

KIC 008460290

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})
008460290-01	OBS	No	367.081324	237.304667	1357.8	24.201	8.7	10.2	0.77	5332	3.16	0.47
008460290-02	OBS	No	358.553205	254.468854	1734.3	24.243	8.0	9.5	0.77	5332	3.81	0.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008460290-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008460290-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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.

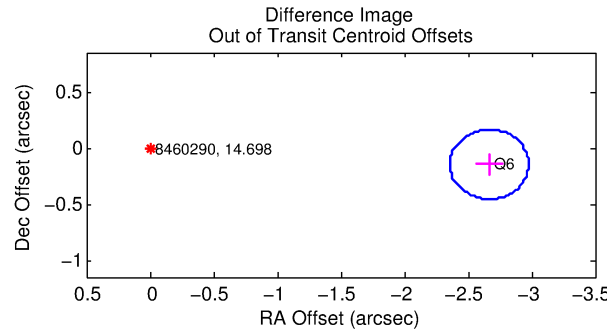
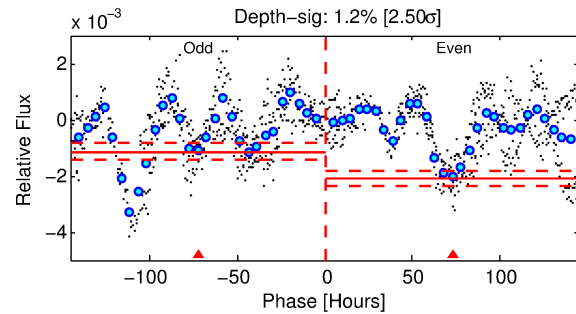
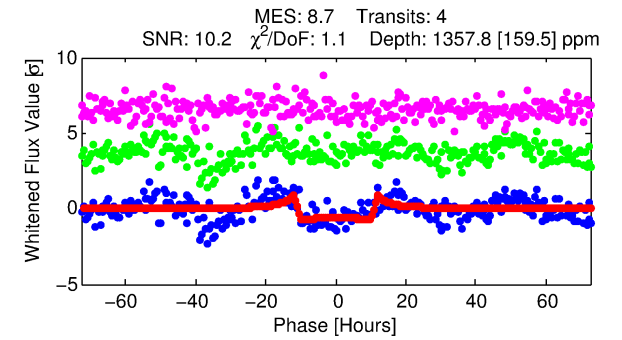
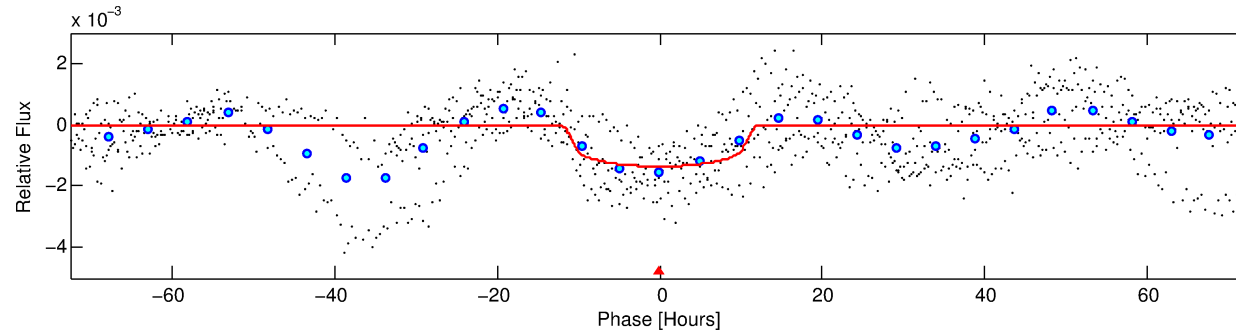
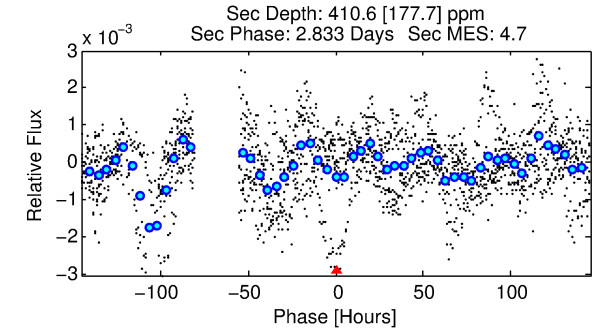
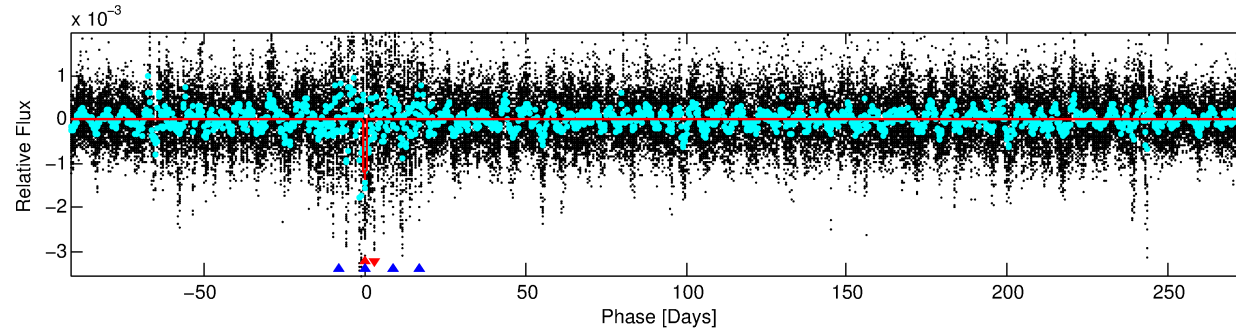
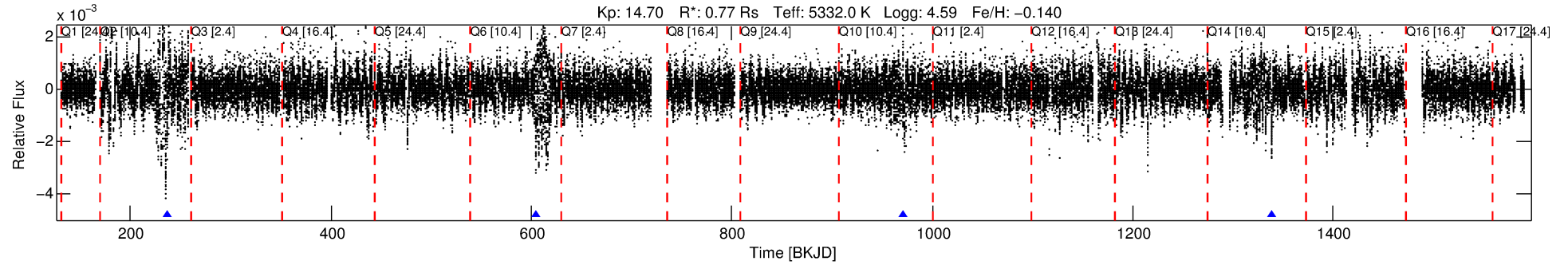
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008460290-01

No Significant Match Found

DV One-Page Summary

KIC: 8460290 Candidate: 1 of 2 Period: 367.081 d



DV Fit Results:

Period = 367.08132 [0.00910] d
Epoch = 237.3047 [0.0179] BKJD
Rp/R* = 0.0376 [0.0030]
a/R* = 77.10 [14.78]
b = 0.80 [0.09]
Seff = 0.48 [0.11]
Teq = 212 [12] K
Rp = 3.16 [0.60] Re
a = 0.9519 [0.1330] AU
Ag = 20505.32 [10301.72] [1.99σ]
Teff = 3917 [467] K [7.93σ]

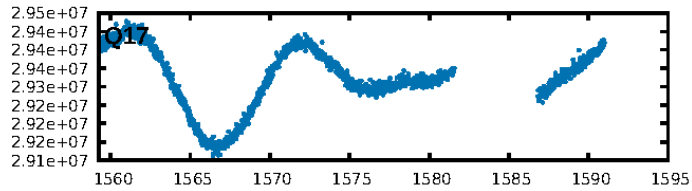
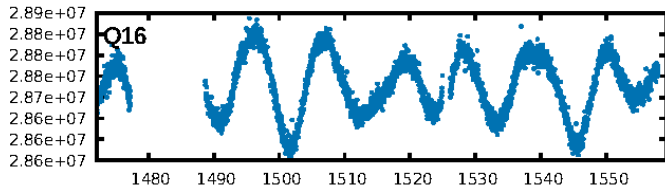
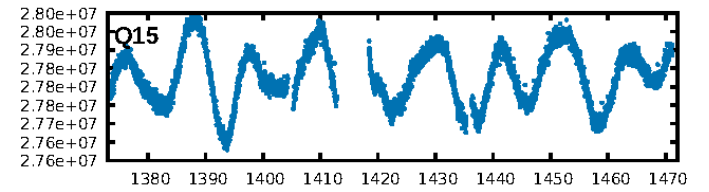
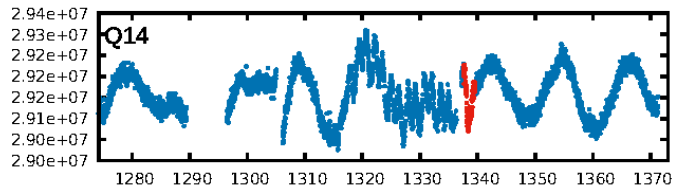
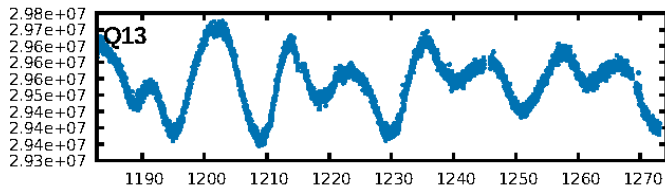
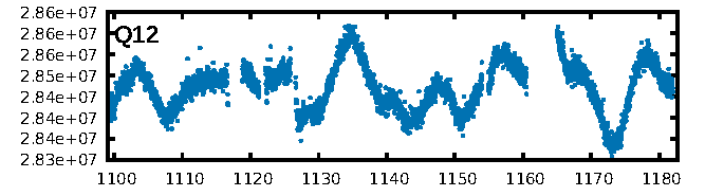
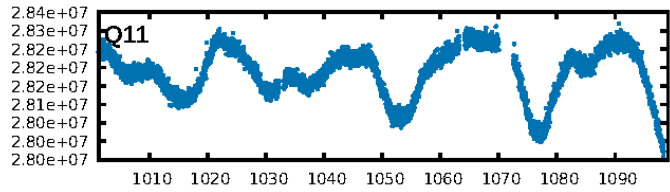
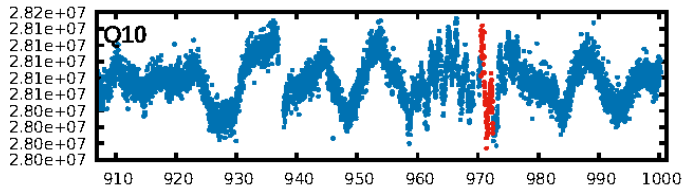
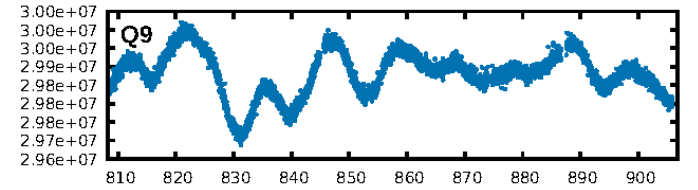
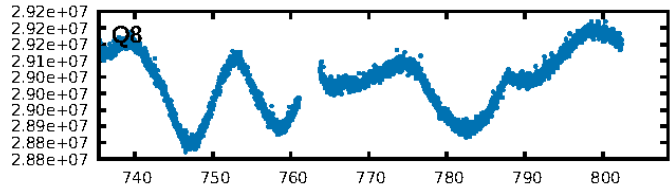
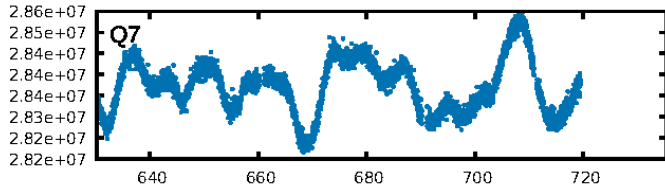
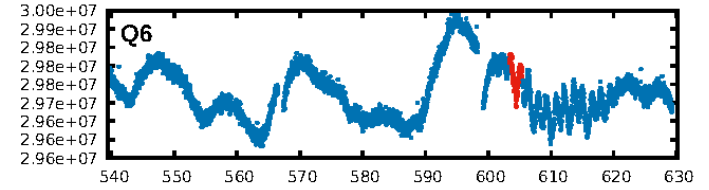
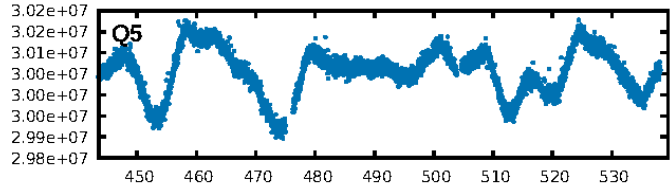
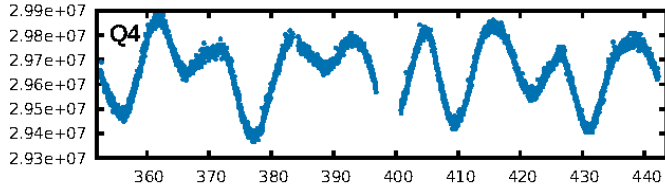
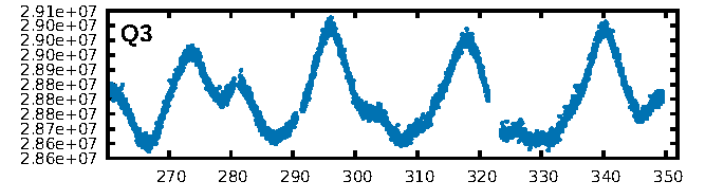
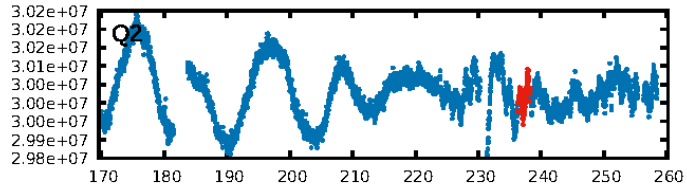
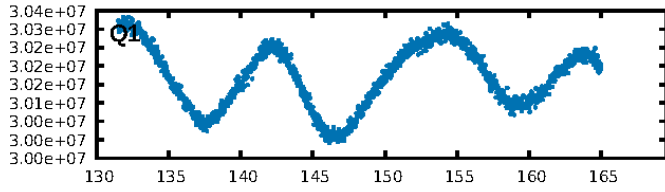
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.6%
ModelChiSquareGoF-sig: 99.9%
Bootstrap-pfa: 5.30e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.8301
Centroid-sig: 11.4%
Centroid-so: 0.830 arcsec [0.75σ]
OotOffset-rm: 2.670 arcsec [25.93σ]
KicOffset-rm: 2.692 arcsec [26.13σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

