

KIC 007368621

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})
007368621-01	OBS	No	333.493270	443.564211	2887.4	2.228	21.7	14.5	154.30	3274	762.45	2574.32
007368621-02	OBS	No	424.229969	317.810887	2682.4	3.978	11.0	13.9	154.30	3274	1694.43	1867.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007368621-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007368621-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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.

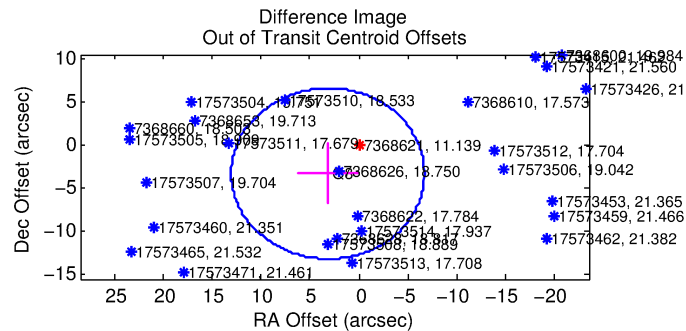
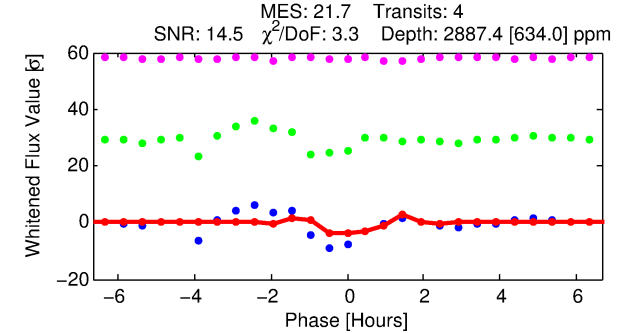
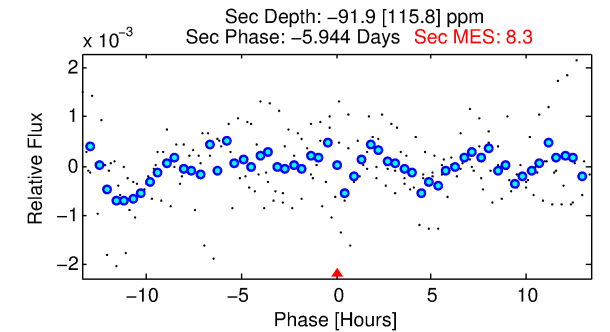
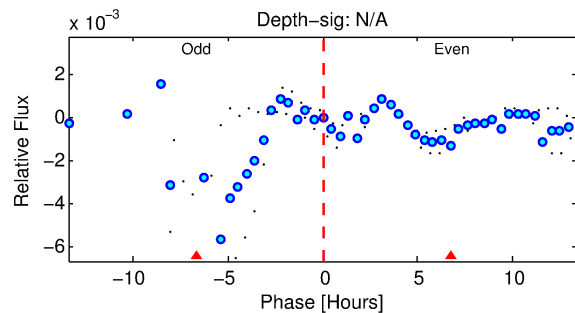
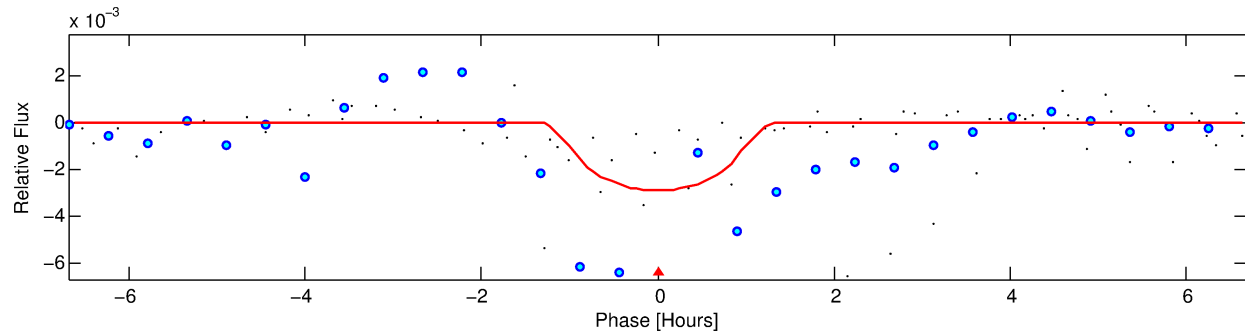
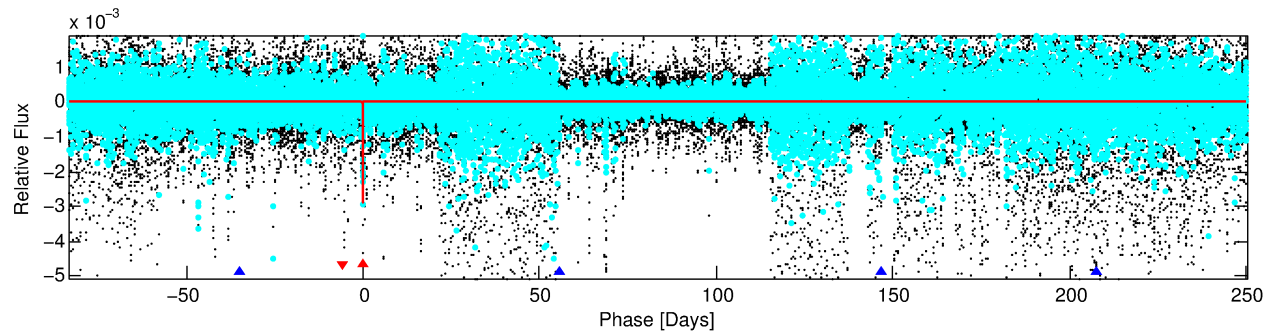
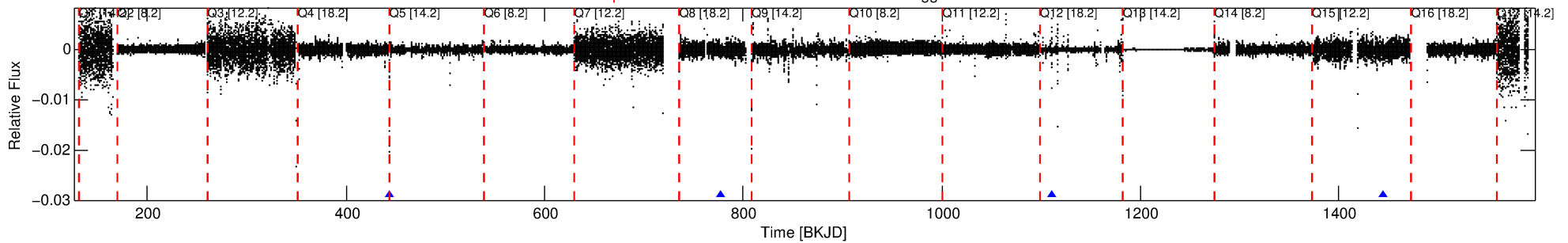
Ephemeris Match Information For 007368621-01

No Significant Match Found

DV One-Page Summary

KIC: 7368621 Candidate: 1 of 2 Period: 333.493 d

Kp: 11.14 R*: 154.30 Rs Teff: 3274.0 K Logg: 0.11 Fe/H: -0.080



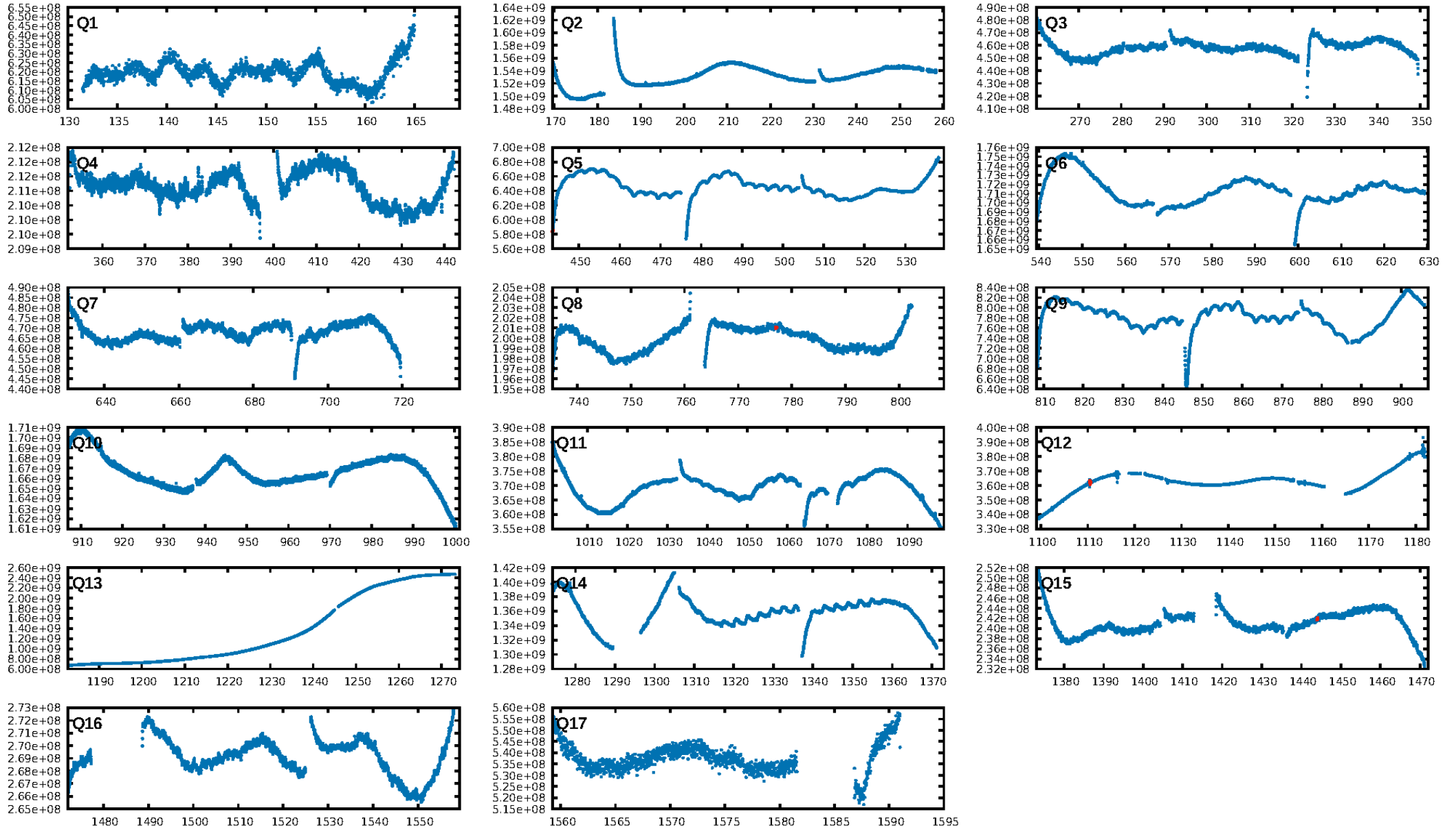
DV Fit Results:

Period = 333.49327 [0.00269] d
Epoch = 443.5642 [0.0067] BKJD
Rp/R* = 0.0453 [0.0366]
a/R* = 1195.26 [1902.92]
b = 0.01 [155.01]
Seff = 2574.32 [907.36]
Teq = 1816 [160] K
Rp = 762.45 [631.71] Re
a = 0.9757 [0.1867] AU
Ag = N/A
Teffp = N/A

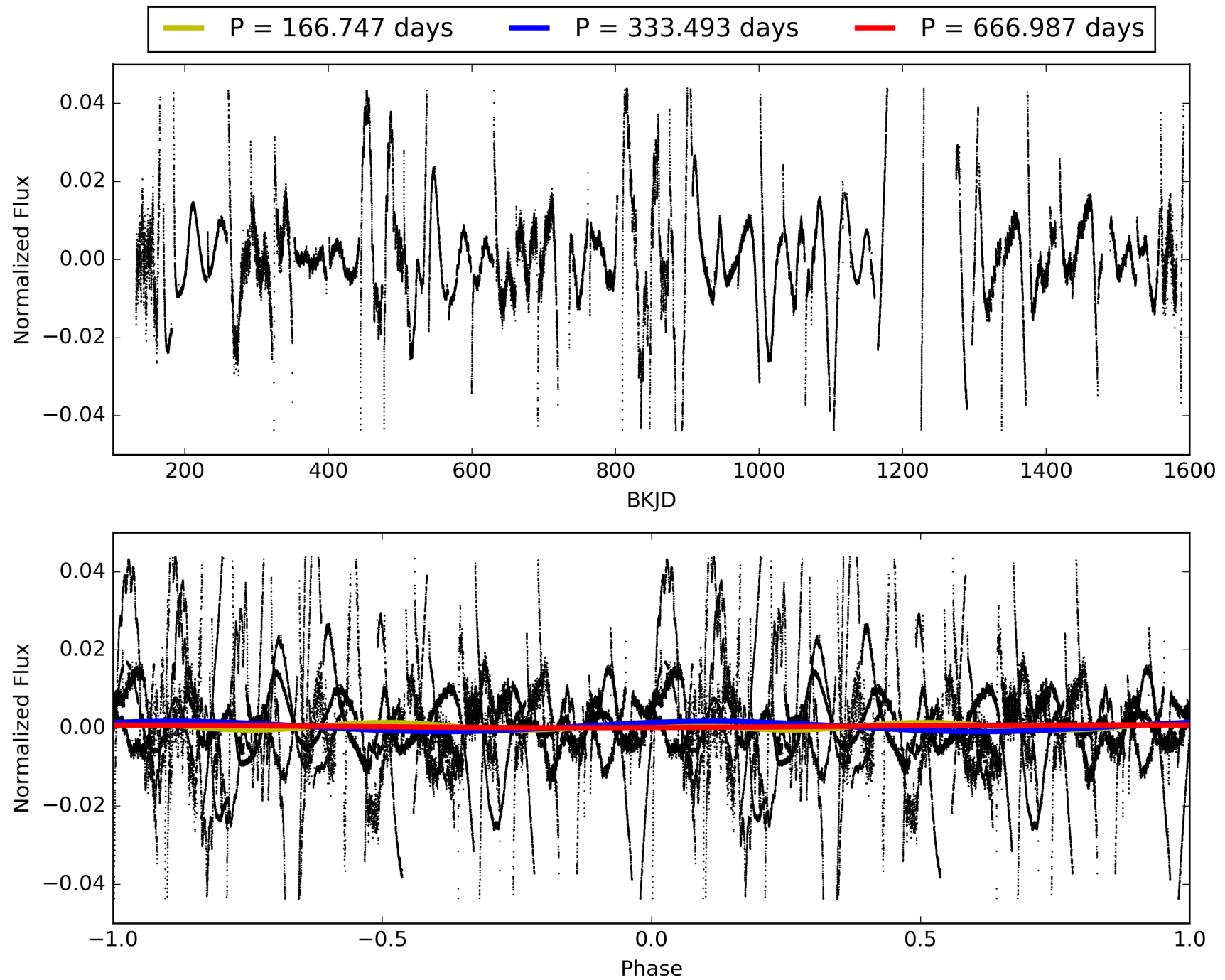
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [477.67σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.2899
Centroid-sig: 24.5%
Centroid-so: 0.042 arcsec [0.20σ]
OotOffset-rm: 4.591 arcsec [1.39σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-rm: 4.551 arcsec [1.38σ]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 007368621-01, PDC Light Curves

