

KIC 008672278

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})
008672278-01	OBS	No	3.707887	133.090540	134.1	9.286	7.4	8.0	0.53	3909	0.72	39.15
008672278-02	OBS	No	342.307380	292.131697	1319.9	22.730	10.8	6.7	0.53	3909	1.90	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008672278-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
008672278-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

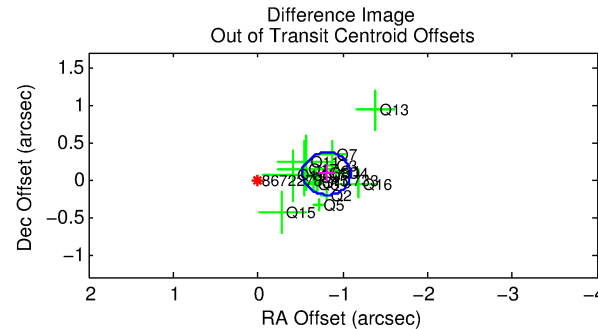
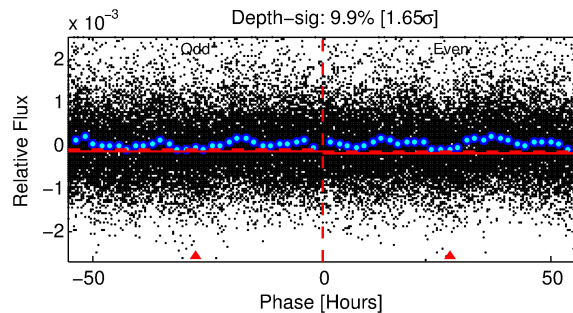
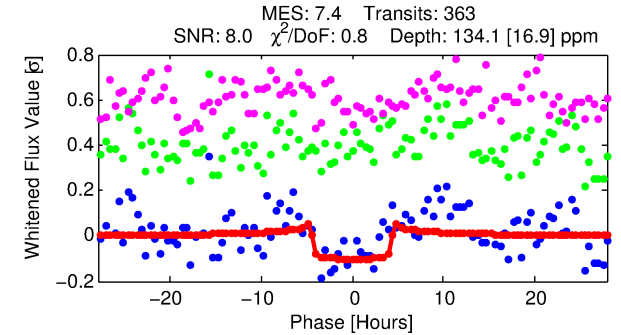
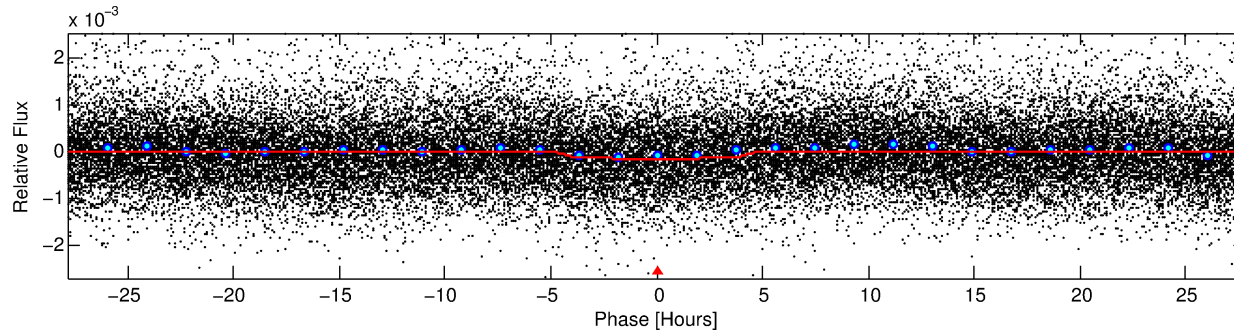
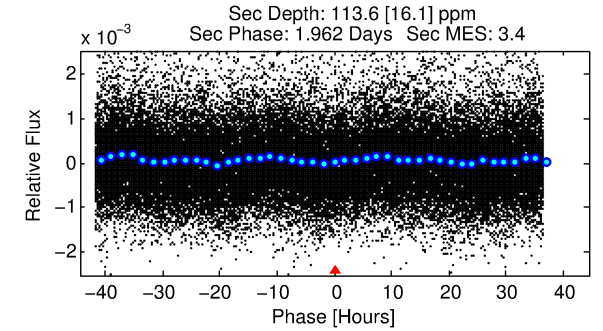
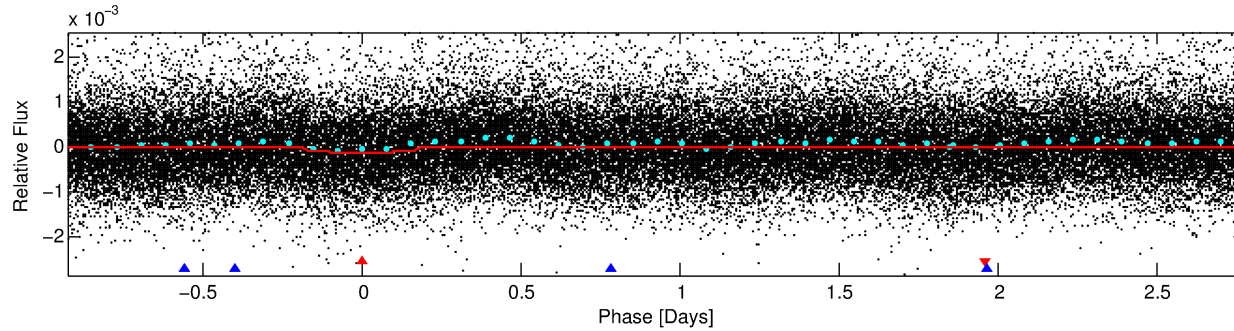
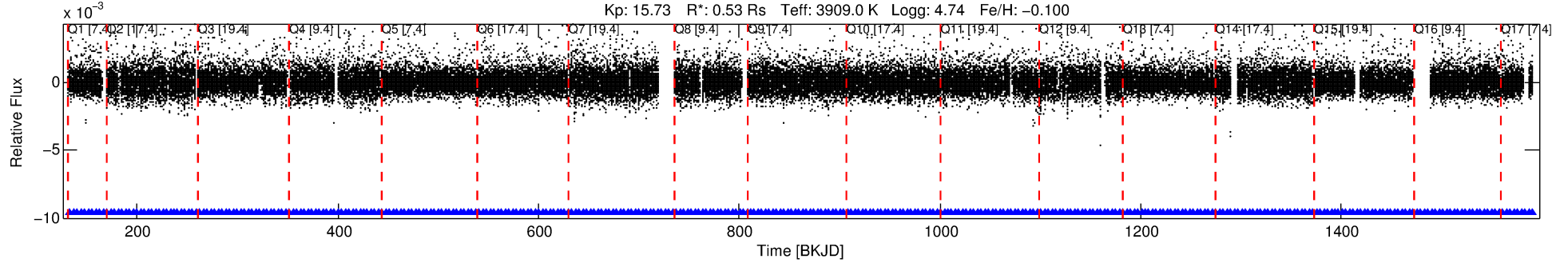
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008672278-01

No Significant Match Found

DV One-Page Summary

KIC: 8672278 Candidate: 1 of 2 Period: 3.708 d



DV Fit Results:

Period = 3.70789 [0.00005] d
Epoch = 133.0905 [0.0088] BKJD
Rp/R* = 0.0125 [0.0026]
a/R* = 1.75 [1.03]
b = 0.89 [0.21]
Seff = 39.15 [4.09]
Teff = 638 [17] K
Rp = 0.72 [0.15] Re
a = 0.0386 [0.0019] AU
Ag = 179.50 [78.78] [2.27σ]
Teffp = 3610 [398] K [7.46σ]

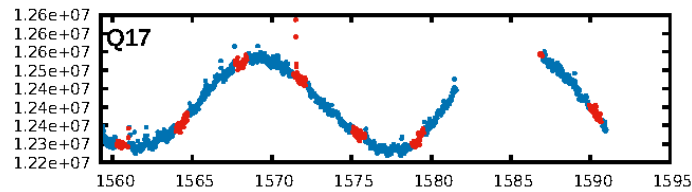
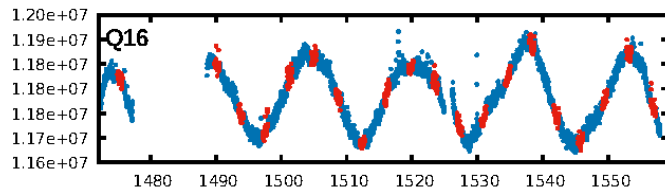
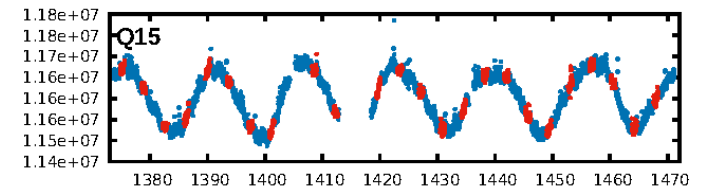
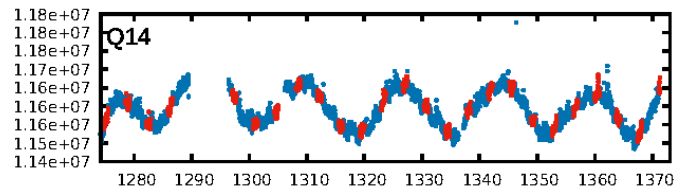
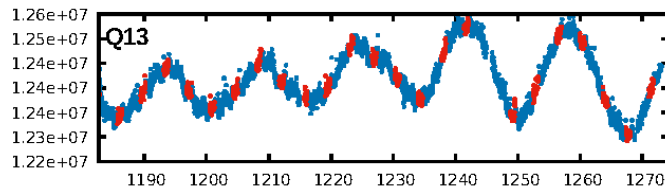
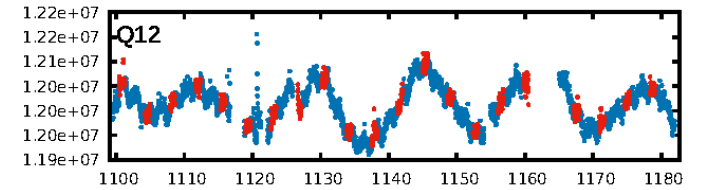
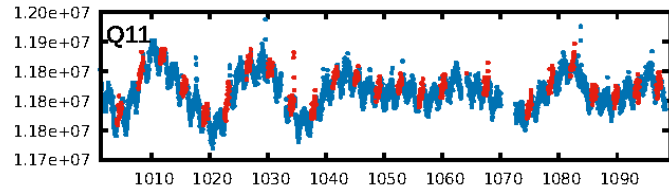
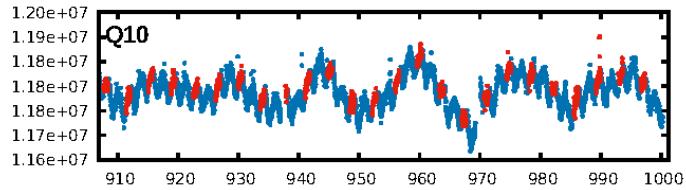
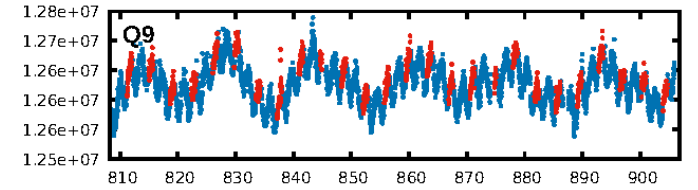
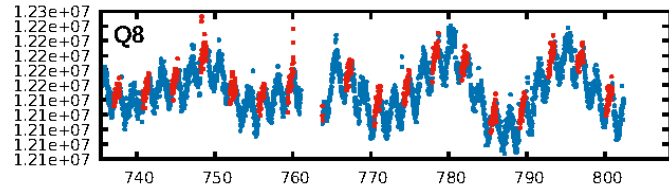
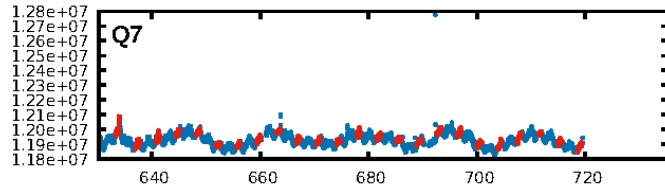
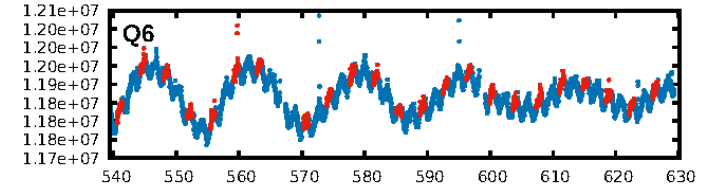
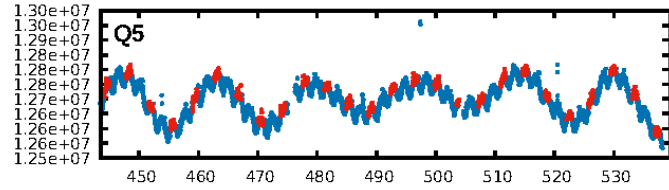
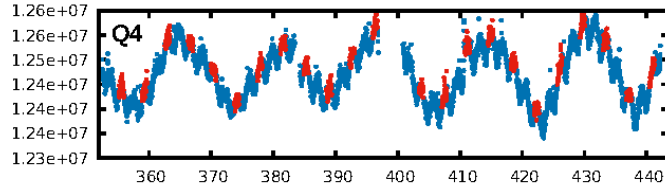
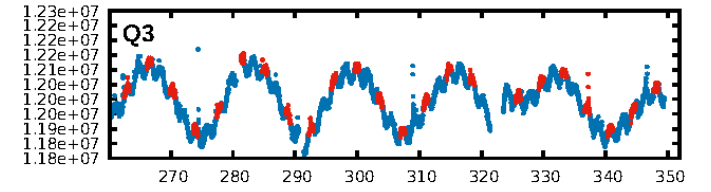
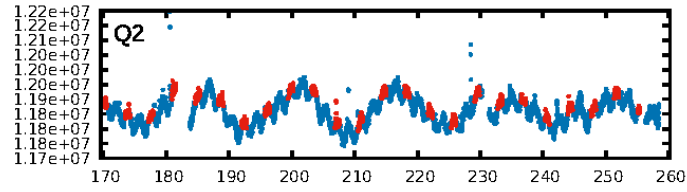
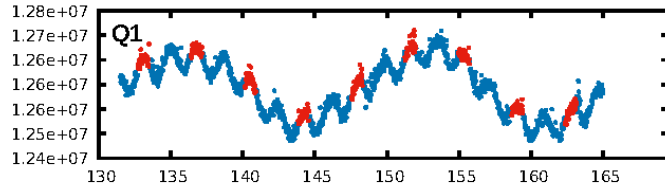
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [330.97σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.52e-10
RollingBand-fgt: 1.00 [347/347]
GhostDiagnostic-chr: 0.4806
Centroid-sig: 0.9%
Centroid-so: 1.918 arcsec [2.10σ]
OotOffset-rm: 0.813 arcsec [8.61σ]
KicOffset-rm: 0.769 arcsec [8.47σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.31 [5/16]
DiffImageOverlap-fno: 1.00 [17/17]

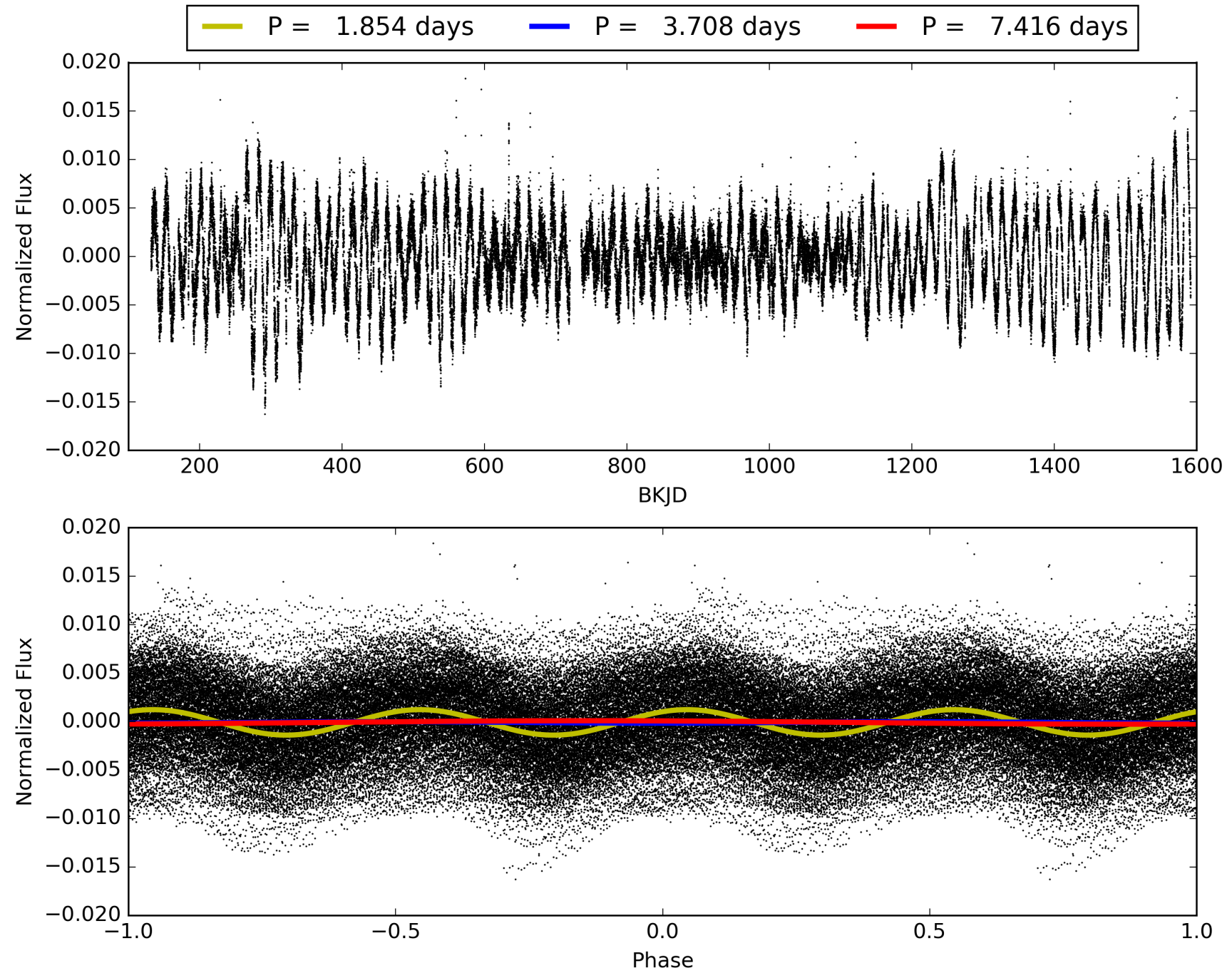
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:51:02 Z

