

KIC 004990101

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})
004990101-01	OBS	No	232.920040	165.022630	1.1	5.810	14.7	0.1	154.44	3273	21.77	4094.86
004990101-02	OBS	No	389.011831	252.068554	0.4	21.531	11.8	0.0	154.44	3273	9.40	2066.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004990101-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004990101-02	OBS	FP	0.00	1	0	0	0	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

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

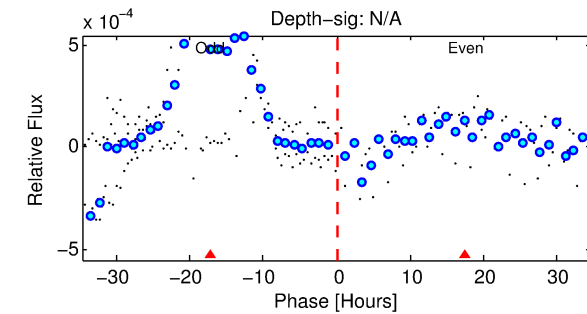
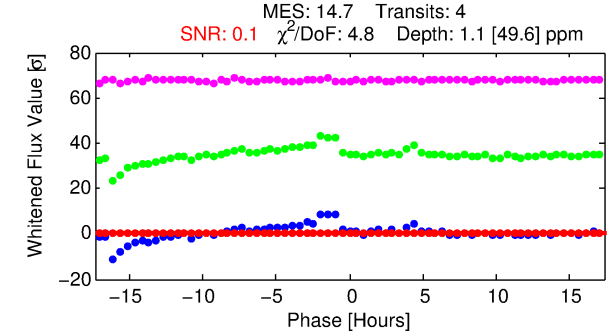
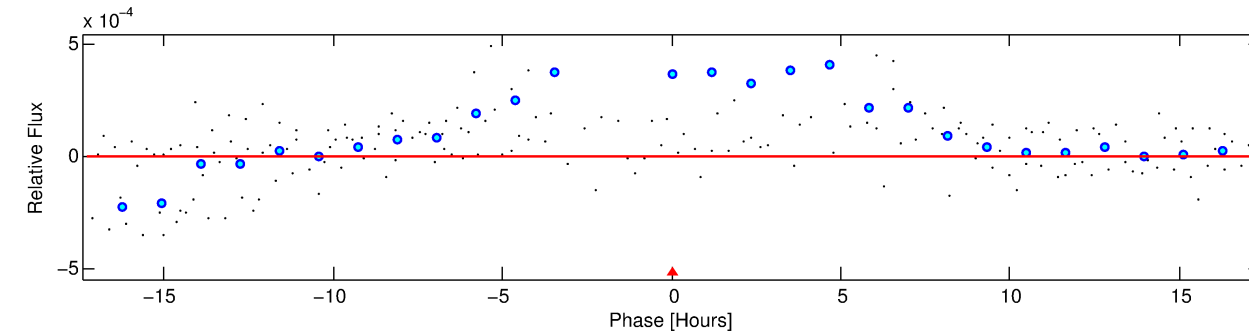
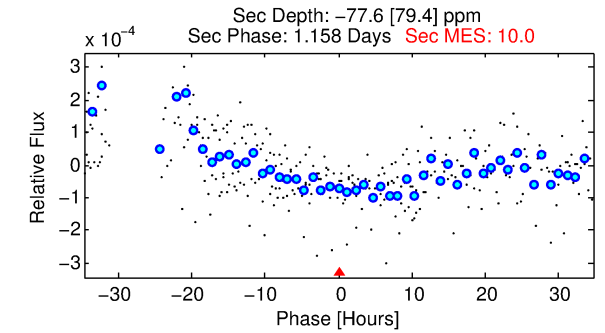
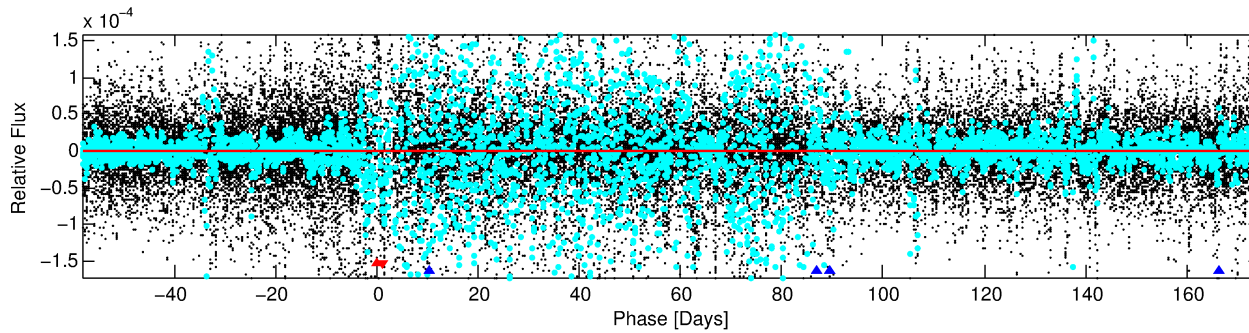
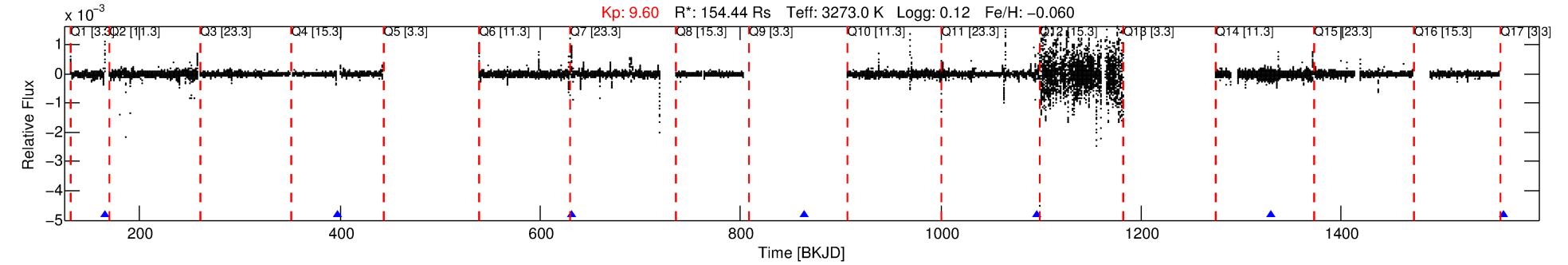
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004990101-01

No Significant Match Found

DV One-Page Summary

KIC: 4990101 Candidate: 1 of 2 Period: 232.920 d



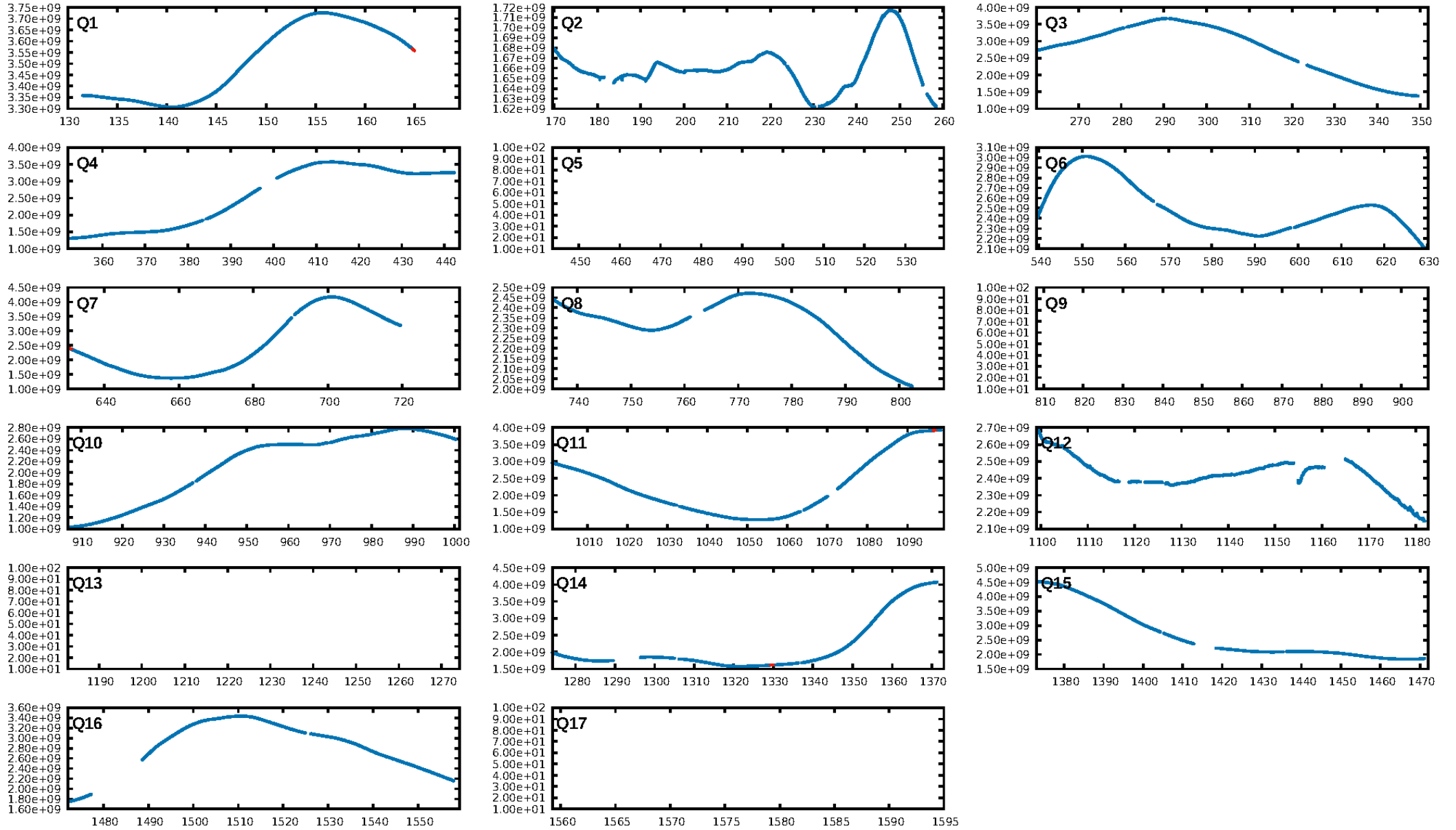
DV Fit Results:

Period = 232.92004 [1.02227] d
Epoch = 165.0226 [3.5700] BKJD
Rp/R* = 0.0013 [0.1268]
a/R* = 123.08 [41294.18]
b = 0.92 [59.02]
Seff = 4094.86 [1481.28]
Teq = 2040 [184] K
Rp = 21.77 [2136.68] Re
a = 0.7739 [0.1542] AU
Ag = N/A
Teffp = N/A

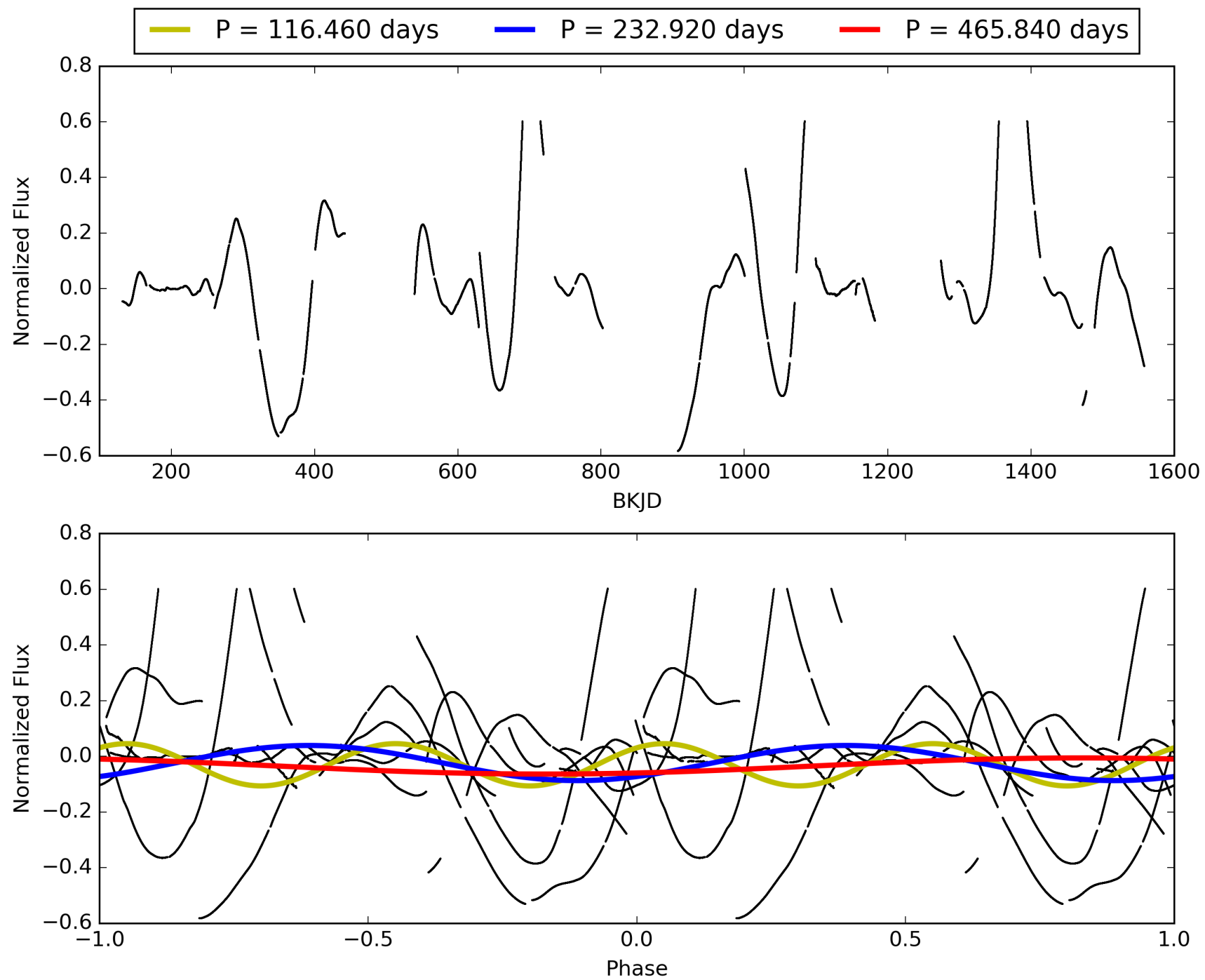
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [167.98σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 0.0%
Bootstrap-pfa: 1.21e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [1/1]

