

KIC 009655711

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})
009655711-01	OBS	6209.01	12.714240	134.803602	481.8	3.414	9.1	9.5	0.96	5947	2.29	89.91
009655711-02	OBS	6209.02	7.729567	138.926278	377.0	2.748	7.7	8.8	0.96	5947	2.00	174.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655711-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009655711-02	OBS	PC	0.61	0	0	0	0	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 009655711-01

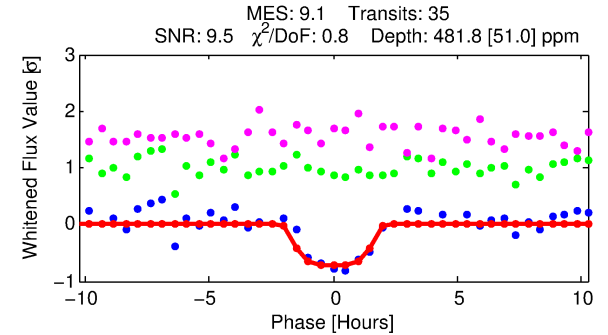
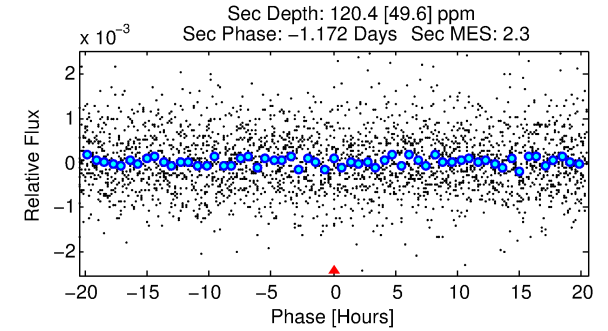
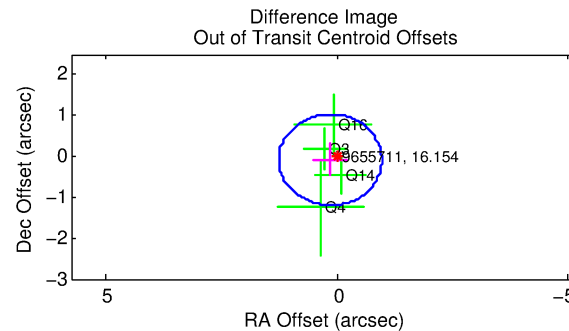
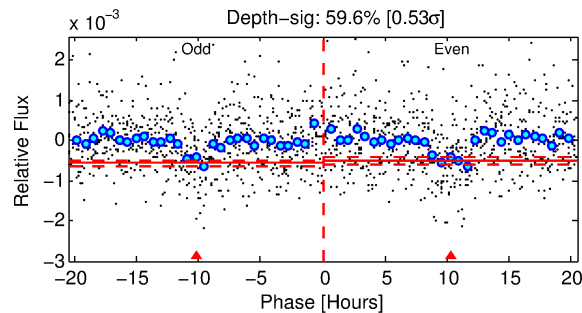
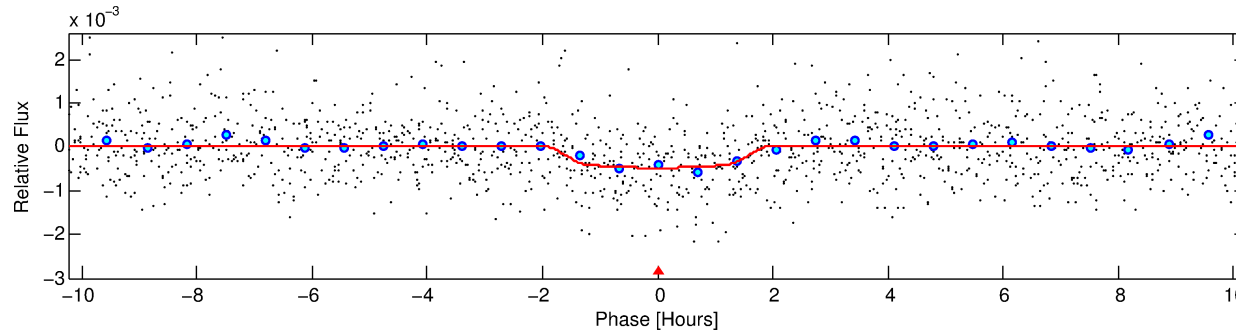
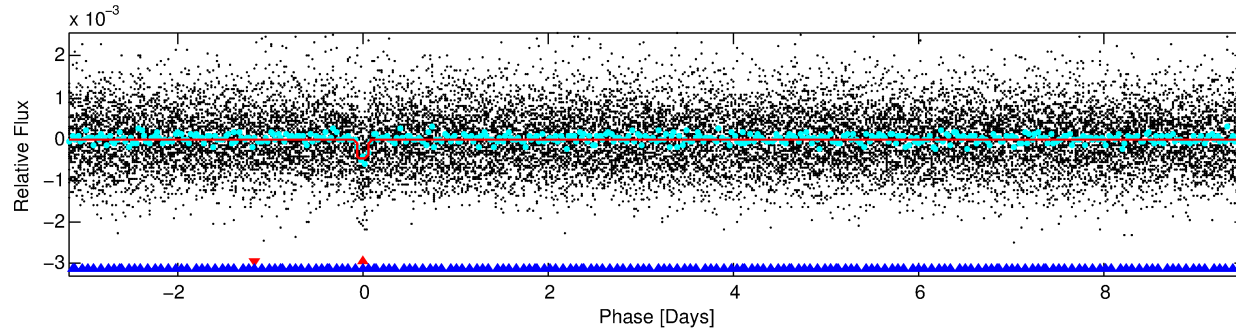
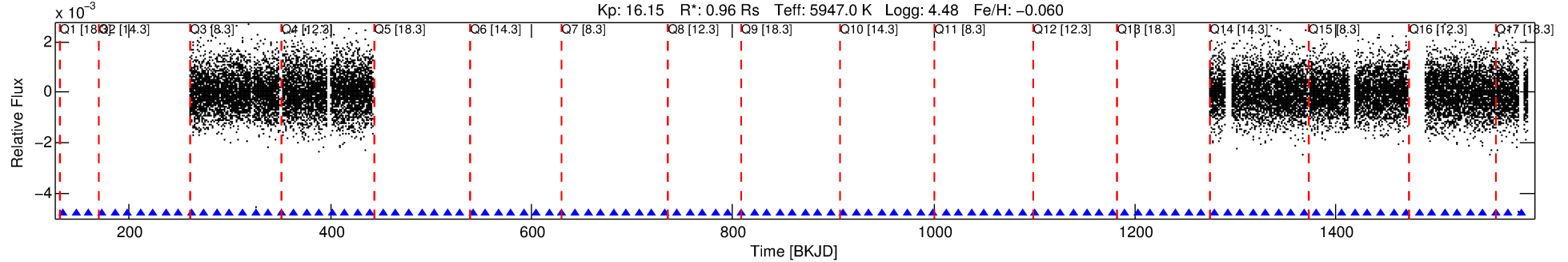
No Significant Match Found

DV One-Page Summary

KIC: 9655711 Candidate: 1 of 2 Period: 12.714 d

KOI: K06209.01 Corr: 0.962

Kp: 16.15 R*: 0.96 Rs Teff: 5947.0 K Logg: 4.48 Fe/H: -0.060



DV Fit Results:

Period = 12.71424 [0.00010] d
Epoch = 134.8036 [0.0077] BKJD
Rp/R* = 0.0218 [0.0258]
a/R* = 19.94 [110.45]
b = 0.74 [3.38]
Seff = 89.91 [38.12]
Teq = 785 [83] K
Rp = 2.29 [2.81] Re
a = 0.1074 [0.0293] AU
Ag = 145.88 [355.17] [0.41σ]
Teffp = 4219 [2539] K [1.35σ]

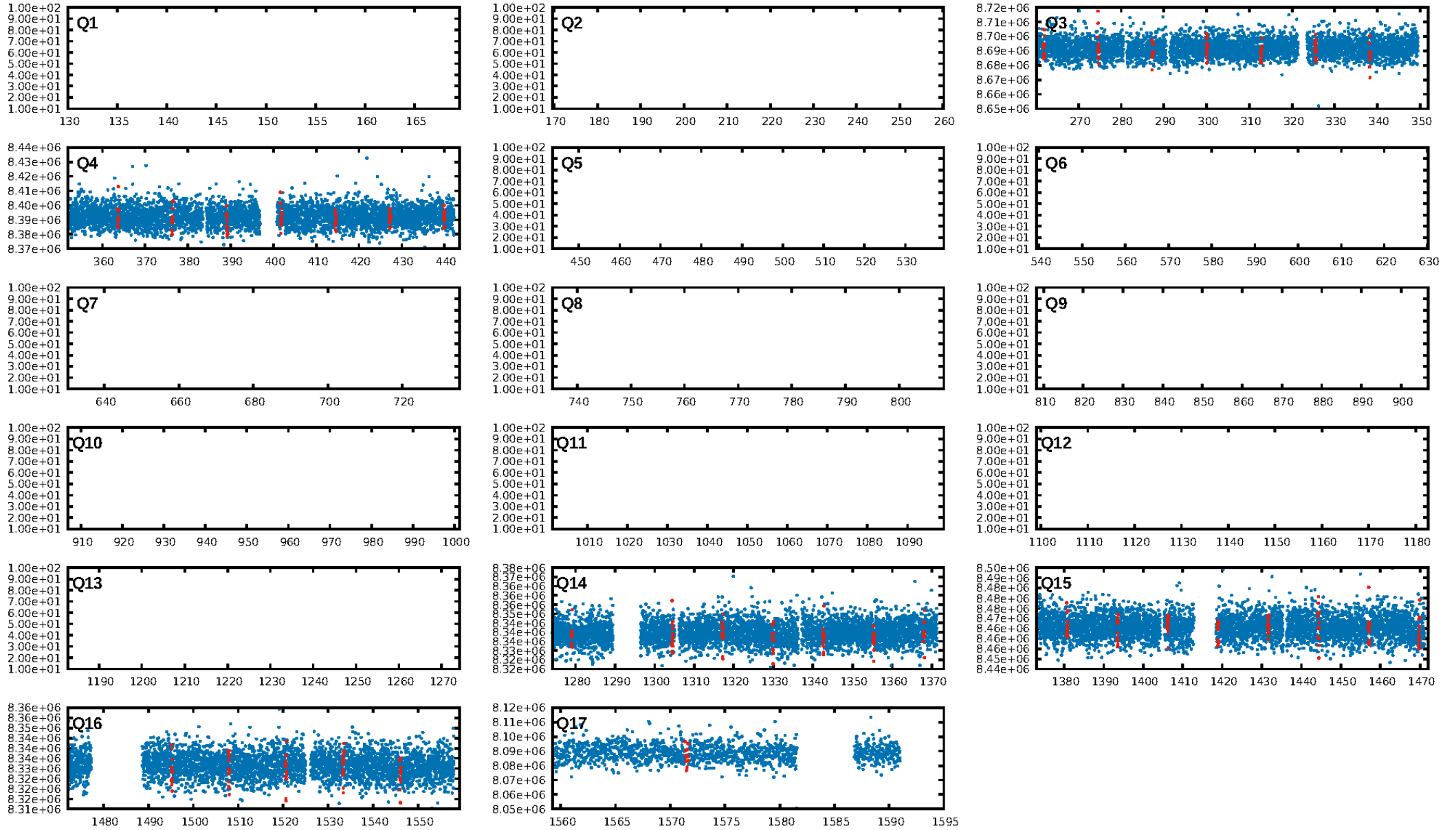
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.29σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.20e-19
RollingBand-fgt: 1.00 [34/34]
GhostDiagnostic-chr: -0.9308
Centroid-sig: 31.0%
Centroid-so: 1.914 arcsec [1.12σ]
OotOffset-rm: 0.169 arcsec [0.45σ]
KicOffset-rm: 0.196 arcsec [0.54σ]
OotOffset-st: 1/1/2/0 [4]
KicOffset-st: 1/1/2/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [6/6]

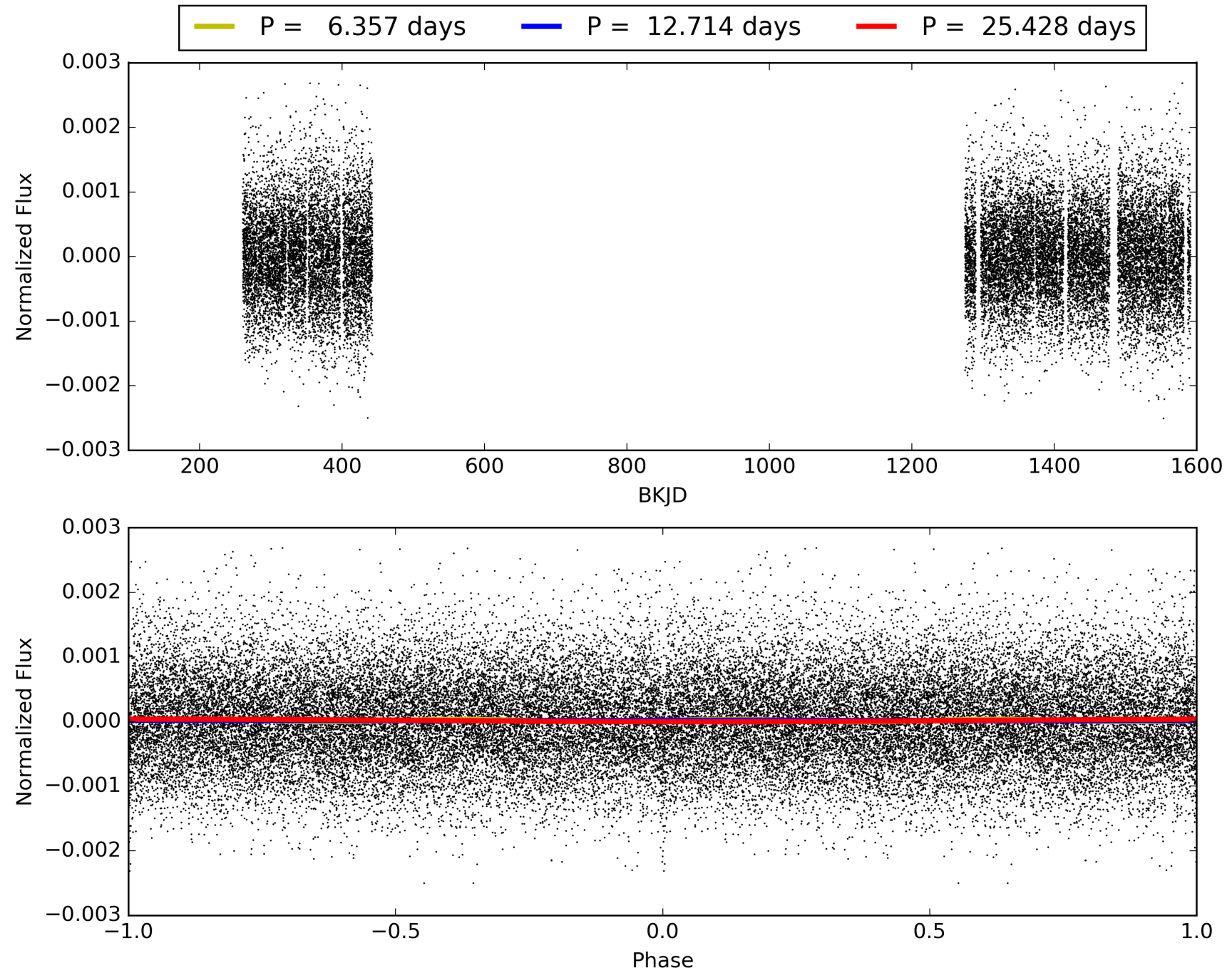
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:21:13 Z

