

KIC 009652655

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})
009652655-01	OBS	4578.01	2.488839	132.110451	70.1	4.815	10.0	9.9	1.09	6246	1.07	1127.51
009652655-02	OBS	No	300.025664	340.641233	424.3	195.088	14.4	2.3	1.09	6246	2.58	1.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009652655-01	OBS	FP	0.00	0	0	1	1	HALO_GHOST—EPHEM_MATCH
009652655-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—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.

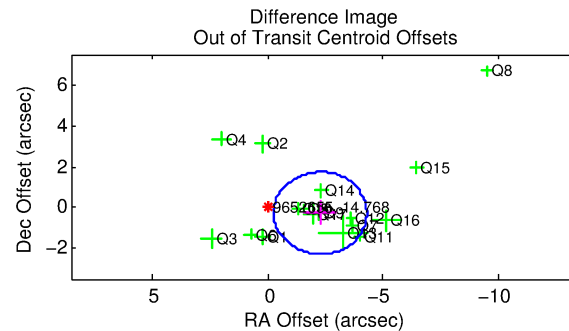
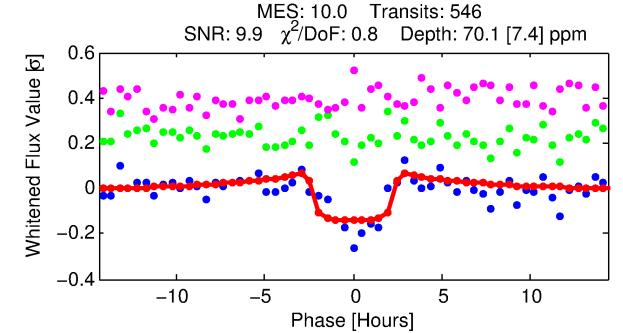
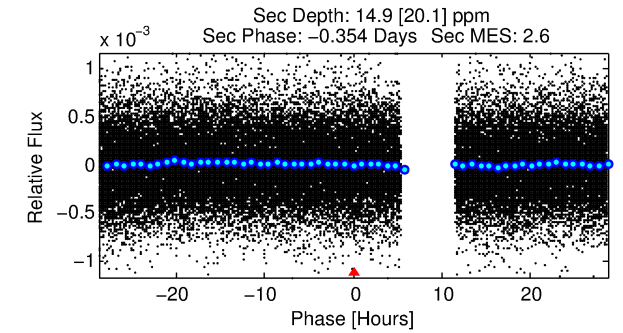
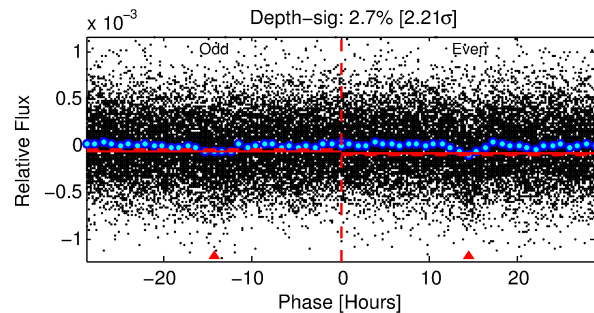
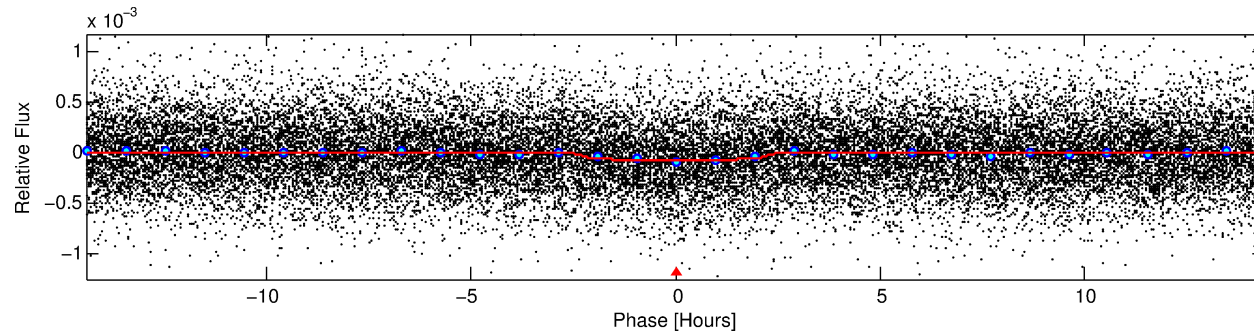
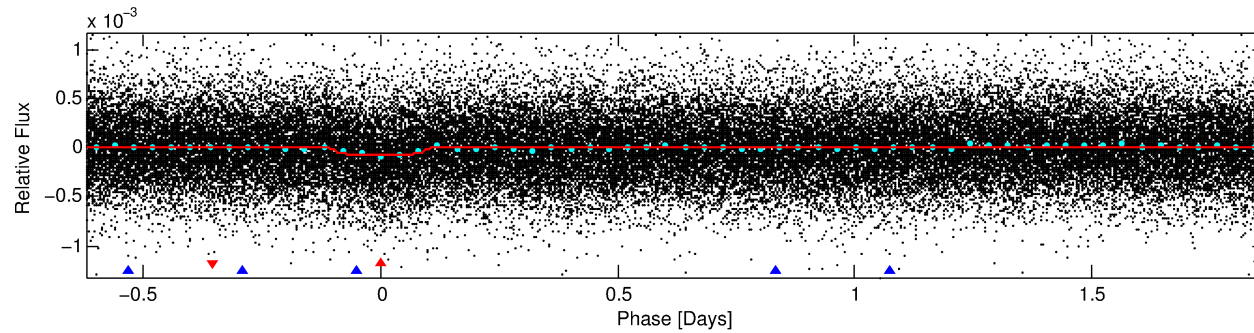
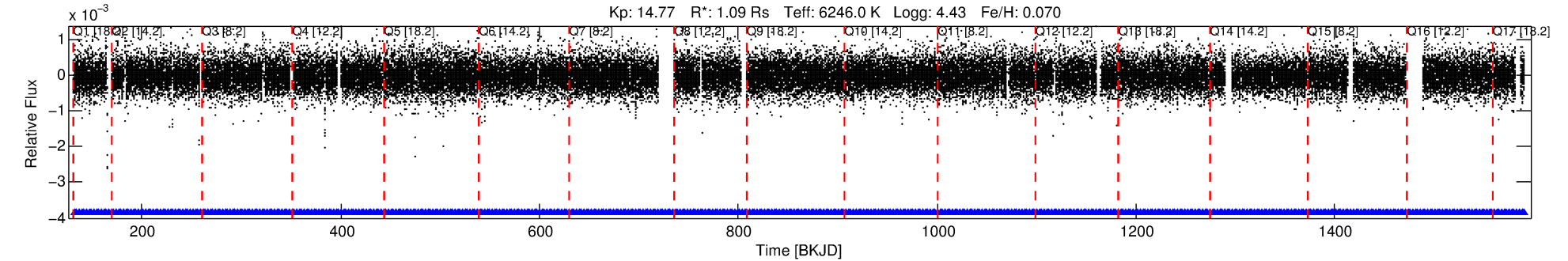
Ephemeris Match Information For 009652655-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009652655-01	9652655	7217.01	9652632	1:1	38.5	8	6	11.58	14.77	1879.00	Direct-PRF	0	0.71	0.93

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9652655 Candidate: 1 of 2 Period: 2.489 d
KOI: K04578.01 Corr: 0.870



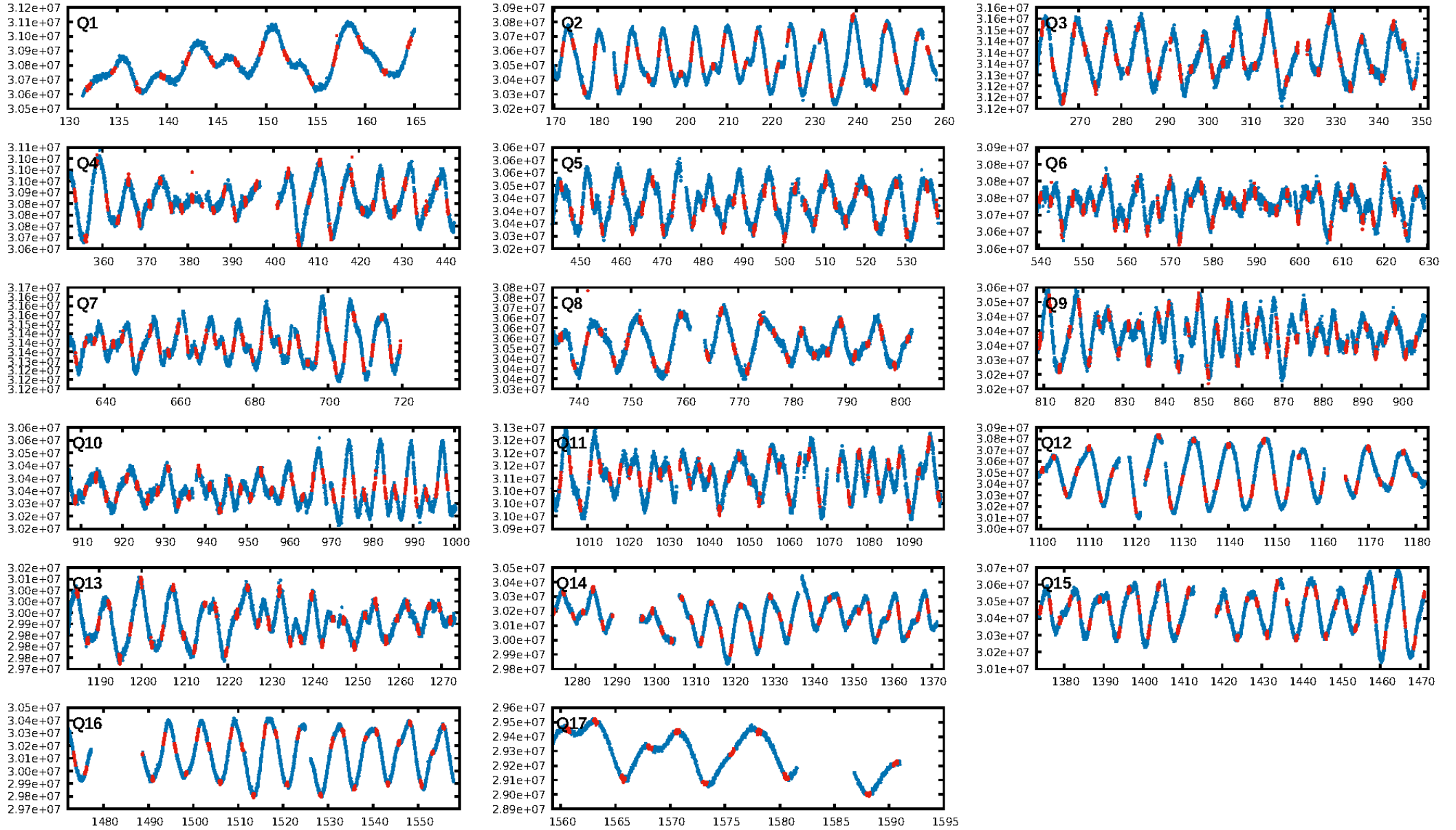
DV Fit Results:

Period = 2.48884 [0.00002] d
Epoch = 132.1105 [0.0044] BKJD
Rp/R* = 0.0090 [0.0028]
a/R* = 2.03 [2.50]
b = 0.90 [0.35]
Seff = 1127.51 [461.73]
Teff = 1478 [151] K
Rp = 1.08 [0.48] Re
a = 0.0380 [0.0102] AU
Ag = 10.22 [15.66] [0.59σ]
Teffp = 4085 [1521] K [1.71σ]

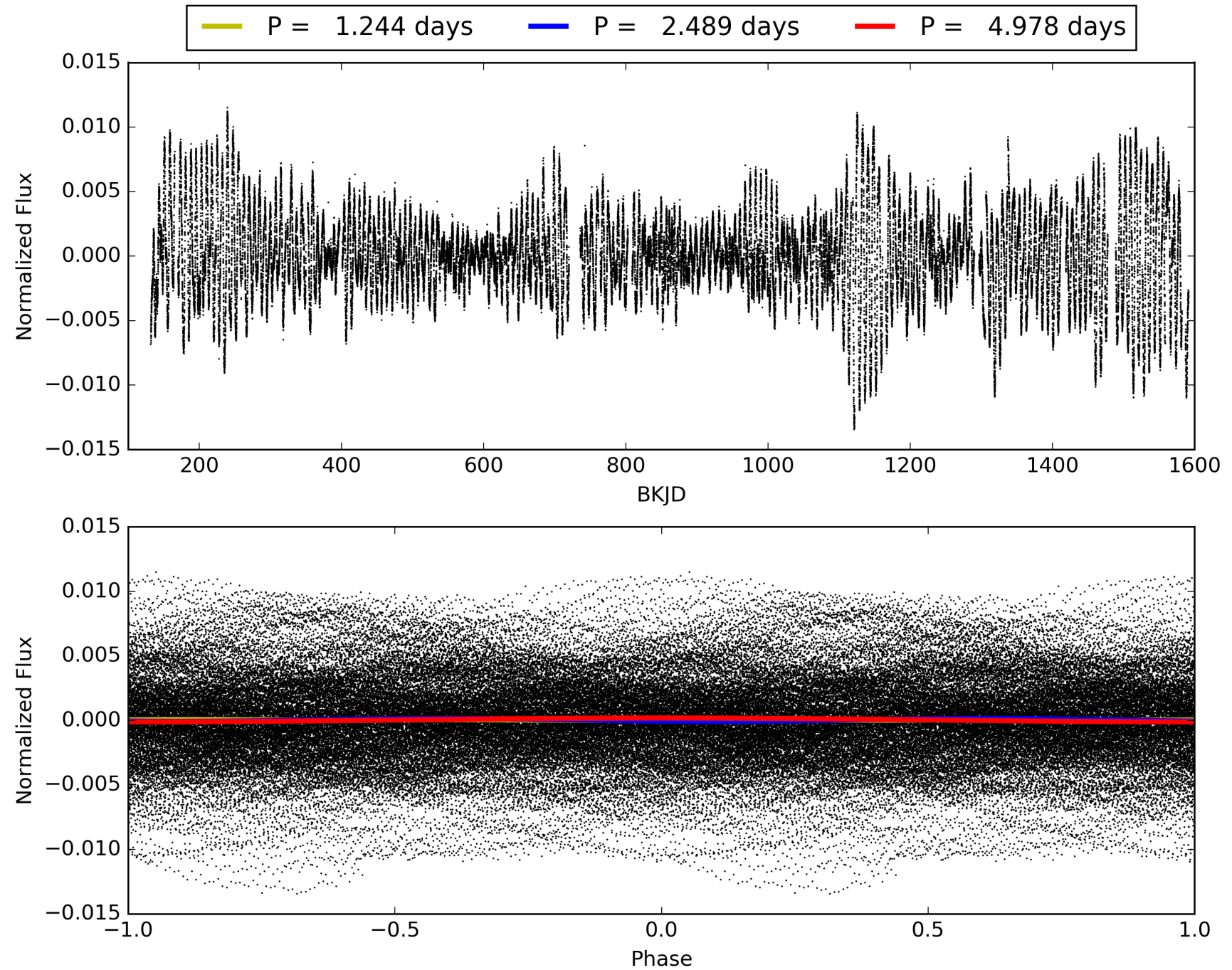
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [36.59σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.41e-21
RollingBand-fgt: 1.00 [521/521]
GhostDiagnostic-chr: -0.1772
Centroid-sig: 0.0%
Centroid-so: 4.871 arcsec [5.16σ]
OotOffset-rm: 2.290 arcsec [3.41σ]
KicOffset-rm: 2.311 arcsec [3.45σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.18 [3/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009652655-01, PDC Light Curves

