

KIC 004586482

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})
004586482-01	OBS	No	623.005566	318.150970	175656.1	18.323	1749.3	1551.5	1.21	5689	75.73	0.65
004586482-02	OBS	5073.01	623.005695	201.385470	140342.5	23.561	1255.0	1293.9	1.21	5689	66.99	0.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004586482-01	OBS	FP	0.00	1	0	0	0	INCONSISTENT_TRANS—CENT_UNCERTAIN
004586482-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

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

Ephemeris Match Information For 004586482-01

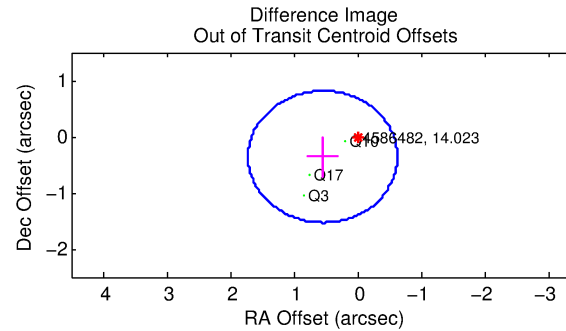
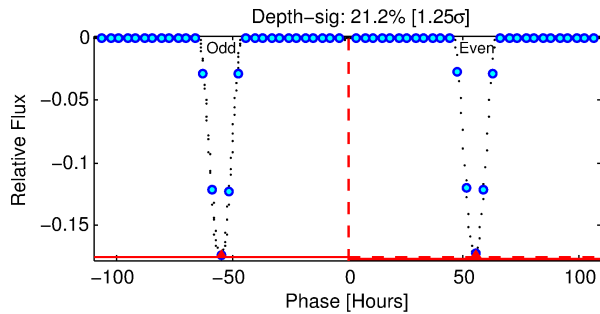
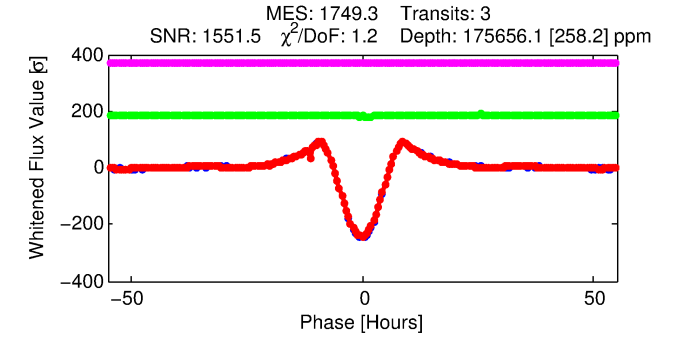
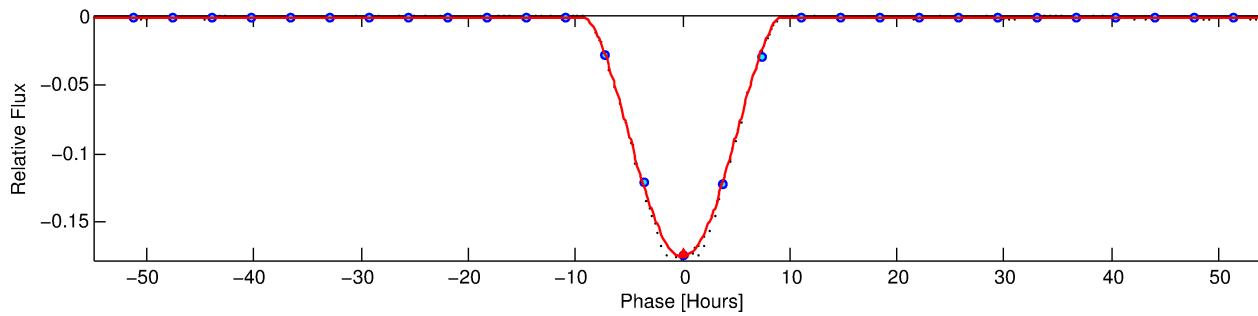
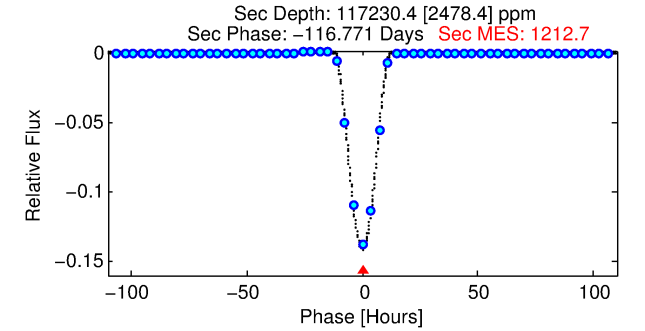
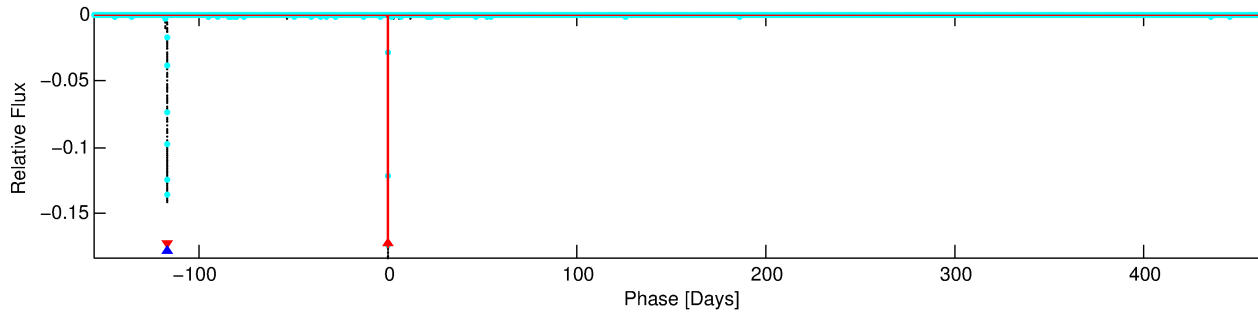
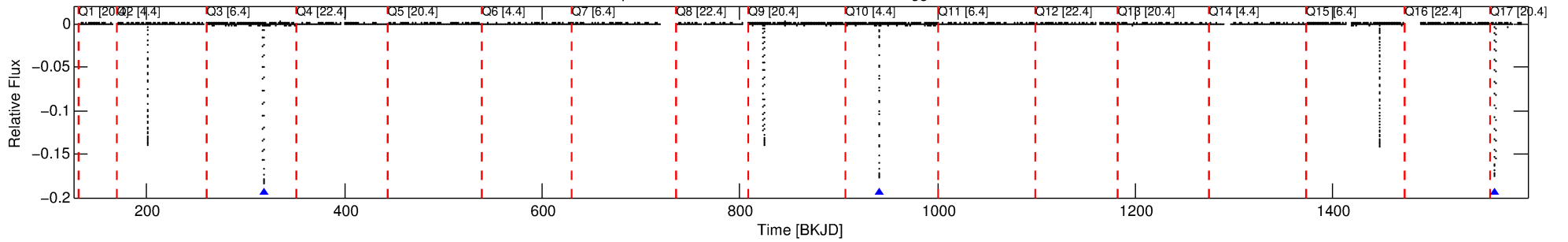
No Significant Match Found

DV One-Page Summary

KIC: 4586482 Candidate: 1 of 2 Period: 623.006 d

KOI: K05073 Corr: No Ephemeris Match

Kp: 14.02 R*: 1.21 Rs Teff: 5689.0 K Logg: 4.30 Fe/H: 0.320



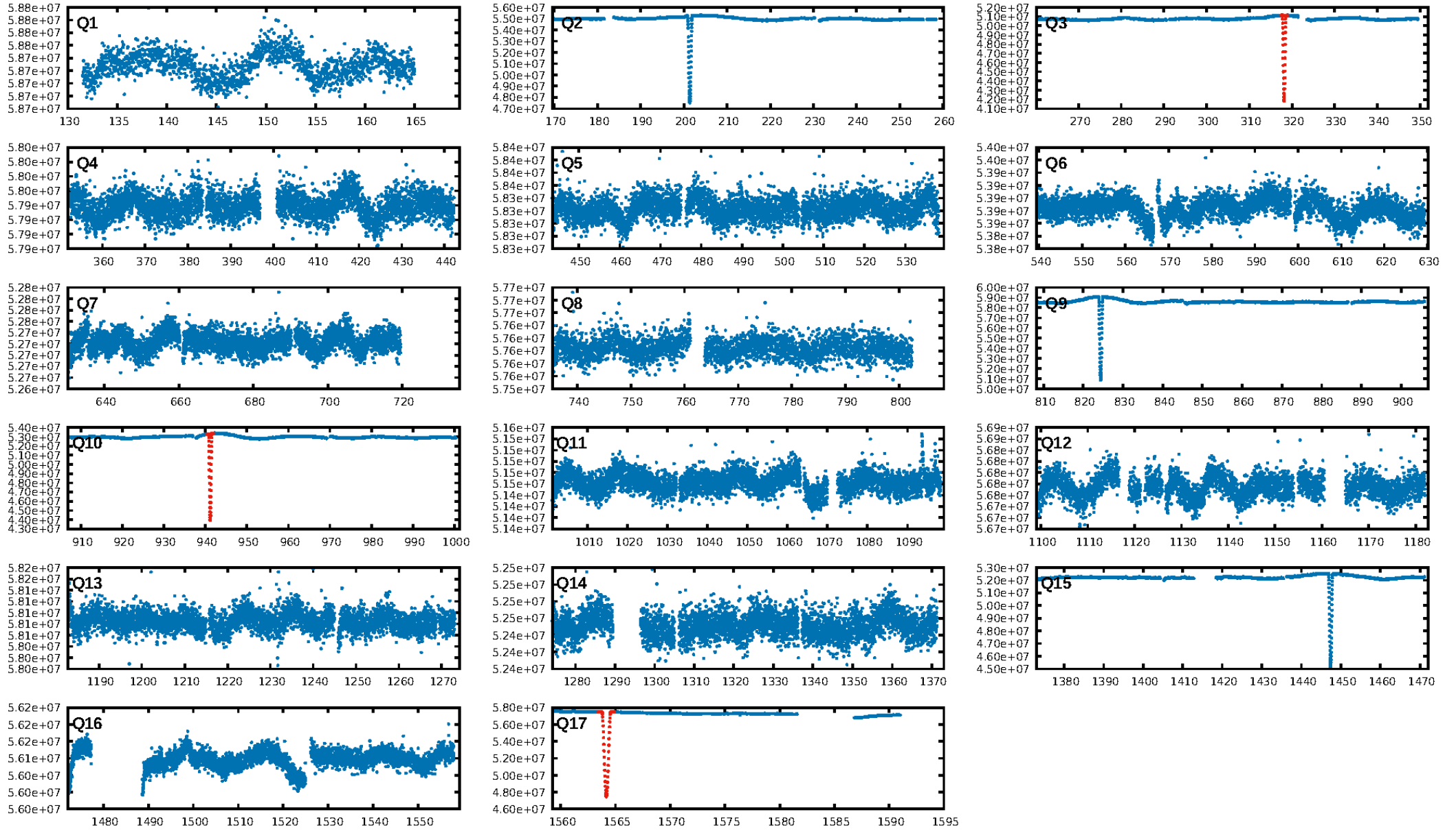
DV Fit Results:

Period = 623.00557 [0.00017] d
Epoch = 318.1510 [0.0003] BKJD
Rp/R* = 0.5750 [0.0389]
a/R* = 336.04 [3.07]
b = 0.90 [0.05]
Seff = 0.65 [0.23]
Teq = 229 [21] K
Rp = 75.73 [21.64] Re
a = 1.4549 [0.3407] AU
Ag = 23802.31 [8758.69] [2.72σ]
Teffp = 4390 [200] K [20.69σ]

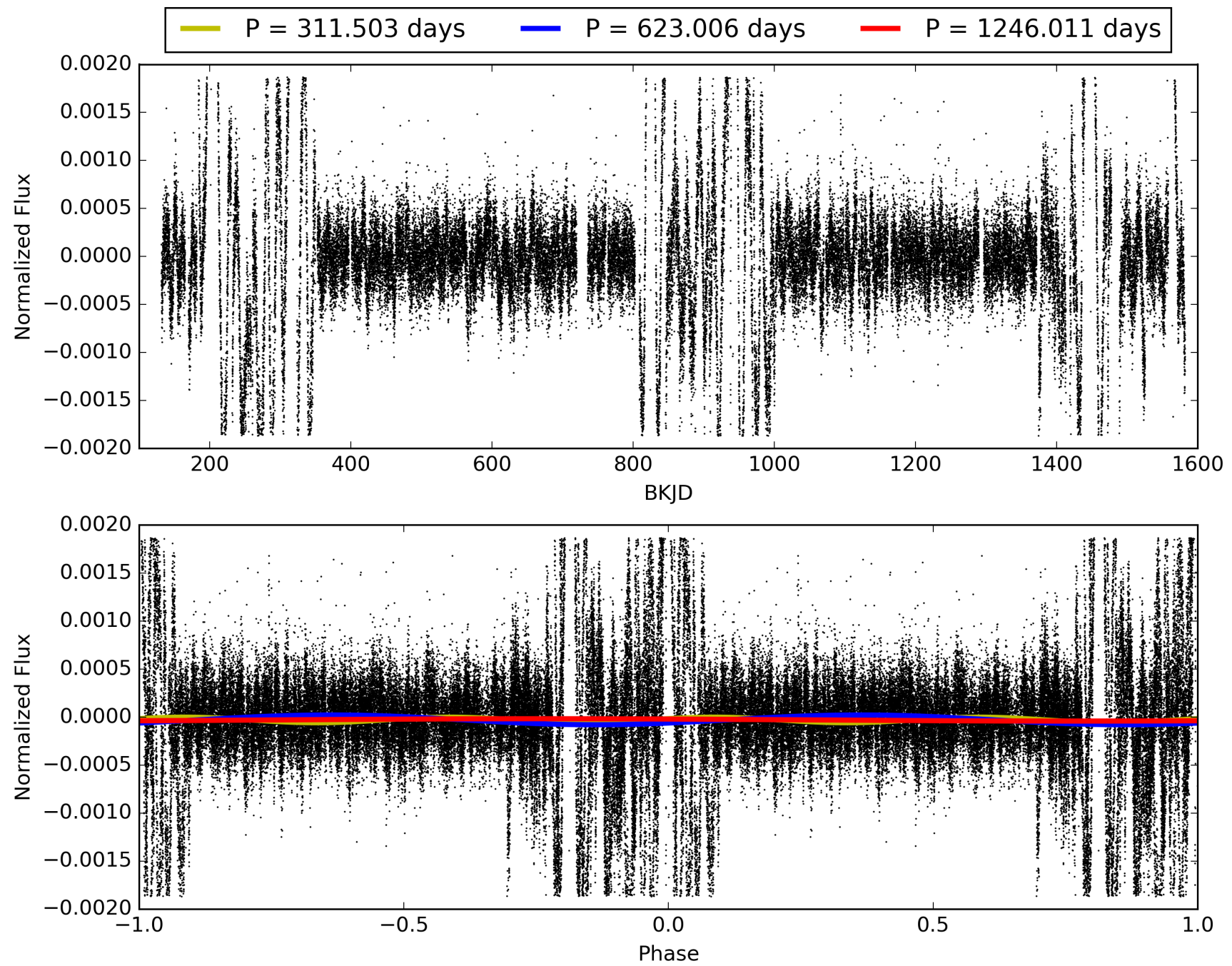
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 82.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.6058
Centroid-sig: 0.0%
Centroid-so: 0.160 arcsec [65.61σ]
OotOffset-rm: 0.653 arcsec [1.67σ]
KicOffset-rm: 0.072 arcsec [1.03σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 004586482-01, PDC Light Curves

