

KIC 009838483

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})
009838483-01	OBS	No	322.538242	448.797340	7516.8	7.657	233.5	101.4	3.50	4947	57.00	6.47
009838483-02	OBS	No	463.308764	170.102772	905.2	13.319	125.0	53.4	3.50	4947	11.53	3.99
009838483-03	OBS	No	373.416708	261.551817	334.0	14.065	45.8	25.9	3.50	4947	6.77	5.33
009838483-04	OBS	No	487.752165	516.435130	336.5	4.596	44.1	6.0	3.50	4947	10.74	3.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009838483-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009838483-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

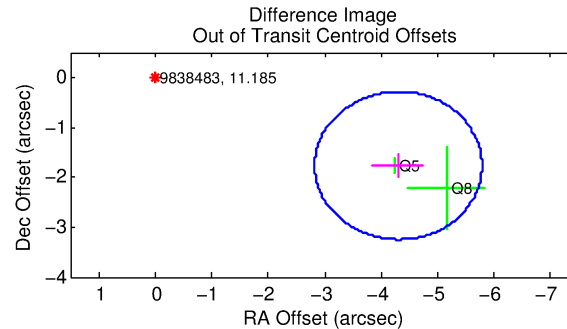
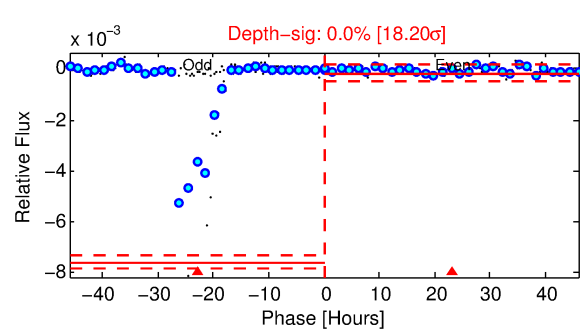
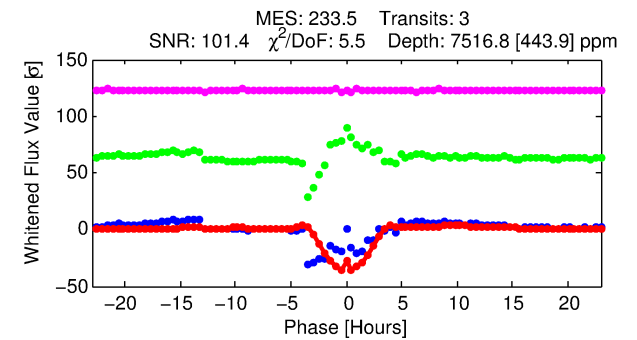
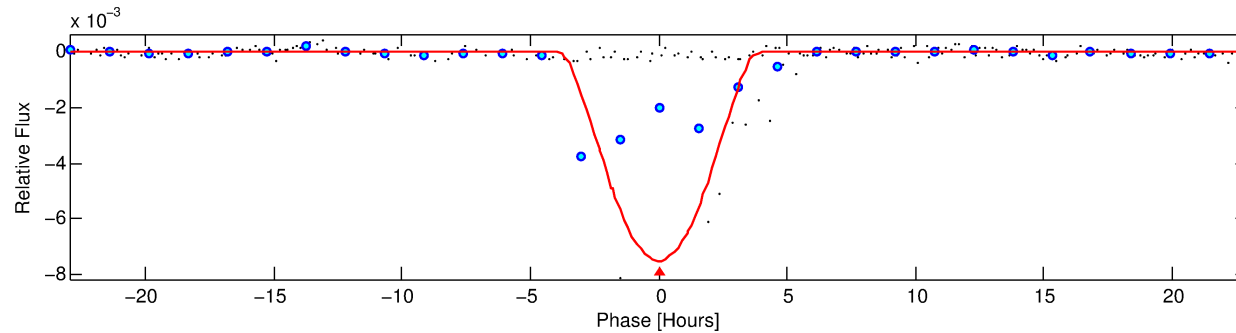
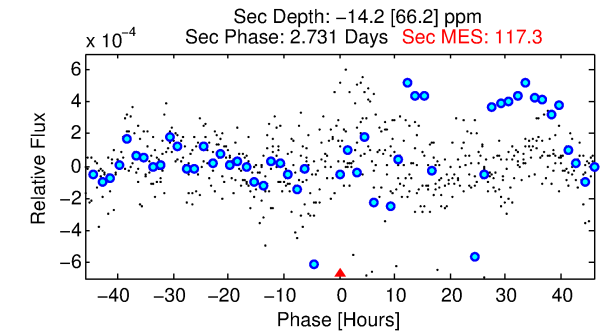
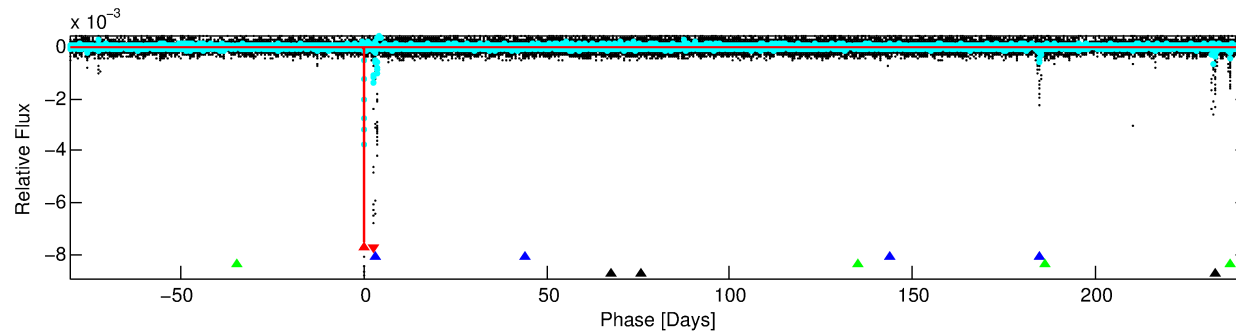
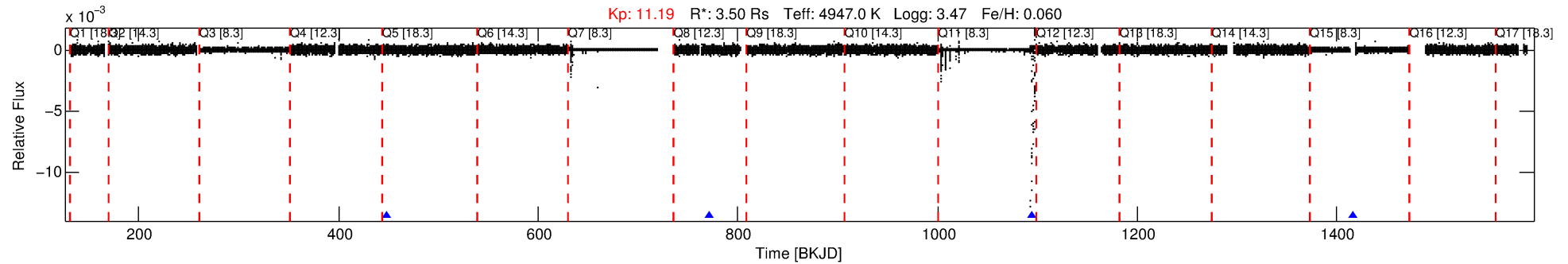
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009838483-01

No Significant Match Found

DV One-Page Summary

KIC: 9838483 Candidate: 1 of 4 Period: 322.538 d



DV Fit Results:

Period = $322.53824 [0.00249] \text{ d}$
Epoch = $448.7973 [0.0041] \text{ BKJD}$
 $R_p/R^* = 0.1491 [0.1293]$
 $a/R^* = 182.65 [23.05]$
 $b = 1.00 [0.18]$
 $\text{Seff} = 6.47 [1.72]$
 $T_{\text{eq}} = 407 [27] \text{ K}$
 $R_p = 57.00 [50.86] R_e$
 $a = 1.0086 [0.1793] \text{ AU}$
 $\text{Ag} = \text{N/A}$
 $\text{Teffp} = \text{N/A}$

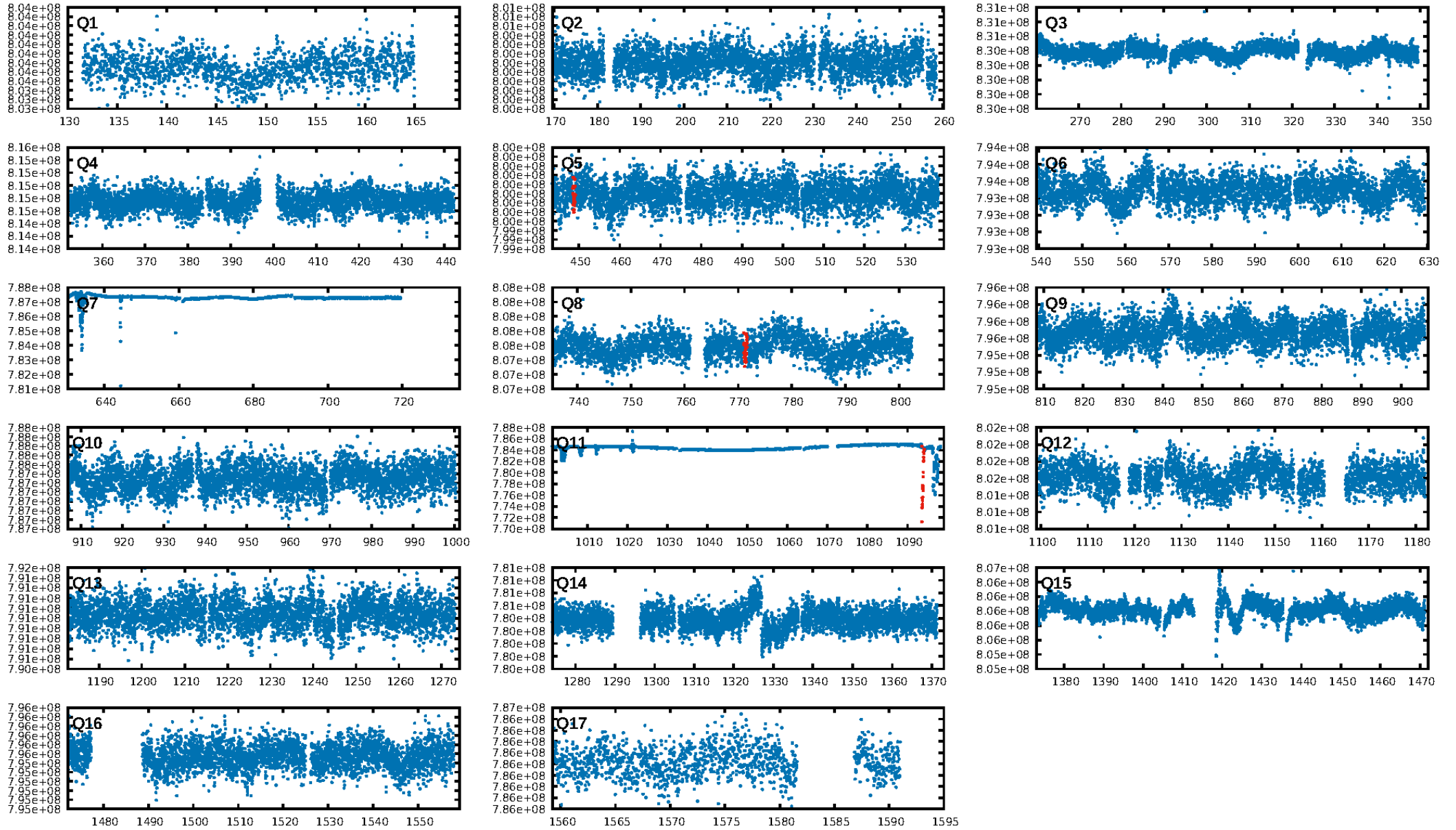
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: $100.0\% [76.25\sigma]$
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: $0.00e+00$
RollingBand-fgt: $1.00 [3/3]$
GhostDiagnostic-chr: -0.7933
Centroid-sig: 99.6%
Centroid-so: $0.629 \text{ arcsec} [27.24\sigma]$
OotOffset-rm: $4.653 \text{ arcsec} [9.43\sigma]$
KicOffset-rm: $3.411 \text{ arcsec} [9.45\sigma]$
OotOffset-st: $0/0/1/1 [2]$
KicOffset-st: $0/0/1/1 [2]$
DiffImageQuality-fgm: $0.50 [1/2]$
DiffImageOverlap-fno: $1.00 [2/2]$

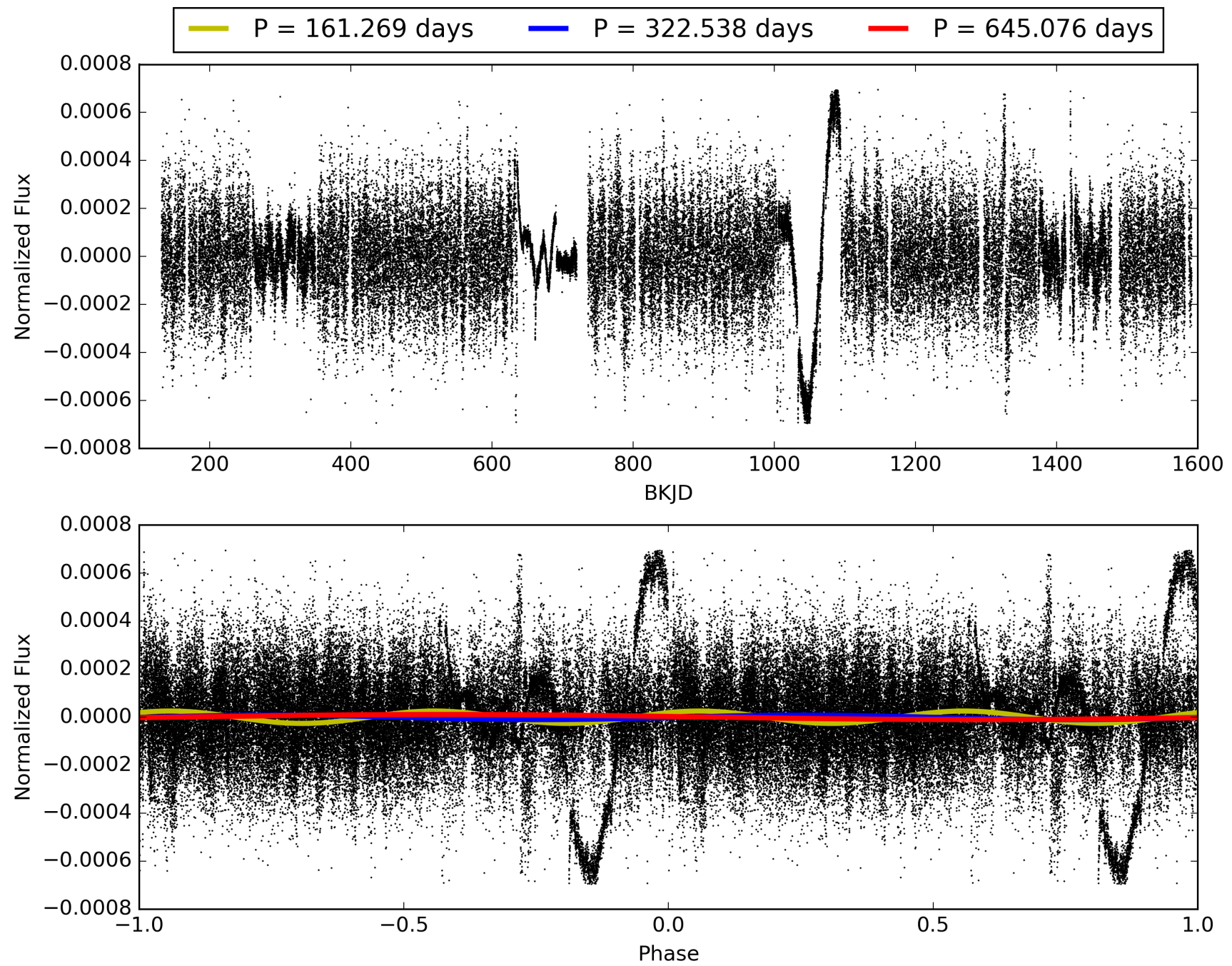
Software Revision: [svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958](https://murzim/repo/soc/tags/release/9.3.42@60958) -- Date Generated: 31-Jan-2016 00:42:21 Z