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

TCE 008672278-01, PDC Light Curves

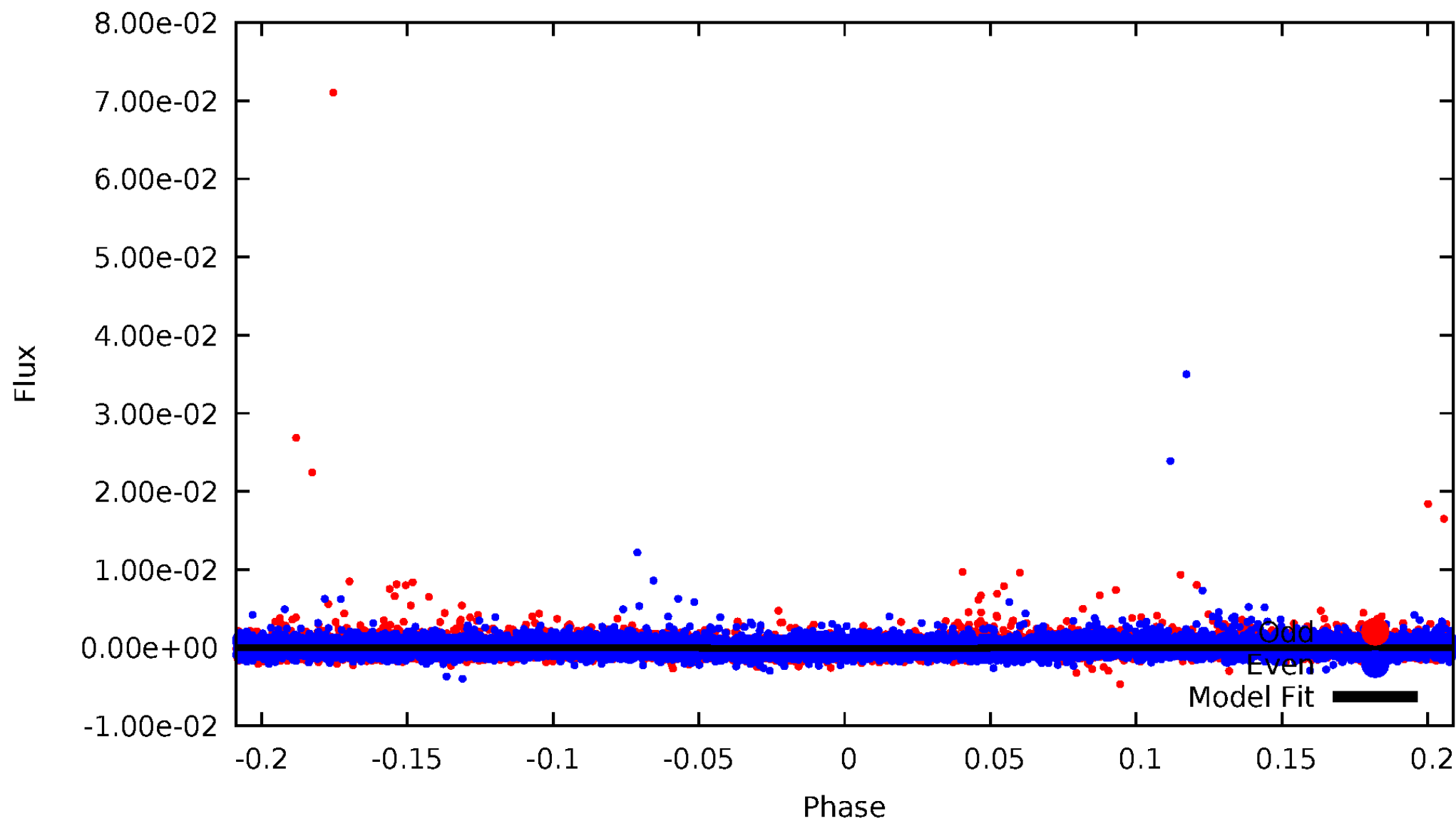


TCE 008672278-01



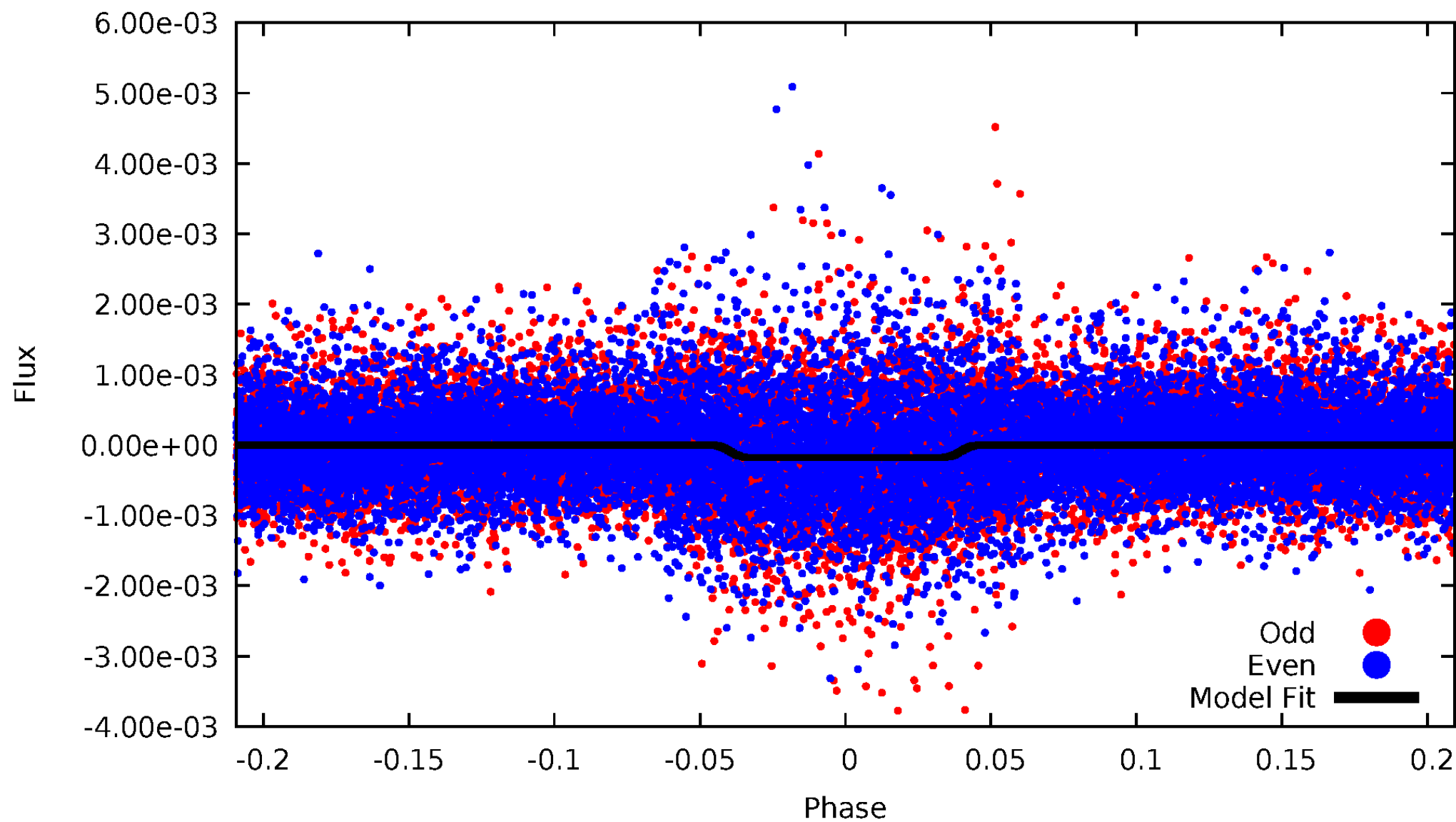
DV Odd/Even

TCE 008672278-01



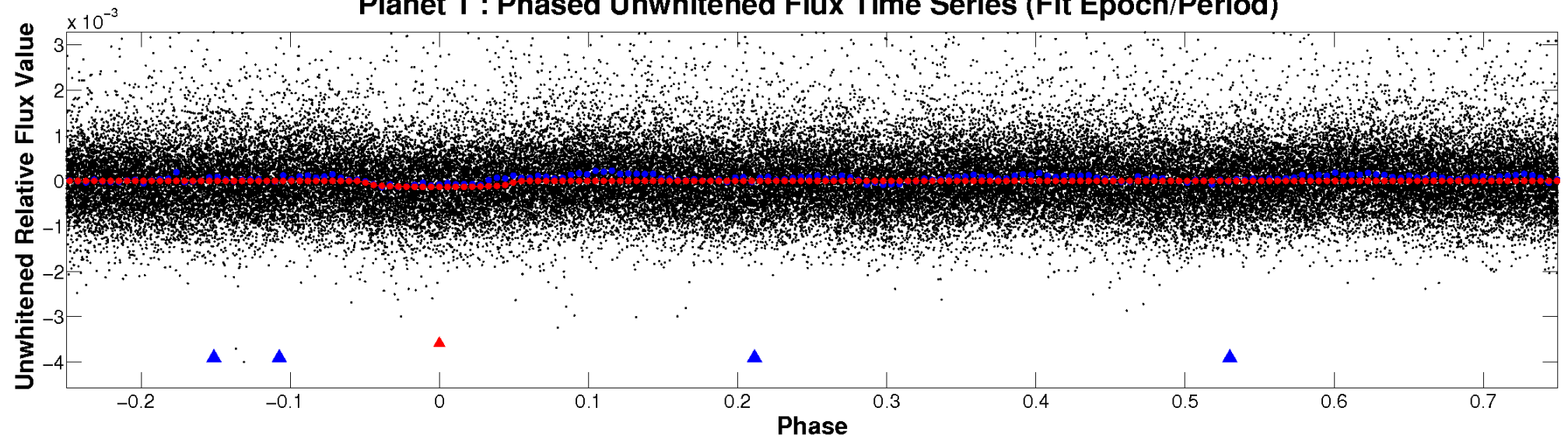
ALT Odd/Even

TCE 008672278-01

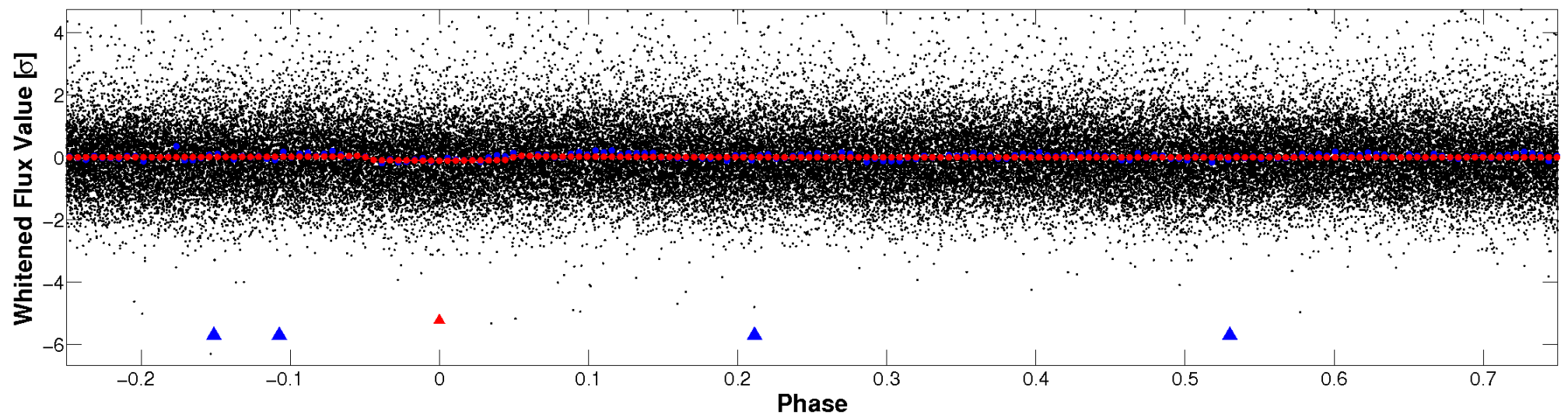


Non-Whitened Vs. Whitened Light Curve

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

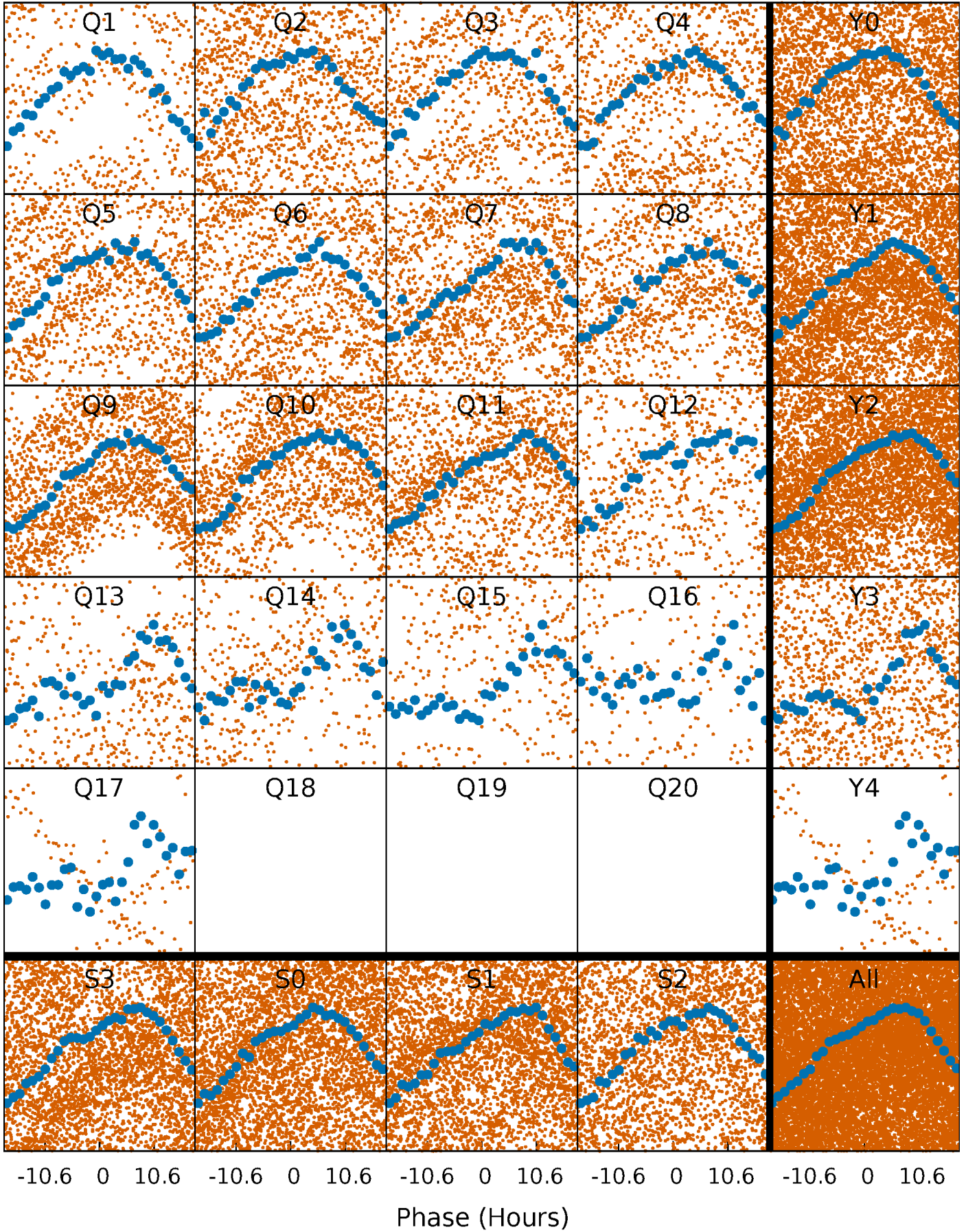


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



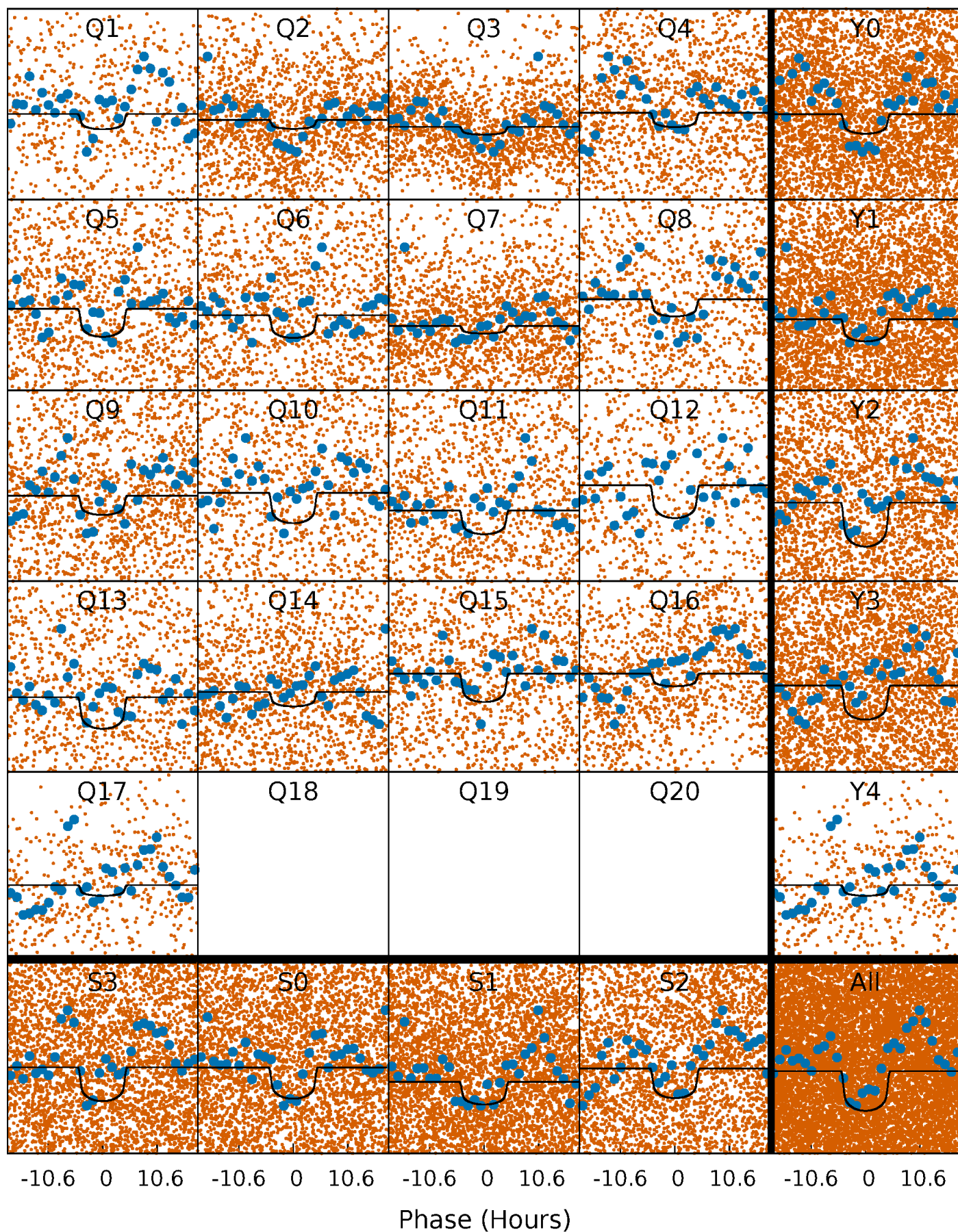
PDC Quarter-Phased Transit Curves

TCE 008672278-01 P= 3.707887 Days $T_0=133.090540$ (BKJD)



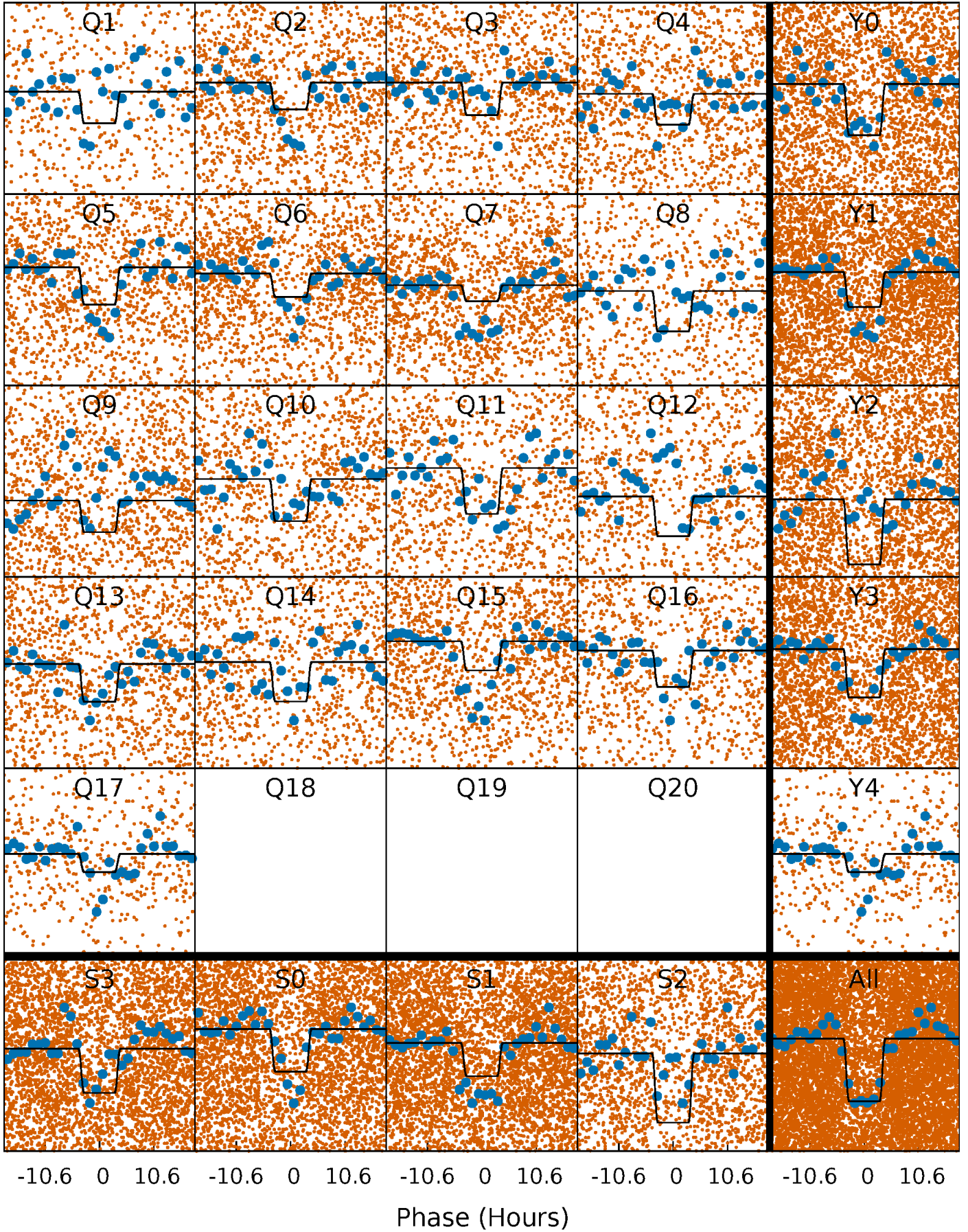
DV Quarter-Phased Transit Curves

TCE 008672278-01 P= 3.707887 Days $T_0=133.090540$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

