

KIC 009950317

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})
009950317-01	OBS	No	367.347994	148.262839	1435.9	30.144	10.4	10.4	1.04	6214	4.62	1.37
009950317-02	OBS	No	359.641278	160.696800	1143.9	31.900	7.6	8.9	1.04	6214	3.53	1.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009950317-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS
009950317-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

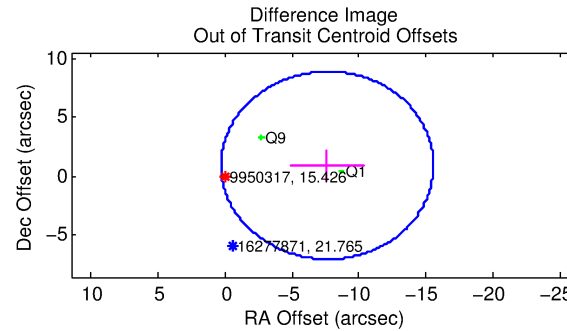
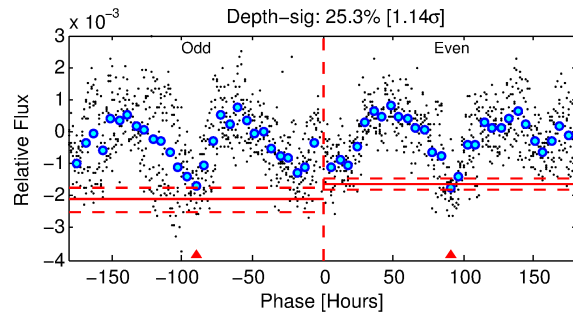
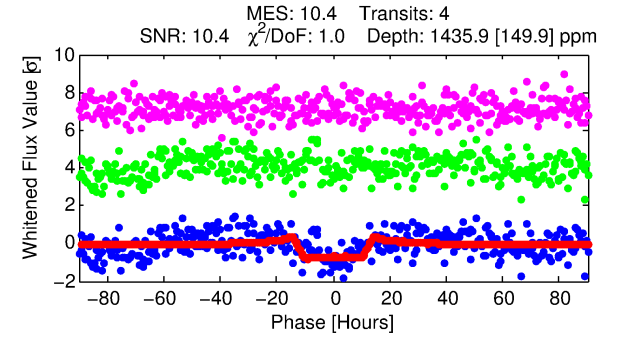
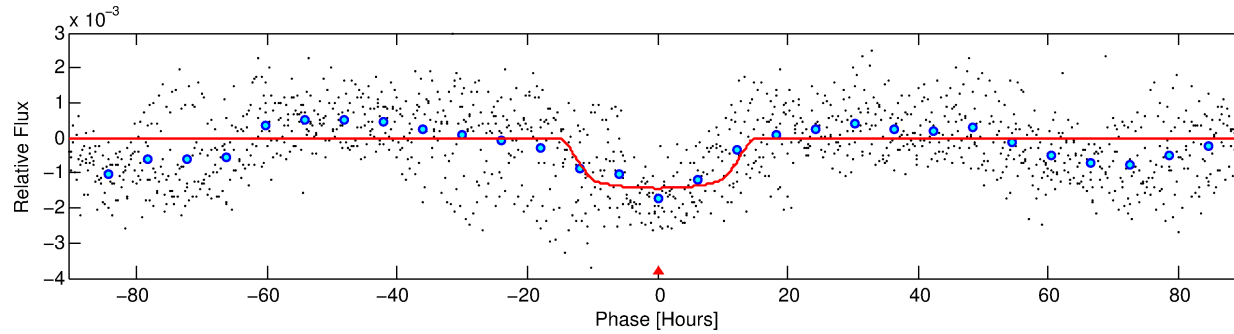
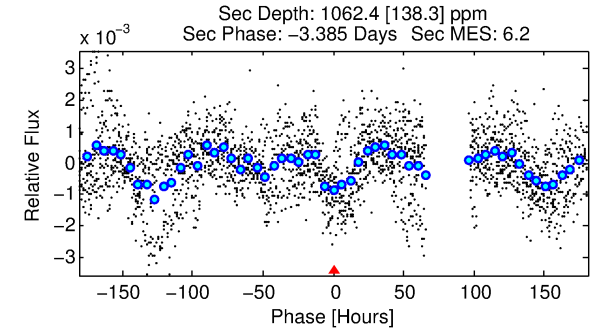
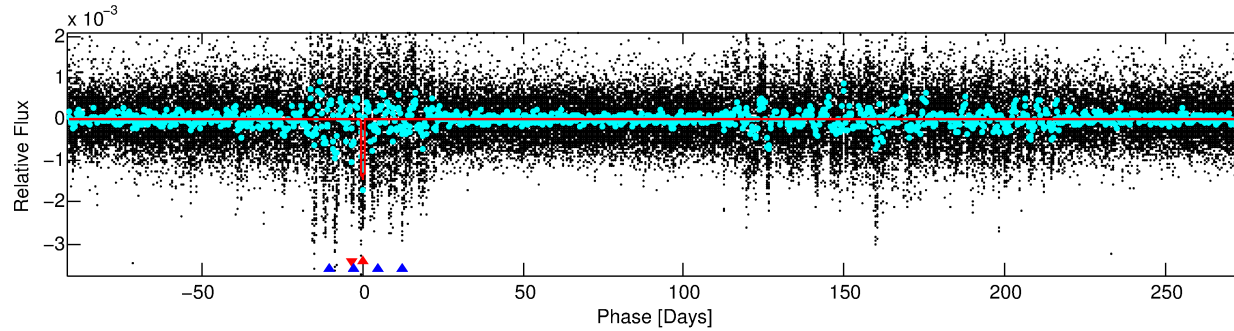
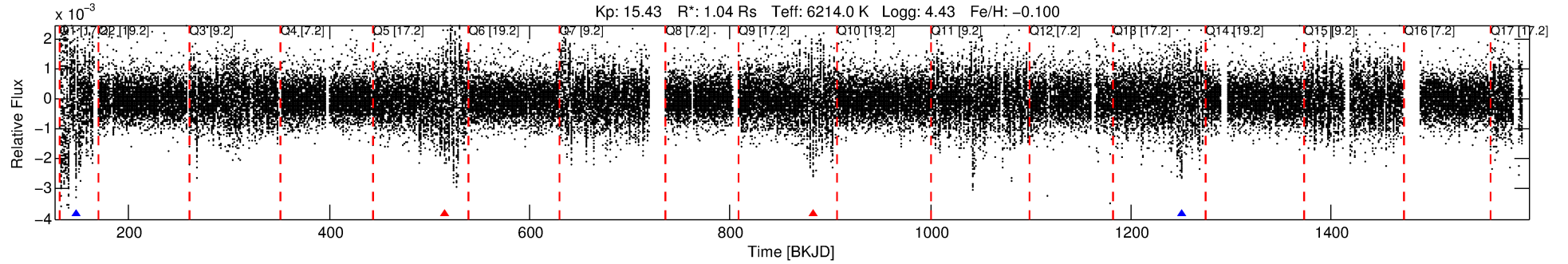
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009950317-01

No Significant Match Found

DV One-Page Summary

KIC: 9950317 Candidate: 1 of 2 Period: 367.348 d



DV Fit Results:

Period = 367.34799 [0.02015] d
Epoch = 148.2628 [0.0393] BKJD
Rp/R* = 0.0406 [0.0026]
a/R* = 49.72 [7.92]
b = 0.89 [0.04]
Seff = 1.37 [0.59]
Teq = 276 [30] K
Rp = 4.62 [1.57] Re
a = 1.0309 [0.2902] AU
Ag = 29048.17 [13032.98] [2.23σ]
Teffp = 5568 [323] K [16.32σ]

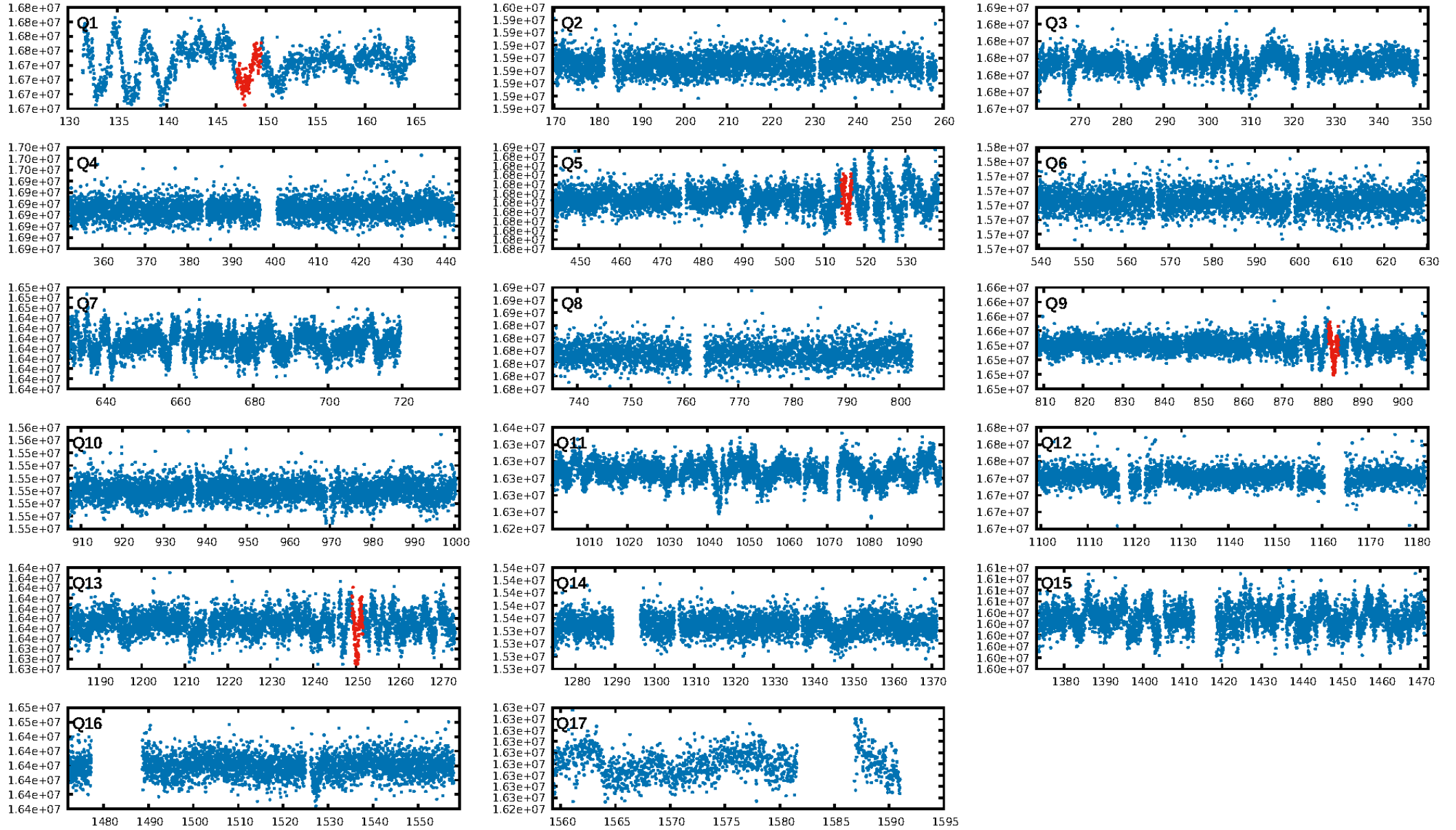
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.21σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.42e-15
RollingBand-fgt: 0.33 [1/3]
GhostDiagnostic-chr: 1.537
Centroid-sig: 96.7%
Centroid-so: 0.459 arcsec [0.33σ]
OotOffset-rm: 7.692 arcsec [2.91σ]
KicOffset-rm: 7.675 arcsec [2.89σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

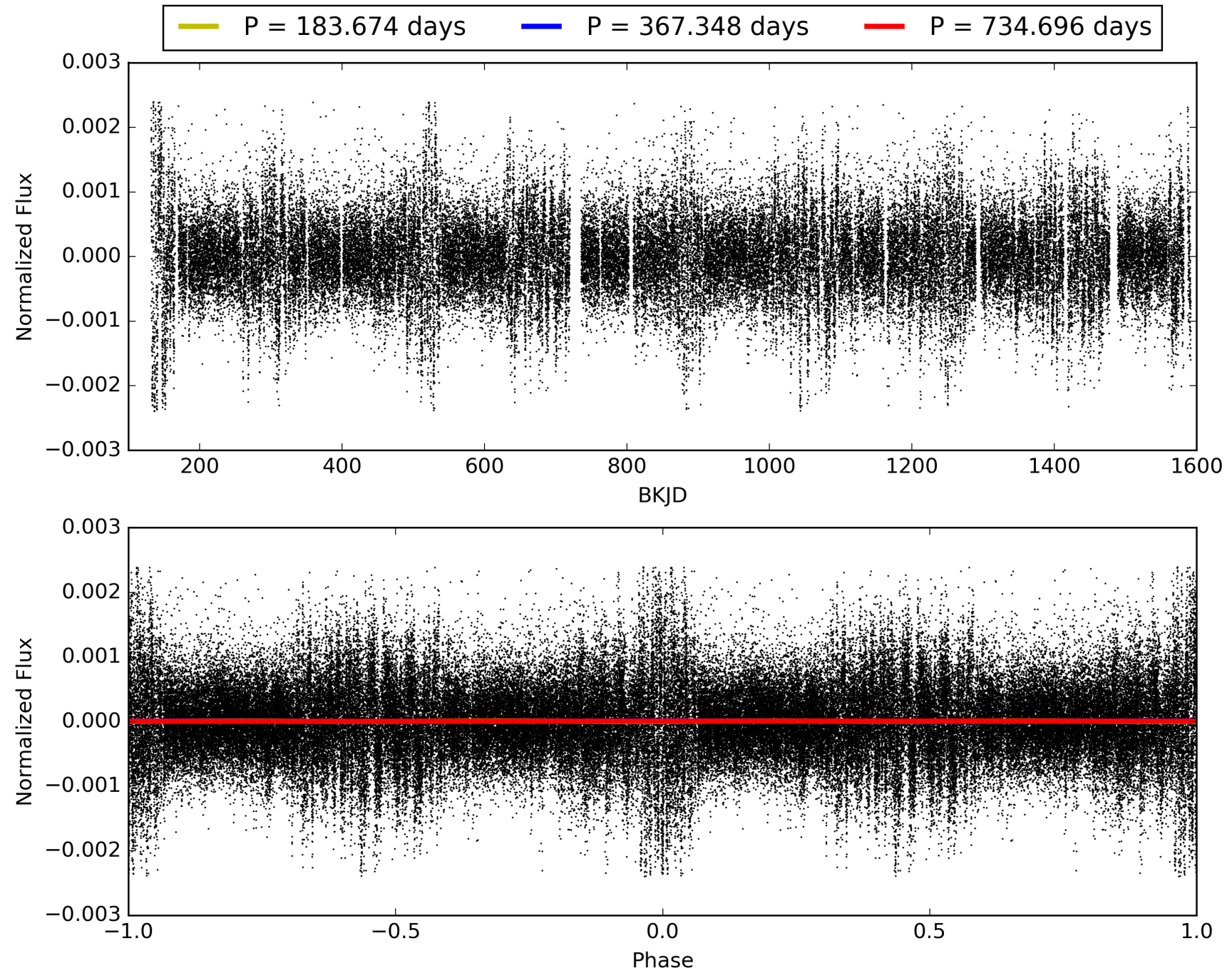
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:54:08 Z