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

TCE 009655711-01, PDC Light Curves

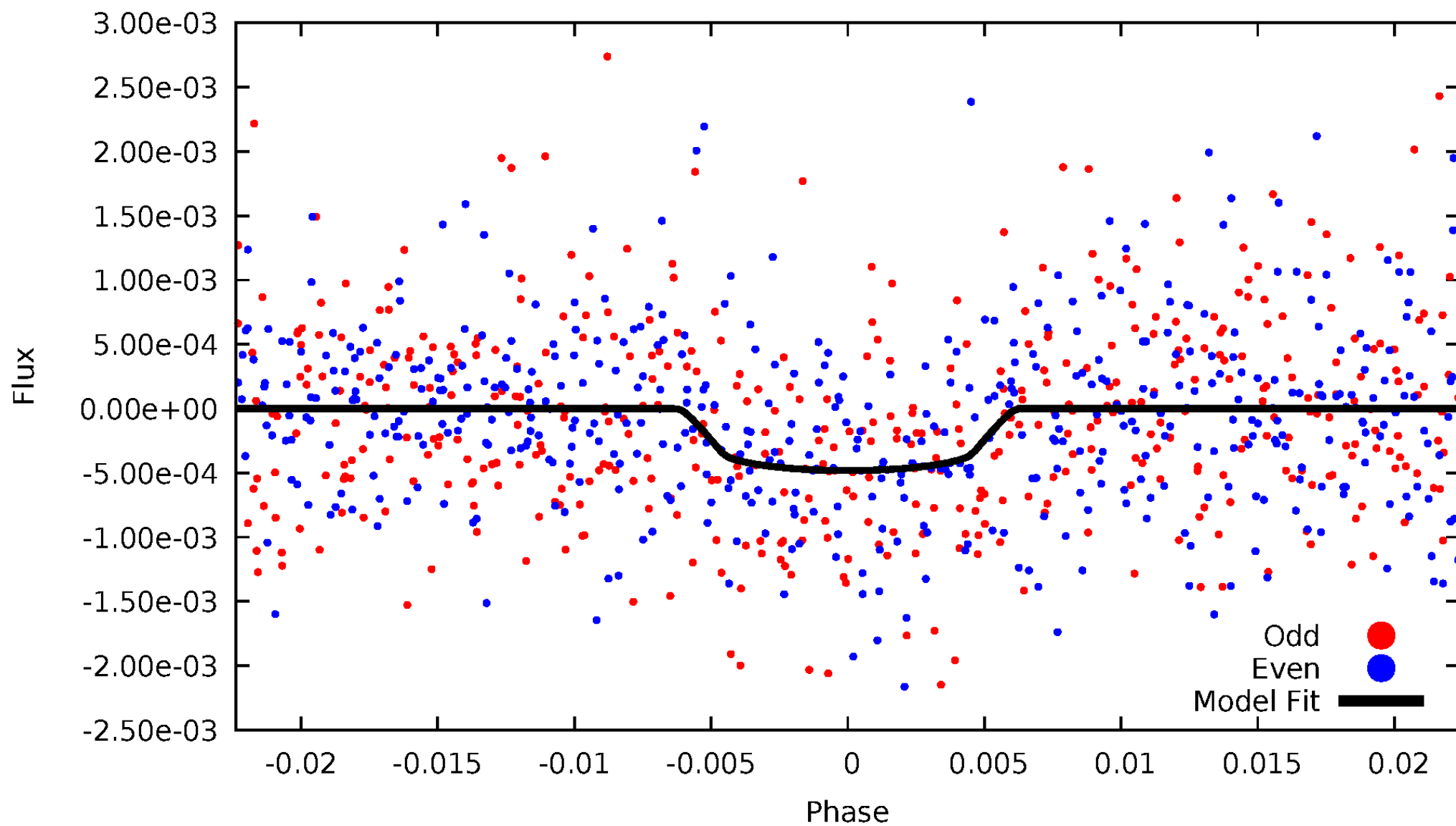


TCE 009655711-01



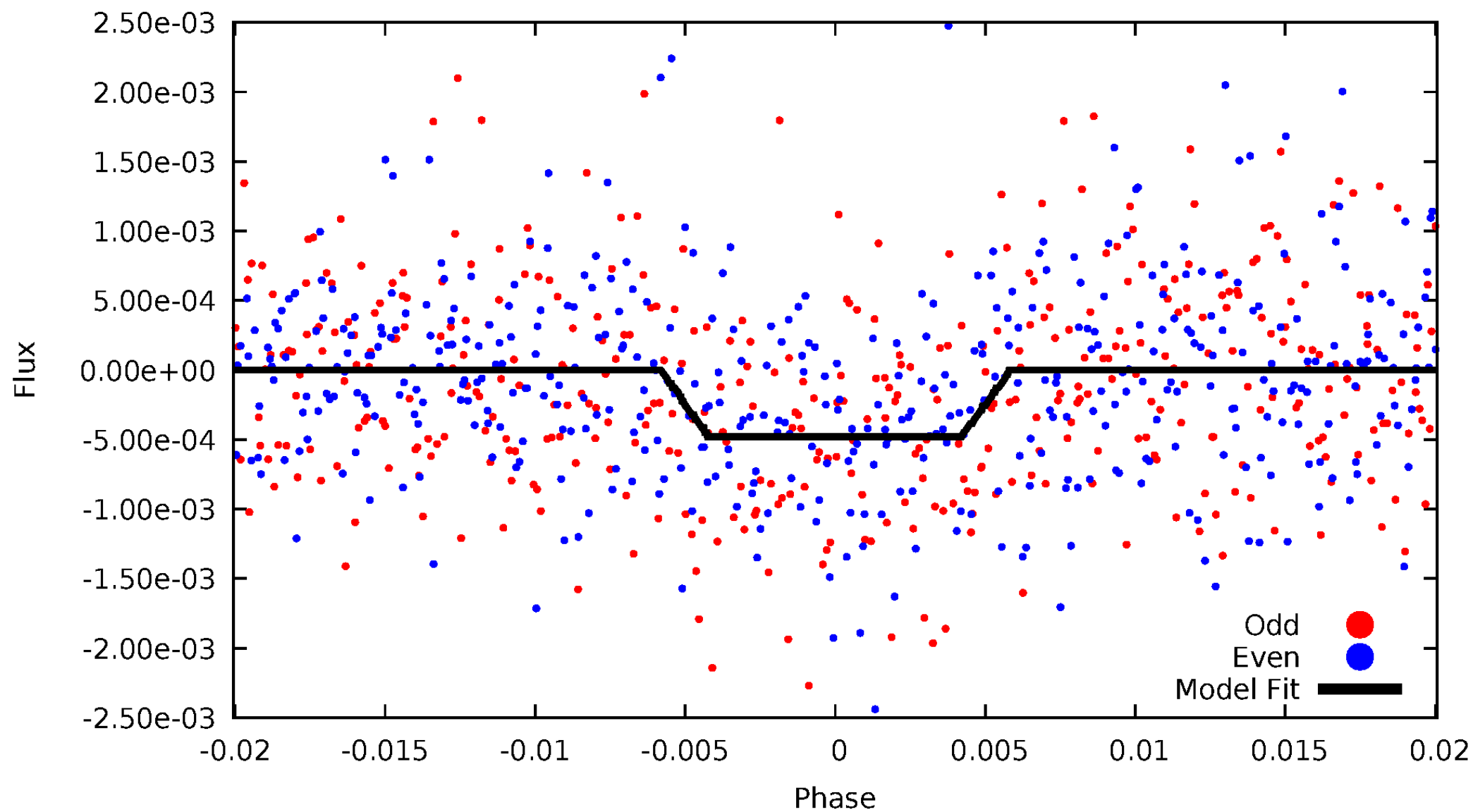
DV Odd/Even

TCE 009655711-01



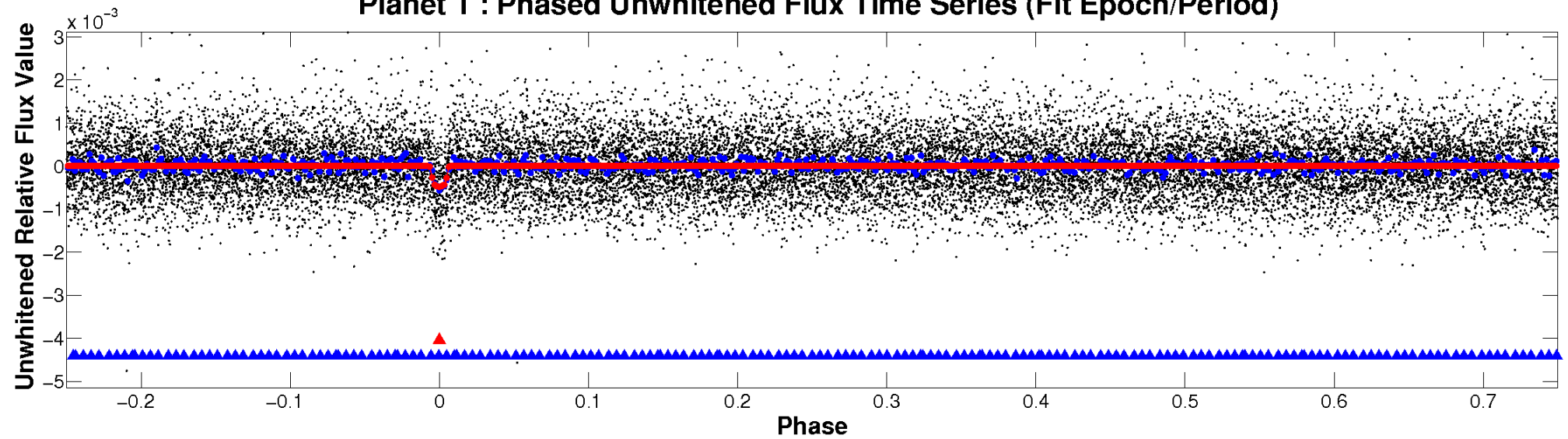
ALT Odd/Even

TCE 009655711-01

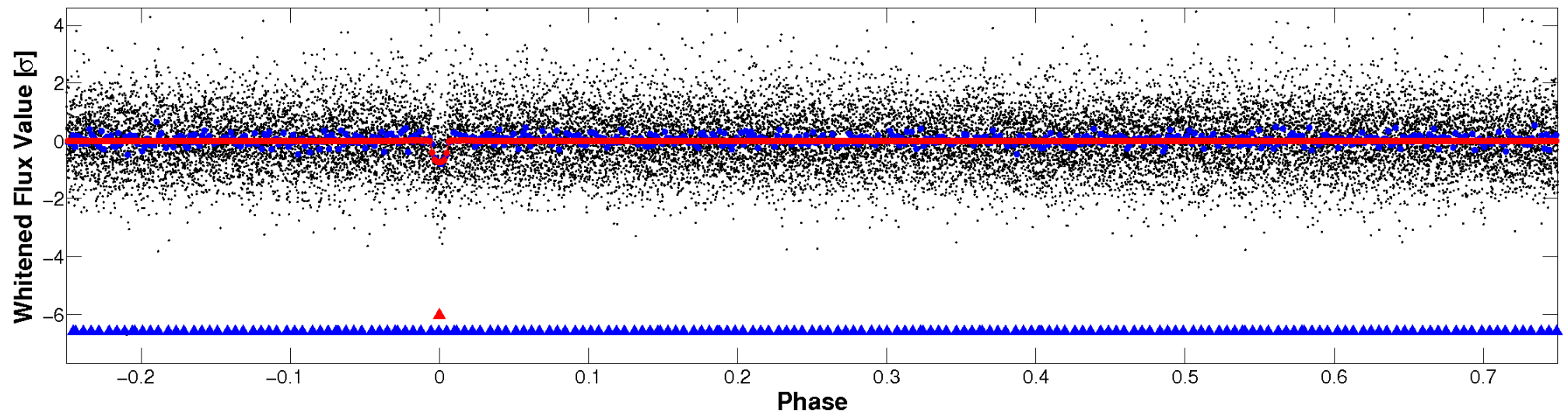


Non-Whitened Vs. Whitened Light Curve

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

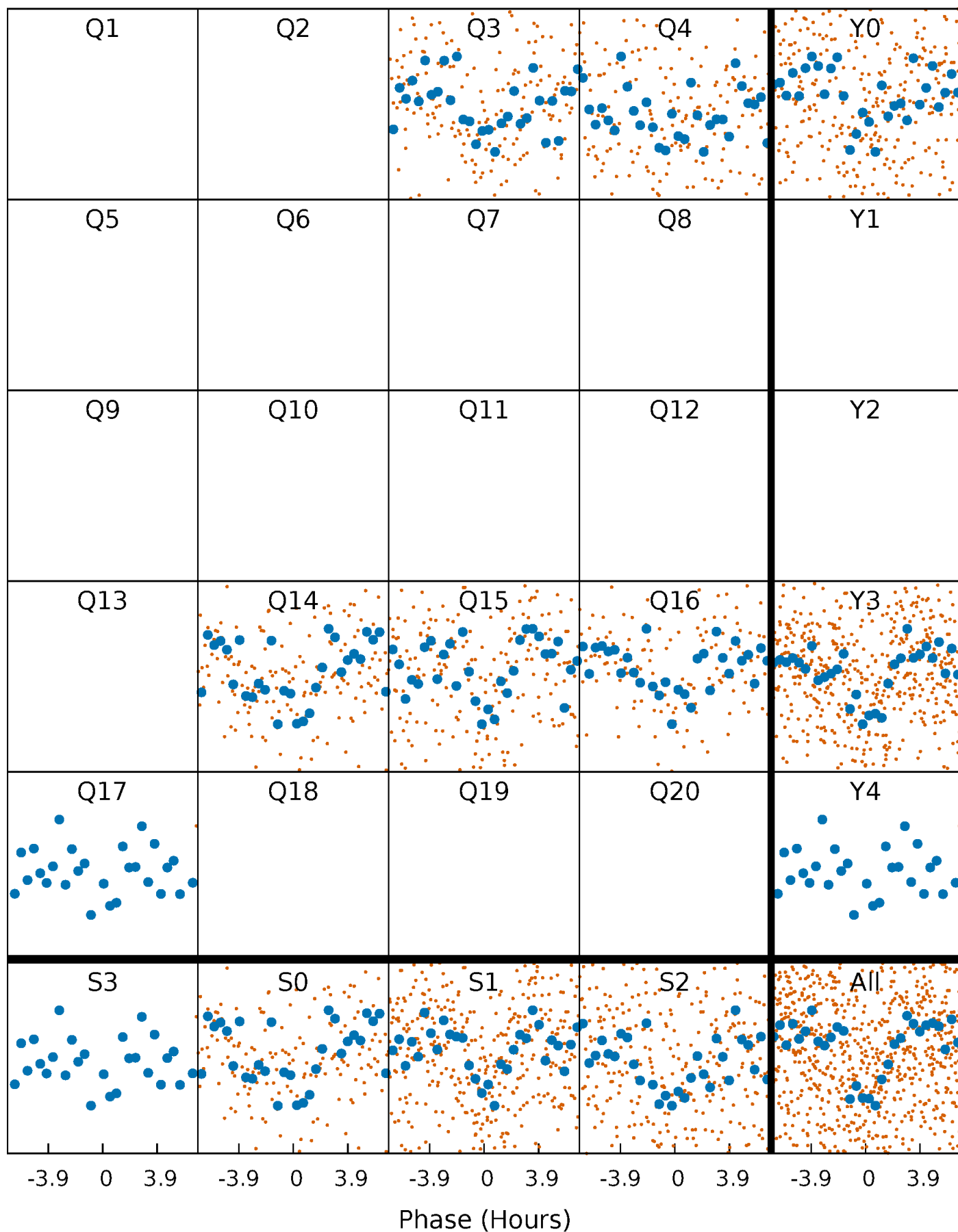


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



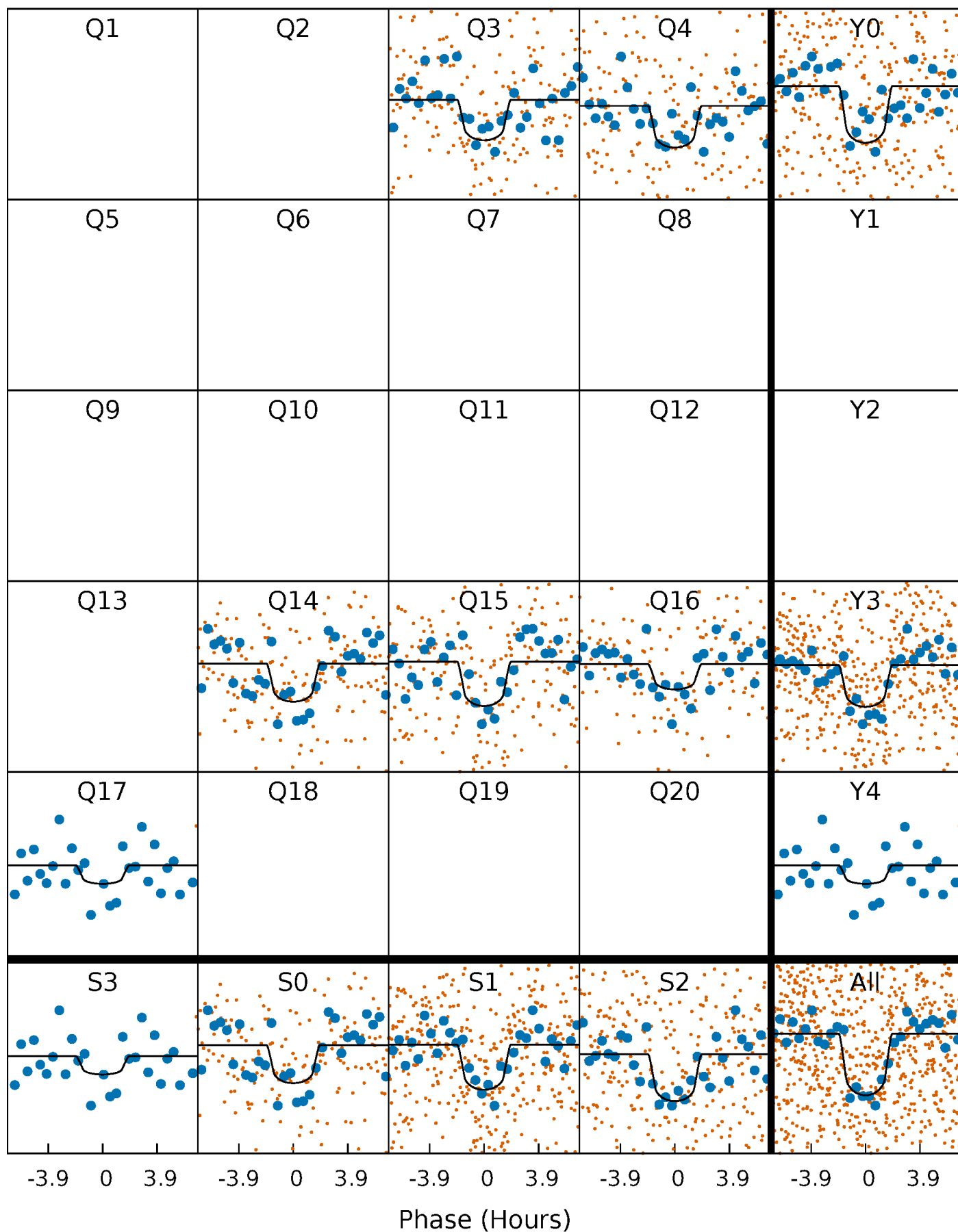
PDC Quarter-Phased Transit Curves

TCE 009655711-01 P= 12.714240 Days $T_0=134.803602$ (BKJD)