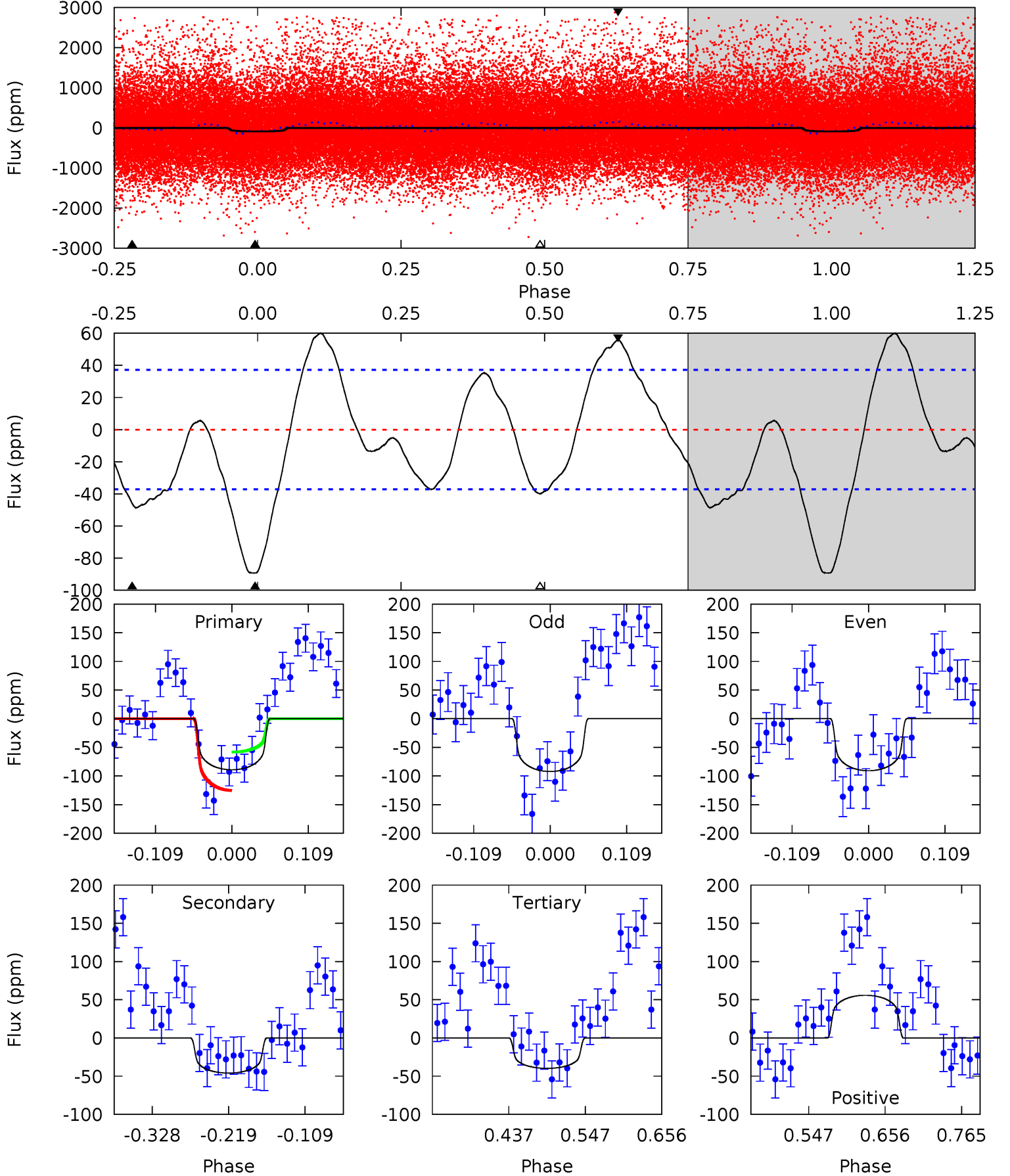
TCE 008672278-01 P= 3.707761 Days $T_0=133.074745$ (BKJD)



DV Model-Shift Uniqueness Test

008672278-01, P = 3.707887 Days, E = 129.382653 Days

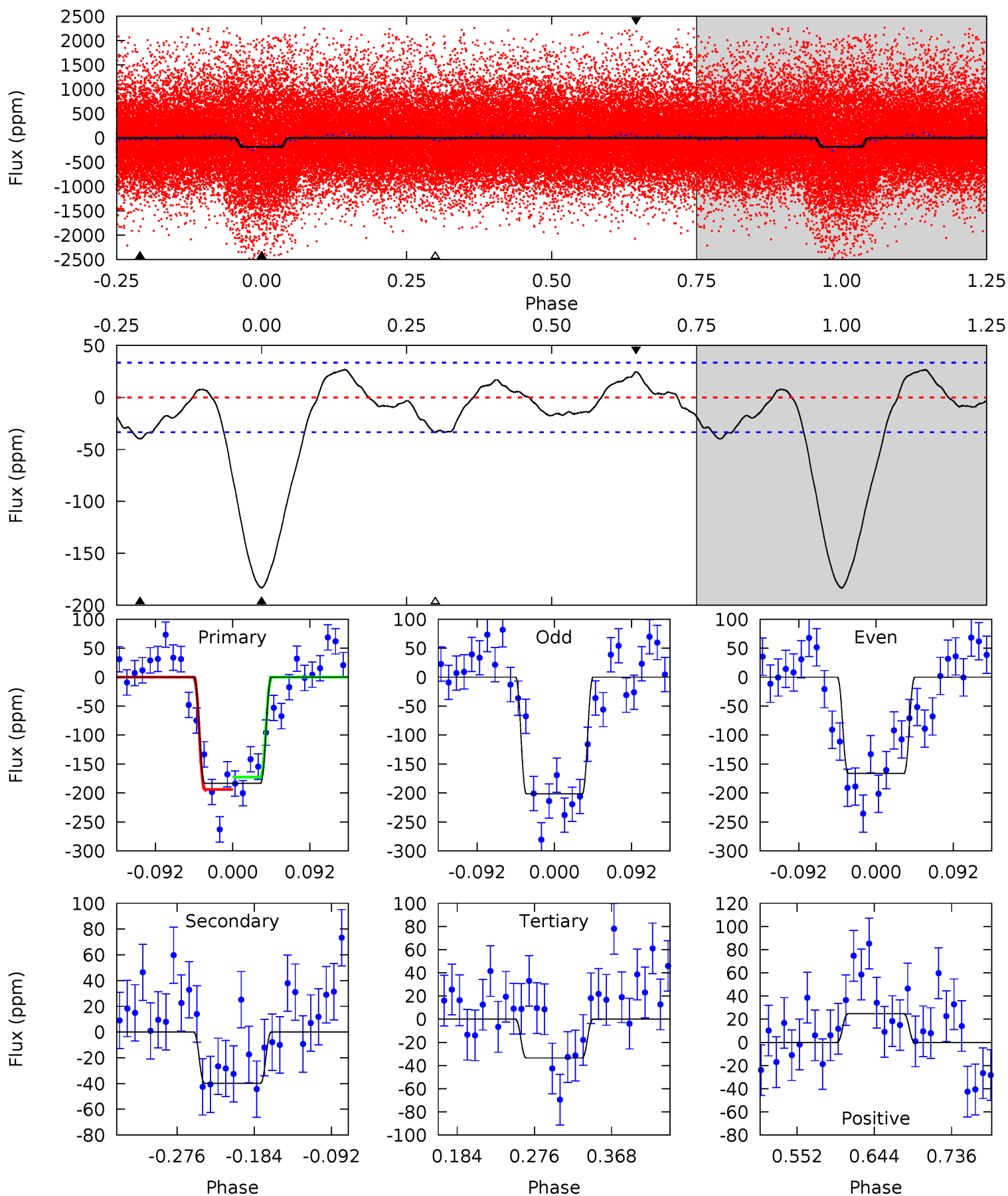
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	5.61	4.86	6.83	4.55	1.60	3.55	6.05	4.08	0.75	-1.21	0.09	0.86	0.40	4.10



Alt Model-Shift Uniqueness Test

008672278-01, P = 3.707761 Days, E = 129.366984 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	5.44	4.57	3.37	4.58	1.69	2.07	20.5	21.7	0.86	2.07	2.40	1.03	0.13	1.46



Stellar Parameters For KIC 008672278

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3909^{+70}_{-78}	$4.739^{+0.020}_{-0.035}$	$-0.100^{+0.100}_{-0.100}$	$0.528^{+0.032}_{-0.027}$	$0.559^{+0.023}_{-0.034}$	$5.336^{+0.516}_{-0.691}$
	+2%/-2%	+0%/-1%	+100%/-100%	+6%/-5%	+4%/-6%	+10%/-13%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008672278-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 8	$0.73^{+0.15}_{-0.15}$	894^{+20}_{-21}	3204^{+263}_{-194}	71^{+48}_{-25}
Alt.	-40 ± 7	$0.76^{+0.14}_{-0.14}$	894^{+17}_{-19}	3086^{+217}_{-166}	55^{+30}_{-17}

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 $A_{obs} \gg 1.0$

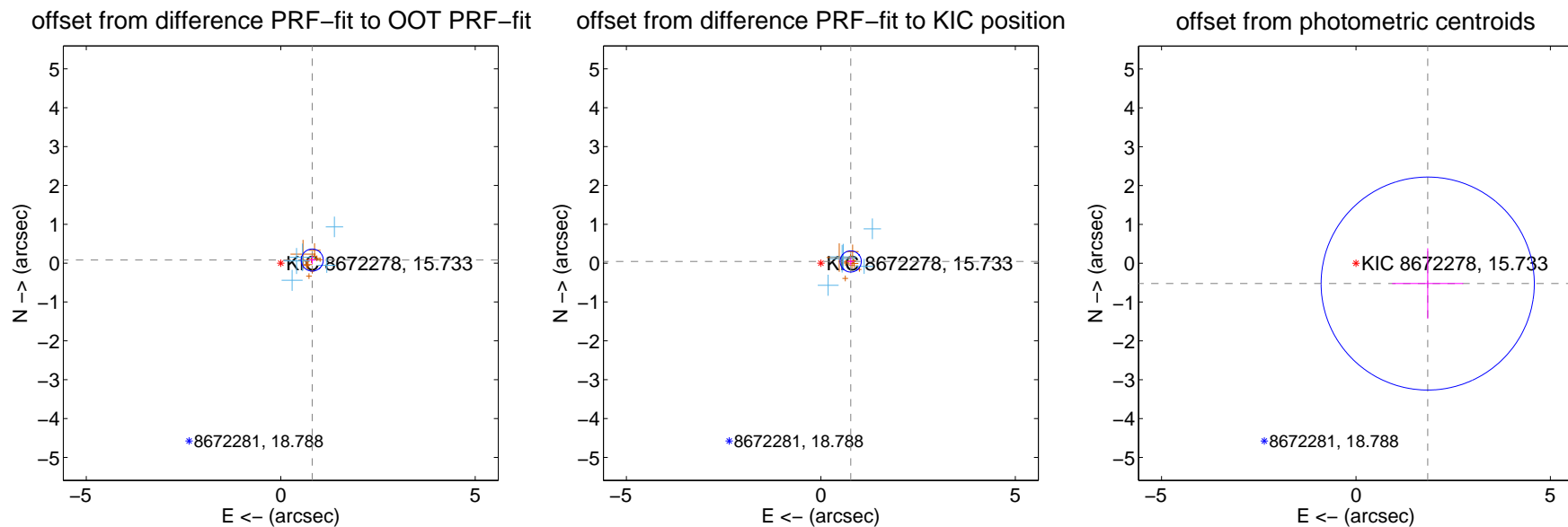
DV Centroid Data

Supplemental centroid analysis for 008672278-01. Kepler magnitude: 15.73. Transit SNR 8.00

There are 5 quarters with good PRF difference image offsets

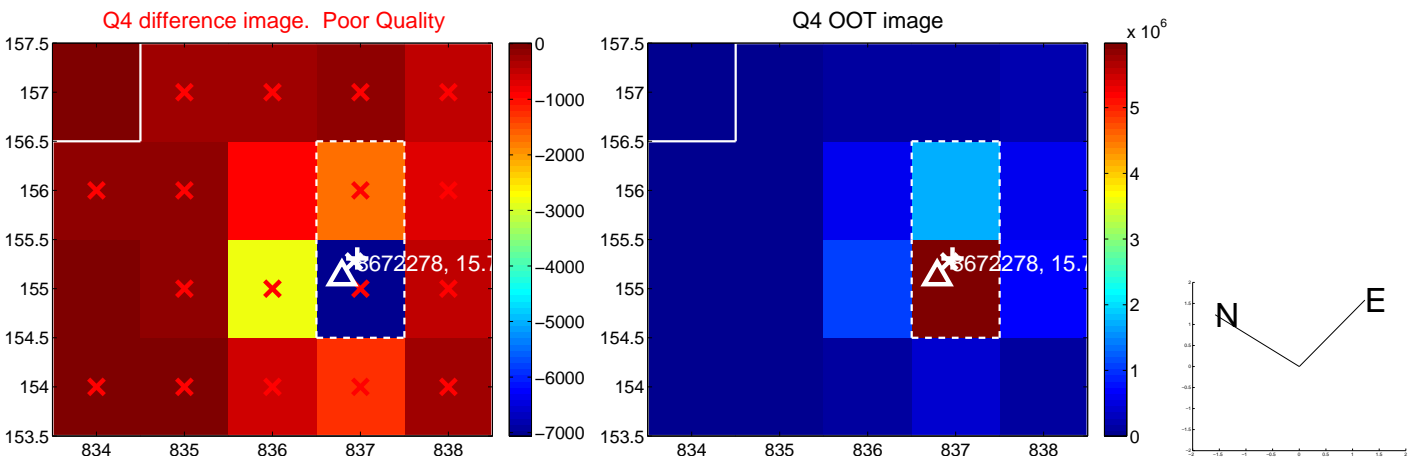
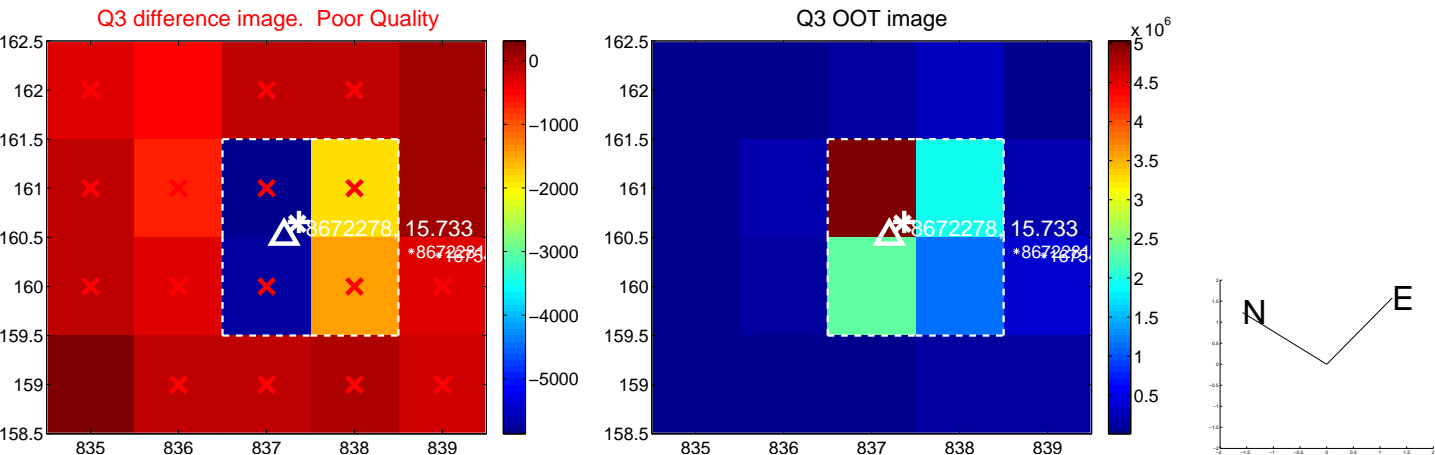
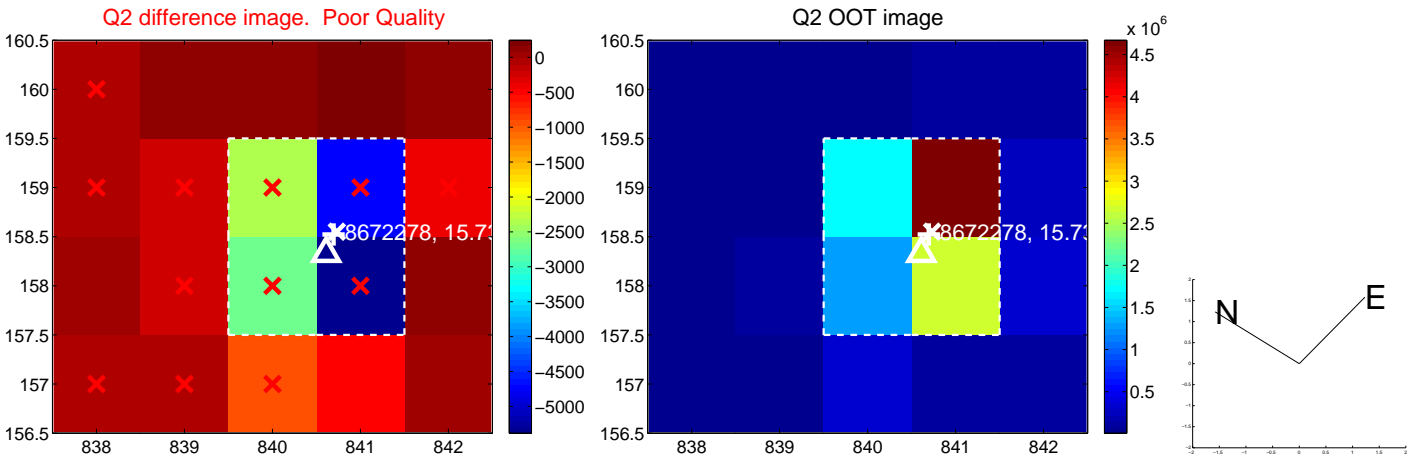
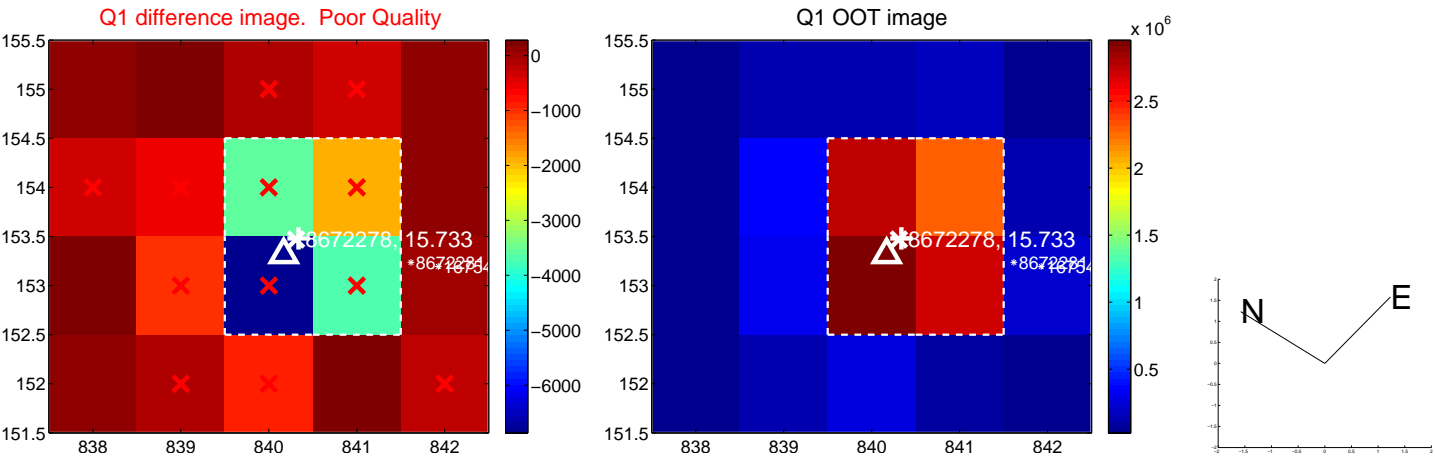
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.813 ± 0.094	8.61	-0.810 ± 0.091	0.080 ± 0.102
PRF-fit source offset from KIC position	0.769 ± 0.091	8.47	-0.767 ± 0.089	0.044 ± 0.098
photometric centroid source offset	1.92 ± 0.91	2.10	-1.84 ± 0.91	-0.52 ± 0.91

