

KIC 007880048

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})
007880048-01	OBS	No	169.140147	230.993971	1304.6	24.366	24.9	34.1	94.34	3464	312.01	2801.22
007880048-02	OBS	No	392.918719	447.288252	10468.9	4.796	24.2	20.3	94.34	3464	1772.11	910.48
007880048-03	OBS	No	683.223323	200.624105	148.4	15.000	21.6	-1.0	94.34	3464	105.51	435.44
007880048-04	OBS	No	704.059000	154.855511	4534.4	6.383	18.2	14.9	94.34	3464	603.45	418.34
007880048-05	OBS	No	362.555526	473.372824	6259.8	4.974	25.4	15.1	94.34	3464	1509.90	1013.54
007880048-06	OBS	No	374.962637	454.034305	241.1	3.500	20.3	-1.0	94.34	3464	134.68	969.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007880048-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007880048-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007880048-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

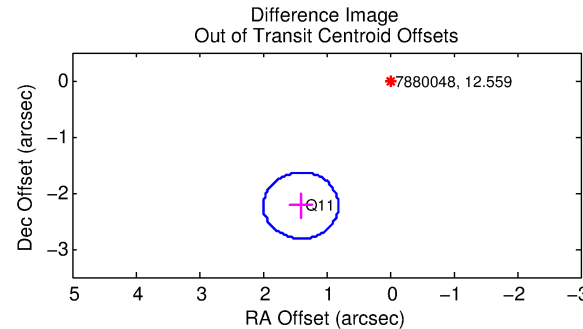
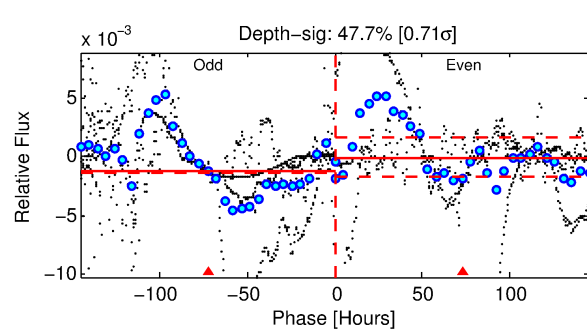
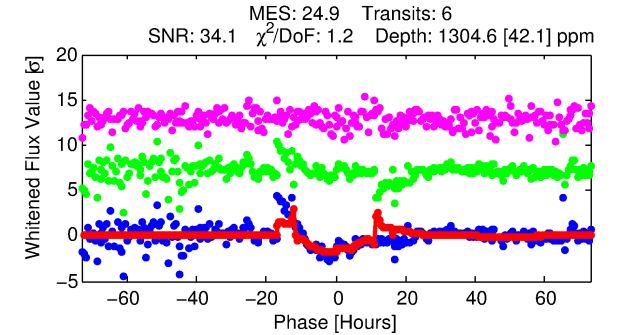
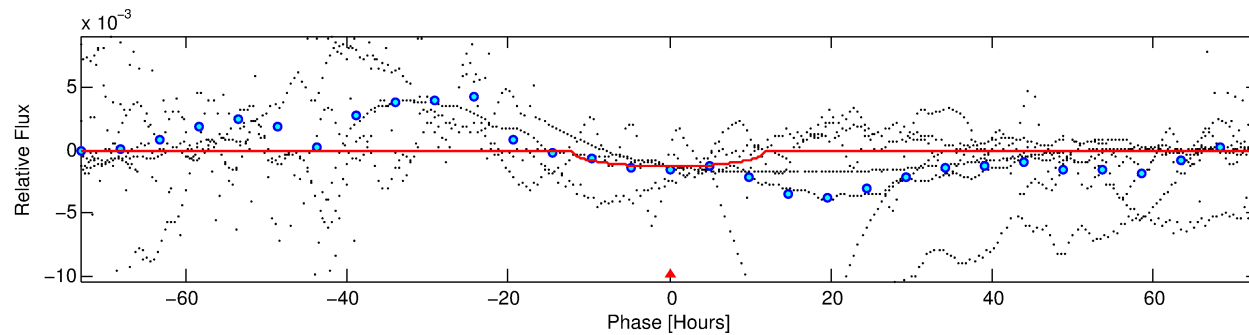
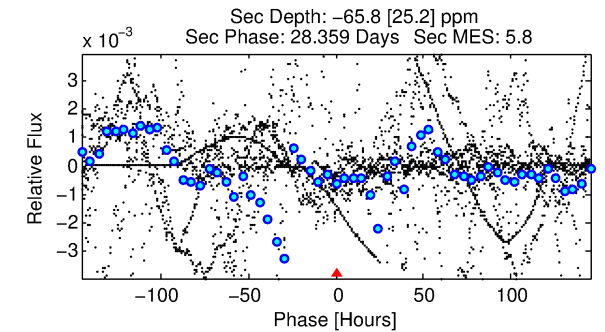
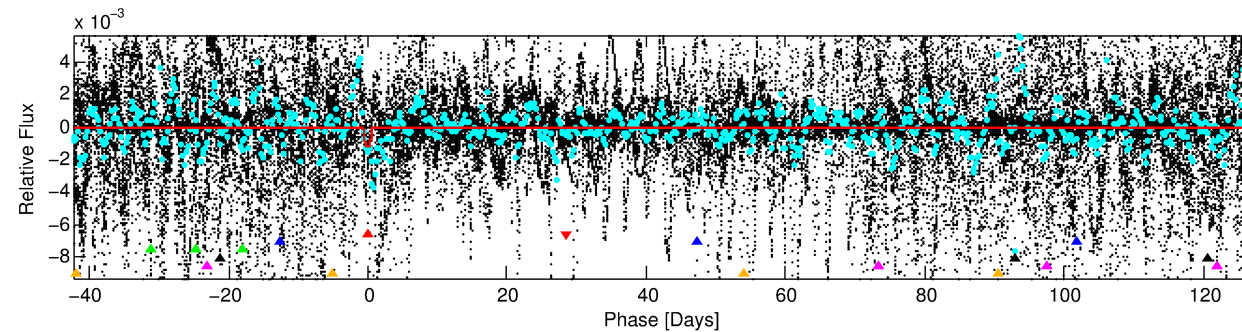
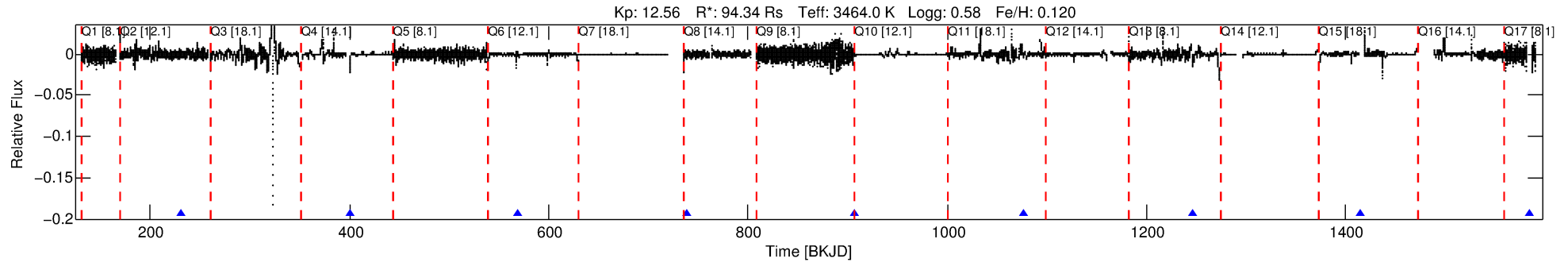
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007880048-01

No Significant Match Found

DV One-Page Summary

KIC: 7880048 Candidate: 1 of 6 Period: 169.140 d



DV Fit Results:

Period = 169.14015 [0.00175] d
Epoch = 230.9940 [0.0065] BKJD
Rp/R* = 0.0303 [0.0013]
a/R* = 54.64 [4.54]
b = 0.00 [60.39]
Seff = 2801.22 [1326.49]
Teff = 1855 [220] K
Rp = 312.01 [114.21] Re
a = 0.6402 [0.1979] AU
Ag = N/A
Teffp = N/A

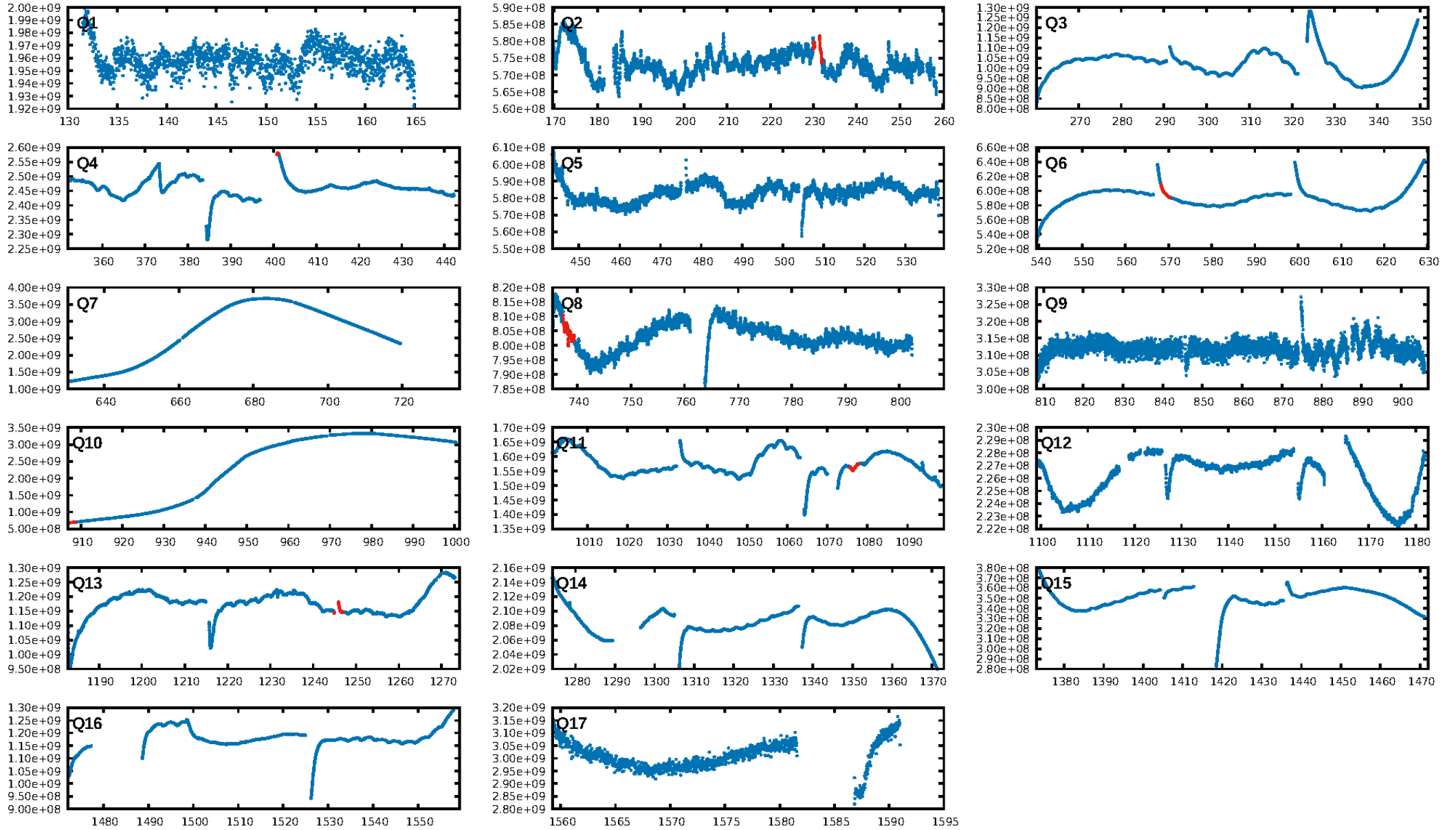
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [186.66 σ]
ModelChiSquare2-sig: 29.3%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 2.56
Centroid-sig: N/A
Centroid-so: 0.711 arcsec [0.37 σ]
OotOffset-rm: 2.632 arcsec [13.41 σ]
KicOffset-rm: 2.176 arcsec [11.18 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

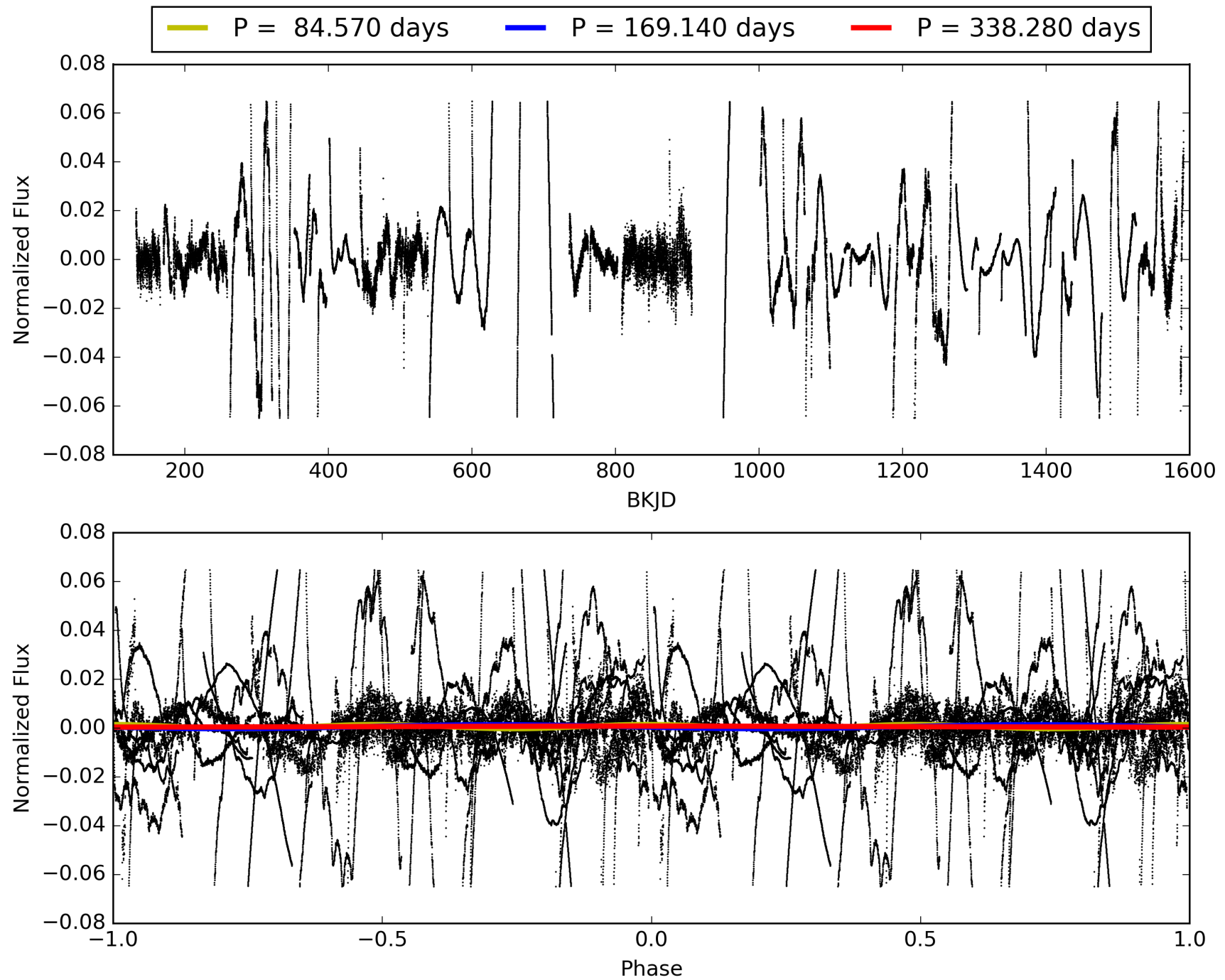
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007880048-01, PDC Light Curves

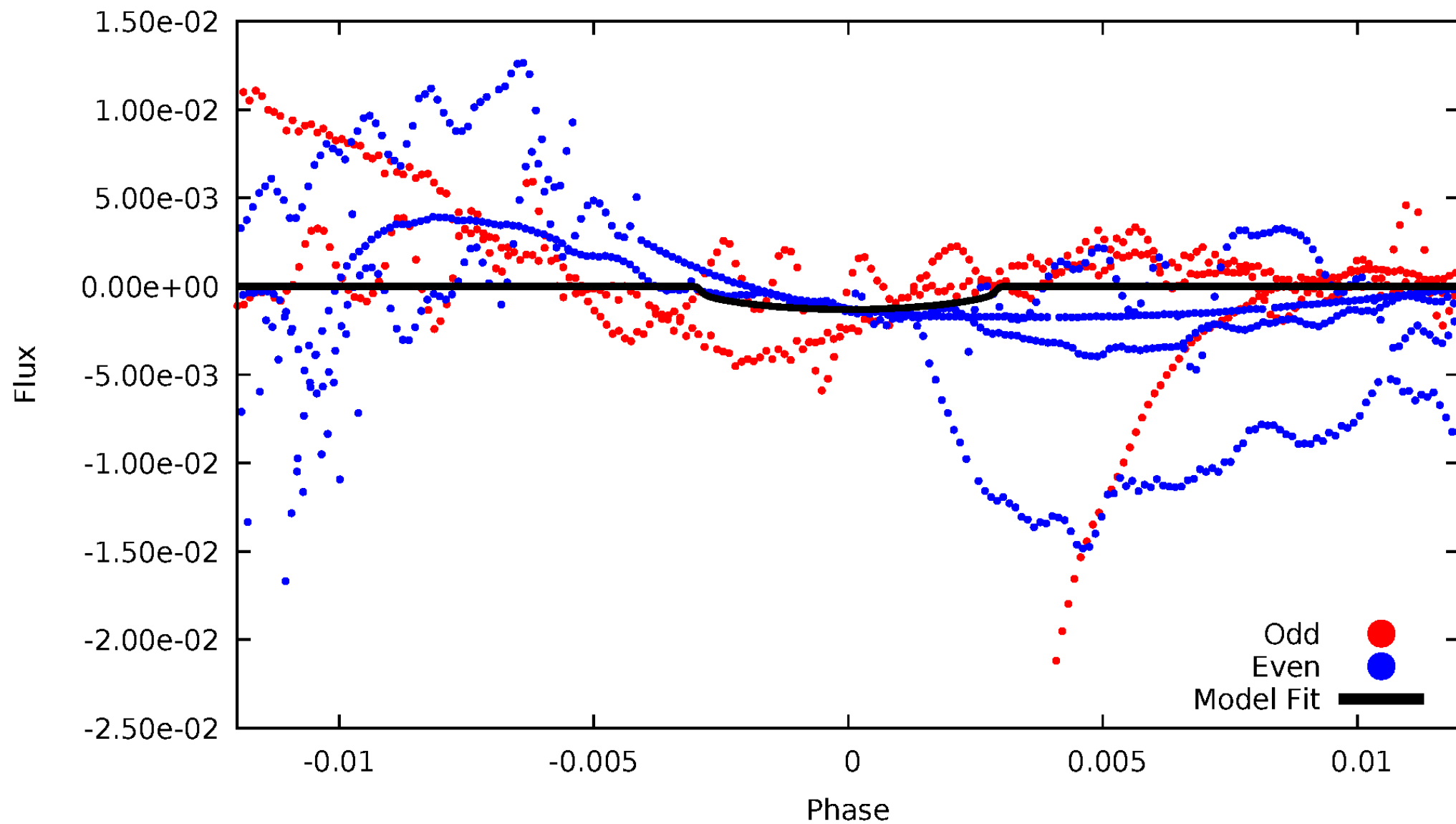


TCE 007880048-01



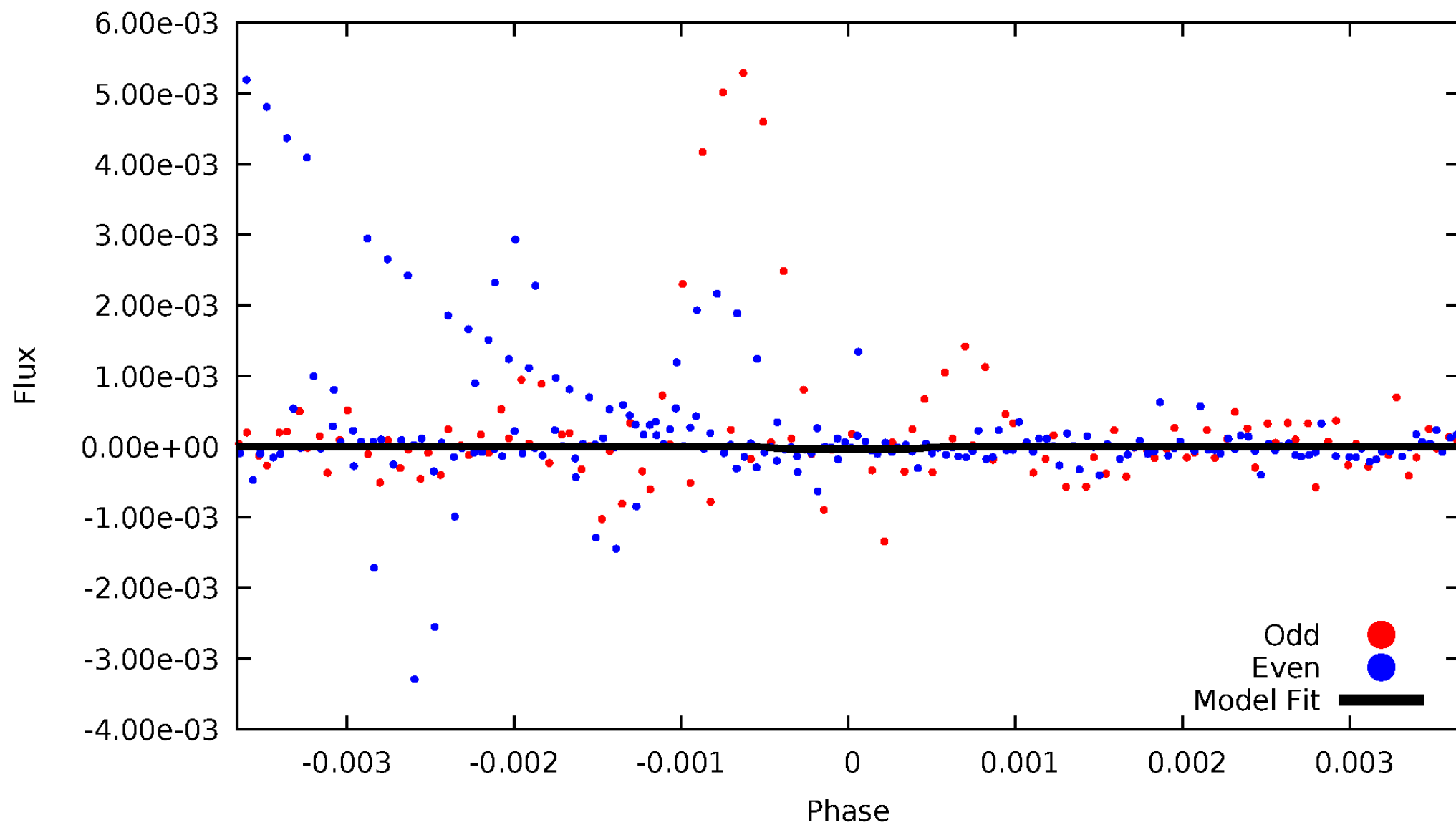
DV Odd/Even

TCE 007880048-01



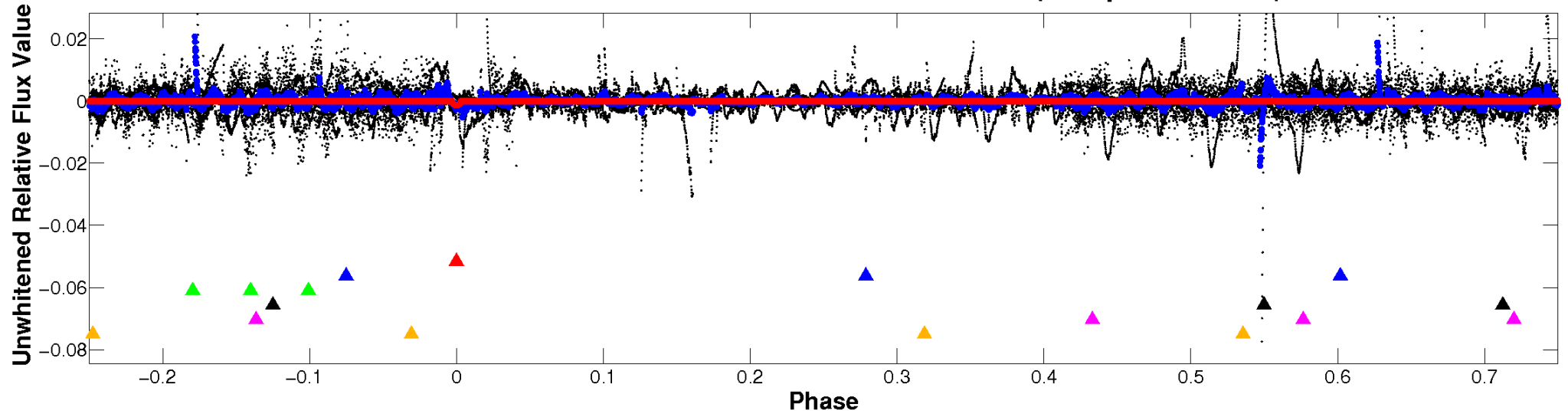
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TCE 007880048-01

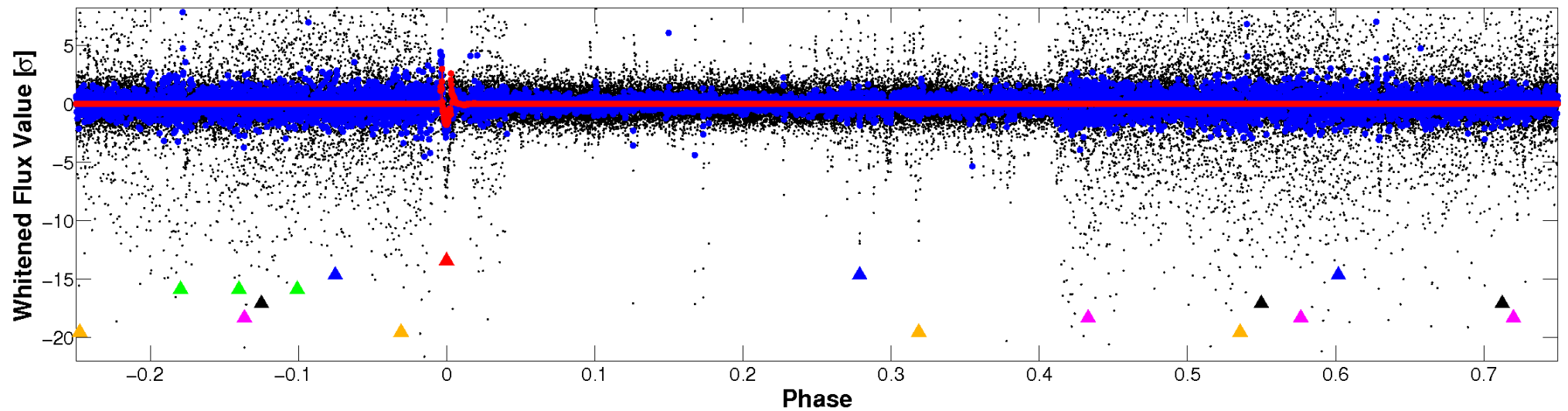


Non-Whitened Vs. Whitened Light Curve

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

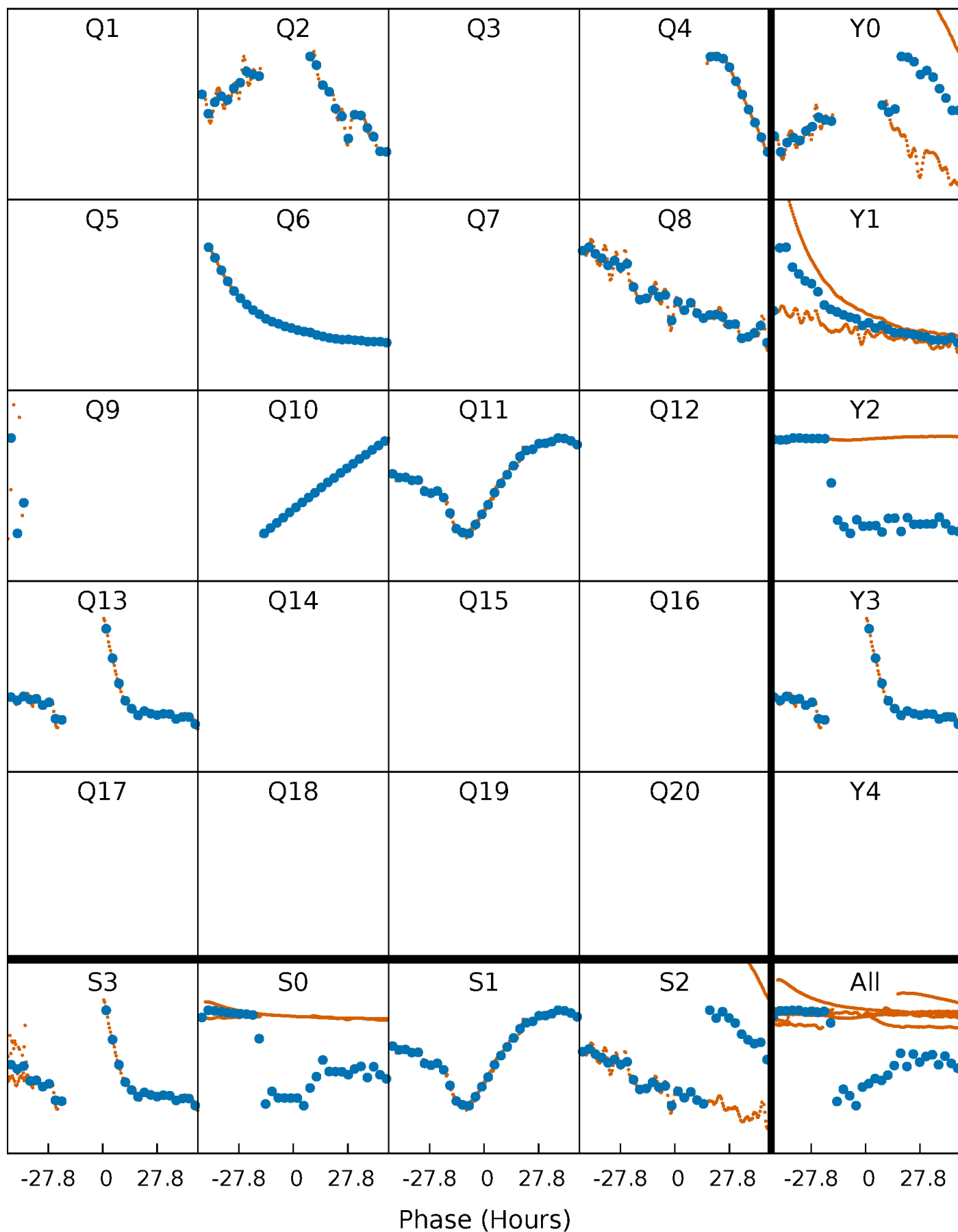


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



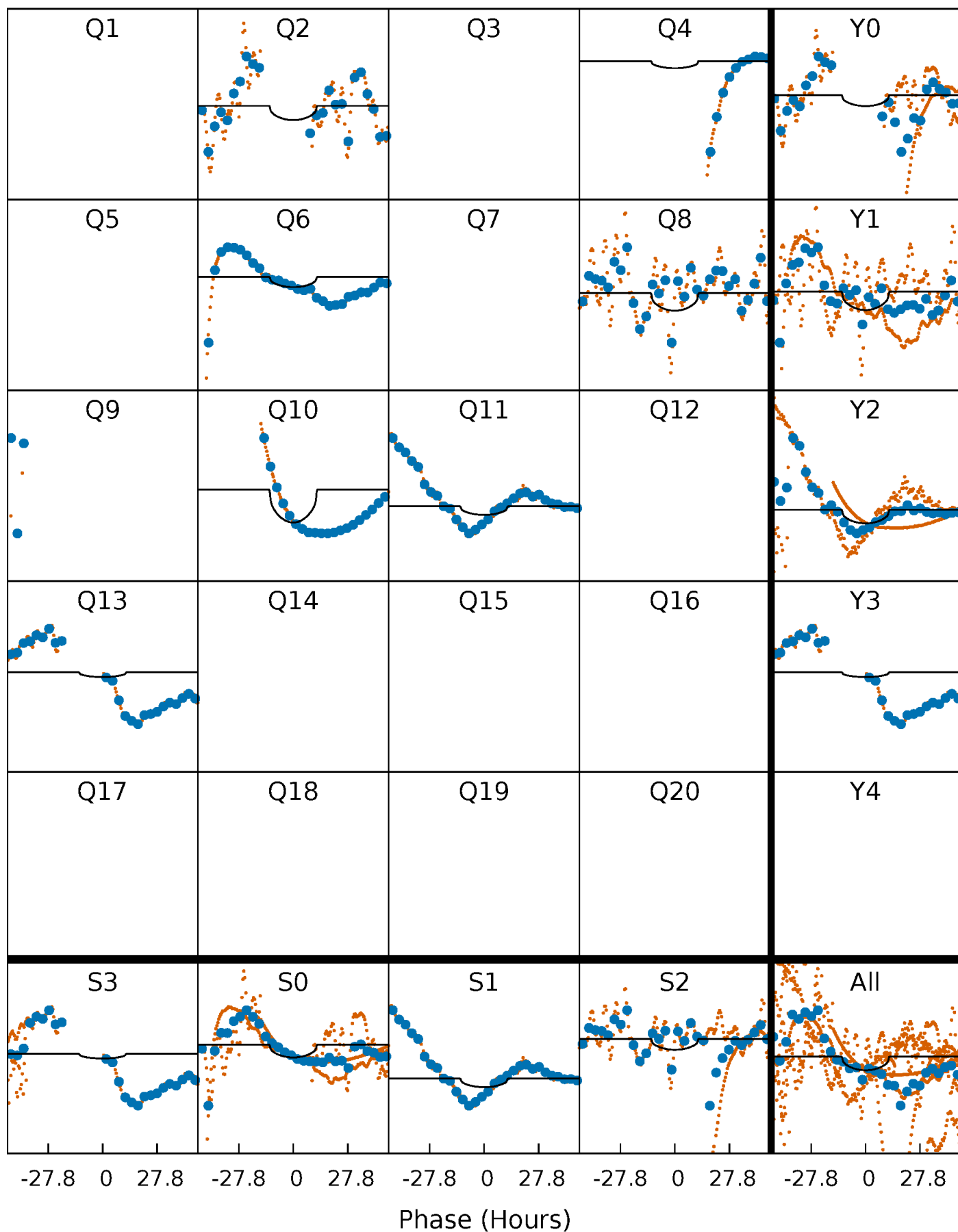
PDC Quarter-Phased Transit Curves

TCE 007880048-01 P=169.140147 Days $T_0=230.993971$ (BKJD)



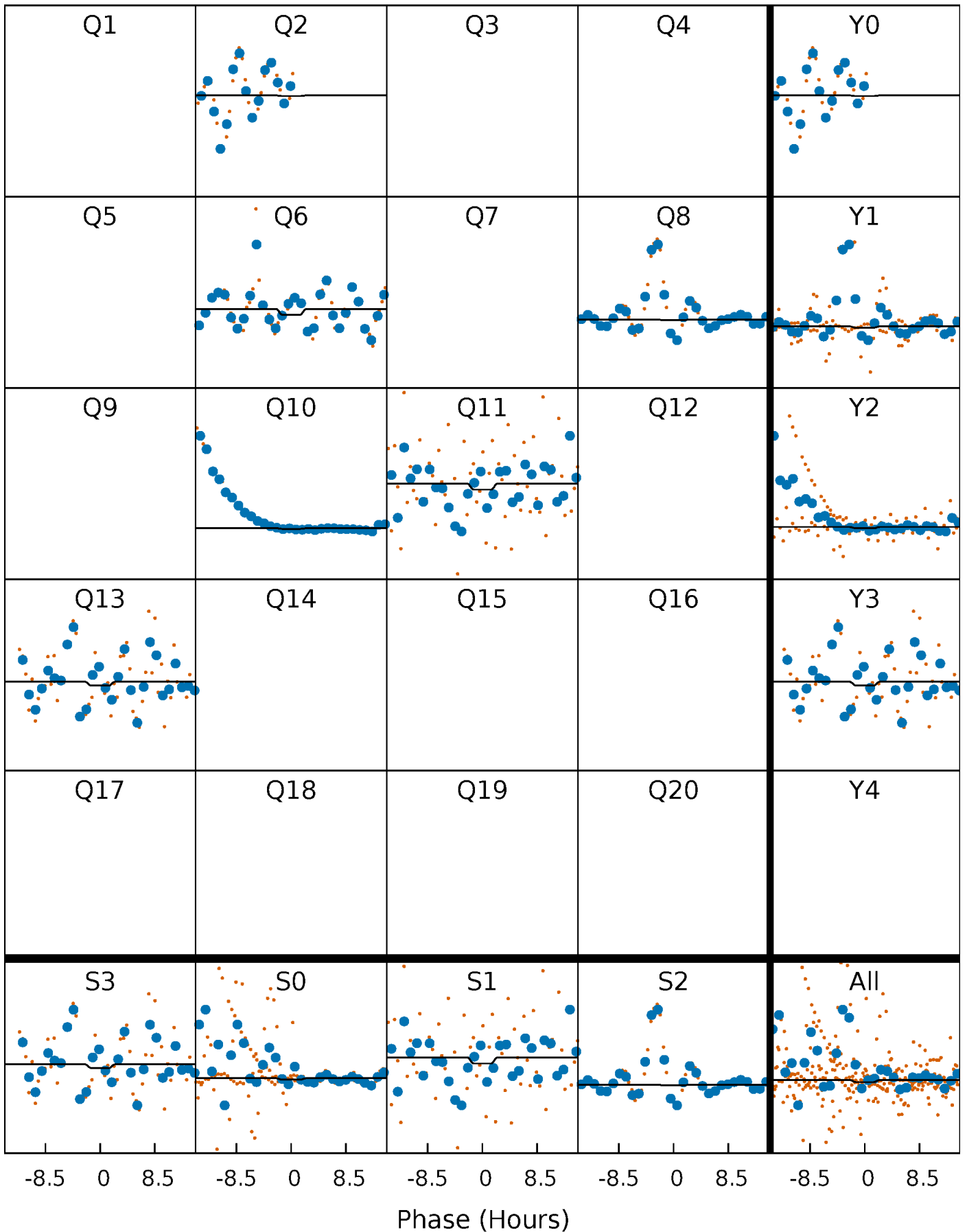
DV Quarter-Phased Transit Curves

TCE 007880048-01 P=169.140147 Days $T_0=230.993971$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

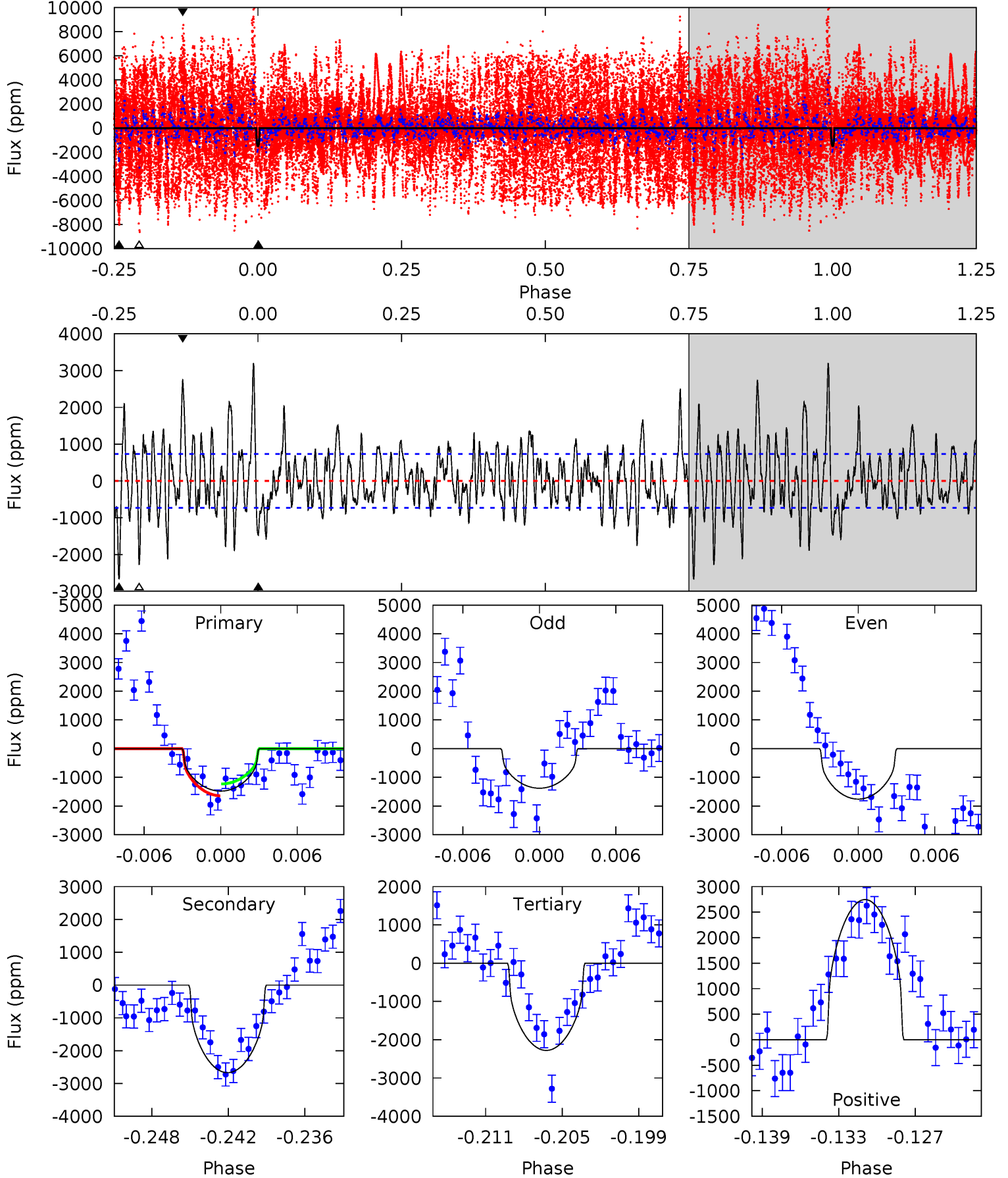
TCE 007880048-01 P=169.350144 Days $T_0=230.280057$ (BKJD)



DV Model-Shift Uniqueness Test

007880048-01, P = 169.140147 Days, E = 61.853824 Days

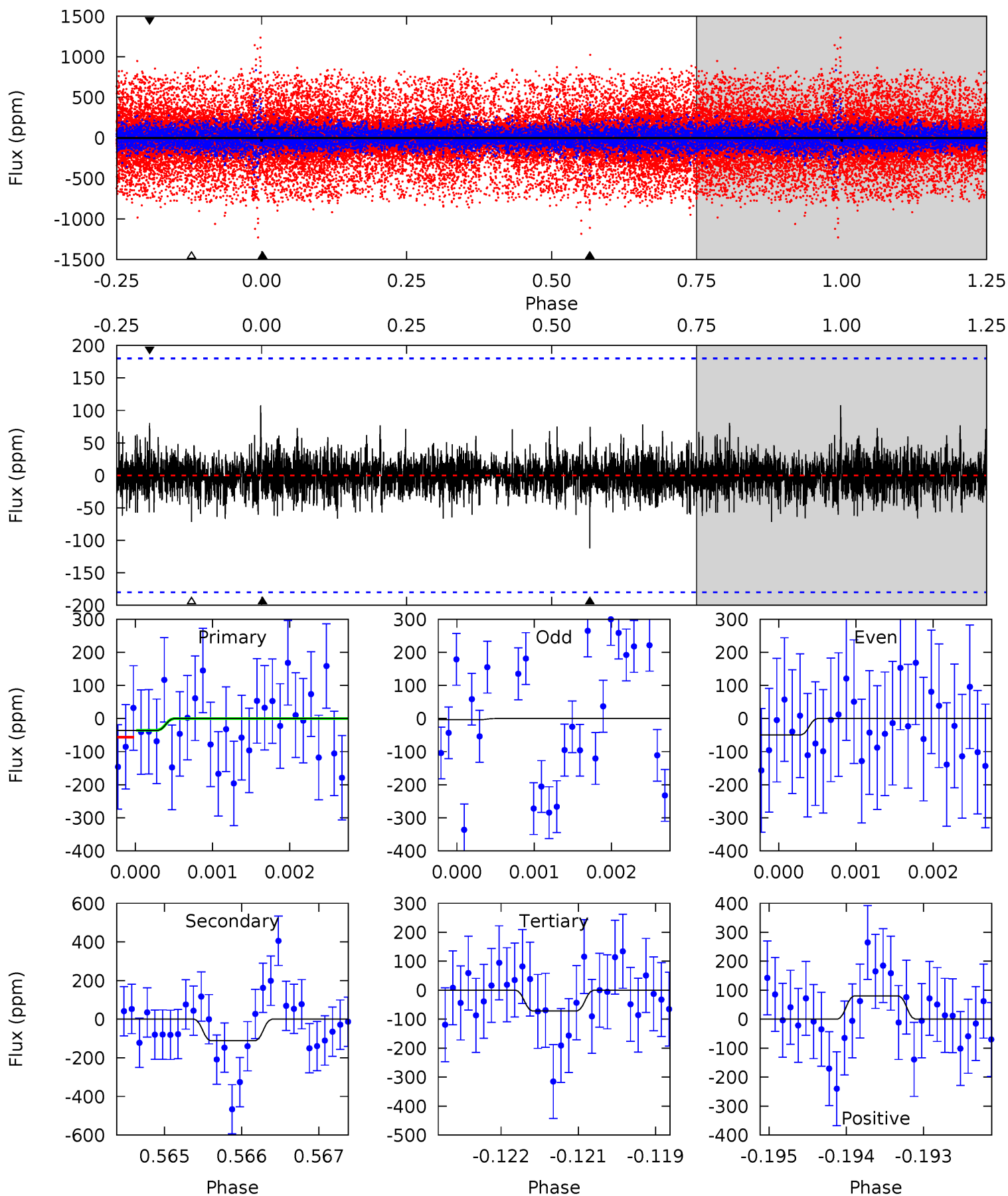
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	18.7	15.9	19.2	5.12	2.75	5.09	-5.58	-8.84	2.74	-0.53	1.23	1.07	0.55	1.30



Alt Model-Shift Uniqueness Test

007880048-01, P = 169.350144 Days, E = 60.929913 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.09	3.38	2.16	2.42	5.42	3.25	0.61	-1.07	-1.33	1.22	0.96	0.51	5.12	0.49	0.31



Stellar Parameters For KIC 007880048

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3464^{+117}_{-94}	$0.576^{+0.250}_{-0.250}$	$0.120^{+0.250}_{-0.250}$	$94.342^{+34.290}_{-22.860}$	$1.223^{+0.301}_{-0.176}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+43%/-43%	+208%/-208%	+36%/-24%	+25%/-14%	+142%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007880048-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2671 ± 143	$313.65^{+68.92}_{-52.02}$	2599^{+257}_{-214}	4109^{+190}_{-151}	$6.161^{+2.572}_{-1.876}$
Alt.	-112 ± 33	$60.96^{+19.62}_{-15.77}$	2609^{+259}_{-222}	4202^{+560}_{-422}	$6.633^{+6.891}_{-3.219}$

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 $A_{obs} \gg 1.0$

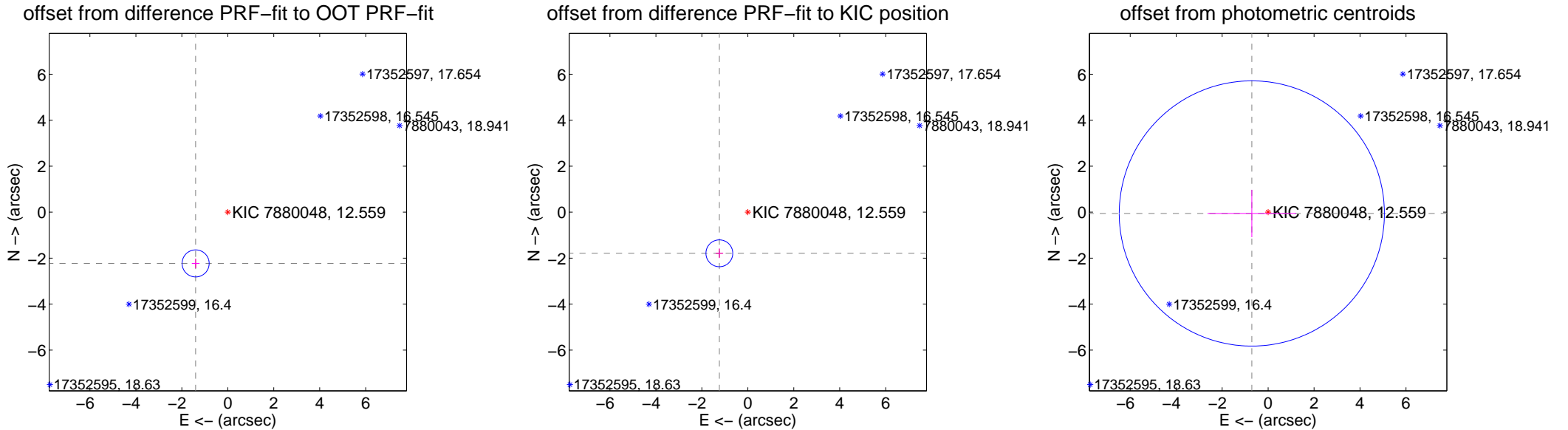
DV Centroid Data

Supplemental centroid analysis for 007880048-01. Kepler magnitude: 12.56. Transit SNR 34.13