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

TCE 009838483-01, PDC Light Curves

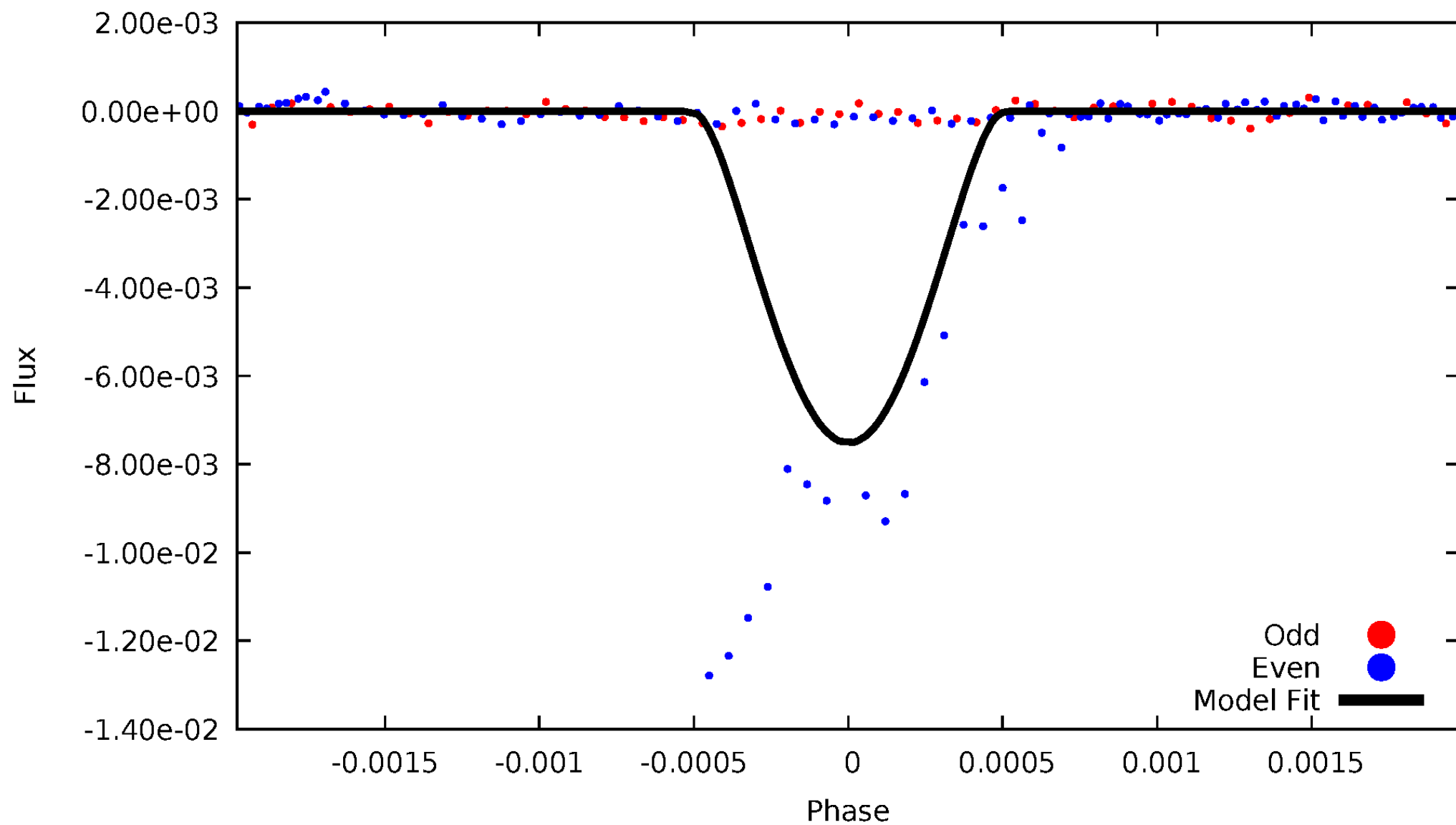


TCE 009838483-01



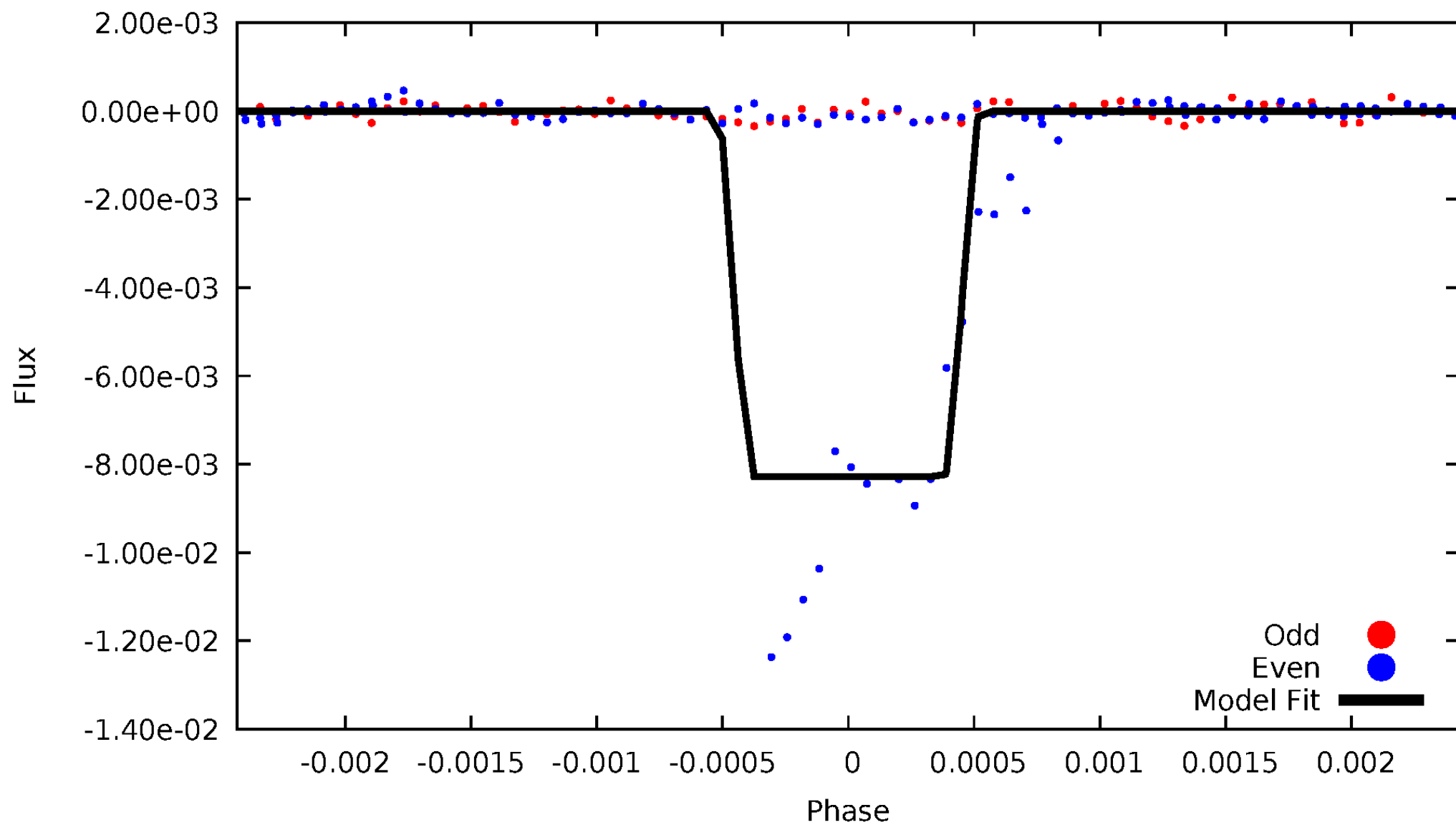
DV Odd/Even

TCE 009838483-01



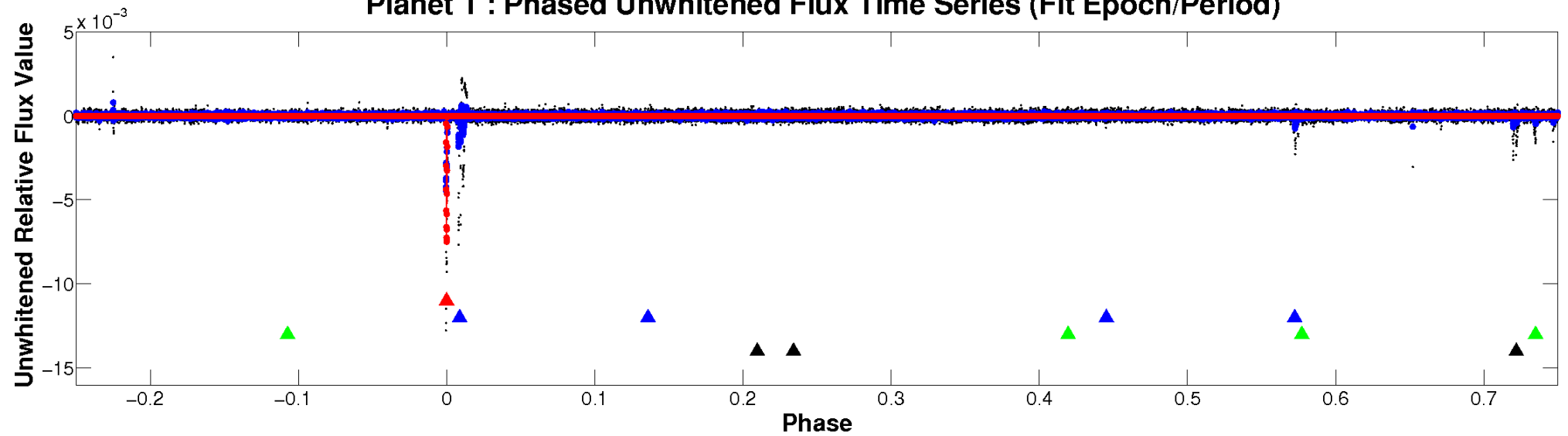
ALT Odd/Even

TCE 009838483-01

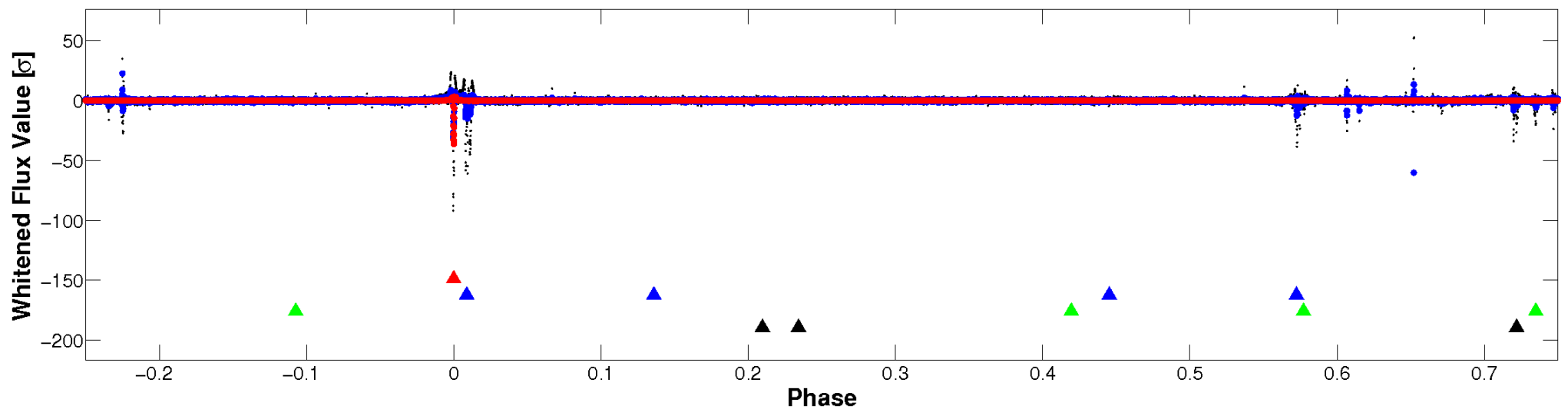


Non-Whitened Vs. Whitened Light Curve

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

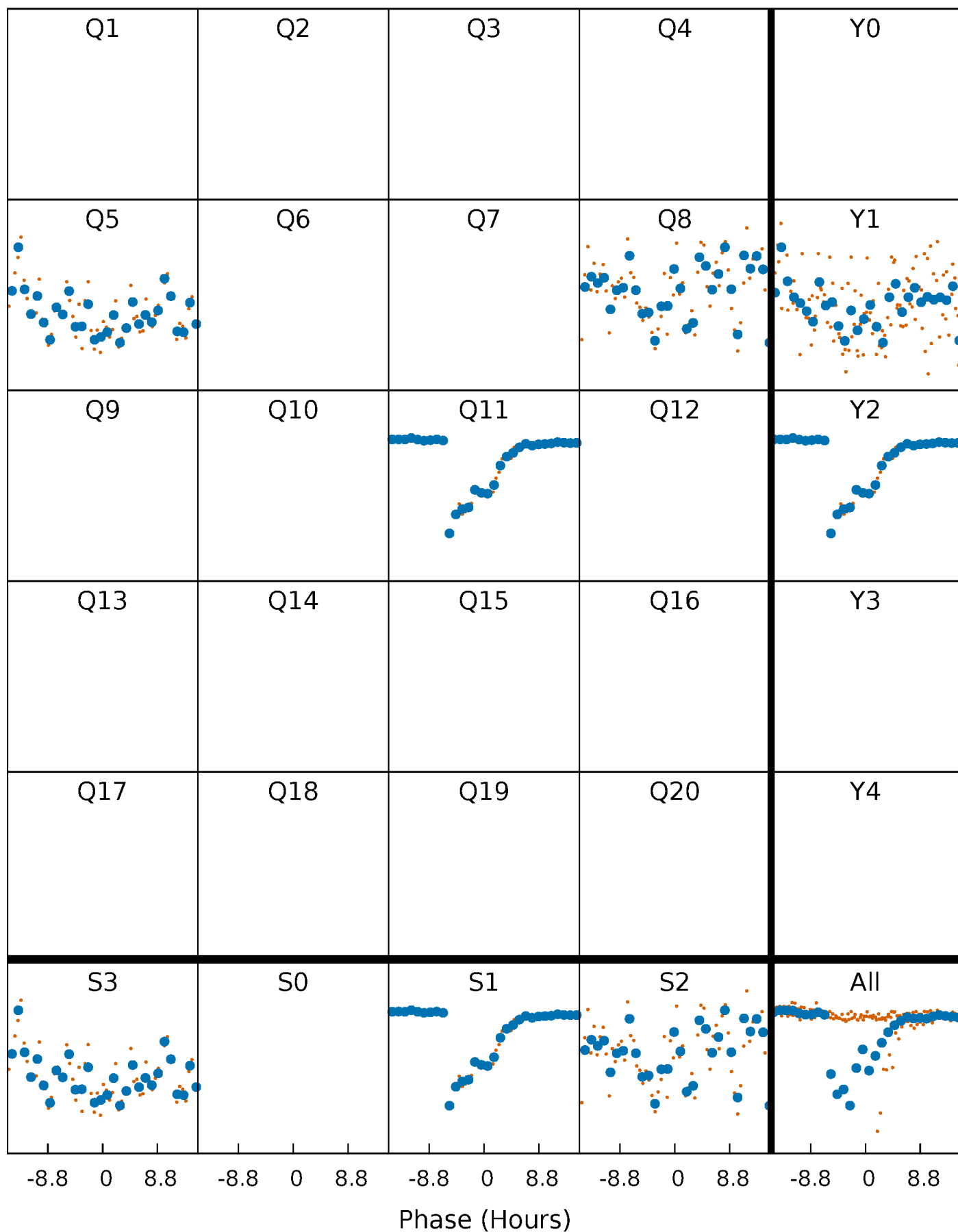


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



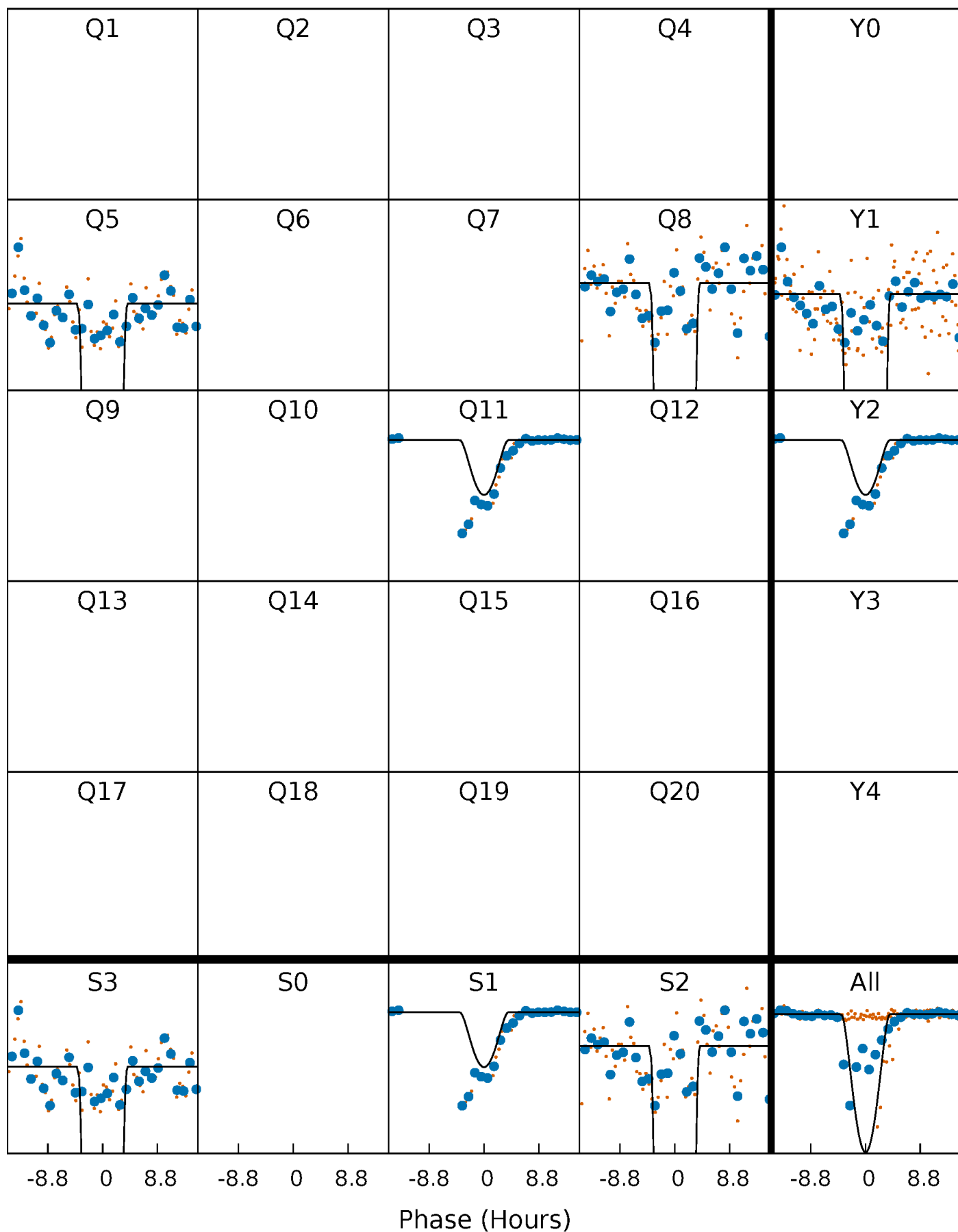
PDC Quarter-Phased Transit Curves

TCE 009838483-01 P=322.538242 Days $T_0=448.797340$ (BKJD)



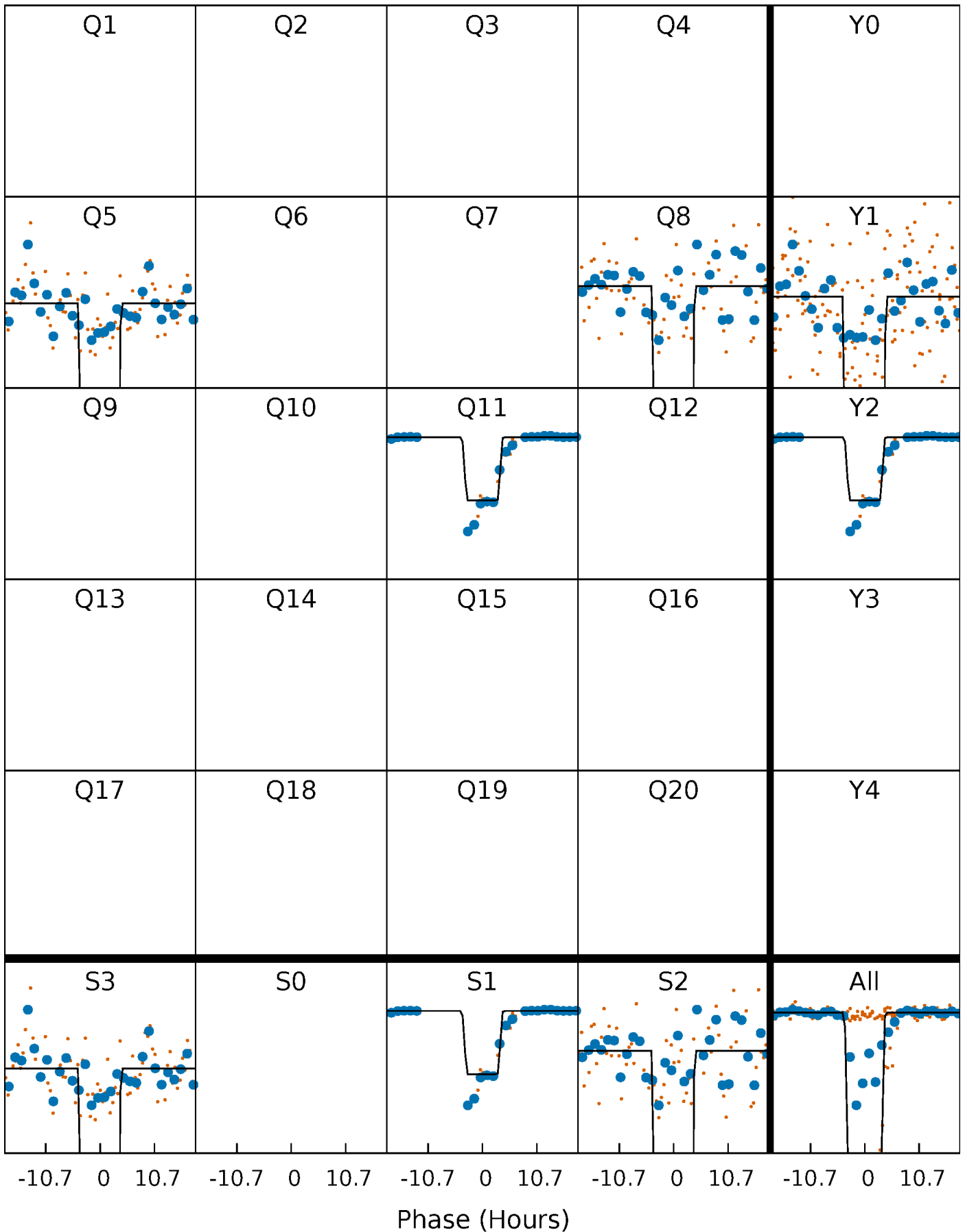
DV Quarter-Phased Transit Curves

TCE 009838483-01 P=322.538242 Days $T_0=448.797340$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

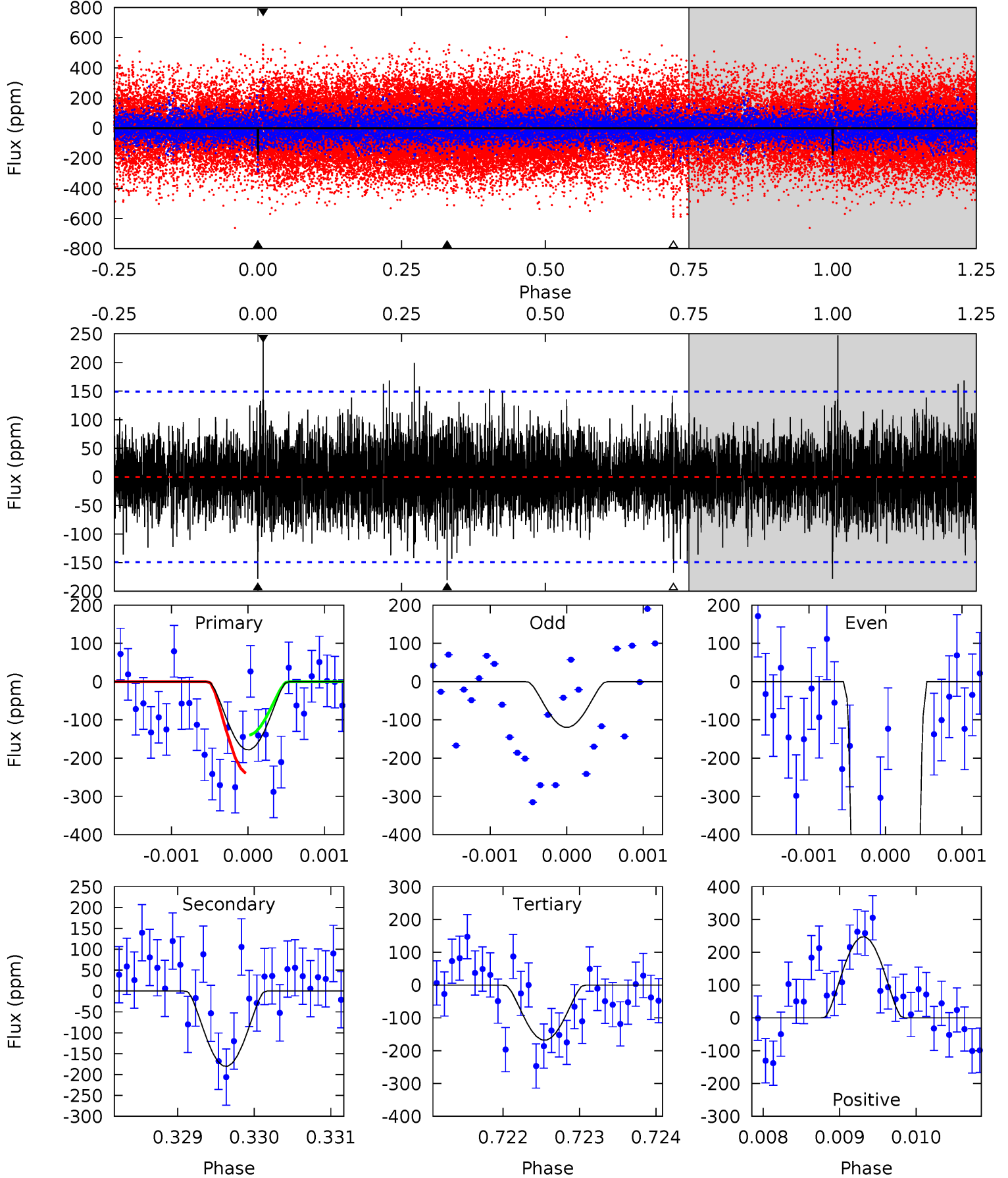
TCE 009838483-01 P=322.502878 Days $T_0=448.821571$ (BKJD)



DV Model-Shift Uniqueness Test

009838483-01, P = 322.538242 Days, E = 126.259098 Days

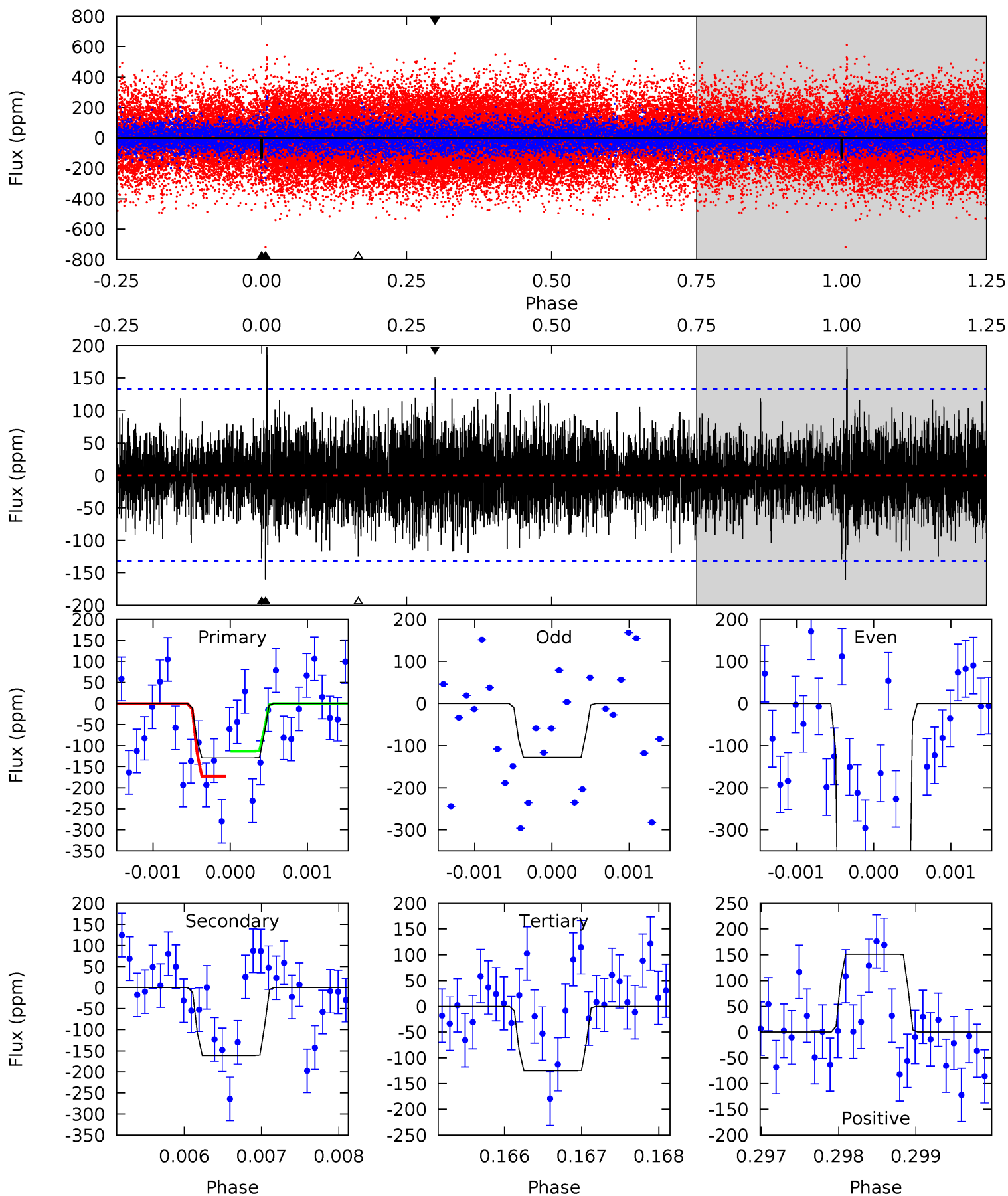
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.52	6.60	6.15	9.05	5.46	3.30	1.52	0.37	-2.53	0.45	-2.45	70.9	18.1	0.58	1.87



Alt Model-Shift Uniqueness Test

009838483-01, P = 322.502878 Days, E = 126.318693 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.32	6.62	5.15	6.23	5.45	3.29	1.47	0.17	-0.90	1.47	0.40	29.4	24.0	0.55	0



Stellar Parameters For KIC 009838483

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4947^{+64}_{-69}	$3.468^{+0.143}_{-0.117}$	$0.060^{+0.100}_{-0.150}$	$3.503^{+0.601}_{-0.735}$	$1.315^{+0.125}_{-0.292}$	$0.043^{+0.033}_{-0.015}$
	+1%/-1%	+4%/-3%	+167%/-250%	+17%/-21%	+10%/-22%	+76%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009838483-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-180 ± 27	$61.26^{+48.33}_{-38.65}$	569^{+27}_{-28}	2304^{+675}_{-279}	25^{+166}_{-17}
Alt.	-161 ± 24	$49.16^{+45.00}_{-32.30}$	568^{+25}_{-29}	2388^{+751}_{-334}	36^{+253}_{-26}

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

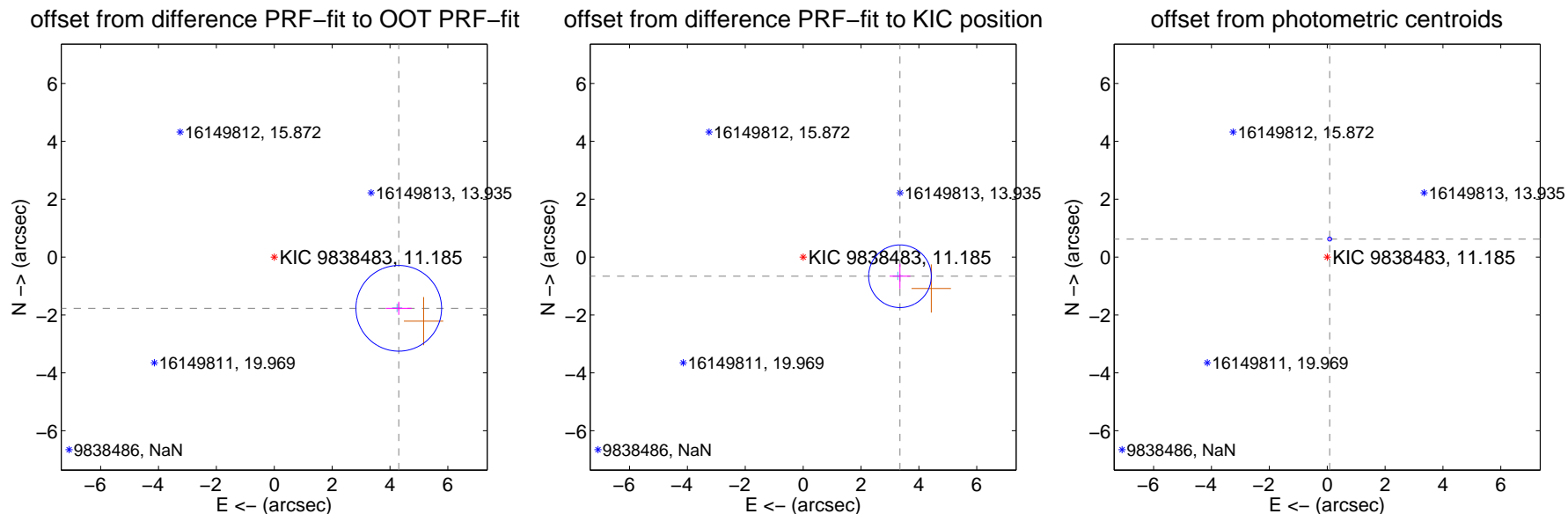
DV Centroid Data

Supplemental centroid analysis for 009838483-01. **Kepler magnitude: 11.19.** Transit SNR 101.41

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.653 ± 0.494	9.43	-4.303 ± 0.444	-1.770 ± 0.228
PRF-fit source offset from KIC position	3.411 ± 0.361	9.45	-3.346 ± 0.358	-0.662 ± 0.427
photometric centroid source offset	0.63 ± 0.02	27.24	-0.08 ± 0.03	0.62 ± 0.02

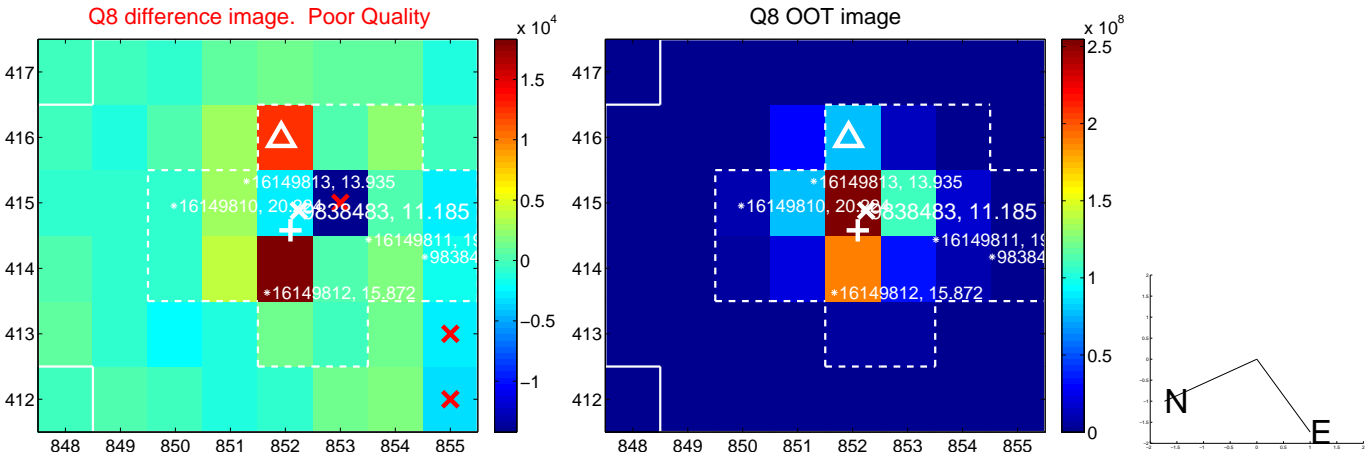
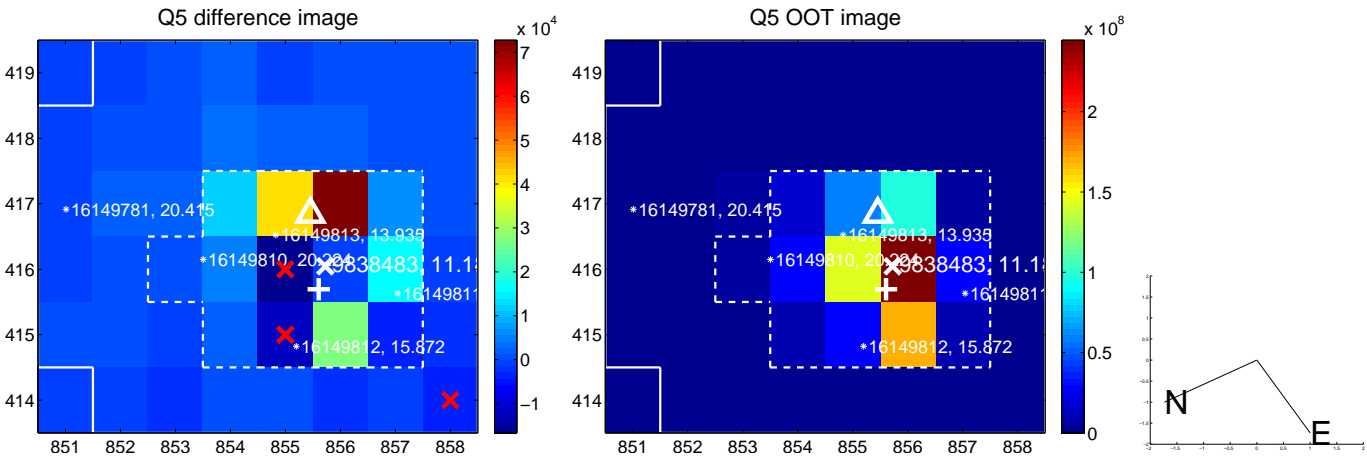


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



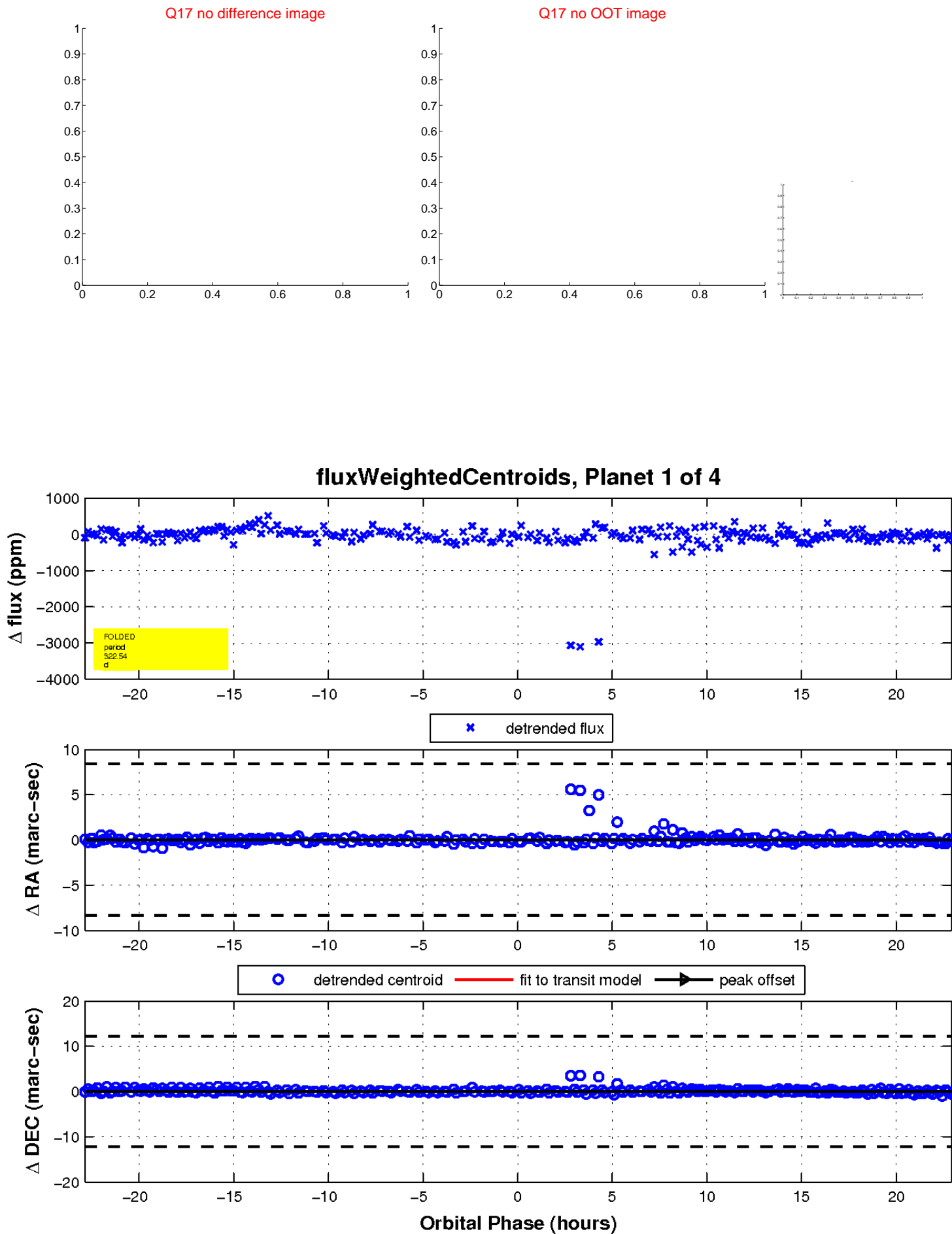
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



