

KIC 008718072

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})
008718072-01	OBS	No	440.818791	310.302598	741.5	4.609	10.2	8.2	0.58	4045	1.78	0.09
008718072-02	OBS	No	440.783962	310.672595	647.4	32.779	8.5	7.4	0.58	4045	1.89	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008718072-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008718072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—SAME_NTL_PERIOD—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.

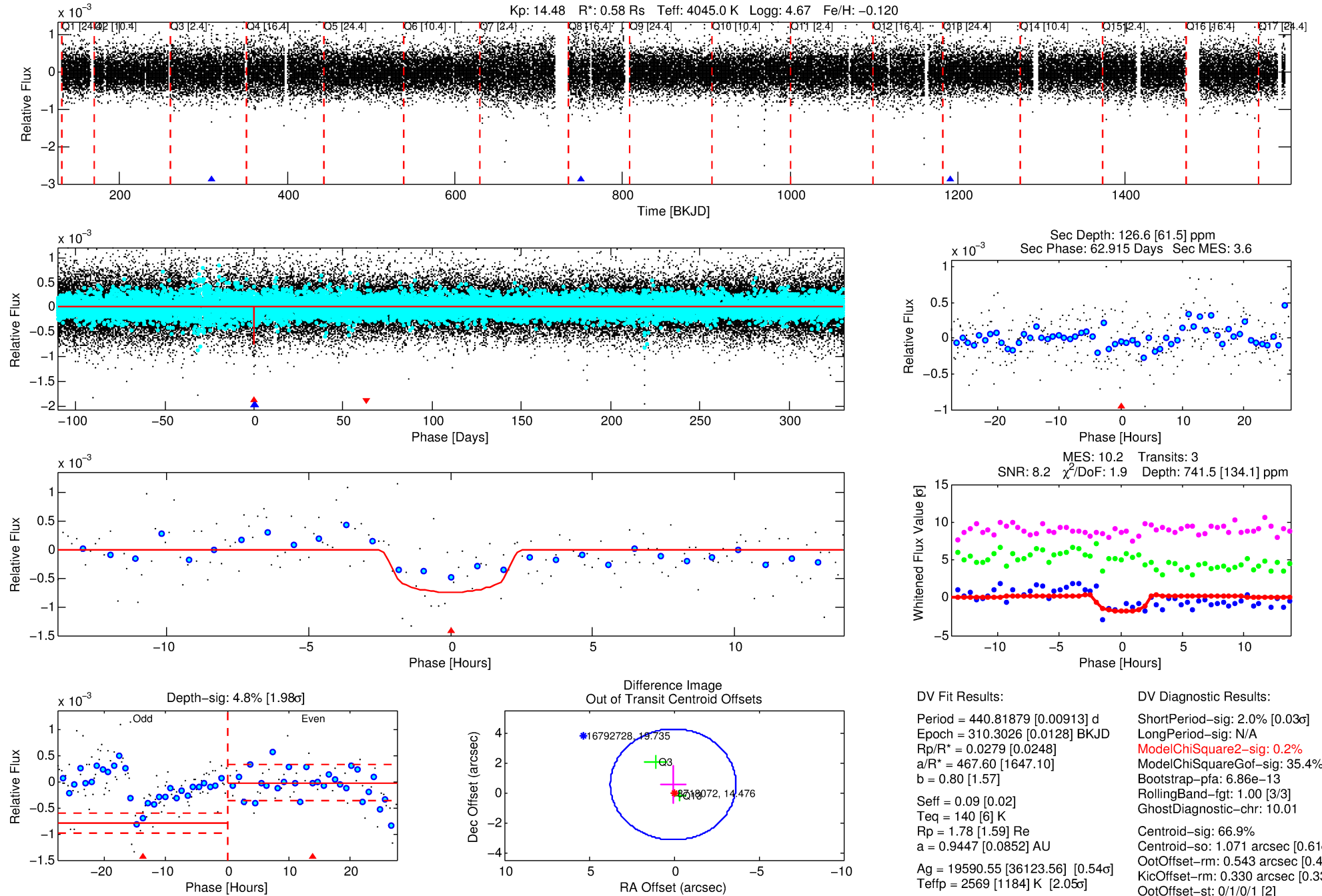
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008718072-01

No Significant Match Found

DV One-Page Summary

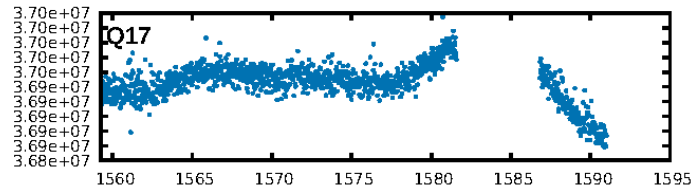
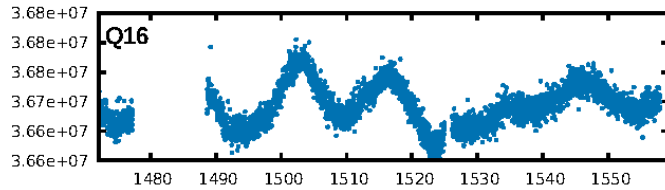
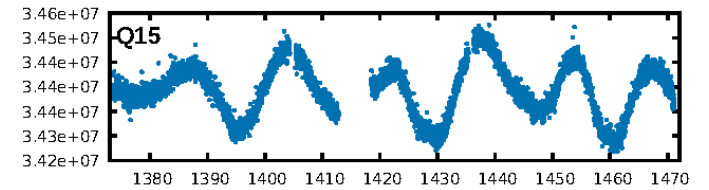
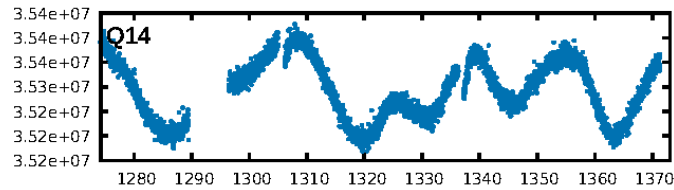
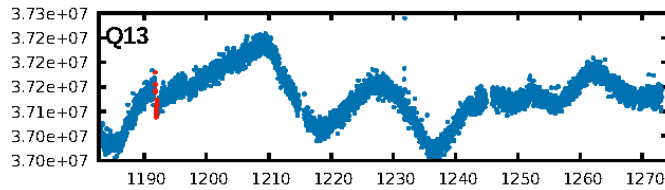
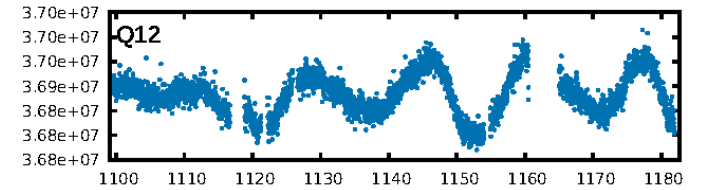
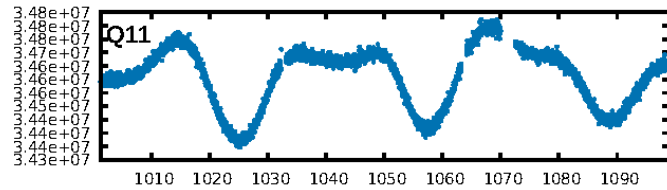
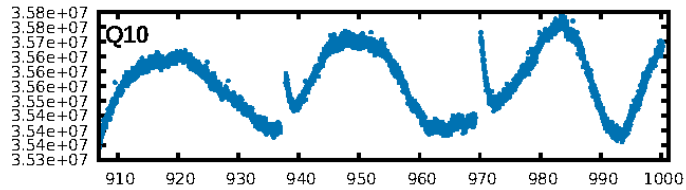
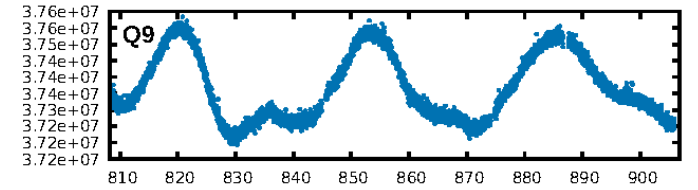
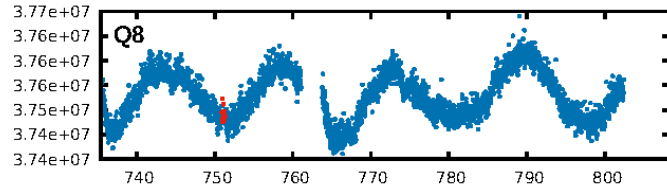
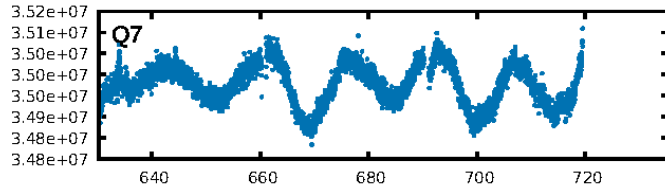
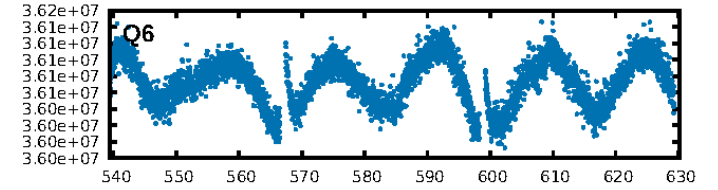
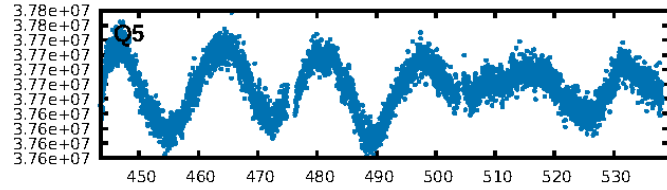
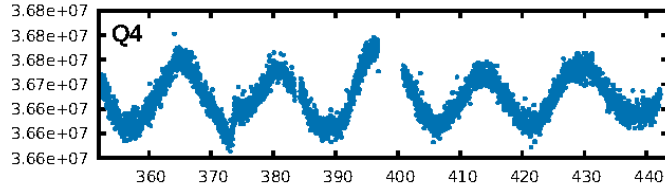
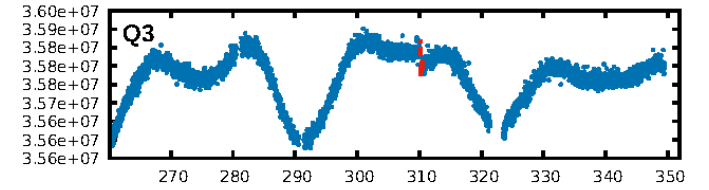
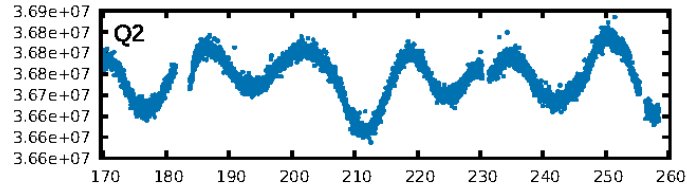
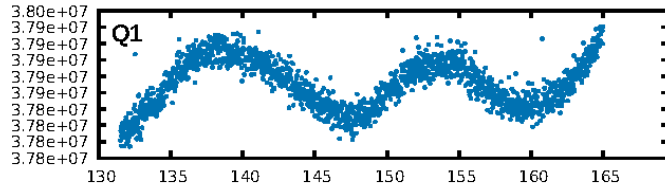
KIC: 8718072 Candidate: 1 of 2 Period: 440.819 d



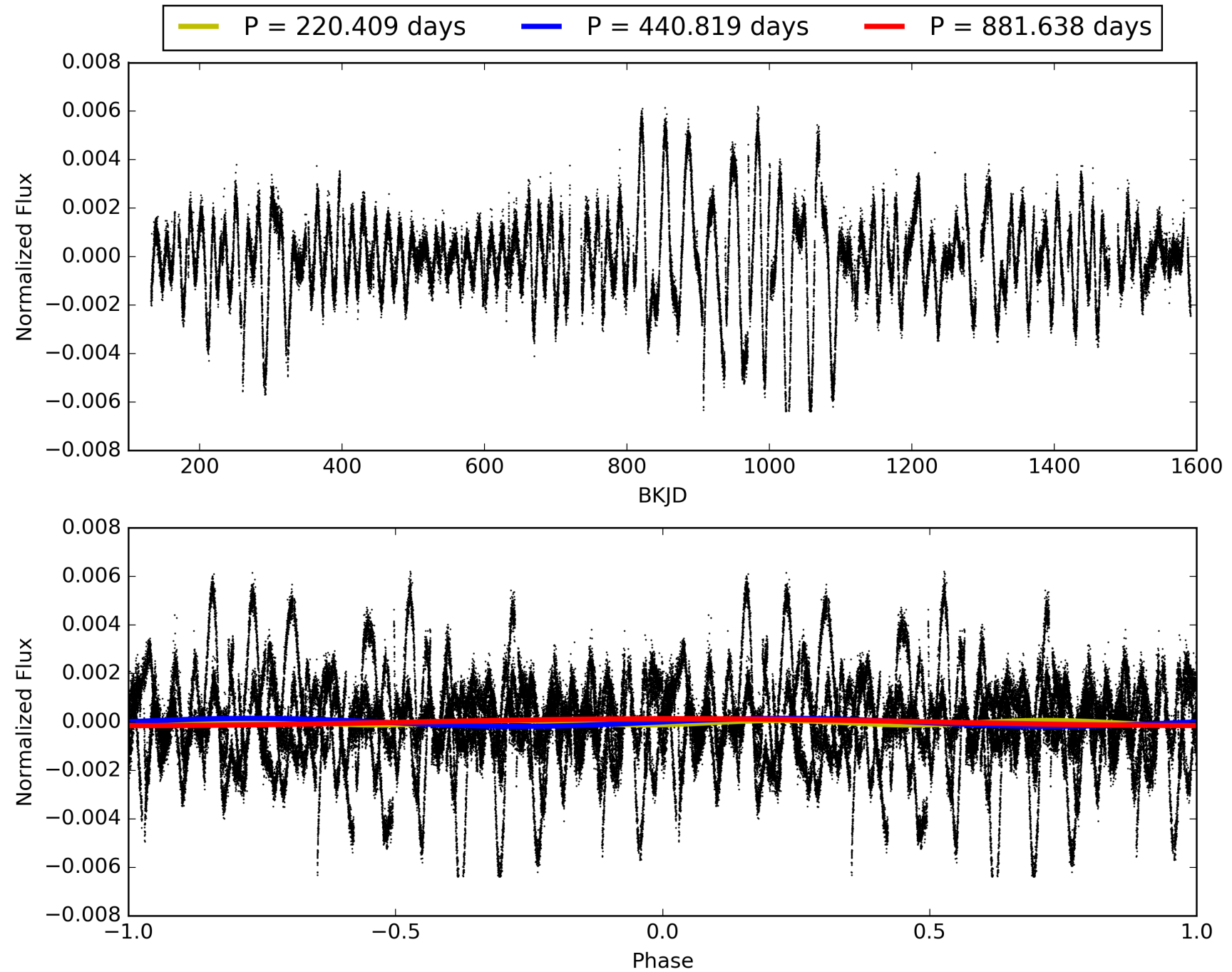
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:15:43 Z