TCE 004990101-01, PDC Light Curves

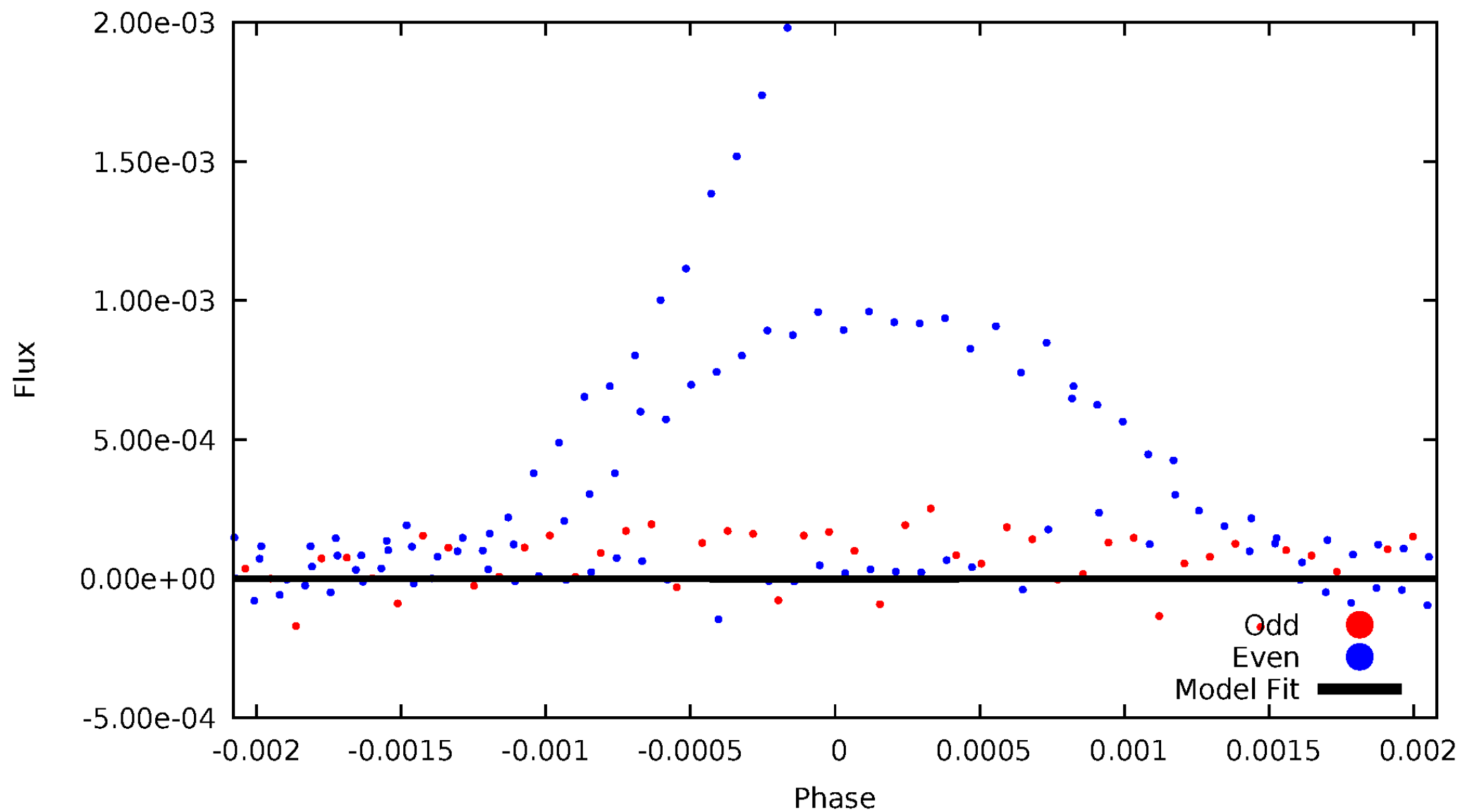


TCE 004990101-01



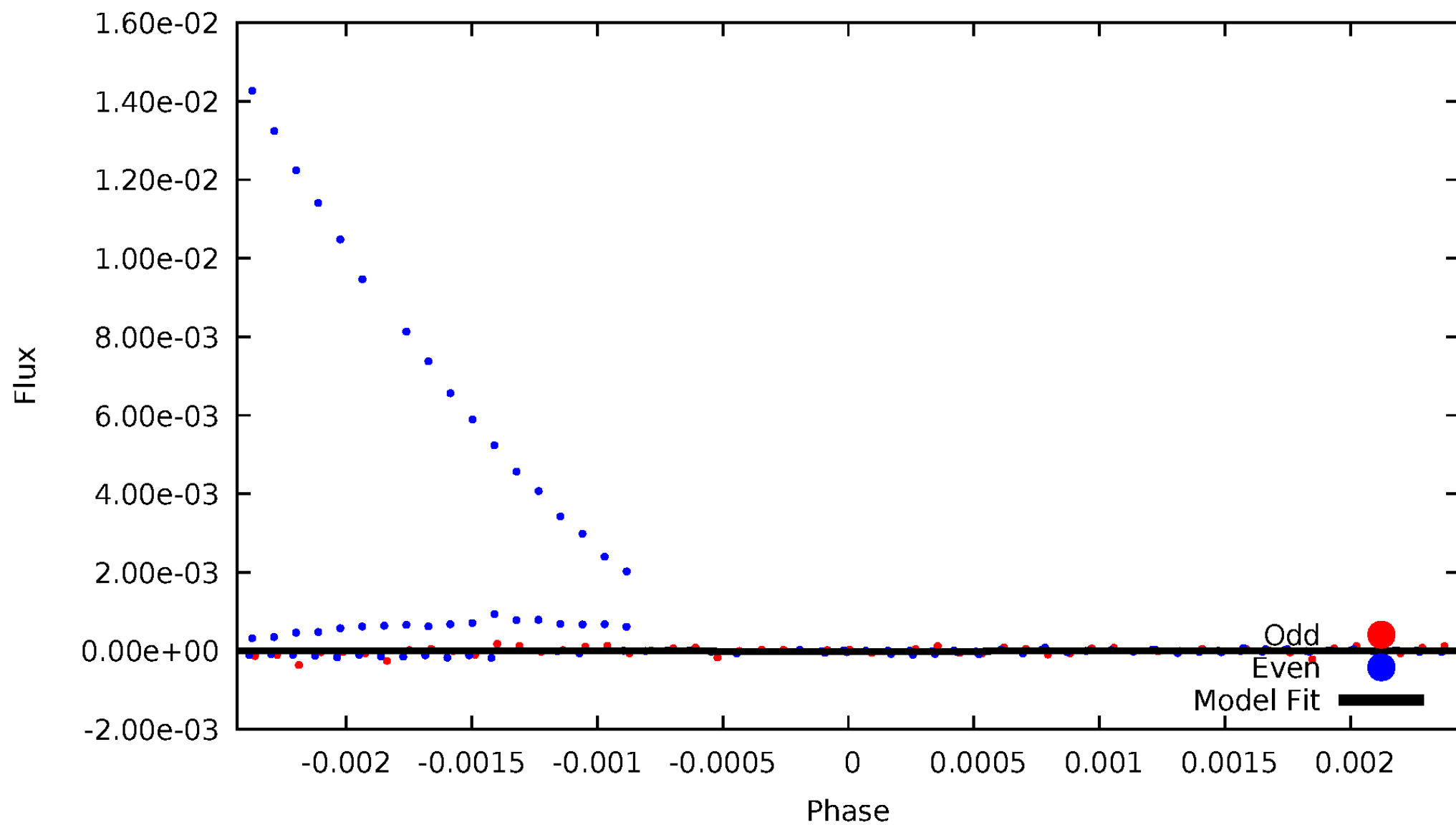
DV Odd/Even

TCE 004990101-01



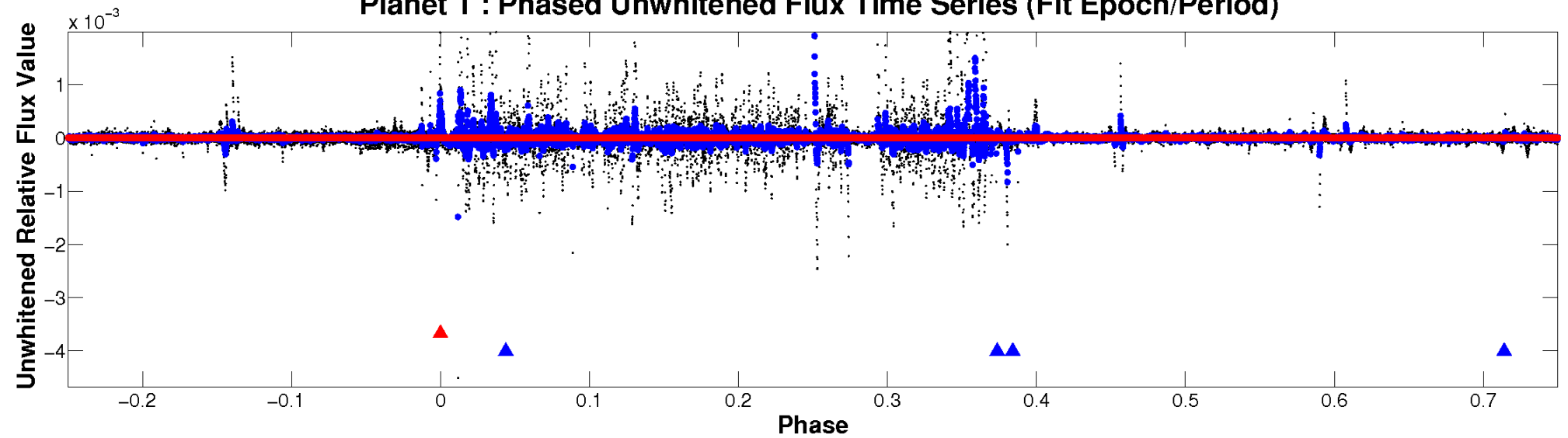
ALT Odd/Even

TCE 004990101-01

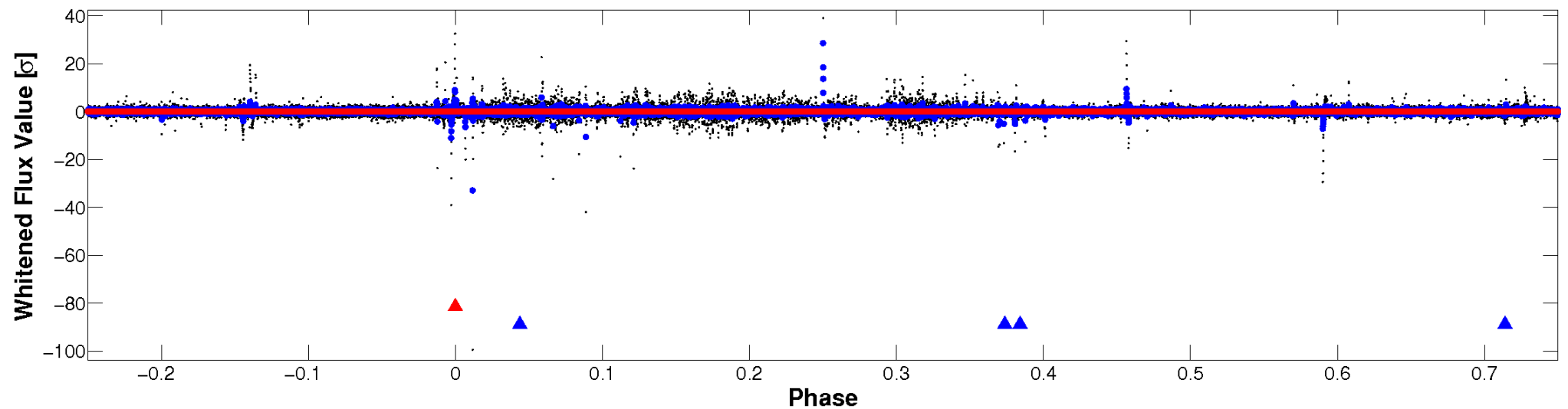


Non-Whitened Vs. Whitened Light Curve

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

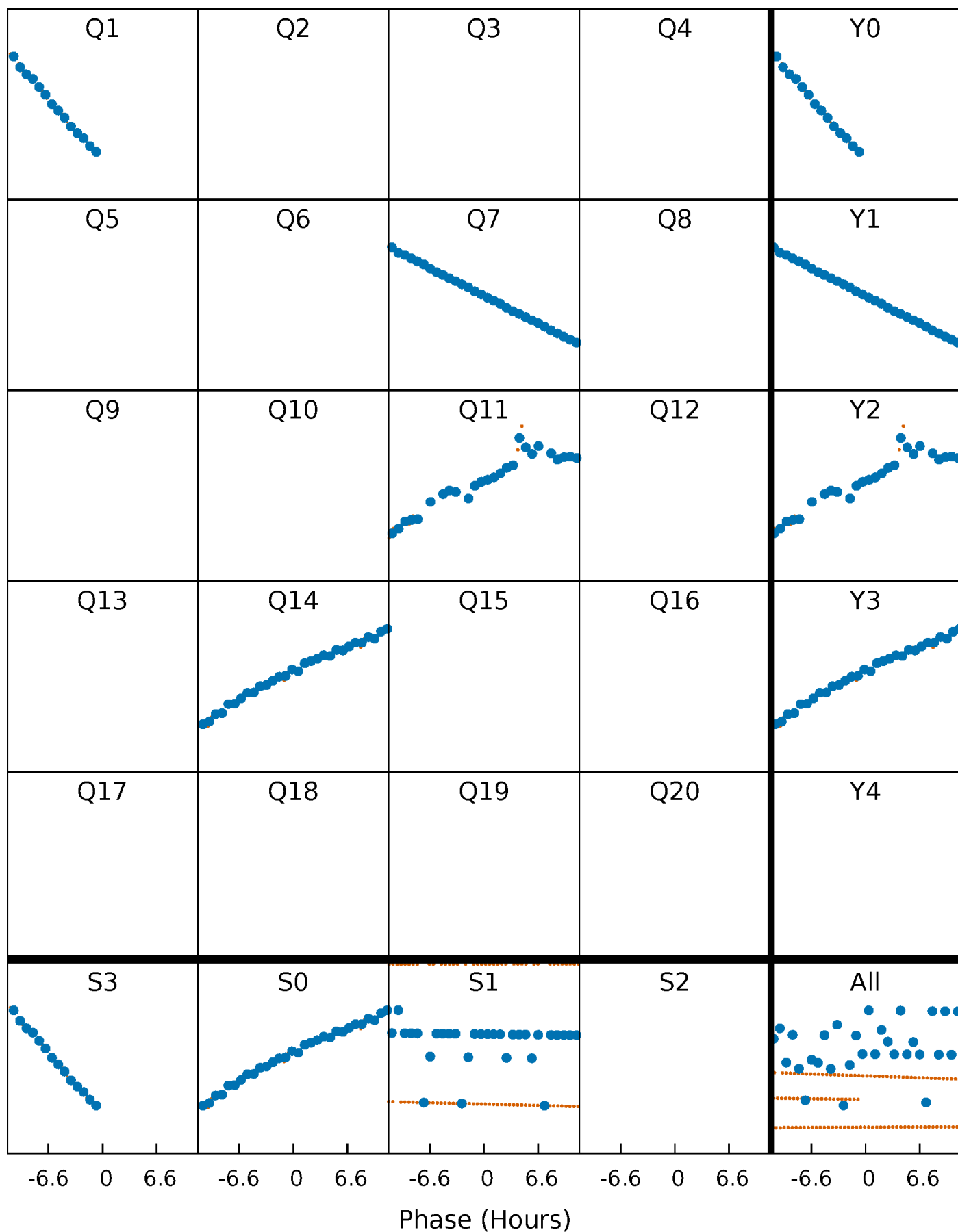


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



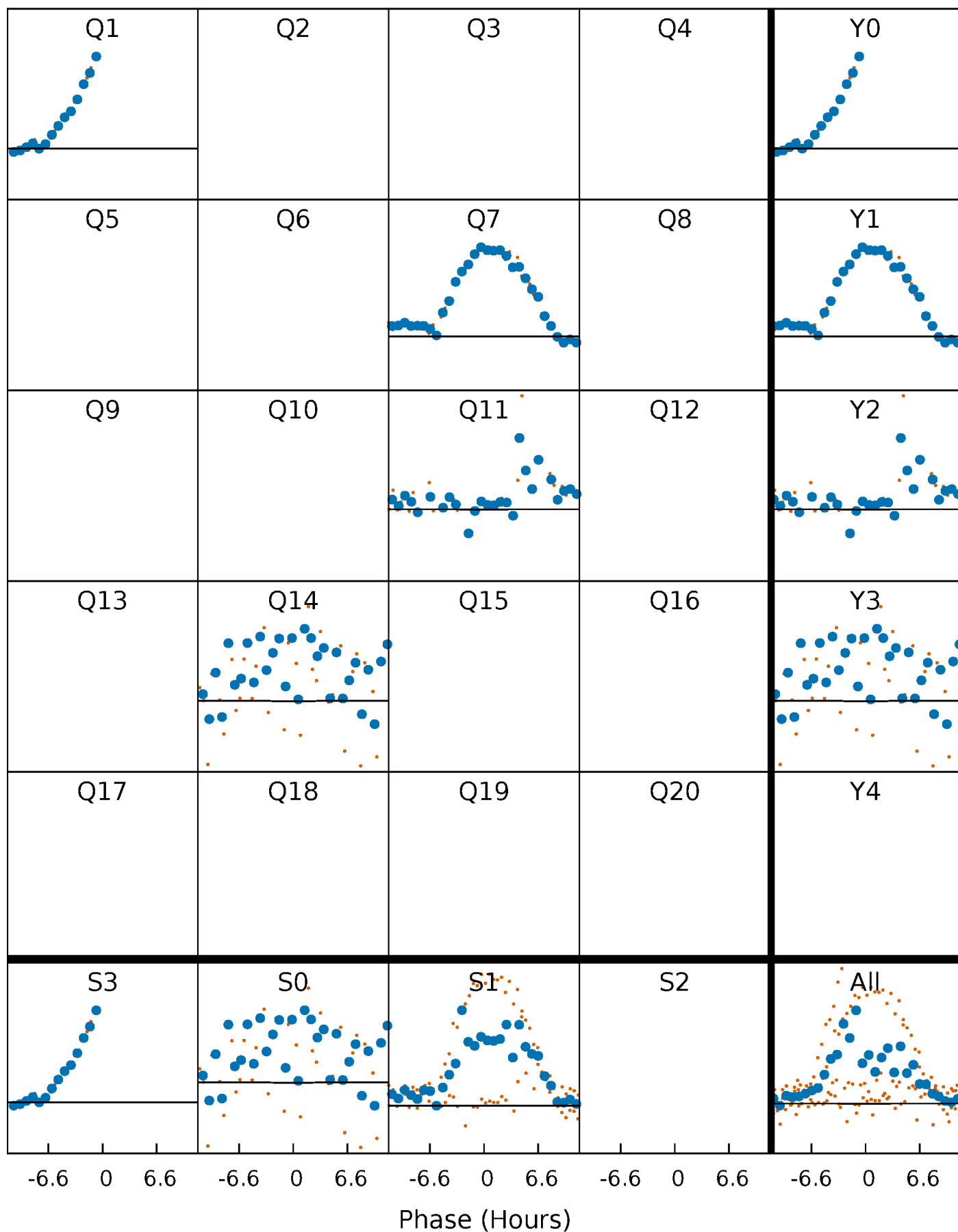
PDC Quarter-Phased Transit Curves

TCE 004990101-01 P=232.920040 Days $T_0=165.022630$ (BKJD)



