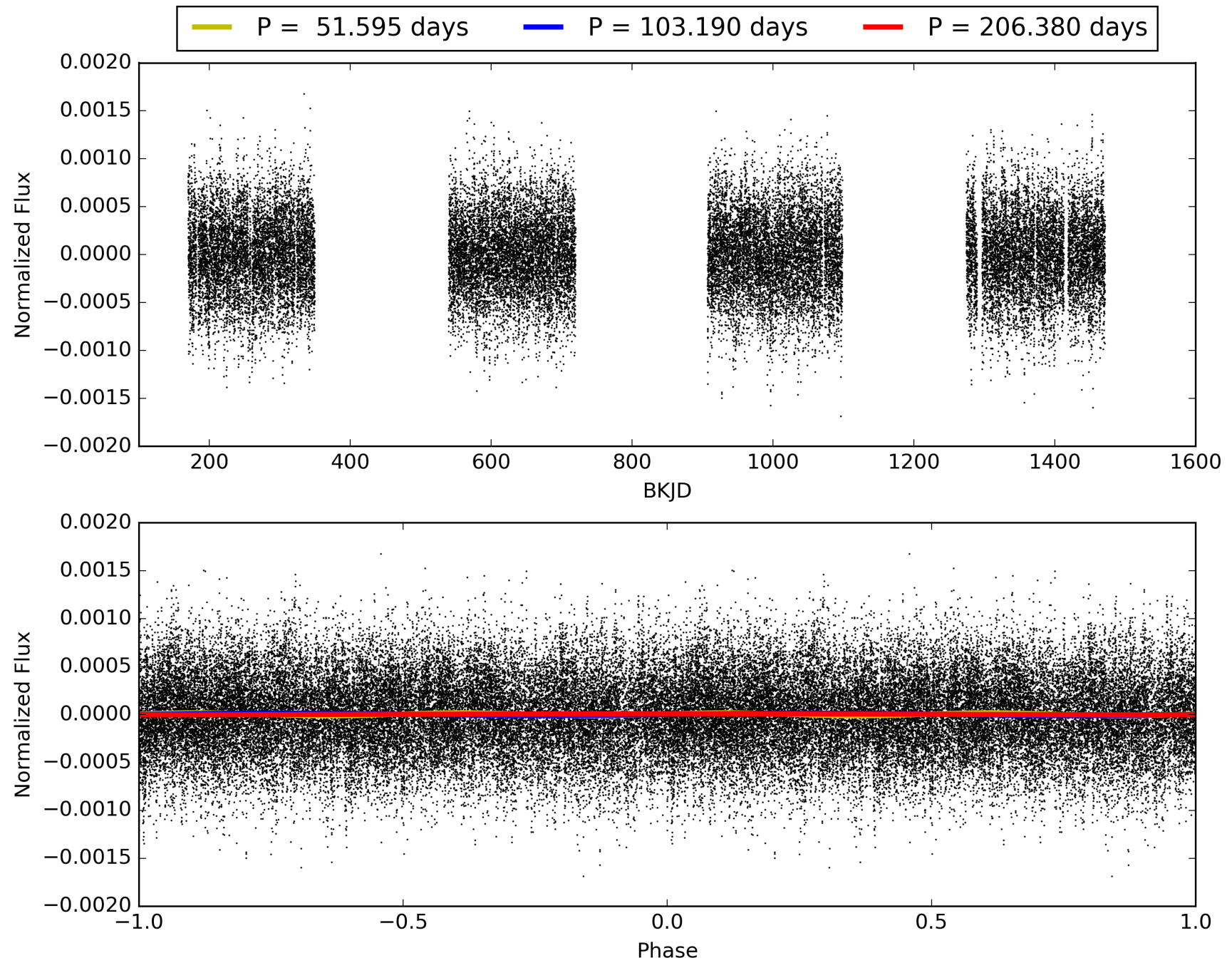
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [84.26σ]
LongPeriod-sig: 100.0% [1570.30σ]
ModelChiSquare2-sig: 71.9%
ModelChiSquareGof-sig: 94.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.819
Centroid-sig: 61.4%
Centroid-so: 0.369 arcsec [1.01σ]
OotOffset-rm: 0.131 arcsec [0.11σ]
OotOffset-st: 2/4/0/0 [6]
KicOffset-rm: 0.098 arcsec [0.10σ]
KicOffset-st: 2/4/0/0 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.00 [0/6]

TCE 010407047-04, PDC Light Curves

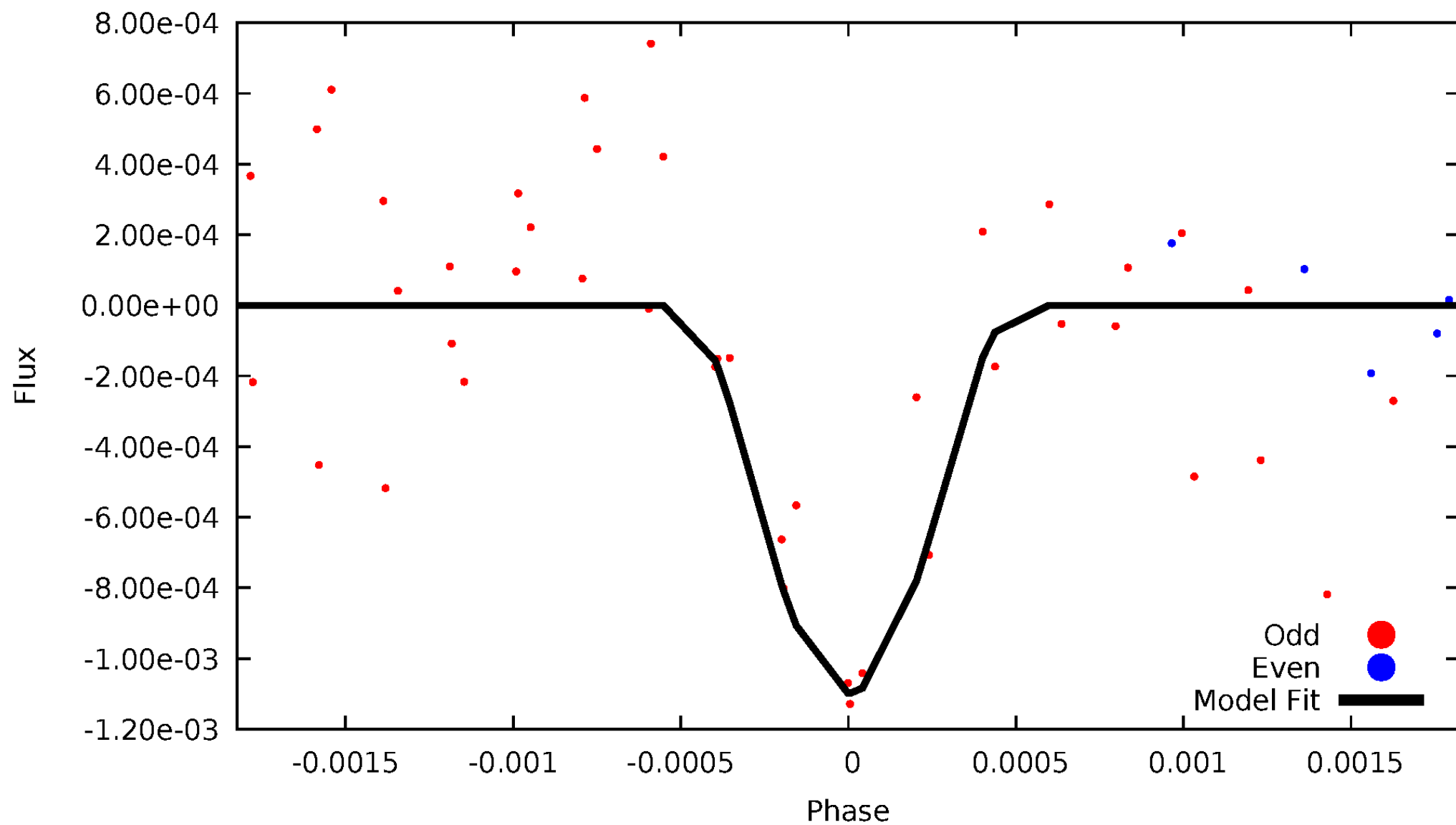


TCE 010407047-04



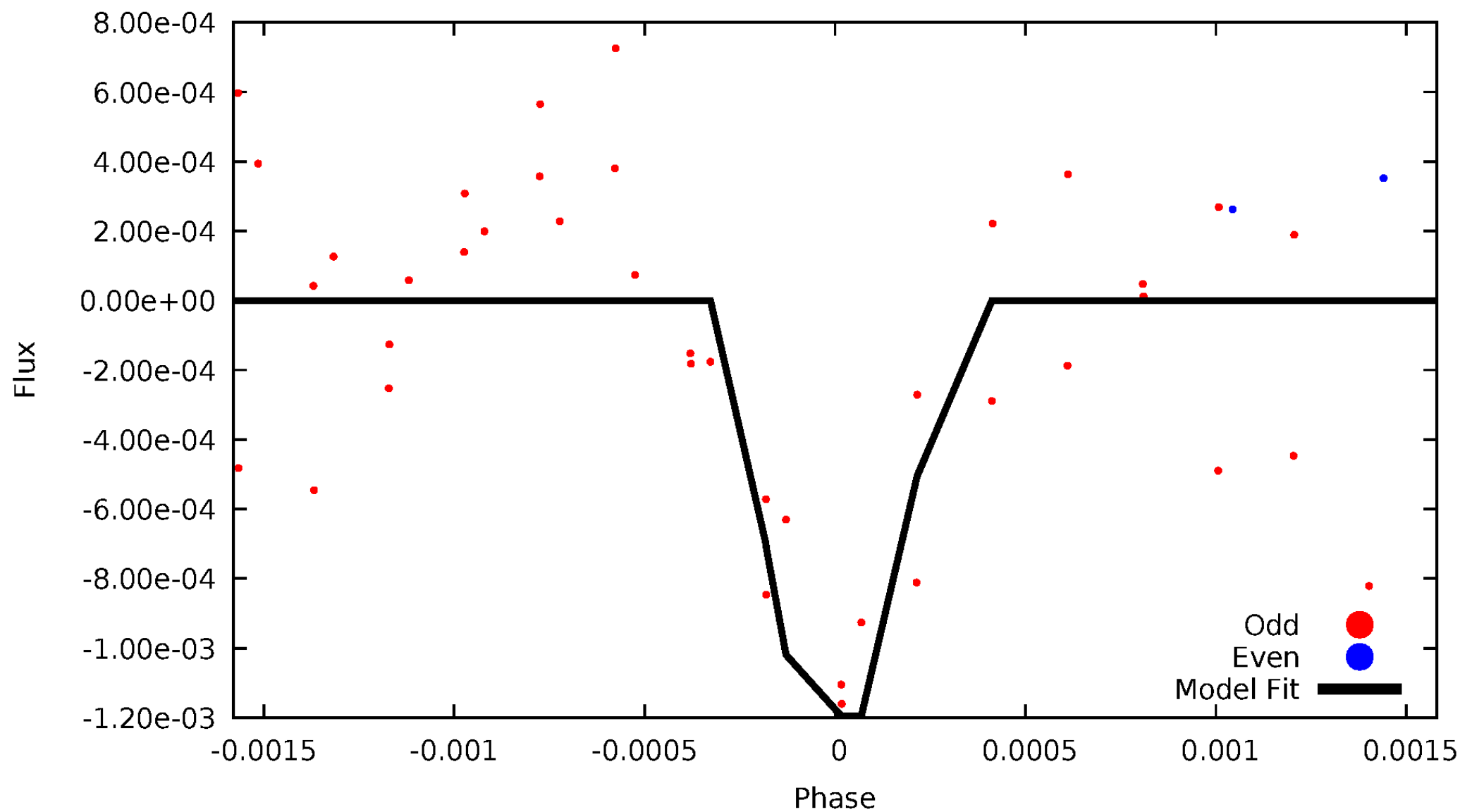
DV Odd/Even

TCE 010407047-04



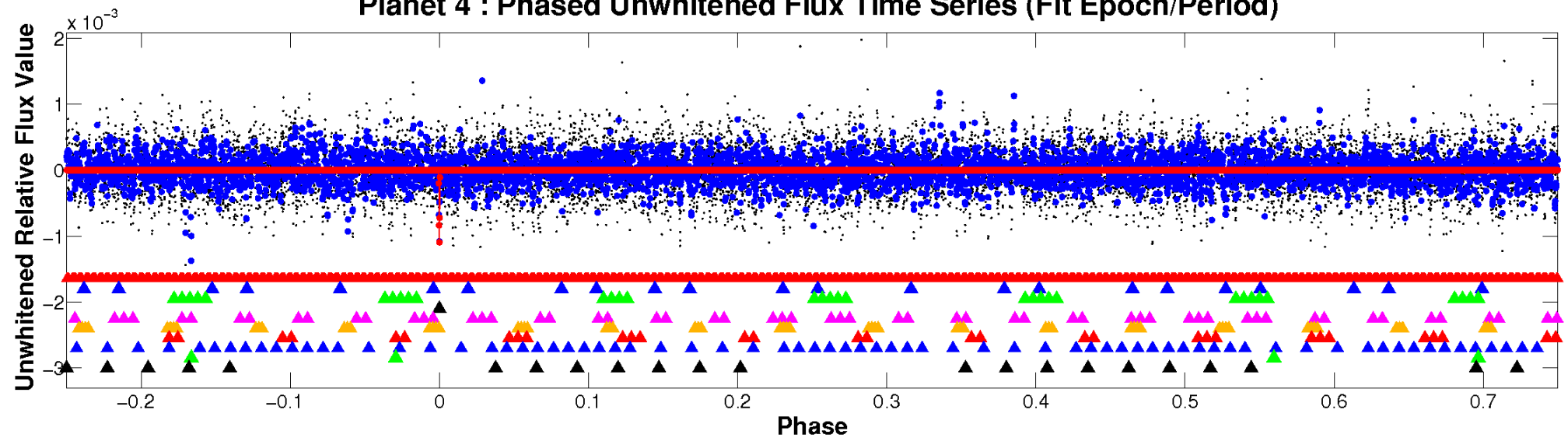
ALT Odd/Even

TCE 010407047-04

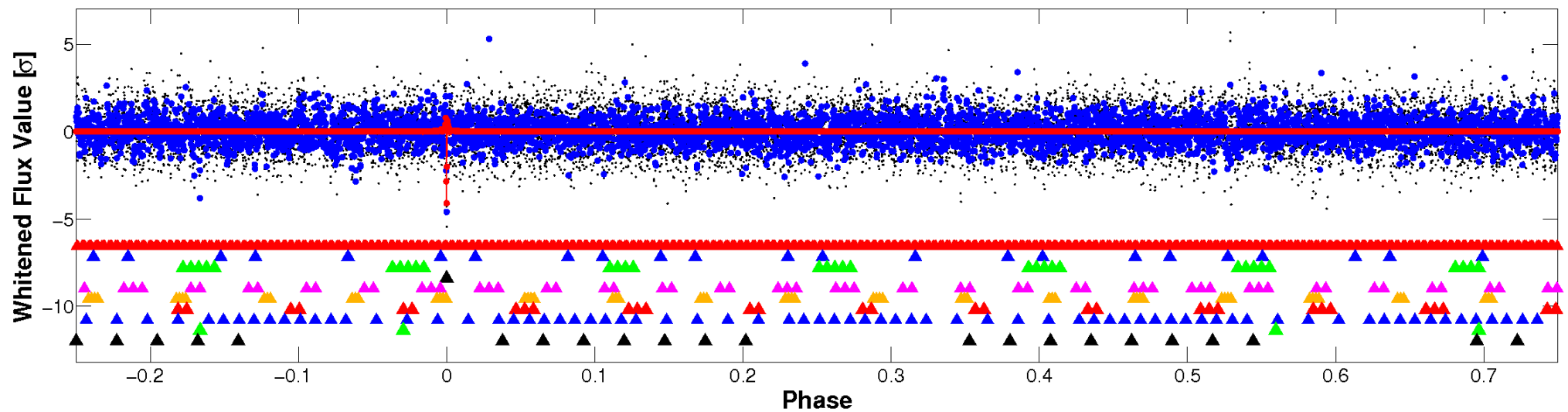


Non-Whitened Vs. Whitened Light Curve

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

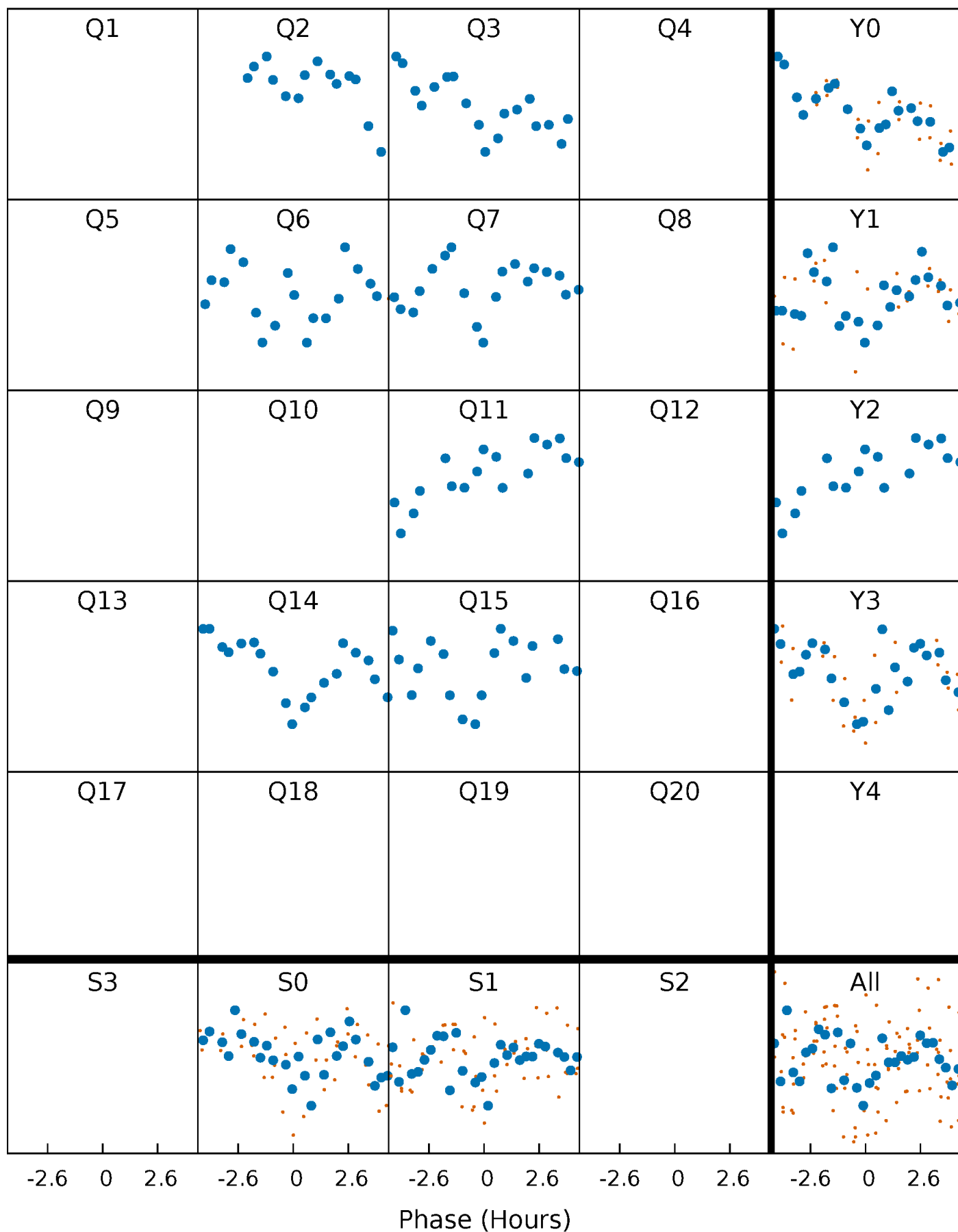


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



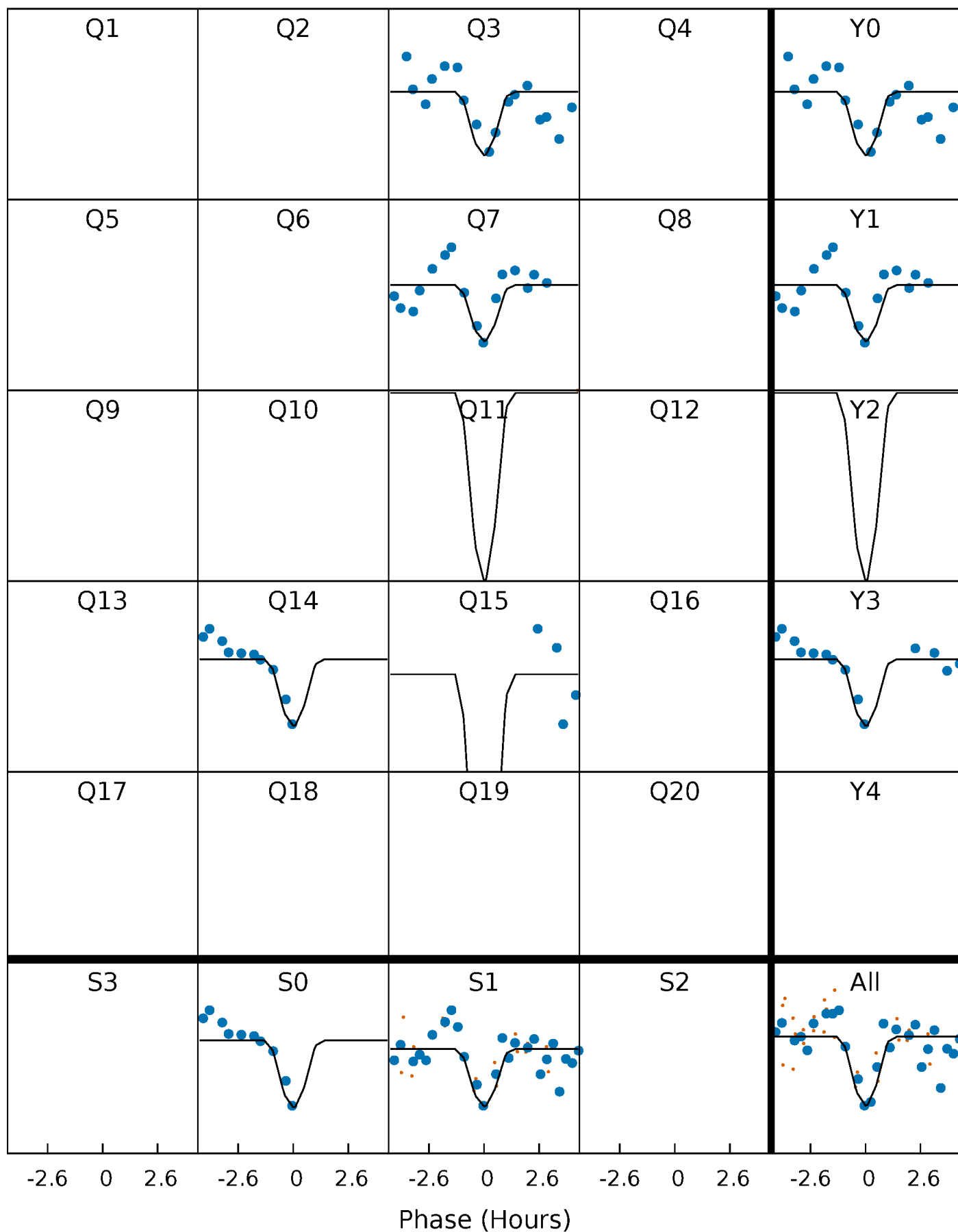
PDC Quarter-Phased Transit Curves

TCE 010407047-04 P=103.190241 Days $T_0=183.817807$ (BKJD)



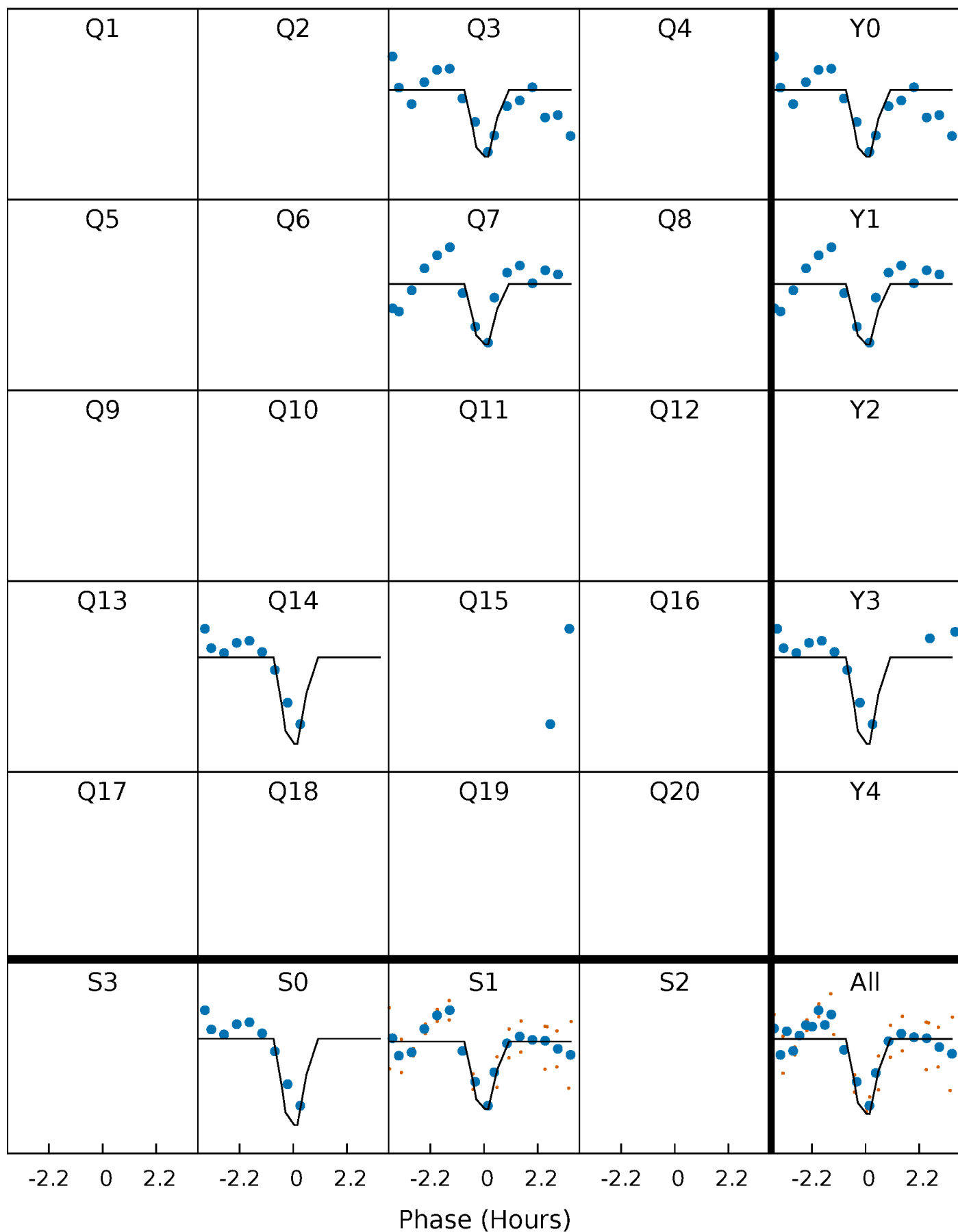
DV Quarter-Phased Transit Curves

TCE 010407047-04 $P=103.190241$ Days $T_0=183.817807$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

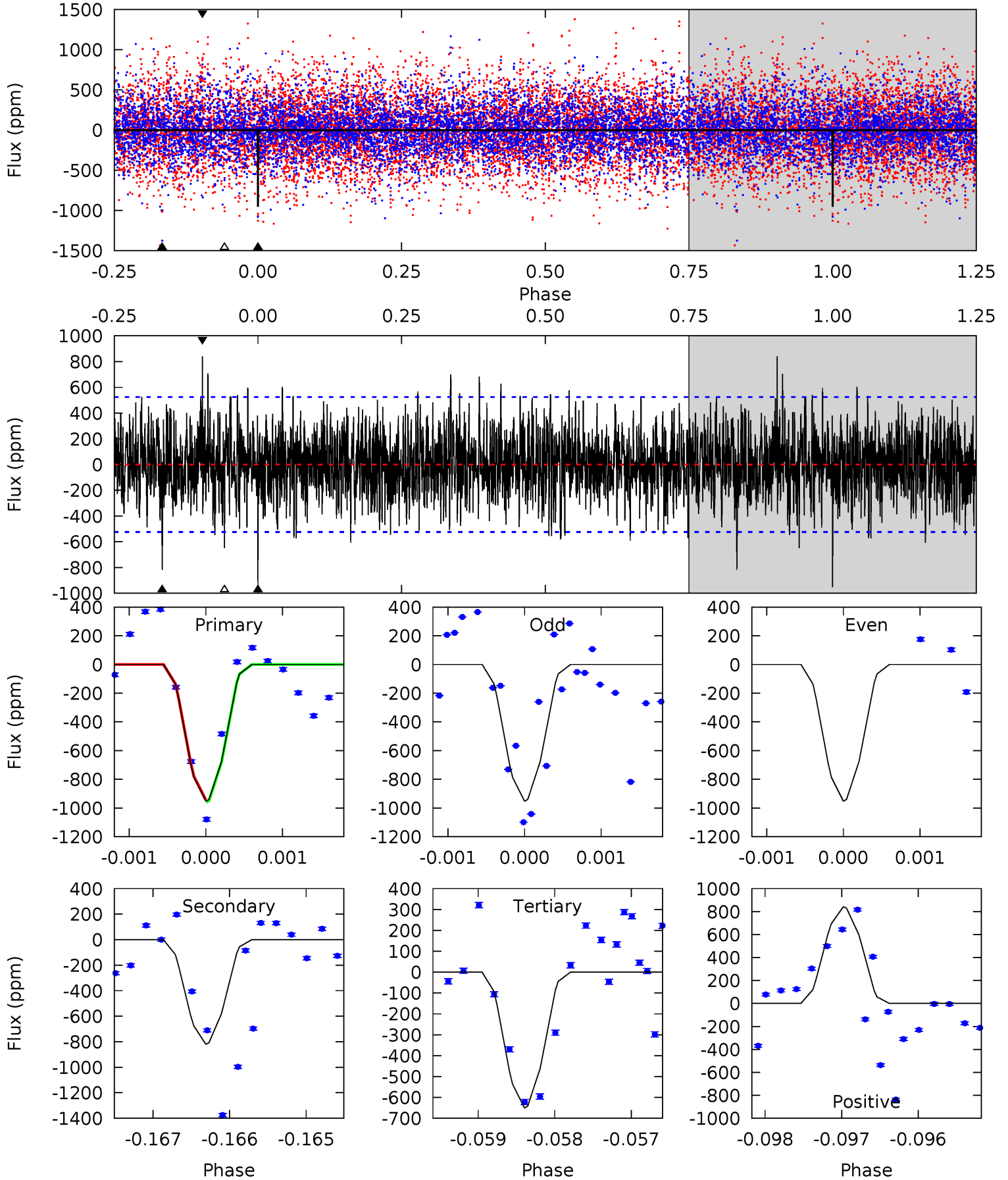
TCE 010407047-04 P=103.189249 Days $T_0=183.821479$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-04, P = 103.190241 Days, E = 80.627566 Days

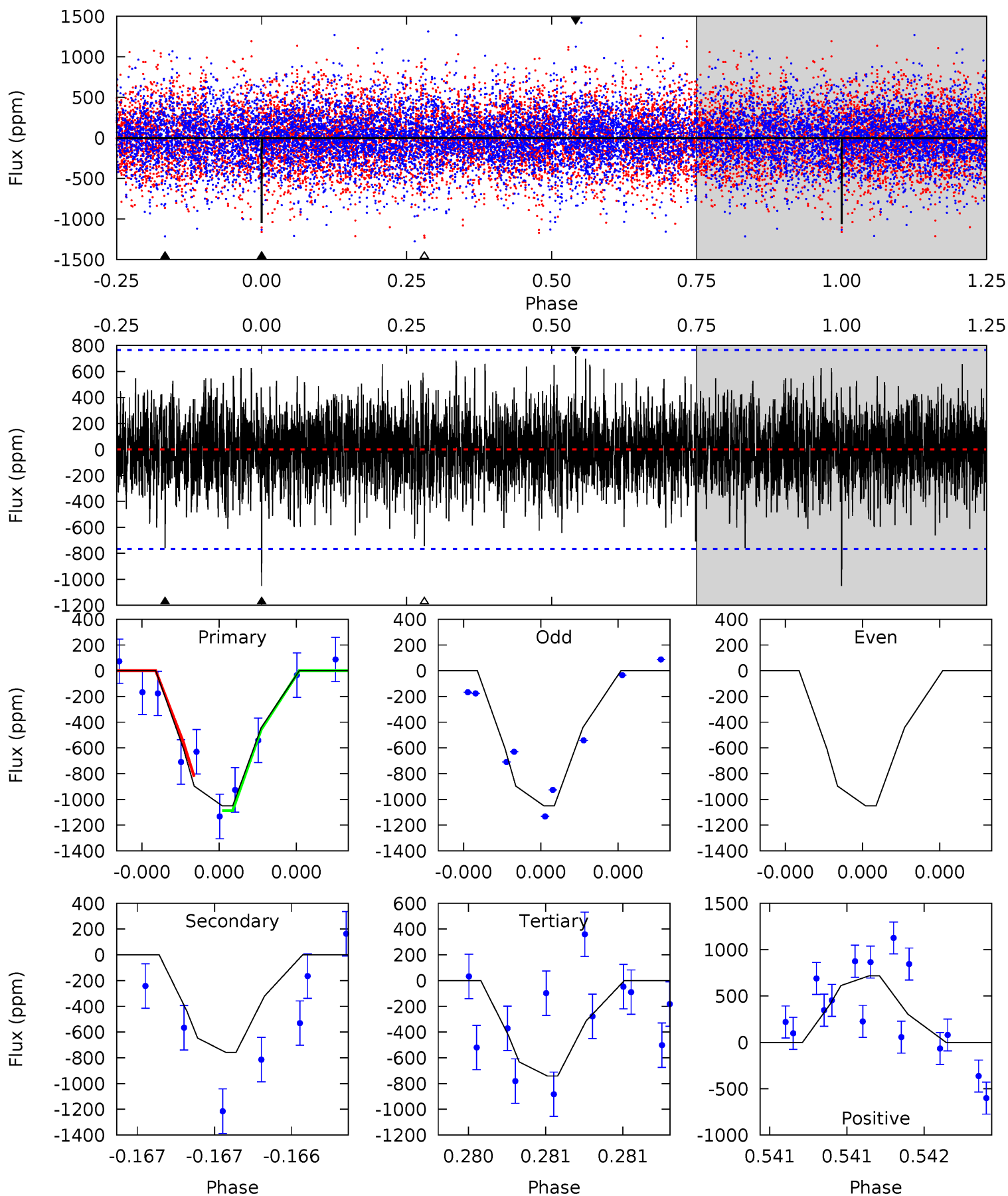
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.89	8.50	6.75	8.74	5.45	3.29	2.04	3.14	1.15	1.75	-0.24	0	1.01	0.47	0.09



Alt Model-Shift Uniqueness Test

010407047-04, P = 103.189249 Days, E = 80.632230 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.71	5.56	5.44	5.27	5.61	3.54	1.44	2.27	2.44	0.12	0.29	0	0.91	0.41	0.91



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-818 ± 96	$107.63^{+115.48}_{-73.92}$	998^{+115}_{-107}	2612^{+1109}_{-435}	$8.775^{+79.008}_{-6.802}$
Alt.	-758 ± 136	$107.00^{+118.51}_{-77.85}$	998^{+104}_{-121}	2610^{+1230}_{-459}	$8.136^{+102.810}_{-6.273}$

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 $A_{obs} \gg 1.0$

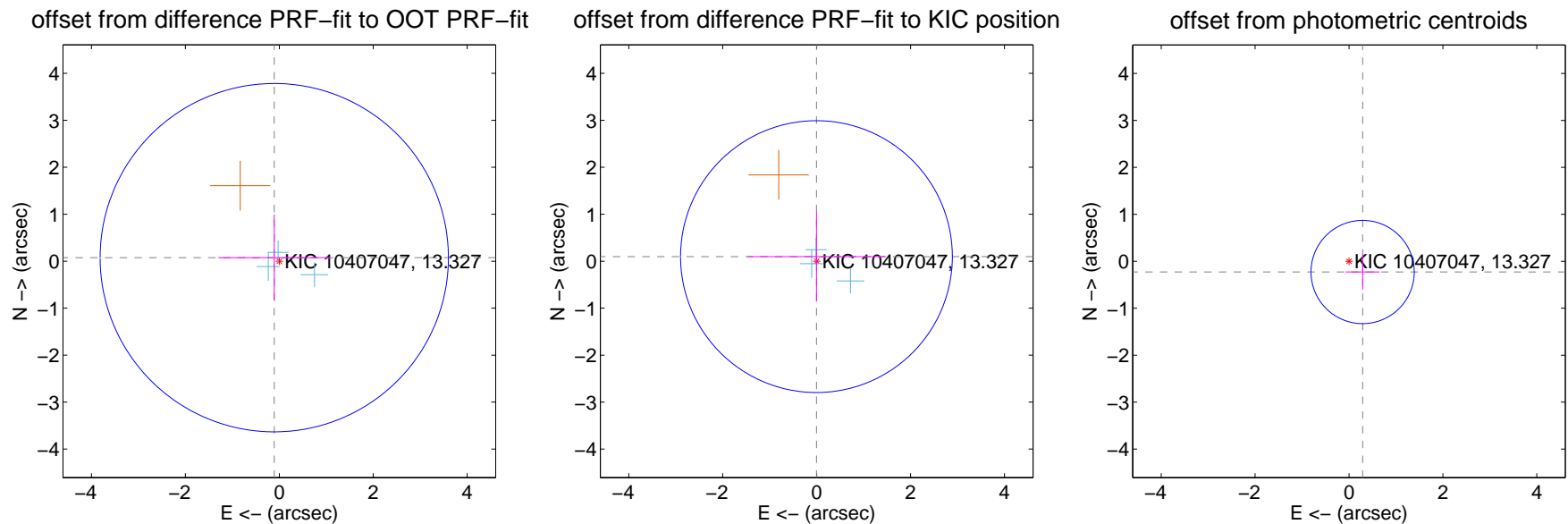
DV Centroid Data

Supplemental centroid analysis for 010407047-04. Kepler magnitude: 13.33. Transit SNR 9.37

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.131 ± 1.236	0.11	0.108 ± 1.194	0.075 ± 0.916
PRF-fit source offset from KIC position	0.098 ± 0.965	0.10	0.004 ± 1.466	0.098 ± 0.958
photometric centroid source offset	0.37 ± 0.37	1.01	-0.29 ± 0.36	-0.23 ± 0.37



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

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

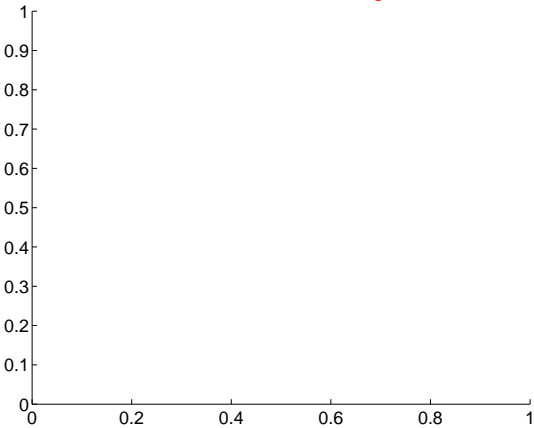
Q1 no difference image



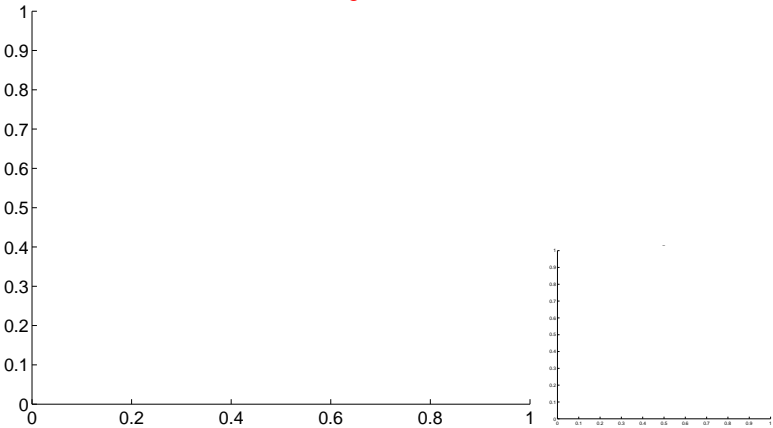
Q1 no OOT image



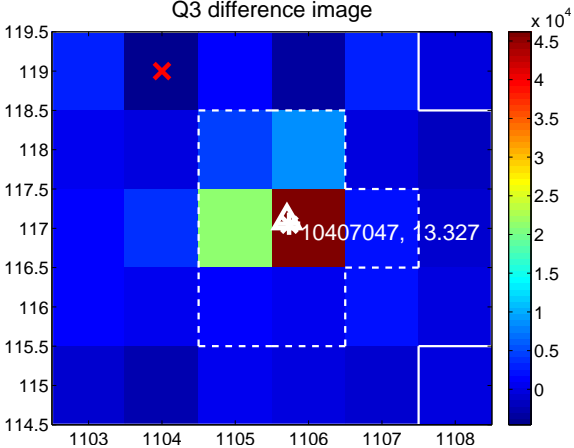
Q2 no difference image



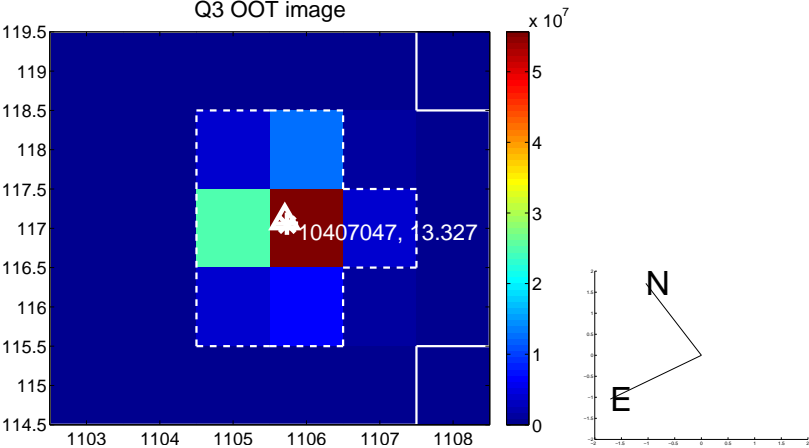
Q2 no OOT image



Q3 difference image



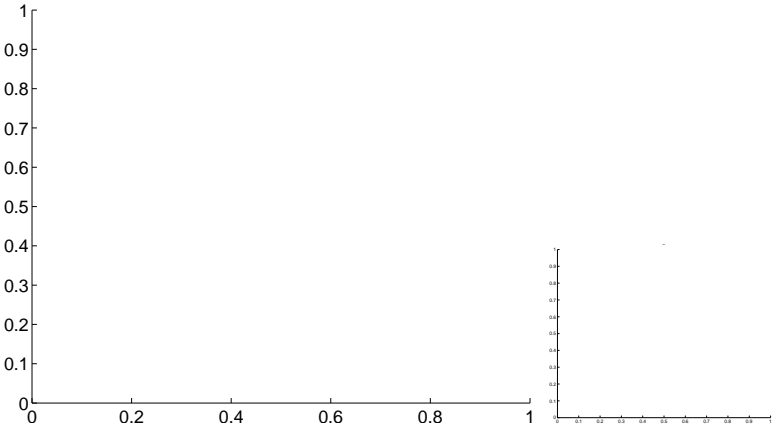
Q3 OOT image



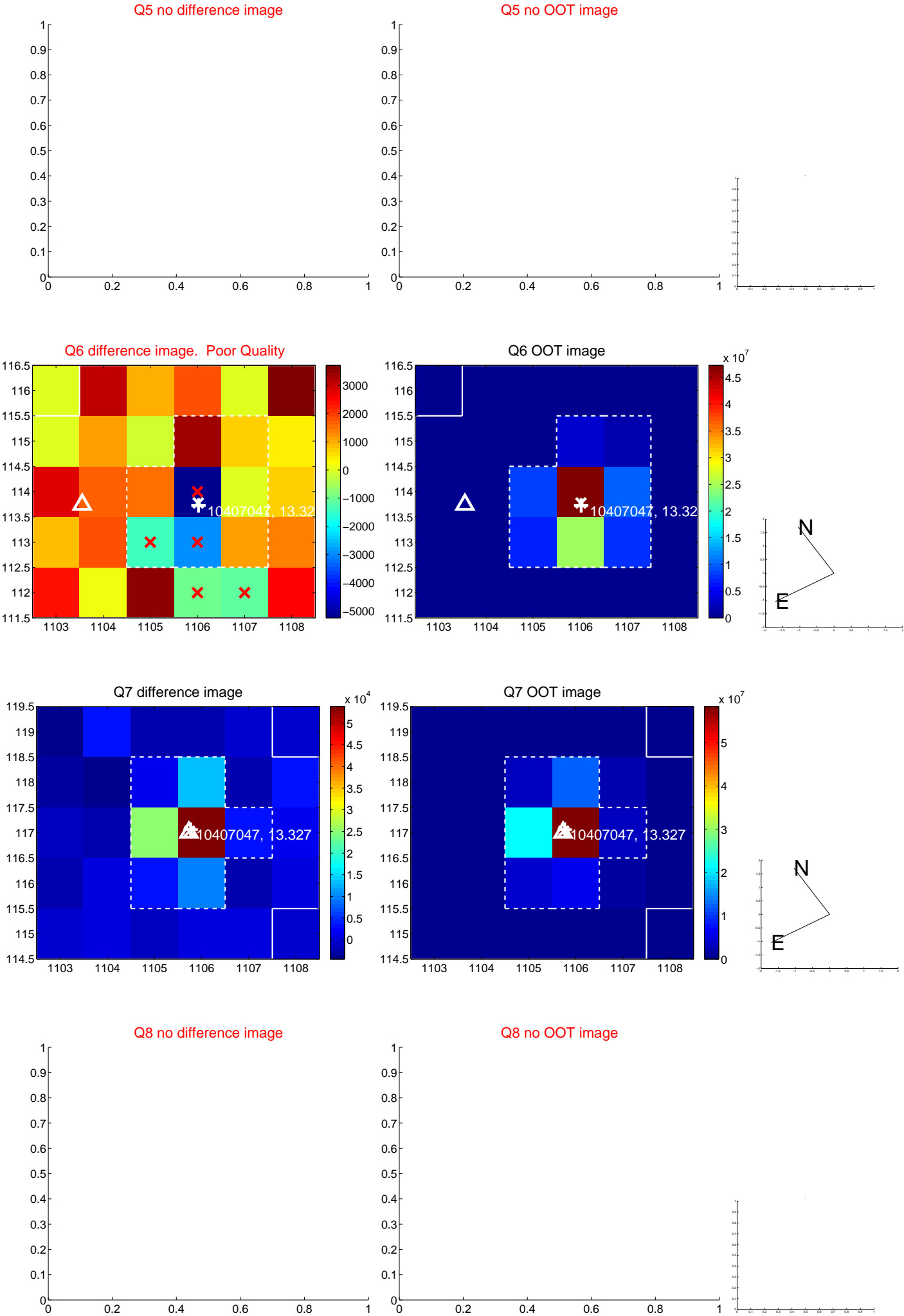
Q4 no difference image



Q4 no OOT image



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

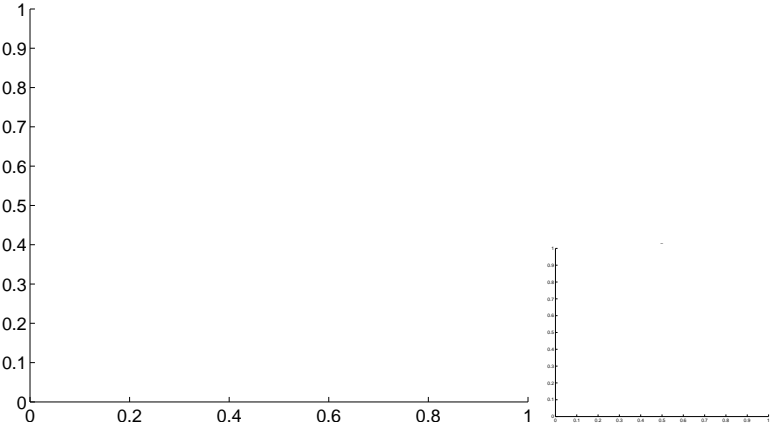


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q9 no difference image



Q9 no OOT image



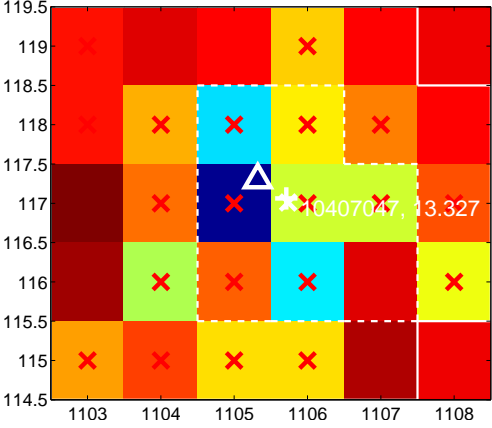
Q10 no difference image



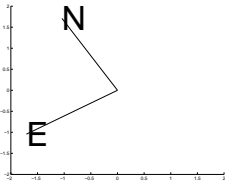
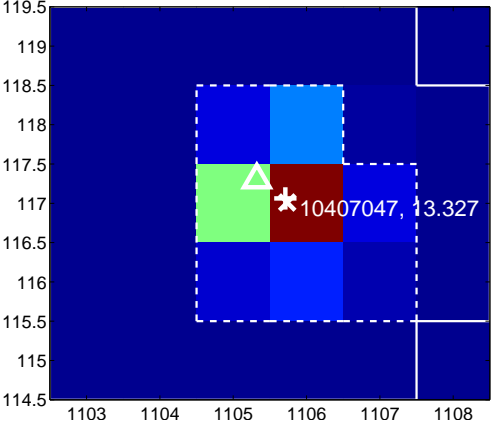
Q10 no OOT image



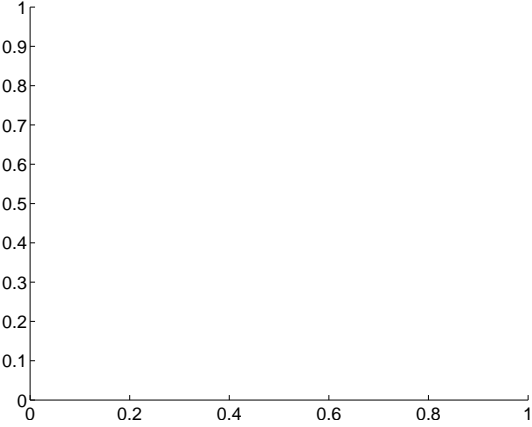
Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image

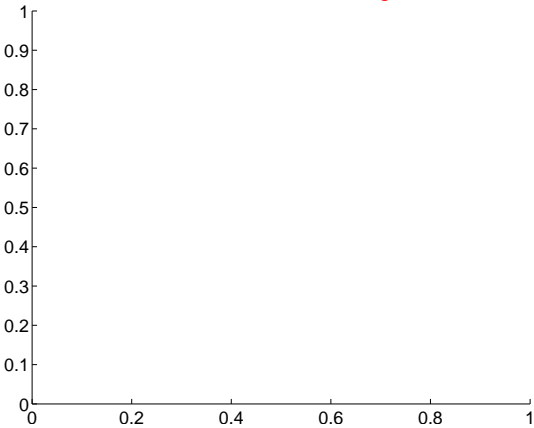


Q12 no OOT image

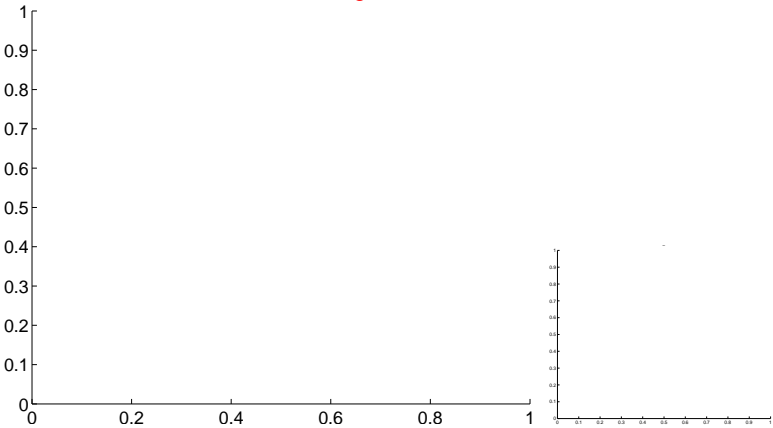


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

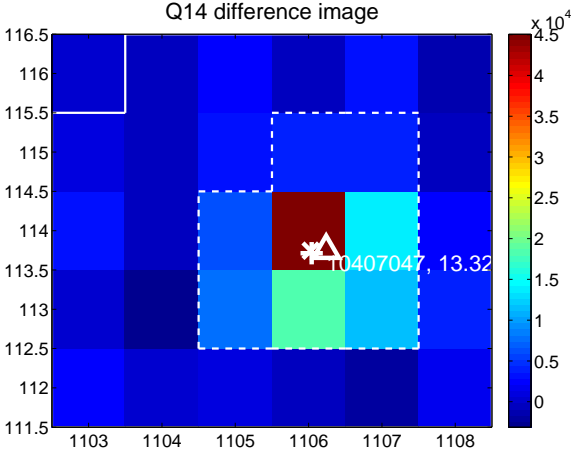
Q13 no difference image



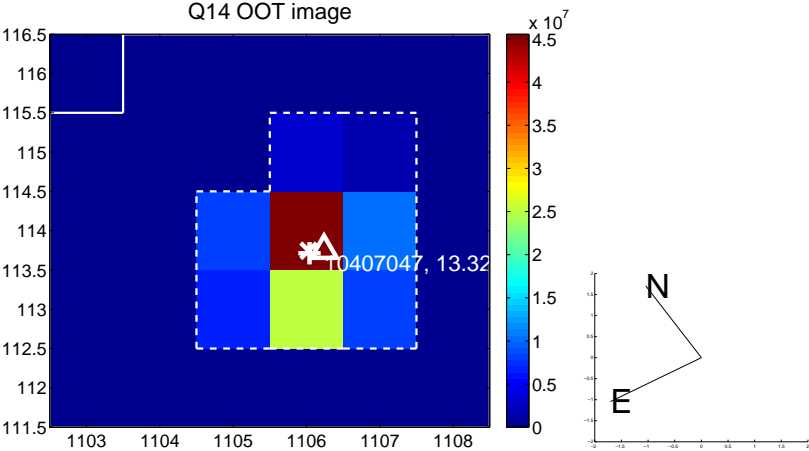
Q13 no OOT image



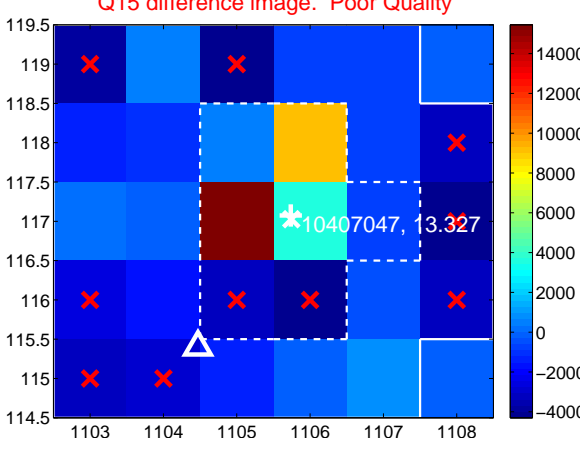
Q14 difference image



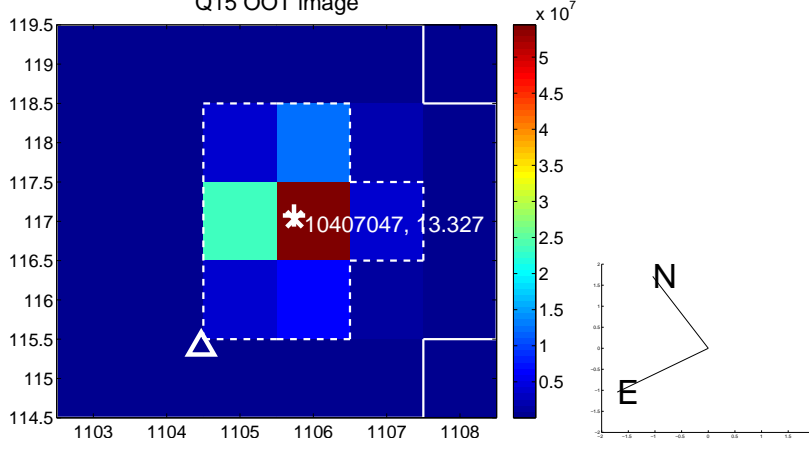
Q14 OOT image



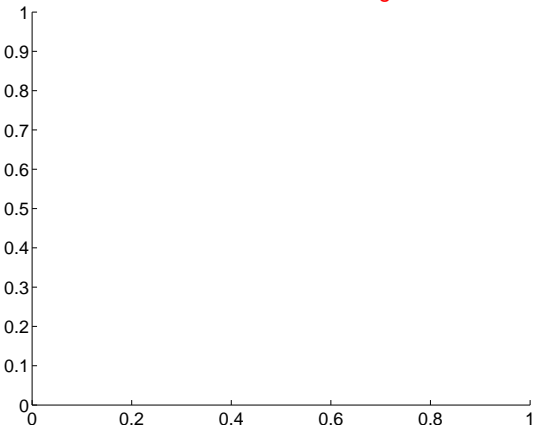
Q15 difference image. Poor Quality



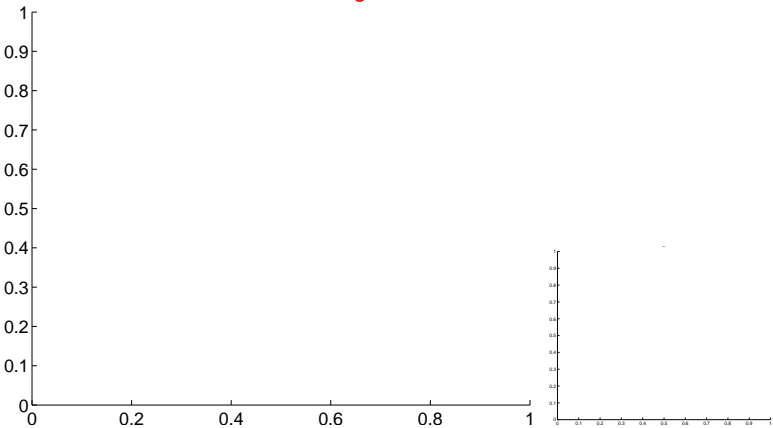
Q15 OOT image



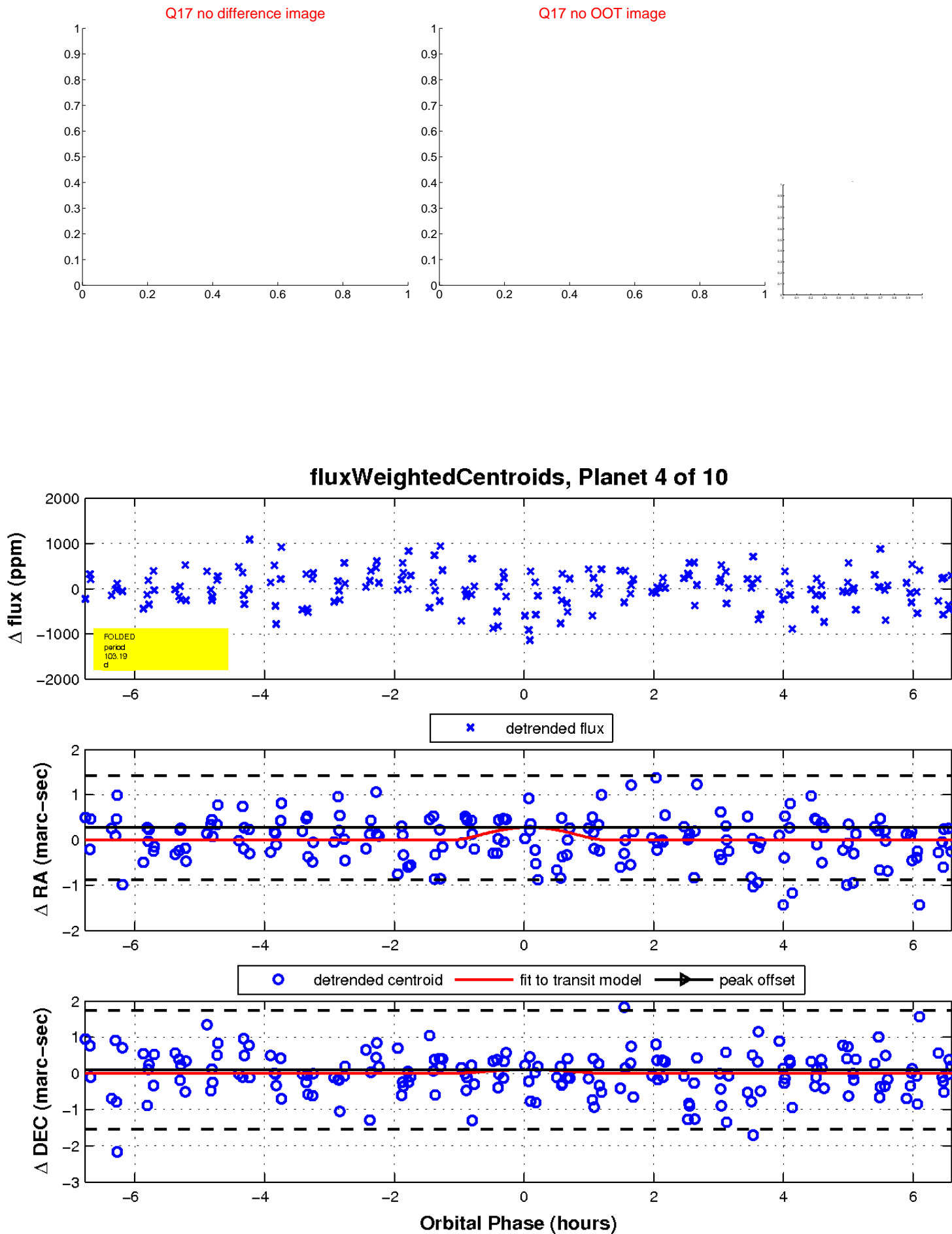
Q16 no difference image



Q16 no OOT image

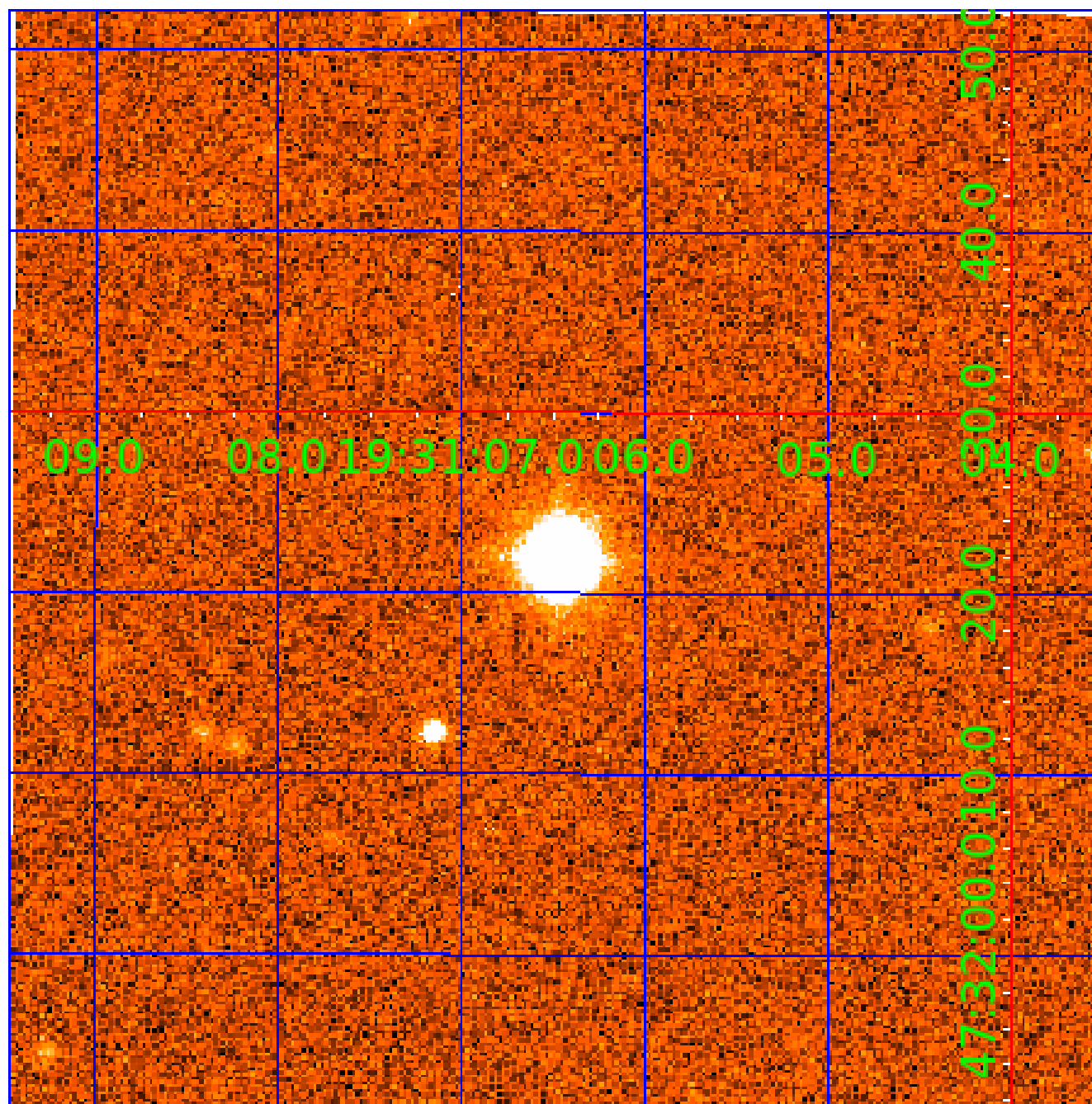


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

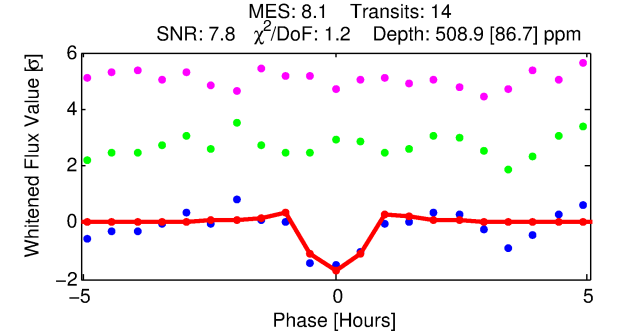
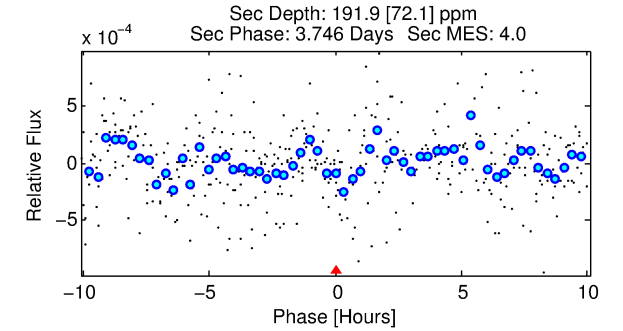
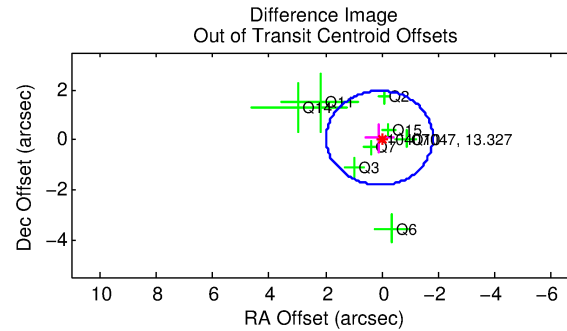
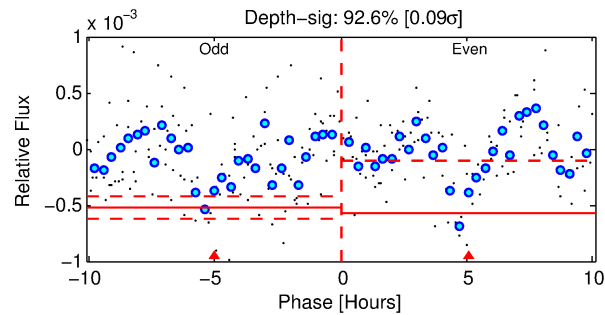
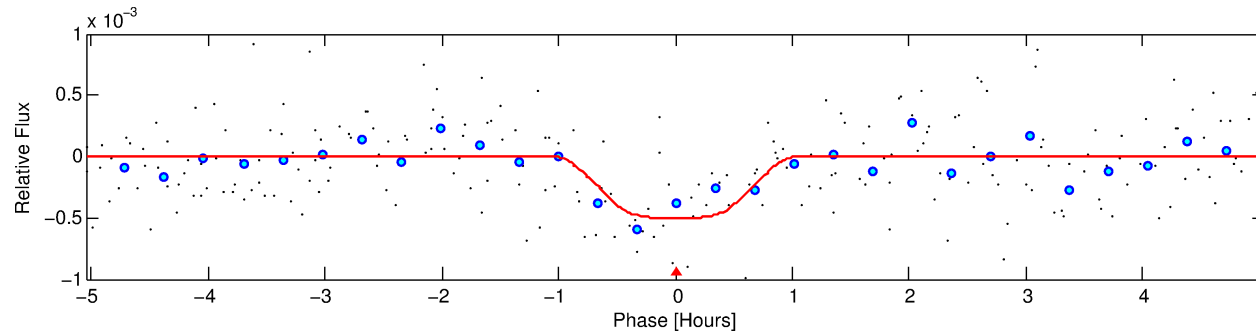
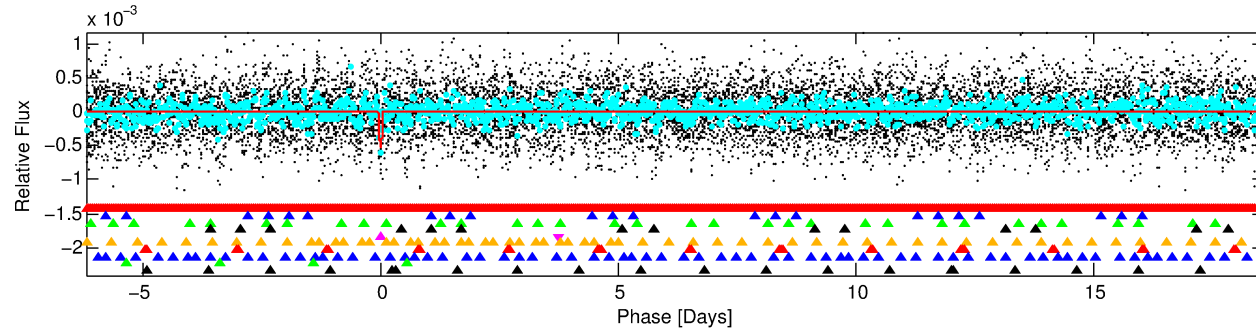
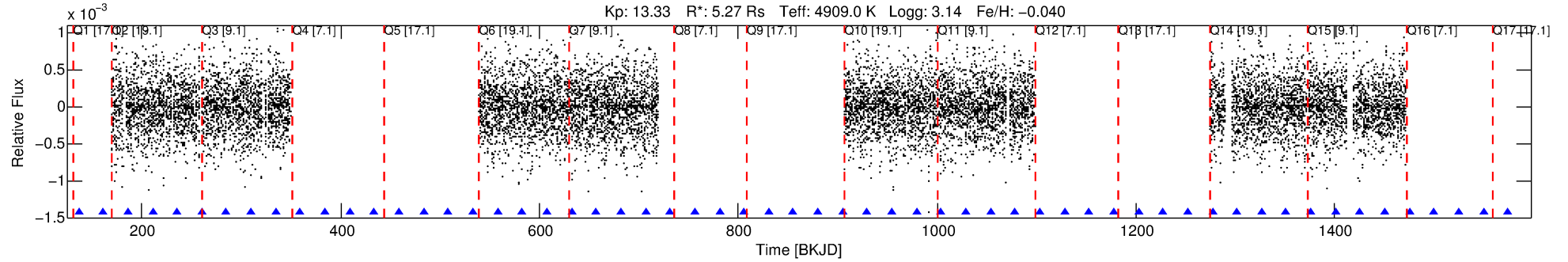
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010407047-05

