

KIC 008315394

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})
008315394-01	OBS	No	1.941258	133.395952	50.5	6.574	7.9	8.9	1.85	4996	1.60	2175.63
008315394-02	OBS	No	283.550816	199.702553	475.6	19.435	19.7	6.6	1.85	4996	4.22	2.83
008315394-03	OBS	No	415.447896	499.111312	740.1	22.597	15.1	8.6	1.85	4996	4.86	1.70
008315394-04	OBS	No	160.383828	261.739582	379.1	20.294	9.5	6.1	1.85	4996	3.87	6.05
008315394-05	OBS	No	178.862302	142.810246	545.6	9.072	9.2	8.2	1.85	4996	4.76	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008315394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
008315394-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008315394-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—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_FEW_DIFFS
008315394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
008315394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

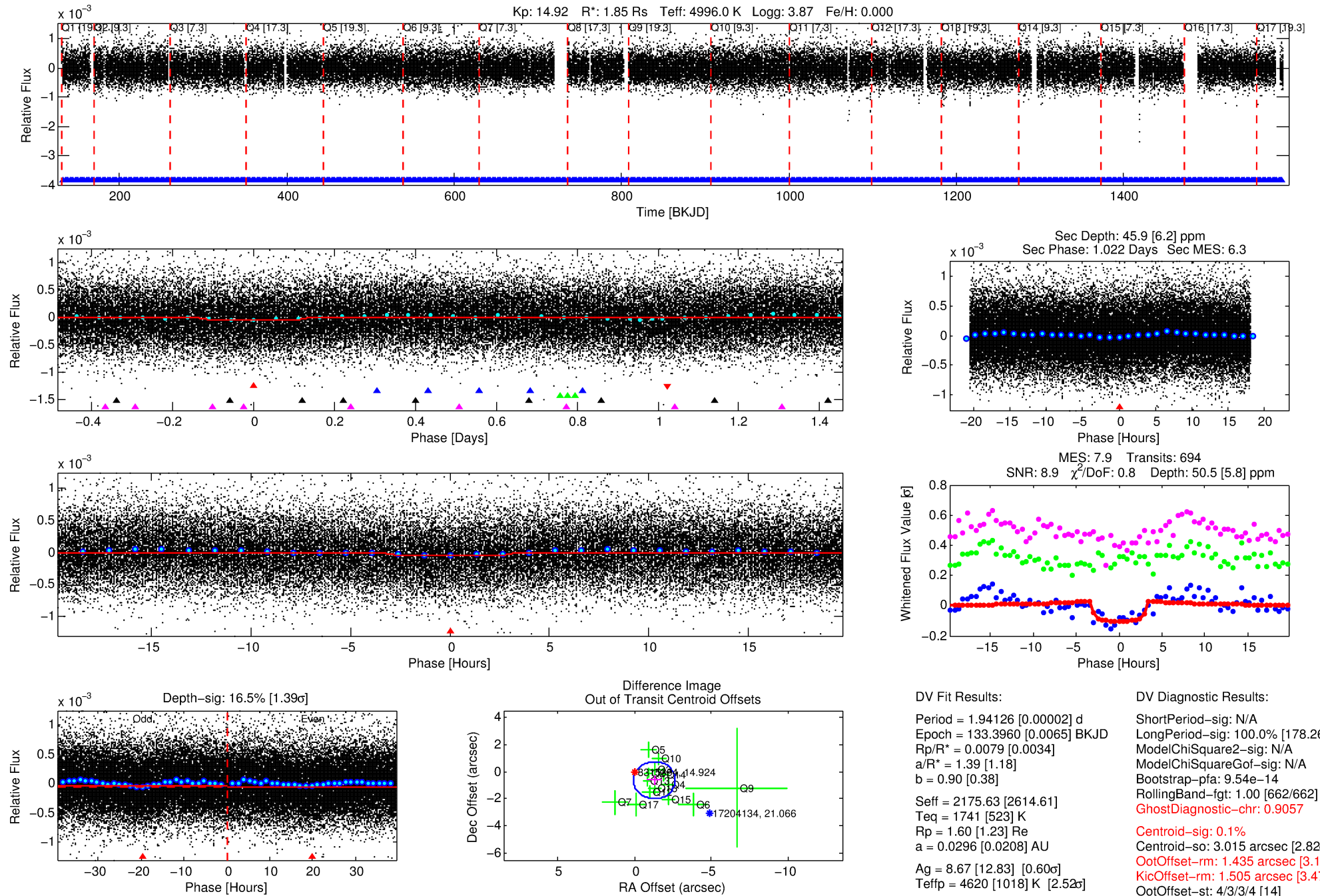
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008315394-01

No Significant Match Found

DV One-Page Summary

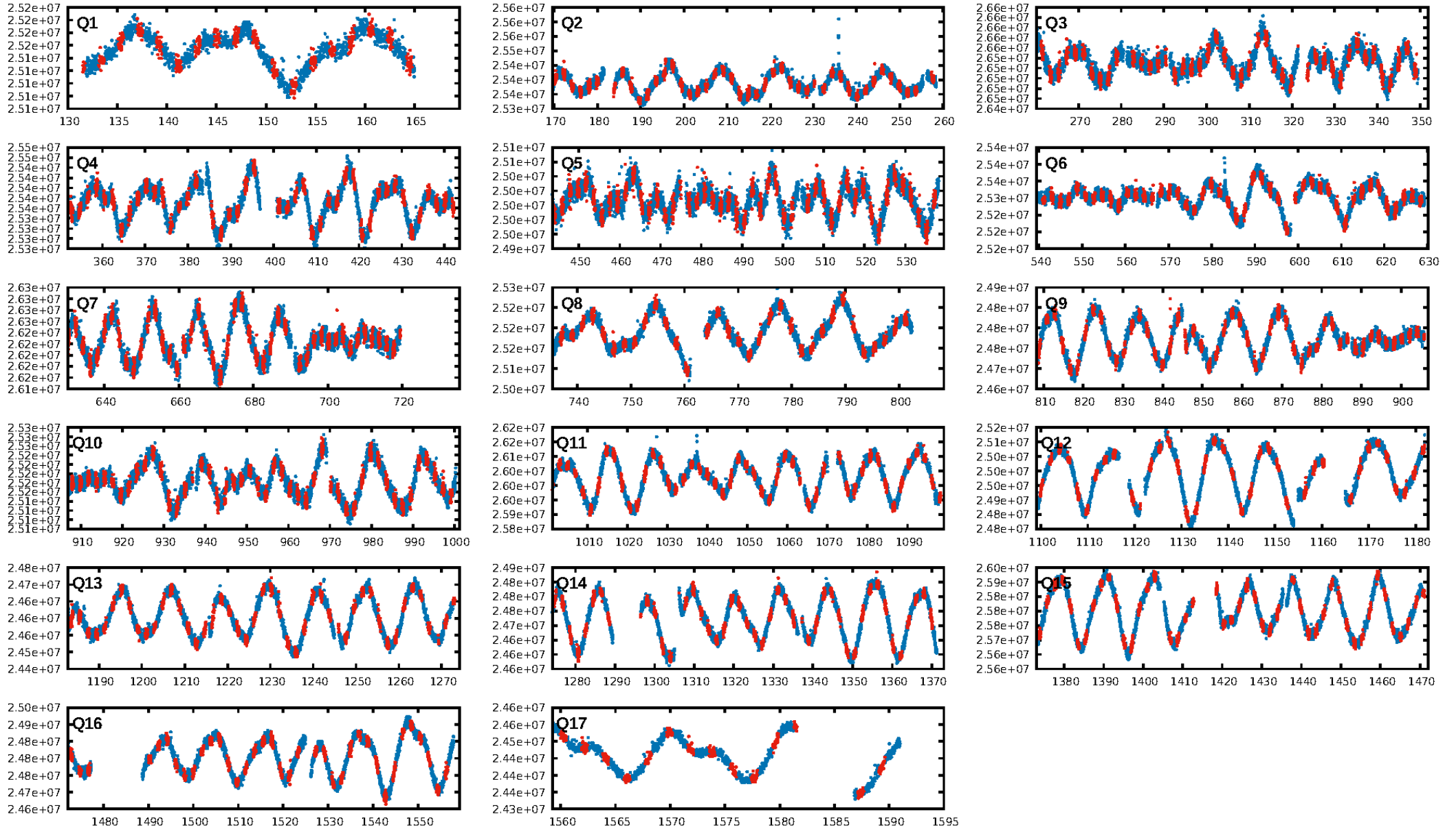
KIC: 8315394 Candidate: 1 of 5 Period: 1.941 d



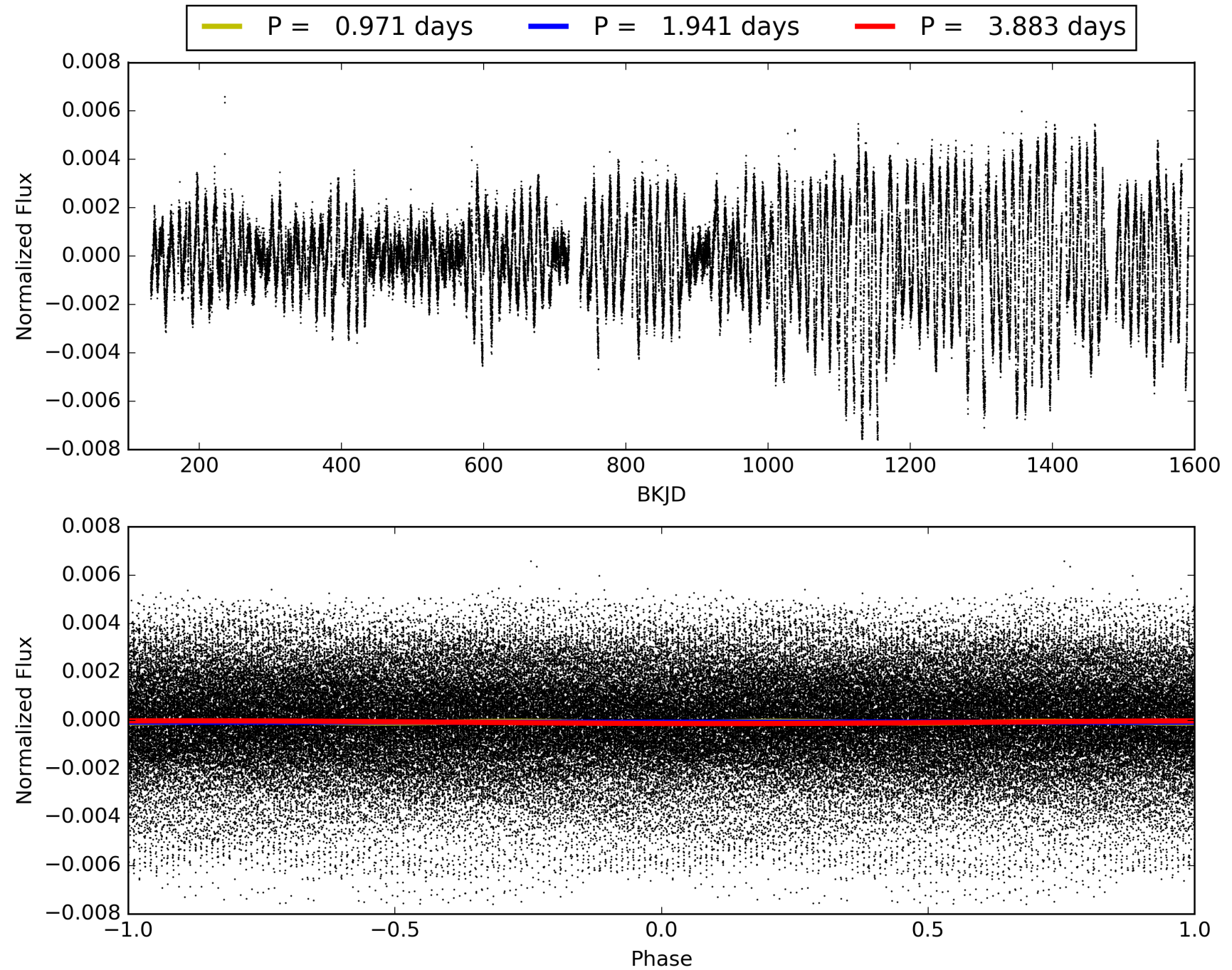
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:34:45 Z

