

KIC 005093223

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})
005093223-01	OBS	No	371.573789	453.895121	4070.8	6.199	97.8	47.7	300.75	3287	3982.97	0.00
005093223-02	OBS	No	347.258542	146.199699	2799.0	3.749	31.4	28.6	300.75	3287	3379.39	0.00
005093223-03	OBS	No	345.969013	146.919591	131.4	12.377	33.7	1.1	300.75	3287	513.90	4234.93
005093223-04	OBS	No	349.896434	133.523893	2636.9	28.526	18.6	27.3	300.75	3287	3274.63	0.00
005093223-05	OBS	No	593.947274	151.598837	417.5	0.816	21.0	4.9	300.75	3287	581.91	2060.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005093223-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-04	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

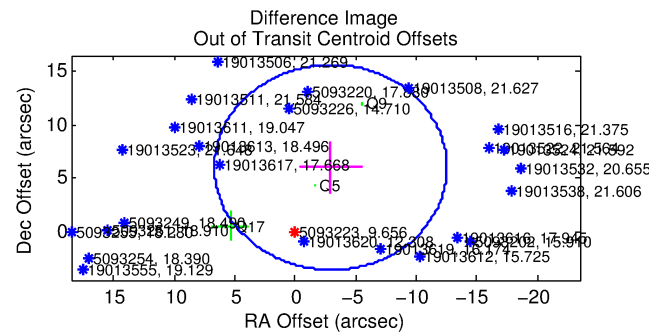
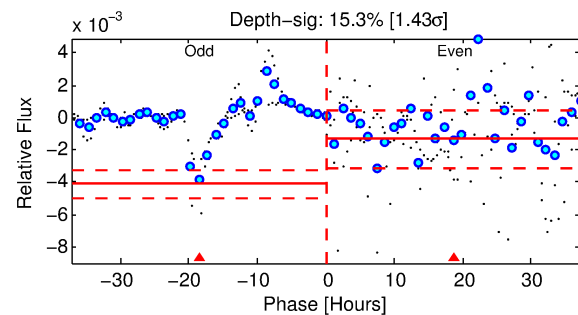
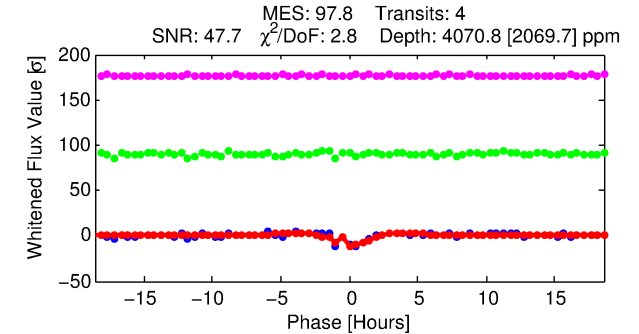
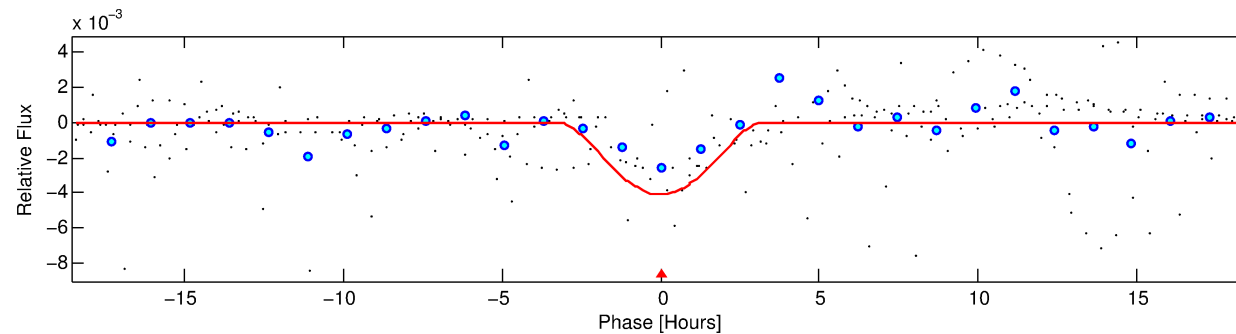
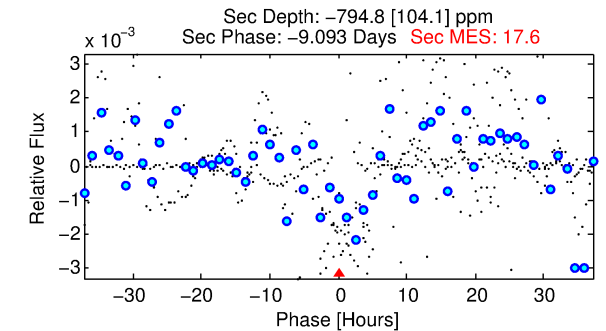
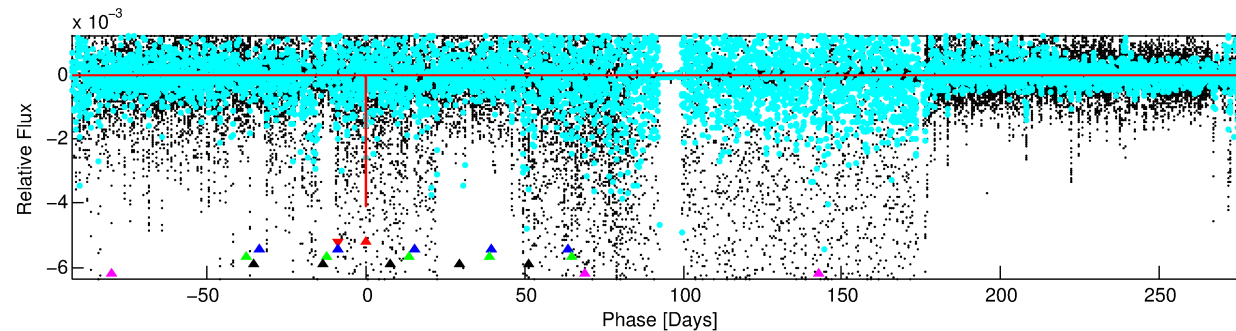
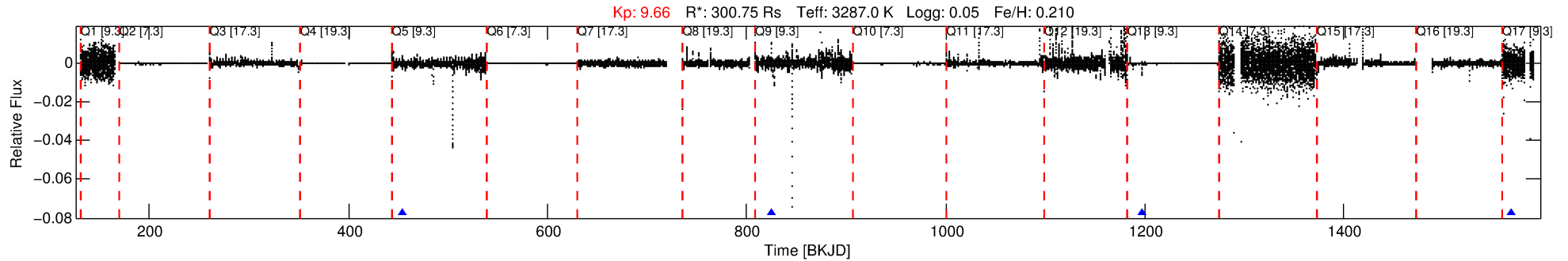
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005093223-01

No Significant Match Found

DV One-Page Summary

KIC: 5093223 Candidate: 1 of 5 Period: 371.574 d



DV Fit Results:

Period = 371.57379 [0.00568] d
Epoch = 453.8951 [0.0112] BKJD
Rp/R* = 0.1214 [0.1953]
a/R* = 232.37 [58.72]
b = 1.00 [0.30]
Seff = N/A
Teq = N/A
Rp = 3982.97 [6826.57] Re
a = N/A
Ag = N/A
Teffp = N/A

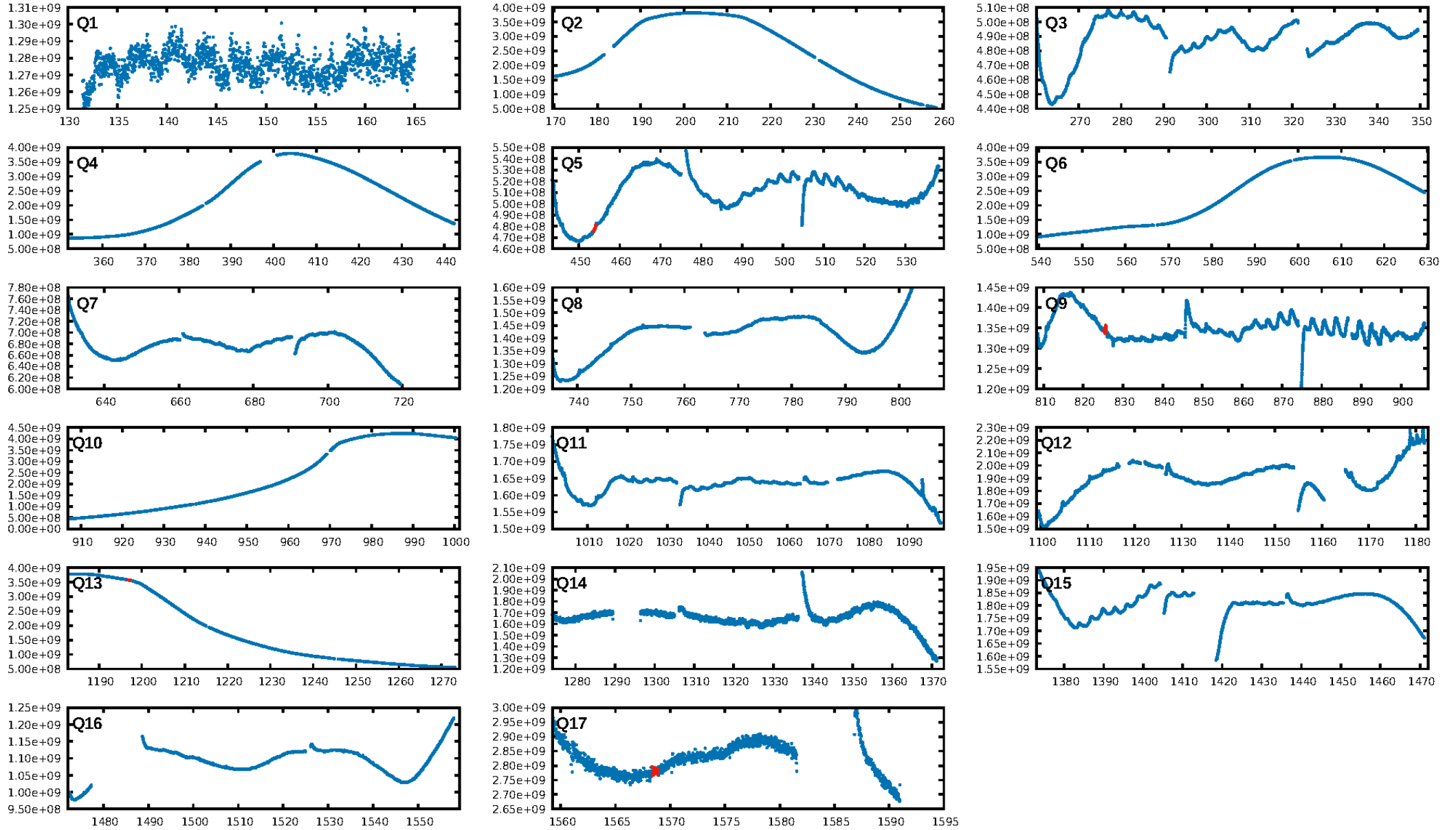
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.82σ]
LongPeriod-sig: 100.0% [853.58σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.4%
Bootstrap-pfa: 1.87e-31
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 4.9%
Centroid-so: 0.156 arcsec [0.36σ]
OotOffset-rm: 6.700 arcsec [2.10σ]
KicOffset-rm: 6.201 arcsec [2.38σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [3/3]

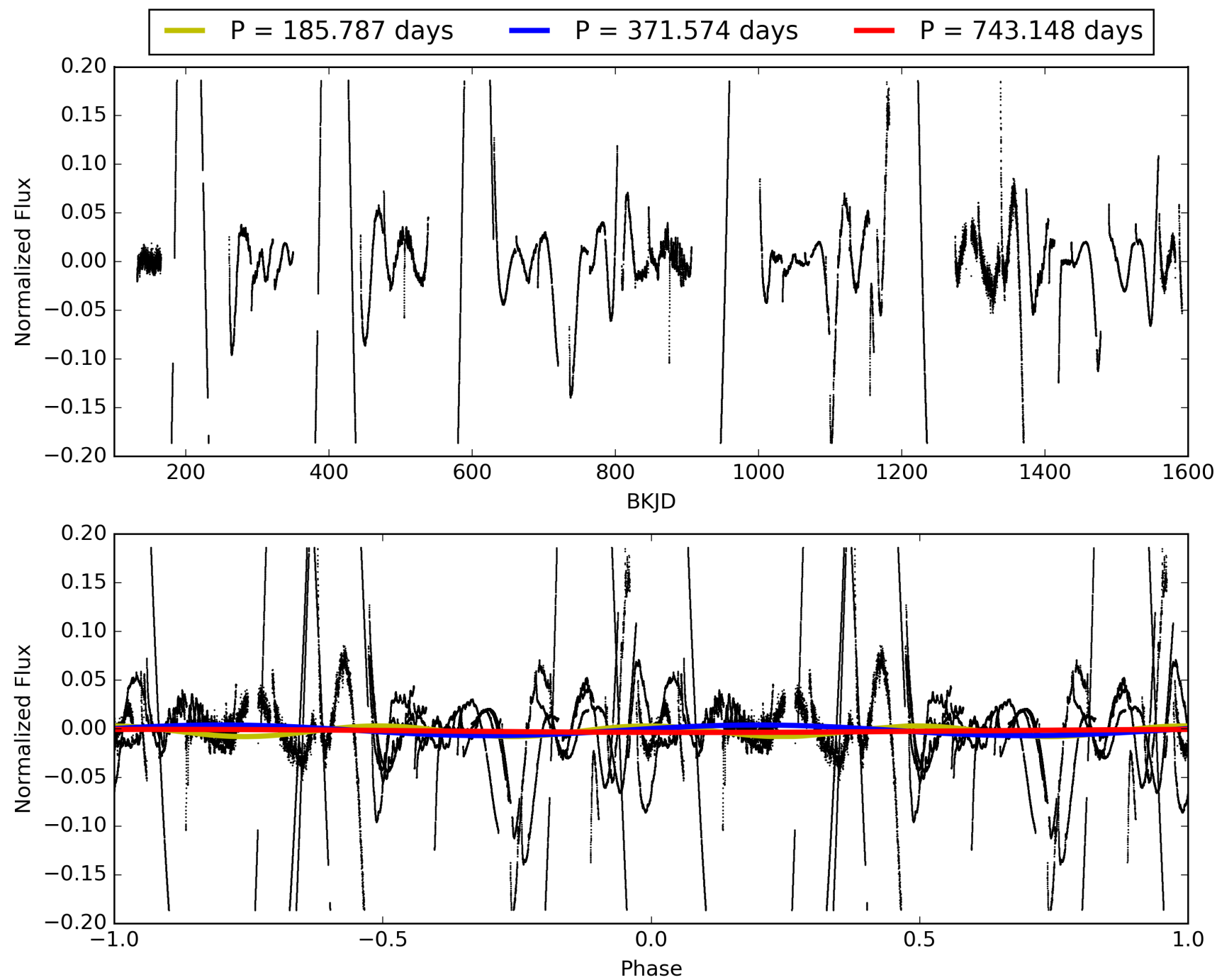
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005093223-01, PDC Light Curves

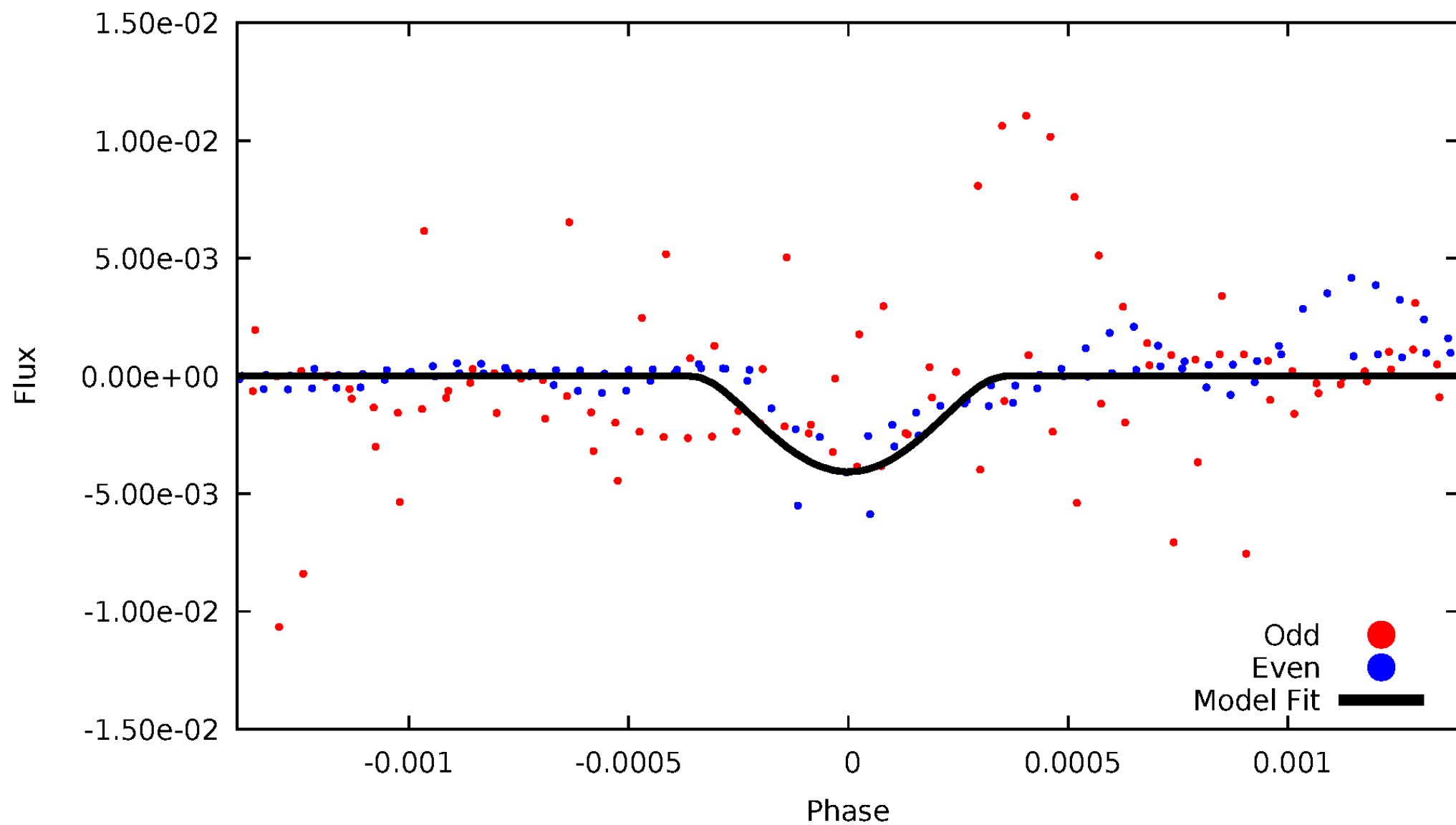


TCE 005093223-01



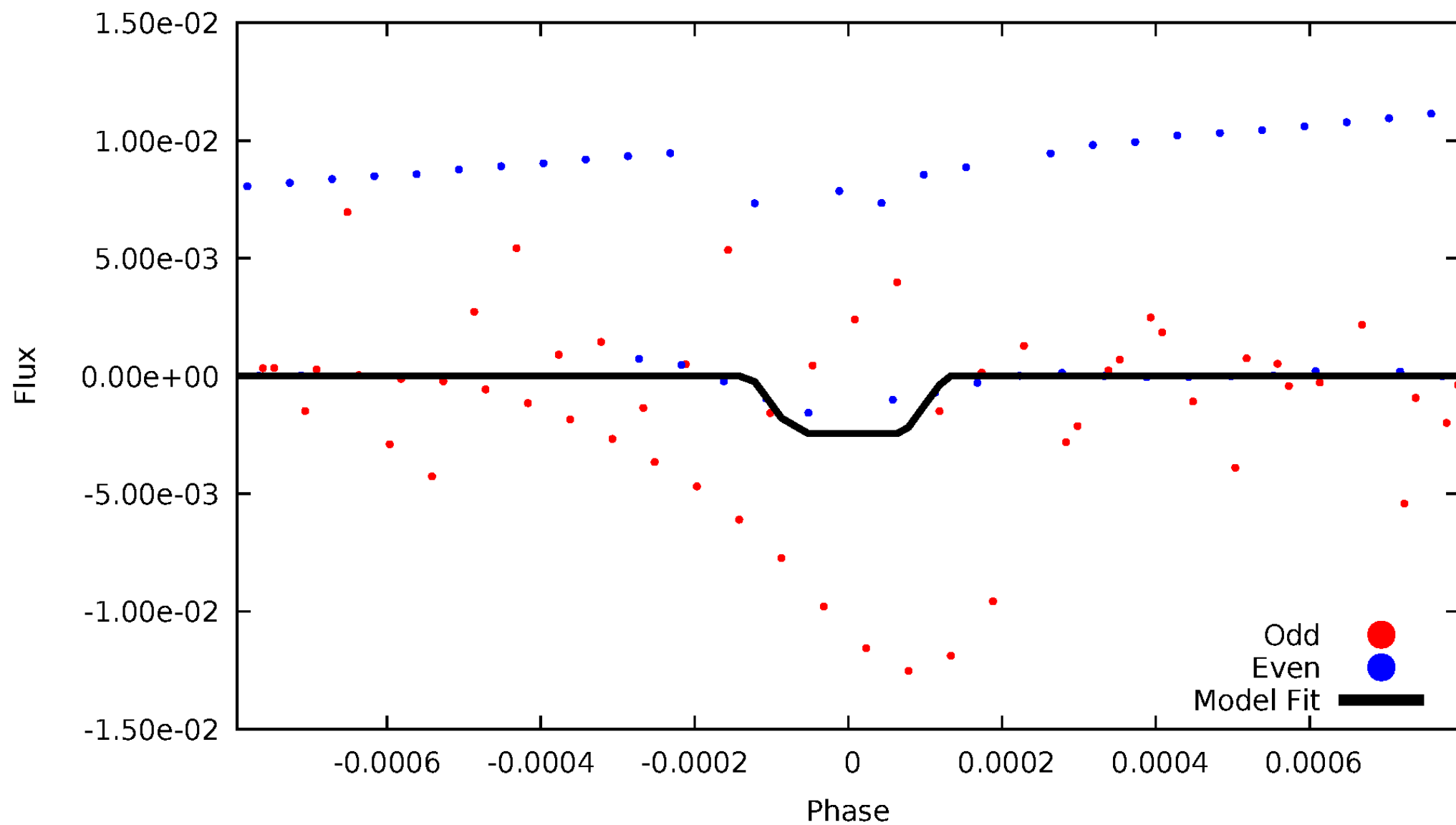
DV Odd/Even

TCE 005093223-01



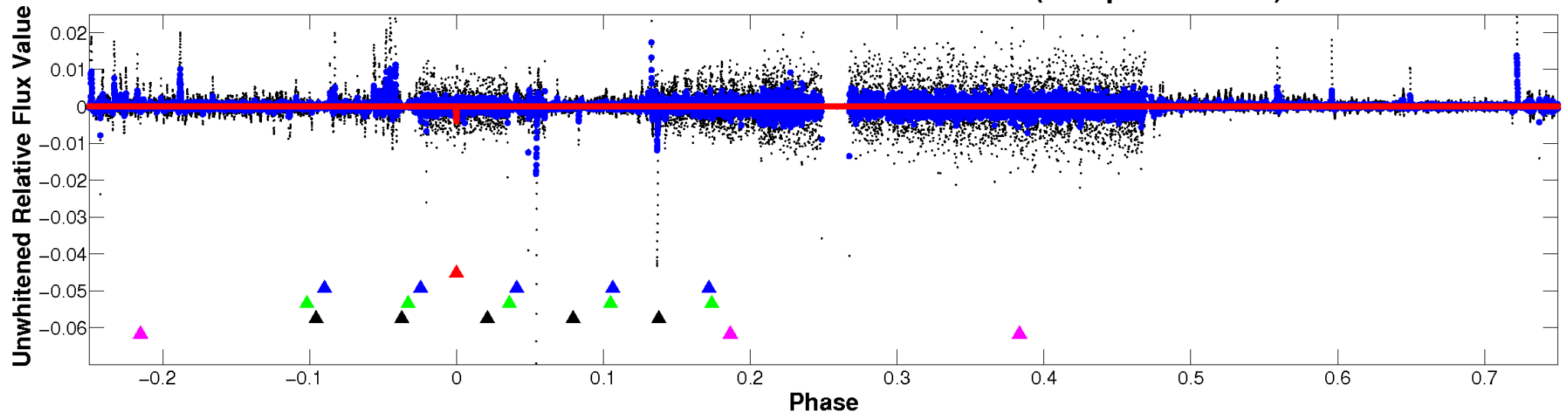
ALT Odd/Even

TCE 005093223-01

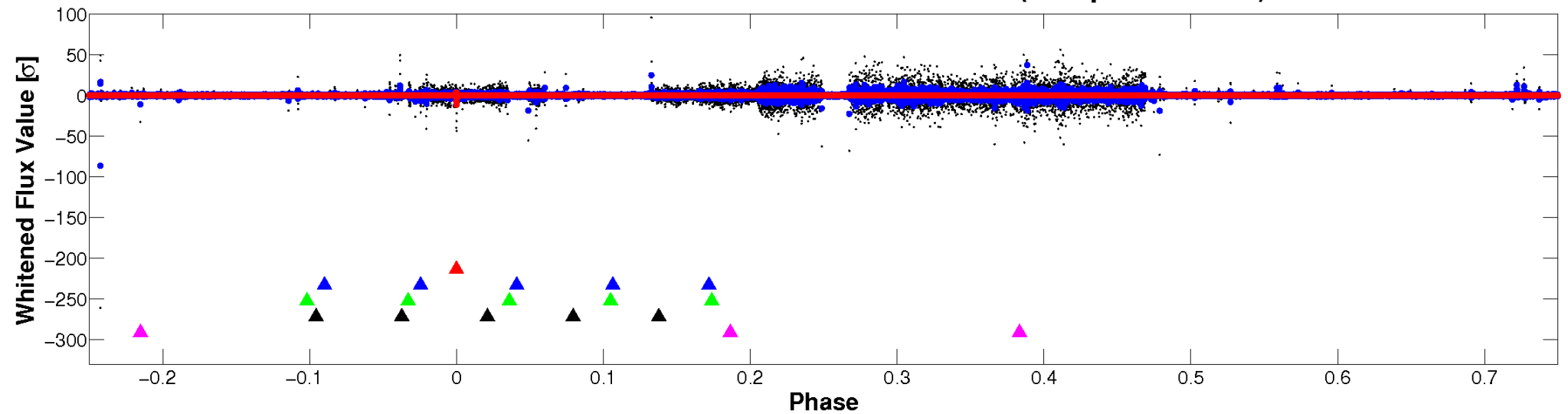


Non-Whitened Vs. Whitened Light Curve

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

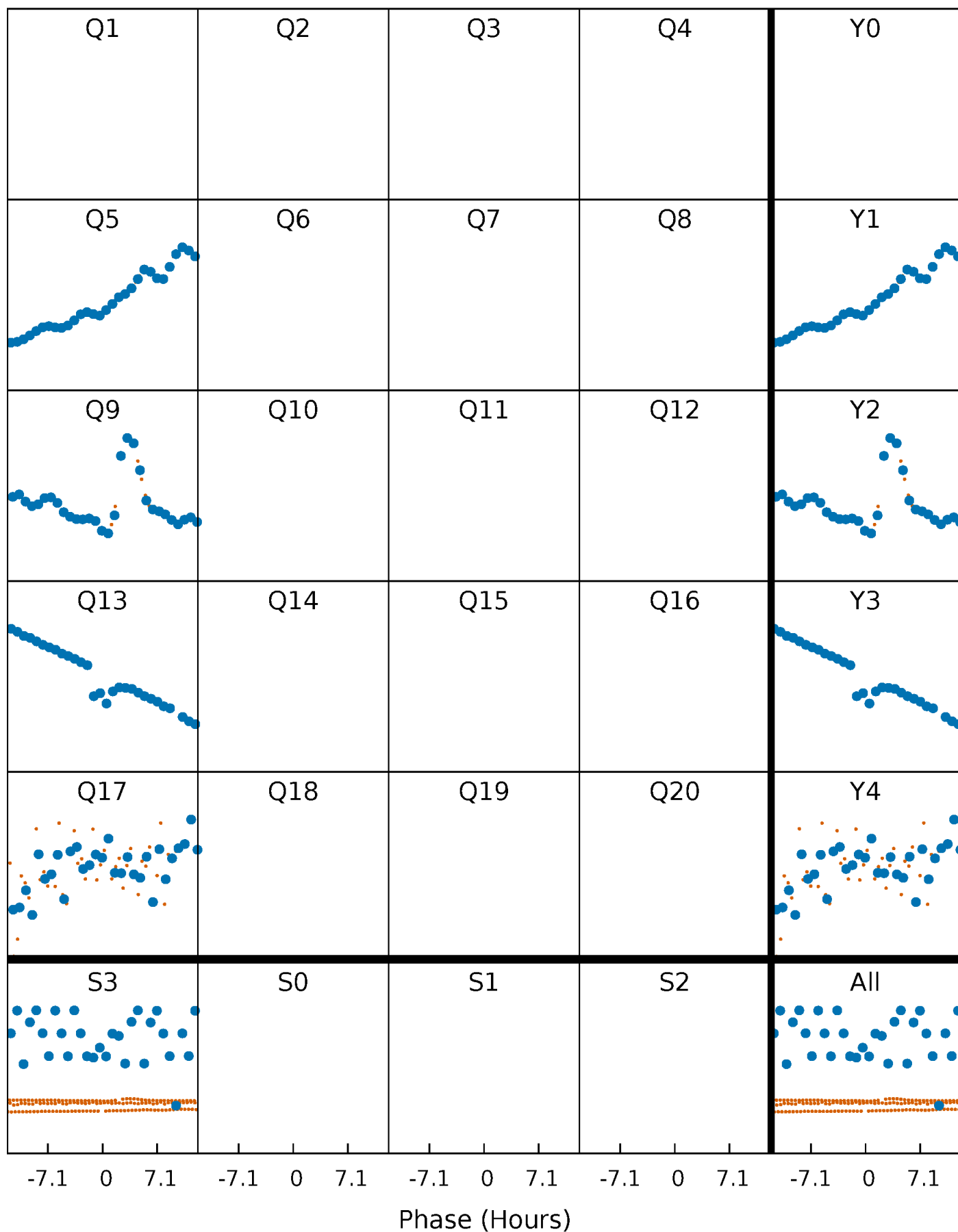


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



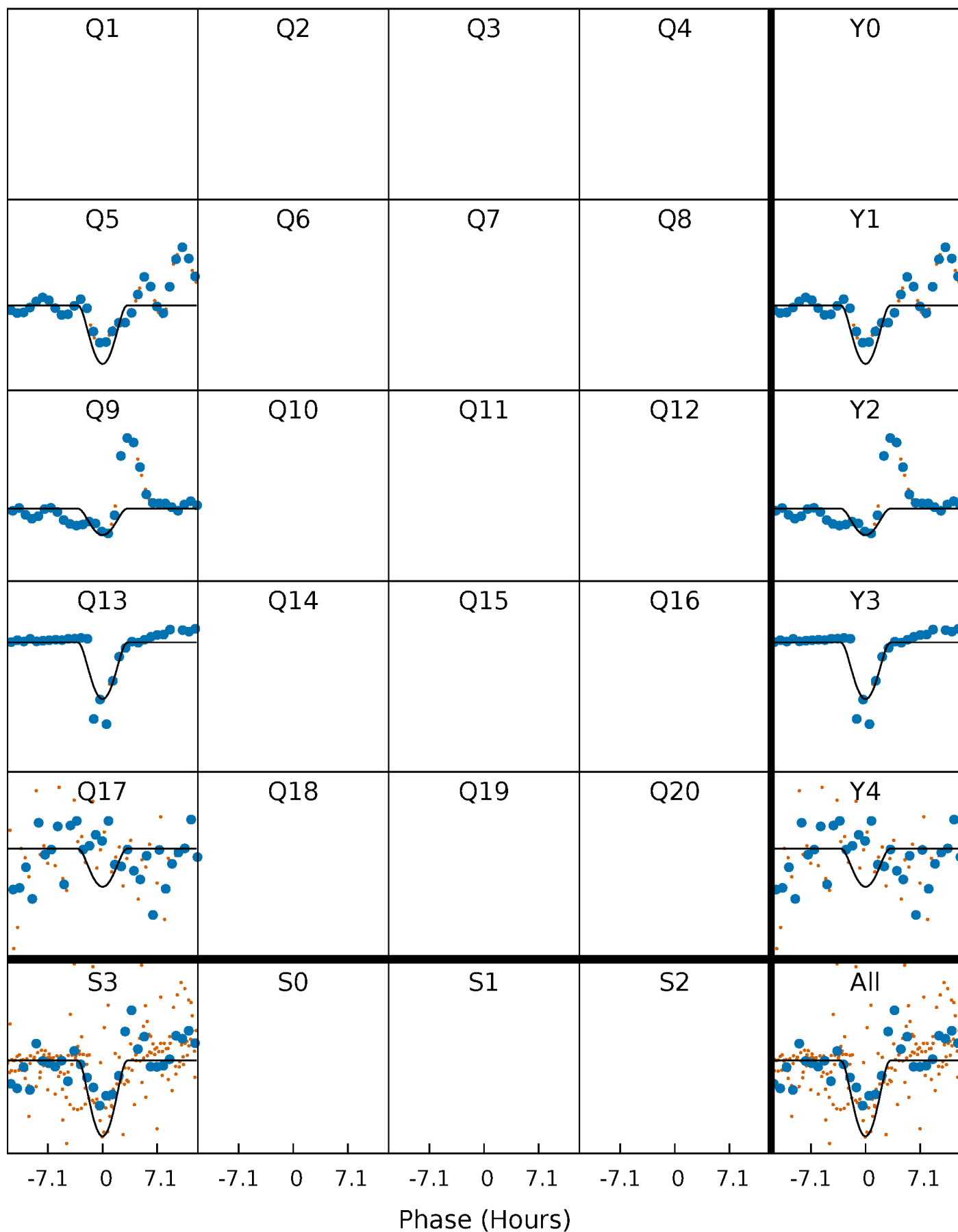
PDC Quarter-Phased Transit Curves

TCE 005093223-01 P=371.573788 Days $T_0=453.895121$ (BKJD)



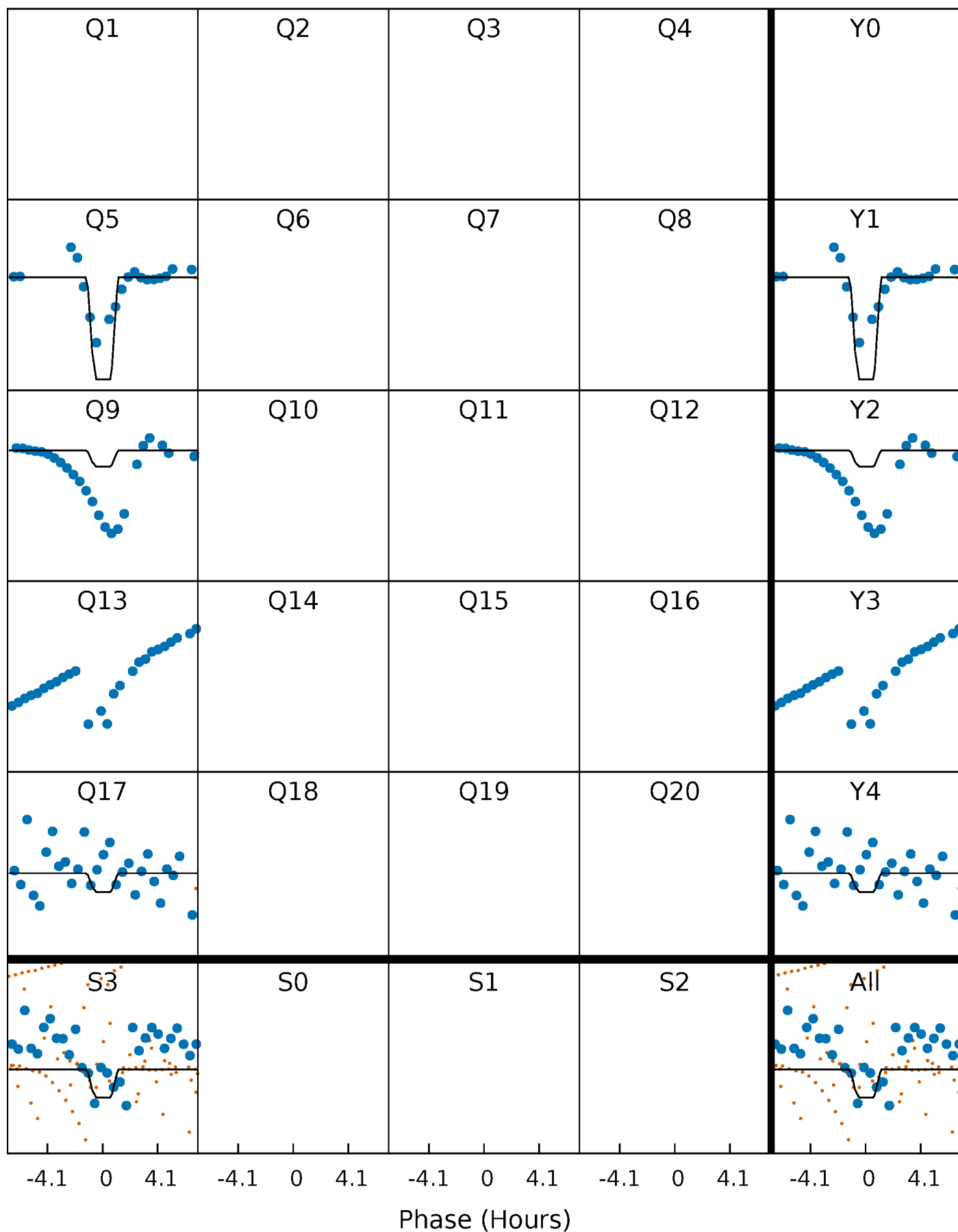
DV Quarter-Phased Transit Curves

TCE 005093223-01 P=371.573788 Days $T_0=453.895121$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

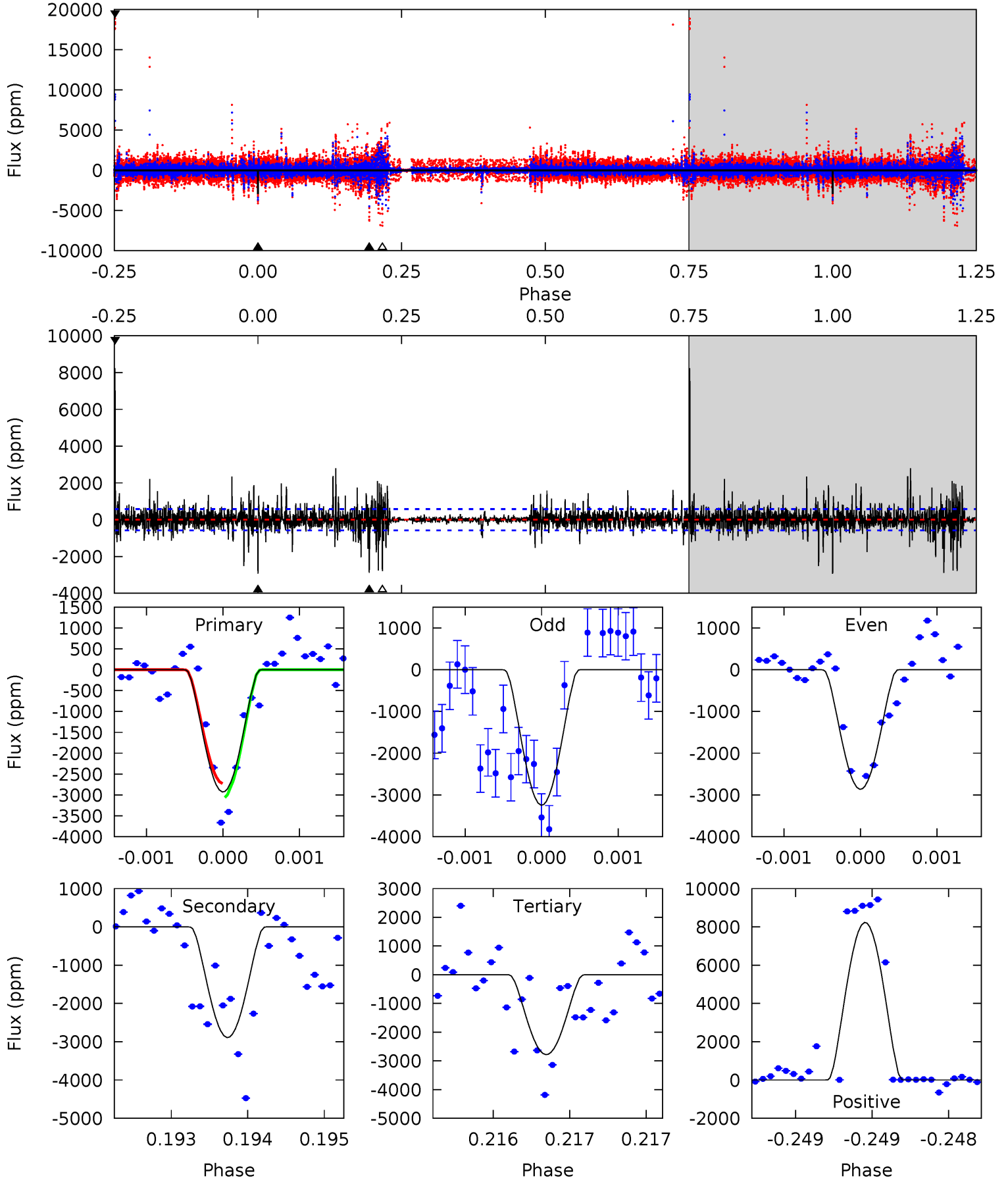
TCE 005093223-01 P=371.577477 Days $T_0=453.890238$ (BKJD)