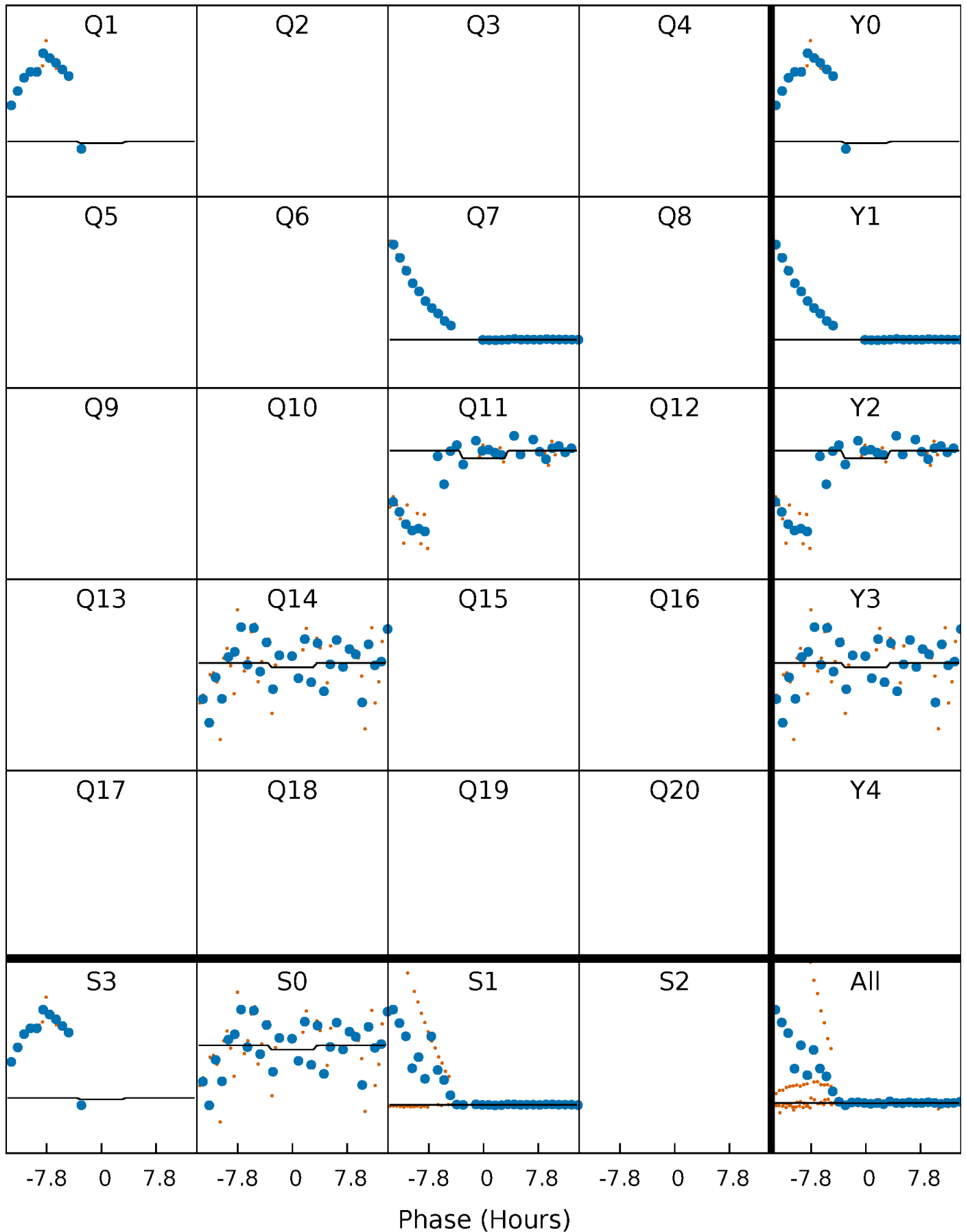
DV Quarter-Phased Transit Curves

TCE 004990101-01 P=232.920040 Days $T_0=165.022630$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

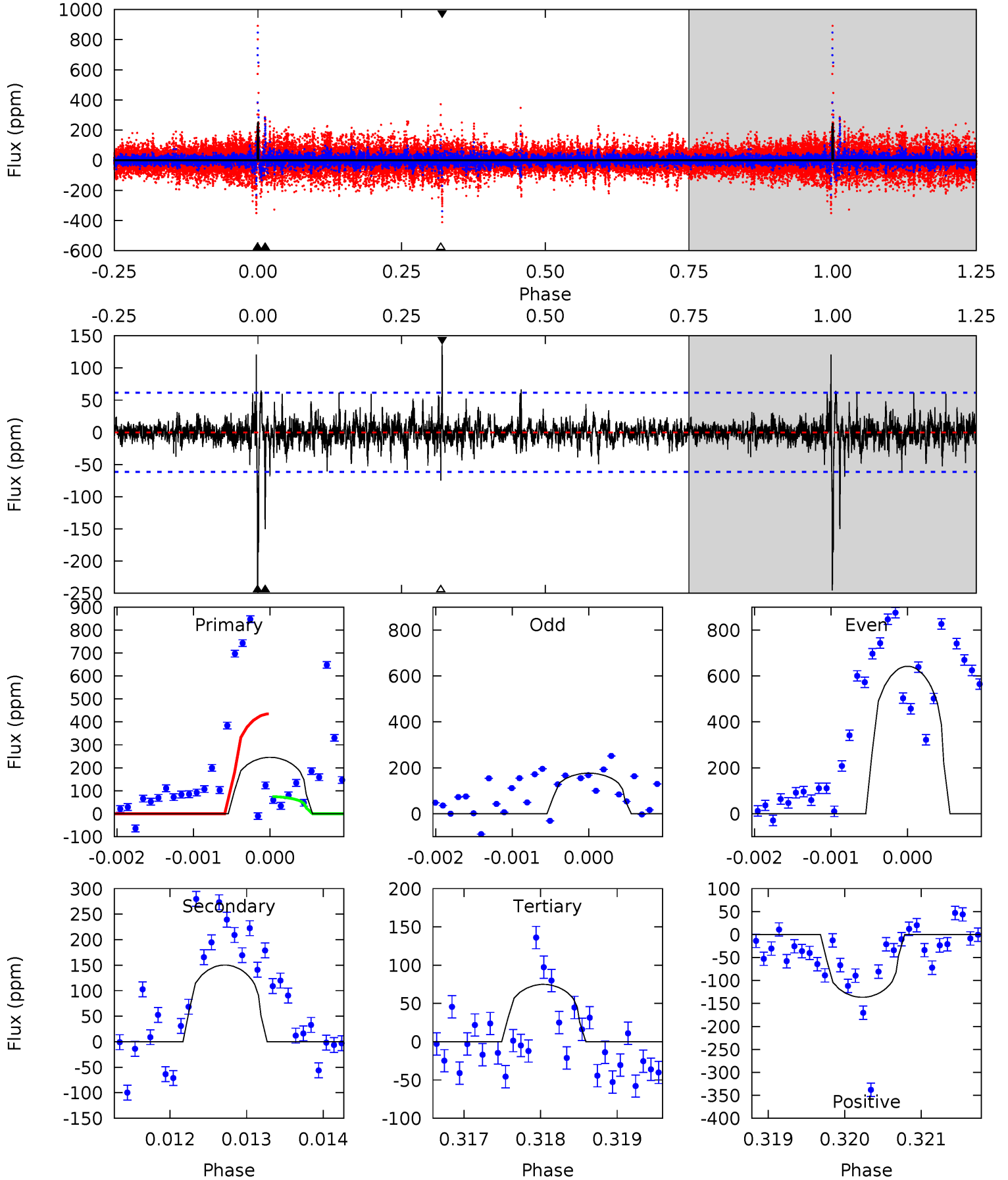
TCE 004990101-01 P=232.922150 Days $T_0=165.006128$ (BKJD)



DV Model-Shift Uniqueness Test

004990101-01, P = 232.920040 Days, E = 165.022630 Days

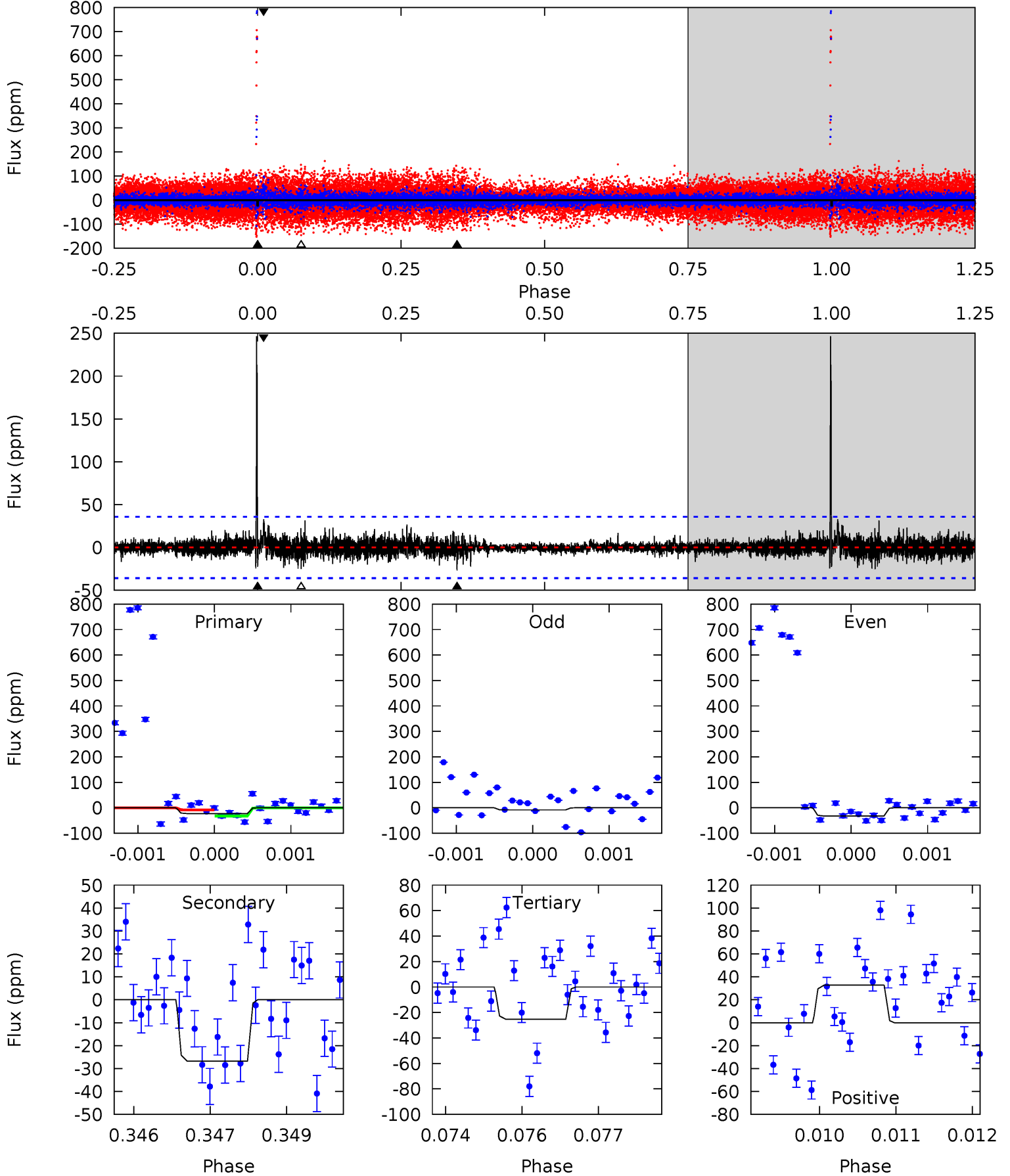
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	13.3	6.63	12.1	5.44	3.27	1.21	15.1	9.65	6.67	1.21	19.2	1.38	0.36	16.0



Alt Model-Shift Uniqueness Test

004990101-01, P = 232.922150 Days, E = 165.006128 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.43	4.05	3.82	4.95	5.41	3.23	1.04	-0.39	-1.52	0.24	-0.90	1.88	3.29	0.90	1.79



Stellar Parameters For KIC 004990101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3273^{+117}_{-78}	$0.117^{+0.200}_{-0.050}$	$-0.060^{+0.250}_{-0.150}$	$154.438^{+9.192}_{-29.414}$	$1.138^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+171%/-43%	+417%/-250%	+6%/-19%	+17%/-14%	+95%/-15%
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 004990101-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-150 ± 11	$1447.20^{+1540.99}_{-1034.66}$	2810^{+126}_{-167}	-2619^{+4342}_{-111}	$0.025^{+0.281}_{-0.019}$
Alt.	-27 ± 7	$1304.20^{+1581.36}_{-928.43}$	2803^{+133}_{-156}	-2655^{+152}_{-104}	$0.005^{+0.054}_{-0.004}$

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 $A_{obs} \gg 1.0$

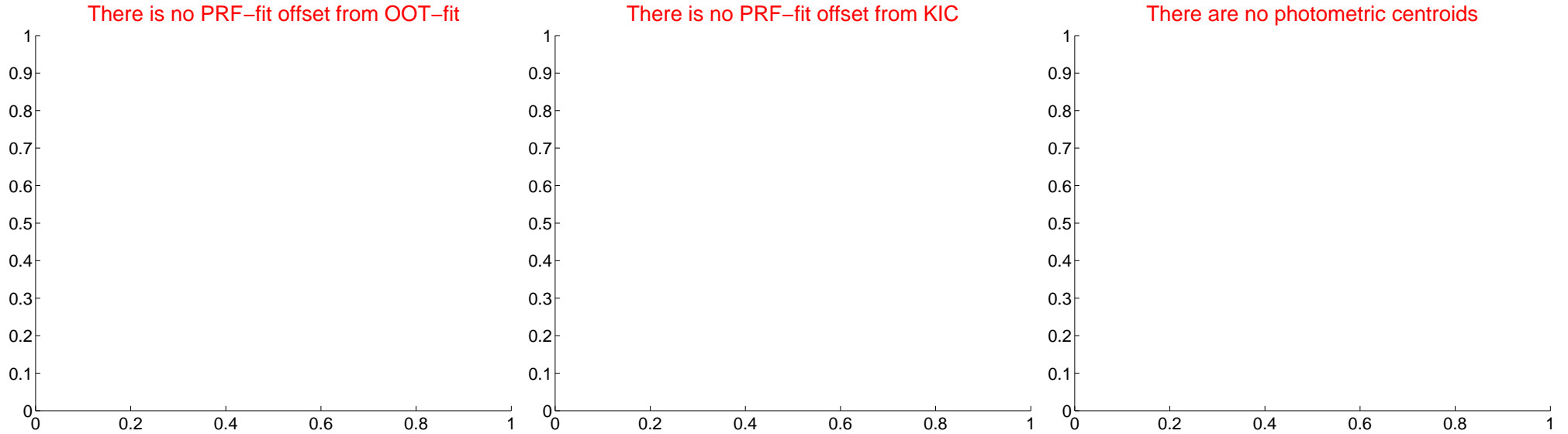
DV Centroid Data

Supplemental centroid analysis for 004990101-01. **Kepler magnitude: 9.60.** Transit SNR 0.06

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	—	—	—	—



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.