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

TCE 008315394-01, PDC Light Curves

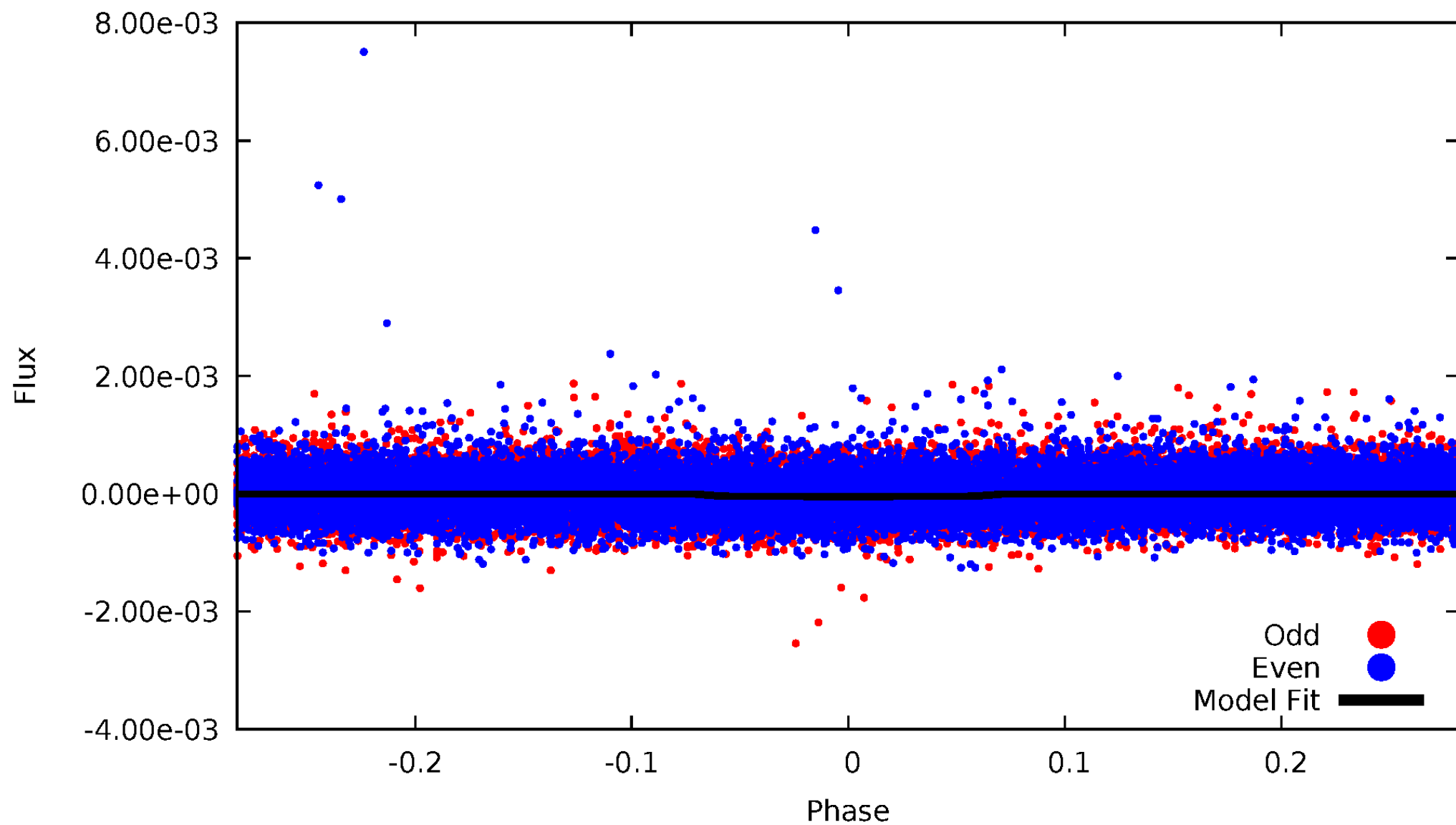


TCE 008315394-01



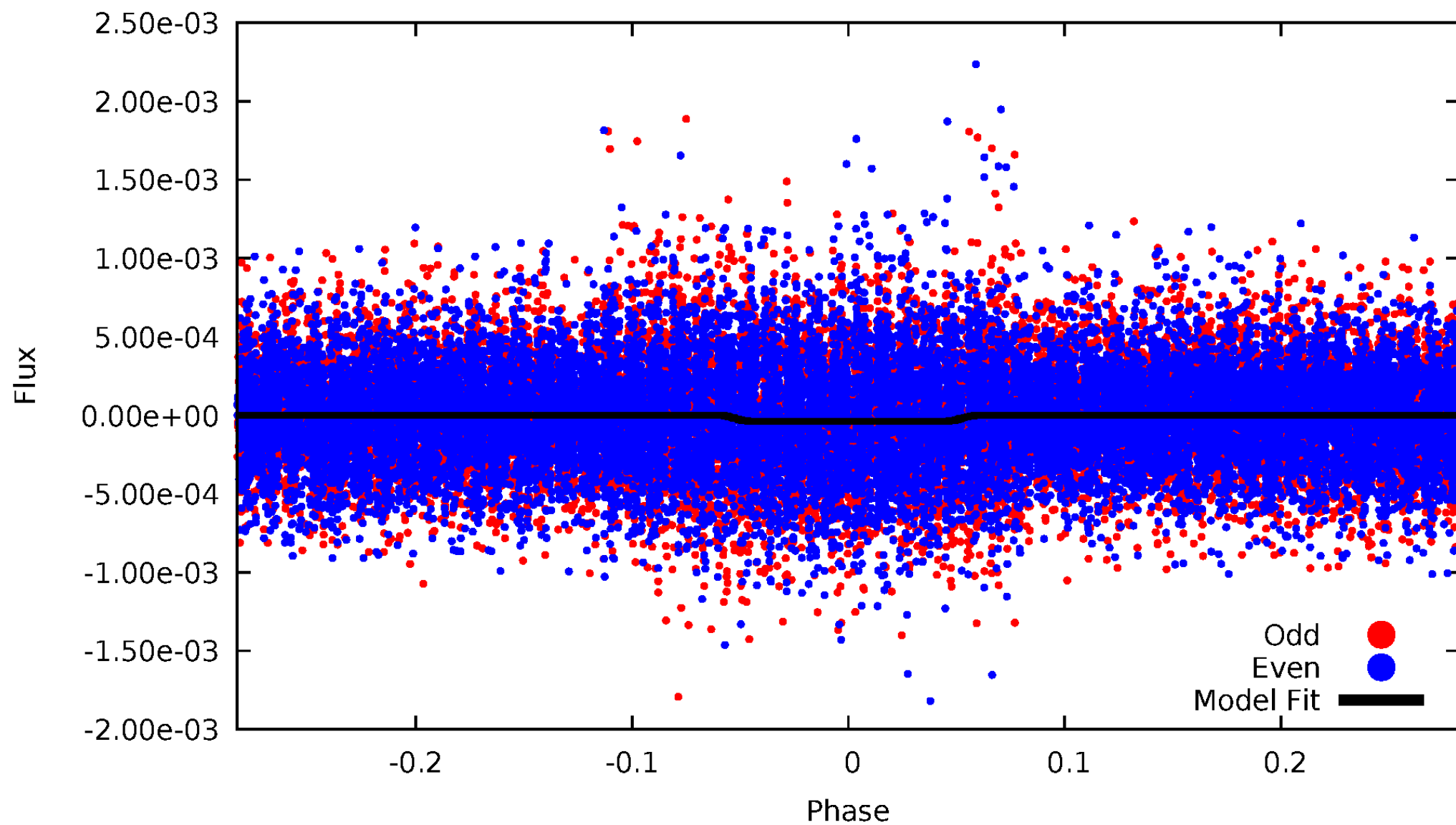
DV Odd/Even

TCE 008315394-01



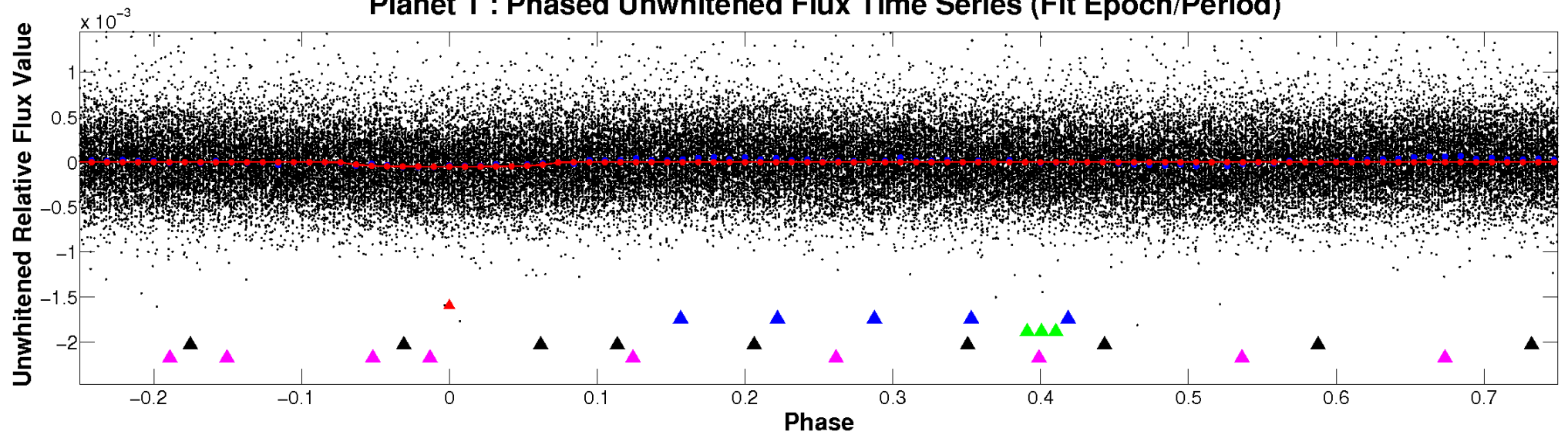
ALT Odd/Even

TCE 008315394-01

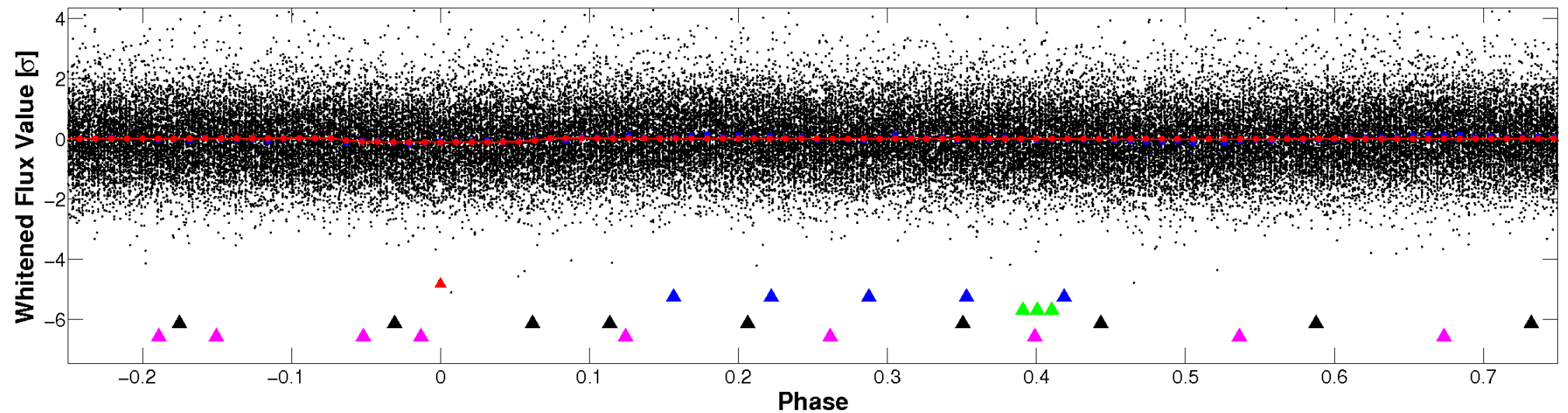


Non-Whitened Vs. Whitened Light Curve

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

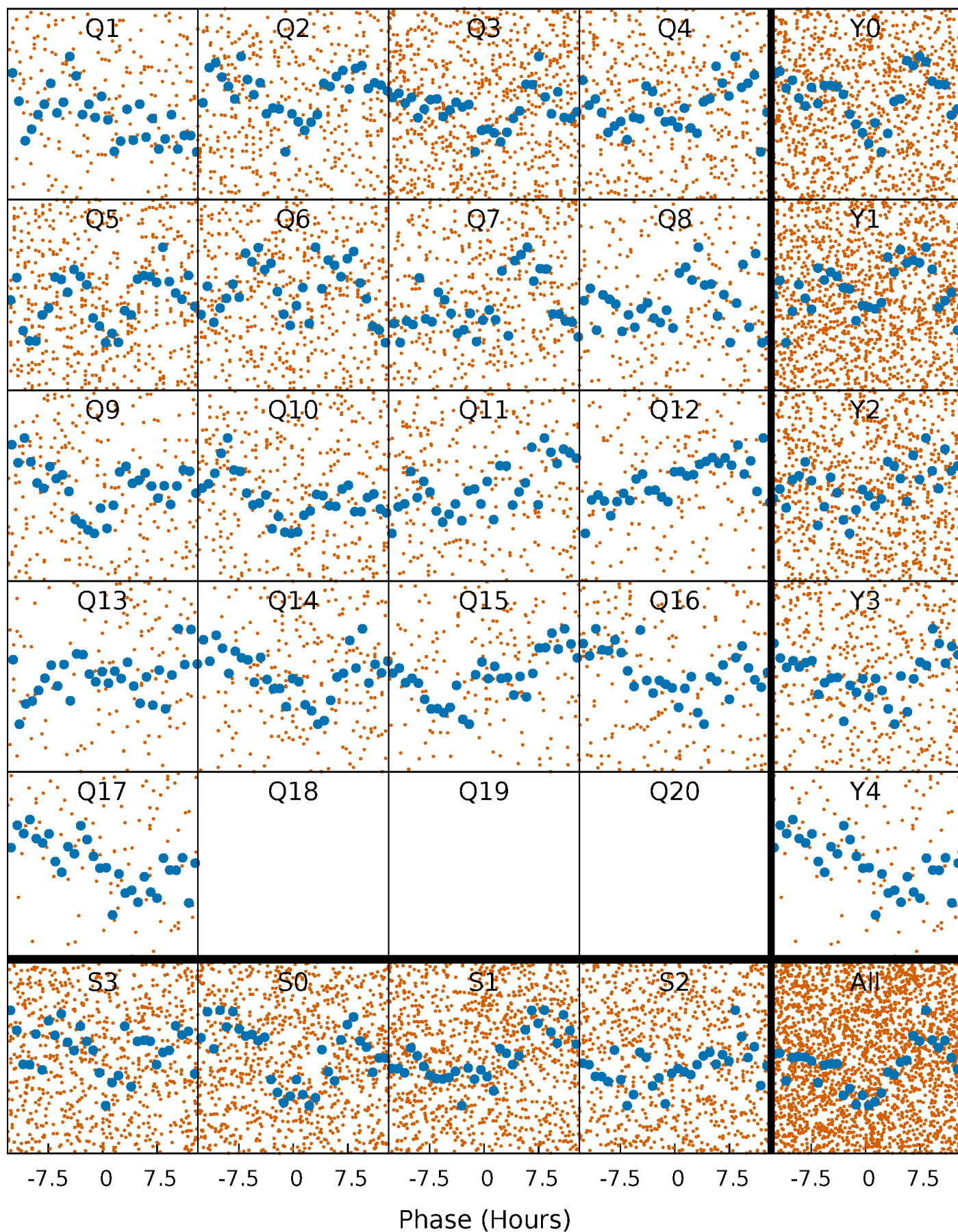


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



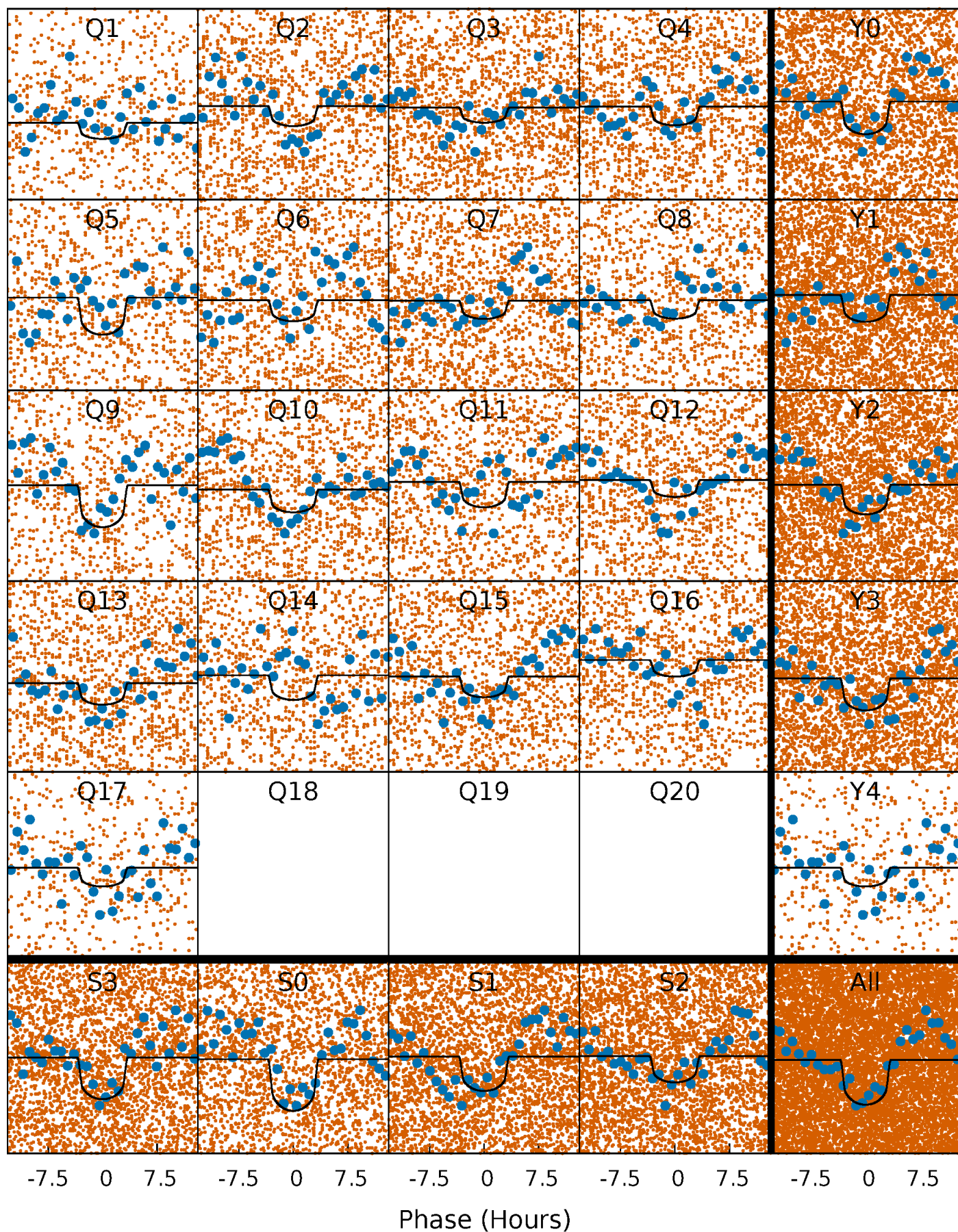
PDC Quarter-Phased Transit Curves

TCE 008315394-01 P= 1.941258 Days $T_0=133.395952$ (BKJD)



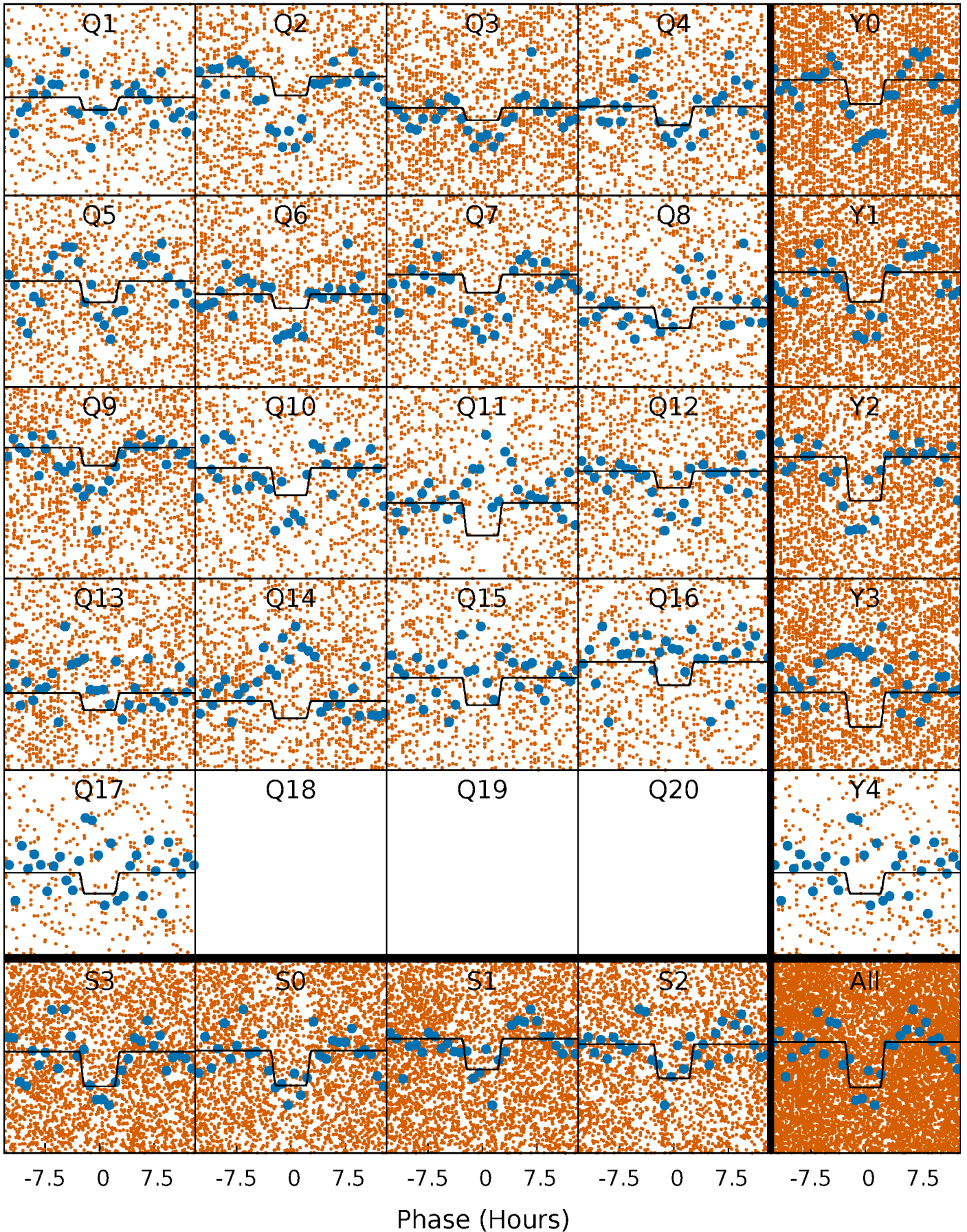
DV Quarter-Phased Transit Curves

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Alt. Detrend Quarter-Phased Transit Curves