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 5 of 10 Period: 24.791 d
KOI: K07321 Corr: No Ephemeris Match



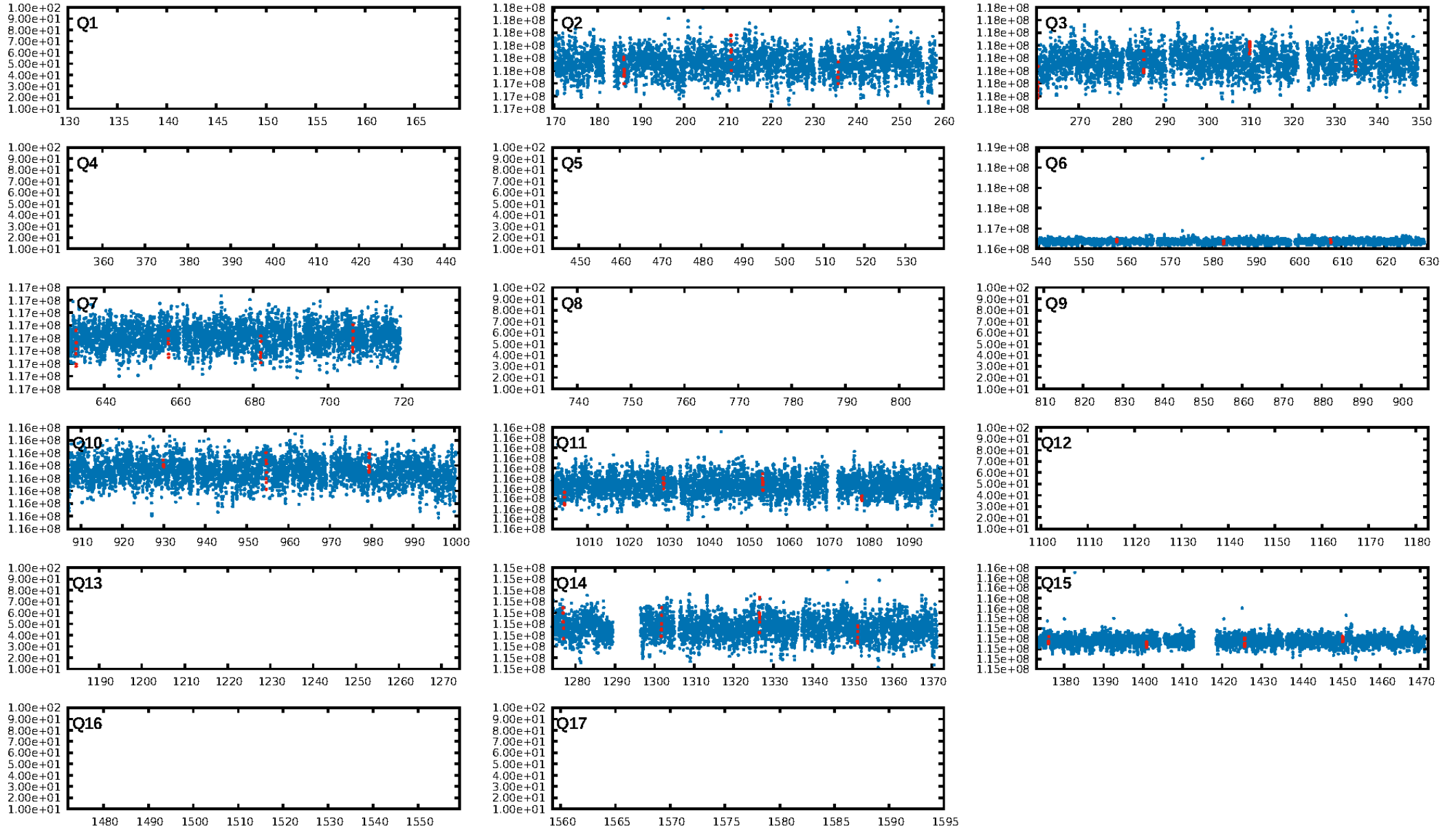
DV Fit Results:

Period = 24.79113 [0.00015] d
Epoch = 136.5549 [0.0050] BKJD
Rp/R* = 0.0263 [0.0133]
a/R* = 49.58 [96.58]
b = 0.93 [0.31]
Seff = 419.88 [287.48]
Teq = 1154 [198] K
Rp = 15.12 [9.91] Re
a = 0.1856 [0.0769] AU
Ag = 15.91 [20.31] [0.73σ]
Teffp = 3564 [969] K [2.44σ]

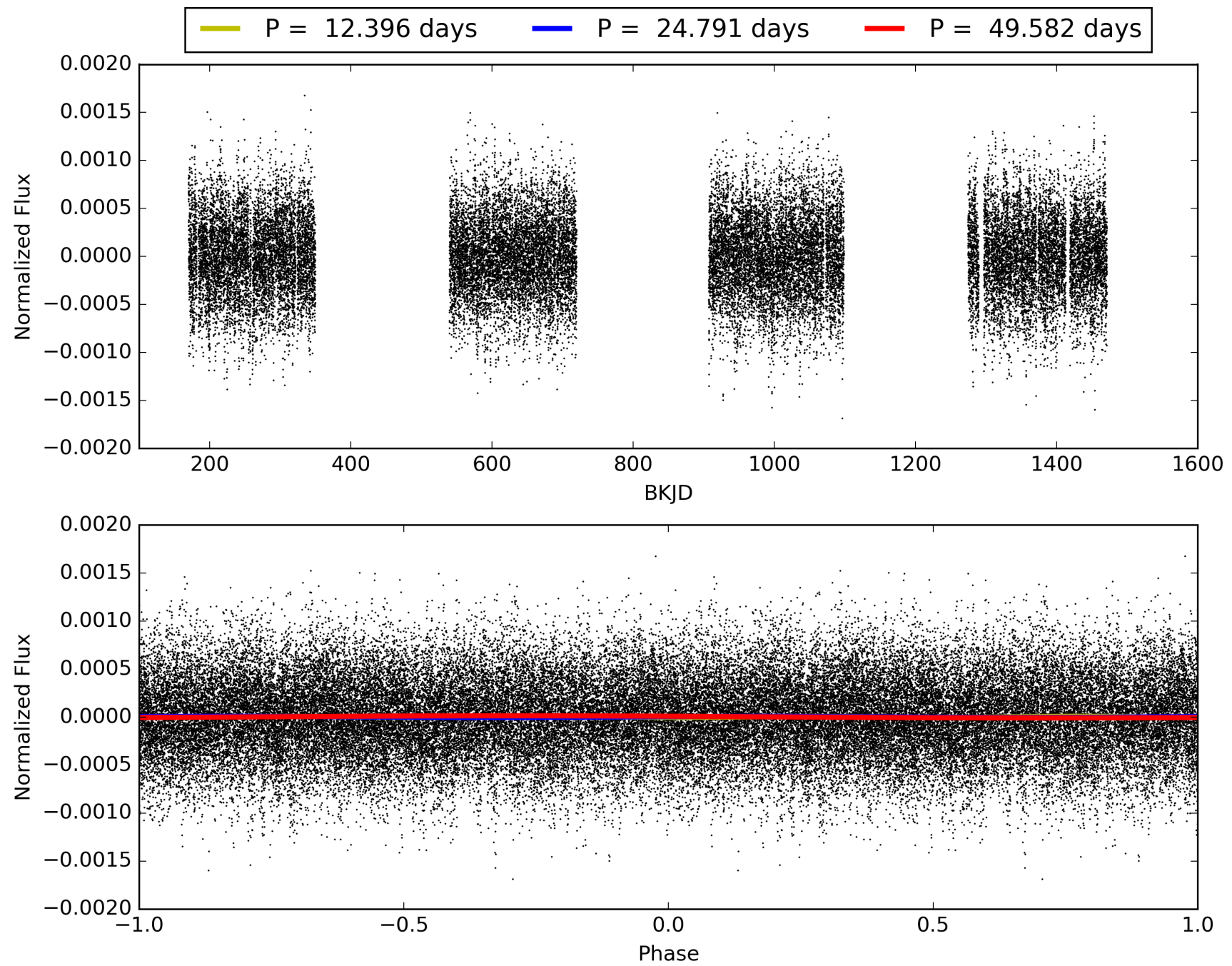
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.89σ]
LongPeriod-sig: 100.0% [198.78σ]
ModelChiSquare2-sig: 51.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: -4.254
Centroid-sig: 0.8%
Centroid-so: 1.029 arcsec [2.66σ]
OotOffset-rm: 0.110 arcsec [0.18σ]
KicOffset-rm: 0.194 arcsec [0.31σ]
OotOffset-st: 4/4/0/0 [8]
KicOffset-st: 4/4/0/0 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.62 [5/8]

TCE 010407047-05, PDC Light Curves

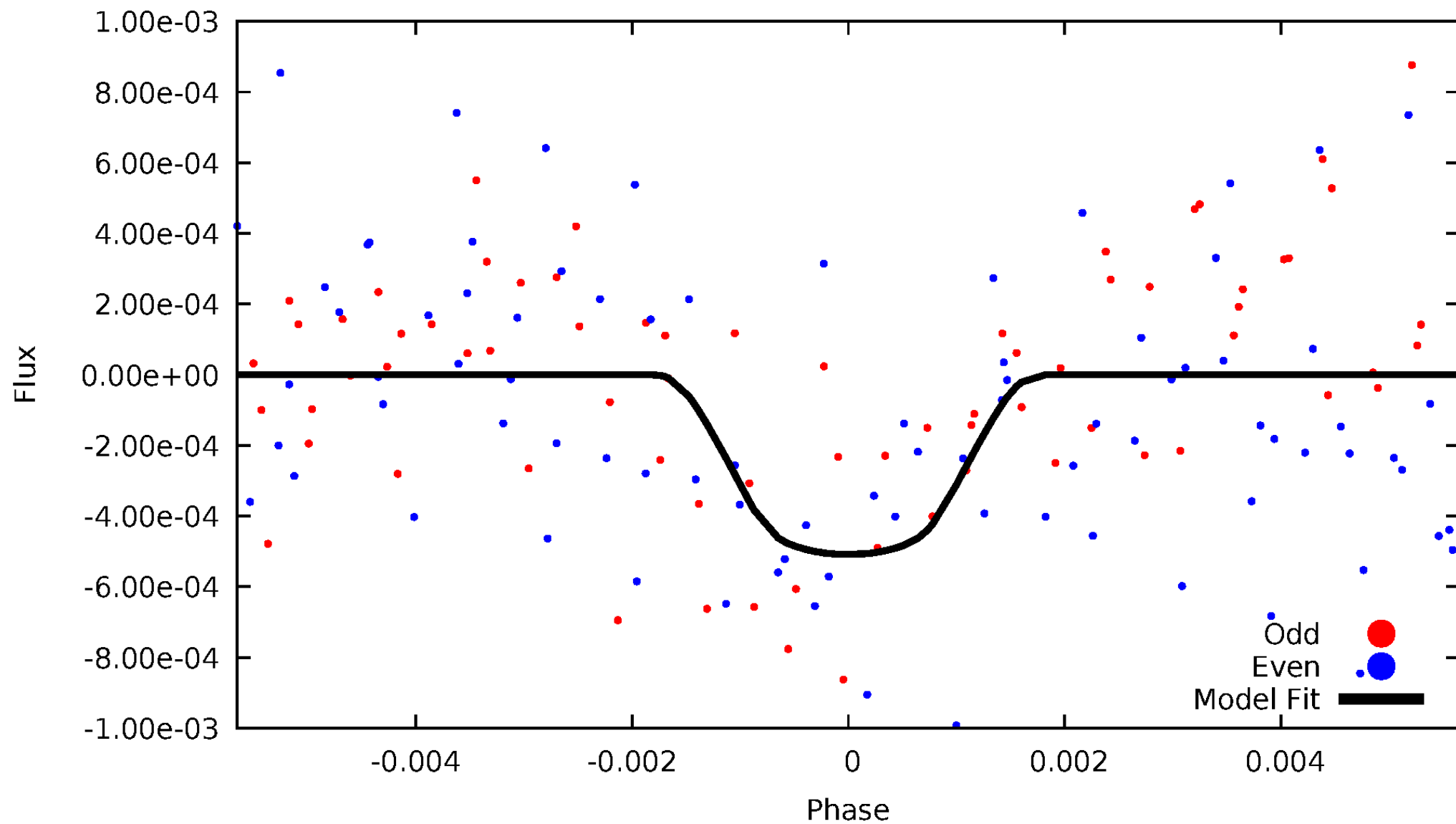


TCE 010407047-05



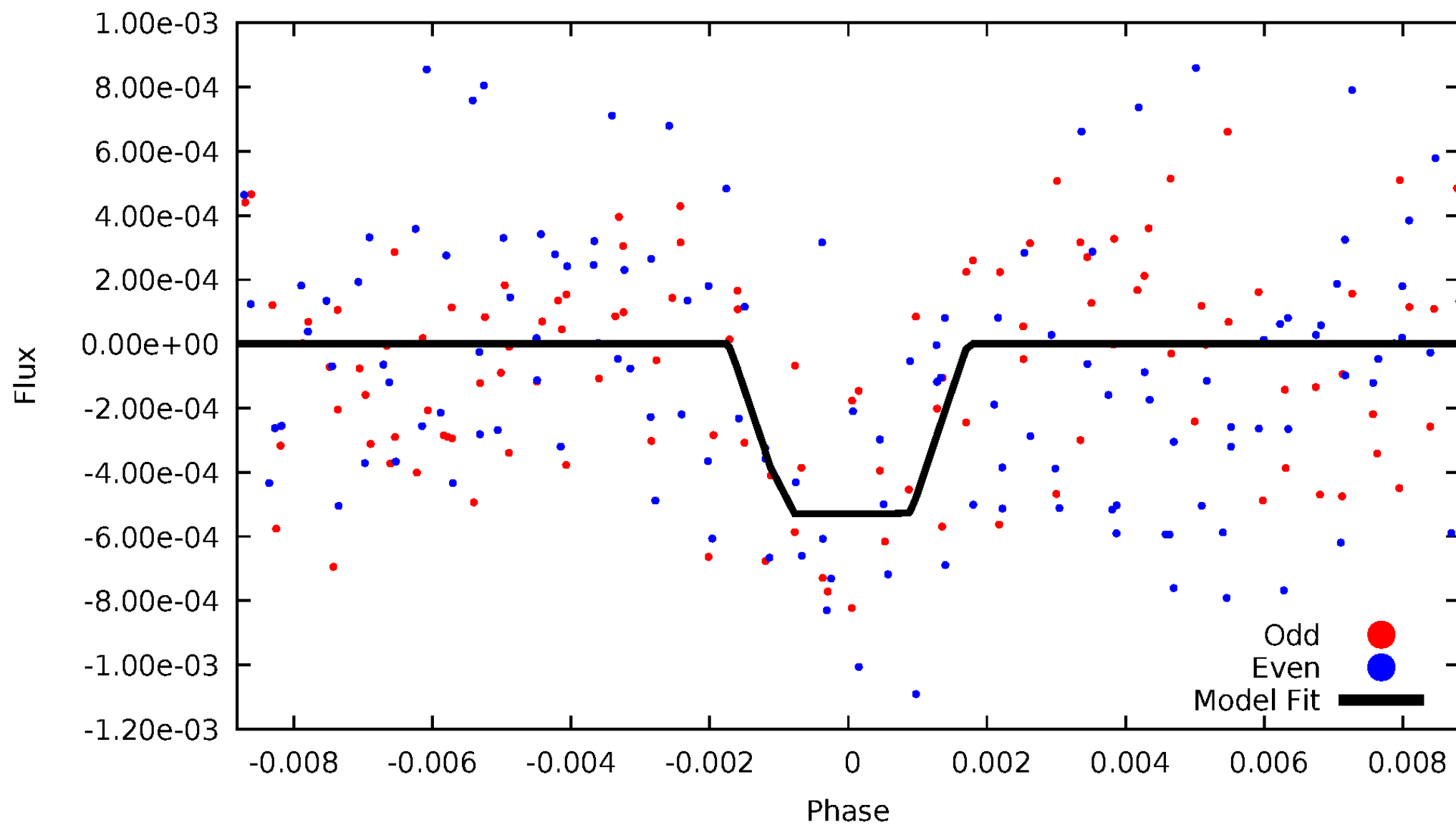
DV Odd/Even

TCE 010407047-05



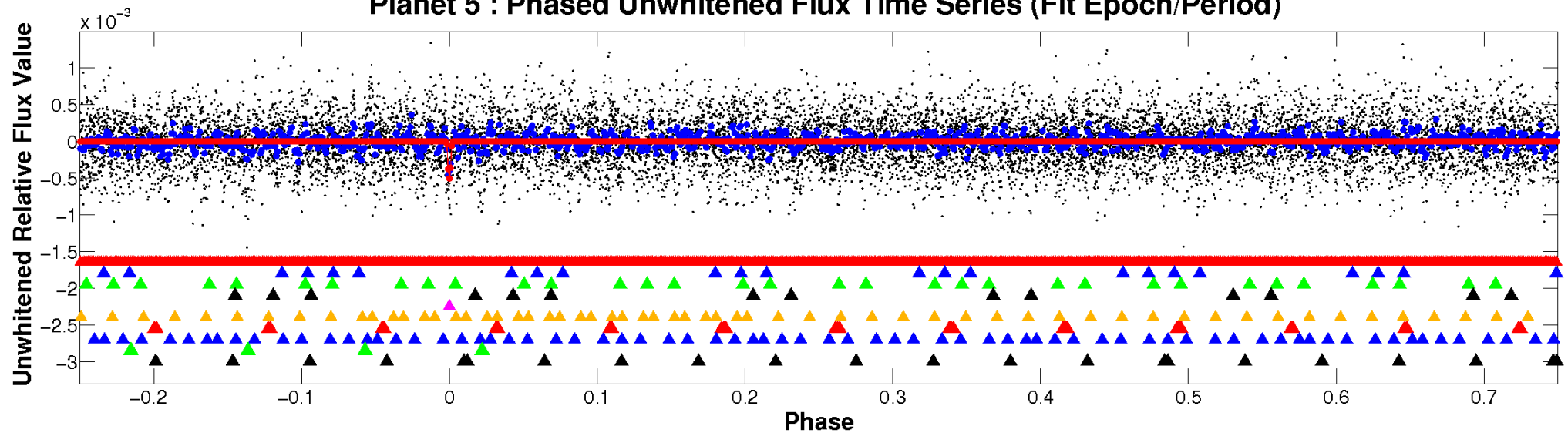
ALT Odd/Even

TCE 010407047-05

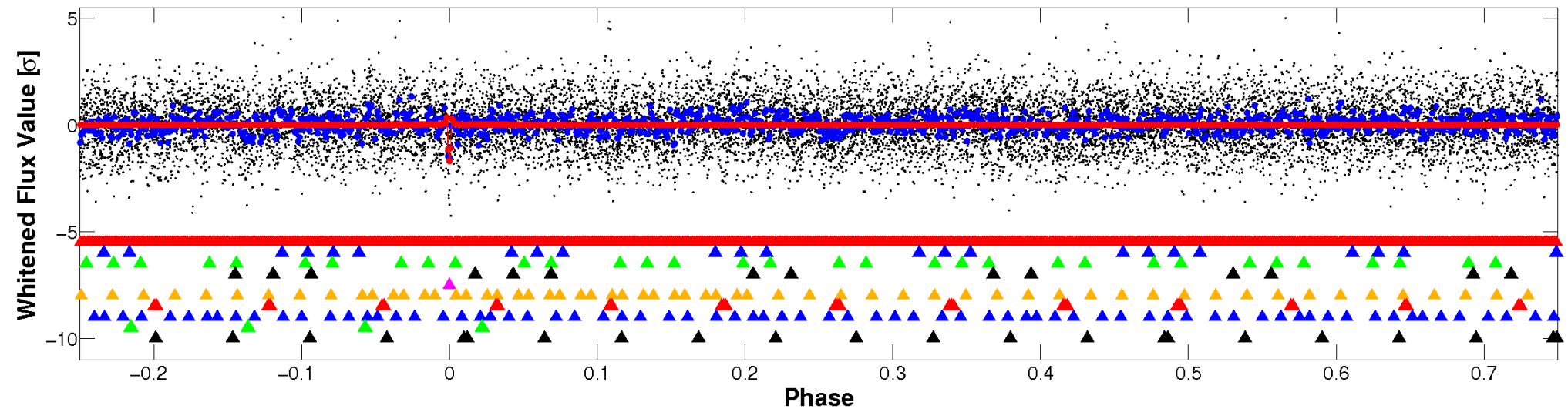


Non-Whitened Vs. Whitened Light Curve

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

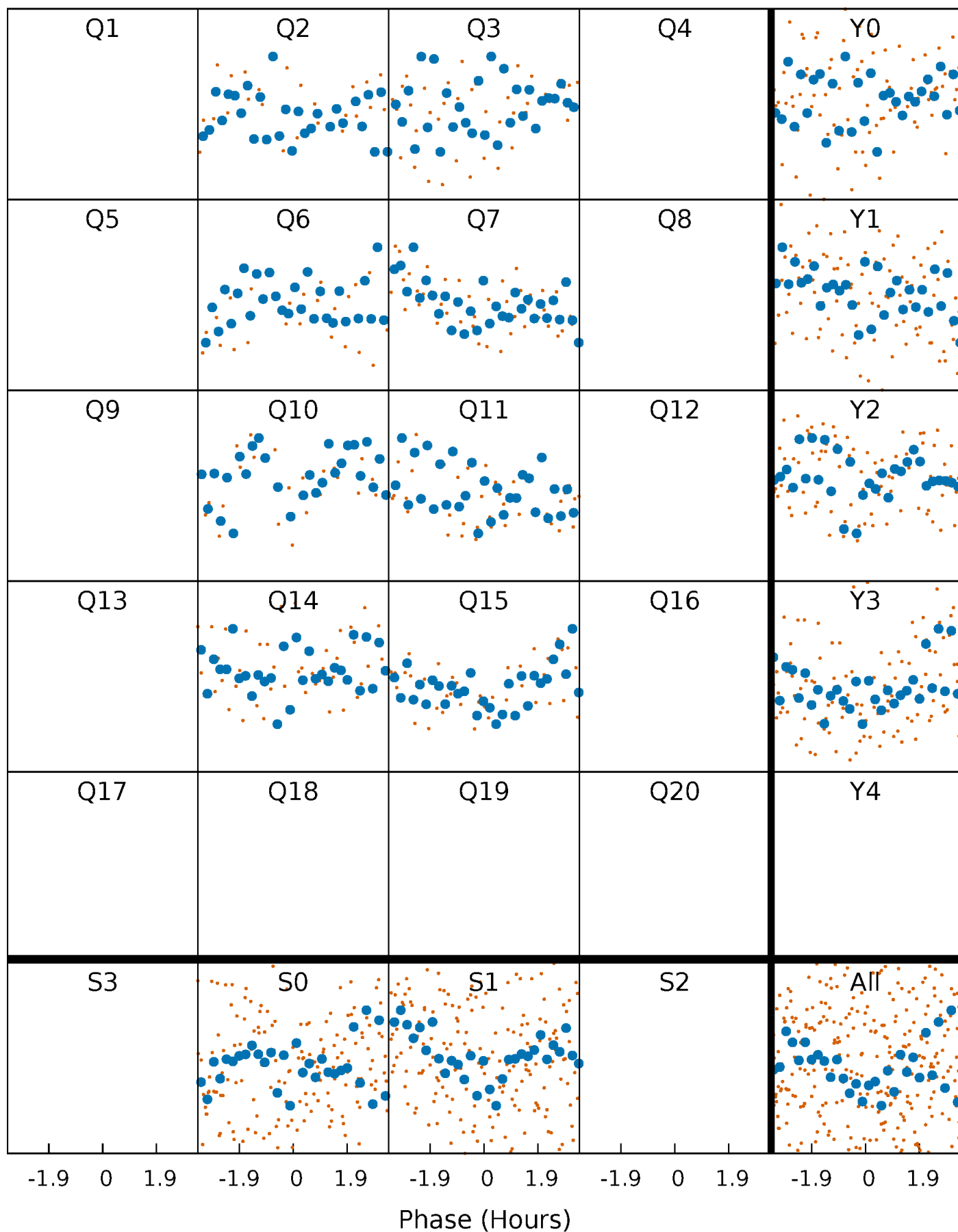


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



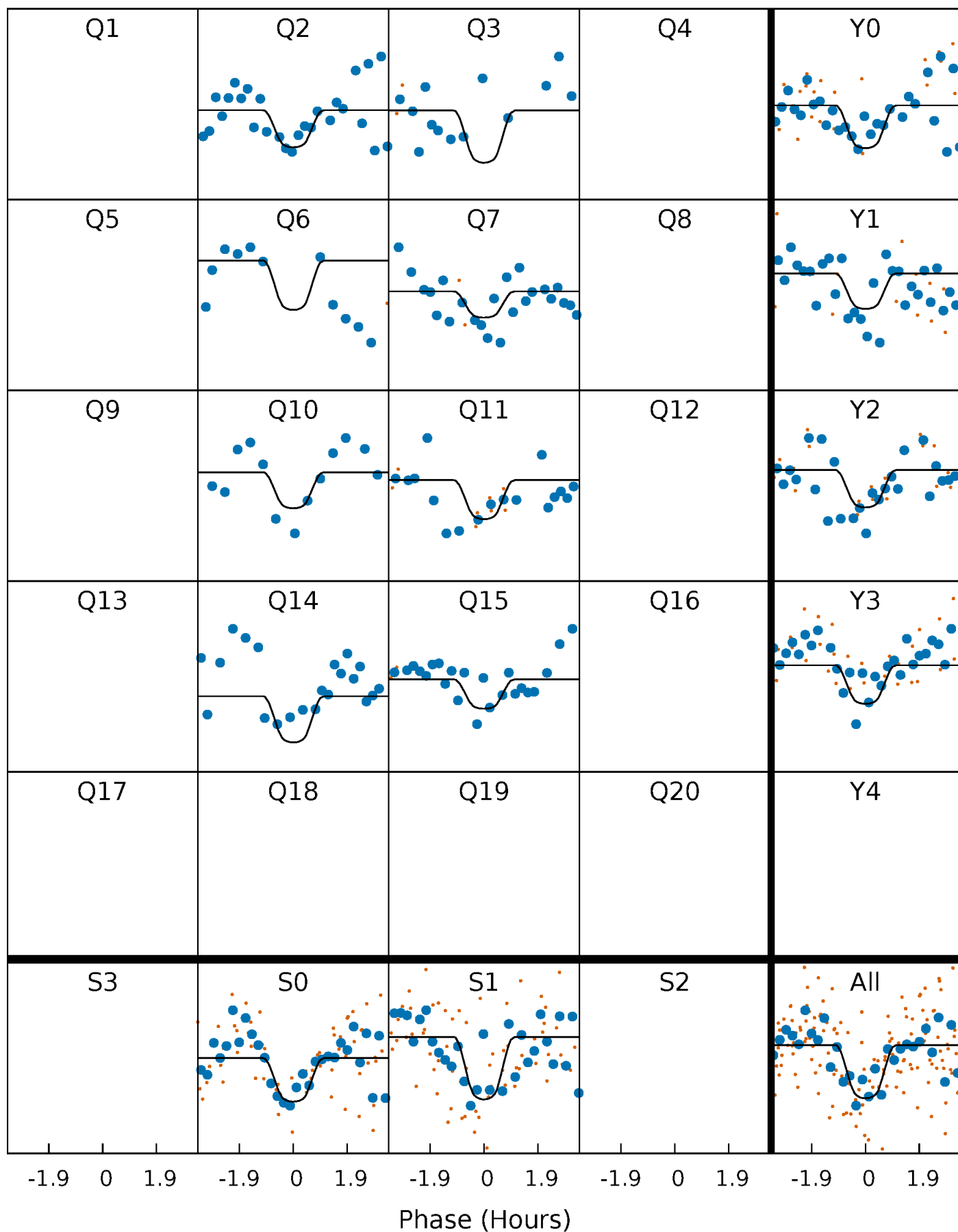
PDC Quarter-Phased Transit Curves

TCE 010407047-05 $P = 24.791132$ Days $T_0 = 136.554871$ (BKJD)



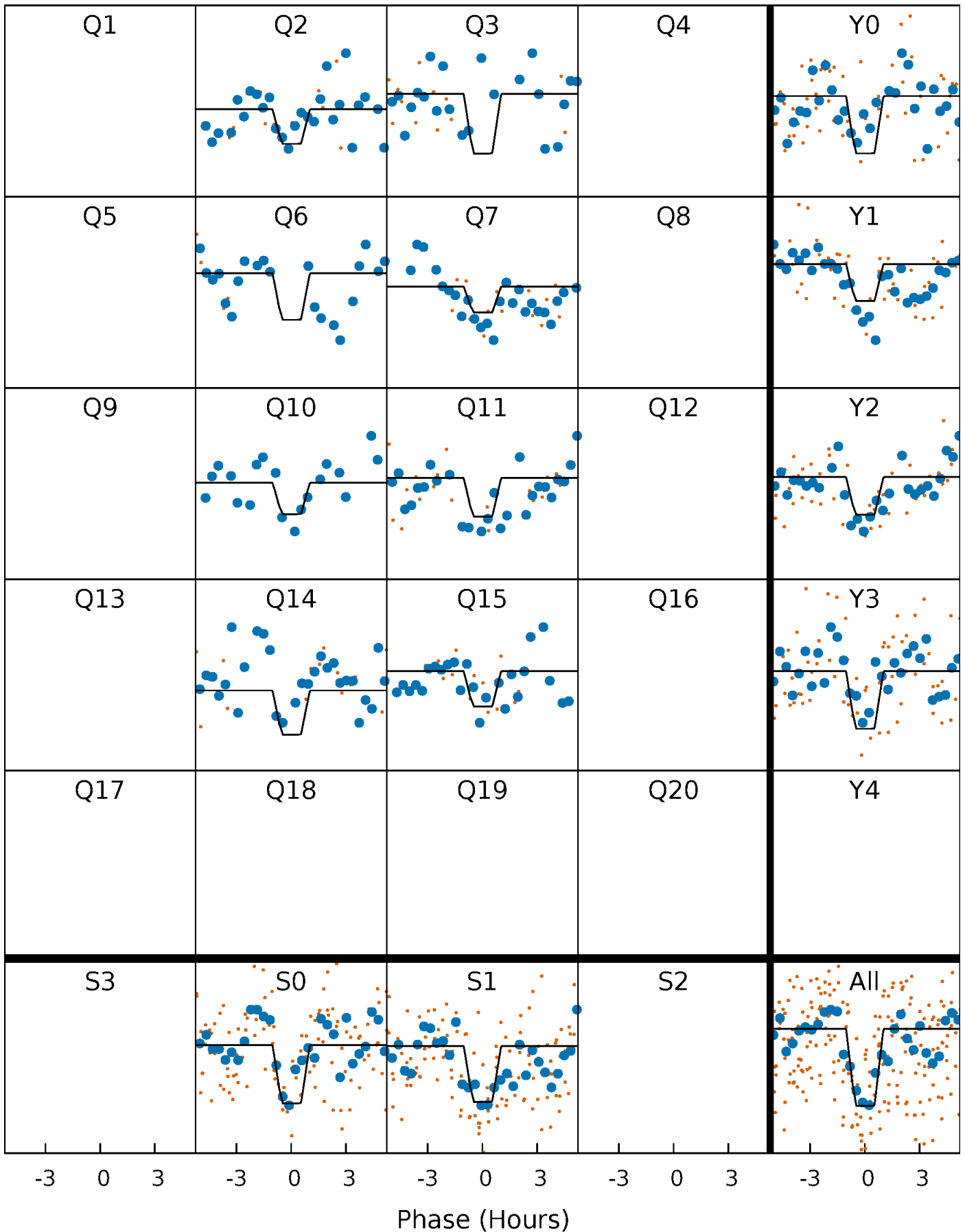
DV Quarter-Phased Transit Curves

TCE 010407047-05 $P = 24.791132$ Days $T_0 = 136.554871$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

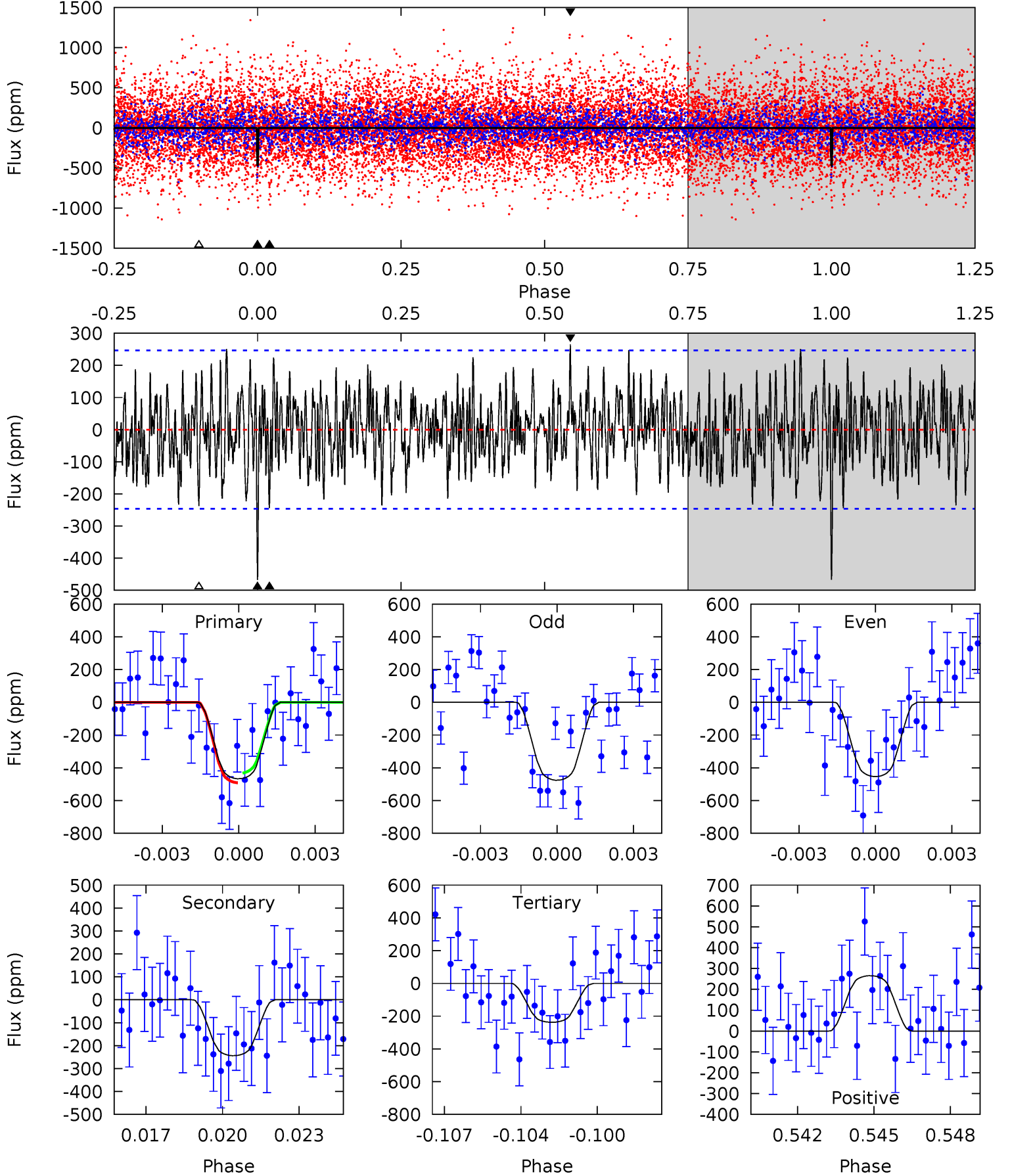
TCE 010407047-05 $P = 24.790905$ Days $T_0 = 136.559977$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-05, P = 24.791132 Days, E = 136.554871 Days

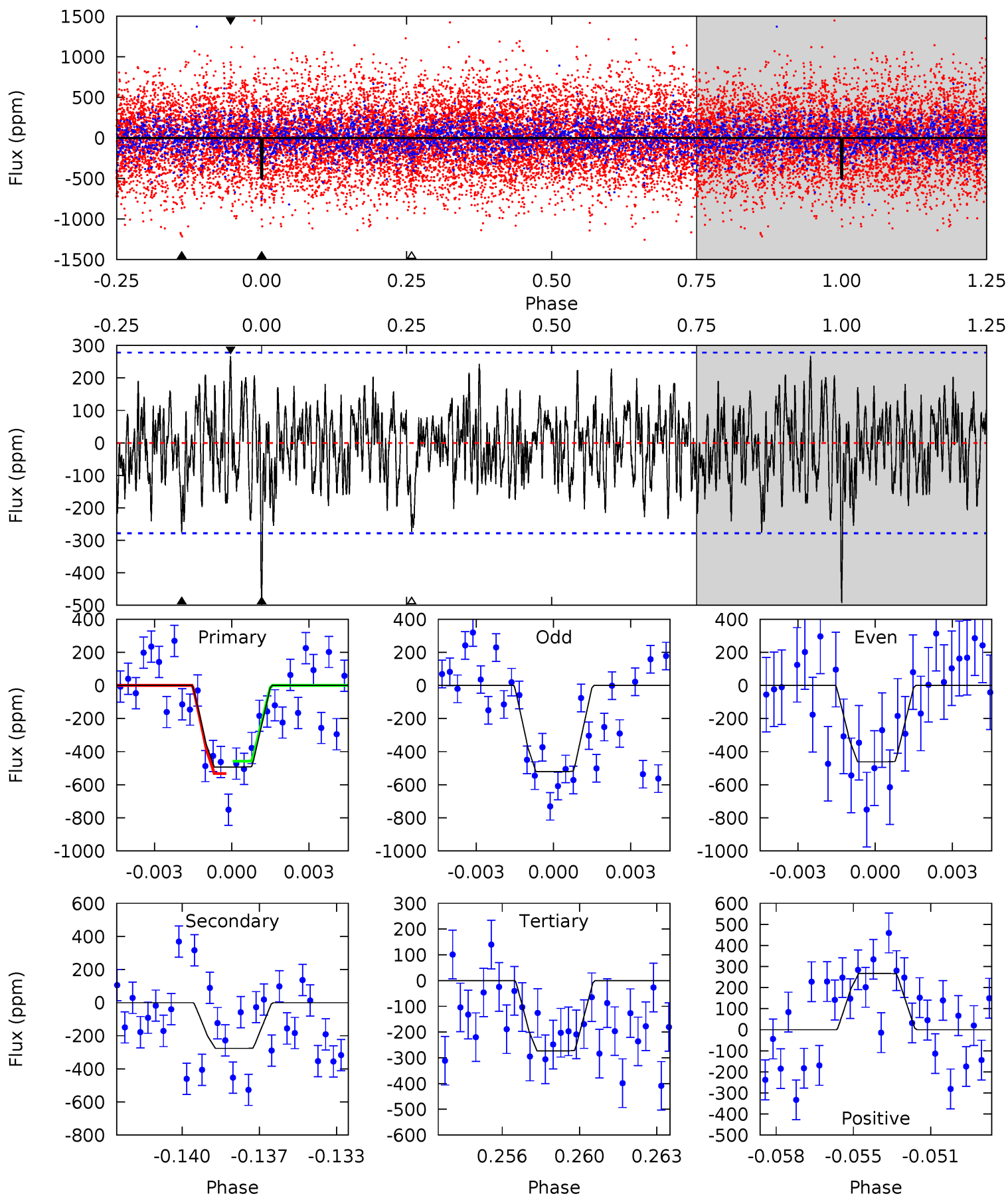
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.92	5.18	5.04	5.64	5.23	2.93	1.85	4.87	4.28	0.13	-0.46	0.24	0.91	0.36	0.63



Alt Model-Shift Uniqueness Test

010407047-05, P = 24.790905 Days, E = 136.559977 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.27	5.20	5.14	5.02	5.23	2.93	1.72	4.14	4.25	0.07	0.18	0.56	0.78	0.35	0.69



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-244 ± 47	$14.78^{+8.51}_{-7.82}$	1593^{+186}_{-185}	3953^{+1259}_{-507}	20^{+68}_{-12}
Alt.	-277 ± 53	$12.93^{+9.19}_{-6.71}$	1607^{+198}_{-191}	4262^{+1471}_{-633}	30^{+104}_{-19}

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 $A_{obs} \gg 1.0$

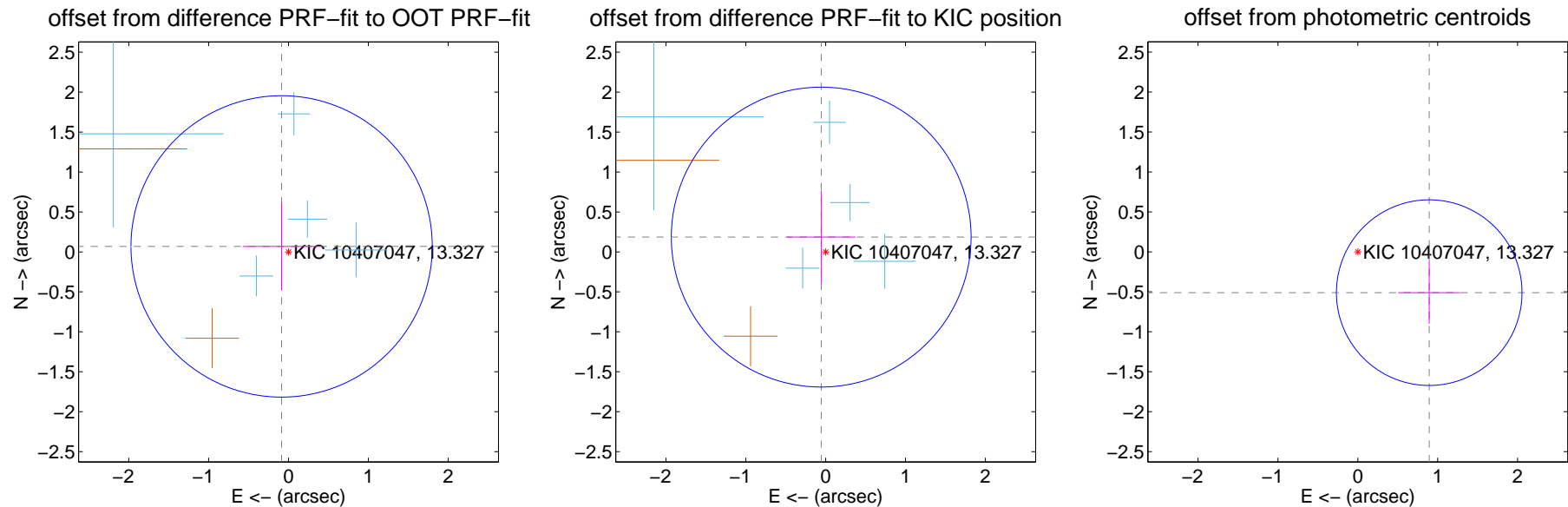
DV Centroid Data

Supplemental centroid analysis for 010407047-05. Kepler magnitude: 13.33. Transit SNR 7.84

There are 5 quarters with good PRF difference image offsets

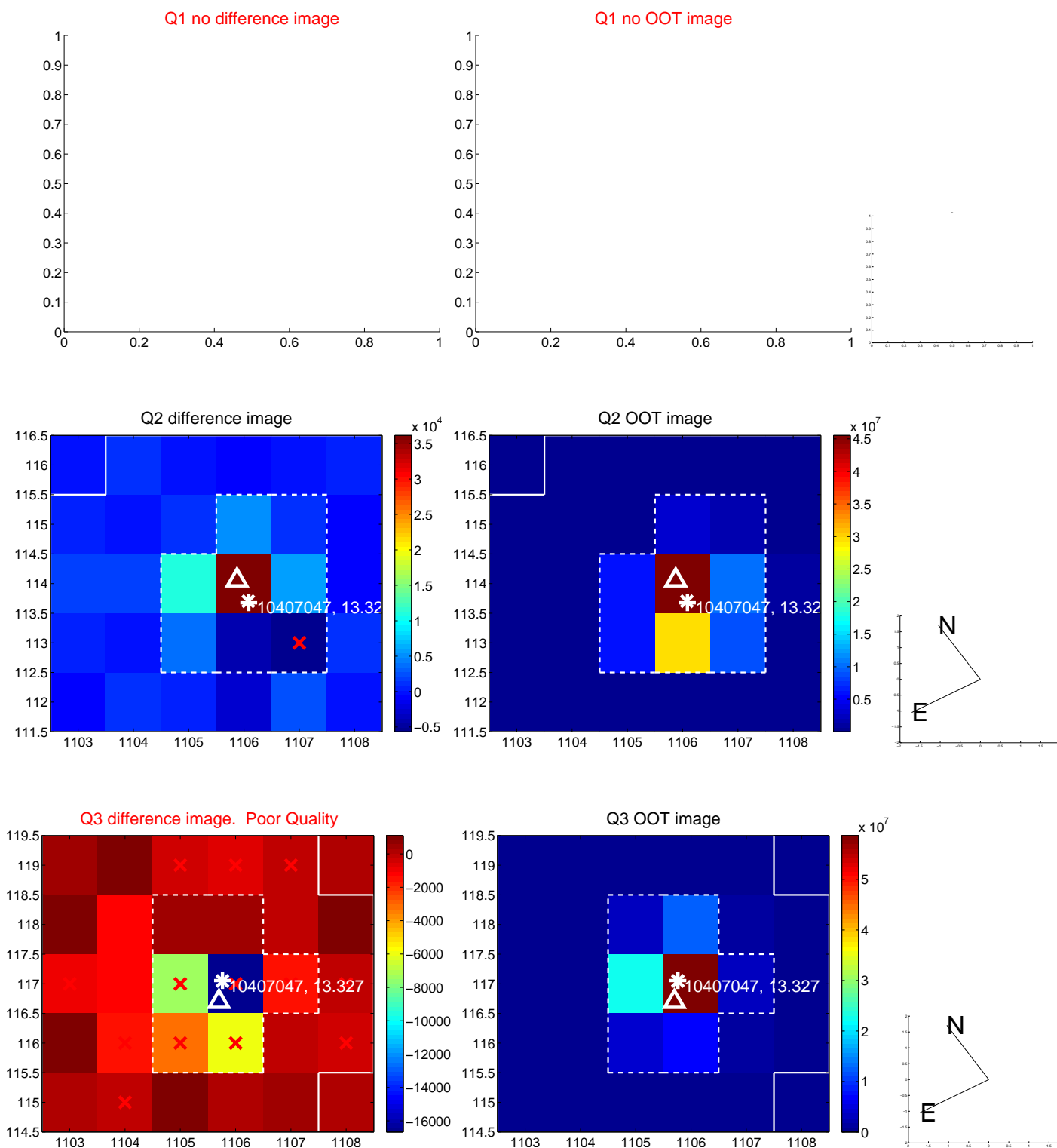
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.110 ± 0.629	0.18	0.086 ± 0.484	0.069 ± 0.548
PRF-fit source offset from KIC position	0.194 ± 0.625	0.31	0.056 ± 0.430	0.186 ± 0.580
photometric centroid source offset	1.03 ± 0.39	2.66	-0.89 ± 0.39	-0.51 ± 0.39

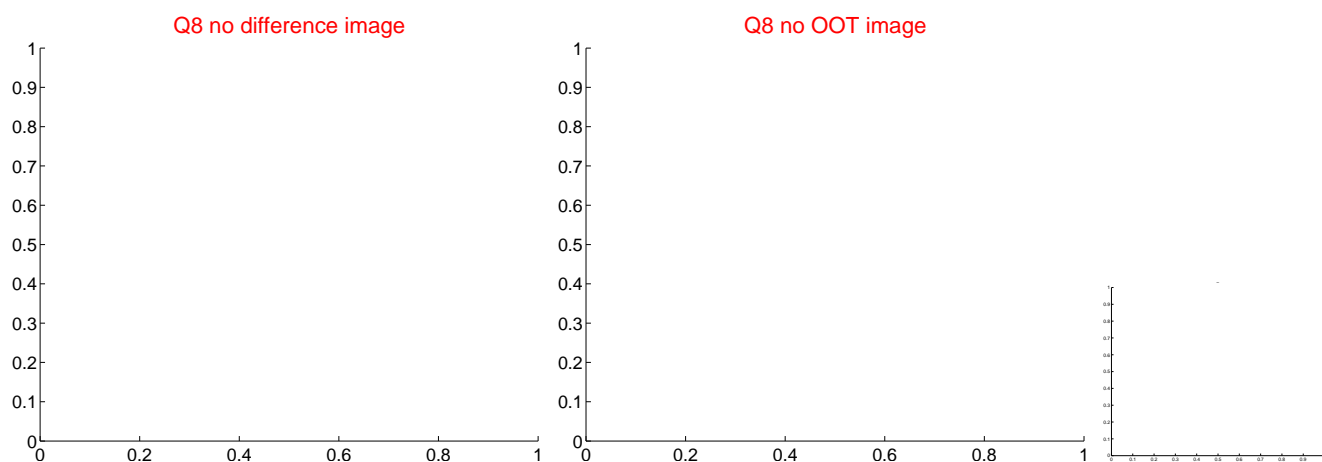
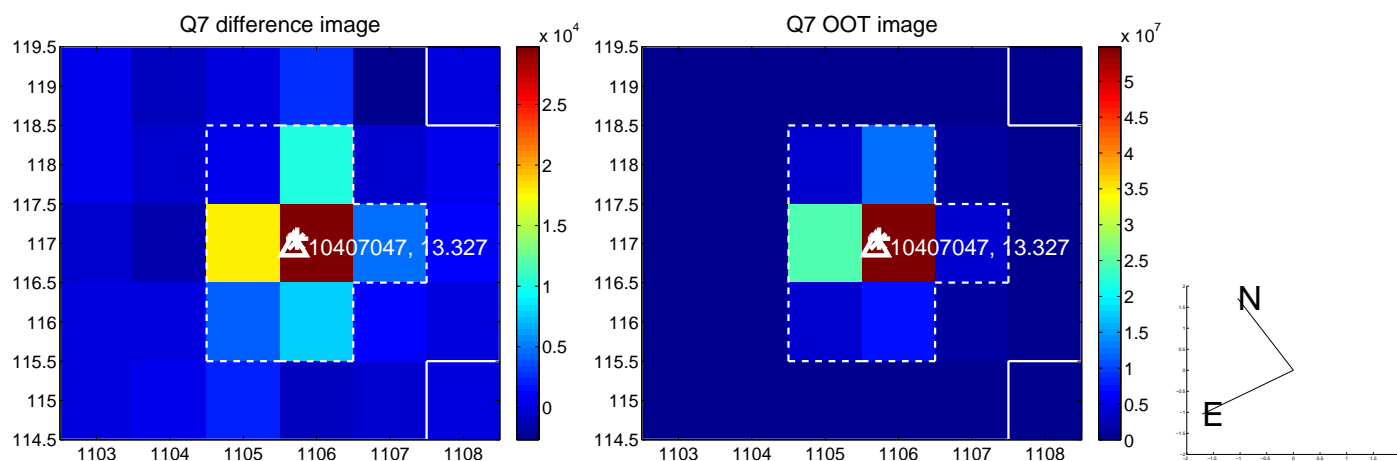
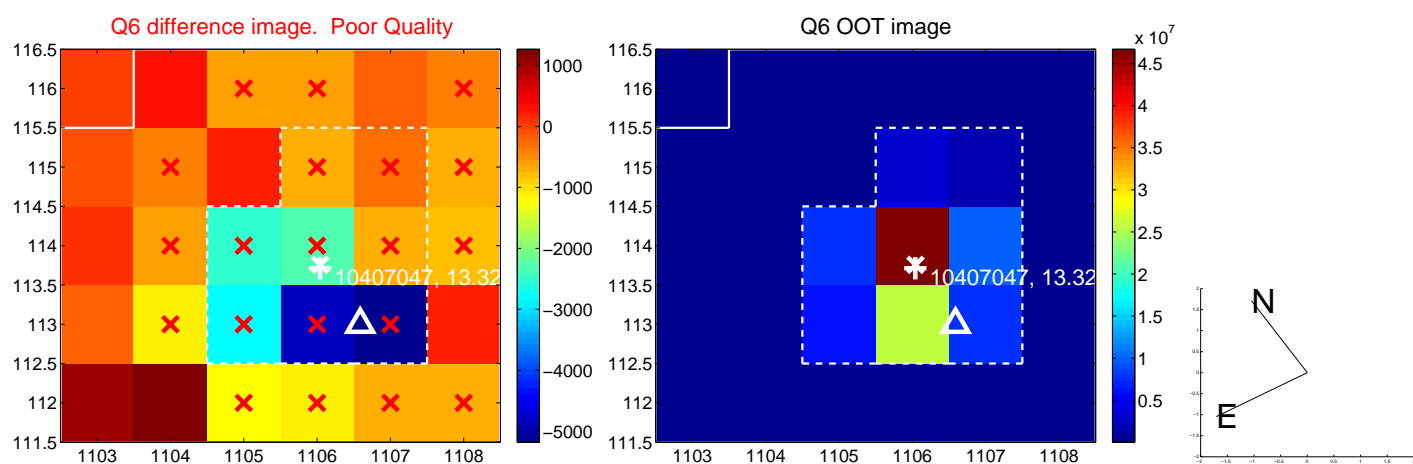
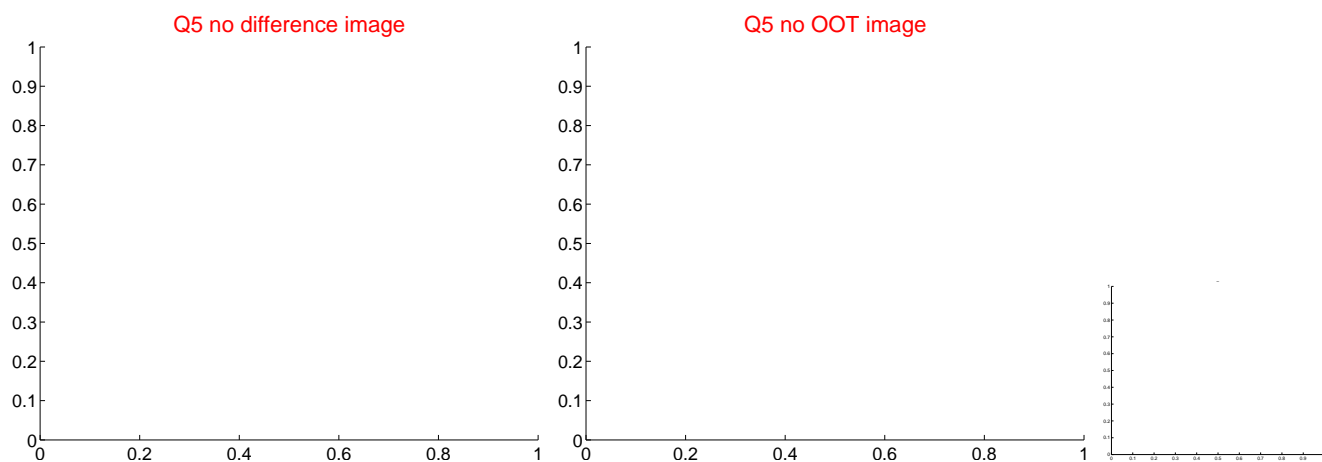


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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



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

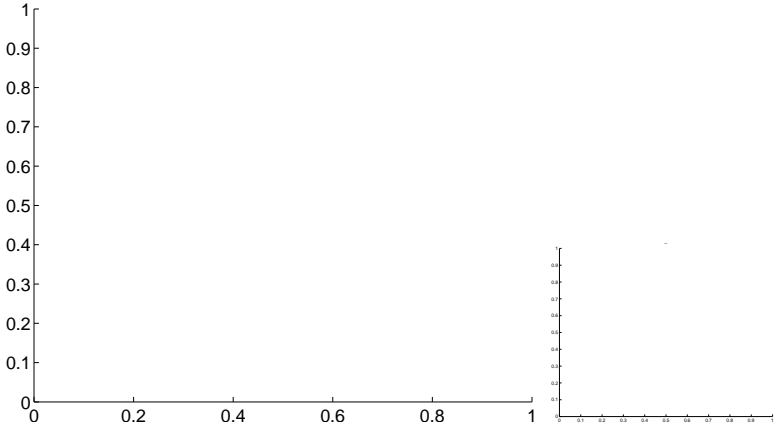


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

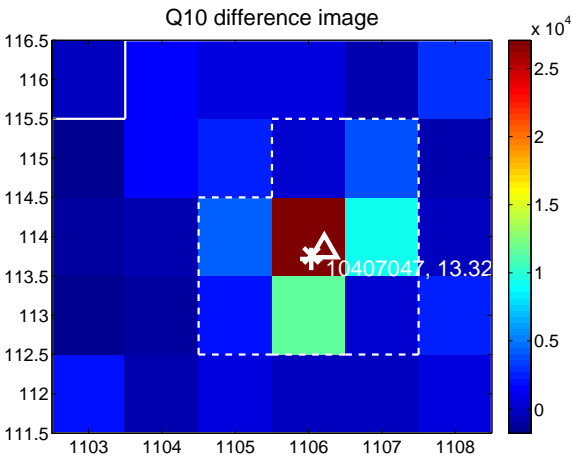
Q9 no difference image



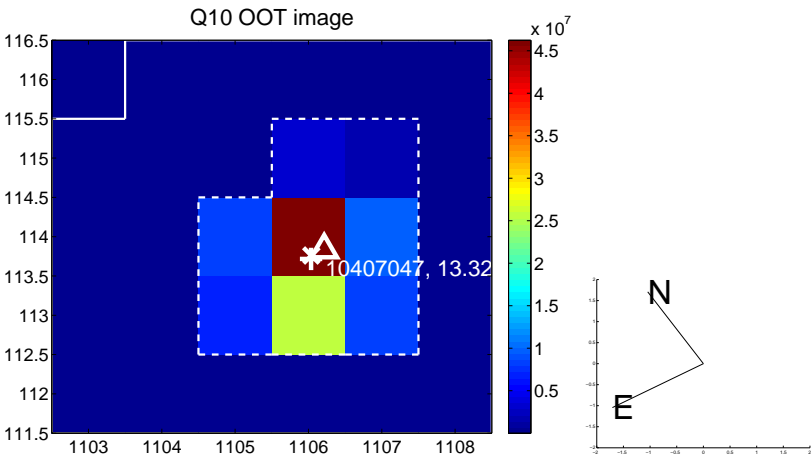
Q9 no OOT image



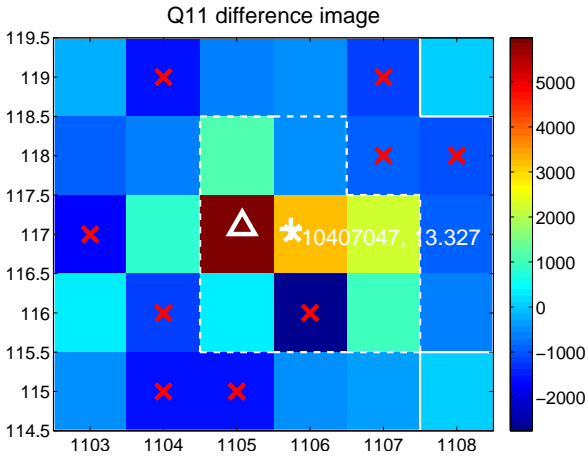
Q10 difference image



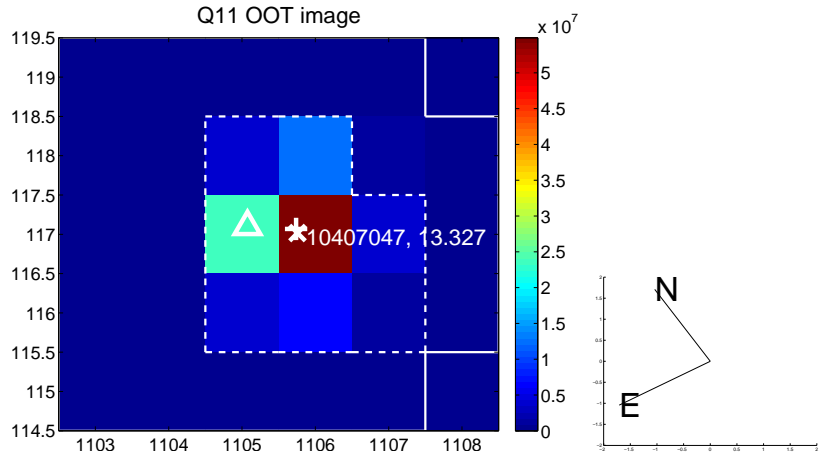
Q10 OOT image



Q11 difference image



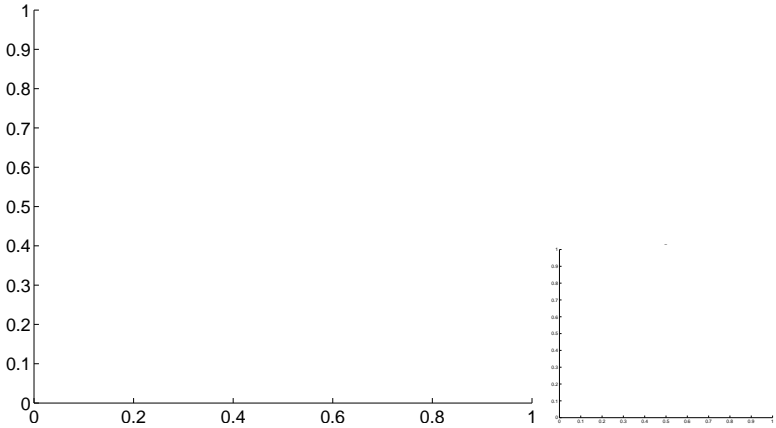
Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