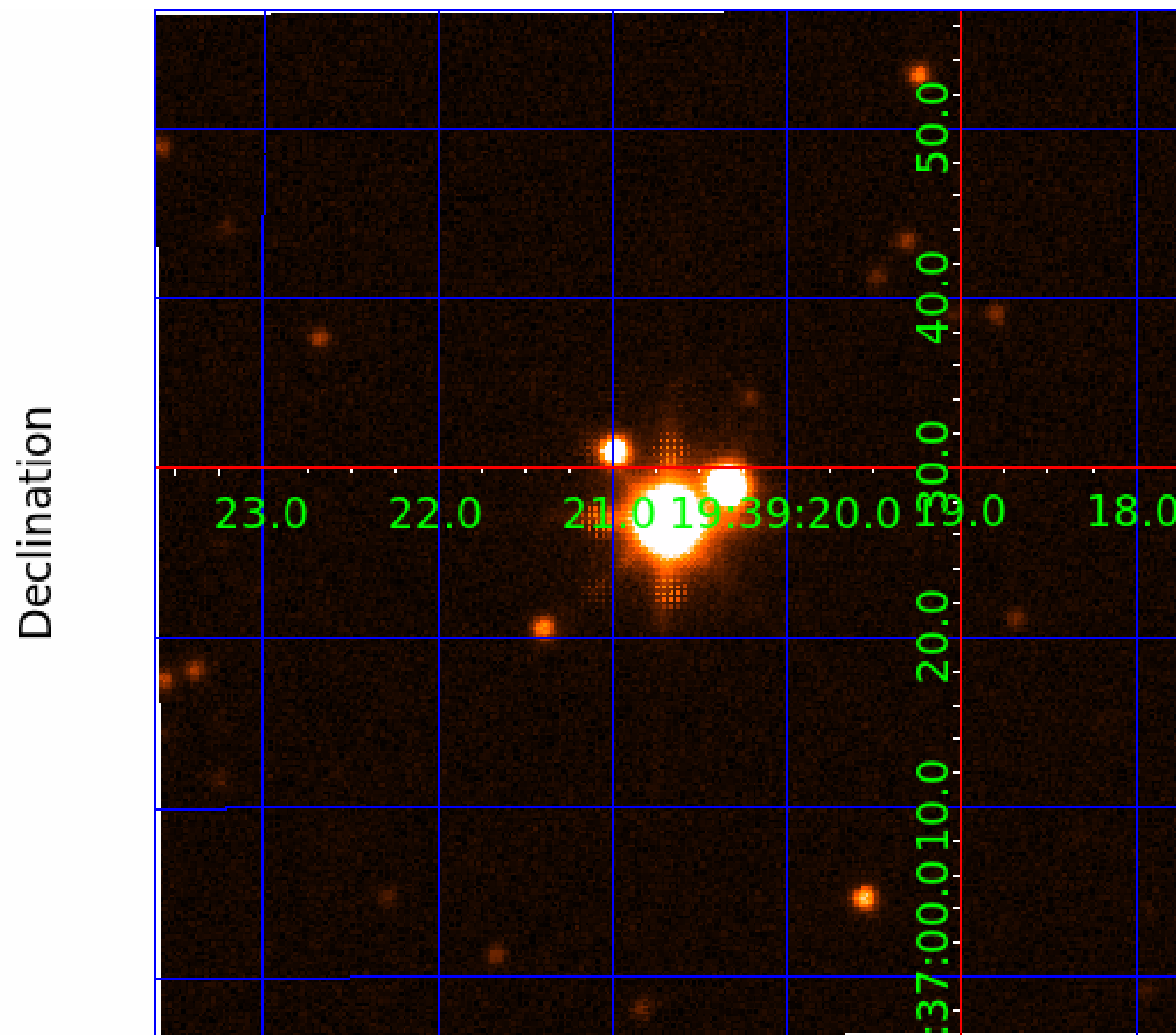
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009838483

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})
009838483-01	OBS	No	322.538242	448.797340	7516.8	7.657	233.5	101.4	3.50	4947	57.00	6.47
009838483-02	OBS	No	463.308764	170.102772	905.2	13.319	125.0	53.4	3.50	4947	11.53	3.99
009838483-03	OBS	No	373.416708	261.551817	334.0	14.065	45.8	25.9	3.50	4947	6.77	5.33
009838483-04	OBS	No	487.752165	516.435130	336.5	4.596	44.1	6.0	3.50	4947	10.74	3.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009838483-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009838483-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

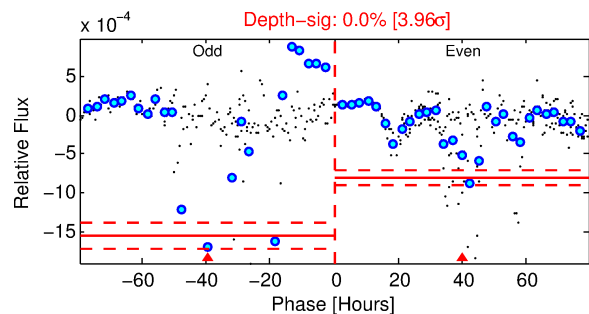
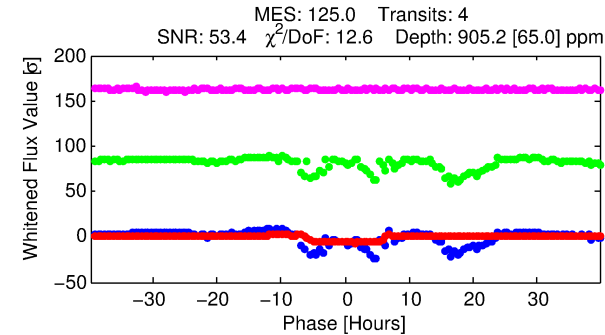
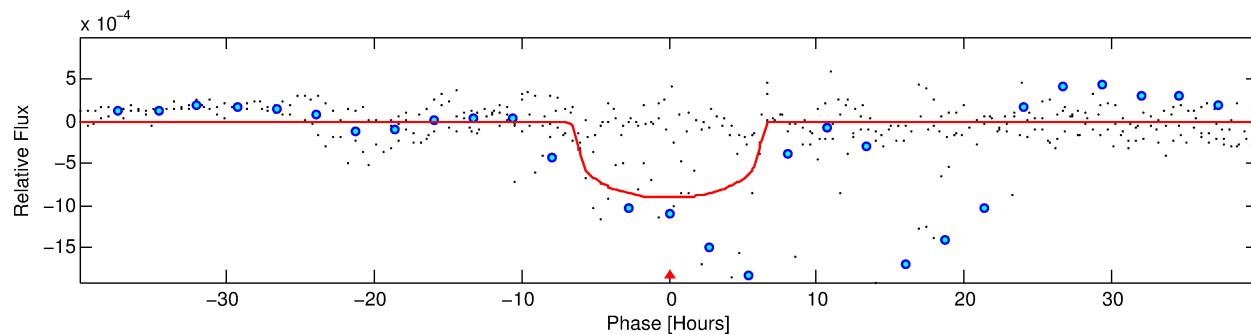
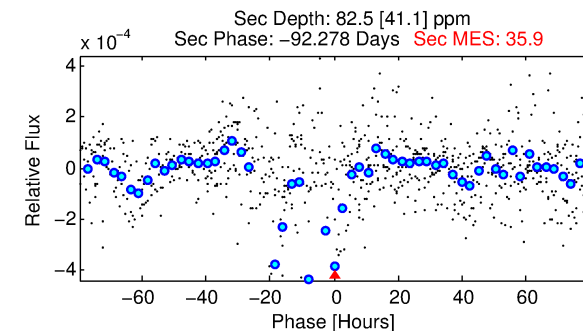
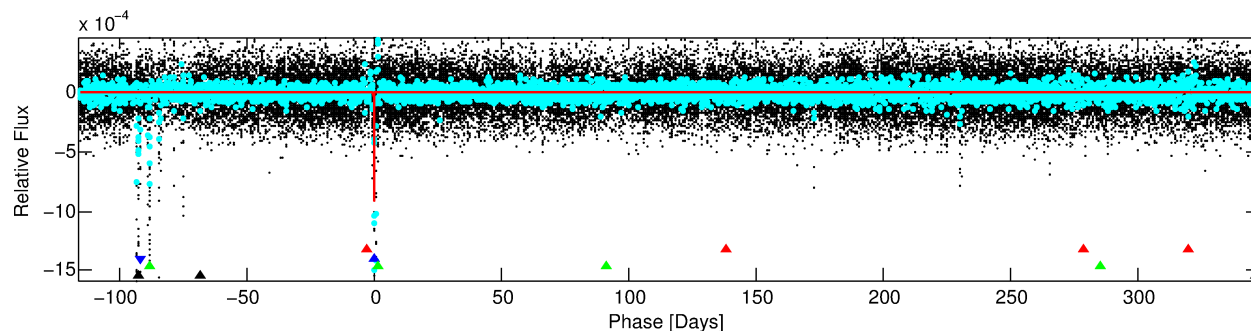
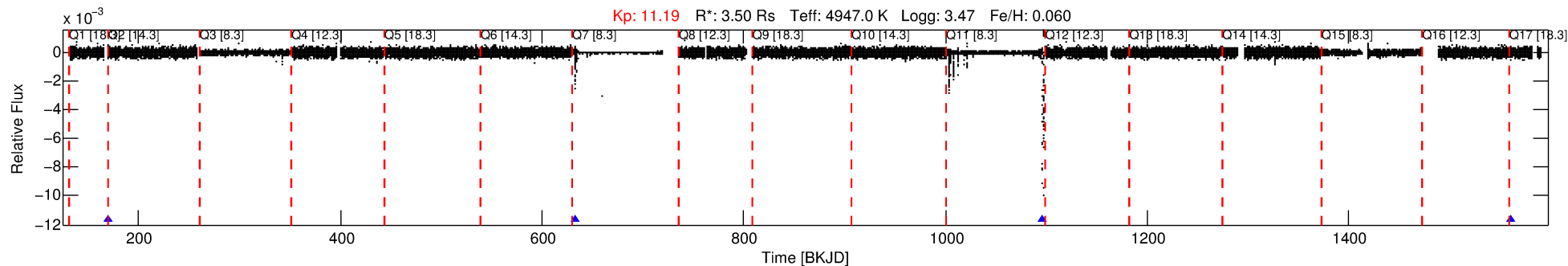
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009838483-02

No Significant Match Found

DV One-Page Summary

KIC: 9838483 Candidate: 2 of 4 Period: 463.309 d



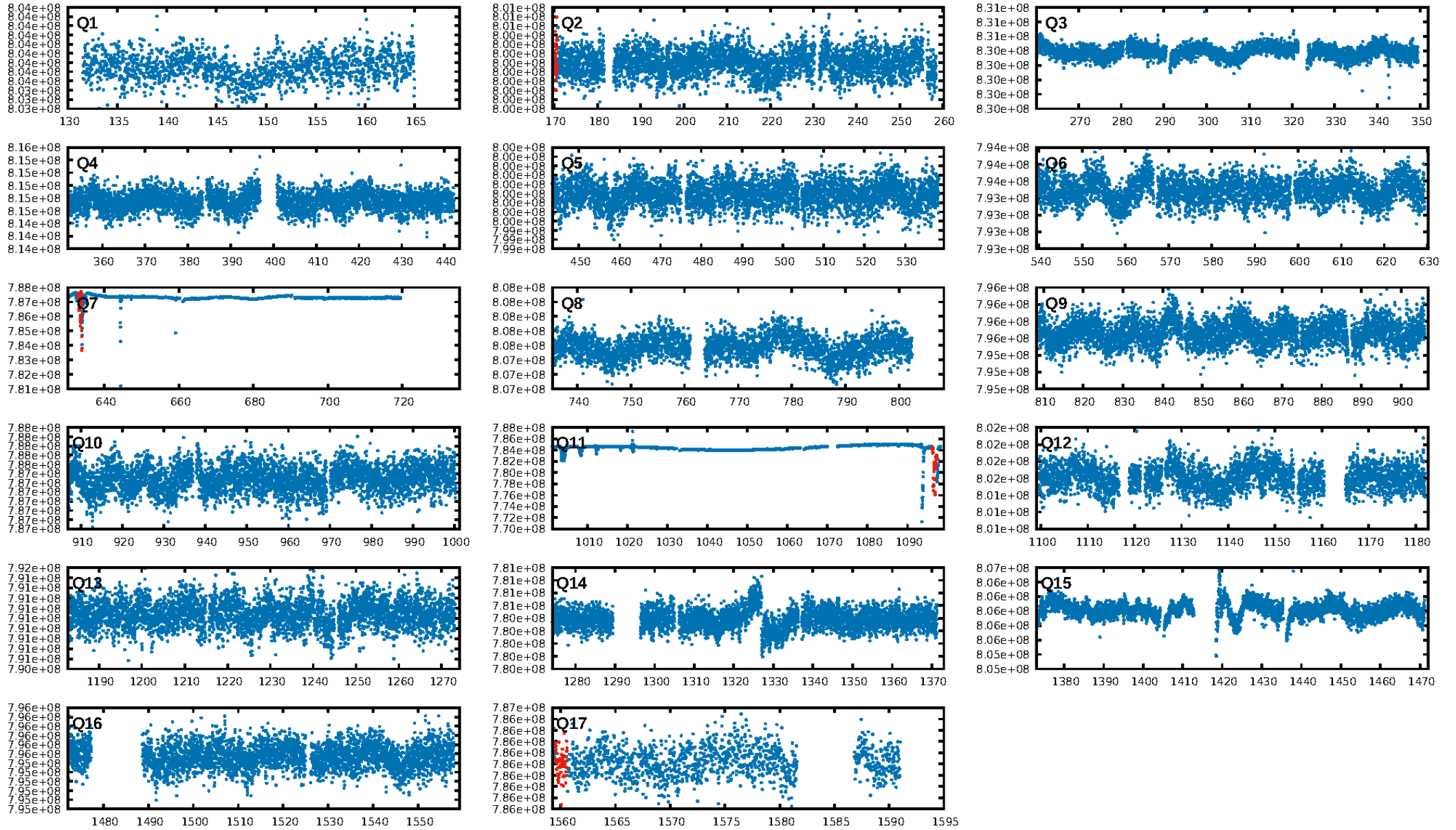
DV Fit Results:

Period = 463.30876 [0.01089] d
Epoch = 170.1028 [0.0149] BKJD
Rp/R* = 0.0302 [0.0063]
a/R* = 185.41 [132.87]
b = 0.76 [0.41]
Seff = 3.99 [1.06]
Teq = 360 [24] K
Rp = 11.53 [3.41] Re
a = 1.2840 [0.2283] AU
Ag = 562.59 [393.98] [1.43σ]
Teffp = 2714 [443] K [5.31σ]

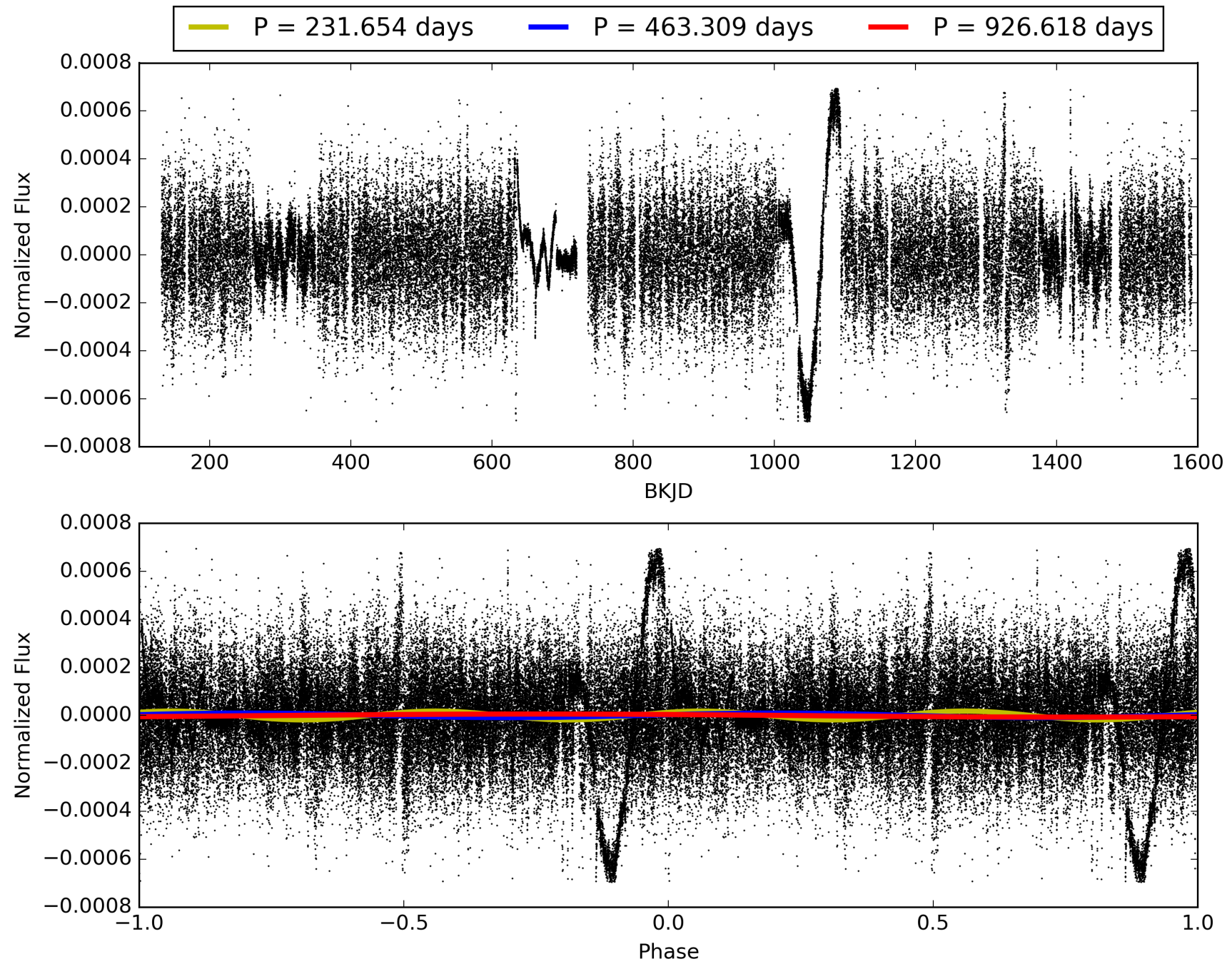
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [111.38σ]
LongPeriod-sig: 100.0% [41.64σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 4.74e-279
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -6.566
Centroid-sig: 0.0%
Centroid-so: 0.847 arcsec [5.14σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

TCE 009838483-02, PDC Light Curves

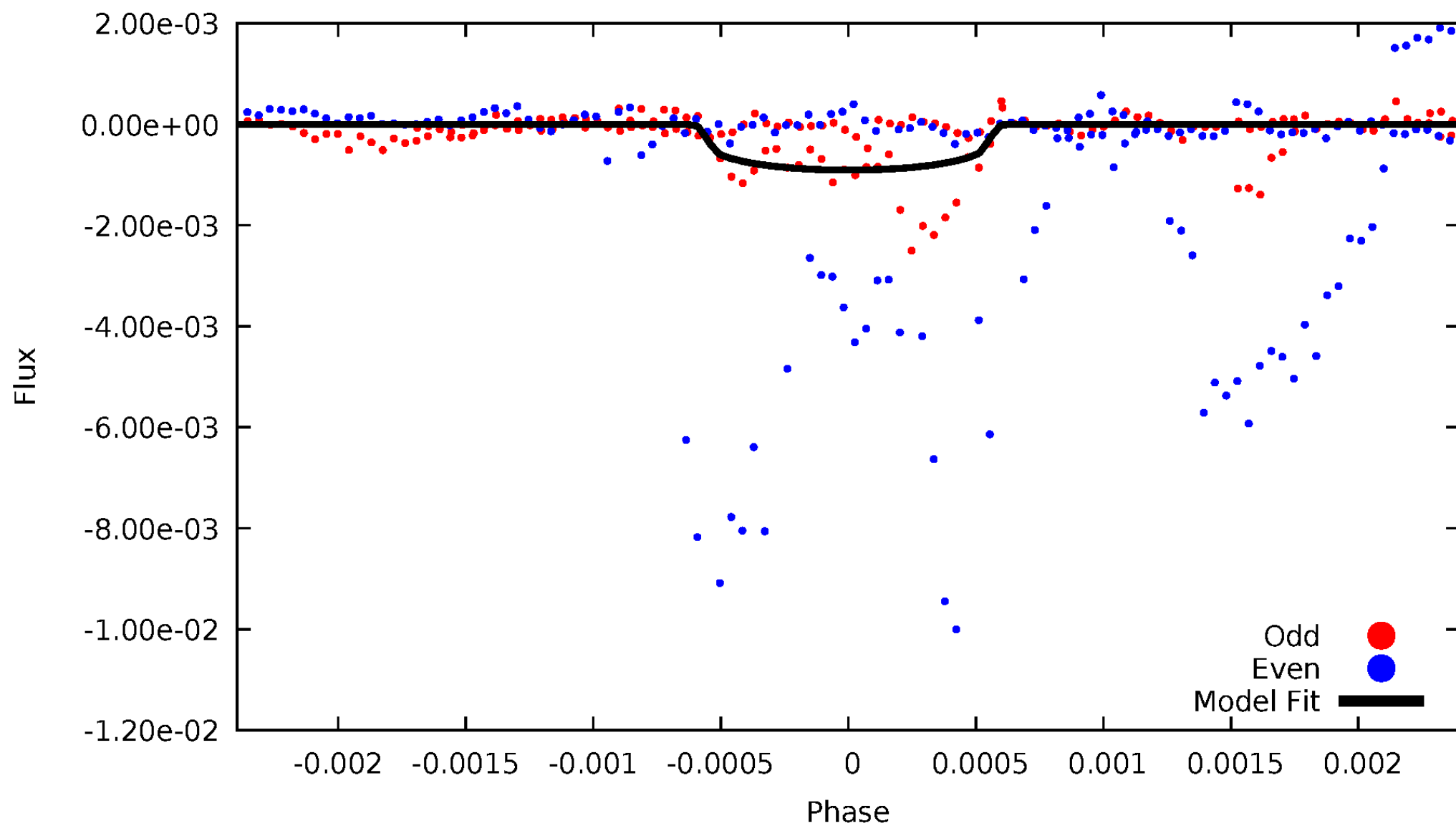


TCE 009838483-02



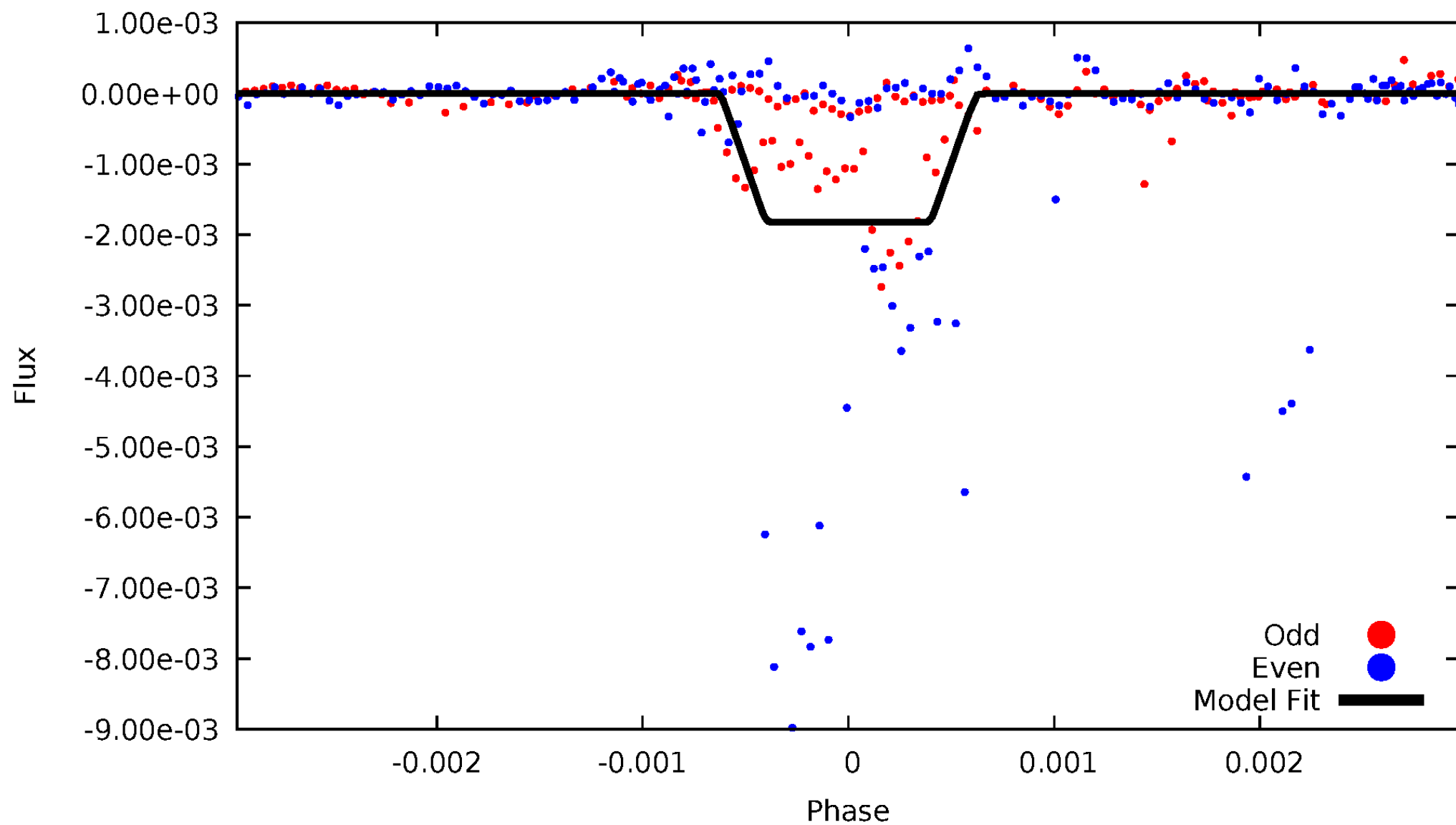
DV Odd/Even

TCE 009838483-02



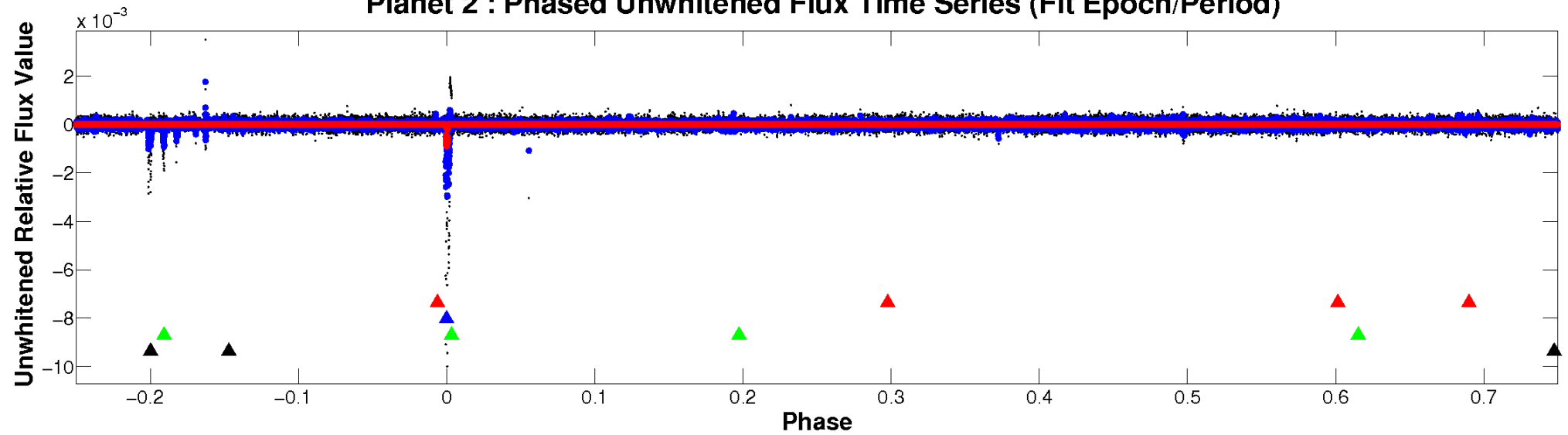
ALT Odd/Even

TCE 009838483-02

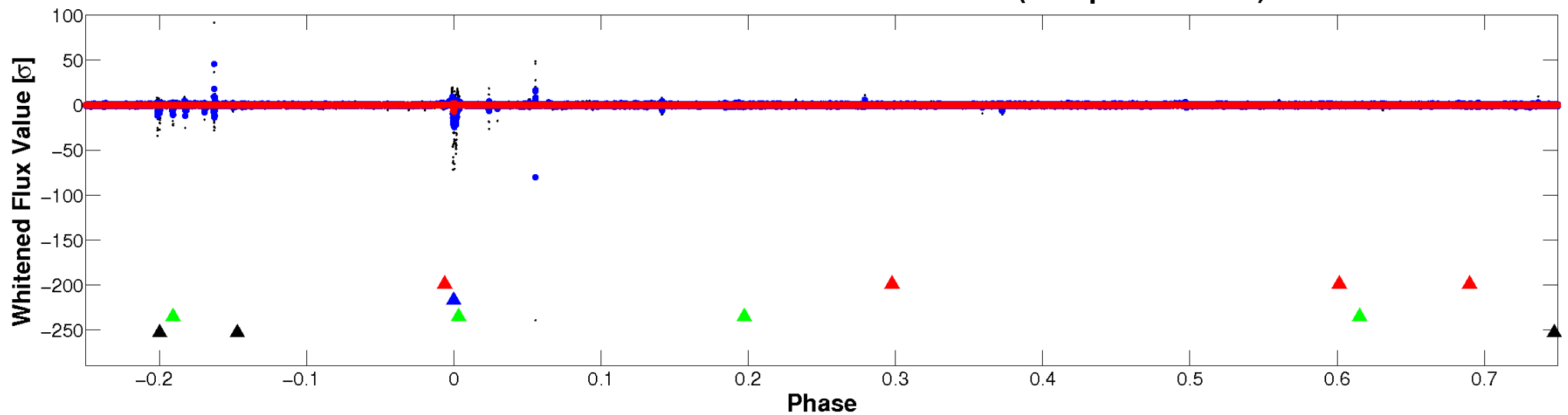


Non-Whitened Vs. Whitened Light Curve

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



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



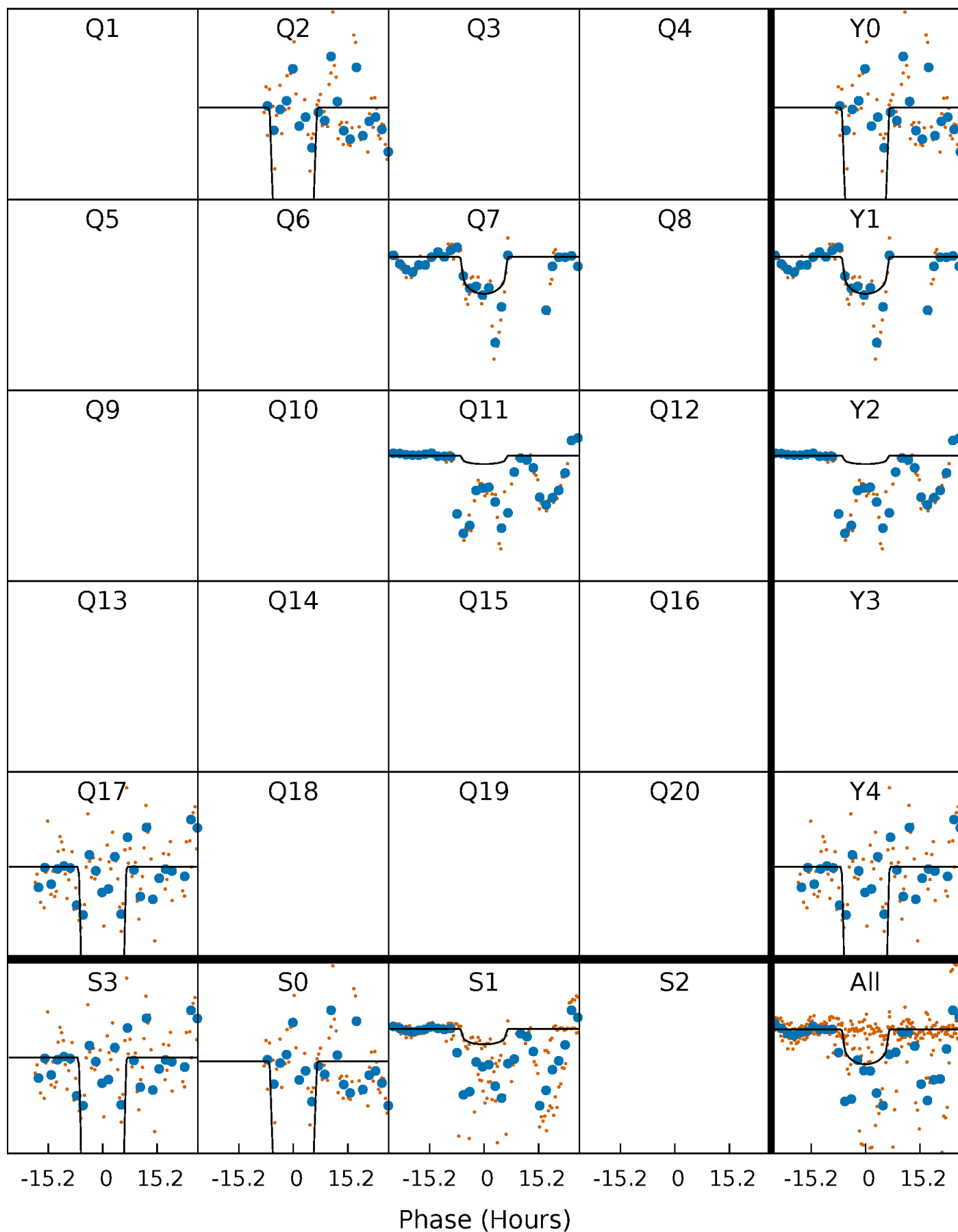
PDC Quarter-Phased Transit Curves

TCE 009838483-02 P=463.308764 Days $T_0=170.102772$ (BKJD)