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.632 ± 0.196	13.41	1.400 ± 0.165	-2.229 ± 0.207
PRF-fit source offset from KIC position	2.176 ± 0.195	11.18	1.239 ± 0.165	-1.789 ± 0.207
photometric centroid source offset	0.71 ± 1.92	0.37	0.71 ± 1.93	-0.06 ± 1.03



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

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



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

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



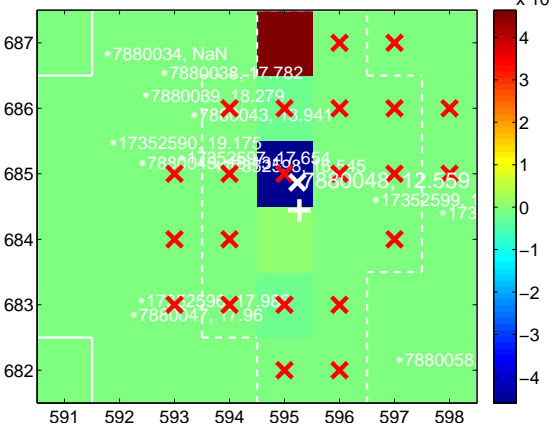
Q7 no difference image



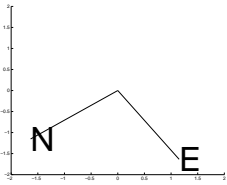
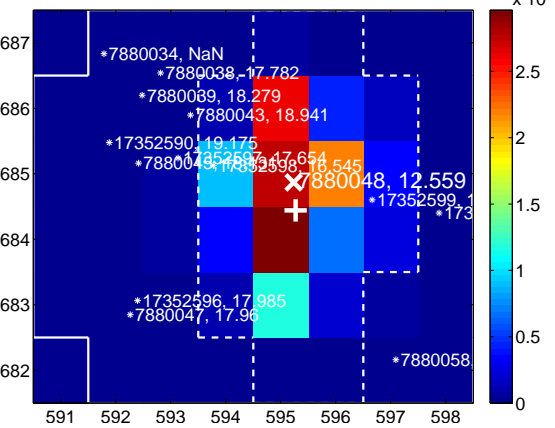
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 OOT image



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

Q9 no difference image



Q9 no OOT image



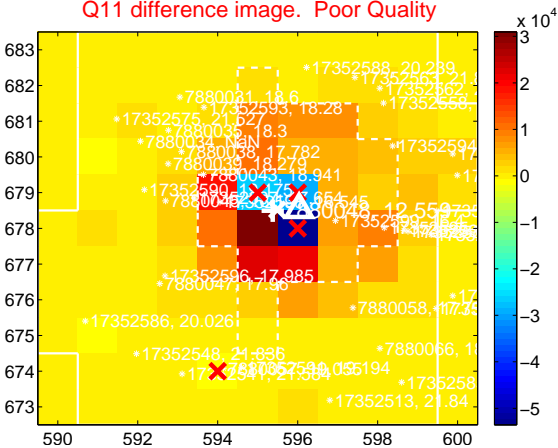
Q10 no difference image



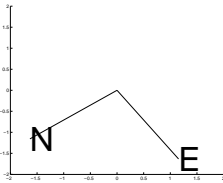
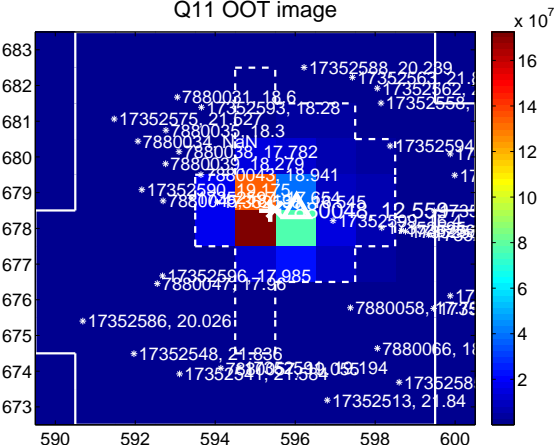
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



Q12 no difference image



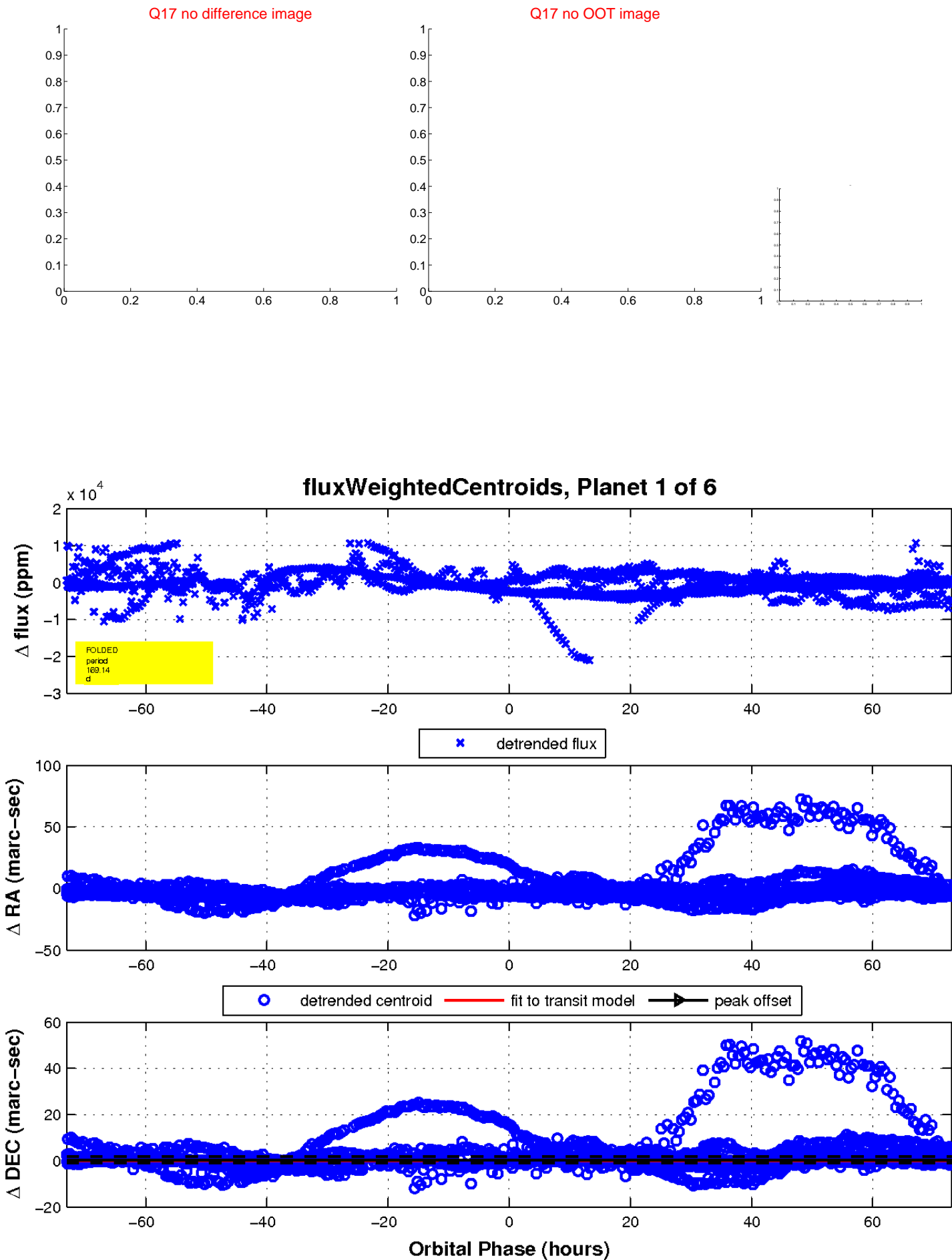
Q12 no OOT image



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

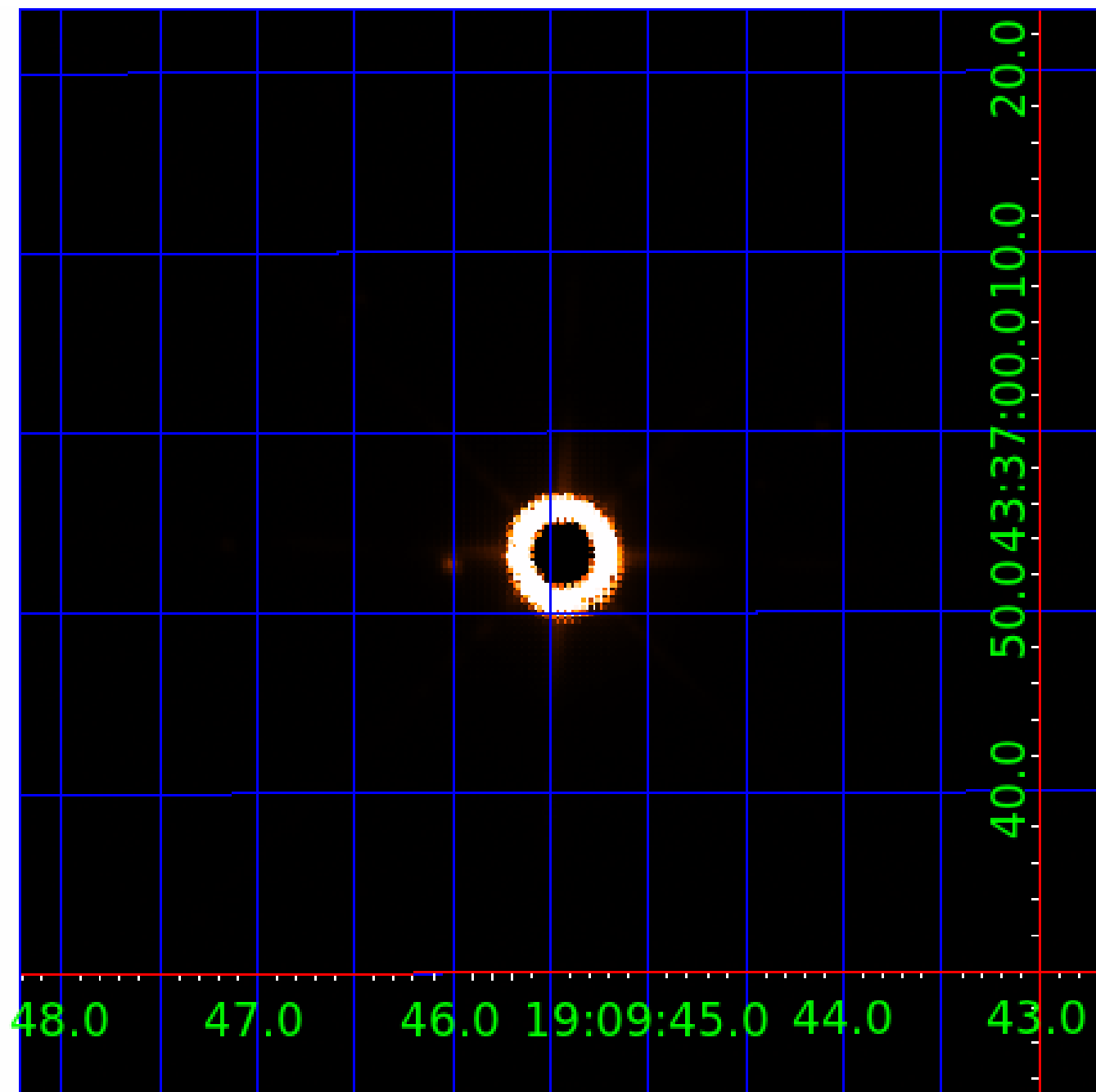


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007880048

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})
007880048-01	OBS	No	169.140147	230.993971	1304.6	24.366	24.9	34.1	94.34	3464	312.01	2801.22
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007880048-06	OBS	No	374.962637	454.034305	241.1	3.500	20.3	-1.0	94.34	3464	134.68	969.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007880048-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007880048-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007880048-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

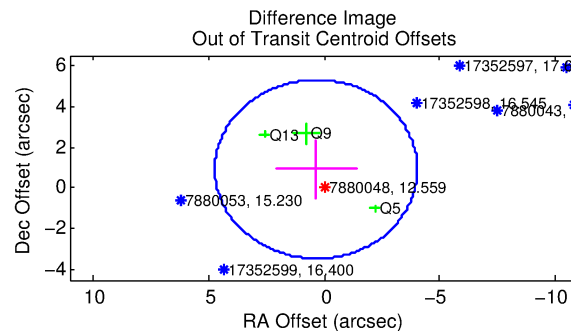
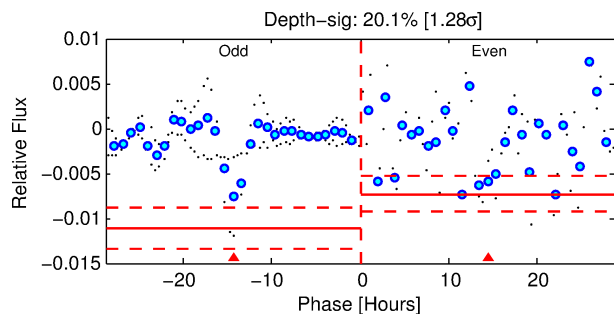
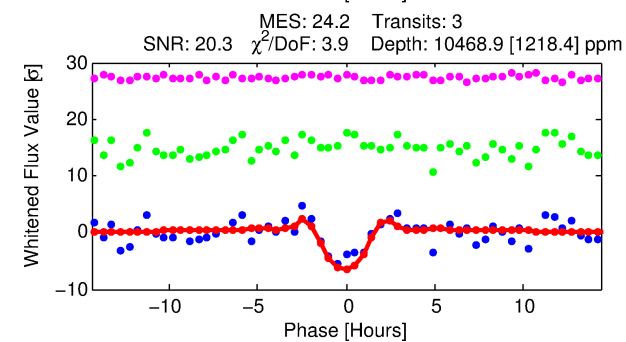
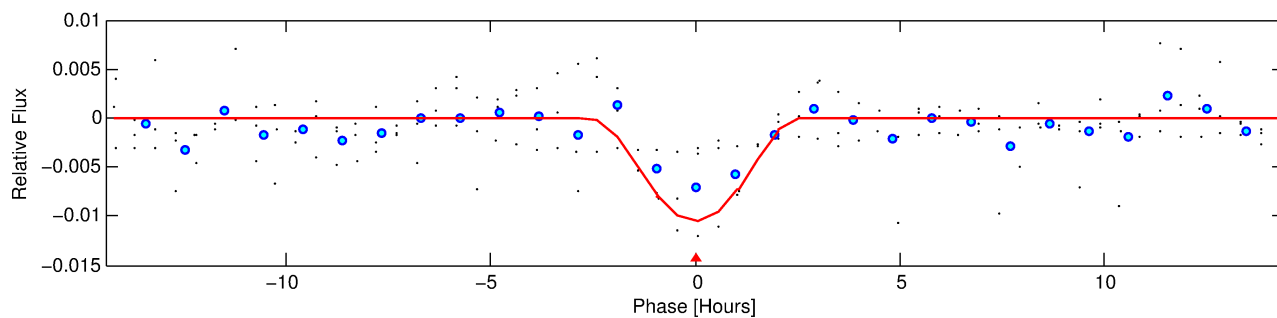
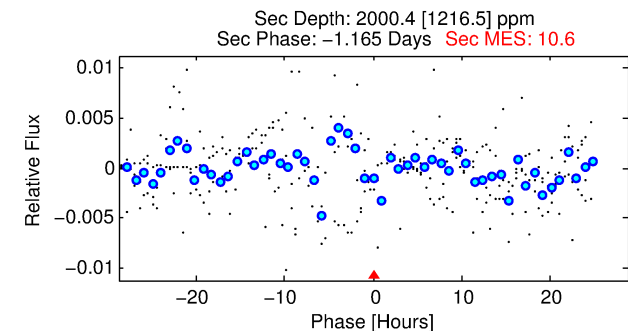
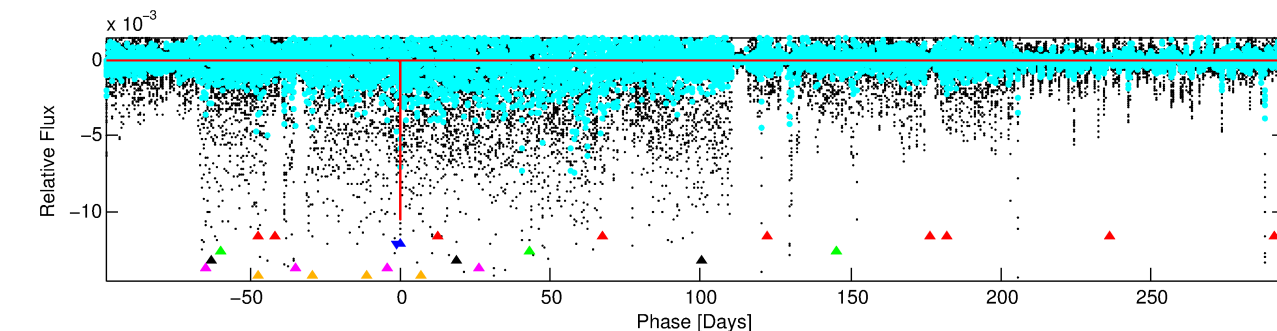
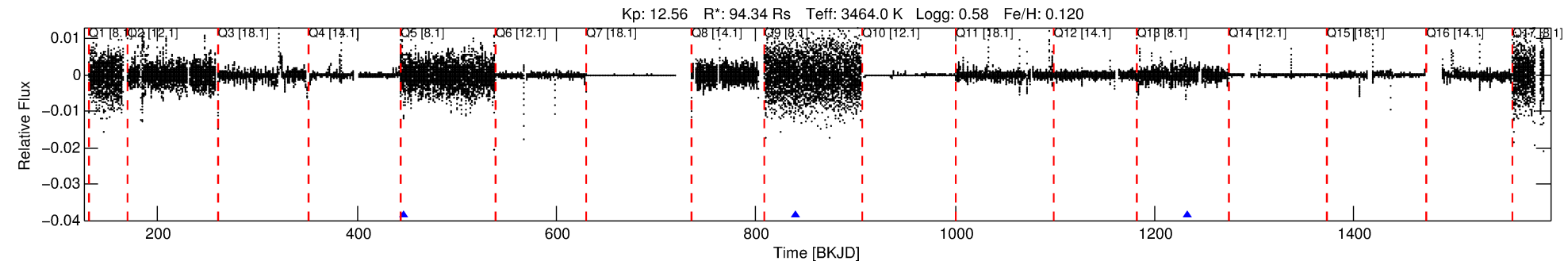
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007880048-02

No Significant Match Found

DV One-Page Summary

KIC: 7880048 Candidate: 2 of 6 Period: 392.919 d



DV Fit Results:

Period = 392.91872 [0.00495] d
Epoch = 447.2883 [0.0053] BKJD
Rp/R* = 0.1721 [0.3860]
a/R* = 399.91 [122.51]
b = 0.98 [0.56]
Seff = 910.48 [431.15]
Teff = 1401 [166] K
Rp = 1772.11 [4025.37] Re
a = 1.1230 [0.3471] AU
Ag = 0.44 [2.01] [-0.28σ]
Teffp = 1766 [1999] K [0.18σ]

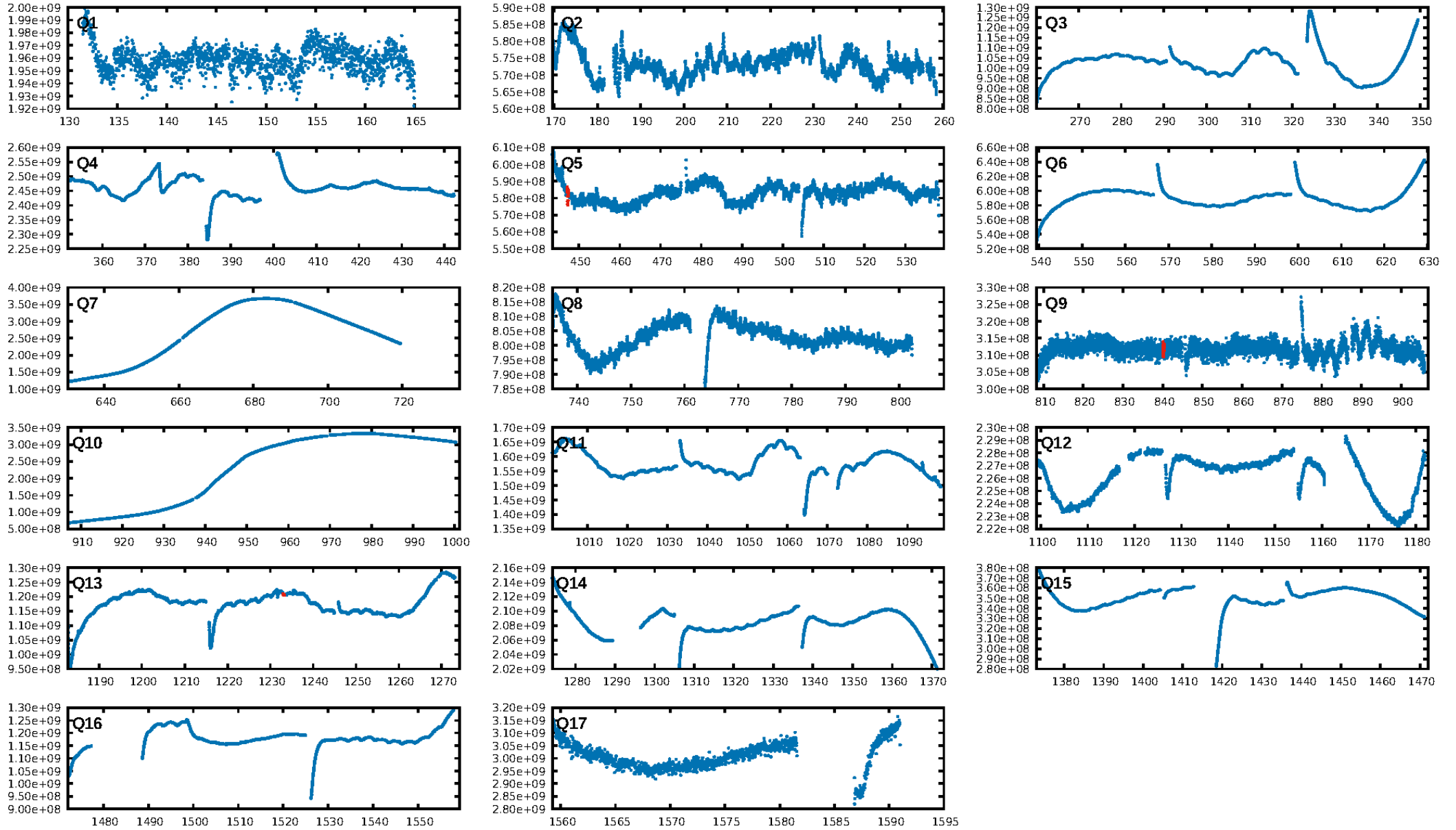
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [72.59σ]
LongPeriod-sig: 100.0% [442.43σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.5533
Centroid-sig: N/A
Centroid-so: 0.369 arcsec [4.24σ]
OotOffset-rm: 0.985 arcsec [0.68σ]
KicOffset-rm: 0.377 arcsec [0.22σ]
OotOffset-st: 0/0/0/3 [3]
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DiffImageOverlap-fno: 1.00 [3/3]

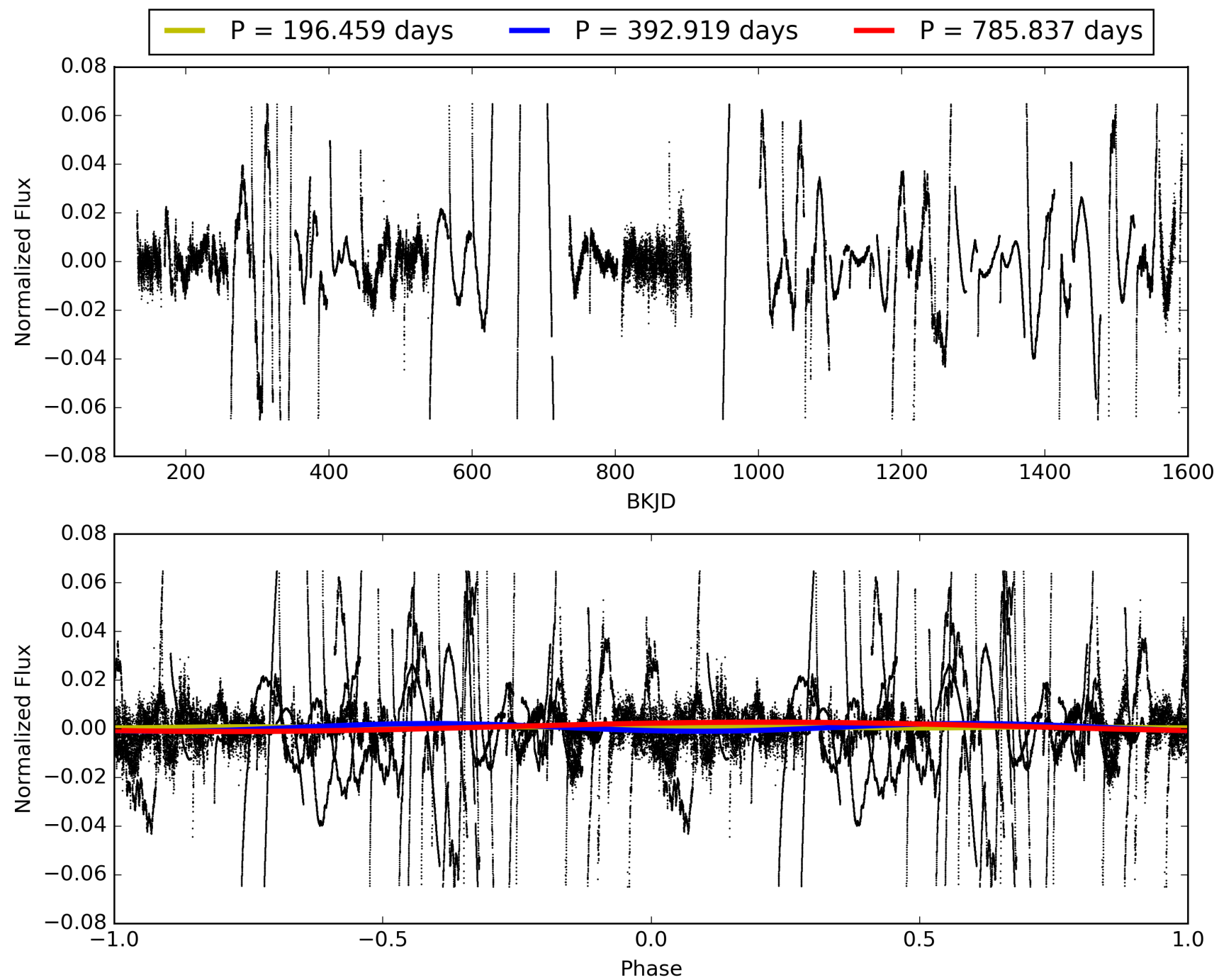
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007880048-02, PDC Light Curves

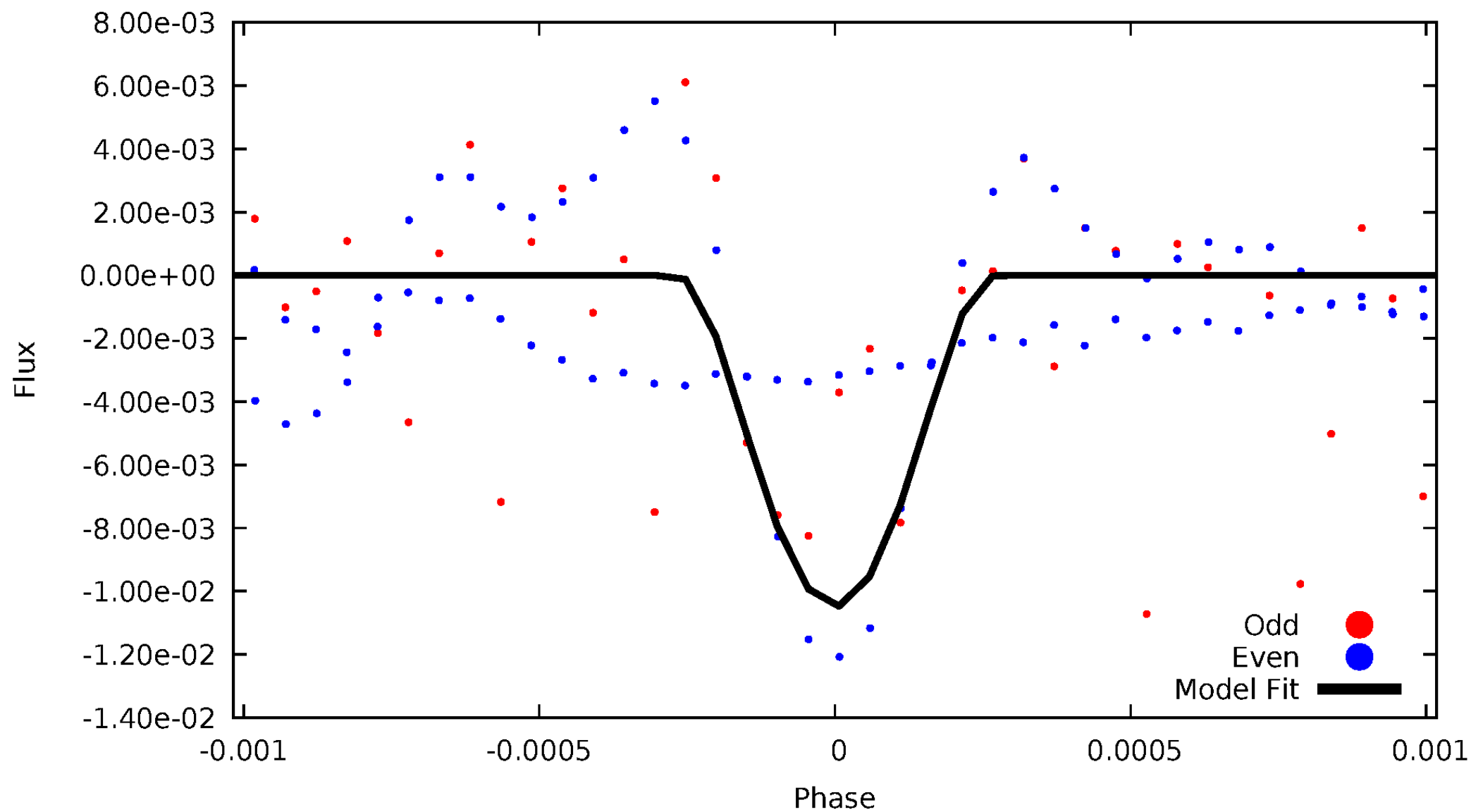


TCE 007880048-02



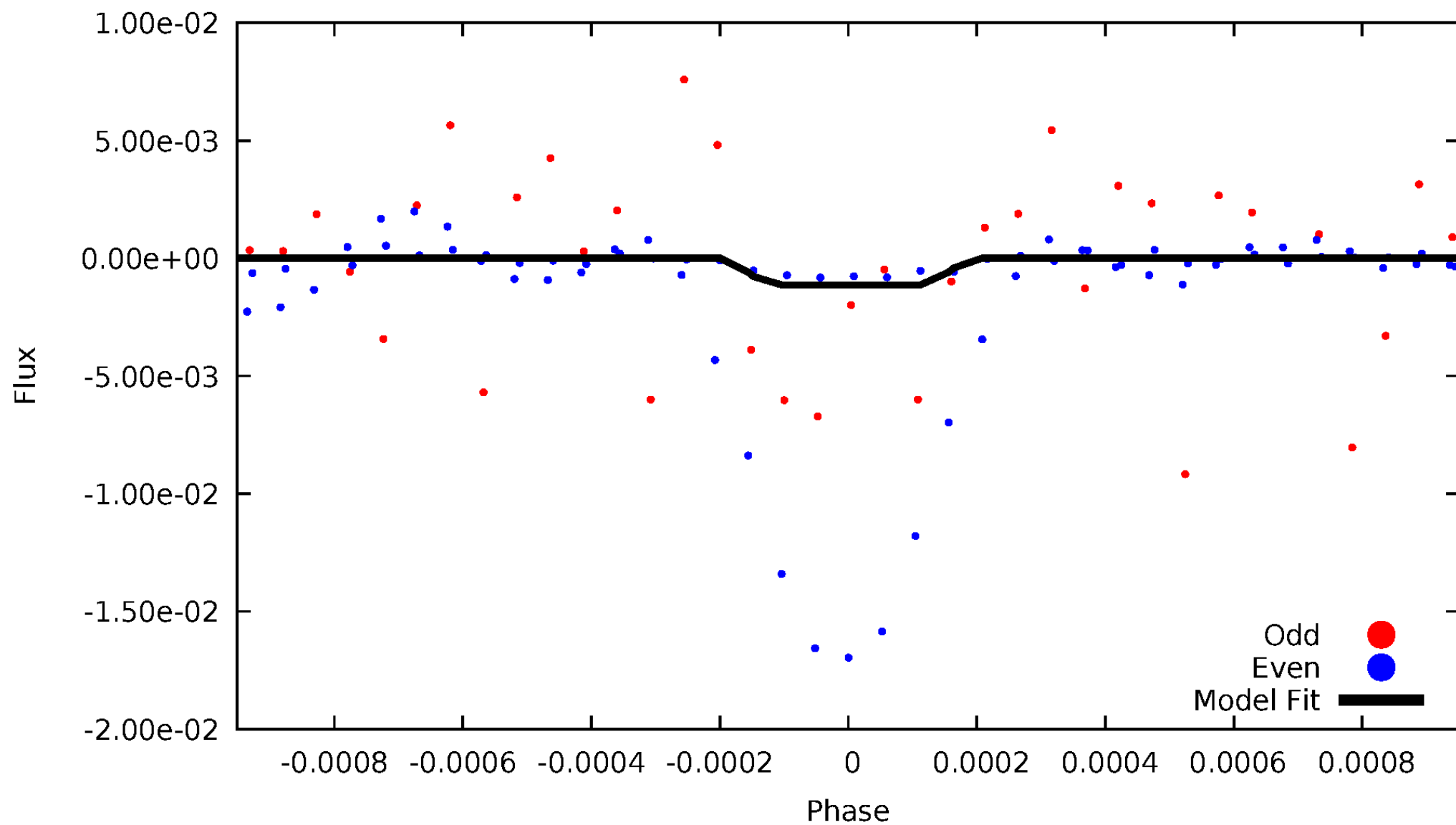
DV Odd/Even

TCE 007880048-02



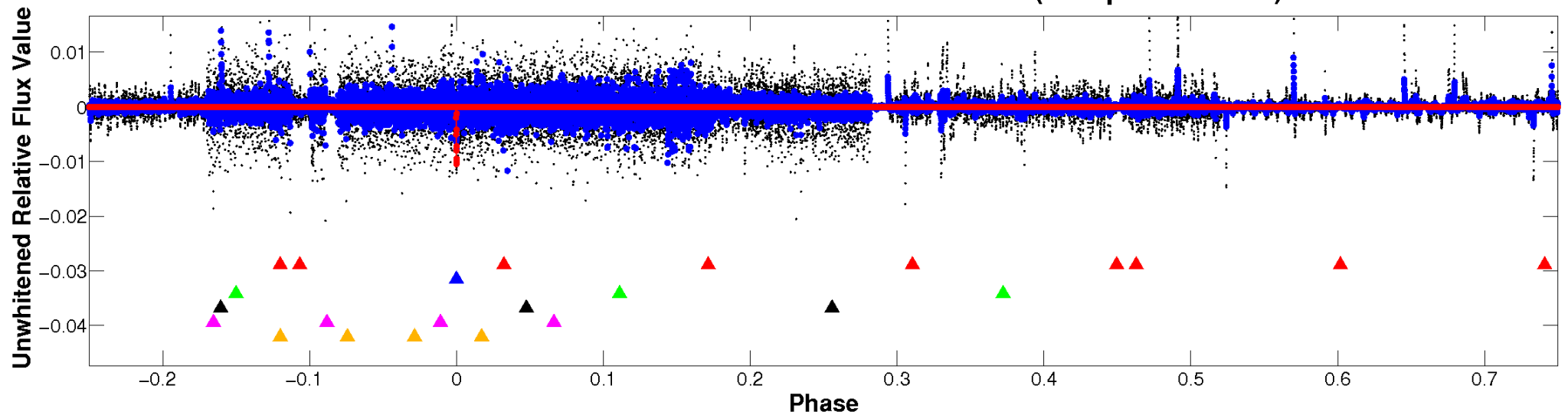
ALT Odd/Even

TCE 007880048-02

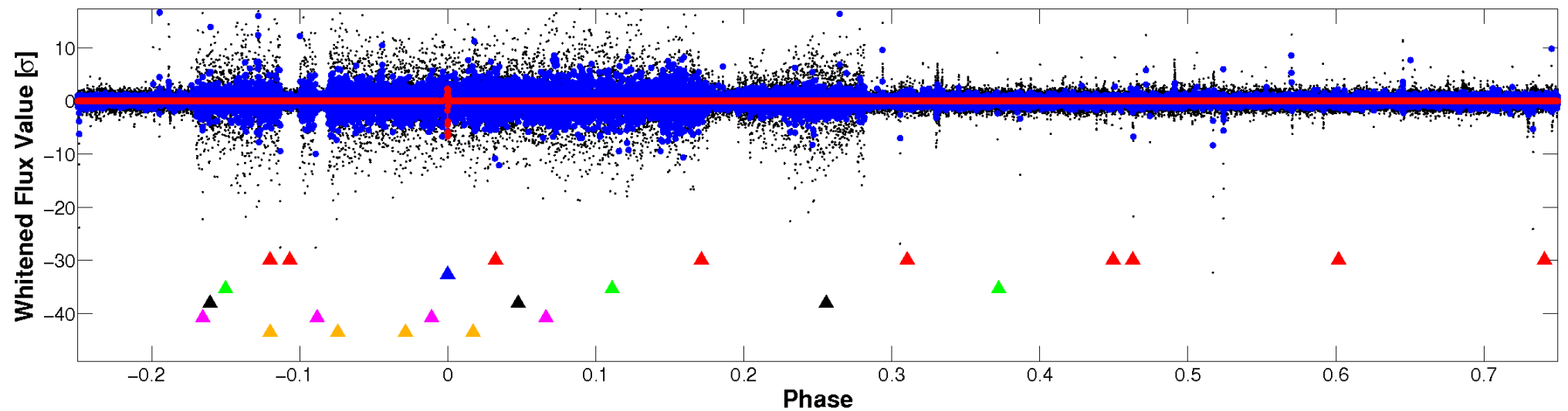


Non-Whitened Vs. Whitened Light Curve

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

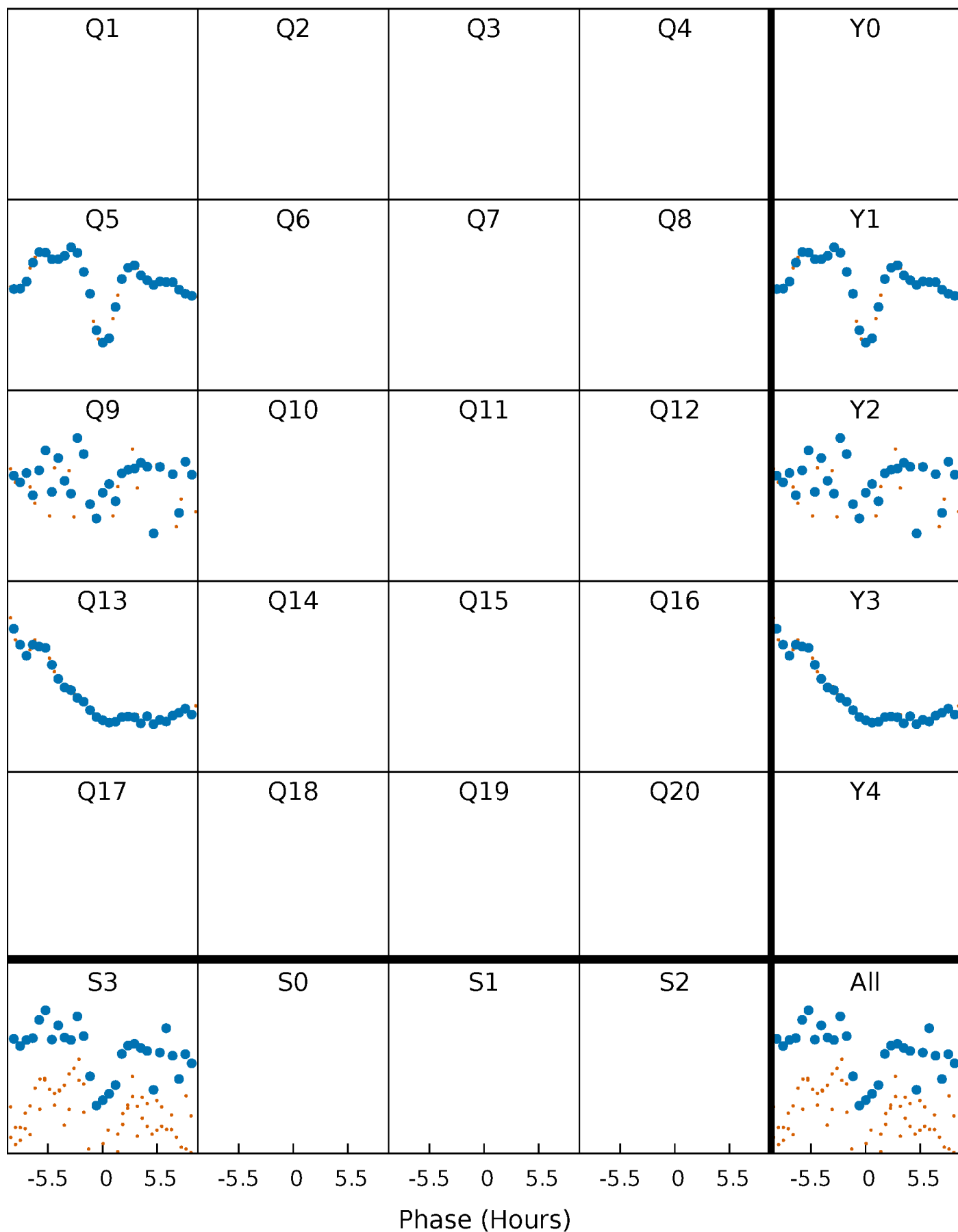


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



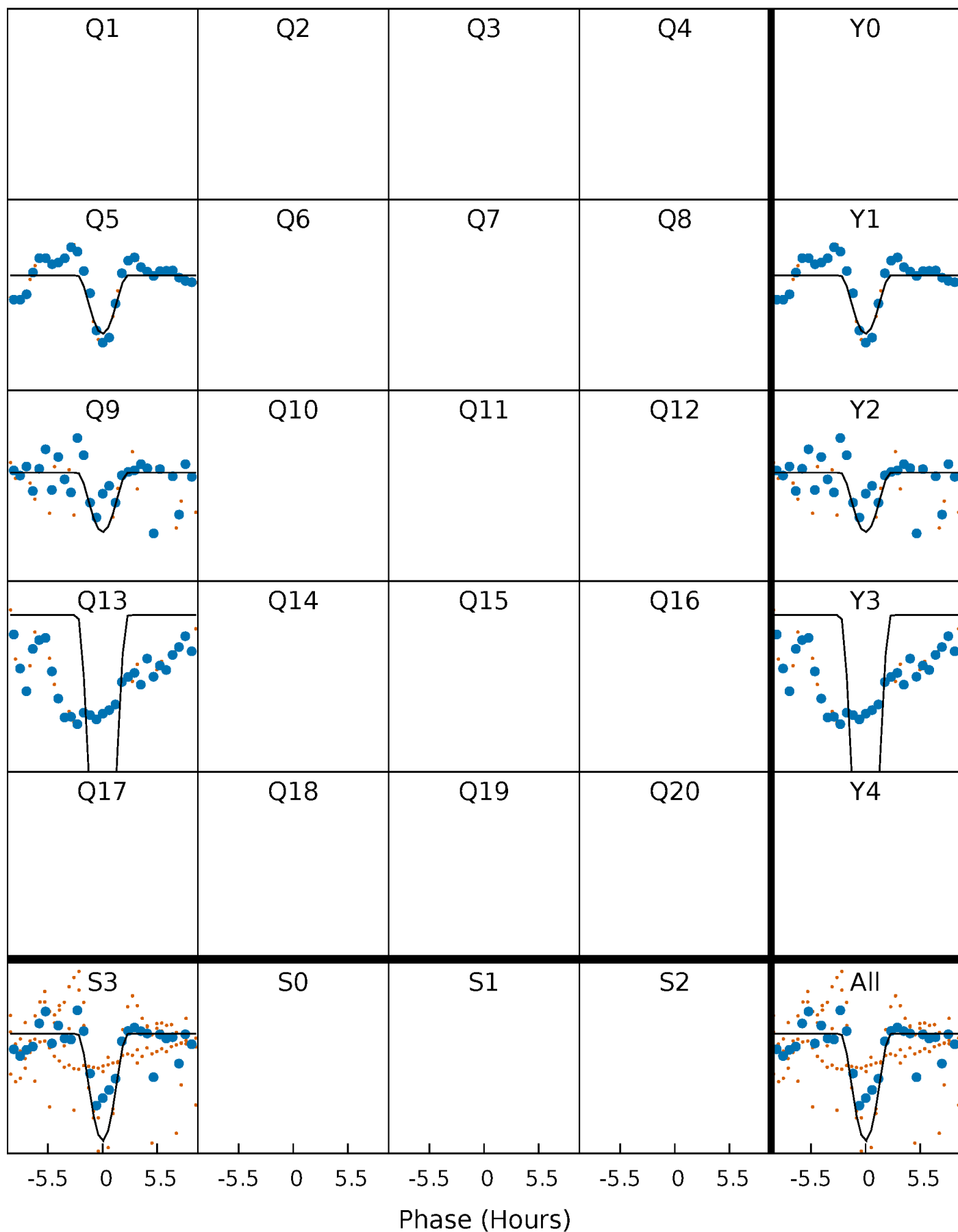
PDC Quarter-Phased Transit Curves

TCE 007880048-02 $P=392.918719$ Days $T_0=447.288252$ (BKJD)



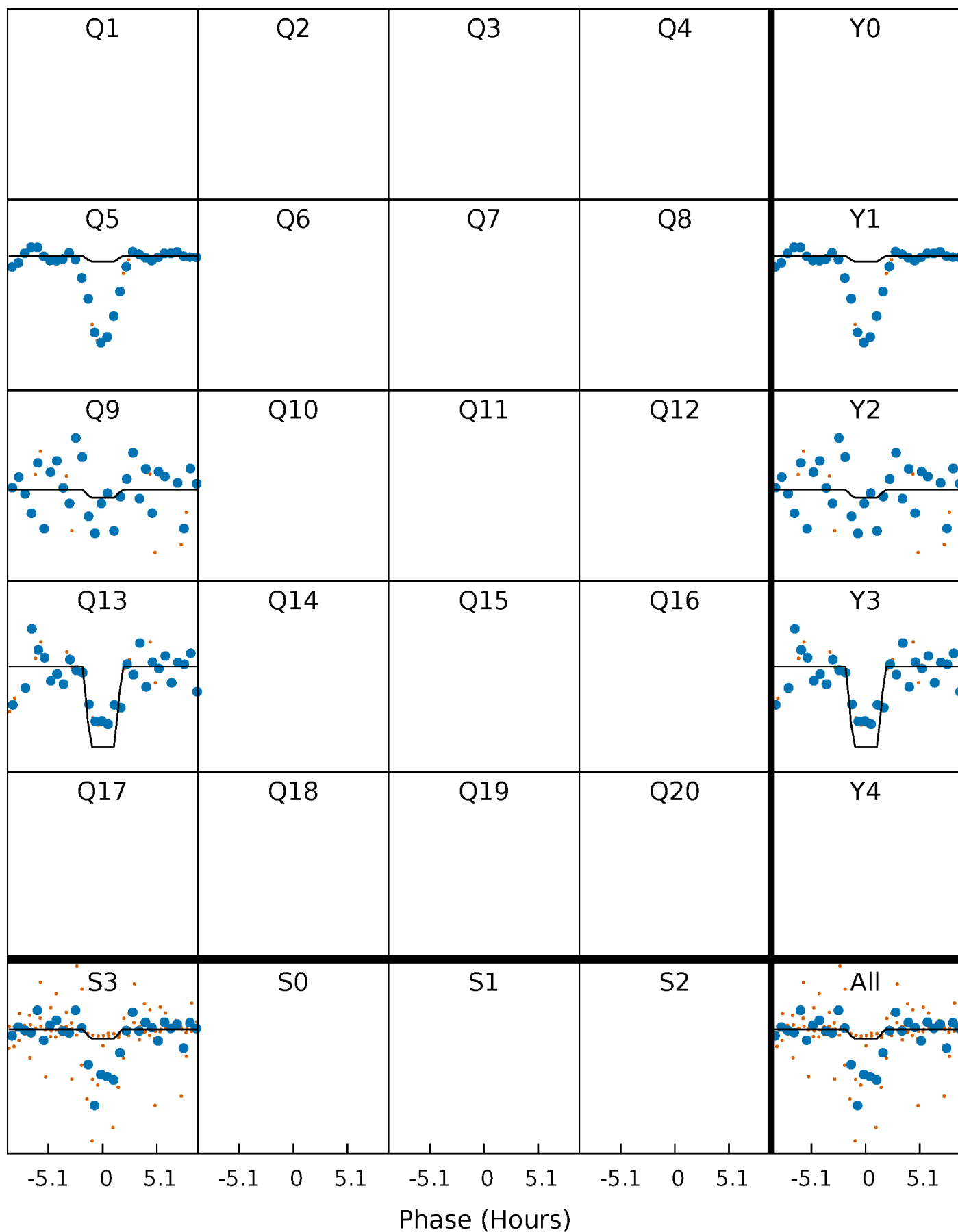
DV Quarter-Phased Transit Curves

TCE 007880048-02 $P=392.918719$ Days $T_0=447.288252$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