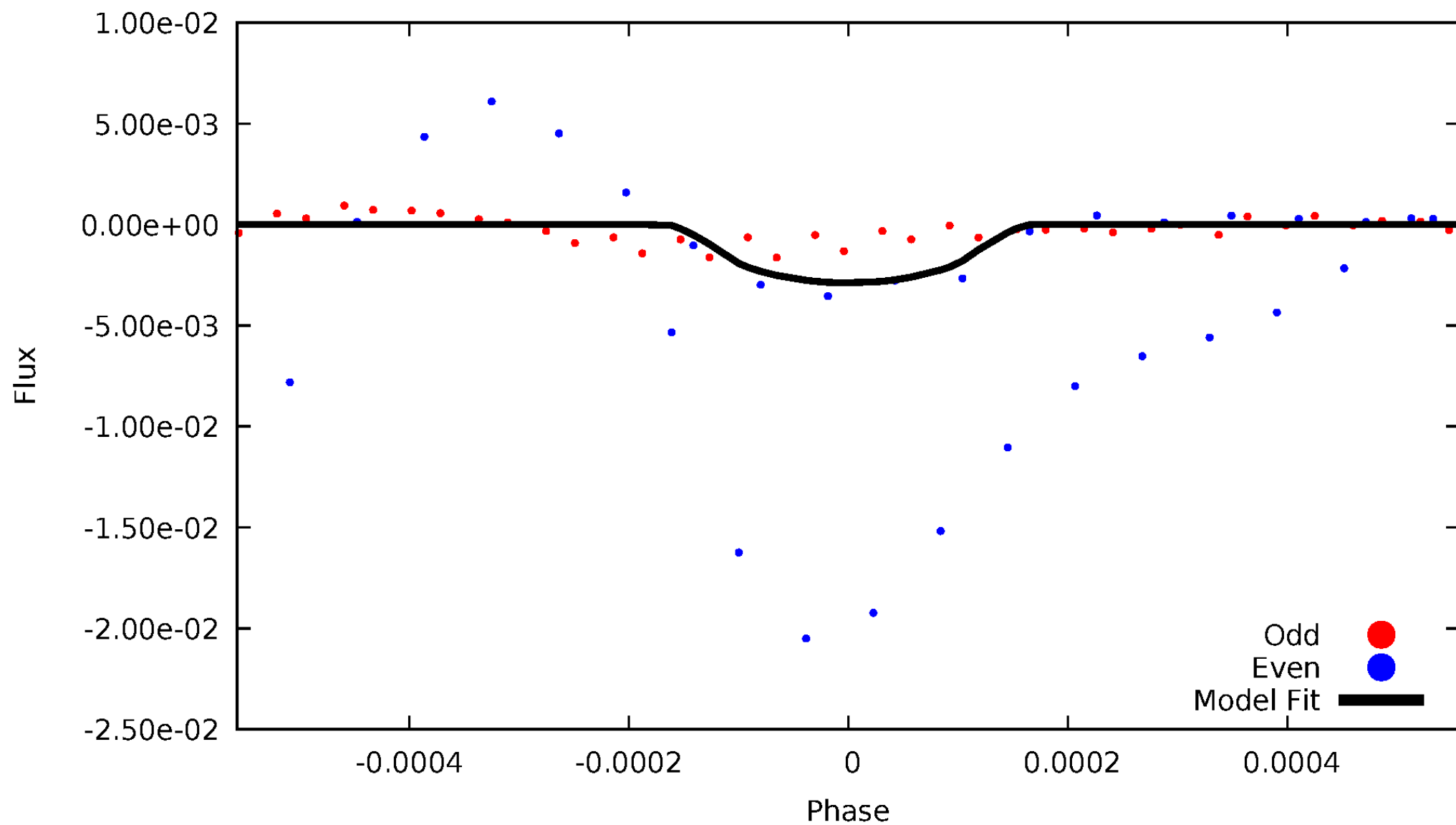


TCE 007368621-01



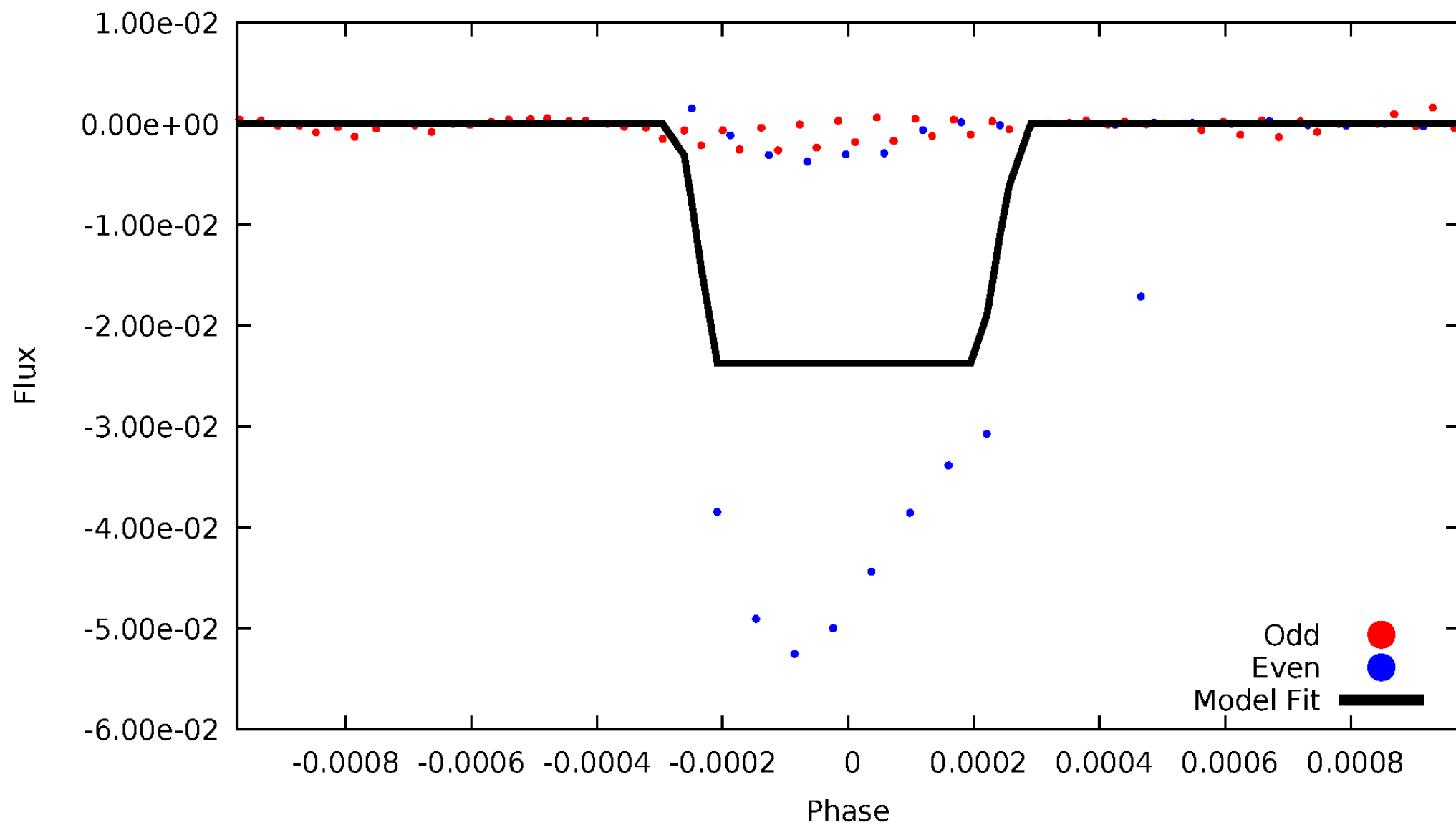
DV Odd/Even

TCE 007368621-01



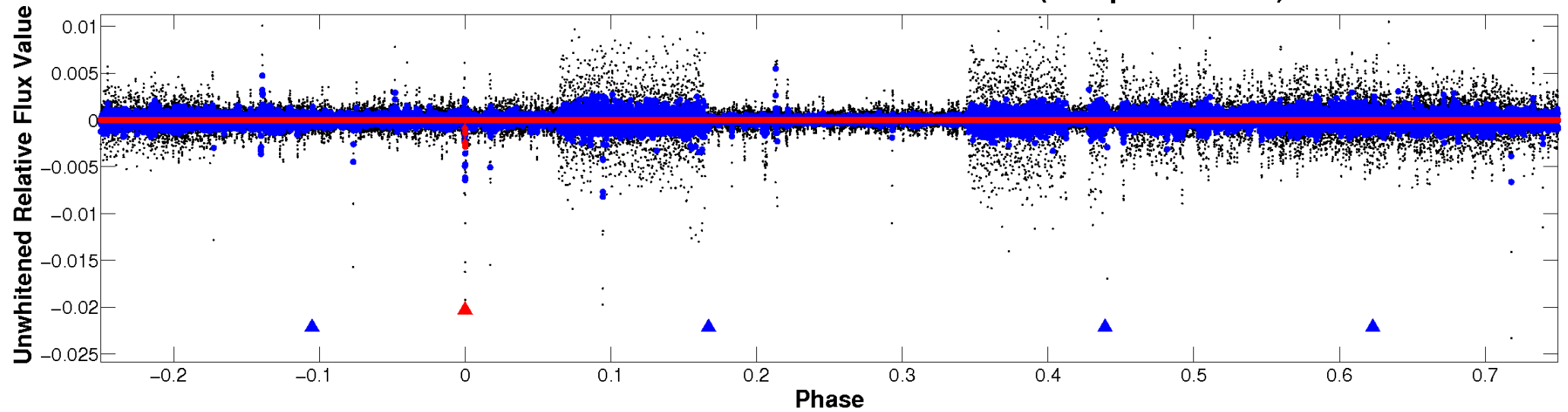
ALT Odd/Even

TCE 007368621-01

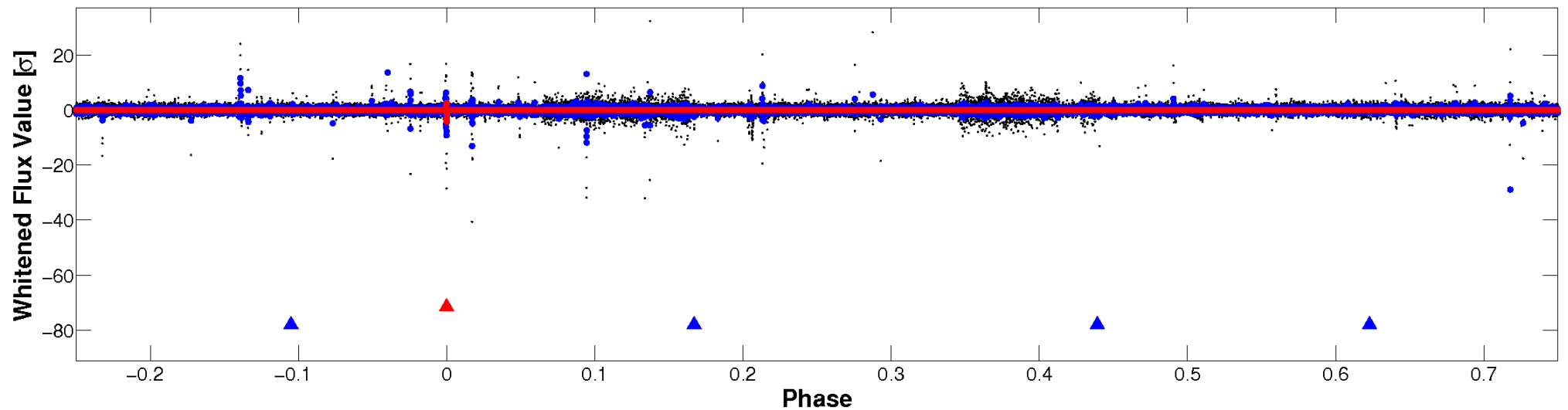


Non-Whitened Vs. Whitened Light Curve

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

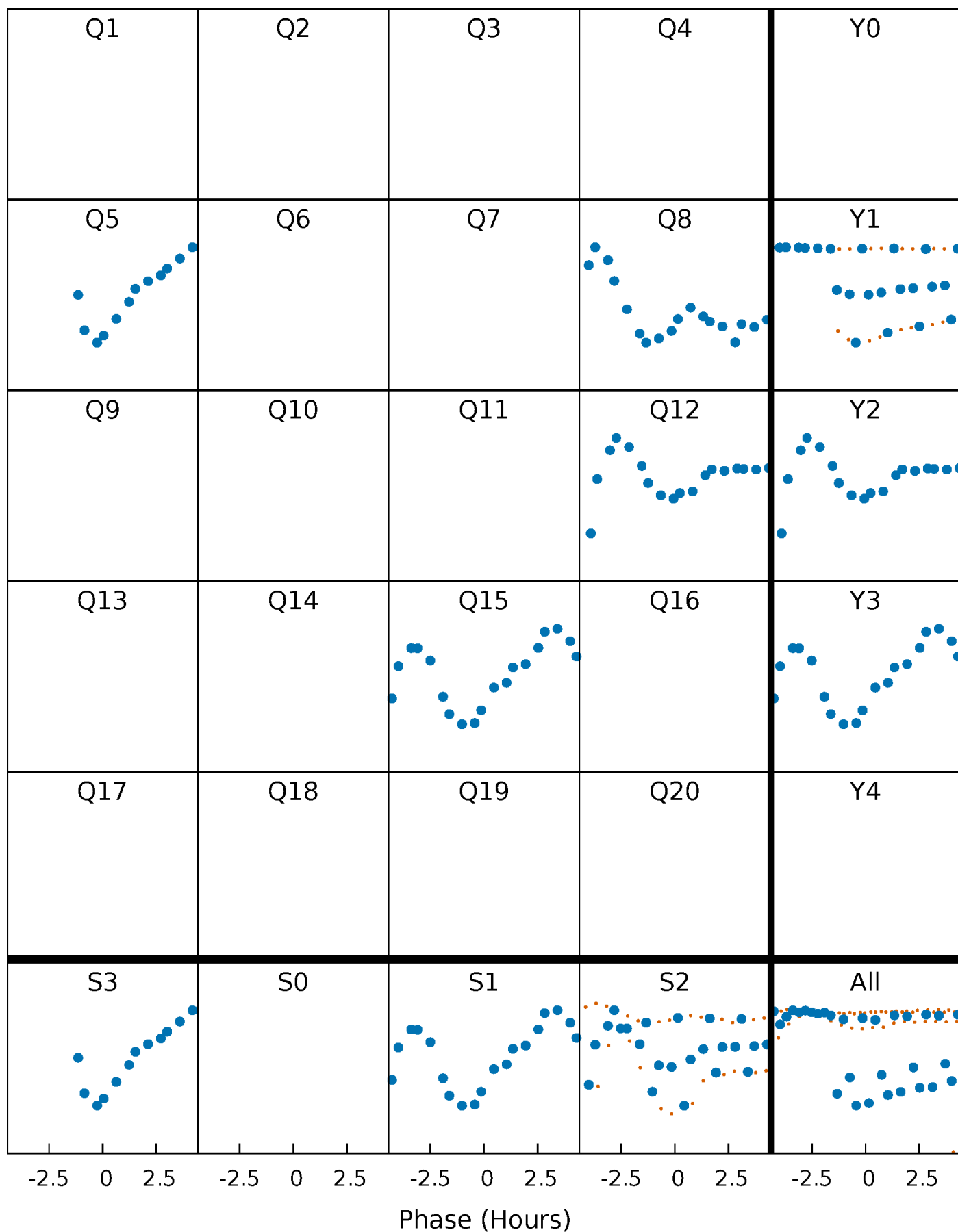


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



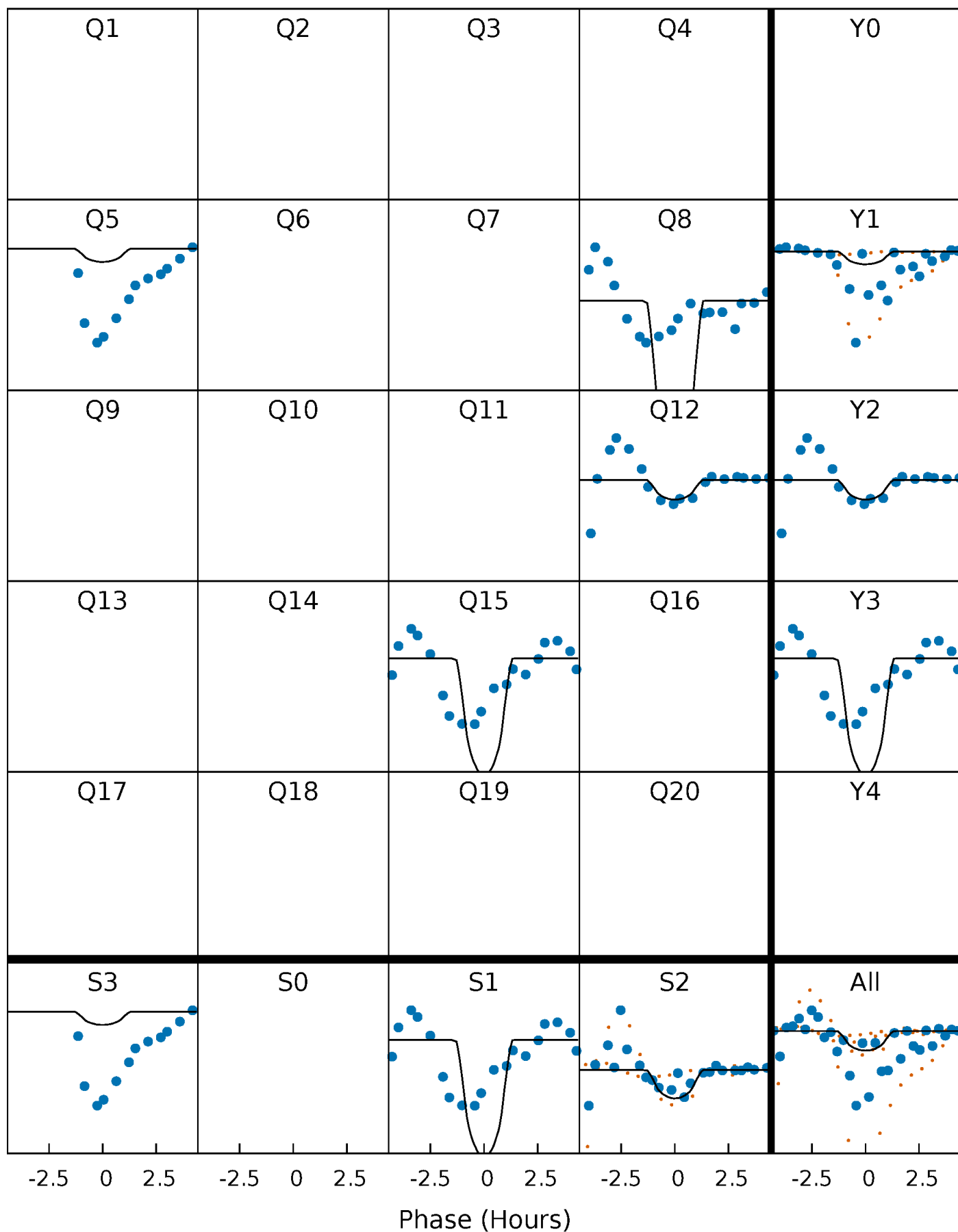
PDC Quarter-Phased Transit Curves

TCE 007368621-01 P=333.493270 Days $T_0=443.564211$ (BKJD)



