

KIC 008825177

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})
008825177-01	OBS	No	440.158941	264.608507	996.3	9.366	14.4	7.4	0.68	5237	2.23	0.32
008825177-02	OBS	No	410.612423	259.095077	1244.4	3.254	10.9	7.8	0.68	5237	2.52	0.35
008825177-03	OBS	No	445.920626	449.097162	1194.8	8.368	10.6	7.3	0.68	5237	2.51	0.31
008825177-04	OBS	No	433.084817	487.341824	943.8	6.607	11.3	5.5	0.68	5237	2.18	0.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008825177-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
008825177-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008825177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
008825177-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

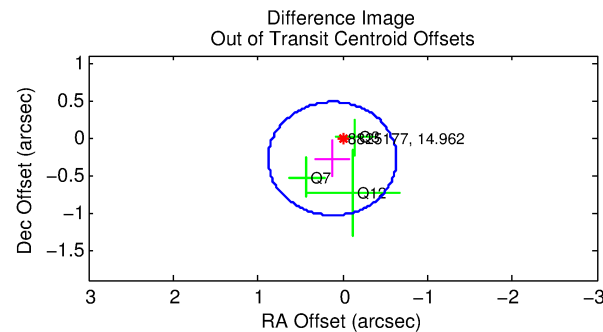
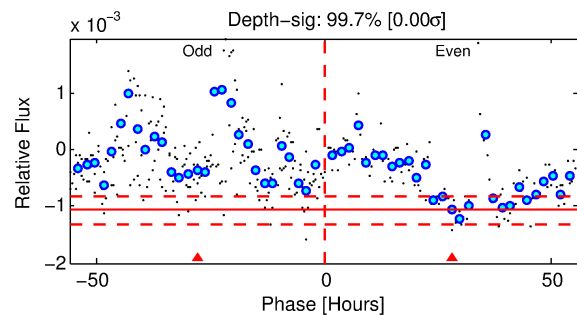
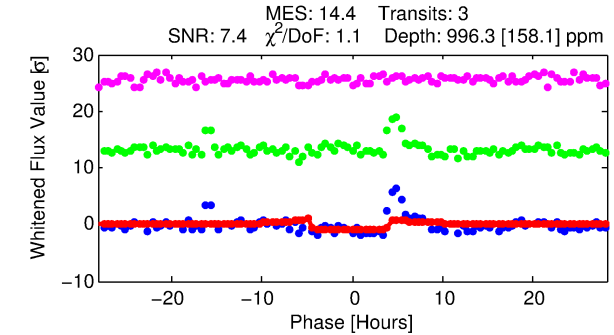
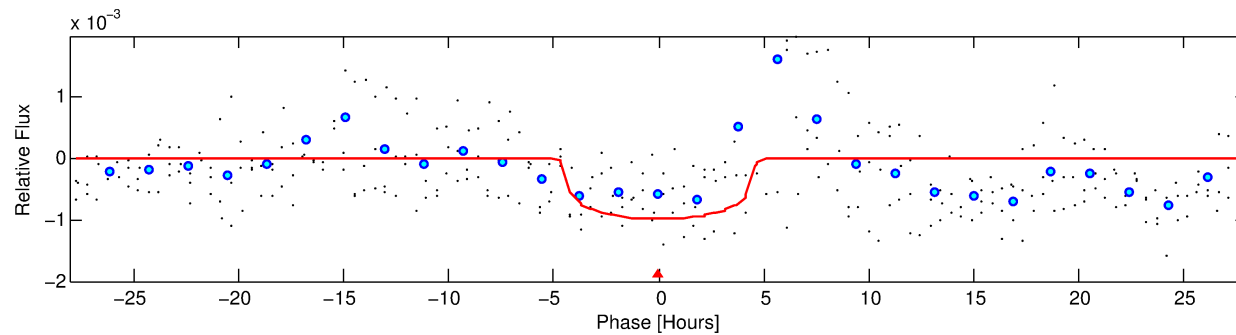
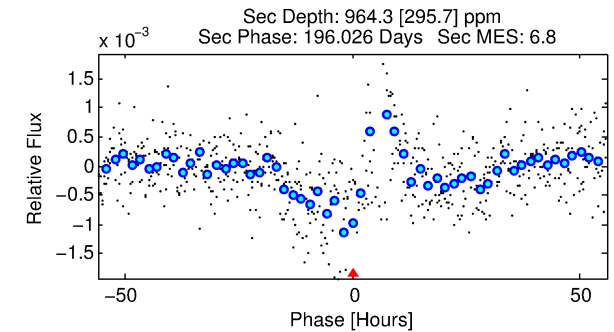
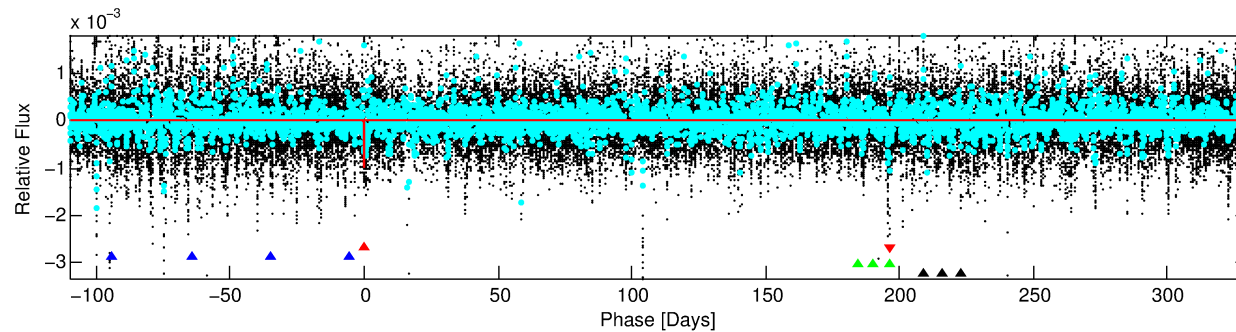
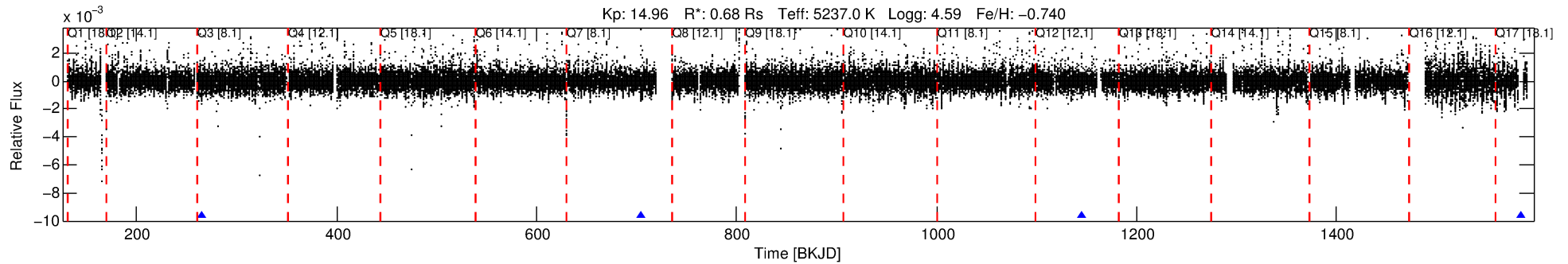
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008825177-01

No Significant Match Found

DV One-Page Summary

KIC: 8825177 Candidate: 1 of 4 Period: 440.159 d



DV Fit Results:

Period = 440.15894 [0.01087] d
Epoch = 264.6085 [0.0159] BKJD
Rp/R* = 0.0301 [0.0103]
a/R* = 296.44 [394.02]
b = 0.62 [1.35]
Seff = 0.32 [0.06]
Teq = 192 [9] K
Rp = 2.23 [0.80] Re
a = 0.9829 [0.0897] AU
Ag = 103328.70 [78789.98] [1.31 σ]
Teffp = 5315 [1009] K [5.08 σ]

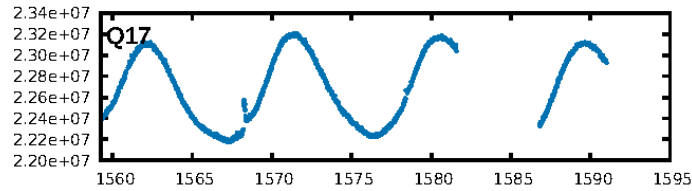
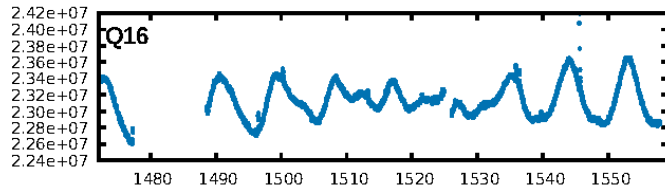
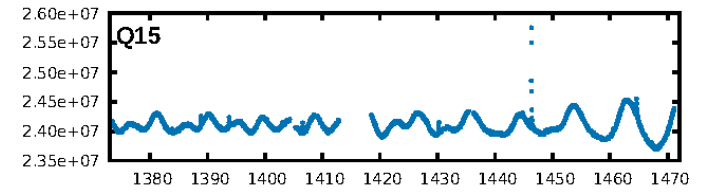
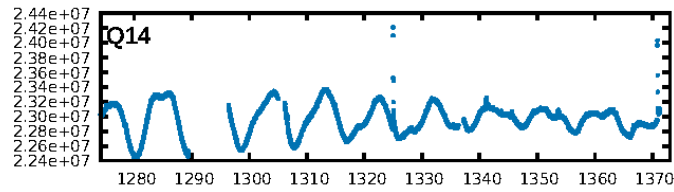
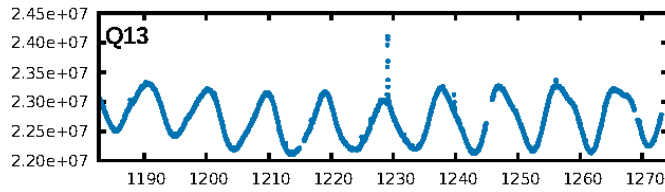
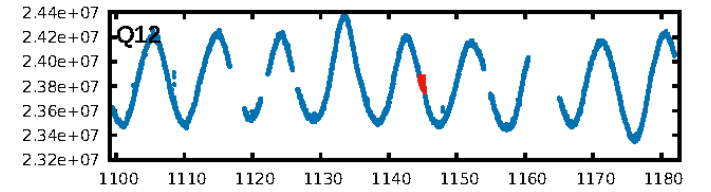
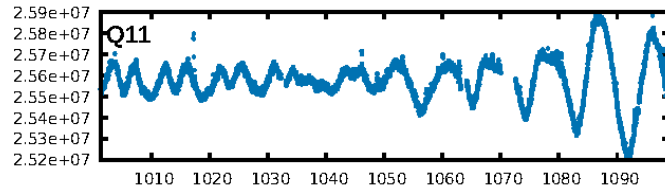
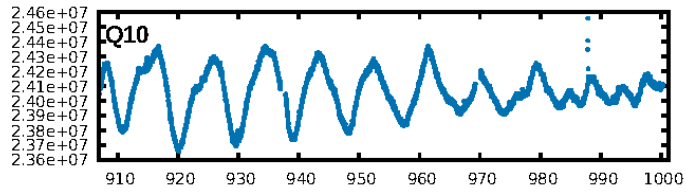
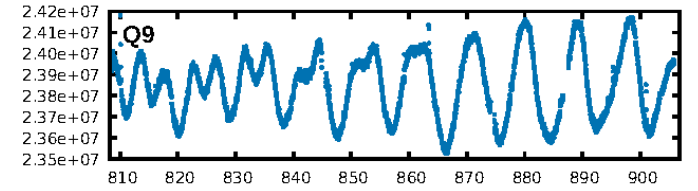
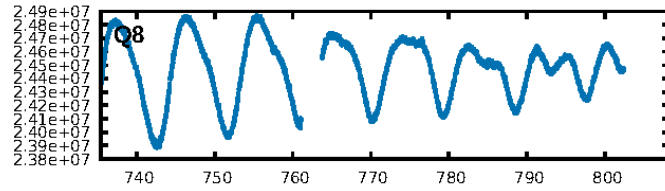
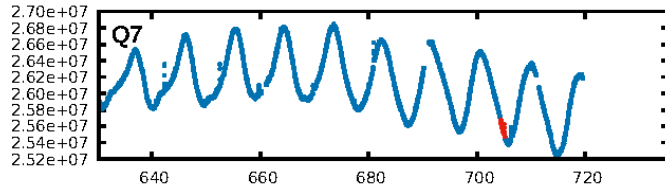
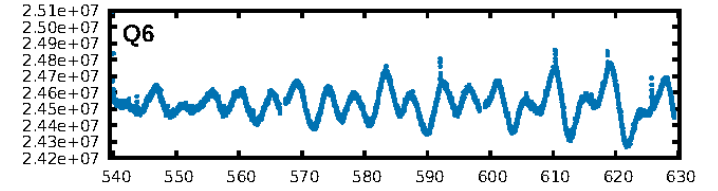
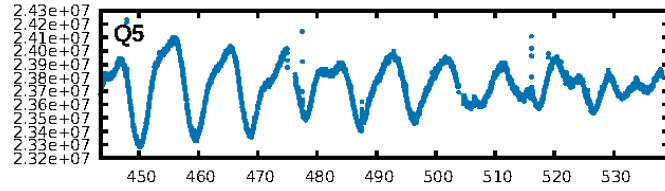
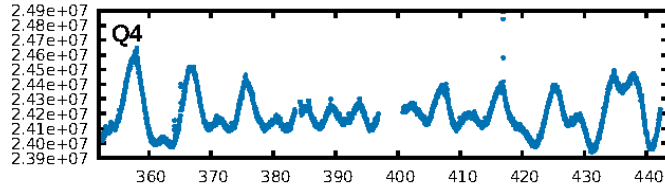
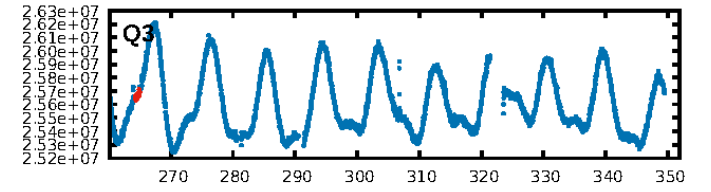
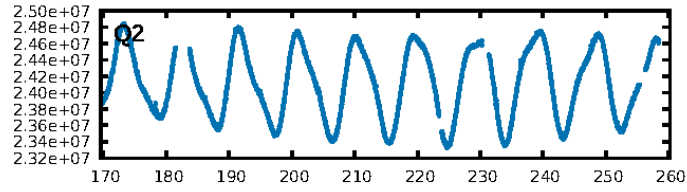
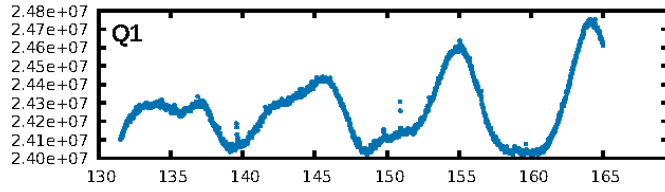
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.81 σ]
LongPeriod-sig: 100.0% [11.01 σ]
ModelChiSquare2-sig: 2.8%
ModelChiSquareGof-sig: 91.5%
Bootstrap-pfa: 3.95e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.1474
Centroid-sig: 0.6%
Centroid-so: 1.795 arcsec [2.26 σ]
OotOffset-rm: 0.305 arcsec [1.21 σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-rm: 0.377 arcsec [1.53 σ]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

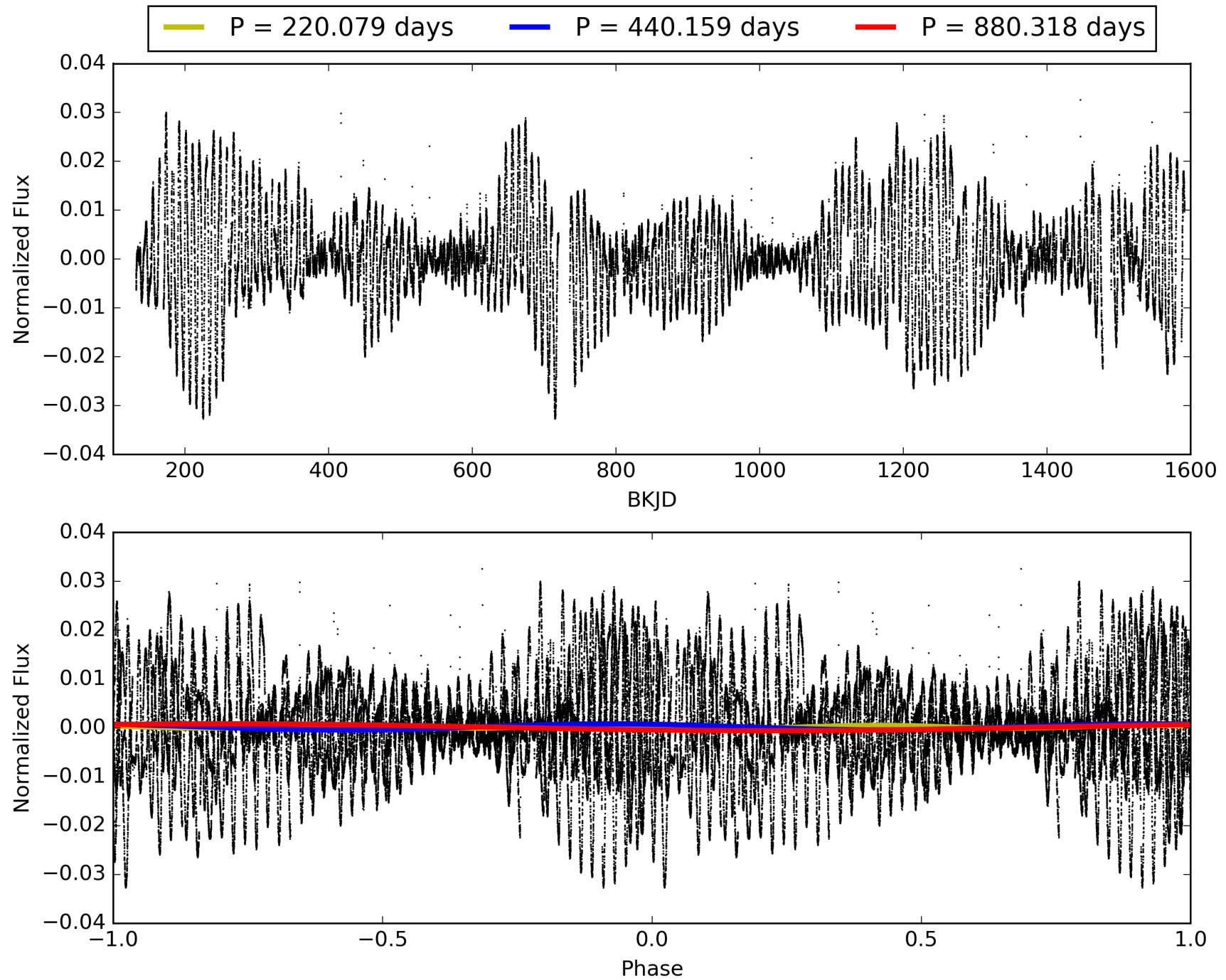
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:33:38 Z

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

TCE 008825177-01, PDC Light Curves

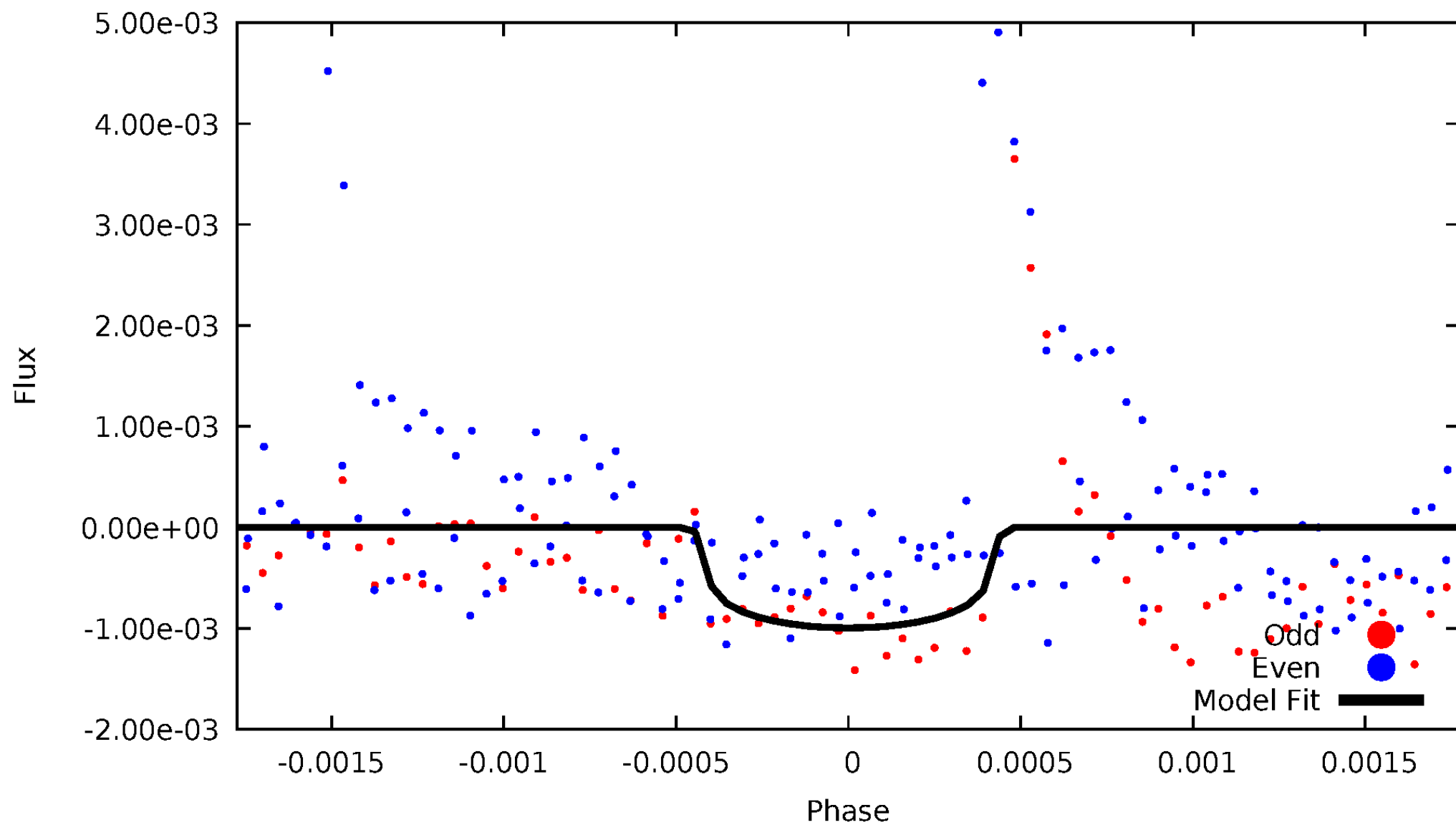


TCE 008825177-01



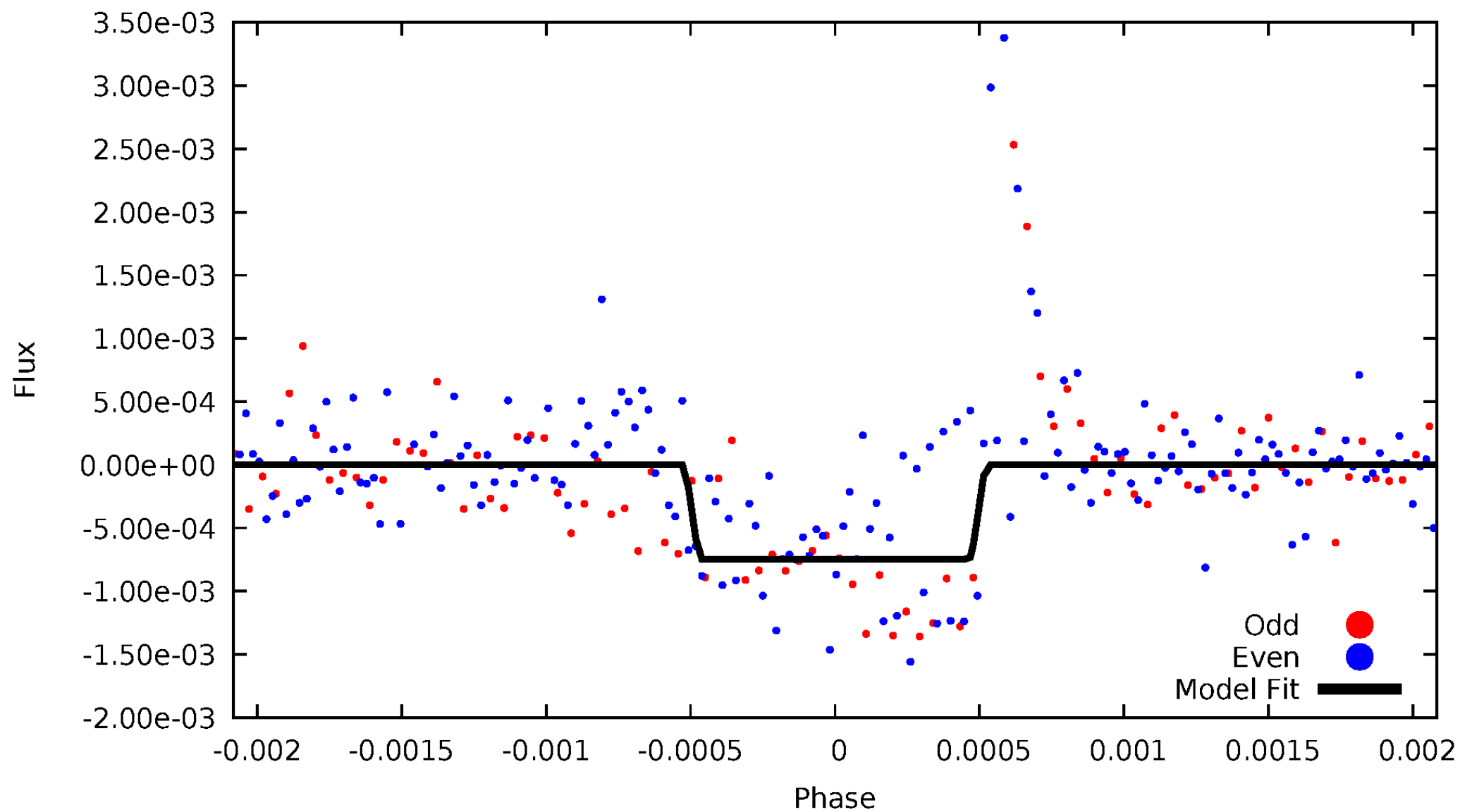
DV Odd/Even

TCE 008825177-01



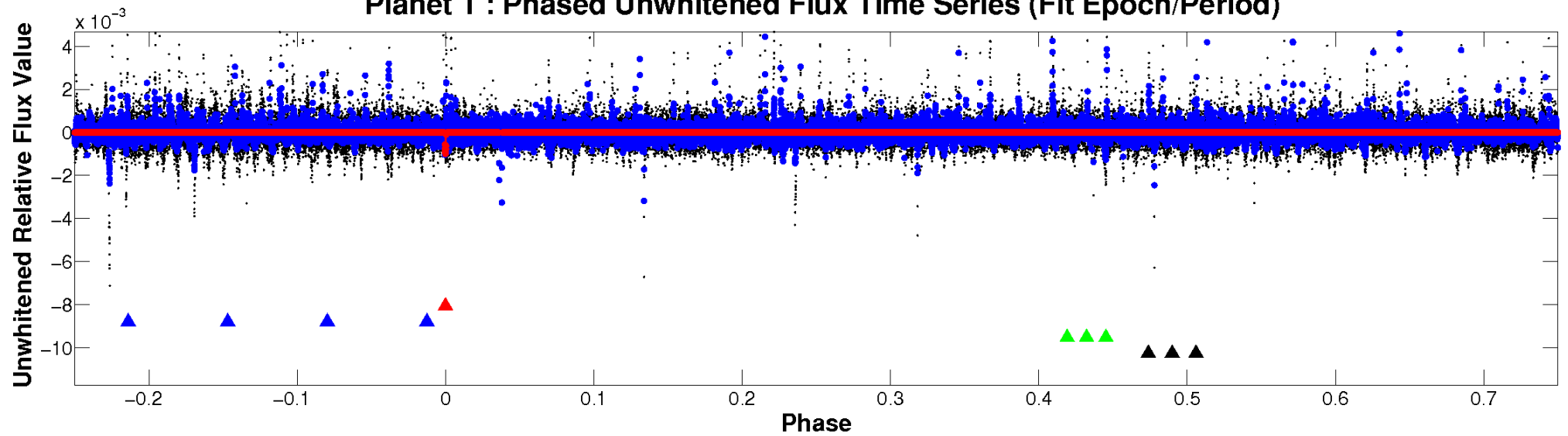
ALT Odd/Even

TCE 008825177-01

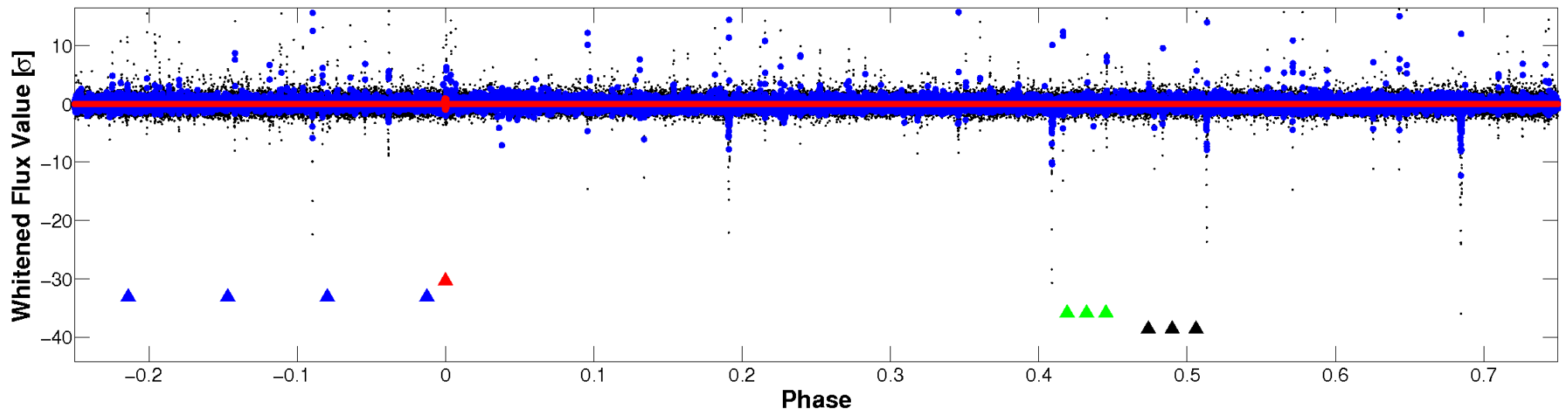


Non-Whitened Vs. Whitened Light Curve

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

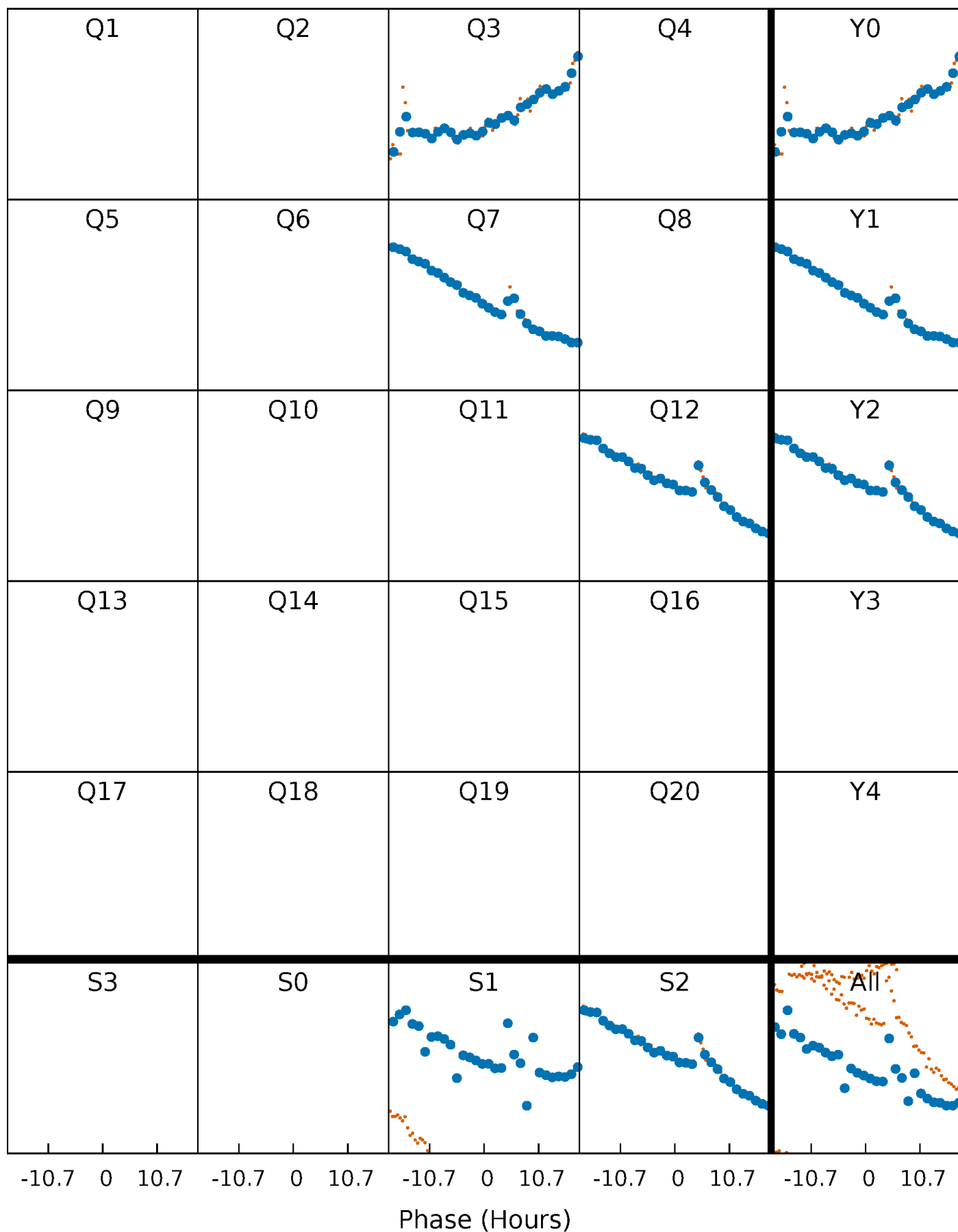


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



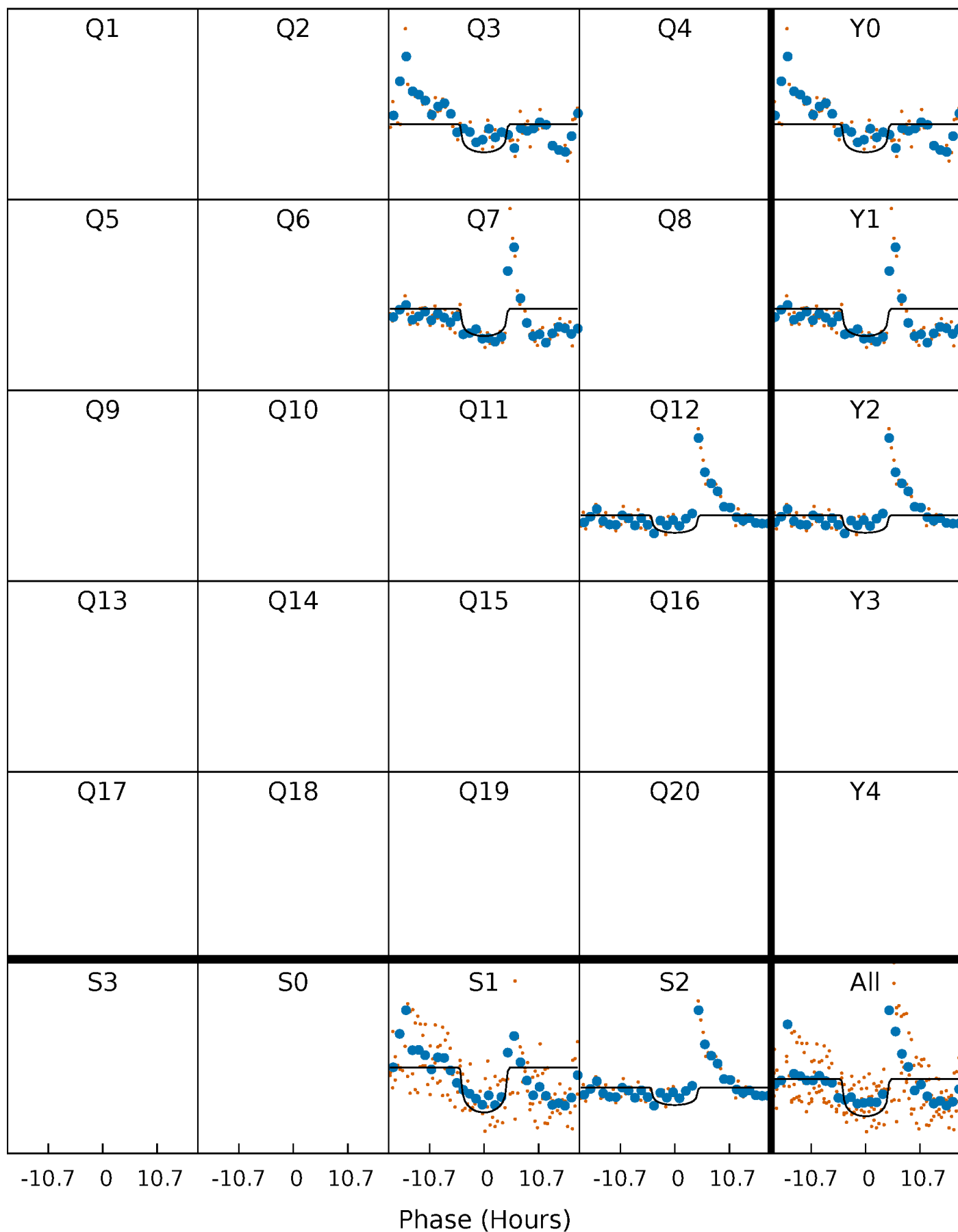
PDC Quarter-Phased Transit Curves

TCE 008825177-01 P=440.158941 Days $T_0=264.608507$ (BKJD)