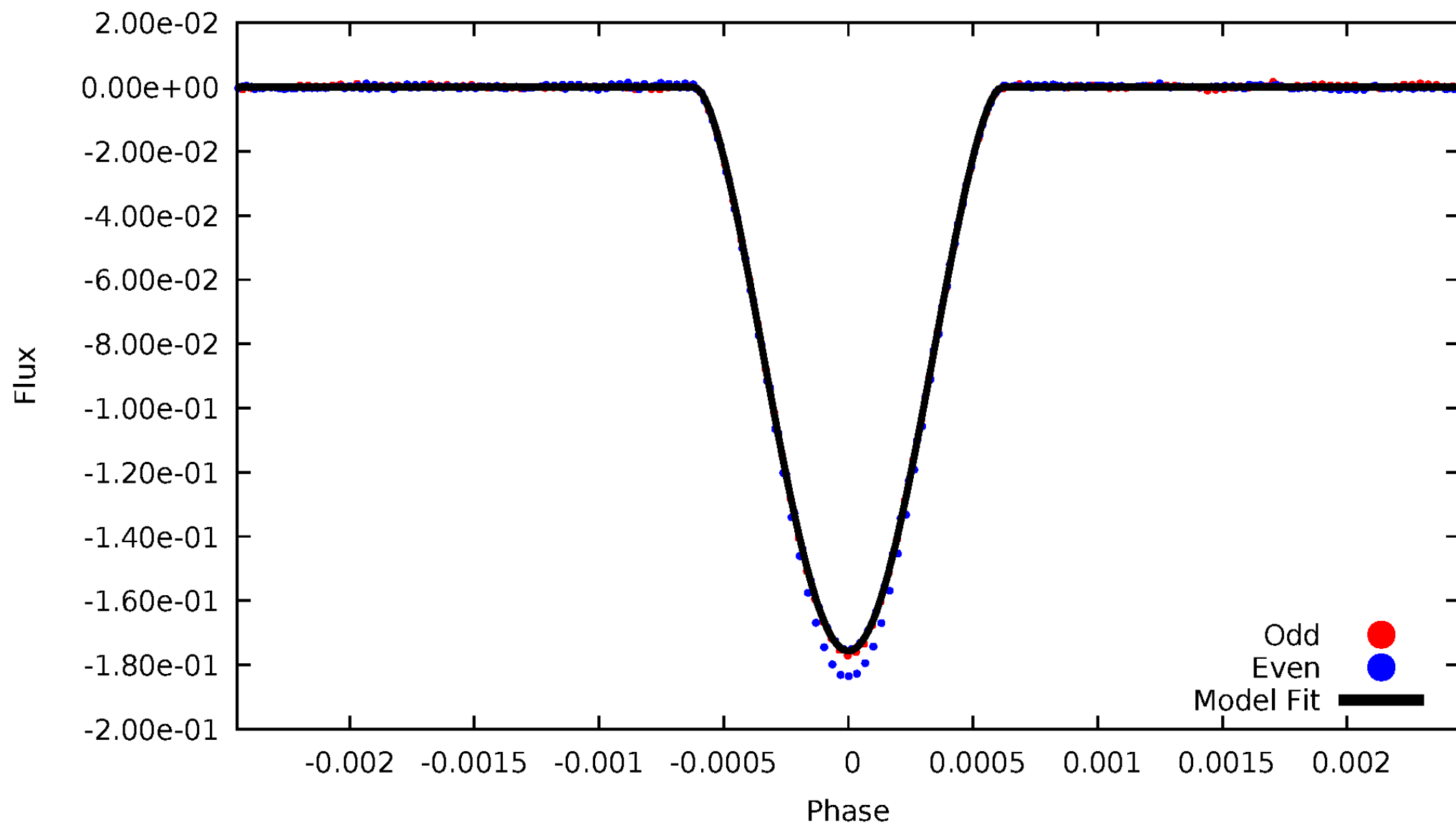


TCE 004586482-01



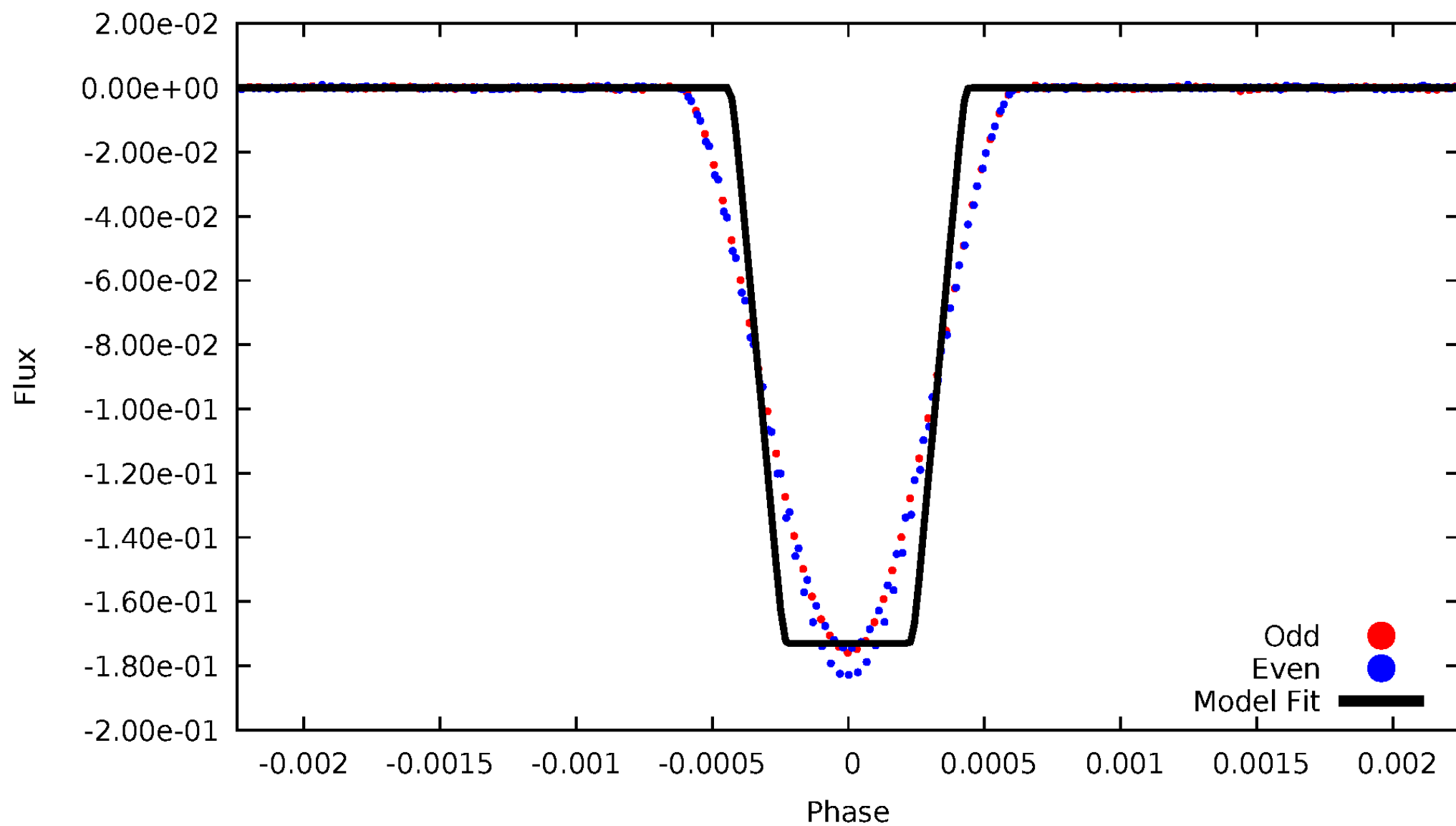
DV Odd/Even

TCE 004586482-01



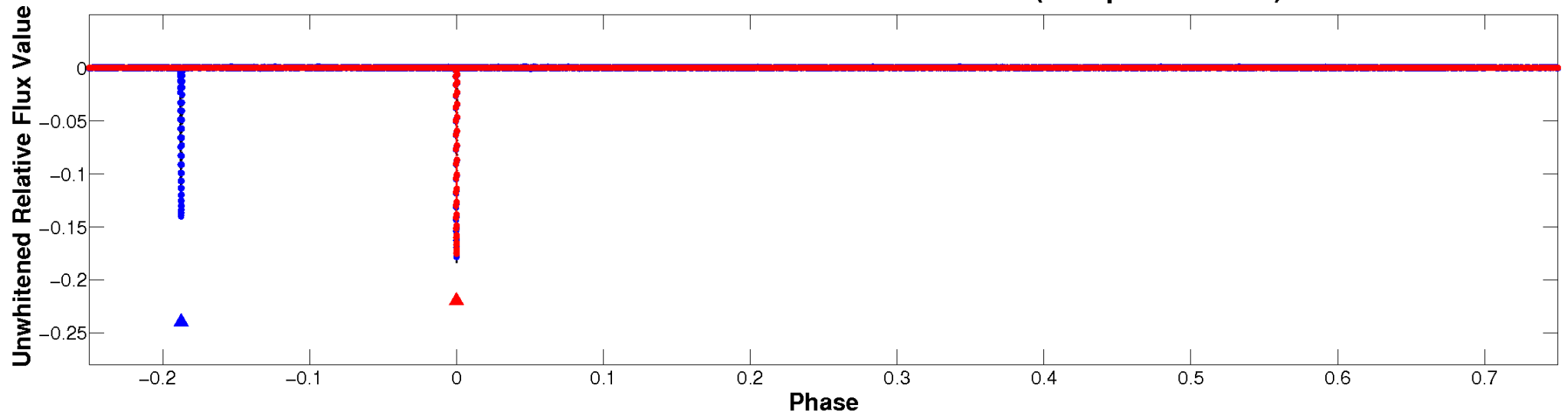
ALT Odd/Even

TCE 004586482-01

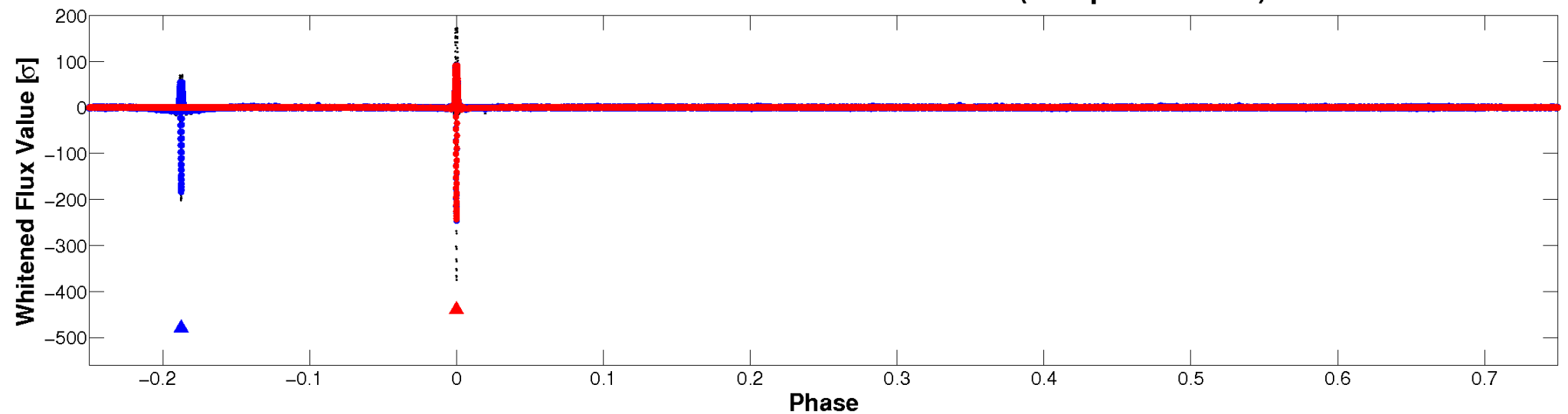


Non-Whitened Vs. Whitened Light Curve

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

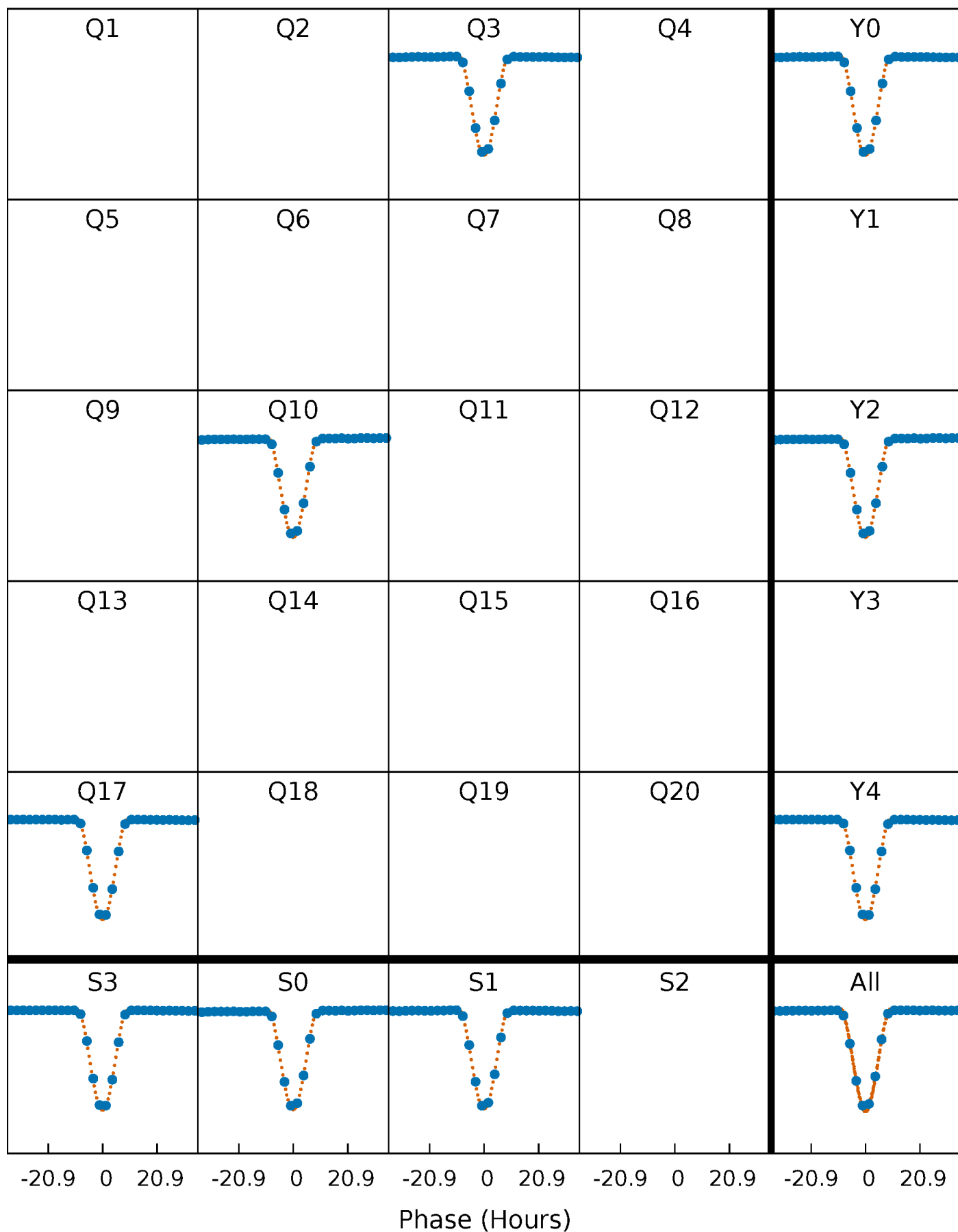


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



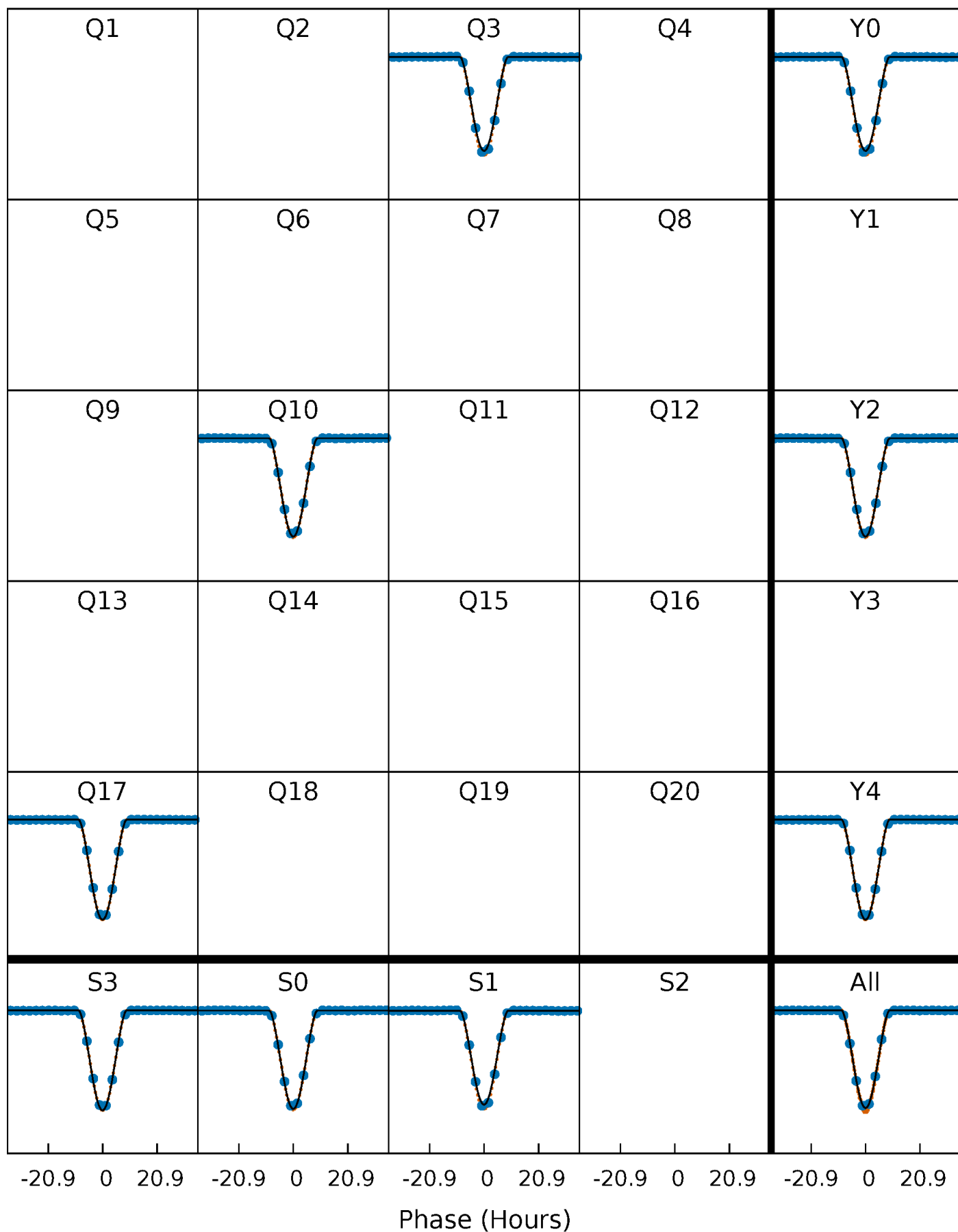
PDC Quarter-Phased Transit Curves

TCE 004586482-01 P=623.005566 Days $T_0=318.150970$ (BKJD)