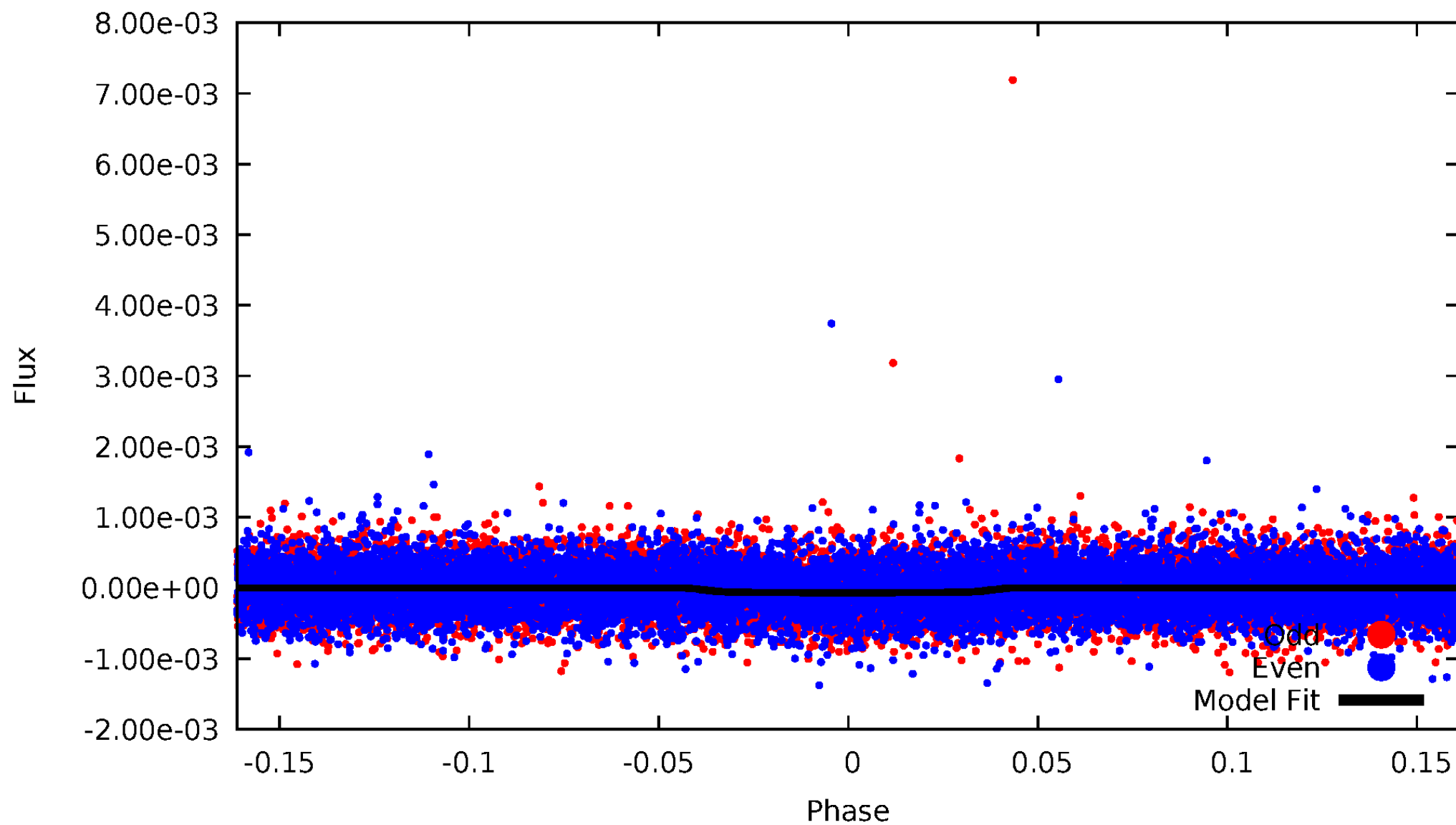


TCE 009652655-01



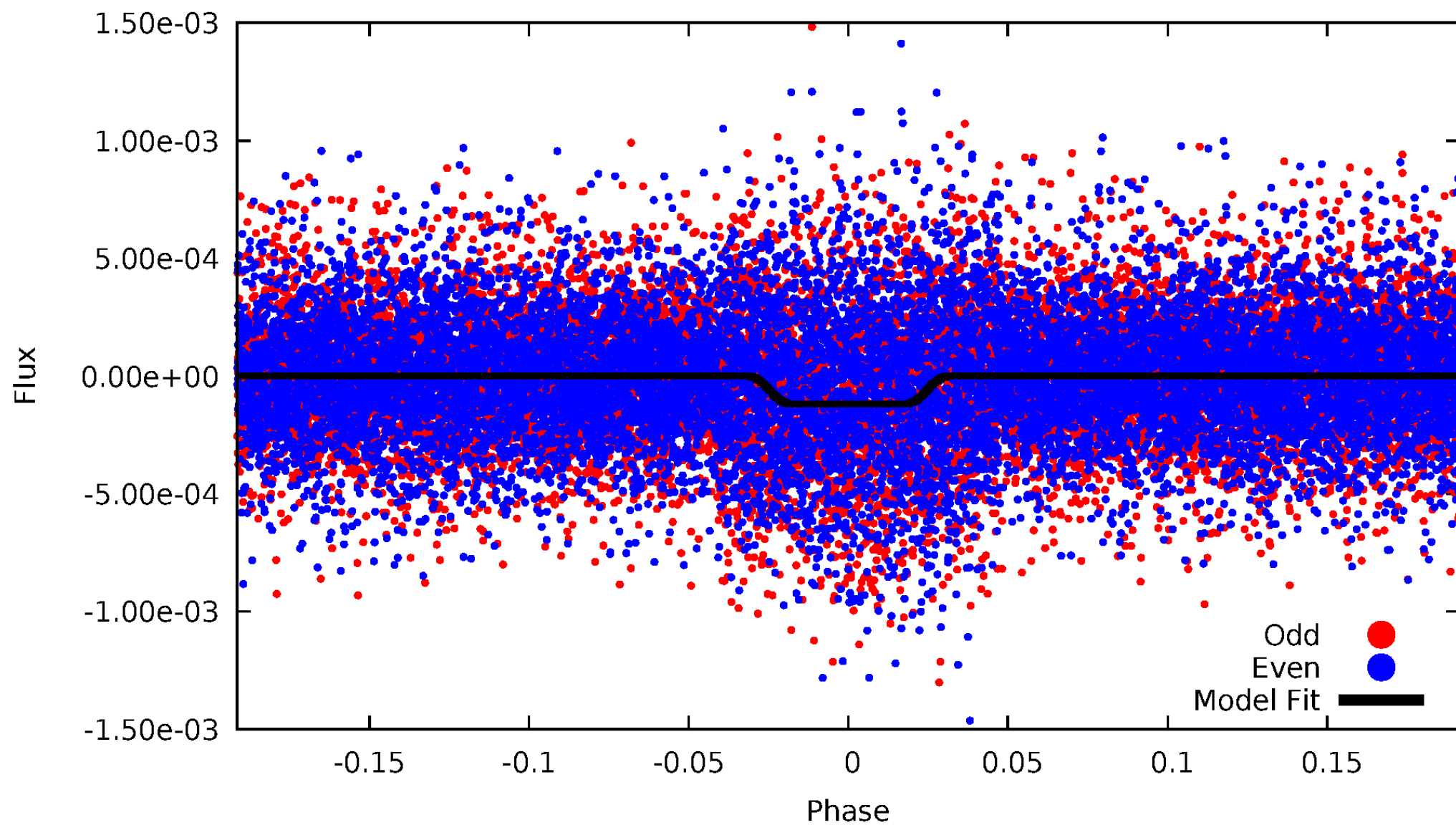
DV Odd/Even

TCE 009652655-01

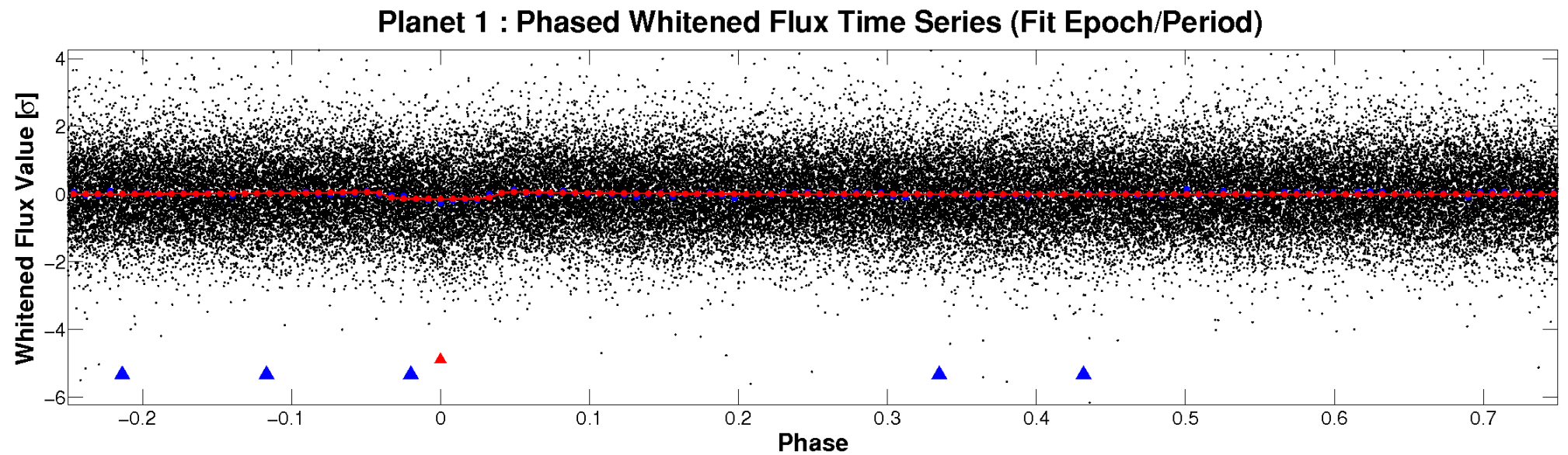
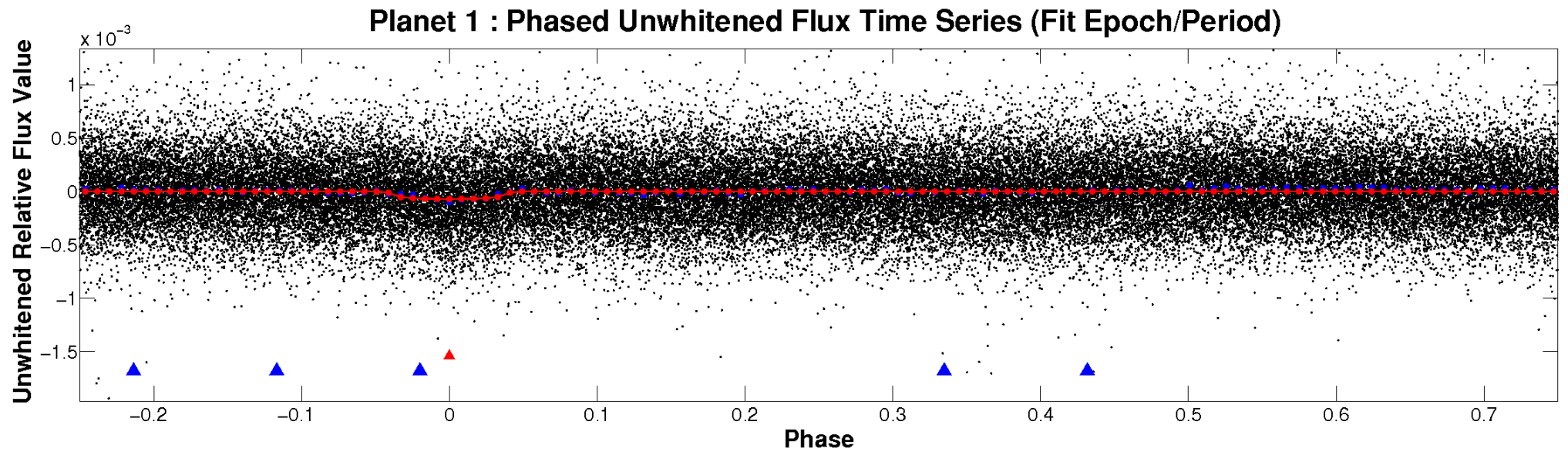


ALT Odd/Even

TCE 009652655-01

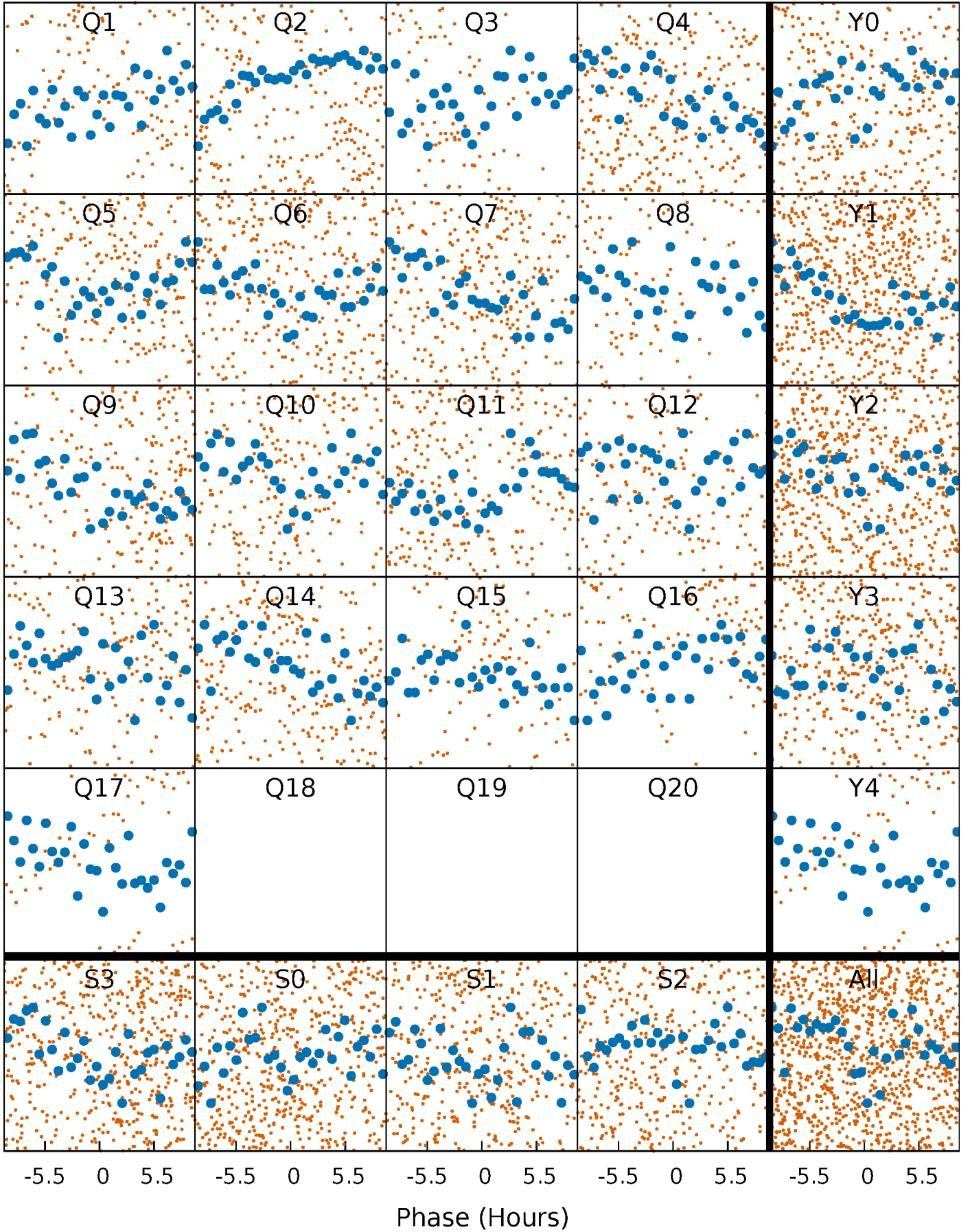


Non-Whitened Vs. Whitened Light Curve



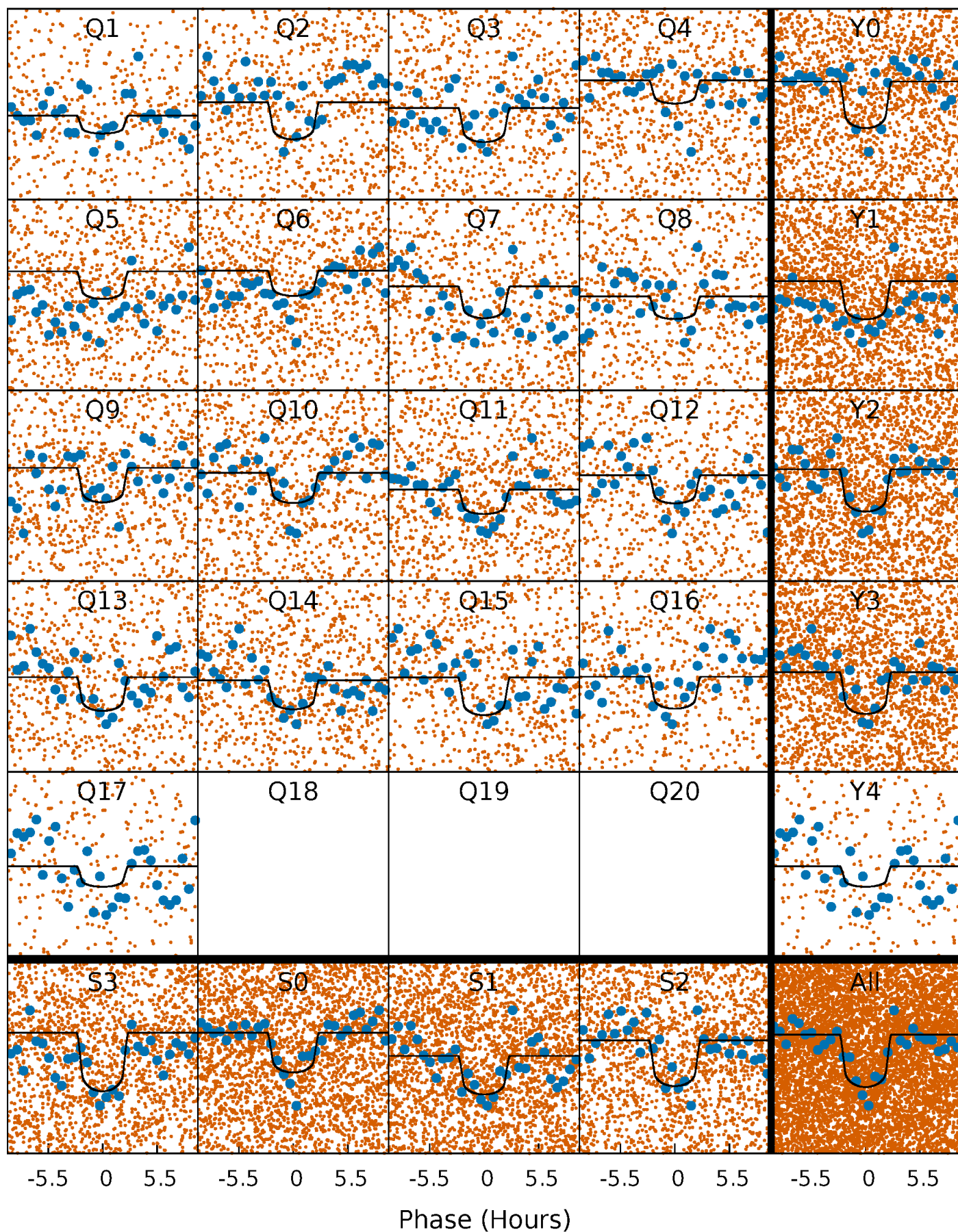
PDC Quarter-Phased Transit Curves

TCE 009652655-01 P= 2.488839 Days $T_0=132.110451$ (BKJD)