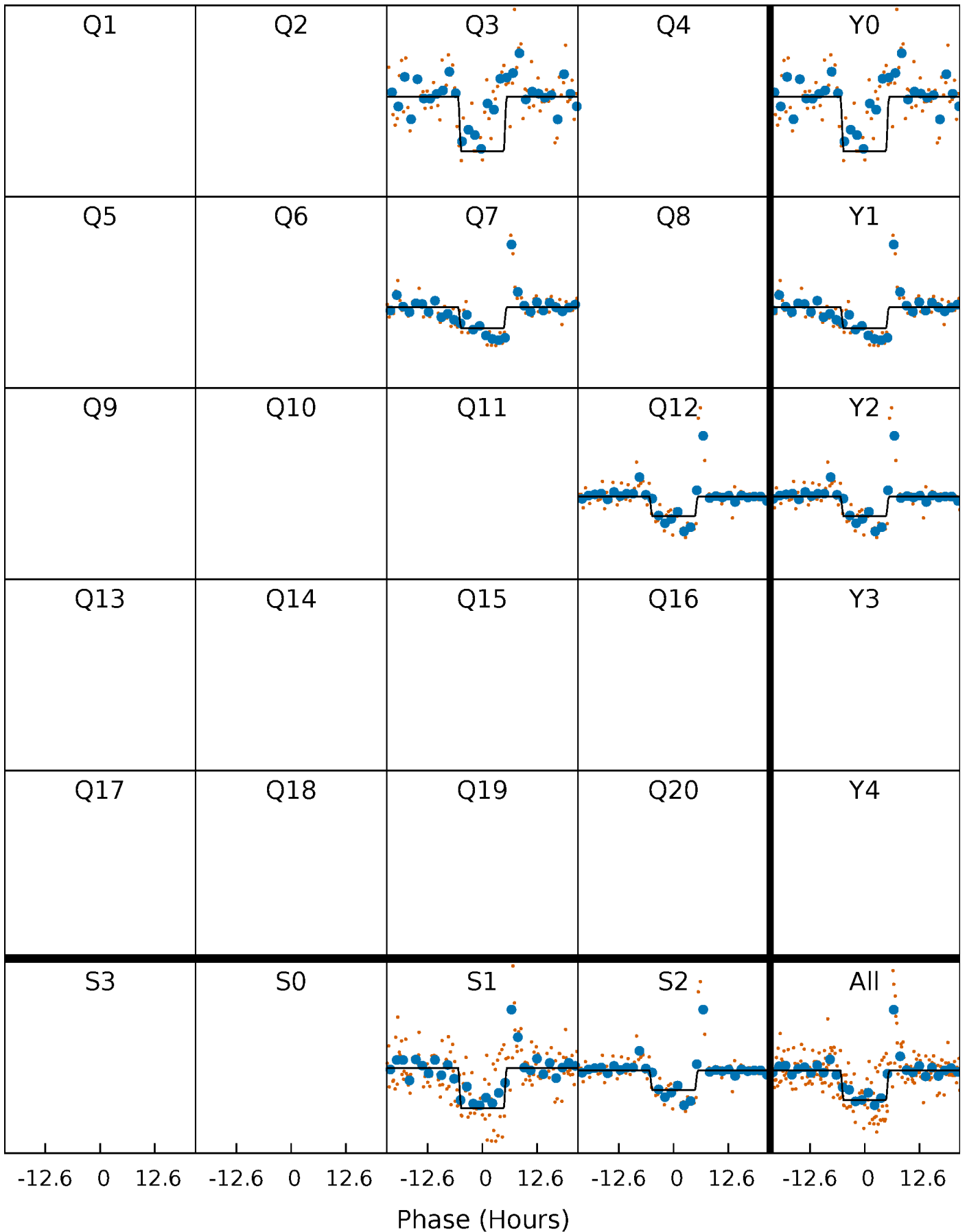
DV Quarter-Phased Transit Curves

TCE 008825177-01 P=440.158941 Days $T_0=264.608507$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

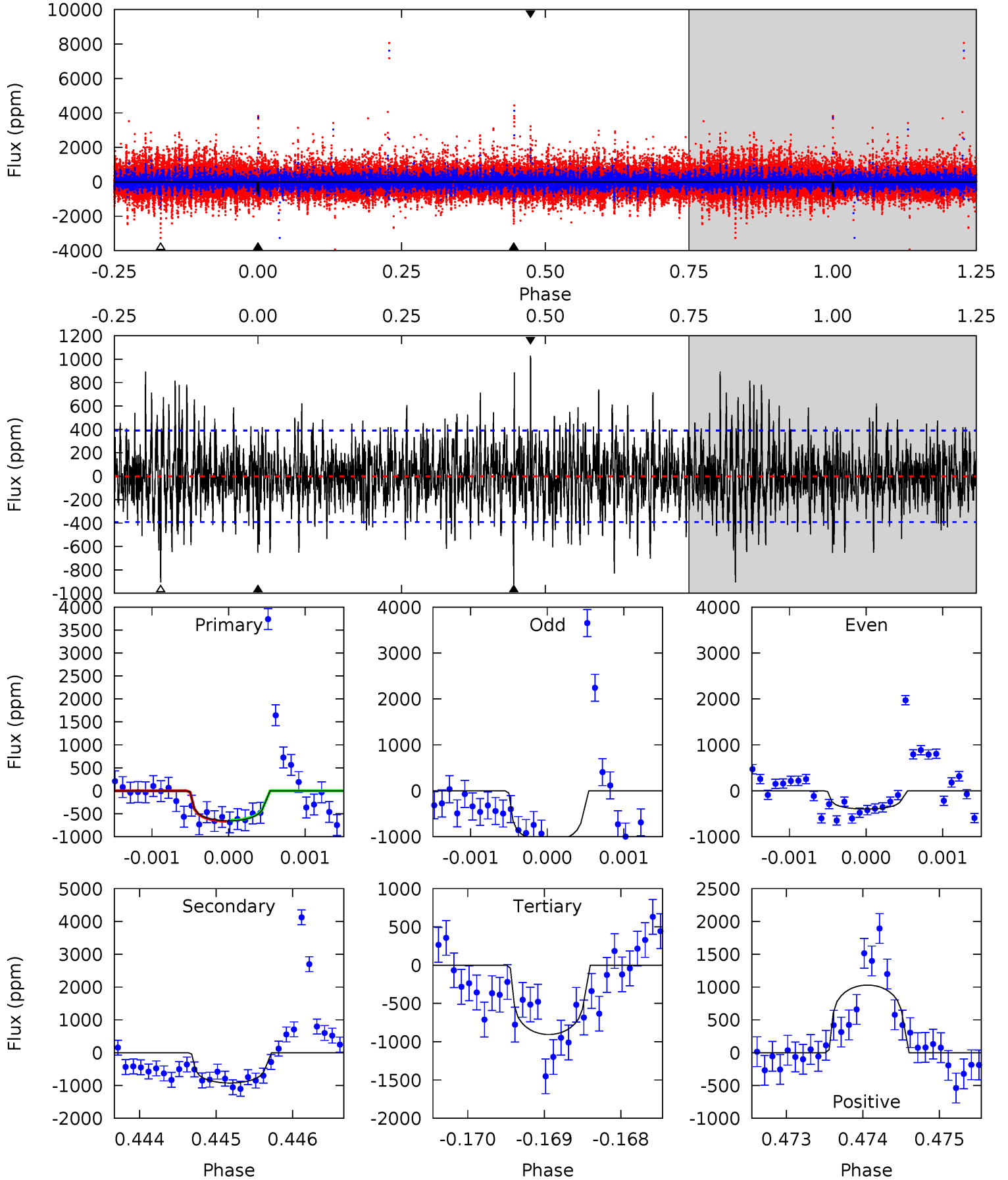
TCE 008825177-01 P=440.132071 Days $T_0=264.596097$ (BKJD)



DV Model-Shift Uniqueness Test

008825177-01, P = 440.158941 Days, E = 264.608507 Days

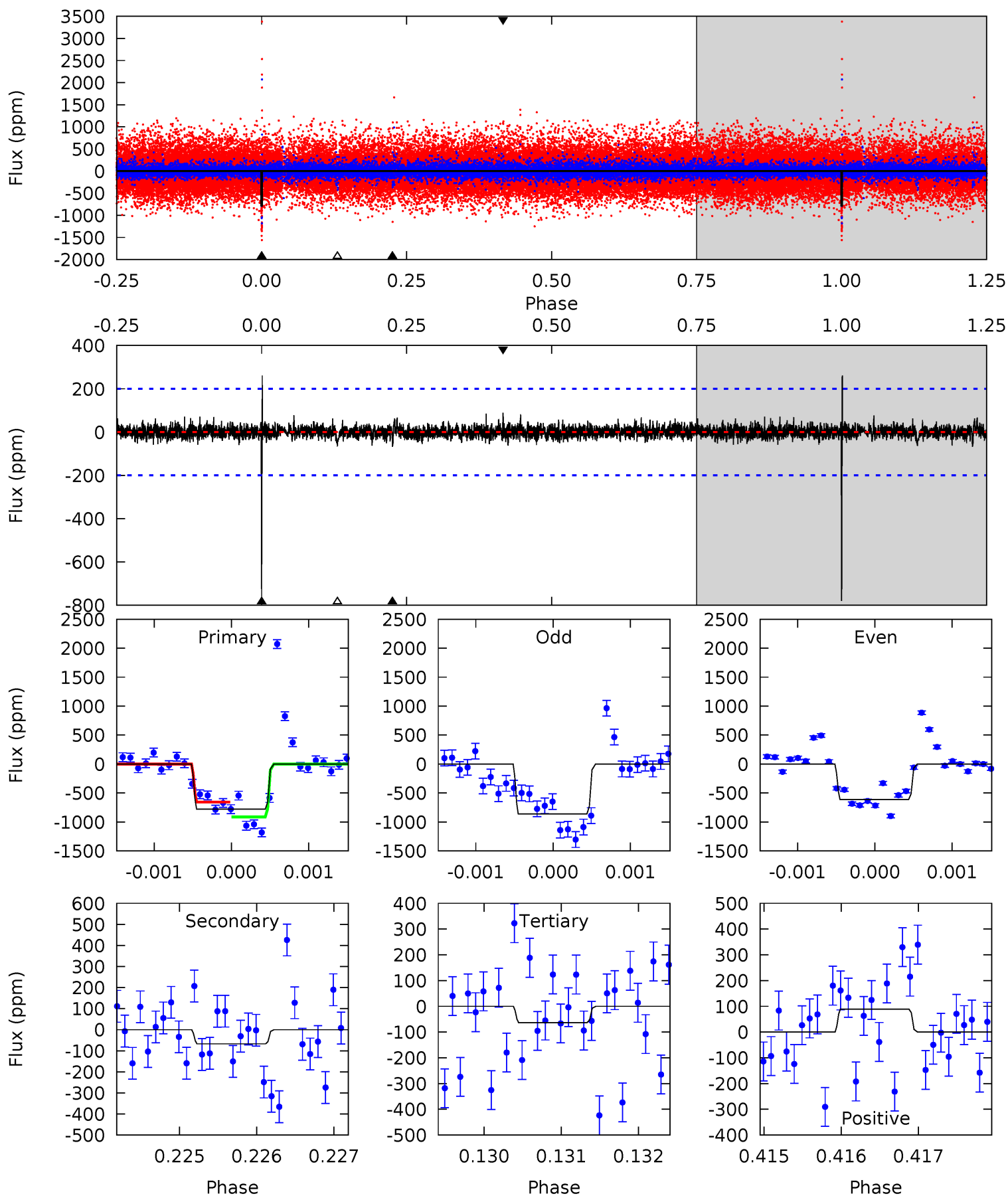
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.17	12.9	12.7	14.4	5.47	3.32	3.07	-3.49	-5.24	0.26	-1.49	4.20	1.31	0.53	0.14



Alt Model-Shift Uniqueness Test

008825177-01, P = 440.132071 Days, E = 264.596097 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	1.83	1.72	2.43	5.45	3.28	0.47	19.5	18.8	0.11	-0.60	3.38	0.80	0.25	3.52



Stellar Parameters For KIC 008825177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5237^{+156}_{-156}	$4.592^{+0.078}_{-0.052}$	$-0.740^{+0.350}_{-0.300}$	$0.677^{+0.070}_{-0.063}$	$0.653^{+0.075}_{-0.032}$	$2.969^{+0.904}_{-0.580}$
	+3%/-3%	+2%/-1%	+47%/-41%	+10%/-9%	+11%/-5%	+30%/-20%
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 008825177-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-924 ± 72	$2.24^{+0.72}_{-0.79}$	267^{+10}_{-11}	5217^{+1248}_{-582}	$96961^{+141254}_{-40486}$
Alt.	-67 ± 37	$2.01^{+0.80}_{-0.81}$	267^{+10}_{-11}	3351^{+645}_{-500}	8616^{+16417}_{-5801}

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 $A_{obs} \gg 1.0$

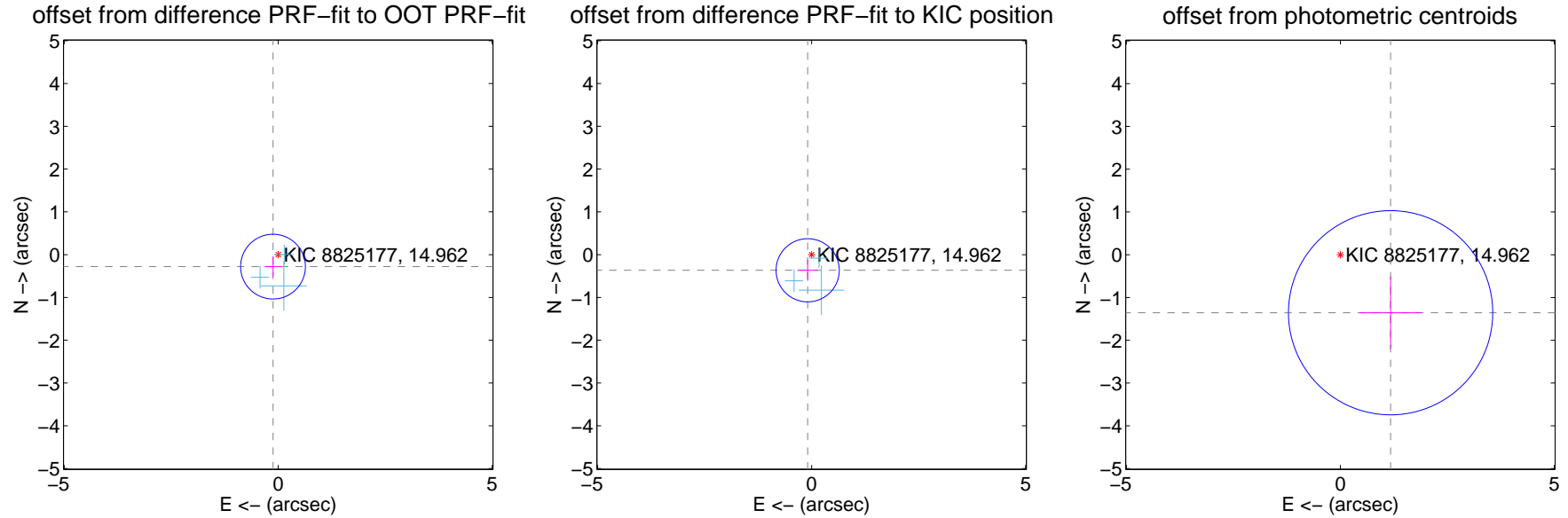
DV Centroid Data

Supplemental centroid analysis for 008825177-01. Kepler magnitude: 14.96. Transit SNR 7.45

There are 3 quarters with good PRF difference image offsets

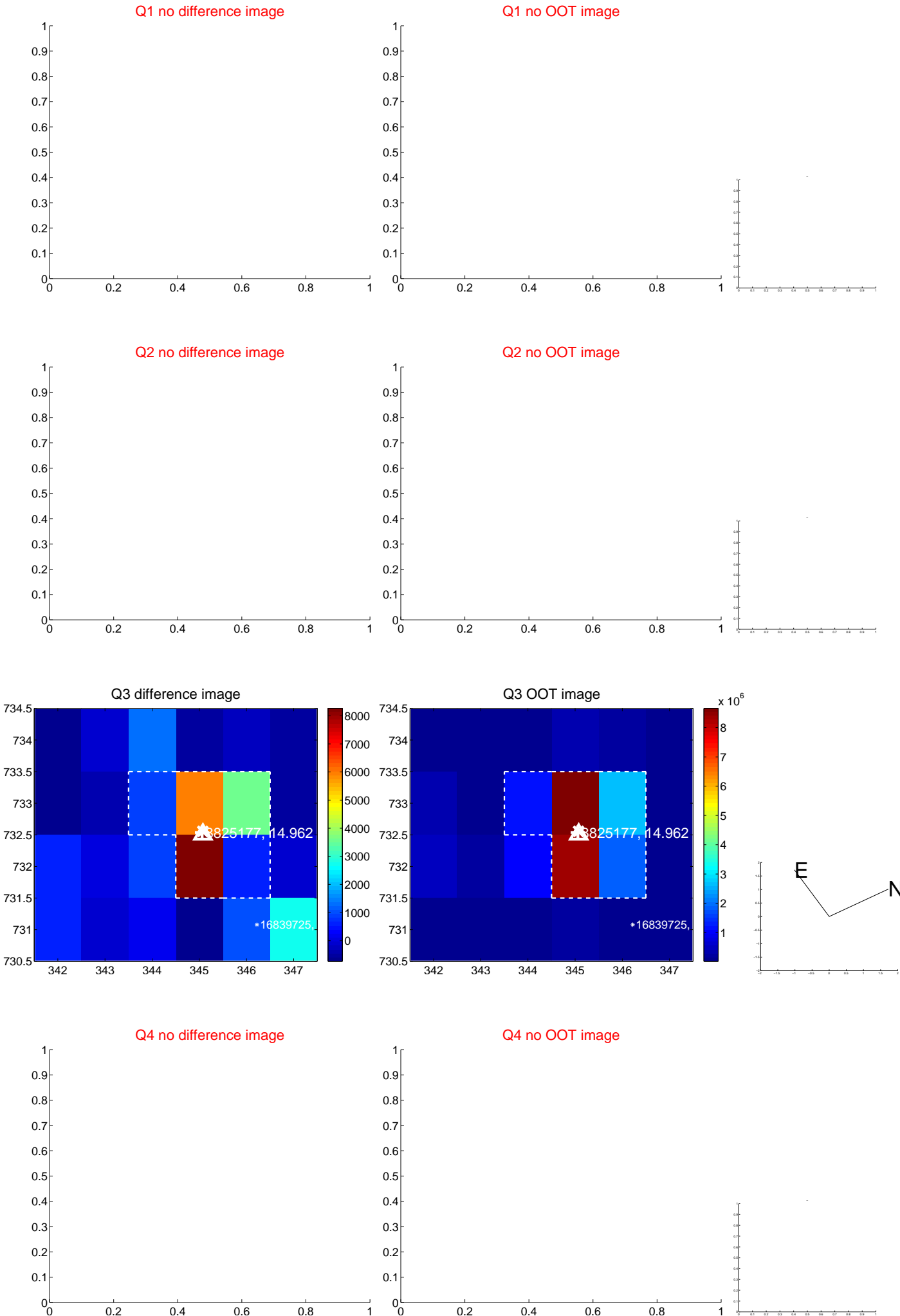
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.305 ± 0.252	1.21	0.121 ± 0.194	-0.280 ± 0.240
PRF-fit source offset from KIC position	0.377 ± 0.246	1.53	0.092 ± 0.241	-0.365 ± 0.246
photometric centroid source offset	1.79 ± 0.80	2.26	-1.17 ± 0.72	-1.36 ± 0.85

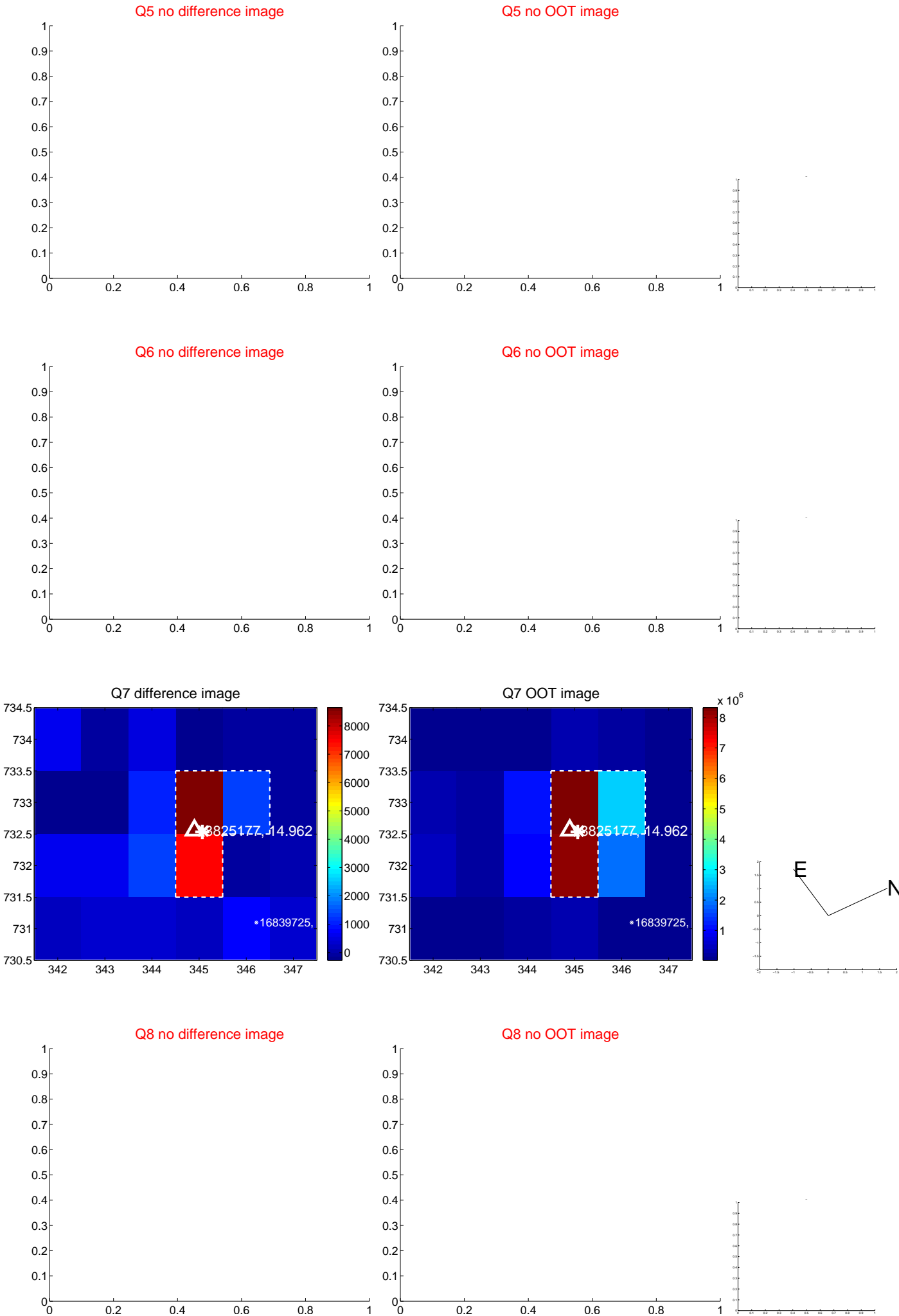


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

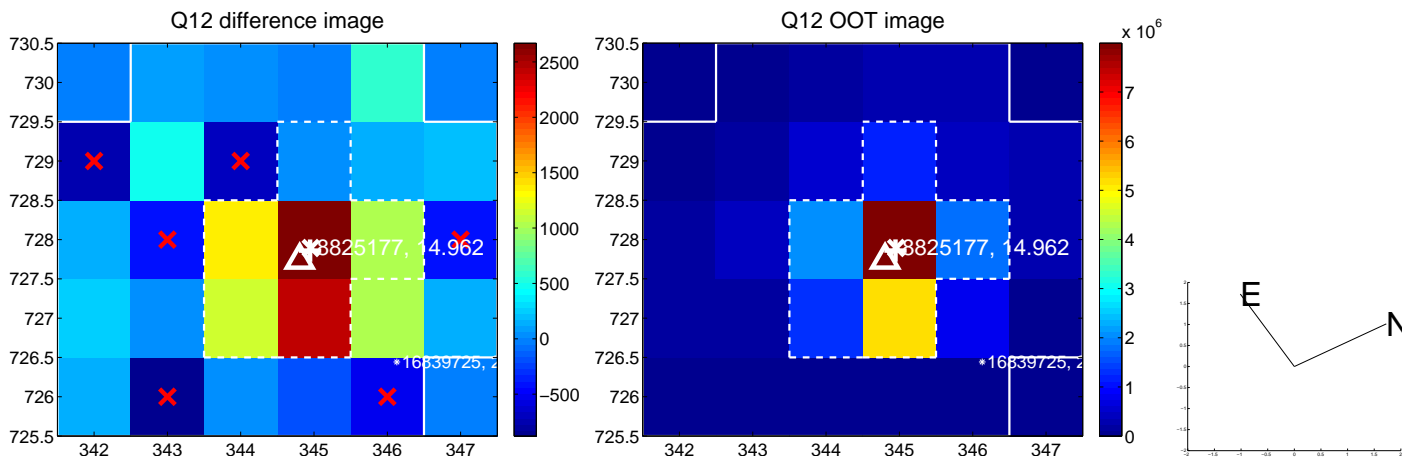
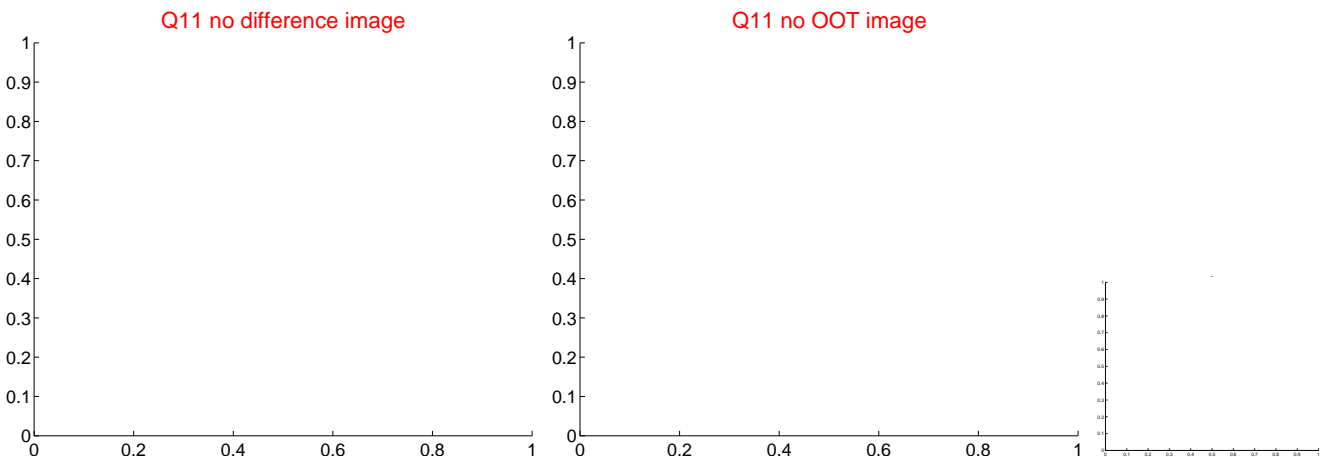
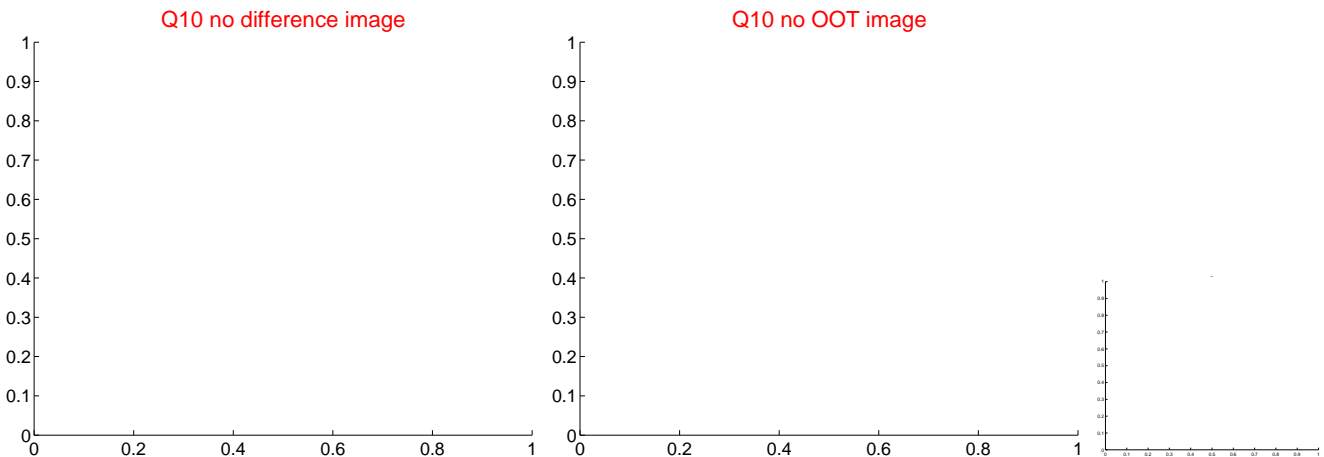
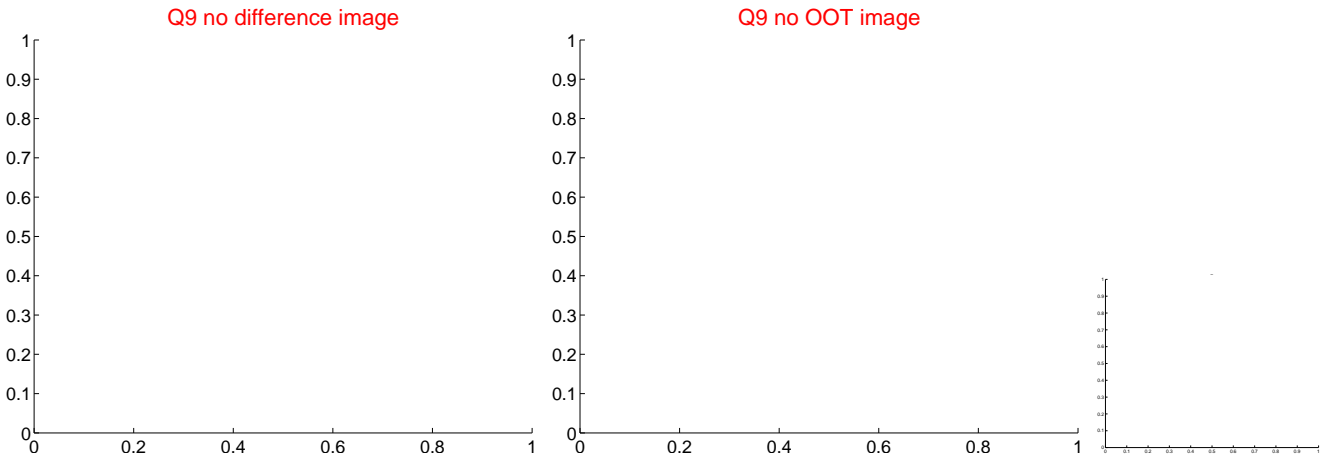
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



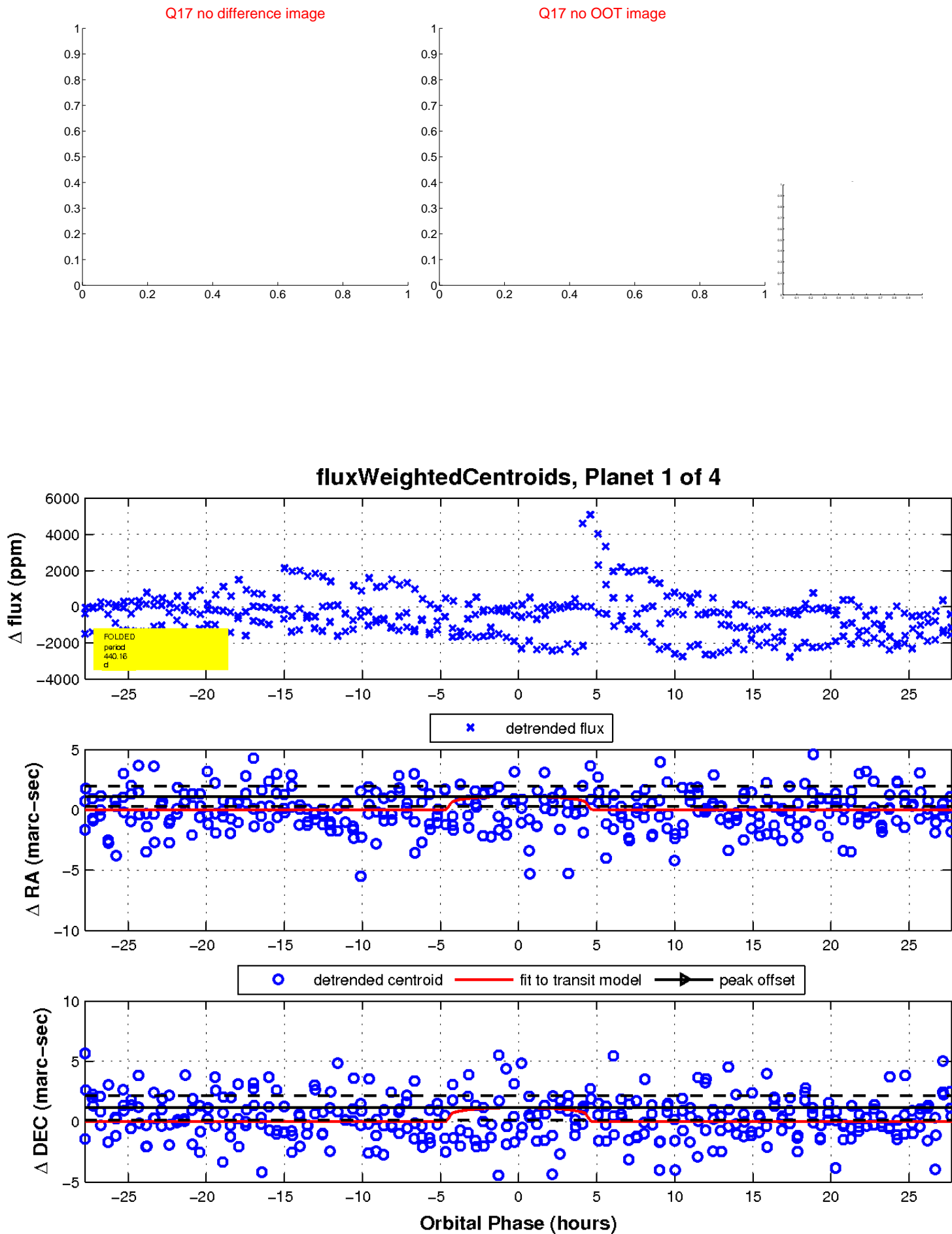
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