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

TCE 009950317-01, PDC Light Curves

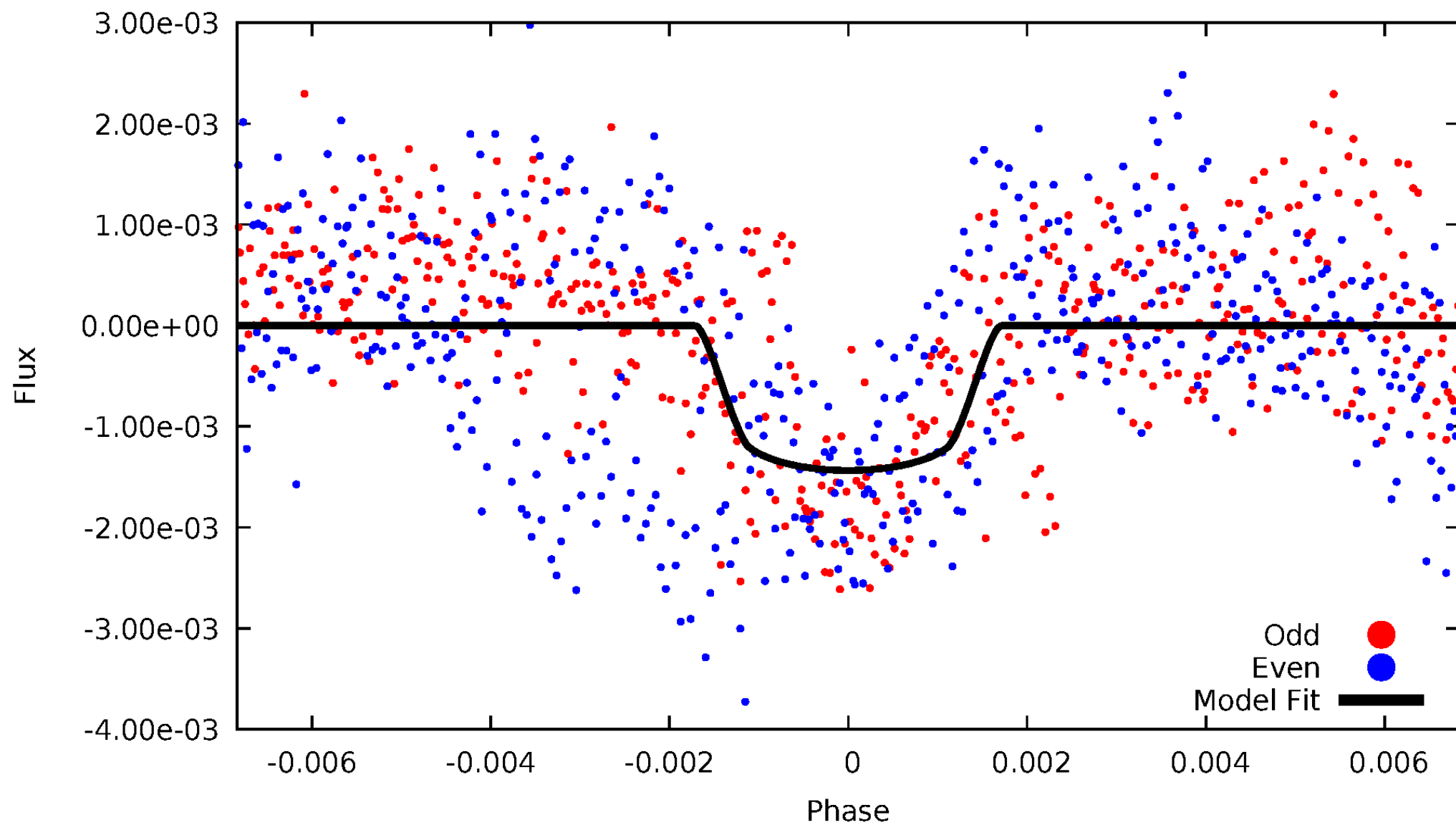


TCE 009950317-01



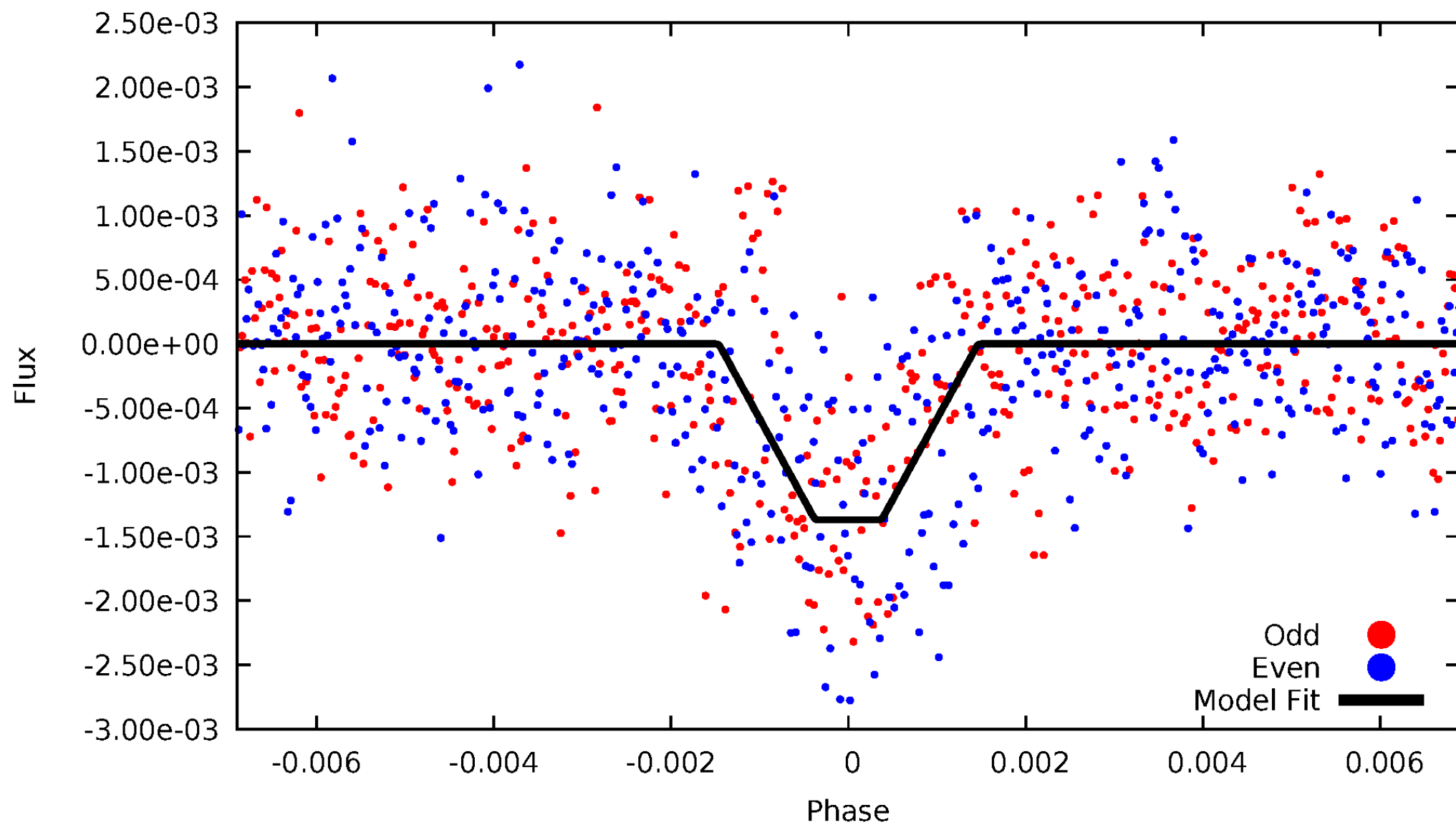
DV Odd/Even

TCE 009950317-01



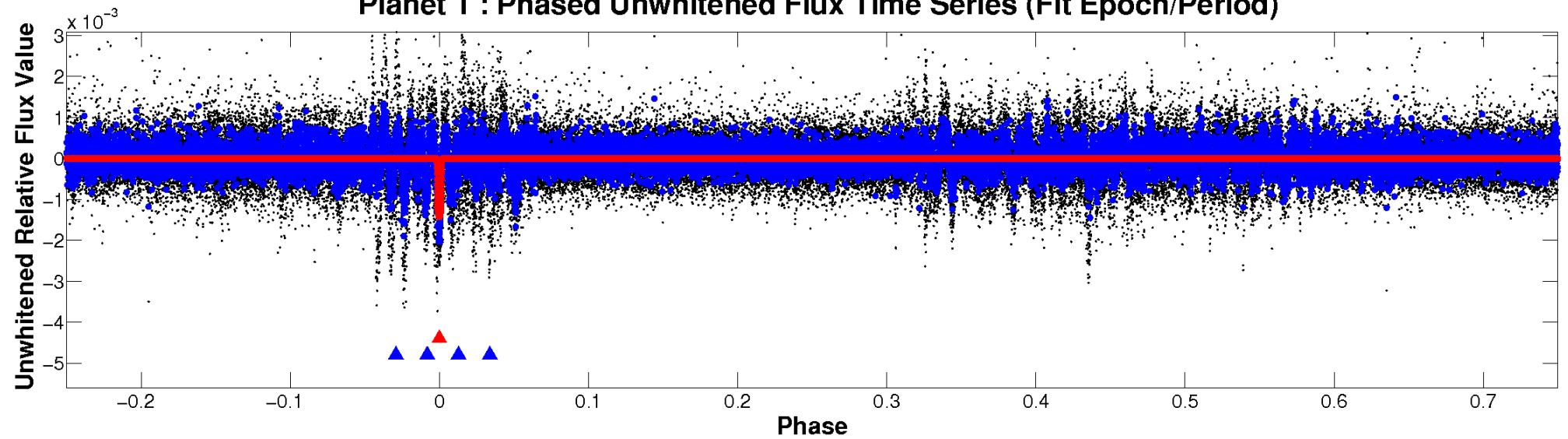
ALT Odd/Even

TCE 009950317-01

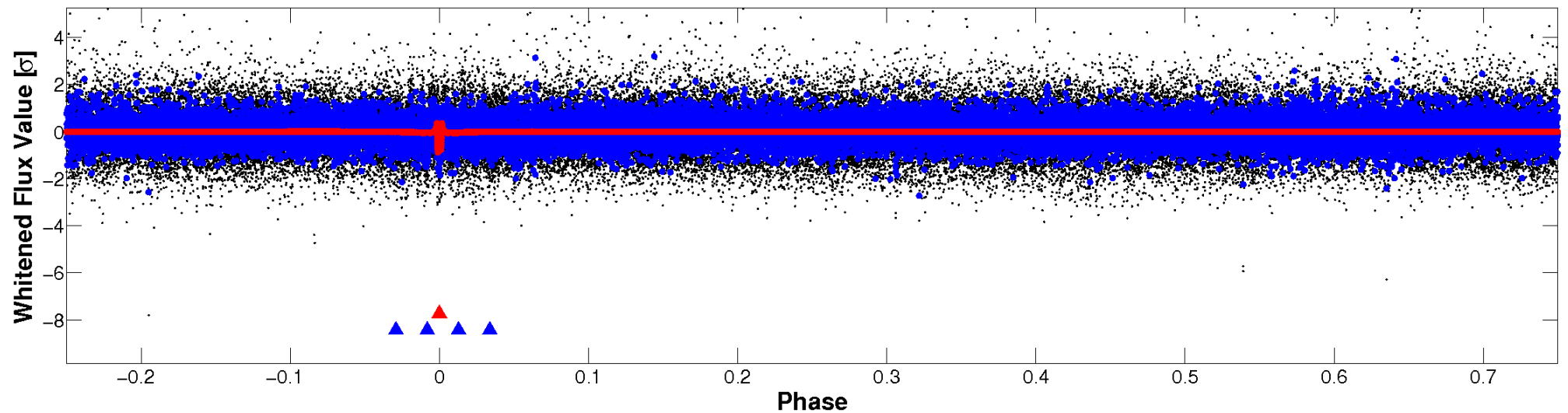


Non-Whitened Vs. Whitened Light Curve

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

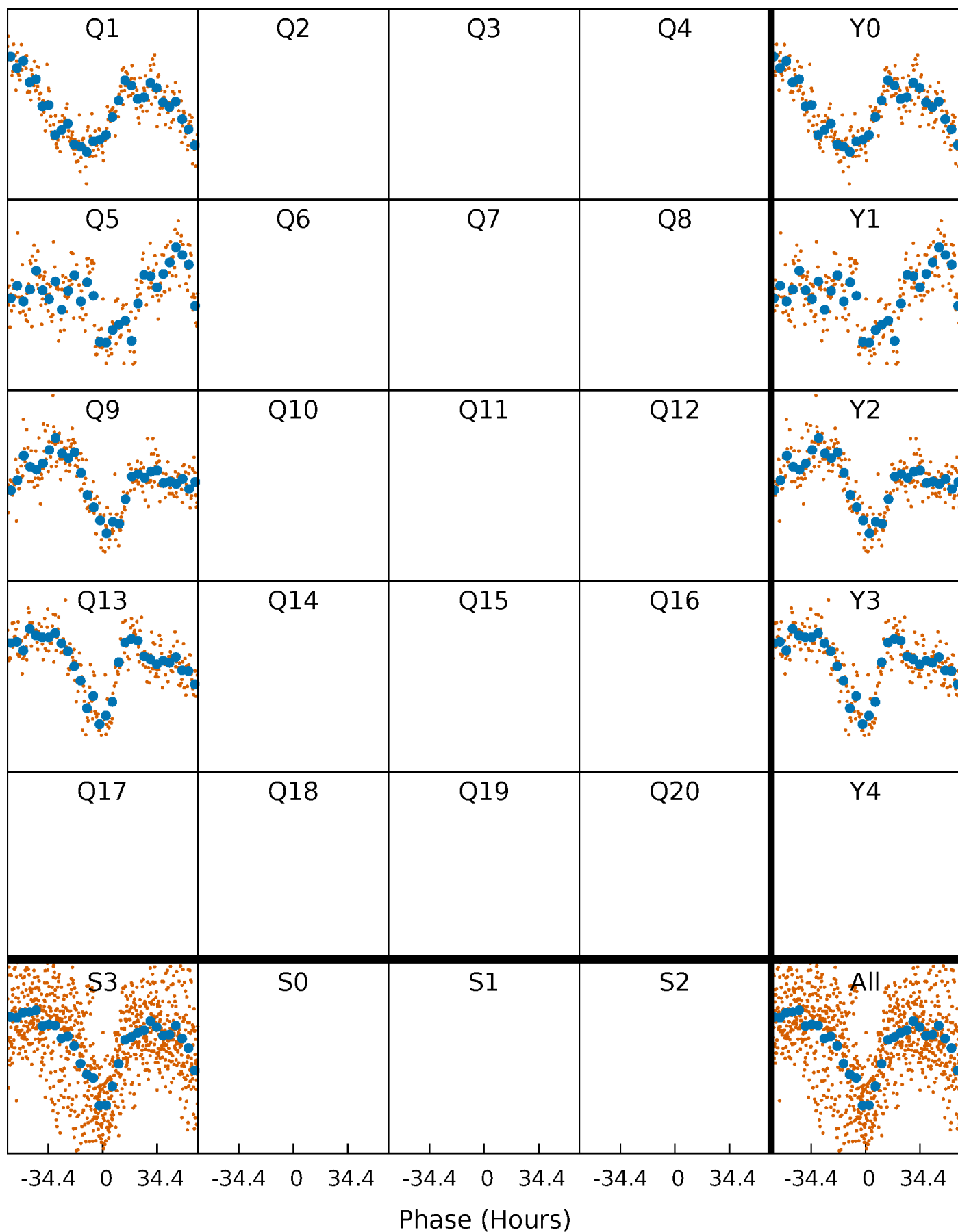


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



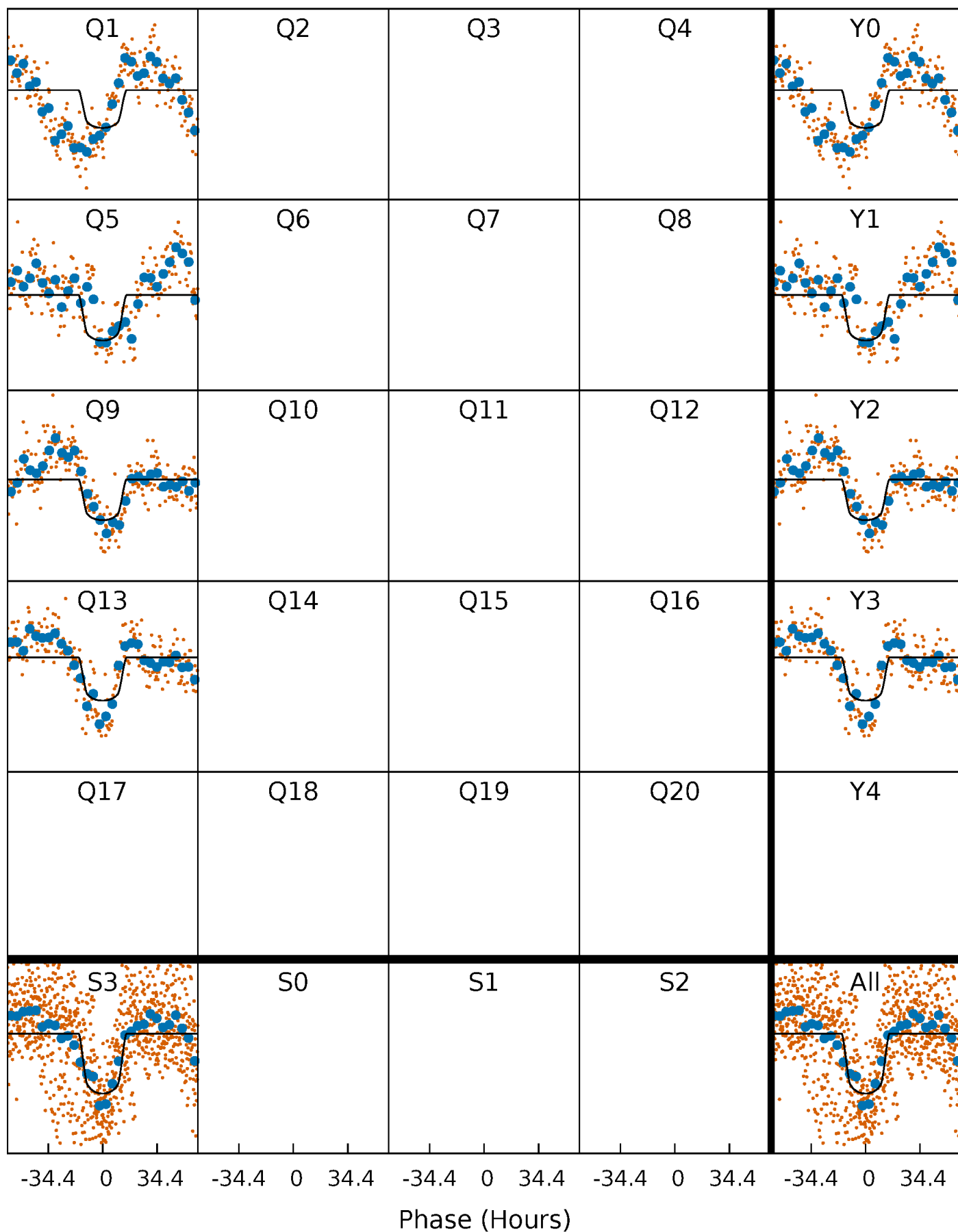
PDC Quarter-Phased Transit Curves

TCE 009950317-01 P=367.347994 Days $T_0=148.262839$ (BKJD)