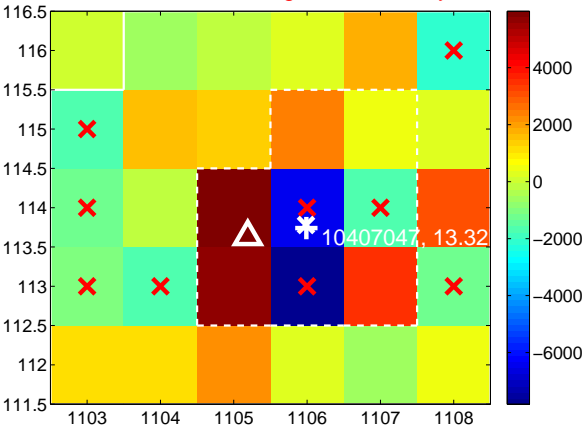
Q13 no difference image



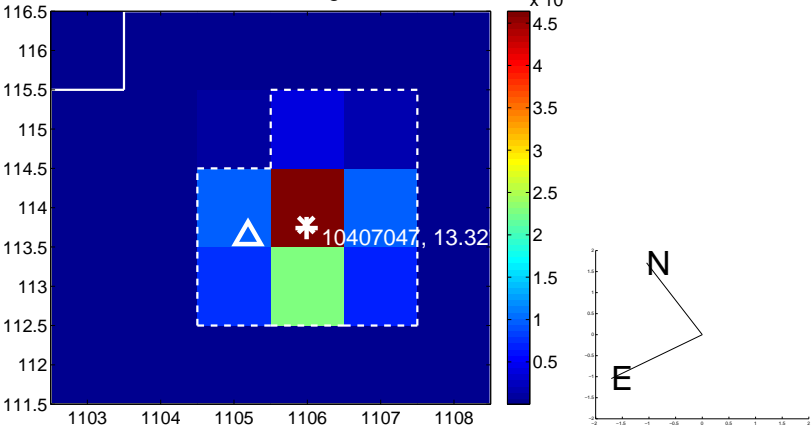
Q13 no OOT image



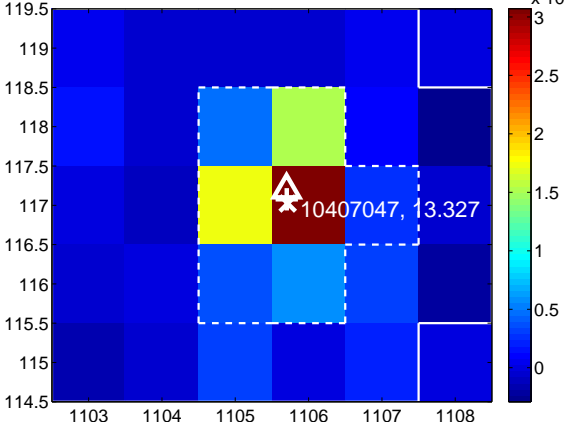
Q14 difference image. Poor Quality



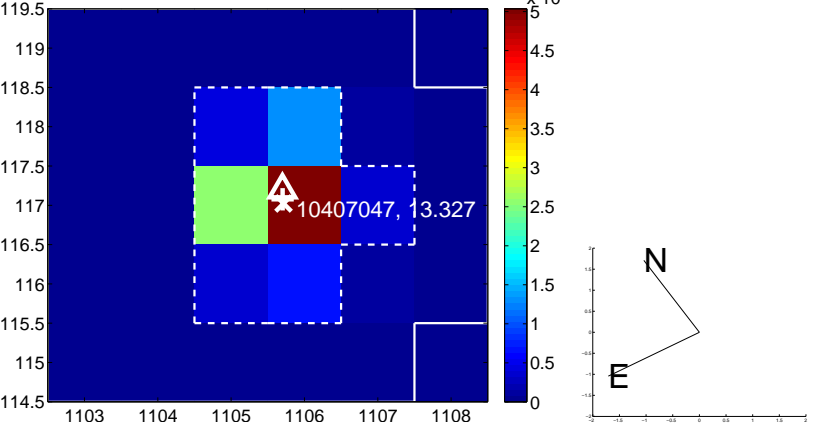
Q14 OOT image



Q15 difference image



Q15 OOT image



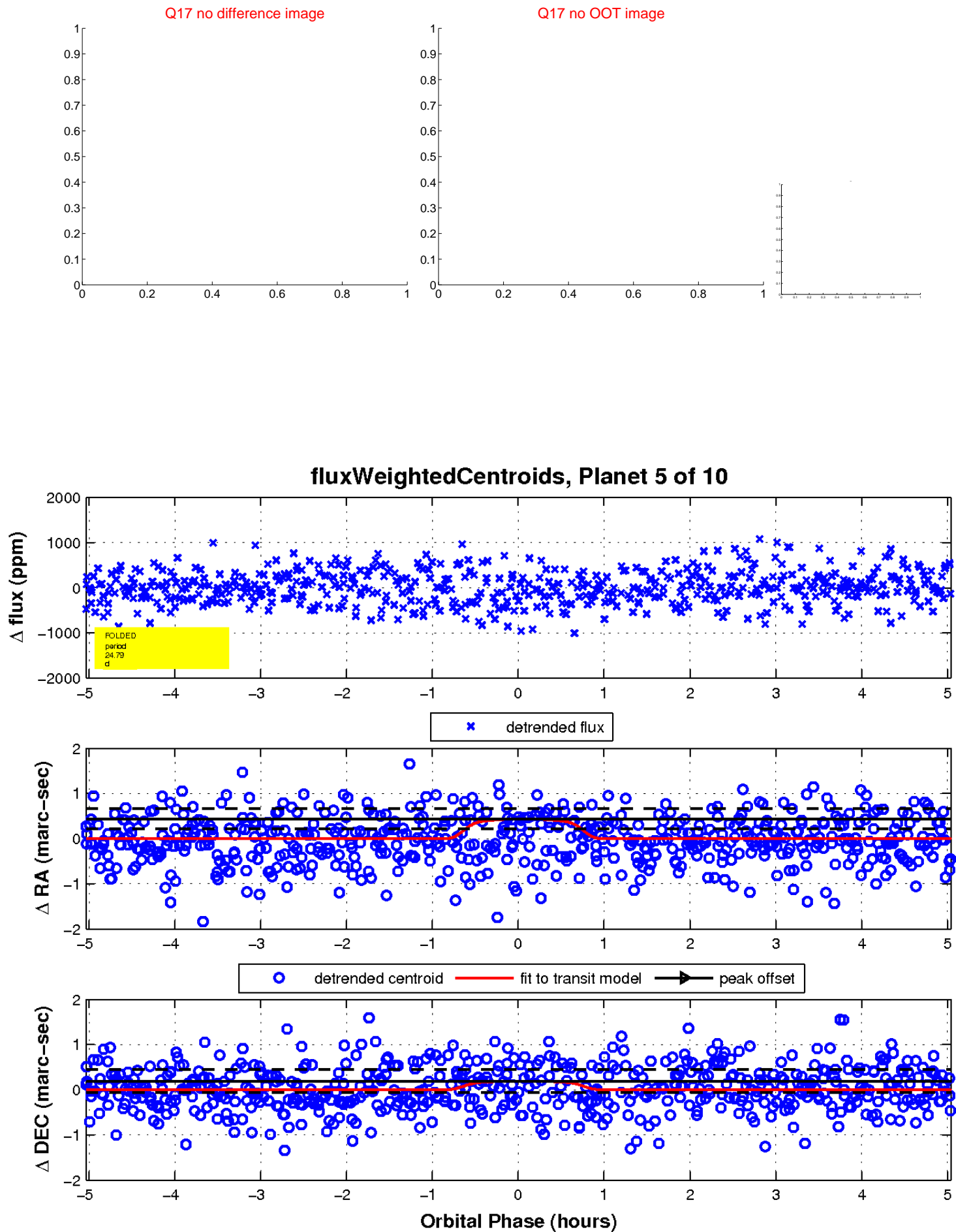
Q16 no difference image



Q16 no OOT image

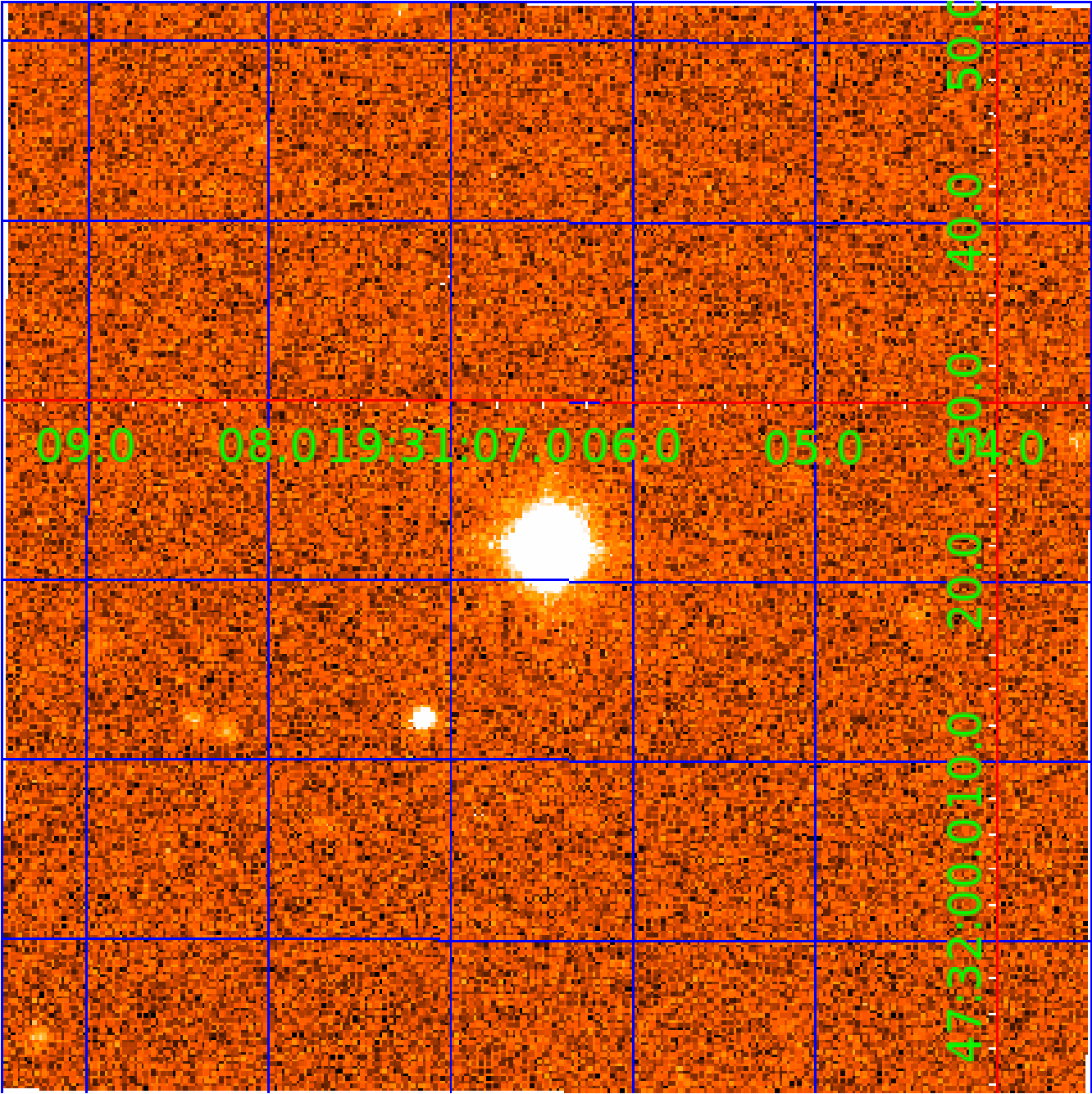


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

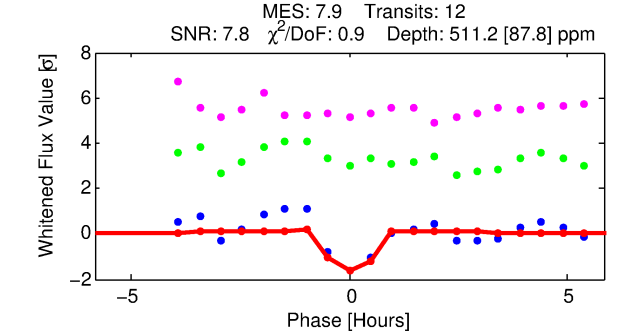
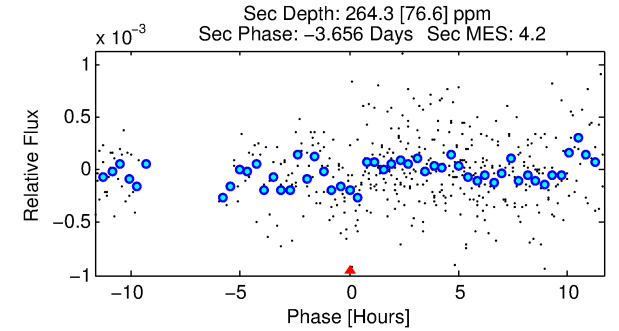
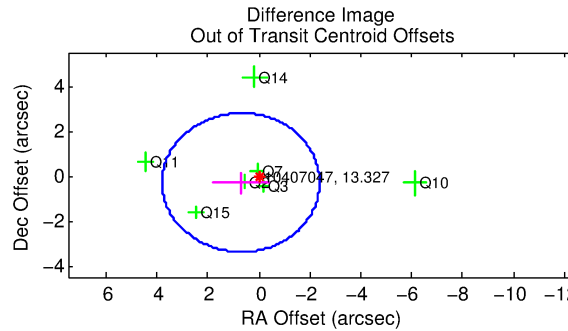
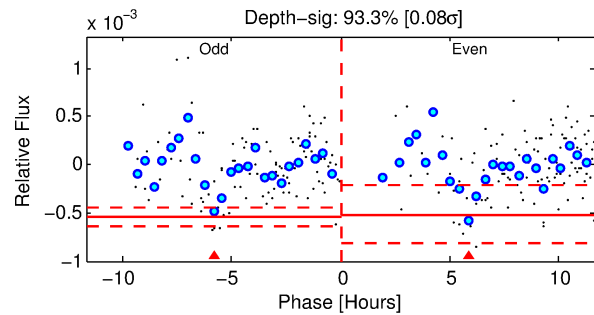
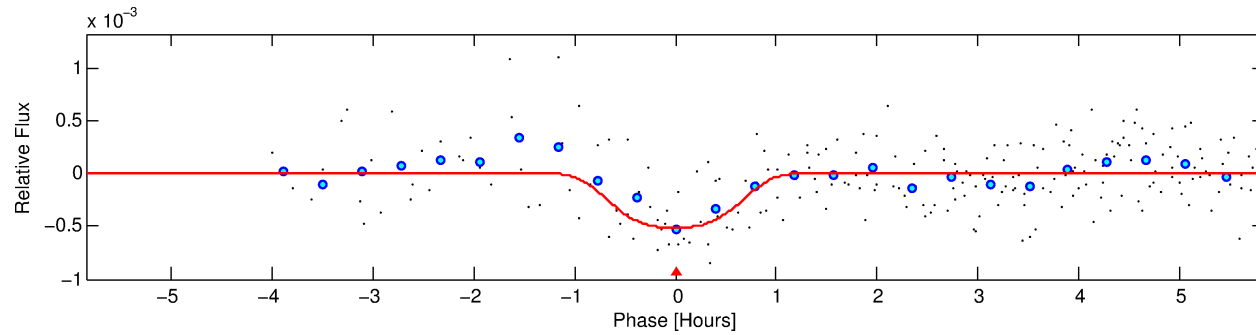
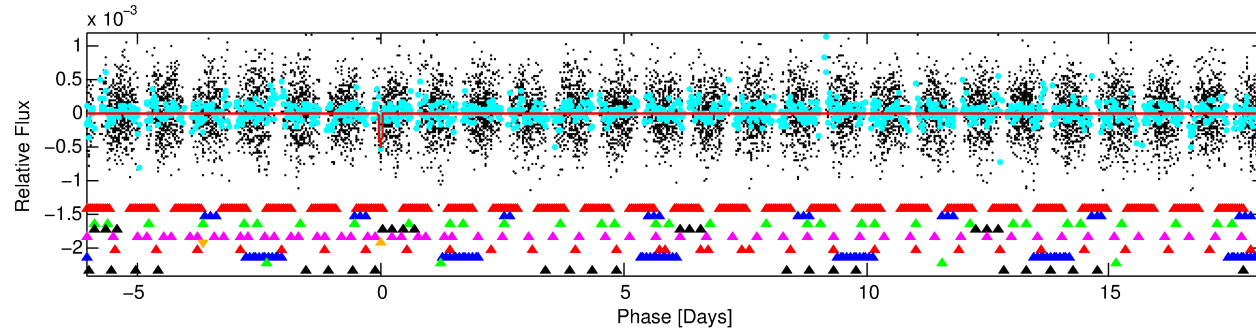
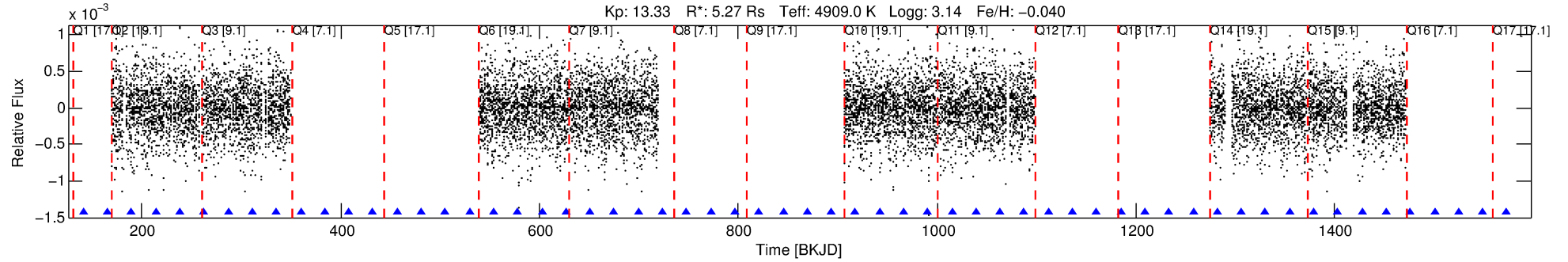
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010407047-06

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 6 of 10 Period: 24.267 d
KOI: K07321 Corr: No Ephemeris Match



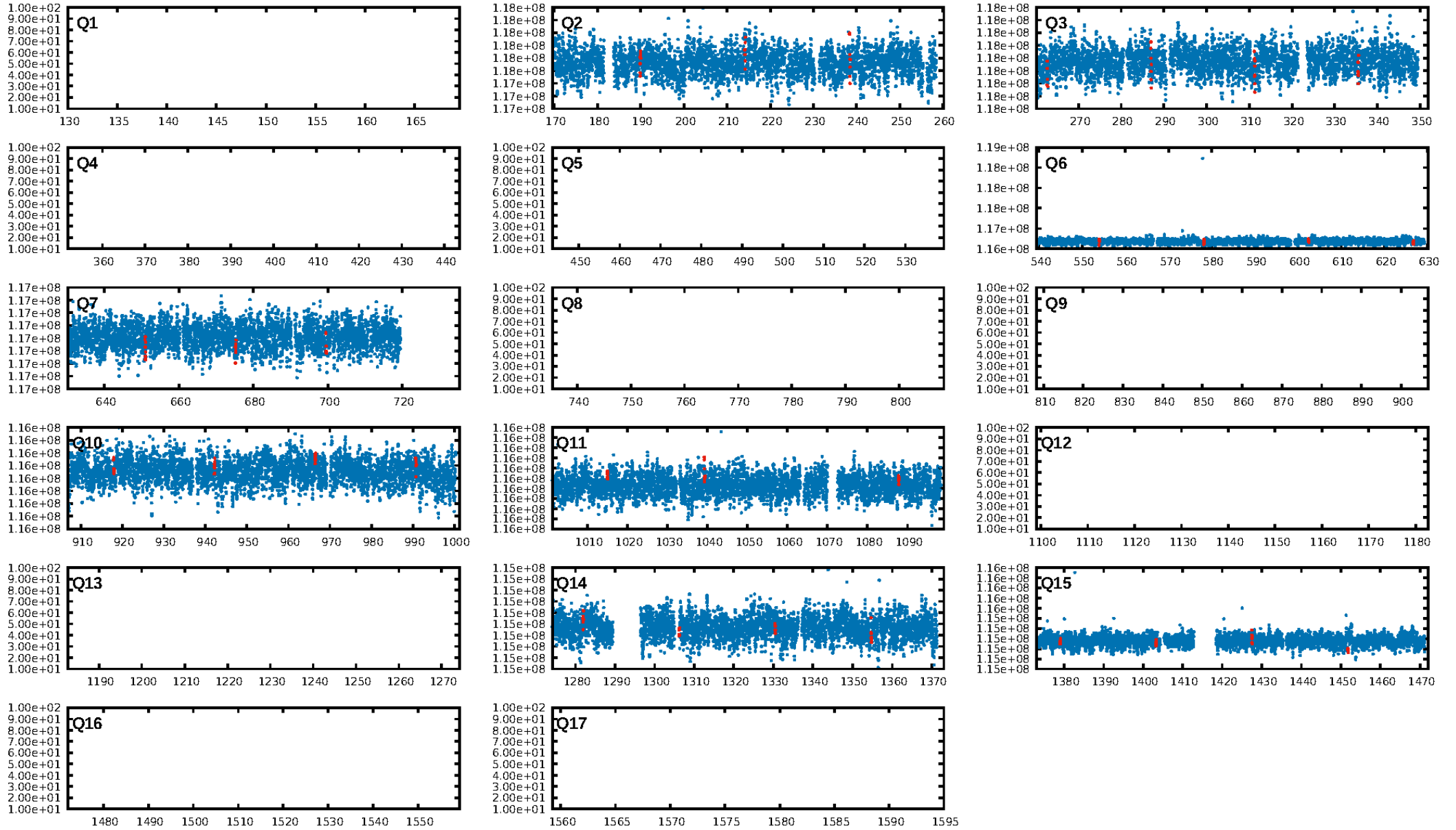
DV Fit Results:

Period = 24.26724 [0.00038] d
Epoch = 141.3811 [0.0056] BKJD
Rp/R* = 0.0286 [0.0041]
a/R* = 33.94 [11.75]
b = 0.97 [0.03]
Seff = 432.01 [295.79]
Teq = 1163 [199] K
Rp = 16.45 [7.22] Re
a = 0.1830 [0.0758] AU
Ag = 17.99 [14.21] [1.20 σ]
Teffp = 3702 [391] K [5.79 σ]

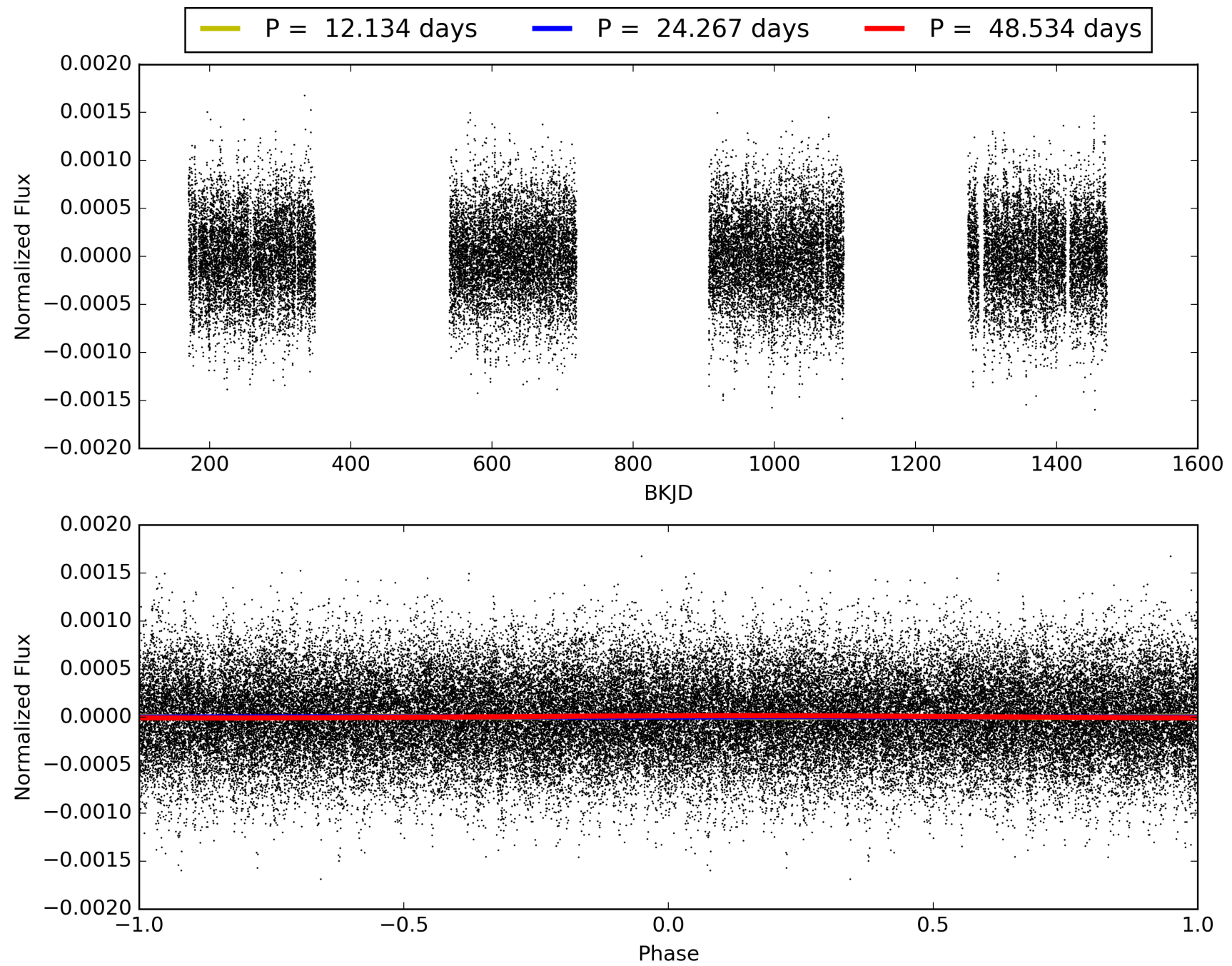
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.27 σ]
LongPeriod-sig: 100.0% [4.89 σ]
ModelChiSquare2-sig: 81.9%
ModelChiSquareGof-sig: 97.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 0.3434
Centroid-sig: 0.5%
Centroid-so: 0.797 arcsec [2.08 σ]
OotOffset-rm: 0.766 arcsec [0.74 σ]
KicOffset-rm: 0.705 arcsec [0.68 σ]
OotOffset-st: 3/4/0/0 [7]
KicOffset-st: 3/4/0/0 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.25 [2/8]

TCE 010407047-06, PDC Light Curves

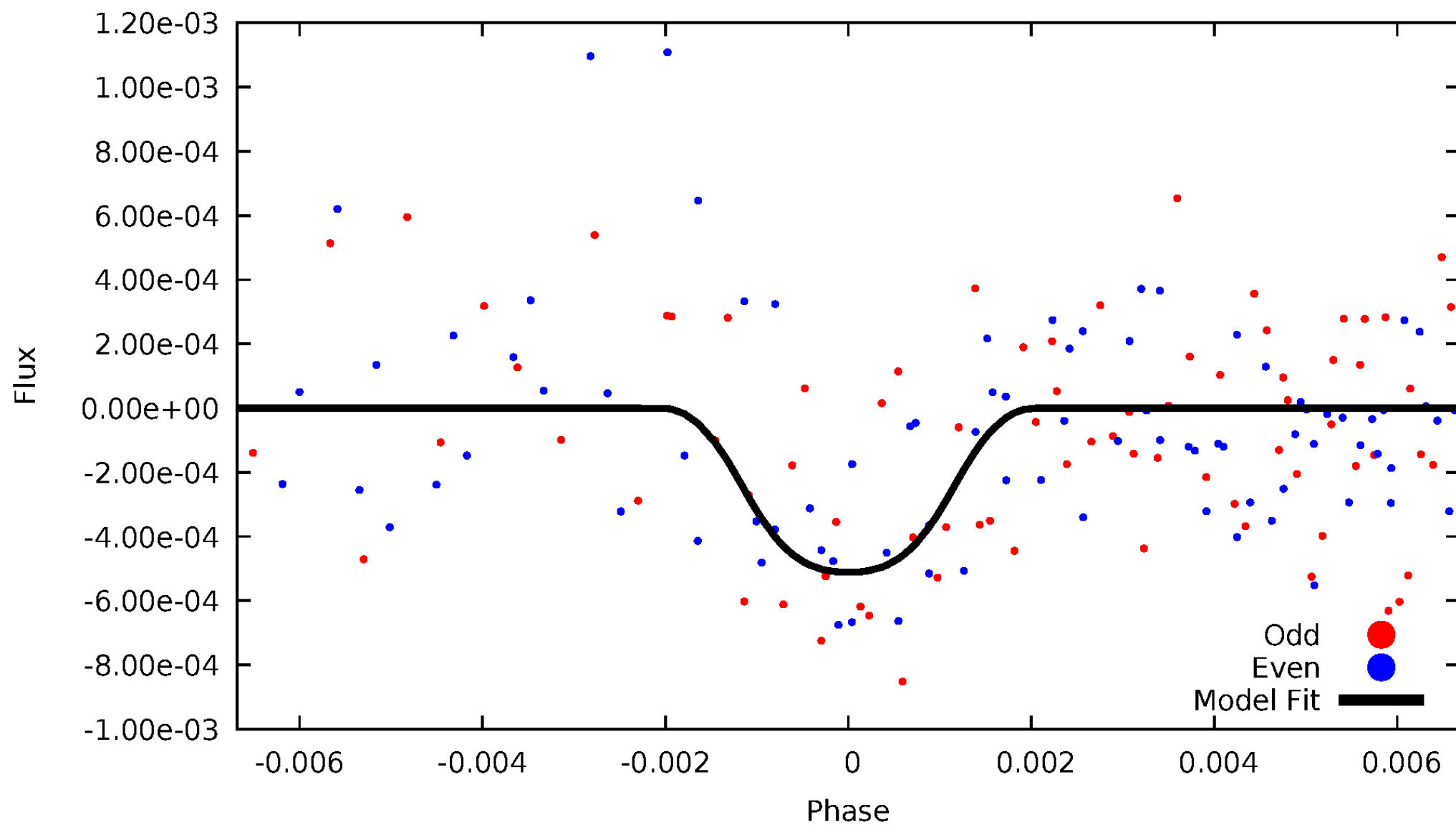


TCE 010407047-06



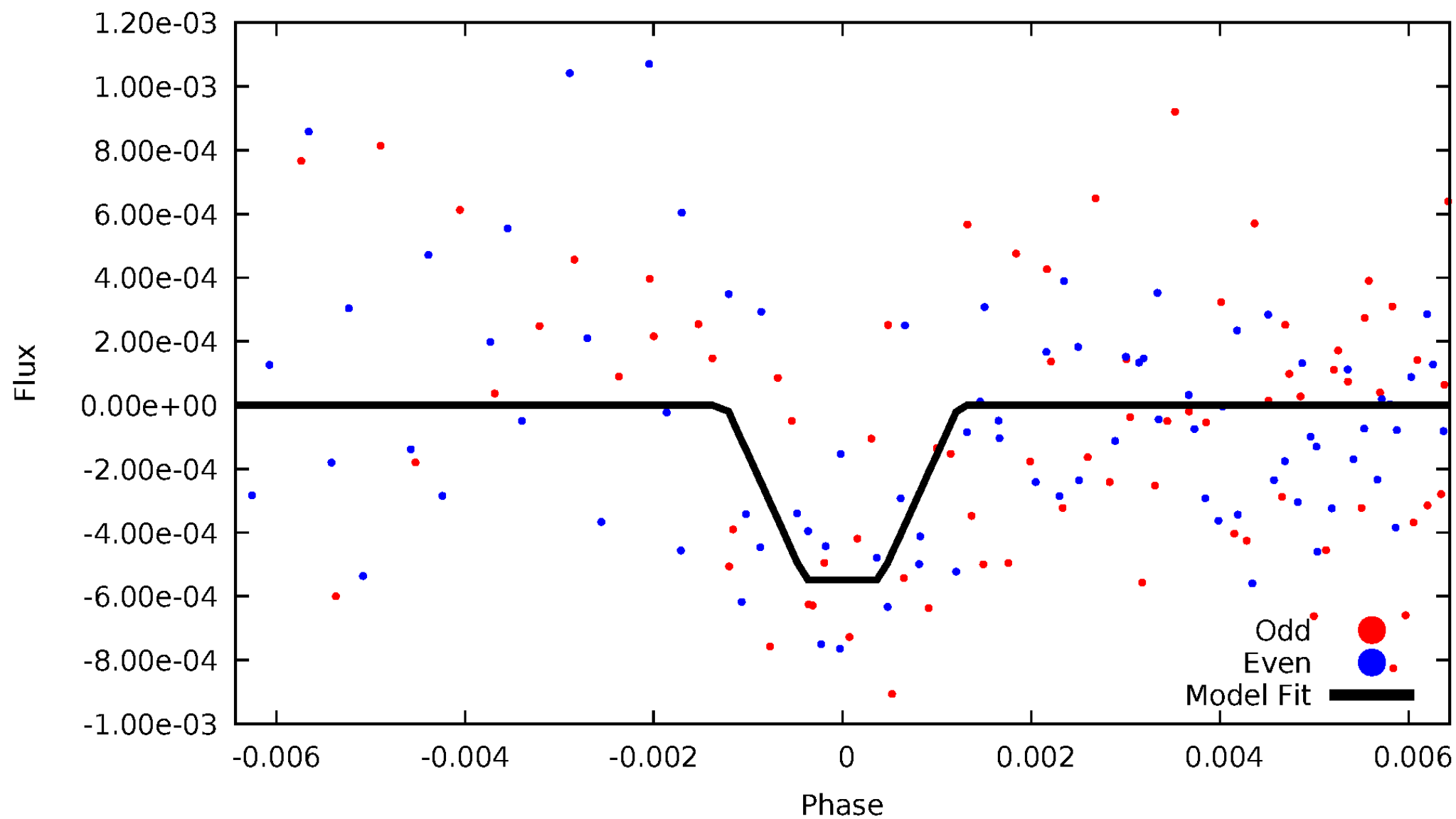
DV Odd/Even

TCE 010407047-06



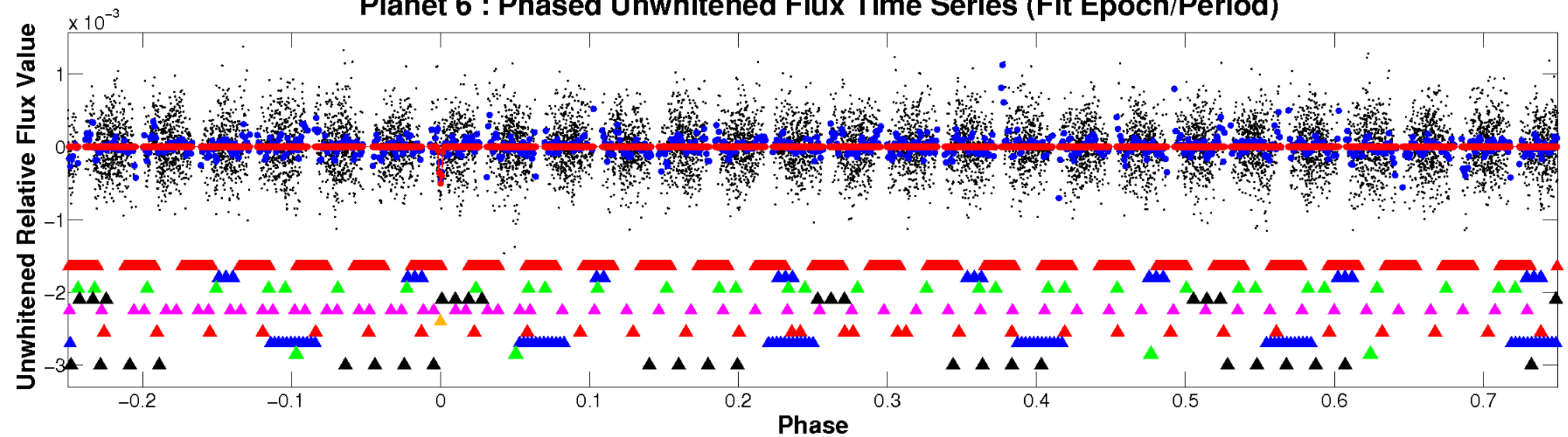
ALT Odd/Even

TCE 010407047-06

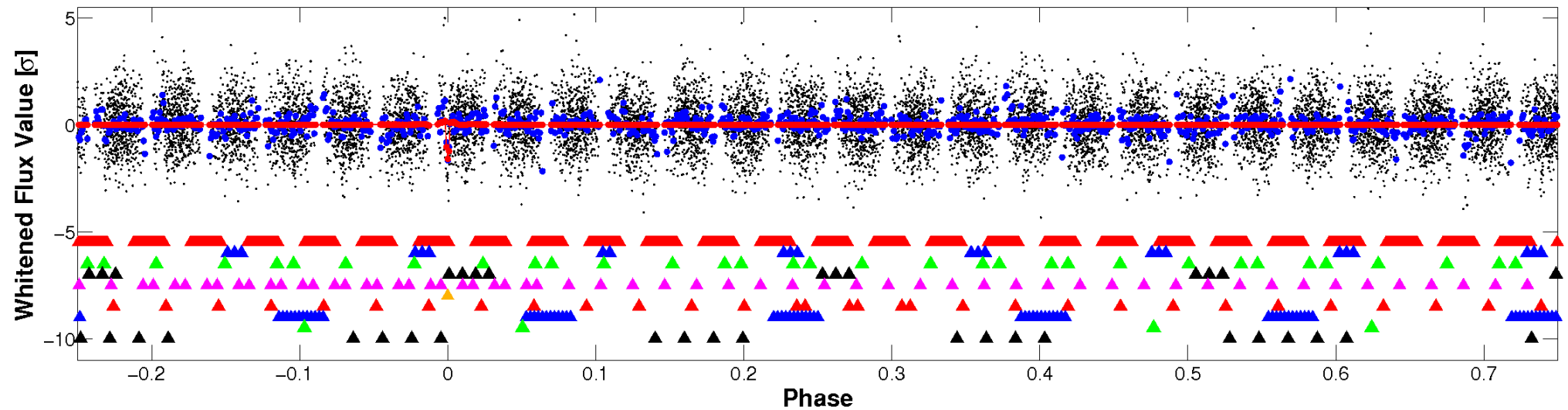


Non-Whitened Vs. Whitened Light Curve

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

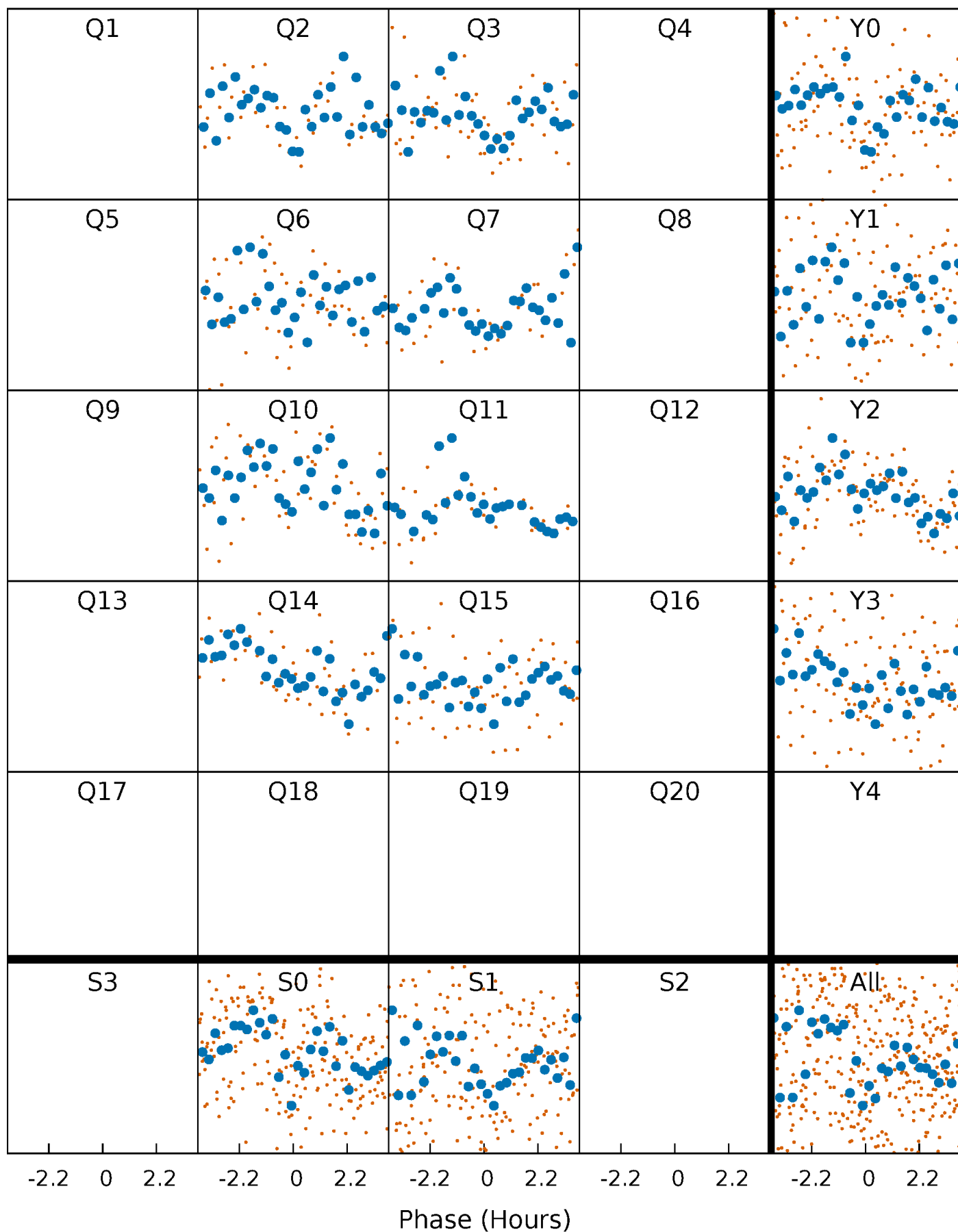


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



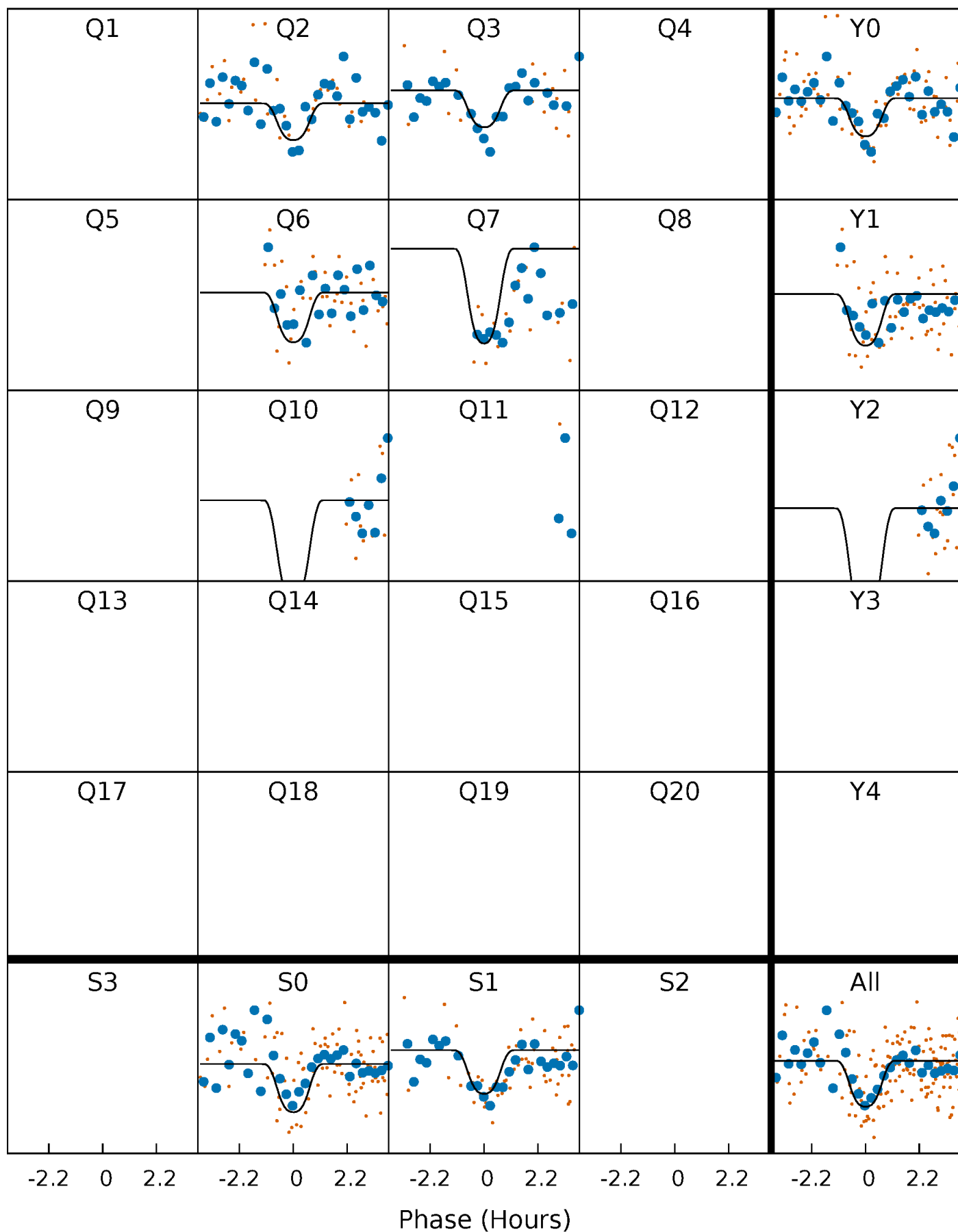
PDC Quarter-Phased Transit Curves

TCE 010407047-06 P= 24.267241 Days $T_0=141.381067$ (BKJD)



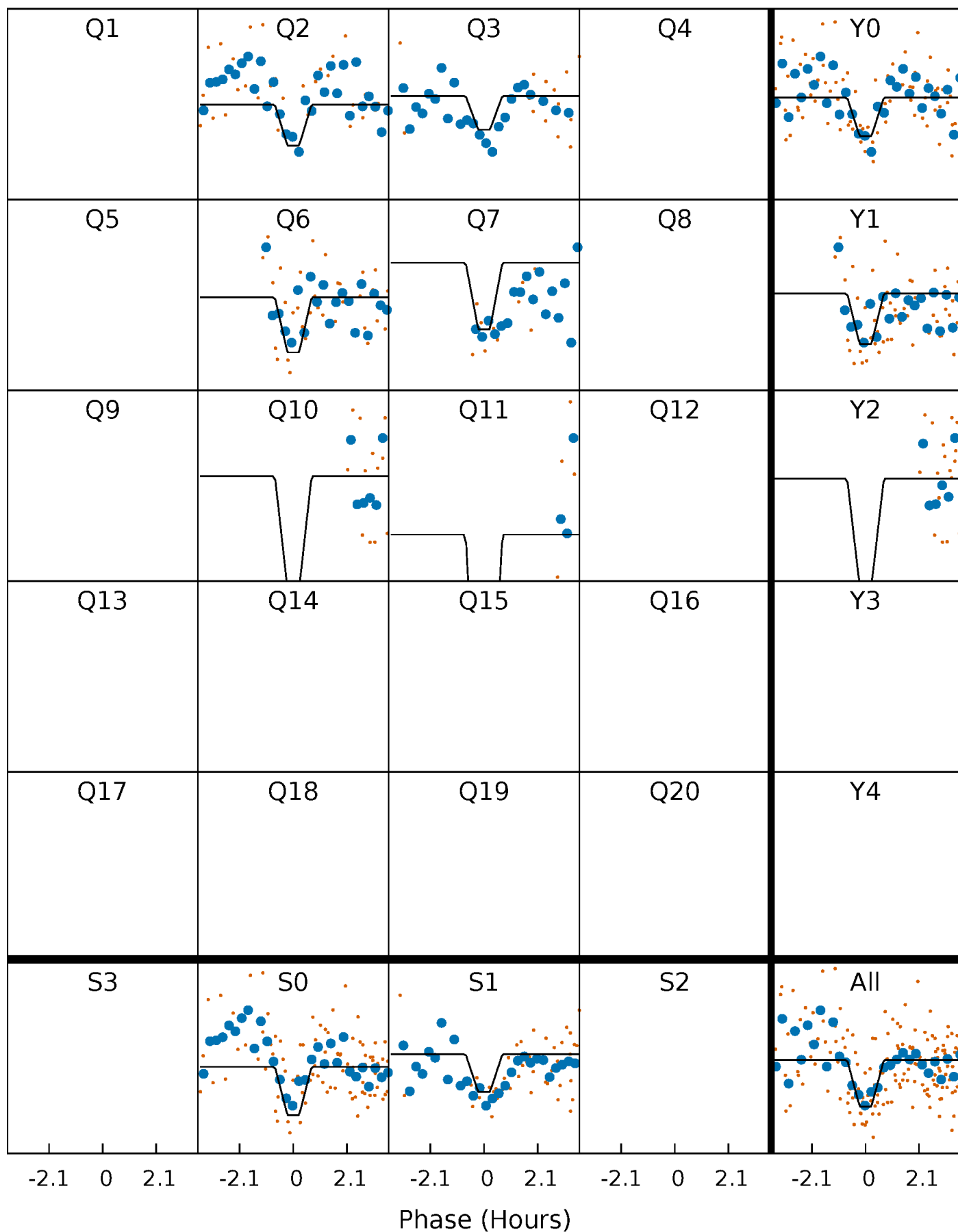
DV Quarter-Phased Transit Curves

TCE 010407047-06 P= 24.267241 Days $T_0=141.381067$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

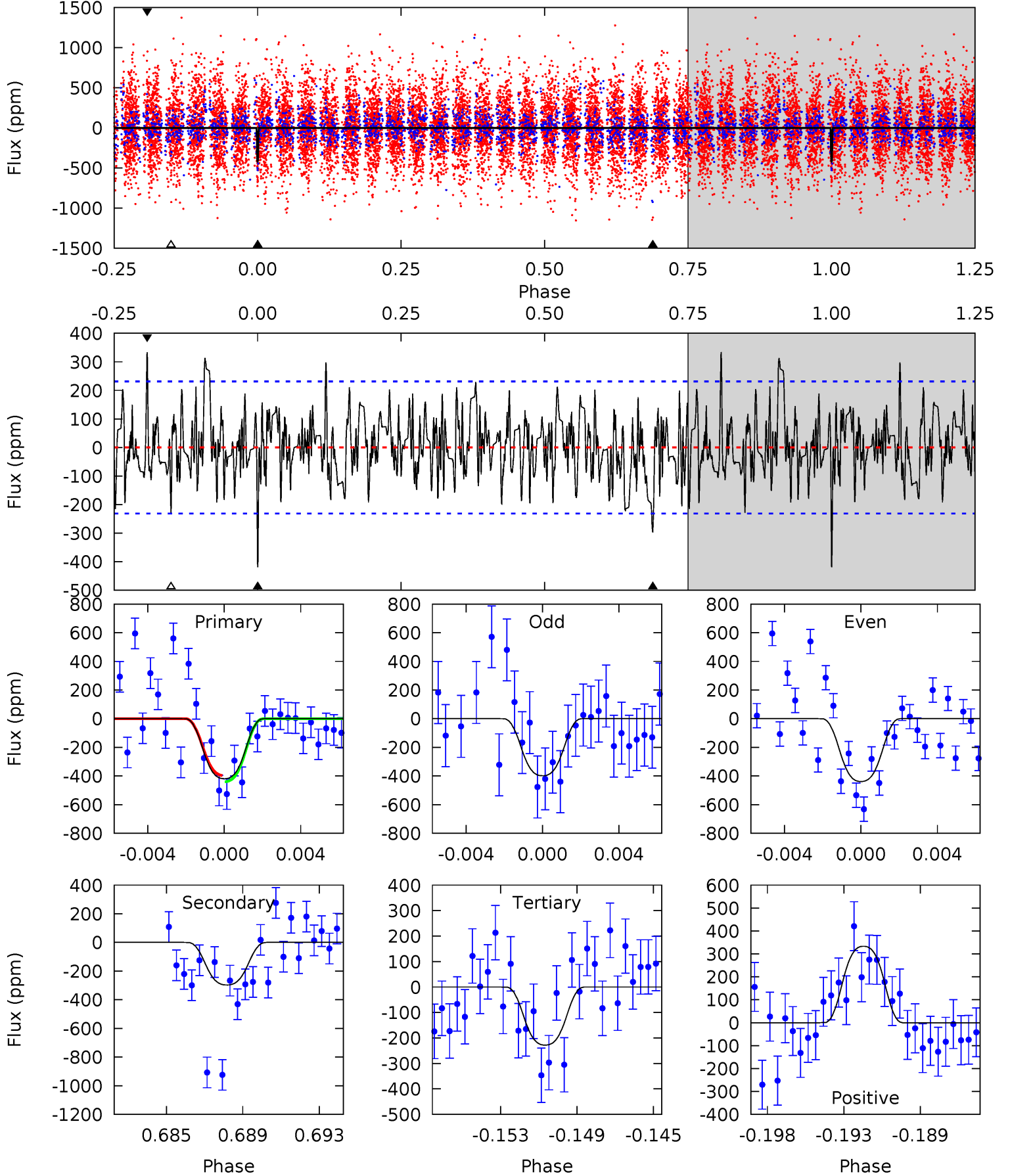
TCE 010407047-06 $P = 24.267224$ Days $T_0 = 141.382860$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-06, P = 24.267241 Days, E = 141.381067 Days

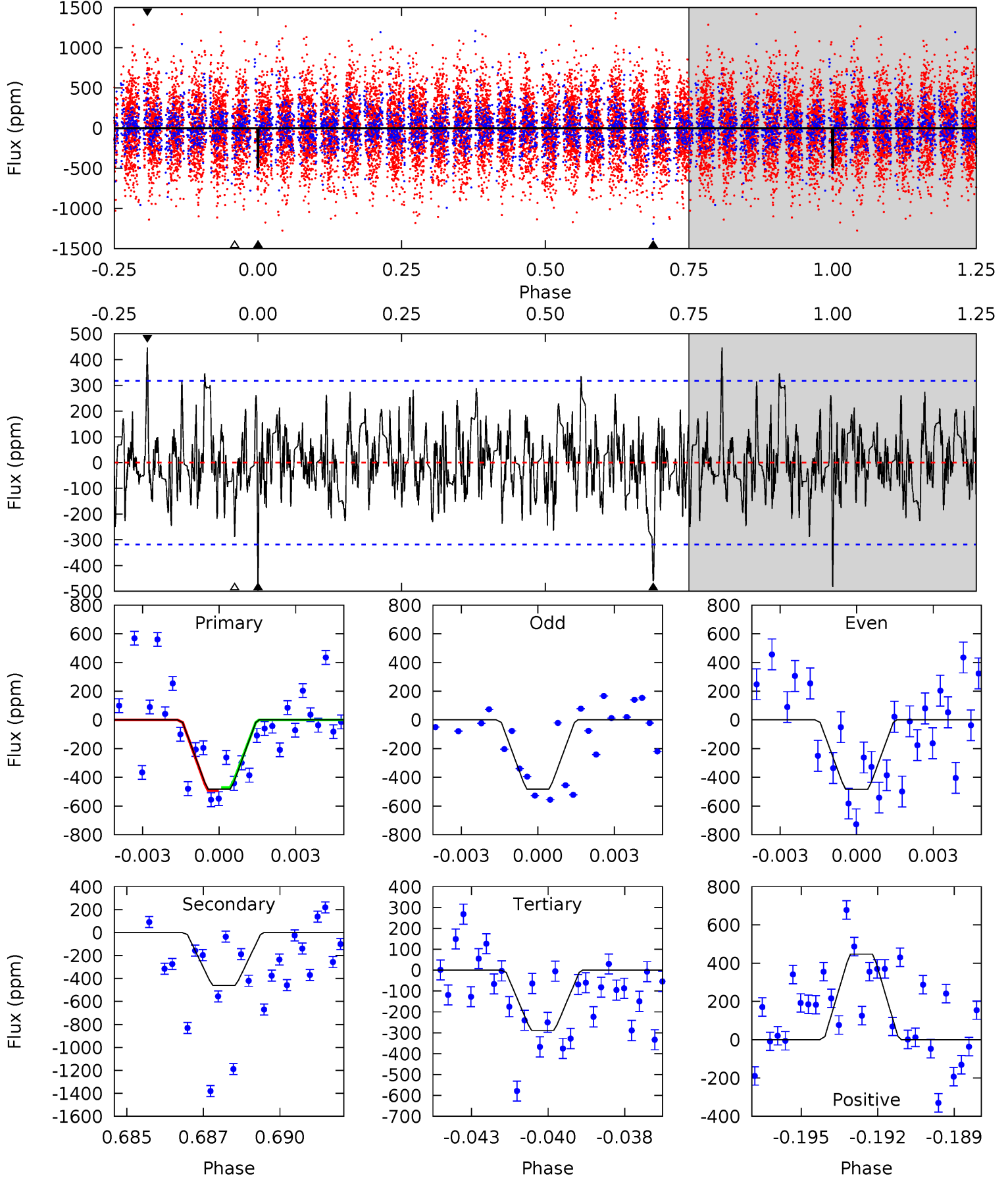
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.42	6.68	5.12	7.50	5.20	2.88	1.95	4.30	1.93	1.55	-0.82	0.45	0.93	0.44	0.49



Alt Model-Shift Uniqueness Test

010407047-06, P = 24.267224 Days, E = 141.382860 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.02	7.66	4.80	7.43	5.28	3.02	1.68	3.23	0.59	2.86	0.22	0.01	1.01	0.48	0.18



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-297 ± 44	$15.88^{+4.84}_{-4.02}$	1623^{+175}_{-178}	4044^{+275}_{-255}	21^{+15}_{-9}
Alt.	-460 ± 60	$13.19^{+4.20}_{-3.77}$	1622^{+176}_{-207}	4701^{+444}_{-302}	48^{+45}_{-20}

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

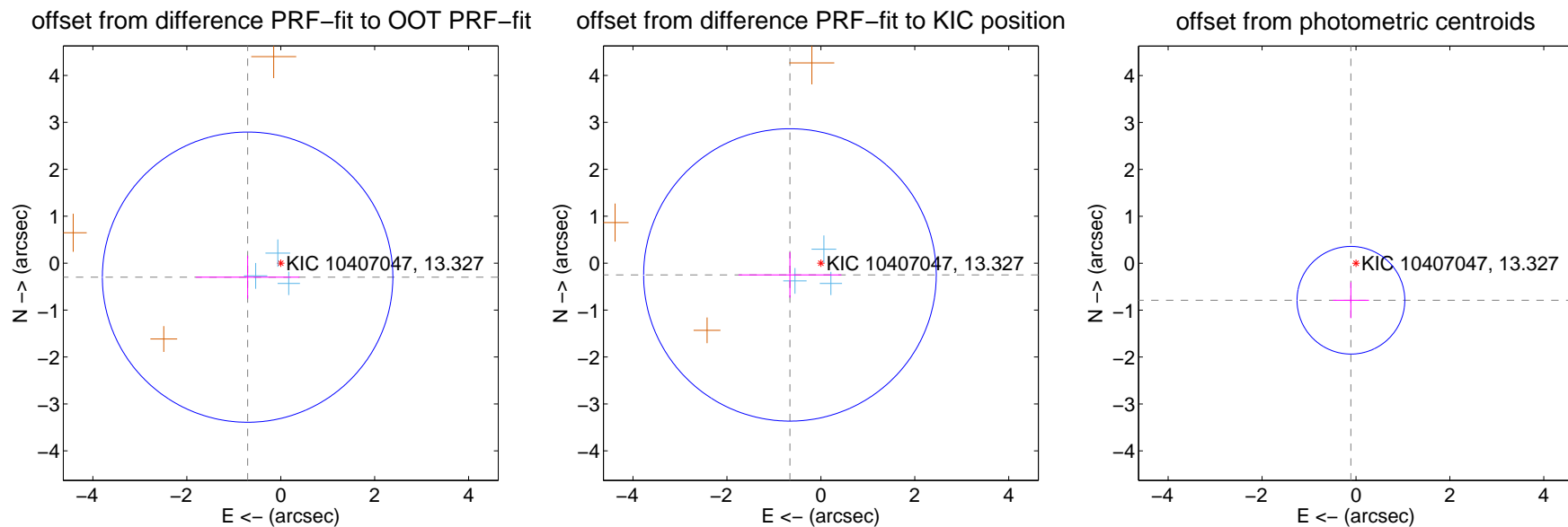
DV Centroid Data

Supplemental centroid analysis for 010407047-06. Kepler magnitude: 13.33. Transit SNR 7.77

There are 3 quarters with good PRF difference image offsets

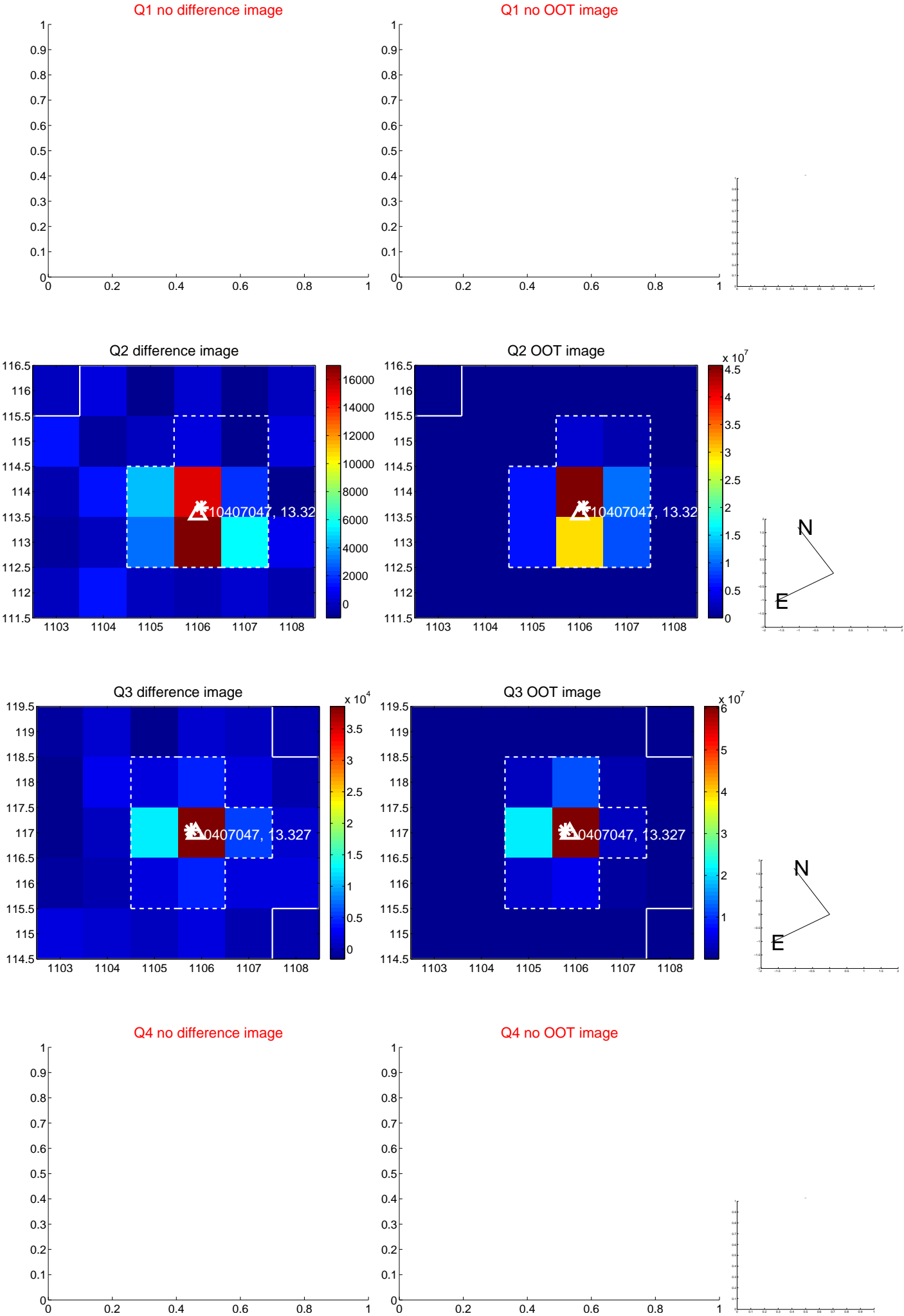
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.766 ± 1.031	0.74	0.705 ± 1.102	-0.299 ± 0.458
PRF-fit source offset from KIC position	0.705 ± 1.038	0.68	0.658 ± 1.096	-0.251 ± 0.483
photometric centroid source offset	0.80 ± 0.38	2.08	0.11 ± 0.38	-0.79 ± 0.38

