

KIC 010990083

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})
010990083-01	OBS	No	317.737510	145.331660	18197.7	9.245	17.2	7.0	3.11	7710	72.54	23.98
010990083-02	OBS	No	295.057462	163.920722	25680.5	6.827	17.5	15.8	3.11	7710	85.50	26.47
010990083-03	OBS	No	500.402715	276.428611	25676.4	6.388	18.1	14.4	3.11	7710	85.53	13.09
010990083-04	OBS	No	427.054593	491.345985	748.3	3.500	17.0	-1.0	3.11	7710	8.62	16.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010990083-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010990083-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010990083-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
010990083-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

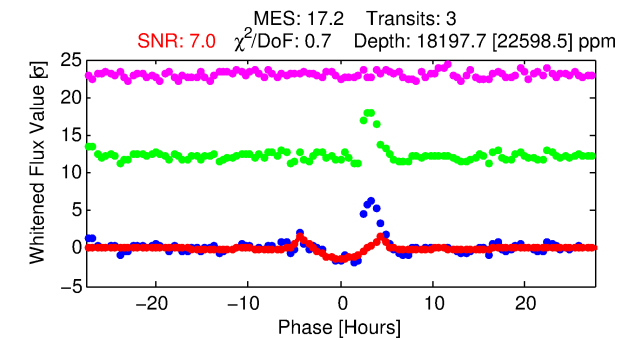
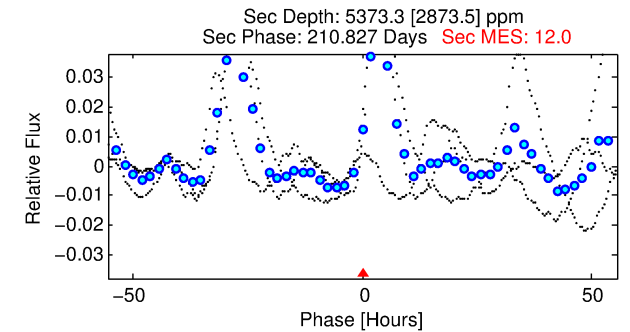
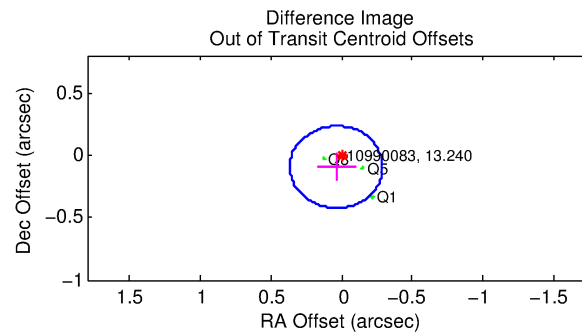
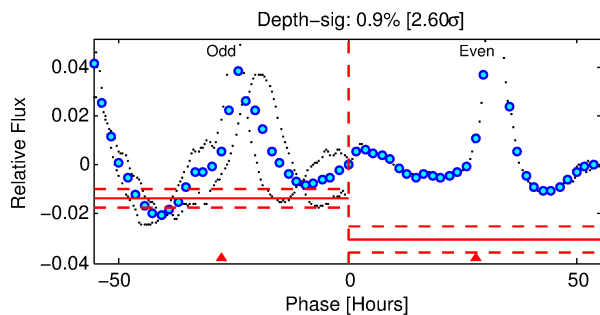
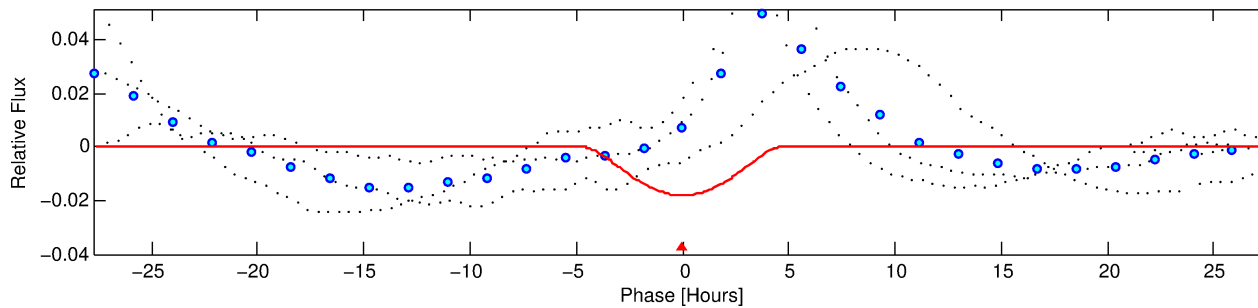
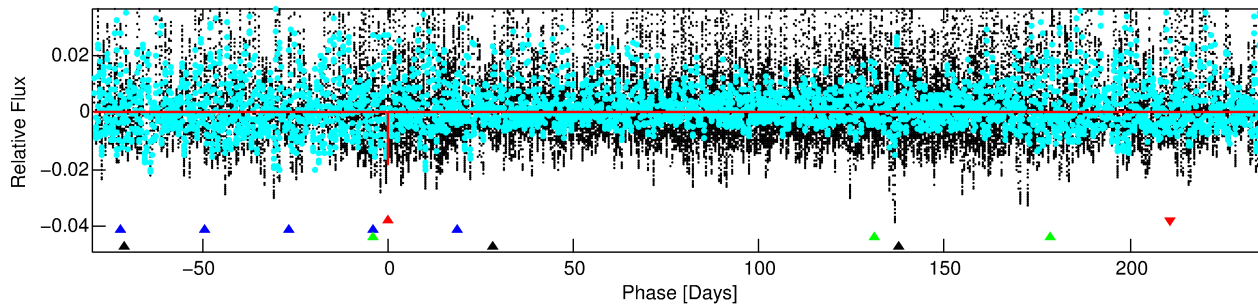
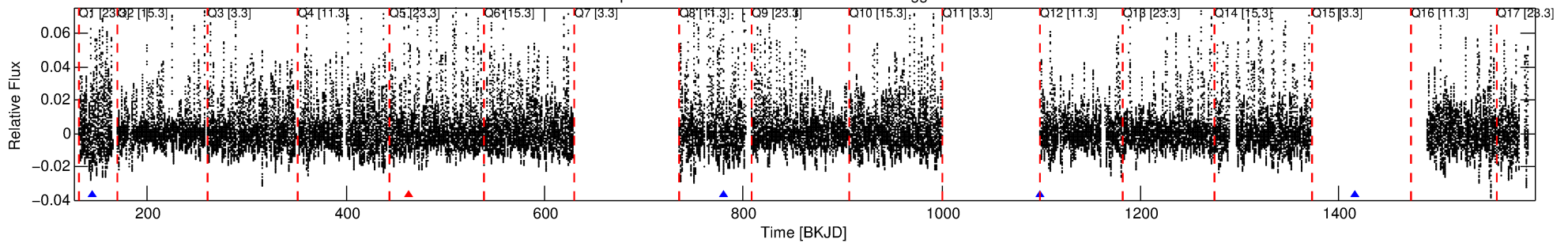
Ephemeris Match Information For 010990083-01

No Significant Match Found

DV One-Page Summary

KIC: 10990083 Candidate: 1 of 4 Period: 317.738 d

Kp: 13.24 R*: 3.11 Rs Teff: 7710.0 K Logg: 3.73 Fe/H: -0.040



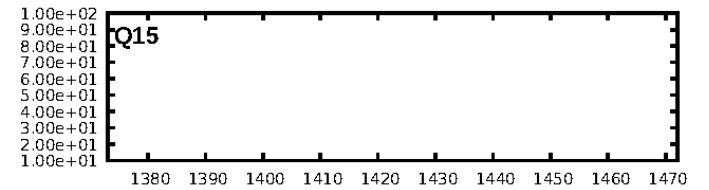
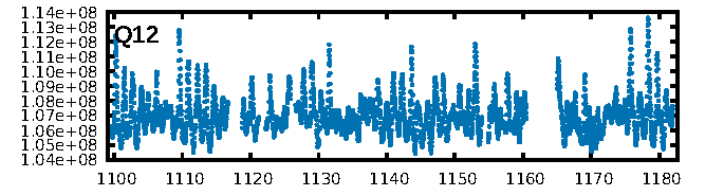
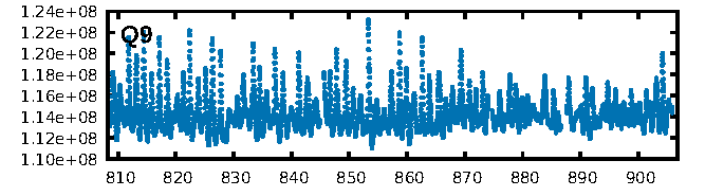
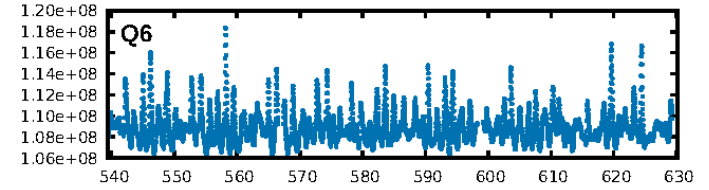
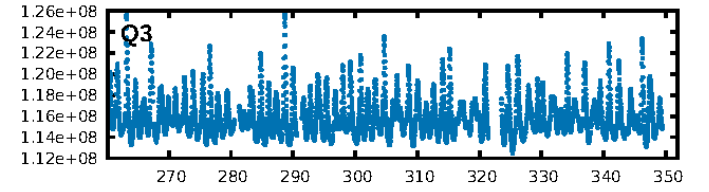
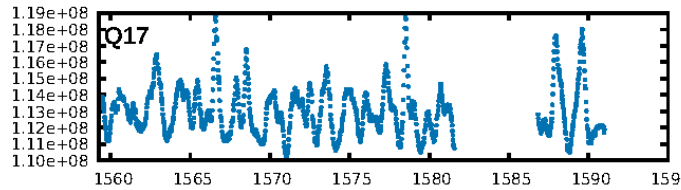
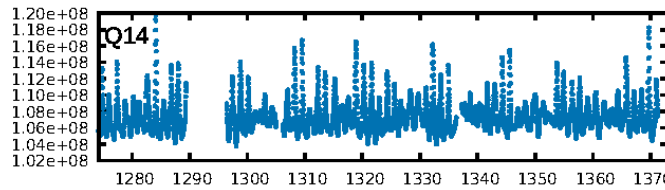
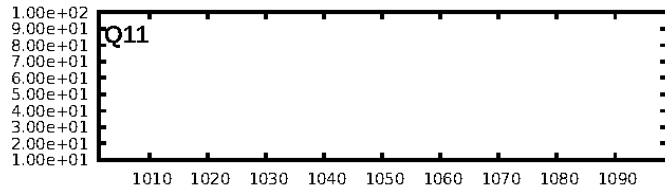
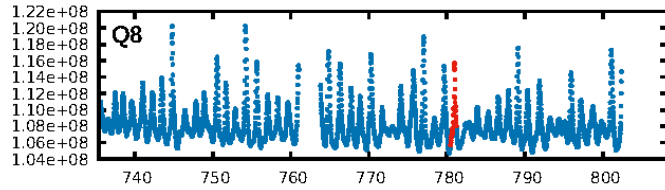
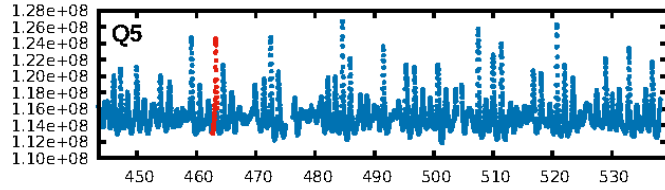
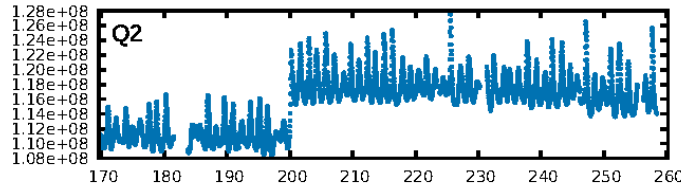
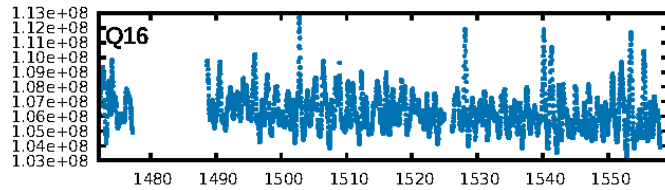
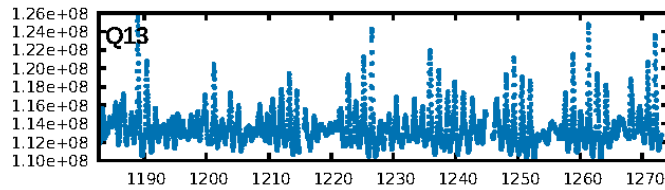
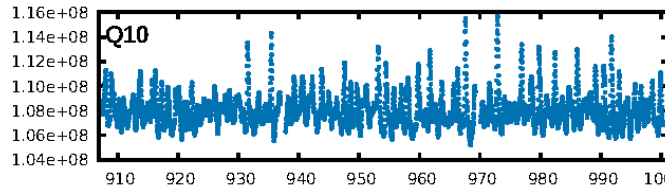
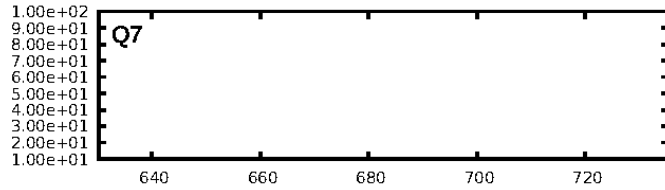
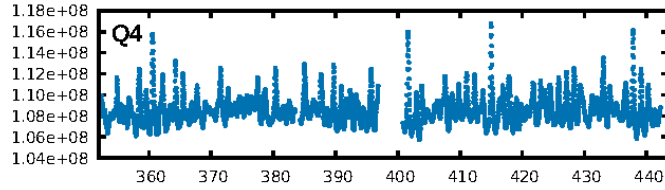
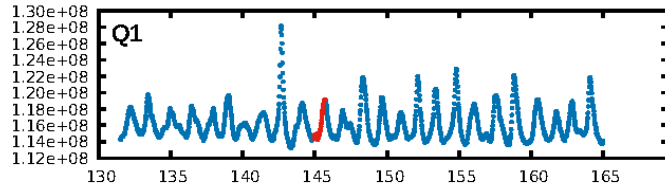
DV Fit Results:

Period = 317.73751 [0.00672] d
Epoch = 145.3317 [0.0089] BKJD
Rp/R* = 0.2135 [0.2598]
a/R* = 180.48 [23.28]
b = 1.00 [0.54]
Seff = 23.98 [17.25]
Teq = 564 [101] K
Rp = 72.54 [94.28] Re
a = 1.1314 [0.4941] AU
Ag = 719.07 [1860.38] [0.39σ]
Teffp = 4518 [2822] K [1.40σ]

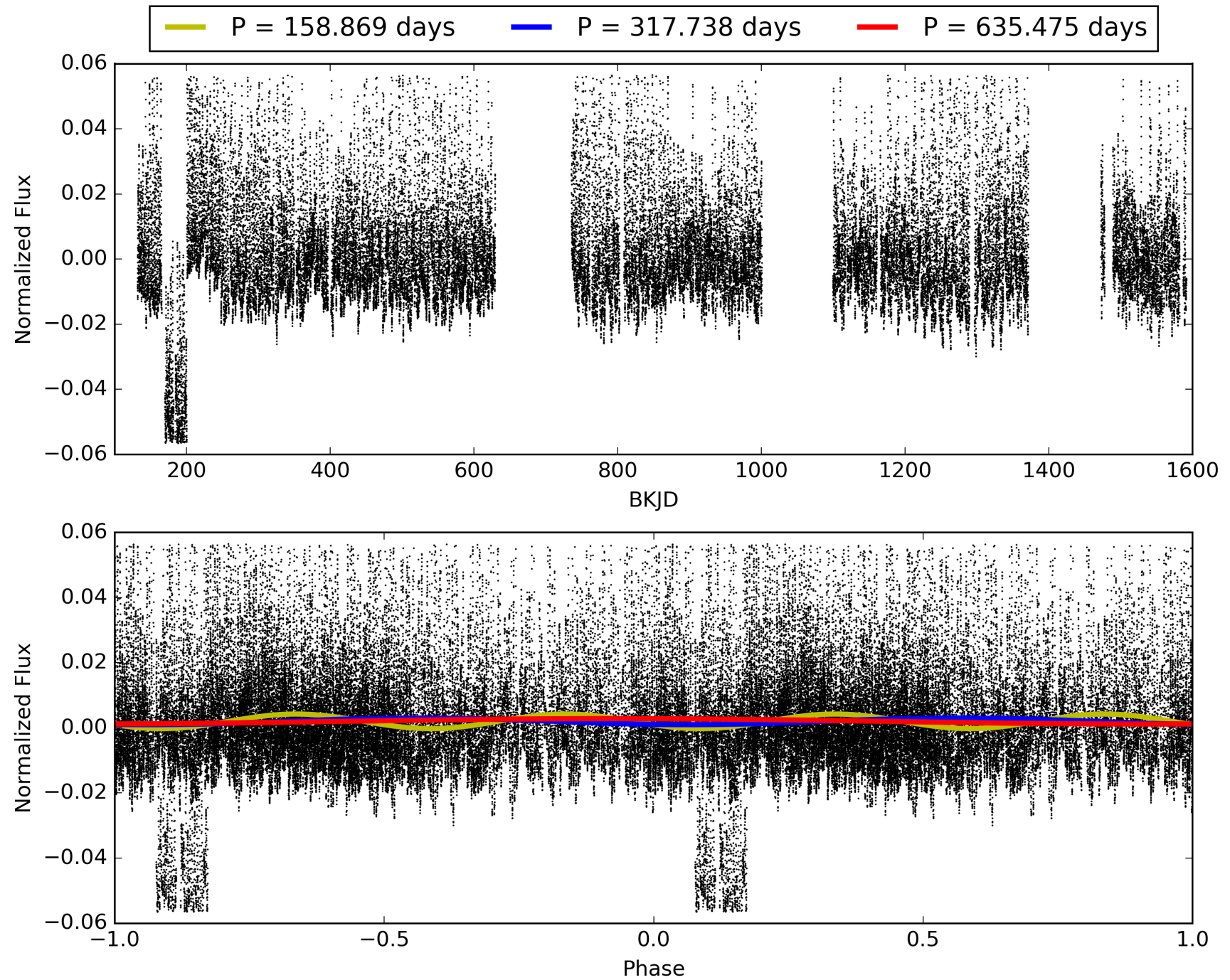
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.36σ]
LongPeriod-sig: 100.0% [265.40σ]
ModelChiSquare2-sig: 2.2%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.50 [1/2]
GhostDiagnostic-chr: -25.25
Centroid-sig: 11.5%
Centroid-so: 0.339 arcsec [2.76σ]
OotOffset-rm: 0.102 arcsec [0.93σ]
KicOffset-rm: 0.159 arcsec [1.56σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 010990083-01, PDC Light Curves

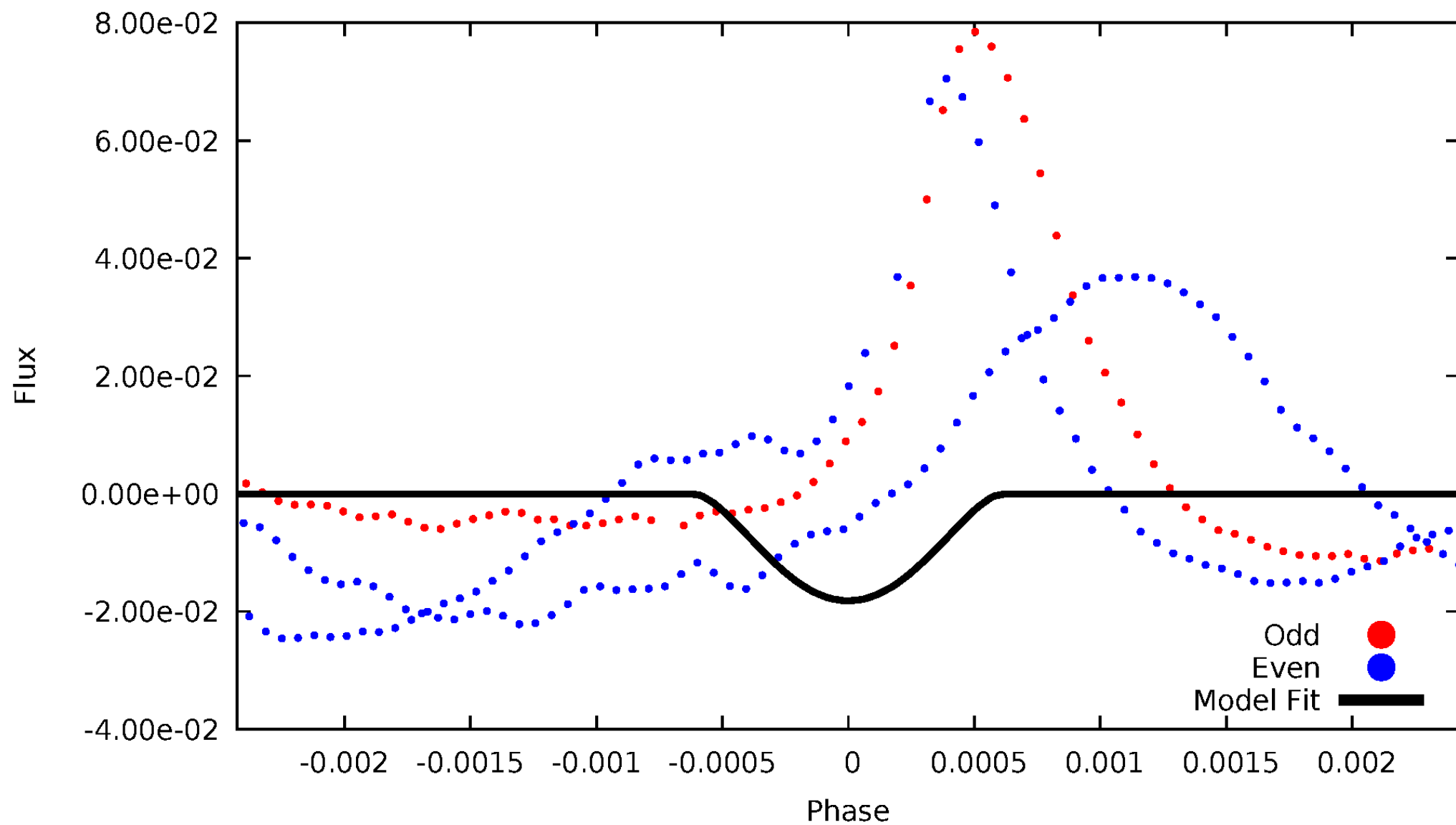


TCE 010990083-01



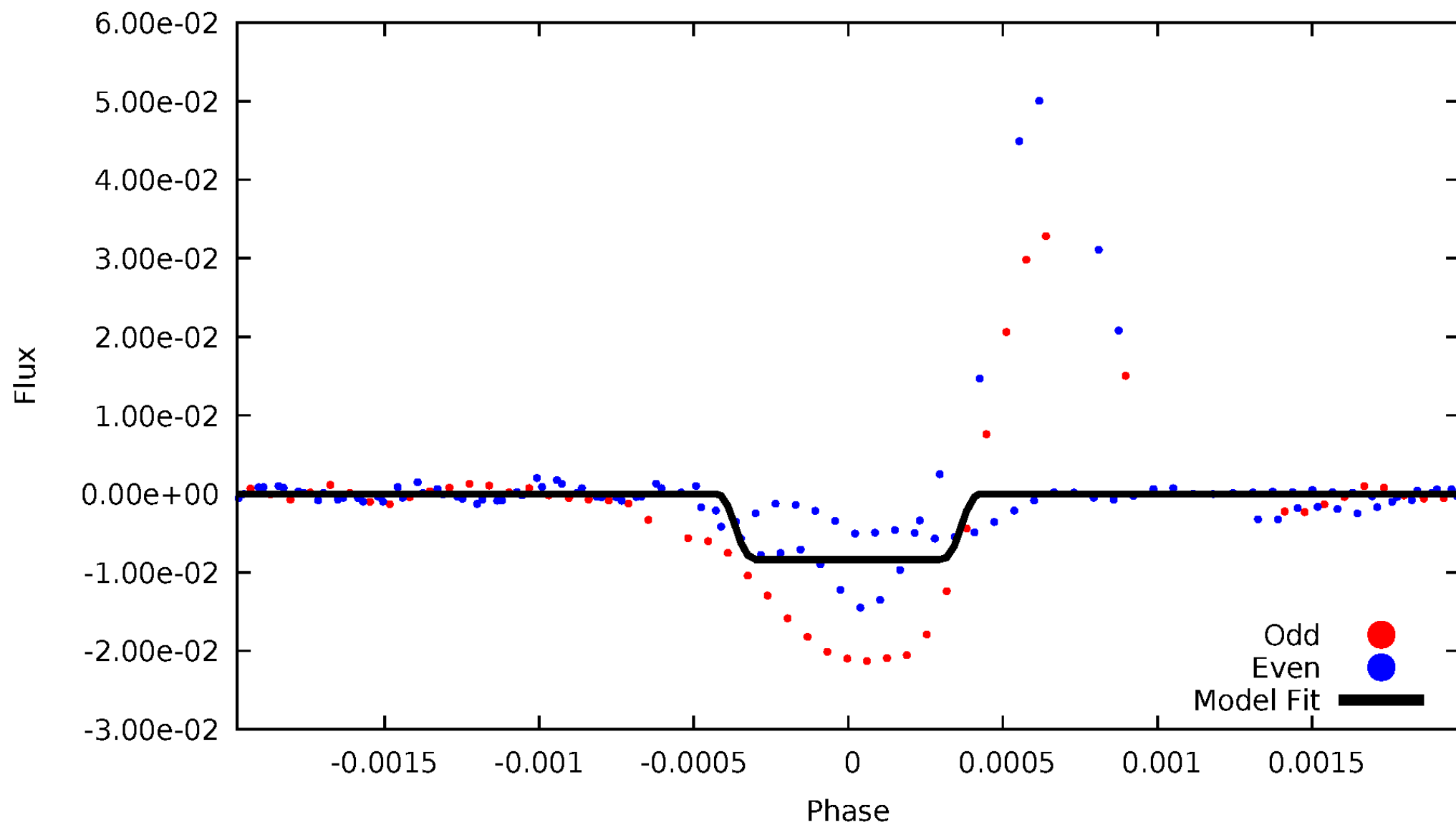
DV Odd/Even

TCE 010990083-01



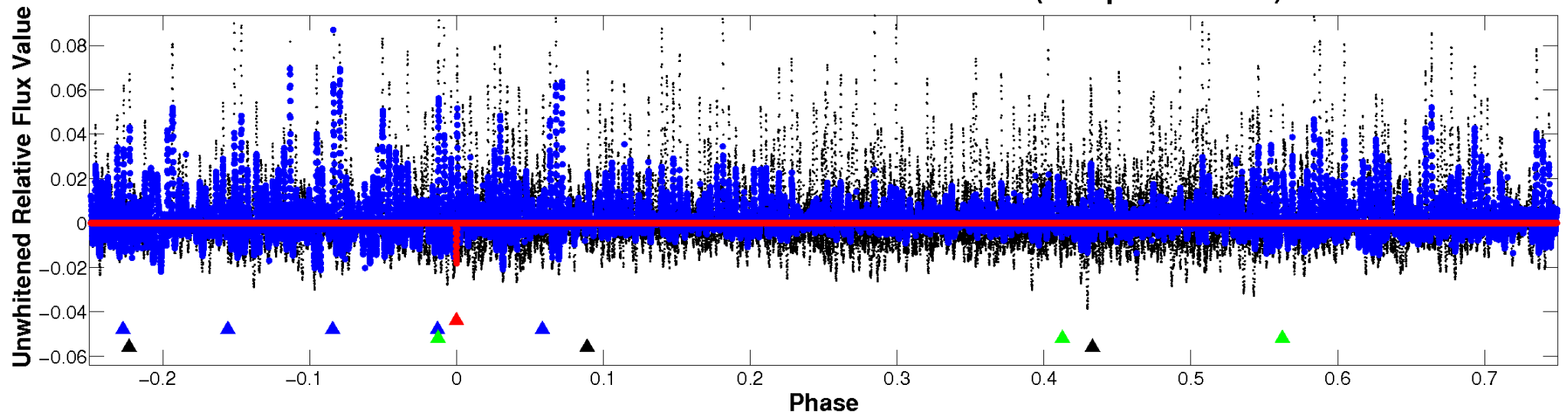
ALT Odd/Even

TCE 010990083-01

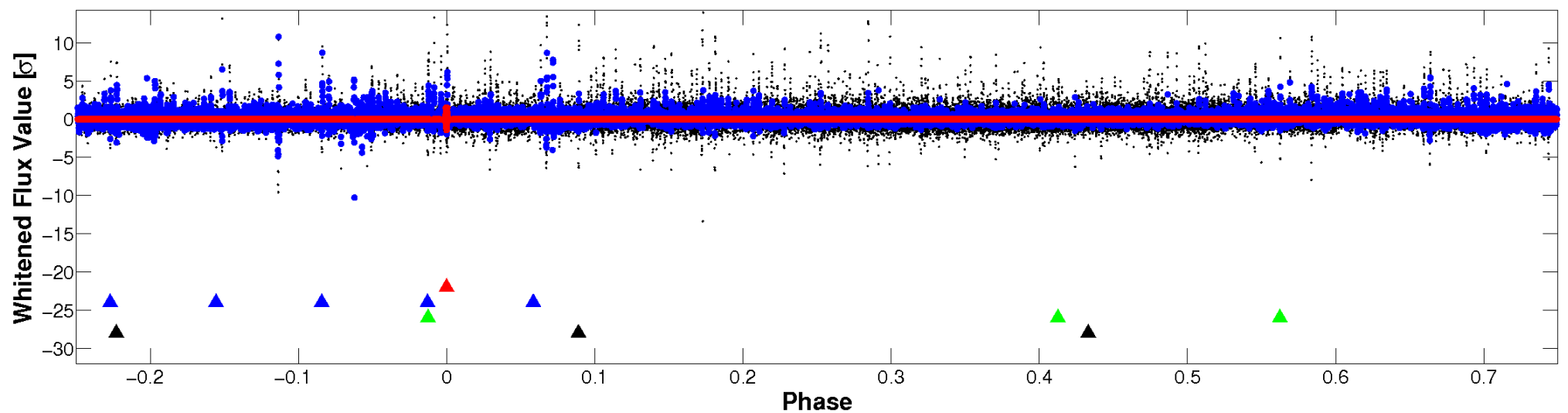


Non-Whitened Vs. Whitened Light Curve

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

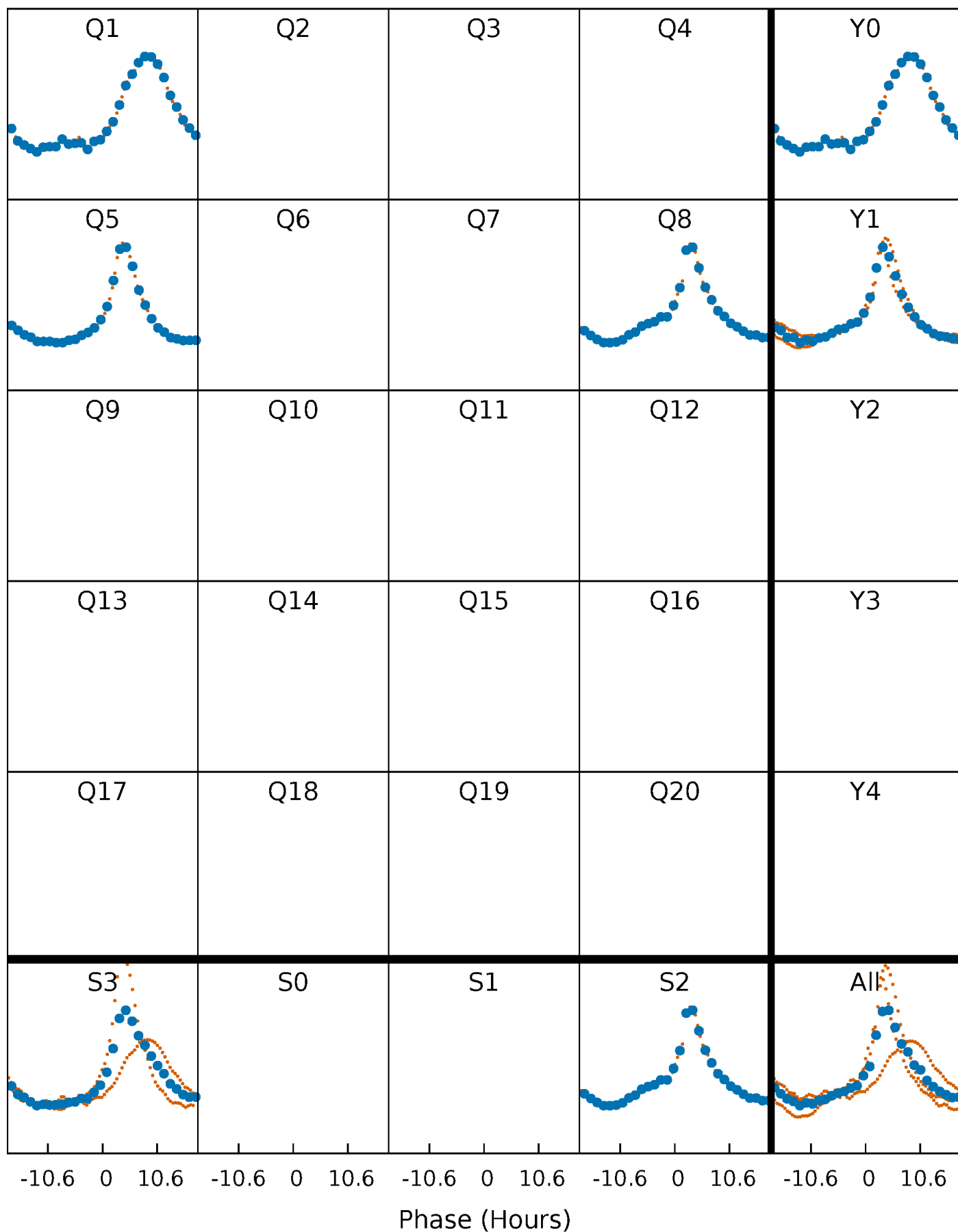


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



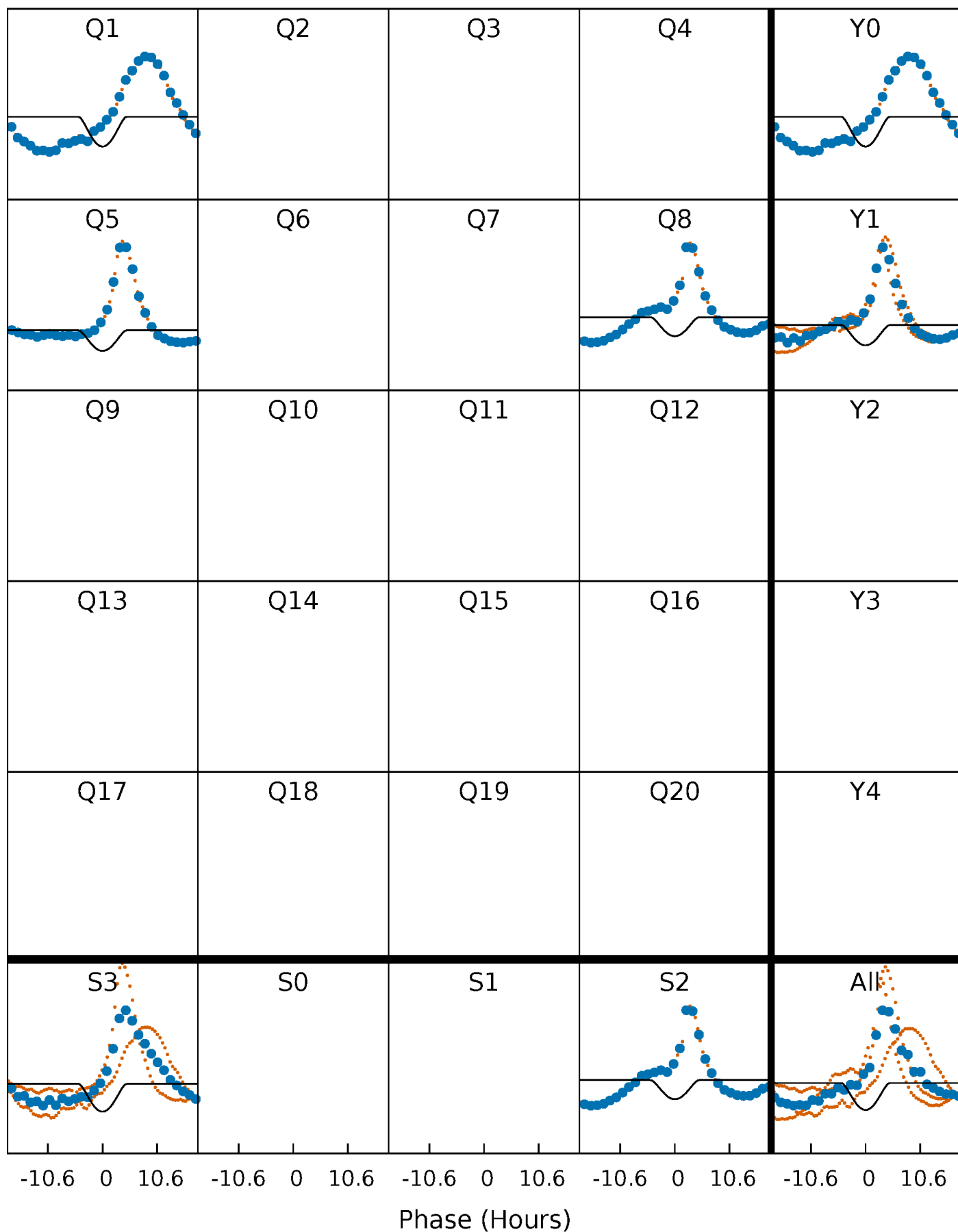
PDC Quarter-Phased Transit Curves

TCE 010990083-01 P=317.737510 Days $T_0=145.331660$ (BKJD)