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

TCE 008718072-01, PDC Light Curves

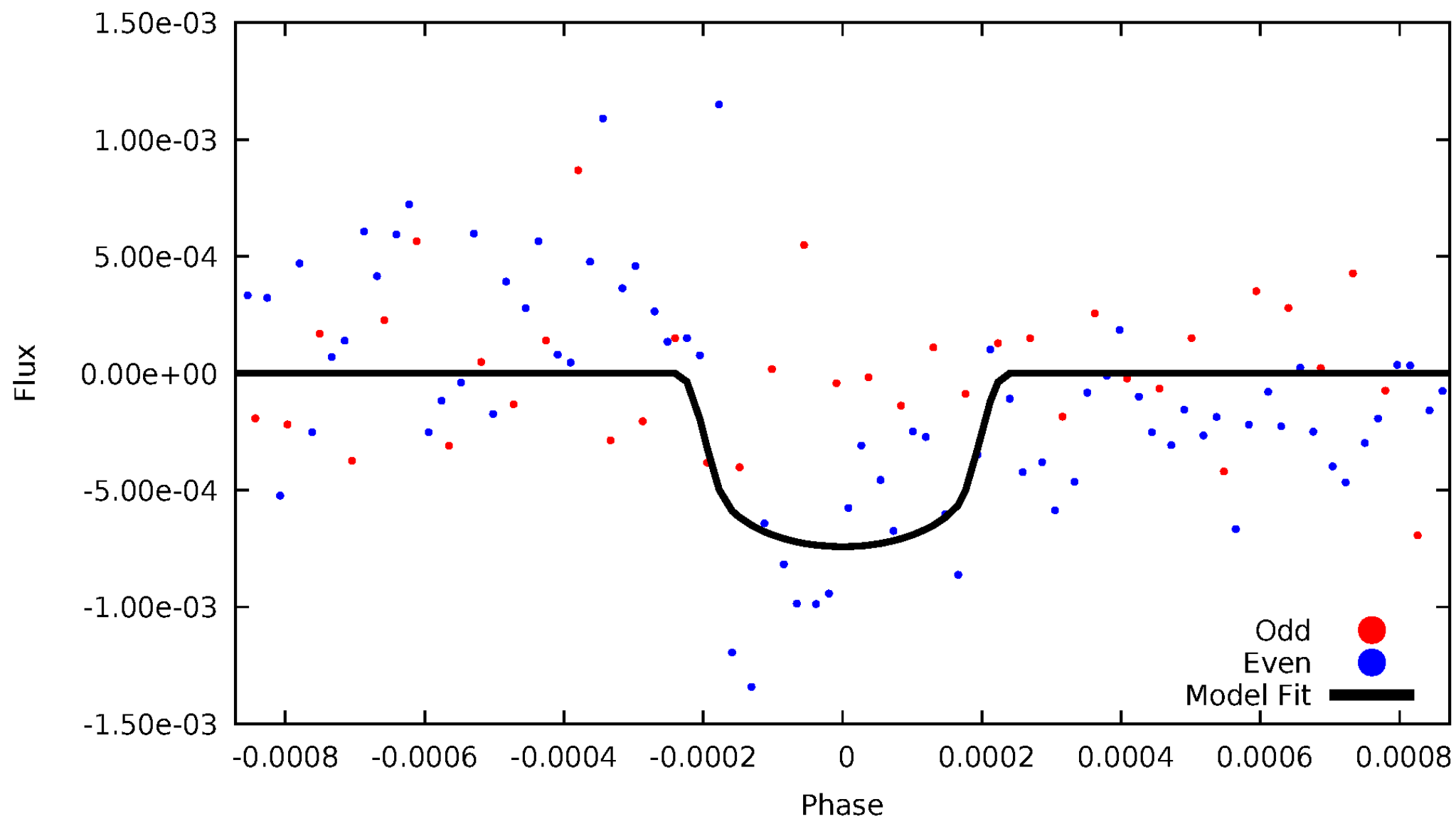


TCE 008718072-01



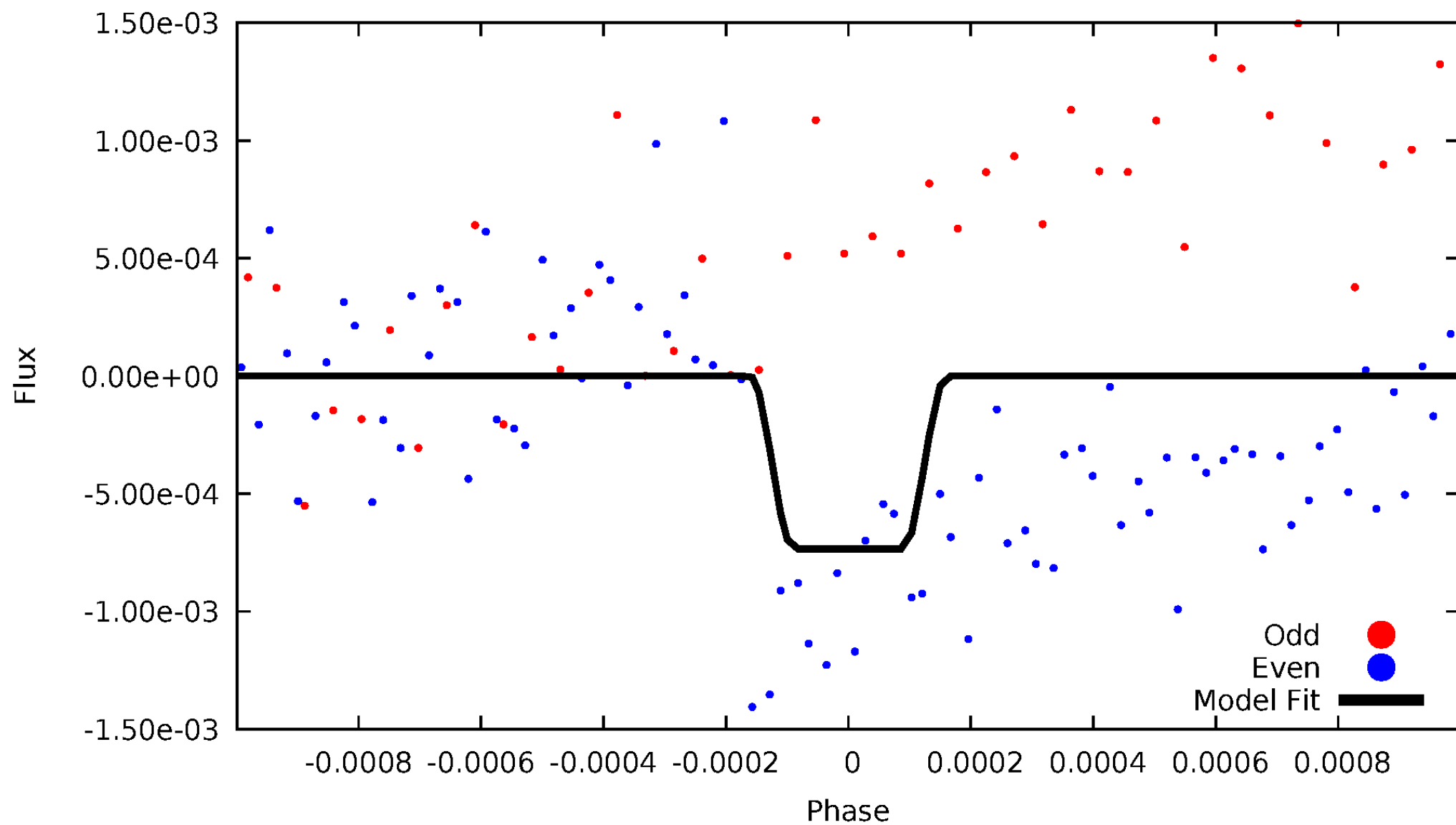
DV Odd/Even

TCE 008718072-01



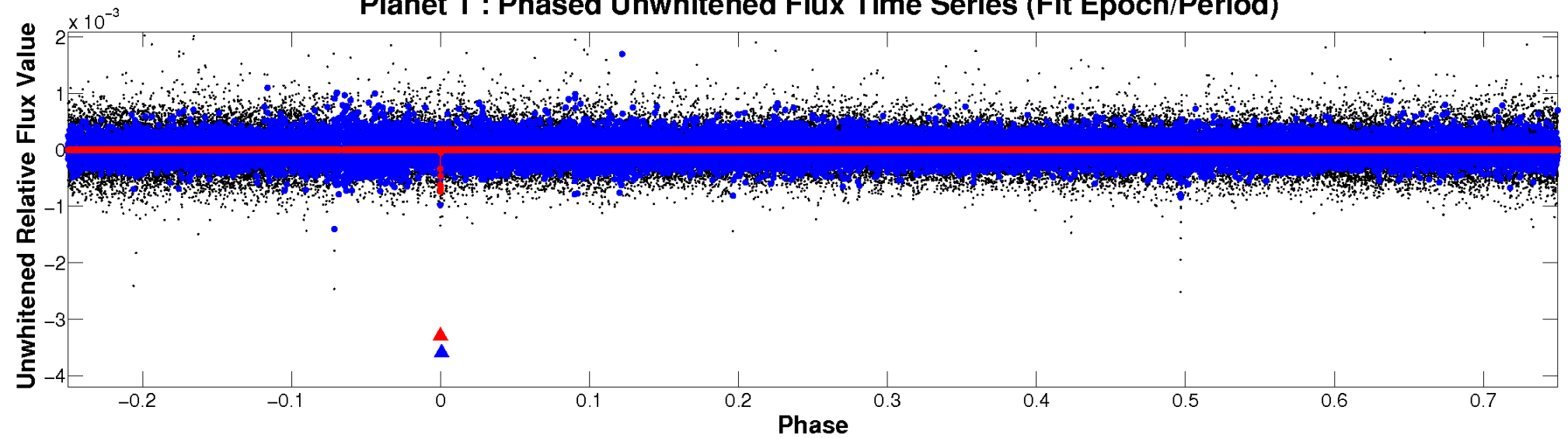
ALT Odd/Even

TCE 008718072-01

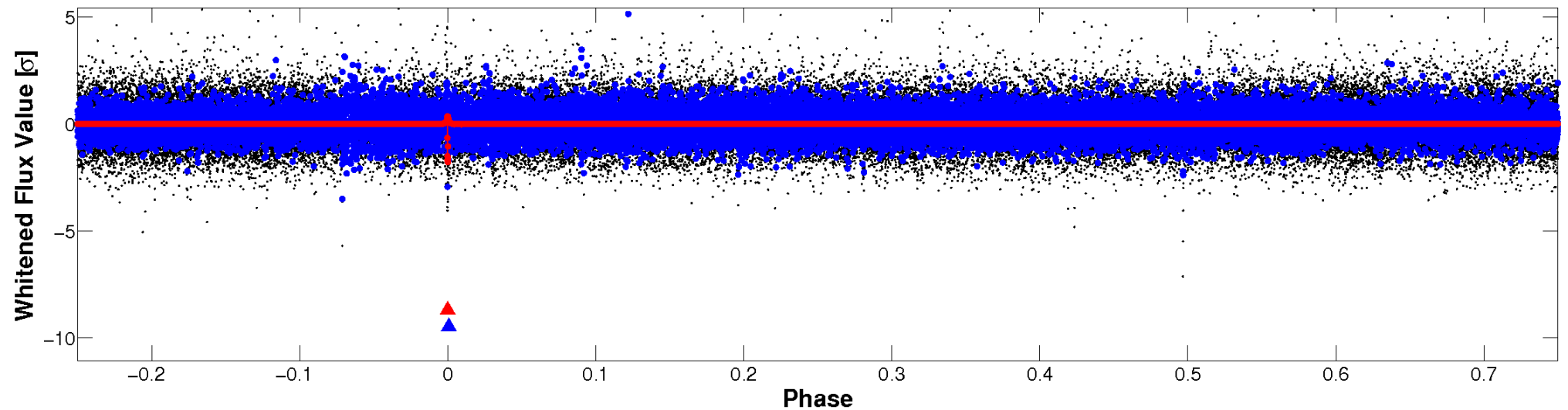


Non-Whitened Vs. Whitened Light Curve

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

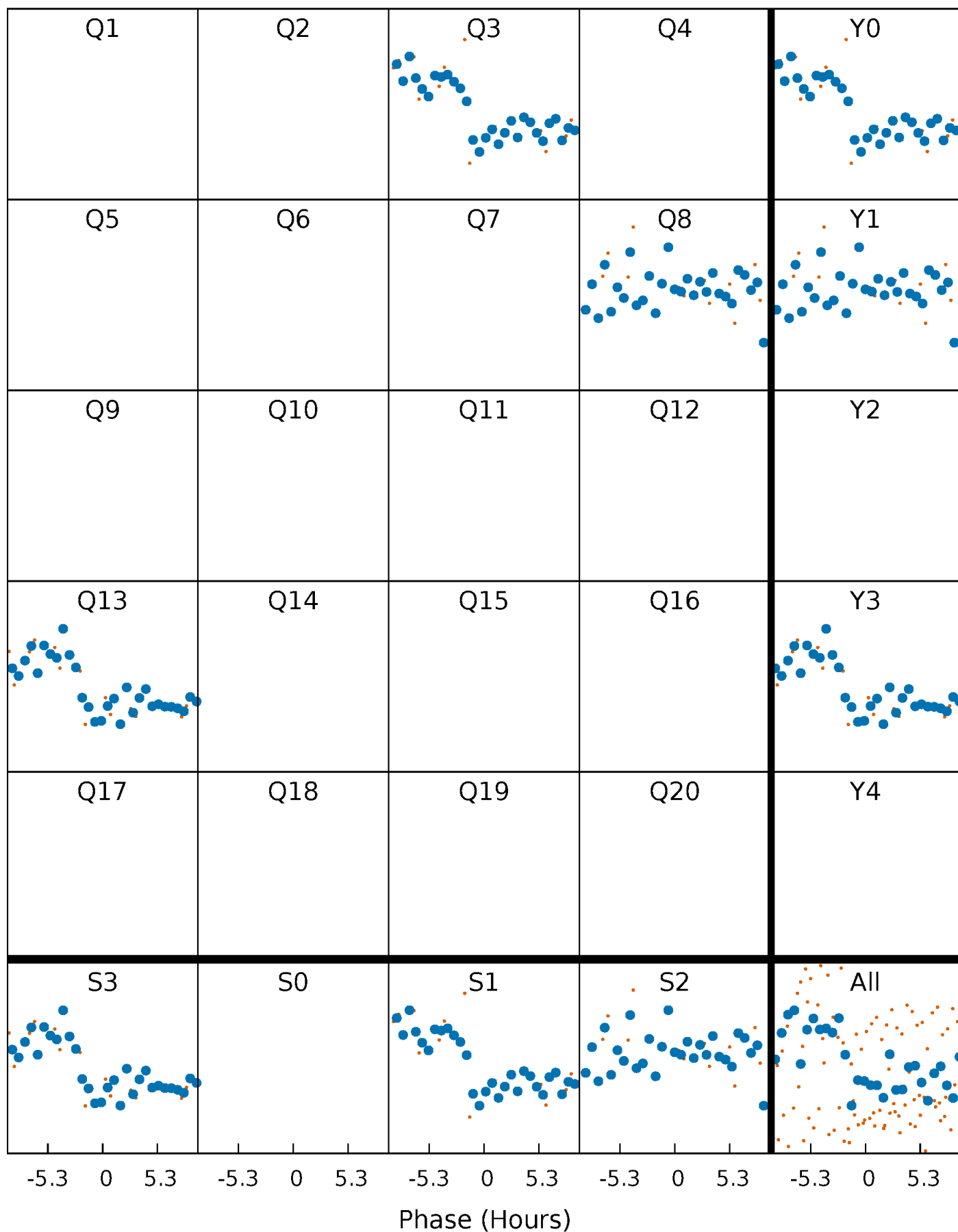


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



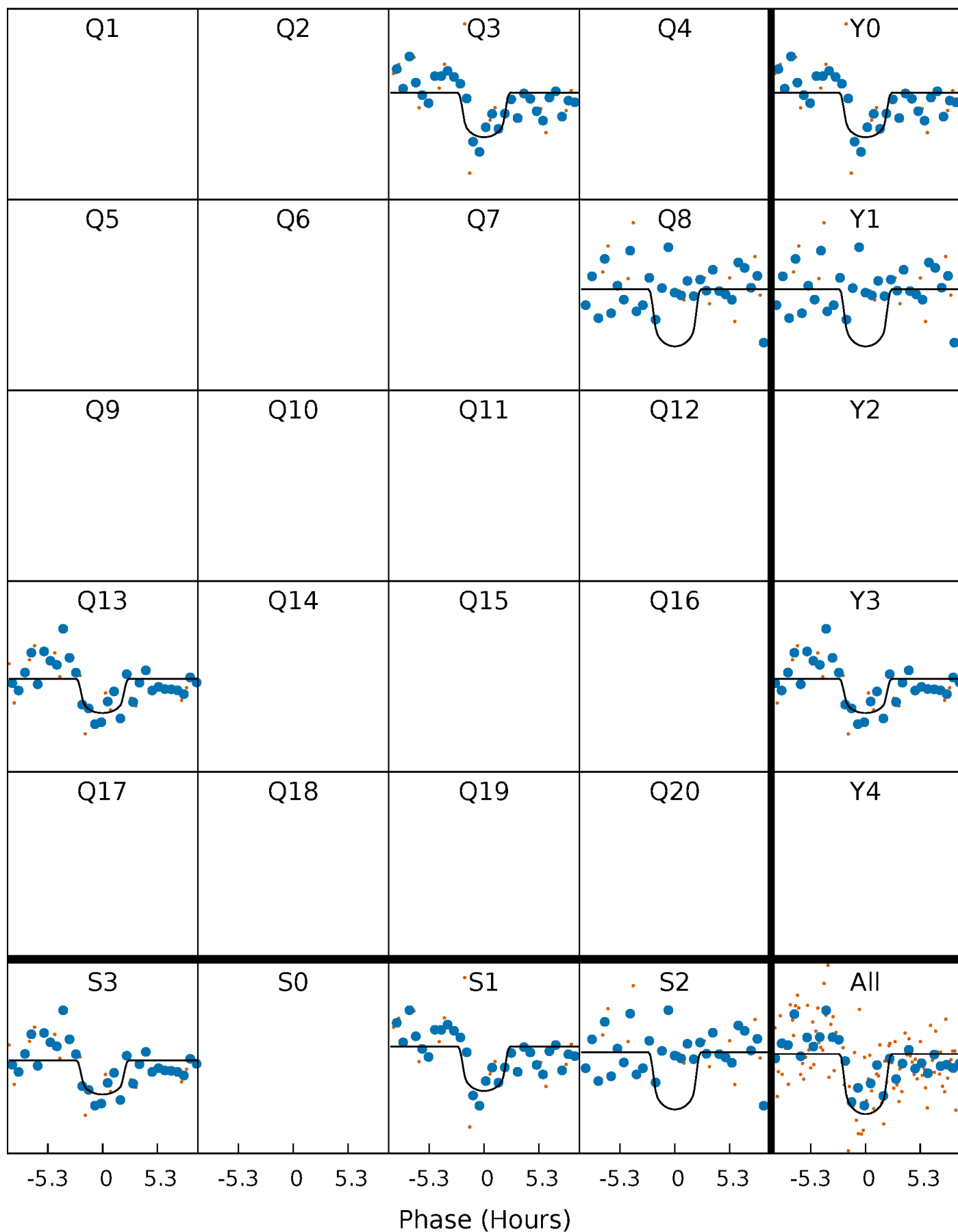
PDC Quarter-Phased Transit Curves

TCE 008718072-01 P=440.818791 Days $T_0=310.302598$ (BKJD)



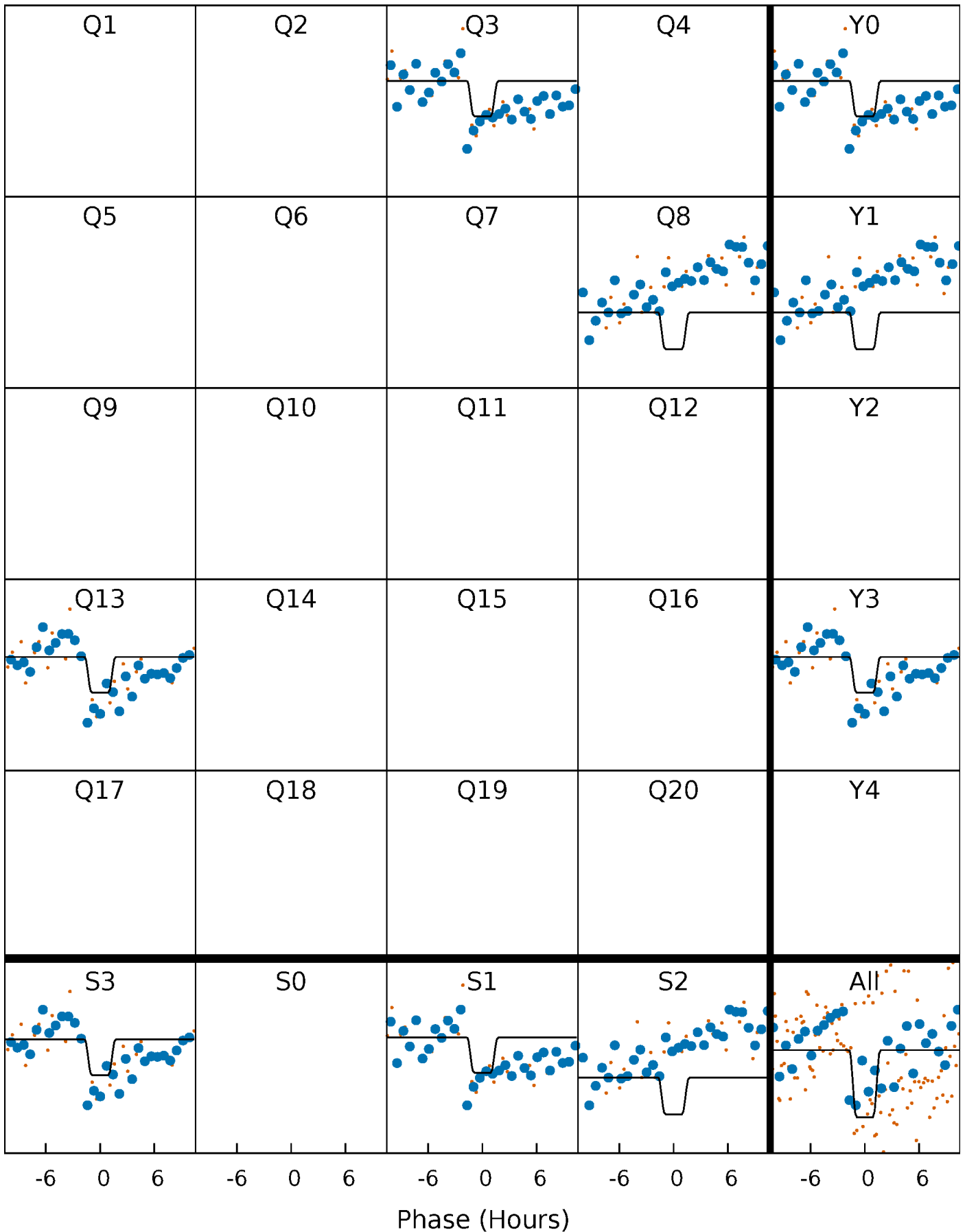