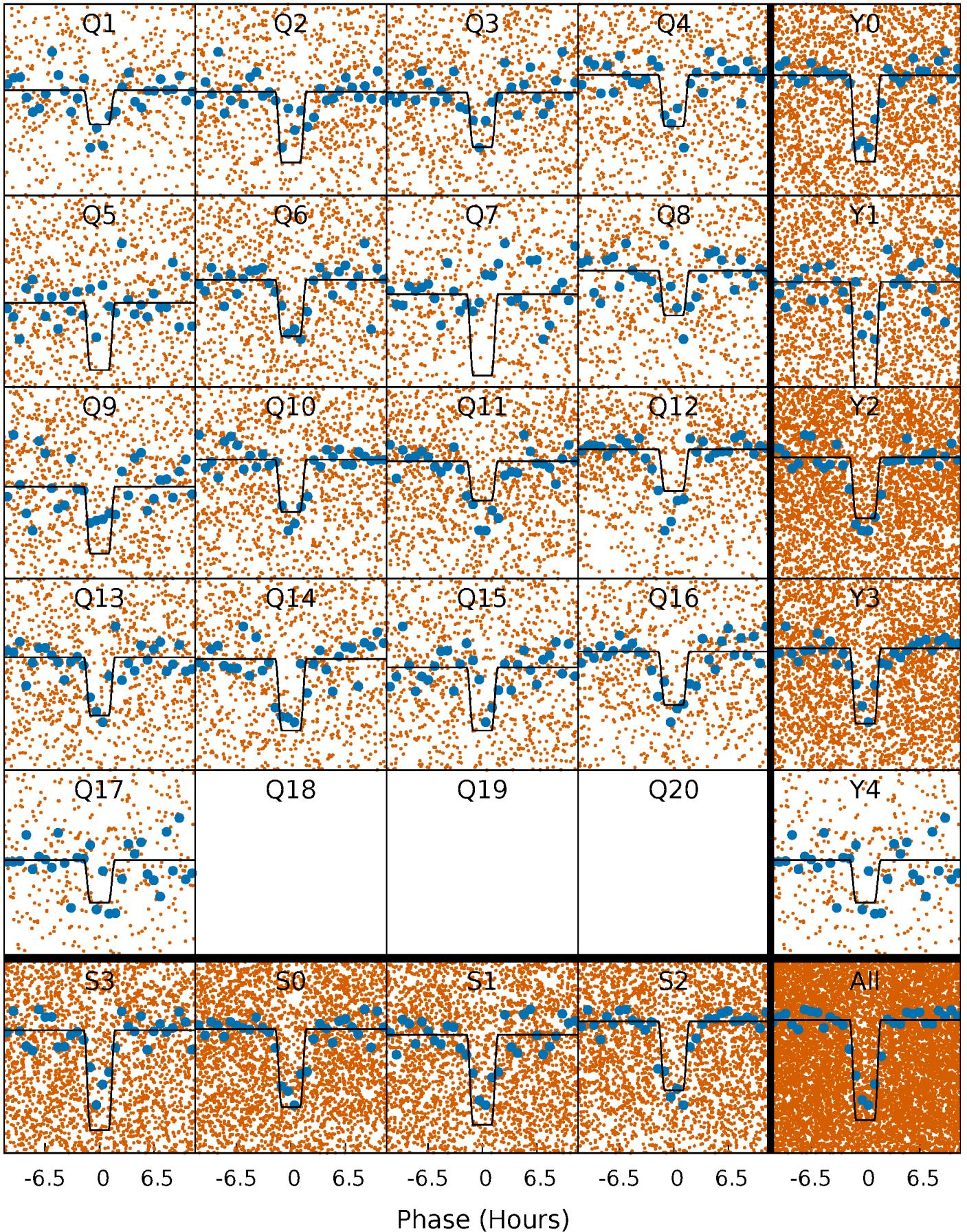
DV Quarter-Phased Transit Curves

TCE 009652655-01 P= 2.488839 Days $T_0=132.110451$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

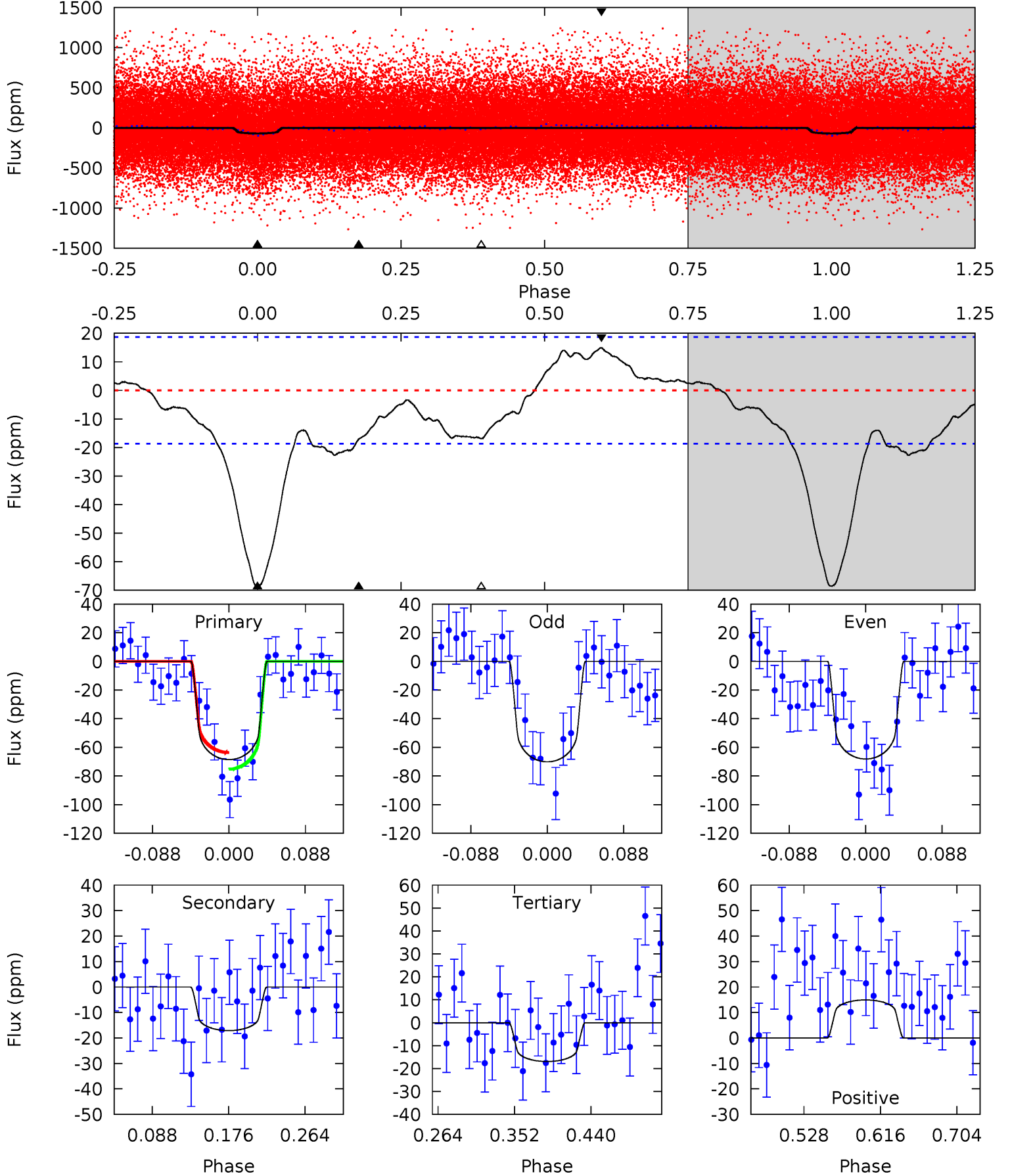
TCE 009652655-01 P= 2.488825 Days $T_0=132.116896$ (BKJD)



DV Model-Shift Uniqueness Test

009652655-01, P = 2.488839 Days, E = 129.621612 Days

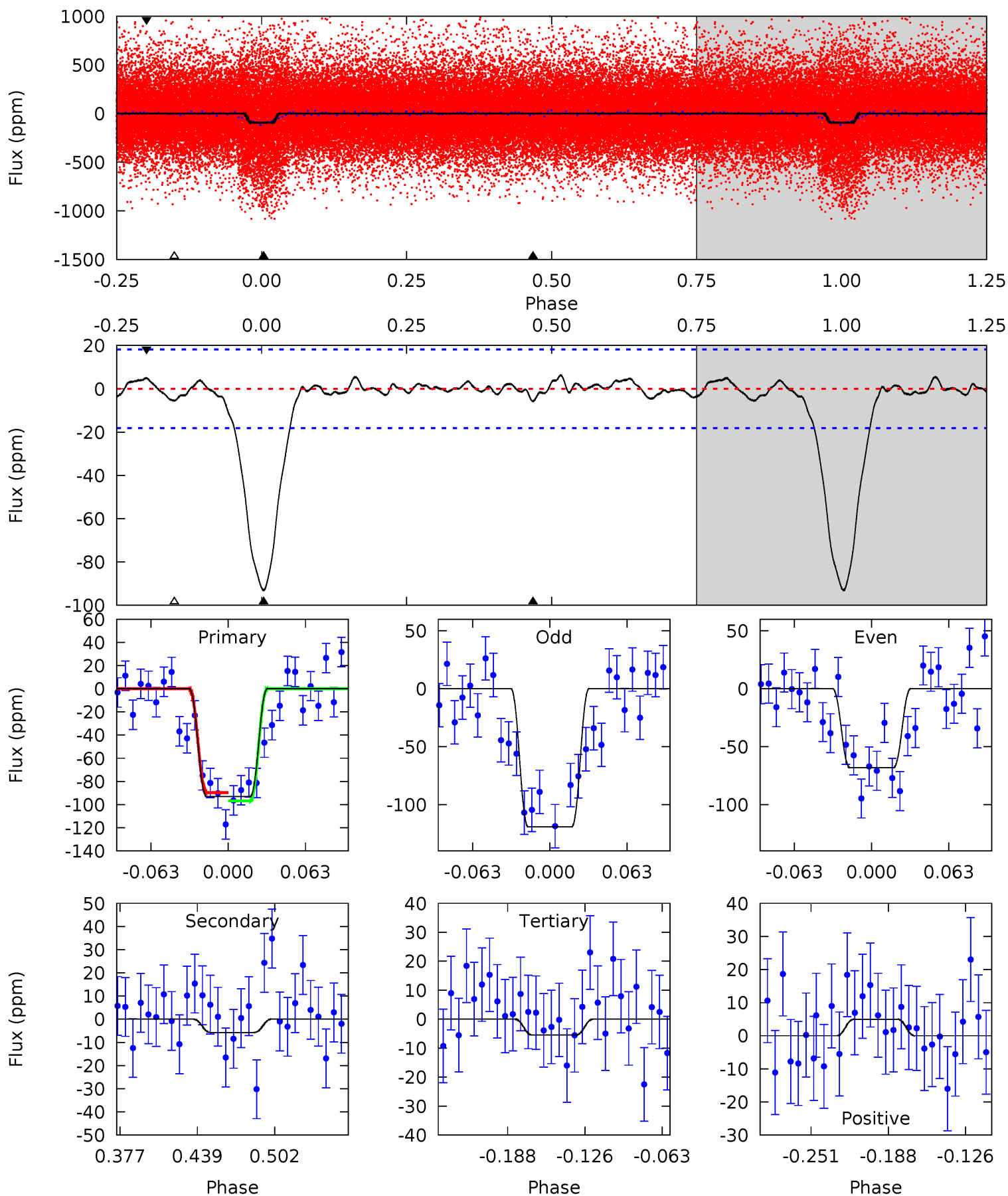
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	4.21	4.17	3.67	4.59	1.71	2.35	12.7	13.2	0.04	0.54	0.24	0.90	0.18	1.42



Alt Model-Shift Uniqueness Test

009652655-01, P = 2.488825 Days, E = 129.628071 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	1.47	1.40	1.28	4.66	1.86	0.62	22.5	22.6	0.07	0.20	6.54	0.96	0.06	0.92



Stellar Parameters For KIC 009652655

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6246^{+174}_{-217}	$4.433^{+0.052}_{-0.208}$	$0.070^{+0.250}_{-0.300}$	$1.092^{+0.353}_{-0.118}$	$1.180^{+0.157}_{-0.141}$	$1.276^{+0.343}_{-0.646}$
	+3%/-3%	+1%/-5%	+357%/-429%	+32%/-11%	+13%/-12%	+27%/-51%
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 009652655-01 / KOI 4578.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-17 ± 4	$1.10^{+0.40}_{-0.34}$	2110^{+157}_{-106}	4418^{+752}_{-497}	11^{+12}_{-5}
Alt.	-6 ± 4	$1.37^{+0.37}_{-0.36}$	2106^{+143}_{-100}	3317^{+533}_{-644}	$2.306^{+2.812}_{-1.610}$

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

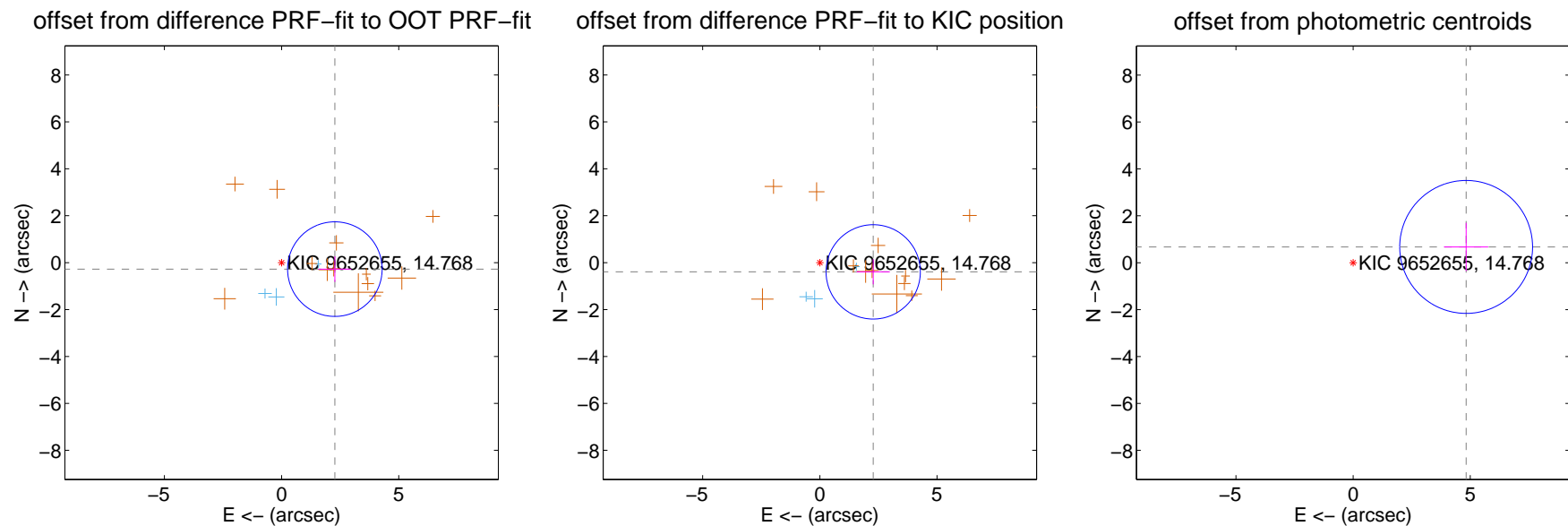
DV Centroid Data

Supplemental centroid analysis for 009652655-01. Kepler magnitude: 14.77. Transit SNR 9.95