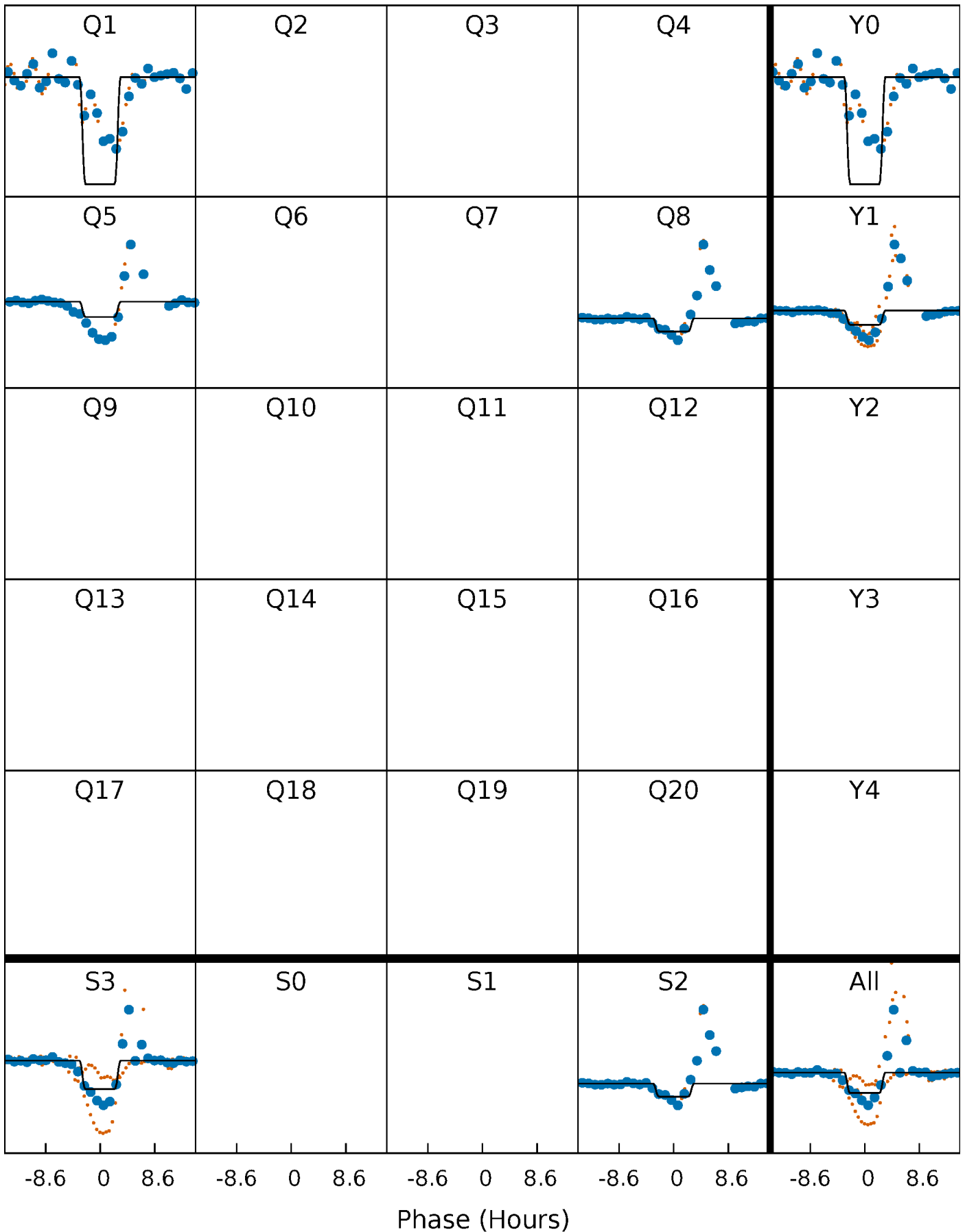
DV Quarter-Phased Transit Curves

TCE 010990083-01 $P=317.737510$ Days $T_0=145.331660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

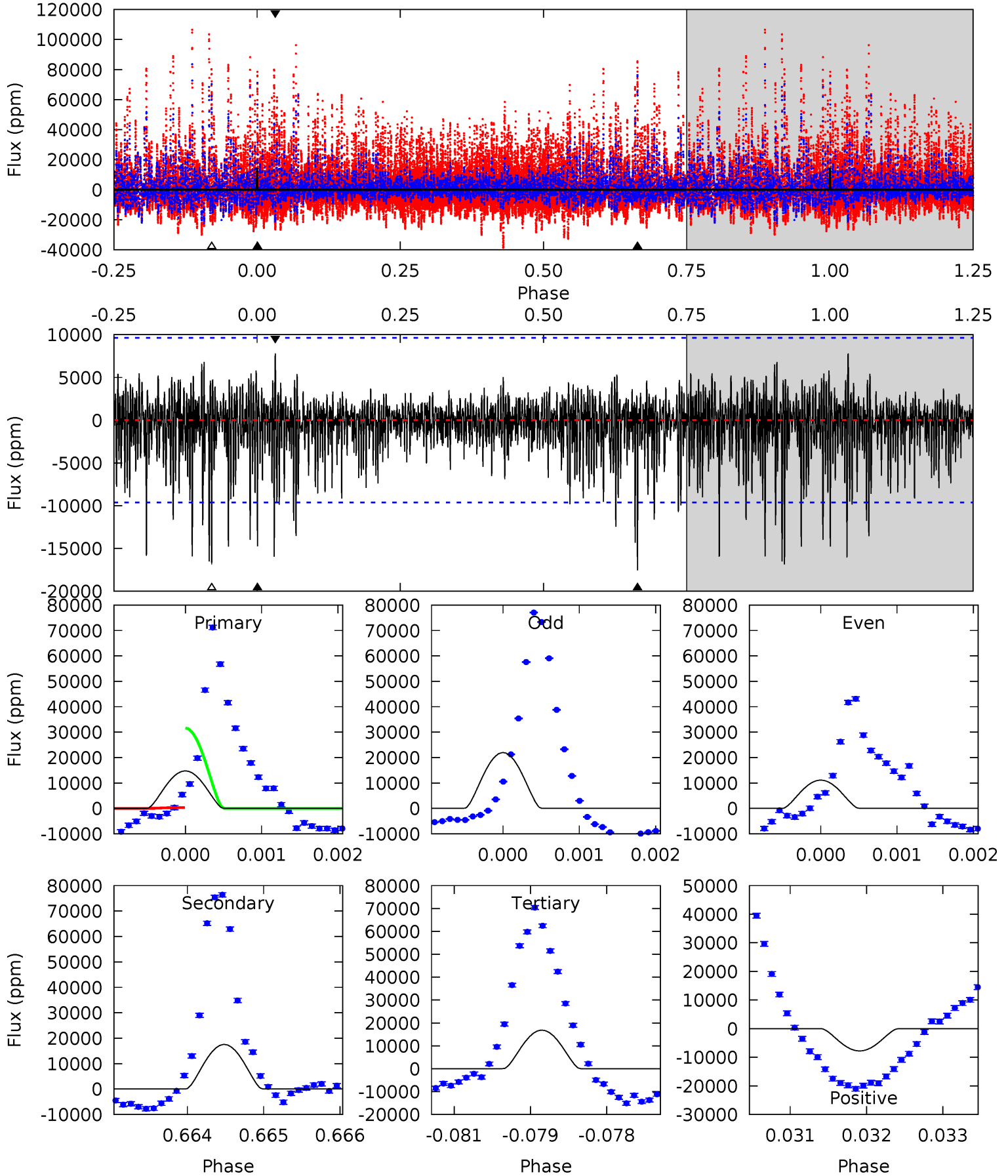
TCE 010990083-01 P=317.707802 Days $T_0=145.318377$ (BKJD)



DV Model-Shift Uniqueness Test

010990083-01, P = 317.737510 Days, E = 145.331660 Days

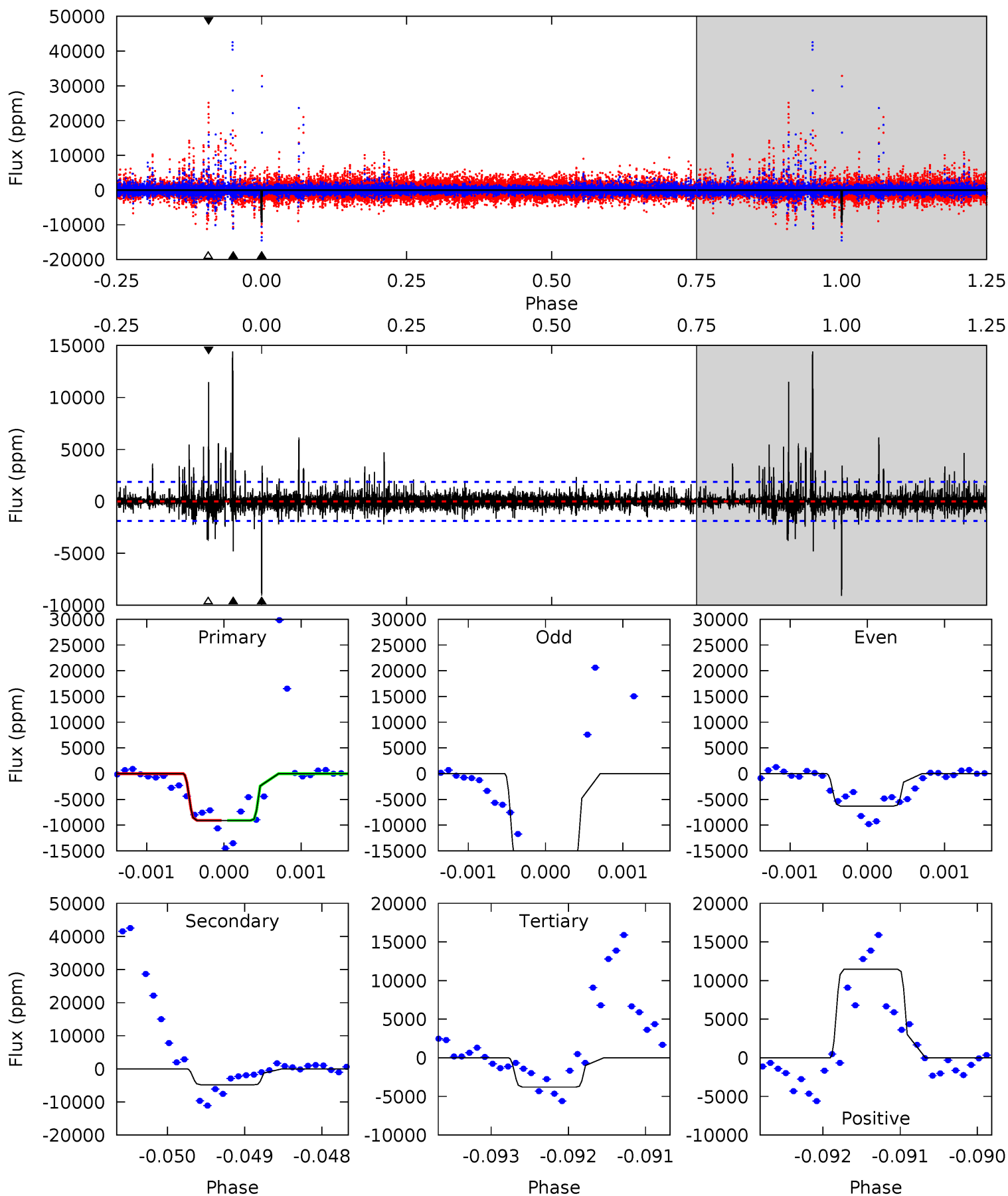
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.30	9.86	9.47	4.38	5.42	3.23	1.51	-1.18	3.92	0.39	5.48	2.74	0.72	0.31	8.61



Alt Model-Shift Uniqueness Test

010990083-01, P = 317.707802 Days, E = 145.318377 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	14.1	11.1	33.6	5.49	3.35	1.76	15.5	-7.02	2.98	-19.5	20.3	1.21	0.61	0



Stellar Parameters For KIC 010990083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7710^{+213}_{-347}	$3.733^{+0.408}_{-0.072}$	$-0.040^{+0.200}_{-0.350}$	$3.114^{+0.444}_{-1.422}$	$1.912^{+0.104}_{-0.415}$	$0.089^{+0.294}_{-0.021}$
	+3%/-5%	+11%/-2%	+500%/-875%	+14%/-46%	+5%/-22%	+330%/-24%
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 010990083-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17529 ± 1777	$83.66^{+65.67}_{-51.36}$	762^{+48}_{-91}	5271^{+3348}_{-1133}	1704^{+9798}_{-1152}
Alt.	-4807 ± 342	$62.98^{+70.88}_{-43.57}$	756^{+56}_{-84}	4492^{+3367}_{-991}	814^{+7941}_{-626}

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

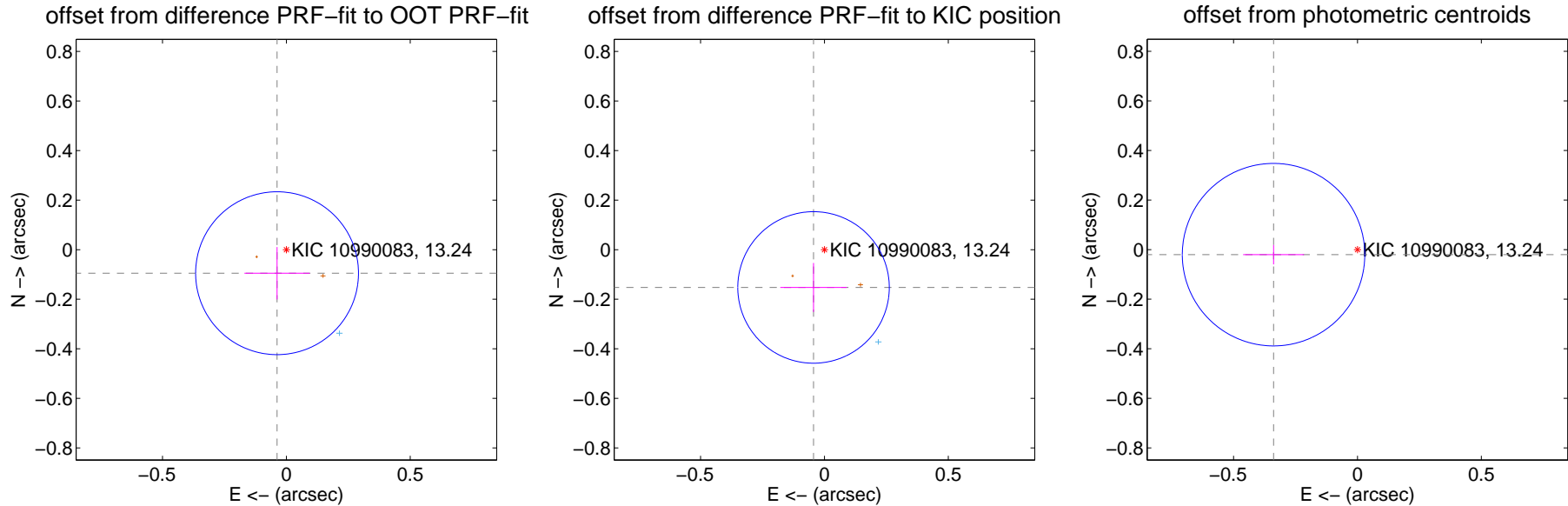
DV Centroid Data

Supplemental centroid analysis for 010990083-01. Kepler magnitude: 13.24. Transit SNR 6.98

There are 1 quarters with good PRF difference image offsets

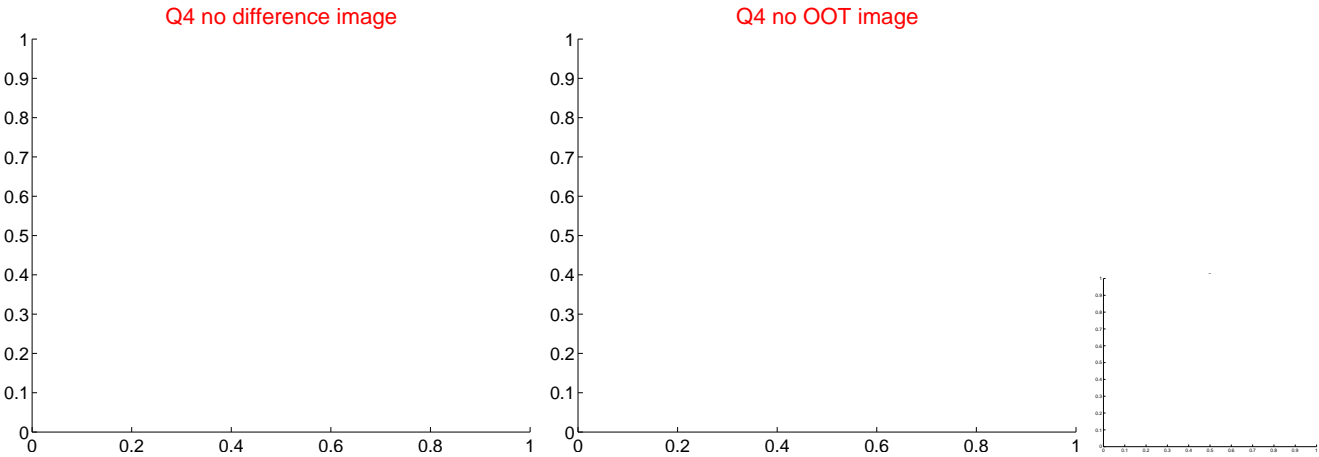
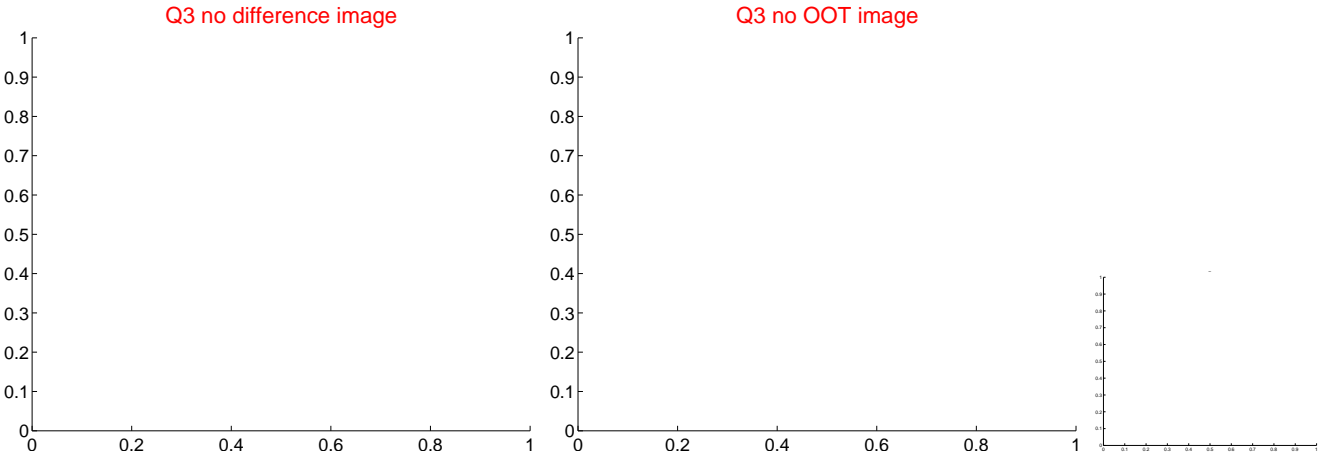
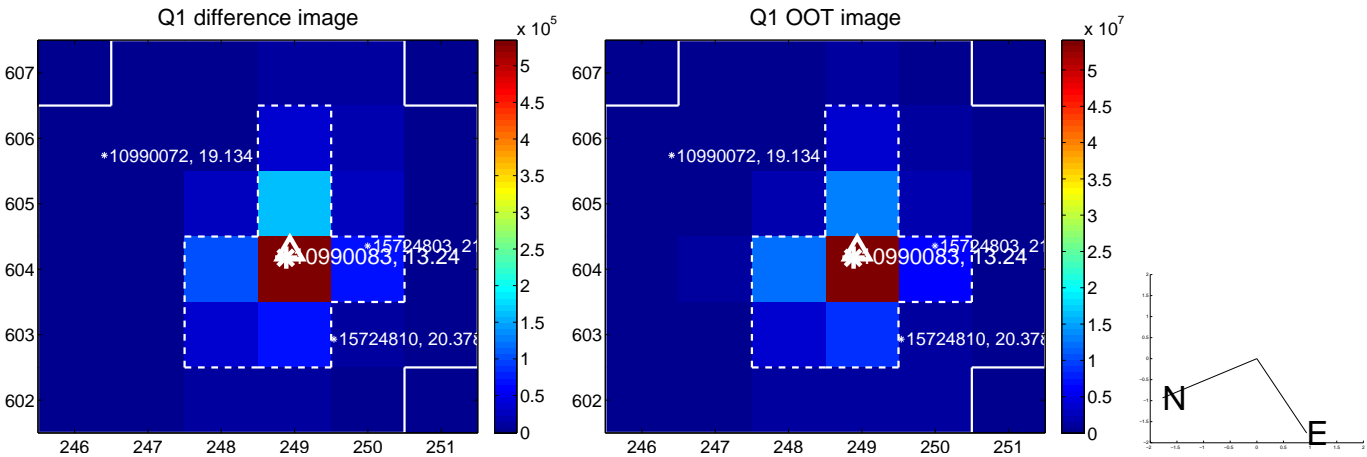
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.102 ± 0.110	0.93	0.038 ± 0.132	-0.095 ± 0.106
PRF-fit source offset from KIC position	0.159 ± 0.102	1.56	0.044 ± 0.134	-0.152 ± 0.099
photometric centroid source offset	0.34 ± 0.12	2.76	0.34 ± 0.12	-0.02 ± 0.04

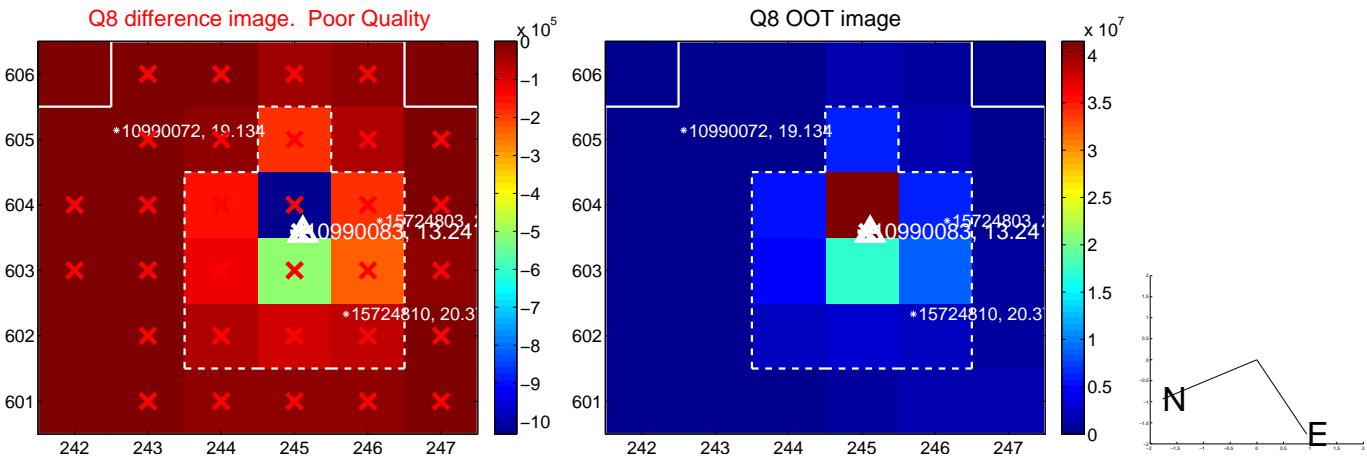
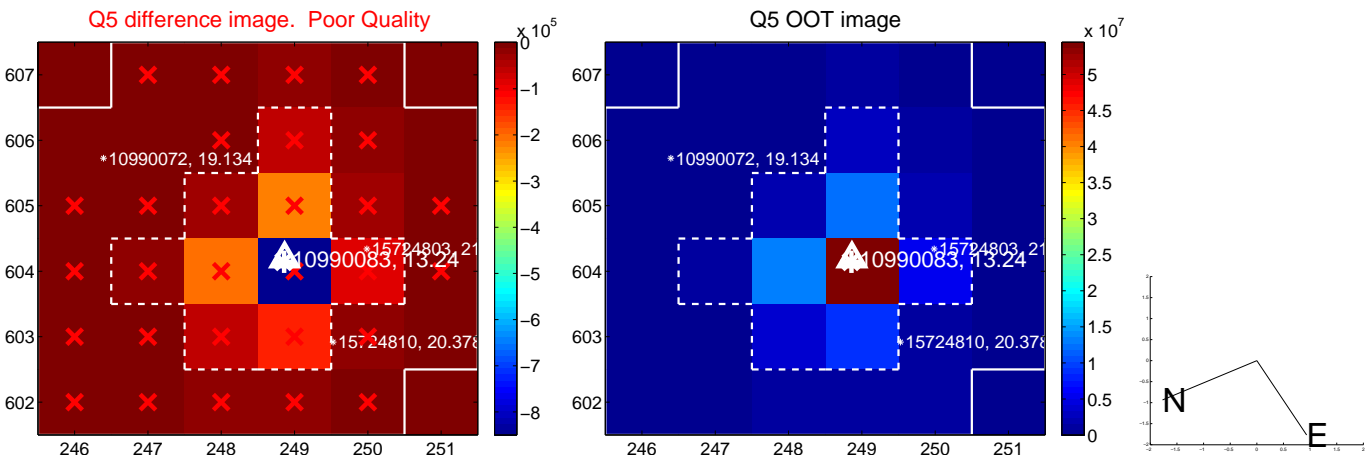


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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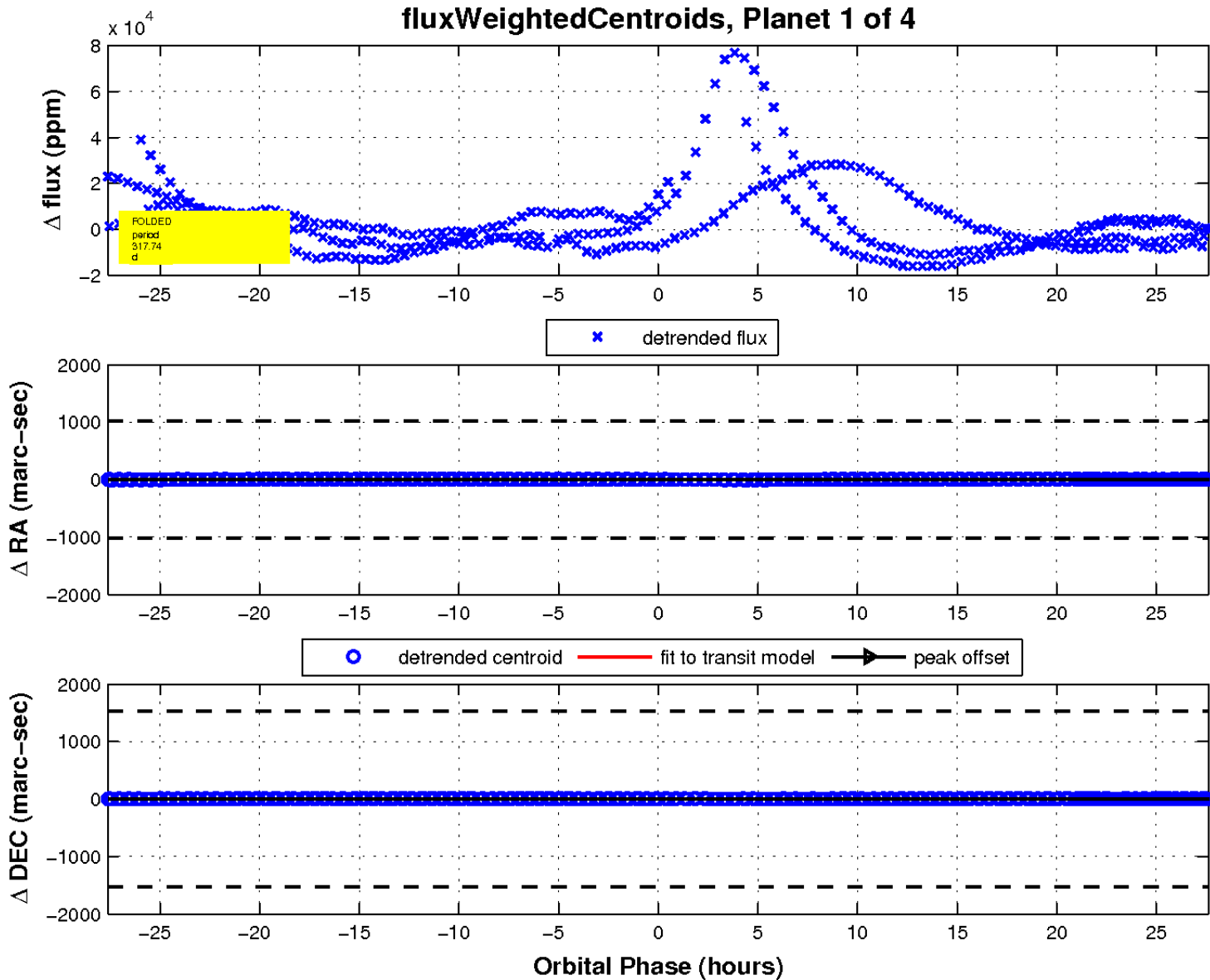
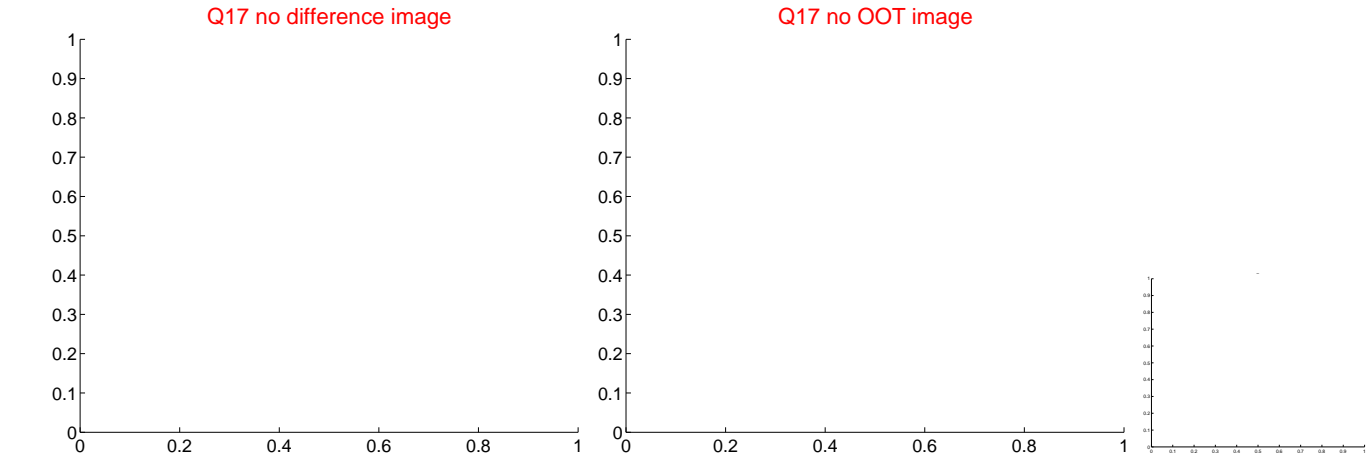
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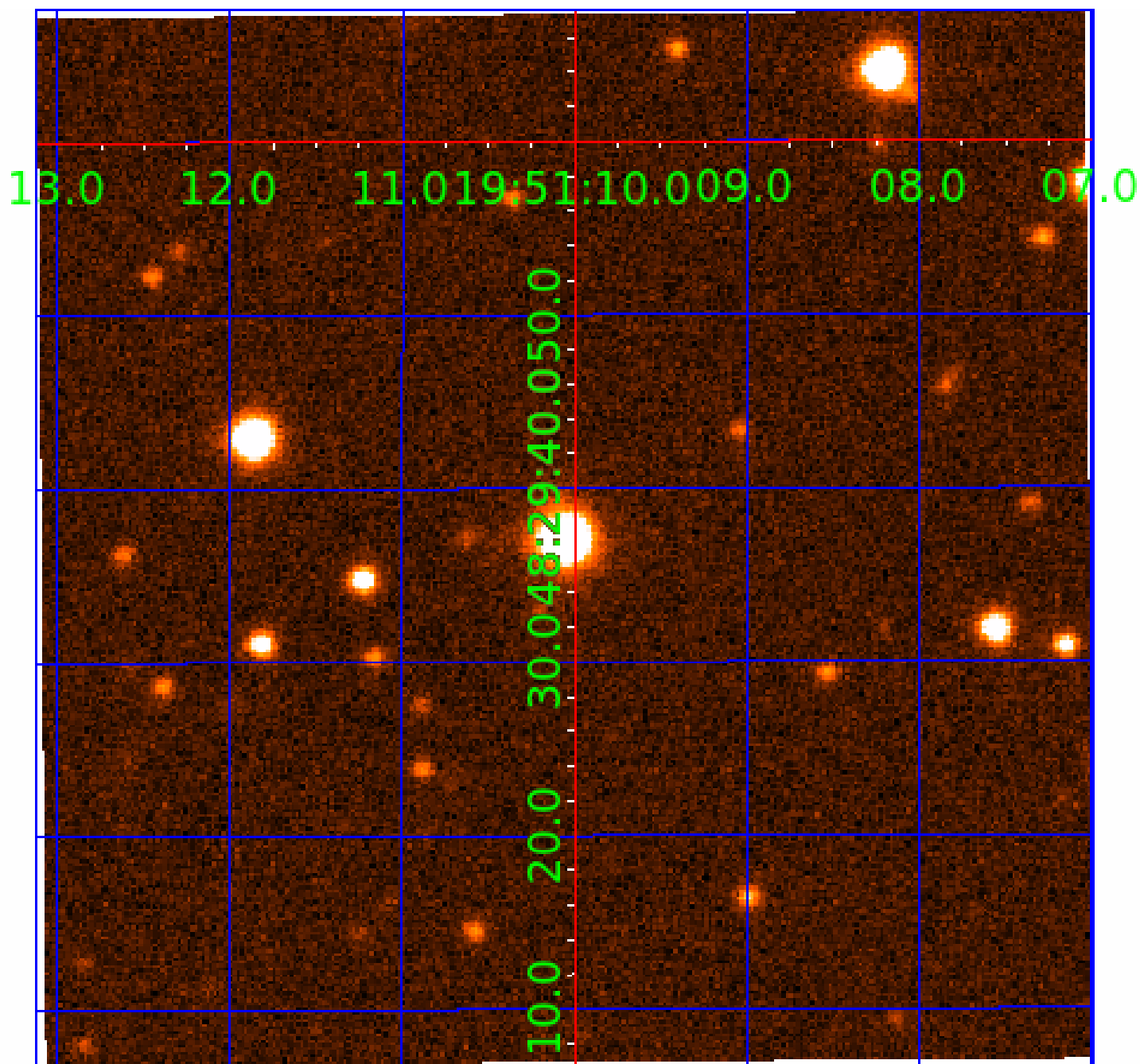


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



UKIRT Image

Declination



KIC 010990083

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})
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010990083-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