DV Model-Shift Uniqueness Test

005093223-01, P = 371.573788 Days, E = 82.321333 Days

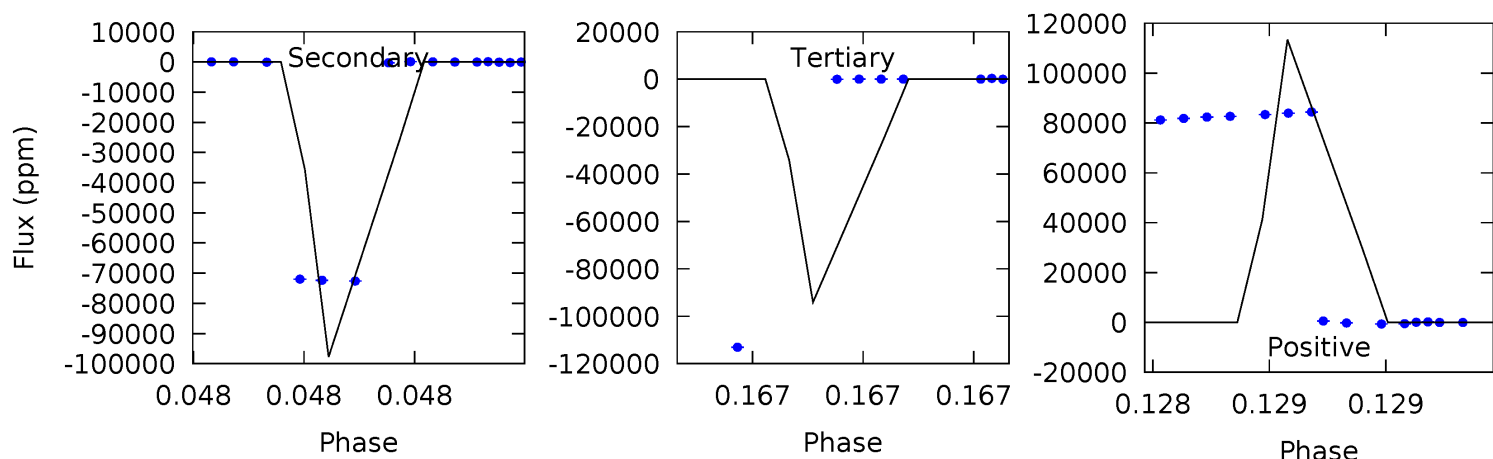
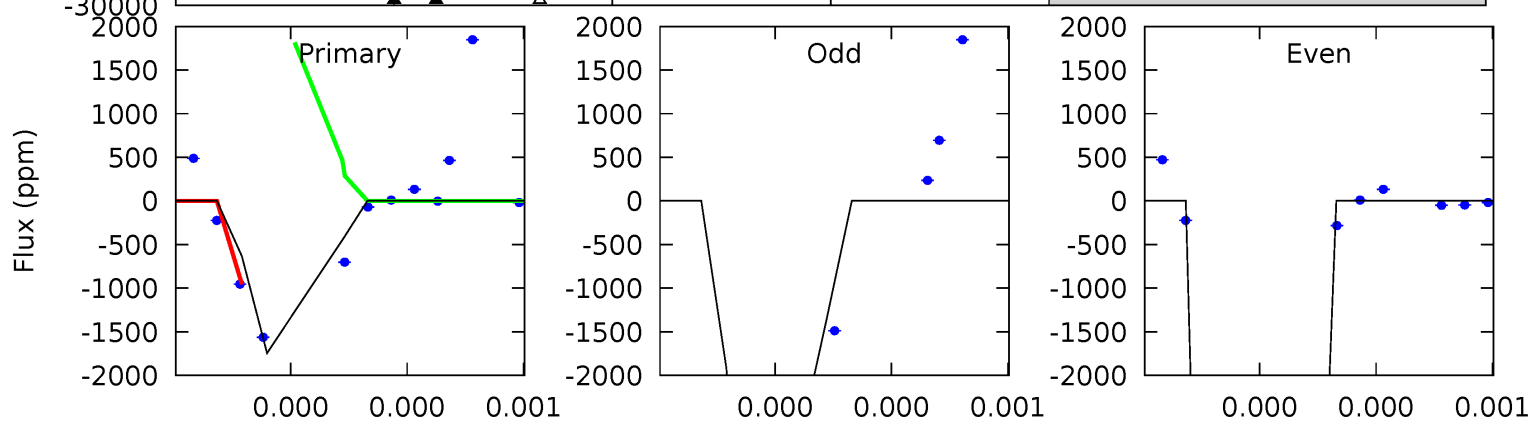
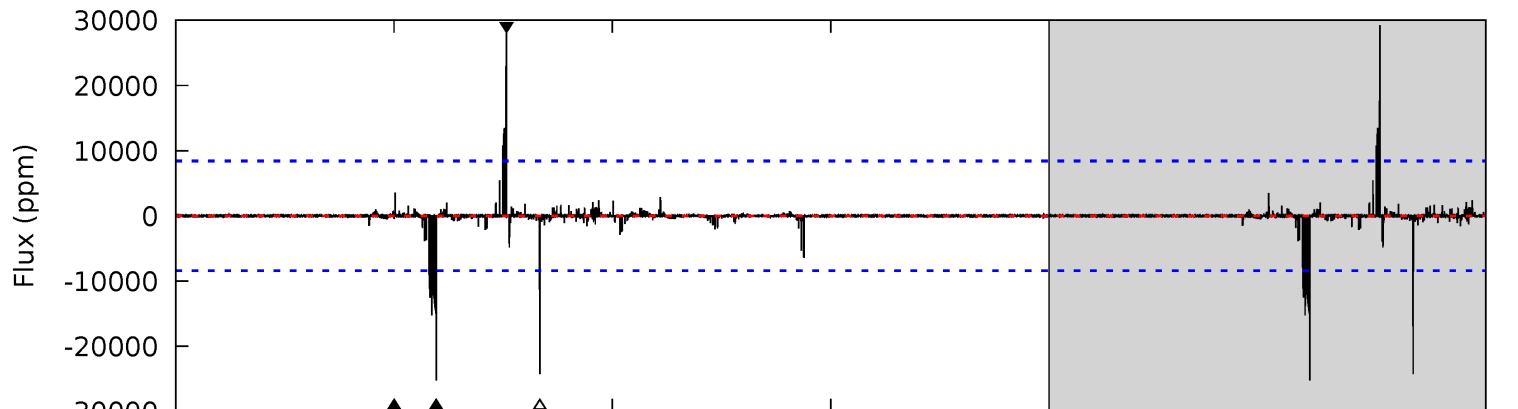
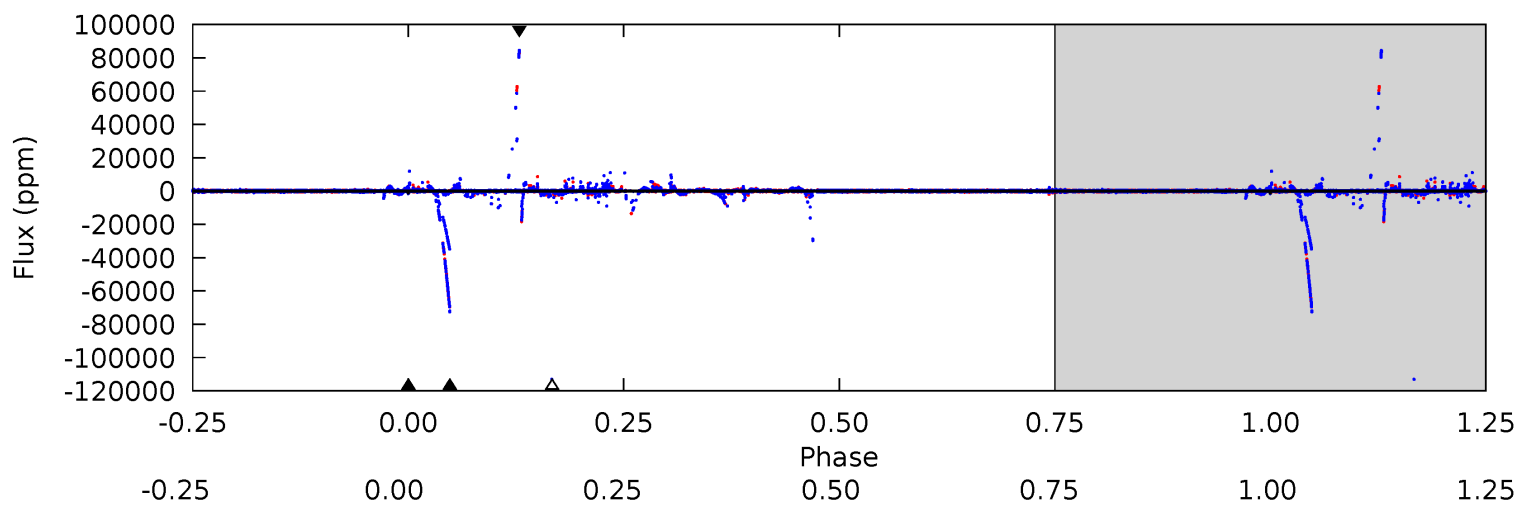
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	27.3	26.3	77.7	5.50	3.37	3.58	1.38	-50.1	1.02	-50.5	1.00	0.86	0.74	1.67



Alt Model-Shift Uniqueness Test

005093223-01, P = 371.577477 Days, E = 82.312761 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.30	17.1	16.4	19.8	5.69	3.66	0.47	-16.1	-19.5	0.64	-2.73	0.06	-2.65	0.54	0



Stellar Parameters For KIC 005093223

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+114}_{-91}	$0.052^{+0.306}_{-0.036}$	$0.210^{+0.200}_{-0.300}$	$300.749^{+10.418}_{-177.098}$	$3.722^{+0.074}_{-2.501}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+588%/-69%	+95%/-143%	+3%/-59%	+2%/-67%	+379%/-8%
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 005093223-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2891 \pm 106	$5732.47^{+5518.17}_{-3720.46}$	2781^{+126}_{-247}	-2462^{+5372}_{-209}	$0.115^{+0.796}_{-0.084}$
Alt.	-25202 \pm 1476	$4535.26^{+5138.12}_{-3317.44}$	2772^{+118}_{-233}	3265^{+1971}_{-1000}	$1.636^{+19.743}_{-1.258}$

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 $A_{obs} \gg 1.0$

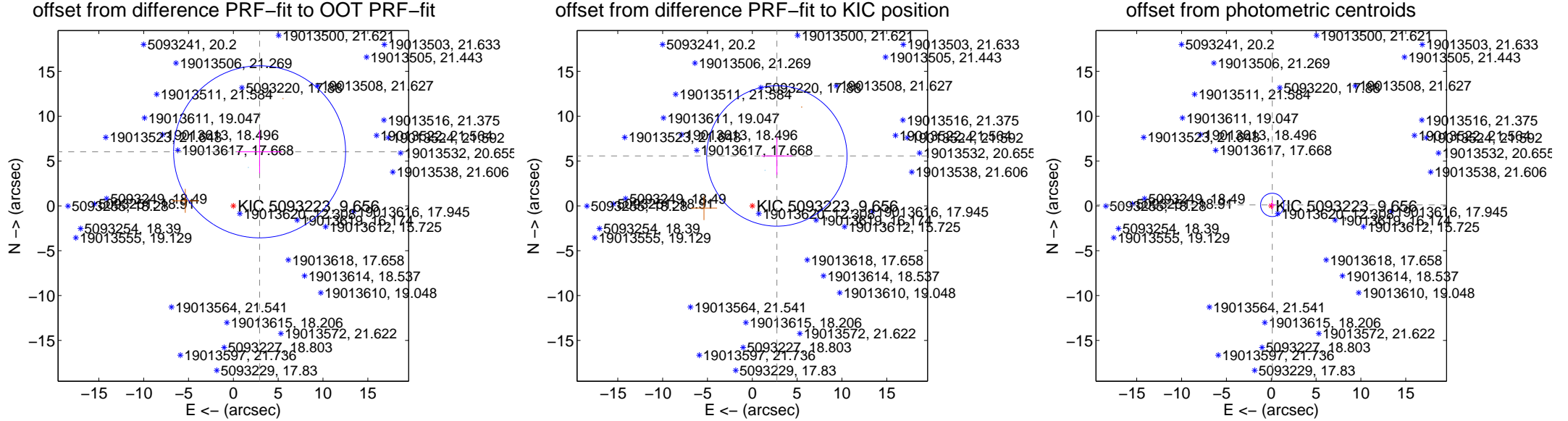
DV Centroid Data

Supplemental centroid analysis for 005093223-01. **Kepler magnitude: 9.66.** Transit SNR 47.74

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.81 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.700 ± 3.197	2.10	-2.928 ± 2.524	6.026 ± 2.408
PRF-fit source offset from KIC position	6.201 ± 2.609	2.38	-2.740 ± 1.717	5.563 ± 2.104
photometric centroid source offset	0.16 ± 0.43	0.36	-0.11 ± 0.35	0.11 ± 0.51

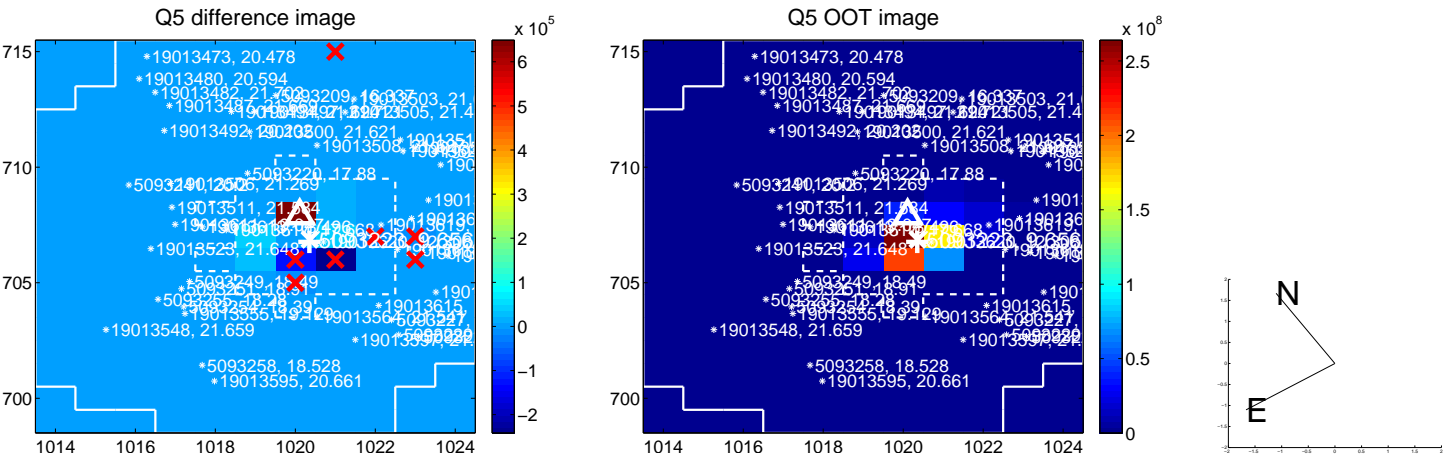


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

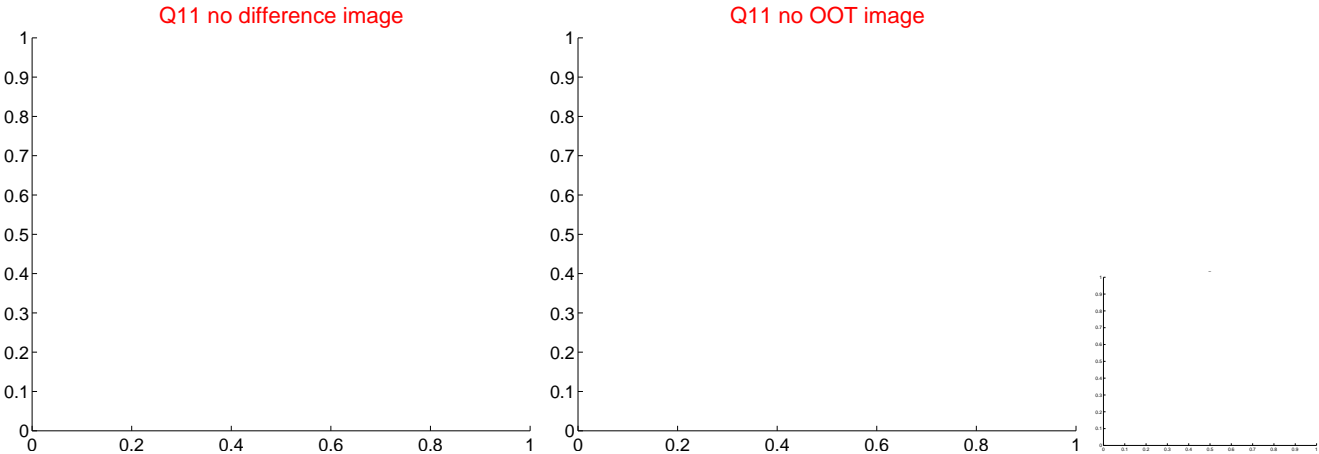
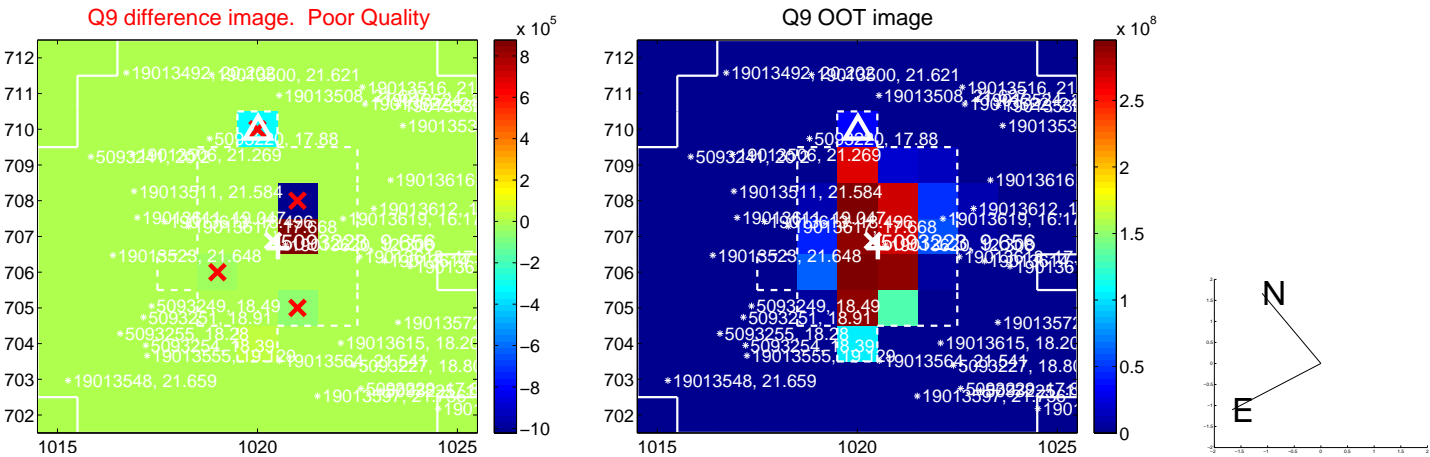
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



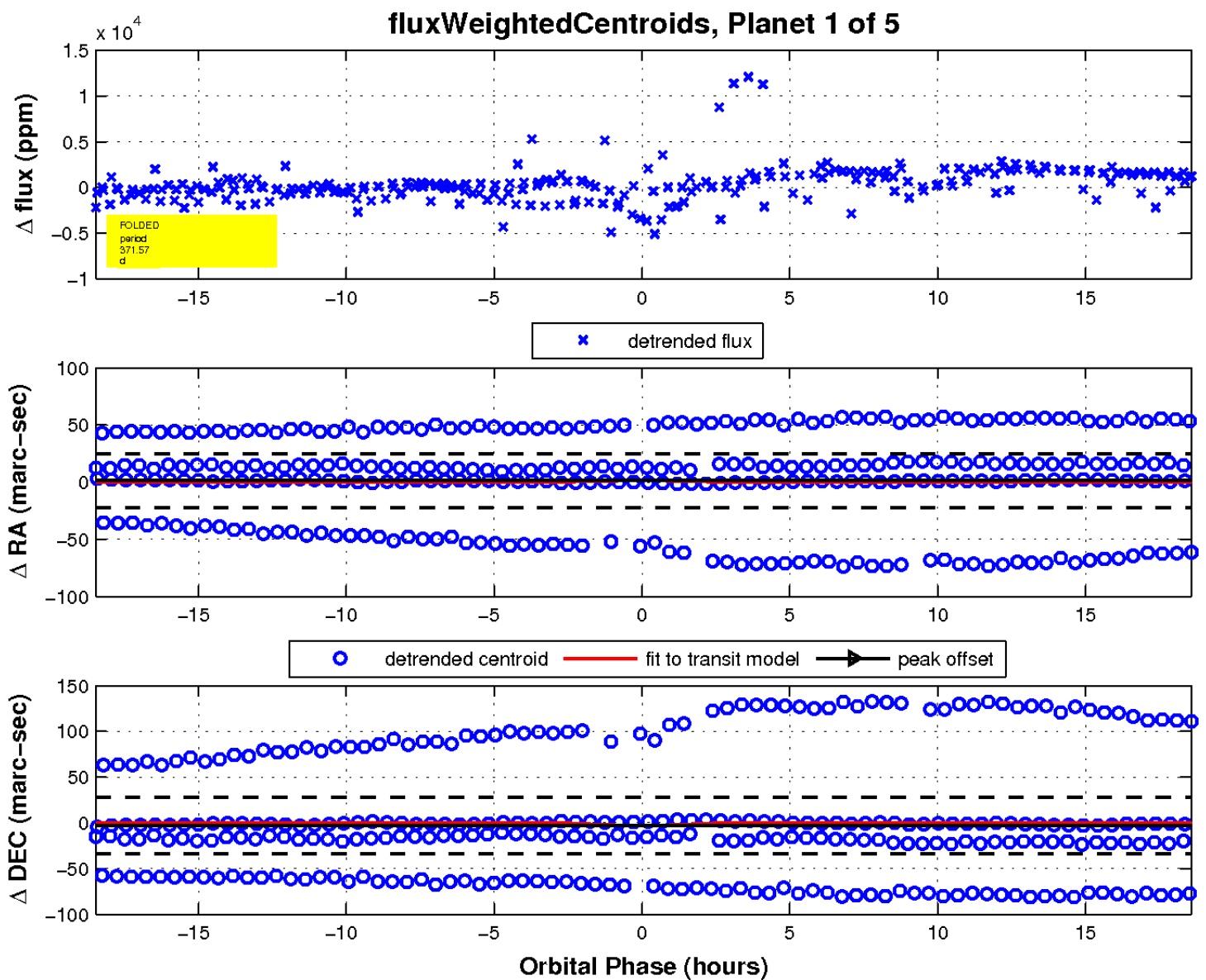
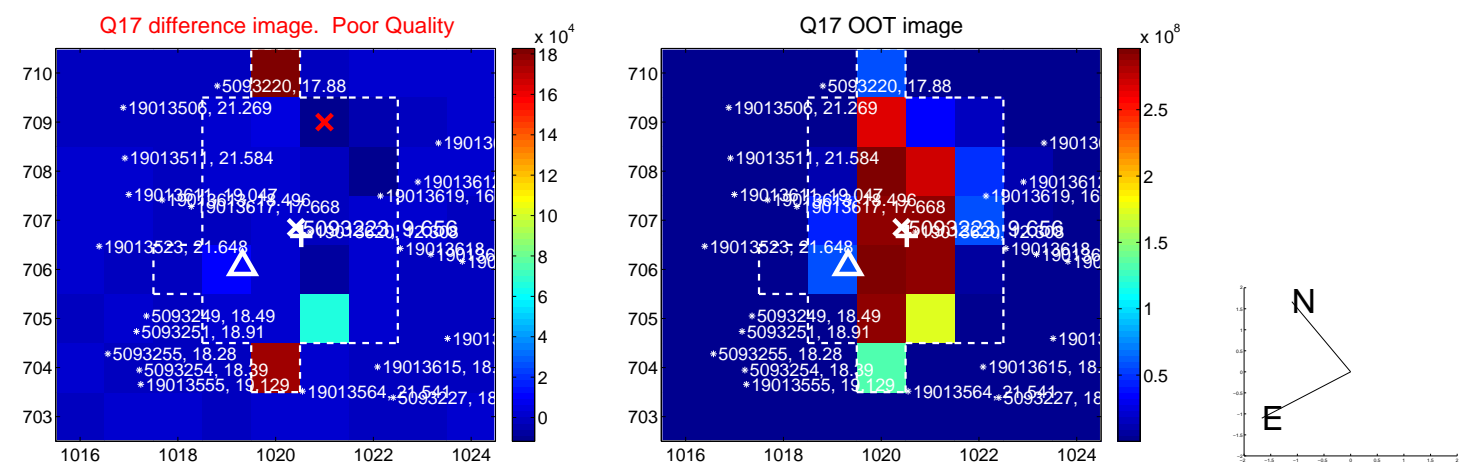
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



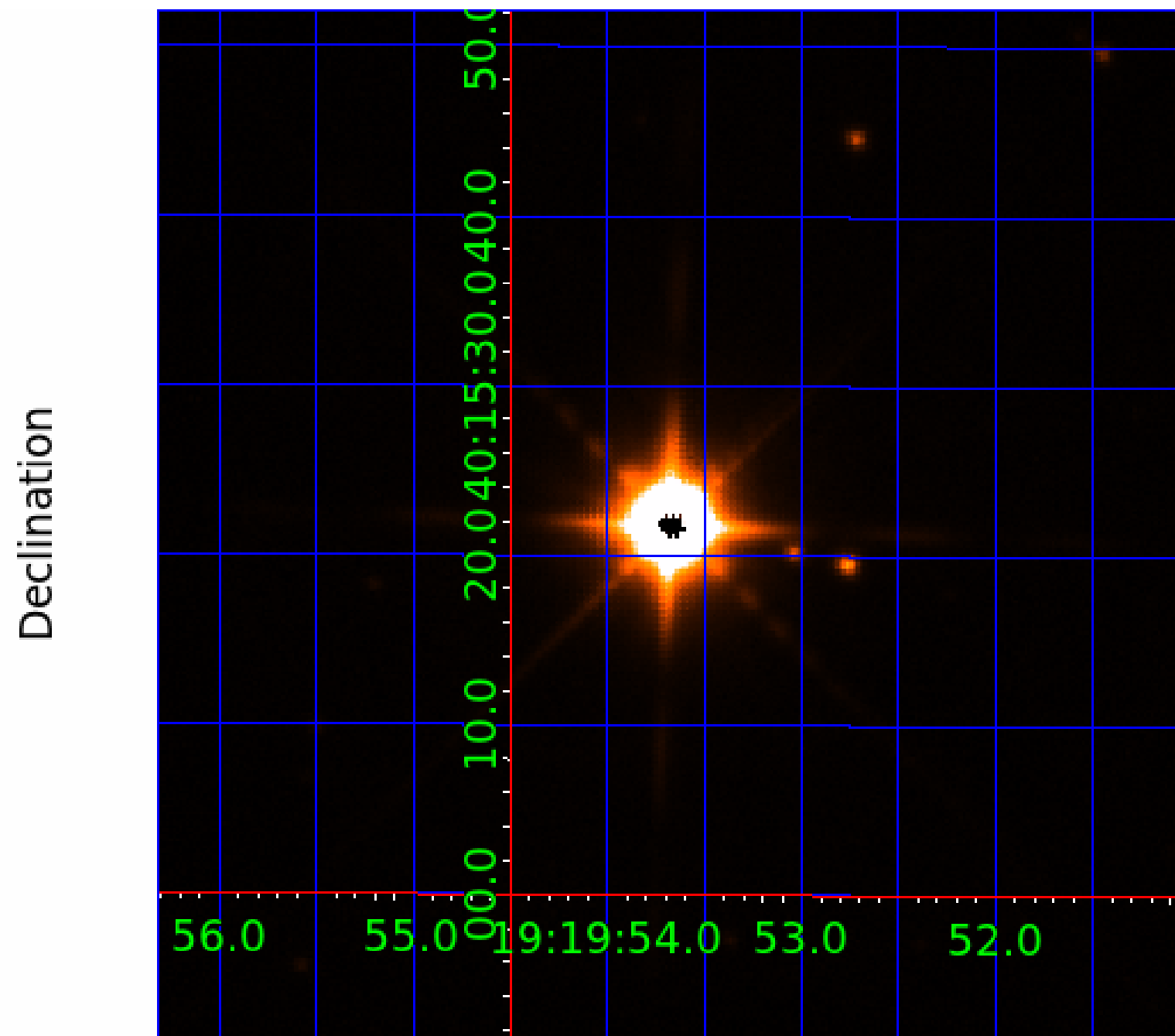
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005093223

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})
005093223-01	OBS	No	371.573789	453.895121	4070.8	6.199	97.8	47.7	300.75	3287	3982.97	0.00
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005093223-03	OBS	No	345.969013	146.919591	131.4	12.377	33.7	1.1	300.75	3287	513.90	4234.93
005093223-04	OBS	No	349.896434	133.523893	2636.9	28.526	18.6	27.3	300.75	3287	3274.63	0.00
005093223-05	OBS	No	593.947274	151.598837	417.5	0.816	21.0	4.9	300.75	3287	581.91	2060.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005093223-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-04	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

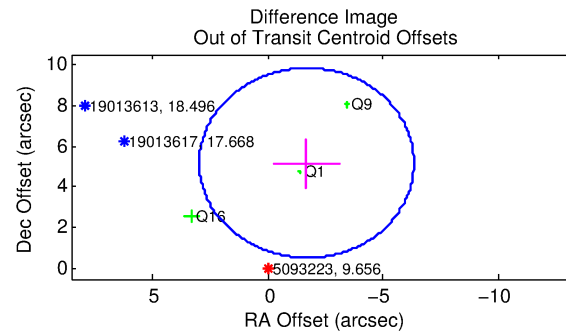
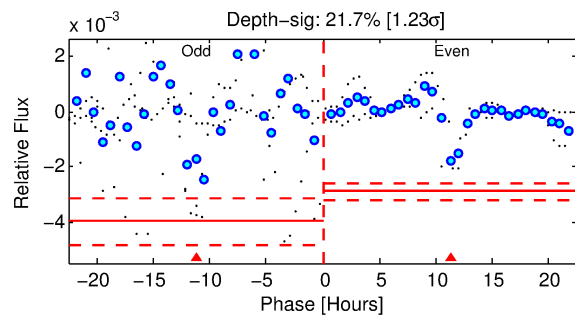
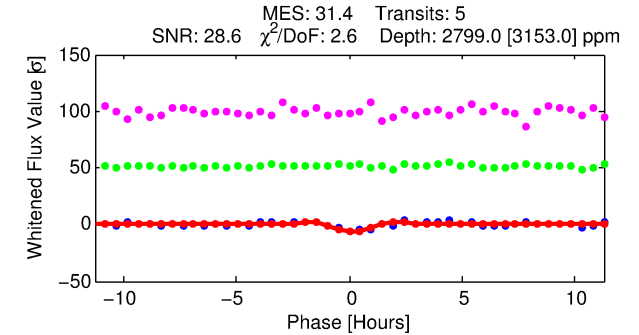
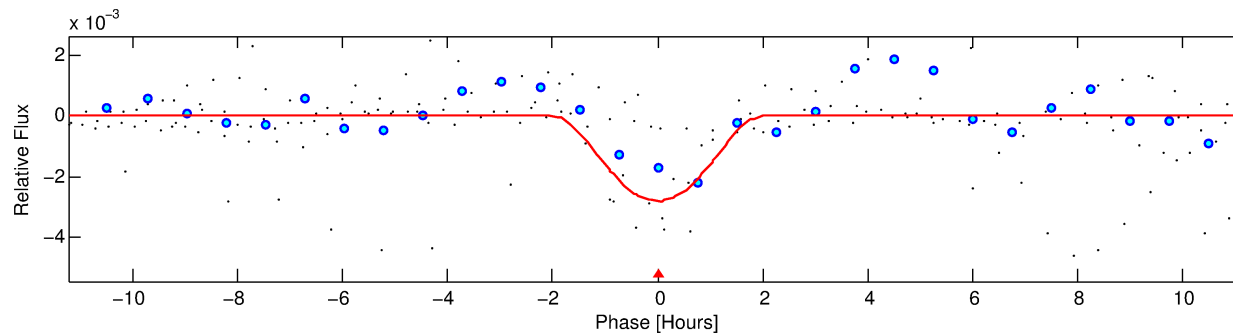
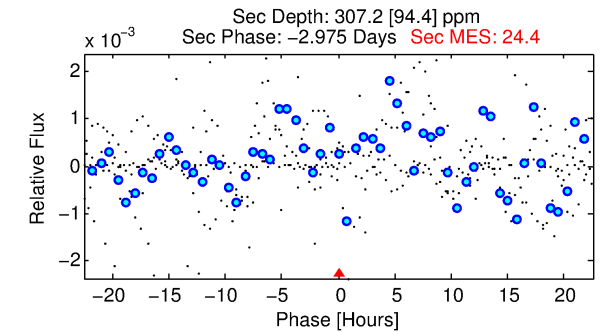
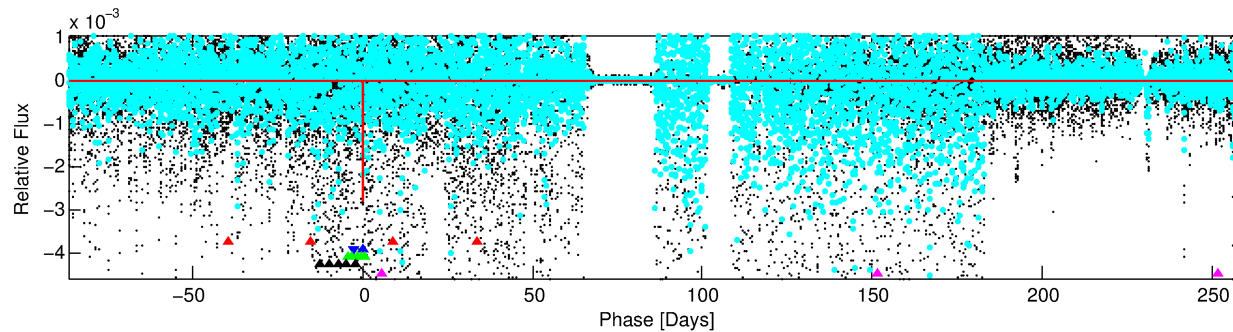
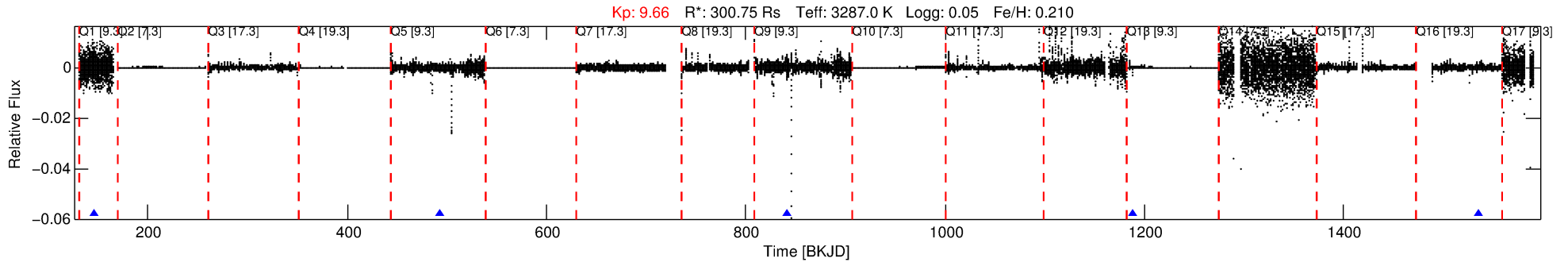
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005093223-02

No Significant Match Found

DV One-Page Summary

KIC: 5093223 Candidate: 2 of 5 Period: 347.259 d



DV Fit Results:

Period = 347.25854 [0.00252] d
Epoch = 146.1997 [0.0071] BKJD
Rp/R* = 0.1030 [0.1573]
a/R* = 329.30 [85.39]
b = 1.00 [0.29]
Seff = N/A
Teq = N/A
Rp = 3379.39 [5531.38] Re
a = N/A
Ag = N/A
Teffp = N/A

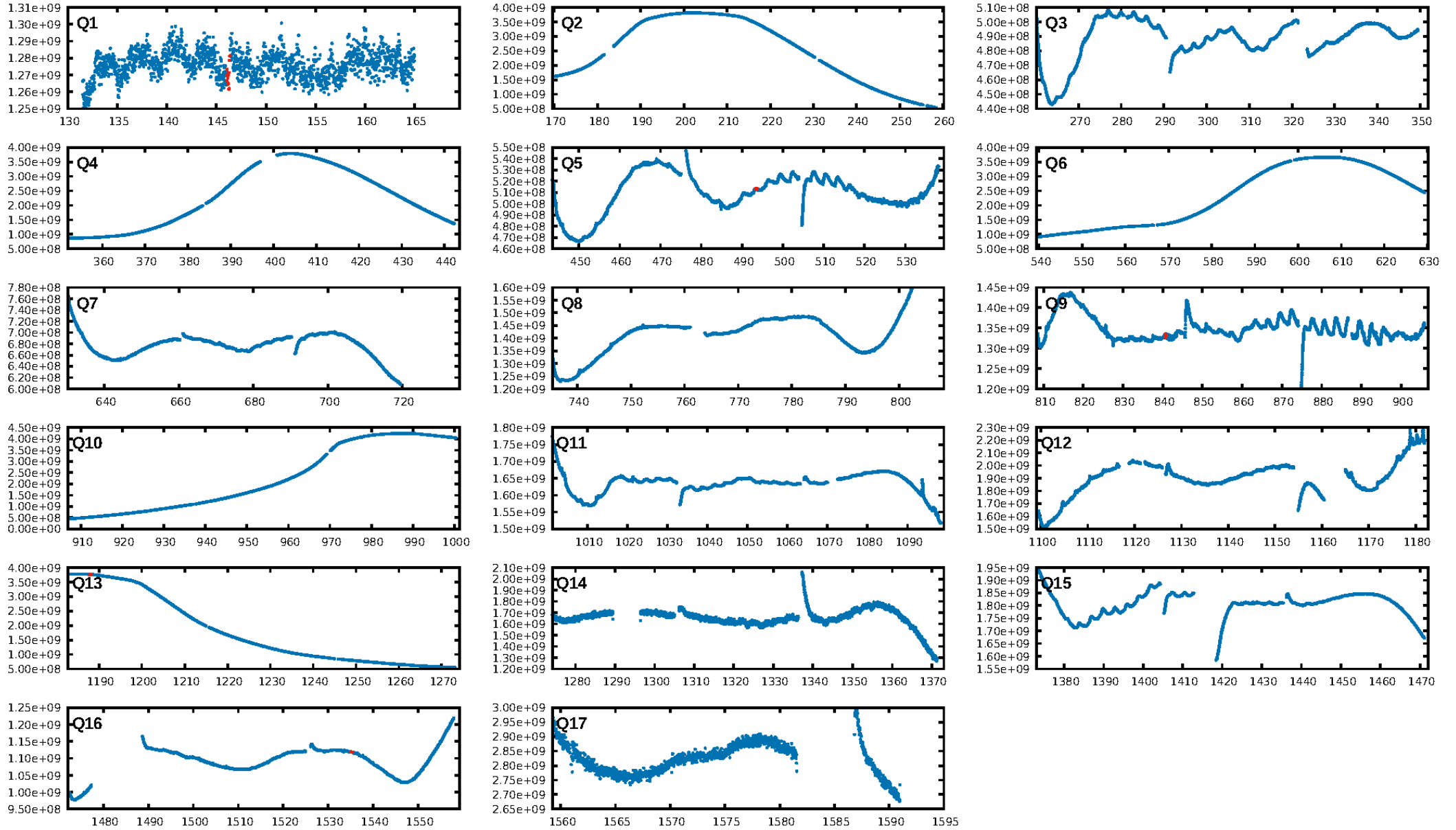
DV Diagnostic Results:

ShortPeriod-sig: 98.3% [2.39σ]
LongPeriod-sig: 97.2% [2.20σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.1%
Bootstrap-pfa: 1.48e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 17.8%
Centroid-so: 0.834 arcsec [1.62σ]
OotOffset-rm: 5.445 arcsec [3.52σ]
KicOffset-rm: 4.816 arcsec [3.99σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.75 [3/4]

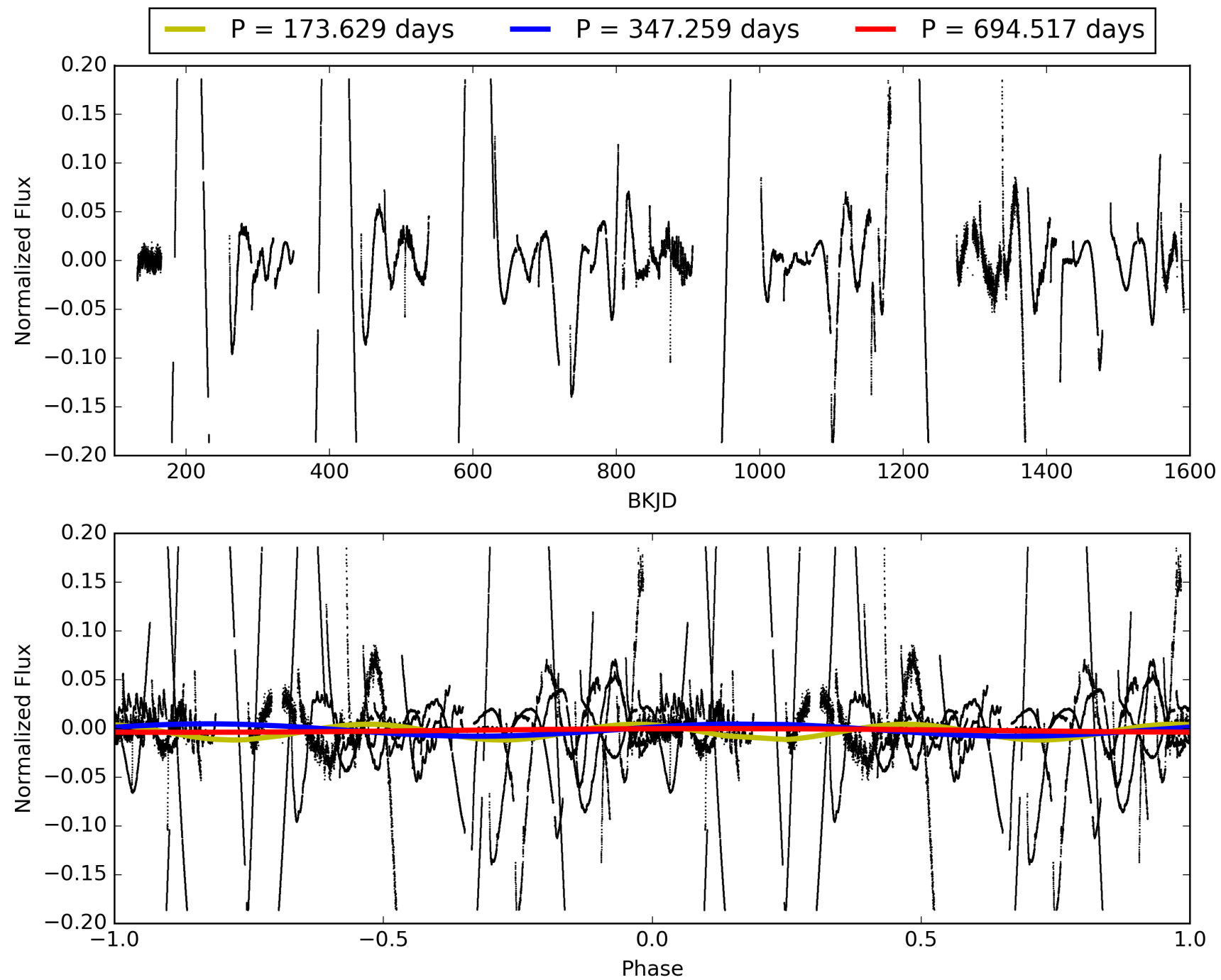
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005093223-02, PDC Light Curves