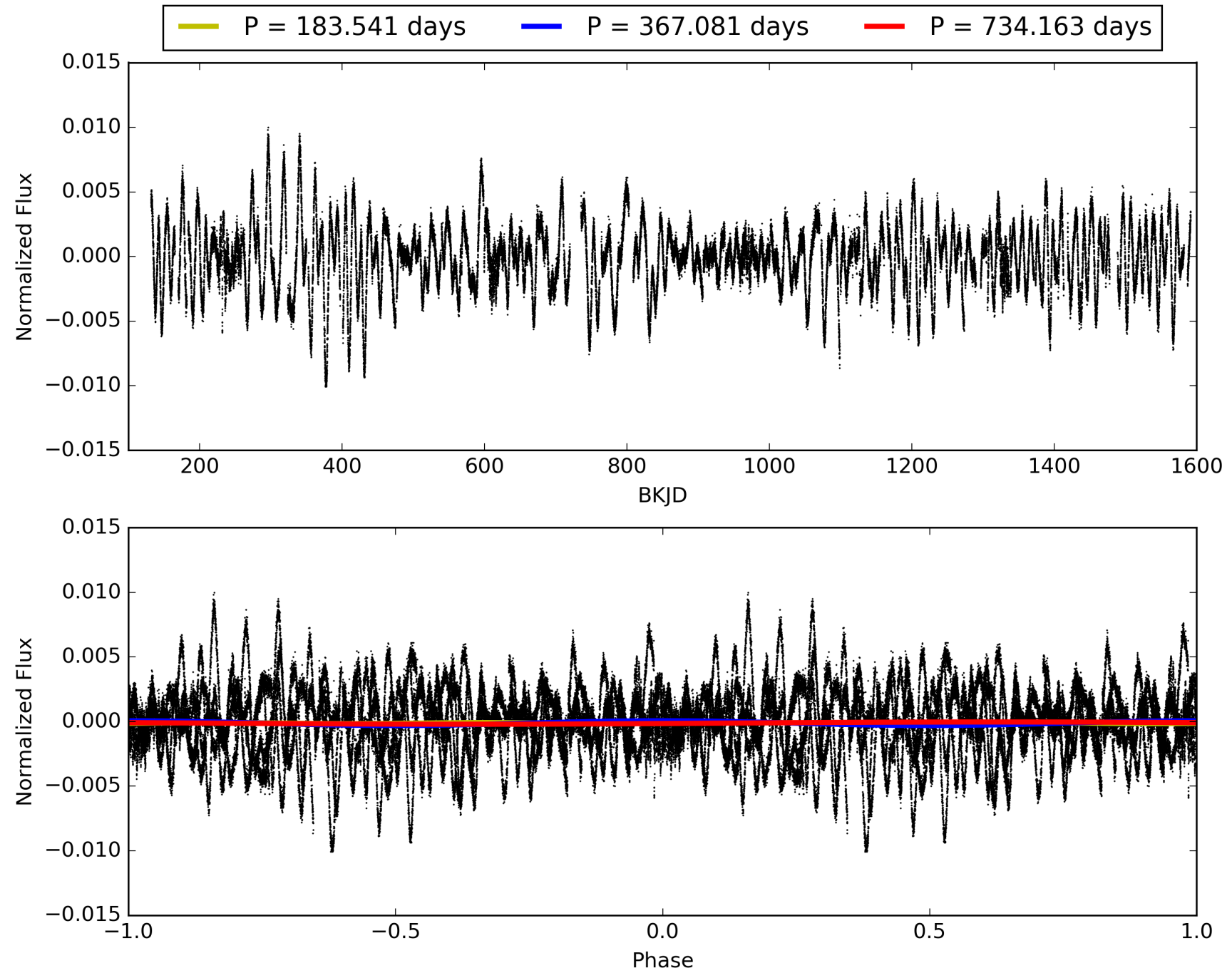
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:53:31 Z