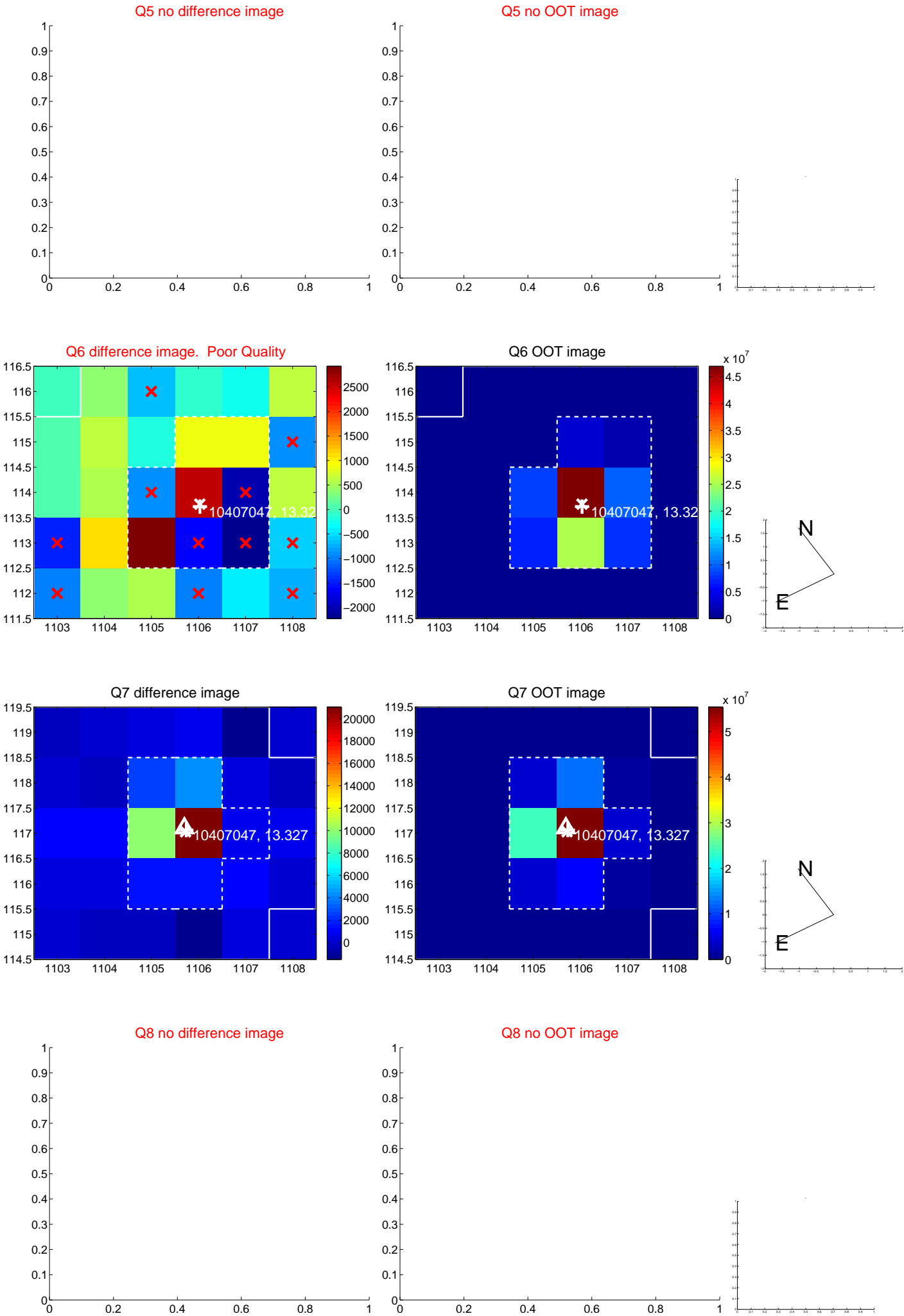


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

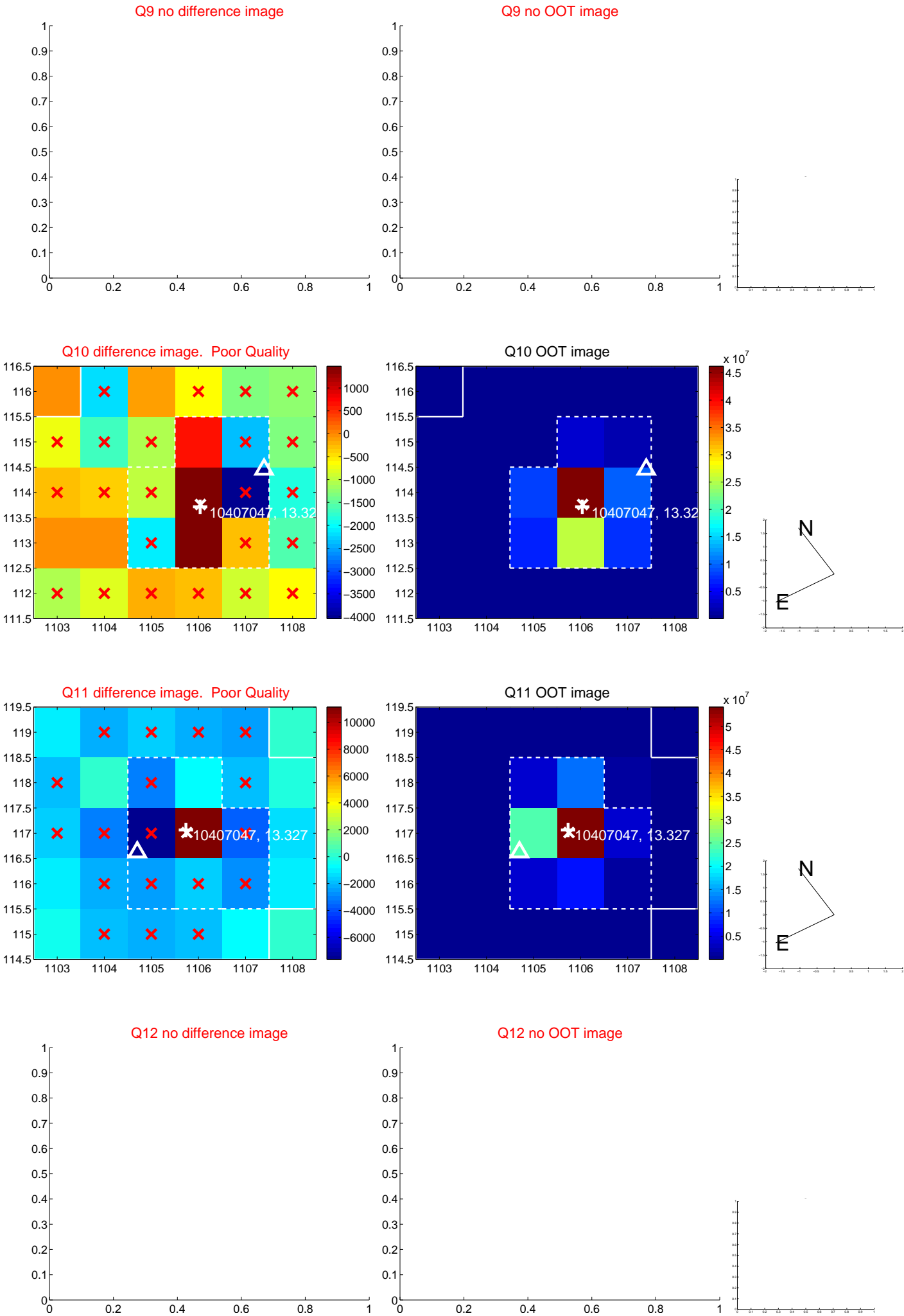
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



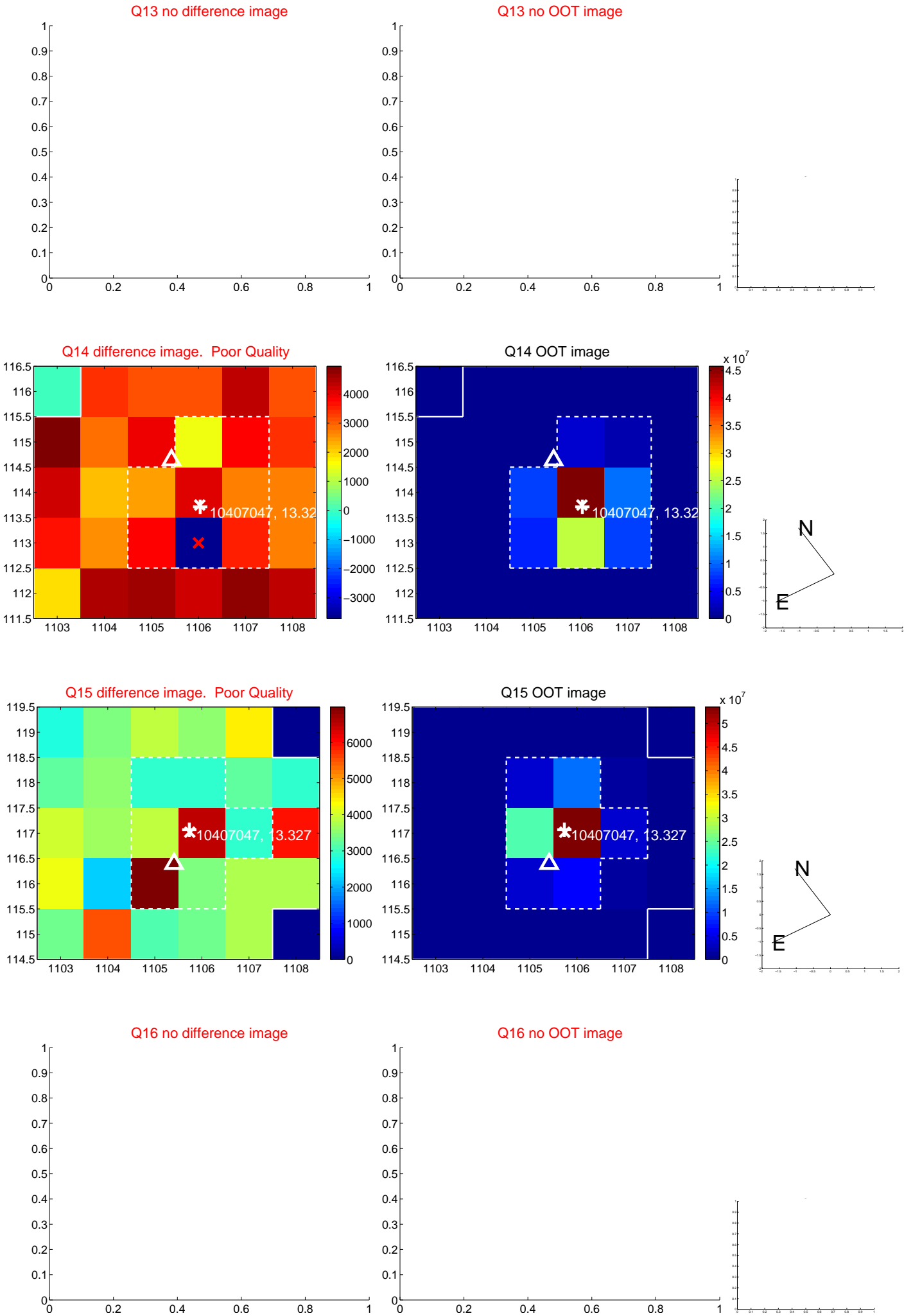
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



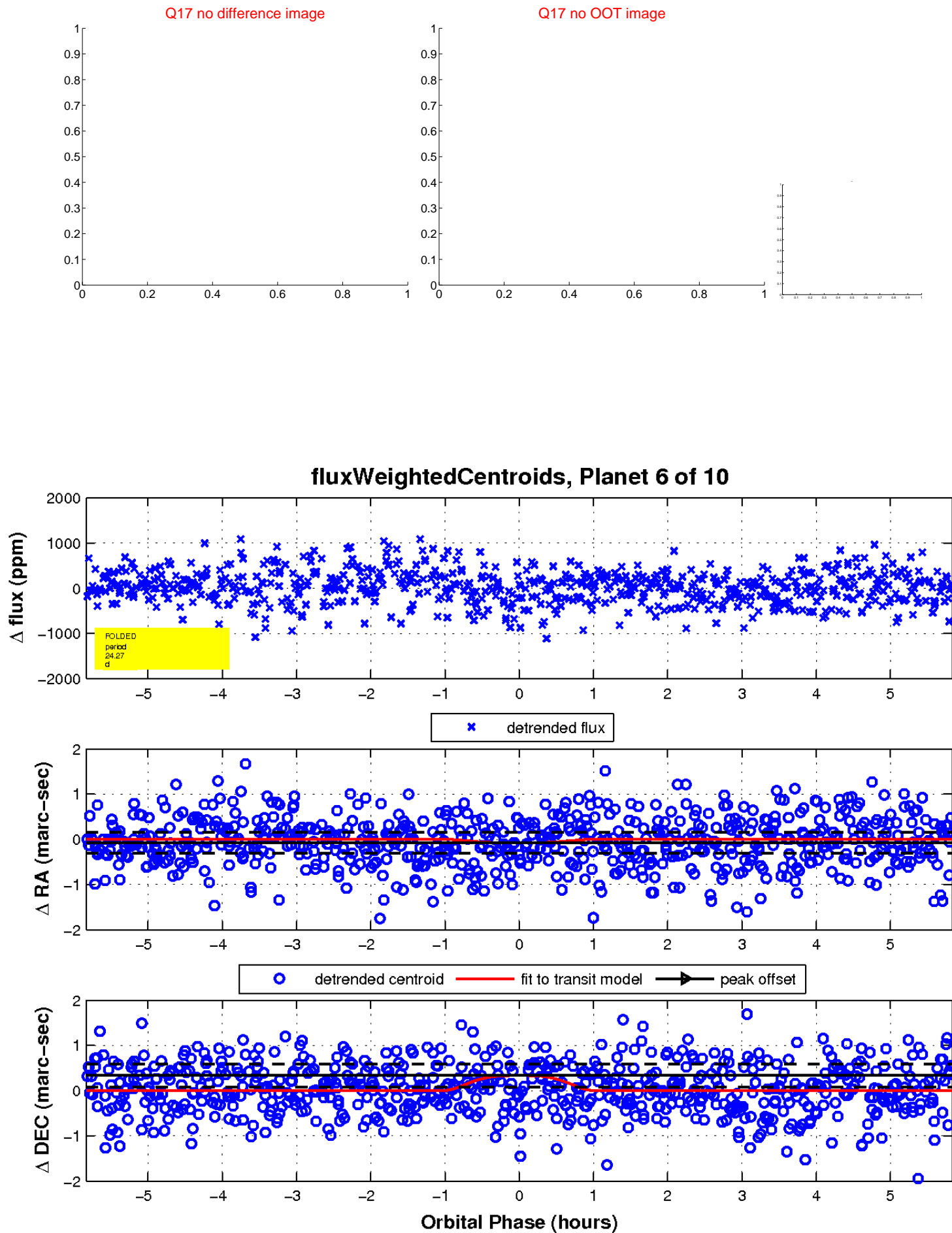
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

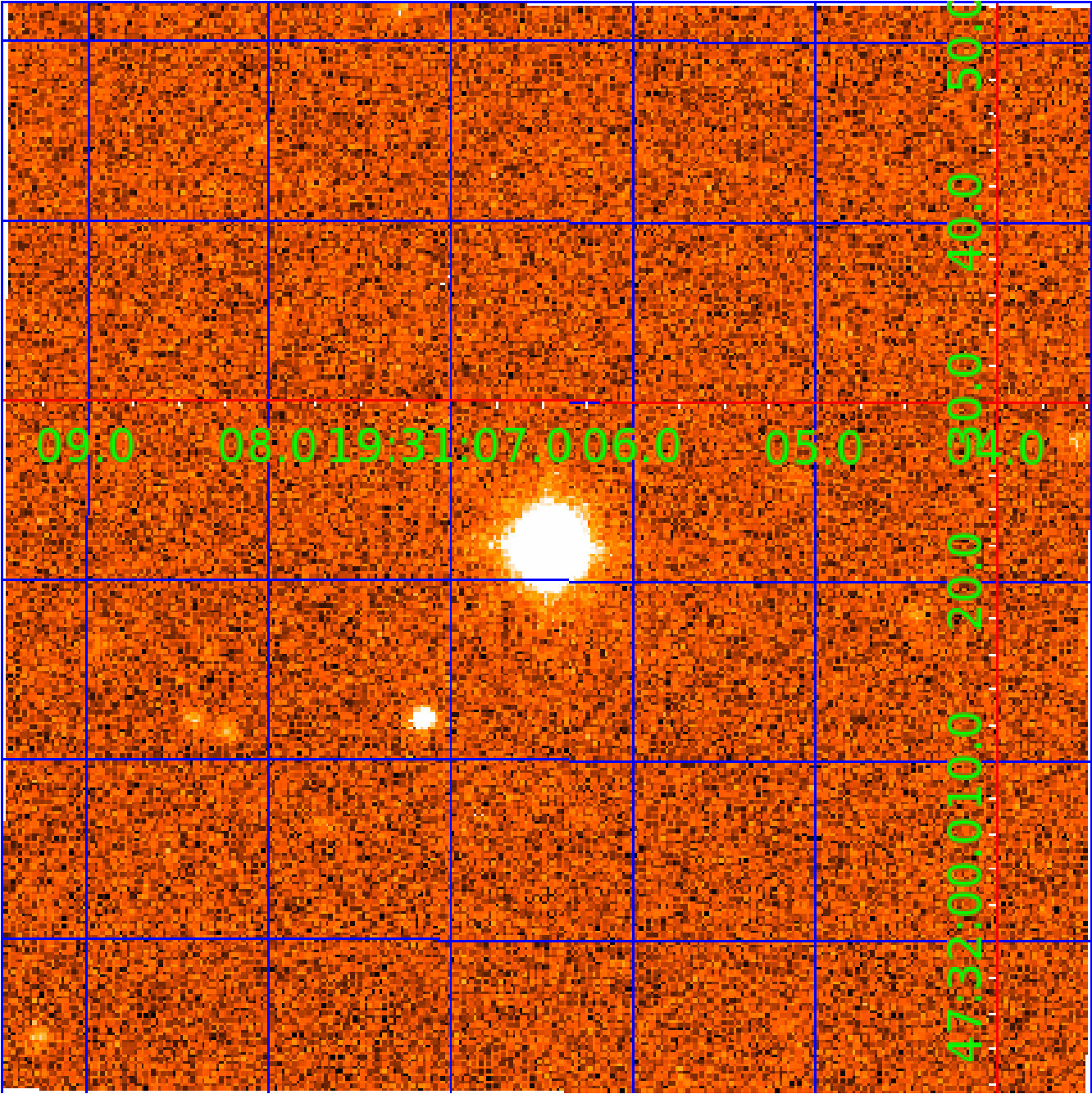


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

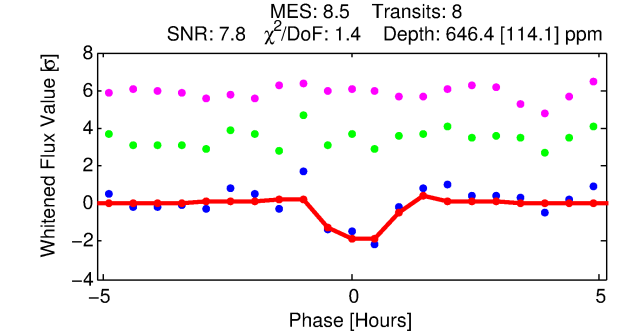
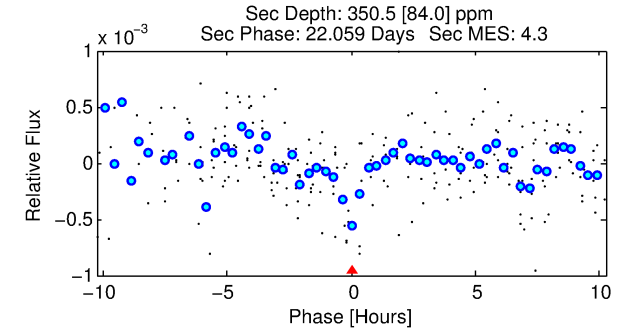
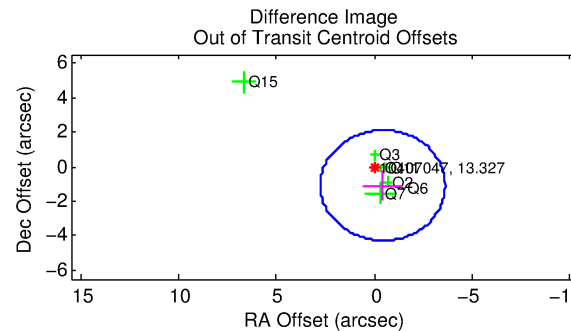
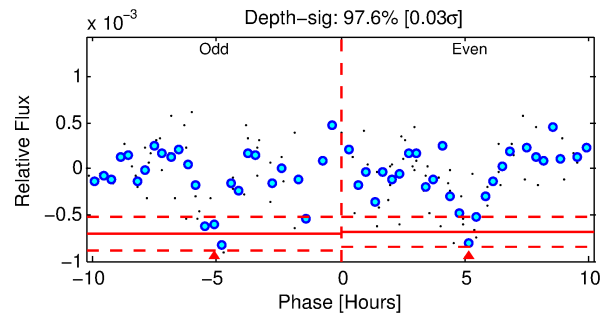
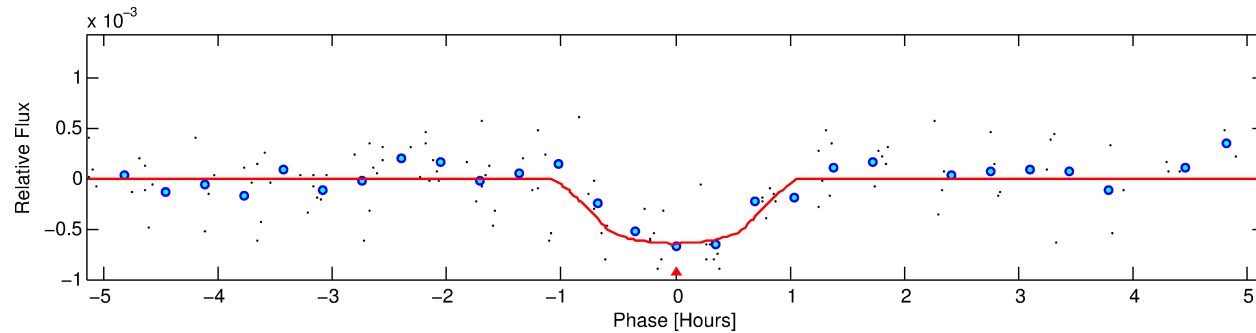
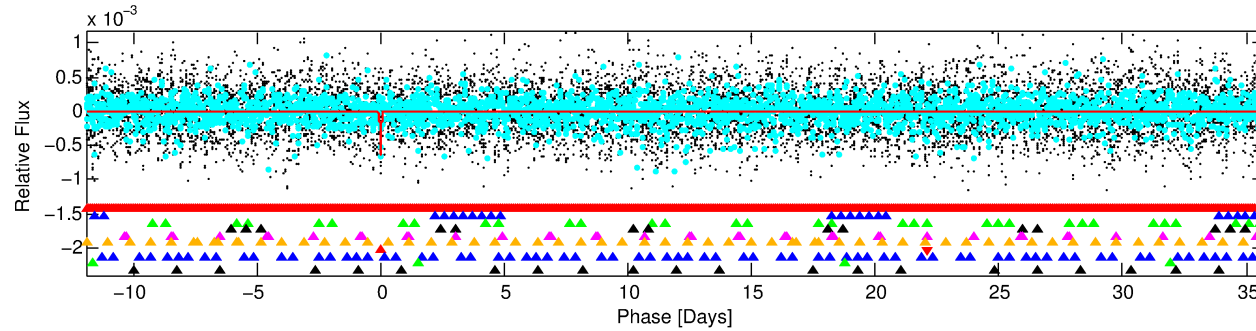
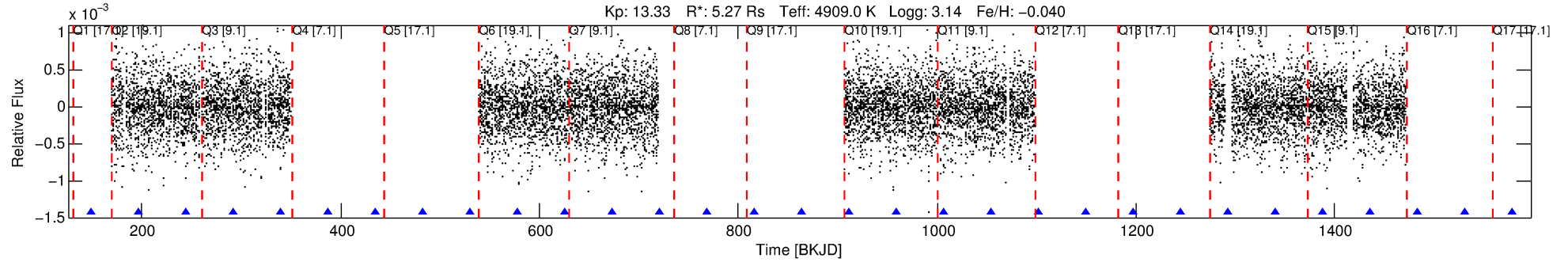
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010407047-07

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 7 of 10 Period: 47.673 d
KOI: K07321 Corr: No Ephemeris Match



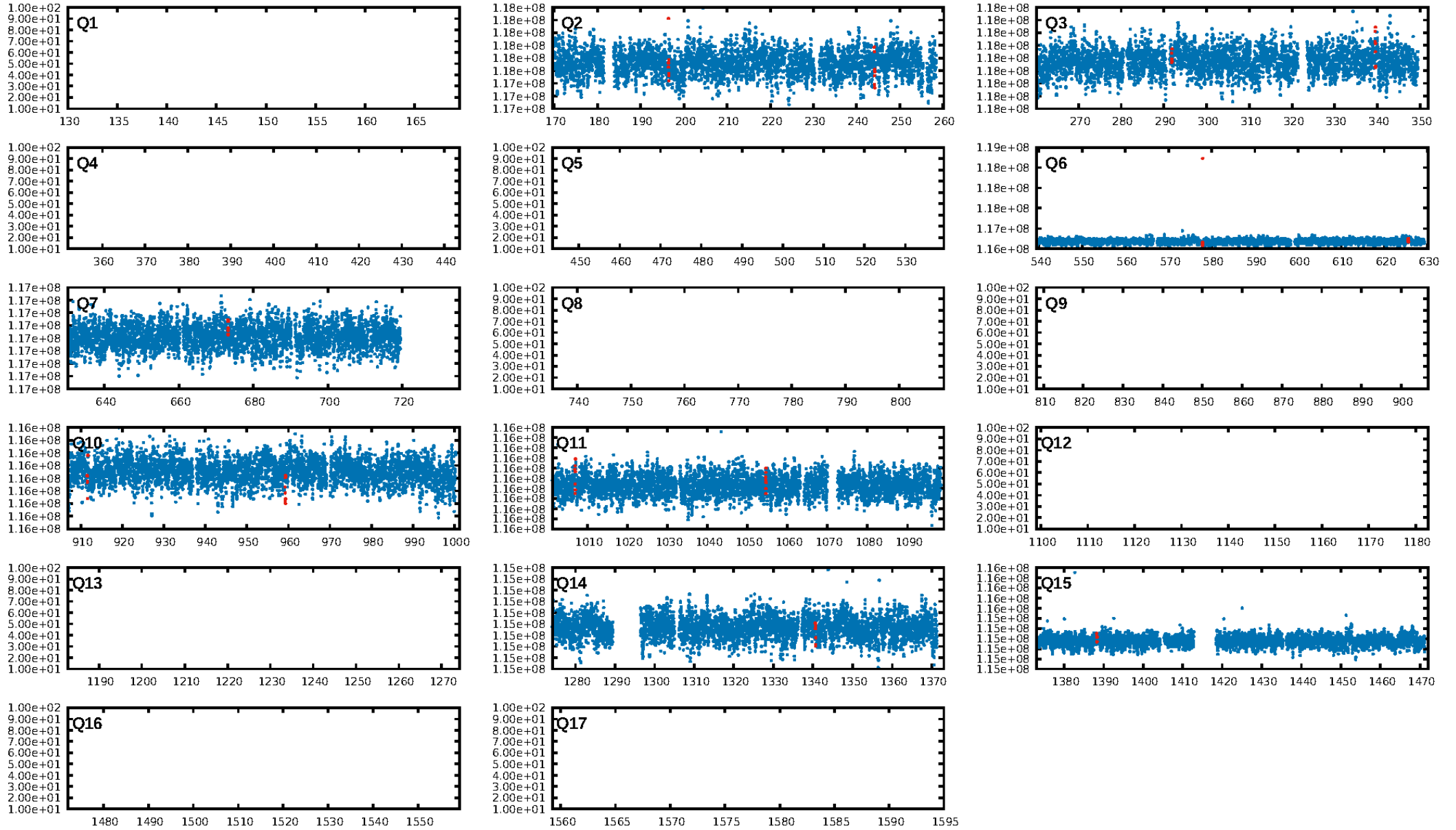
DV Fit Results:

Period = 47.67267 [0.00038] d
Epoch = 148.8280 [0.0042] BKJD
Rp/R* = 0.0230 [0.0429]
a/R* = 204.42 [1259.03]
b = 0.34 [16.14]
Seff = 175.59 [120.22]
Teq = 928 [159] K
Rp = 13.24 [25.29] Re
a = 0.2870 [0.1189] AU
Ag = 90.64 [344.26] [0.26σ]
Teffp = 4428 [4139] K [0.84σ]

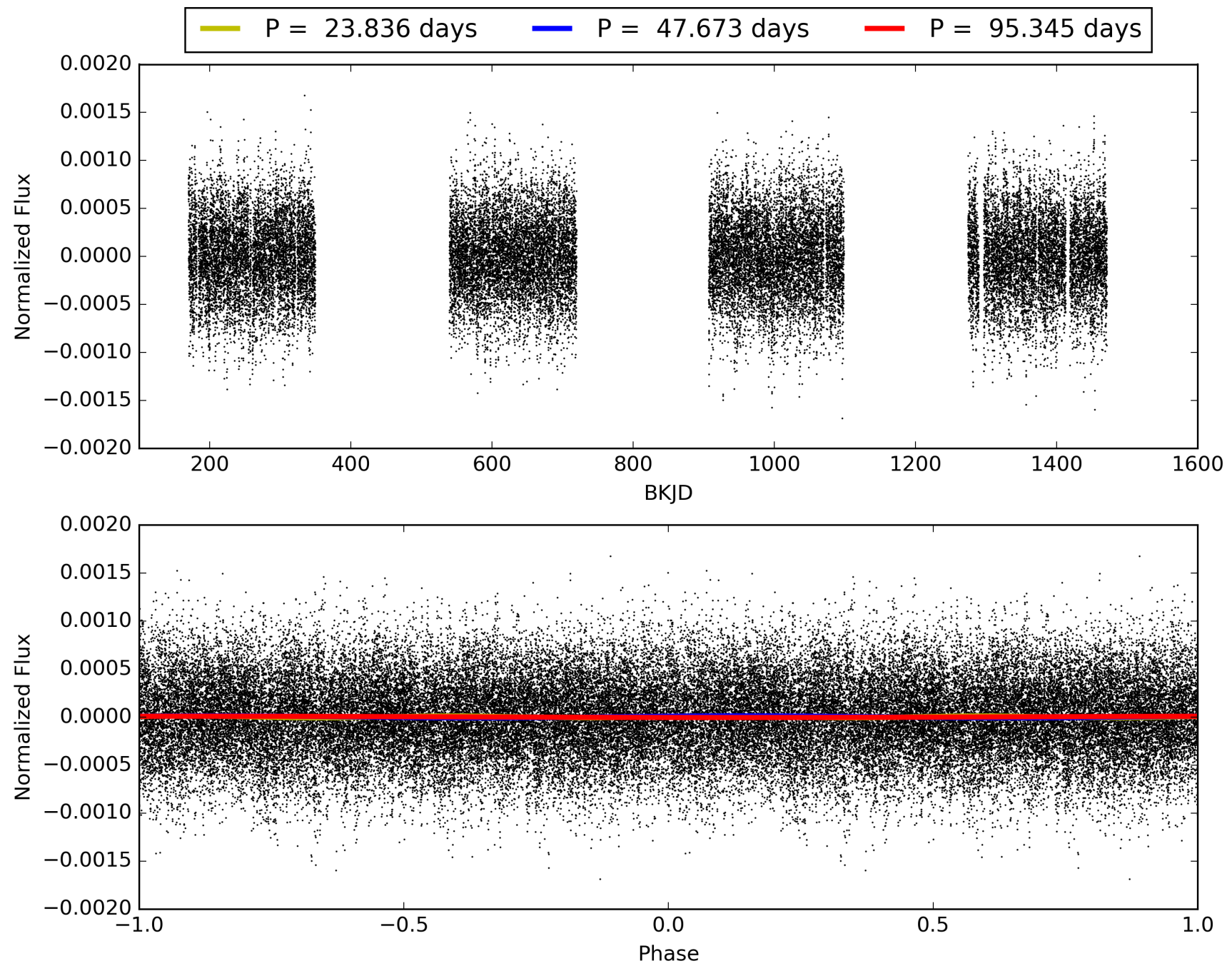
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [33.97σ]
LongPeriod-sig: 100.0% [62.78σ]
ModelChiSquare2-sig: 6.2%
ModelChiSquareGof-sig: 89.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -2.68
Centroid-sig: 35.6%
Centroid-so: 0.421 arcsec [1.01σ]
OotOffset-rm: 1.166 arcsec [1.10σ]
KicOffset-rm: 1.308 arcsec [1.23σ]
OotOffset-st: 3/4/0/0 [7]
KicOffset-st: 3/4/0/0 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.38 [3/8]

TCE 010407047-07, PDC Light Curves

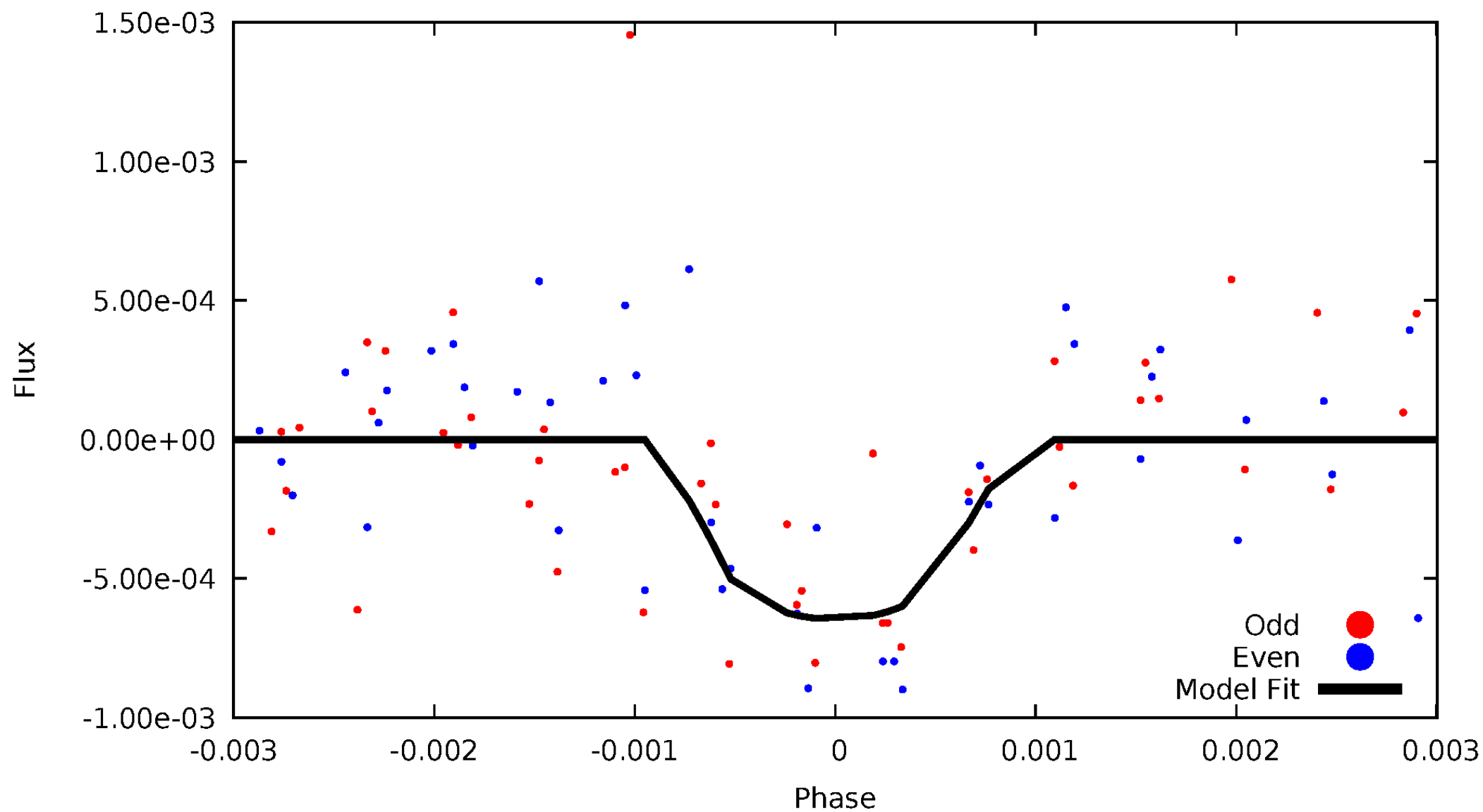


TCE 010407047-07



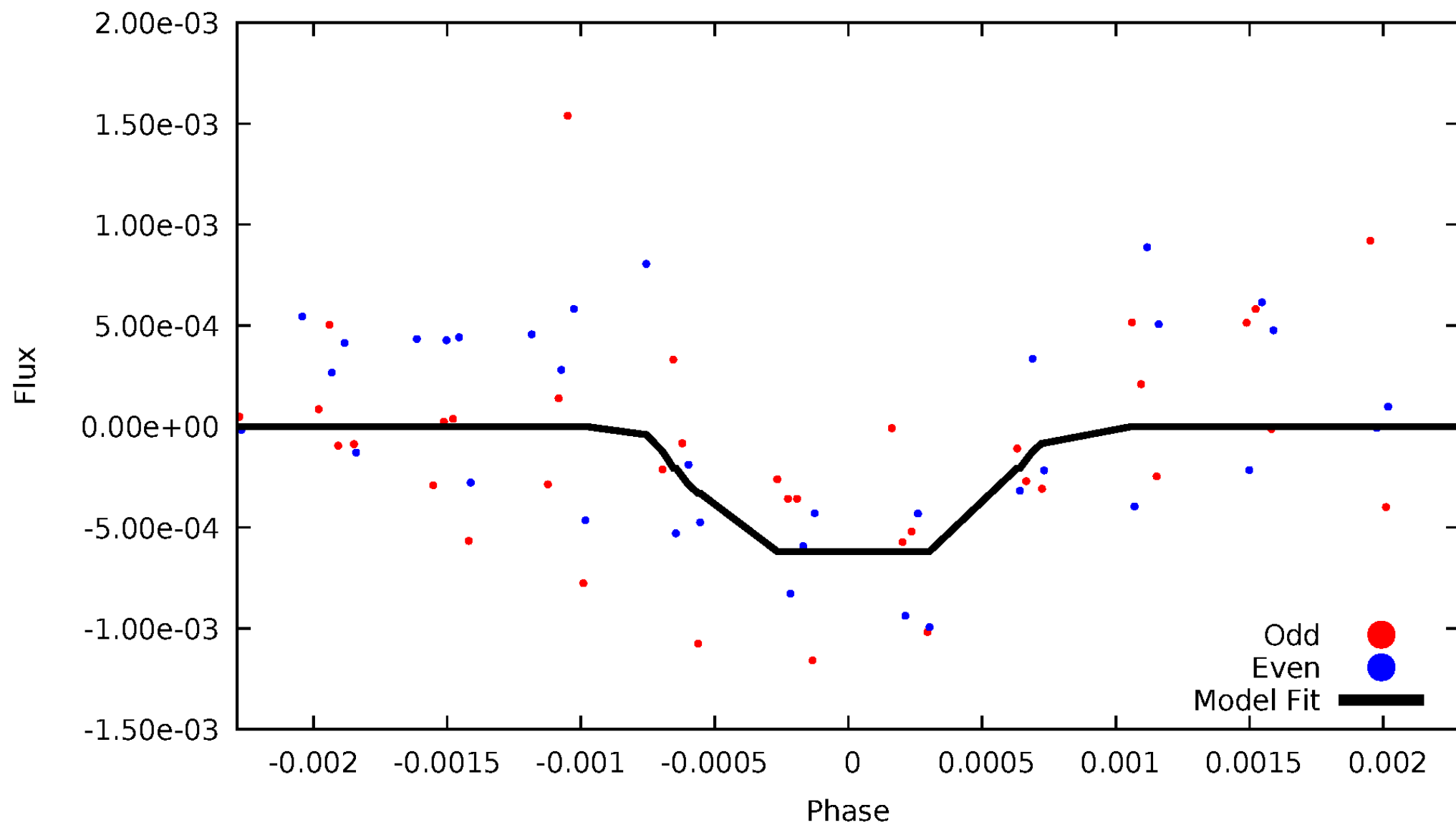
DV Odd/Even

TCE 010407047-07



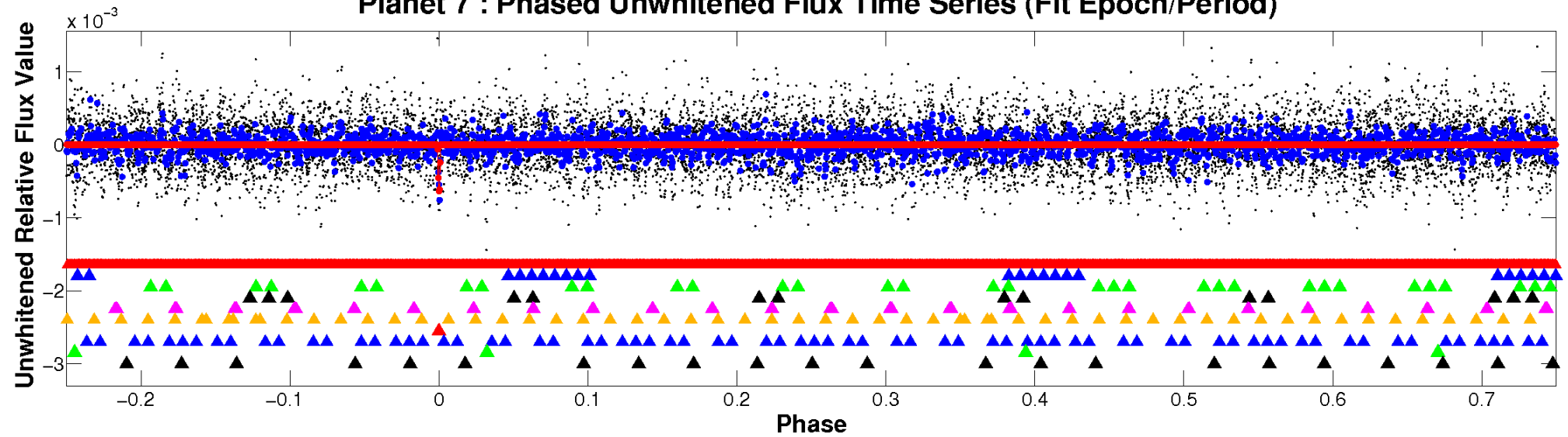
ALT Odd/Even

TCE 010407047-07

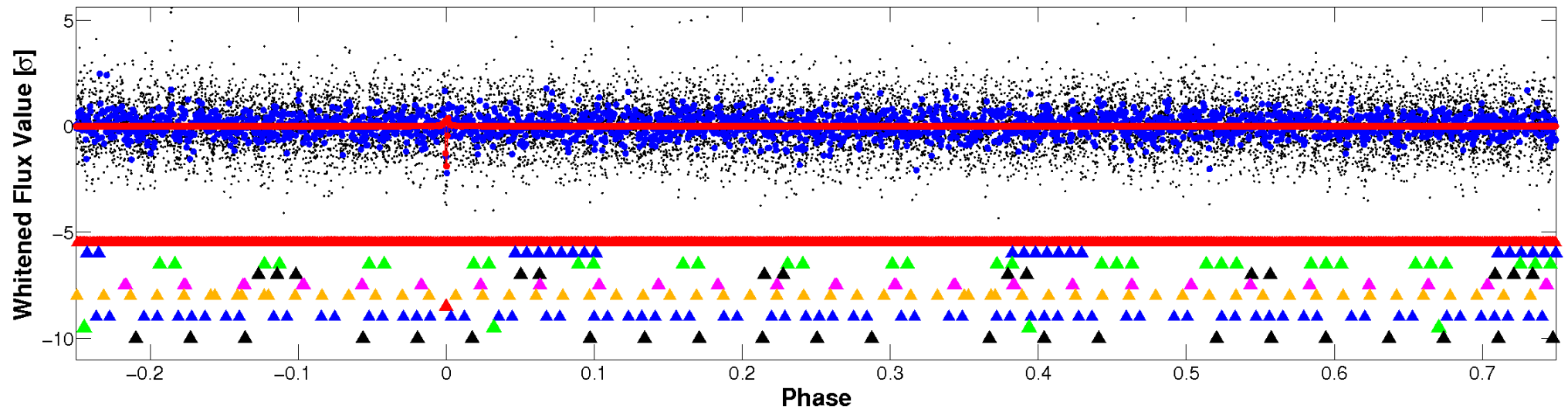


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

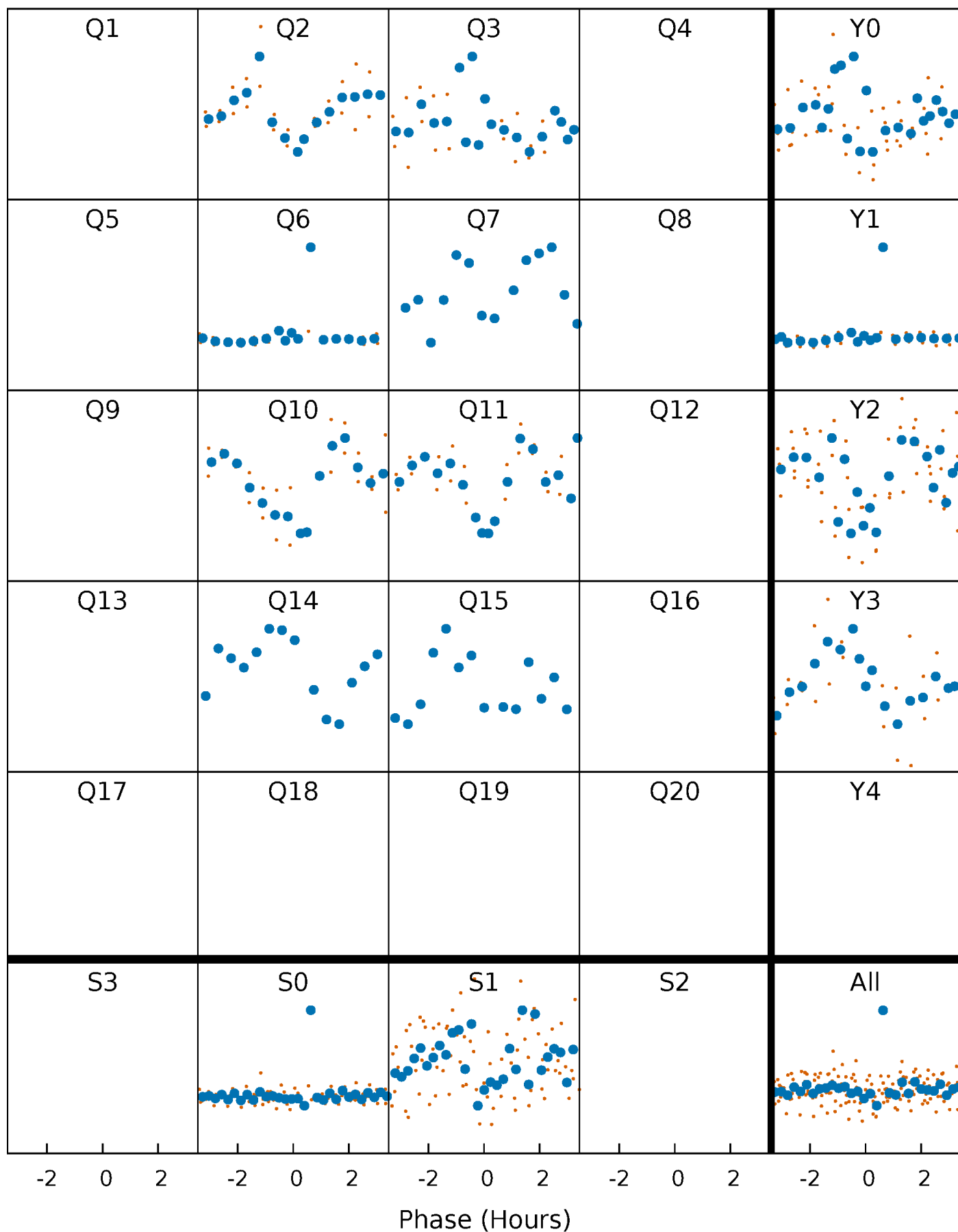


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



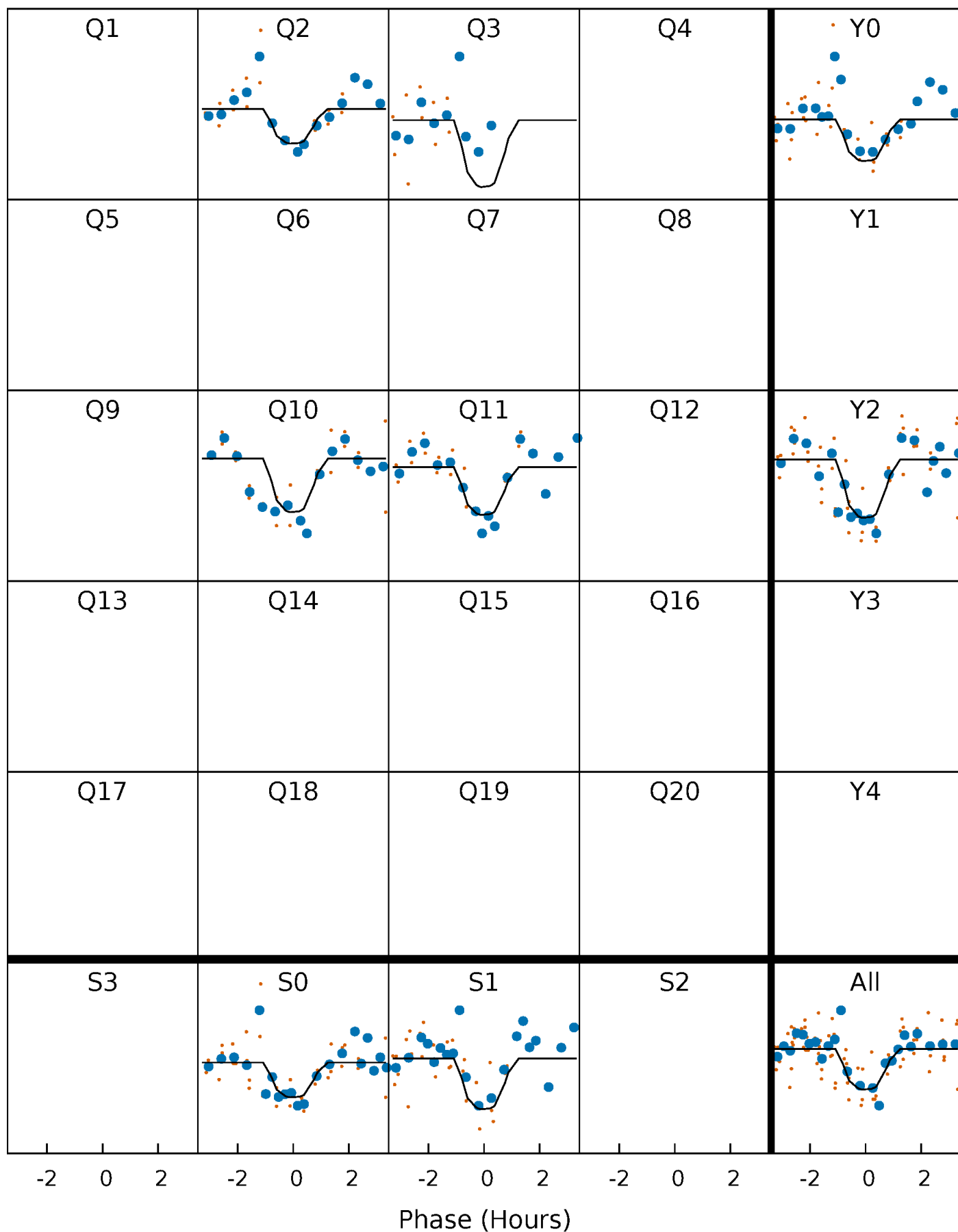
PDC Quarter-Phased Transit Curves

TCE 010407047-07 $P = 47.672674$ Days $T_0 = 148.827988$ (BKJD)



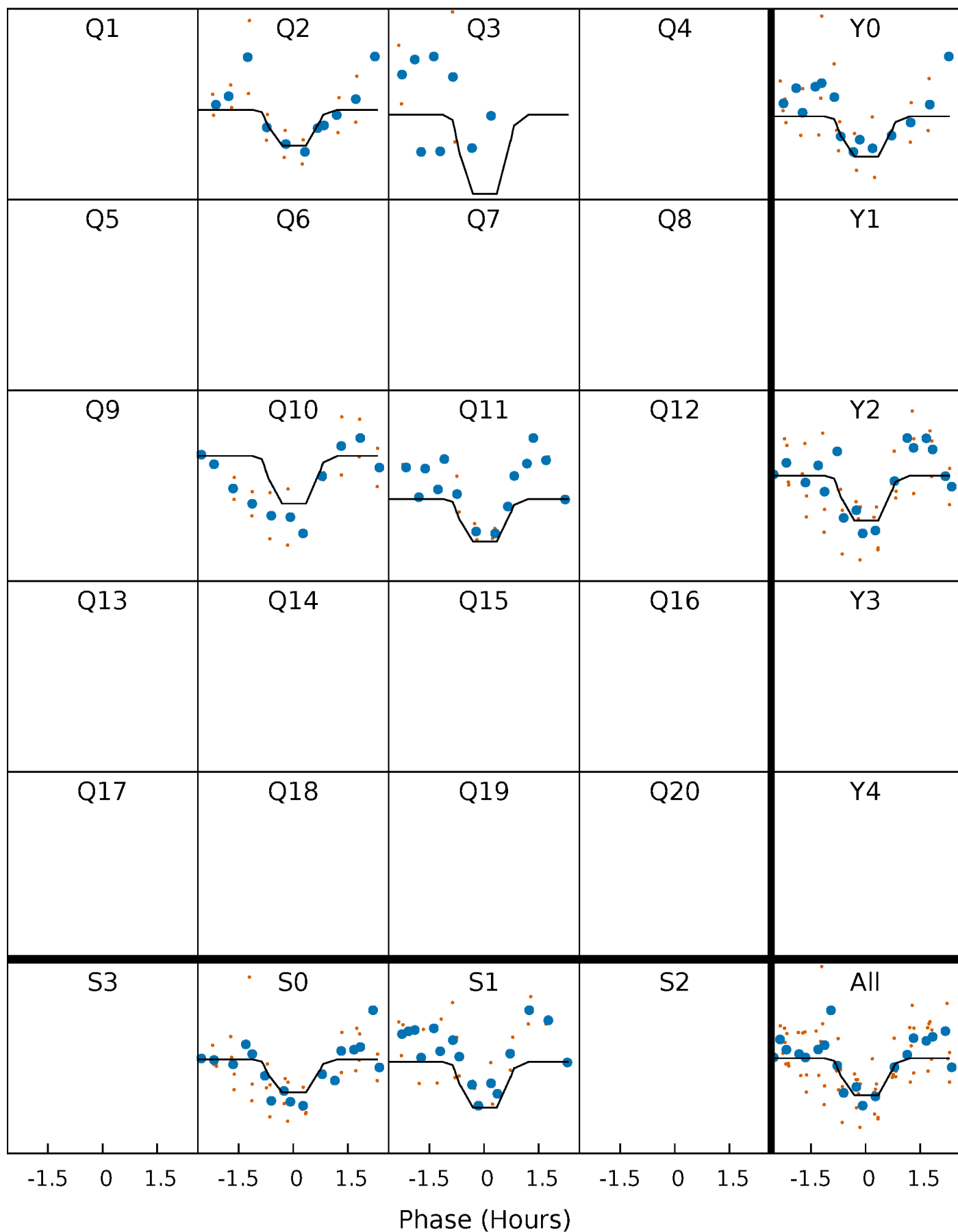
DV Quarter-Phased Transit Curves

TCE 010407047-07 $P = 47.672674$ Days $T_0 = 148.827988$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

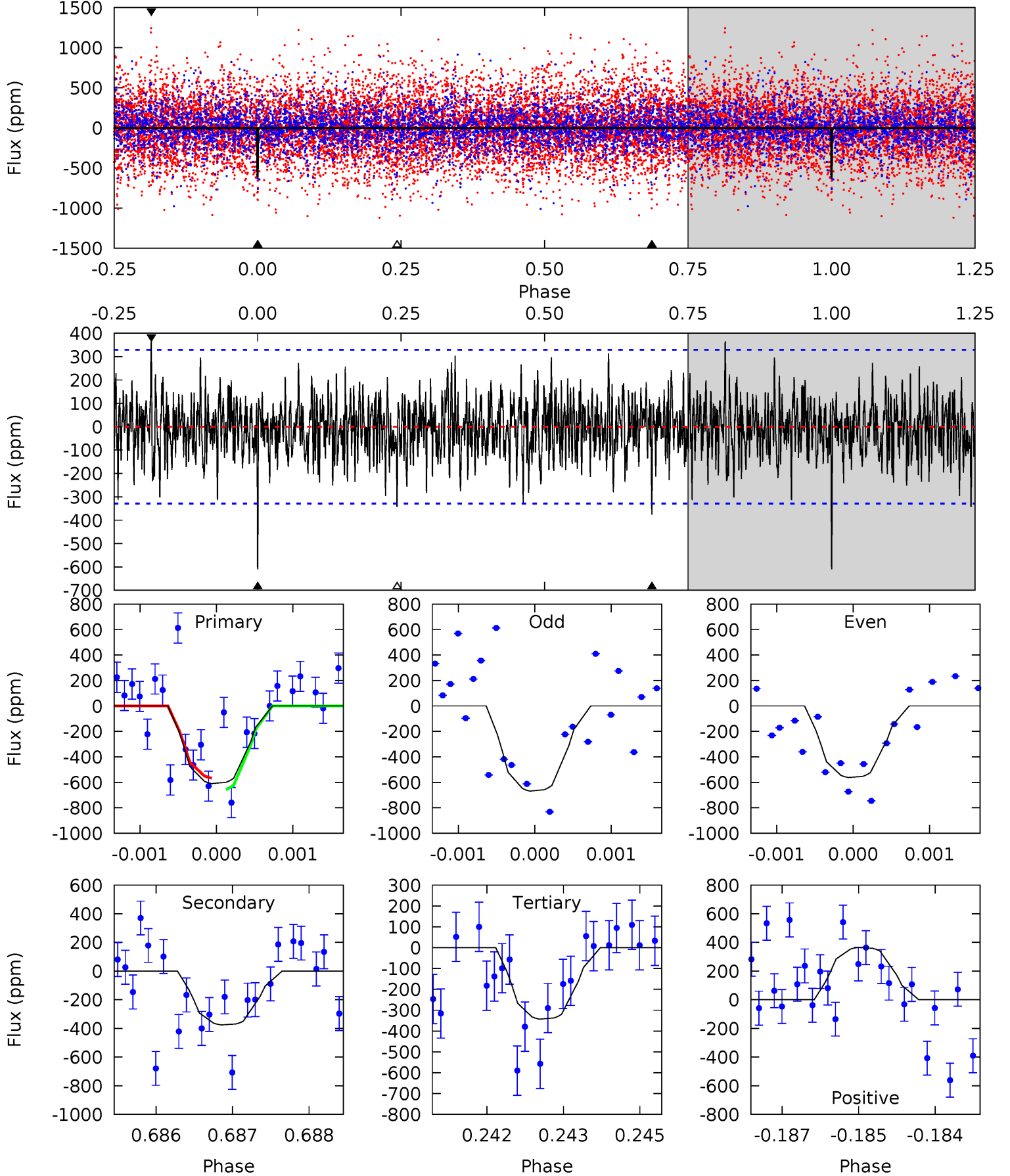
TCE 010407047-07 $P = 47.672699$ Days $T_0 = 148.829129$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-07, $P = 47.672674$ Days, $E = 148.827988$ Days

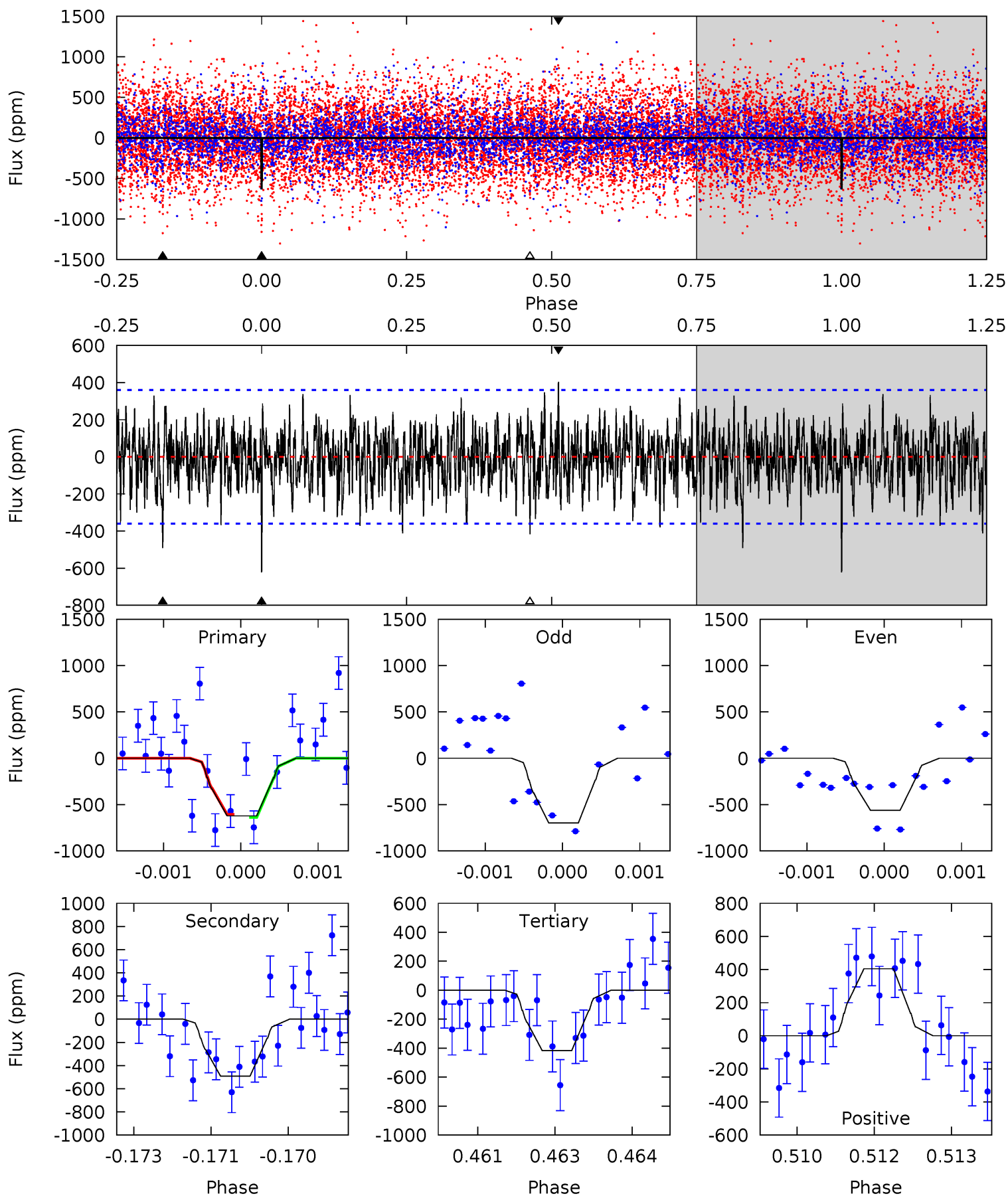
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.97	6.14	5.61	5.97	5.38	3.18	1.65	4.36	4.00	0.53	0.17	0.86	0.99	0.37	0.74



Alt Model-Shift Uniqueness Test

010407047-07, $P = 47.672699$ Days, $E = 148.829129$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.30	7.35	6.23	6.05	5.38	3.18	1.84	3.07	3.26	1.12	1.30	1.01	1.33	0.39	0.23



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-376 ± 61	$21.54^{+22.74}_{-14.56}$	1281^{+144}_{-148}	3744^{+2144}_{-674}	36^{+299}_{-28}
Alt.	-491 ± 67	$21.48^{+22.32}_{-14.04}$	1283^{+149}_{-151}	3910^{+2165}_{-741}	47^{+319}_{-36}