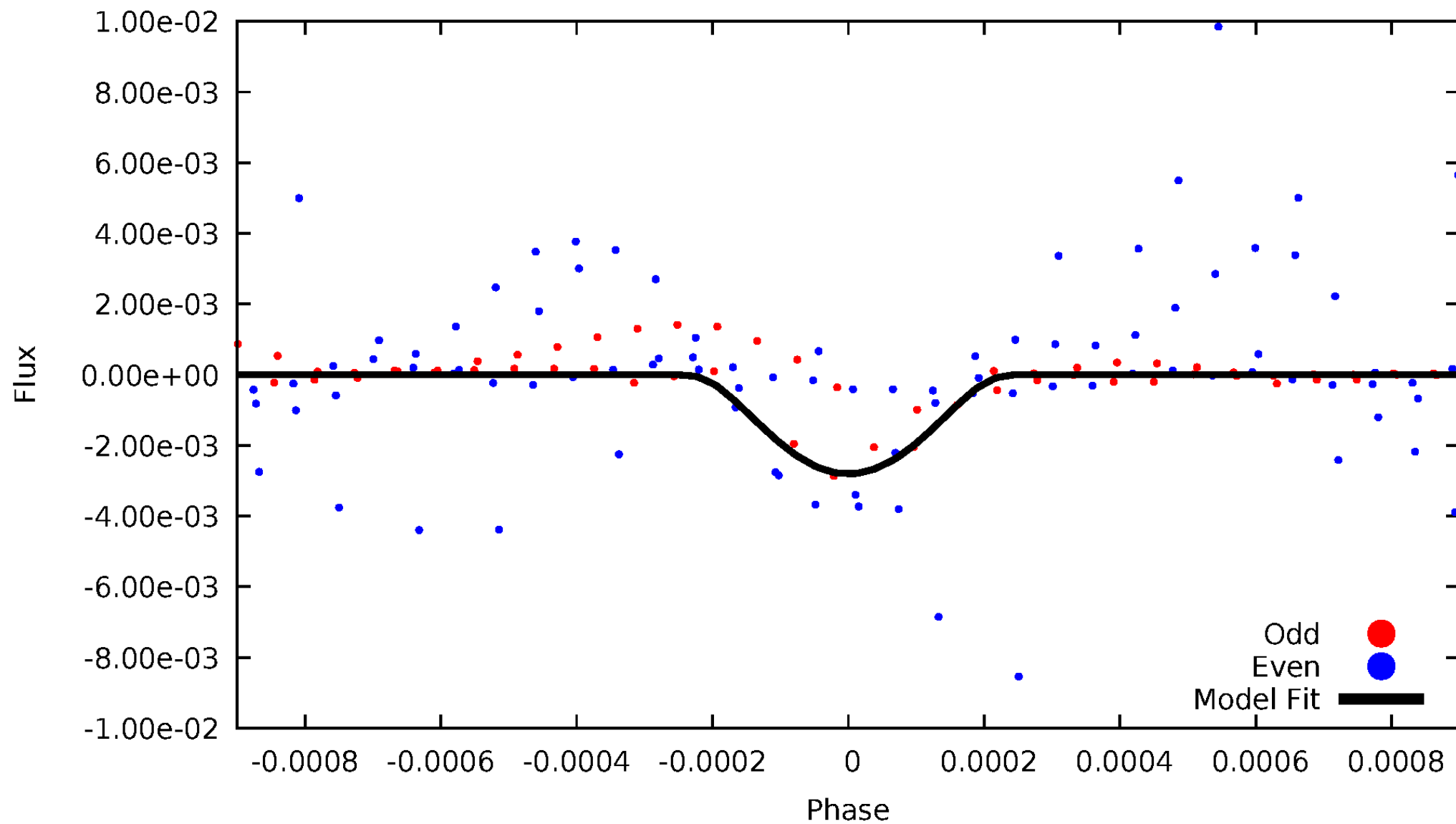


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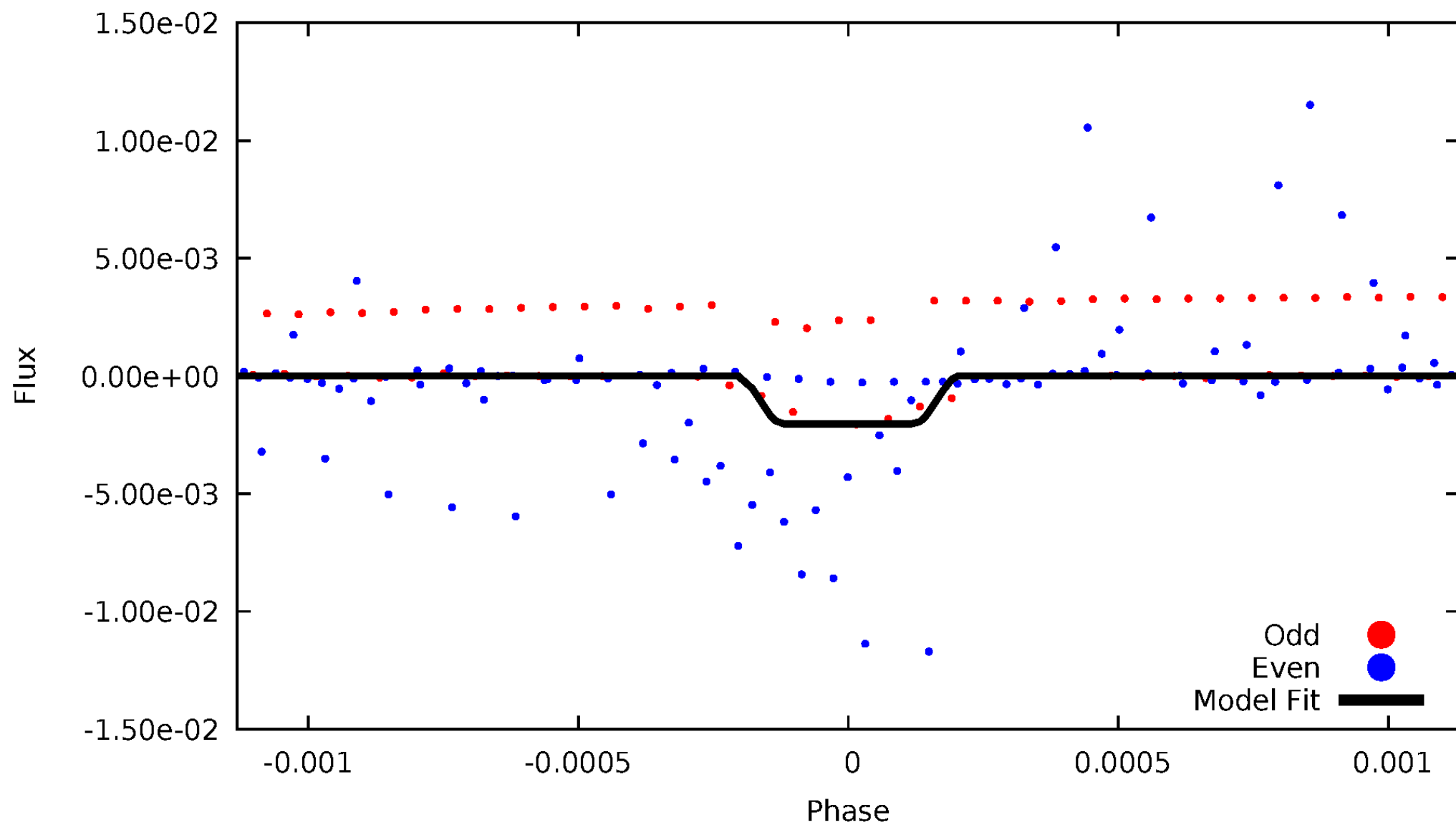
DV Odd/Even

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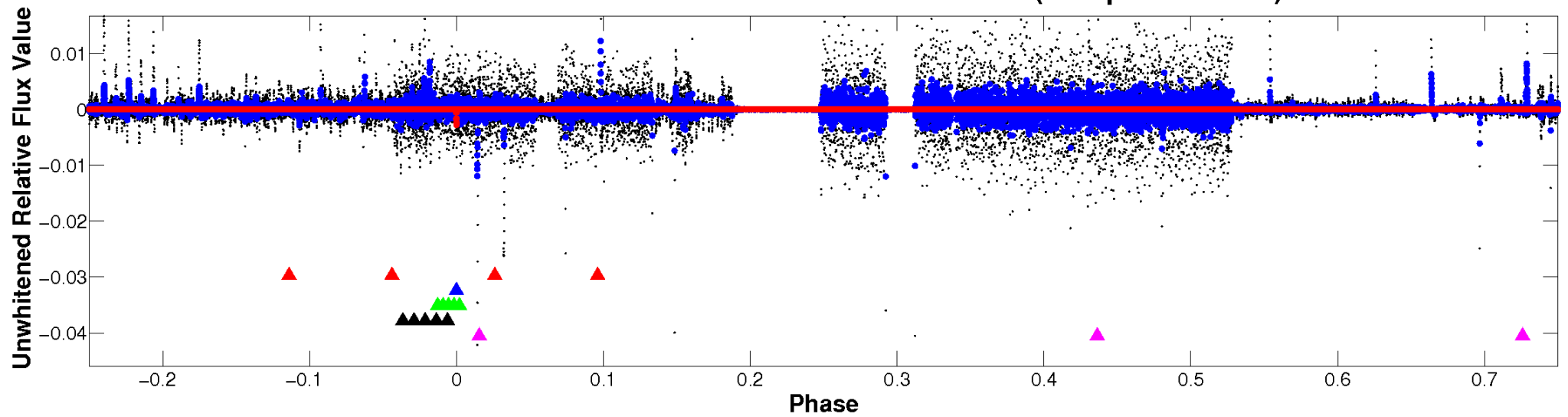
ALT Odd/Even

TCE 005093223-02

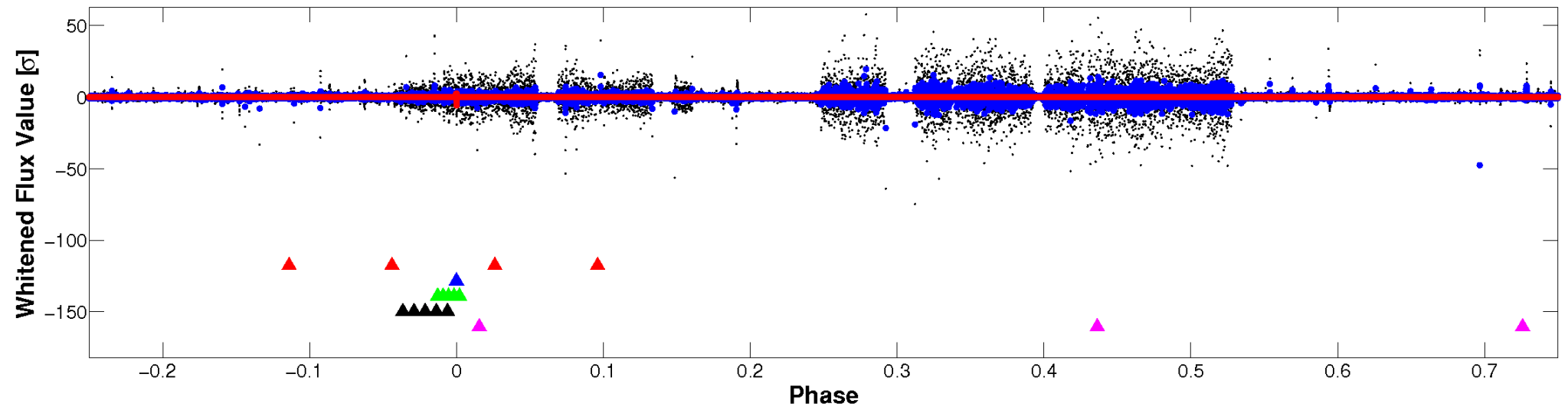


Non-Whitened Vs. Whitened Light Curve

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

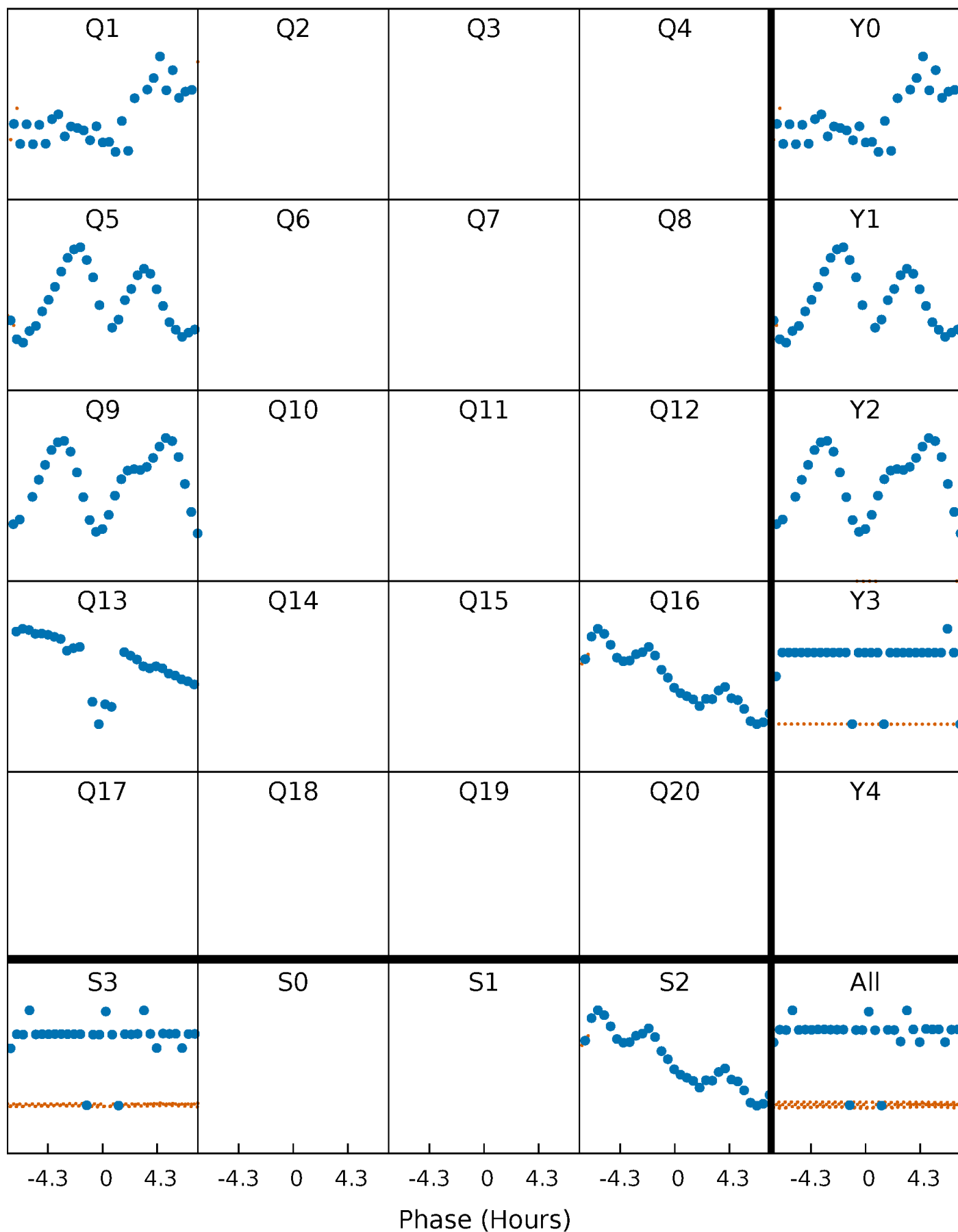


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



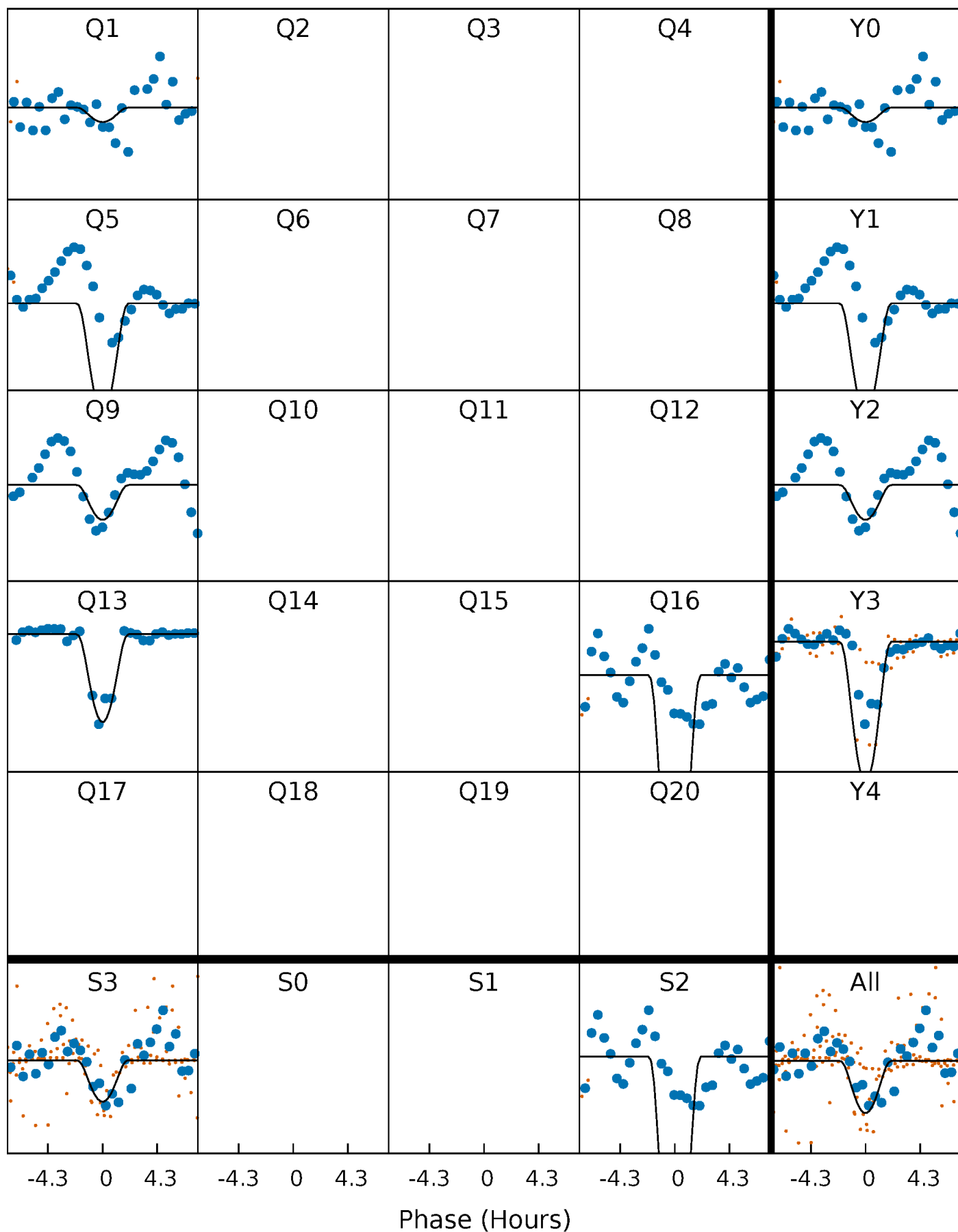
PDC Quarter-Phased Transit Curves

TCE 005093223-02 $P=347.258542$ Days $T_0=146.199699$ (BKJD)



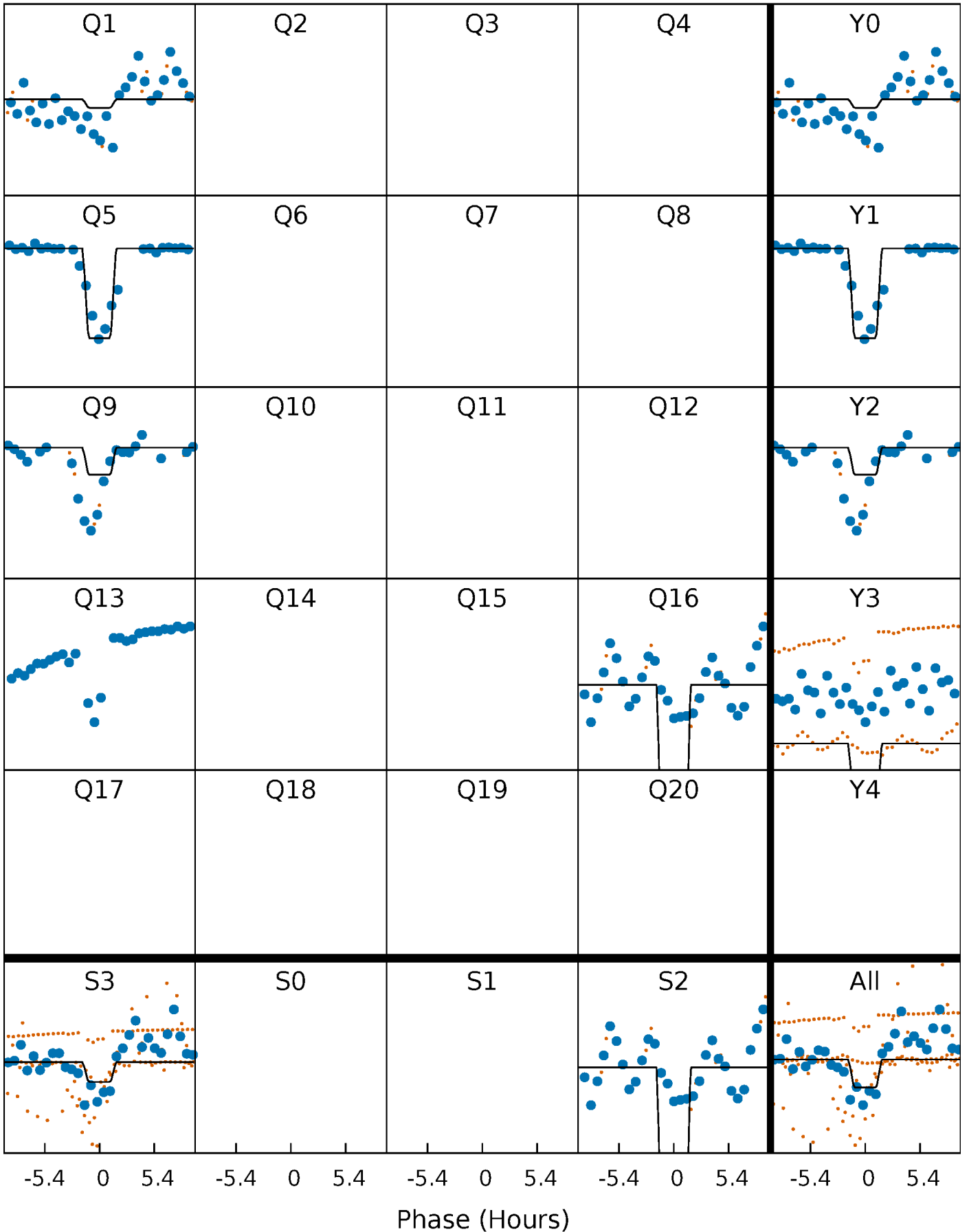
DV Quarter-Phased Transit Curves

TCE 005093223-02 $P=347.258542$ Days $T_0=146.199699$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

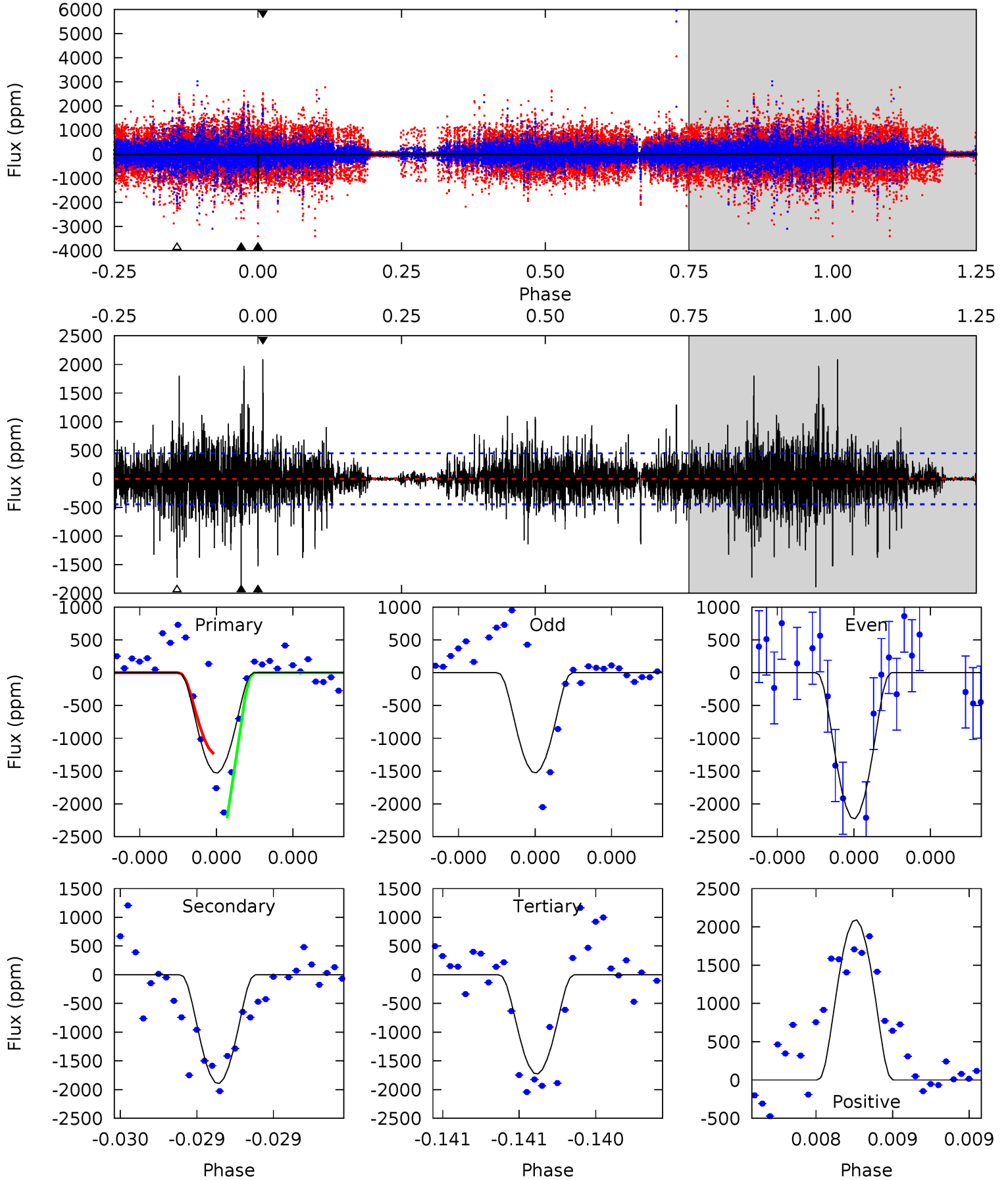
TCE 005093223-02 P=347.253183 Days $T_0=146.234988$ (BKJD)



DV Model-Shift Uniqueness Test

005093223-02, P = 347.258542 Days, E = 146.199699 Days

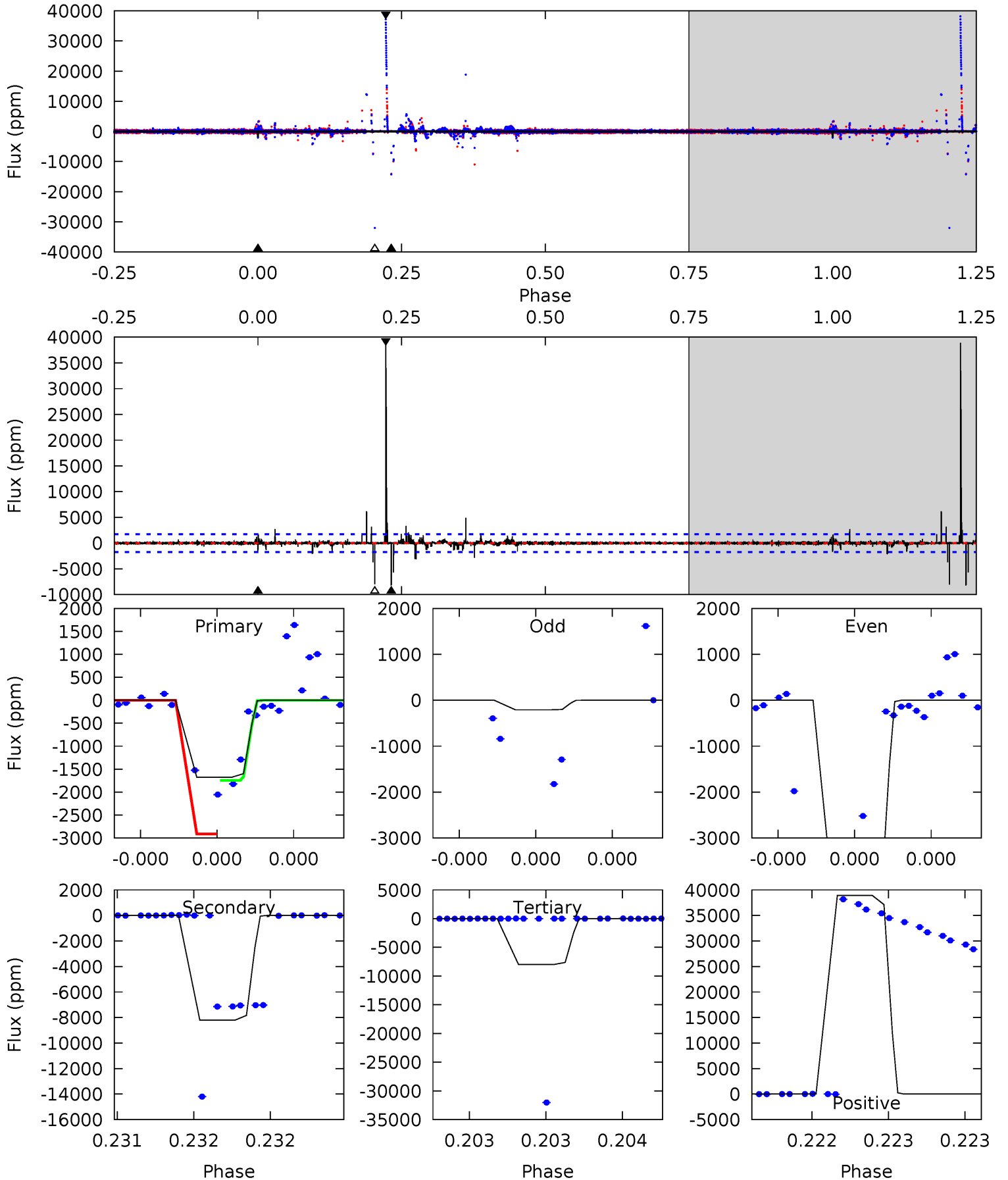
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	23.6	21.5	26.0	5.57	3.48	3.14	-2.46	-6.99	2.07	-2.45	2.33	0.77	0.52	5.55



Alt Model-Shift Uniqueness Test

005093223-02, P = 347.253183 Days, E = 146.234988 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.42	26.5	25.9	125.8	5.62	3.55	2.28	-20.4	-120.4	0.68	-99.2	0.38	1.41	0.83	2.50



Stellar Parameters For KIC 005093223

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+114}_{-91}	$0.052^{+0.306}_{-0.036}$	$0.210^{+0.200}_{-0.300}$	$300.749^{+10.418}_{-177.098}$	$3.722^{+0.074}_{-2.501}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+588%/-69%	+95%/-143%	+3%/-59%	+2%/-67%	+379%/-8%
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 005093223-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1893 ± 80	$4693.06^{+4099.71}_{-3117.20}$	2831^{+130}_{-262}	-2505^{+5423}_{-195}	$0.101^{+0.798}_{-0.071}$
Alt.	-8210 ± 309	$3468.95^{+4063.53}_{-2416.04}$	2833^{+123}_{-267}	2850^{+1626}_{-5267}	$0.795^{+7.943}_{-0.620}$

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

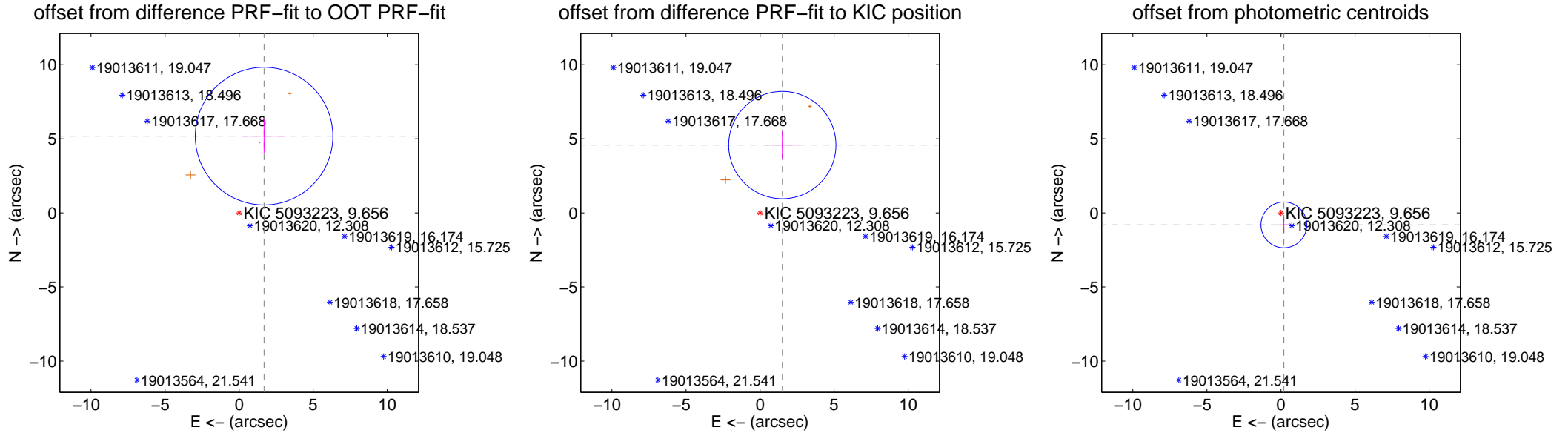
DV Centroid Data

Supplemental centroid analysis for 005093223-02. **Kepler magnitude: 9.66.** Transit SNR 28.61

There are 0 quarters with good PRF difference image offsets

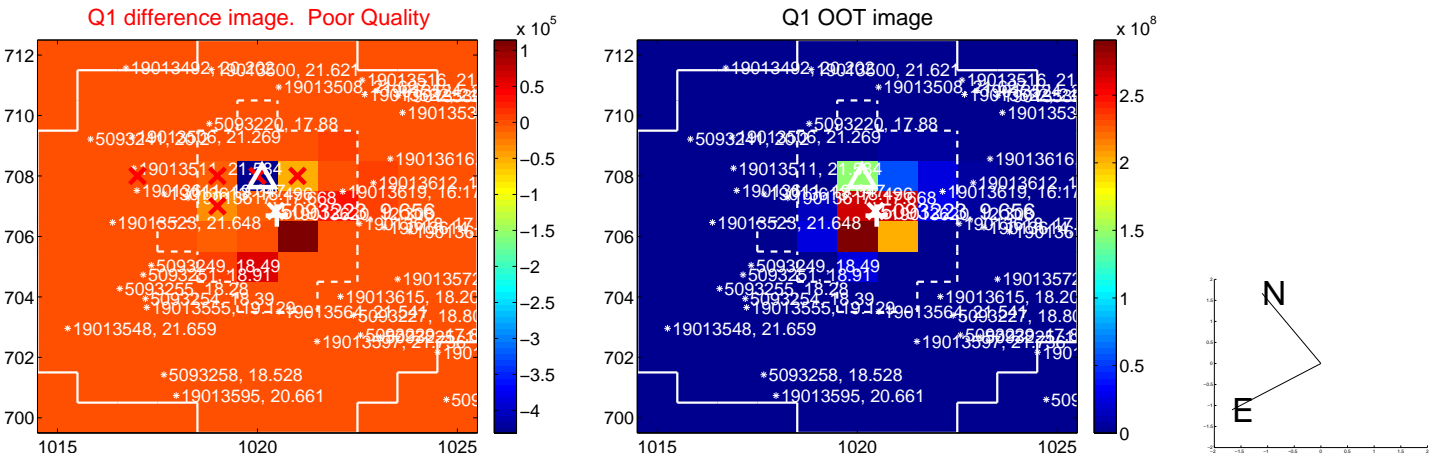
The direct PRF centroid is offset from the target star catalog position by about 1.00 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.445 ± 1.548	3.52	-1.682 ± 1.423	5.179 ± 1.188
PRF-fit source offset from KIC position	4.816 ± 1.207	3.99	-1.502 ± 1.140	4.575 ± 0.915
photometric centroid source offset	0.83 ± 0.52	1.62	-0.20 ± 0.36	-0.81 ± 0.52

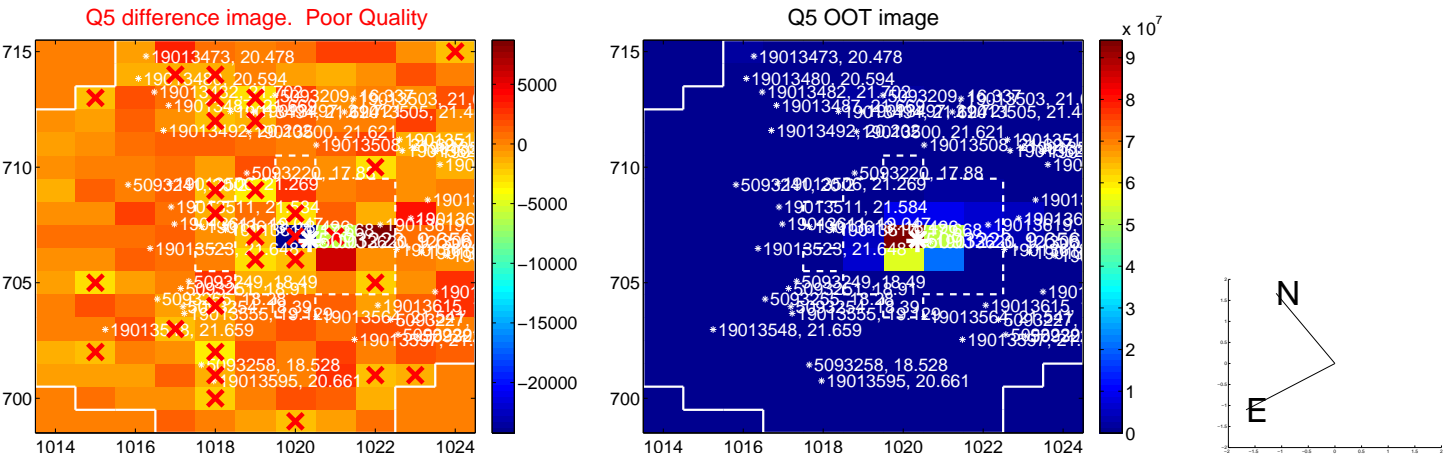


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

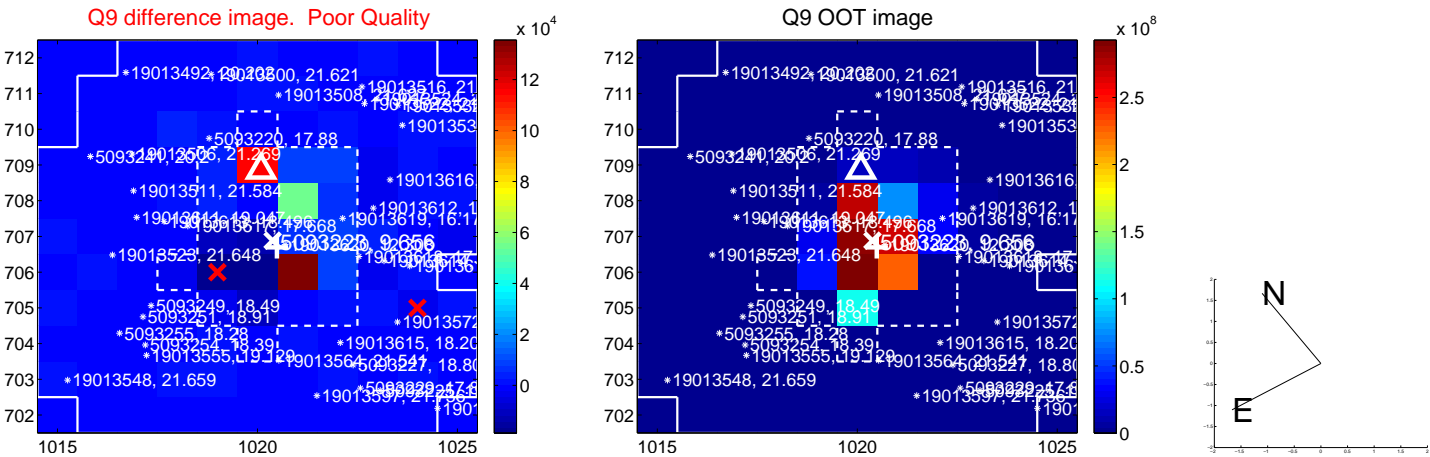
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



white ×: 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.