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

TCE 008460290-01, PDC Light Curves

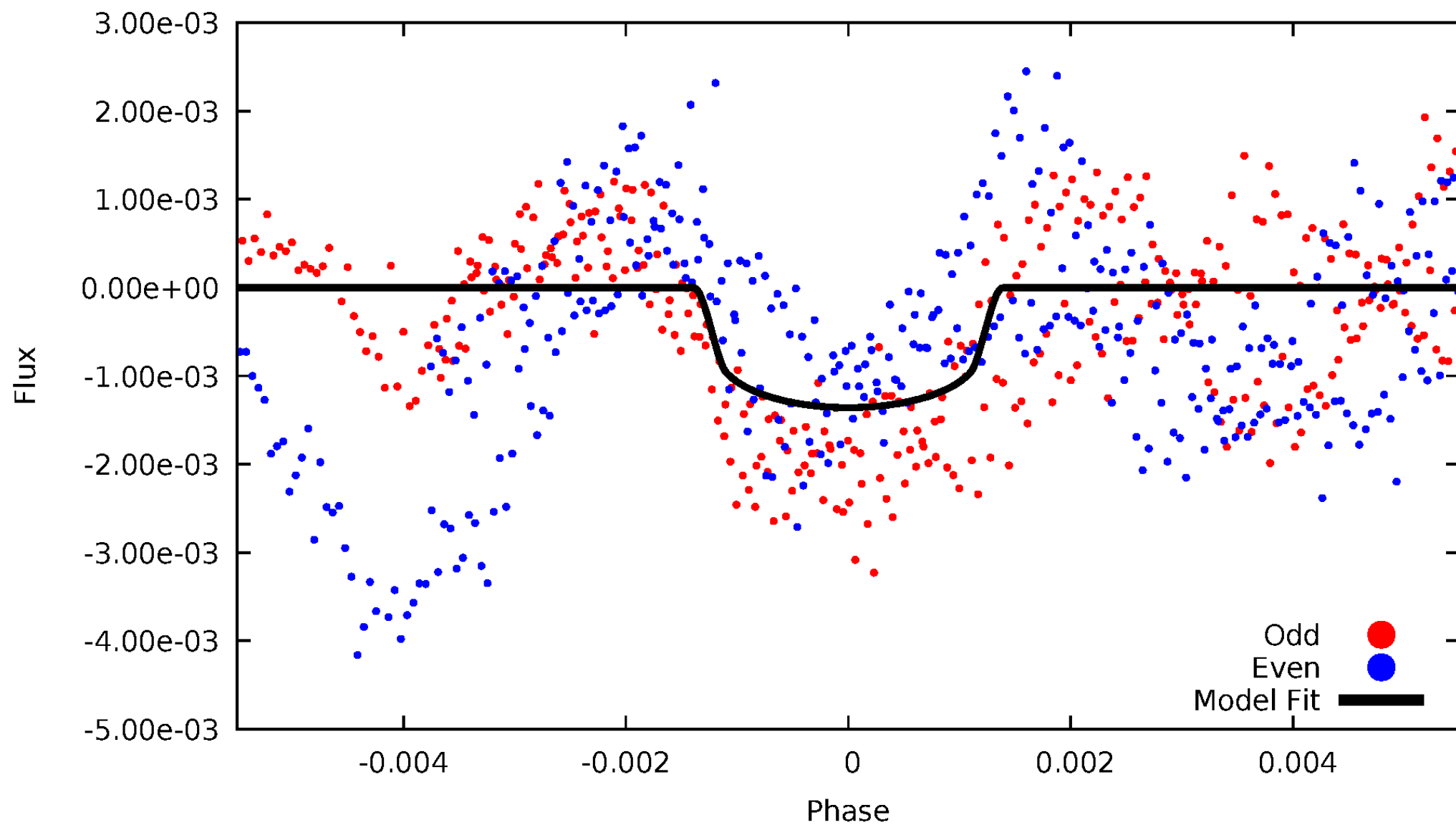


TCE 008460290-01



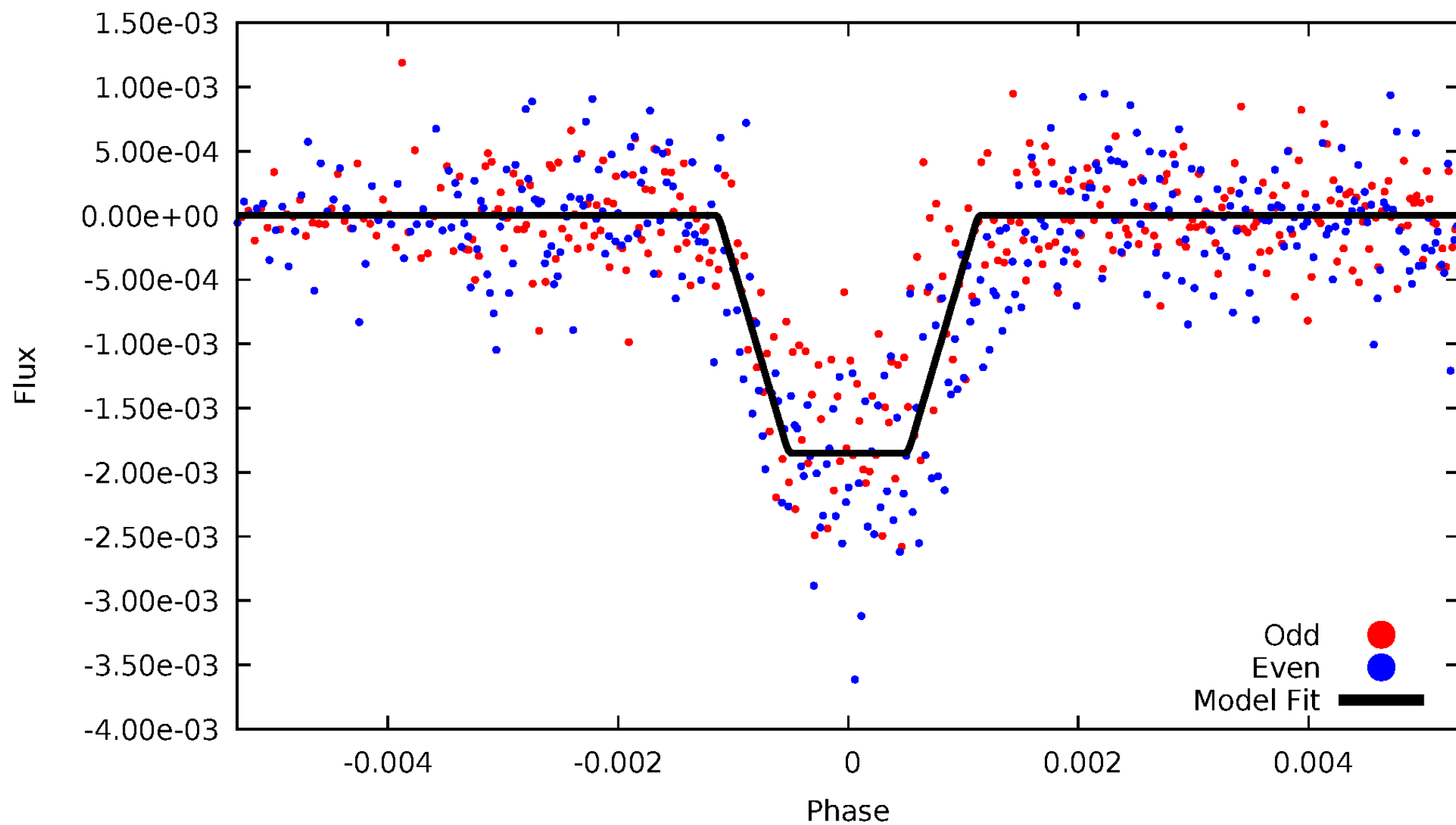
DV Odd/Even

TCE 008460290-01



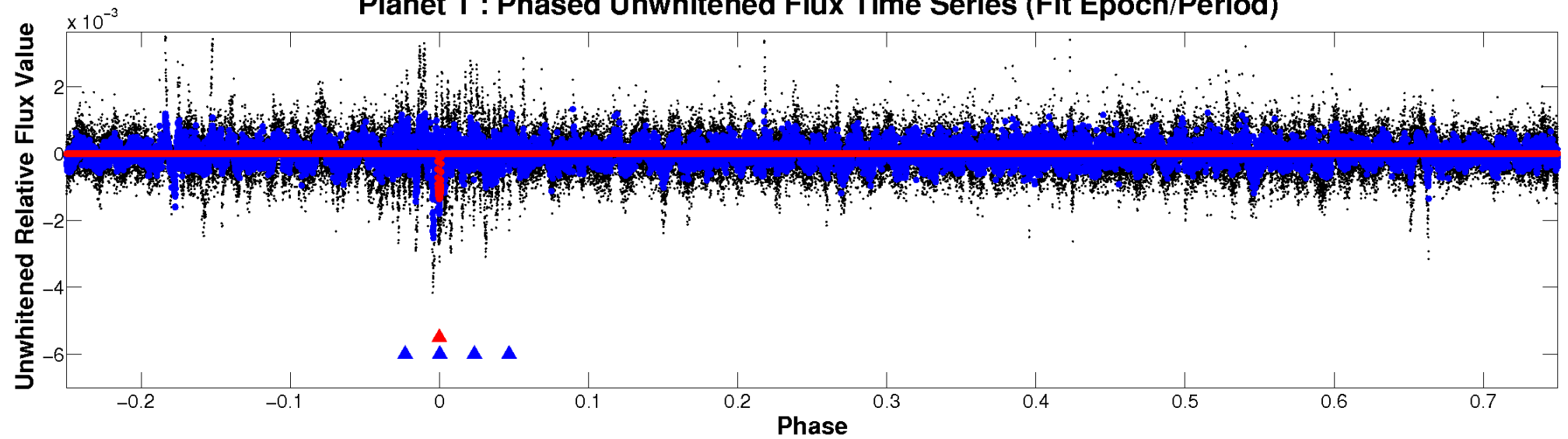
ALT Odd/Even

TCE 008460290-01

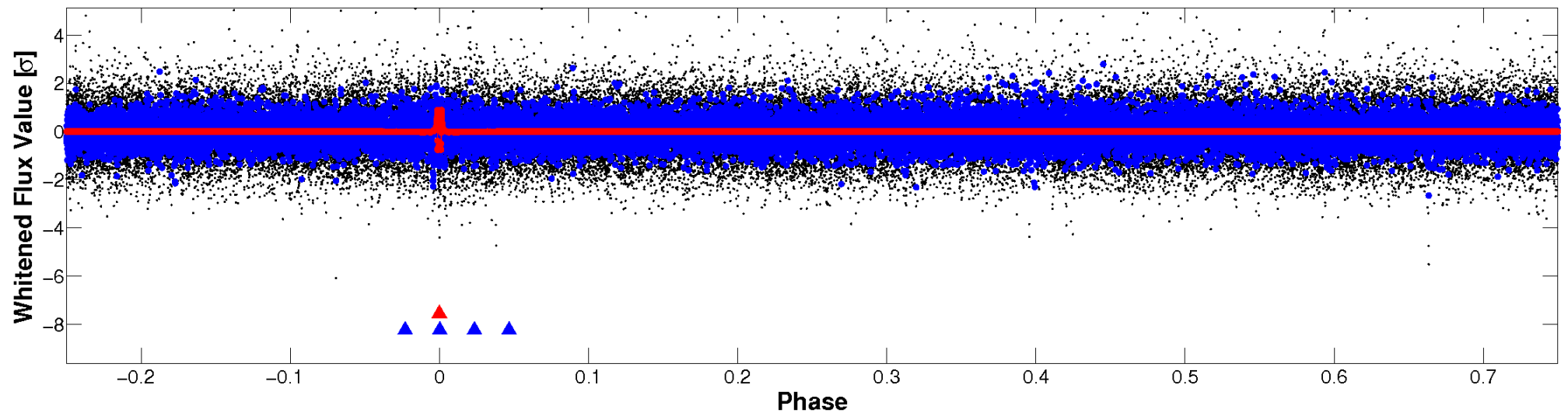


Non-Whitened Vs. Whitened Light Curve

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

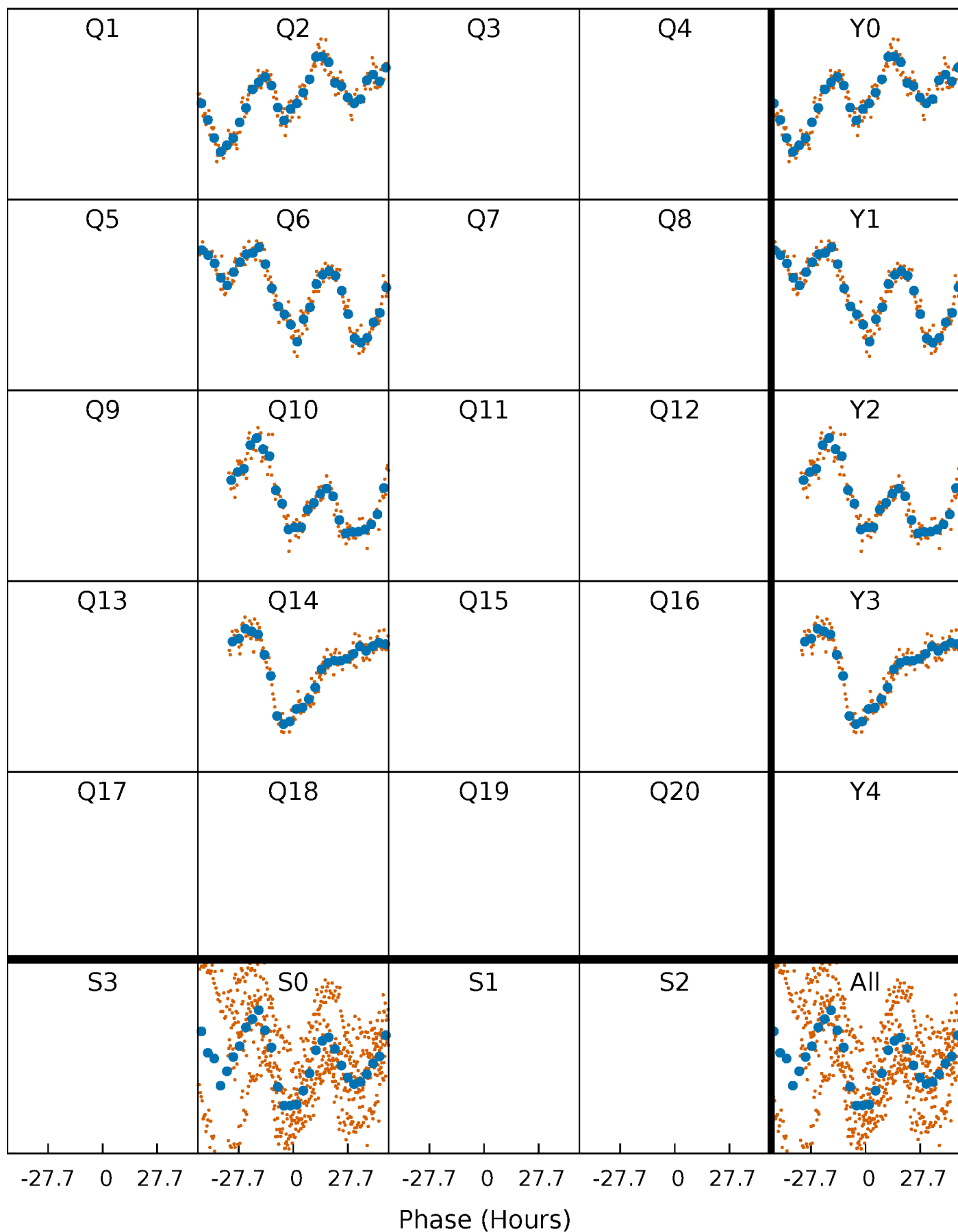


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



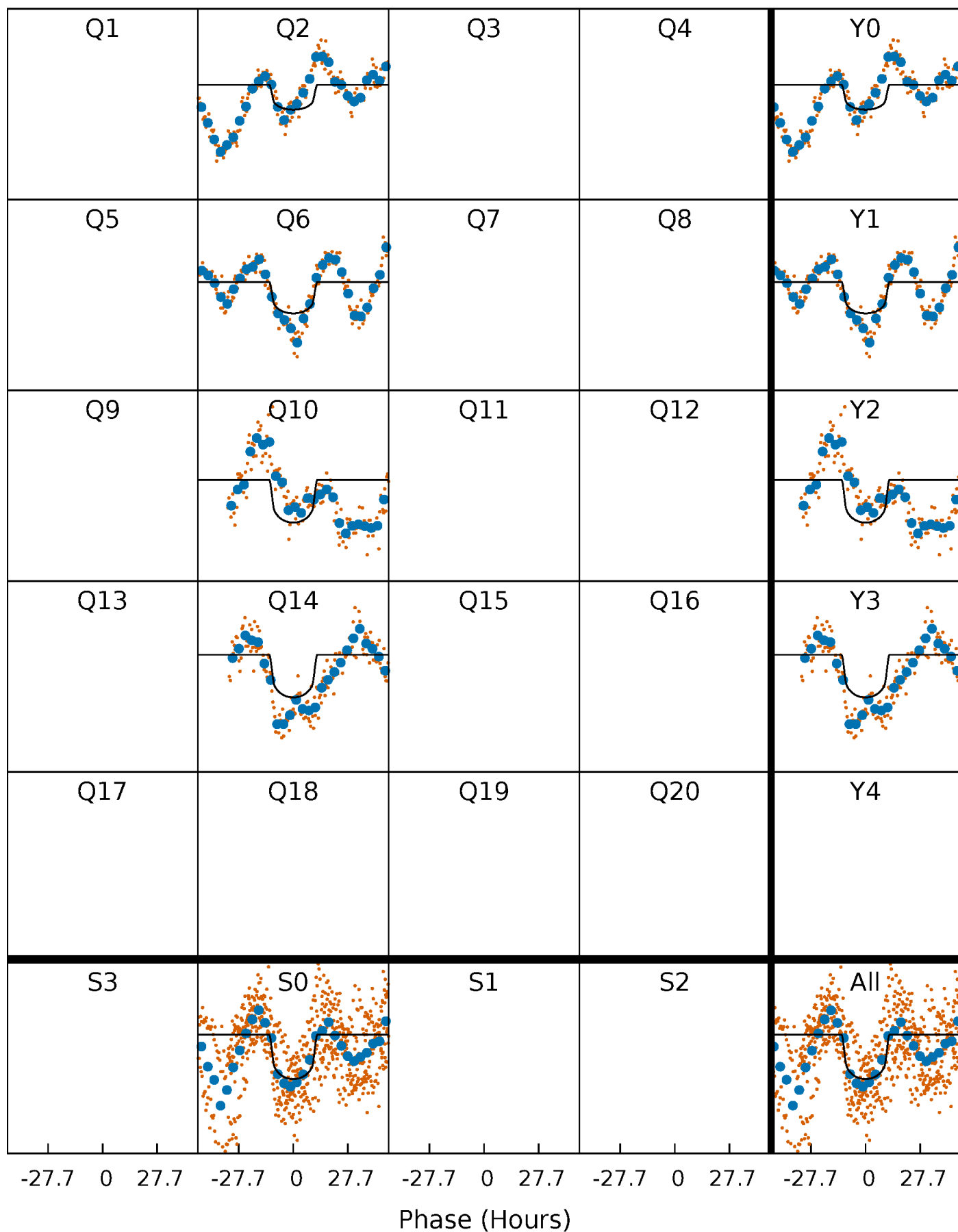
PDC Quarter-Phased Transit Curves

TCE 008460290-01 $P=367.081324$ Days $T_0=237.304667$ (BKJD)



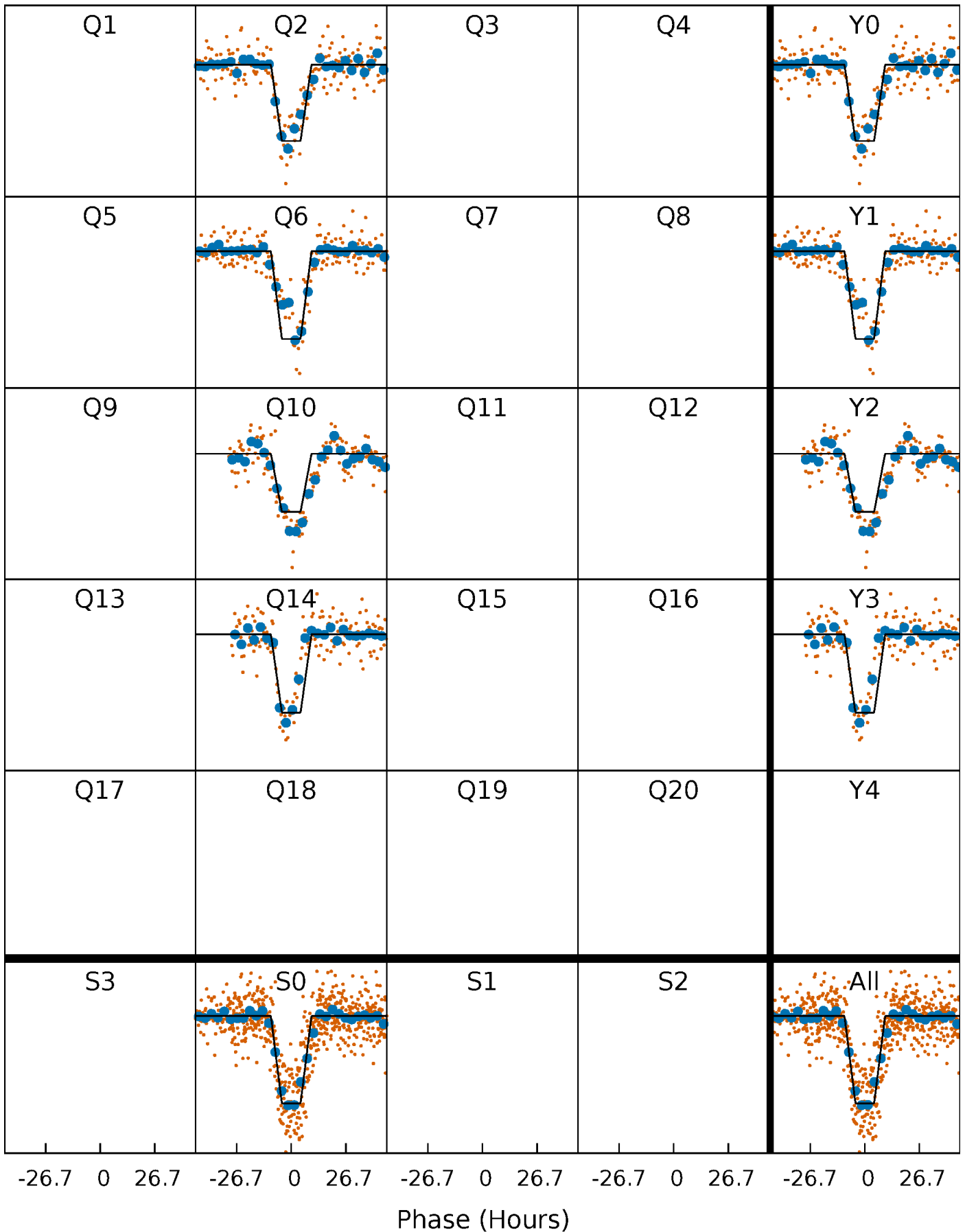
DV Quarter-Phased Transit Curves

TCE 008460290-01 P=367.081324 Days $T_0=237.304667$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

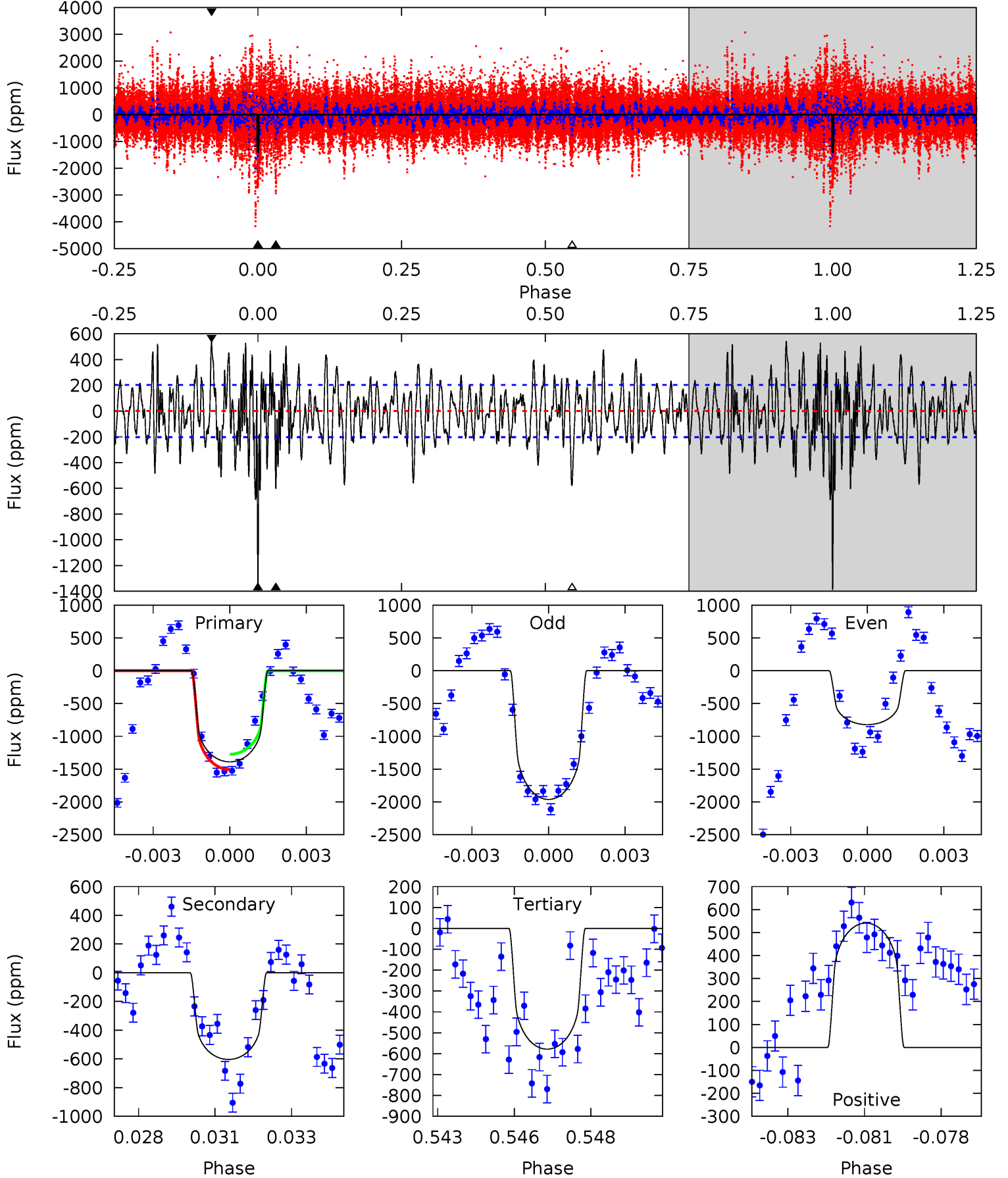
TCE 008460290-01 P=367.054849 Days $T_0=237.245436$ (BKJD)



DV Model-Shift Uniqueness Test

008460290-01, P = 367.081324 Days, E = 237.304667 Days

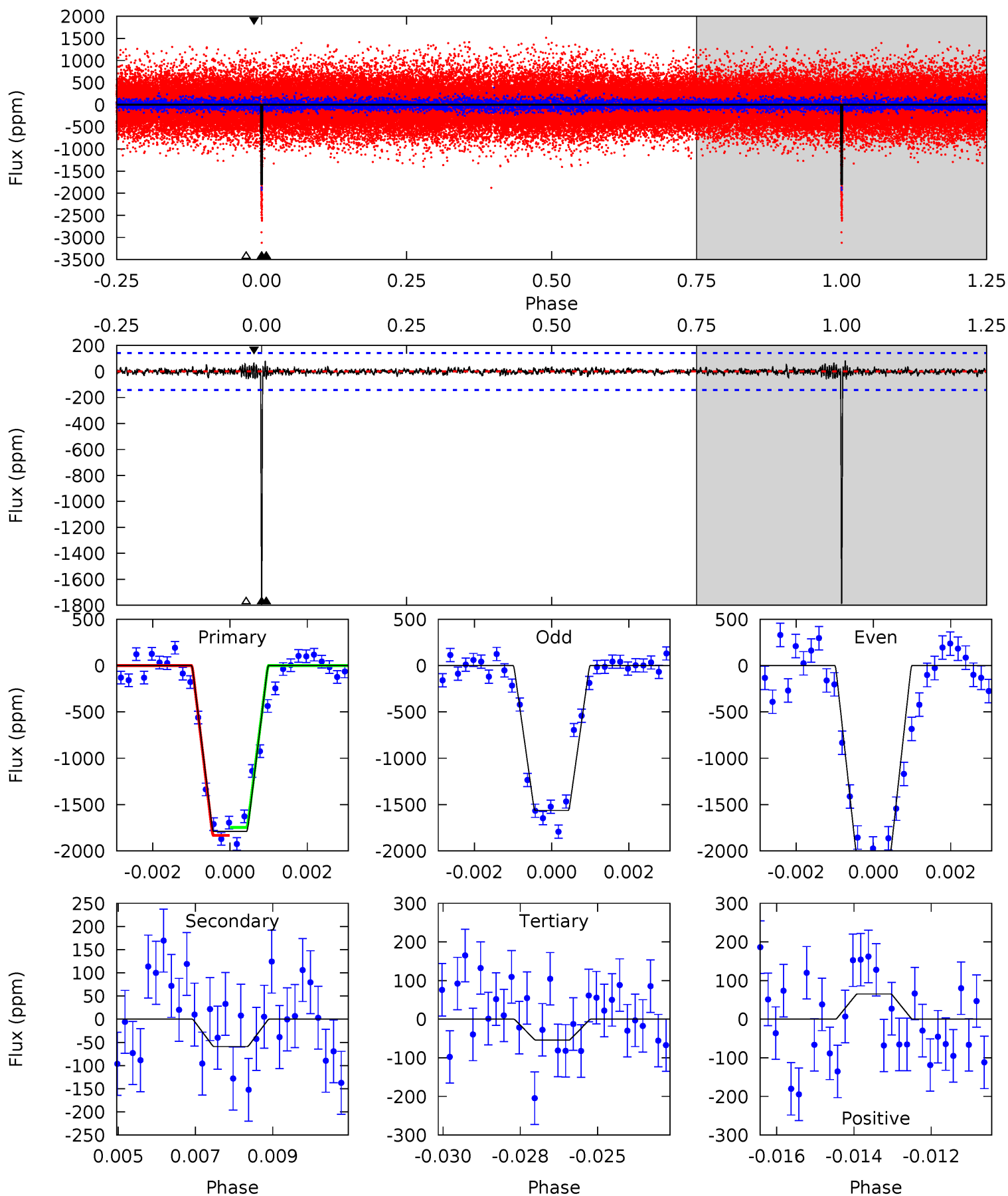
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.0	15.7	15.0	14.0	5.27	2.99	4.94	21.0	22.0	0.67	1.63	14.5	0.98	0.28	3.01



Alt Model-Shift Uniqueness Test

008460290-01, P = 367.054849 Days, E = 237.245436 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.6	2.20	2.01	2.43	5.30	3.05	0.48	64.6	64.2	0.18	-0.23	8.49	1.09	0.04	1.60