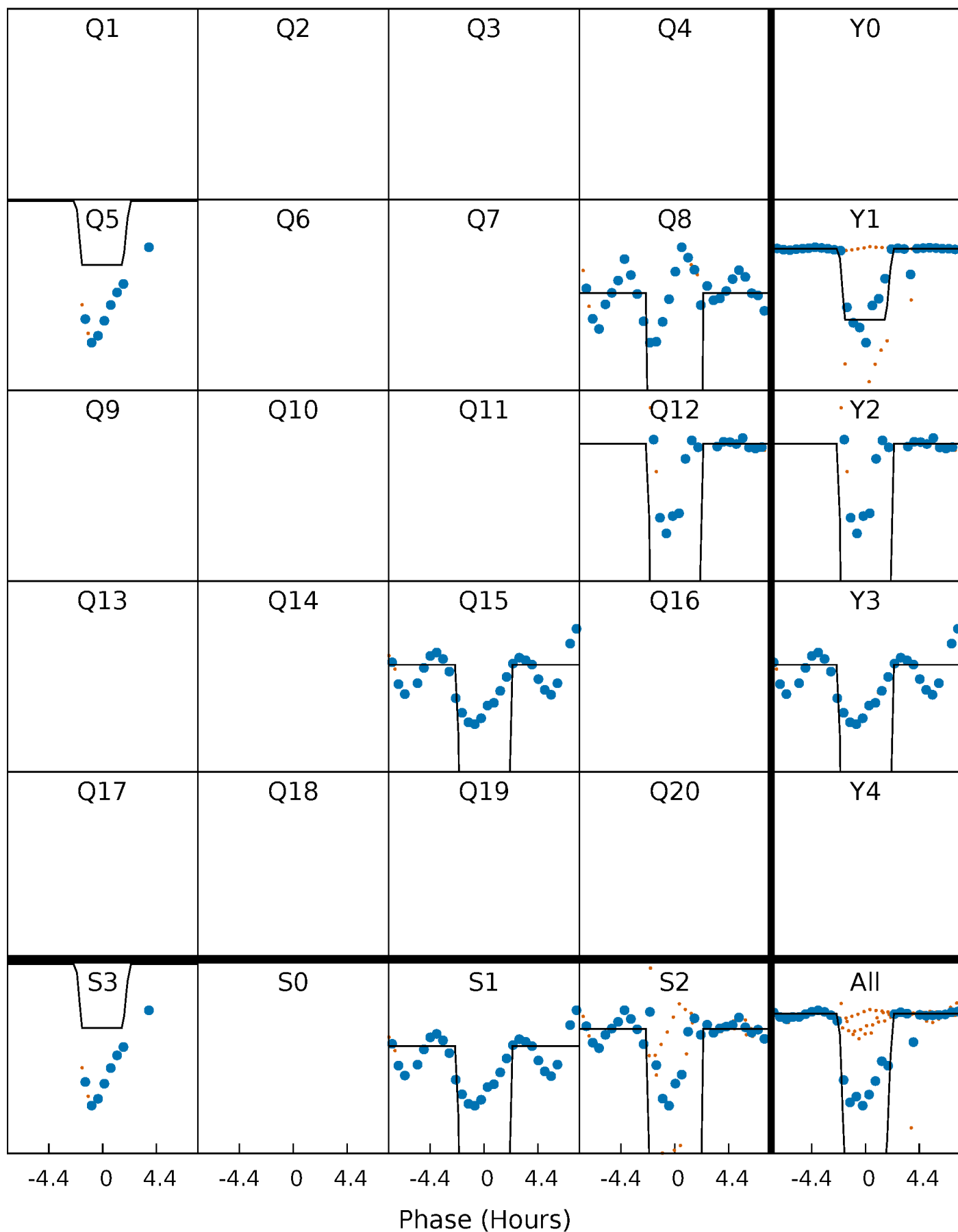
DV Quarter-Phased Transit Curves

TCE 007368621-01 P=333.493270 Days $T_0=443.564211$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

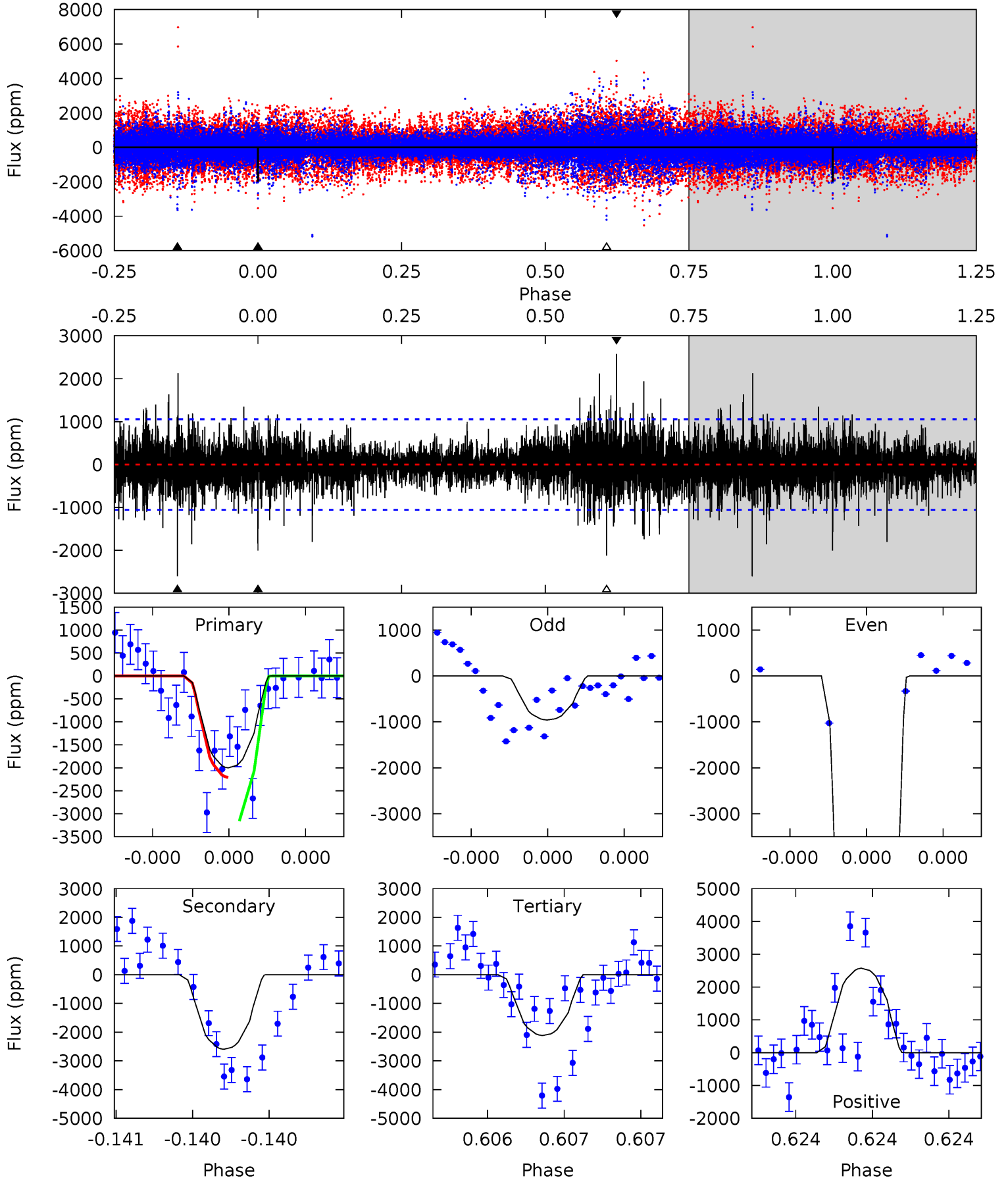
TCE 007368621-01 P=333.493179 Days $T_0=443.579957$ (BKJD)



DV Model-Shift Uniqueness Test

007368621-01, P = 333.493270 Days, E = 110.070941 Days

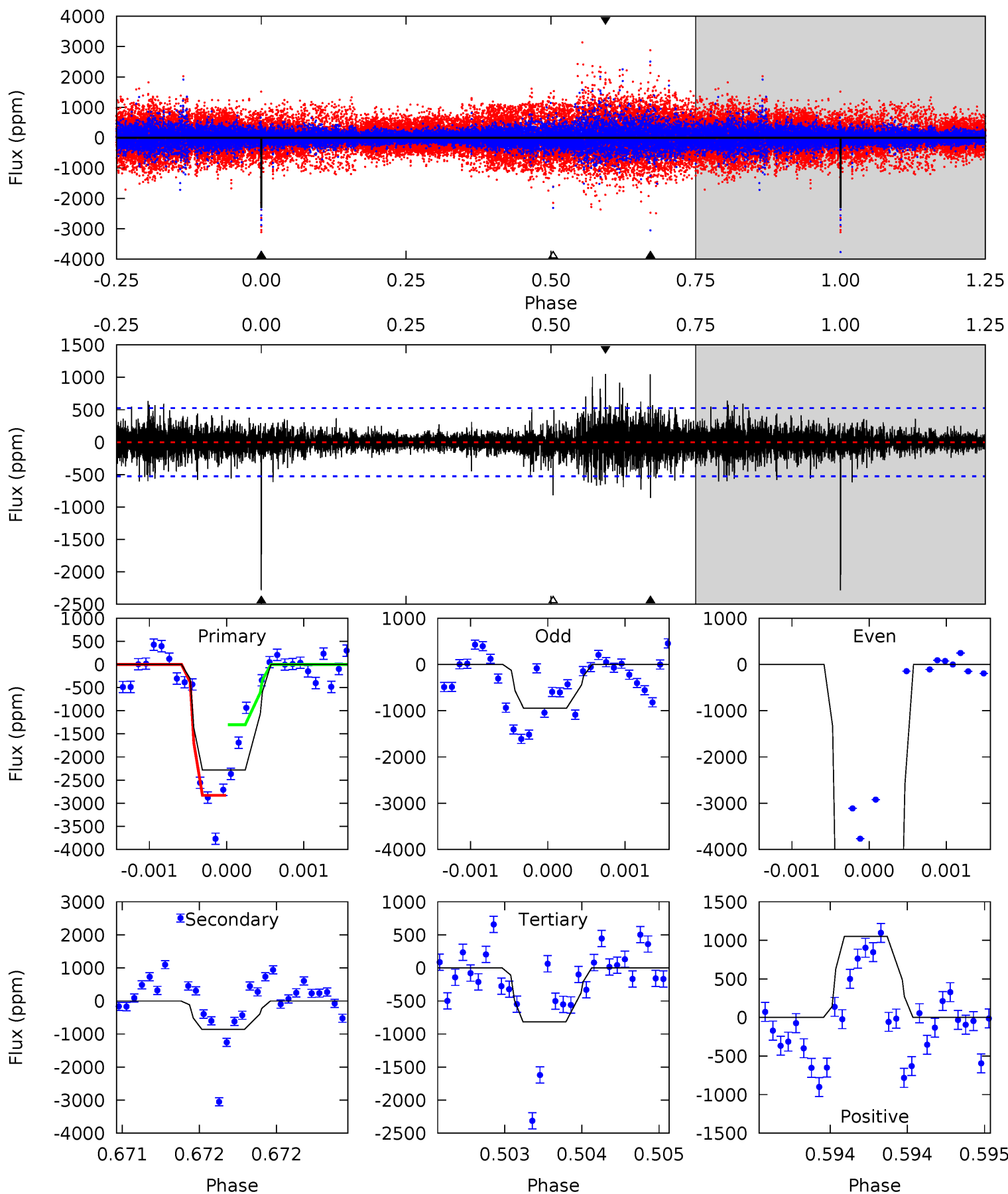
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	13.9	11.3	13.8	5.65	3.60	1.82	-0.62	-3.07	2.57	0.12	26.1	2.67	0.50	2.17