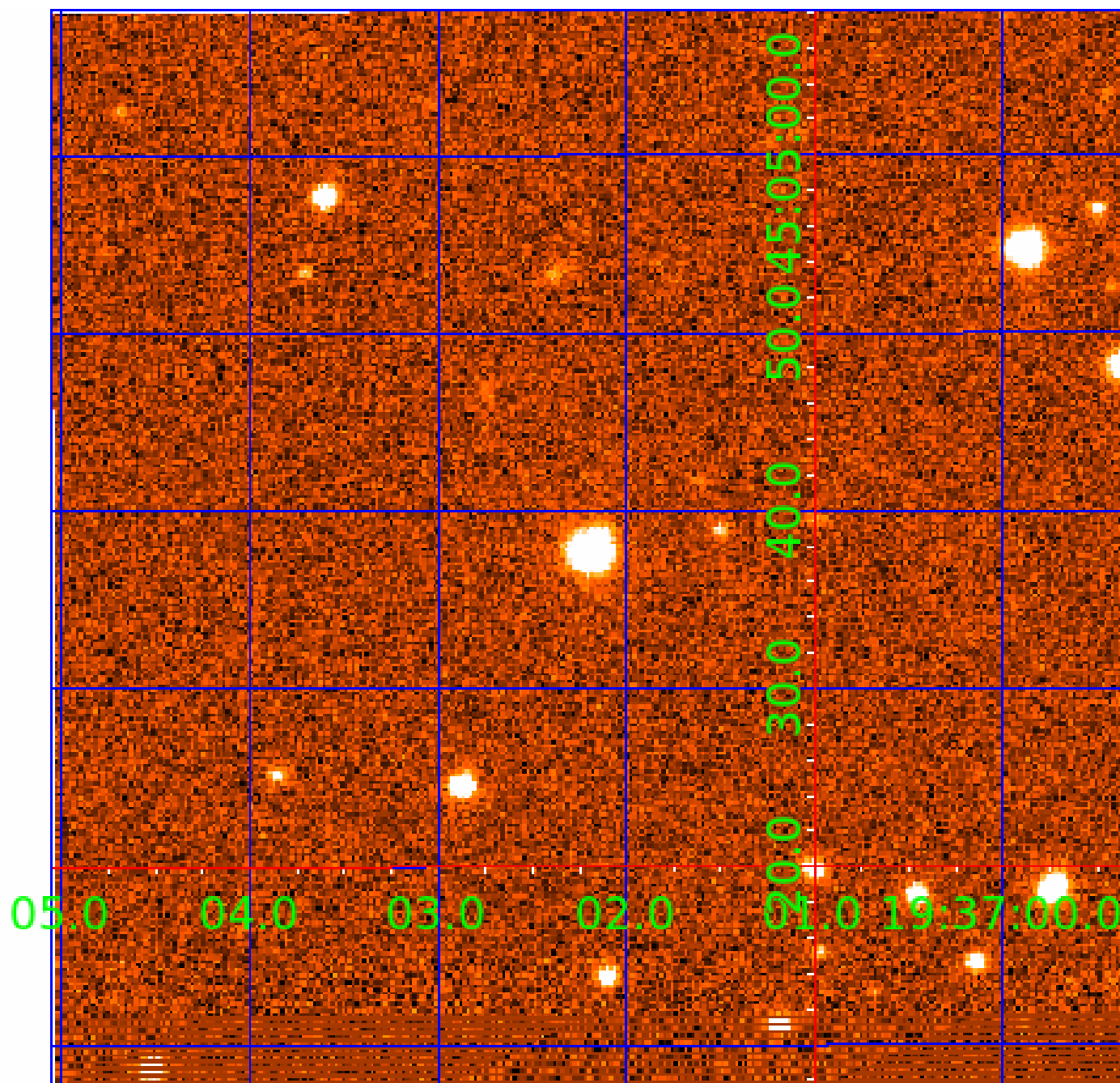


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008825177

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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008825177-04	OBS	No	433.084817	487.341824	943.8	6.607	11.3	5.5	0.68	5237	2.18	0.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008825177-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008825177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
008825177-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

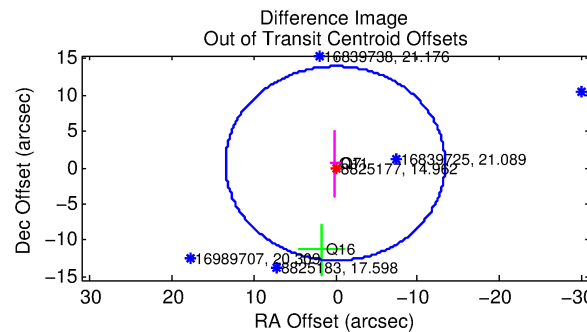
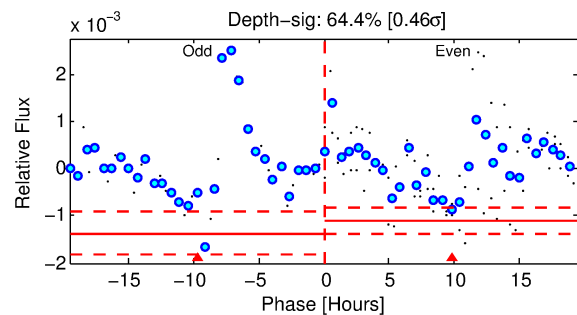
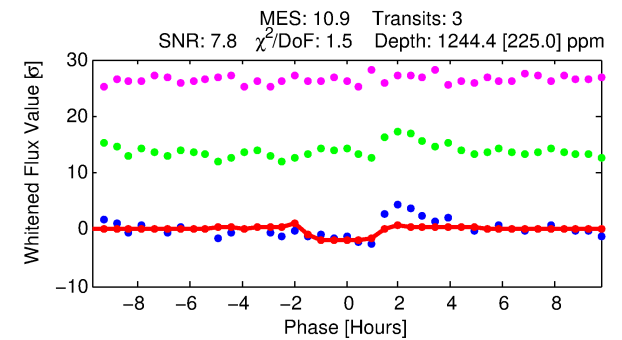
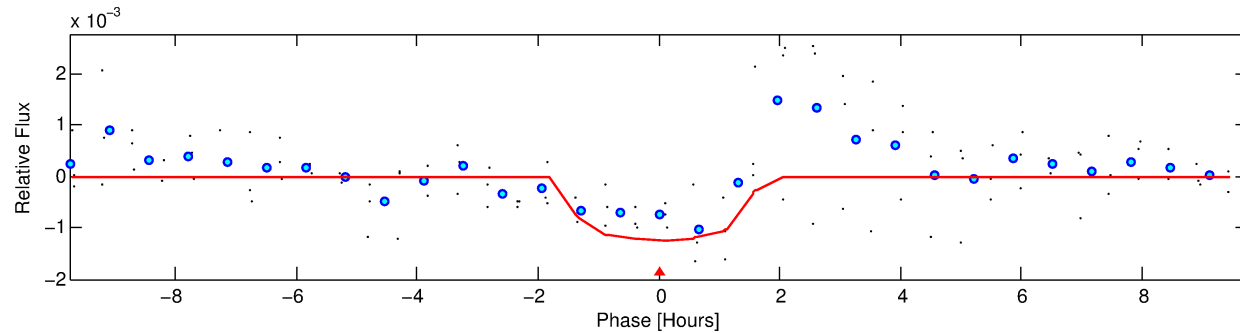
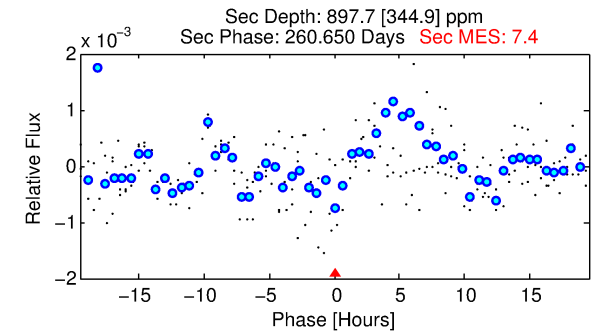
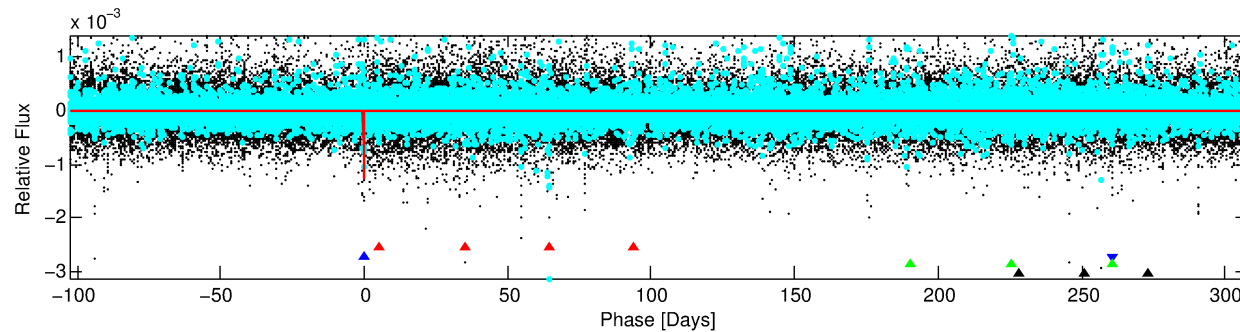
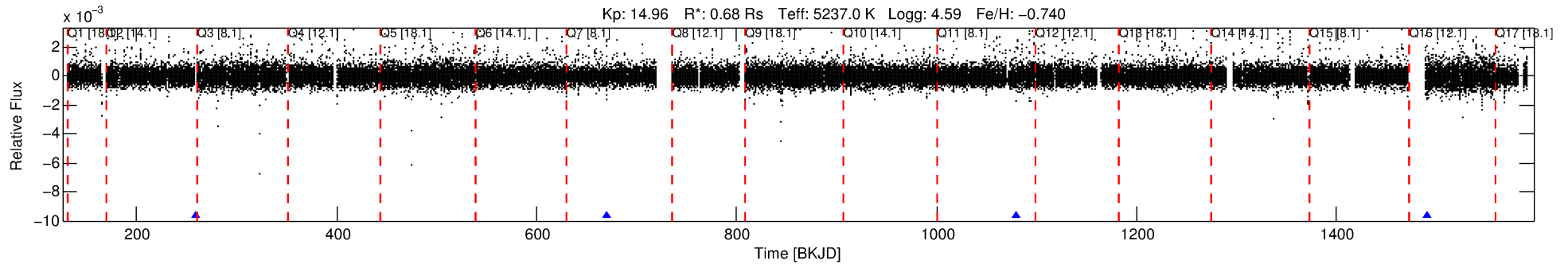
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008825177-02

No Significant Match Found

DV One-Page Summary

KIC: 8825177 Candidate: 2 of 4 Period: 410.612 d



DV Fit Results:

Period = 410.61242 [0.00507] d
Epoch = 259.0951 [0.0108] BKJD
Rp/R* = 0.0341 [0.0912]
a/R* = 768.86 [8528.16]
b = 0.66 [9.68]
Seff = 0.35 [0.06]
Teq = 196 [9] K
Rp = 2.52 [6.74] Re
a = 0.9384 [0.0857] AU
Ag = 68530.77 [367473.36] [0.19 σ]
Teffp = 4909 [6580] K [0.72 σ]

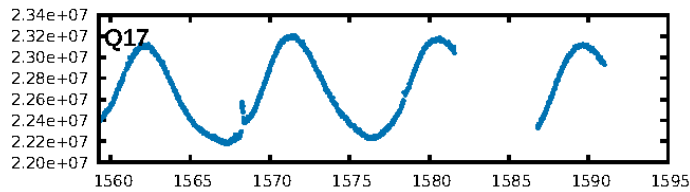
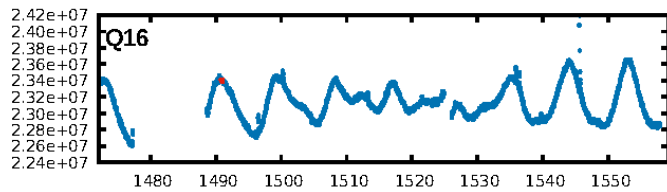
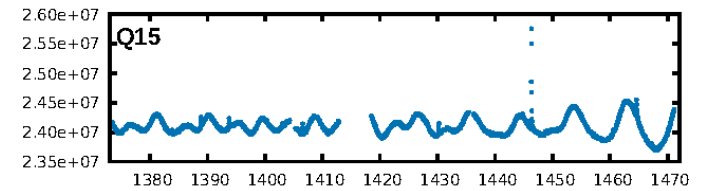
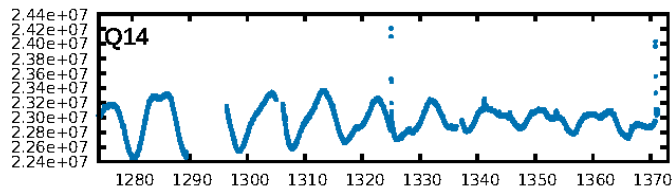
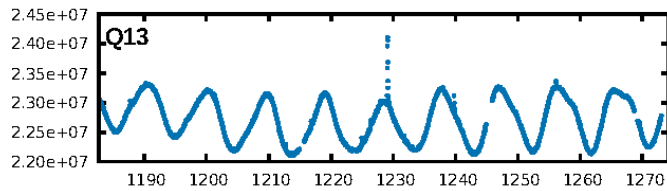
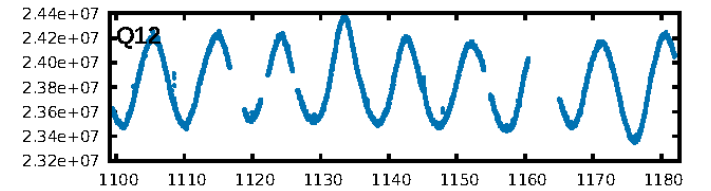
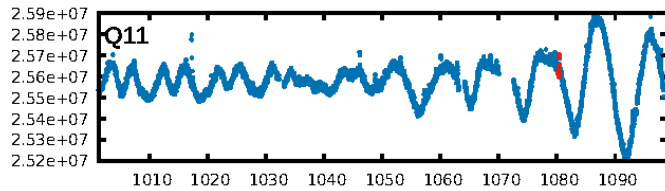
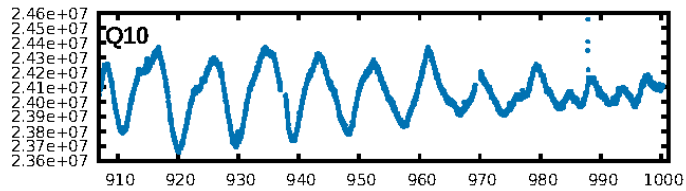
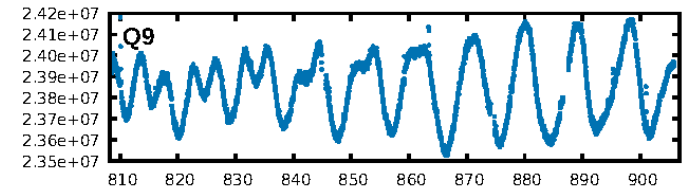
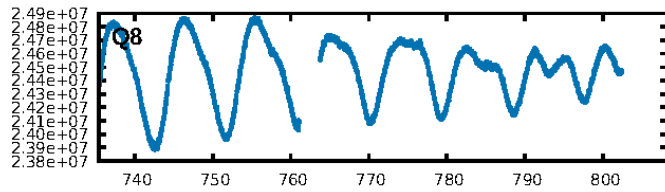
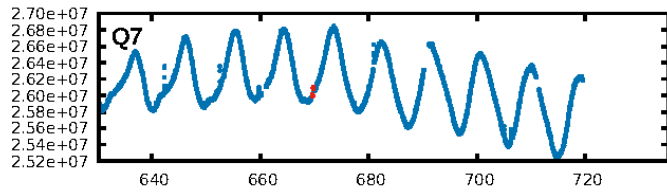
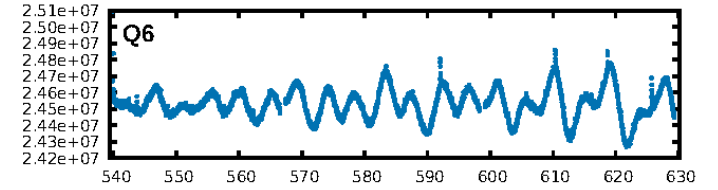
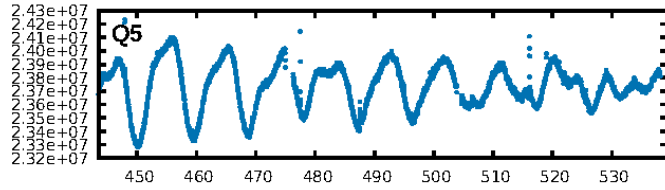
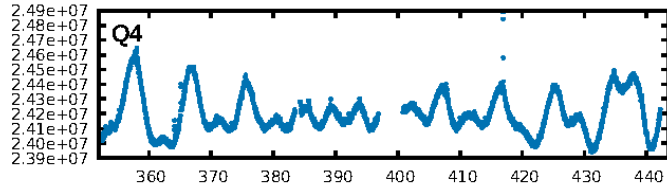
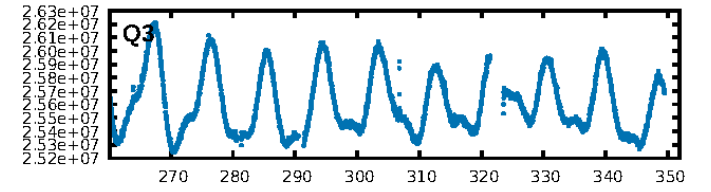
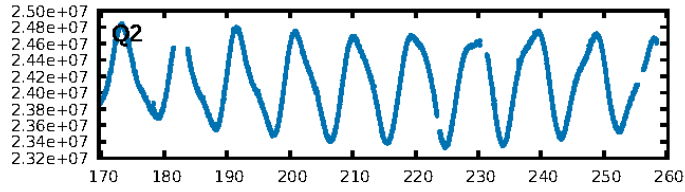
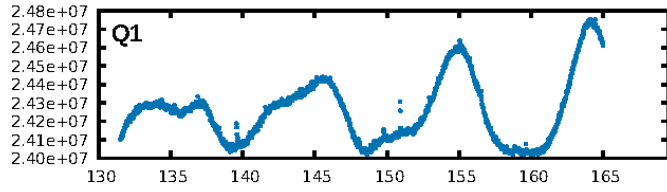
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [73.23 σ]
ModelChiSquare2-sig: 18.2%
ModelChiSquareGof-sig: 65.7%
Bootstrap-pfa: 1.82e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.6339
Centroid-sig: 4.4%
Centroid-so: 1.342 arcsec [1.36 σ]
OotOffset-rm: 0.586 arcsec [0.13 σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-rm: 0.500 arcsec [0.15 σ]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

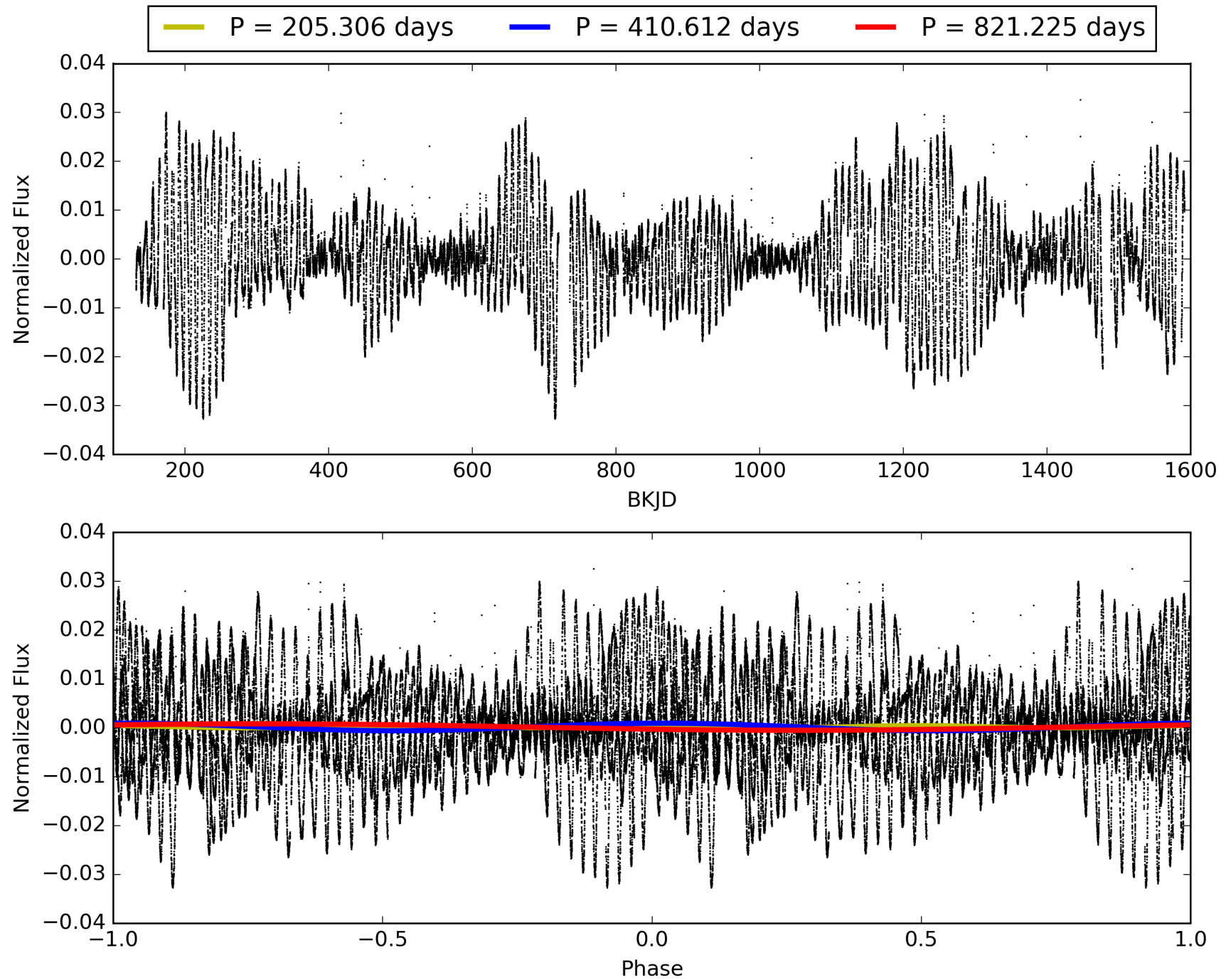
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:33:56 Z