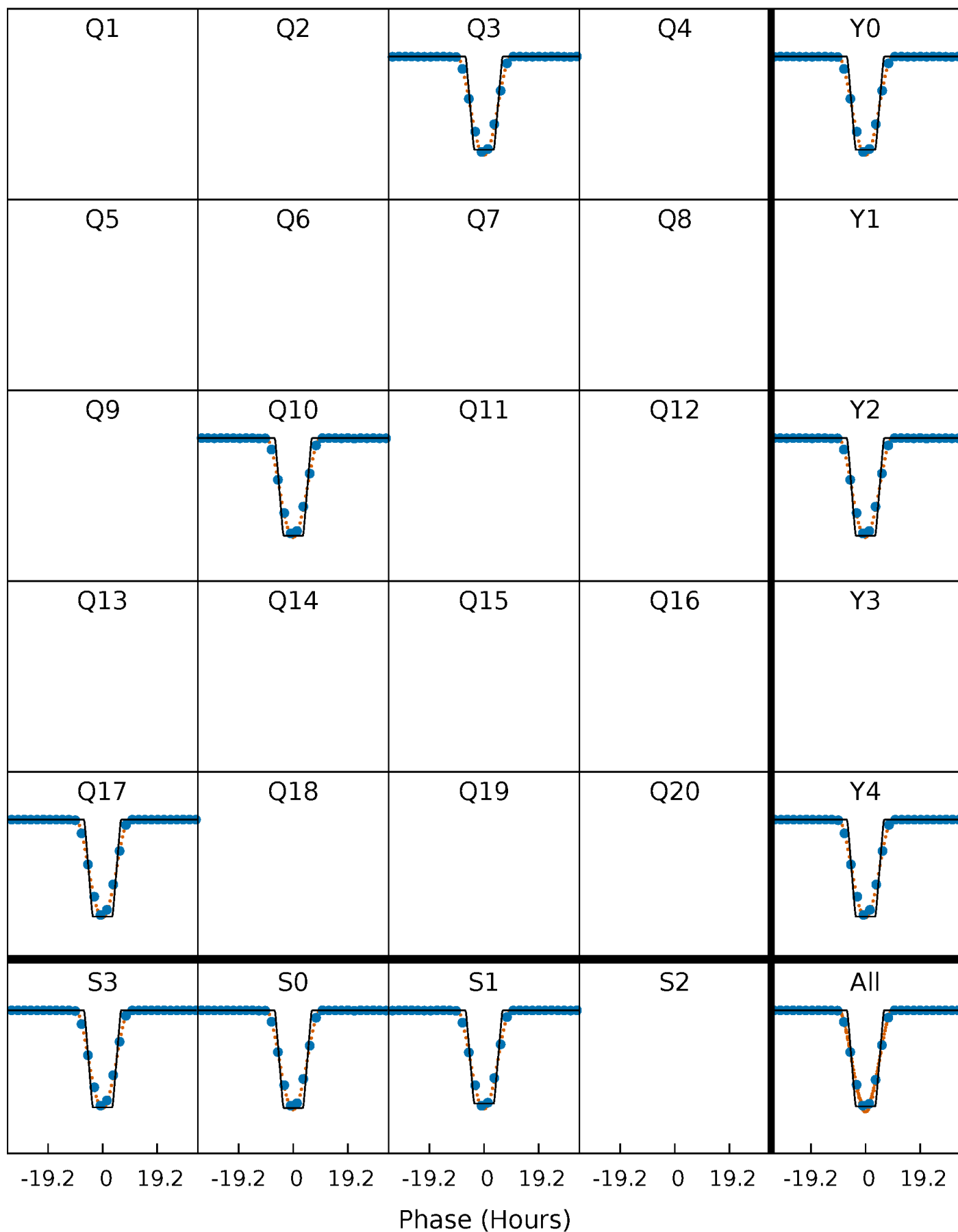
DV Quarter-Phased Transit Curves

TCE 004586482-01 P=623.005566 Days $T_0=318.150970$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

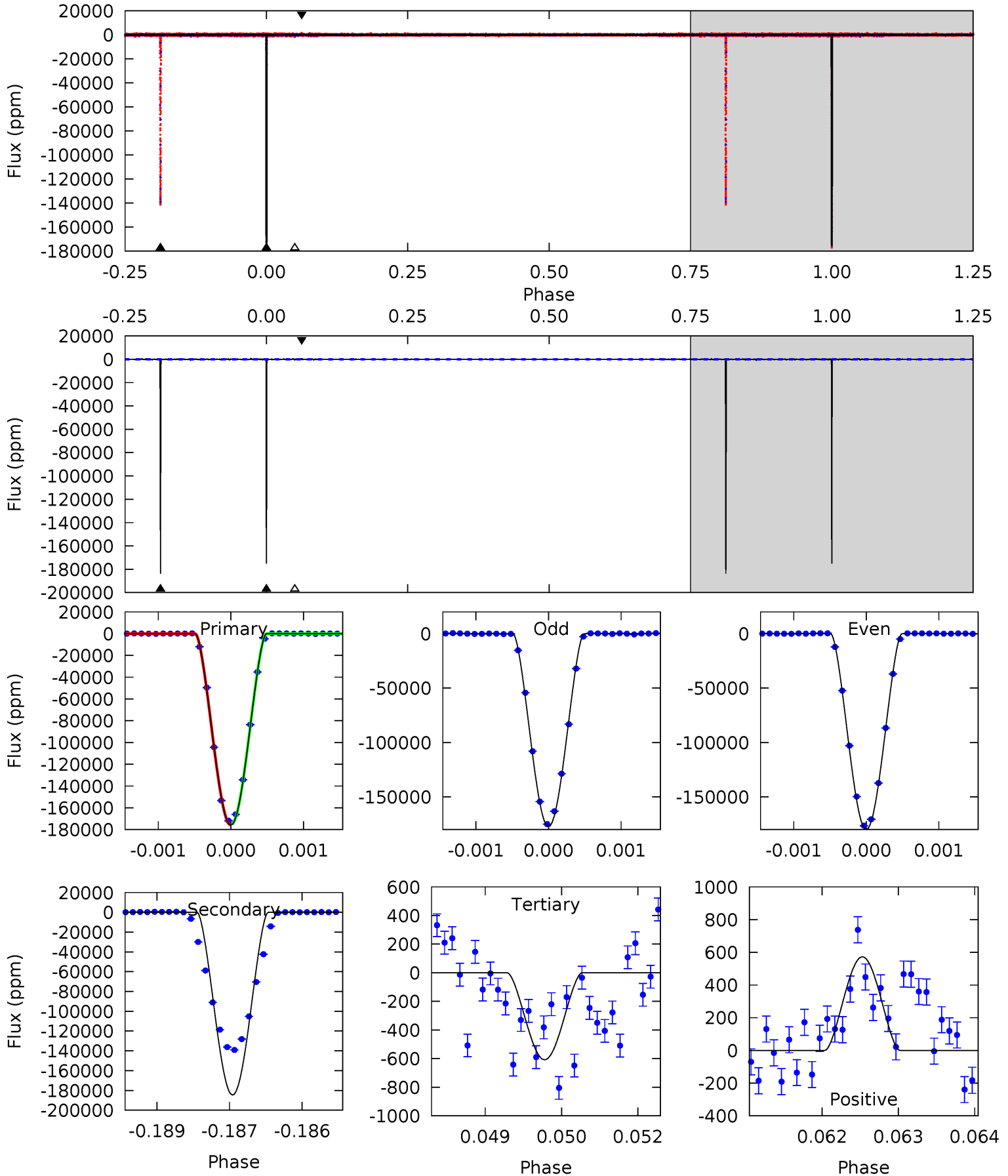
TCE 004586482-01 P=623.005622 Days $T_0=318.150895$ (BKJD)



DV Model-Shift Uniqueness Test

004586482-01, P = 623.005566 Days, E = 318.150970 Days

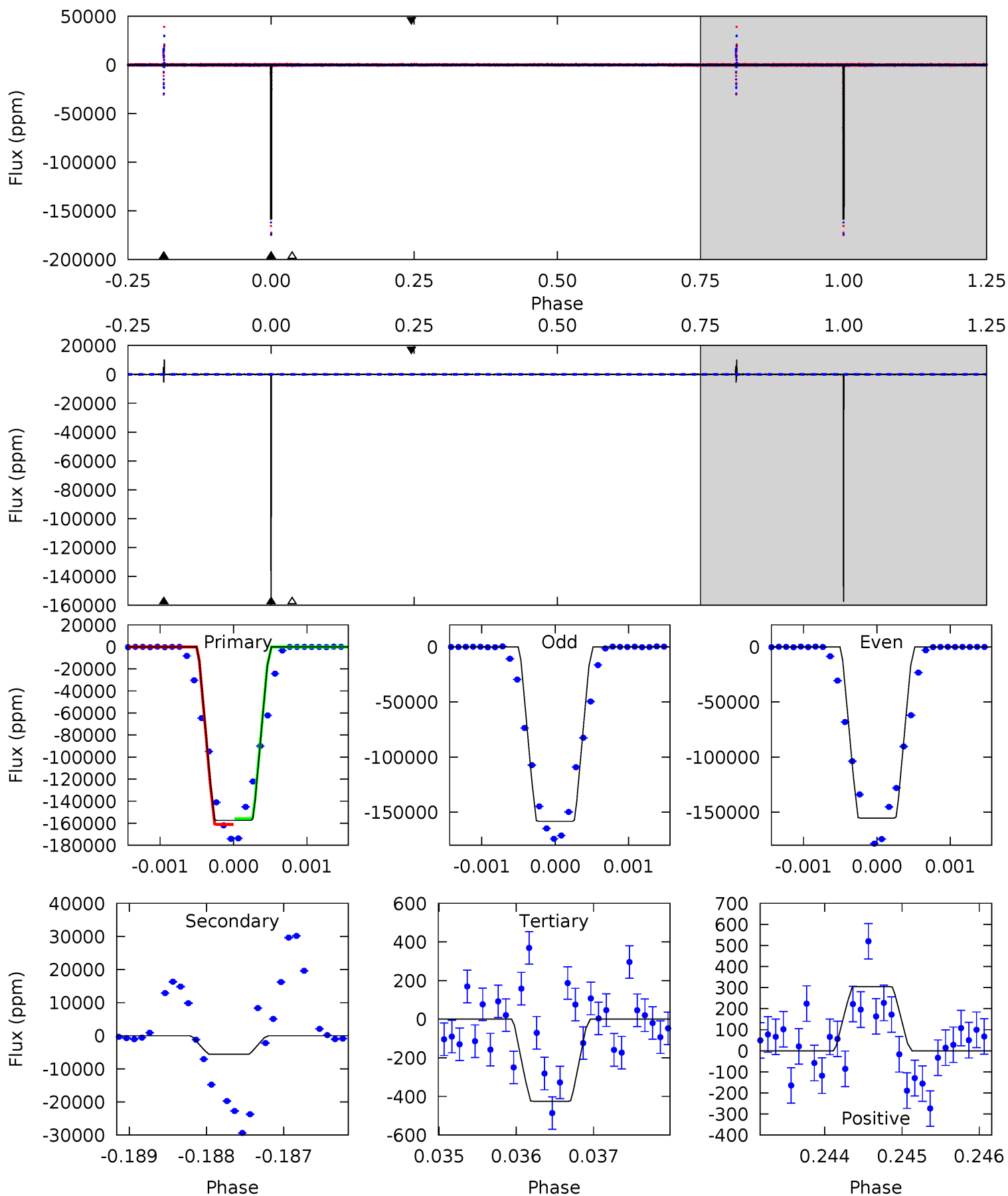
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5395	5662	18.7	17.6	5.41	3.23	3.94	5376	5377	5644	5645	44.3	1.01	0.00	16.1



Alt Model-Shift Uniqueness Test

004586482-01, P = 623.005622 Days, E = 318.150895 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3838	136.9	10.4	7.42	5.47	3.32	2.82	3827	3830	126.5	129.4	34.0	1.01	0.06	34.2



Stellar Parameters For KIC 004586482

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5689^{+171}_{-171}	$4.299^{+0.170}_{-0.187}$	$0.320^{+0.100}_{-0.300}$	$1.207^{+0.335}_{-0.223}$	$1.058^{+0.110}_{-0.110}$	$0.847^{+0.636}_{-0.420}$
	+3%/-3%	+4%/-4%	+31%/-94%	+28%/-18%	+10%/-10%	+75%/-50%
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 004586482-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-183743 ± 32	$75.43^{+12.70}_{-9.45}$	320^{+23}_{-20}	5213^{+228}_{-192}	45690^{+13404}_{-11138}
Alt.	-5615 ± 41	$55.18^{+9.44}_{-8.54}$	320^{+25}_{-20}	3065^{+94}_{-98}	2154^{+796}_{-558}

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

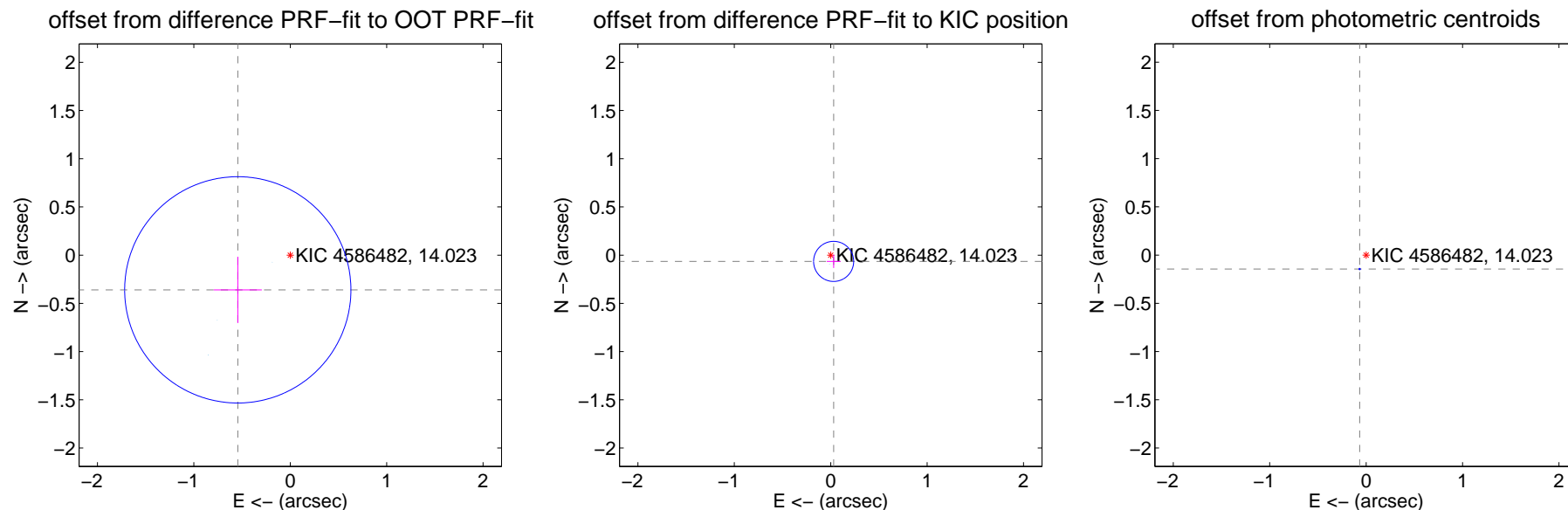
DV Centroid Data

Supplemental centroid analysis for 004586482-01. Kepler magnitude: 14.02. Transit SNR 1551.55

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.94 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.653 ± 0.391	1.67	0.544 ± 0.249	-0.360 ± 0.344
PRF-fit source offset from KIC position	0.072 ± 0.069	1.03	-0.030 ± 0.071	-0.065 ± 0.069
photometric centroid source offset	0.16 ± 0.00	65.61	0.07 ± 0.00	-0.14 ± 0.00



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.