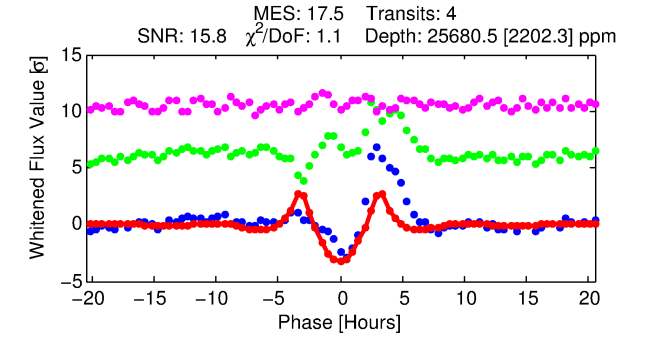
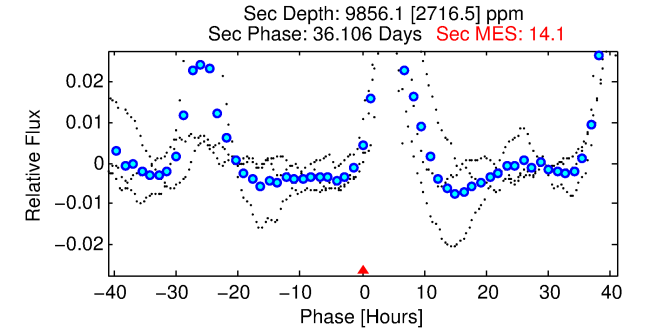
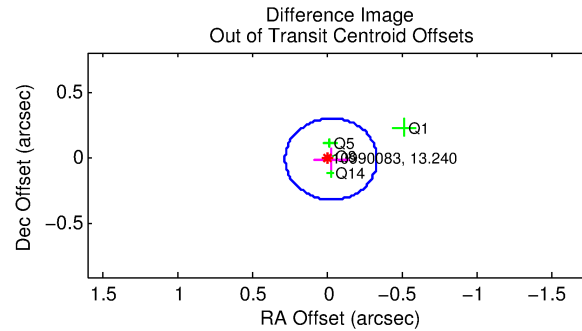
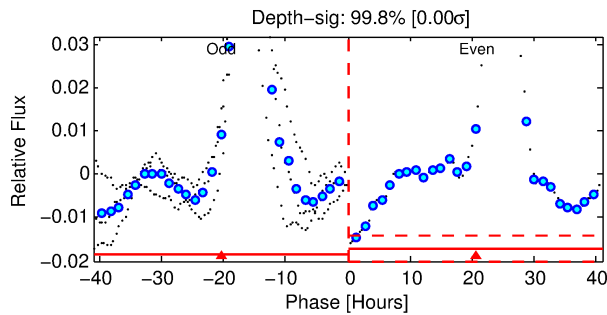
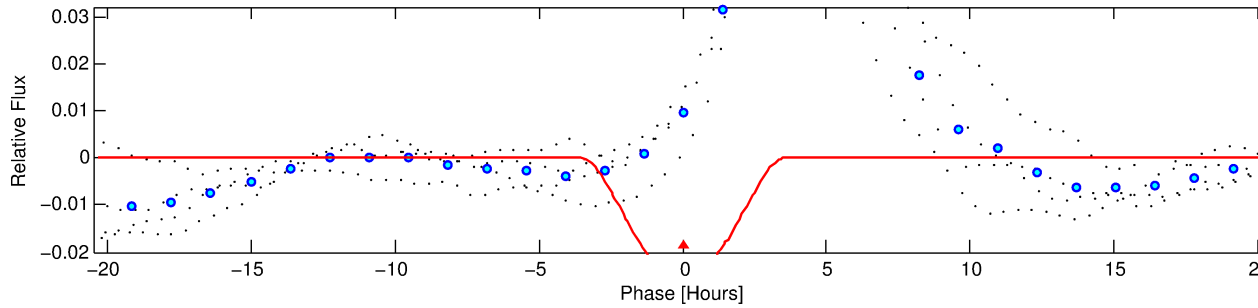
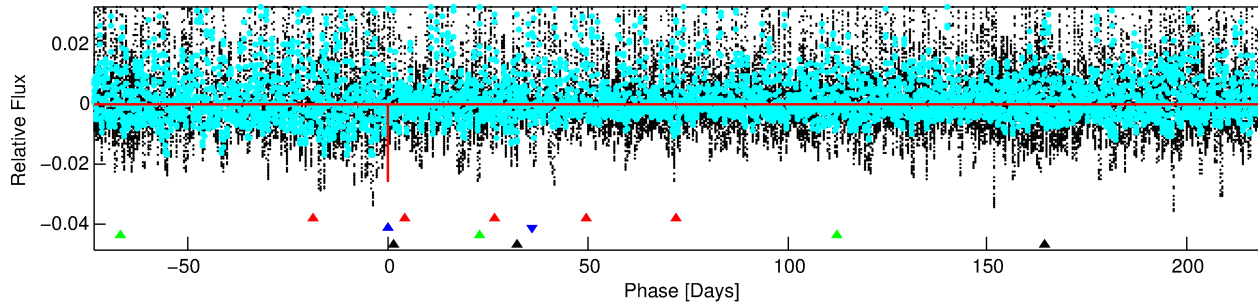
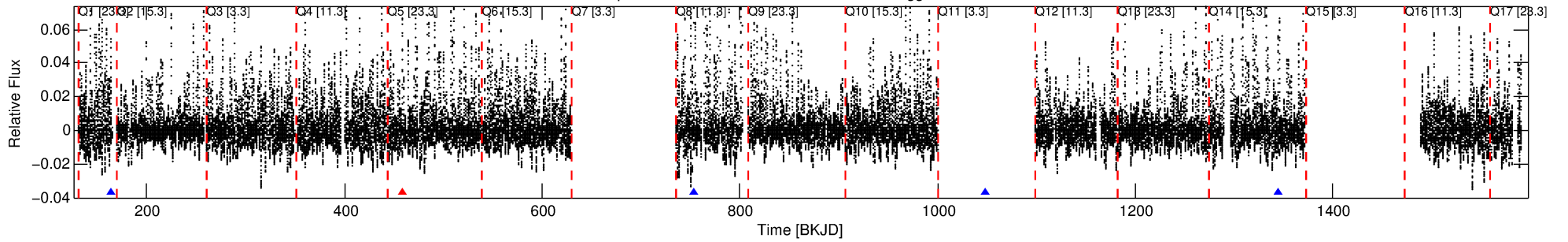
Ephemeris Match Information For 010990083-02

No Significant Match Found

DV One-Page Summary

KIC: 10990083 Candidate: 2 of 4 Period: 295.057 d

Kp: 13.24 R*: 3.11 Rs Teff: 7710.0 K Logg: 3.73 Fe/H: -0.040



DV Fit Results:

Period = 295.05746 [0.00201] d
Epoch = 163.9207 [0.0042] BKJD
Rp/R* = 0.2516 [0.2527]
a/R* = 248.73 [21.15]
b = 1.00 [0.34]
Seff = 26.47 [19.04]
Teq = 578 [104] K
Rp = 85.50 [94.34] Re
a = 1.0769 [0.4703] AU
Ag = 860.25 [1844.32] [0.47σ]
Teffp = 4843 [2465] K [1.73σ]

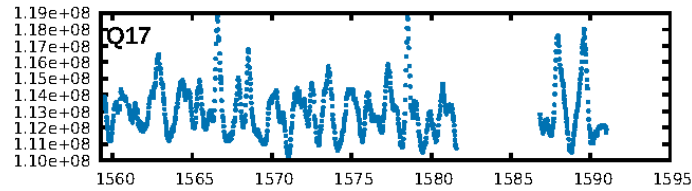
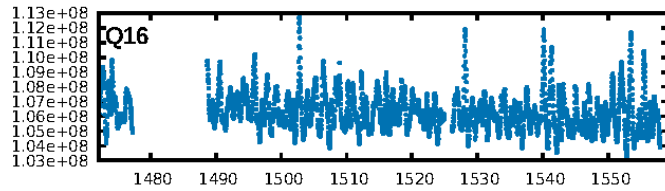
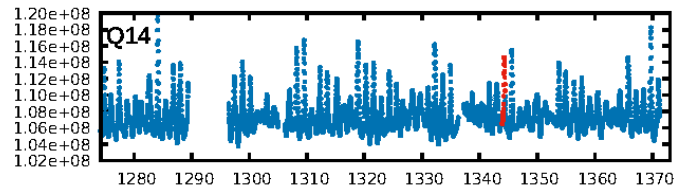
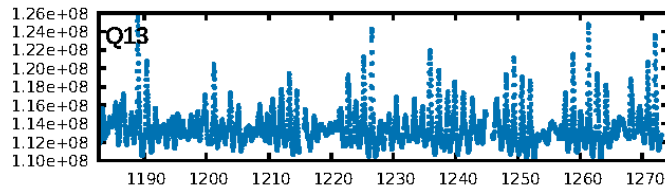
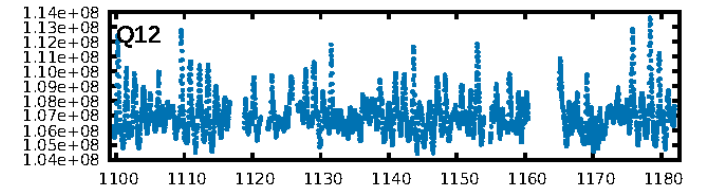
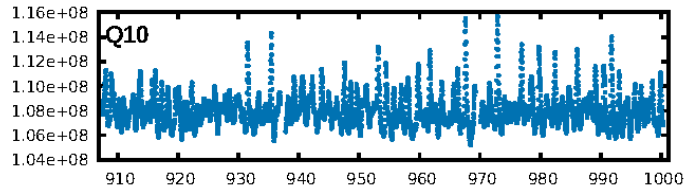
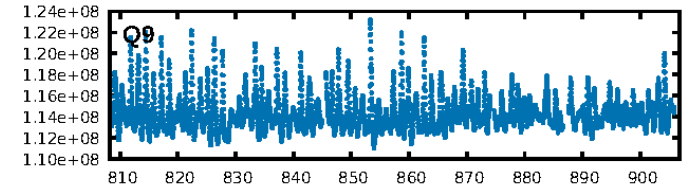
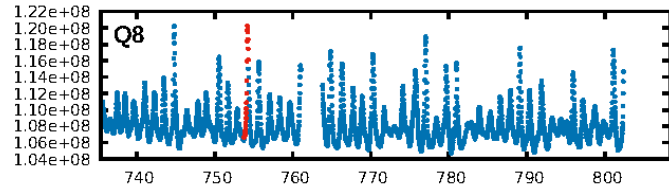
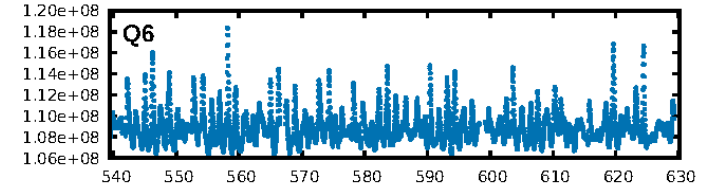
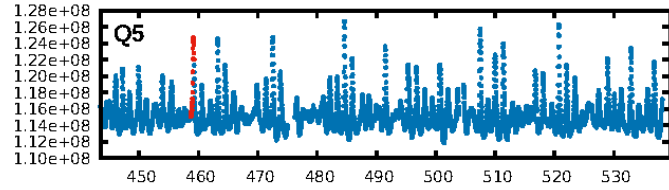
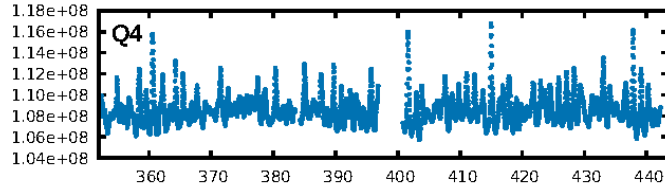
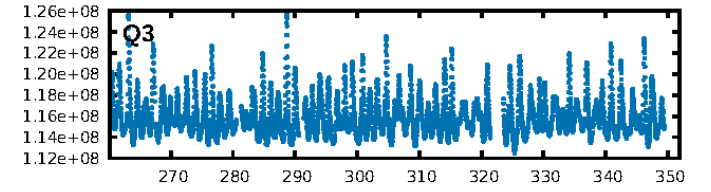
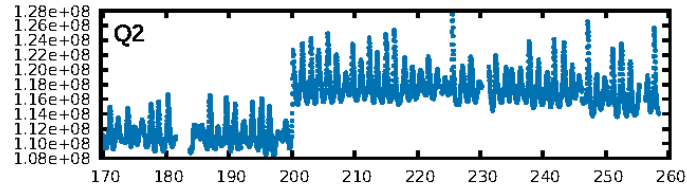
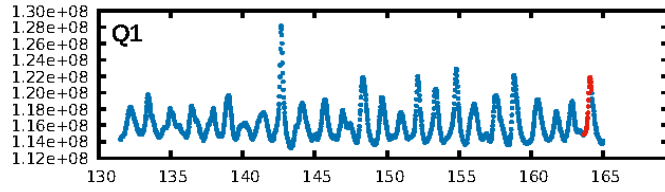
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [47.36σ]
ModelChiSquare2-sig: 42.4%
ModelChiSquareGof-sig: 66.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 1.016
Centroid-sig: 51.7%
Centroid-so: 0.123 arcsec [2.00σ]
OotOffset-rm: 0.031 arcsec [0.30σ]
KicOffset-rm: 0.099 arcsec [1.03σ]
OotOffset-st: 1/0/1/2 [4]
KicOffset-st: 1/0/1/2 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [4/4]

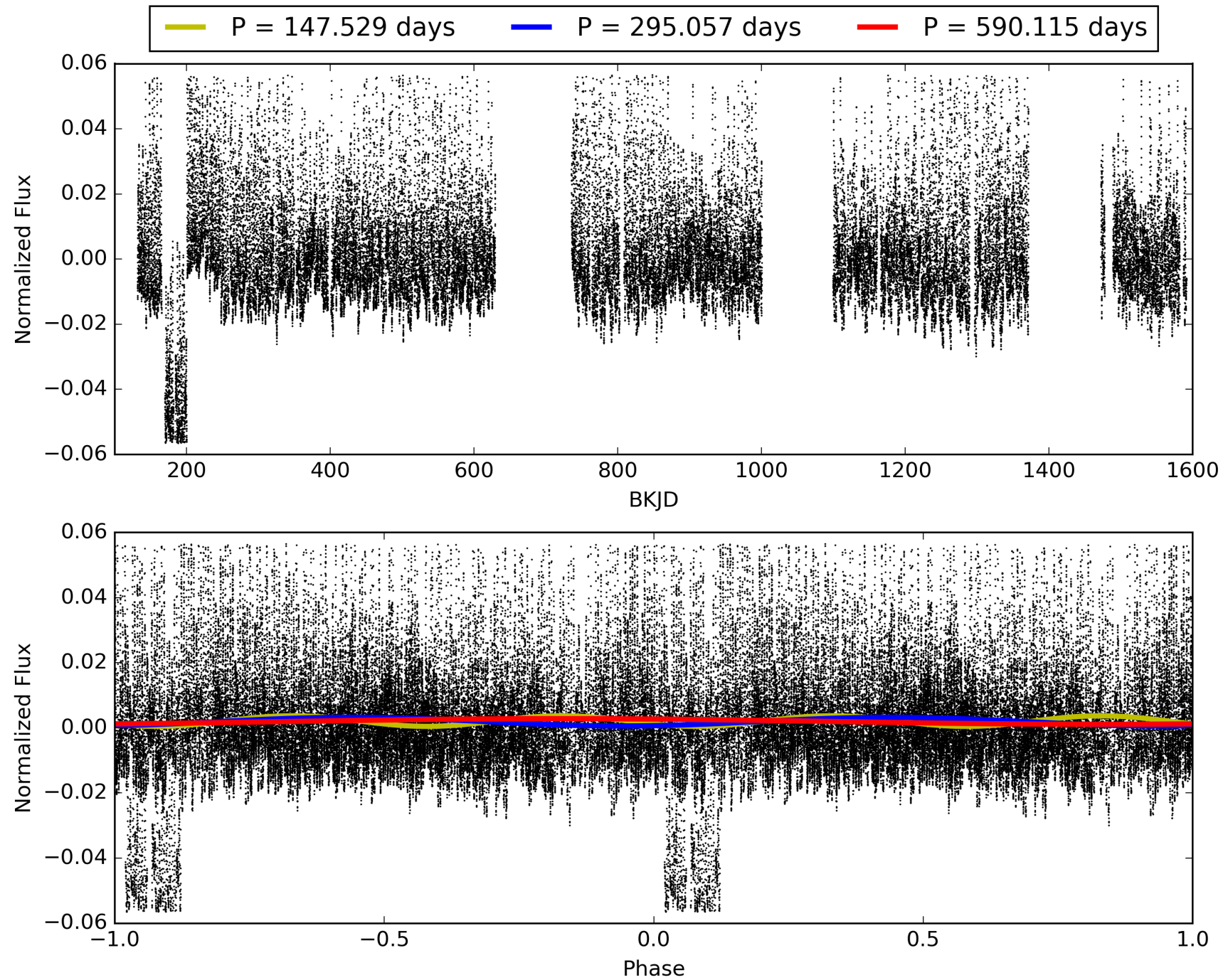
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:12:18 Z

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

TCE 010990083-02, PDC Light Curves

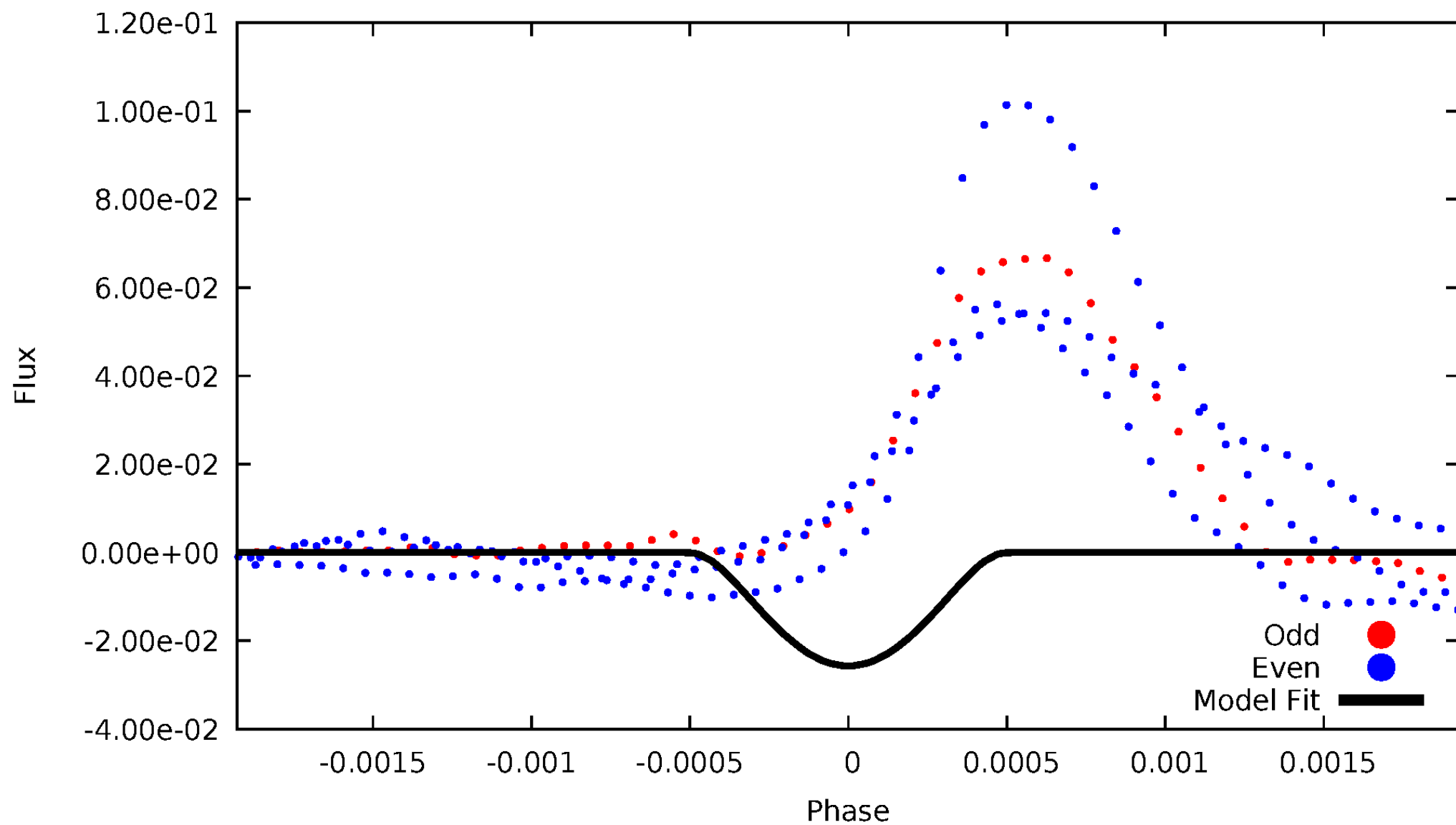


TCE 010990083-02



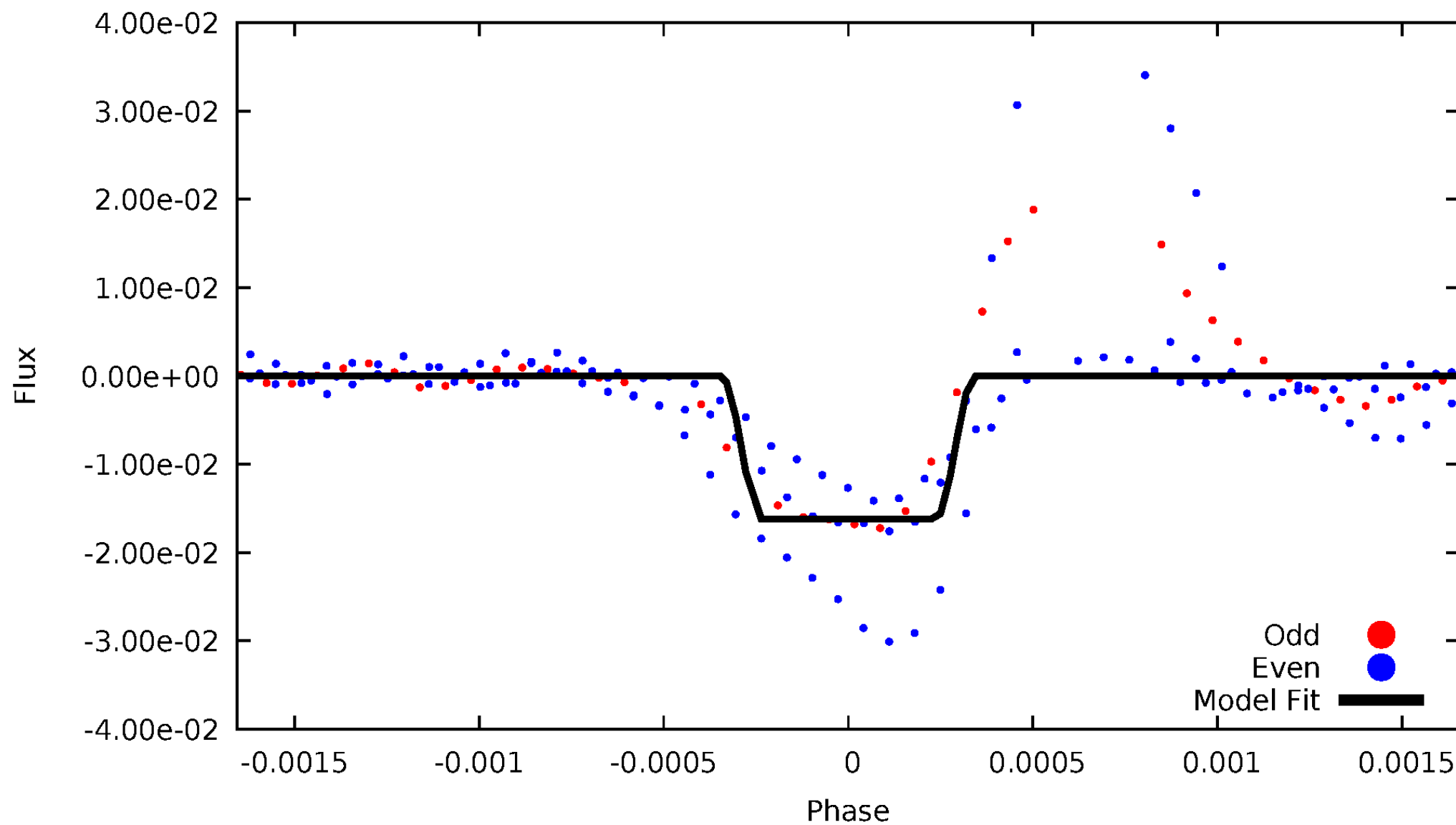
DV Odd/Even

TCE 010990083-02



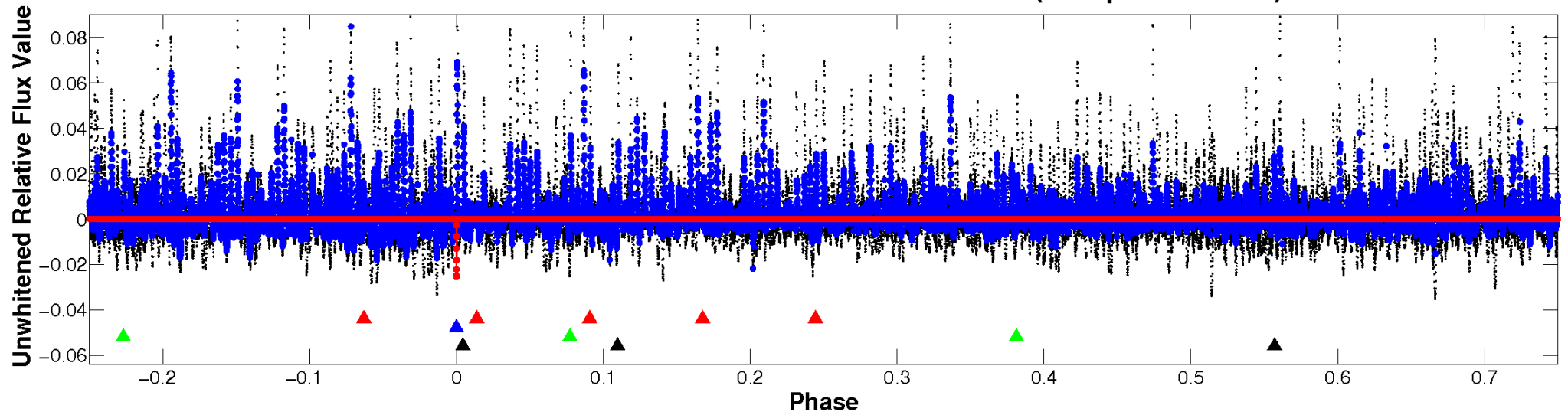
ALT Odd/Even

TCE 010990083-02

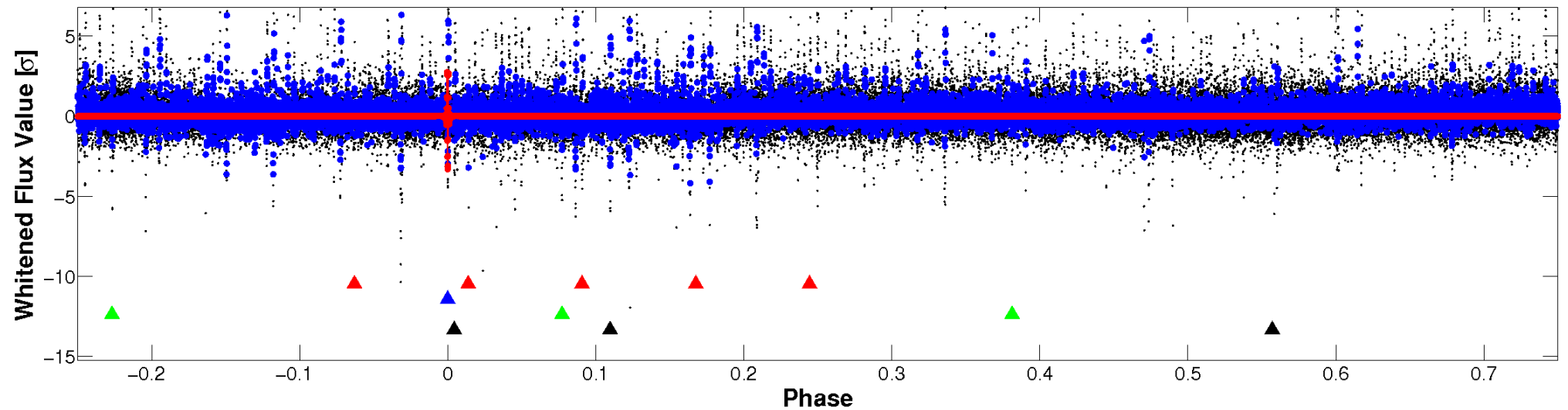


Non-Whitened Vs. Whitened Light Curve

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

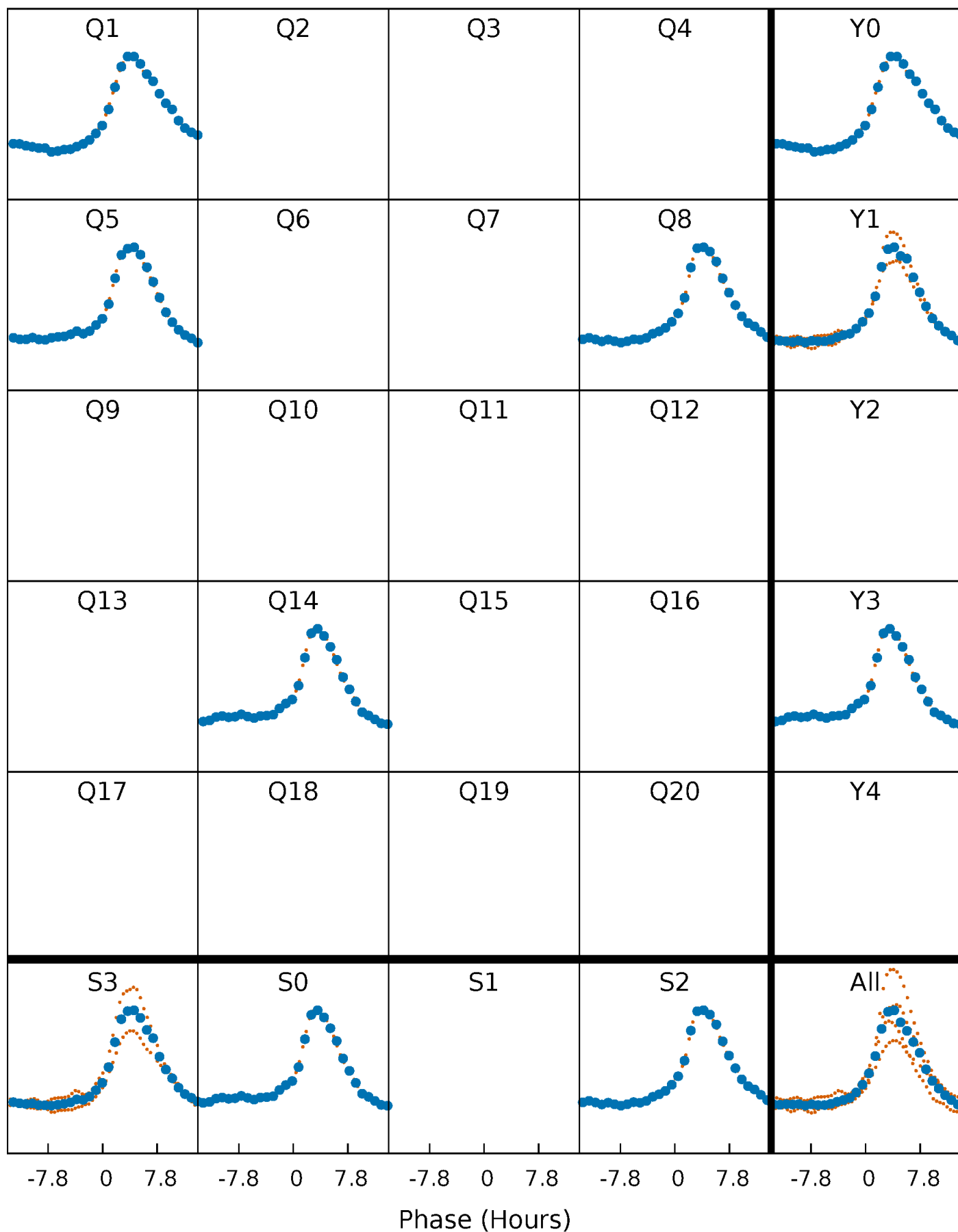


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



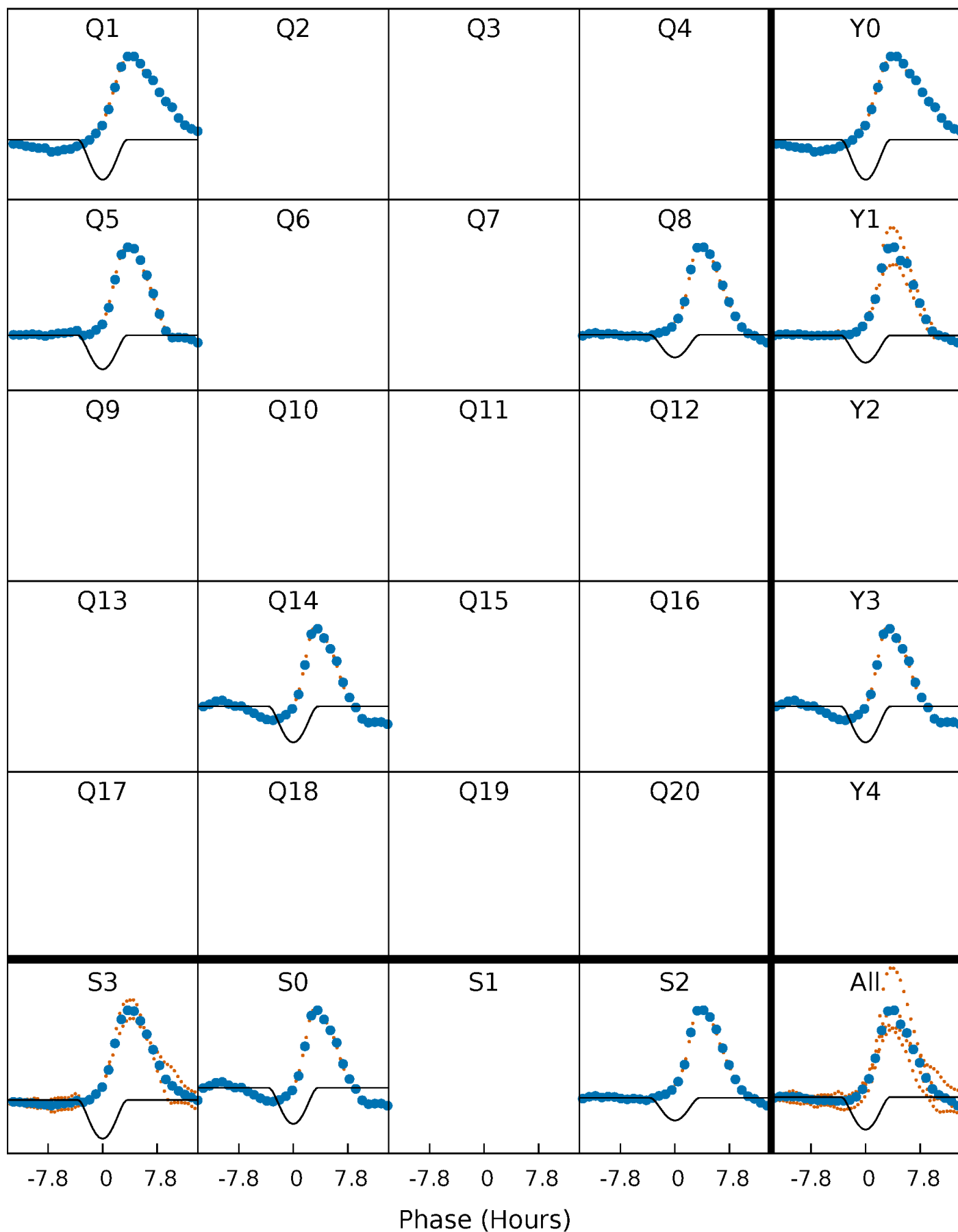
PDC Quarter-Phased Transit Curves

TCE 010990083-02 P=295.057462 Days $T_0=163.920722$ (BKJD)