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

TCE 008825177-02, PDC Light Curves

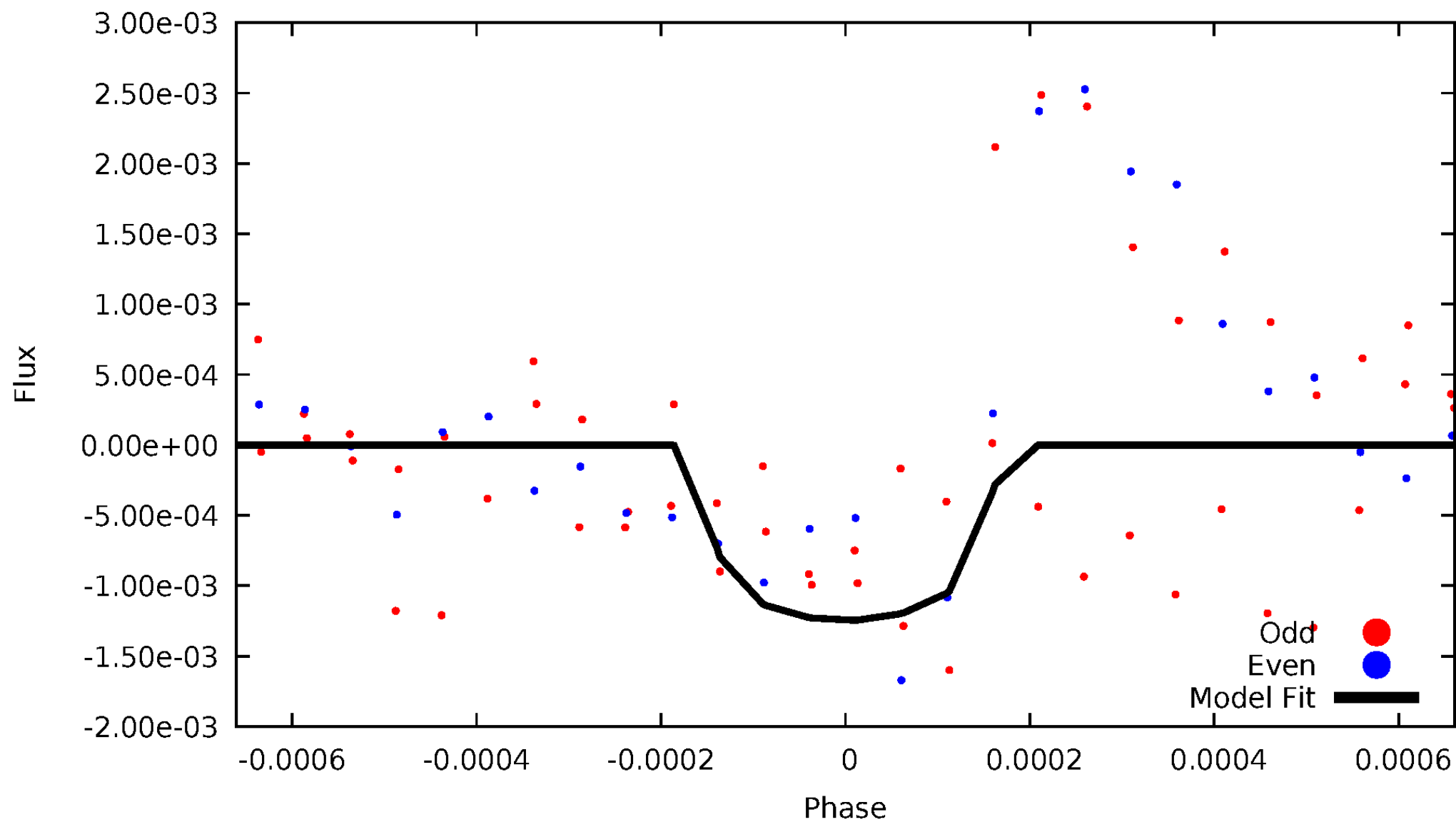


TCE 008825177-02



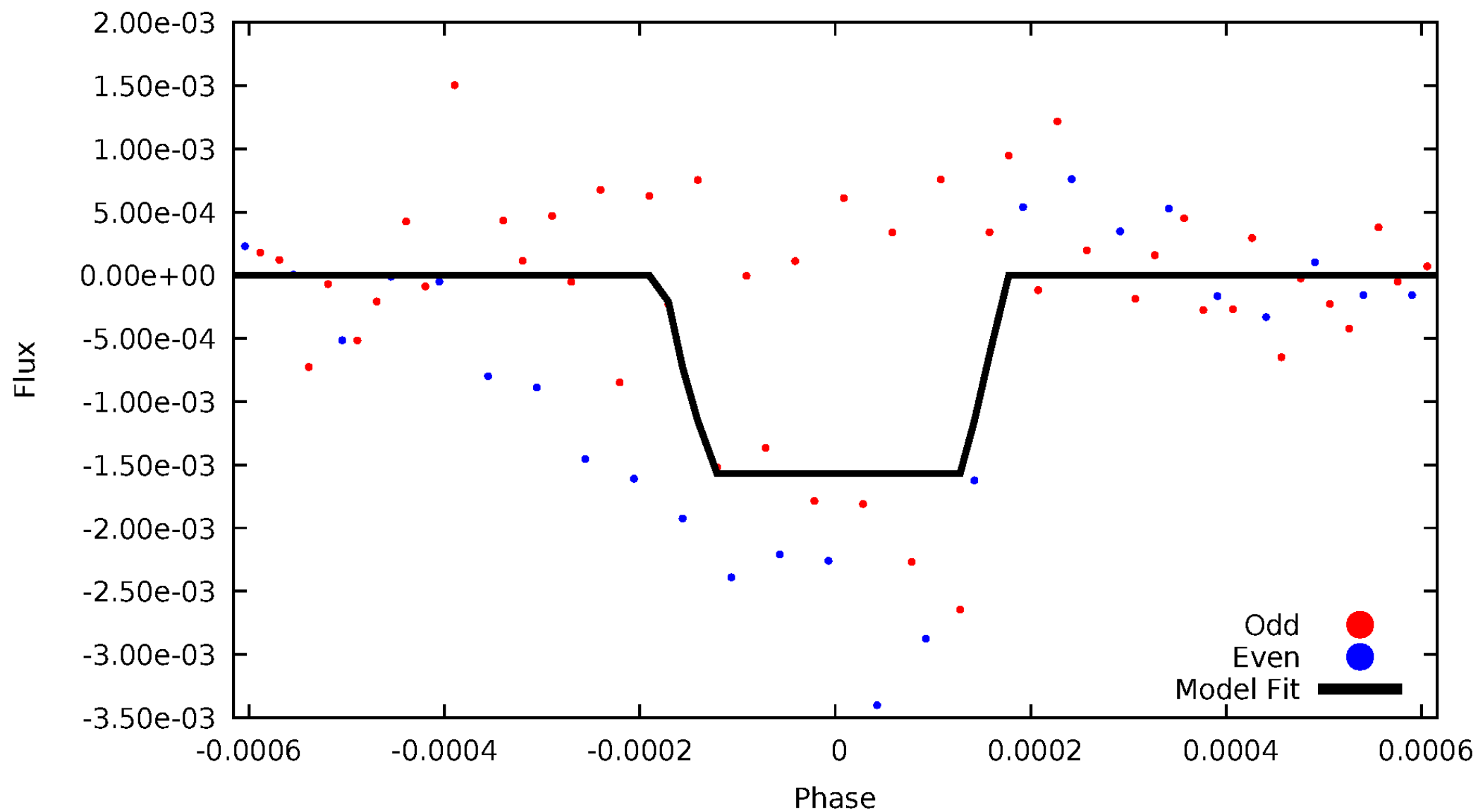
DV Odd/Even

TCE 008825177-02



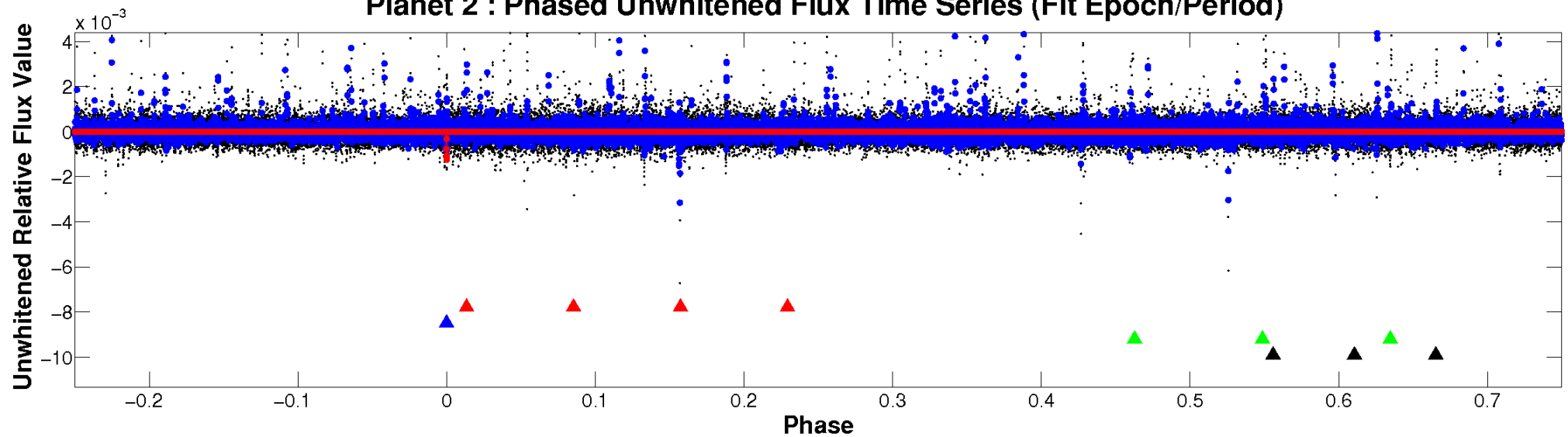
ALT Odd/Even

TCE 008825177-02

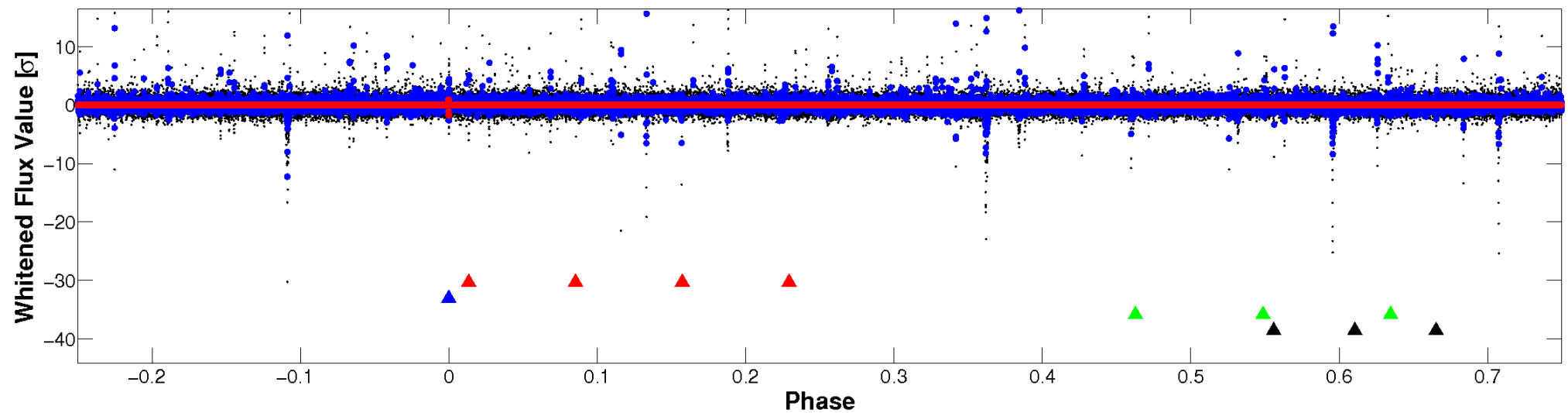


Non-Whitened Vs. Whitened Light Curve

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

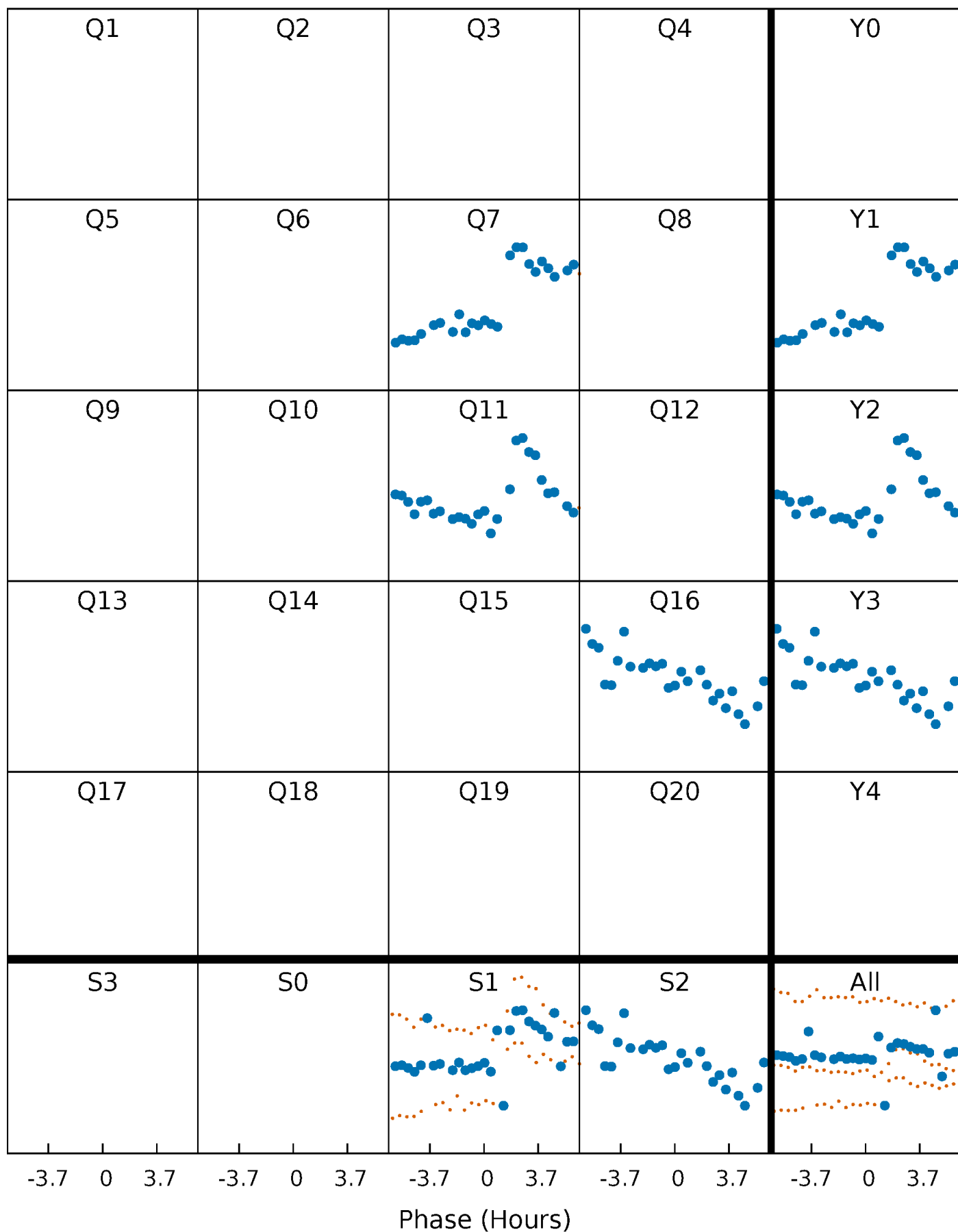


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



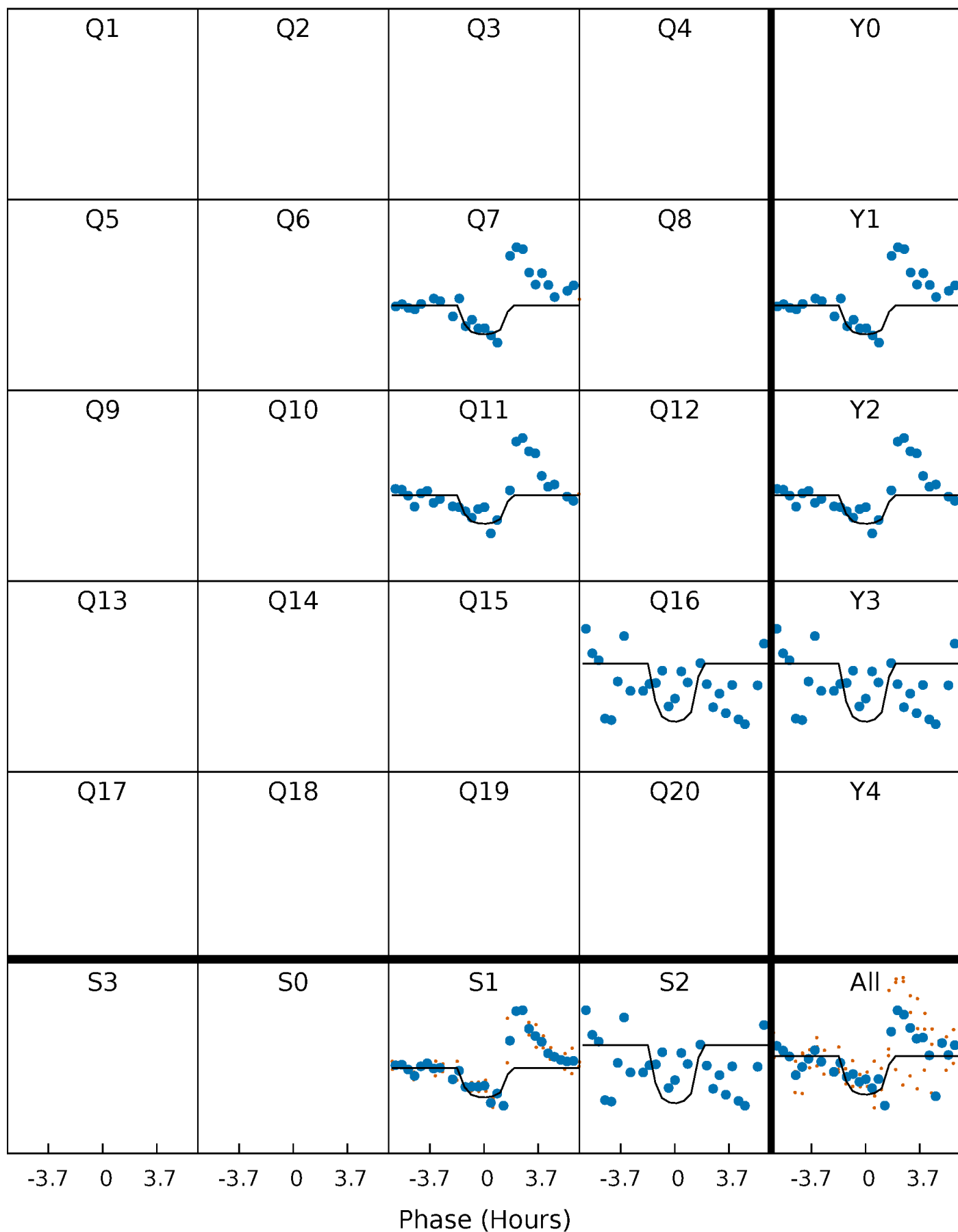
PDC Quarter-Phased Transit Curves

TCE 008825177-02 $P=410.612423$ Days $T_0=259.095078$ (BKJD)



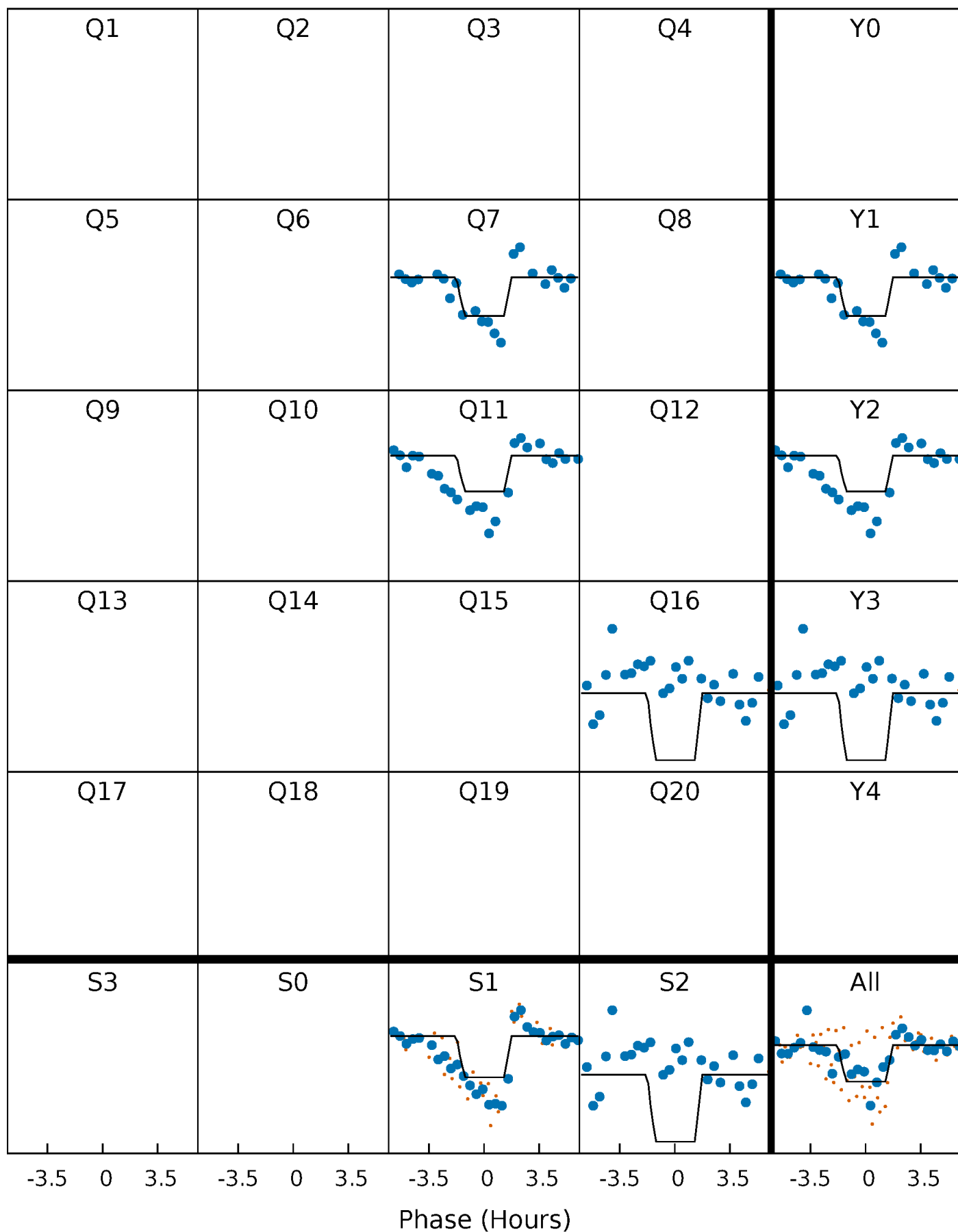
DV Quarter-Phased Transit Curves

TCE 008825177-02 $P=410.612423$ Days $T_0=259.095078$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

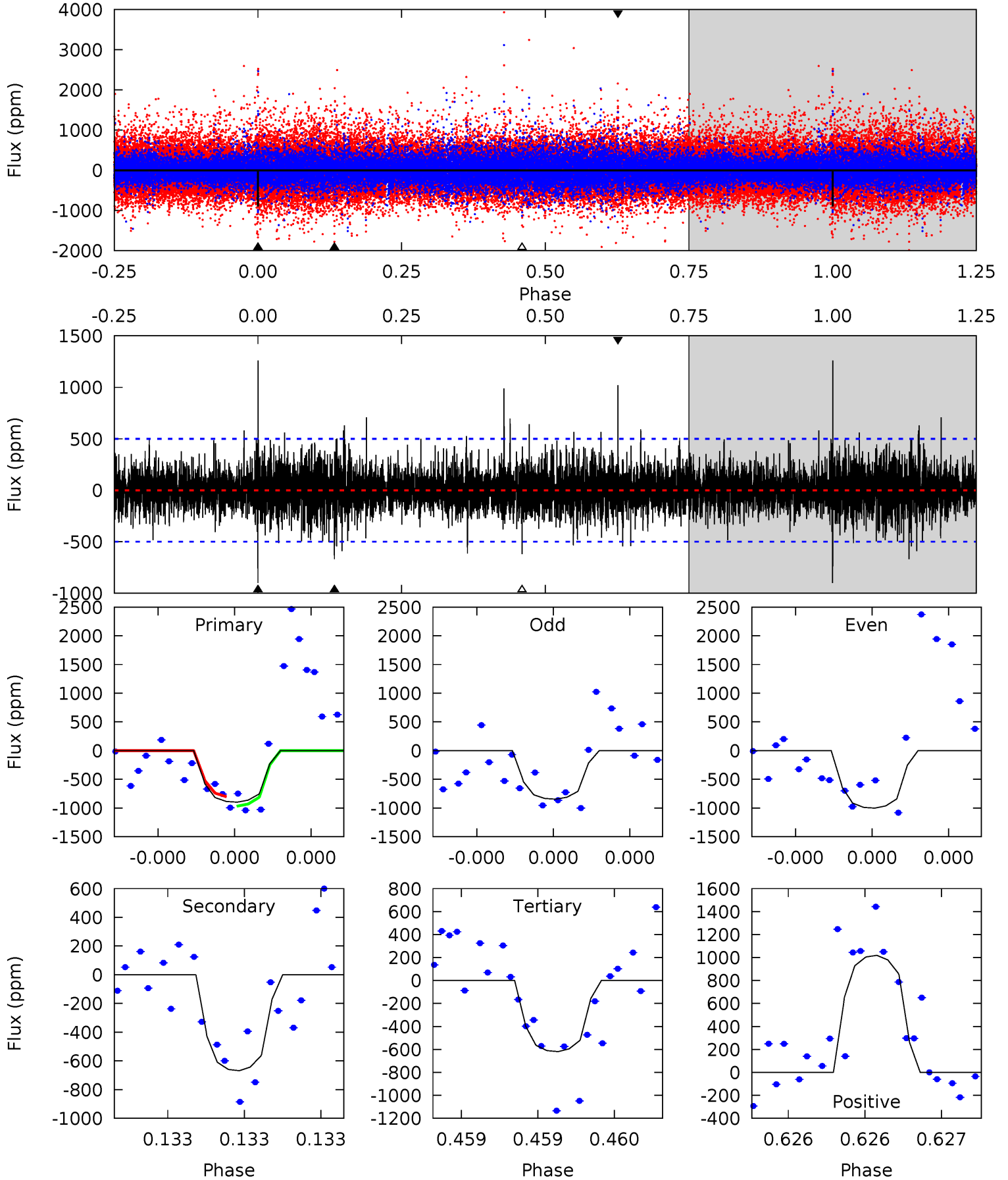
TCE 008825177-02 P=410.626011 Days $T_0=259.075270$ (BKJD)



DV Model-Shift Uniqueness Test

008825177-02, P = 410.612423 Days, E = 259.095078 Days

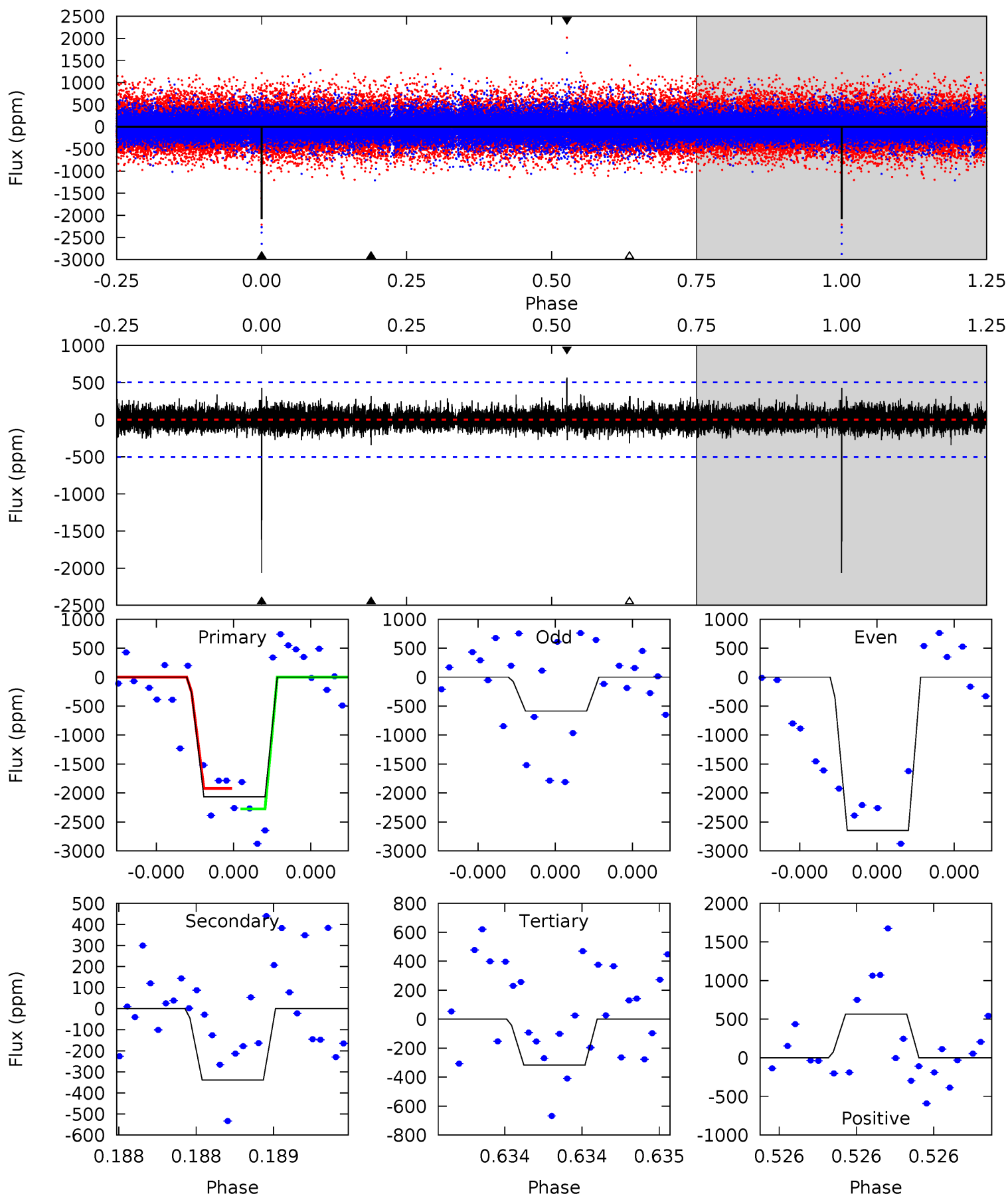
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	7.55	7.00	11.5	5.64	3.58	1.60	3.15	-1.36	0.56	-3.95	0.71	0.86	0.58	0.94



Alt Model-Shift Uniqueness Test

008825177-02, P = 410.626011 Days, E = 259.075270 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	3.81	3.55	6.36	5.65	3.60	0.81	19.6	16.8	0.26	-2.55	14.5	0.72	0.22	1.96



Stellar Parameters For KIC 008825177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5237^{+156}_{-156}	$4.592^{+0.078}_{-0.052}$	$-0.740^{+0.350}_{-0.300}$	$0.677^{+0.070}_{-0.063}$	$0.653^{+0.075}_{-0.032}$	$2.969^{+0.904}_{-0.580}$
	+3%/-3%	+2%/-1%	+47%/-41%	+10%/-9%	+11%/-5%	+30%/-20%
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 008825177-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-668 ± 88	$5.63^{+5.53}_{-3.81}$	273^{+11}_{-10}	3525^{+1895}_{-675}	10550^{+89978}_{-8010}
Alt.	-339 ± 89	$5.75^{+5.42}_{-3.53}$	273^{+11}_{-11}	3129^{+1143}_{-549}	4888^{+27832}_{-3667}

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 $A_{obs} \gg 1.0$

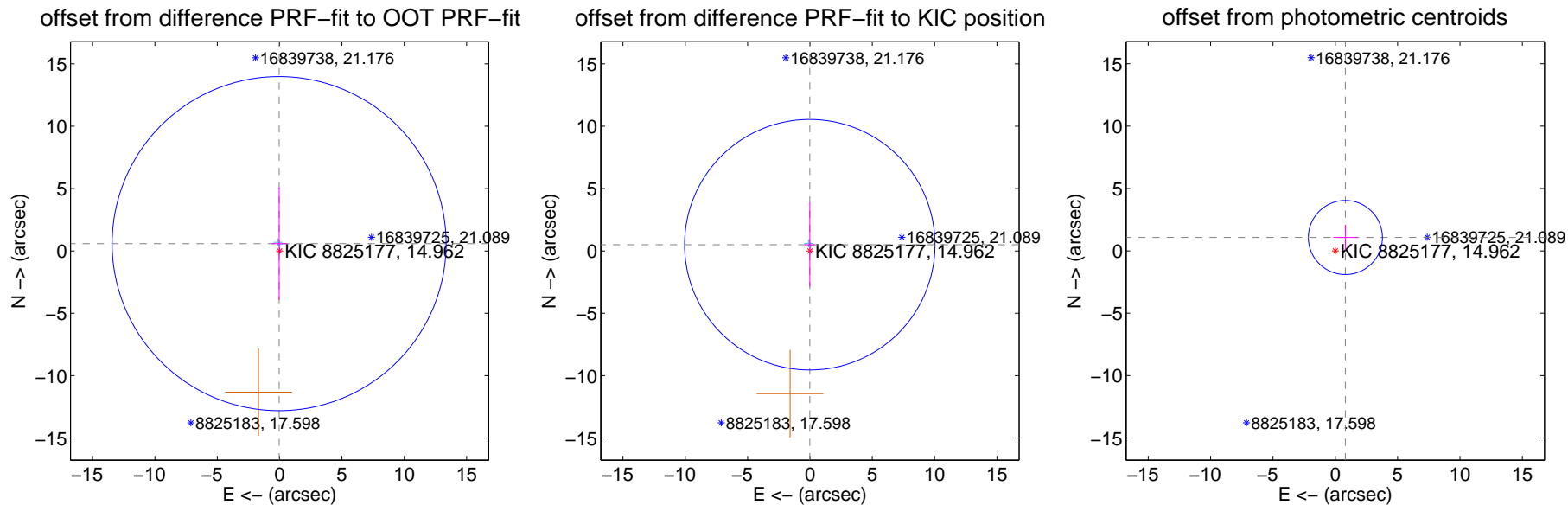
DV Centroid Data

Supplemental centroid analysis for 008825177-02. Kepler magnitude: 14.96. Transit SNR 7.81

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.586 ± 4.464	0.13	0.039 ± 0.606	0.584 ± 4.514
PRF-fit source offset from KIC position	0.500 ± 3.348	0.15	0.013 ± 0.408	0.499 ± 3.359
photometric centroid source offset	1.34 ± 0.99	1.36	-0.81 ± 0.95	1.07 ± 1.01

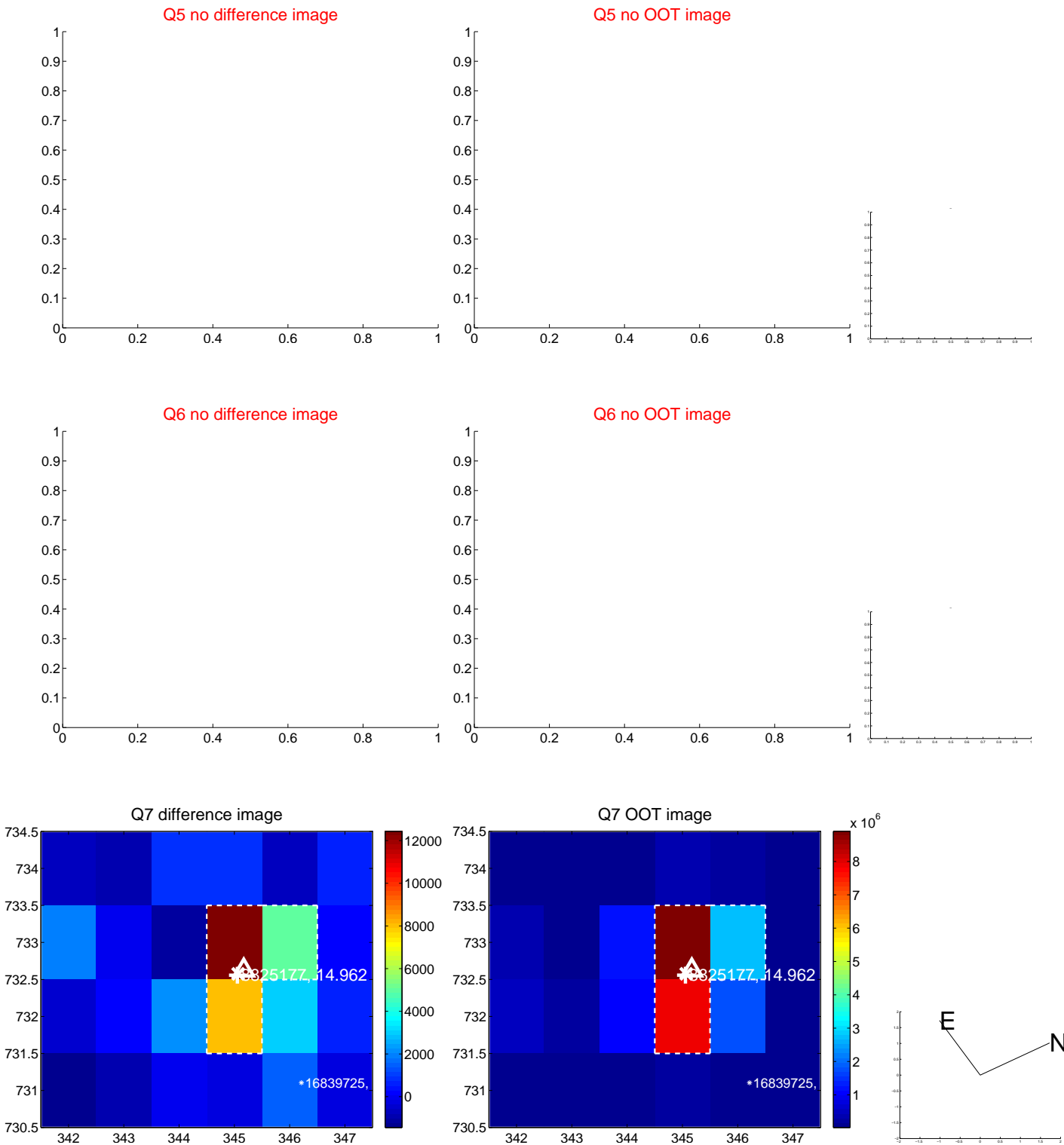


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

Q9 no difference image



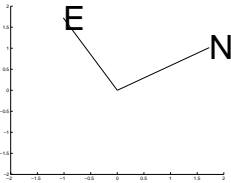
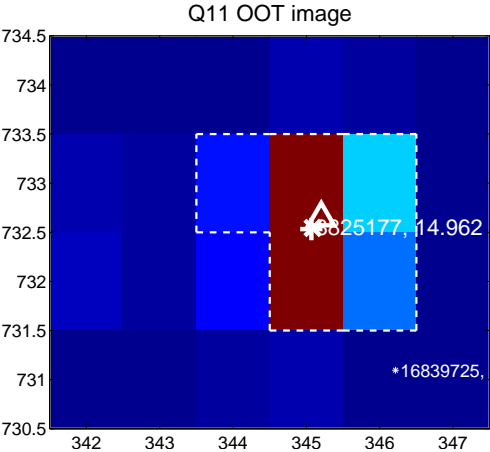
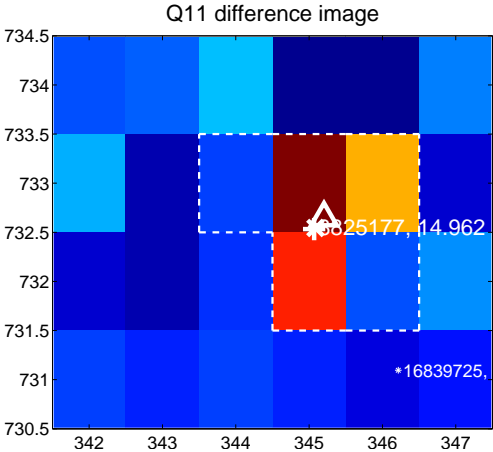
Q9 no OOT image



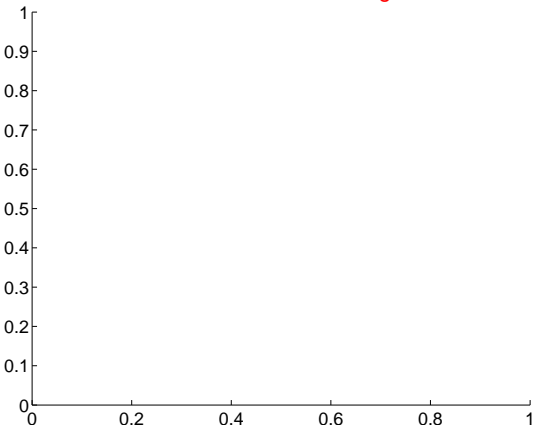
Q10 no difference image



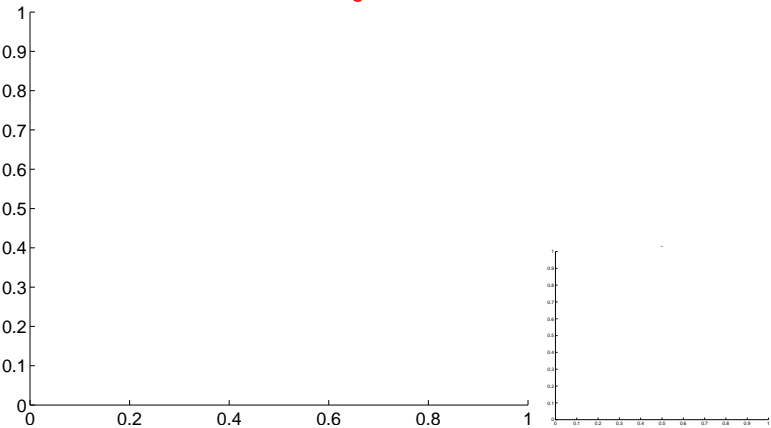
Q10 no OOT image



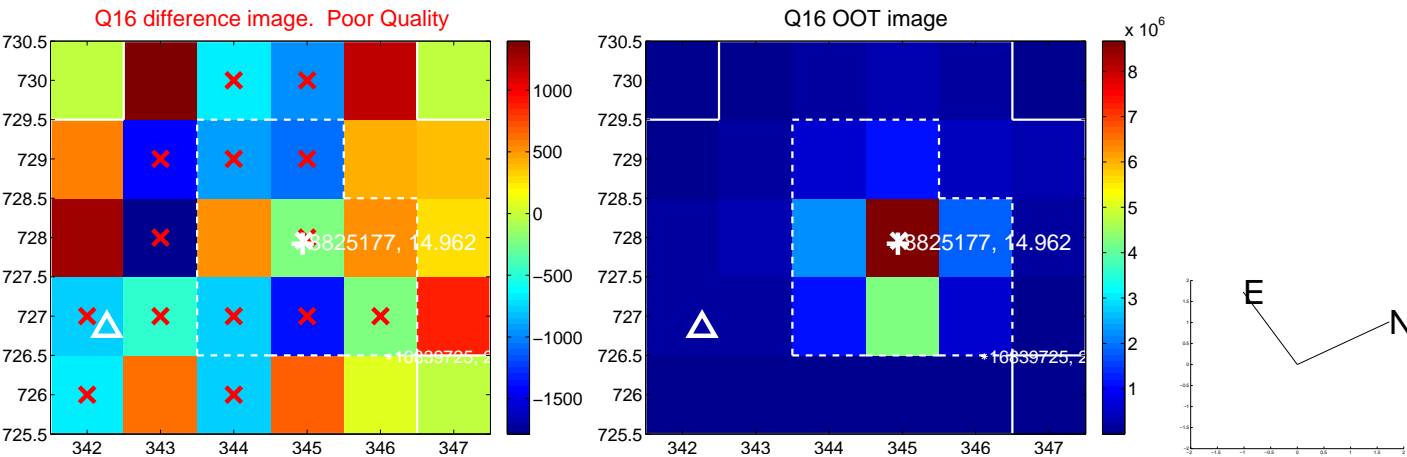
Q12 no difference image



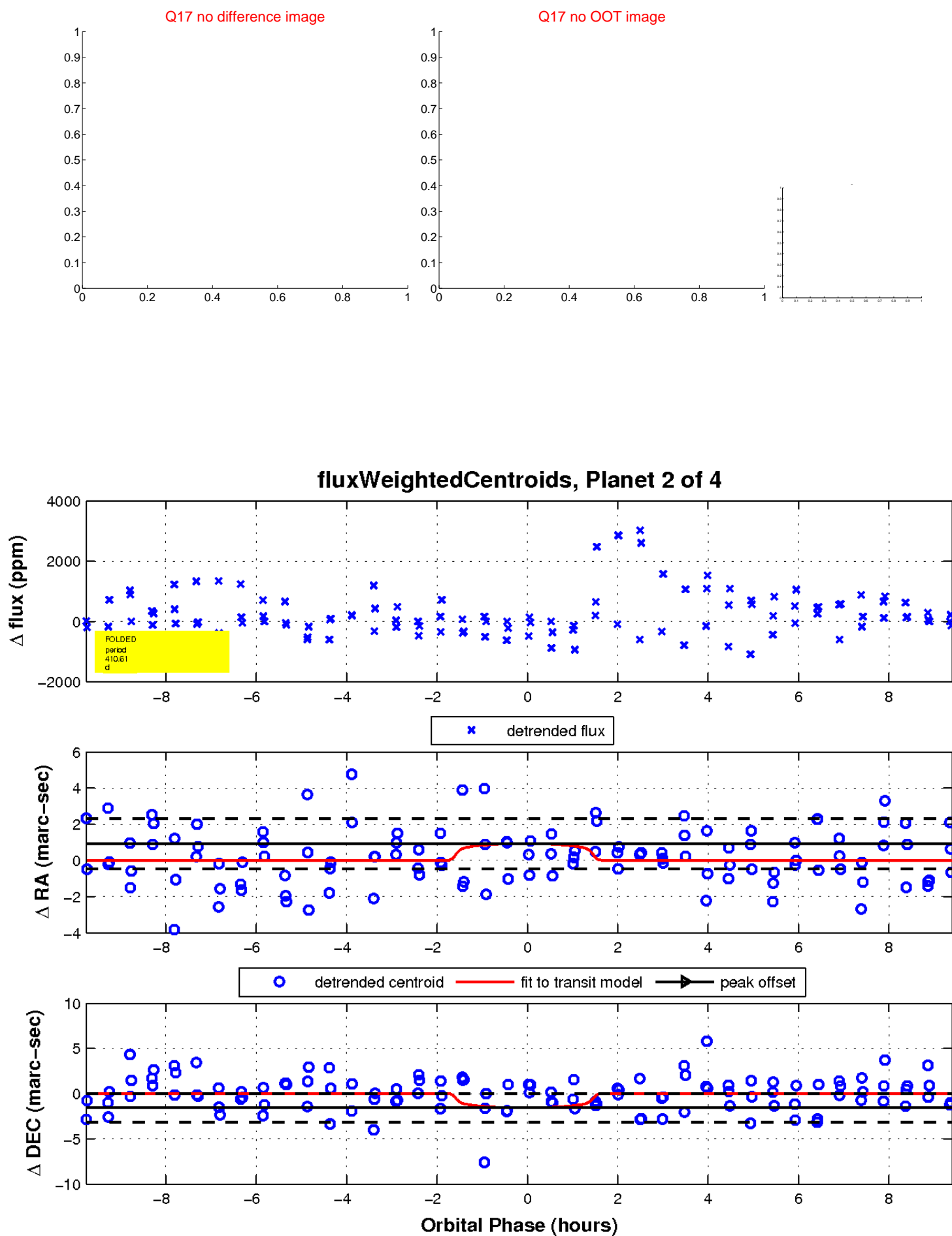
Q12 no OOT image



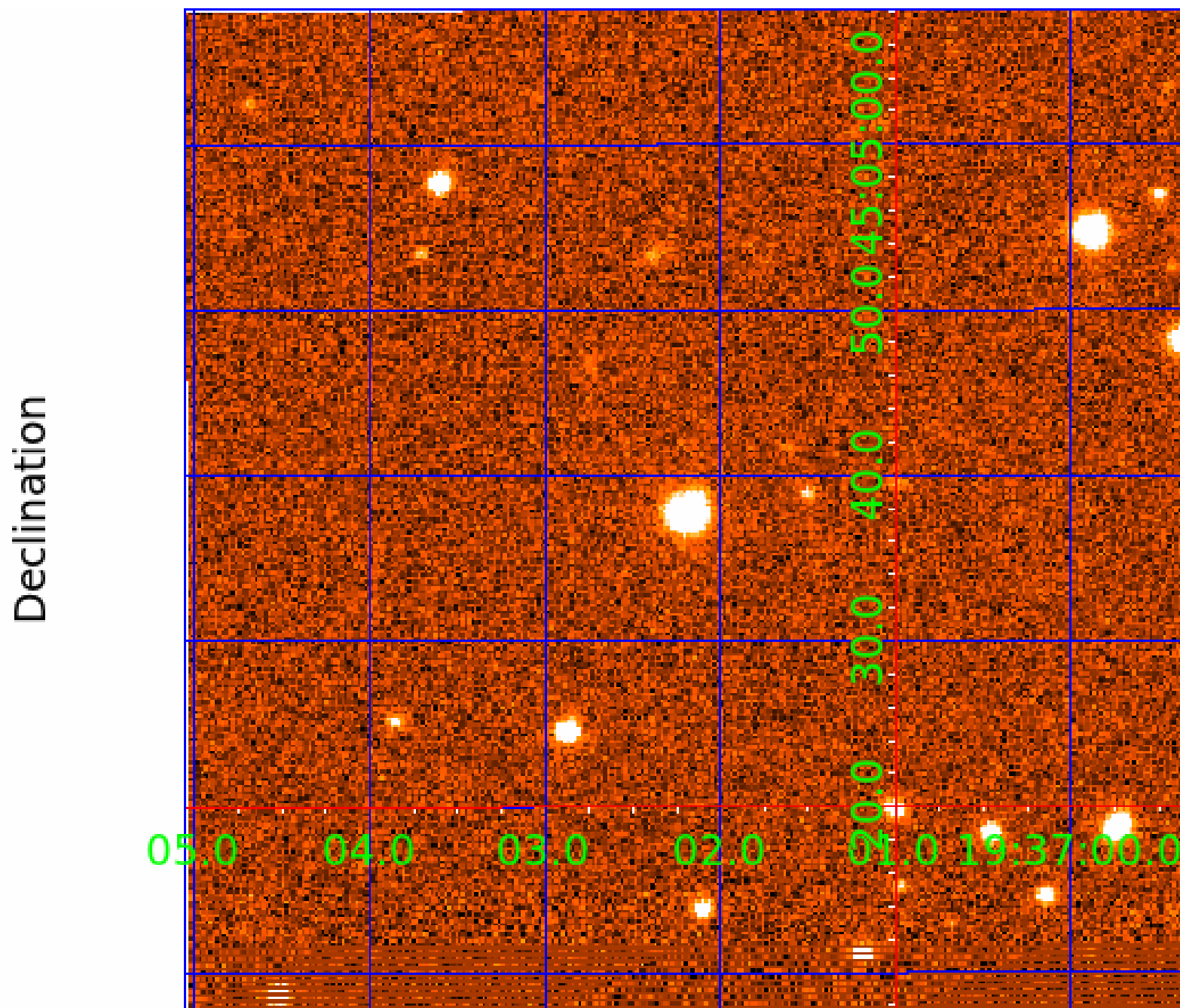
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image