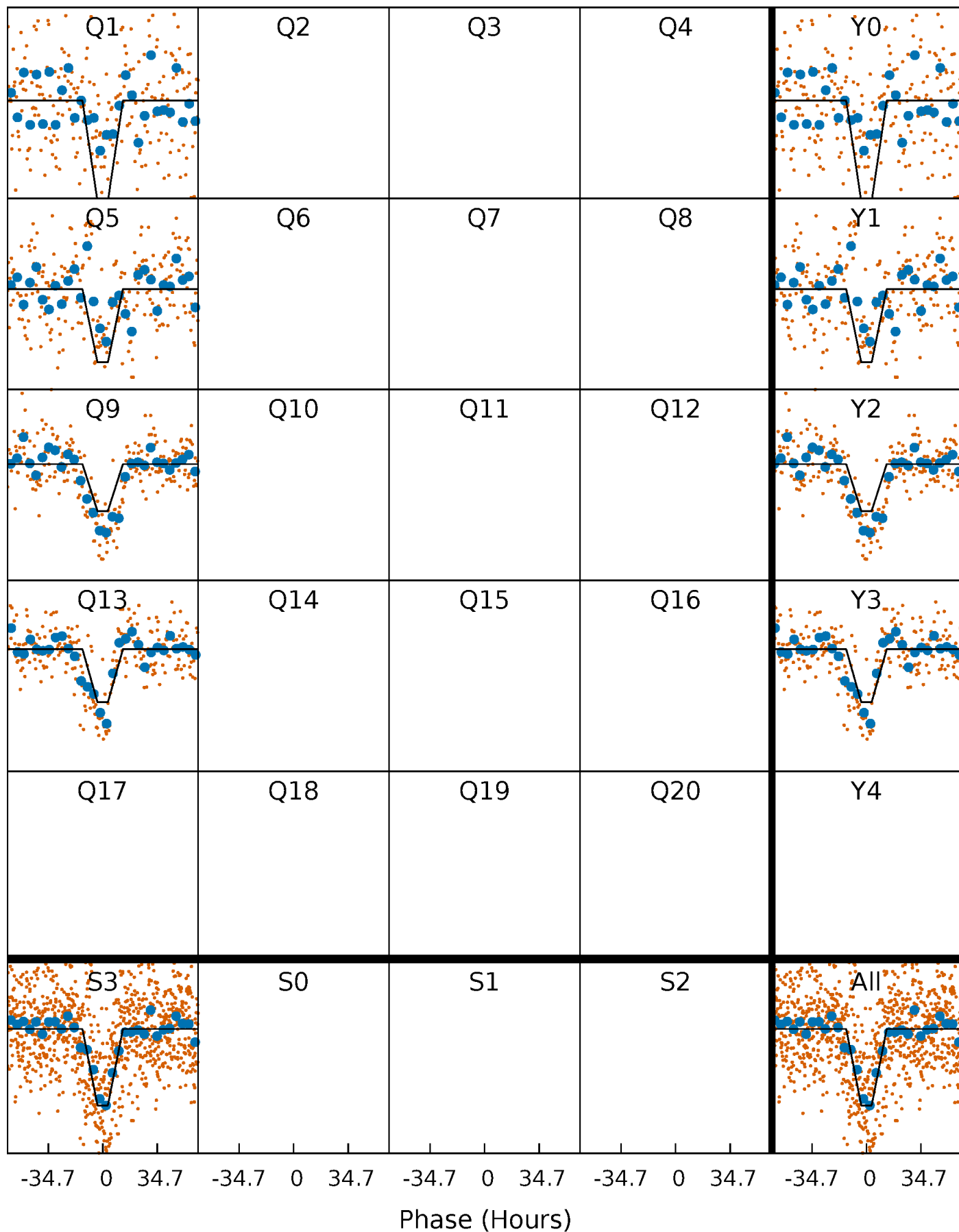
DV Quarter-Phased Transit Curves

TCE 009950317-01 $P=367.347994$ Days $T_0=148.262839$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

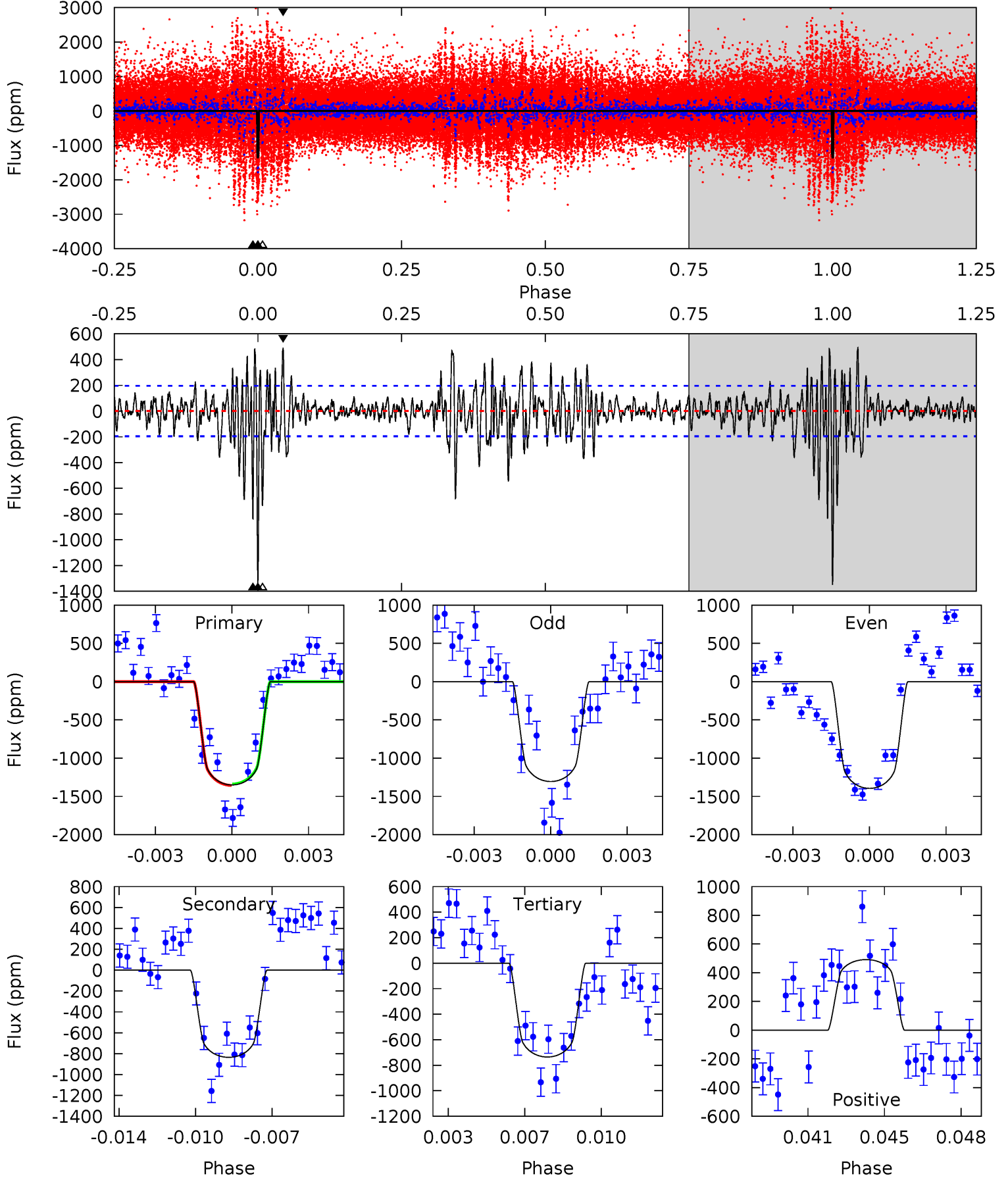
TCE 009950317-01 P=367.361353 Days $T_0=148.289841$ (BKJD)



DV Model-Shift Uniqueness Test

009950317-01, P = 367.347994 Days, E = 148.262839 Days

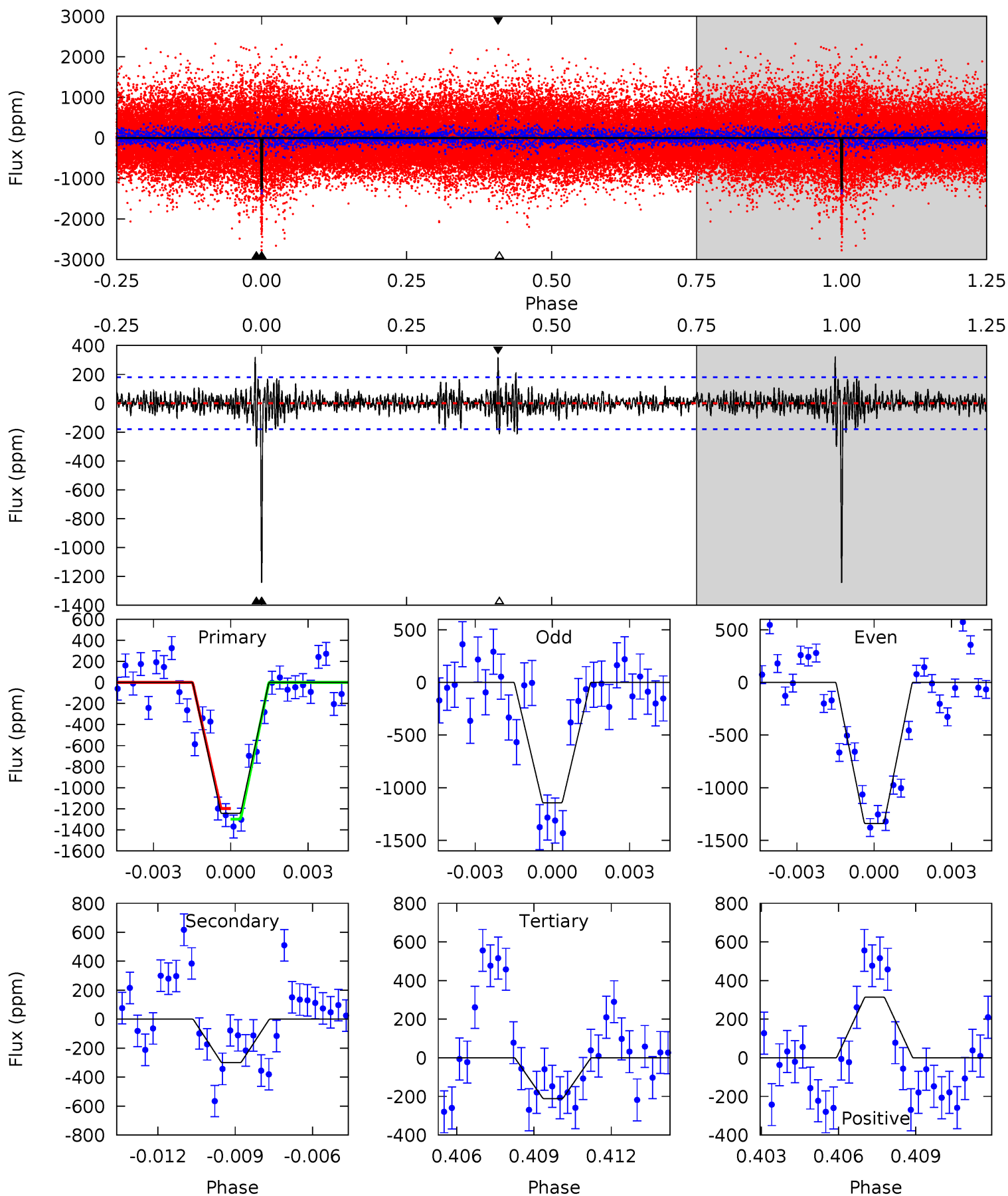
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.9	22.2	19.6	13.1	5.23	2.93	3.77	16.4	22.8	2.66	9.15	1.17	0.96	0.27	0.25



Alt Model-Shift Uniqueness Test

009950317-01, P = 367.361353 Days, E = 148.289841 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.3	8.72	6.16	9.15	5.25	2.97	1.42	30.1	27.1	2.56	-0.43	2.86	1.09	0.20	1.46



Stellar Parameters For KIC 009950317

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+166}_{-222}	$4.435^{+0.070}_{-0.224}$	$-0.100^{+0.250}_{-0.300}$	$1.044^{+0.349}_{-0.116}$	$1.078^{+0.168}_{-0.137}$	$1.333^{+0.405}_{-0.731}$
	+3%/-4%	+2%/-5%	+250%/-300%	+33%/-11%	+16%/-13%	+30%/-55%
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 009950317-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-835 ± 38	$4.82^{+0.85}_{-0.55}$	392^{+30}_{-20}	5265^{+238}_{-207}	20774^{+5510}_{-5242}
Alt.	-299 ± 34	$4.36^{+0.74}_{-0.53}$	393^{+27}_{-22}	4434^{+198}_{-182}	8960^{+2601}_{-2370}

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

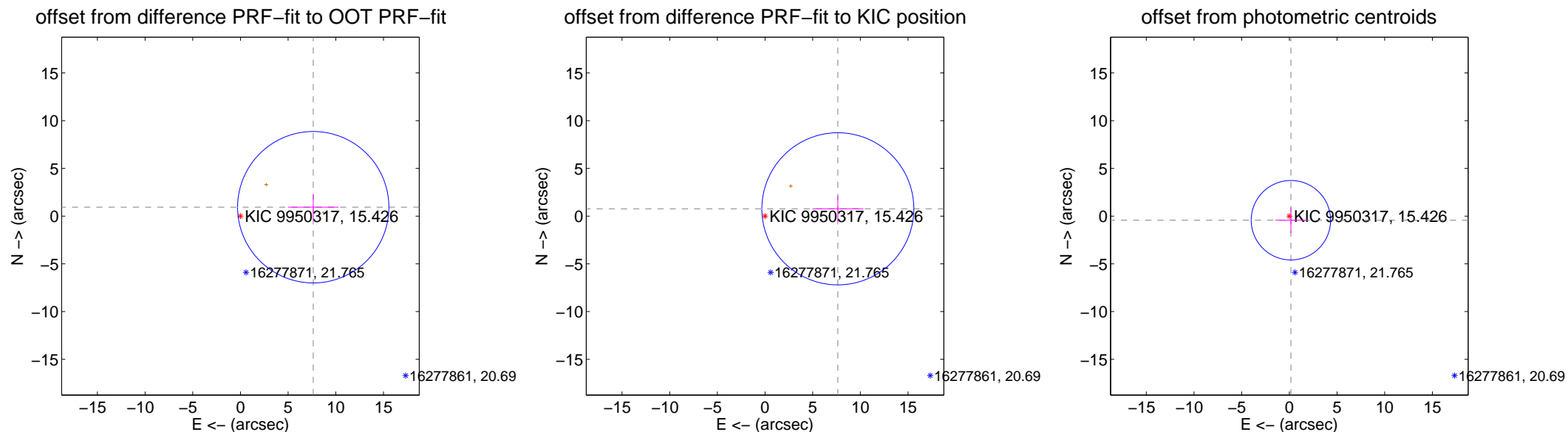
DV Centroid Data

Supplemental centroid analysis for 009950317-01. Kepler magnitude: 15.43. Transit SNR 10.42

There are 0 quarters with good PRF difference image offsets

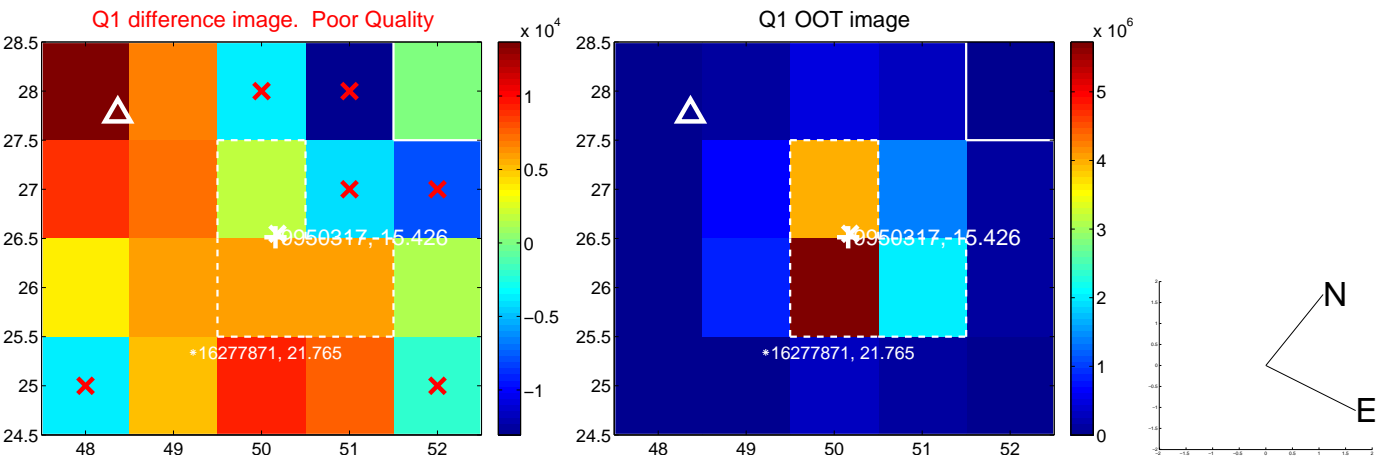
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.692 ± 2.644	2.91	-7.635 ± 2.659	0.933 ± 1.330
PRF-fit source offset from KIC position	7.675 ± 2.656	2.89	-7.637 ± 2.666	0.767 ± 1.342
photometric centroid source offset	0.46 ± 1.39	0.33	-0.16 ± 1.63	-0.43 ± 1.35