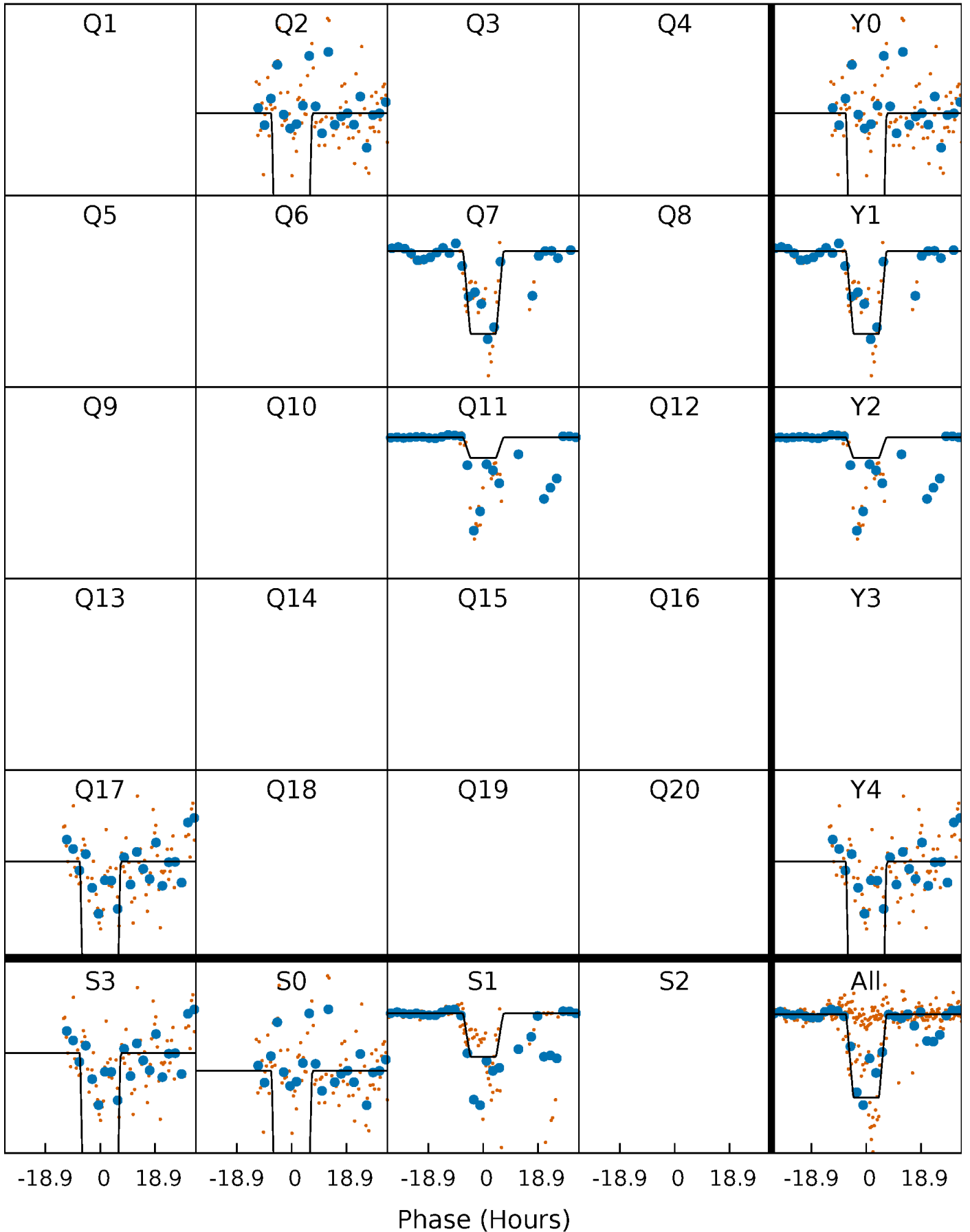
DV Quarter-Phased Transit Curves

TCE 009838483-02 $P=463.308764$ Days $T_0=170.102772$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

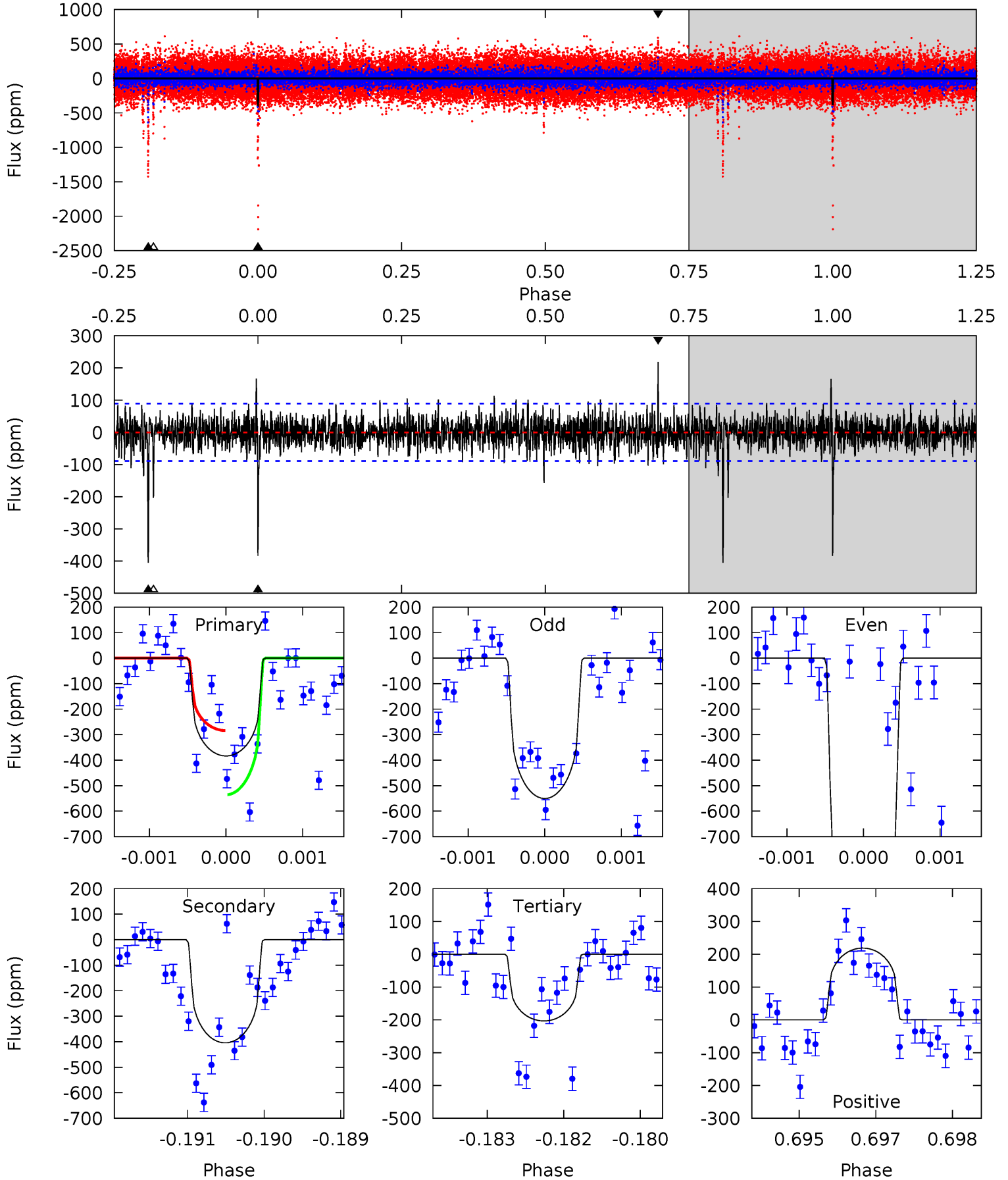
TCE 009838483-02 P=463.160693 Days $T_0=170.291635$ (BKJD)



DV Model-Shift Uniqueness Test

009838483-02, P = 463.308764 Days, E = 170.102772 Days

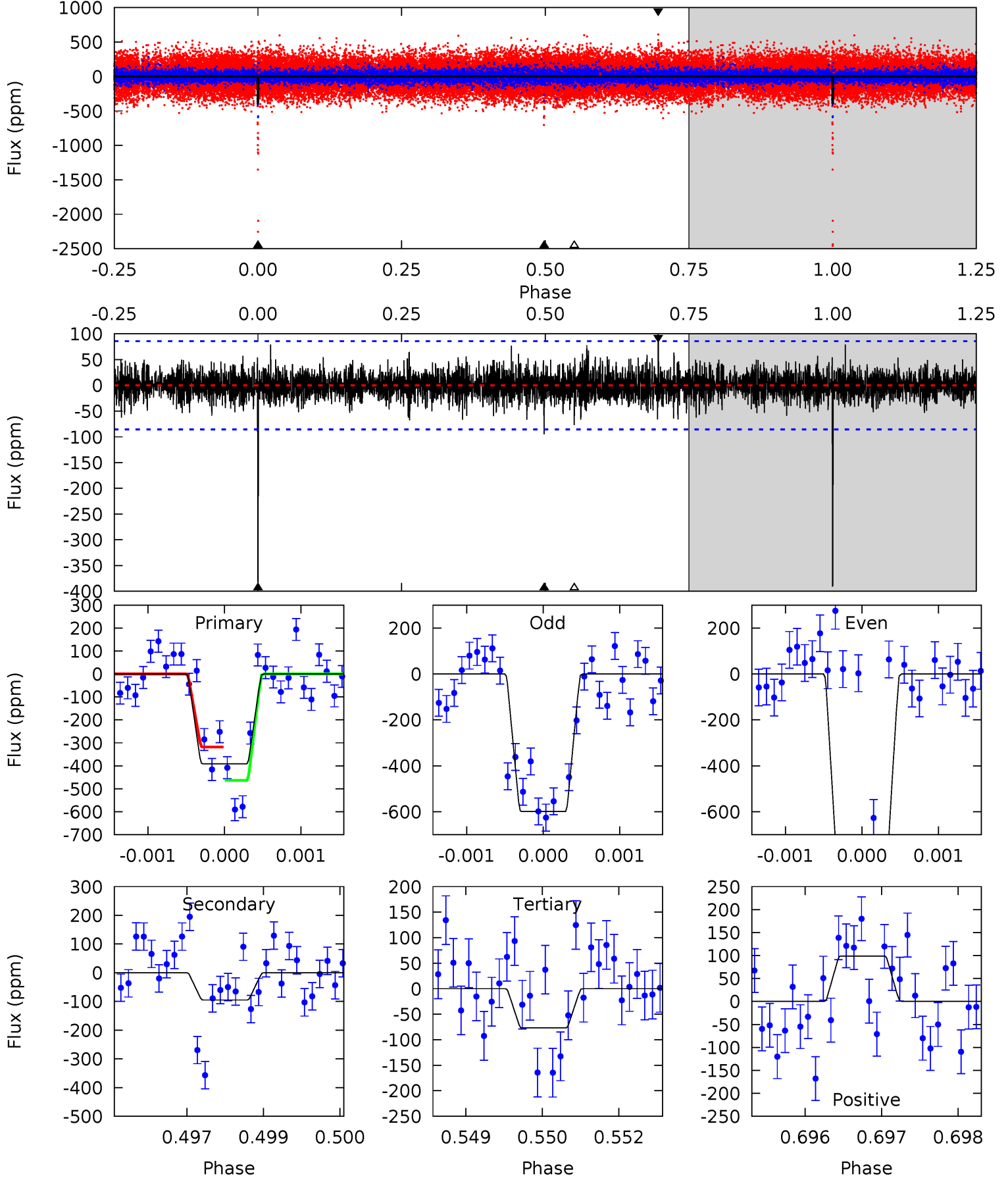
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.3	24.5	12.3	13.3	5.41	3.23	2.04	10.9	9.99	12.2	11.3	15.7	2.84	0.35	7.57



Alt Model-Shift Uniqueness Test

009838483-02, P = 463.160693 Days, E = 170.291635 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.7	5.98	4.85	6.24	5.41	3.22	1.25	19.8	18.4	1.13	-0.25	11.2	2.15	0.20	0



Stellar Parameters For KIC 009838483

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4947^{+64}_{-69}	$3.468^{+0.143}_{-0.117}$	$0.060^{+0.100}_{-0.150}$	$3.503^{+0.601}_{-0.735}$	$1.315^{+0.125}_{-0.292}$	$0.043^{+0.033}_{-0.015}$
	+1%/-1%	+4%/-3%	+167%/-250%	+17%/-21%	+10%/-22%	+76%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009838483-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-404 ± 16	$11.41^{+2.76}_{-2.74}$	503^{+25}_{-25}	4212^{+397}_{-269}	2749^{+1970}_{-913}
Alt.	-95 ± 16	$16.07^{+2.94}_{-2.89}$	502^{+24}_{-25}	2985^{+163}_{-139}	325^{+157}_{-103}

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

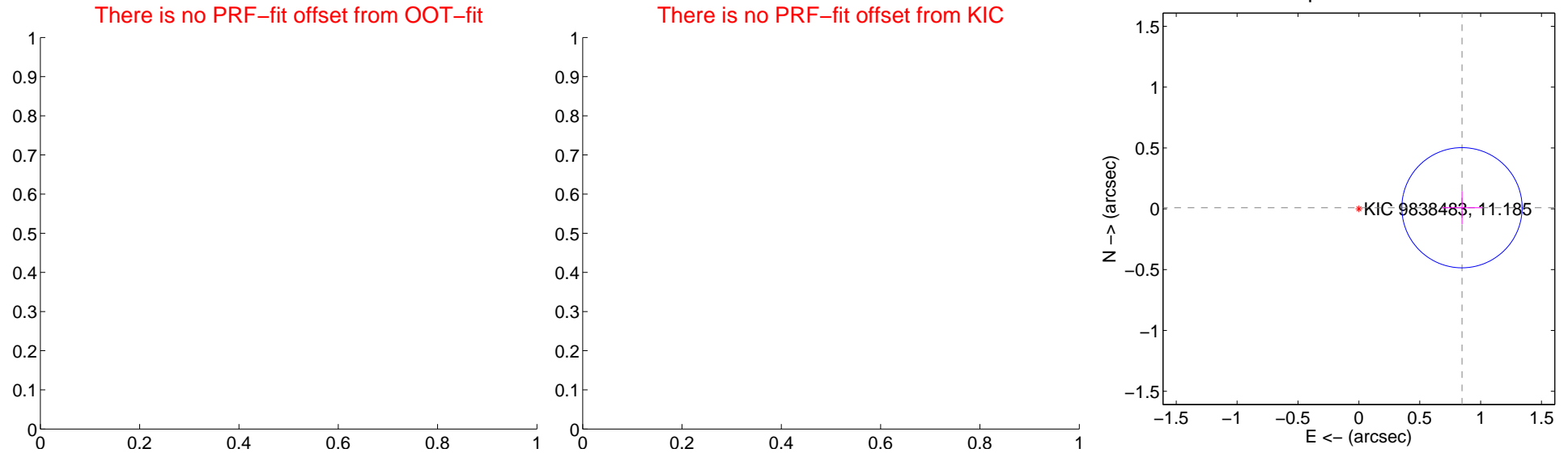
DV Centroid Data

Supplemental centroid analysis for 009838483-02. **Kepler magnitude: 11.19.** Transit SNR 53.41

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	0.85 ± 0.16	5.14	-0.85 ± 0.16	0.01 ± 0.14



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.



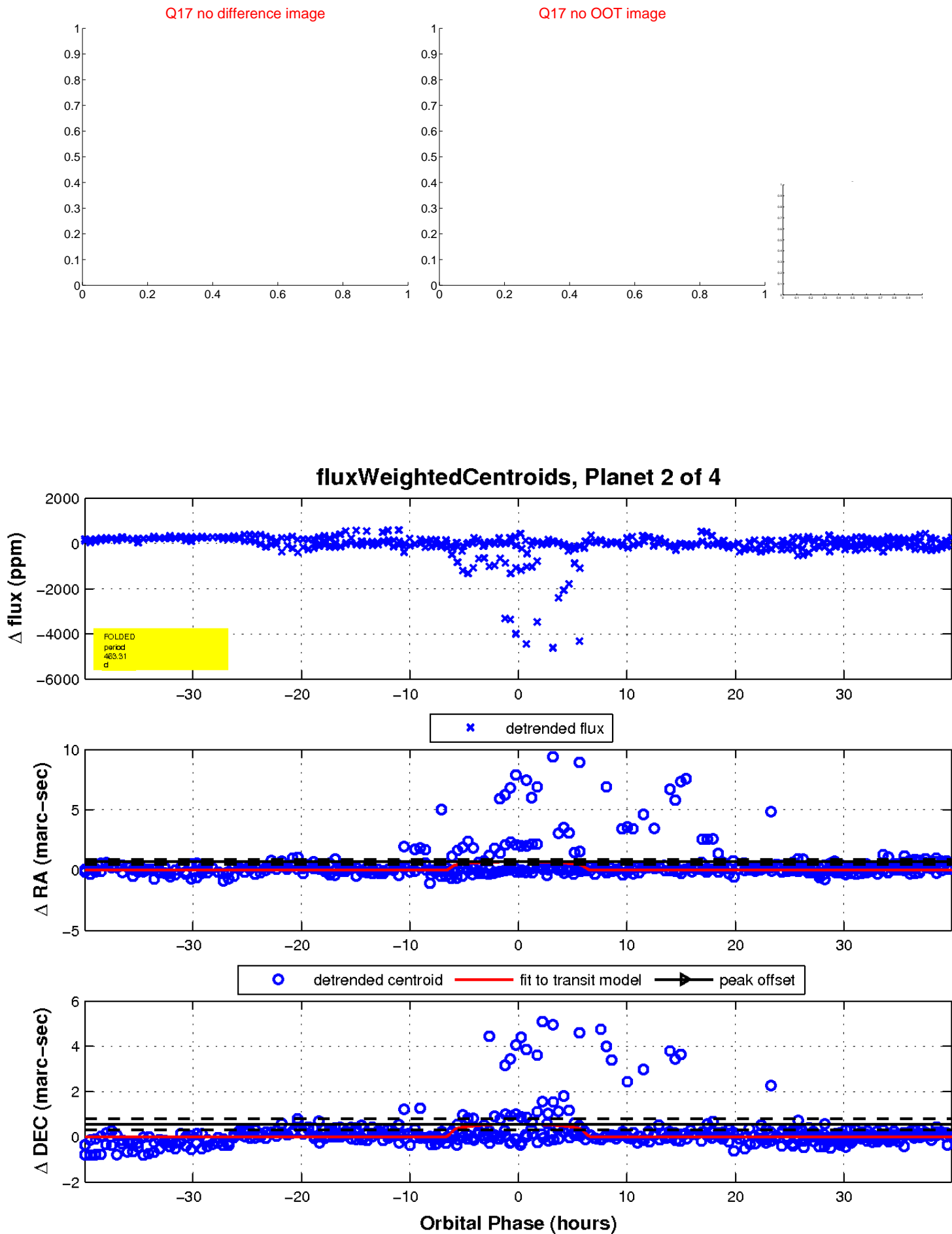
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



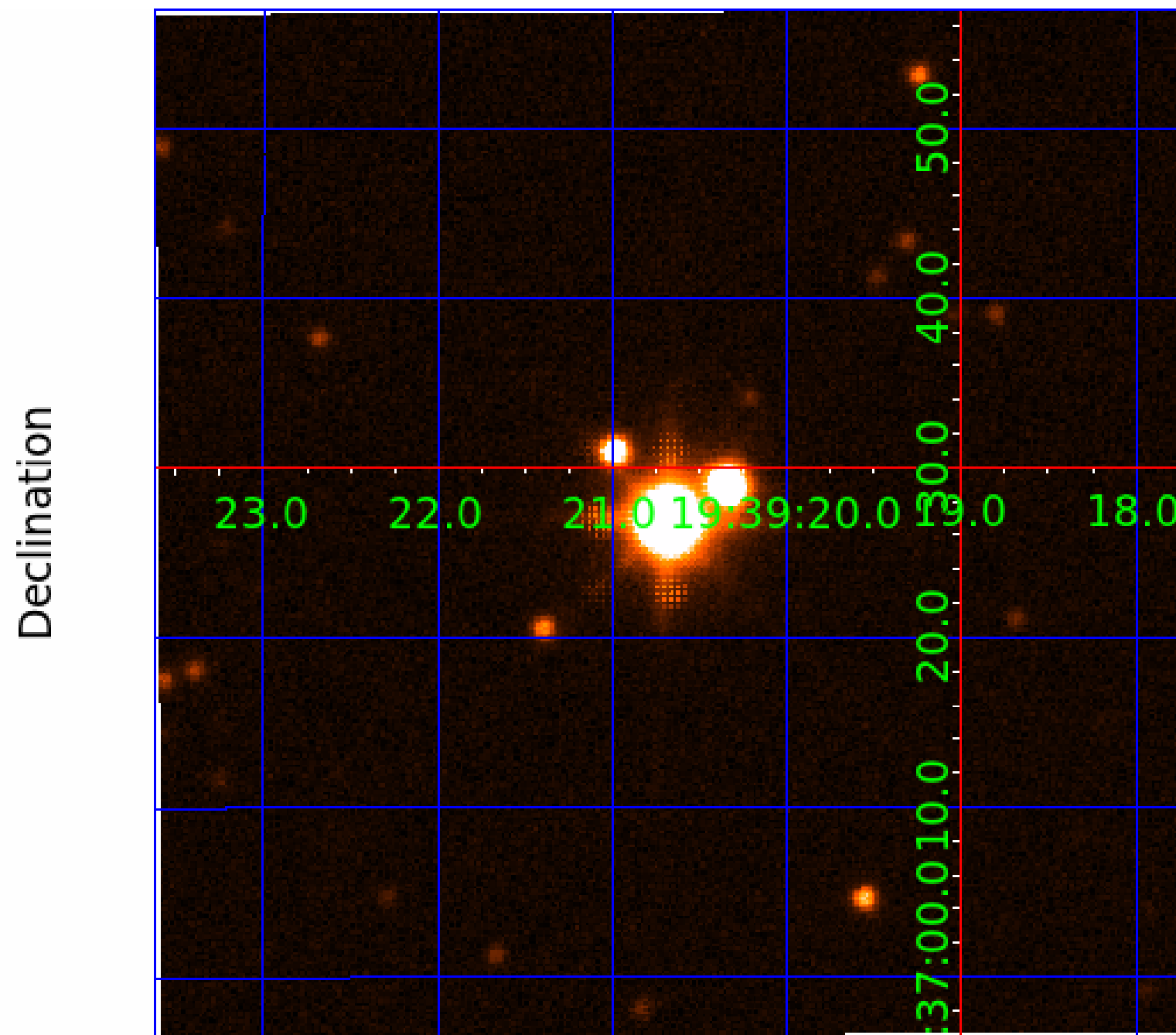
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009838483

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})
009838483-01	OBS	No	322.538242	448.797340	7516.8	7.657	233.5	101.4	3.50	4947	57.00	6.47
009838483-02	OBS	No	463.308764	170.102772	905.2	13.319	125.0	53.4	3.50	4947	11.53	3.99
009838483-03	OBS	No	373.416708	261.551817	334.0	14.065	45.8	25.9	3.50	4947	6.77	5.33
009838483-04	OBS	No	487.752165	516.435130	336.5	4.596	44.1	6.0	3.50	4947	10.74	3.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009838483-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009838483-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