DV Quarter-Phased Transit Curves

TCE 008718072-01 $P=440.818791$ Days $T_0=310.302598$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

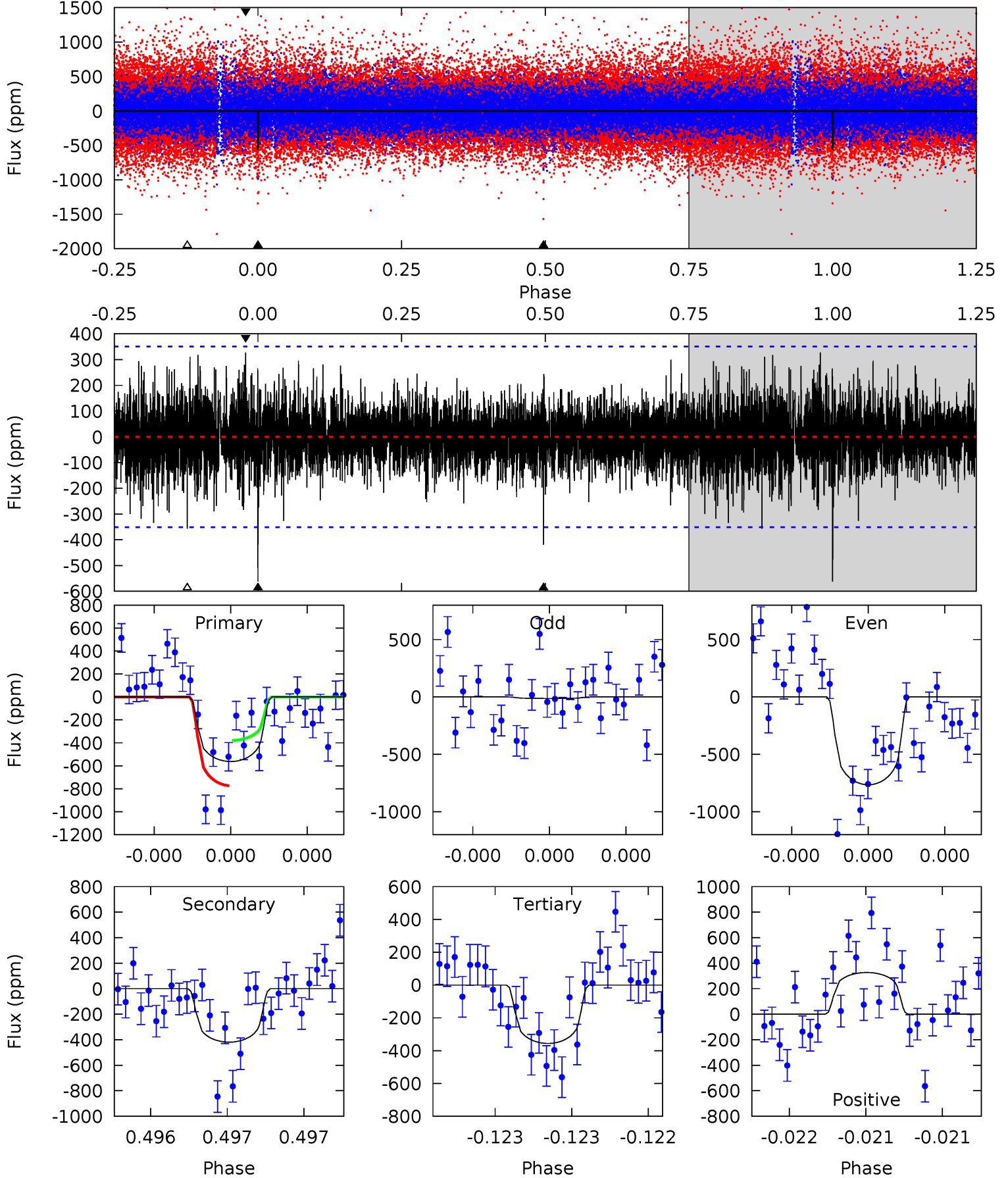
TCE 008718072-01 P=440.806379 Days $T_0=310.314224$ (BKJD)



DV Model-Shift Uniqueness Test

008718072-01, P = 440.818791 Days, E = 310.302598 Days

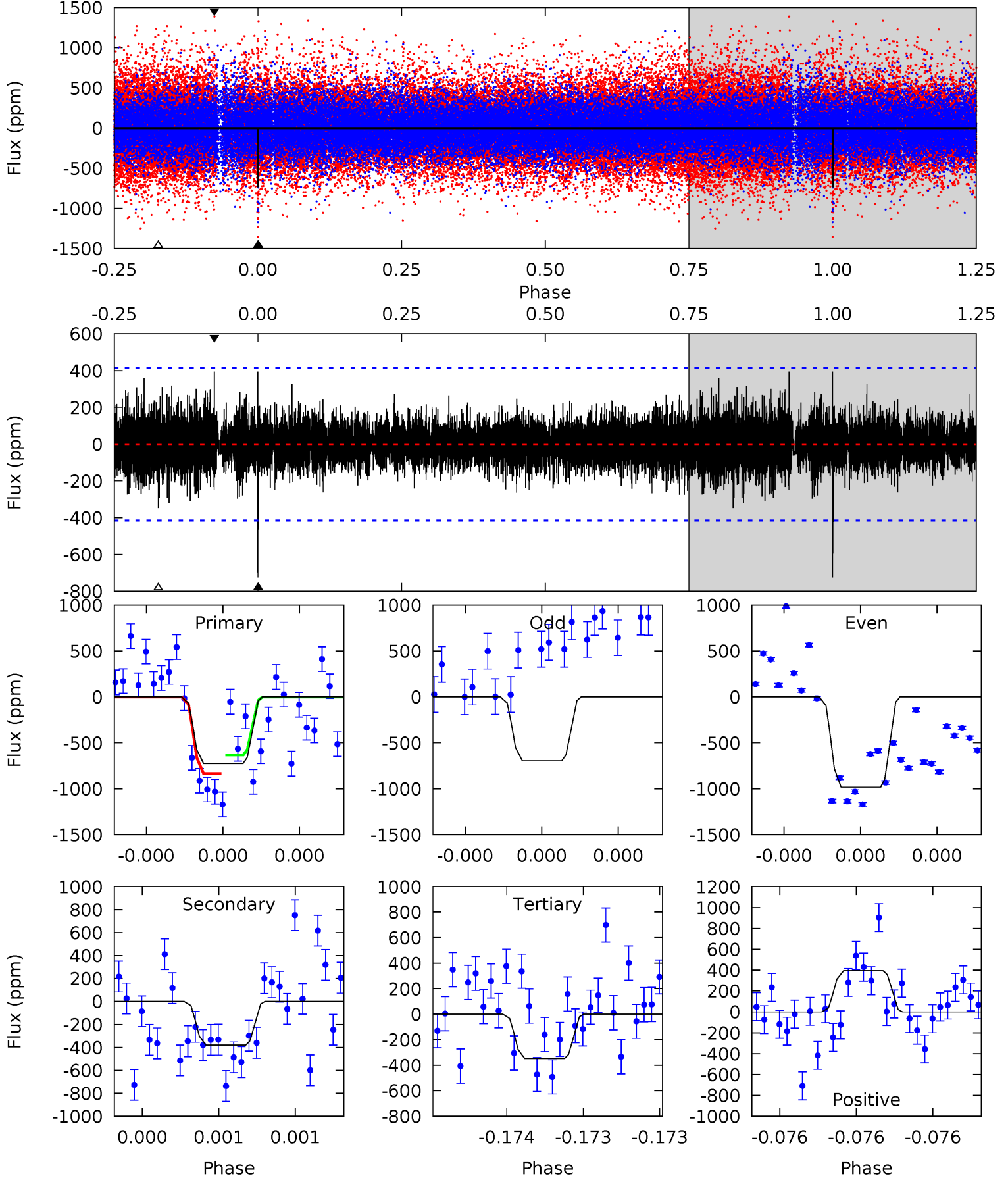
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.97	6.68	5.67	5.21	5.59	3.51	1.30	3.30	3.76	1.01	1.47	5.68	0.77	0.37	3.13



Alt Model-Shift Uniqueness Test

008718072-01, P = 440.806379 Days, E = 310.314224 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.86	5.18	4.73	5.36	5.65	3.59	1.03	5.13	4.50	0.45	-0.18	2.07	0.46	0.35	1.37