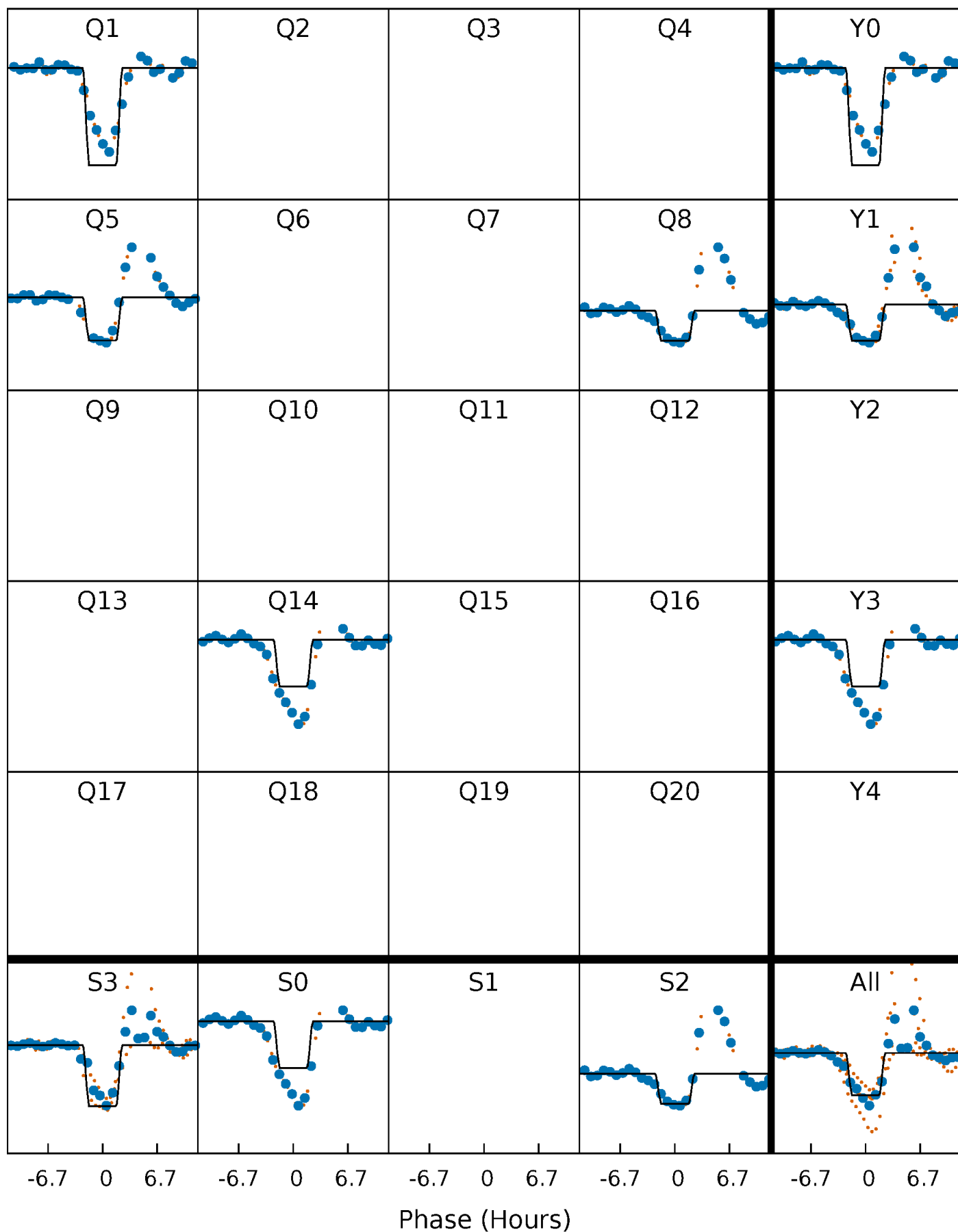
DV Quarter-Phased Transit Curves

TCE 010990083-02 P=295.057462 Days $T_0=163.920722$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

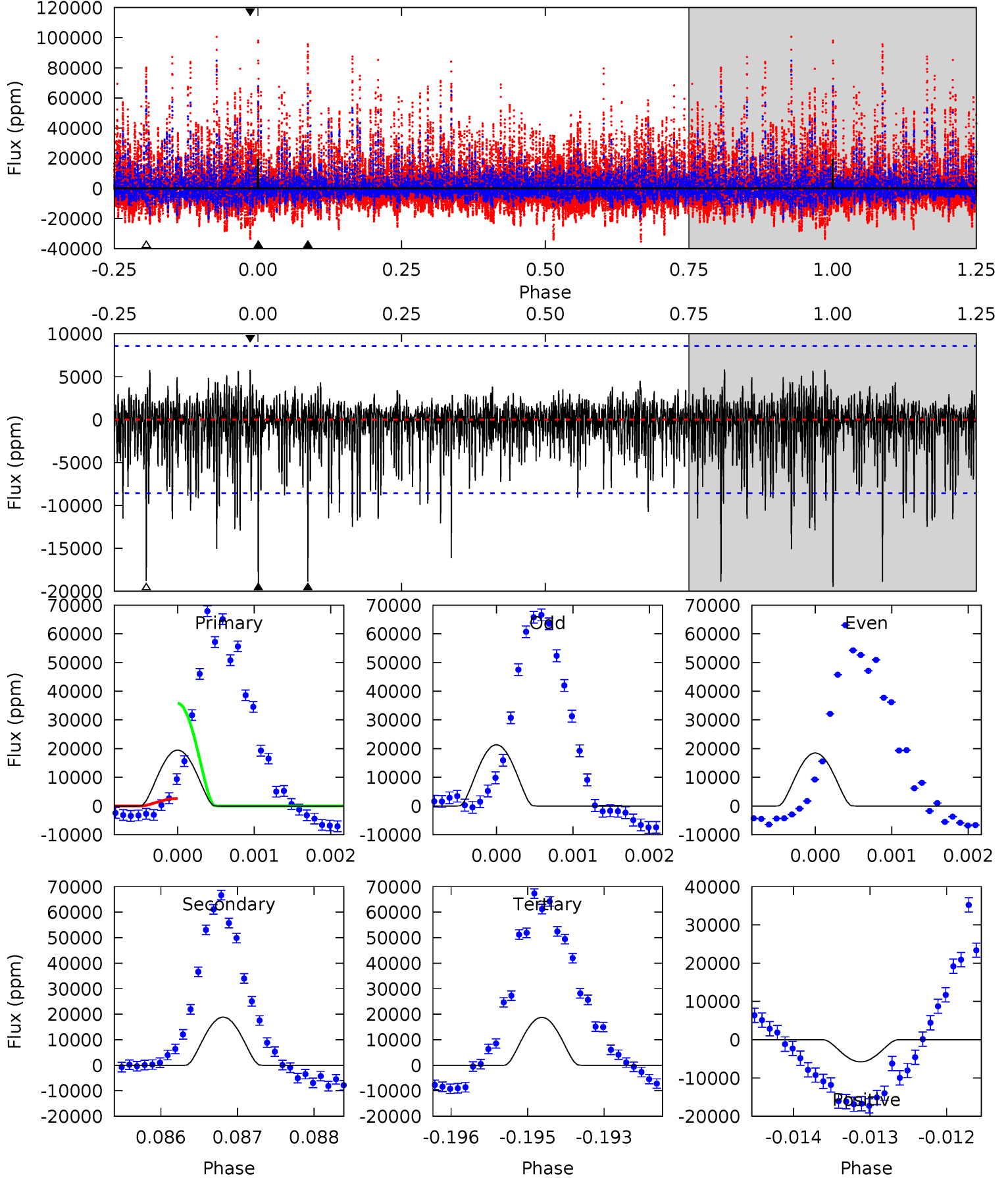
TCE 010990083-02 P=295.053230 Days $T_0=163.900461$ (BKJD)



DV Model-Shift Uniqueness Test

010990083-02, P = 295.057462 Days, E = 163.920722 Days

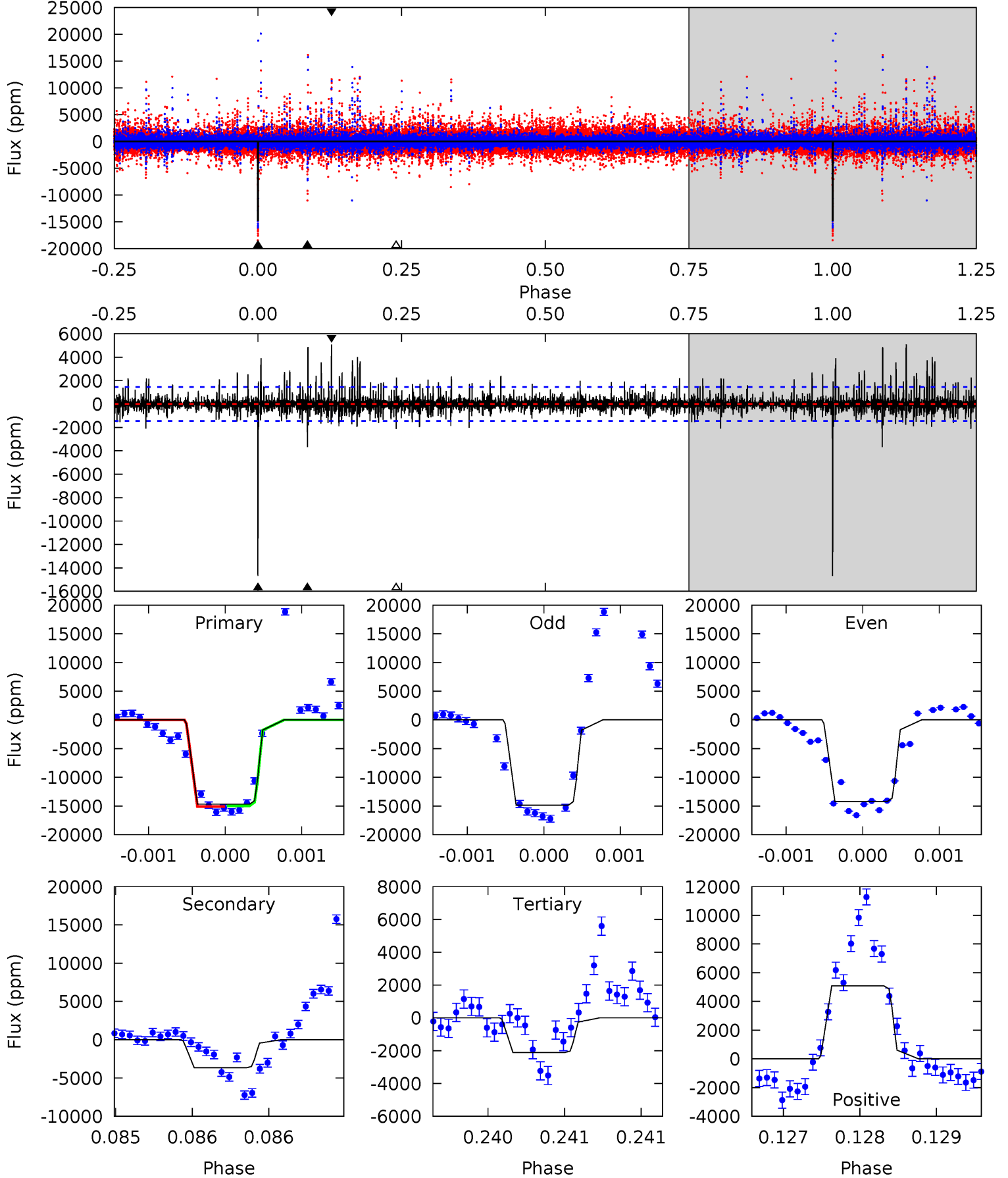
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	12.0	11.9	3.67	5.45	3.28	1.65	0.45	8.70	0.05	8.30	0.76	0.97	0.23	10.6



Alt Model-Shift Uniqueness Test

010990083-02, P = 295.053230 Days, E = 163.900461 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.1	14.0	8.06	19.4	5.53	3.41	1.70	48.0	36.6	5.90	-5.46	1.05	1.11	0.26	0.28



Stellar Parameters For KIC 010990083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7710^{+213}_{-347}	$3.733^{+0.408}_{-0.072}$	$-0.040^{+0.200}_{-0.350}$	$3.114^{+0.444}_{-1.422}$	$1.912^{+0.104}_{-0.415}$	$0.089^{+0.294}_{-0.021}$
	+3%/-5%	+11%/-2%	+500%/-875%	+14%/-46%	+5%/-22%	+330%/-24%
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 010990083-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-18874 ± 1576	$92.65^{+74.24}_{-59.42}$	778^{+53}_{-85}	5159^{+3833}_{-1055}	1367^{+9655}_{-942}
Alt.	-3656 ± 262	$67.18^{+67.11}_{-45.54}$	778^{+53}_{-91}	4144^{+2694}_{-779}	495^{+4278}_{-366}

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

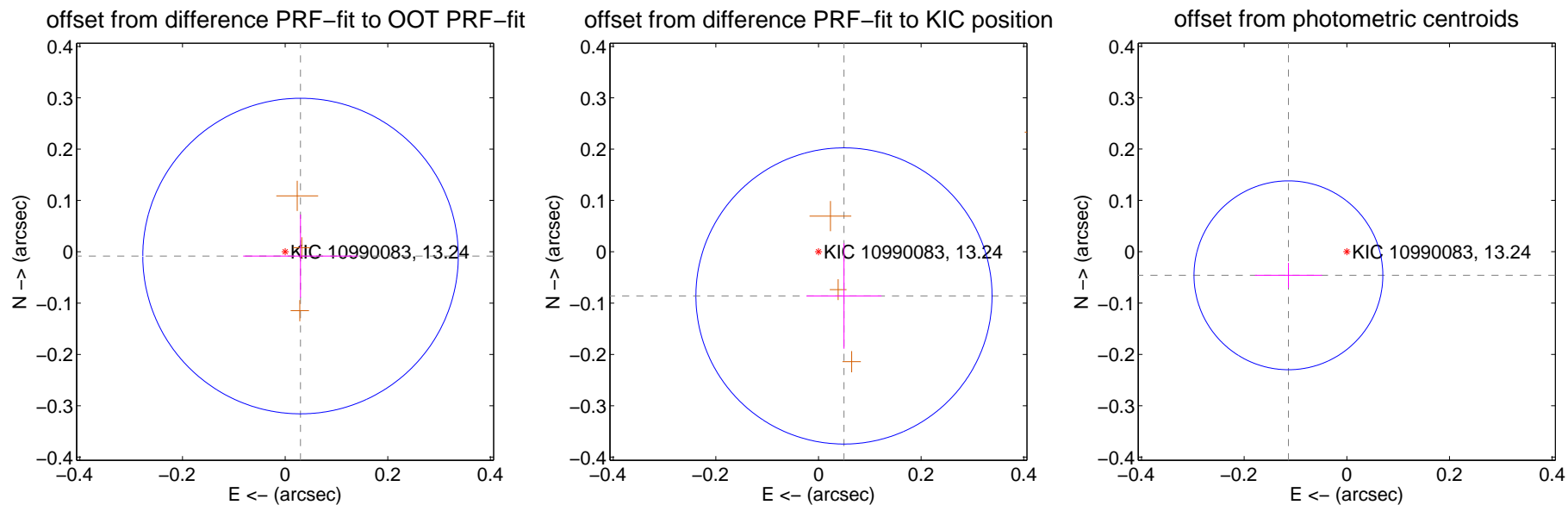
DV Centroid Data

Supplemental centroid analysis for 010990083-02. Kepler magnitude: 13.24. Transit SNR 15.78

There are 0 quarters with good PRF difference image offsets

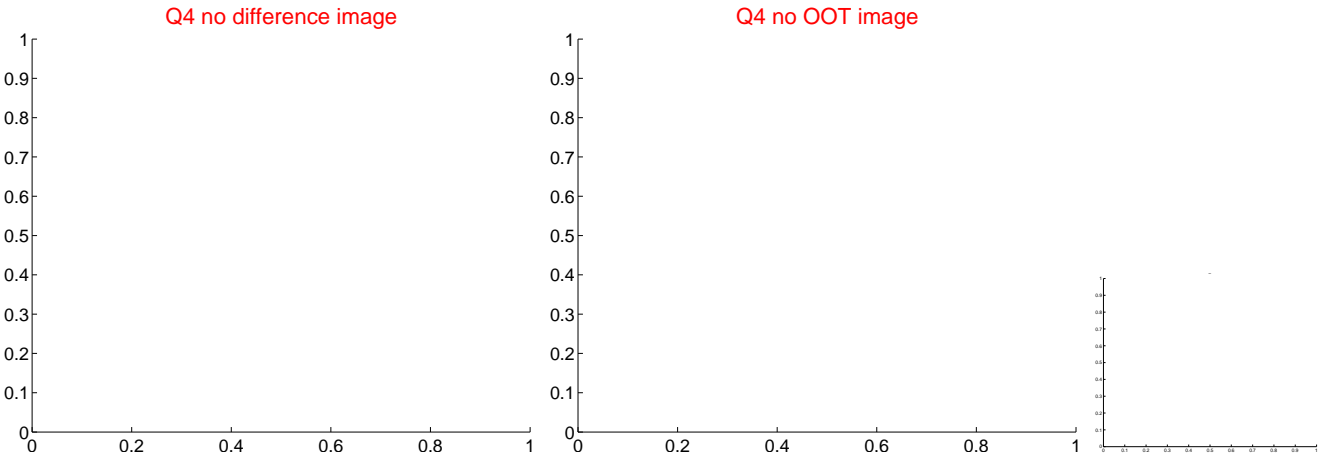
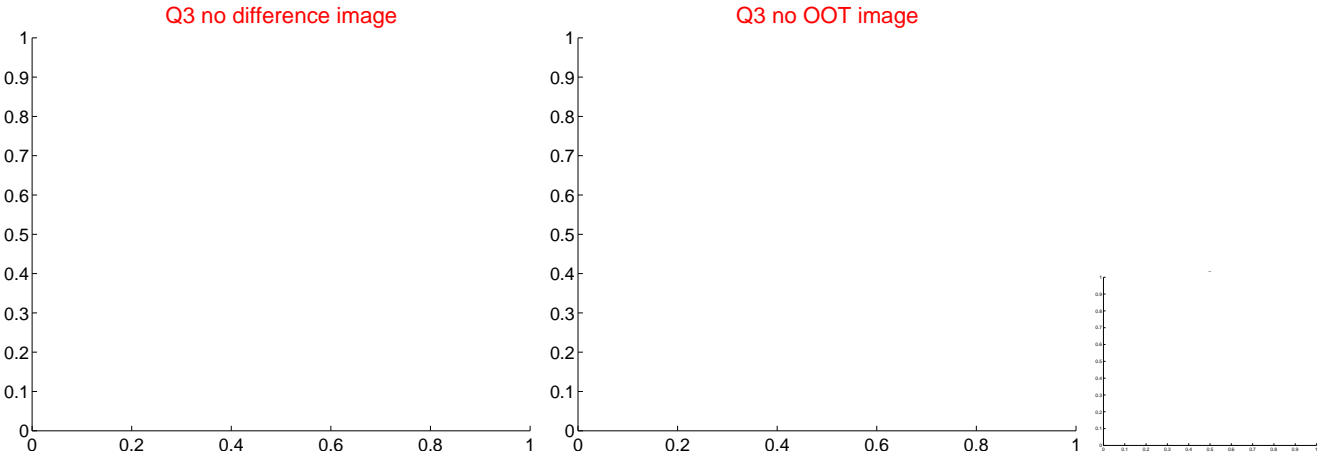
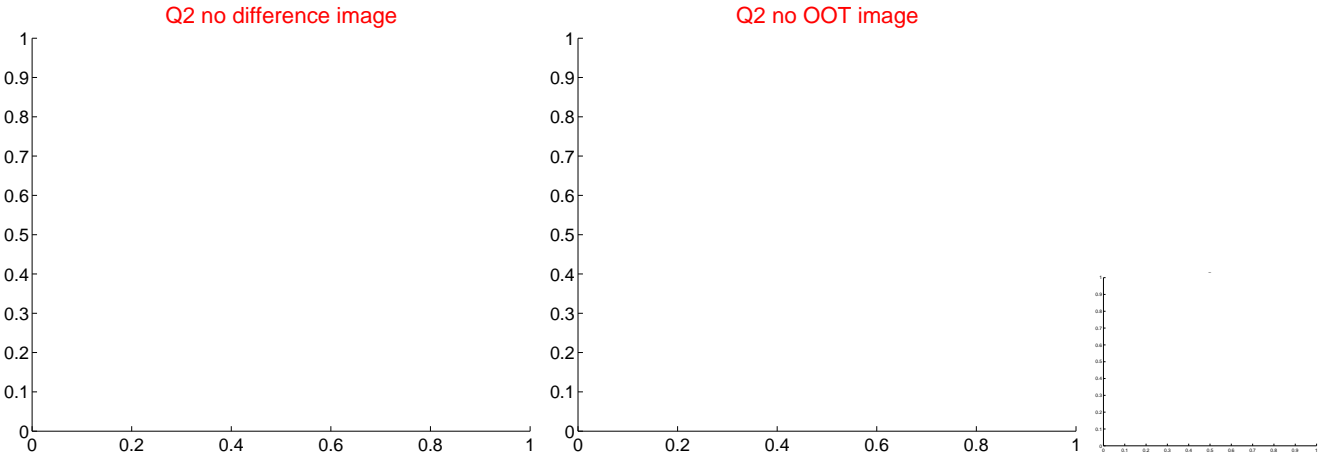
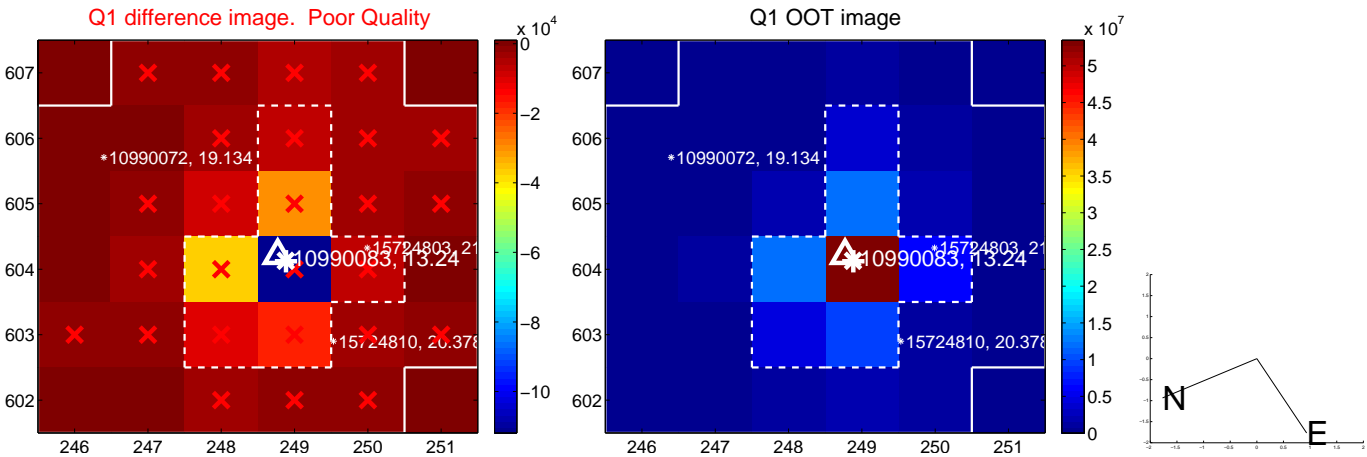
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.031 ± 0.102	0.30	-0.030 ± 0.112	-0.008 ± 0.081
PRF-fit source offset from KIC position	0.099 ± 0.096	1.03	-0.050 ± 0.073	-0.086 ± 0.103
photometric centroid source offset	0.12 ± 0.06	2.00	0.11 ± 0.07	-0.05 ± 0.02

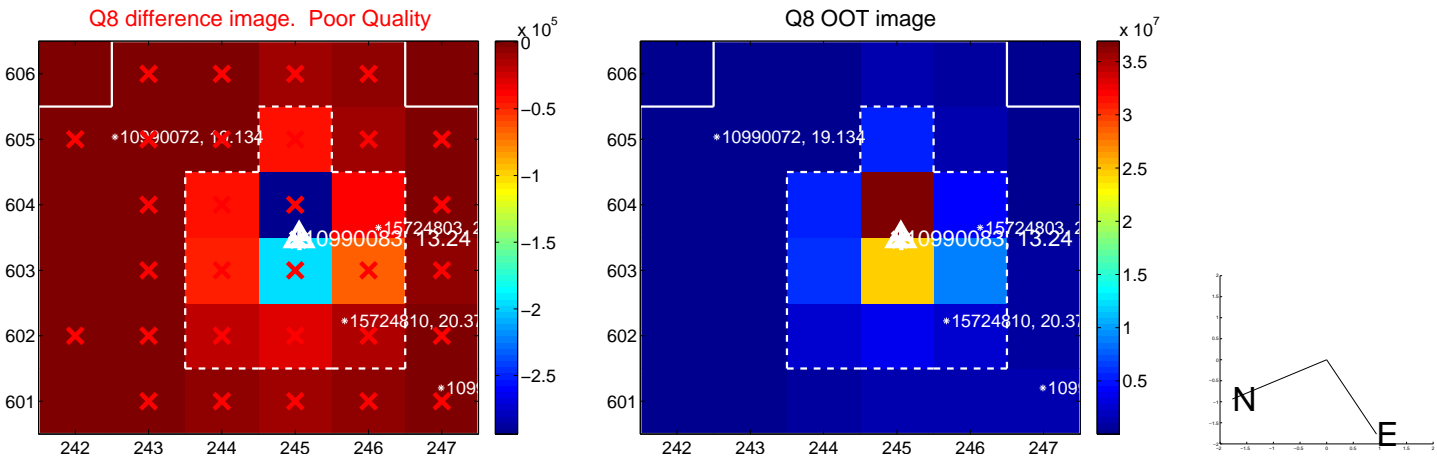
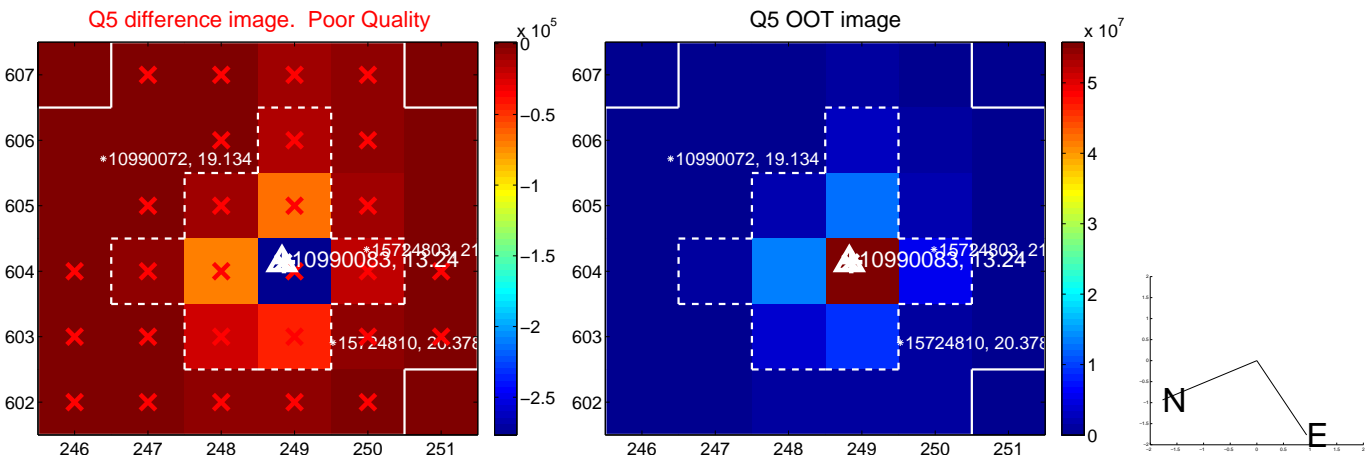


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

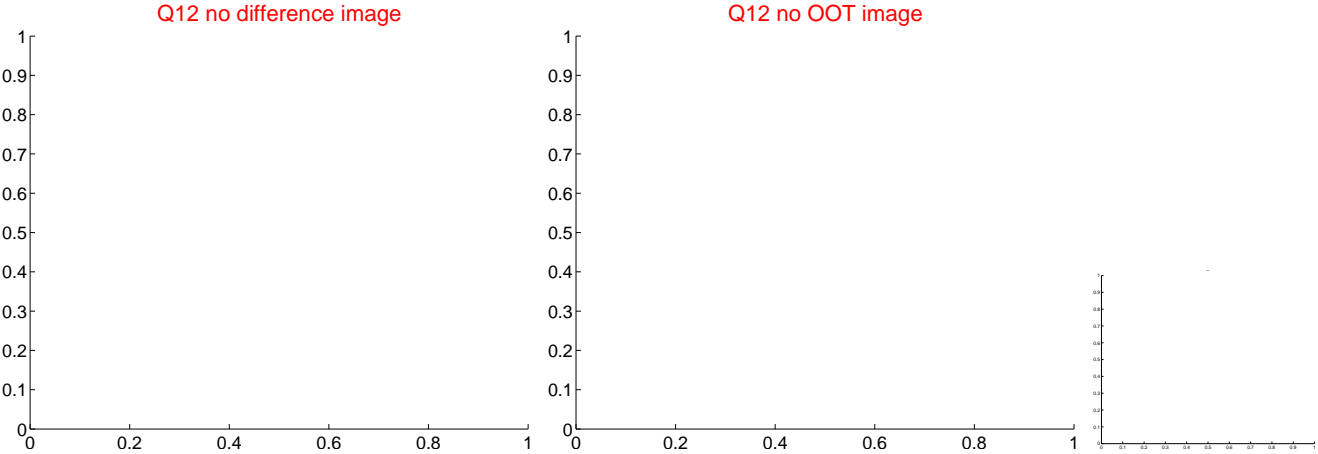
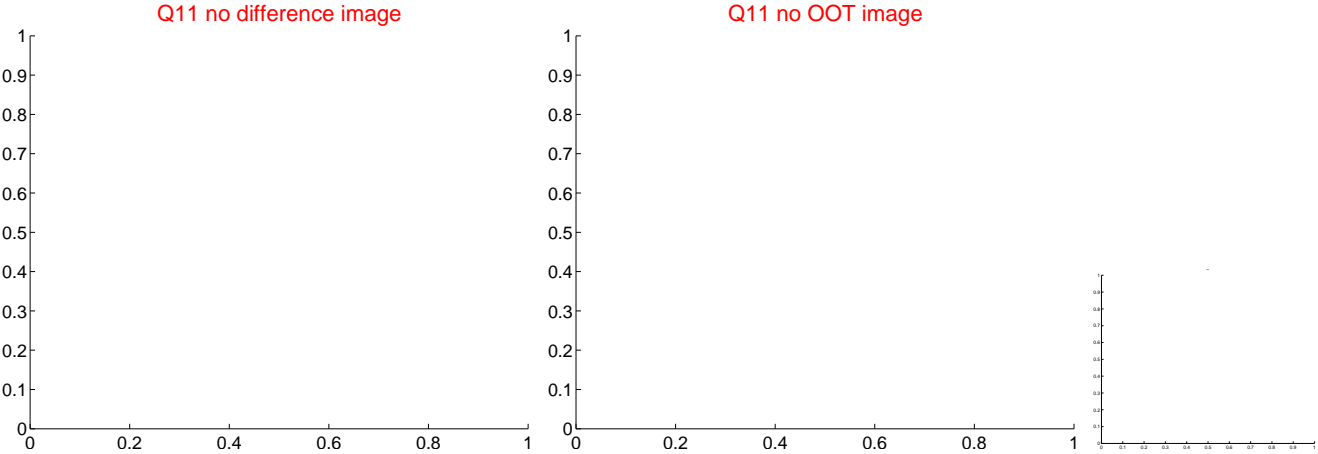
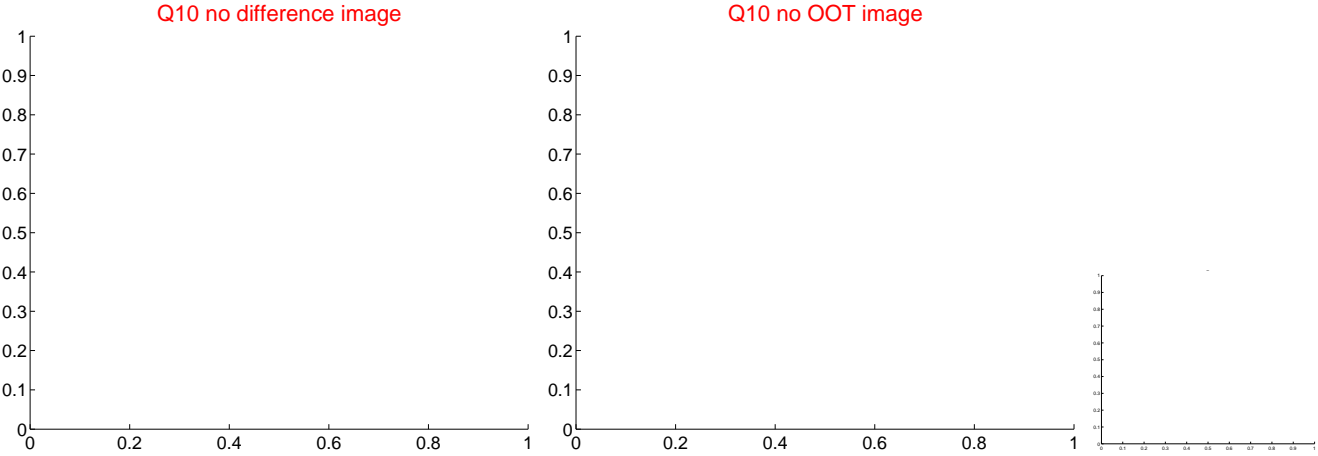
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



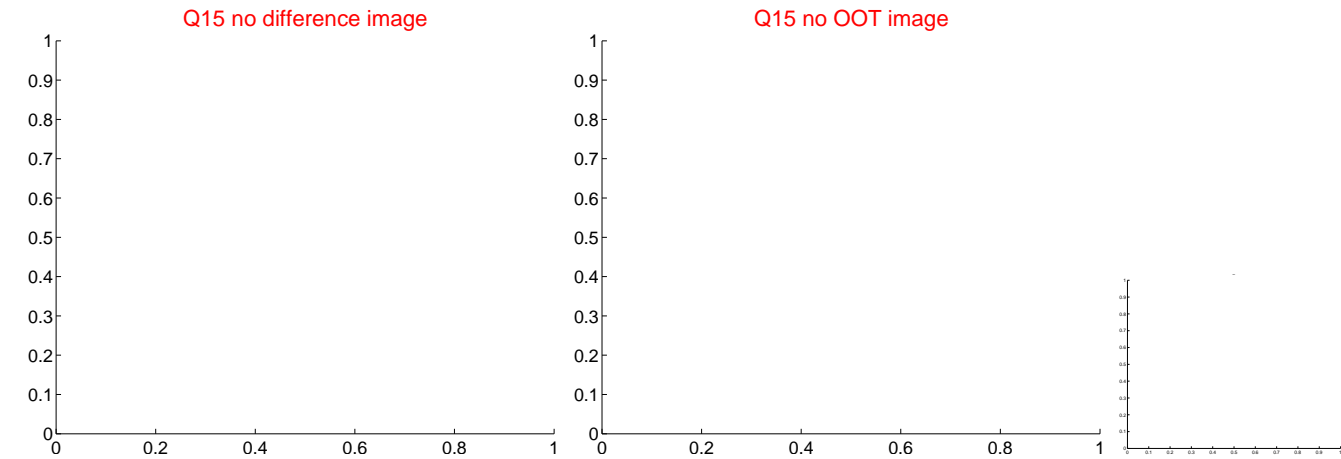
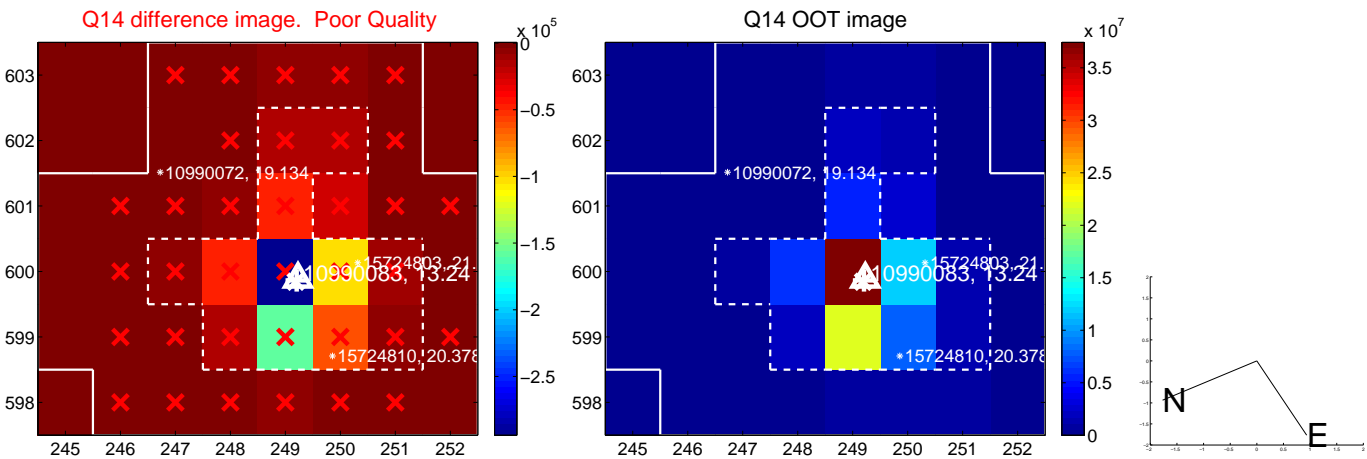
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