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 $A_{obs} \gg 1.0$

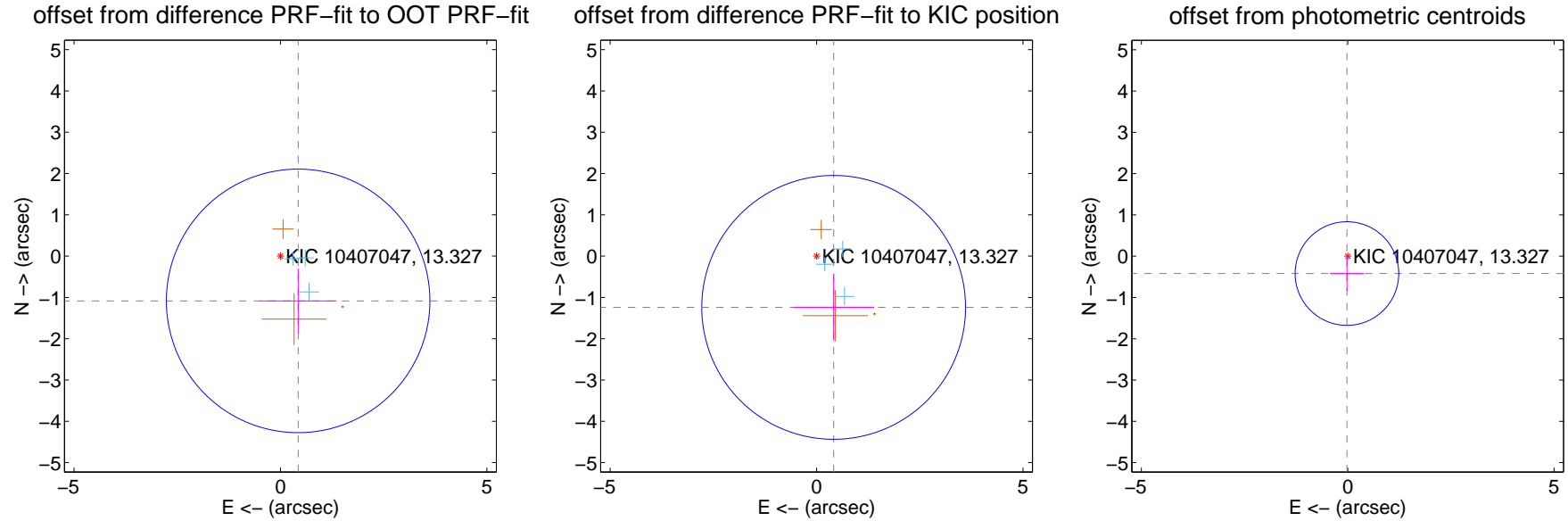
DV Centroid Data

Supplemental centroid analysis for 010407047-07. Kepler magnitude: 13.33. Transit SNR 7.79

There are 3 quarters with good PRF difference image offsets

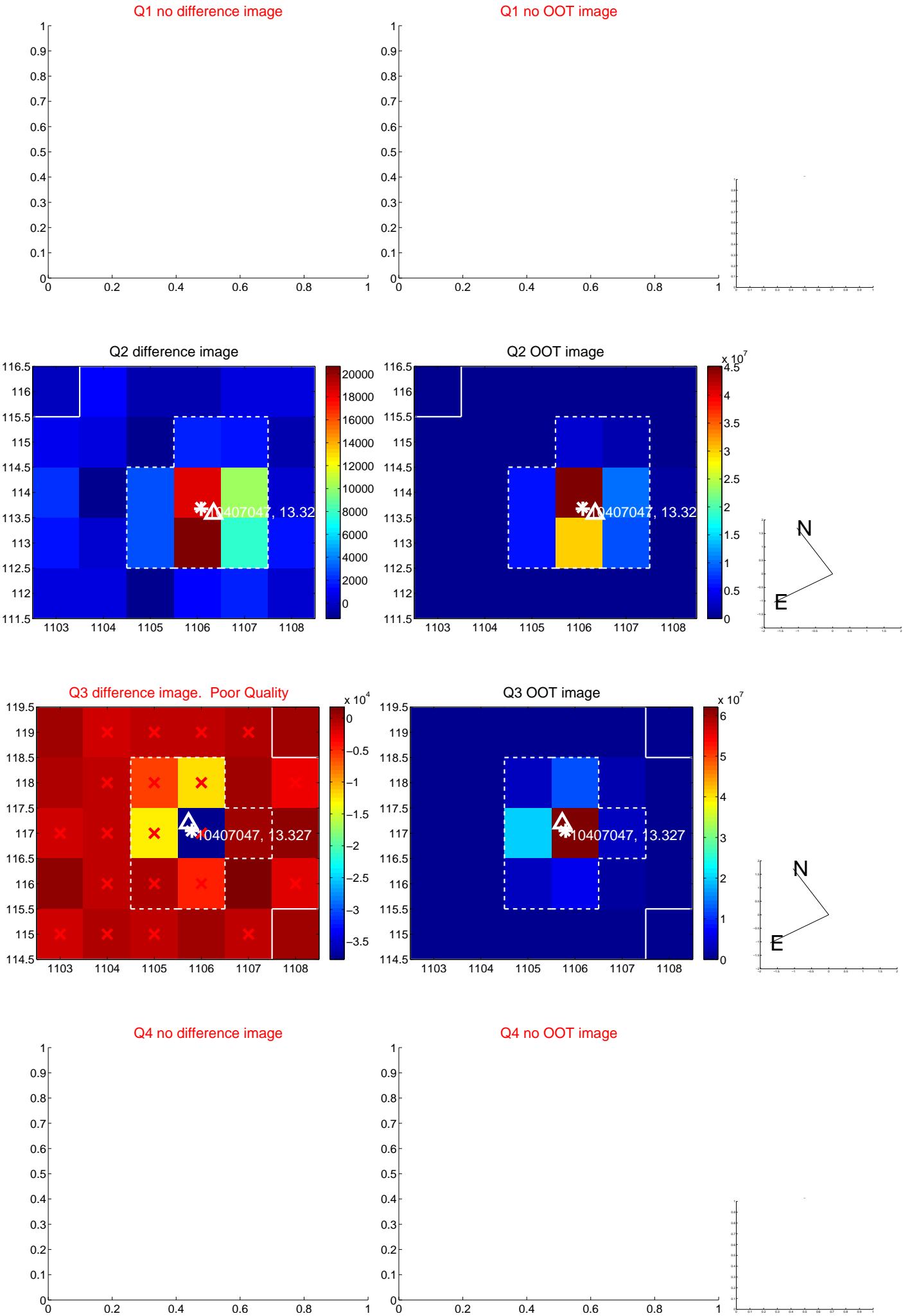
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.166 ± 1.064	1.10	-0.428 ± 0.933	-1.084 ± 0.787
PRF-fit source offset from KIC position	1.308 ± 1.065	1.23	-0.414 ± 0.981	-1.241 ± 0.806
photometric centroid source offset	0.42 ± 0.42	1.01	0.02 ± 0.41	-0.42 ± 0.42



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

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



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

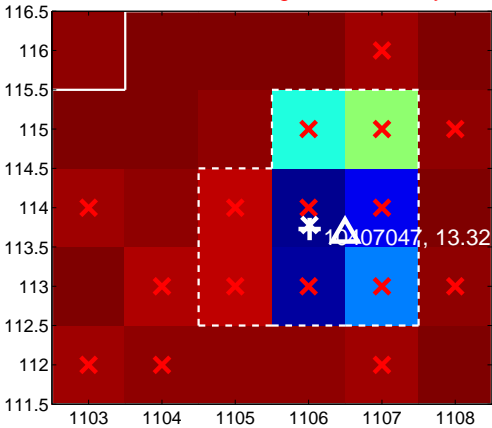
Q5 no difference image



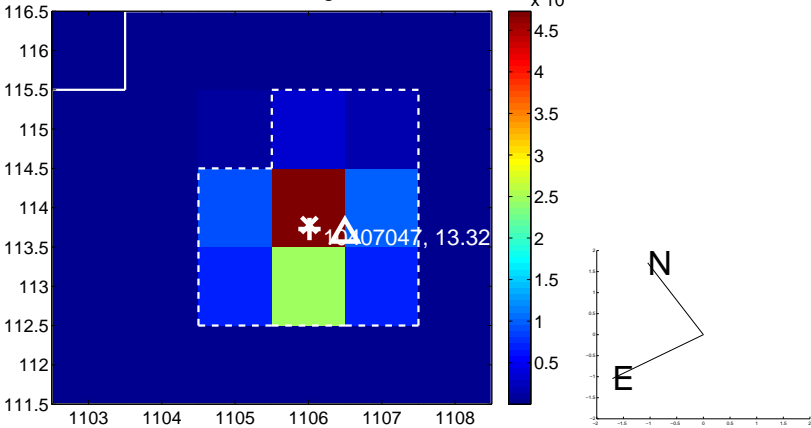
Q5 no OOT image



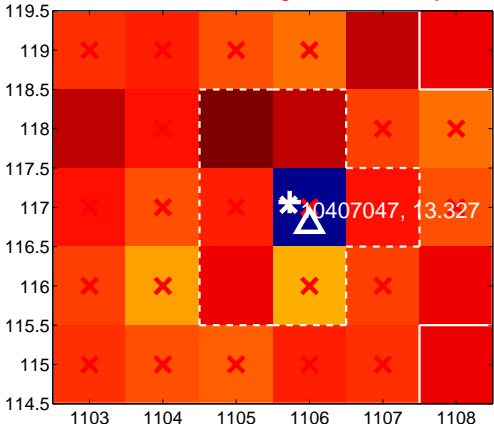
Q6 difference image. Poor Quality



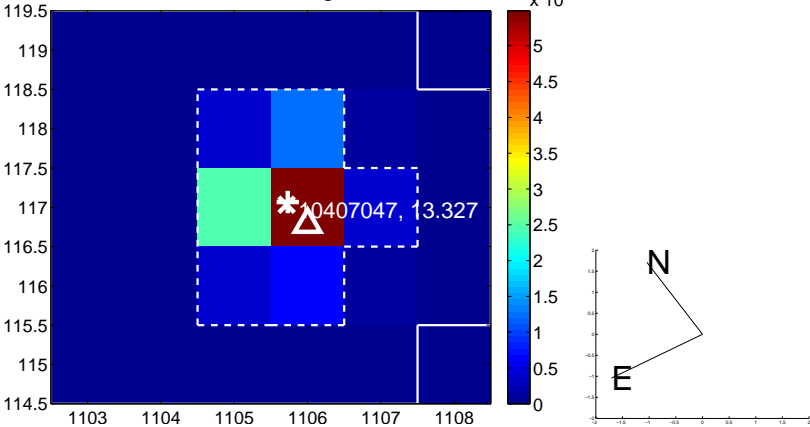
Q6 OOT image



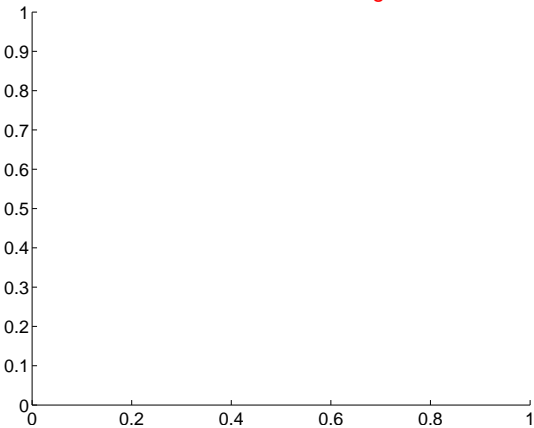
Q7 difference image. Poor Quality



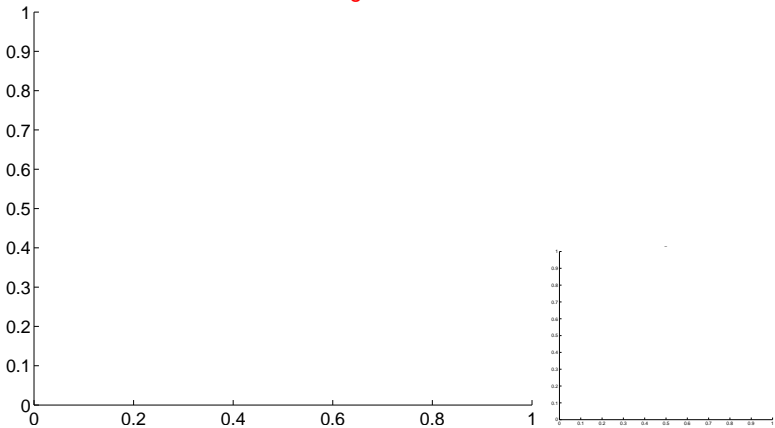
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

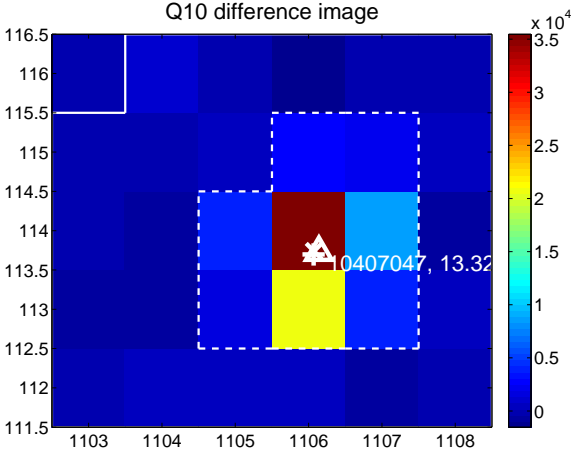
Q9 no difference image



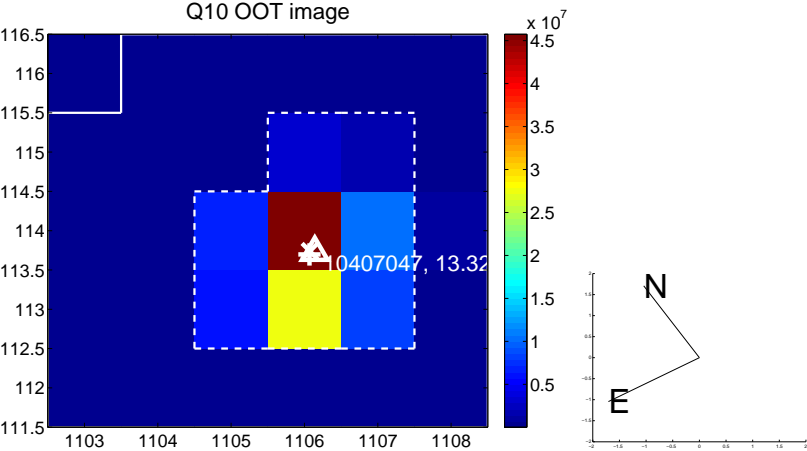
Q9 no OOT image



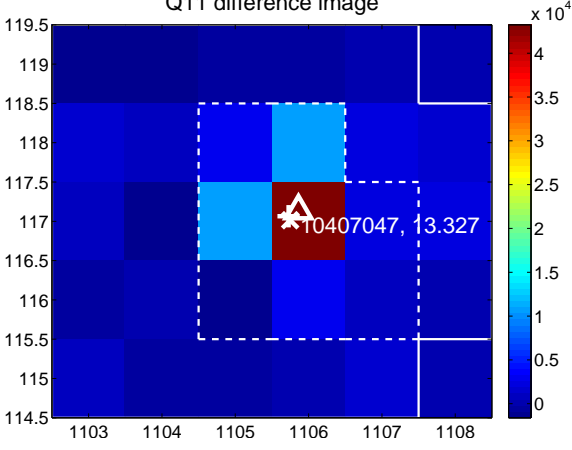
Q10 difference image



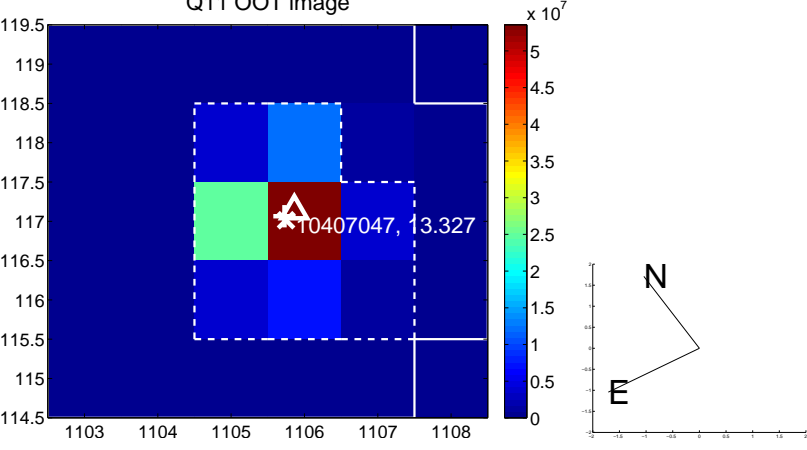
Q10 OOT image



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.

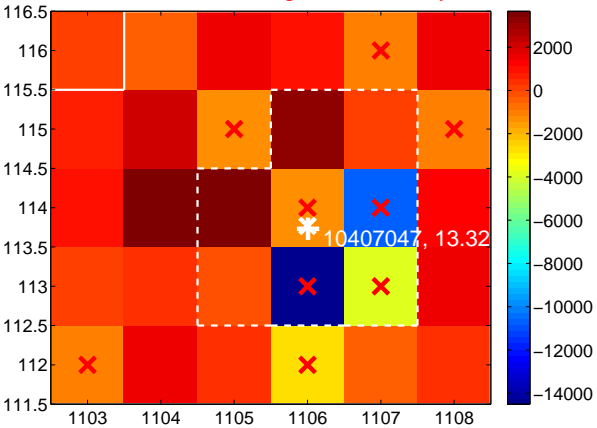
Q13 no difference image



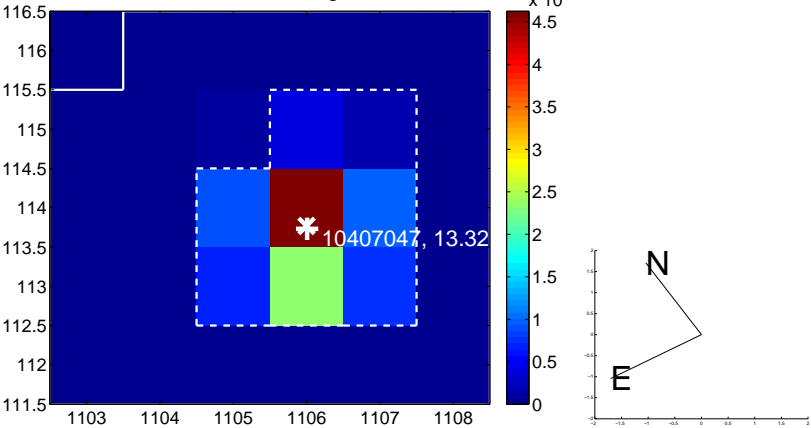
Q13 no OOT image



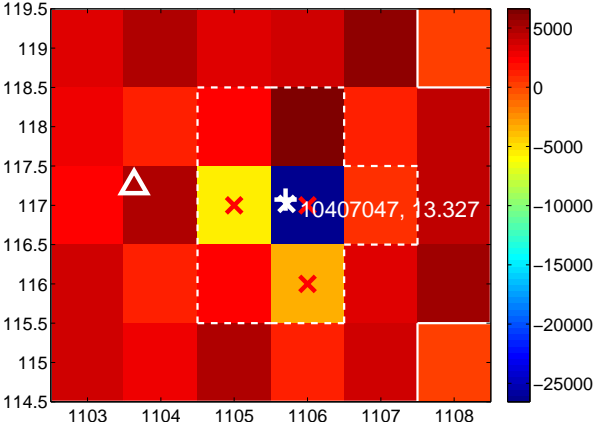
Q14 difference image. Poor Quality



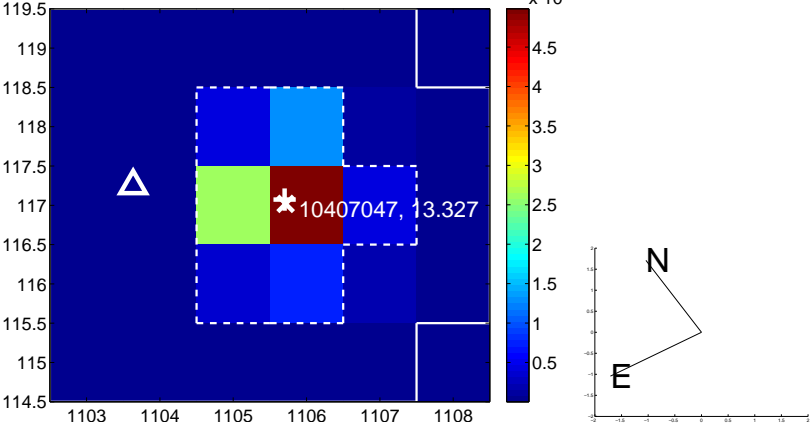
Q14 OOT image



Q15 difference image. Poor Quality



Q15 OOT image



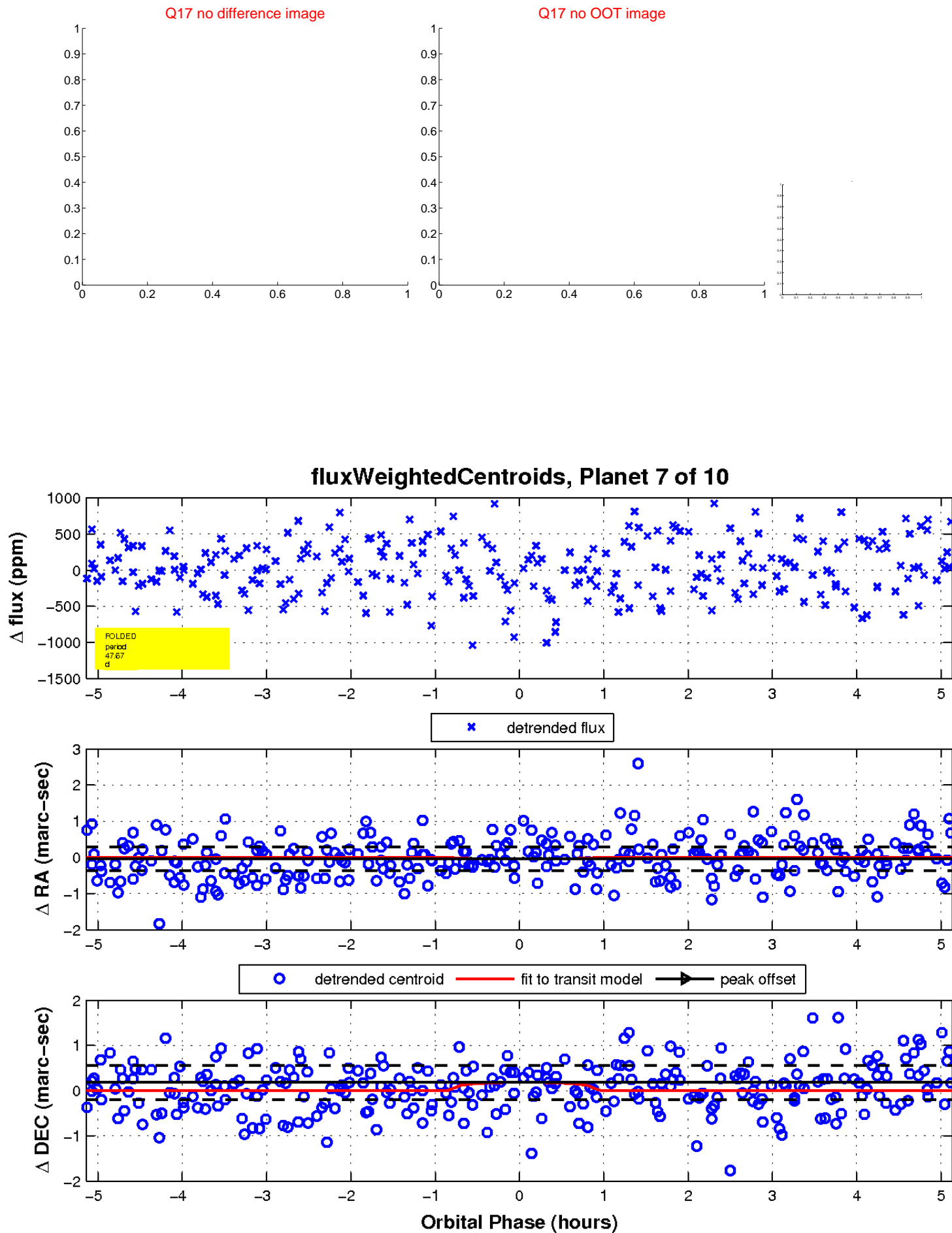
Q16 no difference image



Q16 no OOT image

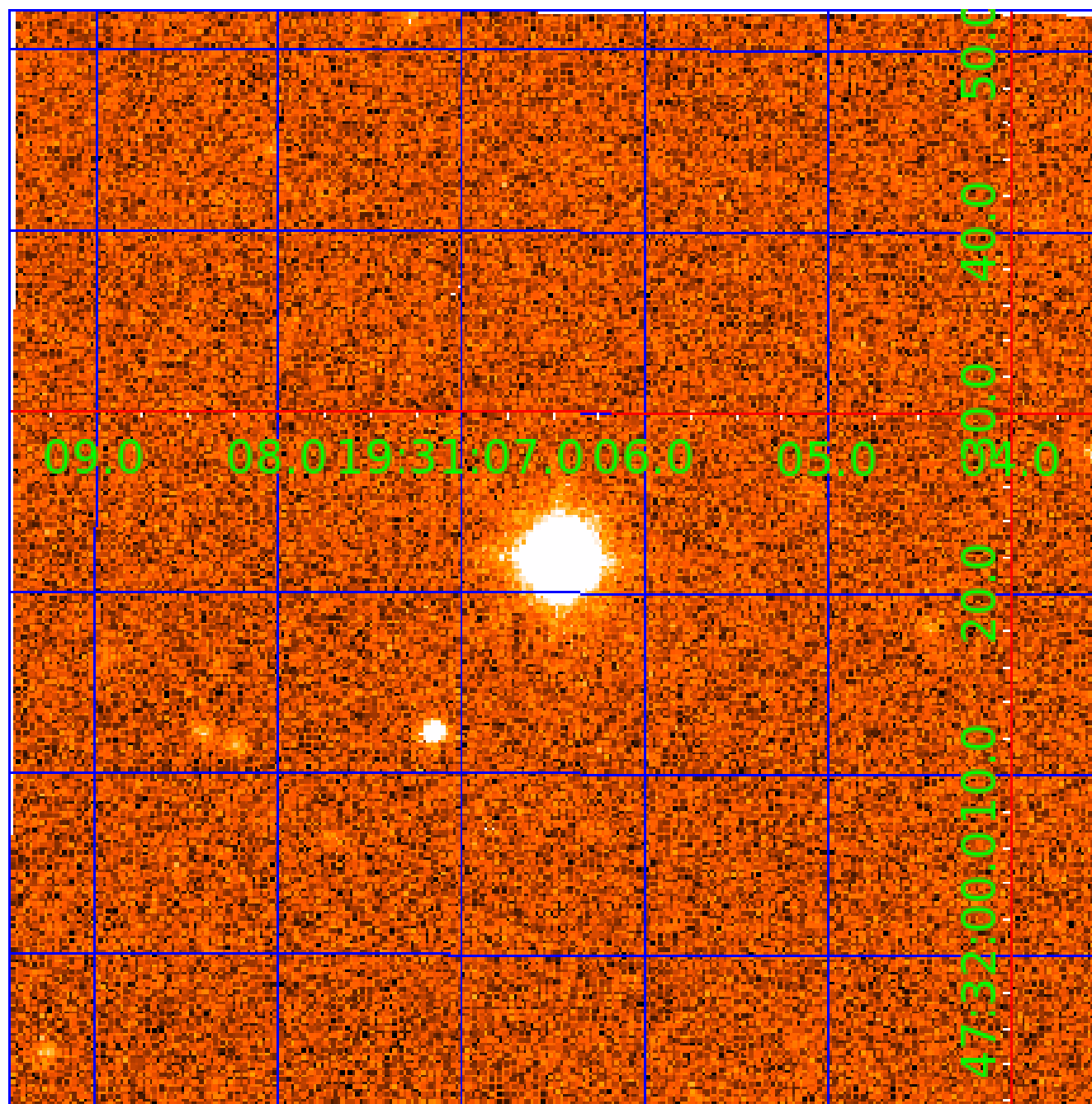


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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.

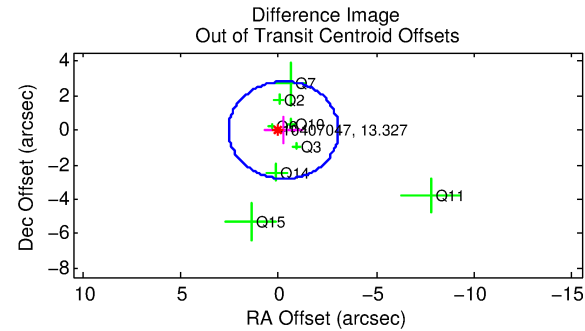
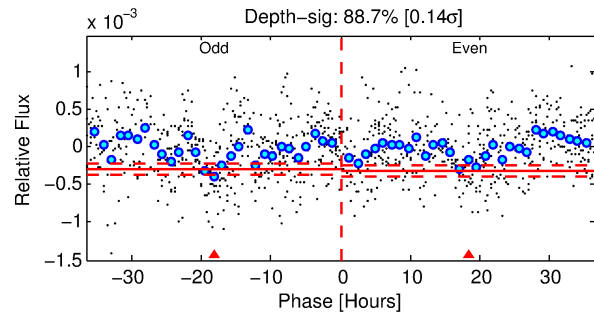
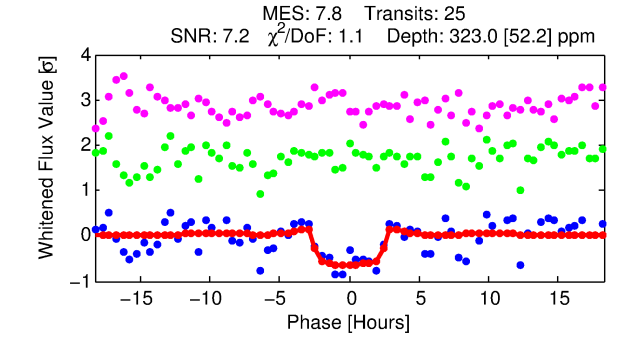
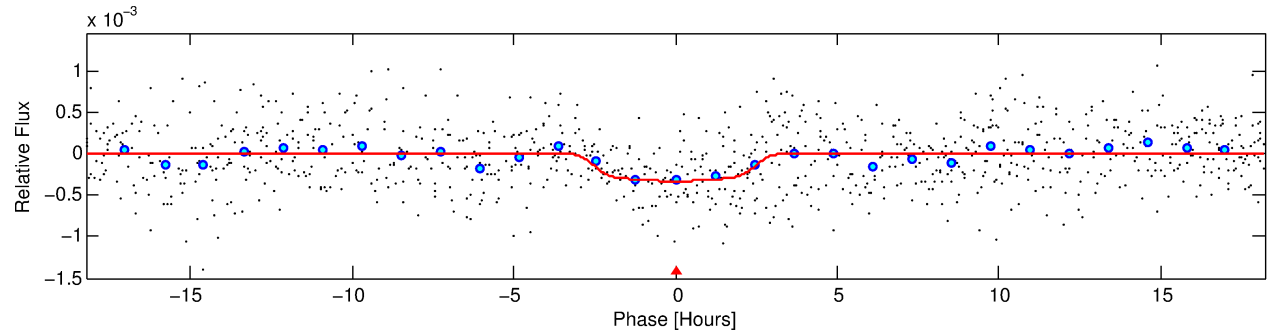
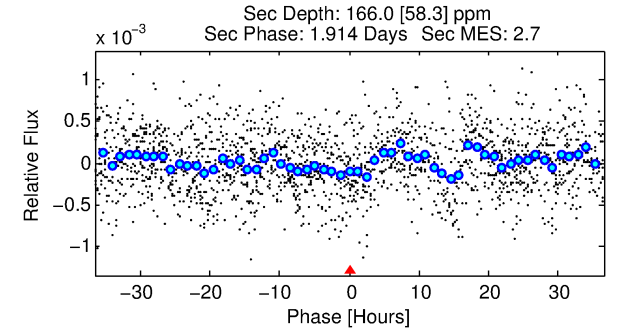
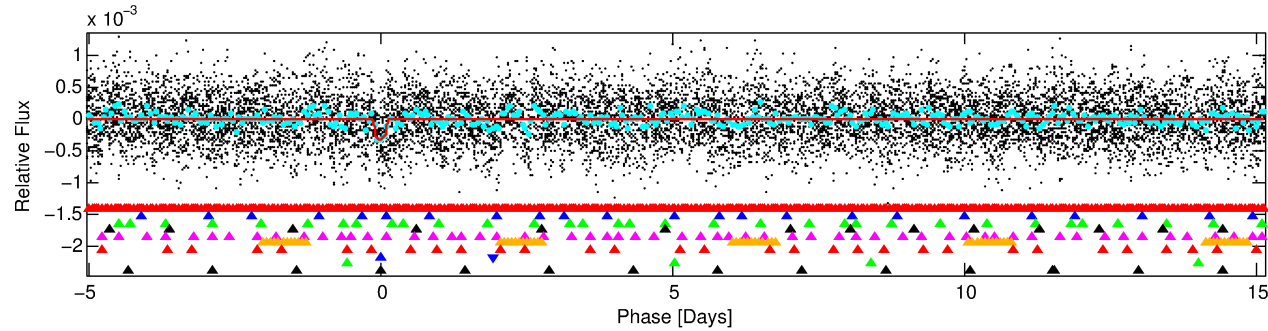
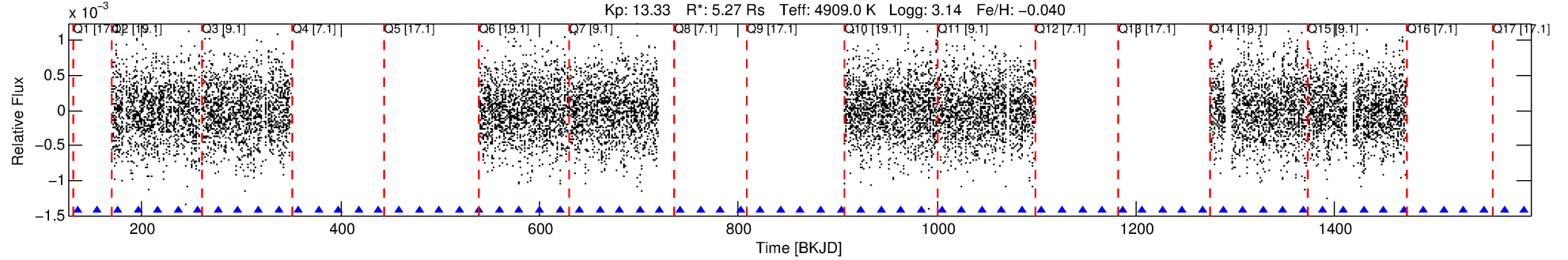
Ephemeris Match Information For 010407047-08

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 8 of 10 Period: 20.212 d
KOI: K07321 Corr: No Ephemeris Match

Kp: 13.33 R*: 5.27 Rs Teff: 4909.0 K Logg: 3.14 Fe/H: -0.040



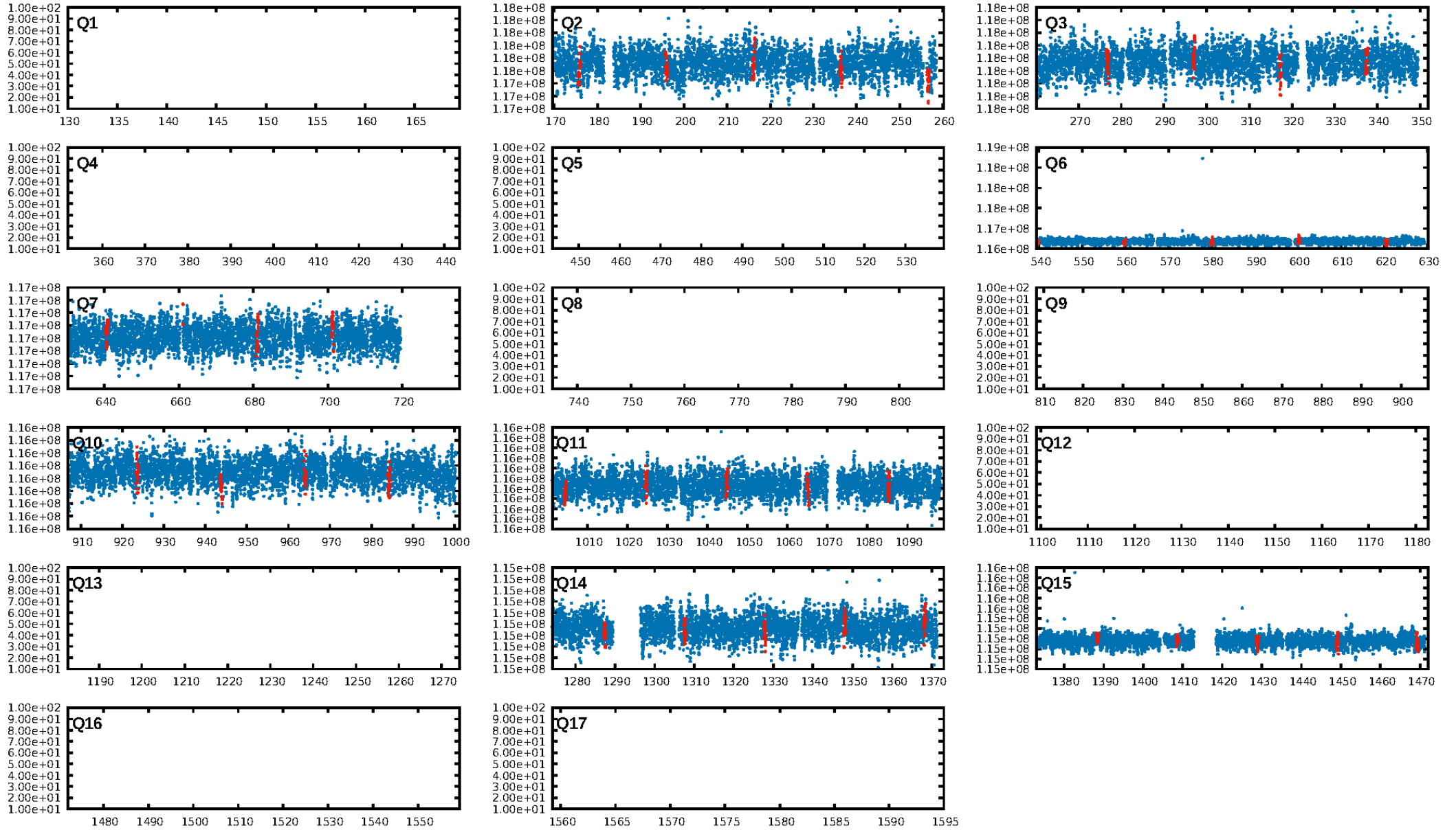
DV Fit Results:

Period = 20.21171 [0.00036] d
Epoch = 135.3498 [0.0145] BKJD
Rp/R* = 0.0214 [0.0028]
a/R* = 10.09 [3.76]
b = 0.94 [0.05]
Seff = 551.29 [377.46]
Teq = 1236 [211] K
Rp = 12.30 [5.34] Re
a = 0.1620 [0.0671] AU
Ag = 15.85 [12.75] [1.16σ]
Teffp = 3811 [428] K [5.40σ]

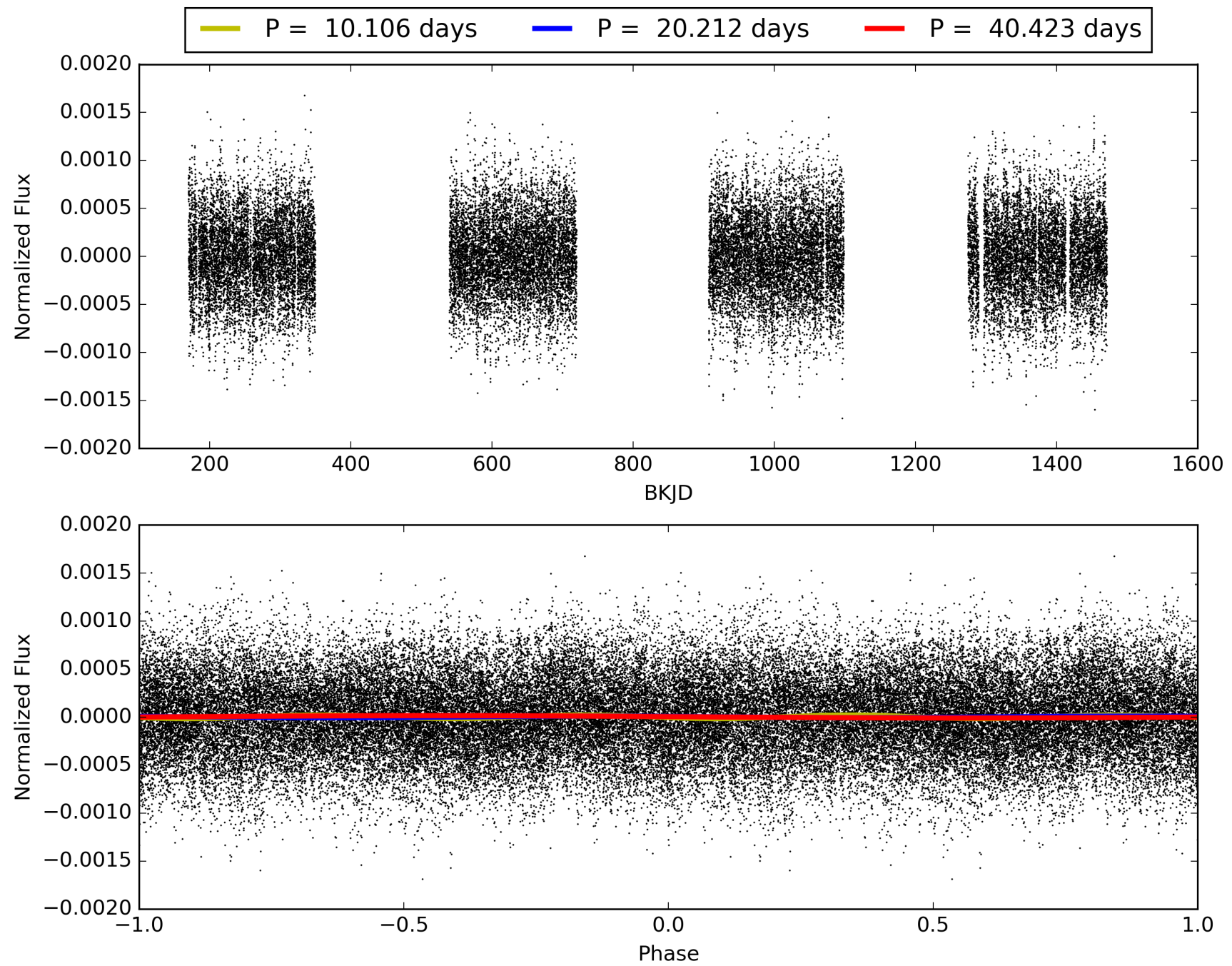
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.01σ]
LongPeriod-sig: 100.0% [15.27σ]
ModelChiSquare2-sig: 47.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [25/25]
GhostDiagnostic-chr: 1.196
Centroid-sig: 61.4%
Centroid-so: 0.279 arcsec [0.94σ]
OotOffset-rm: 0.257 arcsec [0.27σ]
KicOffset-rm: 0.383 arcsec [0.40σ]
OotOffset-st: 4/4/0/0 [8]
KicOffset-st: 4/4/0/0 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.00 [0/8]

TCE 010407047-08, PDC Light Curves

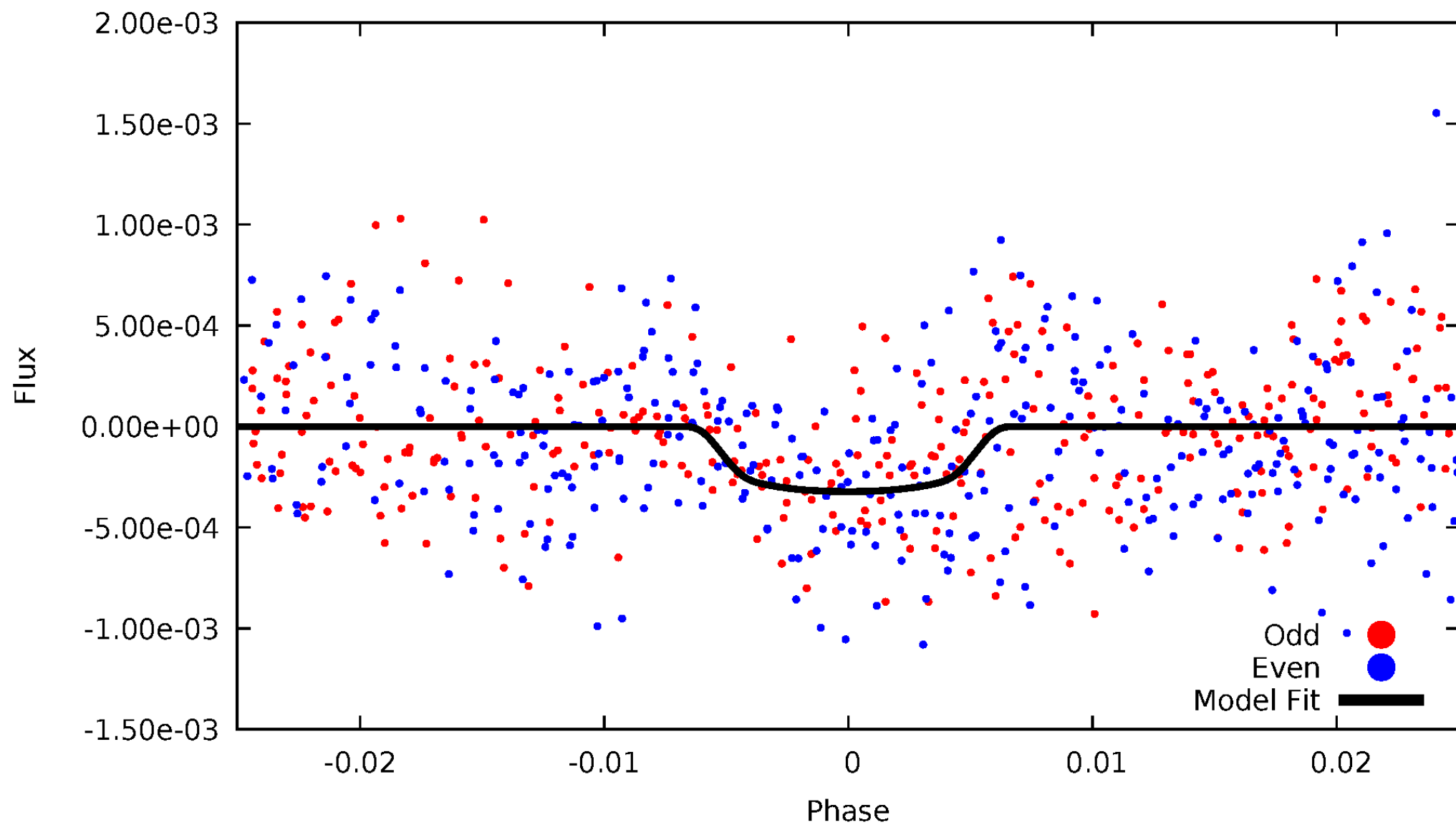


TCE 010407047-08



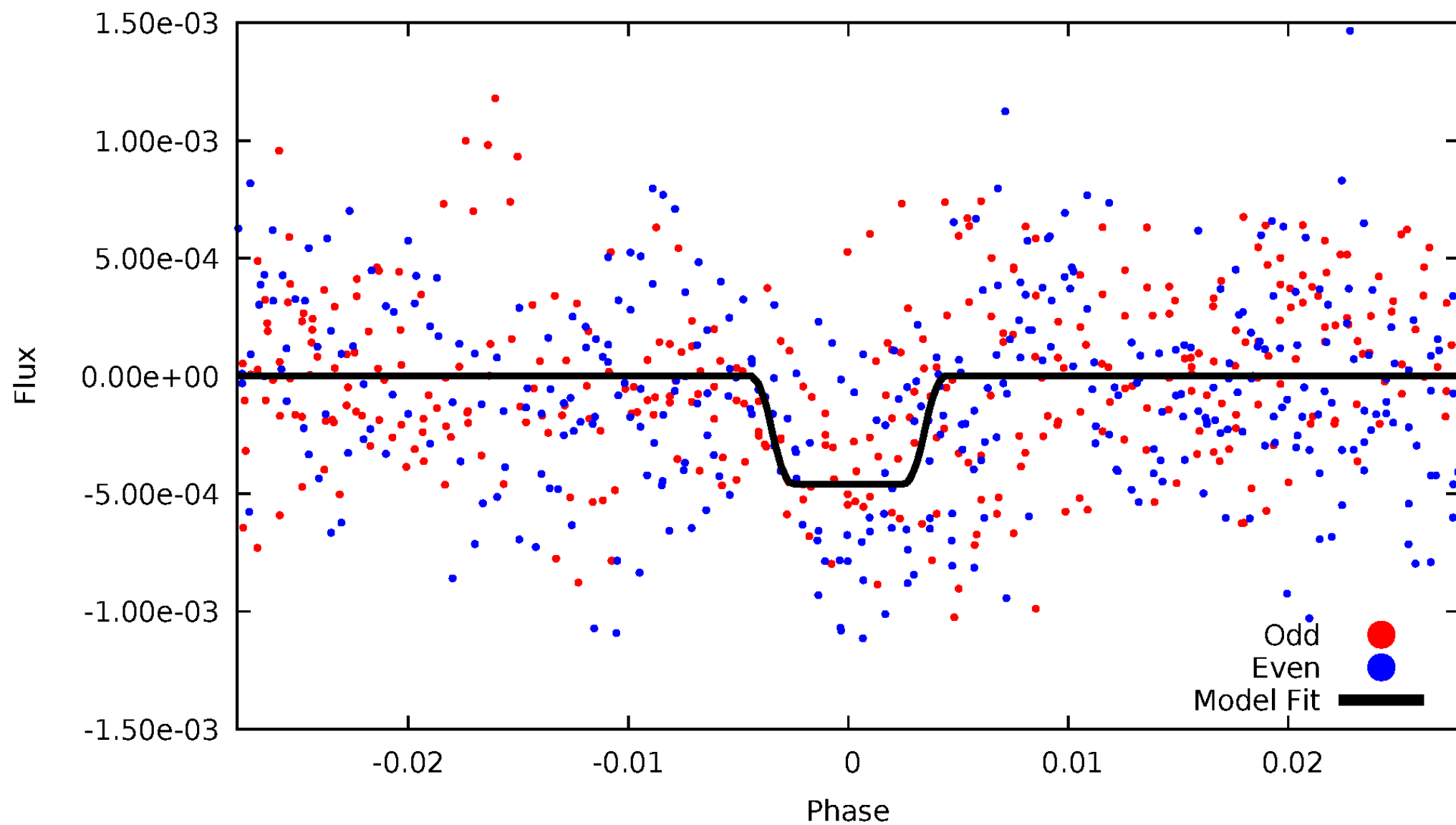
DV Odd/Even

TCE 010407047-08



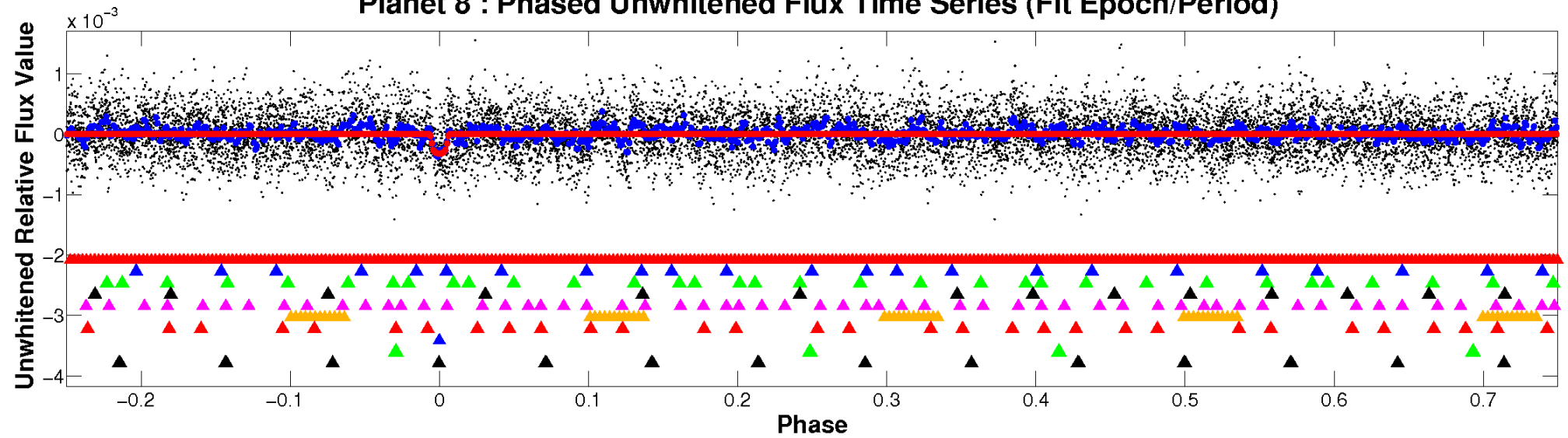
ALT Odd/Even

TCE 010407047-08

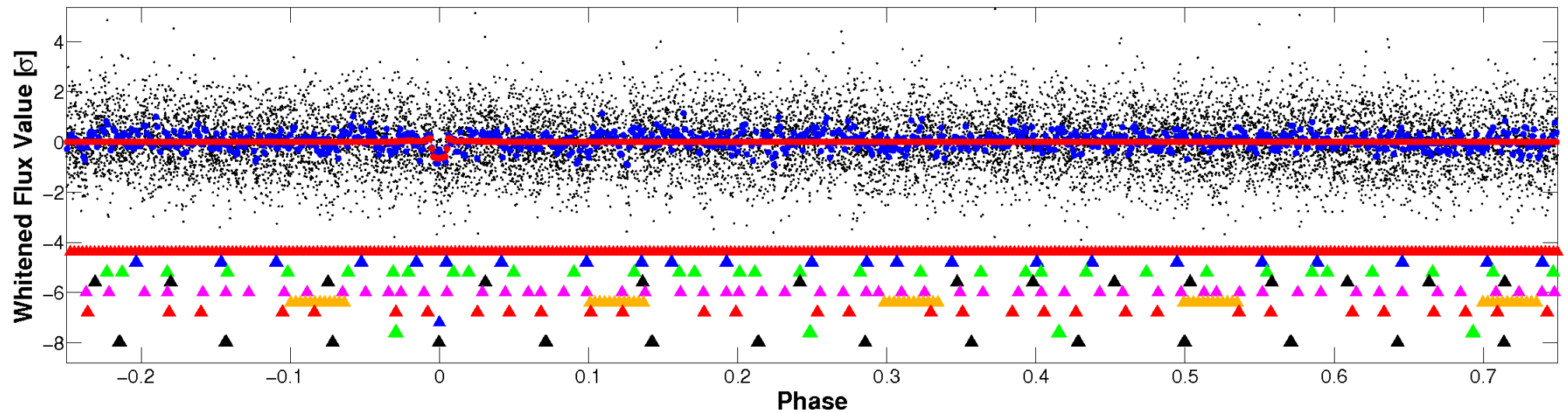


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

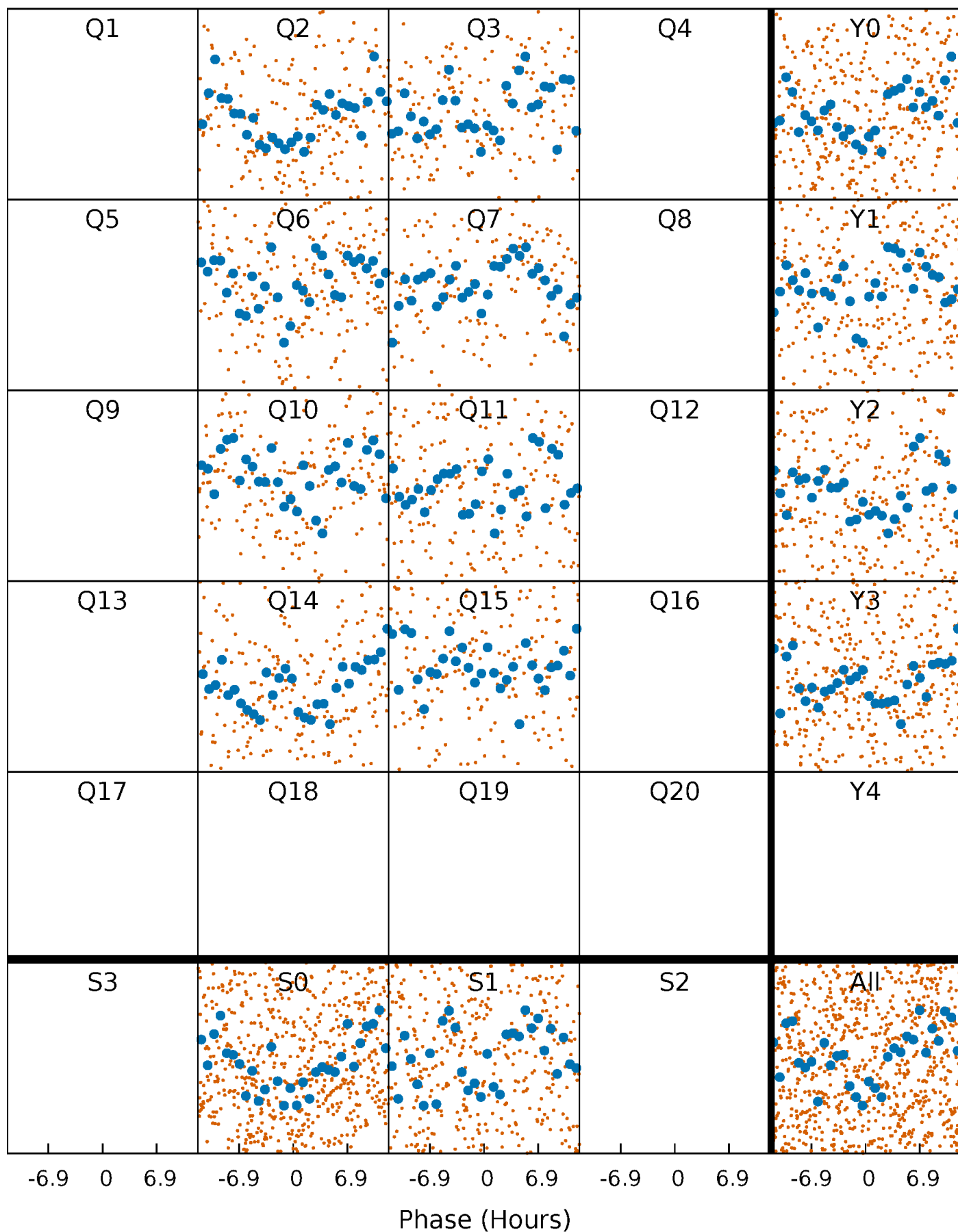


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



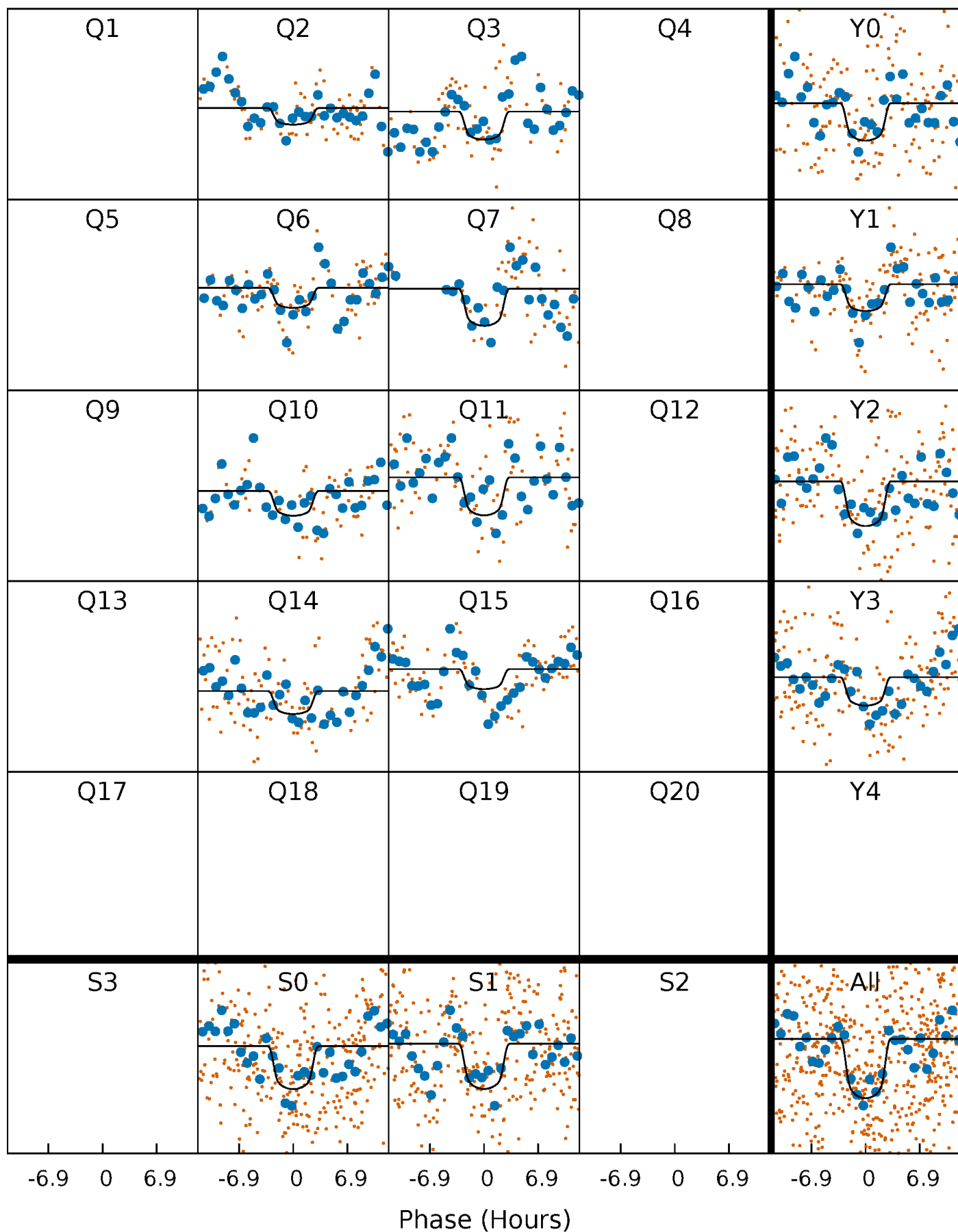
PDC Quarter-Phased Transit Curves

TCE 010407047-08 $P = 20.211707$ Days $T_0 = 135.349787$ (BKJD)



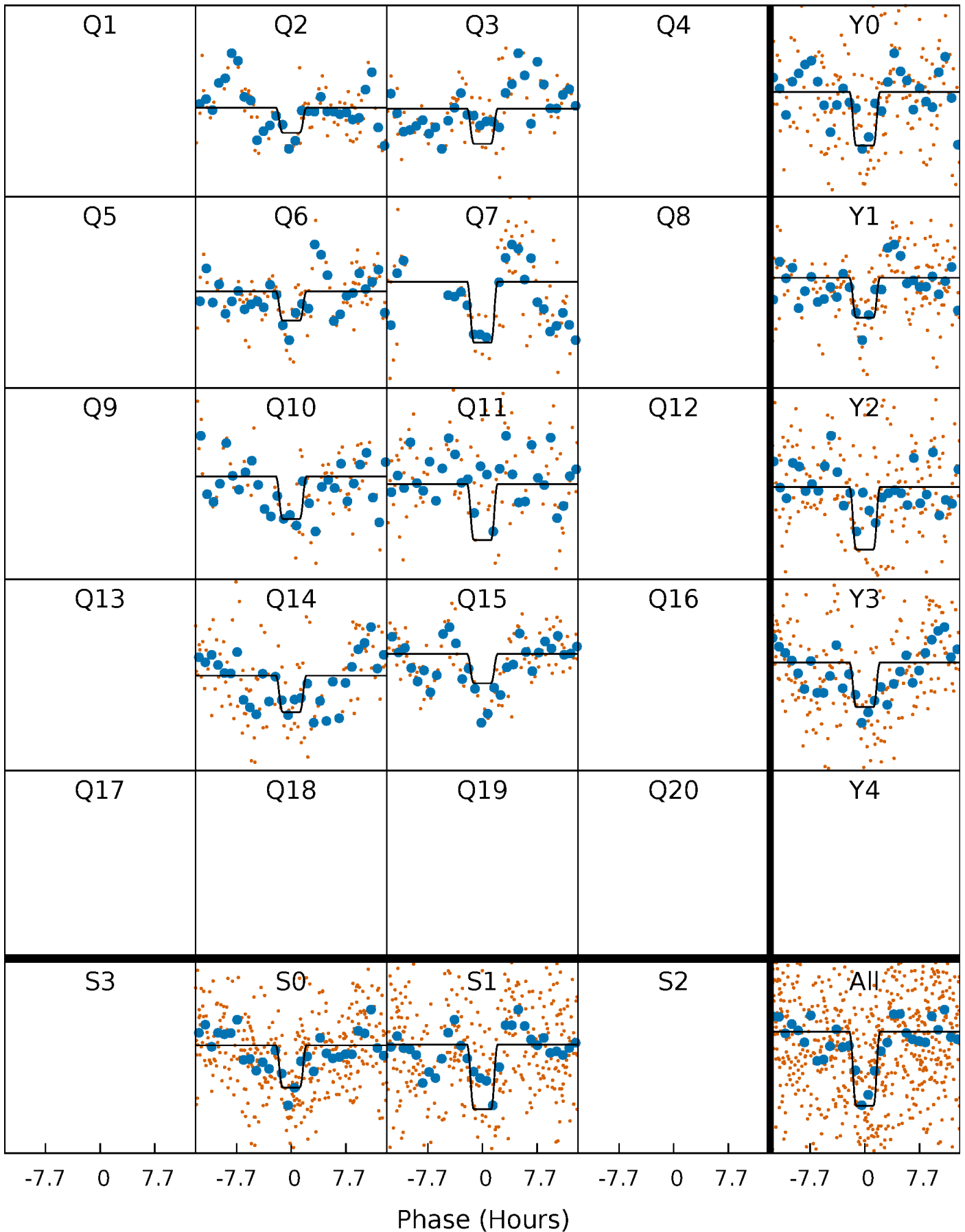
DV Quarter-Phased Transit Curves

TCE 010407047-08 P= 20.211707 Days $T_0=135.349787$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