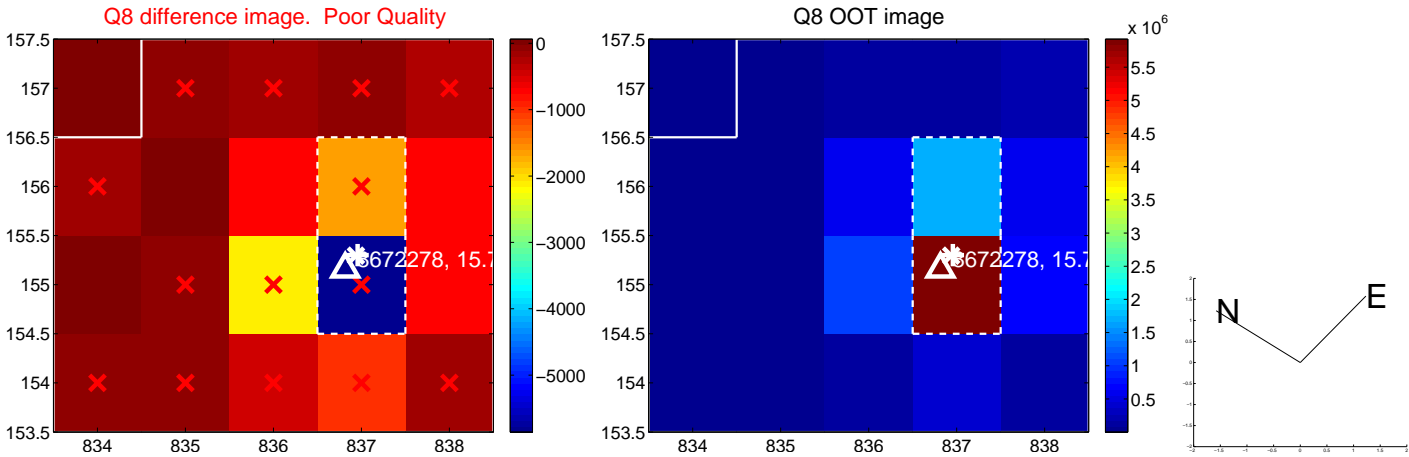
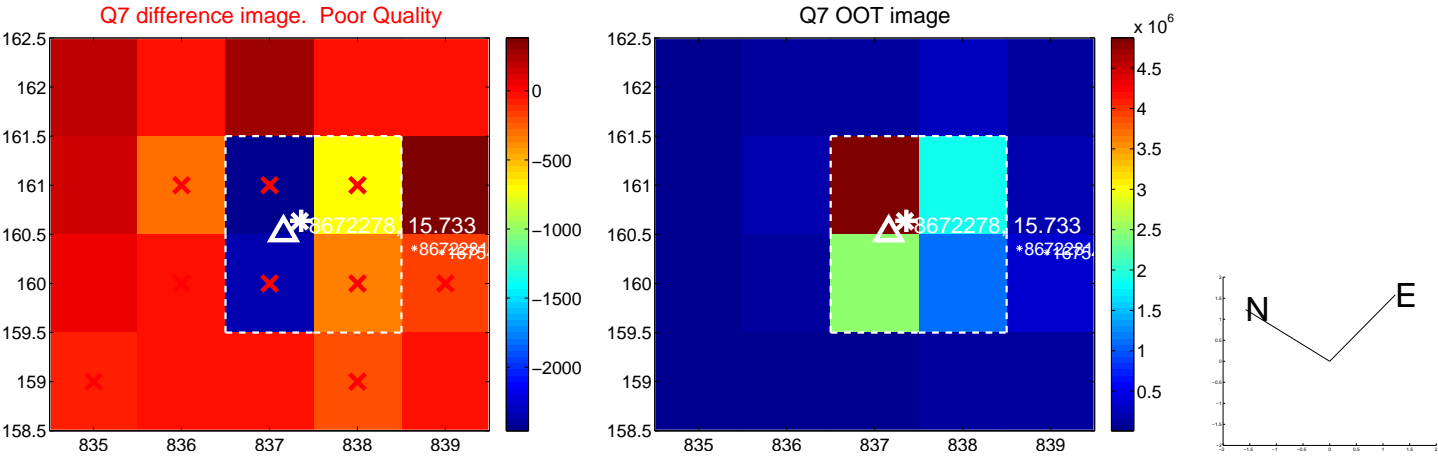
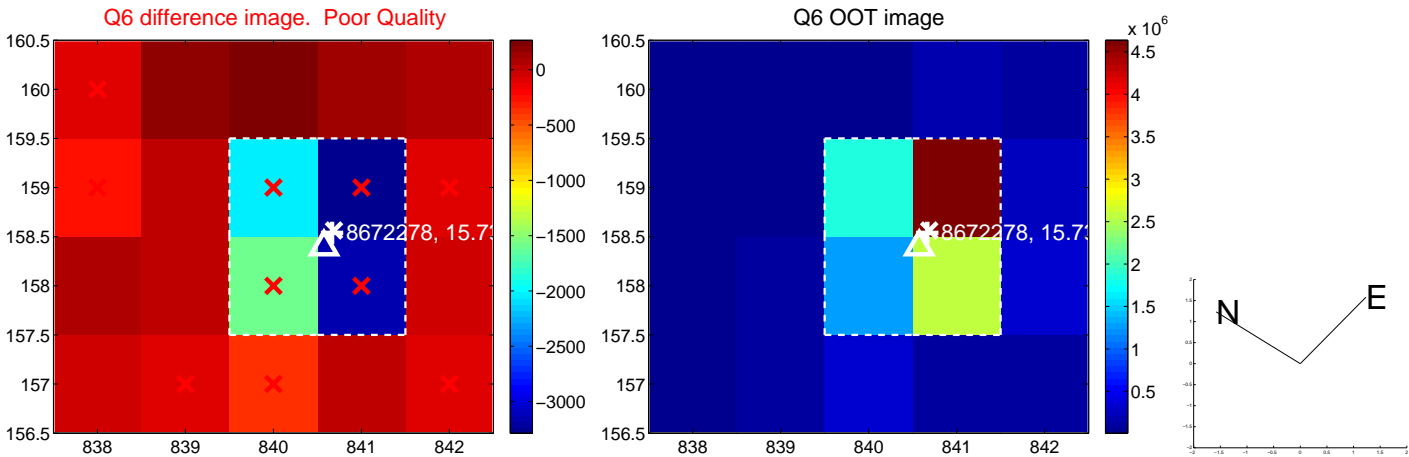
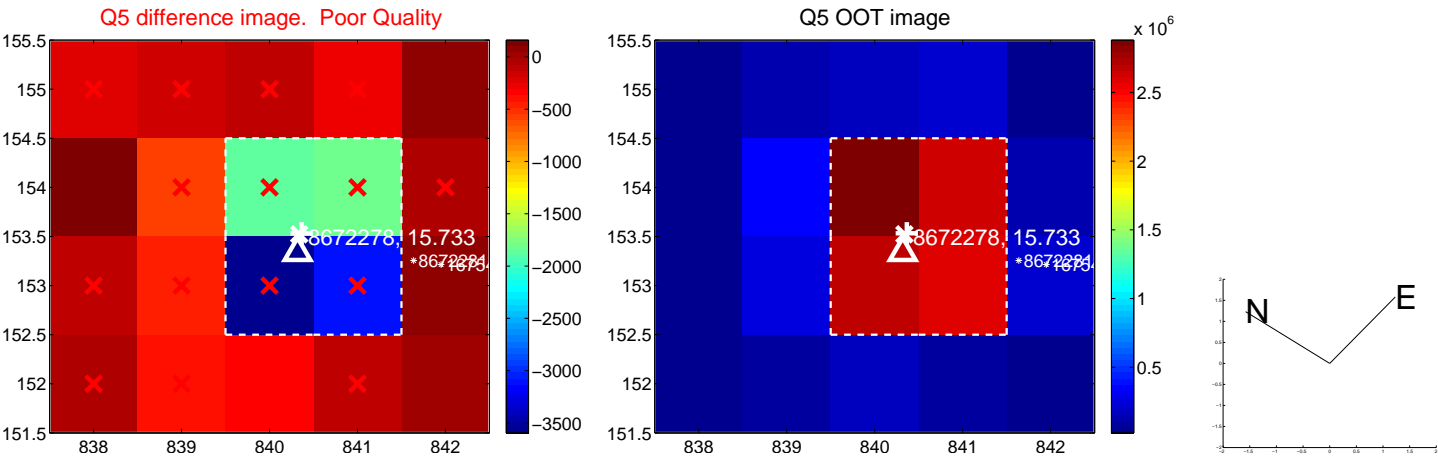


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

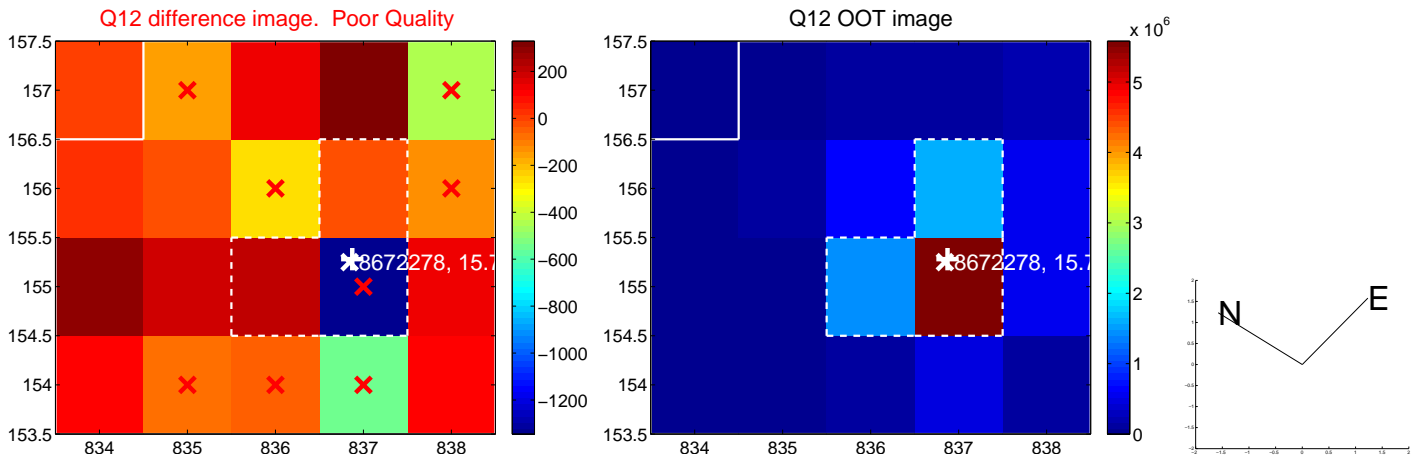
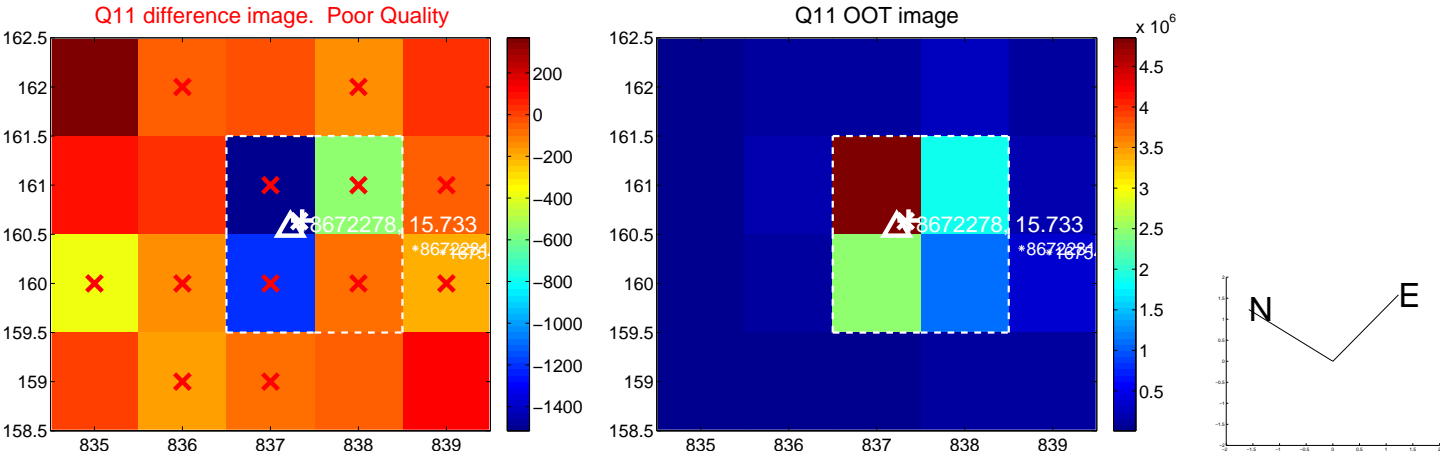
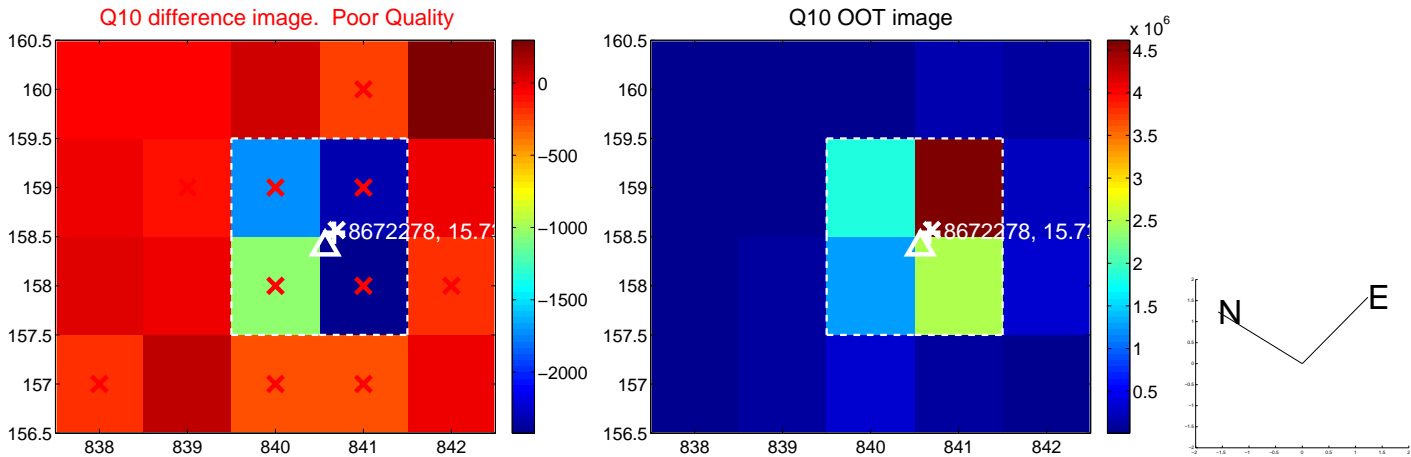
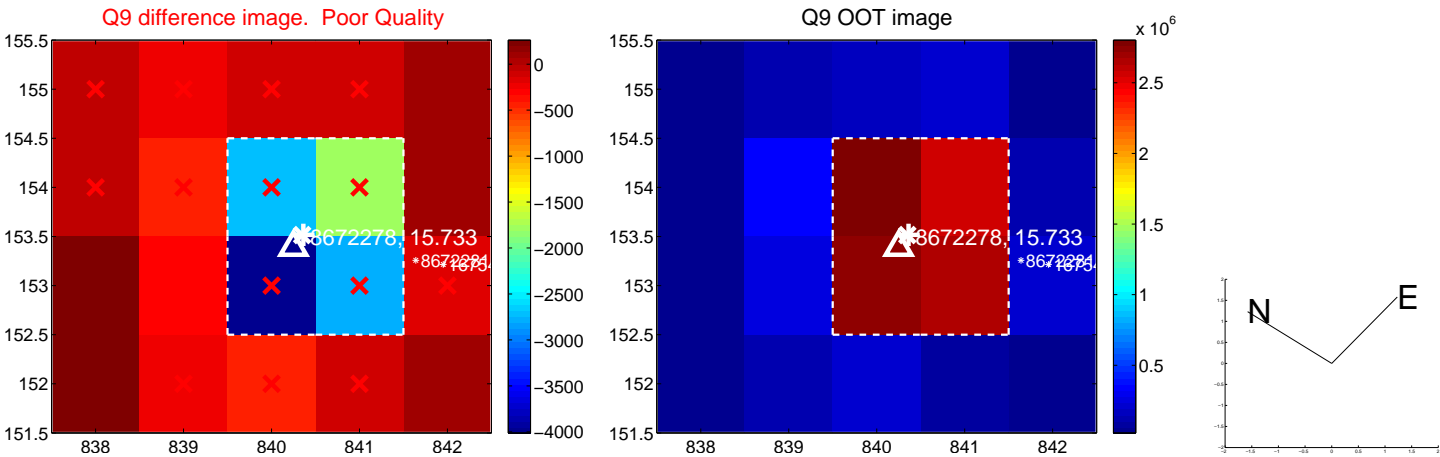
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