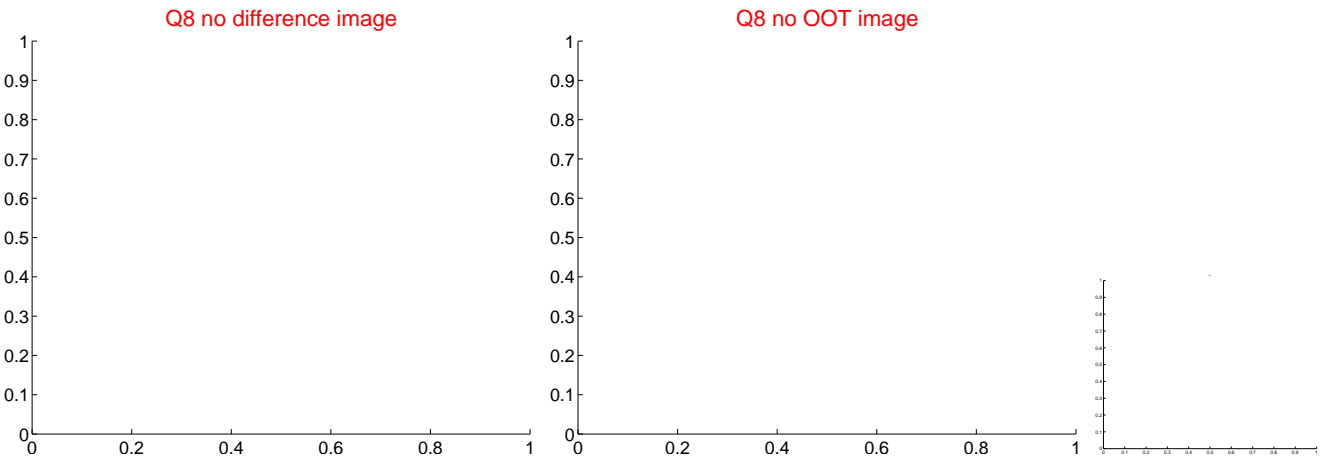
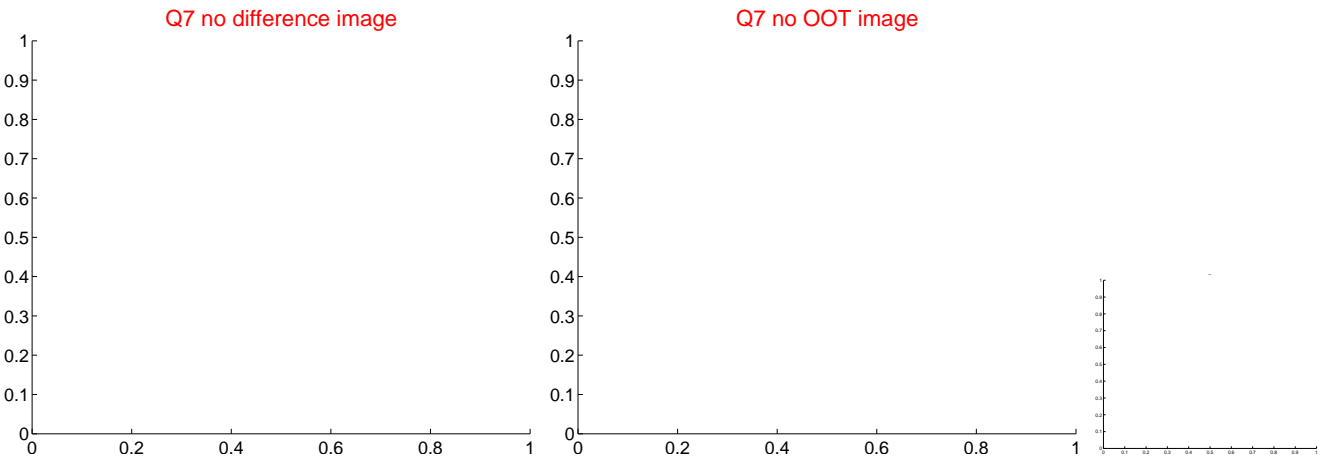
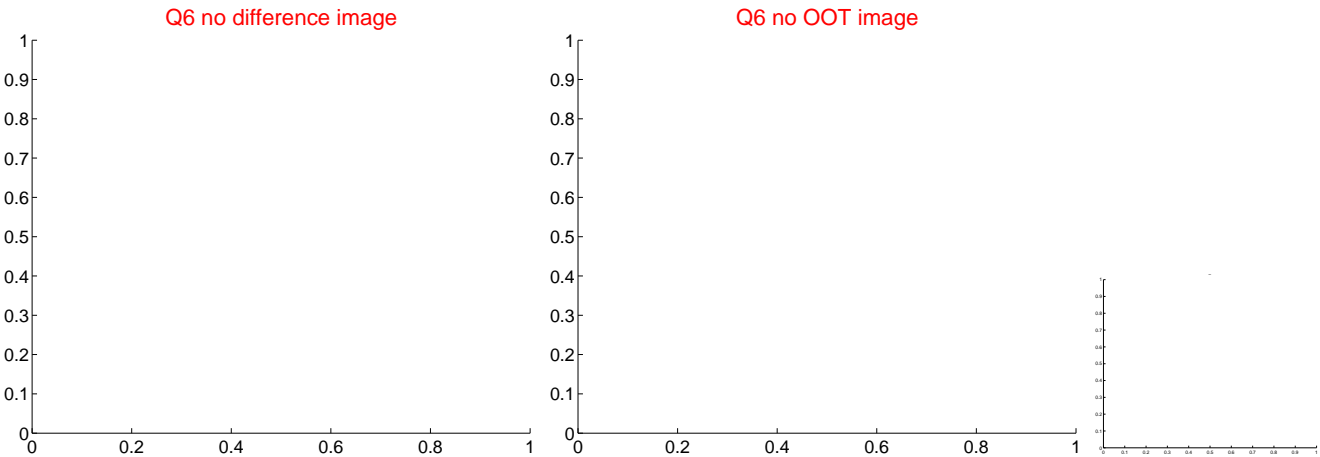
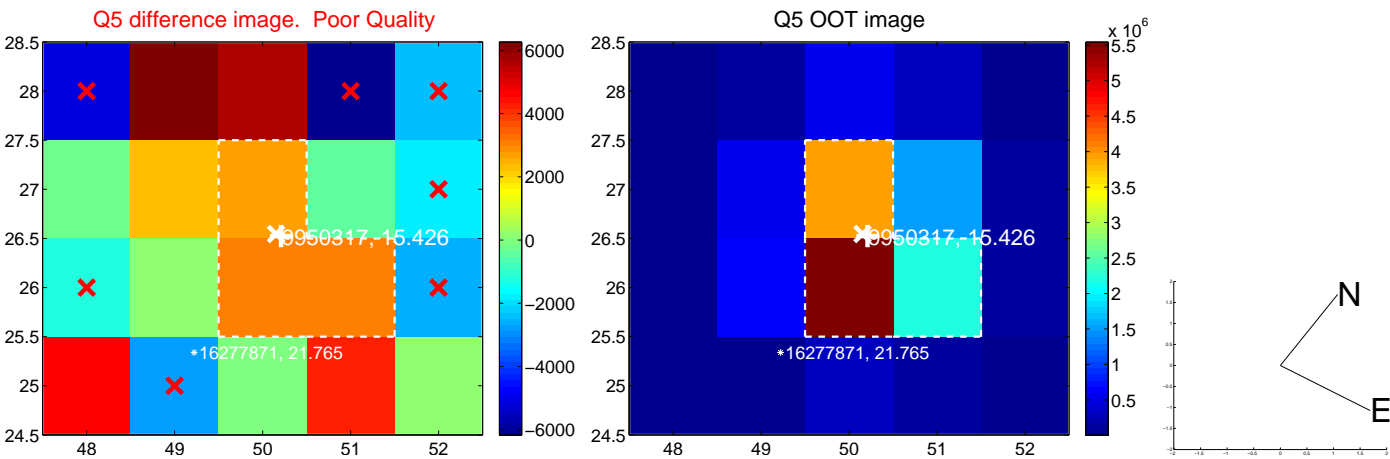


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

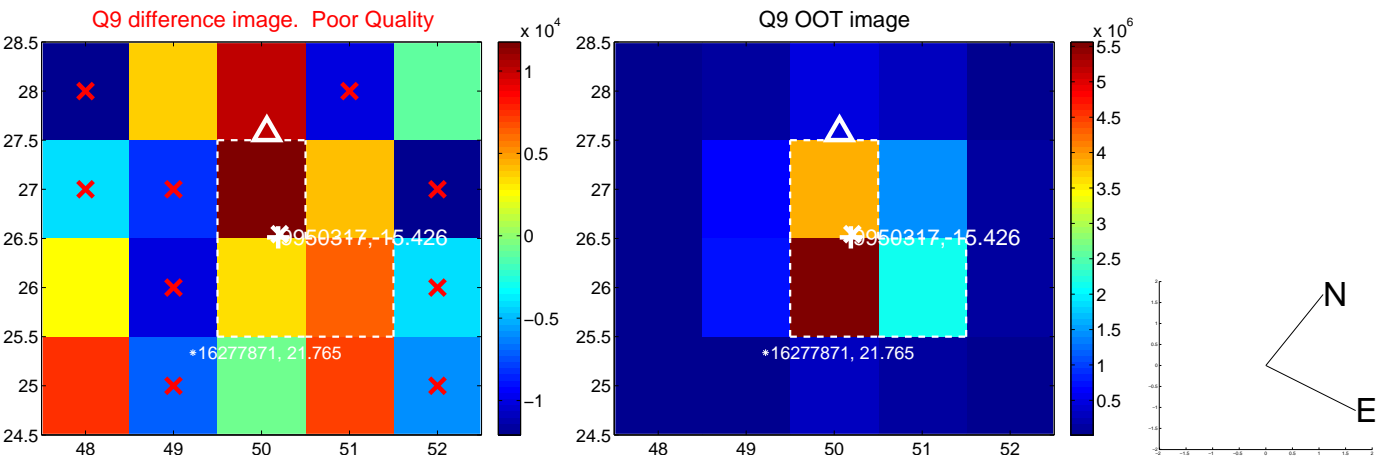
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



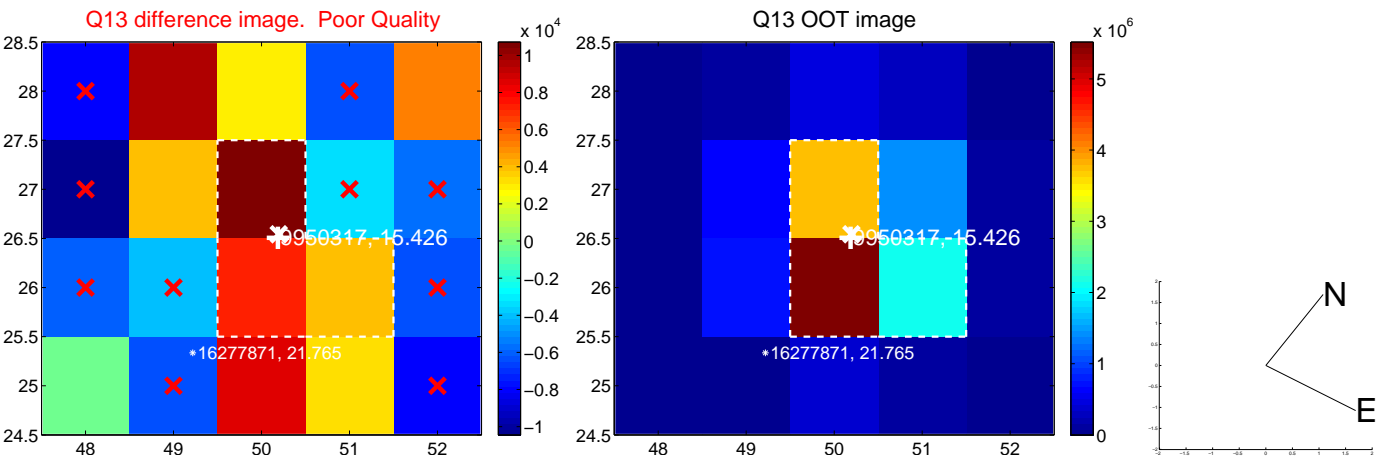
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



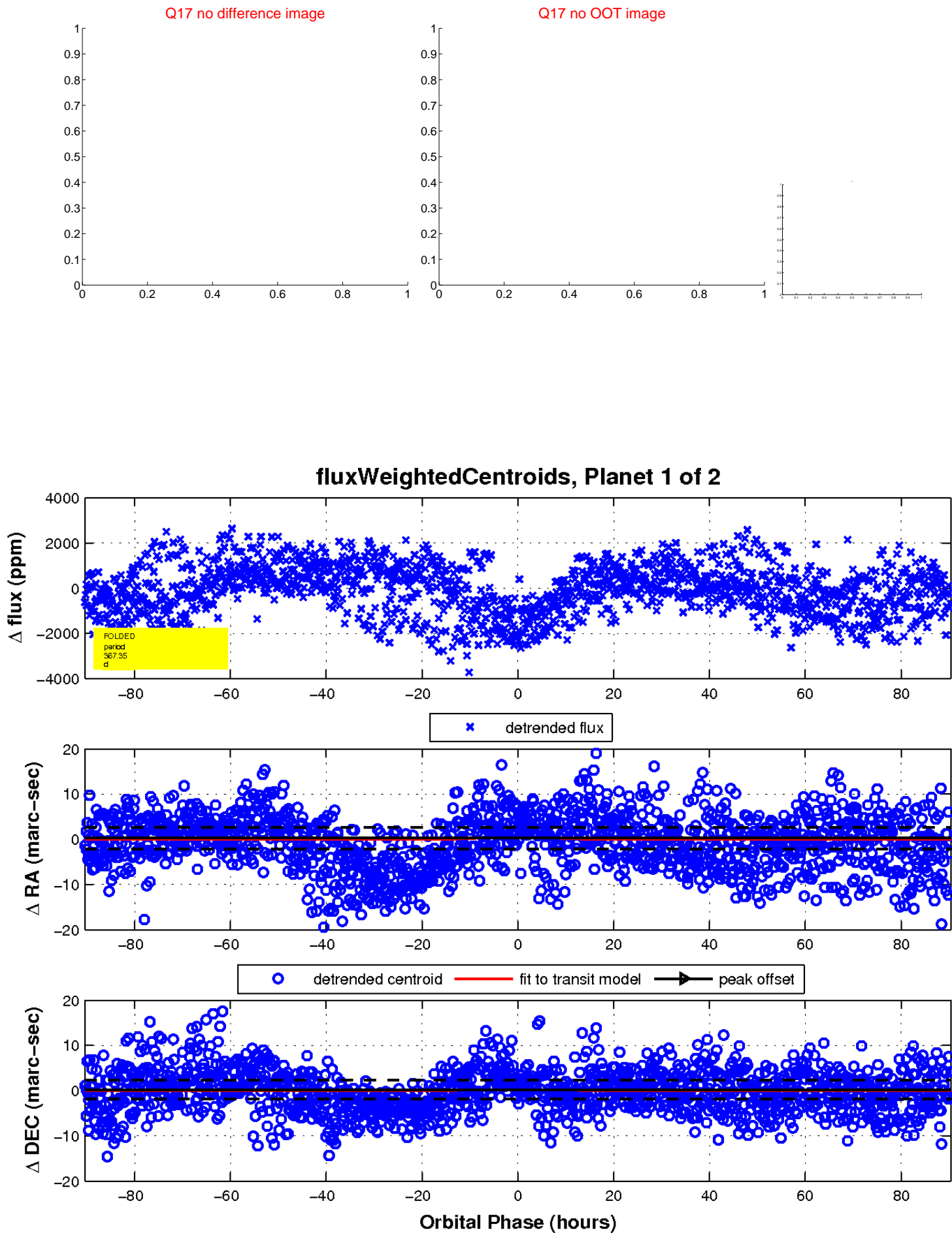
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

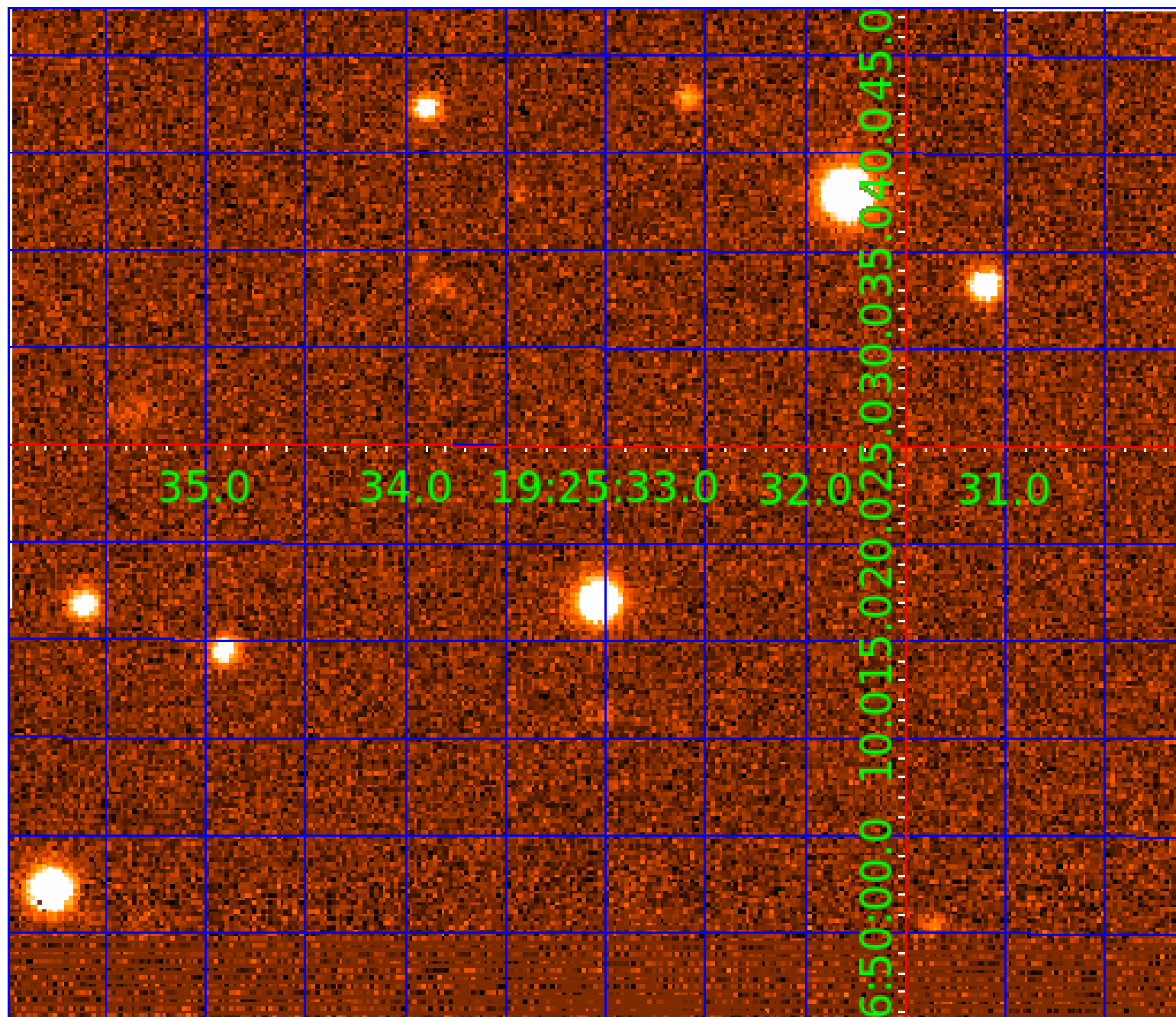


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009950317

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})
009950317-01	OBS	No	367.347994	148.262839	1435.9	30.144	10.4	10.4	1.04	6214	4.62	1.37
009950317-02	OBS	No	359.641278	160.696800	1143.9	31.900	7.6	8.9	1.04	6214	3.53	1.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009950317-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—CENT_FEW_DIFFS
009950317-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