There are 3 quarters with good PRF difference image offsets

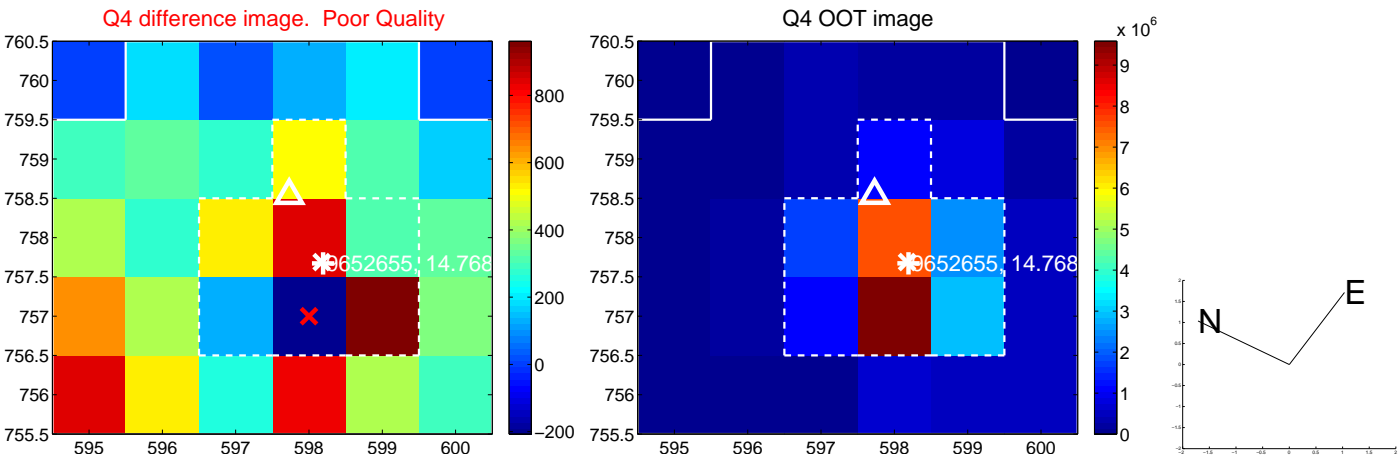
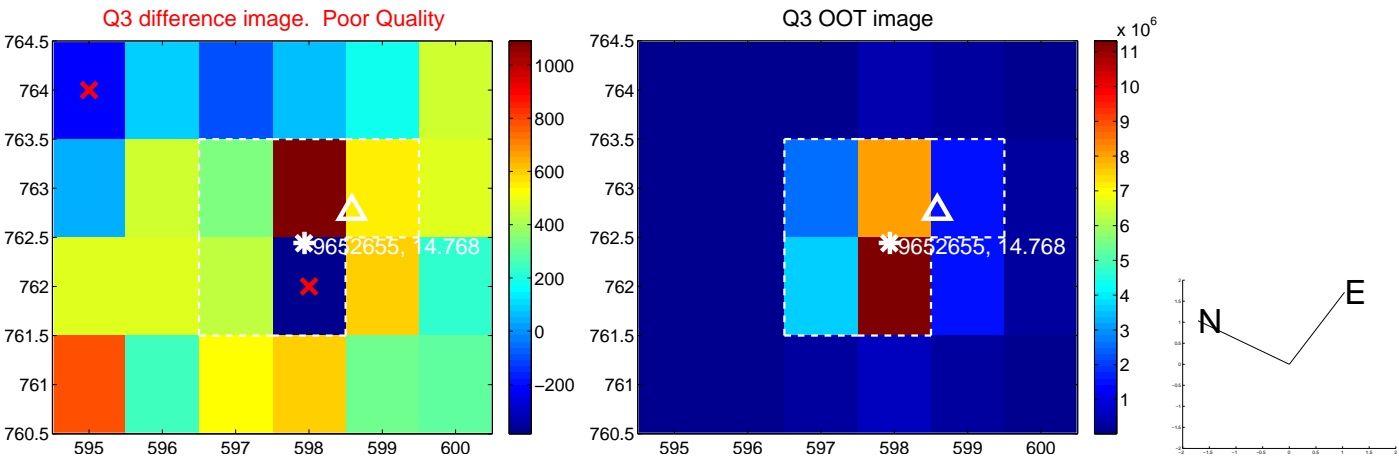
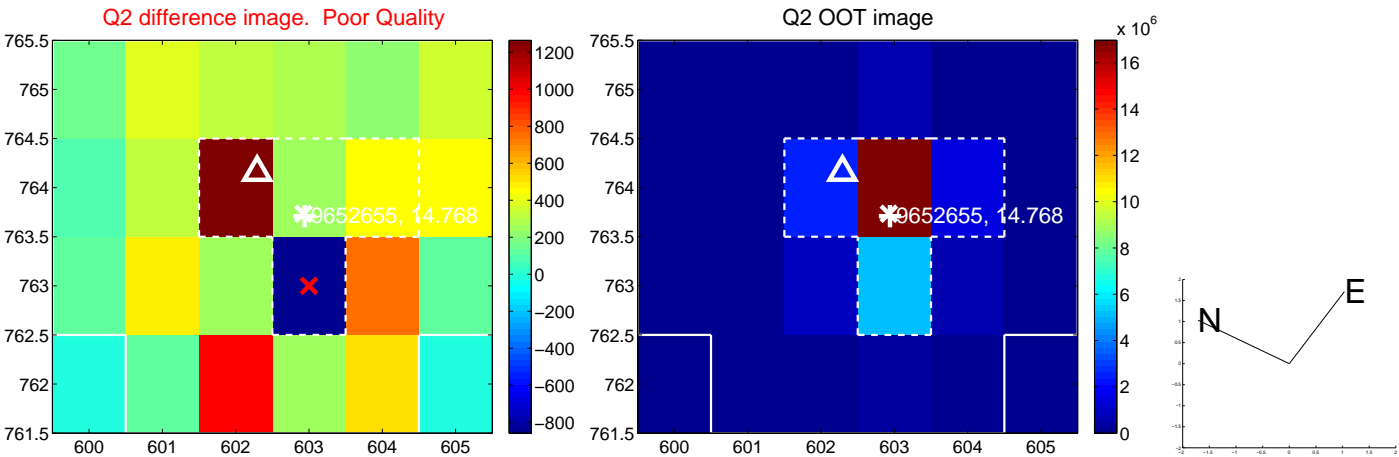
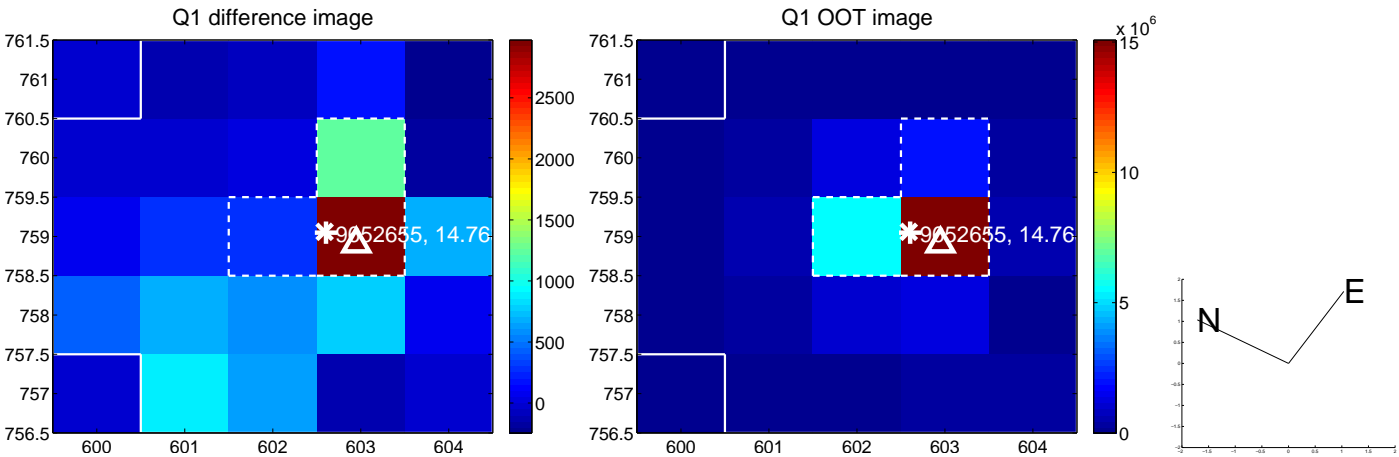
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.290 ± 0.672	3.41	-2.273 ± 0.702	-0.276 ± 0.545
PRF-fit source offset from KIC position	2.311 ± 0.671	3.45	-2.277 ± 0.708	-0.394 ± 0.534
photometric centroid source offset	4.87 ± 0.94	5.16	-4.82 ± 0.94	0.67 ± 1.03

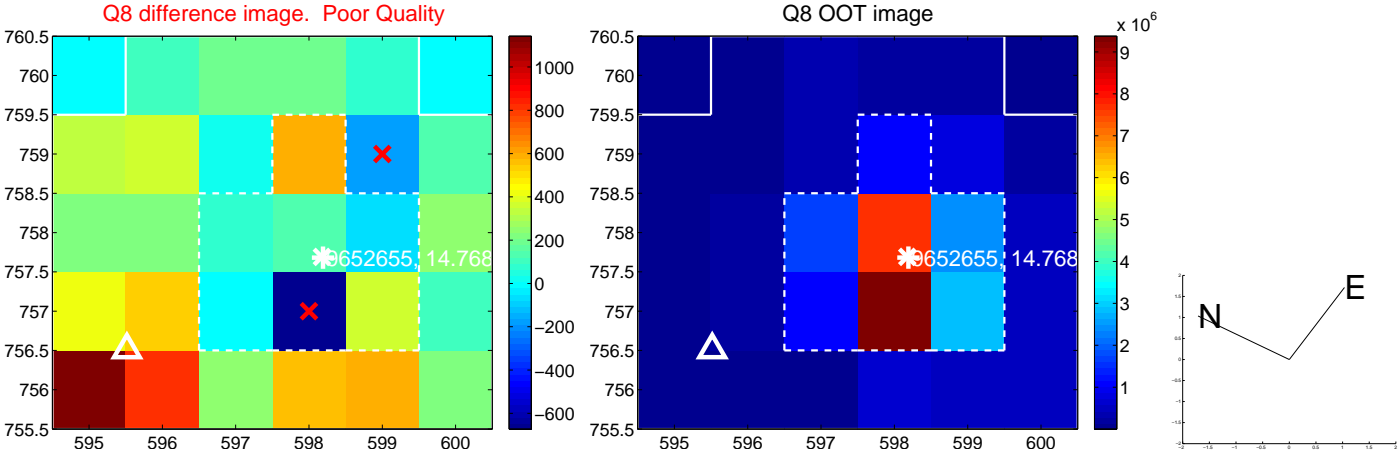
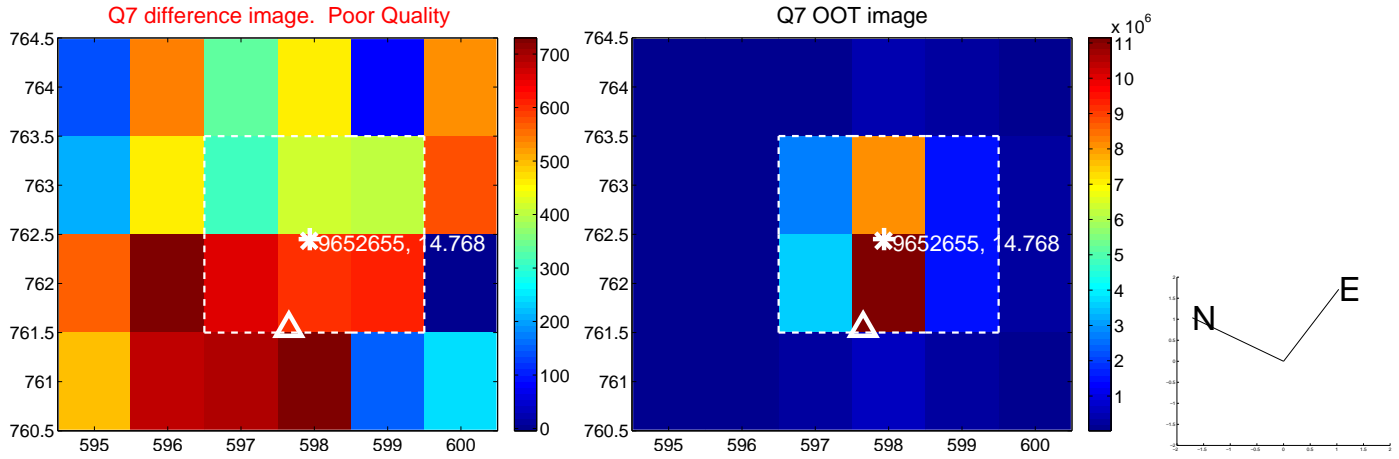
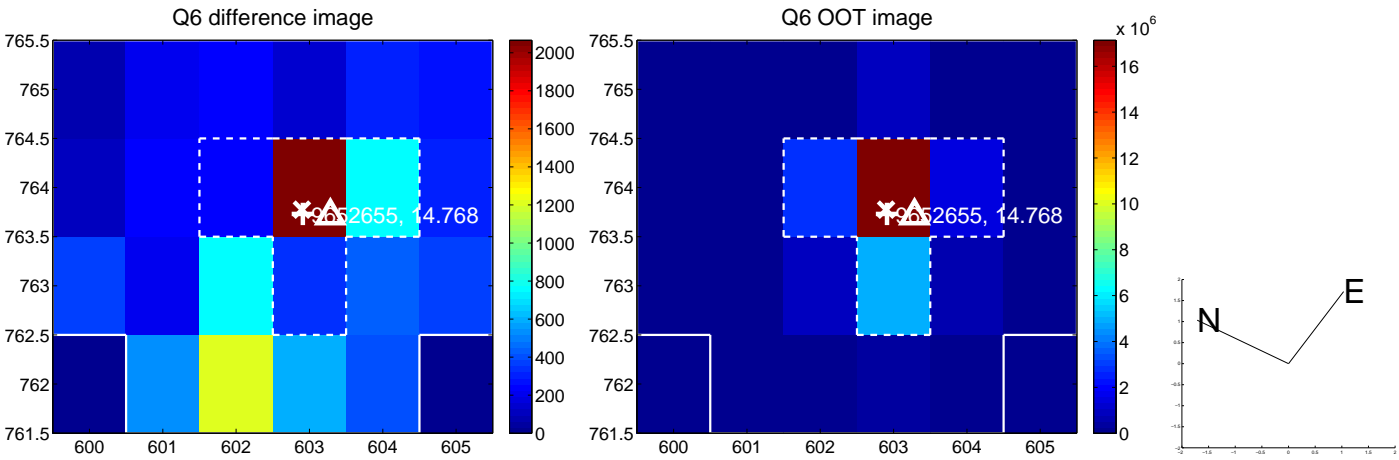
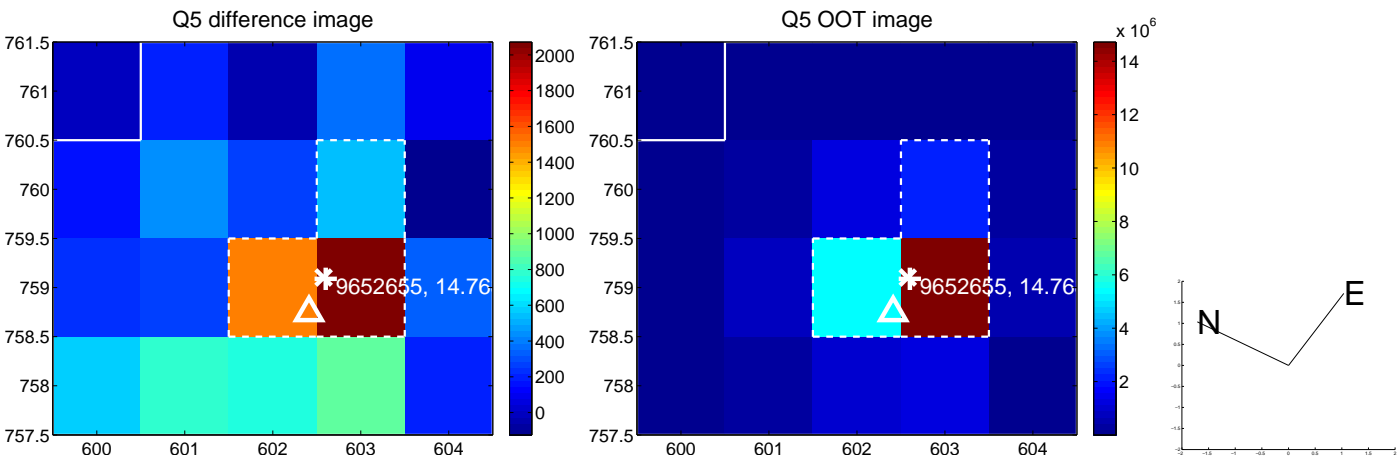