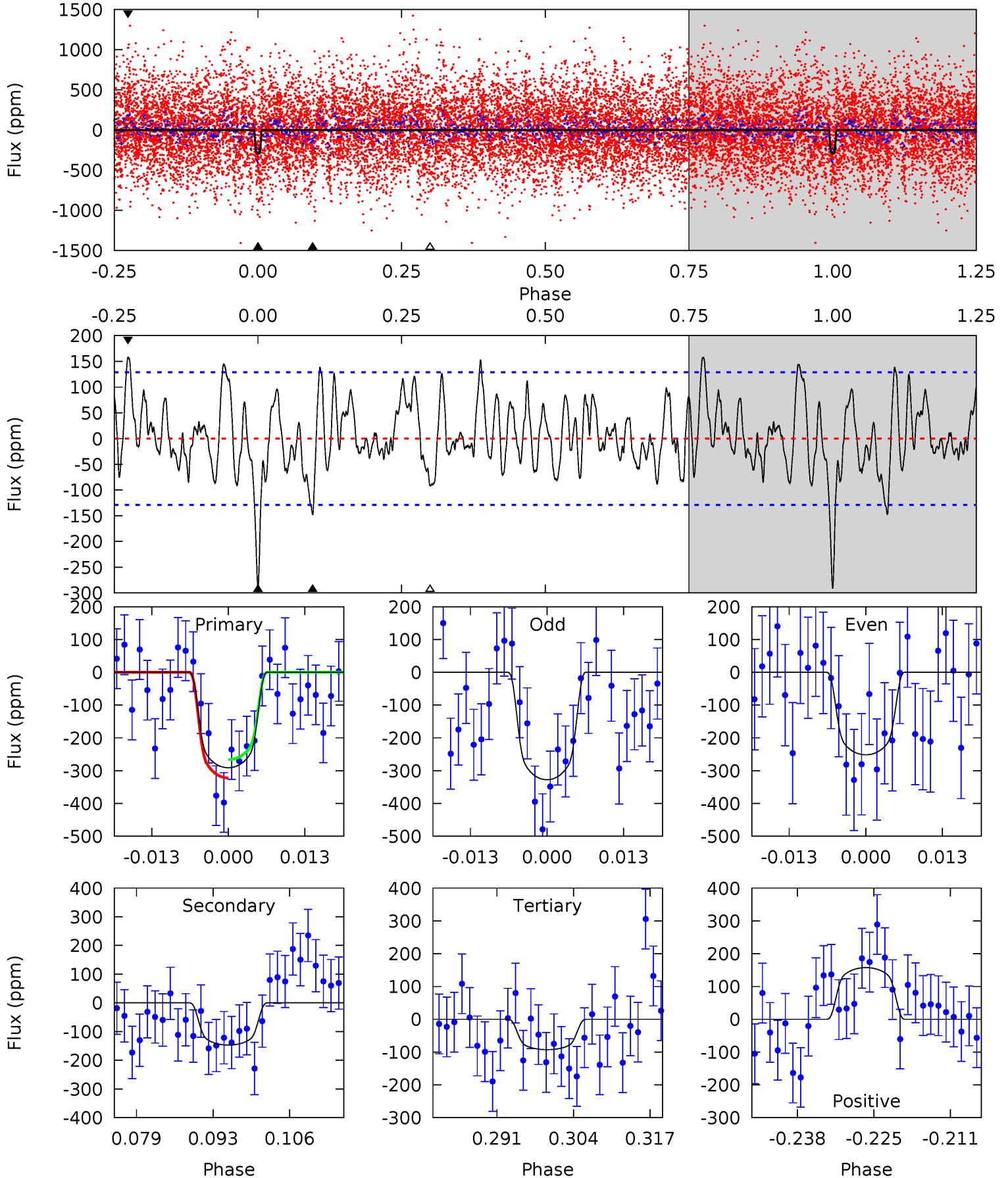
TCE 010407047-08 $P = 20.212857$ Days $T_0 = 135.306585$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-08, P = 20.211707 Days, E = 135.349787 Days

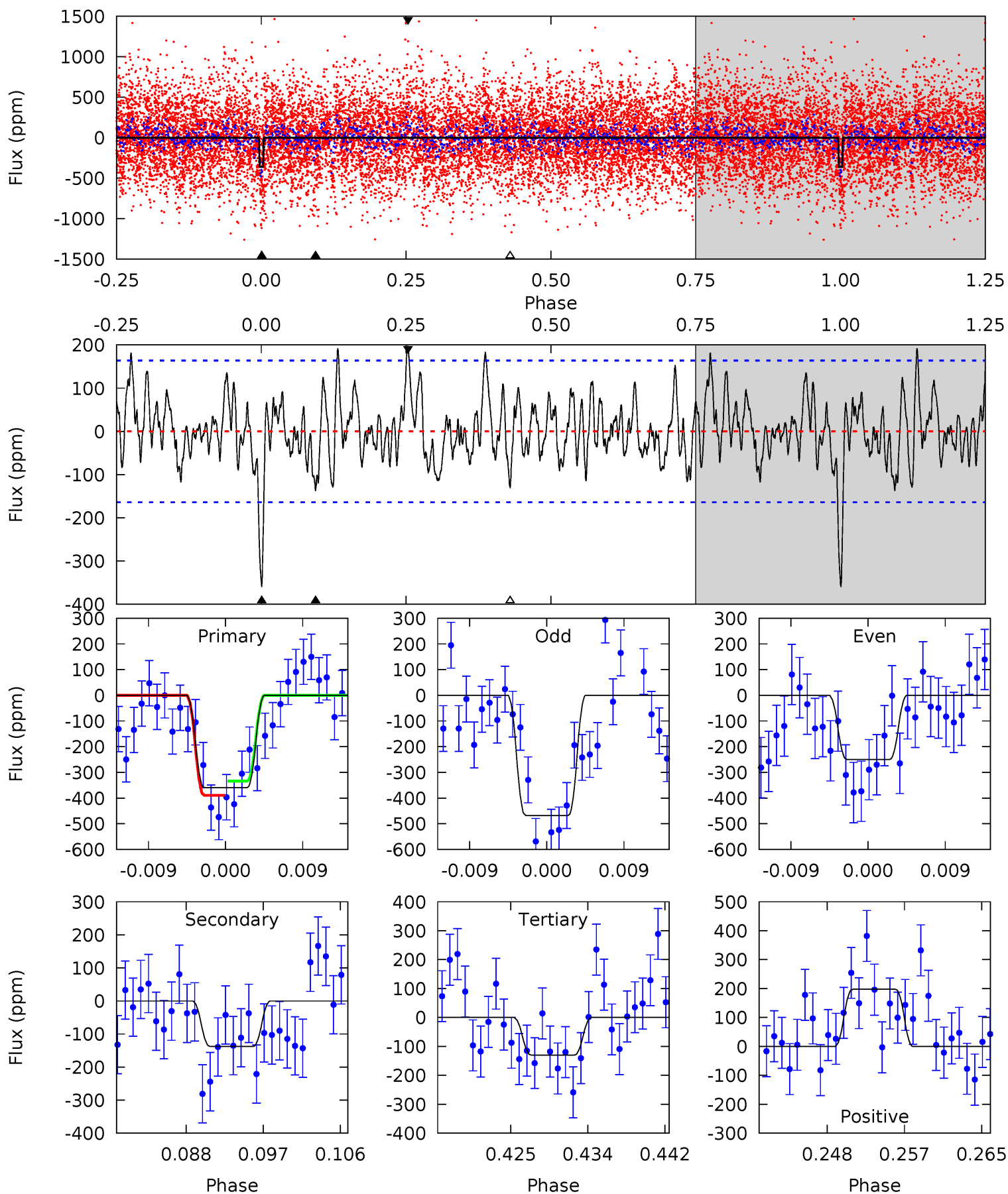
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	5.68	3.58	6.08	4.97	2.48	2.09	7.65	5.16	2.10	-0.40	1.47	0.91	0.35	1.07



Alt Model-Shift Uniqueness Test

010407047-08, P = 20.212857 Days, E = 135.306585 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	4.25	4.01	6.09	5.05	2.62	1.88	7.08	5.00	0.23	-1.84	3.37	1.44	0.35	0.86



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-147 ± 26	$11.96^{+3.62}_{-3.11}$	1719^{+190}_{-217}	3937^{+250}_{-238}	15^{+12}_{-6}
Alt.	-138 ± 32	$12.02^{+3.56}_{-3.02}$	1721^{+199}_{-198}	3892^{+259}_{-257}	13^{+12}_{-6}

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

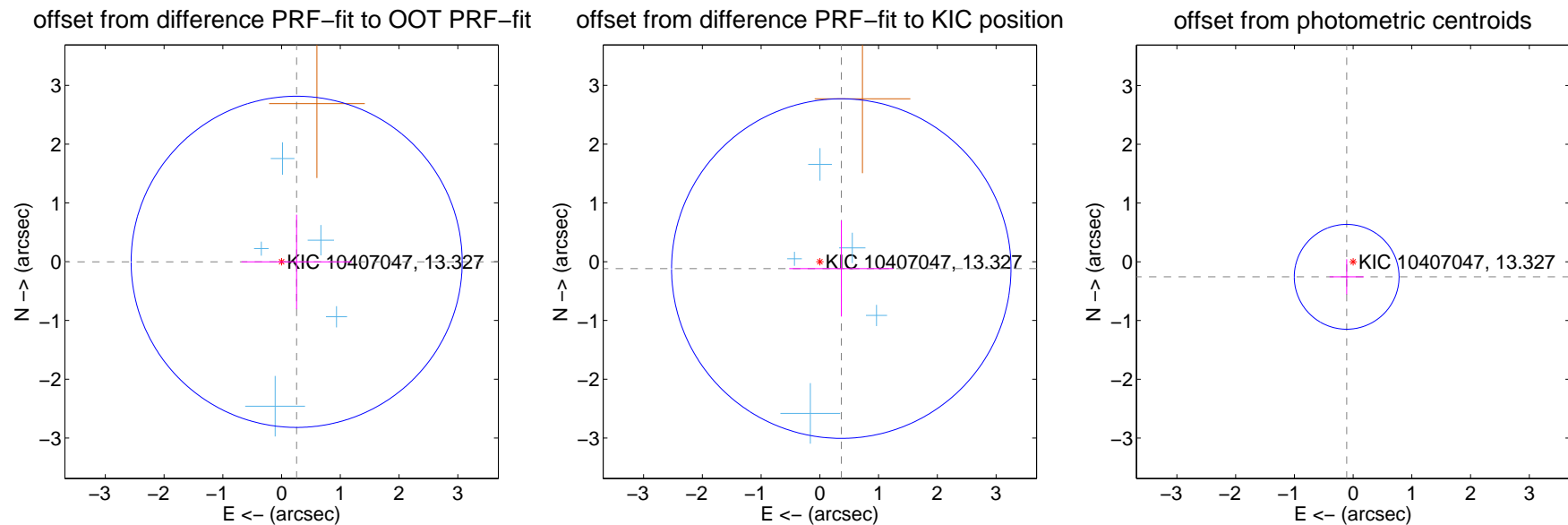
DV Centroid Data

Supplemental centroid analysis for 010407047-08. Kepler magnitude: 13.33. Transit SNR 7.19

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.257 ± 0.939	0.27	-0.257 ± 0.938	-0.002 ± 0.803
PRF-fit source offset from KIC position	0.383 ± 0.963	0.40	-0.365 ± 0.885	-0.117 ± 0.816
photometric centroid source offset	0.28 ± 0.30	0.94	0.11 ± 0.29	-0.26 ± 0.30



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.

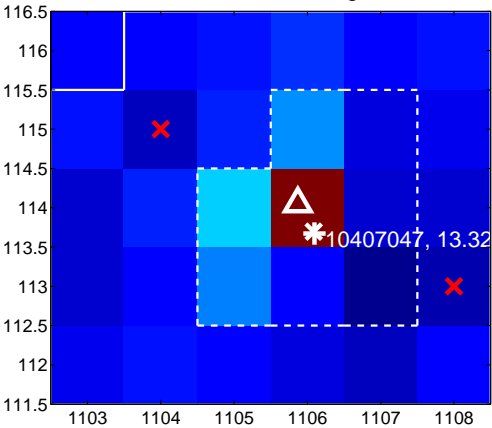
Q1 no difference image



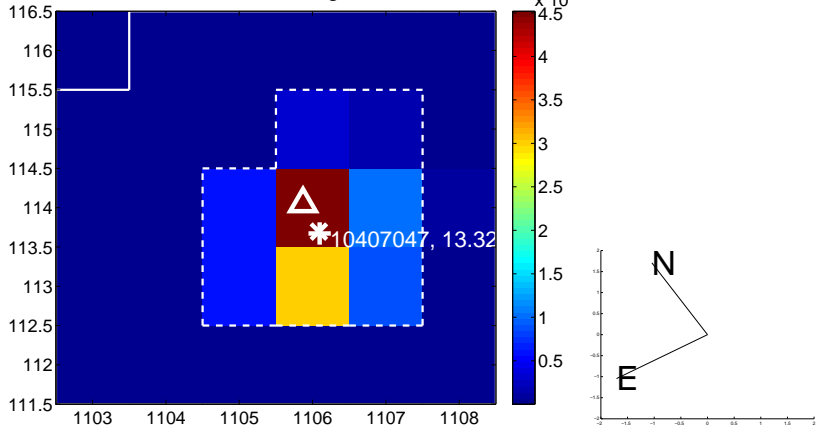
Q1 no OOT image



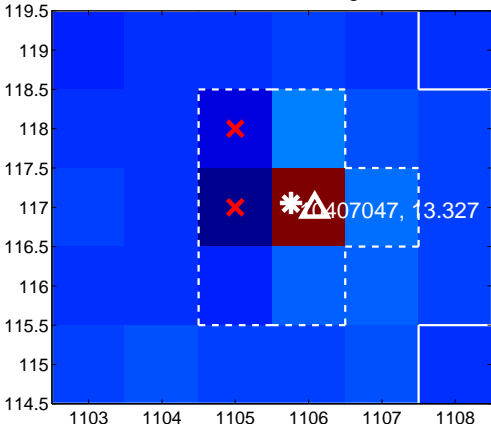
Q2 difference image



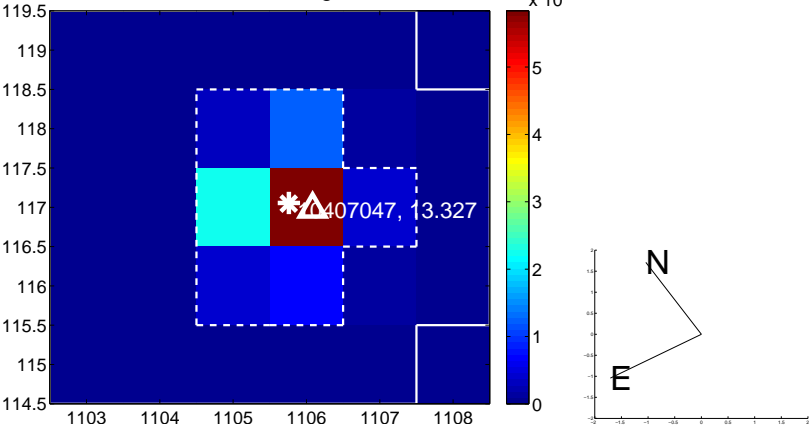
Q2 OOT image



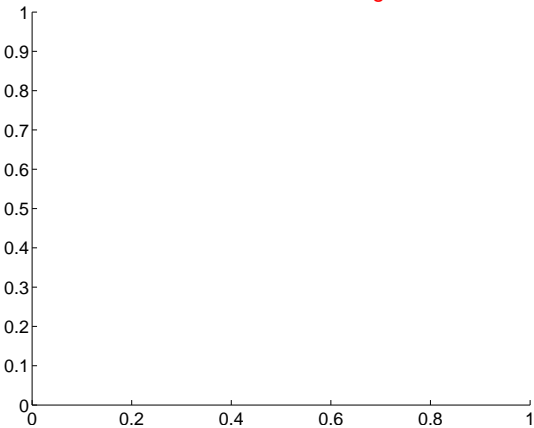
Q3 difference image



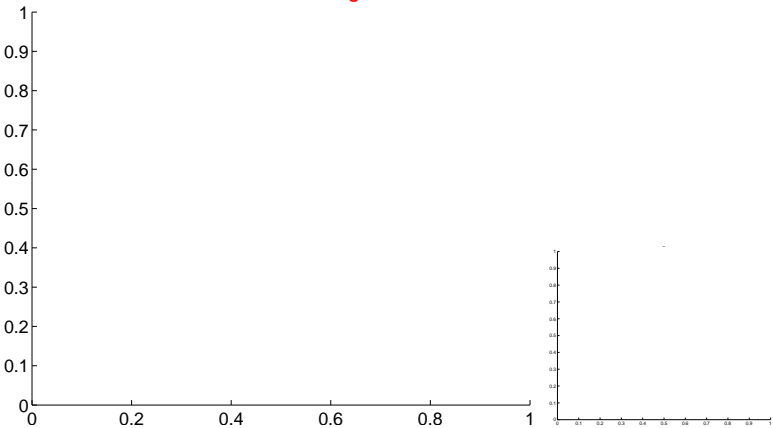
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

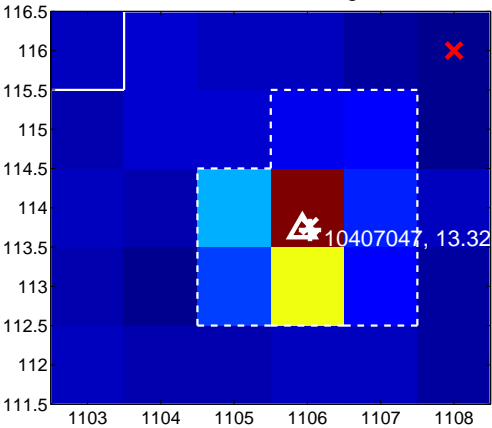
Q5 no difference image



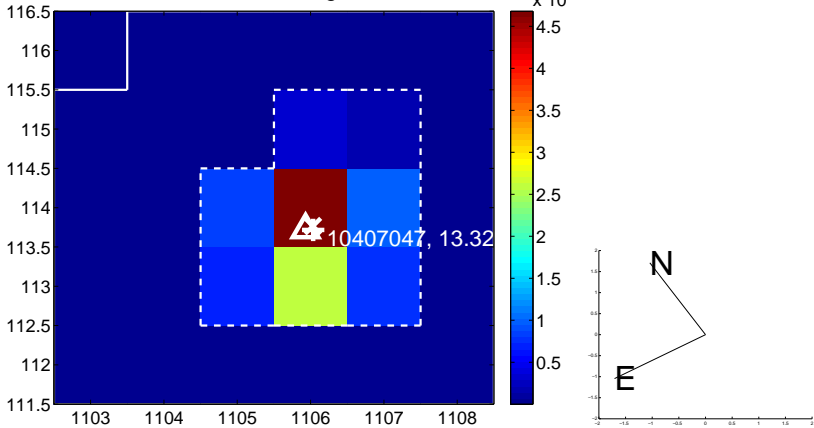
Q5 no OOT image



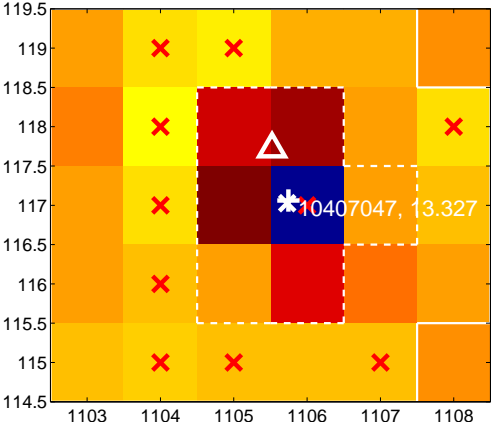
Q6 difference image



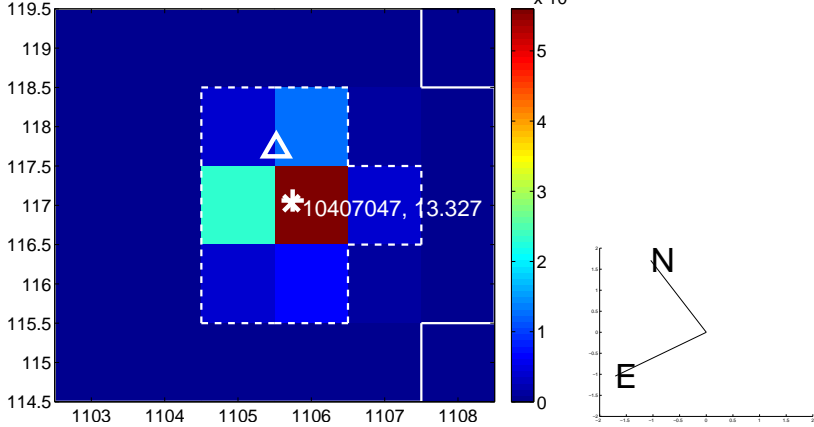
Q6 OOT image



Q7 difference image. Poor Quality



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.

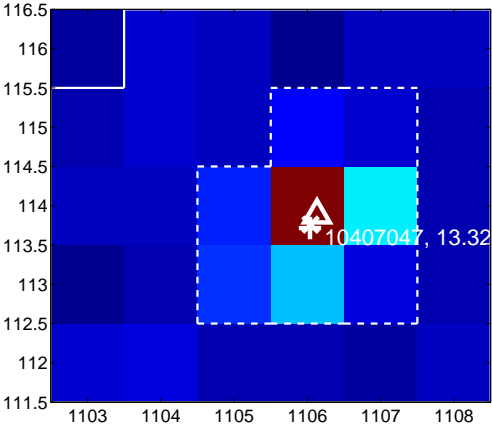
Q9 no difference image



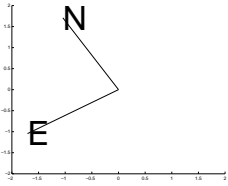
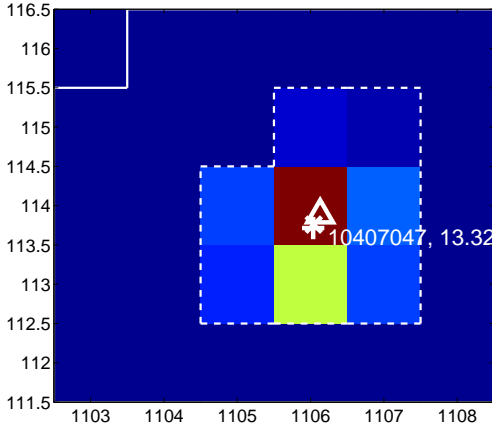
Q9 no OOT image



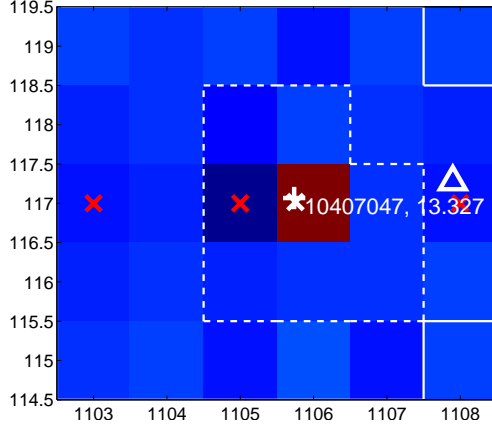
Q10 difference image



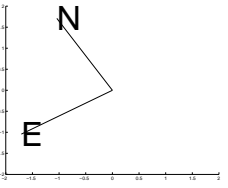
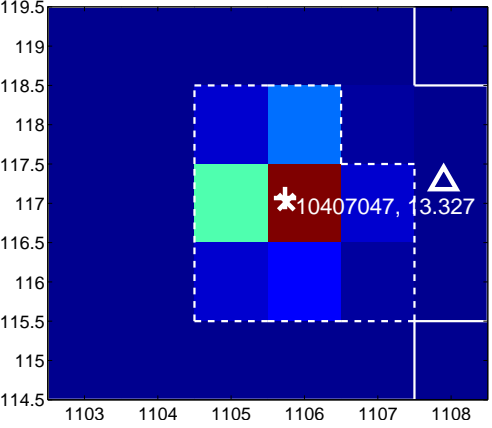
Q10 OOT image



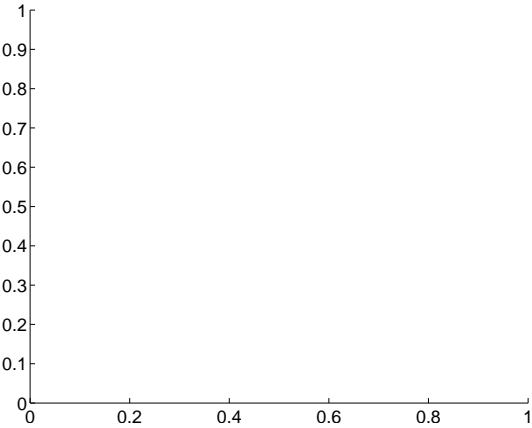
Q11 difference image. Poor Quality



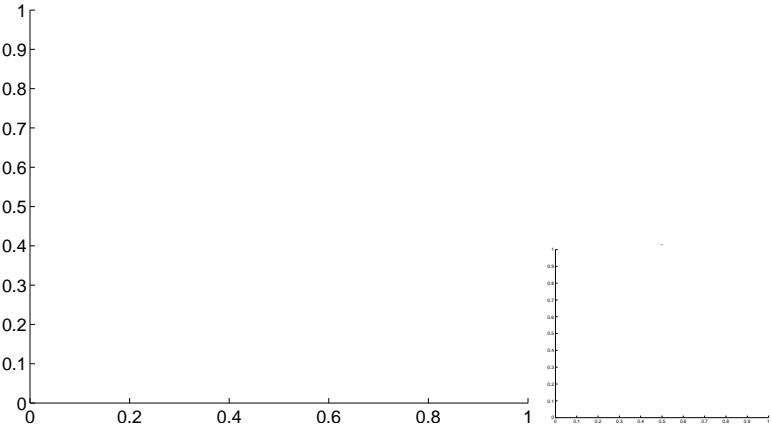
Q11 OOT image



Q12 no difference image

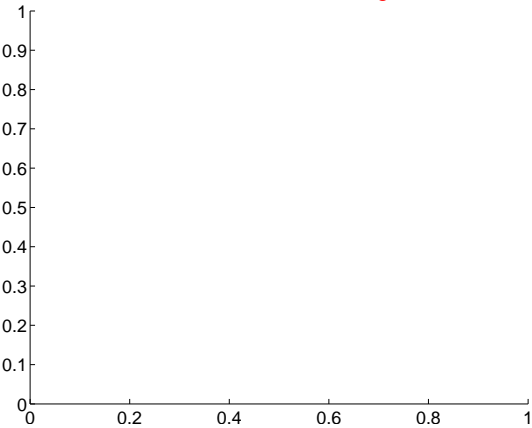


Q12 no OOT image



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

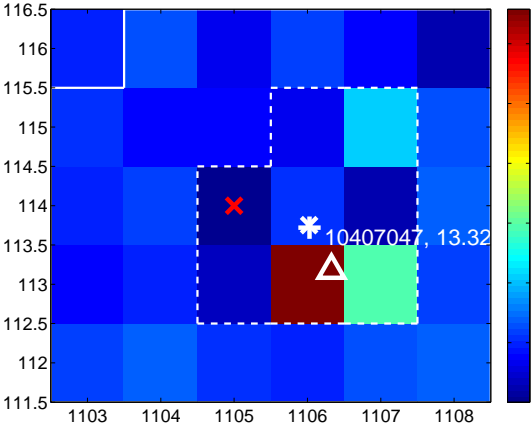
Q13 no difference image



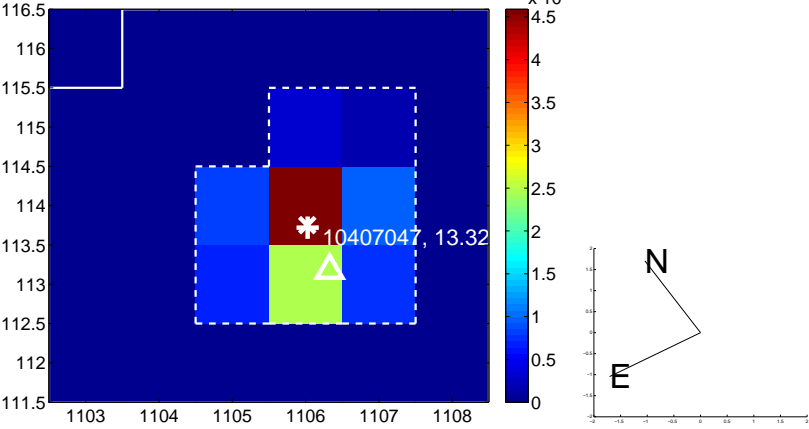
Q13 no OOT image



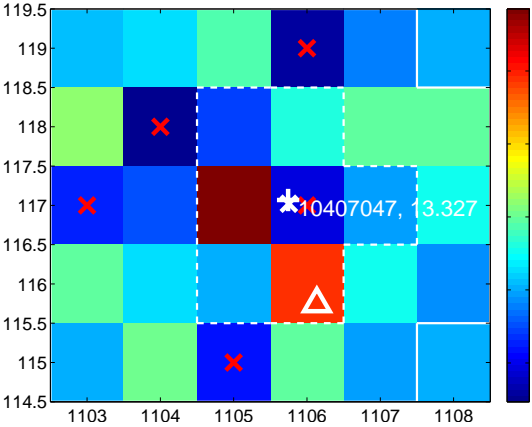
Q14 difference image



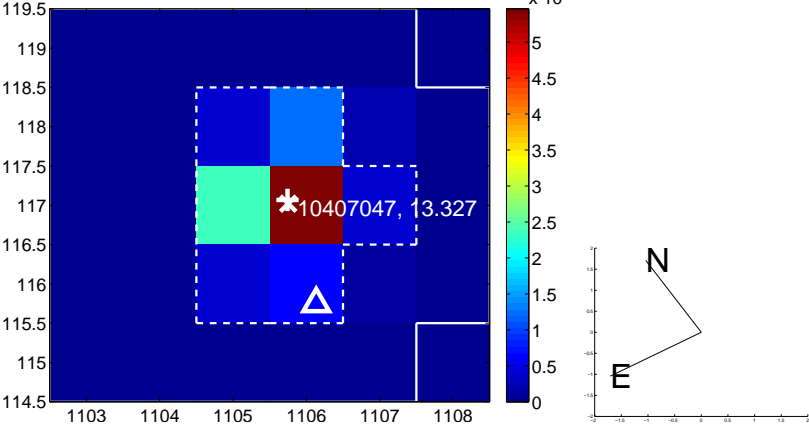
Q14 OOT image



Q15 difference image. Poor Quality



Q15 OOT image



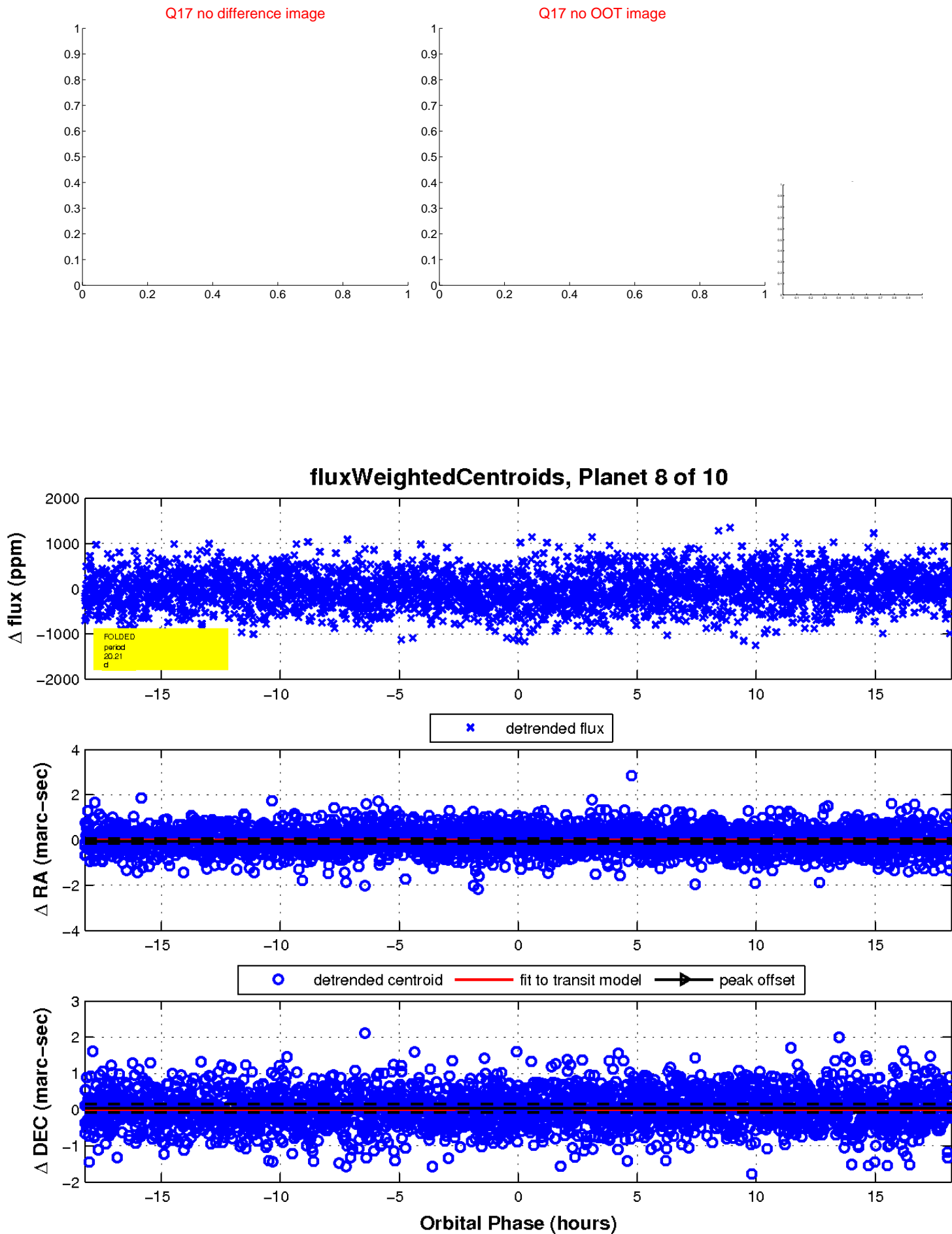
Q16 no difference image



Q16 no OOT image

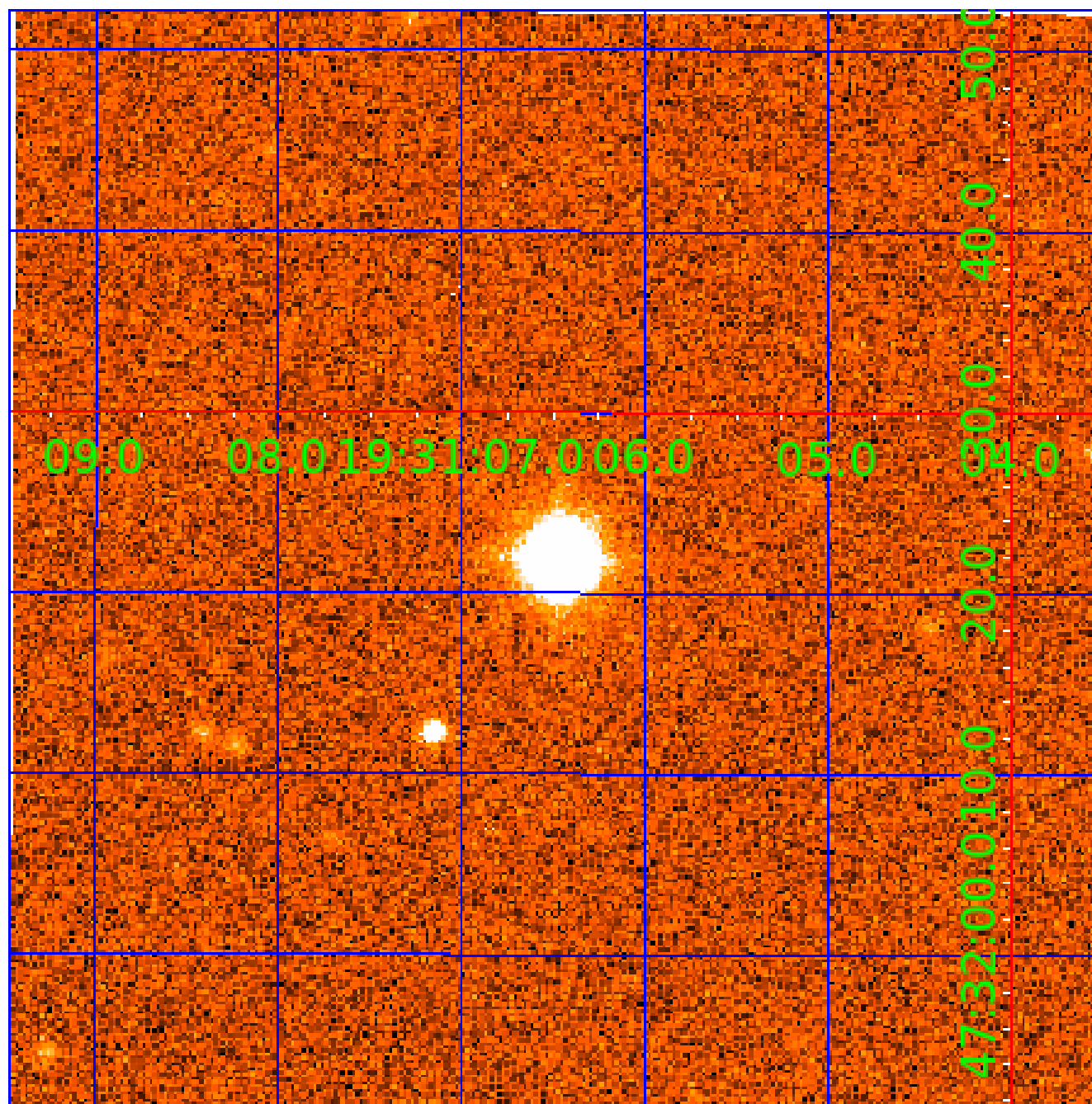


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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.

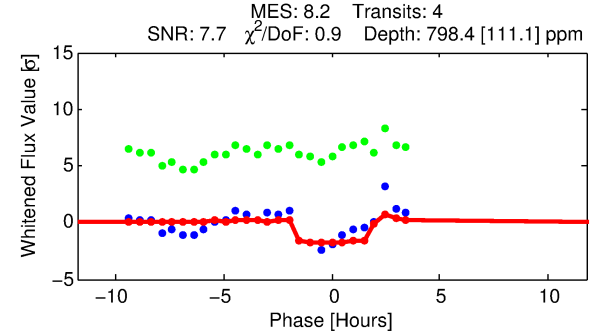
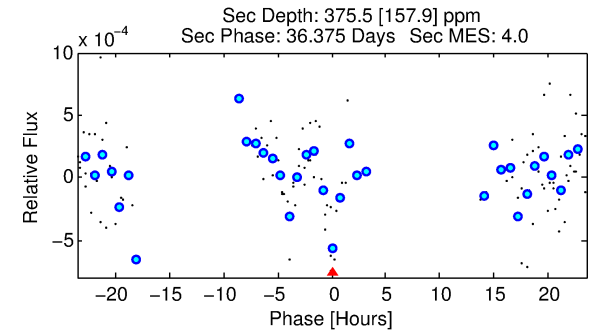
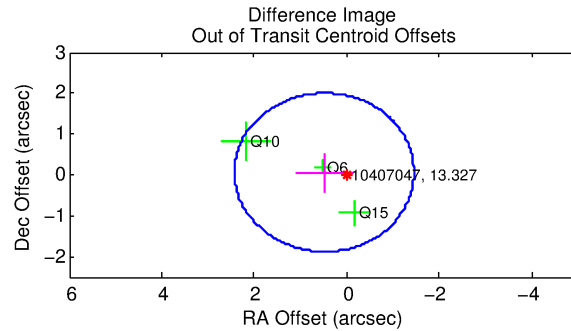
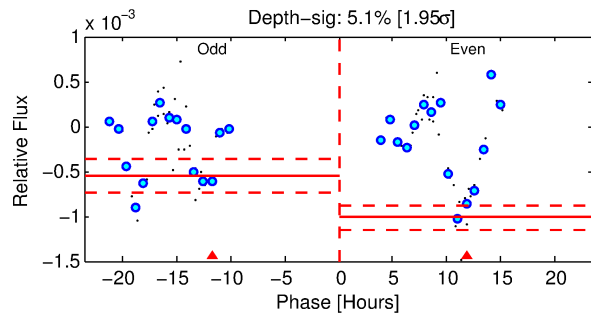
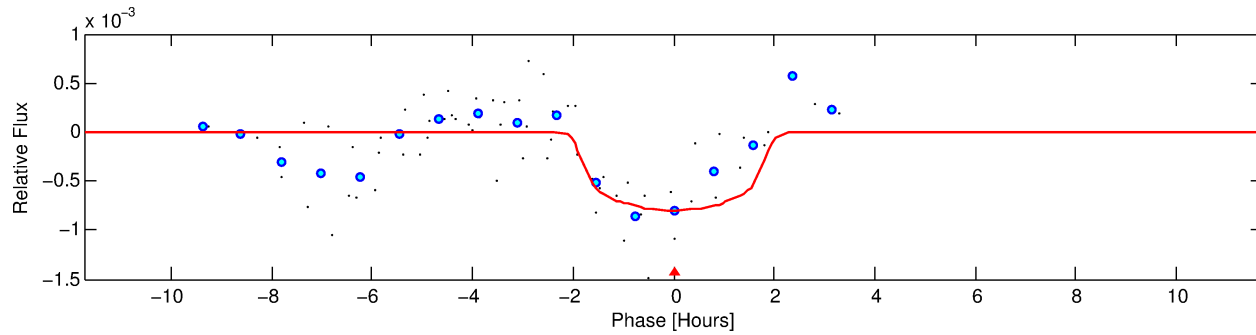
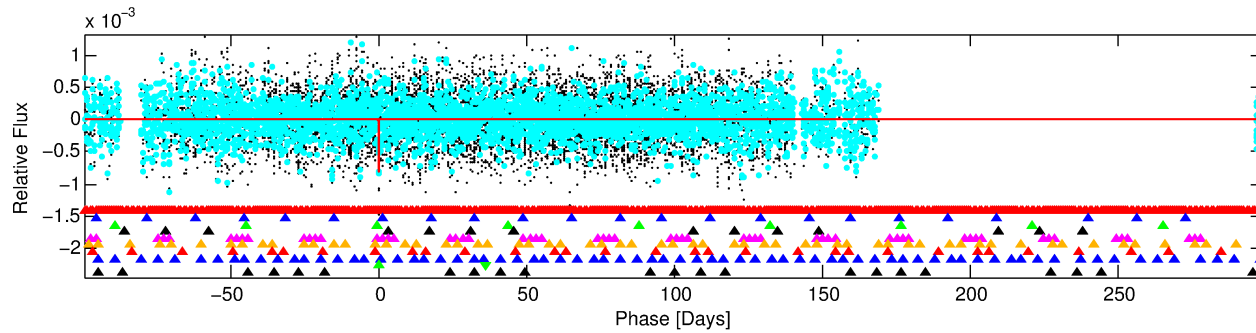
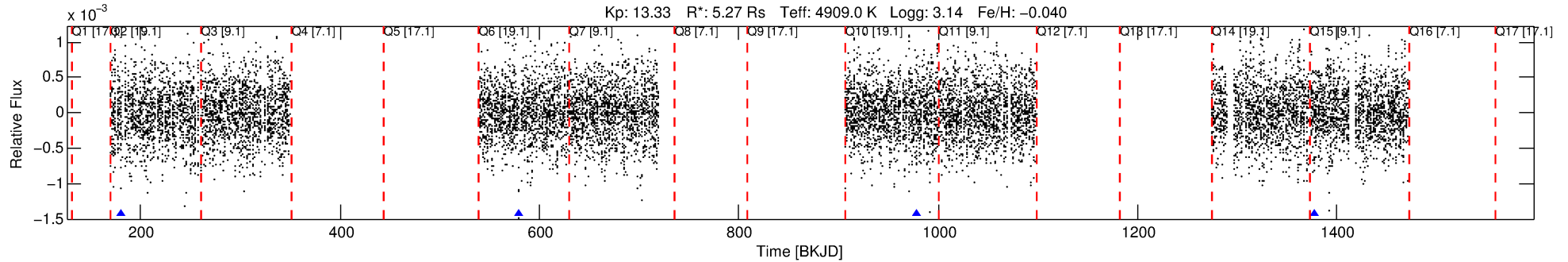
Ephemeris Match Information For 010407047-09

No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 9 of 10 Period: 398.622 d

KOI: K07321 Corr: No Ephemeris Match



DV Fit Results:

Period = 398.62152 [0.00479] d
Epoch = 180.7969 [0.0105] BKJD
Rp/R* = 0.0276 [0.0272]
a/R* = 586.79 [2002.03]
b = 0.70 [2.55]
Seff = 10.35 [7.08]
Teq = 457 [78] K
Rp = 15.88 [16.99] Re
a = 1.1823 [0.4898] AU
Ag = 1144.65 [2434.58] [0.47σ]
Teffp = 4113 [2076] K [1.76σ]

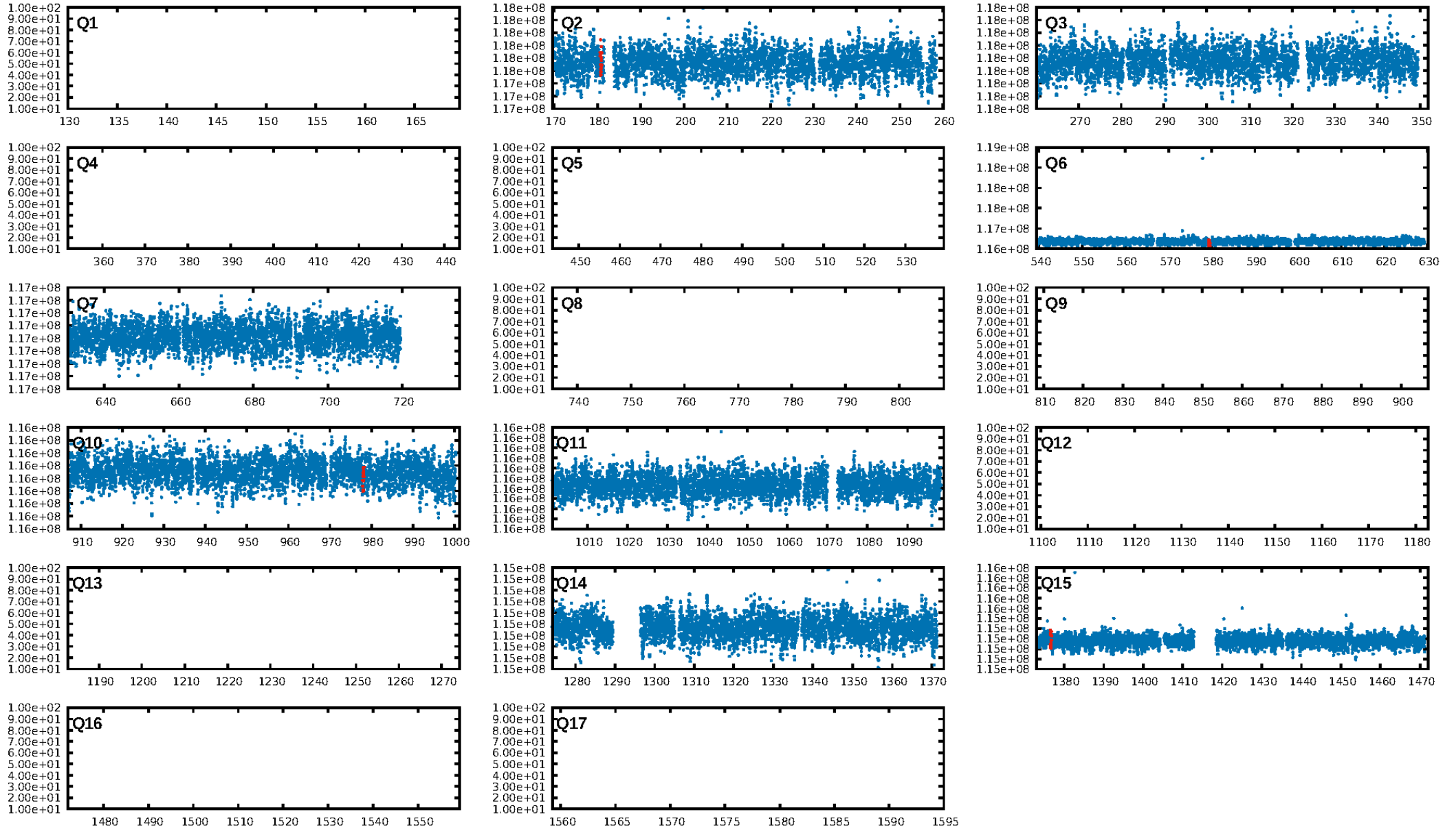
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1570.30σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 22.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.991
Centroid-sig: 38.9%
Centroid-so: 0.357 arcsec [0.82σ]
OotOffset-rm: 0.494 arcsec [0.76σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-rm: 0.547 arcsec [0.91σ]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/4]

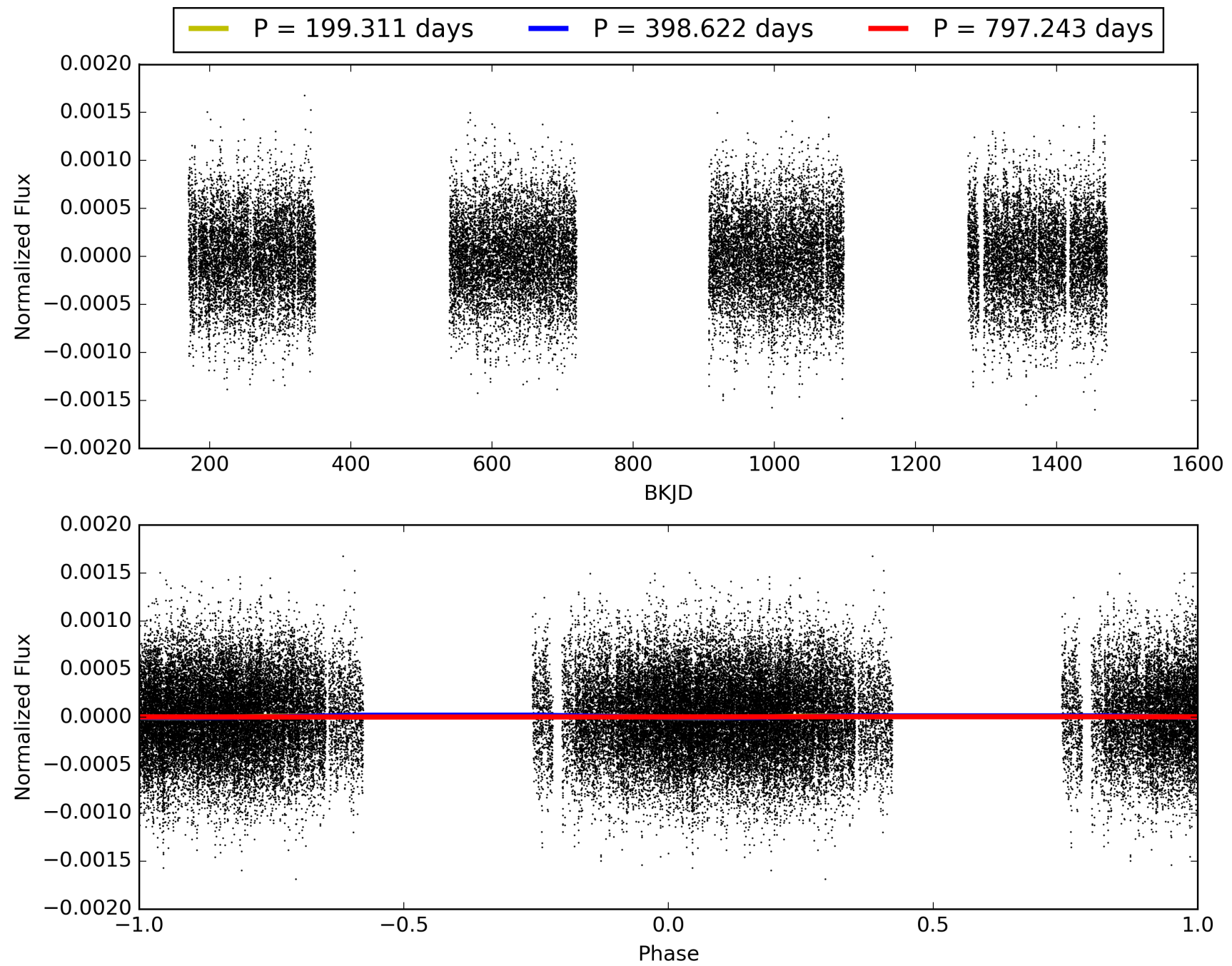
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:28:45 Z

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

TCE 010407047-09, PDC Light Curves

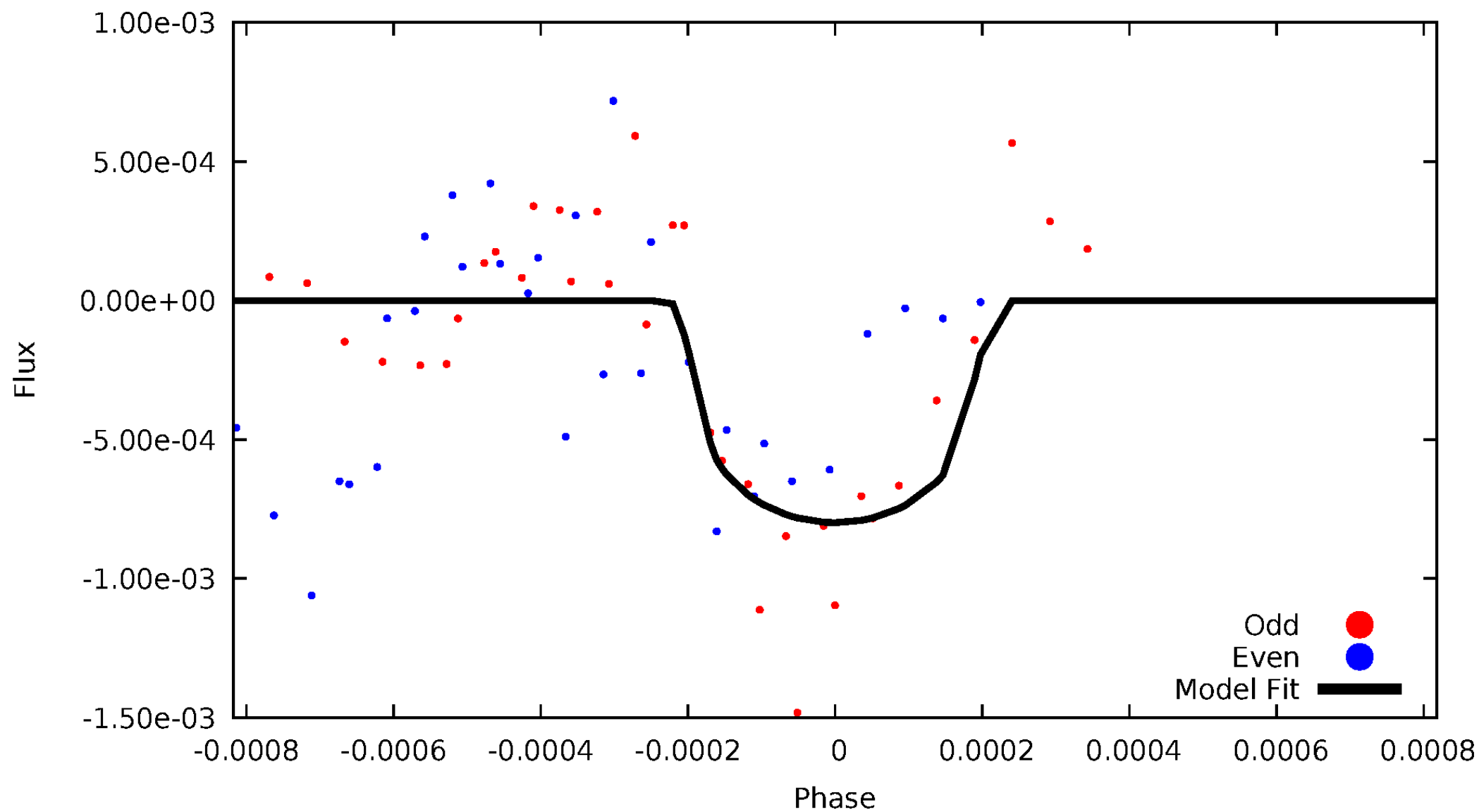


TCE 010407047-09



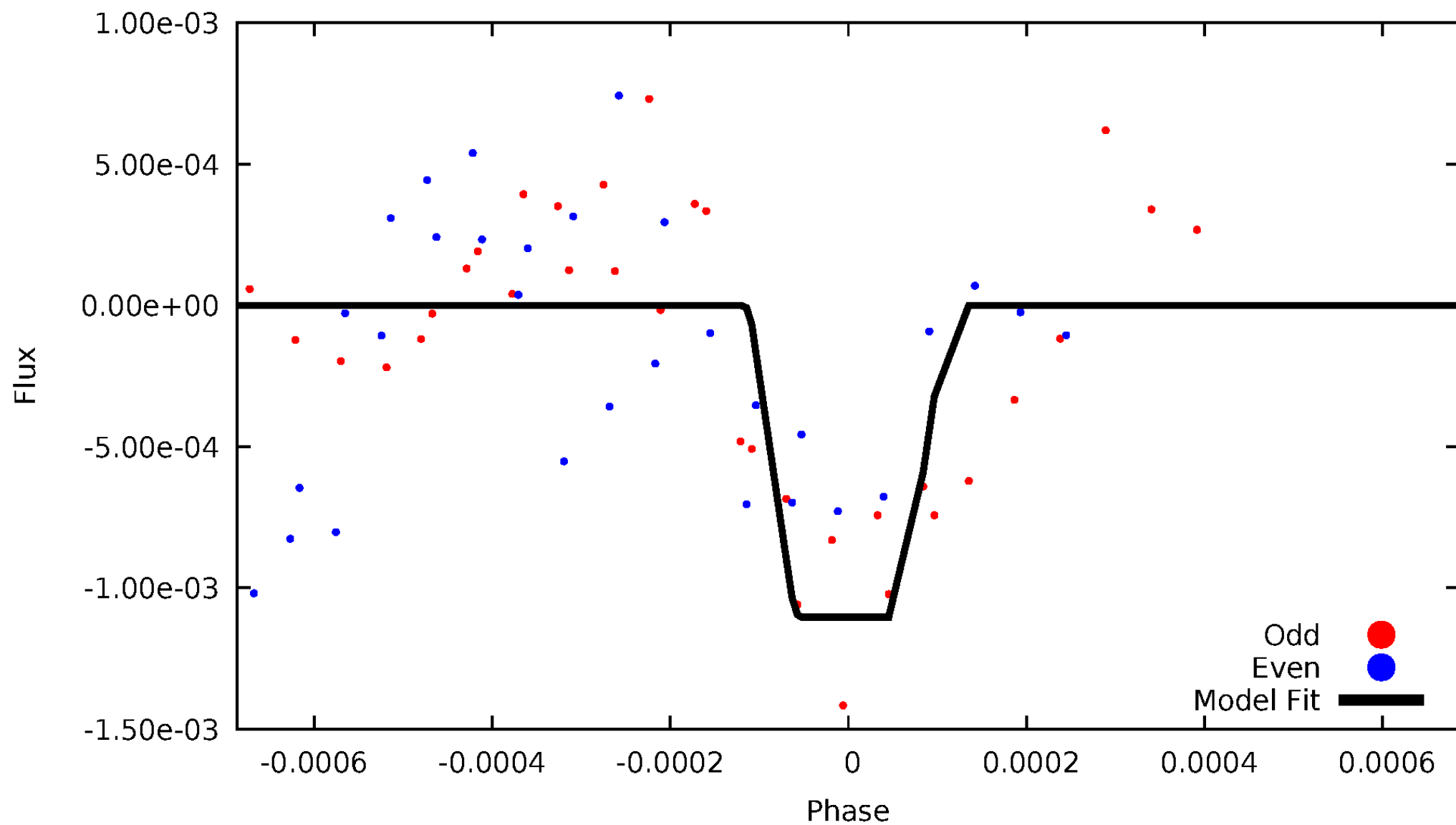
DV Odd/Even

TCE 010407047-09



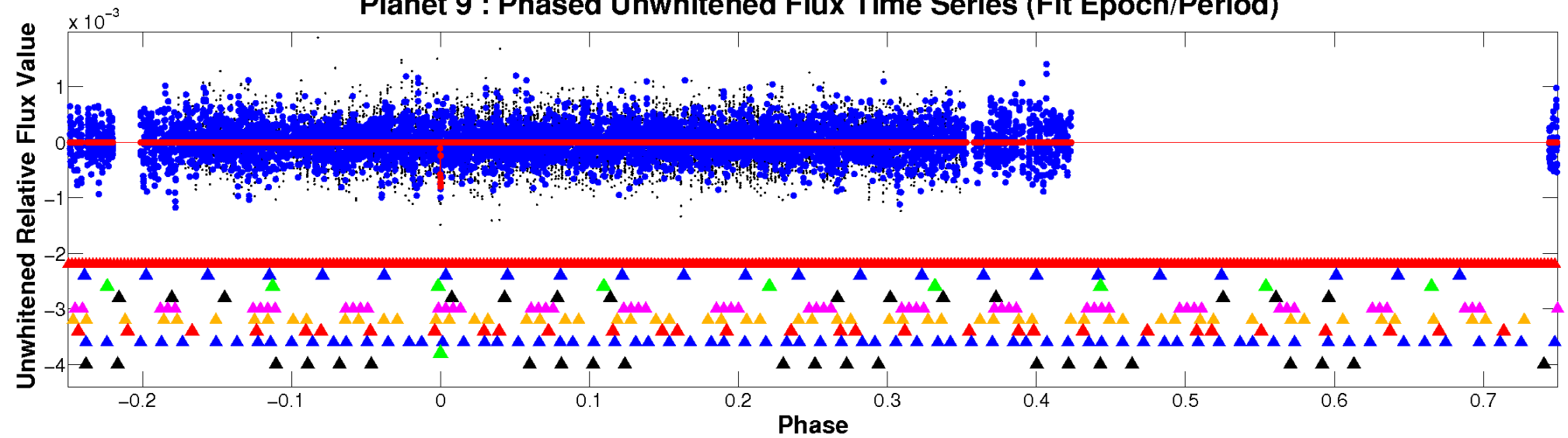
ALT Odd/Even

TCE 010407047-09

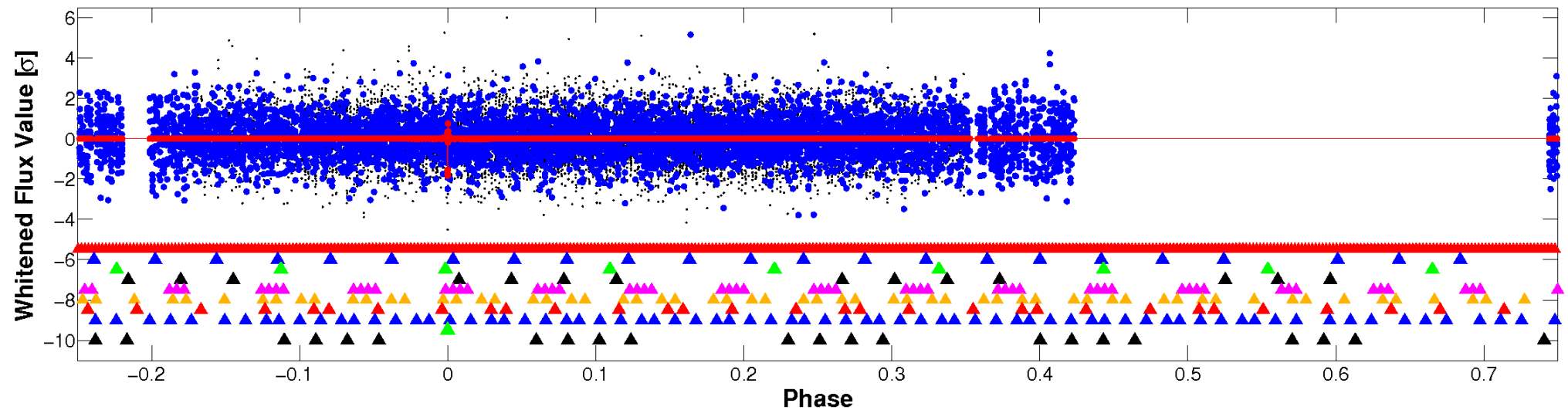


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

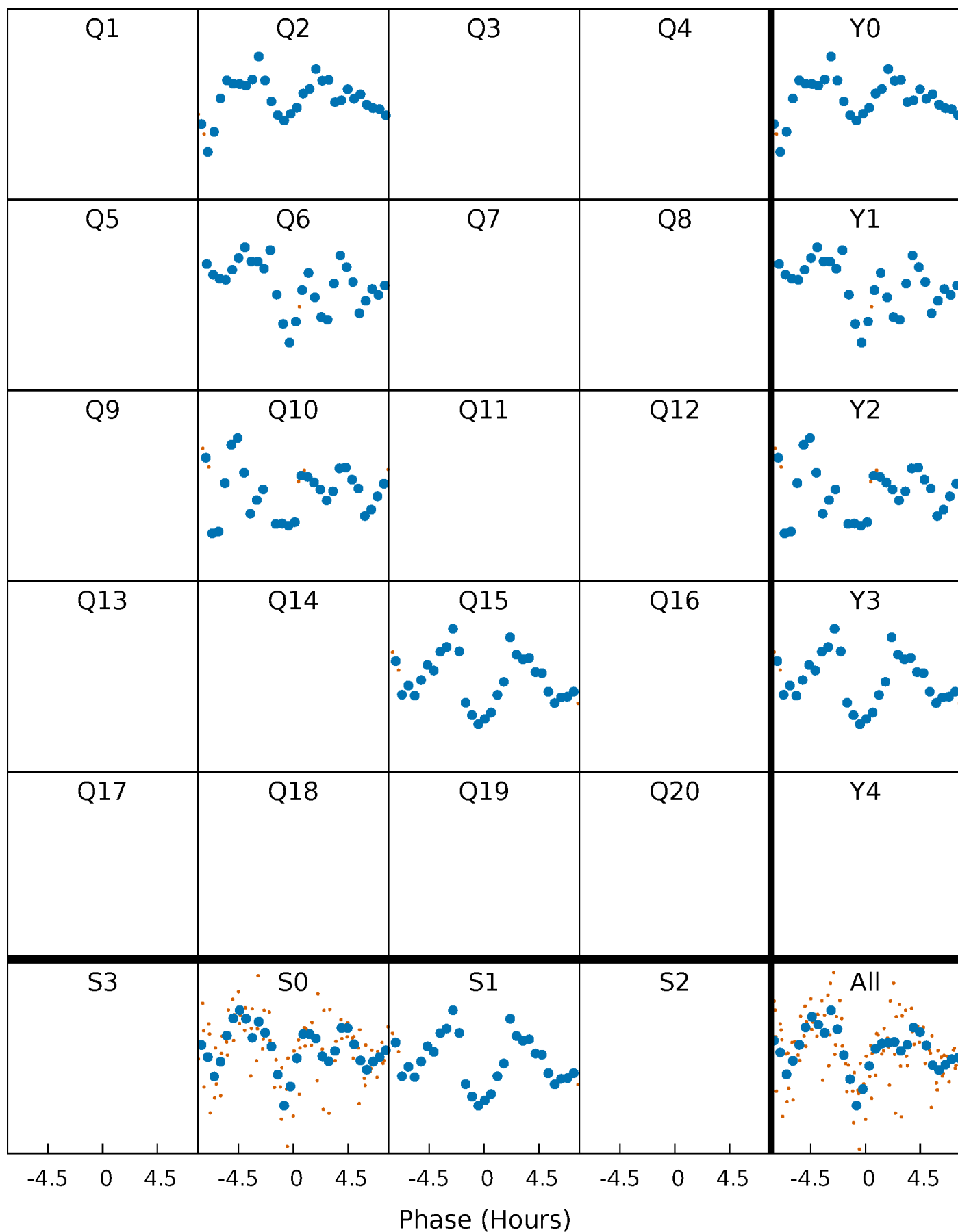


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



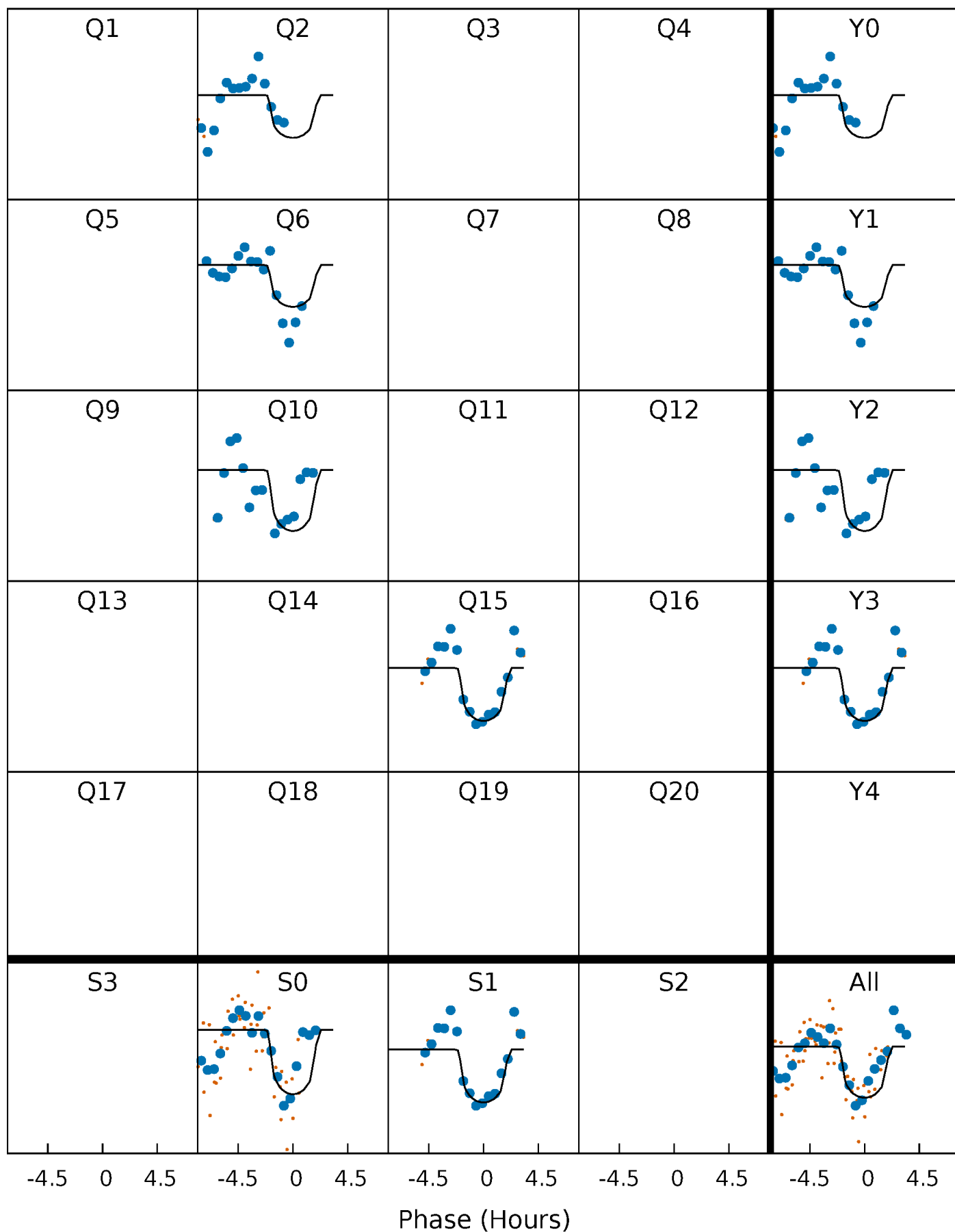
PDC Quarter-Phased Transit Curves

TCE 010407047-09 $P=398.621523$ Days $T_0=180.796884$ (BKJD)