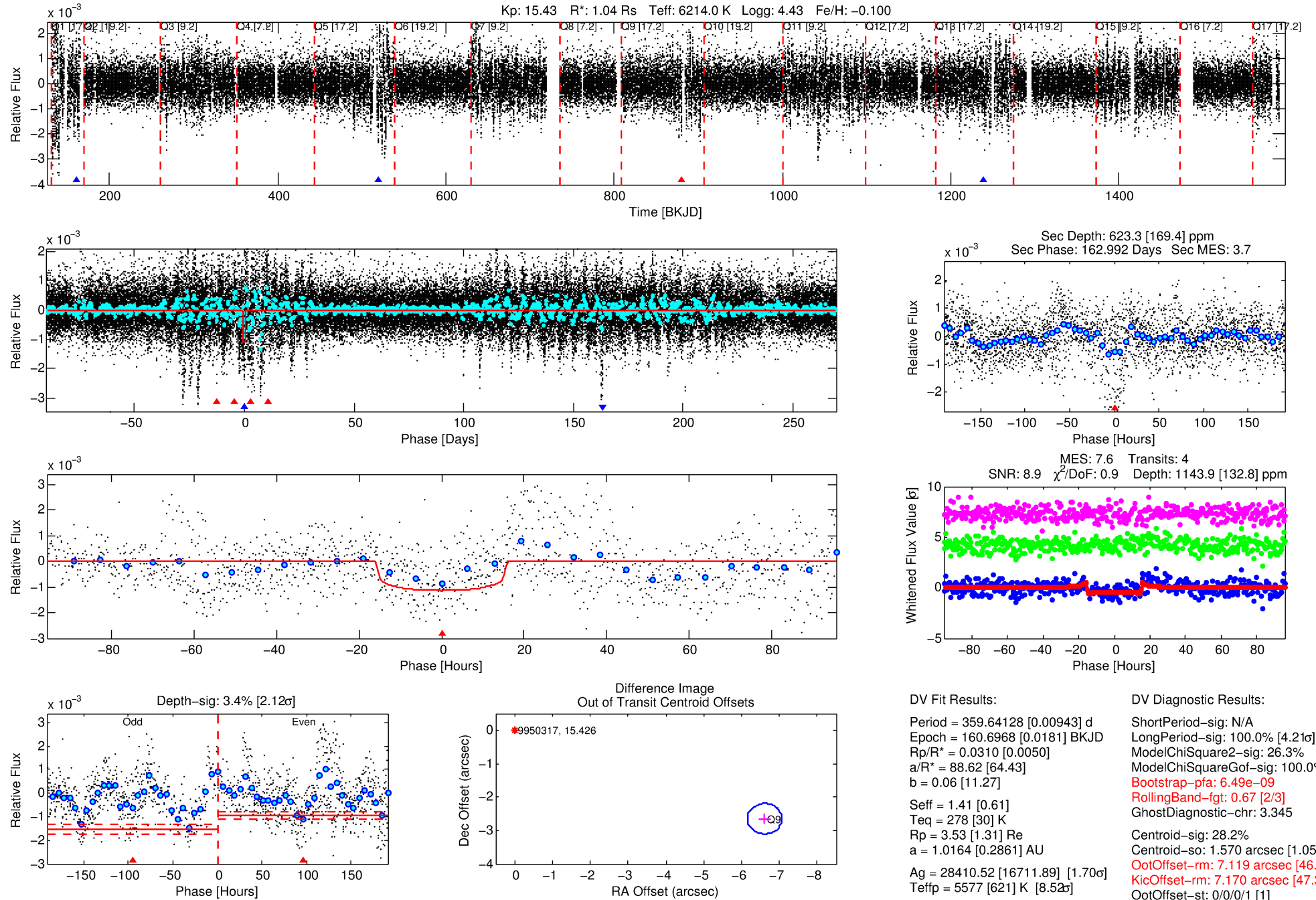
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009950317-02

No Significant Match Found

DV One-Page Summary

KIC: 9950317 Candidate: 2 of 2 Period: 359.641 d



DV Fit Results:

Period = 359.64128 [0.00943] d
Epoch = 160.6968 [0.0181] BKJD
Rp/R* = 0.0310 [0.0050]
a/R* = 88.62 [64.43]
b = 0.06 [11.27]
Seff = 1.41 [0.61]
Teq = 278 [30] K
Rp = 3.53 [1.31] Re
a = 1.0164 [0.2861] AU
Ag = 28410.52 [16711.89] [1.70 σ]
Teff = 5577 [621] K [8.52 σ]

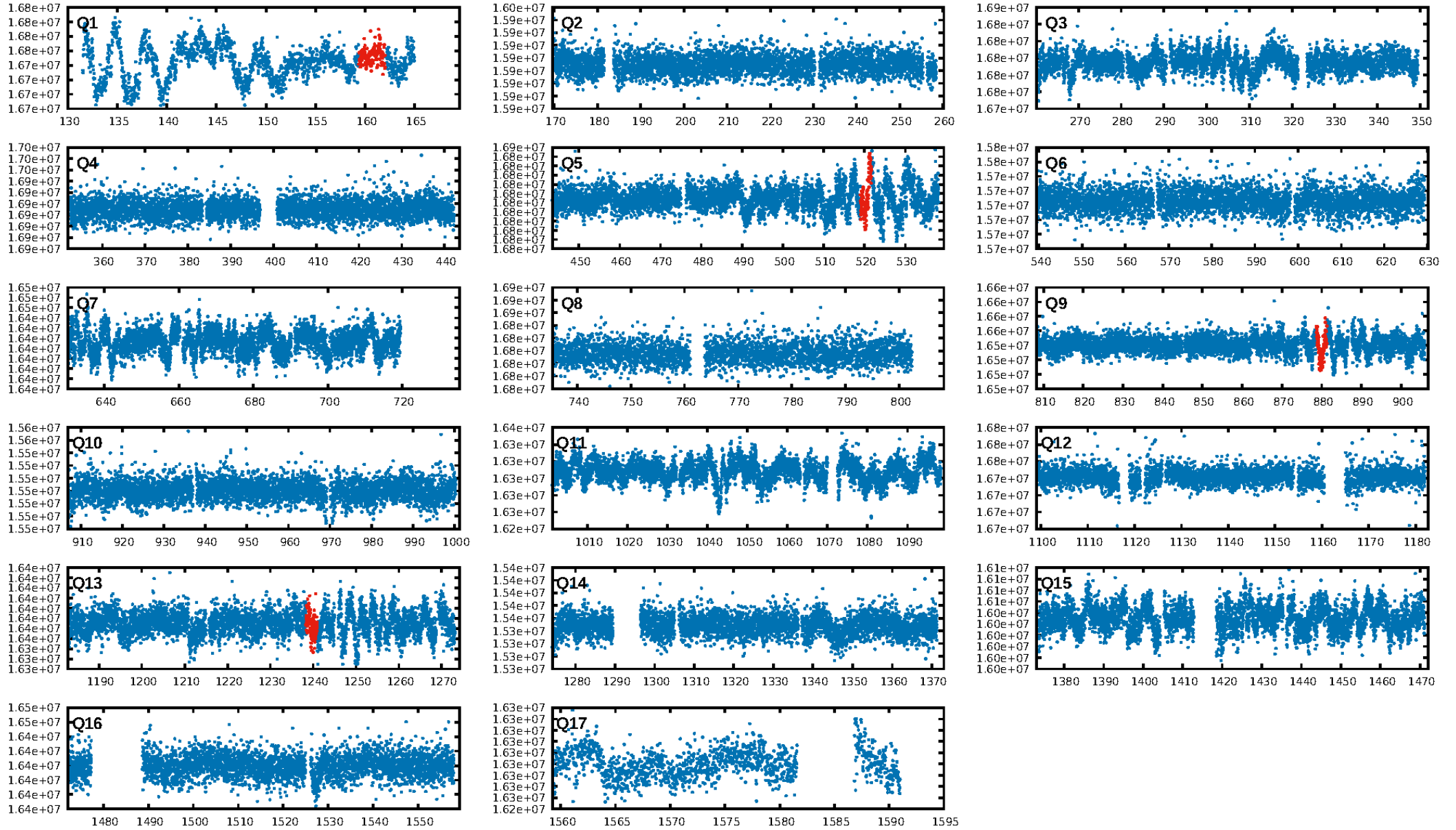
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.21 σ]
ModelChiSquare2-sig: 26.3%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 6.49e-09
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 3.345
Centroid-sig: 28.2%
Centroid-so: 1.570 arcsec [1.05 σ]
OotOffset-rm: 7.119 arcsec [46.98 σ]
KicOffset-rm: 7.170 arcsec [47.37 σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

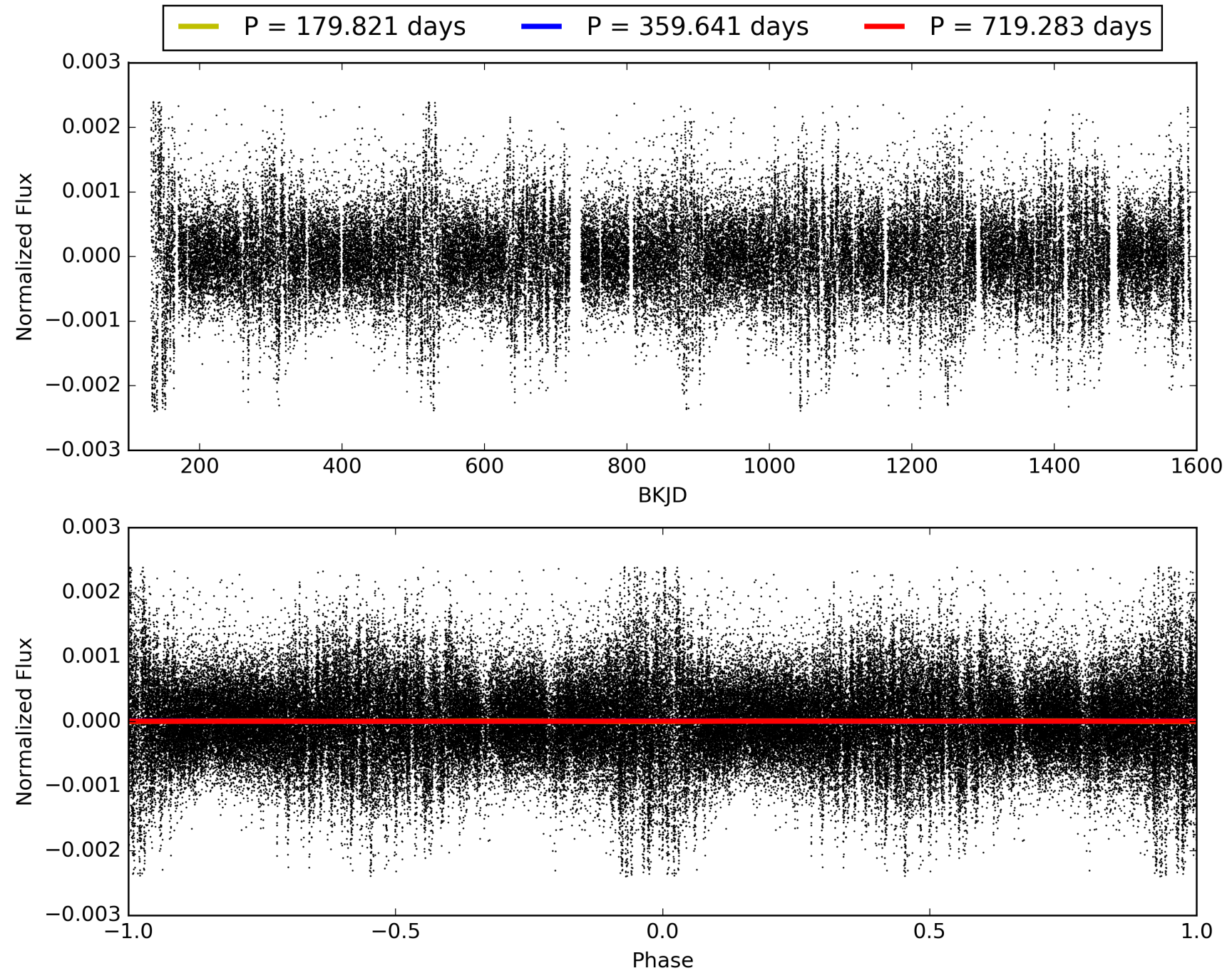
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:54:16 Z