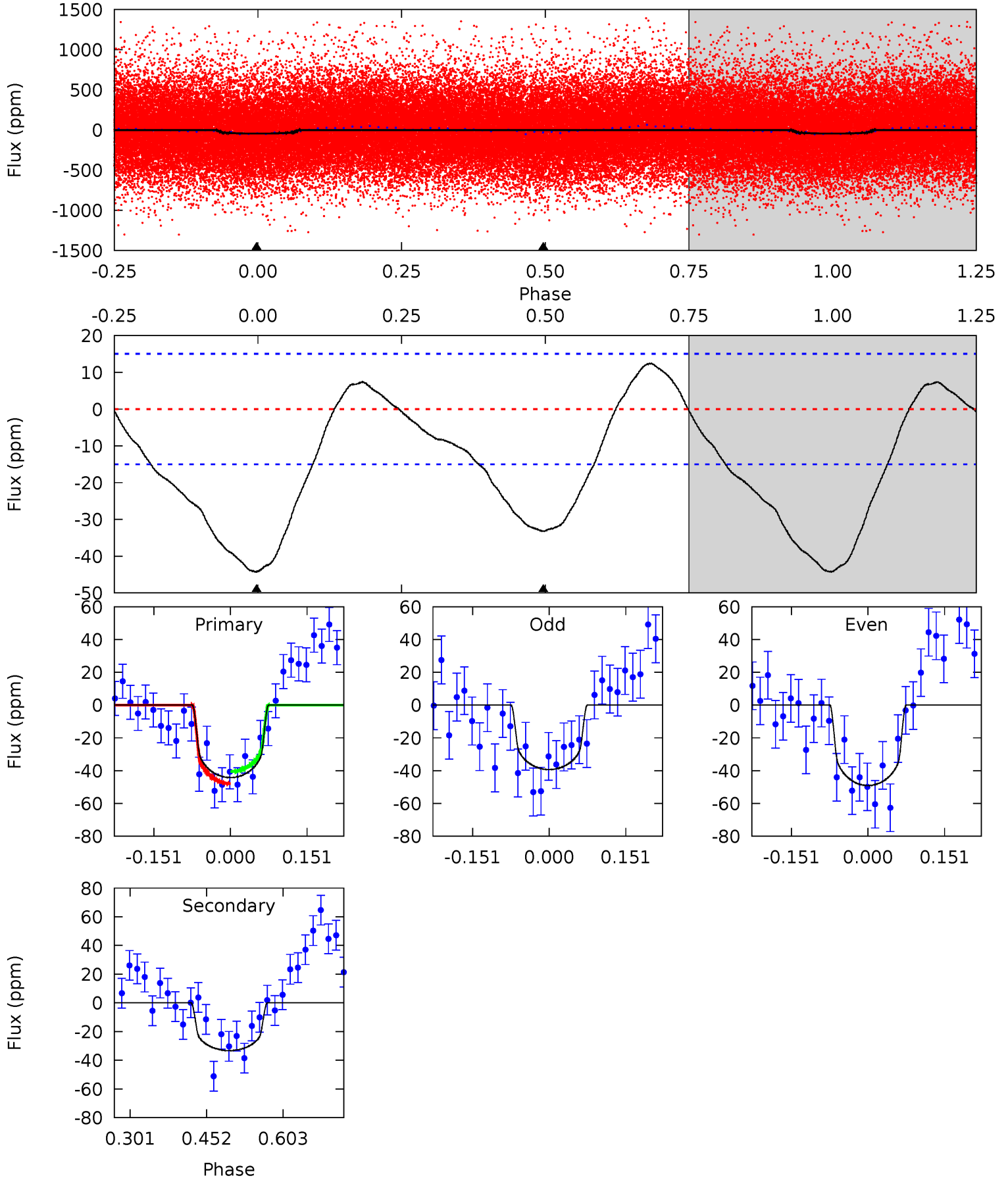
TCE 008315394-01 P= 1.941152 Days $T_0=133.424873$ (BKJD)



DV Model-Shift Uniqueness Test

008315394-01, P = 1.941258 Days, E = 131.454694 Days

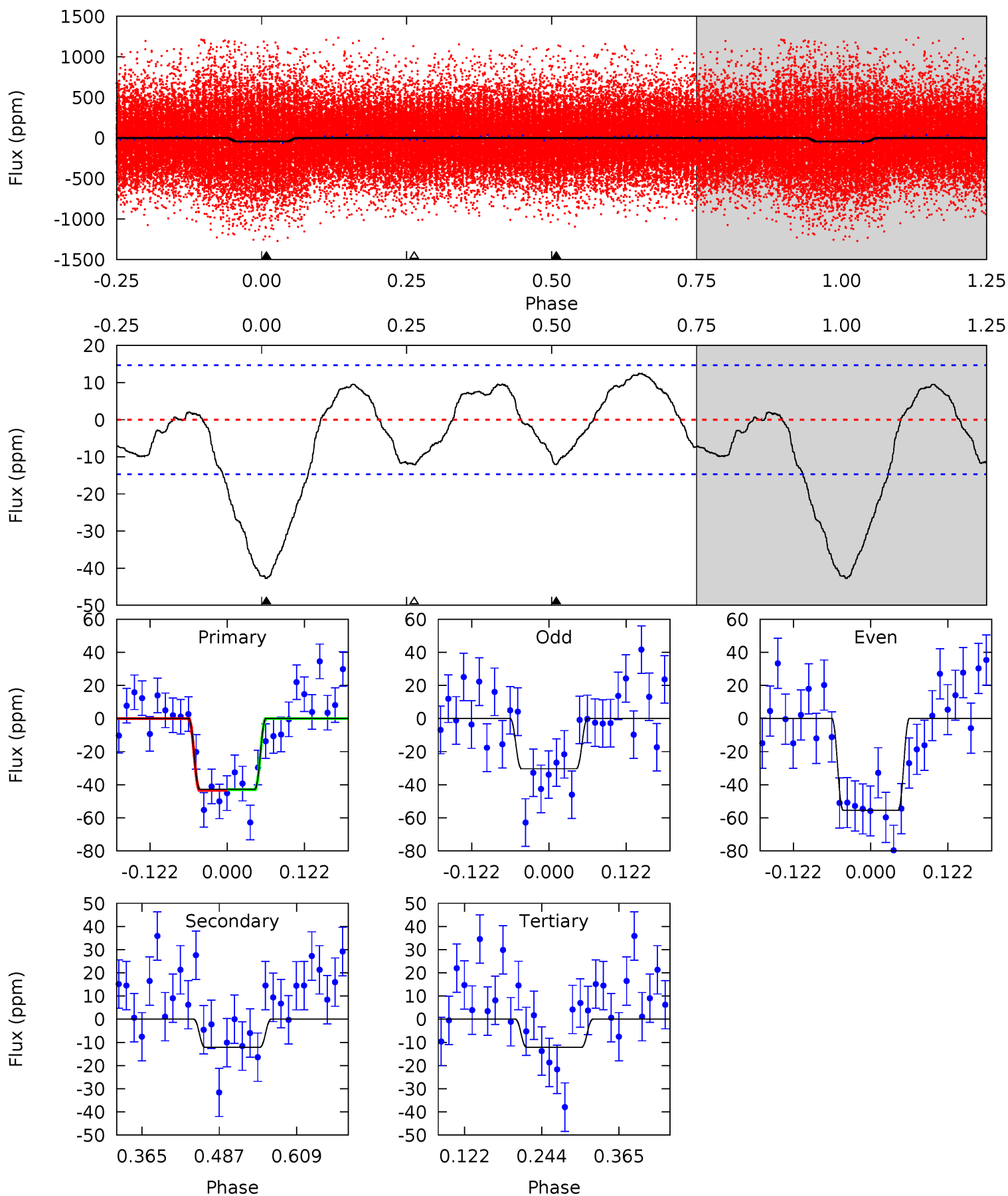
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	9.92	0	0	4.48	1.44	2.63	13.2	13.2	9.92	9.92	1.45	1.00	0.22	1.10



Alt Model-Shift Uniqueness Test

008315394-01, P = 1.941152 Days, E = 131.483721 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	3.73	3.73	0	4.52	1.55	2.31	9.45	13.2	0.00	3.73	3.86	1.03	0.23	0.08



Stellar Parameters For KIC 008315394

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4996^{+136}_{-151}	$3.867^{+0.728}_{-0.312}$	$0.000^{+0.250}_{-0.300}$	$1.847^{+0.964}_{-1.178}$	$0.916^{+0.190}_{-0.171}$	$0.205^{+2.837}_{-0.147}$
	+3%/-3%	+19%/-8%	+inf%/-inf%	+52%/-64%	+21%/-19%	+1387%/-72%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008315394-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-33 ± 3	$1.55^{+0.95}_{-0.79}$	2419^{+351}_{-428}	4302^{+1152}_{-551}	$6.741^{+20.361}_{-4.187}$
Alt.	-12 ± 3	$1.20^{+0.83}_{-0.62}$	2399^{+341}_{-420}	3836^{+1126}_{-607}	$3.844^{+12.640}_{-2.548}$

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

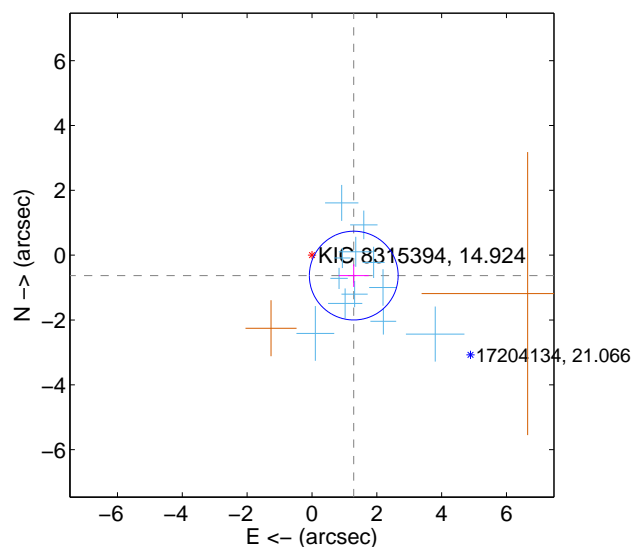
Supplemental centroid analysis for 008315394-01. Kepler magnitude: 14.92. Transit SNR 8.88

There are 12 quarters with good PRF difference image offsets

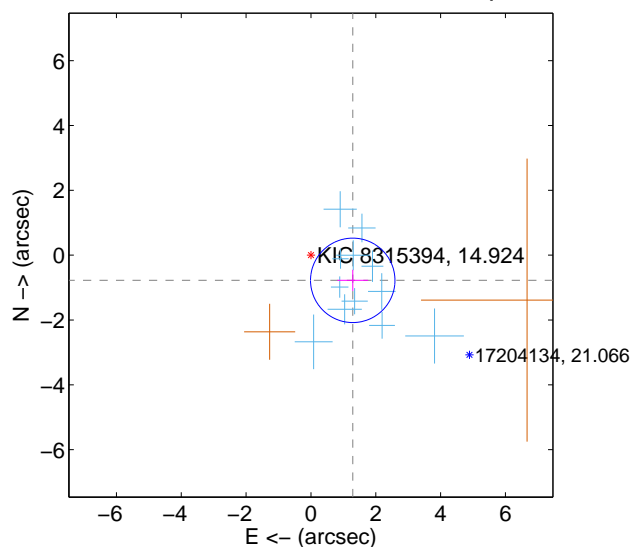
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.435 ± 0.456	3.14	-1.289 ± 0.461	-0.630 ± 0.349
PRF-fit source offset from KIC position	1.505 ± 0.434	3.47	-1.289 ± 0.475	-0.777 ± 0.328
photometric centroid source offset	3.01 ± 1.07	2.82	-2.90 ± 1.07	-0.81 ± 1.08

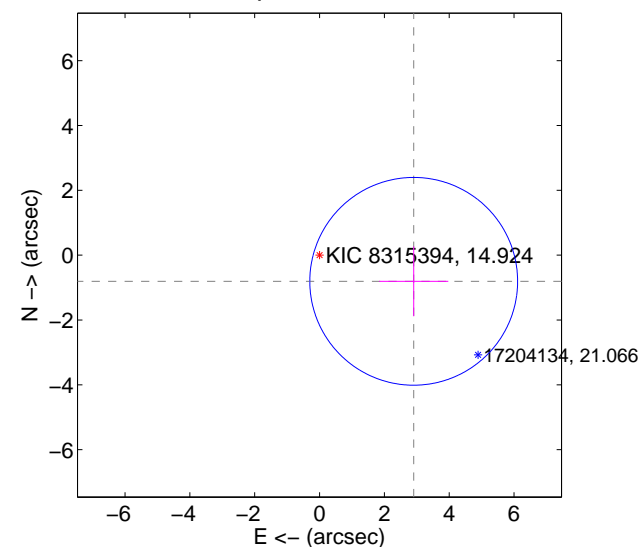
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

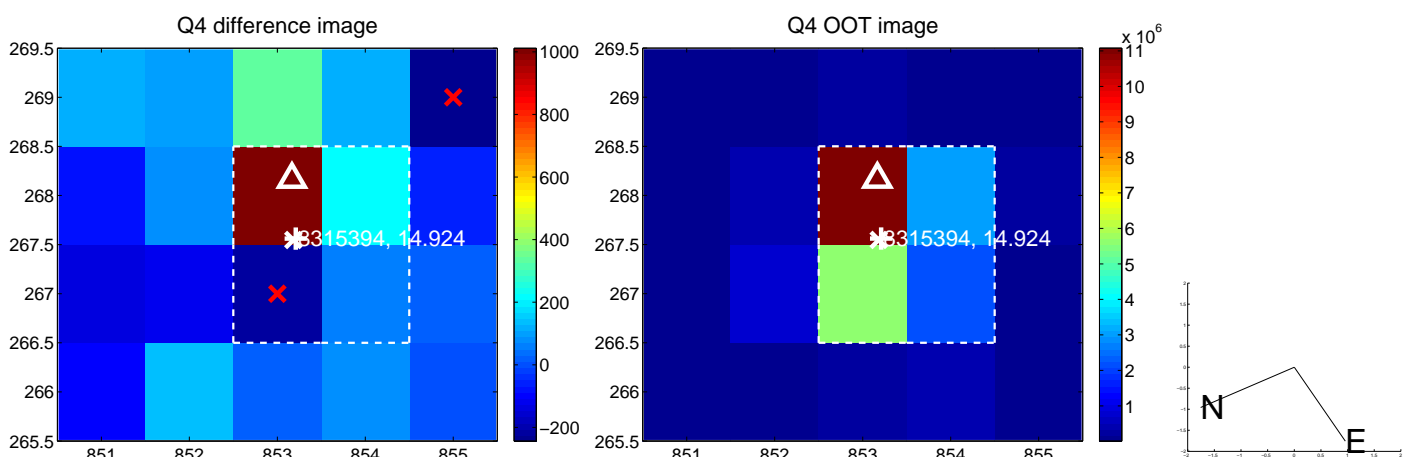
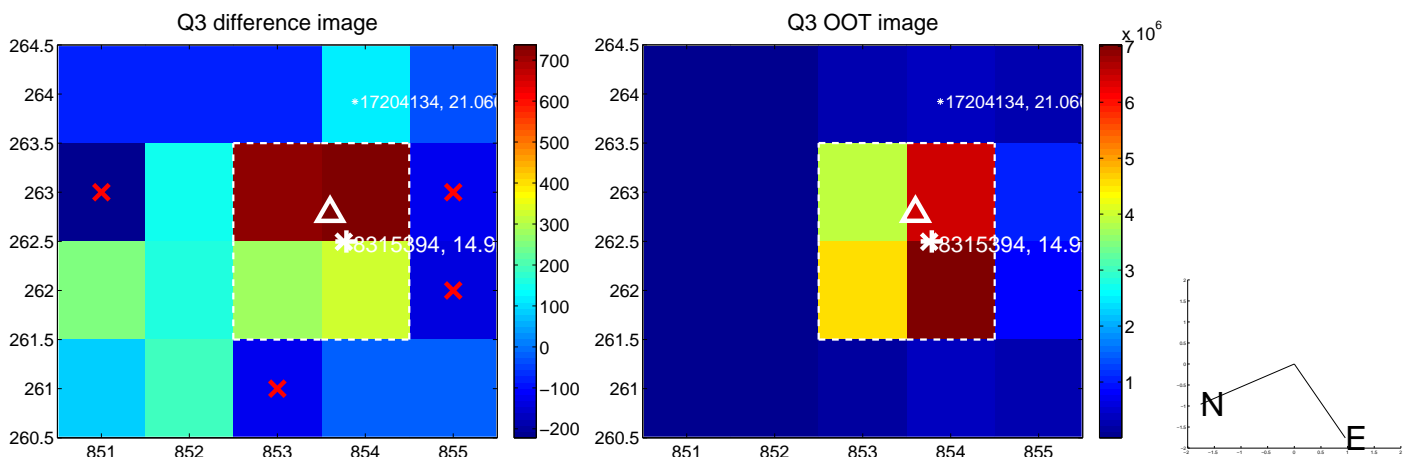
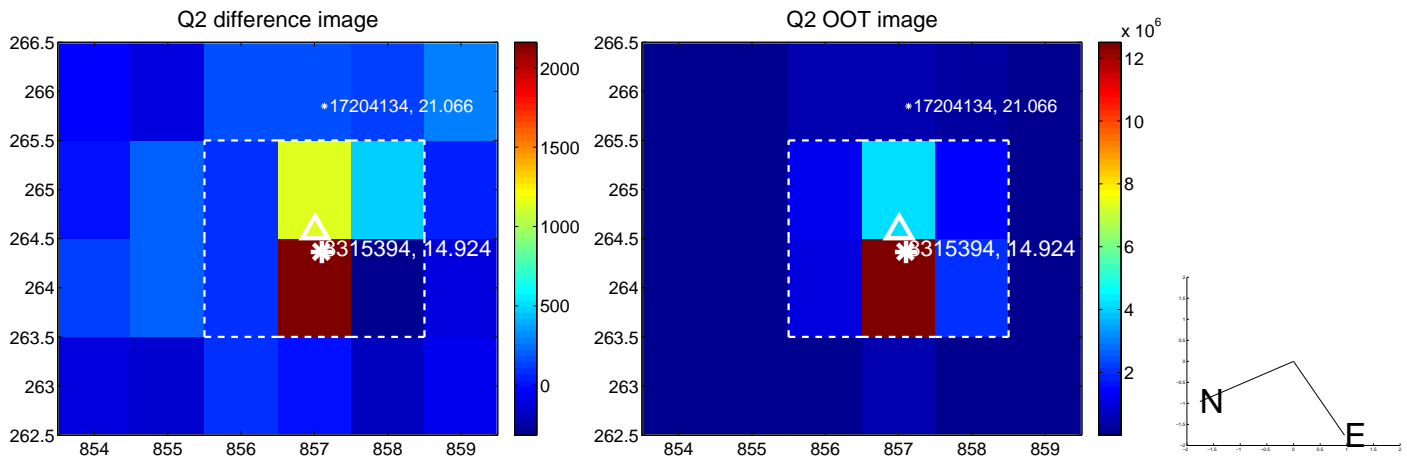
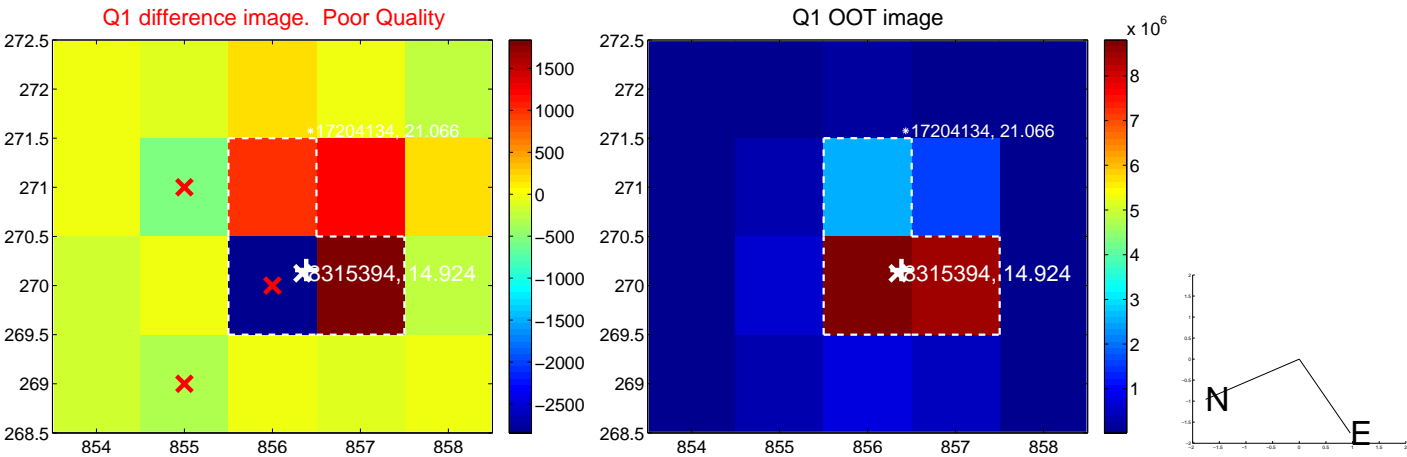