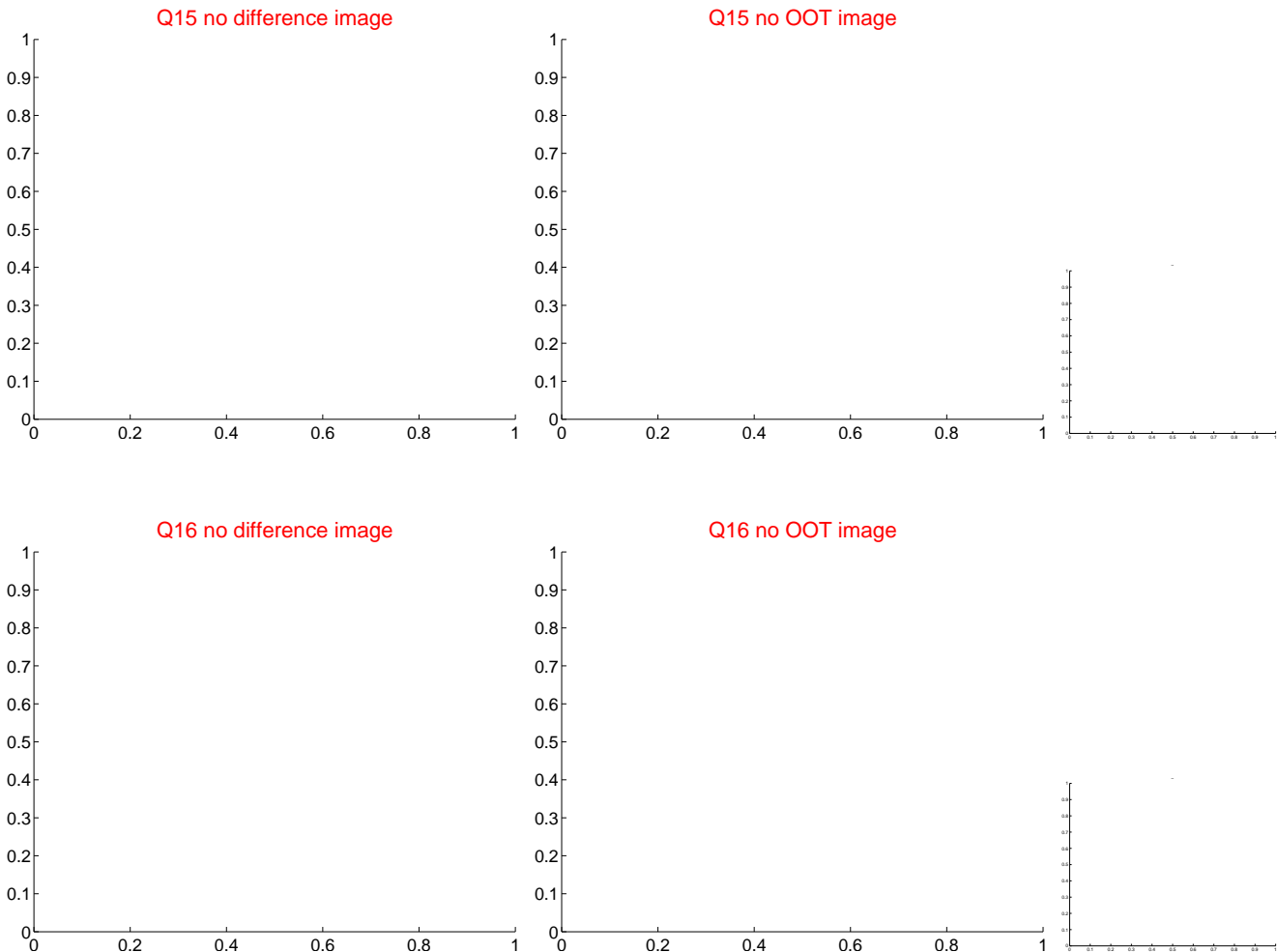
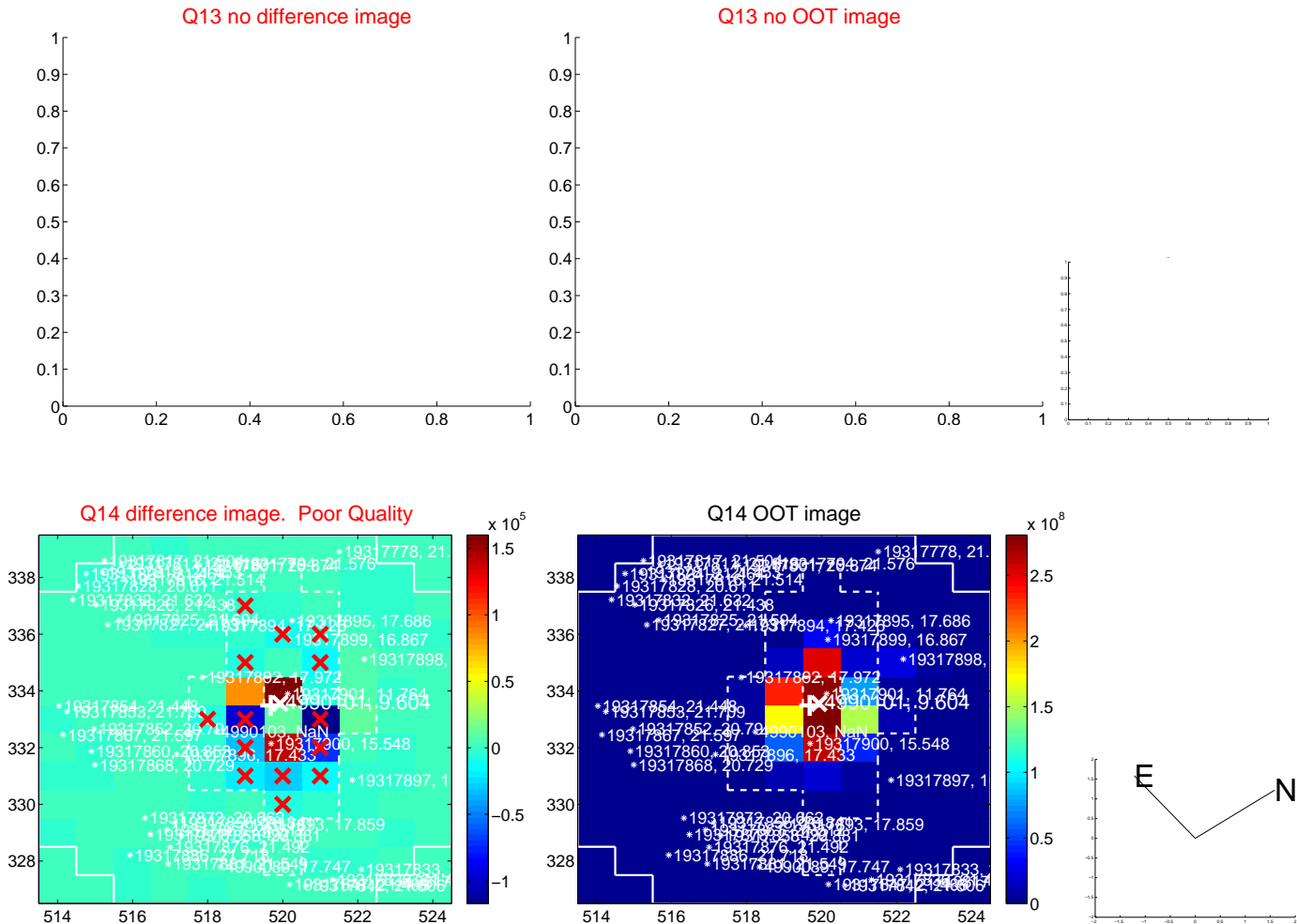
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



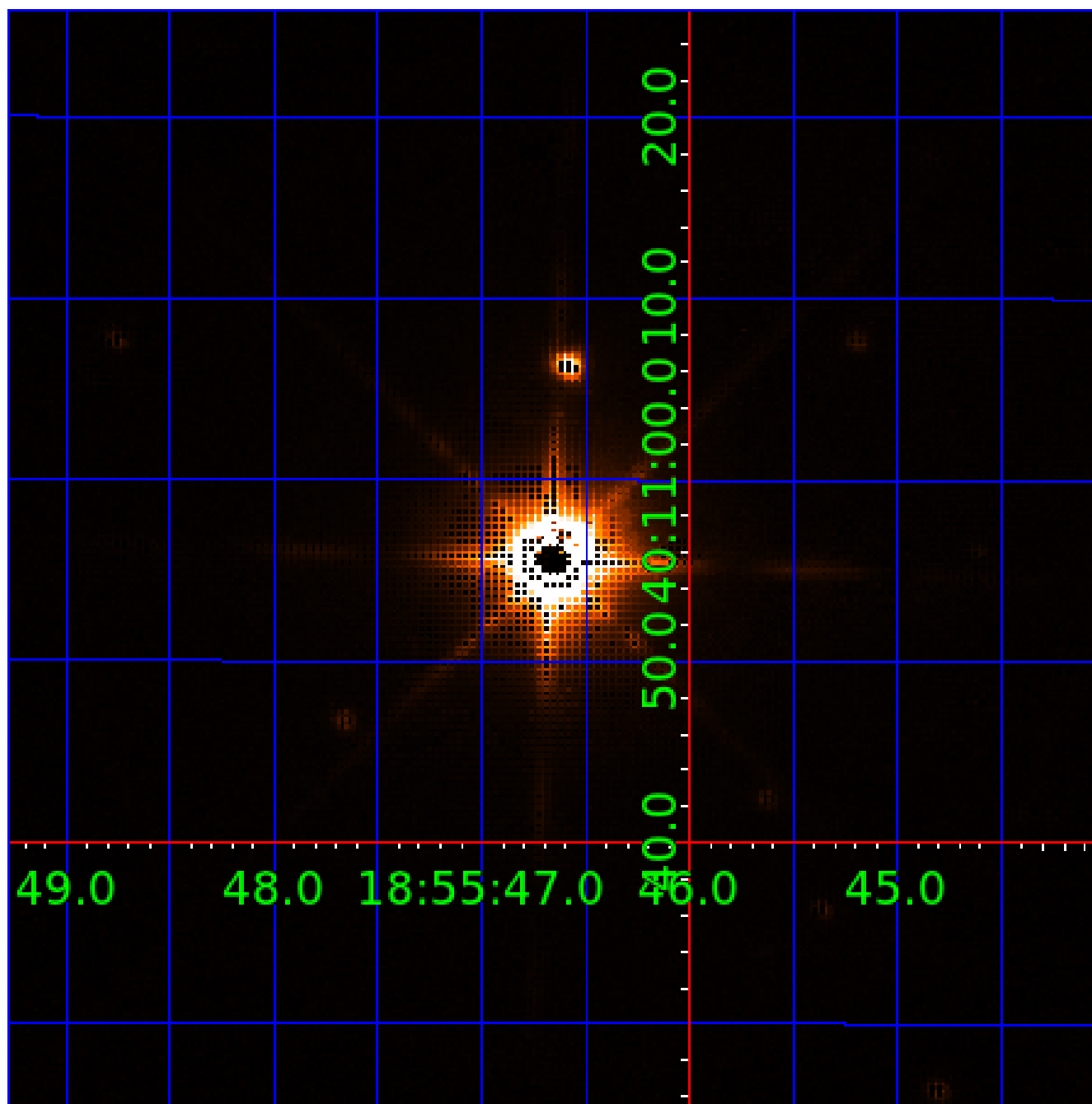
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 004990101

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})
004990101-01	OBS	No	232.920040	165.022630	1.1	5.810	14.7	0.1	154.44	3273	21.77	4094.86
004990101-02	OBS	No	389.011831	252.068554	0.4	21.531	11.8	0.0	154.44	3273	9.40	2066.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004990101-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004990101-02	OBS	FP	0.00	1	0	0	0	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