Stellar Parameters For KIC 008460290

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5332^{+159}_{-159}	$4.595^{+0.035}_{-0.105}$	$-0.140^{+0.300}_{-0.300}$	$0.771^{+0.132}_{-0.066}$	$0.865^{+0.070}_{-0.104}$	$2.656^{+0.474}_{-0.844}$
	+3%/-3%	+1%/-2%	+214%/-214%	+17%/-9%	+8%/-12%	+18%/-32%
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 008460290-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-604 ± 39	$3.22^{+0.39}_{-0.33}$	300^{+14}_{-11}	4473^{+215}_{-170}	28598^{+6593}_{-5641}
Alt.	-59 ± 27	$3.72^{+0.41}_{-0.36}$	300^{+13}_{-11}	2913^{+184}_{-247}	2014^{+1080}_{-984}

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

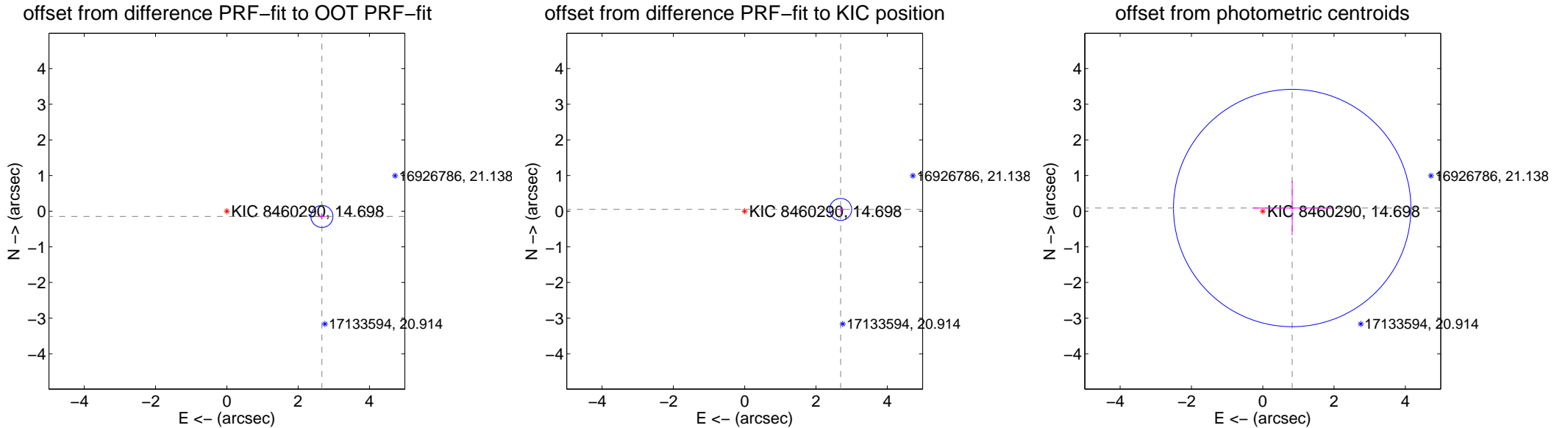
DV Centroid Data

Supplemental centroid analysis for 008460290-01. Kepler magnitude: 14.70. Transit SNR 10.21

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.670 ± 0.103	25.93	-2.666 ± 0.103	-0.148 ± 0.087
PRF-fit source offset from KIC position	2.692 ± 0.103	26.13	-2.692 ± 0.103	0.050 ± 0.087
photometric centroid source offset	0.83 ± 1.11	0.75	-0.83 ± 1.11	0.09 ± 0.77



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

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

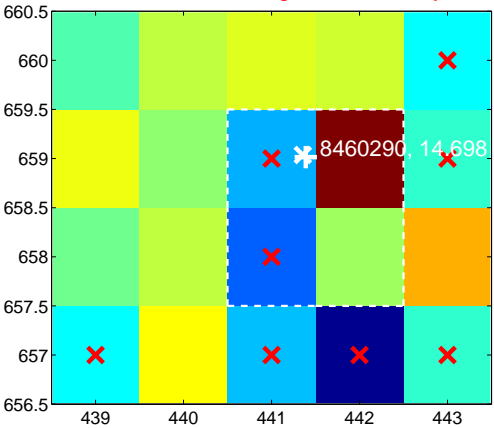
Q1 no difference image



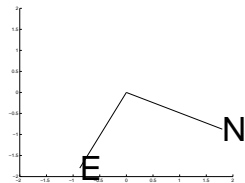
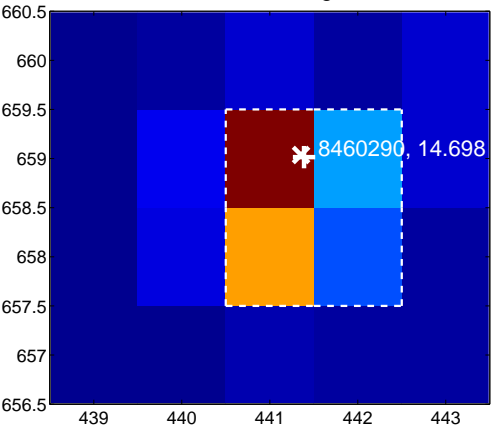
Q1 no OOT image



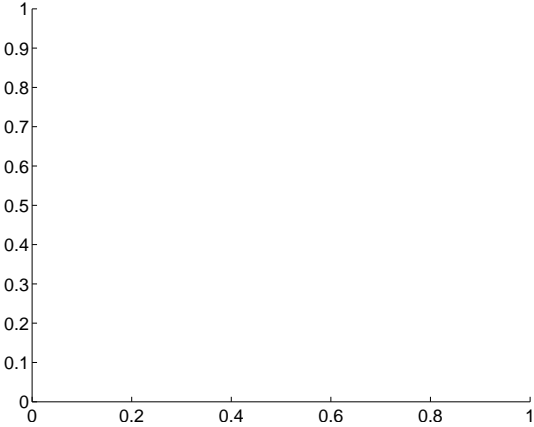
Q2 difference image. Poor Quality



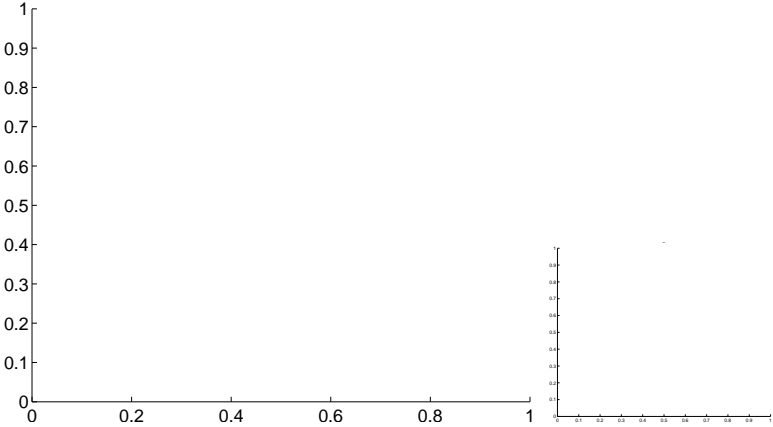
Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

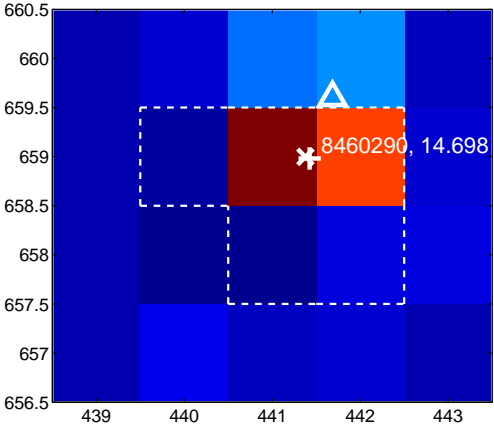
Q5 no difference image



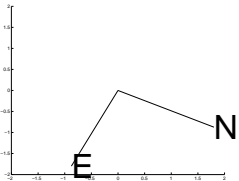
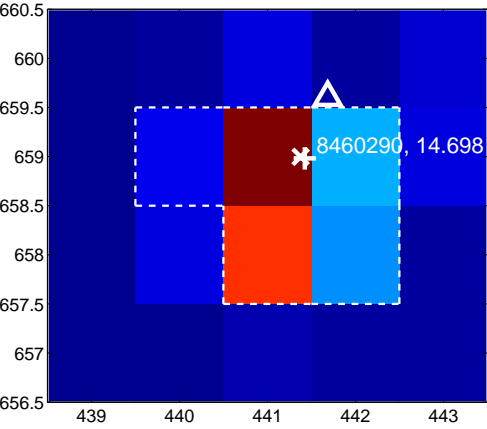
Q5 no OOT image



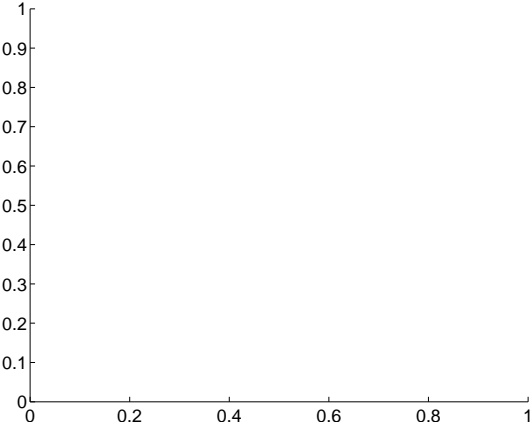
Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image



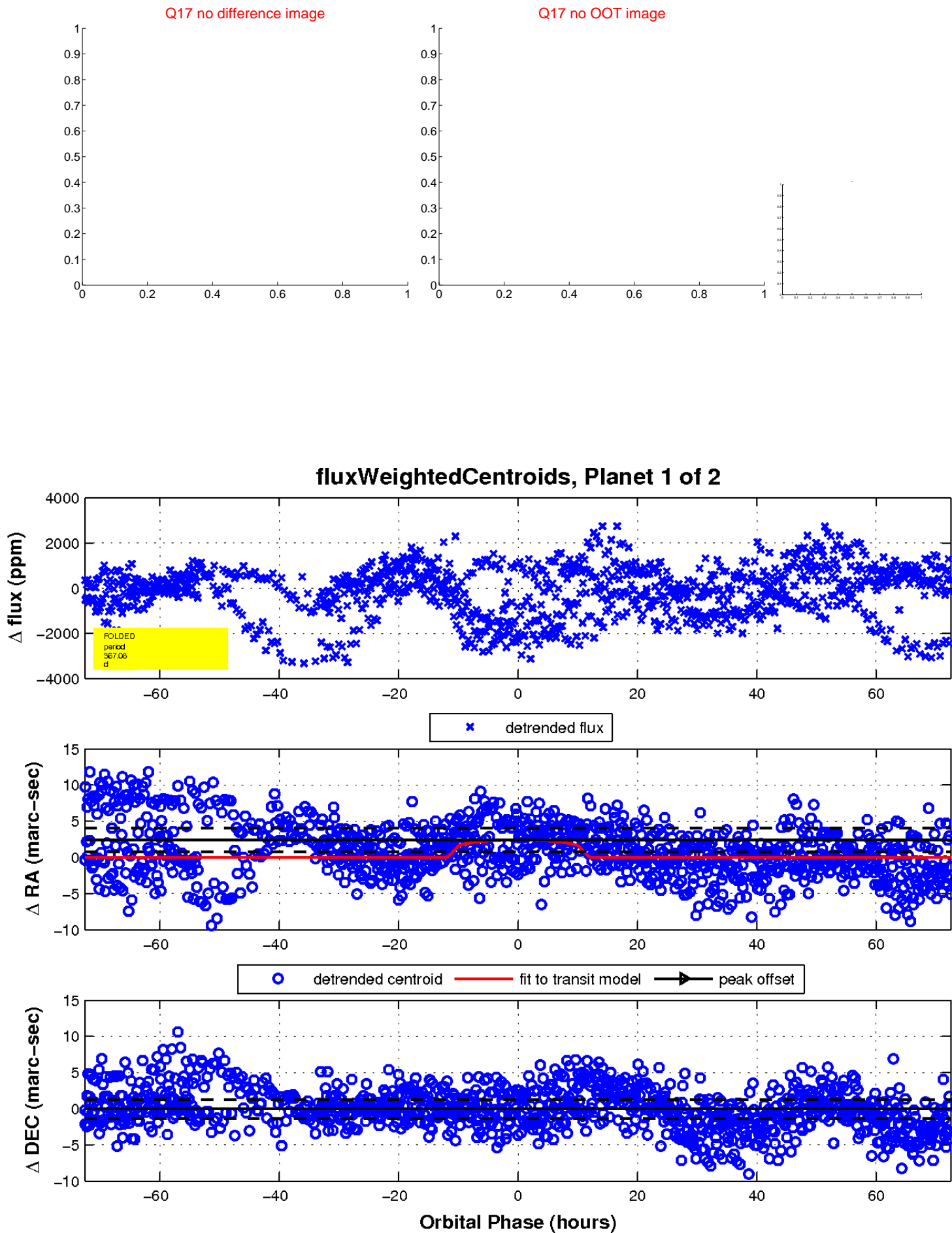
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



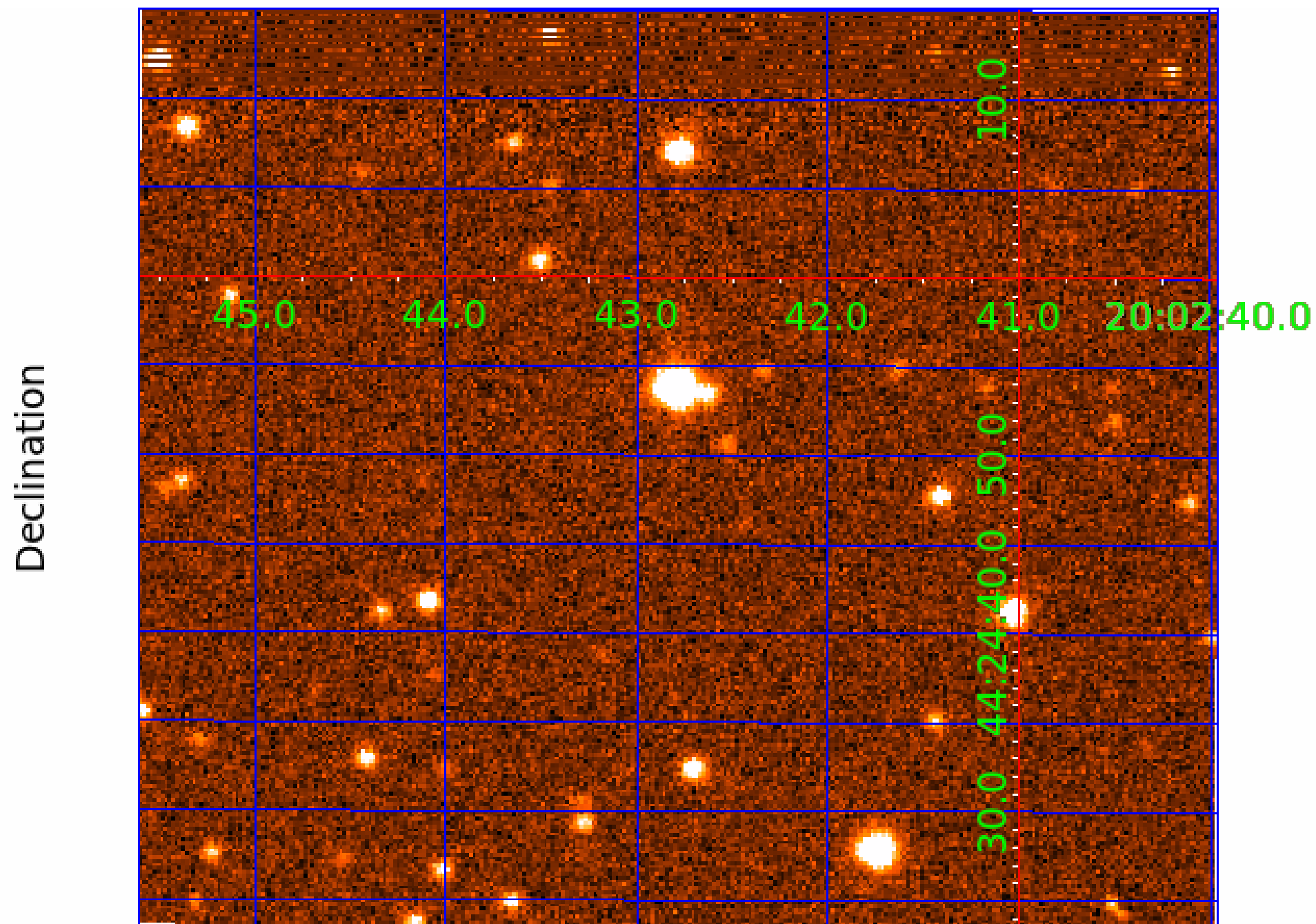
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008460290

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})
008460290-01	OBS	No	367.081324	237.304667	1357.8	24.201	8.7	10.2	0.77	5332	3.16	0.47
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008460290-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008460290-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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.