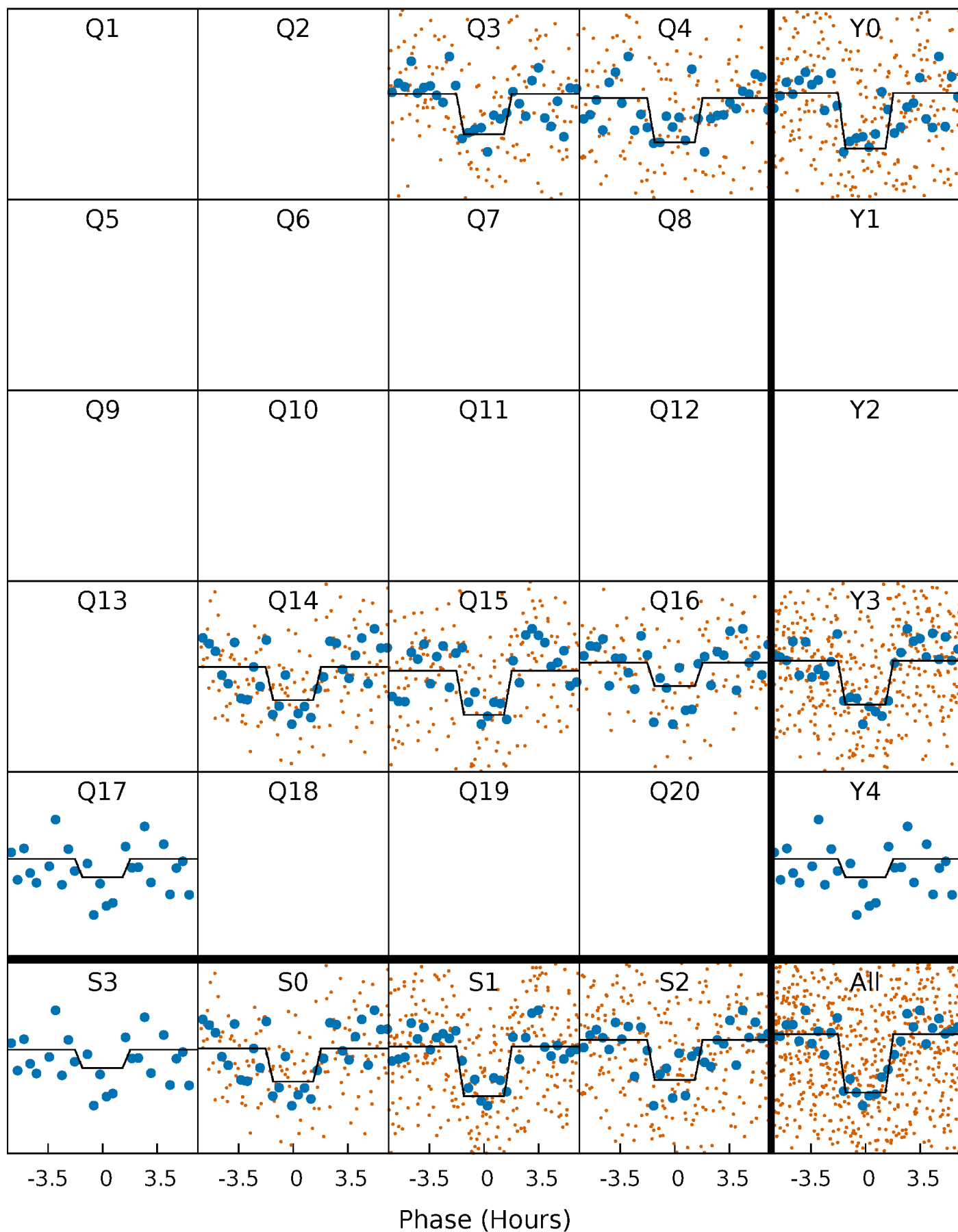
DV Quarter-Phased Transit Curves

TCE 009655711-01 P= 12.714240 Days $T_0=134.803602$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

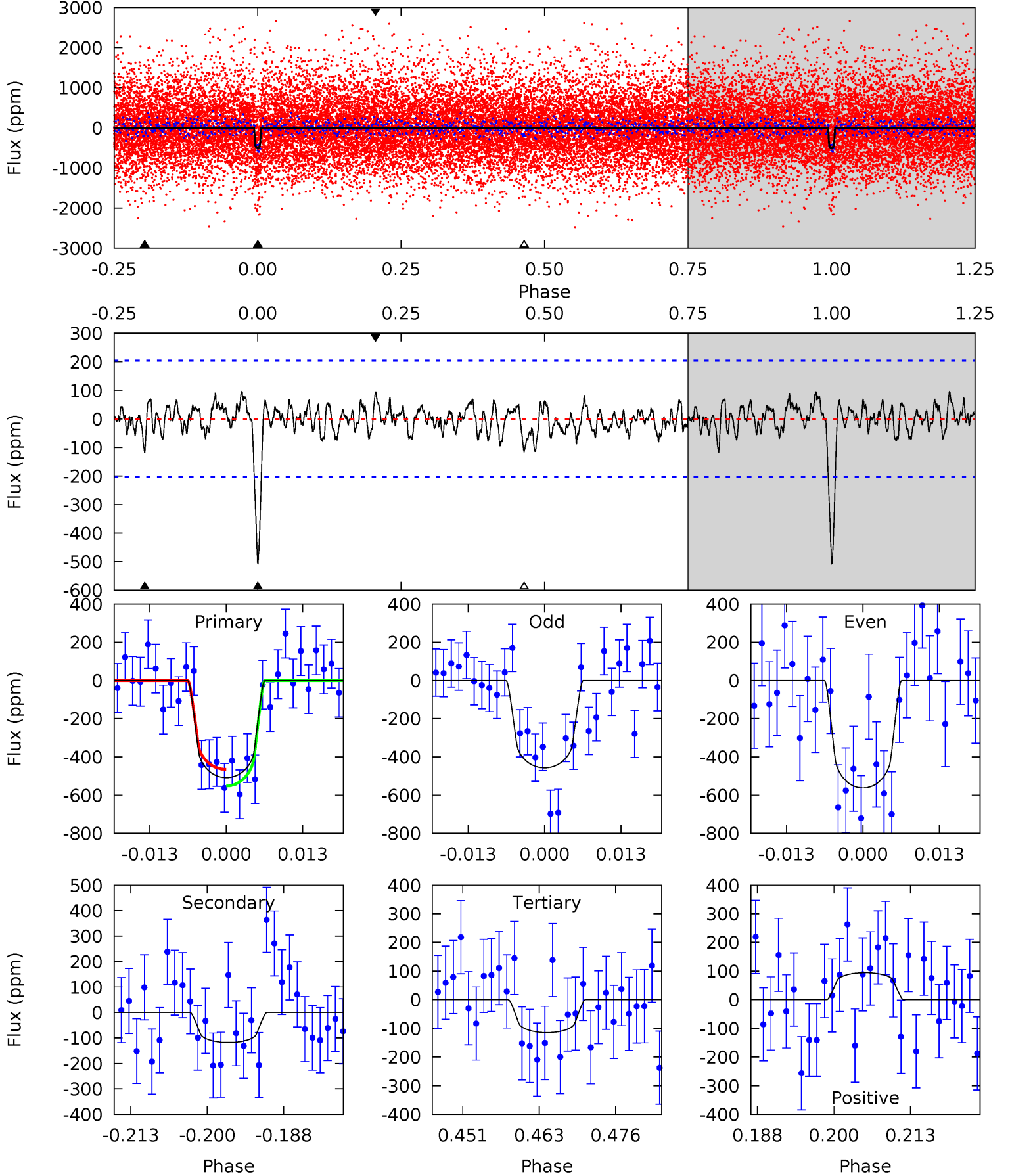
TCE 009655711-01 P= 12.714161 Days $T_0=134.814439$ (BKJD)



DV Model-Shift Uniqueness Test

009655711-01, $P = 12.714240$ Days, $E = 134.803602$ Days

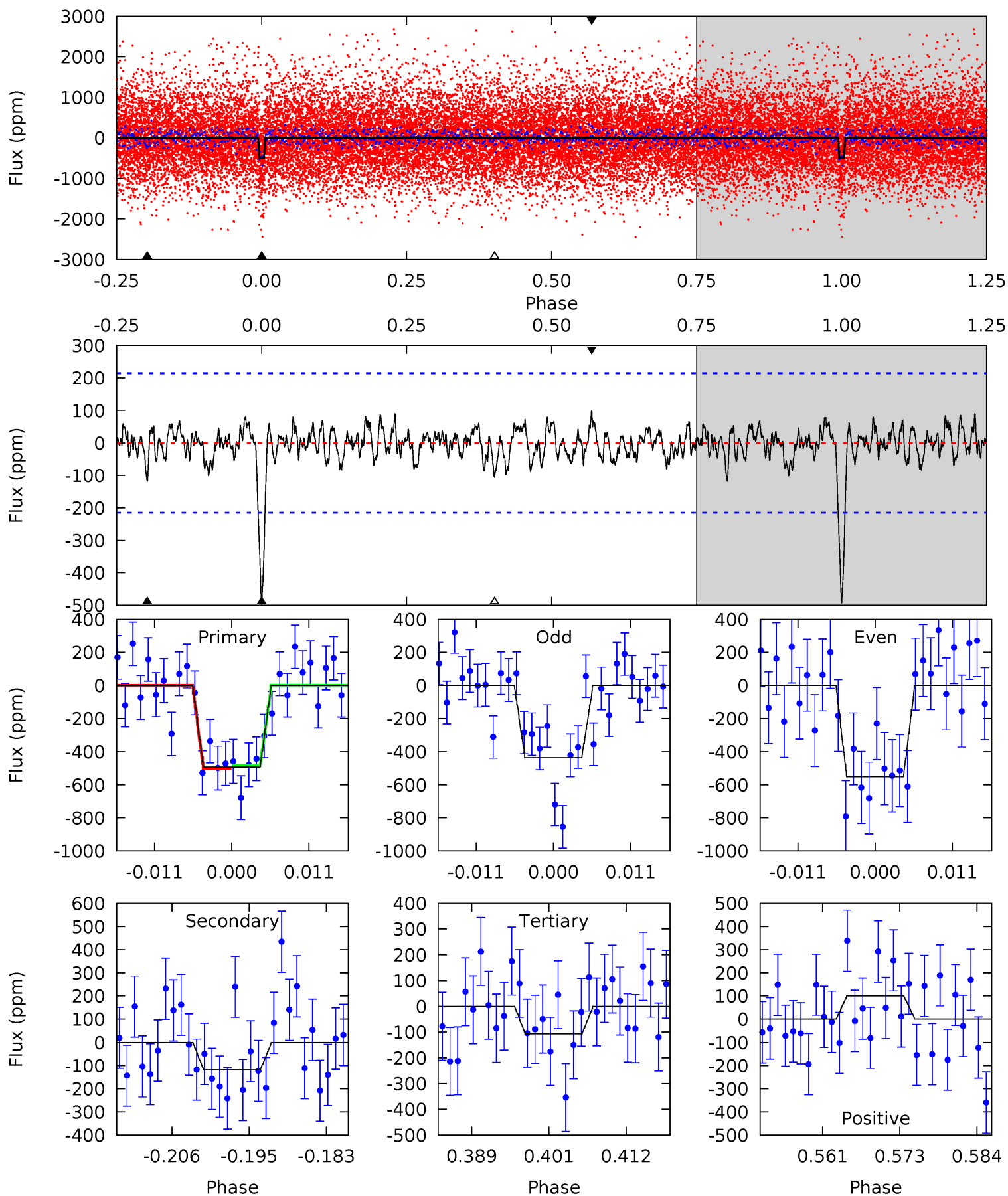
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	2.88	2.80	2.31	4.98	2.50	0.92	9.63	10.1	0.08	0.58	1.29	1.09	0.16	1.06



Alt Model-Shift Uniqueness Test

009655711-01, P = 12.714161 Days, E = 134.814439 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	2.75	2.48	2.33	5.00	2.53	0.86	8.99	9.14	0.26	0.41	1.32	1.10	0.17	0.21



Stellar Parameters For KIC 009655711

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5947^{+184}_{-226}	$4.481^{+0.054}_{-0.216}$	$-0.060^{+0.250}_{-0.300}$	$0.962^{+0.312}_{-0.104}$	$1.022^{+0.140}_{-0.140}$	$1.618^{+0.458}_{-0.845}$
	+3%/-4%	+1%/-5%	+417%/-500%	+32%/-11%	+14%/-14%	+28%/-52%
Source	KIC0	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 009655711-01 / KOI 6209.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-118 ± 41	$3.02^{+2.77}_{-1.90}$	1120^{+92}_{-55}	3995^{+2128}_{-786}	74^{+482}_{-55}
Alt.	-118 ± 43	$3.18^{+2.54}_{-1.98}$	1127^{+86}_{-60}	3943^{+2035}_{-709}	70^{+447}_{-50}

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

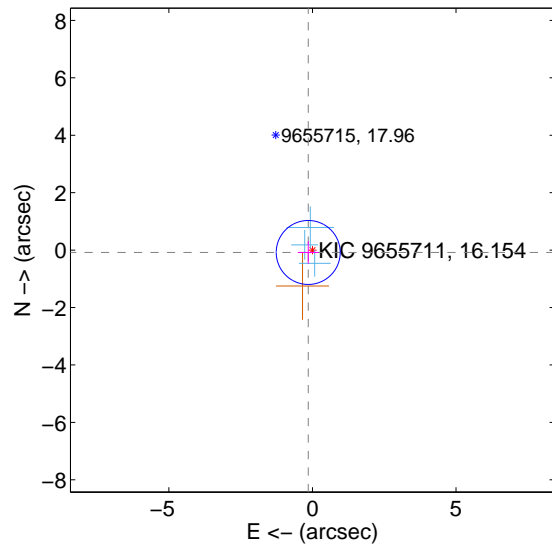
Supplemental centroid analysis for 009655711-01. Kepler magnitude: 16.15. Transit SNR 9.49

There are 3 quarters with good PRF difference image offsets

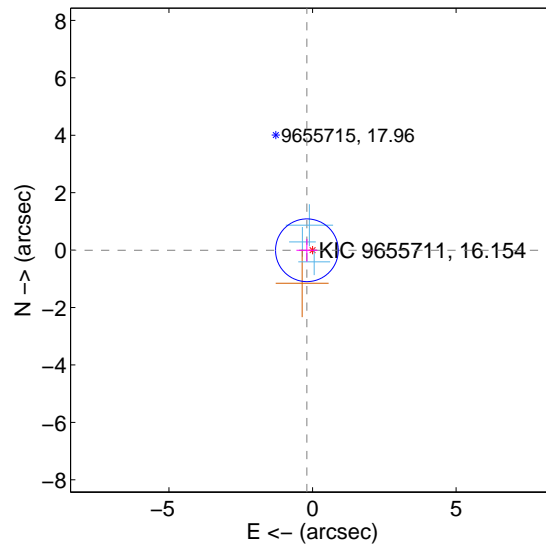
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.169 ± 0.371	0.45	0.147 ± 0.364	-0.083 ± 0.393
PRF-fit source offset from KIC position	0.196 ± 0.364	0.54	0.196 ± 0.364	-0.006 ± 0.393
photometric centroid source offset	1.91 ± 1.70	1.12	1.62 ± 1.60	-1.03 ± 1.93