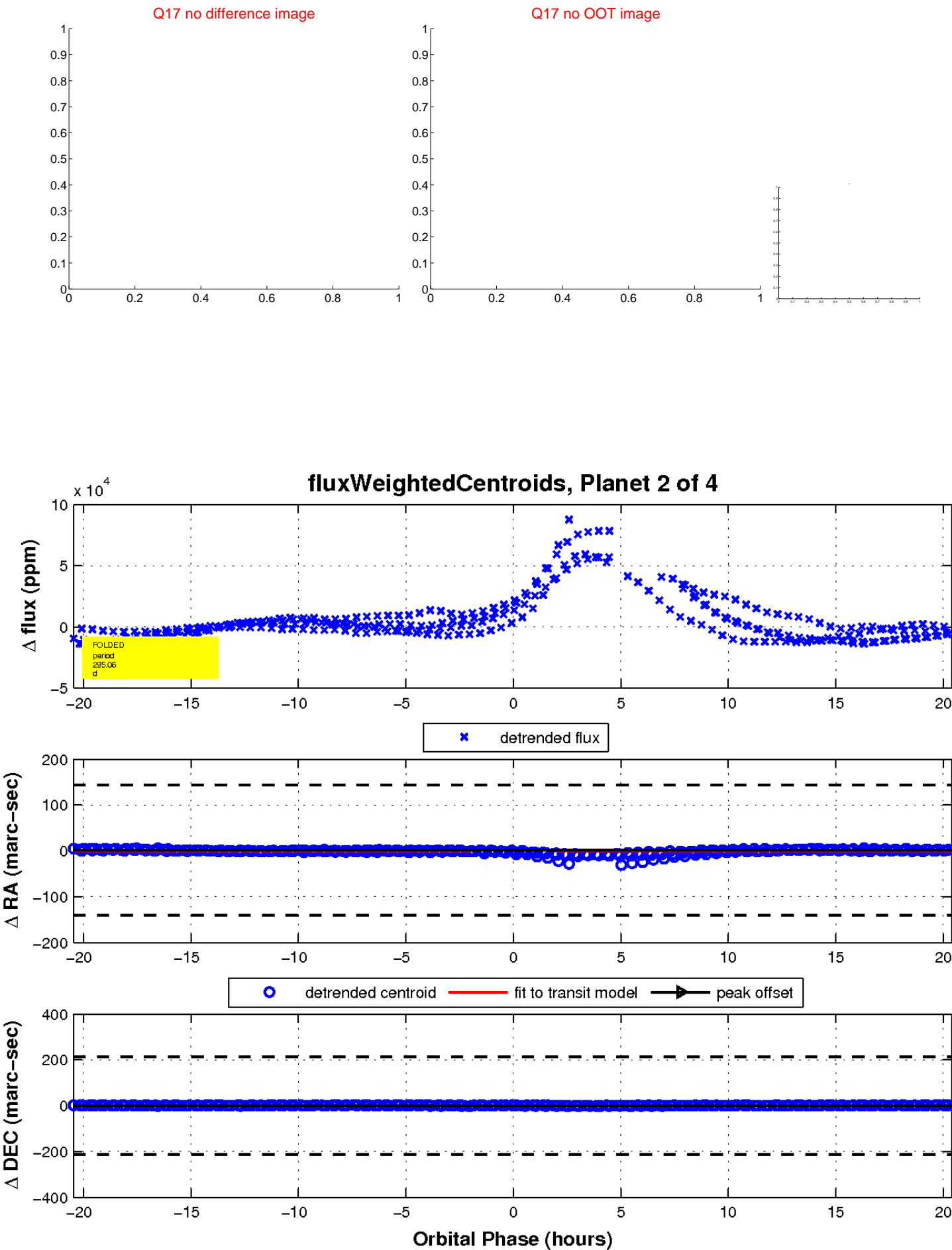
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

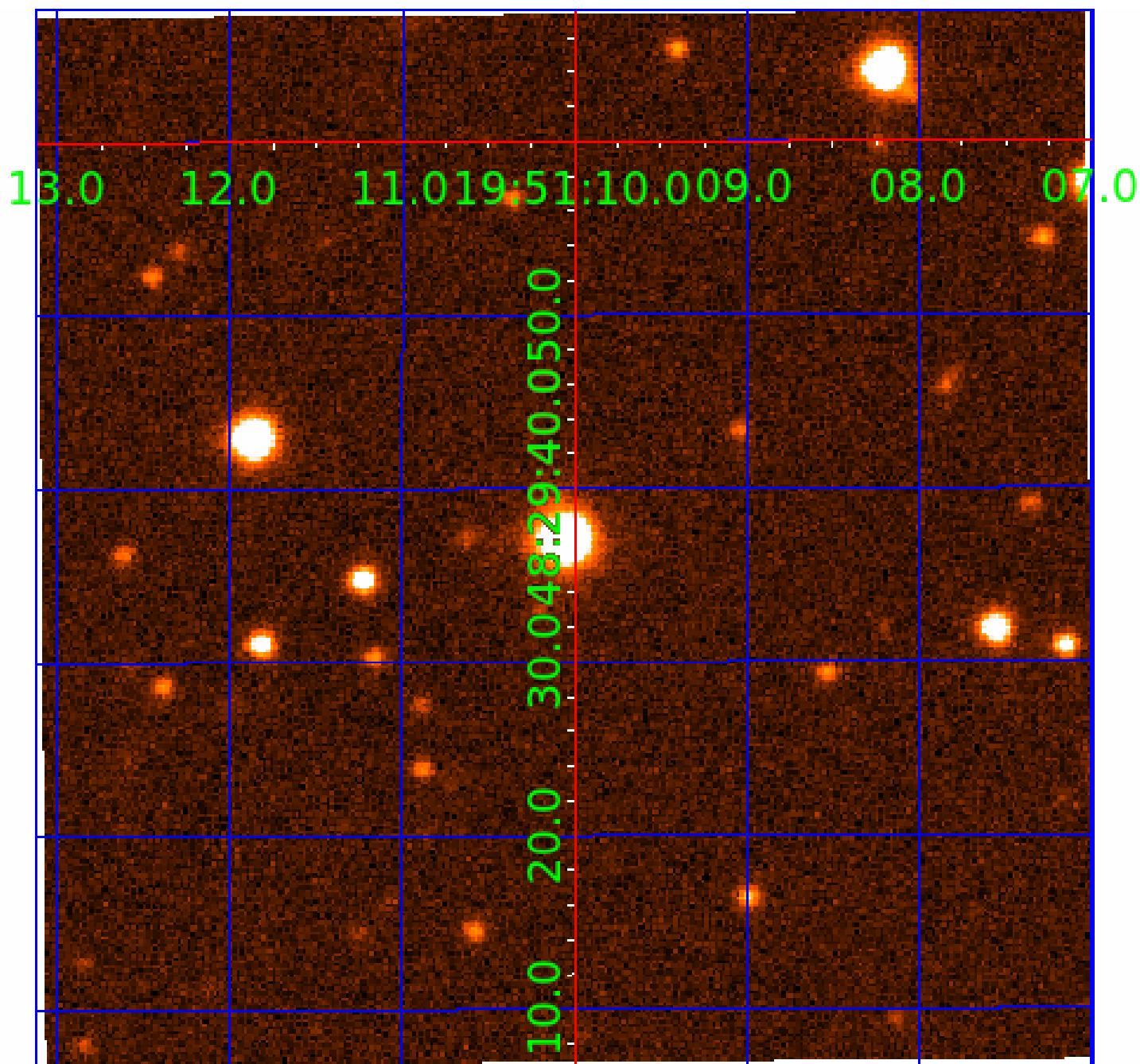


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010990083

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})
010990083-01	OBS	No	317.737510	145.331660	18197.7	9.245	17.2	7.0	3.11	7710	72.54	23.98
010990083-02	OBS	No	295.057462	163.920722	25680.5	6.827	17.5	15.8	3.11	7710	85.50	26.47
010990083-03	OBS	No	500.402715	276.428611	25676.4	6.388	18.1	14.4	3.11	7710	85.53	13.09
010990083-04	OBS	No	427.054593	491.345985	748.3	3.500	17.0	-1.0	3.11	7710	8.62	16.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010990083-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010990083-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010990083-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
010990083-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

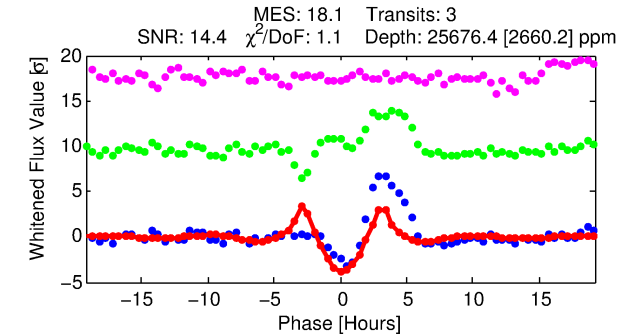
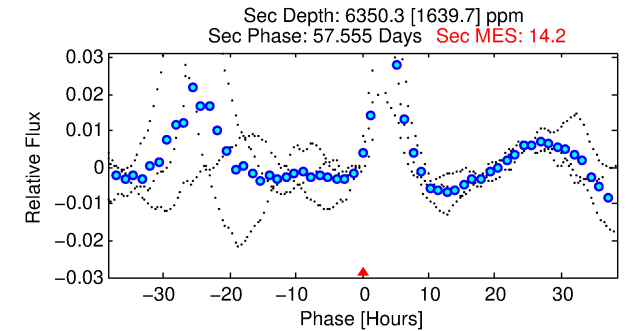
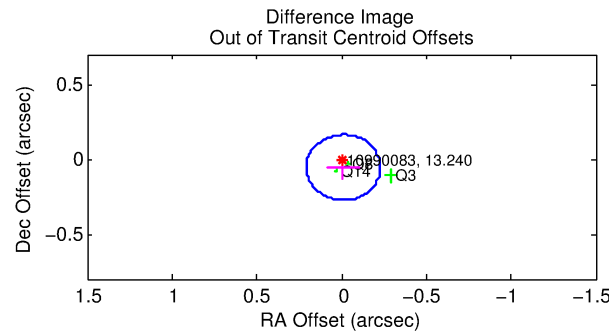
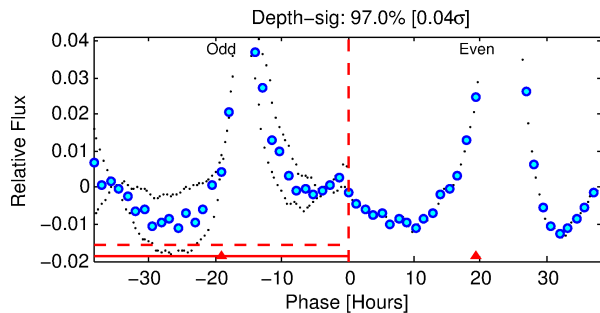
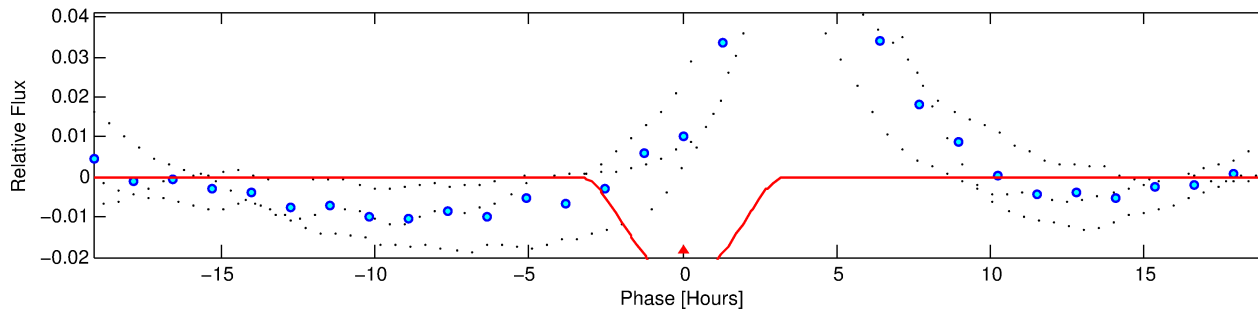
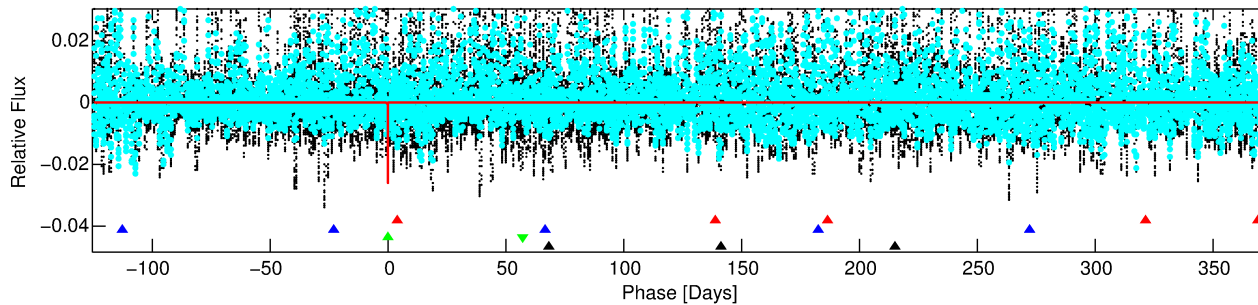
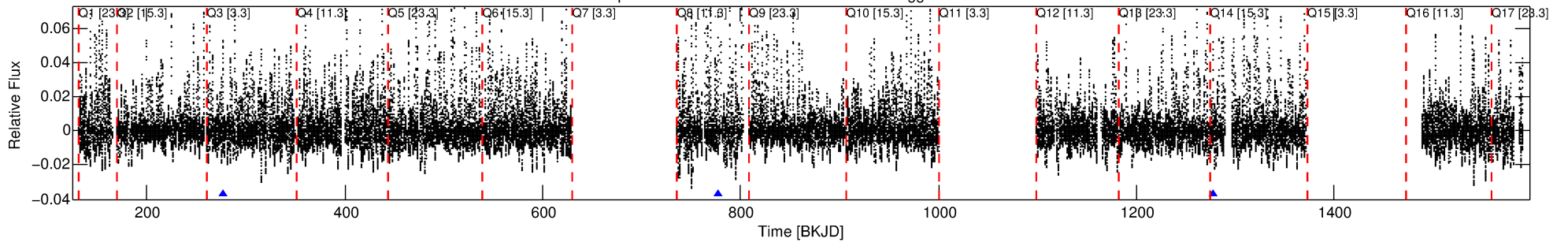
Ephemeris Match Information For 010990083-03

No Significant Match Found

DV One-Page Summary

KIC: 10990083 Candidate: 3 of 4 Period: 500.403 d

Kp: 13.24 R*: 3.11 Rs Teff: 7710.0 K Logg: 3.73 Fe/H: -0.040



DV Fit Results:

Period = 500.40272 [0.00356] d
Epoch = 276.4286 [0.0049] BKJD
Rp/R* = 0.2517 [0.2912]
a/R* = 450.80 [44.31]
b = 1.00 [0.39]
Seff = 13.09 [9.41]
Teq = 485 [87] K
Rp = 85.54 [106.37] Re
a = 1.5315 [0.6689] AU
Ag = 1120.02 [2721.26] [0.41σ]
Teffp = 4338 [2532] K [1.52σ]

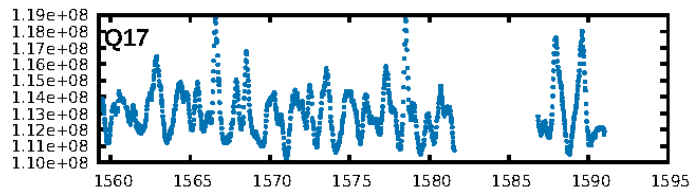
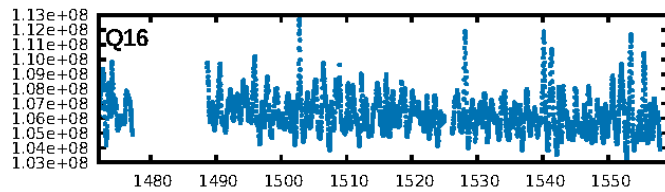
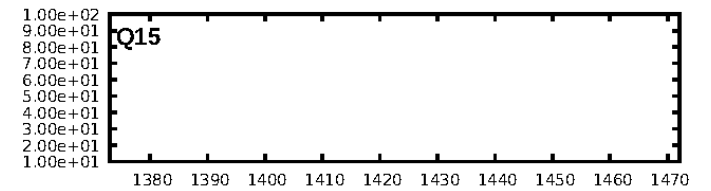
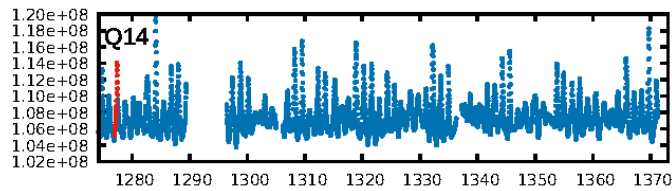
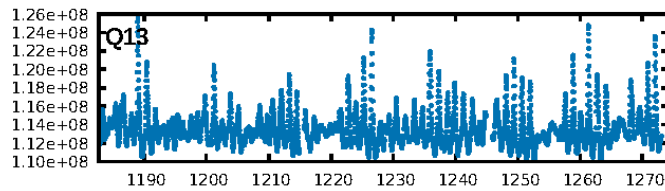
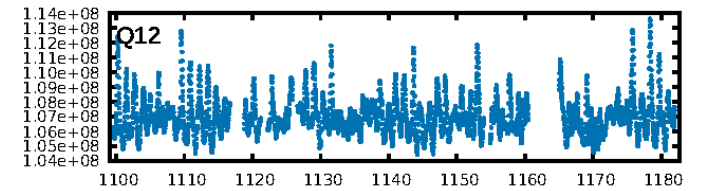
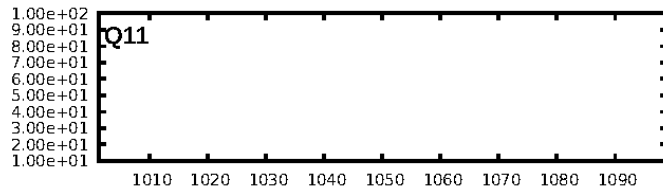
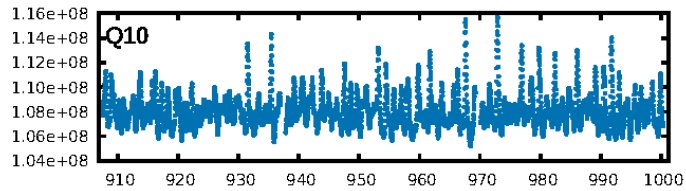
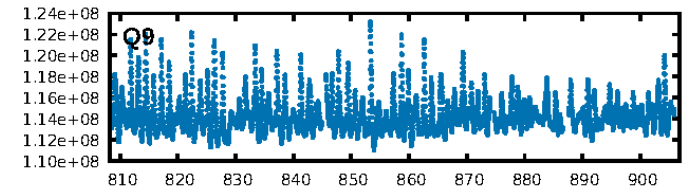
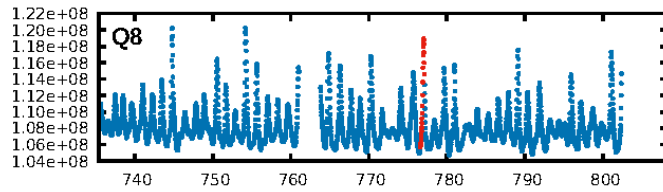
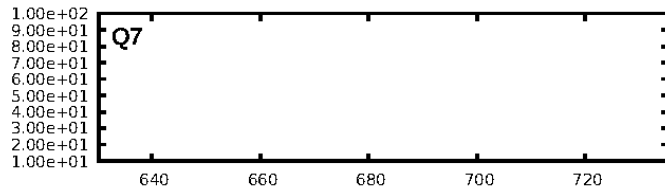
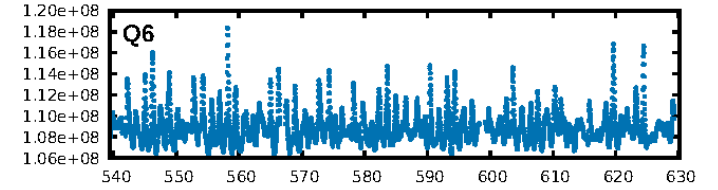
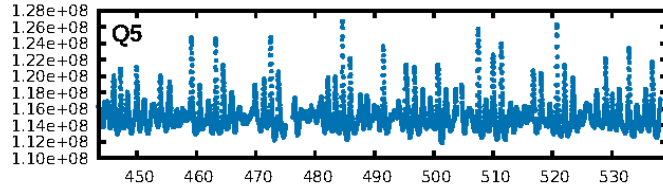
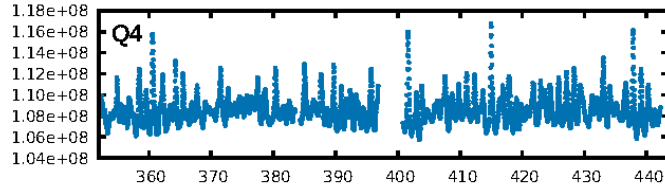
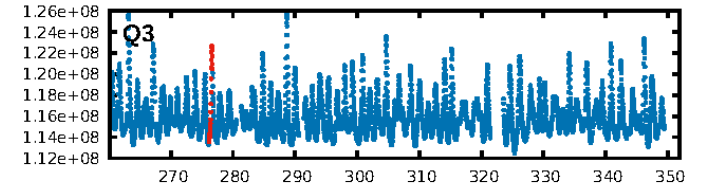
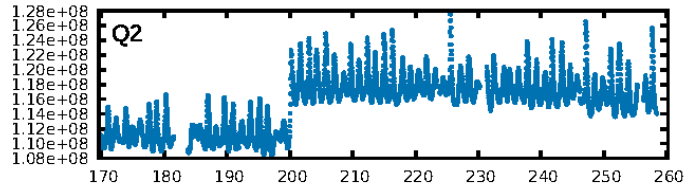
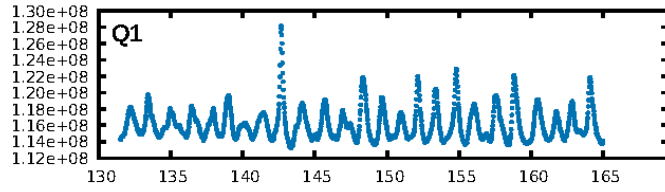
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [241.66σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 50.9%
ModelChiSquareGof-sig: 82.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.8488
Centroid-sig: 0.4%
Centroid-so: 0.009 arcsec [0.24σ]
OotOffset-rm: 0.057 arcsec [0.77σ]
KicOffset-rm: 0.141 arcsec [1.93σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
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DiffImageOverlap-fno: 1.00 [3/3]

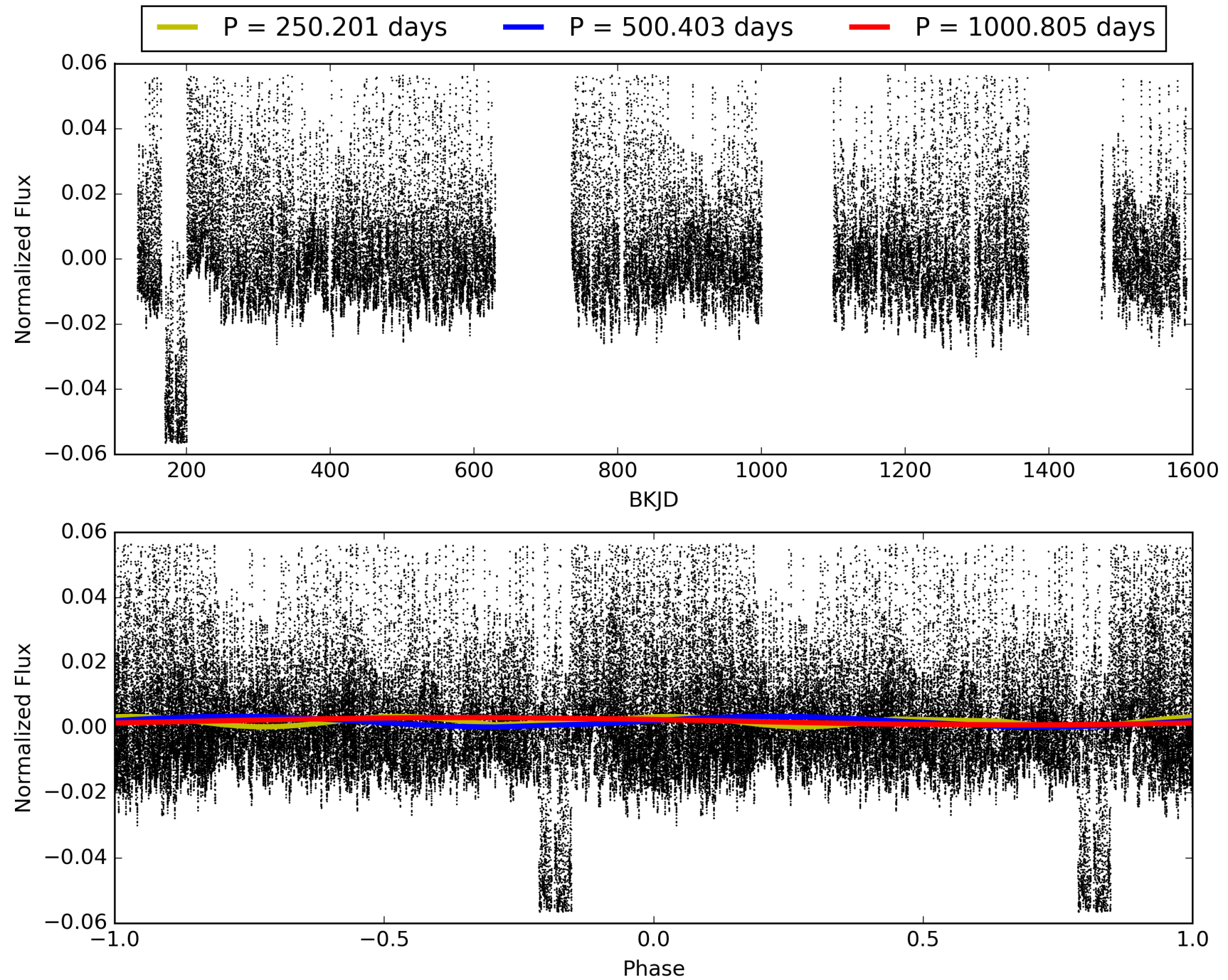
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:12:29 Z