Stellar Parameters For KIC 008718072

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4045^{+107}_{-119}	$4.666^{+0.060}_{-0.024}$	$-0.120^{+0.300}_{-0.300}$	$0.585^{+0.040}_{-0.068}$	$0.578^{+0.054}_{-0.059}$	$4.069^{+1.202}_{-0.428}$
	+3%/-3%	+1%/-1%	+250%/-250%	+7%/-12%	+9%/-10%	+30%/-11%
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 008718072-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-419 ± 63	$2.10^{+1.47}_{-1.29}$	195^{+7}_{-7}	3427^{+1419}_{-512}	$46739^{+266263}_{-31282}$
Alt.	-381 ± 73	$1.98^{+1.52}_{-1.23}$	195^{+6}_{-6}	3450^{+1400}_{-549}	$47648^{+264440}_{-32590}$

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 $A_{obs} \gg 1.0$

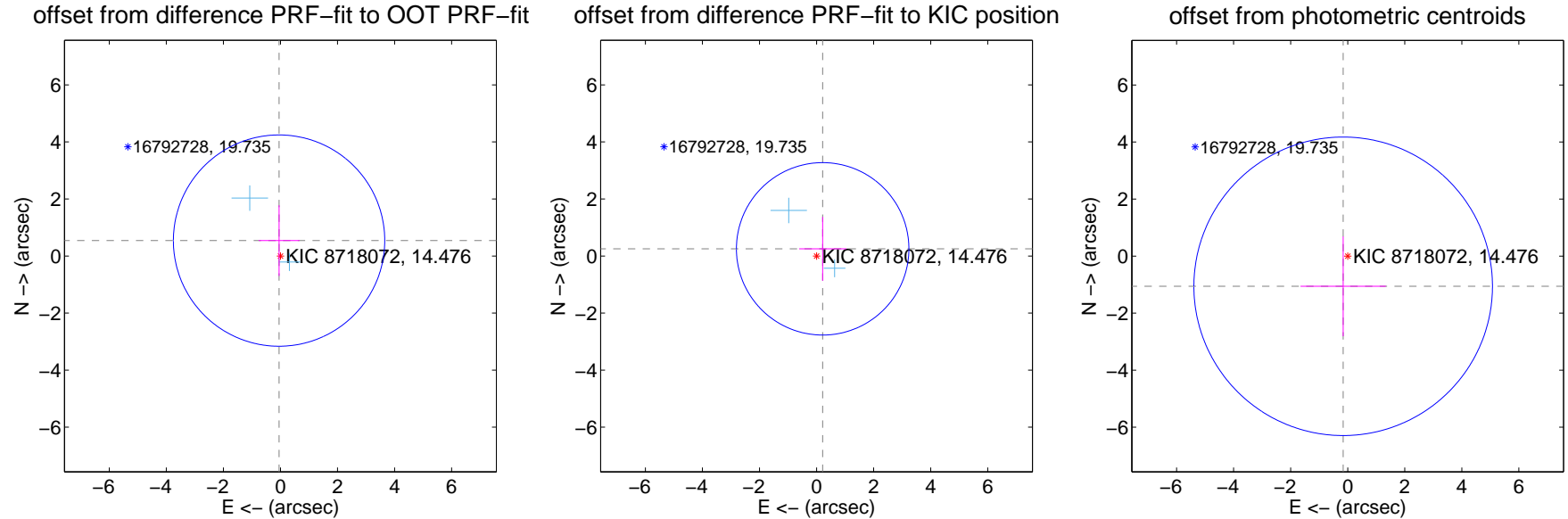
DV Centroid Data

Supplemental centroid analysis for 008718072-01. Kepler magnitude: 14.48. Transit SNR 8.22

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.543 ± 1.235	0.44	0.049 ± 0.715	0.541 ± 1.238
PRF-fit source offset from KIC position	0.330 ± 1.007	0.33	-0.213 ± 0.829	0.252 ± 1.118
photometric centroid source offset	1.07 ± 1.74	0.61	0.16 ± 1.50	-1.06 ± 1.75



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

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

Q1 no difference image



Q1 no OOT image



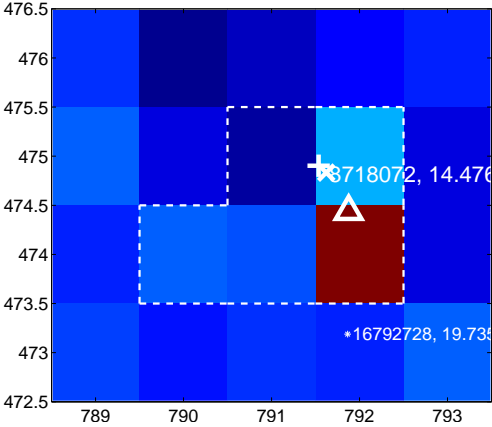
Q2 no difference image



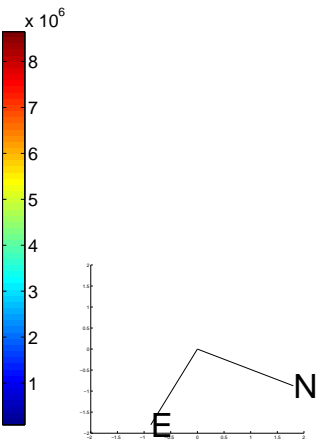
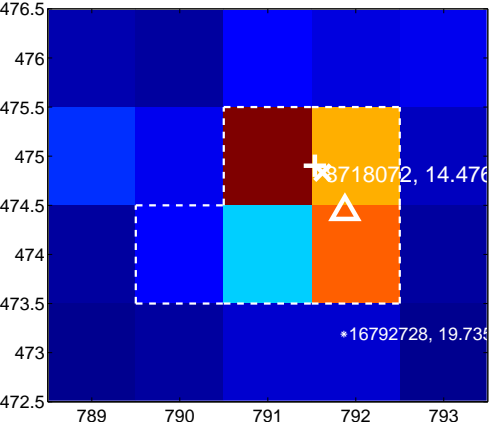
Q2 no OOT image



Q3 difference image



Q3 OOT image



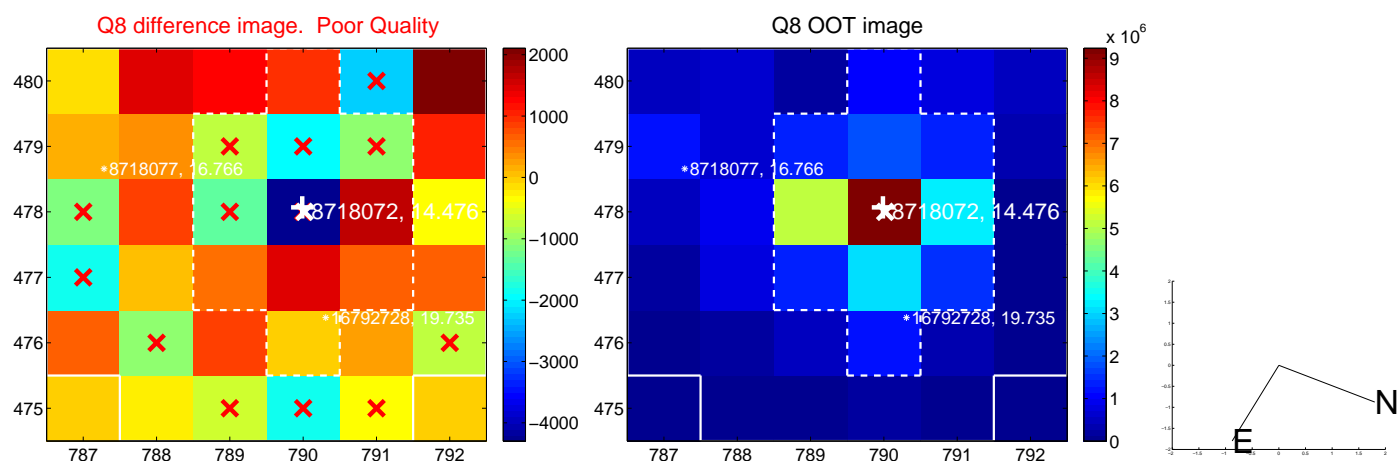
Q4 no difference image



Q4 no OOT image



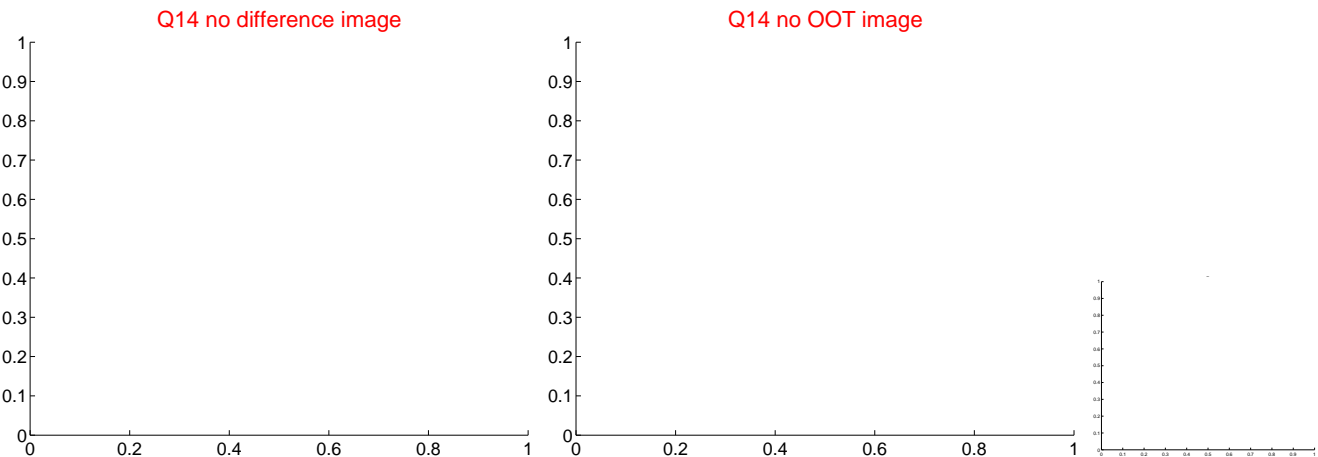
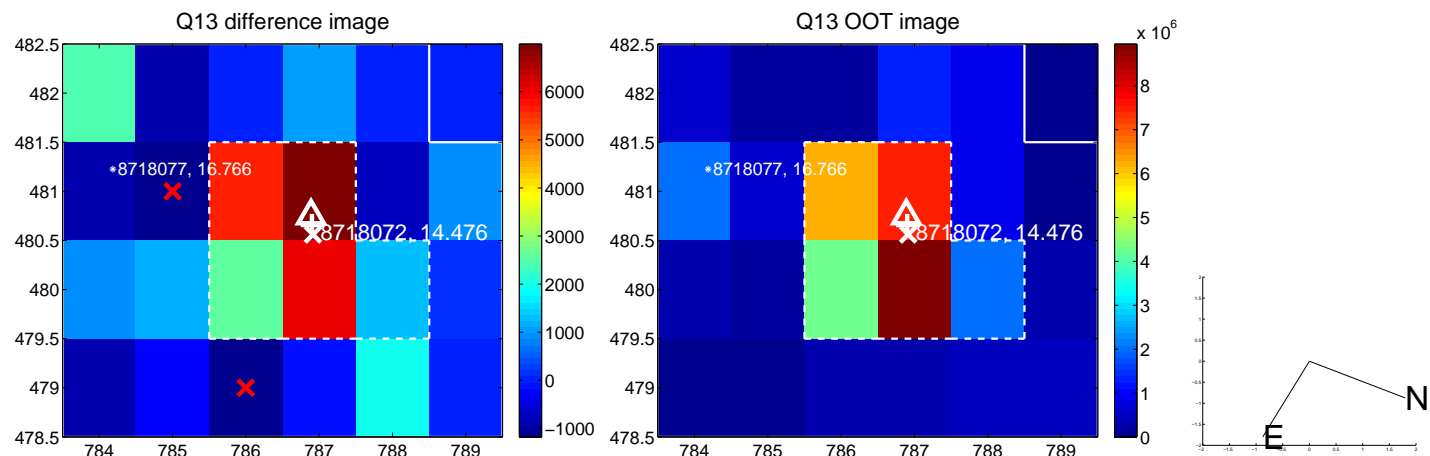
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



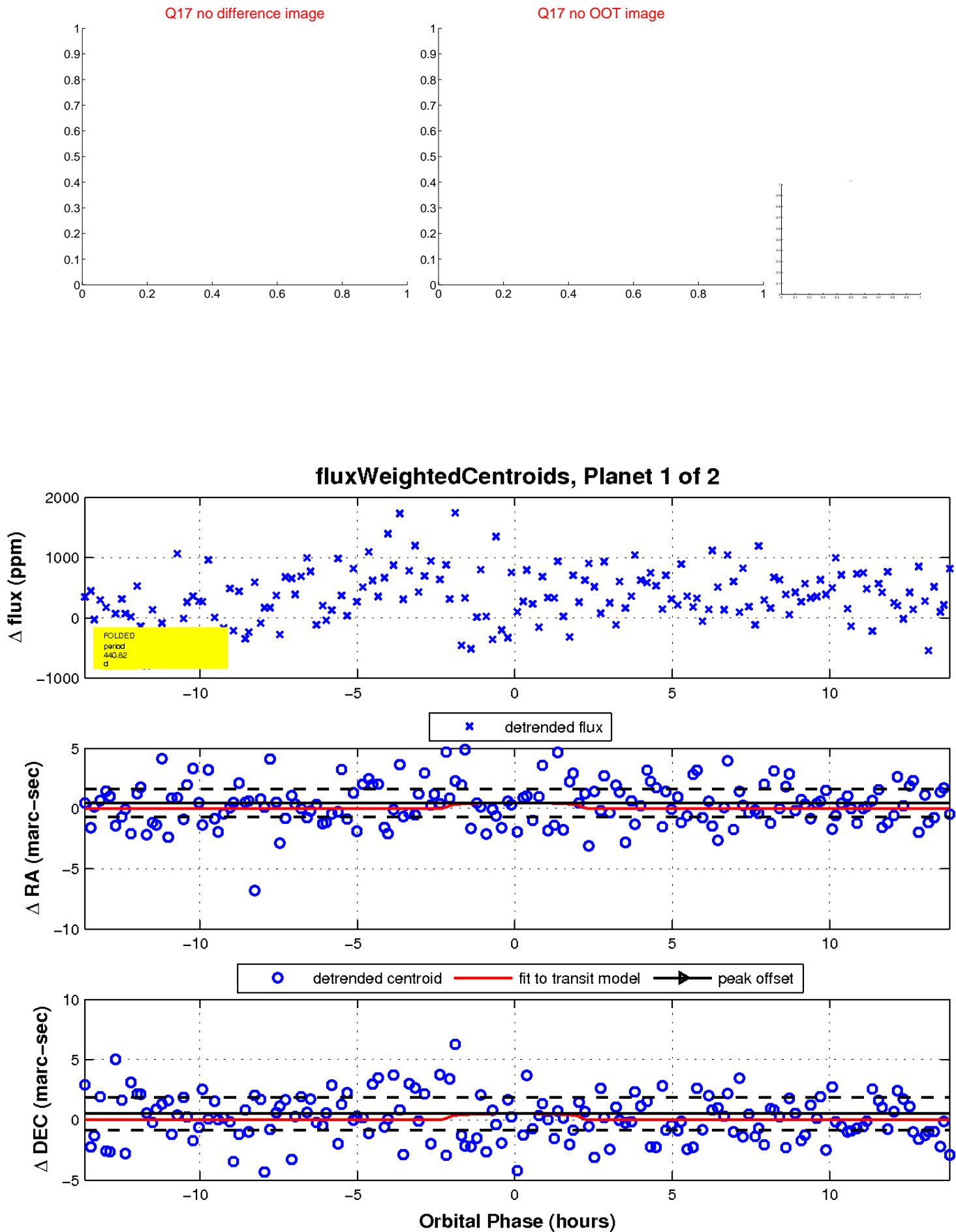
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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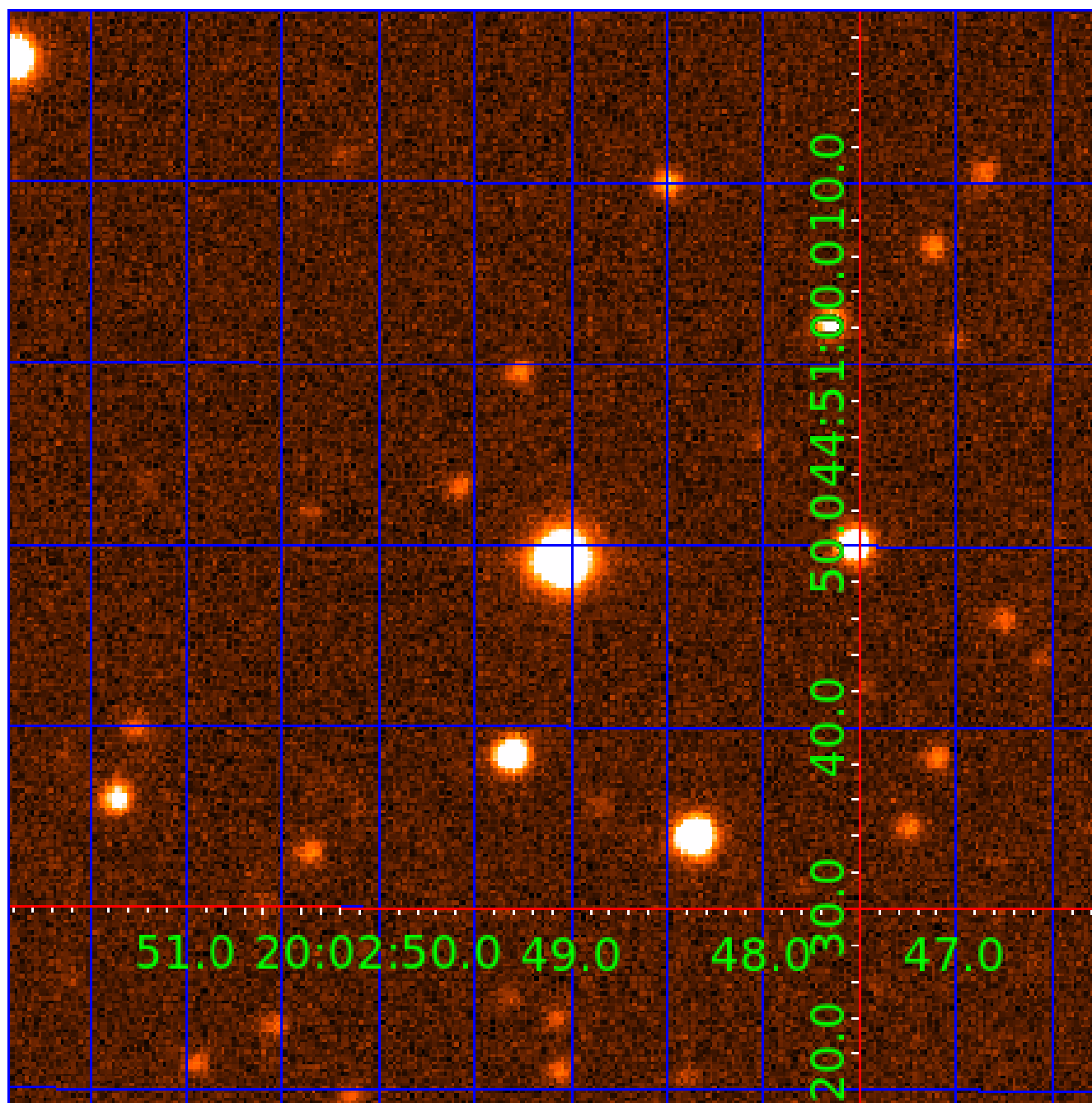