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

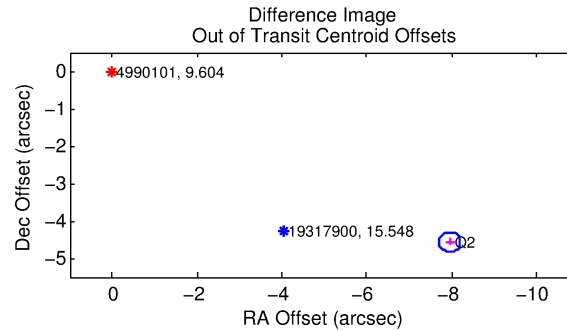
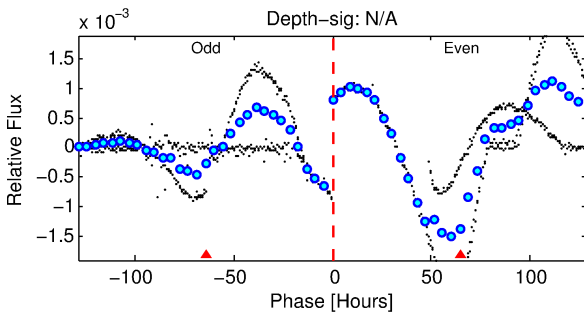
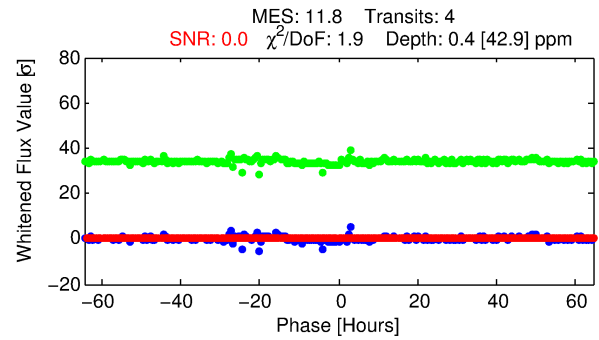
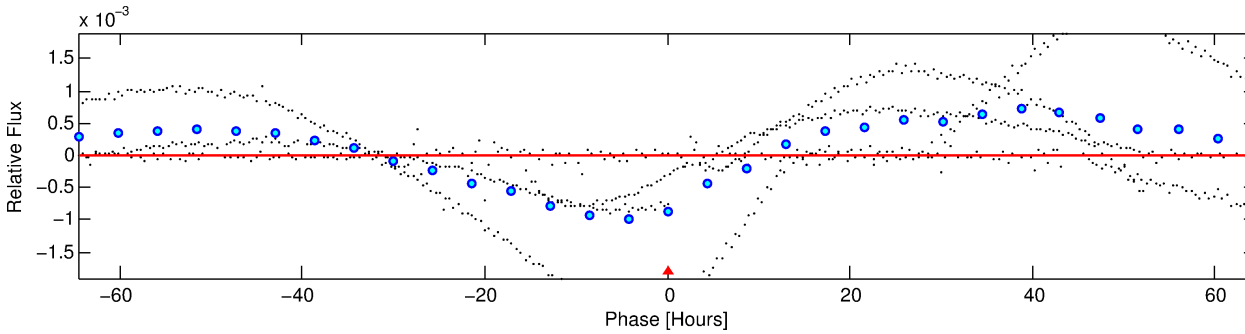
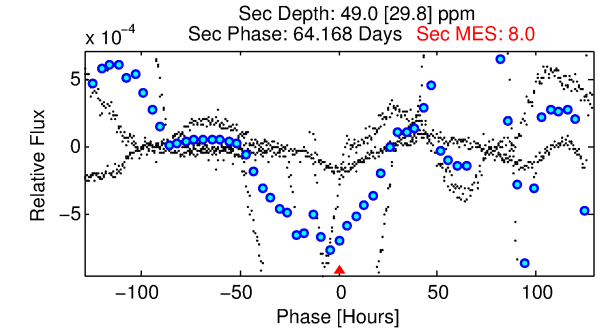
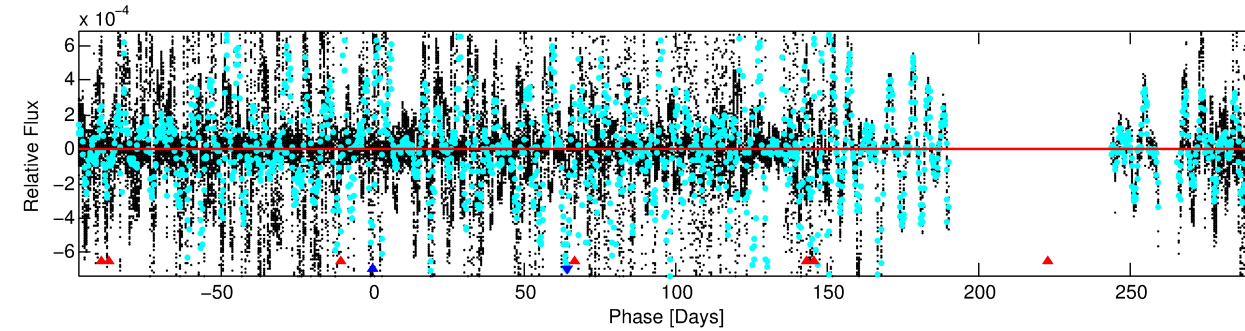
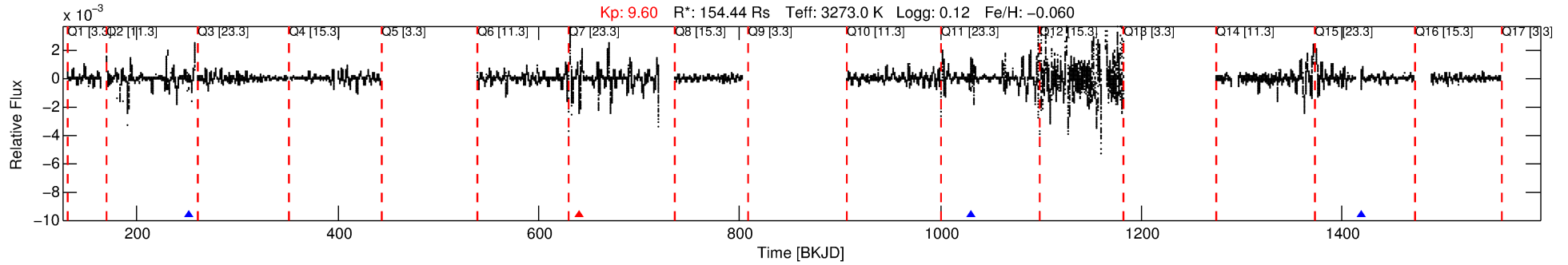
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004990101-02

No Significant Match Found

DV One-Page Summary

KIC: 4990101 Candidate: 2 of 2 Period: 389.012 d



DV Fit Results:

Period = 389.01183 [1.94382] d
Epoch = 252.0686 [4.9072] BKJD
Rp/R* = 0.0006 [0.0648]
a/R* = 137.85 [37267.41]
b = 0.06 [4516.18]
Seff = 2066.48 [747.56]
Teq = 1719 [155] K
Rp = 9.40 [1092.28] Re
a = 1.0894 [0.2170] AU
Ag = 362.04 [84135.85] [0.00σ]
Teff = 11595 [673653] K [0.01σ]

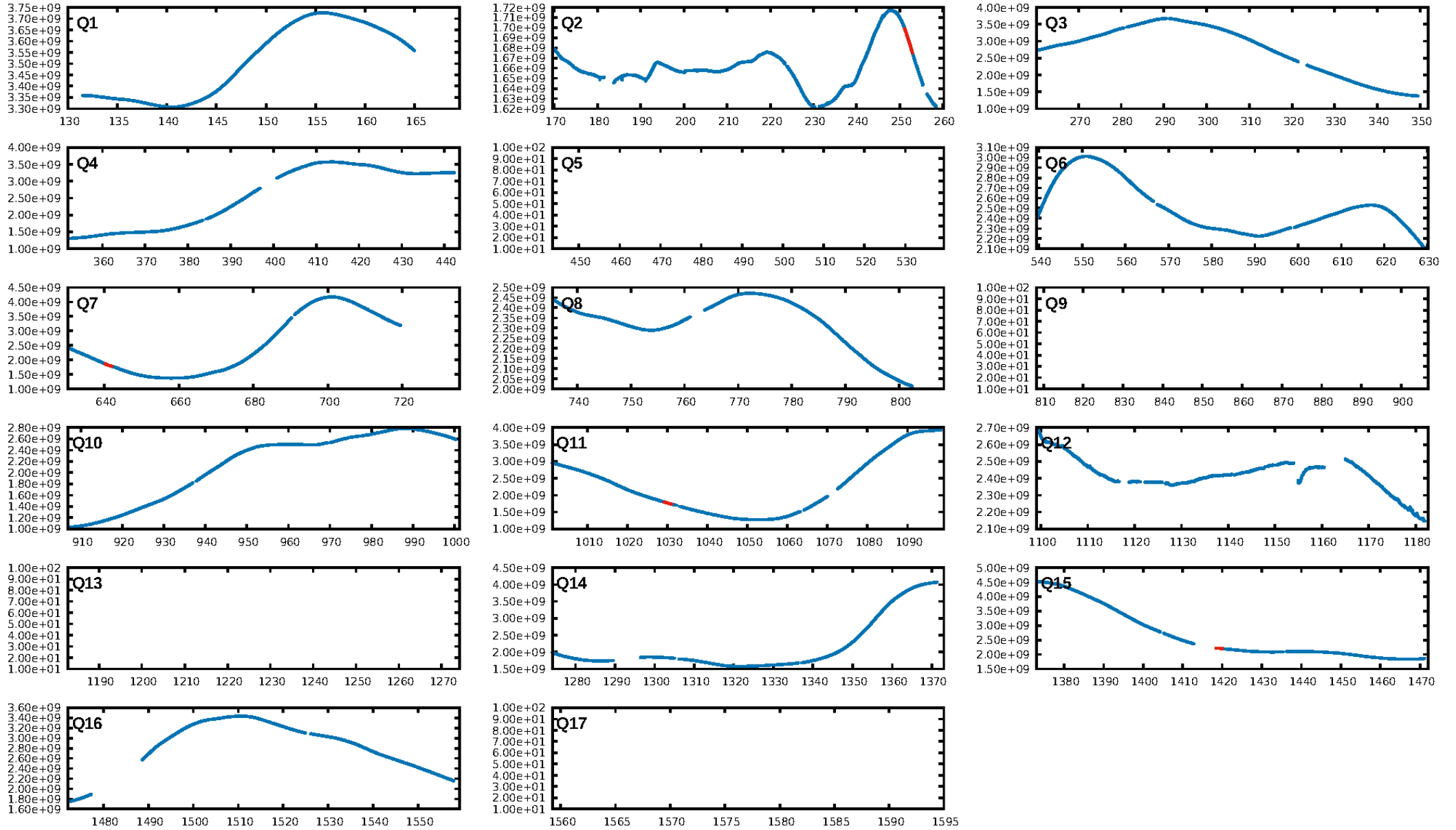
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [167.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.9%
Bootstrap-pfa: 4.11e-05
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 9.174 arcsec [106.31σ]
KicOffset-rm: 8.929 arcsec [103.79σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

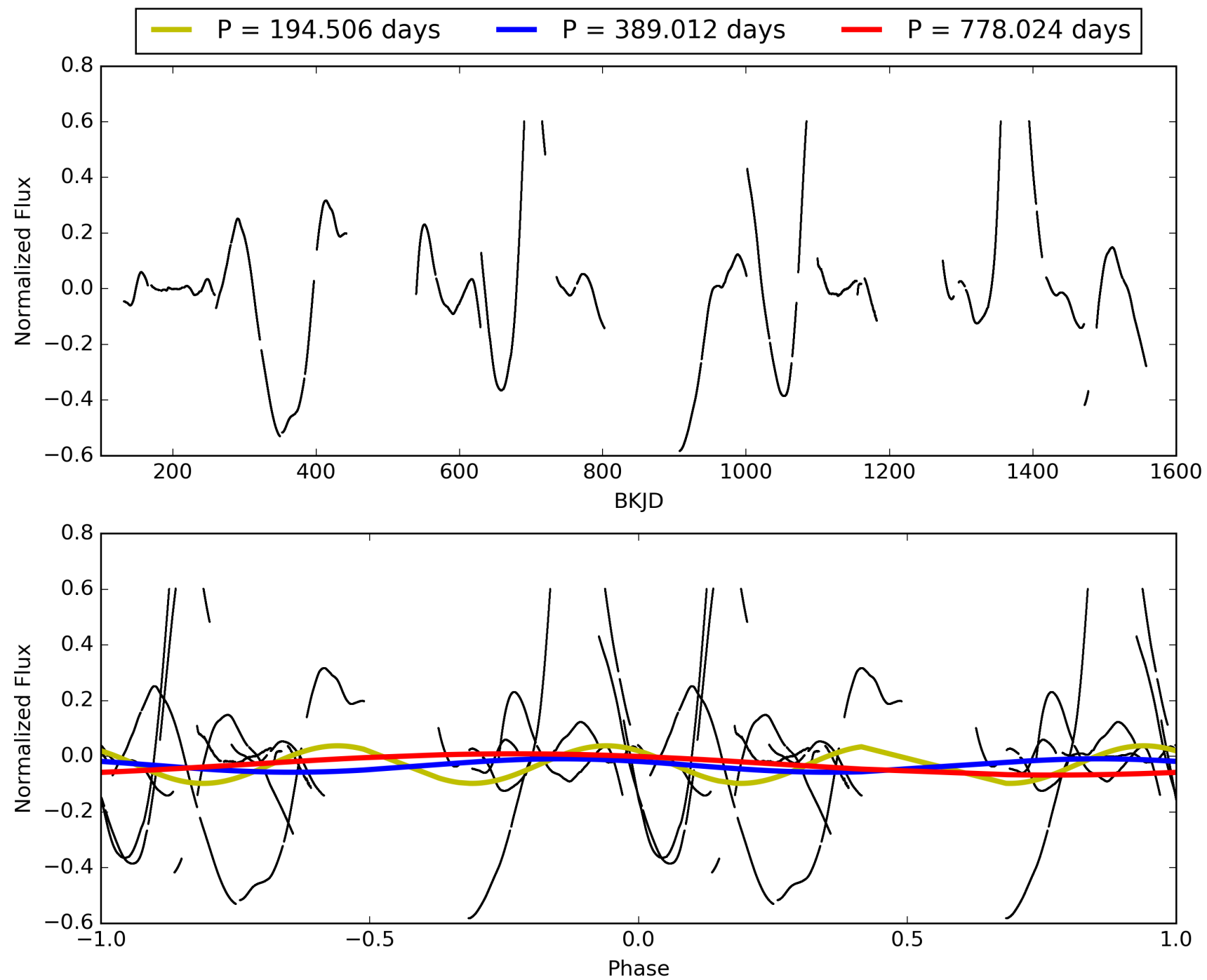
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 11:58:01 Z