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

TCE 010990083-03, PDC Light Curves

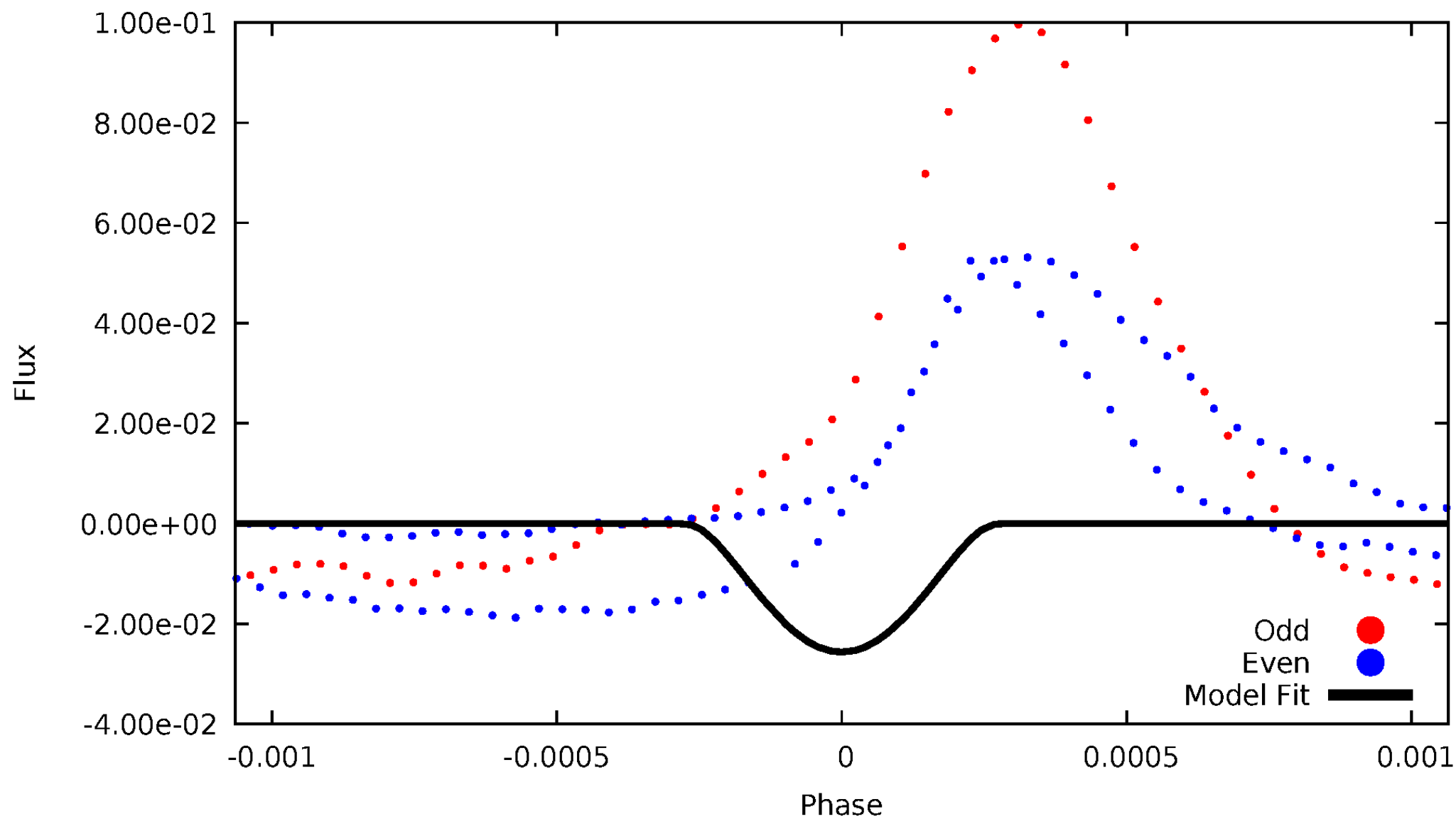


TCE 010990083-03



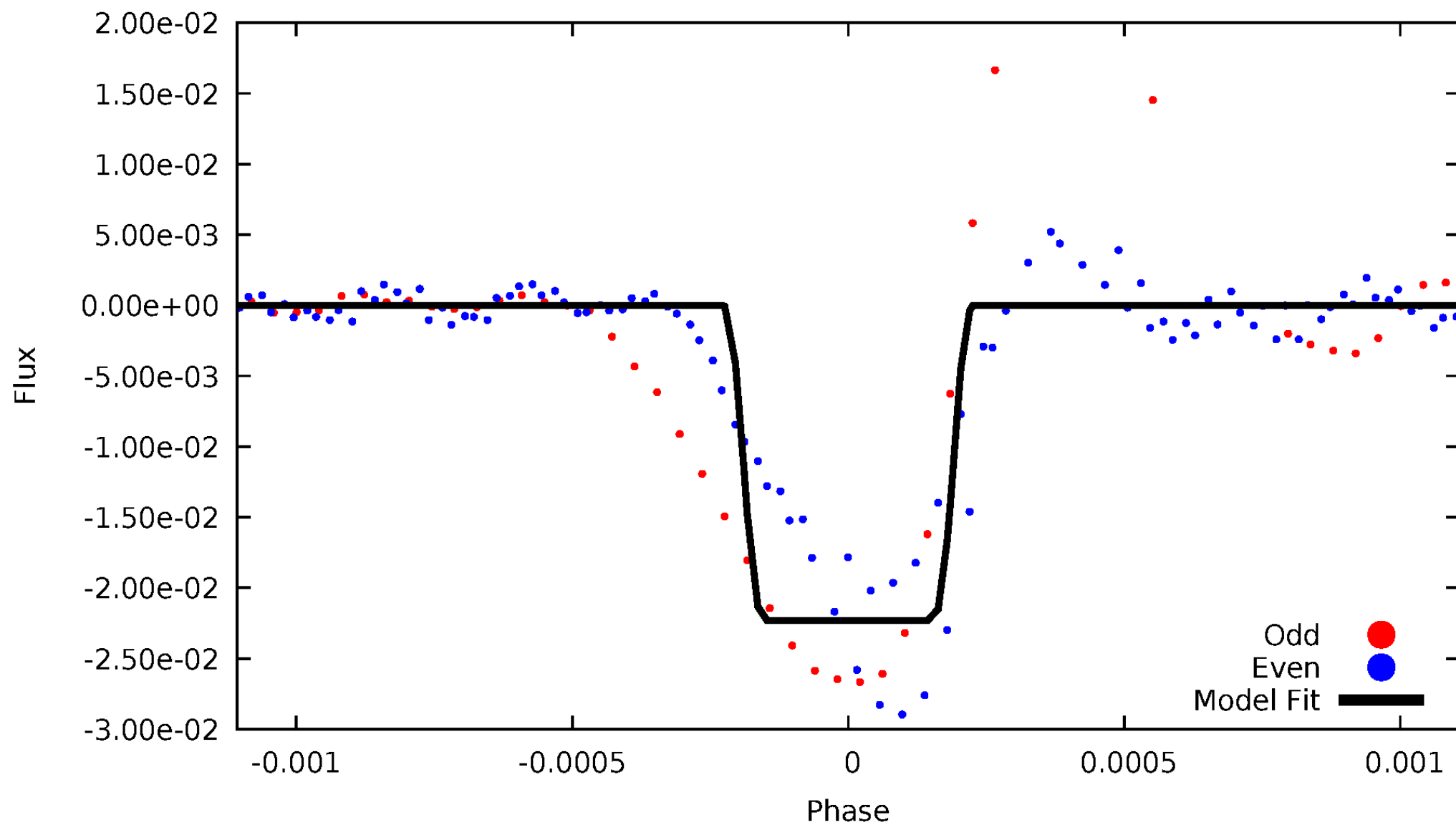
DV Odd/Even

TCE 010990083-03



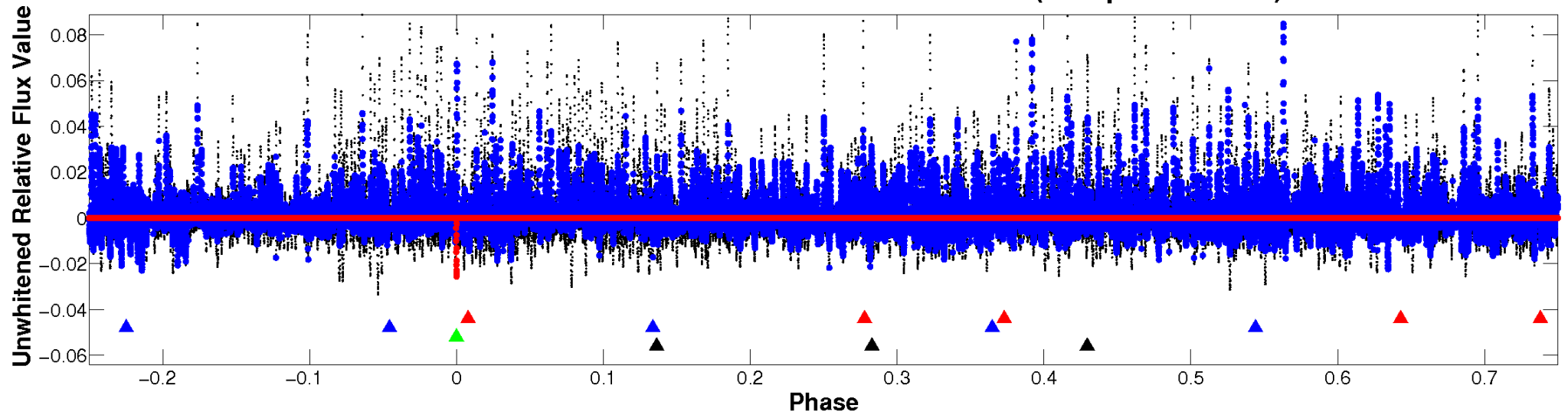
ALT Odd/Even

TCE 010990083-03

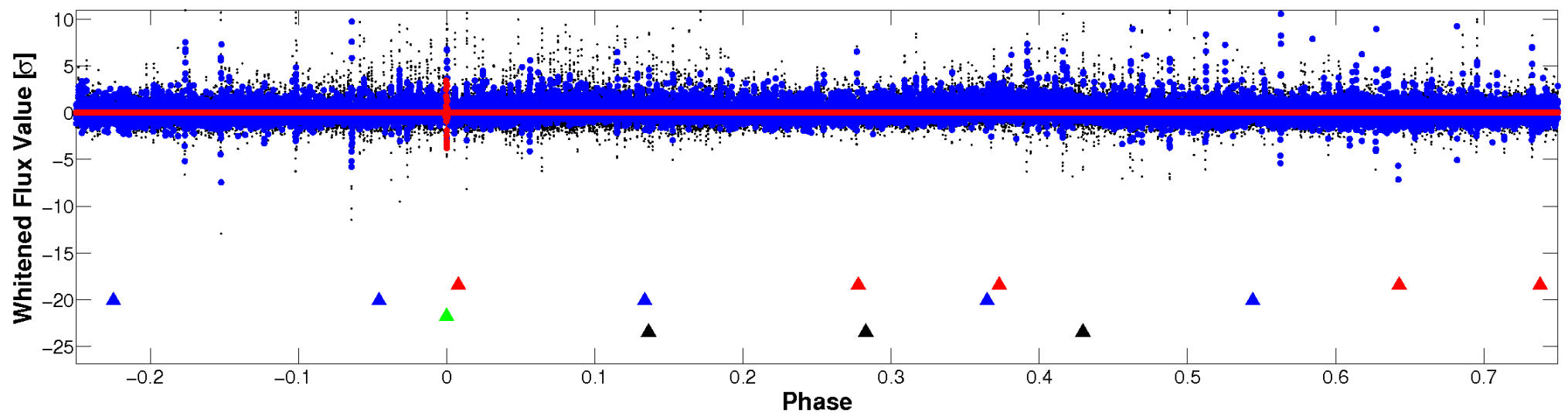


Non-Whitened Vs. Whitened Light Curve

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

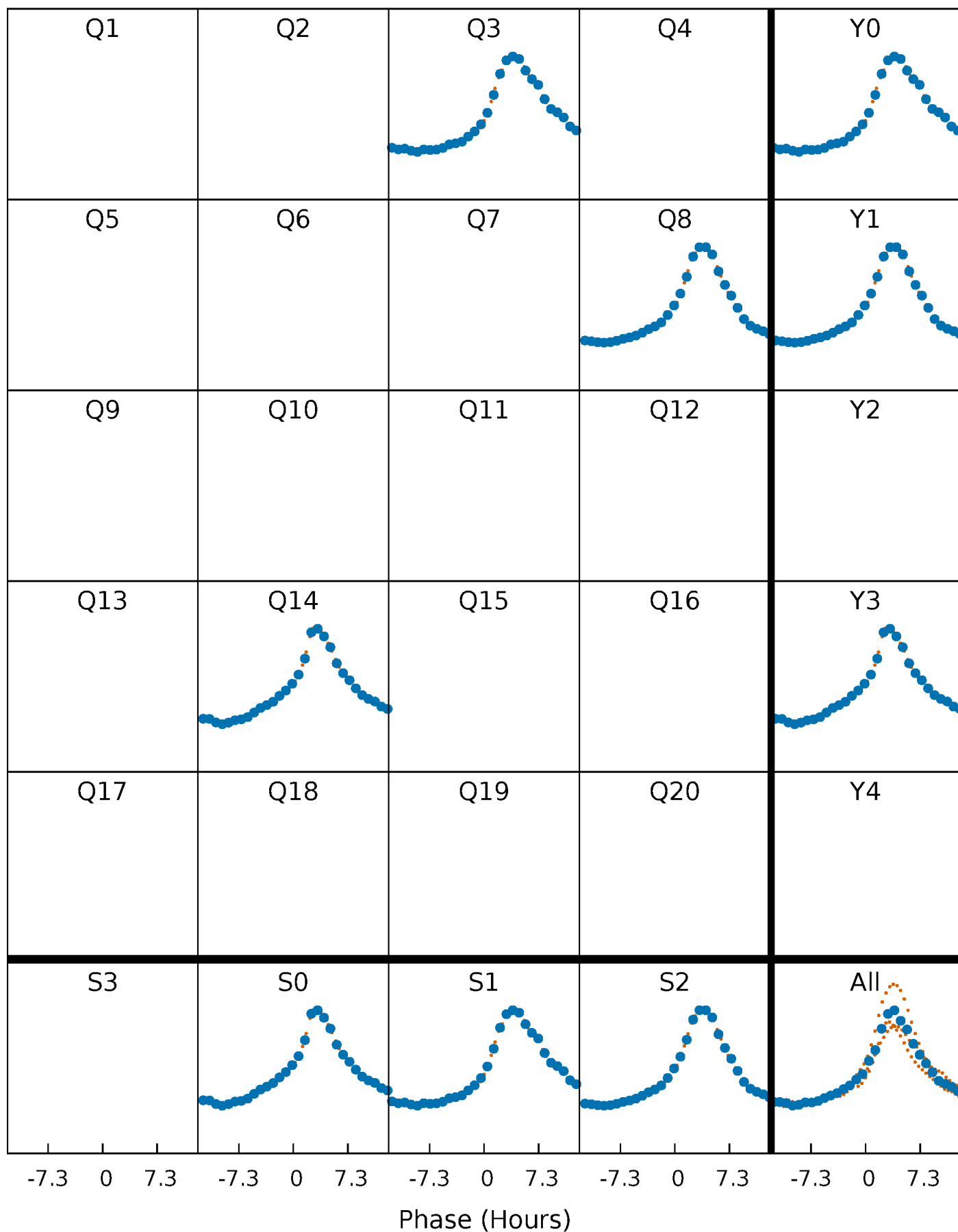


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



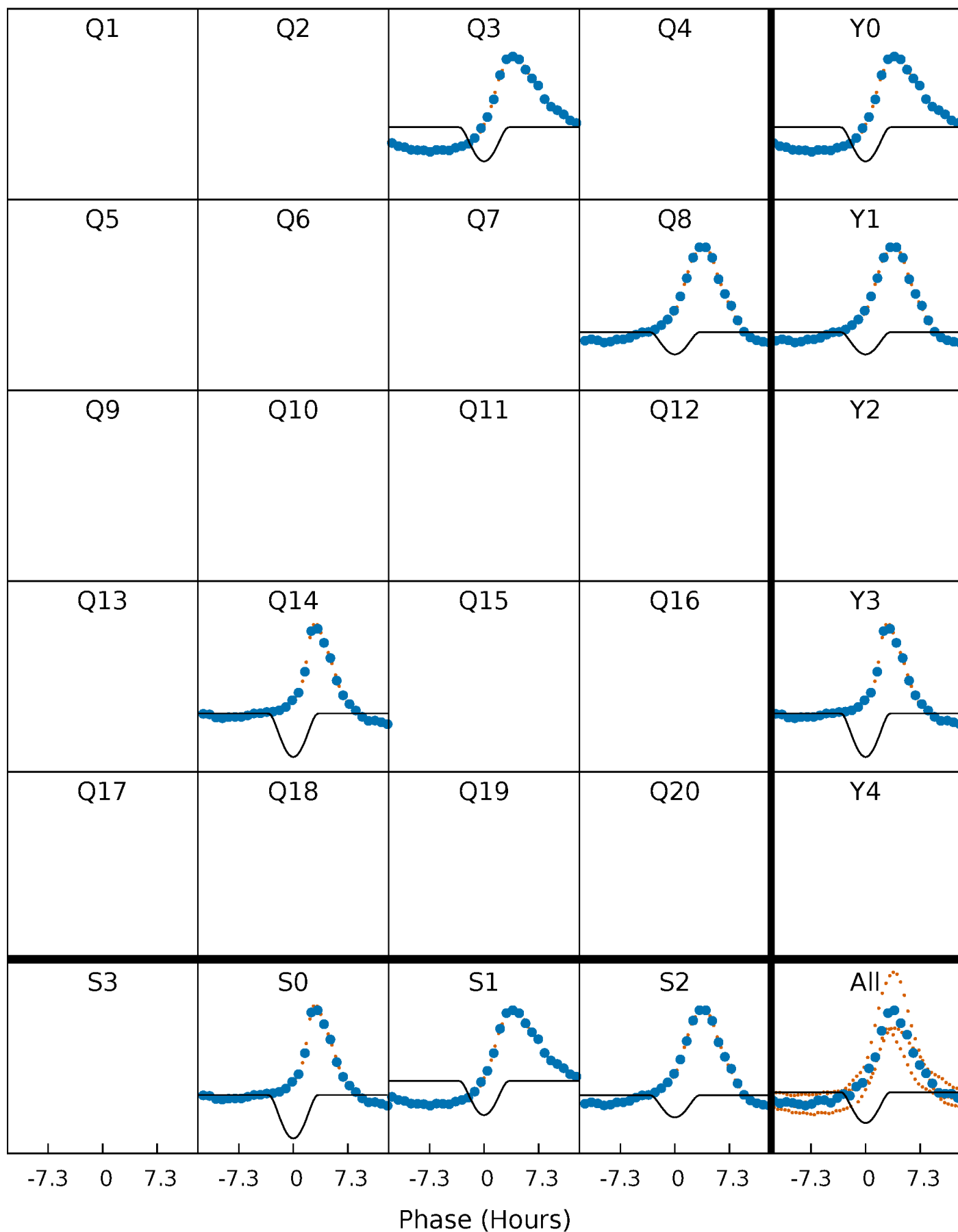
PDC Quarter-Phased Transit Curves

TCE 010990083-03 P=500.402715 Days $T_0=276.428611$ (BKJD)



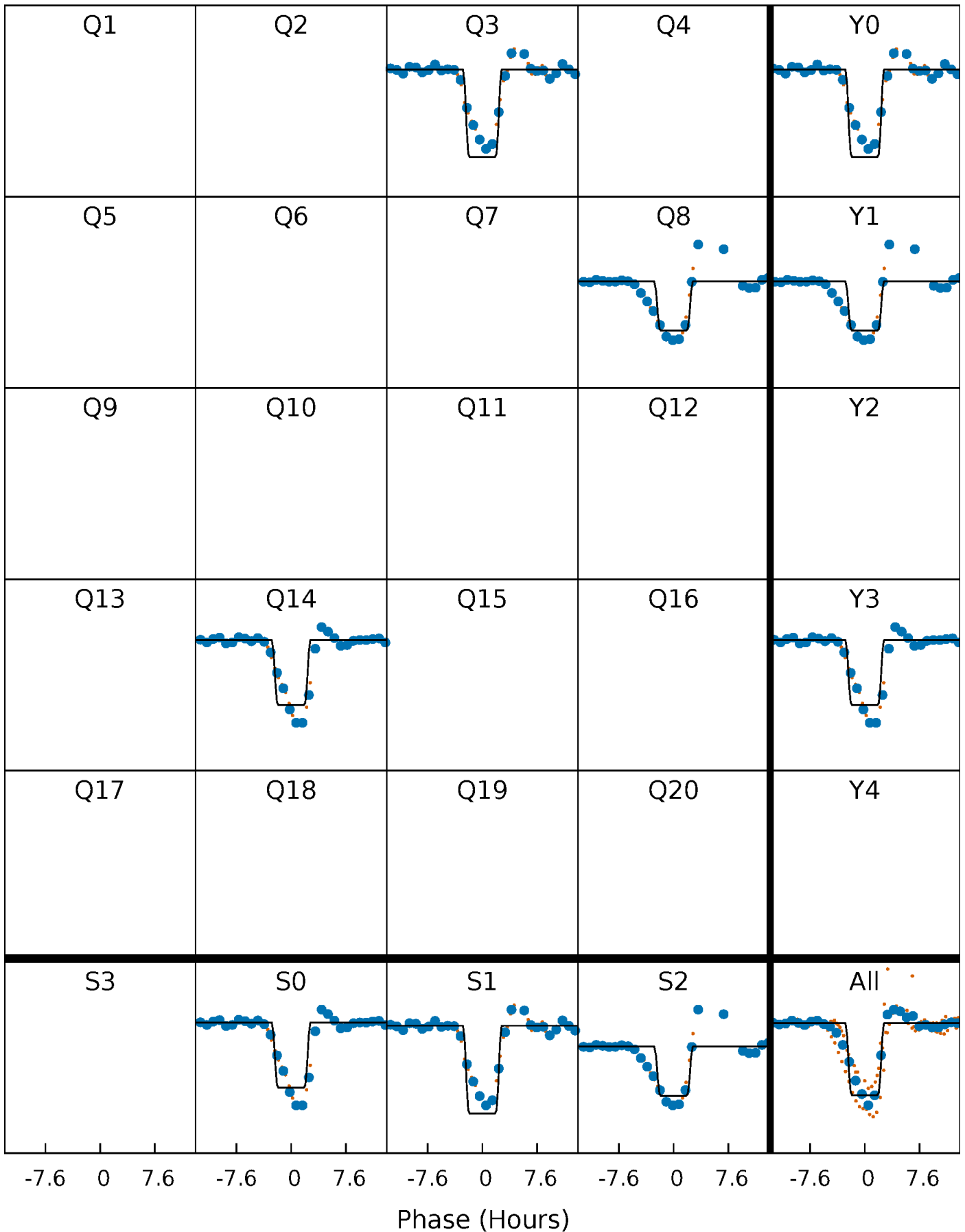
DV Quarter-Phased Transit Curves

TCE 010990083-03 $P=500.402715$ Days $T_0=276.428611$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

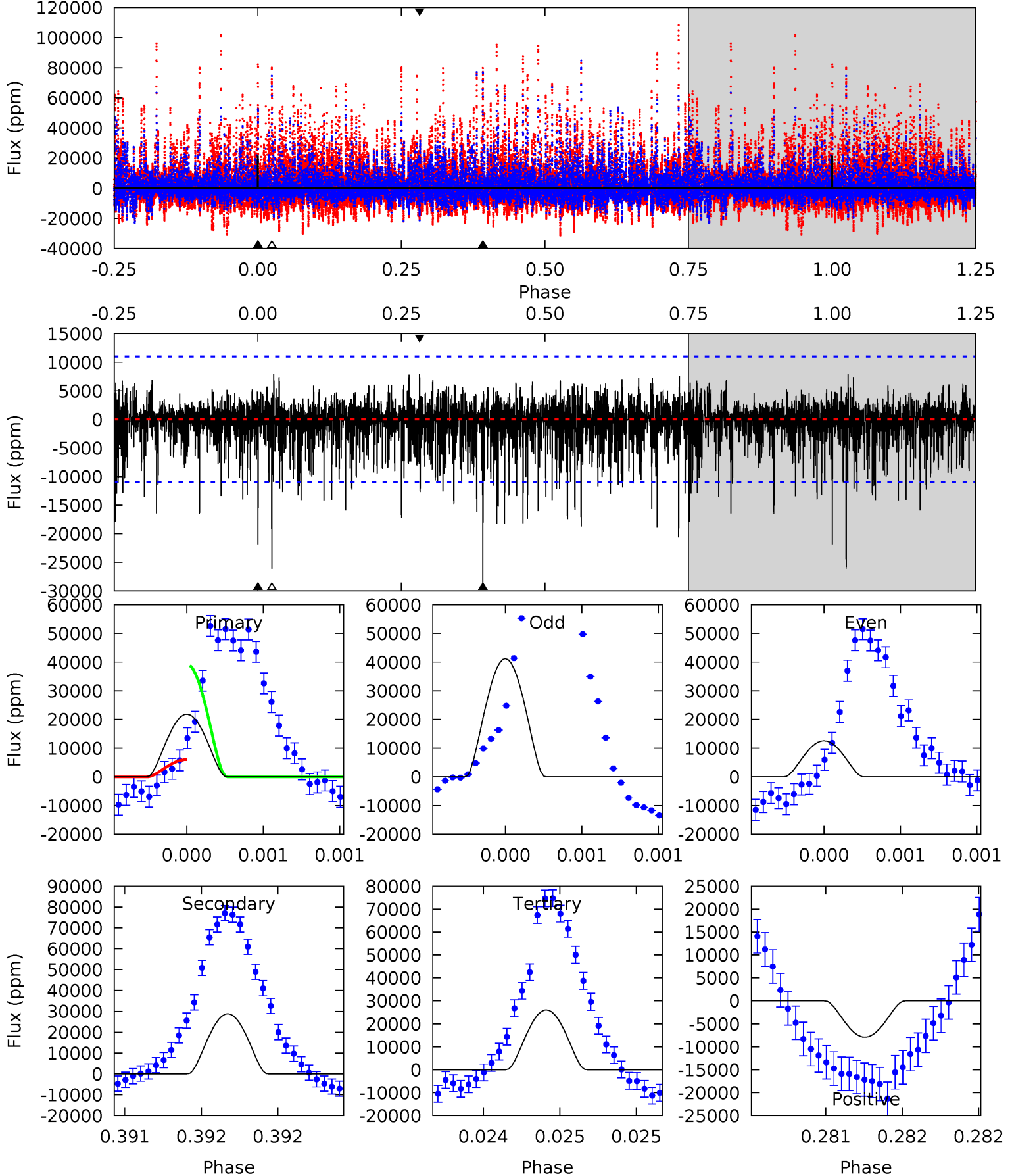
TCE 010990083-03 $P=500.404262$ Days $T_0=276.387804$ (BKJD)



DV Model-Shift Uniqueness Test

010990083-03, P = 500.402715 Days, E = 276.428611 Days

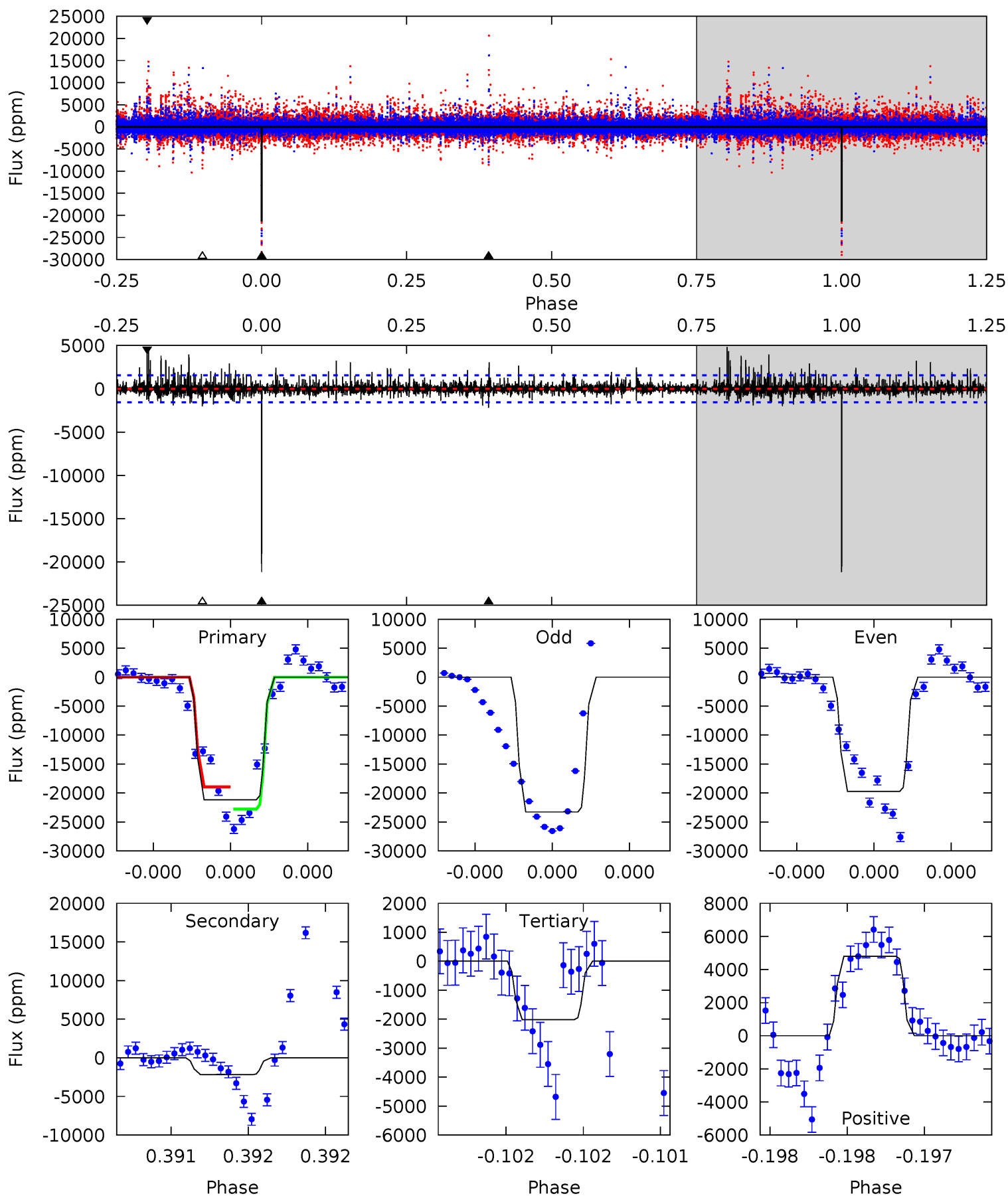
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	14.6	13.2	4.00	5.56	3.46	1.83	-2.14	7.05	1.38	10.6	6.50	1.43	0.22	8.34



Alt Model-Shift Uniqueness Test

010990083-03, P = 500.404262 Days, E = 276.387804 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.9	7.80	7.23	17.2	5.60	3.52	1.48	68.7	58.7	0.58	-9.43	6.12	0.92	0.19	6.87



Stellar Parameters For KIC 010990083

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7710^{+213}_{-347}	$3.733^{+0.408}_{-0.072}$	$-0.040^{+0.200}_{-0.350}$	$3.114^{+0.444}_{-1.422}$	$1.912^{+0.104}_{-0.415}$	$0.089^{+0.294}_{-0.021}$
	+3%/-5%	+11%/-2%	+500%/-875%	+14%/-46%	+5%/-22%	+330%/-24%
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 010990083-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28818 ± 1977	$96.46^{+87.74}_{-60.26}$	653^{+42}_{-74}	5544^{+3631}_{-1262}	4087^{+23816}_{-2966}
Alt.	-2176 ± 279	$80.82^{+75.89}_{-55.70}$	653^{+45}_{-85}	3577^{+1899}_{-641}	421^{+3441}_{-313}

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 $A_{obs} \gg 1.0$

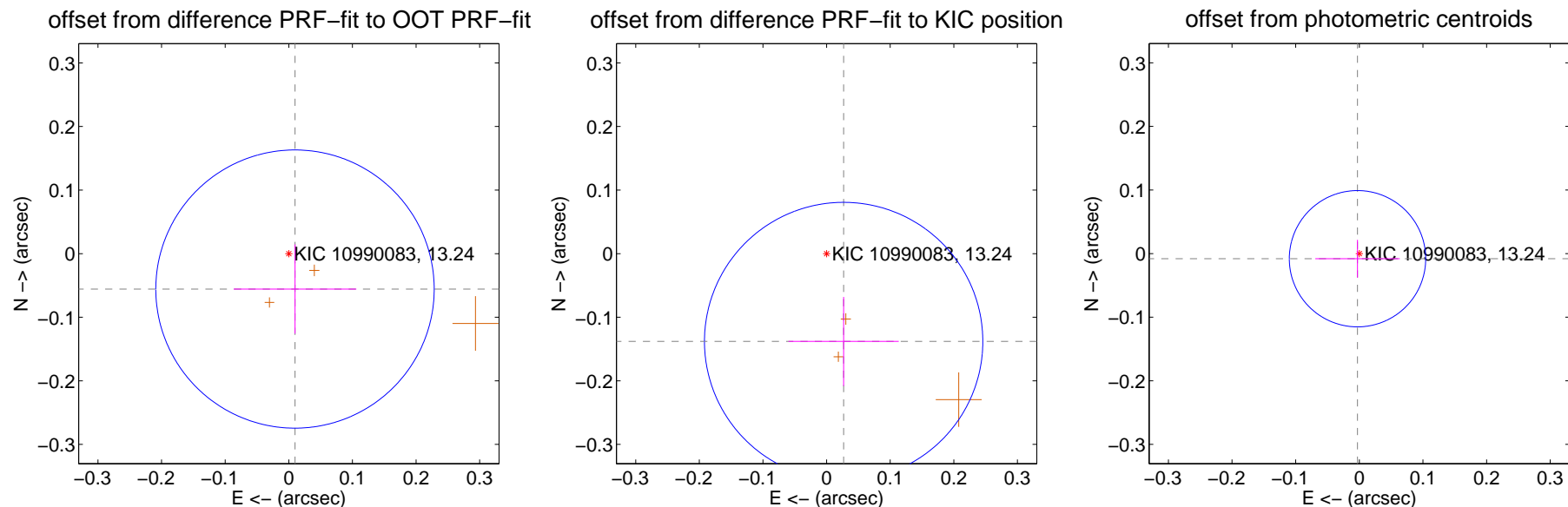
DV Centroid Data

Supplemental centroid analysis for 010990083-03. Kepler magnitude: 13.24. Transit SNR 14.38

There are 0 quarters with good PRF difference image offsets

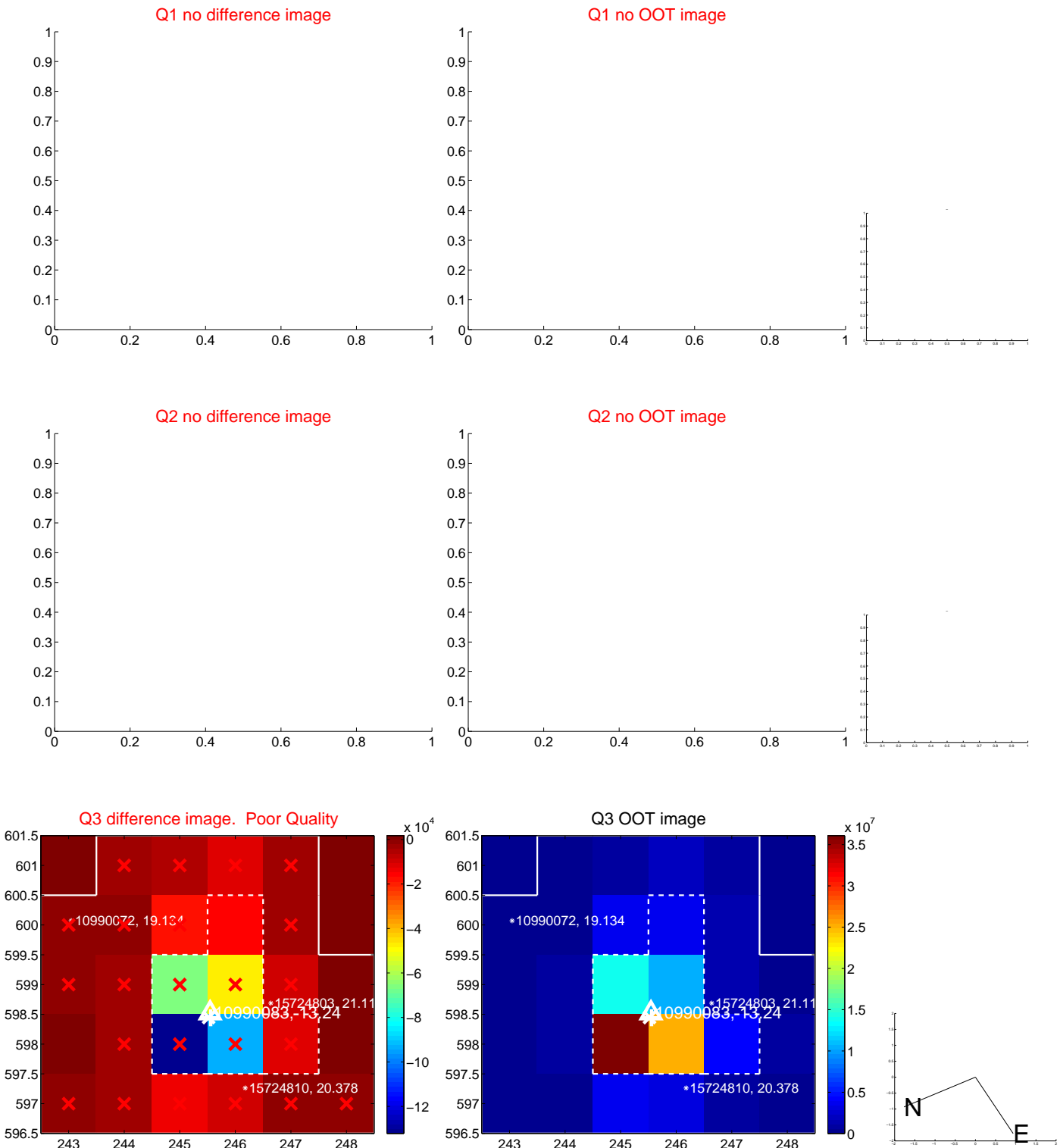
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.057 ± 0.073	0.77	-0.010 ± 0.096	-0.056 ± 0.070
PRF-fit source offset from KIC position	0.141 ± 0.073	1.93	-0.027 ± 0.087	-0.138 ± 0.070
photometric centroid source offset	0.01 ± 0.04	0.24	0.00 ± 0.07	-0.01 ± 0.03

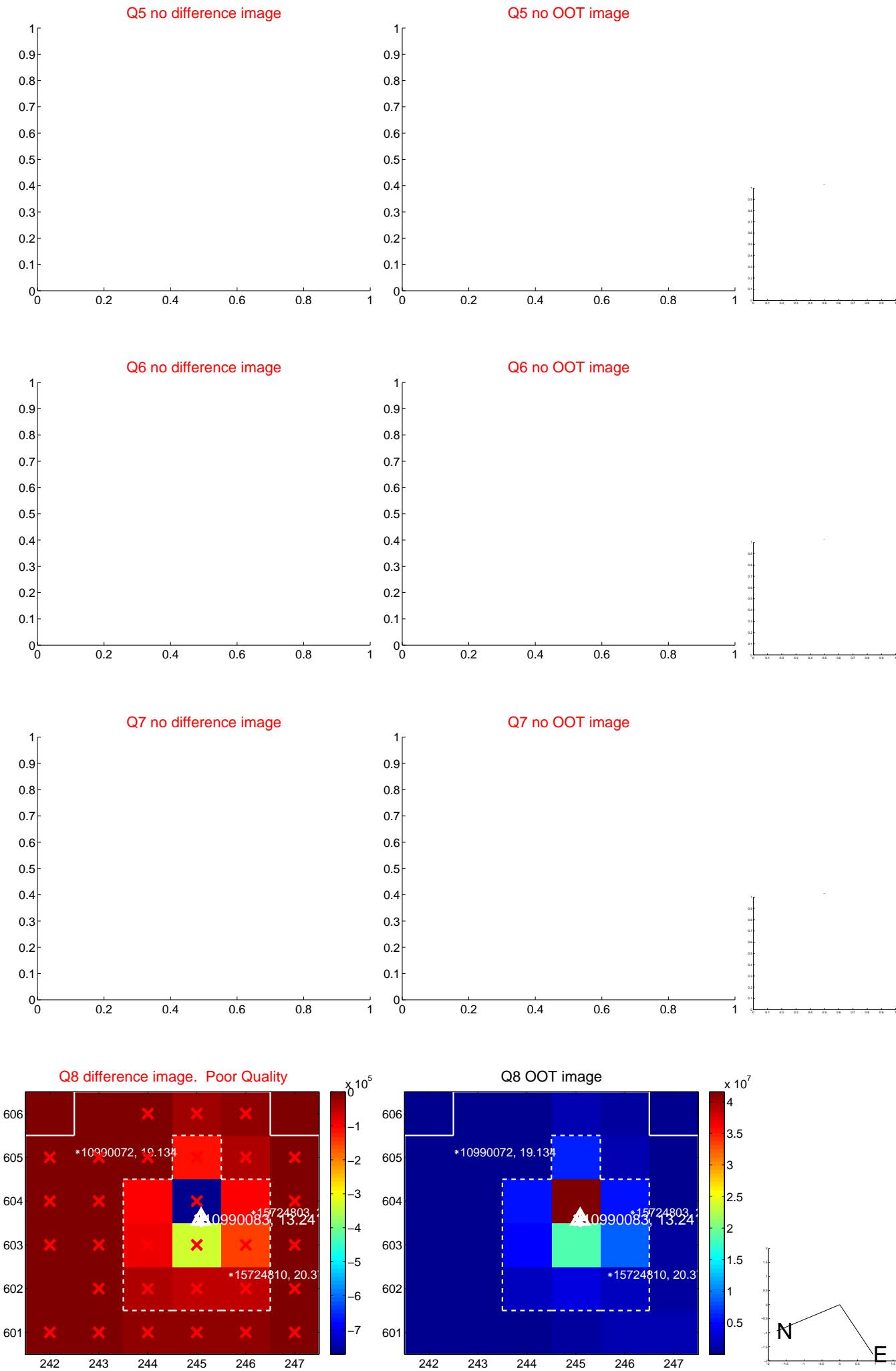


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



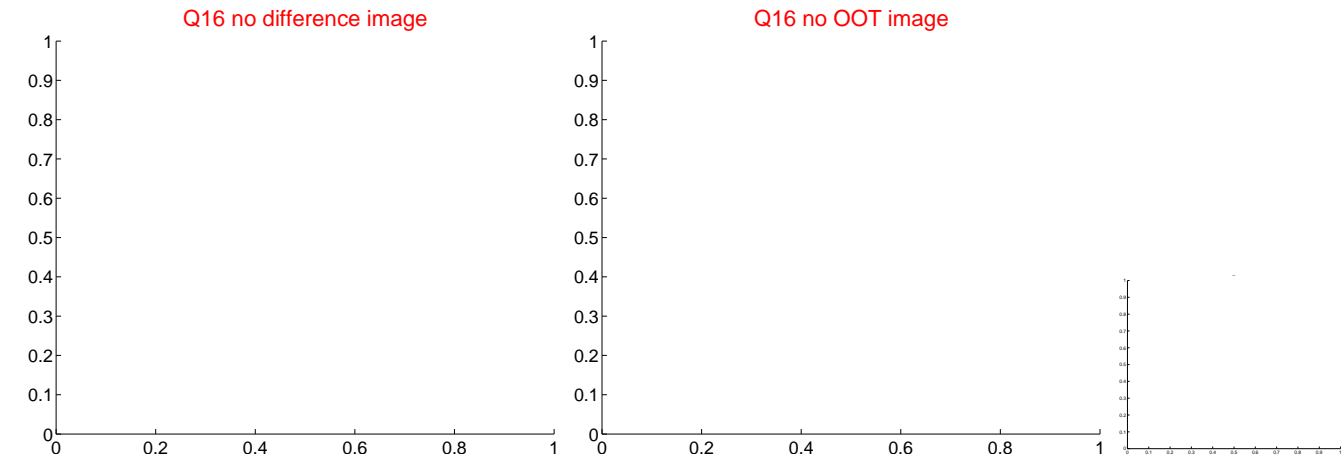
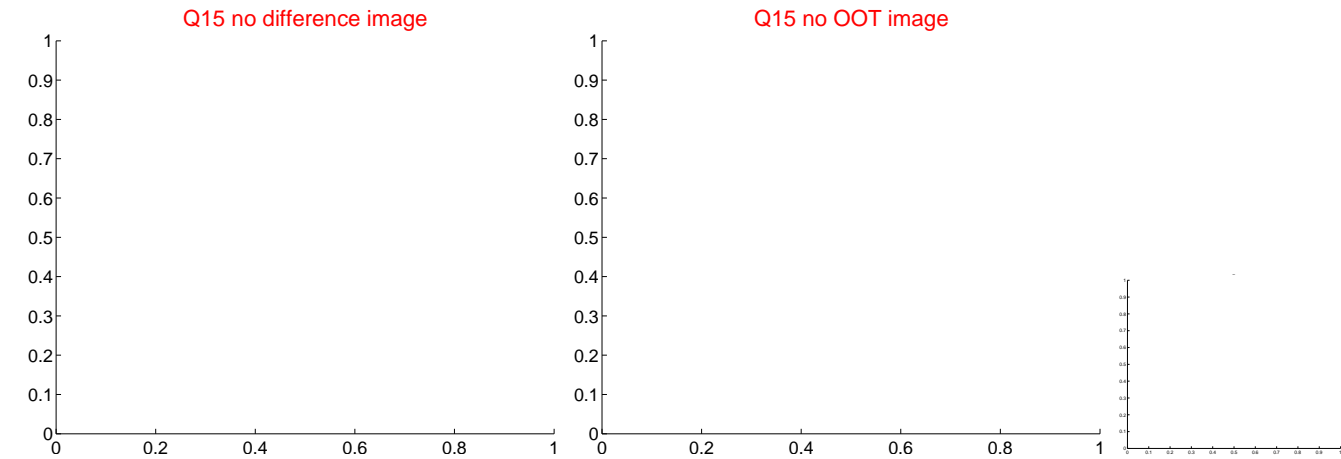
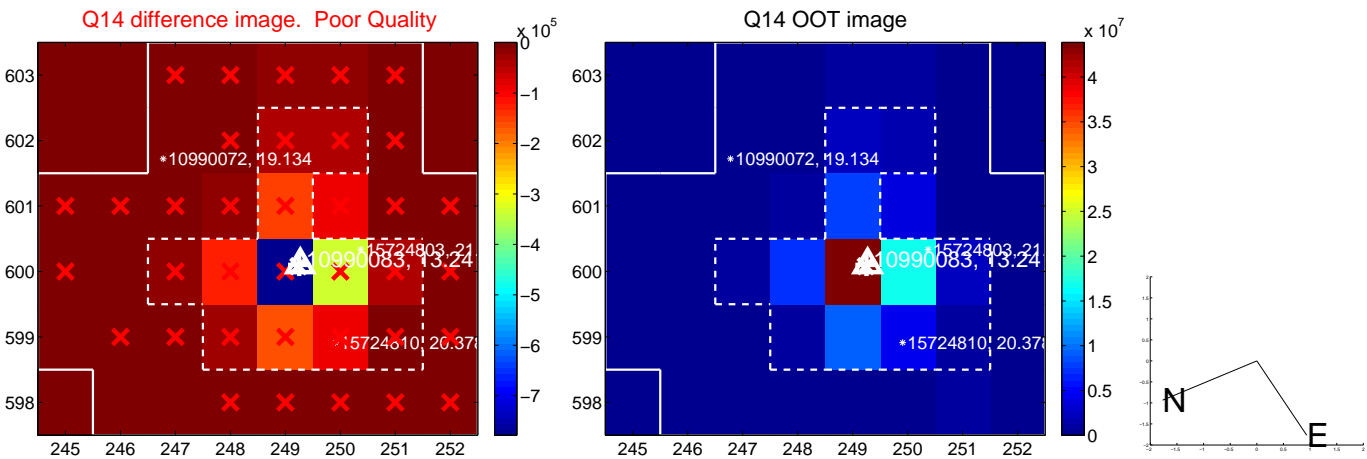
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