Q13 no difference image



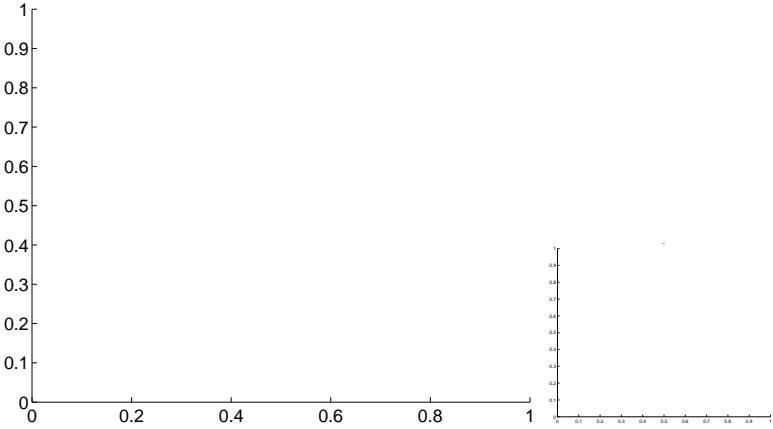
Q13 no OOT image



Q14 no difference image



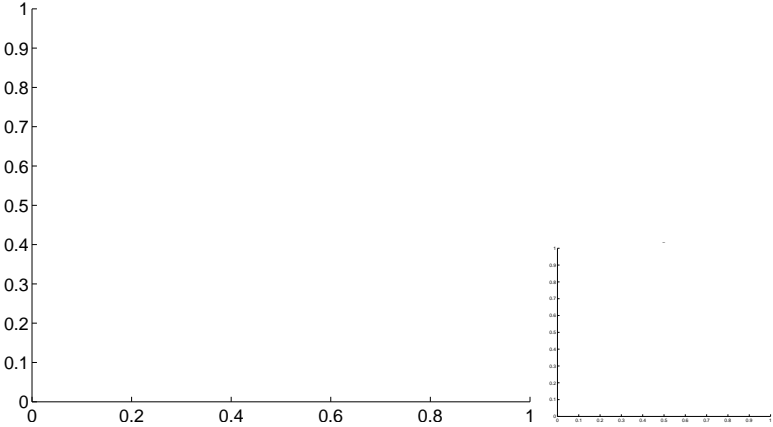
Q14 no OOT image



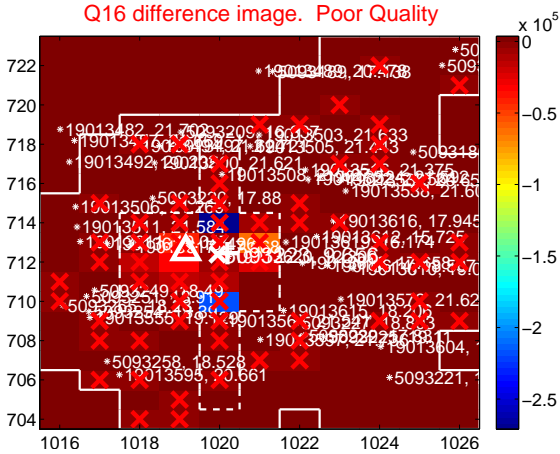
Q15 no difference image



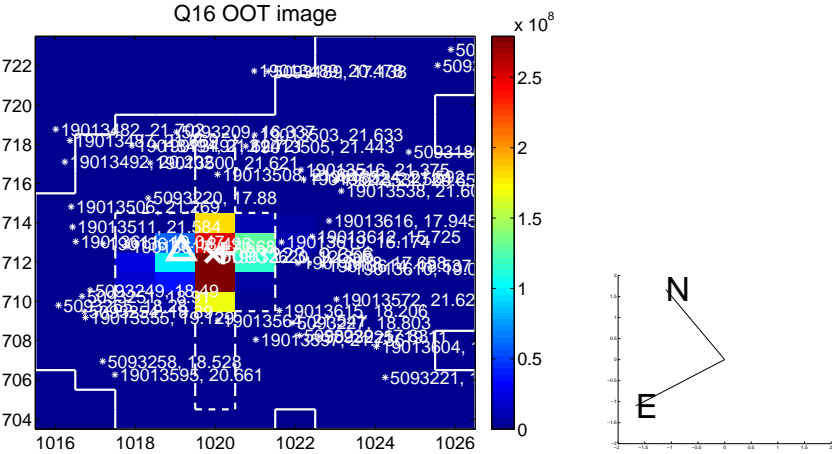
Q15 no OOT image



Q16 difference image. Poor Quality



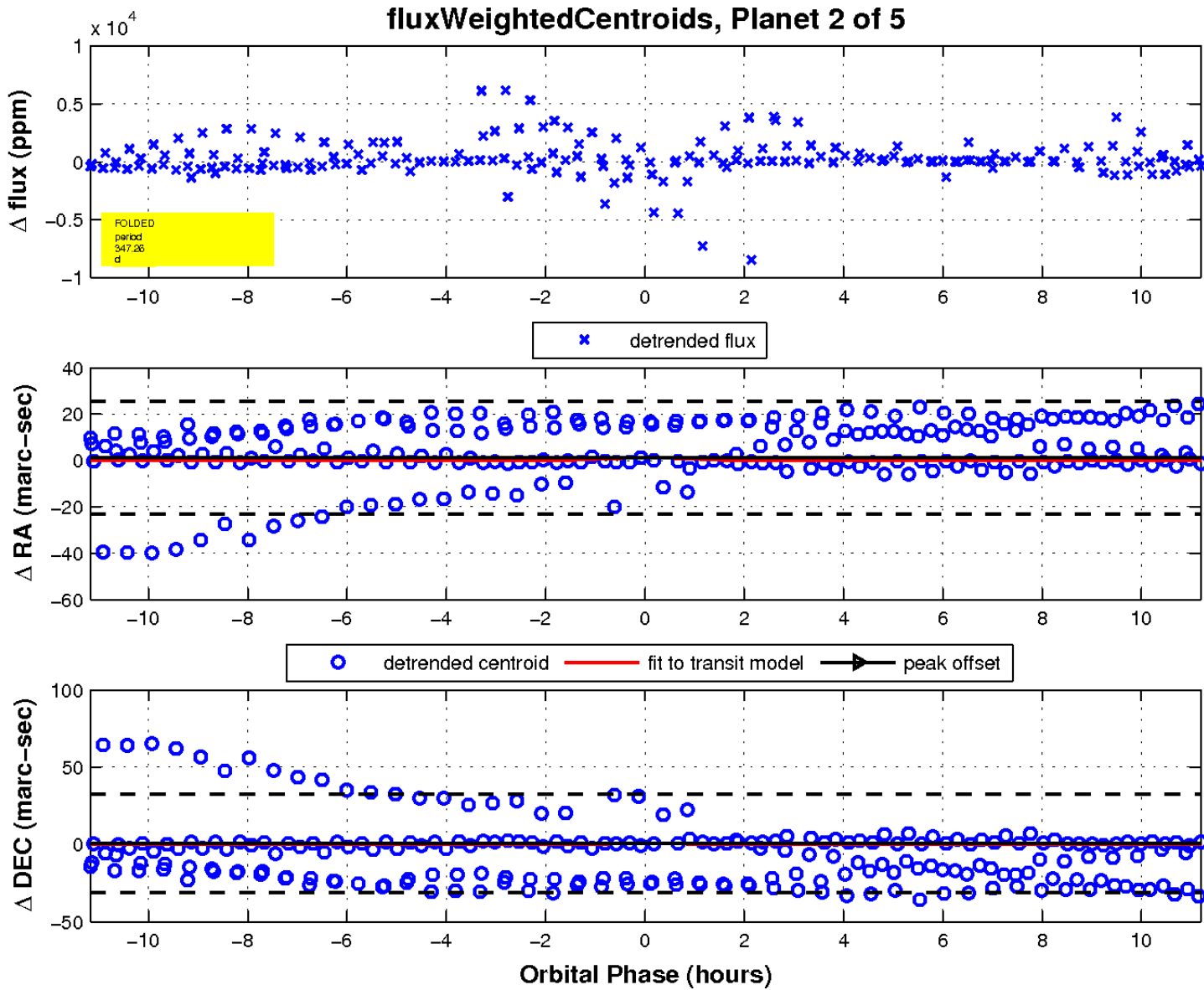
Q16 OOT image



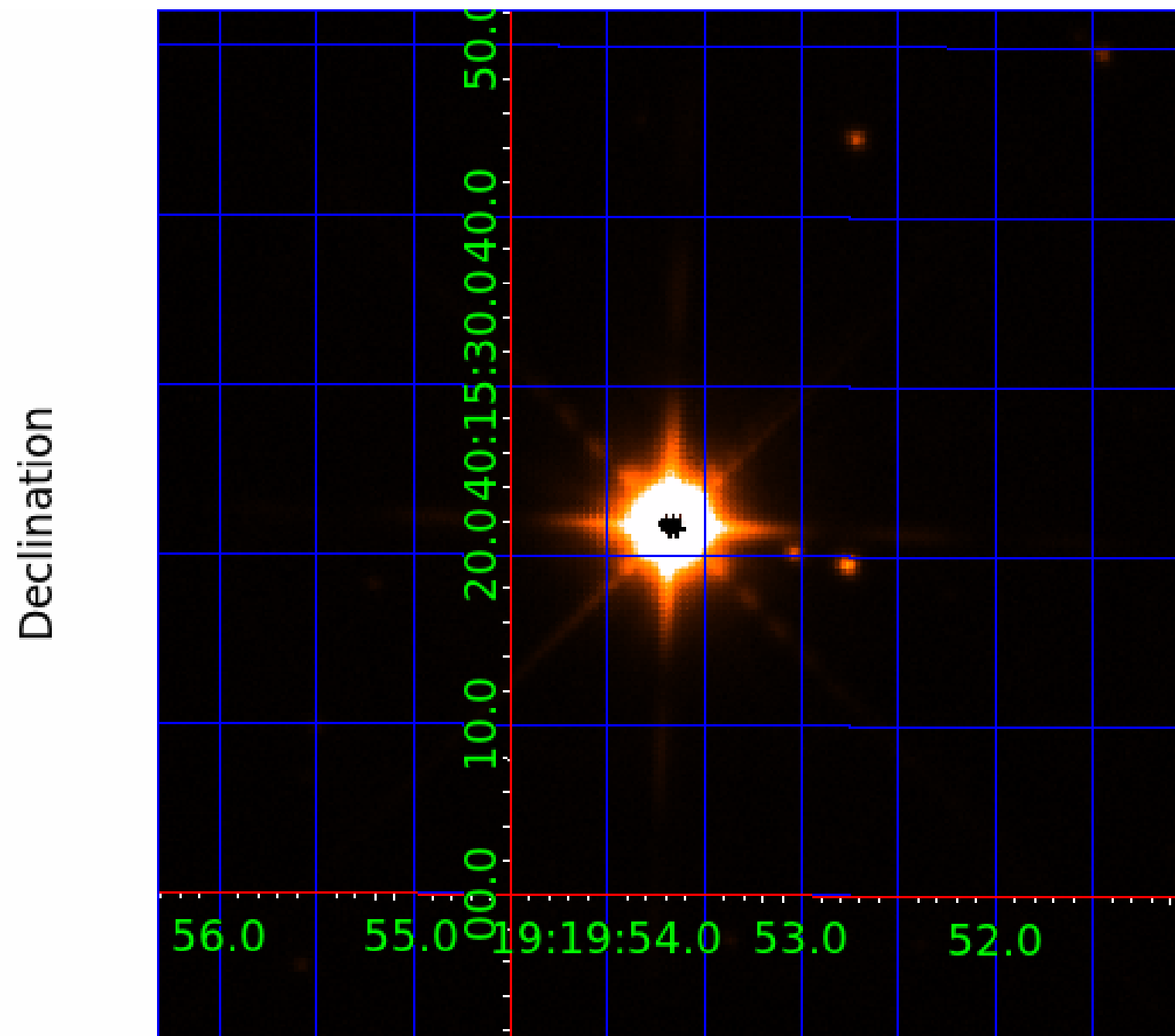
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



UKIRT Image



KIC 005093223

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})
005093223-01	OBS	No	371.573789	453.895121	4070.8	6.199	97.8	47.7	300.75	3287	3982.97	0.00
005093223-02	OBS	No	347.258542	146.199699	2799.0	3.749	31.4	28.6	300.75	3287	3379.39	0.00
005093223-03	OBS	No	345.969013	146.919591	131.4	12.377	33.7	1.1	300.75	3287	513.90	4234.93
005093223-04	OBS	No	349.896434	133.523893	2636.9	28.526	18.6	27.3	300.75	3287	3274.63	0.00
005093223-05	OBS	No	593.947274	151.598837	417.5	0.816	21.0	4.9	300.75	3287	581.91	2060.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005093223-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-04	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

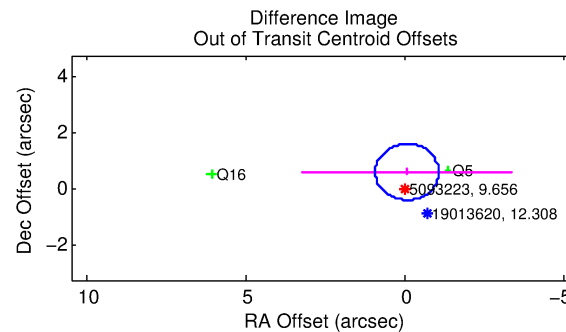
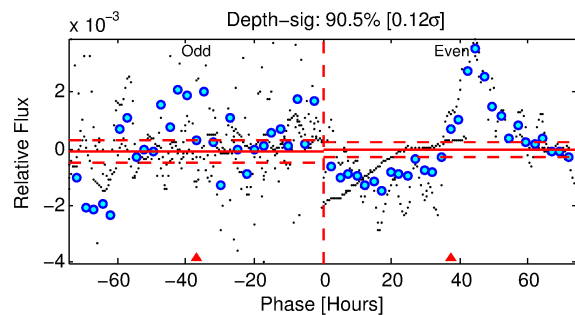
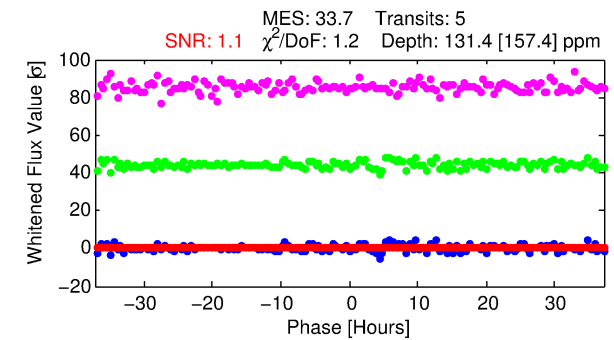
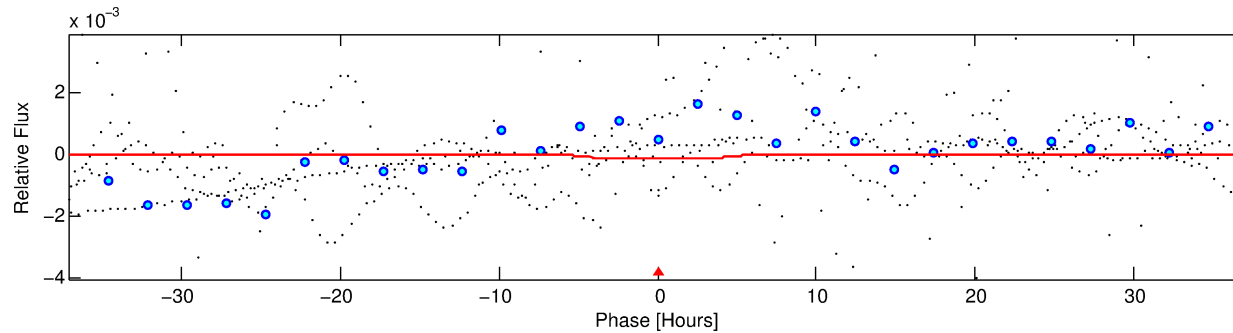
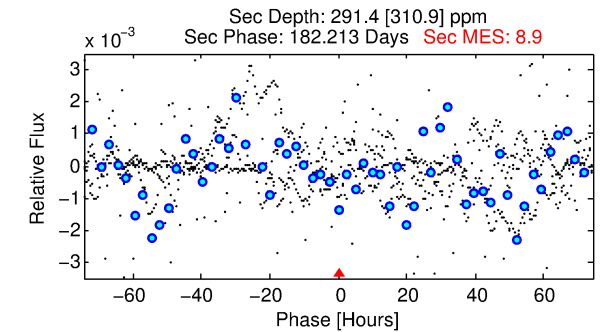
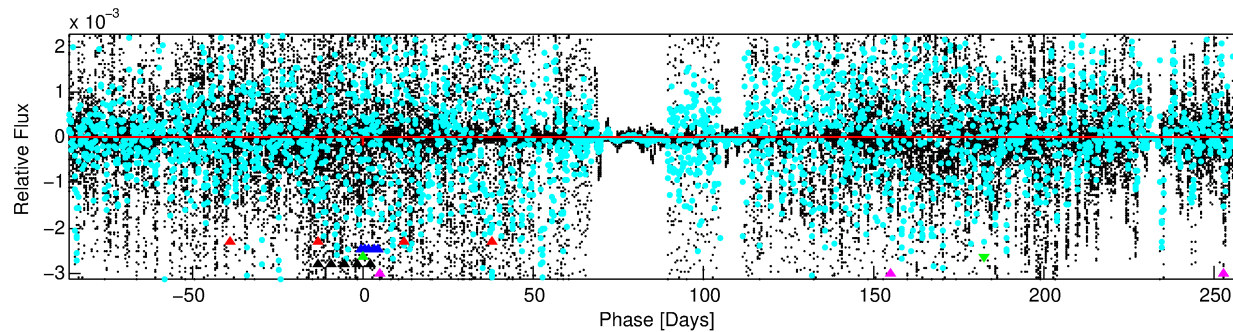
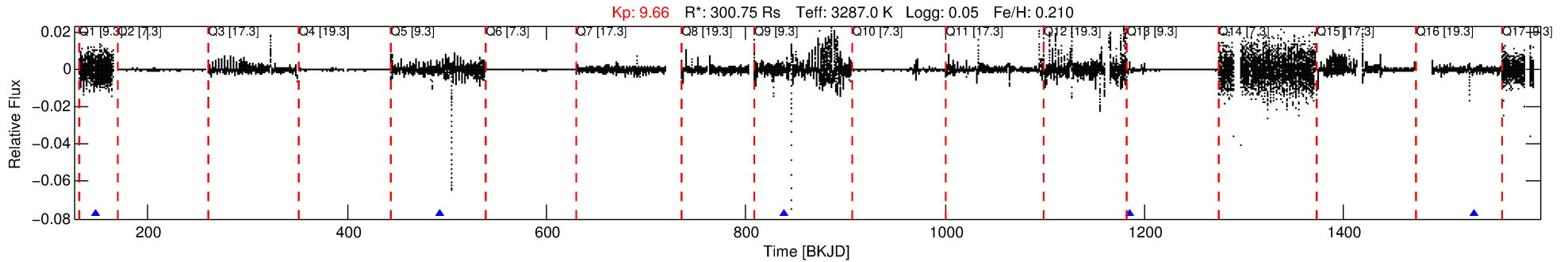
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005093223-03

No Significant Match Found

DV One-Page Summary

KIC: 5093223 Candidate: 3 of 5 Period: 345.969 d



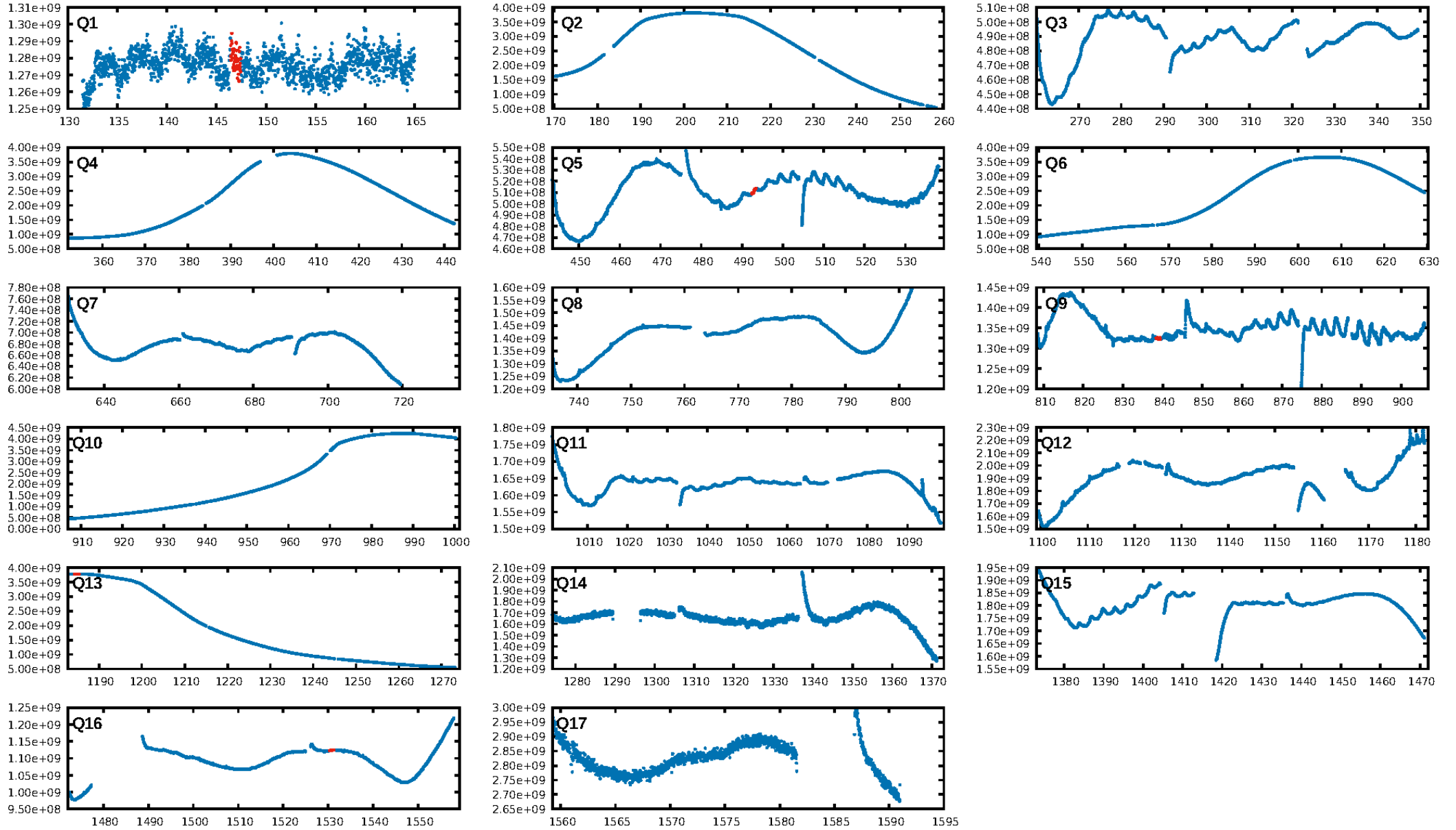
DV Fit Results:

Period = 345.96901 [0.07225] d
Epoch = 146.9196 [0.2150] BKJD
Rp/R* = 0.0157 [0.0100]
a/R* = 67.45 [39.66]
b = 0.97 [0.04]
Seff = 4234.93 [2658.25]
Teq = 2057 [323] K
Rp = 513.90 [447.10] Re
a = 1.4946 [0.6837] AU
Ag = 1.36 [2.41] [0.15σ]
Teffp = 3432 [1435] K [0.93σ]

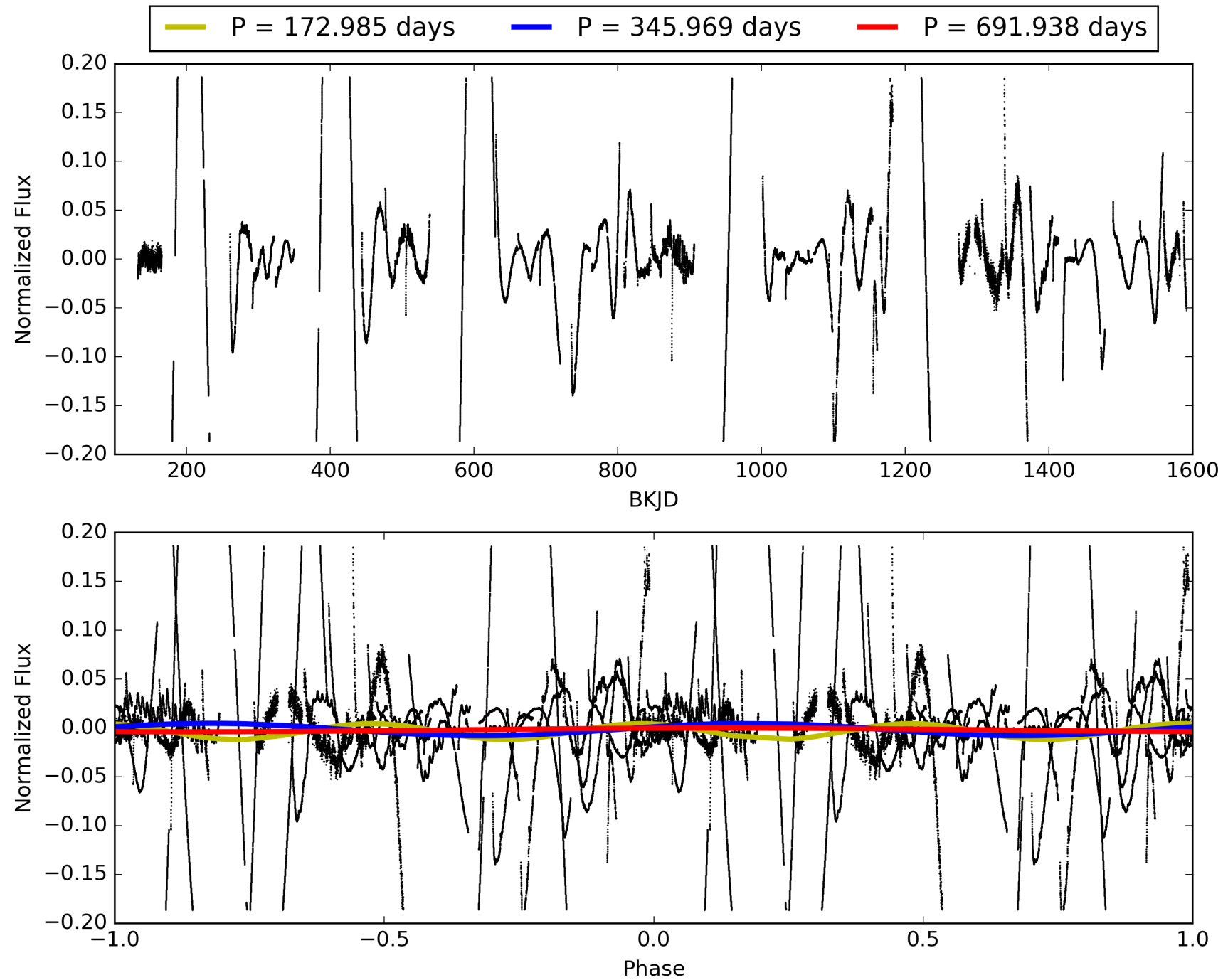
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 98.3% [2.39σ]
ModelChiSquare2-sig: 33.5%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 8.87e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 43.359 arcsec [3.72σ]
OotOffset-rm: 0.599 arcsec [1.80σ]
KicOffset-rm: 0.382 arcsec [0.56σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.50 [2/4]

TCE 005093223-03, PDC Light Curves

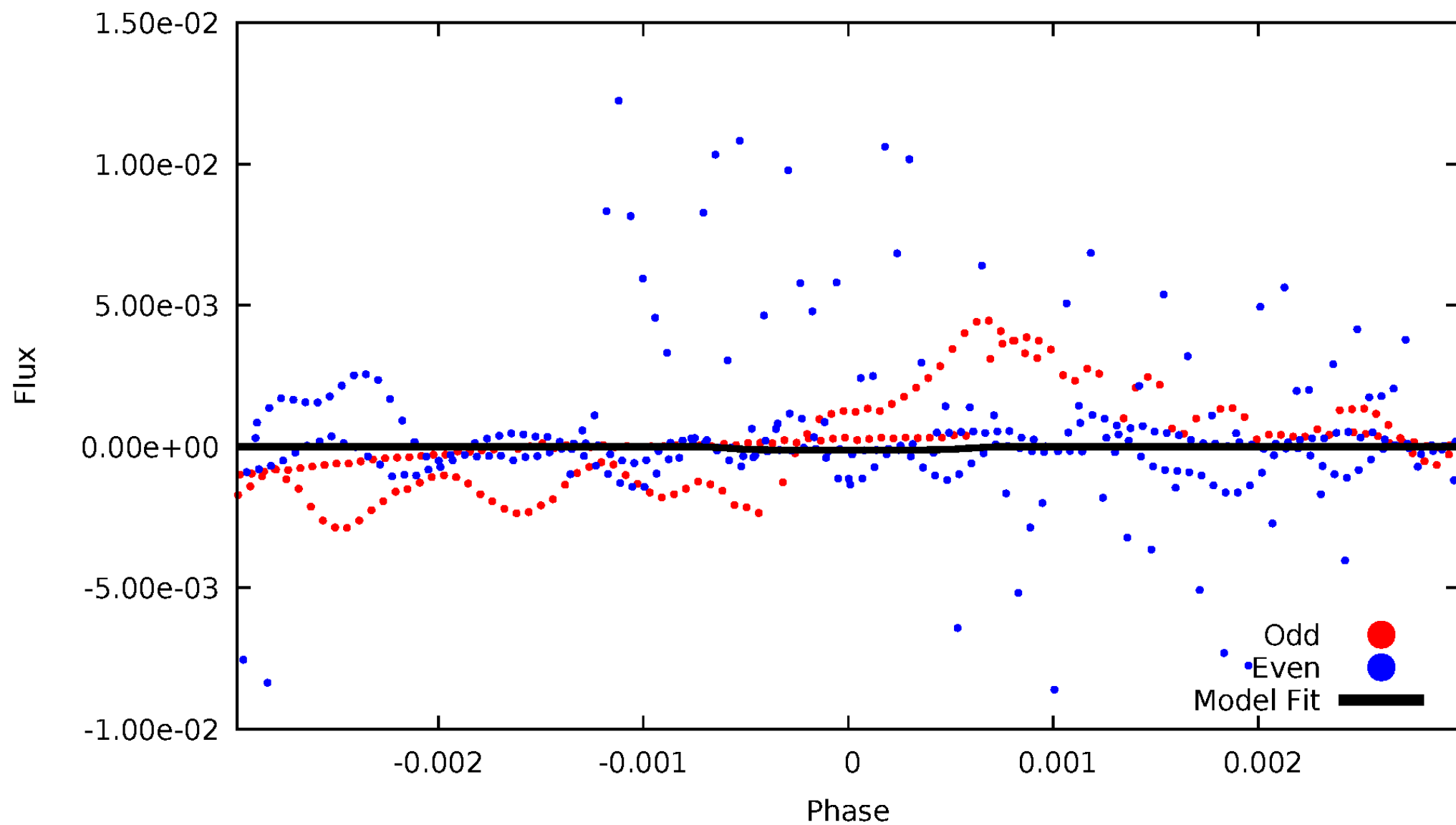


TCE 005093223-03



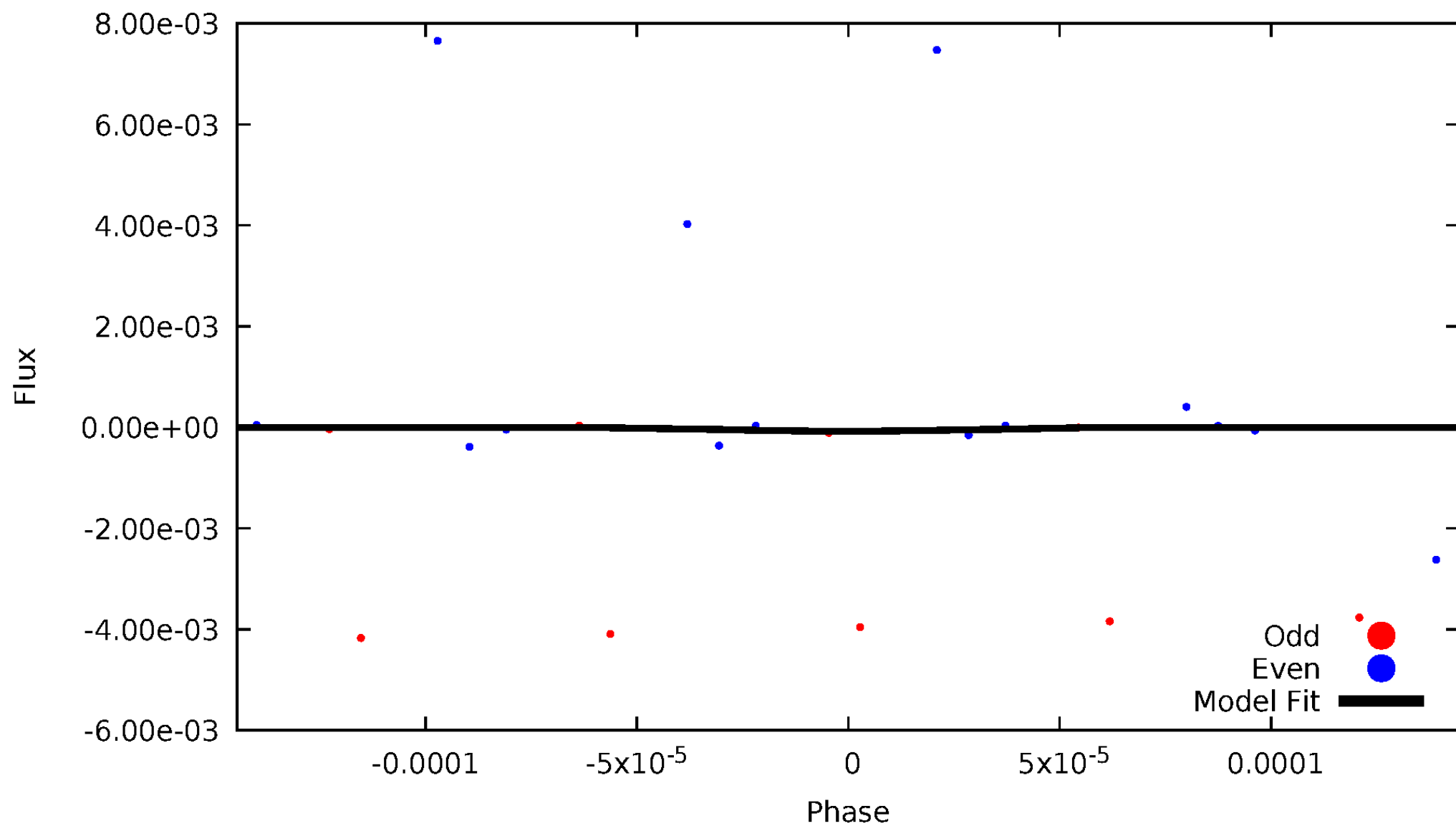
DV Odd/Even

TCE 005093223-03



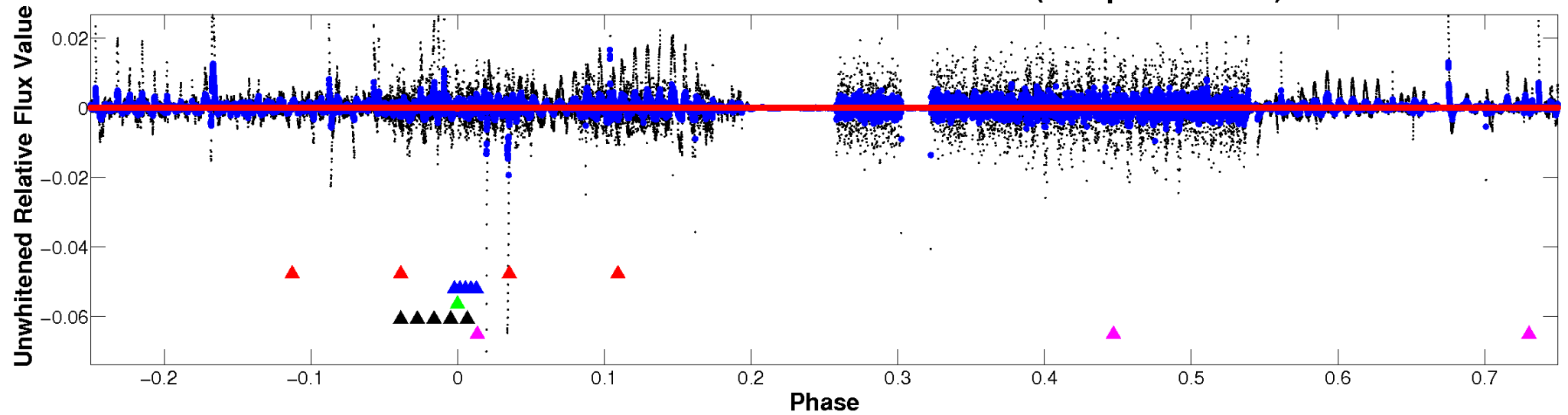
ALT Odd/Even

TCE 005093223-03

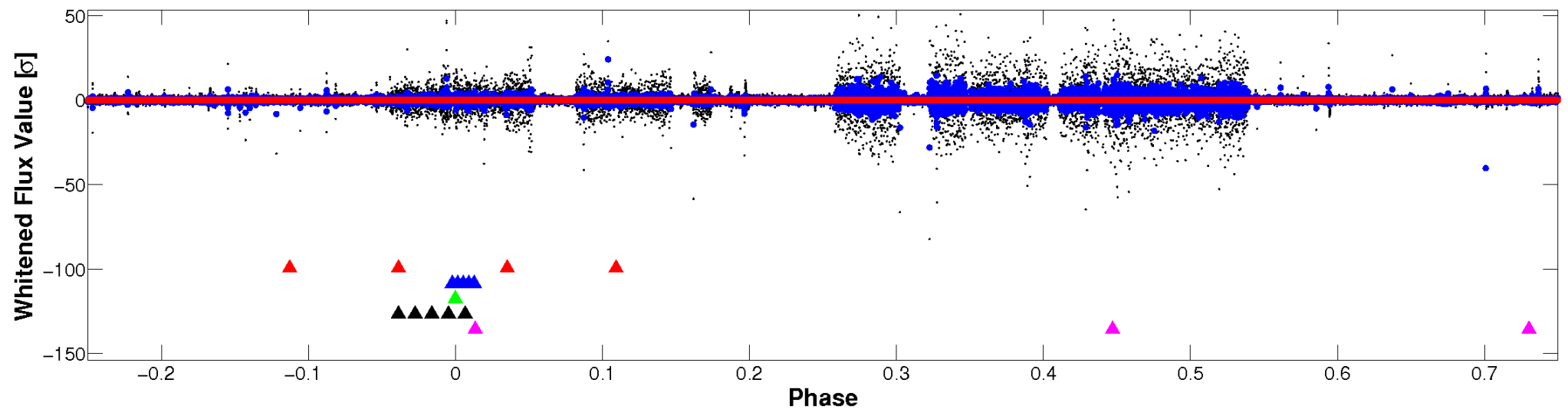


Non-Whitened Vs. Whitened Light Curve

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

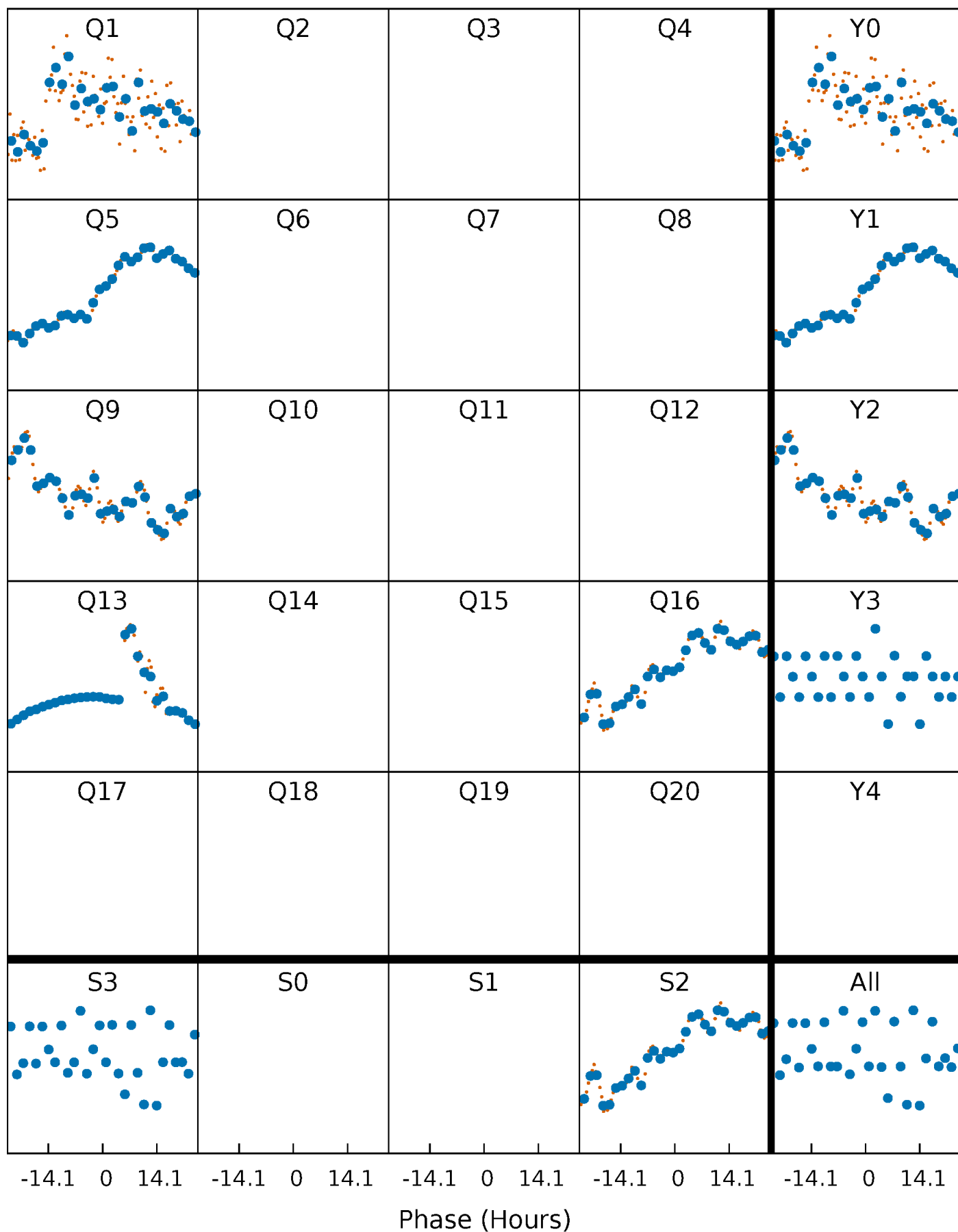


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



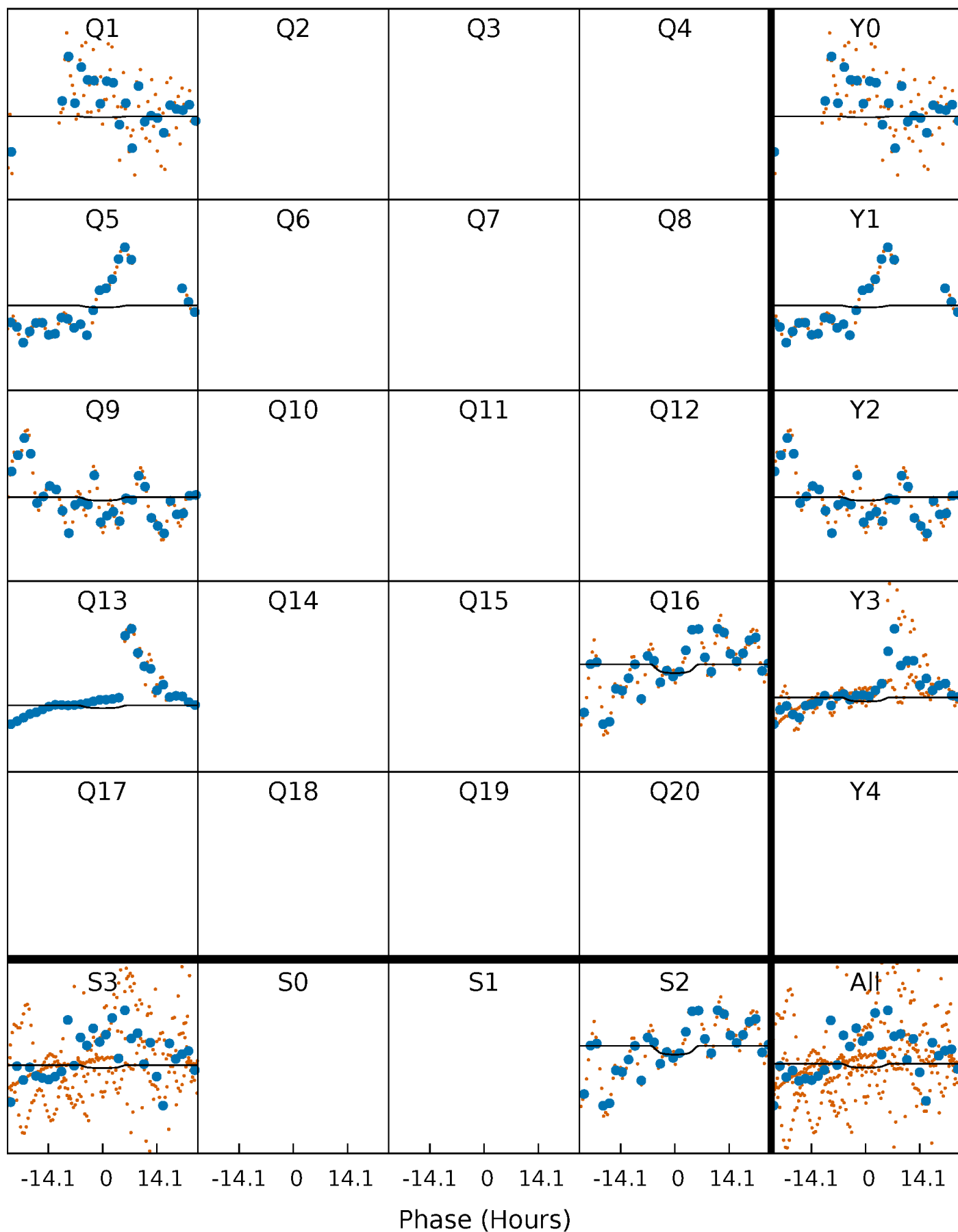
PDC Quarter-Phased Transit Curves

TCE 005093223-03 $P=345.969013$ Days $T_0=146.919591$ (BKJD)