offset from photometric centroids

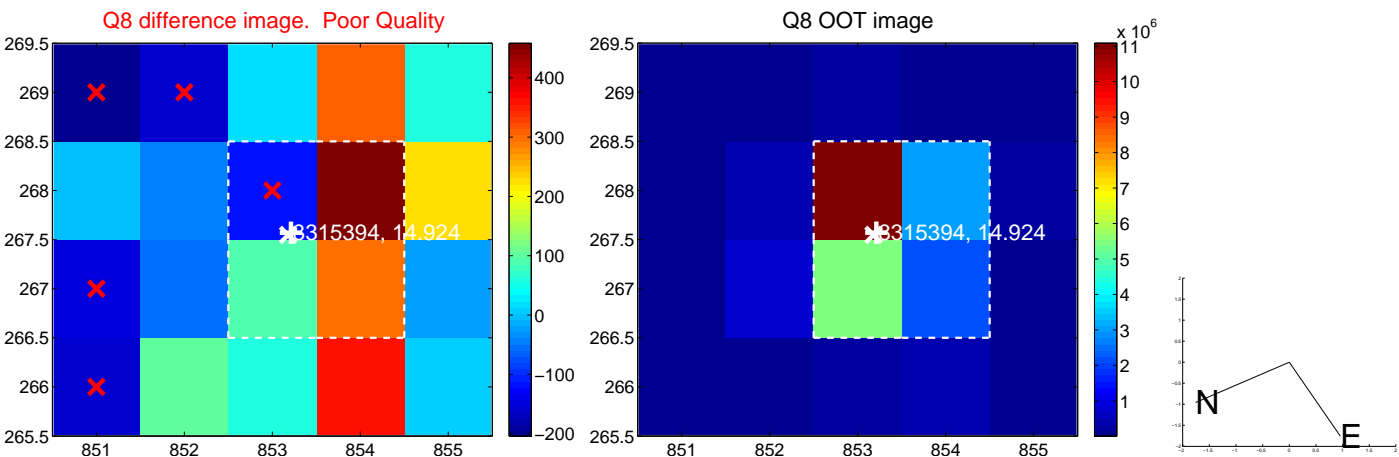
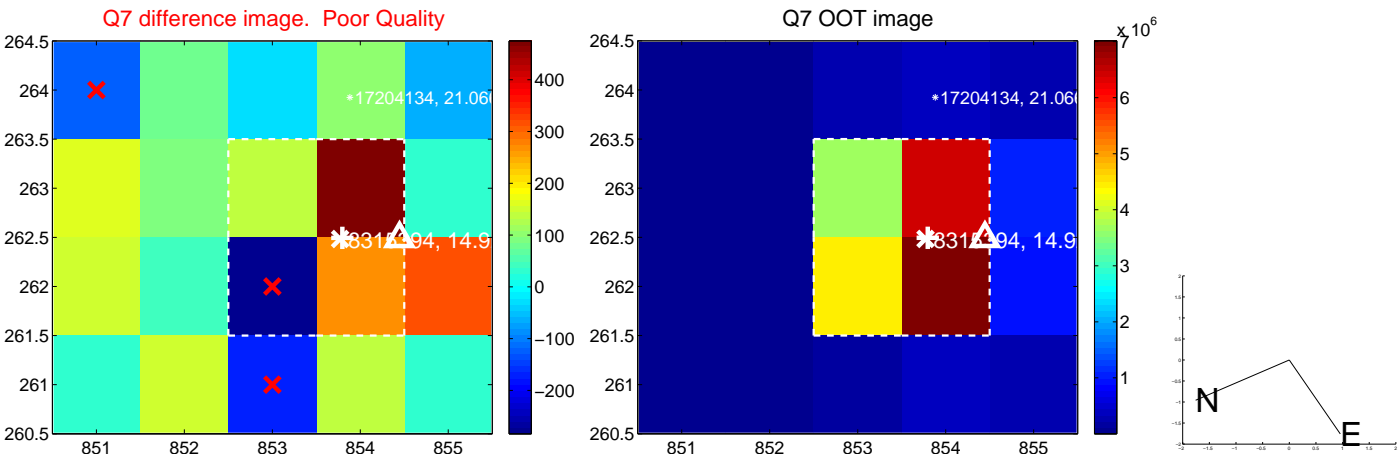
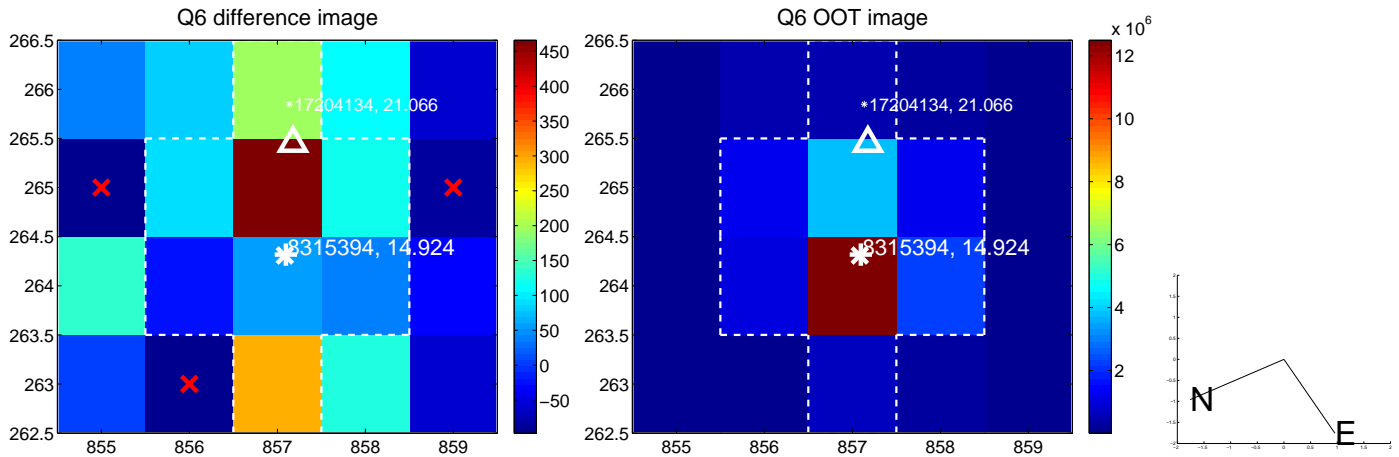
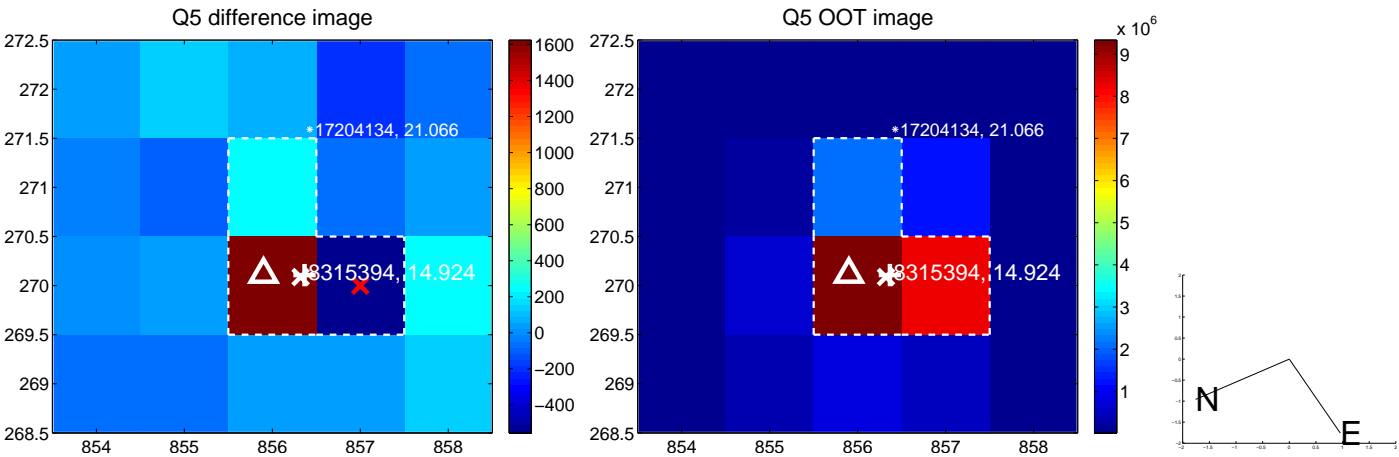


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

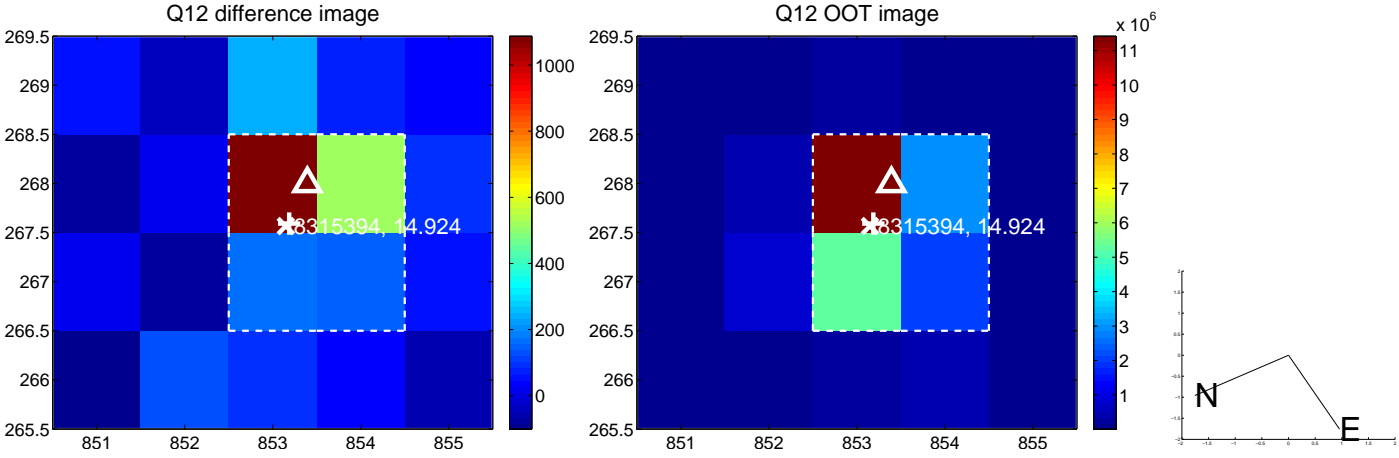
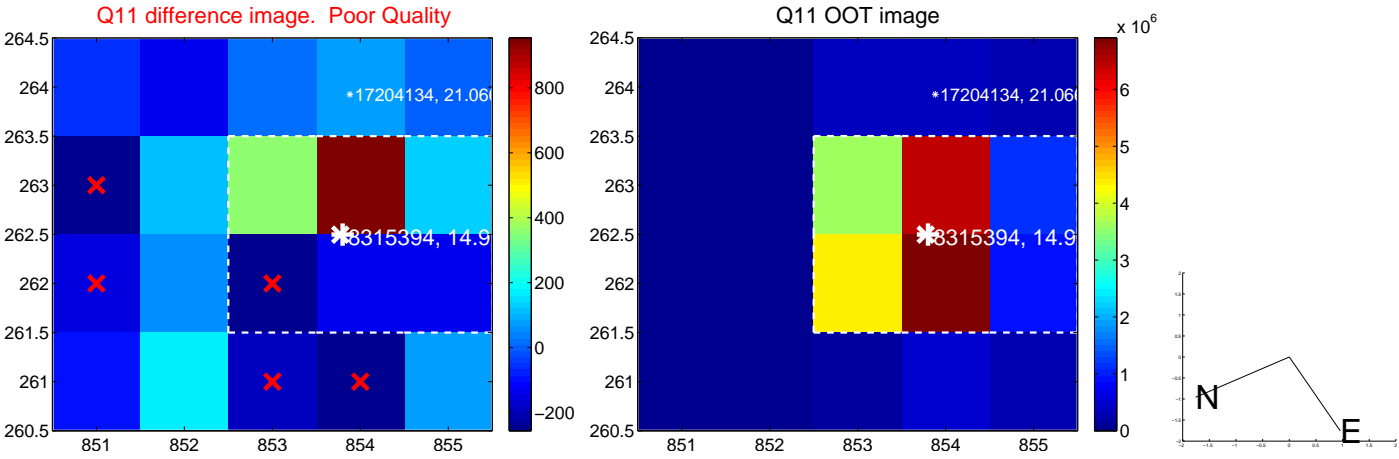
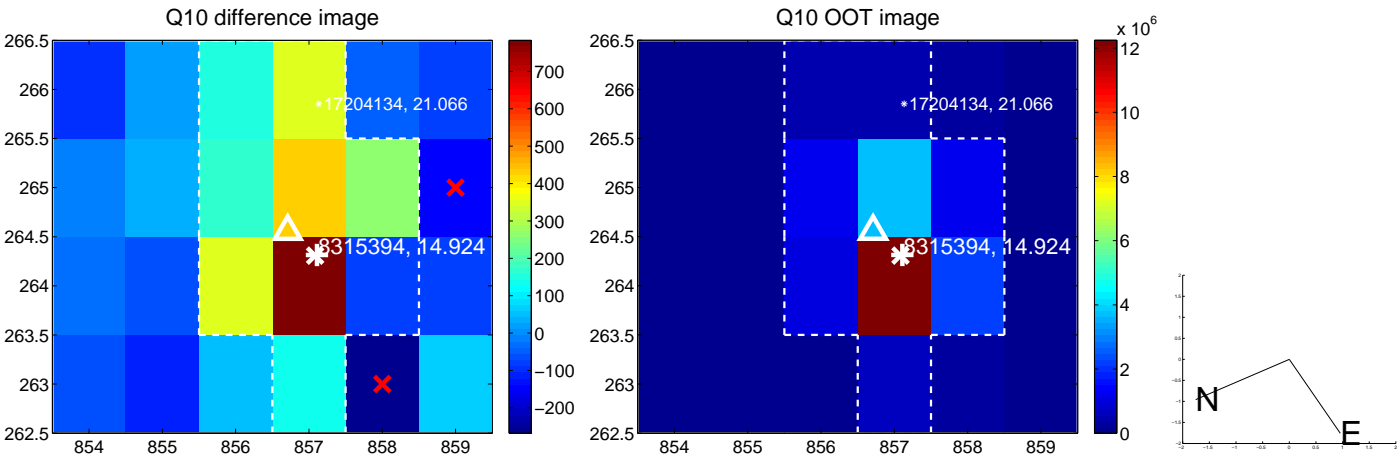
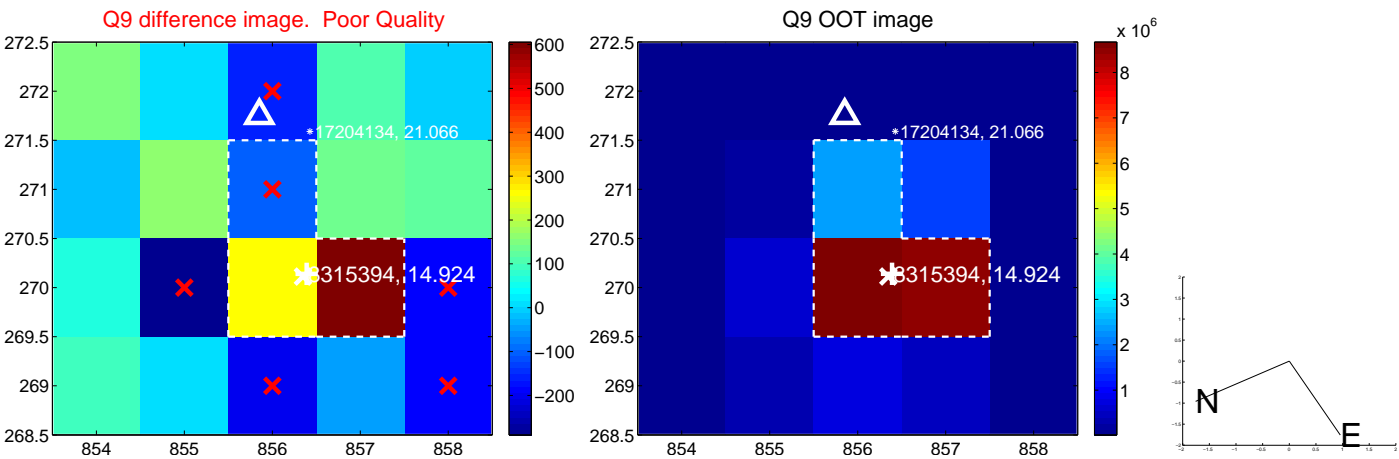
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