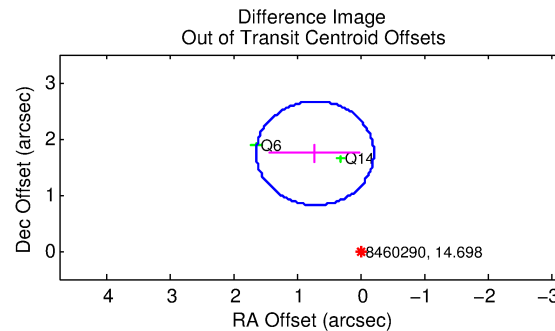
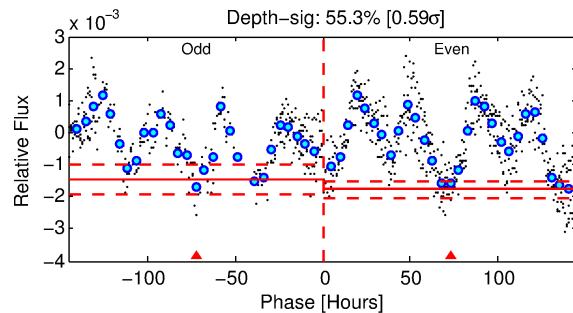
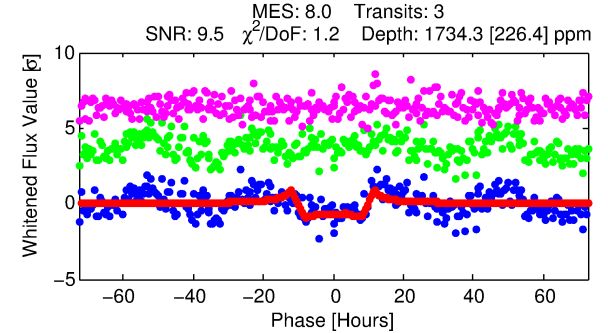
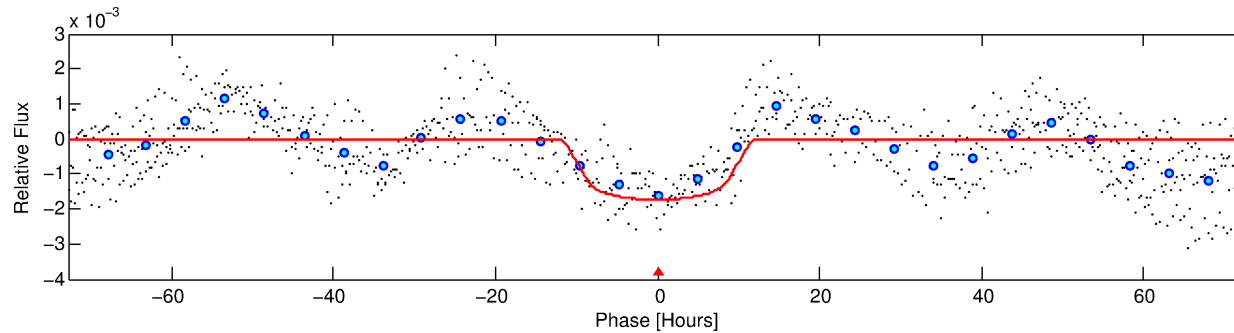
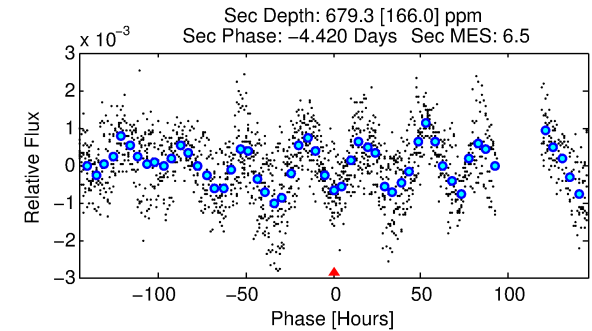
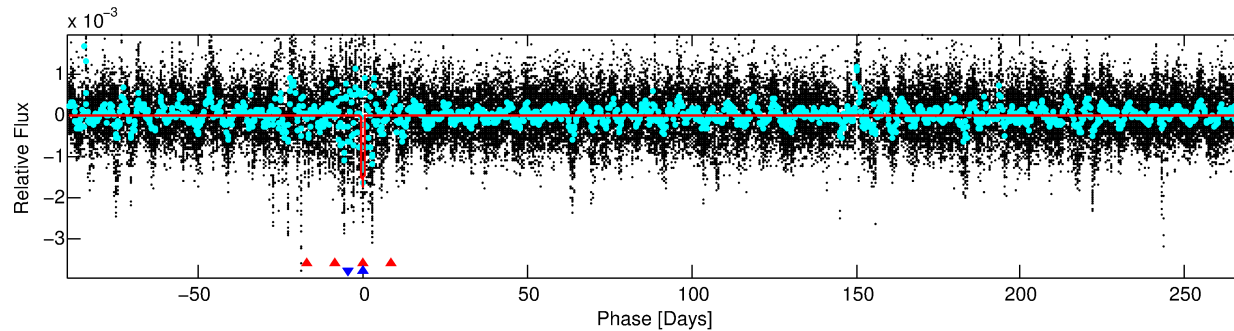
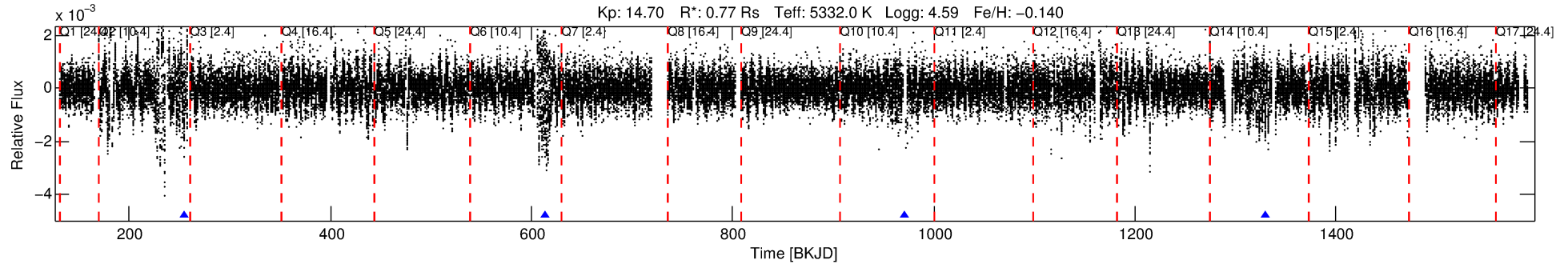
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008460290-02

No Significant Match Found

DV One-Page Summary

KIC: 8460290 Candidate: 2 of 2 Period: 358.553 d



DV Fit Results:

Period = 358.55320 [0.01234] d
Epoch = 254.4689 [0.0240] BKJD
Rp/R* = 0.0452 [0.0035]
a/R* = 62.92 [8.14]
b = 0.88 [0.03]
Seff = 0.49 [0.11]
Teq = 213 [12] K
Rp = 3.81 [0.71] Re
a = 0.9371 [0.1309] AU
Ag = 22660.64 [7924.05] [2.86σ]
Teff = 4048 [316] K [12.13σ]

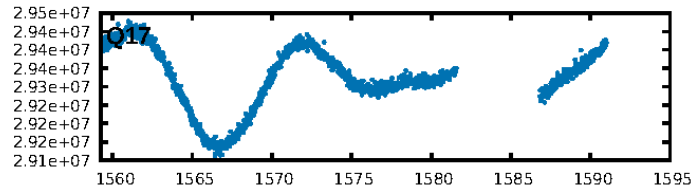
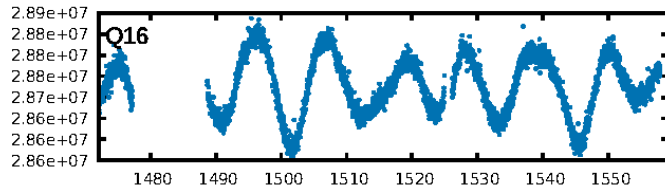
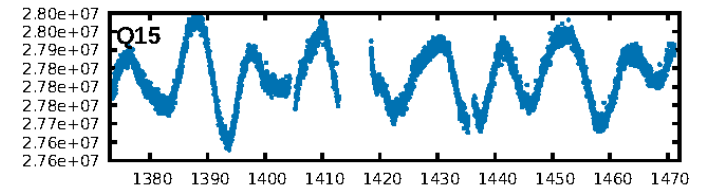
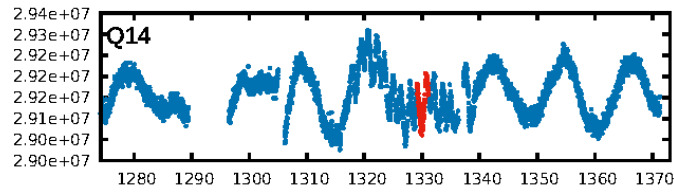
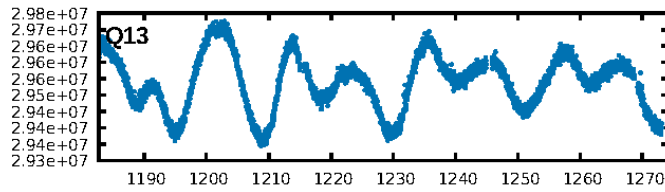
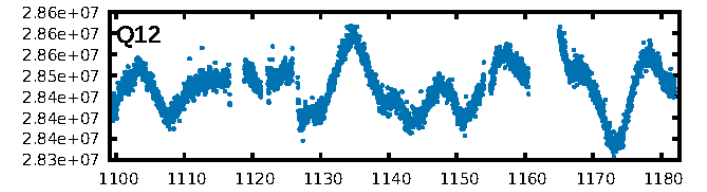
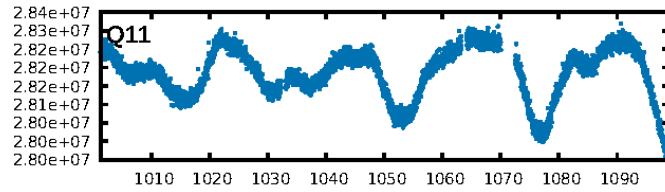
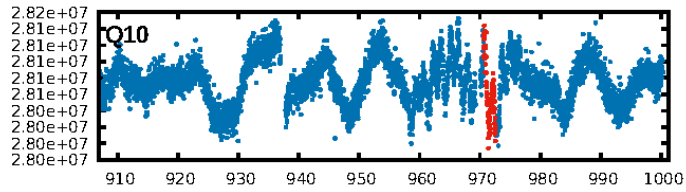
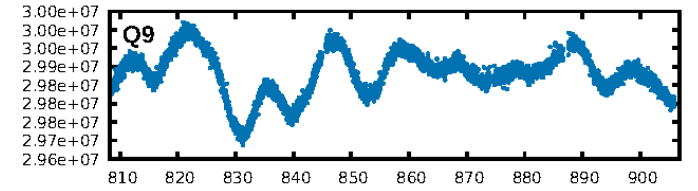
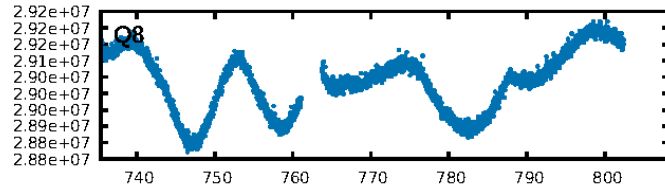
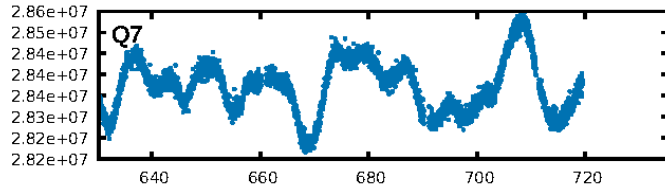
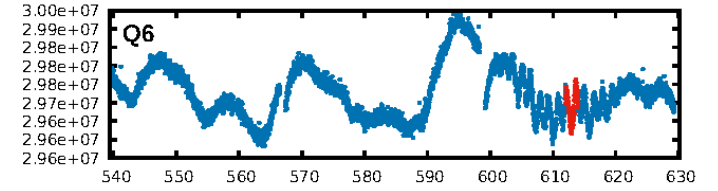
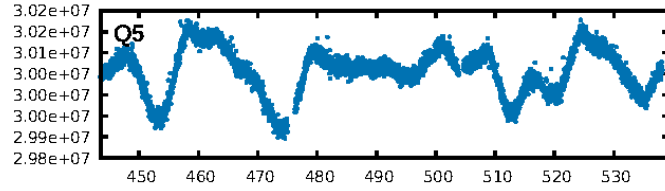
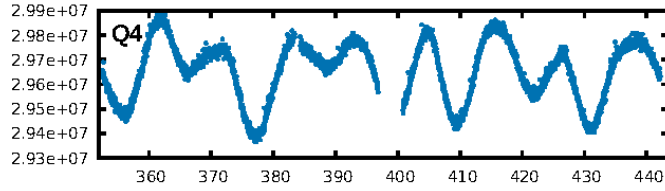
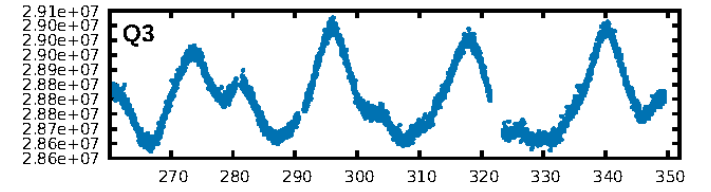
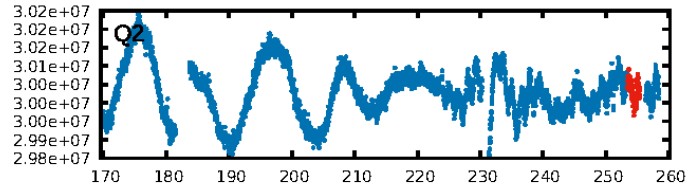
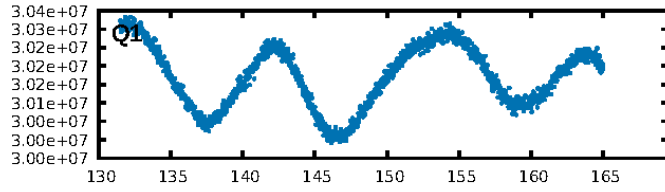
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [5.98σ]
ModelChiSquare2-sig: 4.1%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 2.84e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.154
Centroid-sig: 0.0%
Centroid-so: 3.315 arcsec [3.77σ]
OotOffset-rm: 1.885 arcsec [6.12σ]
KicOffset-rm: 2.082 arcsec [8.06σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