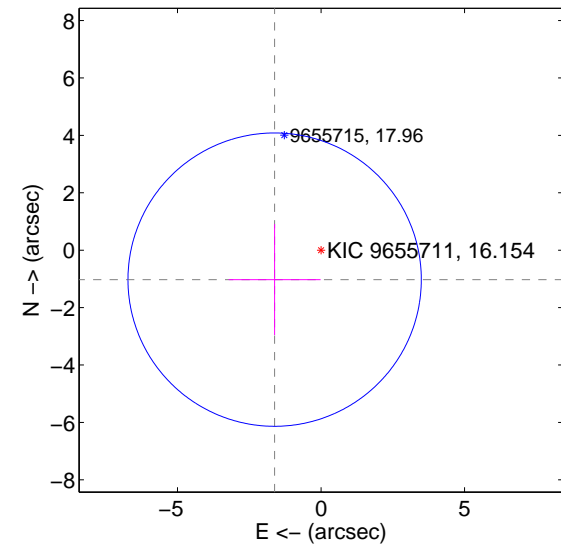
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

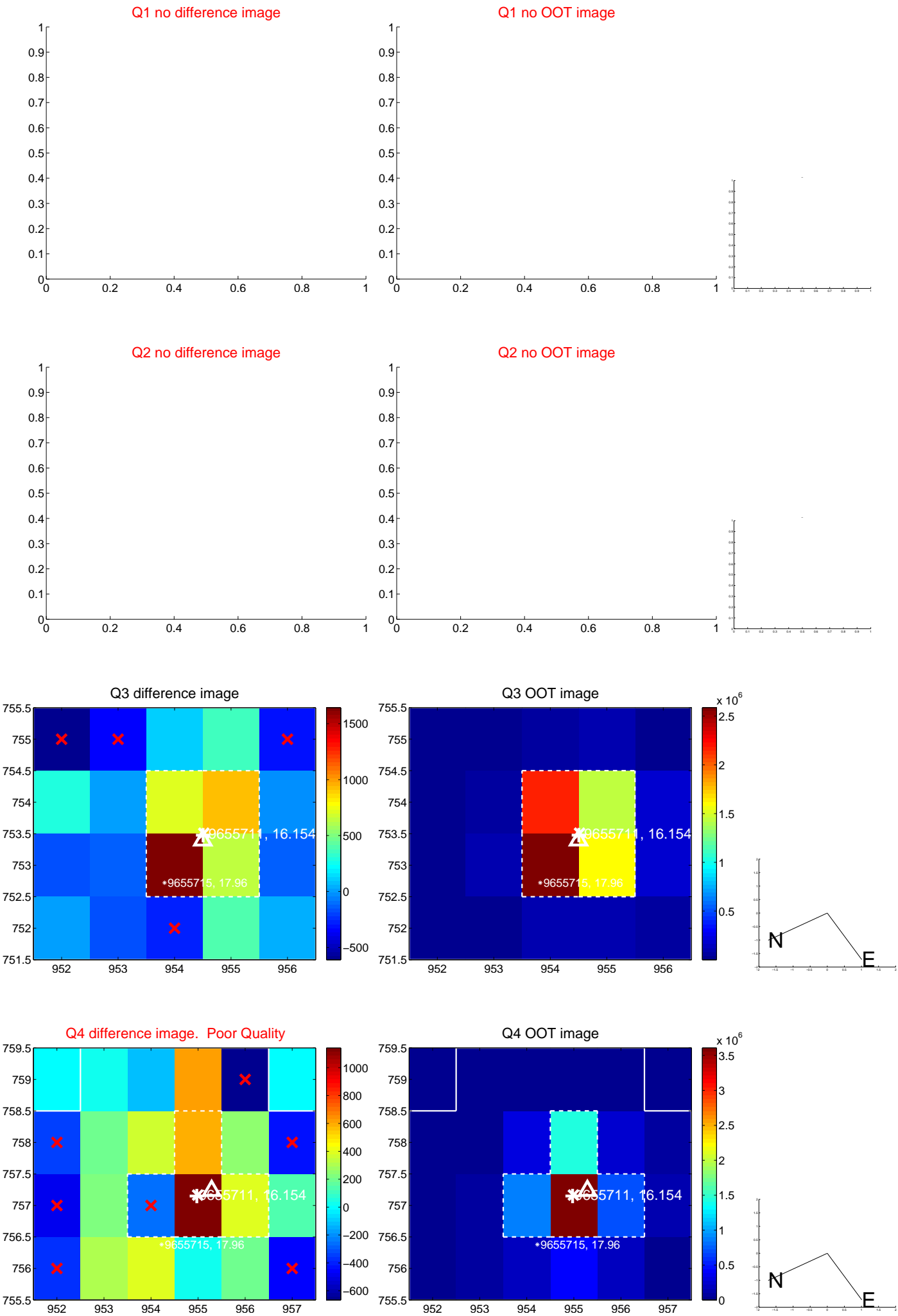


offset from photometric centroids



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

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



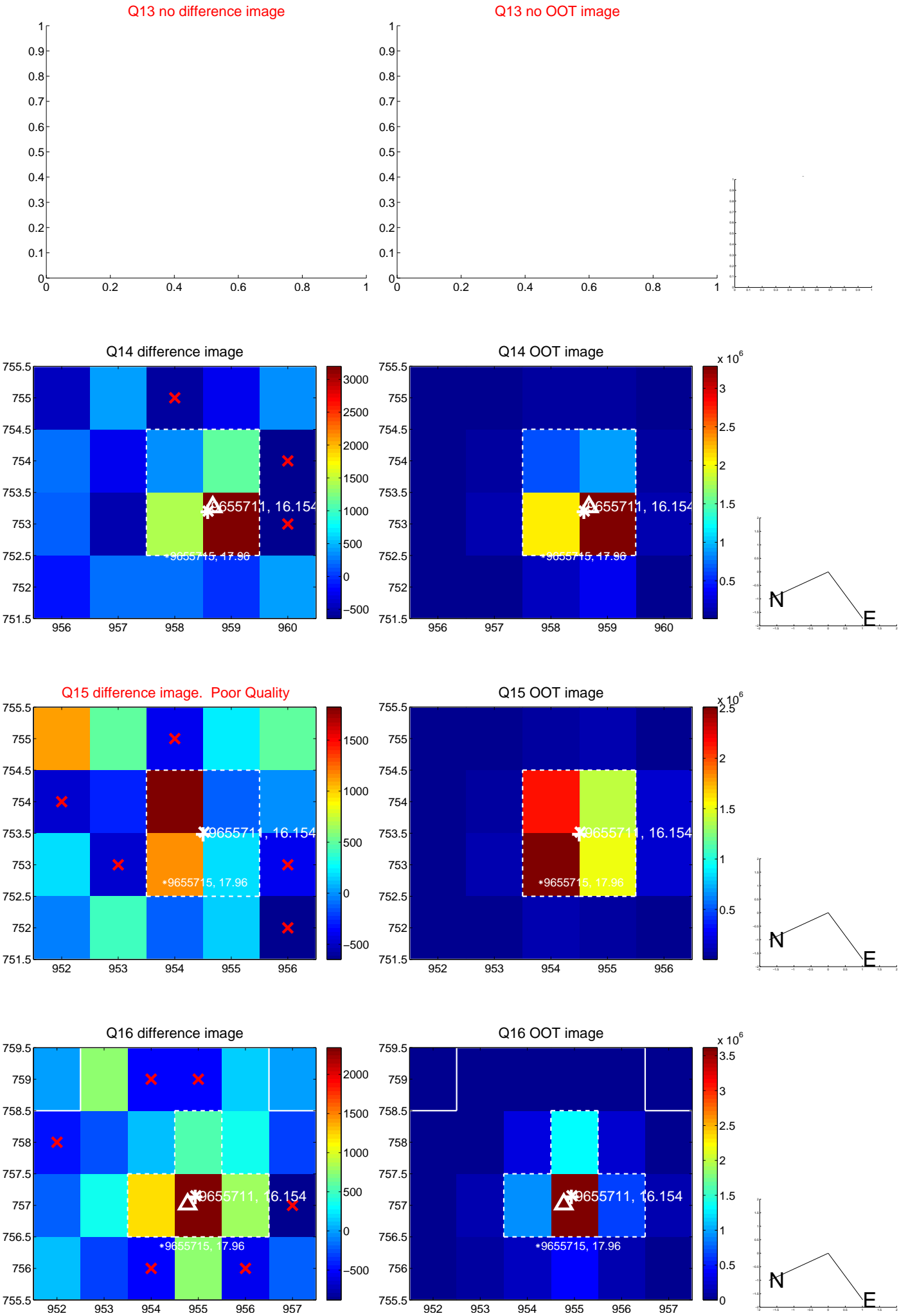
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



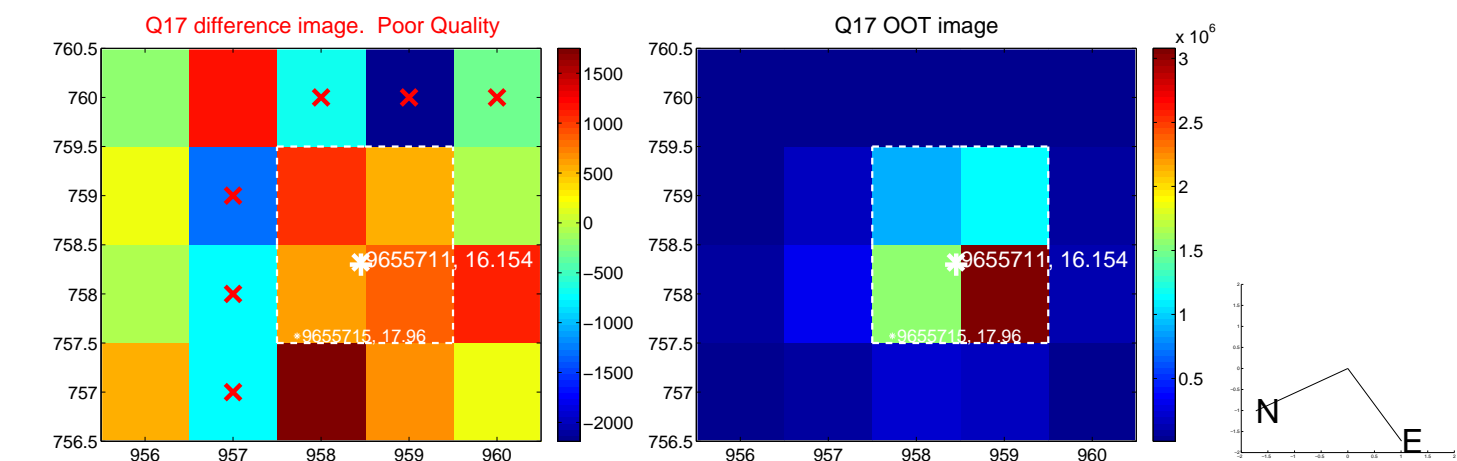
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



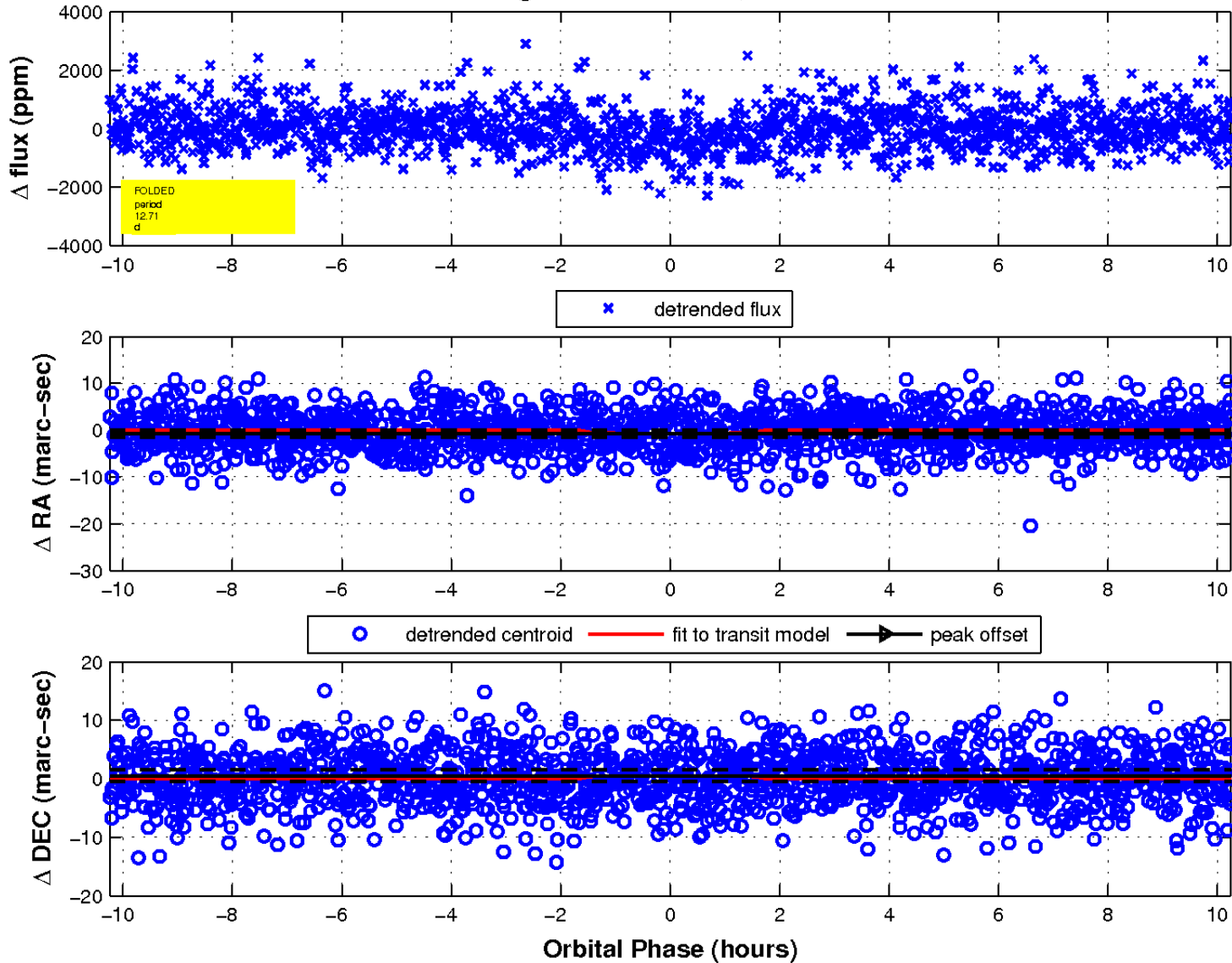
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

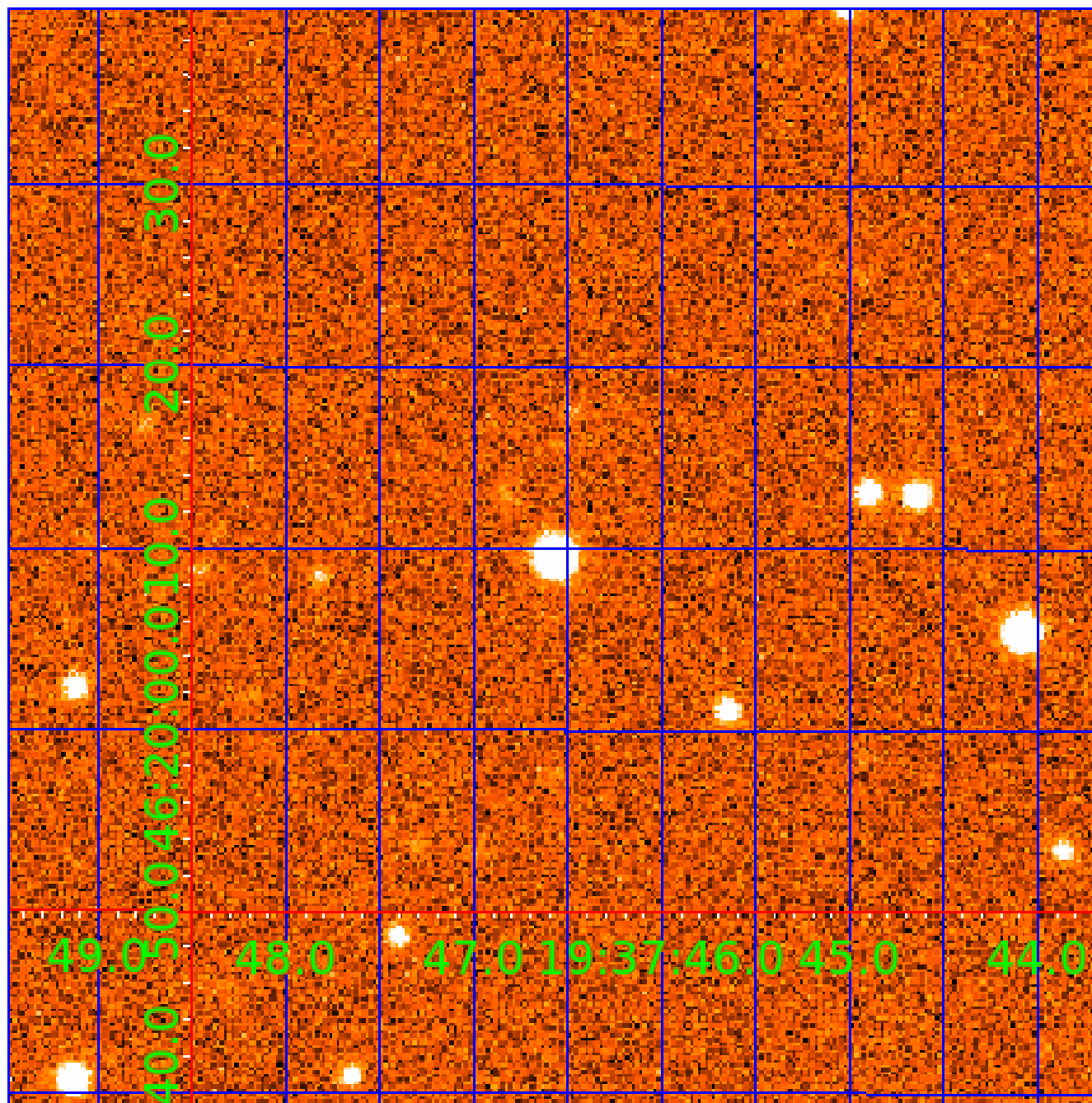


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009655711

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})
009655711-01	OBS	6209.01	12.714240	134.803602	481.8	3.414	9.1	9.5	0.96	5947	2.29	89.91
009655711-02	OBS	6209.02	7.729567	138.926278	377.0	2.748	7.7	8.8	0.96	5947	2.00	174.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009655711-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009655711-02	OBS	PC	0.61	0	0	0	0	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.