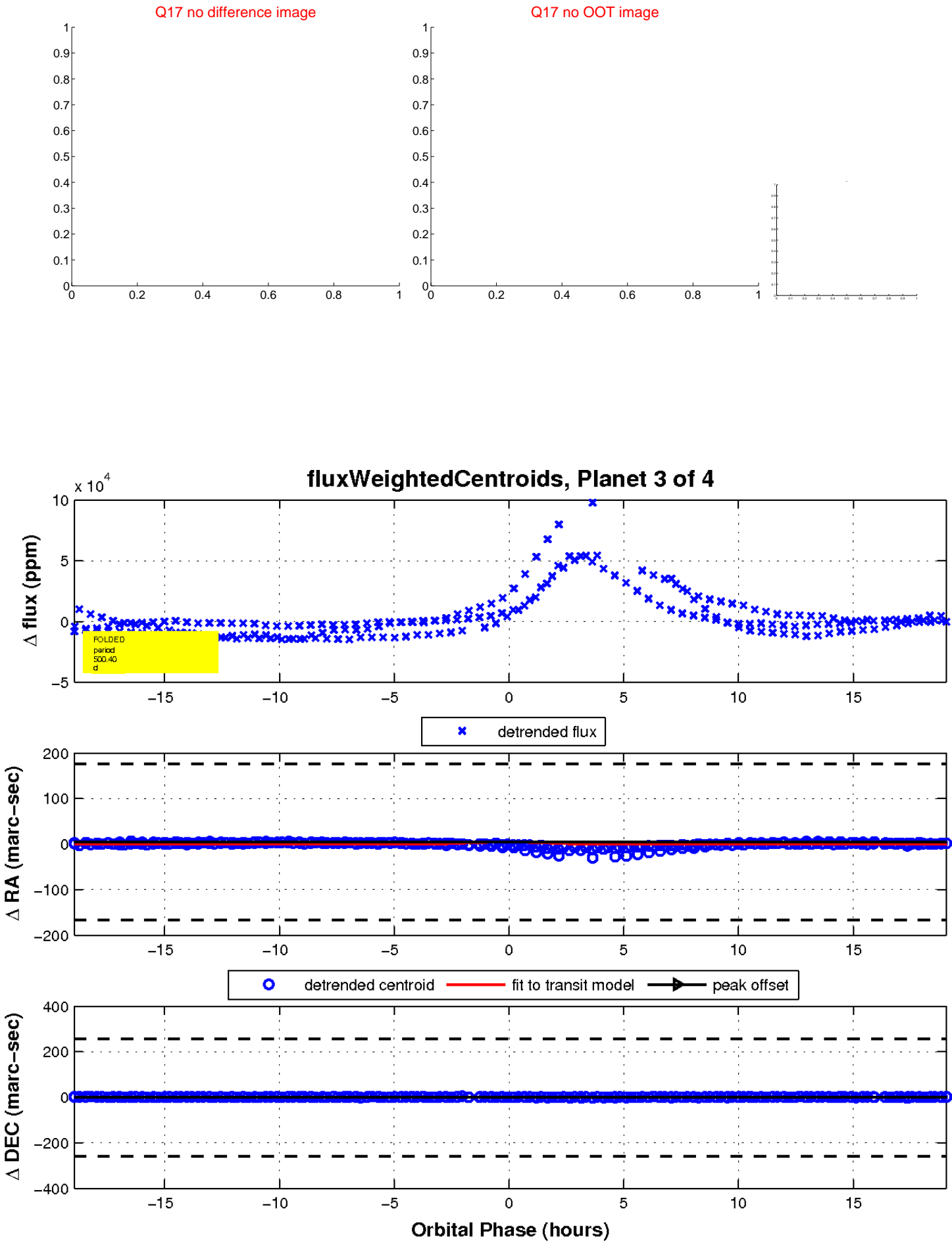
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

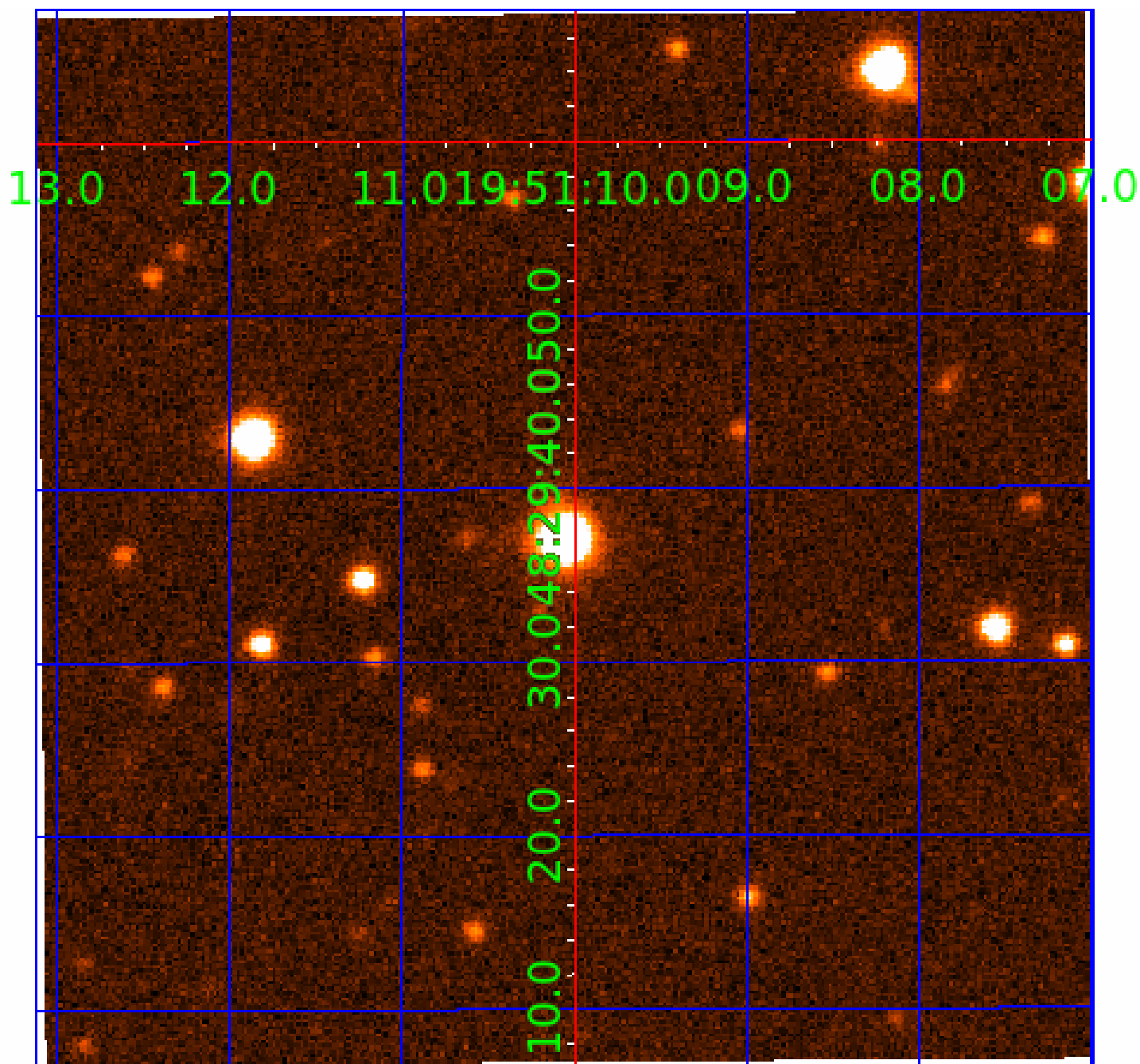


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010990083

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})
010990083-01	OBS	No	317.737510	145.331660	18197.7	9.245	17.2	7.0	3.11	7710	72.54	23.98
010990083-02	OBS	No	295.057462	163.920722	25680.5	6.827	17.5	15.8	3.11	7710	85.50	26.47
010990083-03	OBS	No	500.402715	276.428611	25676.4	6.388	18.1	14.4	3.11	7710	85.53	13.09
010990083-04	OBS	No	427.054593	491.345985	748.3	3.500	17.0	-1.0	3.11	7710	8.62	16.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010990083-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010990083-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010990083-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_DIFFS
010990083-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

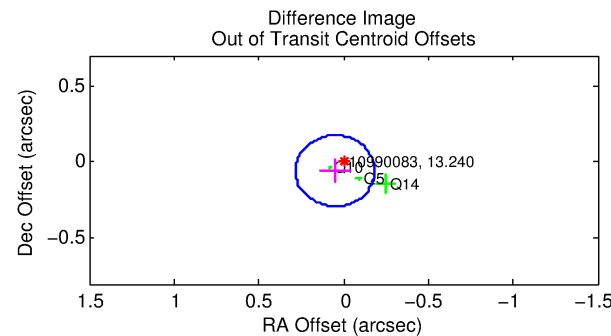
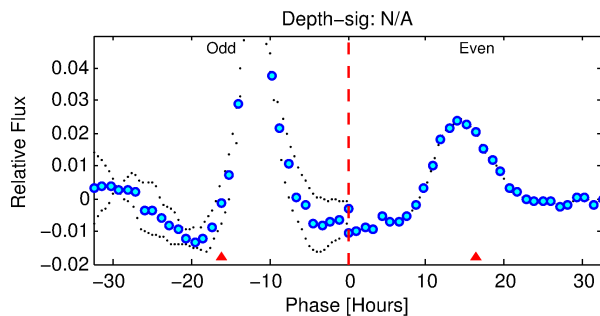
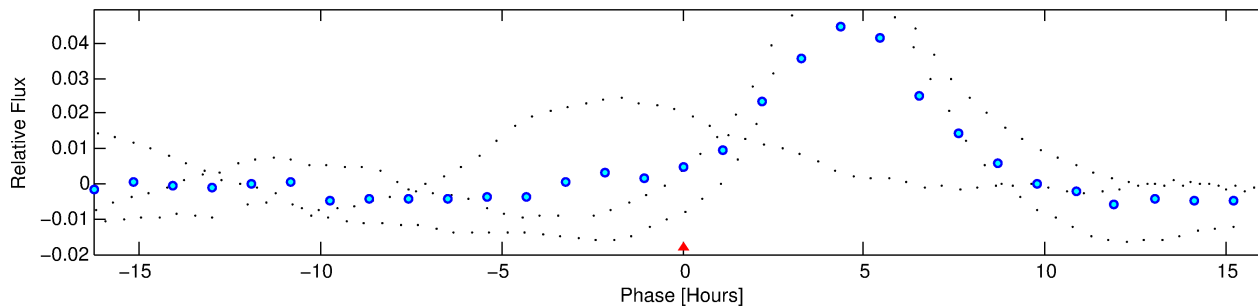
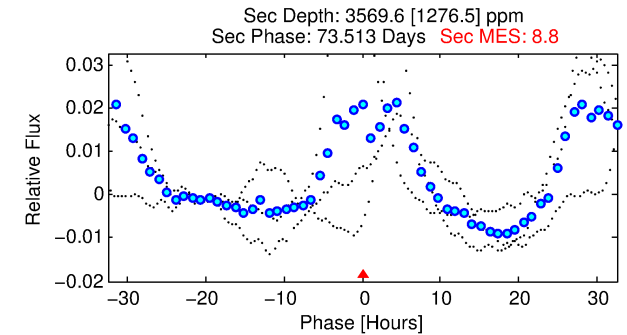
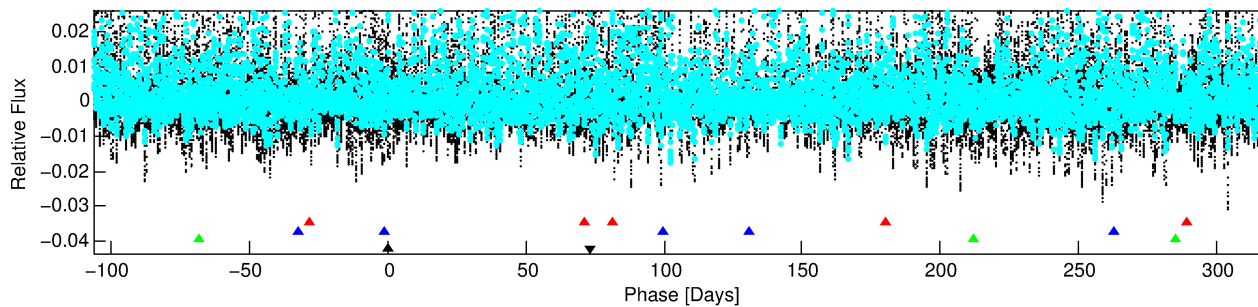
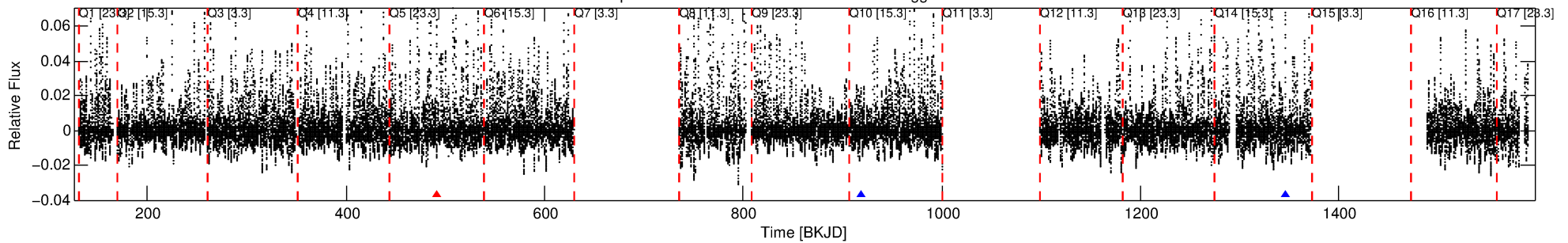
Ephemeris Match Information For 010990083-04

No Significant Match Found

DV One-Page Summary

KIC: 10990083 Candidate: 4 of 4 Period: 427.055 d

Kp: 13.24 R*: 3.11 Rs Teff: 7710.0 K Logg: 3.73 Fe/H: -0.040



TPS TCE Results:

Period = 427.05459 d
Epoch = 491.3460 BKJD

DV fit results are unavailable

DV Diagnostic Results:

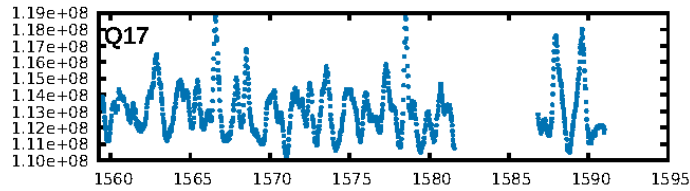
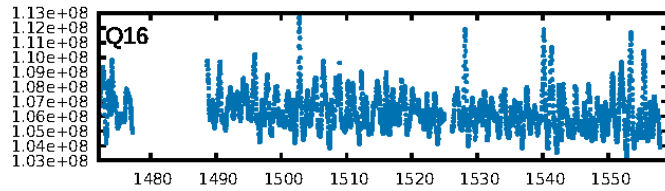
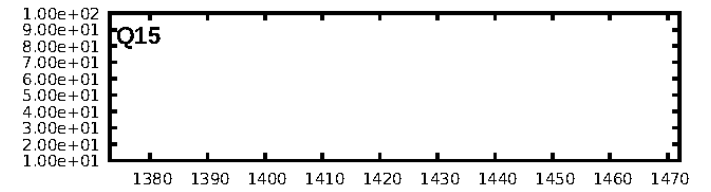
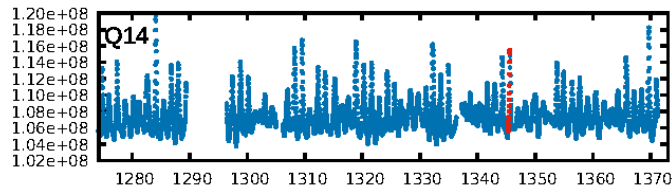
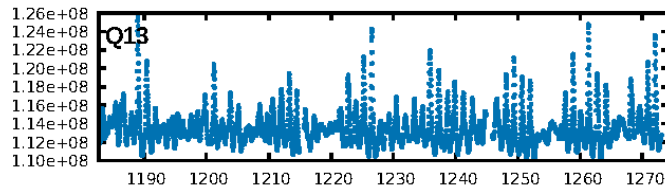
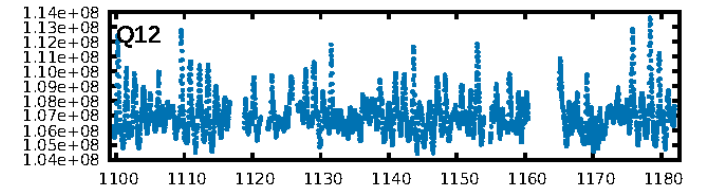
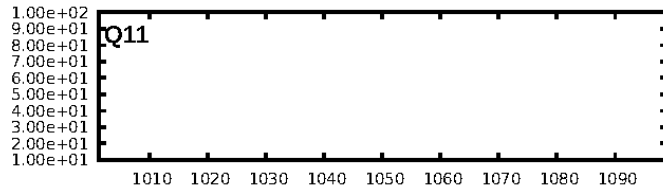
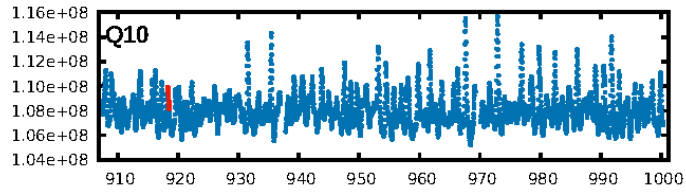
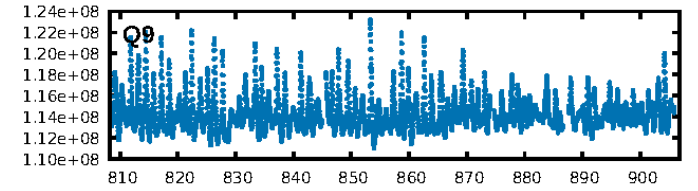
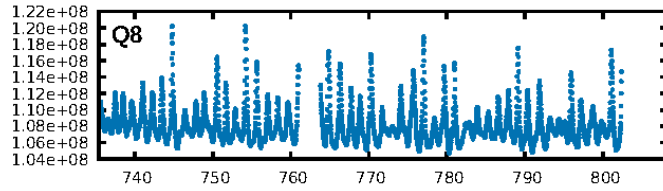
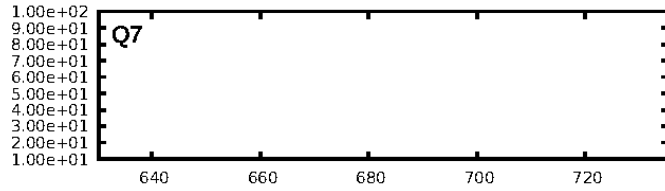
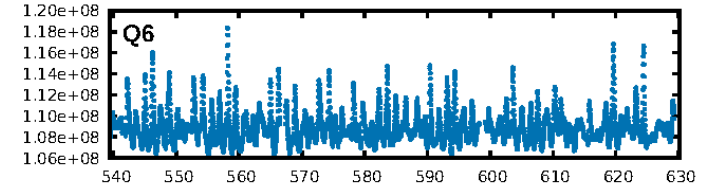
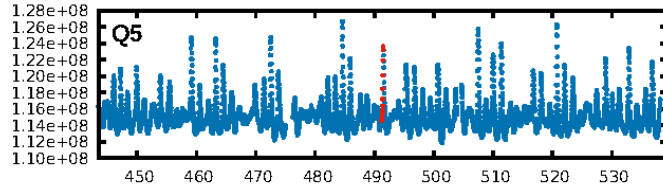
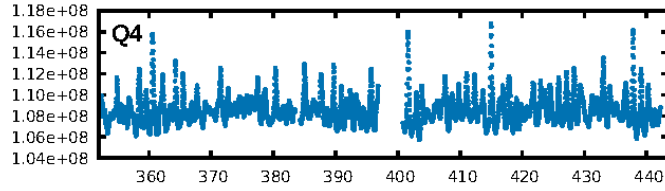
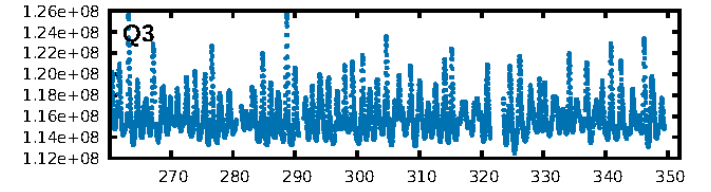
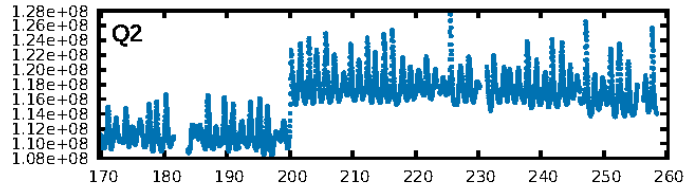
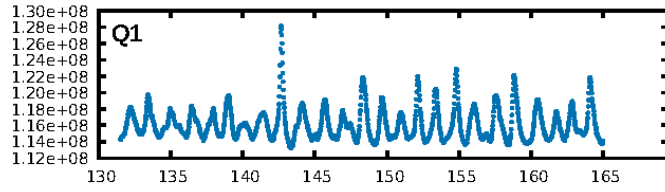
ShortPeriod-sig: 100.0% [265.40σ]
LongPeriod-sig: 100.0% [241.66σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 0.4267

Centroid-sig: 25.7%
Centroid-so: 0.133 arcsec [1.41σ]
OotOffset-rm: 0.076 arcsec [0.98σ]
KicOffset-rm: 0.158 arcsec [2.26σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

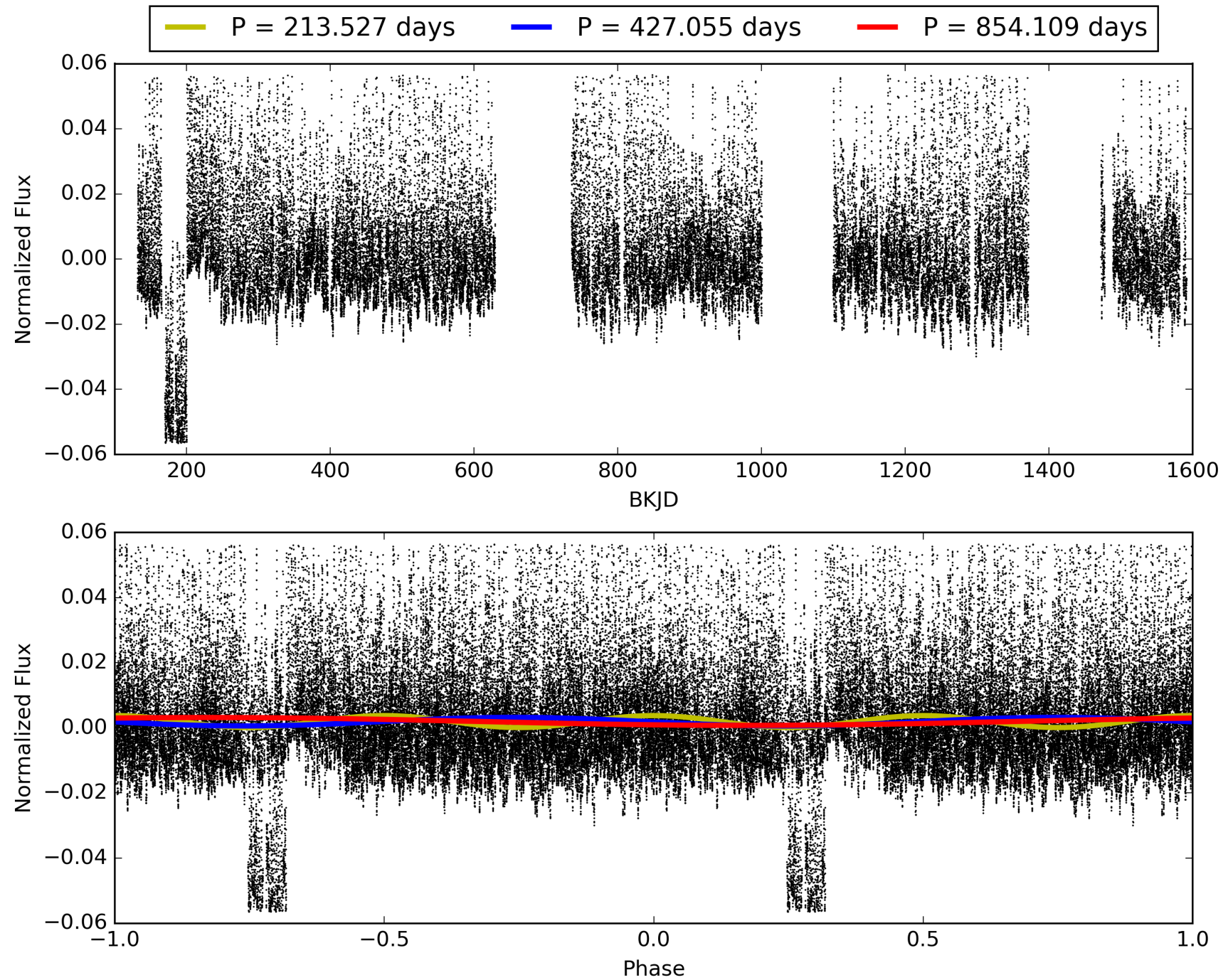
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:12:41 Z