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

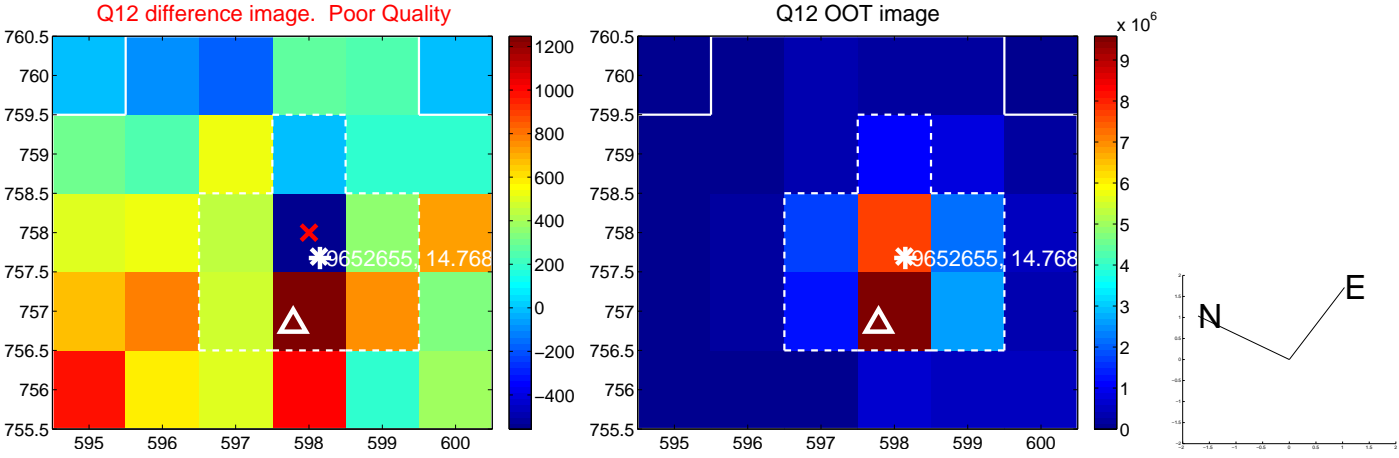
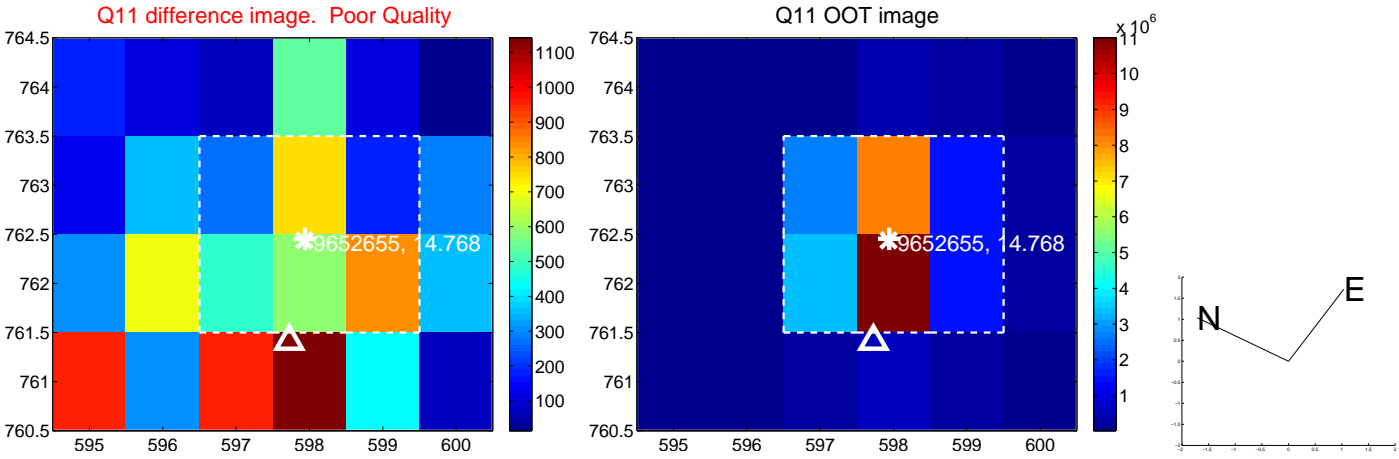
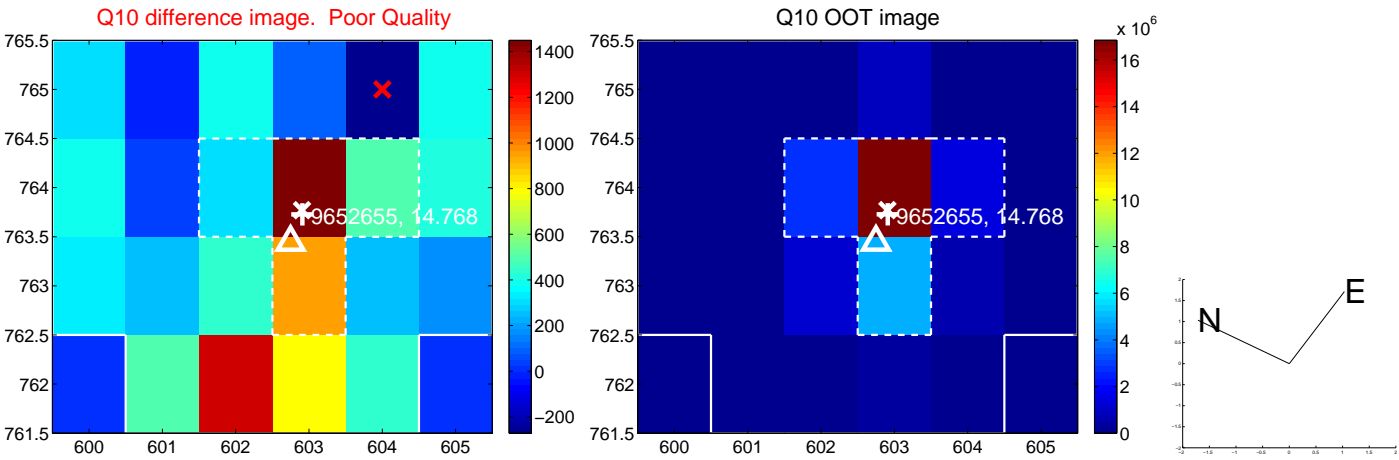
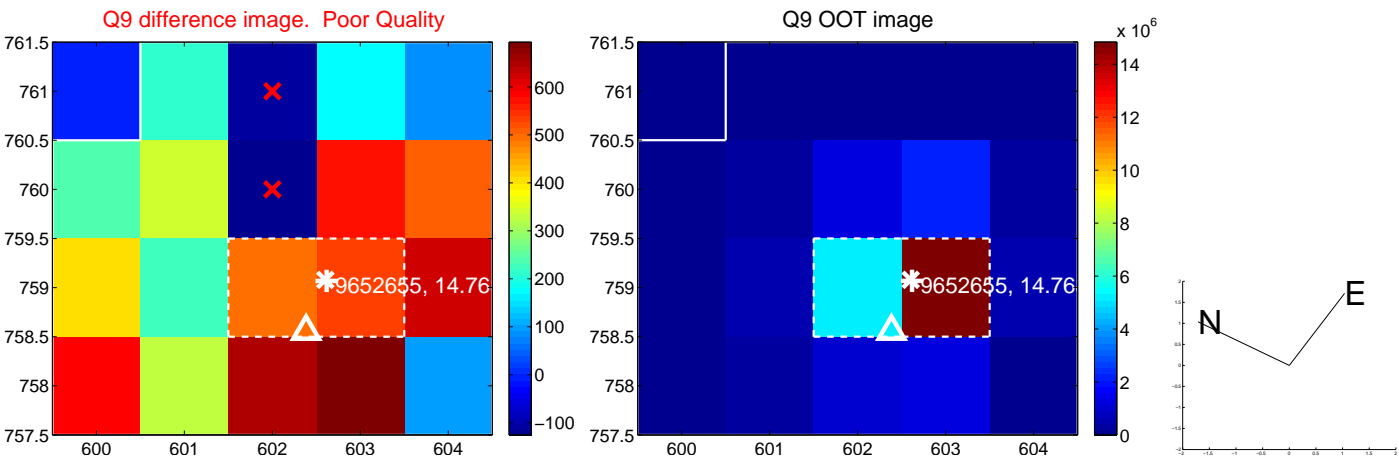
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



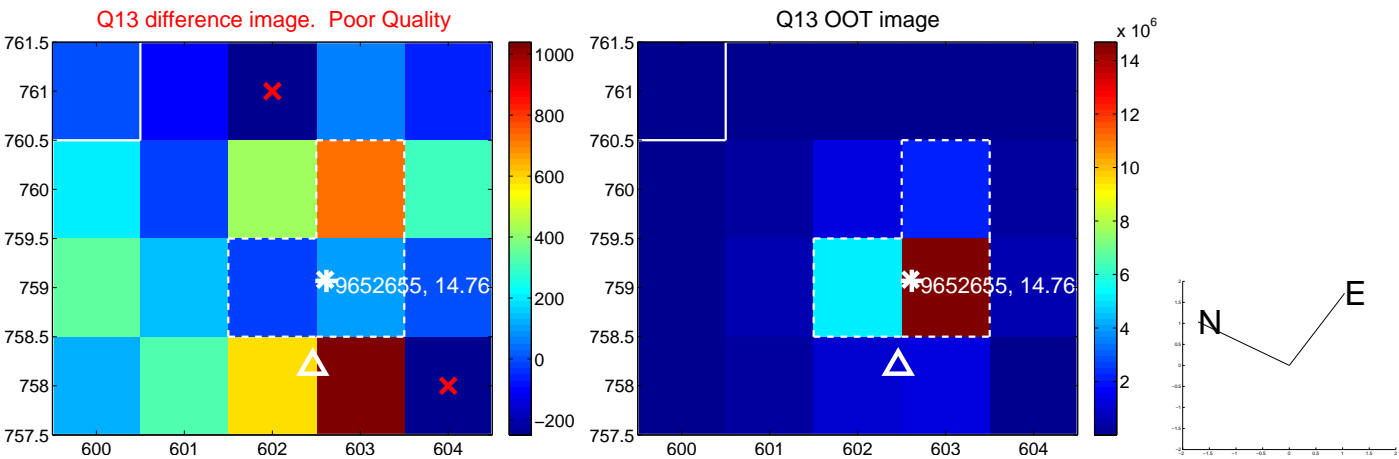
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



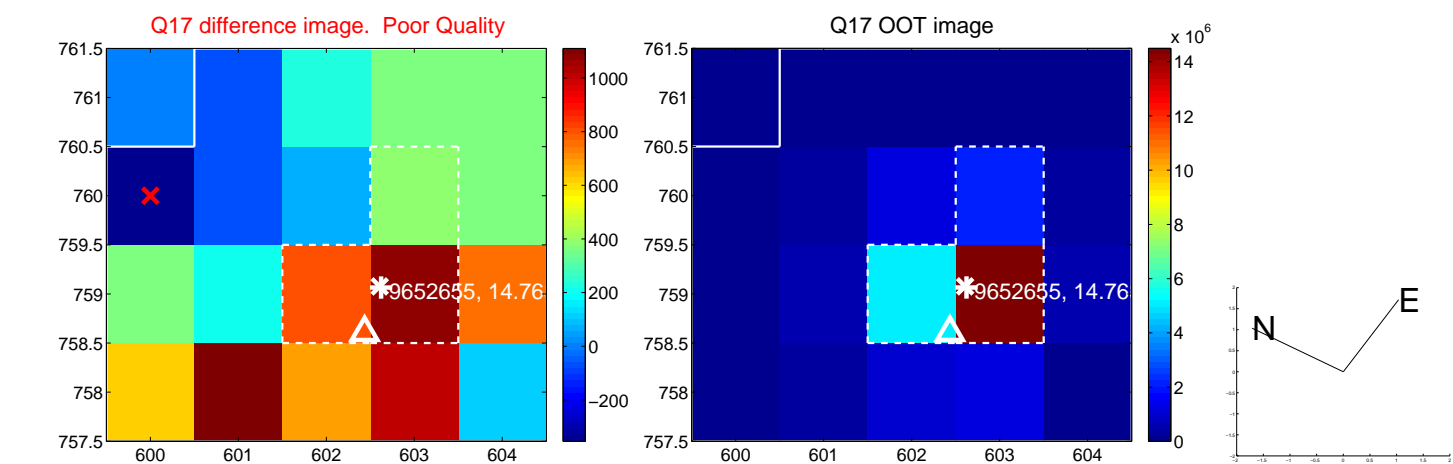
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



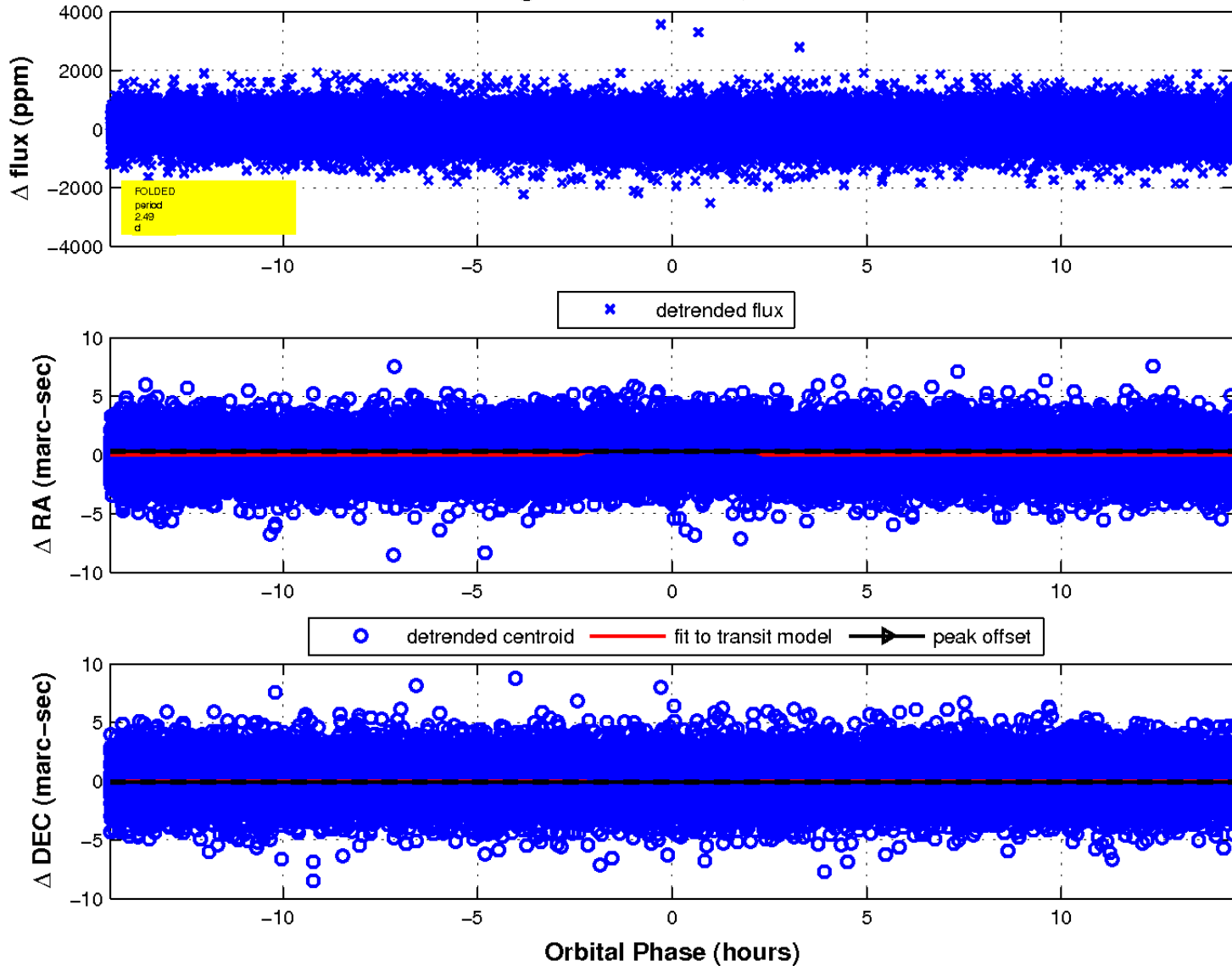
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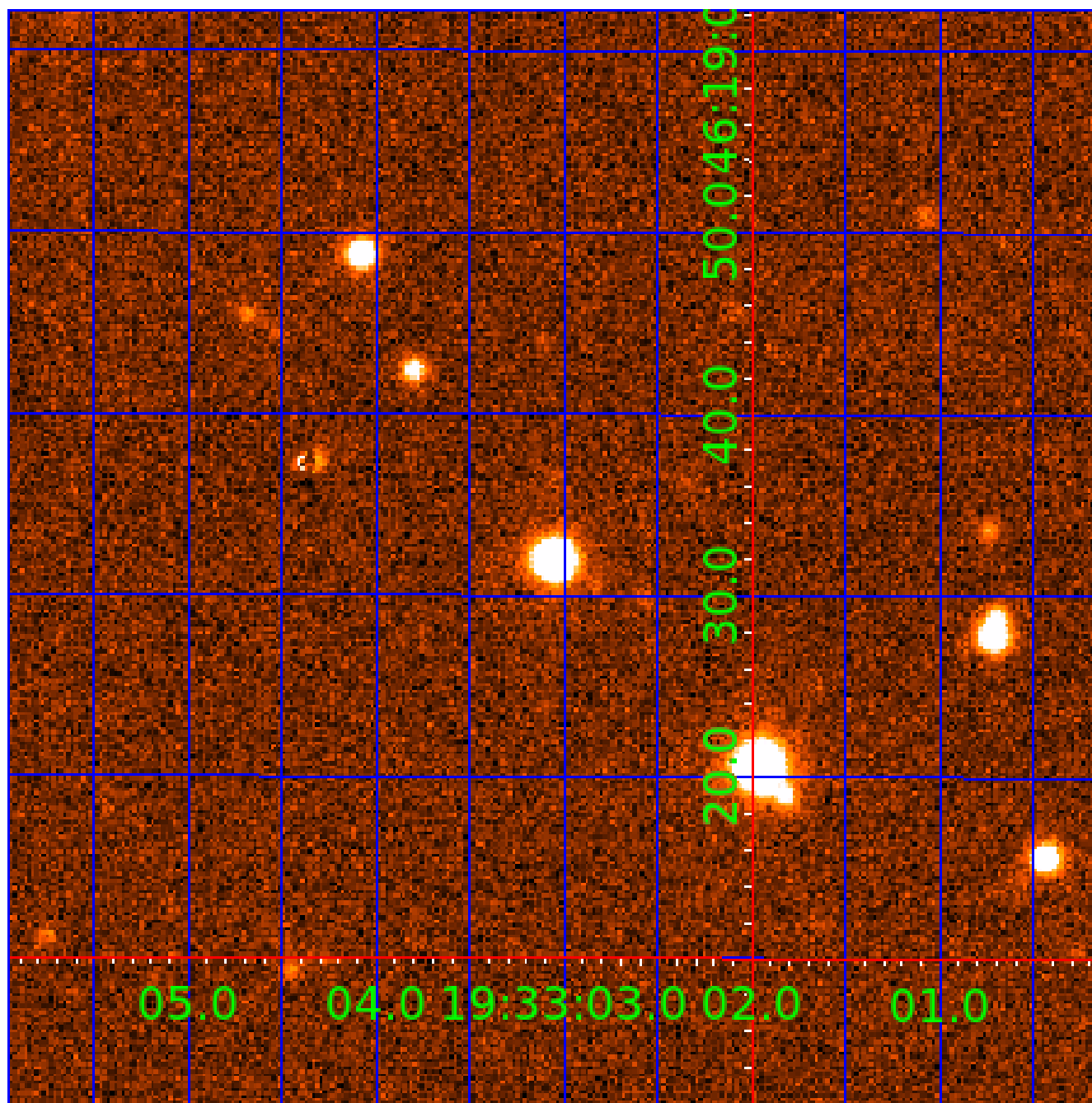


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009652655

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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009652655-01	OBS	FP	0.00	0	0	1	1	HALO_GHOST—EPHEM_MATCH
009652655-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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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.