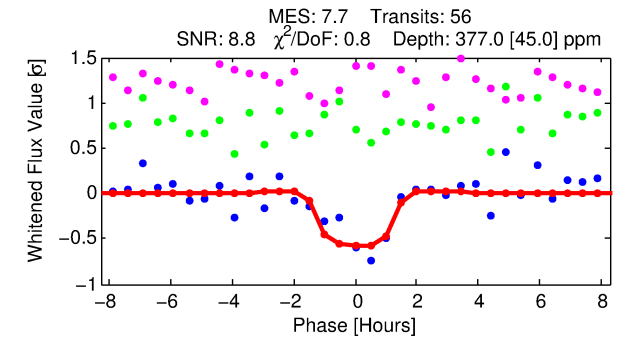
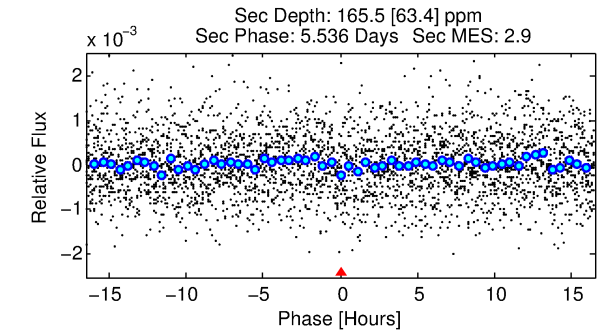
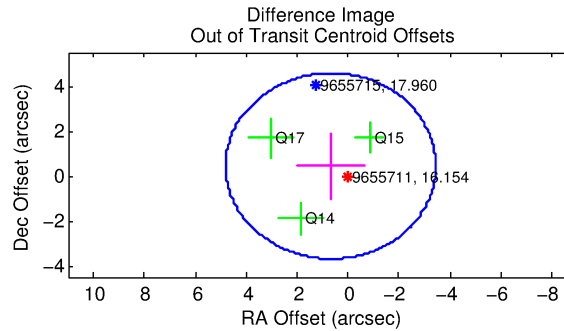
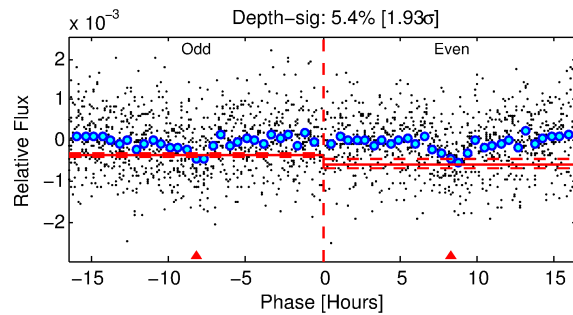
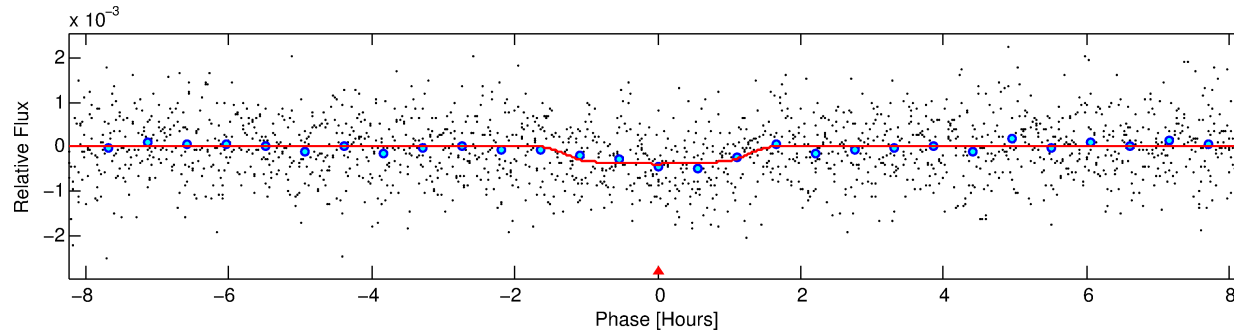
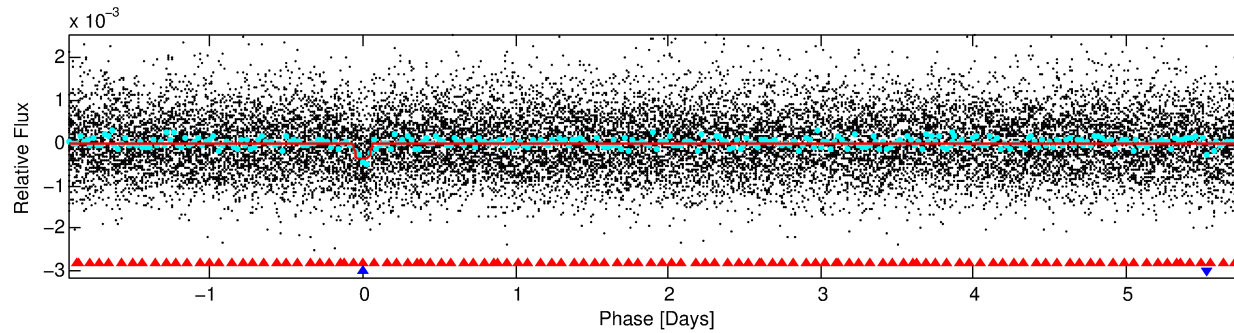
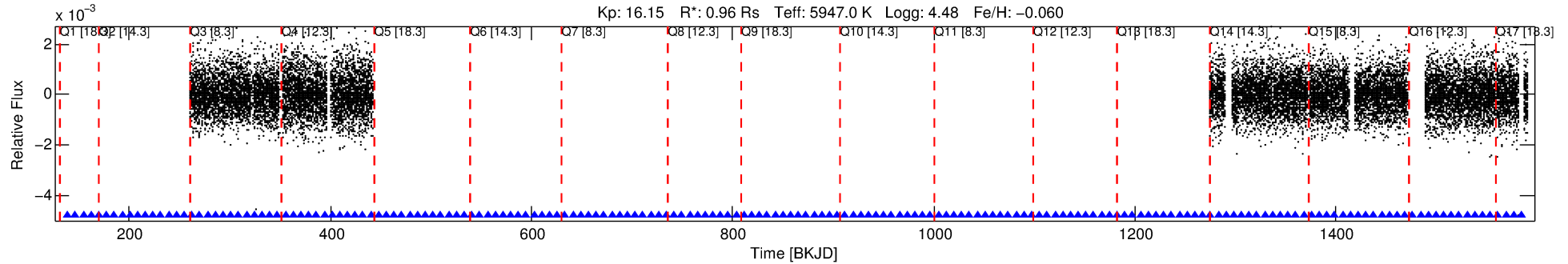
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009655711-02

No Significant Match Found

DV One-Page Summary

KIC: 9655711 Candidate: 2 of 2 Period: 7.730 d
KOI: K06209.02 Corr: 0.932



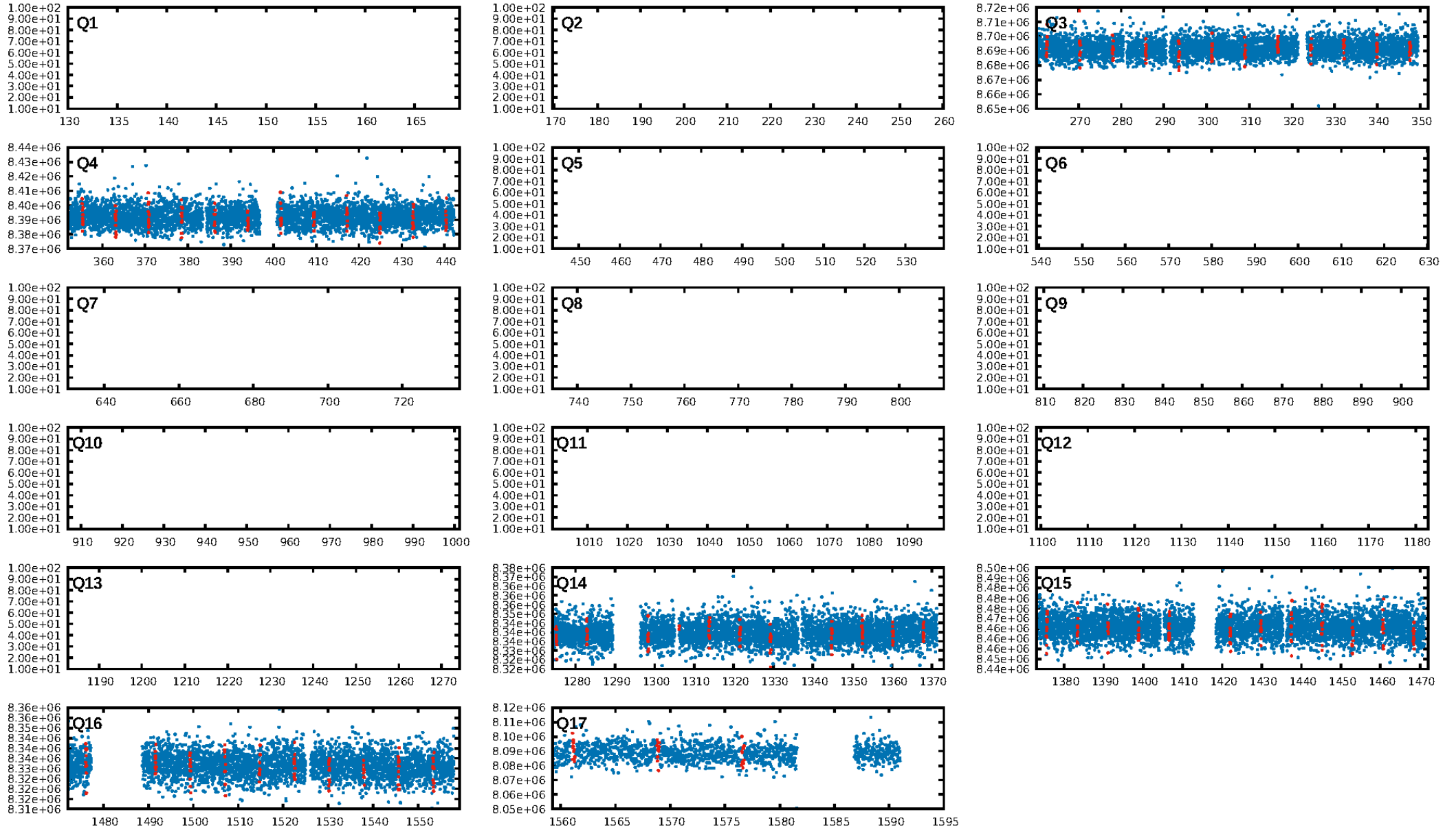
DV Fit Results:

Period = 7.72957 [0.00005] d
Epoch = 138.9263 [0.0062] BKJD
Rp/R* = 0.0190 [0.0277]
a/R* = 15.95 [108.27]
b = 0.70 [5.05]
Seff = 174.58 [74.03]
Teq = 927 [98] K
Rp = 2.00 [2.98] Re
a = 0.0771 [0.0210] AU
Ag = 135.67 [402.43] [0.33 σ]
Teffp = 4891 [3599] K [1.10 σ]

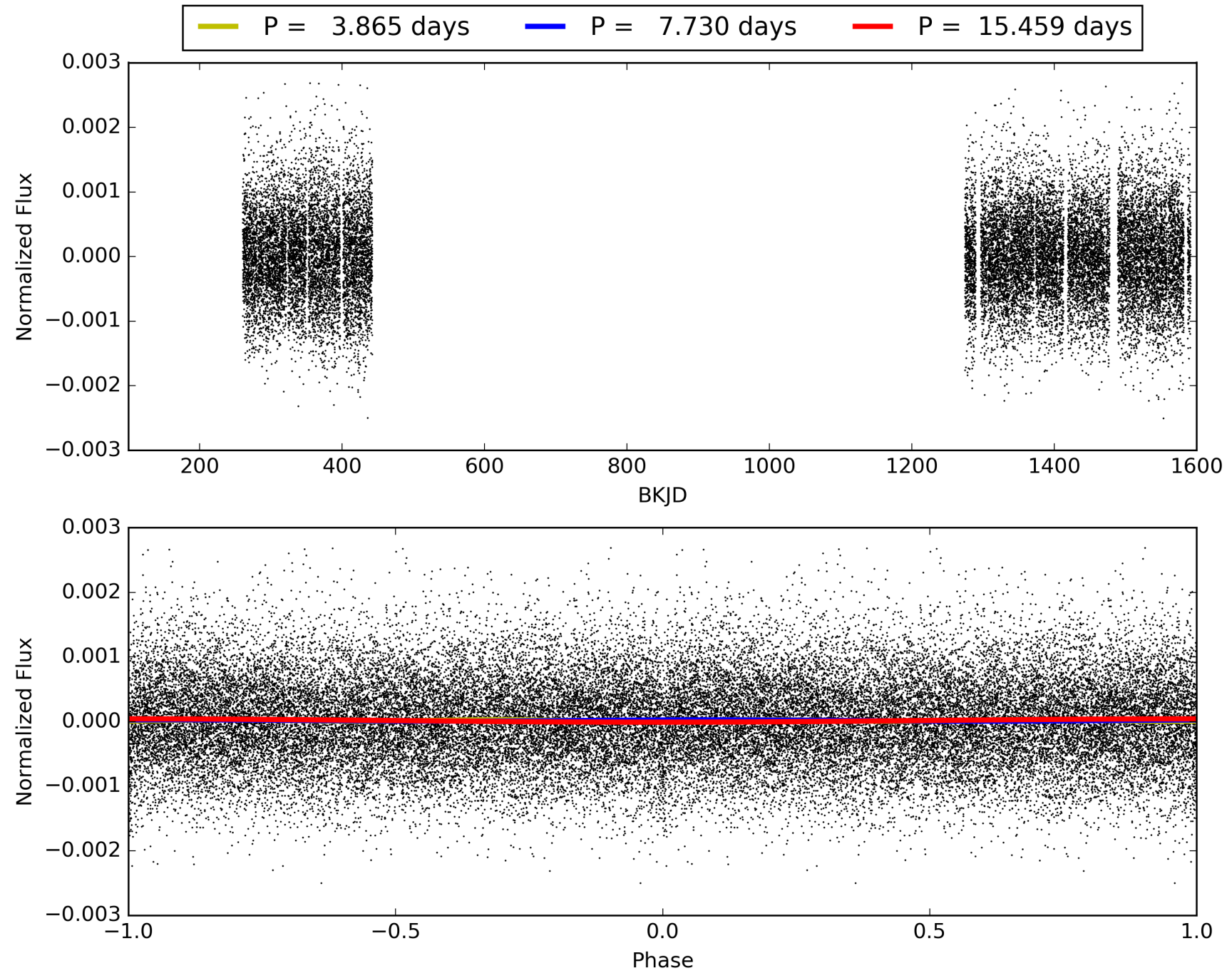
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.29 σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.96e-14
RollingBand-fgt: 1.00 [53/53]
GhostDiagnostic-chr: 1.964
Centroid-sig: 0.1%
Centroid-so: 4.633 arcsec [2.27 σ]
OotOffset-rm: 0.807 arcsec [0.59 σ]
KicOffset-rm: 0.908 arcsec [0.66 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 009655711-02, PDC Light Curves