Alt Model-Shift Uniqueness Test

007368621-01, P = 333.493179 Days, E = 110.086778 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	9.07	8.63	11.1	5.56	3.45	1.39	15.5	13.0	0.44	-2.03	43.2	6.03	0.32	6.85



Stellar Parameters For KIC 007368621

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3274^{+117}_{-78}	$0.108^{+0.195}_{-0.052}$	$-0.080^{+0.250}_{-0.100}$	$154.296^{+9.192}_{-27.576}$	$1.114^{+0.207}_{-0.128}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+181%/-48%	+312%/-125%	+6%/-18%	+19%/-11%	+90%/-14%
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 007368621-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2599 ± 187	$782.77^{+575.10}_{-475.45}$	2496^{+105}_{-127}	3274^{+1317}_{-606}	$2.256^{+12.792}_{-1.479}$
Alt.	-858 ± 95	$2482.43^{+635.46}_{-616.96}$	2498^{+112}_{-130}	-2434^{+117}_{-100}	$0.075^{+0.058}_{-0.029}$

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 $A_{obs} \gg 1.0$

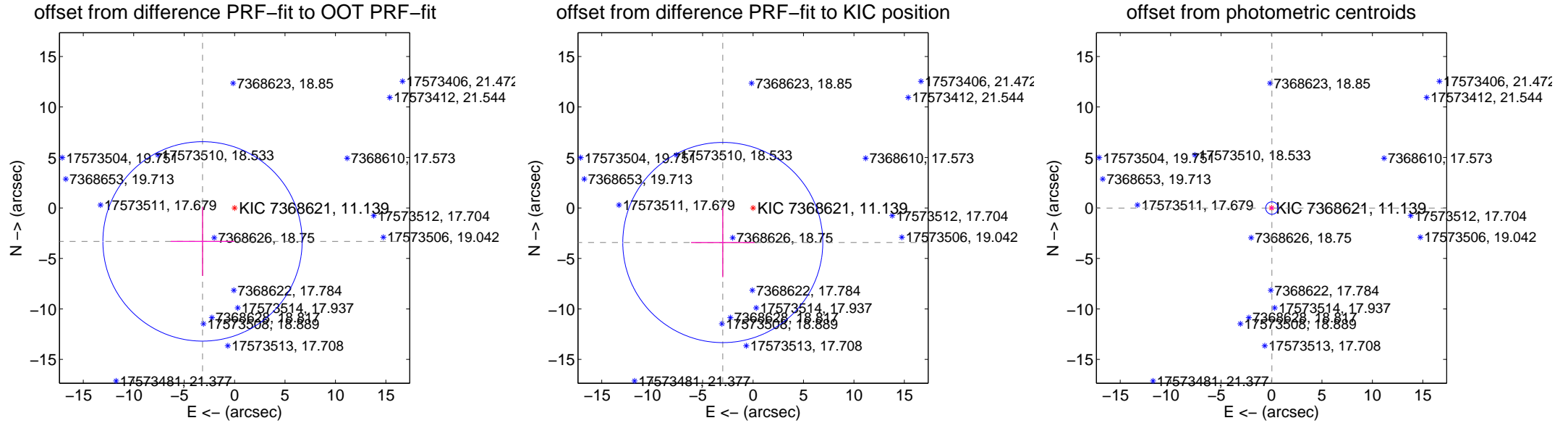
DV Centroid Data

Supplemental centroid analysis for 007368621-01. **Kepler magnitude: 11.14.** Transit SNR 14.47

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.591 ± 3.292	1.39	3.179 ± 3.143	-3.313 ± 3.423
PRF-fit source offset from KIC position	4.551 ± 3.304	1.38	2.999 ± 3.143	-3.423 ± 3.423
photometric centroid source offset	0.04 ± 0.21	0.20	-0.04 ± 0.21	-0.01 ± 0.20

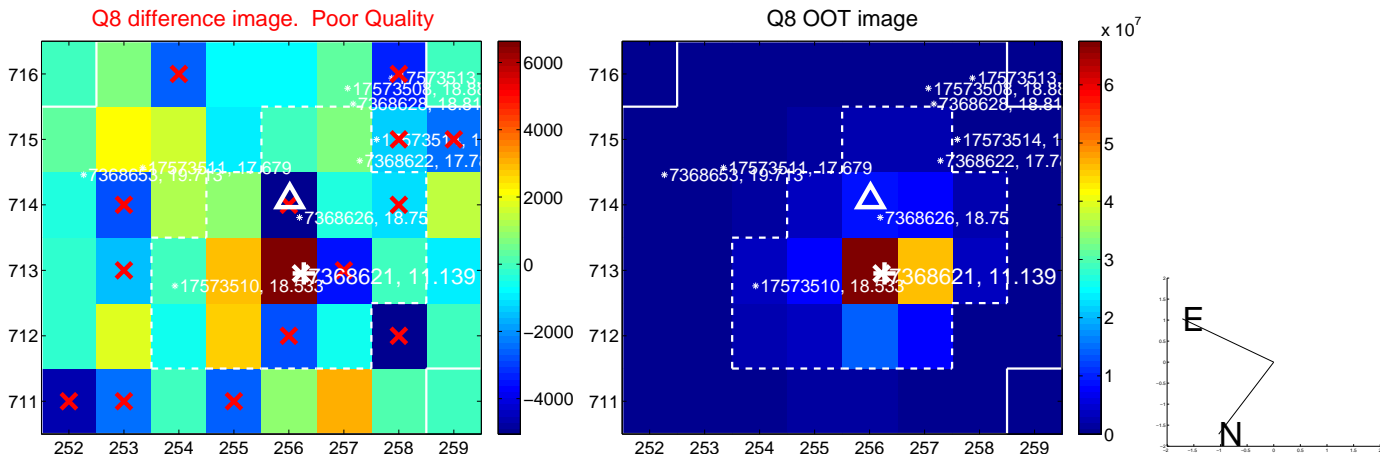


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



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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



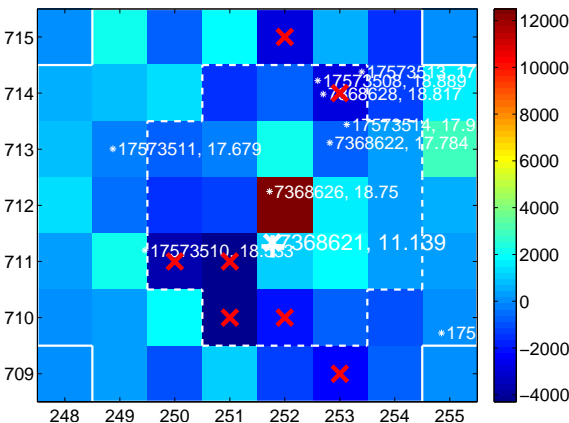
Q14 no difference image



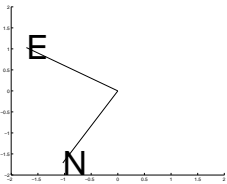
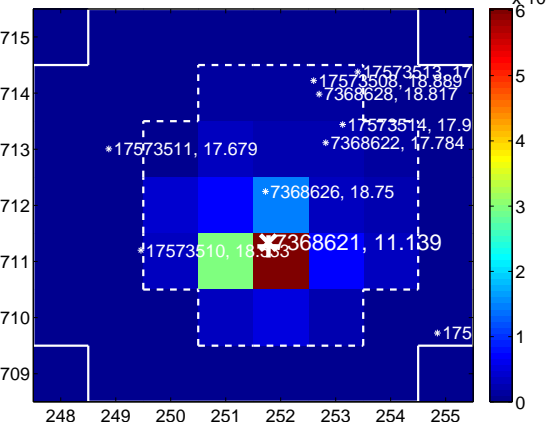
Q14 no OOT image



Q15 difference image. Poor Quality



Q15 OOT image



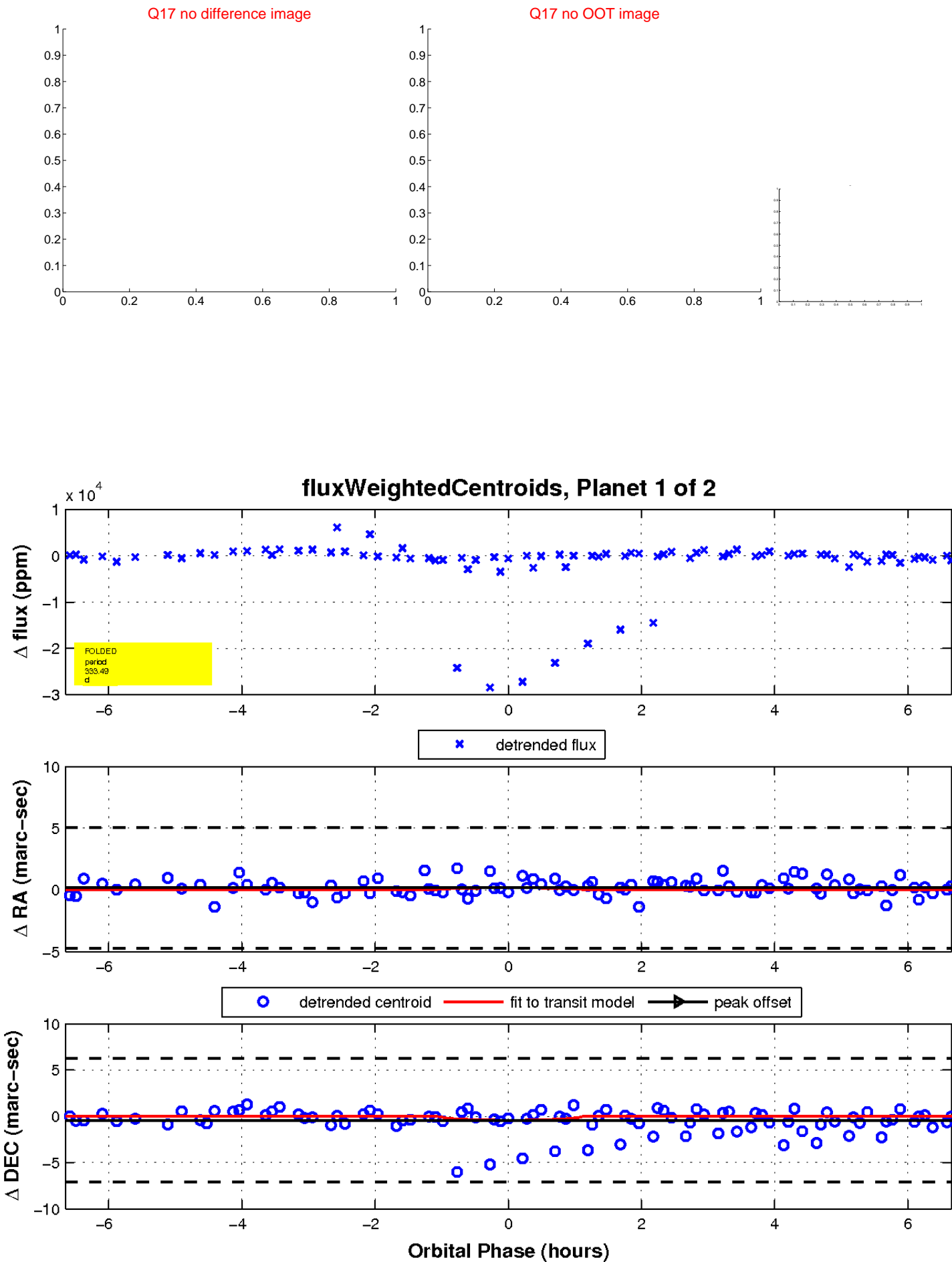
Q16 no difference image



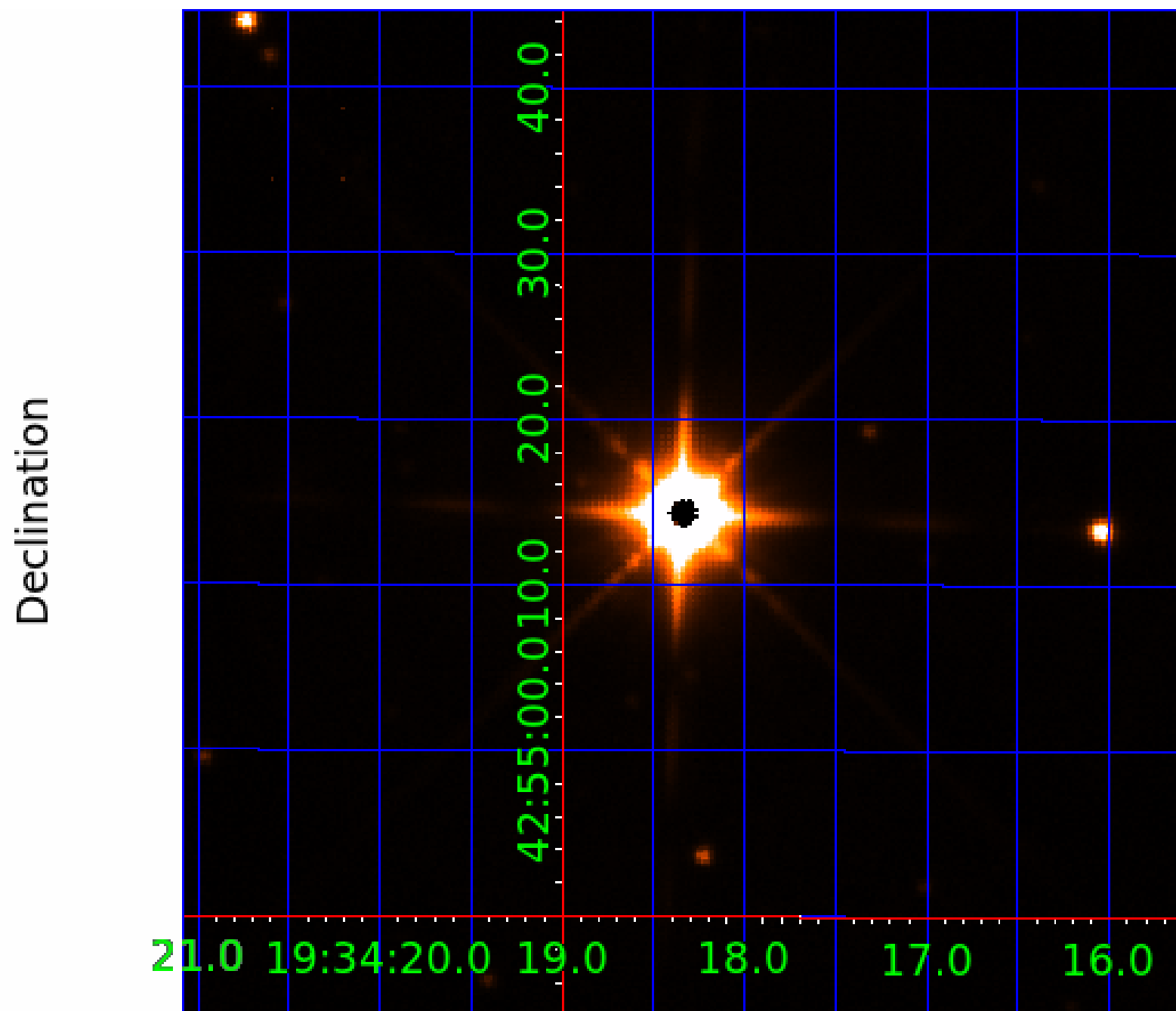
Q16 no OOT image



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



UKIRT Image



KIC 007368621

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})
007368621-01	OBS	No	333.493270	443.564211	2887.4	2.228	21.7	14.5	154.30	3274	762.45	2574.32
007368621-02	OBS	No	424.229969	317.810887	2682.4	3.978	11.0	13.9	154.30	3274	1694.43	1867.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007368621-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
007368621-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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.