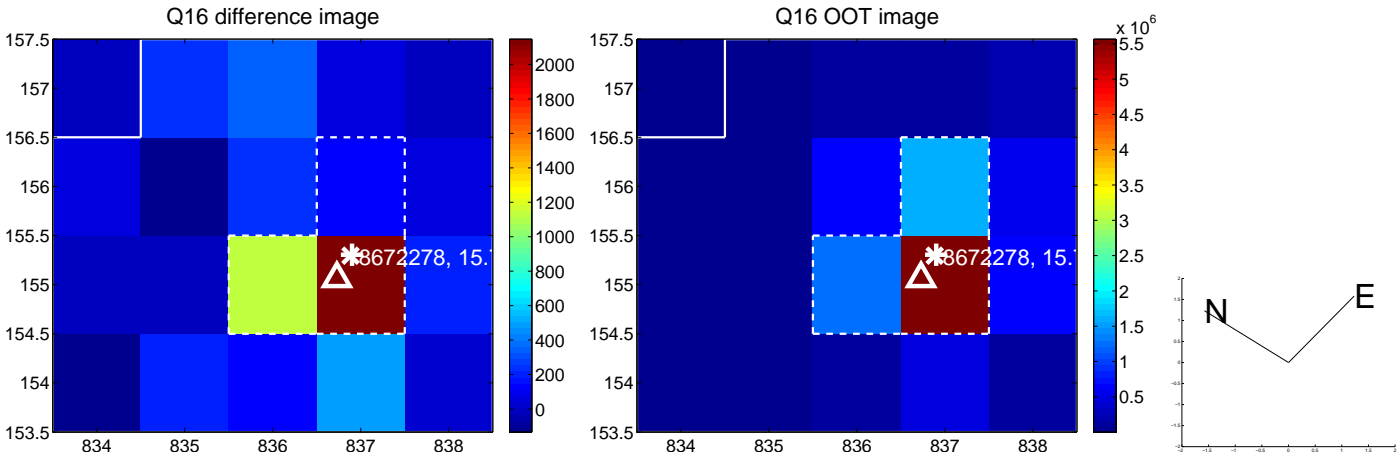
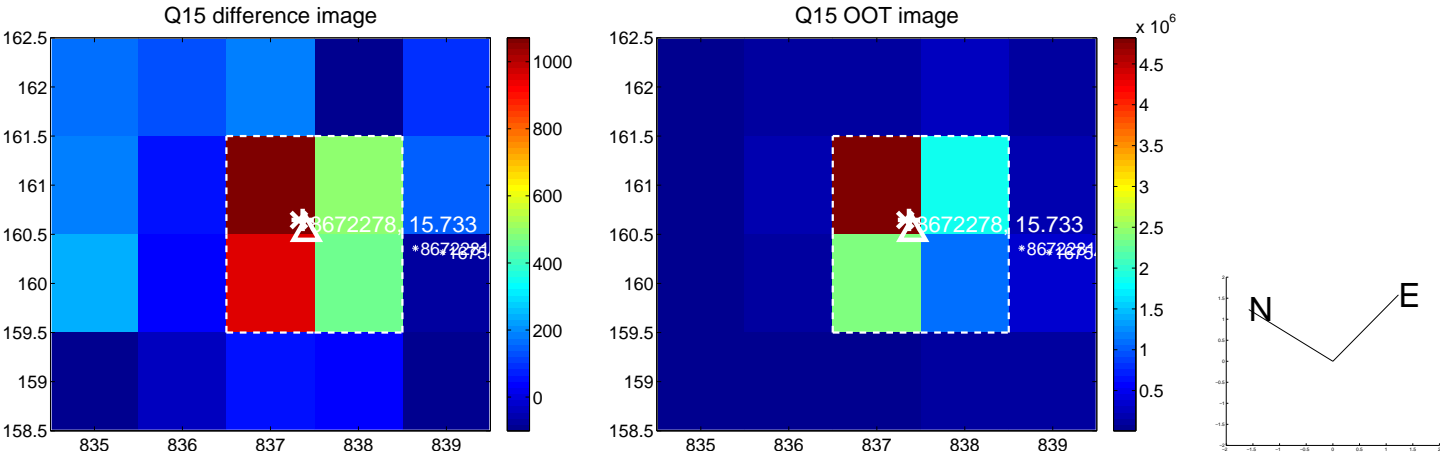
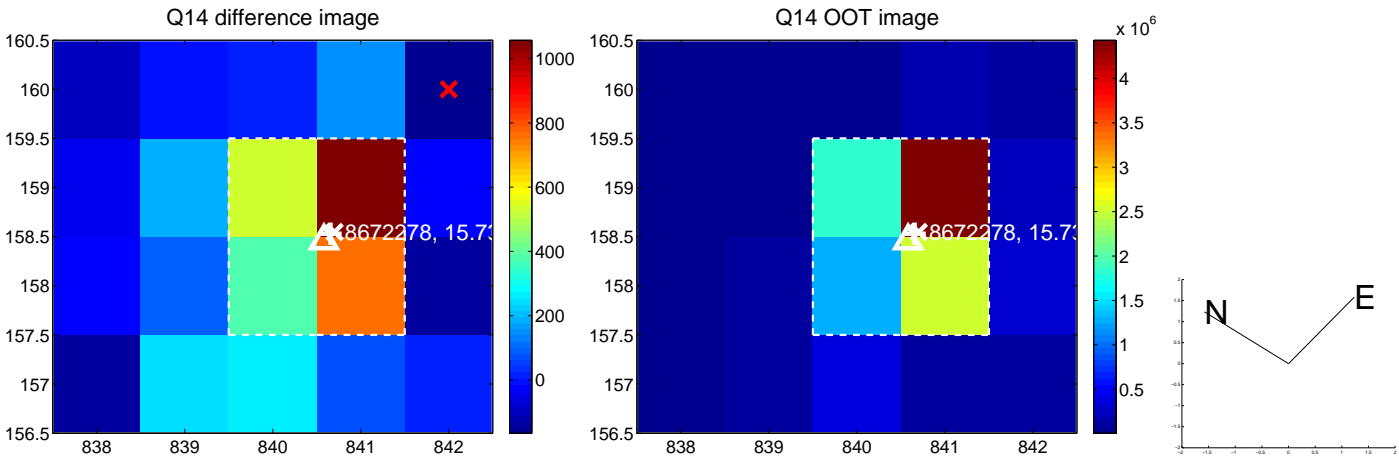
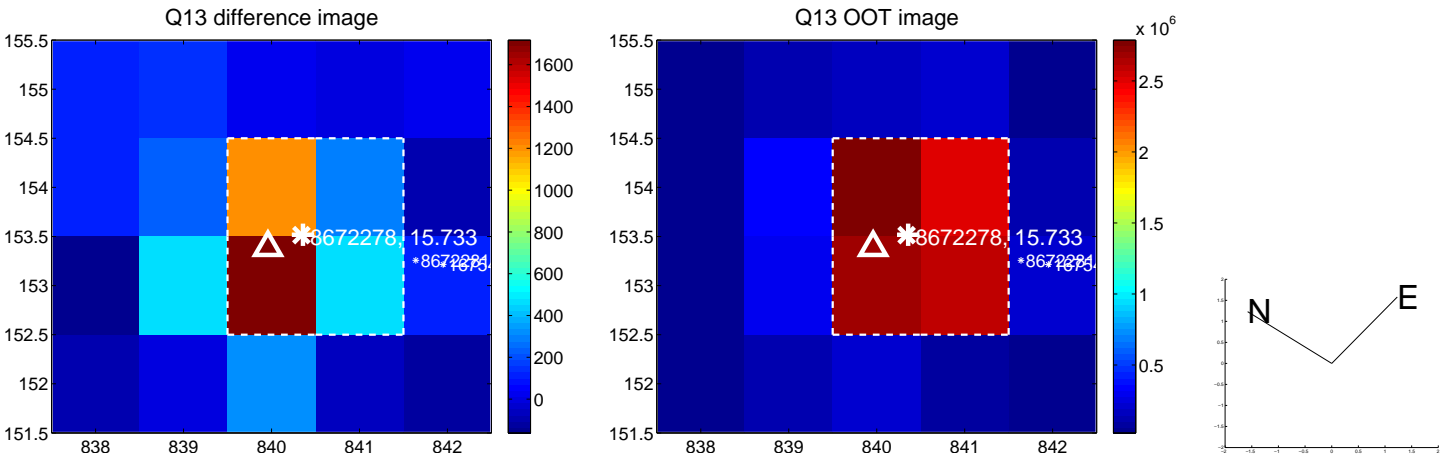
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



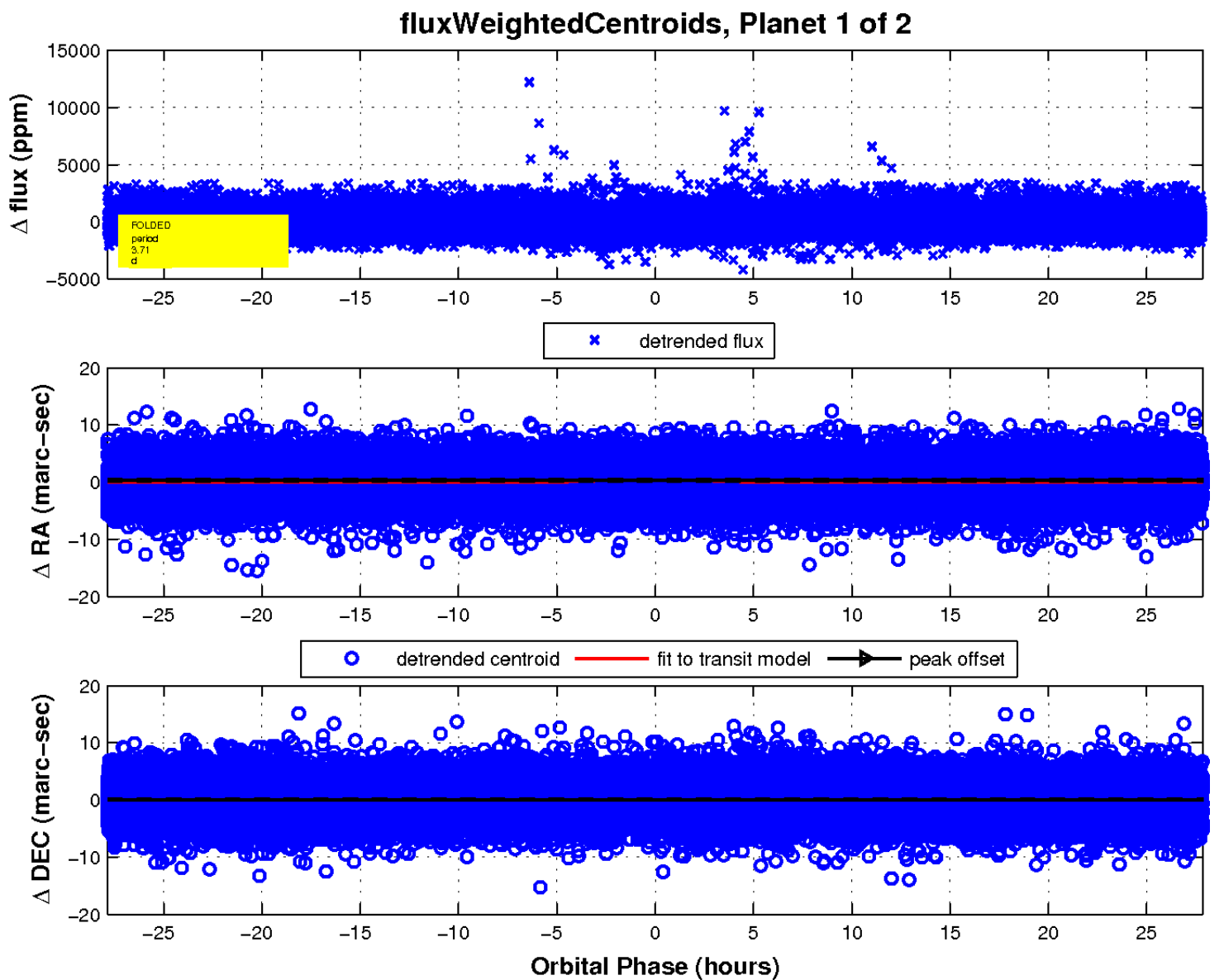
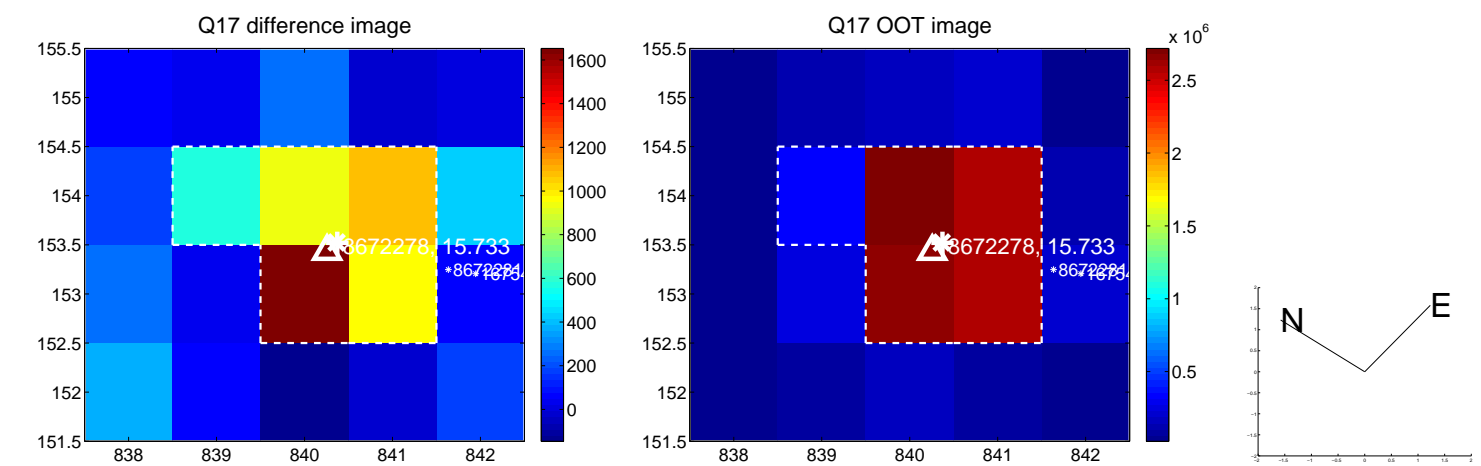
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

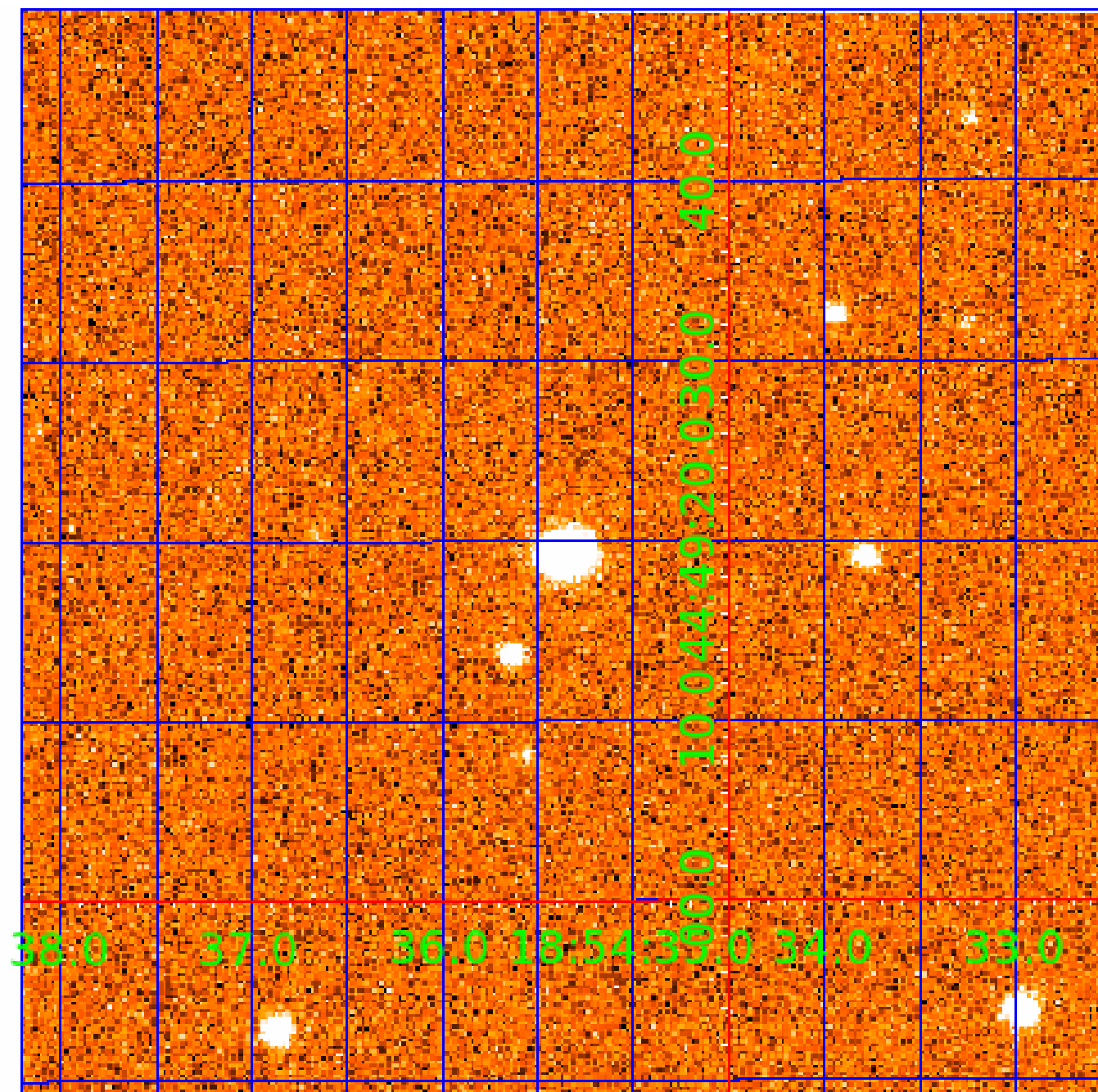


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008672278

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})
008672278-01	OBS	No	3.707887	133.090540	134.1	9.286	7.4	8.0	0.53	3909	0.72	39.15
008672278-02	OBS	No	342.307380	292.131697	1319.9	22.730	10.8	6.7	0.53	3909	1.90	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008672278-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV
008672278-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

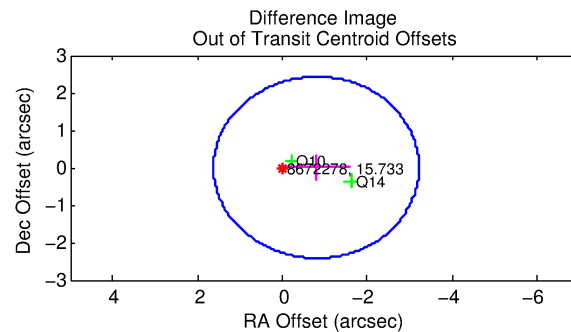
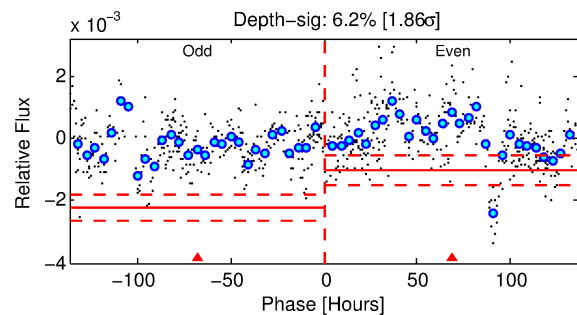
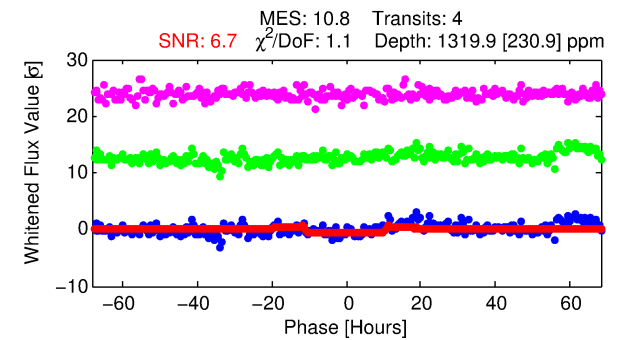
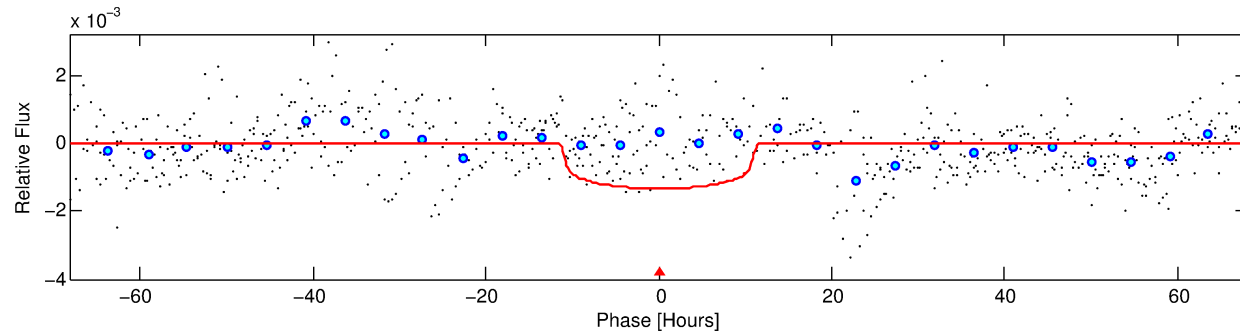
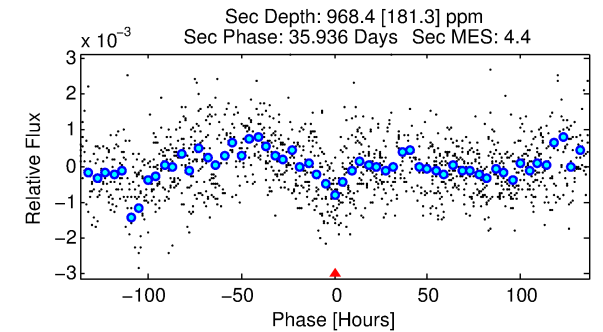
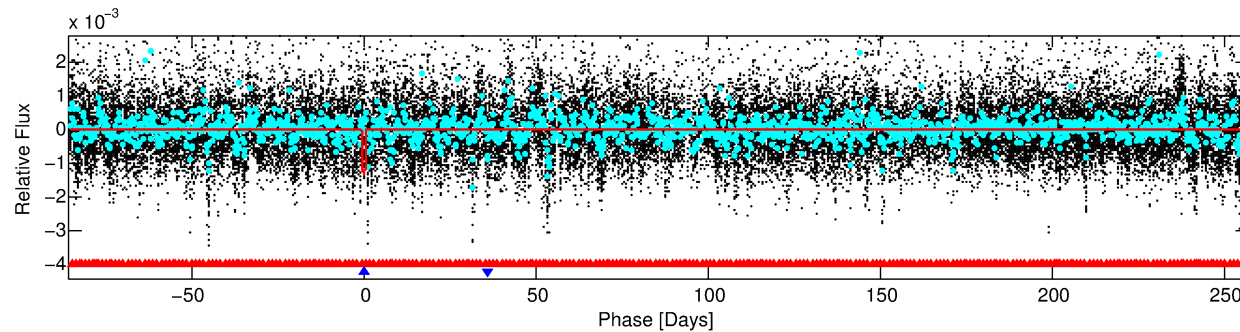
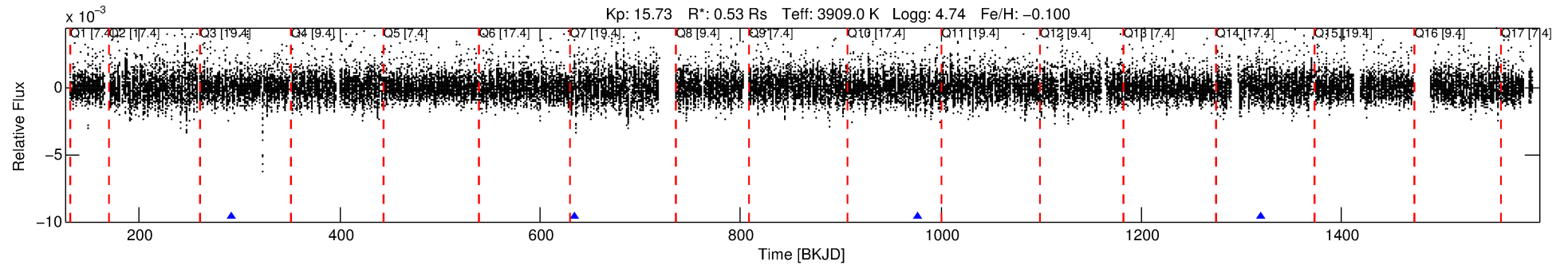
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008672278-02

No Significant Match Found

DV One-Page Summary

KIC: 8672278 Candidate: 2 of 2 Period: 342.307 d



DV Fit Results:

Period = 342.30738 [0.01257] d
Epoch = 292.1317 [0.0239] BKJD
Rp/R* = 0.0330 [0.0105]
a/R* = 116.20 [145.25]
b = 0.22 [5.51]
Seff = 0.09 [0.01]
Teq = 141 [4] K
Rp = 1.90 [0.61] Re
a = 0.7884 [0.0383] AU
Ag = 91684.93 [60943.35] [1.50 σ]
Teffp = 3797 [632] K [5.78 σ]

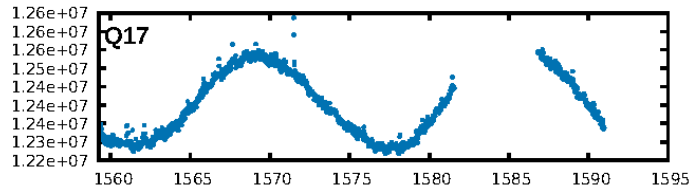
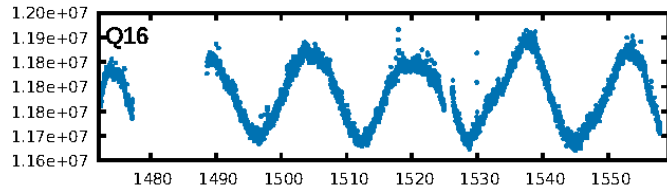
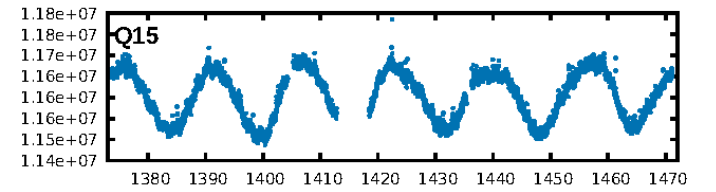
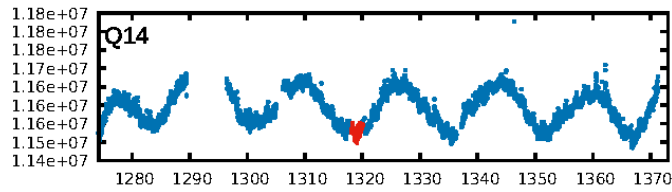
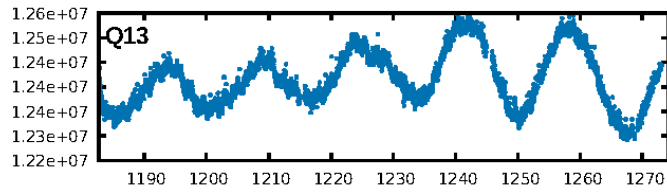
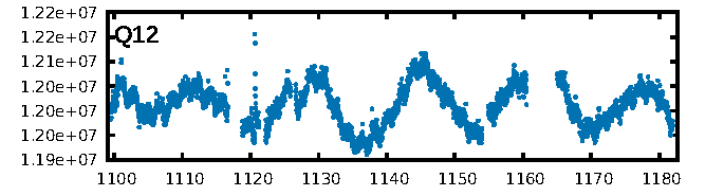
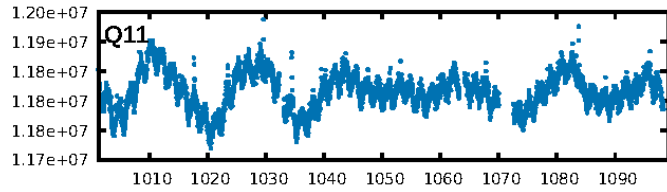
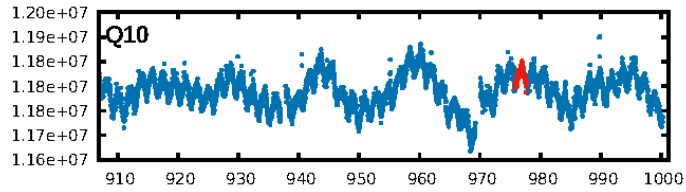
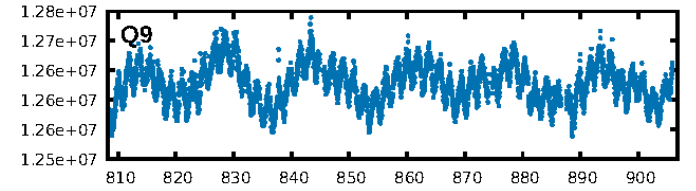
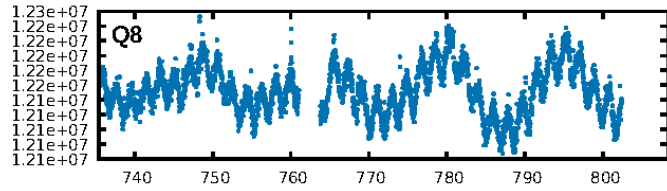
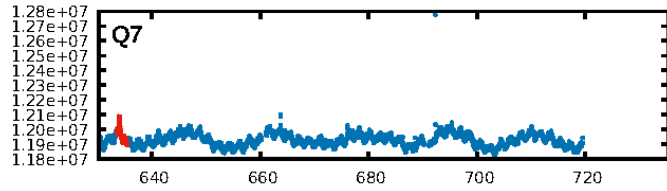
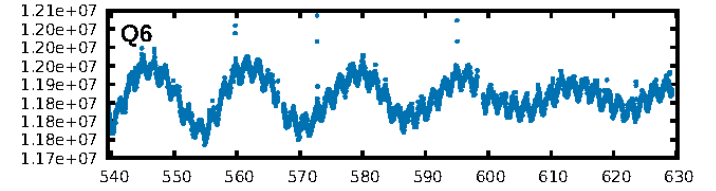
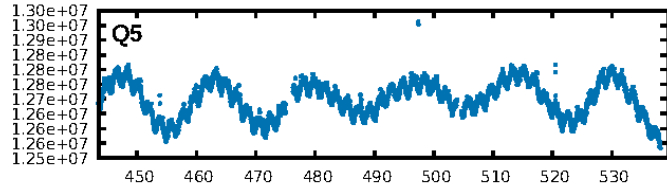
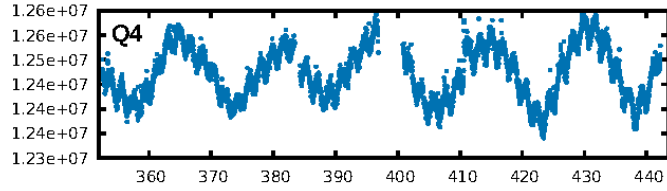
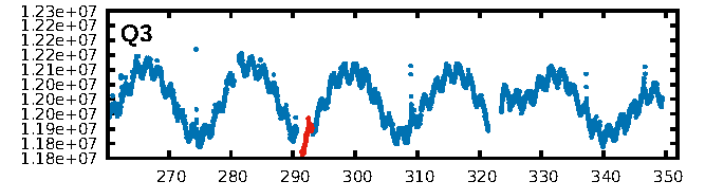
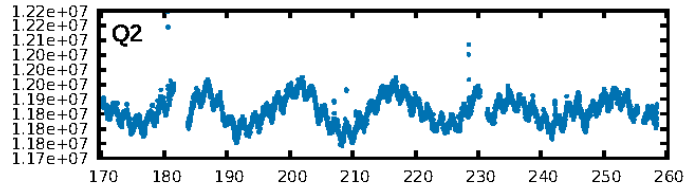
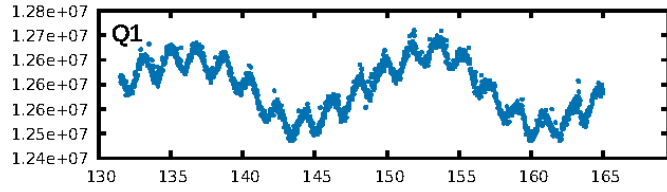
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [330.97 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 15.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.78e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.194
Centroid-sig: 29.9%
Centroid-so: 0.525 arcsec [0.81 σ]
OotOffset-rm: 0.804 arcsec [1.00 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-rm: 0.966 arcsec [1.15 σ]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.50 [1/2]

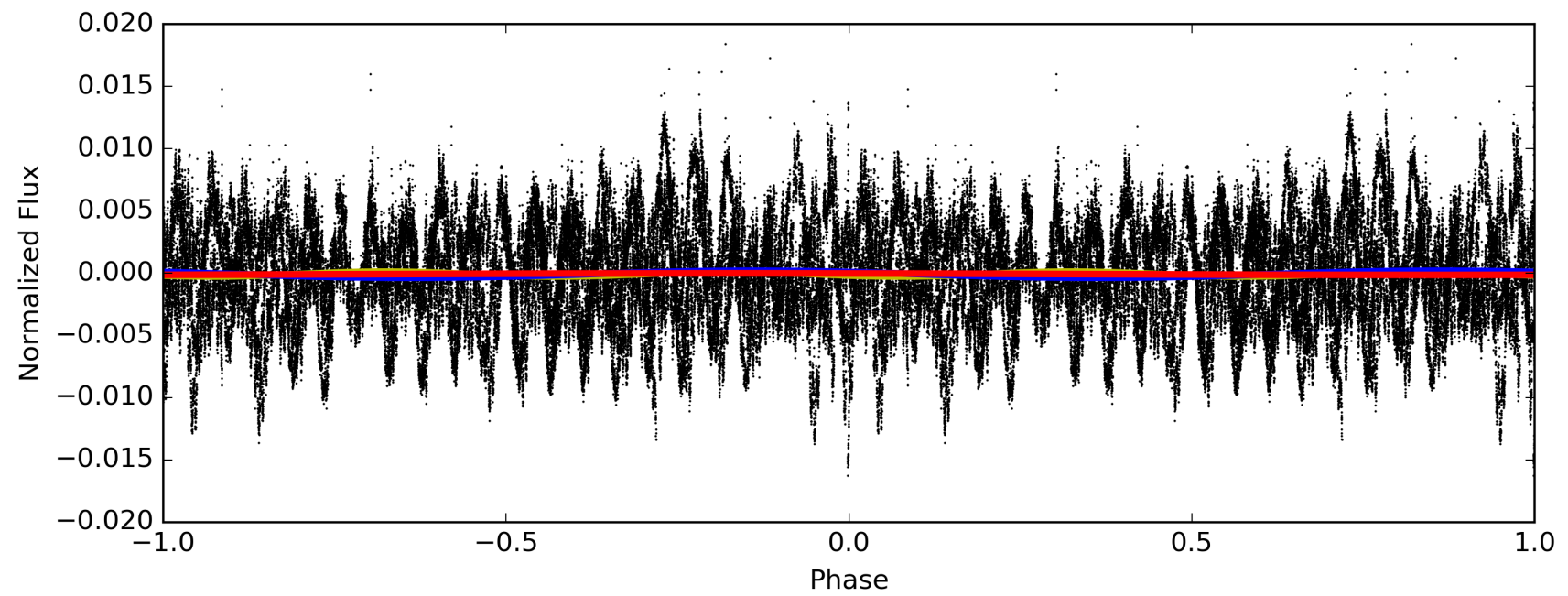
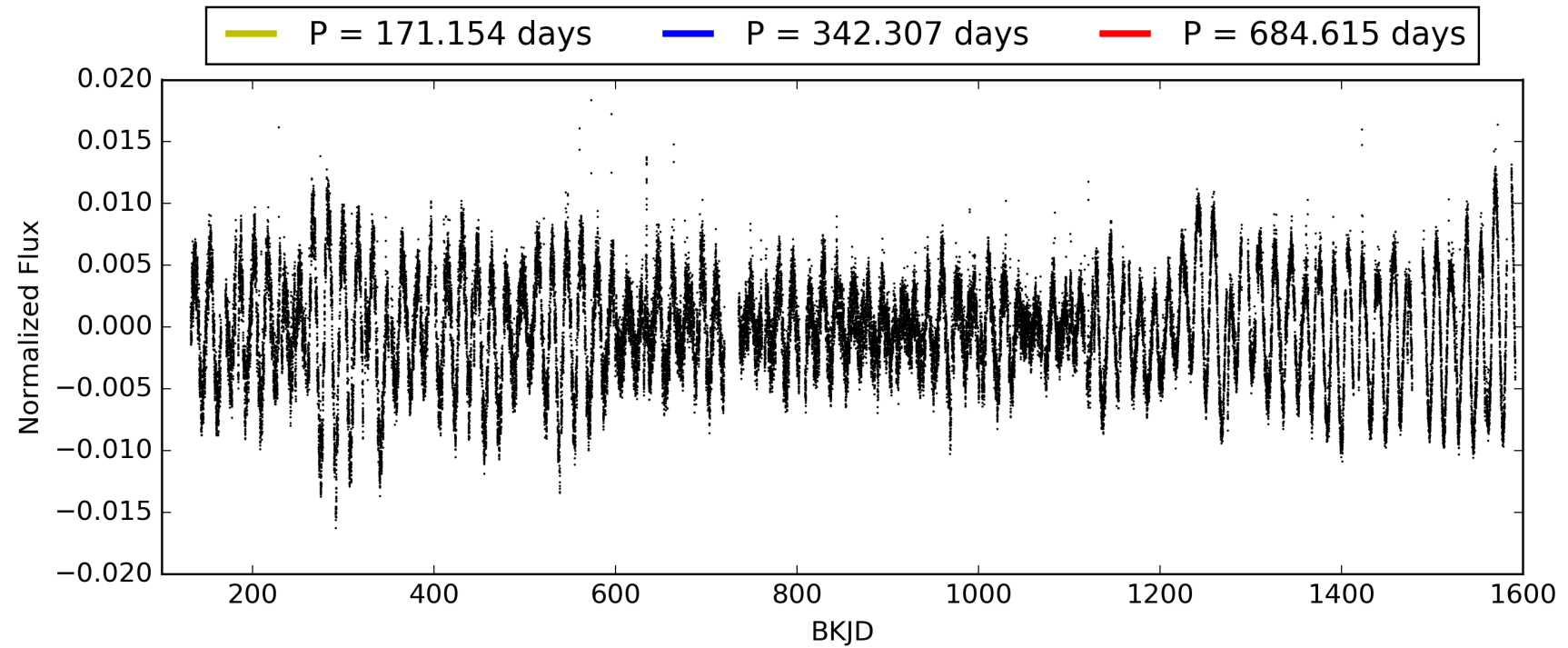
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:51:13 Z