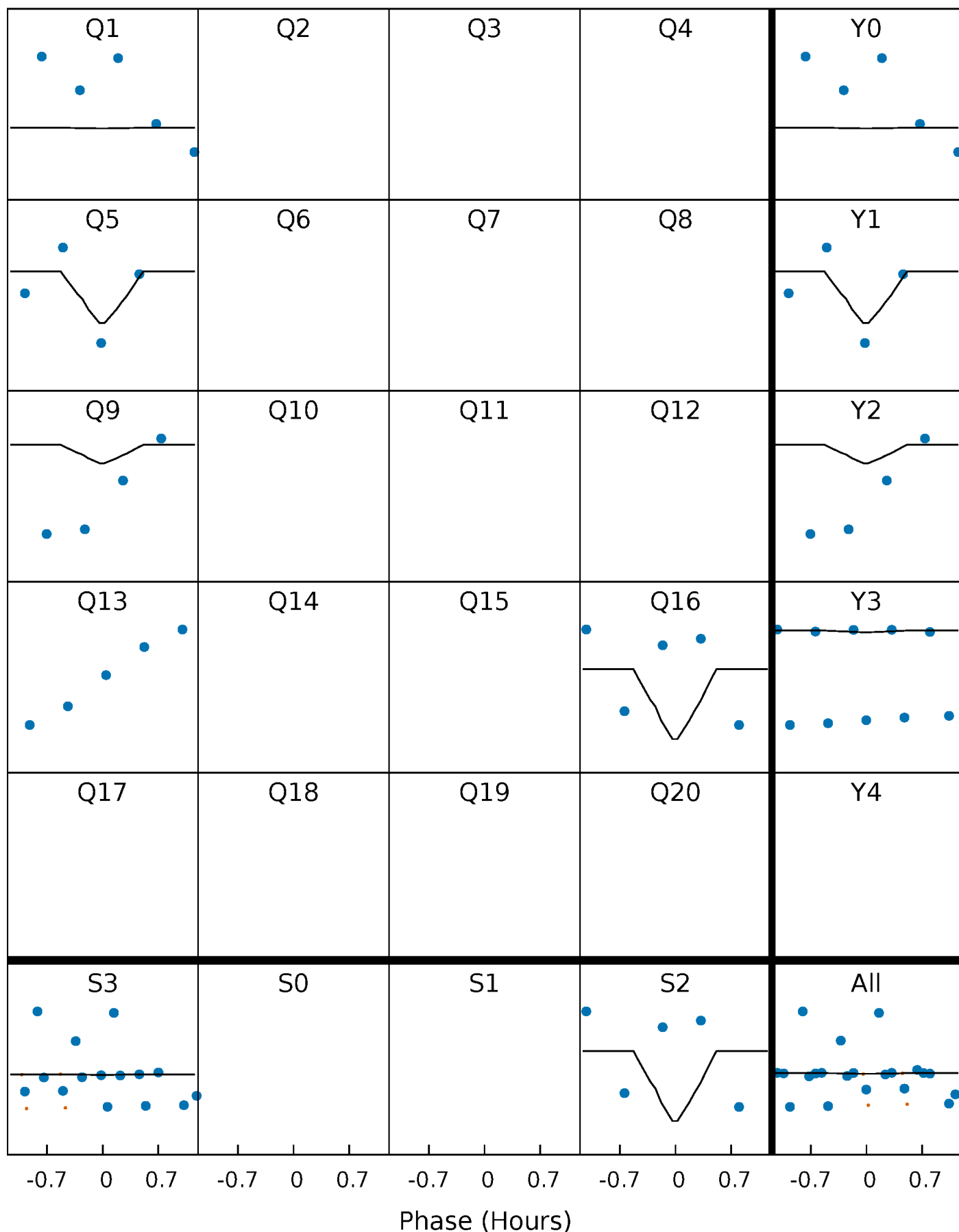
DV Quarter-Phased Transit Curves

TCE 005093223-03 $P=345.969013$ Days $T_0=146.919591$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

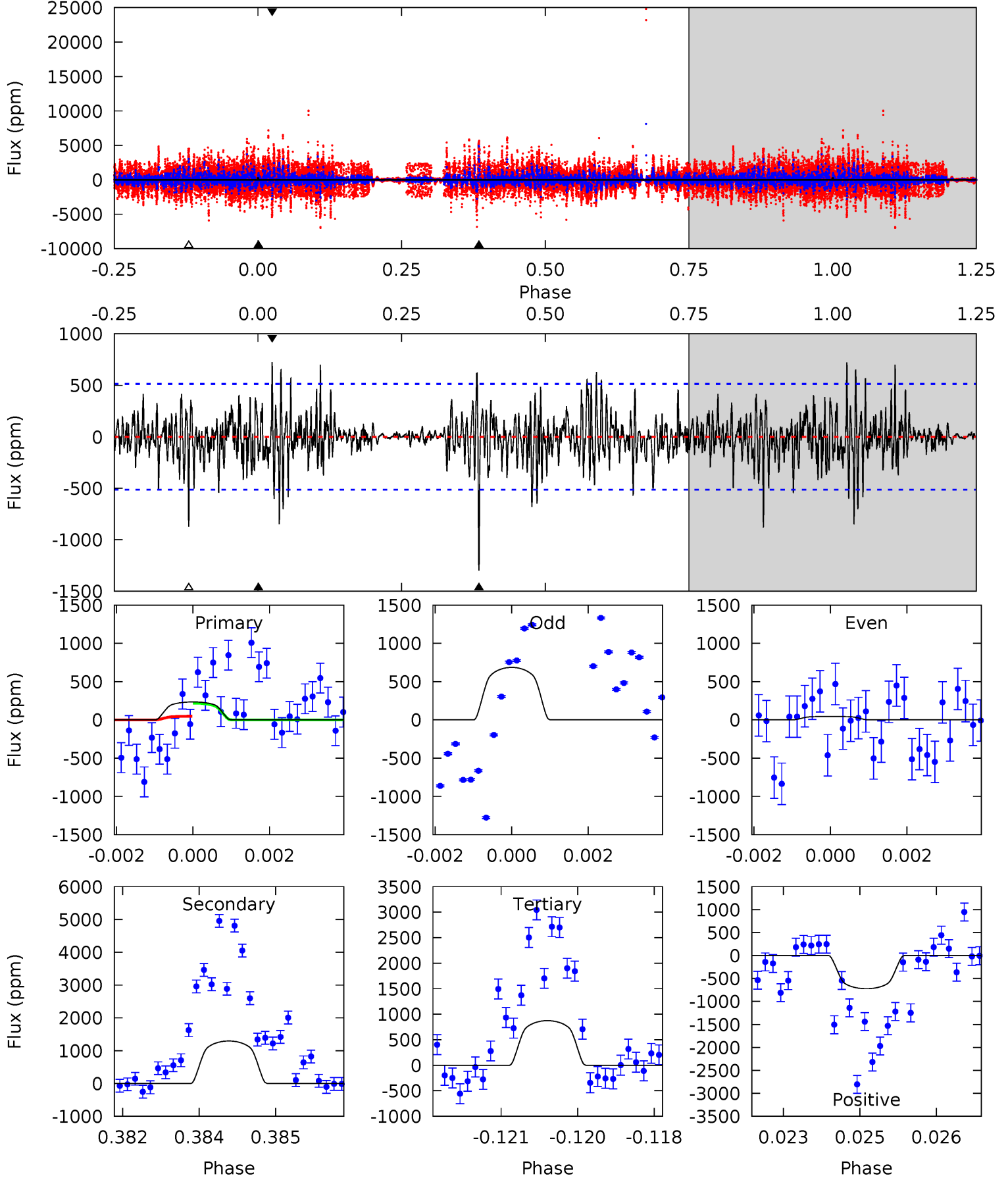
TCE 005093223-03 P=345.928182 Days $T_0=147.015127$ (BKJD)



DV Model-Shift Uniqueness Test

005093223-03, P = 345.969013 Days, E = 146.919591 Days

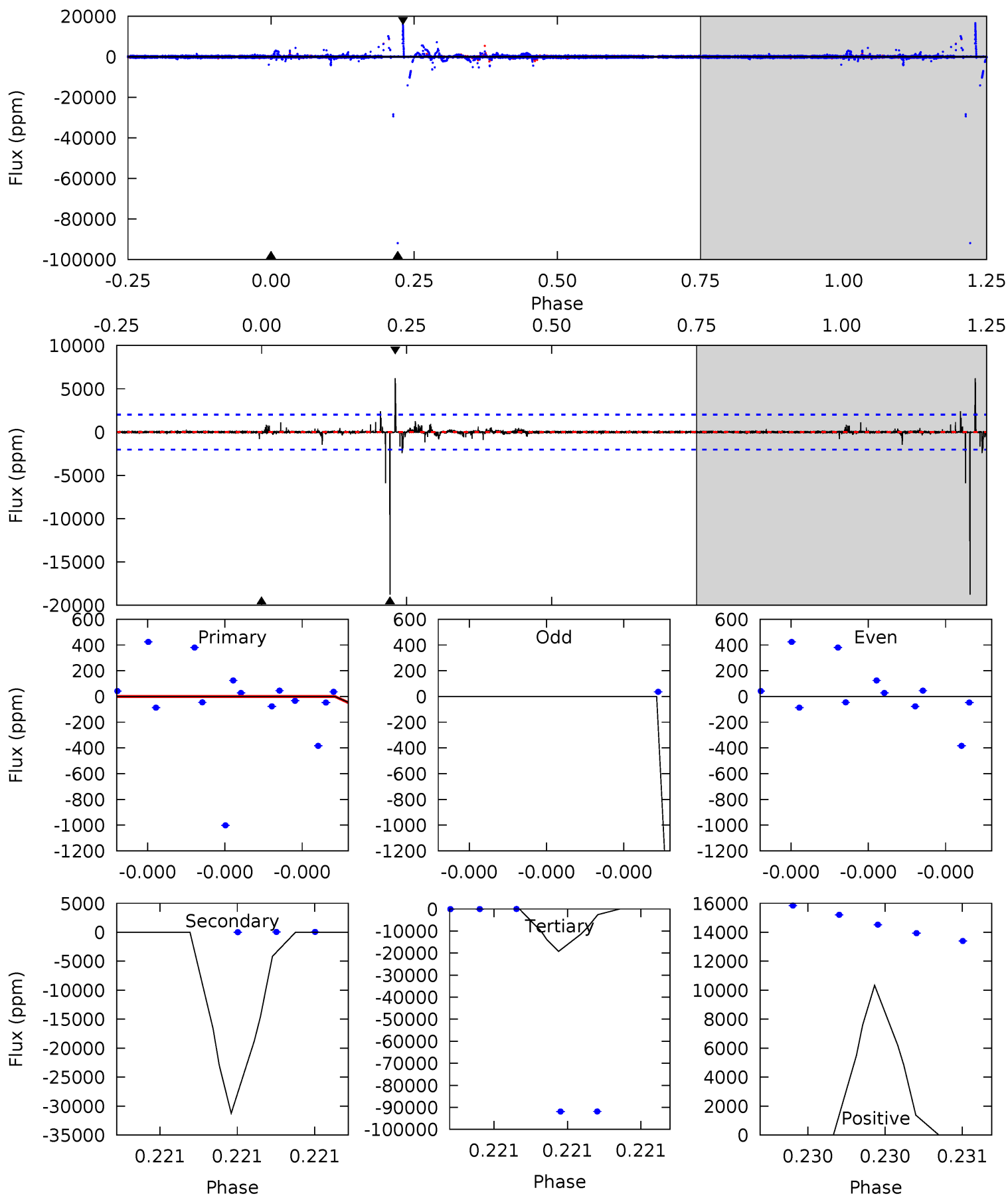
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.46	13.5	9.13	7.56	5.37	3.17	1.84	-6.68	-5.10	4.41	5.99	1.63	3.72	0.36	0.92



Alt Model-Shift Uniqueness Test

005093223-03, P = 345.928182 Days, E = 147.015127 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.26	53.9	33.2	17.9	5.83	3.87	0.51	-33.0	-17.6	20.7	36.1	0	-9.22	0.25	0.11



Stellar Parameters For KIC 005093223

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+114}_{-91}	$0.052^{+0.306}_{-0.036}$	$0.210^{+0.200}_{-0.300}$	$300.749^{+10.418}_{-177.098}$	$3.722^{+0.074}_{-2.501}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+588%/-69%	+95%/-143%	+3%/-59%	+2%/-67%	+379%/-8%
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 005093223-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1296 ± 96	$478.83^{+342.64}_{-267.14}$	2846^{+126}_{-247}	4304^{+1647}_{-736}	$6.628^{+25.167}_{-4.302}$
Alt.	-18744 ± 347	$334.53^{+292.38}_{-213.51}$	2851^{+117}_{-240}	10708^{+20635}_{-3641}	203^{+1358}_{-145}

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

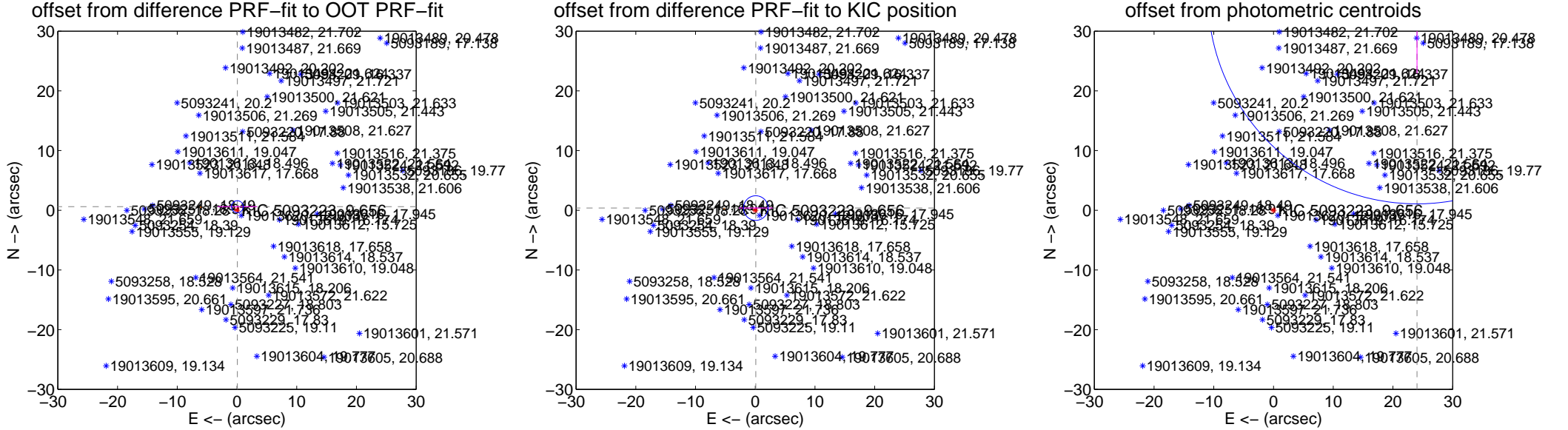
DV Centroid Data

Supplemental centroid analysis for 005093223-03. **Kepler magnitude: 9.66.** Transit SNR 1.10

There are 1 quarters with good PRF difference image offsets

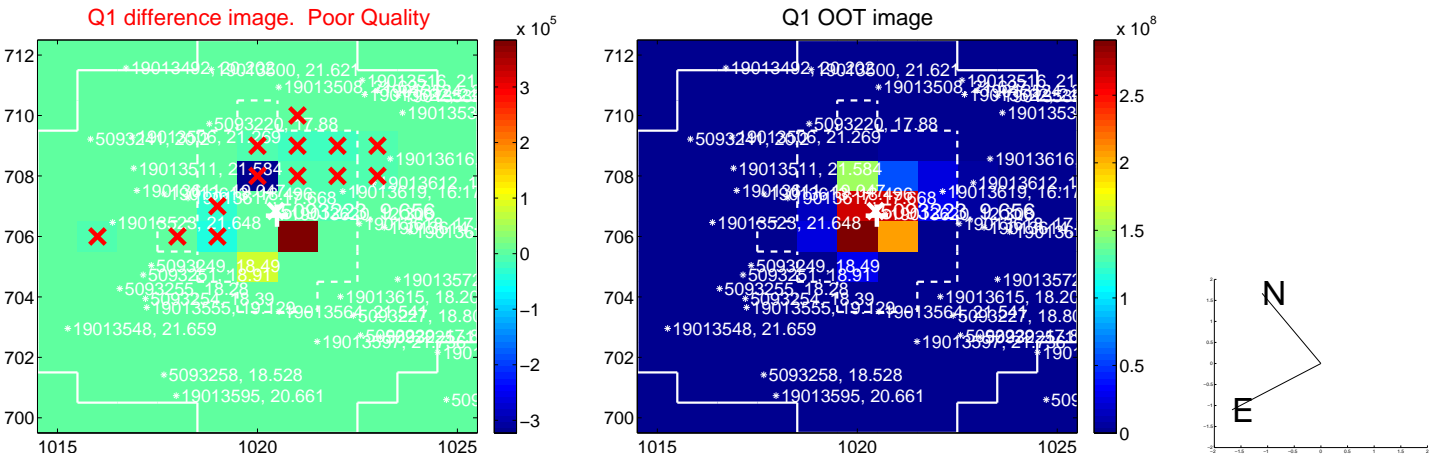
The direct PRF centroid is offset from the target star catalog position by about 0.94 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.599 ± 0.333	1.80	-0.058 ± 3.302	0.596 ± 0.101
PRF-fit source offset from KIC position	0.382 ± 0.687	0.56	-0.091 ± 2.836	0.371 ± 0.141
photometric centroid source offset	43.36 ± 11.67	3.71	-24.03 ± 7.24	36.09 ± 13.17

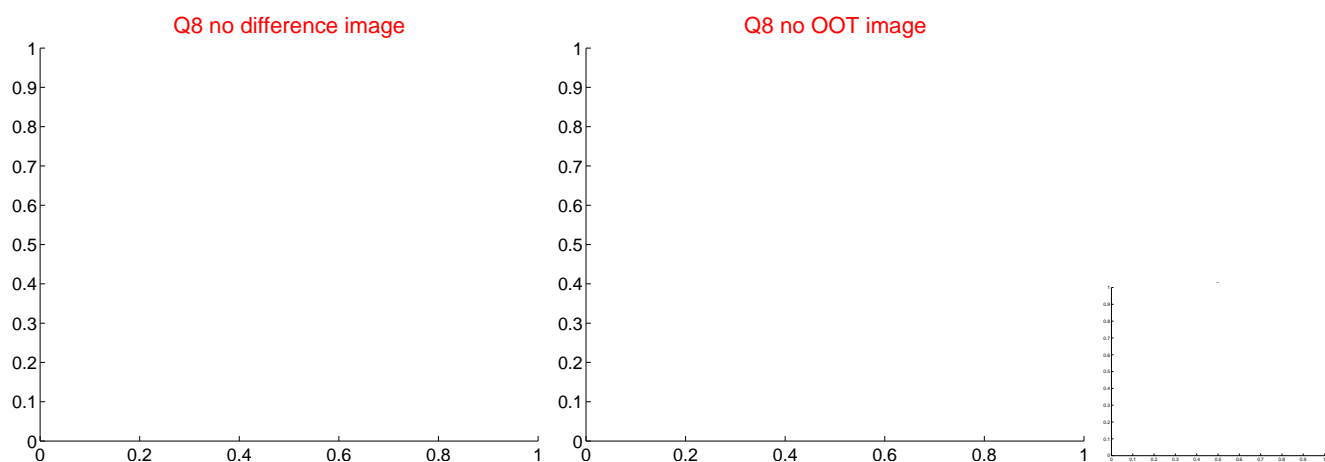
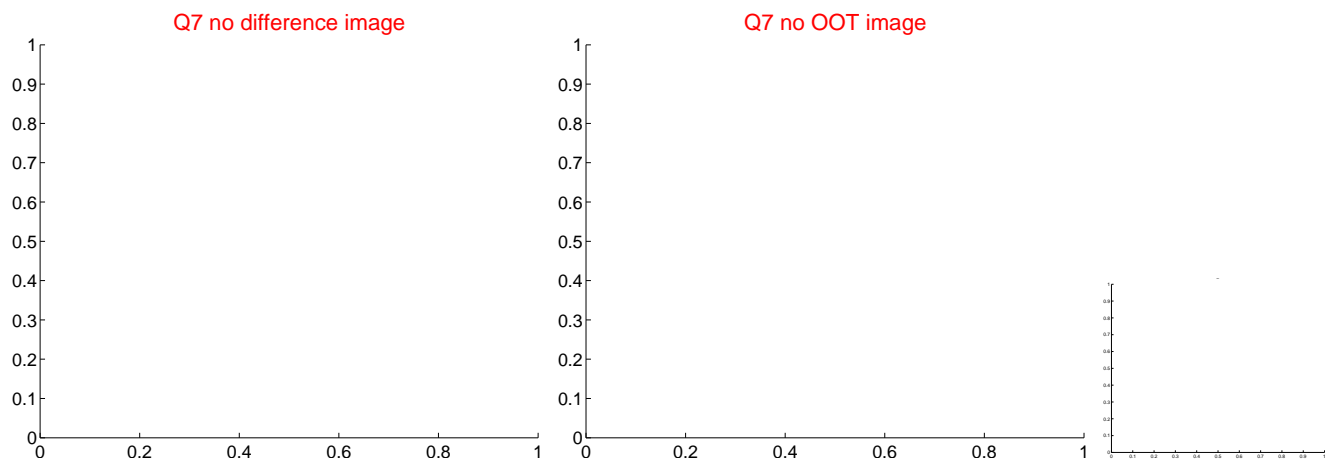
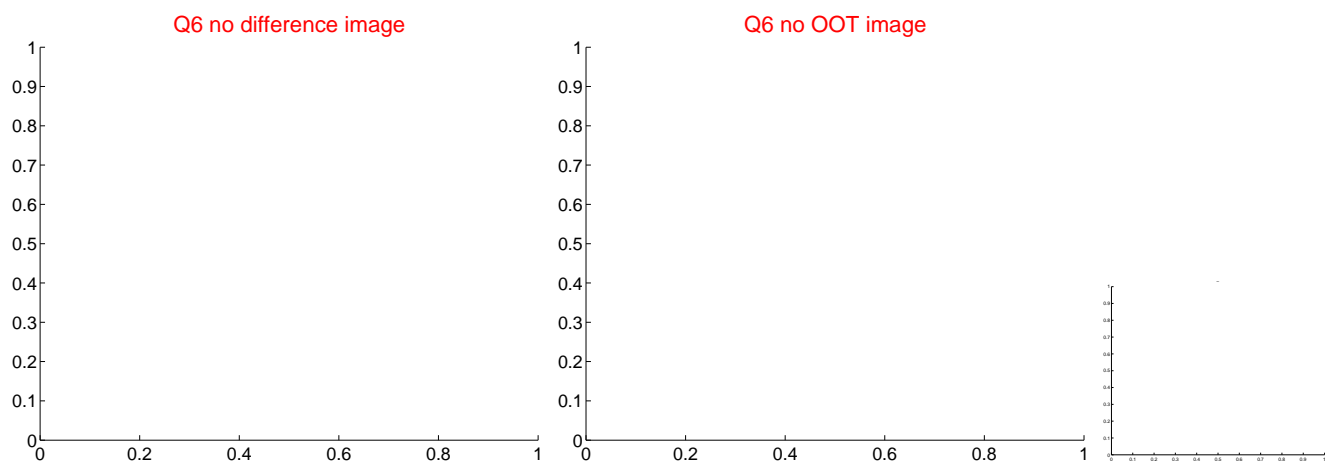
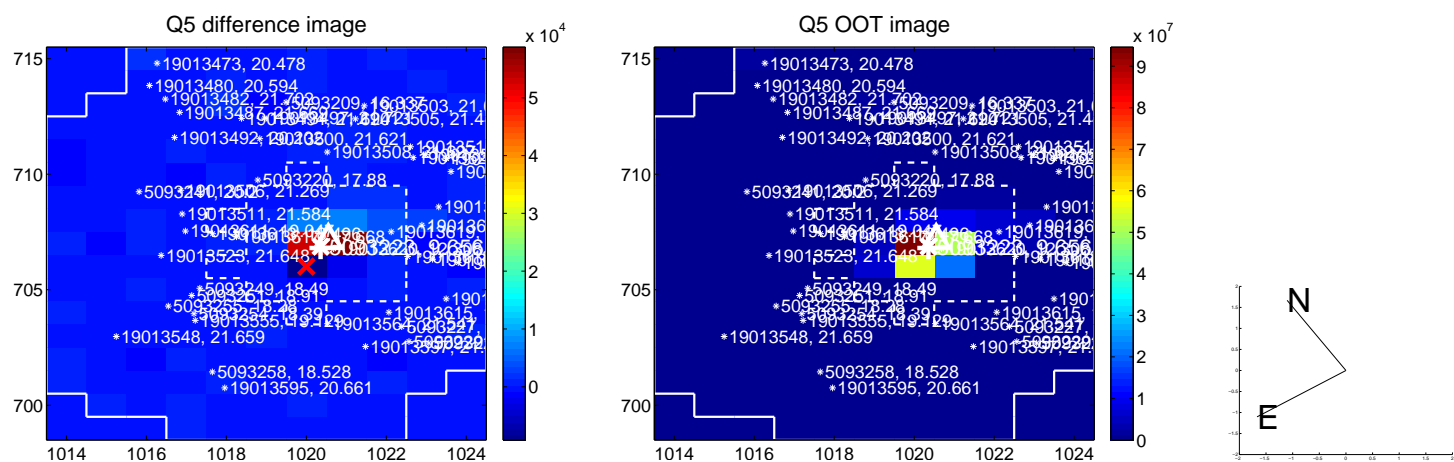


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

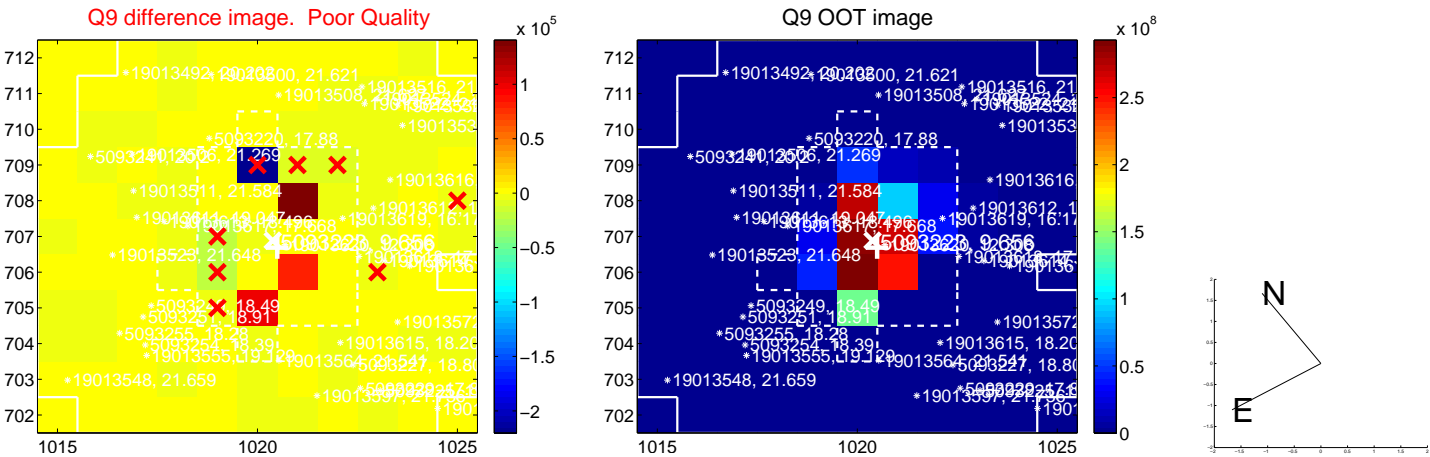
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



white ×: 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.

Q13 no difference image



Q13 no OOT image



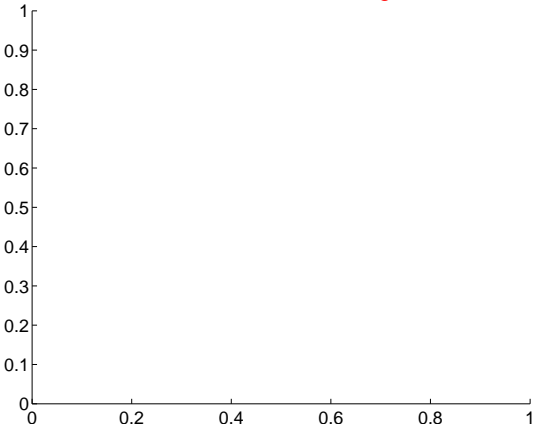
Q14 no difference image



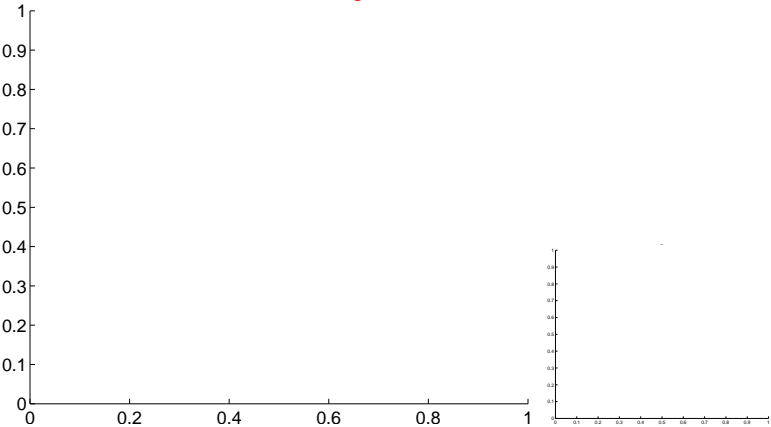
Q14 no OOT image



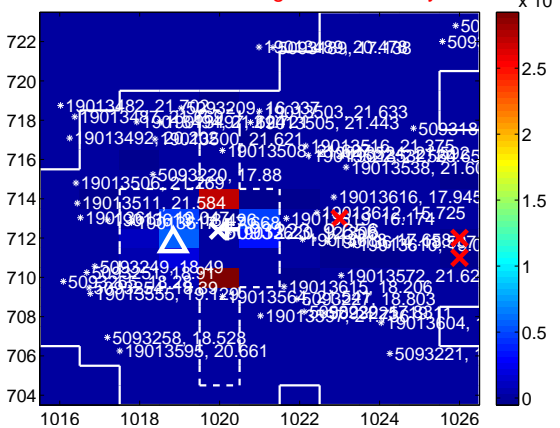
Q15 no difference image



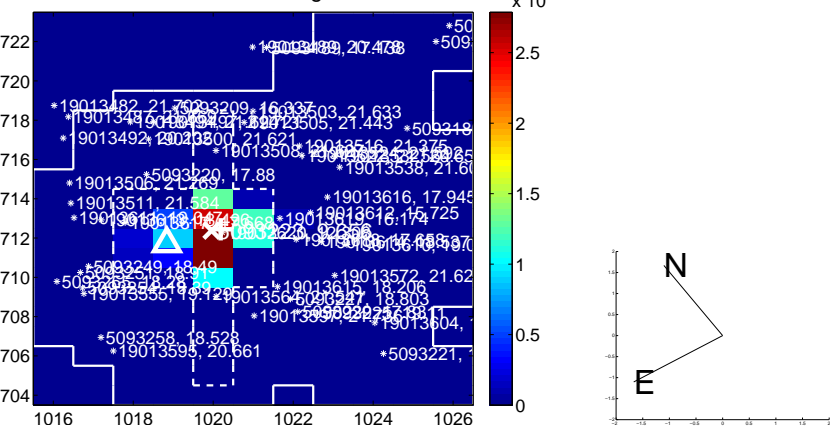
Q15 no OOT image



Q16 difference image. Poor Quality



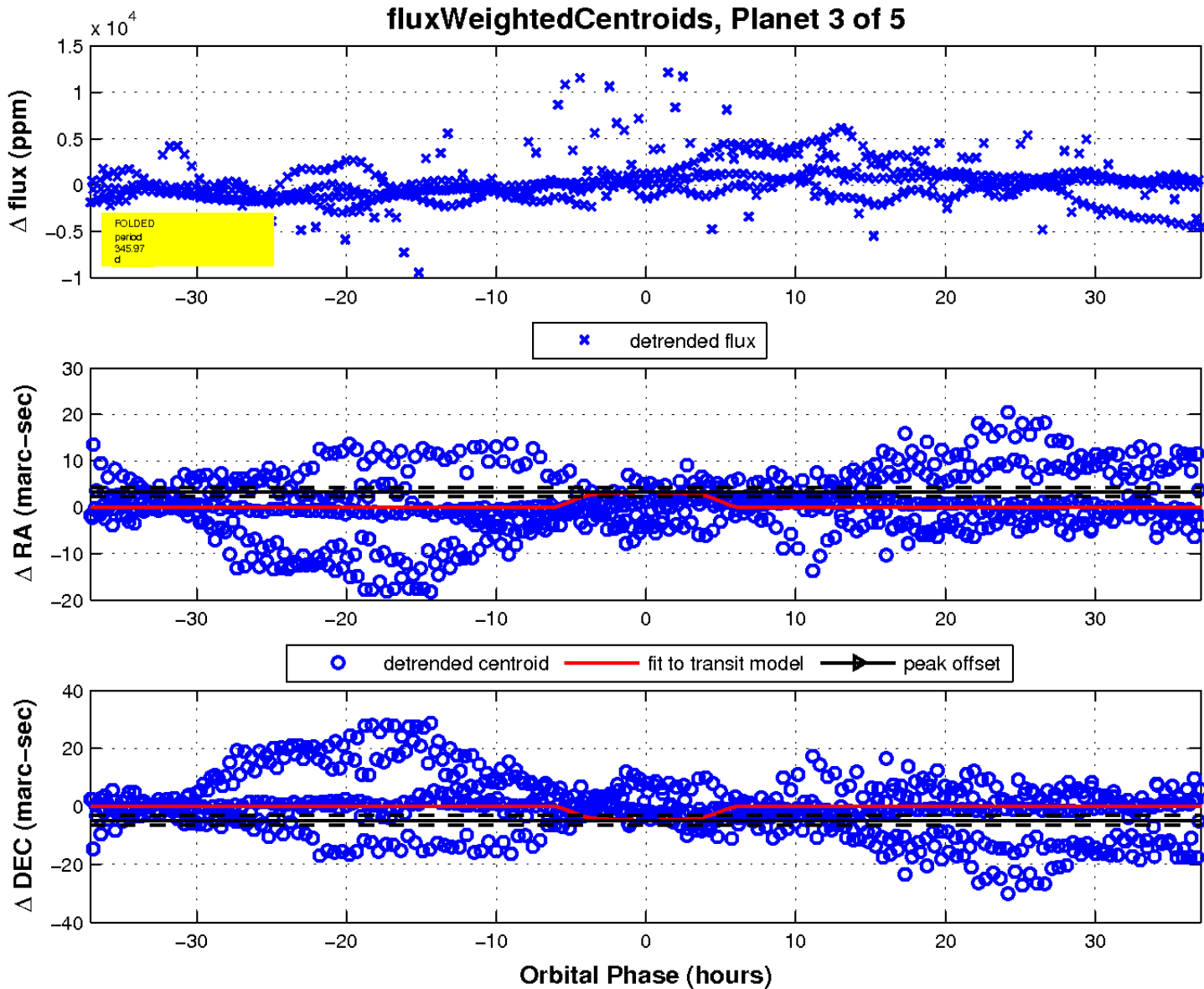
Q16 OOT image



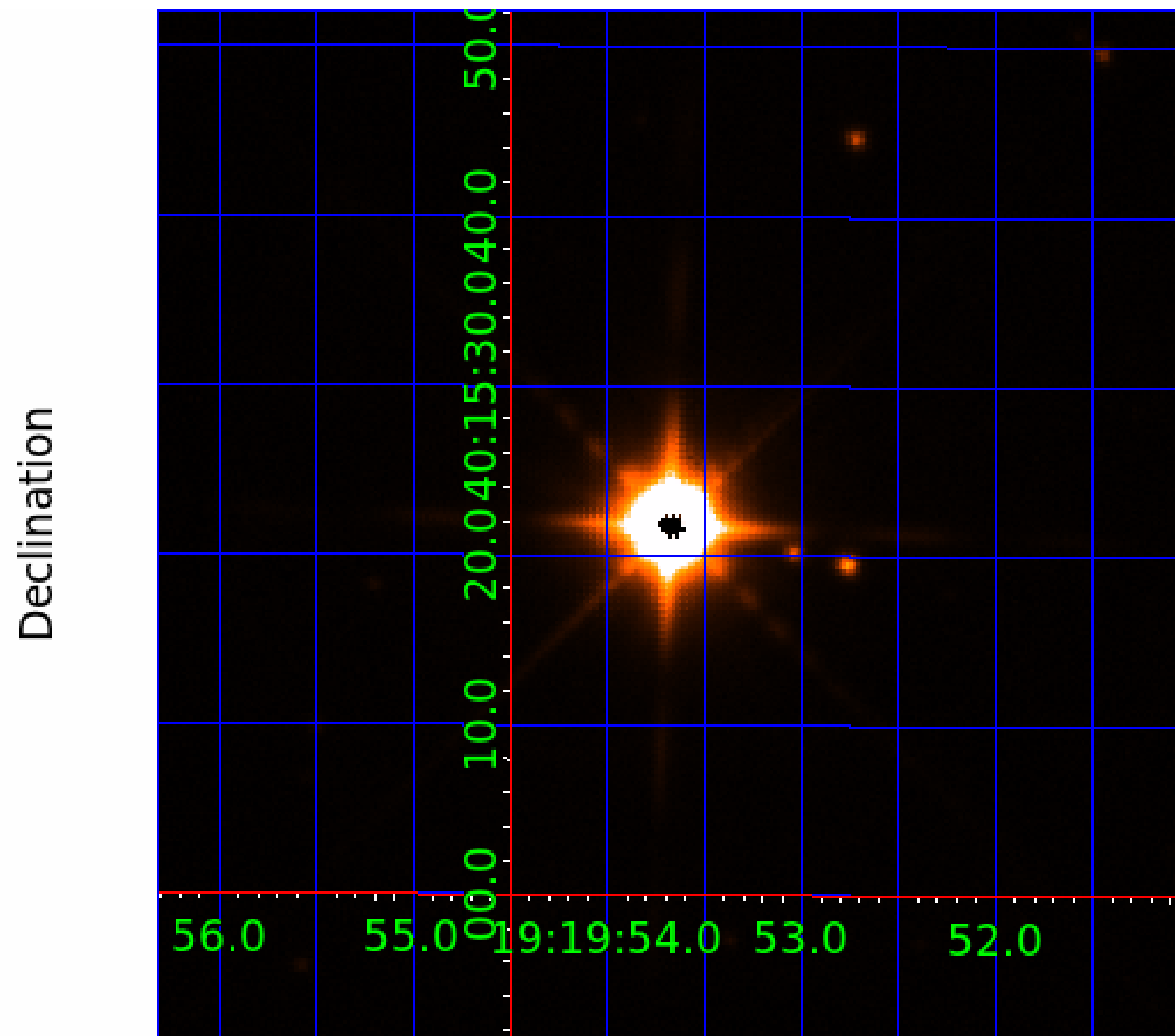
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



UKIRT Image



KIC 005093223

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})
005093223-01	OBS	No	371.573789	453.895121	4070.8	6.199	97.8	47.7	300.75	3287	3982.97	0.00
005093223-02	OBS	No	347.258542	146.199699	2799.0	3.749	31.4	28.6	300.75	3287	3379.39	0.00
005093223-03	OBS	No	345.969013	146.919591	131.4	12.377	33.7	1.1	300.75	3287	513.90	4234.93
005093223-04	OBS	No	349.896434	133.523893	2636.9	28.526	18.6	27.3	300.75	3287	3274.63	0.00
005093223-05	OBS	No	593.947274	151.598837	417.5	0.816	21.0	4.9	300.75	3287	581.91	2060.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005093223-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-04	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