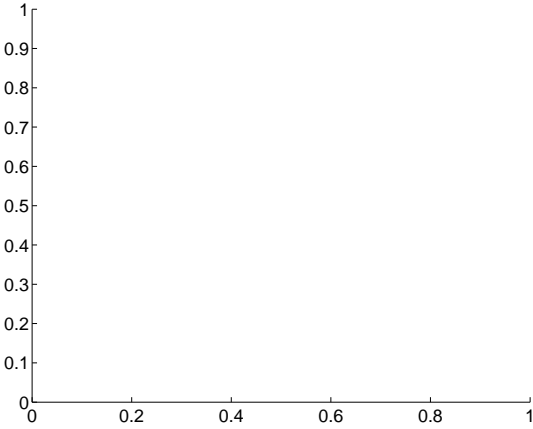
Q1 no difference image



Q1 no OOT image



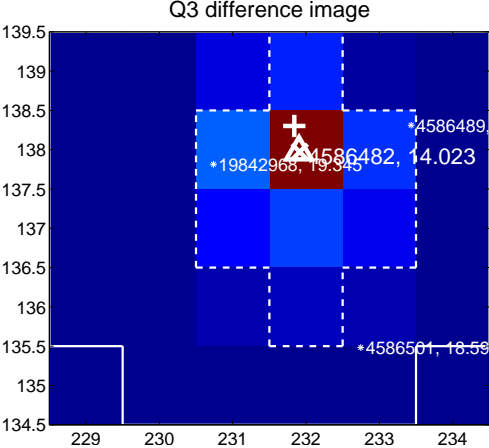
Q2 no difference image



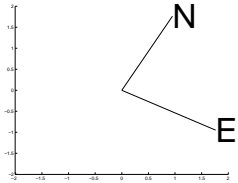
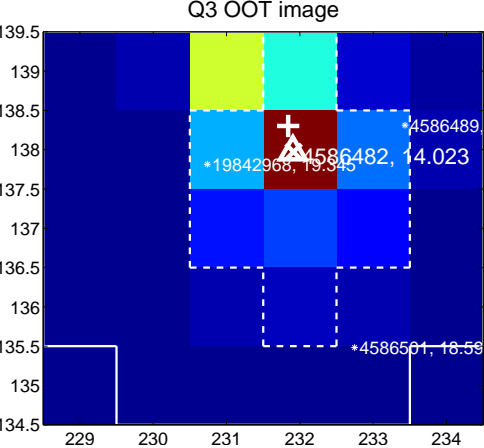
Q2 no OOT image



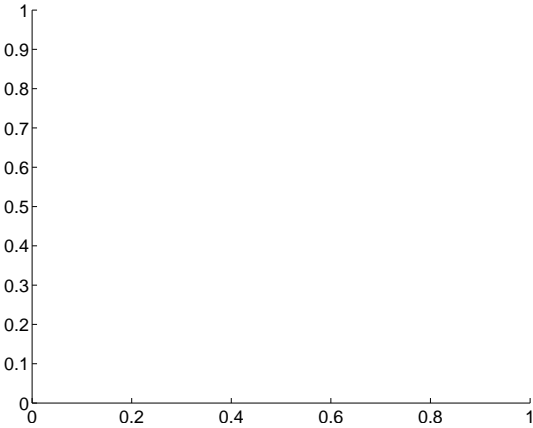
Q3 difference image



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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



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

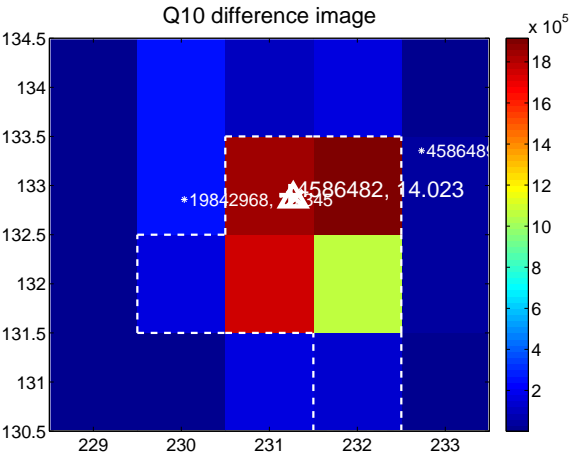
Q9 no difference image



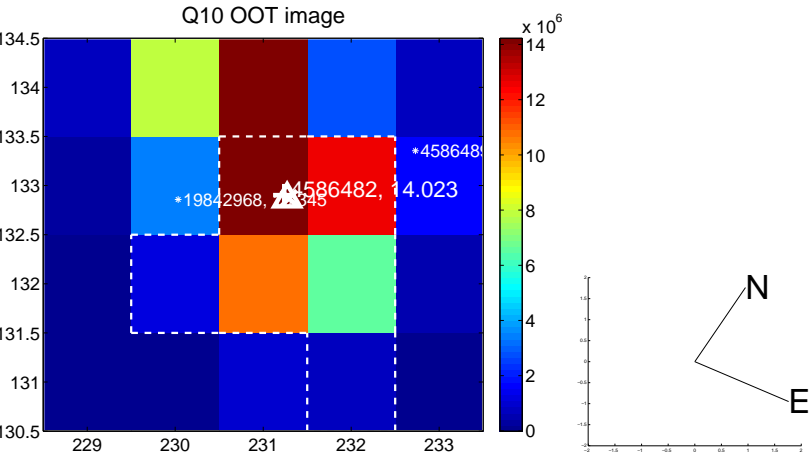
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



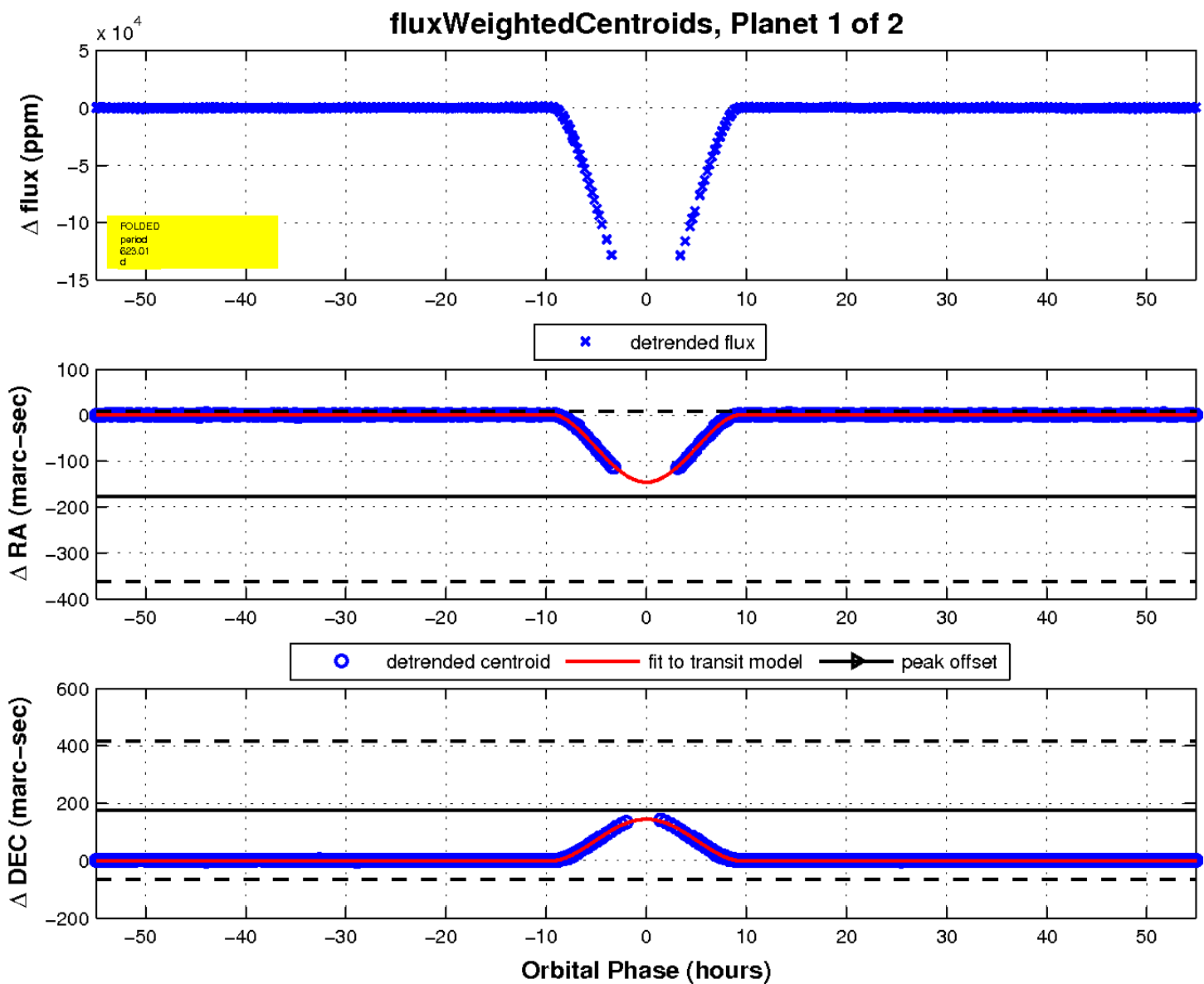
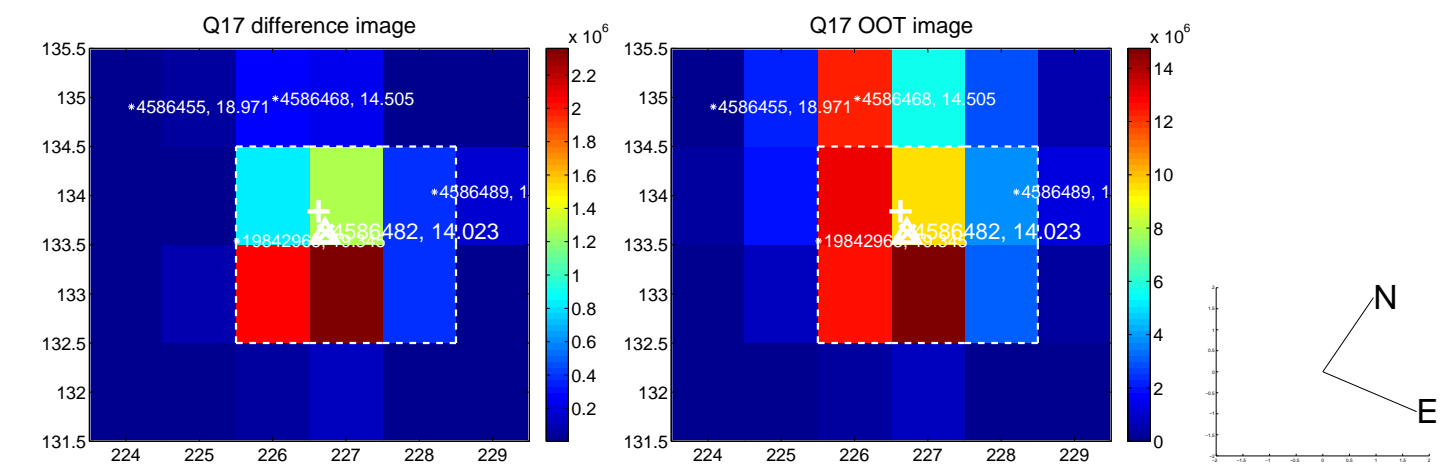
Q12 no OOT image



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

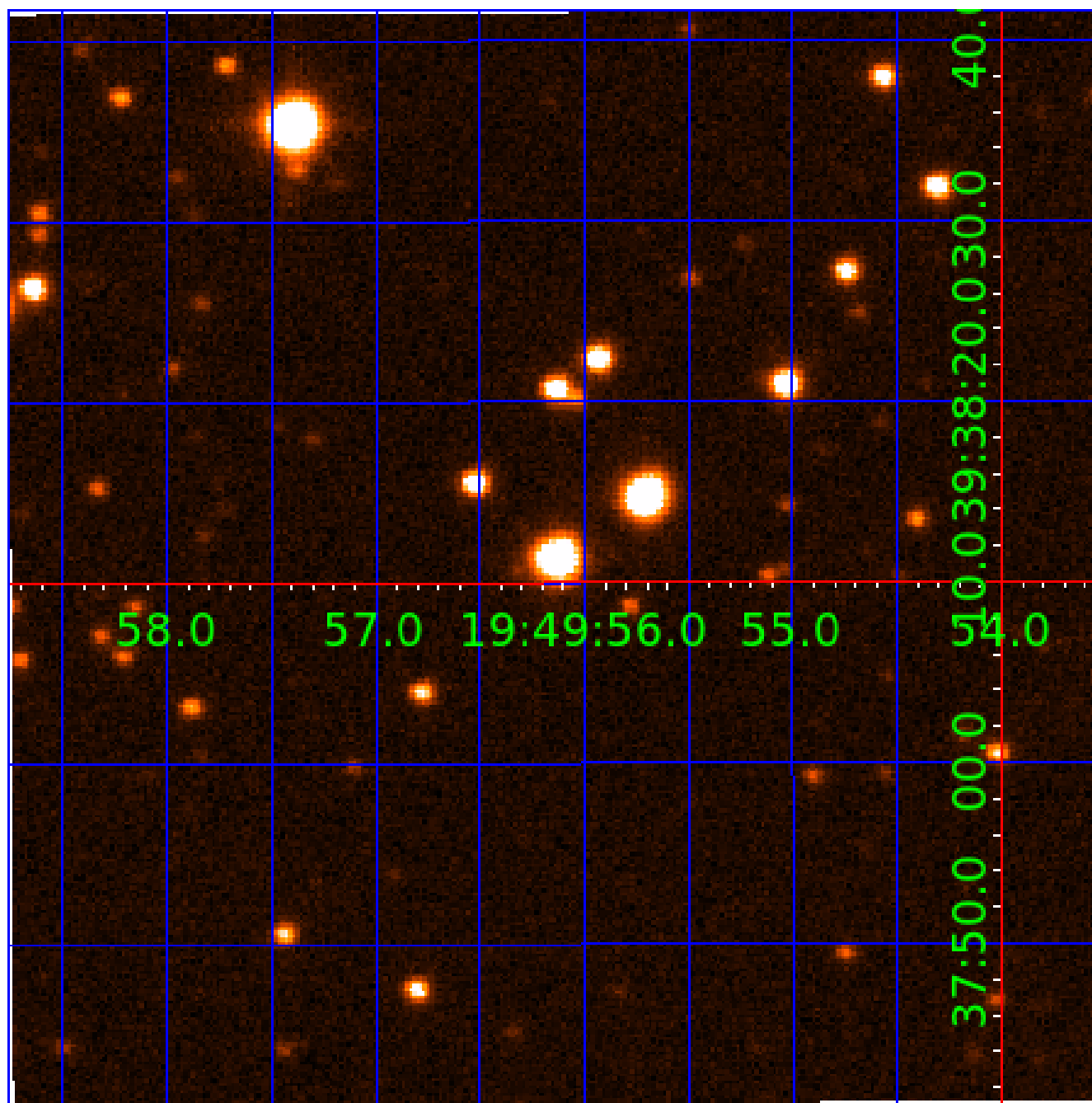


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004586482

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})
004586482-01	OBS	No	623.005566	318.150970	175656.1	18.323	1749.3	1551.5	1.21	5689	75.73	0.65
004586482-02	OBS	5073.01	623.005695	201.385470	140342.5	23.561	1255.0	1293.9	1.21	5689	66.99	0.65

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004586482-01	OBS	FP	0.00	1	0	0	0	INCONSISTENT_TRANS—CENT_UNCERTAIN
004586482-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

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

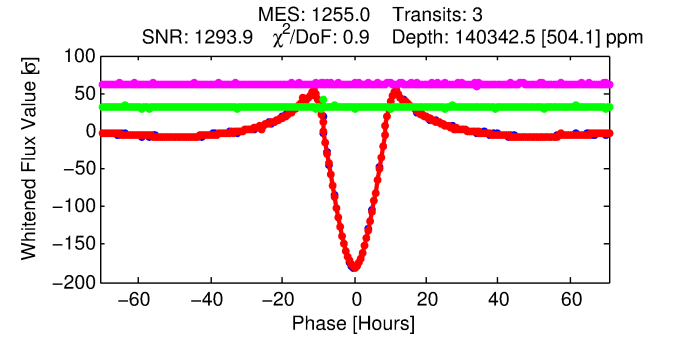
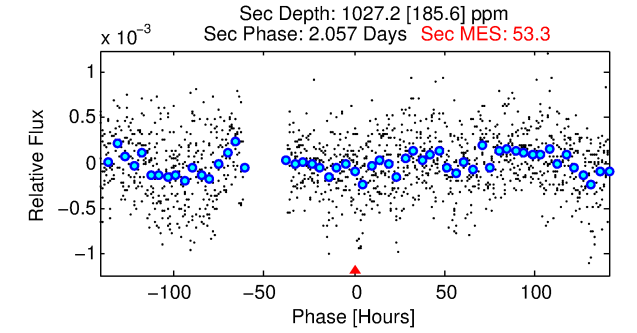
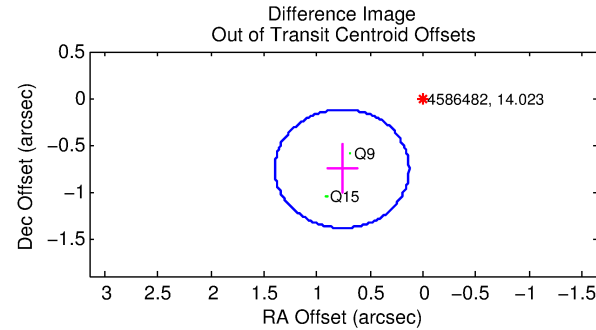
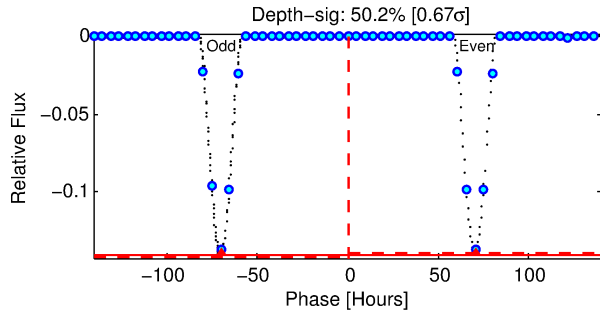
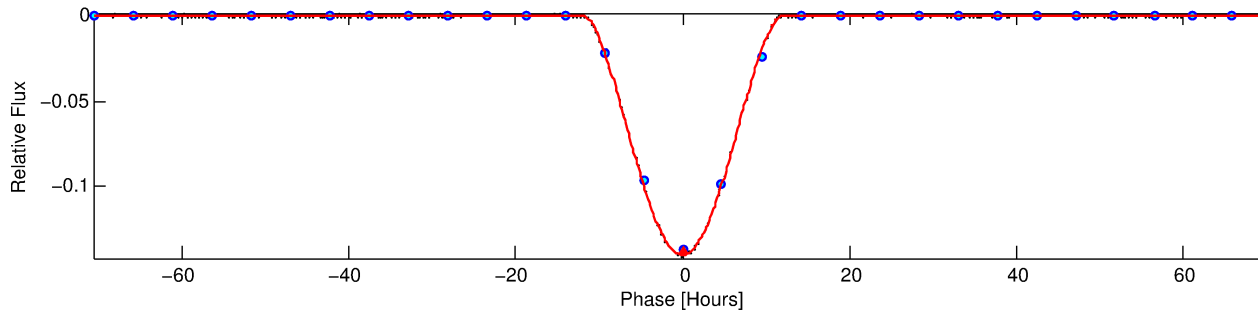
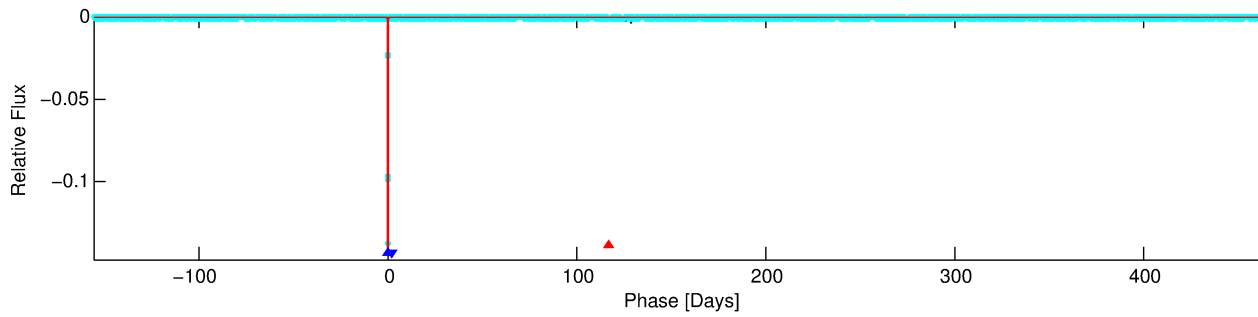
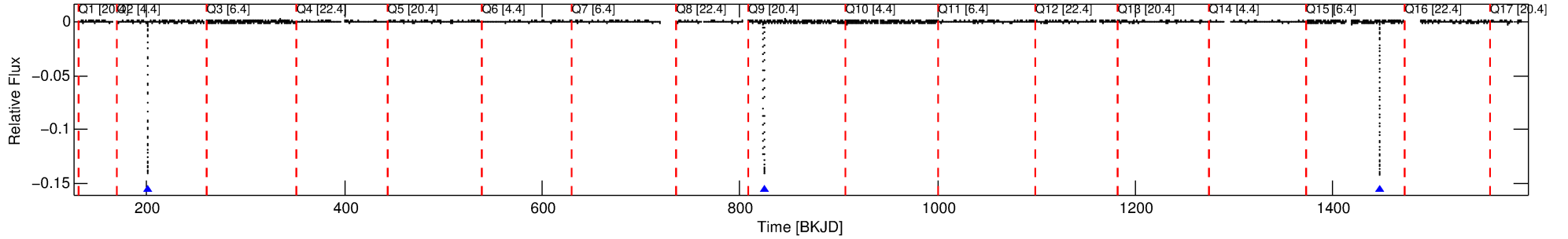
Ephemeris Match Information For 004586482-02