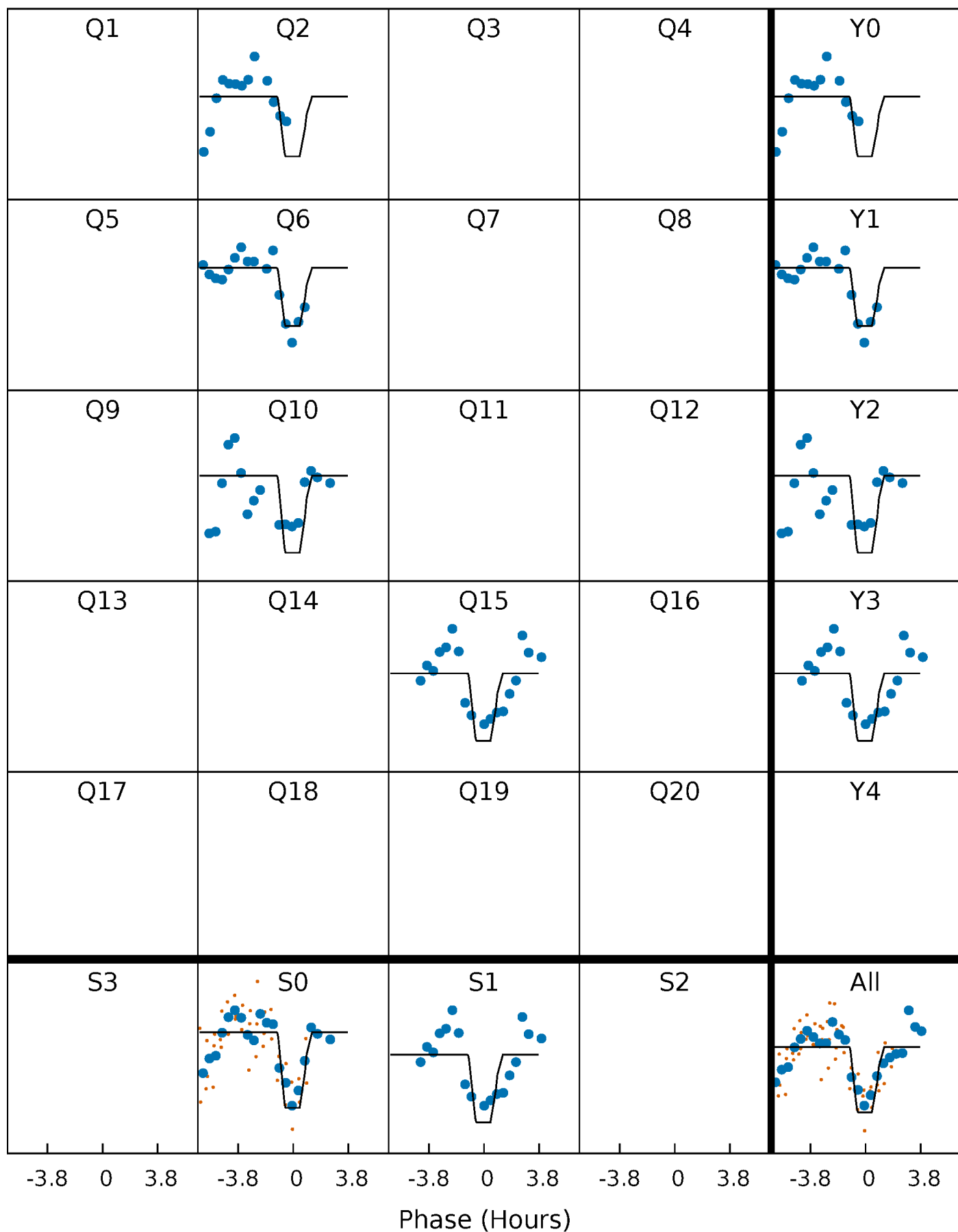
DV Quarter-Phased Transit Curves

TCE 010407047-09 P=398.621523 Days $T_0=180.796884$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

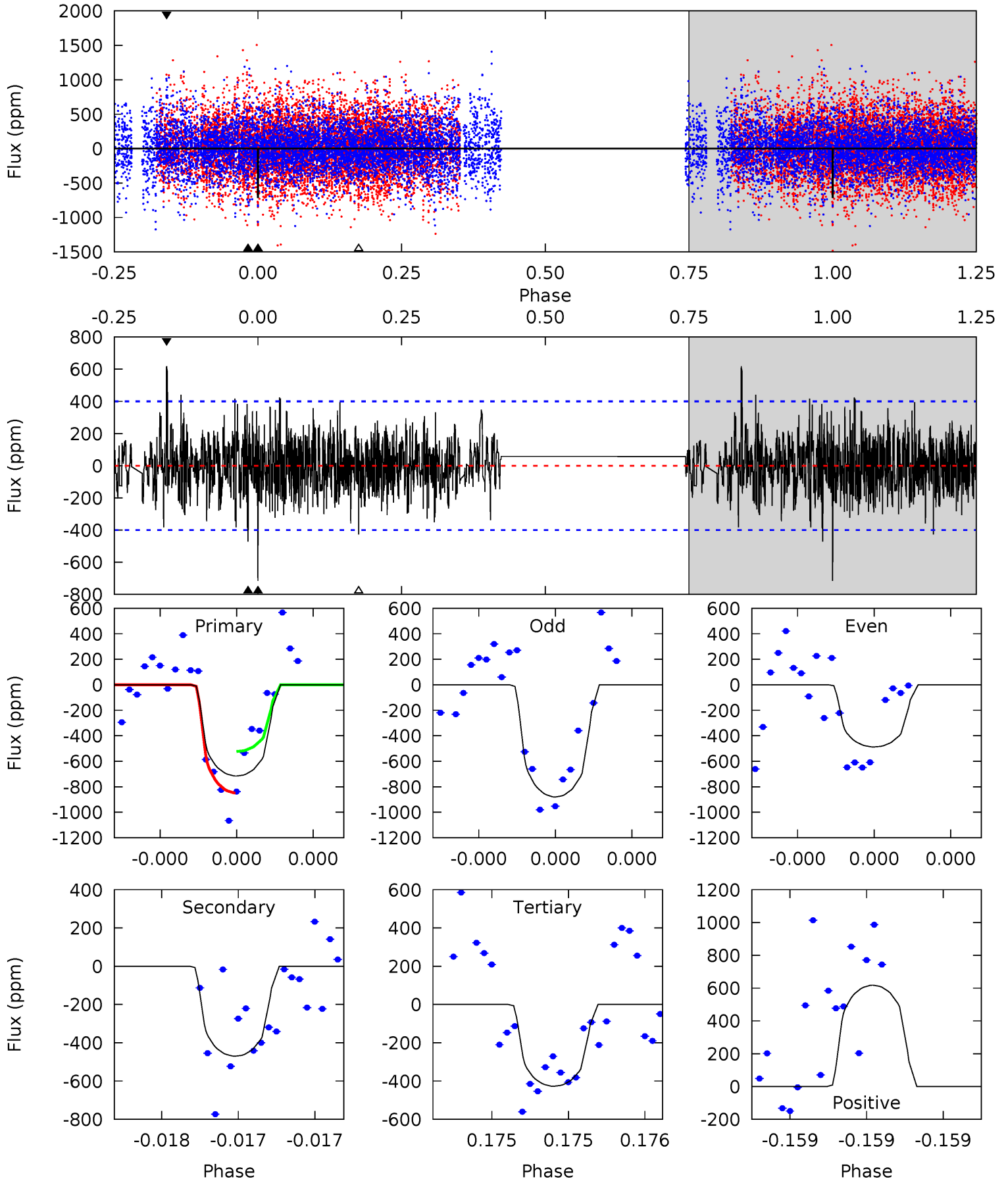
TCE 010407047-09 P=398.620910 Days $T_0=180.779477$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-09, P = 398.621523 Days, E = 180.796884 Days

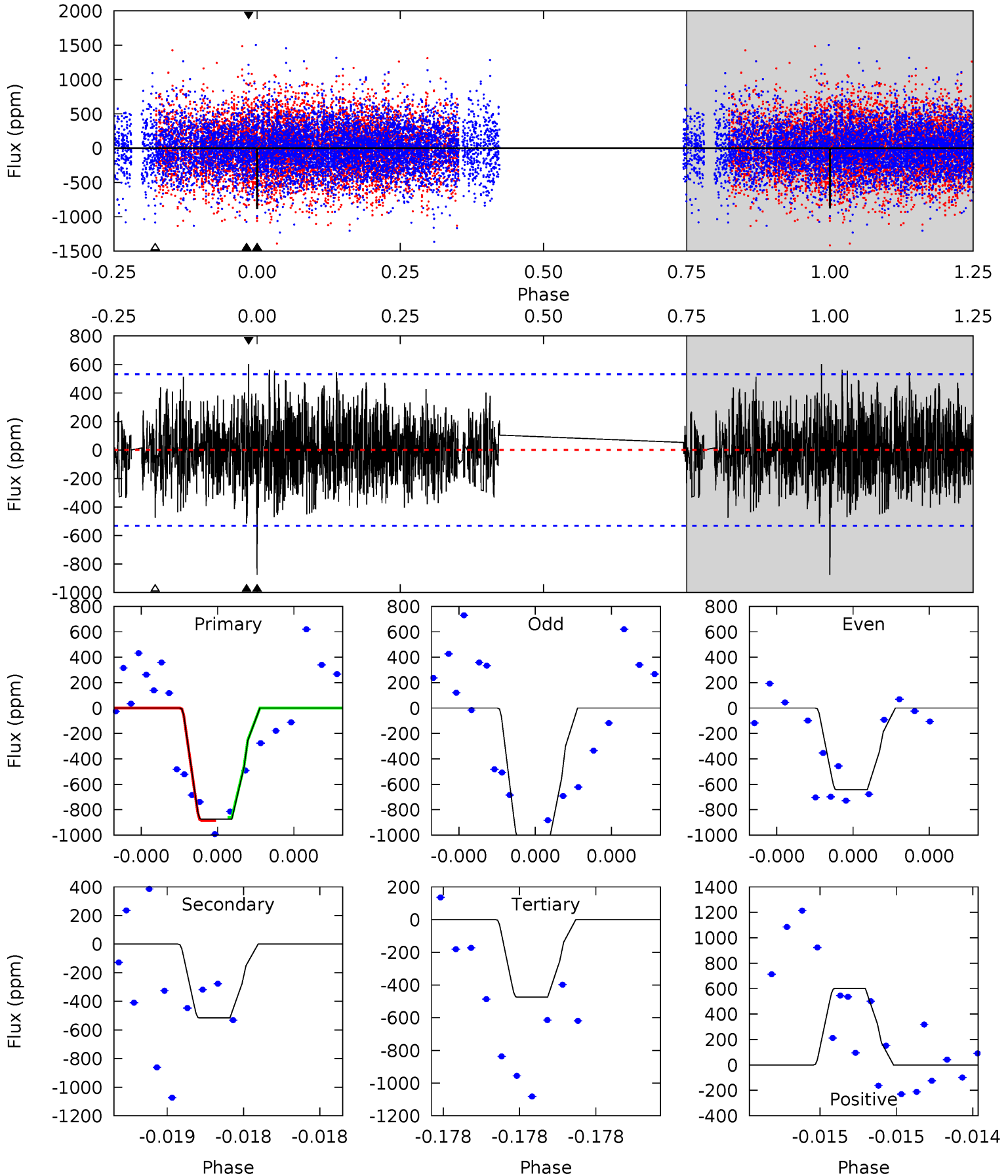
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	6.60	6.00	8.66	5.60	3.53	1.86	4.05	1.38	0.60	-2.07	2.71	1.09	0.46	2.21



Alt Model-Shift Uniqueness Test

010407047-09, P = 398.620910 Days, E = 180.779477 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.38	5.53	5.09	6.45	5.70	3.67	1.78	4.29	2.93	0.44	-0.92	2.06	1.06	0.41	0.12



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-470 ± 71	$18.02^{+15.45}_{-10.80}$	634^{+69}_{-68}	4160^{+1837}_{-734}	1108^{+5369}_{-795}
Alt.	-516 ± 93	$19.37^{+15.19}_{-12.26}$	637^{+69}_{-75}	4198^{+1981}_{-750}	1068^{+6676}_{-758}

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 $A_{obs} \gg 1.0$

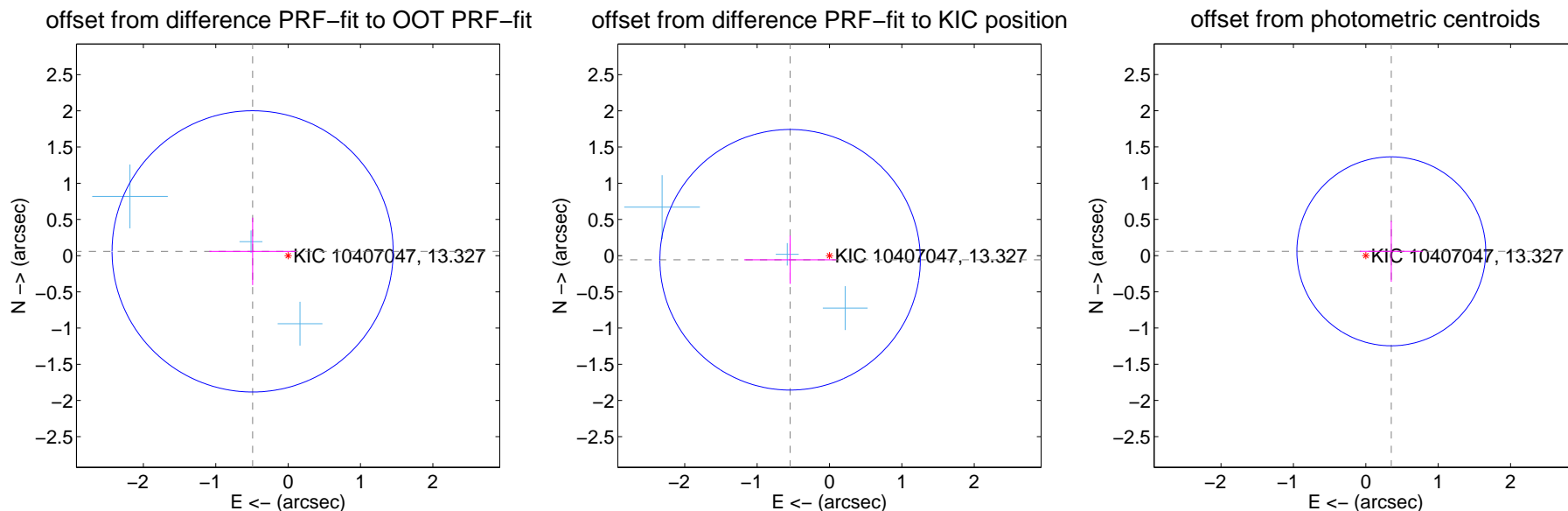
DV Centroid Data

Supplemental centroid analysis for 010407047-09. Kepler magnitude: 13.33. Transit SNR 7.69

There are 3 quarters with good PRF difference image offsets

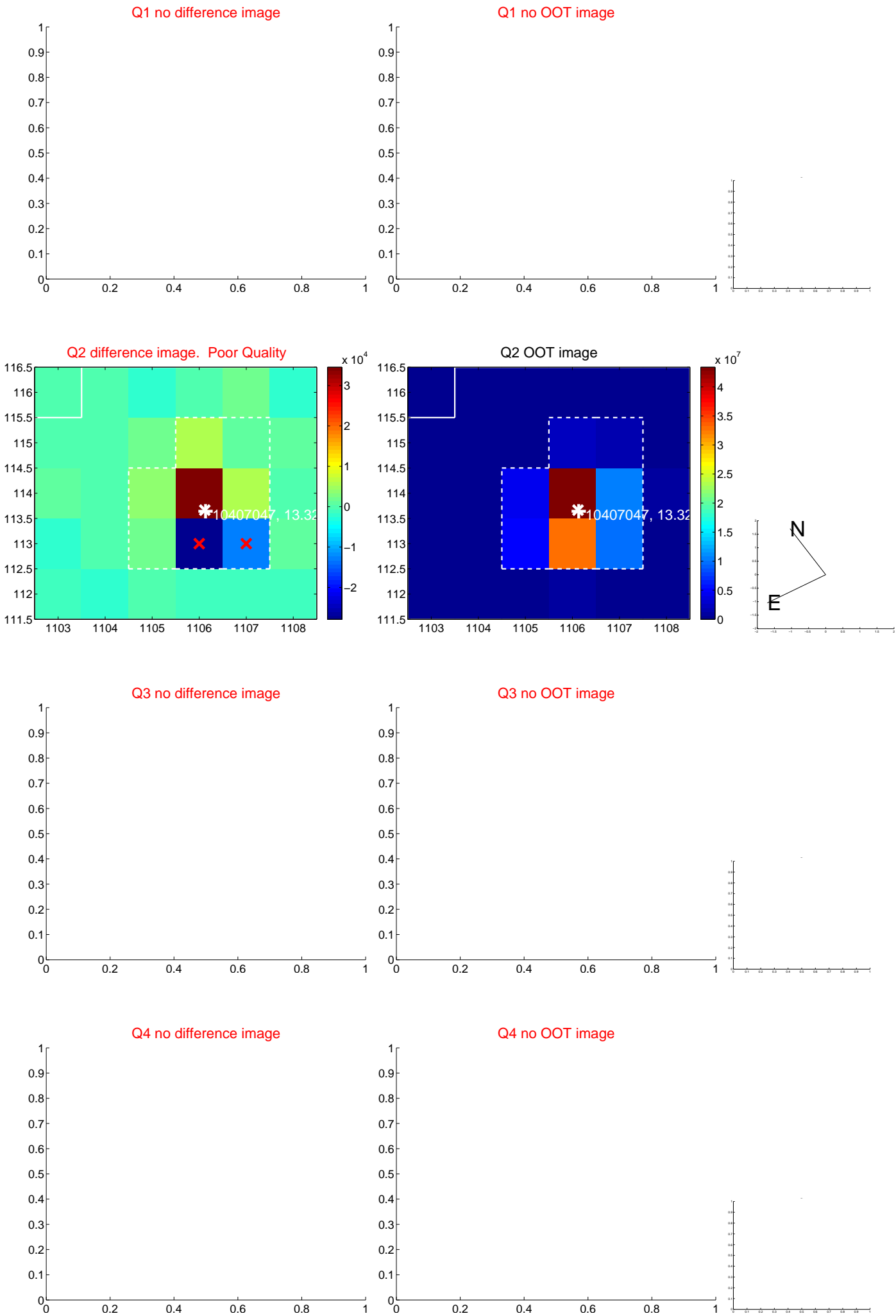
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.494 ± 0.647	0.76	0.491 ± 0.599	0.059 ± 0.465
PRF-fit source offset from KIC position	0.547 ± 0.600	0.91	0.544 ± 0.636	-0.057 ± 0.333
photometric centroid source offset	0.36 ± 0.43	0.82	-0.35 ± 0.44	0.06 ± 0.42



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

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



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

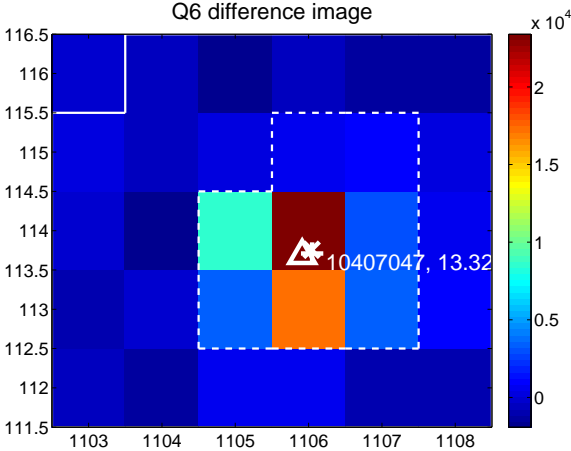
Q5 no difference image



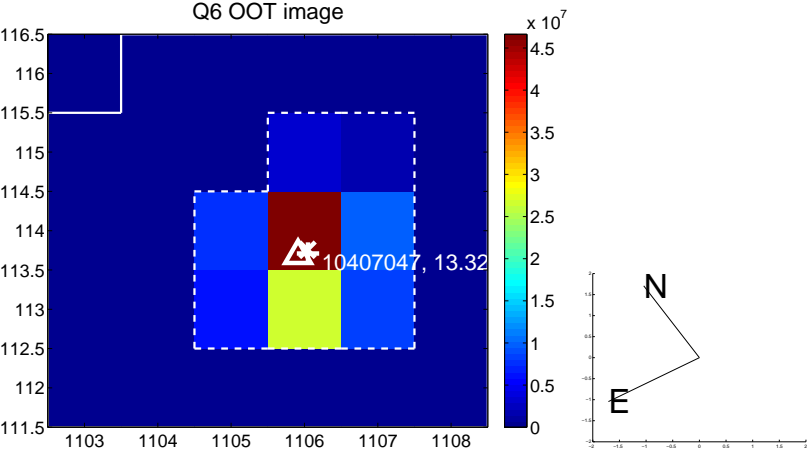
Q5 no OOT image



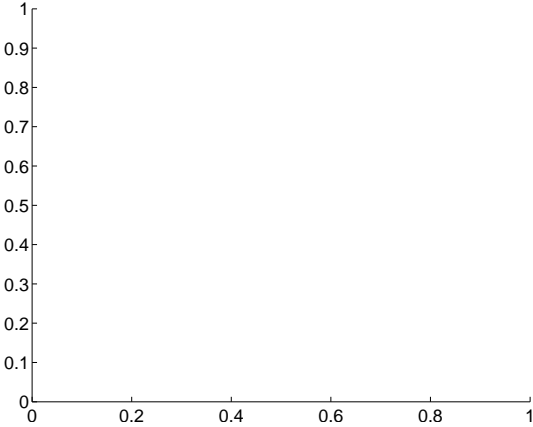
Q6 difference image



Q6 OOT image



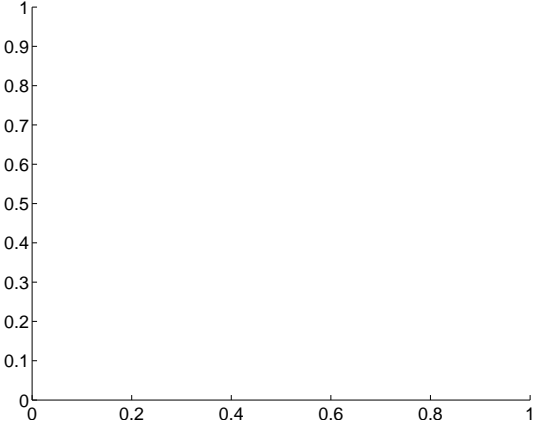
Q7 no difference image



Q7 no OOT image



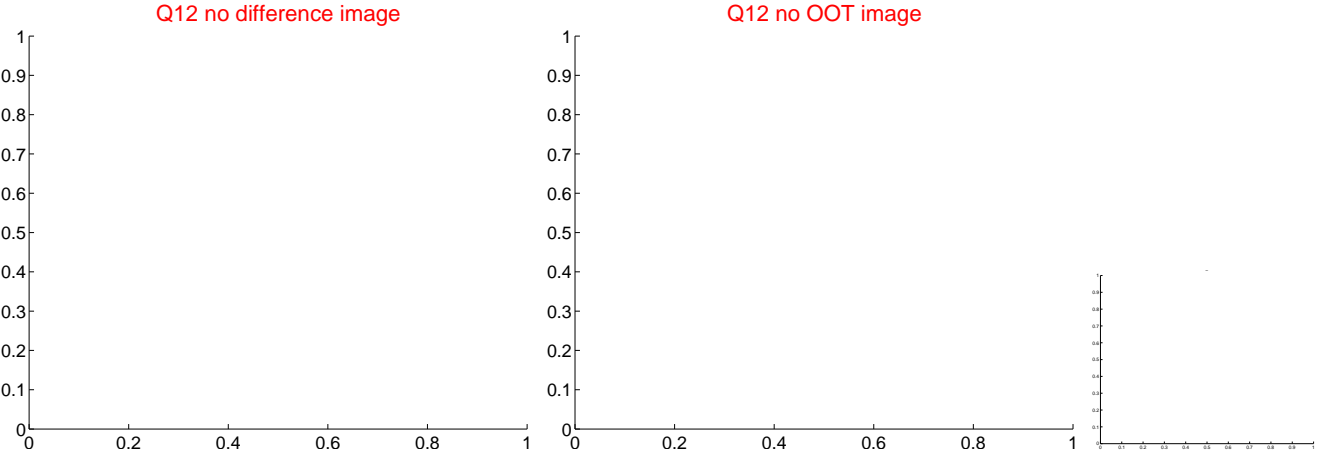
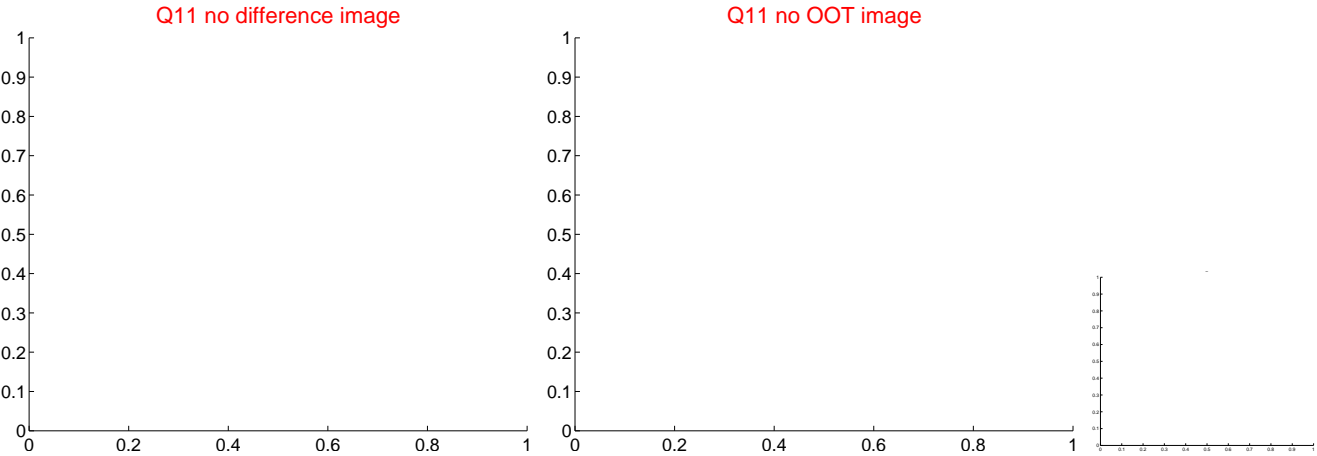
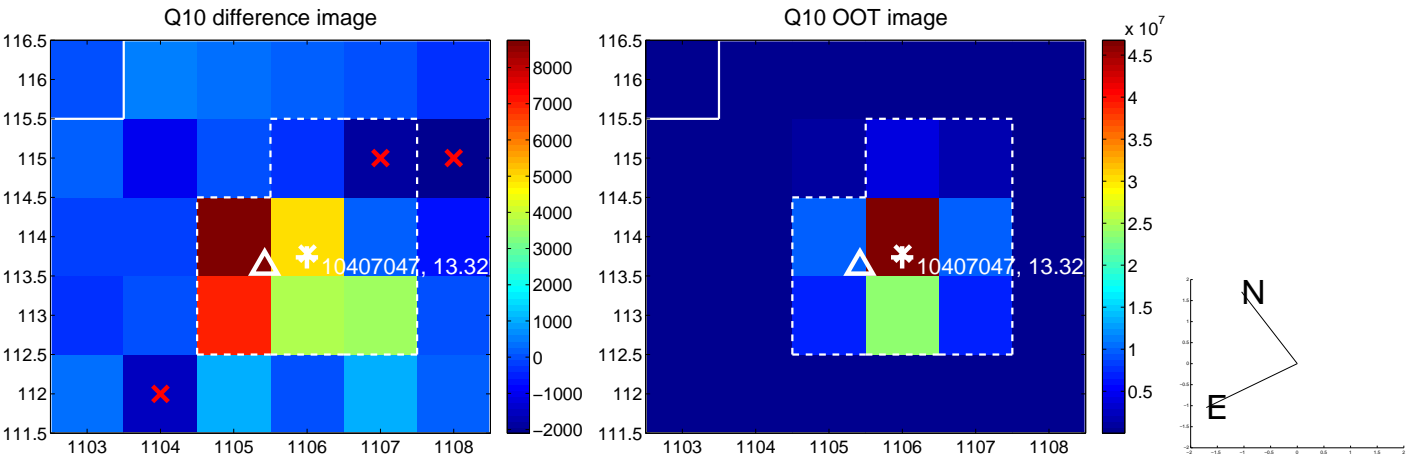
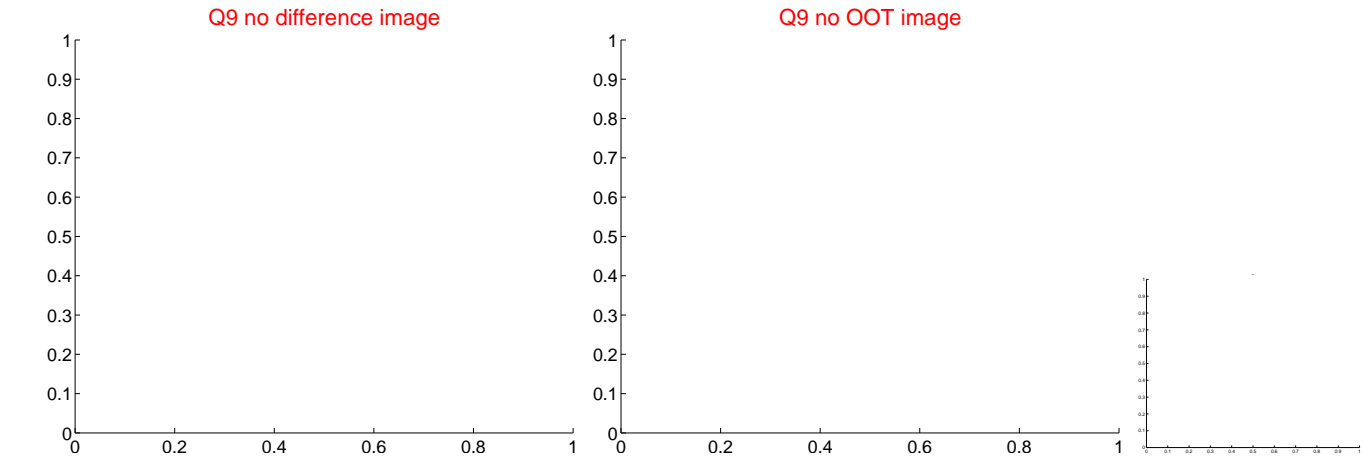
Q8 no difference image



Q8 no OOT image



white ×: 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



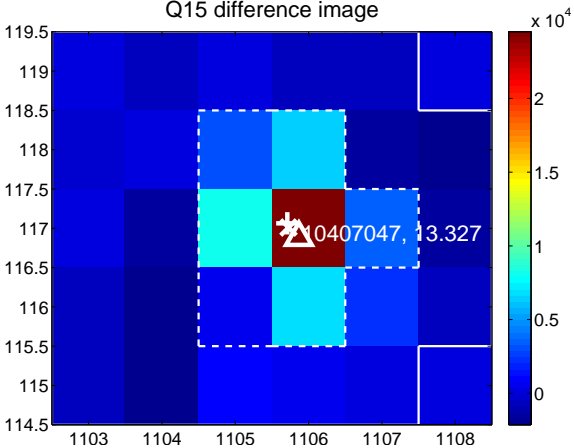
Q14 no difference image



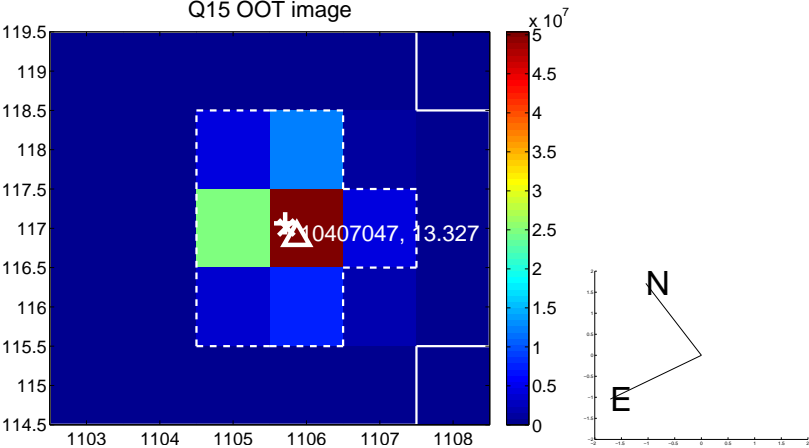
Q14 no OOT image



Q15 difference image



Q15 OOT image



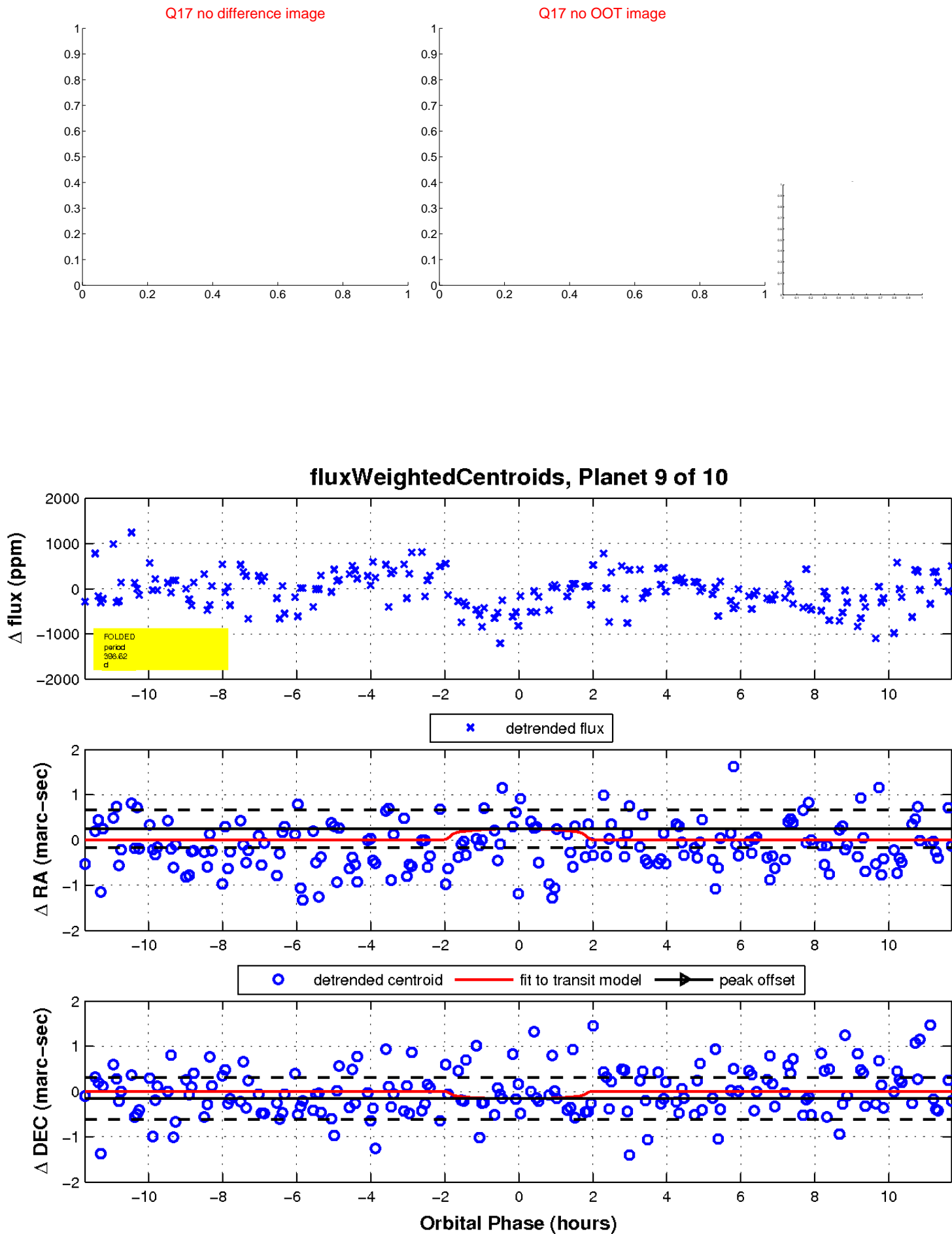
Q16 no difference image



Q16 no OOT image

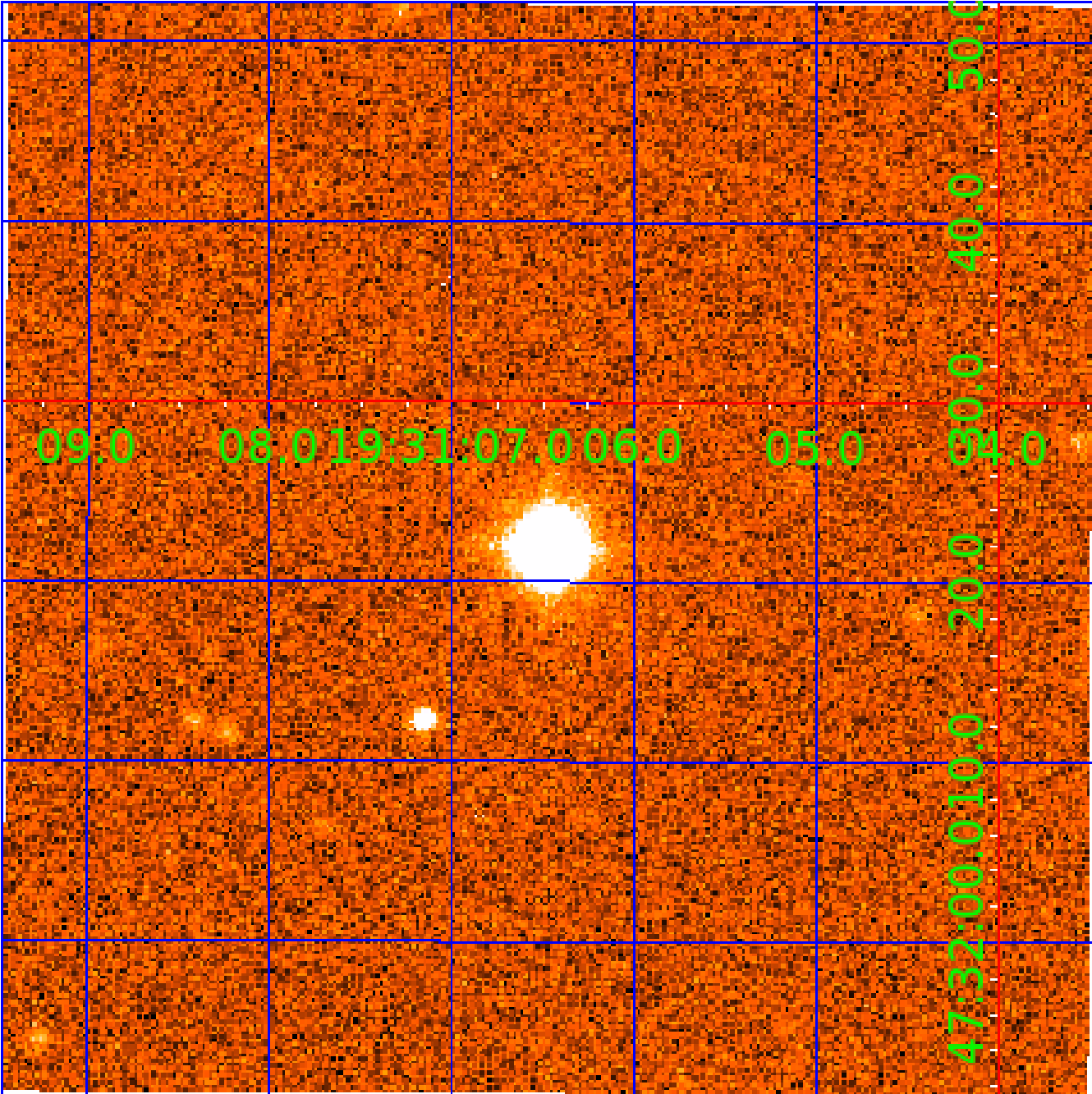


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010407047

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})
010407047-01	OBS	7321.01	0.933687	131.560086	62.0	4.336	10.4	7.7	5.27	4909	4.19	0.00
010407047-02	OBS	No	63.687250	135.038375	507.3	5.876	7.8	7.2	5.27	4909	12.58	119.34
010407047-03	OBS	No	44.302319	135.747098	698.1	1.650	8.6	8.8	5.27	4909	14.41	193.62
010407047-04	OBS	No	103.190241	183.817807	1098.1	2.257	8.3	9.4	5.27	4909	35.38	62.71
010407047-05	OBS	No	24.791132	136.554871	508.9	1.681	8.1	7.8	5.27	4909	15.12	419.88
010407047-06	OBS	No	24.267241	141.381067	511.2	1.946	7.9	7.8	5.27	4909	16.45	432.01
010407047-07	OBS	No	47.672674	148.827988	646.4	1.717	8.5	7.8	5.27	4909	13.24	175.59
010407047-08	OBS	No	20.211707	135.349787	323.0	6.072	7.8	7.2	5.27	4909	12.29	551.29
010407047-09	OBS	No	398.621523	180.796884	798.4	3.910	8.2	7.7	5.27	4909	15.88	10.35
010407047-10	OBS	No	67.852511	136.799600	529.0	9.809	7.6	8.3	5.27	4909	15.00	109.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407047-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010407047-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010407047-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010407047-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
010407047-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT
010407047-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010407047-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
010407047-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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 010407047-10

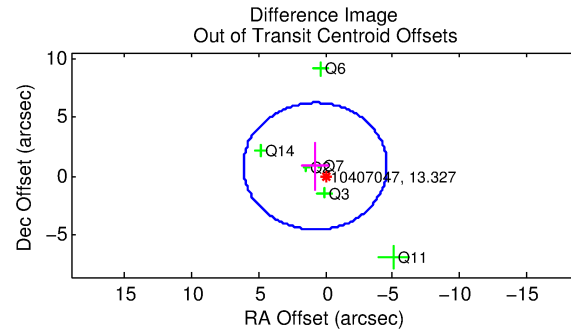
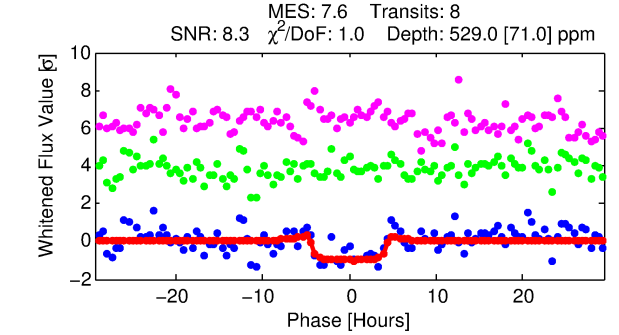
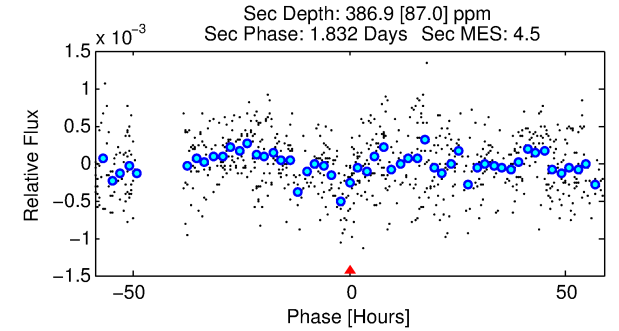
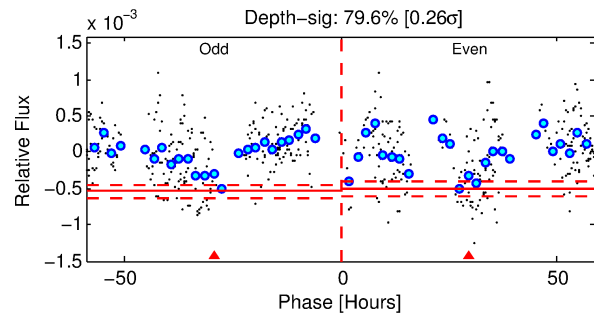
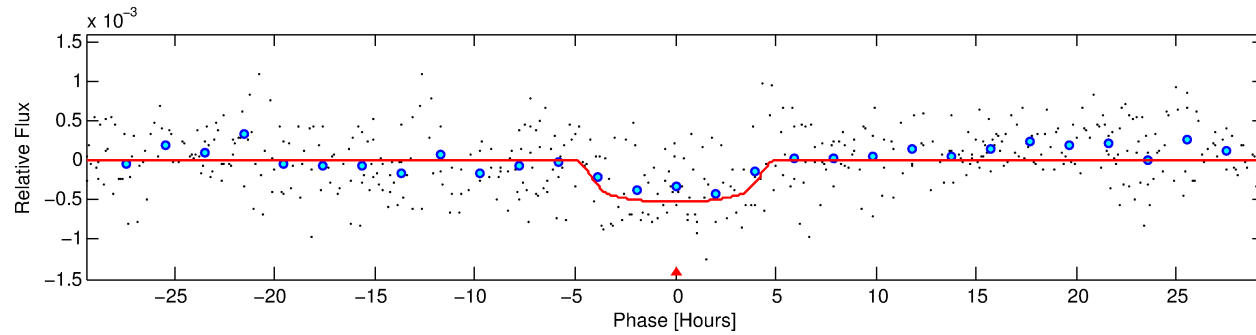
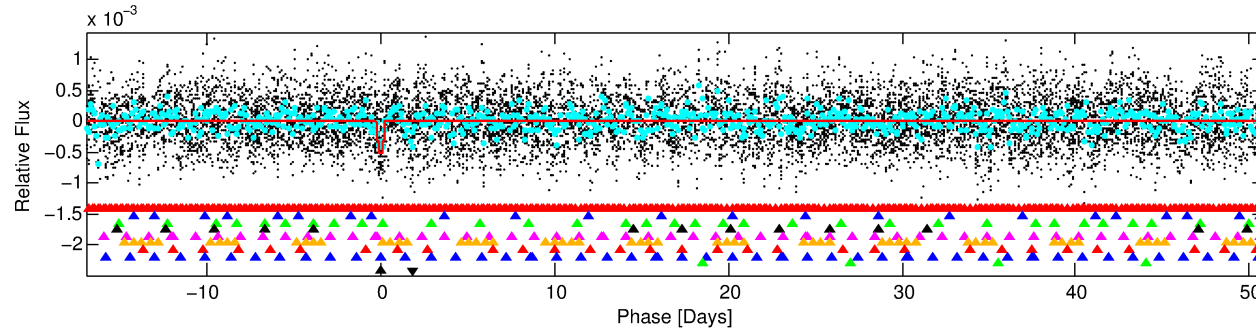
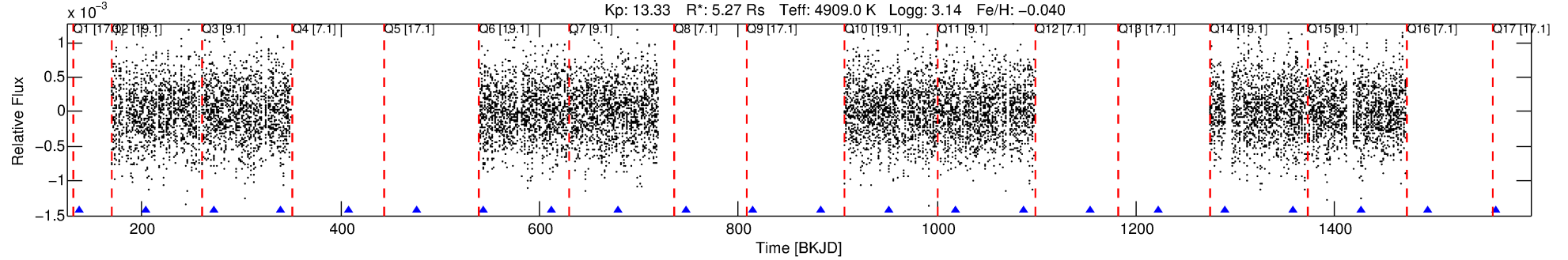
No Significant Match Found

DV One-Page Summary

KIC: 10407047 Candidate: 10 of 10 Period: 67.853 d

KOI: K07321 Corr: No Ephemeris Match

Kp: 13.33 R*: 5.27 Rs Teff: 4909.0 K Logg: 3.14 Fe/H: -0.040



DV Fit Results:

Period = 67.85251 [0.00176] d
Epoch = 136.7996 [0.0209] BKJD
Rp/R* = 0.0261 [0.0031]
a/R* = 24.91 [9.20]
b = 0.91 [0.07]
Seff = 109.67 [75.09]
Teff = 825 [141] K
Rp = 15.00 [6.47] Re
a = 0.3631 [0.1504] AU
Ag = 124.77 [93.75] [1.32σ]
Teffp = 4264 [368] K [8.73σ]

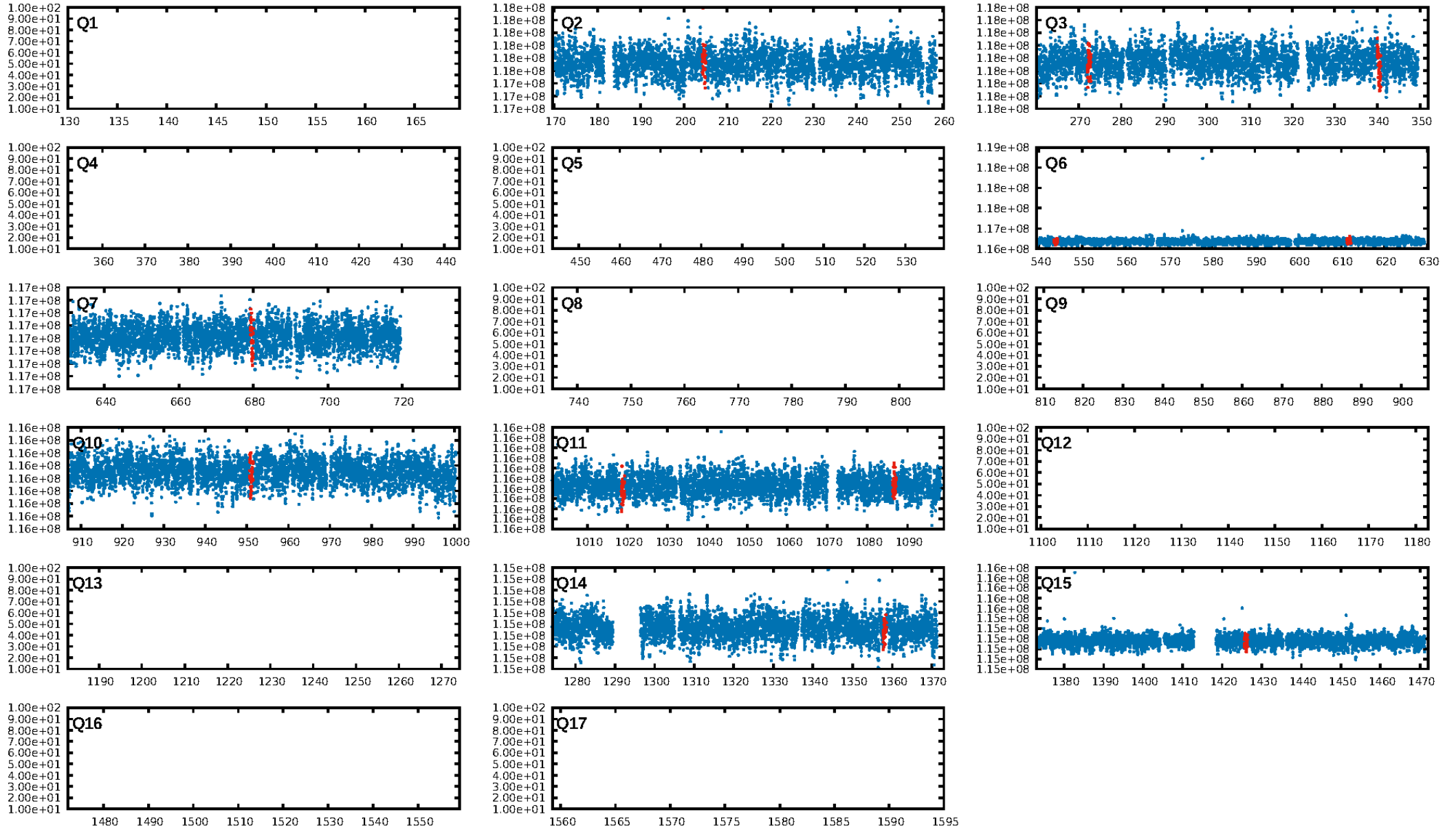
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.74σ]
LongPeriod-sig: 100.0% [84.26σ]
ModelChiSquare2-sig: 8.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -0.7815
Centroid-sig: 18.1%
Centroid-so: 0.418 arcsec [1.57σ]
OotOffset-rm: 1.151 arcsec [0.64σ]
KicOffset-rm: 1.125 arcsec [0.53σ]
OotOffset-st: 3/3/0/0 [6]
KicOffset-st: 3/3/0/0 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/8]

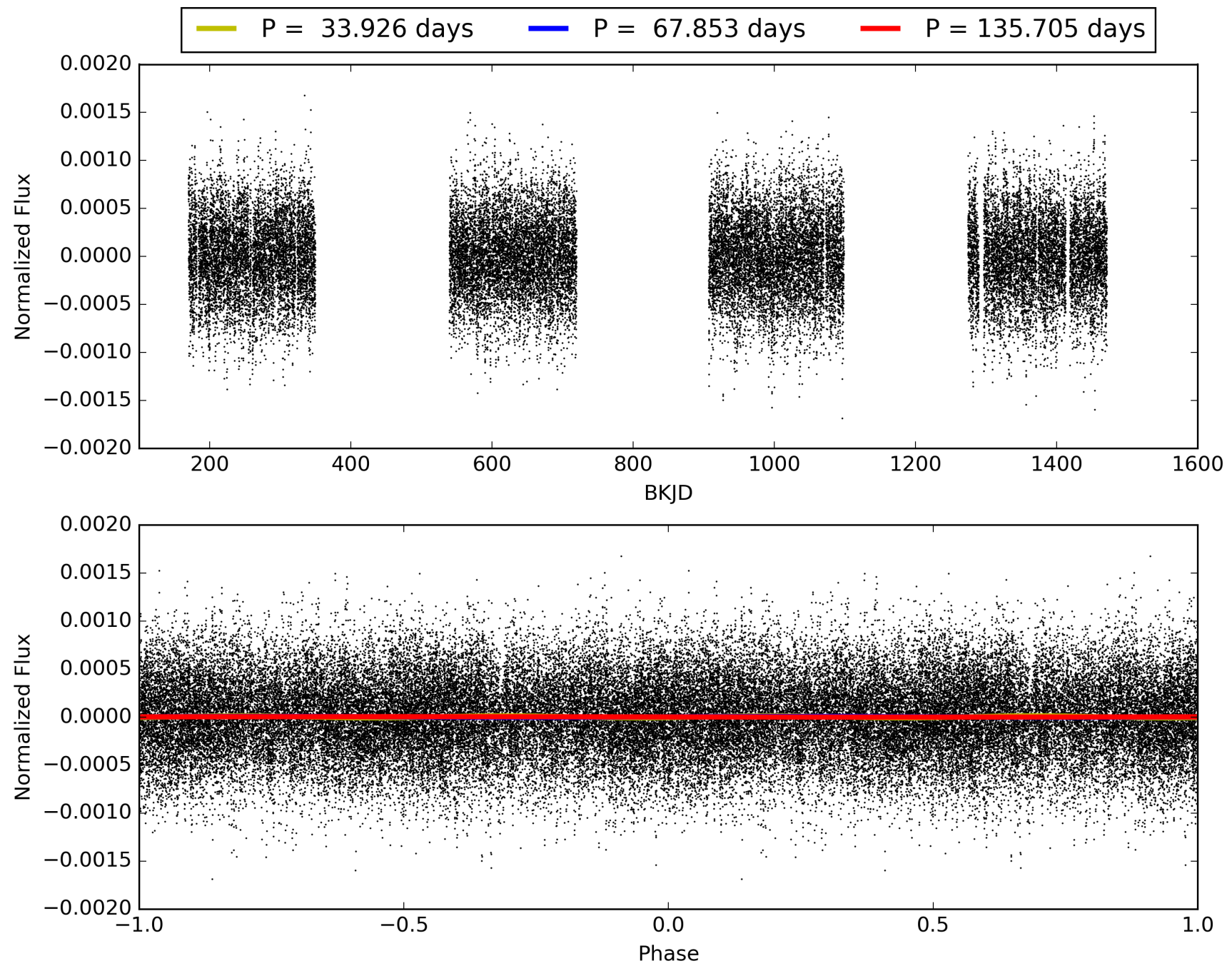
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:28:49 Z