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

TCE 008672278-02, PDC Light Curves

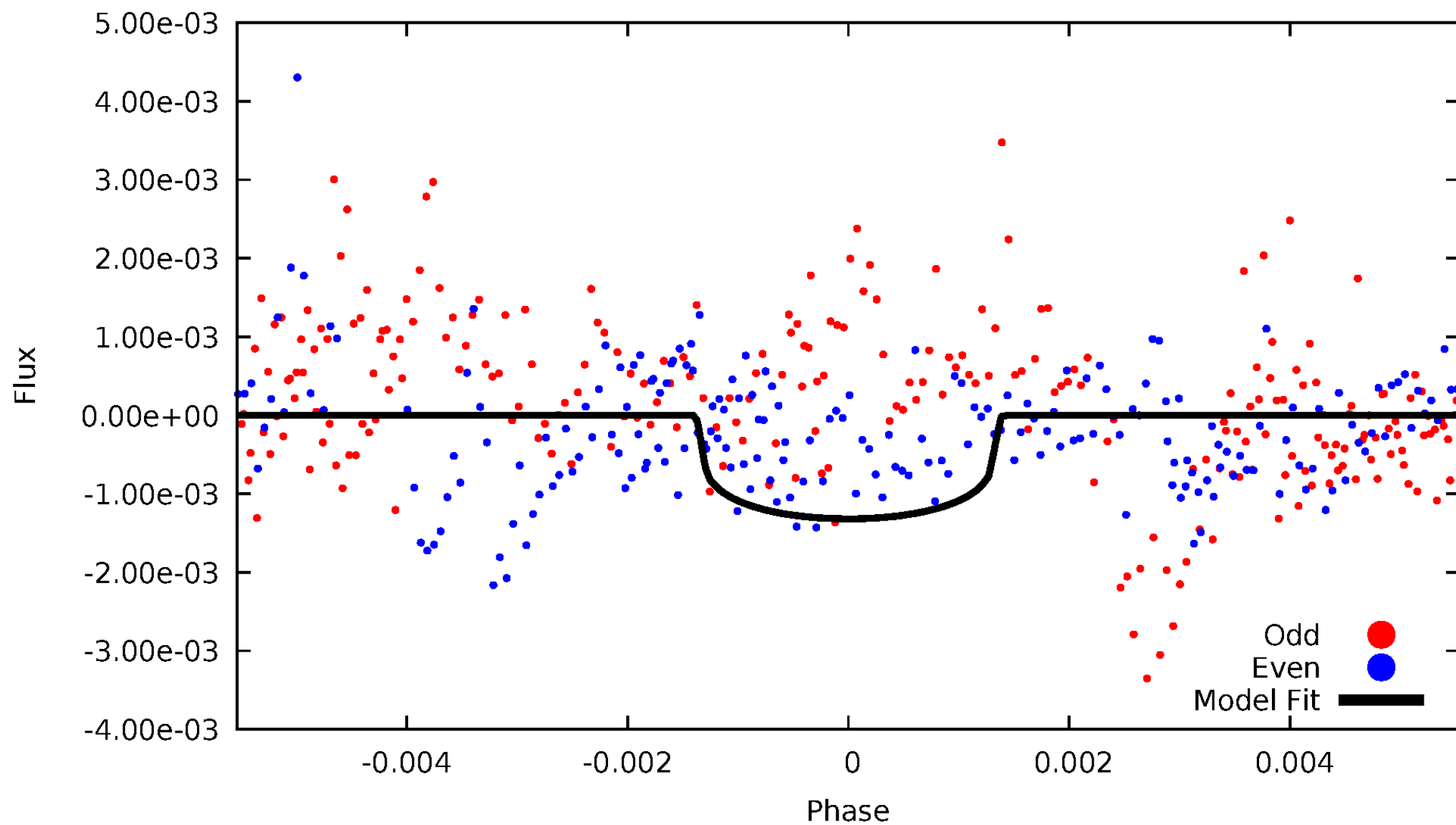


TCE 008672278-02



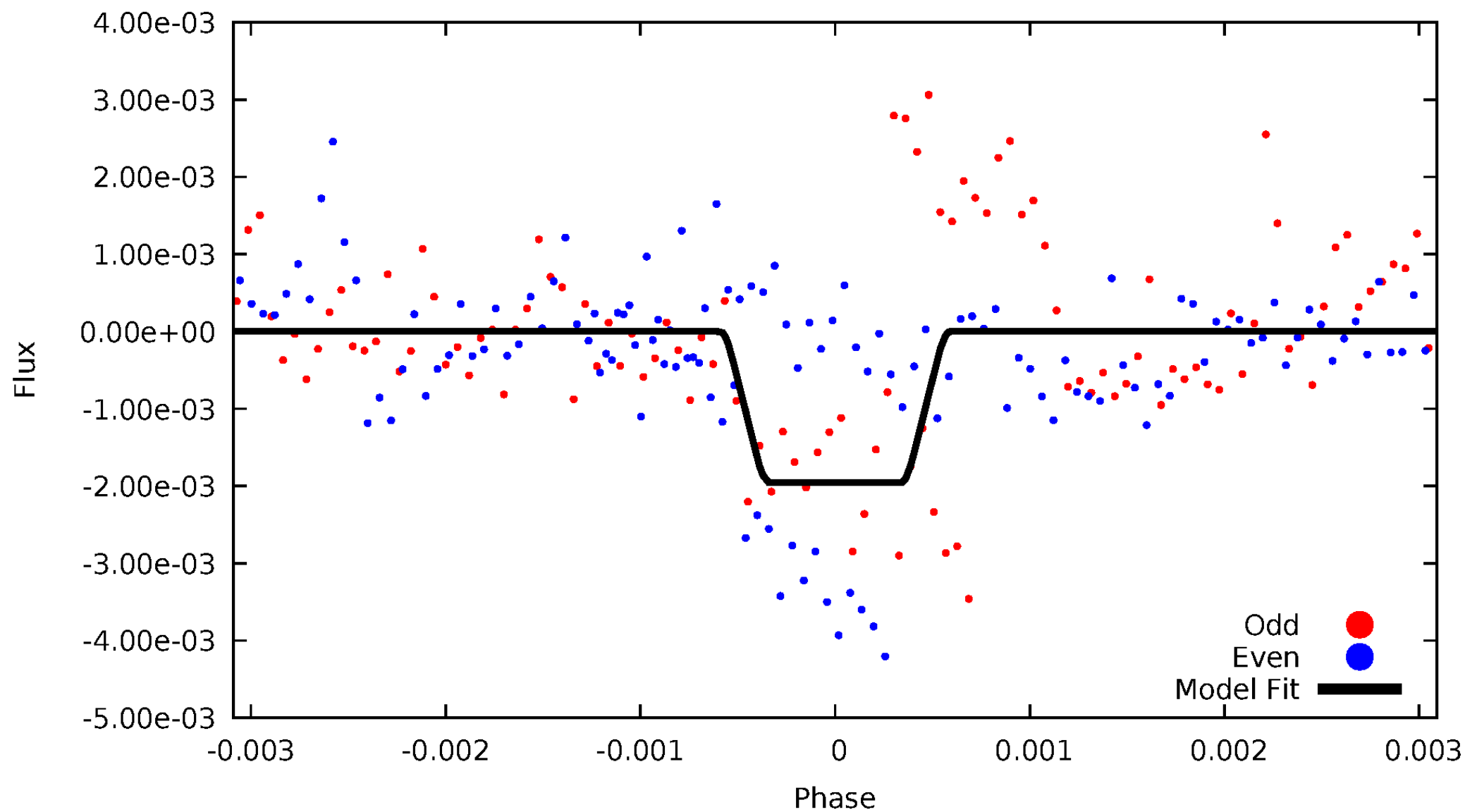
DV Odd/Even

TCE 008672278-02



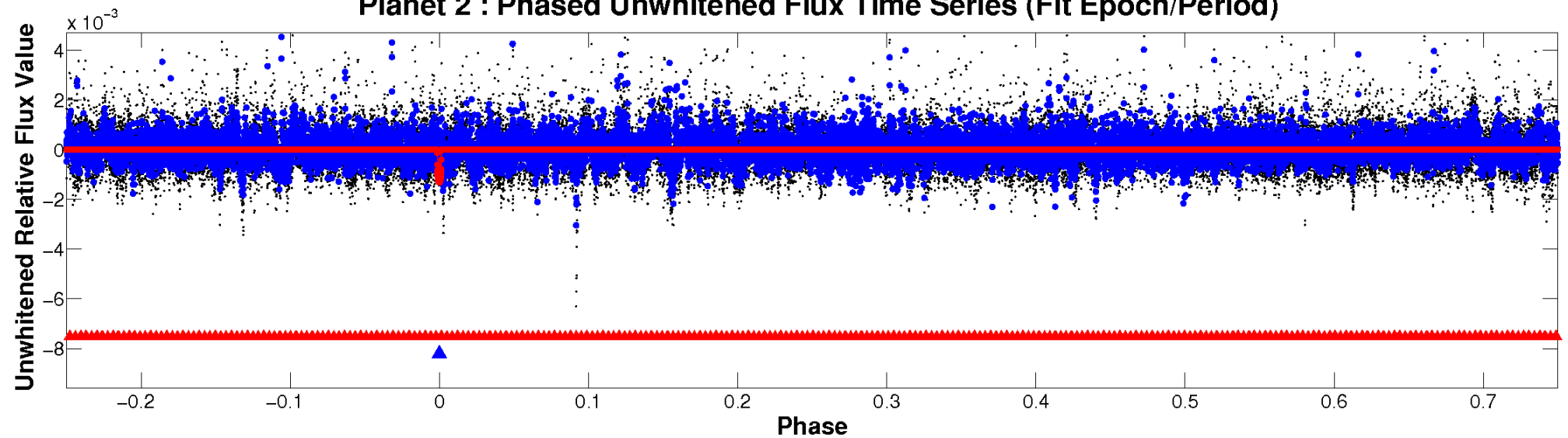
ALT Odd/Even

TCE 008672278-02

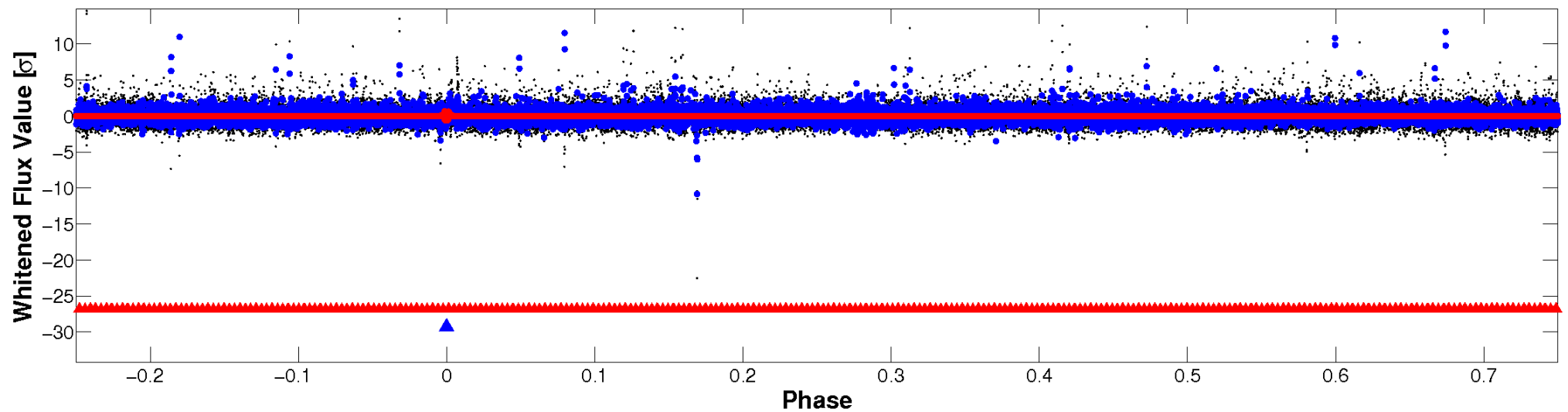


Non-Whitened Vs. Whitened Light Curve

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

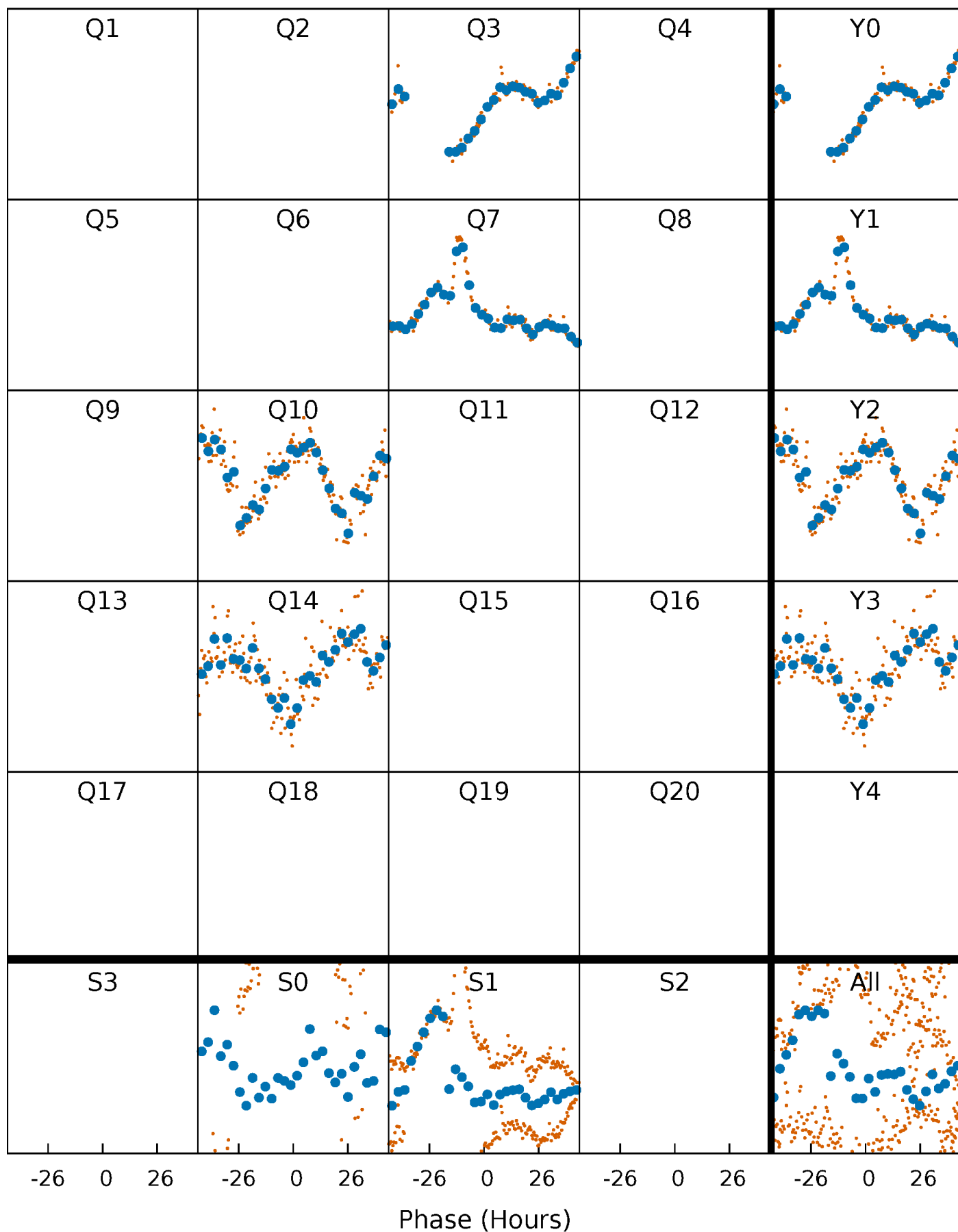


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



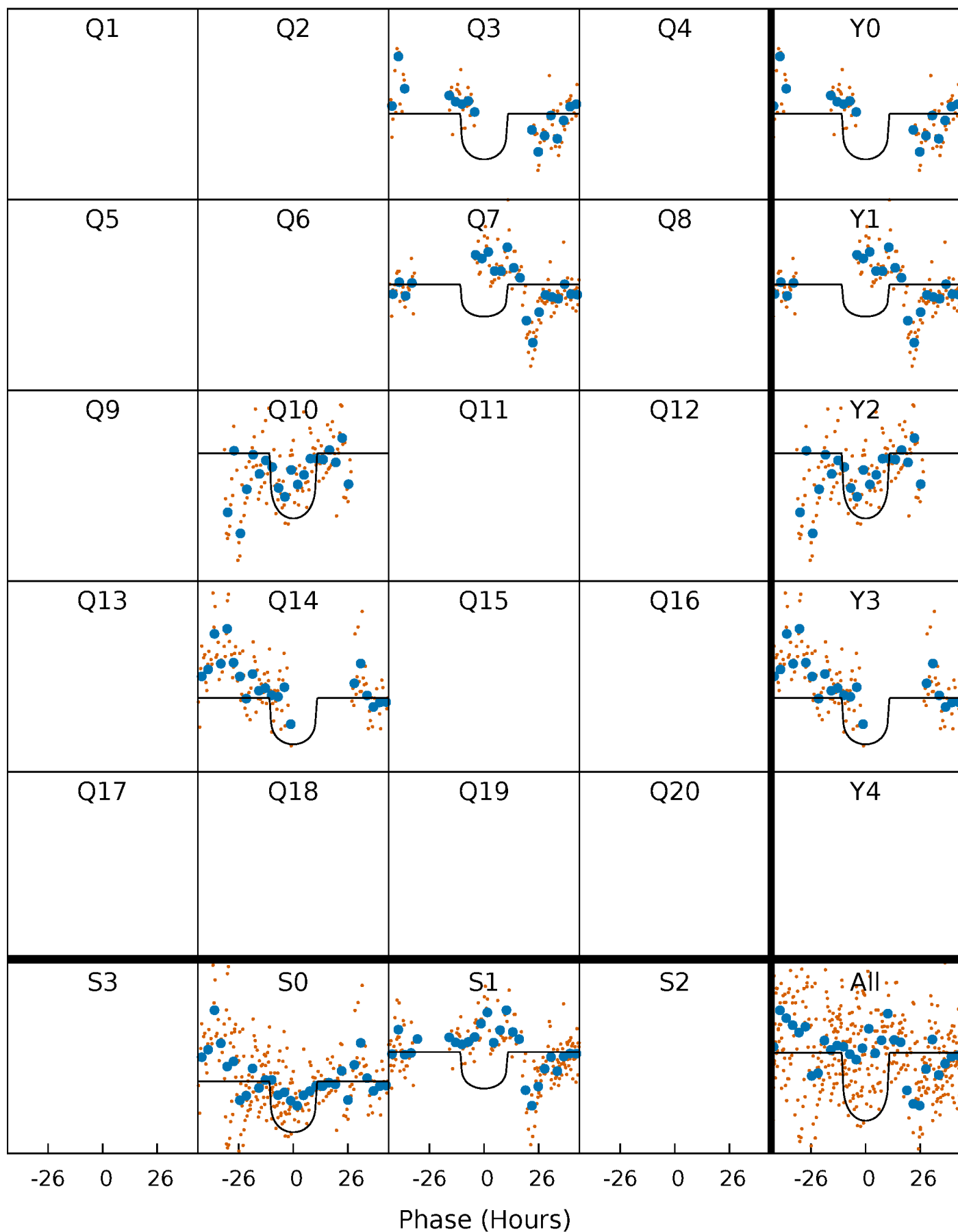
PDC Quarter-Phased Transit Curves

TCE 008672278-02 $P=342.307380$ Days $T_0=292.131697$ (BKJD)



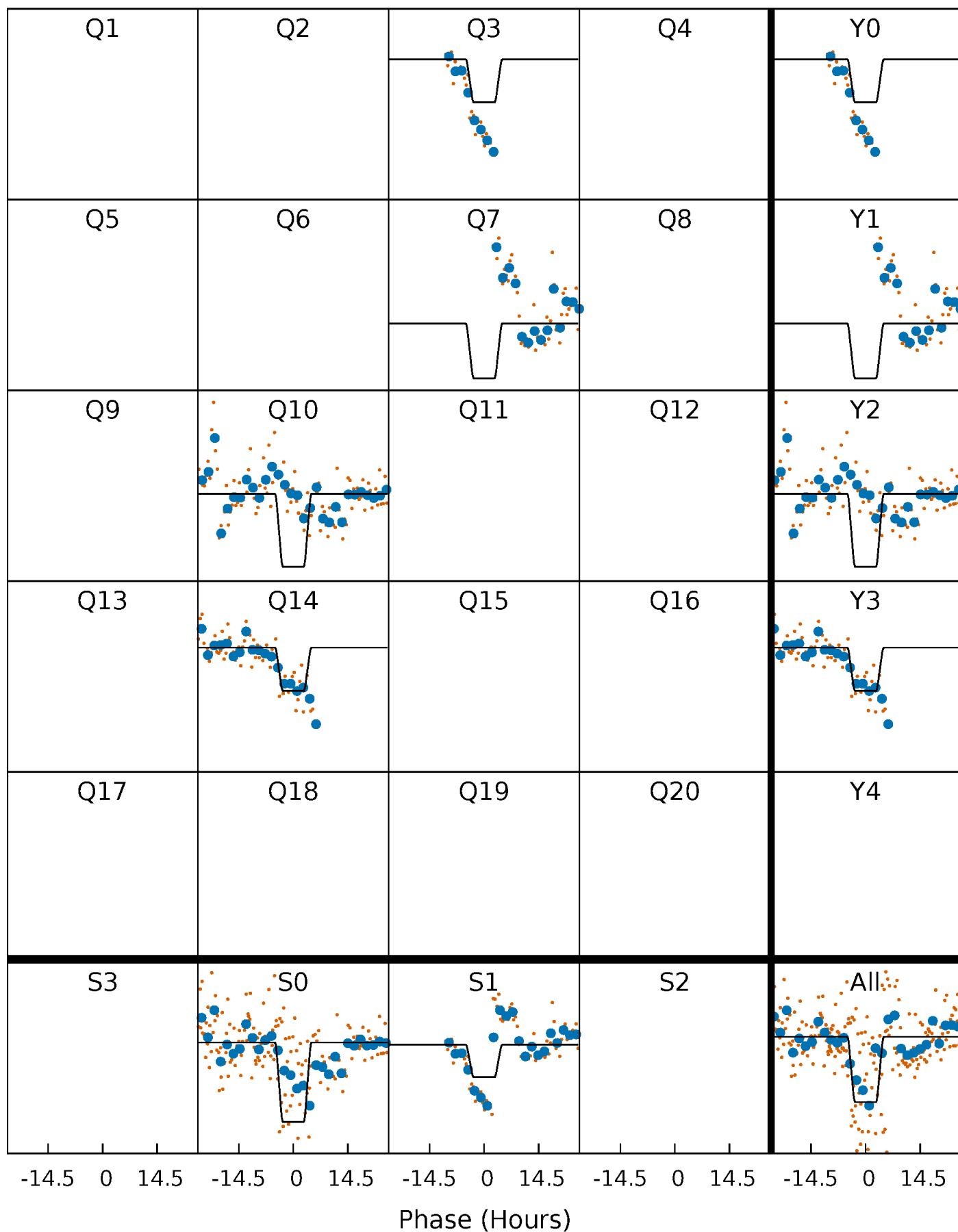
DV Quarter-Phased Transit Curves

TCE 008672278-02 P=342.307380 Days $T_0=292.131697$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

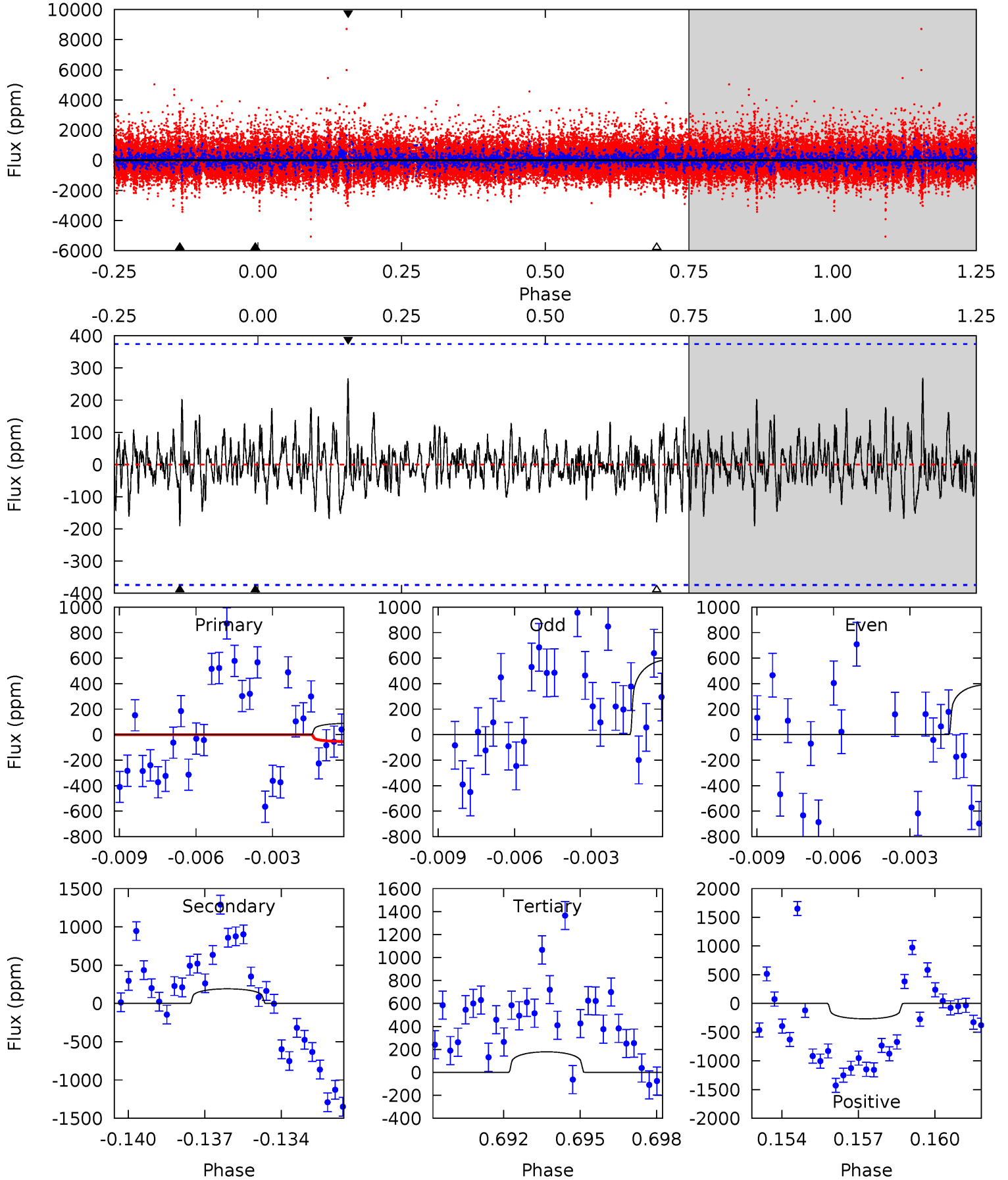
TCE 008672278-02 $P=342.309808$ Days $T_0=291.848087$ (BKJD)