KIC 008825177

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})
008825177-01	OBS	No	440.158941	264.608507	996.3	9.366	14.4	7.4	0.68	5237	2.23	0.32
008825177-02	OBS	No	410.612423	259.095077	1244.4	3.254	10.9	7.8	0.68	5237	2.52	0.35
008825177-03	OBS	No	445.920626	449.097162	1194.8	8.368	10.6	7.3	0.68	5237	2.51	0.31
008825177-04	OBS	No	433.084817	487.341824	943.8	6.607	11.3	5.5	0.68	5237	2.18	0.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008825177-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
008825177-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008825177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
008825177-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

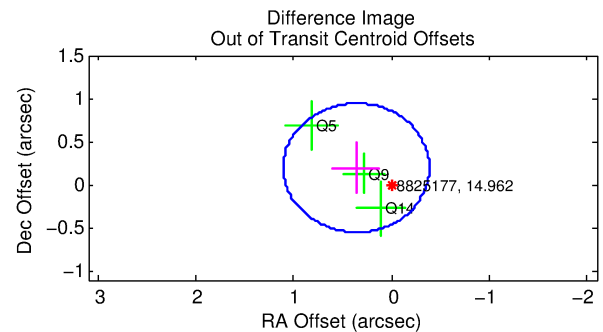
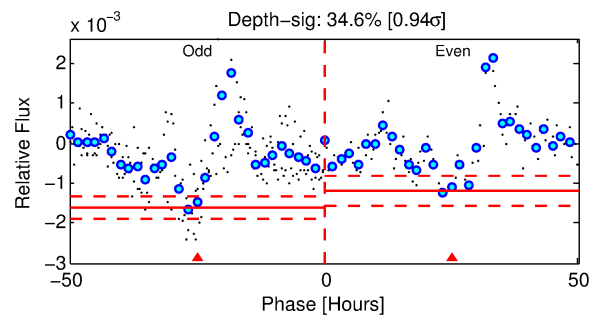
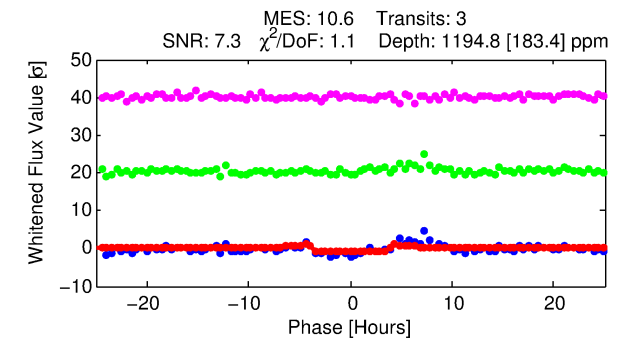
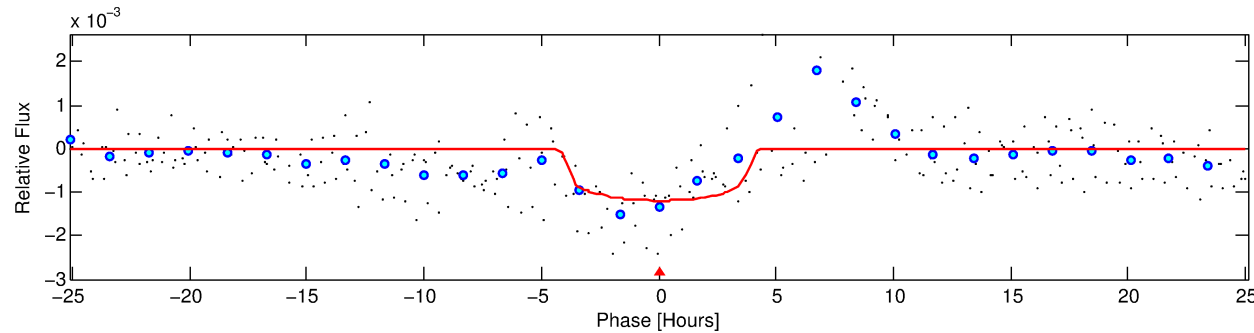
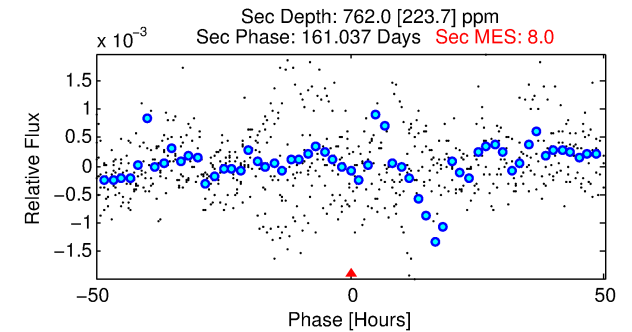
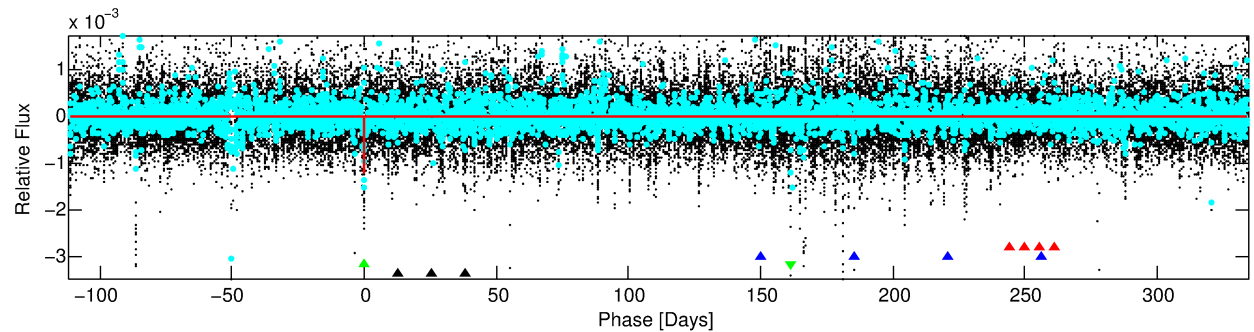
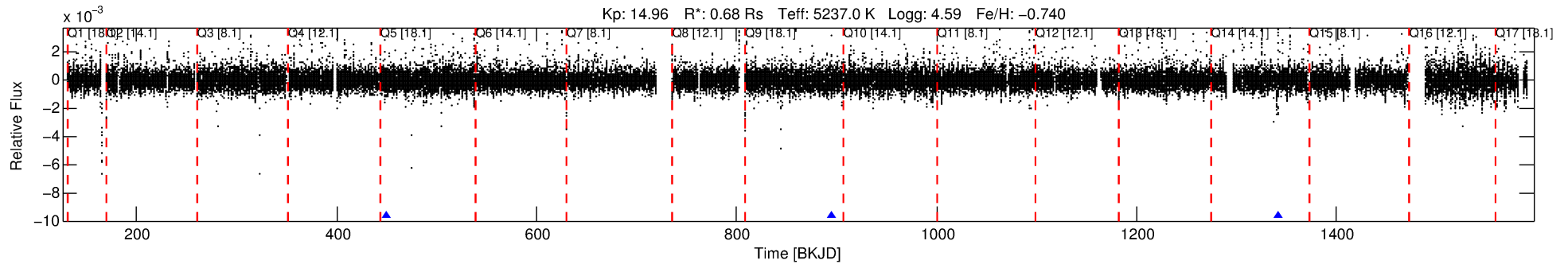
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008825177-03

No Significant Match Found

DV One-Page Summary

KIC: 8825177 Candidate: 3 of 4 Period: 445.921 d



DV Fit Results:

Period = 445.92063 [0.00692] d
Epoch = 449.0972 [0.0110] BKJD
Rp/R* = 0.0340 [0.0101]
a/R* = 302.73 [346.01]
b = 0.72 [0.78]
Seff = 0.31 [0.06]
Teq = 191 [9] K
Rp = 2.51 [0.79] Re
a = 0.9914 [0.0905] AU
Ag = 65320.09 [44360.30] [1.47 σ]
Teffp = 4719 [797] K [5.68 σ]

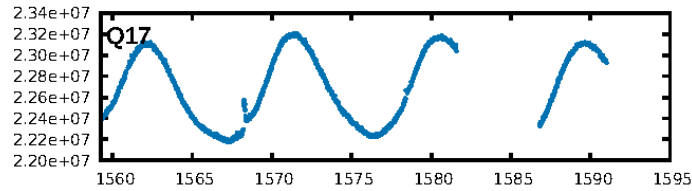
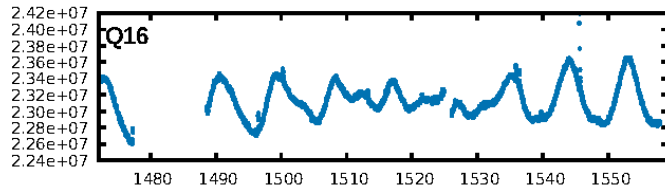
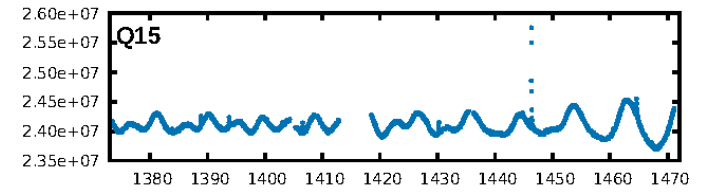
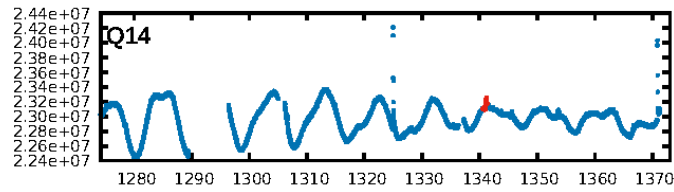
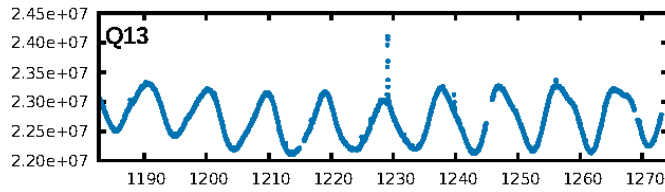
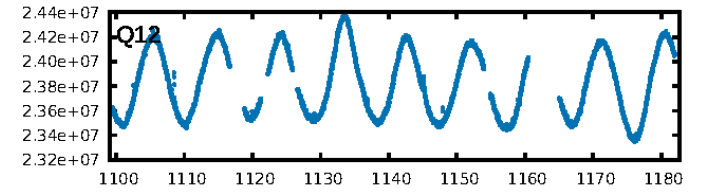
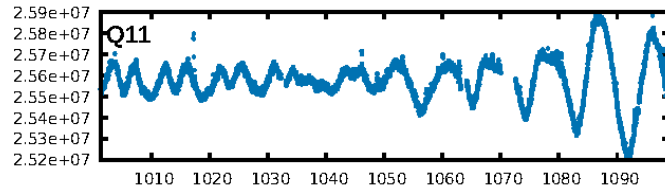
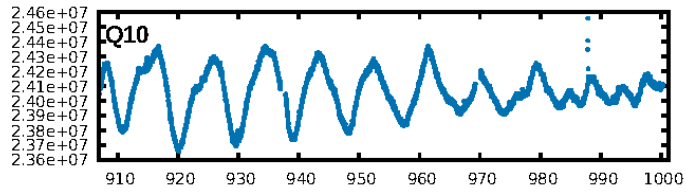
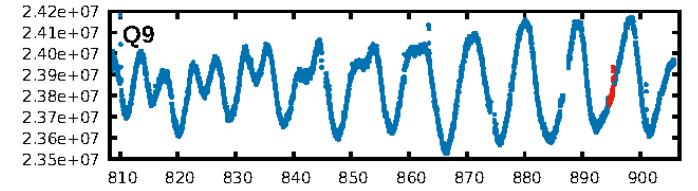
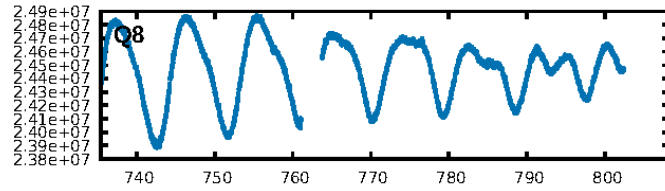
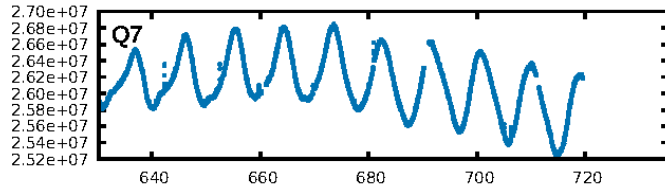
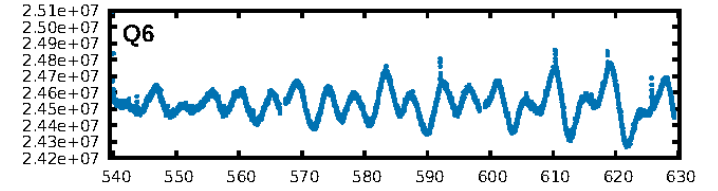
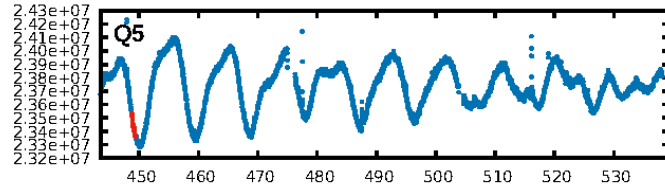
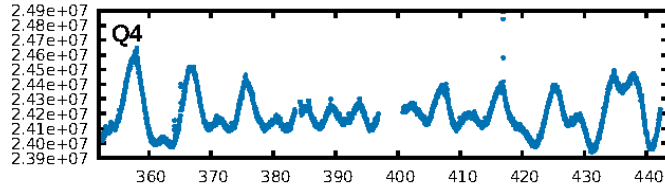
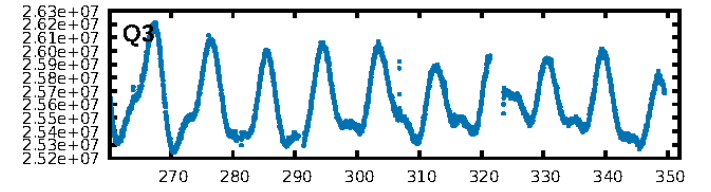
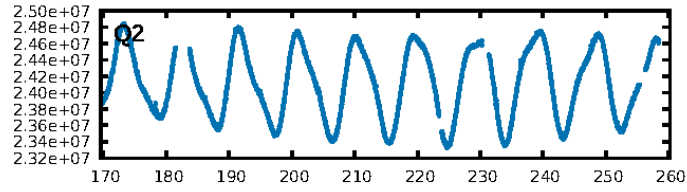
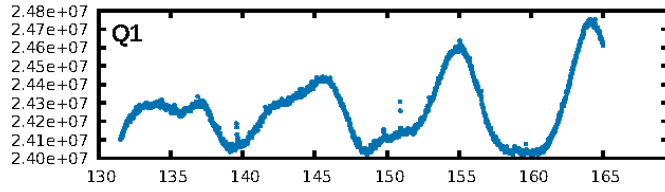
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.01 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 90.6%
Bootstrap-pfa: 6.88e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.328
Centroid-sig: 53.8%
Centroid-so: 0.203 arcsec [0.33 σ]
OotOffset-rm: 0.411 arcsec [1.65 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 0.334 arcsec [1.19 σ]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

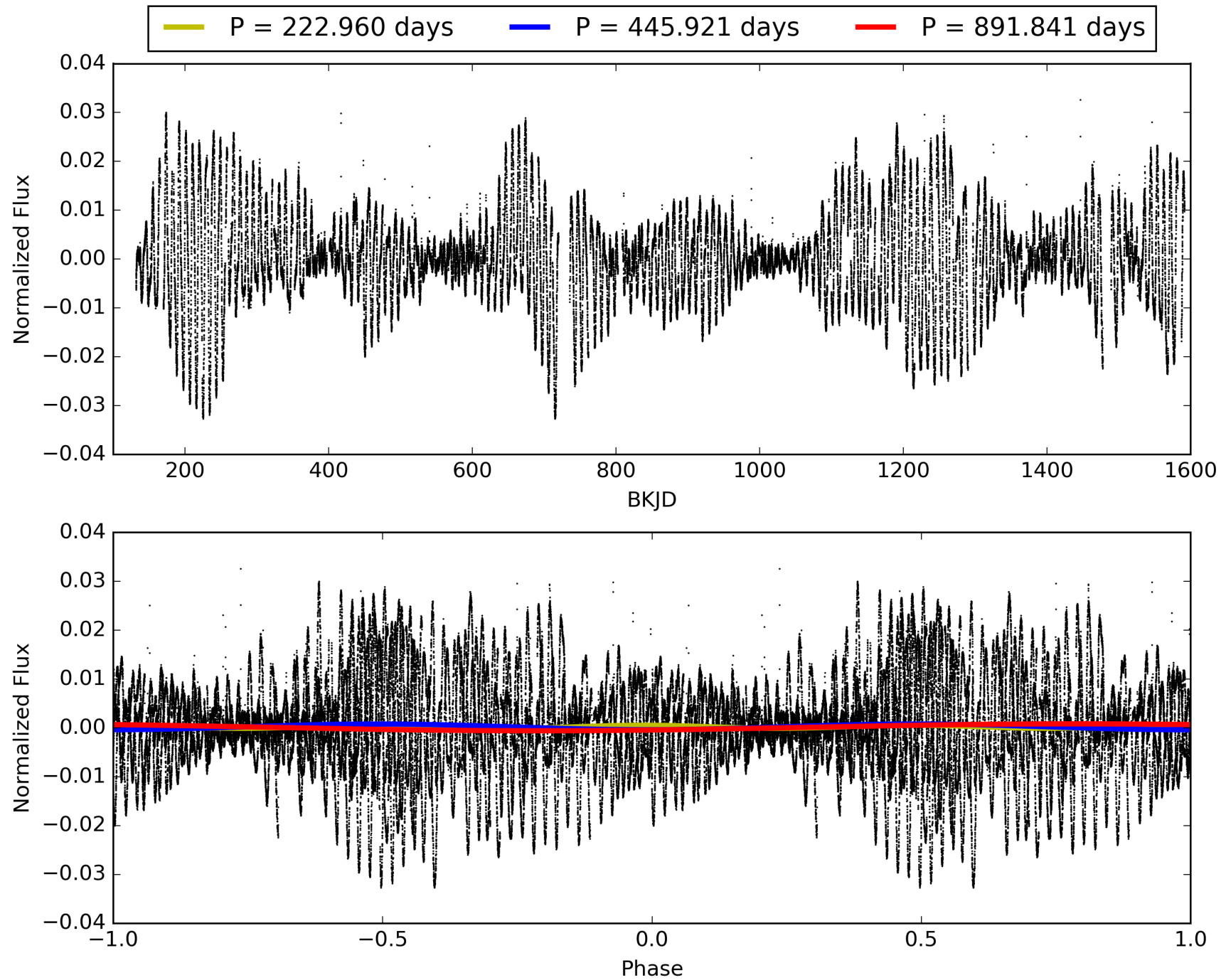
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:34:07 Z

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

TCE 008825177-03, PDC Light Curves

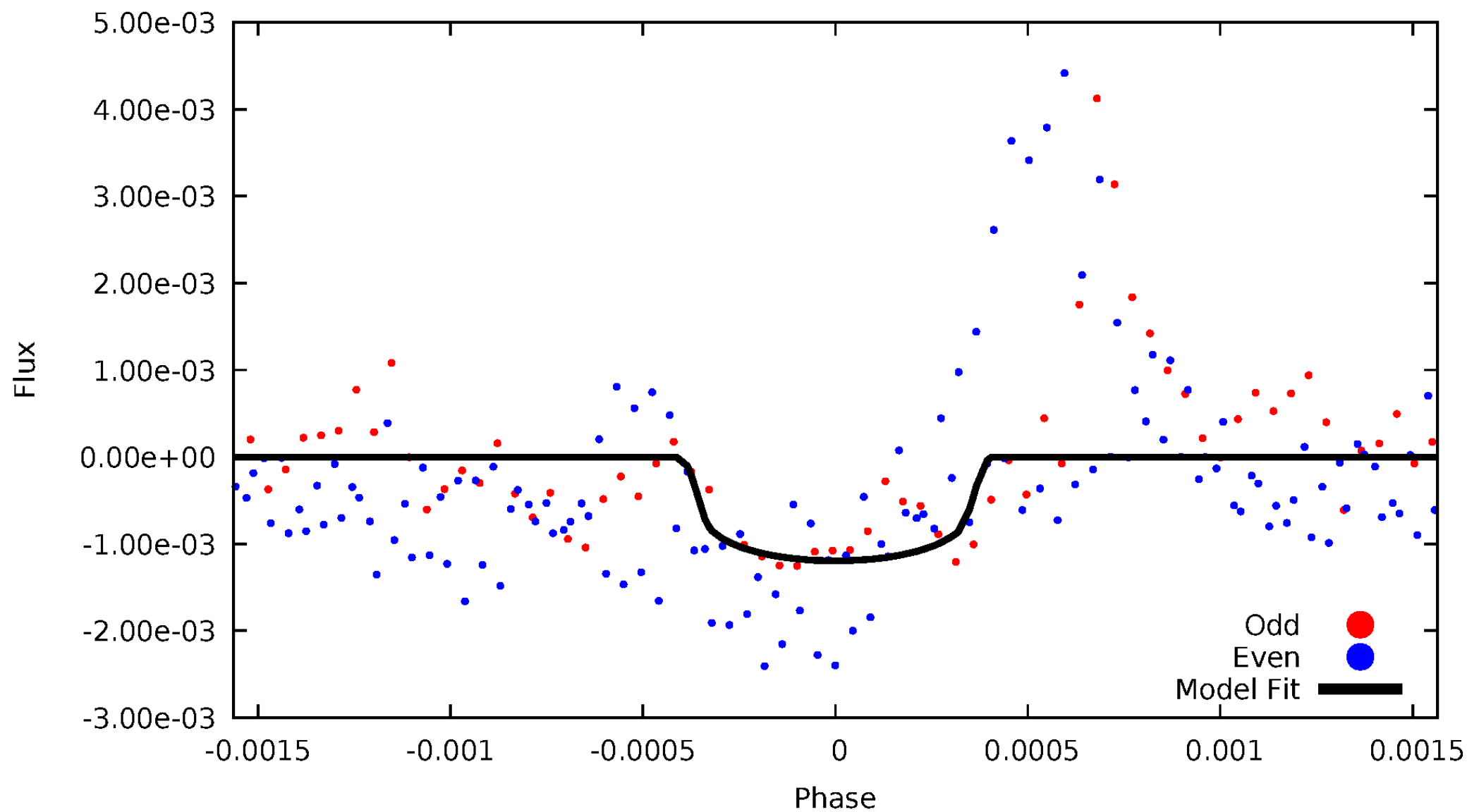


TCE 008825177-03



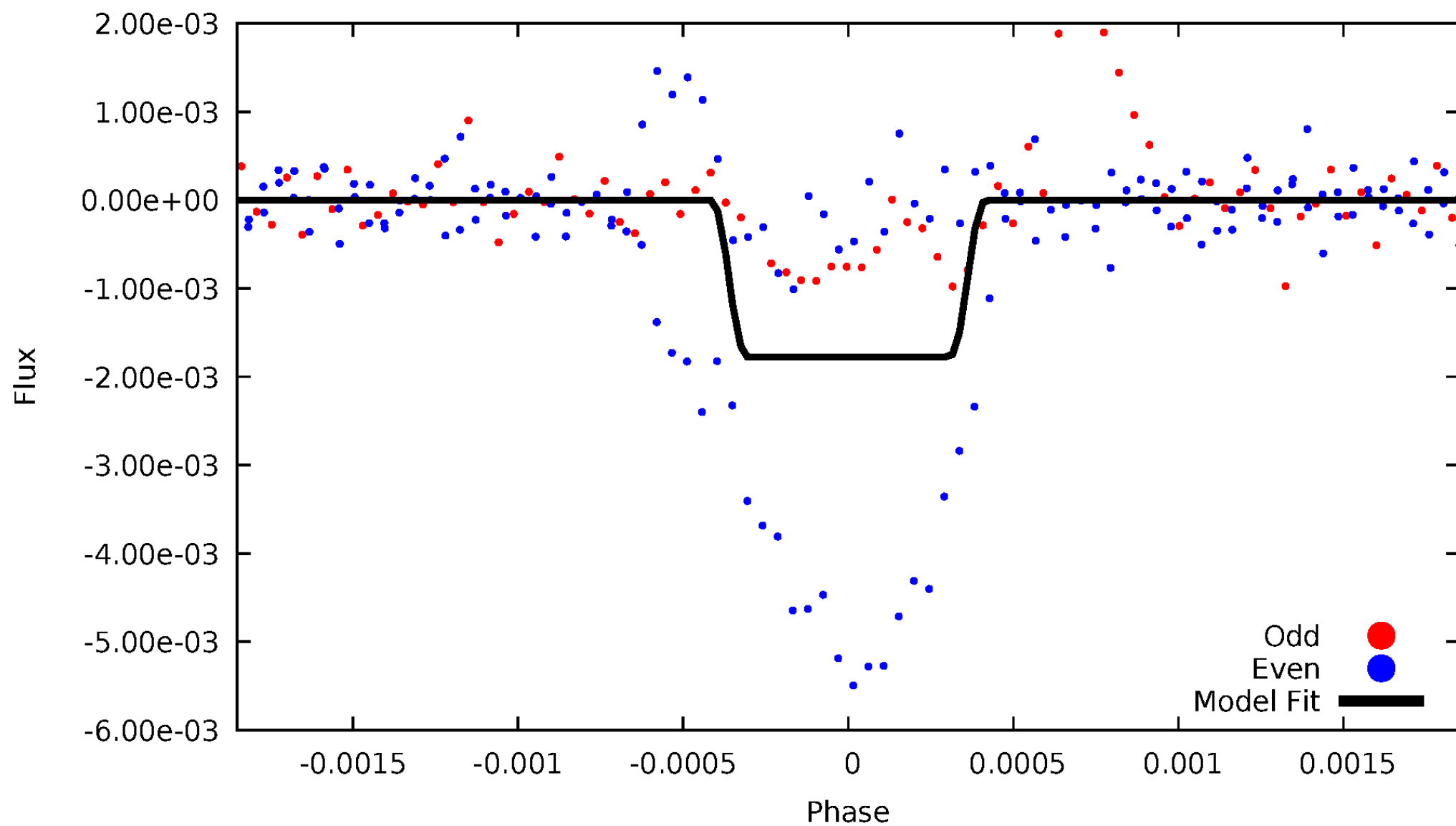
DV Odd/Even

TCE 008825177-03



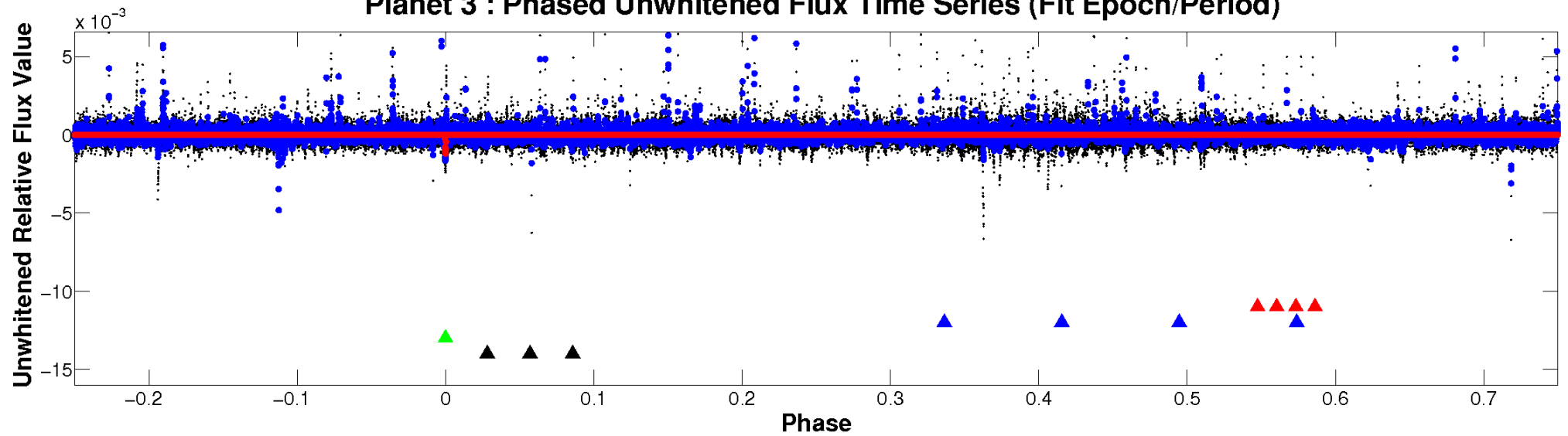
ALT Odd/Even

TCE 008825177-03

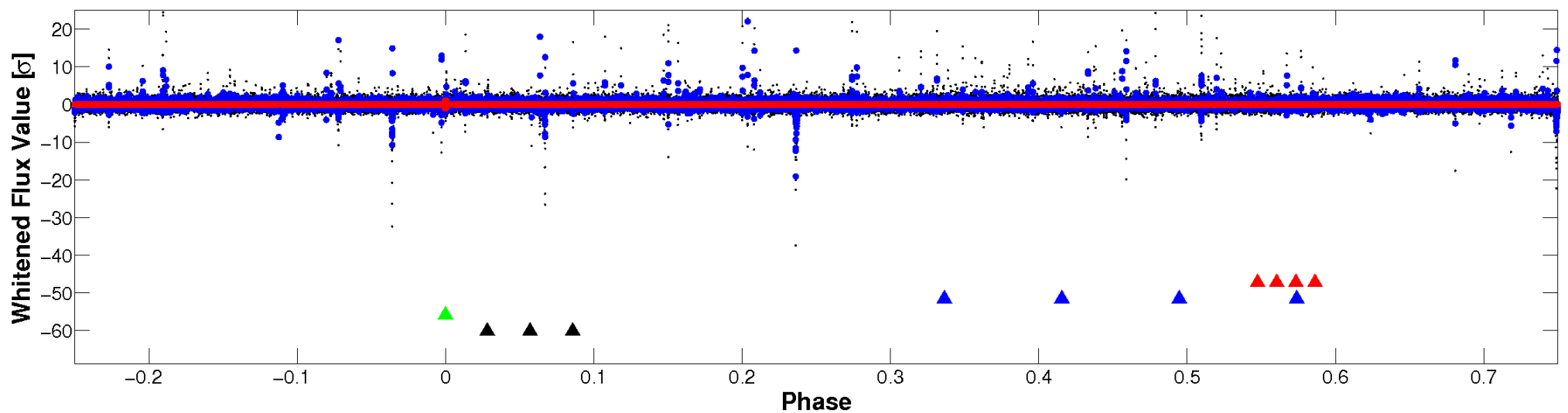


Non-Whitened Vs. Whitened Light Curve

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

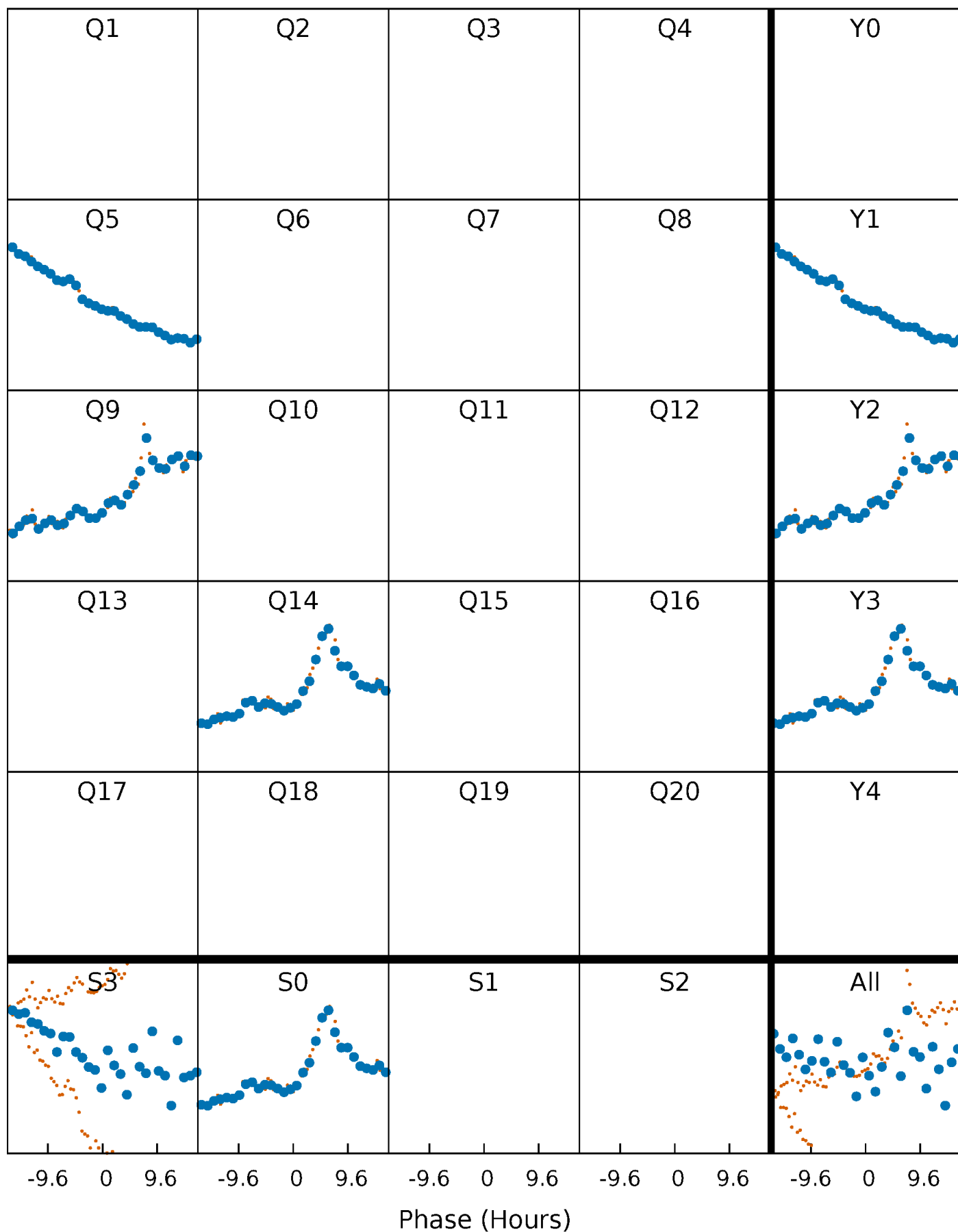


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



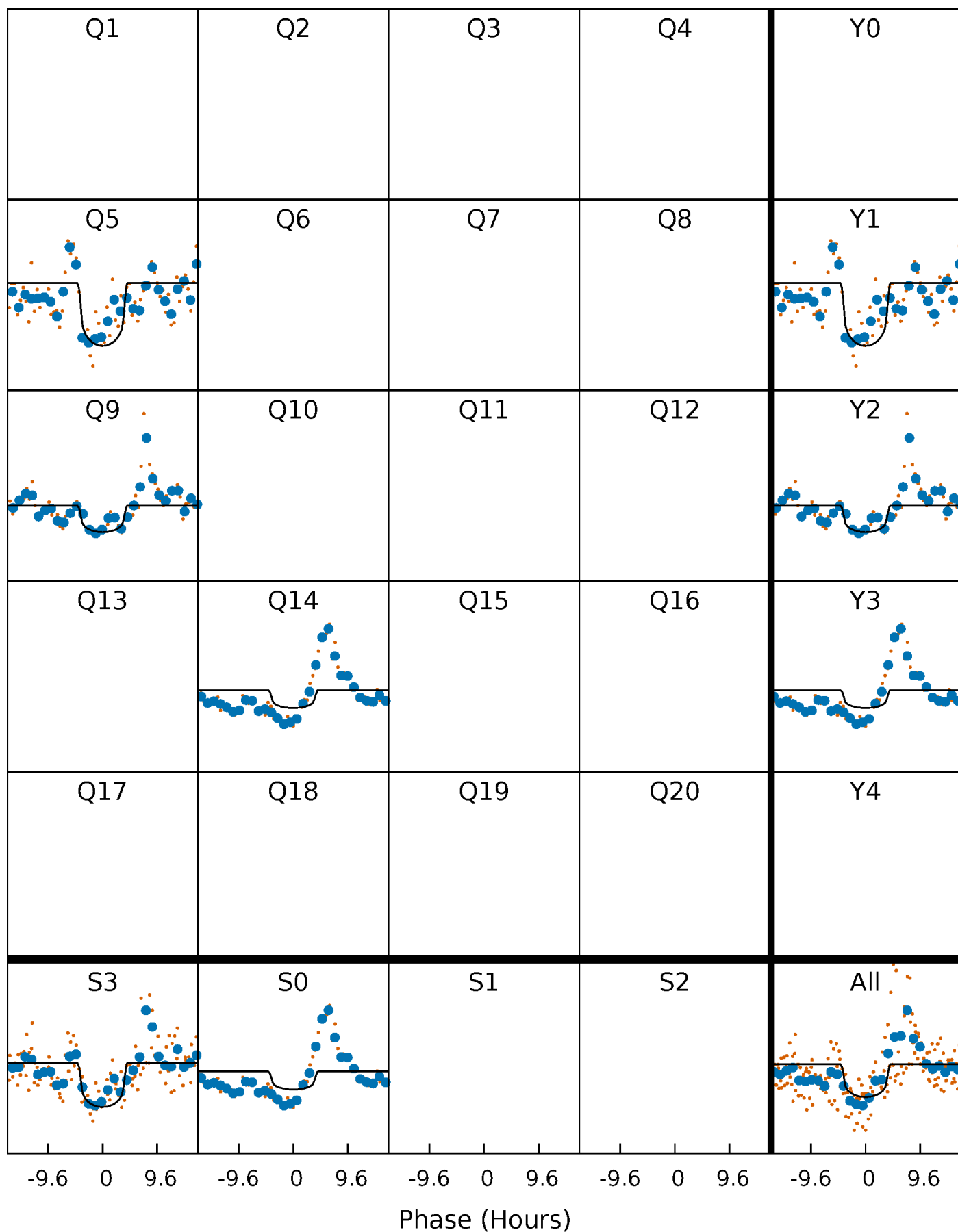
PDC Quarter-Phased Transit Curves

TCE 008825177-03 $P=445.920626$ Days $T_0=449.097162$ (BKJD)