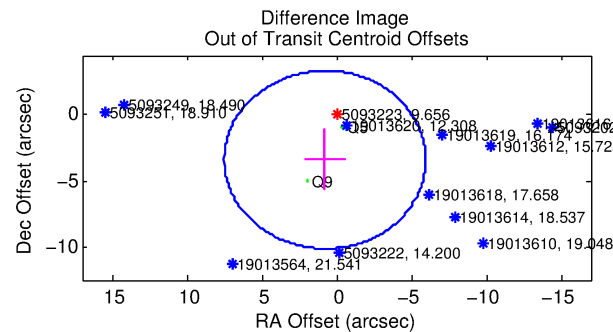
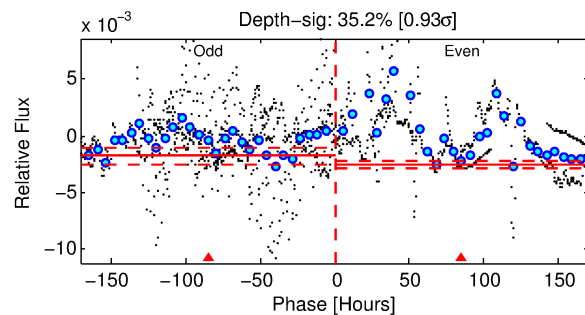
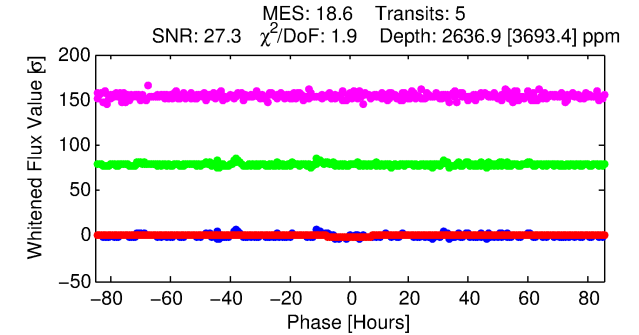
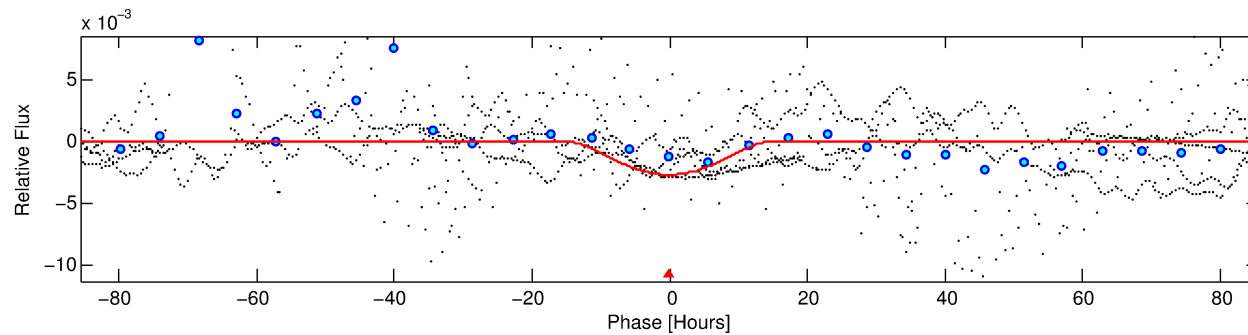
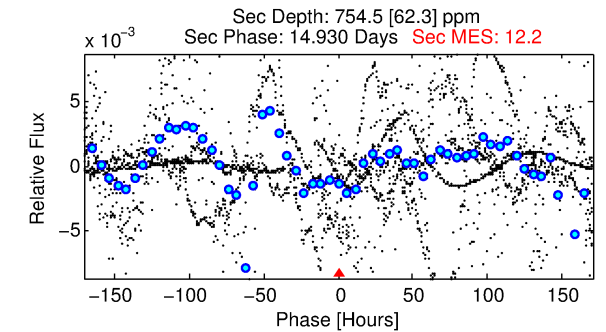
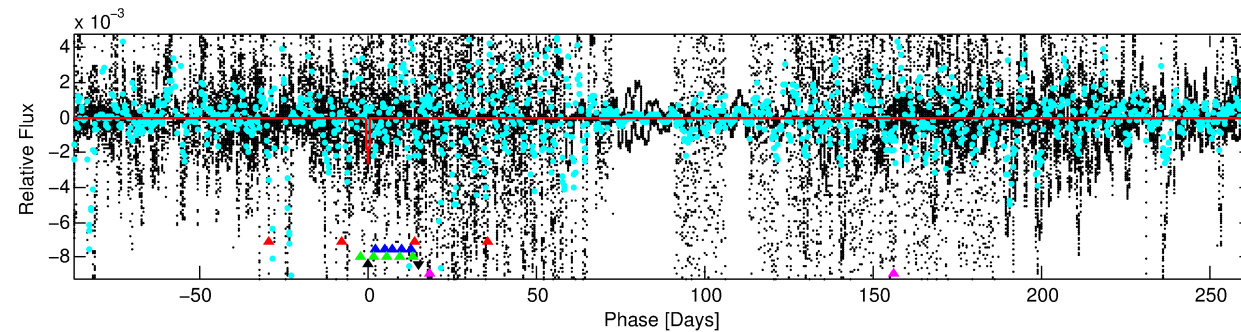
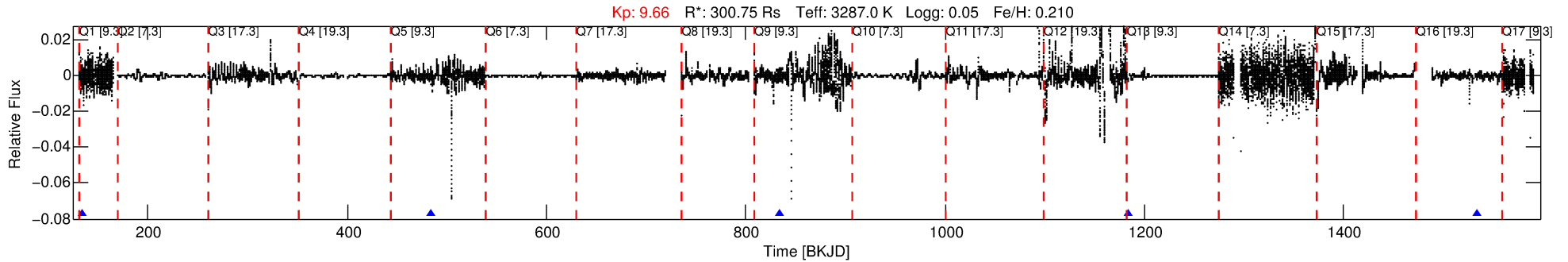
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005093223-04

No Significant Match Found

DV One-Page Summary

KIC: 5093223 Candidate: 4 of 5 Period: 349.896 d



DV Fit Results:

Period = 349.89643 [0.03127] d
Epoch = 133.5239 [0.0937] BKJD
Rp/R* = 0.0998 [0.1193]
a/R* = 42.90 [9.32]
b = 1.00 [0.08]
Seff = N/A
Teq = N/A
Rp = 3274.63 [4363.46] Re
a = N/A
Ag = N/A
Teffp = N/A

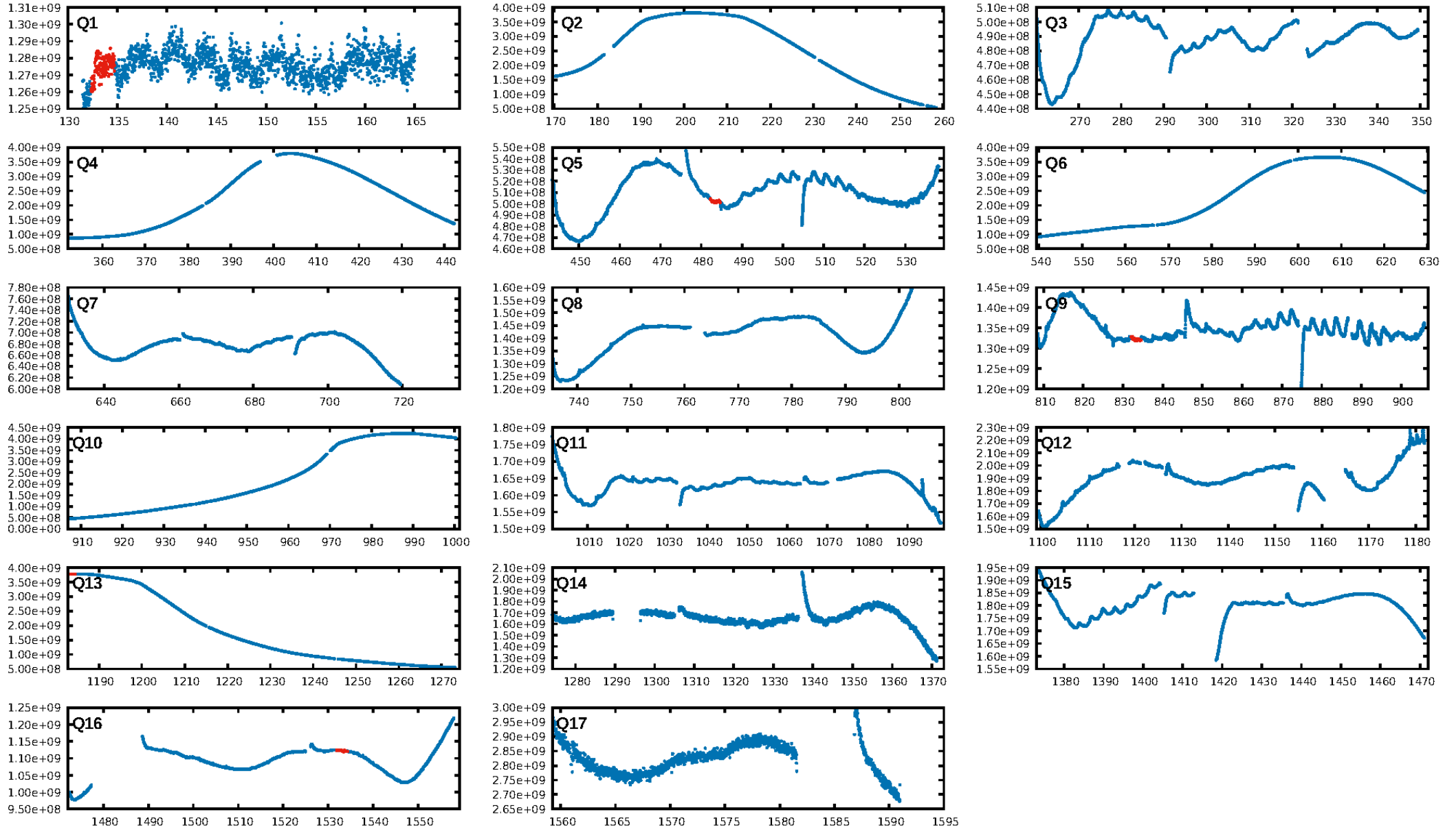
DV Diagnostic Results:

ShortPeriod-sig: 97.2% [2.20σ]
LongPeriod-sig: 100.0% [17.82σ]
ModelChiSquare2-sig: 3.1%
ModelChiSquareGof-sig: 14.1%
Bootstrap-pfa: 2.48e-05
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 78.0%
Centroid-so: 0.753 arcsec [0.93σ]
OotOffset-rm: 3.490 arcsec [1.56σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 4.169 arcsec [1.55σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

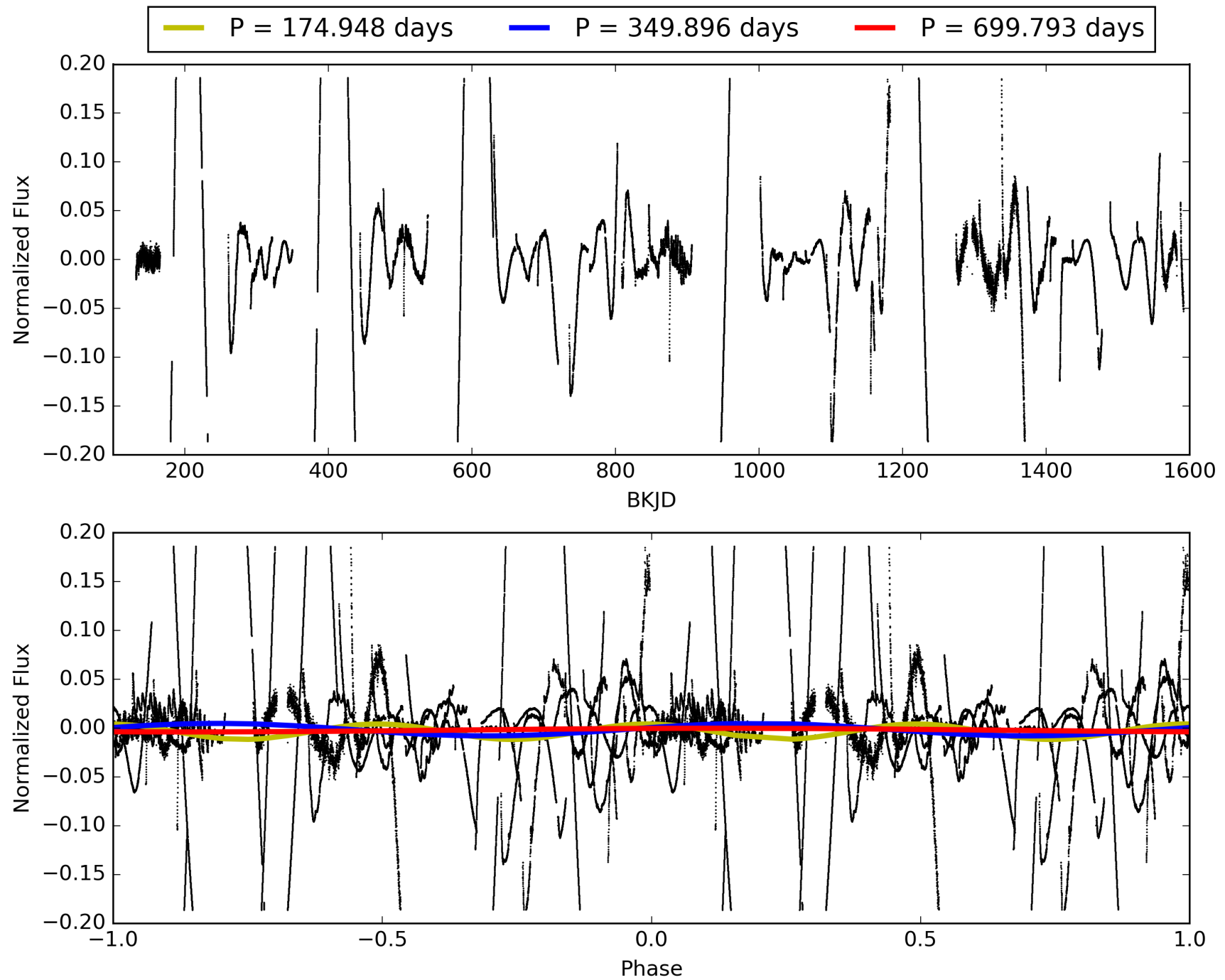
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:36:37 Z

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

TCE 005093223-04, PDC Light Curves

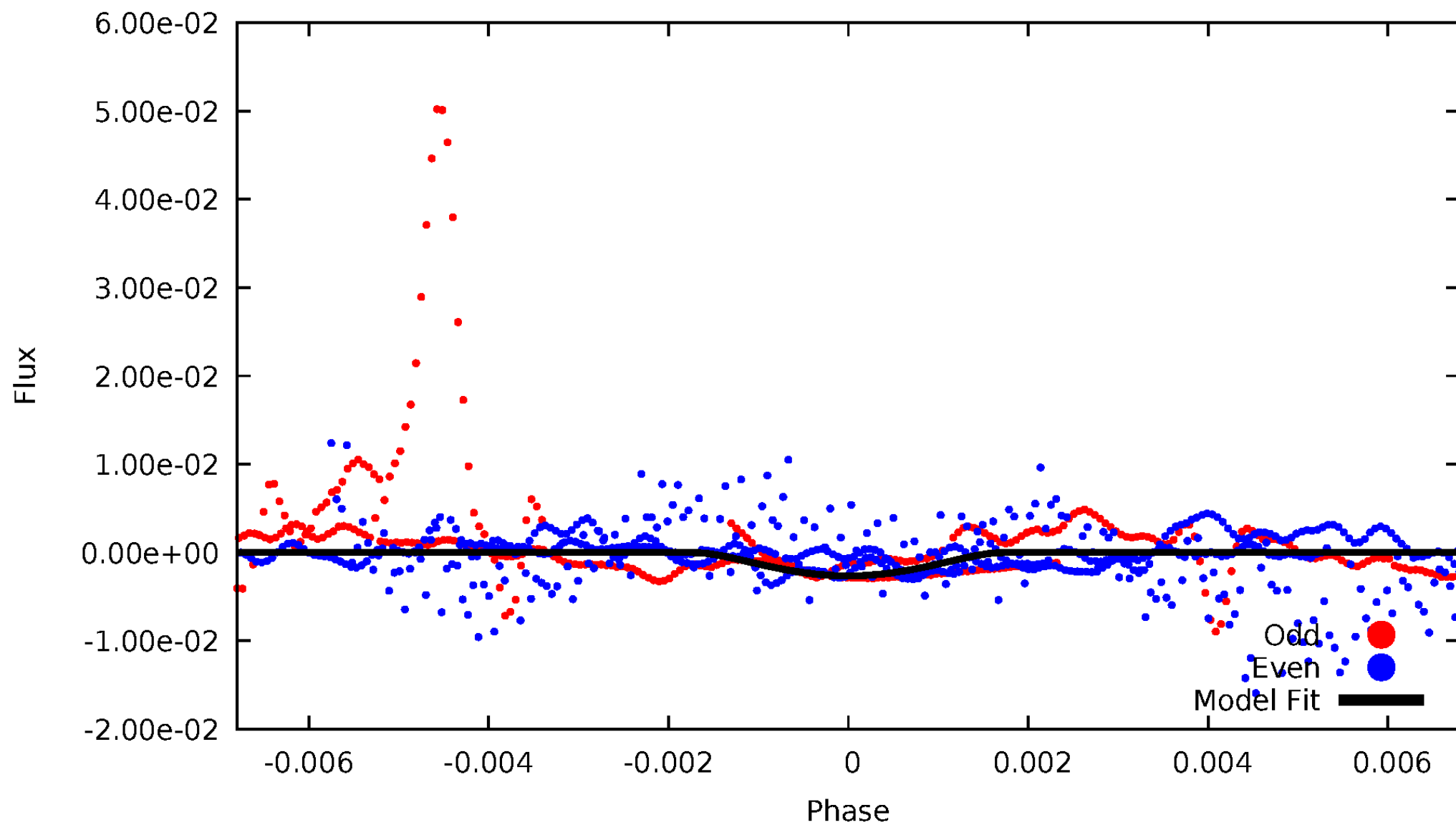


TCE 005093223-04



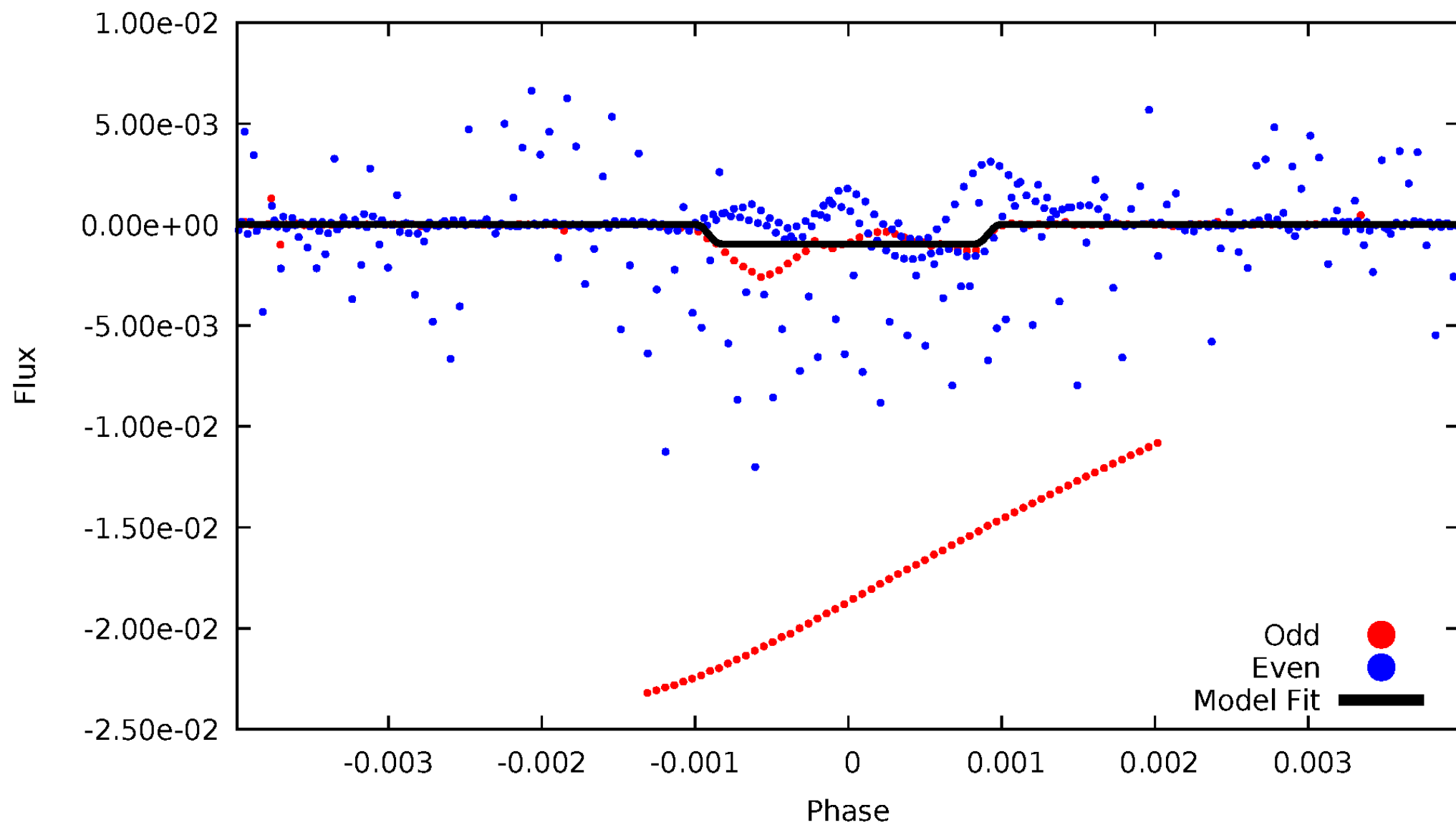
DV Odd/Even

TCE 005093223-04



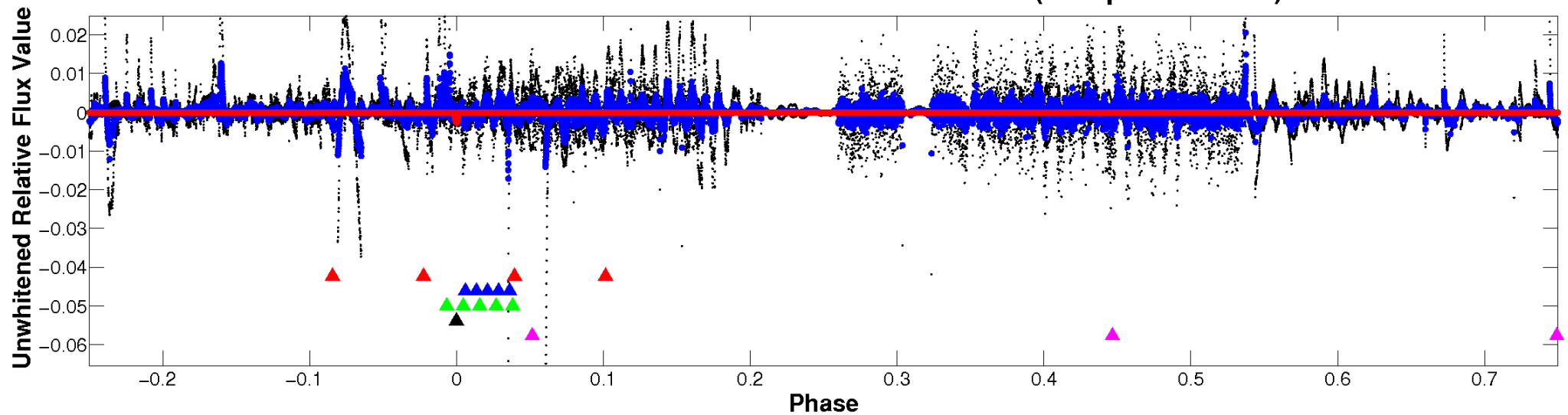
ALT Odd/Even

TCE 005093223-04

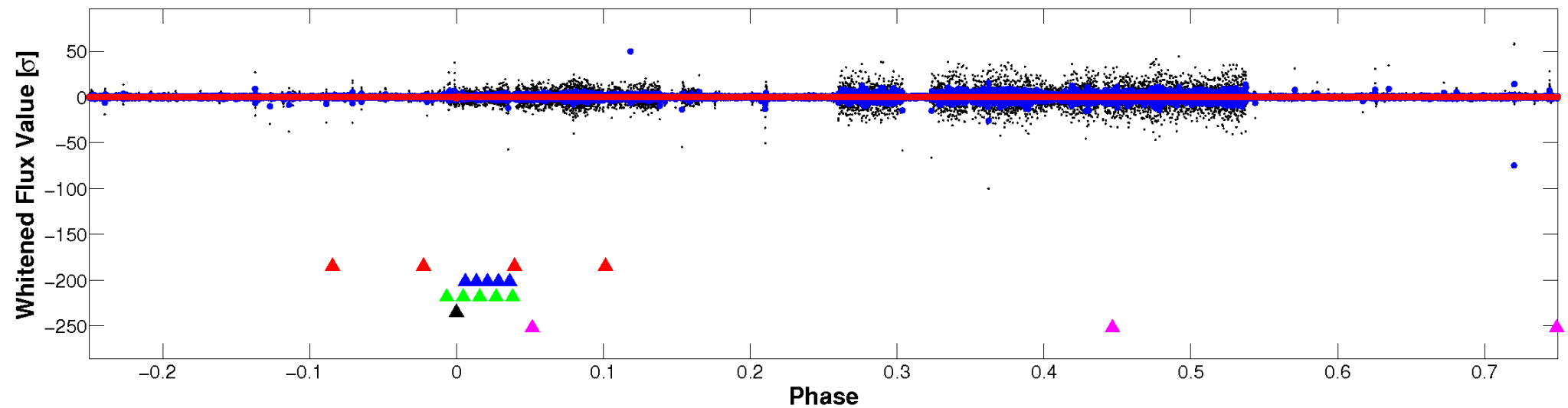


Non-Whitened Vs. Whitened Light Curve

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

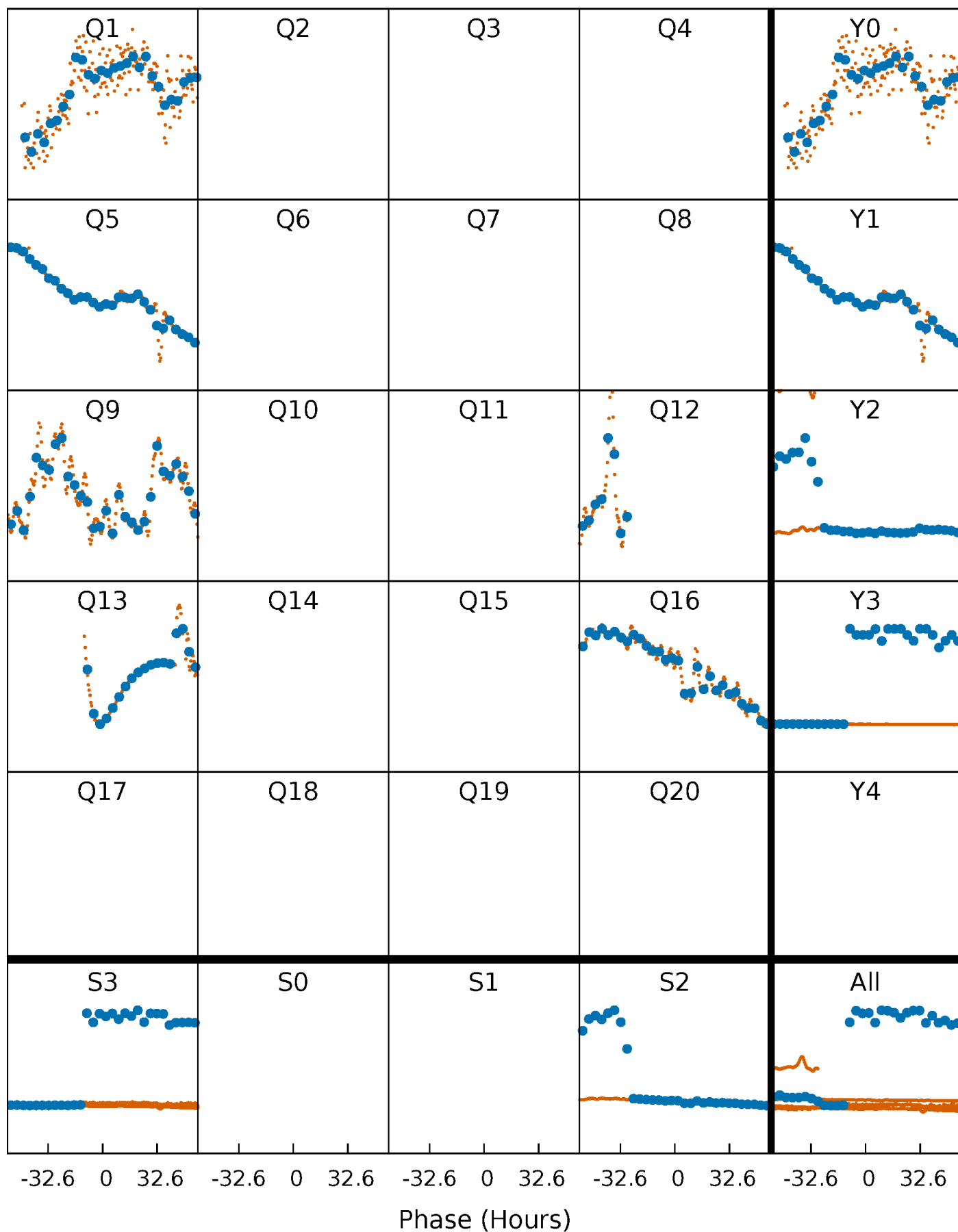


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 005093223-04 $P=349.896434$ Days $T_0=133.523893$ (BKJD)



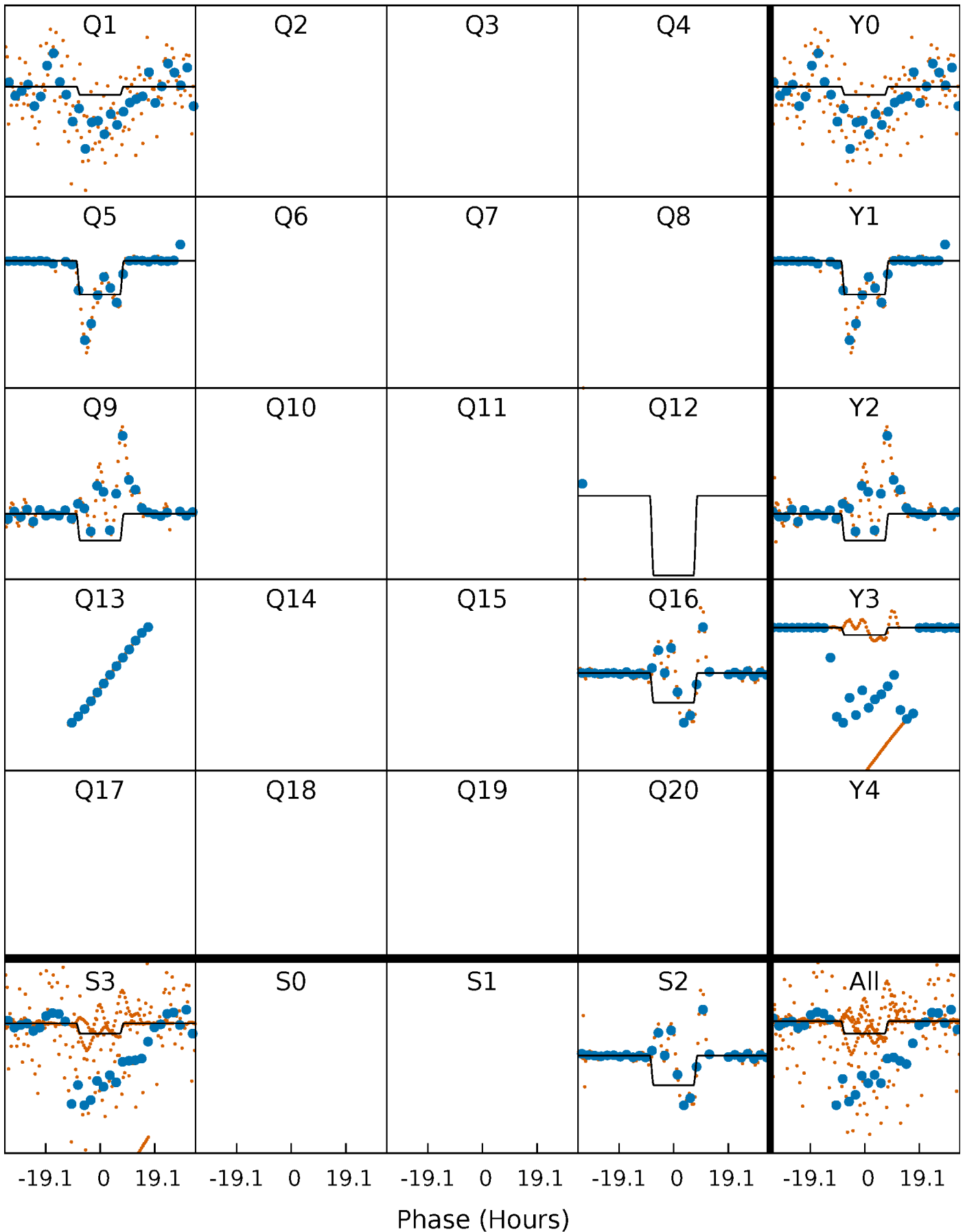
DV Quarter-Phased Transit Curves

TCE 005093223-04 $P=349.896434$ Days $T_0=133.523893$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

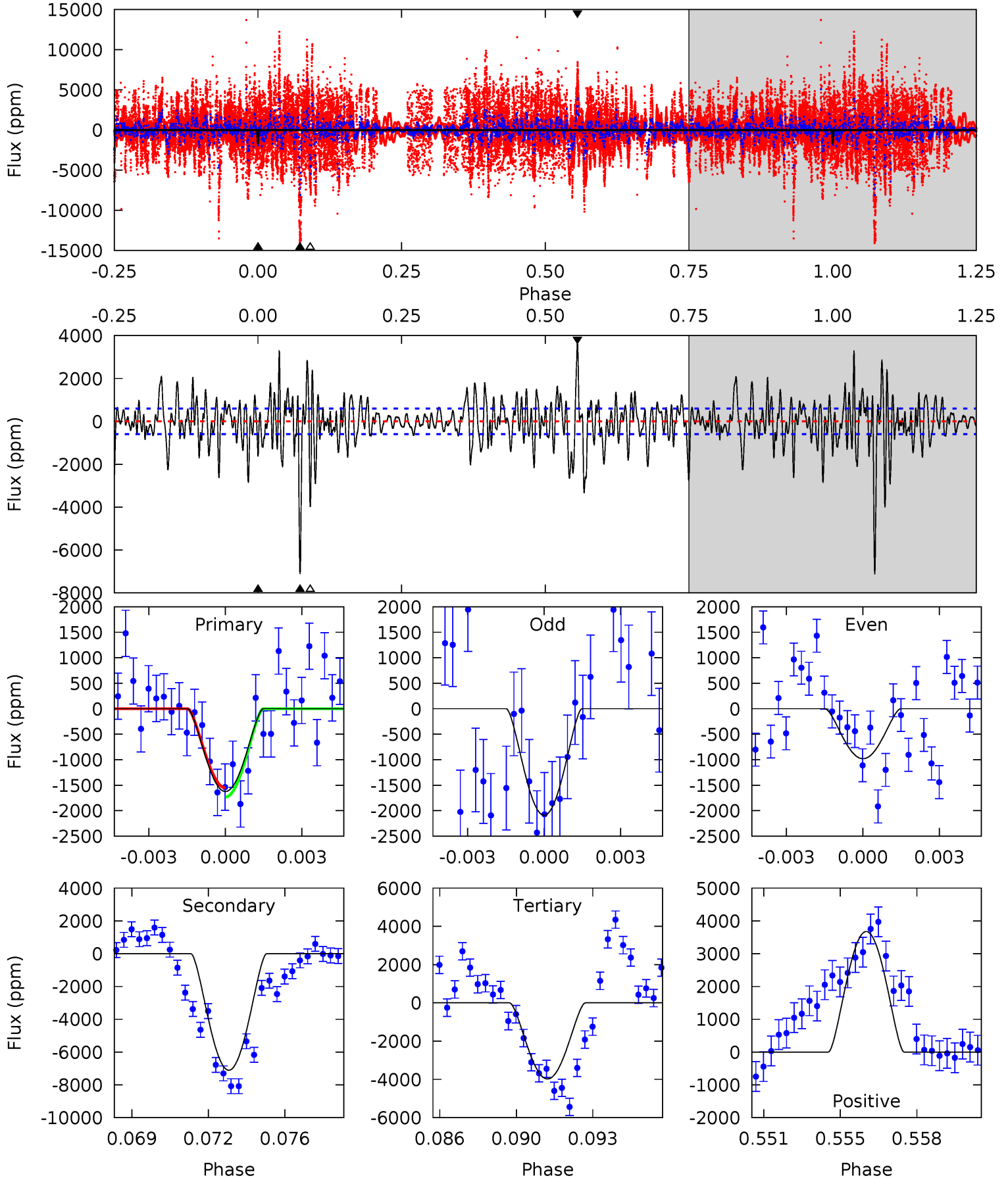
TCE 005093223-04 P=349.911093 Days $T_0=133.584808$ (BKJD)



DV Model-Shift Uniqueness Test

005093223-04, P = 349.896434 Days, E = 133.523893 Days

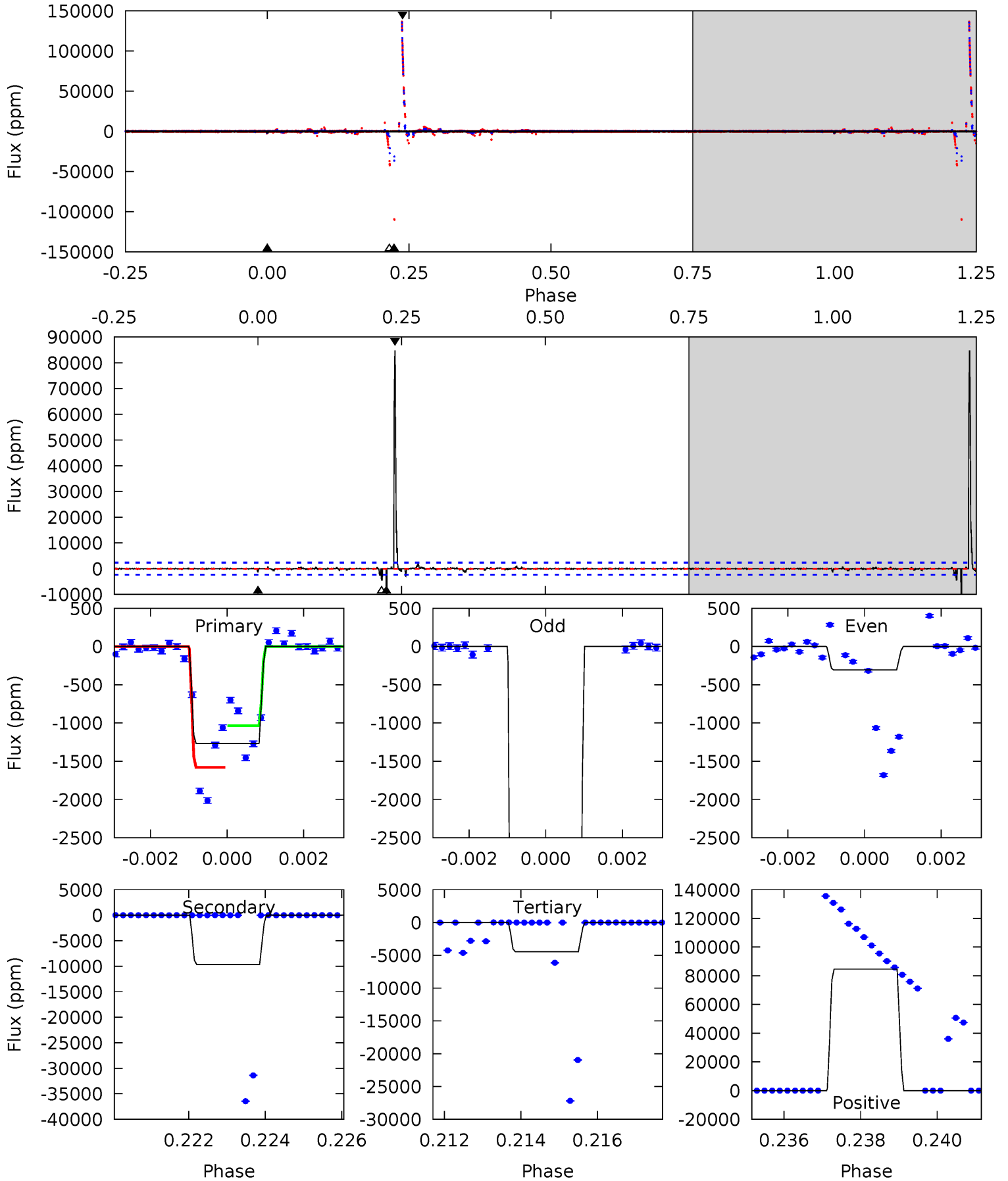
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	62.3	34.8	32.2	5.23	2.92	7.76	-20.6	-18.0	27.4	30.1	2.70	0.82	0.34	0.82



Alt Model-Shift Uniqueness Test

005093223-04, P = 349.911093 Days, E = 133.584808 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.91	22.1	10.2	194.3	5.33	3.09	5.44	-7.32	-191.4	11.9	-172.1	3.10	3.95	0.90	0



Stellar Parameters For KIC 005093223

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+114}_{-91}	$0.052^{+0.306}_{-0.036}$	$0.210^{+0.200}_{-0.300}$	$300.749^{+10.418}_{-177.098}$	$3.722^{+0.074}_{-2.501}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+588%/-69%	+95%/-143%	+3%/-59%	+2%/-67%	+379%/-8%
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 005093223-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7108 ± 114	$3794.47^{+3561.24}_{-2440.12}$	2827^{+121}_{-239}	2671^{+1231}_{-5106}	$0.603^{+3.898}_{-0.439}$
Alt.	-9649 ± 436	$2802.01^{+2962.18}_{-1931.38}$	2828^{+126}_{-241}	3215^{+1778}_{-1017}	$1.508^{+12.689}_{-1.156}$