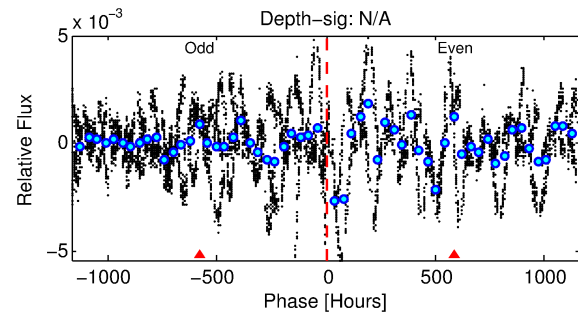
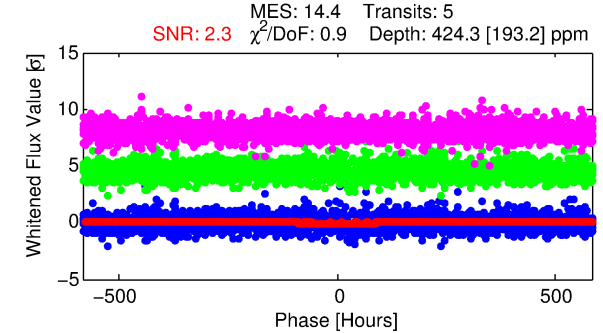
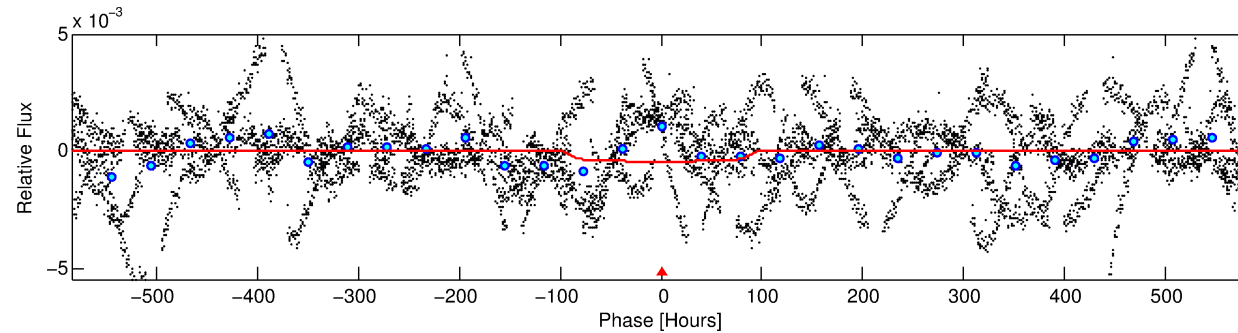
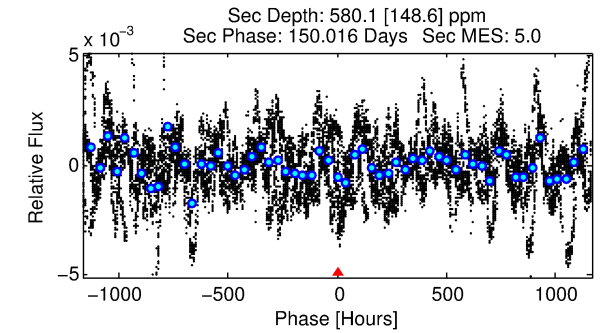
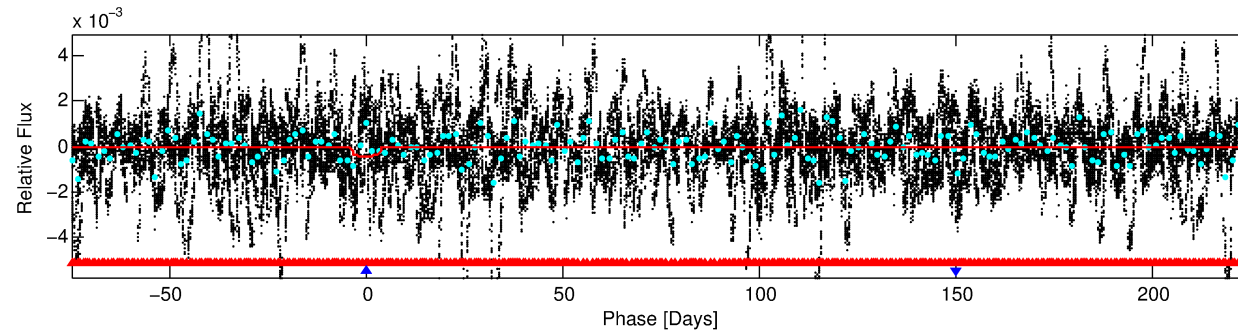
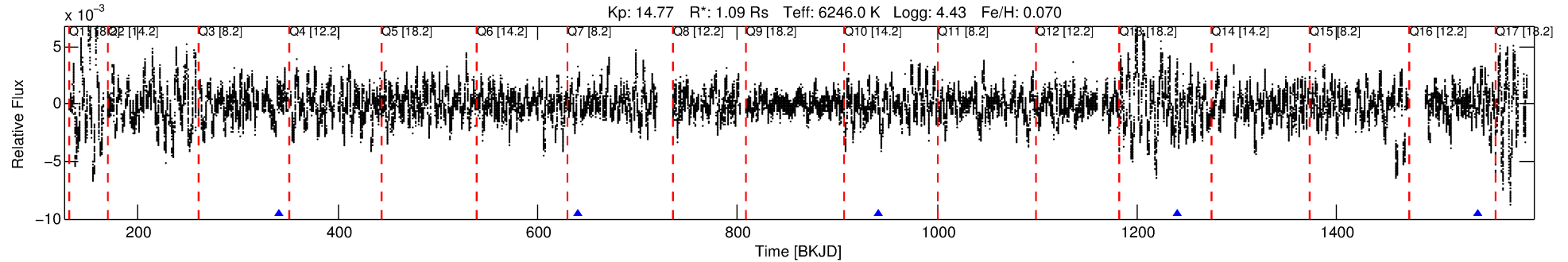
Ephemeris Match Information For 009652655-02

No Significant Match Found

DV One-Page Summary

KIC: 9652655 Candidate: 2 of 2 Period: 300.026 d
KOI: K04578 Corr: No Ephemeris Match

Kp: 14.77 R*: 1.09 Rs Teff: 6246.0 K Logg: 4.43 Fe/H: 0.070



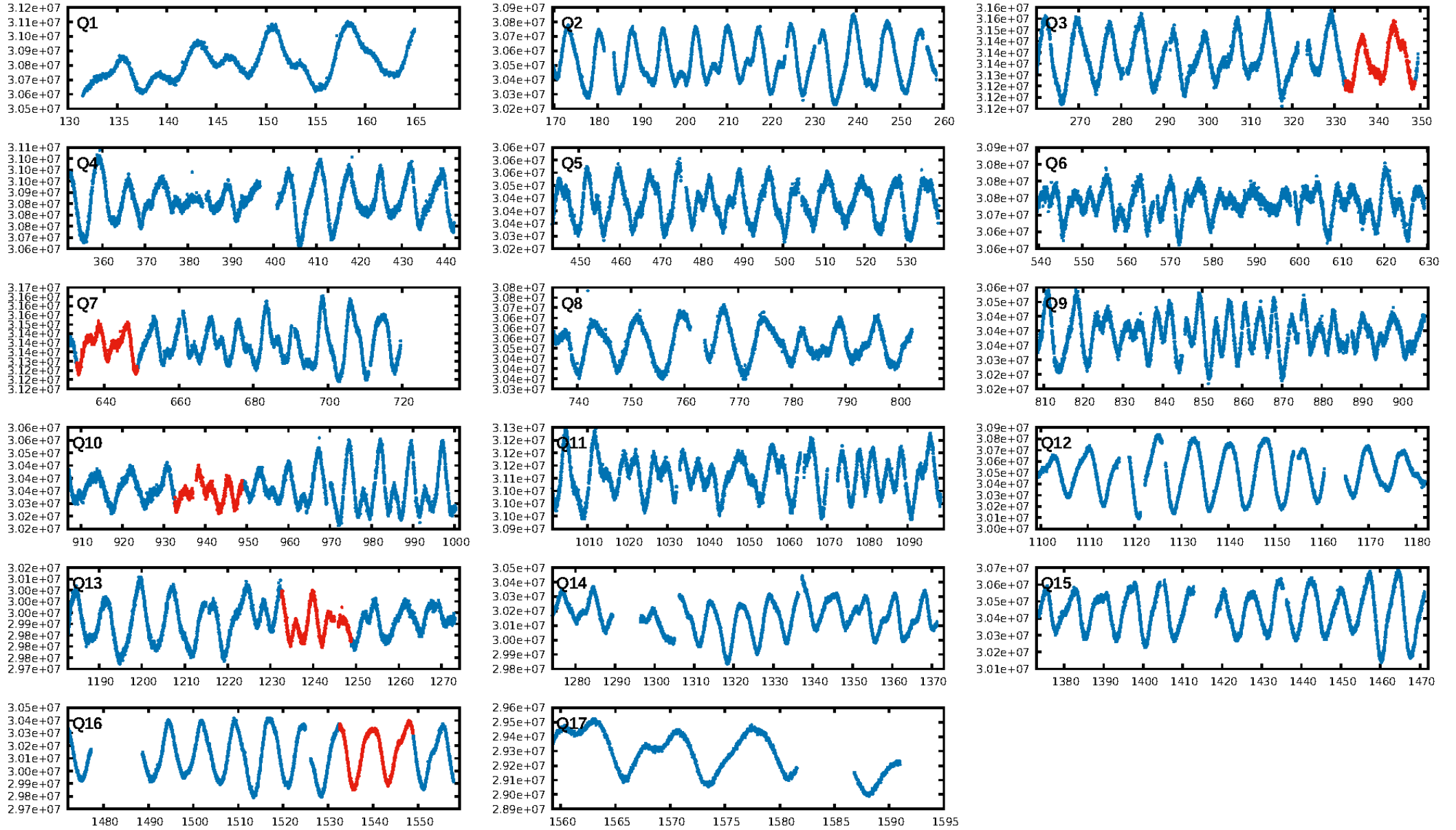
DV Fit Results:

Period = 300.02566 [0.10175] d
Epoch = 340.6412 [0.2626] BKJD
Rp/R* = 0.0216 [0.0050]
a/R* = 6.41 [1.46]
b = 0.87 [0.07]
Seff = 1.89 [0.78]
Teq = 299 [31] K
Rp = 2.58 [1.02] Re
a = 0.9267 [0.2485] AU
Ag = 41196.98 [26889.45] [1.53σ]
Teffp = 6589 [898] K [7.00σ]

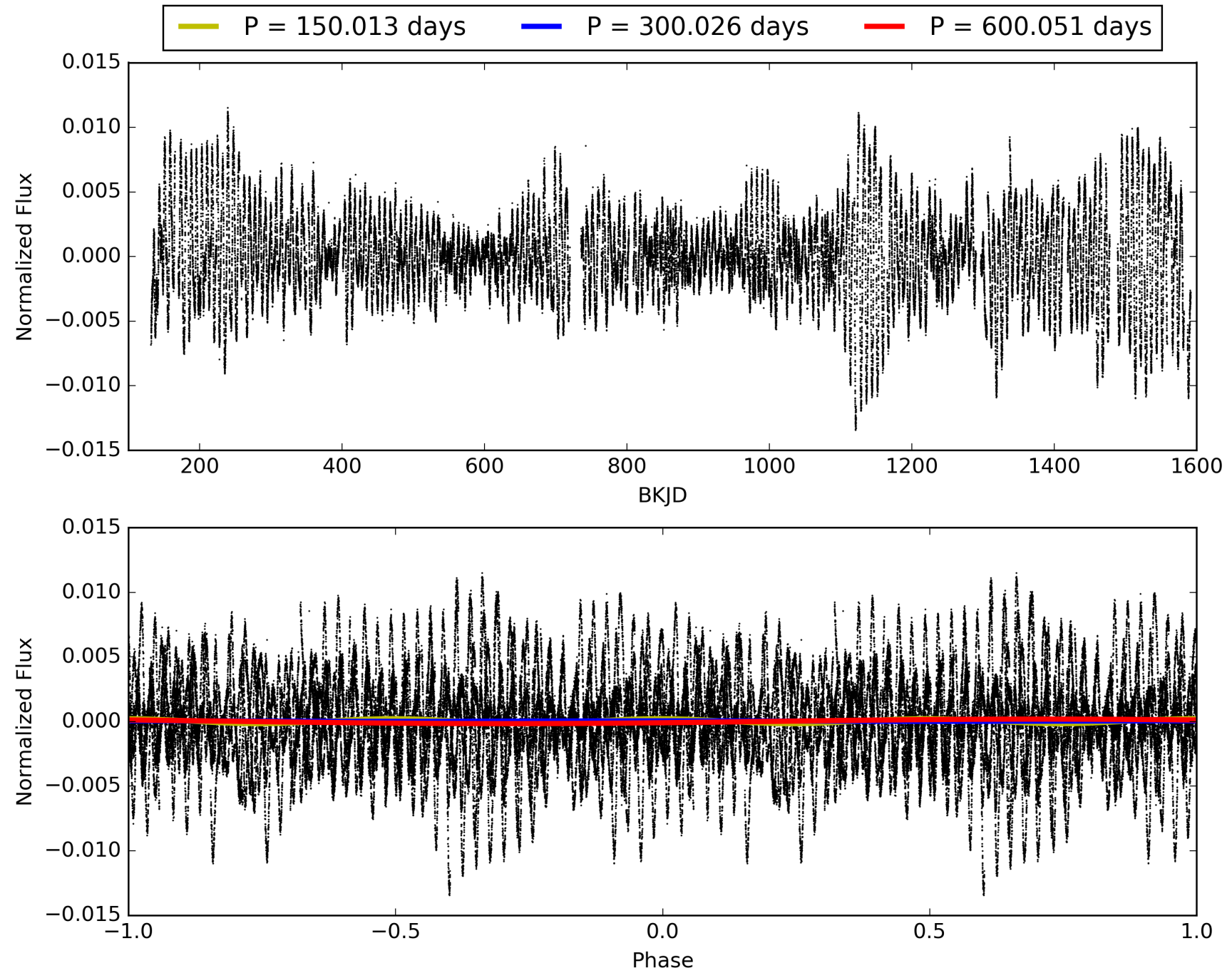
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.59σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 70.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.37e-20
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -4.109
Centroid-sig: 60.5%
Centroid-so: 0.015 arcsec [0.05σ]
OotOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-rm: N/A
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