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008718072

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})
008718072-01	OBS	No	440.818791	310.302598	741.5	4.609	10.2	8.2	0.58	4045	1.78	0.09
008718072-02	OBS	No	440.783962	310.672595	647.4	32.779	8.5	7.4	0.58	4045	1.89	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008718072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—SAME_NTL_PERIOD—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.

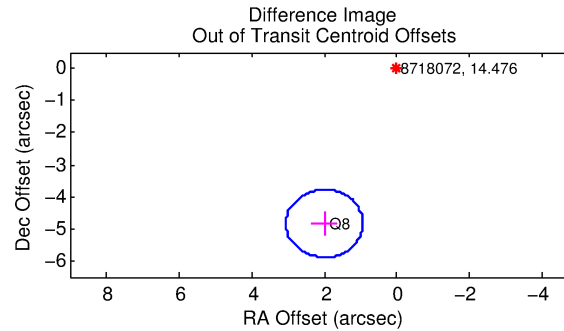
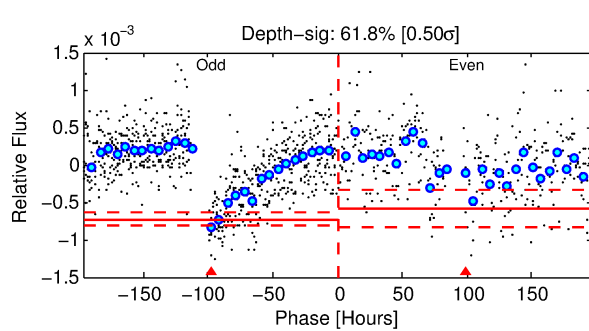
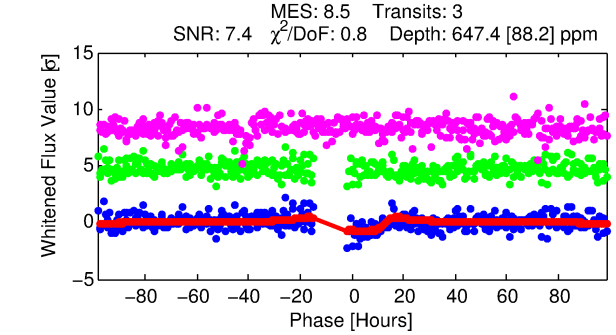
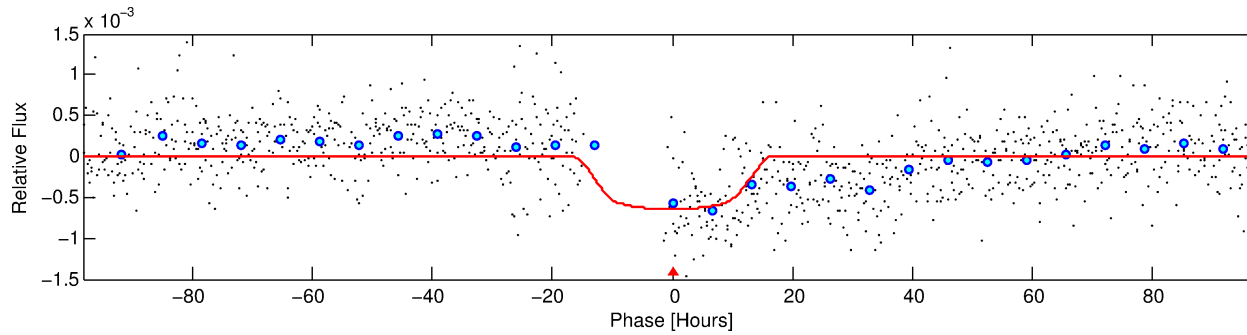
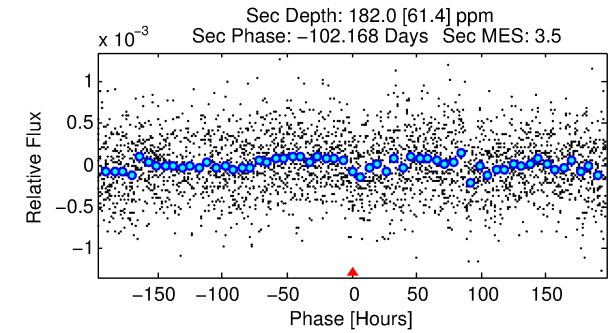
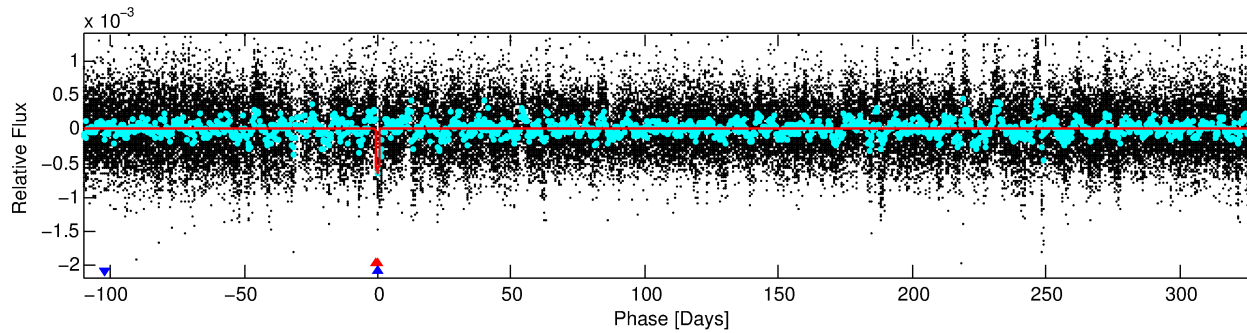
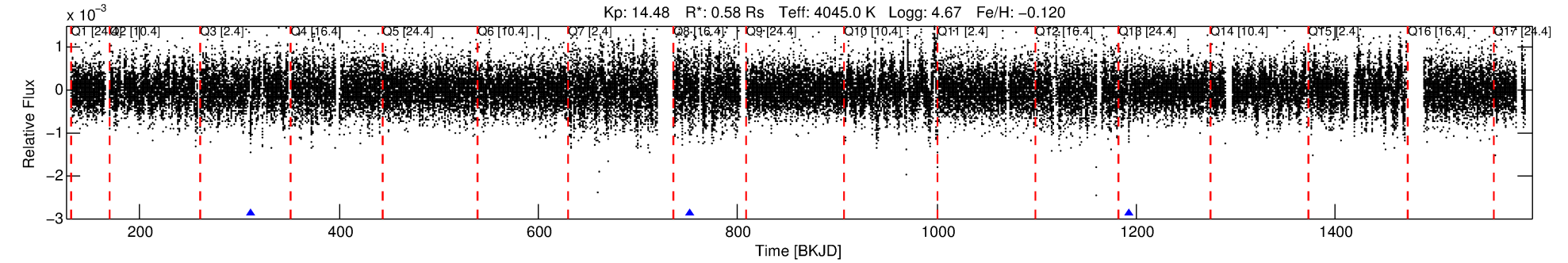
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008718072-02

No Significant Match Found

DV One-Page Summary

KIC: 8718072 Candidate: 2 of 2 Period: 440.784 d



DV Fit Results:

Period = 440.78396 [0.03430] d
Epoch = 310.6726 [0.0649] BKJD
Rp/R* = 0.0296 [0.0029]
a/R* = 43.49 [9.75]
b = 0.94 [0.03]
Seff = 0.09 [0.02]
Teq = 140 [6] K
Rp = 1.89 [0.29] Re
a = 0.9447 [0.0852] AU
Ag = 25060.52 [10202.12] [2.46σ]
Teffp = 2732 [277] K [9.34σ]

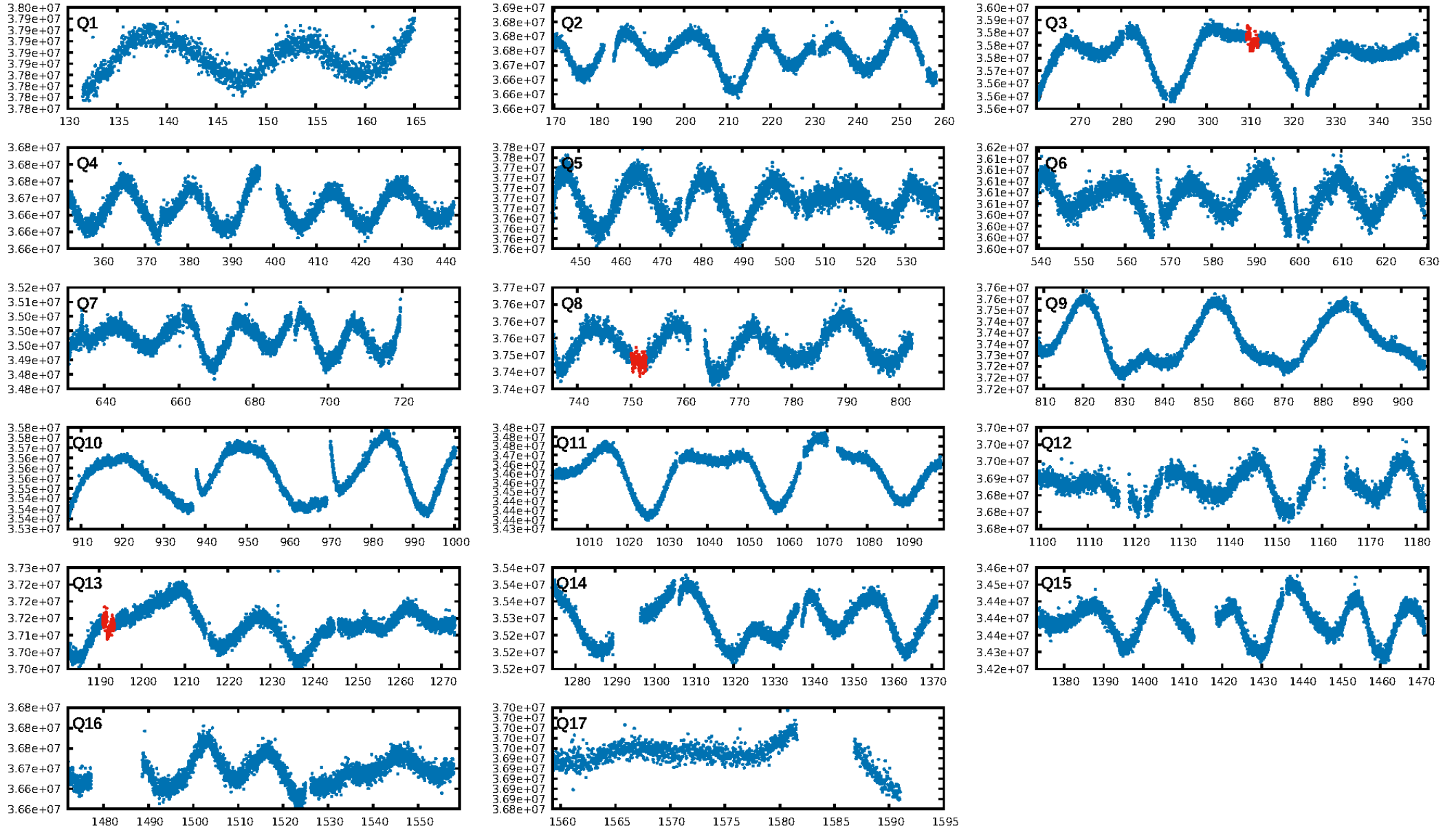
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 2.0% [0.03σ]
ModelChiSquare2-sig: 13.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.15e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 16.36
Centroid-sig: 55.8%
Centroid-so: 1.401 arcsec [1.76σ]
OotOffset-rm: 5.228 arcsec [14.83σ]
KicOffset-rm: 5.371 arcsec [15.18σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/2]