DV Model-Shift Uniqueness Test

008672278-02, P = 342.307380 Days, E = 292.131697 Days

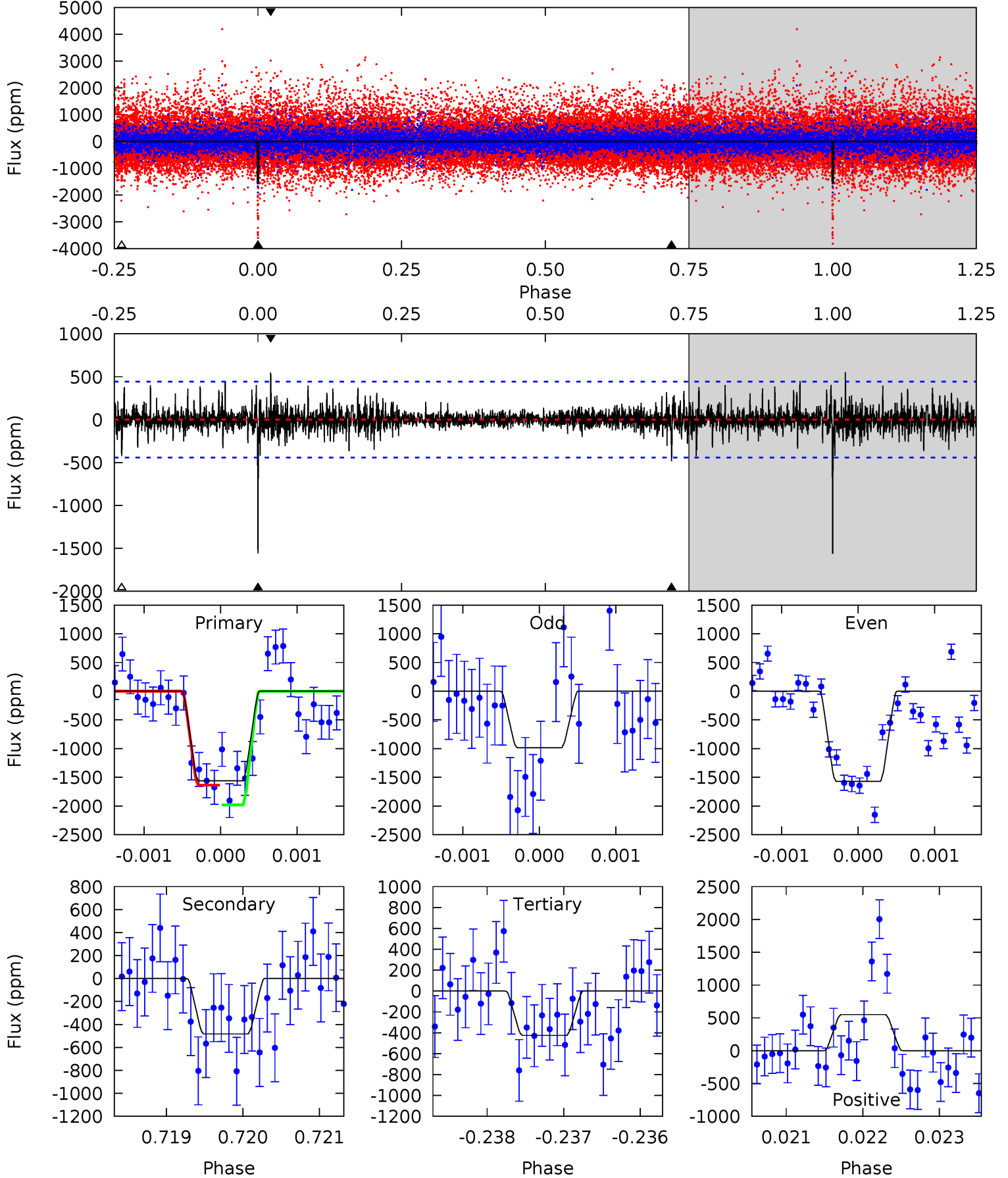
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.25	2.68	2.51	3.76	5.26	2.98	0.76	-1.26	-2.51	0.17	-1.08	1.29	2.80	0.58	1.65



Alt Model-Shift Uniqueness Test

008672278-02, P = 342.309808 Days, E = 291.848087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	5.92	5.21	6.74	5.42	3.25	1.05	13.9	12.4	0.70	-0.82	3.69	0.54	0.26	2.05



Stellar Parameters For KIC 008672278

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3909^{+70}_{-78}	$4.739^{+0.020}_{-0.035}$	$-0.100^{+0.100}_{-0.100}$	$0.528^{+0.032}_{-0.027}$	$0.559^{+0.023}_{-0.034}$	$5.336^{+0.516}_{-0.691}$
	+2%/-2%	+0%/-1%	+100%/-100%	+6%/-5%	+4%/-6%	+10%/-13%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008672278-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-191 ± 71	$1.89^{+0.63}_{-0.59}$	197^{+4}_{-4}	2978^{+399}_{-284}	17702^{+23572}_{-9159}
Alt.	-483 ± 82	$2.56^{+0.61}_{-0.63}$	198^{+4}_{-4}	3124^{+301}_{-200}	25040^{+19581}_{-9197}

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

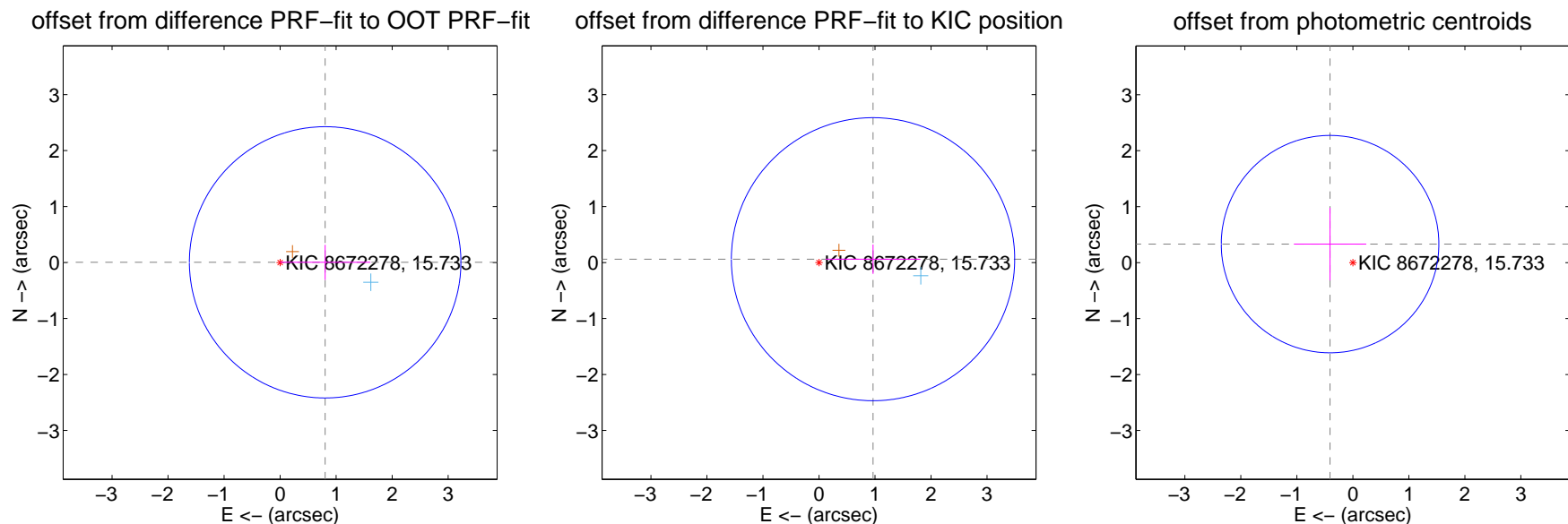
DV Centroid Data

Supplemental centroid analysis for 008672278-02. Kepler magnitude: 15.73. Transit SNR 6.72

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.804 ± 0.808	1.00	-0.804 ± 0.808	0.004 ± 0.312
PRF-fit source offset from KIC position	0.966 ± 0.843	1.15	-0.965 ± 0.844	0.060 ± 0.262
photometric centroid source offset	0.52 ± 0.65	0.81	0.41 ± 0.65	0.33 ± 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.



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

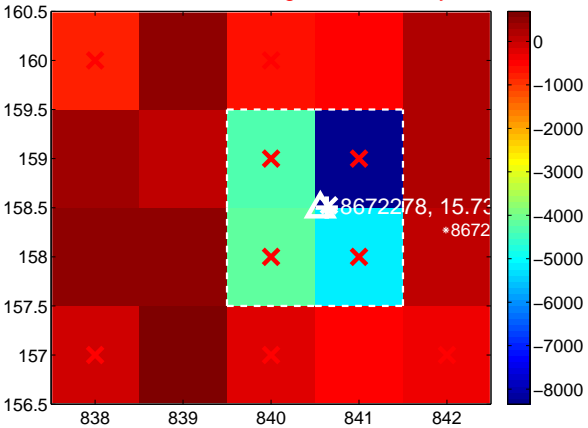
Q9 no difference image



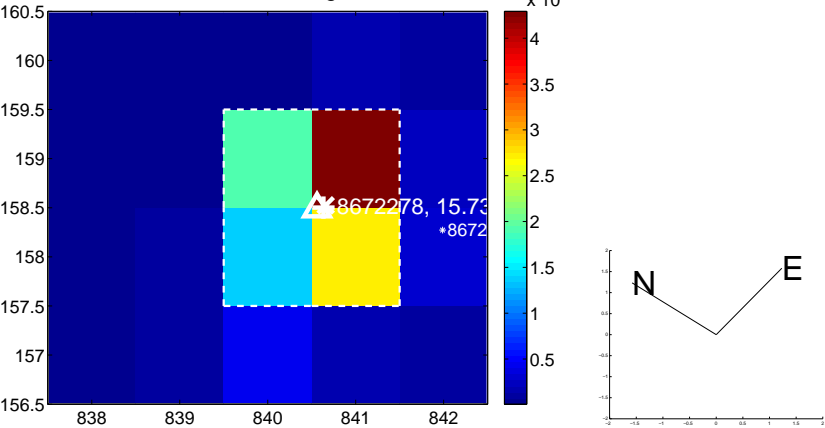
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



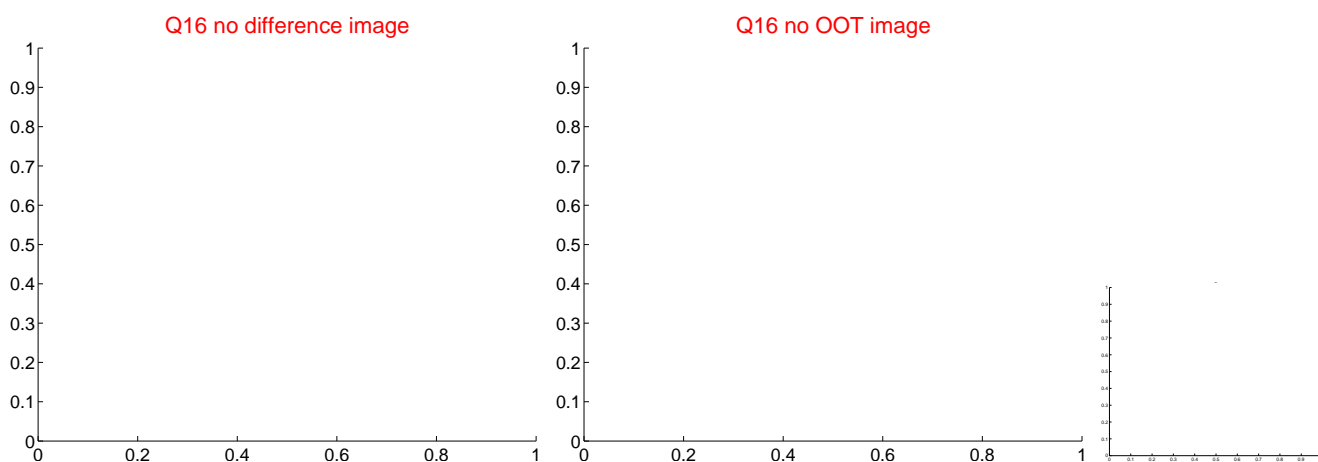
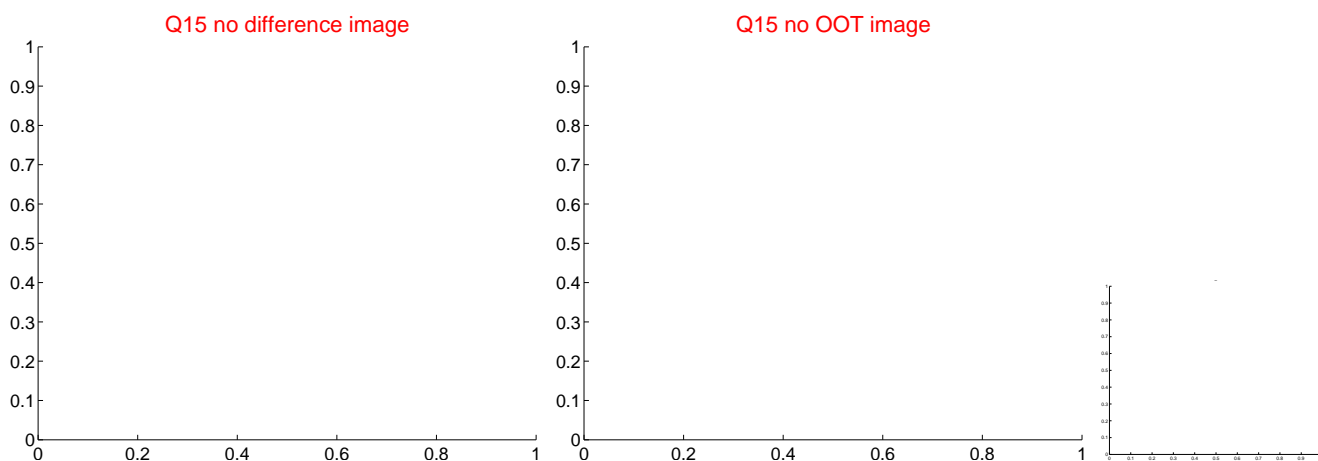
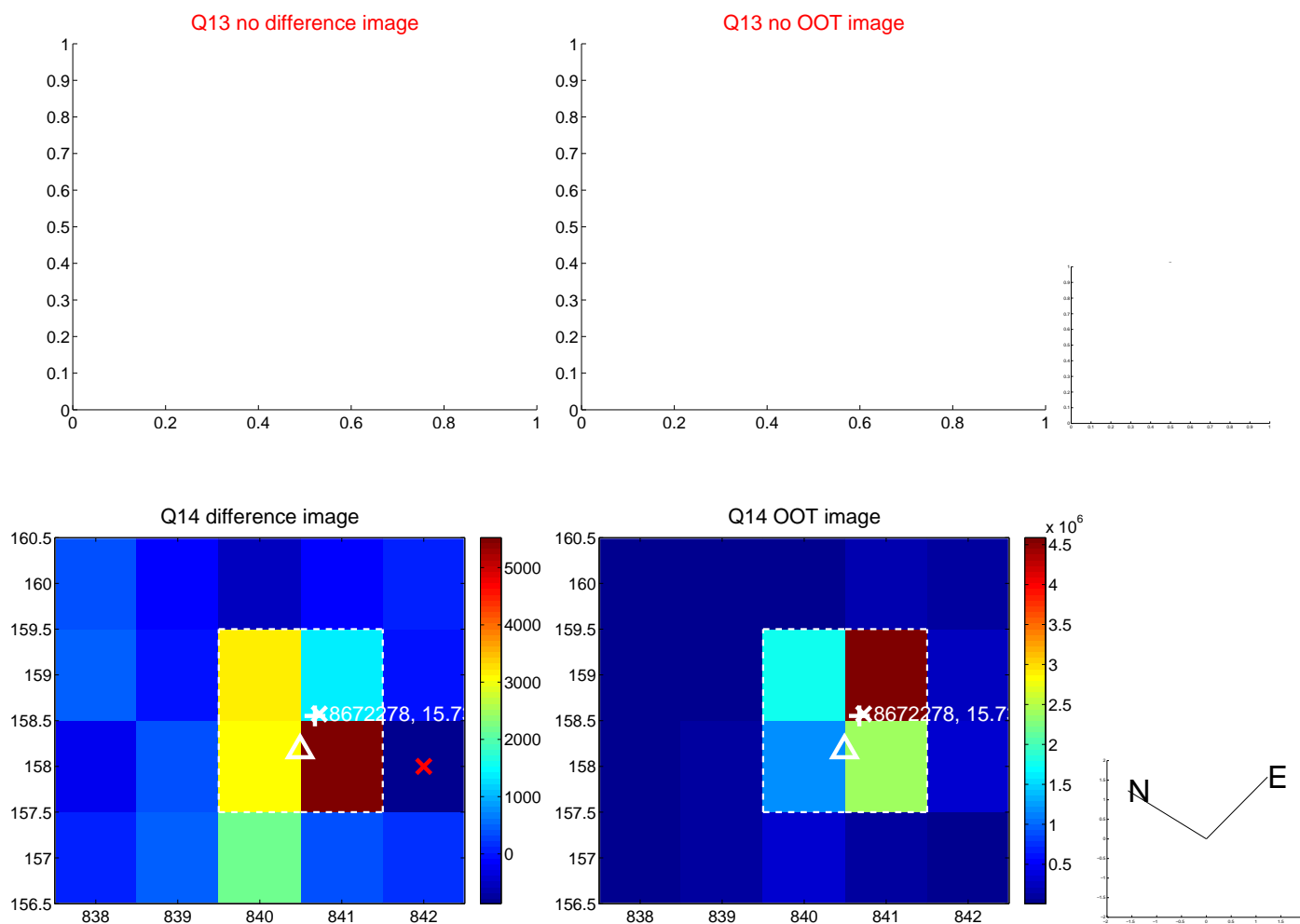
Q12 no difference image



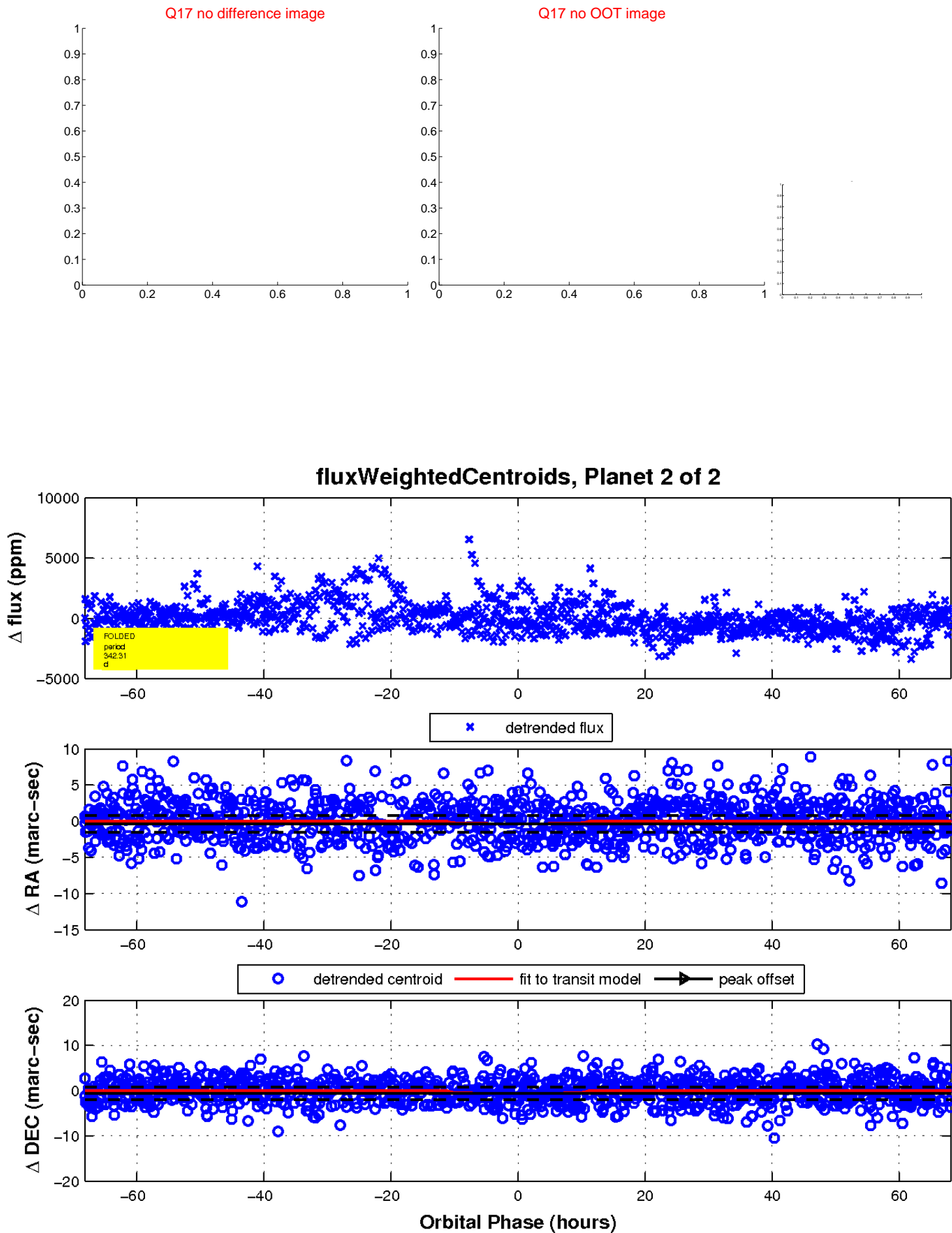
Q12 no OOT image



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



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



UKIRT Image

Declination