TCE 009652655-02, PDC Light Curves

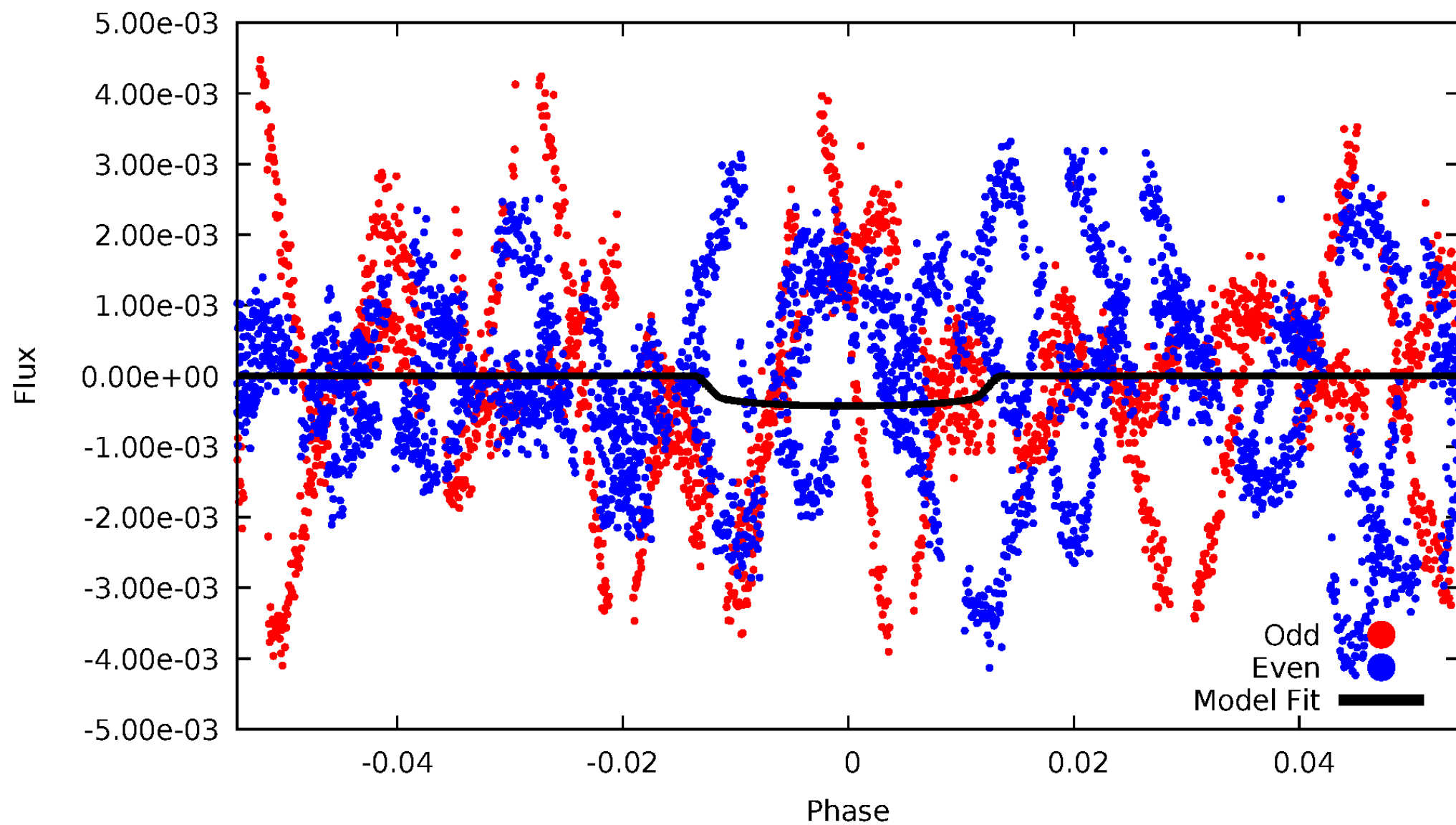


TCE 009652655-02



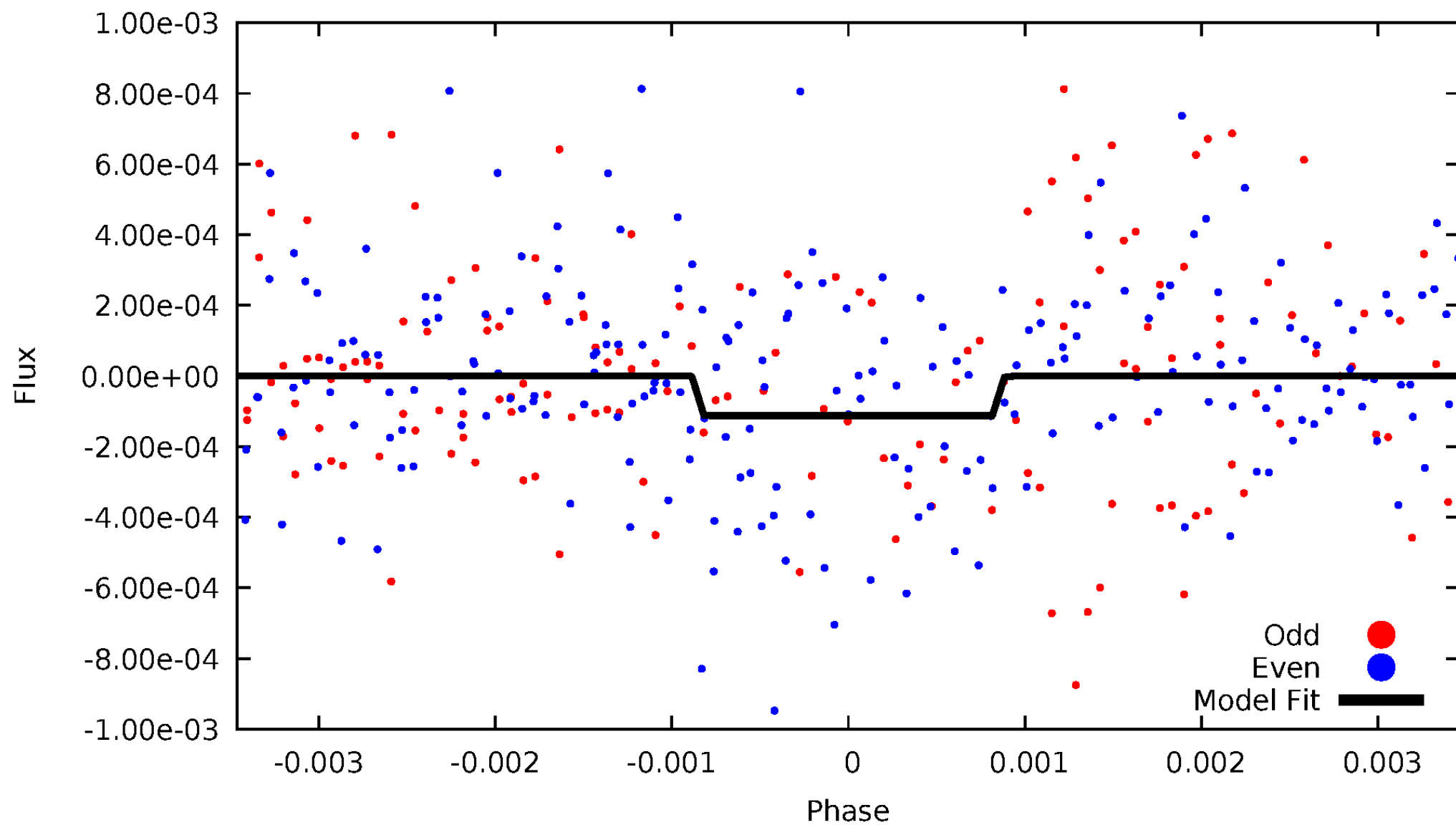
DV Odd/Even

TCE 009652655-02



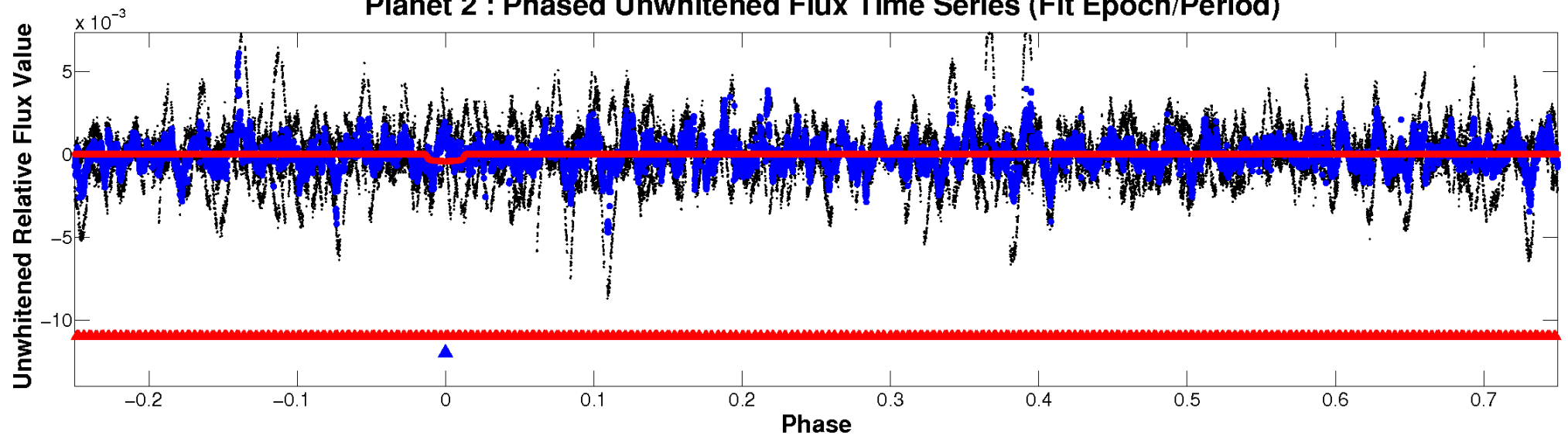
ALT Odd/Even

TCE 009652655-02

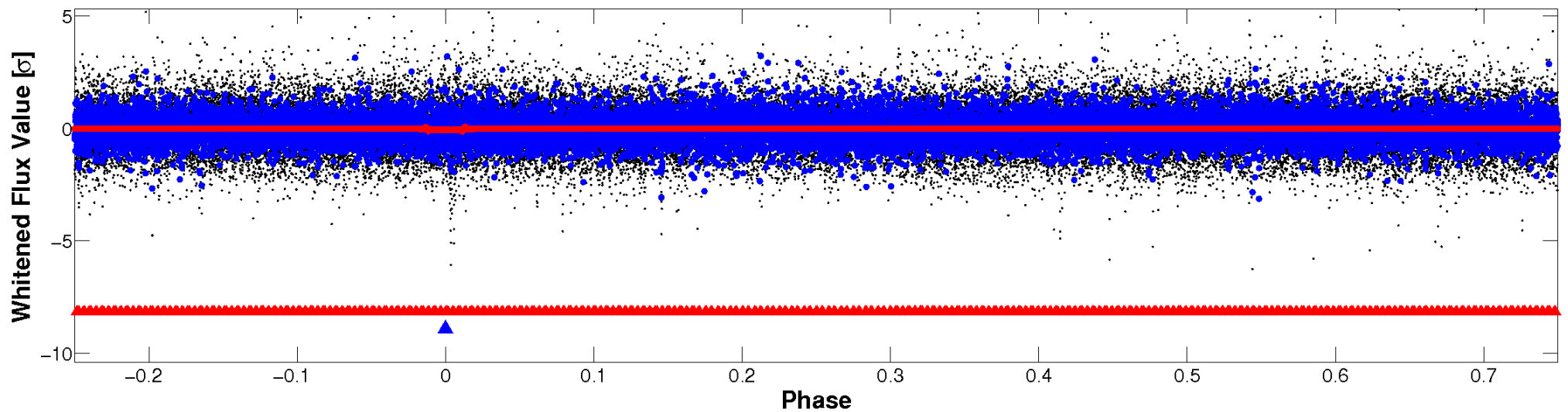


Non-Whitened Vs. Whitened Light Curve

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

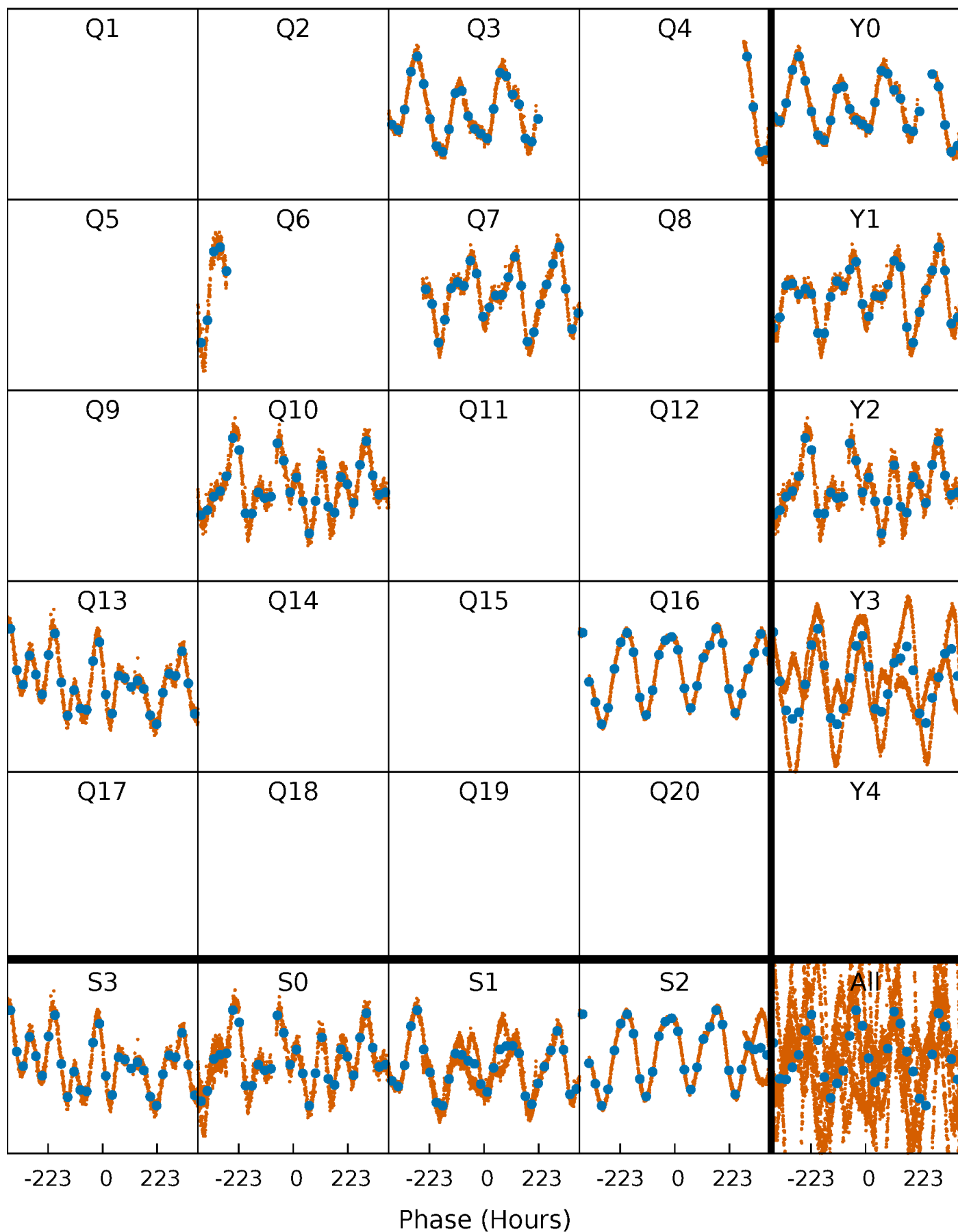


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



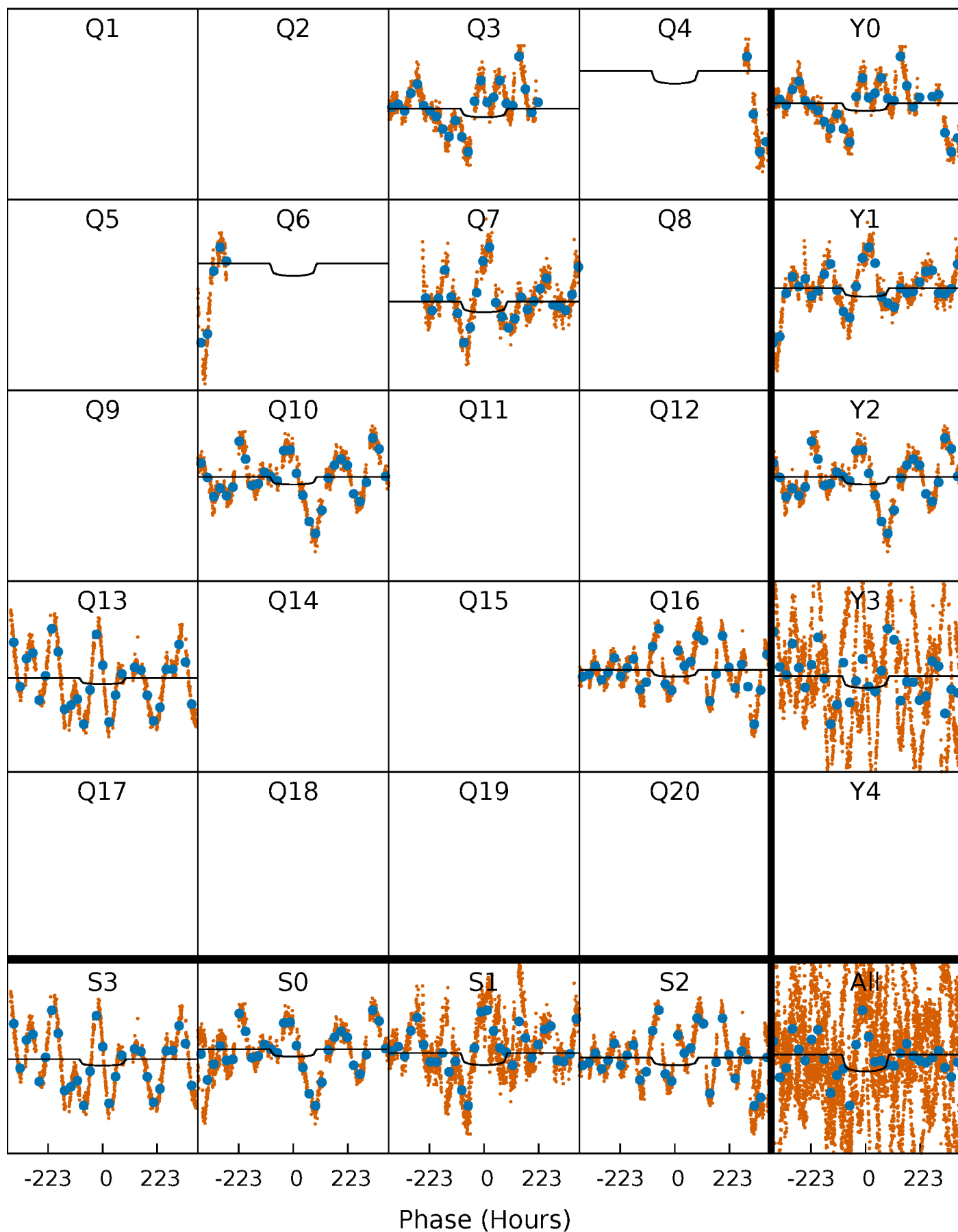
PDC Quarter-Phased Transit Curves

TCE 009652655-02 $P=300.025664$ Days $T_0=340.641233$ (BKJD)