No Significant Match Found

DV One-Page Summary

KIC: 4586482 Candidate: 2 of 2 Period: 623.006 d
KOI: K05073.01 Corr: 1.000

Kp: 14.02 R*: 1.21 Rs Teff: 5689.0 K Logg: 4.30 Fe/H: 0.320



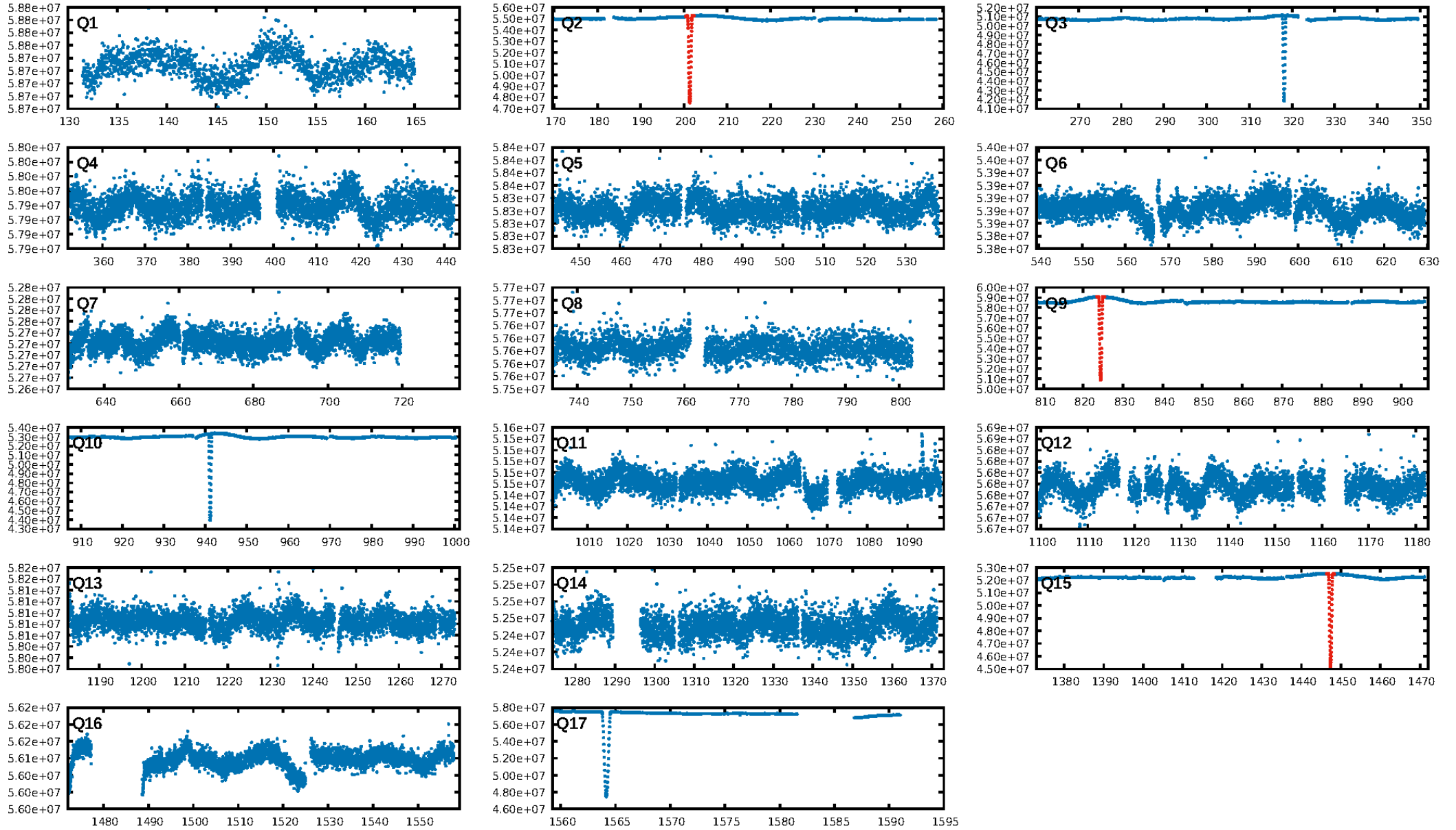
DV Fit Results:

Period = 623.00570 [0.00020] d
Epoch = 201.3855 [0.0002] BKJD
Rp/R* = 0.5086 [0.1423]
a/R* = 244.61 [6.12]
b = 0.90 [0.20]
Seff = 0.65 [0.23]
Teq = 229 [21] K
Rp = 66.99 [26.40] Re
a = 1.4549 [0.3407] AU
Ag = 266.56 [181.22] [1.47σ]
Teffp = 1428 [214] K [5.57σ]

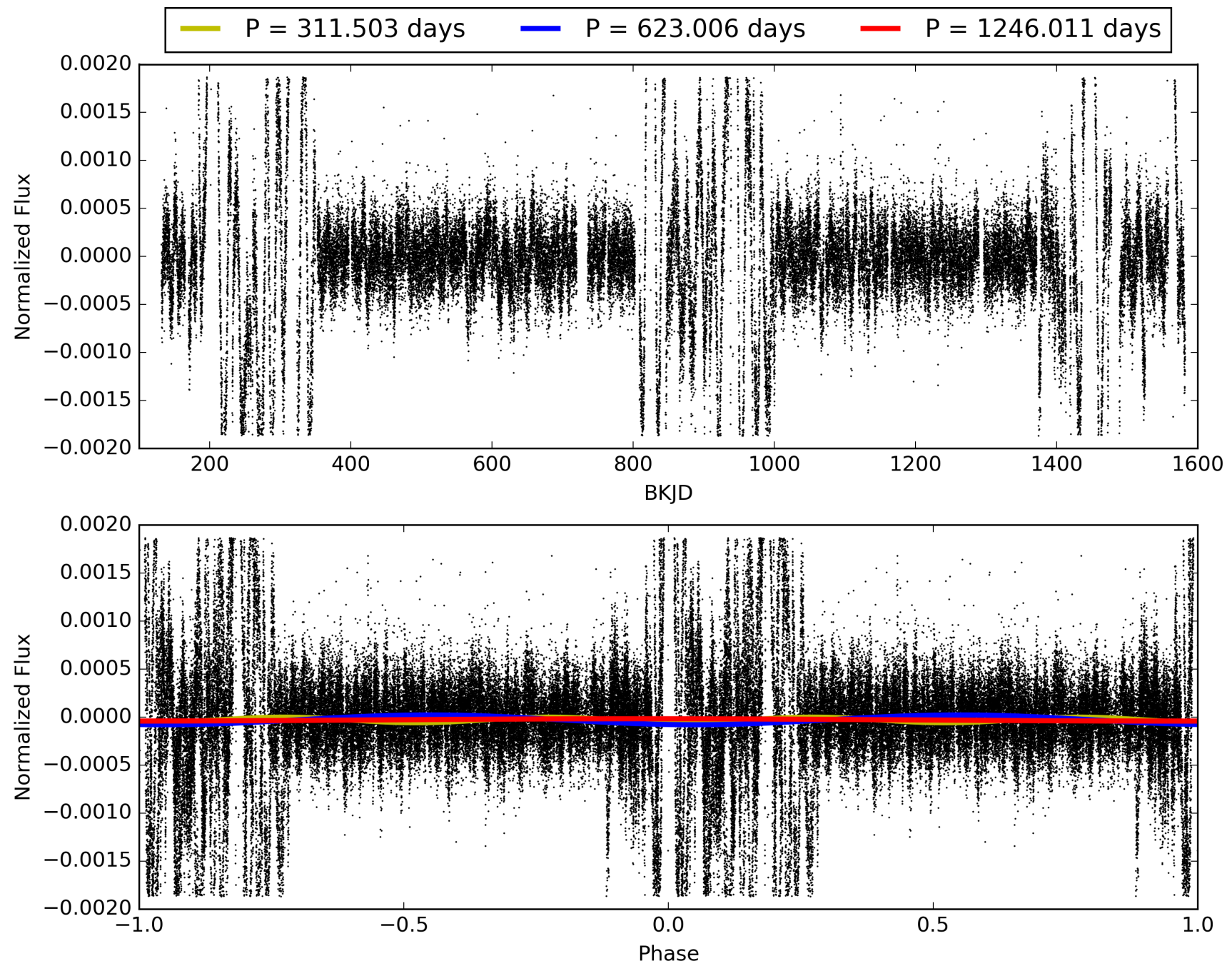
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 91.1%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.851
Centroid-sig: 0.0%
Centroid-so: 0.200 arcsec [51.13σ]
OotOffset-rm: 1.074 arcsec [5.09σ]
KicOffset-rm: 0.032 arcsec [0.41σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 004586482-02, PDC Light Curves