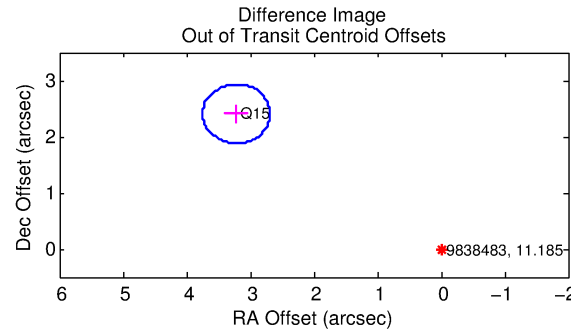
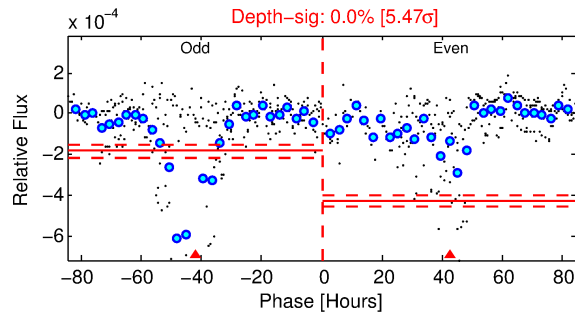
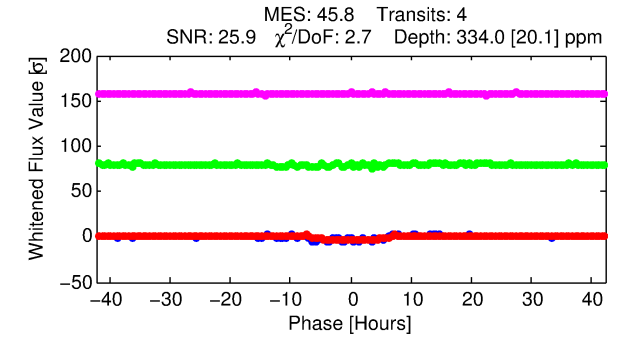
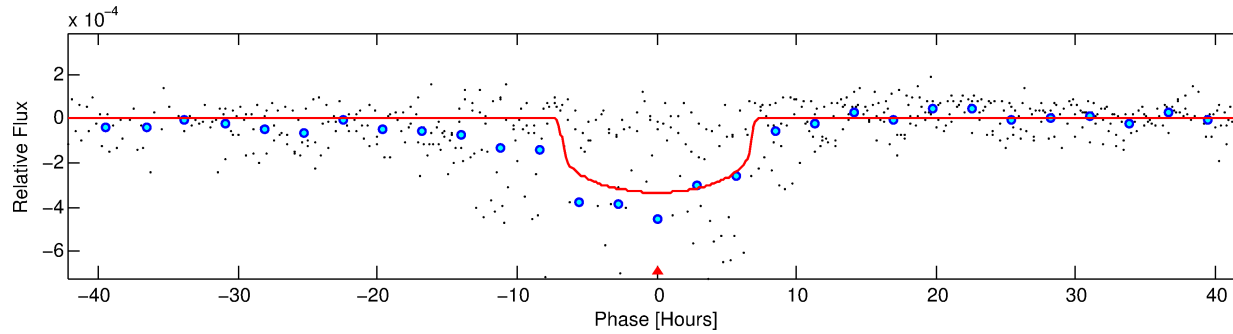
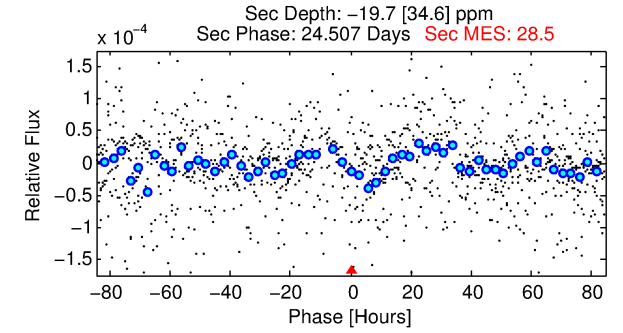
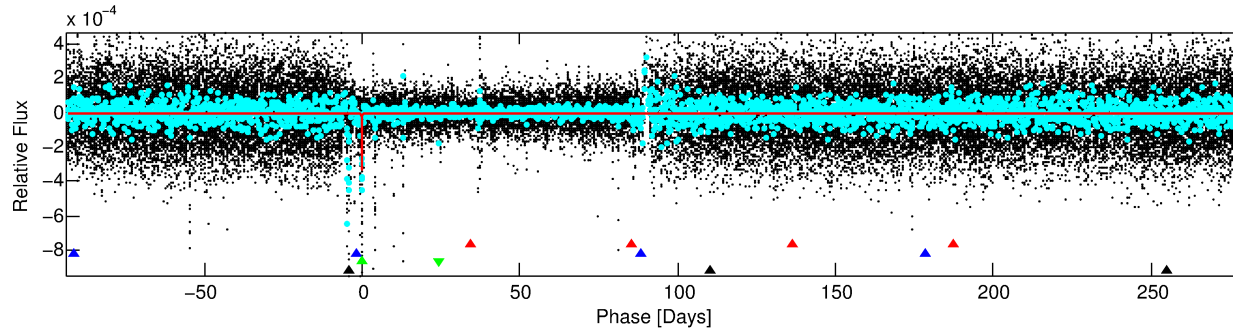
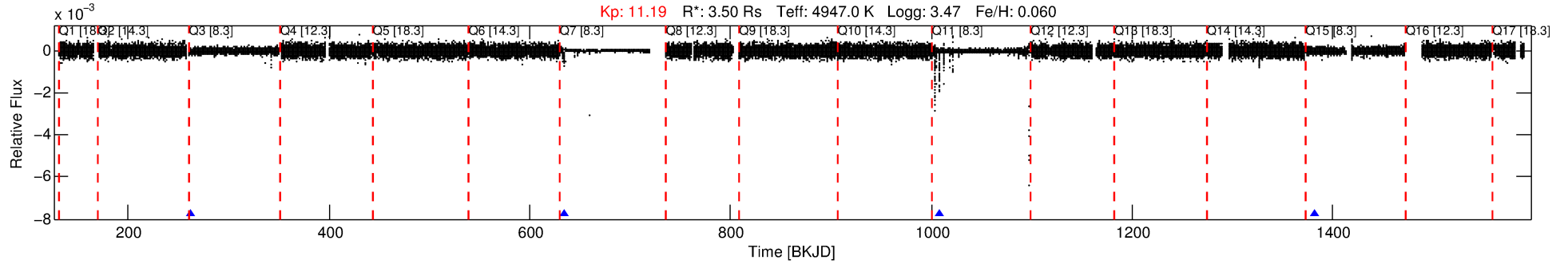
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009838483-03

No Significant Match Found

DV One-Page Summary

KIC: 9838483 Candidate: 3 of 4 Period: 373.417 d



DV Fit Results:

Period = 373.41671 [0.00464] d
Epoch = 261.5518 [0.0073] BKJD
Rp/R* = 0.0177 [0.0035]
a/R* = 153.79 [102.14]
b = 0.68 [0.53]
Seff = 5.32 [1.42]
Teq = 387 [26] K
Rp = 6.77 [1.94] Re
a = 1.1120 [0.1977] AU
Ag = N/A
Teffp = N/A

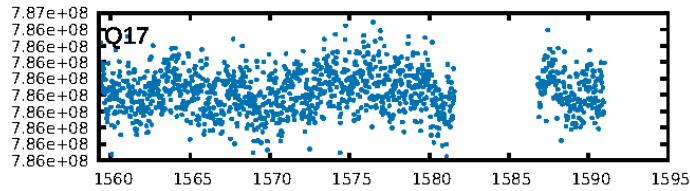
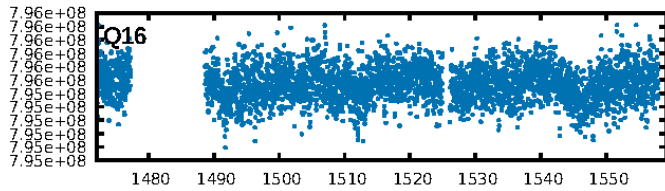
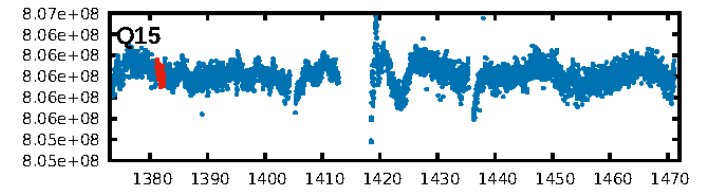
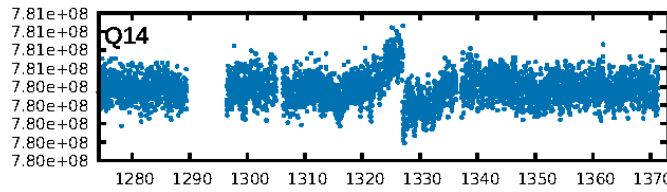
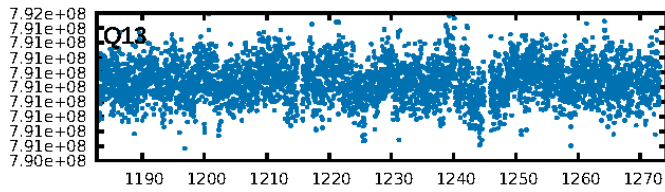
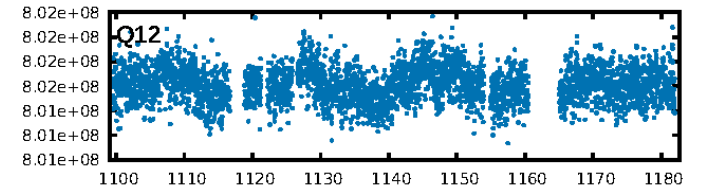
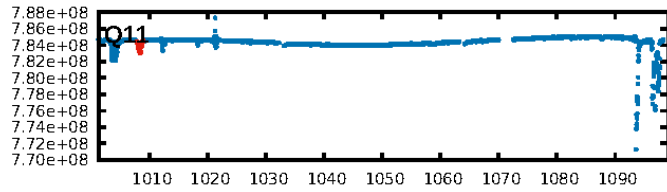
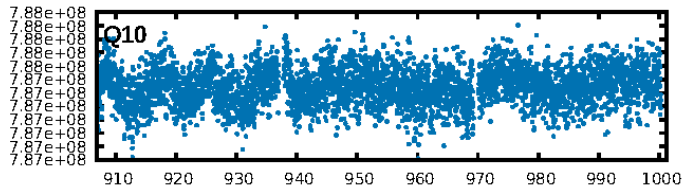
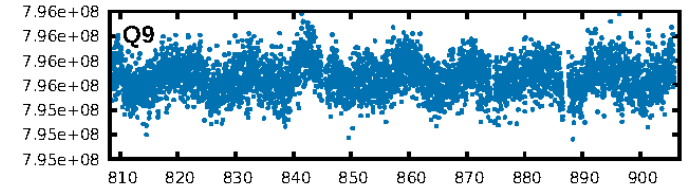
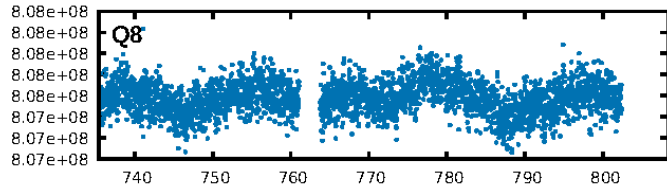
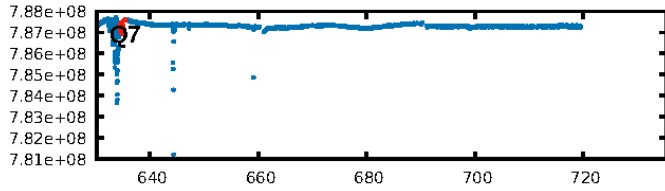
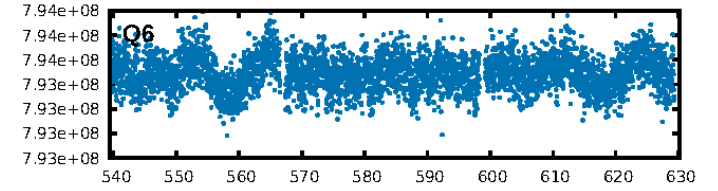
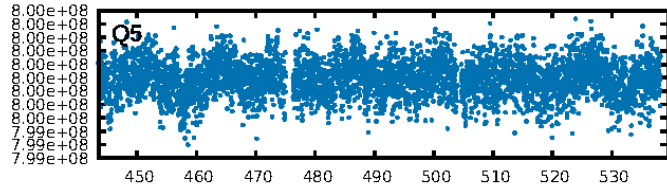
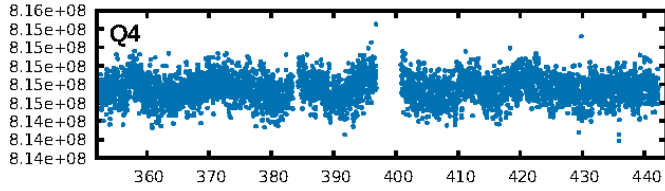
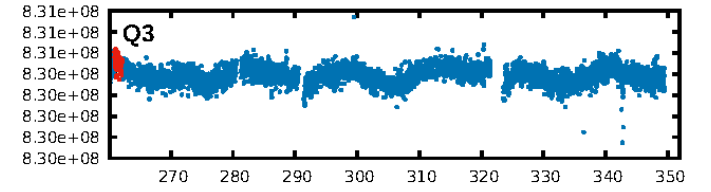
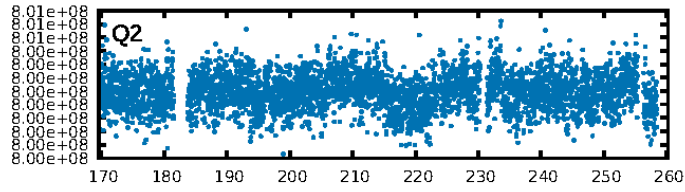
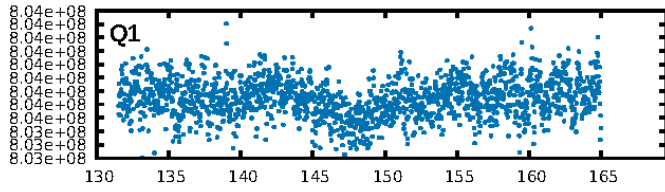
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [76.25σ]
LongPeriod-sig: 100.0% [111.38σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 0.0%
Bootstrap-pfa: 7.06e-84
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -6.605
Centroid-sig: 13.2%
Centroid-so: 0.849 arcsec [1.35σ]
OotOffset-rm: 4.019 arcsec [22.84σ]
KicOffset-rm: 4.087 arcsec [23.71σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [1/1]

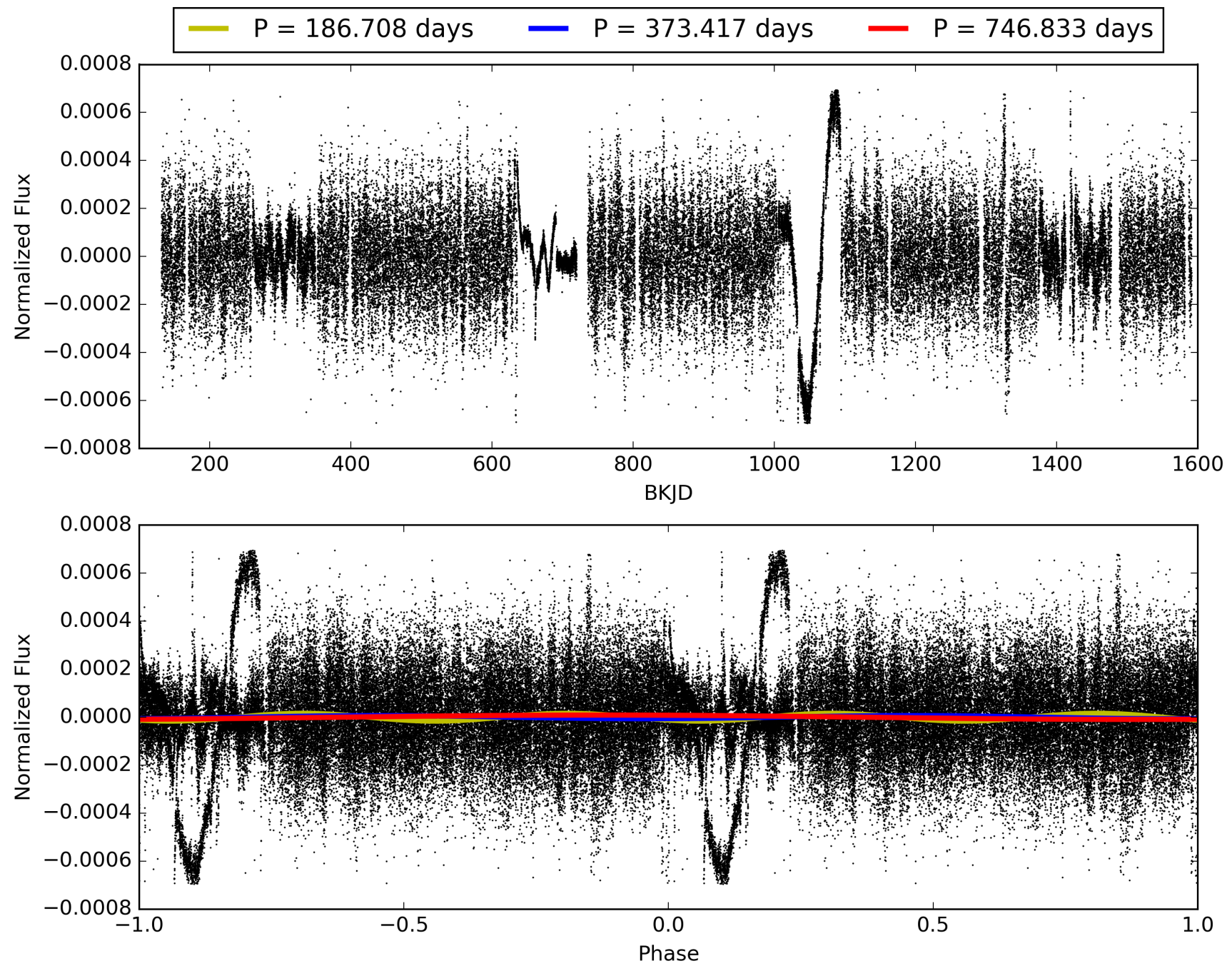
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:42:37 Z