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

TCE 009950317-02, PDC Light Curves

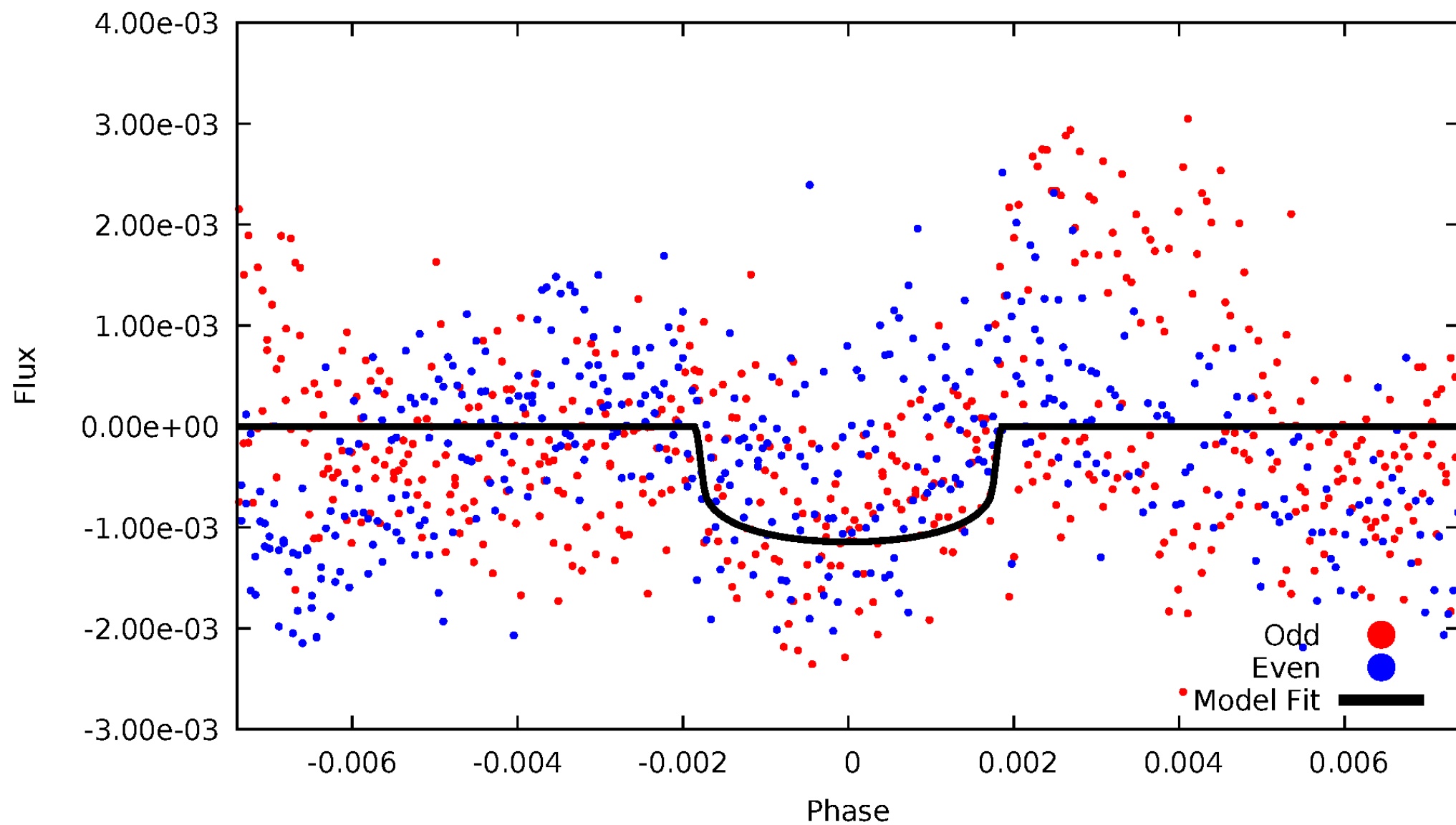


TCE 009950317-02



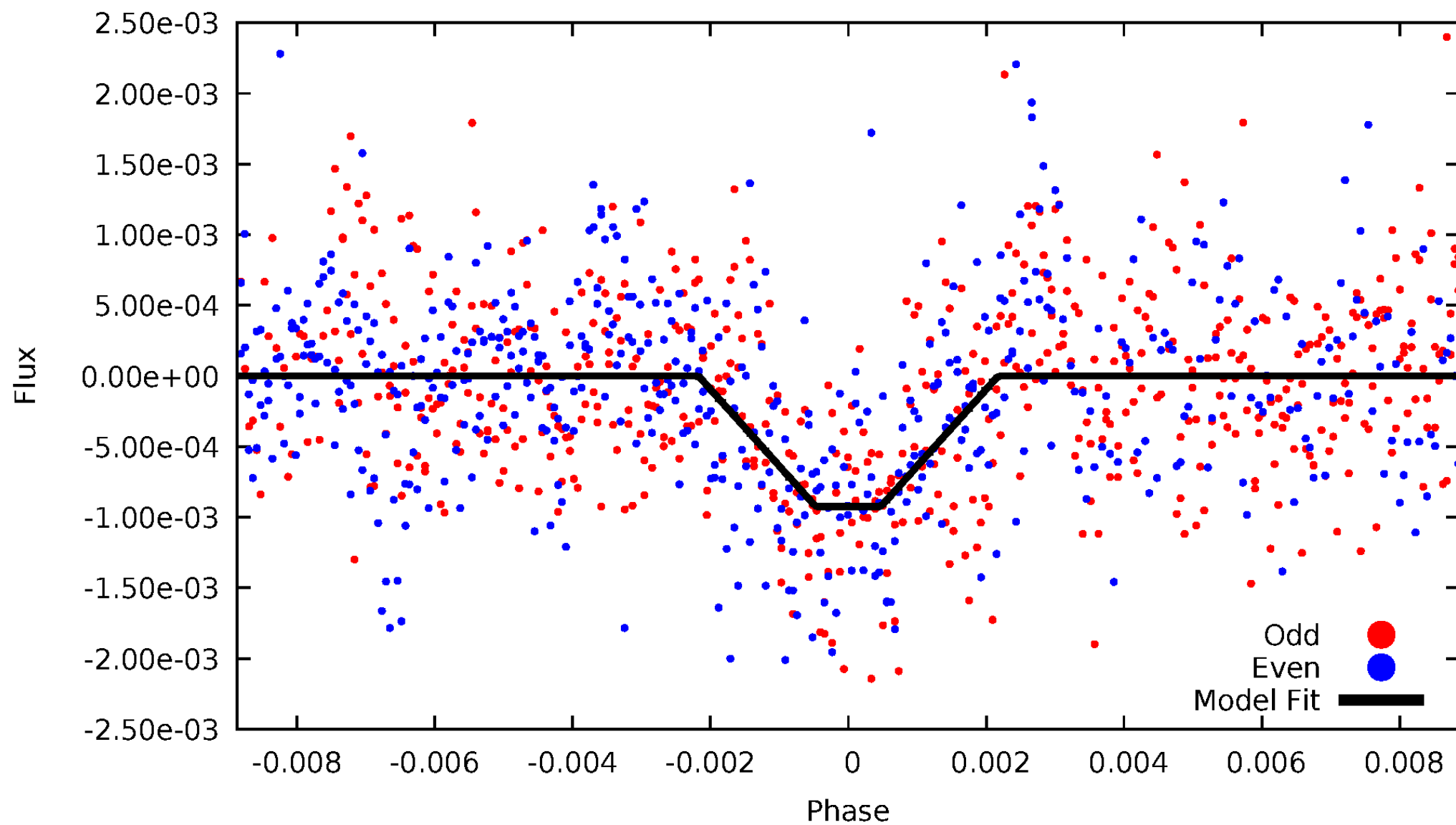
DV Odd/Even

TCE 009950317-02



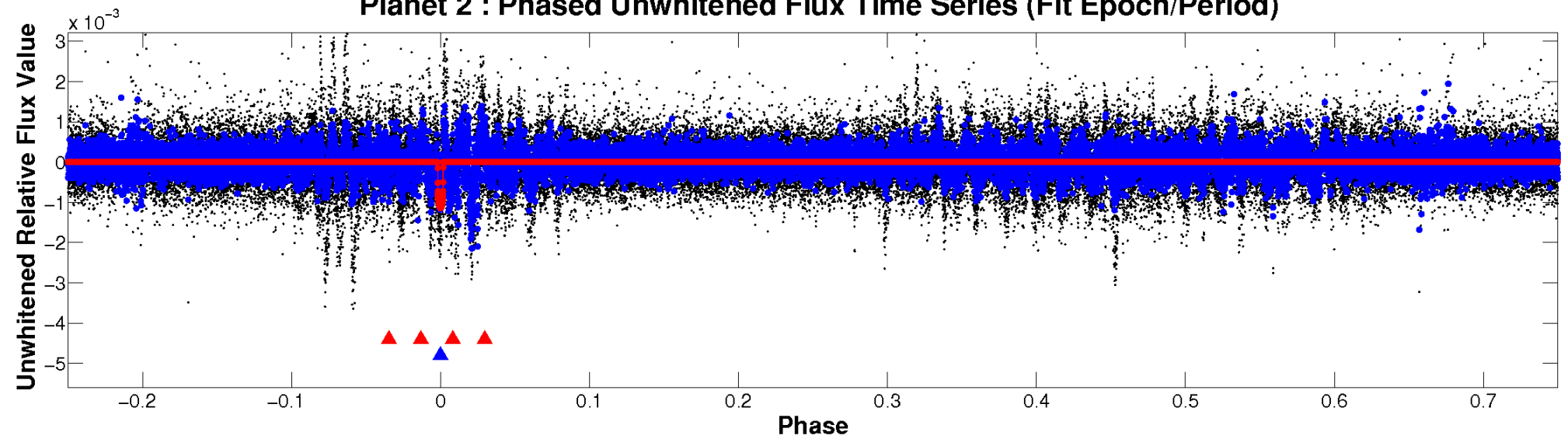
ALT Odd/Even

TCE 009950317-02

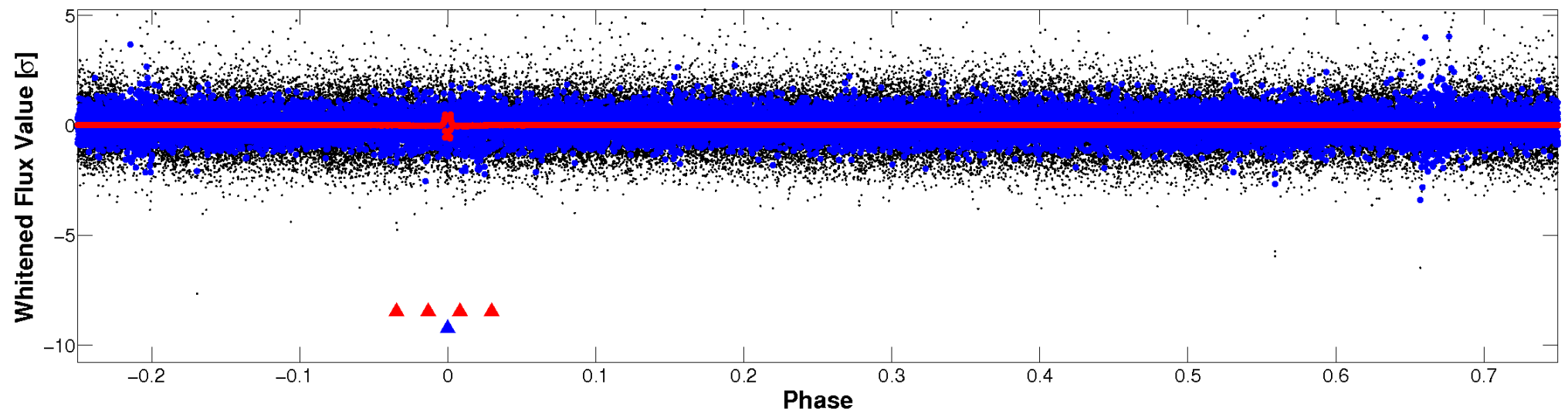


Non-Whitened Vs. Whitened Light Curve

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

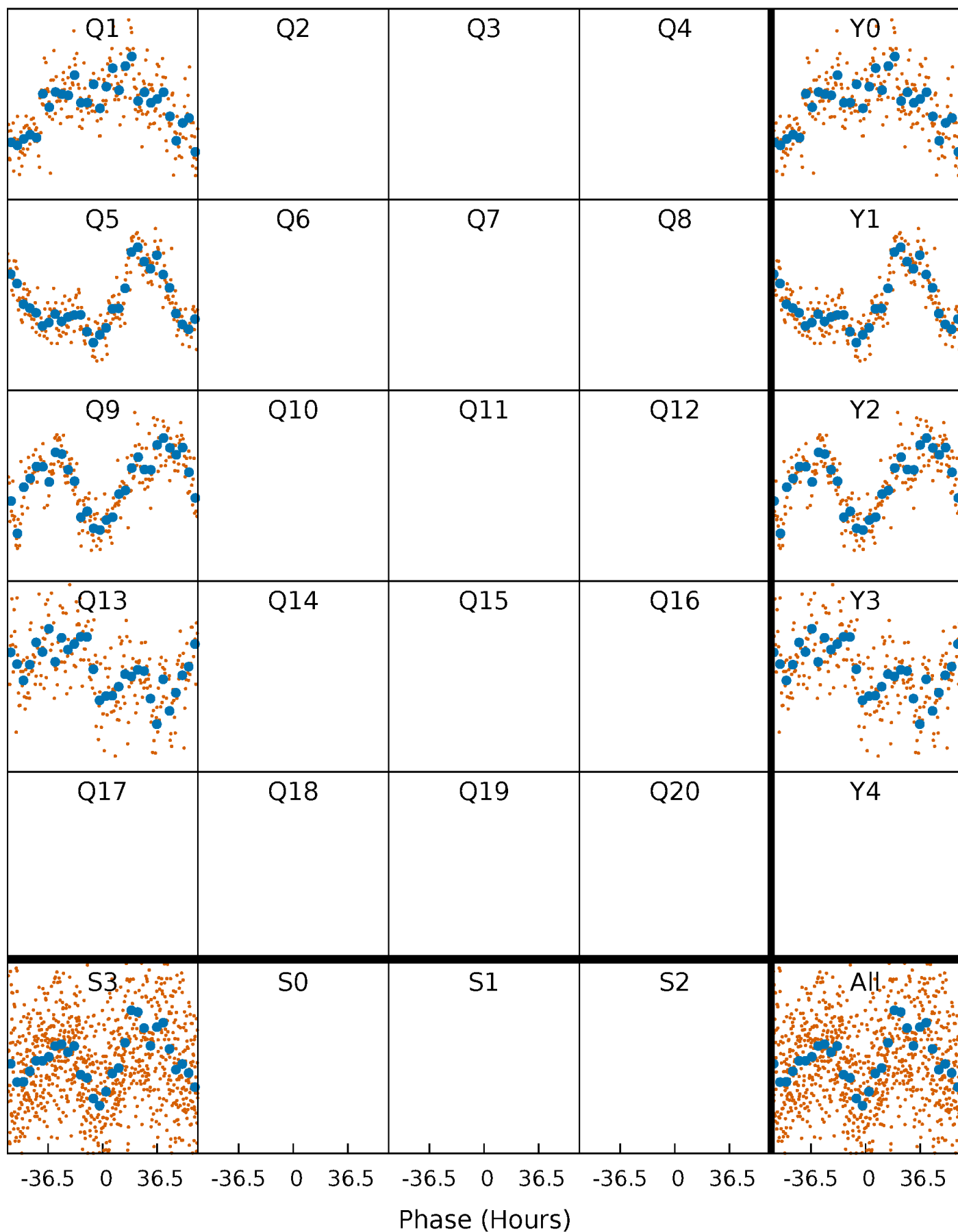


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



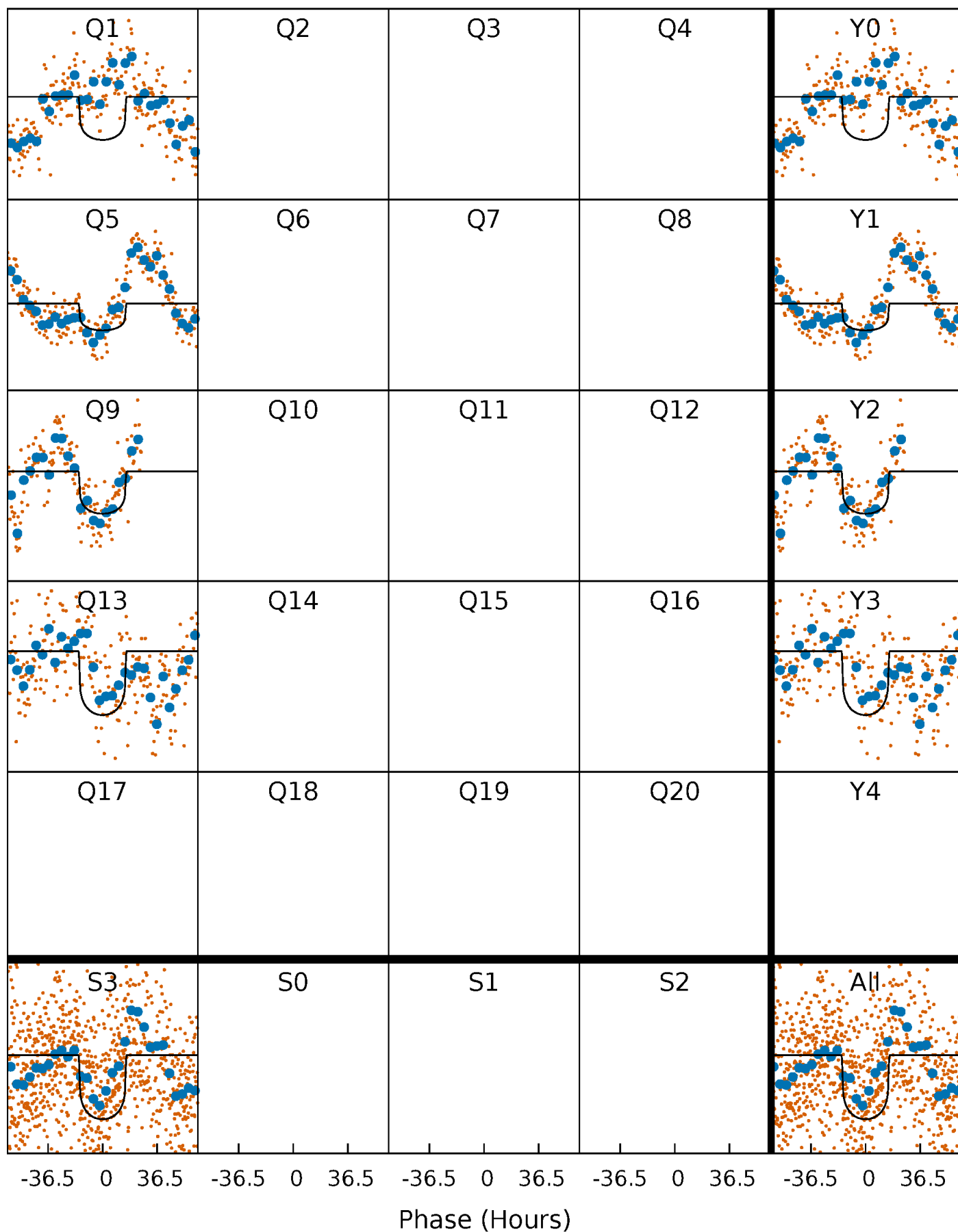
PDC Quarter-Phased Transit Curves

TCE 009950317-02 $P=359.641278$ Days $T_0=160.696800$ (BKJD)



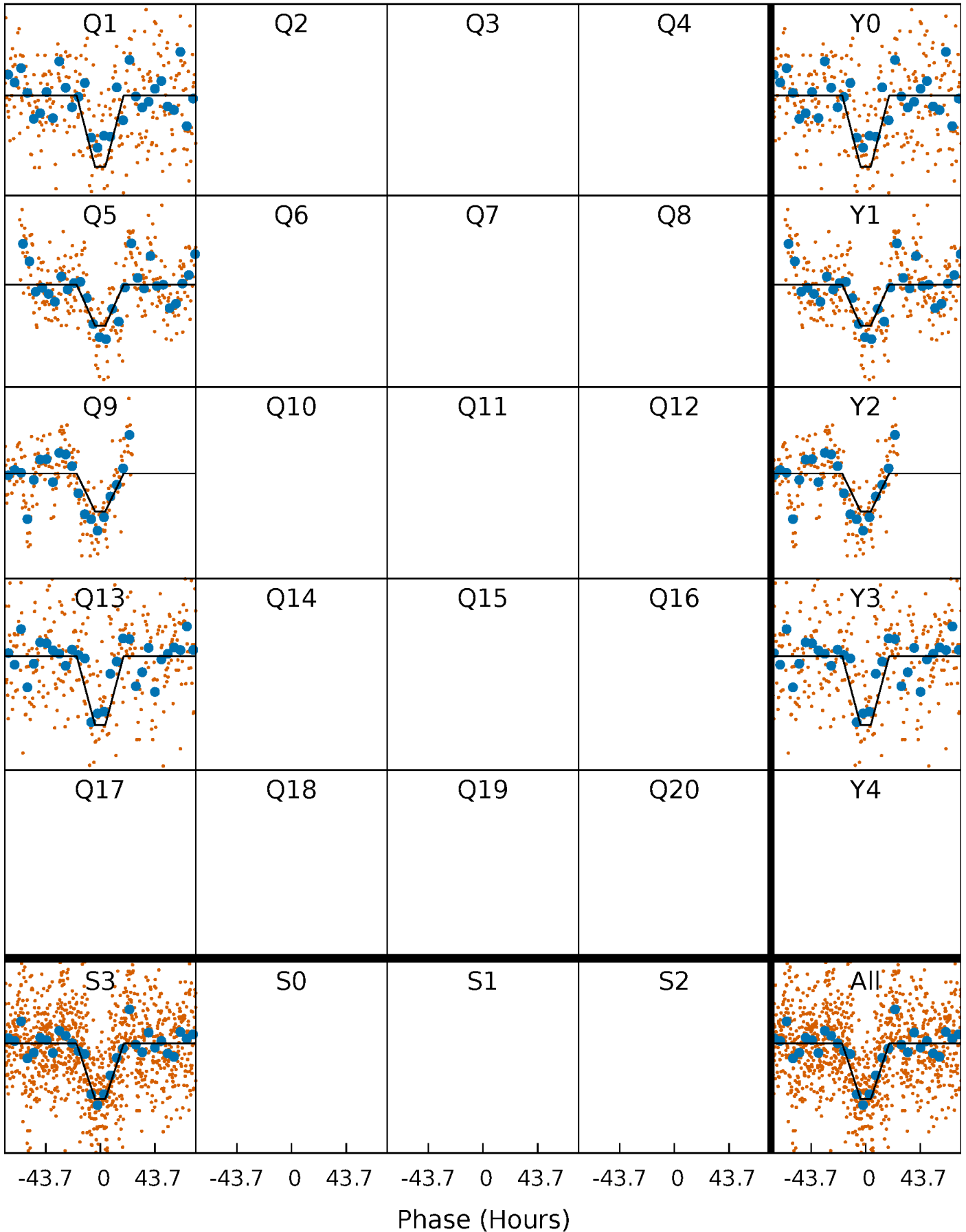
DV Quarter-Phased Transit Curves

TCE 009950317-02 $P=359.641278$ Days $T_0=160.696800$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