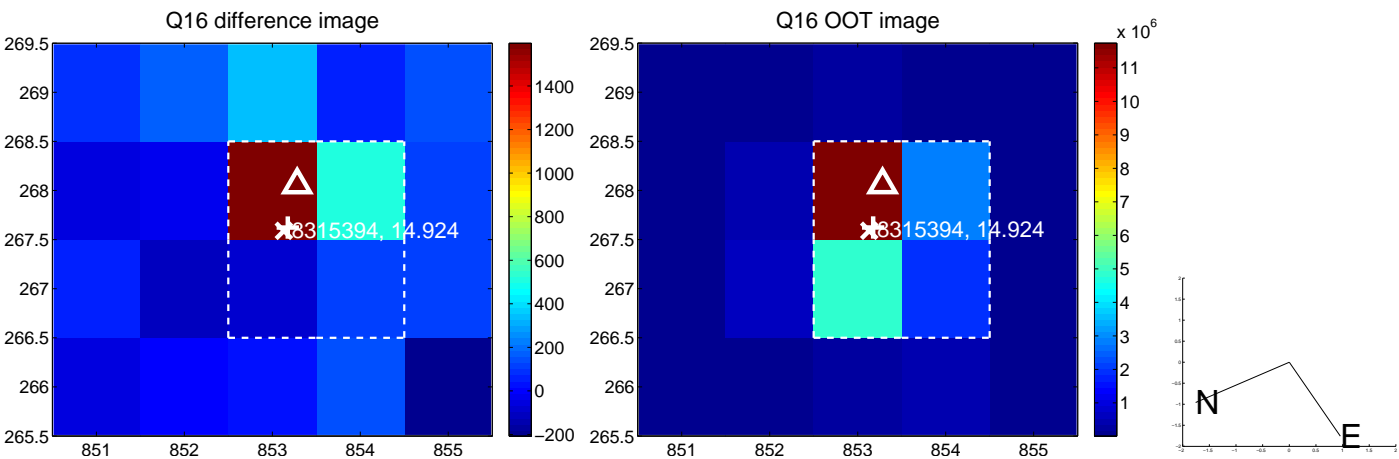
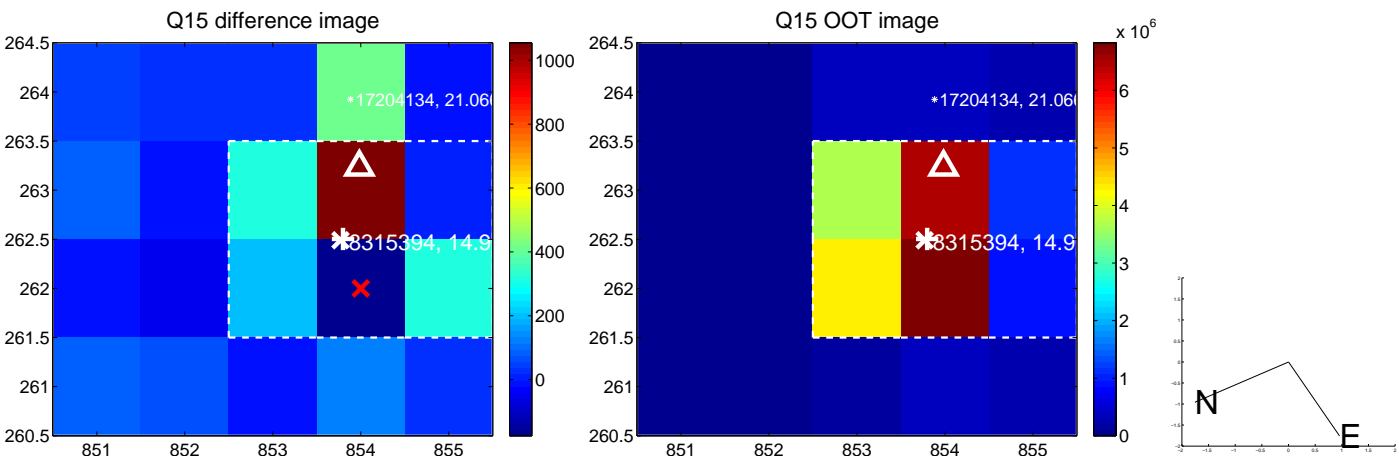
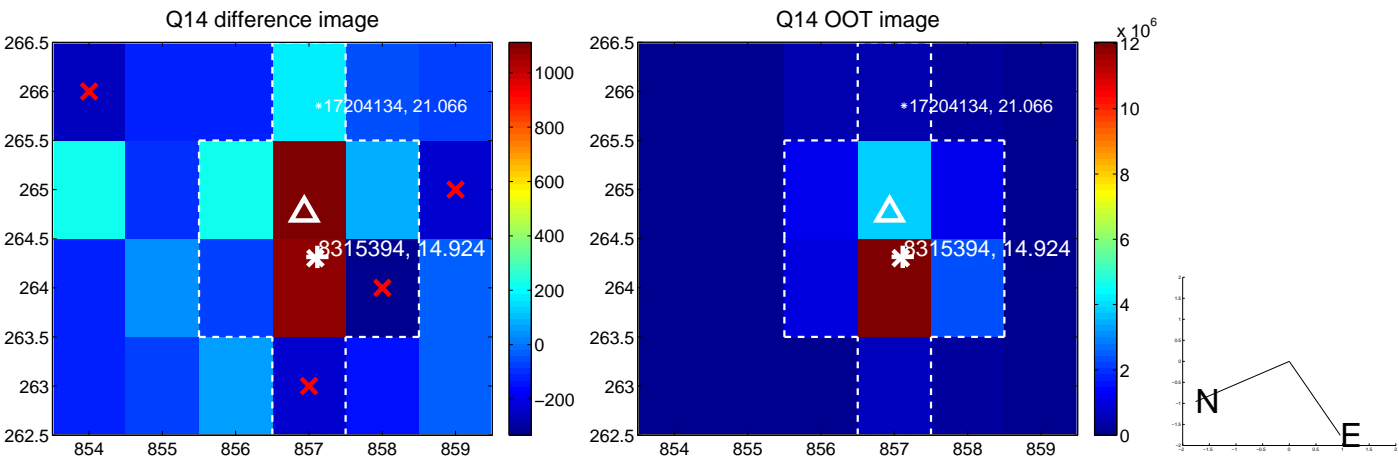
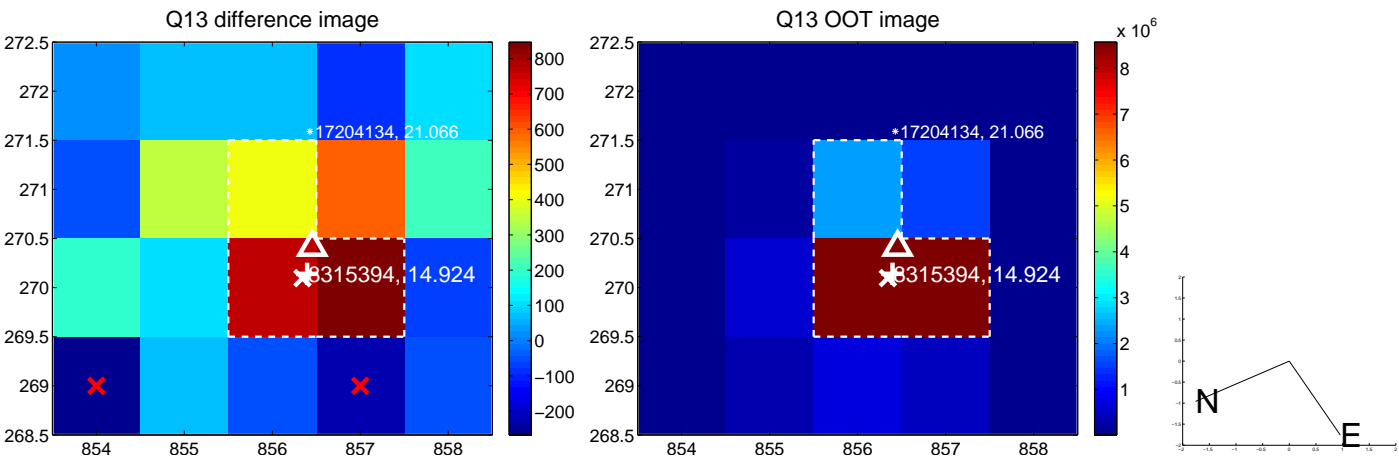
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



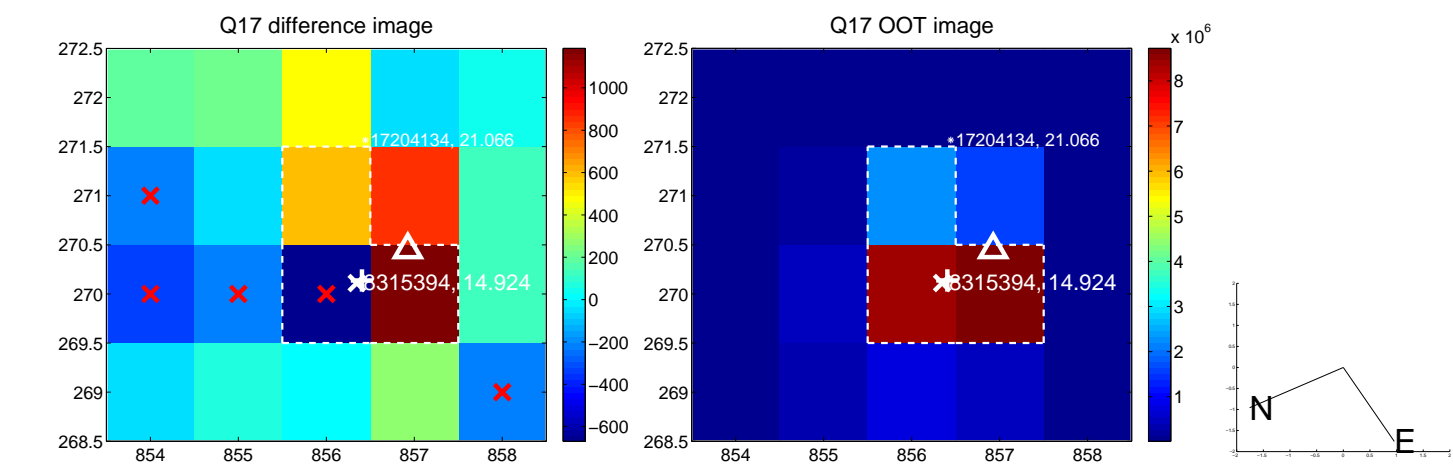
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



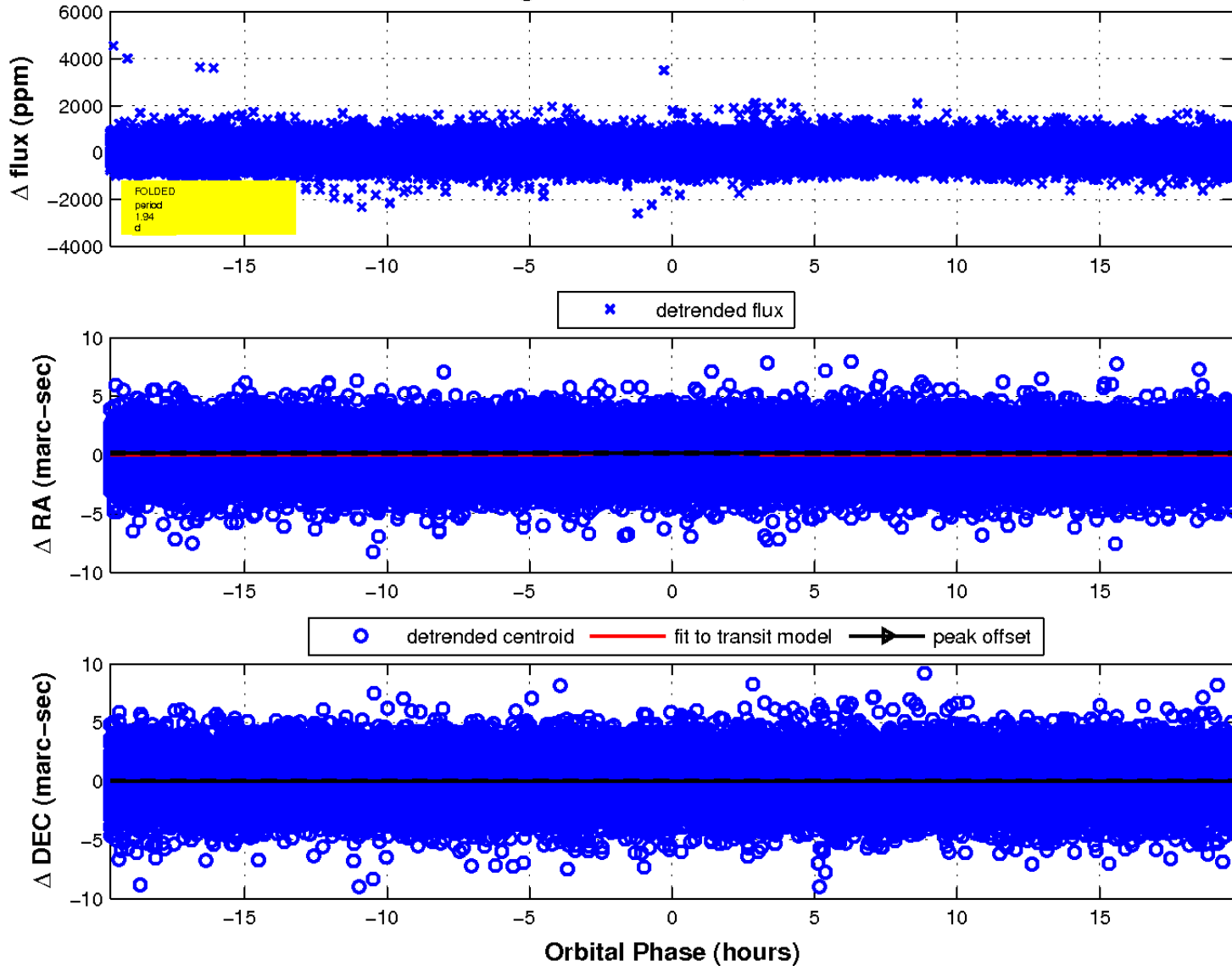
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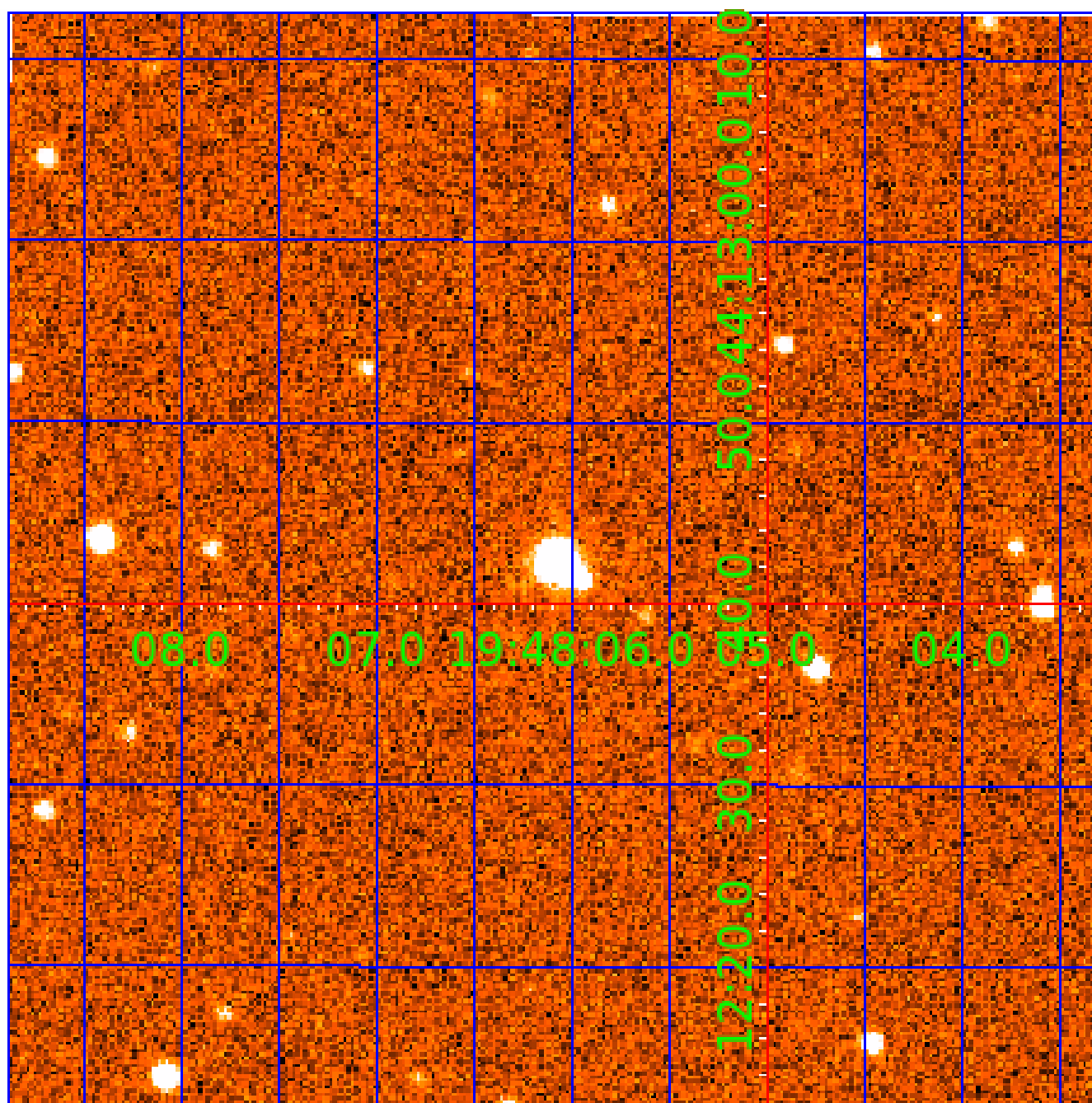