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

TCE 009838483-03, PDC Light Curves

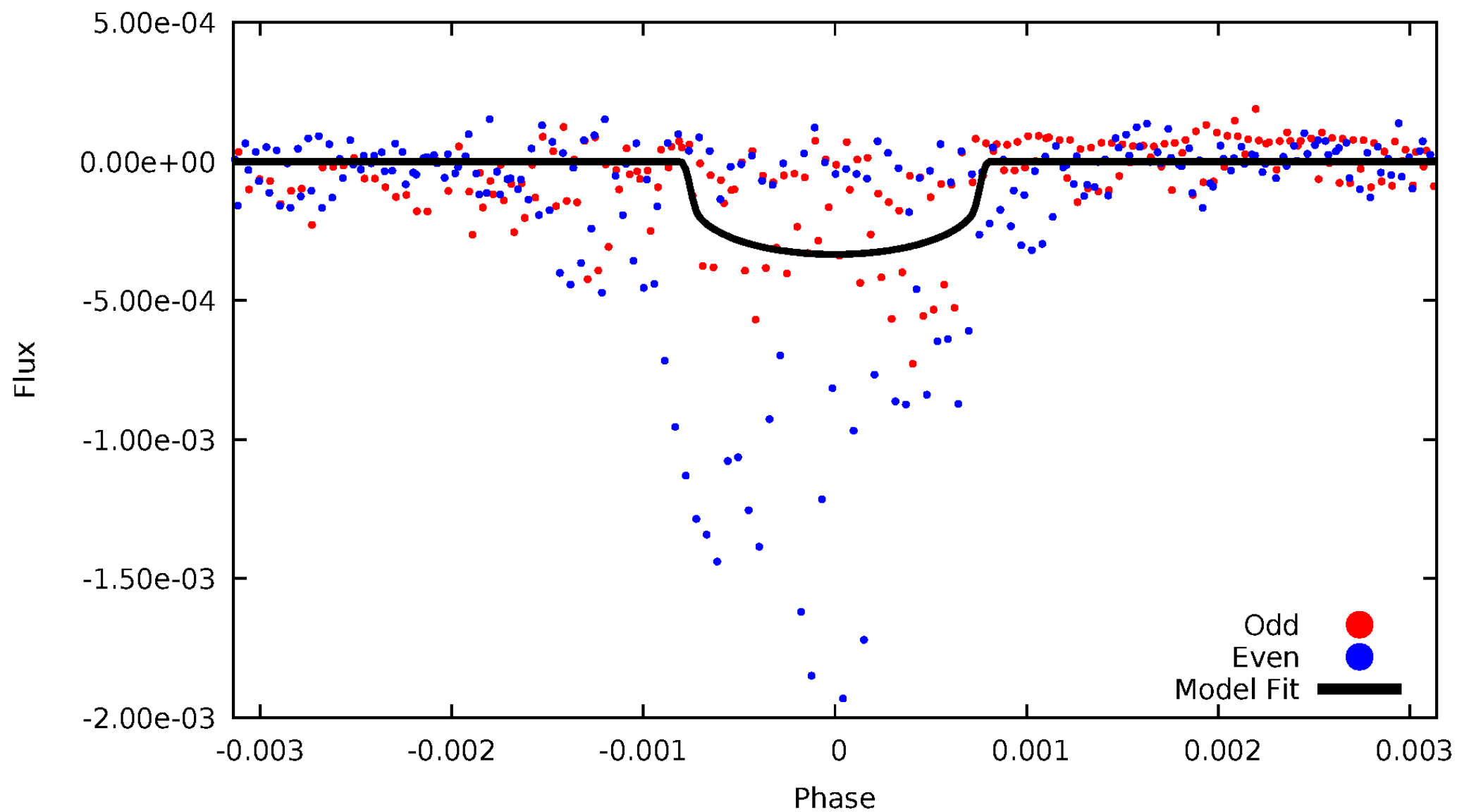


TCE 009838483-03



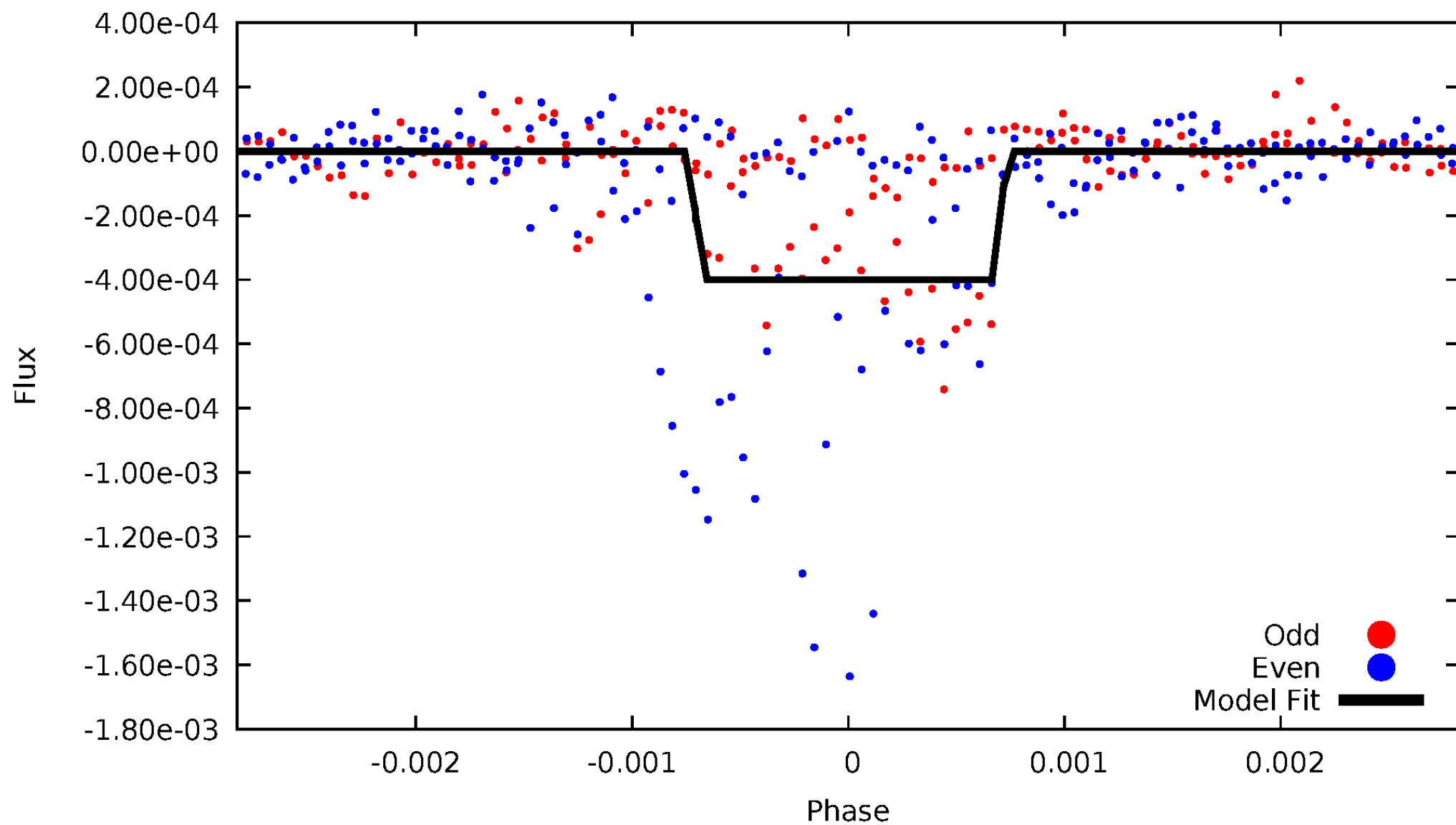
DV Odd/Even

TCE 009838483-03



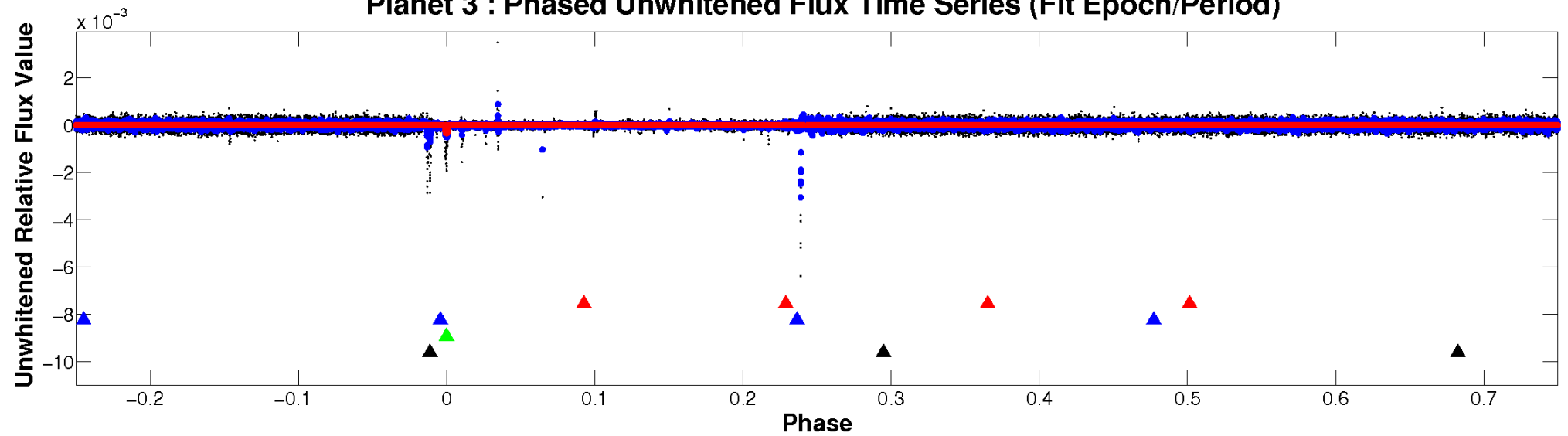
ALT Odd/Even

TCE 009838483-03

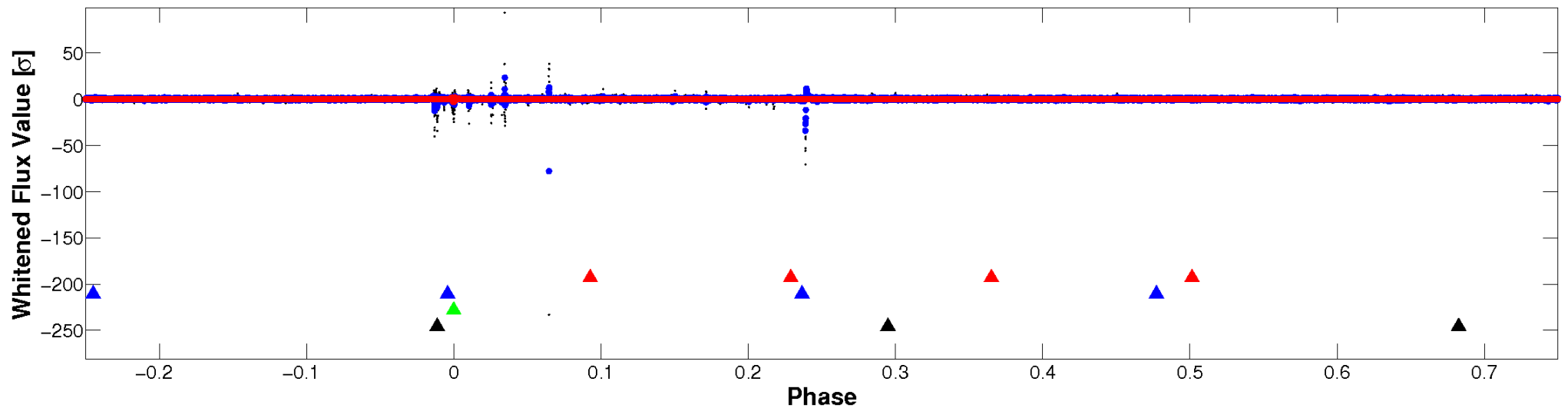


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

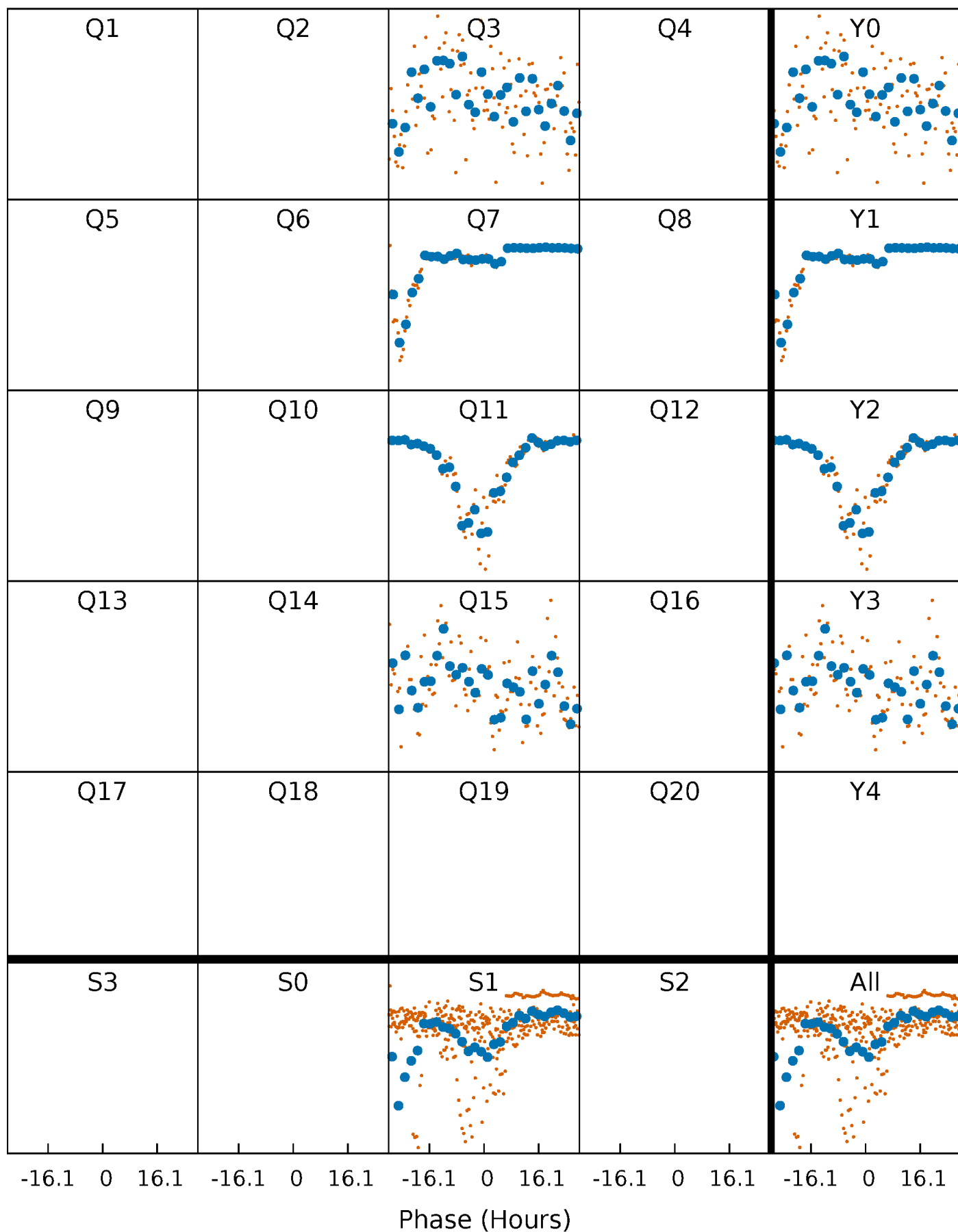


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



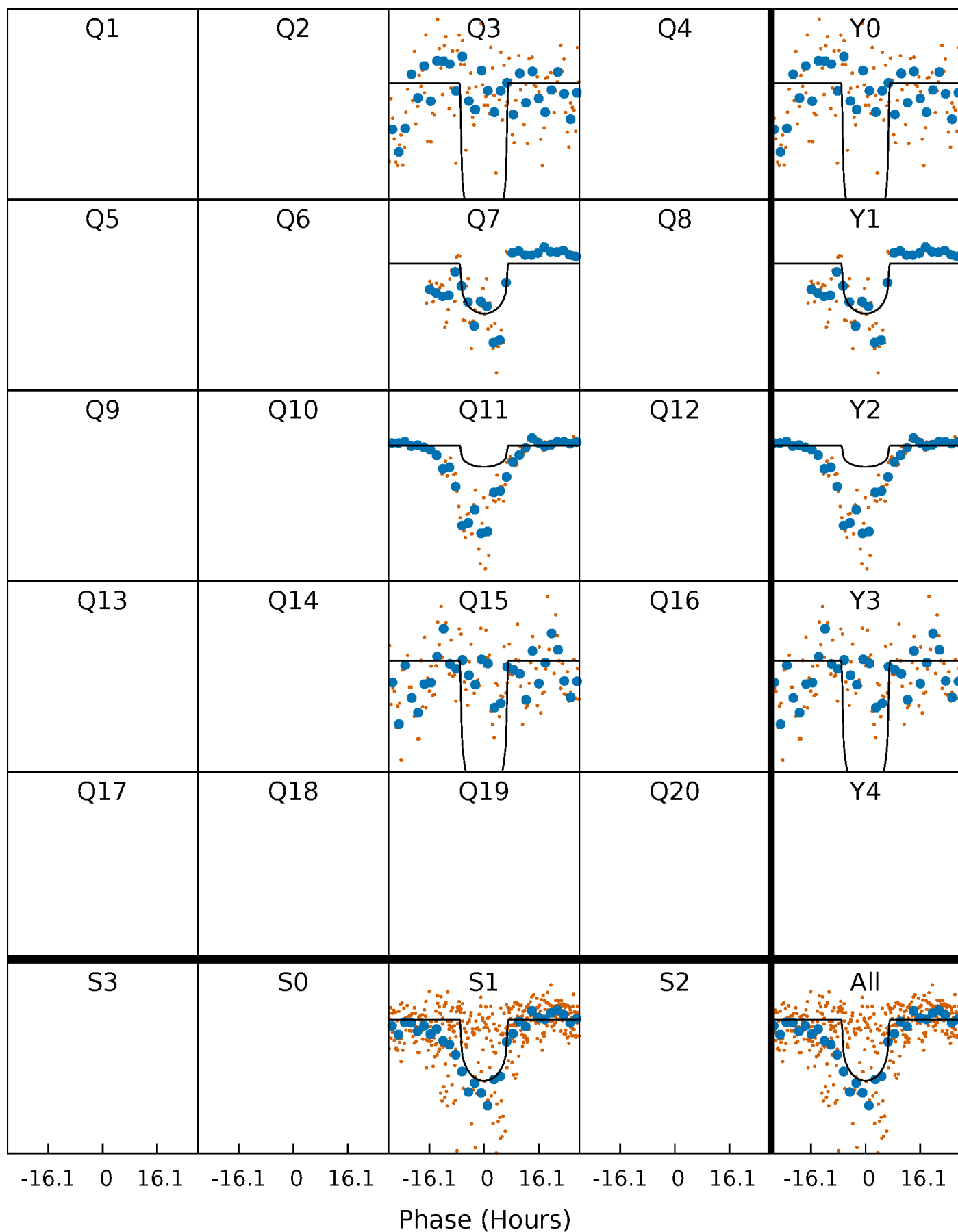
PDC Quarter-Phased Transit Curves

TCE 009838483-03 $P=373.416708$ Days $T_0=261.551817$ (BKJD)



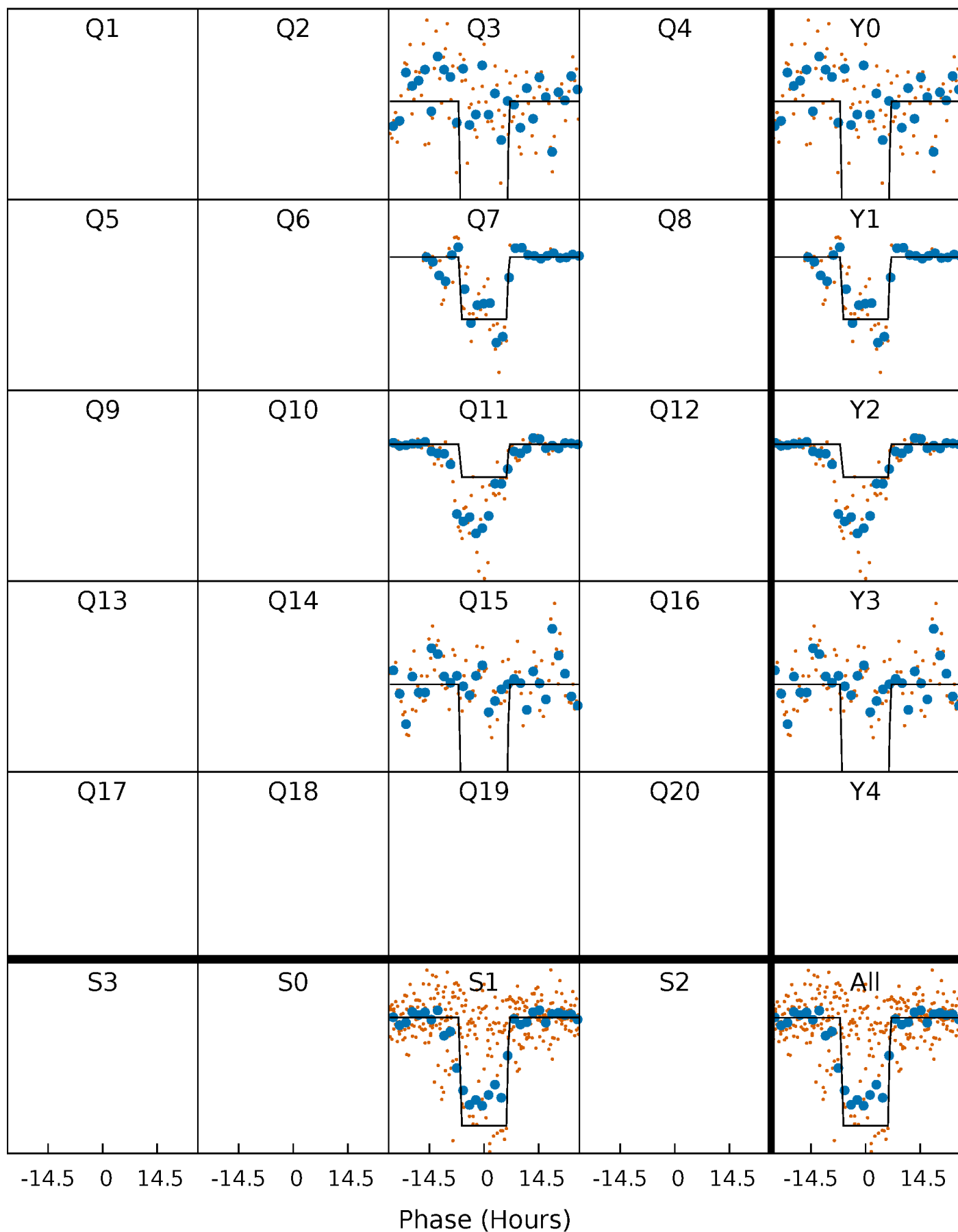
DV Quarter-Phased Transit Curves

TCE 009838483-03 $P=373.416708$ Days $T_0=261.551817$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

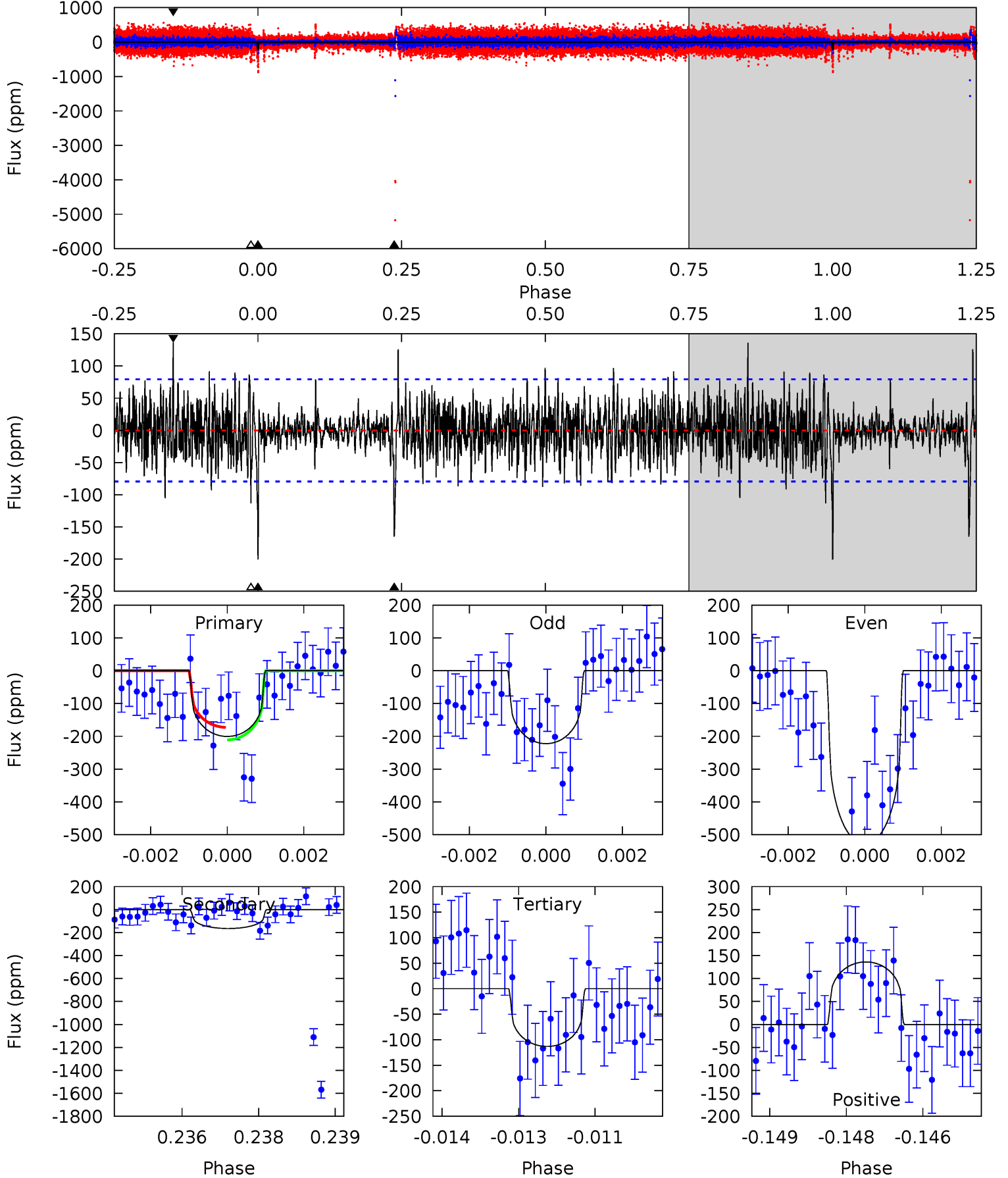
TCE 009838483-03 P=373.443742 Days $T_0=261.511118$ (BKJD)



DV Model-Shift Uniqueness Test

009838483-03, P = 373.416708 Days, E = 261.551817 Days

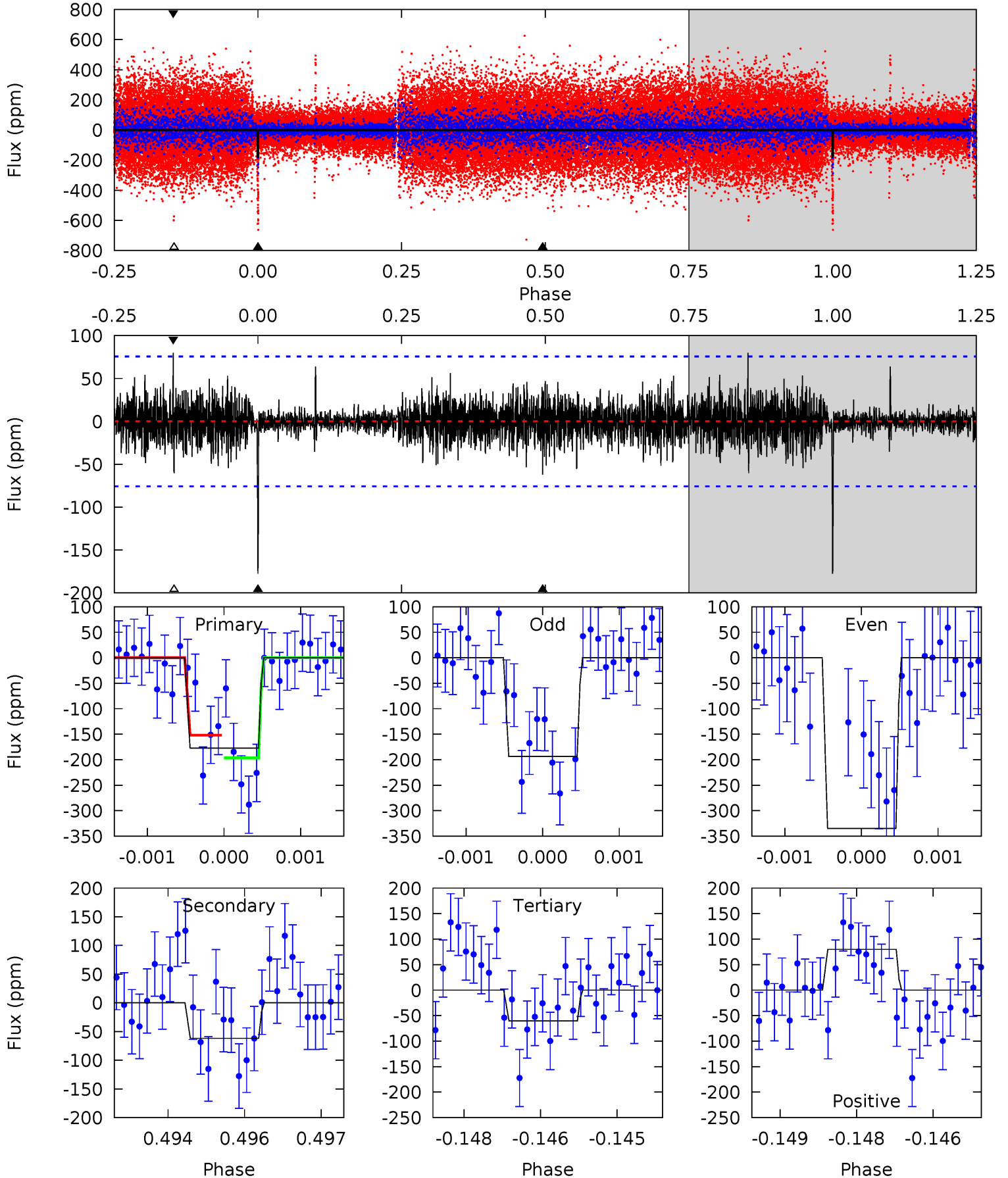
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	11.1	7.65	9.20	5.37	3.15	1.94	5.90	4.35	3.49	1.94	10.8	1.90	0.40	0



Alt Model-Shift Uniqueness Test

009838483-03, P = 373.443742 Days, E = 261.511118 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.6	4.39	4.28	5.68	5.38	3.18	1.06	8.32	6.92	0.11	-1.29	5.20	1.55	0.31	1.56



Stellar Parameters For KIC 009838483

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4947^{+64}_{-69}	$3.468^{+0.143}_{-0.117}$	$0.060^{+0.100}_{-0.150}$	$3.503^{+0.601}_{-0.735}$	$1.315^{+0.125}_{-0.292}$	$0.043^{+0.033}_{-0.015}$
	+1%/-1%	+4%/-3%	+167%/-250%	+17%/-21%	+10%/-22%	+76%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009838483-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-165 ± 15	$6.59^{+1.61}_{-1.41}$	540^{+26}_{-28}	4340^{+409}_{-286}	2500^{+1510}_{-909}
Alt.	-62 ± 14	$7.51^{+1.62}_{-1.43}$	542^{+25}_{-26}	3512^{+268}_{-210}	731^{+405}_{-271}

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 $A_{obs} \gg 1.0$

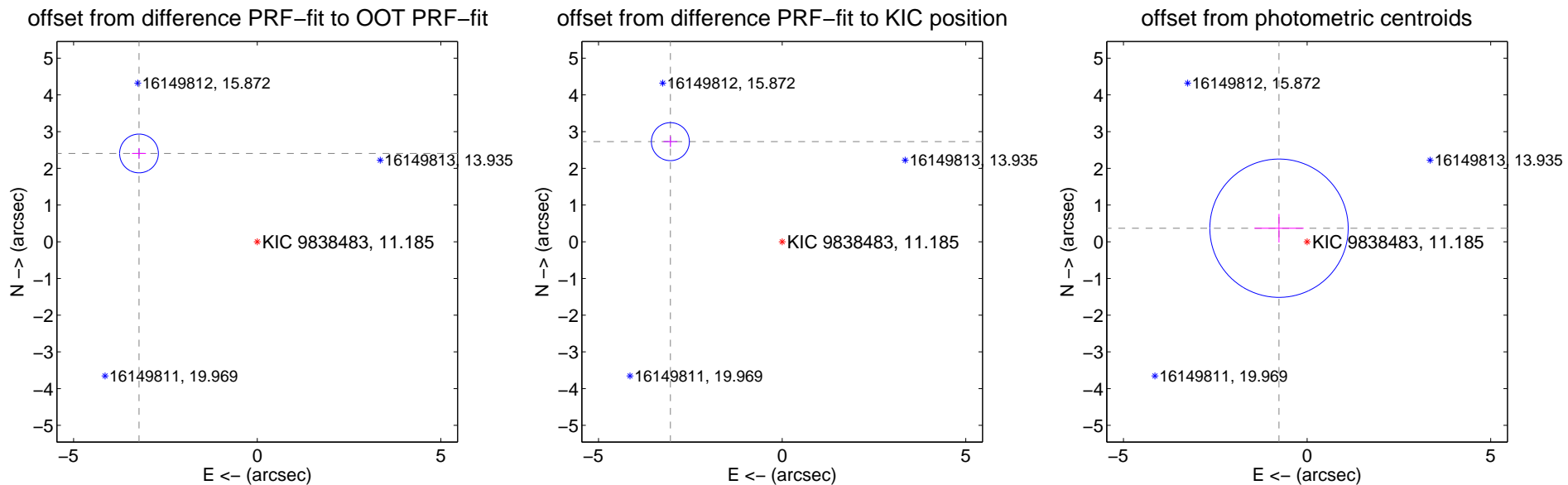
DV Centroid Data

Supplemental centroid analysis for 009838483-03. **Kepler magnitude: 11.19.** Transit SNR 25.86

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	4.019 ± 0.176	22.84	3.219 ± 0.190	2.405 ± 0.148
PRF-fit source offset from KIC position	4.087 ± 0.172	23.71	3.044 ± 0.190	2.727 ± 0.148
photometric centroid source offset	0.85 ± 0.63	1.35	0.76 ± 0.67	0.37 ± 0.39



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.



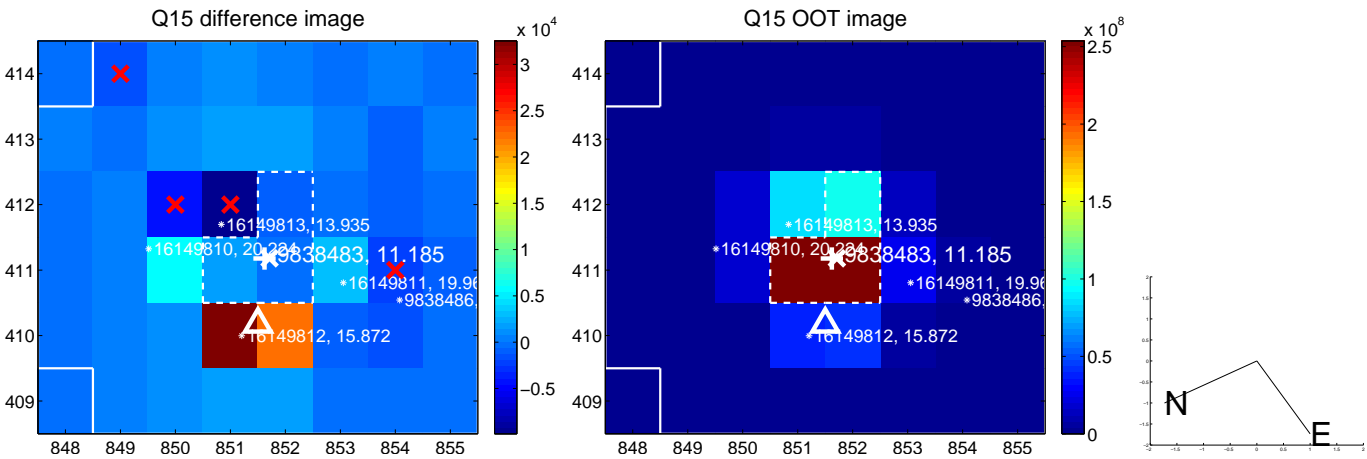
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



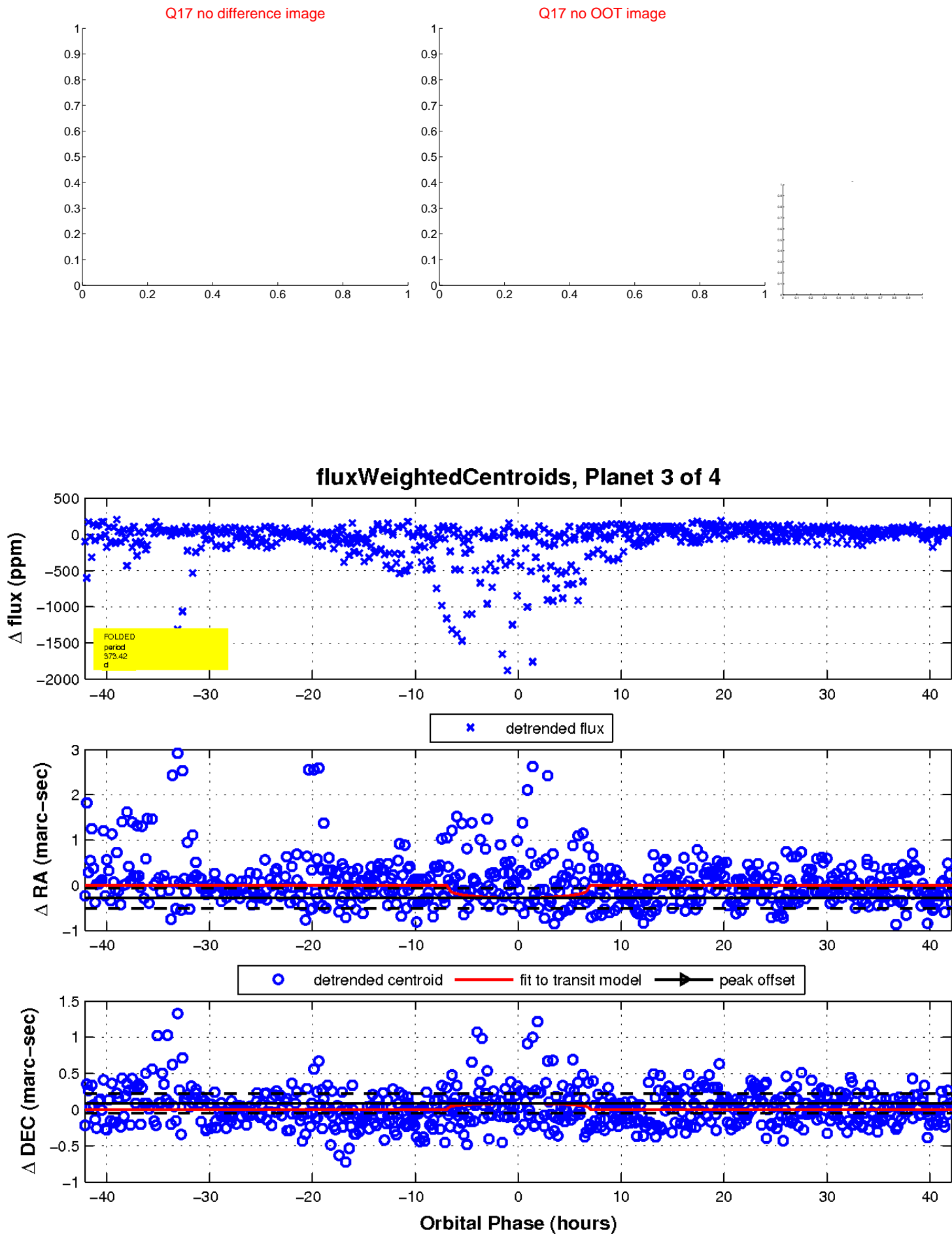
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



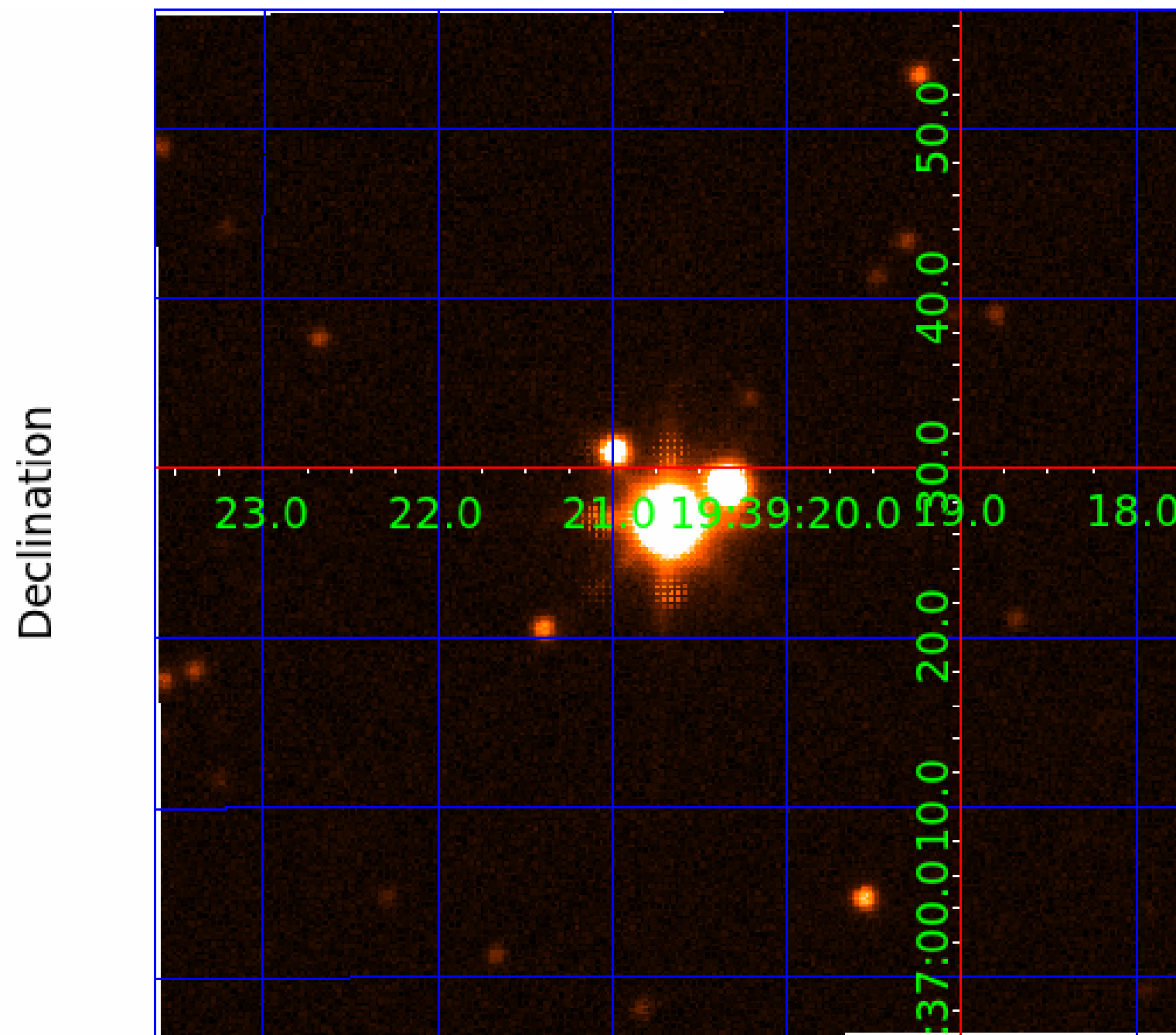
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009838483