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

TCE 004990101-02, PDC Light Curves

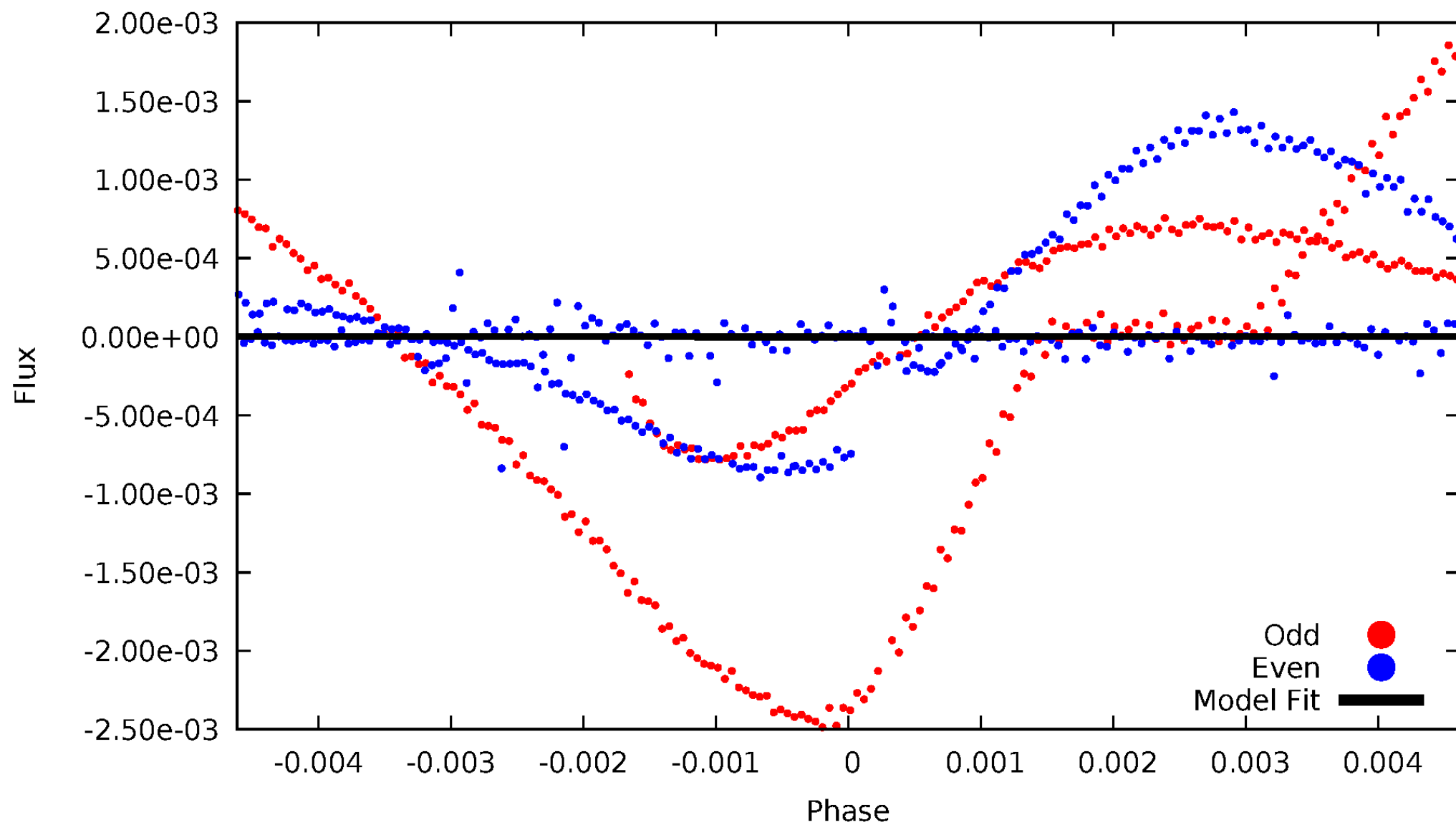


TCE 004990101-02



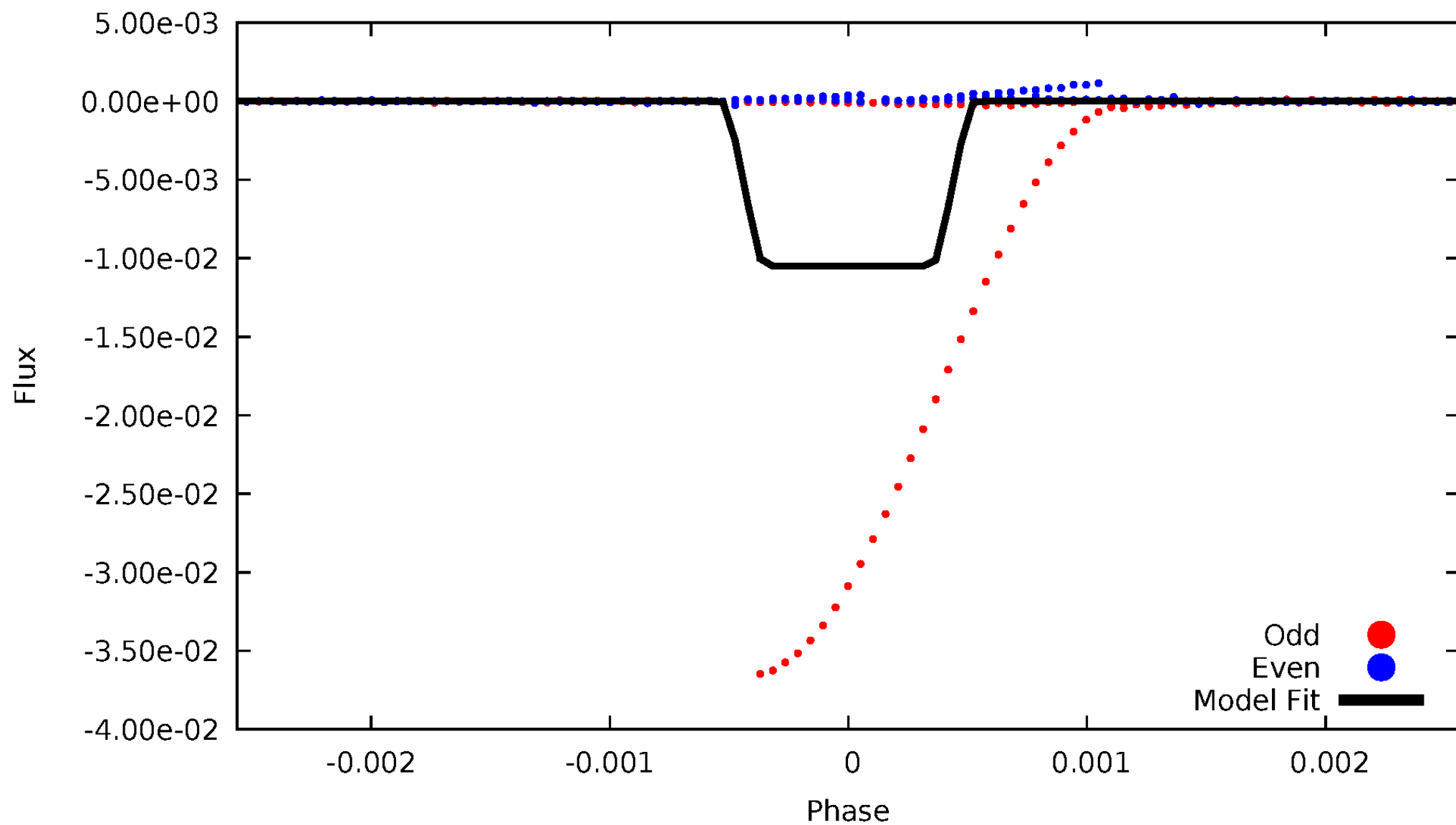
DV Odd/Even

TCE 004990101-02



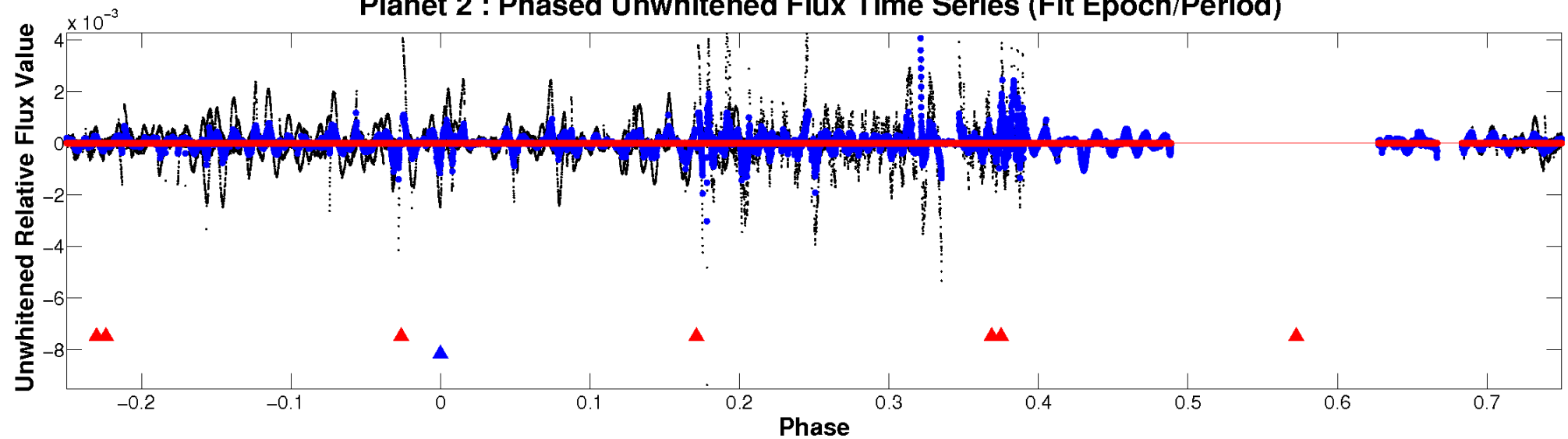
ALT Odd/Even

TCE 004990101-02

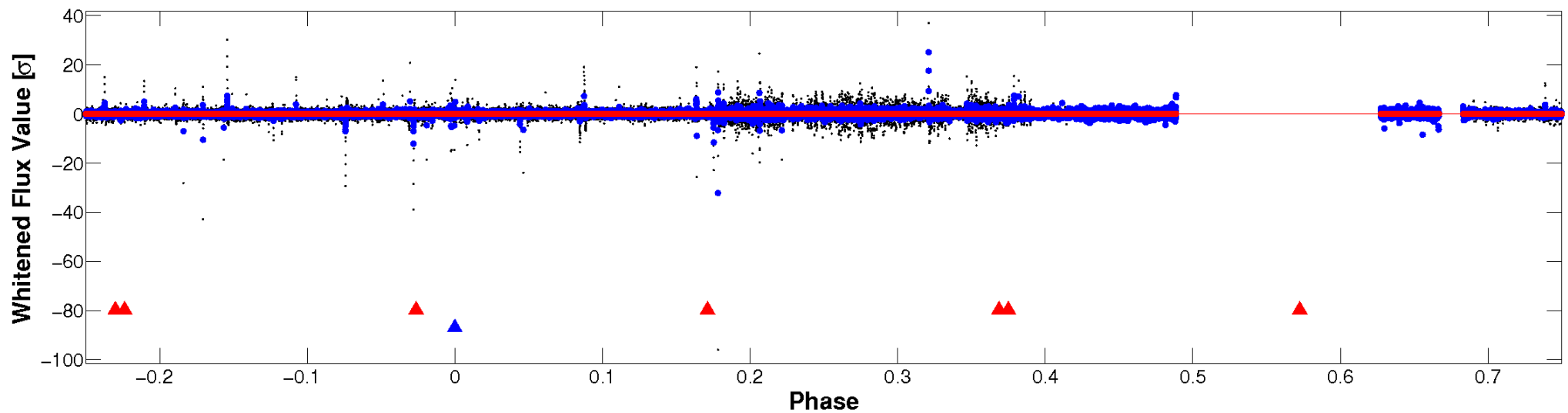


Non-Whitened Vs. Whitened Light Curve

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

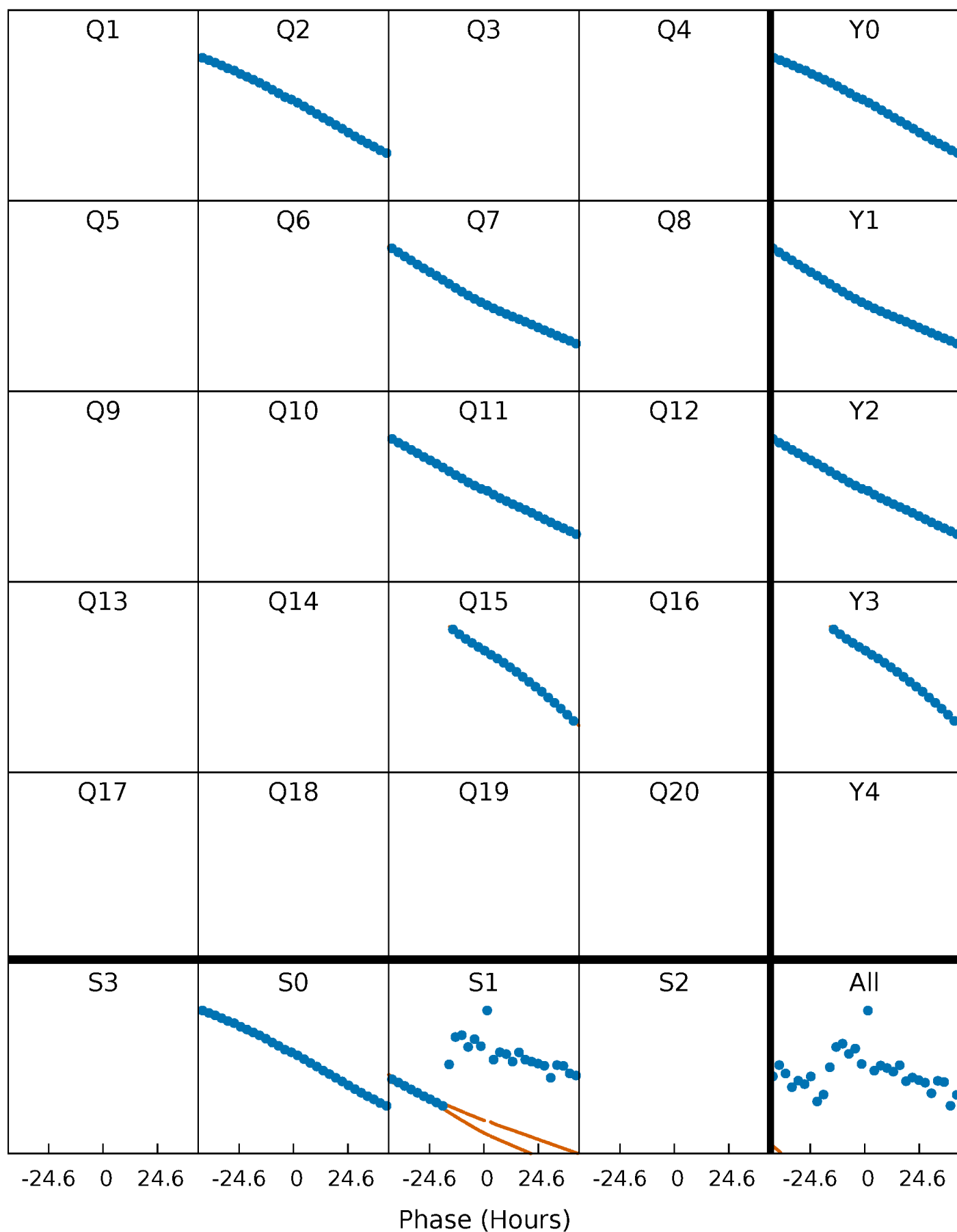


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



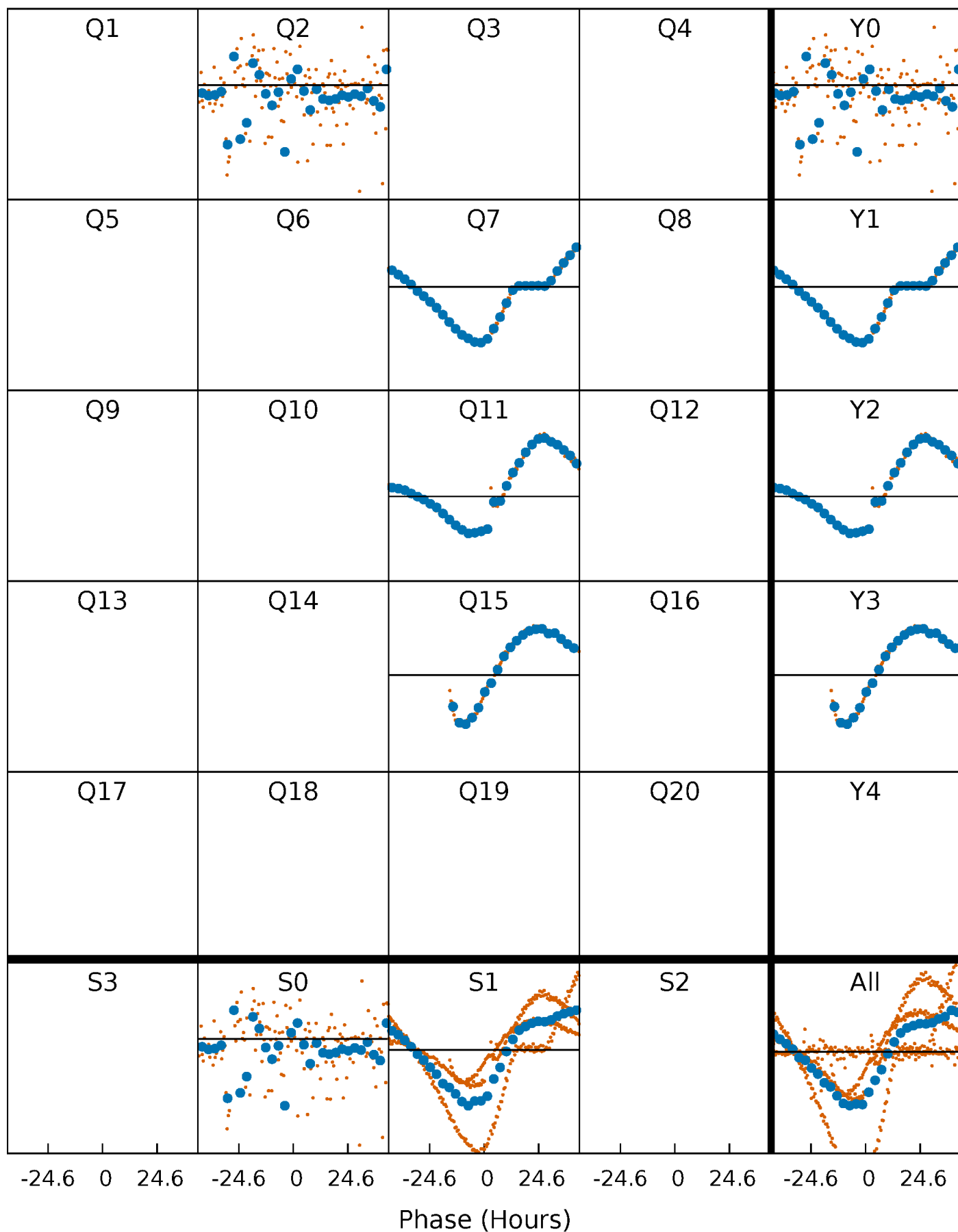
PDC Quarter-Phased Transit Curves

TCE 004990101-02 $P=389.011831$ Days $T_0=252.068554$ (BKJD)