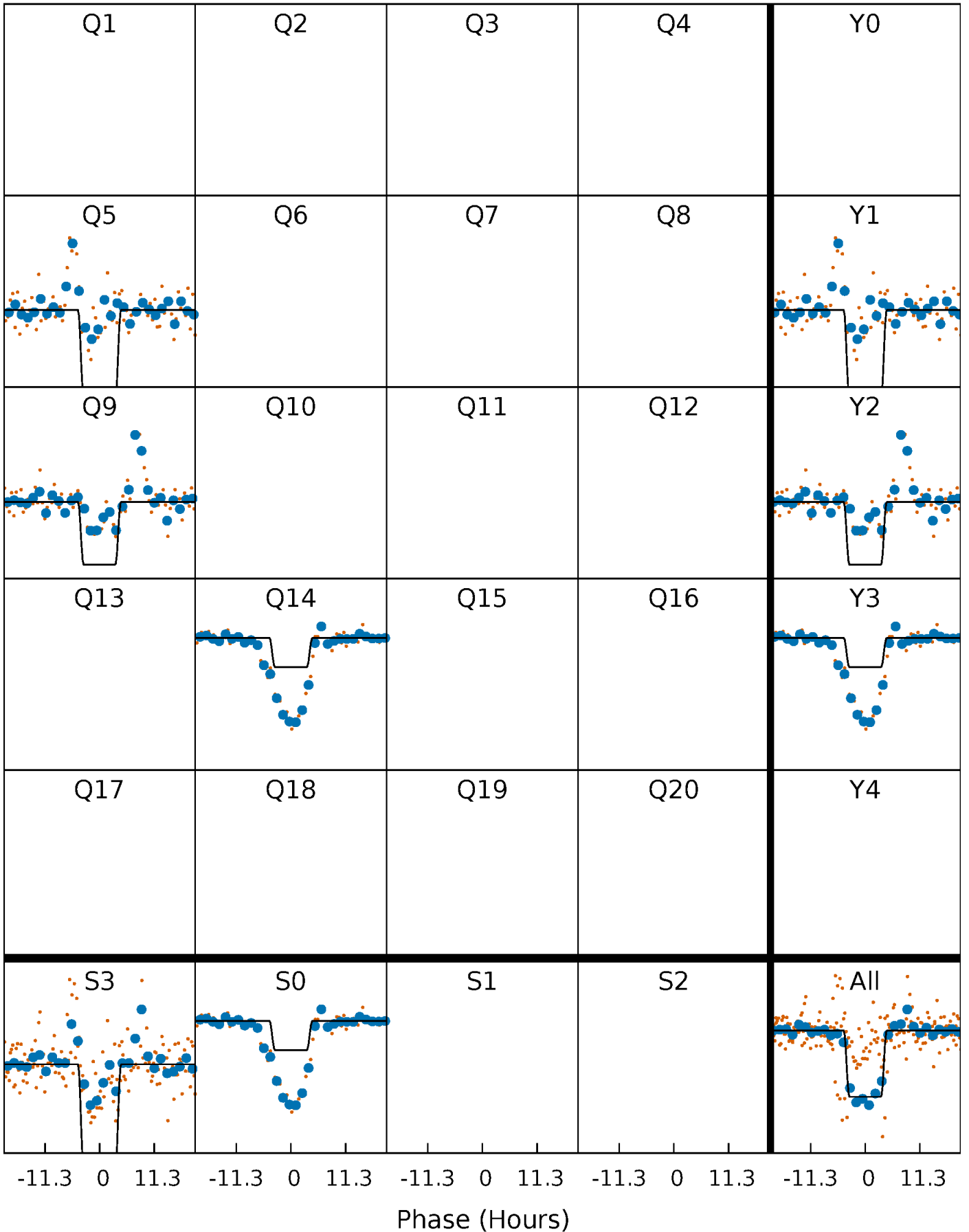
DV Quarter-Phased Transit Curves

TCE 008825177-03 $P=445.920626$ Days $T_0=449.097162$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

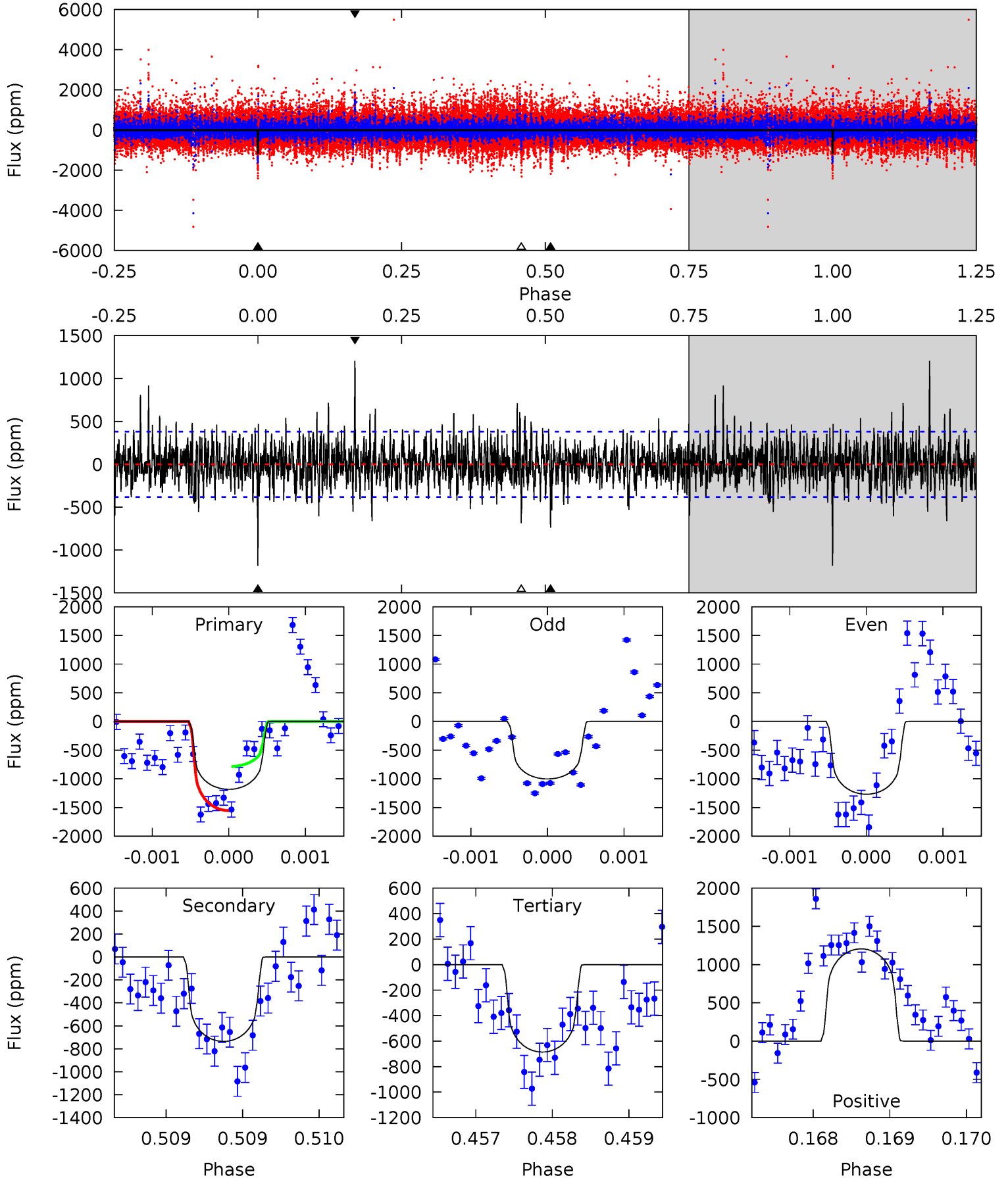
TCE 008825177-03 $P=445.914769$ Days $T_0=449.101749$ (BKJD)



DV Model-Shift Uniqueness Test

008825177-03, P = 445.920626 Days, E = 3.176536 Days

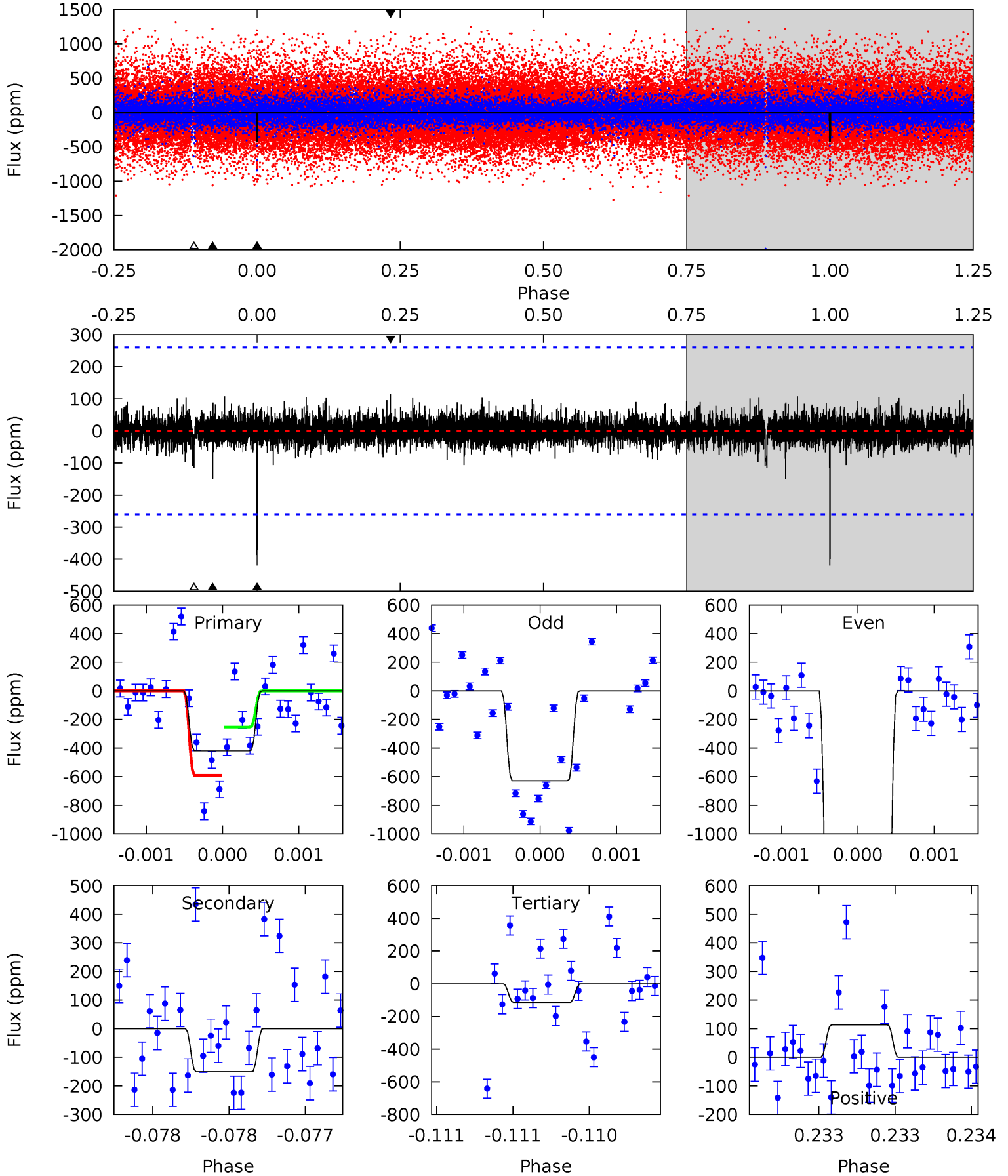
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	10.6	9.87	17.4	5.49	3.36	2.61	7.16	-0.33	0.72	-6.77	1.57	1.18	0.50	5.55



Alt Model-Shift Uniqueness Test

008825177-03, P = 445.914769 Days, E = 3.186980 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.87	3.18	2.42	2.40	5.49	3.34	0.53	6.44	6.47	0.76	0.78	21.8	2.80	0.21	3.58



Stellar Parameters For KIC 008825177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5237^{+156}_{-156}	$4.592^{+0.078}_{-0.052}$	$-0.740^{+0.350}_{-0.300}$	$0.677^{+0.070}_{-0.063}$	$0.653^{+0.075}_{-0.032}$	$2.969^{+0.904}_{-0.580}$
	+3%/-3%	+2%/-1%	+47%/-41%	+10%/-9%	+11%/-5%	+30%/-20%
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 008825177-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-736 ± 69	$2.50^{+0.84}_{-0.73}$	266^{+10}_{-10}	4751^{+795}_{-498}	63629^{+68231}_{-27646}
Alt.	-151 ± 47	$3.09^{+0.85}_{-0.77}$	266^{+10}_{-10}	3340^{+360}_{-288}	8545^{+7495}_{-3889}

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

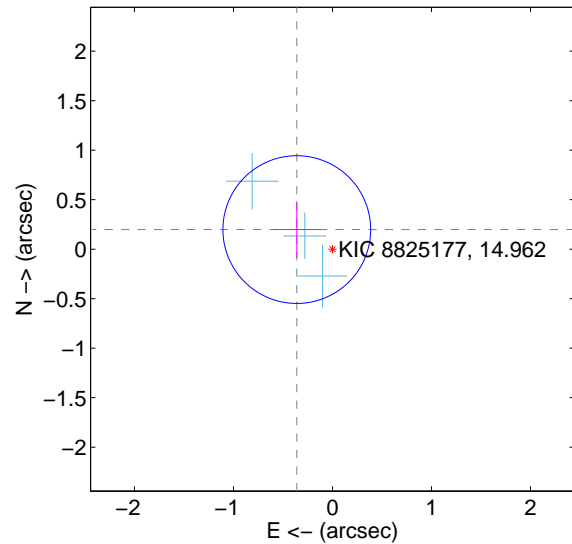
Supplemental centroid analysis for 008825177-03. Kepler magnitude: 14.96. Transit SNR 7.34

There are 3 quarters with good PRF difference image offsets

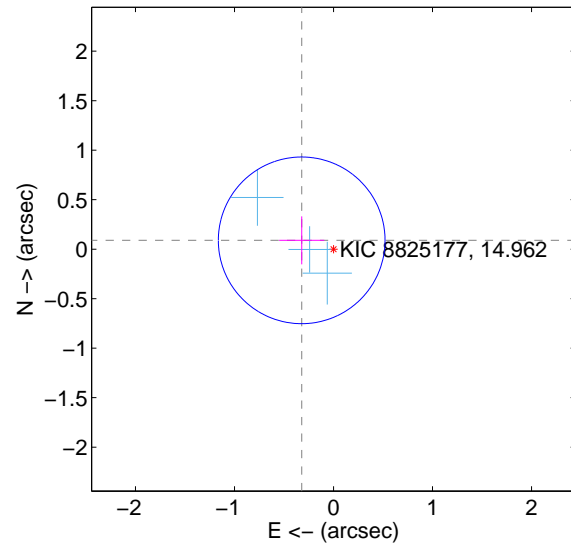
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.411 ± 0.249	1.65	0.361 ± 0.236	0.198 ± 0.286
PRF-fit source offset from KIC position	0.334 ± 0.281	1.19	0.321 ± 0.228	0.089 ± 0.243
photometric centroid source offset	0.20 ± 0.61	0.33	0.17 ± 0.59	0.12 ± 0.64

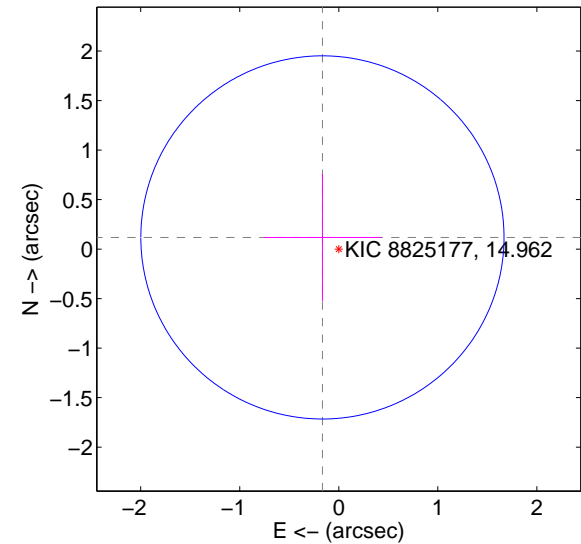
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

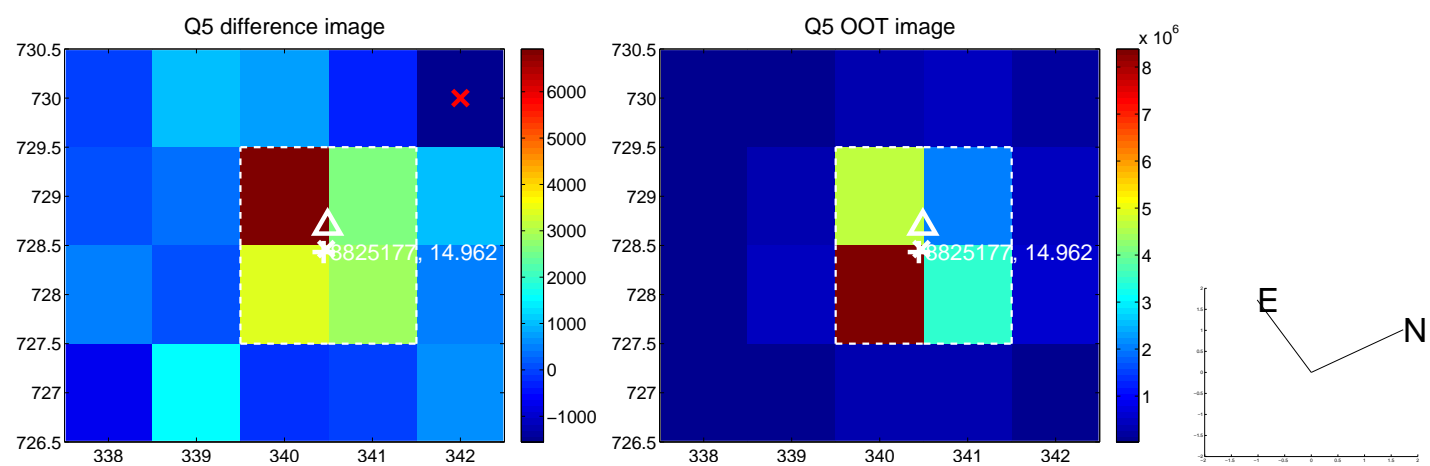


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

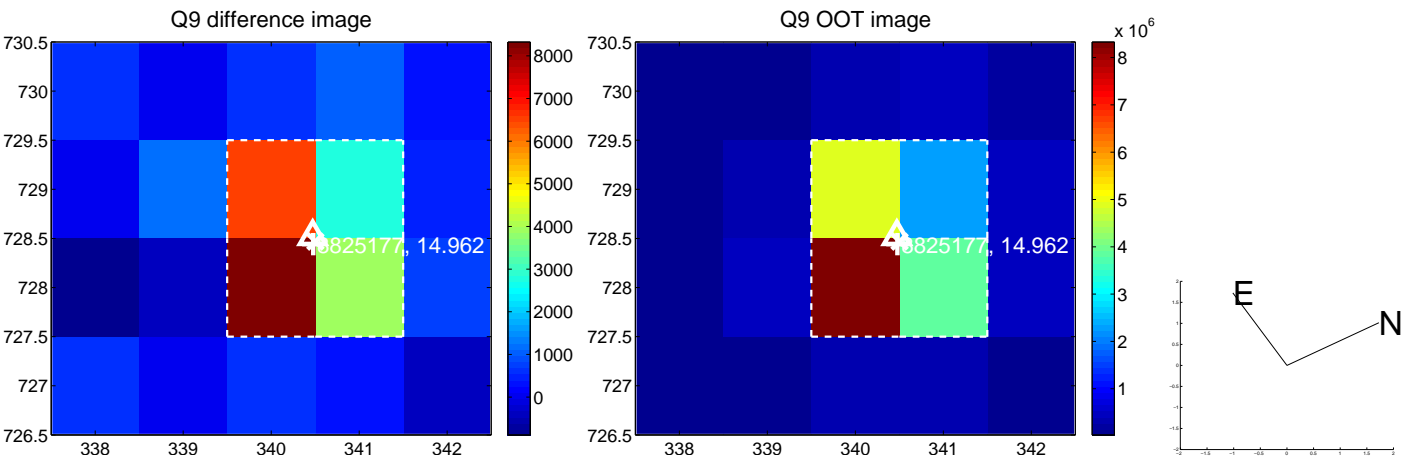
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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

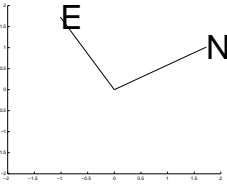
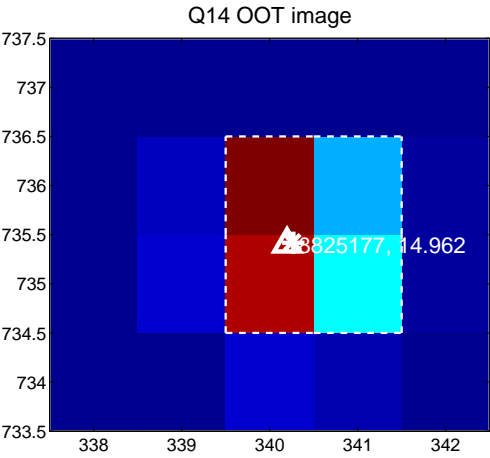
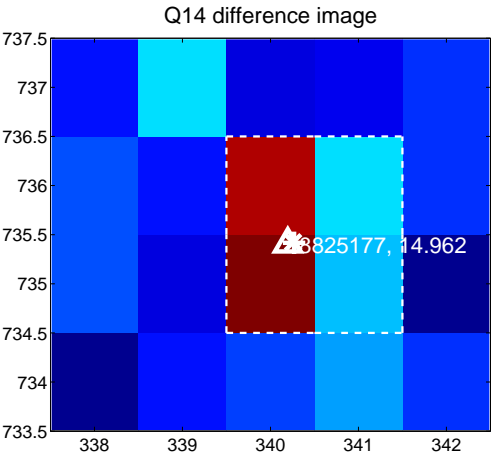


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

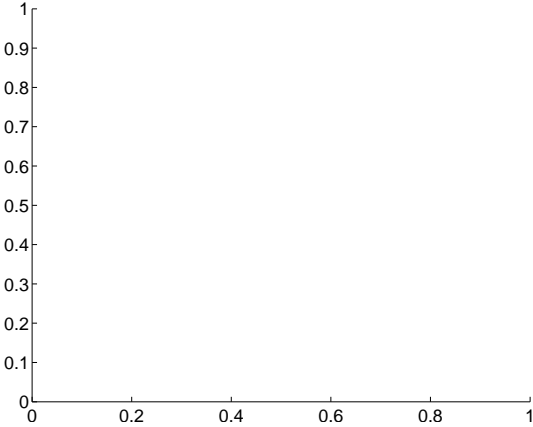
Q13 no difference image



Q13 no OOT image



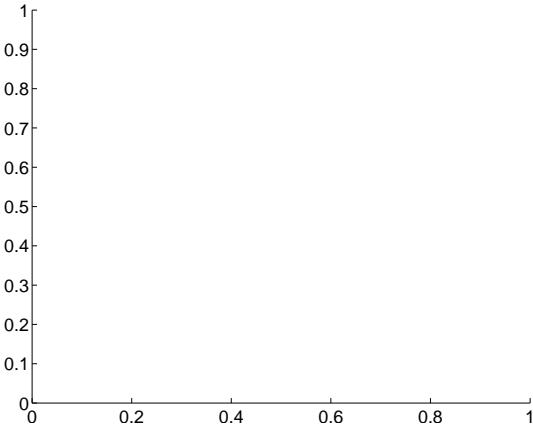
Q15 no difference image



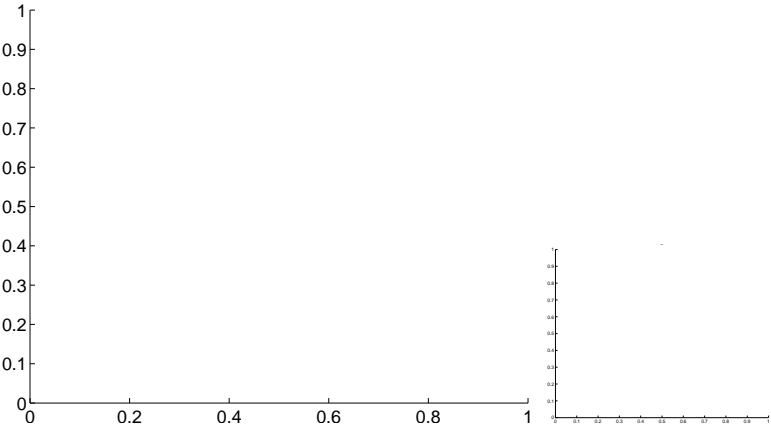
Q15 no OOT image



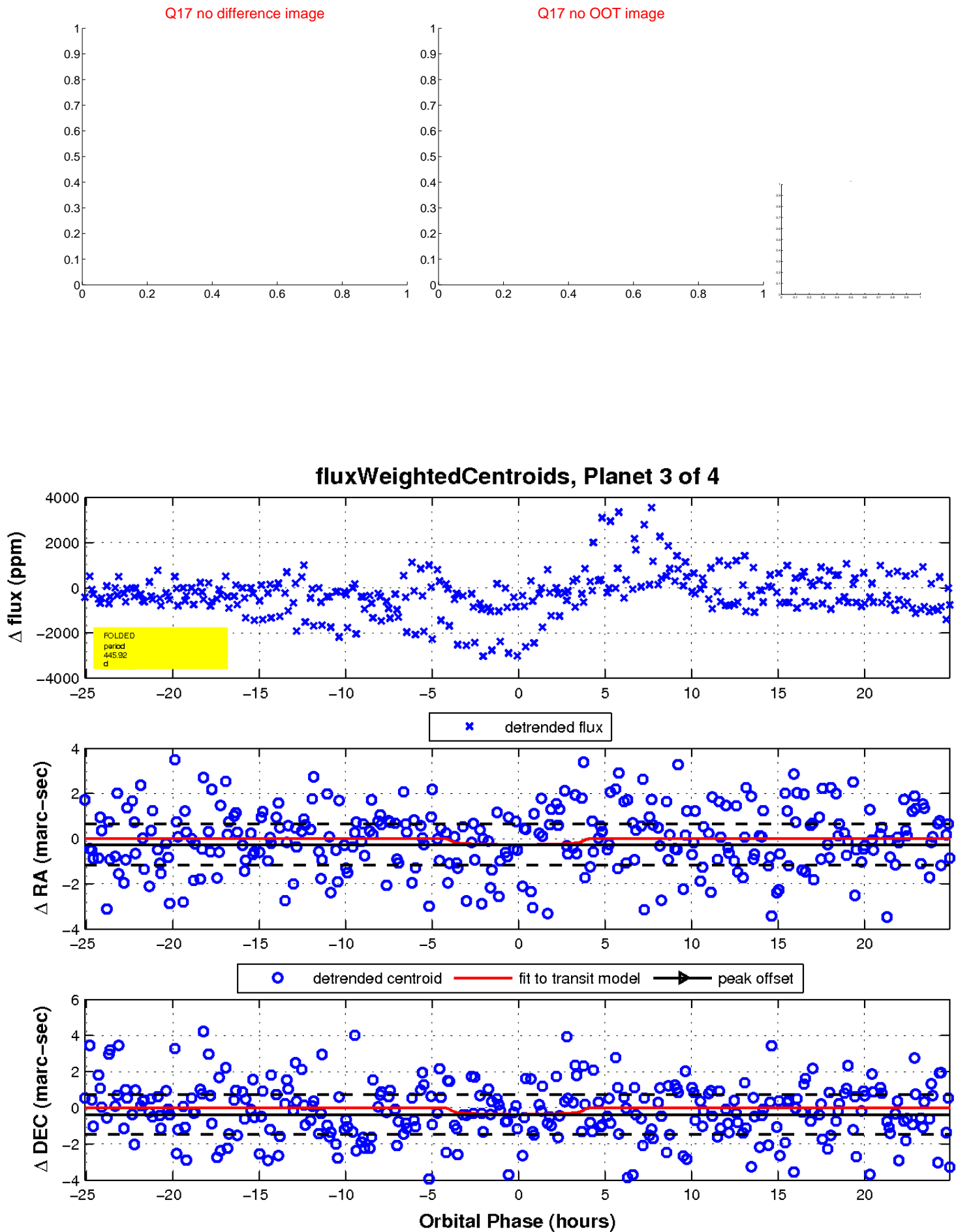
Q16 no difference image



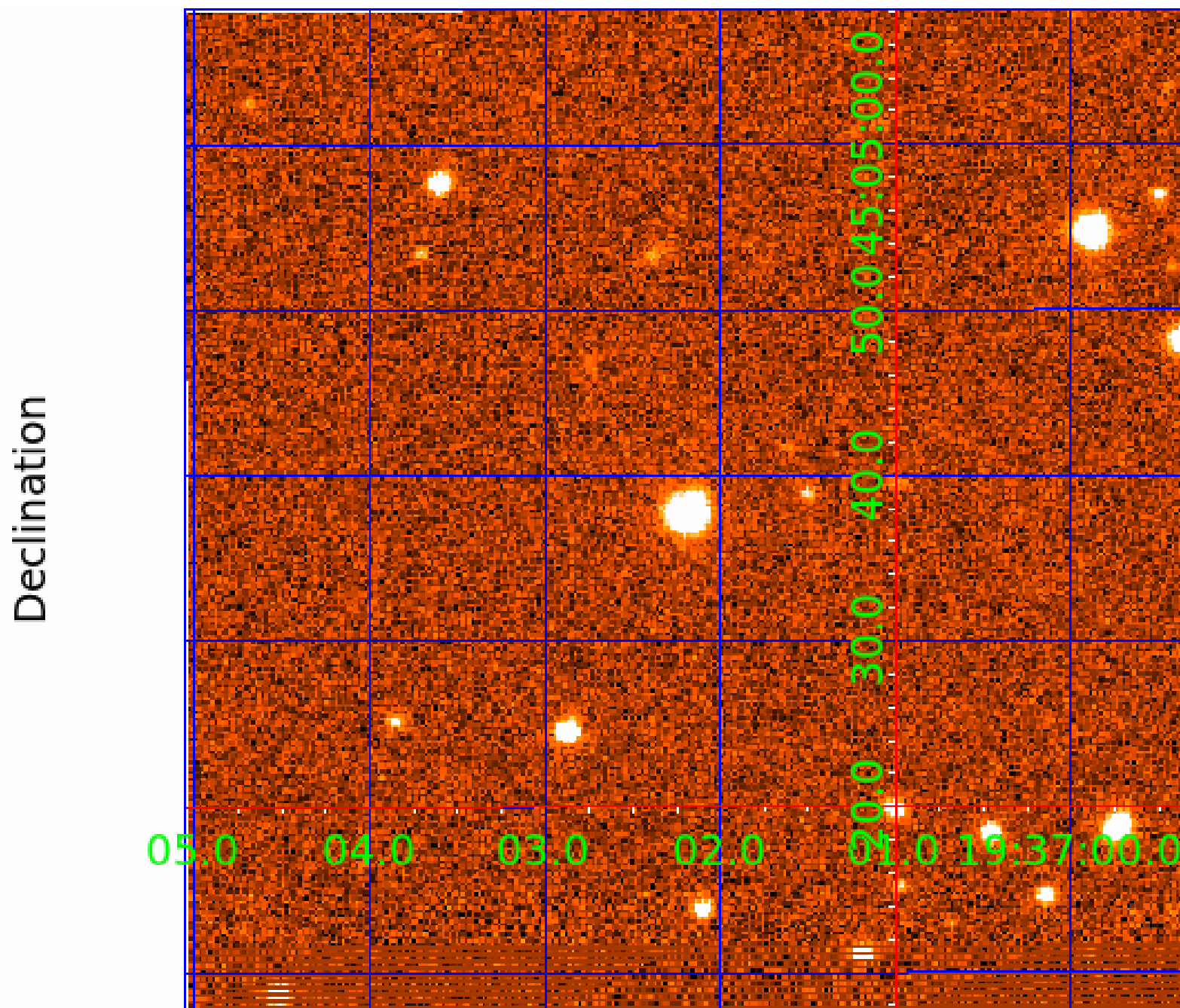
Q16 no OOT image



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



UKIRT Image



KIC 008825177

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})
008825177-01	OBS	No	440.158941	264.608507	996.3	9.366	14.4	7.4	0.68	5237	2.23	0.32
008825177-02	OBS	No	410.612423	259.095077	1244.4	3.254	10.9	7.8	0.68	5237	2.52	0.35
008825177-03	OBS	No	445.920626	449.097162	1194.8	8.368	10.6	7.3	0.68	5237	2.51	0.31
008825177-04	OBS	No	433.084817	487.341824	943.8	6.607	11.3	5.5	0.68	5237	2.18	0.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008825177-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
008825177-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008825177-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
008825177-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