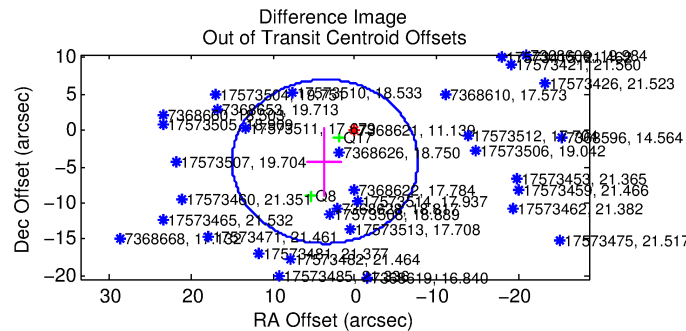
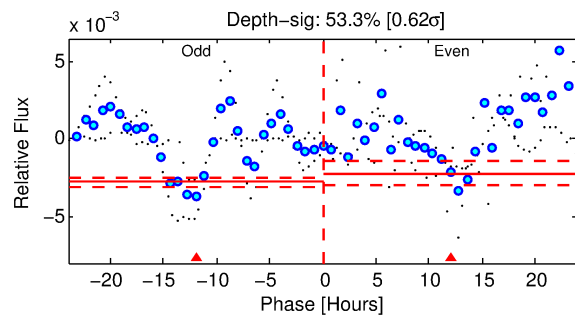
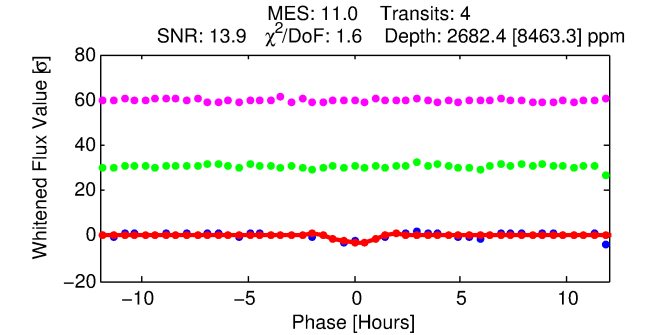
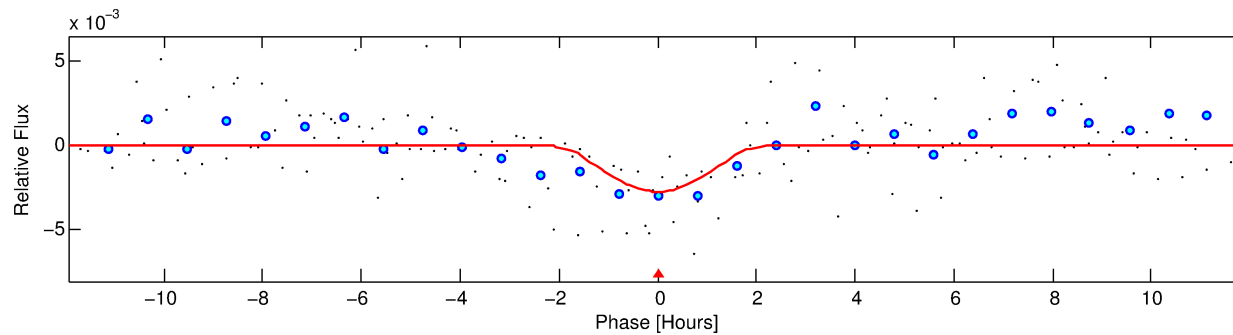
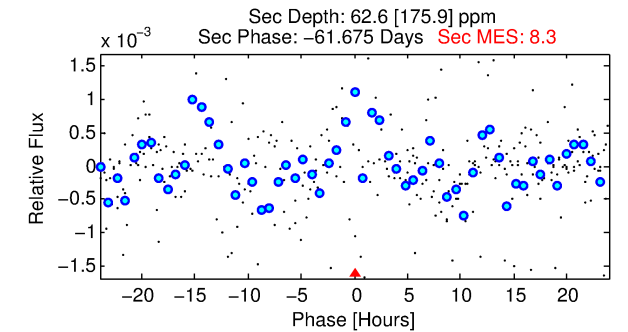
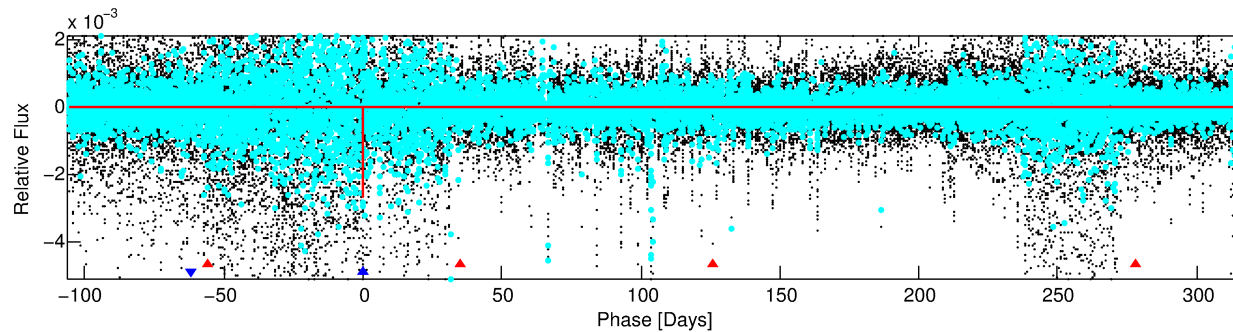
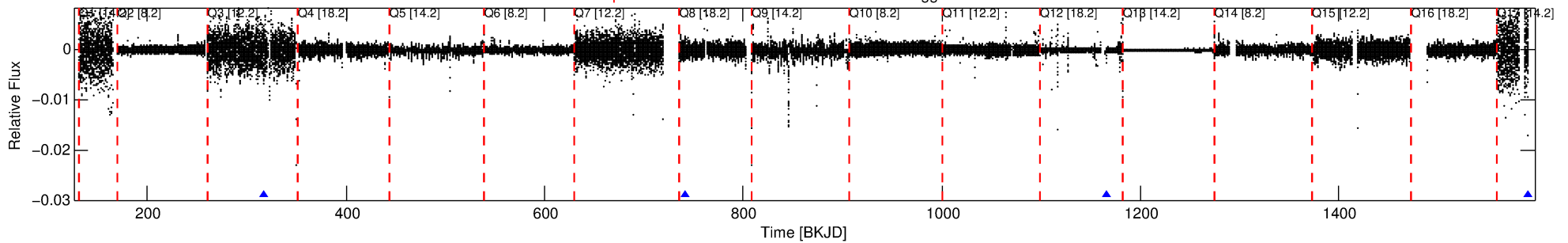
Ephemeris Match Information For 007368621-02

No Significant Match Found

DV One-Page Summary

KIC: 7368621 Candidate: 2 of 2 Period: 424.230 d

Kp: 11.14 R*: 154.30 Rs Teff: 3274.0 K Logg: 0.11 Fe/H: -0.080



DV Fit Results:

Period = 424.22997 [0.00594] d
Epoch = 317.8109 [0.0112] BKJD
Rp/R* = 0.1006 [0.2442]
a/R* = 374.64 [164.89]
b = 1.00 [0.53]
Seff = 1867.71 [658.30]
Teq = 1676 [148] K
Rp = 1694.43 [4123.44] Re
a = 1.1455 [0.2191] AU
Ag = 0.02 [0.09] [-11.14σ]
Teffp = 918 [1288] K [-0.59σ]

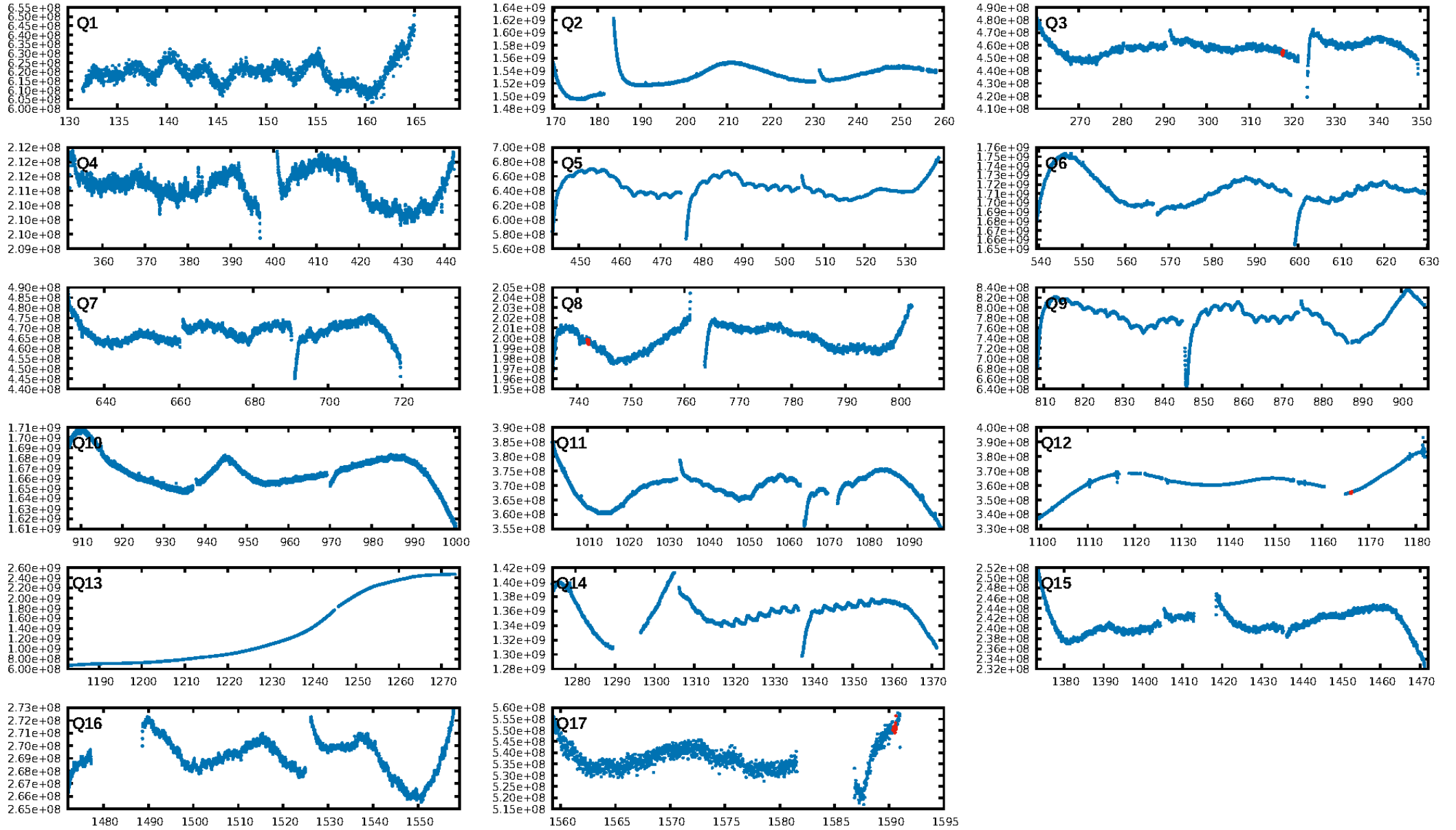
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [477.67σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 11.0%
ModelChiSquareGof-sig: 48.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -15.97
Centroid-sig: 71.5%
Centroid-so: 0.240 arcsec [1.52σ]
OotOffset-rm: 5.644 arcsec [1.50σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 5.805 arcsec [1.56σ]
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DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

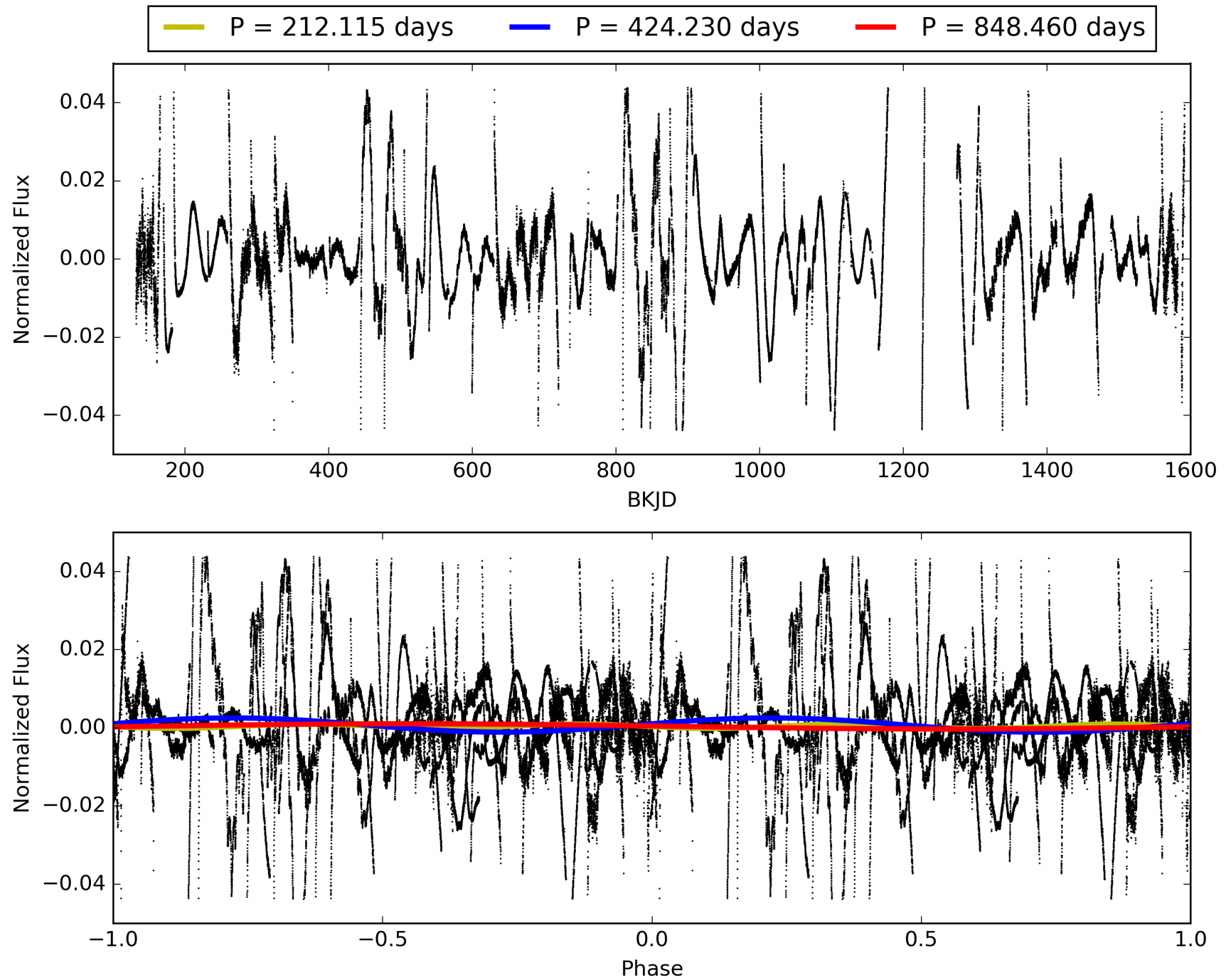
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:14:00 Z