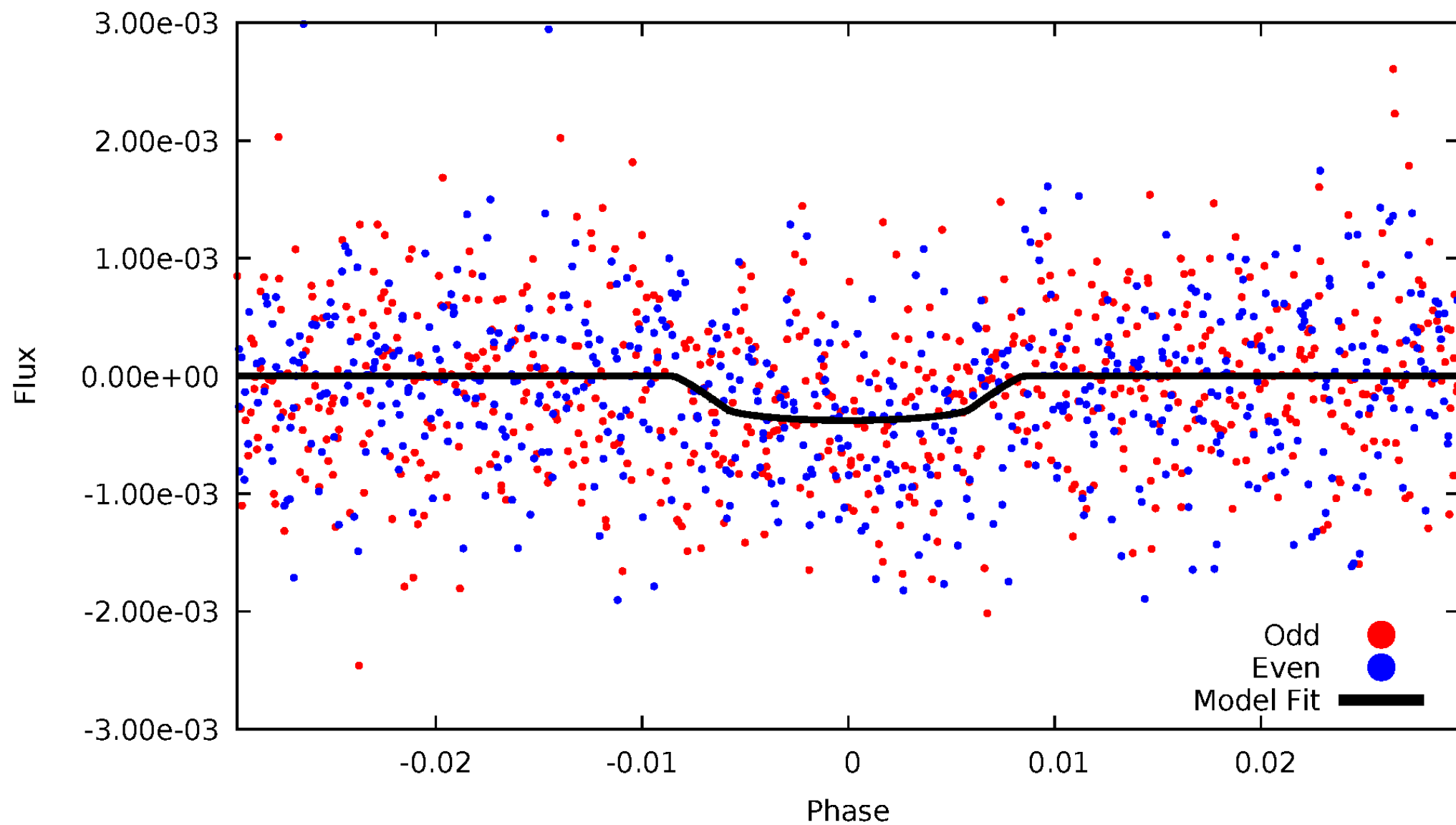


TCE 009655711-02



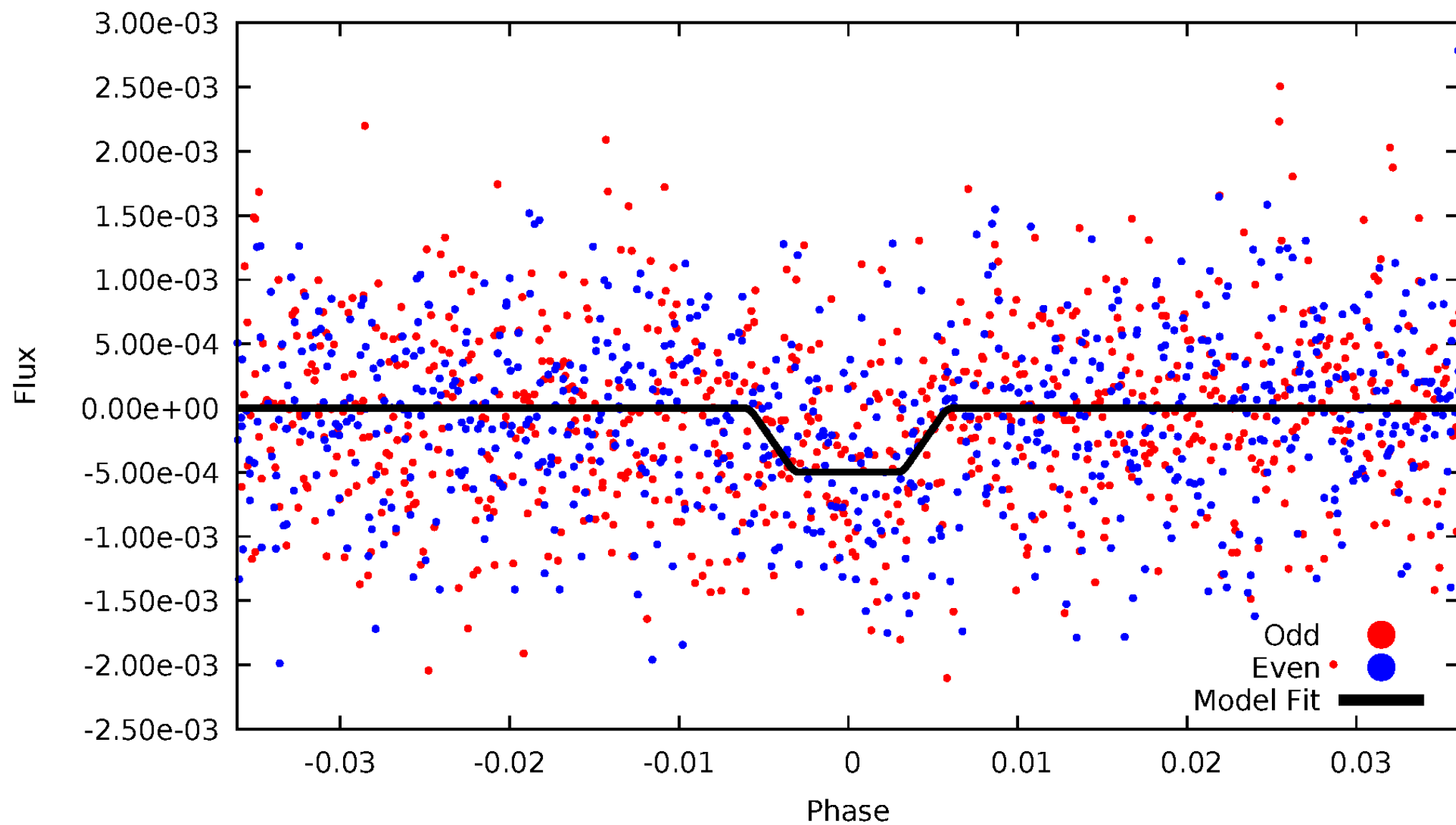
DV Odd/Even

TCE 009655711-02



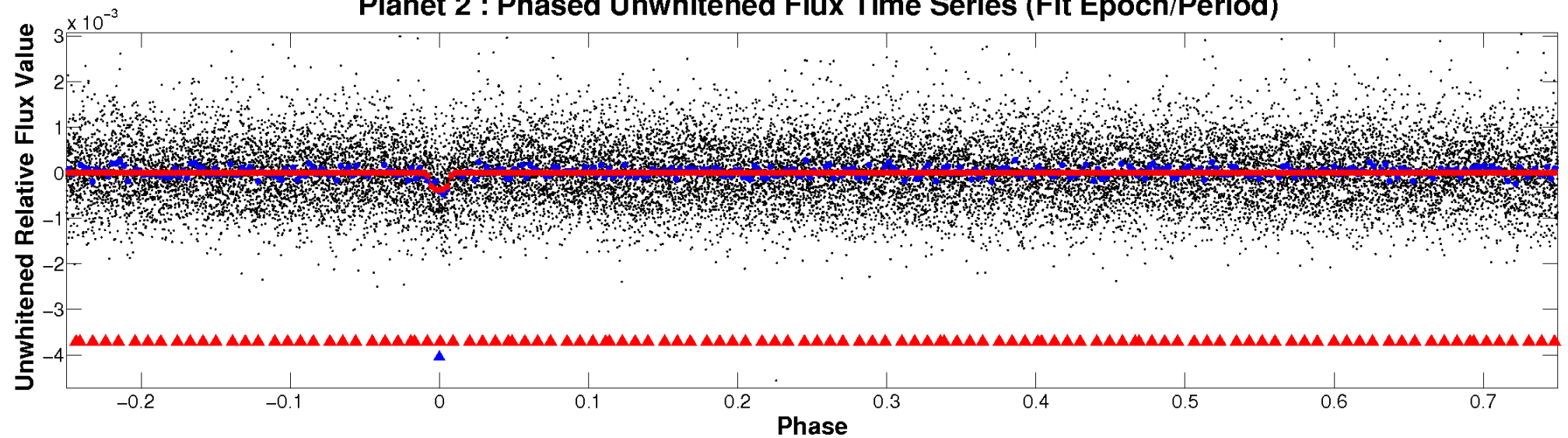
ALT Odd/Even

TCE 009655711-02

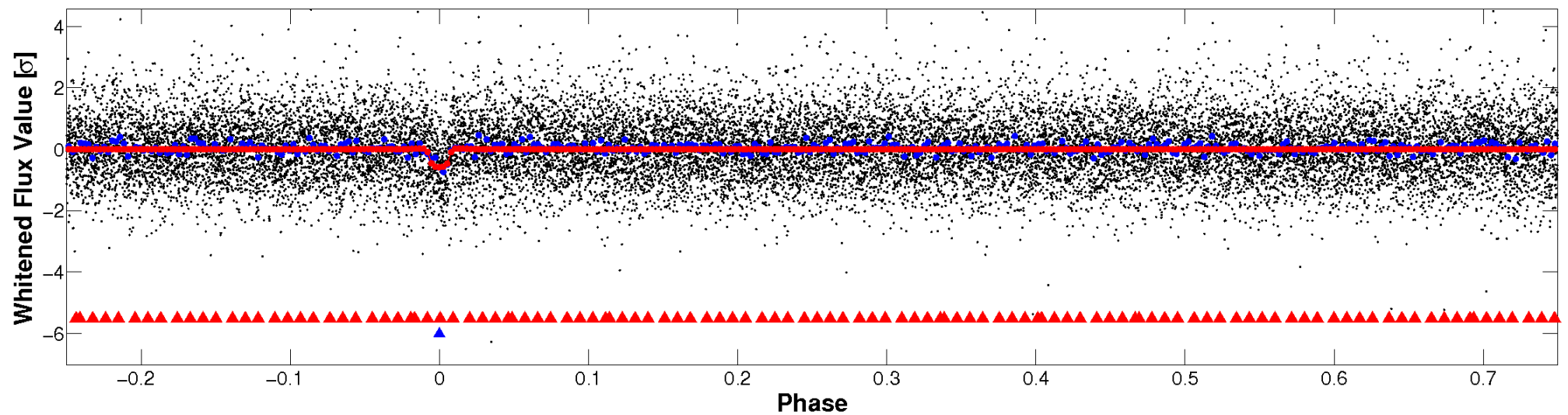


Non-Whitened Vs. Whitened Light Curve

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

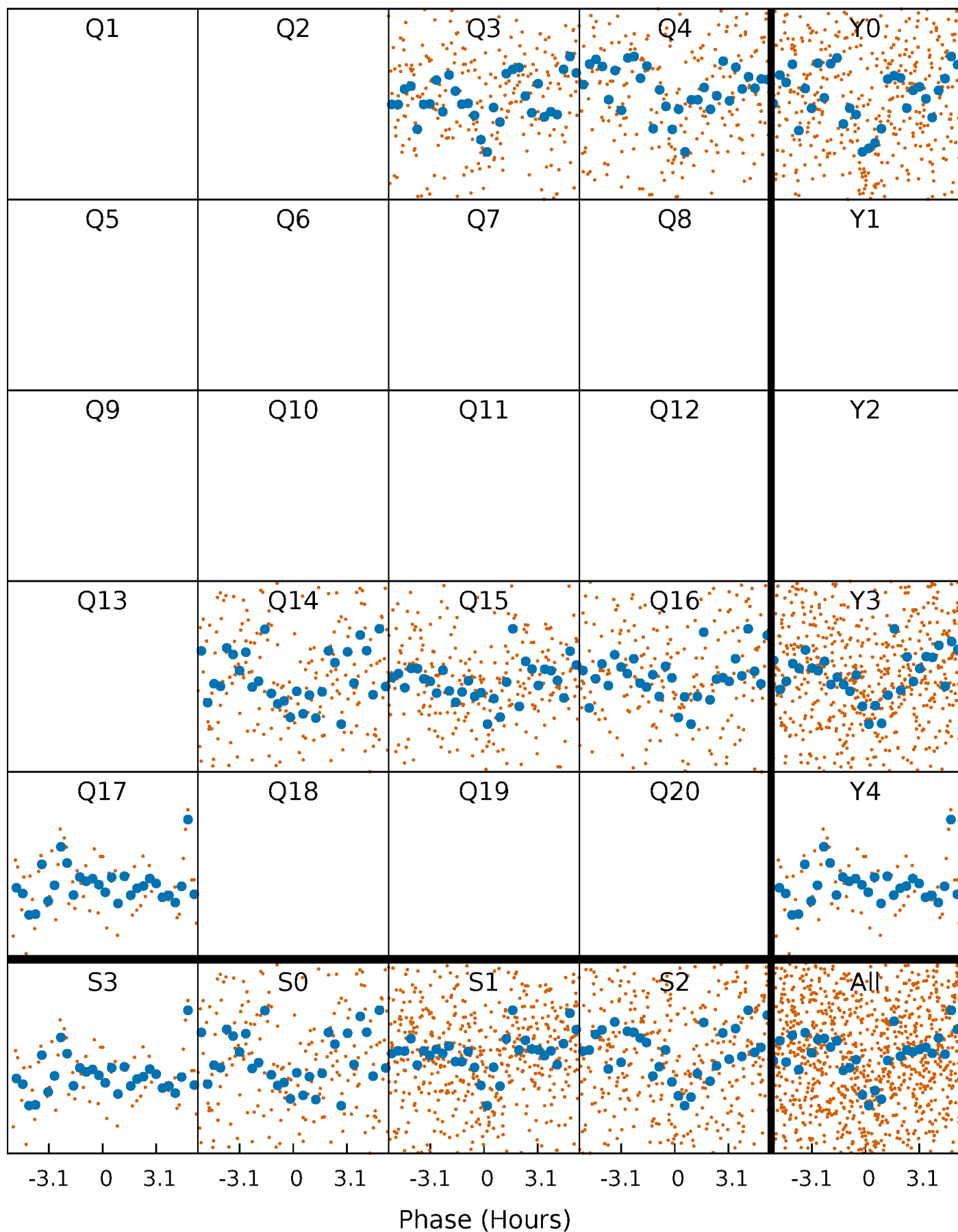


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



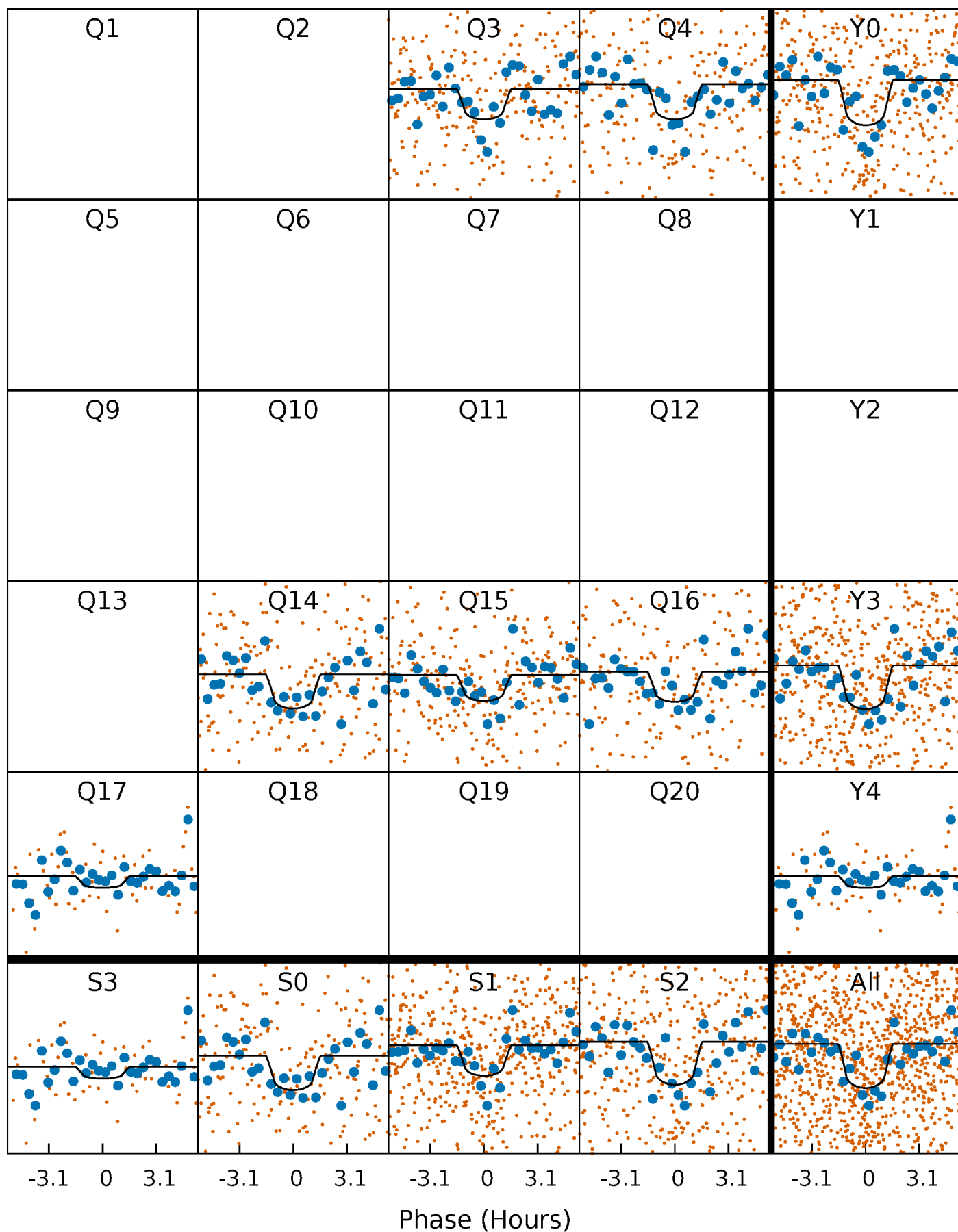
PDC Quarter-Phased Transit Curves

TCE 009655711-02 P= 7.729567 Days $T_0=138.926278$ (BKJD)



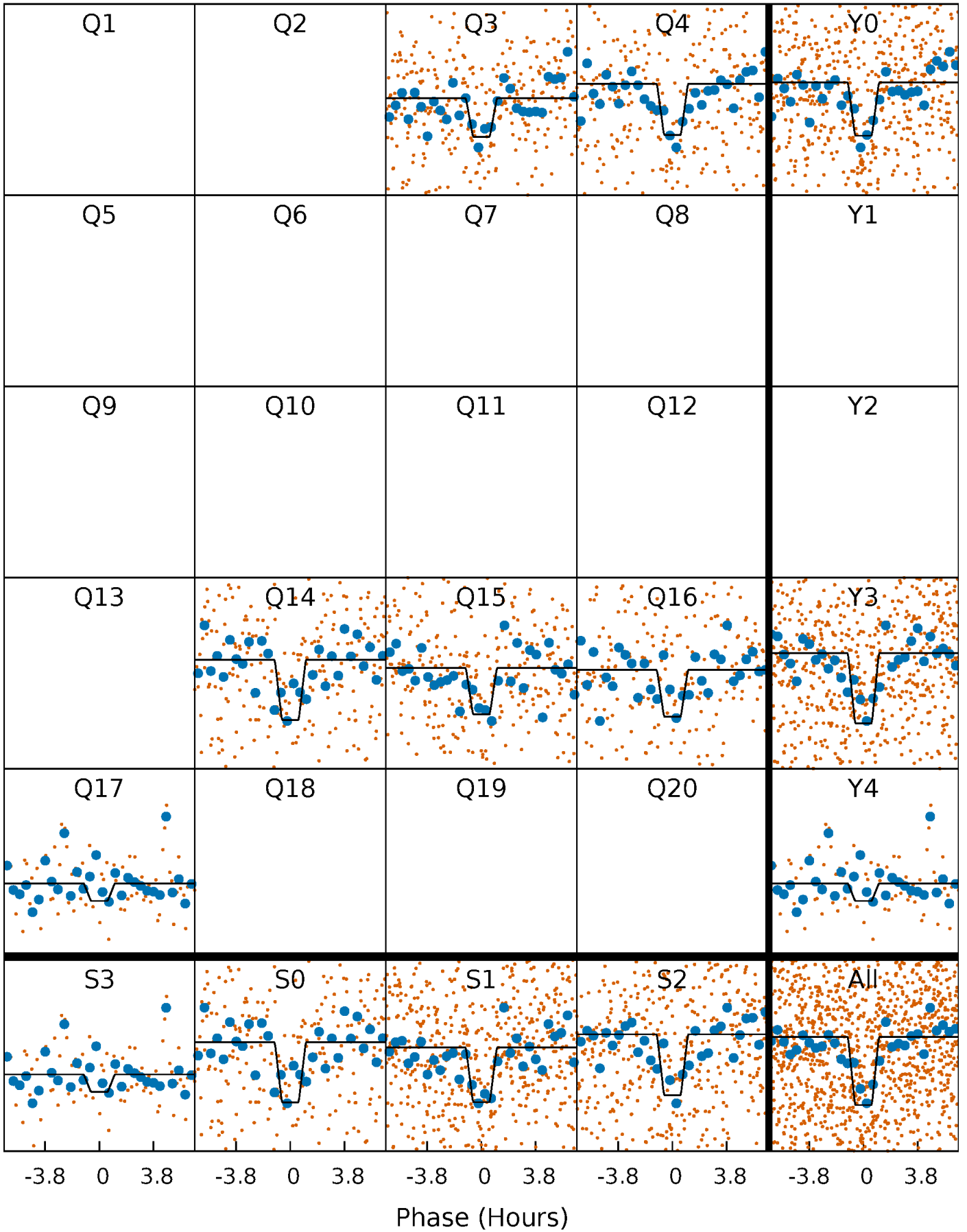
DV Quarter-Phased Transit Curves

TCE 009655711-02 $P = 7.729567$ Days $T_0 = 138.926278$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

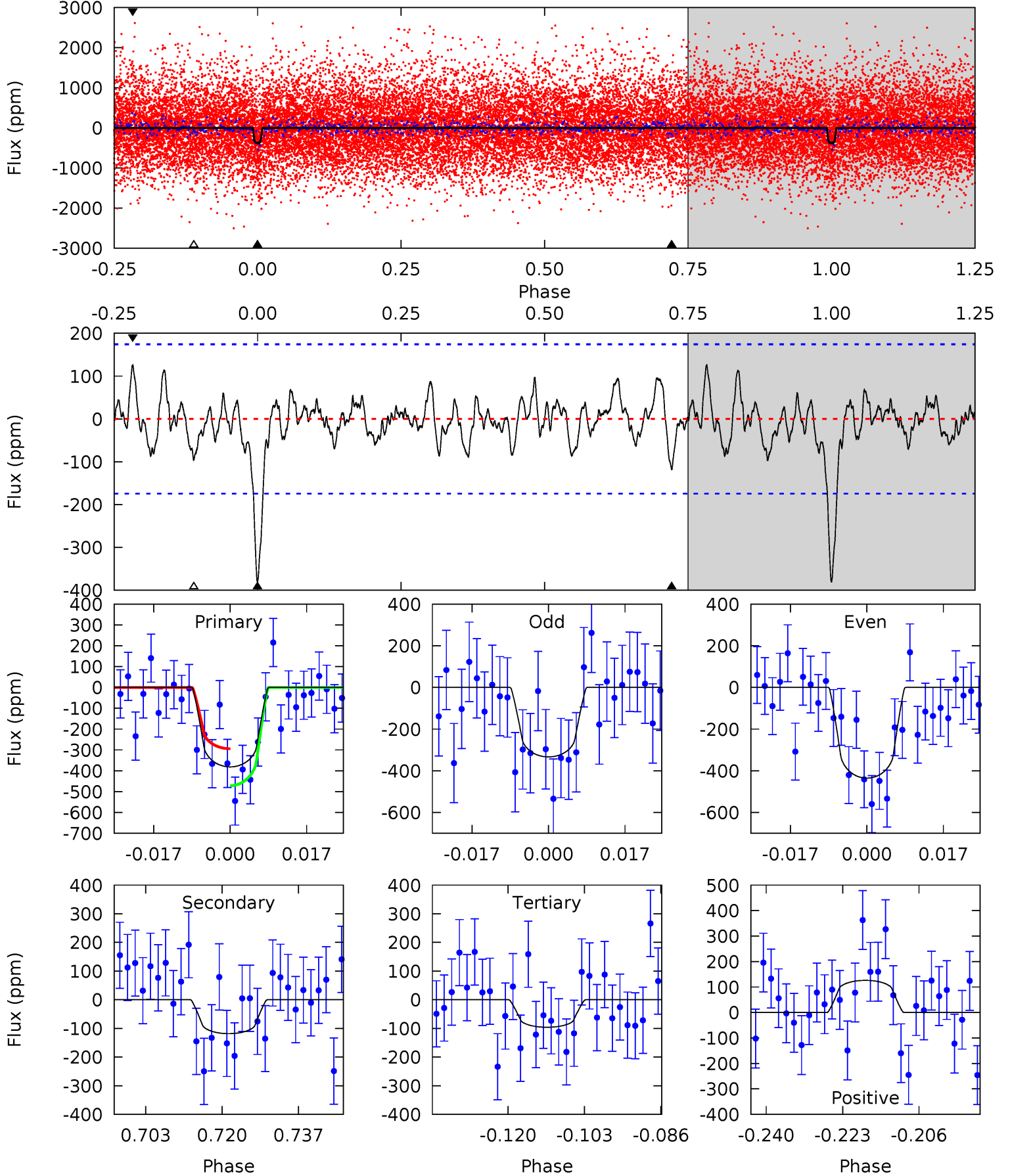
TCE 009655711-02 P= 7.729602 Days $T_0=138.928069$ (BKJD)



DV Model-Shift Uniqueness Test

009655711-02, P = 7.729567 Days, E = 138.926278 Days

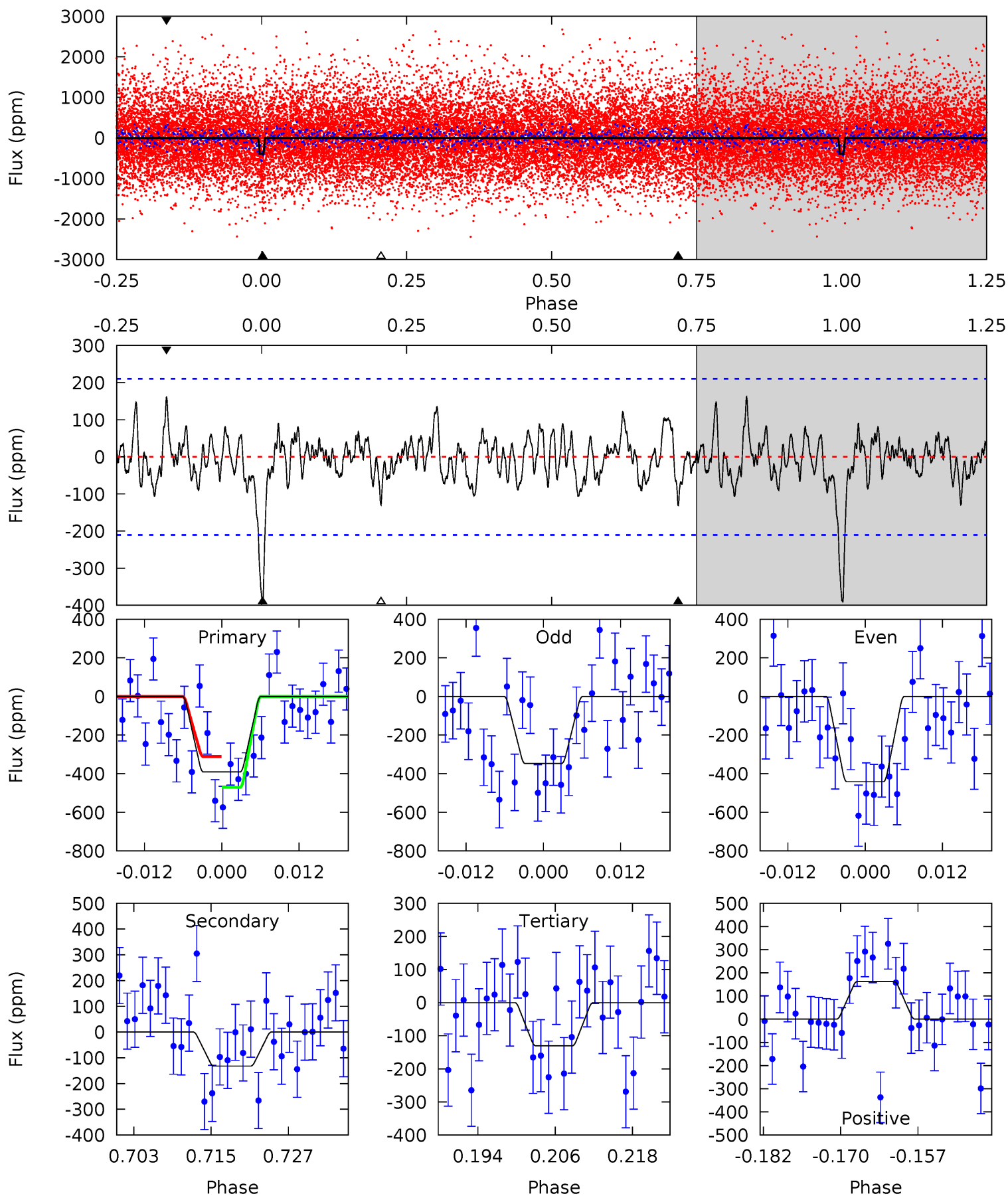
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	3.34	2.71	3.56	4.92	2.38	1.14	8.06	7.21	0.63	-0.22	1.44	0.93	0.25	2.51



Alt Model-Shift Uniqueness Test