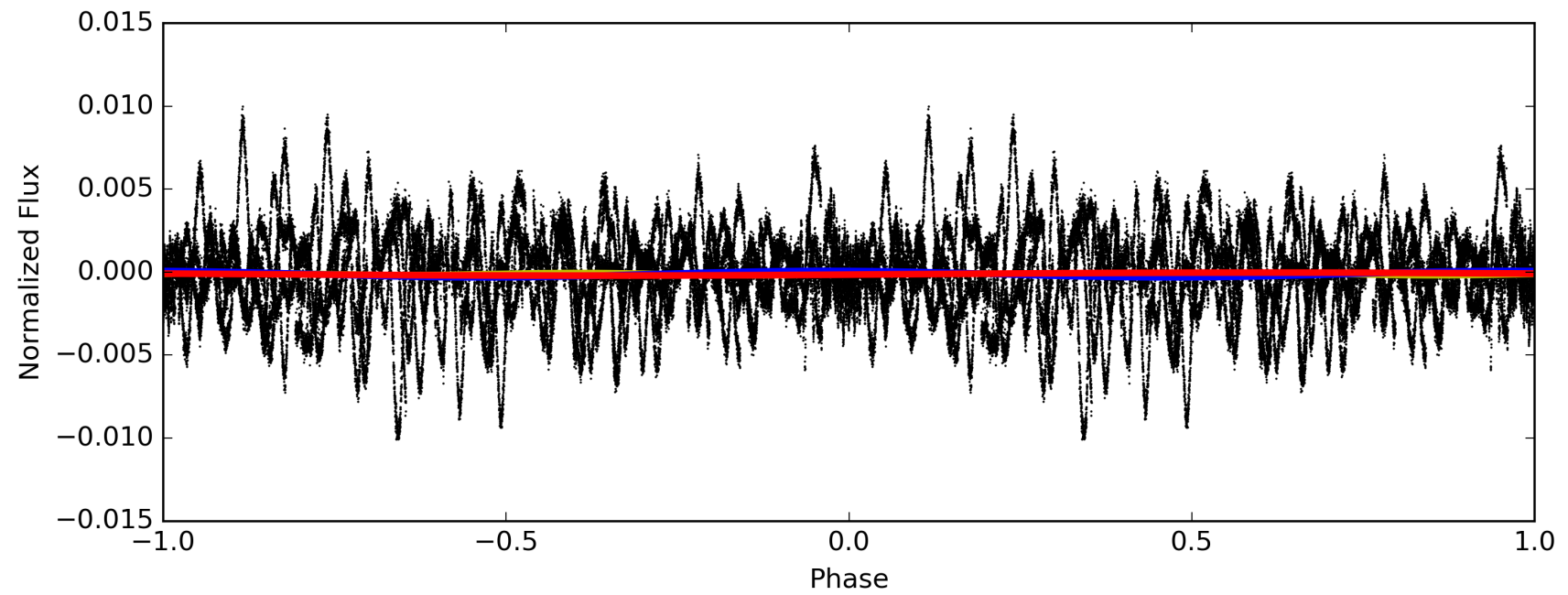
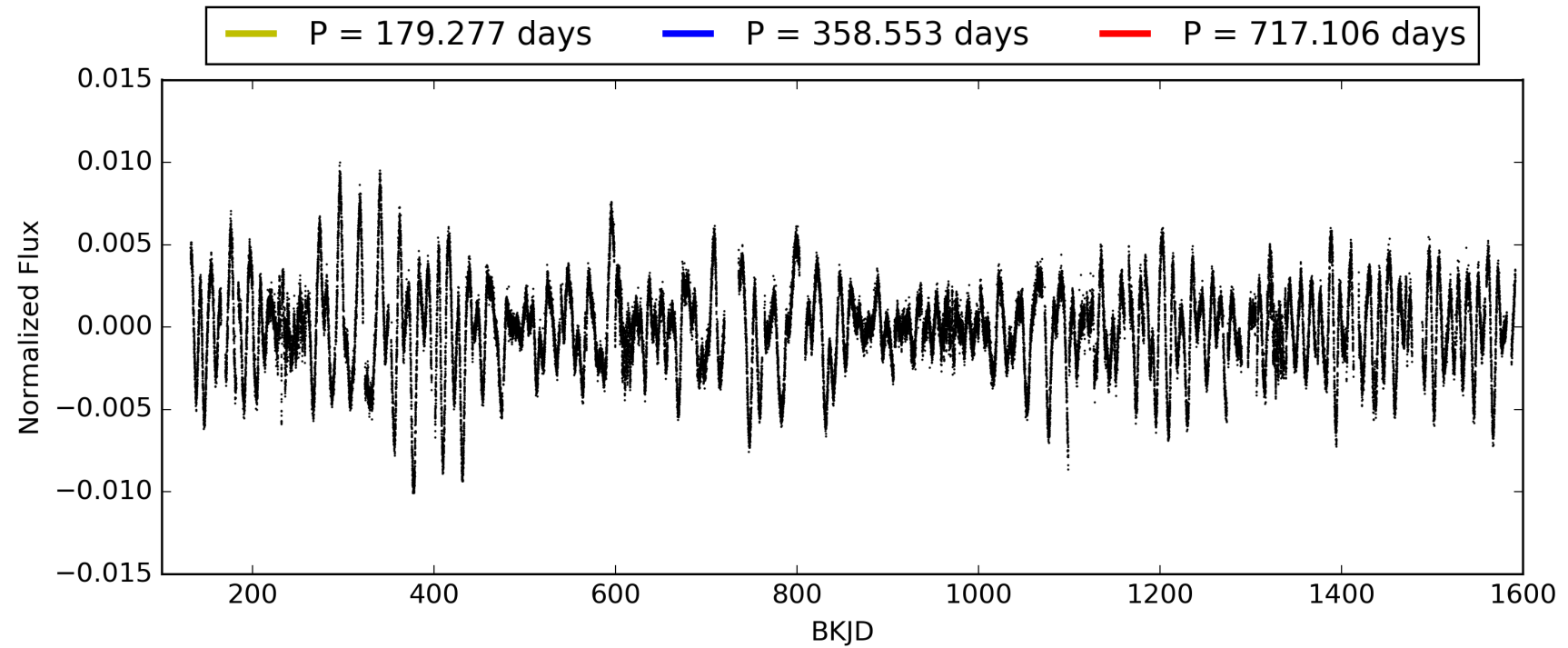
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:53:39 Z