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

TCE 010990083-04, PDC Light Curves

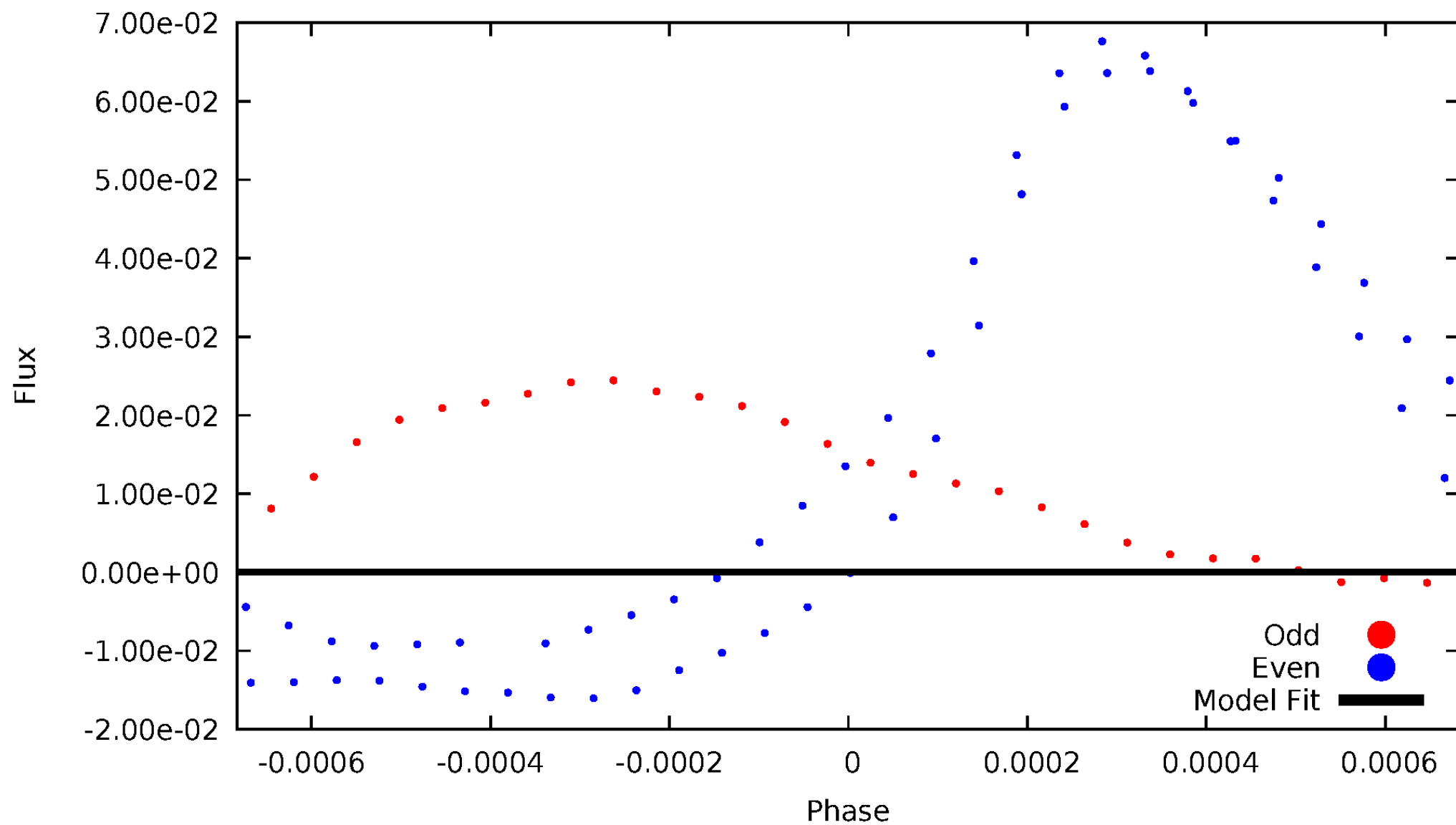


TCE 010990083-04



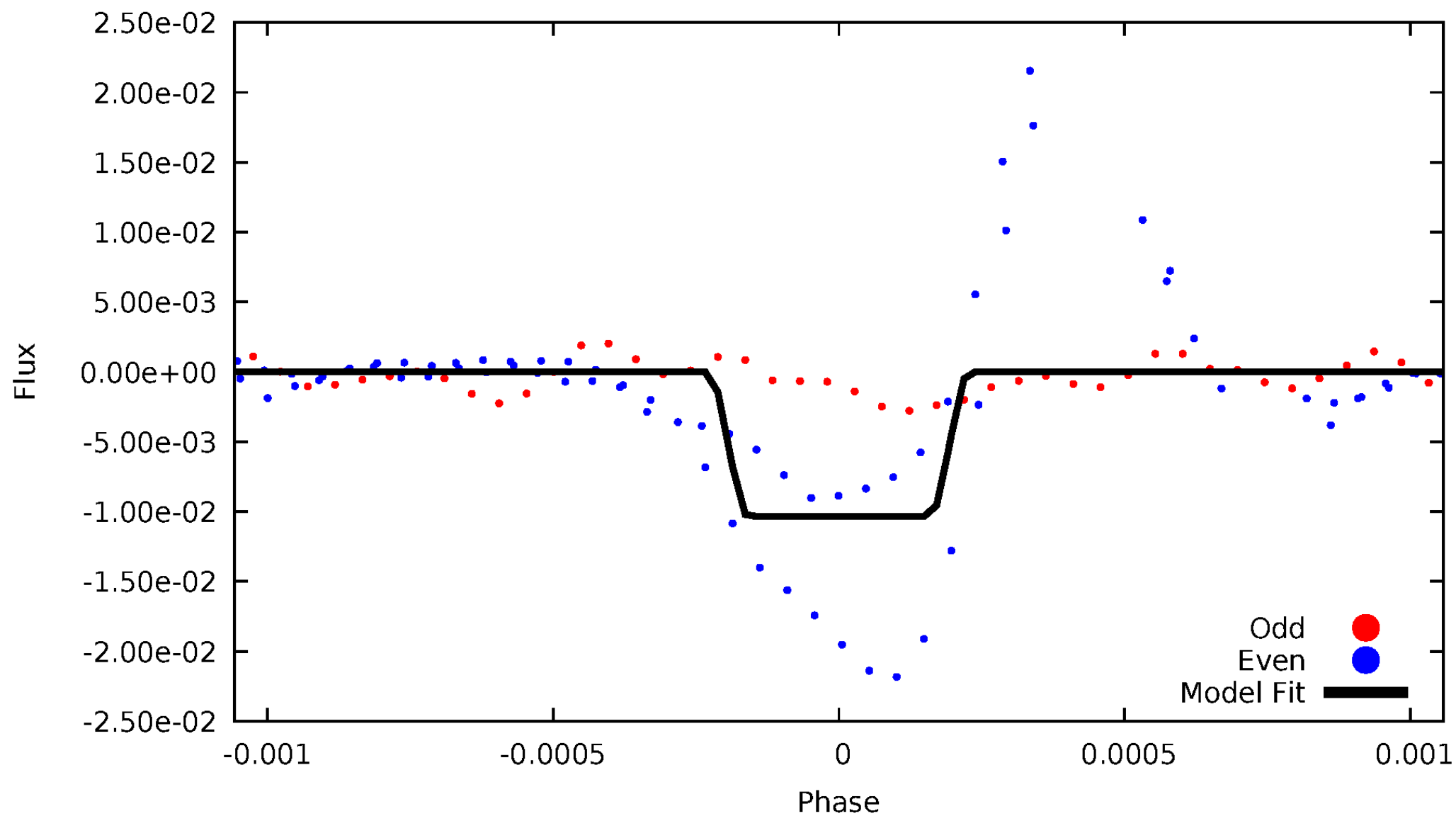
DV Odd/Even

TCE 010990083-04



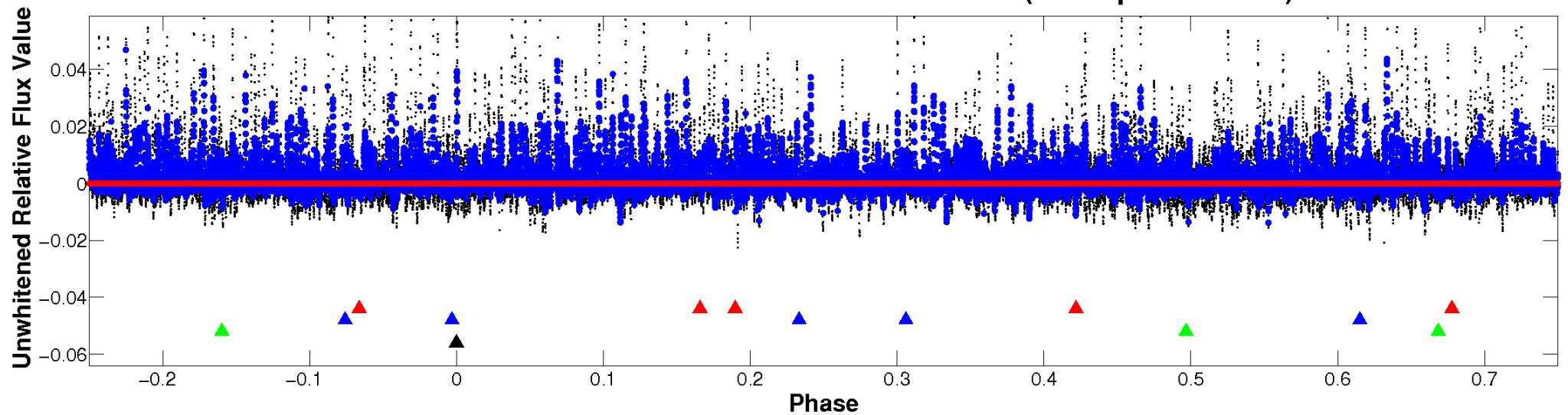
ALT Odd/Even

TCE 010990083-04



Non-Whitened Vs. Whitened Light Curve

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

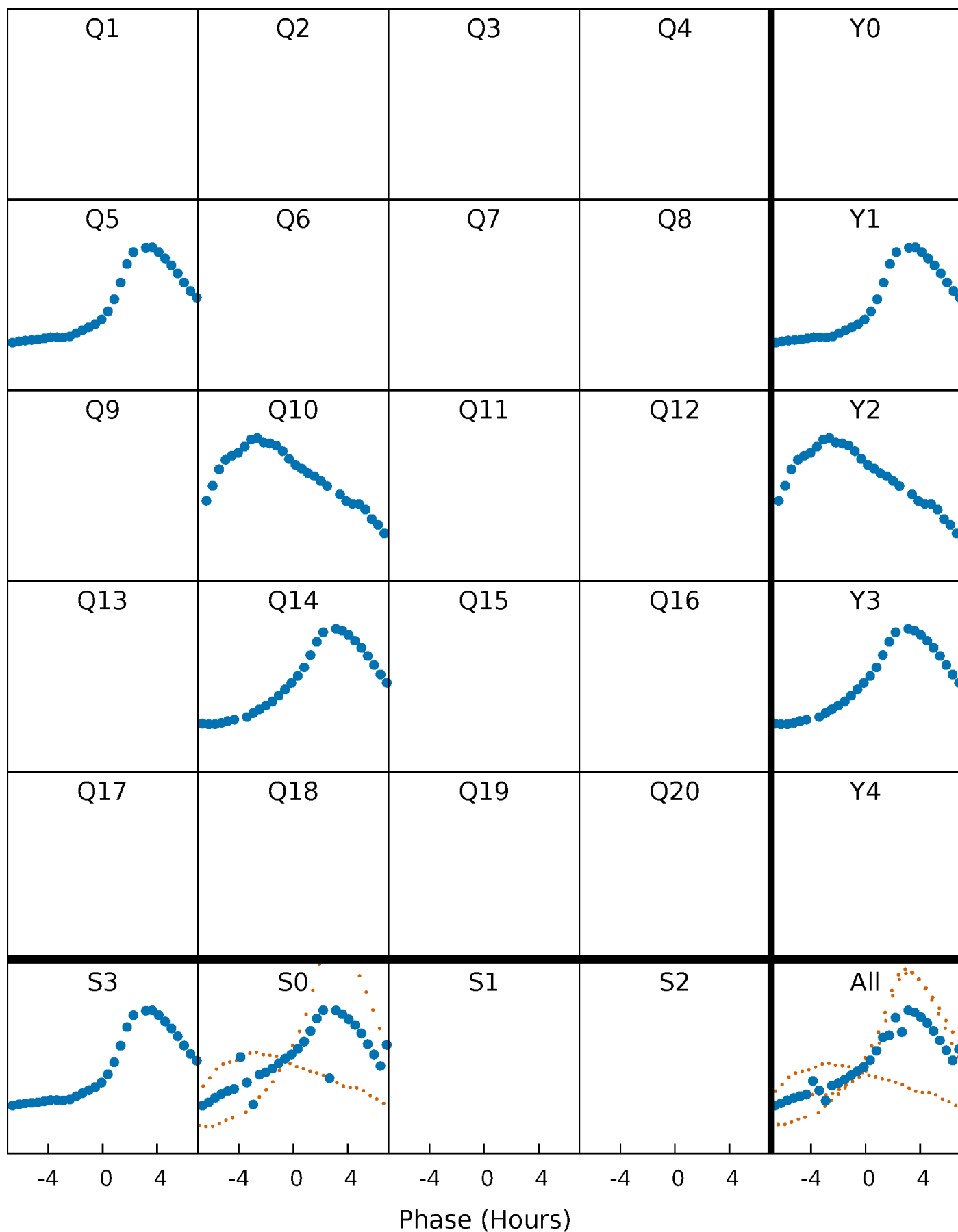


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



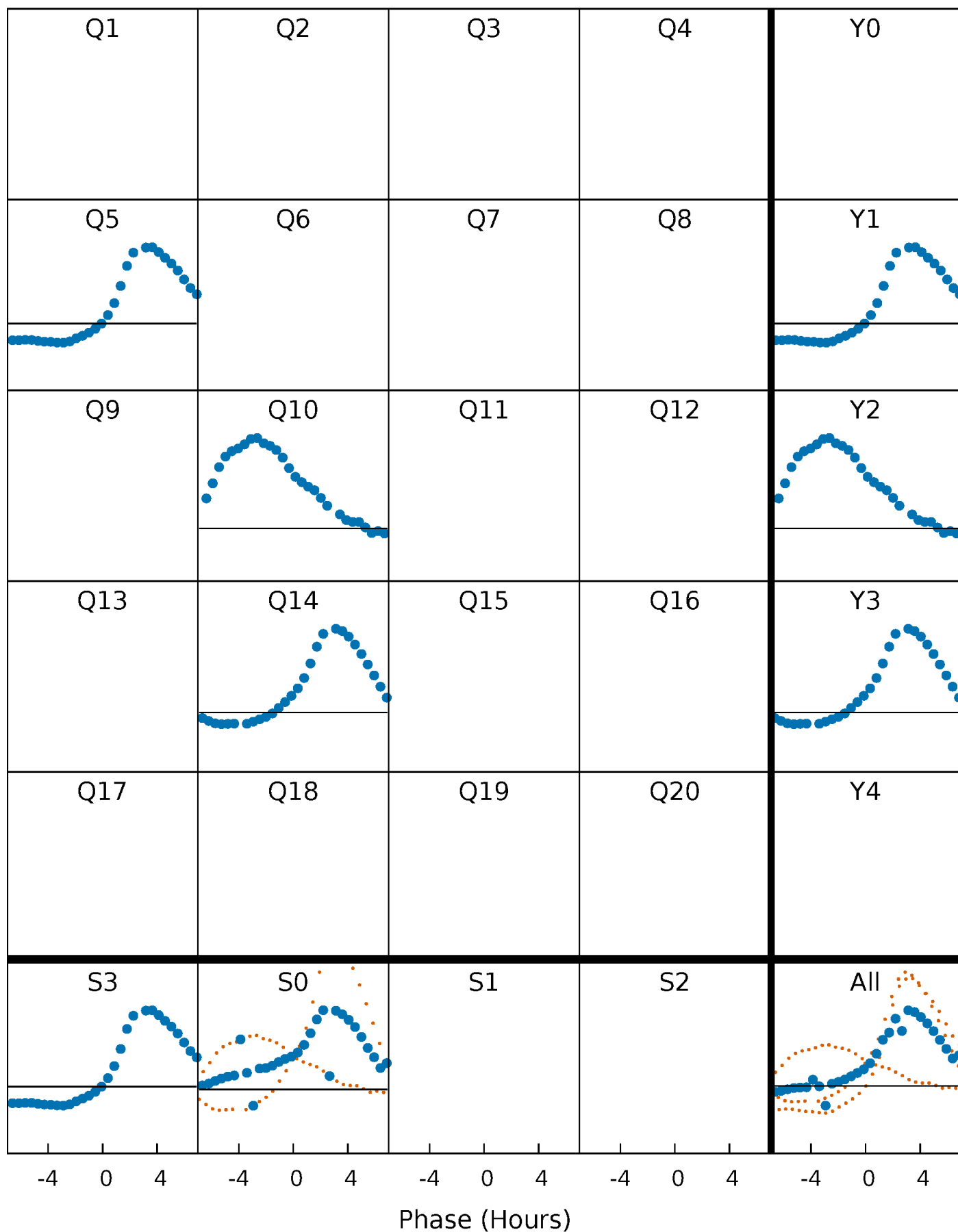
PDC Quarter-Phased Transit Curves

TCE 010990083-04 $P=427.054593$ Days $T_0=491.345985$ (BKJD)



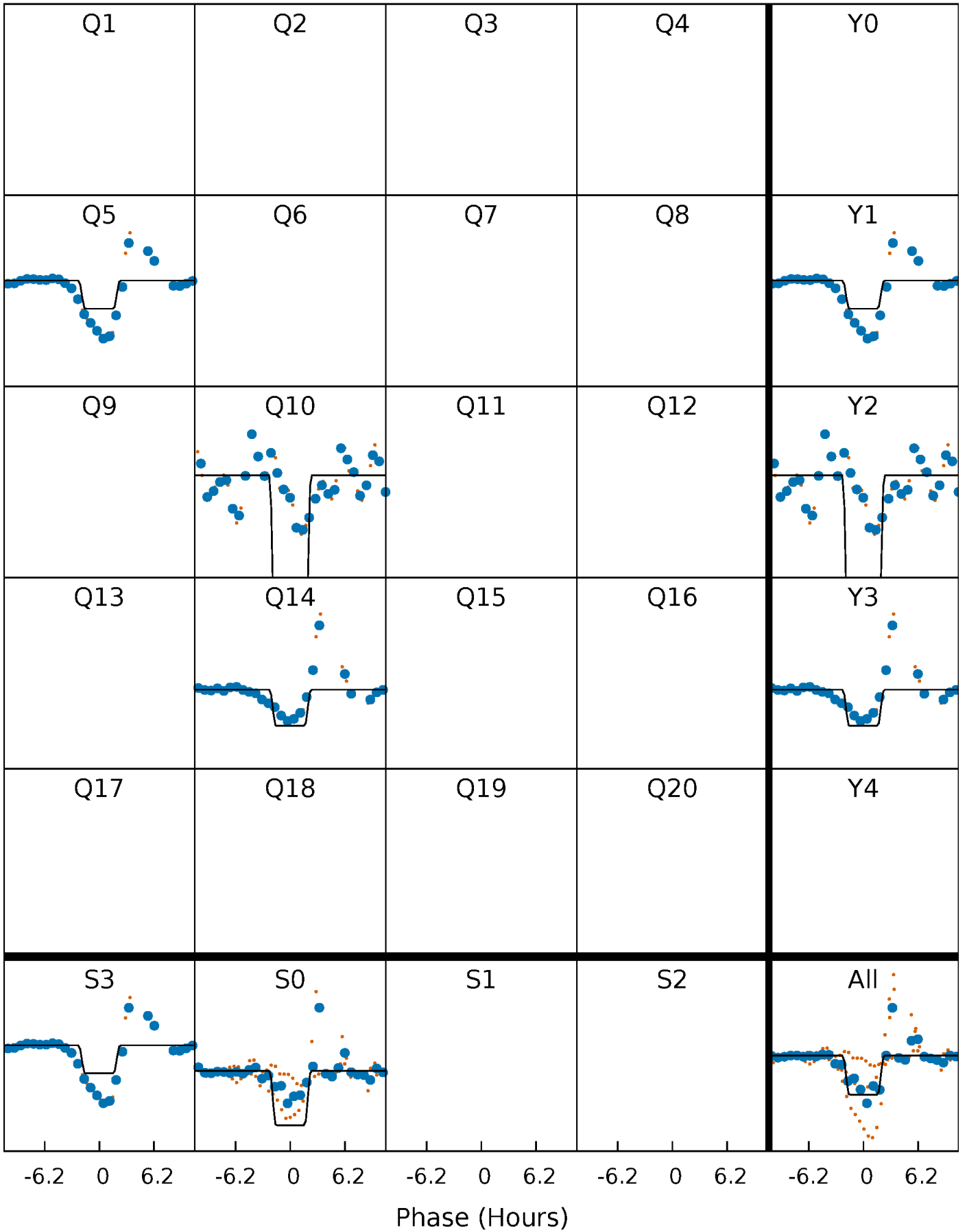
DV Quarter-Phased Transit Curves

TCE 010990083-04 P=427.054593 Days $T_0=491.345985$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

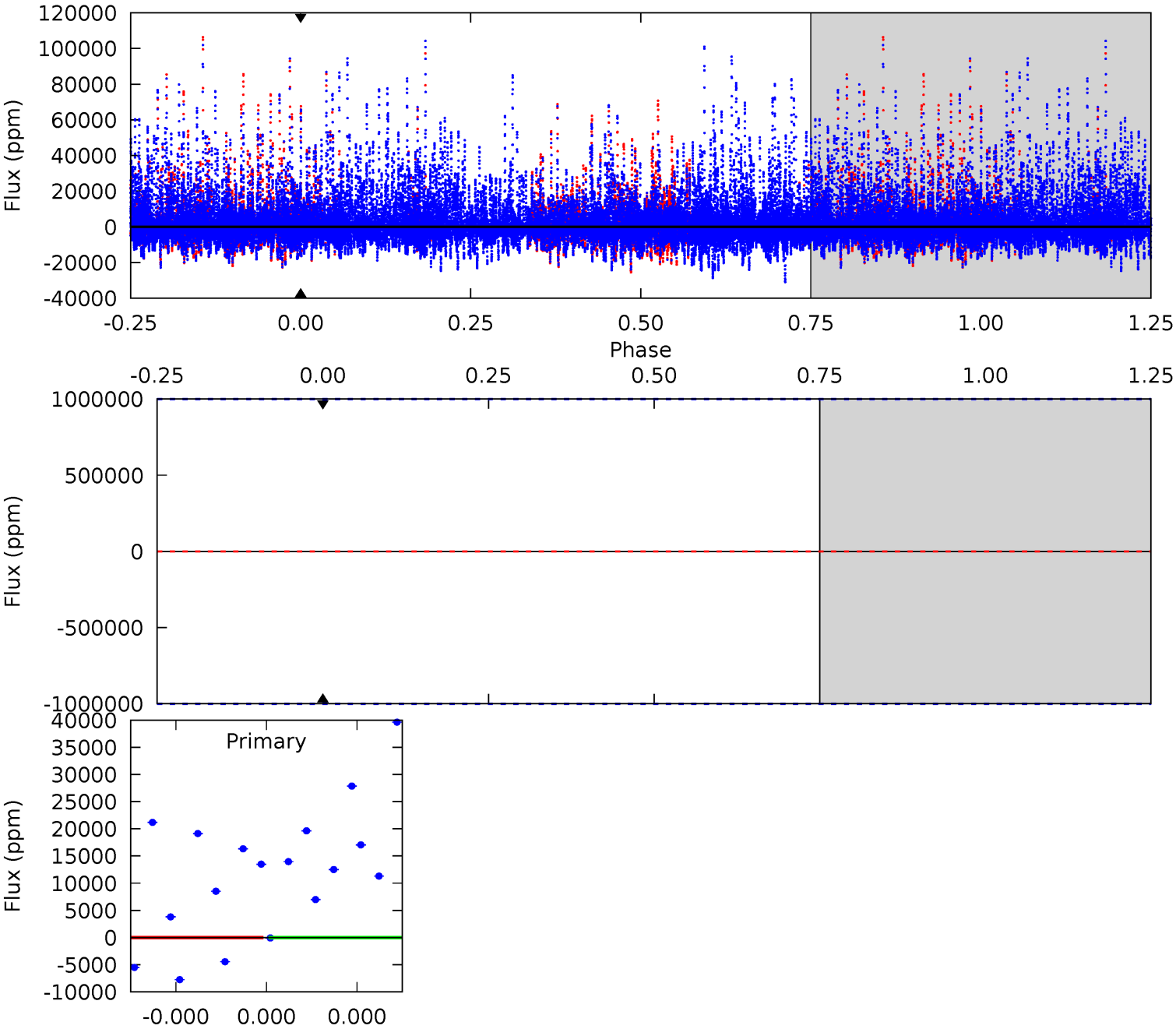
TCE 010990083-04 $P=427.054593$ Days $T_0=491.303845$ (BKJD)



DV Model-Shift Uniqueness Test

010990083-04, P = 427.054593 Days, E = 64.291392 Days

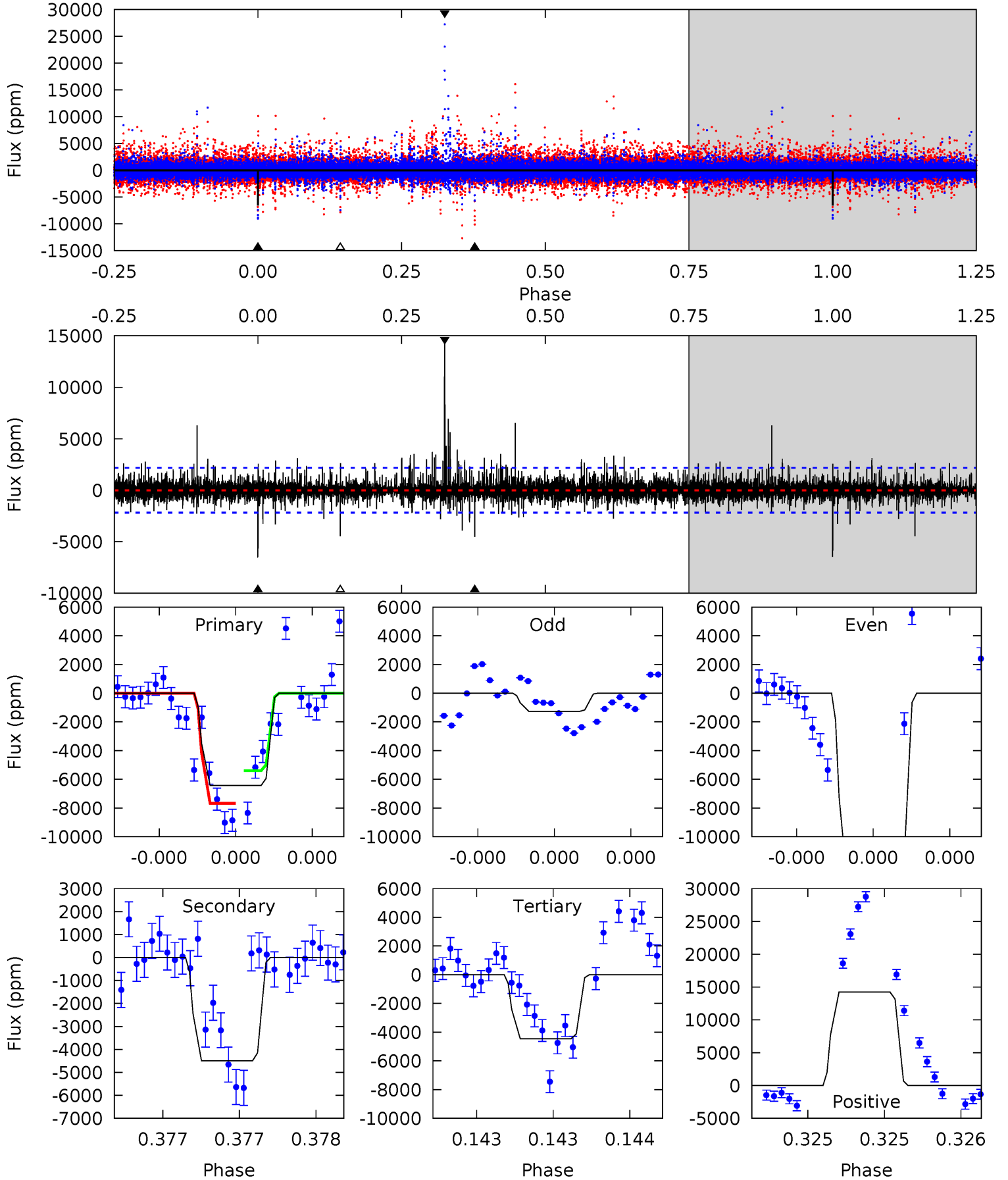
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010990083-04, P = 427.054593 Days, E = 64.249252 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	11.5	11.4	36.5	5.60	3.52	1.63	5.08	-20.0	0.11	-25.0	17.2	1.23	0.69	2.92



Stellar Parameters For KIC 010990083

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7710^{+213}_{-347}	$3.733^{+0.408}_{-0.072}$	$-0.040^{+0.200}_{-0.350}$	$3.114^{+0.444}_{-1.422}$	$1.912^{+0.104}_{-0.415}$	$0.089^{+0.294}_{-0.021}$
	+3%/-5%	+11%/-2%	+500%/-875%	+14%/-46%	+5%/-22%	+330%/-24%
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 010990083-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$23.95^{+23.57}_{-16.34}$	690^{+49}_{-79}	5577^{+34181}_{-39257}	$2948^{+344164}_{-240821}$
Alt.	-4498 ± 390	$36.95^{+29.98}_{-22.29}$	691^{+46}_{-73}	5597^{+3642}_{-1165}	3421^{+16892}_{-2377}

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

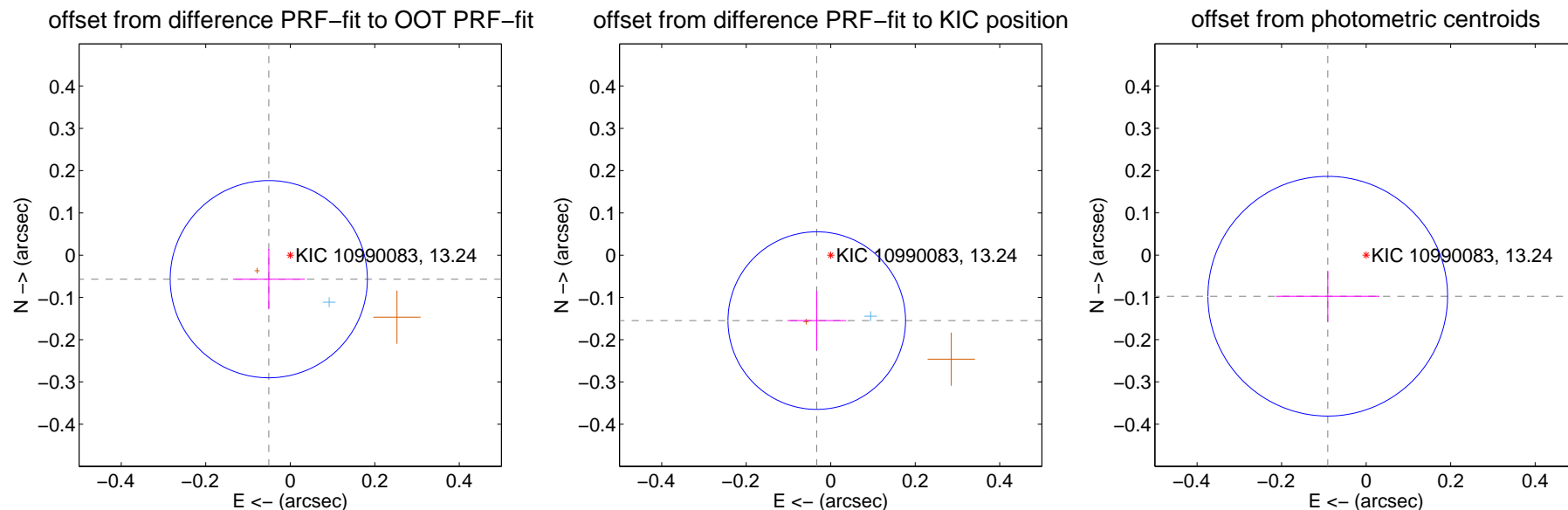
DV Centroid Data

Supplemental centroid analysis for 010990083-04. Kepler magnitude: 13.24. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.076 ± 0.078	0.98	0.051 ± 0.085	-0.057 ± 0.072
PRF-fit source offset from KIC position	0.158 ± 0.070	2.26	0.033 ± 0.069	-0.155 ± 0.070
photometric centroid source offset	0.13 ± 0.09	1.41	0.09 ± 0.12	-0.10 ± 0.06

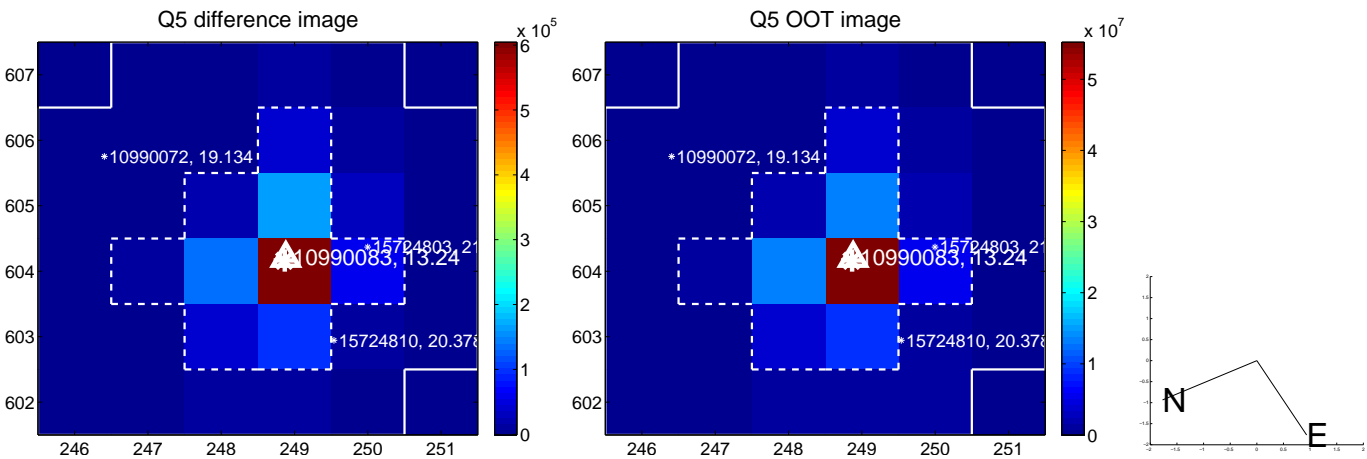


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

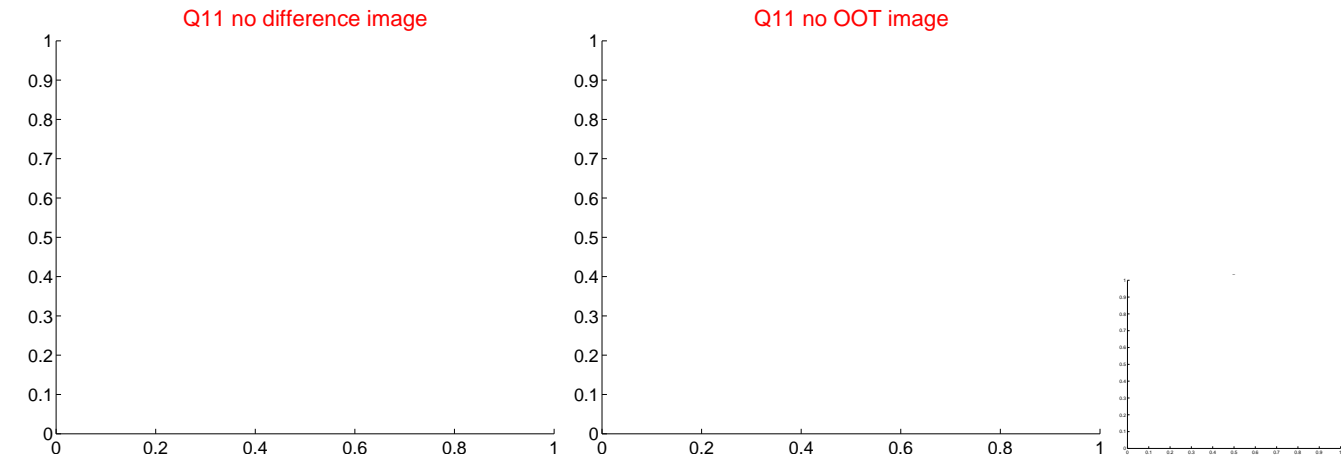
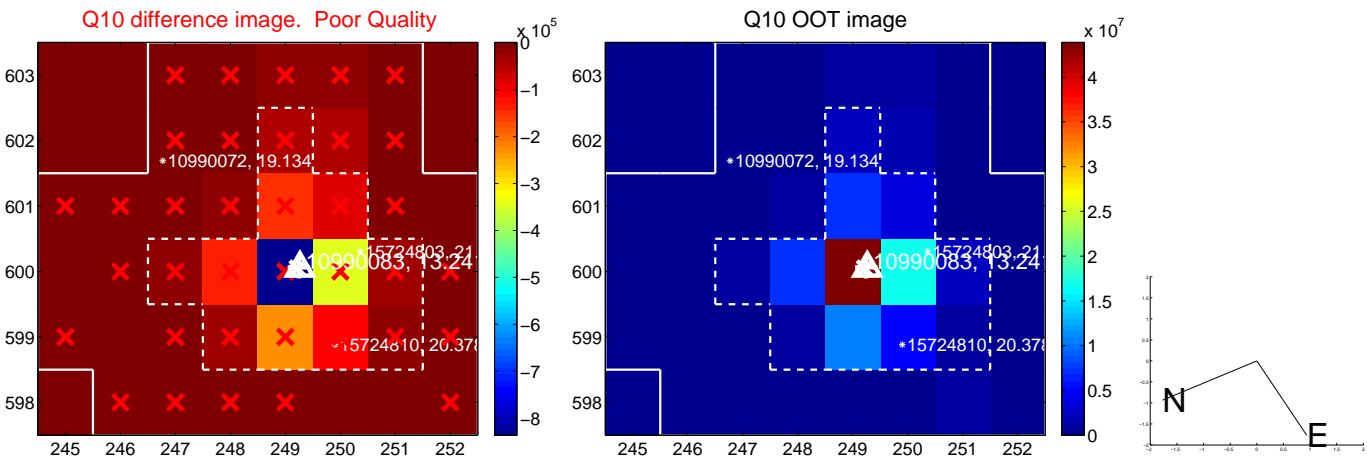
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



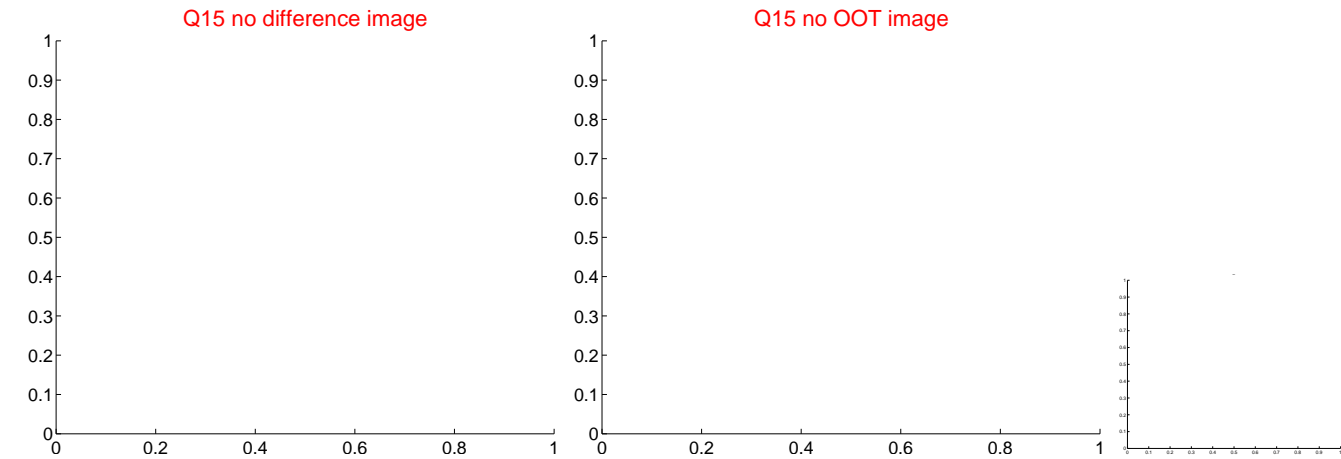
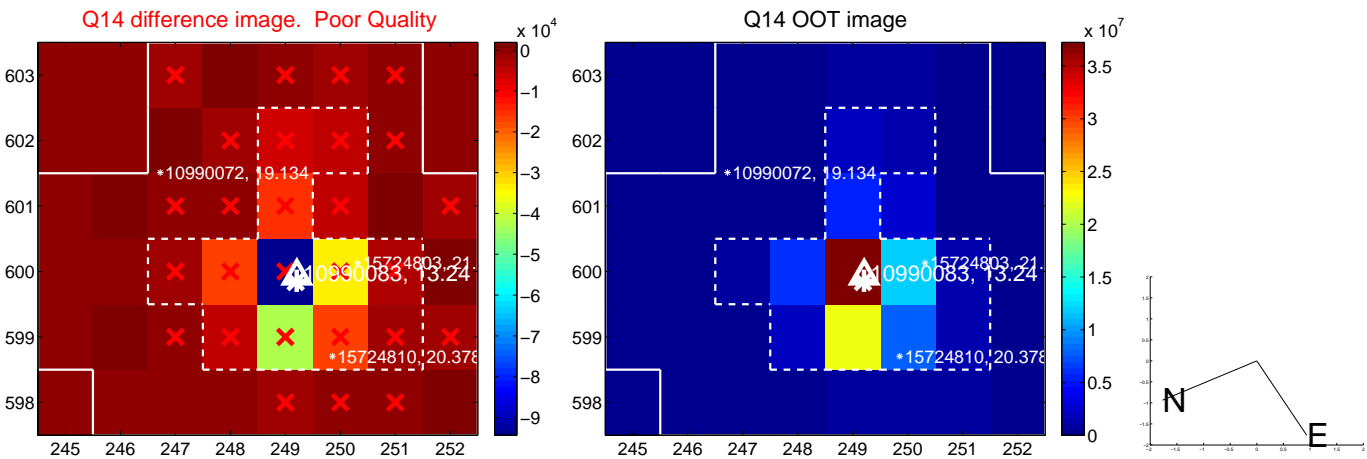
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



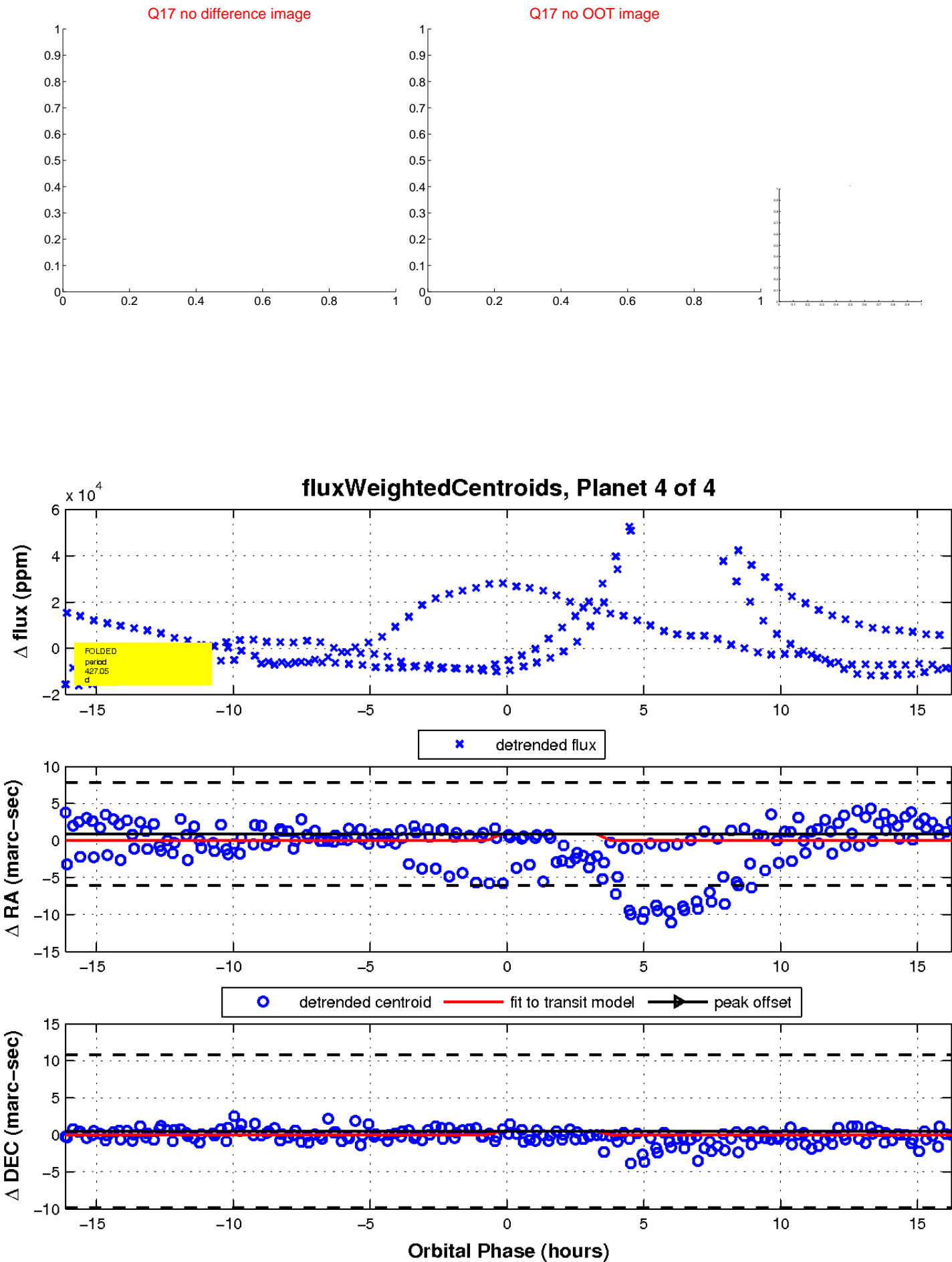
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