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

TCE 007368621-02, PDC Light Curves

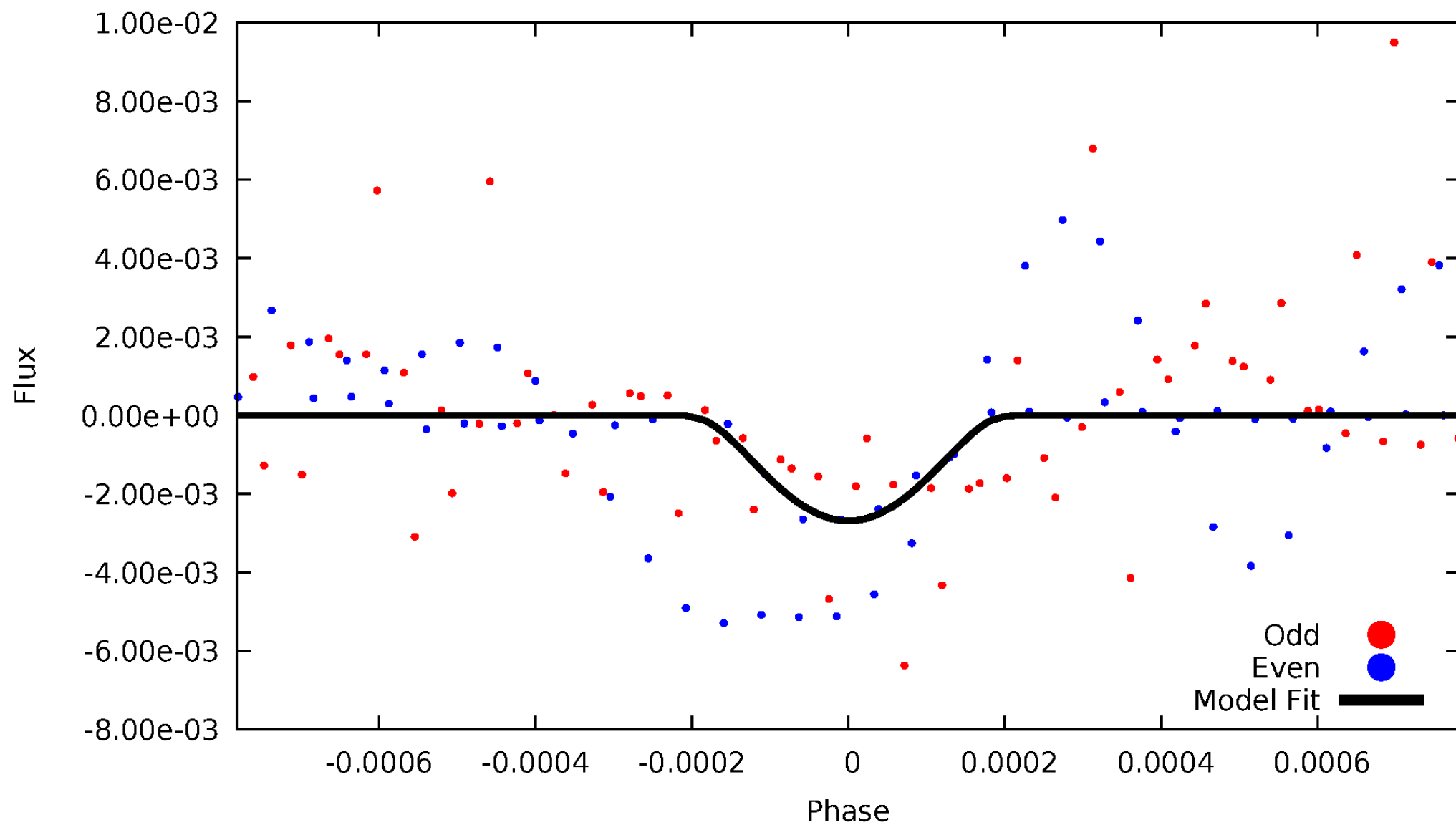


TCE 007368621-02



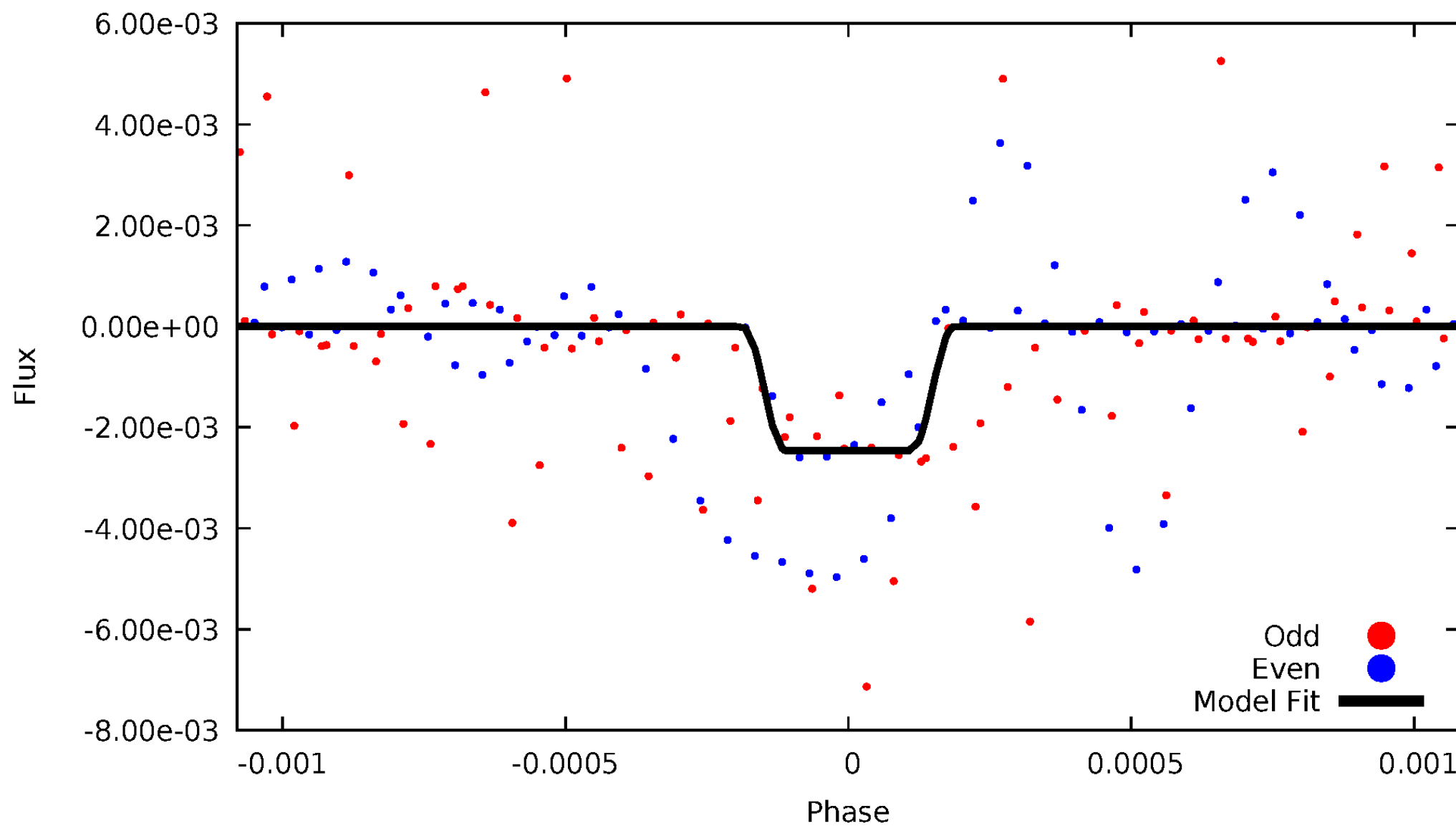
DV Odd/Even

TCE 007368621-02



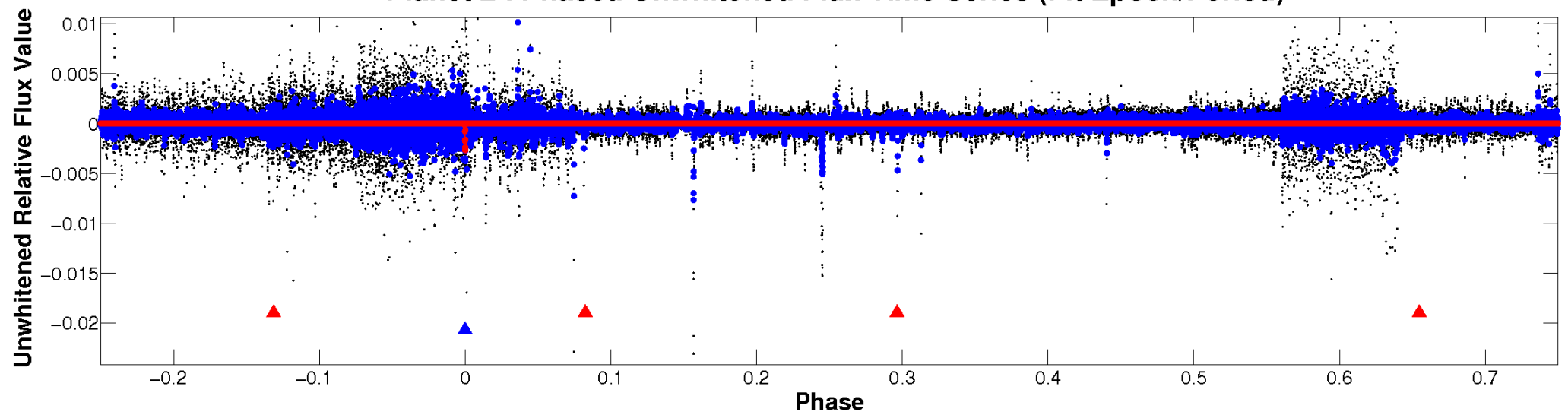
ALT Odd/Even

TCE 007368621-02

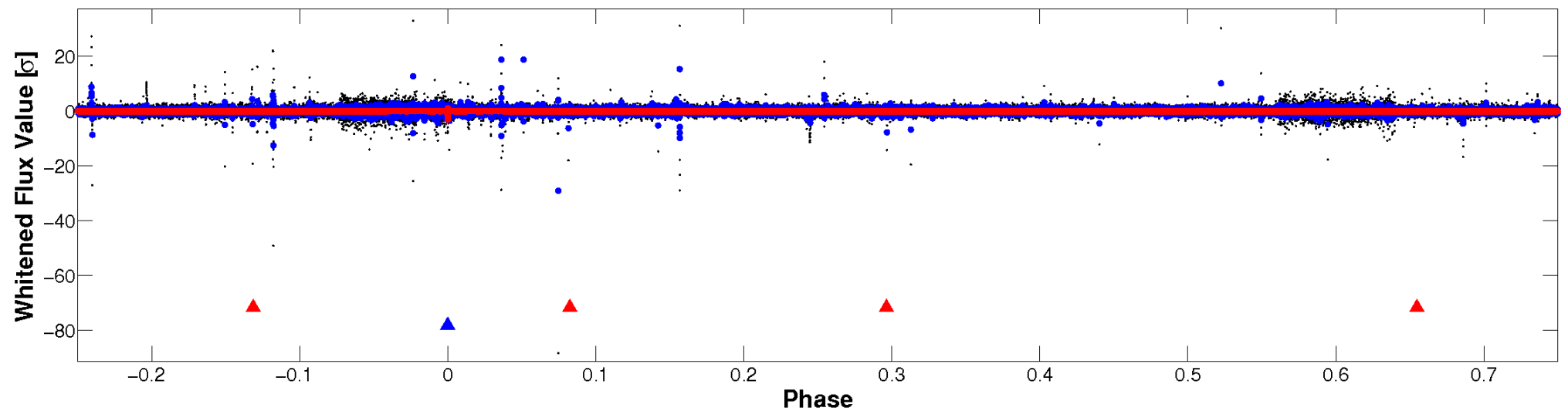


Non-Whitened Vs. Whitened Light Curve

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

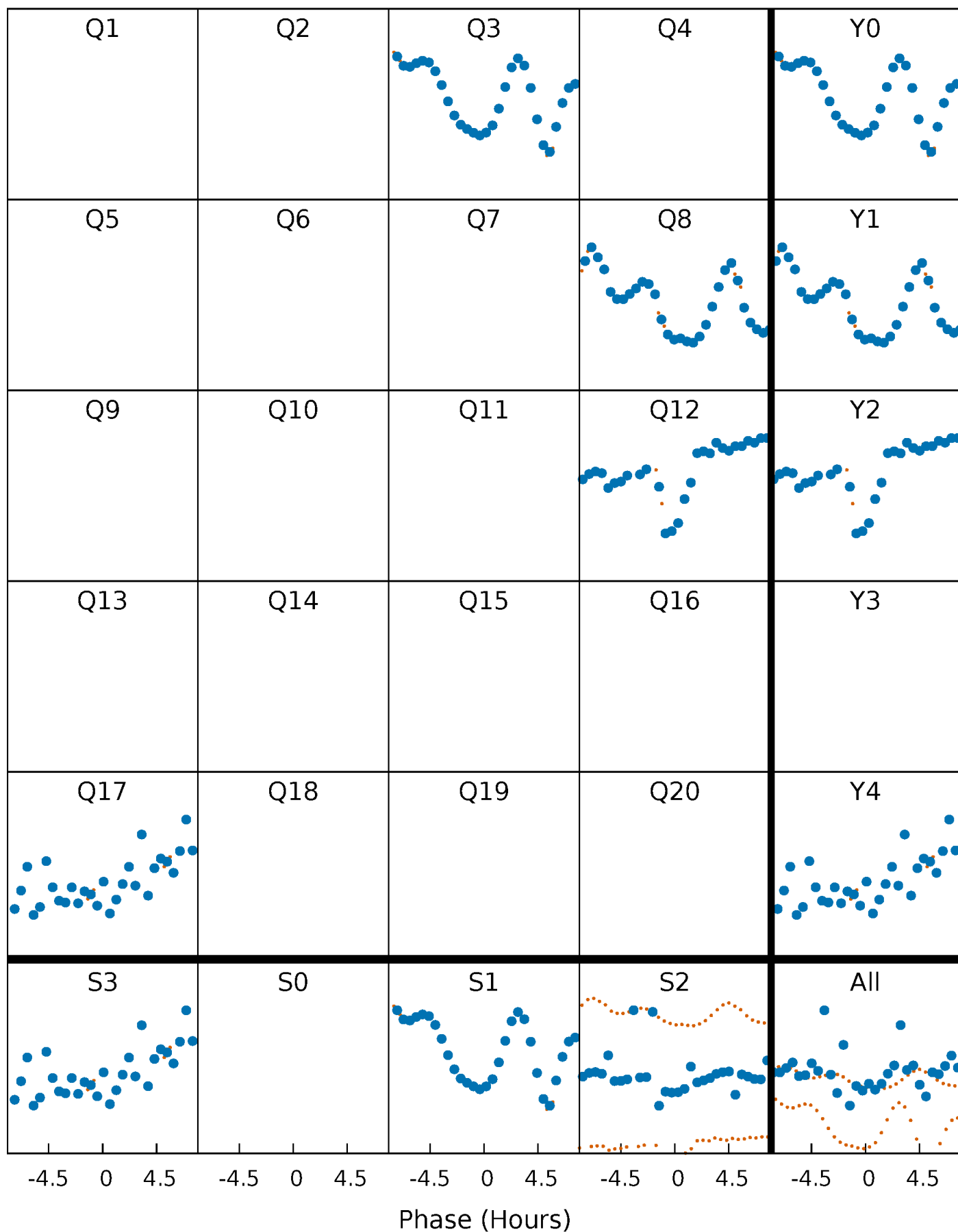


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



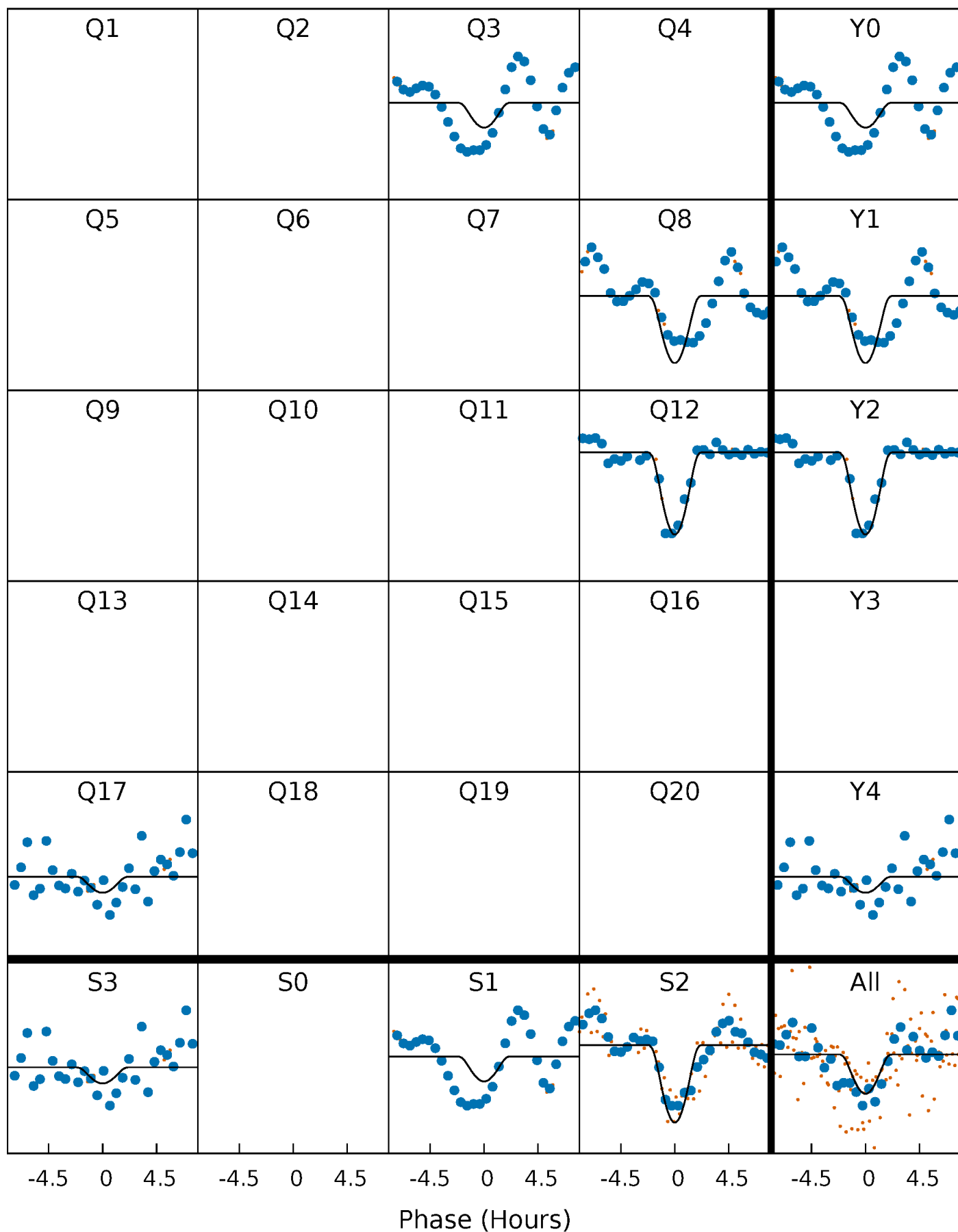
PDC Quarter-Phased Transit Curves