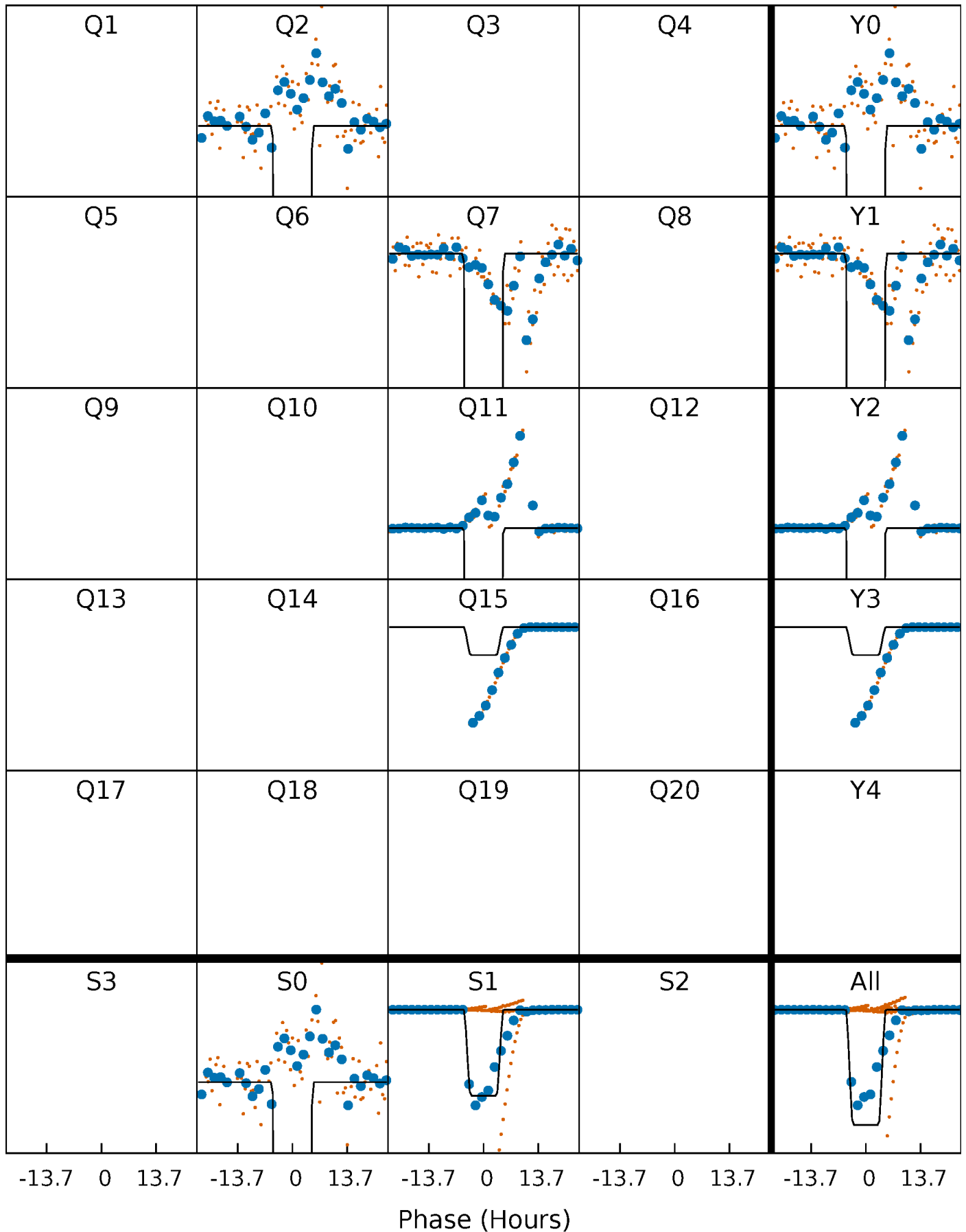
DV Quarter-Phased Transit Curves

TCE 004990101-02 $P=389.011831$ Days $T_0=252.068554$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

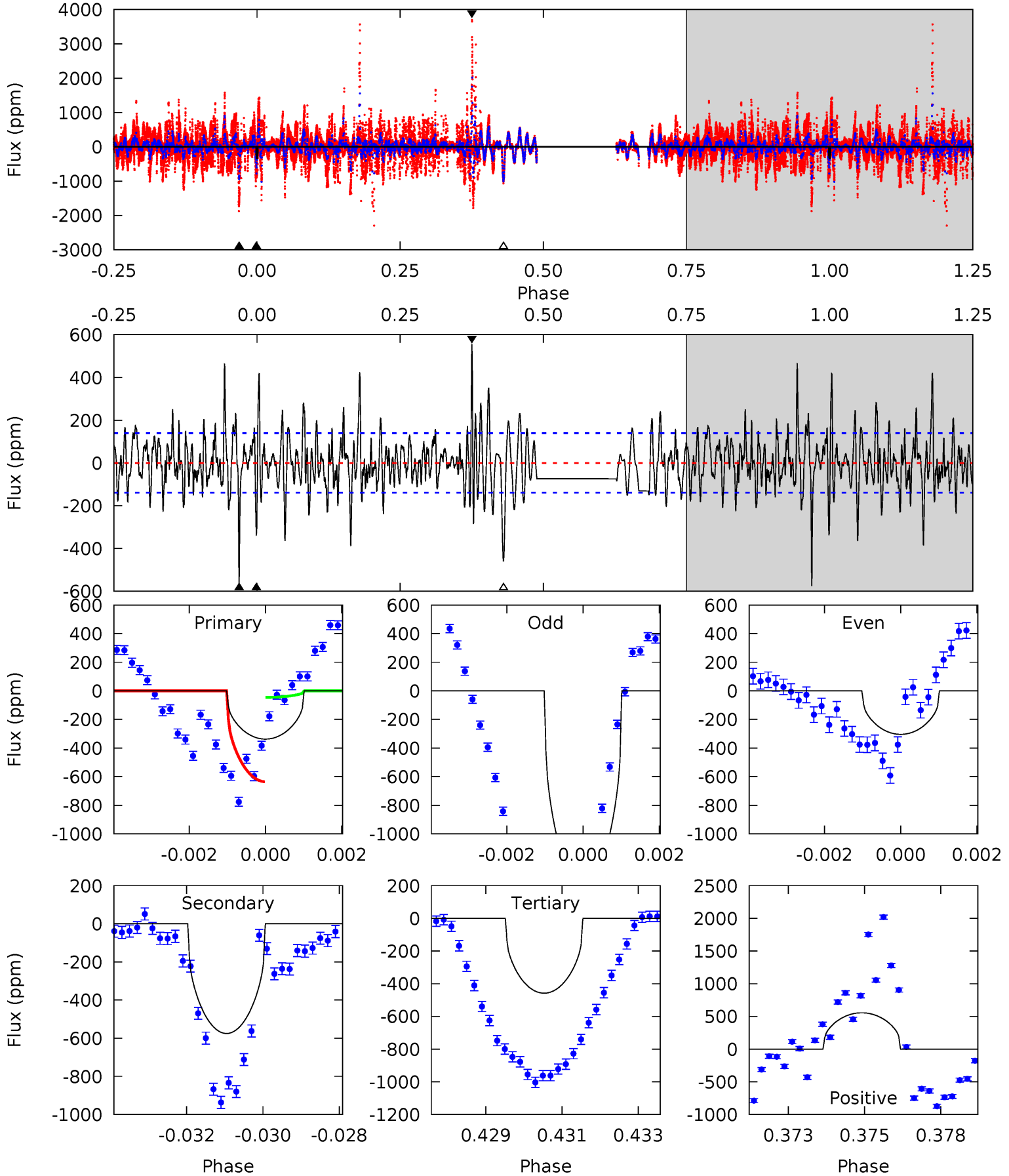
TCE 004990101-02 P=388.911947 Days $T_0=251.868004$ (BKJD)



DV Model-Shift Uniqueness Test

004990101-02, P = 389.011831 Days, E = 252.068554 Days

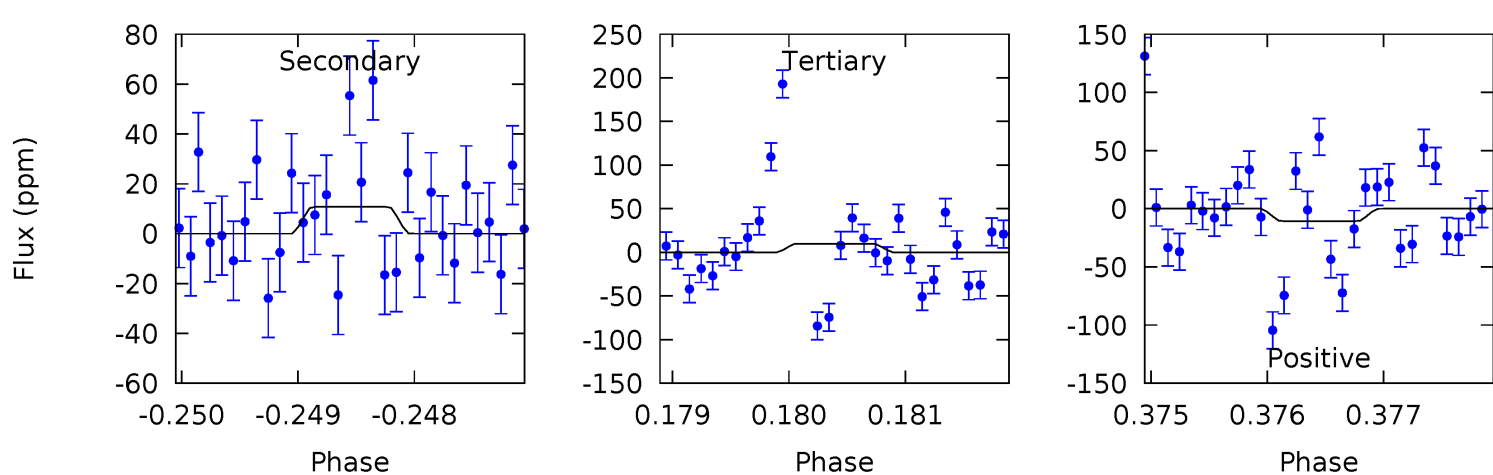
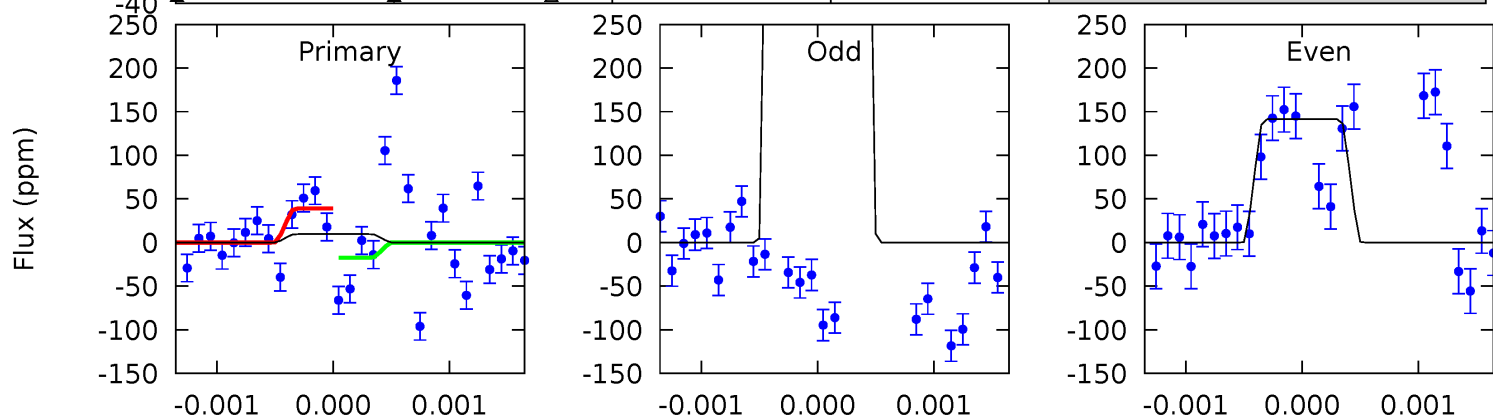
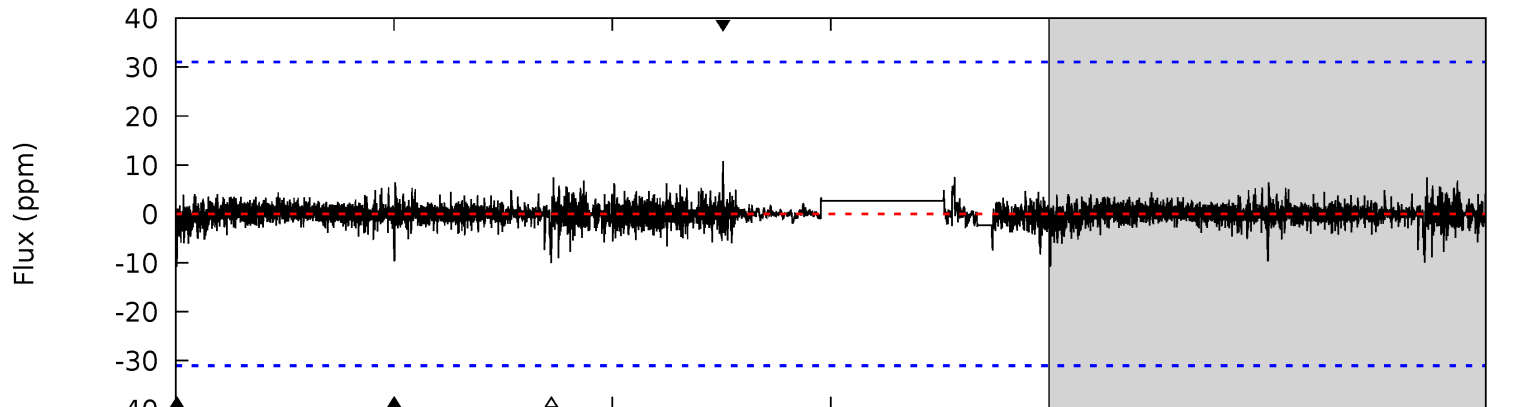
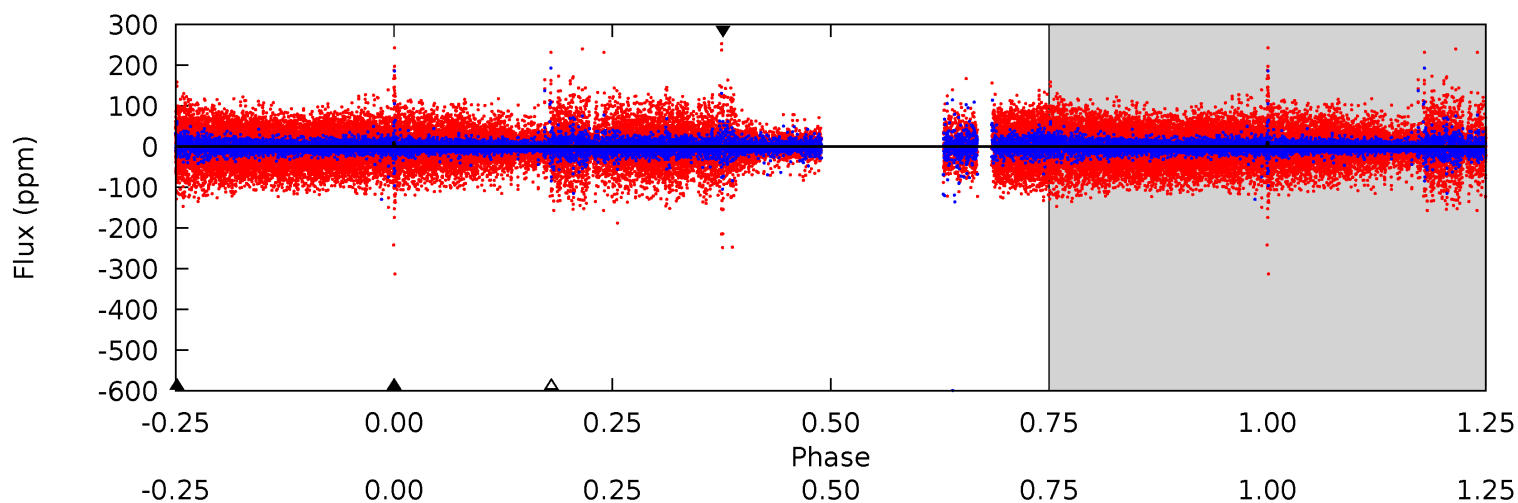
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	21.9	17.4	21.1	5.30	3.05	4.05	-4.59	-8.29	4.46	0.76	13.3	1.74	0.49	11.5