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})
009838483-01	OBS	No	322.538242	448.797340	7516.8	7.657	233.5	101.4	3.50	4947	57.00	6.47
009838483-02	OBS	No	463.308764	170.102772	905.2	13.319	125.0	53.4	3.50	4947	11.53	3.99
009838483-03	OBS	No	373.416708	261.551817	334.0	14.065	45.8	25.9	3.50	4947	6.77	5.33
009838483-04	OBS	No	487.752165	516.435130	336.5	4.596	44.1	6.0	3.50	4947	10.74	3.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009838483-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009838483-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009838483-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

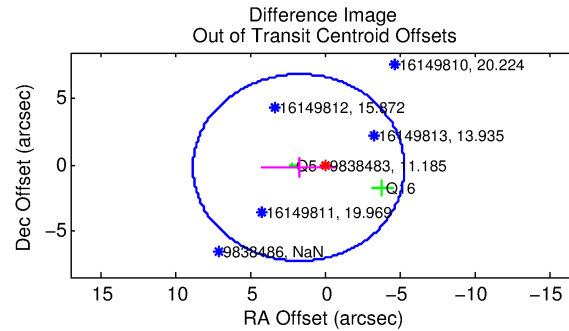
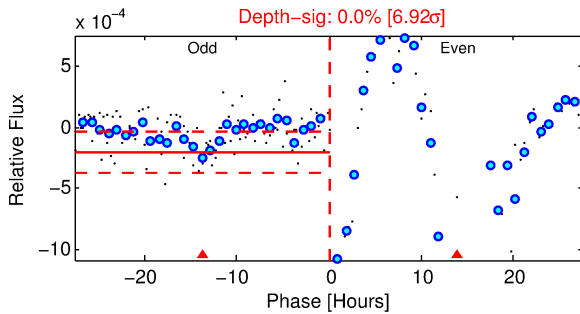
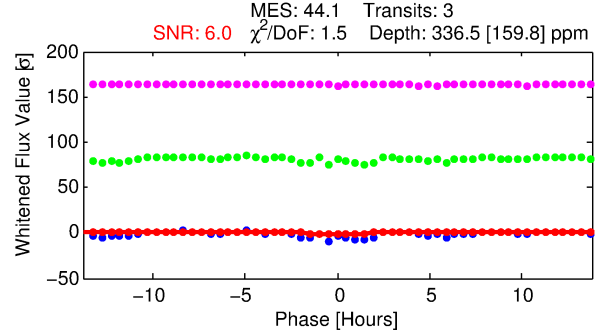
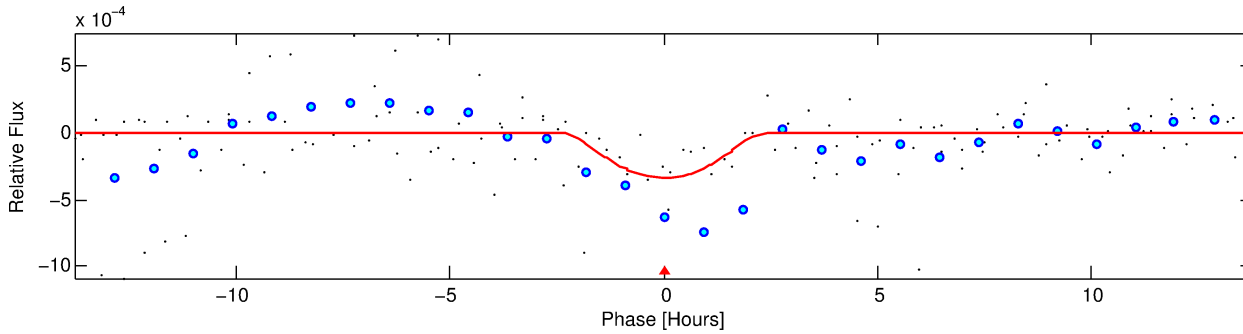
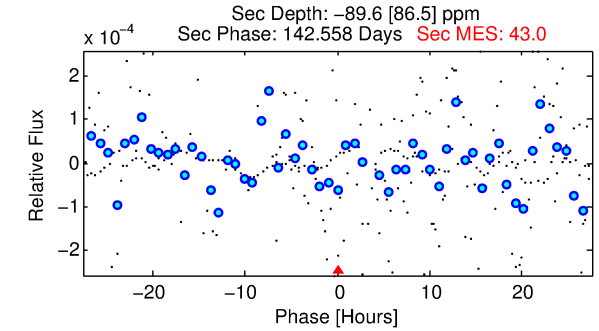
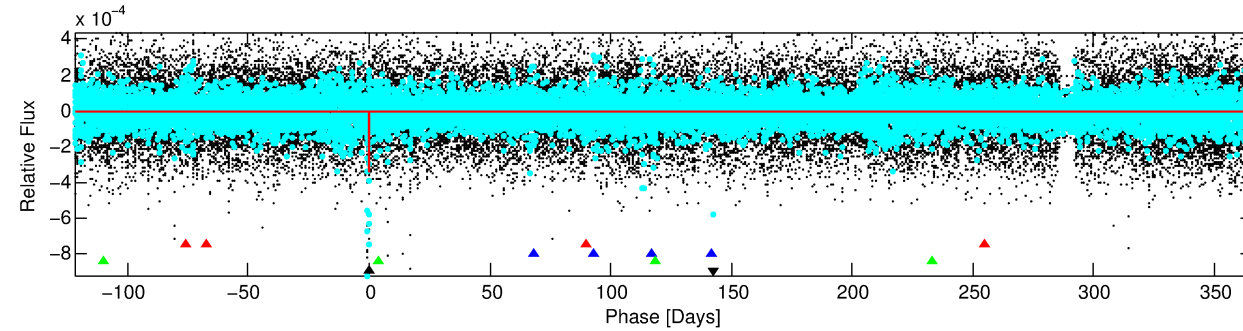
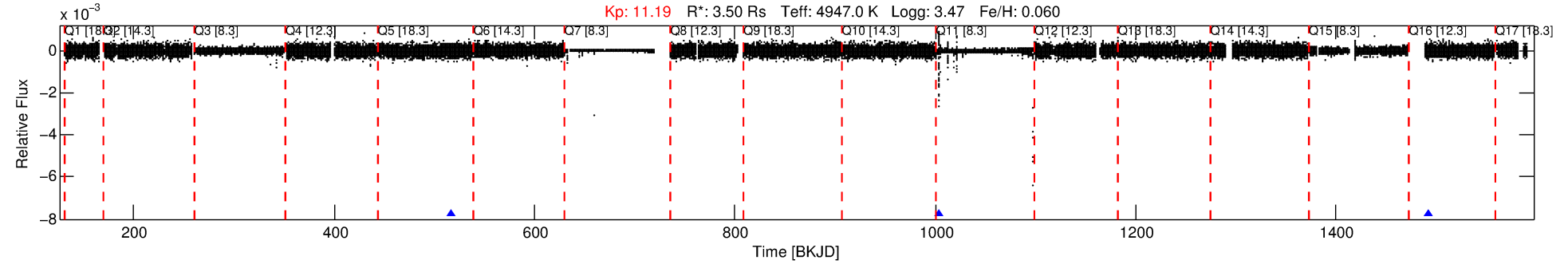
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009838483-04

No Significant Match Found

DV One-Page Summary

KIC: 9838483 Candidate: 4 of 4 Period: 487.752 d



DV Fit Results:

Period = 487.75216 [0.02351] d
Epoch = 516.4351 [0.0258] BKJD
Rp/R* = 0.0281 [0.0721]
a/R* = 232.91 [245.28]
b = 0.99 [0.14]
Seff = 3.73 [0.99]
Teq = 354 [24] K
Rp = 10.74 [27.65] Re
a = 1.3288 [0.2363] AU
Ag = N/A
Teffp = N/A

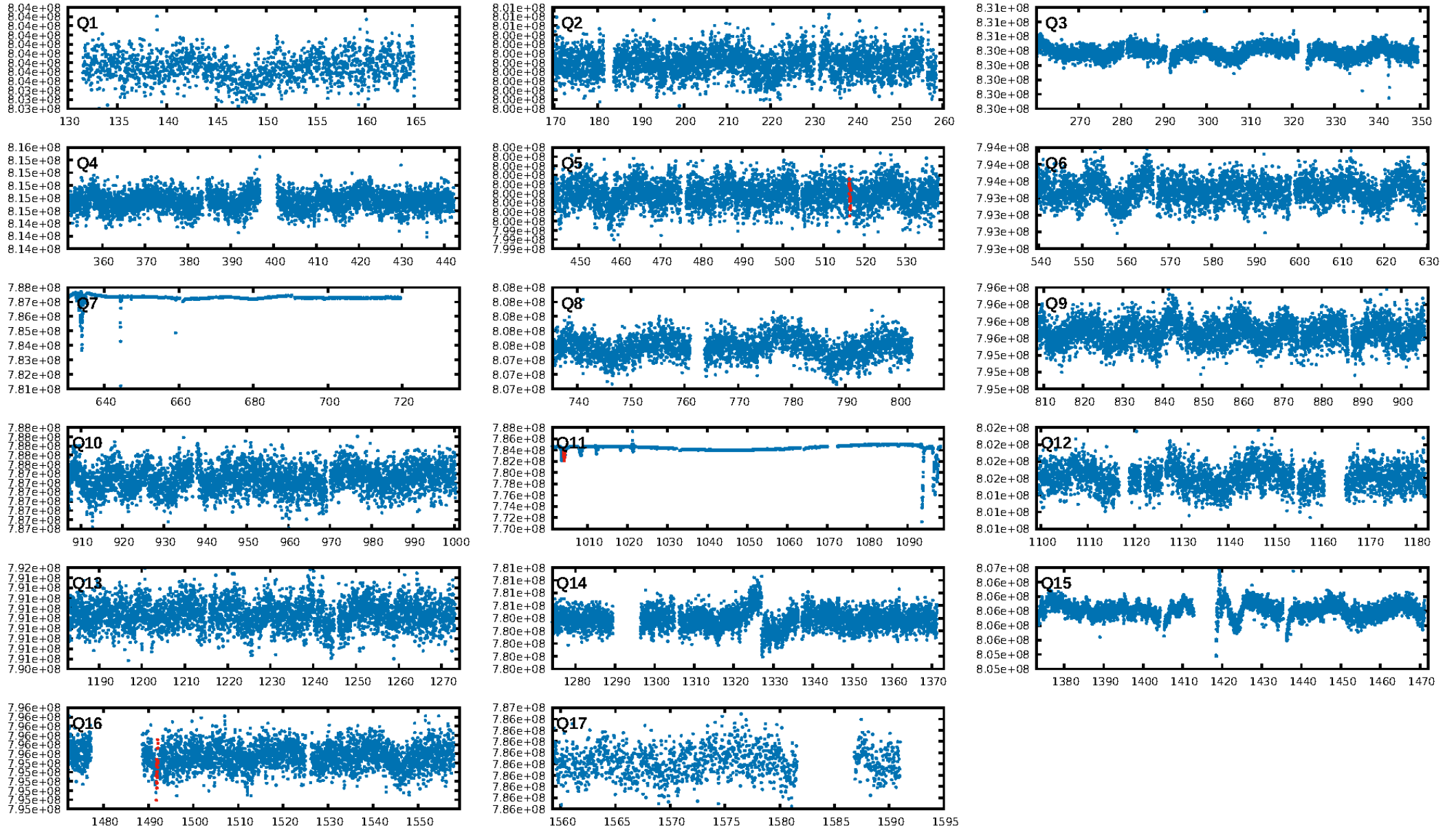
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.64%]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 27.8%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 7.80e-65
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -15.46
Centroid-sig: 0.5%
Centroid-so: 2.977 arcsec [4.21%]
OotOffset-rm: 1.738 arcsec [0.74%]
KicOffset-rm: 2.754 arcsec [0.88%]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

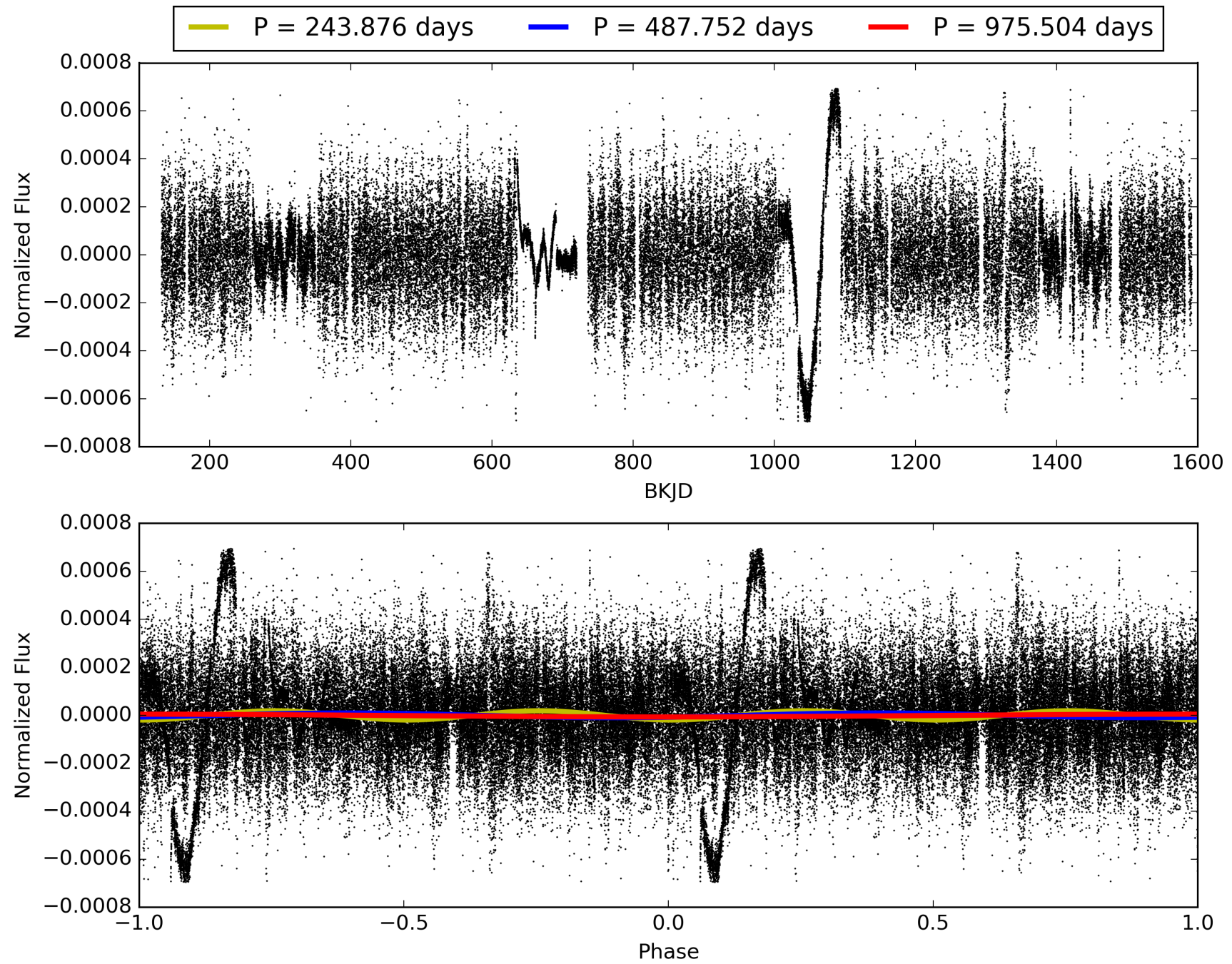
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:42:53 Z

