

KIC 008442720

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})
008442720-01	OBS	No	599.806158	340.026575	464.3	3.466	13.9	6.5	0.66	5390	1.52	0.21
008442720-02	OBS	No	520.905048	149.400052	489.7	2.937	12.5	7.0	0.66	5390	1.57	0.26
008442720-03	OBS	No	547.770912	468.076201	484.6	12.924	12.1	3.9	0.66	5390	1.51	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008442720-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
008442720-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008442720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

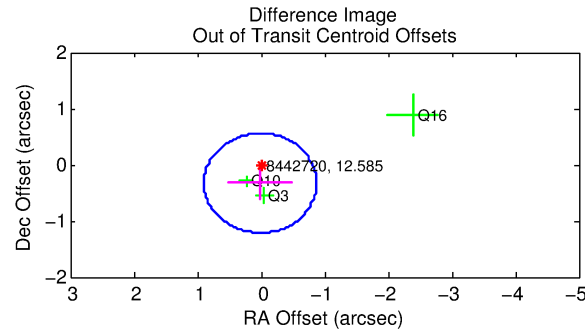
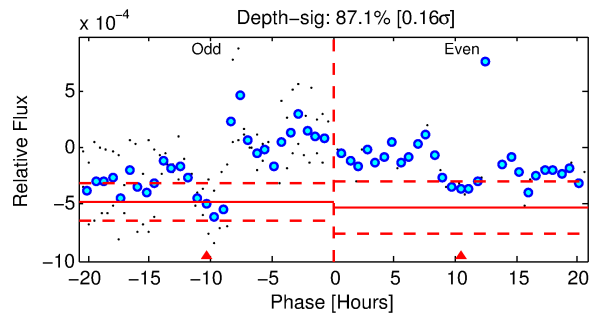
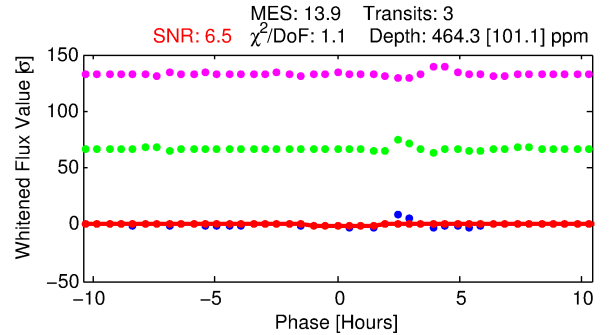
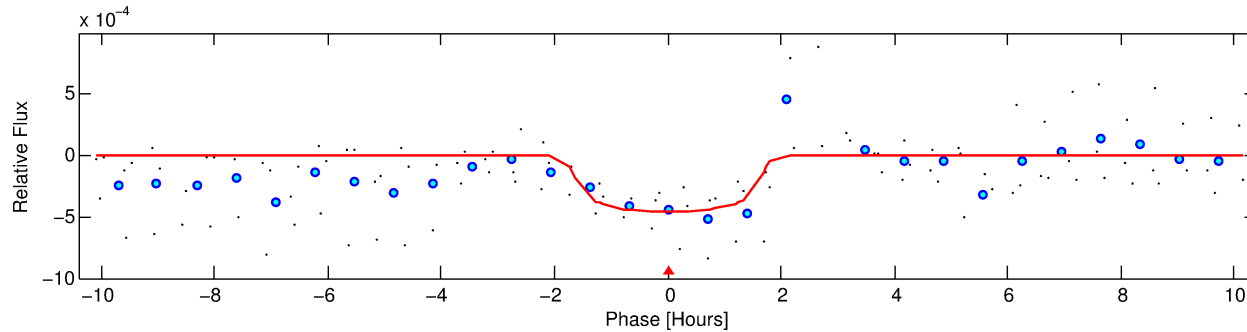
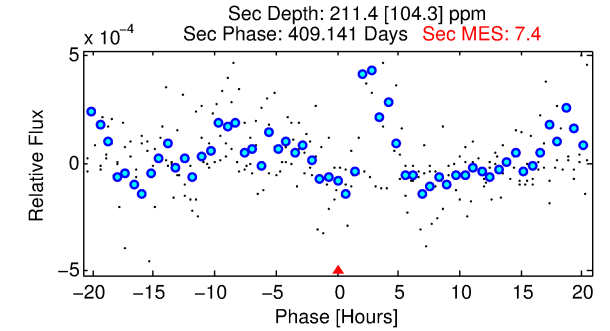
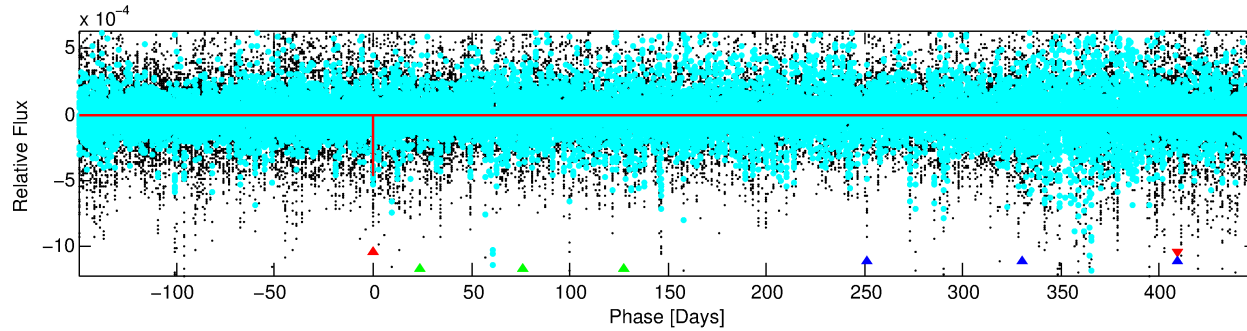
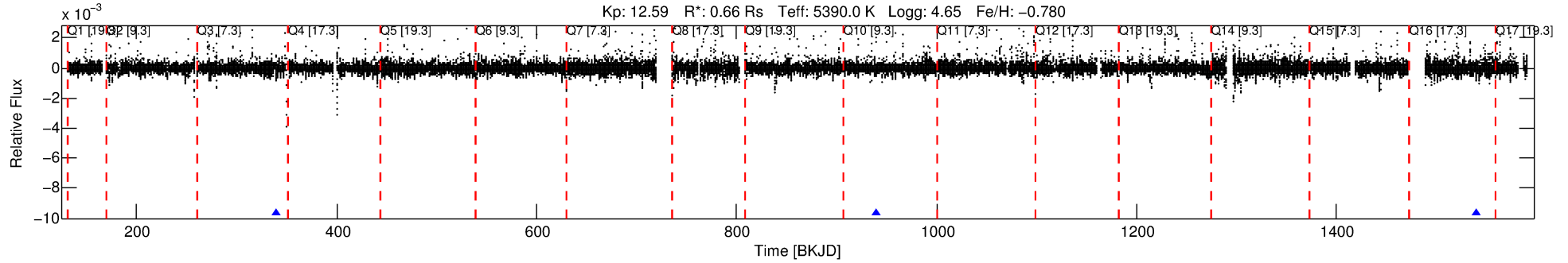
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008442720-01

No Significant Match Found

DV One-Page Summary

KIC: 8442720 Candidate: 1 of 3 Period: 599.806 d



DV Fit Results:

Period = 599.80616 [0.00651] d
Epoch = 340.0266 [0.0068] BKJD
Rp/R* = 0.0211 [0.0447]
a/R* = 985.04 [9422.52]
b = 0.70 [7.11]
Seff = 0.21 [0.04]
Teq = 173 [8] K
Rp = 1.52 [3.22] Re
a = 1.2387 [0.1224] AU
Ag = 77564.10 [331484.41] [0.23 σ]
Teffp = 4475 [4781] K [0.90 σ]

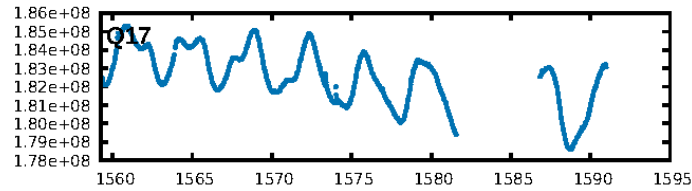
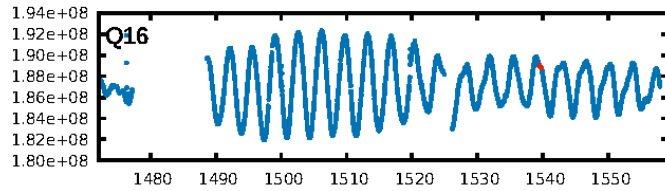
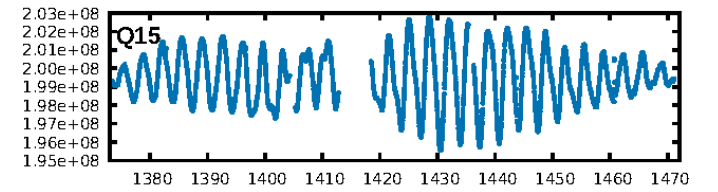
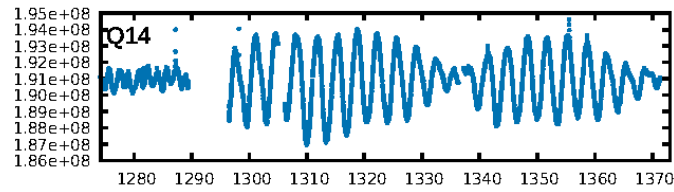
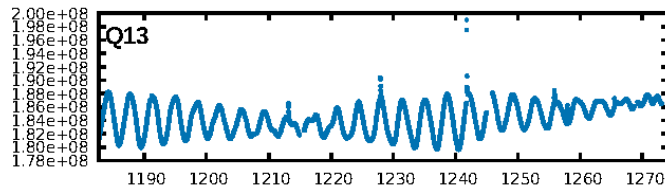
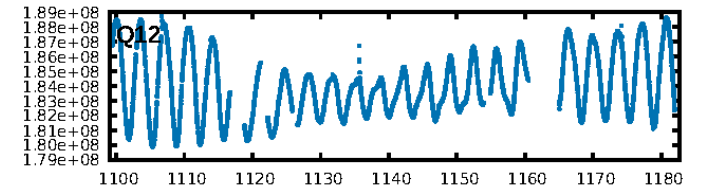
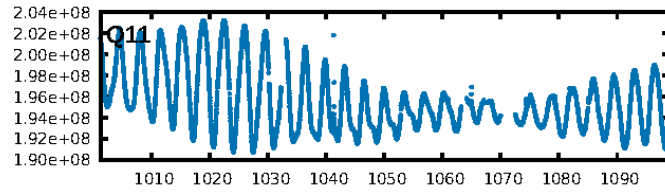
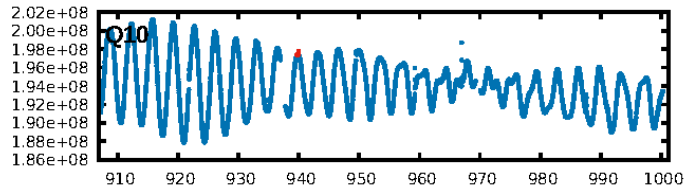
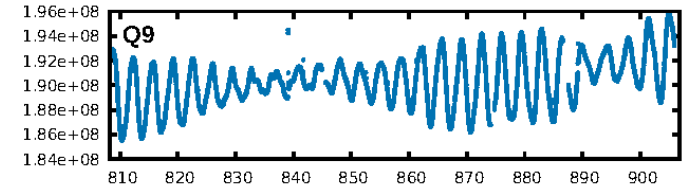
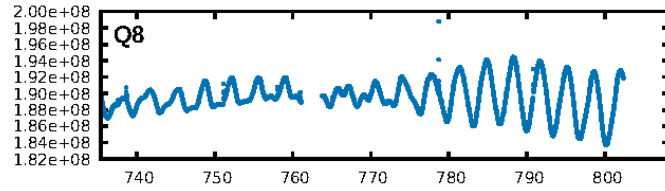
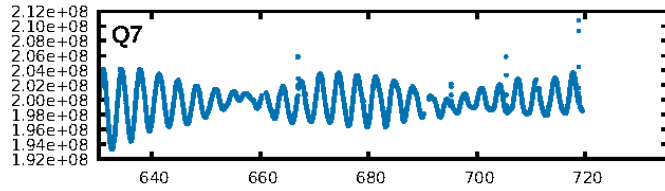
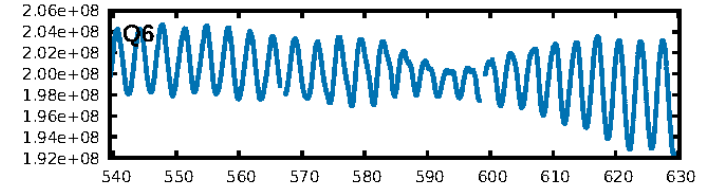
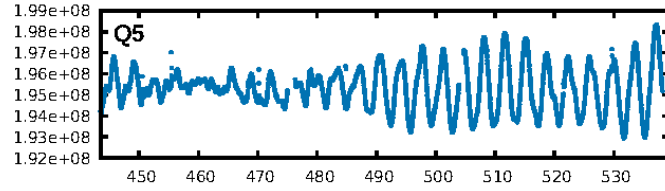
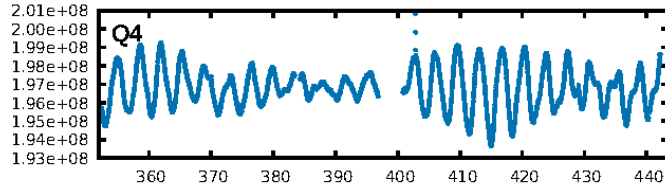
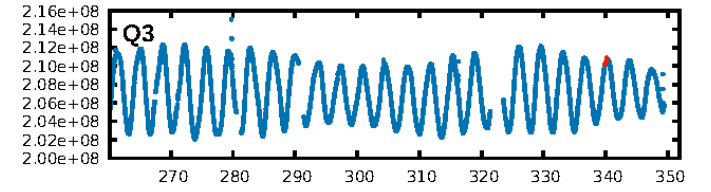
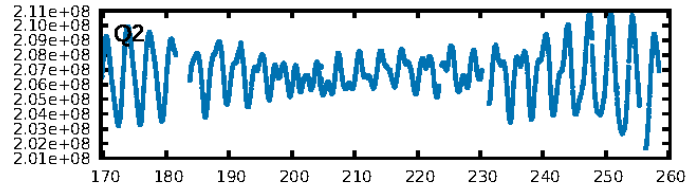
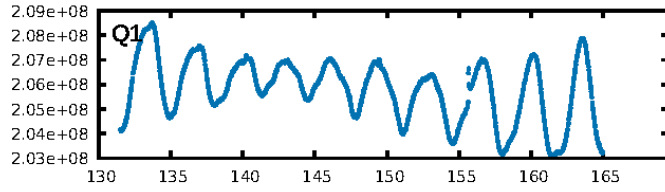
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [93.33 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 23.9%
ModelChiSquareGof-sig: 97.3%
Bootstrap-pfa: 1.66e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.352
Centroid-sig: 3.7%
Centroid-so: 1.422 arcsec [2.30 σ]
OotOffset-rm: 0.329 arcsec [1.11 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.781 arcsec [2.27 σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

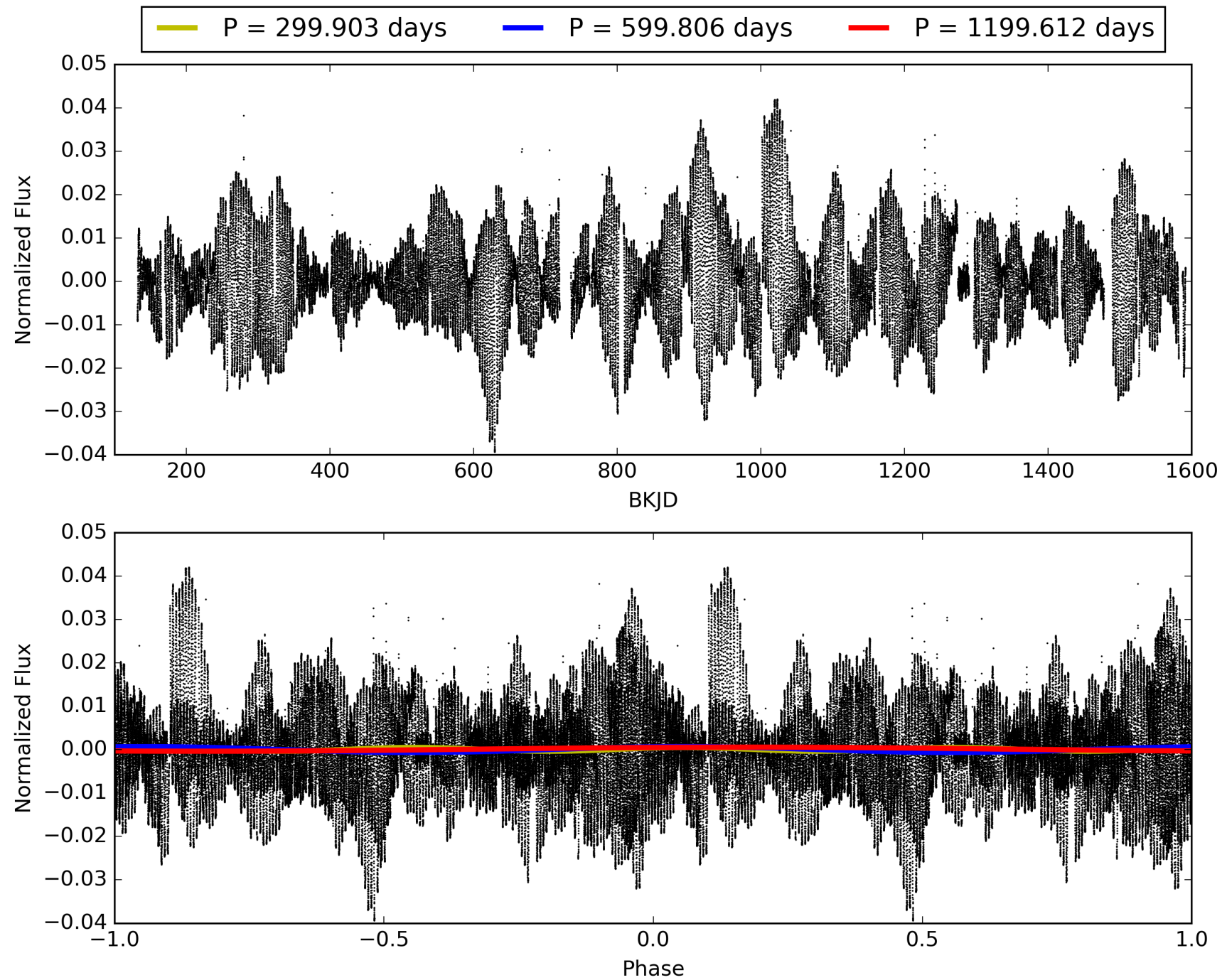
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008442720-01, PDC Light Curves

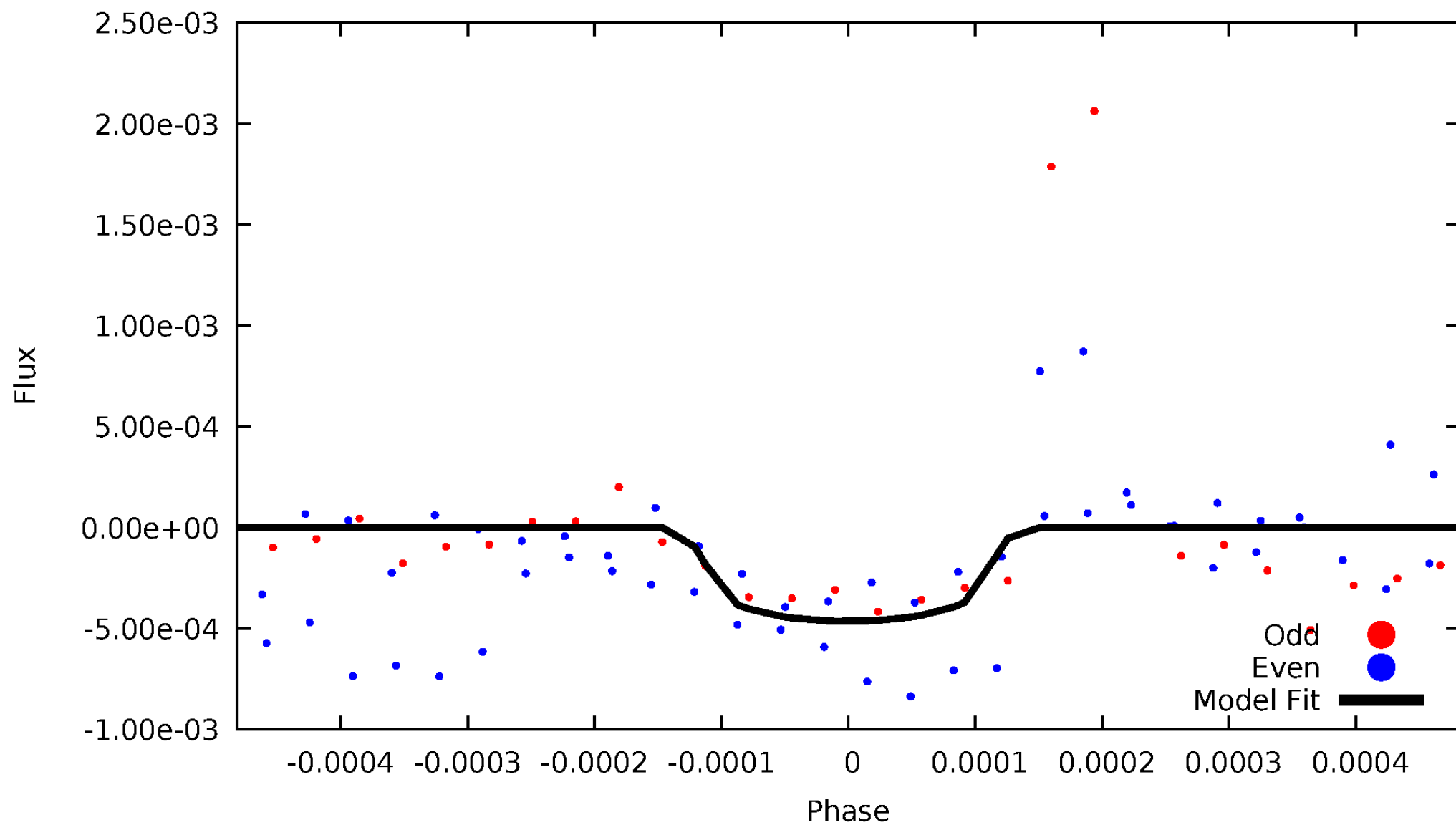


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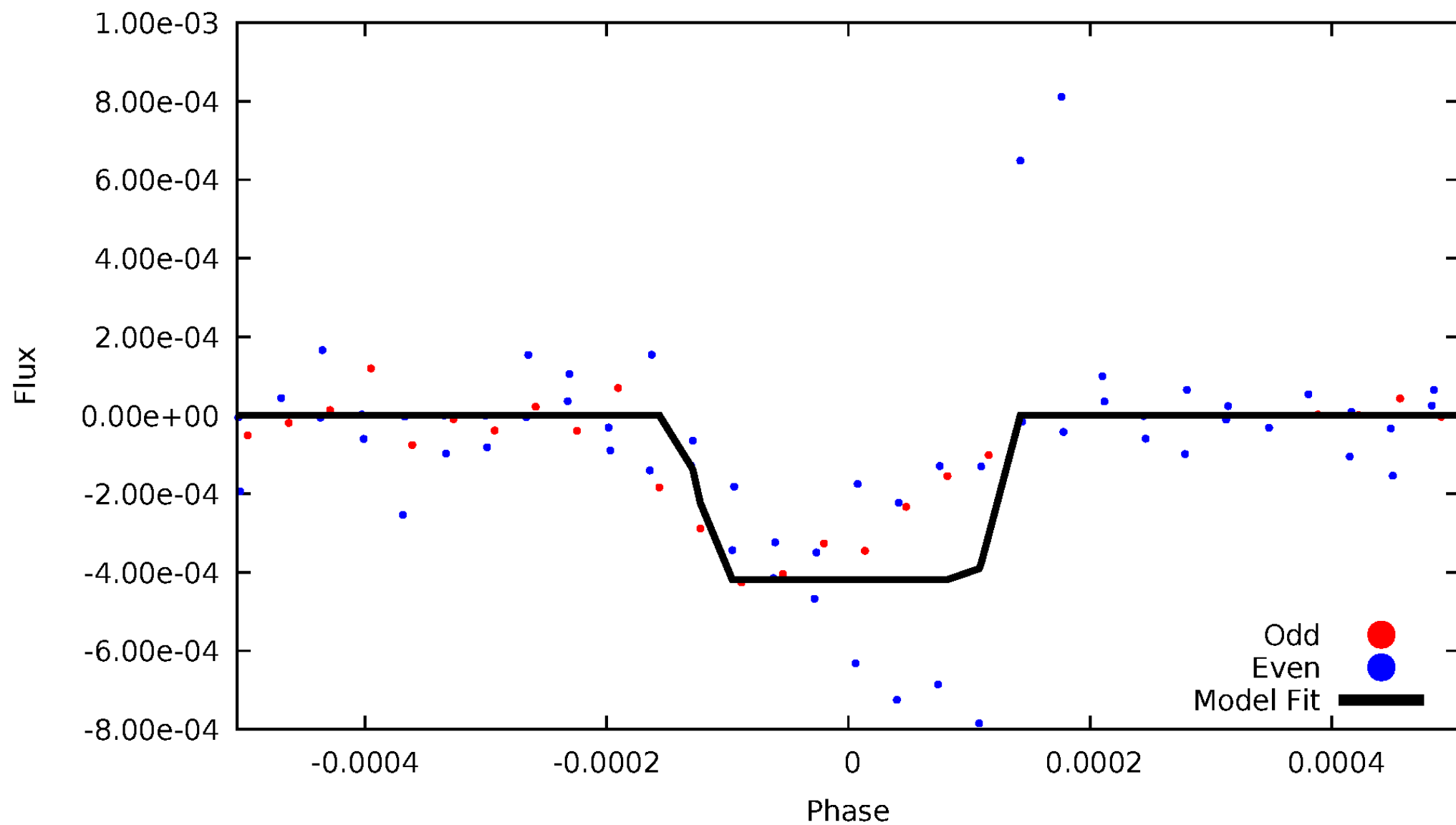
DV Odd/Even