Alt Model-Shift Uniqueness Test

004990101-02, P = 388.911947 Days, E = 251.868004 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.69	1.89	1.75	1.88	5.44	3.28	0.26	-0.05	-0.19	0.14	0.01	123.7	1198	0.50	1.93



Stellar Parameters For KIC 004990101

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3273^{+117}_{-78}	$0.117^{+0.200}_{-0.050}$	$-0.060^{+0.250}_{-0.150}$	$154.438^{+9.192}_{-29.414}$	$1.138^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+171%/-43%	+417%/-250%	+6%/-19%	+17%/-14%	+95%/-15%
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 004990101-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-575 ± 26	$758.55^{+775.99}_{-540.05}$	2371^{+103}_{-124}	2541^{+1397}_{-4781}	$0.692^{+7.280}_{-0.523}$
Alt.	-11 ± 6	$1743.67^{+1098.55}_{-893.65}$	2371^{+95}_{-111}	-2461^{+80}_{-75}	$0.002^{+0.008}_{-0.002}$

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 $A_{obs} \gg 1.0$

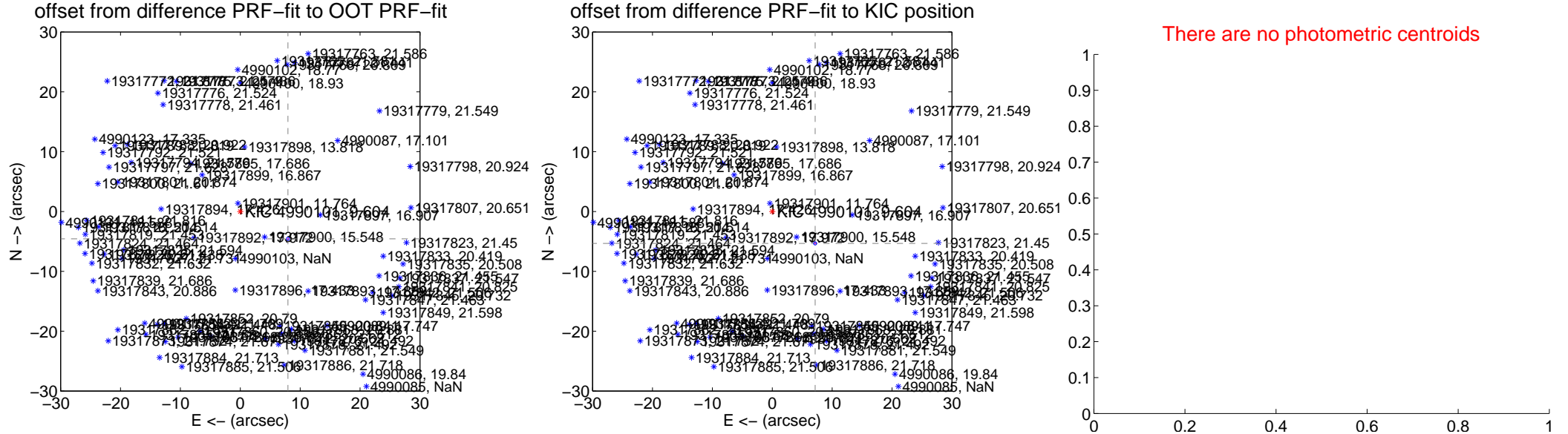
DV Centroid Data

Supplemental centroid analysis for 004990101-02. **Kepler magnitude: 9.60.** Transit SNR 0.02

There are 0 quarters with good PRF difference image offsets

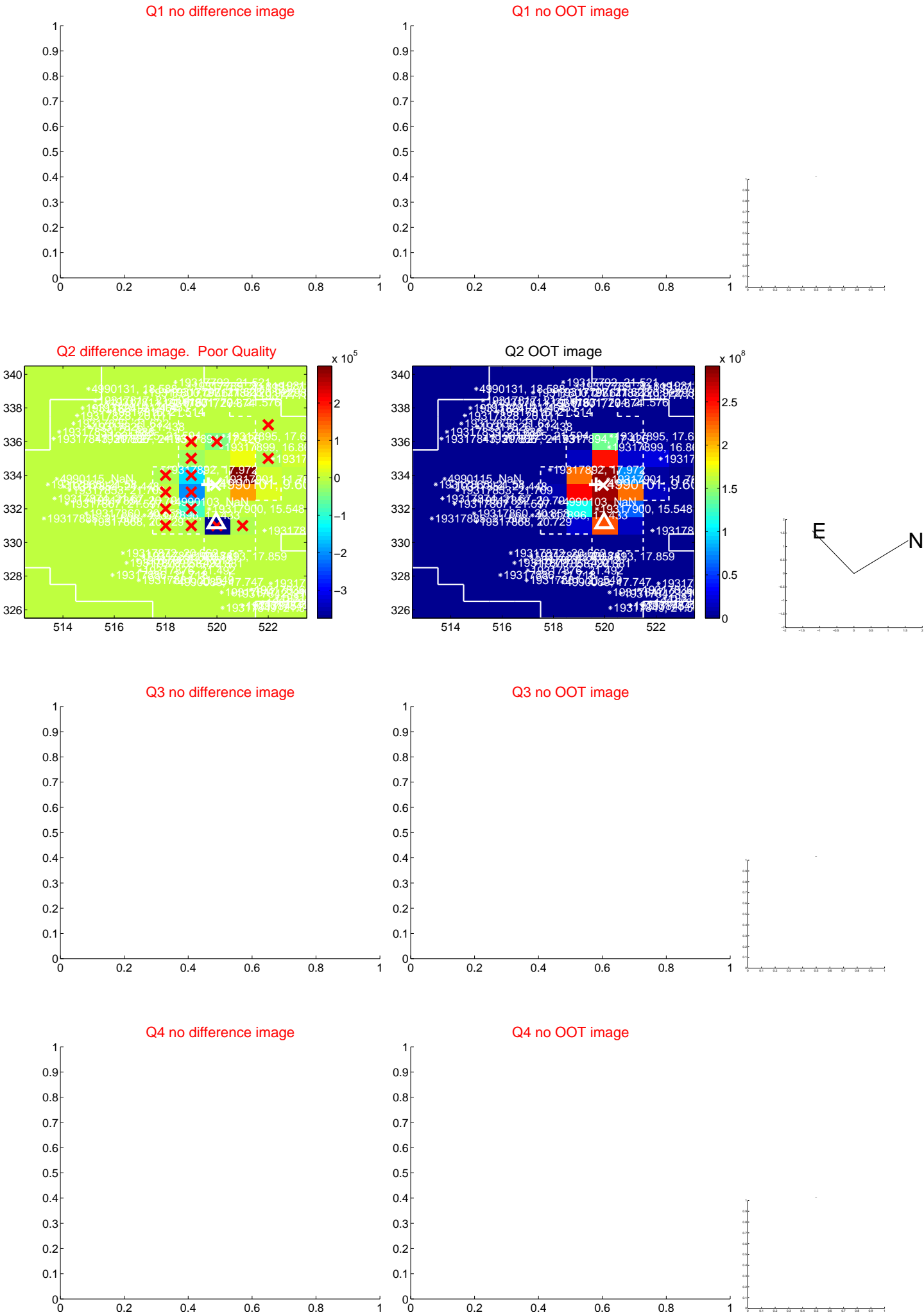
The direct PRF centroid is offset from the target star catalog position by about 1.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.174 ± 0.086	106.31	-7.958 ± 0.087	-4.564 ± 0.084
PRF-fit source offset from KIC position	8.929 ± 0.086	103.79	-7.159 ± 0.087	-5.336 ± 0.084
photometric centroid source offset	—	—	—	—

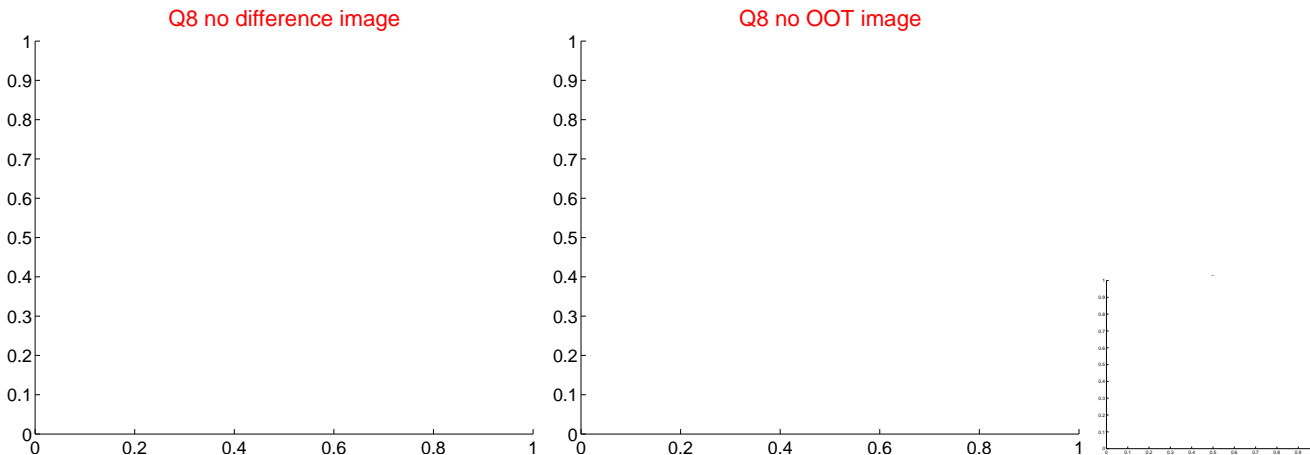
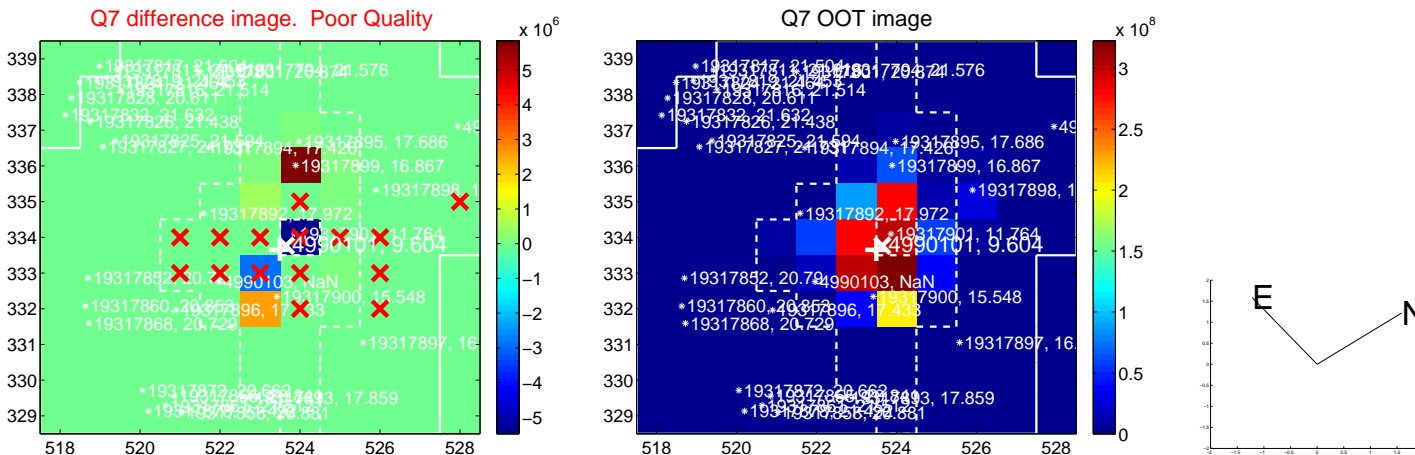
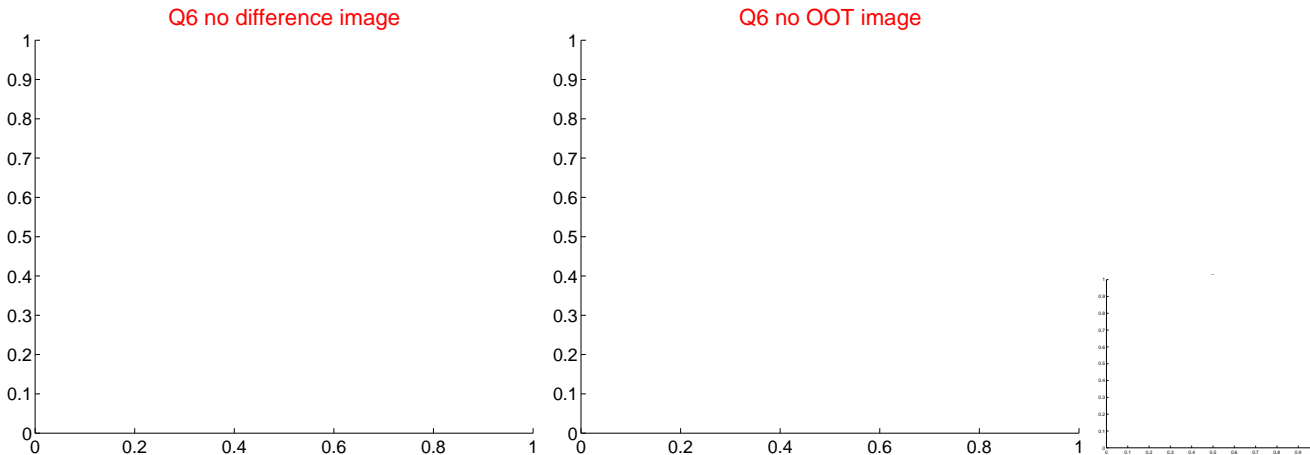
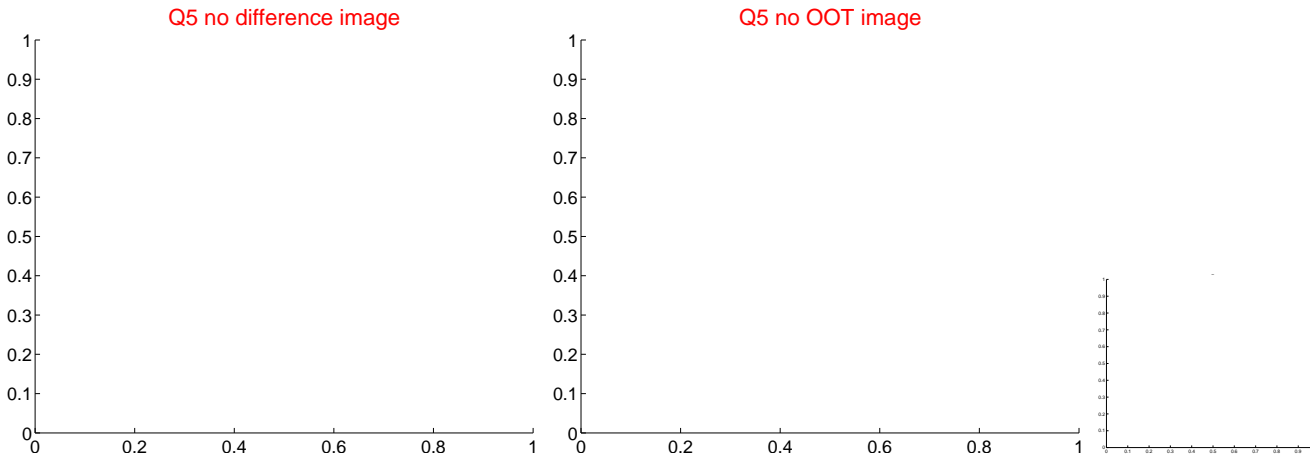


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



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



folded centroid time series figure for this object.

UKIRT Image

Declination