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

TCE 010407047-10, PDC Light Curves

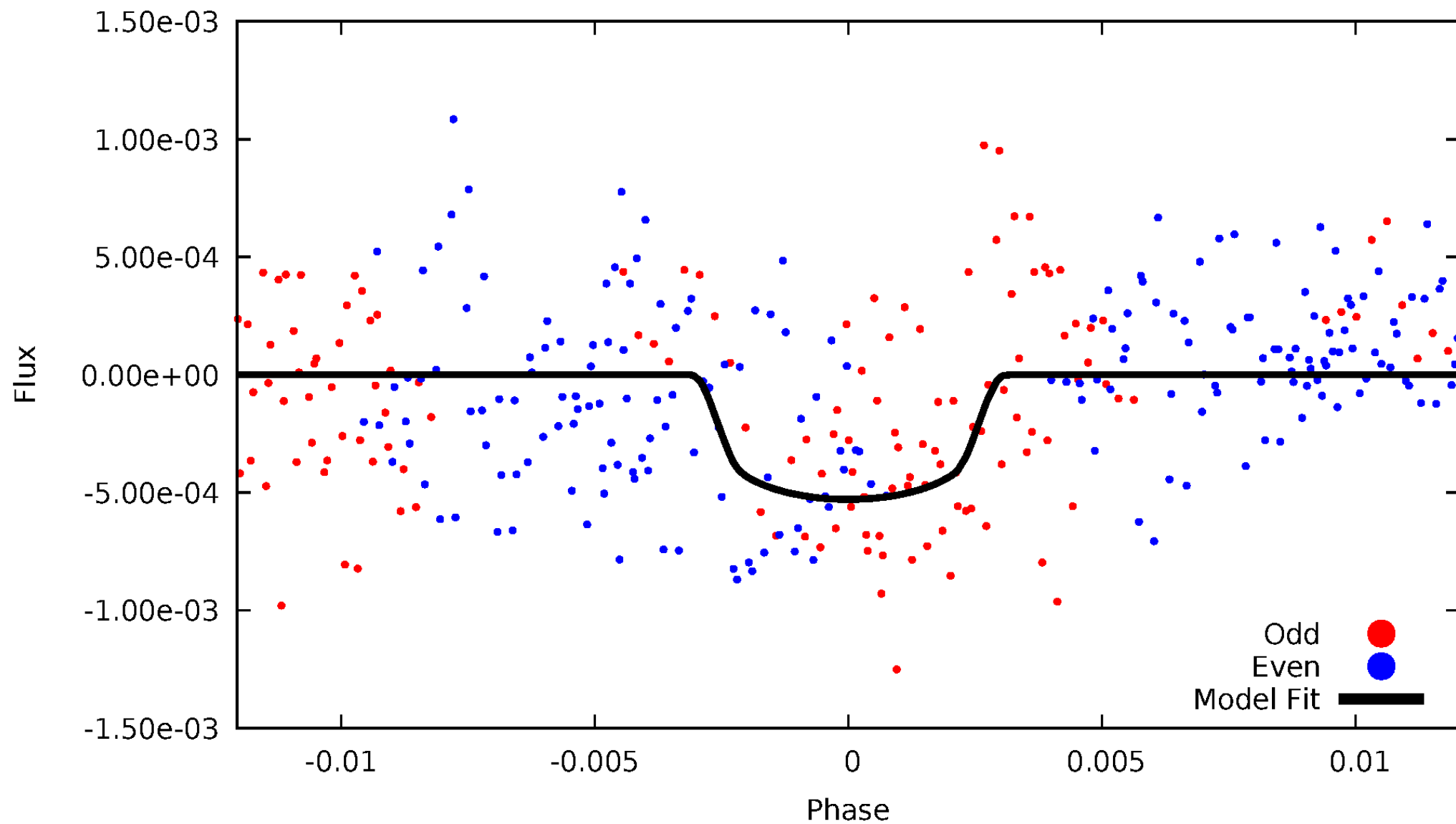


TCE 010407047-10



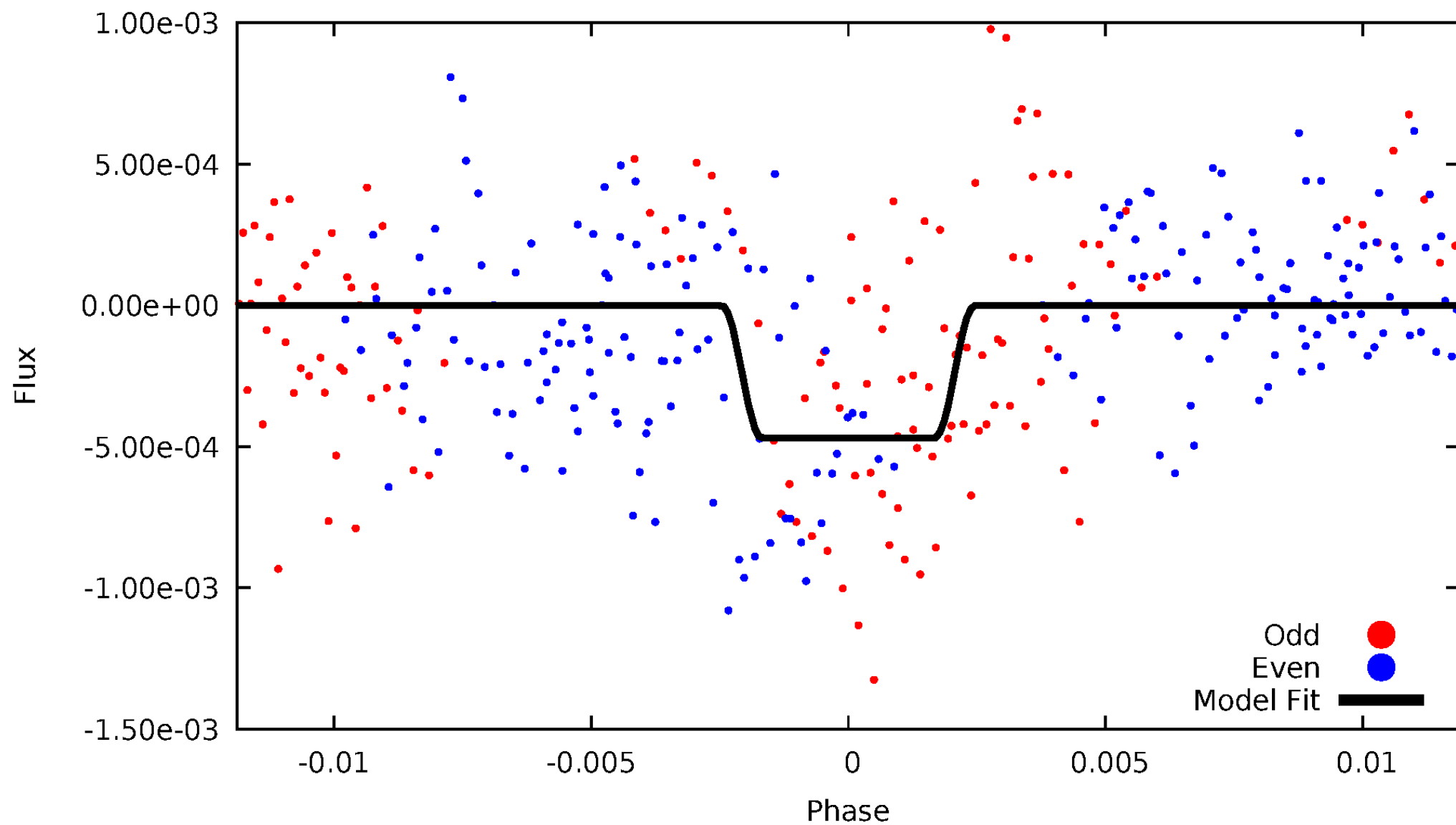
DV Odd/Even

TCE 010407047-10



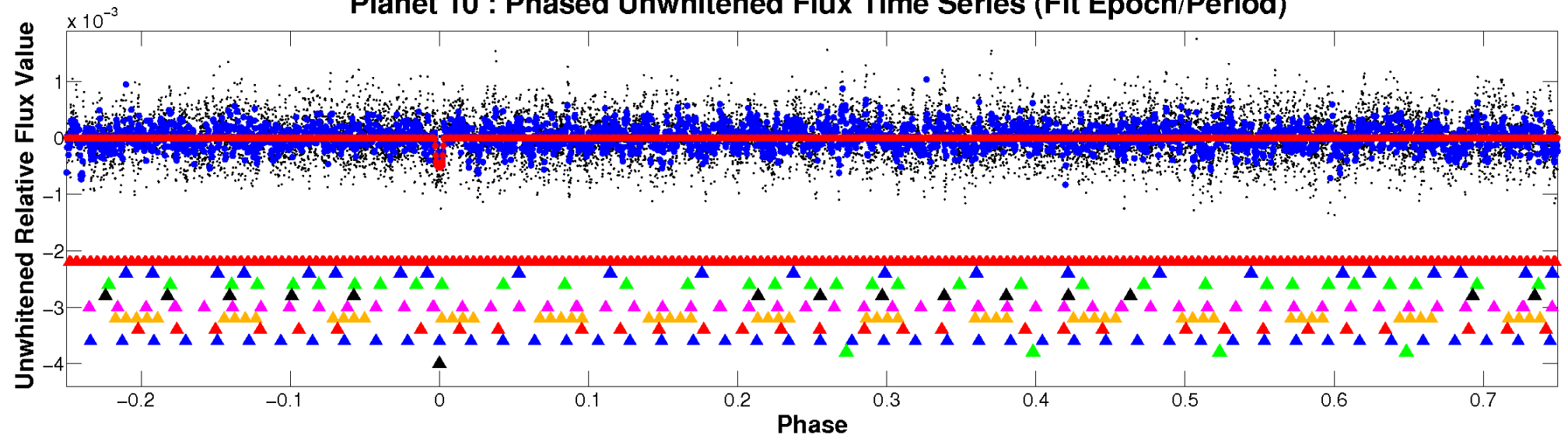
ALT Odd/Even

TCE 010407047-10

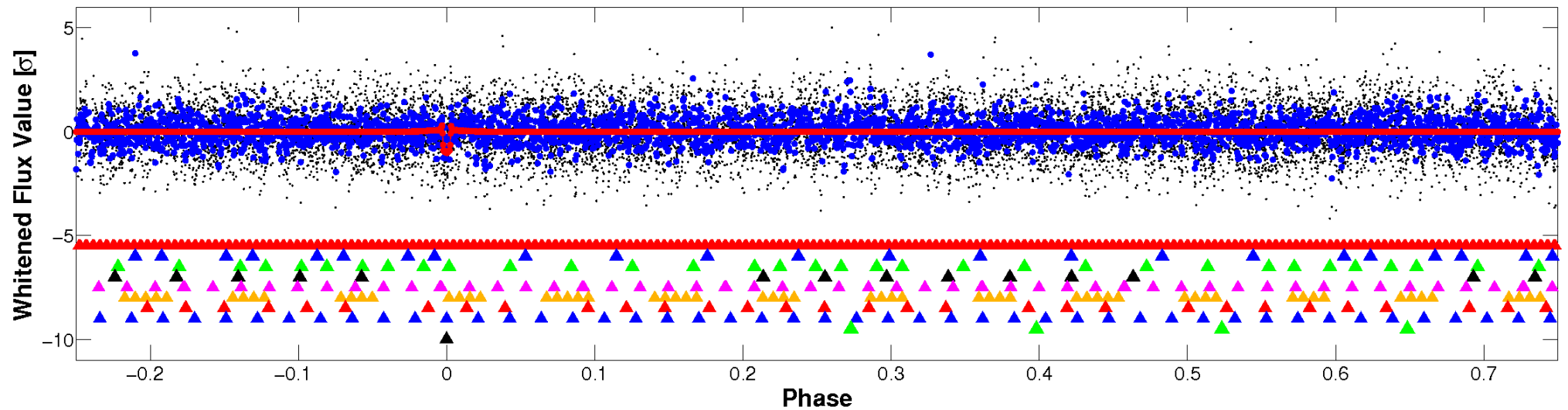


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

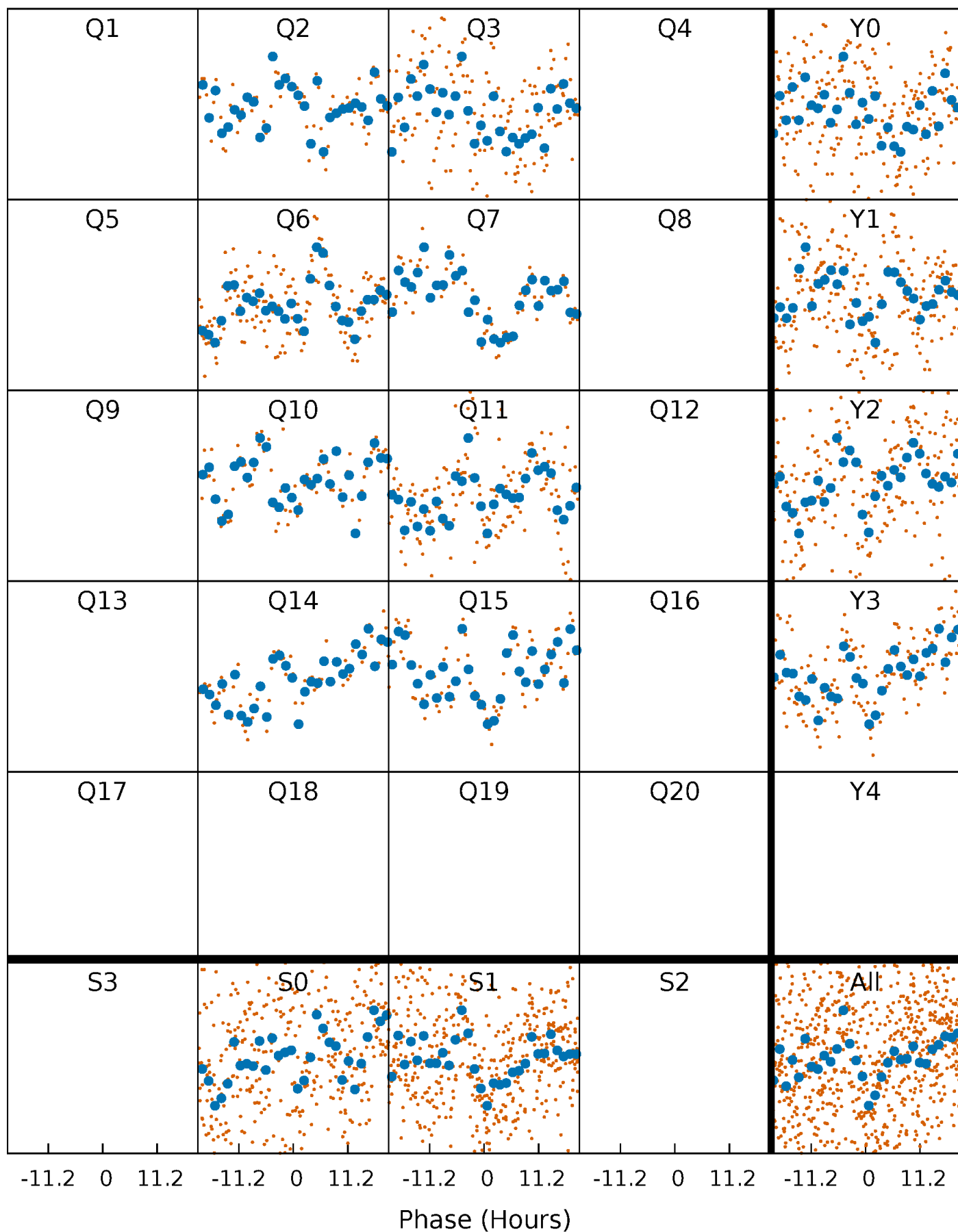


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



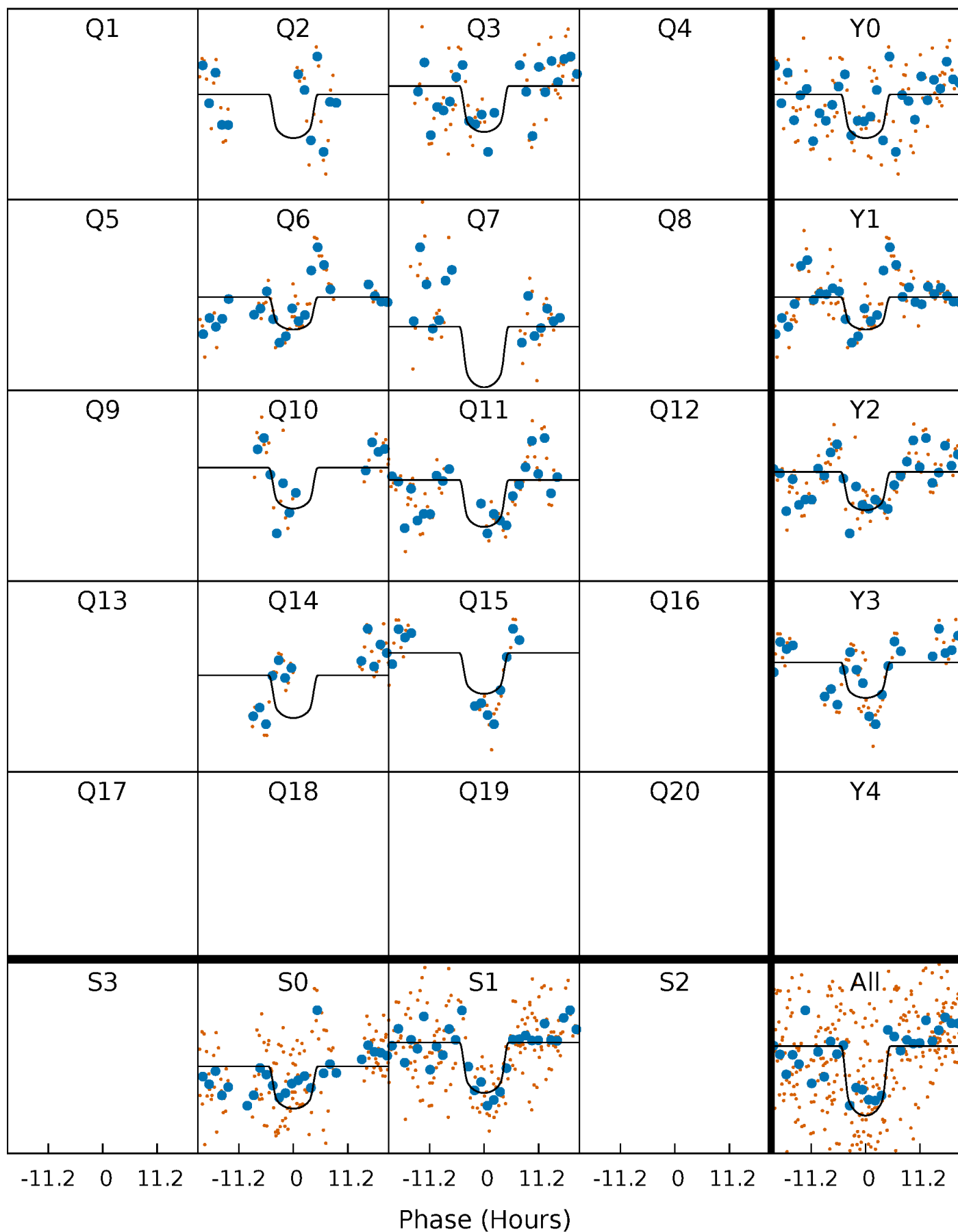
PDC Quarter-Phased Transit Curves

TCE 010407047-10 P= 67.852511 Days $T_0=136.799600$ (BKJD)



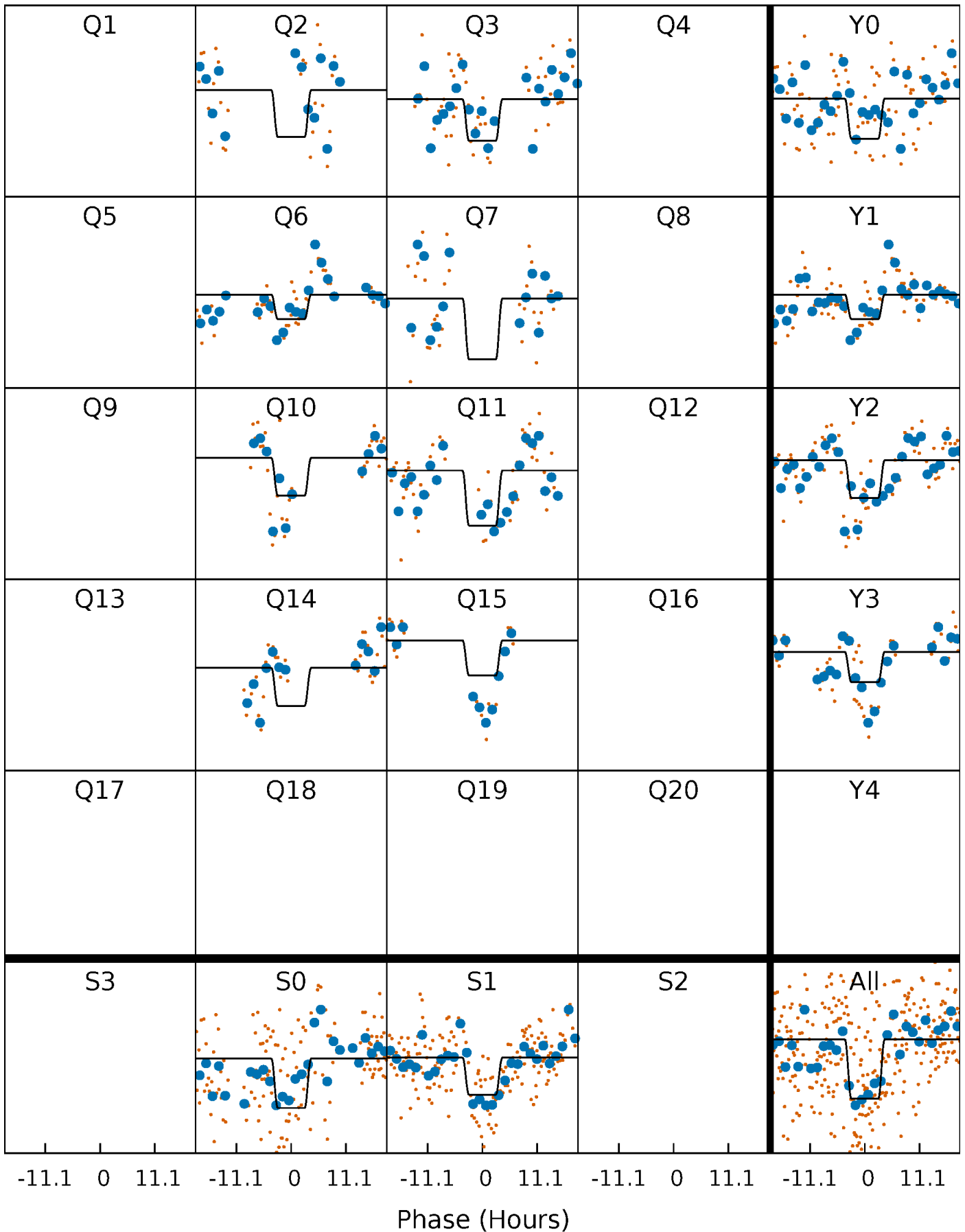
DV Quarter-Phased Transit Curves

TCE 010407047-10 P= 67.852511 Days $T_0=136.799600$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

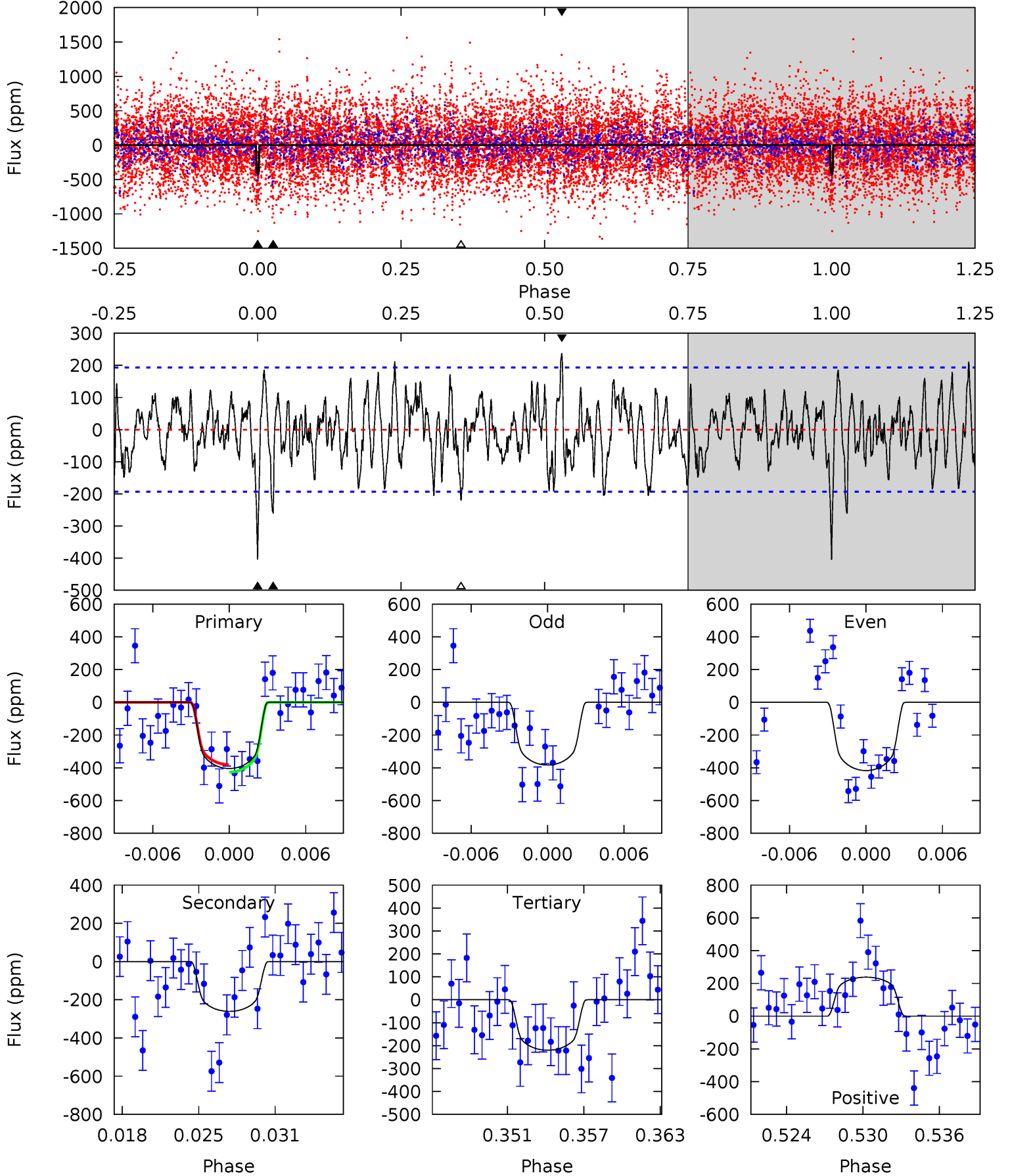
TCE 010407047-10 $P = 67.855636$ Days $T_0 = 136.771251$ (BKJD)



DV Model-Shift Uniqueness Test

010407047-10, P = 67.852511 Days, E = 136.799600 Days

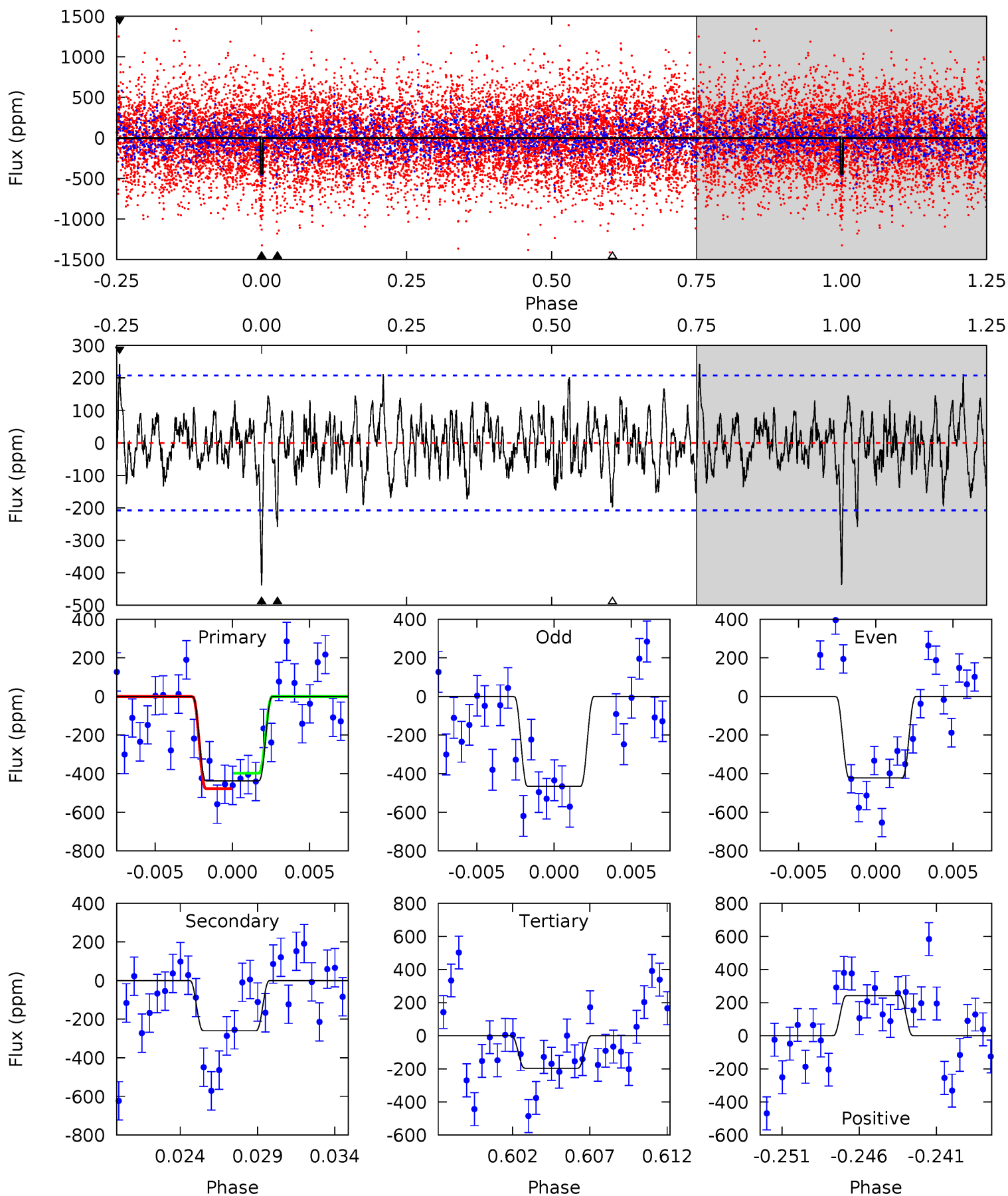
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	6.91	5.83	6.30	5.12	2.74	2.12	4.88	4.41	1.08	0.61	0.43	0.81	0.37	0.61



Alt Model-Shift Uniqueness Test

010407047-10, P = 67.855636 Days, E = 136.771251 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	6.44	4.88	6.03	5.16	2.82	1.68	5.99	4.83	1.56	0.41	0.52	0.94	0.36	1.00



Stellar Parameters For KIC 010407047

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4909^{+132}_{-132}	$3.136^{+0.402}_{-0.268}$	$-0.040^{+0.250}_{-0.250}$	$5.272^{+2.186}_{-2.186}$	$1.386^{+0.242}_{-0.363}$	$0.013^{+0.044}_{-0.008}$
	+3%/-3%	+13%/-9%	+625%/-625%	+41%/-41%	+17%/-26%	+329%/-62%
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 010407047-10 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-261 ± 38	$14.89^{+3.97}_{-3.85}$	1150^{+137}_{-129}	4077^{+261}_{-237}	83^{+65}_{-32}
Alt.	-259 ± 40	$12.32^{+3.43}_{-3.19}$	1154^{+130}_{-134}	4362^{+314}_{-265}	122^{+93}_{-51}

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 $A_{obs} \gg 1.0$

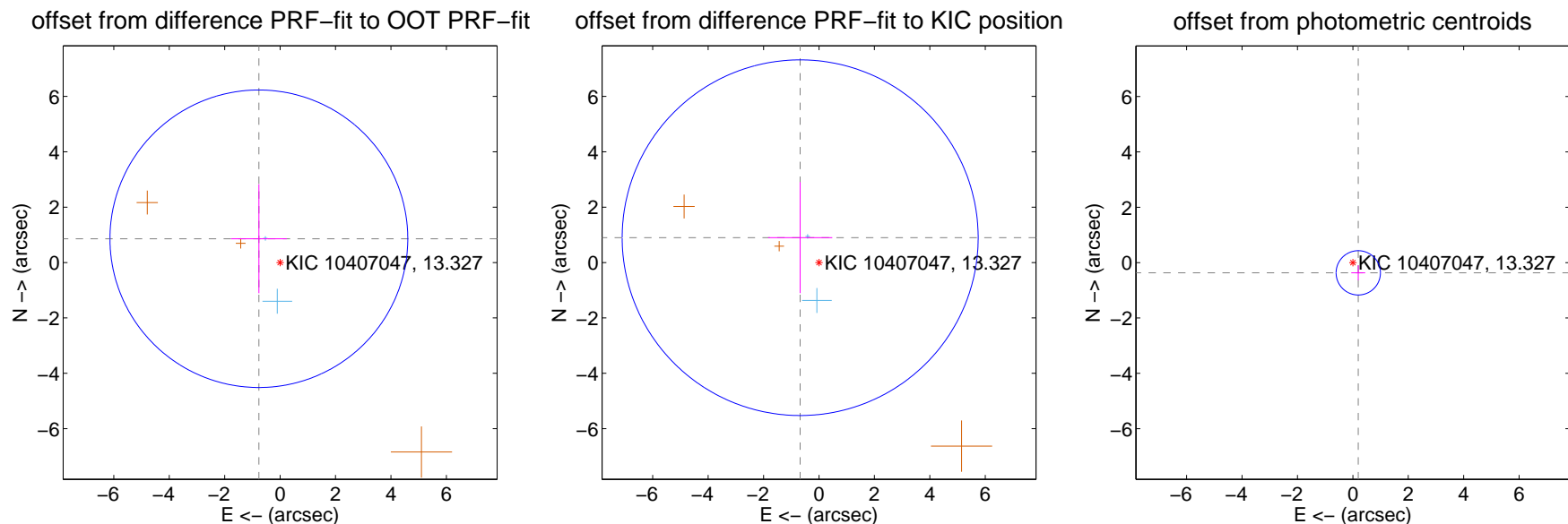
DV Centroid Data

Supplemental centroid analysis for 010407047-10. Kepler magnitude: 13.33. Transit SNR 8.25

There are 2 quarters with good PRF difference image offsets

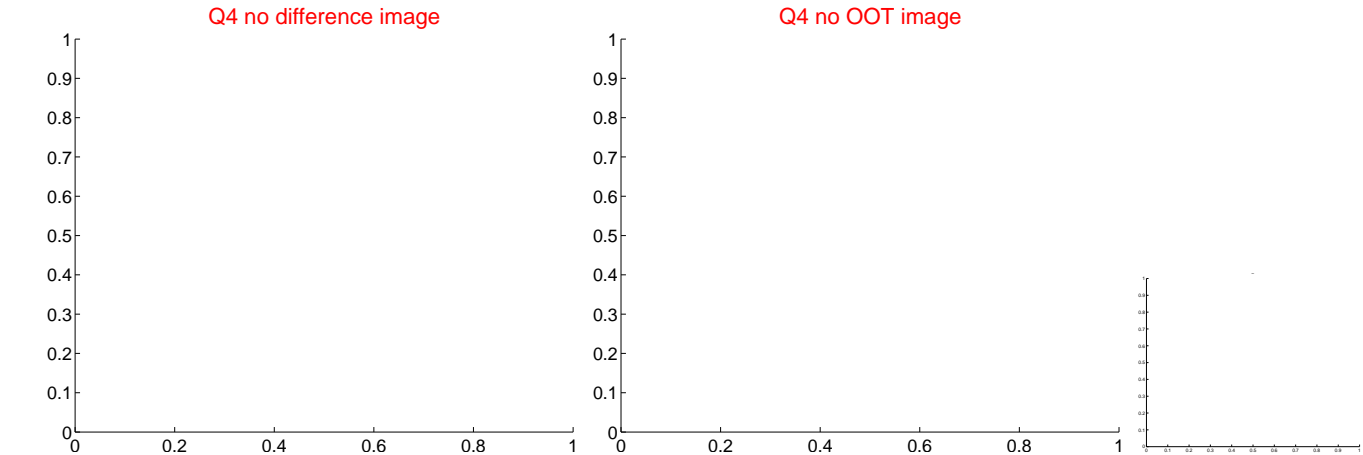
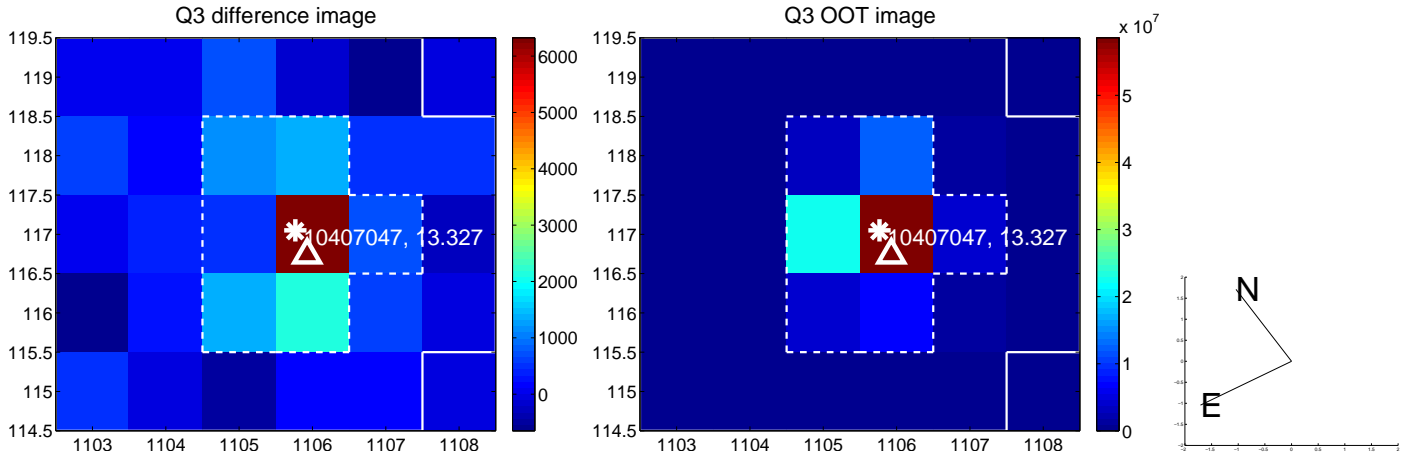
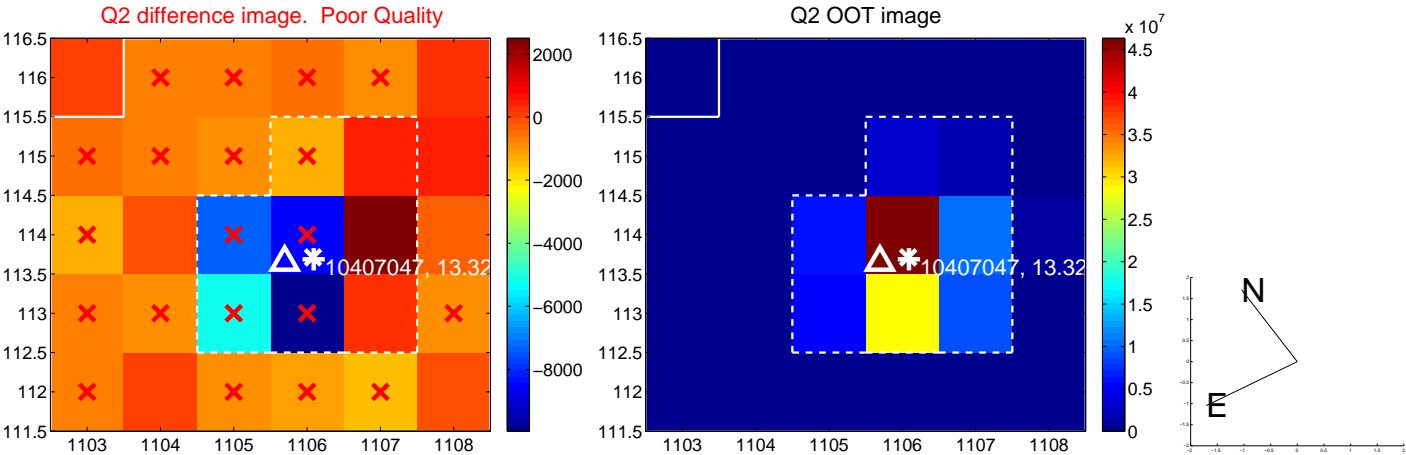
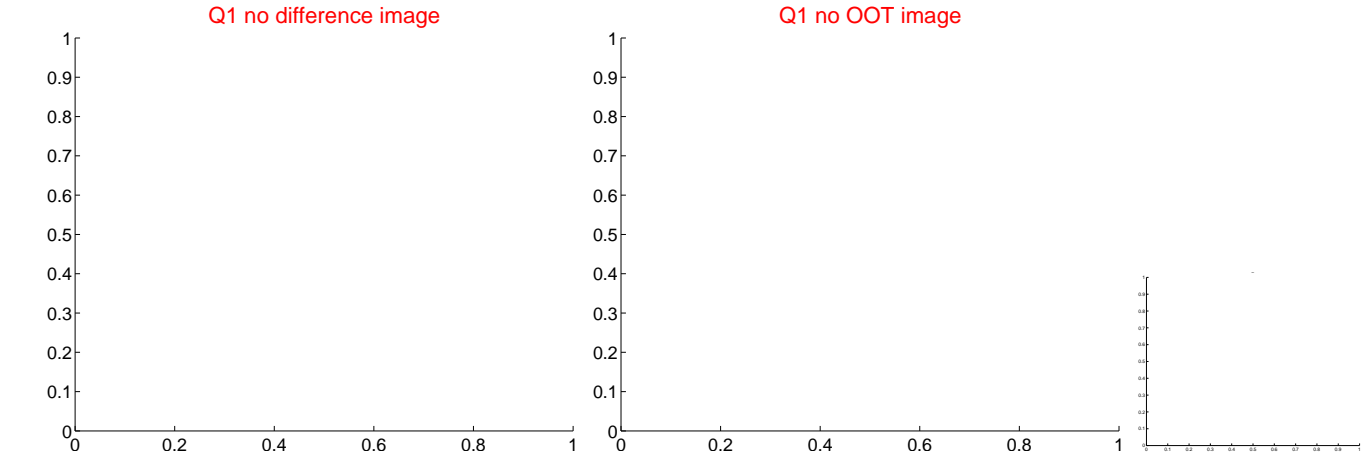
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.151 ± 1.791	0.64	0.766 ± 1.003	0.859 ± 1.970
PRF-fit source offset from KIC position	1.125 ± 2.140	0.53	0.679 ± 1.158	0.897 ± 2.004
photometric centroid source offset	0.42 ± 0.27	1.57	-0.20 ± 0.25	-0.37 ± 0.27

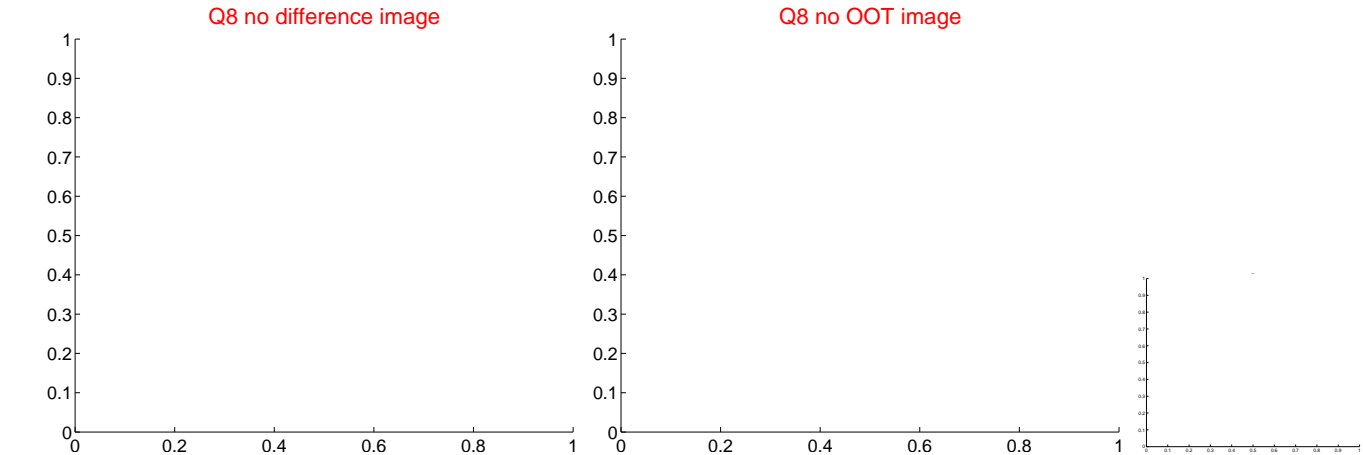
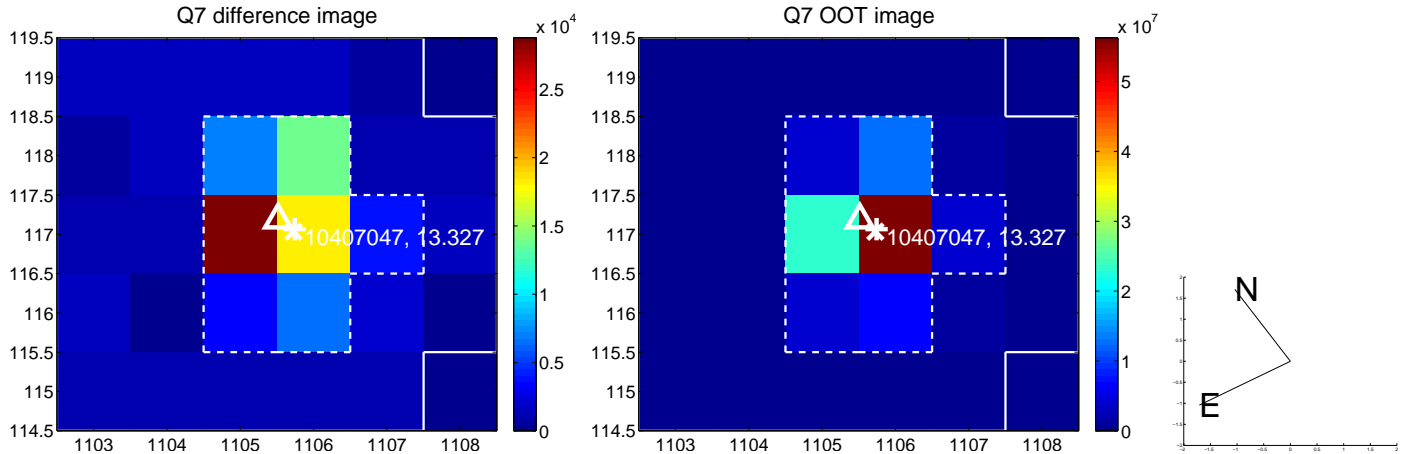
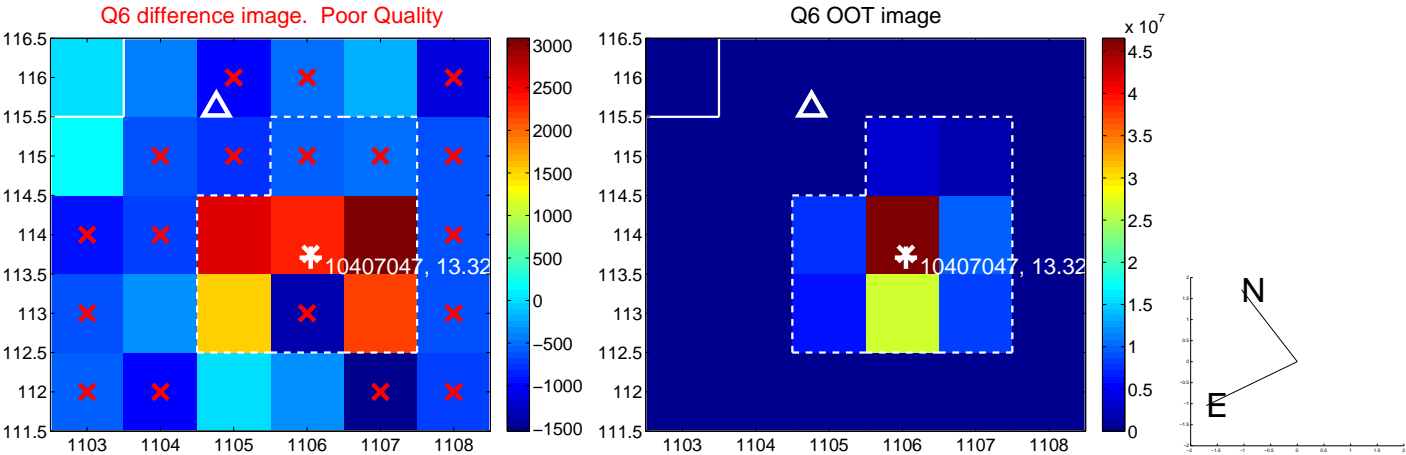
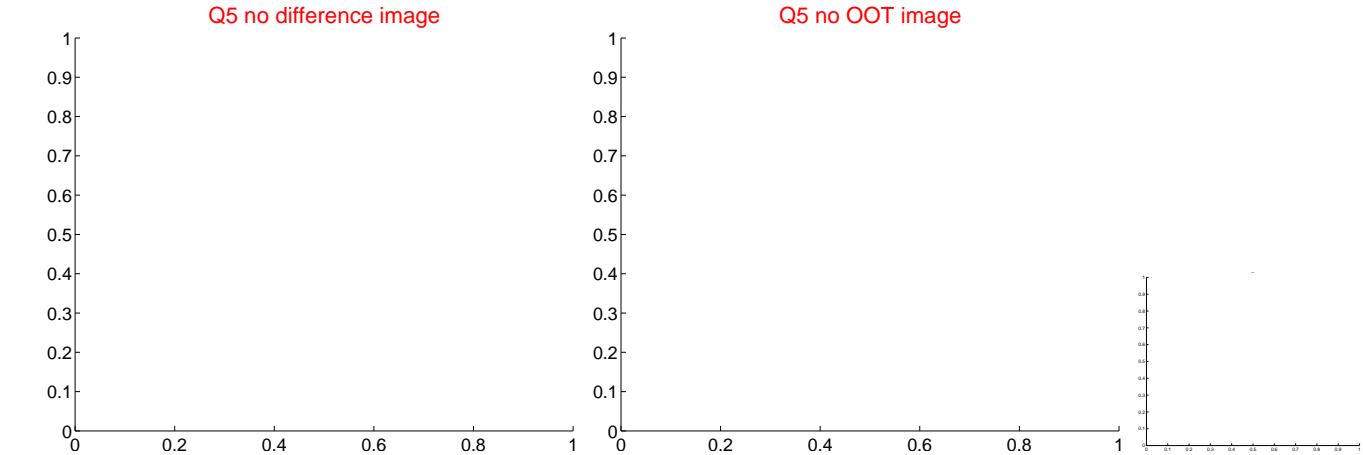


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

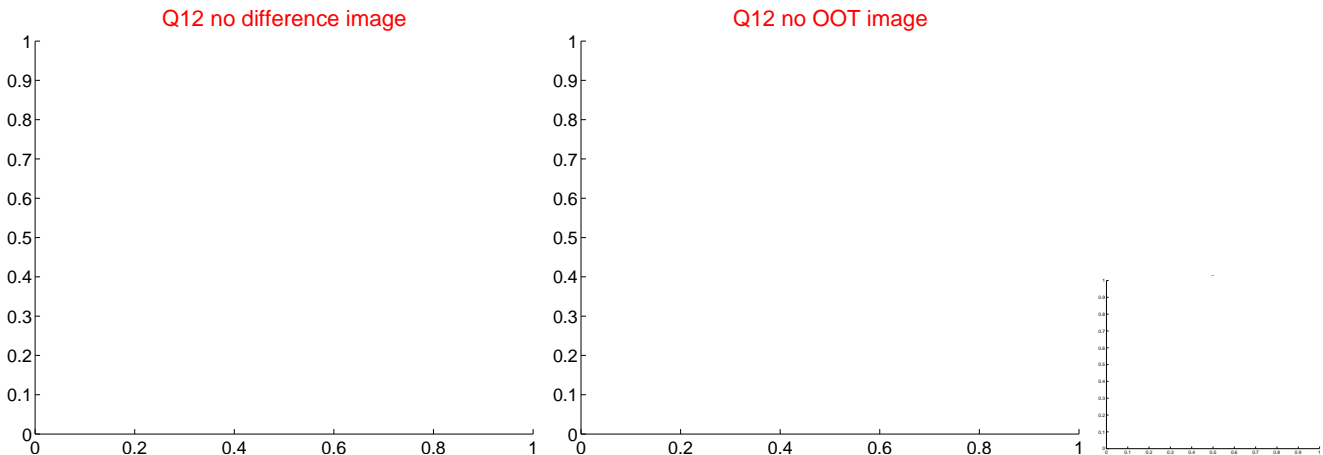
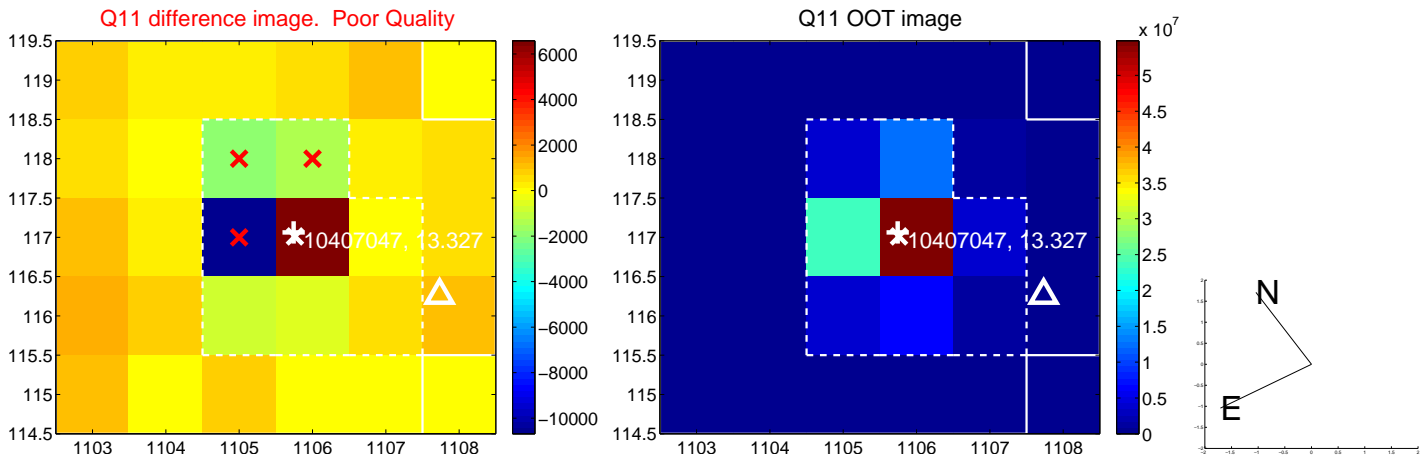
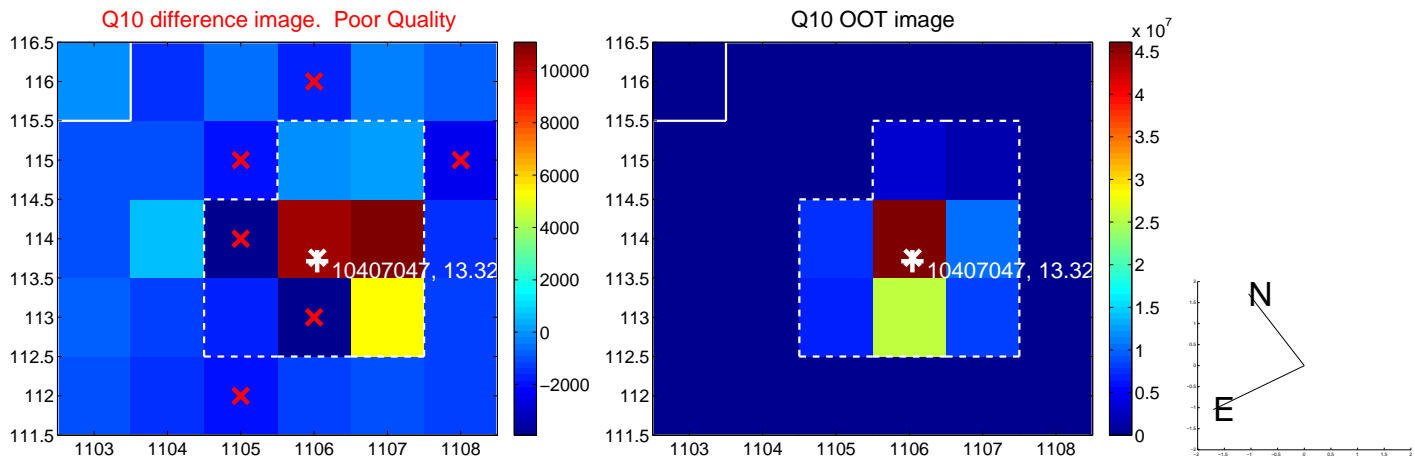
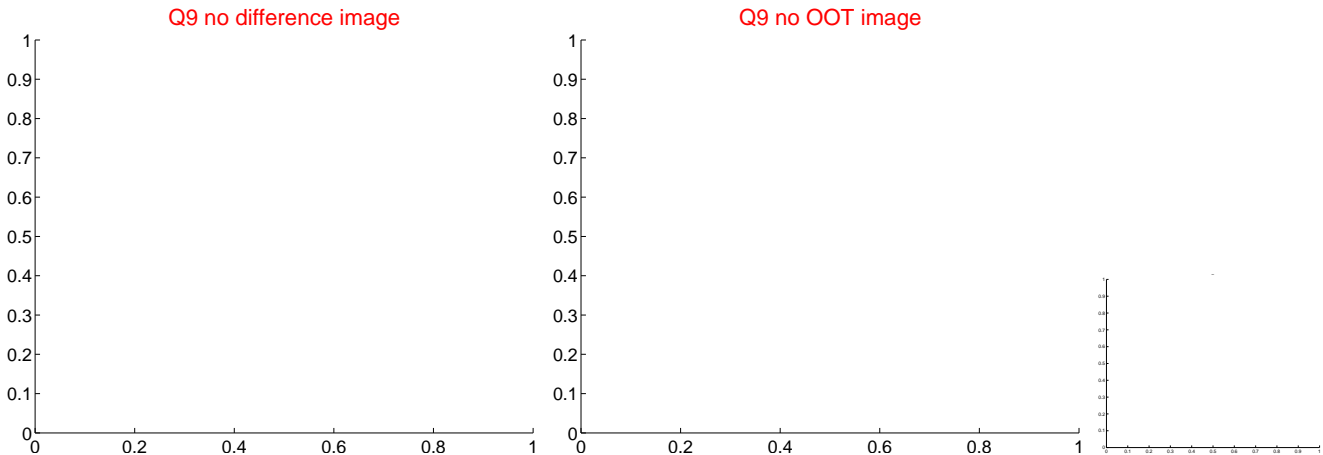
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



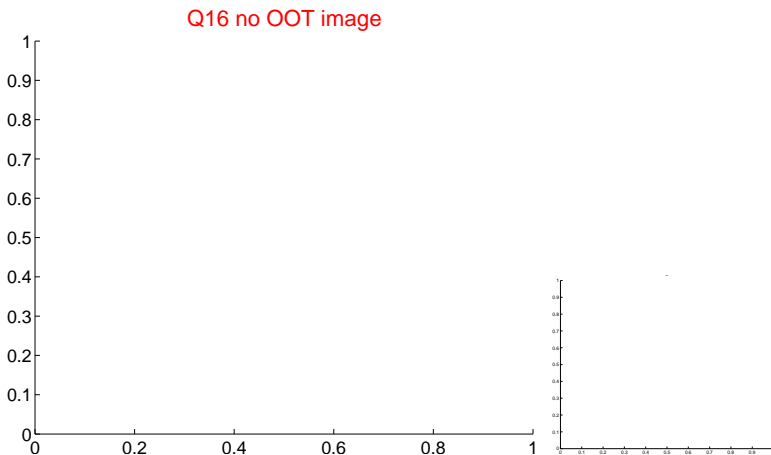
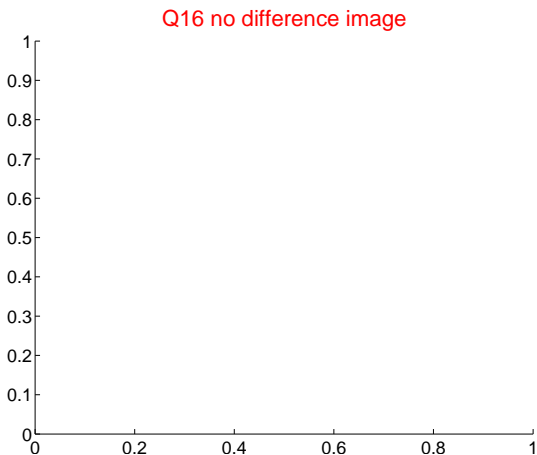
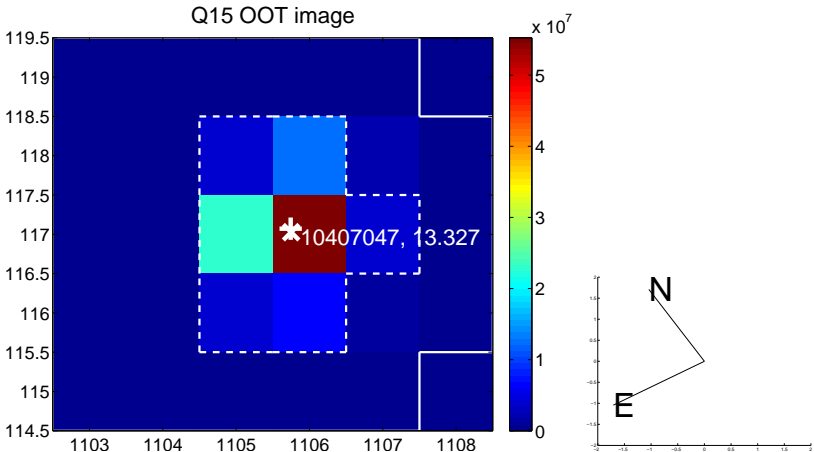
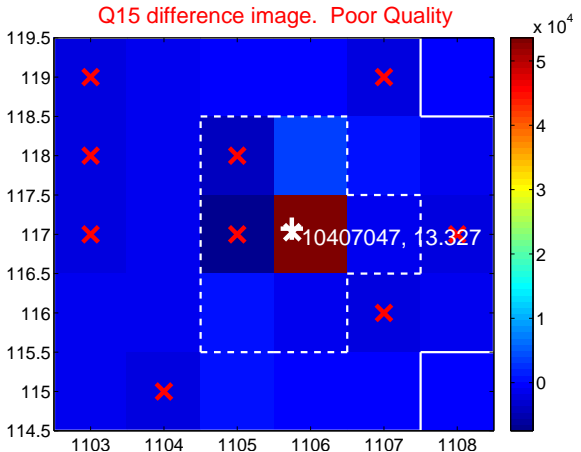
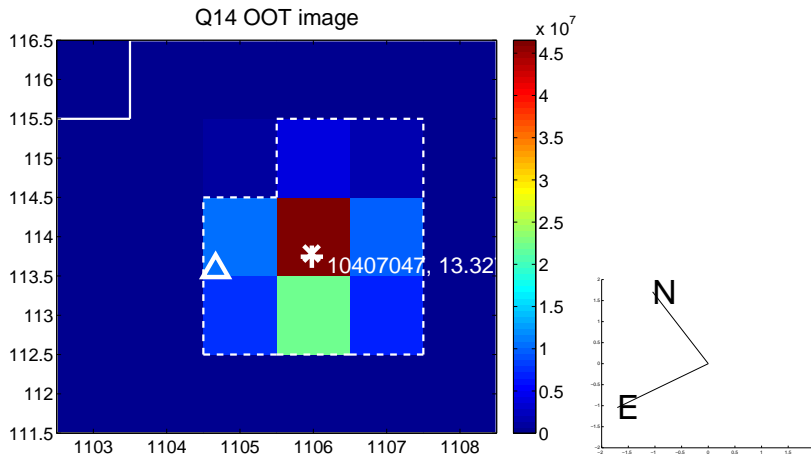
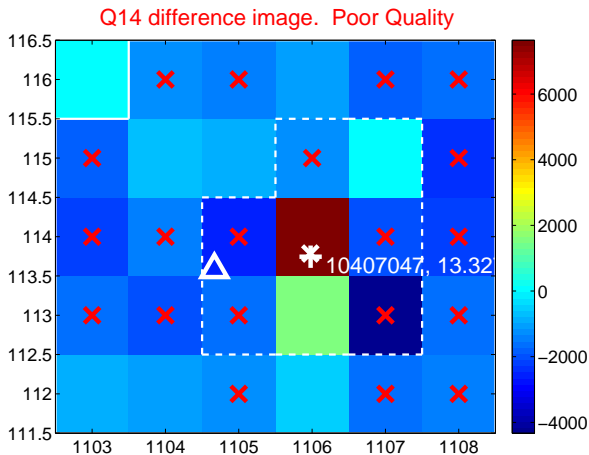
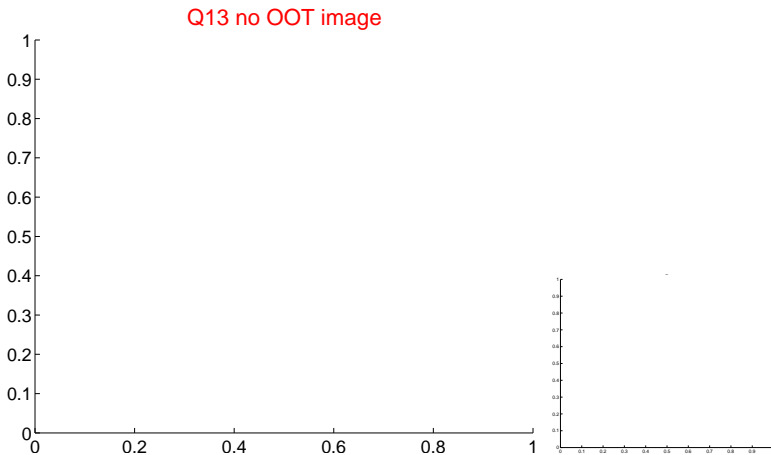
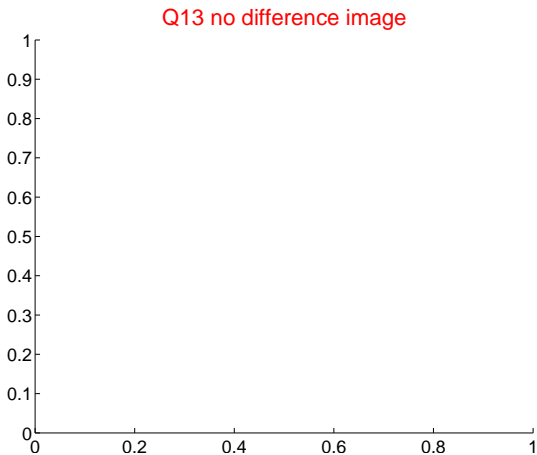
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



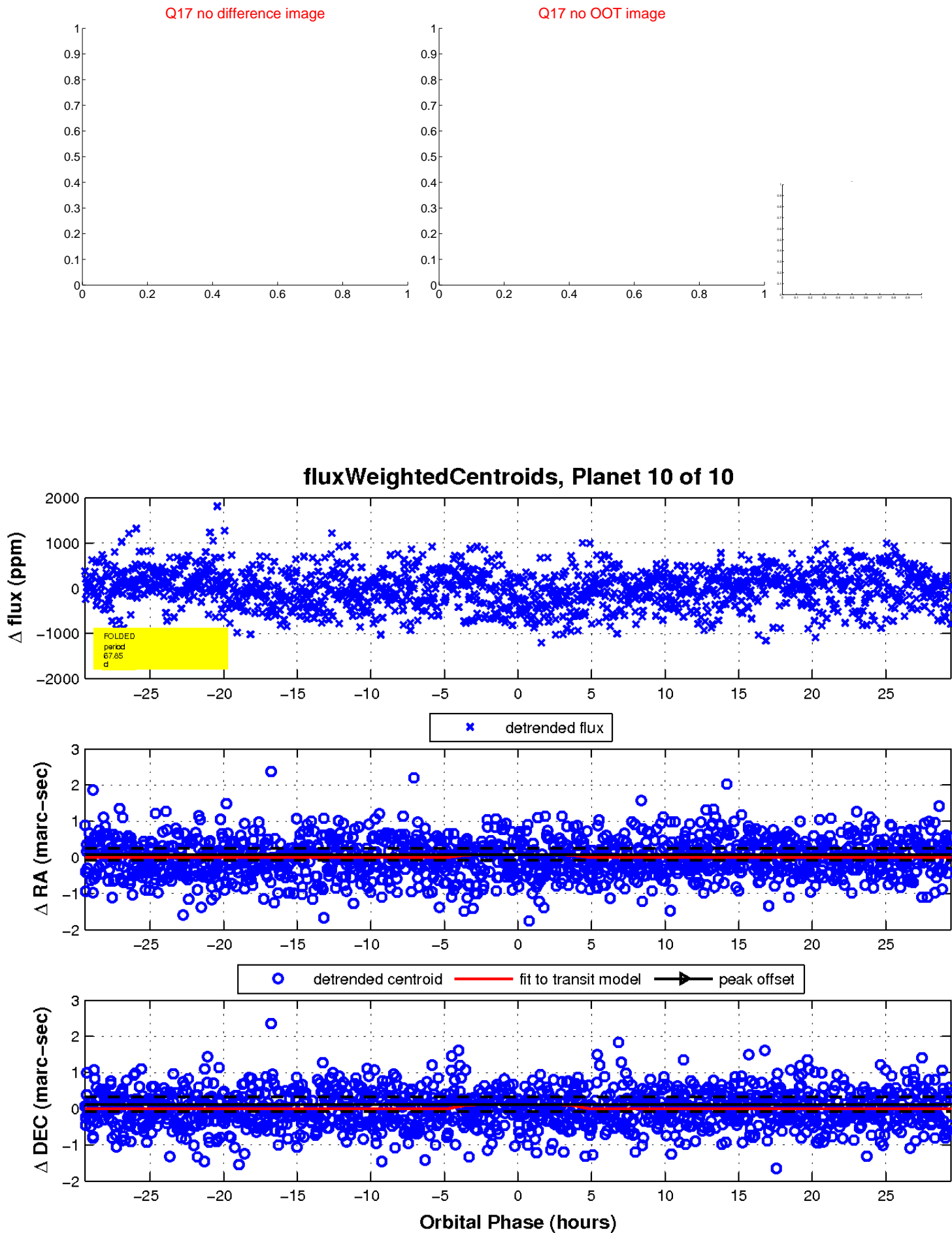
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image

Declination