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

TCE 009838483-04, PDC Light Curves

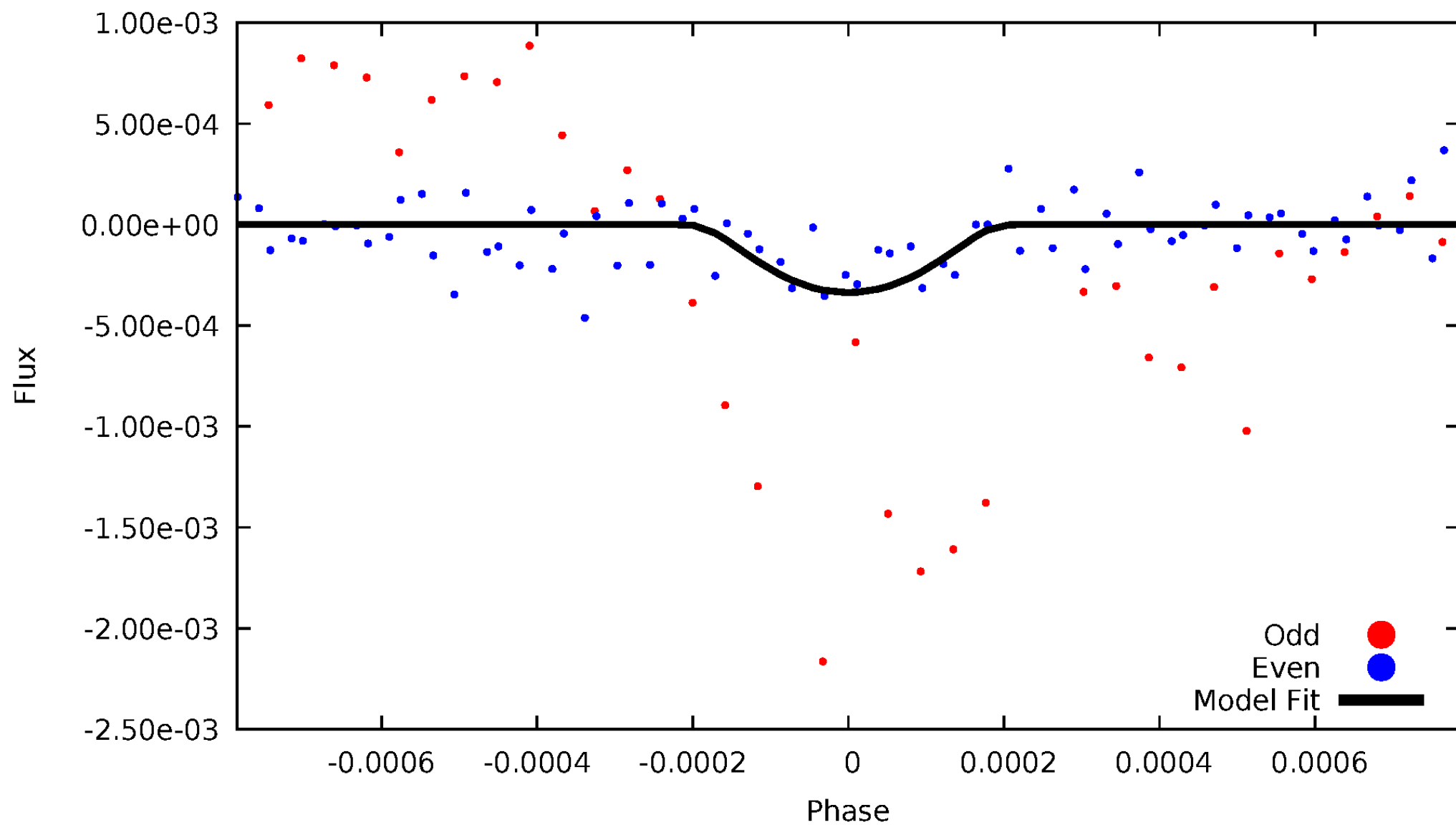


TCE 009838483-04



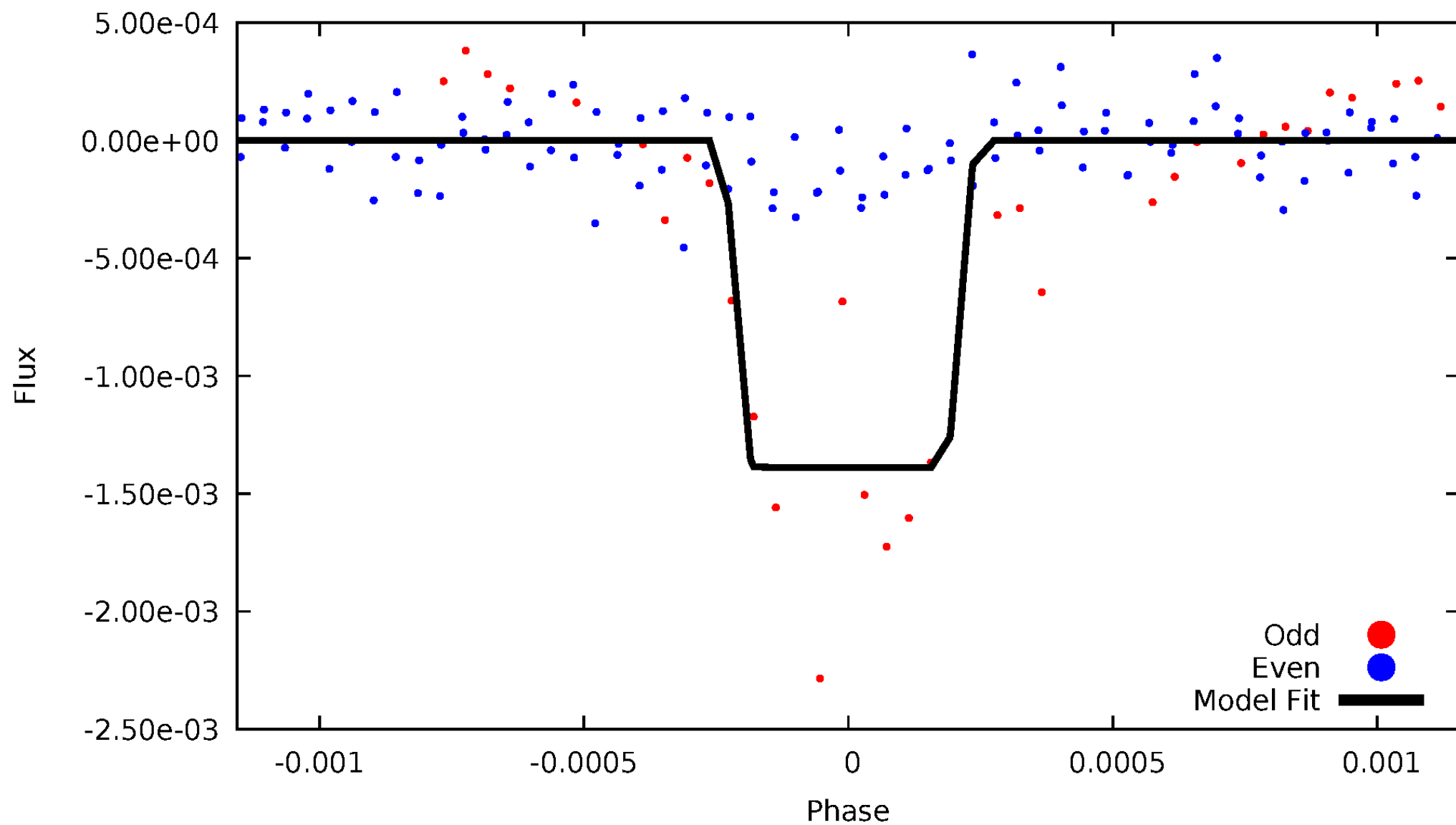
DV Odd/Even

TCE 009838483-04



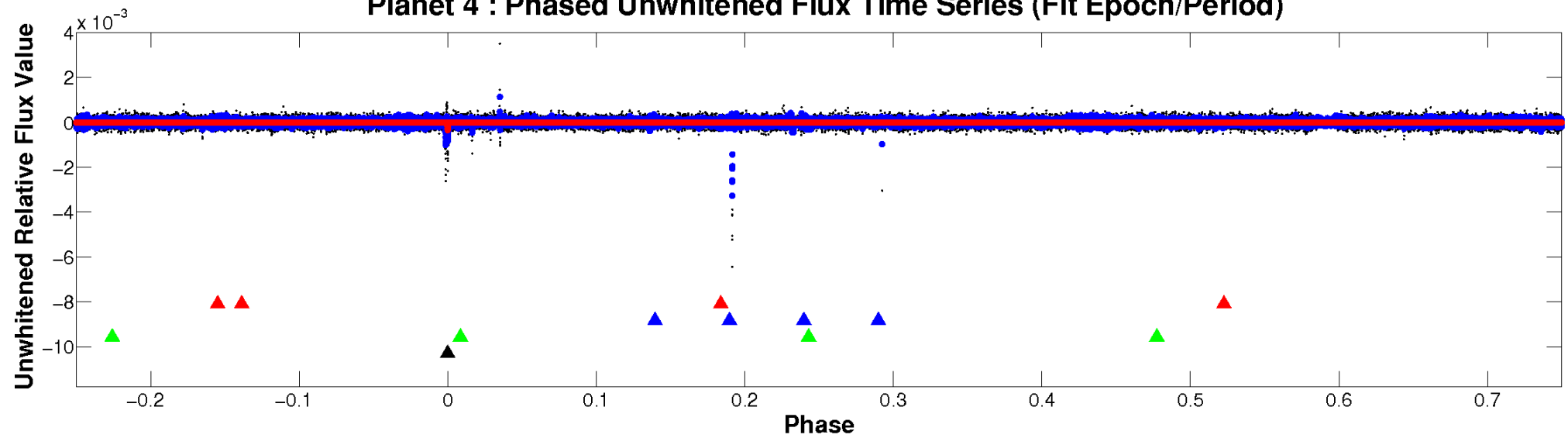
ALT Odd/Even

TCE 009838483-04

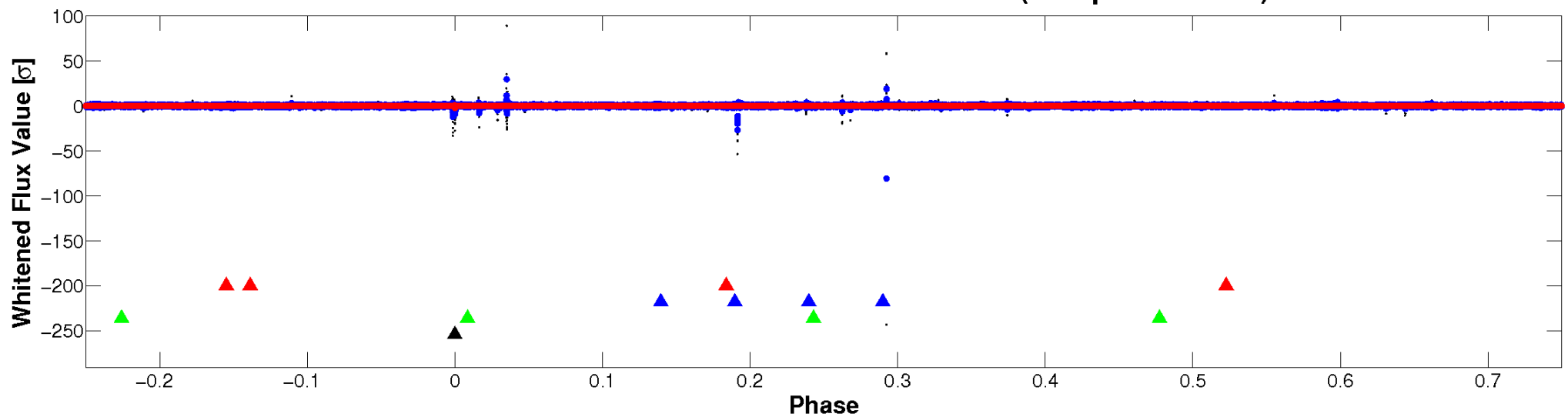


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

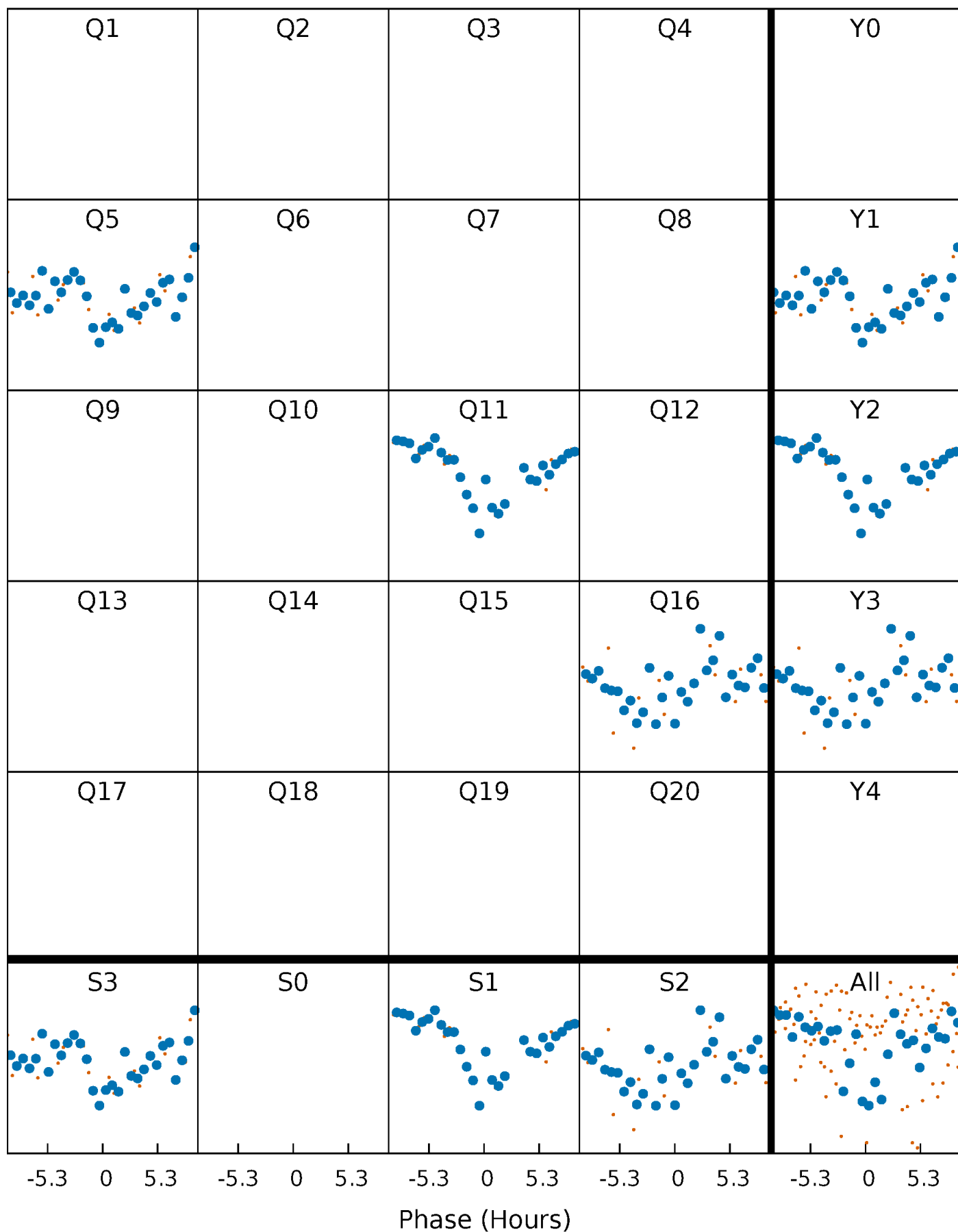


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



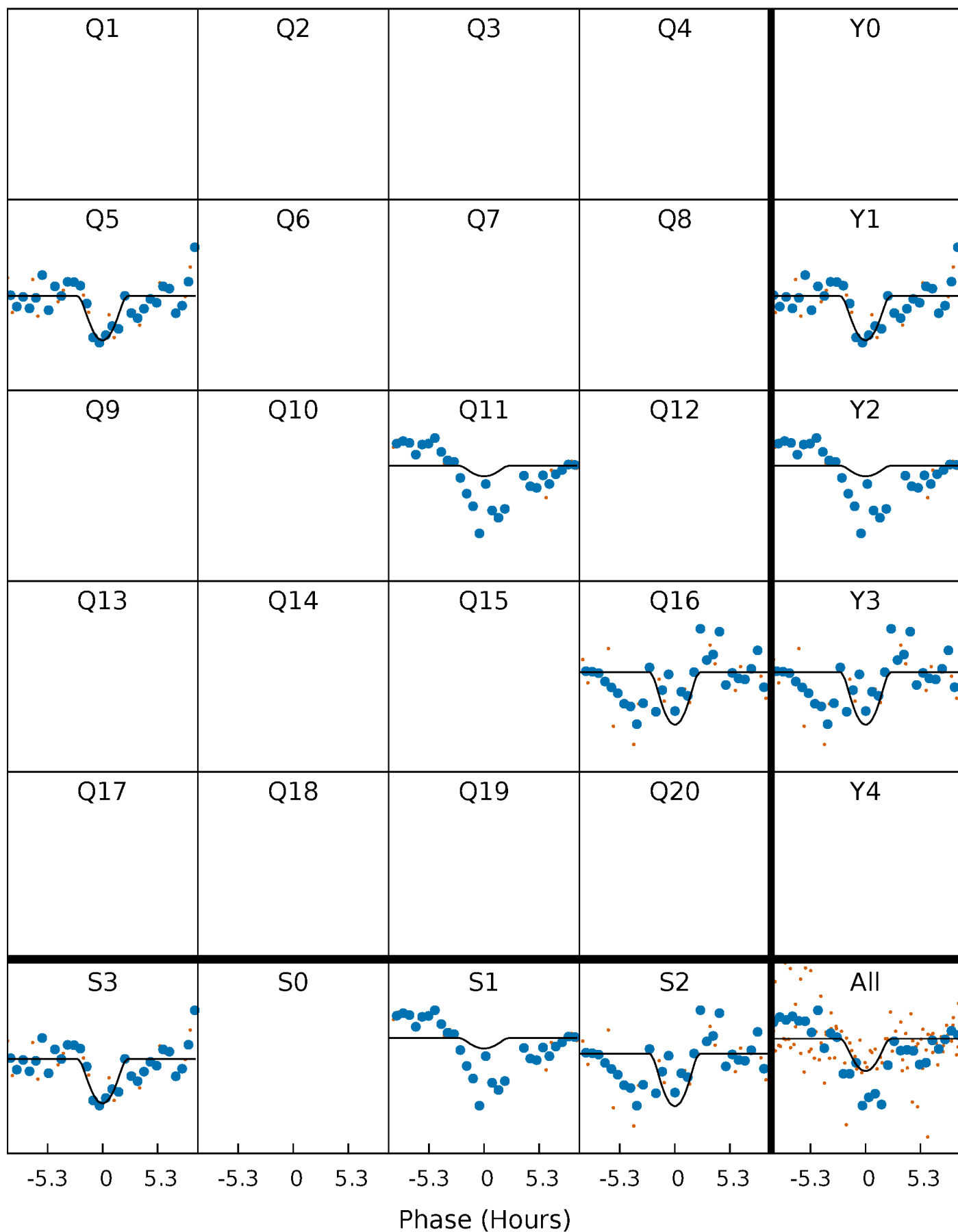
PDC Quarter-Phased Transit Curves

TCE 009838483-04 P=487.752165 Days $T_0=516.435130$ (BKJD)



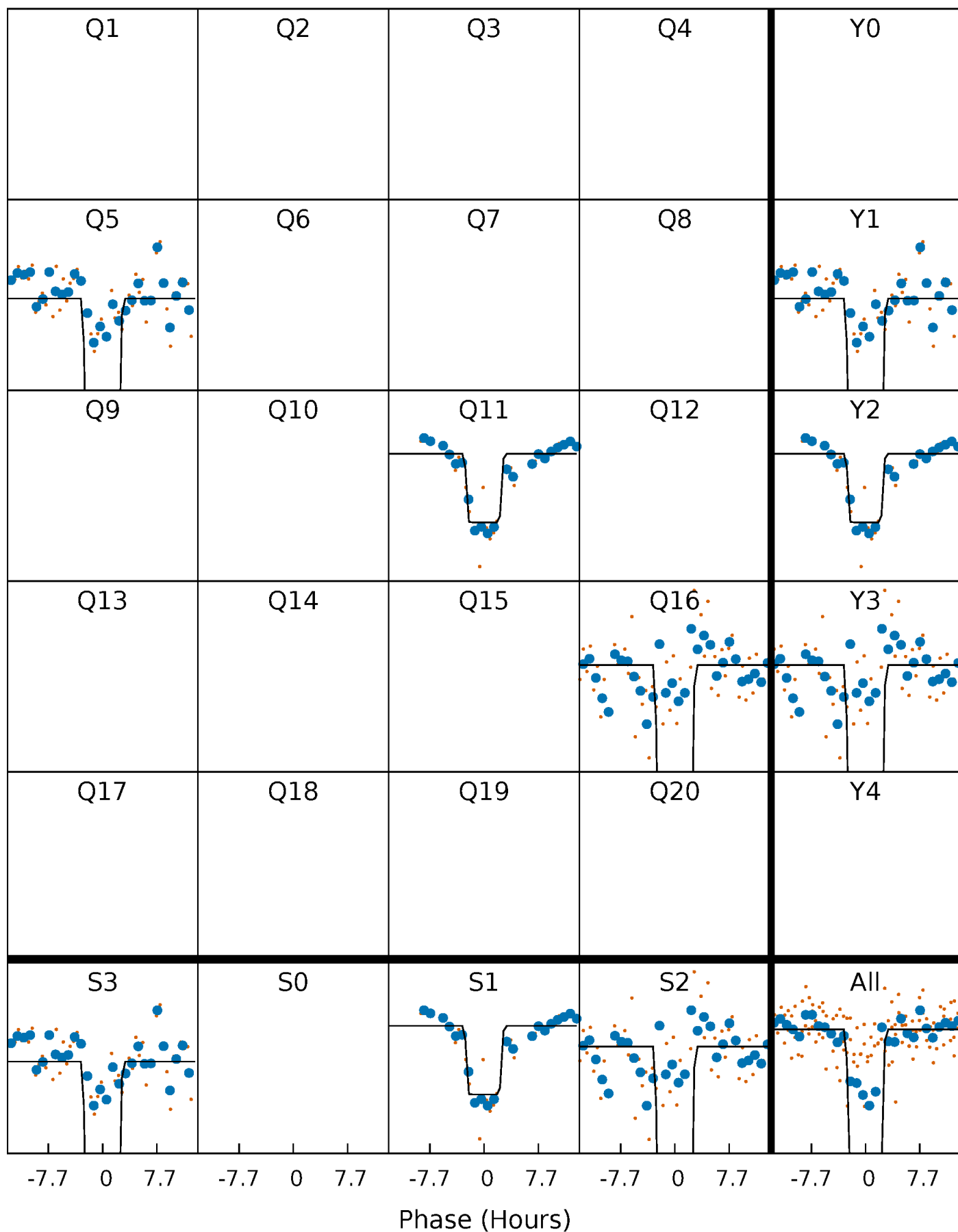
DV Quarter-Phased Transit Curves

TCE 009838483-04 P=487.752165 Days $T_0=516.435130$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

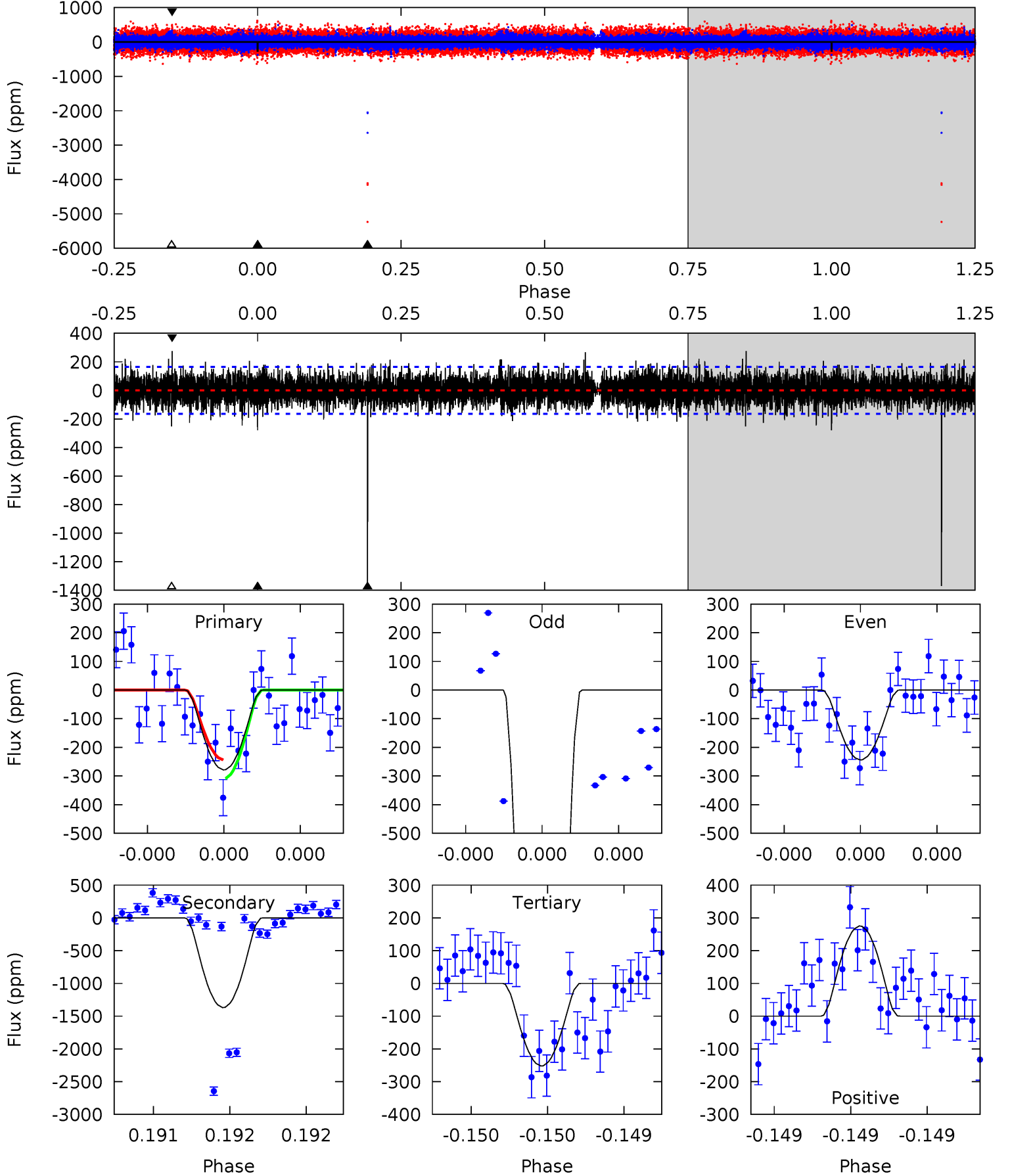
TCE 009838483-04 $P=487.728644$ Days $T_0=516.468657$ (BKJD)



DV Model-Shift Uniqueness Test

009838483-04, $P = 487.752165$ Days, $E = 28.682965$ Days

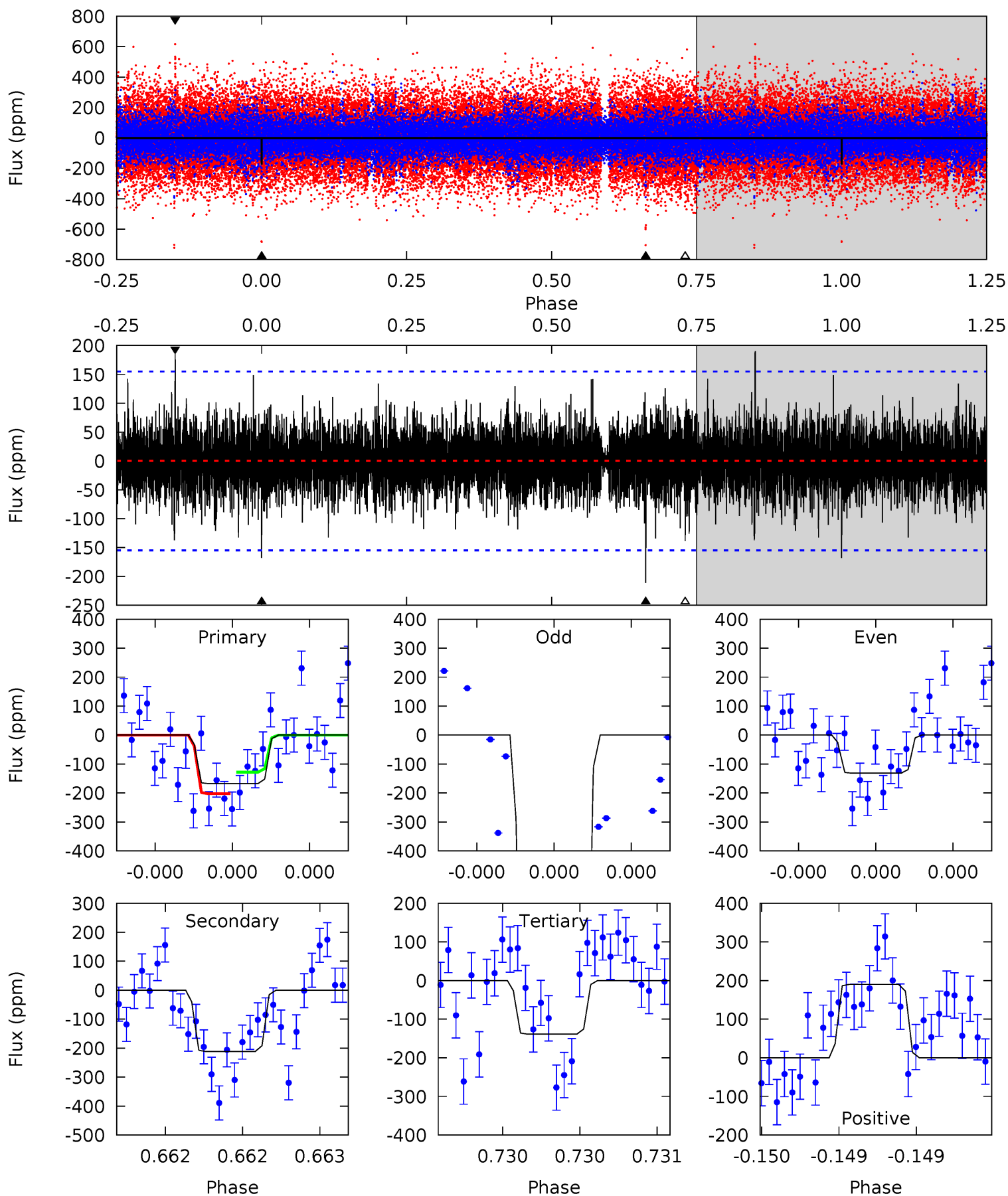
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.51	46.7	8.60	9.39	5.60	3.53	2.11	0.91	0.12	38.1	37.3	27.8	2.42	0.17	1.11



Alt Model-Shift Uniqueness Test

009838483-04, P = 487.728644 Days, E = 28.740013 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.06	7.62	5.00	6.85	5.59	3.50	1.28	1.06	-0.80	2.62	0.77	23.1	3.62	0.47	1.34



Stellar Parameters For KIC 009838483

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4947^{+64}_{-69}	$3.468^{+0.143}_{-0.117}$	$0.060^{+0.100}_{-0.150}$	$3.503^{+0.601}_{-0.735}$	$1.315^{+0.125}_{-0.292}$	$0.043^{+0.033}_{-0.015}$
	+1%/-1%	+4%/-3%	+167%/-250%	+17%/-21%	+10%/-22%	+76%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009838483-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1370 ± 29	$21.96^{+21.69}_{-14.82}$	495^{+23}_{-26}	4155^{+2665}_{-854}	2740^{+23551}_{-2045}
Alt.	-211 ± 28	$24.18^{+24.77}_{-15.95}$	496^{+24}_{-29}	2994^{+1249}_{-504}	346^{+2739}_{-263}

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 $A_{obs} \gg 1.0$

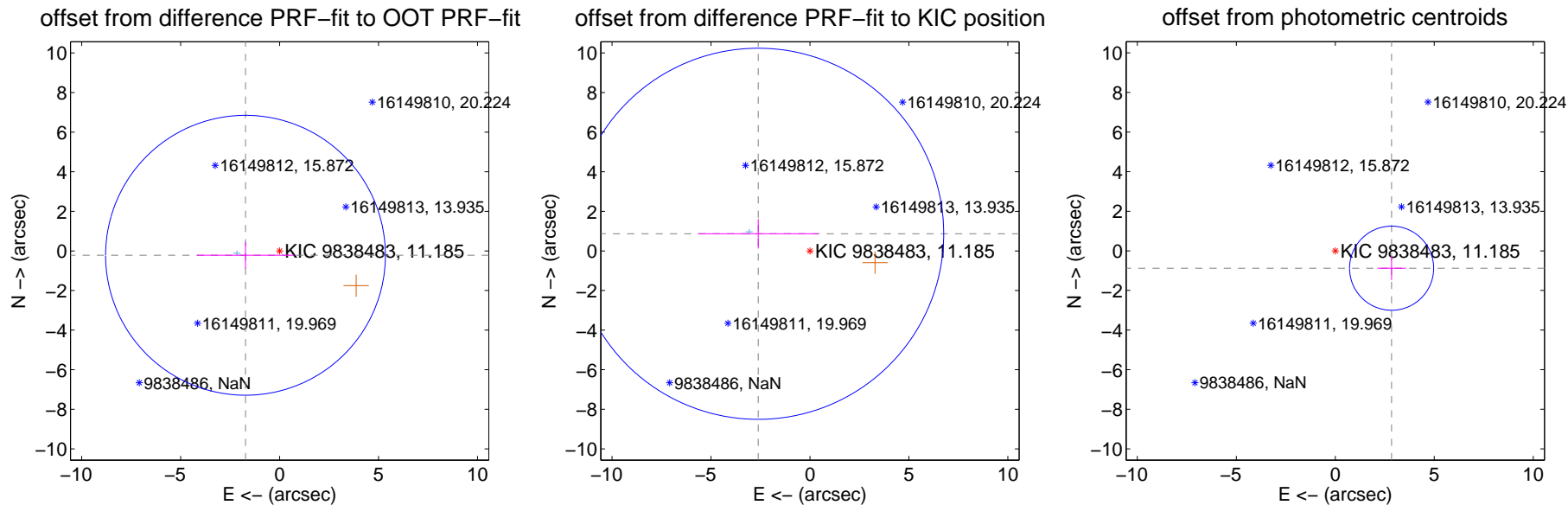
DV Centroid Data

Supplemental centroid analysis for 009838483-04. **Kepler magnitude: 11.19.** Transit SNR 6.02

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.738 ± 2.356	0.74	1.724 ± 2.460	-0.220 ± 0.671
PRF-fit source offset from KIC position	2.754 ± 3.124	0.88	2.614 ± 3.045	0.866 ± 0.746
photometric centroid source offset	2.98 ± 0.71	4.21	-2.84 ± 0.72	-0.88 ± 0.60

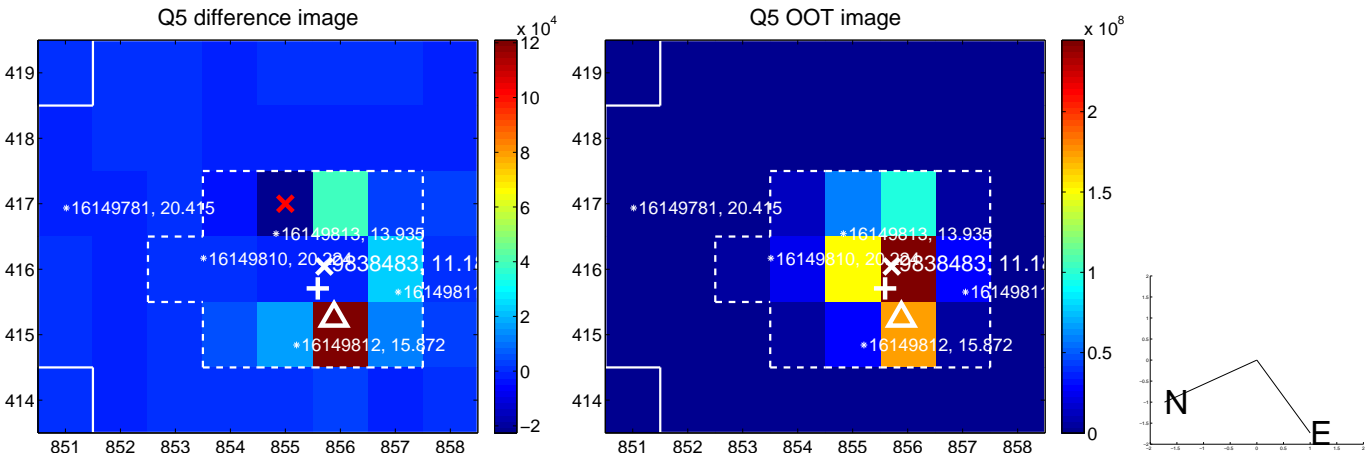


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



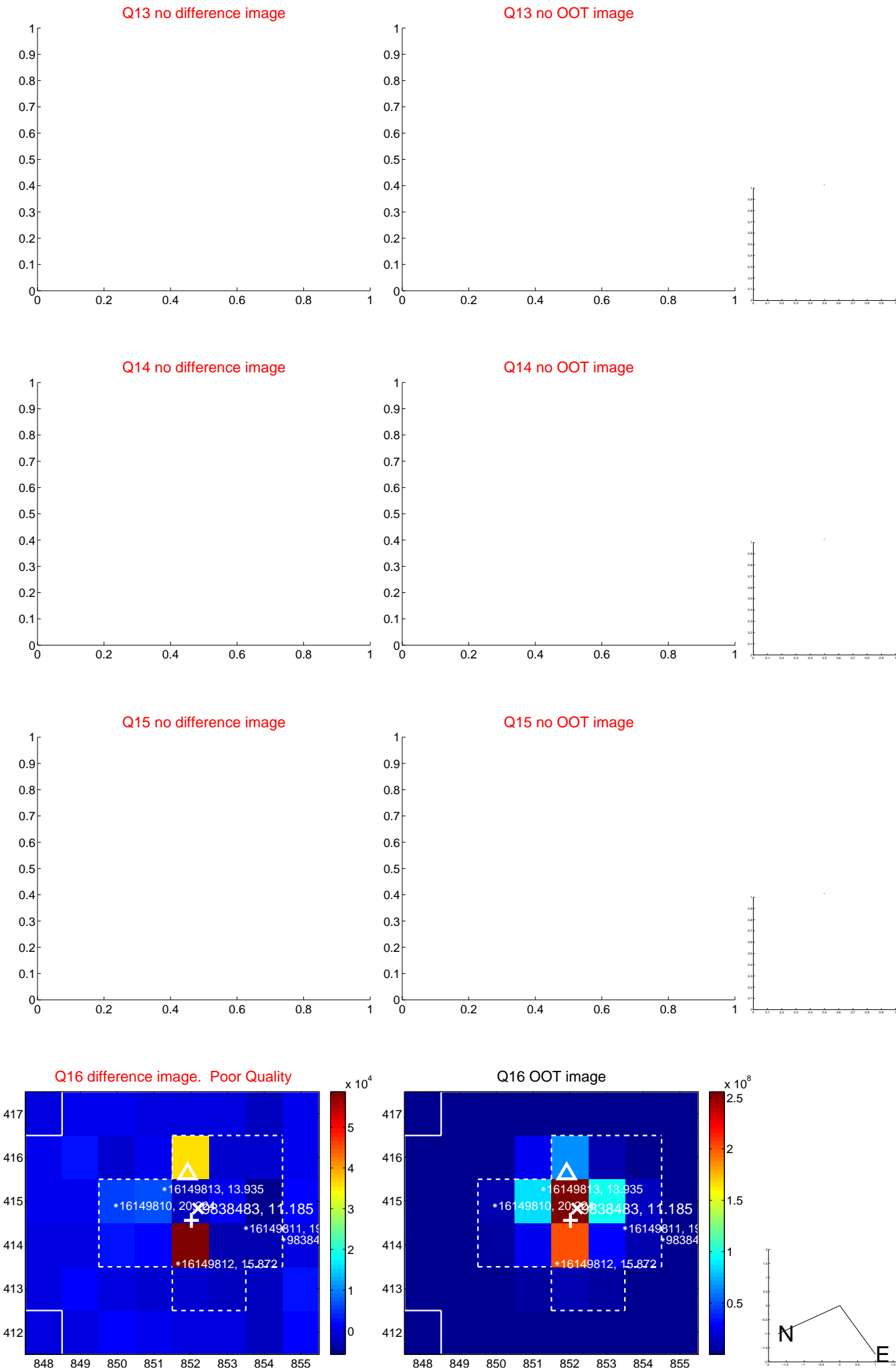
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



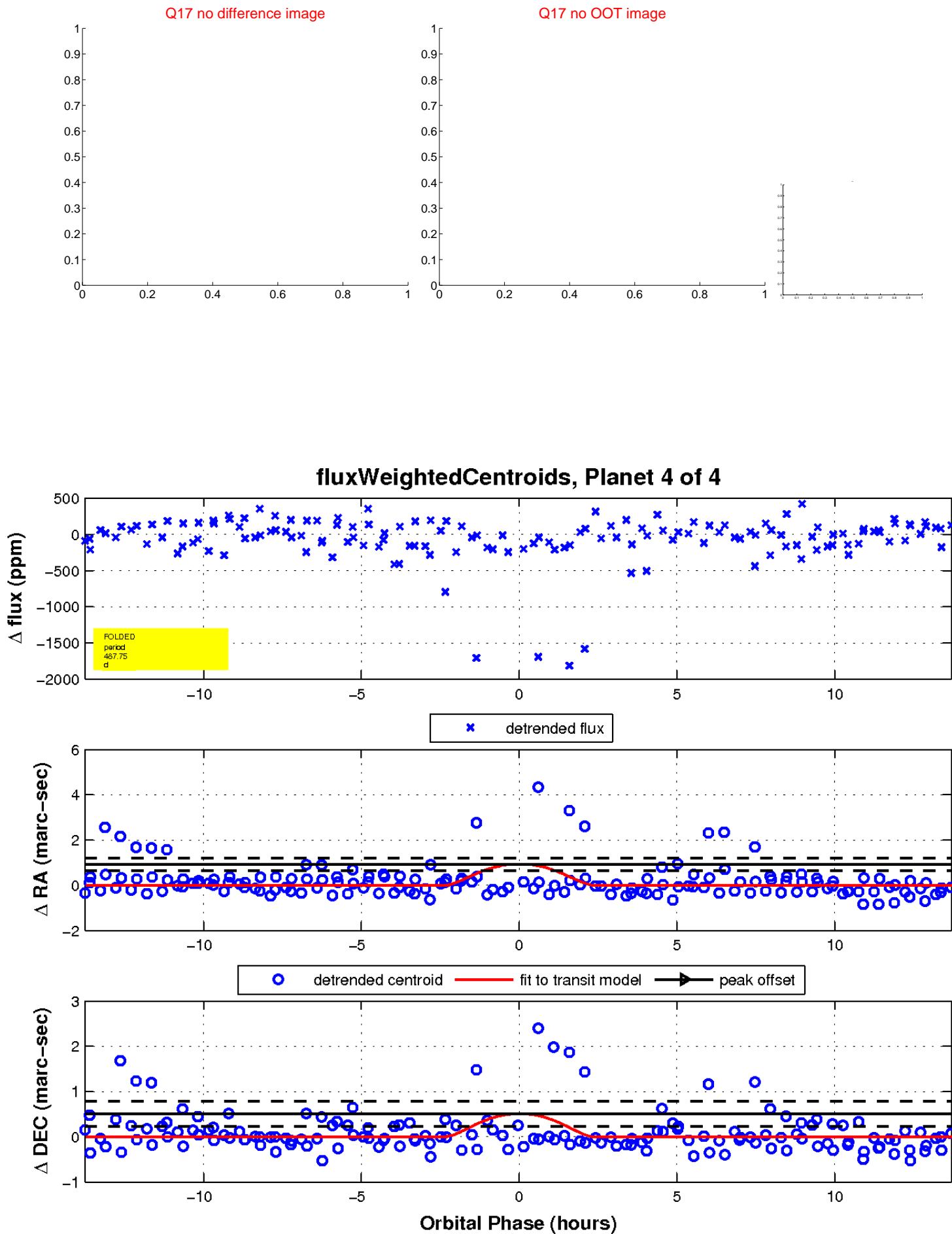
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