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

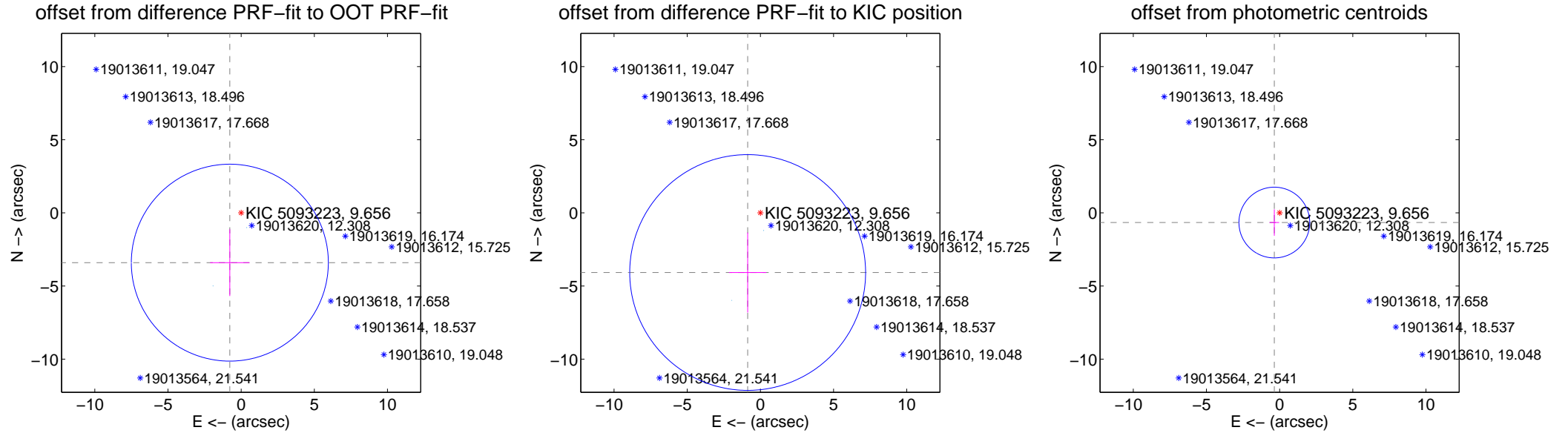
DV Centroid Data

Supplemental centroid analysis for 005093223-04. **Kepler magnitude: 9.66.** Transit SNR 27.28

There are 2 quarters with good PRF difference image offsets

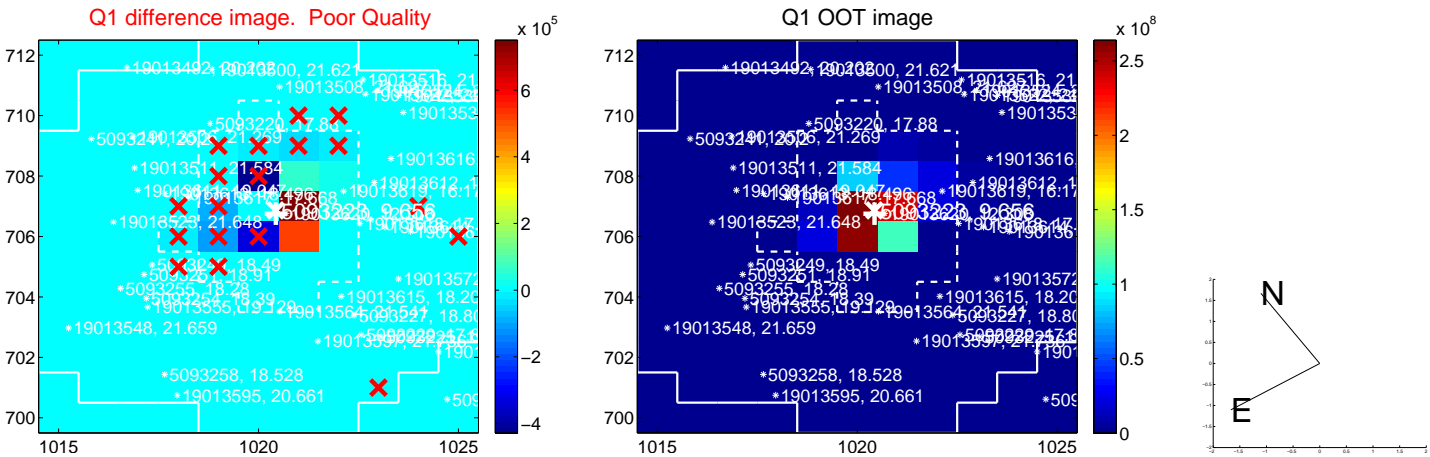
The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.490 ± 2.243	1.56	0.773 ± 1.346	-3.404 ± 2.280
PRF-fit source offset from KIC position	4.169 ± 2.686	1.55	0.869 ± 1.274	-4.077 ± 2.733
photometric centroid source offset	0.75 ± 0.81	0.93	0.36 ± 0.33	-0.66 ± 0.90

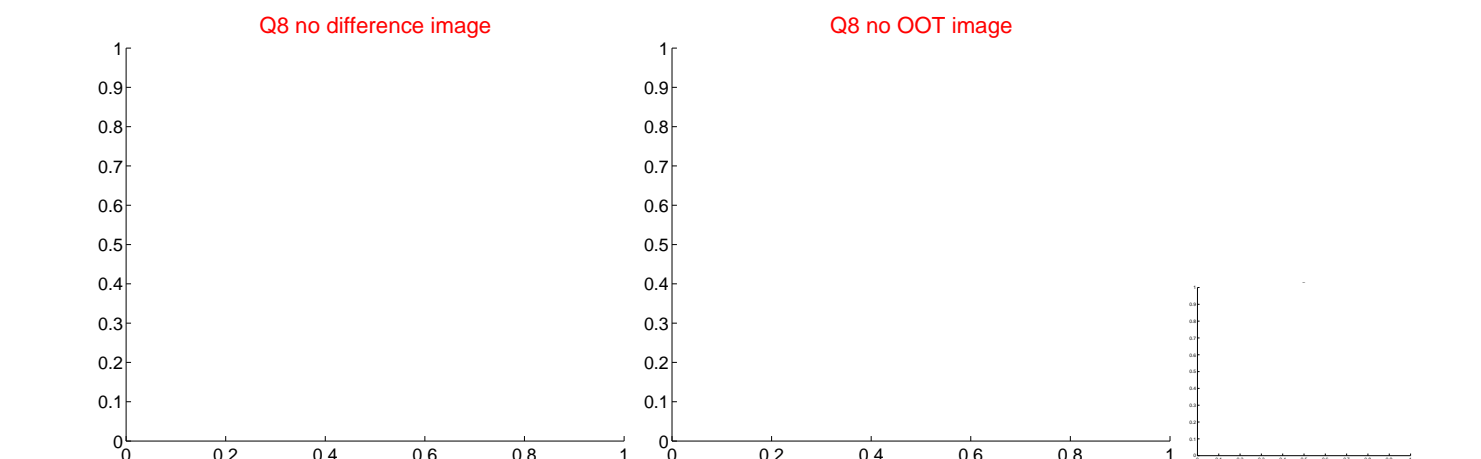
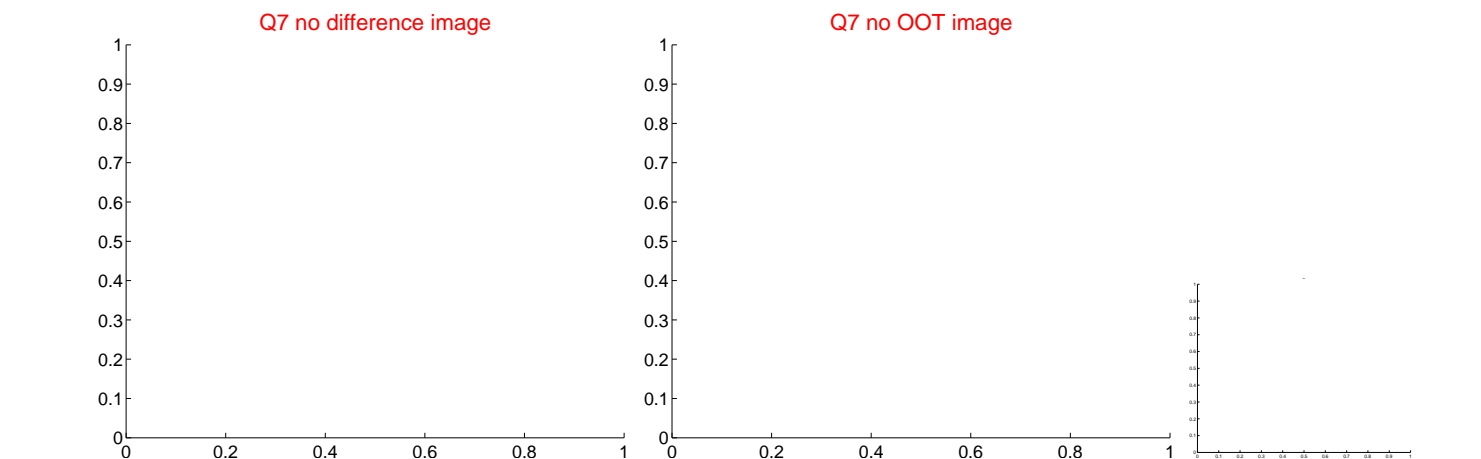
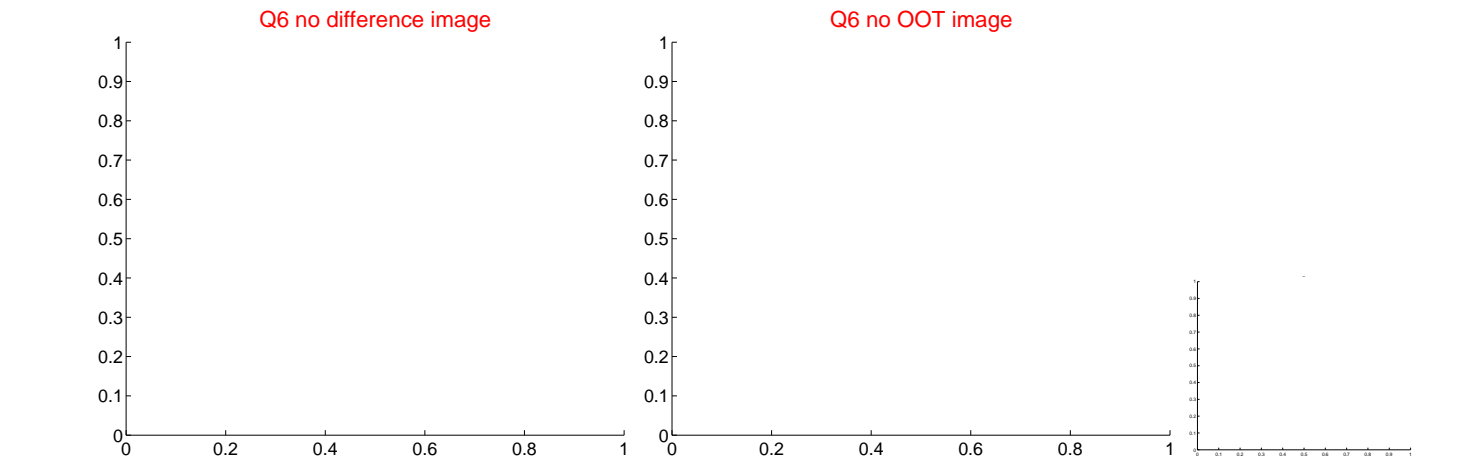
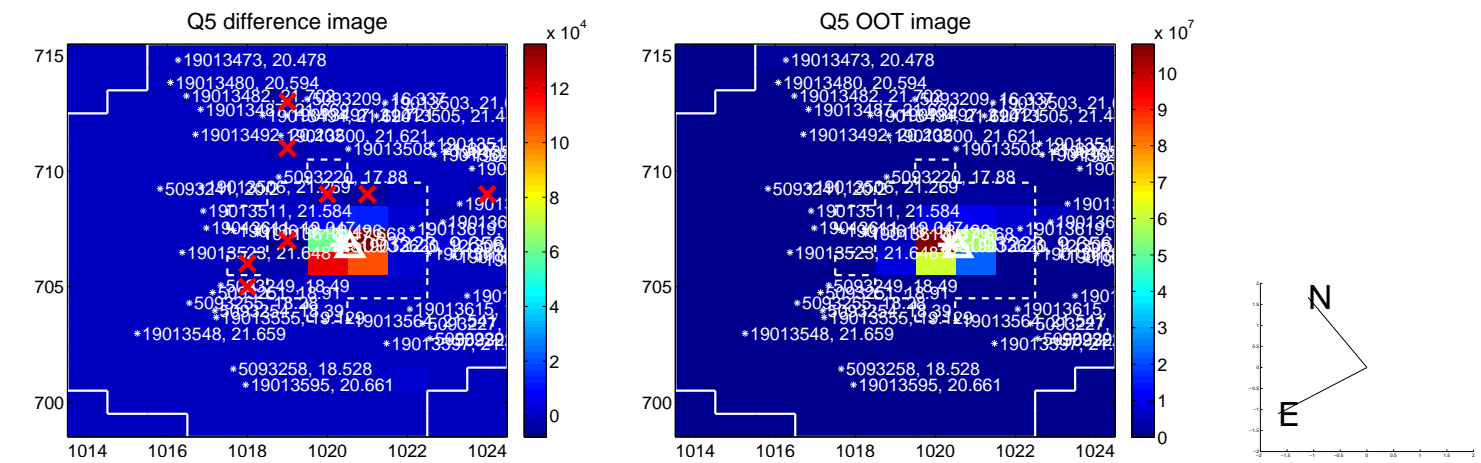


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

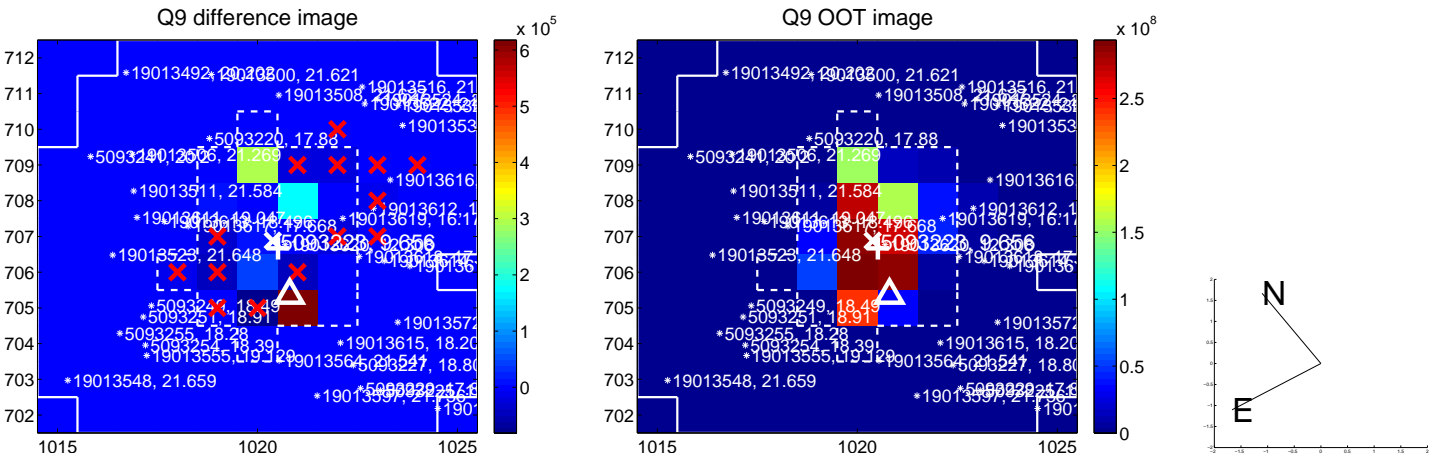
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



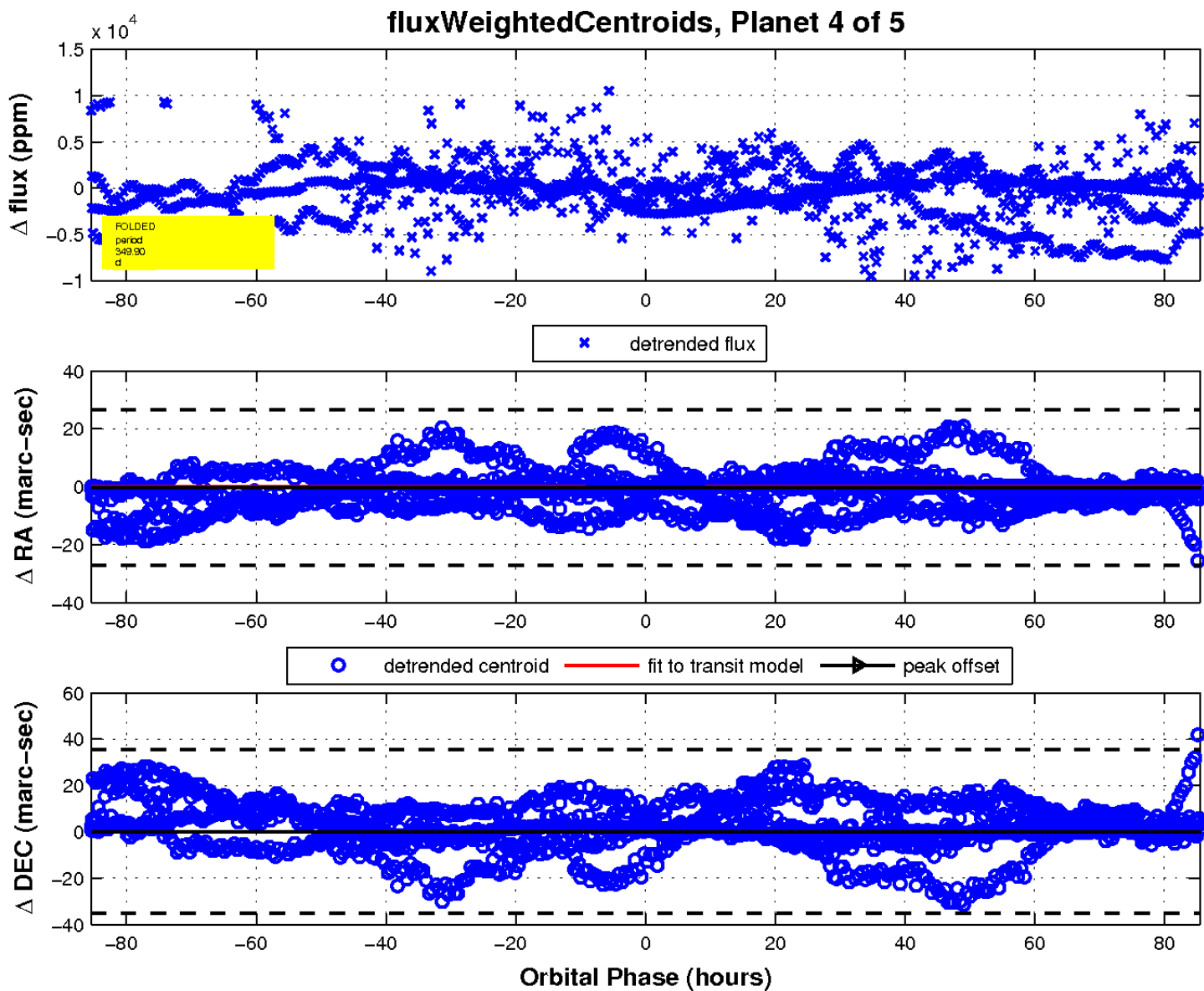
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



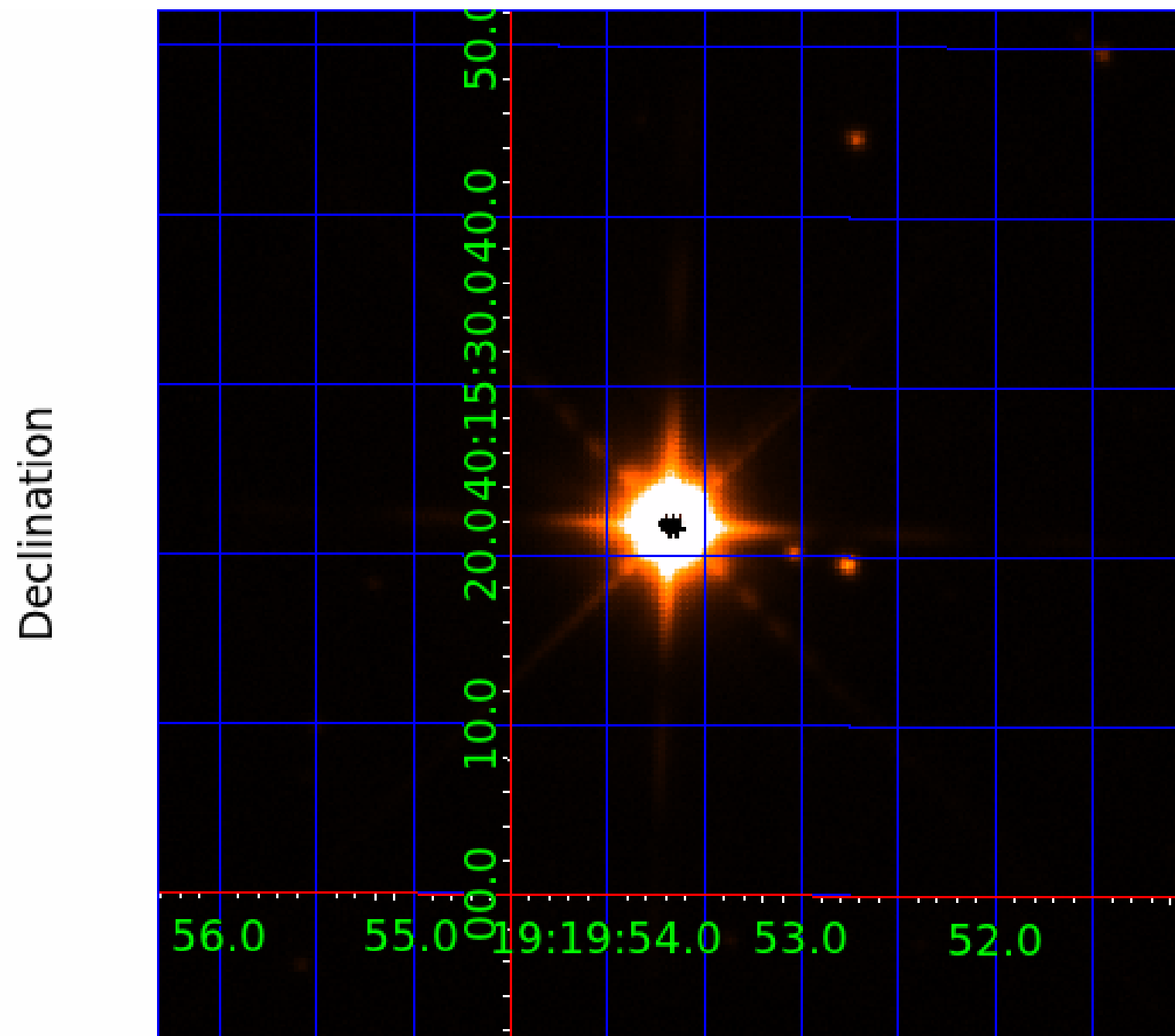
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



UKIRT Image



KIC 005093223

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})
005093223-01	OBS	No	371.573789	453.895121	4070.8	6.199	97.8	47.7	300.75	3287	3982.97	0.00
005093223-02	OBS	No	347.258542	146.199699	2799.0	3.749	31.4	28.6	300.75	3287	3379.39	0.00
005093223-03	OBS	No	345.969013	146.919591	131.4	12.377	33.7	1.1	300.75	3287	513.90	4234.93
005093223-04	OBS	No	349.896434	133.523893	2636.9	28.526	18.6	27.3	300.75	3287	3274.63	0.00
005093223-05	OBS	No	593.947274	151.598837	417.5	0.816	21.0	4.9	300.75	3287	581.91	2060.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005093223-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-04	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005093223-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

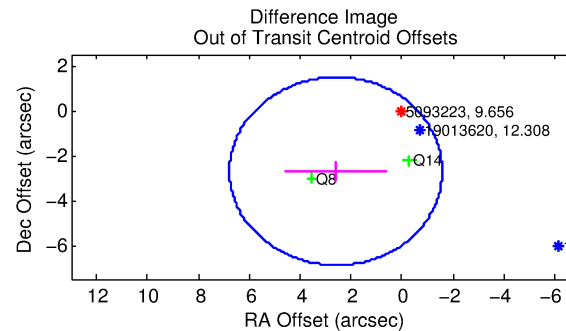
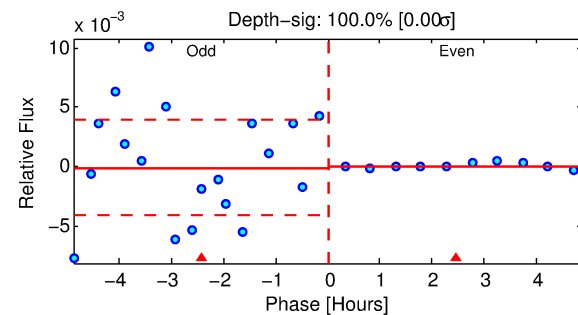
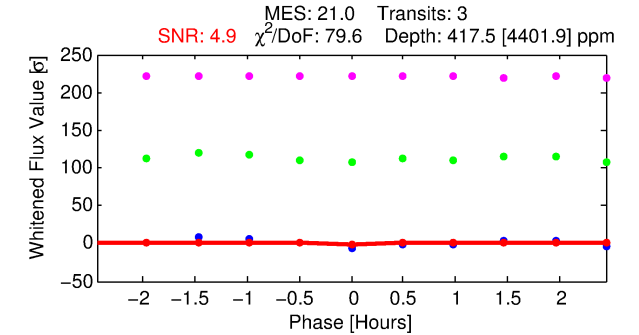
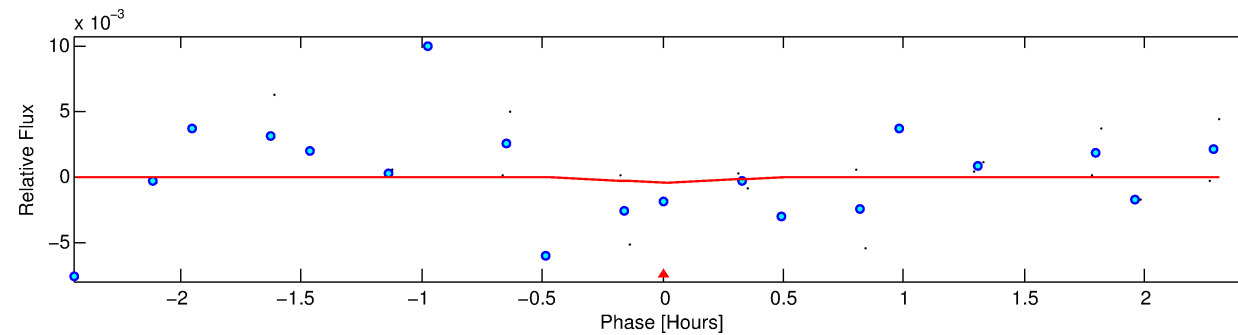
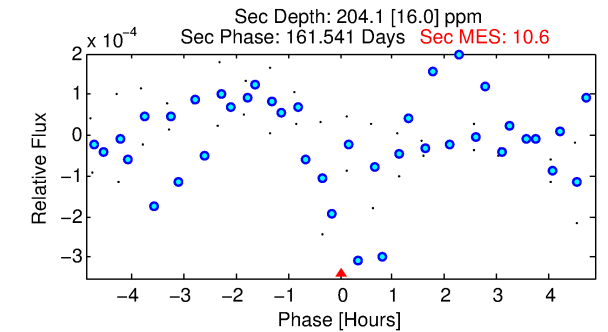
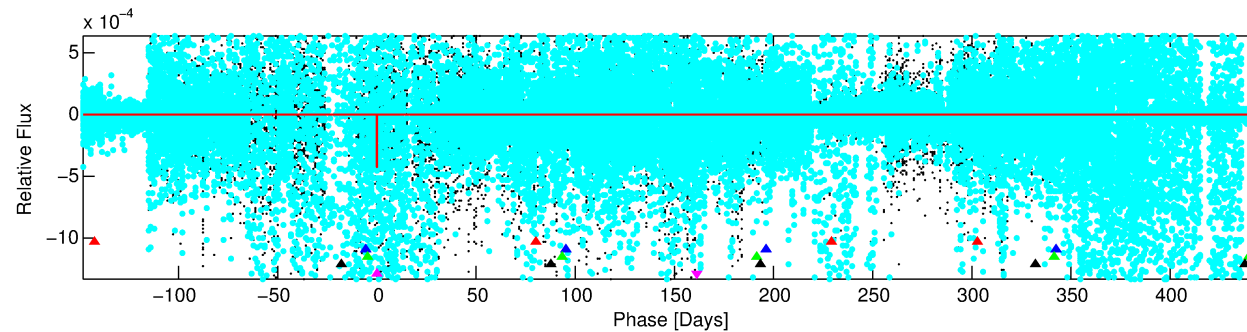
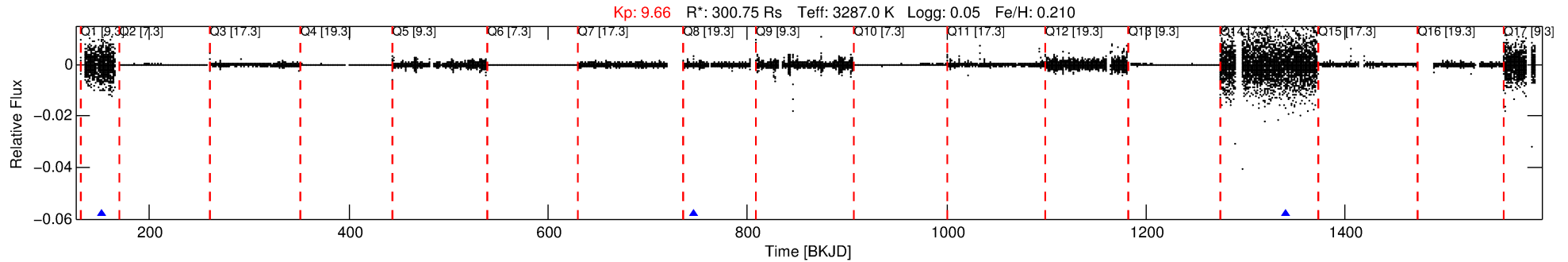
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005093223-05

No Significant Match Found

DV One-Page Summary

KIC: 5093223 Candidate: 5 of 5 Period: 593.947 d



DV Fit Results:

Period = 593.94727 [0.11176] d
Epoch = 151.5988 [0.1984] BKJD
Rp/R* = 0.0177 [2.0056]
a/R* = 5642.81 [1312863.19]
b = 0.09 [2762.06]
Seff = 2060.15 [1293.15]
Teq = 1718 [270] K
Rp = 581.91 [65823.19] Re
a = 2.1429 [0.9803] AU
Ag = 1.52 [344.40] [0.00σ]
Teffp = 2950 [166862] K [0.01σ]

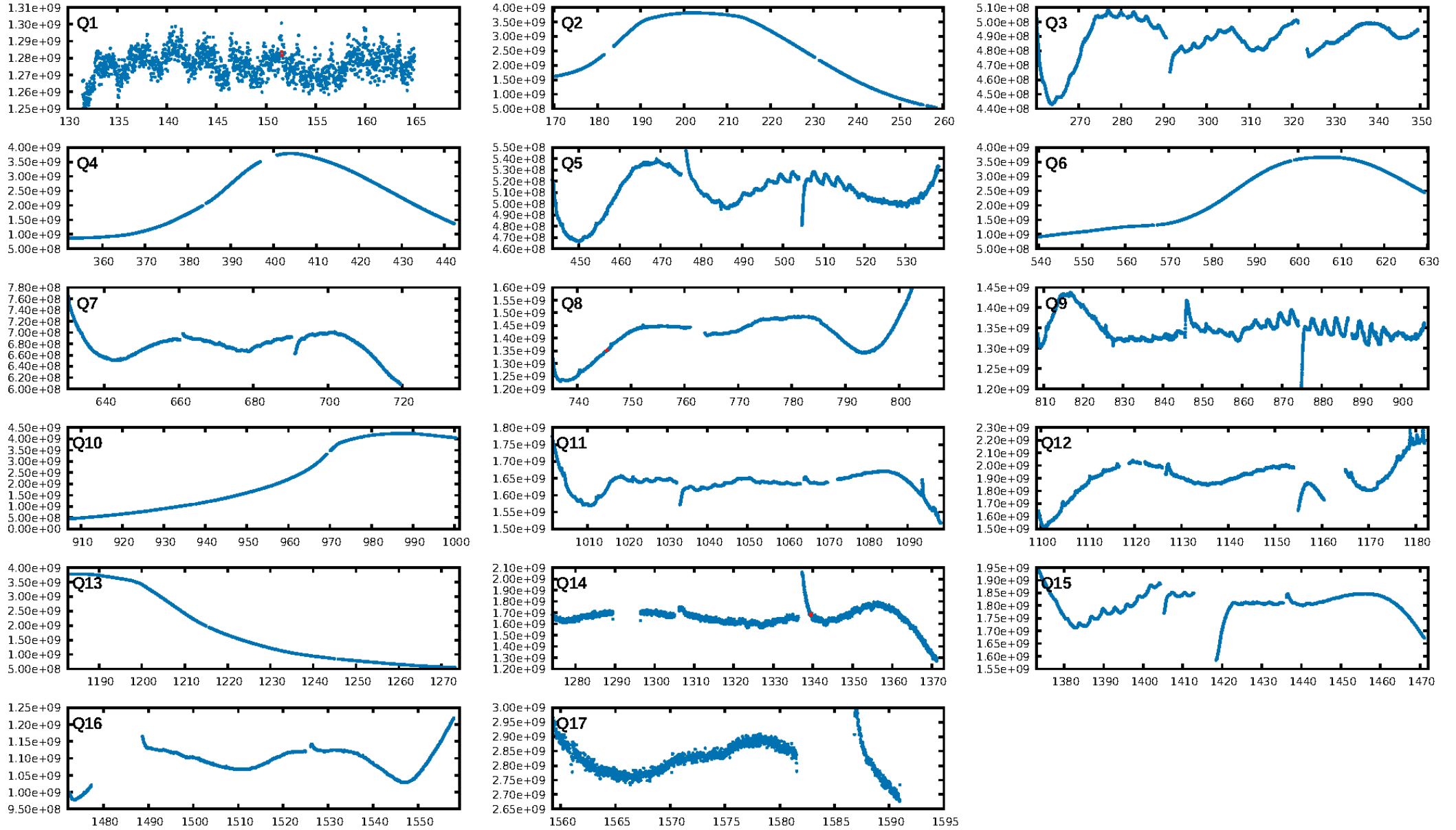
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [853.58σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.95e-06
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 5.5%
Centroid-so: 5.446 arcsec [1.75σ]
OotOffset-rm: 3.747 arcsec [2.69σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 3.856 arcsec [4.40σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

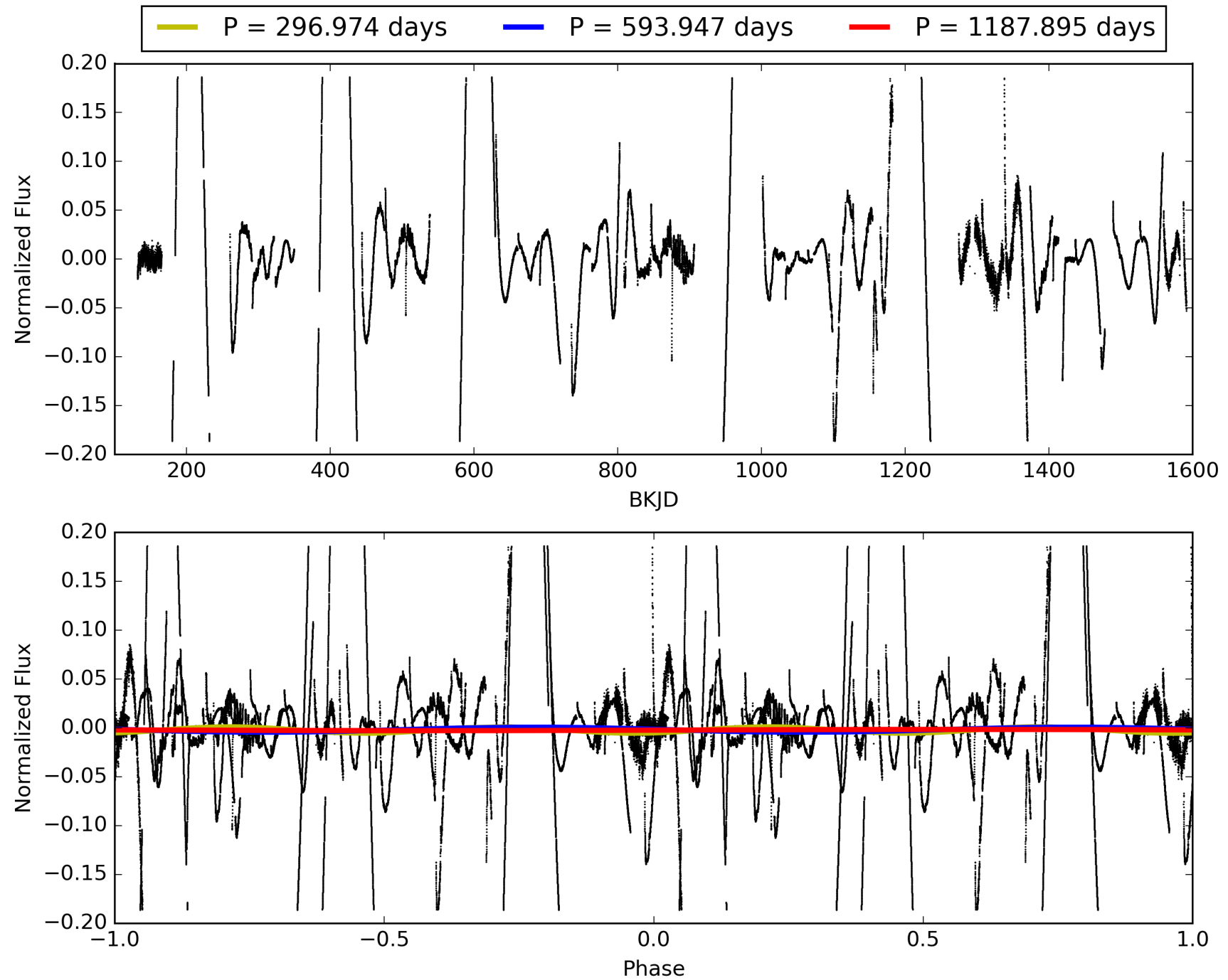
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:37:51 Z