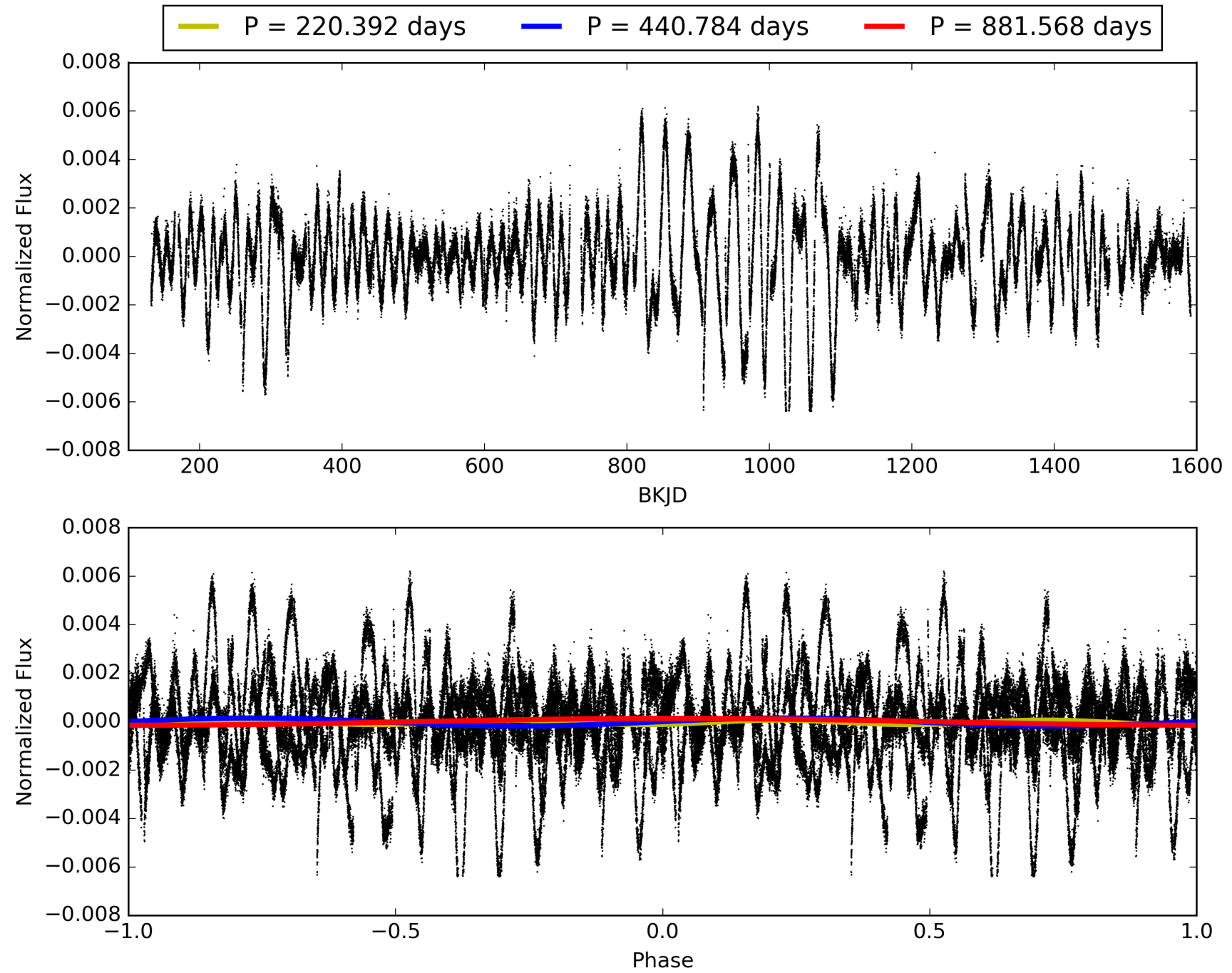
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:15:57 Z

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

TCE 008718072-02, PDC Light Curves

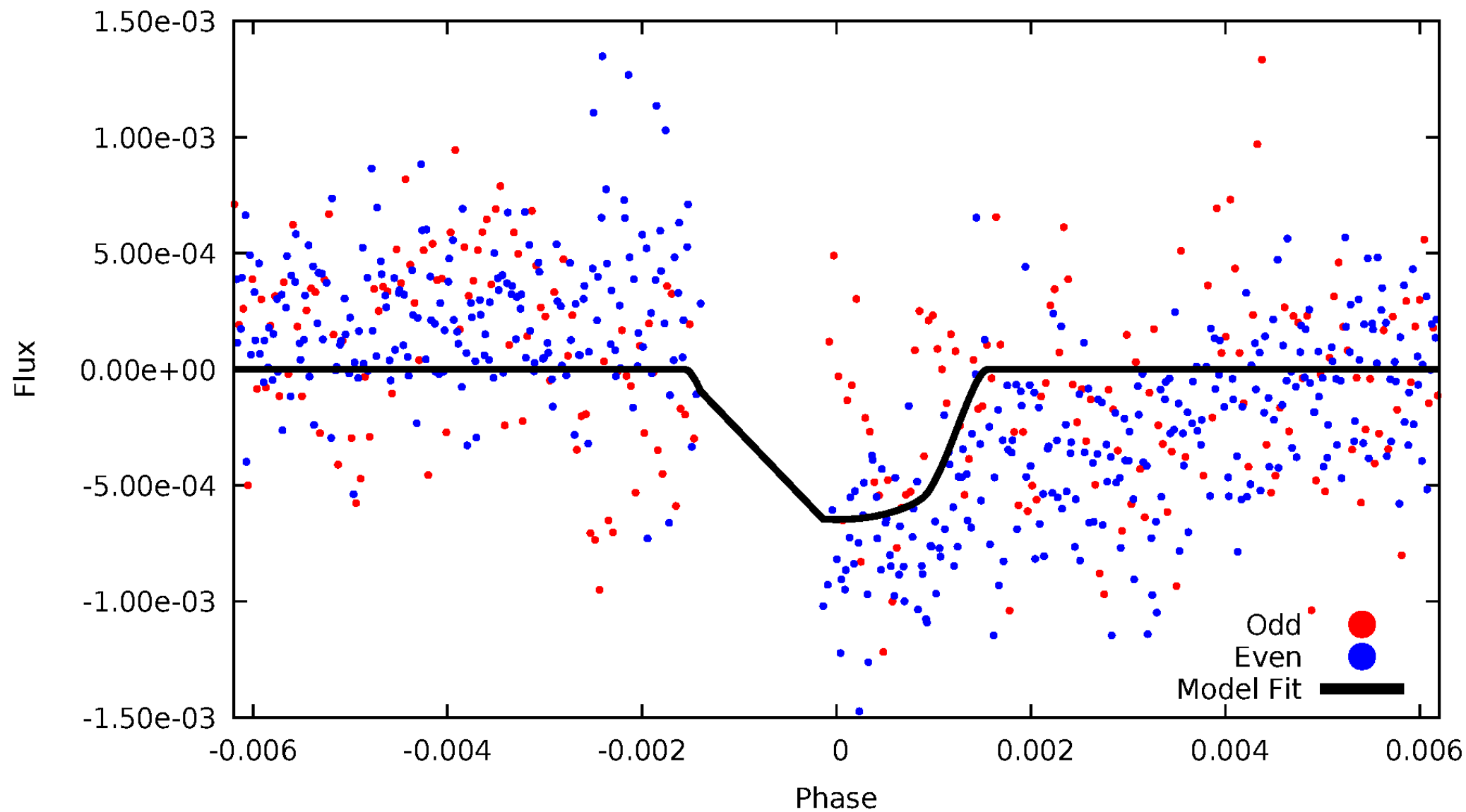


TCE 008718072-02



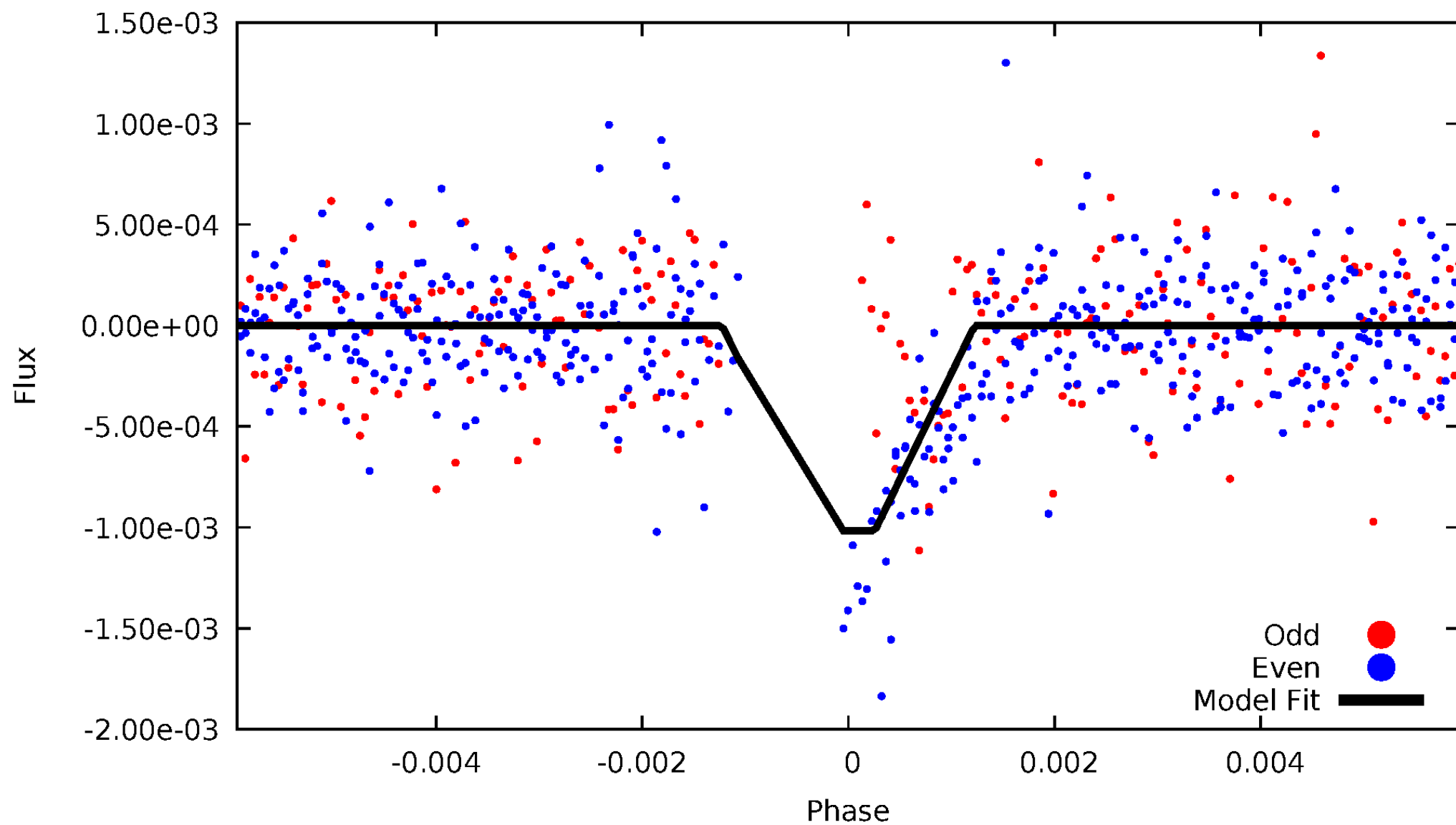
DV Odd/Even

TCE 008718072-02



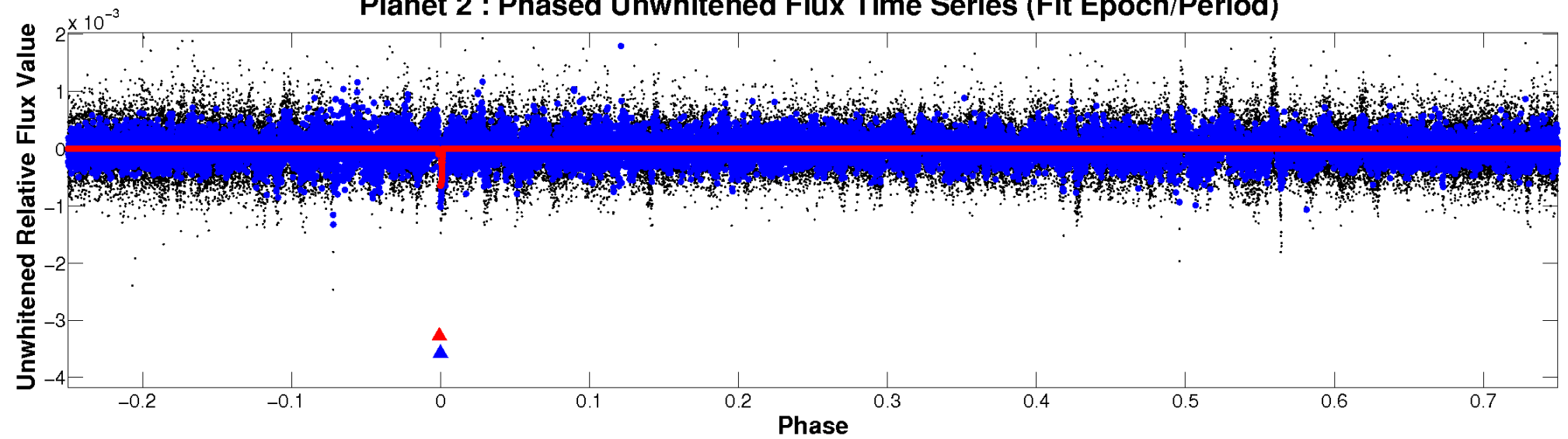
ALT Odd/Even

TCE 008718072-02

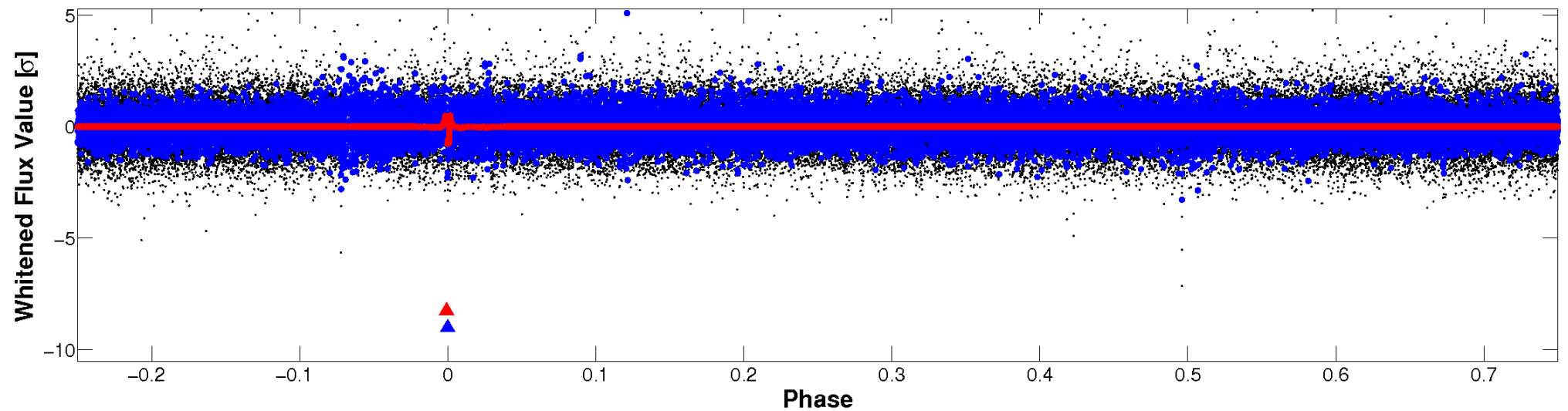


Non-Whitened Vs. Whitened Light Curve

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 008718072-02 P=440.783962 Days $T_0=310.672595$ (BKJD)