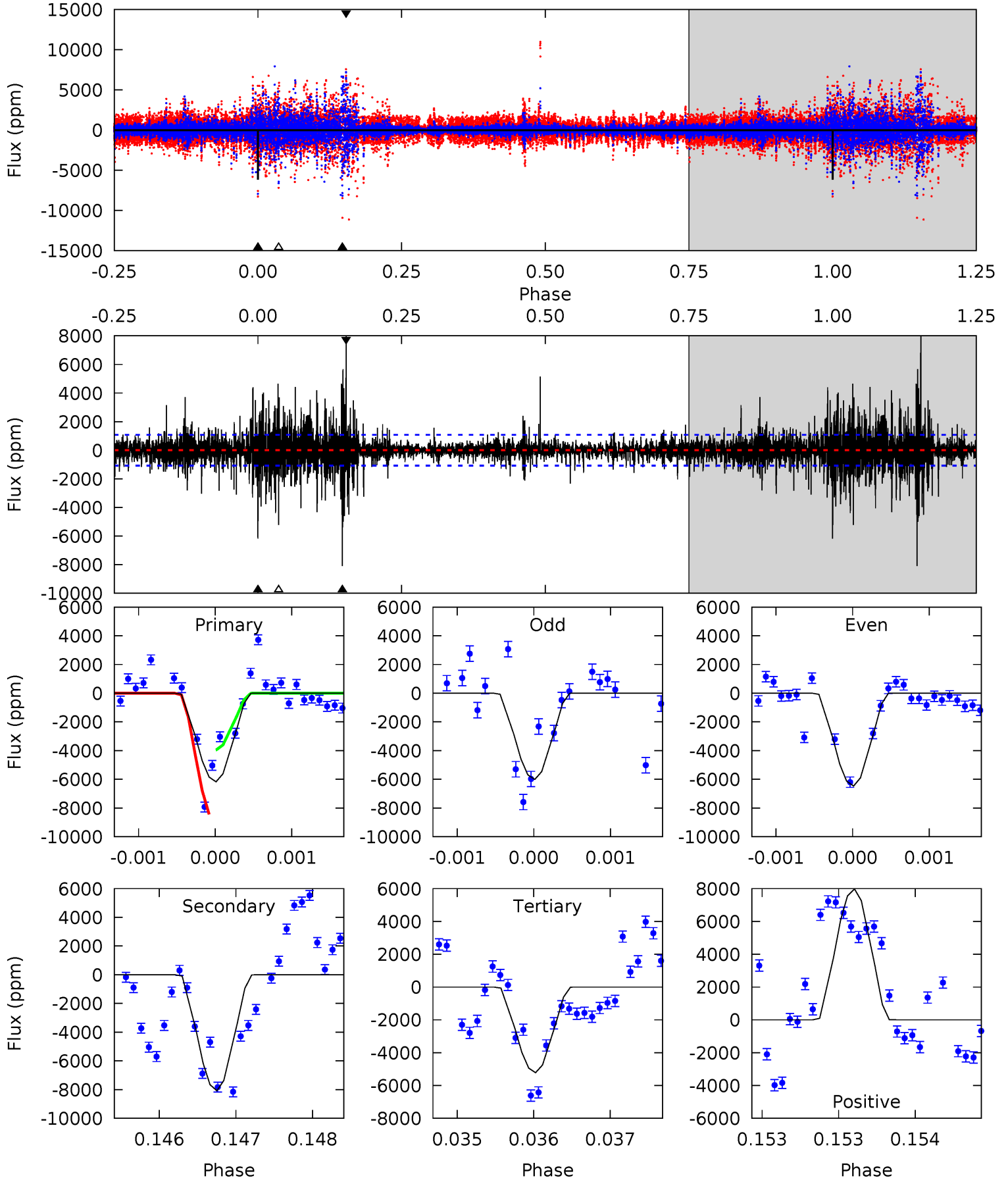
TCE 007880048-02 $P=392.916925$ Days $T_0=447.291111$ (BKJD)



DV Model-Shift Uniqueness Test

007880048-02, P = 392.918719 Days, E = 54.369533 Days

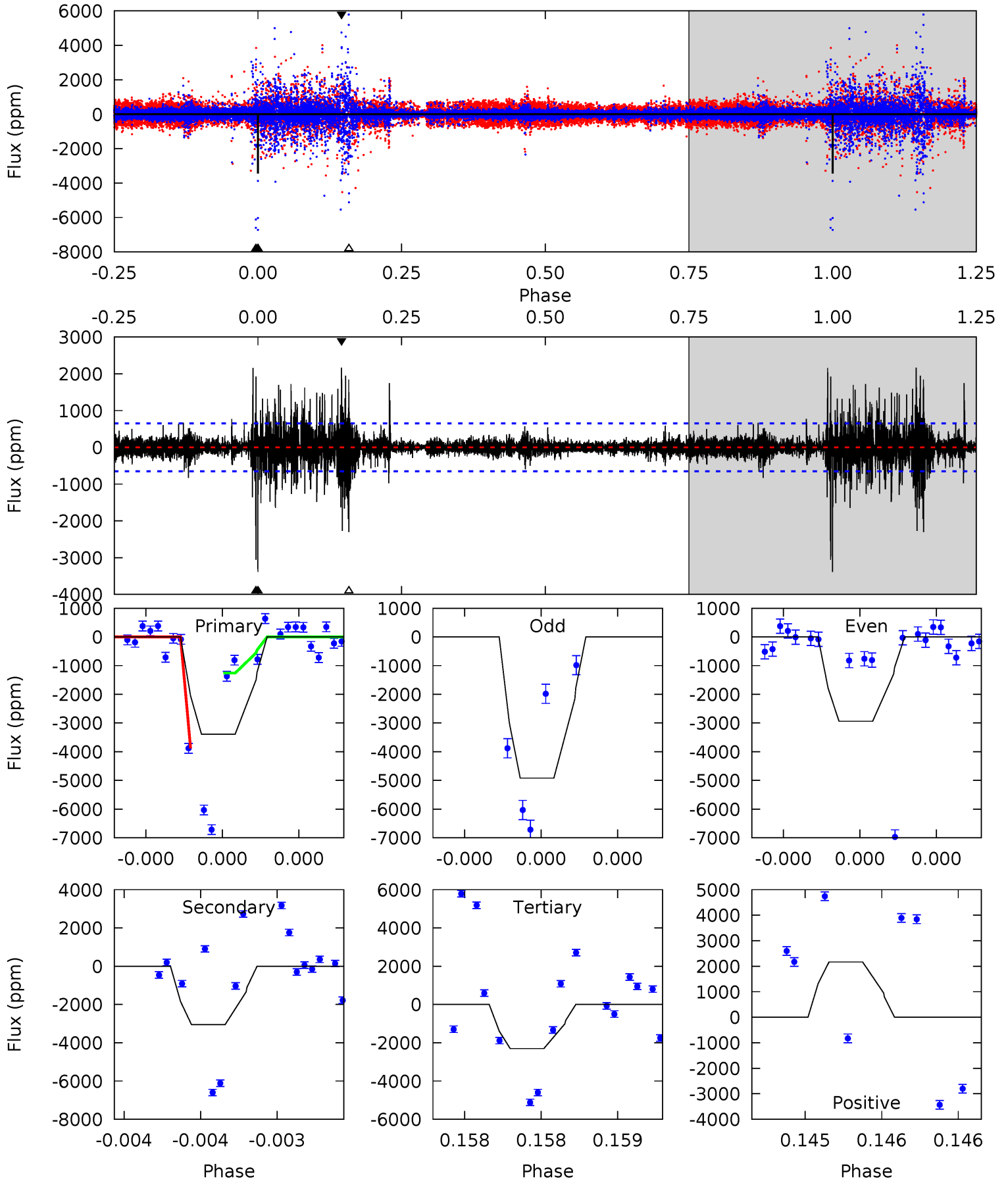
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.8	41.7	26.9	41.2	5.55	3.44	3.11	4.93	-9.33	14.8	0.54	0.62	1.10	0.50	0



Alt Model-Shift Uniqueness Test

007880048-02, P = 392.916925 Days, E = 54.374186 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.3	26.4	19.9	18.7	5.63	3.56	1.51	9.42	10.6	6.50	7.67	3.53	1.54	0.39	0



Stellar Parameters For KIC 007880048

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3464^{+117}_{-94}	$0.576^{+0.250}_{-0.250}$	$0.120^{+0.250}_{-0.250}$	$94.342^{+34.290}_{-22.860}$	$1.223^{+0.301}_{-0.176}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+43%/-43%	+208%/-208%	+36%/-24%	+25%/-14%	+142%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007880048-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-8085 \pm 194	$3292.58^{+3810.39}_{-2184.62}$	1963^{+188}_{-154}	2208^{+1054}_{-4398}	$0.521^{+4.210}_{-0.408}$
Alt.	-3052 \pm 116	$2794.31^{+3110.48}_{-1964.34}$	1953^{+200}_{-162}	-1780^{+4809}_{-486}	$0.272^{+2.962}_{-0.210}$

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

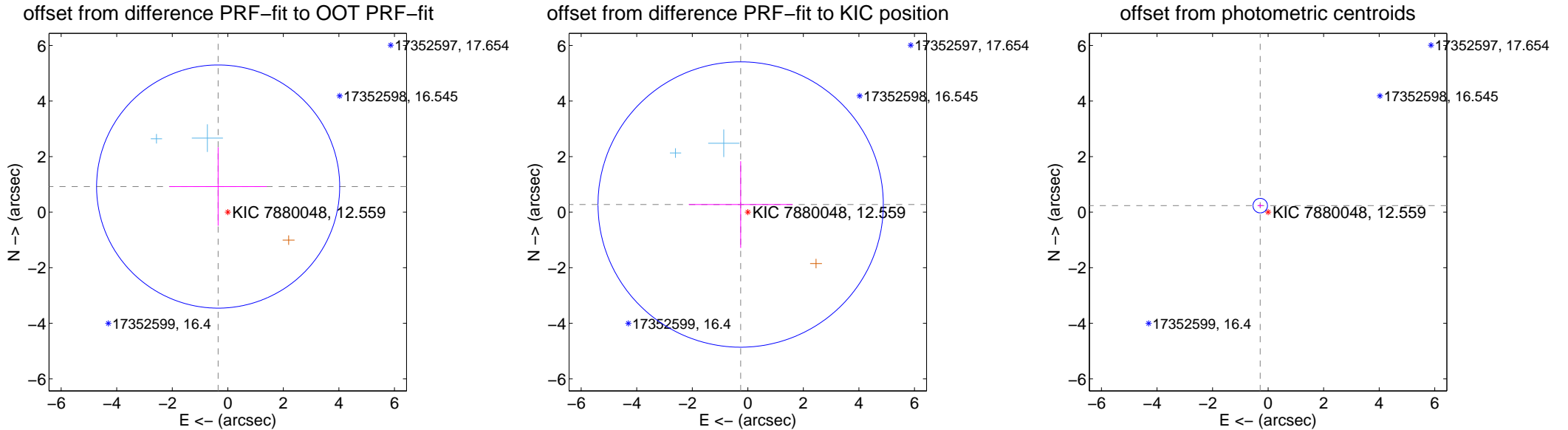
DV Centroid Data

Supplemental centroid analysis for 007880048-02. Kepler magnitude: 12.56. Transit SNR 20.34

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.985 ± 1.458	0.68	0.348 ± 1.754	0.922 ± 1.411
PRF-fit source offset from KIC position	0.377 ± 1.711	0.22	0.258 ± 1.869	0.275 ± 1.560
photometric centroid source offset	0.37 ± 0.09	4.24	0.28 ± 0.10	0.24 ± 0.06

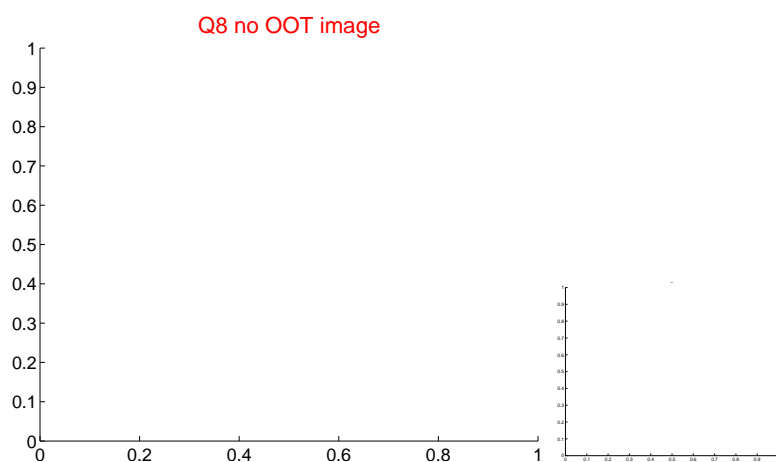
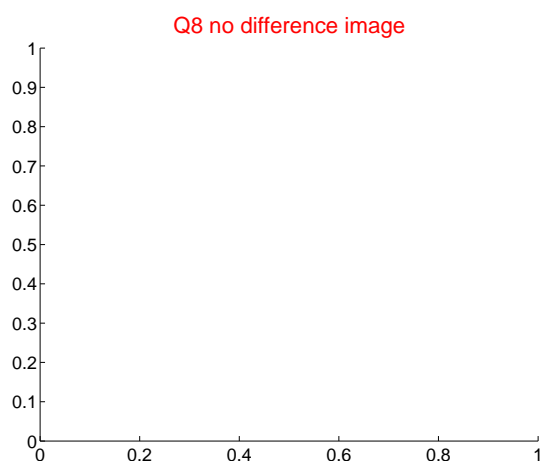
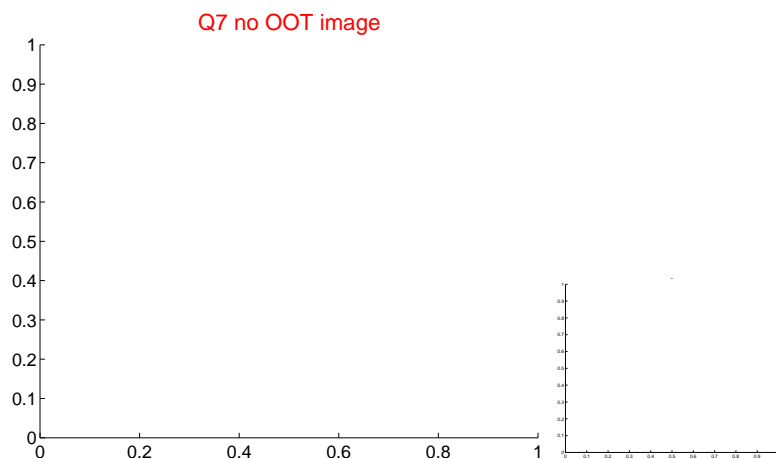
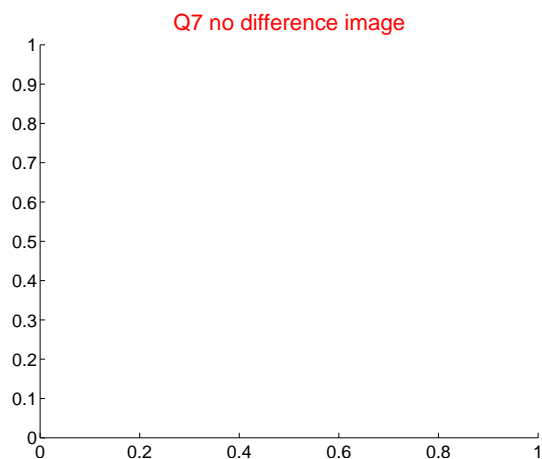
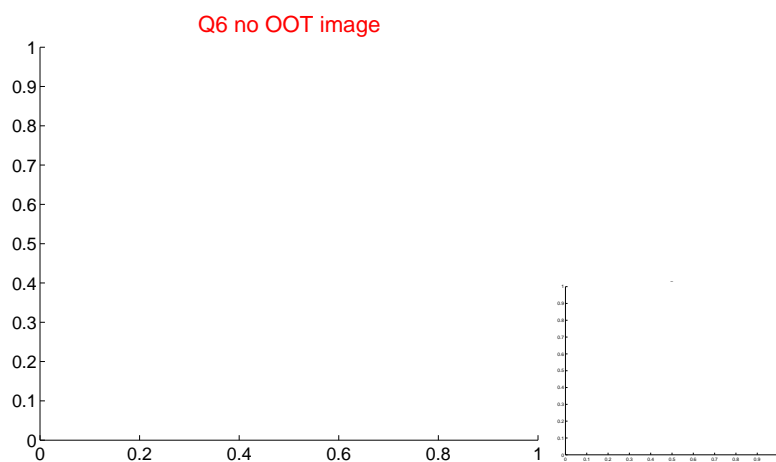
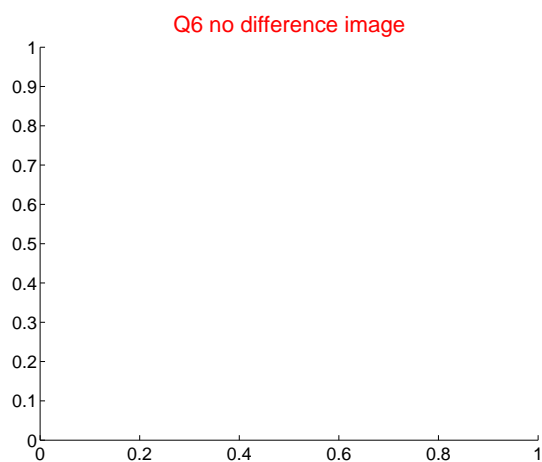
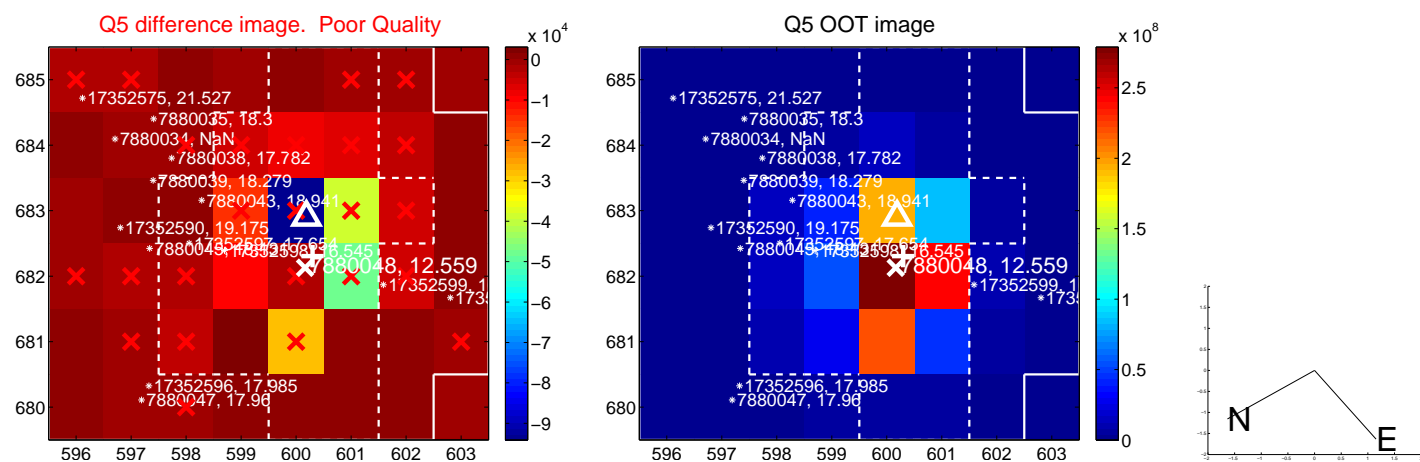


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

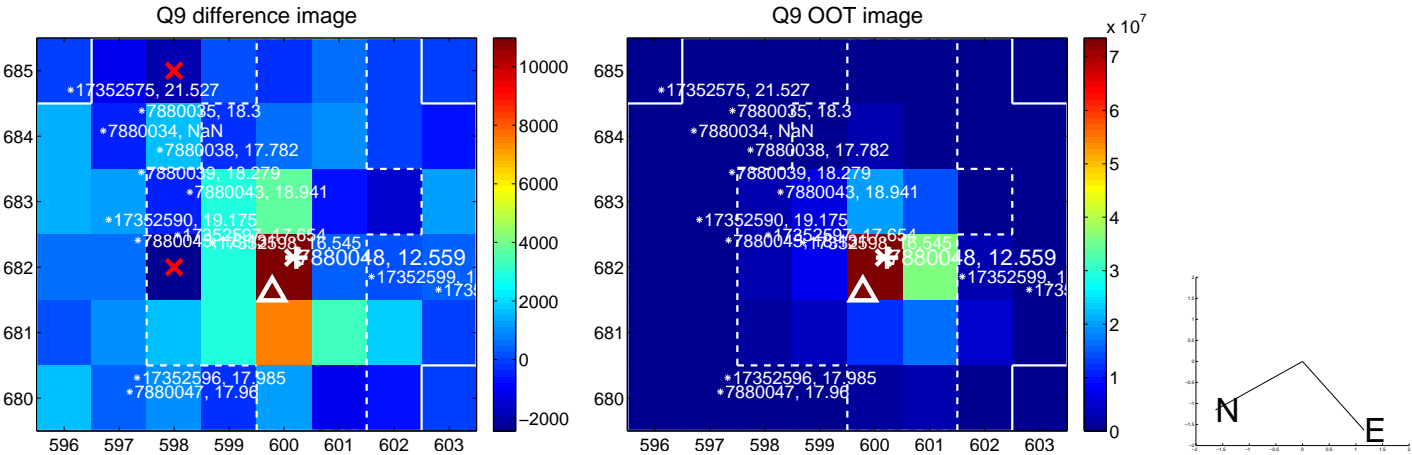
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



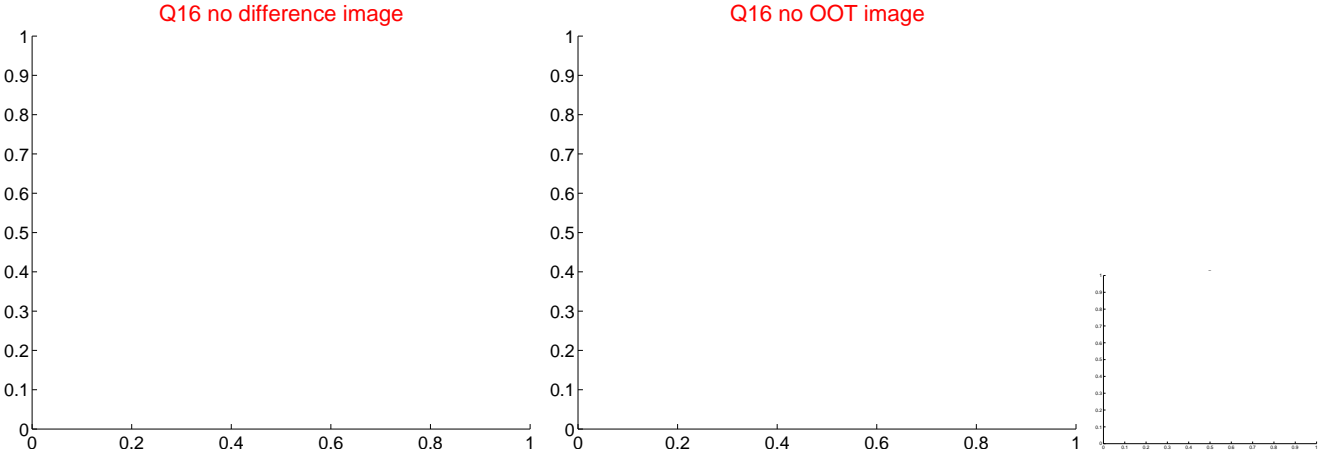
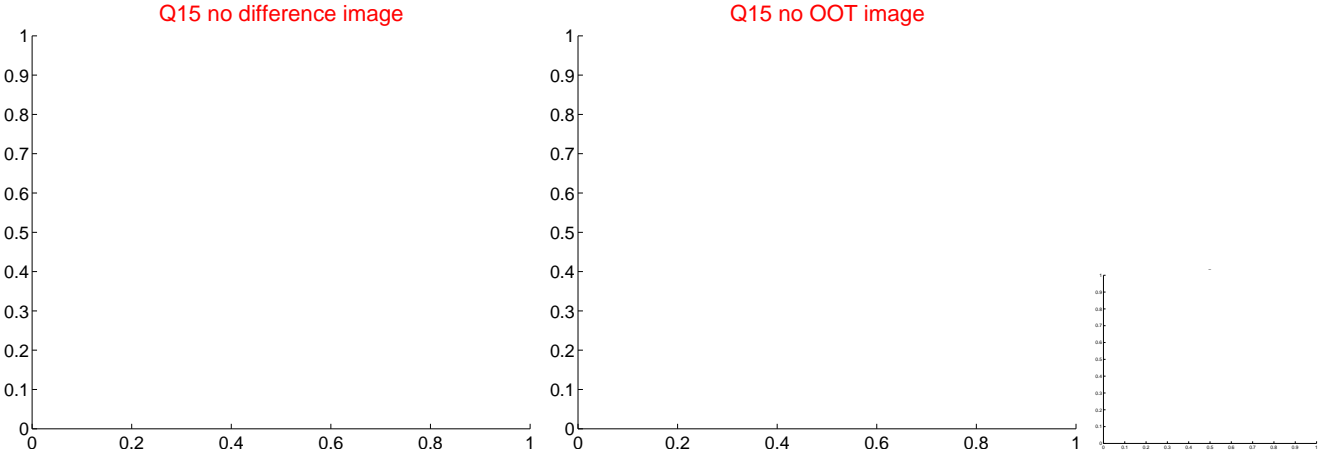
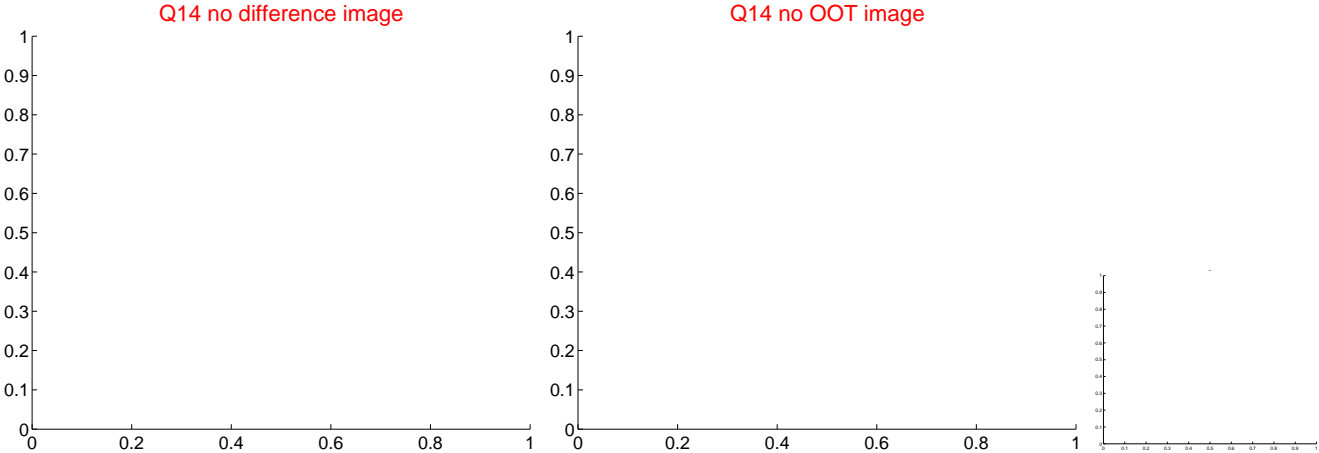
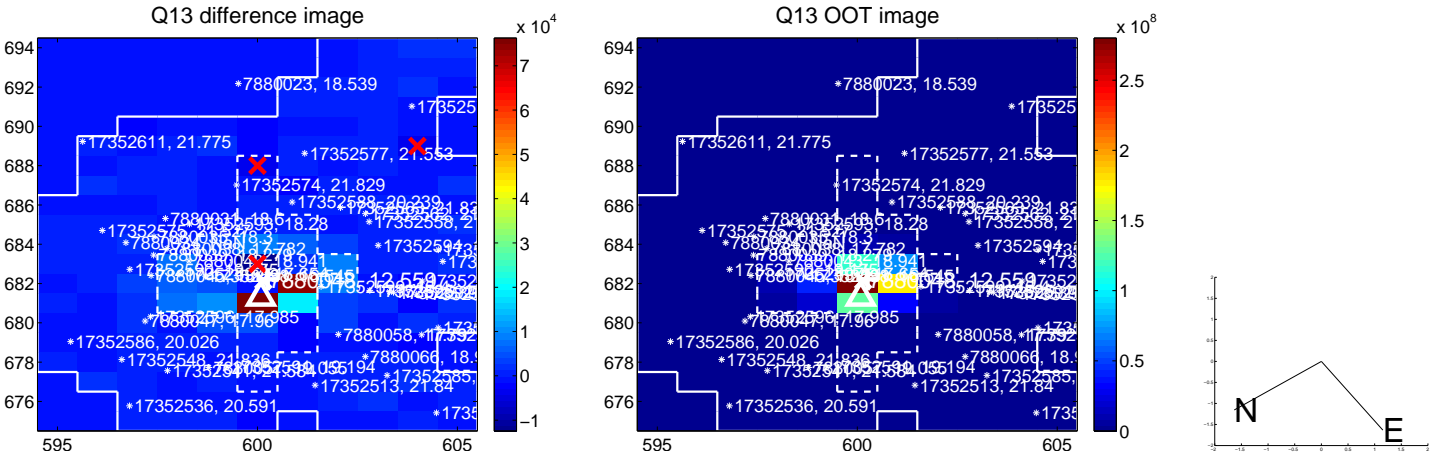
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



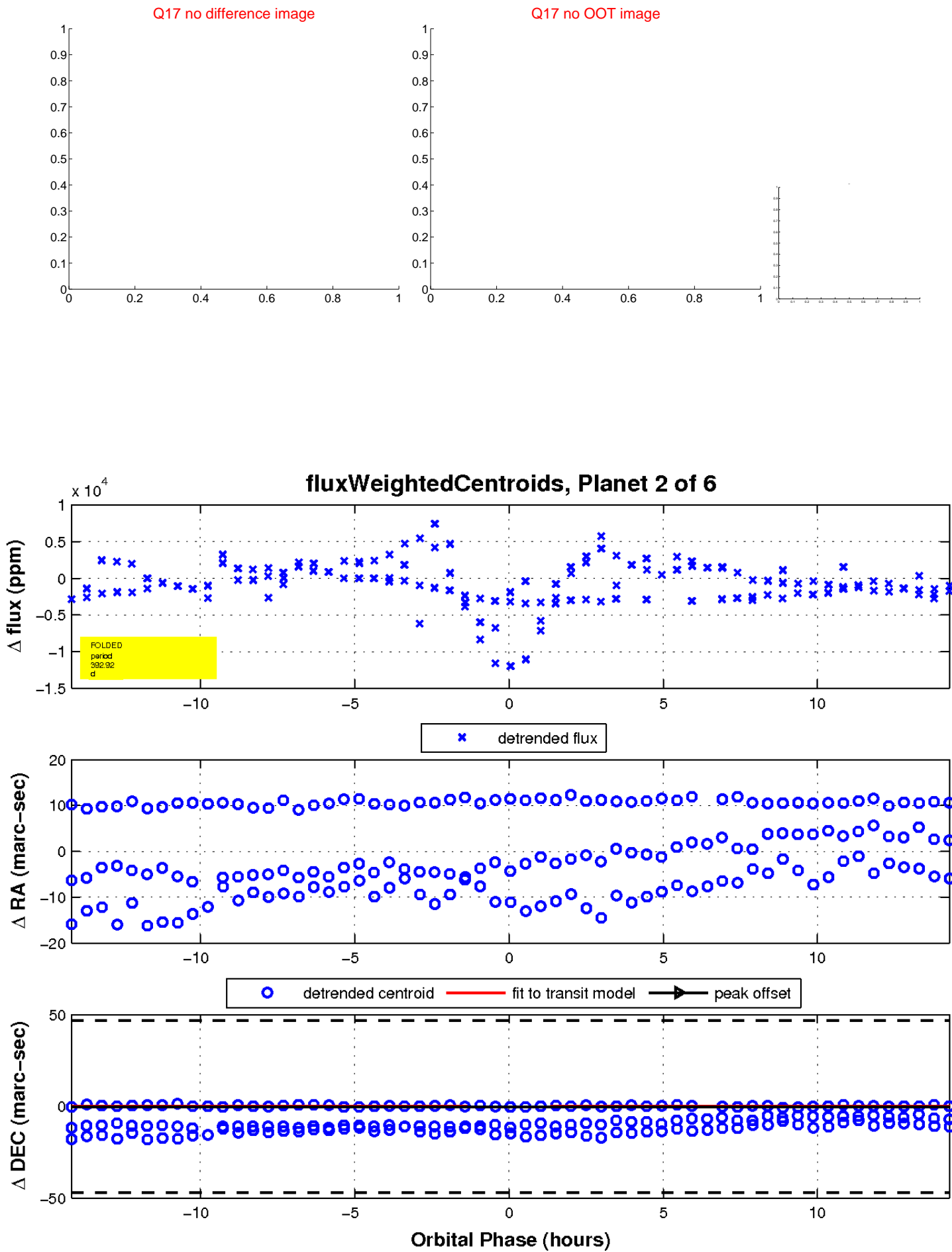
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

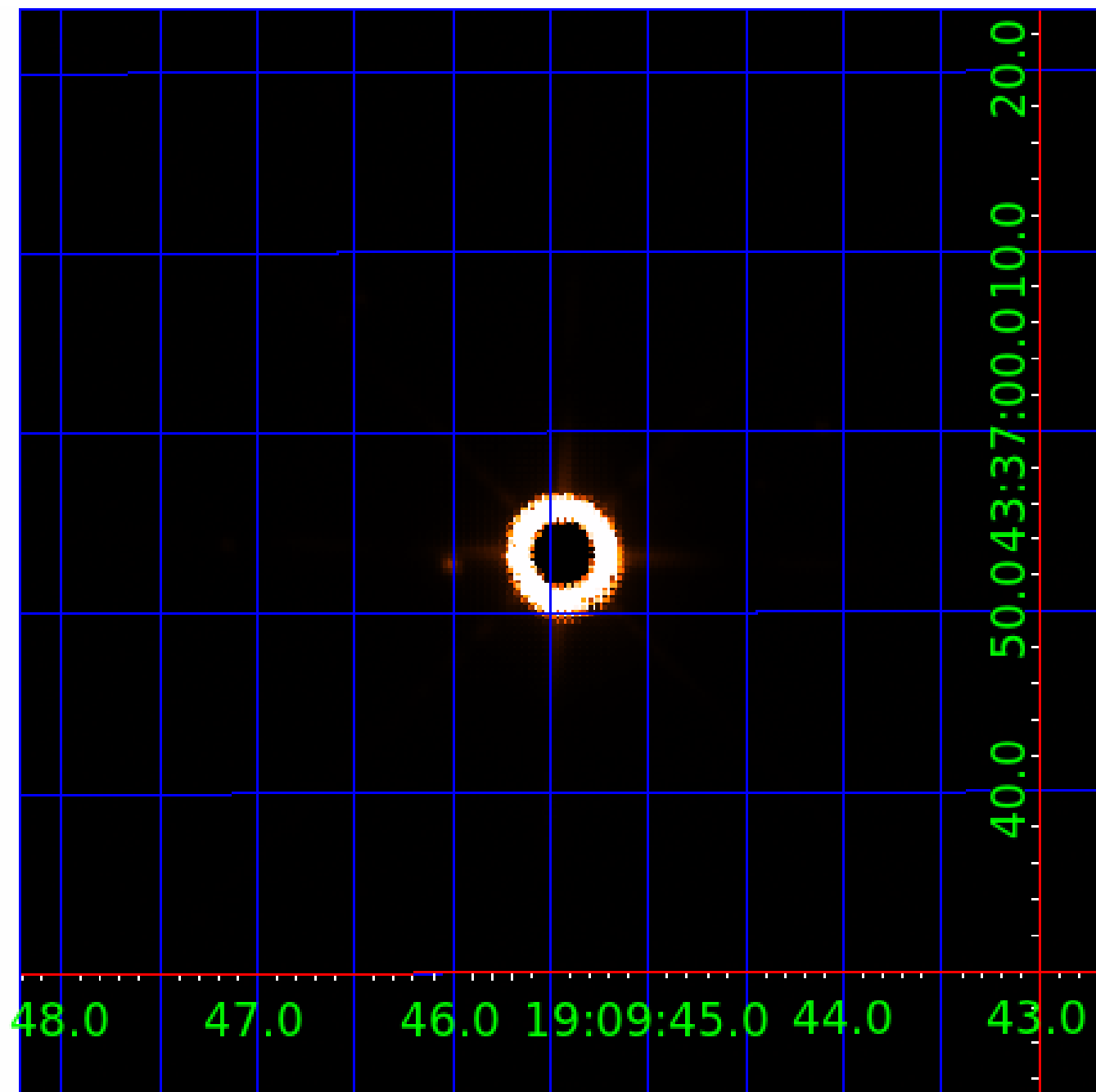


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007880048

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})
007880048-01	OBS	No	169.140147	230.993971	1304.6	24.366	24.9	34.1	94.34	3464	312.01	2801.22
007880048-02	OBS	No	392.918719	447.288252	10468.9	4.796	24.2	20.3	94.34	3464	1772.11	910.48
007880048-03	OBS	No	683.223323	200.624105	148.4	15.000	21.6	-1.0	94.34	3464	105.51	435.44
007880048-04	OBS	No	704.059000	154.855511	4534.4	6.383	18.2	14.9	94.34	3464	603.45	418.34
007880048-05	OBS	No	362.555526	473.372824	6259.8	4.974	25.4	15.1	94.34	3464	1509.90	1013.54
007880048-06	OBS	No	374.962637	454.034305	241.1	3.500	20.3	-1.0	94.34	3464	134.68	969.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007880048-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007880048-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007880048-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_NOFITS

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.

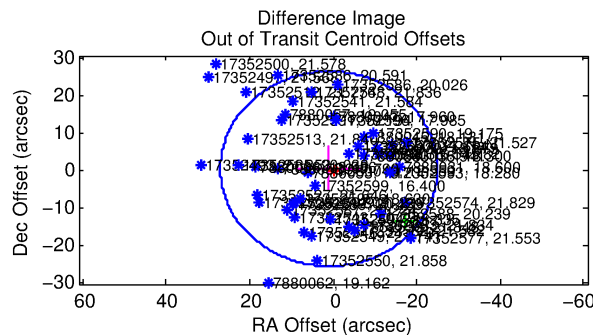
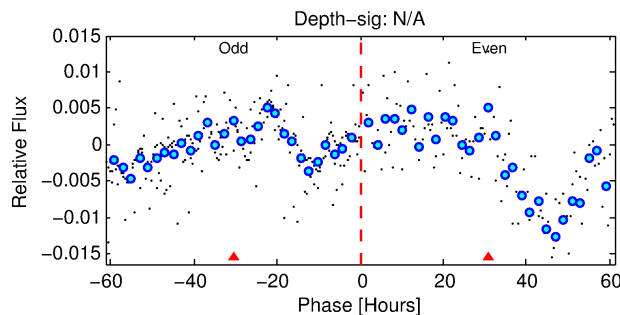
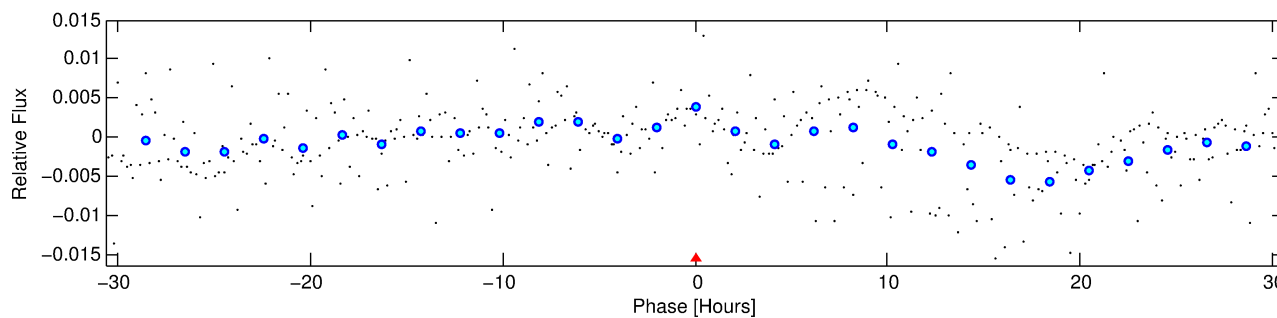
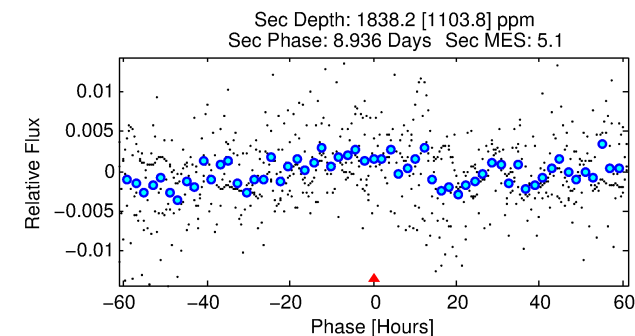
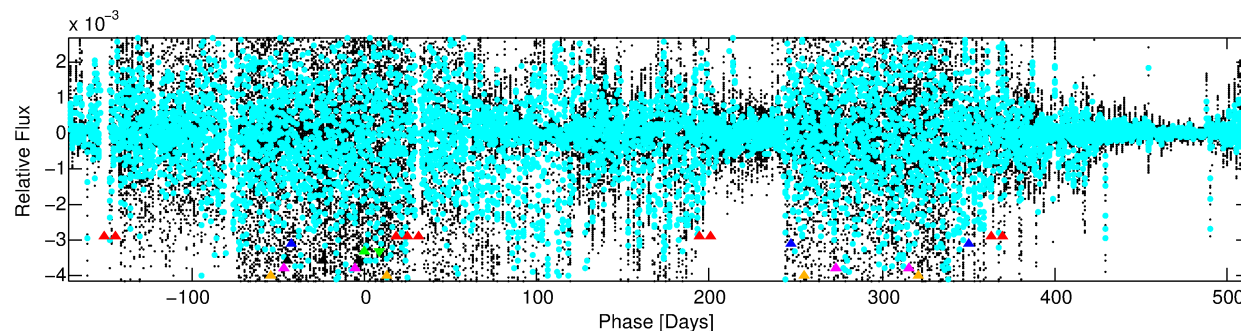
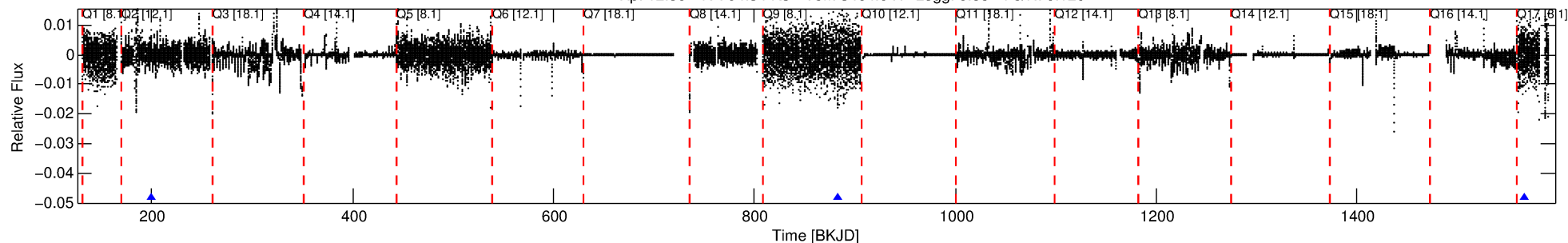
Ephemeris Match Information For 007880048-03

No Significant Match Found

DV One-Page Summary

KIC: 7880048 Candidate: 3 of 6 Period: 683.223 d

Kp: 12.56 R*: 94.34 Rs Teff: 3464.0 K Logg: 0.58 Fe/H: 0.120



TPS TCE Results:

Period = 683.22332 d
Epoch = 200.6241 BKJD

DV fit results are unavailable

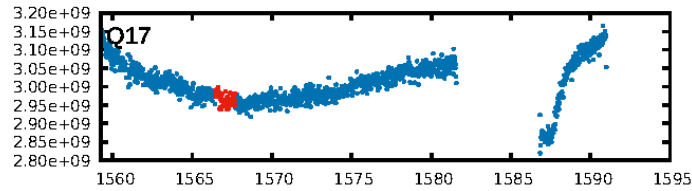
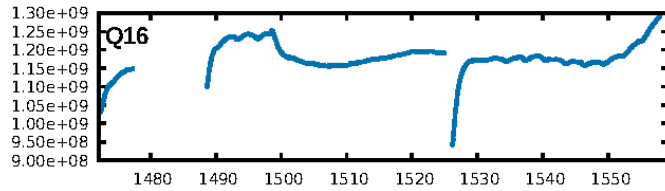
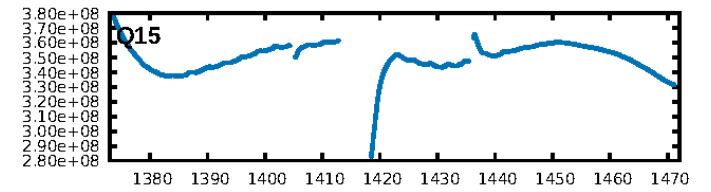
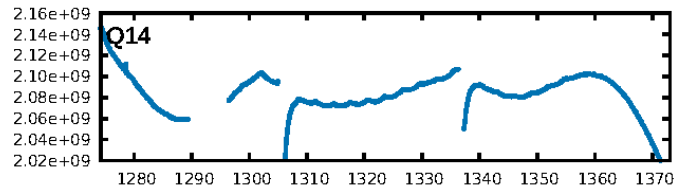
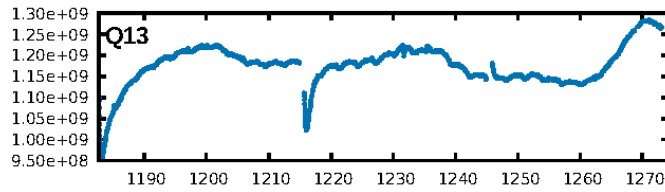
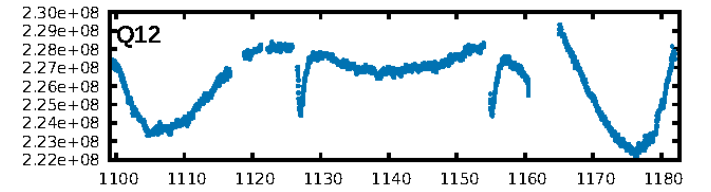
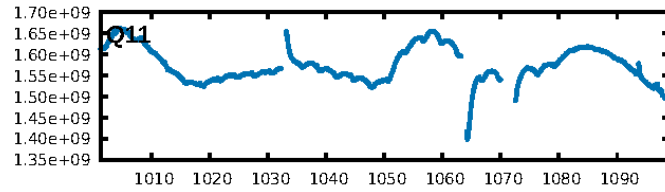
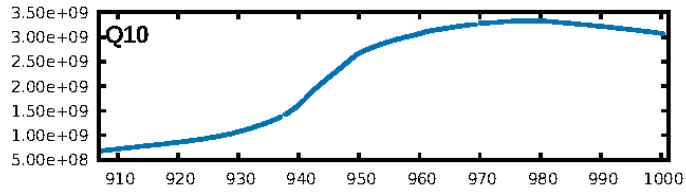
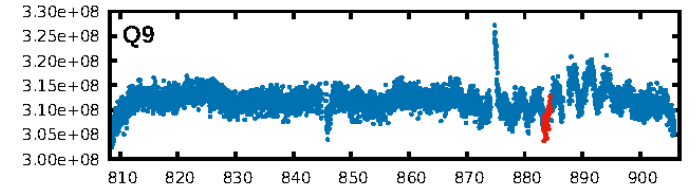
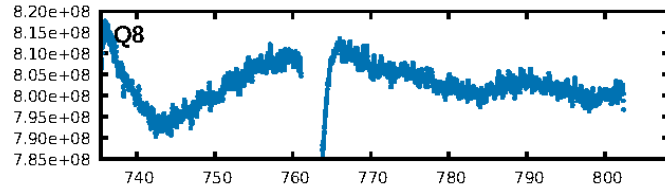
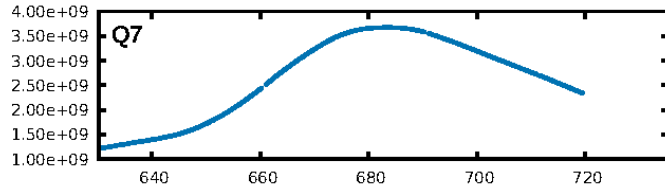
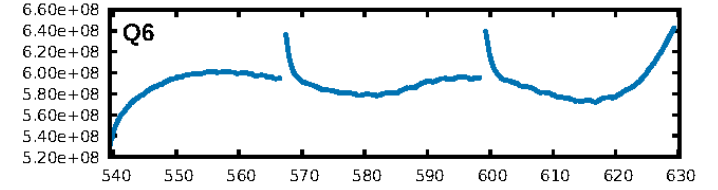
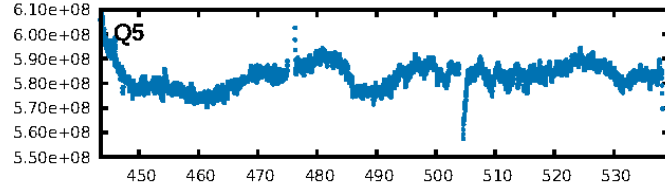
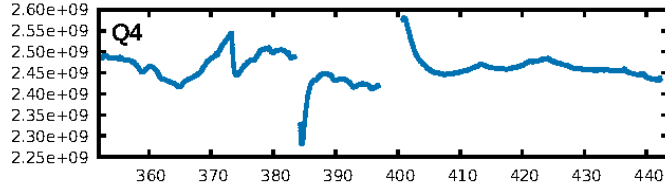
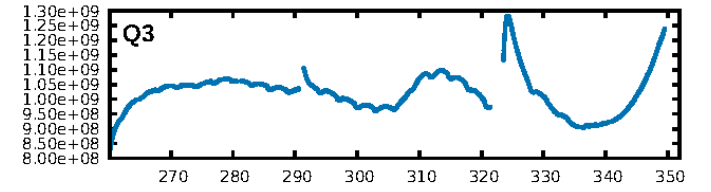
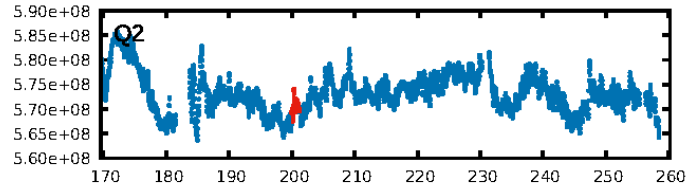
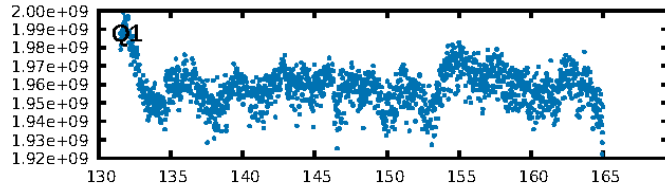
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [442.43σ]
LongPeriod-sig: 100.0% [30.68σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 6.429
Centroid-sig: N/A
Centroid-so: 0.872 arcsec [0.55σ]
OotOffset-rm: 1.061 arcsec [0.12σ]
KicOffset-rm: 1.071 arcsec [0.20σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
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DiffImageOverlap-fno: 1.00 [2/2]