TCE 007368621-02 P=424.229969 Days $T_0=317.810887$ (BKJD)



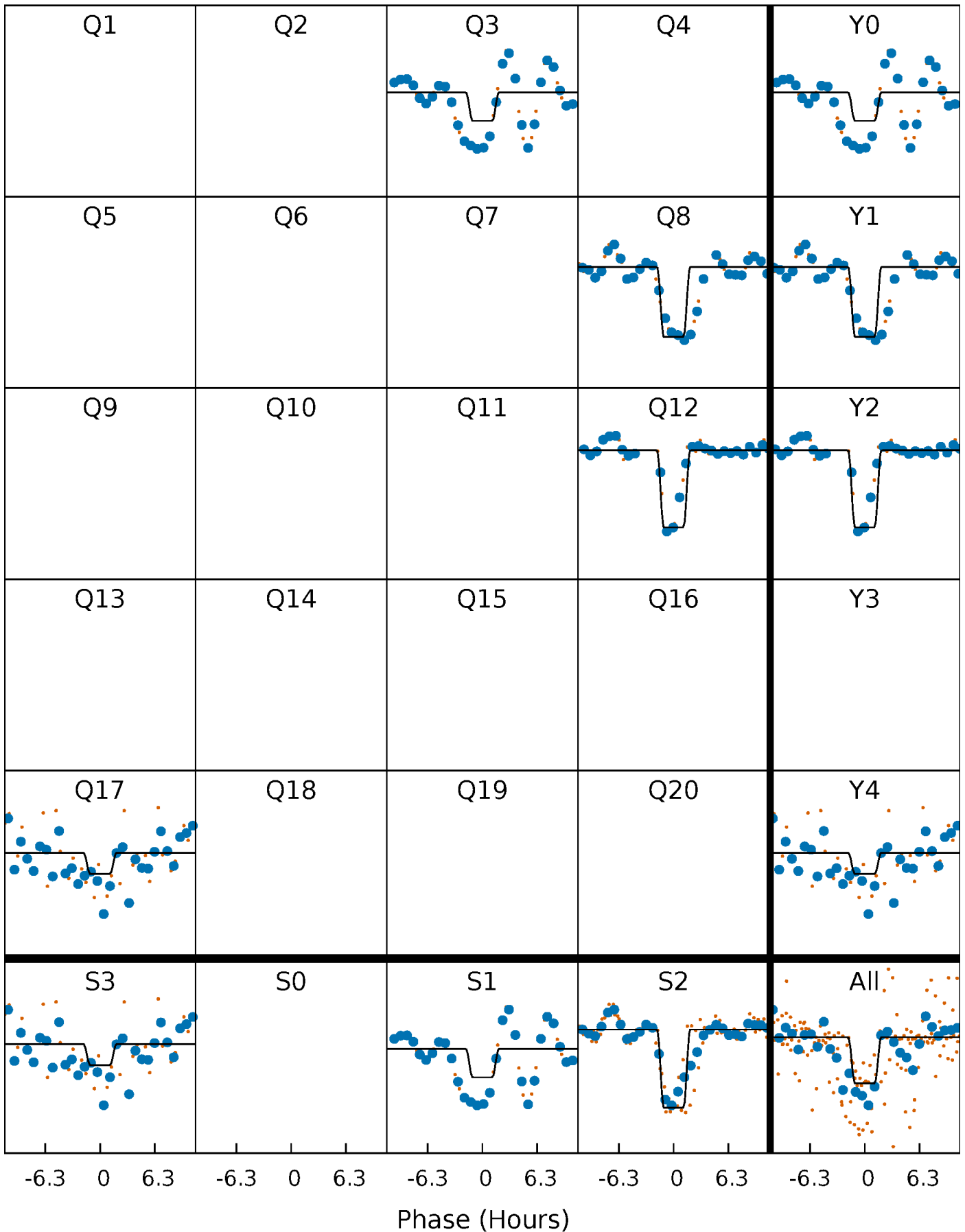
DV Quarter-Phased Transit Curves

TCE 007368621-02 P=424.229969 Days $T_0=317.810887$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

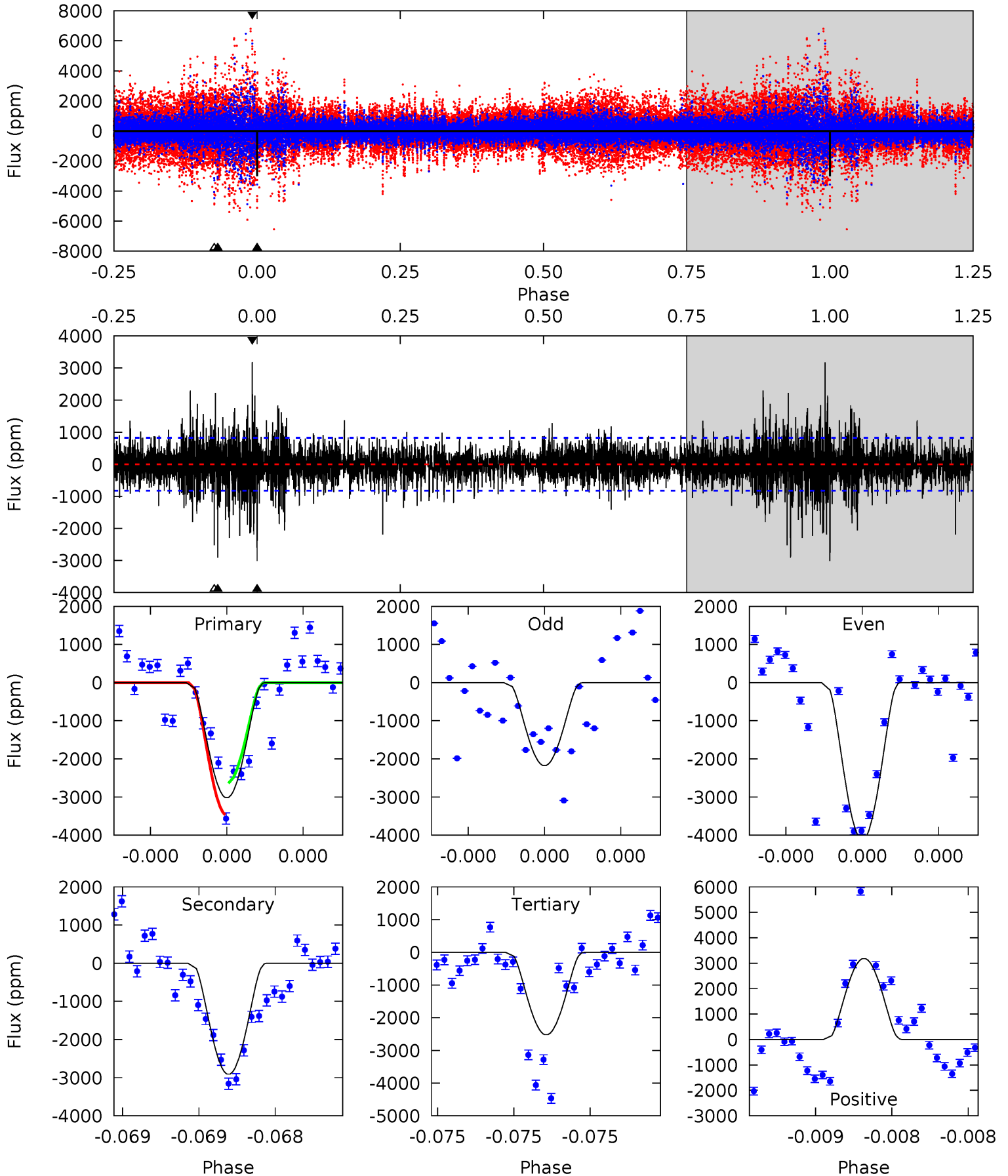
TCE 007368621-02 $P=424.234761$ Days $T_0=317.813279$ (BKJD)



DV Model-Shift Uniqueness Test

007368621-02, P = 424.229969 Days, E = 317.810887 Days

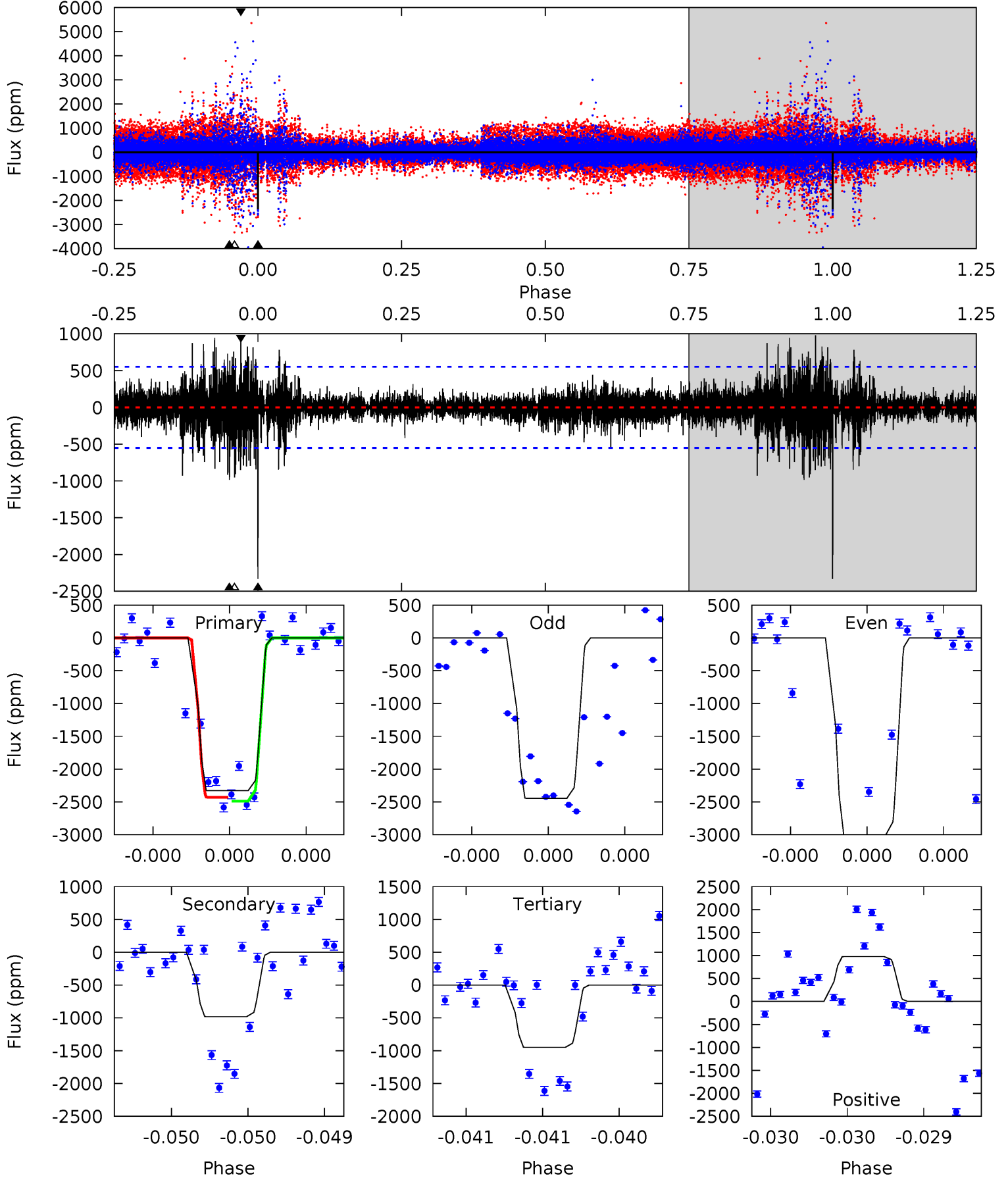
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	19.7	17.1	21.6	5.60	3.52	2.69	3.36	-1.11	2.63	-1.84	5.35	1.07	0.51	2.68