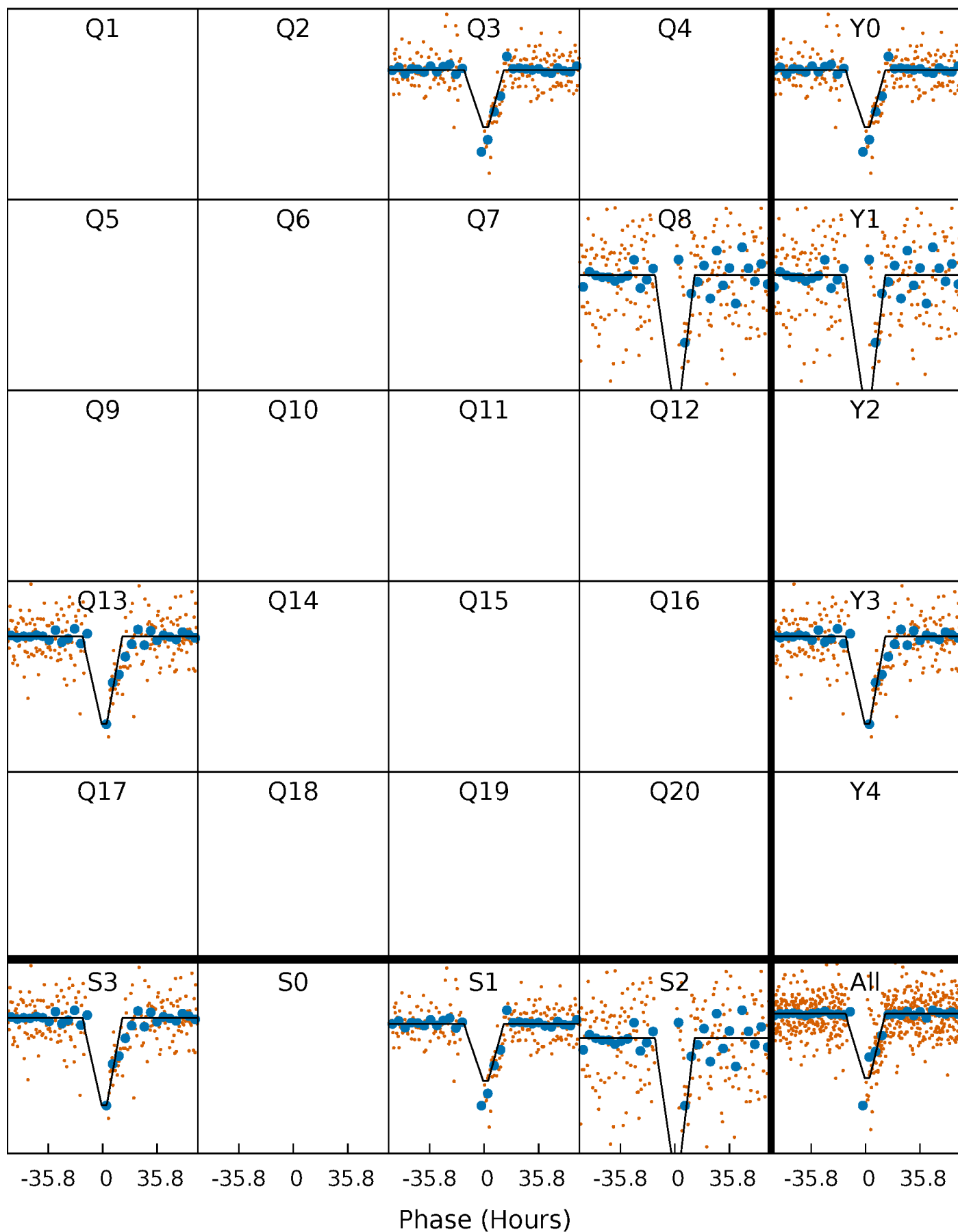
DV Quarter-Phased Transit Curves

TCE 008718072-02 $P=440.783962$ Days $T_0=310.672595$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

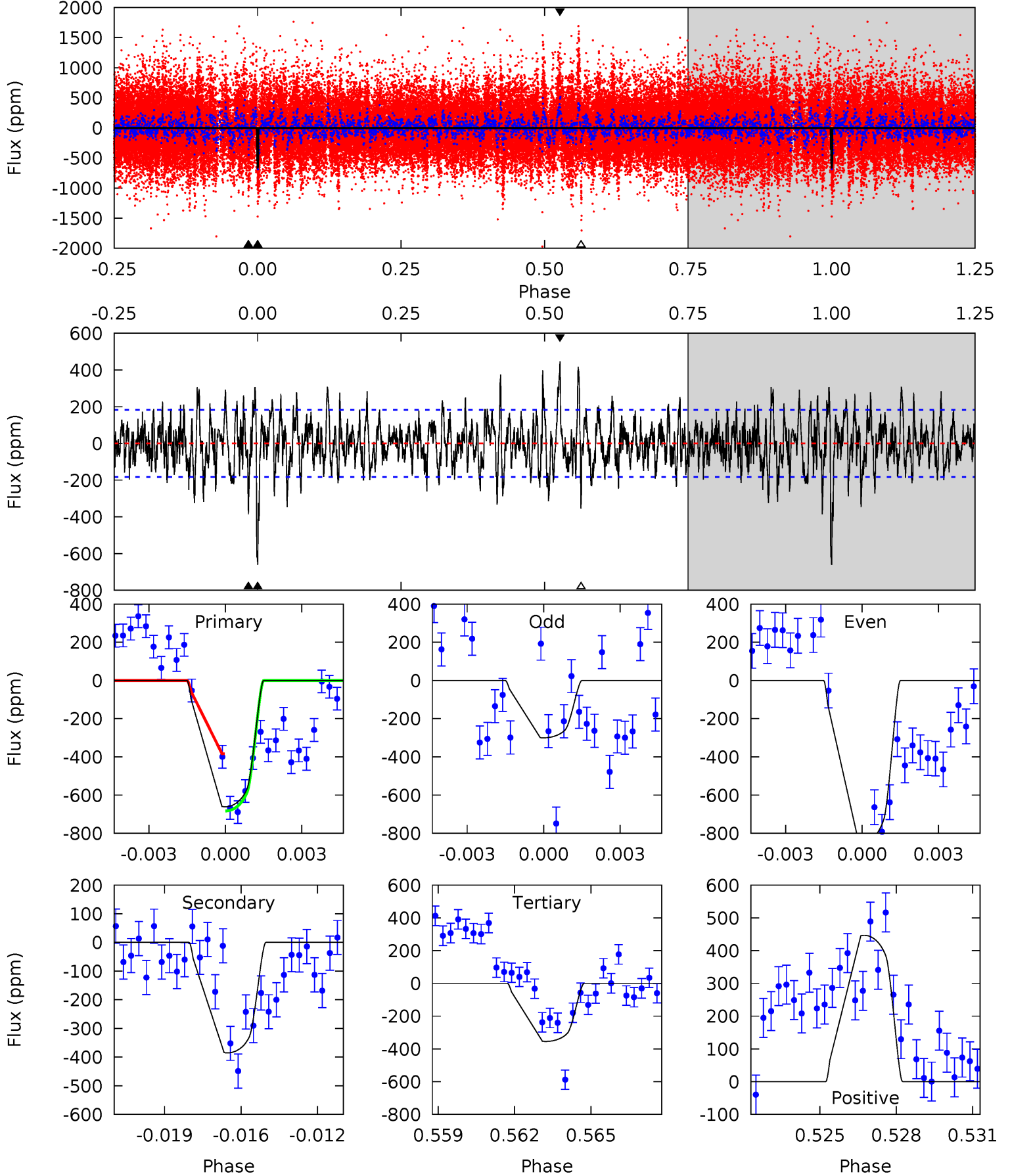
TCE 008718072-02 P=440.731456 Days $T_0=310.634555$ (BKJD)



DV Model-Shift Uniqueness Test

008718072-02, P = 440.783962 Days, E = 310.672595 Days

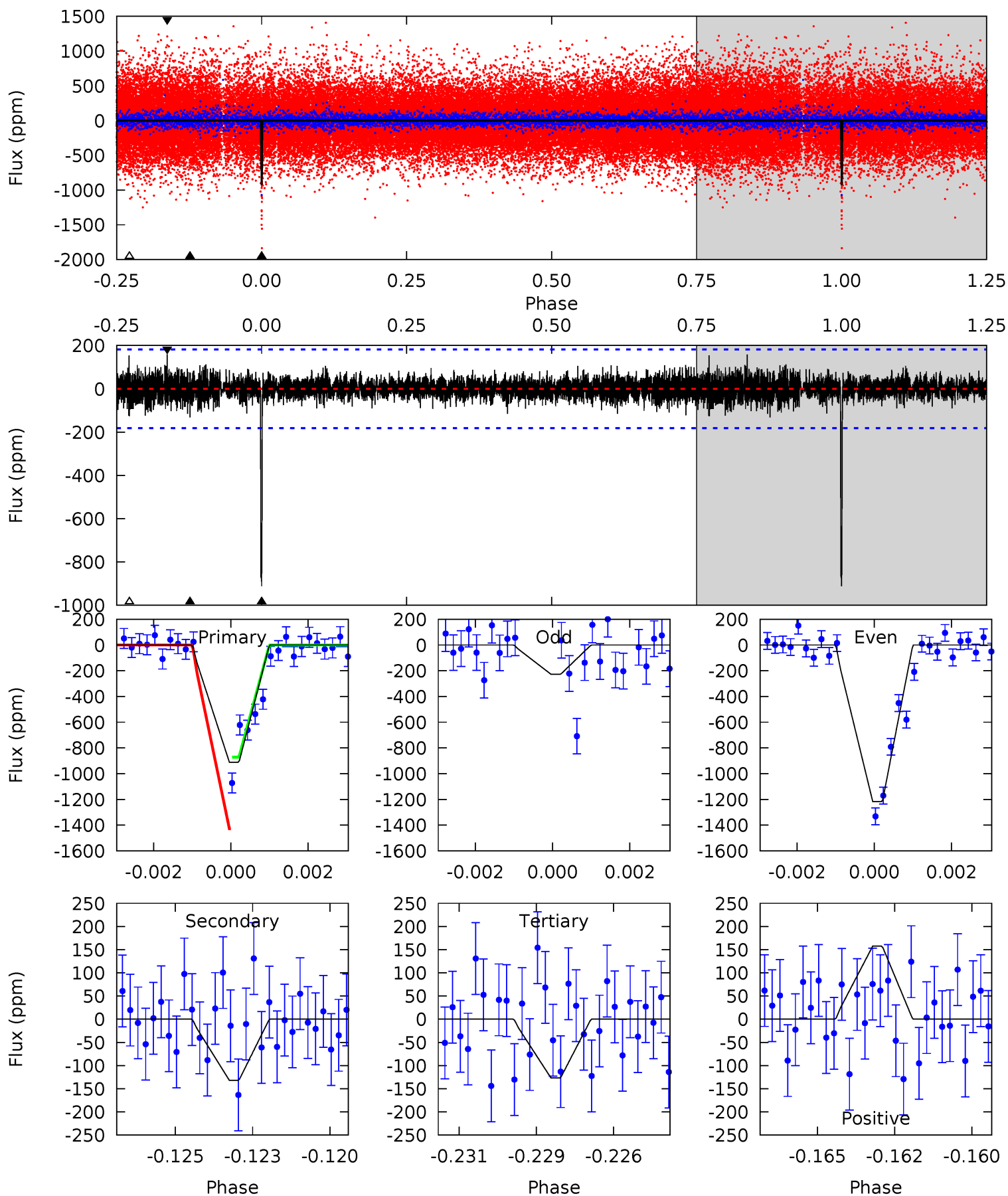
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	11.1	10.2	12.8	5.25	2.96	3.15	8.81	6.16	0.89	-1.76	7.40	0.79	0.40	2.53



Alt Model-Shift Uniqueness Test

008718072-02, P = 440.731456 Days, E = 310.634555 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	3.84	3.69	4.59	5.29	3.03	0.88	22.9	22.0	0.15	-0.75	13.6	0.83	0.15	4.00



Stellar Parameters For KIC 008718072

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4045^{+107}_{-119}	$4.666^{+0.060}_{-0.024}$	$-0.120^{+0.300}_{-0.300}$	$0.585^{+0.040}_{-0.068}$	$0.578^{+0.054}_{-0.059}$	$4.069^{+1.202}_{-0.428}$
	+3%/-3%	+1%/-1%	+250%/-250%	+7%/-12%	+9%/-10%	+30%/-11%
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 008718072-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-385 ± 35	$1.86^{+0.21}_{-0.19}$	195^{+6}_{-7}	3517^{+154}_{-149}	54537^{+14053}_{-10964}
Alt.	-132 ± 34	$2.01^{+0.21}_{-0.22}$	195^{+6}_{-7}	2937^{+138}_{-146}	16235^{+5233}_{-4564}

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

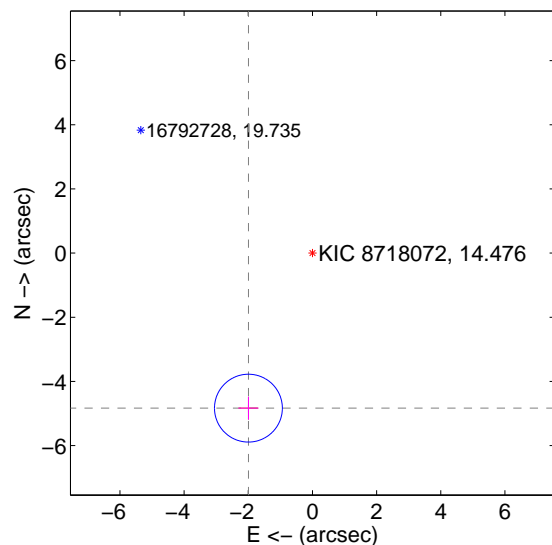
Supplemental centroid analysis for 008718072-02. Kepler magnitude: 14.48. Transit SNR 7.42

There are 0 quarters with good PRF difference image offsets

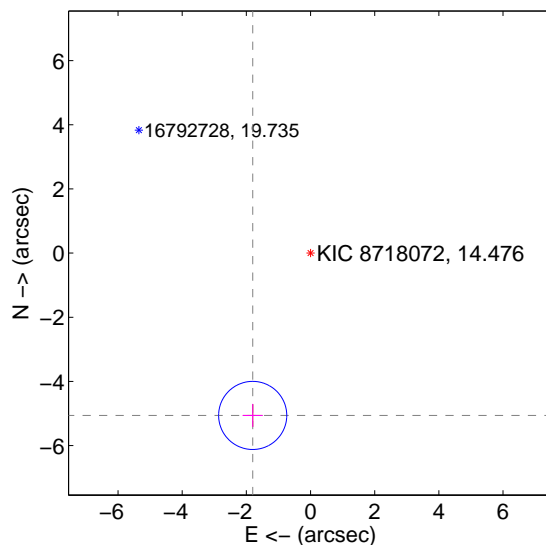
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.228 ± 0.352	14.83	1.995 ± 0.314	-4.832 ± 0.359
PRF-fit source offset from KIC position	5.371 ± 0.354	15.18	1.802 ± 0.314	-5.059 ± 0.359
photometric centroid source offset	1.40 ± 0.79	1.76	1.38 ± 0.79	-0.22 ± 1.02

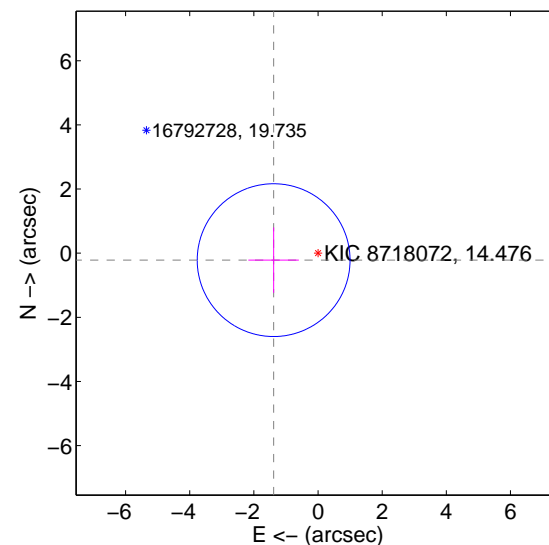
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