TCE 008442720-01



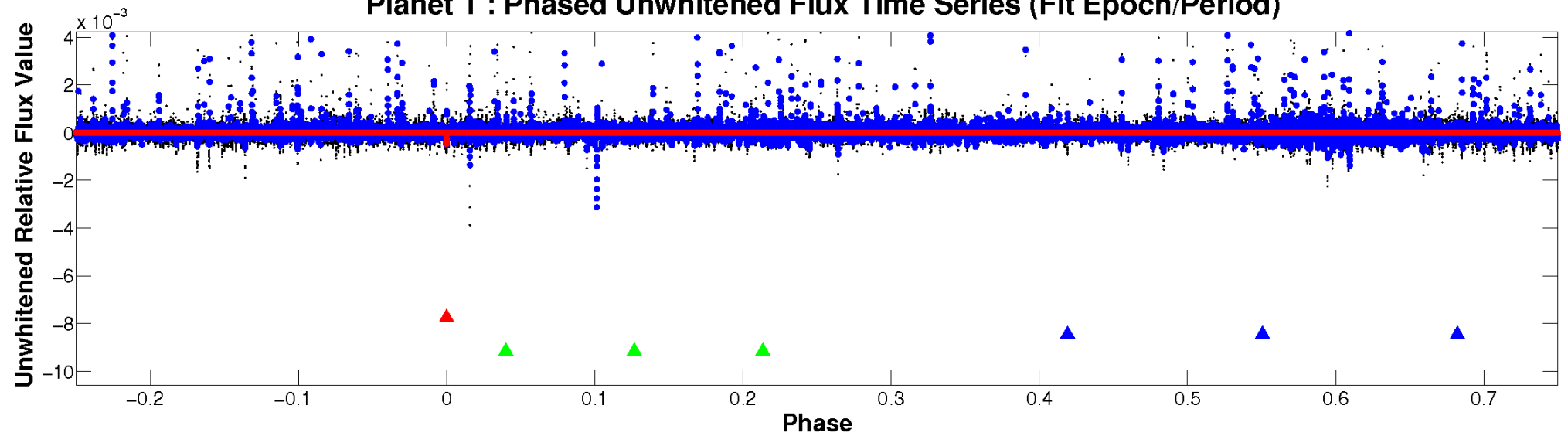
ALT Odd/Even

TCE 008442720-01

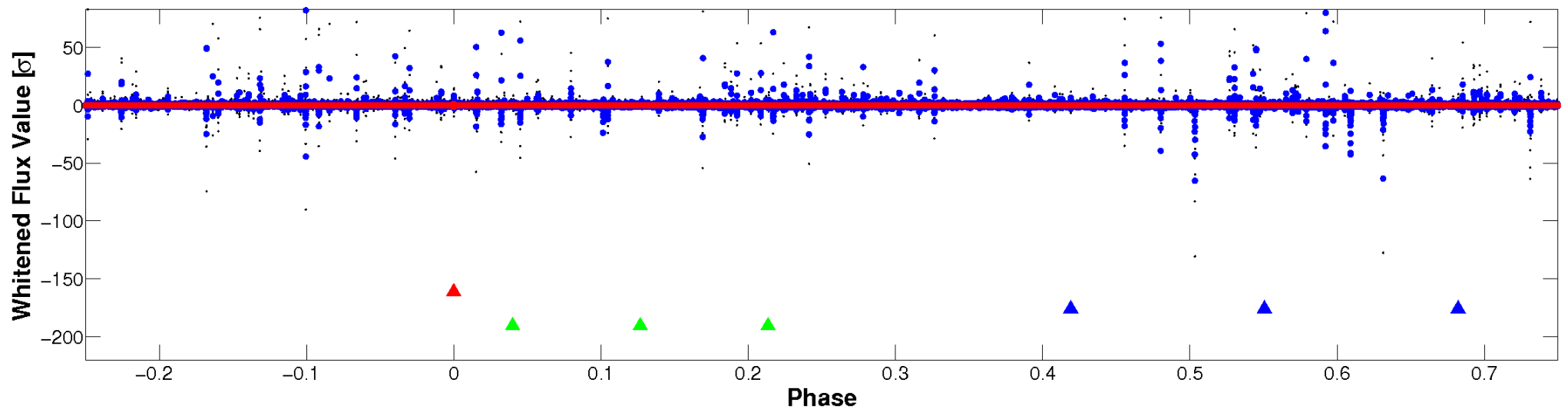


Non-Whitened Vs. Whitened Light Curve

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

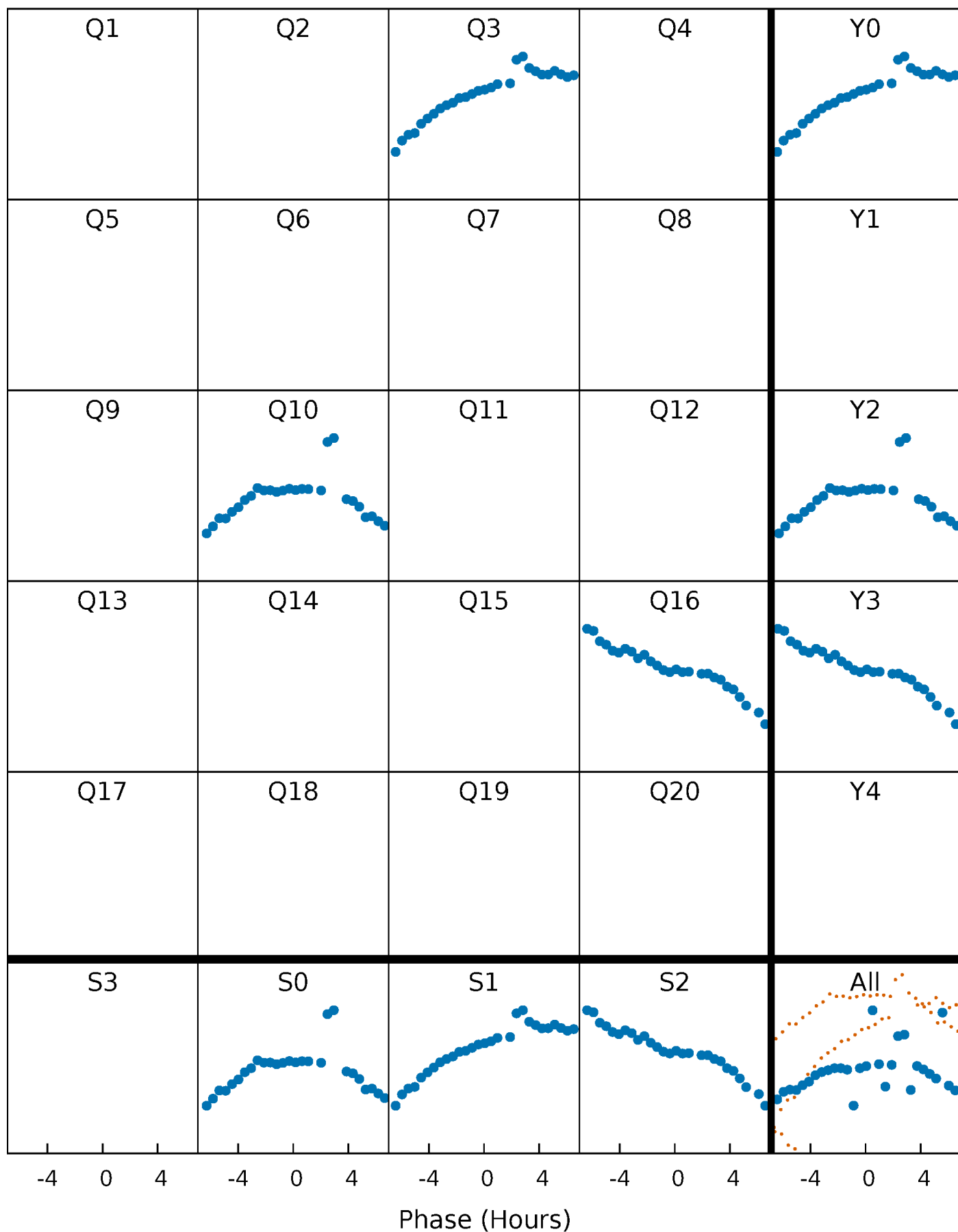


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



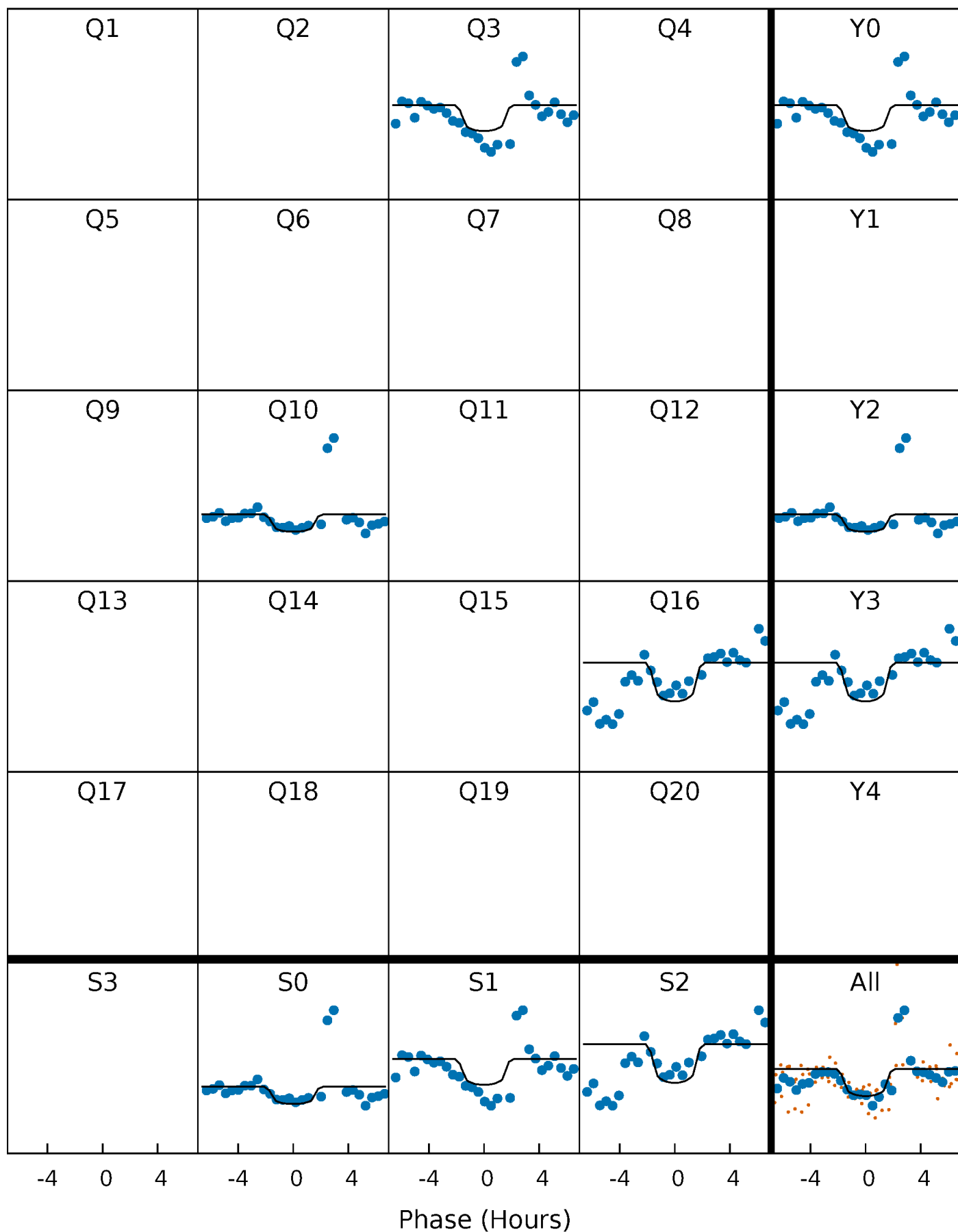
PDC Quarter-Phased Transit Curves

TCE 008442720-01 P=599.806158 Days $T_0=340.026575$ (BKJD)



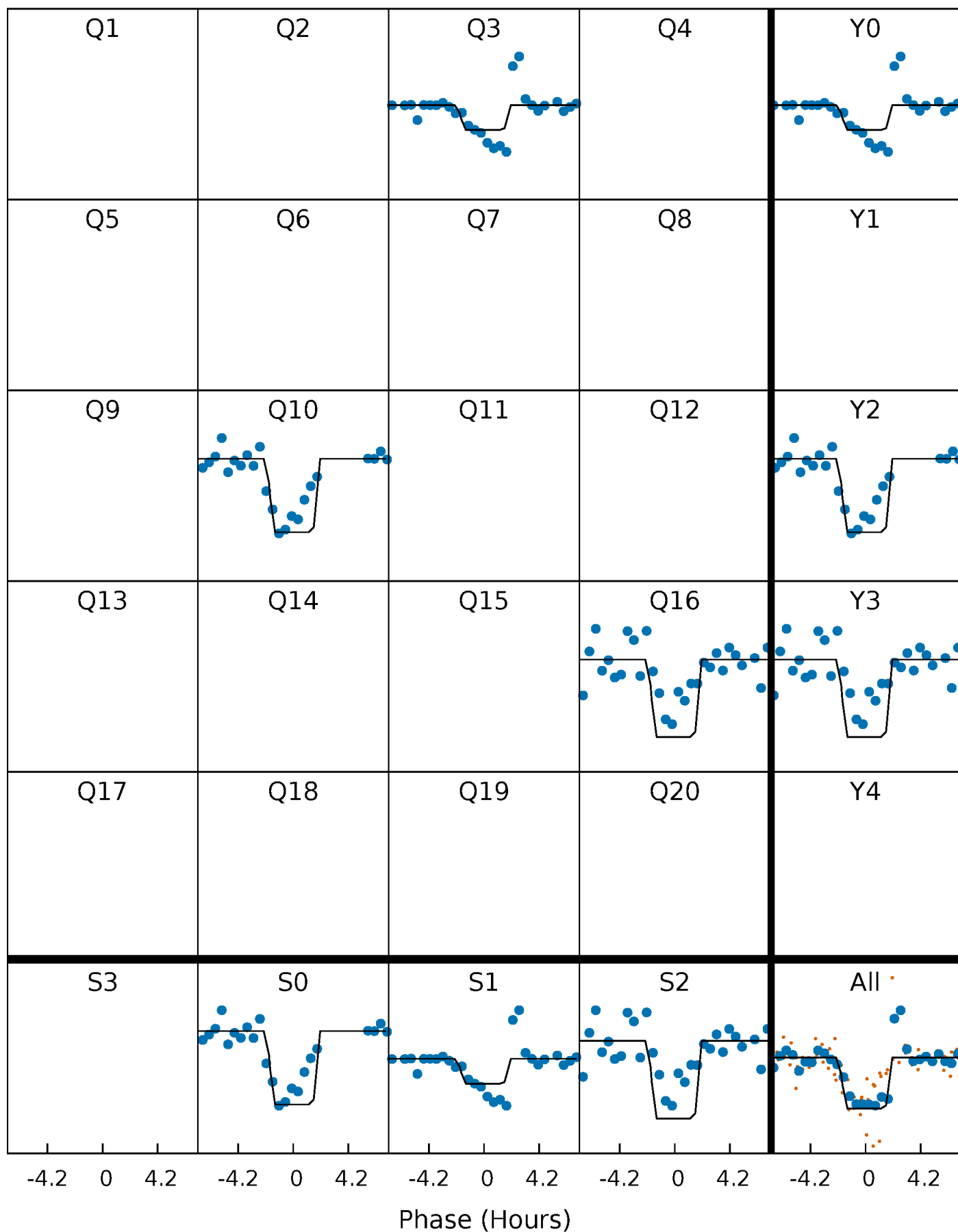
DV Quarter-Phased Transit Curves

TCE 008442720-01 P=599.806158 Days $T_0=340.026575$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

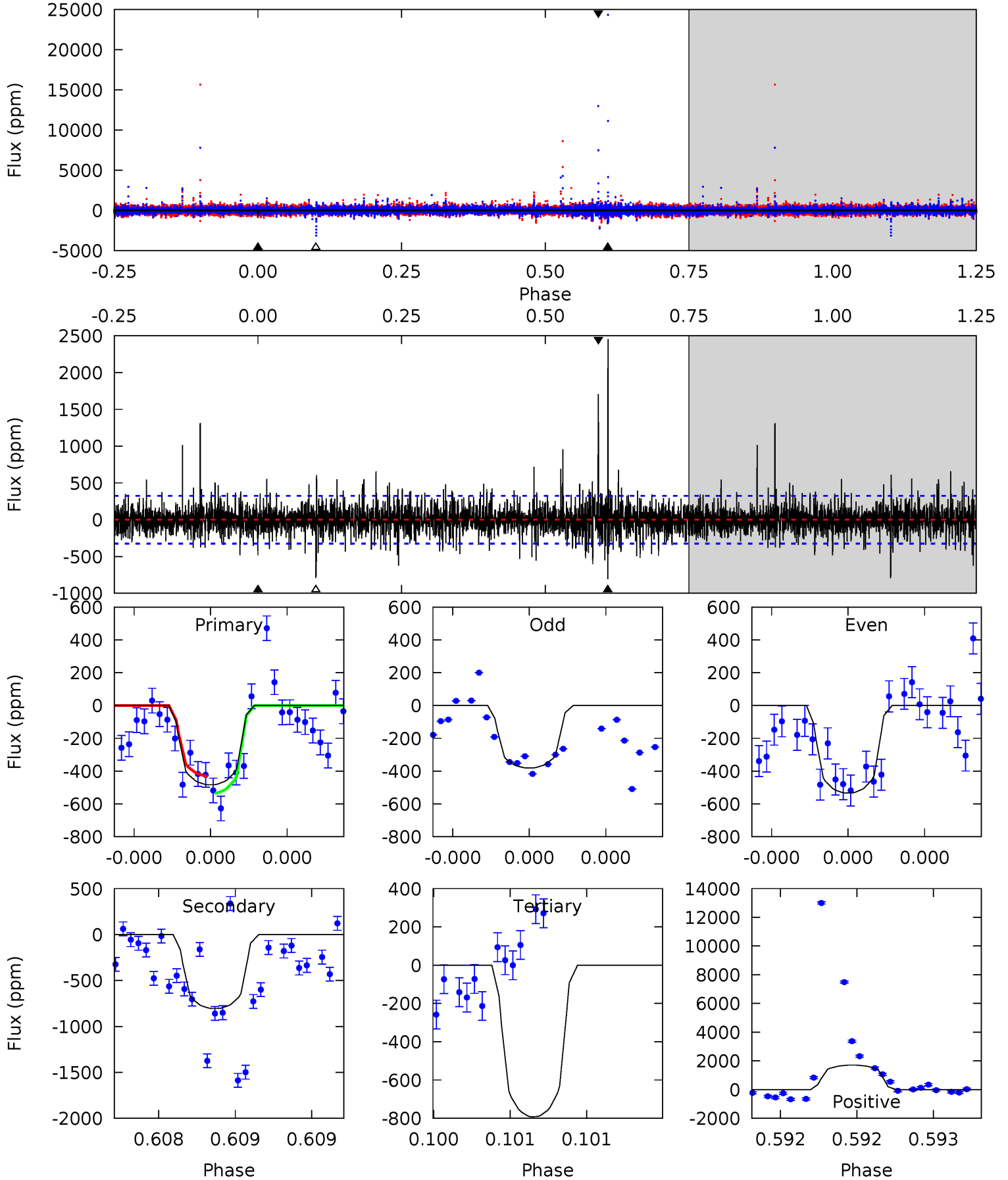
TCE 008442720-01 P=599.806720 Days $T_0=340.031893$ (BKJD)



DV Model-Shift Uniqueness Test

008442720-01, P = 599.806158 Days, E = 340.026575 Days

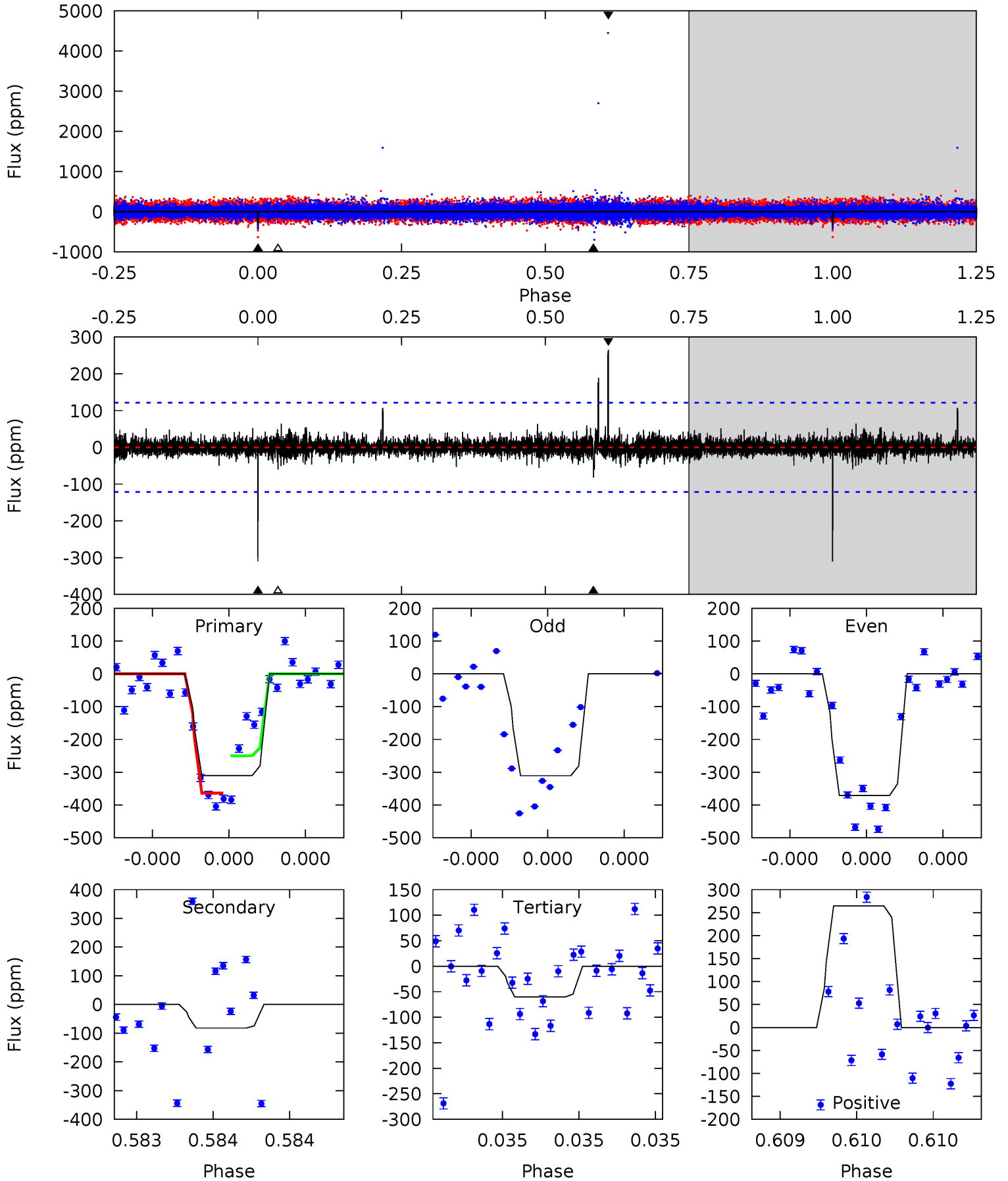
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.47	14.1	13.9	29.9	5.68	3.64	2.40	-5.40	-21.4	0.25	-15.7	0.62	1.27	0.75	0.92



Alt Model-Shift Uniqueness Test

008442720-01, P = 599.806720 Days, E = 340.031893 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	3.84	2.82	12.4	5.68	3.64	0.61	11.7	2.14	1.02	-8.53	1.28	1.19	0.46	2.69



Stellar Parameters For KIC 008442720

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5390^{+161}_{-161}	$4.648^{+0.039}_{-0.072}$	$-0.780^{+0.350}_{-0.300}$	$0.659^{+0.081}_{-0.041}$	$0.704^{+0.065}_{-0.050}$	$3.467^{+0.571}_{-0.854}$
	+3%/-3%	+1%/-2%	+45%/-38%	+12%/-6%	+9%/-7%	+16%/-25%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008442720-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-806 ± 57	$2.87^{+2.76}_{-1.97}$	243^{+10}_{-9}	4655^{+3586}_{-992}	$83993^{+763103}_{-62838}$
Alt.	-82 ± 21	$3.03^{+2.51}_{-1.95}$	244^{+9}_{-9}	3111^{+1359}_{-493}	7318^{+53463}_{-5246}

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

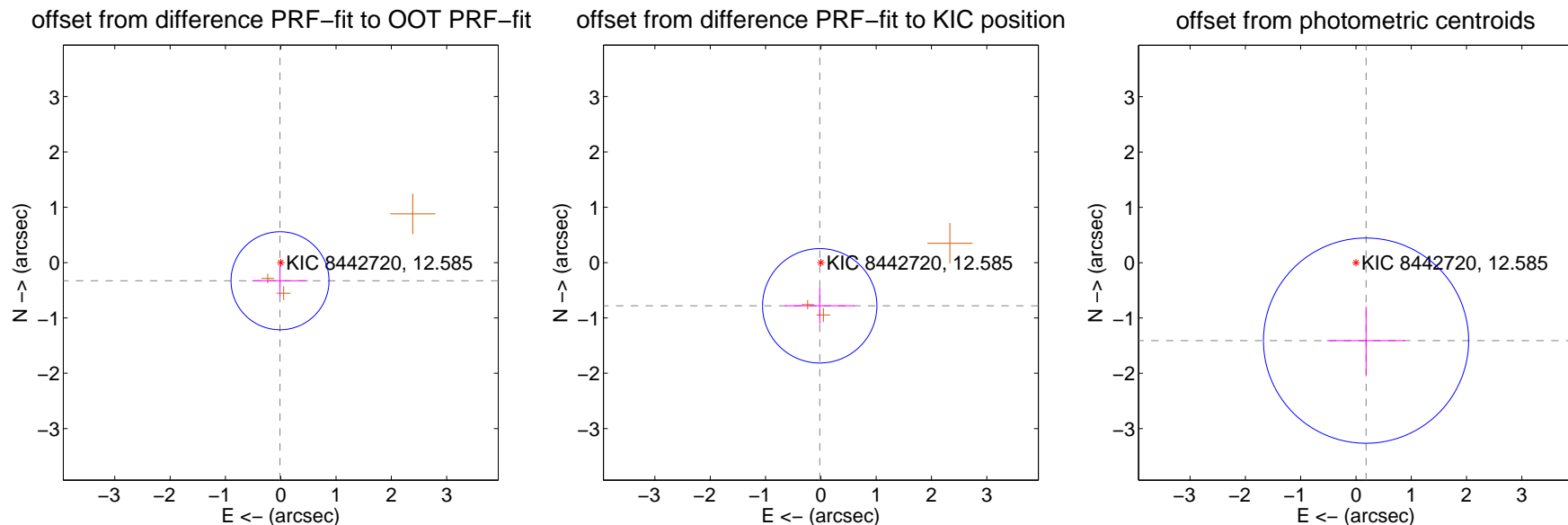
DV Centroid Data

Supplemental centroid analysis for 008442720-01. Kepler magnitude: 12.59. Transit SNR 6.54