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

TCE 008460290-02, PDC Light Curves

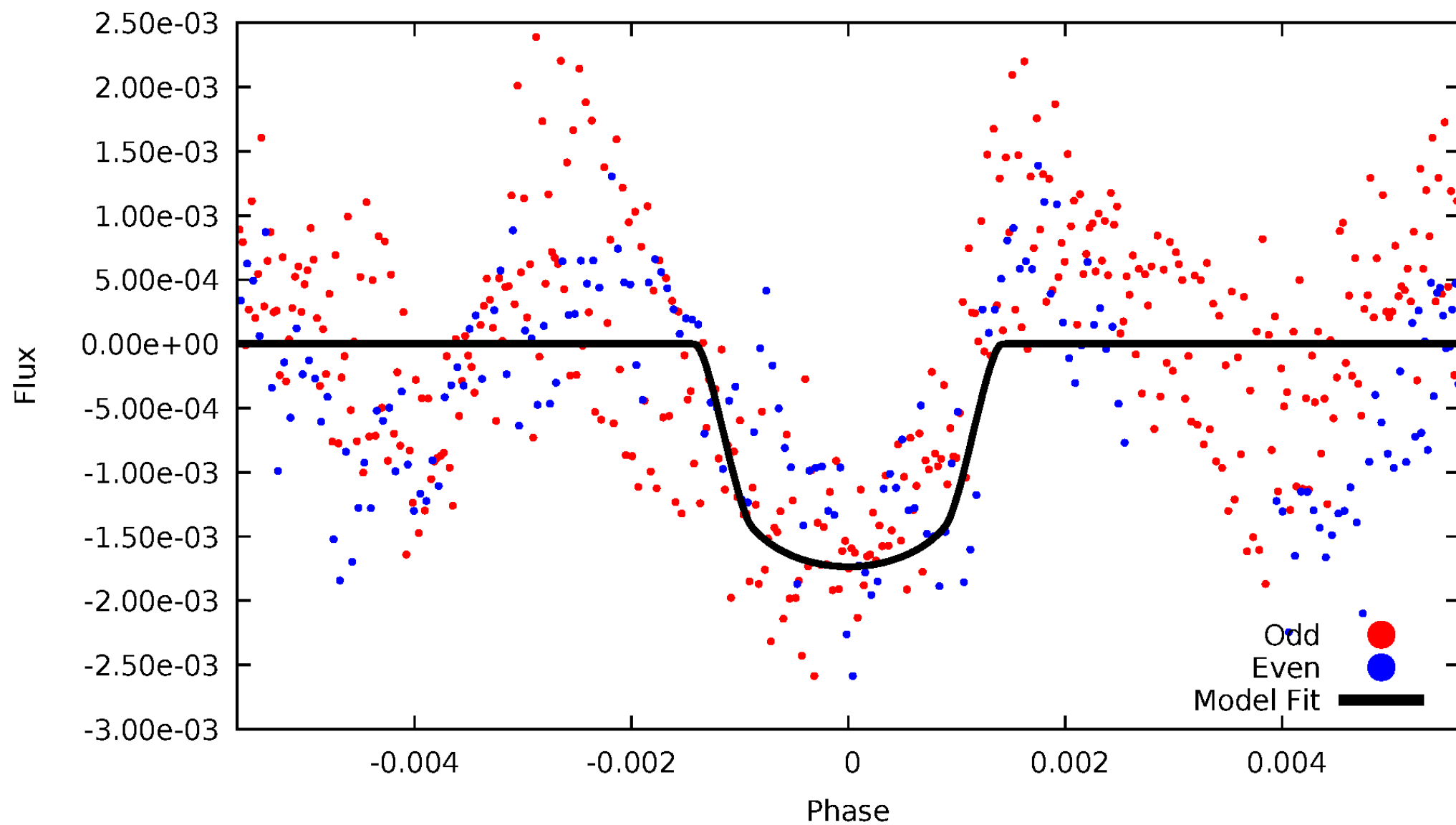


TCE 008460290-02



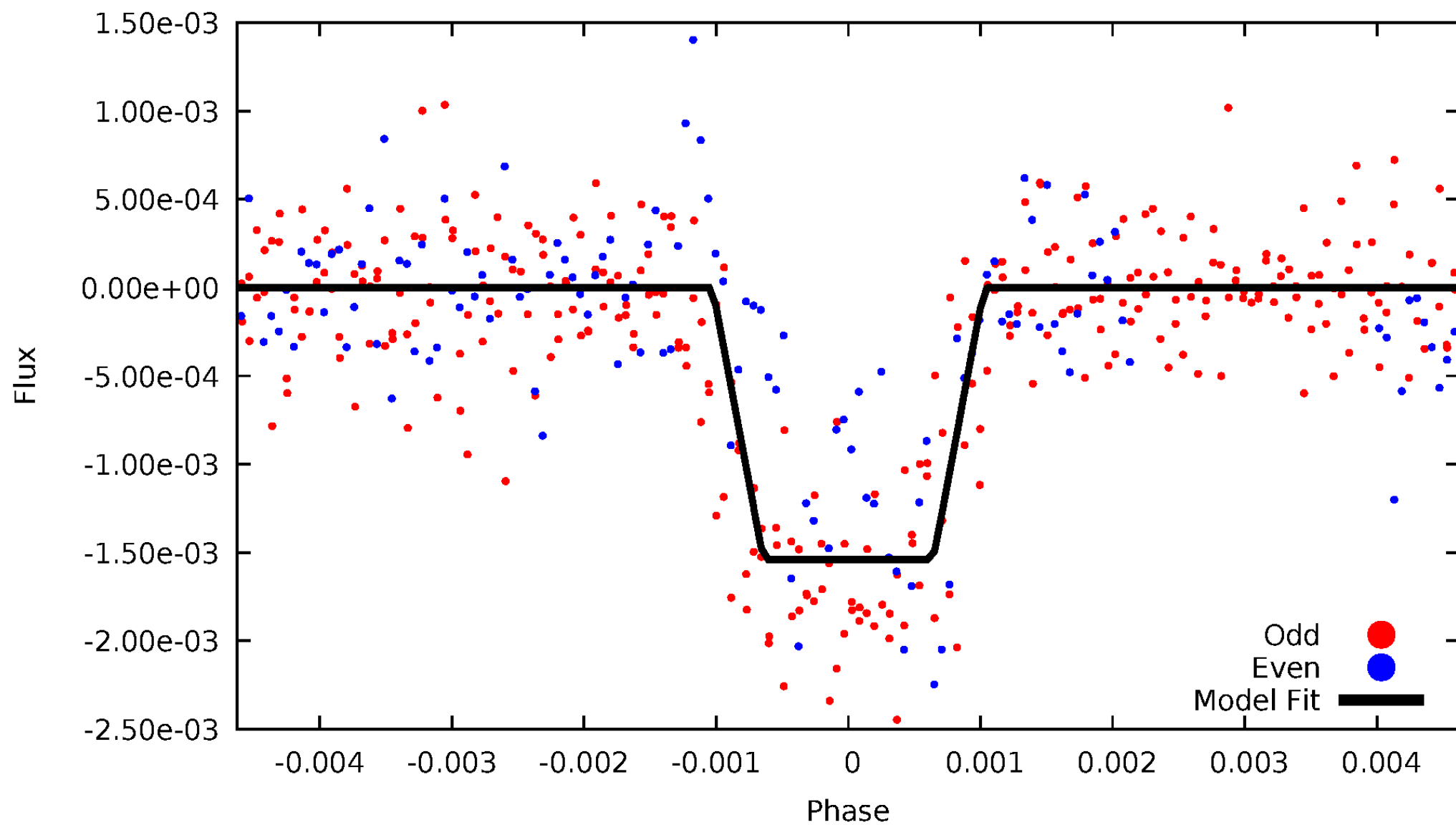
DV Odd/Even

TCE 008460290-02



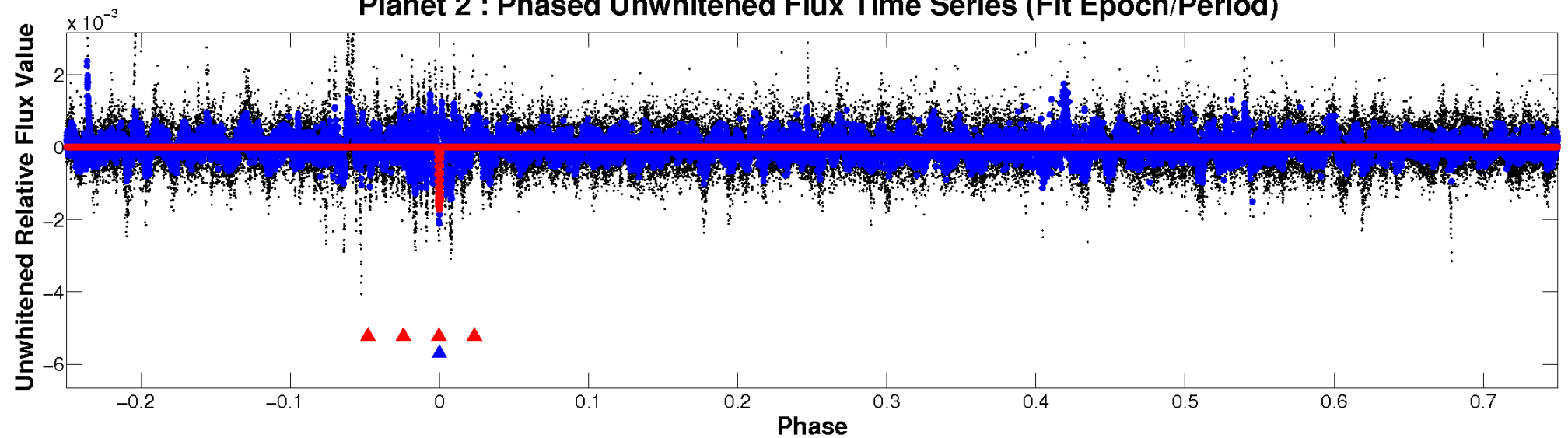
ALT Odd/Even

TCE 008460290-02

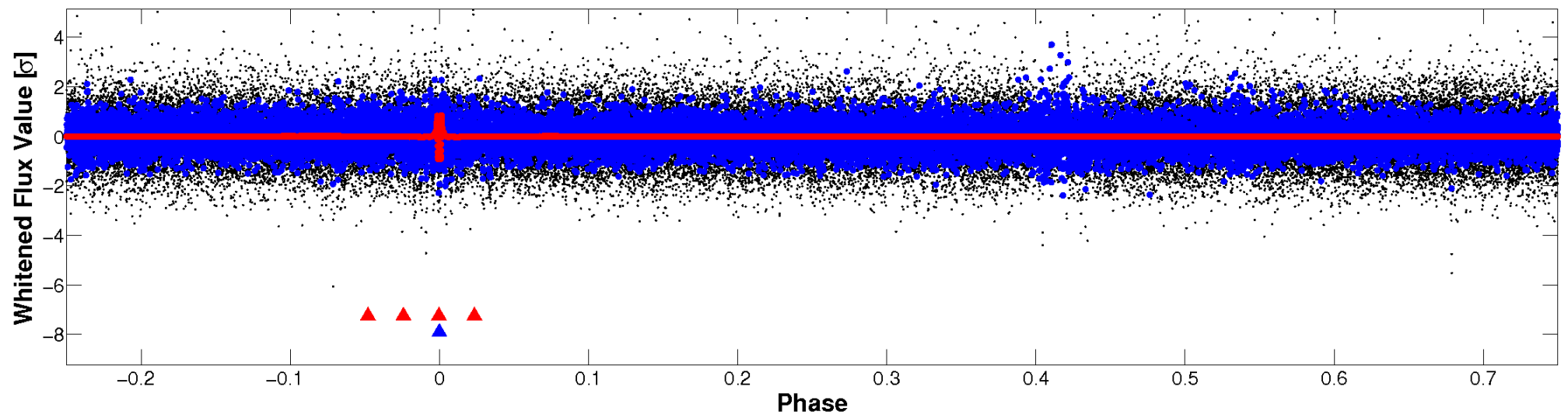


Non-Whitened Vs. Whitened Light Curve

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

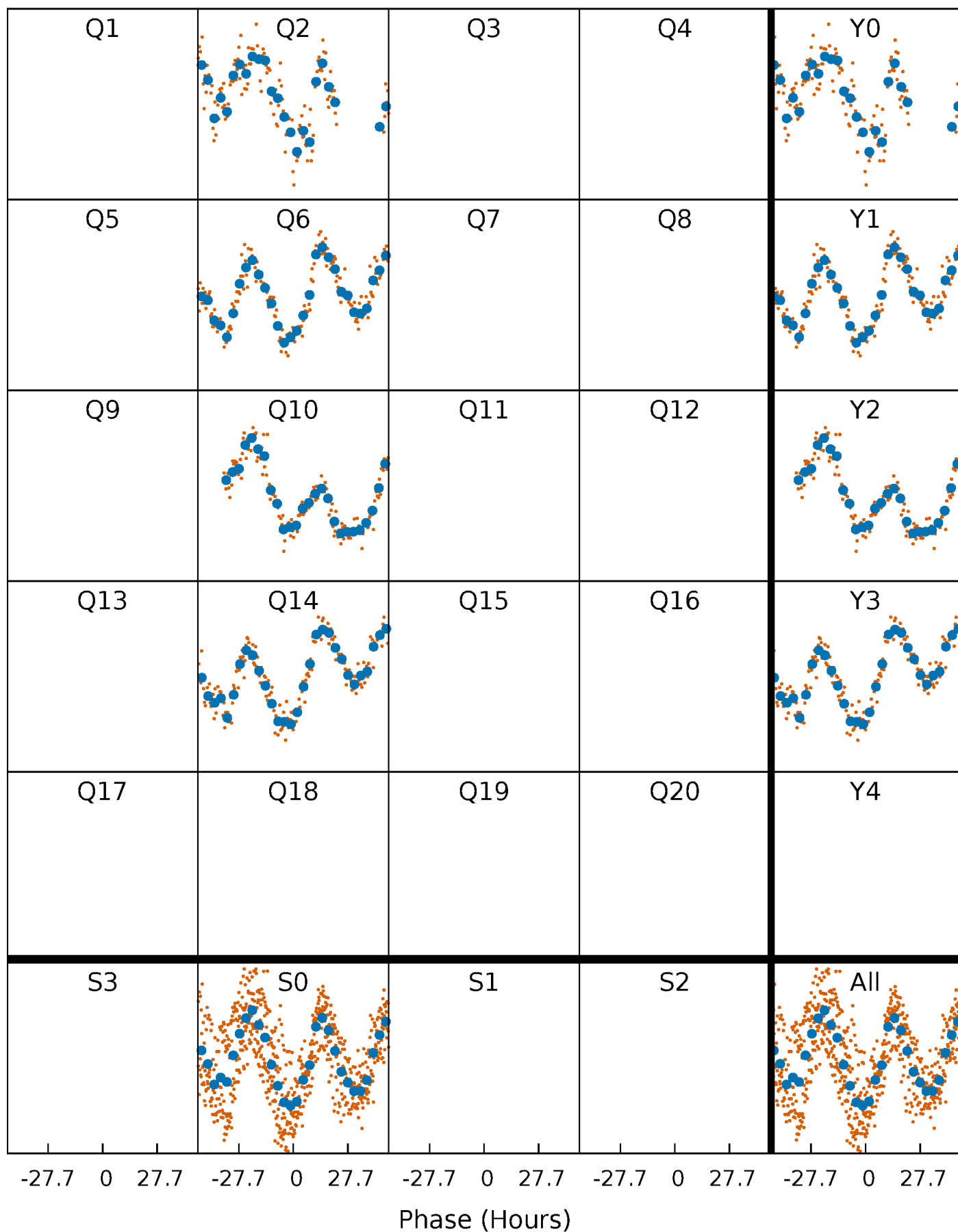


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



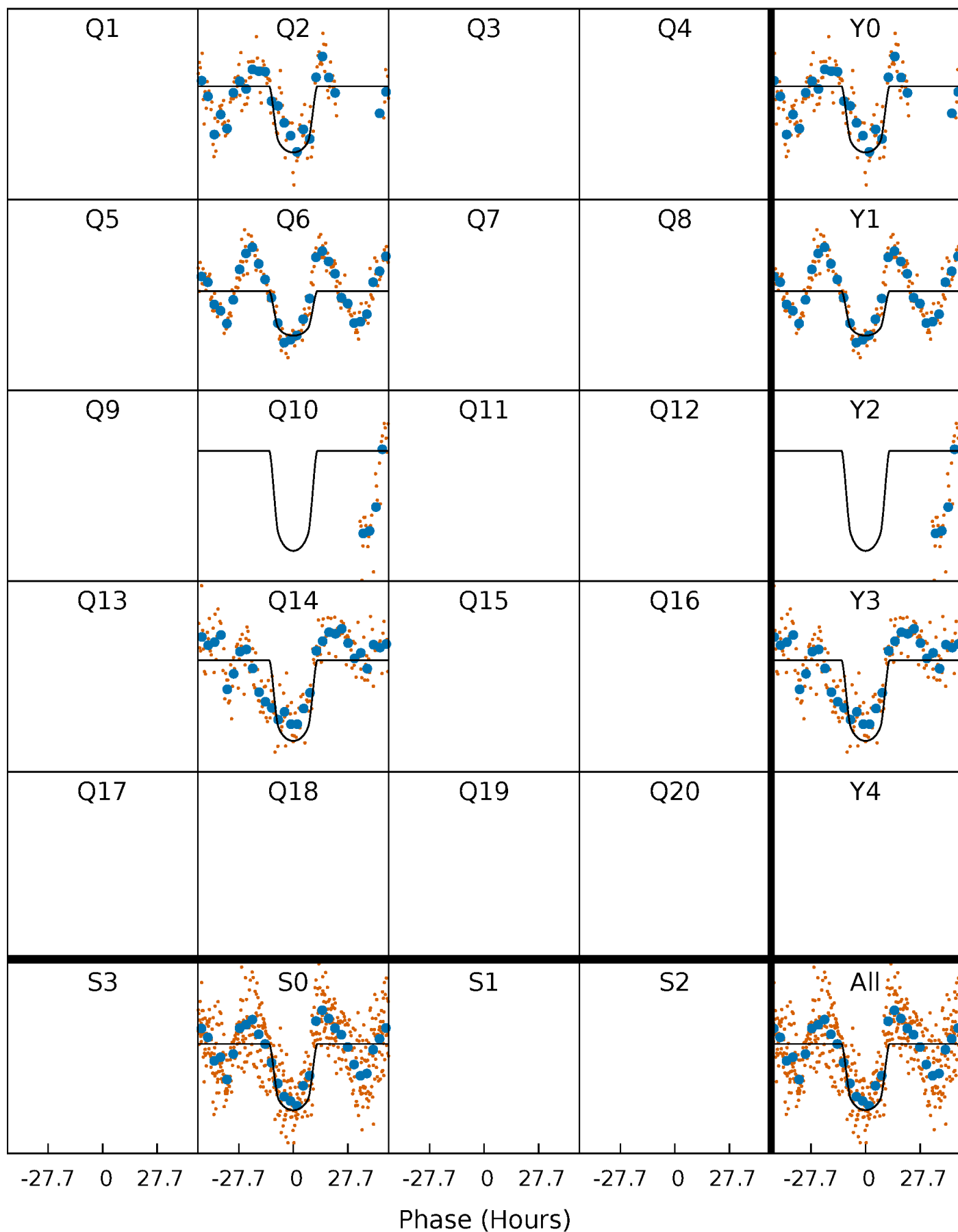
PDC Quarter-Phased Transit Curves

TCE 008460290-02 $P=358.553205$ Days $T_0=254.468854$ (BKJD)



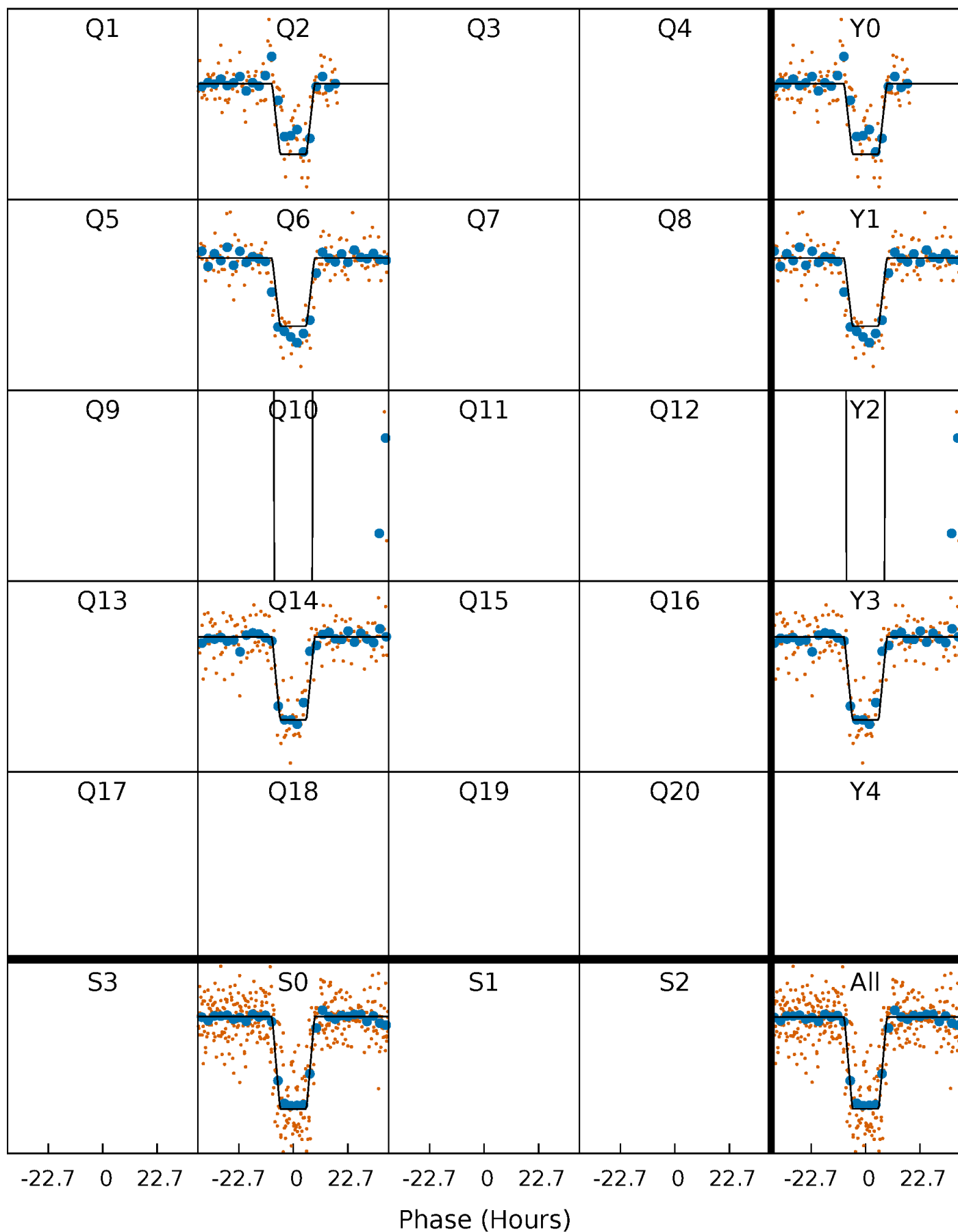
DV Quarter-Phased Transit Curves

TCE 008460290-02 $P=358.553205$ Days $T_0=254.468854$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

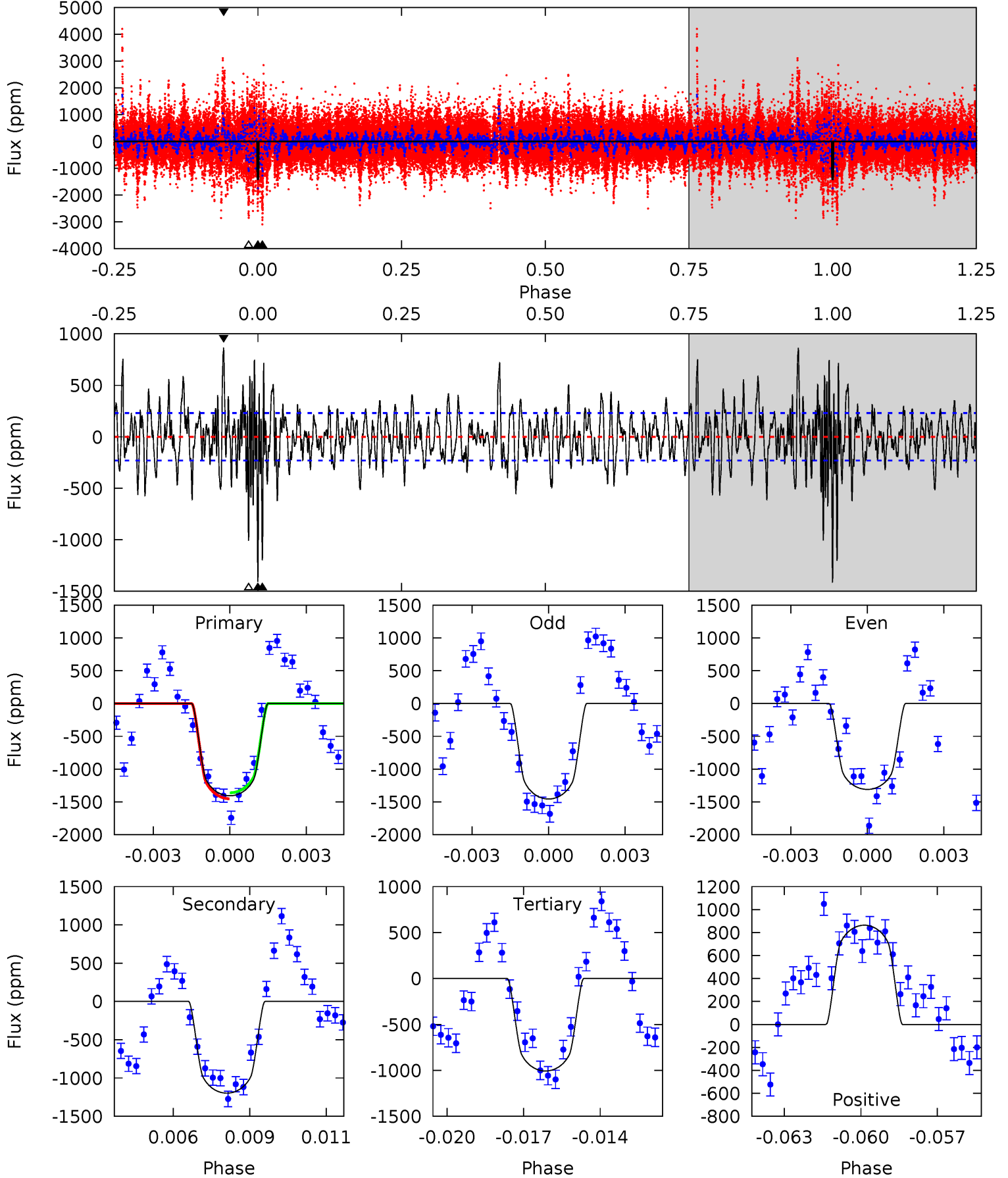
TCE 008460290-02 P=358.465943 Days $T_0=254.618549$ (BKJD)



DV Model-Shift Uniqueness Test

008460290-02, P = 358.553205 Days, E = 254.468854 Days

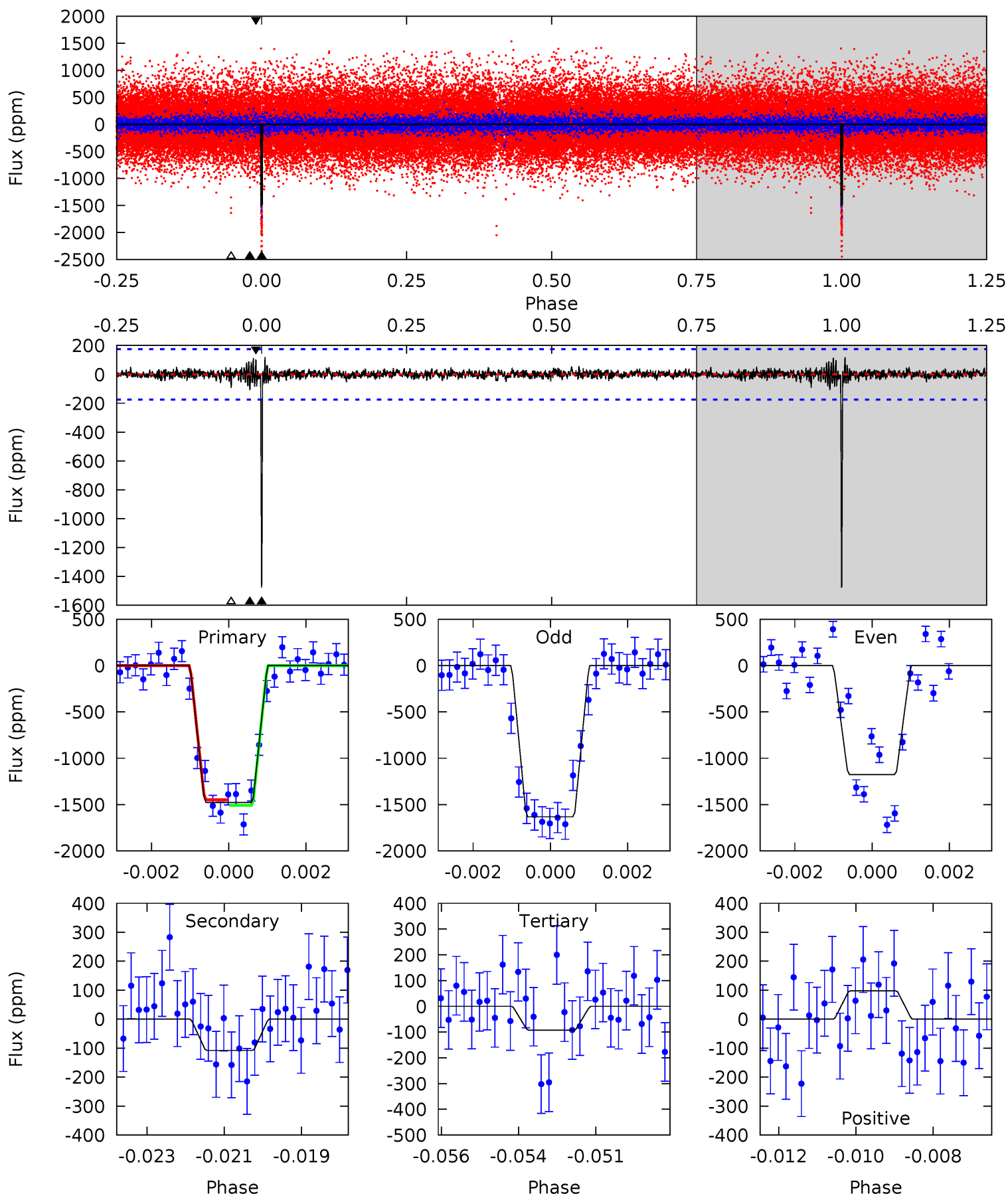
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.1	27.3	22.9	19.7	5.26	2.98	4.83	9.12	12.4	4.34	7.60	1.56	1.06	0.38	1.04