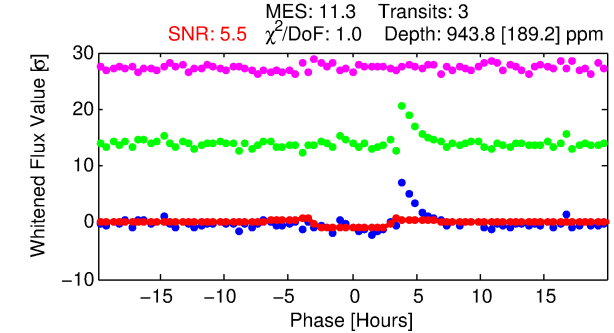
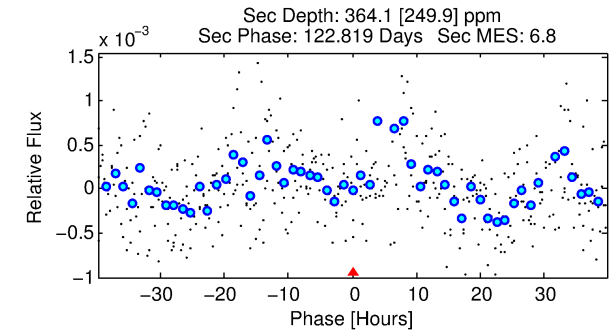
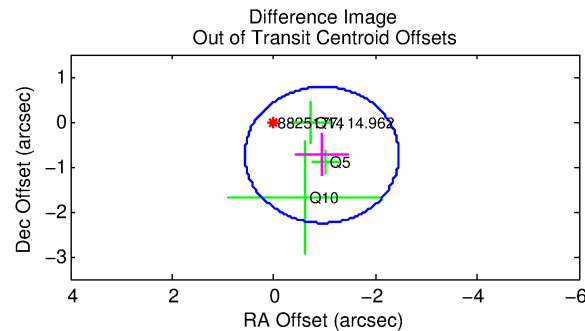
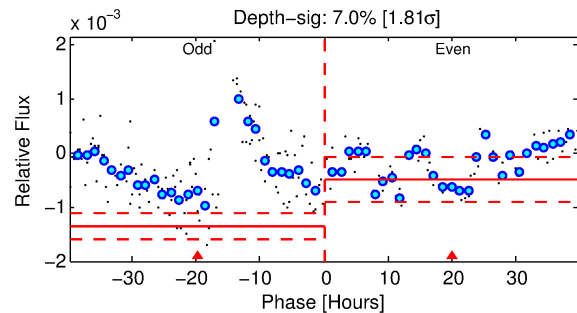
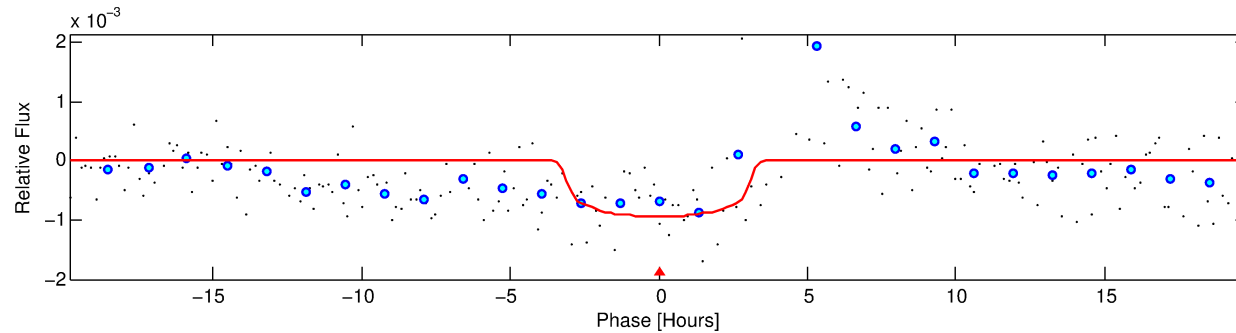
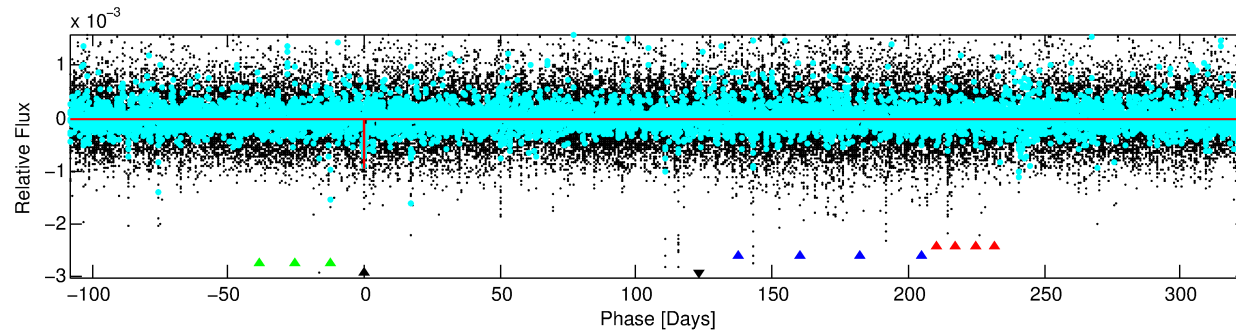
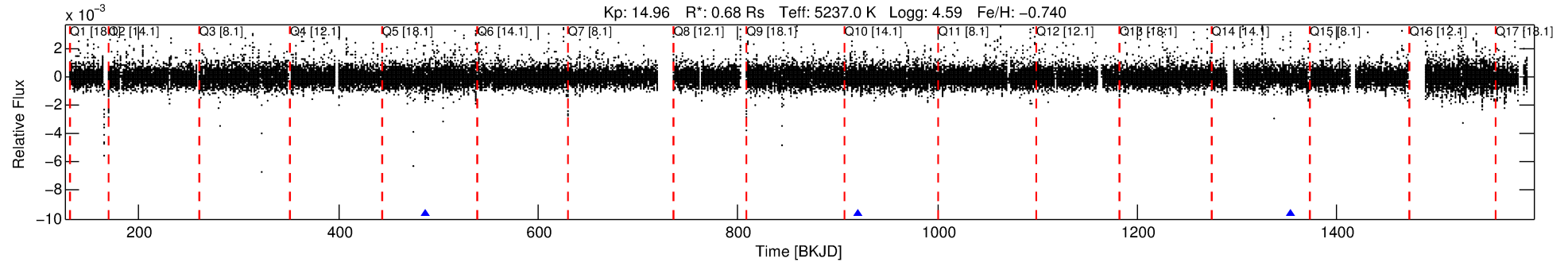
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008825177-04

No Significant Match Found

DV One-Page Summary

KIC: 8825177 Candidate: 4 of 4 Period: 433.085 d



DV Fit Results:

Period = 433.08482 [0.00880] d
Epoch = 487.3418 [0.0120] BKJD
Rp/R* = 0.0296 [0.0227]
a/R* = 401.59 [1257.71]
b = 0.65 [2.85]
Seff = 0.33 [0.06]
Teq = 193 [9] K
Rp = 2.18 [1.69] Re
a = 0.9723 [0.0888] AU
Ag = 39717.79 [67115.10] [0.59 σ]
Teffp = 4208 [1776] K [2.26 σ]

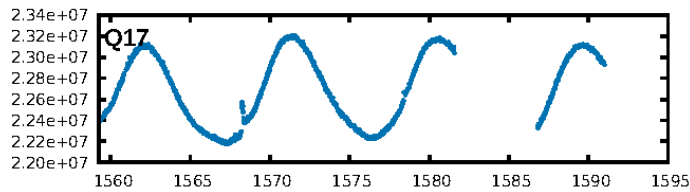
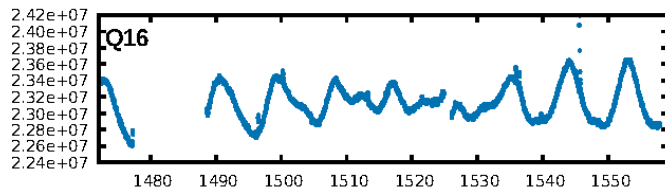
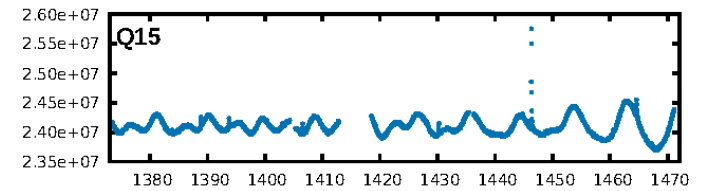
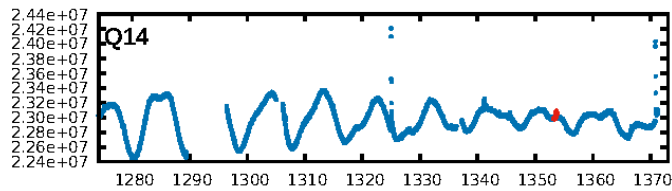
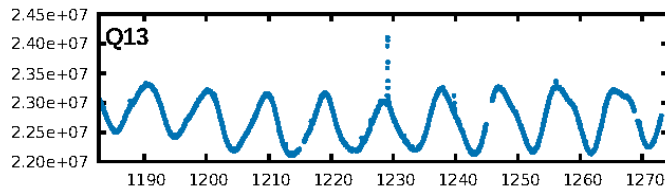
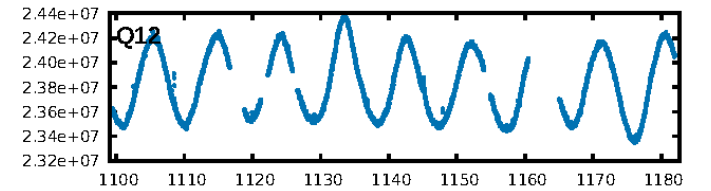
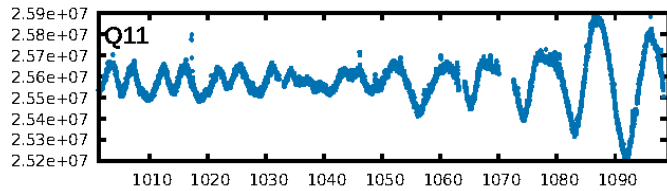
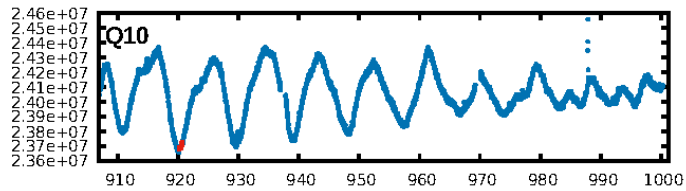
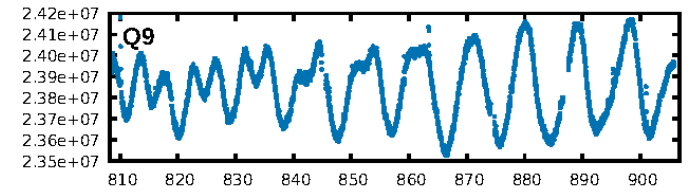
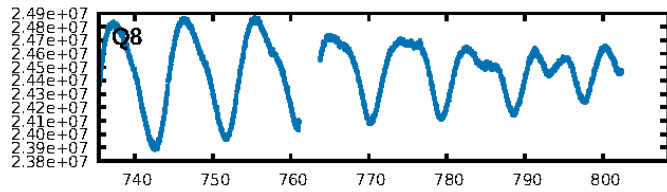
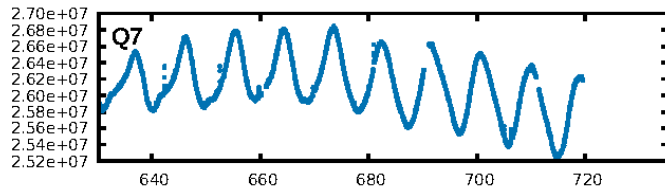
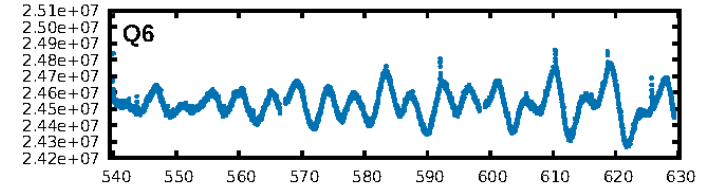
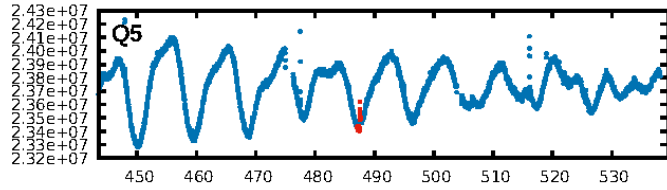
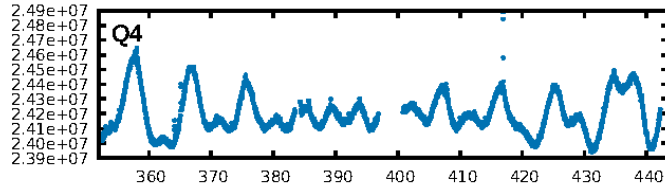
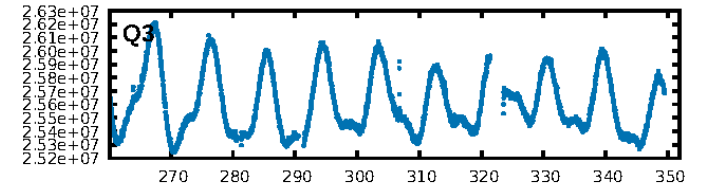
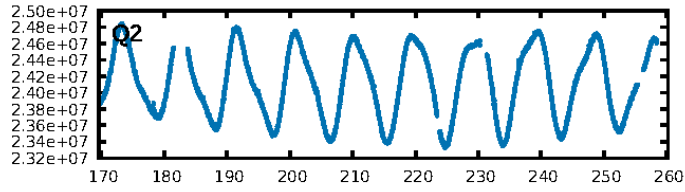
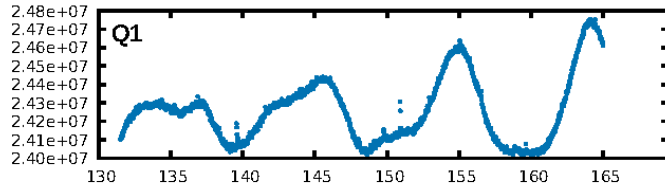
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [73.23 σ]
LongPeriod-sig: 100.0% [14.81 σ]
ModelChiSquare2-sig: 9.6%
ModelChiSquareGof-sig: 95.8%
Bootstrap-pfa: 8.72e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7473
Centroid-sig: 79.2%
Centroid-so: 0.526 arcsec [0.62 σ]
OotOffset-rm: 1.200 arcsec [2.38 σ]
KicOffset-rm: 1.300 arcsec [2.59 σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

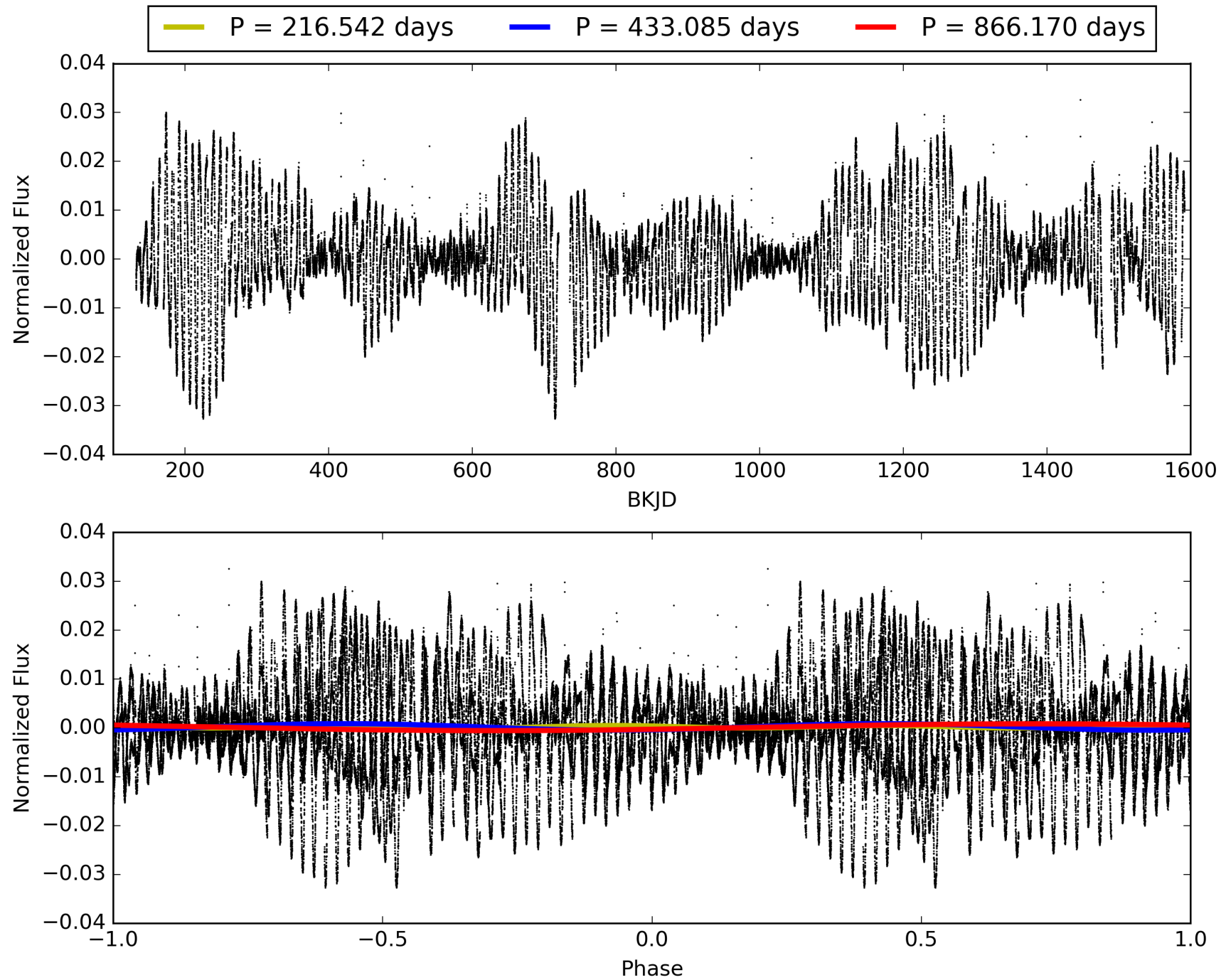
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:34:20 Z

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

TCE 008825177-04, PDC Light Curves

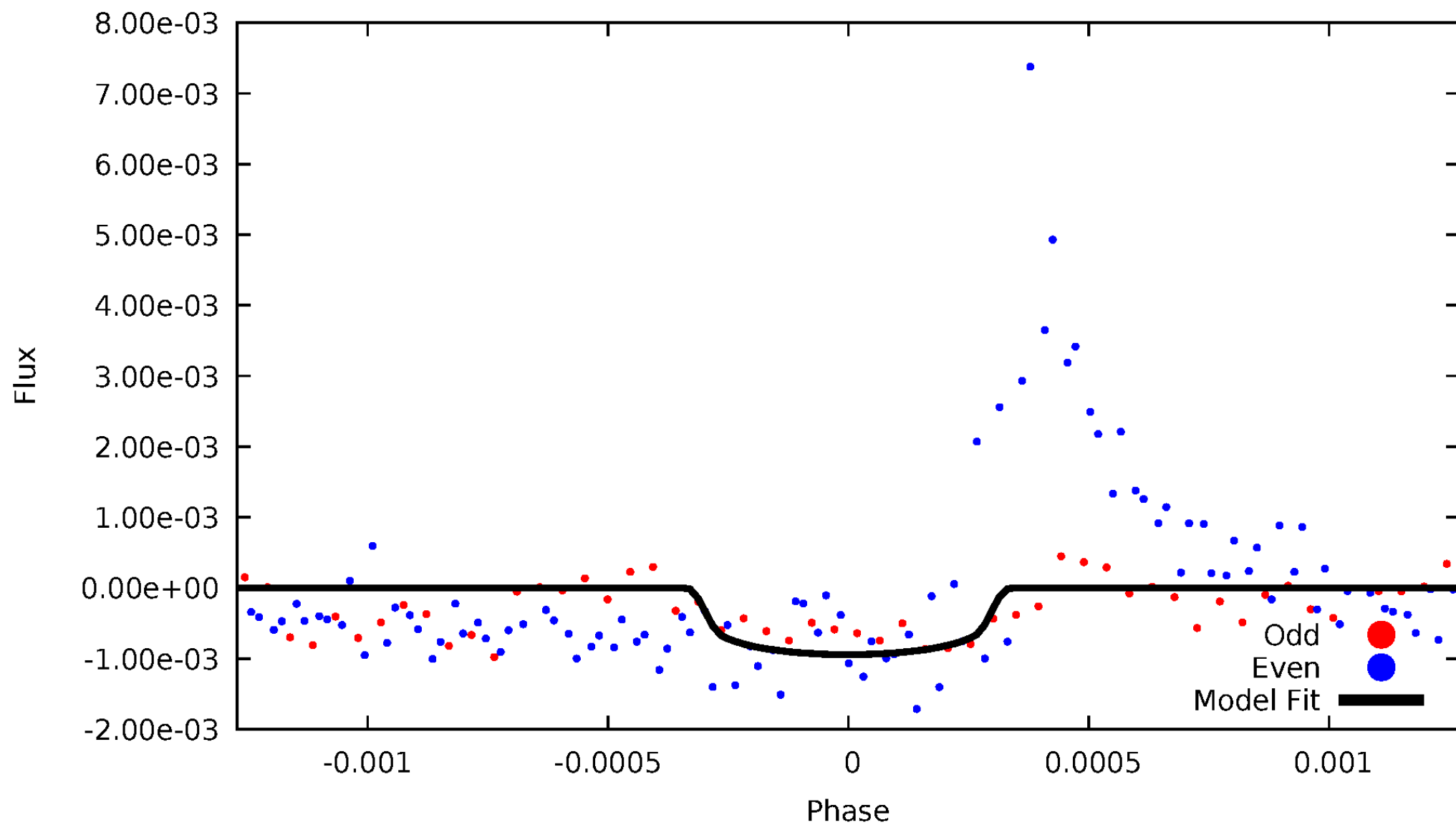


TCE 008825177-04



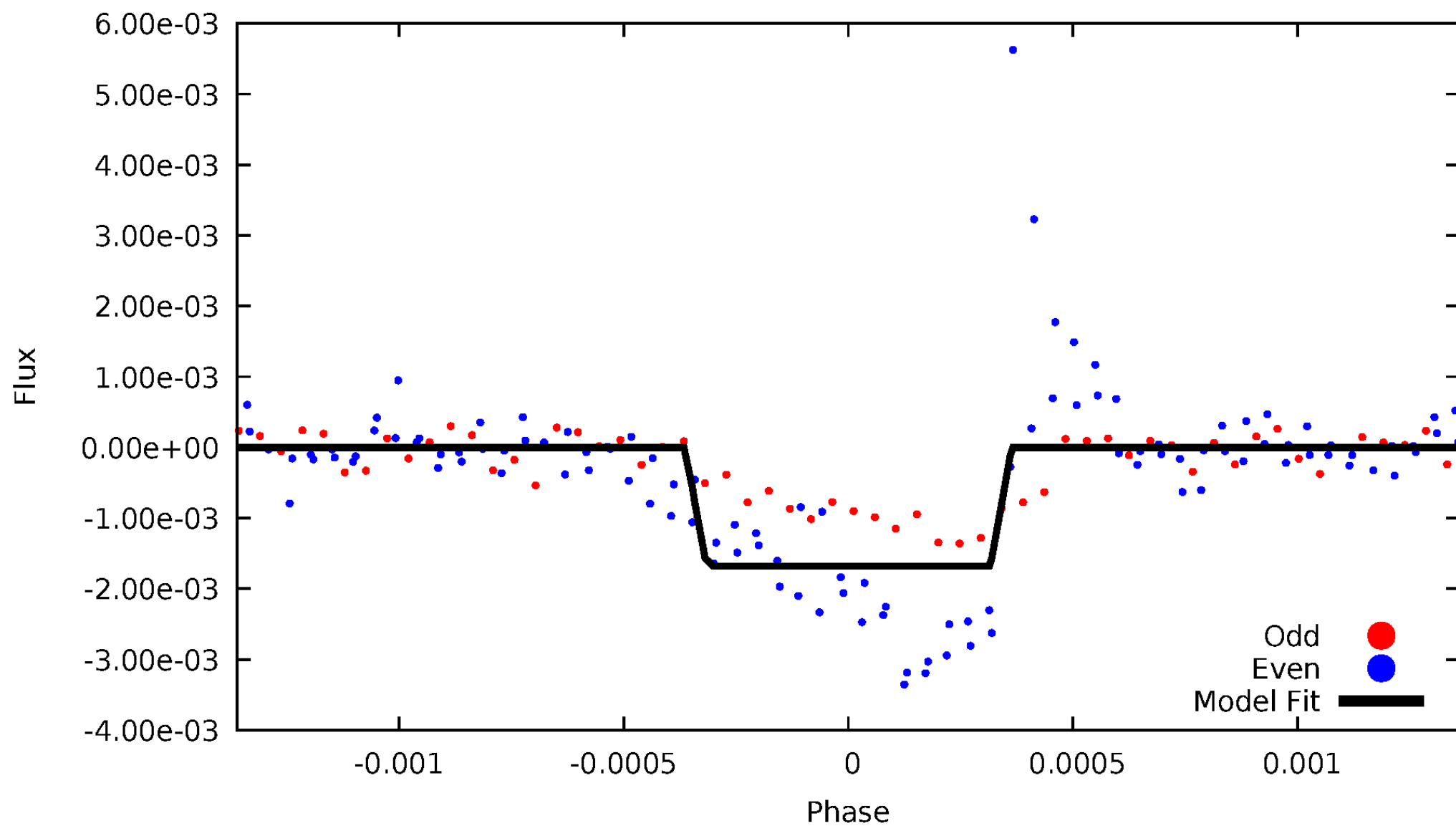
DV Odd/Even

TCE 008825177-04



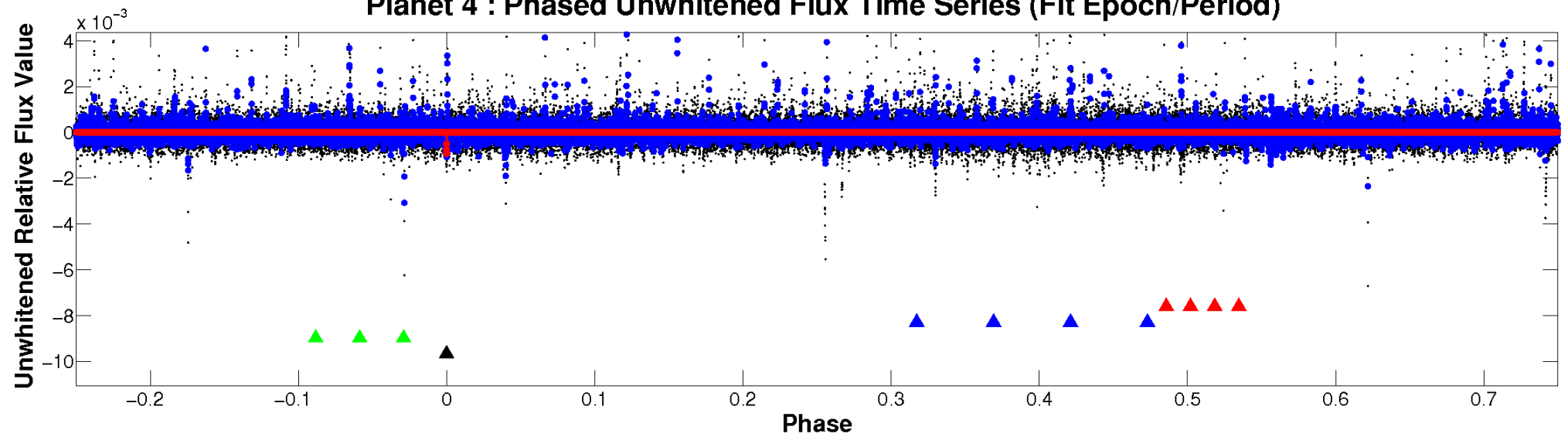
ALT Odd/Even

TCE 008825177-04

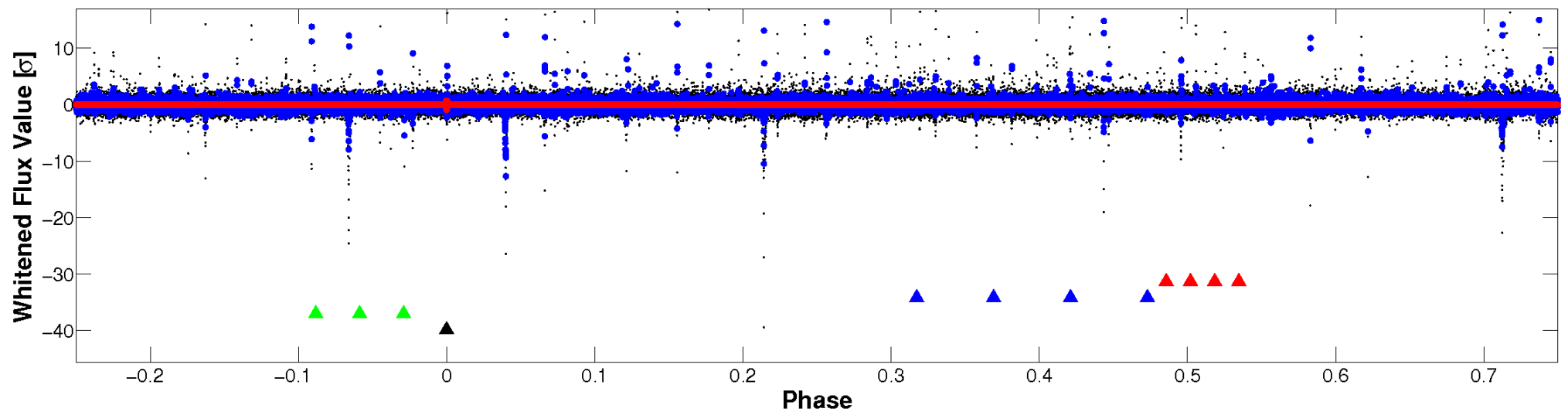


Non-Whitened Vs. Whitened Light Curve

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

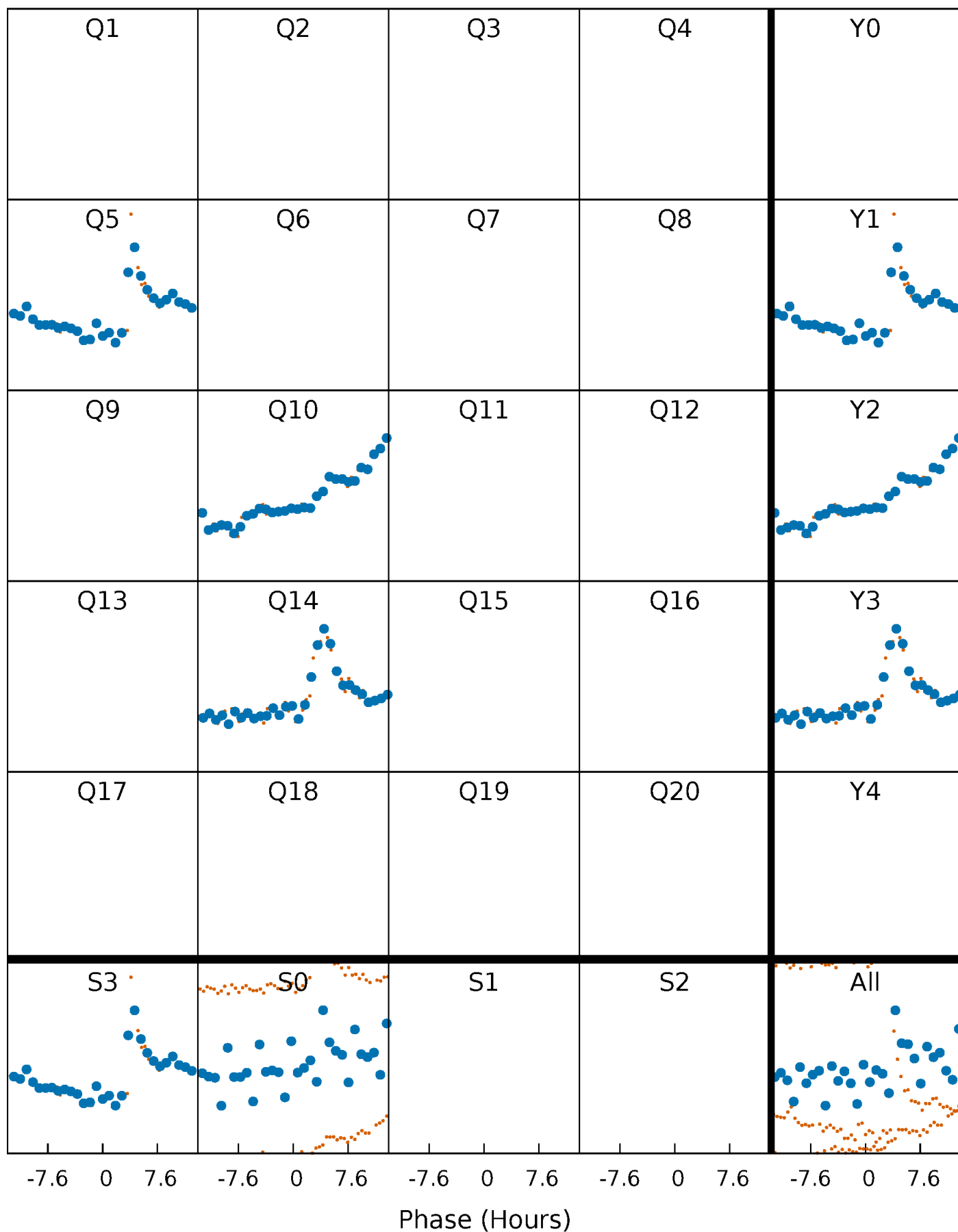


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



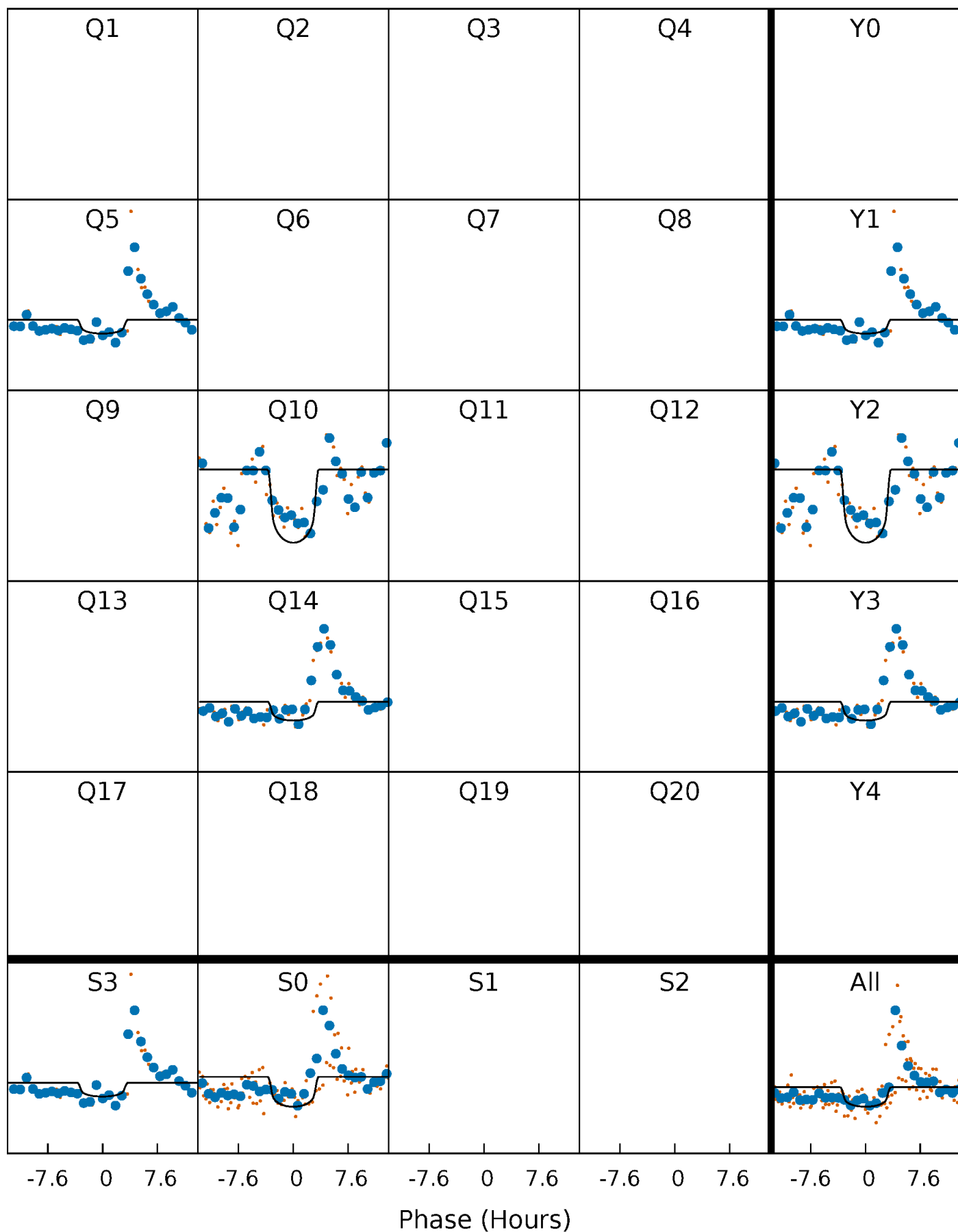
PDC Quarter-Phased Transit Curves

TCE 008825177-04 P=433.084817 Days $T_0=487.341824$ (BKJD)