There are 0 quarters with good PRF difference image offsets

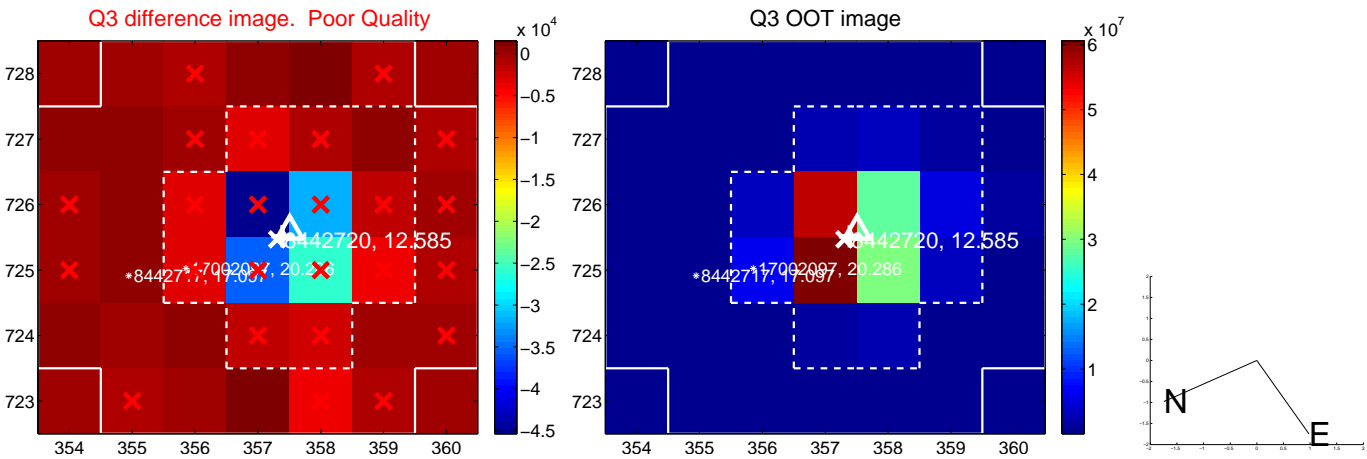
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.329 ± 0.295	1.11	0.013 ± 0.502	-0.328 ± 0.277
PRF-fit source offset from KIC position	0.781 ± 0.345	2.27	0.020 ± 0.629	-0.781 ± 0.329
photometric centroid source offset	1.42 ± 0.62	2.30	-0.18 ± 0.71	-1.41 ± 0.62



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

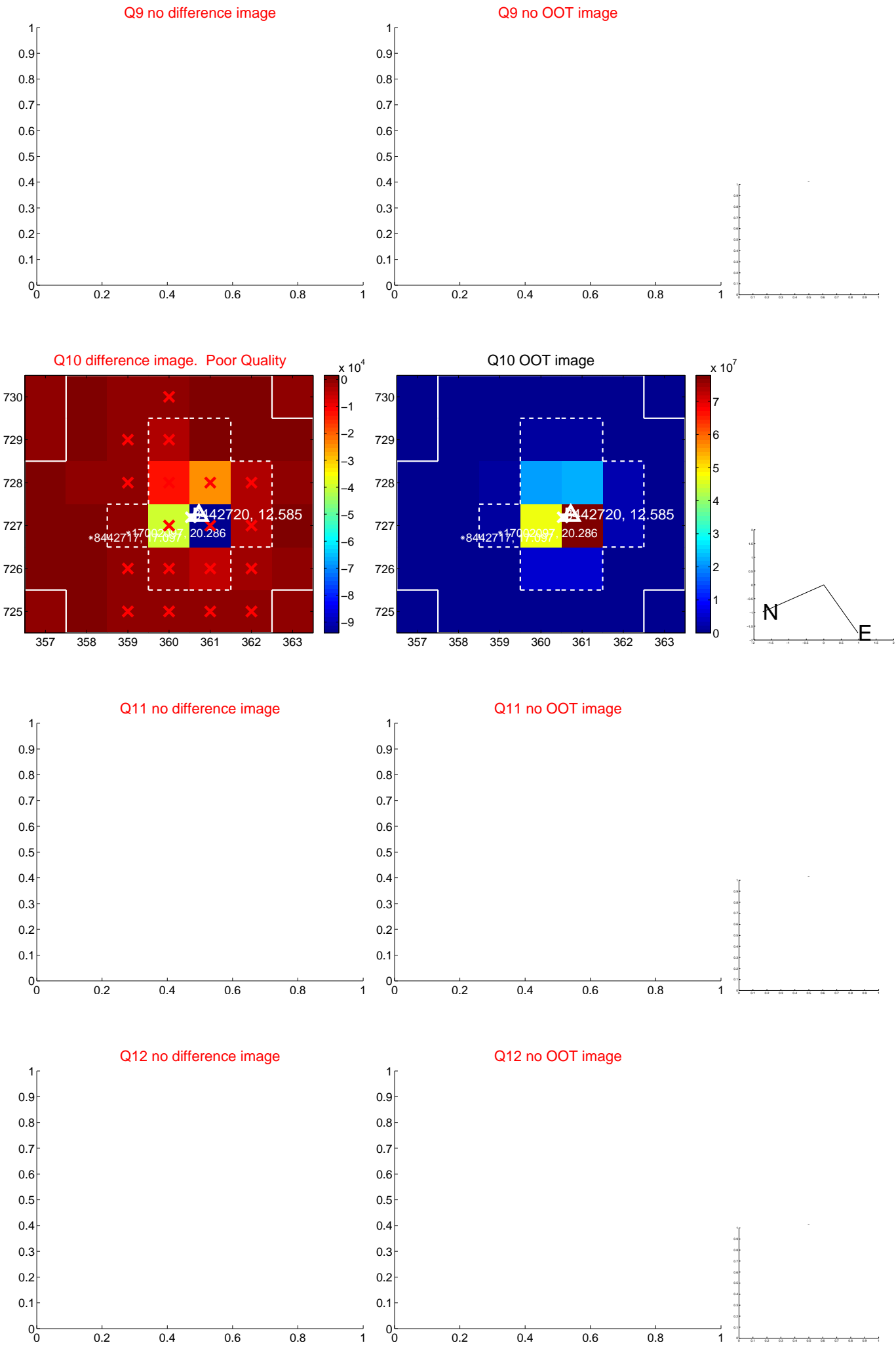
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



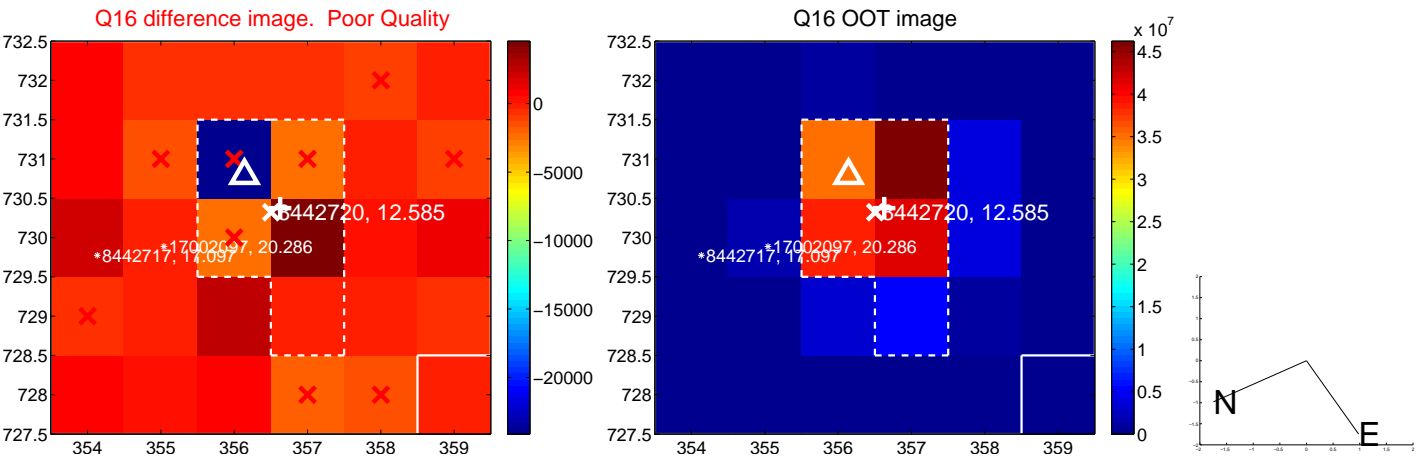
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



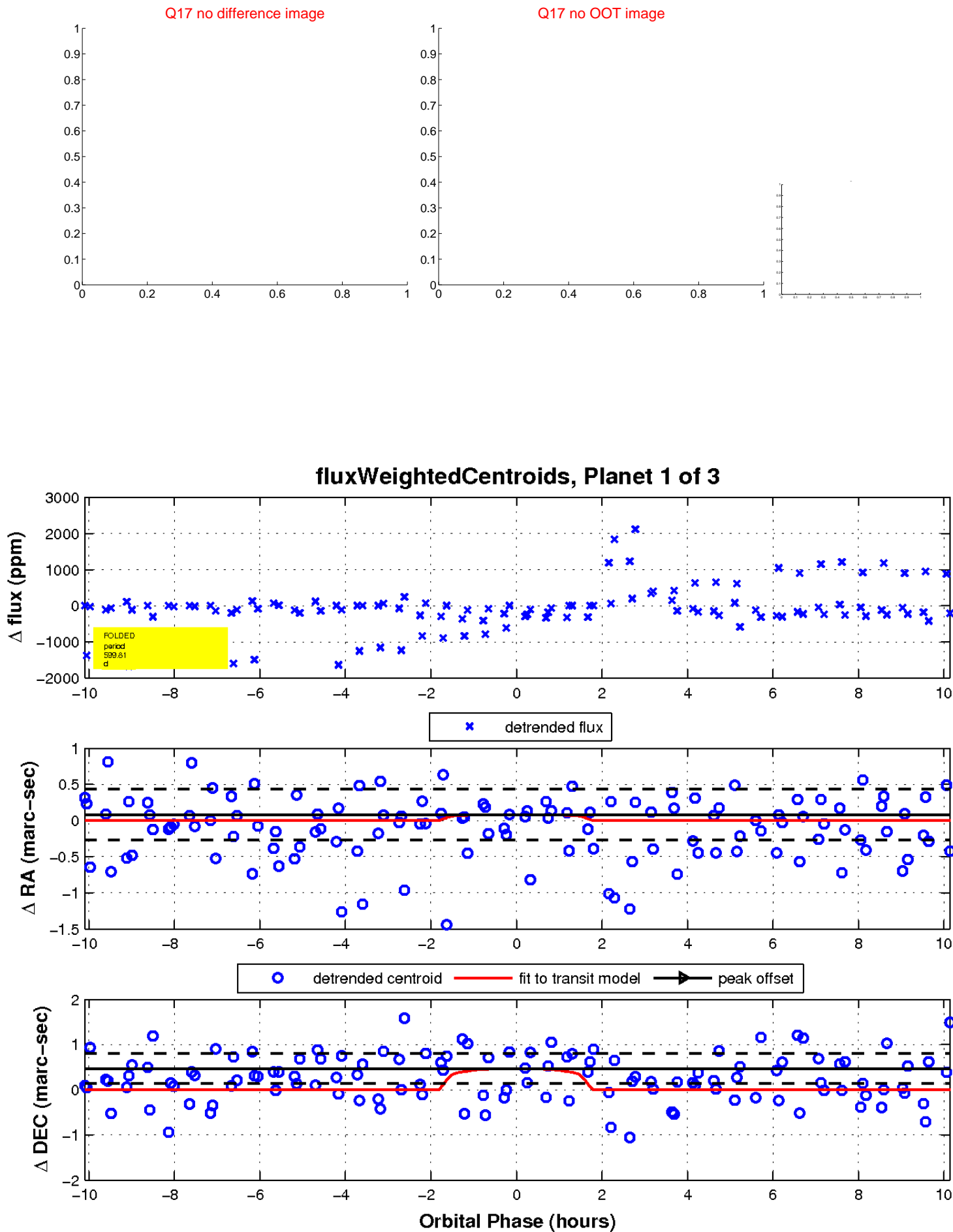
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

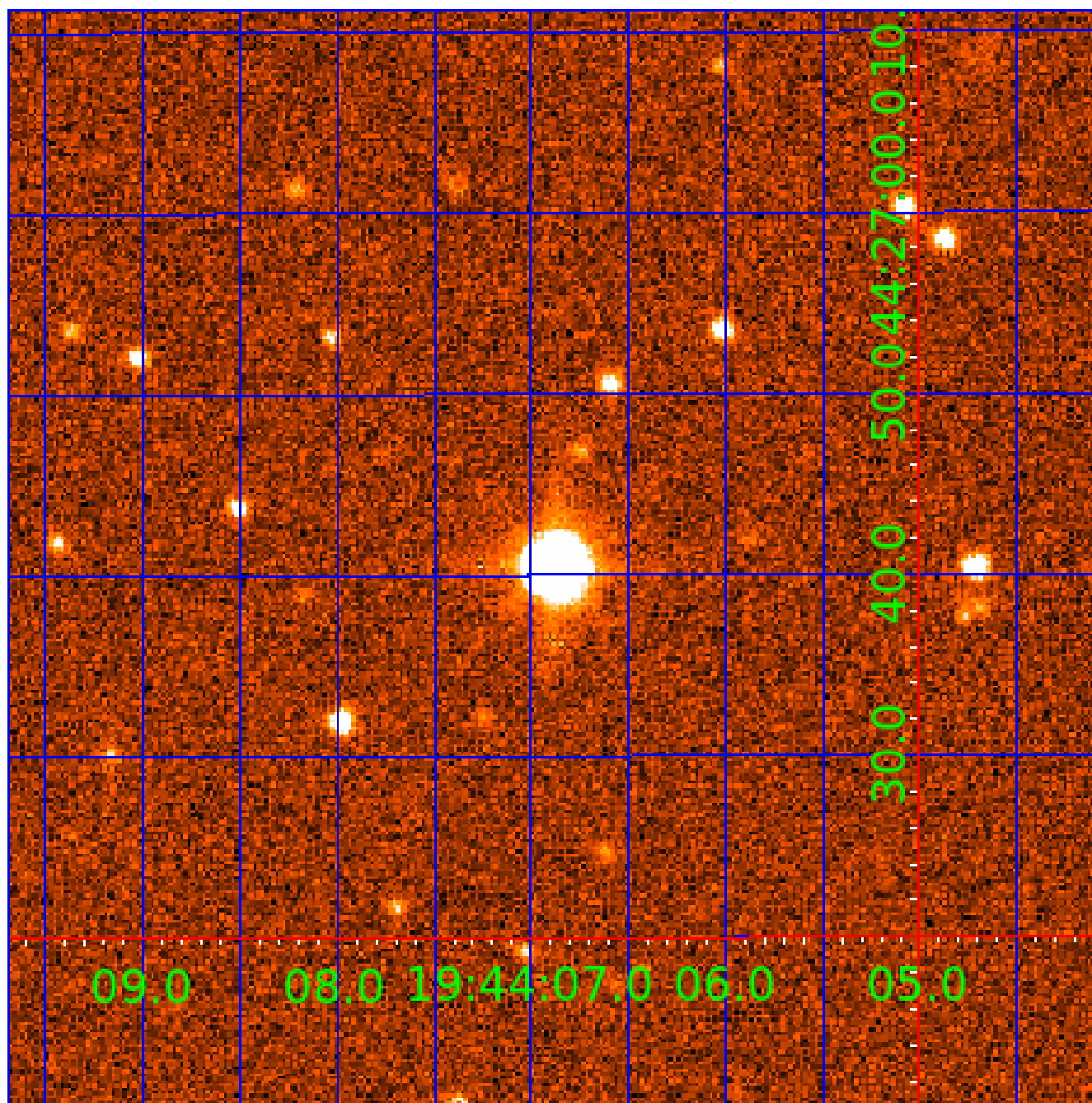


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008442720

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})
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008442720-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008442720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

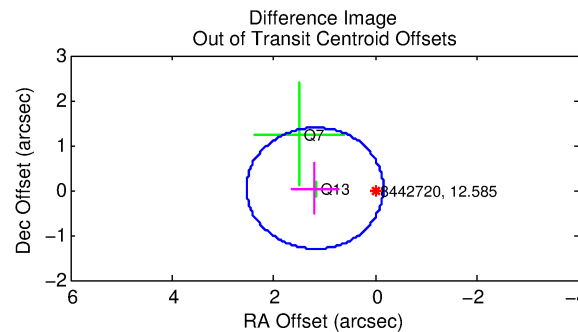
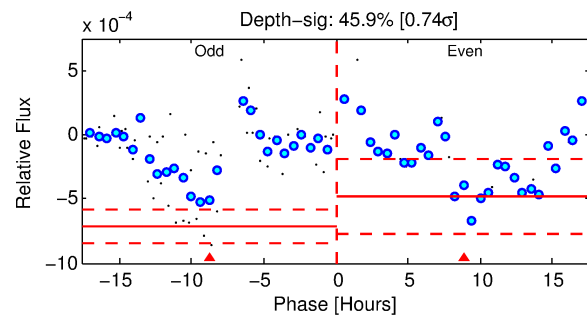
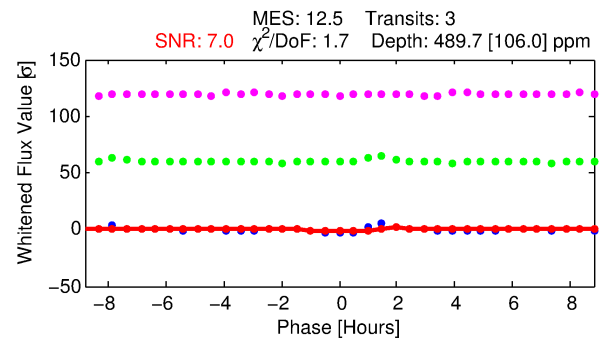
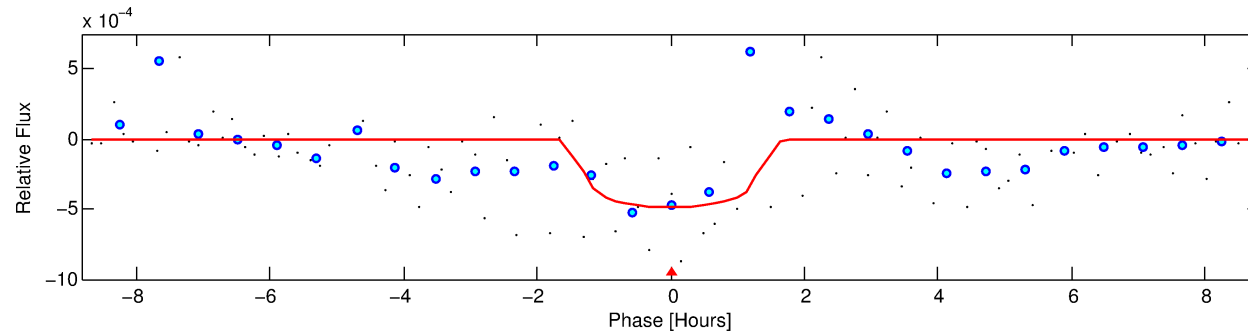
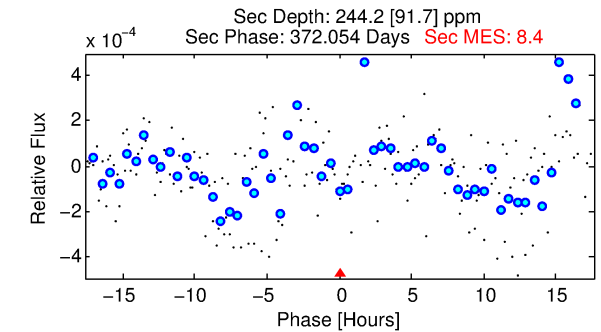
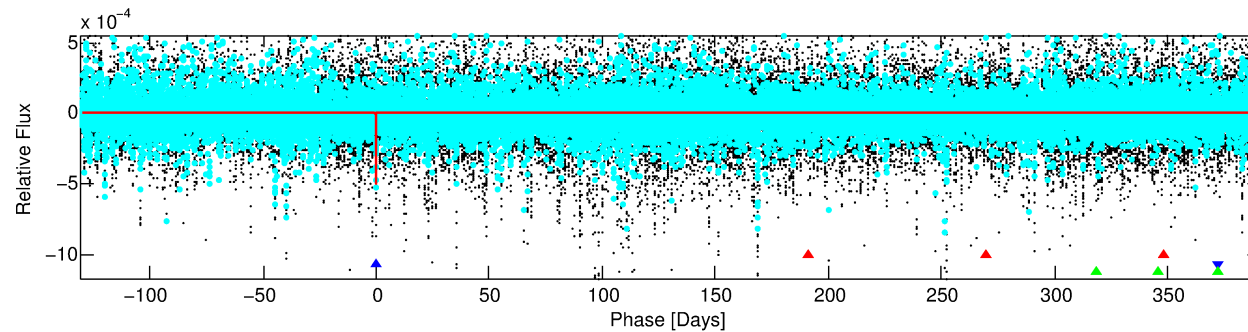
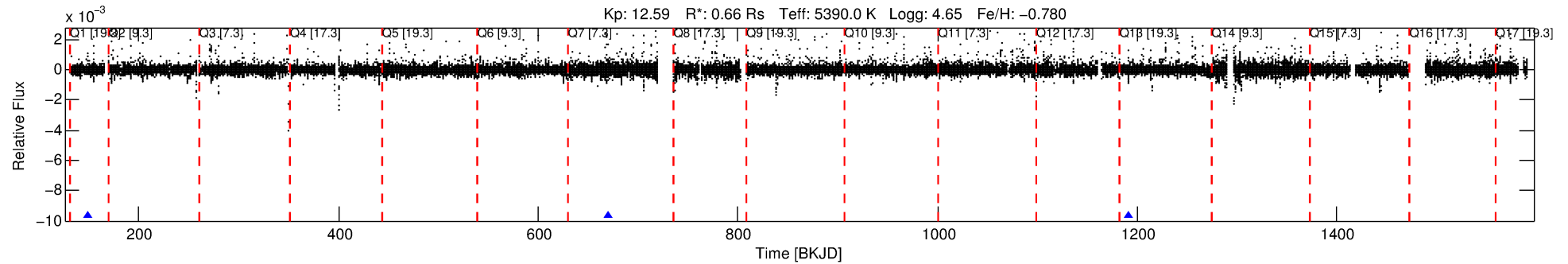
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008442720-02

No Significant Match Found

DV One-Page Summary

KIC: 8442720 Candidate: 2 of 3 Period: 520.905 d



DV Fit Results:

Period = 520.90505 [0.00567] d
Epoch = 149.4001 [0.0070] BKJD
Rp/R* = 0.0219 [0.0295]
a/R* = 964.67 [5649.60]
b = 0.73 [3.74]
Seff = 0.26 [0.05]
Teq = 182 [8] K
Rp = 1.57 [2.13] Re
a = 1.1275 [0.1114] AU
Ag = 68896.90 [187370.61] [0.37 σ]
Teffp = 4554 [3095] K [1.41 σ]

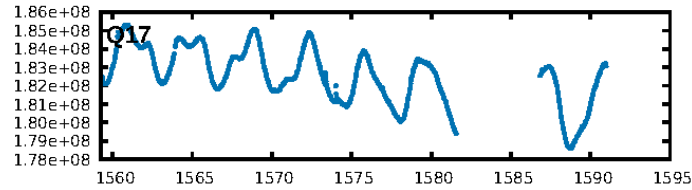
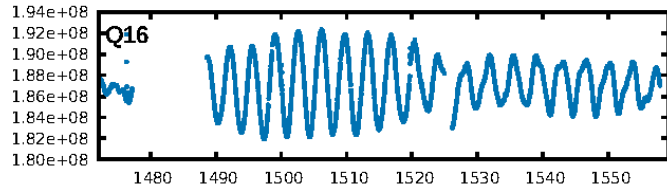
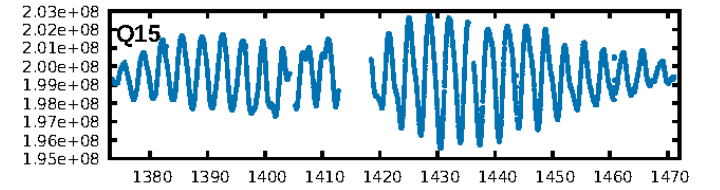
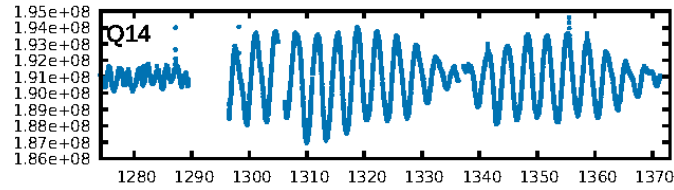
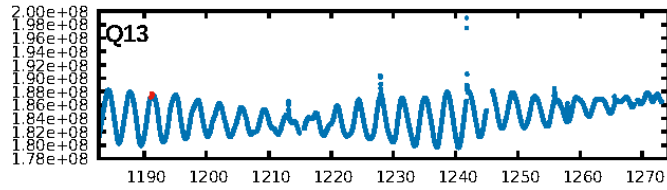
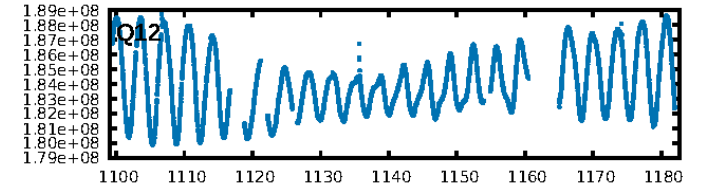
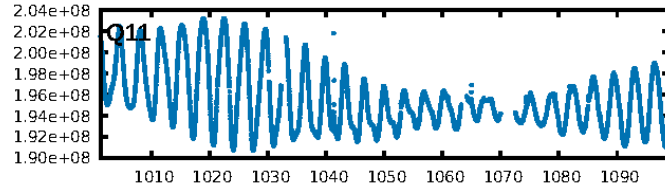
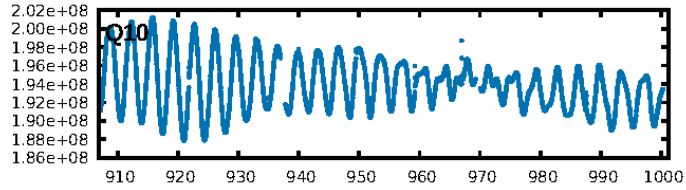
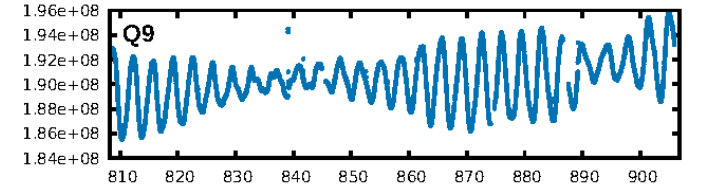
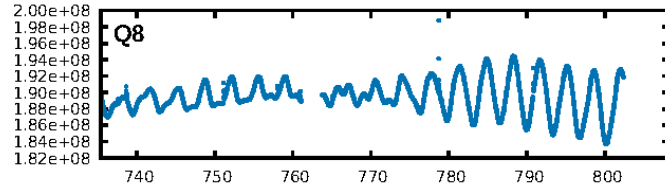
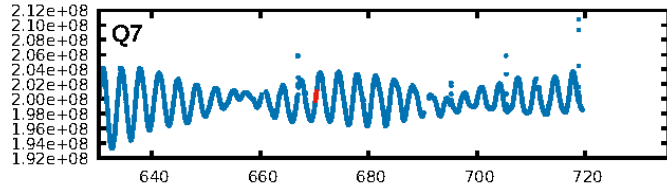
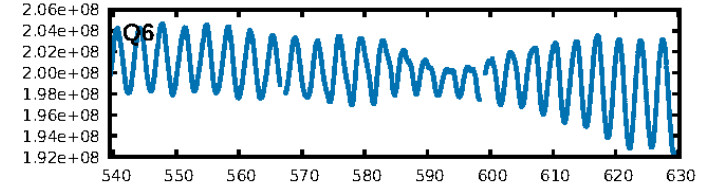
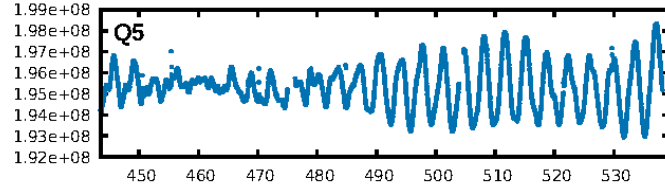
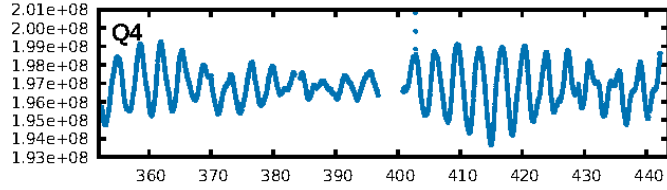
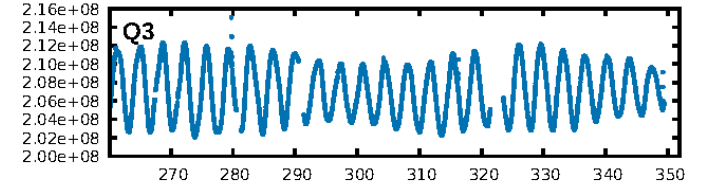
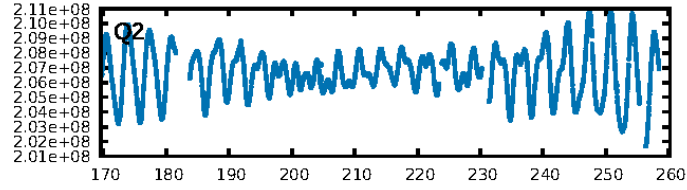
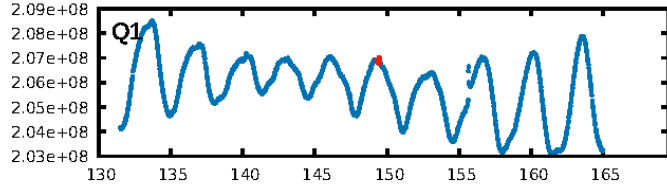
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [48.65 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 26.1%
Bootstrap-pfa: 4.01e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.998
Centroid-sig: 16.7%
Centroid-so: 1.143 arcsec [1.79 σ]
OotOffset-rm: 1.190 arcsec [2.65 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 1.253 arcsec [2.67 σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