Alt Model-Shift Uniqueness Test

008460290-02, P = 358.465943 Days, E = 254.618549 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.1	3.29	2.82	2.99	5.32	3.08	0.52	42.2	42.1	0.47	0.30	6.52	1.04	0.07	0.90



Stellar Parameters For KIC 008460290

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5332^{+159}_{-159}	$4.595^{+0.035}_{-0.105}$	$-0.140^{+0.300}_{-0.300}$	$0.771^{+0.132}_{-0.066}$	$0.865^{+0.070}_{-0.104}$	$2.656^{+0.474}_{-0.844}$
	+3%/-3%	+1%/-2%	+214%/-214%	+17%/-9%	+8%/-12%	+18%/-32%
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 008460290-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1197 ± 44	$3.89^{+0.46}_{-0.36}$	303^{+12}_{-12}	4748^{+219}_{-192}	37655^{+7540}_{-6674}
Alt.	-108 ± 33	$3.34^{+0.44}_{-0.34}$	302^{+14}_{-12}	3279^{+204}_{-201}	4578^{+1848}_{-1692}

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

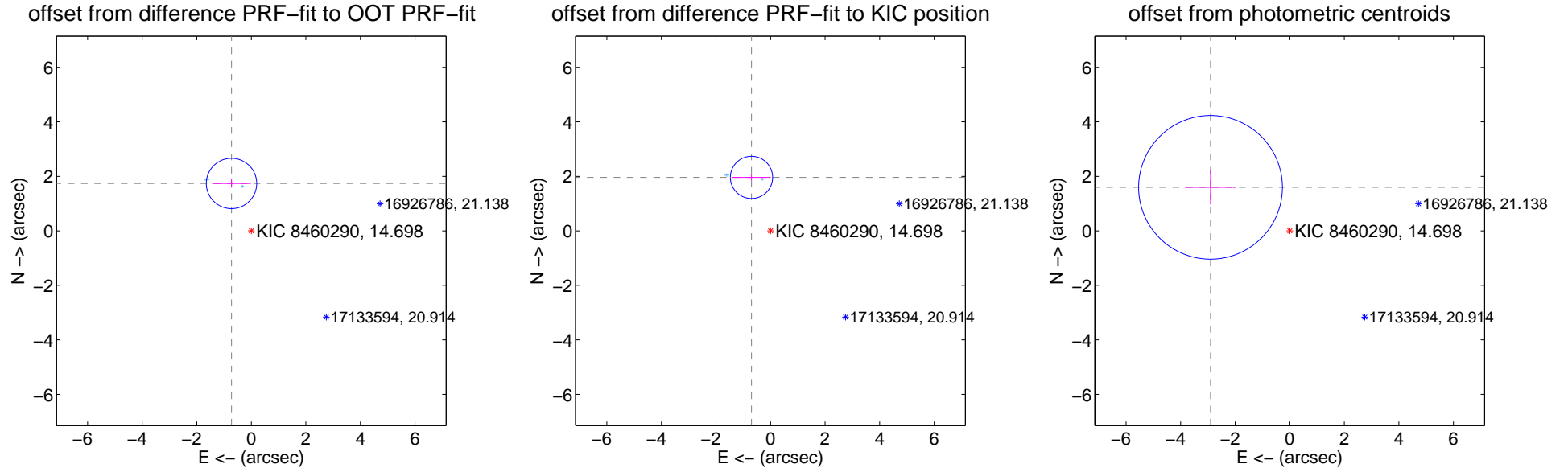
DV Centroid Data

Supplemental centroid analysis for 008460290-02. Kepler magnitude: 14.70. Transit SNR 9.47

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.885 ± 0.308	6.12	0.726 ± 0.710	1.739 ± 0.153
PRF-fit source offset from KIC position	2.082 ± 0.258	8.06	0.698 ± 0.705	1.962 ± 0.110
photometric centroid source offset	3.31 ± 0.88	3.77	2.90 ± 0.94	1.60 ± 0.63

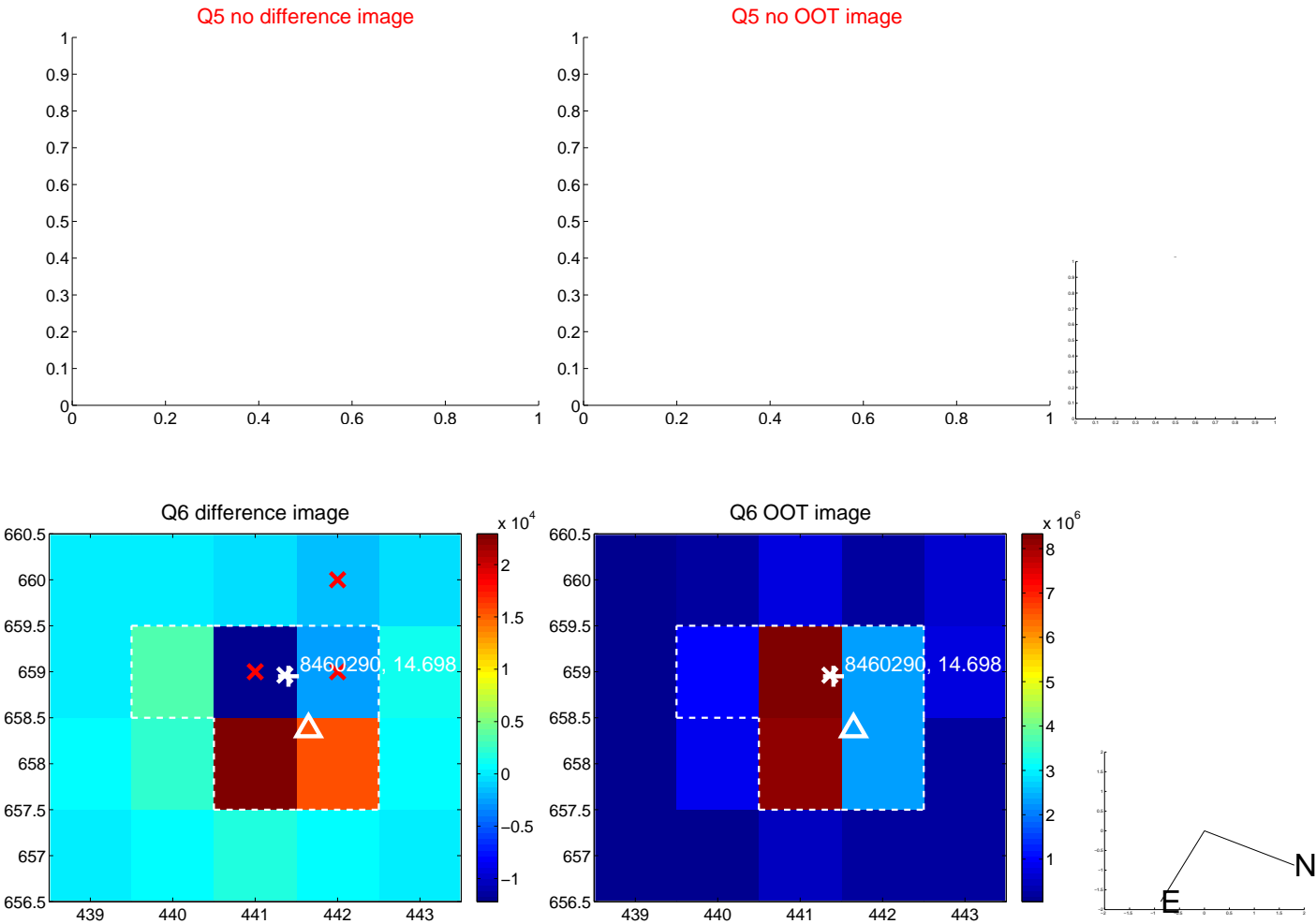


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



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

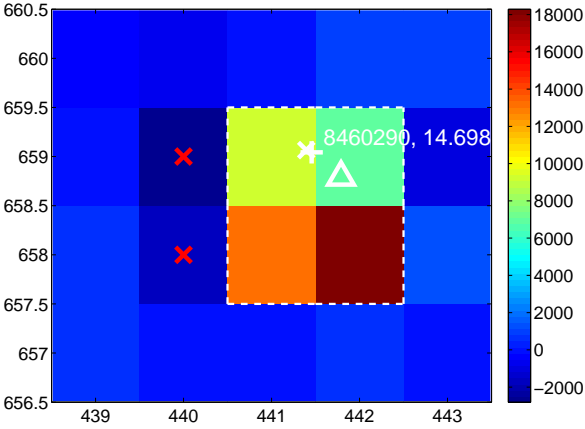
Q13 no difference image



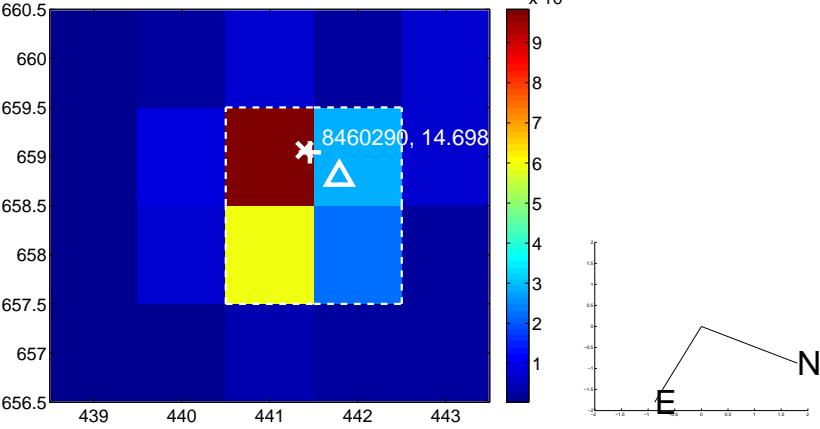
Q13 no OOT image



Q14 difference image



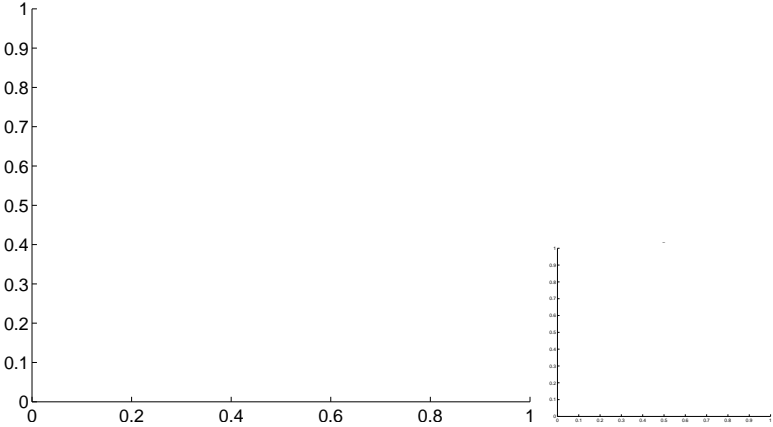
Q14 OOT image



Q15 no difference image



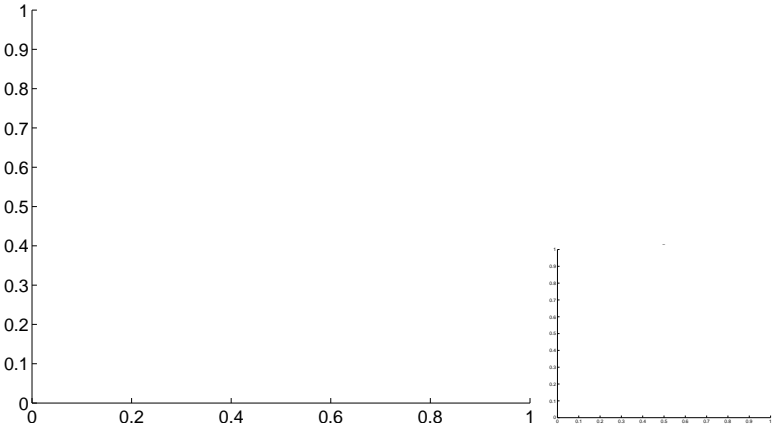
Q15 no OOT image



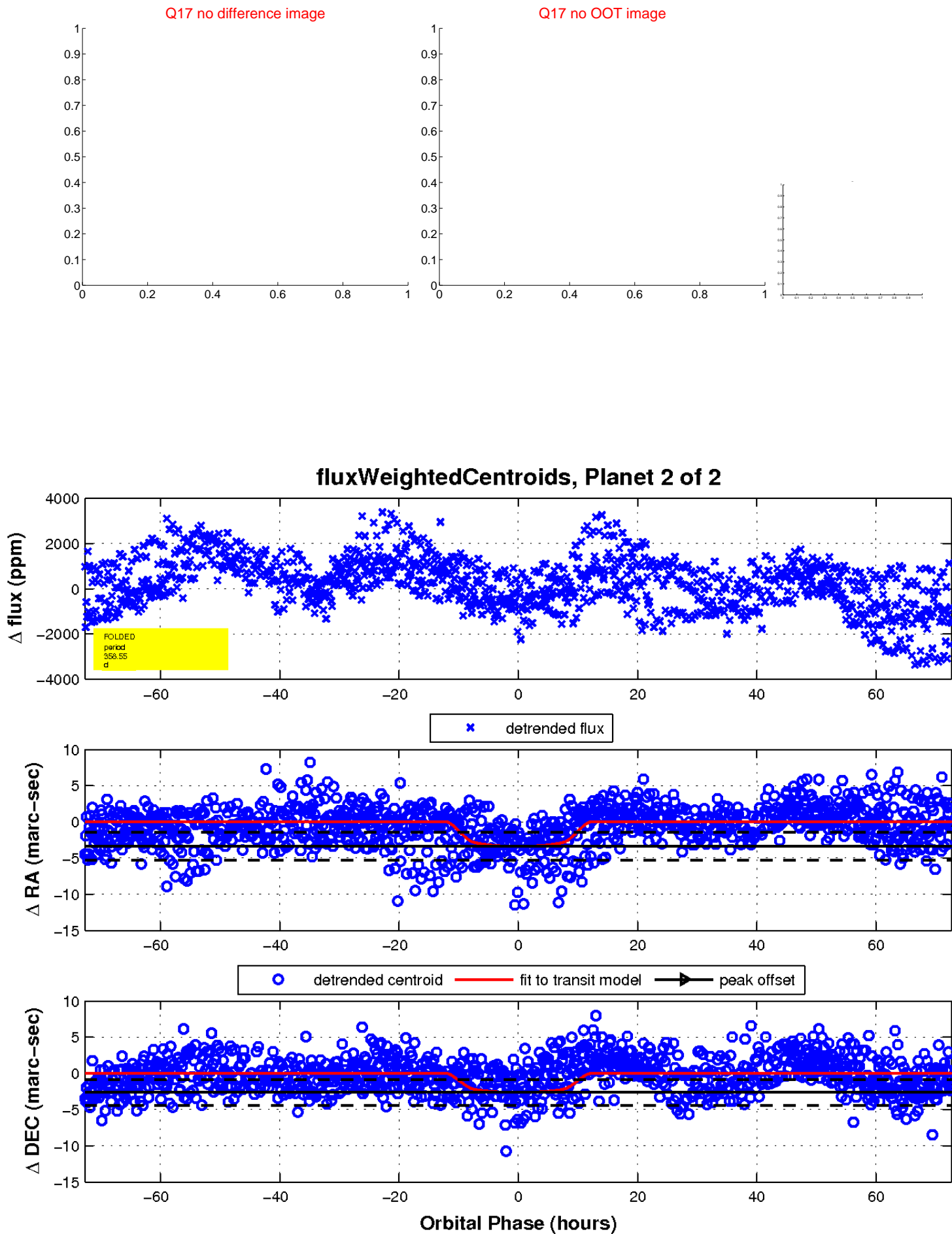
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