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

TCE 005093223-05, PDC Light Curves

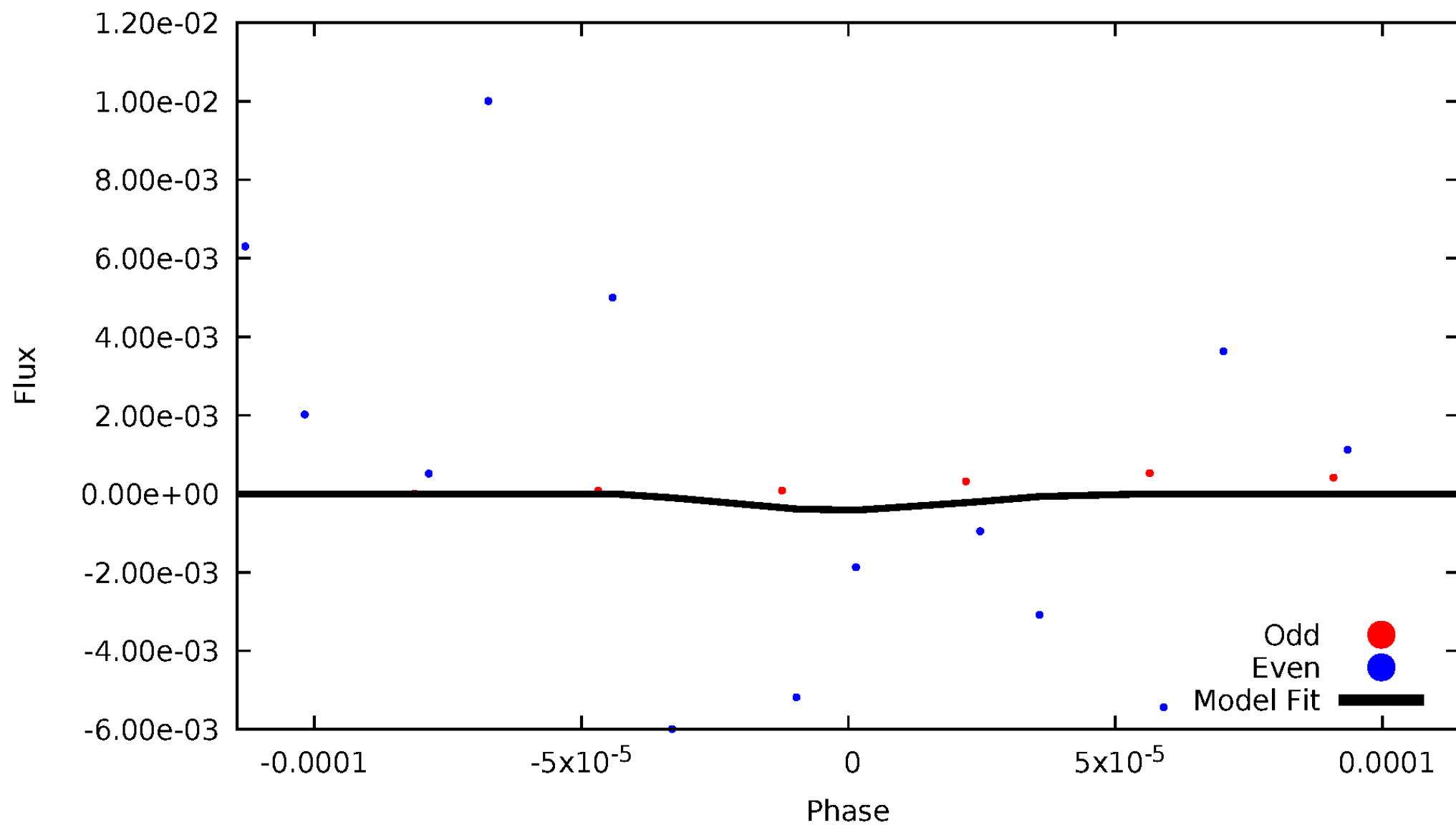


TCE 005093223-05



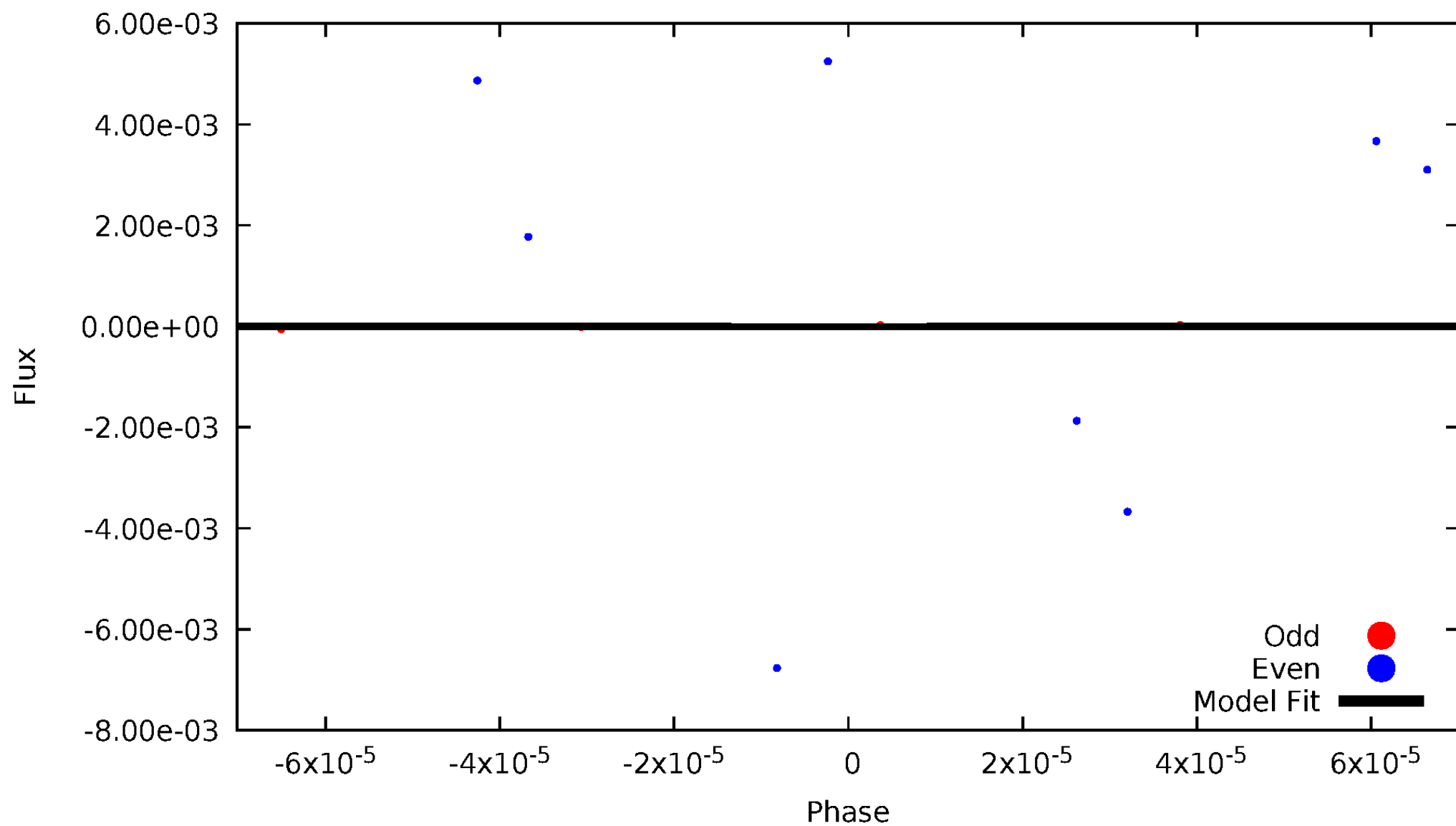
DV Odd/Even

TCE 005093223-05



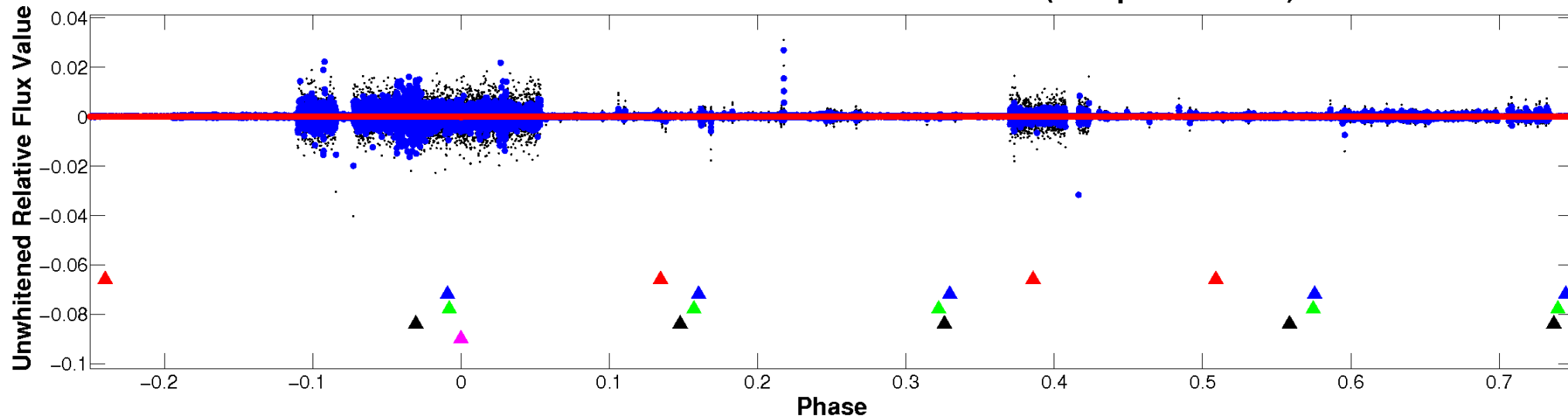
ALT Odd/Even

TCE 005093223-05

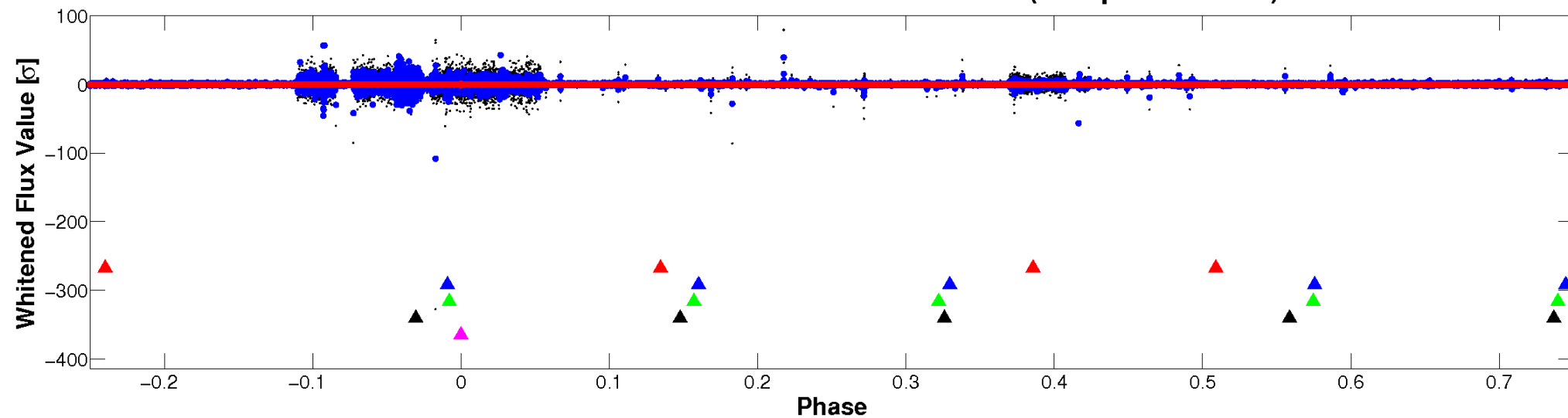


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

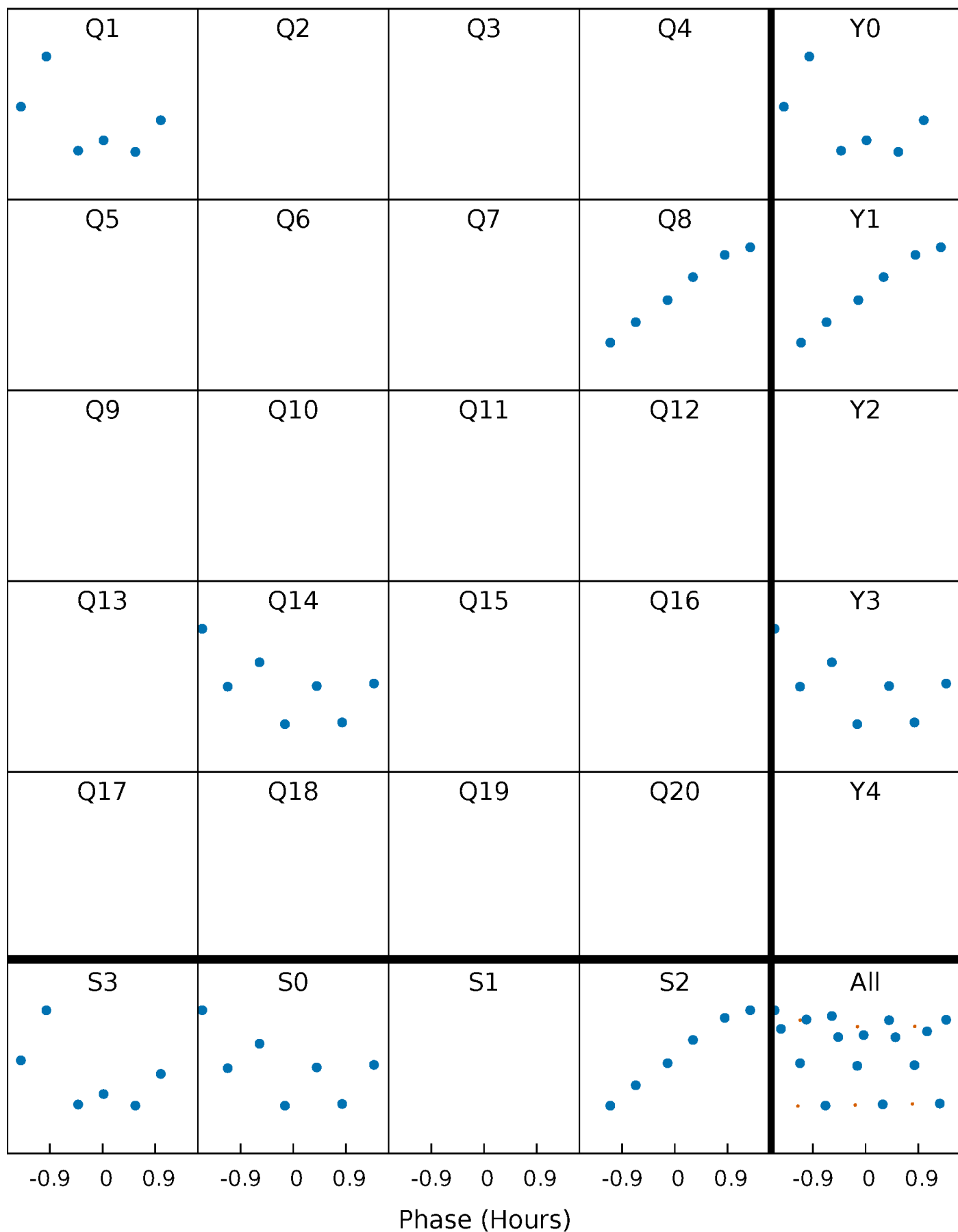


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



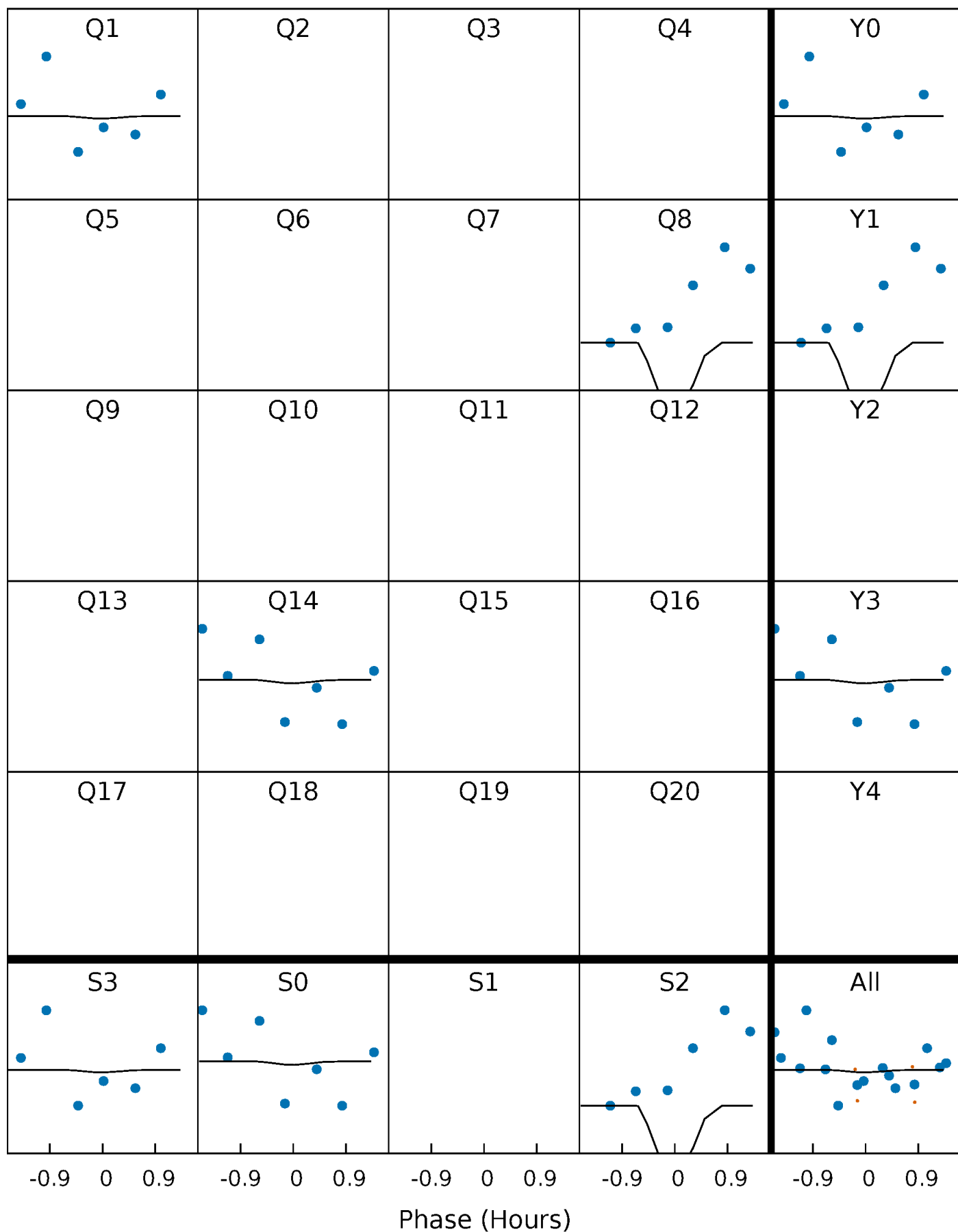
PDC Quarter-Phased Transit Curves

TCE 005093223-05 $P=593.947274$ Days $T_0=151.598837$ (BKJD)



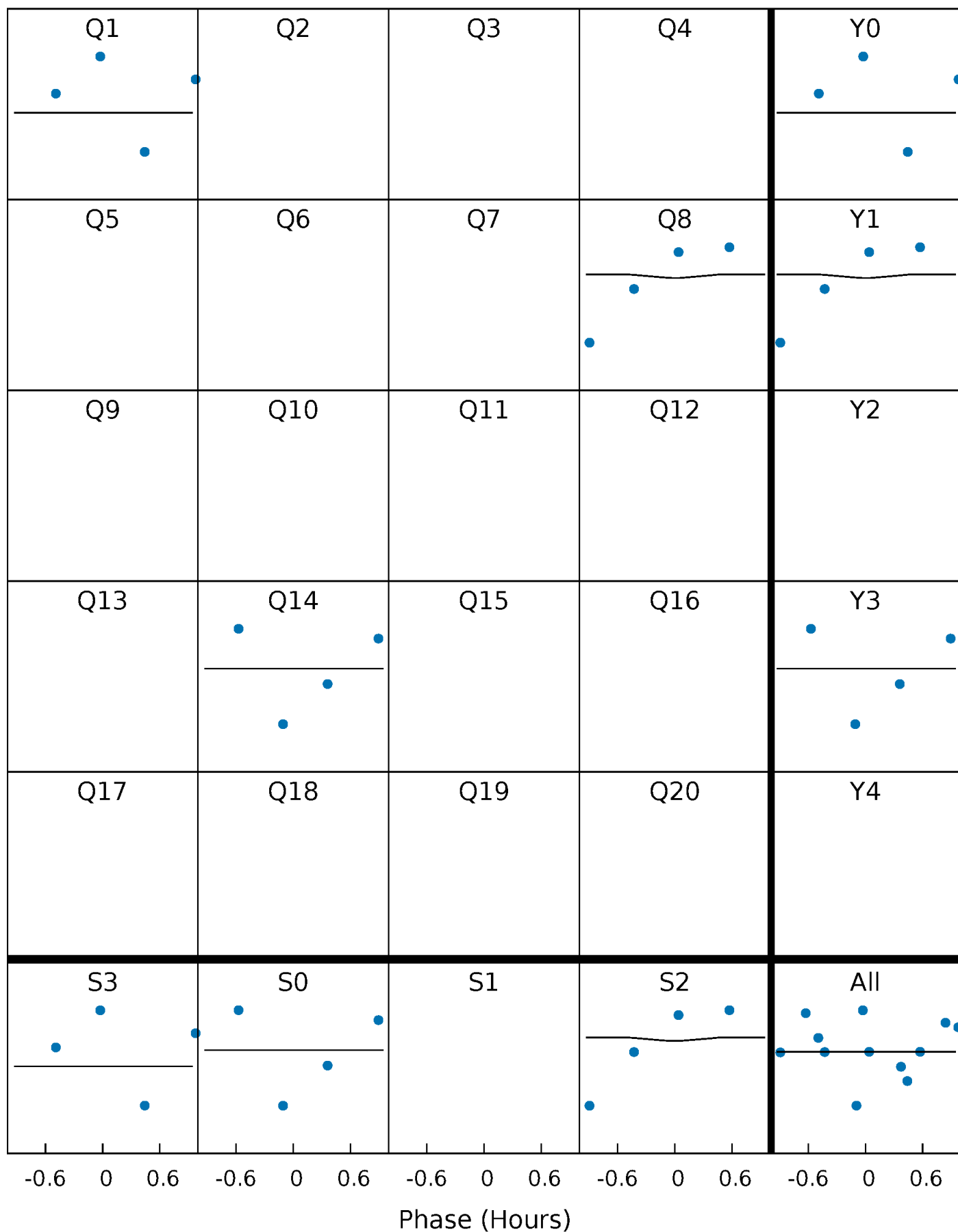
DV Quarter-Phased Transit Curves

TCE 005093223-05 $P=593.947274$ Days $T_0=151.598837$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

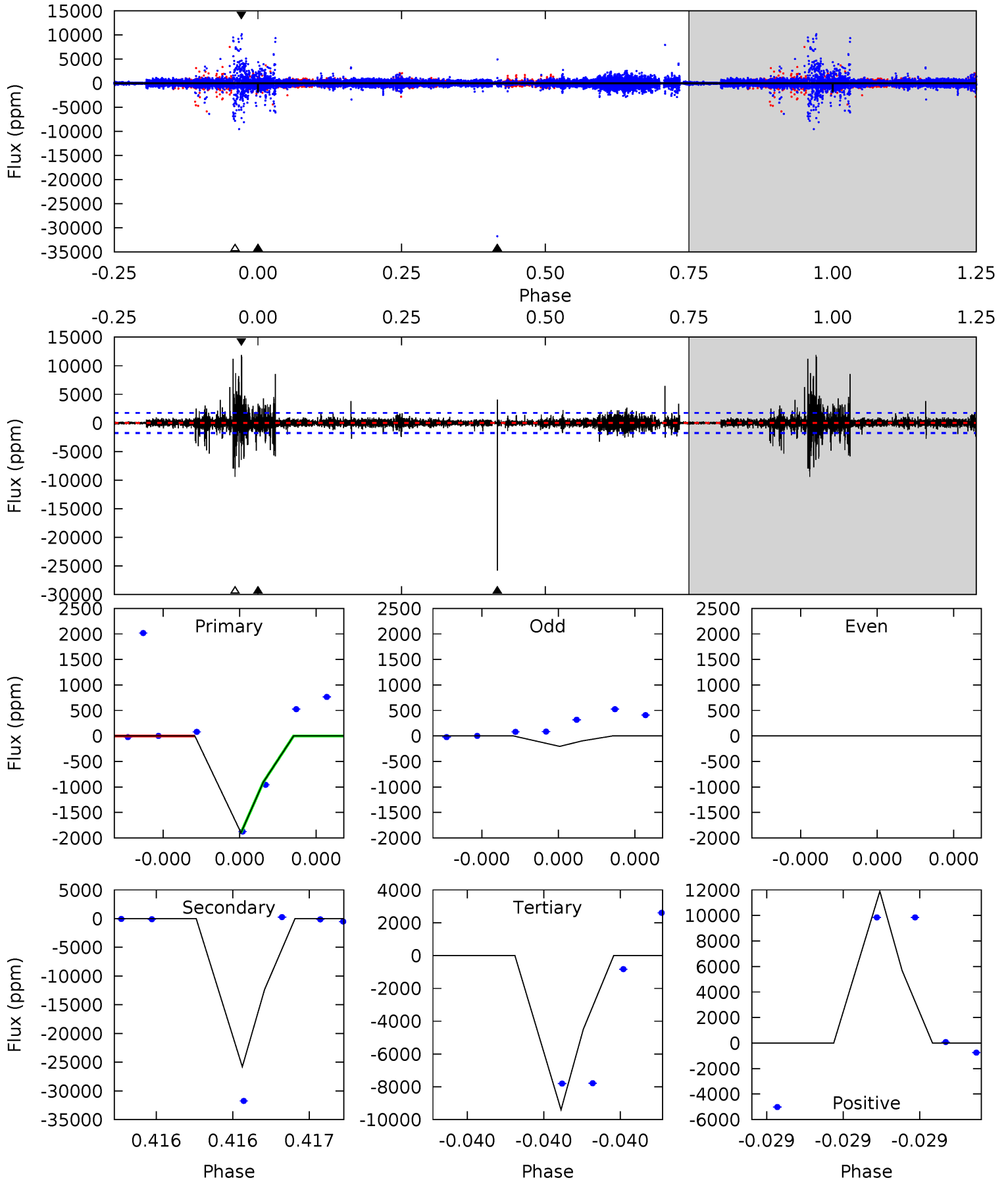
TCE 005093223-05 P=593.976344 Days $T_0=151.805413$ (BKJD)



DV Model-Shift Uniqueness Test

005093223-05, P = 593.947274 Days, E = 151.598837 Days

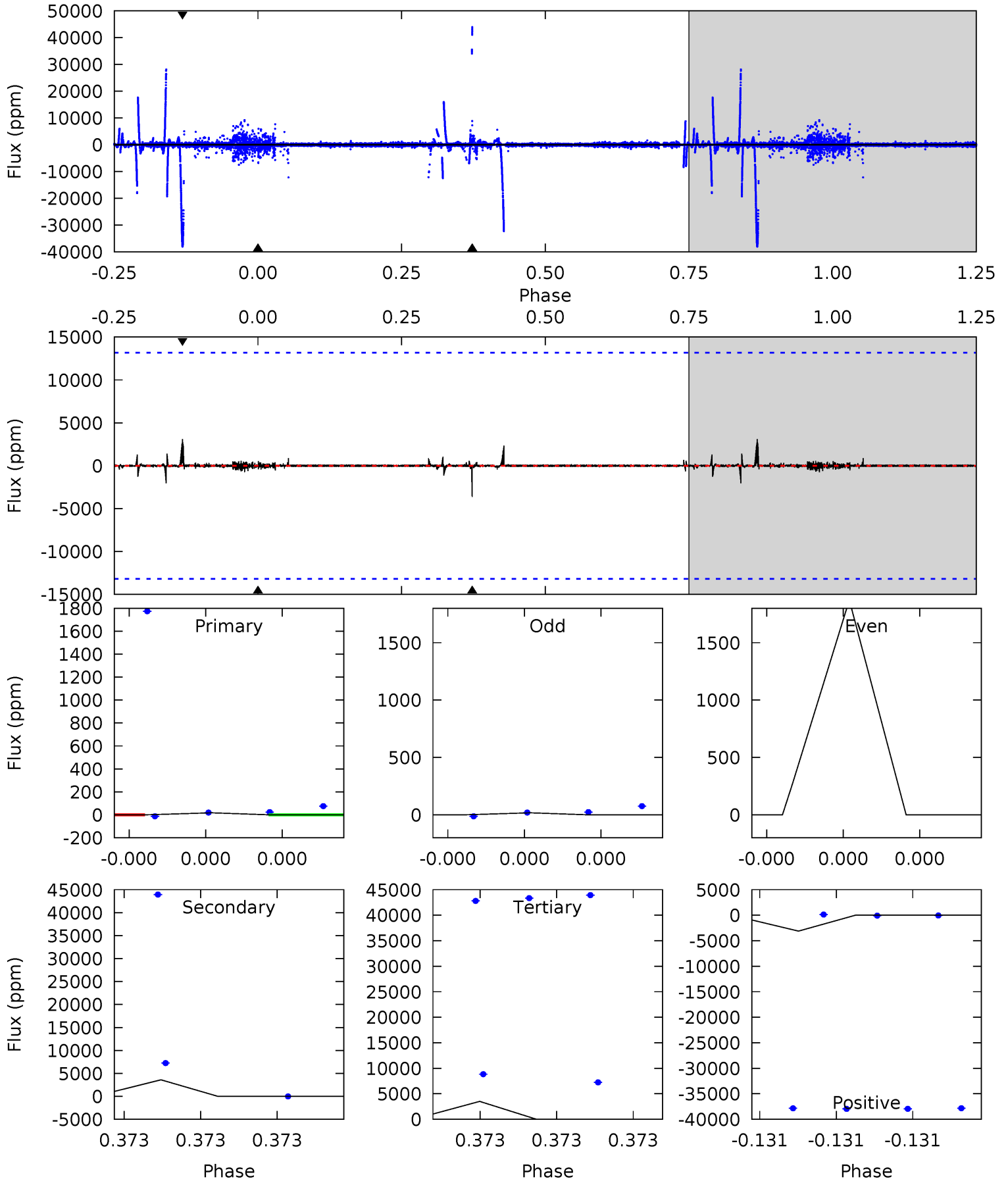
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.35	86.4	31.5	39.8	5.88	3.94	1.37	-25.1	-33.5	54.9	46.6	0	0.77	0.32	0



Alt Model-Shift Uniqueness Test

005093223-05, P = 593.976344 Days, E = 151.805413 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	1.64	1.59	1.41	5.97	4.07	0.07	-1.59	-1.41	0.04	0.22	0.01	-54.0	0.46	0



Stellar Parameters For KIC 005093223

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+114}_{-91}	$0.052^{+0.306}_{-0.036}$	$0.210^{+0.200}_{-0.300}$	$300.749^{+10.418}_{-177.098}$	$3.722^{+0.074}_{-2.501}$	$0.000^{+0.000}_{-0.000}$
	+3%/-3%	+588%/-69%	+95%/-143%	+3%/-59%	+2%/-67%	+379%/-8%
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 005093223-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-25803 ± 299	$39344.10^{+45900.27}_{-28103.24}$	2372^{+105}_{-200}	-2383^{+4690}_{-118}	$0.041^{+0.472}_{-0.032}$
Alt.	-3610 ± 2207	$39484.81^{+47217.52}_{-28609.64}$	2368^{+105}_{-198}	-2439^{+184}_{-91}	$0.005^{+0.067}_{-0.004}$

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 $A_{obs} \gg 1.0$

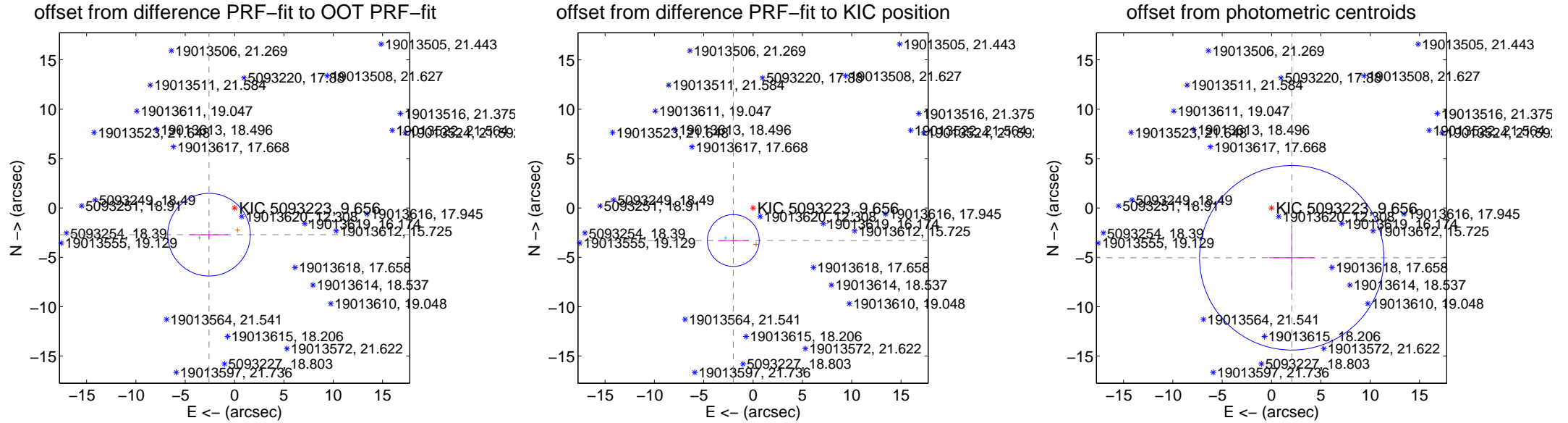
DV Centroid Data

Supplemental centroid analysis for 005093223-05. **Kepler magnitude: 9.66.** Transit SNR 4.91

There are 1 quarters with good PRF difference image offsets

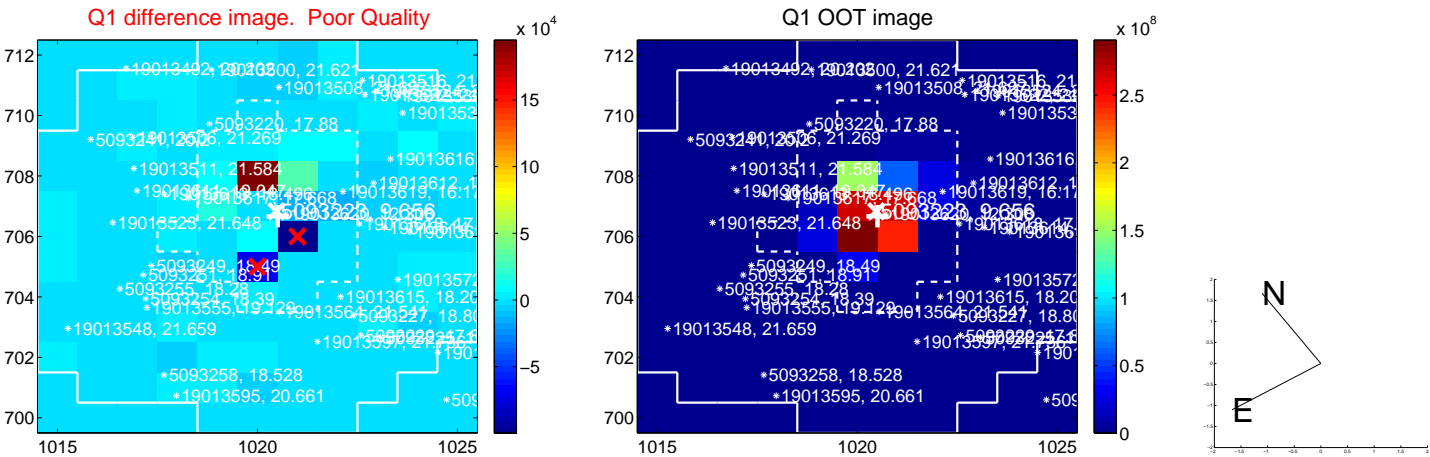
The direct PRF centroid is offset from the target star catalog position by about 1.44 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.747 ± 1.395	2.69	2.591 ± 1.964	-2.707 ± 0.441
PRF-fit source offset from KIC position	3.856 ± 0.875	4.40	2.000 ± 1.566	-3.296 ± 0.381
photometric centroid source offset	5.45 ± 3.11	1.75	-2.05 ± 2.31	-5.05 ± 3.23



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



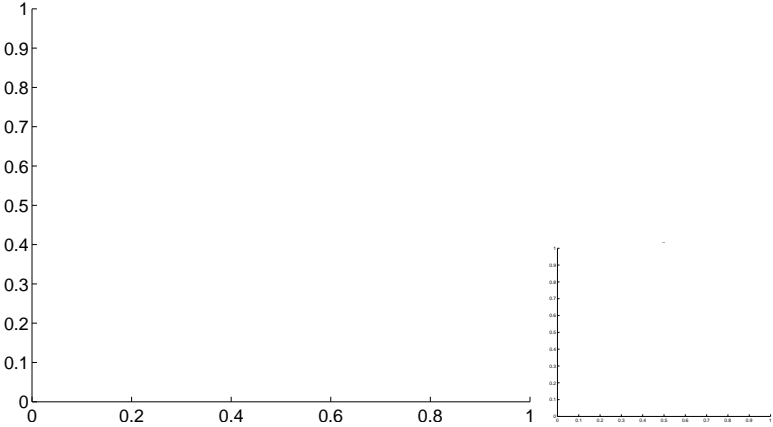
Q6 no OOT image



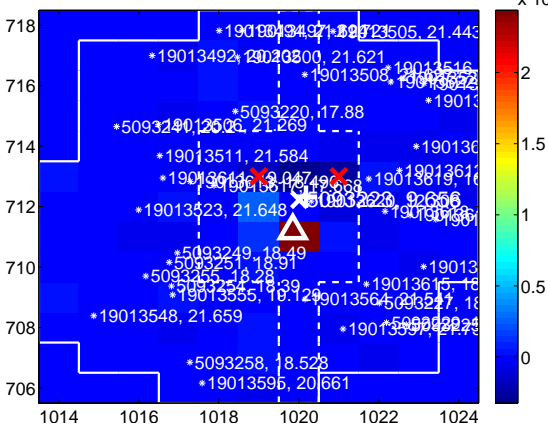
Q7 no difference image



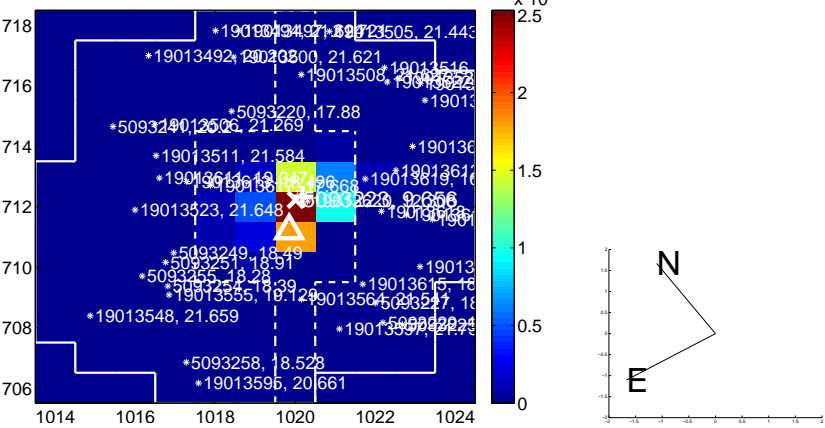
Q7 no OOT image



Q8 difference image



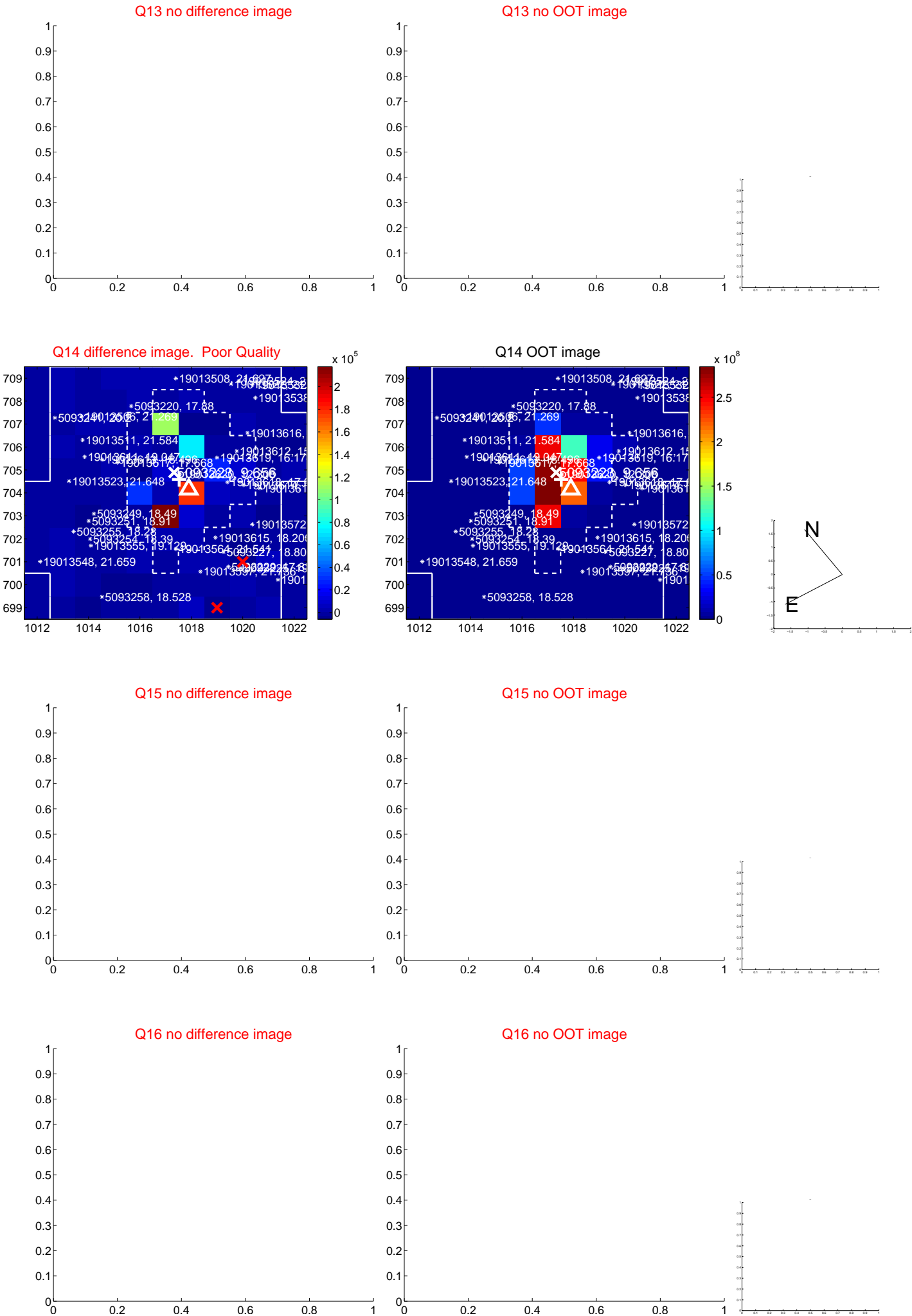
Q8 OOT image



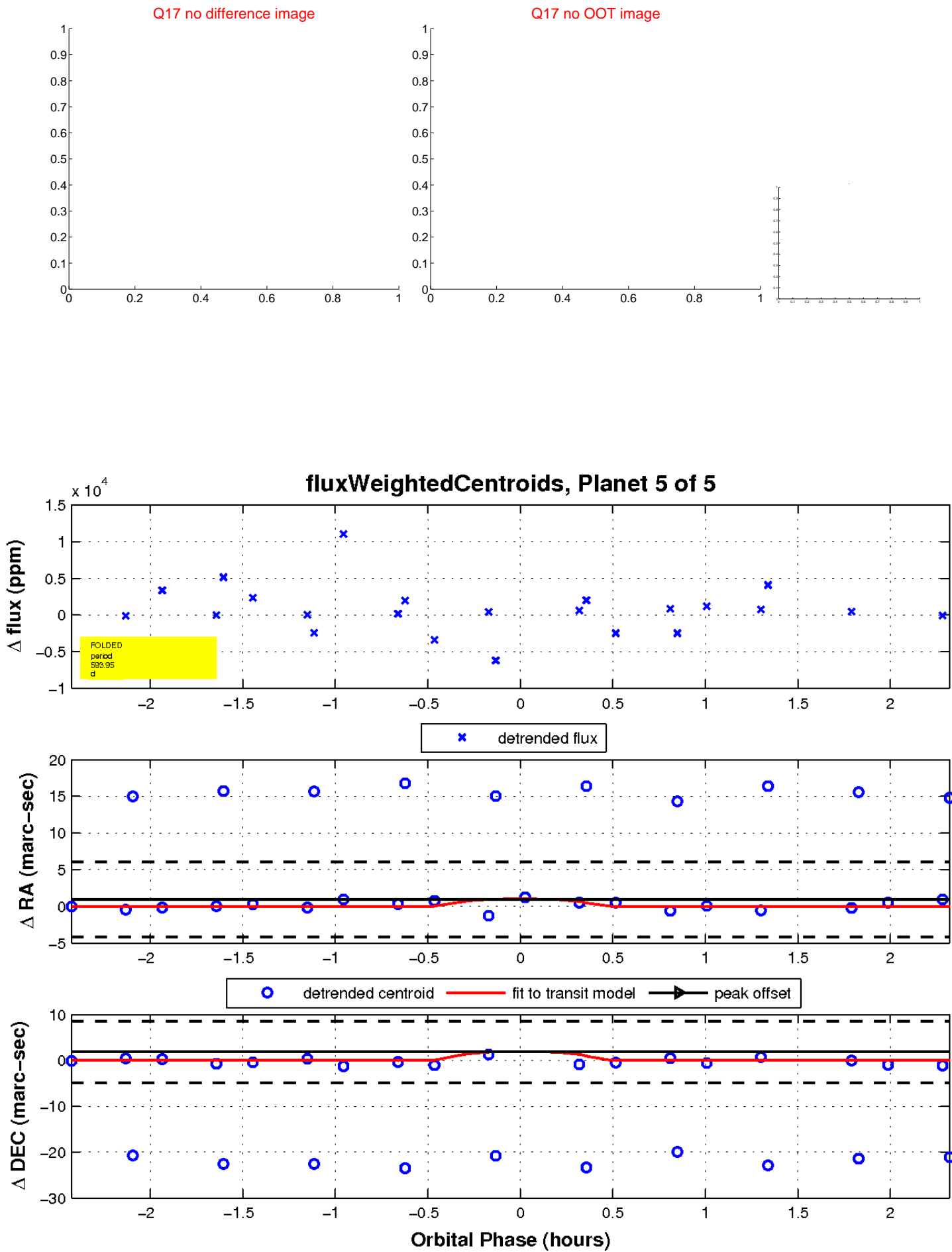
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