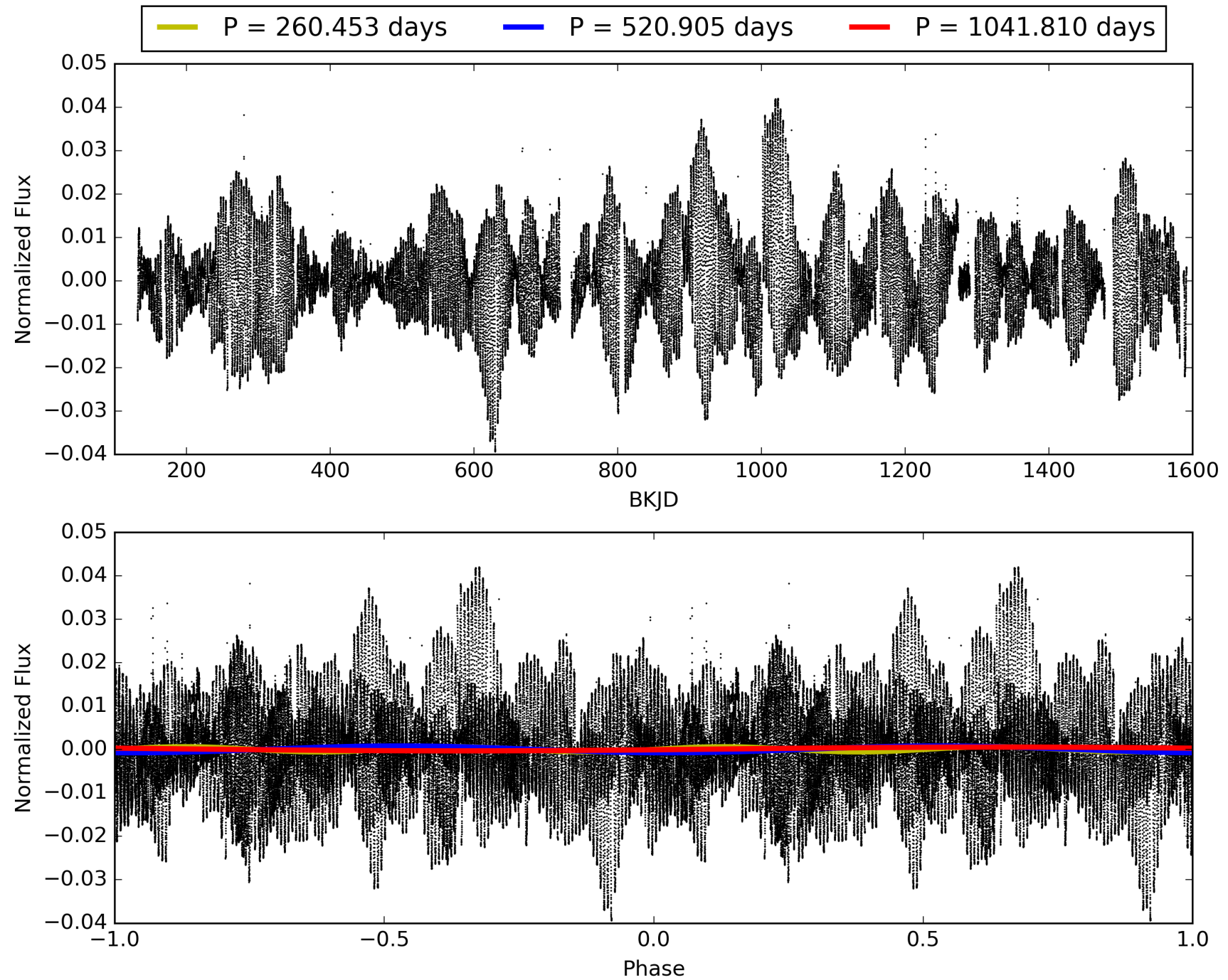
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:03:58 Z

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

TCE 008442720-02, PDC Light Curves

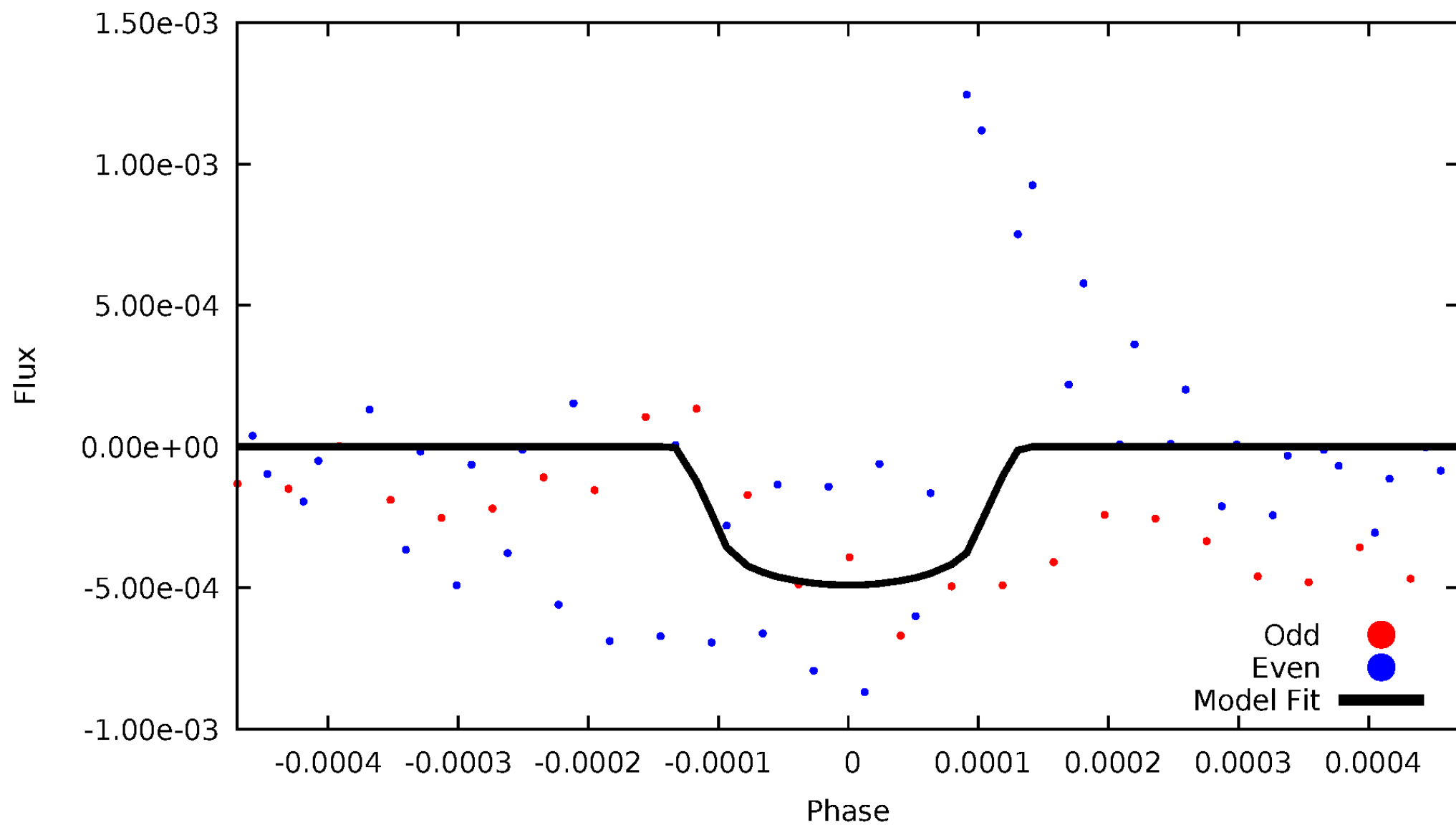


TCE 008442720-02



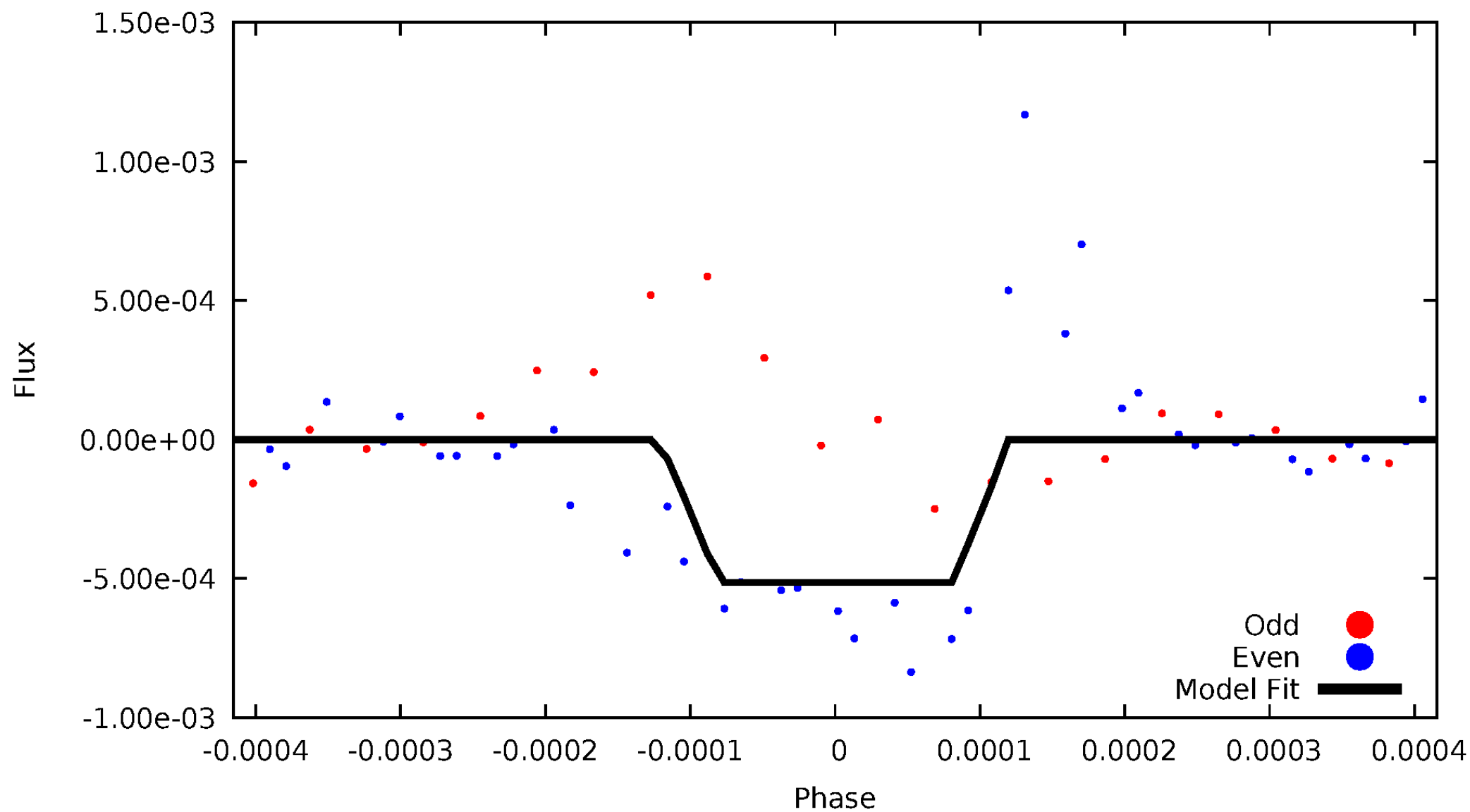
DV Odd/Even

TCE 008442720-02



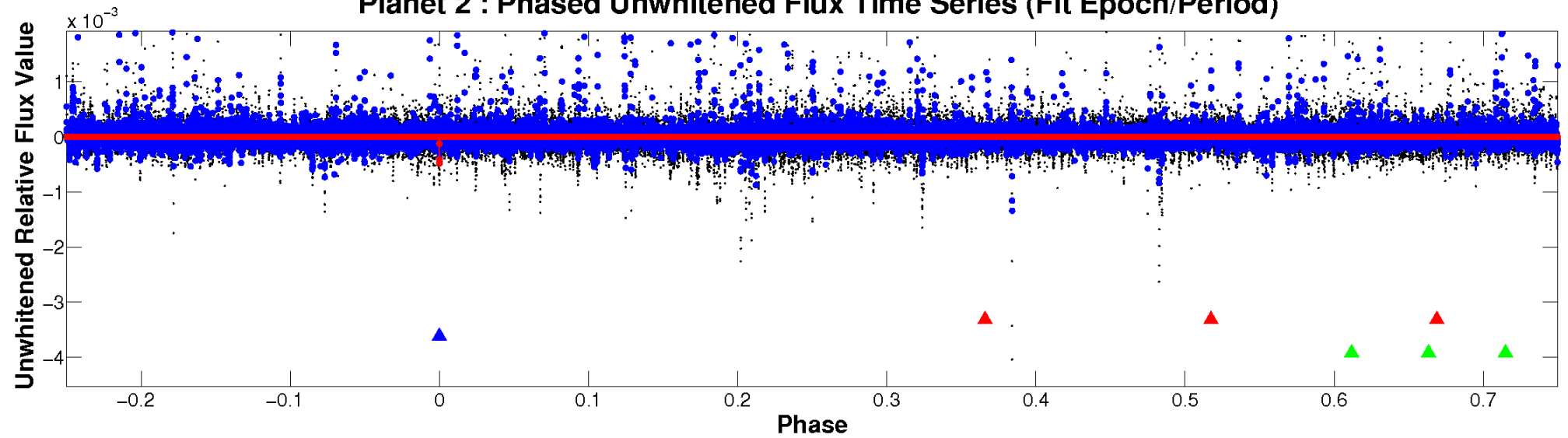
ALT Odd/Even

TCE 008442720-02

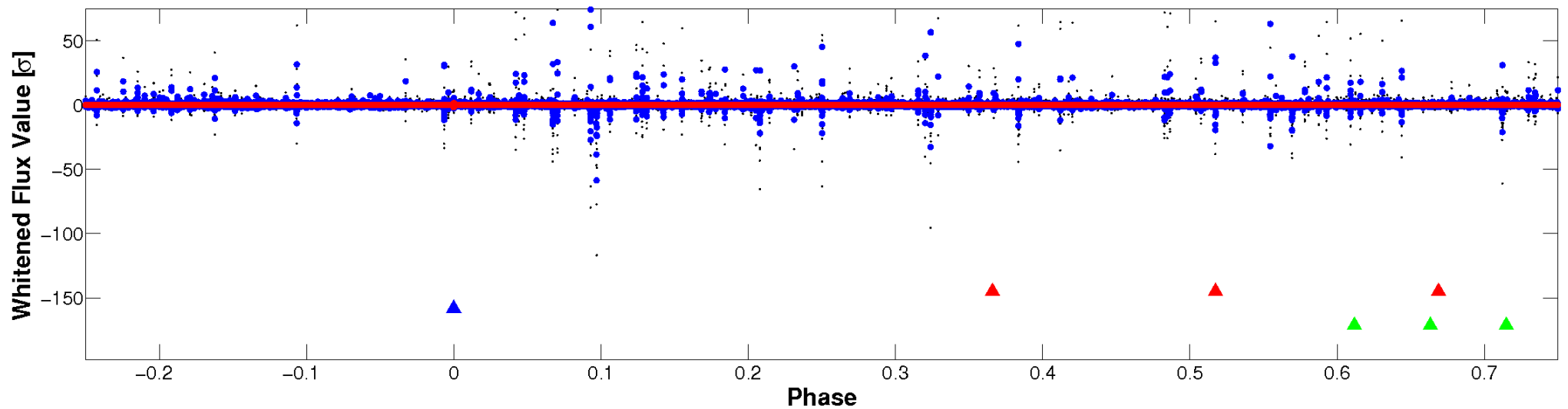


Non-Whitened Vs. Whitened Light Curve

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

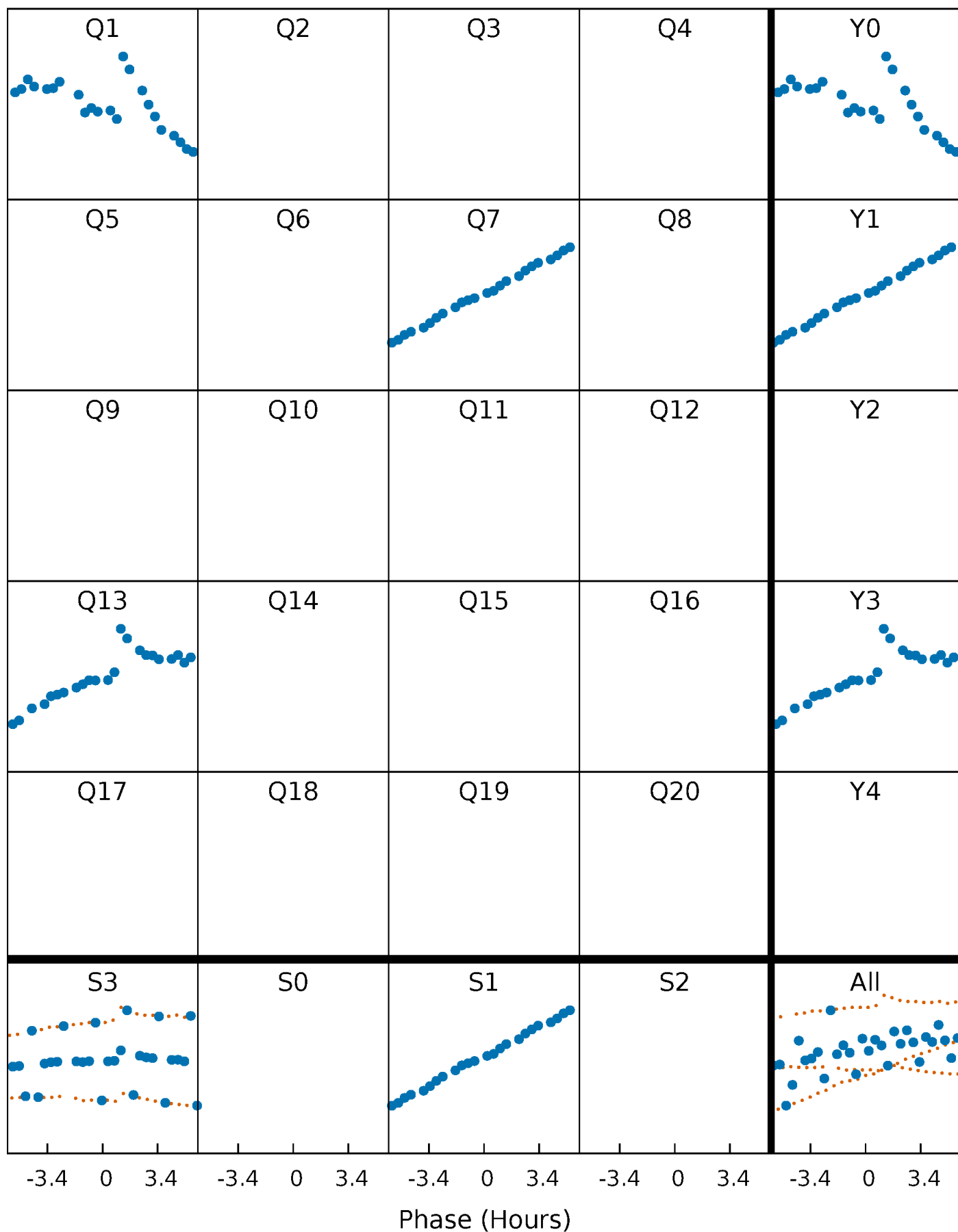


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



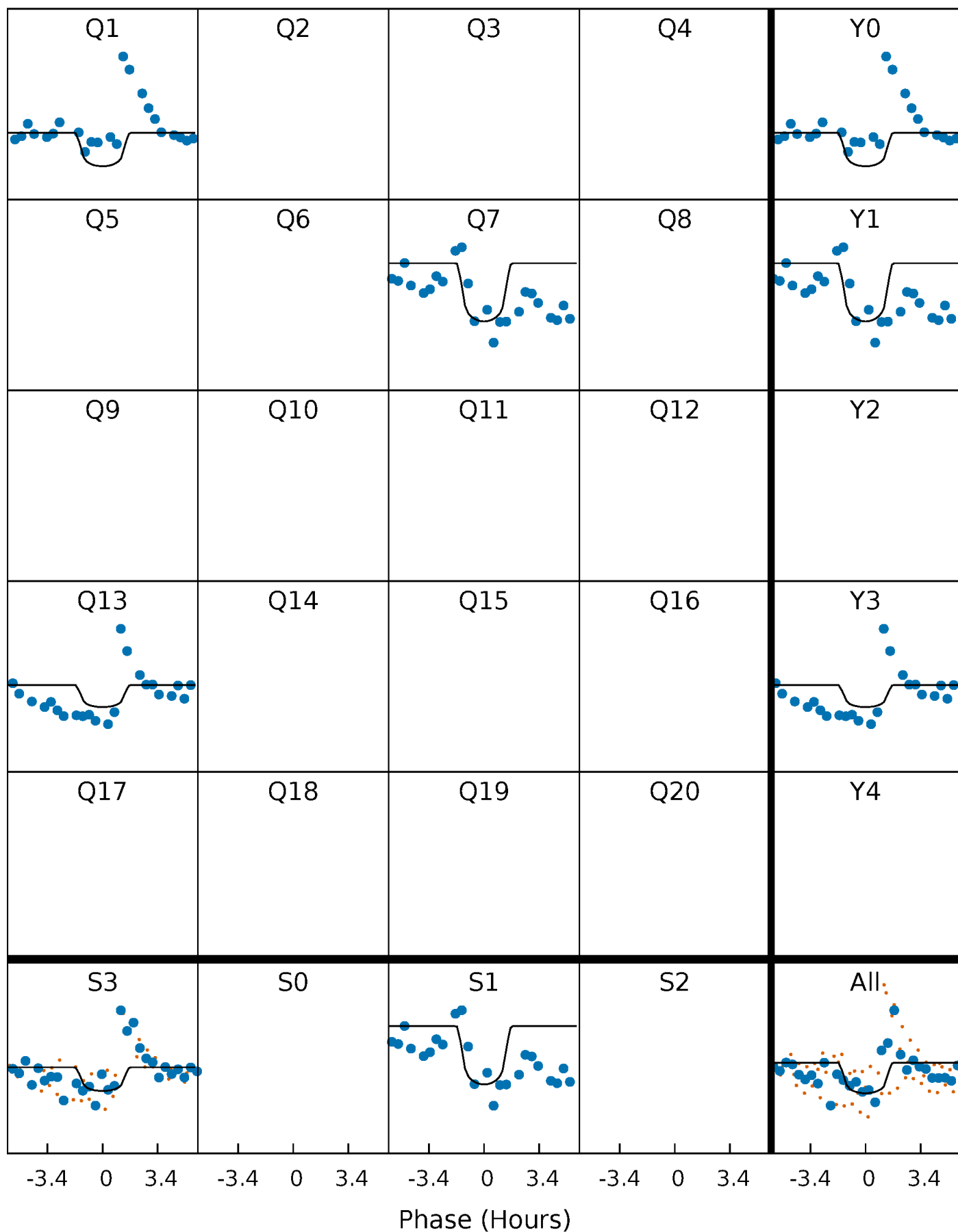
PDC Quarter-Phased Transit Curves

TCE 008442720-02 $P=520.905048$ Days $T_0=149.400052$ (BKJD)