Alt Model-Shift Uniqueness Test

007368621-02, P = 424.234761 Days, E = 317.813279 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	10.0	9.69	9.97	5.63	3.56	1.36	14.1	13.8	0.33	0.05	2.59	0.98	0.30	0.27



Stellar Parameters For KIC 007368621

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3274^{+117}_{-78}	$0.108^{+0.195}_{-0.052}$	$-0.080^{+0.250}_{-0.100}$	$154.296^{+9.192}_{-27.576}$	$1.114^{+0.207}_{-0.128}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+181%/-48%	+312%/-125%	+6%/-18%	+19%/-11%	+90%/-14%
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 007368621-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2906 ± 147	$3415.83^{+3021.13}_{-2357.60}$	2317^{+99}_{-124}	-2163^{+5164}_{-233}	$0.190^{+1.664}_{-0.138}$
Alt.	-982 ± 98	$3012.19^{+3055.87}_{-2149.37}$	2309^{+102}_{-127}	-2315^{+4959}_{-127}	$0.082^{+0.848}_{-0.062}$

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

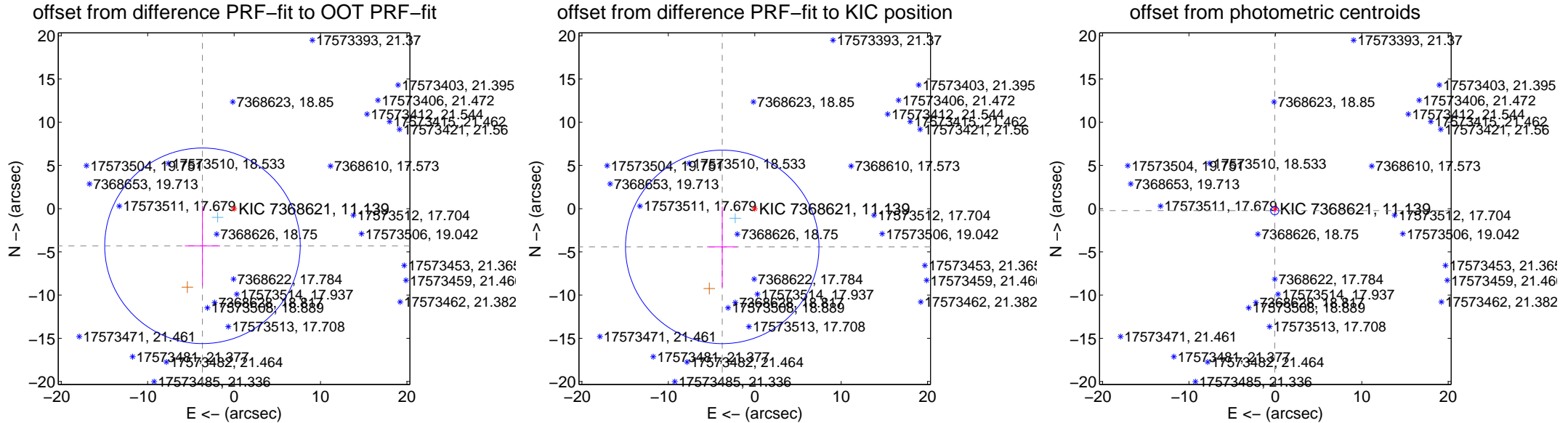
DV Centroid Data

Supplemental centroid analysis for 007368621-02. **Kepler magnitude: 11.14.** Transit SNR 13.88

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.644 ± 3.771	1.50	3.661 ± 2.048	-4.296 ± 4.637
PRF-fit source offset from KIC position	5.805 ± 3.731	1.56	3.760 ± 1.756	-4.423 ± 4.664
photometric centroid source offset	0.24 ± 0.16	1.52	0.07 ± 0.15	-0.23 ± 0.16



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



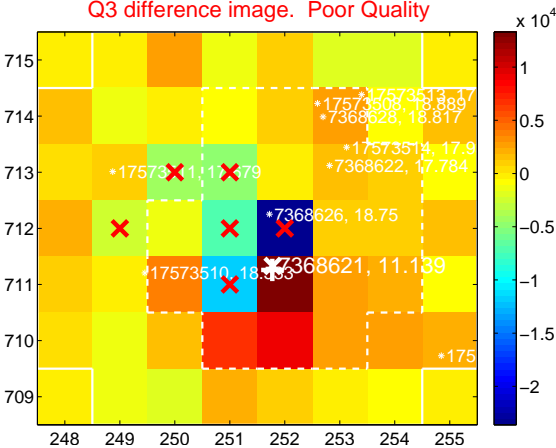
Q2 no difference image



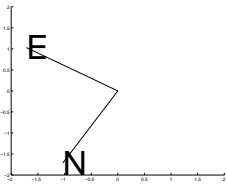
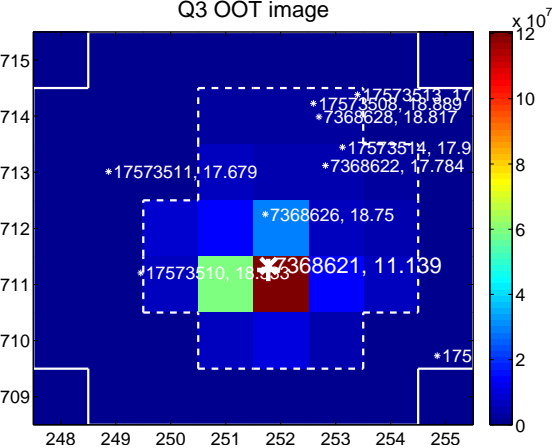
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



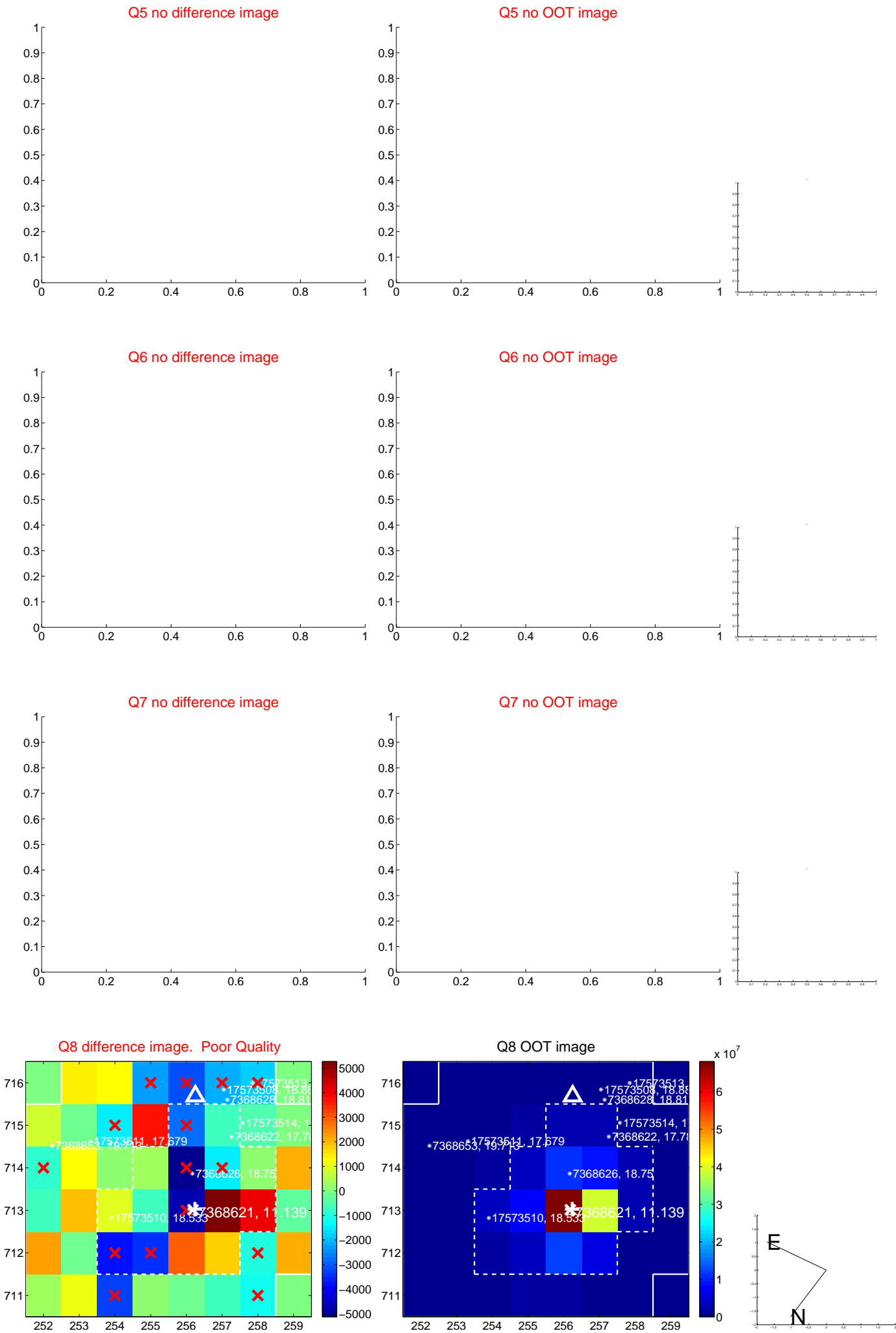
Q4 no difference image



Q4 no OOT image



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



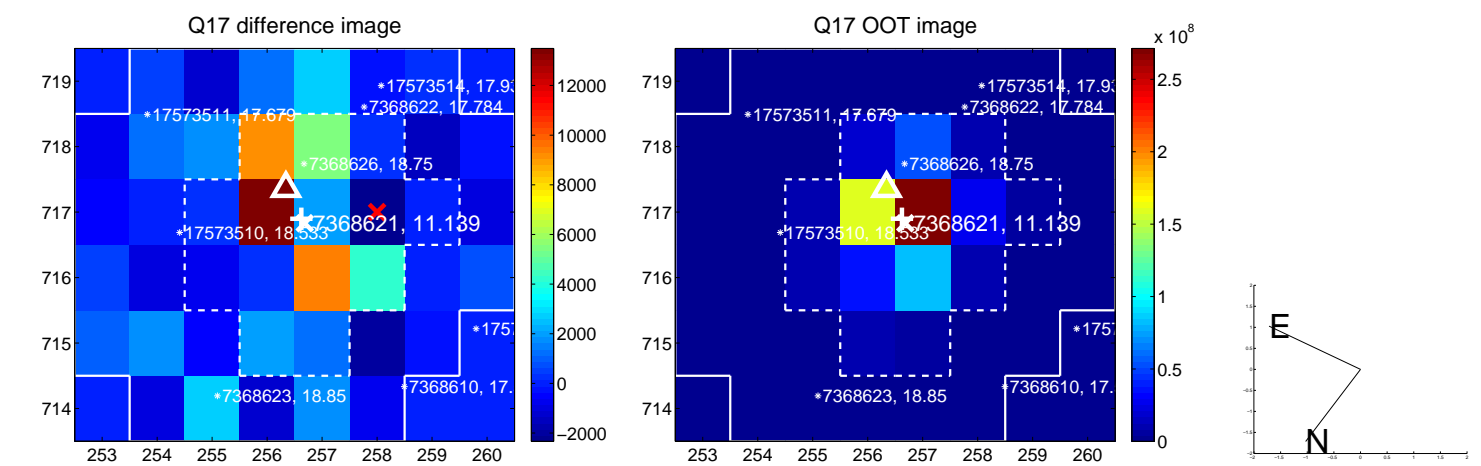
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



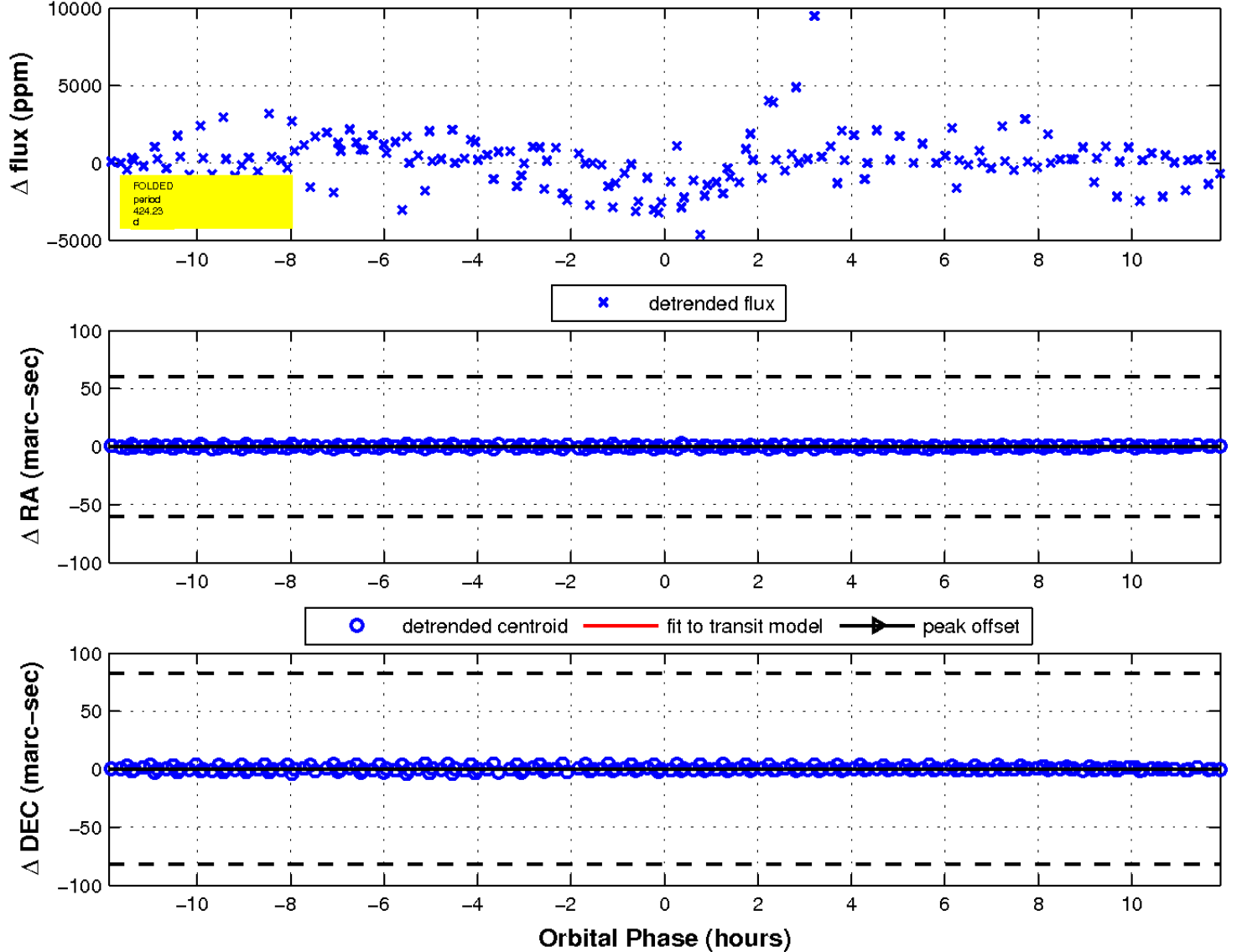
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