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 008315394

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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008315394-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—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_FEW_DIFFS
008315394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
008315394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

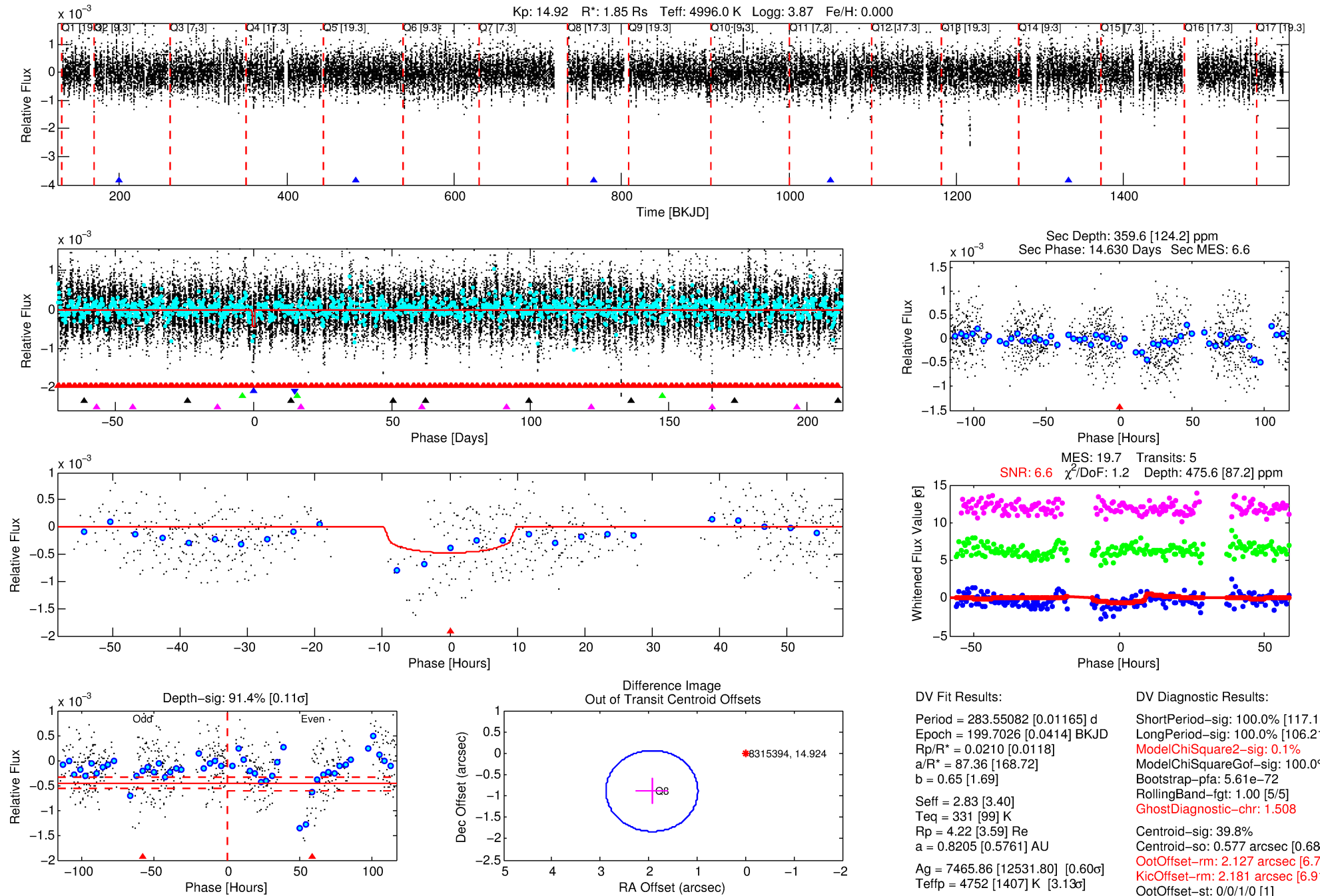
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008315394-02

No Significant Match Found

DV One-Page Summary

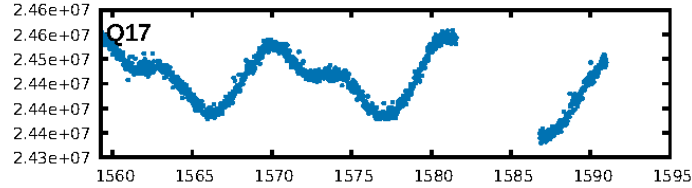
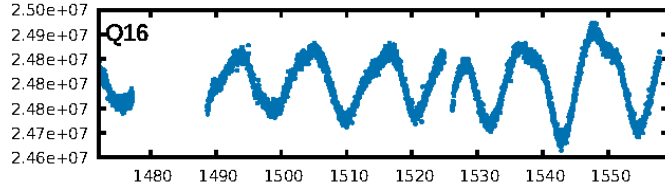
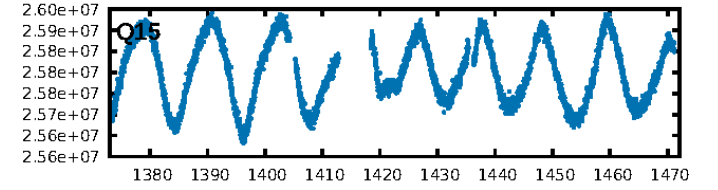
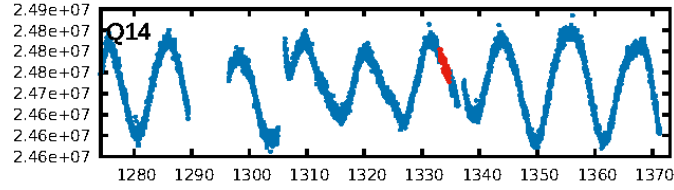
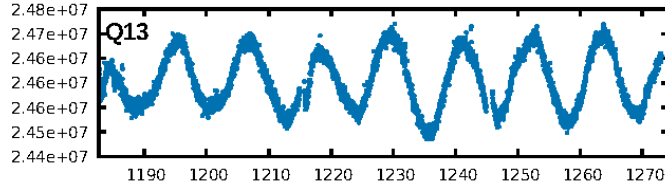
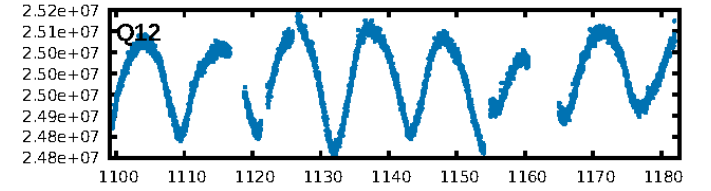
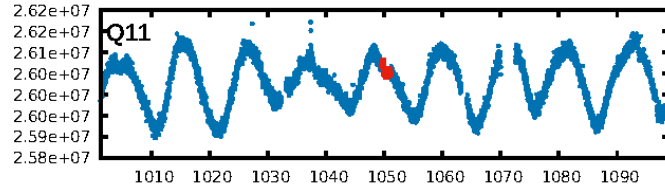
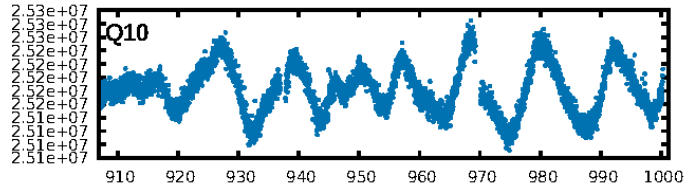
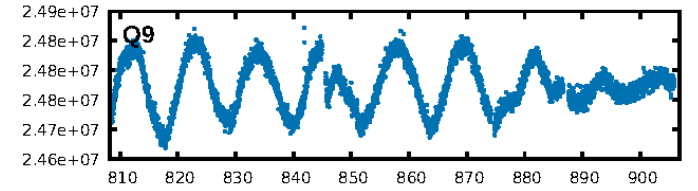
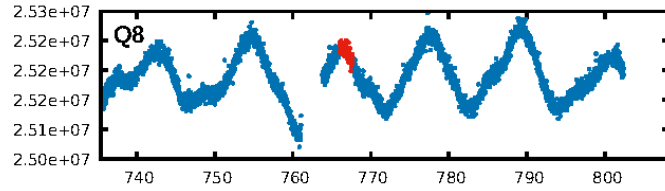
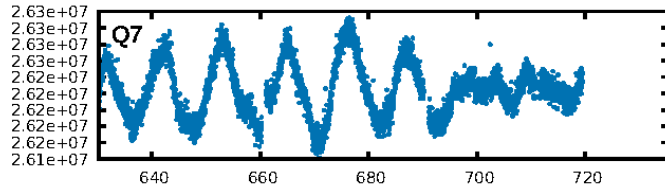
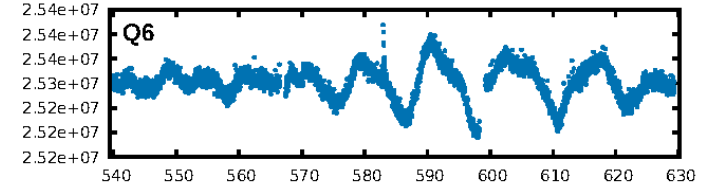
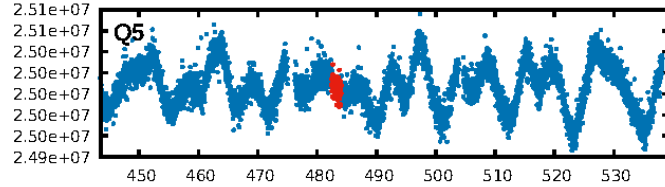
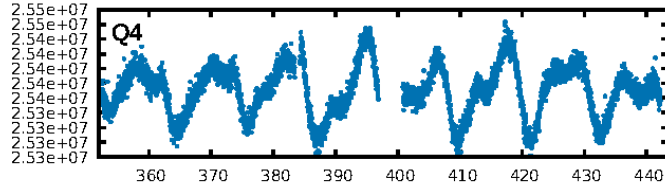
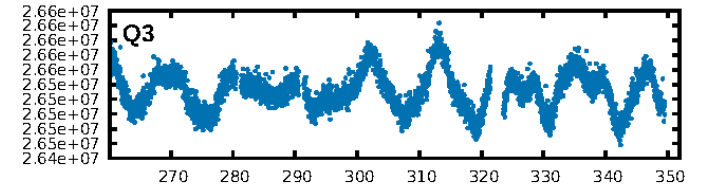
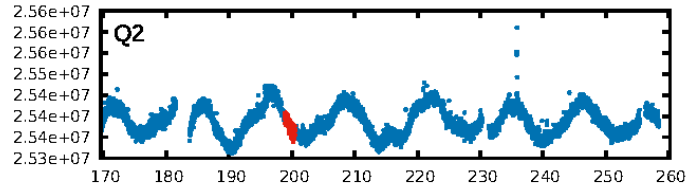
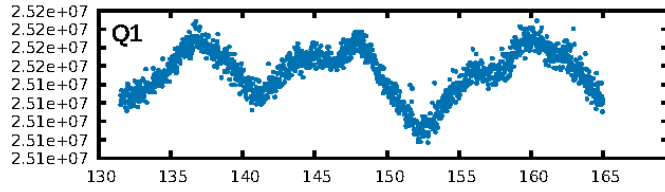
KIC: 8315394 Candidate: 2 of 5 Period: 283.551 d



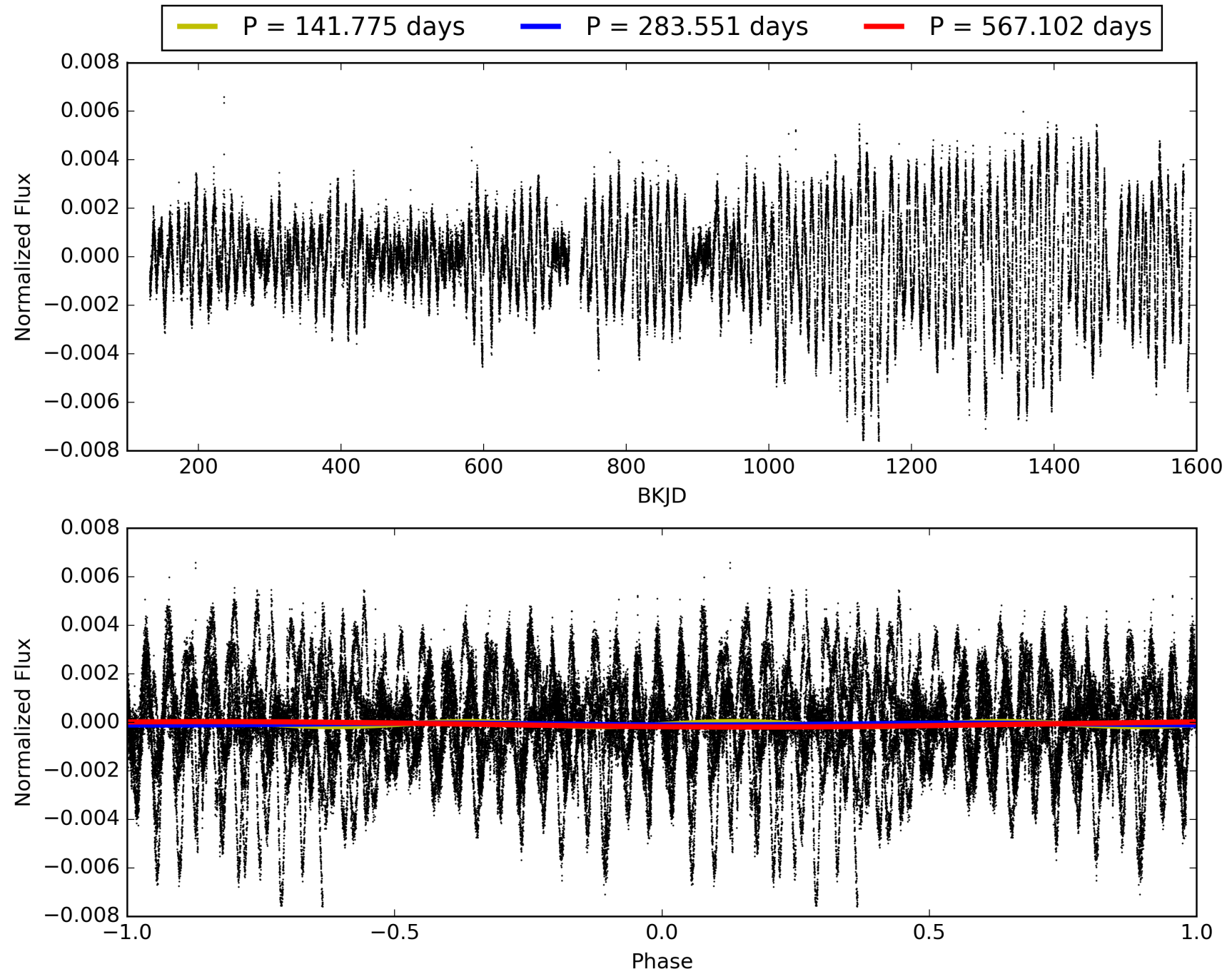
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:34:56 Z