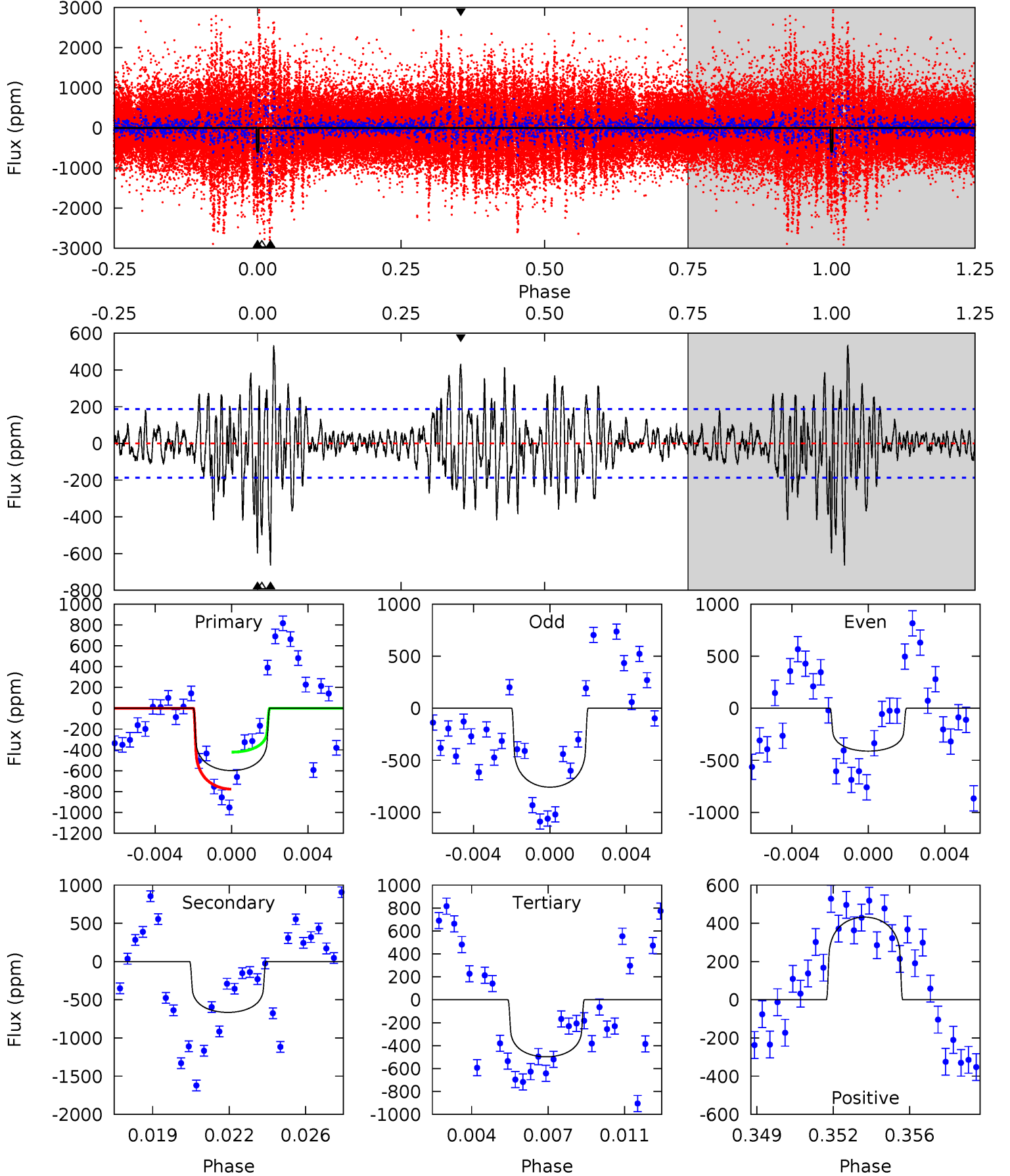
TCE 009950317-02 P=359.794125 Days $T_0=160.409346$ (BKJD)



DV Model-Shift Uniqueness Test

009950317-02, P = 359.641278 Days, E = 160.696800 Days

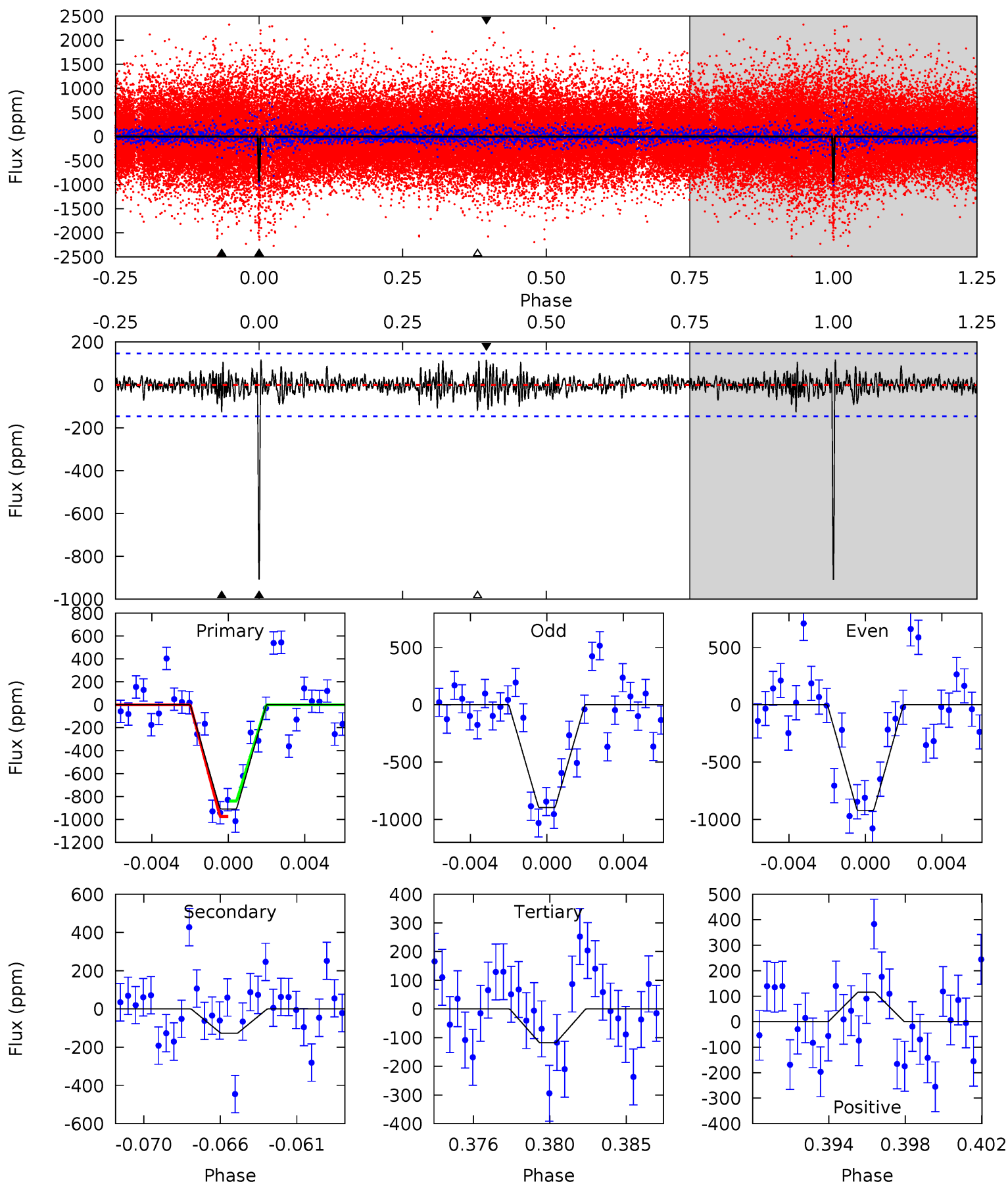
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	18.5	13.9	12.1	5.21	2.90	3.73	2.81	4.63	4.67	6.49	4.81	0.76	0.44	4.98



Alt Model-Shift Uniqueness Test

009950317-02, P = 359.794125 Days, E = 160.409346 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.2	4.52	4.17	4.12	5.18	2.85	1.09	28.1	28.1	0.34	0.39	0.45	1.00	0.11	2.40



Stellar Parameters For KIC 009950317

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+166}_{-222}	$4.435^{+0.070}_{-0.224}$	$-0.100^{+0.250}_{-0.300}$	$1.044^{+0.349}_{-0.116}$	$1.078^{+0.168}_{-0.137}$	$1.333^{+0.405}_{-0.731}$
	+3%/-4%	+2%/-5%	+250%/-300%	+33%/-11%	+16%/-13%	+30%/-55%
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 009950317-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-665 ± 36	$3.71^{+0.80}_{-0.67}$	395^{+29}_{-19}	5657^{+520}_{-400}	27093^{+13007}_{-8548}
Alt.	-127 ± 28	$3.59^{+0.80}_{-0.71}$	394^{+28}_{-20}	4072^{+322}_{-293}	5397^{+3293}_{-2062}

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 $A_{obs} \gg 1.0$

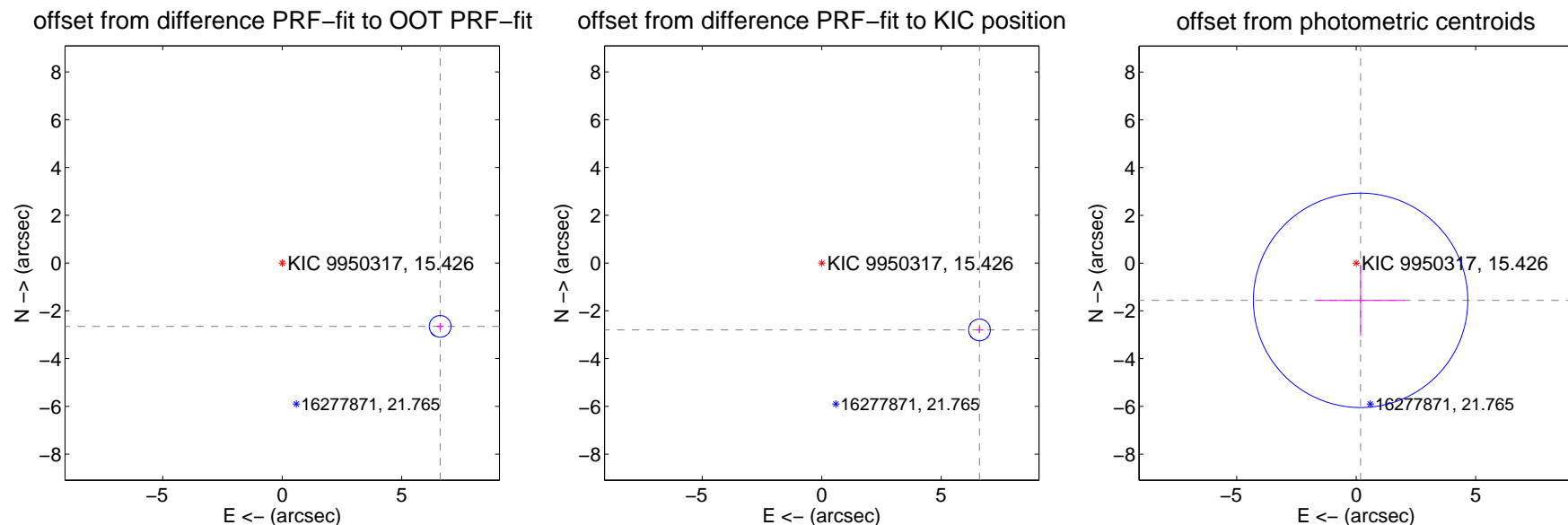
DV Centroid Data

Supplemental centroid analysis for 009950317-02. Kepler magnitude: 15.43. Transit SNR 8.94

There are 0 quarters with good PRF difference image offsets

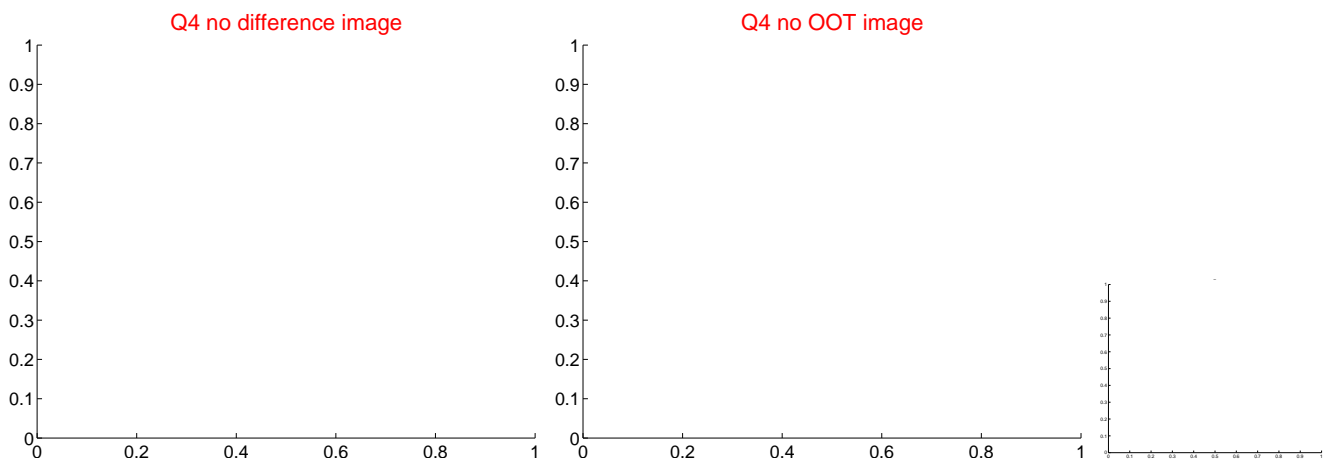
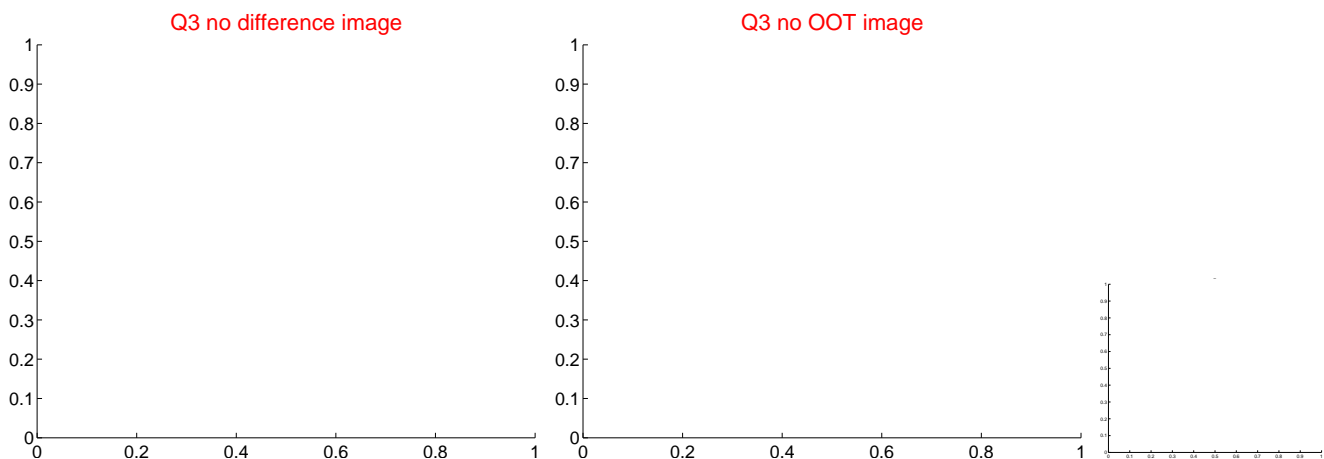
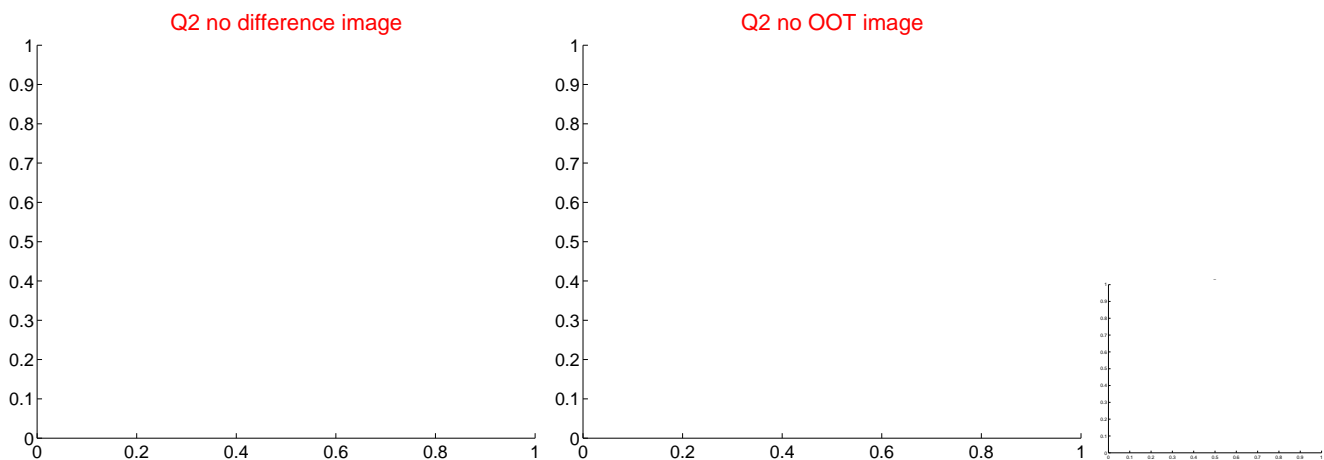
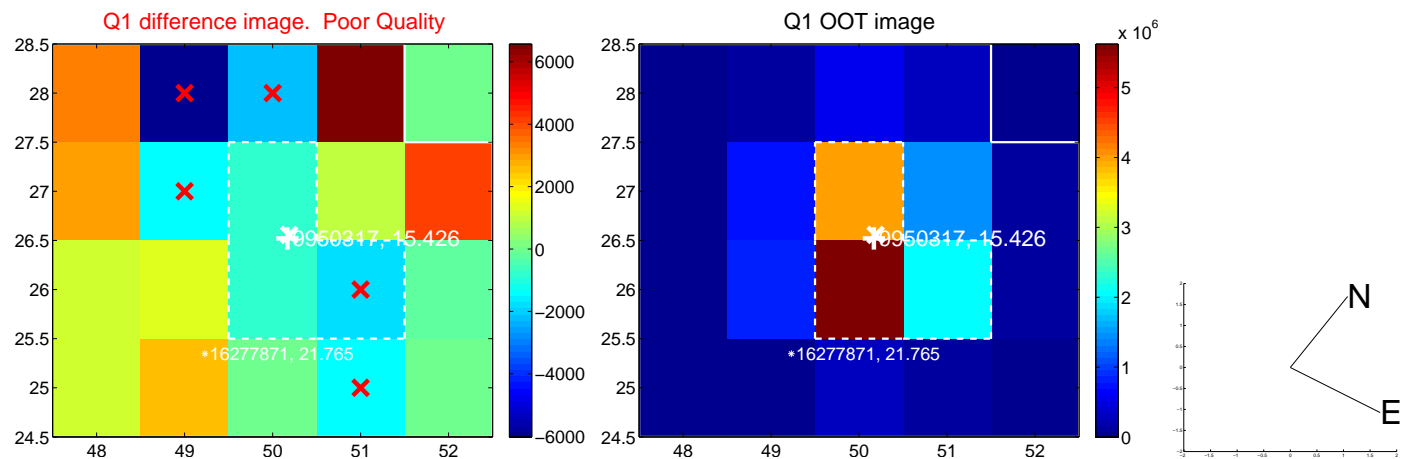
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.119 ± 0.152	46.98	-6.608 ± 0.154	-2.651 ± 0.139
PRF-fit source offset from KIC position	7.170 ± 0.151	47.37	-6.601 ± 0.154	-2.799 ± 0.139
photometric centroid source offset	1.57 ± 1.50	1.05	-0.18 ± 1.84	-1.56 ± 1.49