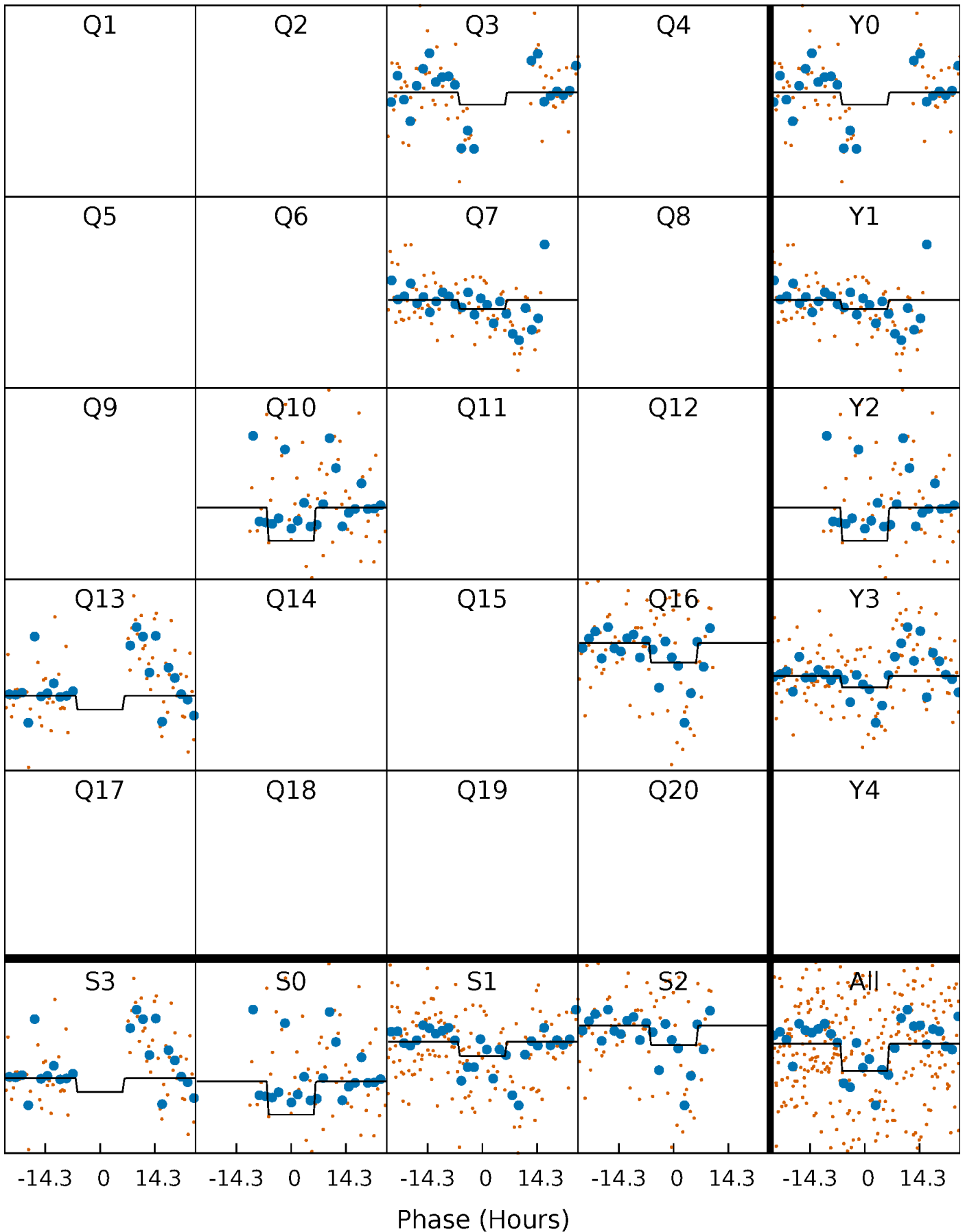
DV Quarter-Phased Transit Curves

TCE 009652655-02 $P=300.025664$ Days $T_0=340.641233$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

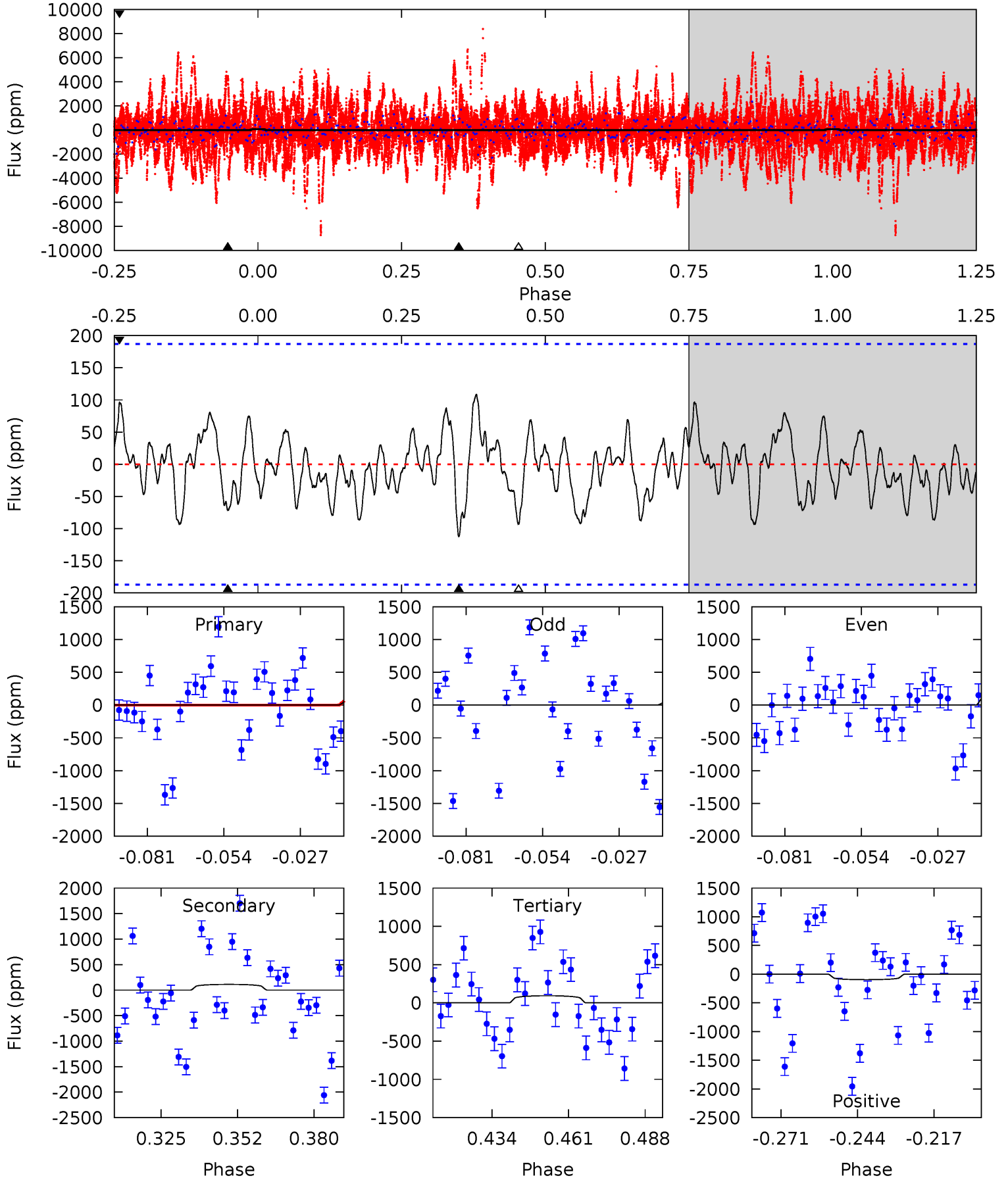
TCE 009652655-02 P=300.393765 Days $T_0=340.959281$ (BKJD)



DV Model-Shift Uniqueness Test

009652655-02, P = 300.025664 Days, E = 40.615569 Days

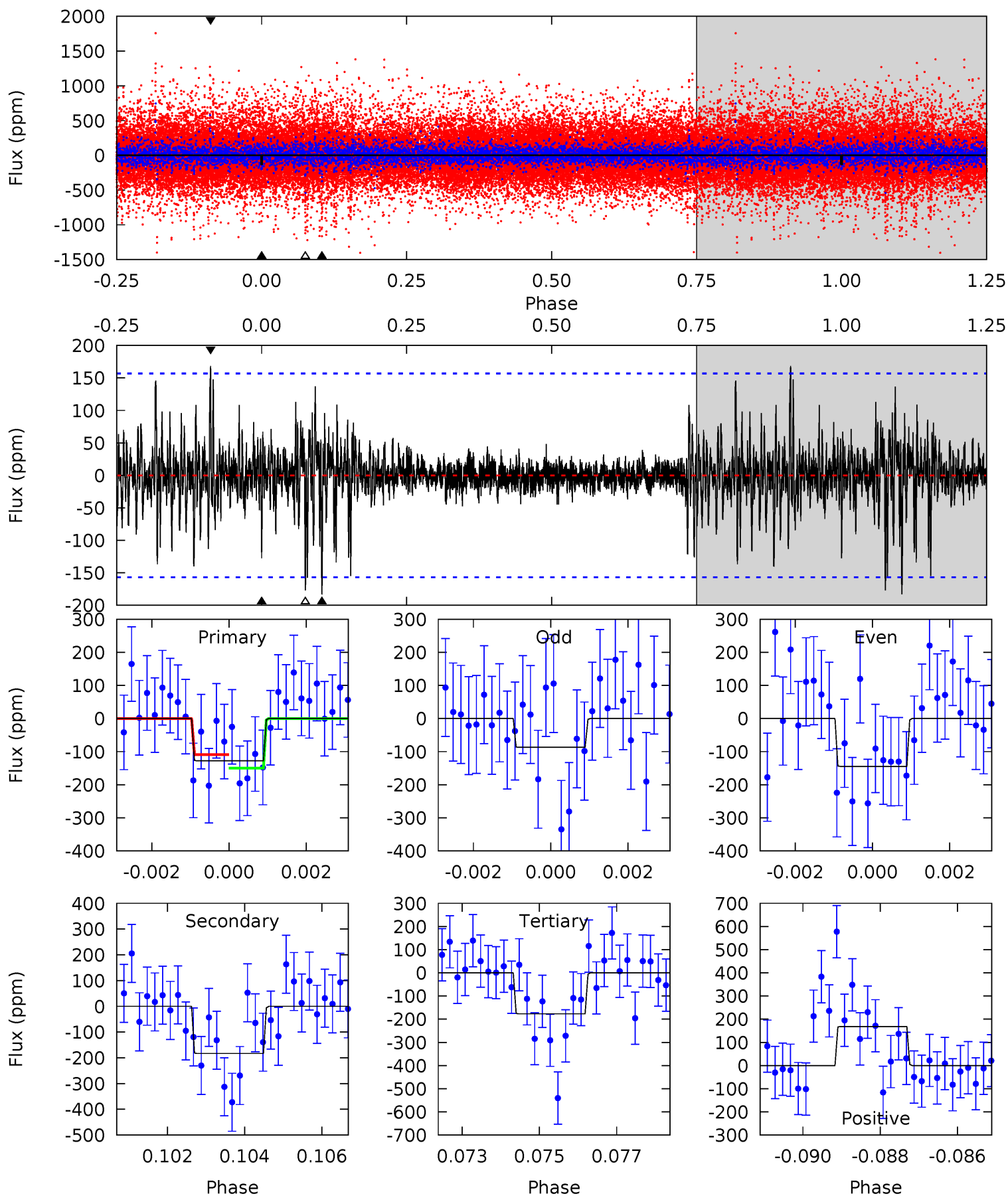
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.84	2.90	2.41	2.48	4.83	2.21	1.04	-0.57	-0.64	0.49	0.42	1.29	0.37	0.49	1.13



Alt Model-Shift Uniqueness Test

009652655-02, $P = 300.393765$ Days, $E = 40.565516$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.35	6.24	6.02	5.74	5.34	3.12	1.02	-1.67	-1.39	0.22	0.50	0.90	1.34	0.48	0.69



Stellar Parameters For KIC 009652655

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6246^{+174}_{-217}	$4.433^{+0.052}_{-0.208}$	$0.070^{+0.250}_{-0.300}$	$1.092^{+0.353}_{-0.118}$	$1.180^{+0.157}_{-0.141}$	$1.276^{+0.343}_{-0.646}$
	+3%/-3%	+1%/-5%	+357%/-429%	+32%/-11%	+13%/-12%	+27%/-51%
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 009652655-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-112 ± 39	$2.72^{+0.75}_{-0.68}$	426^{+34}_{-22}	4516^{+622}_{-485}	6830^{+6494}_{-3138}
Alt.	-183 ± 29	$1.33^{+0.64}_{-0.61}$	425^{+33}_{-21}	7021^{+3675}_{-1330}	$46800^{+118957}_{-25798}$

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 $A_{obs} \gg 1.0$

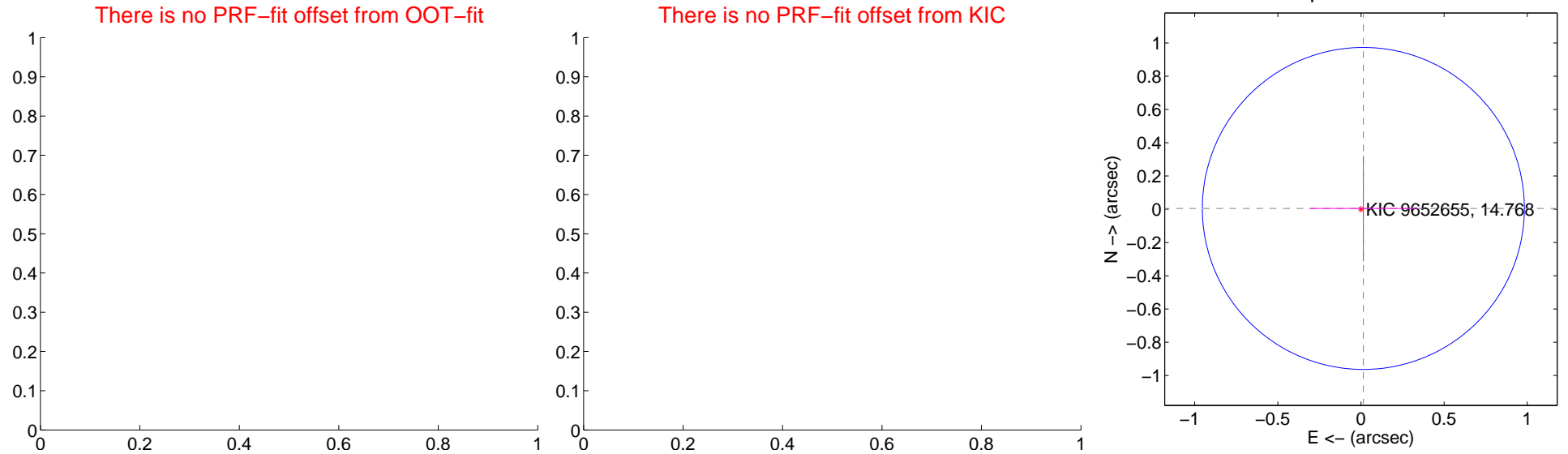
DV Centroid Data

Supplemental centroid analysis for 009652655-02. Kepler magnitude: 14.77. Transit SNR 2.33

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	0.02 ± 0.32	0.05	-0.01 ± 0.32	0.00 ± 0.32



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.



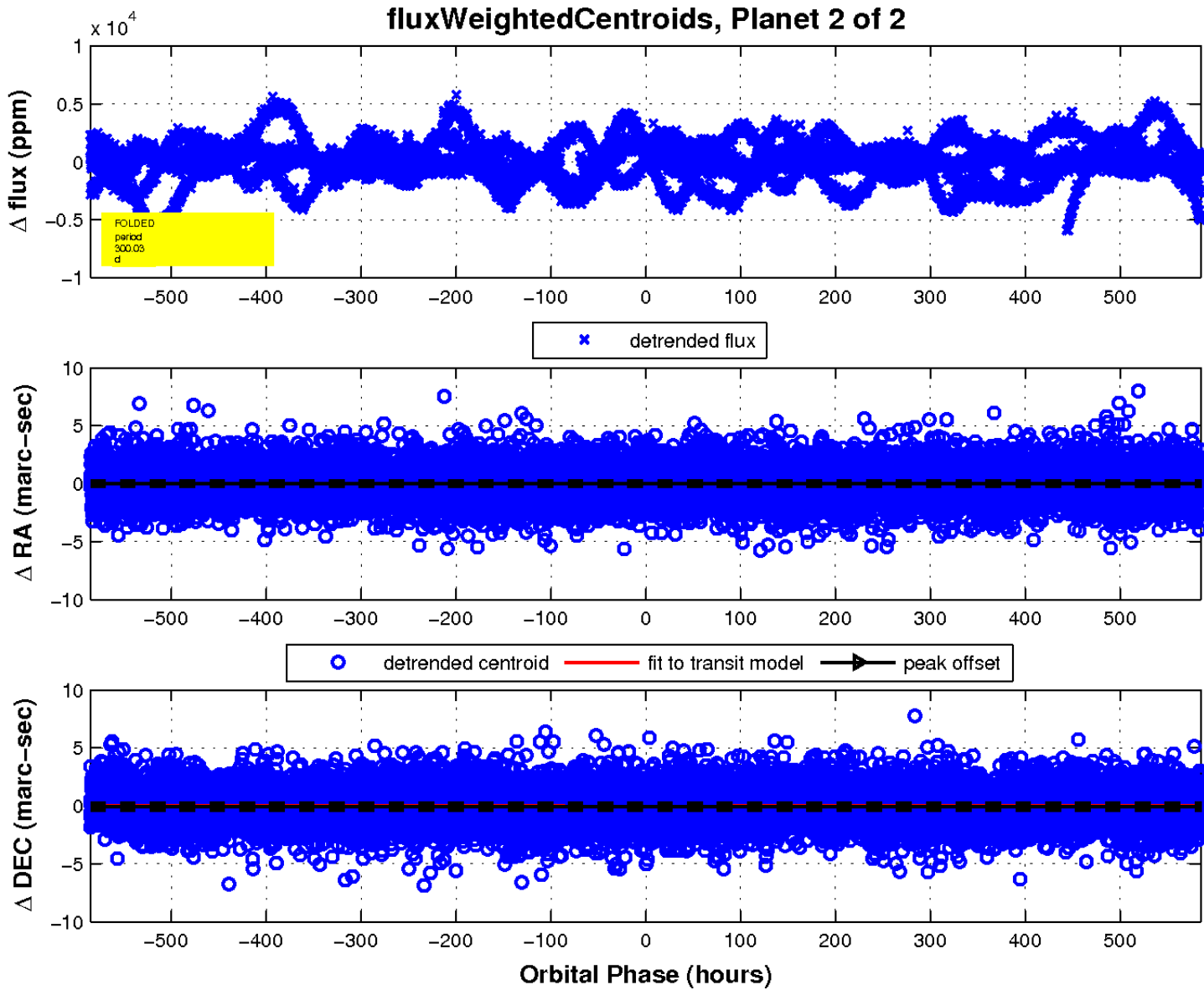
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination