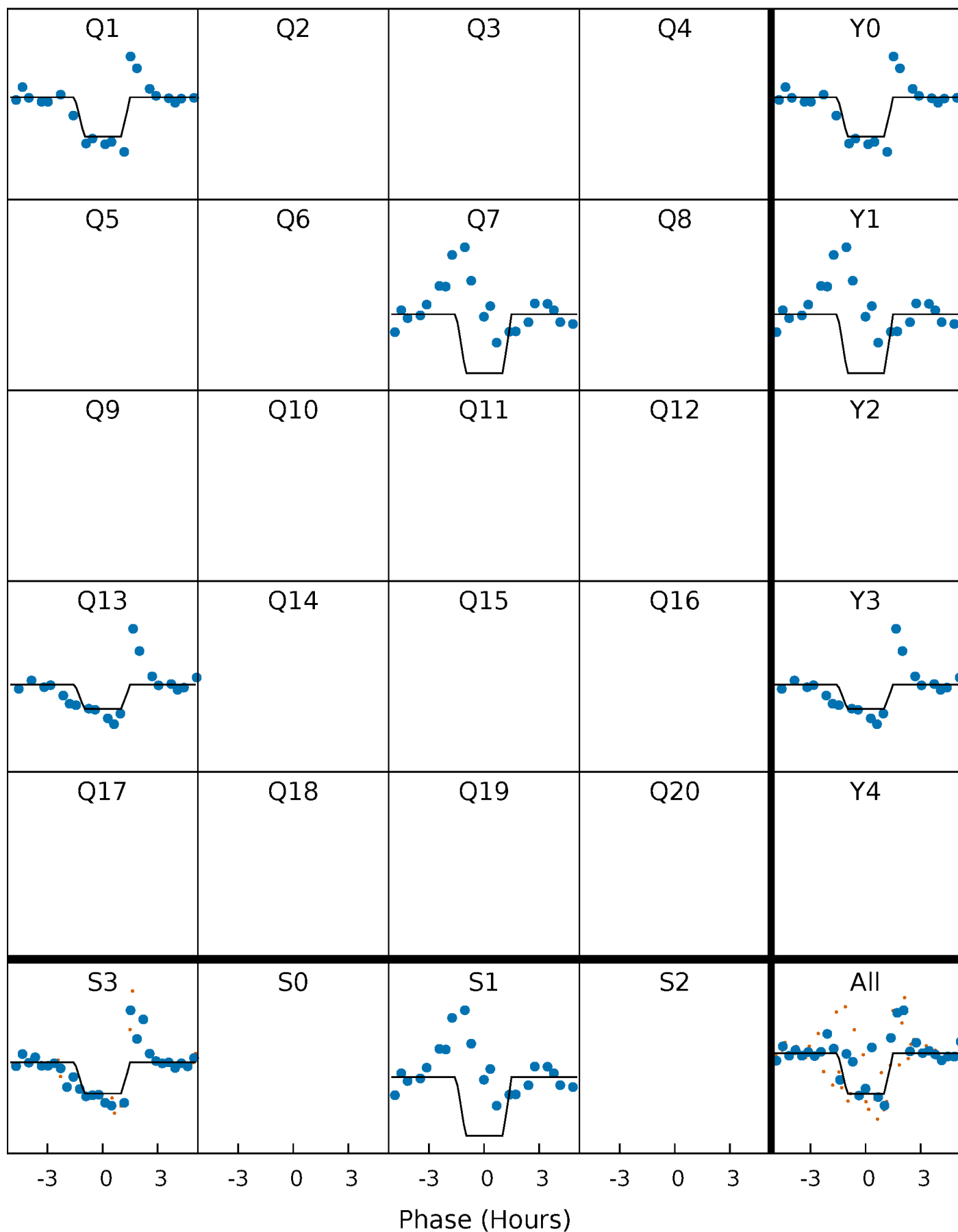
DV Quarter-Phased Transit Curves

TCE 008442720-02 $P=520.905048$ Days $T_0=149.400052$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

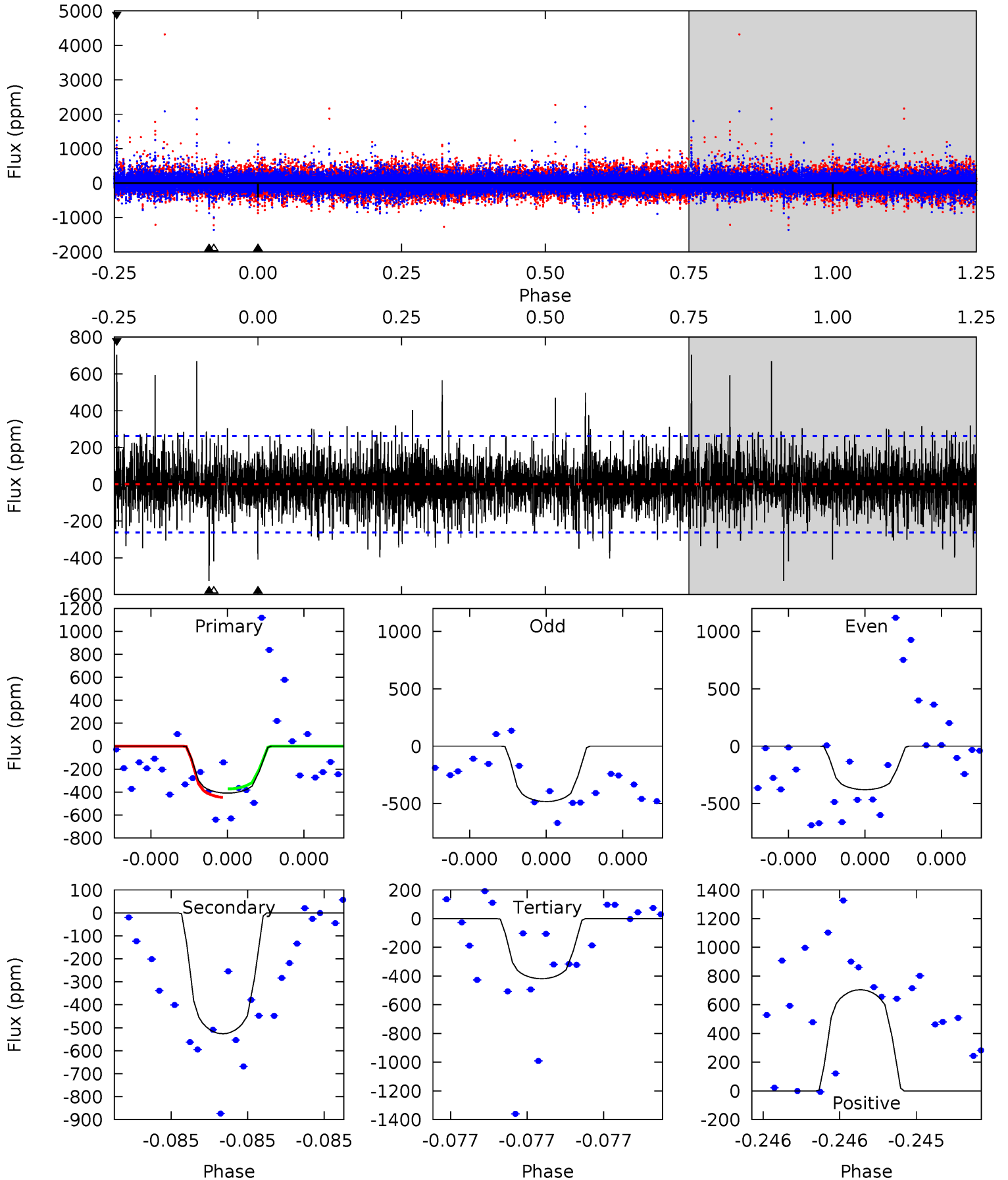
TCE 008442720-02 P=520.899123 Days $T_0=149.391101$ (BKJD)



DV Model-Shift Uniqueness Test

008442720-02, P = 520.905048 Days, E = 149.400052 Days

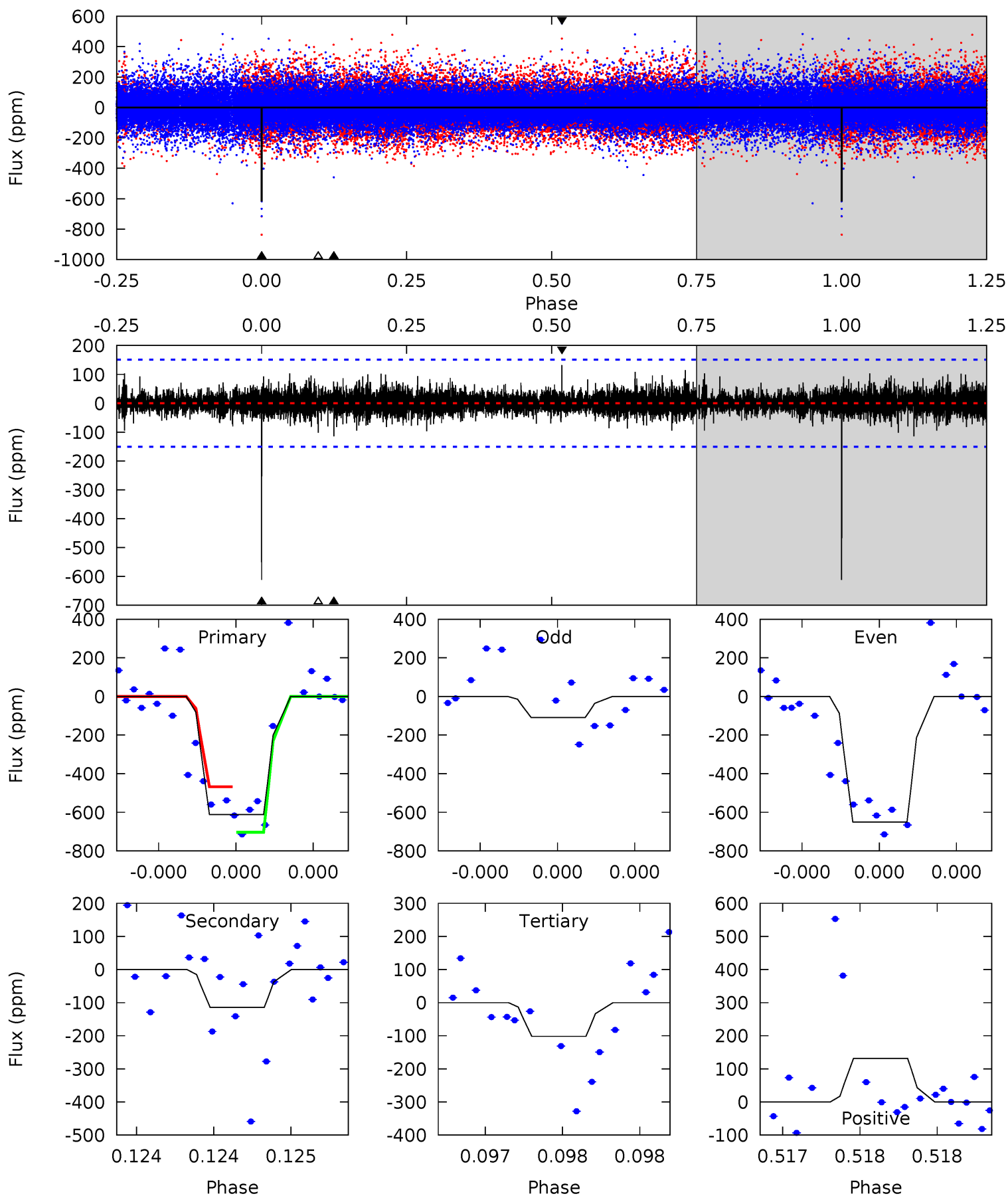
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.89	11.4	9.09	15.3	5.69	3.67	1.91	-0.20	-6.42	2.34	-3.88	0.45	0.68	0.57	0.82



Alt Model-Shift Uniqueness Test

008442720-02, P = 520.899123 Days, E = 149.391101 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.2	4.33	3.85	4.97	5.71	3.69	0.79	19.3	18.2	0.47	-0.65	10.1	0.64	0.18	4.48



Stellar Parameters For KIC 008442720

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5390^{+161}_{-161}	$4.648^{+0.039}_{-0.072}$	$-0.780^{+0.350}_{-0.300}$	$0.659^{+0.081}_{-0.041}$	$0.704^{+0.065}_{-0.050}$	$3.467^{+0.571}_{-0.854}$
	+3%/-3%	+1%/-2%	+45%/-38%	+12%/-6%	+9%/-7%	+16%/-25%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008442720-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-526 ± 46	$2.15^{+1.85}_{-1.43}$	255^{+10}_{-8}	4818^{+3591}_{-994}	$78578^{+648582}_{-55717}$
Alt.	-114 ± 26	$2.26^{+1.92}_{-1.46}$	256^{+9}_{-9}	3584^{+1775}_{-606}	15125^{+99496}_{-10764}

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 $A_{obs} \gg 1.0$

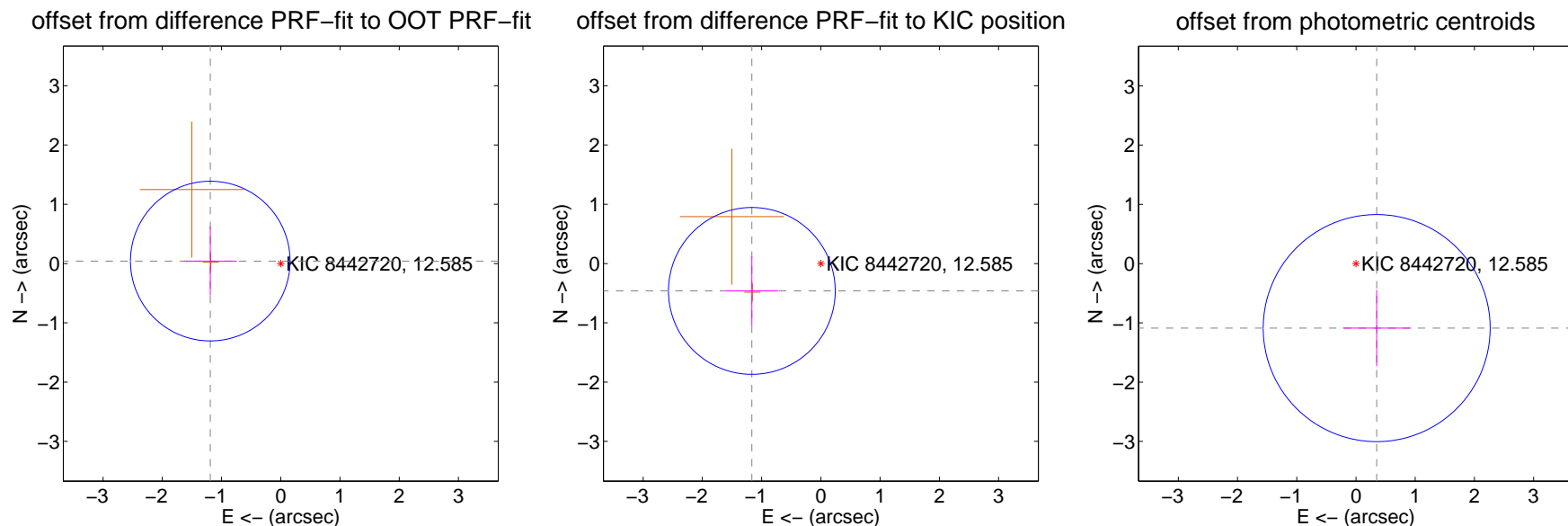
DV Centroid Data

Supplemental centroid analysis for 008442720-02. Kepler magnitude: 12.59. Transit SNR 6.96

There are 0 quarters with good PRF difference image offsets

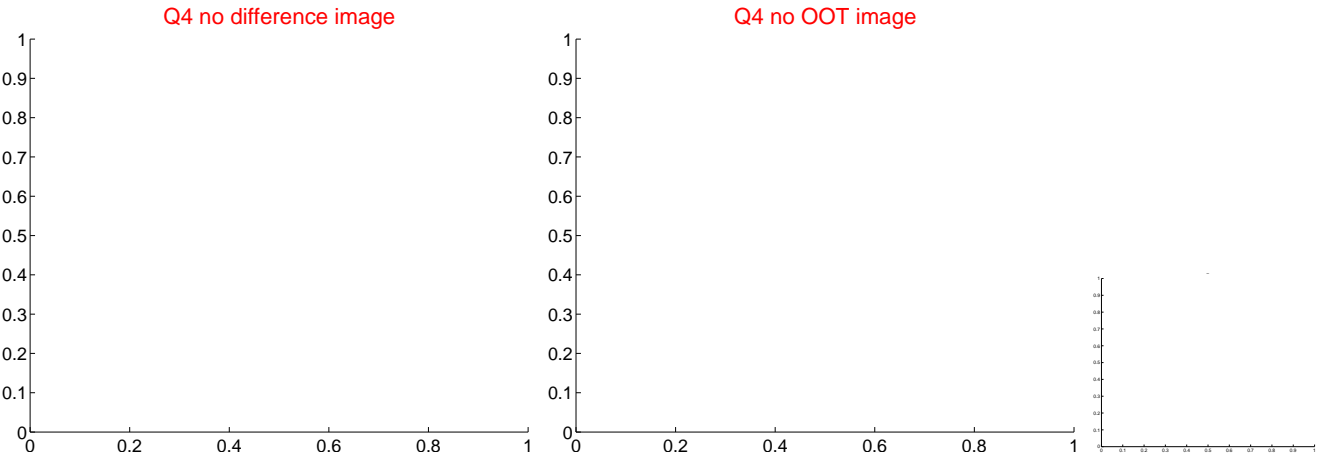
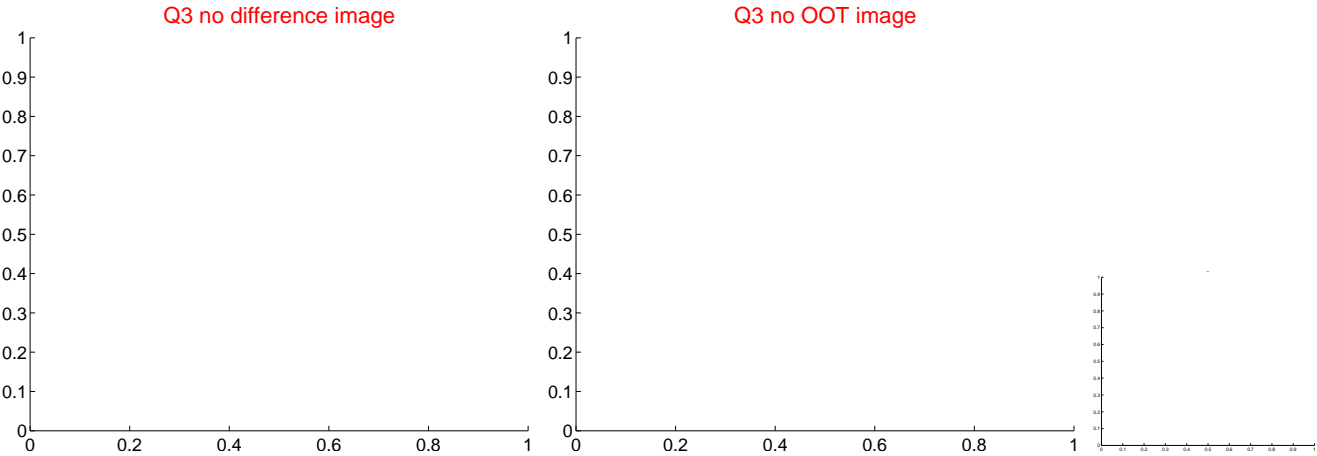
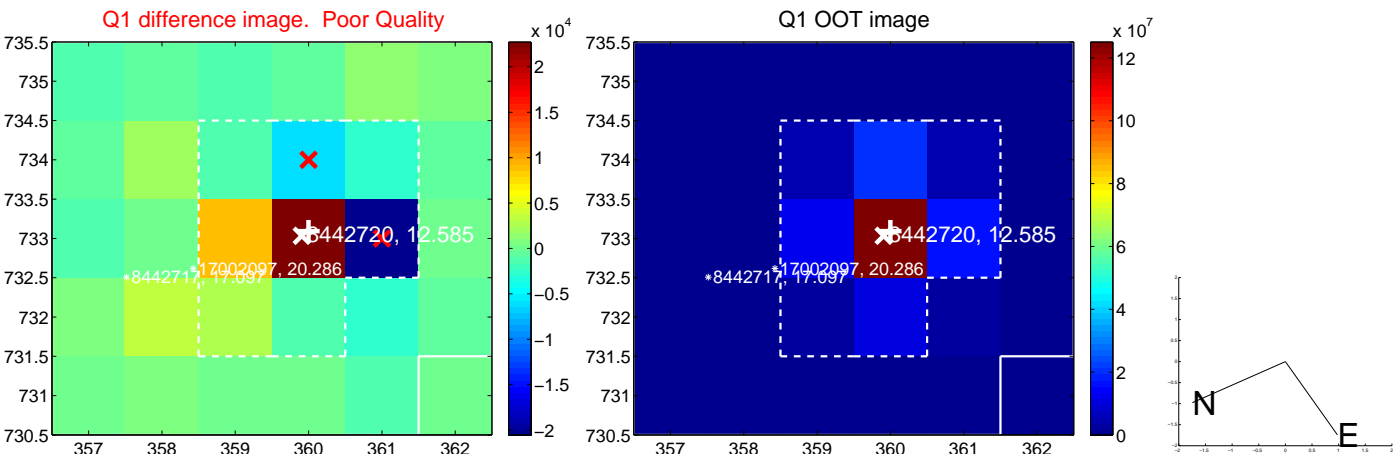
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.190 ± 0.449	2.65	1.190 ± 0.449	0.042 ± 0.582
PRF-fit source offset from KIC position	1.253 ± 0.469	2.67	1.165 ± 0.449	-0.462 ± 0.582
photometric centroid source offset	1.14 ± 0.64	1.79	-0.35 ± 0.57	-1.09 ± 0.65



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



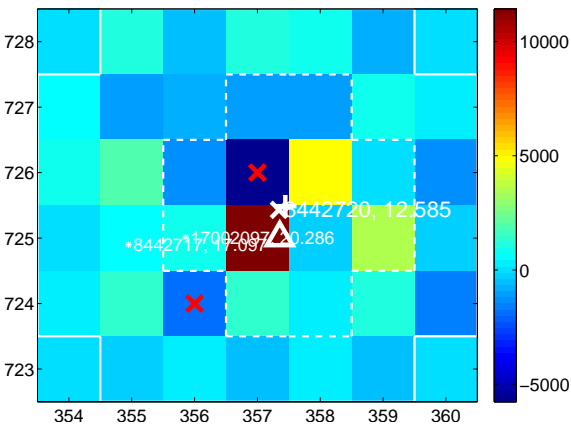
Q6 no difference image



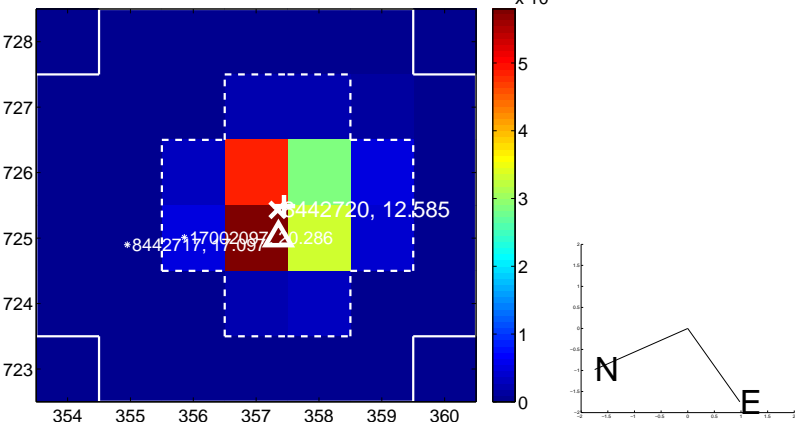
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



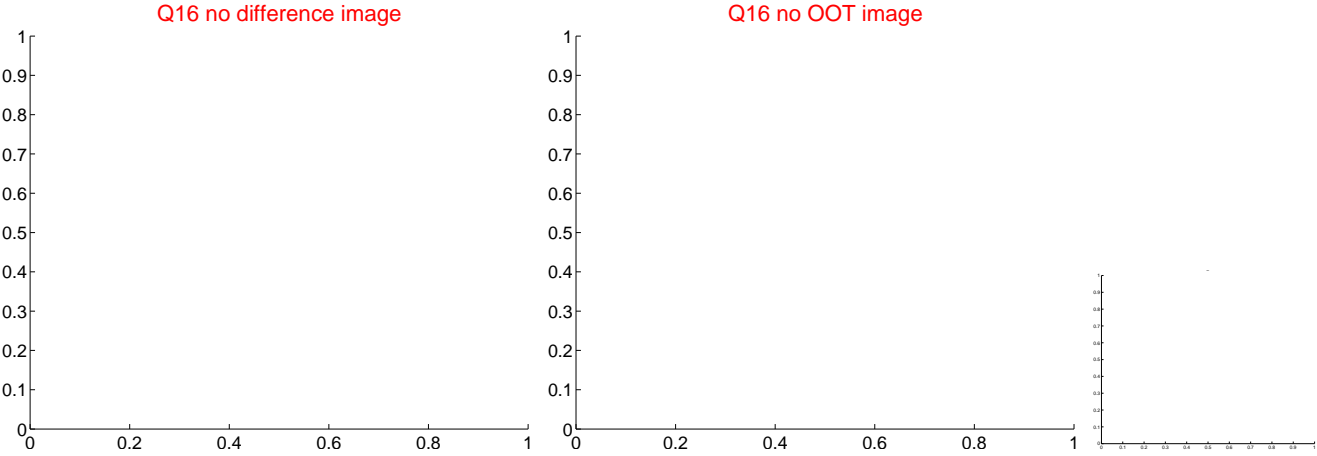
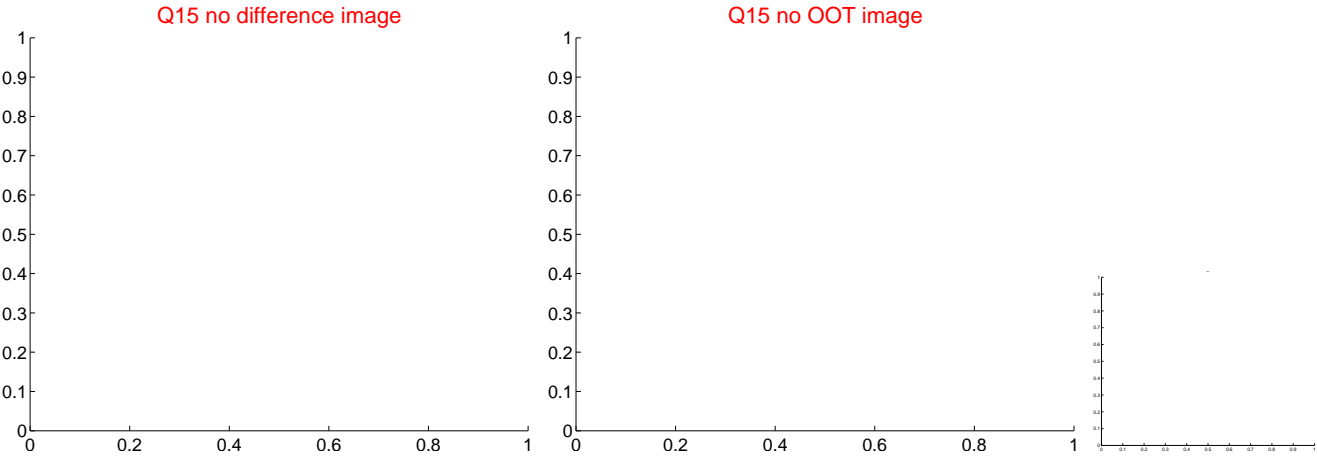
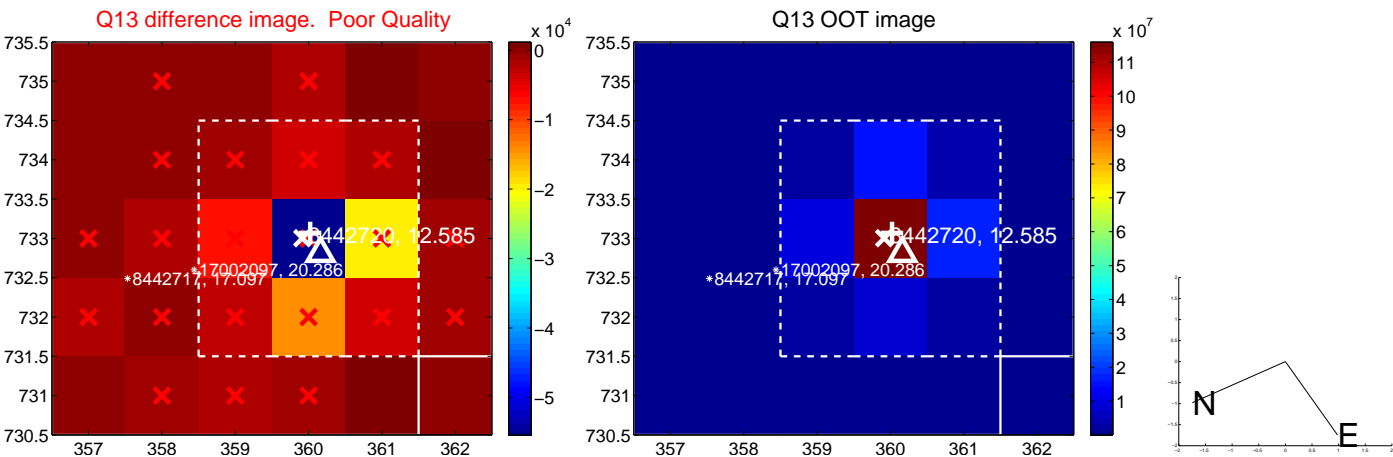
Q8 no OOT image