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

TCE 008315394-02, PDC Light Curves

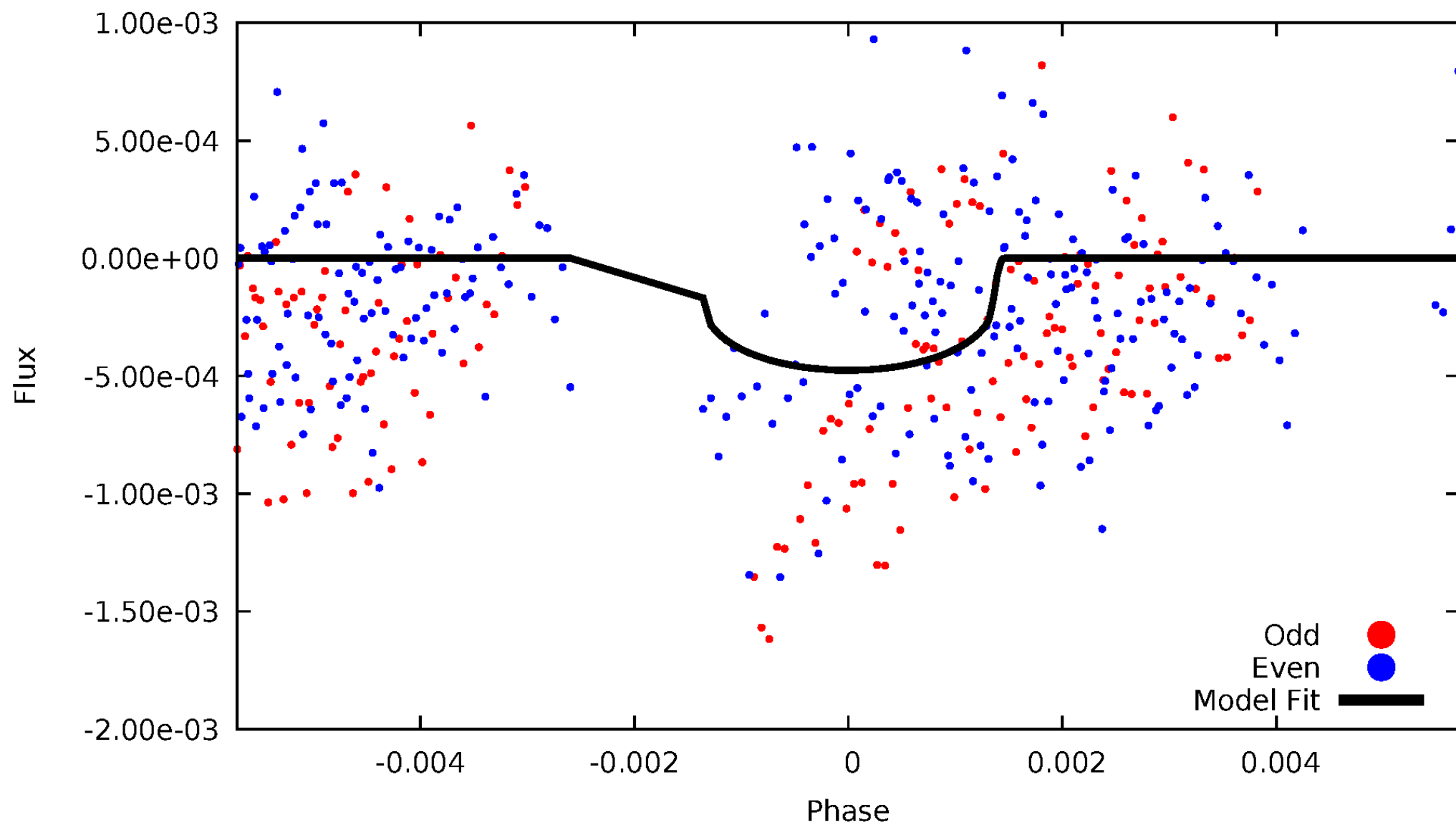


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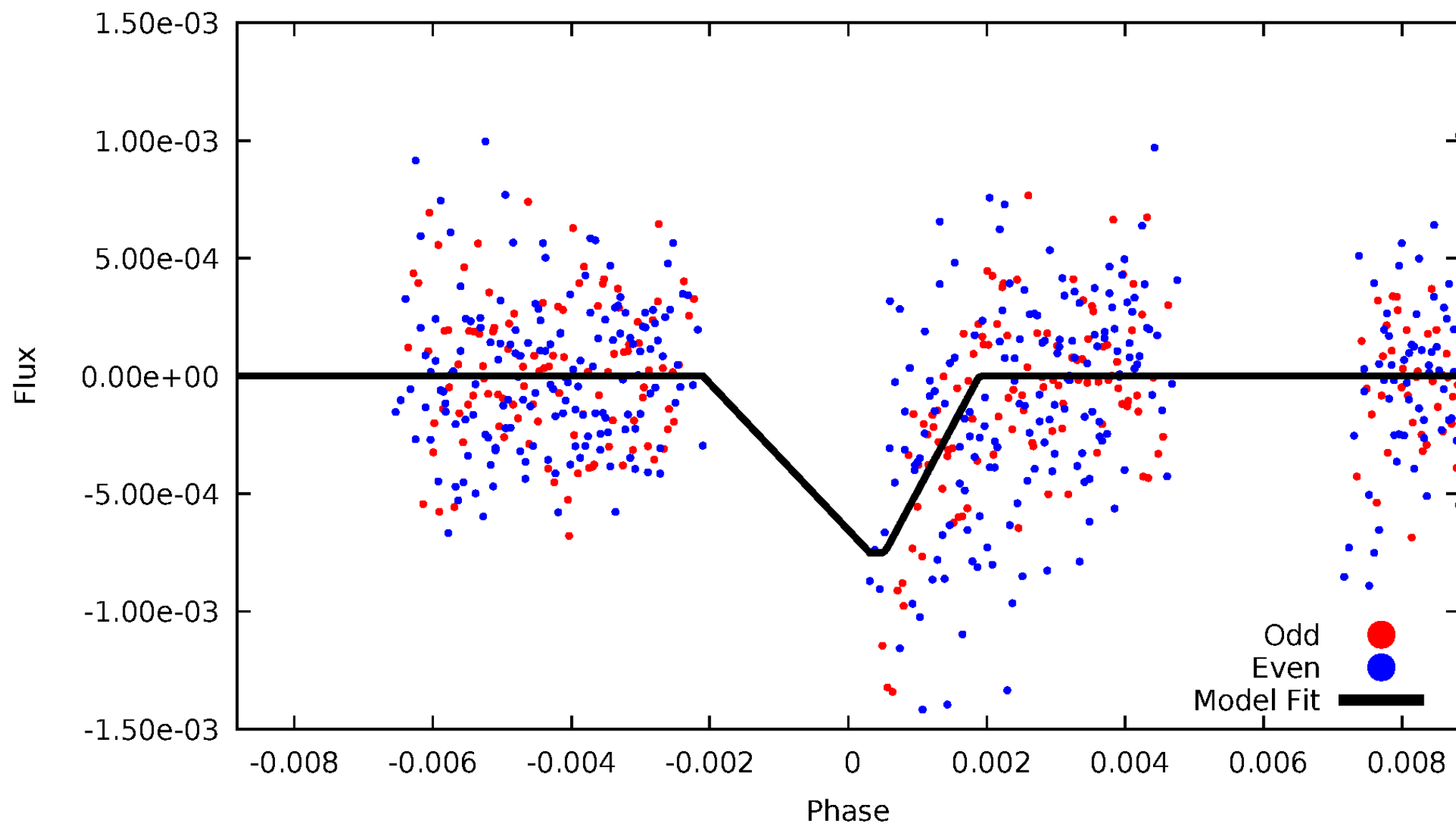
DV Odd/Even

TCE 008315394-02



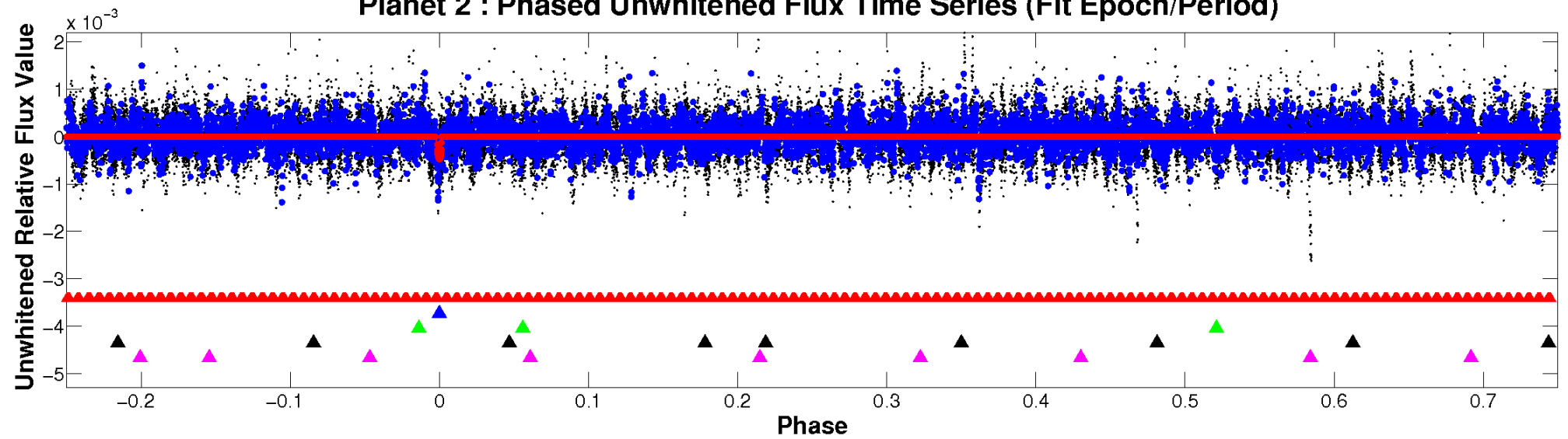
ALT Odd/Even

TCE 008315394-02

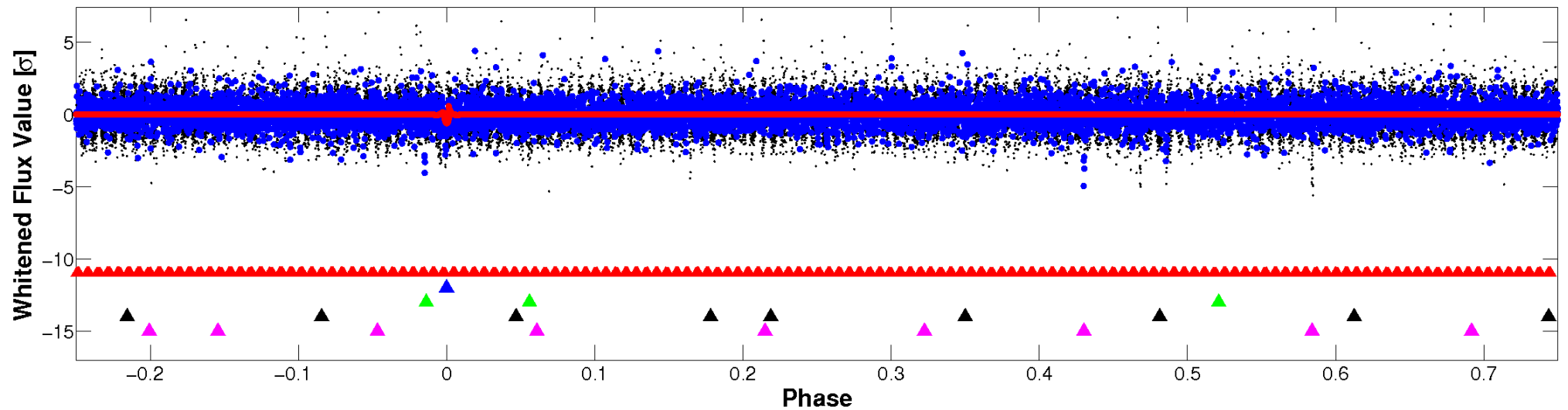


Non-Whitened Vs. Whitened Light Curve

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

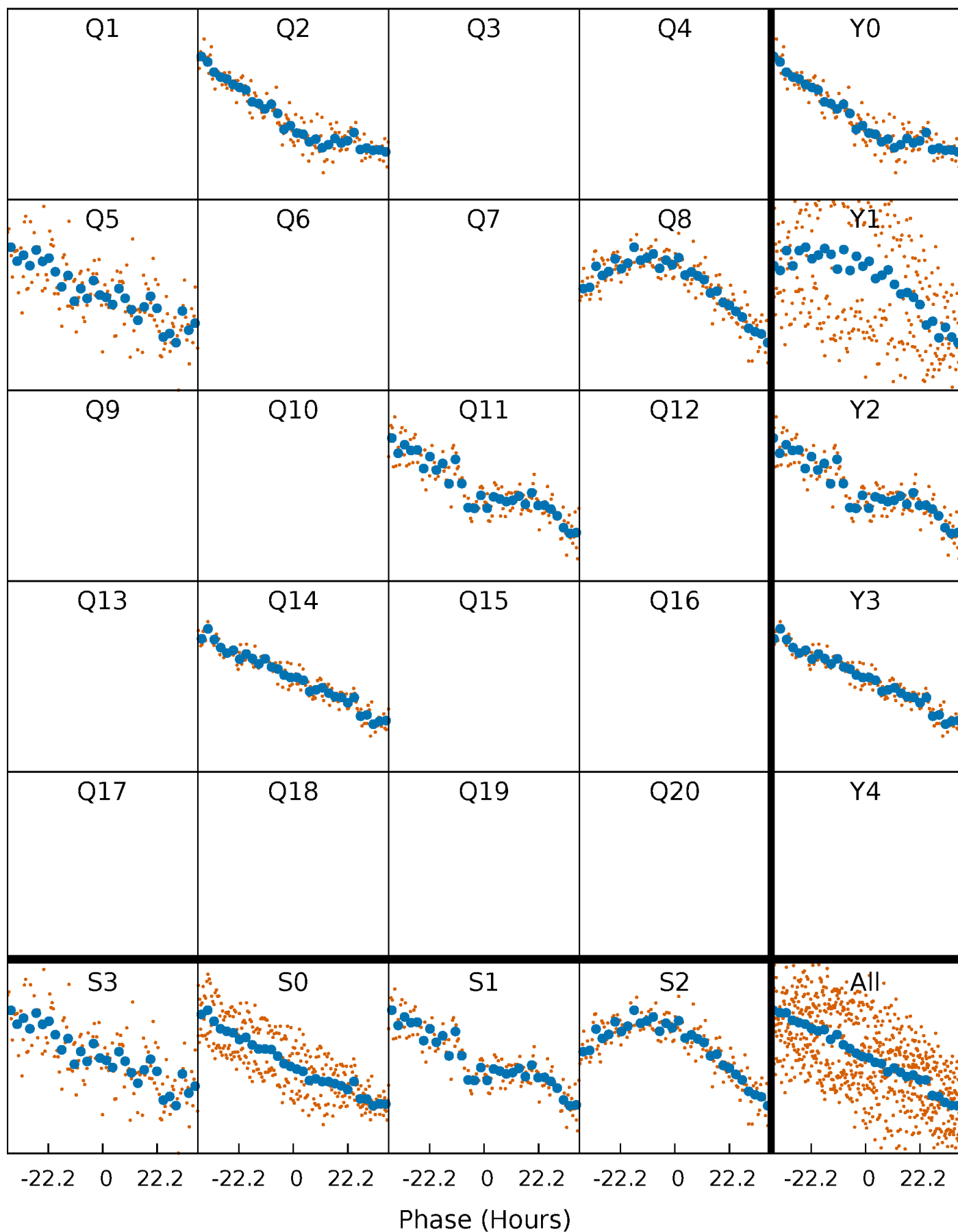


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



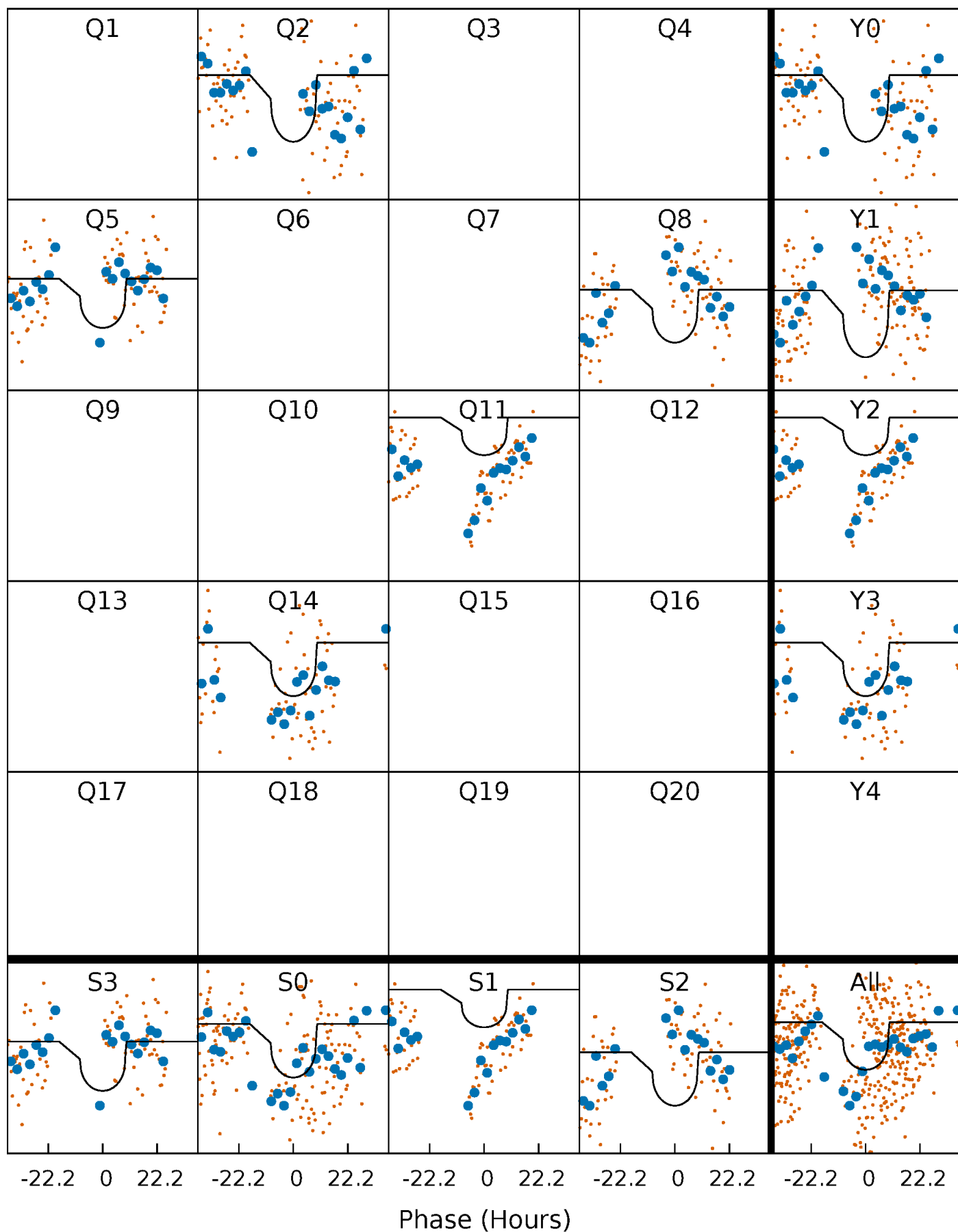
PDC Quarter-Phased Transit Curves

TCE 008315394-02 P=283.550816 Days $T_0=199.702553$ (BKJD)