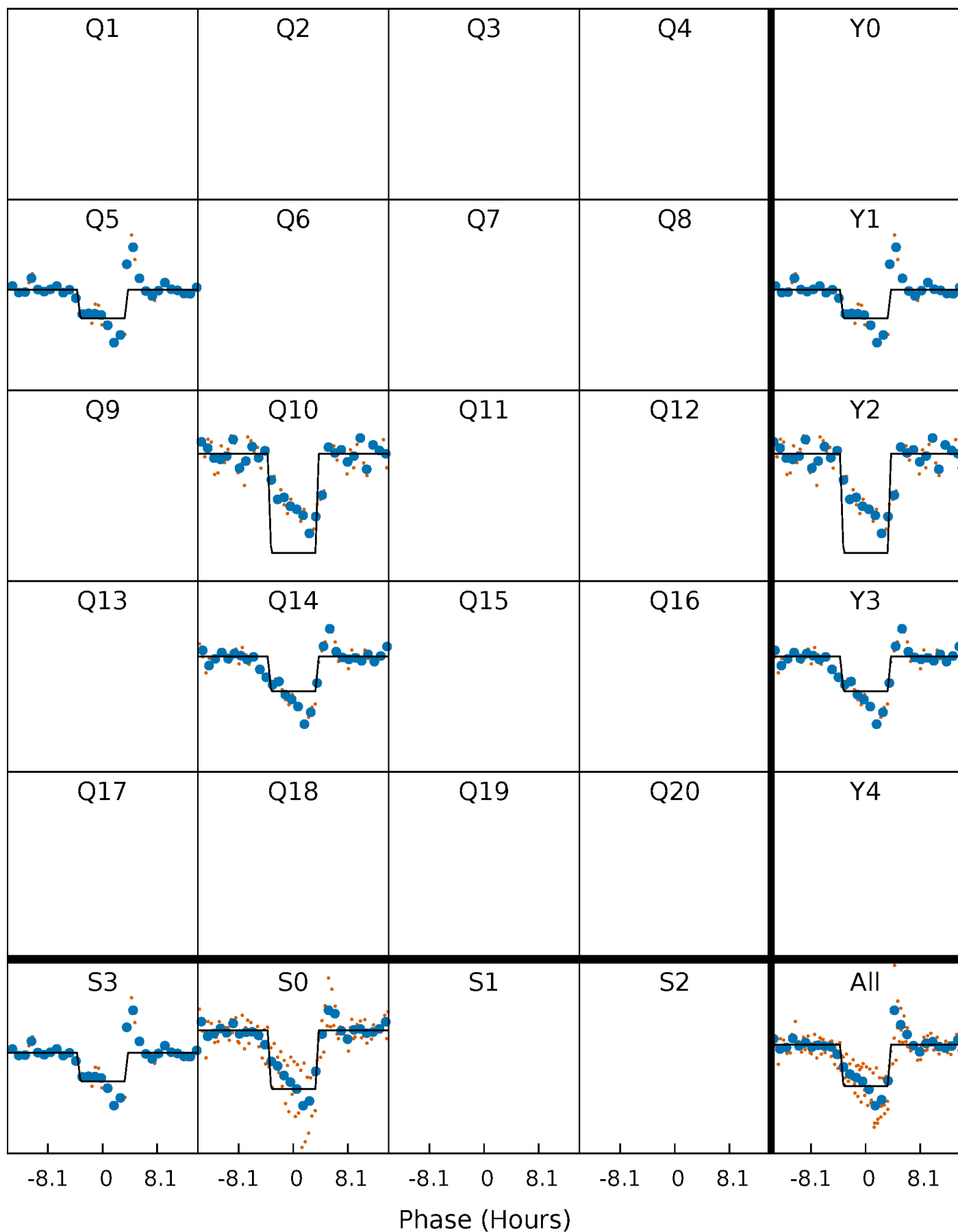
DV Quarter-Phased Transit Curves

TCE 008825177-04 $P=433.084817$ Days $T_0=487.341824$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

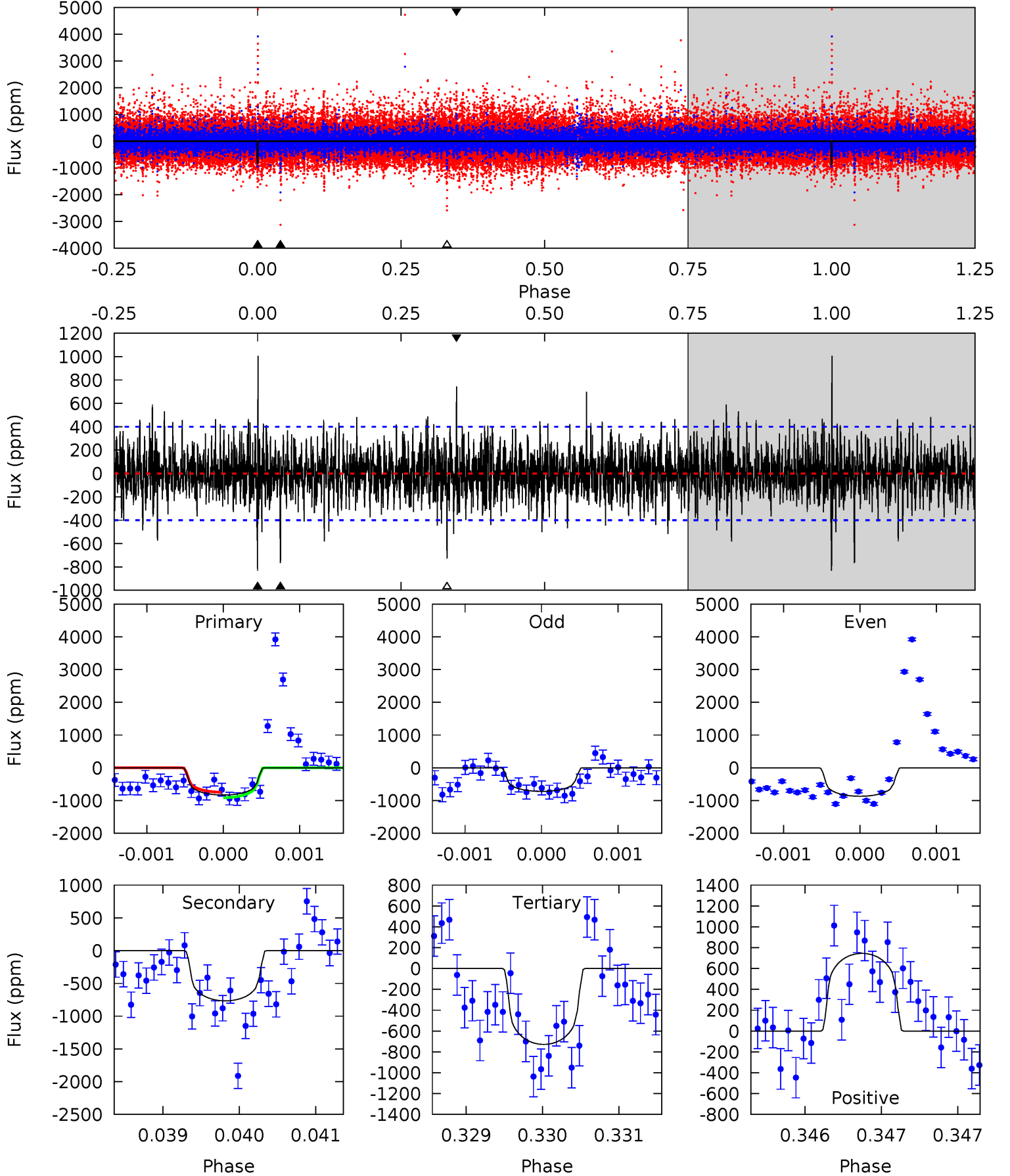
TCE 008825177-04 P=433.062059 Days $T_0=487.347007$ (BKJD)



DV Model-Shift Uniqueness Test

008825177-04, P = 433.084817 Days, E = 54.257007 Days

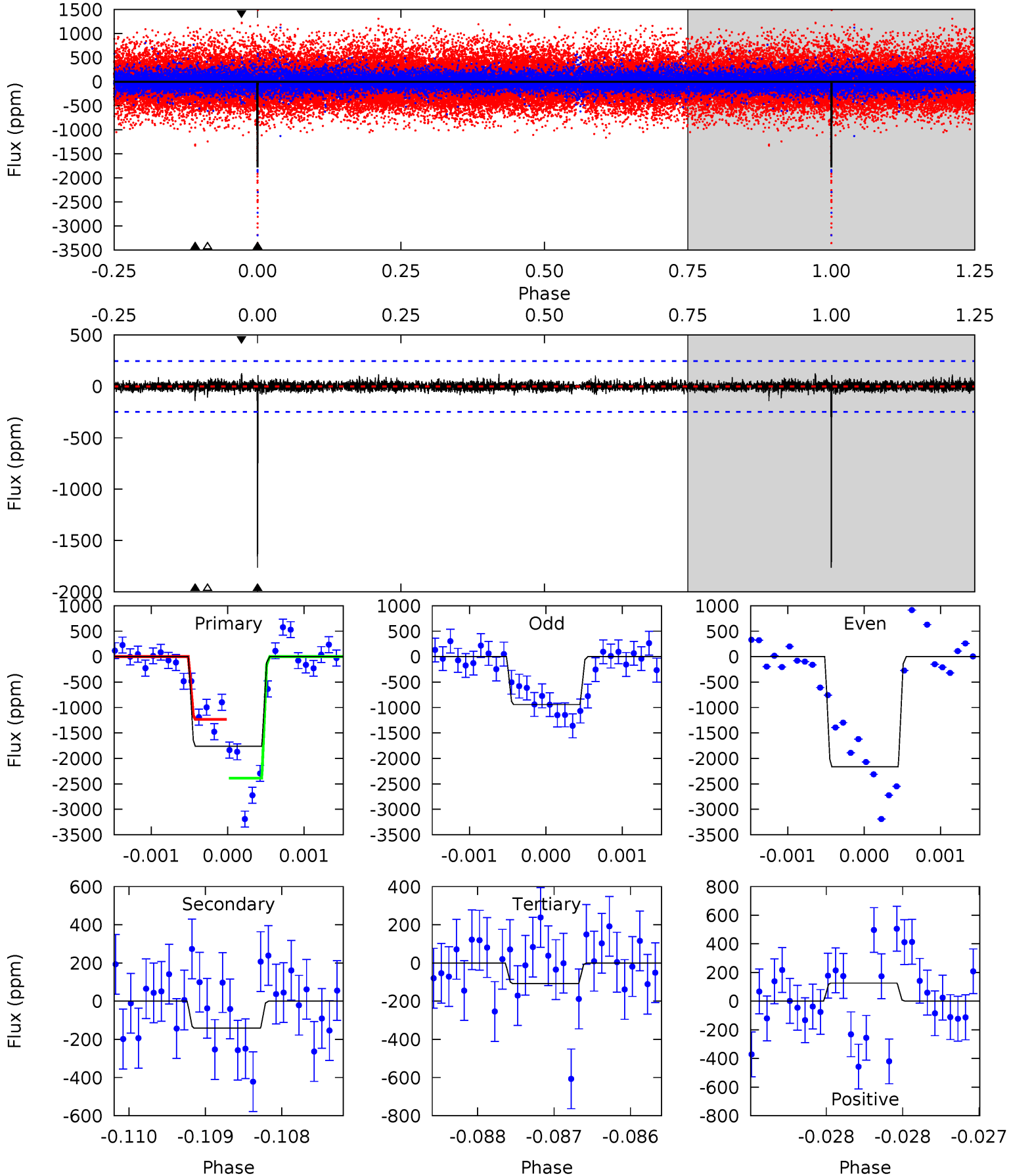
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	10.6	10.1	10.3	5.53	3.41	2.14	1.42	1.20	0.53	0.30	0.87	1.05	0.55	1.15



Alt Model-Shift Uniqueness Test

008825177-04, P = 433.062059 Days, E = 54.284948 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.3	3.15	2.39	2.82	5.51	3.39	0.50	36.9	36.5	0.77	0.34	13.9	0.86	0.07	12.9



Stellar Parameters For KIC 008825177

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5237^{+156}_{-156}	$4.592^{+0.078}_{-0.052}$	$-0.740^{+0.350}_{-0.300}$	$0.677^{+0.070}_{-0.063}$	$0.653^{+0.075}_{-0.032}$	$2.969^{+0.904}_{-0.580}$
	+3%/-3%	+2%/-1%	+47%/-41%	+10%/-9%	+11%/-5%	+30%/-20%
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 008825177-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-767 ± 72	$2.41^{+1.61}_{-1.39}$	269^{+10}_{-11}	4900^{+2591}_{-904}	$70832^{+329263}_{-45932}$
Alt.	-141 ± 45	$3.17^{+1.63}_{-1.55}$	268^{+10}_{-11}	3280^{+834}_{-414}	7282^{+21011}_{-4347}

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

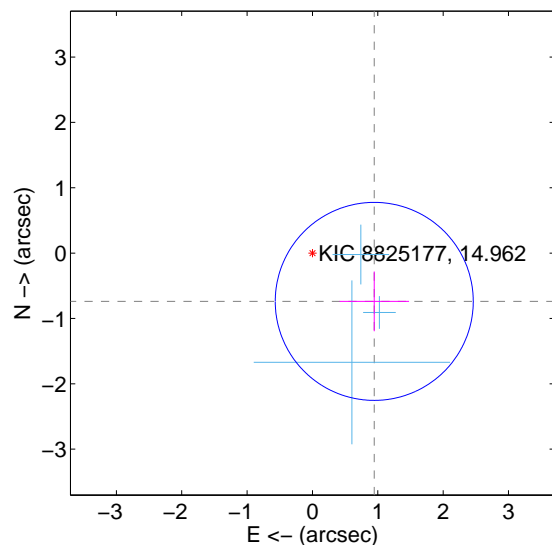
Supplemental centroid analysis for 008825177-04. Kepler magnitude: 14.96. Transit SNR 5.54

There are 3 quarters with good PRF difference image offsets

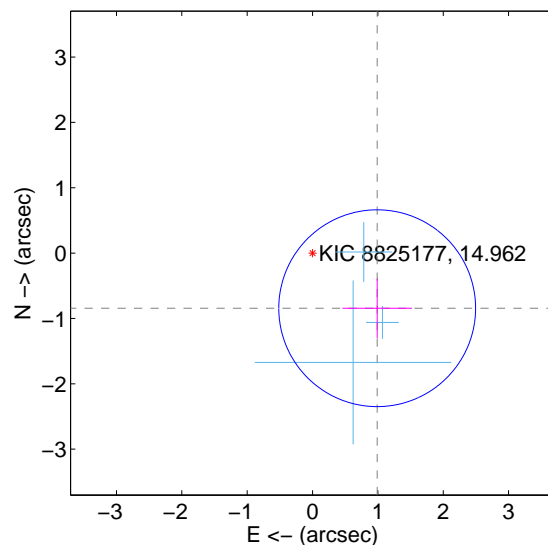
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.200 ± 0.505	2.38	-0.946 ± 0.532	-0.739 ± 0.458
PRF-fit source offset from KIC position	1.300 ± 0.502	2.59	-0.989 ± 0.532	-0.843 ± 0.458
photometric centroid source offset	0.53 ± 0.85	0.62	-0.40 ± 0.82	-0.34 ± 0.90

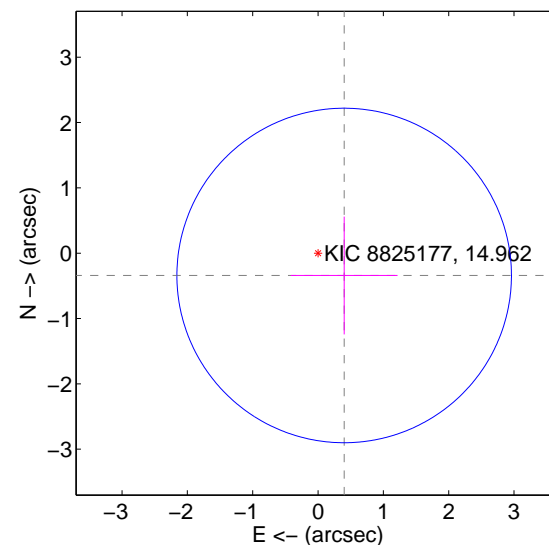
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

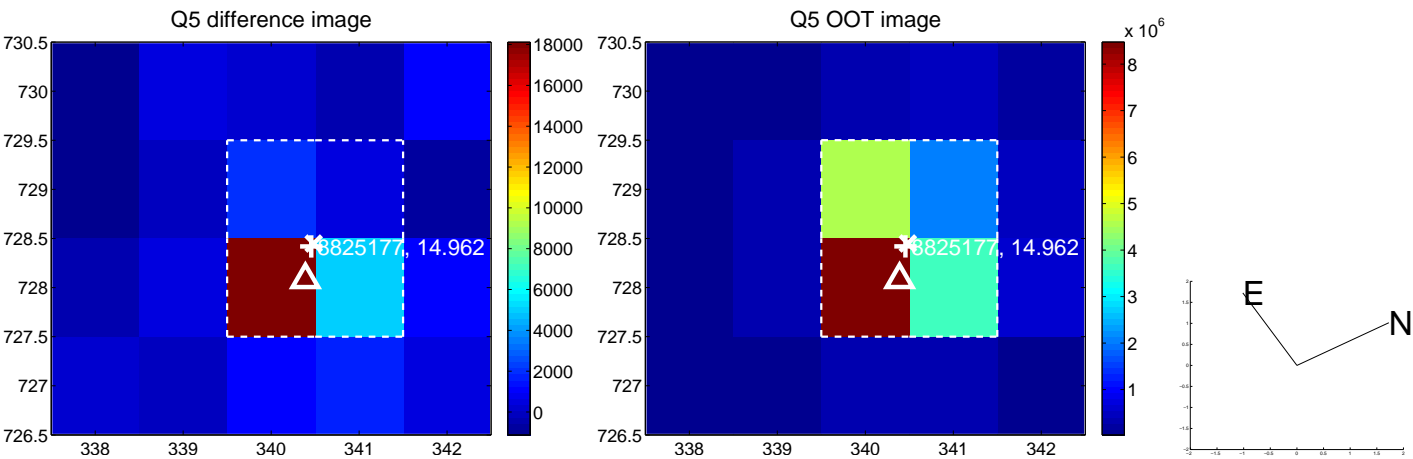


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

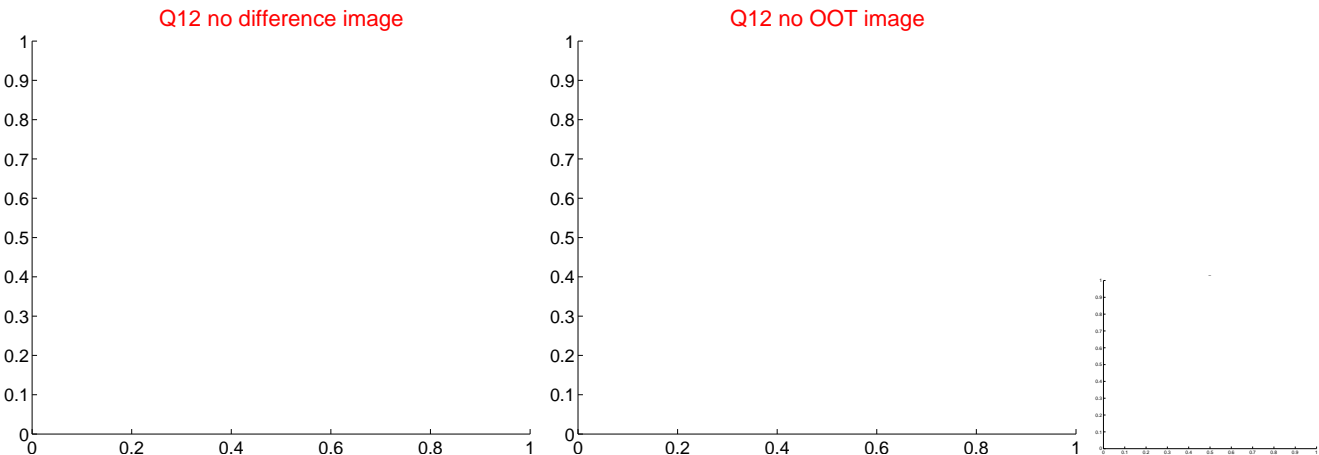
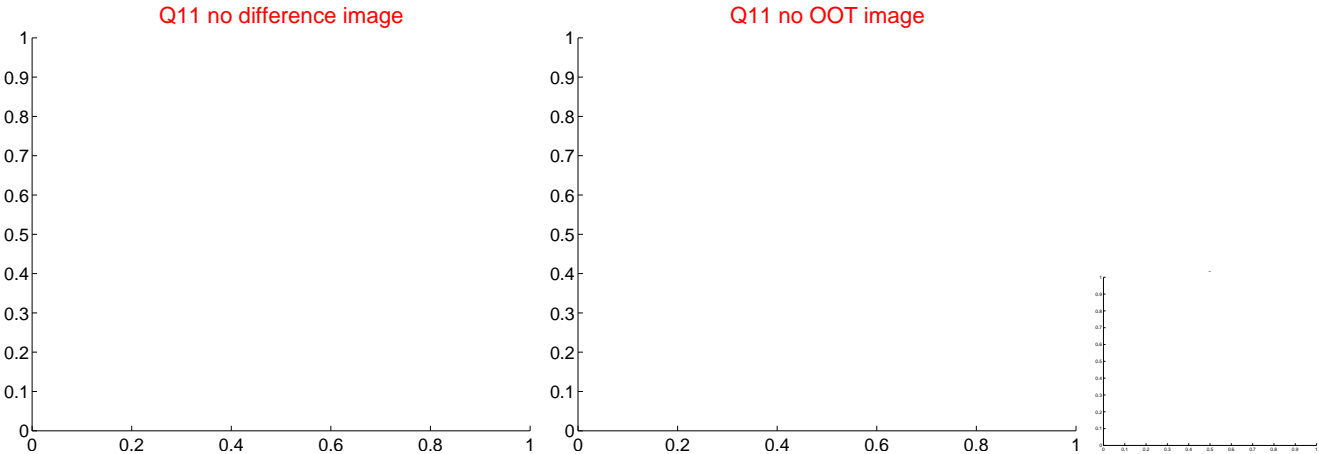
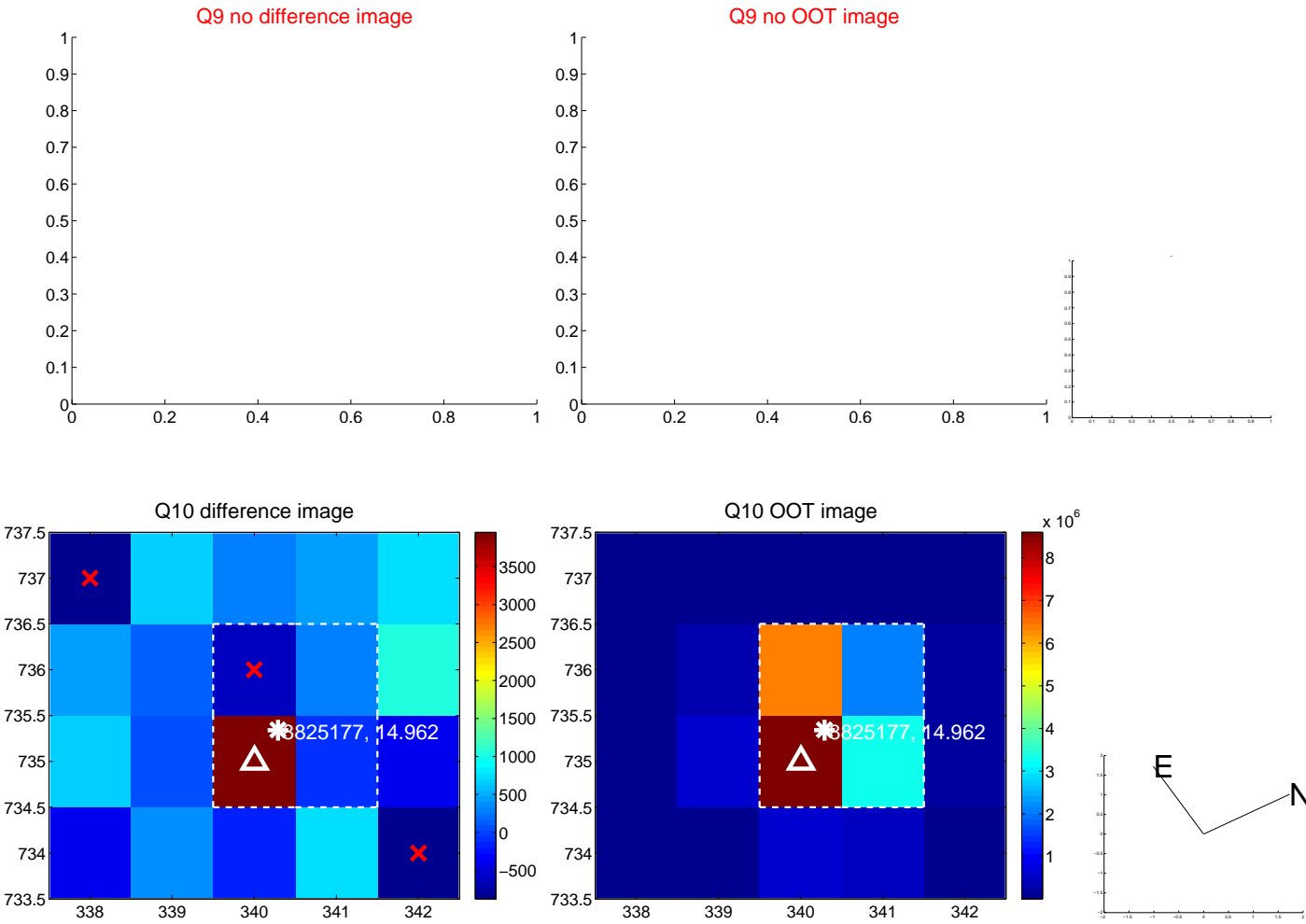
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



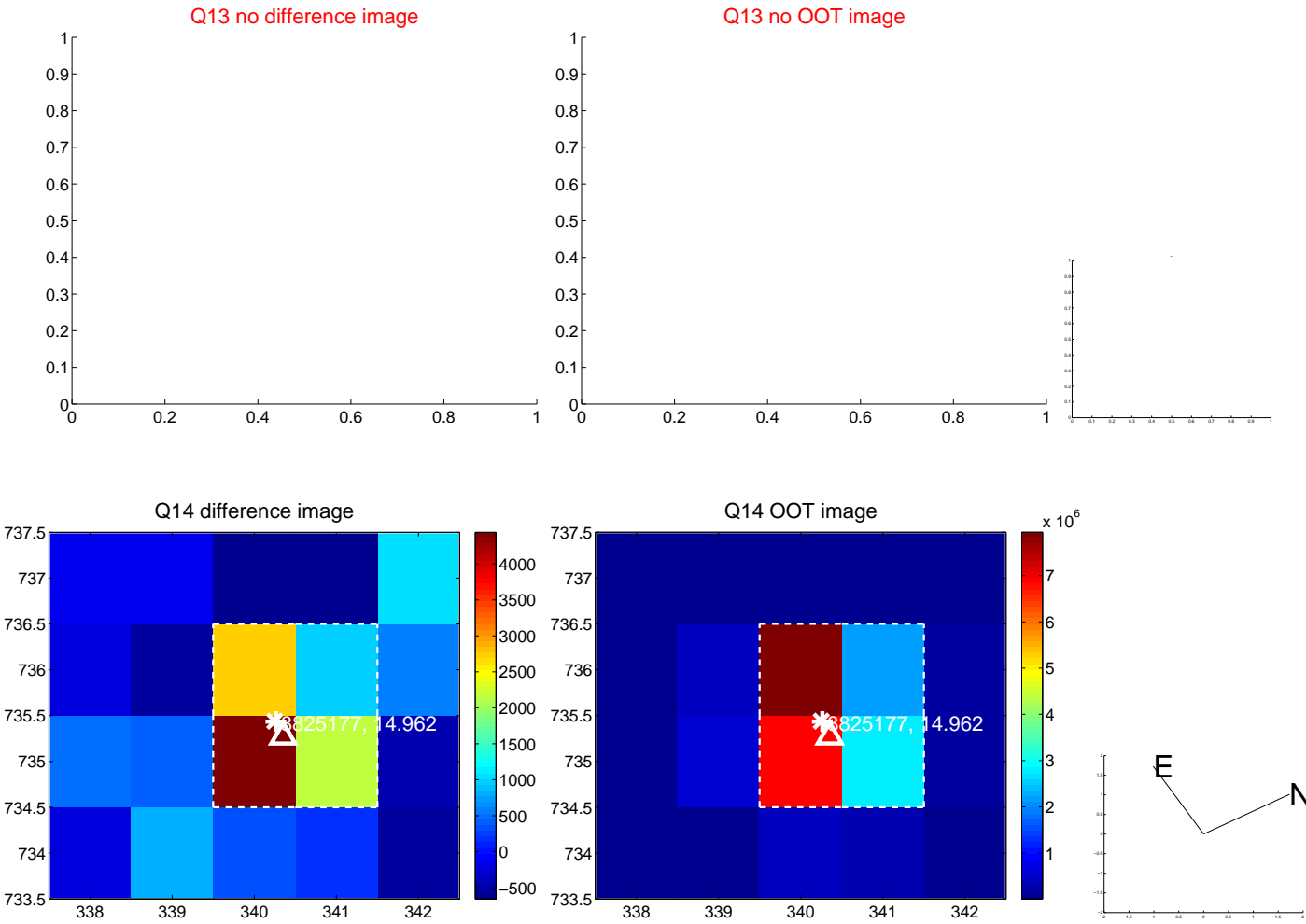
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



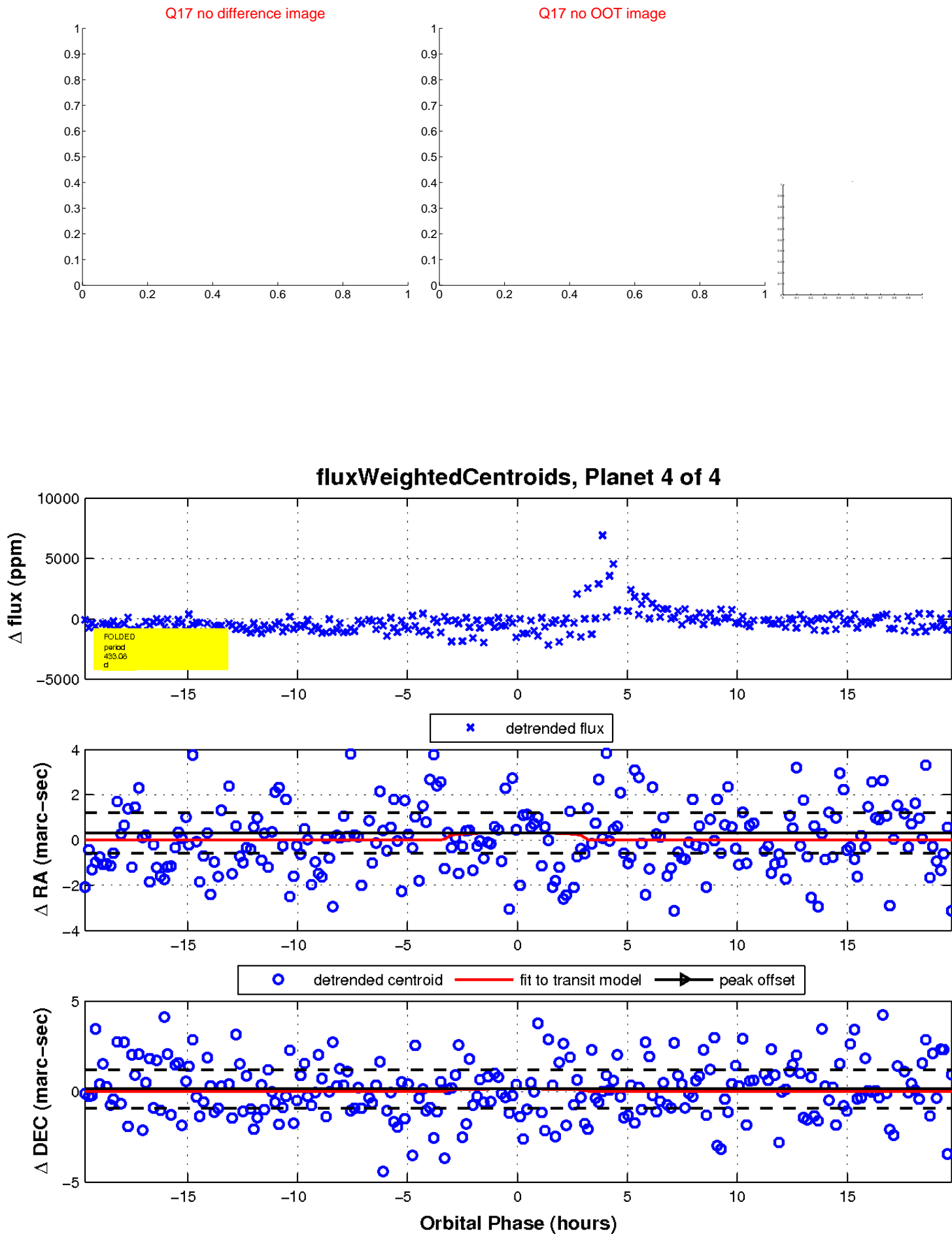
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



white ×: 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