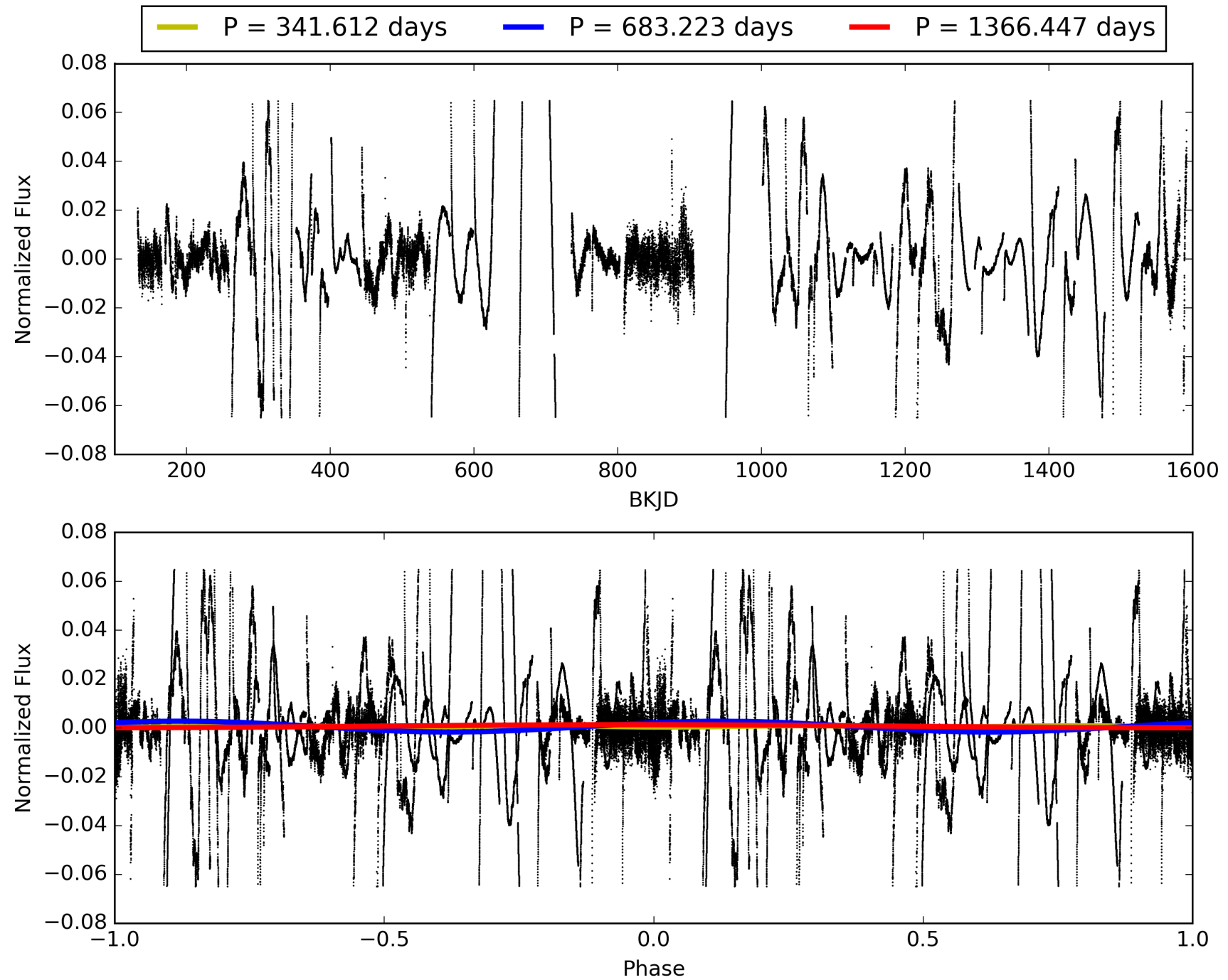
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:04:00 Z

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

TCE 007880048-03, PDC Light Curves

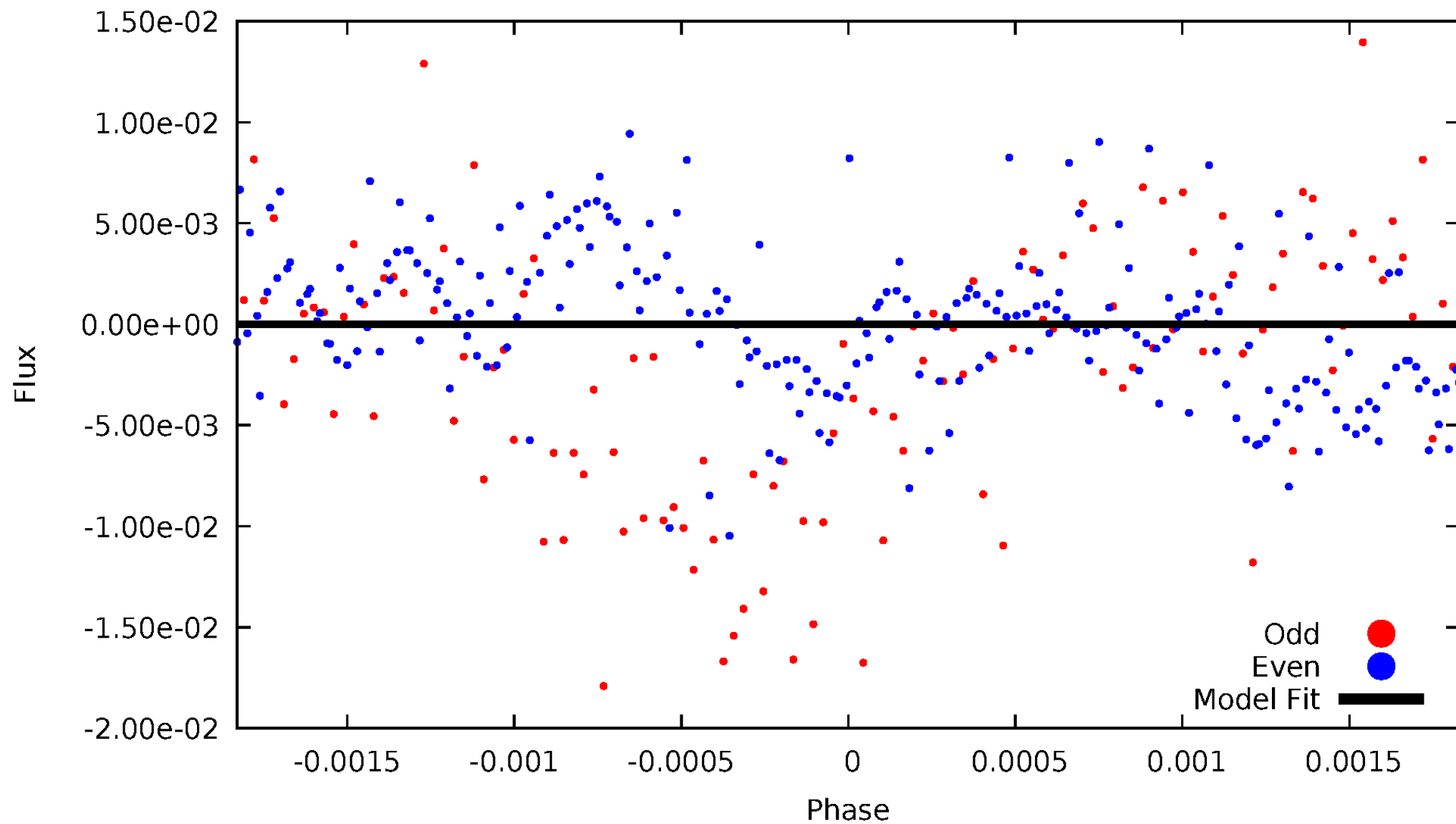


TCE 007880048-03



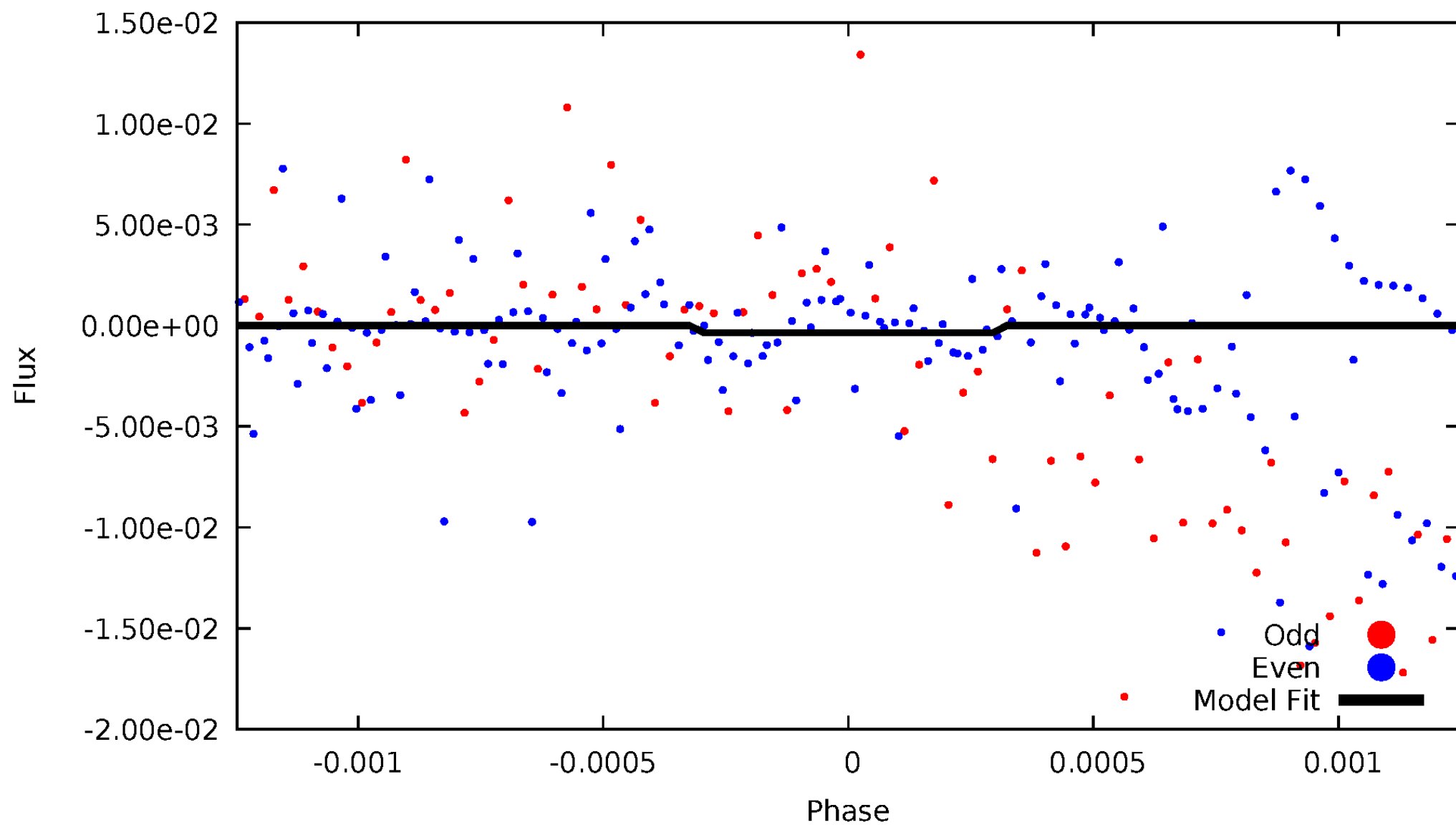
DV Odd/Even

TCE 007880048-03



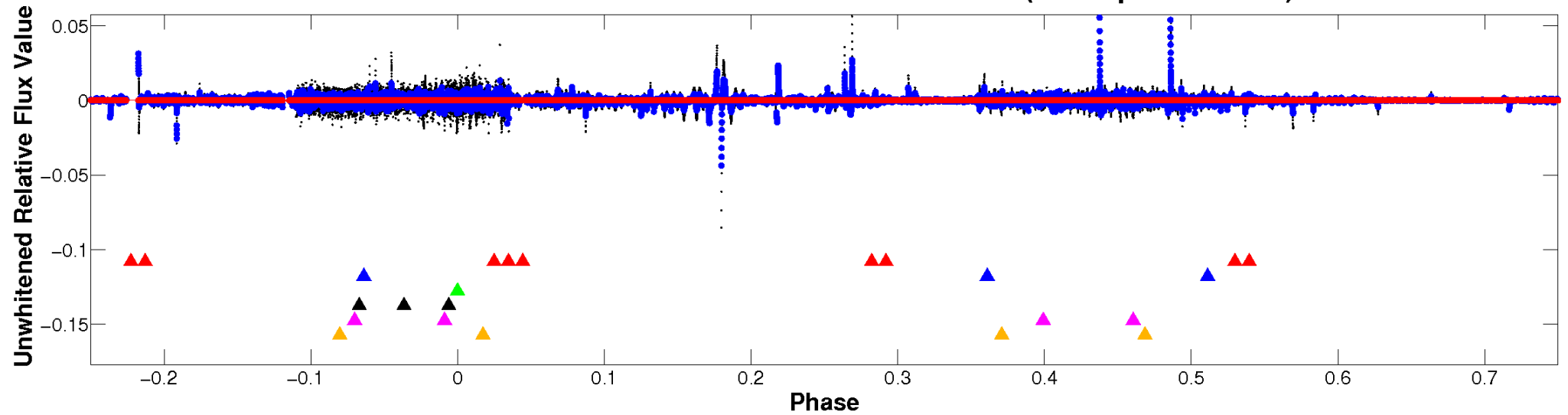
ALT Odd/Even

TCE 007880048-03

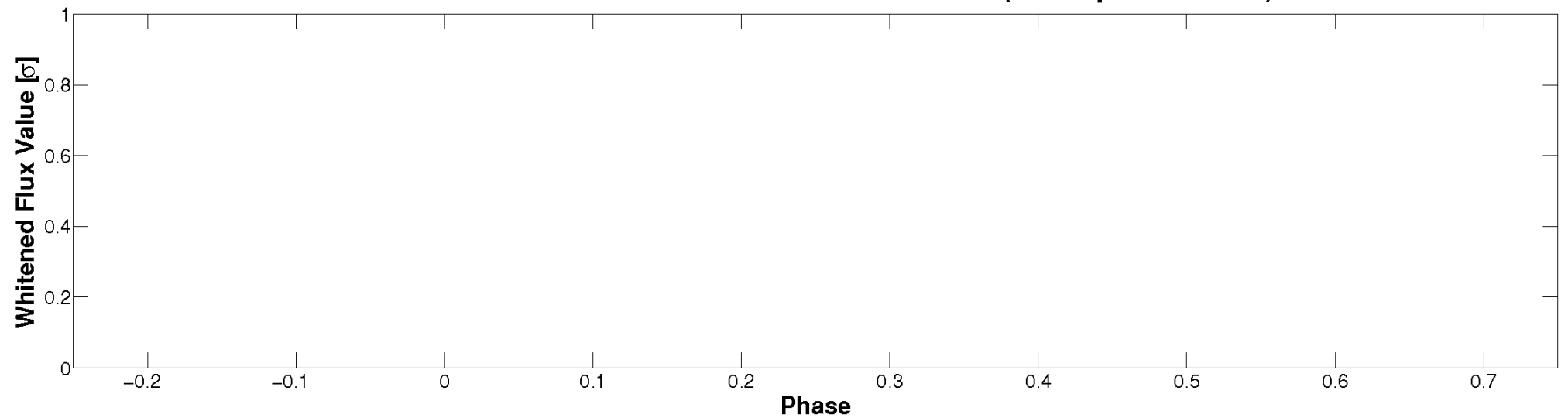


Non-Whitened Vs. Whitened Light Curve

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

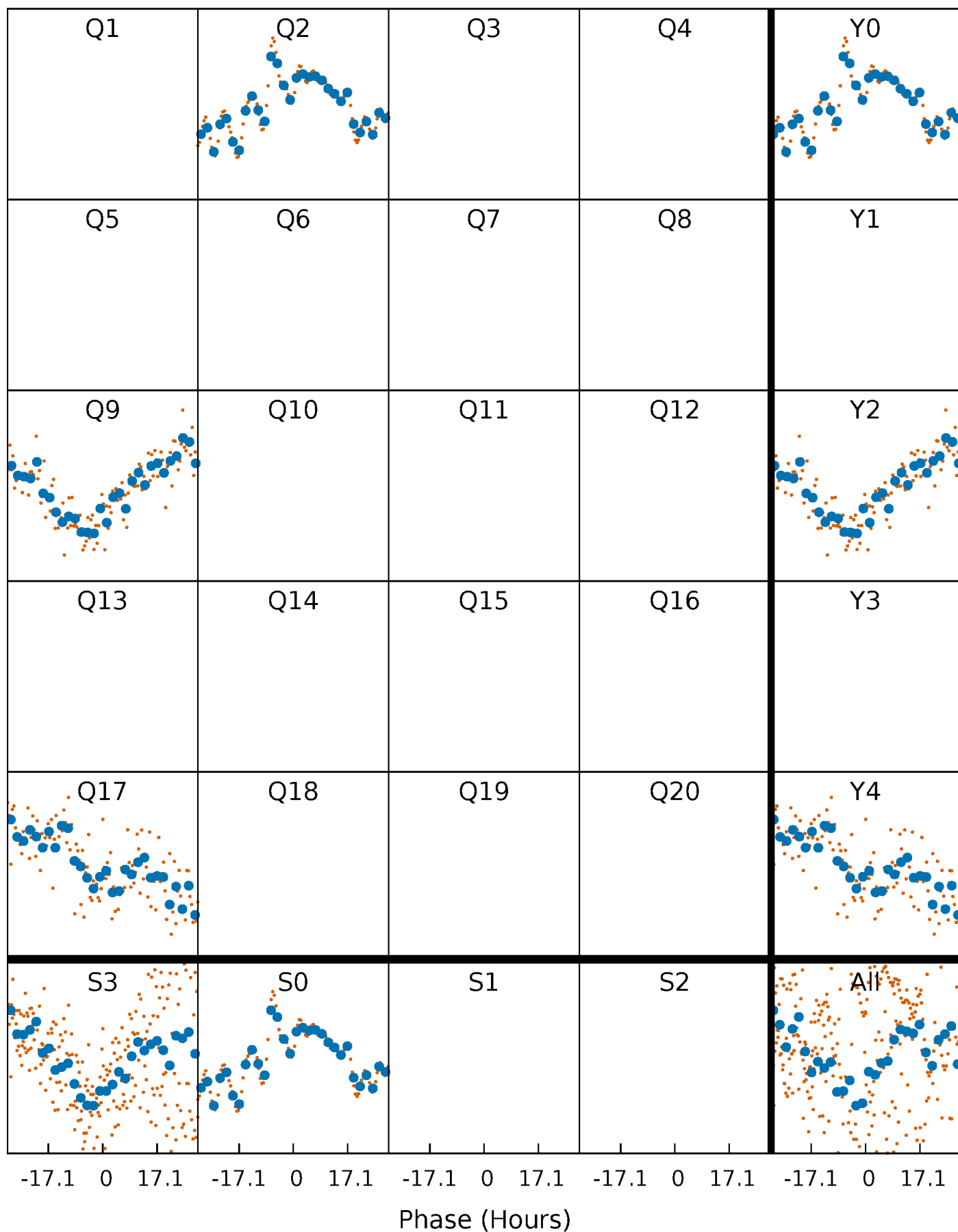


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007880048-03 $P=683.223323$ Days $T_0=200.624105$ (BKJD)



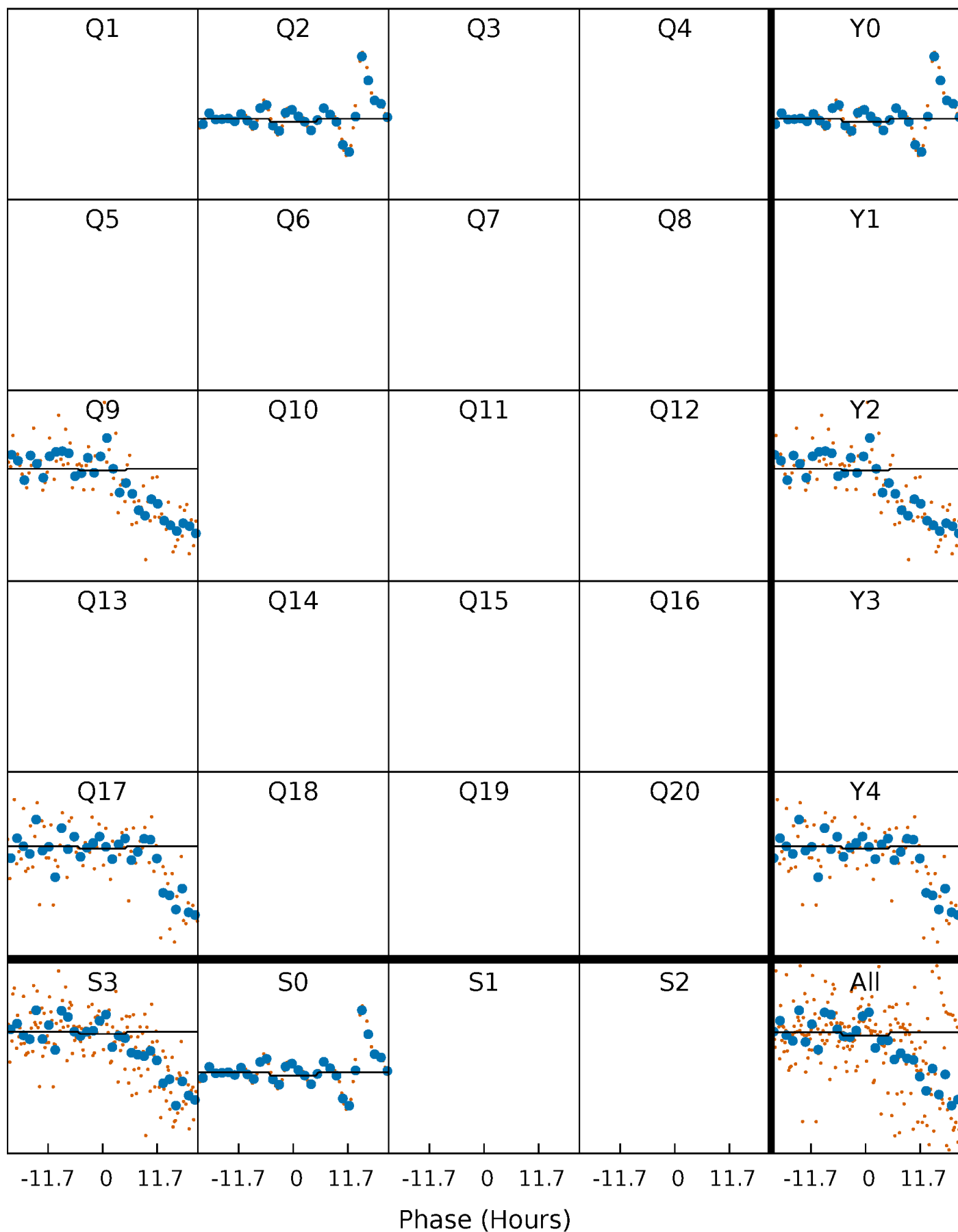
DV Quarter-Phased Transit Curves

TCE 007880048-03 $P=683.223323$ Days $T_0=200.624105$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

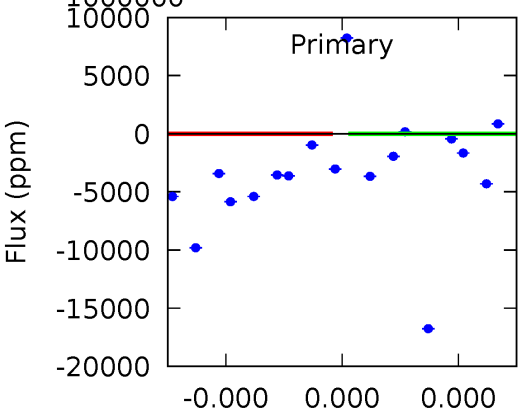
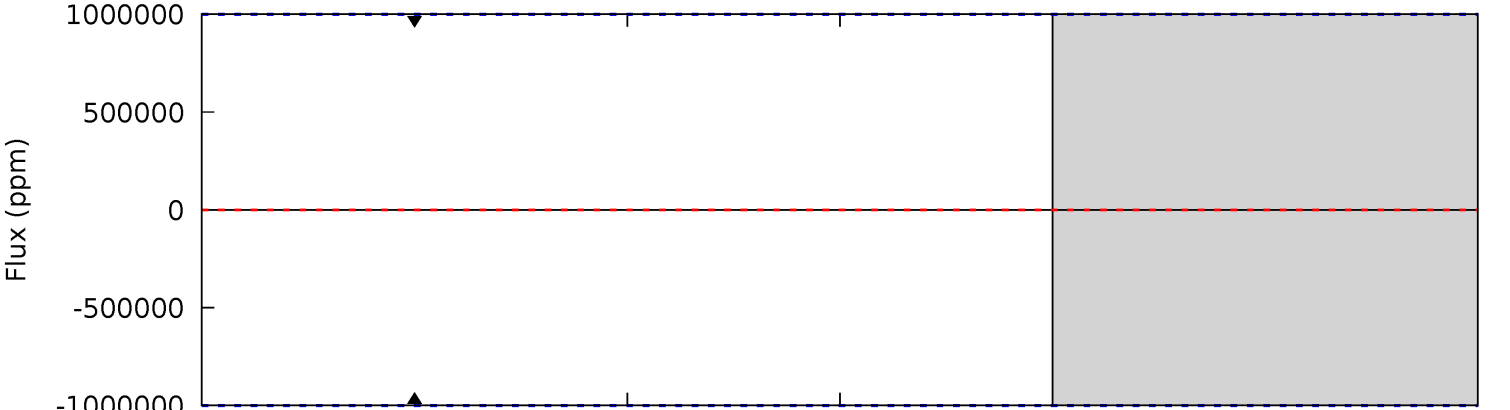
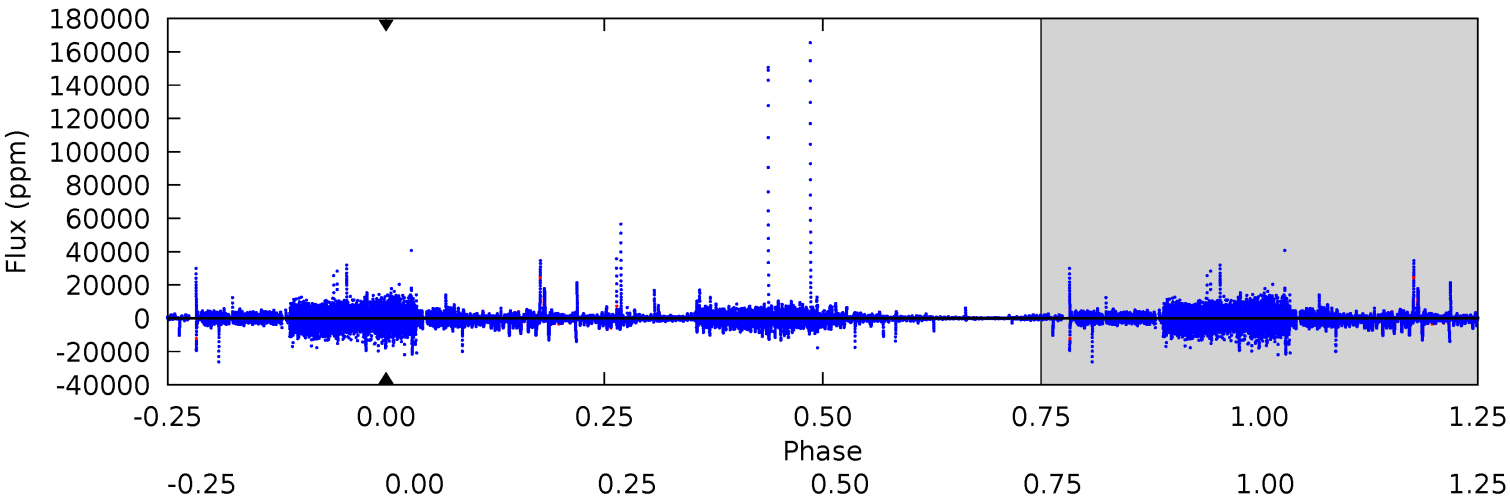
TCE 007880048-03 P=683.223323 Days $T_0=199.738695$ (BKJD)



DV Model-Shift Uniqueness Test

007880048-03, P = 683.223323 Days, E = 200.624105 Days

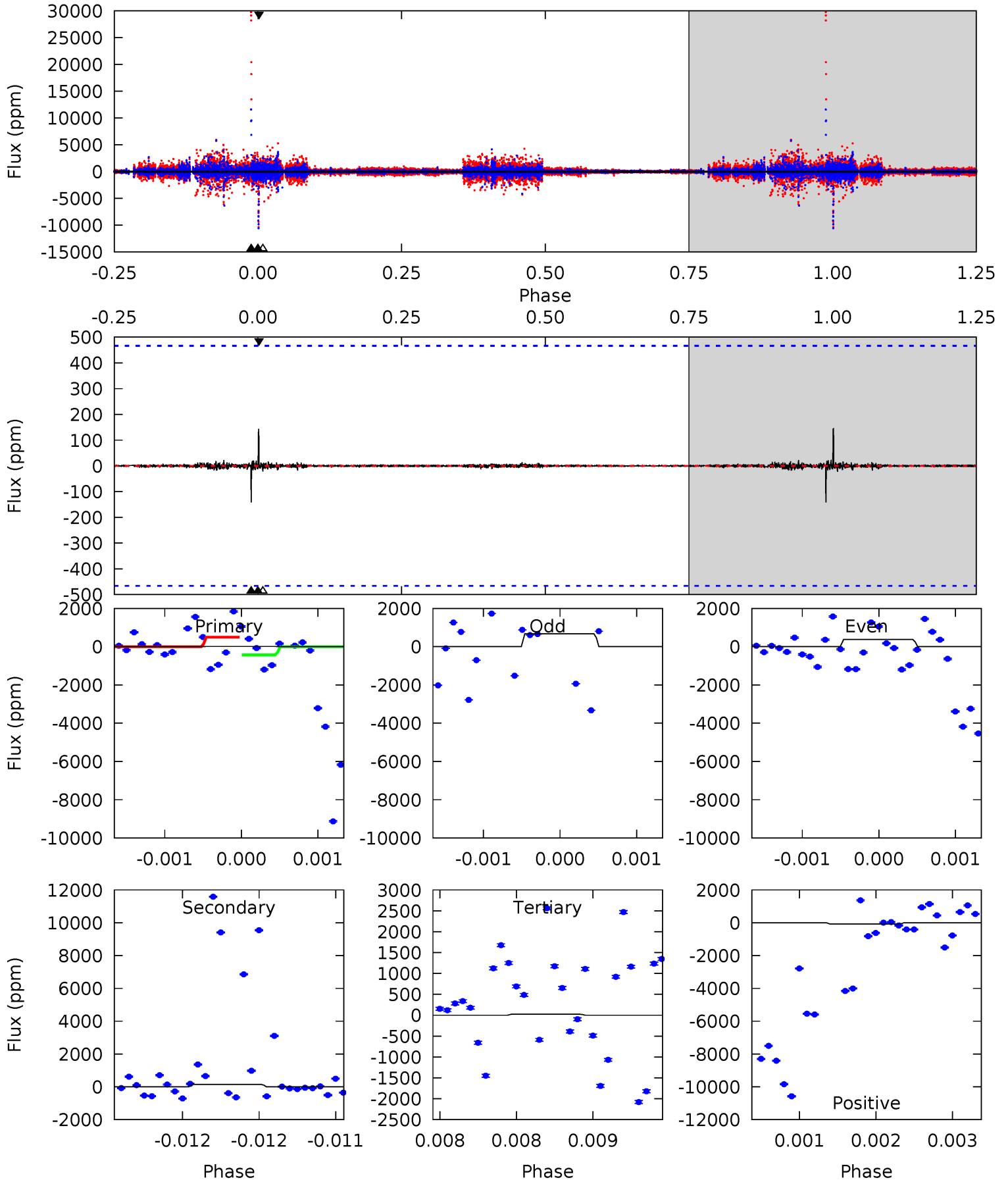
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007880048-03, P = 683.223323 Days, E = 199.738695 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.15	1.68	0.26	0.94	5.53	3.41	0.04	-0.12	-0.79	1.41	0.74	0.96	0.48	0.50	0.38



Stellar Parameters For KIC 007880048

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3464^{+117}_{-94}	$0.576^{+0.250}_{-0.250}$	$0.120^{+0.250}_{-0.250}$	$94.342^{+34.290}_{-22.860}$	$1.223^{+0.301}_{-0.176}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+43%/-43%	+208%/-208%	+36%/-24%	+25%/-14%	+142%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007880048-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$742.39^{+841.89}_{-531.06}$	1635^{+162}_{-134}	3033^{+4658}_{-9947}	$5.901^{+513.723}_{-409.576}$
Alt.	-141 ± 84	$802.95^{+874.15}_{-558.53}$	1640^{+153}_{-149}	-1619^{+4382}_{-494}	$0.275^{+3.284}_{-0.222}$

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 $A_{obs} \gg 1.0$

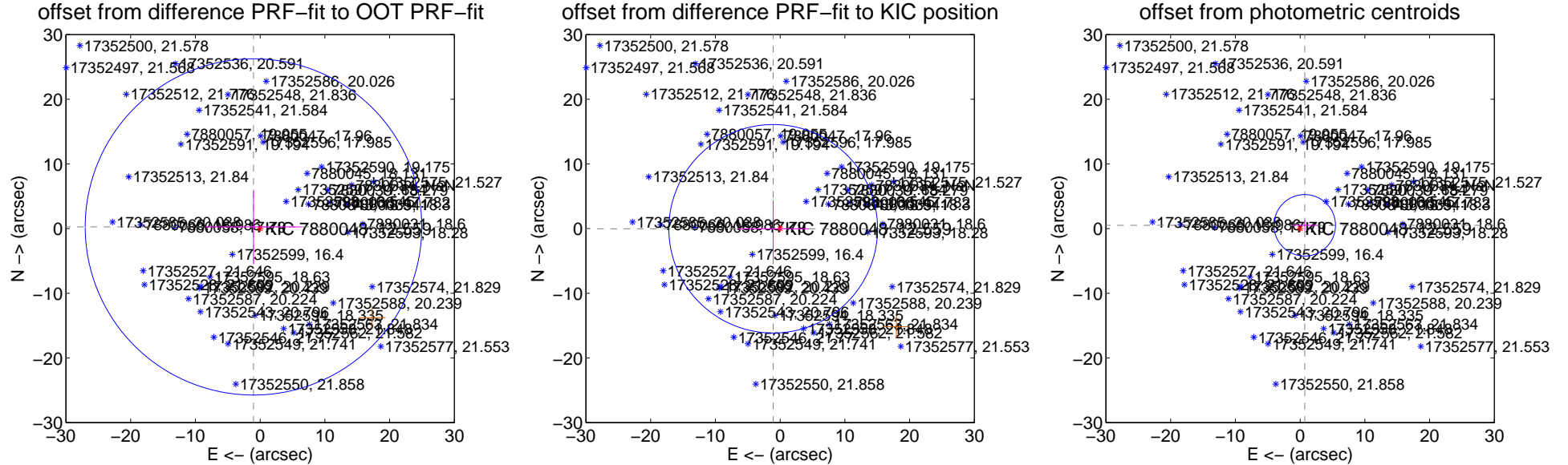
DV Centroid Data

Supplemental centroid analysis for 007880048-03. Kepler magnitude: 12.56. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.061 ± 8.665	0.12	1.030 ± 7.501	0.256 ± 5.747
PRF-fit source offset from KIC position	1.071 ± 5.373	0.20	1.071 ± 5.508	-0.032 ± 4.385
photometric centroid source offset	0.87 ± 1.58	0.55	-0.71 ± 1.84	0.51 ± 0.86



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.

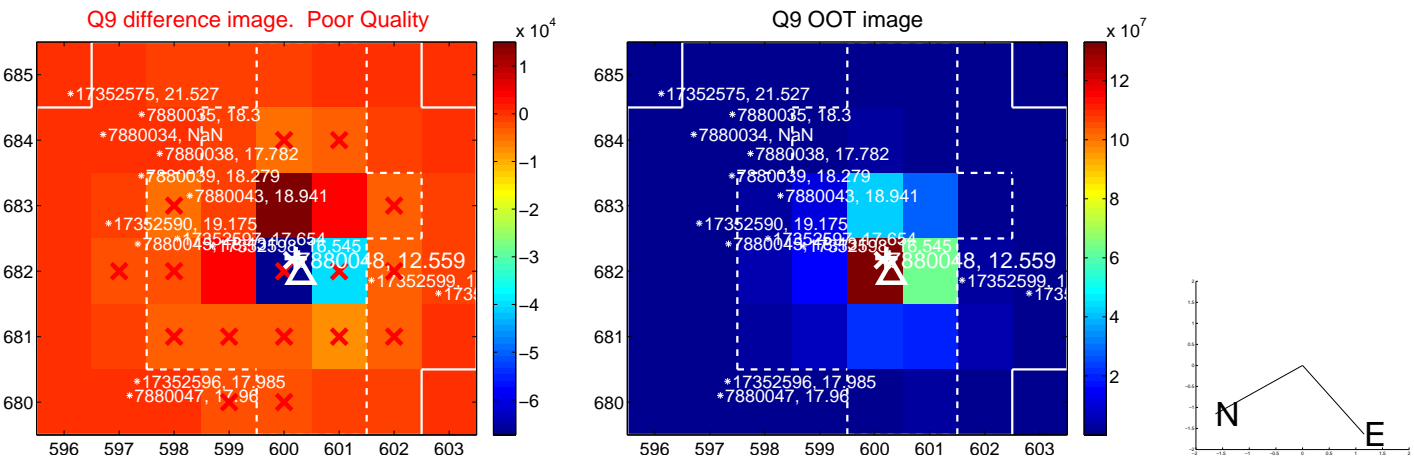
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

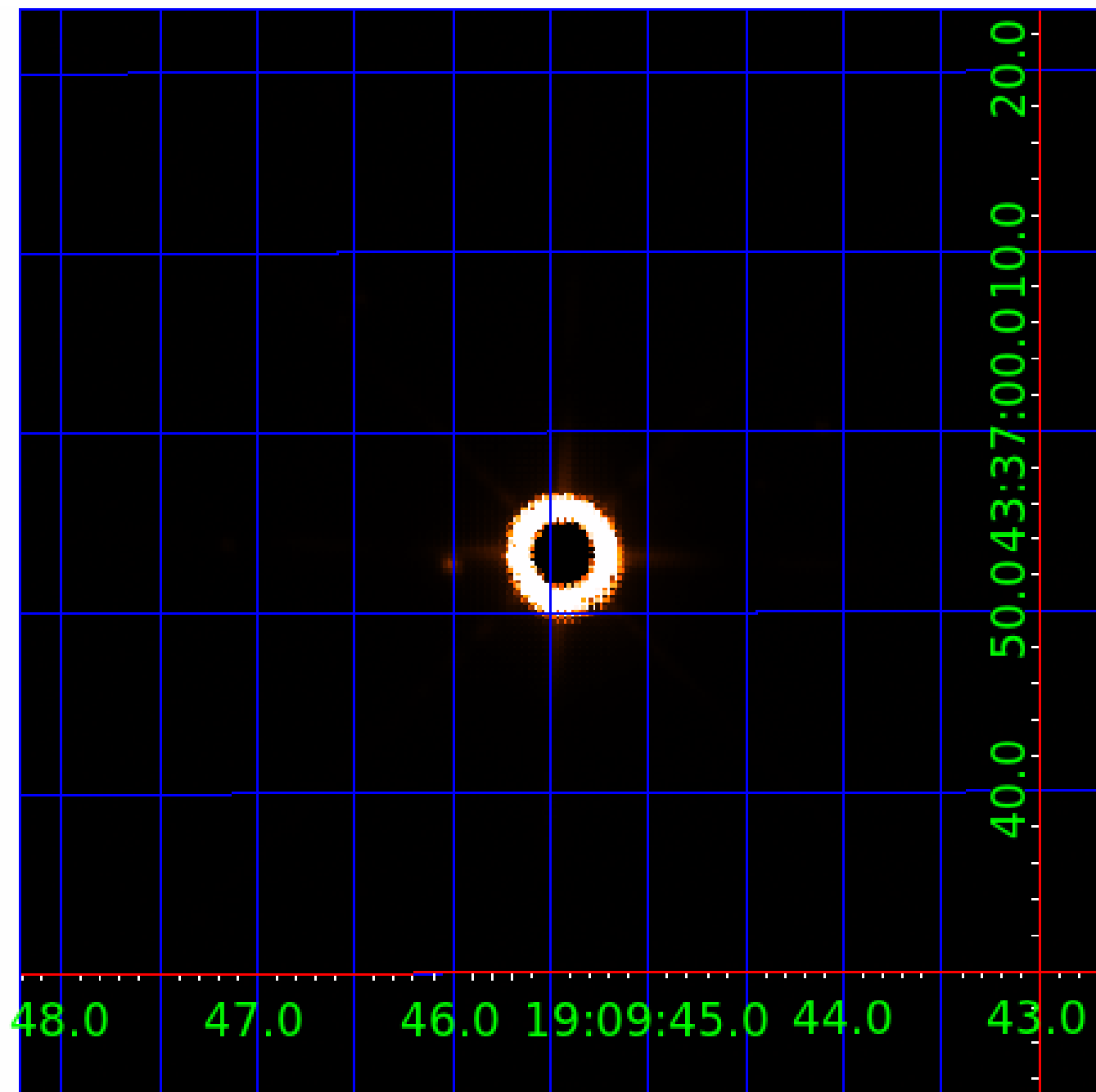


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007880048

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})
007880048-01	OBS	No	169.140147	230.993971	1304.6	24.366	24.9	34.1	94.34	3464	312.01	2801.22
007880048-02	OBS	No	392.918719	447.288252	10468.9	4.796	24.2	20.3	94.34	3464	1772.11	910.48
007880048-03	OBS	No	683.223323	200.624105	148.4	15.000	21.6	-1.0	94.34	3464	105.51	435.44
007880048-04	OBS	No	704.059000	154.855511	4534.4	6.383	18.2	14.9	94.34	3464	603.45	418.34
007880048-05	OBS	No	362.555526	473.372824	6259.8	4.974	25.4	15.1	94.34	3464	1509.90	1013.54
007880048-06	OBS	No	374.962637	454.034305	241.1	3.500	20.3	-1.0	94.34	3464	134.68	969.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007880048-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007880048-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007880048-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

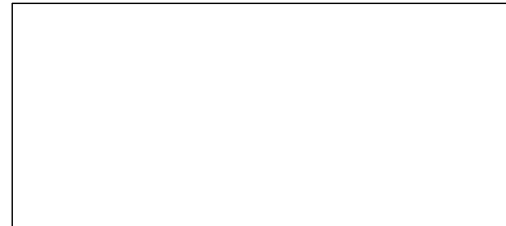
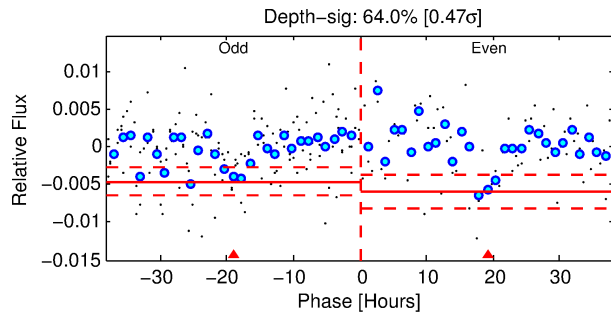
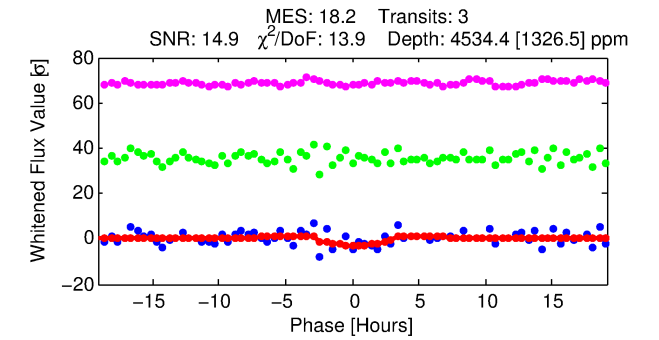
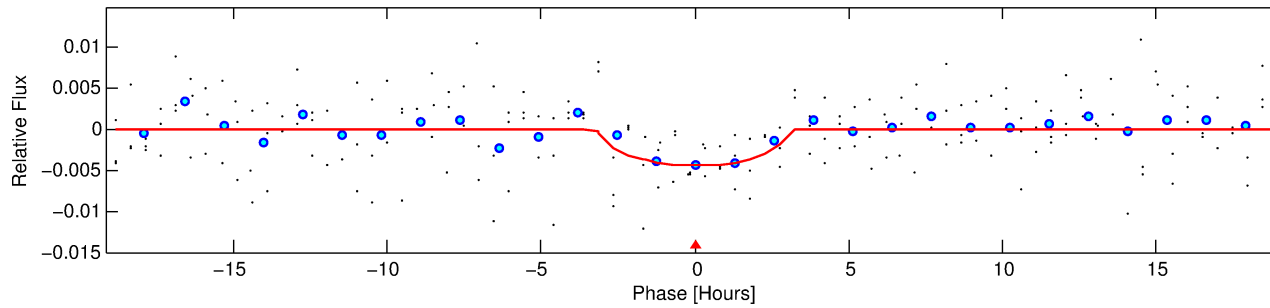
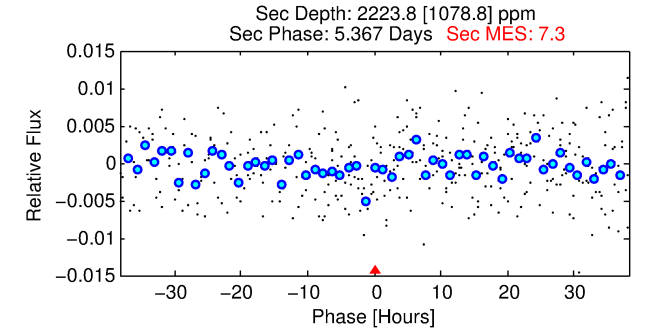
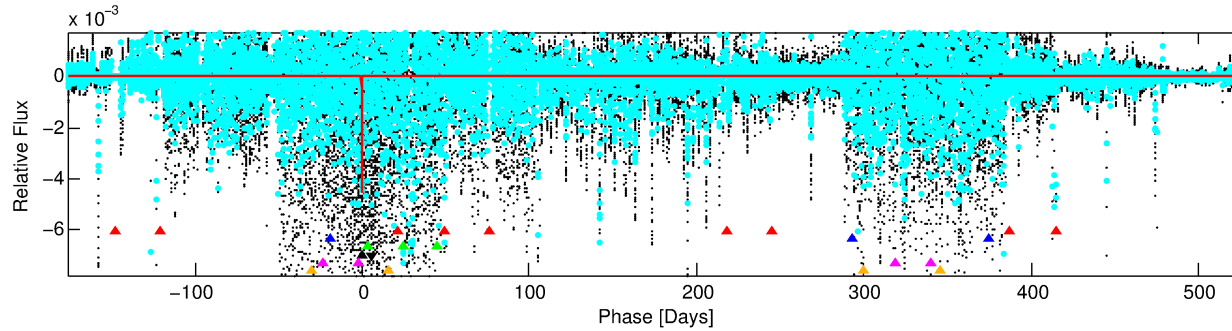
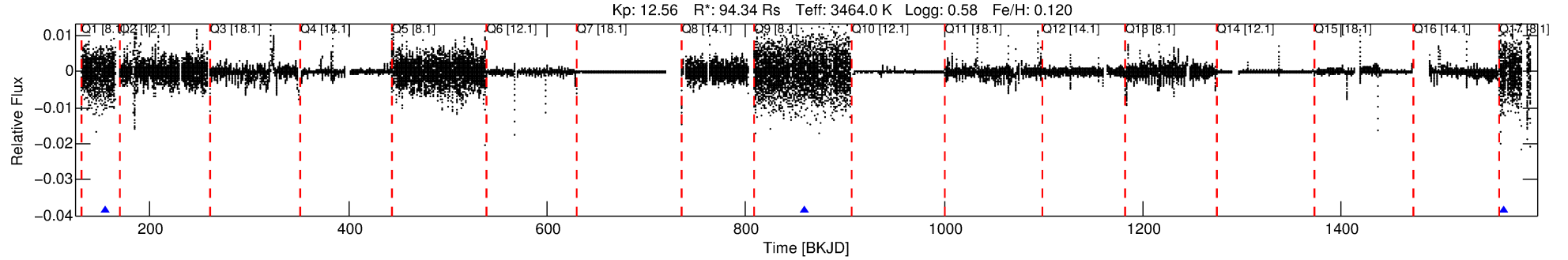
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007880048-04