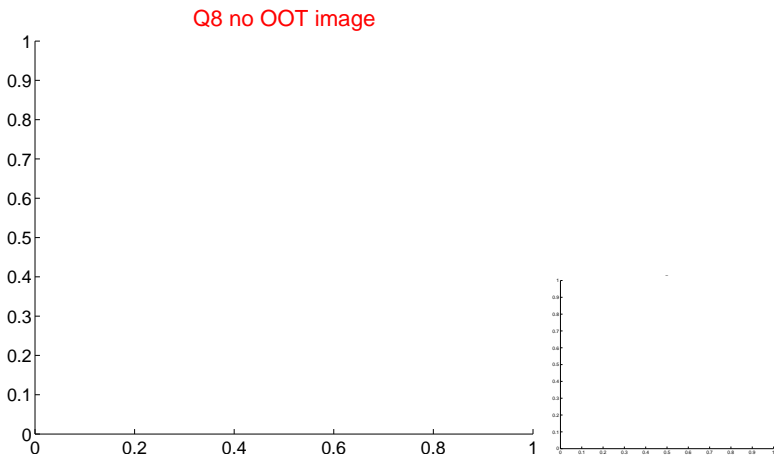
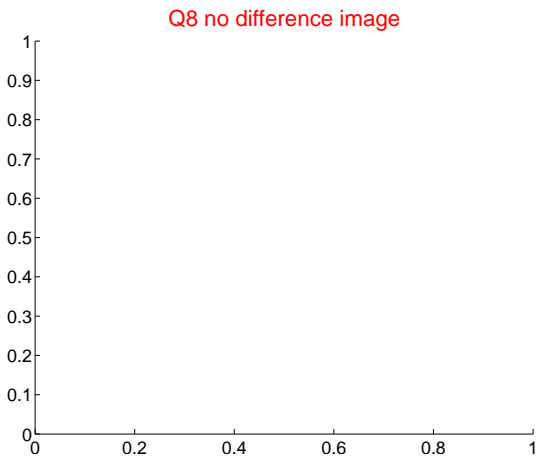
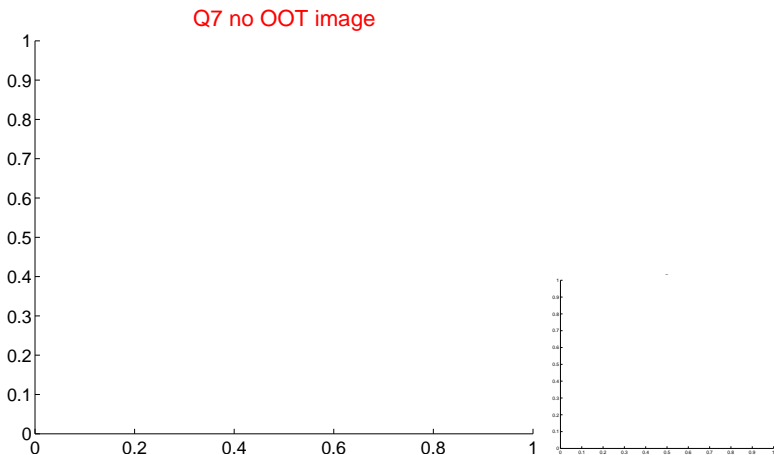
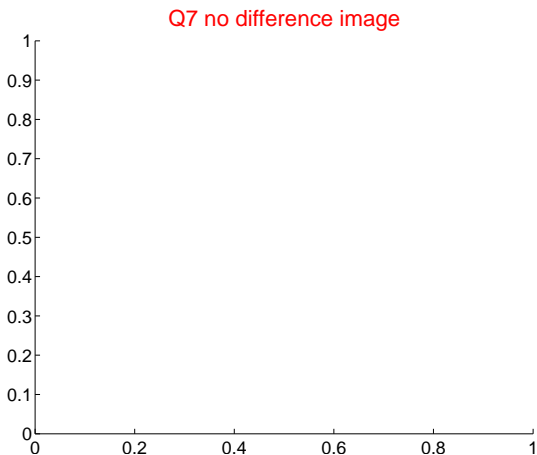
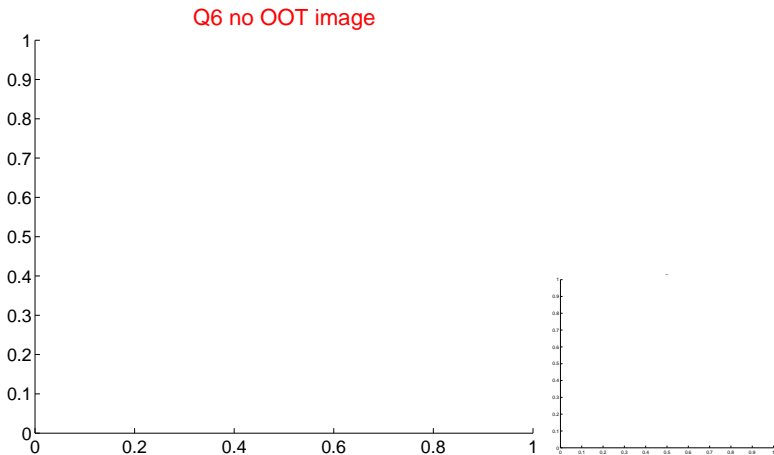
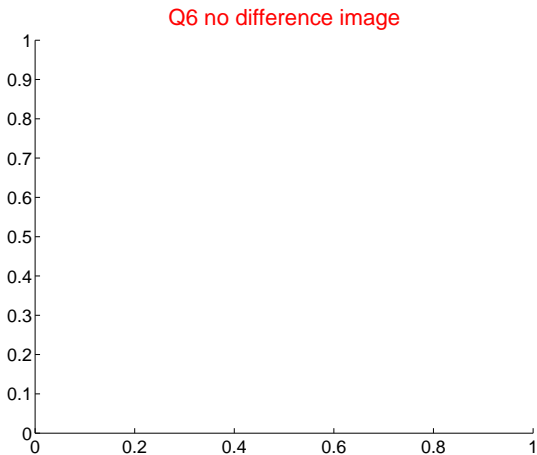
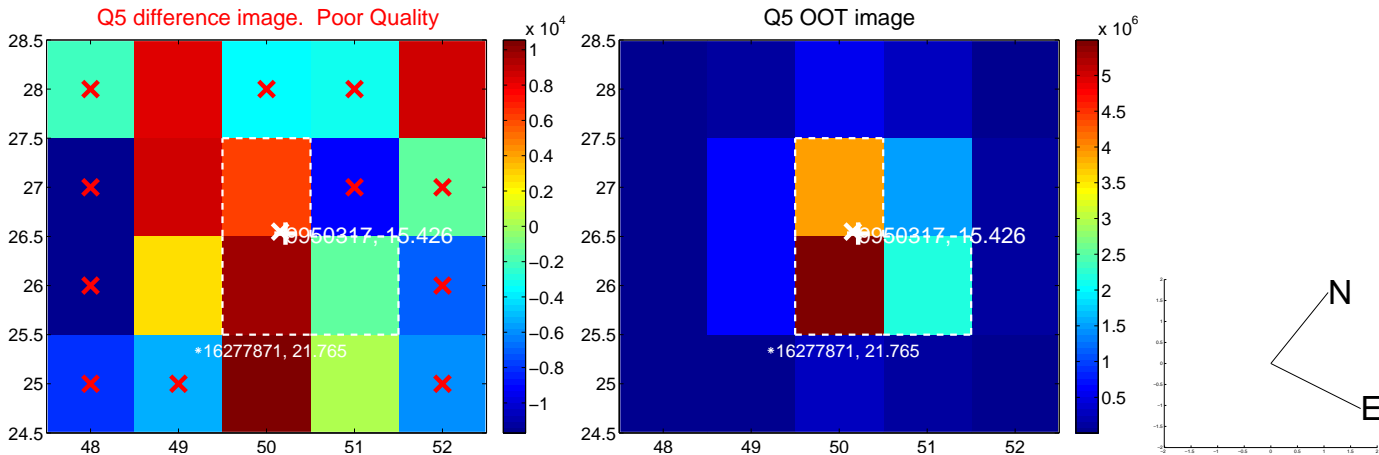


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

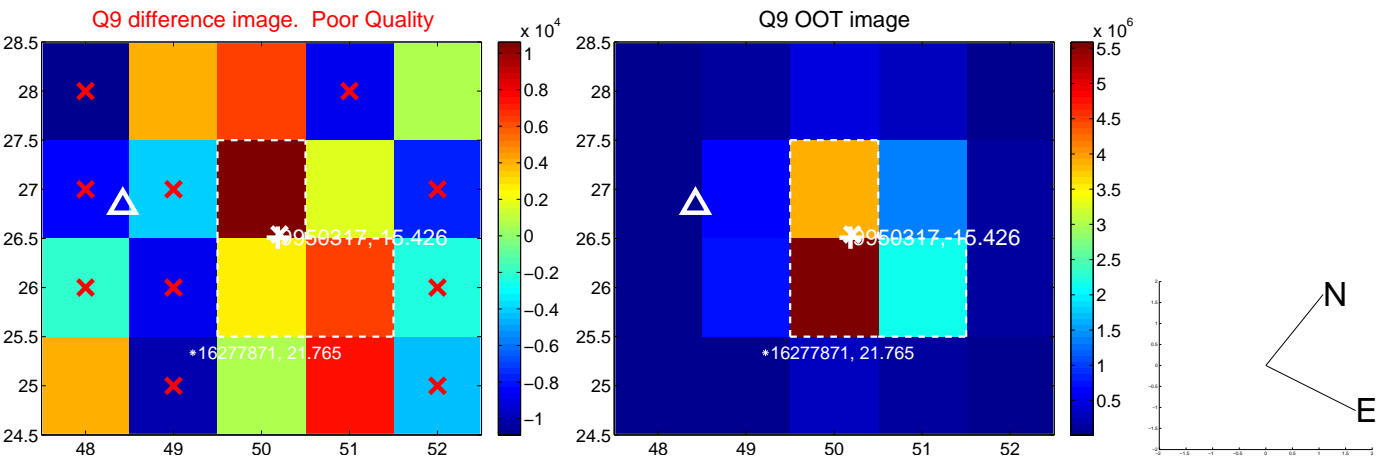
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



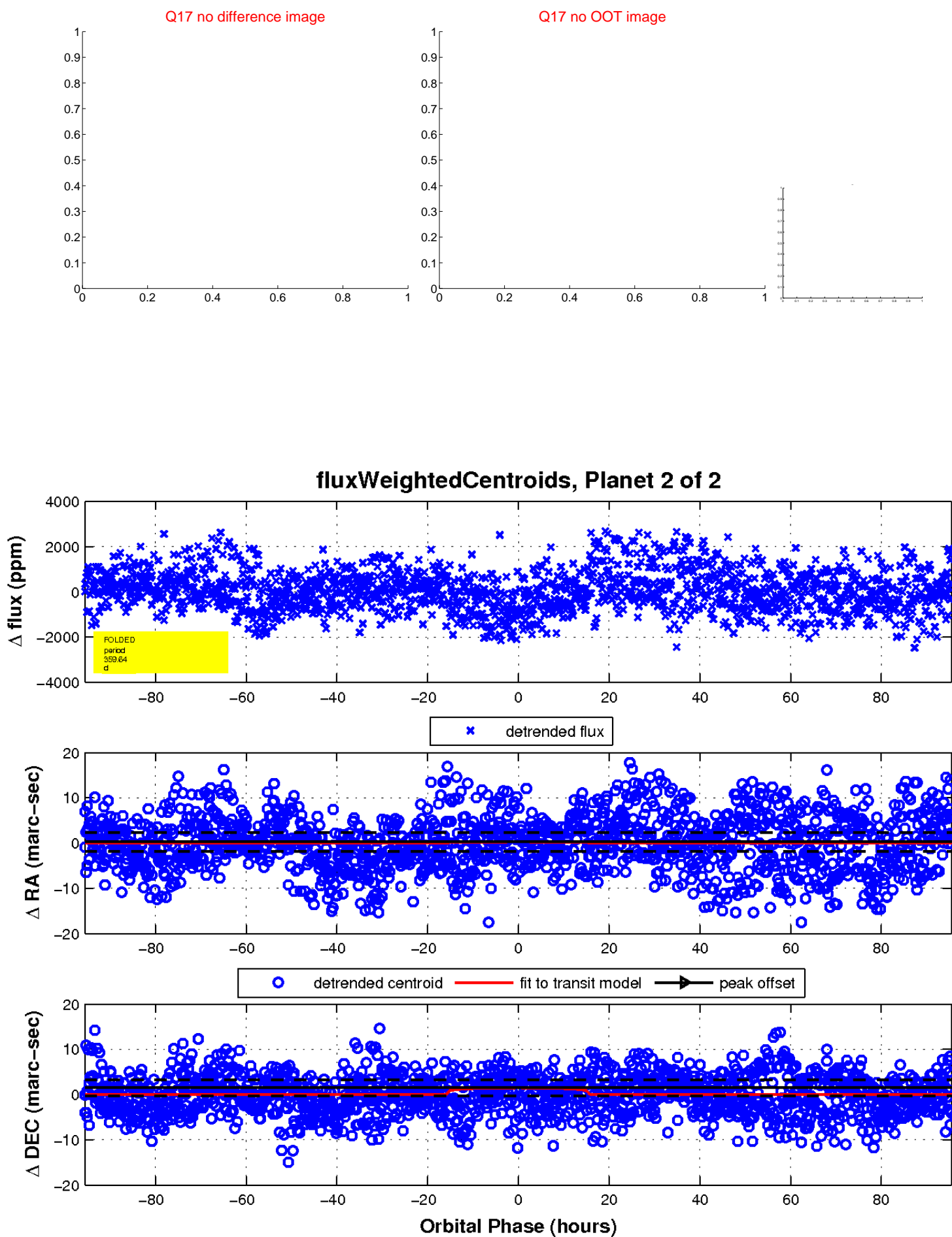
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