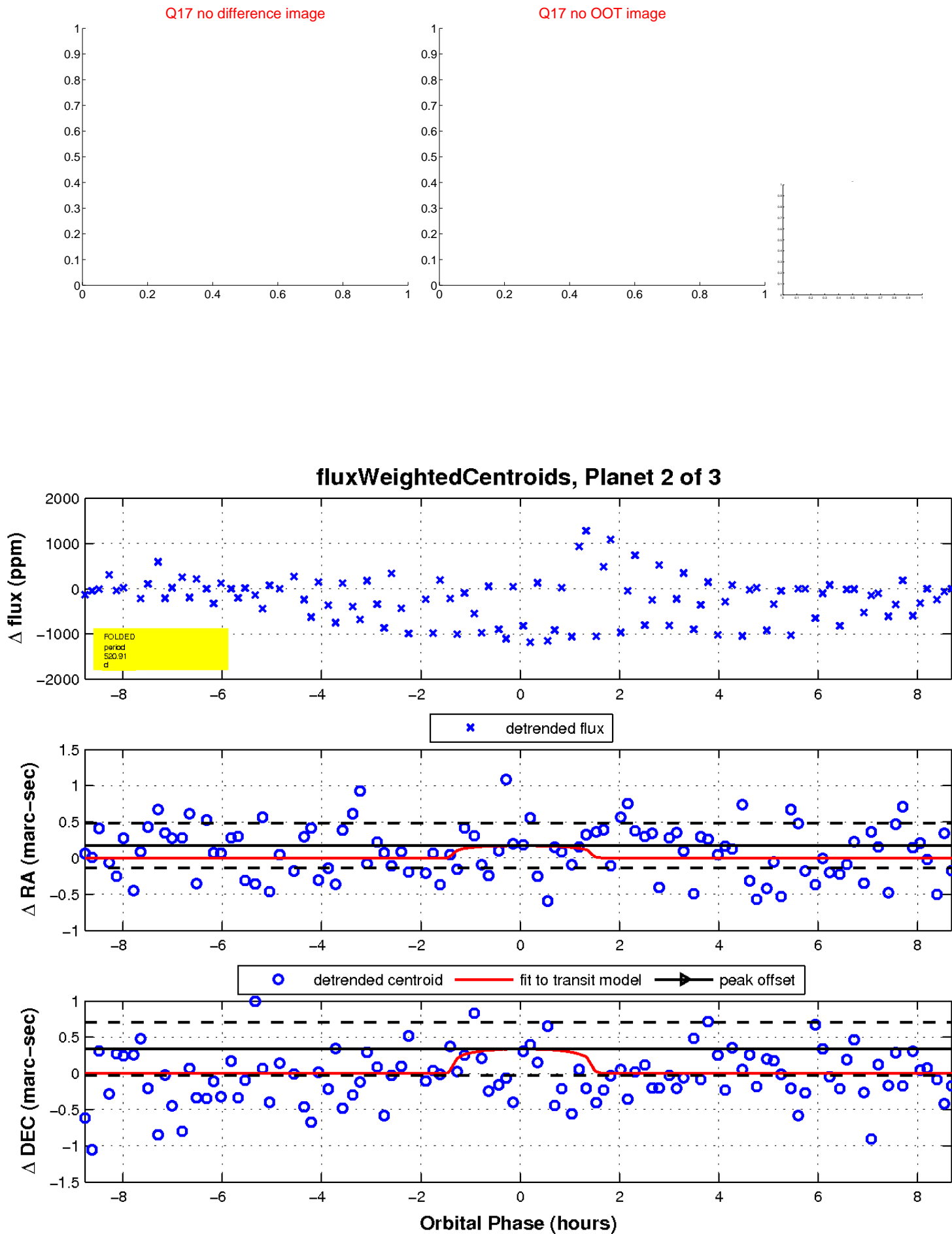
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

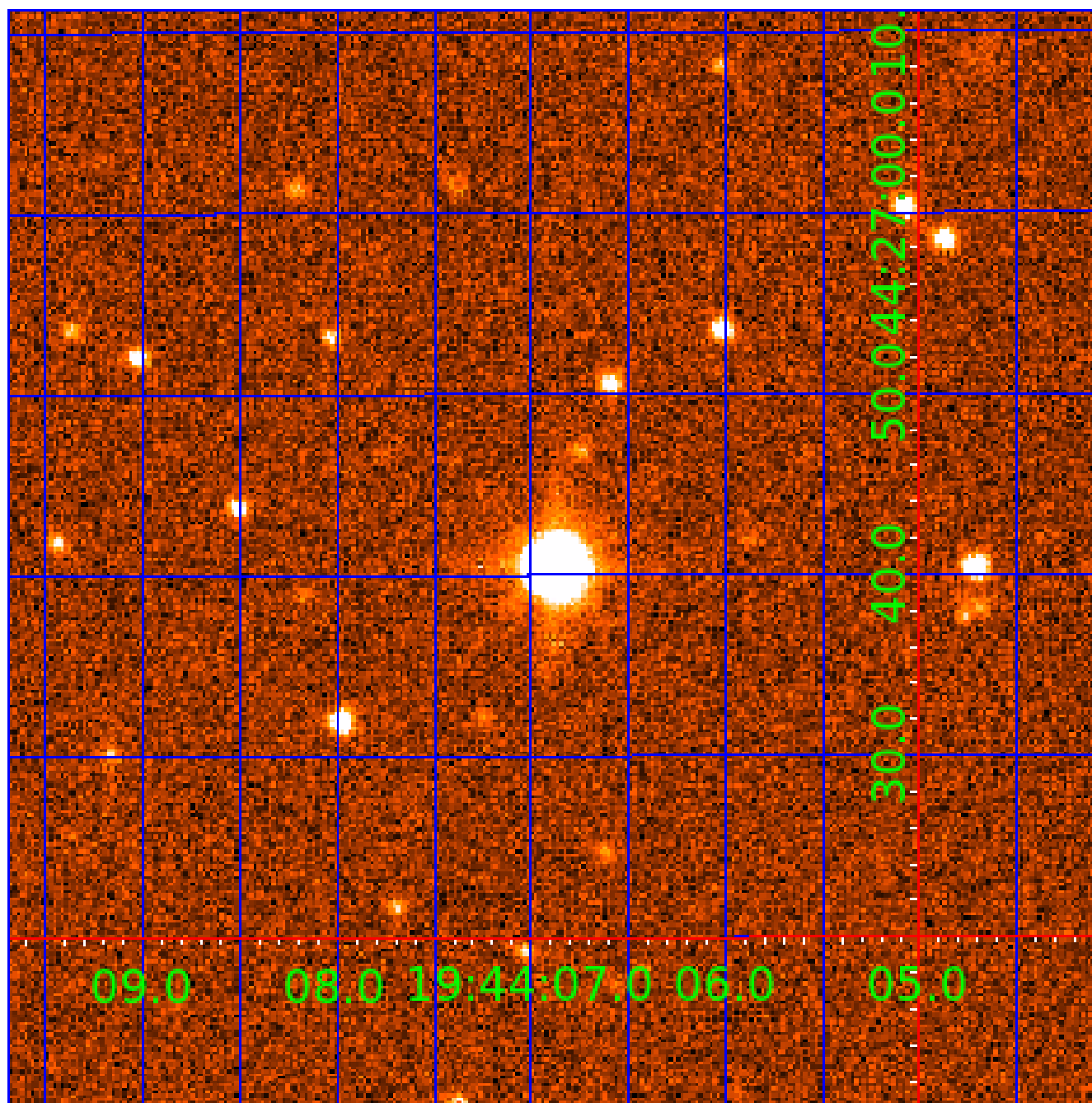


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008442720

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})
008442720-01	OBS	No	599.806158	340.026575	464.3	3.466	13.9	6.5	0.66	5390	1.52	0.21
008442720-02	OBS	No	520.905048	149.400052	489.7	2.937	12.5	7.0	0.66	5390	1.57	0.26
008442720-03	OBS	No	547.770912	468.076201	484.6	12.924	12.1	3.9	0.66	5390	1.51	0.24

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008442720-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS
008442720-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008442720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

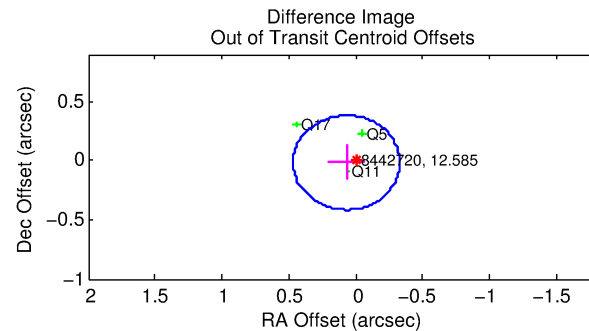
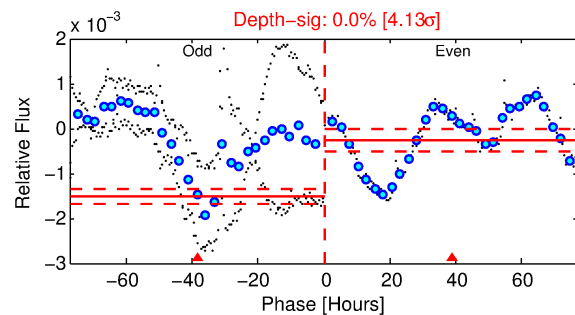
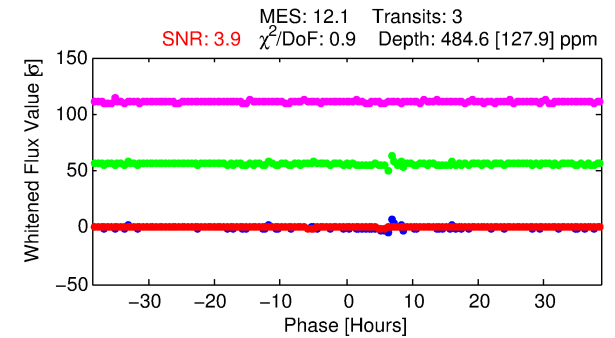
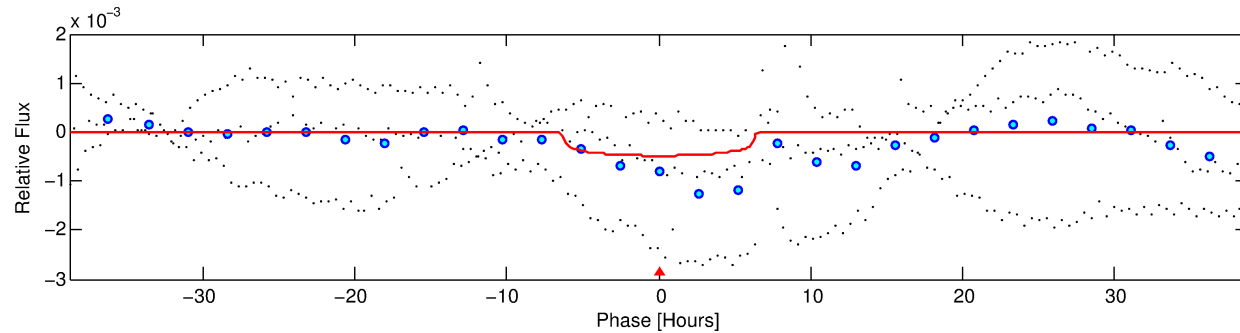
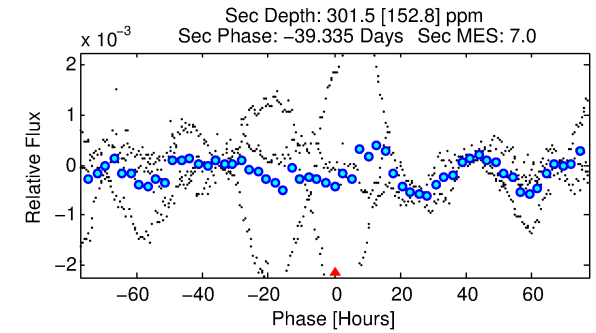
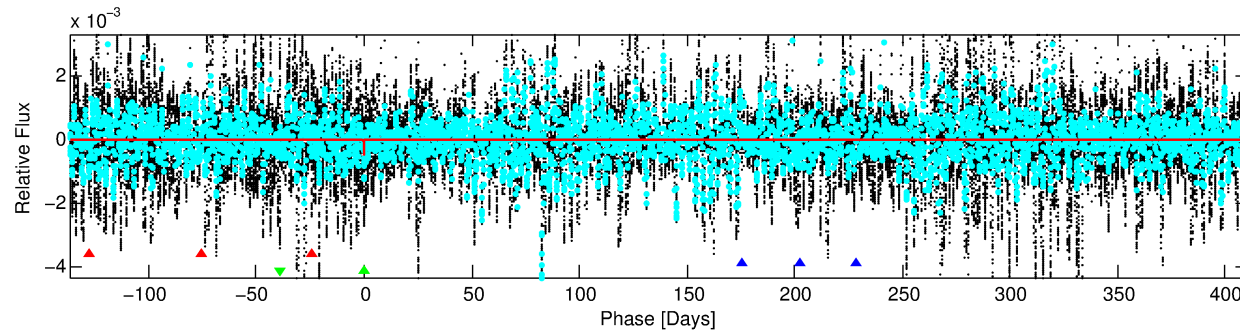
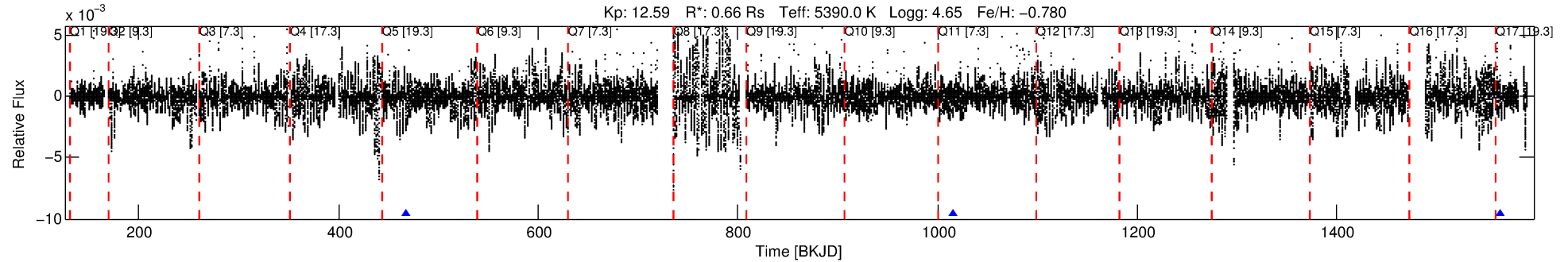
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008442720-03

No Significant Match Found

DV One-Page Summary

KIC: 8442720 Candidate: 3 of 3 Period: 547.771 d



DV Fit Results:

Period = 547.77091 [0.00797] d
Epoch = 468.0762 [0.0078] BKJD
Rp/R* = 0.0210 [0.0070]
a/R* = 267.62 [338.27]
b = 0.60 [1.35]
Seff = 0.24 [0.04]
Teq = 179 [8] K
Rp = 1.51 [0.53] Re
a = 1.1660 [0.1152] AU
Ag = 99030.14 [83888.86] [1.18 σ]
Teffp = 4903 [1035] K [4.56 σ]

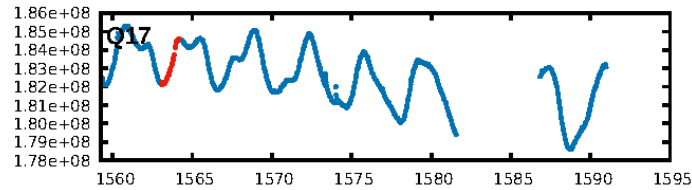
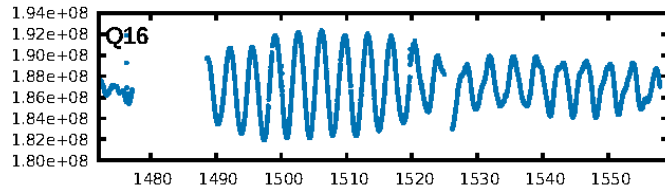
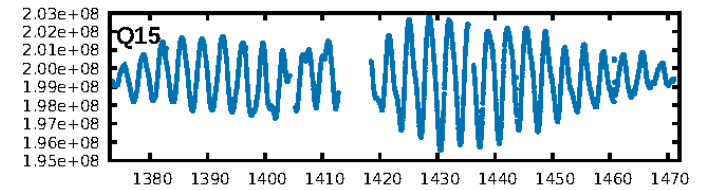
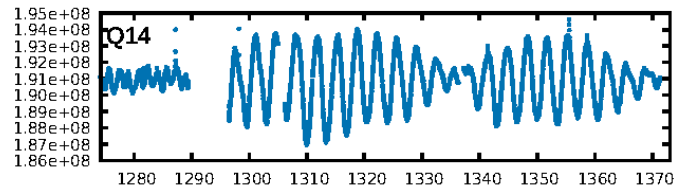
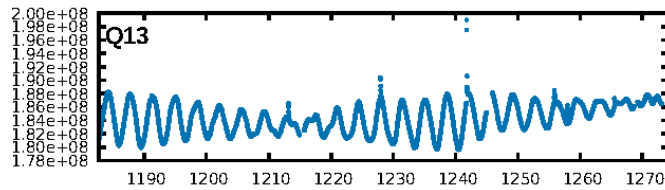
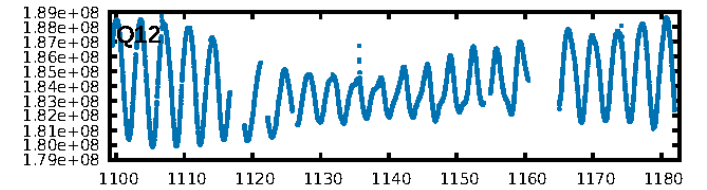
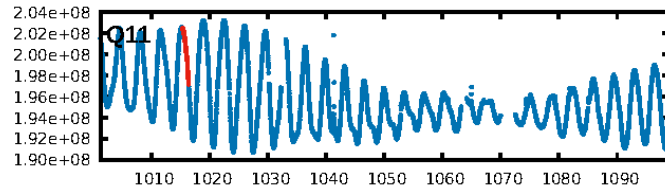
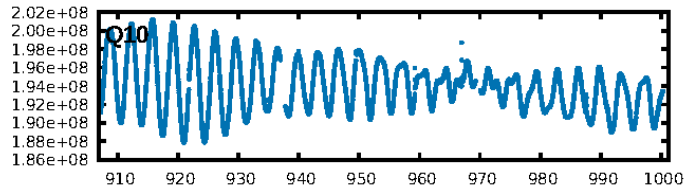
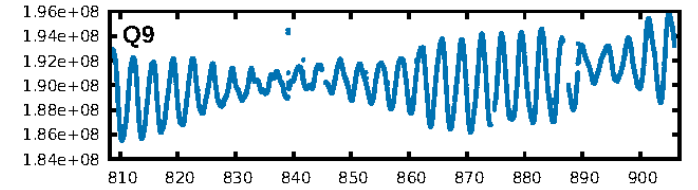
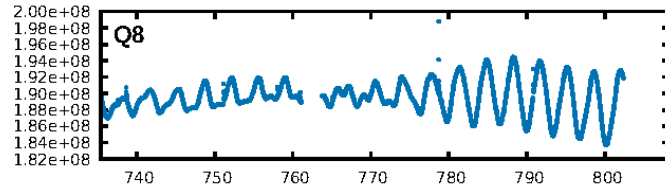
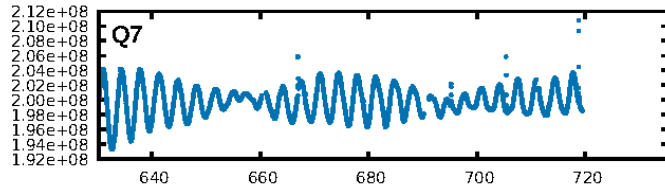
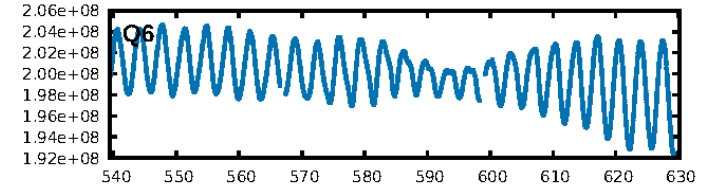
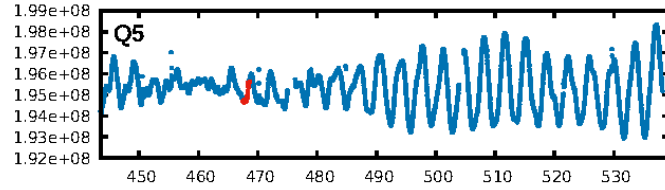
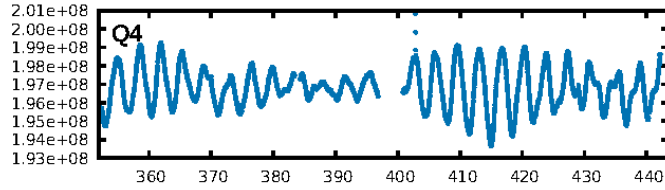
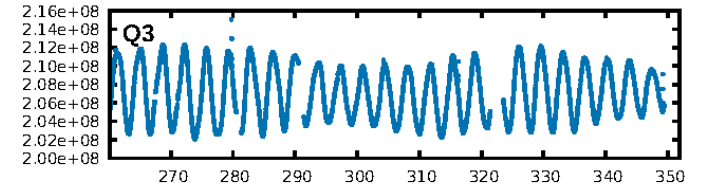
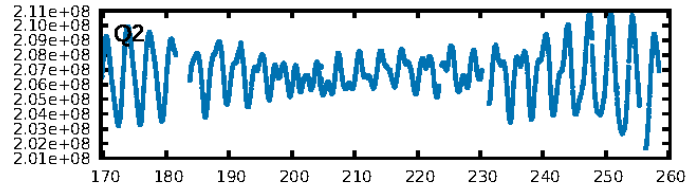
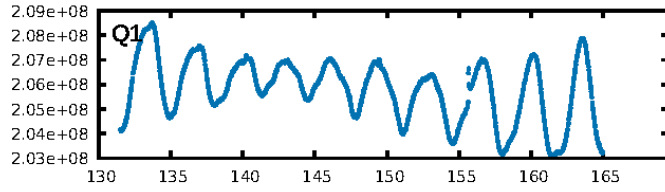
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.65 σ]
LongPeriod-sig: 100.0% [93.33 σ]
ModelChiSquare2-sig: 21.8%
ModelChiSquareGof-sig: 93.8%
Bootstrap-pfa: 3.49e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.2785
Centroid-sig: 0.1%
Centroid-so: 1.178 arcsec [3.16 σ]
OotOffset-rm: 0.073 arcsec [0.55 σ]
KicOffset-rm: 0.561 arcsec [3.26 σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

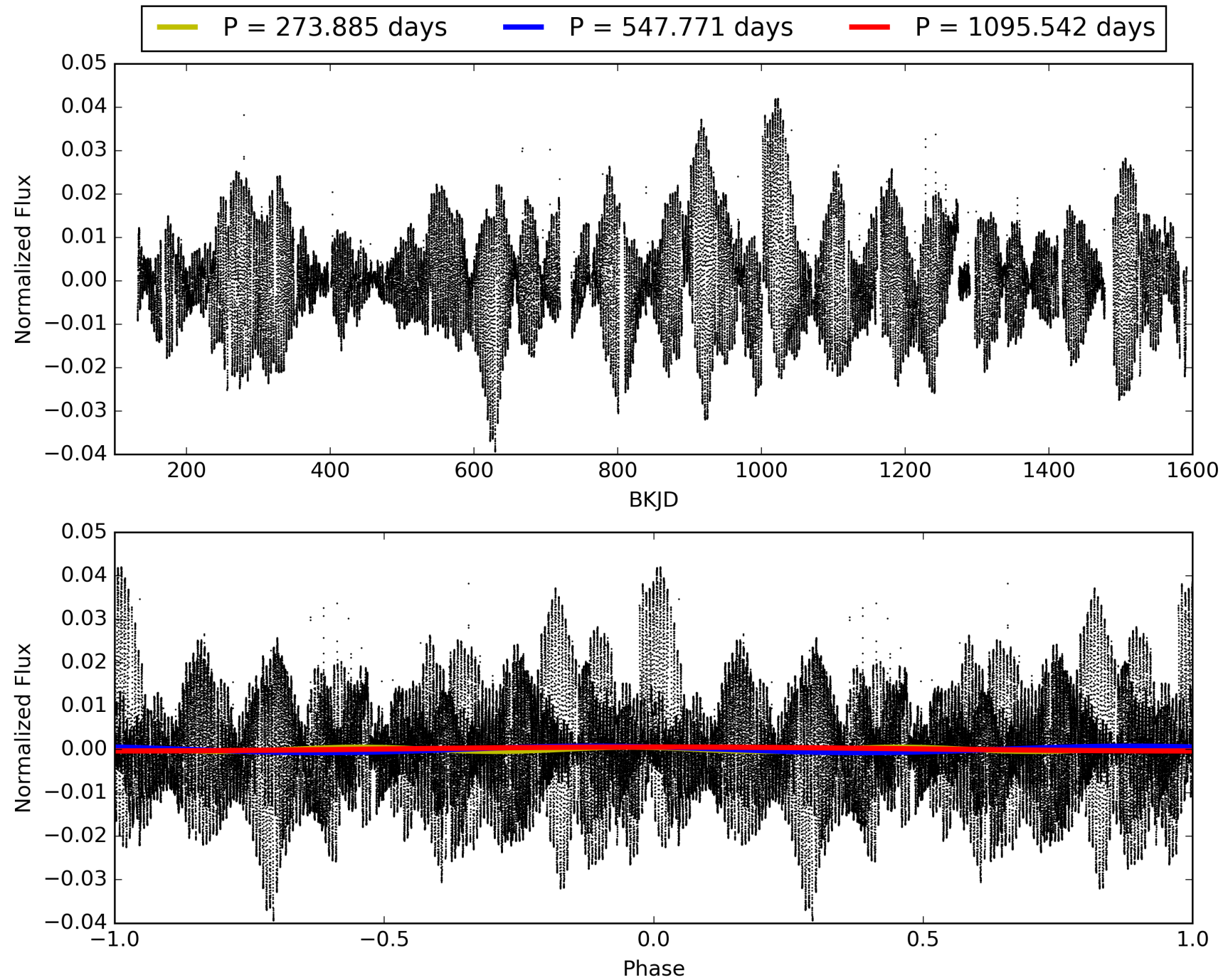
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:04:08 Z