No Significant Match Found

DV One-Page Summary

KIC: 7880048 Candidate: 4 of 6 Period: 704.059 d



DV Fit Results:

Period = 704.05900 [0.01985] d
Epoch = 154.8555 [0.0238] BKJD
Rp/R* = 0.0586 [0.0930]
a/R* = 838.07 [2670.69]
b = 0.36 [8.00]
Seff = 418.34 [198.10]
Teff = 1153 [137] K
Rp = 603.44 [982.24] Re
a = 1.6567 [0.5121] AU
Ag = 9.22 [29.89] [0.27σ]
Teffp = 3107 [2496] K [0.78σ]

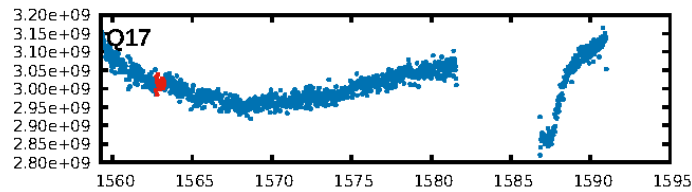
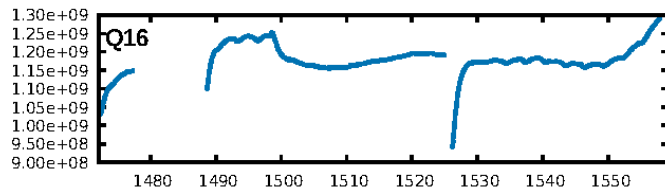
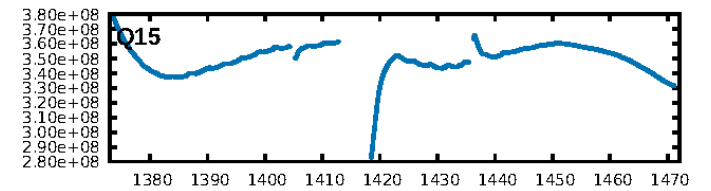
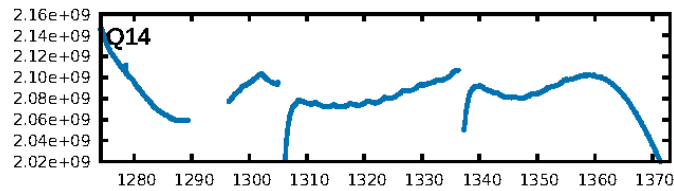
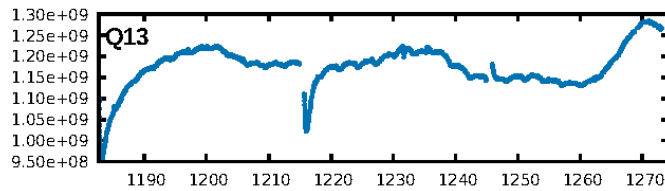
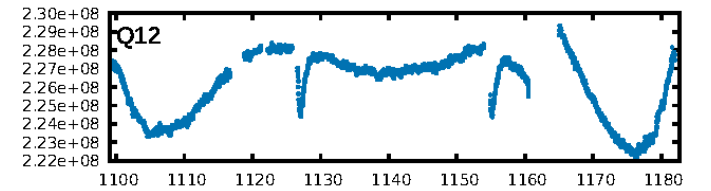
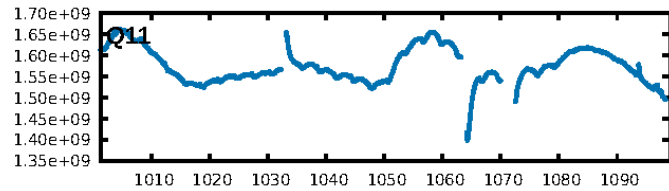
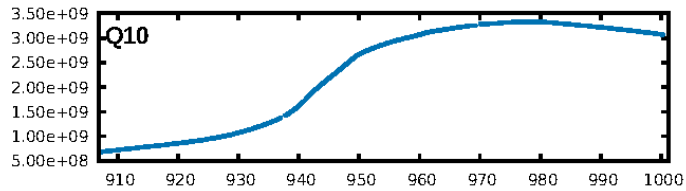
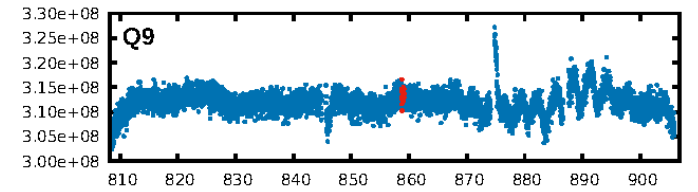
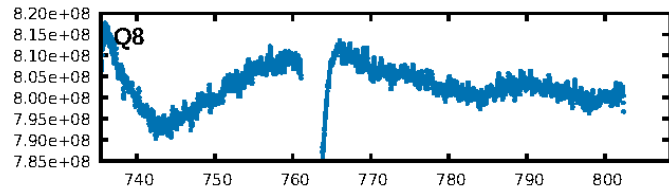
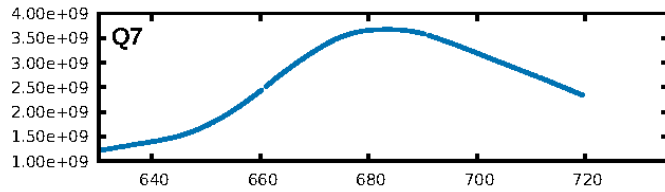
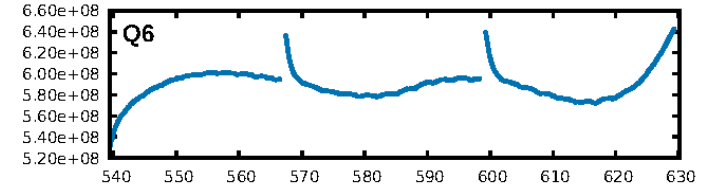
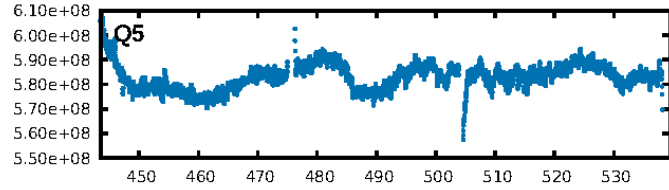
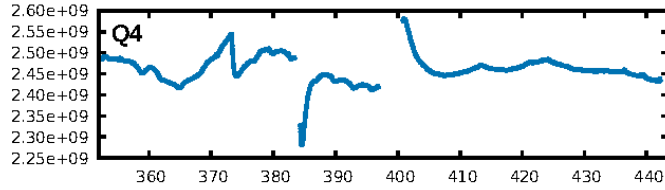
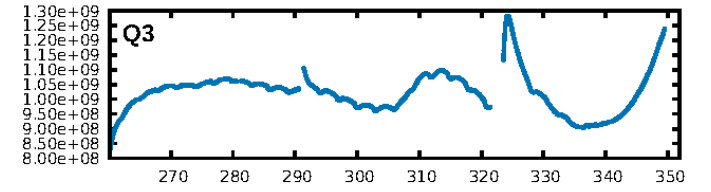
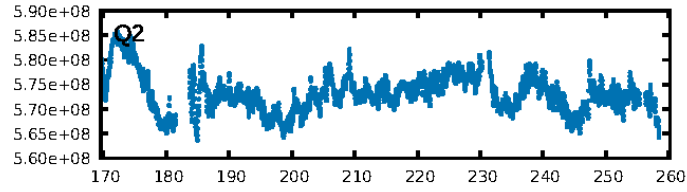
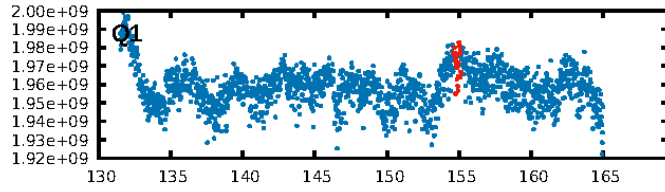
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.68σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.4%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: 0.4802
Centroid-sig: N/A
Centroid-so: 0.580 arcsec [3.09σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [3/3]

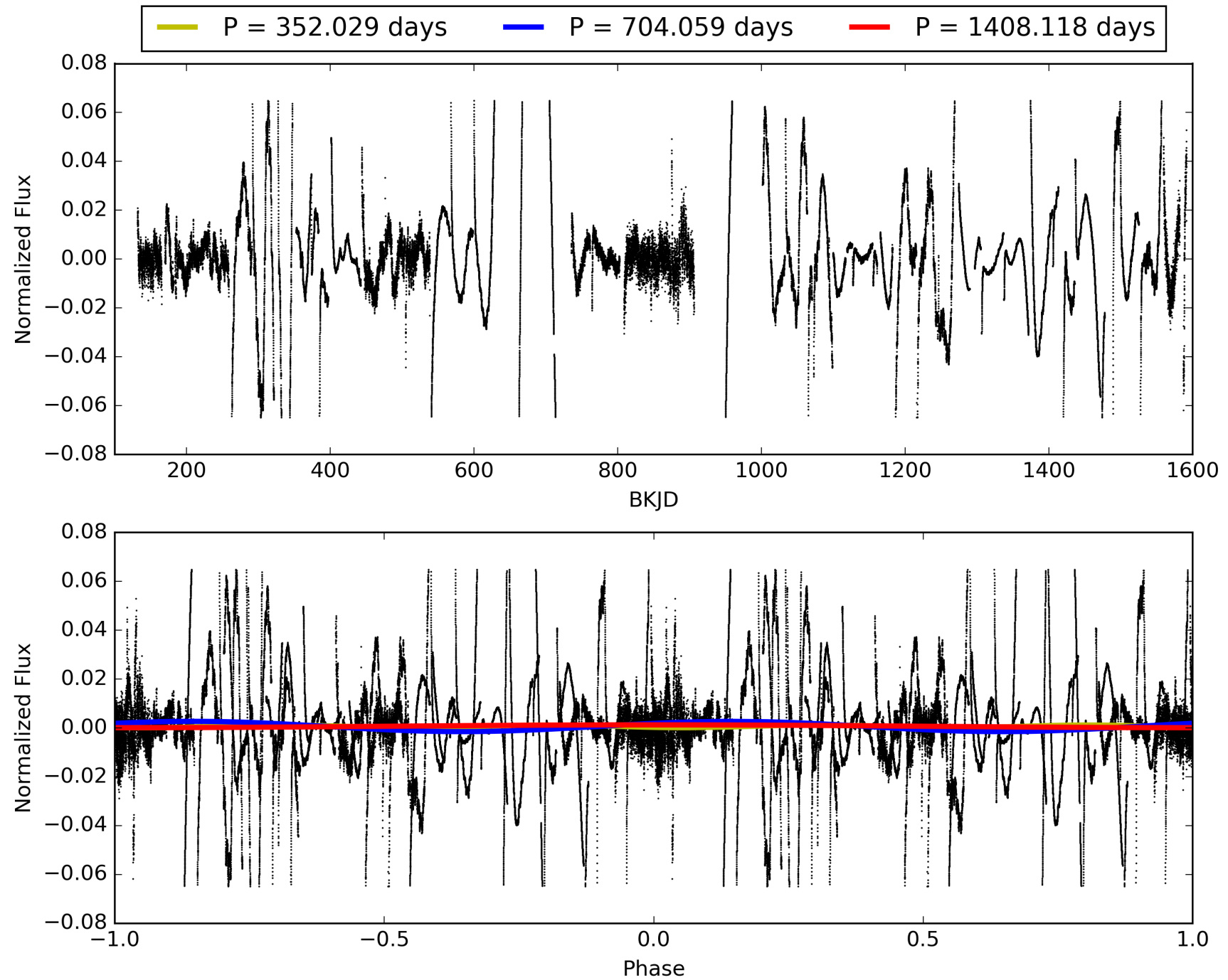
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:04:16 Z

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

TCE 007880048-04, PDC Light Curves

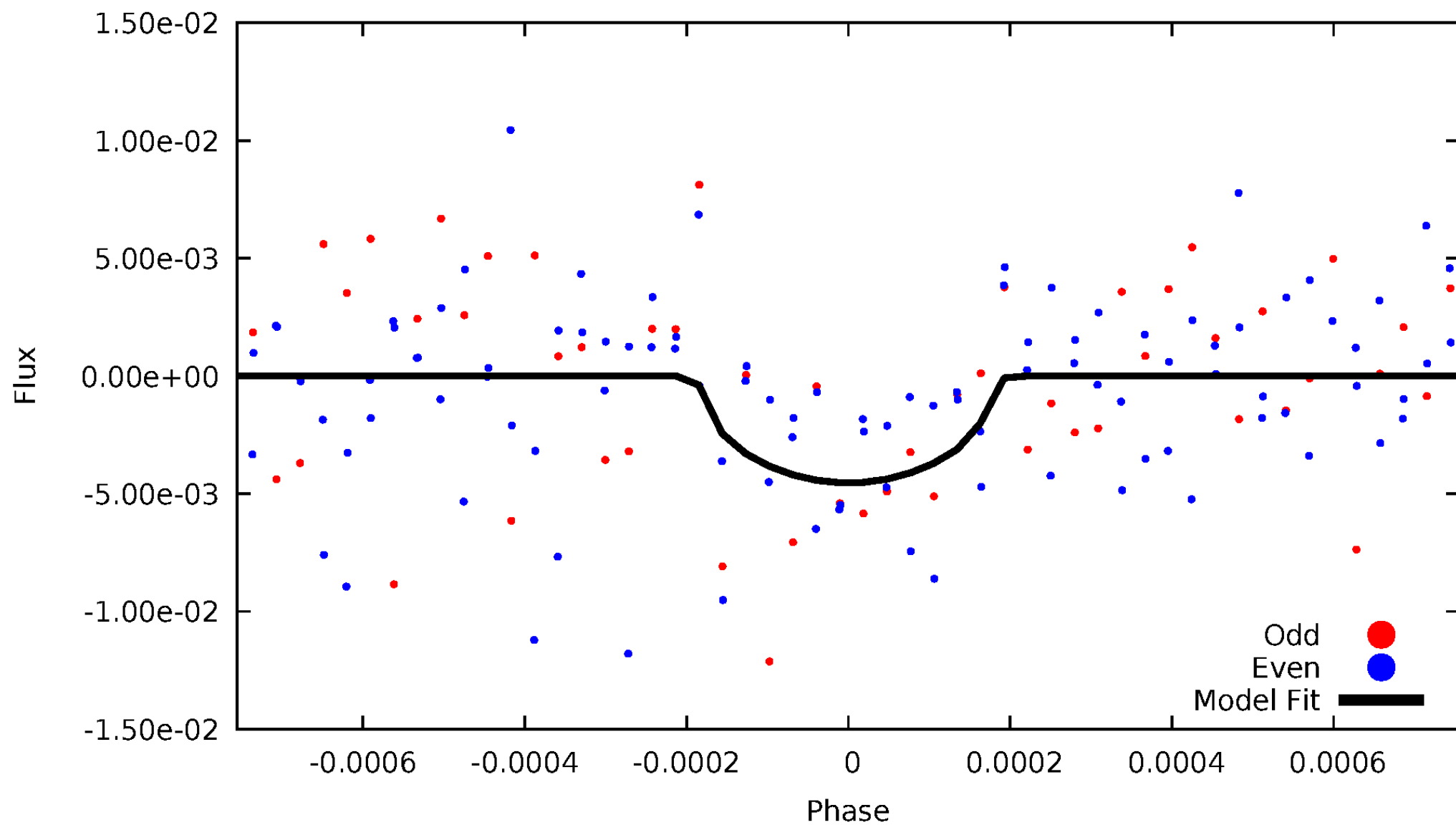


TCE 007880048-04



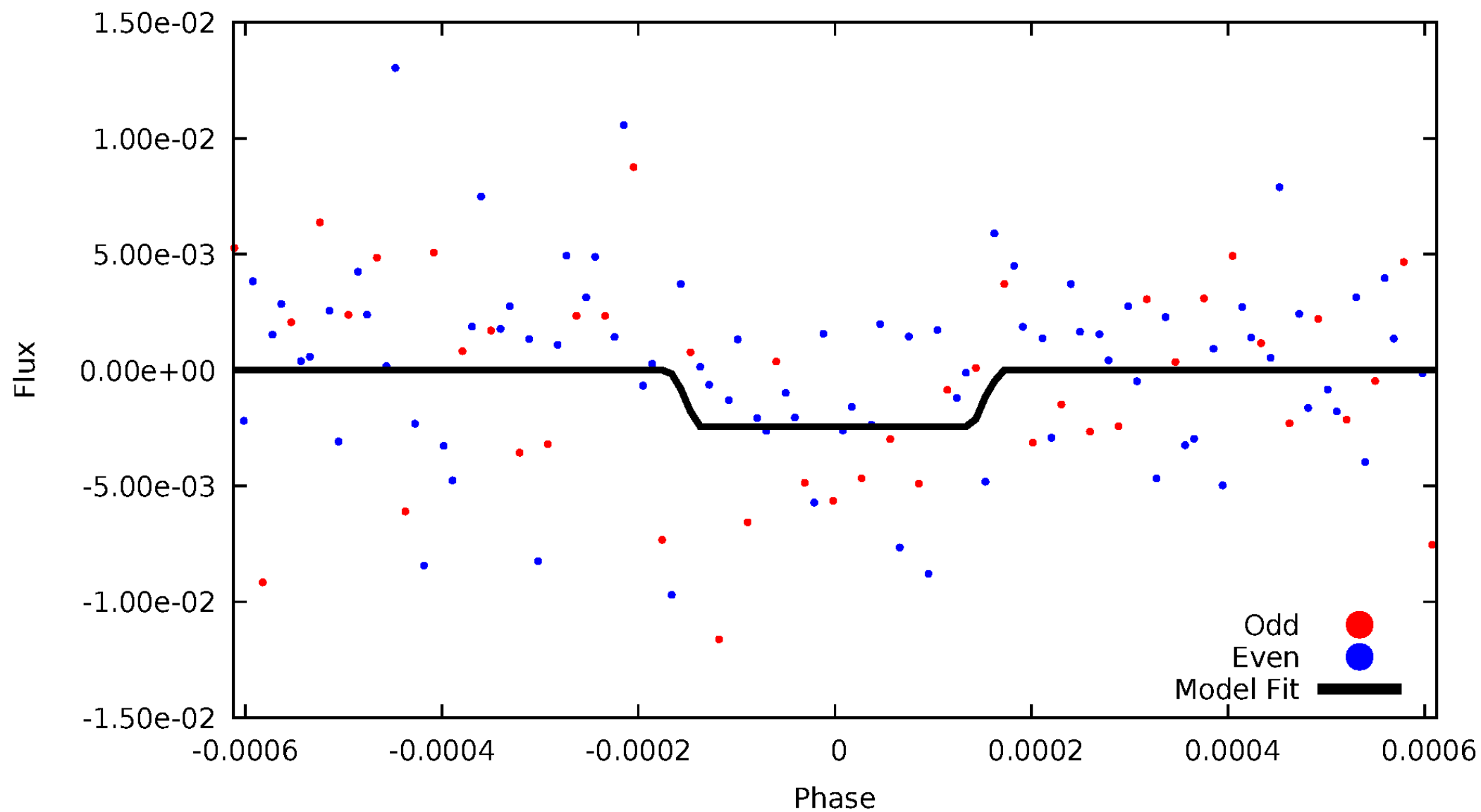
DV Odd/Even

TCE 007880048-04



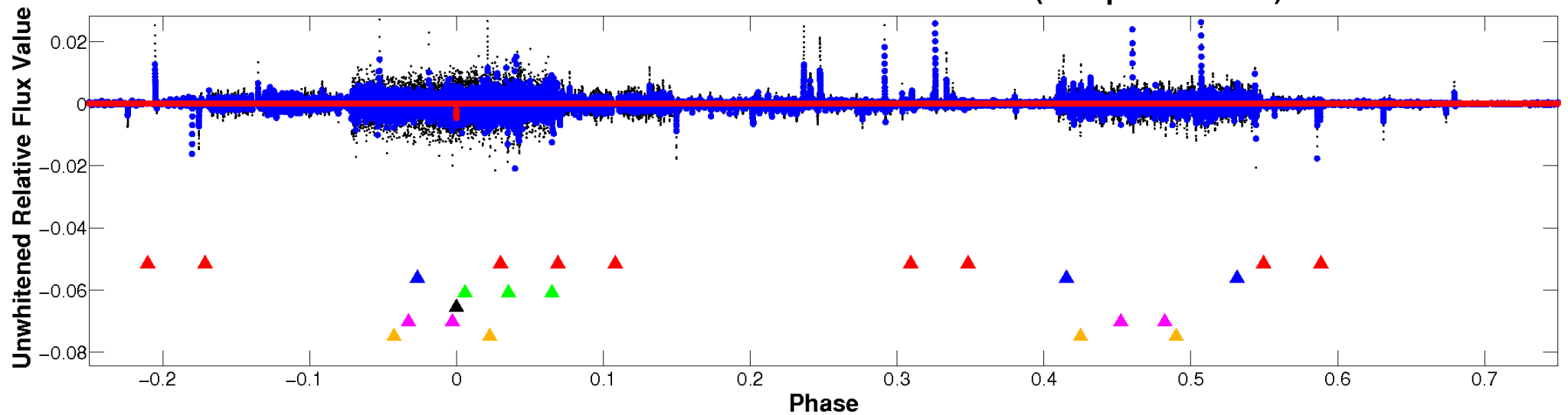
ALT Odd/Even

TCE 007880048-04

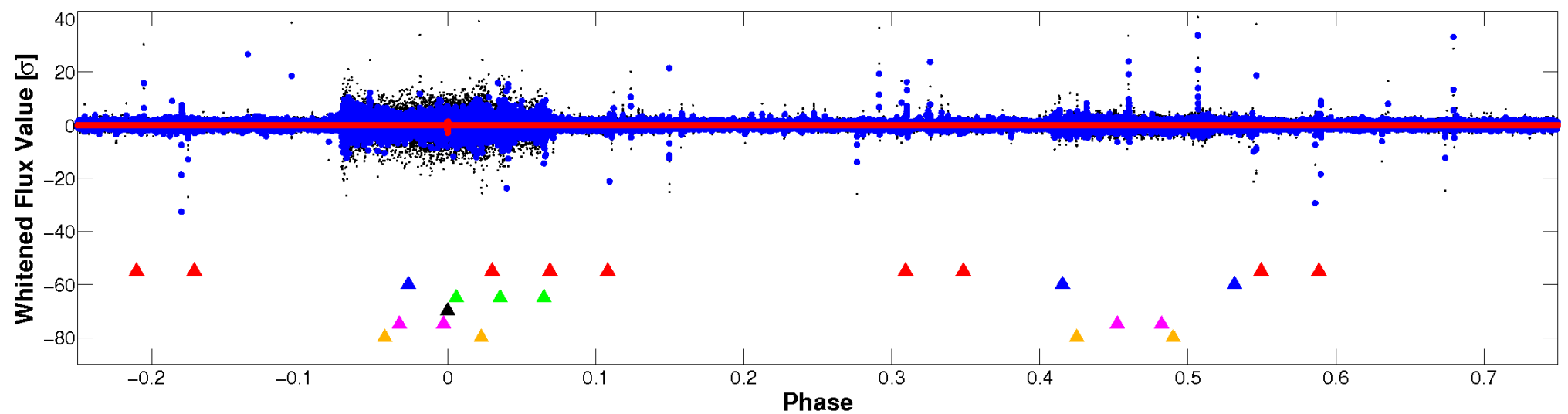


Non-Whitened Vs. Whitened Light Curve

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

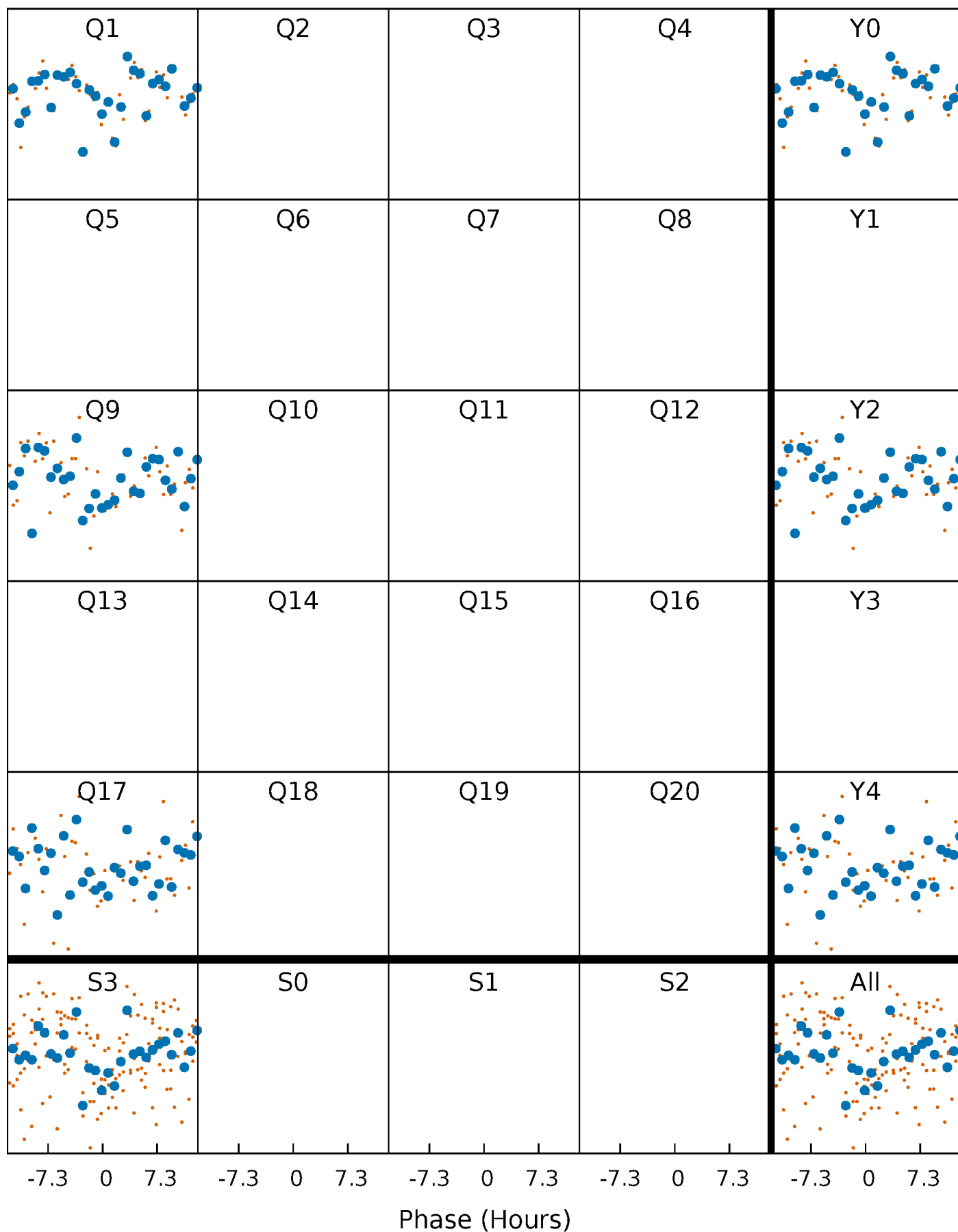


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007880048-04 P=704.059000 Days $T_0=154.855511$ (BKJD)



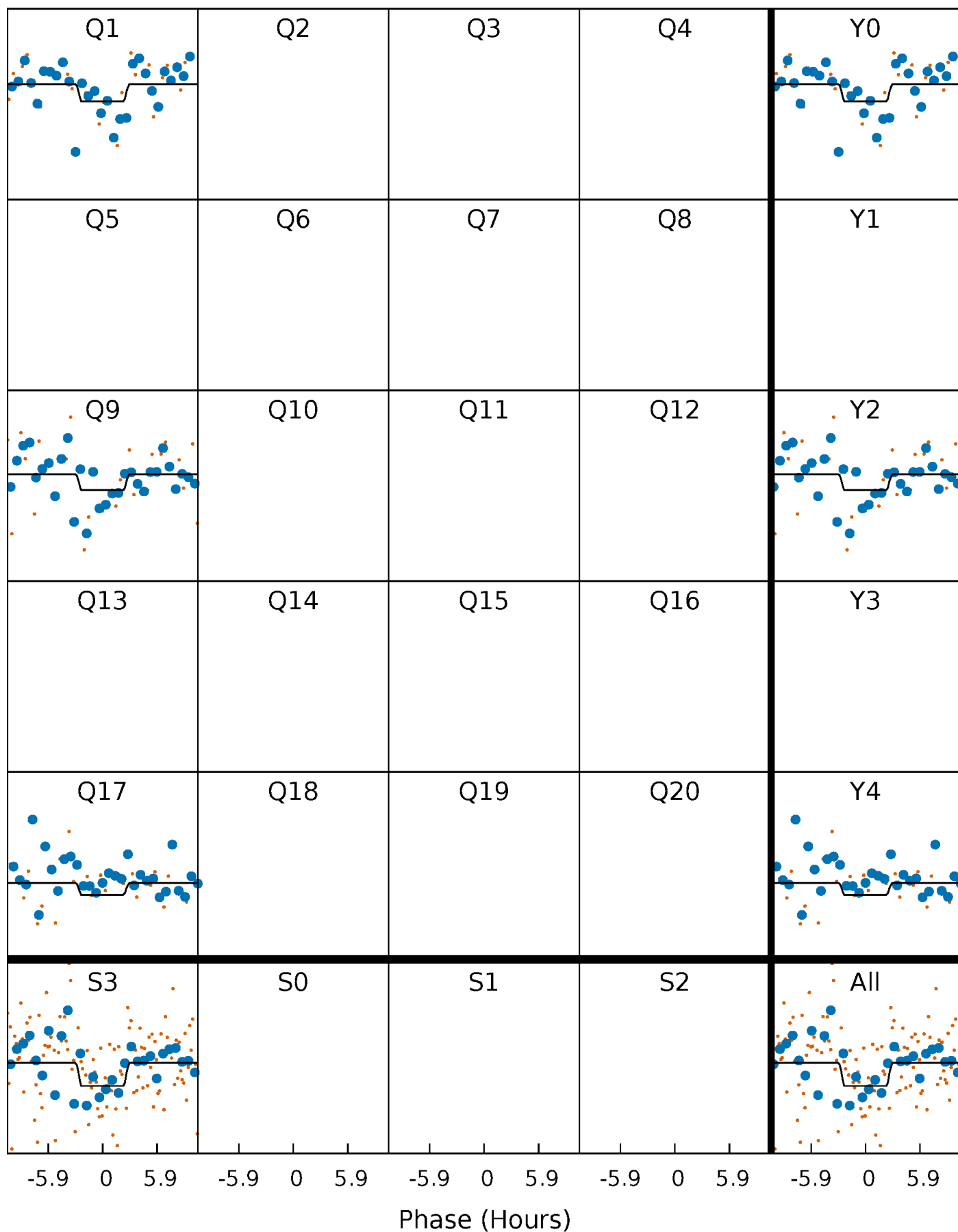
DV Quarter-Phased Transit Curves

TCE 007880048-04 $P=704.059000$ Days $T_0=154.855511$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

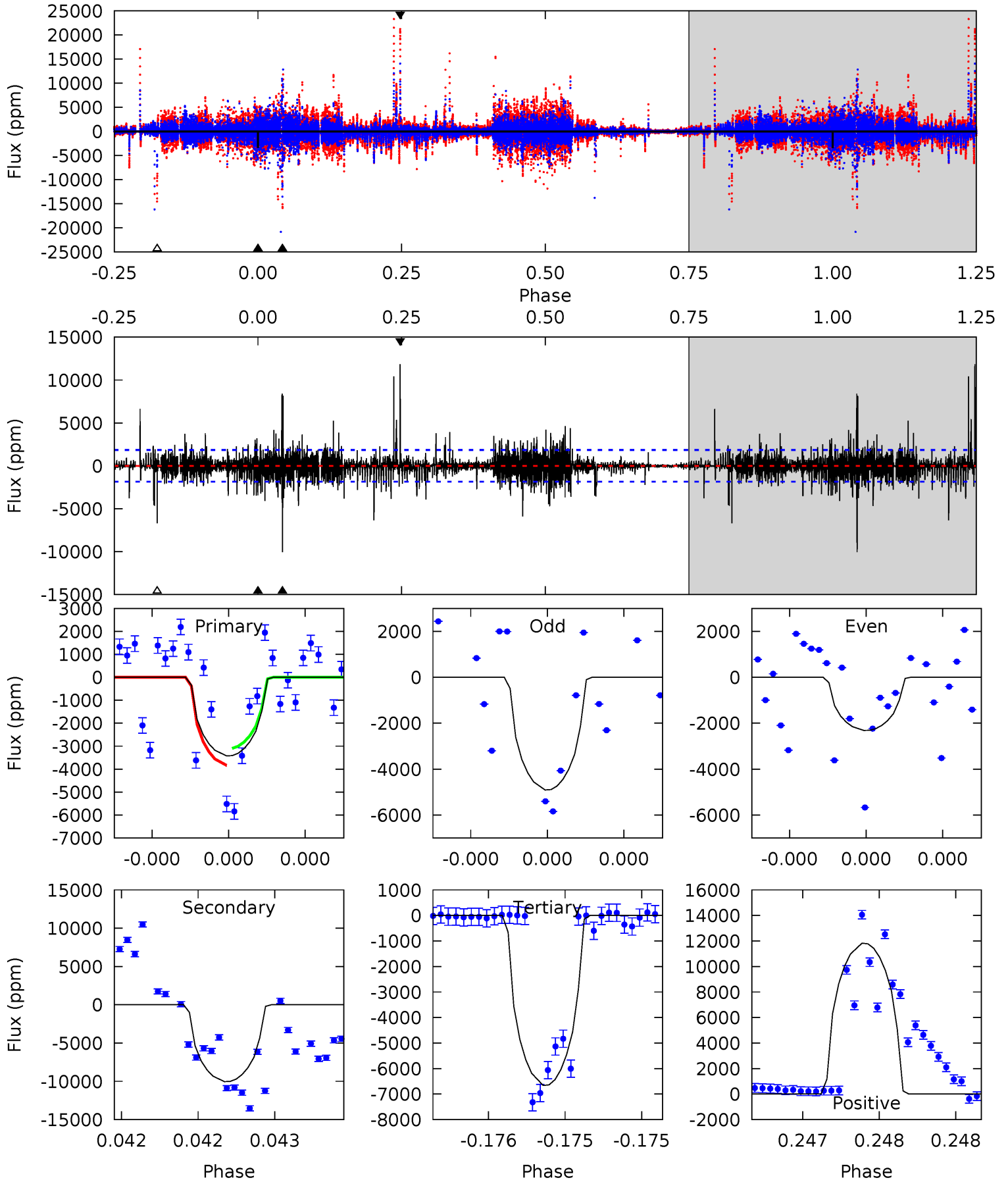
TCE 007880048-04 $P=704.065554$ Days $T_0=154.863391$ (BKJD)



DV Model-Shift Uniqueness Test

007880048-04, P = 704.059000 Days, E = 154.855511 Days

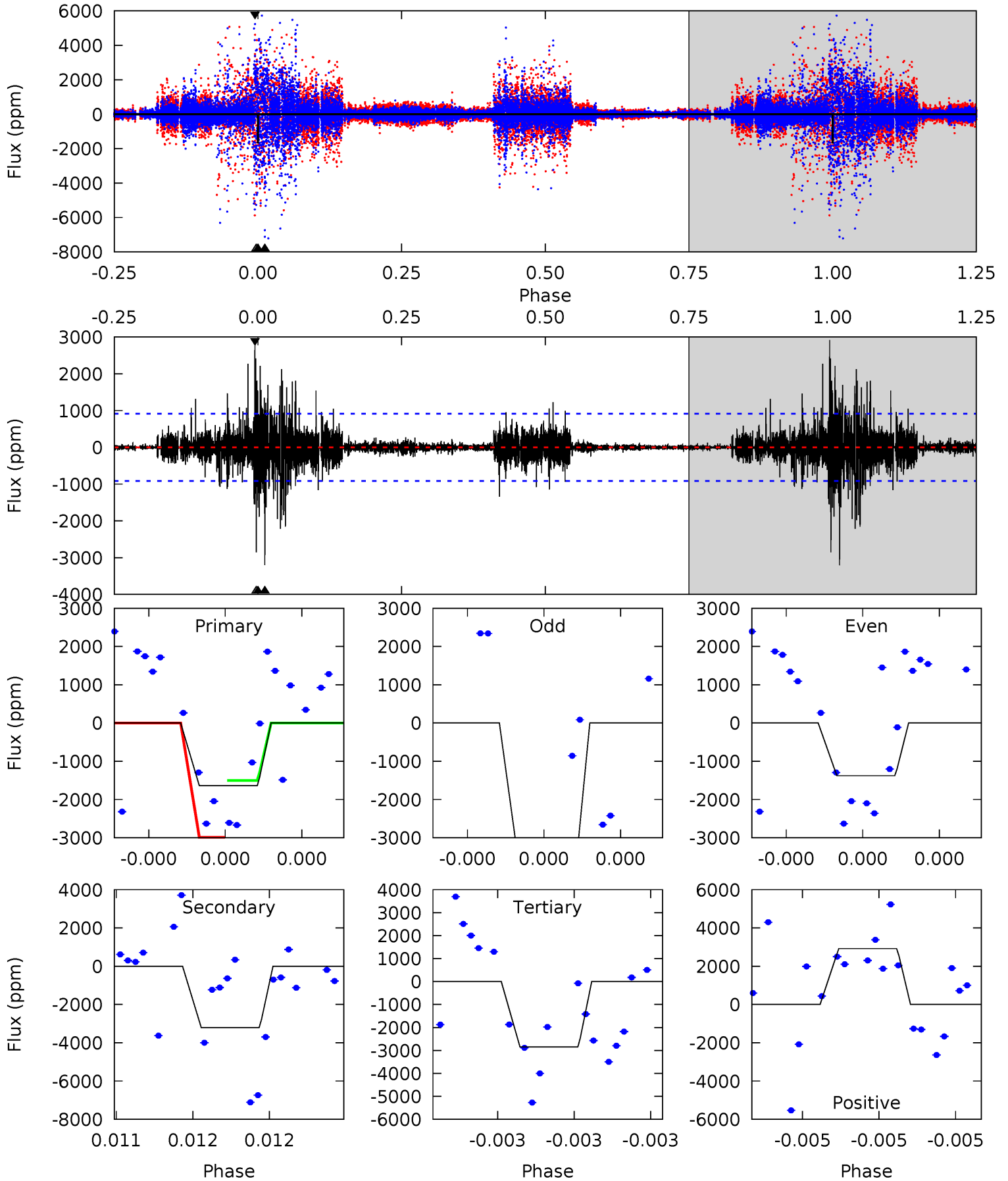
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	30.6	20.3	36.0	5.62	3.55	2.72	-9.87	-25.6	10.3	-5.43	2.42	1.05	0.54	1.35



Alt Model-Shift Uniqueness Test

007880048-04, P = 704.065554 Days, E = 154.863391 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	19.8	17.6	18.0	5.65	3.60	1.27	-7.46	-7.90	2.20	1.76	4.35	0.68	0.48	4.72



Stellar Parameters For KIC 007880048

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3464^{+117}_{-94}	$0.576^{+0.250}_{-0.250}$	$0.120^{+0.250}_{-0.250}$	$94.342^{+34.290}_{-22.860}$	$1.223^{+0.301}_{-0.176}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+43%/-43%	+208%/-208%	+36%/-24%	+25%/-14%	+142%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007880048-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-10042 ± 328	$931.99^{+904.19}_{-629.52}$	1611^{+158}_{-122}	3579^{+1898}_{-662}	18^{+150}_{-14}
Alt.	-3204 ± 162	$886.39^{+813.10}_{-623.09}$	1621^{+156}_{-132}	3039^{+1623}_{-505}	$6.319^{+65.331}_{-4.516}$

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 $A_{obs} \gg 1.0$

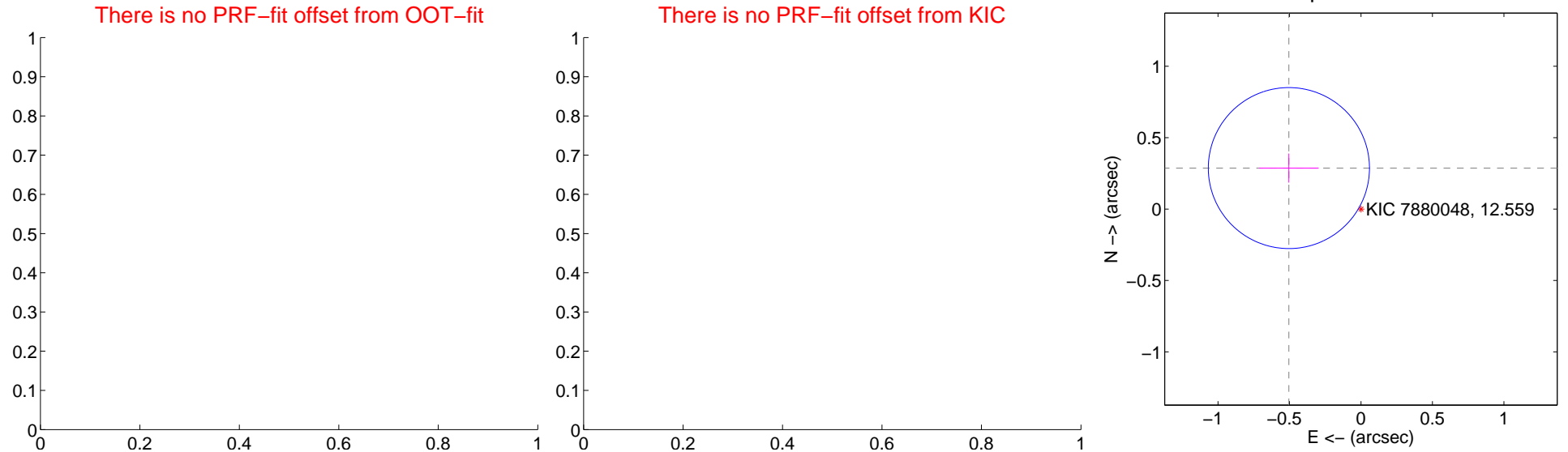
DV Centroid Data

Supplemental centroid analysis for 007880048-04. Kepler magnitude: 12.56. Transit SNR 14.91

There are 0 quarters with good PRF difference image offsets

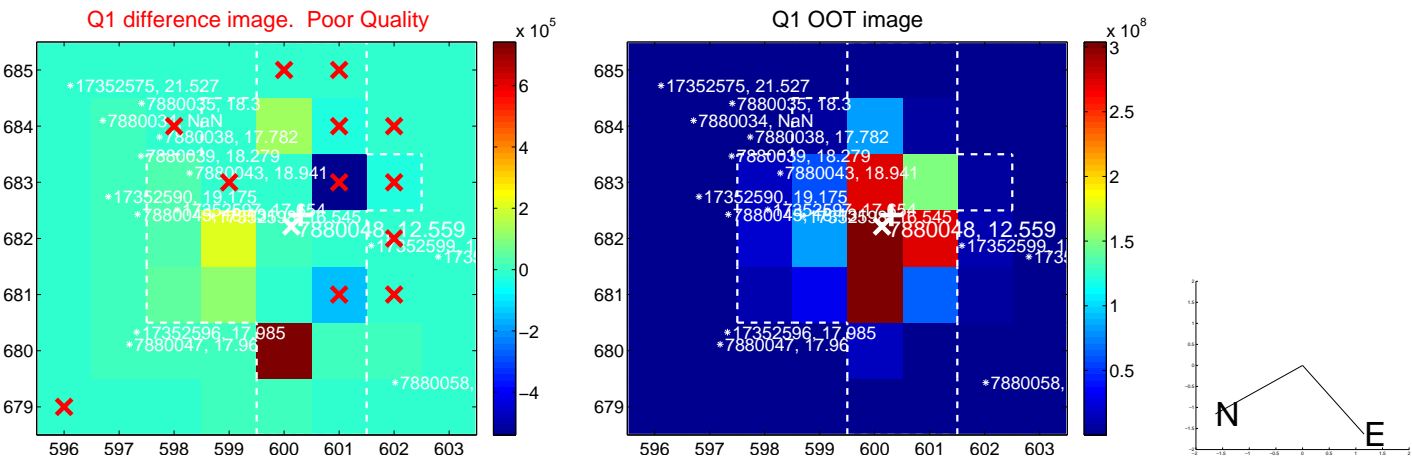
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	0.58 ± 0.19	3.09	0.50 ± 0.21	0.29 ± 0.10



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

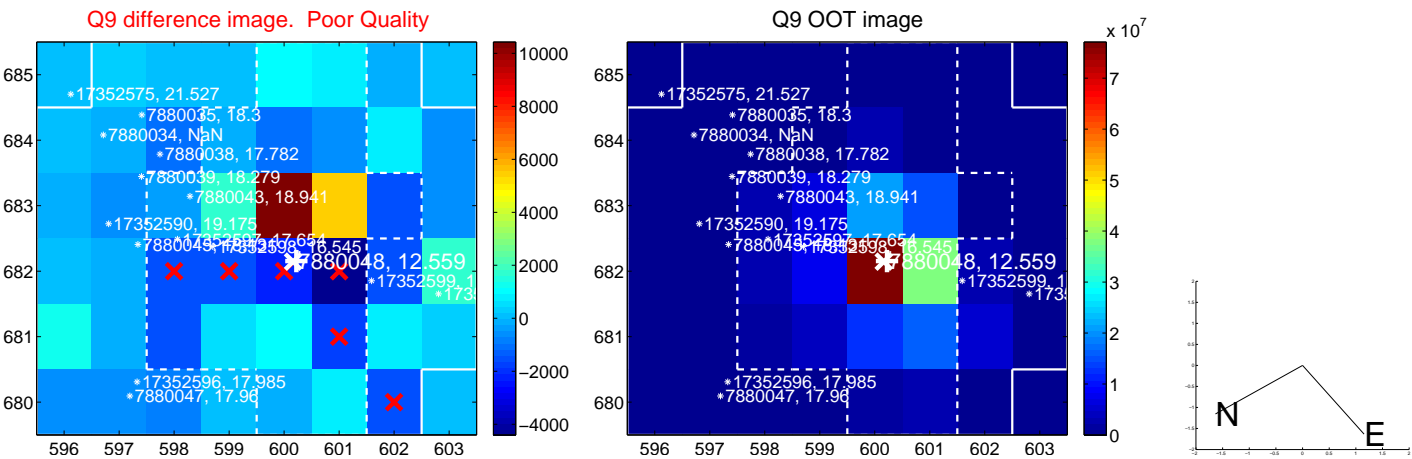
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