009655711-02, P = 7.729602 Days, E = 138.928069 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.28	3.13	3.08	3.86	4.99	2.51	1.16	6.19	5.42	0.05	-0.73	1.12	1.00	0.29	1.90



Stellar Parameters For KIC 009655711

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5947^{+184}_{-226}	$4.481^{+0.054}_{-0.216}$	$-0.060^{+0.250}_{-0.300}$	$0.962^{+0.312}_{-0.104}$	$1.022^{+0.140}_{-0.140}$	$1.618^{+0.458}_{-0.845}$
	+3%/-4%	+1%/-5%	+417%/-500%	+32%/-11%	+14%/-14%	+28%/-52%
Source	KIC0	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 009655711-02 / KOI 6209.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-118 ± 35	$3.02^{+2.74}_{-2.06}$	1326^{+97}_{-73}	4026^{+2468}_{-794}	41^{+329}_{-31}
Alt.	-132 ± 42	$3.27^{+2.80}_{-2.15}$	1328^{+103}_{-73}	4003^{+2390}_{-771}	38^{+307}_{-28}

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

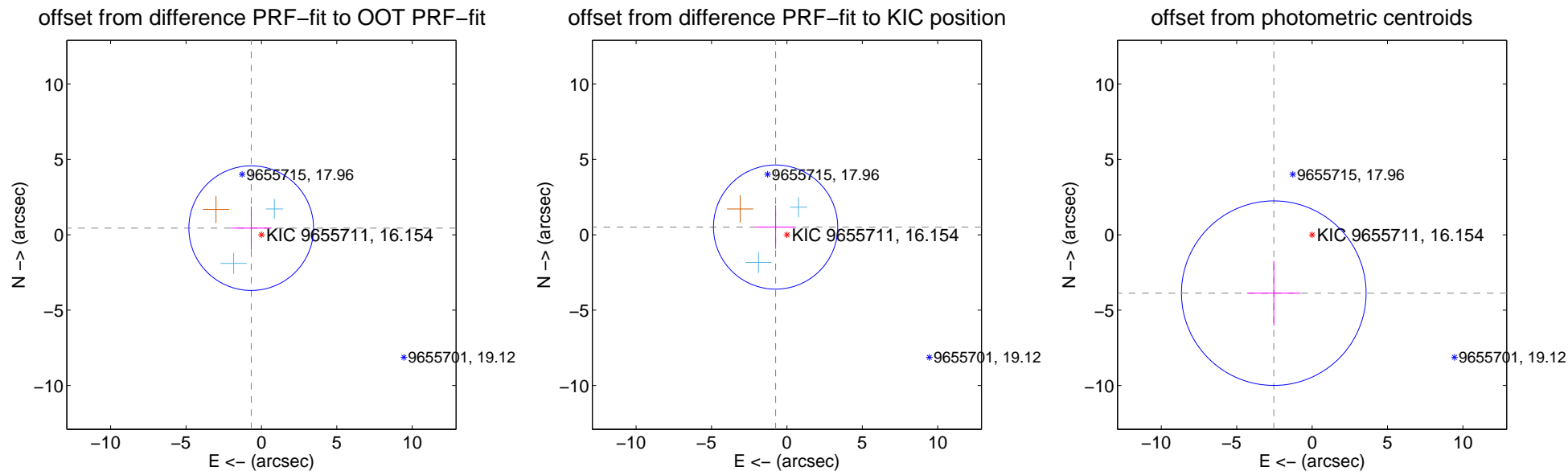
DV Centroid Data

Supplemental centroid analysis for 009655711-02. Kepler magnitude: 16.15. Transit SNR 8.77

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.807 ± 1.378	0.59	0.677 ± 1.347	0.440 ± 1.449
PRF-fit source offset from KIC position	0.908 ± 1.373	0.66	0.750 ± 1.337	0.511 ± 1.448
photometric centroid source offset	4.63 ± 2.04	2.27	2.54 ± 1.77	-3.87 ± 2.15



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.