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

TCE 008442720-03, PDC Light Curves

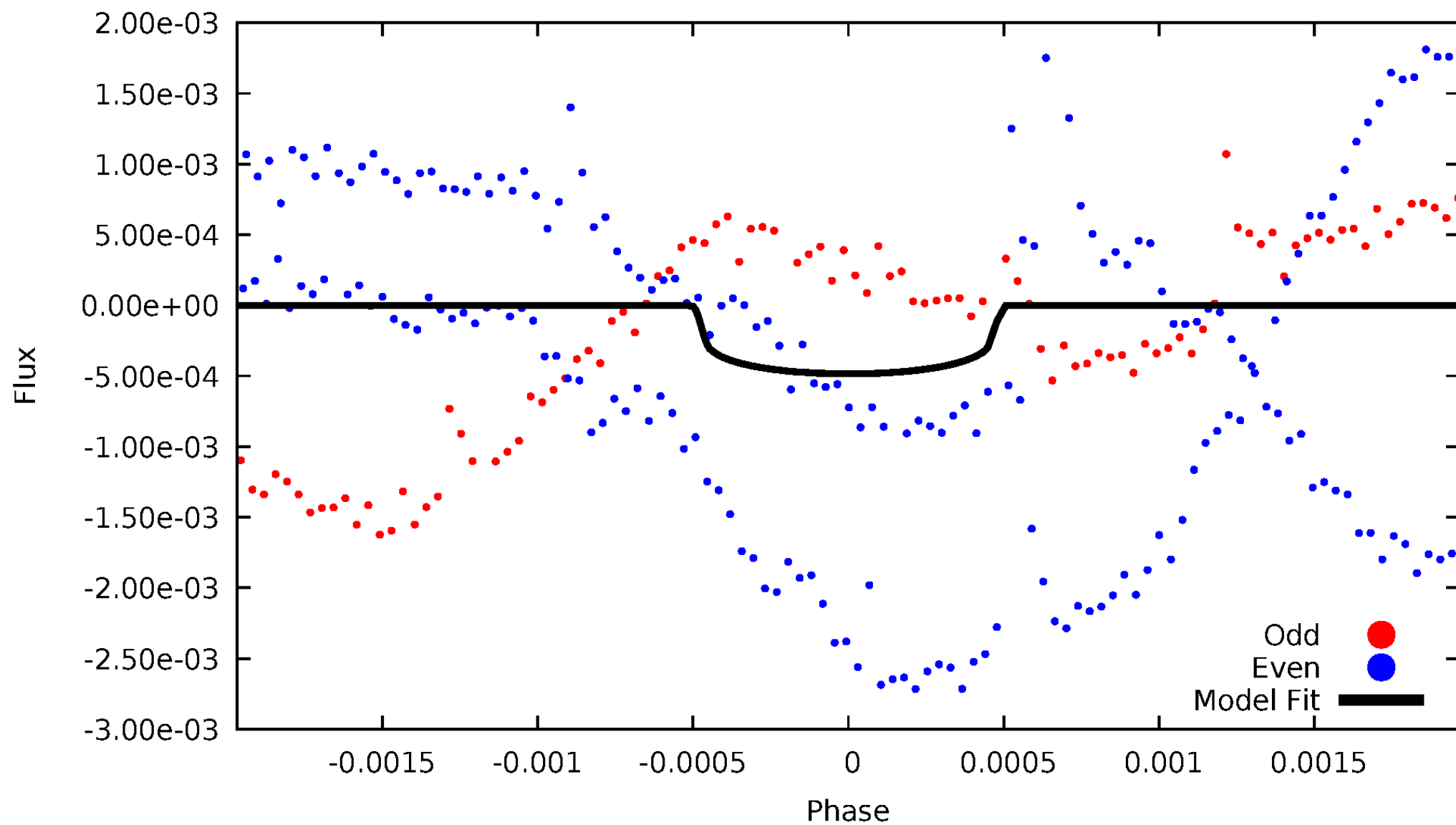


TCE 008442720-03



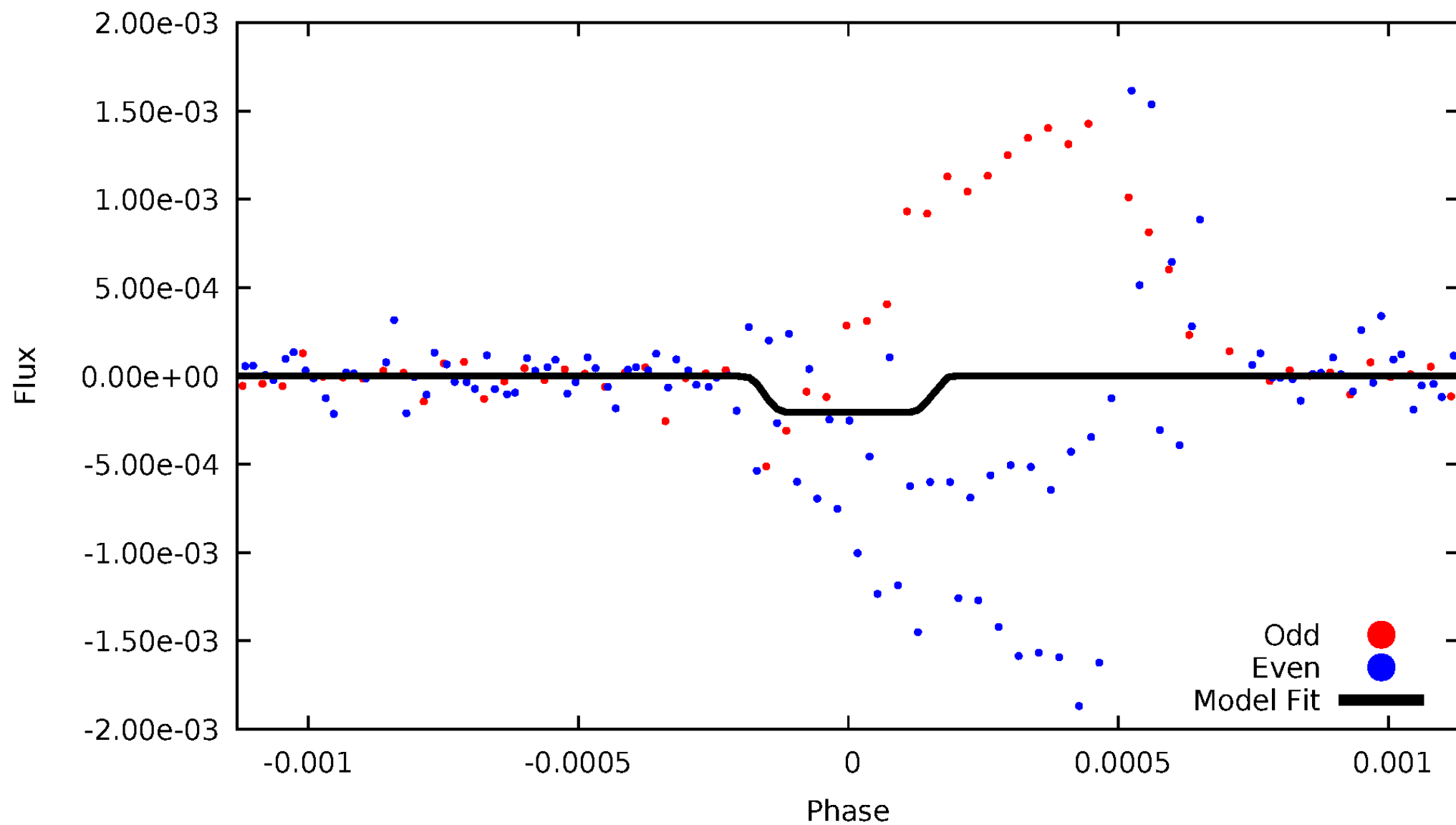
DV Odd/Even

TCE 008442720-03



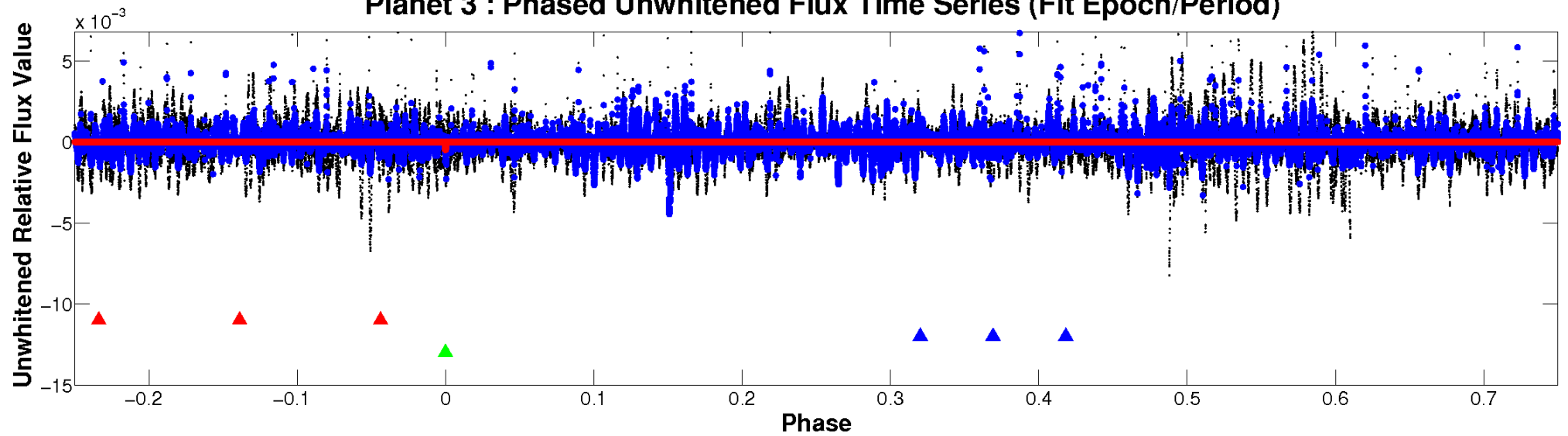
ALT Odd/Even

TCE 008442720-03

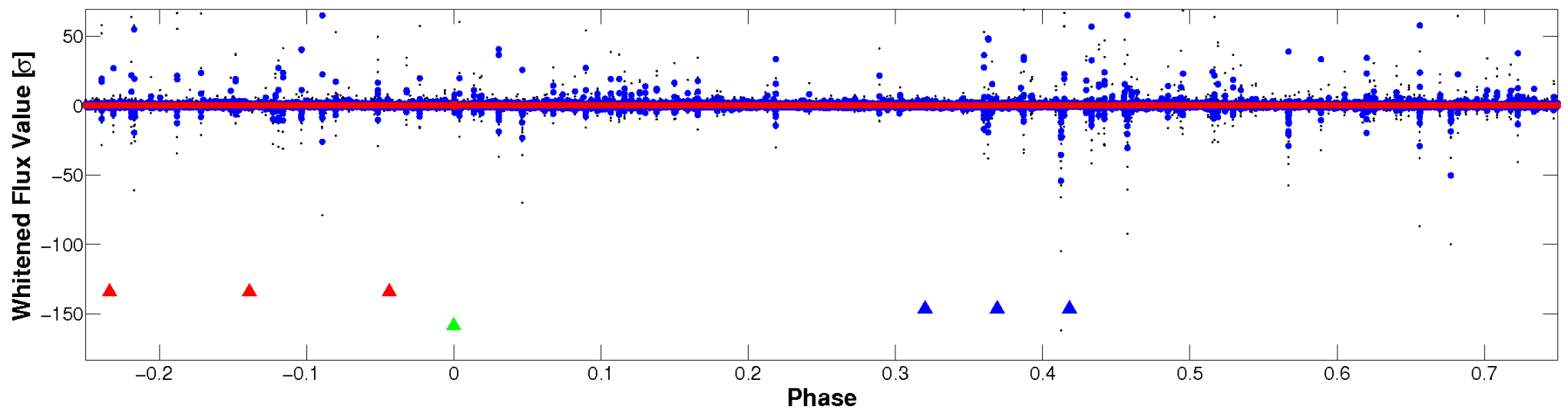


Non-Whitened Vs. Whitened Light Curve

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

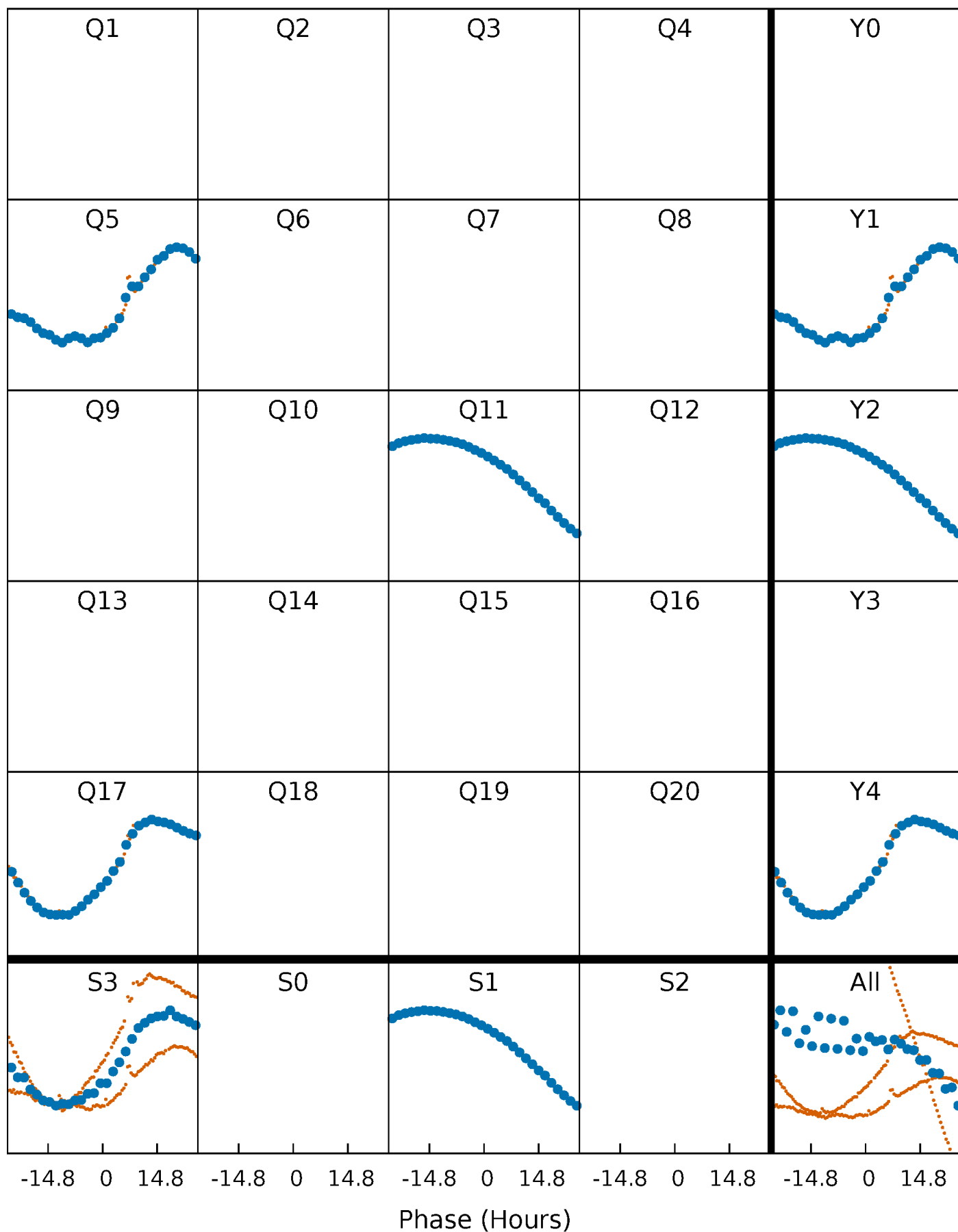


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



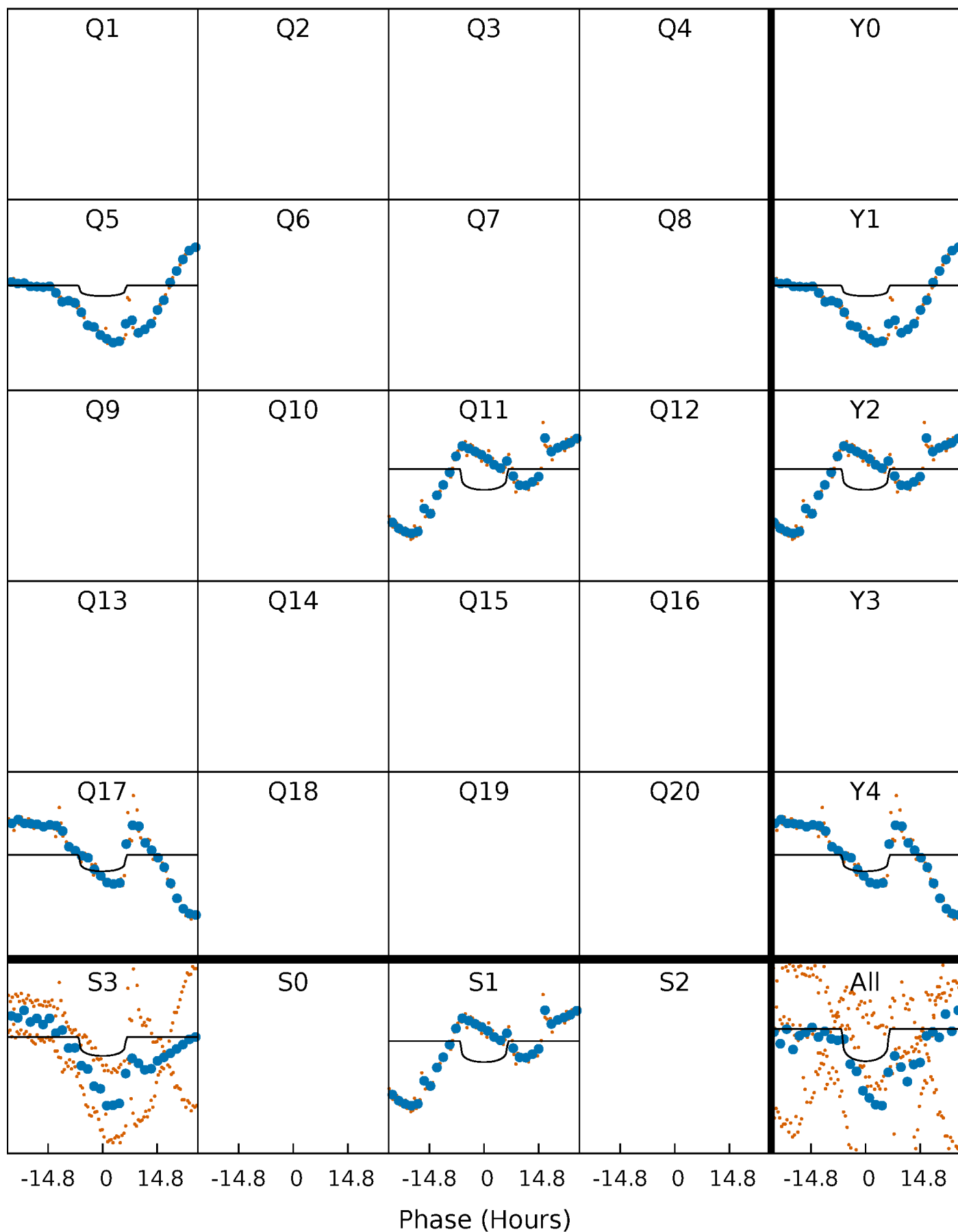
PDC Quarter-Phased Transit Curves

TCE 008442720-03 $P=547.770912$ Days $T_0=468.076201$ (BKJD)



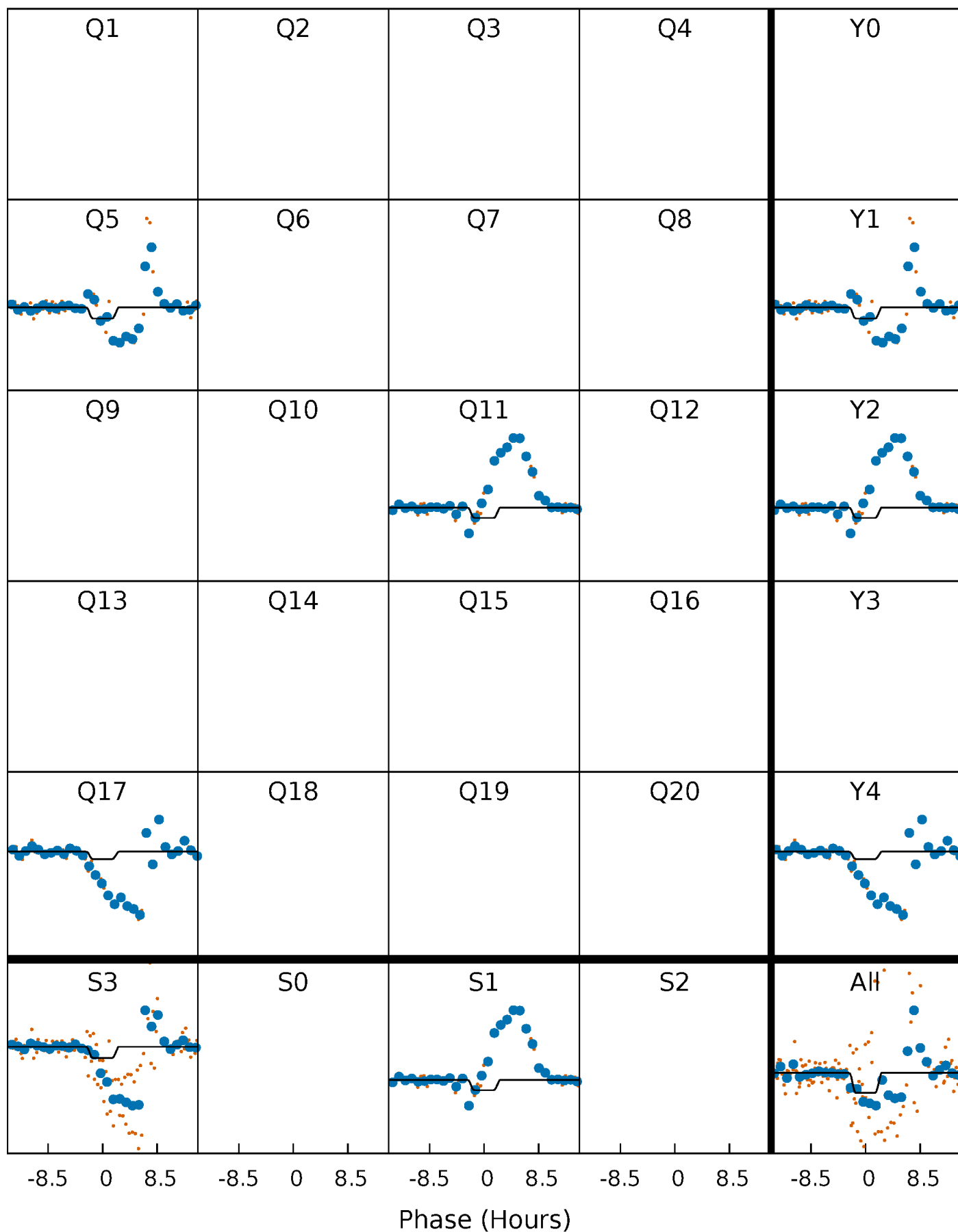
DV Quarter-Phased Transit Curves

TCE 008442720-03 $P=547.770912$ Days $T_0=468.076201$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

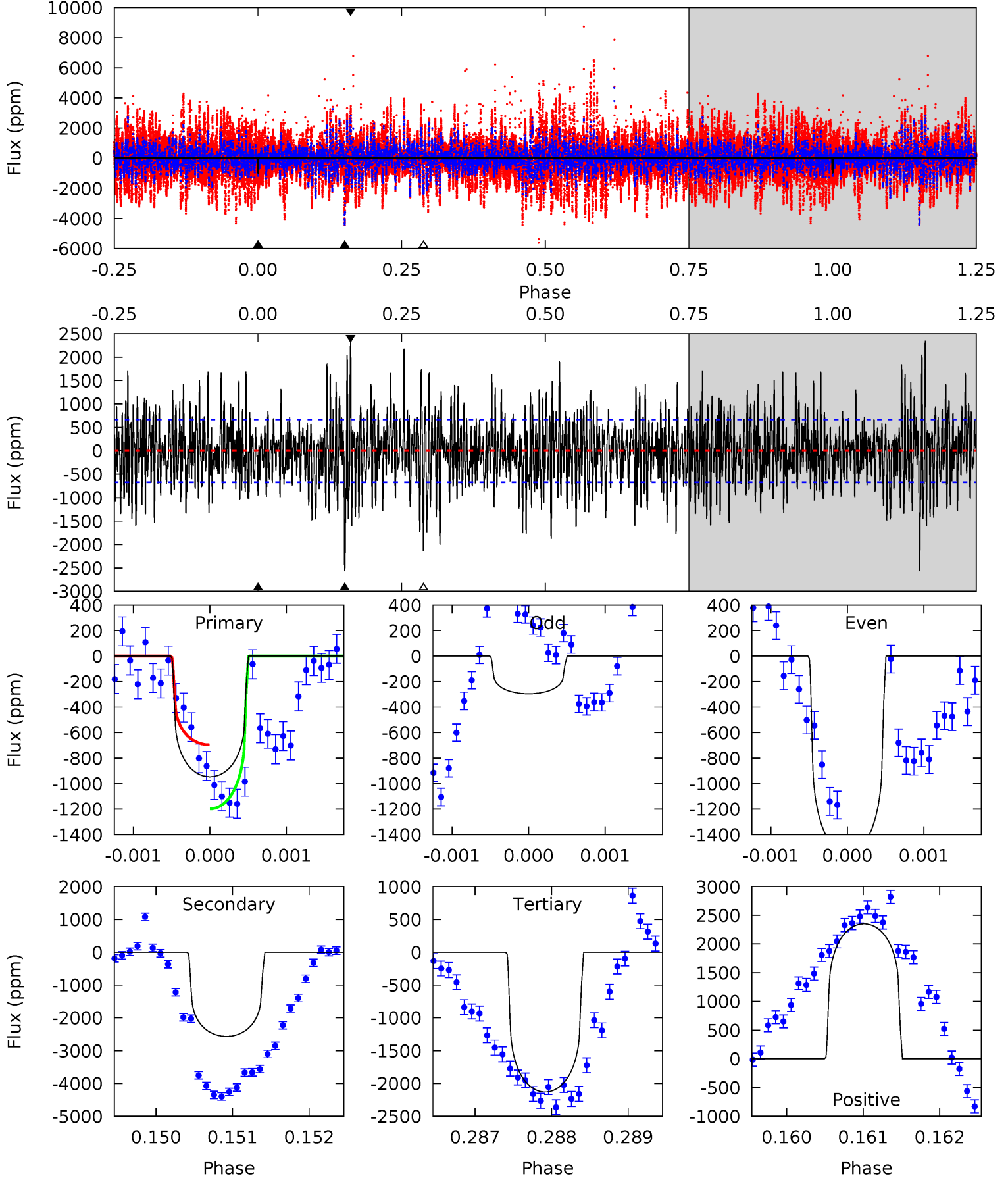
TCE 008442720-03 $P=547.769254$ Days $T_0=468.071200$ (BKJD)