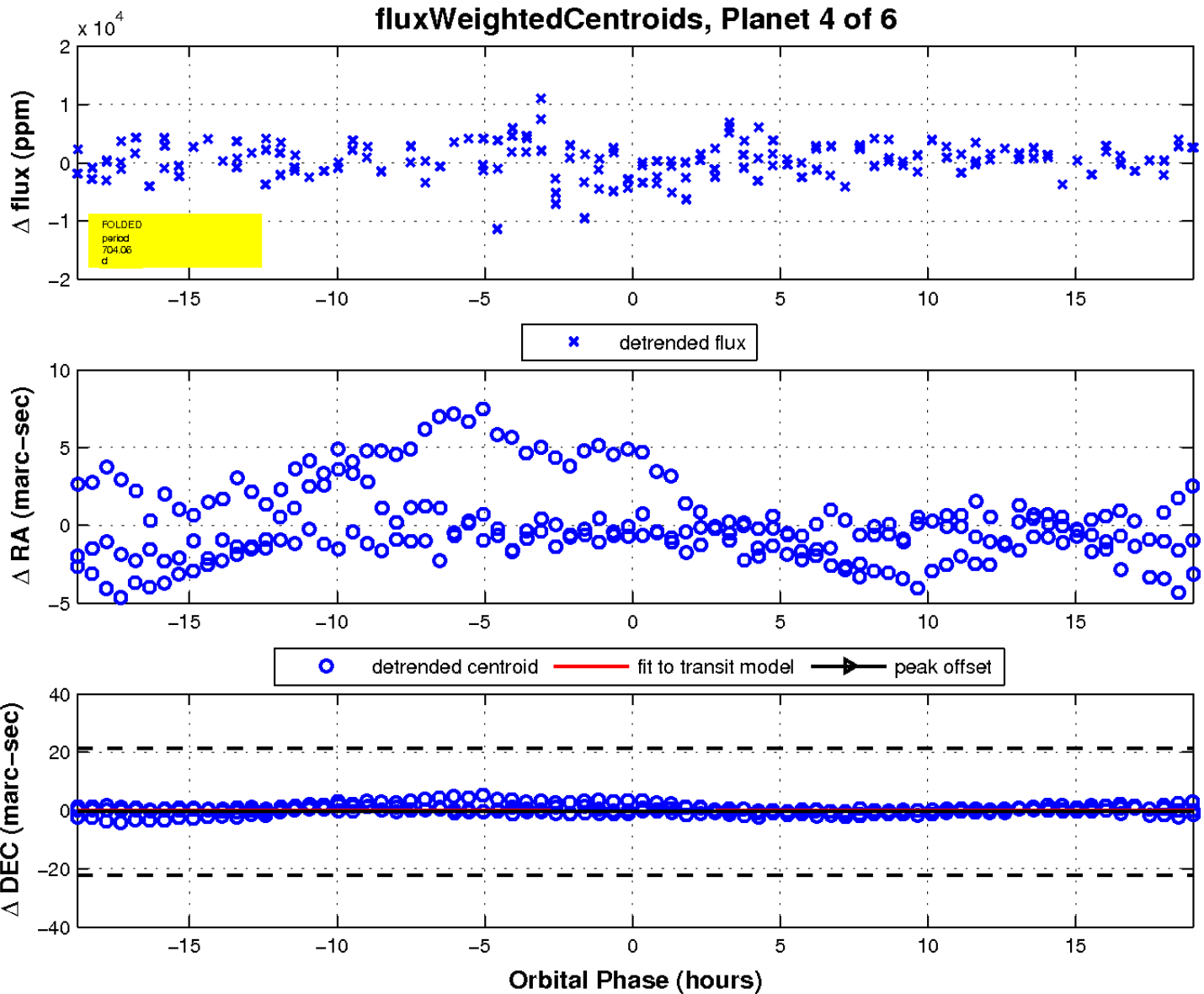
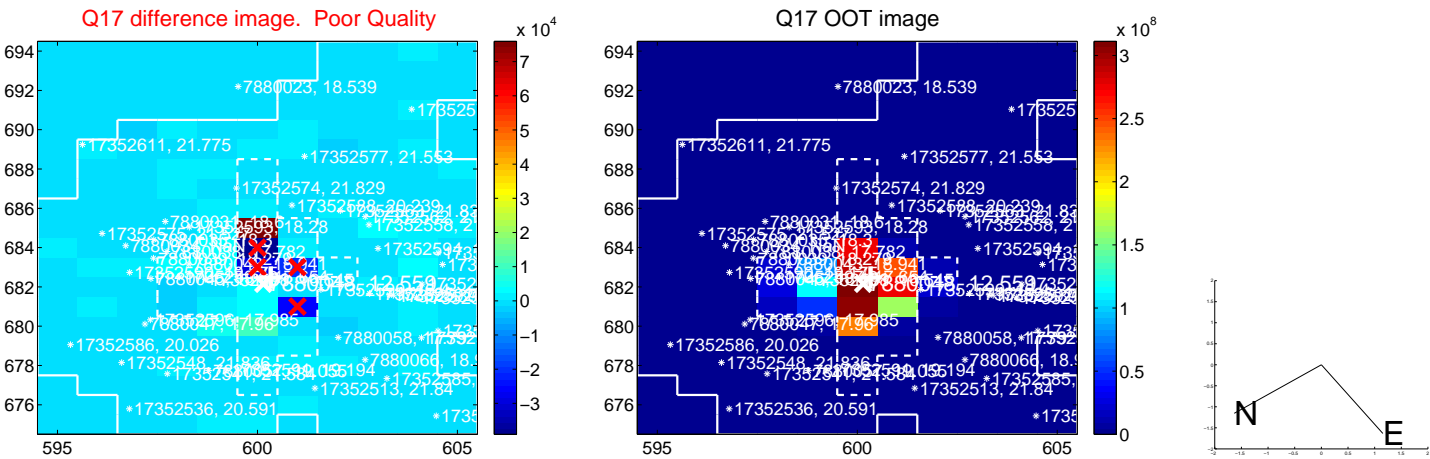
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

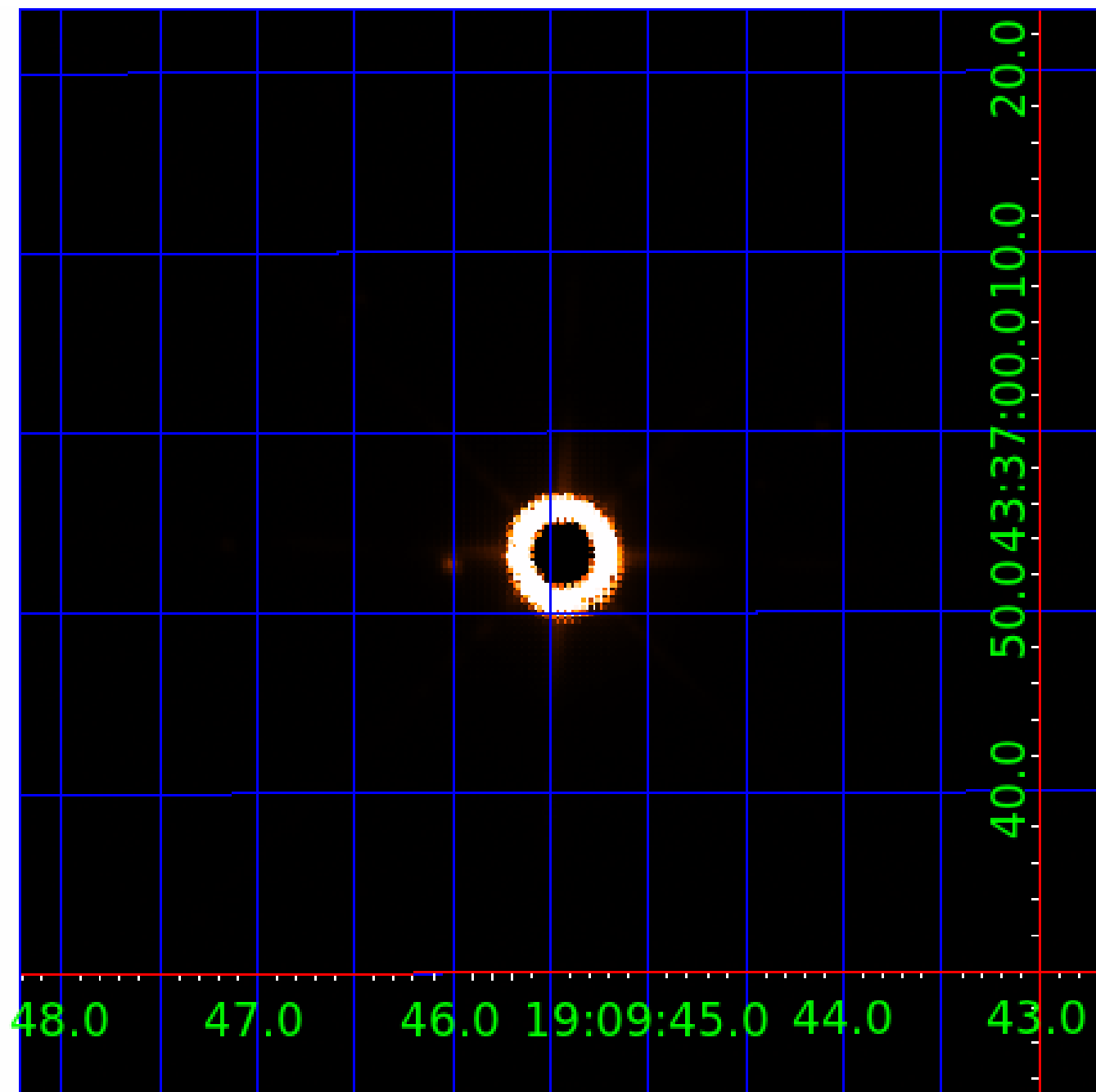


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007880048

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})
007880048-01	OBS	No	169.140147	230.993971	1304.6	24.366	24.9	34.1	94.34	3464	312.01	2801.22
007880048-02	OBS	No	392.918719	447.288252	10468.9	4.796	24.2	20.3	94.34	3464	1772.11	910.48
007880048-03	OBS	No	683.223323	200.624105	148.4	15.000	21.6	-1.0	94.34	3464	105.51	435.44
007880048-04	OBS	No	704.059000	154.855511	4534.4	6.383	18.2	14.9	94.34	3464	603.45	418.34
007880048-05	OBS	No	362.555526	473.372824	6259.8	4.974	25.4	15.1	94.34	3464	1509.90	1013.54
007880048-06	OBS	No	374.962637	454.034305	241.1	3.500	20.3	-1.0	94.34	3464	134.68	969.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007880048-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007880048-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007880048-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

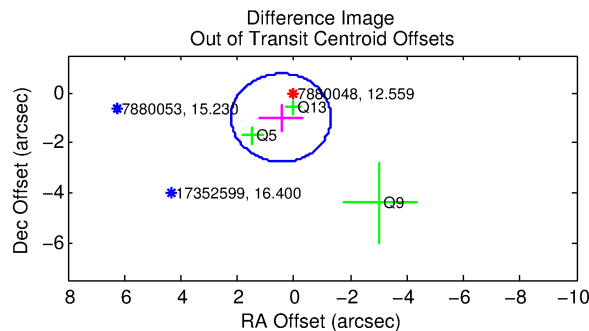
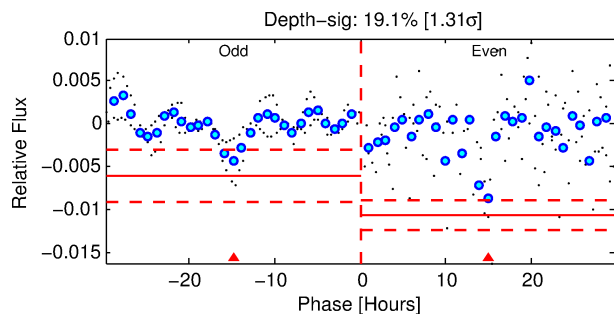
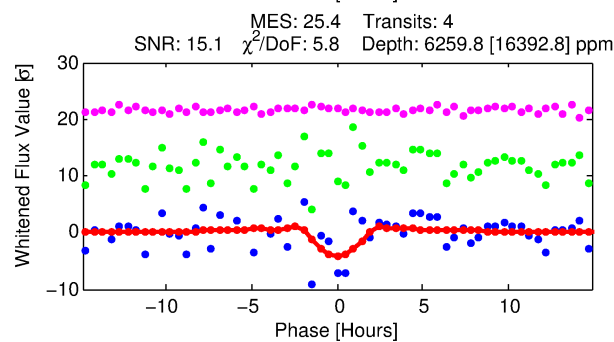
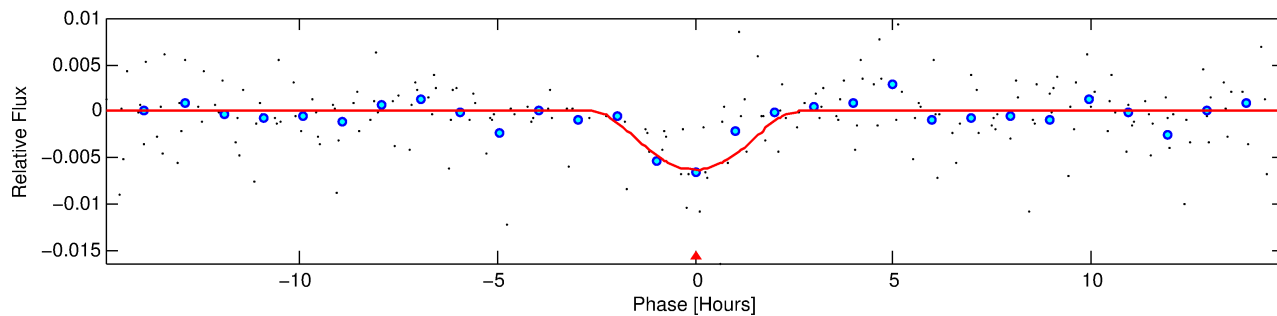
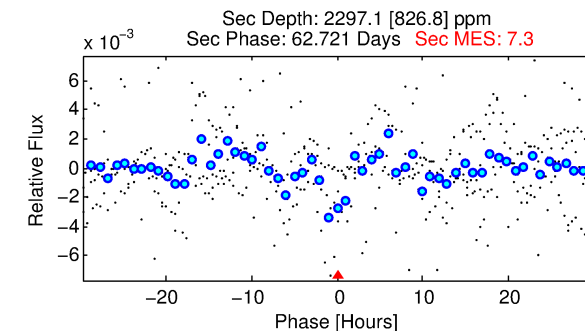
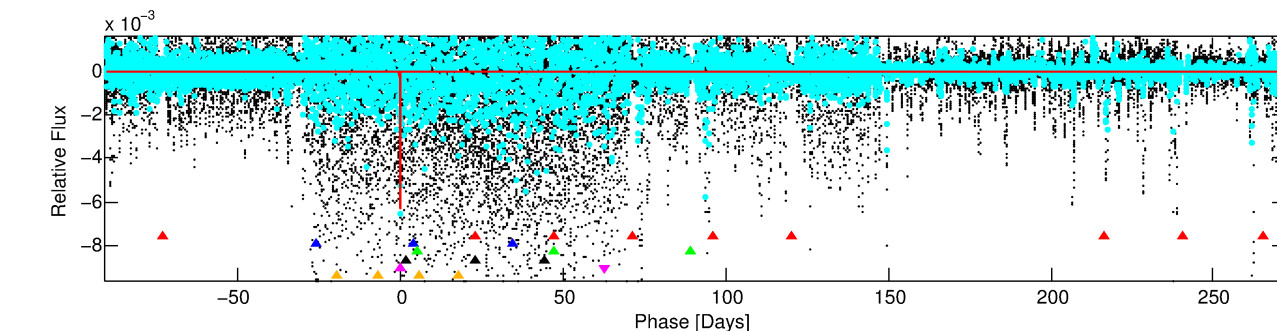
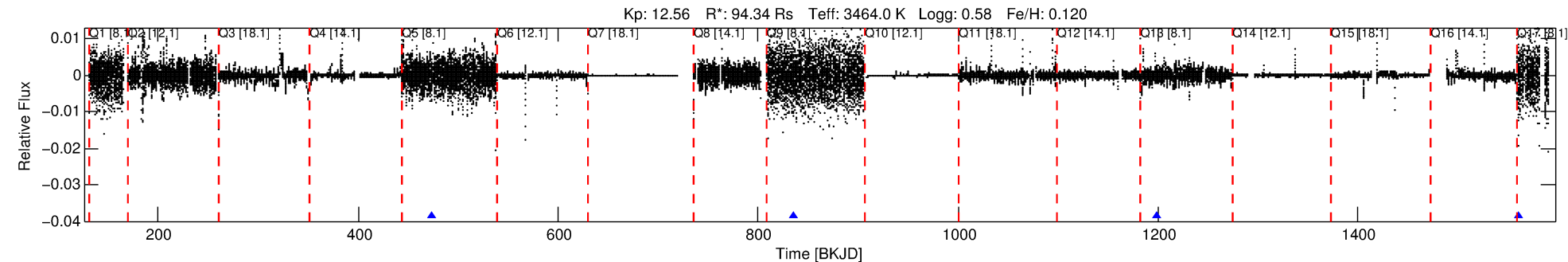
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007880048-05

No Significant Match Found

DV One-Page Summary

KIC: 7880048 Candidate: 5 of 6 Period: 362.556 d



DV Fit Results:

Period = 362.55553 [0.00753] d
Epoch = 473.3728 [0.0139] BKJD
Rp/R* = 0.1467 [0.7964]
a/R* = 312.45 [235.93]
b = 1.00 [0.85]
Seff = 1013.55 [479.96]
Teq = 1439 [170] K
Rp = 1509.90 [8216.83] Re
a = 1.0643 [0.3290] AU
Ag = 0.63 [6.83] [-0.05σ]
Teff = 1980 [5379] K [0.10σ]

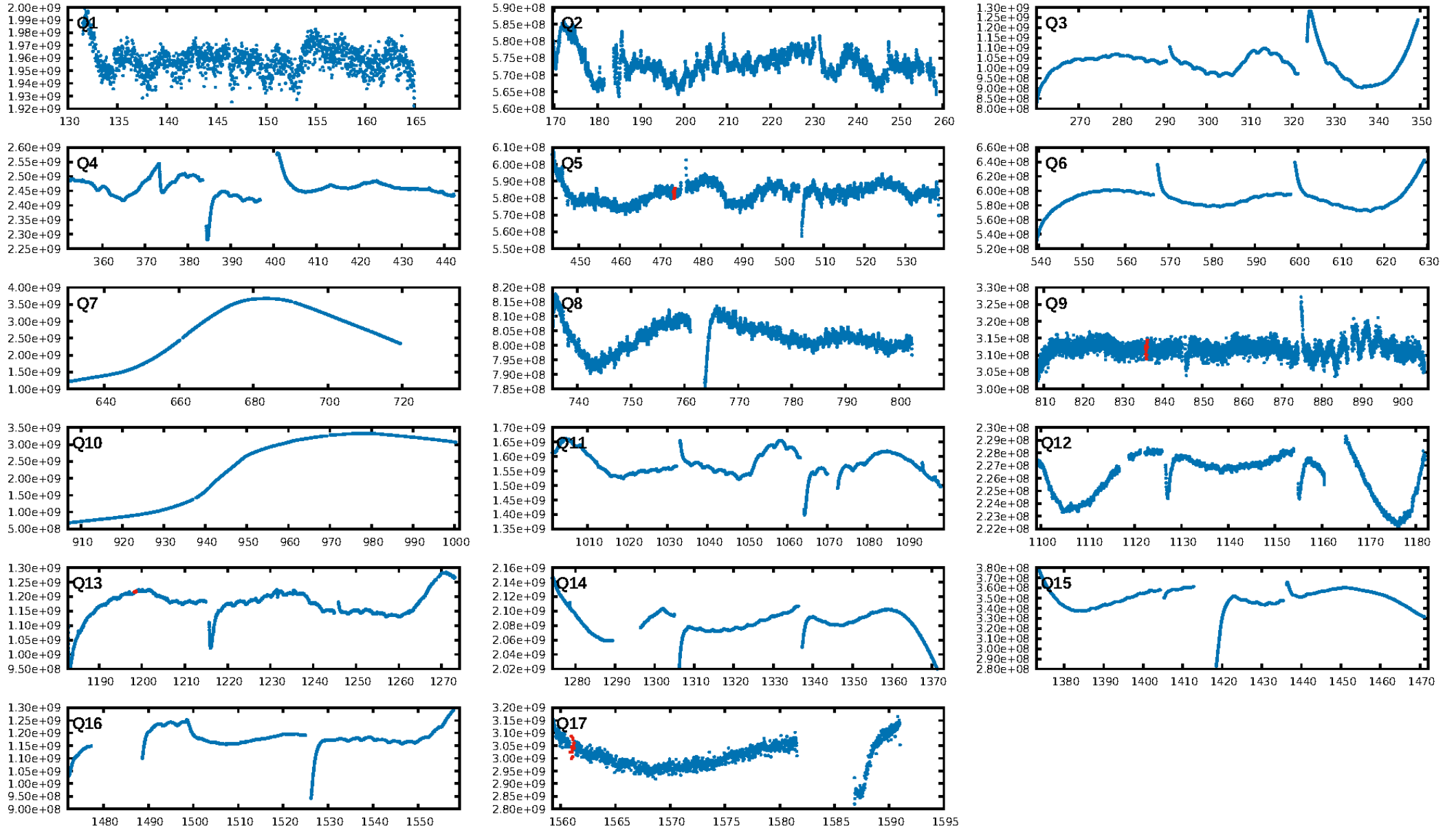
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [186.66σ]
LongPeriod-sig: 100.0% [48.96σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.694
Centroid-sig: N/A
Centroid-so: 0.328 arcsec [2.60σ]
OotOffset-rm: 1.103 arcsec [1.87σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-rm: 1.335 arcsec [2.31σ]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

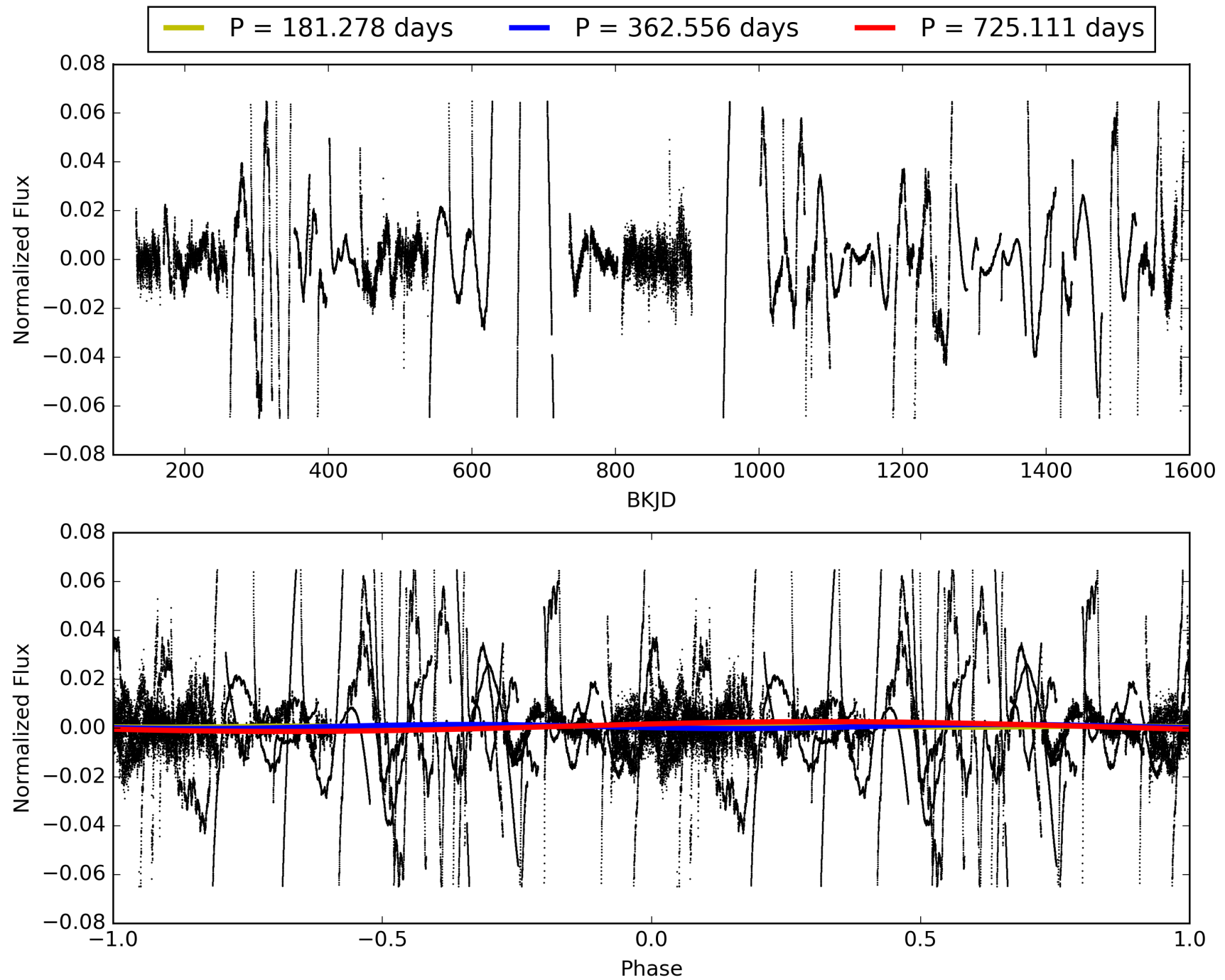
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:04:29 Z

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

TCE 007880048-05, PDC Light Curves

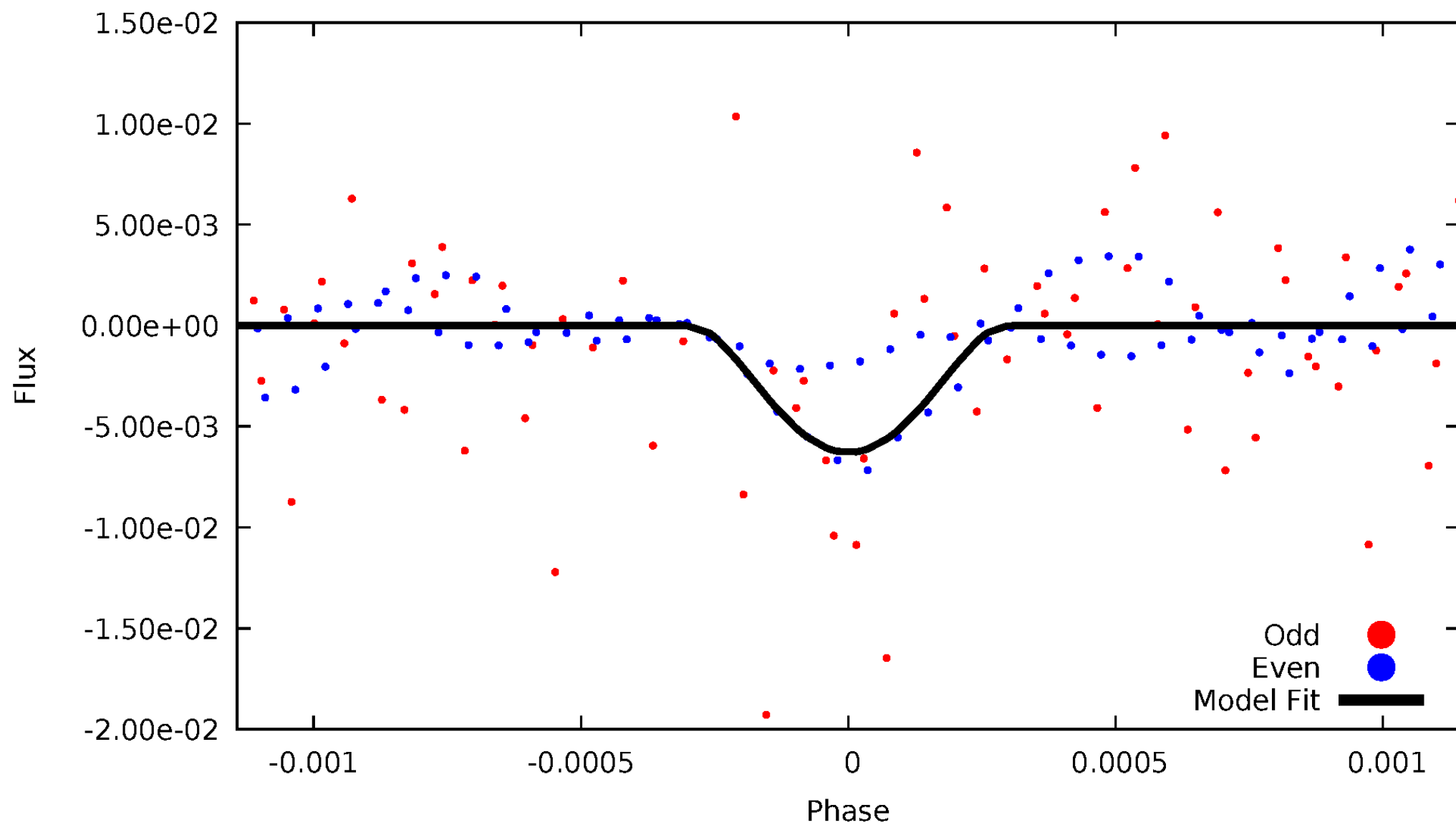


TCE 007880048-05



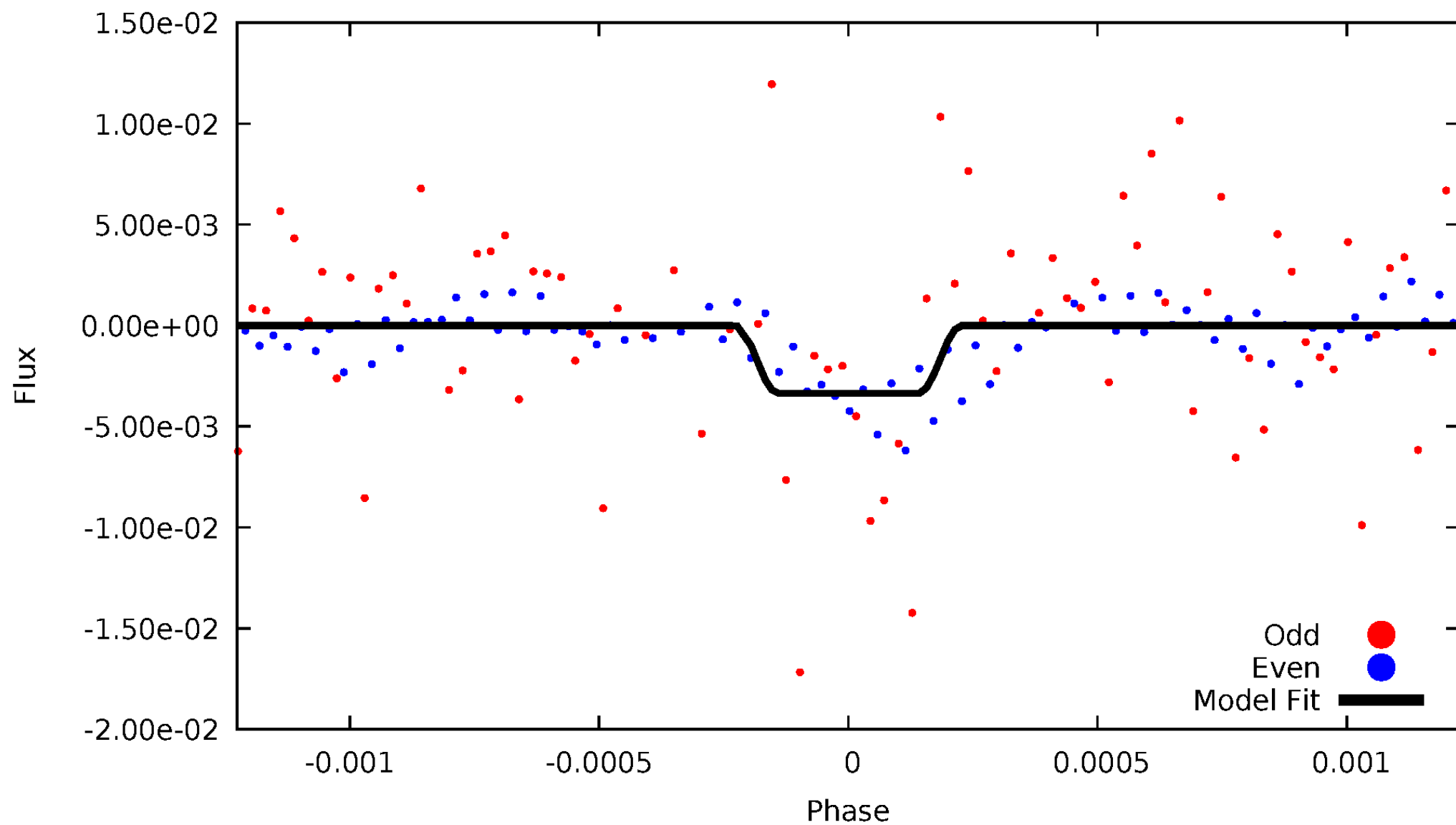
DV Odd/Even

TCE 007880048-05



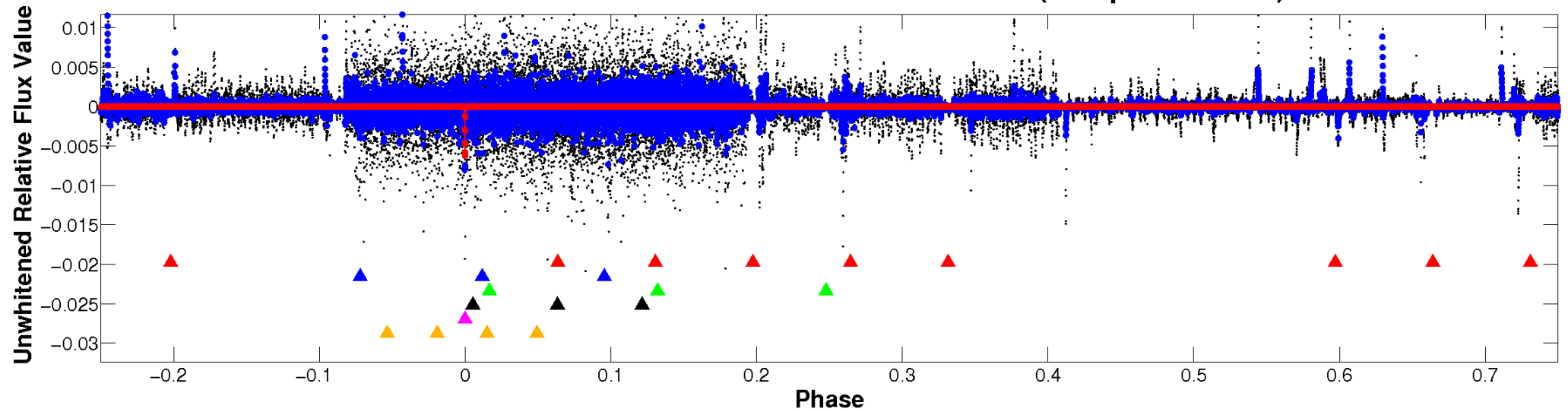
ALT Odd/Even

TCE 007880048-05

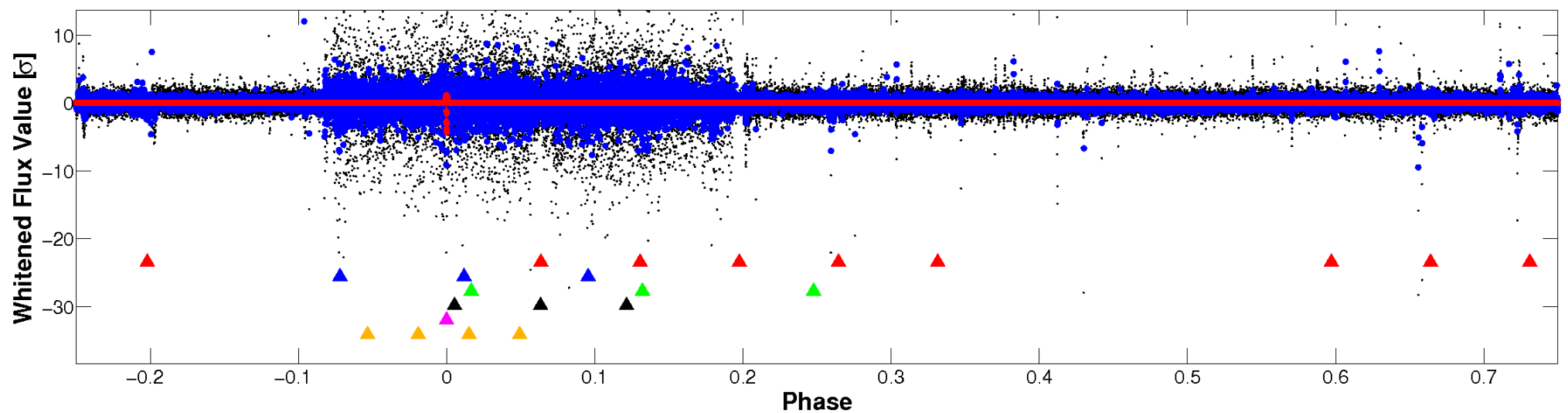


Non-Whitened Vs. Whitened Light Curve

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

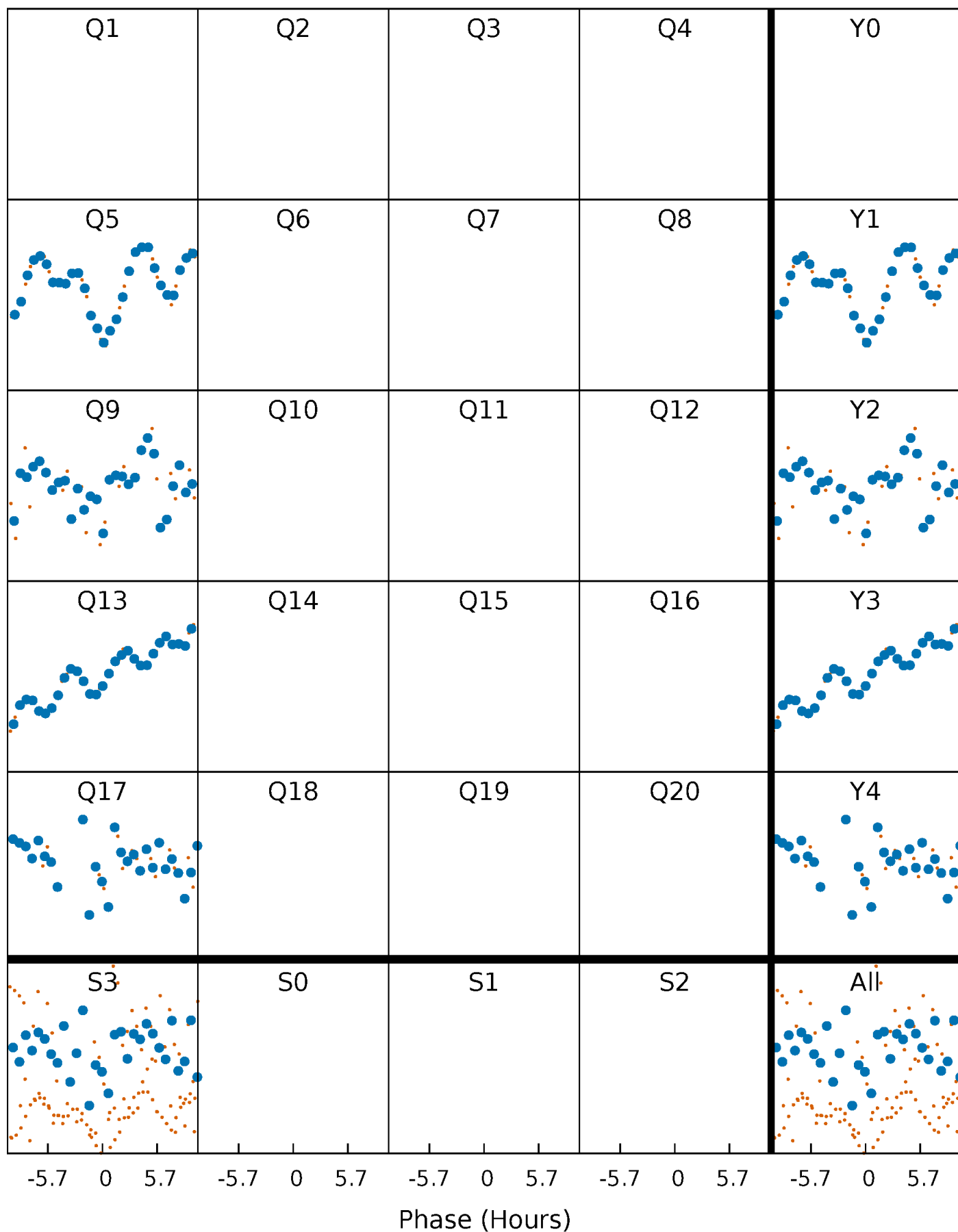


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



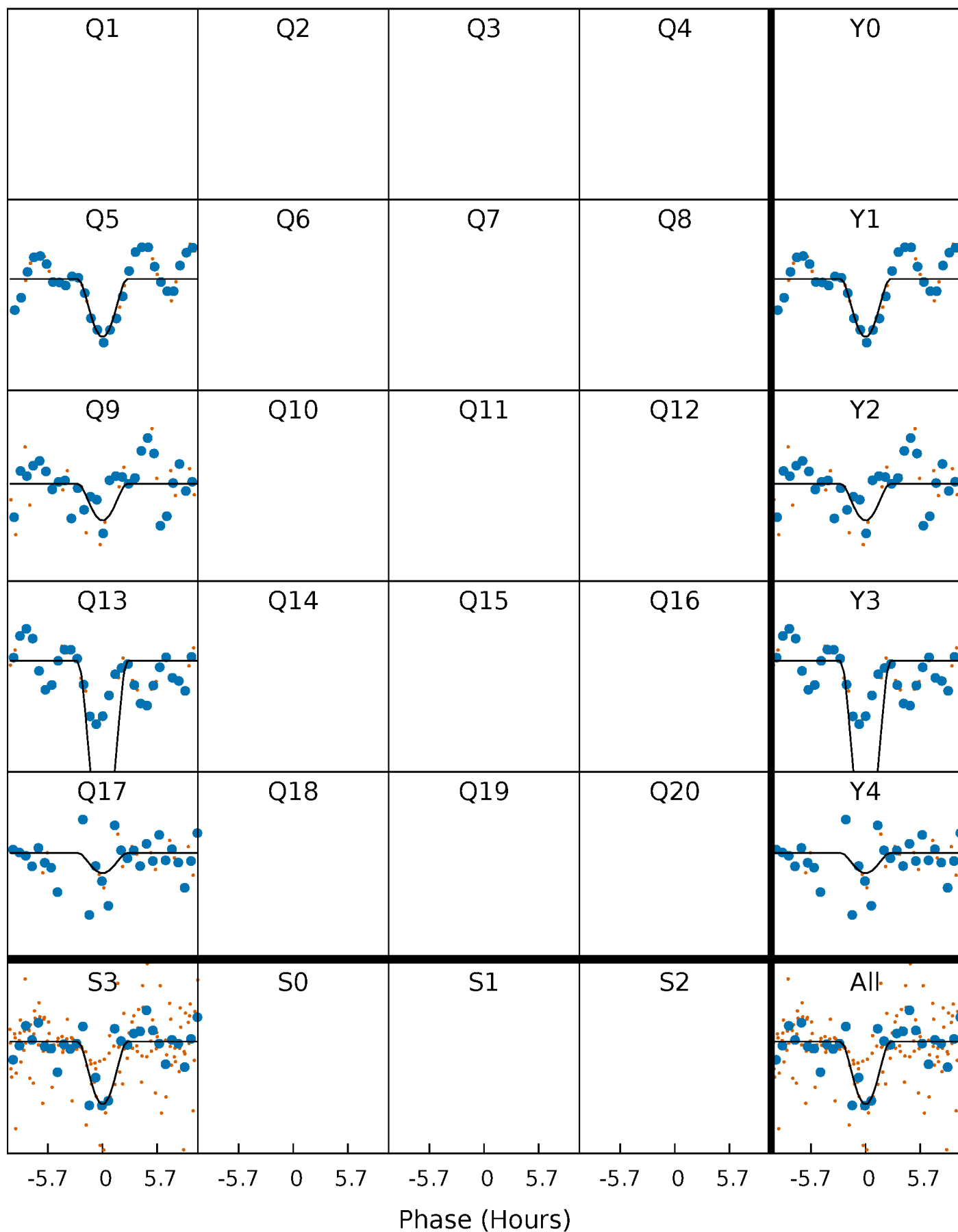
PDC Quarter-Phased Transit Curves

TCE 007880048-05 $P=362.555526$ Days $T_0=473.372824$ (BKJD)



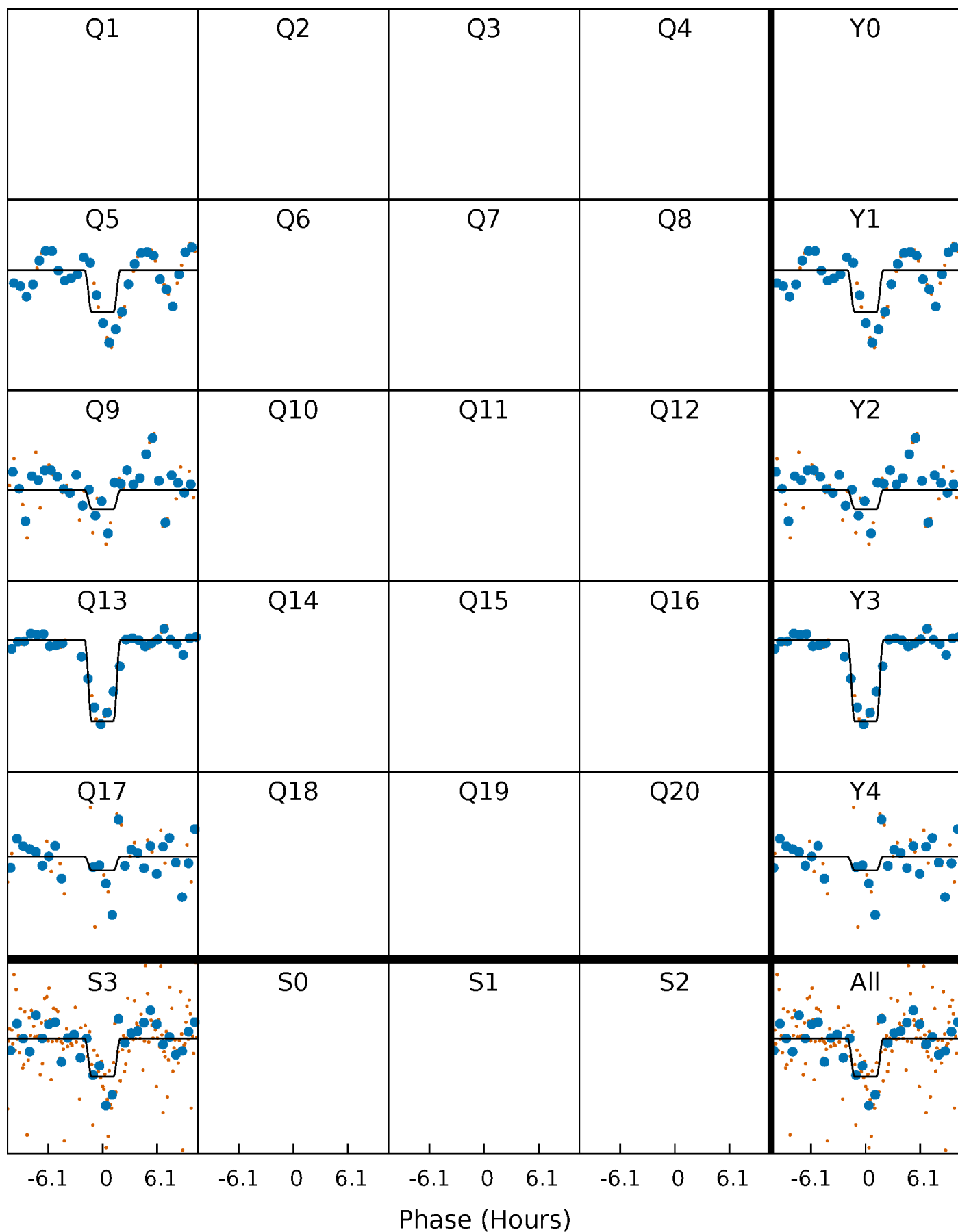
DV Quarter-Phased Transit Curves

TCE 007880048-05 $P=362.555526$ Days $T_0=473.372824$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

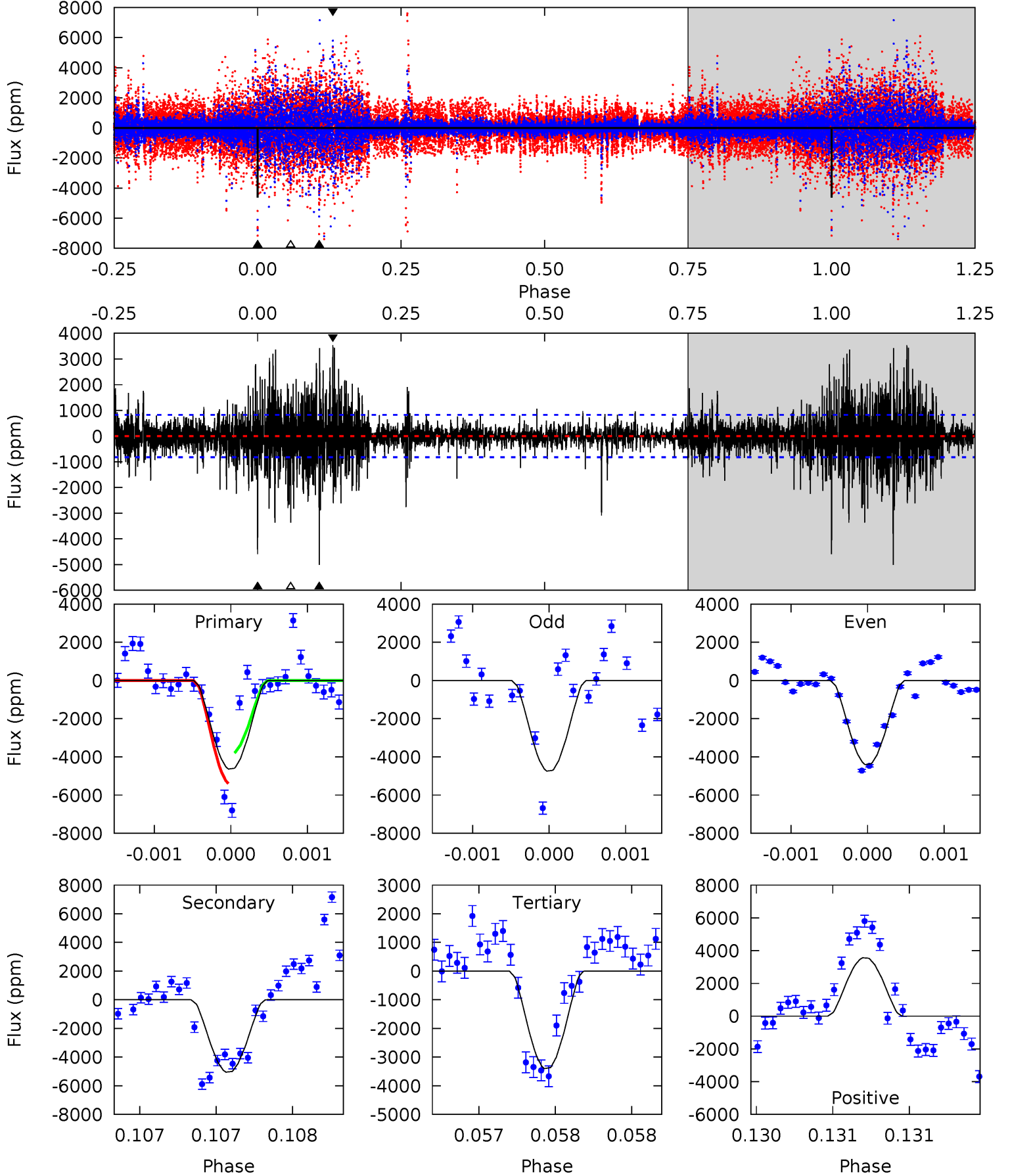
TCE 007880048-05 $P=362.558186$ Days $T_0=473.344241$ (BKJD)