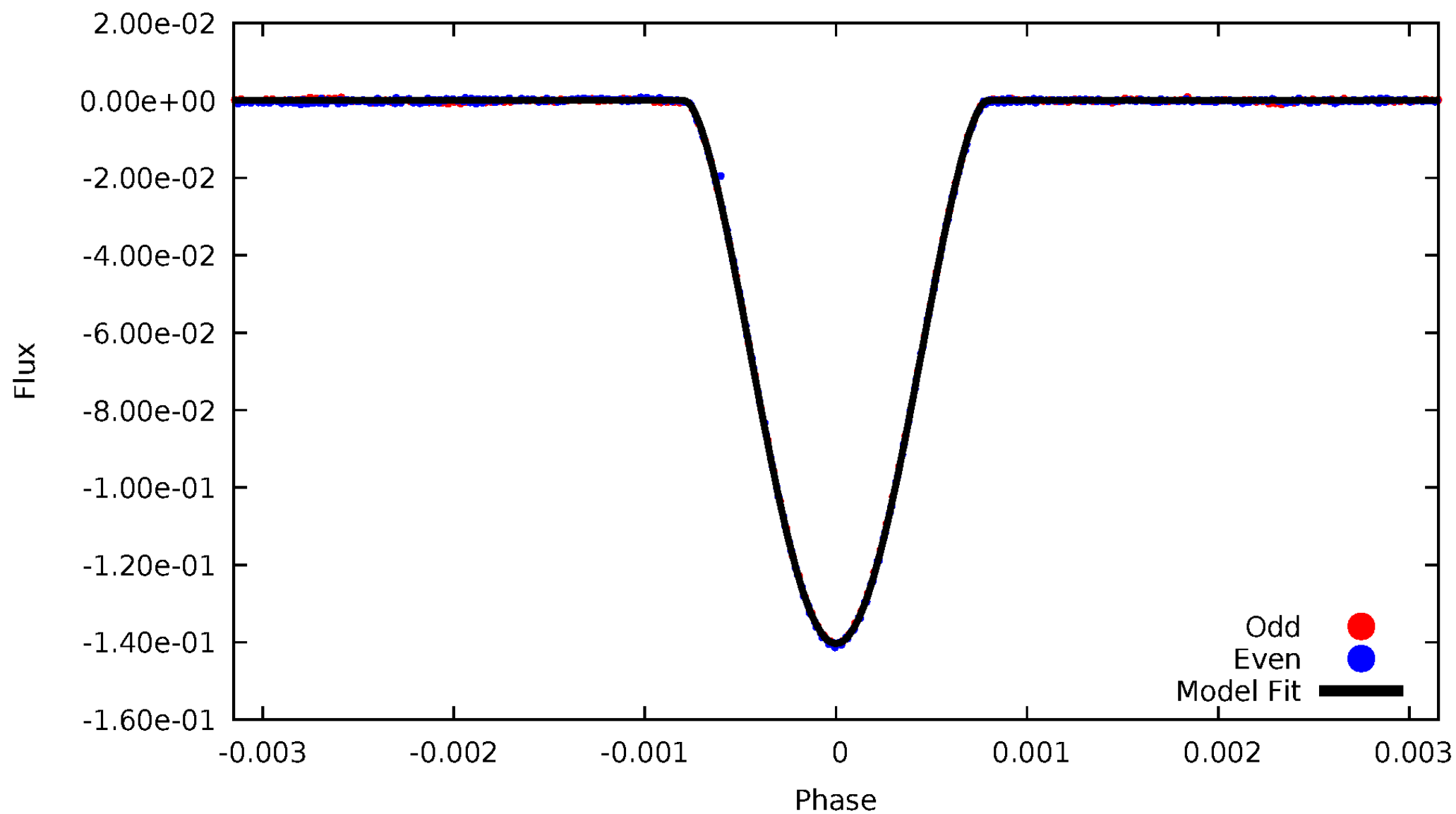


TCE 004586482-02



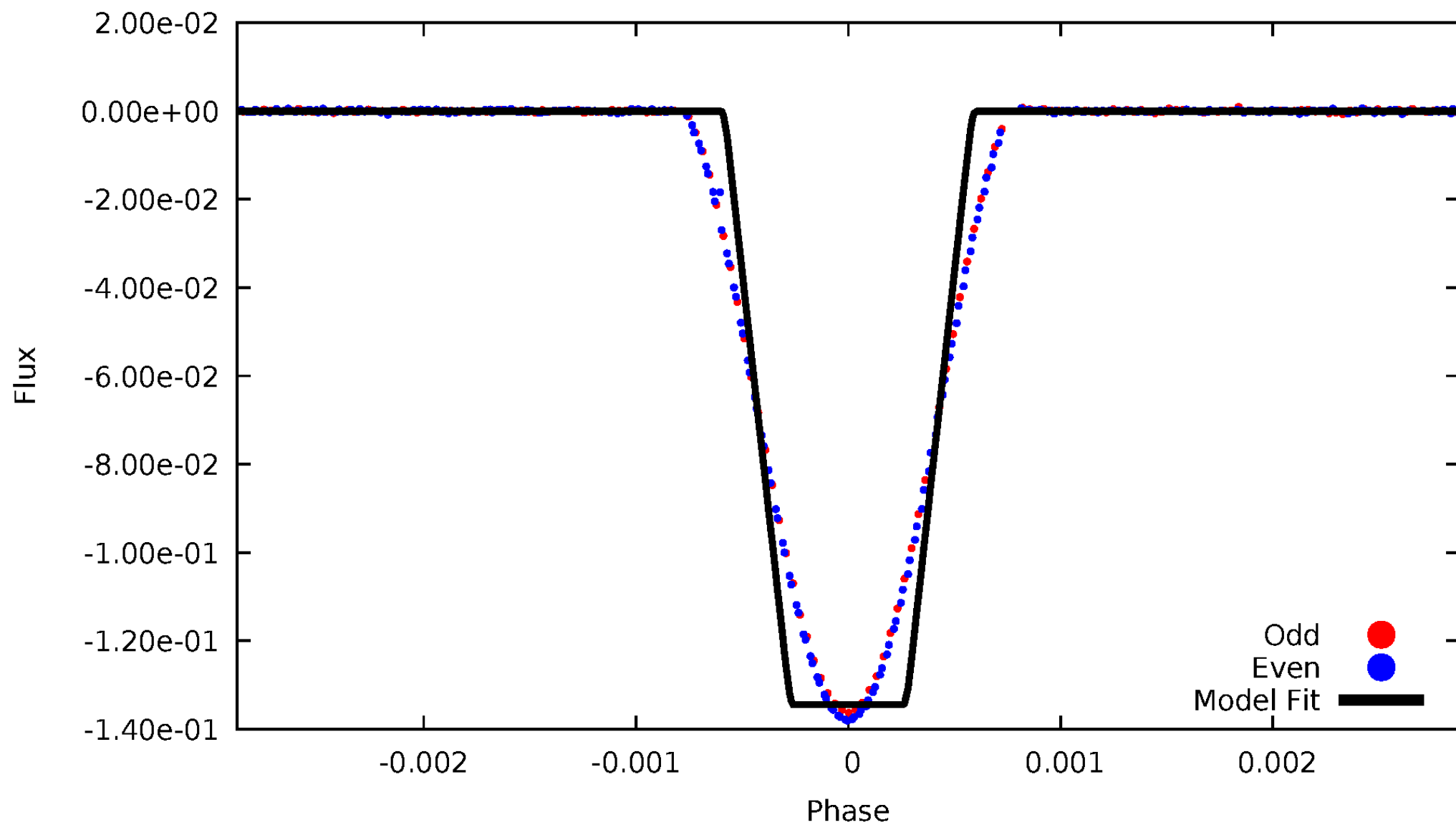
DV Odd/Even

TCE 004586482-02



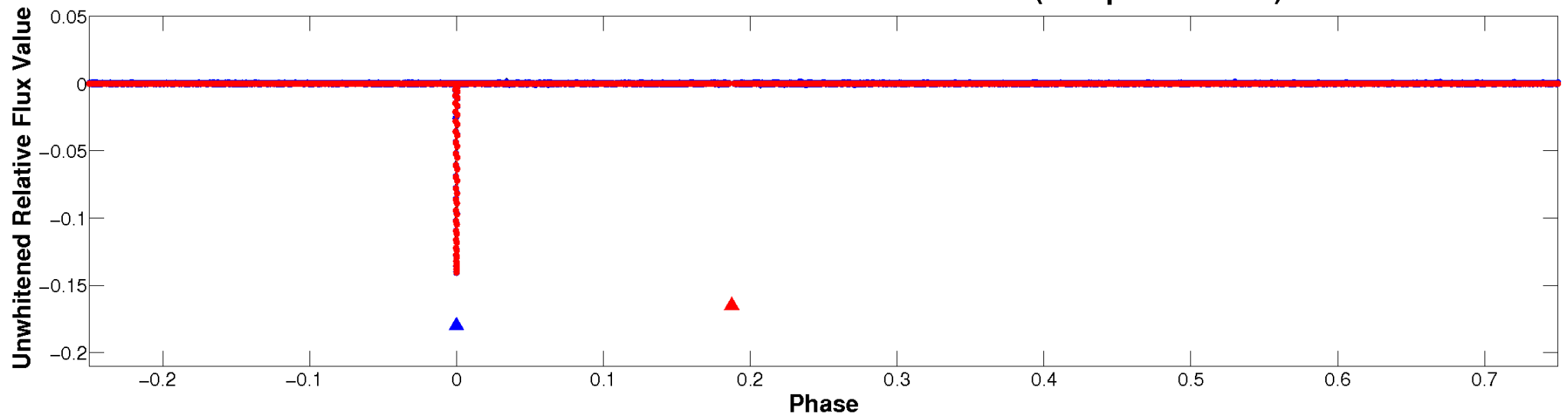
ALT Odd/Even

TCE 004586482-02

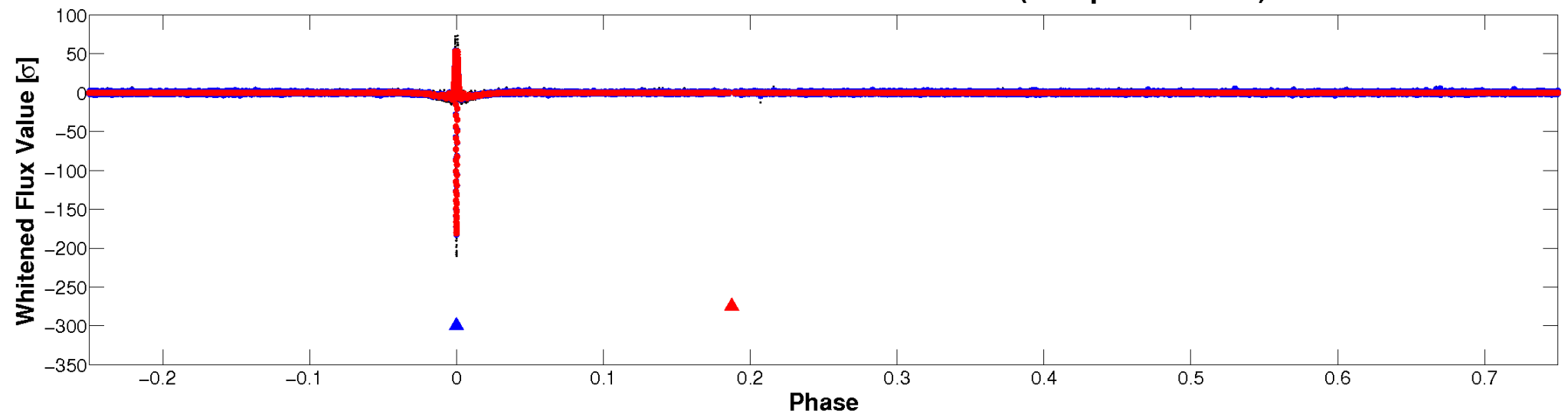


Non-Whitened Vs. Whitened Light Curve

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

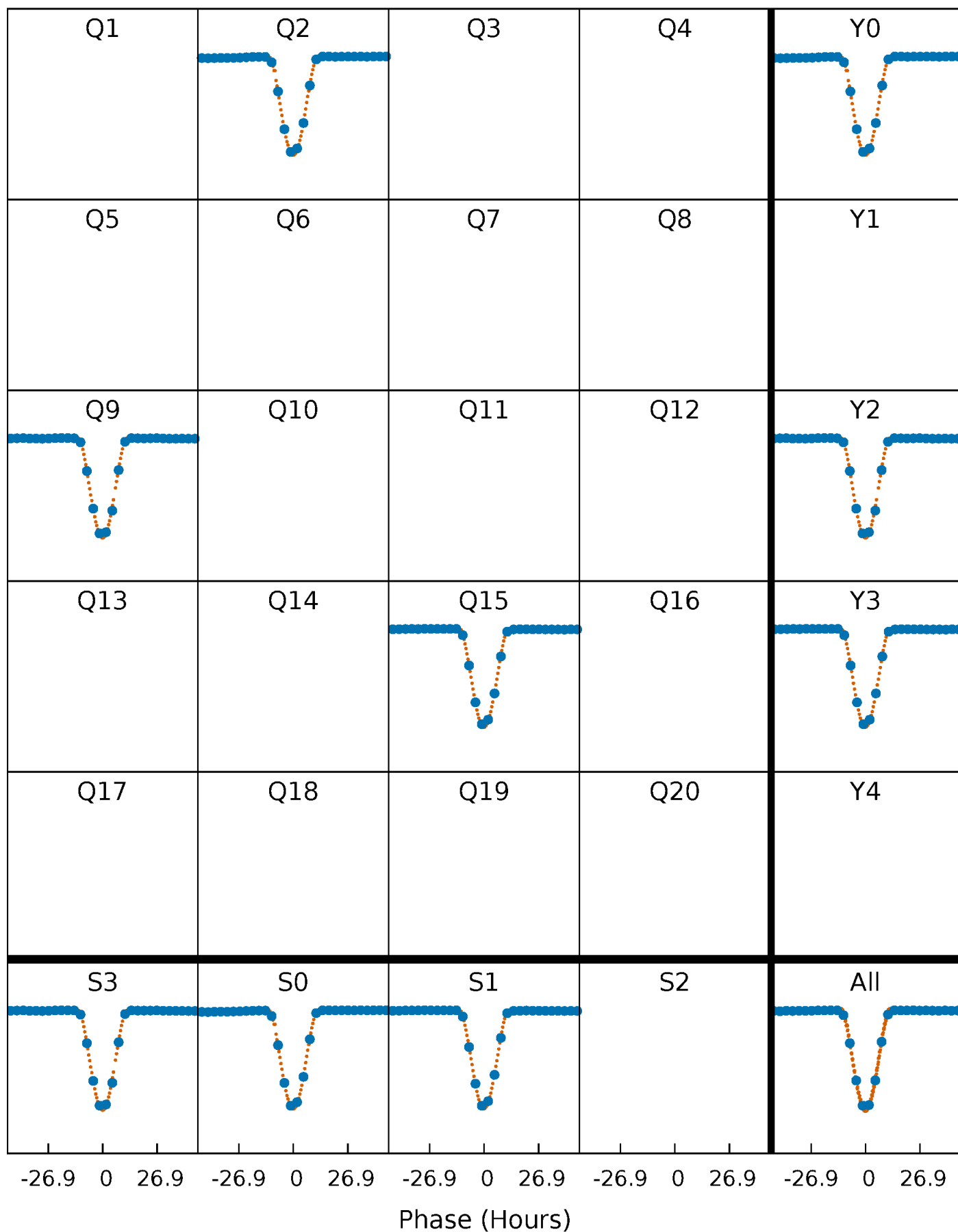


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



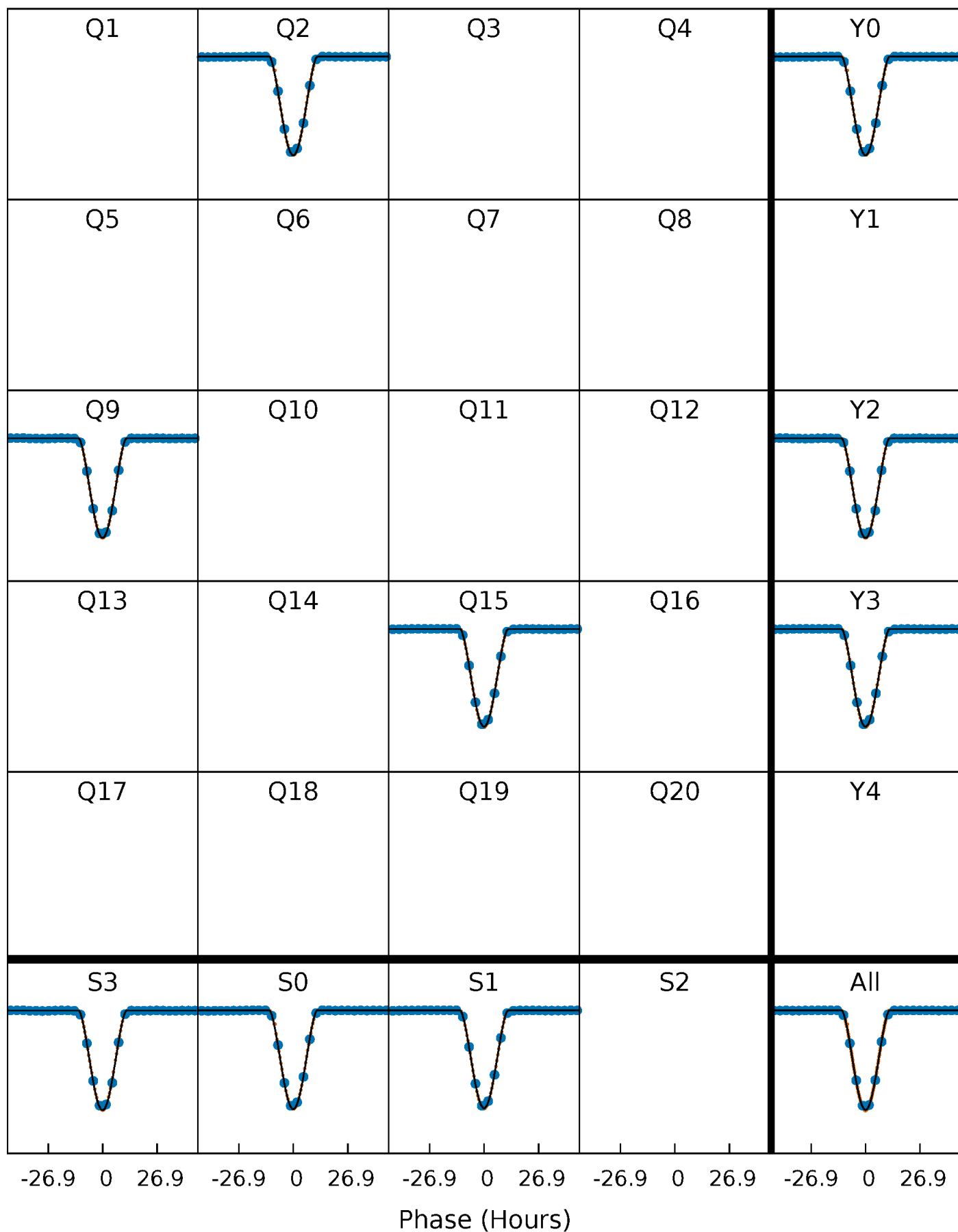
PDC Quarter-Phased Transit Curves

TCE 004586482-02 P=623.005696 Days $T_0=201.385470$ (BKJD)



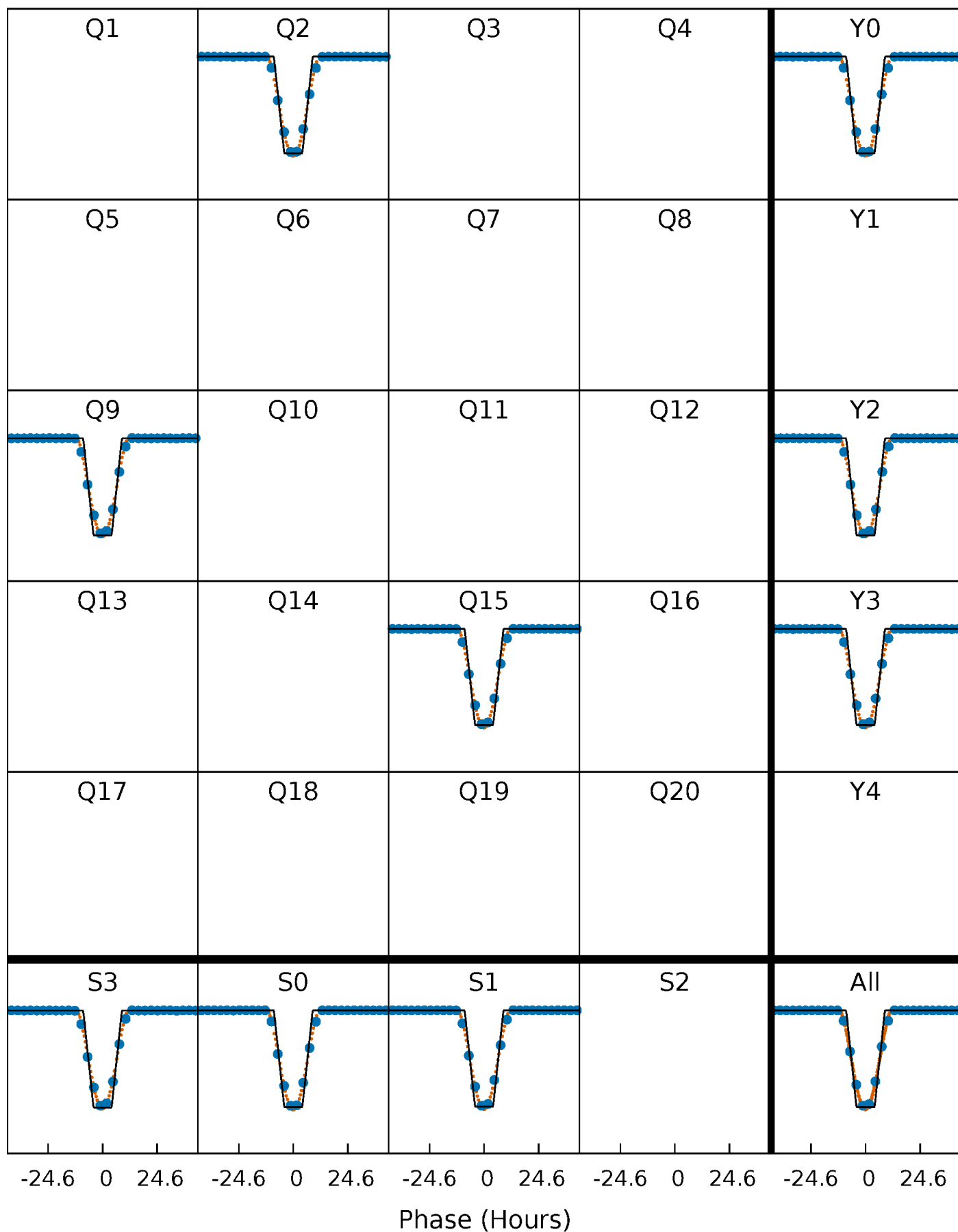
DV Quarter-Phased Transit Curves

TCE 004586482-02 P=623.005696 Days $T_0=201.385470$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