DV Model-Shift Uniqueness Test

008442720-03, P = 547.770912 Days, E = 468.076201 Days

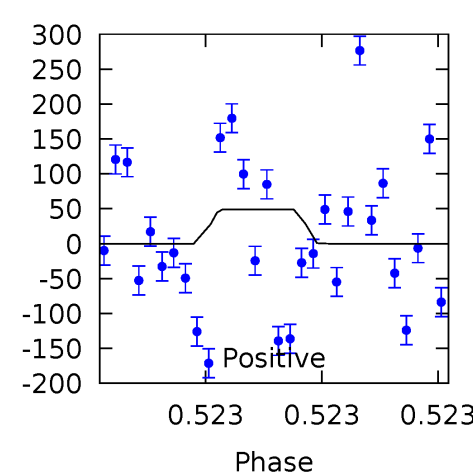
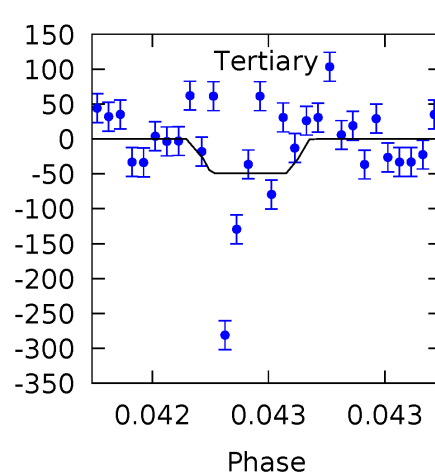
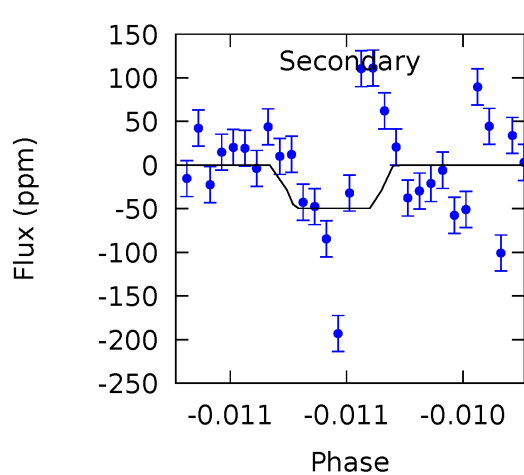
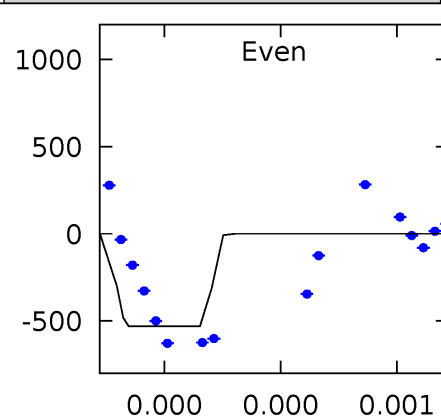
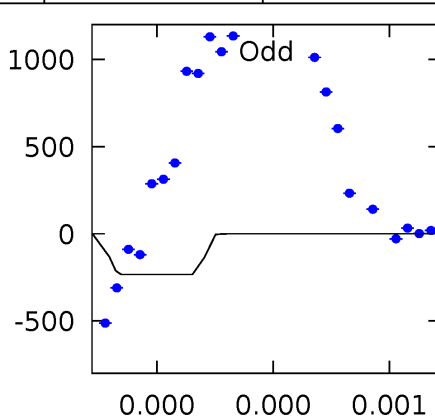
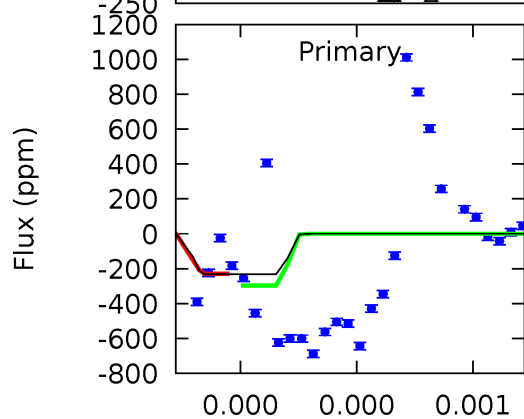
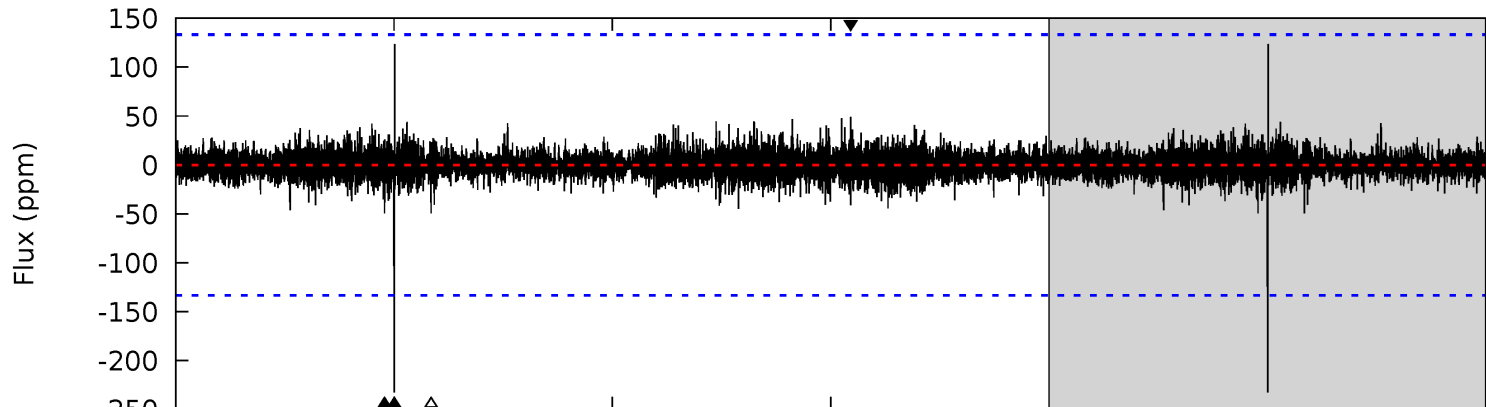
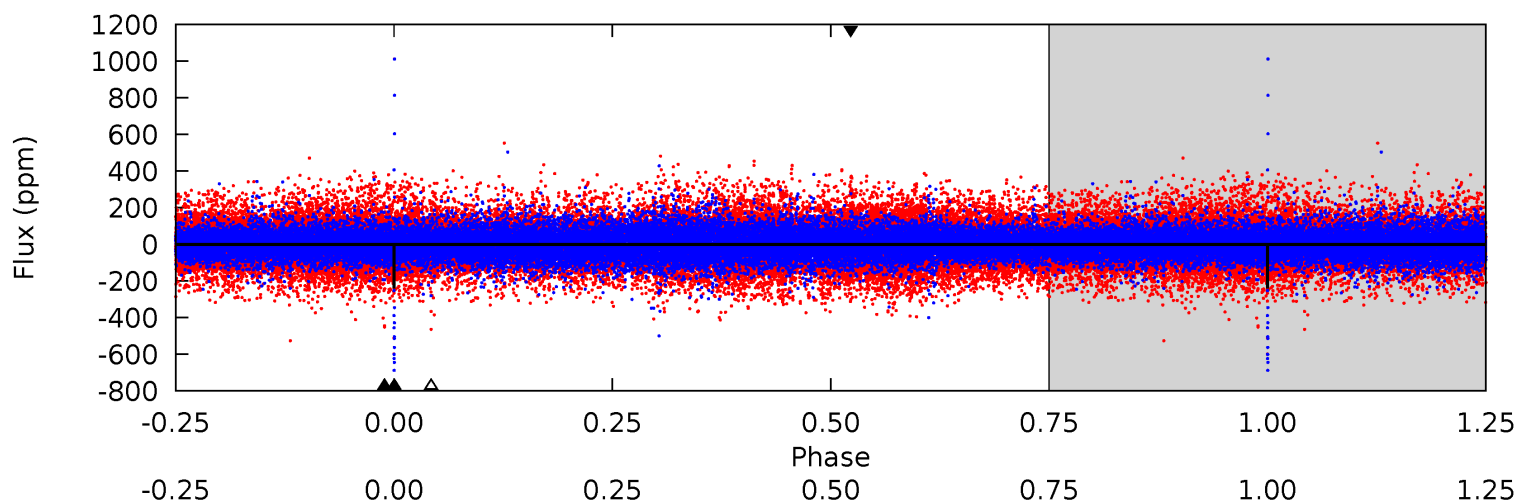
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.68	20.8	17.3	19.1	5.45	3.29	4.90	-9.61	-11.4	3.53	1.72	4.24	1.52	0.48	2.05



Alt Model-Shift Uniqueness Test

008442720-03, P = 547.769254 Days, E = 468.071200 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.82	2.09	2.08	2.06	5.62	3.56	0.40	7.74	7.75	0.02	0.03	6.61	1.61	0.35	0



Stellar Parameters For KIC 008442720

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5390^{+161}_{-161}	$4.648^{+0.039}_{-0.072}$	$-0.780^{+0.350}_{-0.300}$	$0.659^{+0.081}_{-0.041}$	$0.704^{+0.065}_{-0.050}$	$3.467^{+0.571}_{-0.854}$
	+3%/-3%	+1%/-2%	+45%/-38%	+12%/-6%	+9%/-7%	+16%/-25%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008442720-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2565 ± 123	$1.53^{+0.52}_{-0.50}$	251^{+9}_{-9}	8711^{+2855}_{-1367}	$816905^{+968026}_{-357777}$
Alt.	-50 ± 24	$1.11^{+0.47}_{-0.49}$	252^{+9}_{-10}	3960^{+1039}_{-558}	29258^{+69943}_{-17432}

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

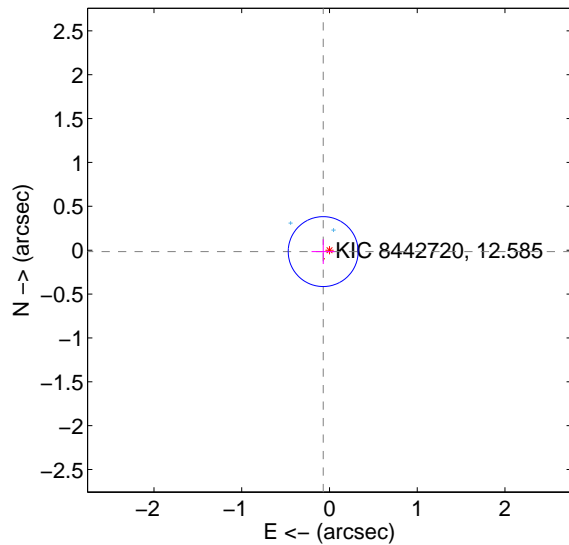
Supplemental centroid analysis for 008442720-03. Kepler magnitude: 12.59. Transit SNR 3.94

There are 2 quarters with good PRF difference image offsets

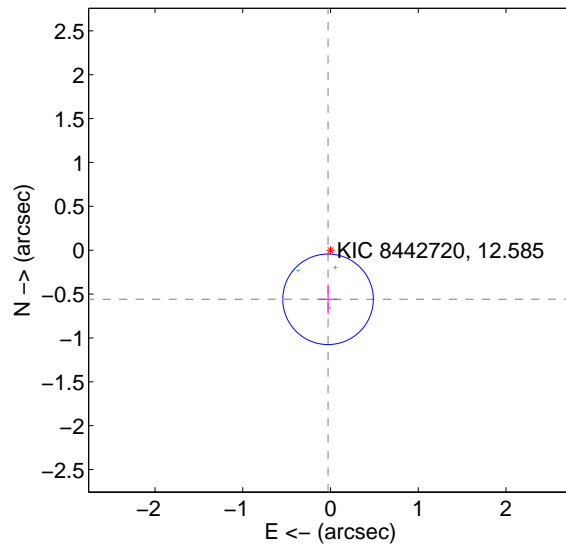
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.073 ± 0.133	0.55	0.072 ± 0.132	-0.016 ± 0.141
PRF-fit source offset from KIC position	0.561 ± 0.172	3.26	0.028 ± 0.108	-0.560 ± 0.172
photometric centroid source offset	1.18 ± 0.37	3.16	0.10 ± 0.30	-1.17 ± 0.37

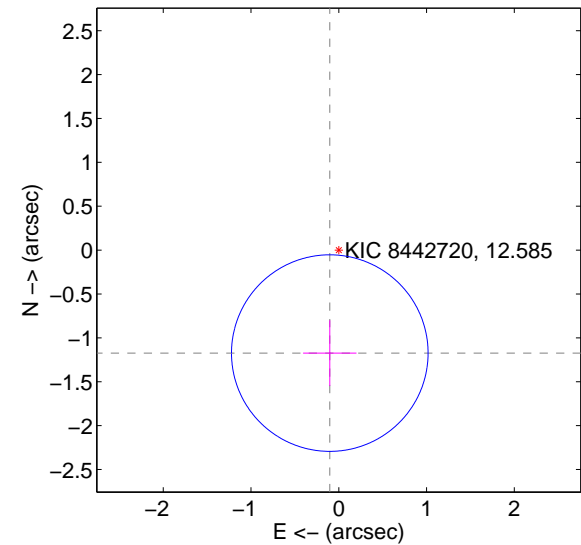
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

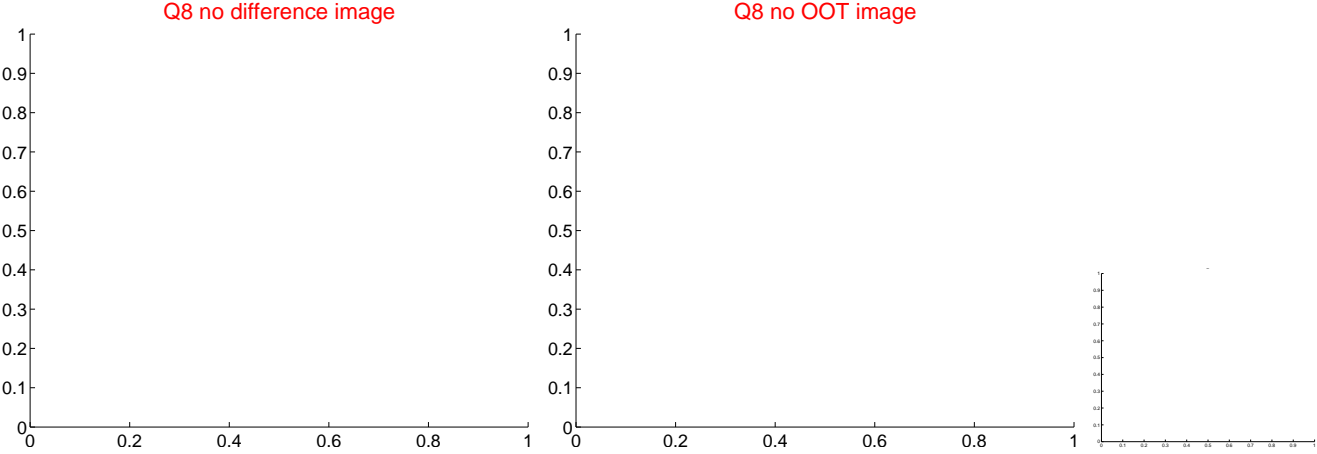
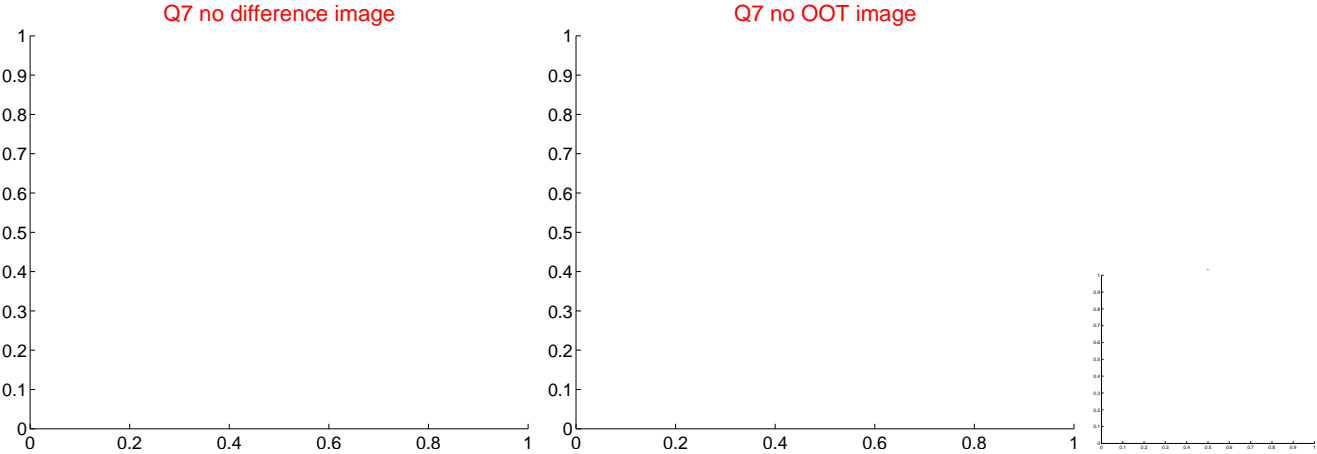
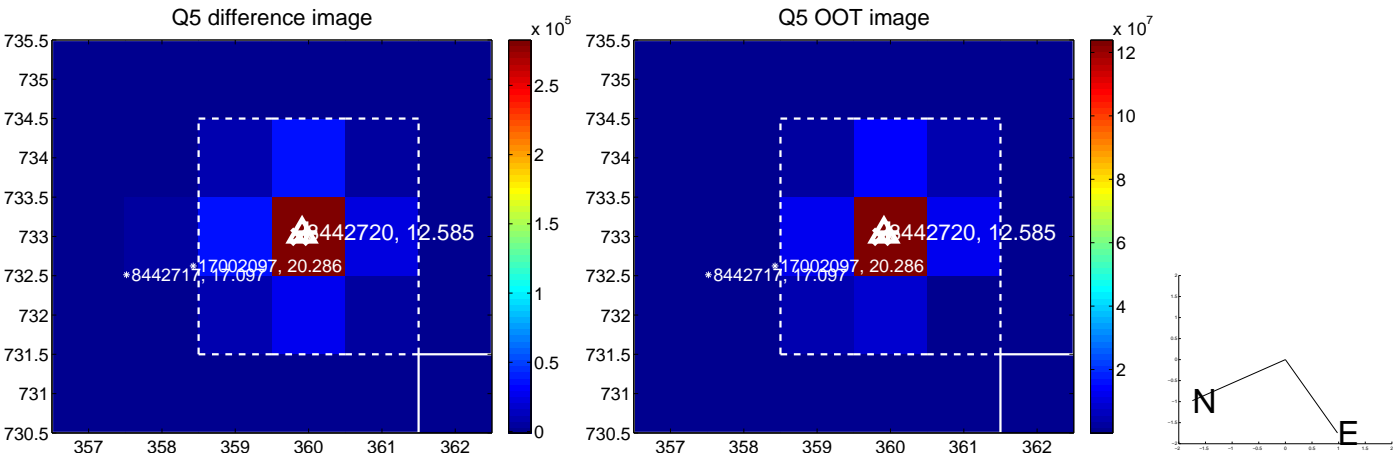


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

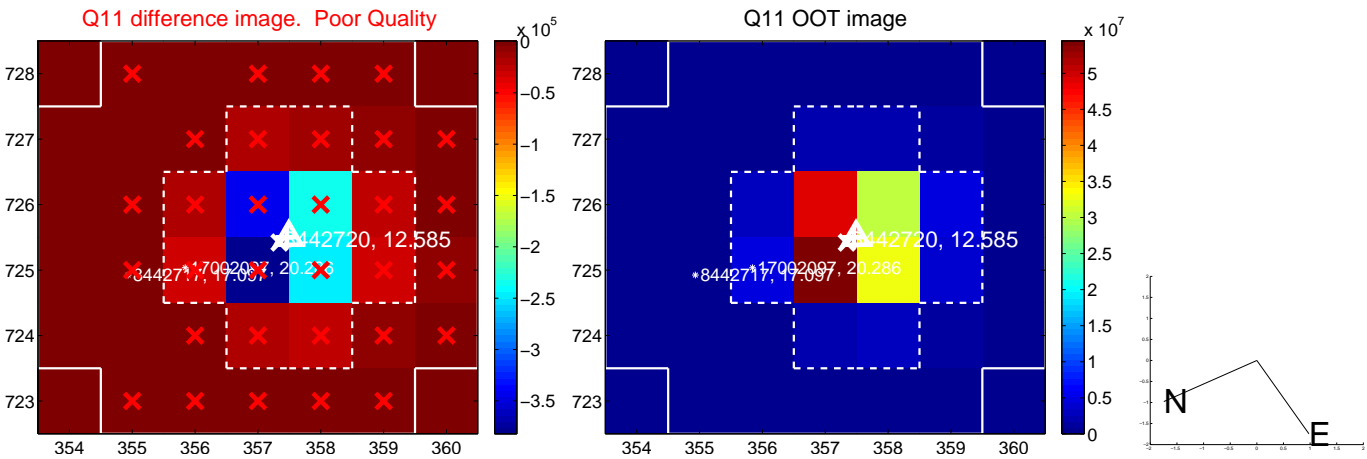
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



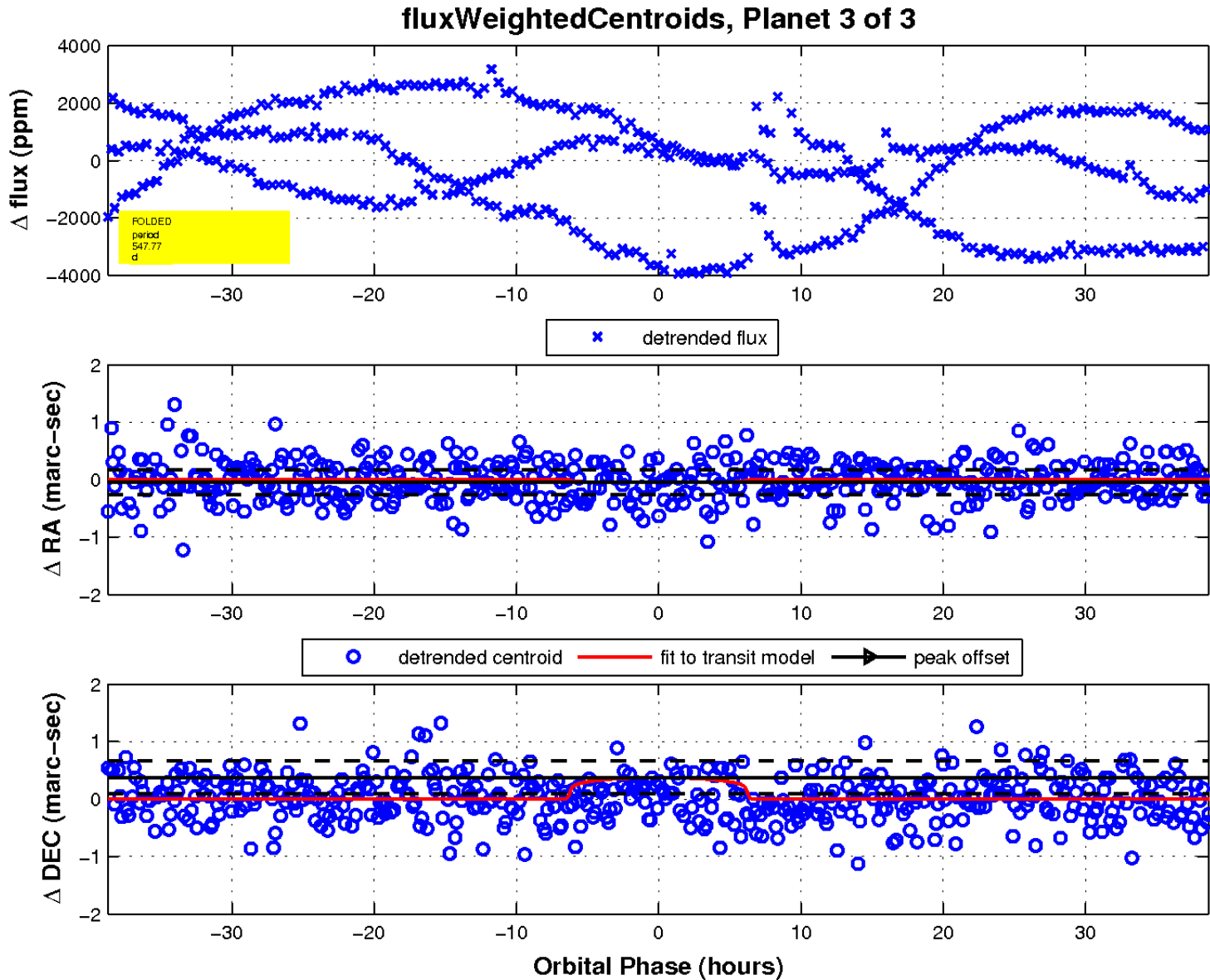
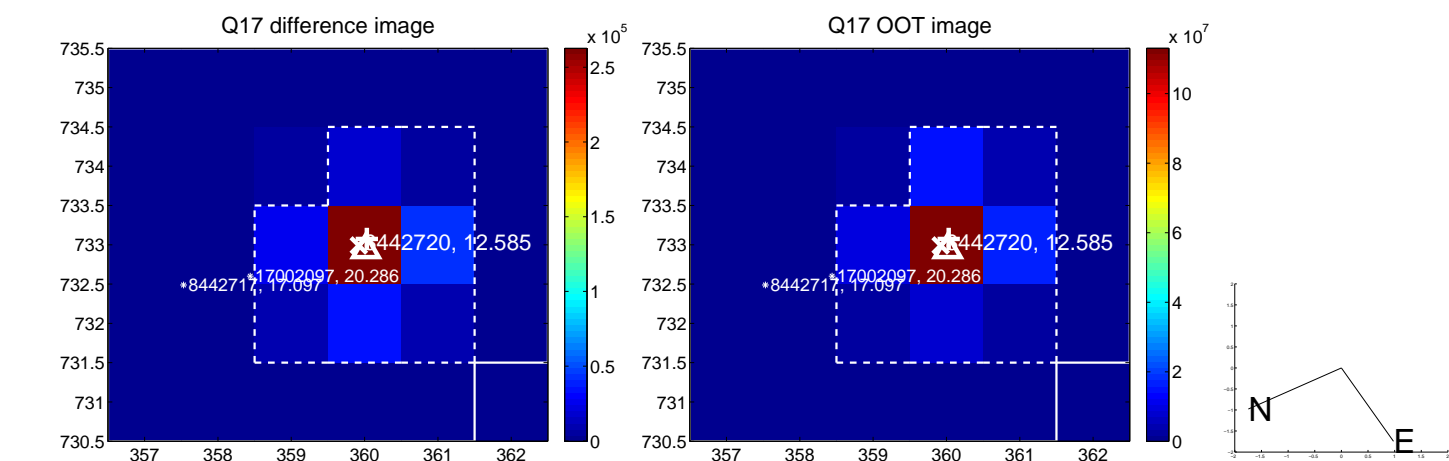
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