DV Model-Shift Uniqueness Test

007880048-05, P = 362.555526 Days, E = 110.817298 Days

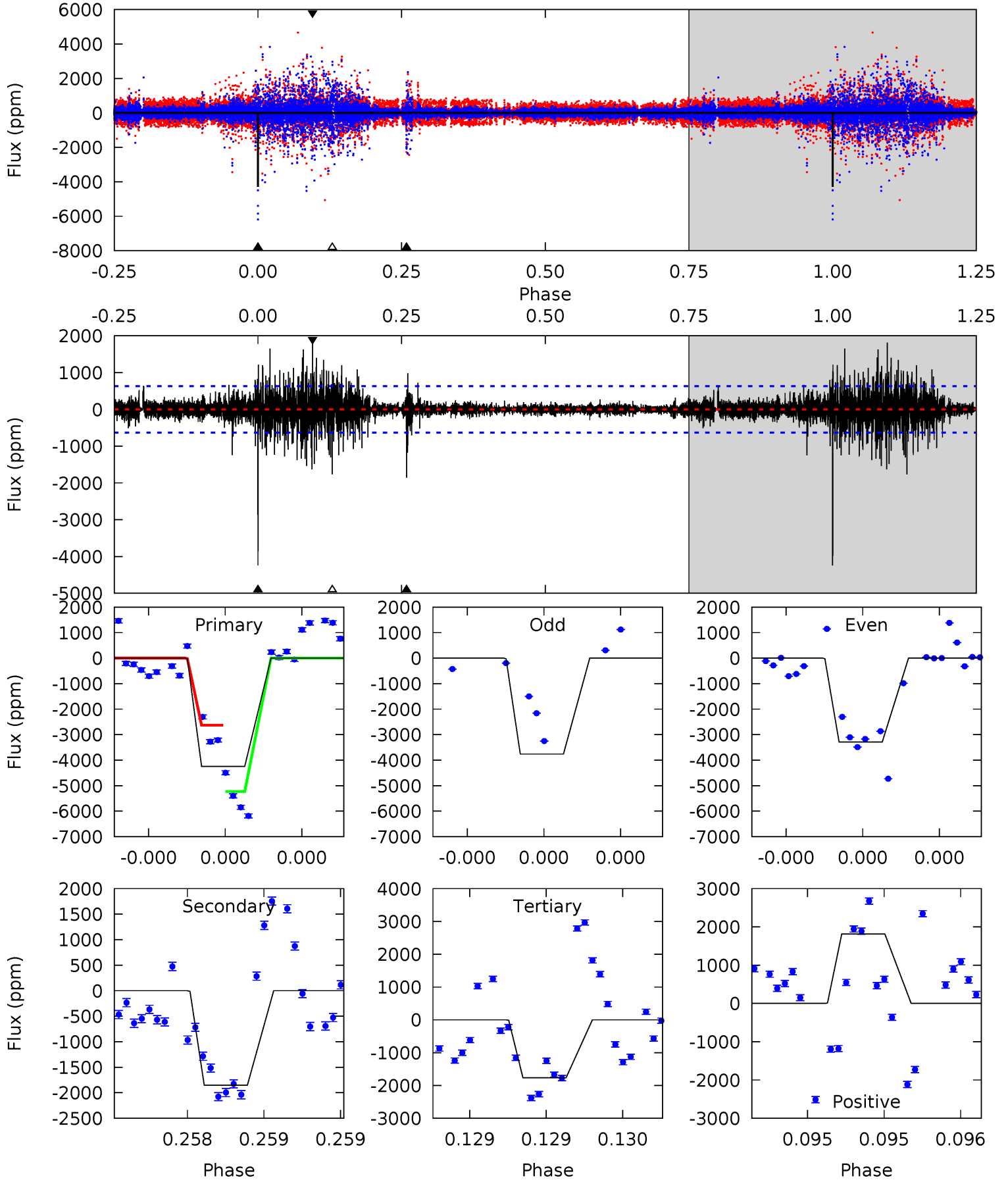
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.9	33.6	22.6	23.7	5.54	3.42	3.22	8.23	7.13	11.0	9.89	0.68	0.92	0.41	4.99



Alt Model-Shift Uniqueness Test

007880048-05, P = 362.558186 Days, E = 110.786055 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.5	16.3	15.6	16.0	5.59	3.51	1.43	21.9	21.4	0.75	0.33	1.11	1.01	0.30	12.0



Stellar Parameters For KIC 007880048

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3464^{+117}_{-94}	$0.576^{+0.250}_{-0.250}$	$0.120^{+0.250}_{-0.250}$	$94.342^{+34.290}_{-22.860}$	$1.223^{+0.301}_{-0.176}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+43%/-43%	+208%/-208%	+36%/-24%	+25%/-14%	+142%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007880048-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5006 ± 149	$6165.11^{+6704.22}_{-4343.44}$	2024^{+195}_{-171}	-2195^{+4732}_{-179}	$0.082^{+0.975}_{-0.062}$
Alt.	-1850 ± 113	$6226.86^{+5672.01}_{-4123.70}$	2017^{+204}_{-157}	-2267^{+398}_{-133}	$0.031^{+0.222}_{-0.023}$

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 $A_{obs} \gg 1.0$

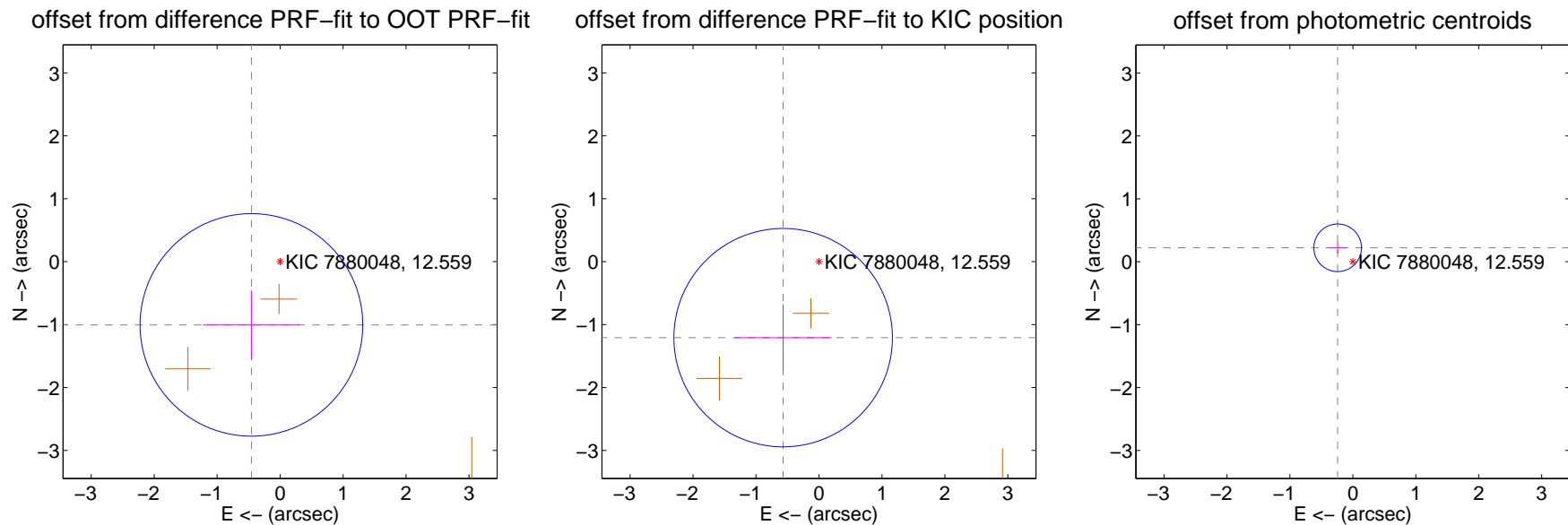
DV Centroid Data

Supplemental centroid analysis for 007880048-05. Kepler magnitude: 12.56. Transit SNR 15.15

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.103 ± 0.589	1.87	0.456 ± 0.764	-1.005 ± 0.546
PRF-fit source offset from KIC position	1.335 ± 0.578	2.31	0.569 ± 0.767	-1.207 ± 0.527
photometric centroid source offset	0.33 ± 0.13	2.60	0.24 ± 0.15	0.22 ± 0.10

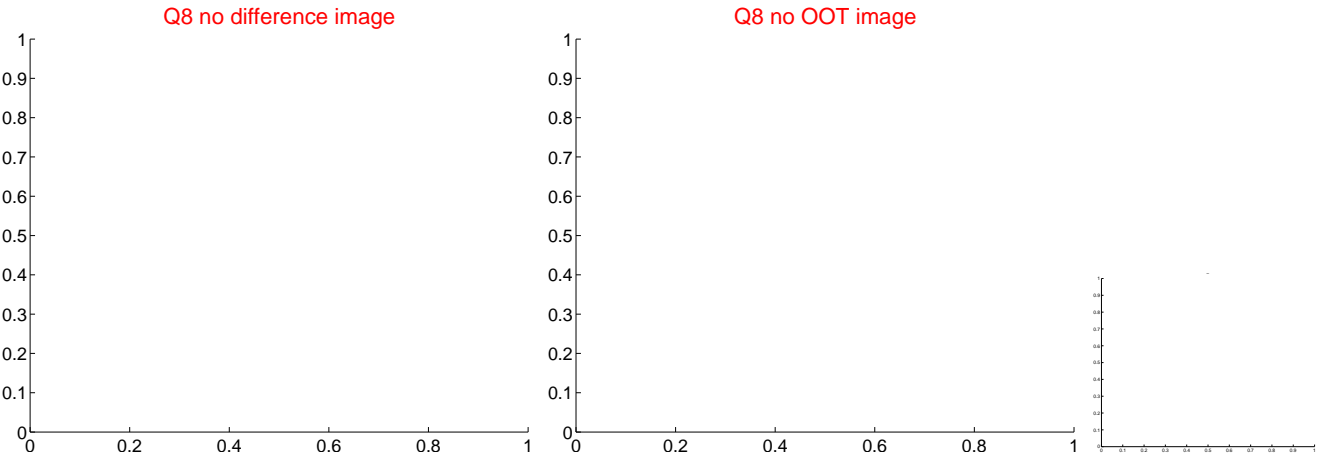
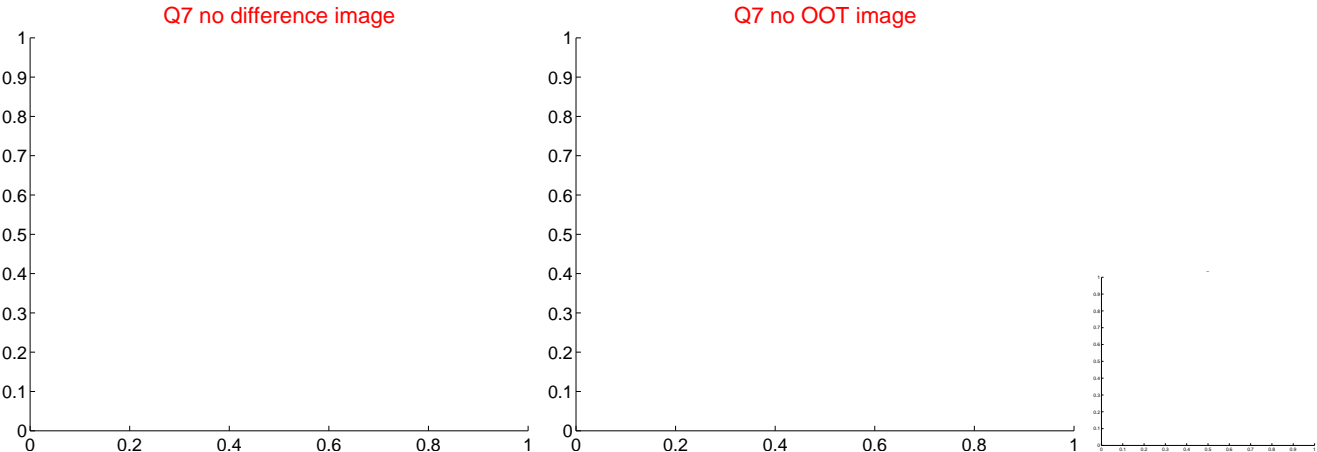
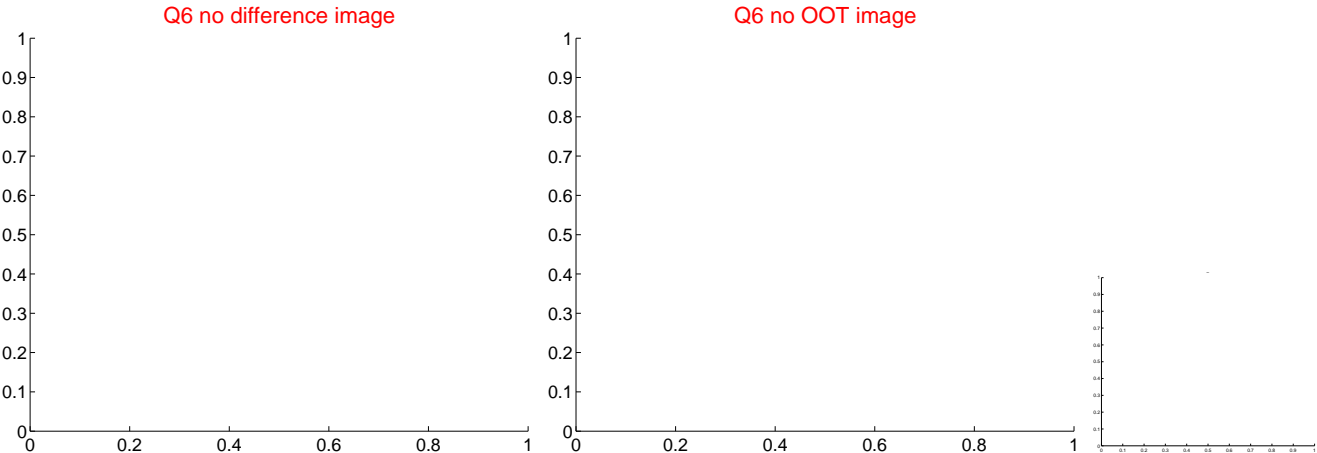
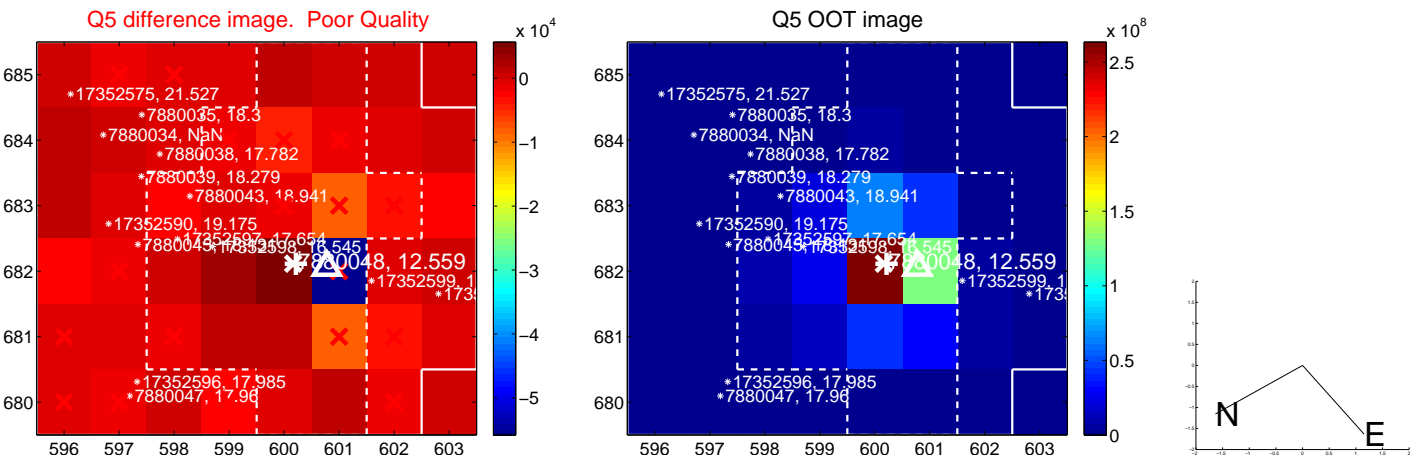


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

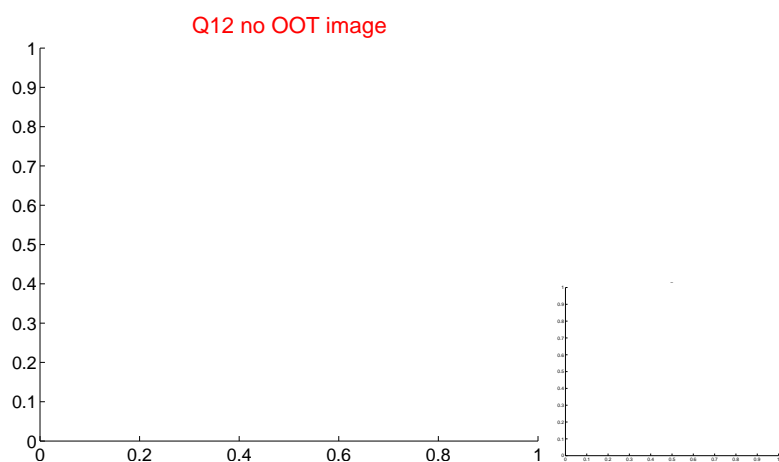
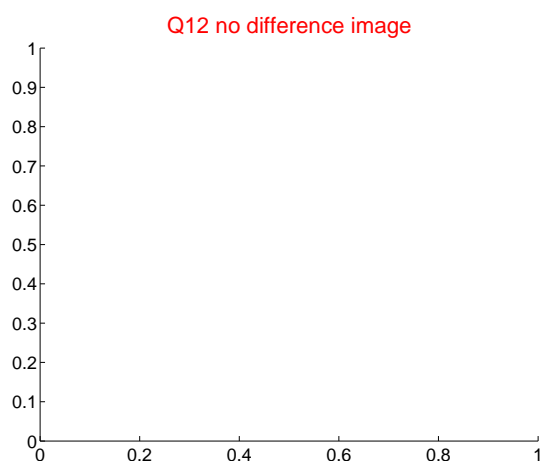
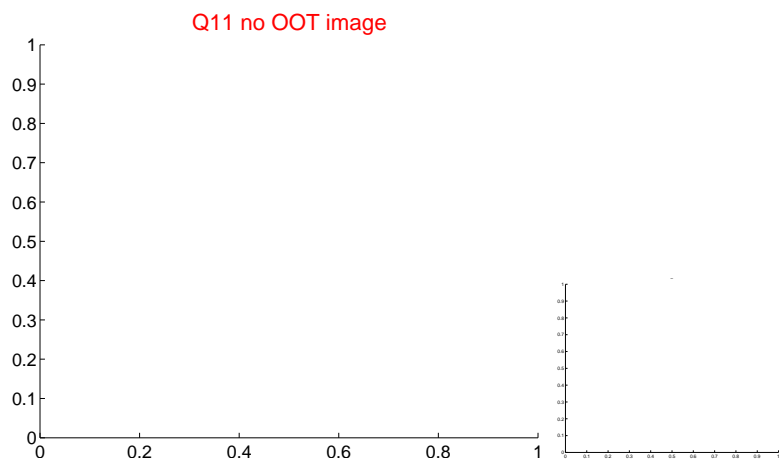
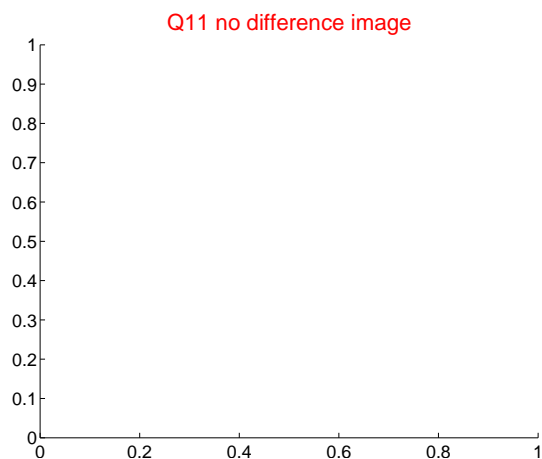
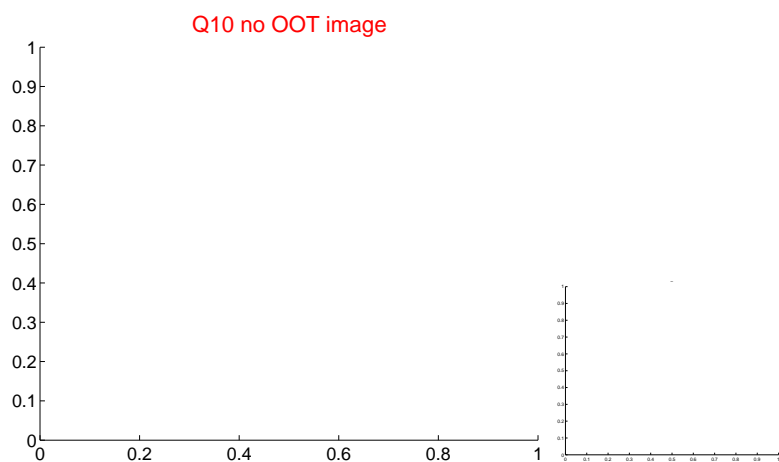
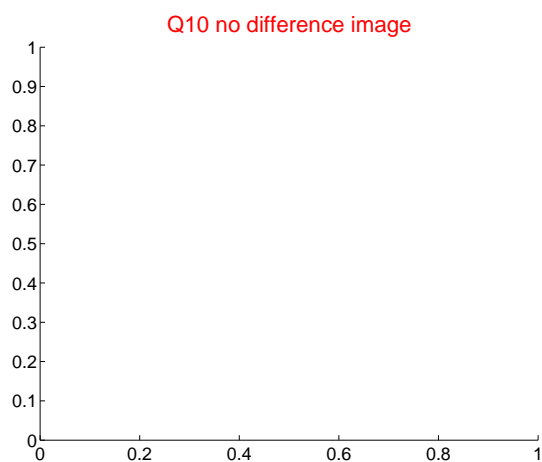
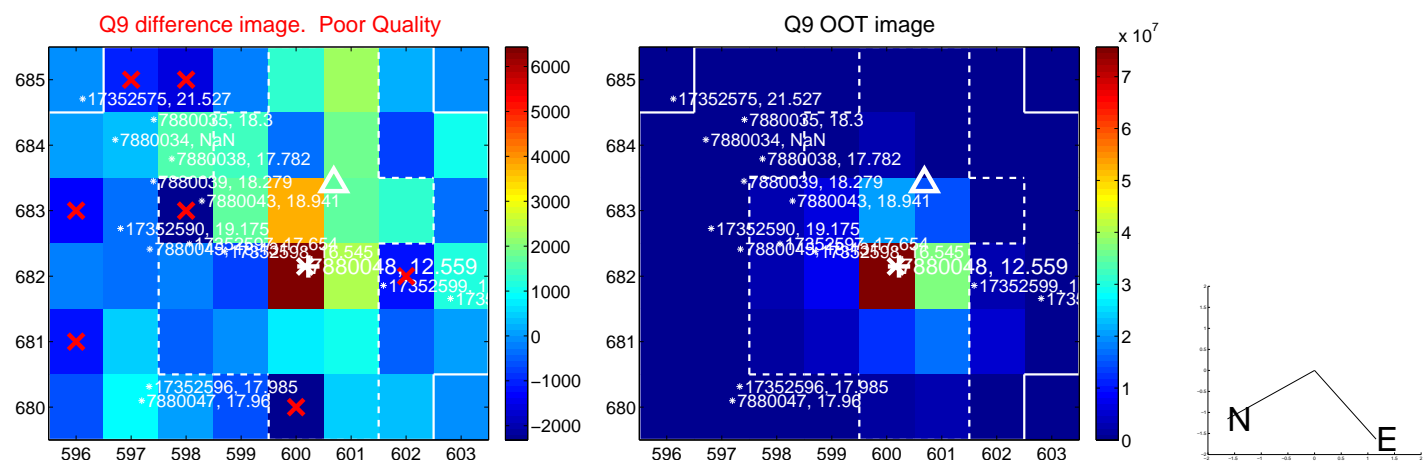
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



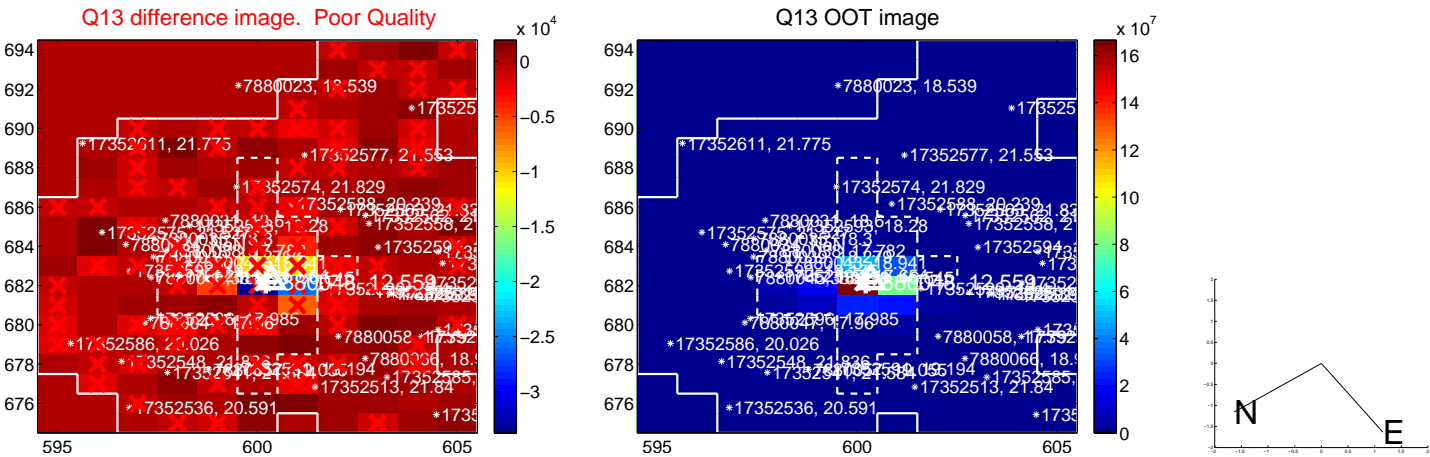
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



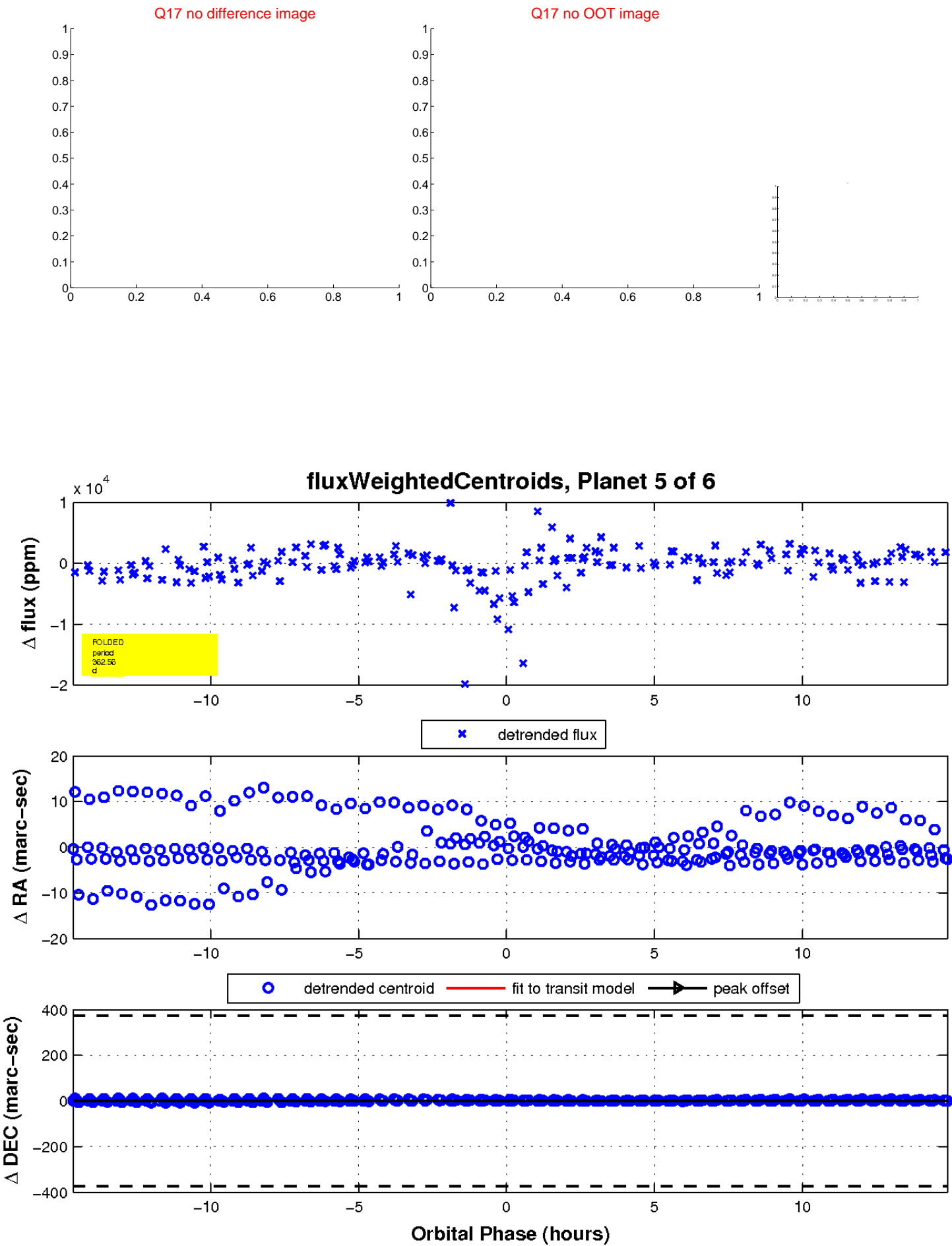
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

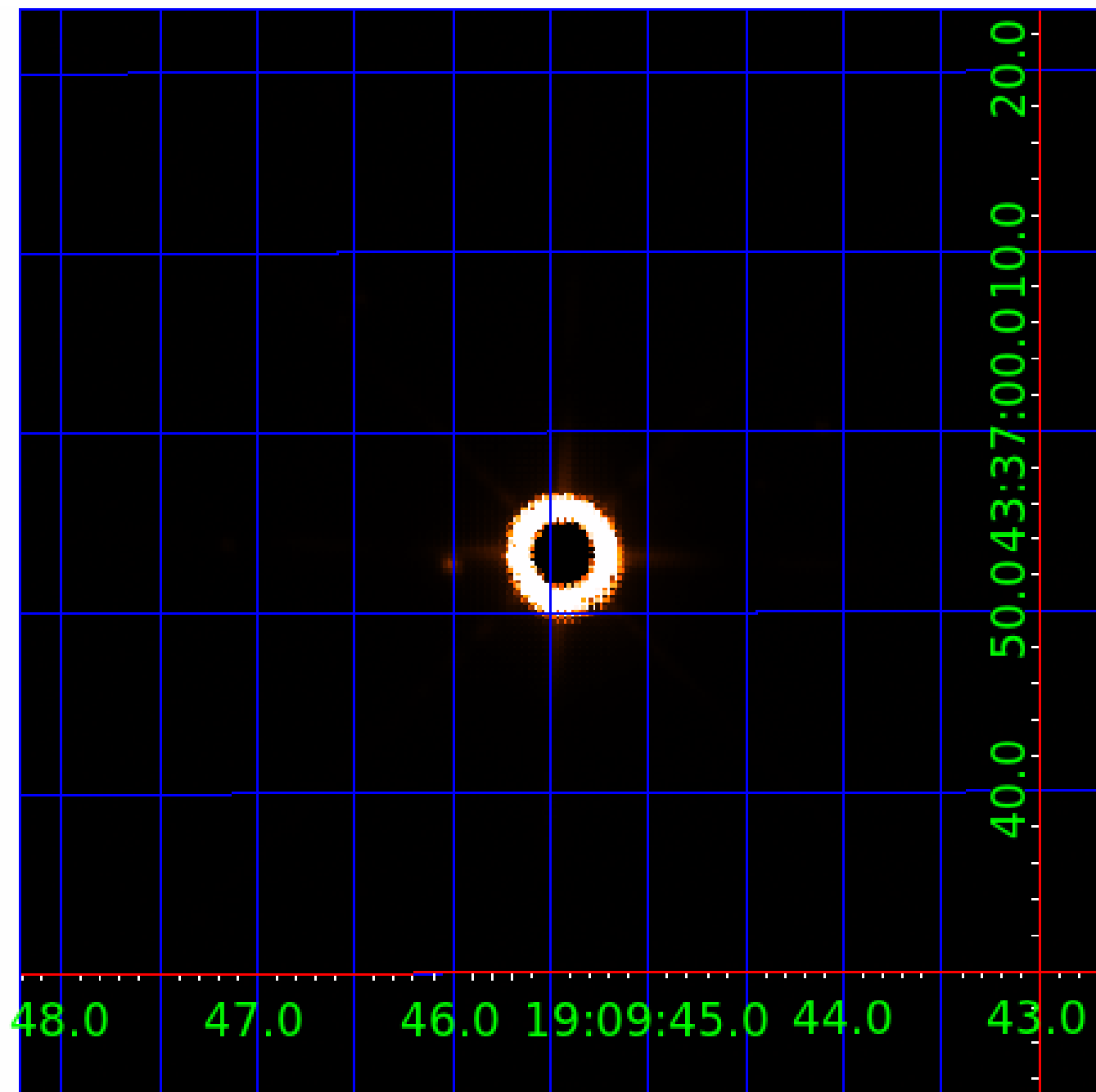


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007880048

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})
007880048-01	OBS	No	169.140147	230.993971	1304.6	24.366	24.9	34.1	94.34	3464	312.01	2801.22
007880048-02	OBS	No	392.918719	447.288252	10468.9	4.796	24.2	20.3	94.34	3464	1772.11	910.48
007880048-03	OBS	No	683.223323	200.624105	148.4	15.000	21.6	-1.0	94.34	3464	105.51	435.44
007880048-04	OBS	No	704.059000	154.855511	4534.4	6.383	18.2	14.9	94.34	3464	603.45	418.34
007880048-05	OBS	No	362.555526	473.372824	6259.8	4.974	25.4	15.1	94.34	3464	1509.90	1013.54
007880048-06	OBS	No	374.962637	454.034305	241.1	3.500	20.3	-1.0	94.34	3464	134.68	969.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007880048-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007880048-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007880048-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007880048-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

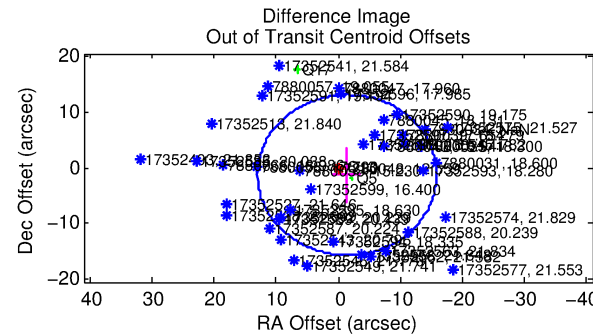
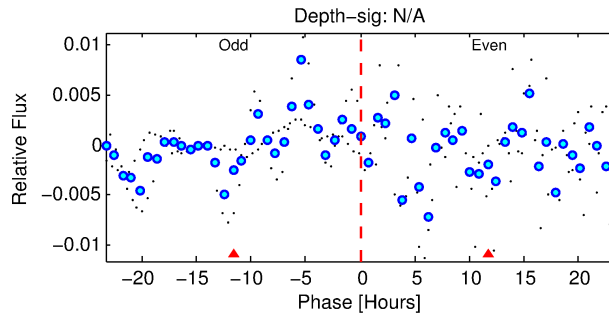
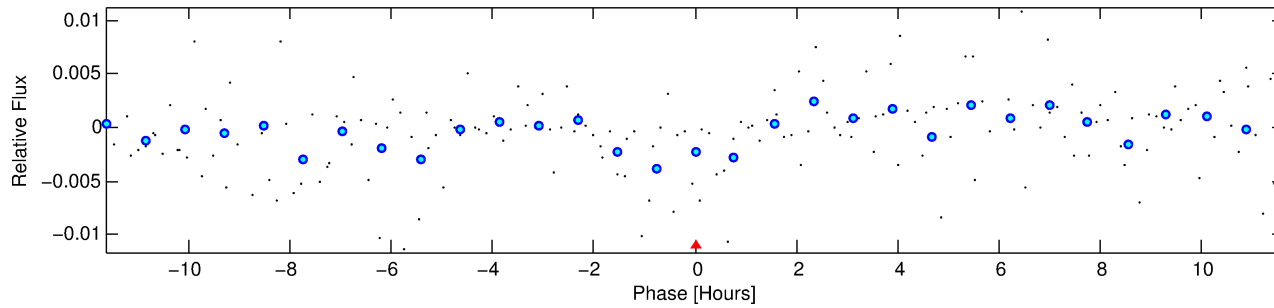
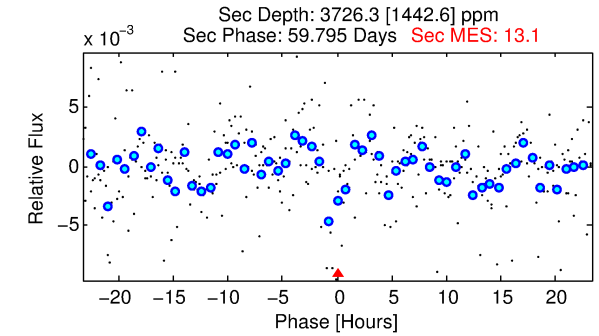
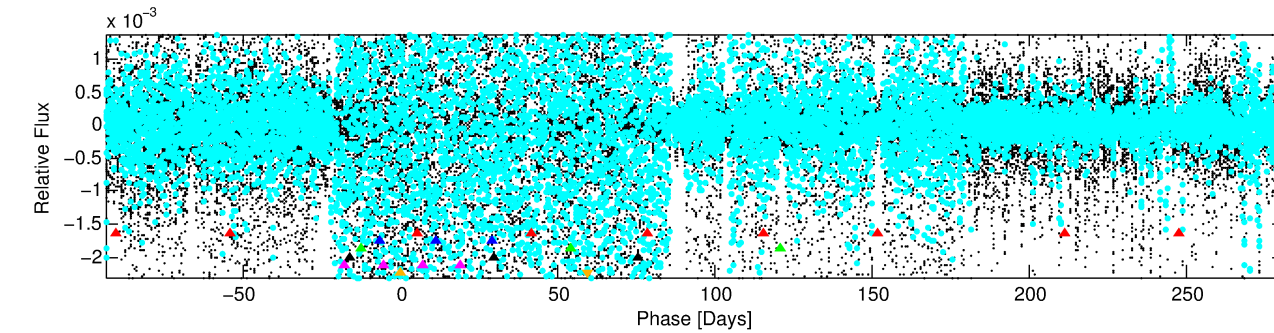
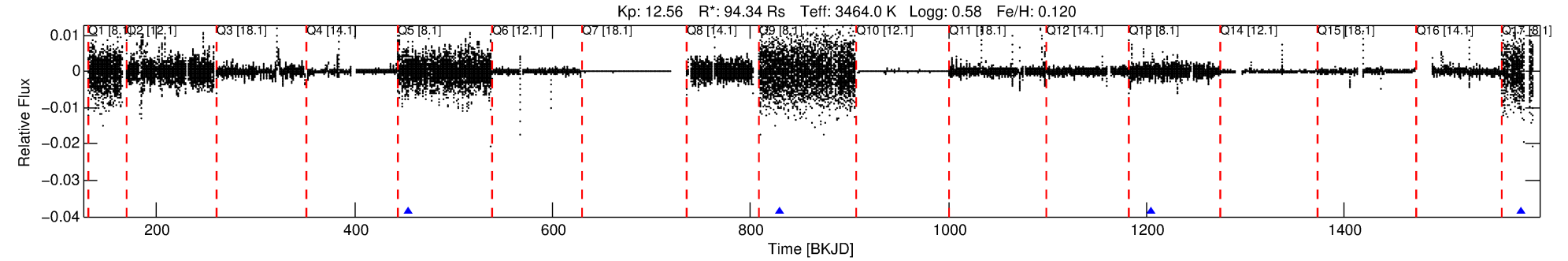
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007880048-06

No Significant Match Found

DV One-Page Summary

KIC: 7880048 Candidate: 6 of 6 Period: 374.963 d



TPS TCE Results:

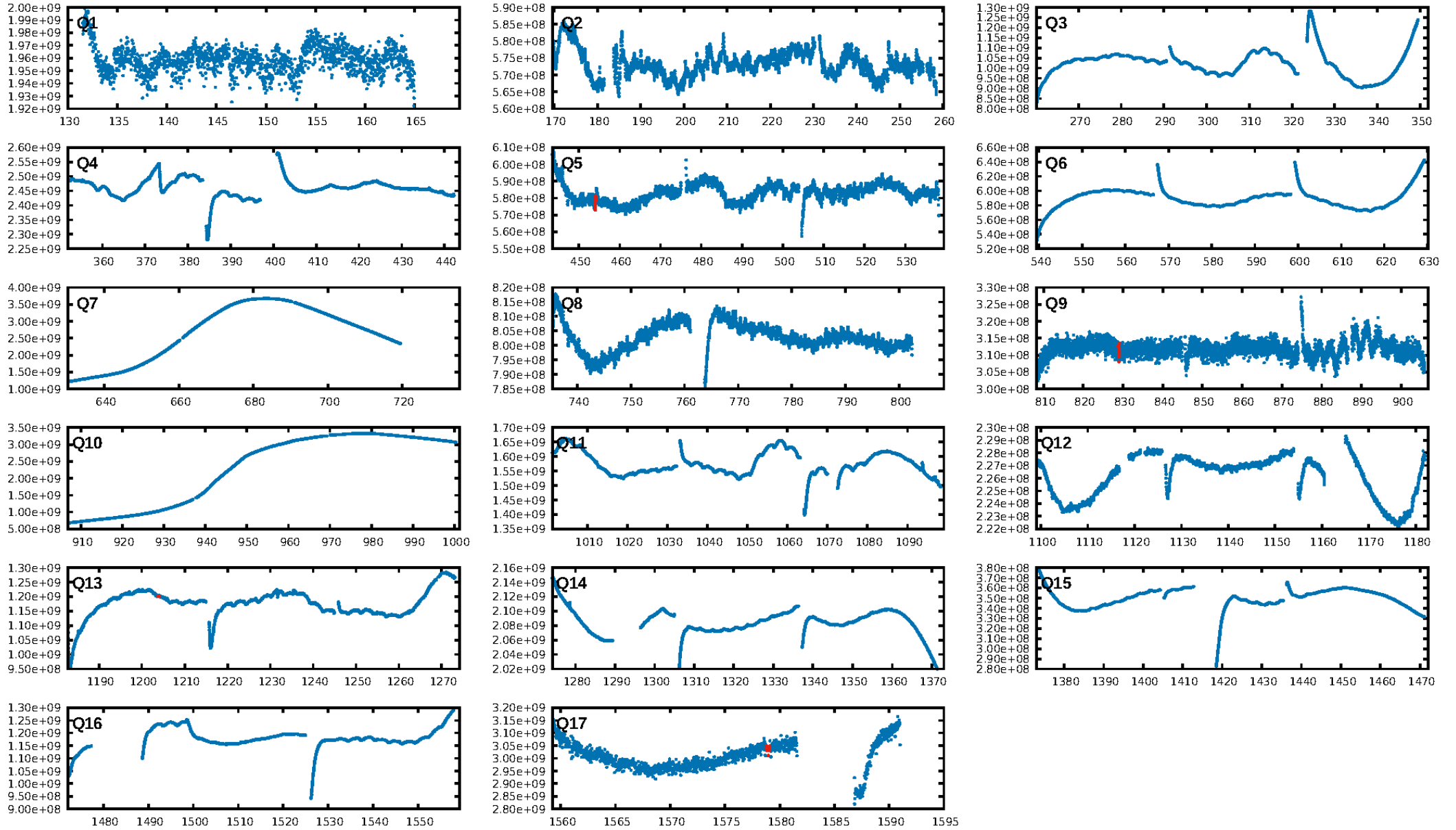
Period = 374.96264 d
Epoch = 454.0343 BKJD

DV fit results are unavailable

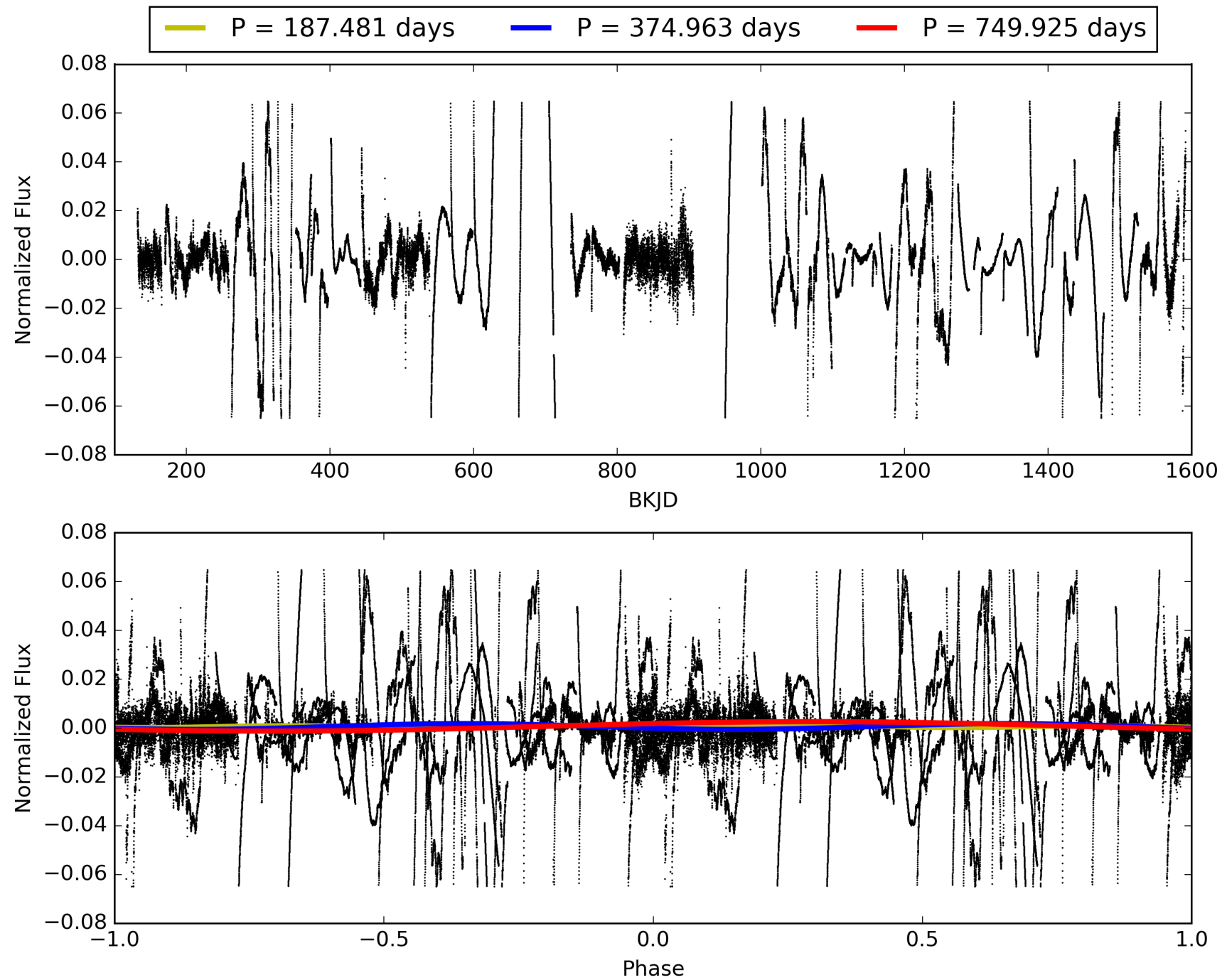
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.96σ]
LongPeriod-sig: 100.0% [72.59σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -8.23
Centroid-sig: N/A
Centroid-so: 1.982 arcsec [1.43σ]
OotOffset-rm: 1.930 arcsec [0.40σ]
KicOffset-rm: 2.321 arcsec [0.67σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 007880048-06, PDC Light Curves