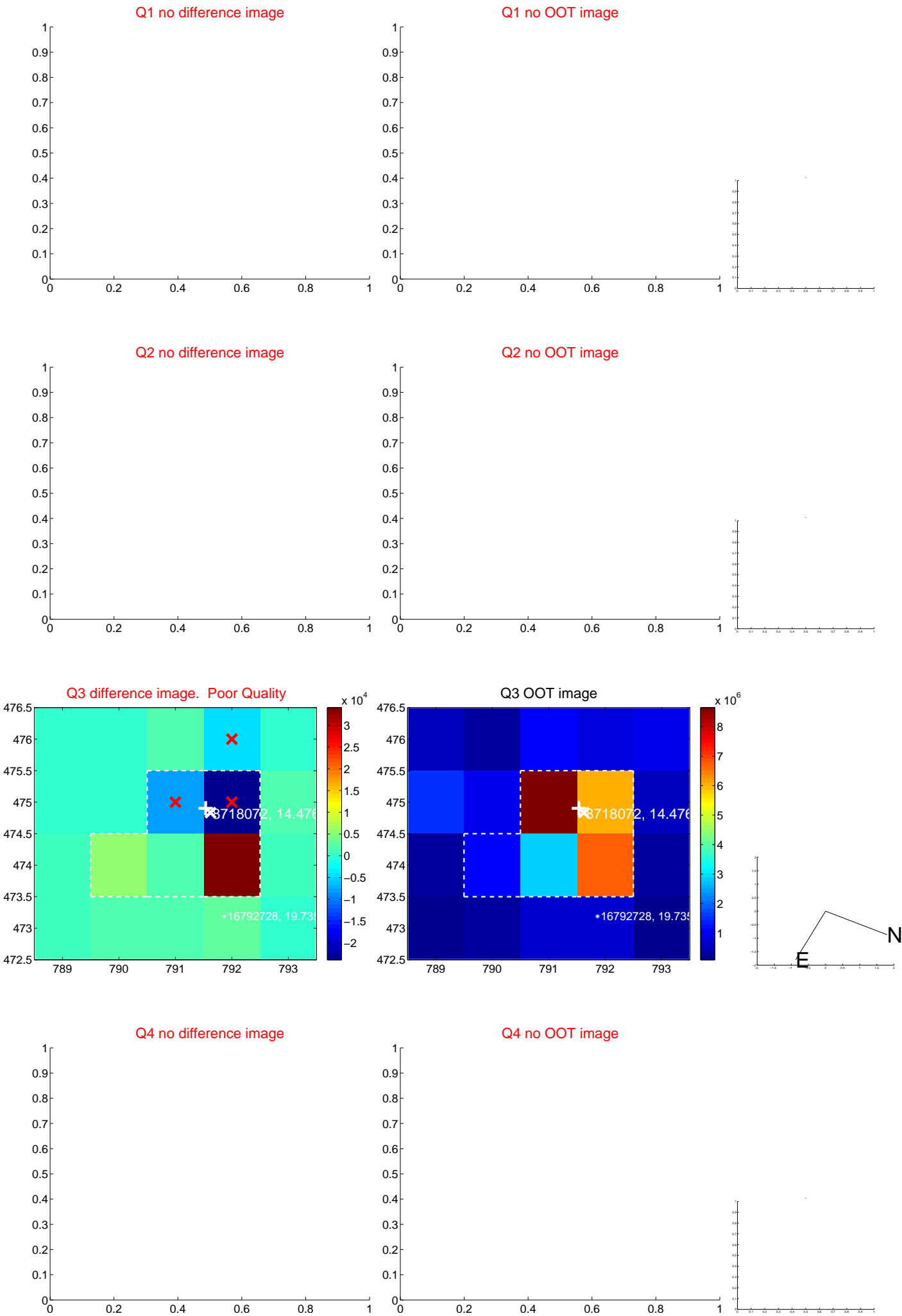


offset from photometric centroids

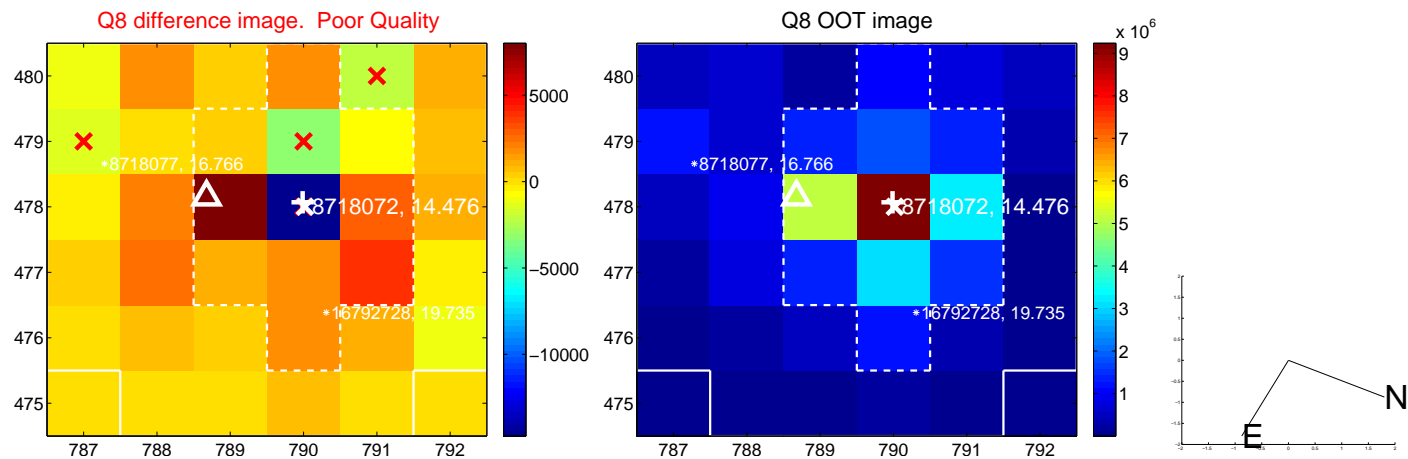
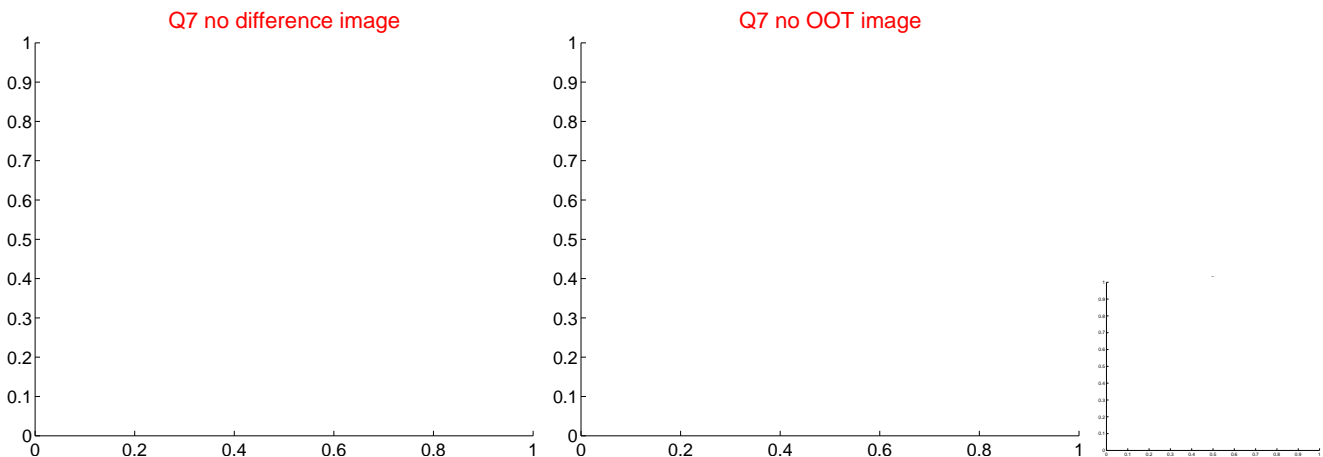
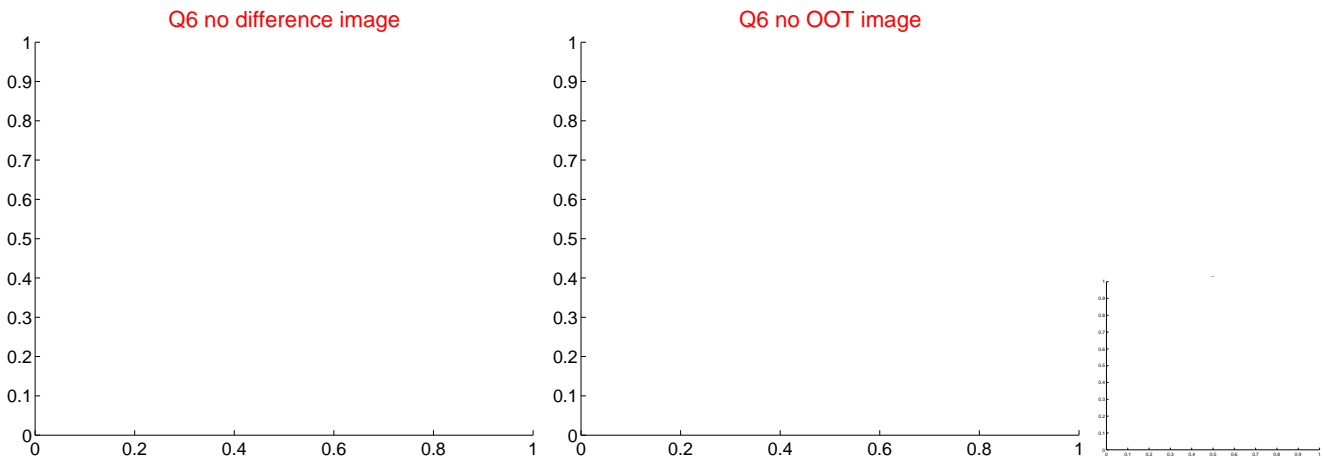
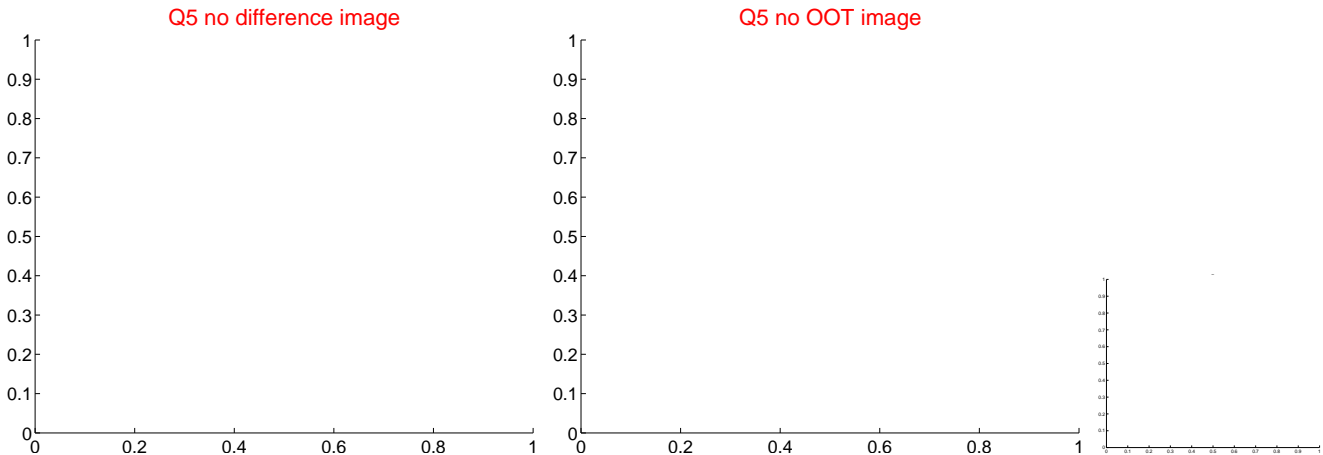


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



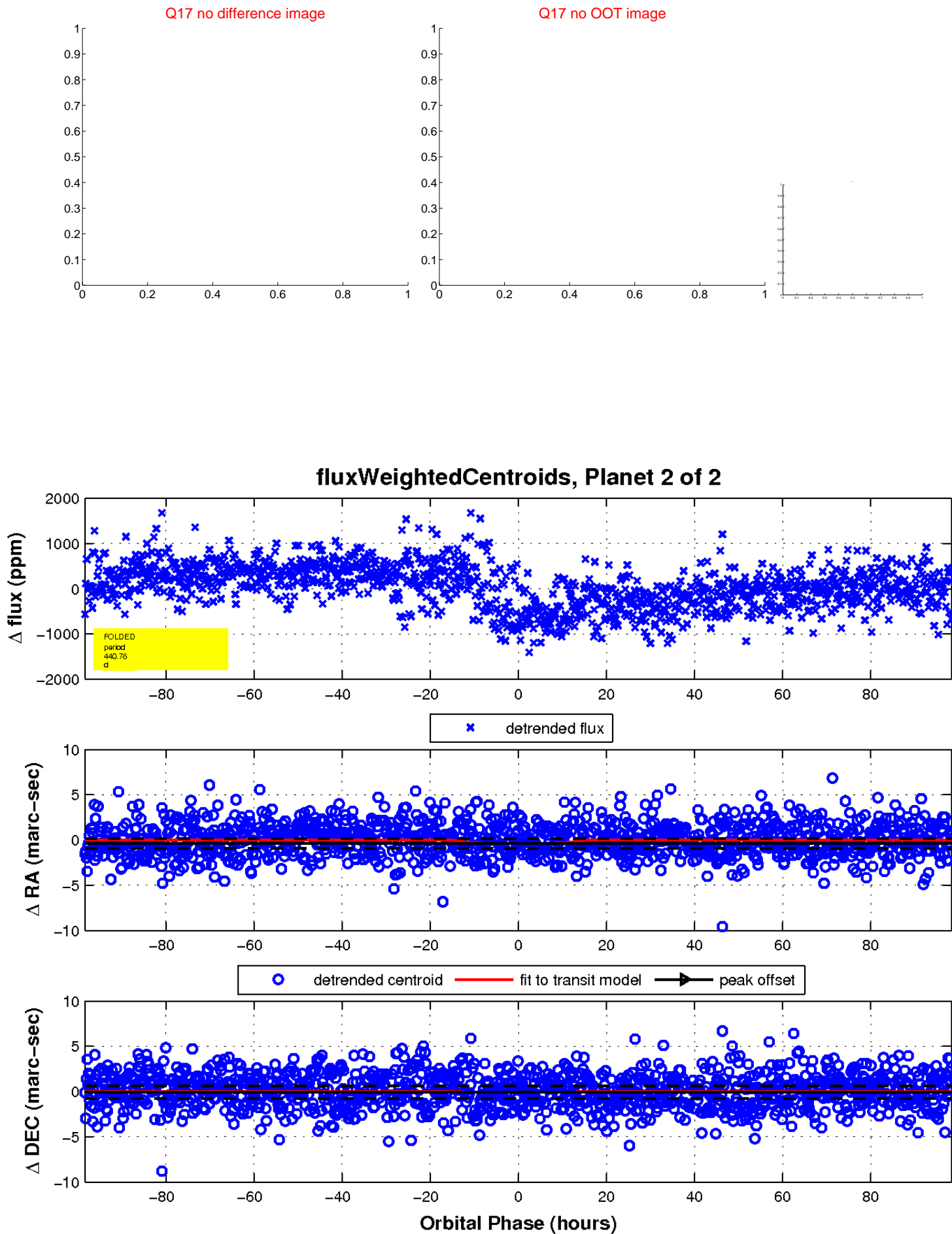
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