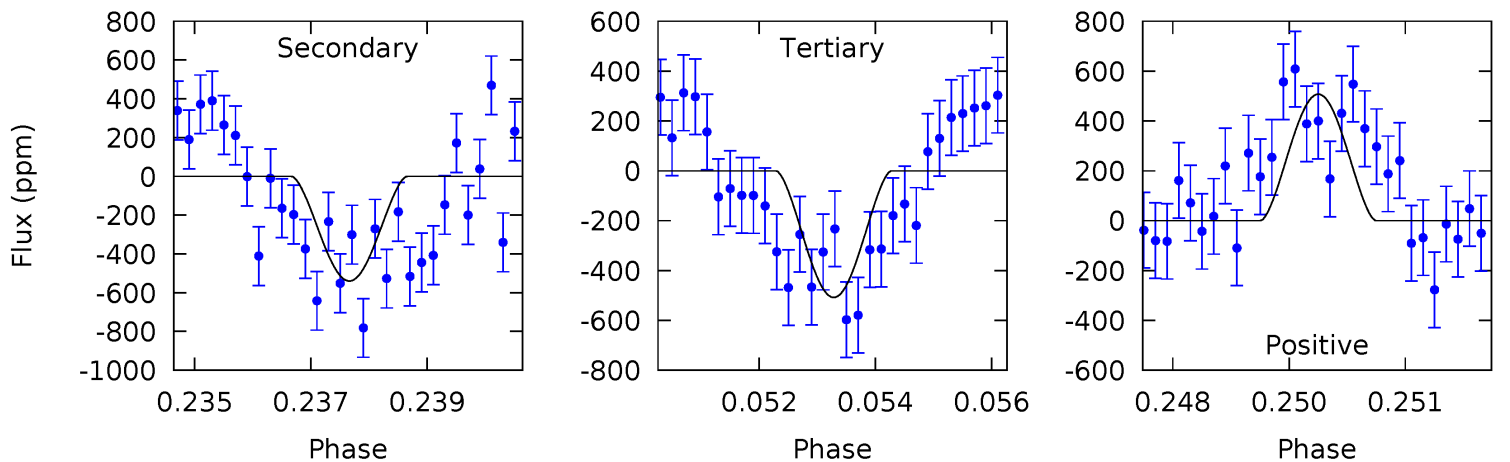
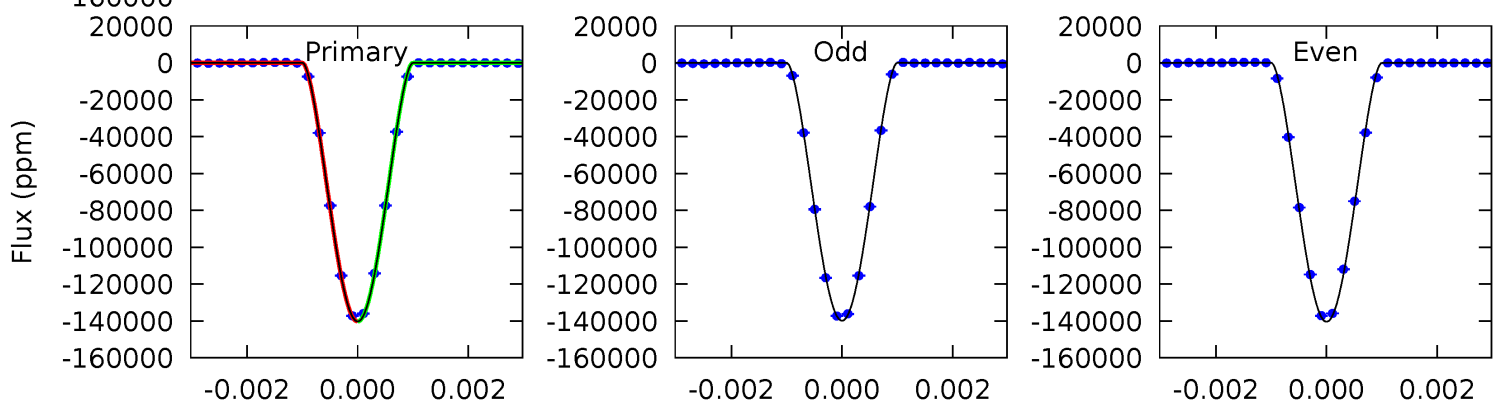
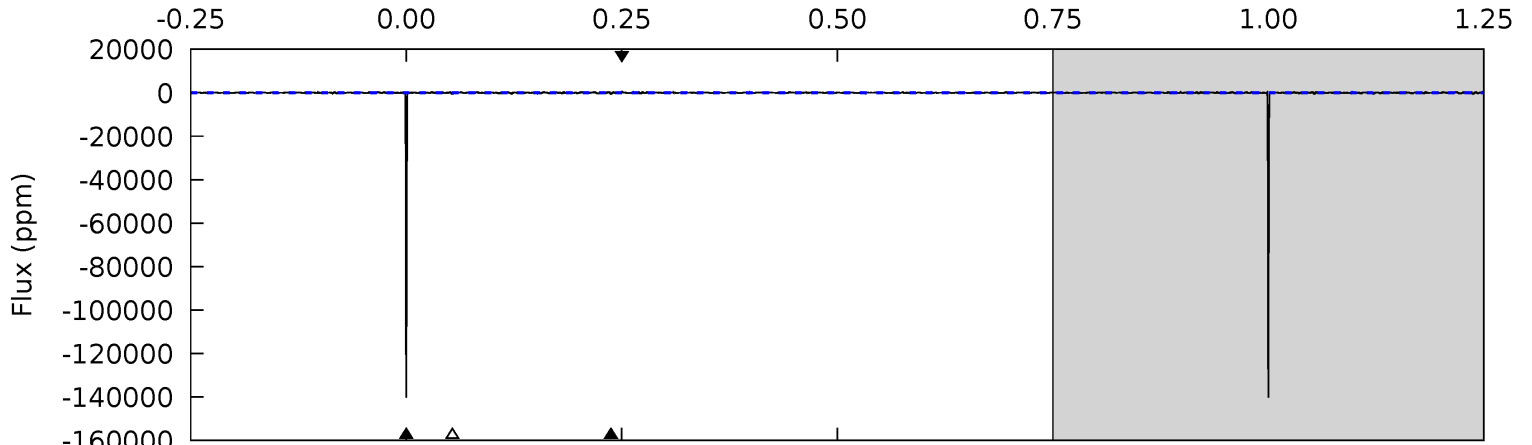
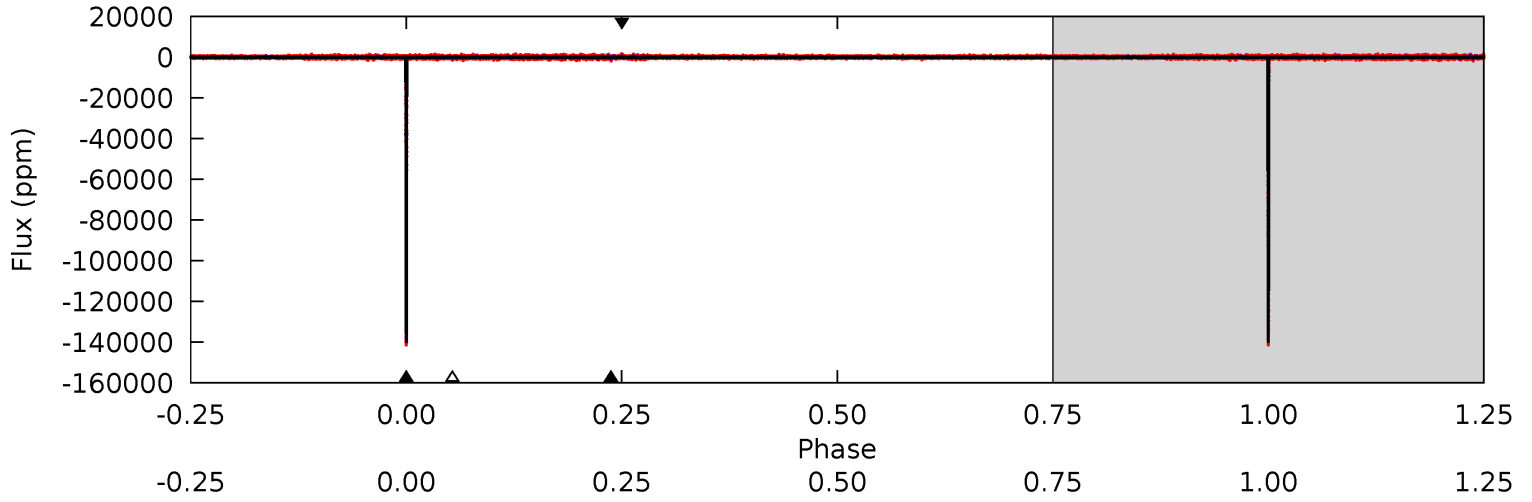
TCE 004586482-02 P=623.005622 Days $T_0=201.385996$ (BKJD)



DV Model-Shift Uniqueness Test

004586482-02, P = 623.005696 Days, E = 201.385470 Days

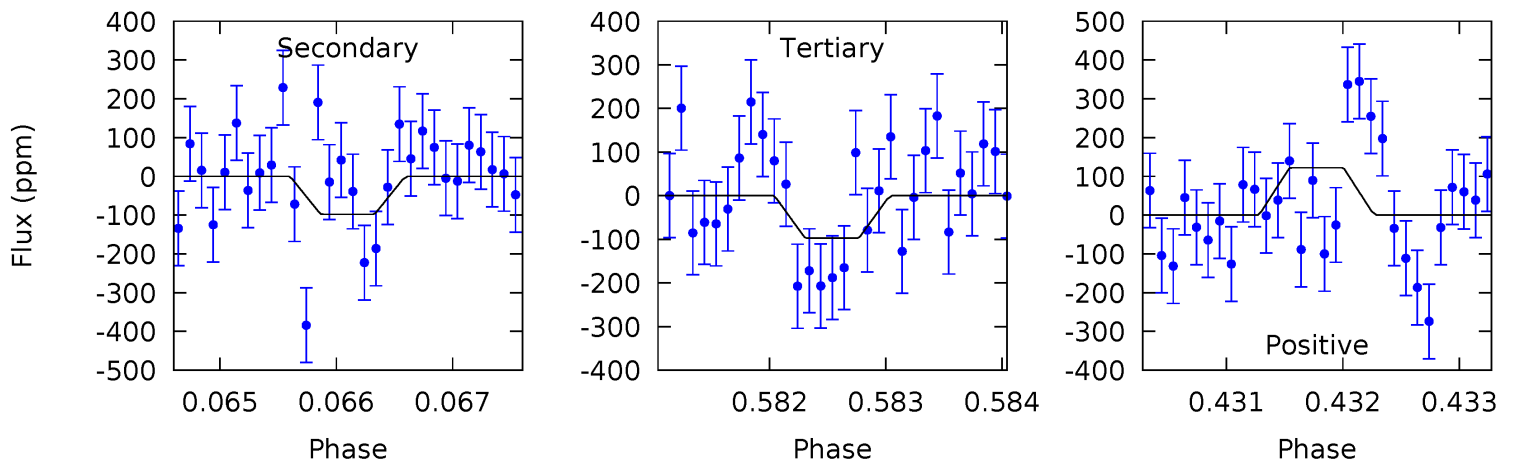
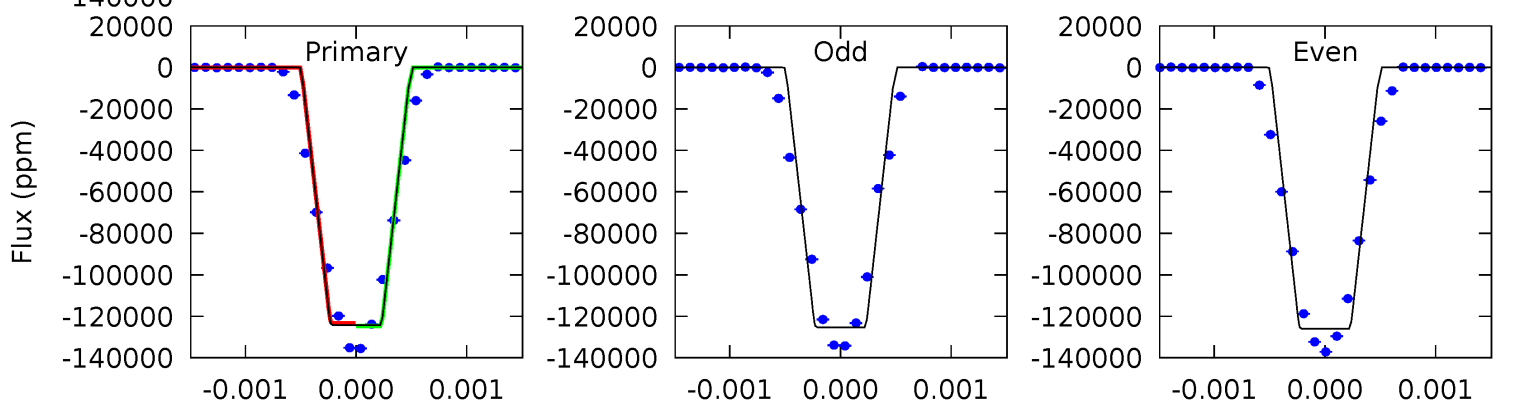
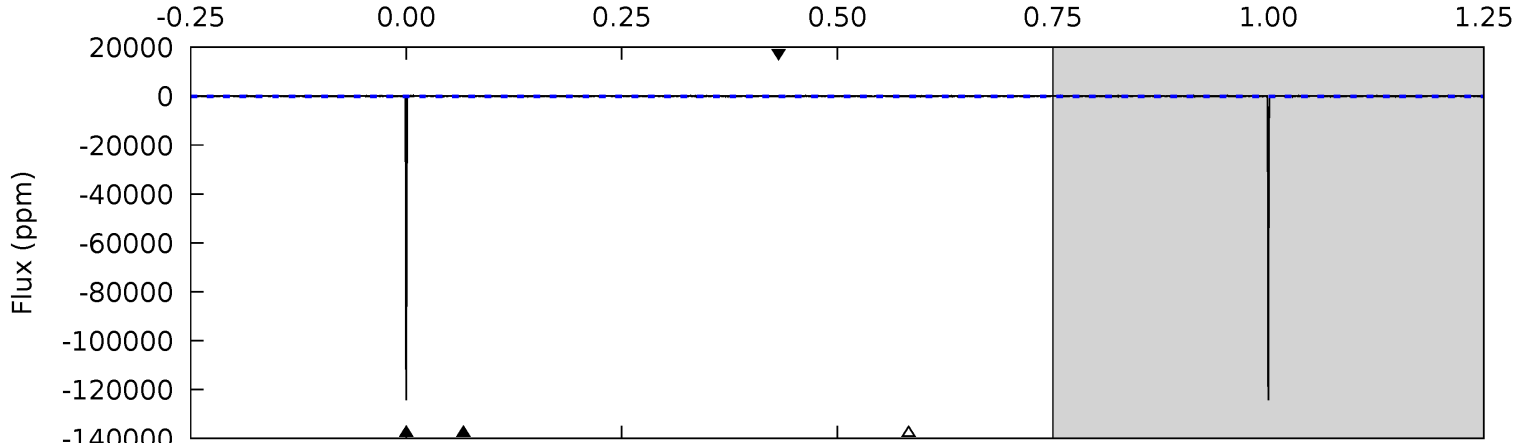
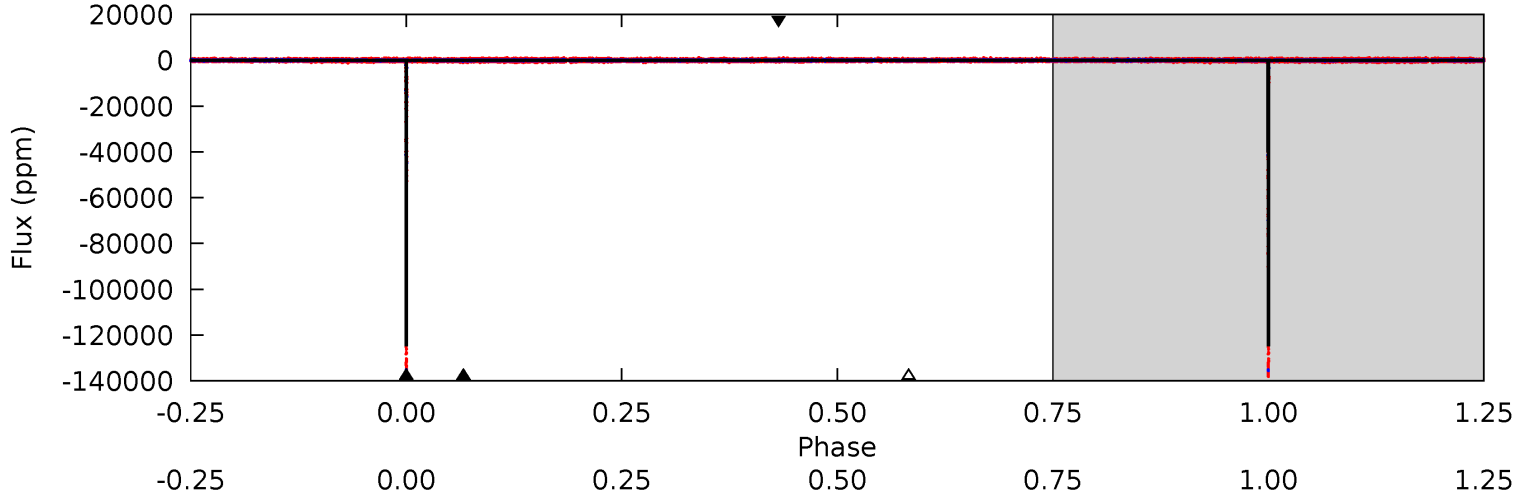
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5523	21.3	20.0	20.0	5.37	3.16	4.48	5503	5503	1.26	1.29	10.00	1.00	0.00	0.15



Alt Model-Shift Uniqueness Test

004586482-02, P = 623.005622 Days, E = 201.385996 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4927	3.88	3.85	4.84	5.42	3.24	0.84	4923	4922	0.04	-0.96	14.2	1.00	0.00	26.3