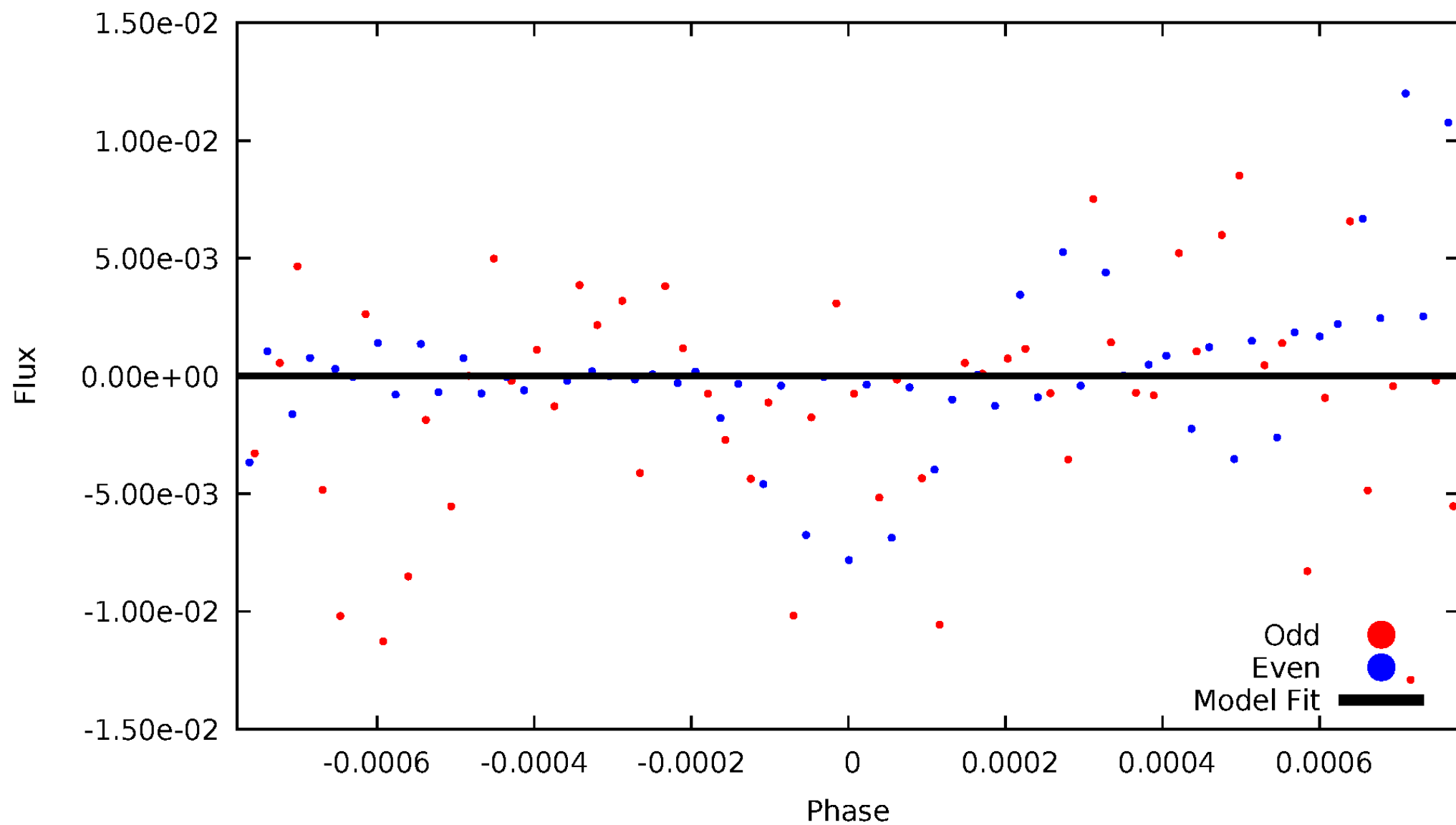


TCE 007880048-06



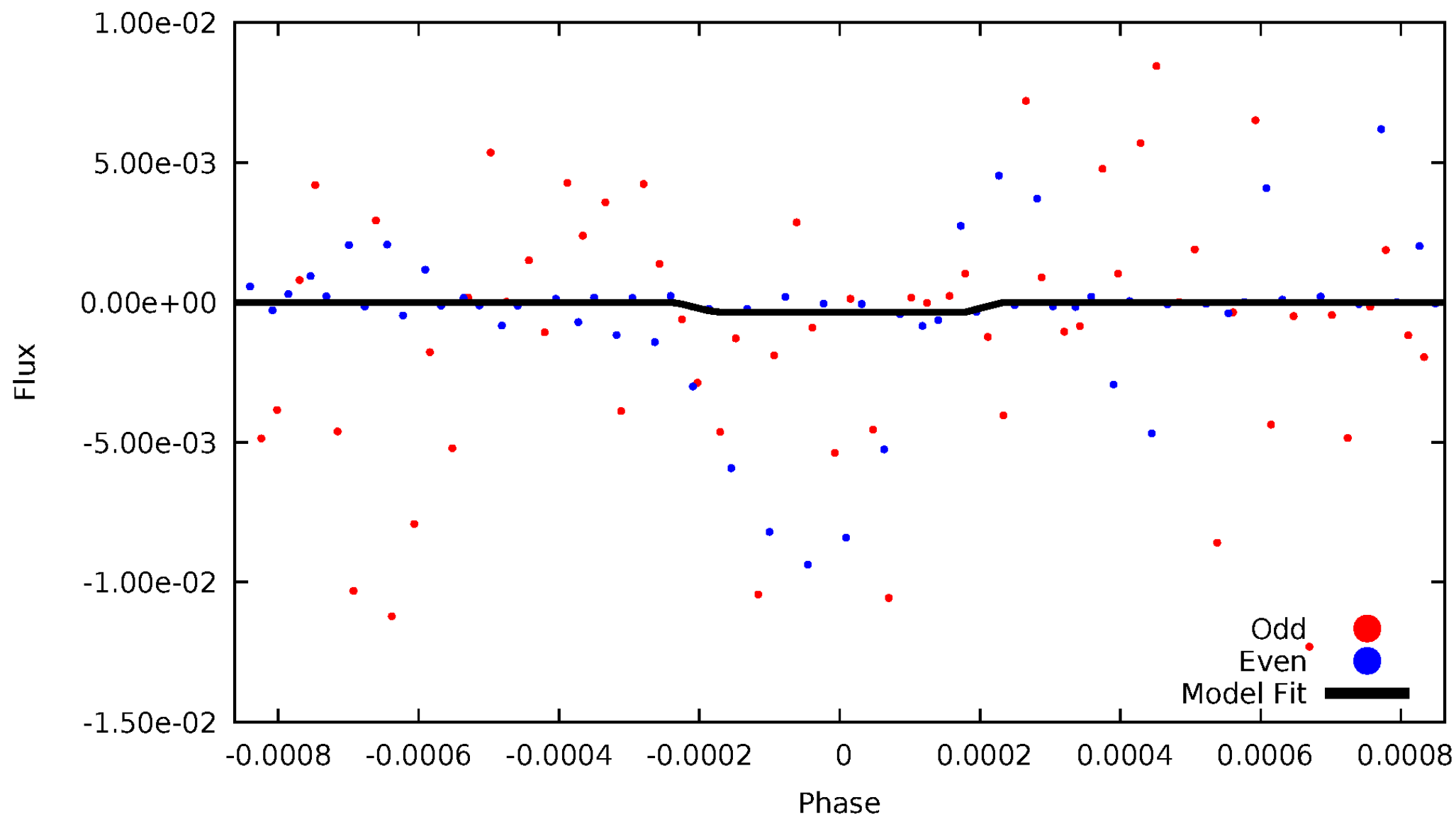
DV Odd/Even

TCE 007880048-06



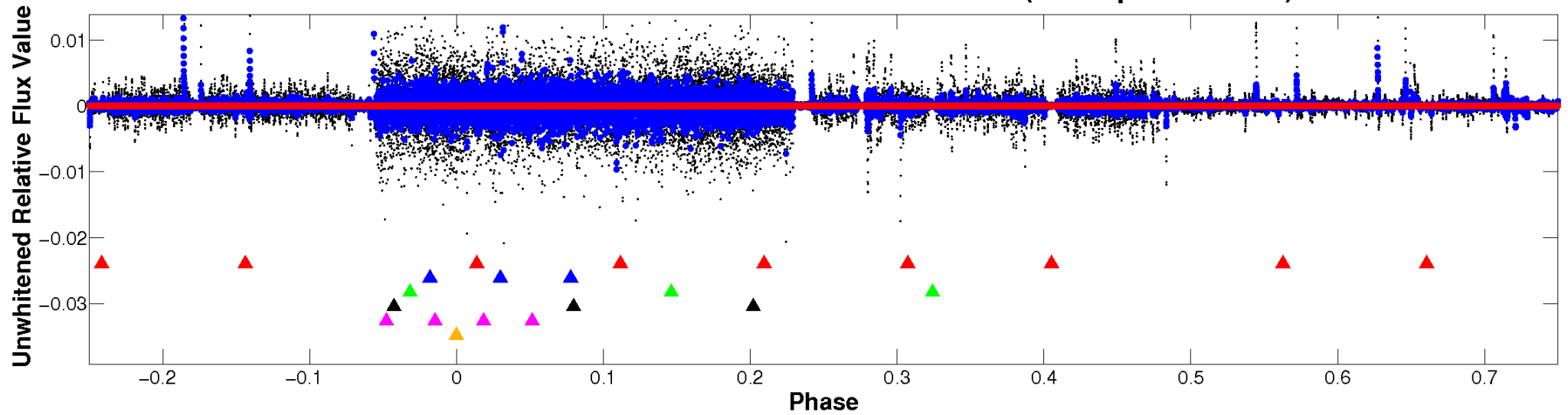
ALT Odd/Even

TCE 007880048-06

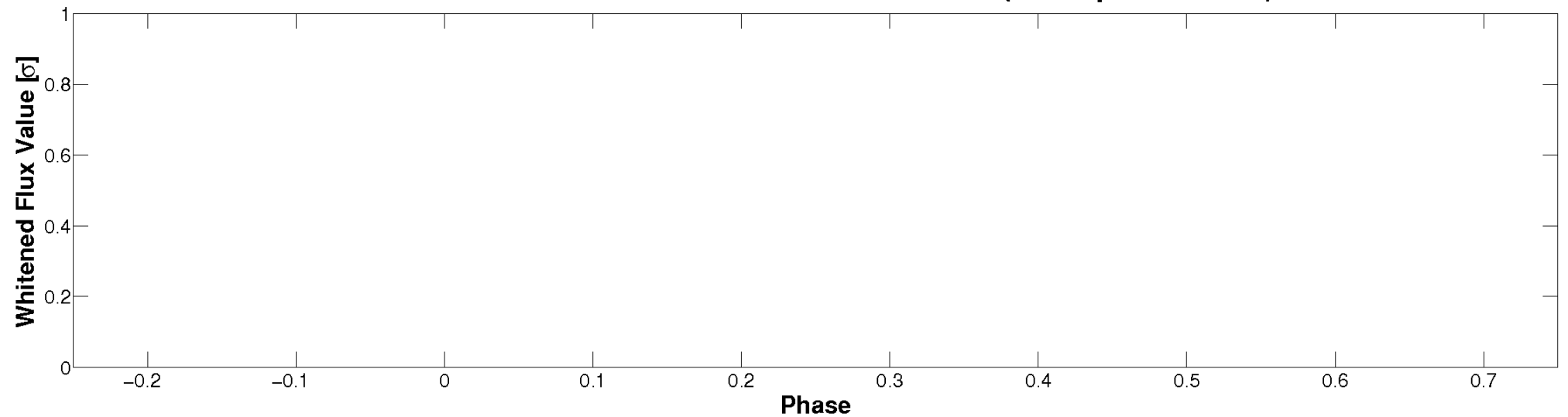


Non-Whitened Vs. Whitened Light Curve

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

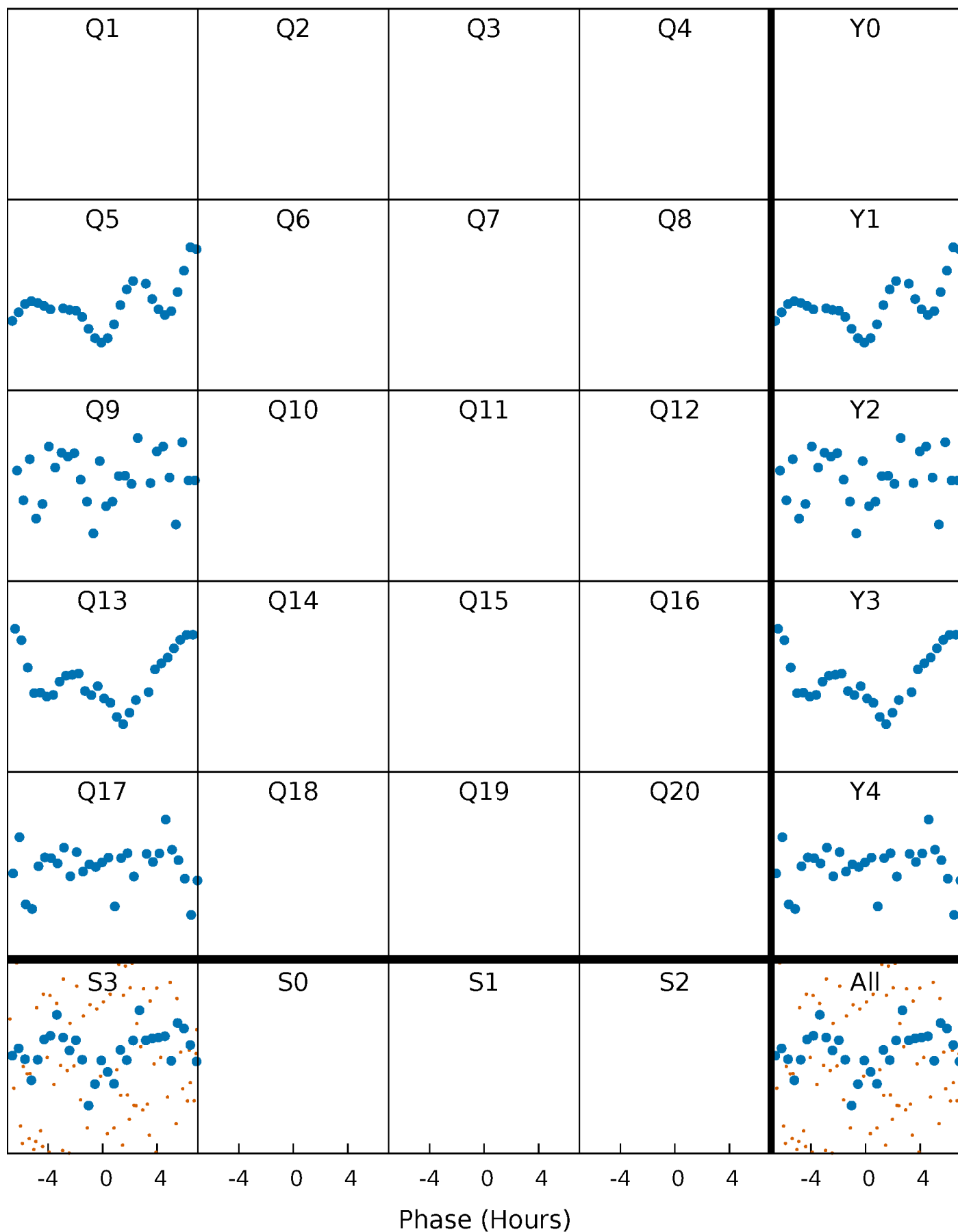


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



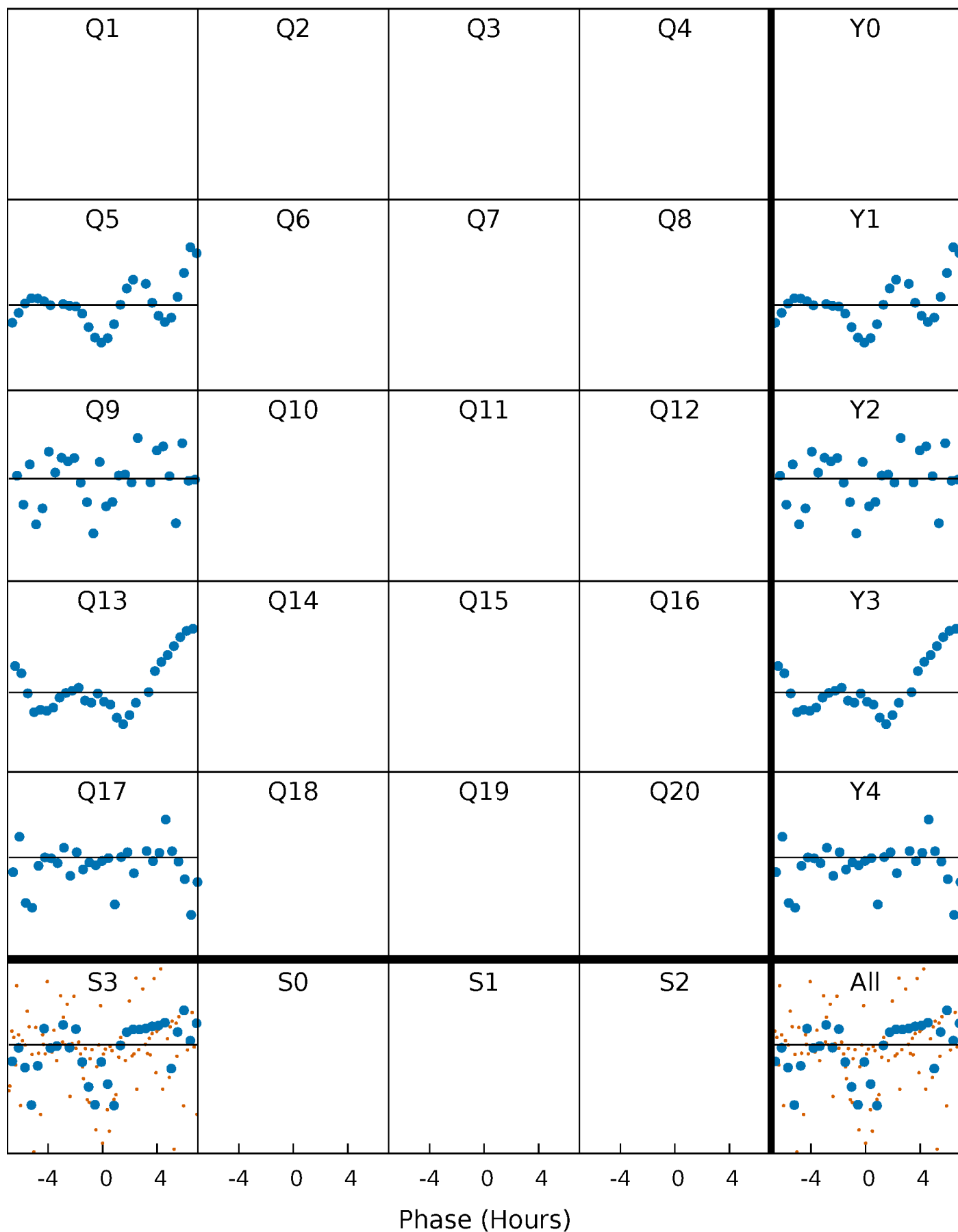
PDC Quarter-Phased Transit Curves

TCE 007880048-06 $P=374.962637$ Days $T_0=454.034305$ (BKJD)



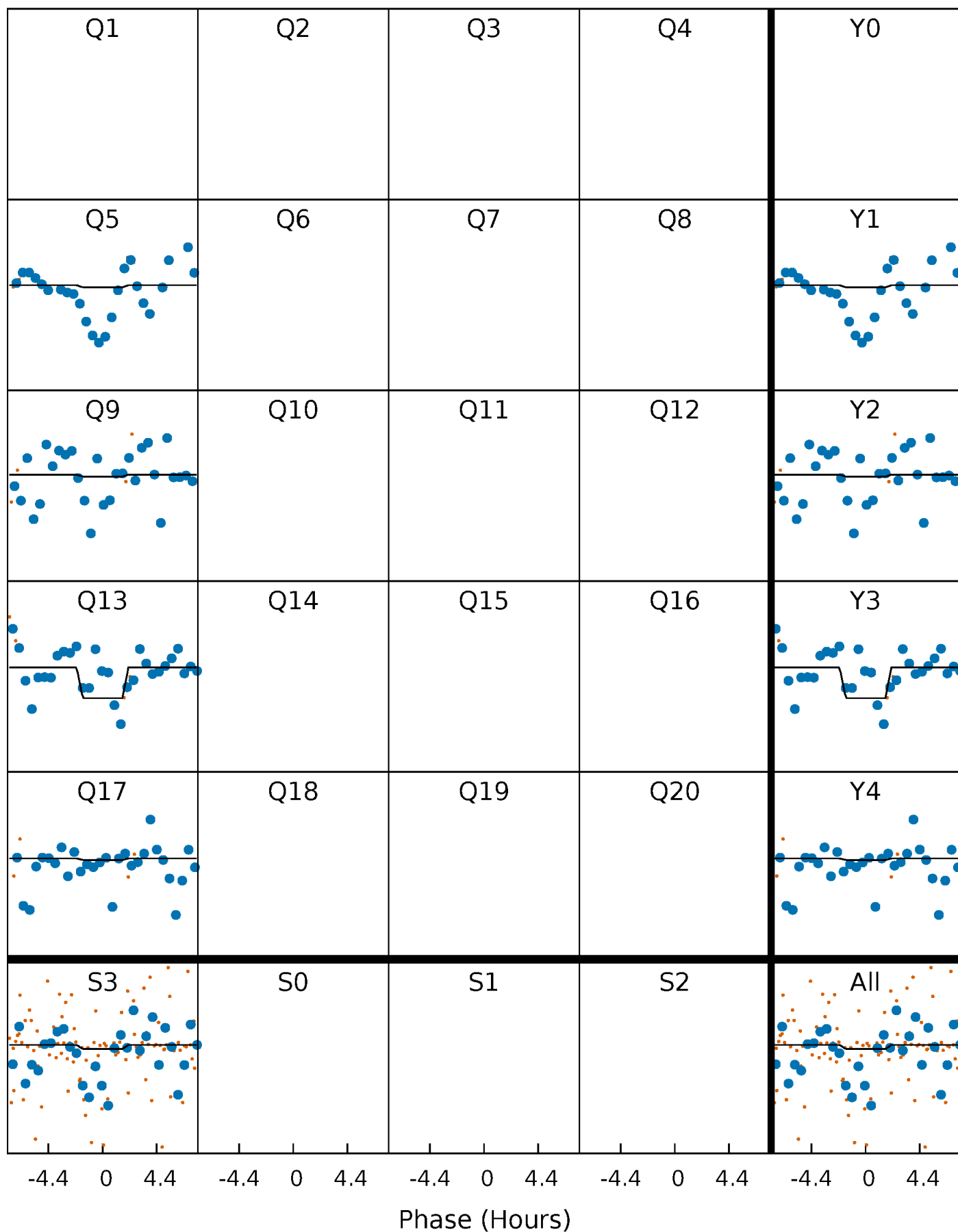
DV Quarter-Phased Transit Curves

TCE 007880048-06 $P=374.962637$ Days $T_0=454.034305$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

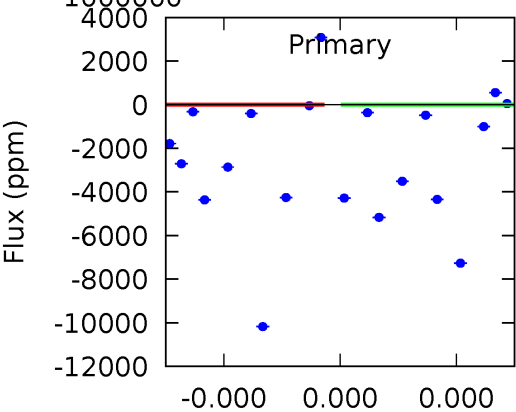
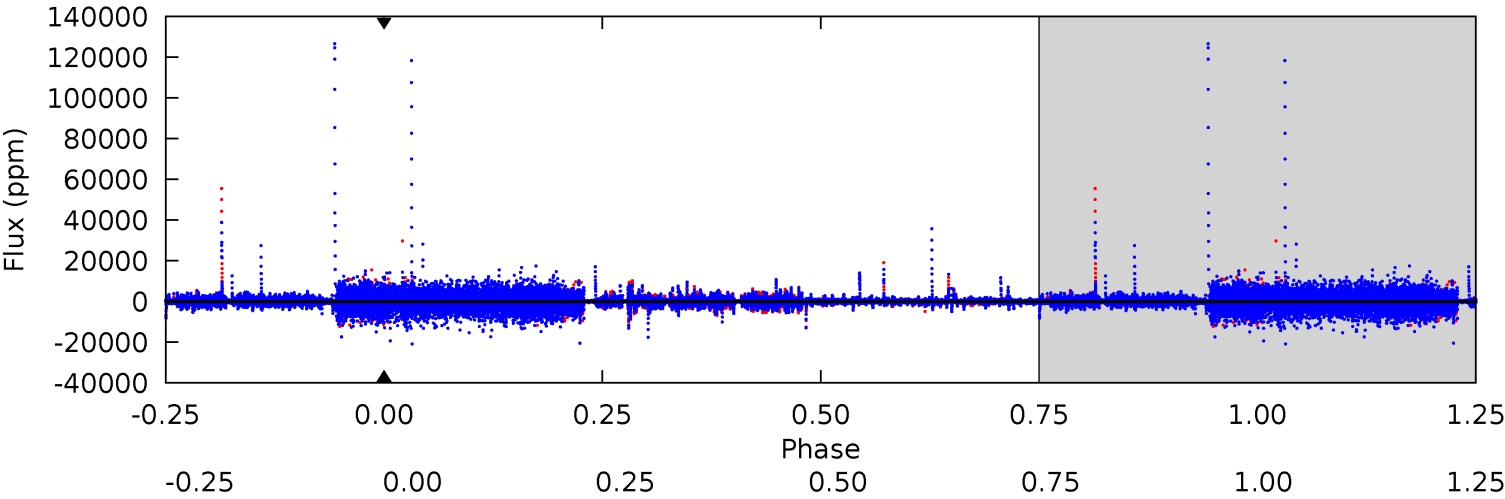
TCE 007880048-06 P=374.962637 Days $T_0=454.051641$ (BKJD)



DV Model-Shift Uniqueness Test

007880048-06, P = 374.962637 Days, E = 79.071668 Days

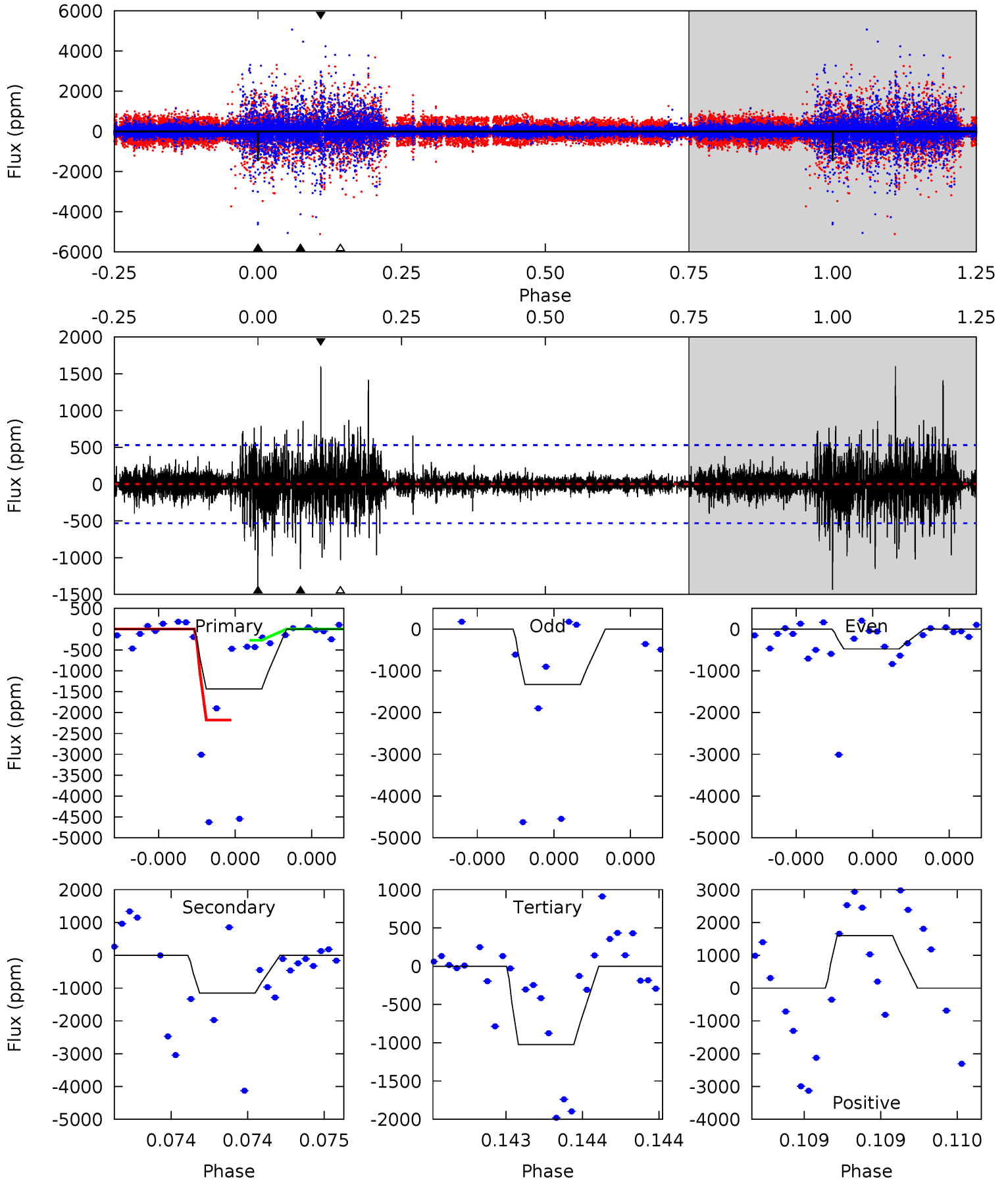
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007880048-06, P = 374.962637 Days, E = 79.089004 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	12.1	10.8	16.9	5.59	3.51	1.26	4.34	-1.75	1.36	-4.73	2.06	1.00	0.53	0



Stellar Parameters For KIC 007880048

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3464^{+117}_{-94}	$0.576^{+0.250}_{-0.250}$	$0.120^{+0.250}_{-0.250}$	$94.342^{+34.290}_{-22.860}$	$1.223^{+0.301}_{-0.176}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+43%/-43%	+208%/-208%	+36%/-24%	+25%/-14%	+142%/-59%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 007880048-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$692.76^{+838.22}_{-497.88}$	1995^{+200}_{-167}	2277^{+5606}_{-9804}	$0.686^{+305.874}_{-219.823}$
Alt.	-1153 ± 95	$797.48^{+840.08}_{-560.46}$	2005^{+196}_{-169}	2660^{+1266}_{-4389}	$1.206^{+12.563}_{-0.922}$

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 $A_{obs} \gg 1.0$

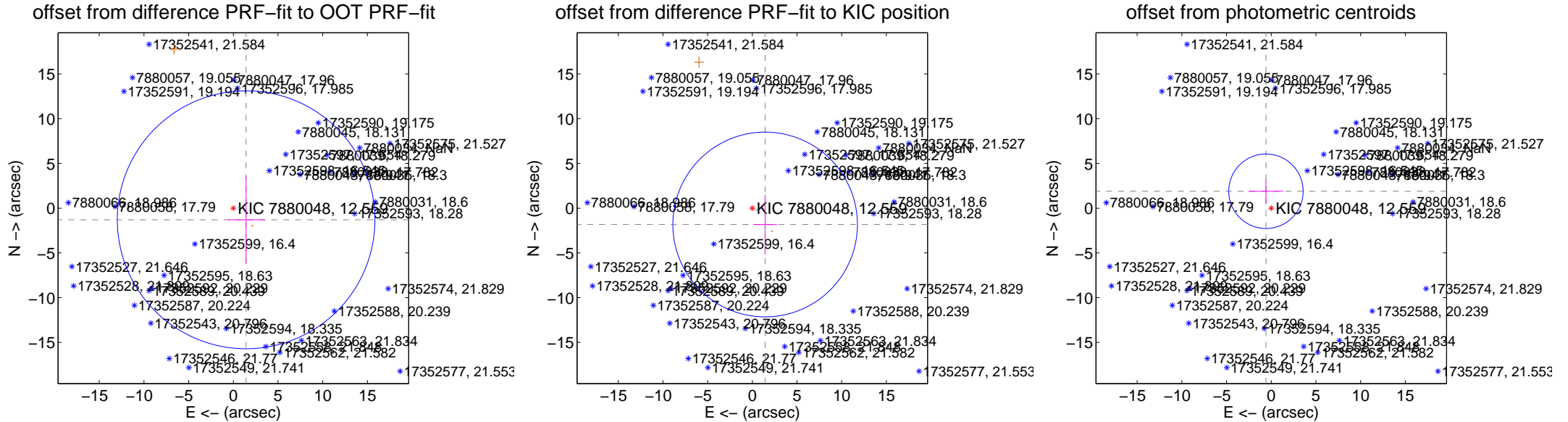
DV Centroid Data

Supplemental centroid analysis for 007880048-06. Kepler magnitude: 12.56. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.60 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.930 ± 4.802	0.40	-1.428 ± 2.076	-1.298 ± 4.859
PRF-fit source offset from KIC position	2.321 ± 3.441	0.67	-1.435 ± 1.324	-1.824 ± 3.339
photometric centroid source offset	1.98 ± 1.39	1.43	0.59 ± 1.96	1.89 ± 1.32

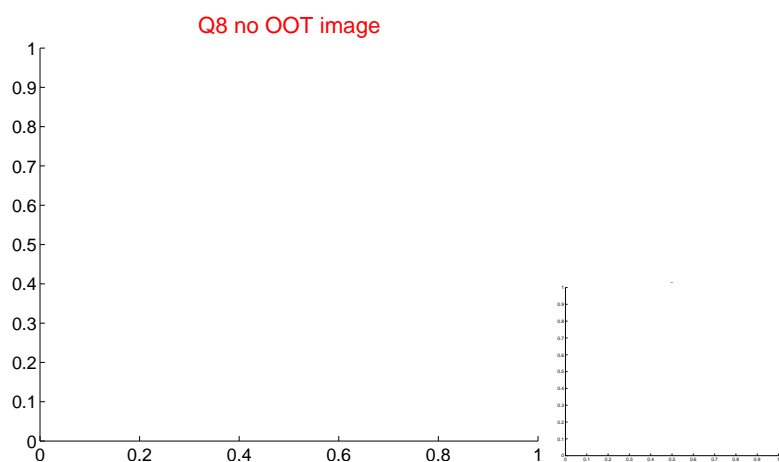
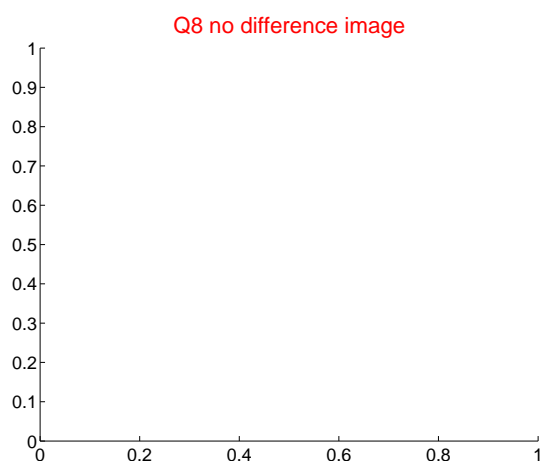
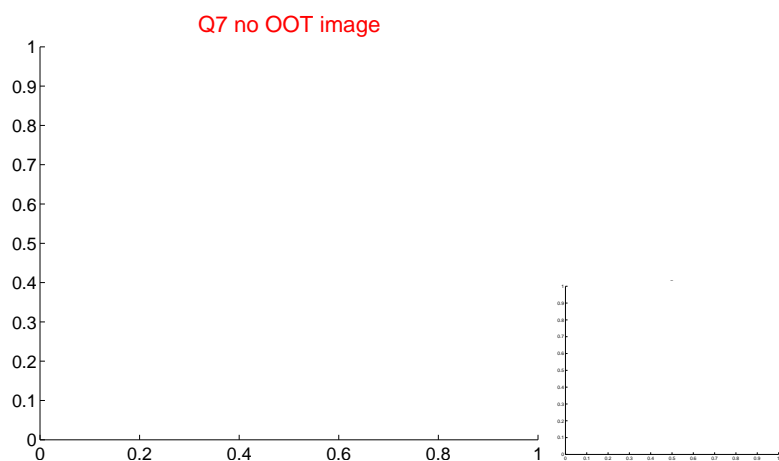
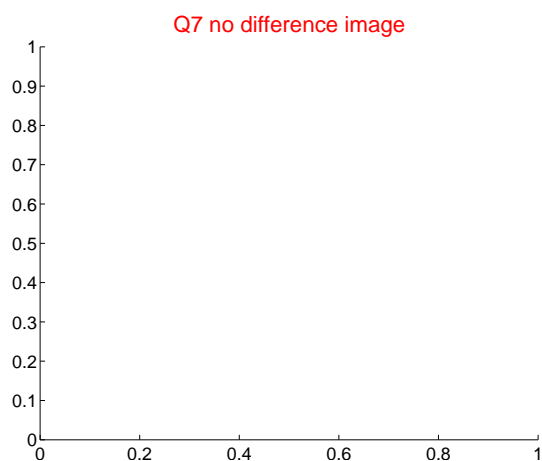
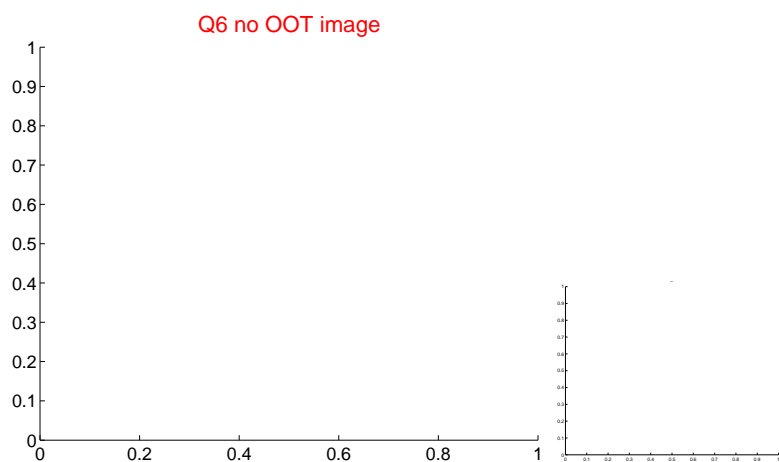
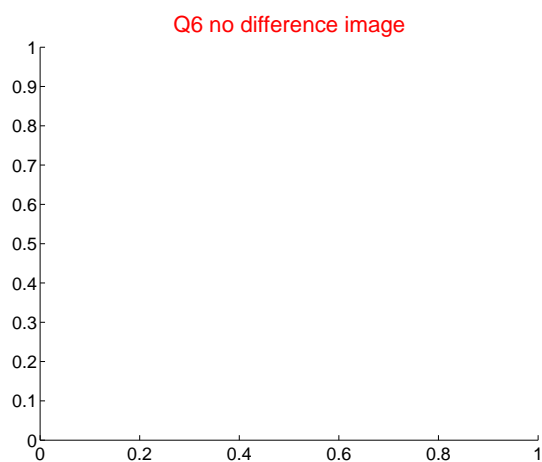
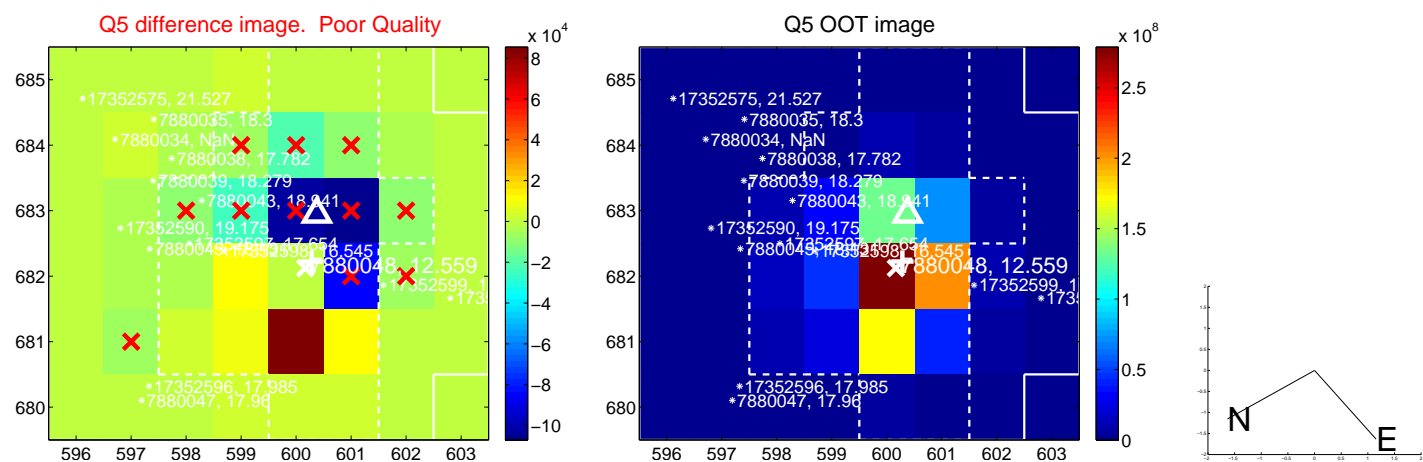


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

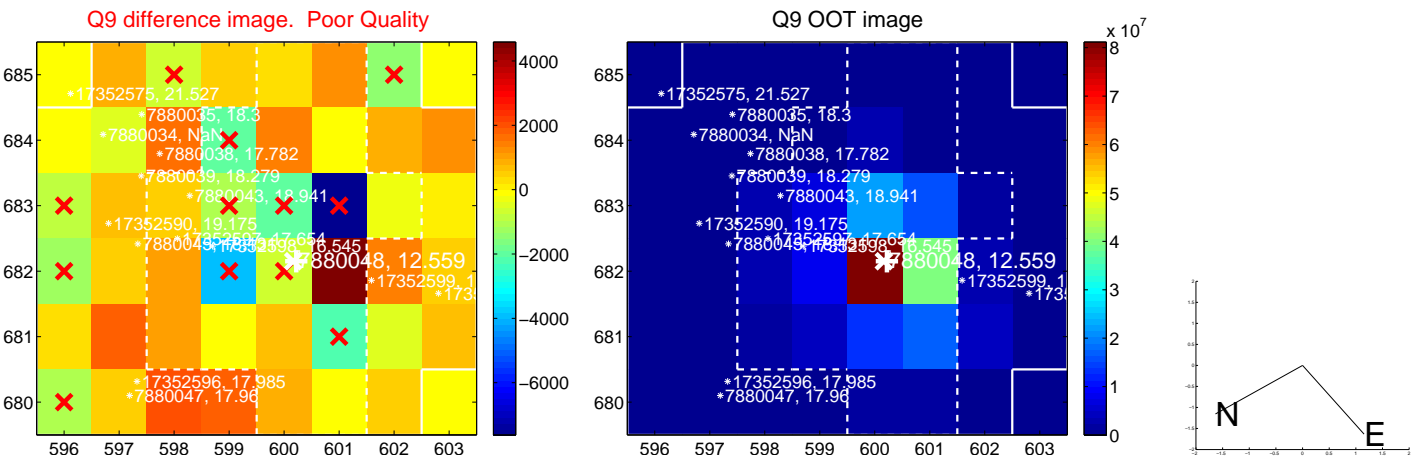
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



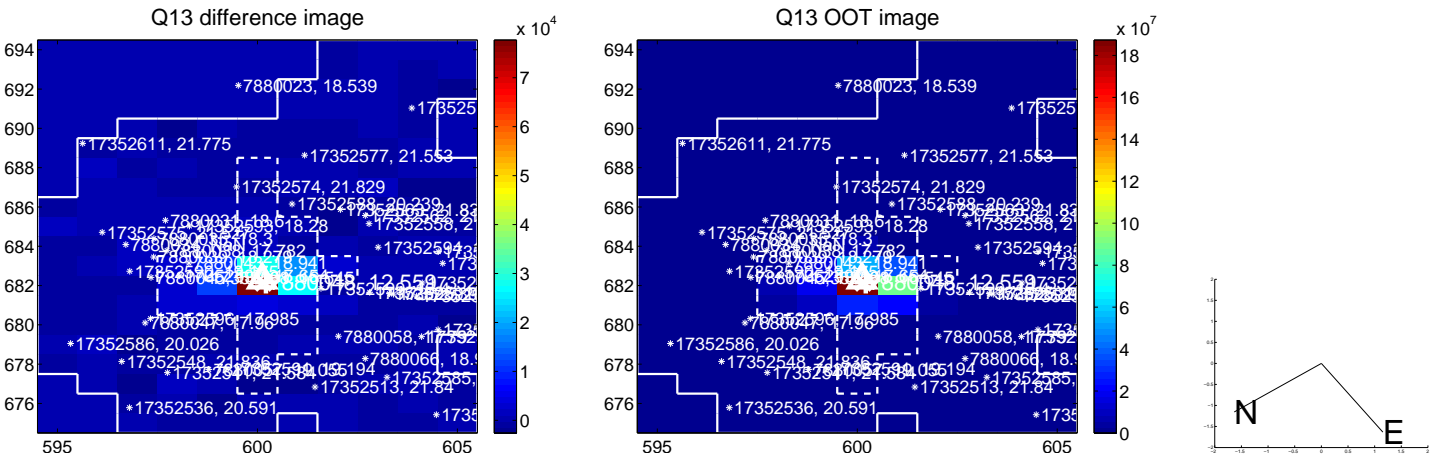
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



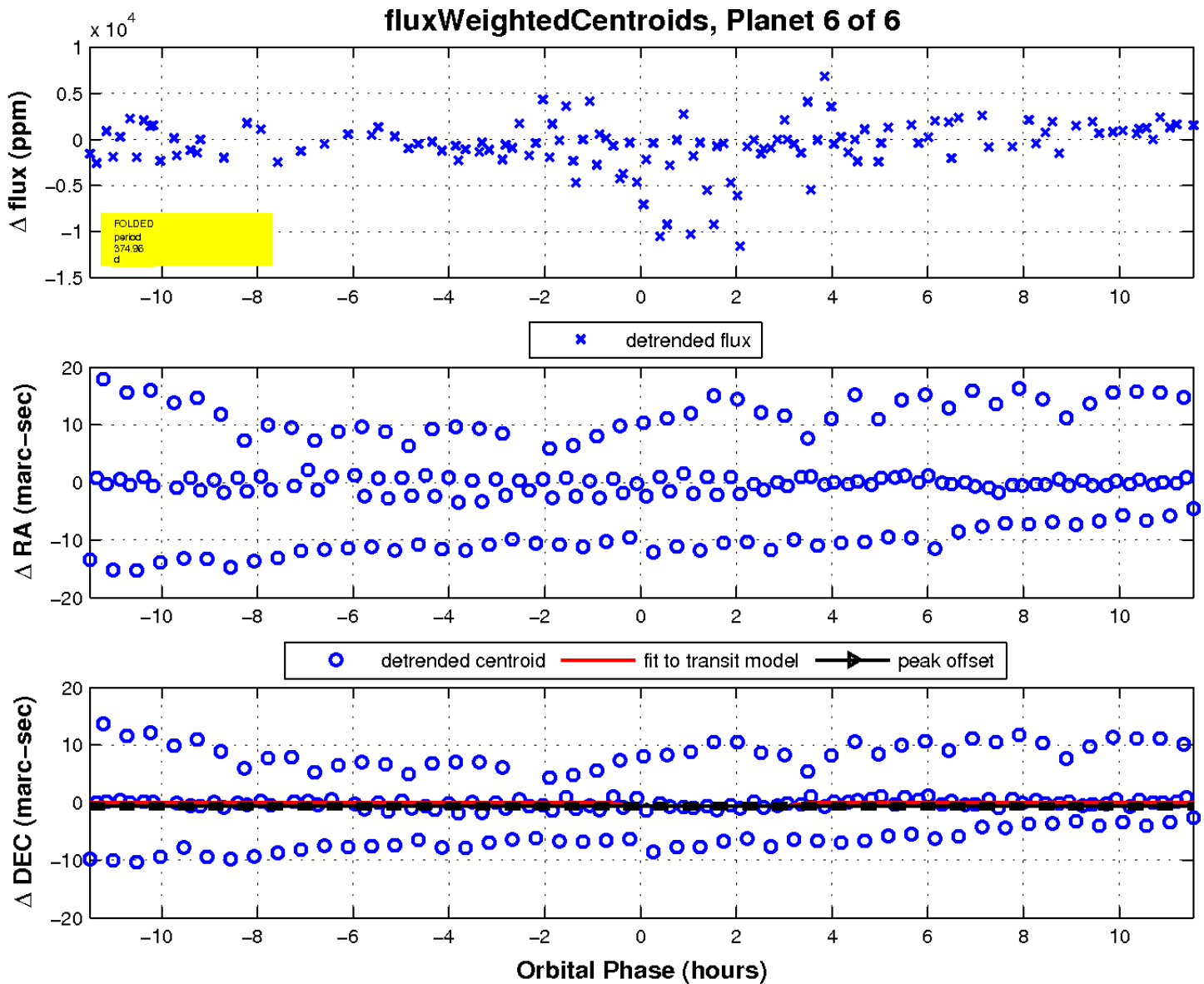
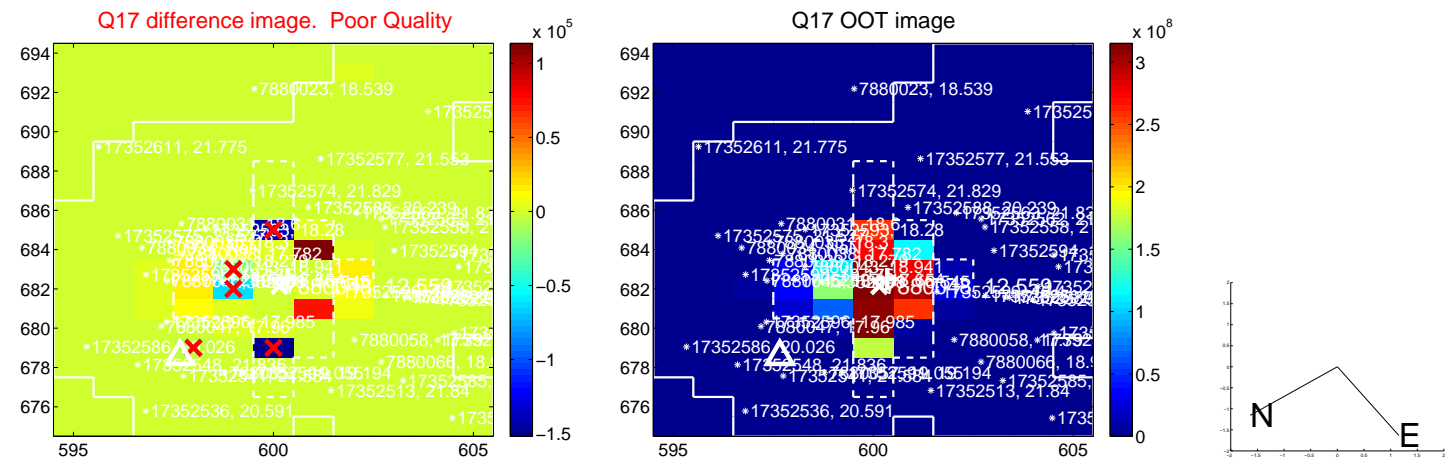
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