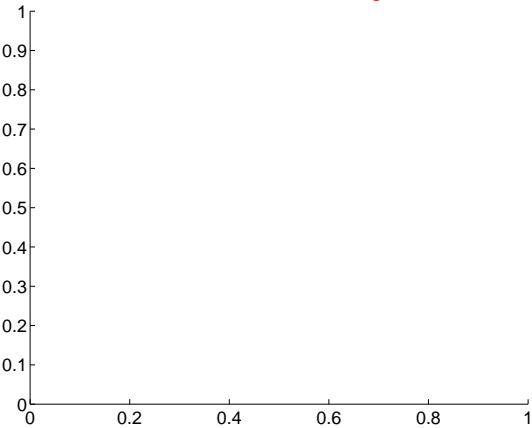
Q1 no difference image



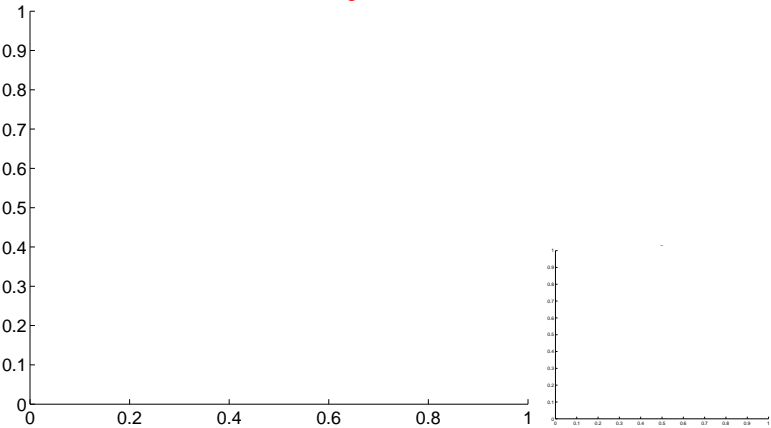
Q1 no OOT image



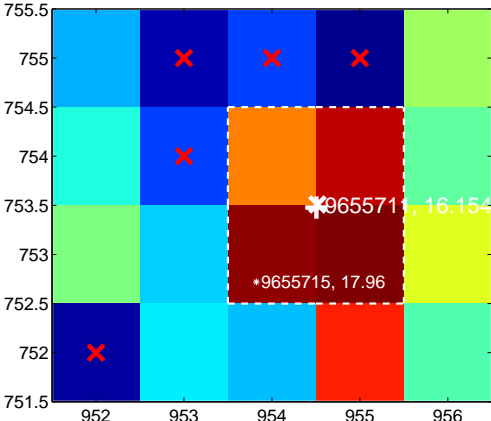
Q2 no difference image



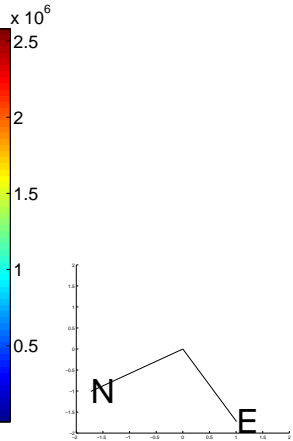
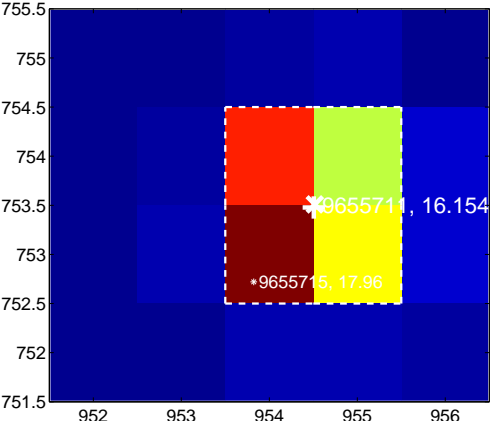
Q2 no OOT image



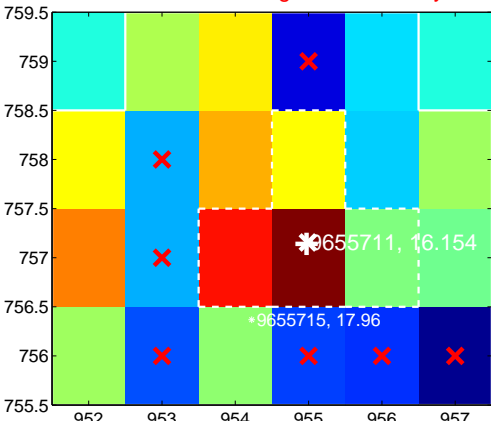
Q3 difference image. Poor Quality



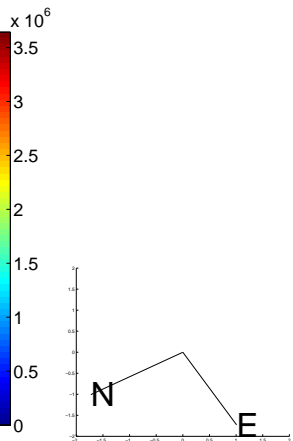
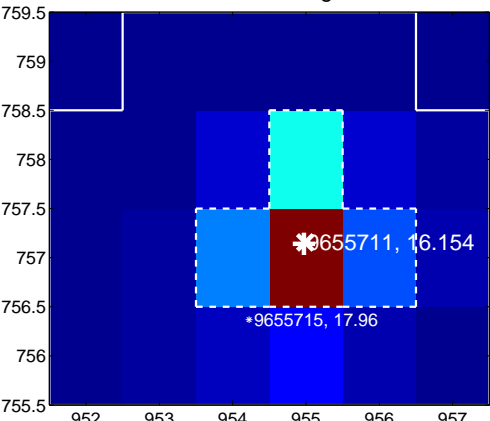
Q3 OOT image



Q4 difference image. Poor Quality



Q4 OOT image



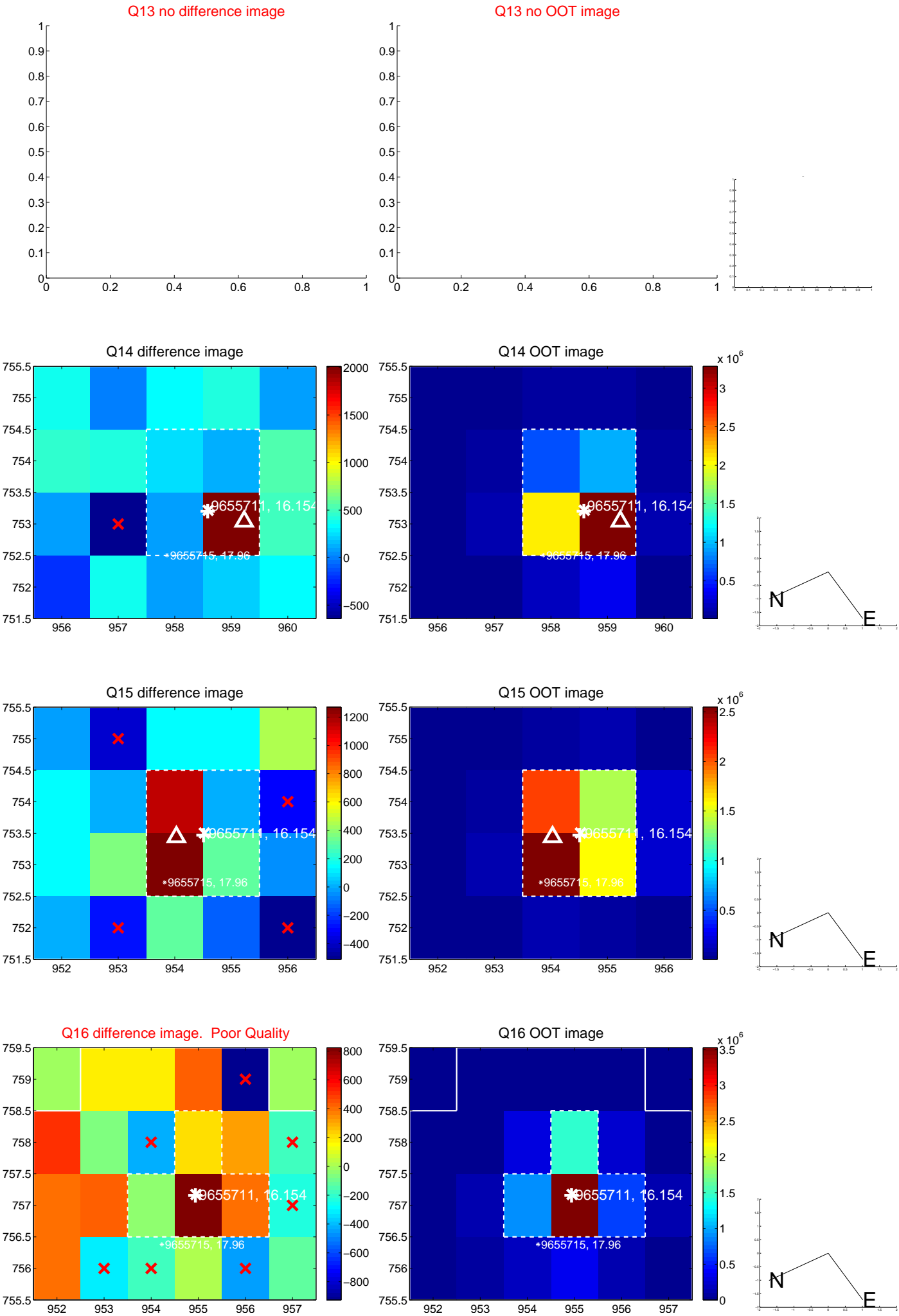
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



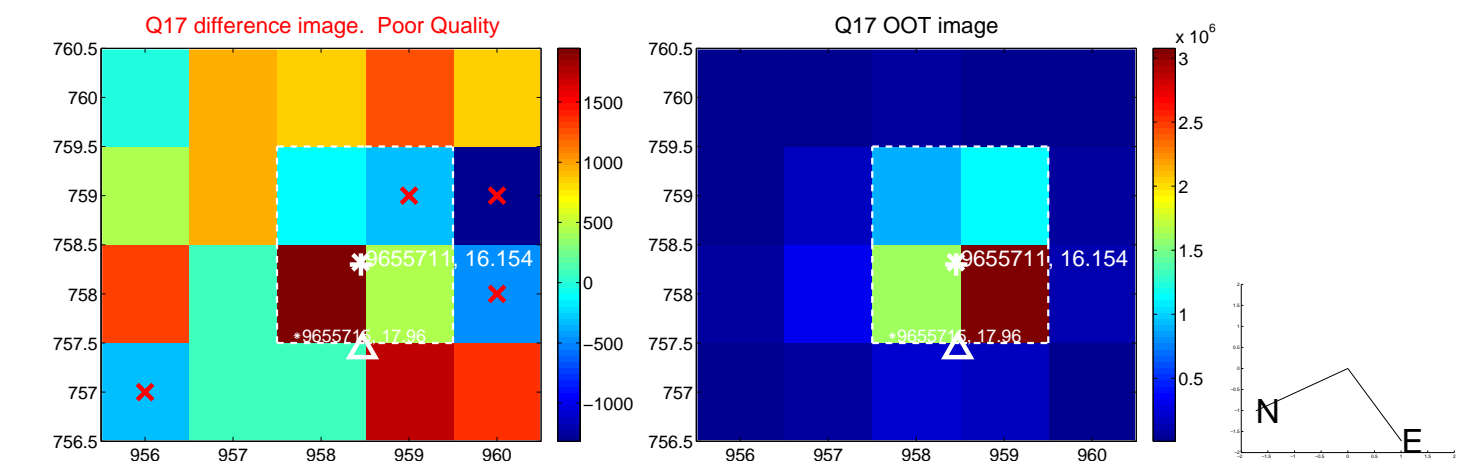
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



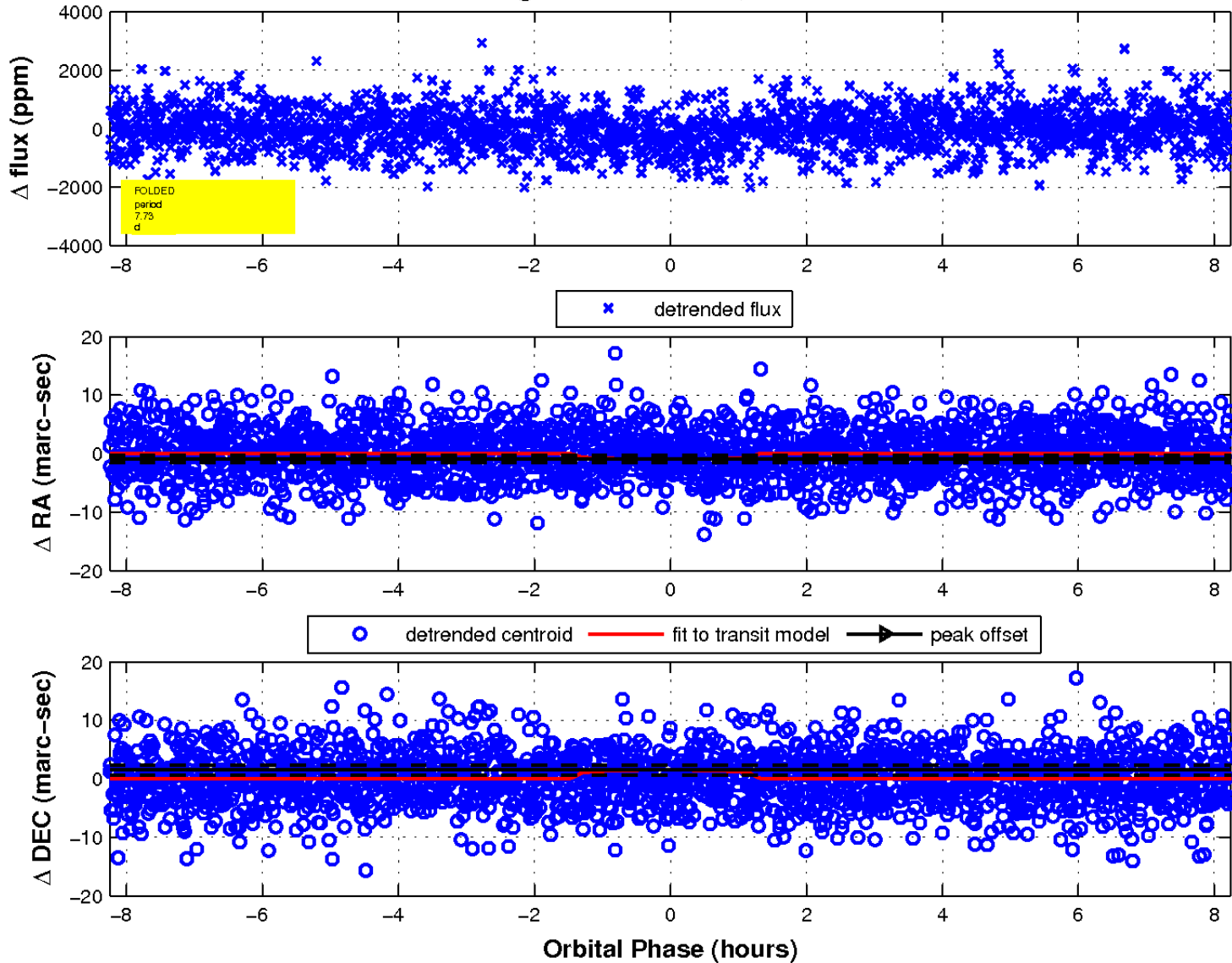
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