Stellar Parameters For KIC 004586482

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5689^{+171}_{-171}	$4.299^{+0.170}_{-0.187}$	$0.320^{+0.100}_{-0.300}$	$1.207^{+0.335}_{-0.223}$	$1.058^{+0.110}_{-0.110}$	$0.847^{+0.636}_{-0.420}$
	+3%/-3%	+4%/-4%	+31%/-94%	+28%/-18%	+10%/-10%	+75%/-50%
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 004586482-02 / KOI 5073.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-540 ± 25	$65.79^{+21.37}_{-19.02}$	320^{+24}_{-21}	2175^{+188}_{-108}	143^{+150}_{-59}
Alt.	-98 ± 25	$47.25^{+22.10}_{-17.52}$	320^{+22}_{-22}	1960^{+190}_{-153}	51^{+80}_{-29}

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

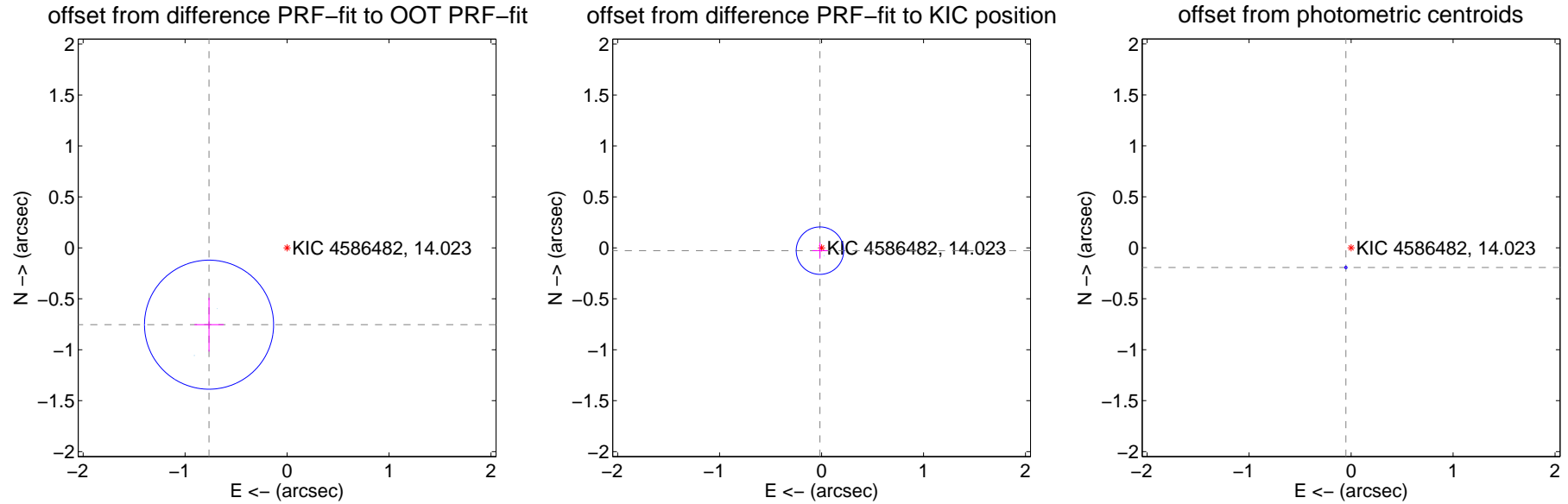
DV Centroid Data

Supplemental centroid analysis for 004586482-02. Kepler magnitude: 14.02. Transit SNR 1293.94

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.074 ± 0.211	5.09	0.765 ± 0.143	-0.754 ± 0.263
PRF-fit source offset from KIC position	0.032 ± 0.078	0.41	0.016 ± 0.075	-0.028 ± 0.078
photometric centroid source offset	0.20 ± 0.00	51.13	0.05 ± 0.00	-0.19 ± 0.00



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.

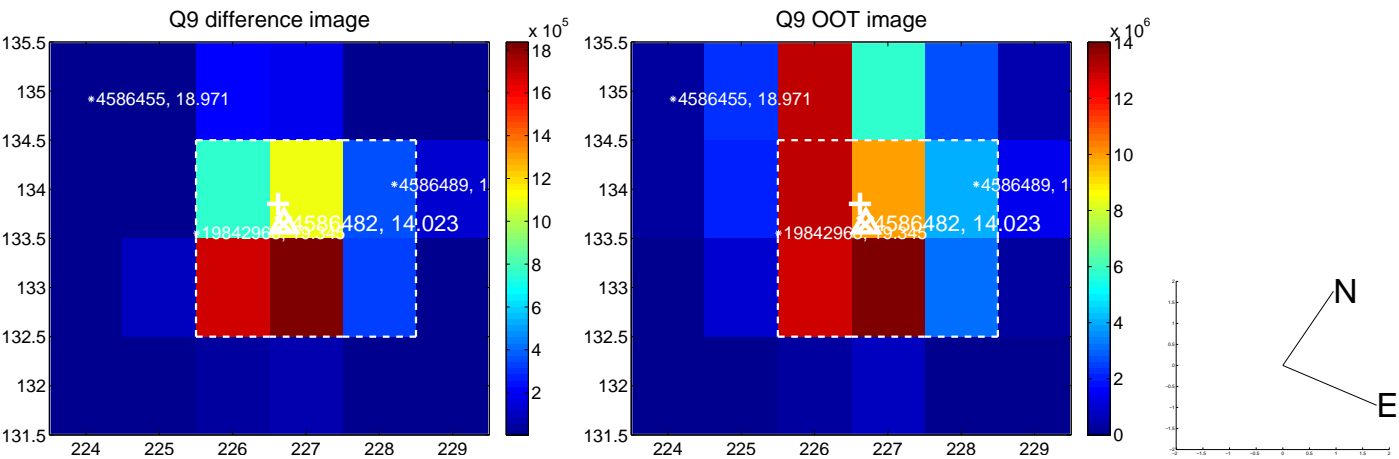
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



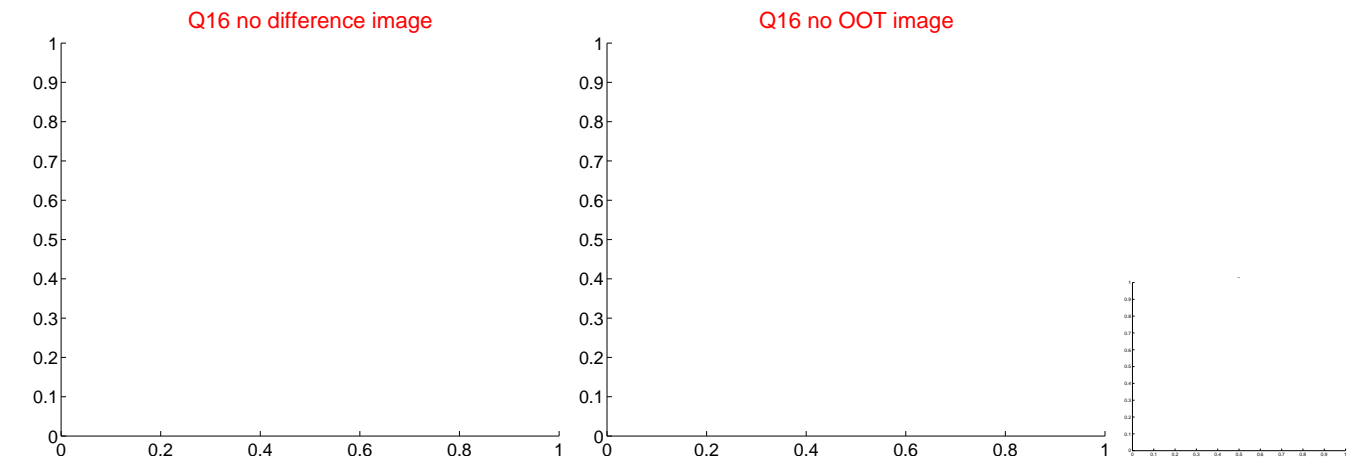
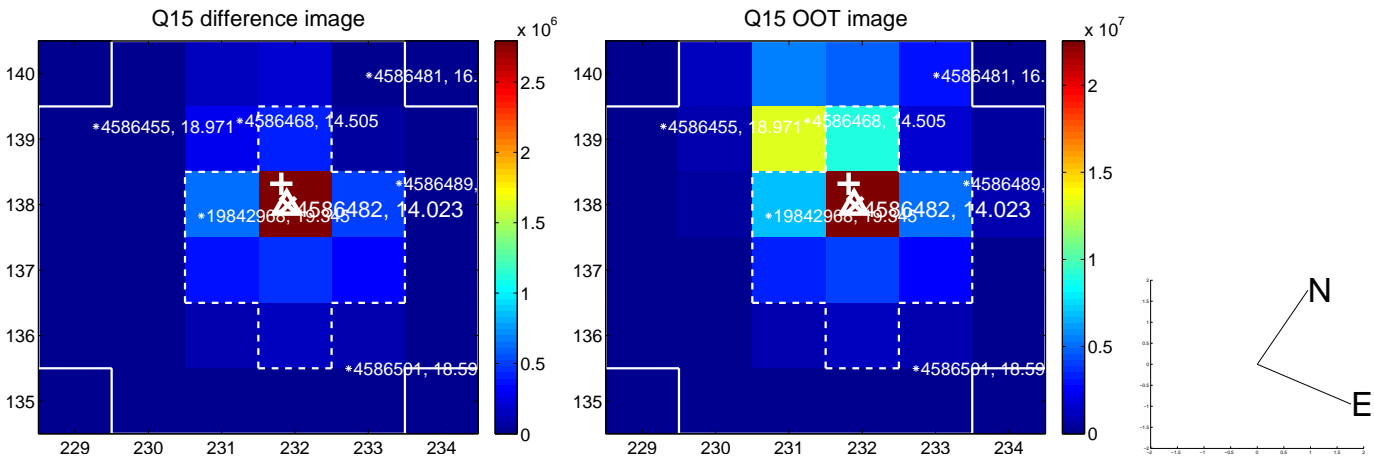
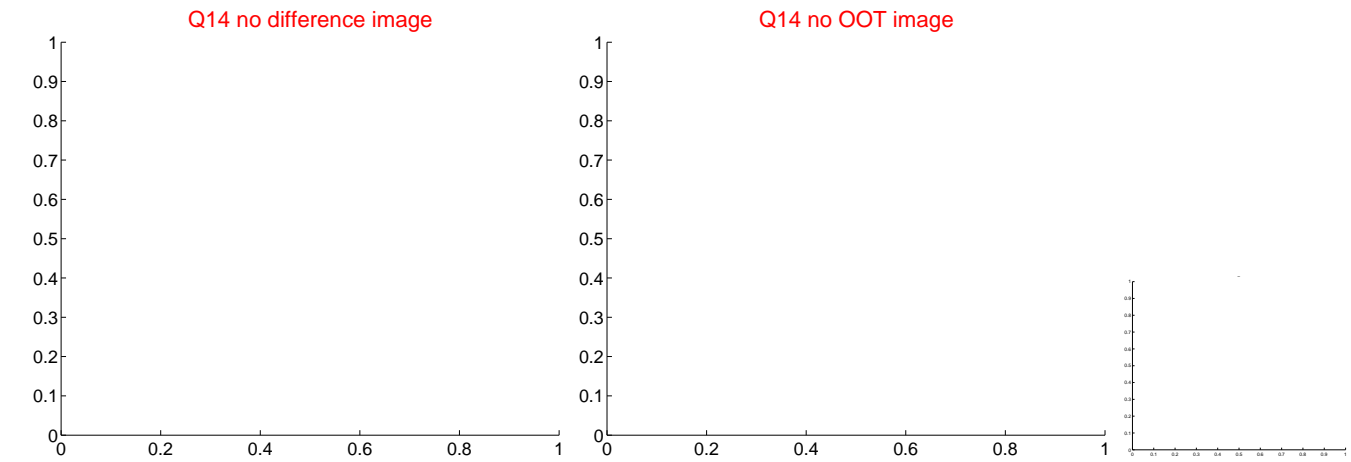
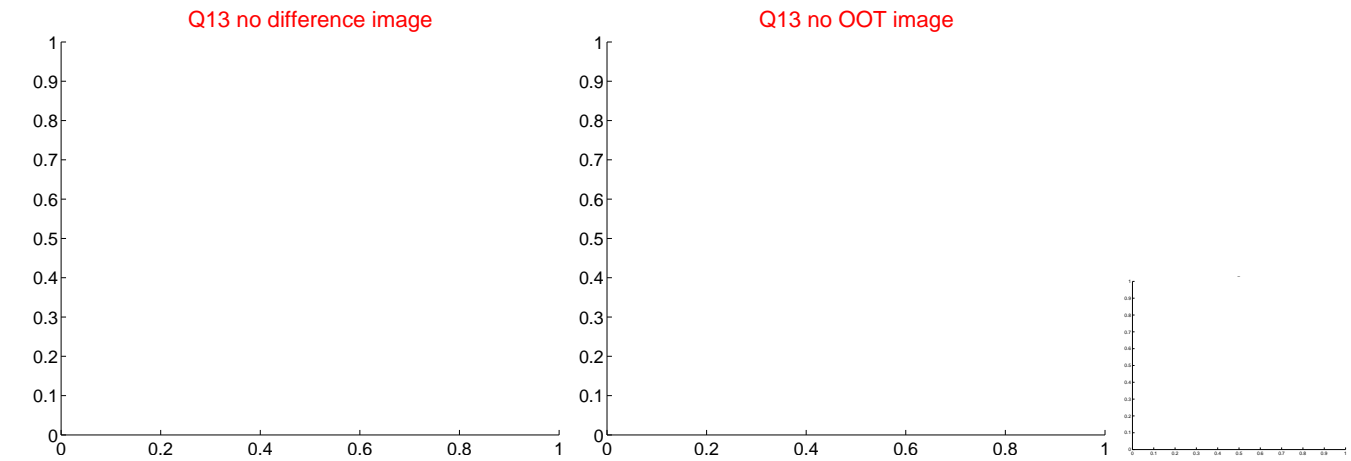
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



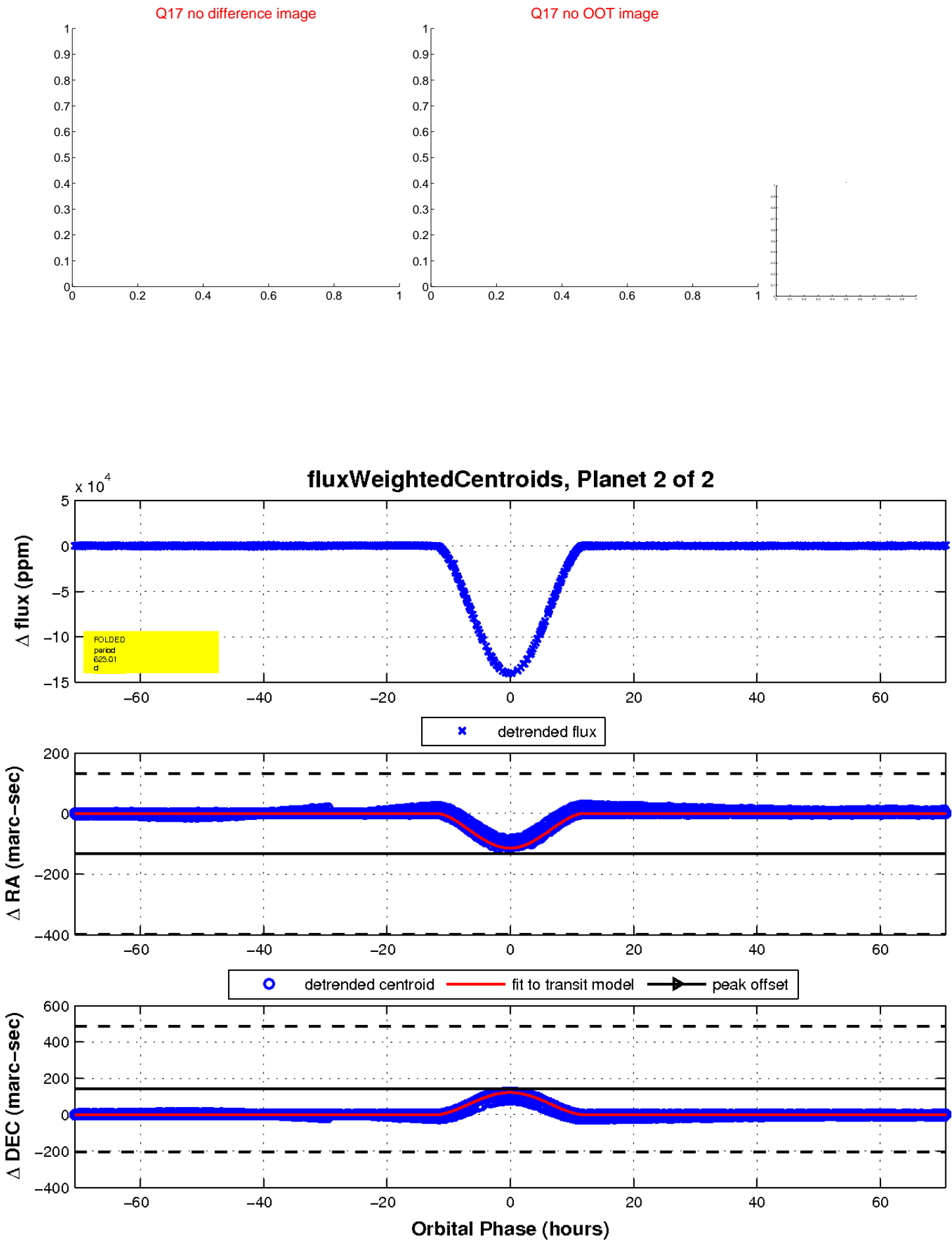
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