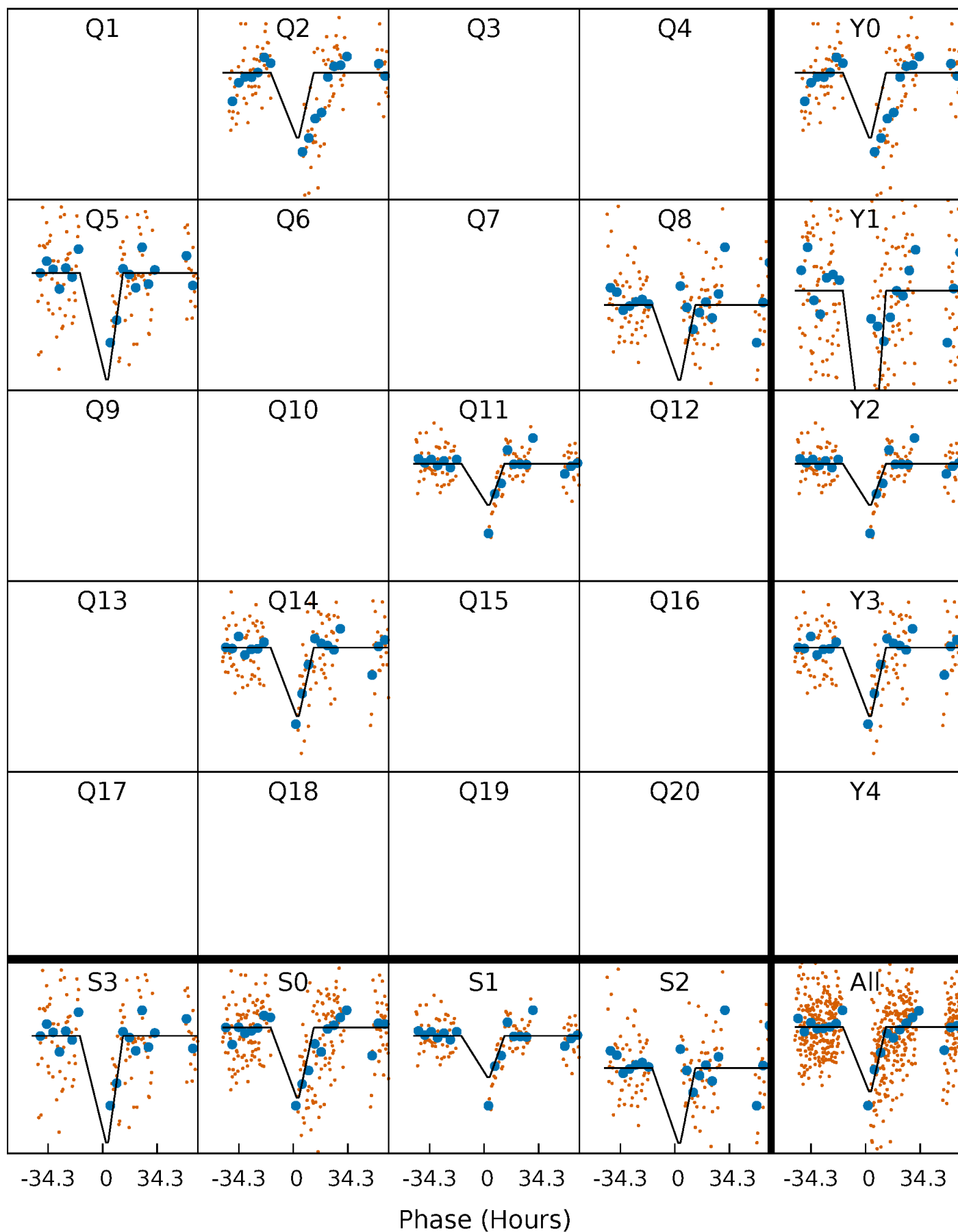
DV Quarter-Phased Transit Curves

TCE 008315394-02 P=283.550816 Days $T_0=199.702553$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

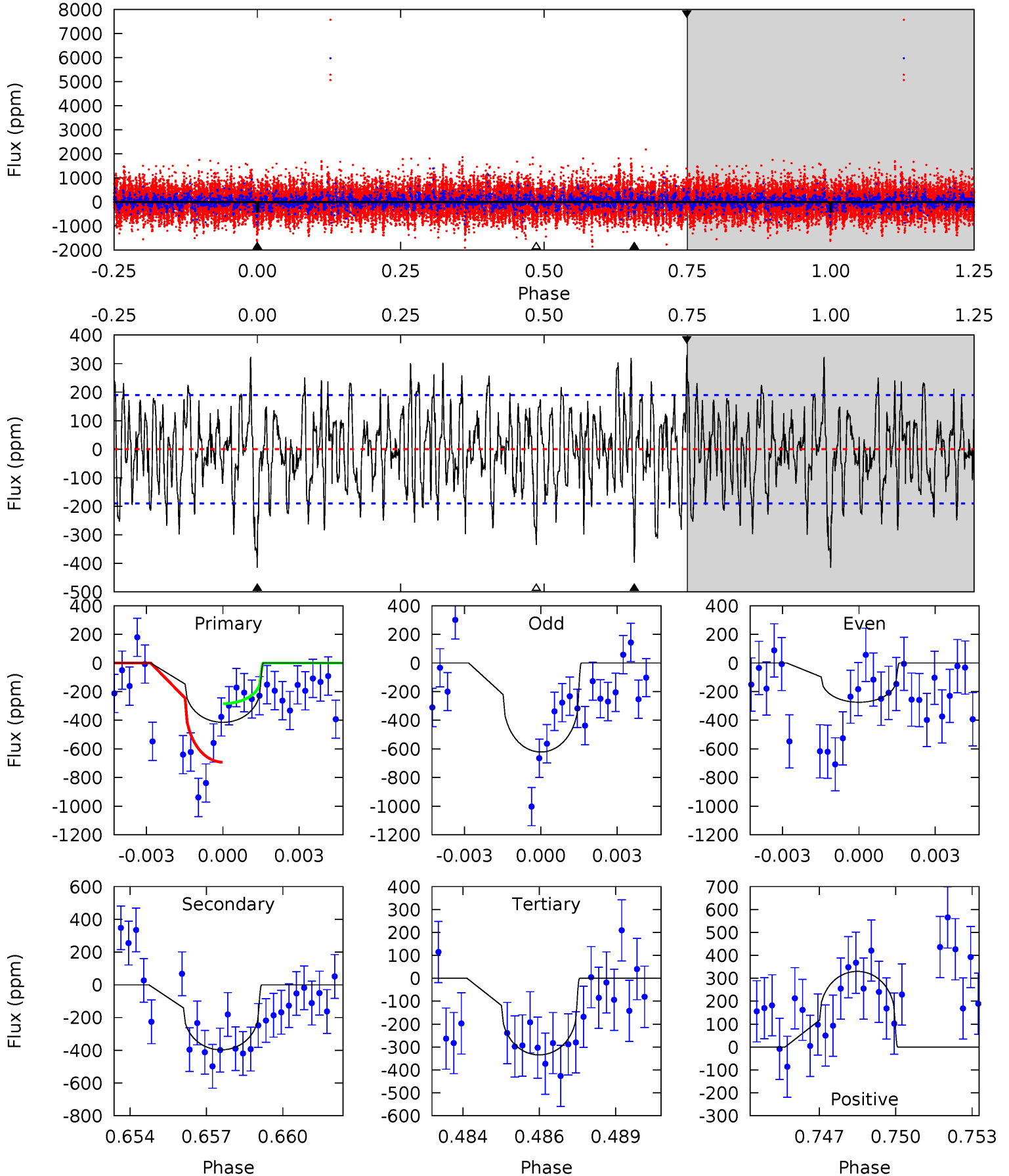
TCE 008315394-02 P=283.467967 Days $T_0=199.560971$ (BKJD)



DV Model-Shift Uniqueness Test

008315394-02, P = 283.550816 Days, E = 199.702553 Days

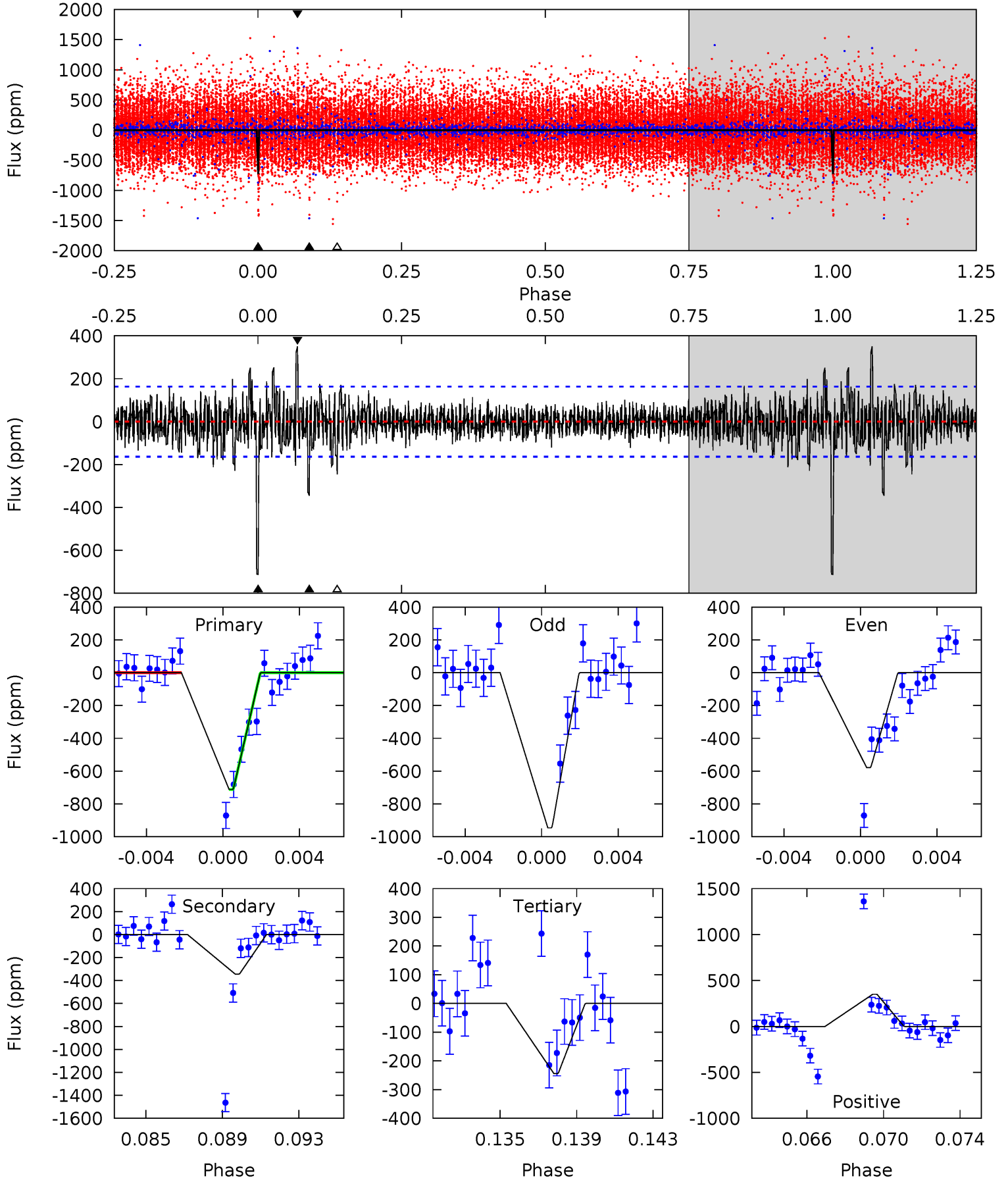
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	11.0	9.28	9.16	5.27	2.99	3.34	2.23	2.35	1.75	1.87	4.69	1.41	0.44	5.11



Alt Model-Shift Uniqueness Test

008315394-02, P = 283.467967 Days, E = 199.560971 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	11.0	7.80	11.2	5.21	2.89	1.50	14.9	11.5	3.18	-0.19	5.68	1.20	0.33	0



Stellar Parameters For KIC 008315394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4996^{+136}_{-151}	$3.867^{+0.728}_{-0.312}$	$0.000^{+0.250}_{-0.300}$	$1.847^{+0.964}_{-1.178}$	$0.916^{+0.190}_{-0.171}$	$0.205^{+2.837}_{-0.147}$
	+3%/-3%	+19%/-8%	+inf%/-inf%	+52%/-64%	+21%/-19%	+1387%/-72%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008315394-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-397 ± 36	$4.13^{+2.84}_{-2.40}$	457^{+61}_{-76}	4831^{+1897}_{-751}	8600^{+40877}_{-5604}
Alt.	-344 ± 31	$5.19^{+2.99}_{-2.65}$	457^{+61}_{-80}	4272^{+1145}_{-531}	4863^{+14129}_{-2910}

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 $A_{obs} \gg 1.0$

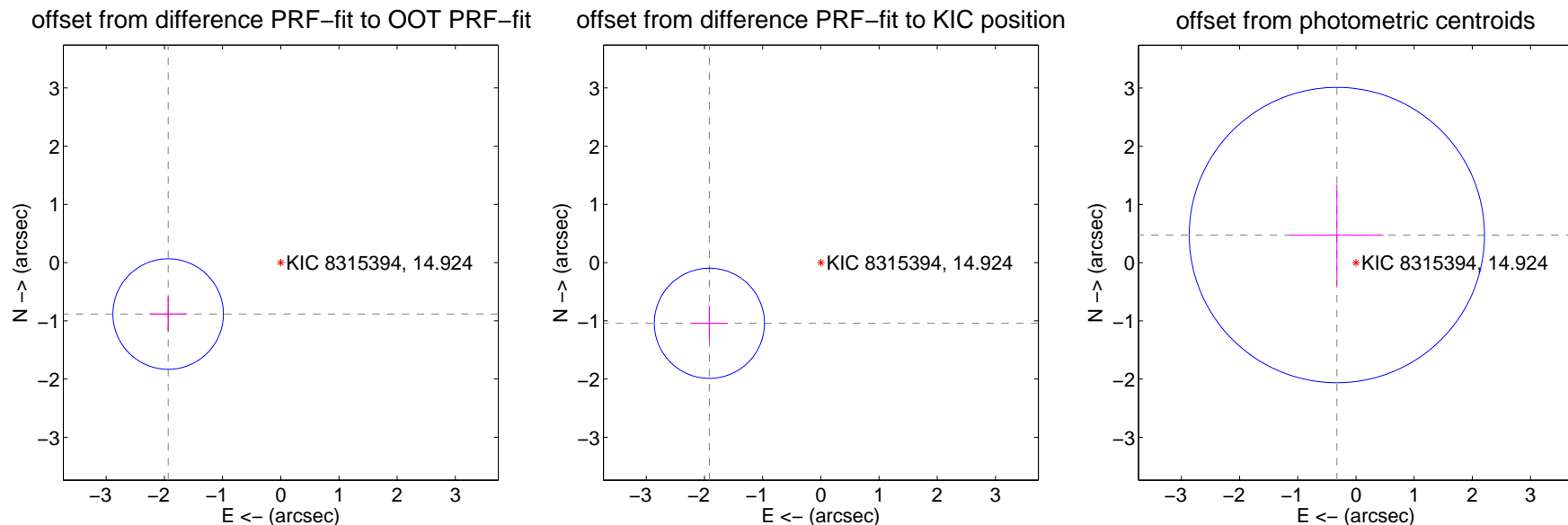
DV Centroid Data

Supplemental centroid analysis for 008315394-02. Kepler magnitude: 14.92. Transit SNR 6.56

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.127 ± 0.316	6.72	1.935 ± 0.320	-0.884 ± 0.301
PRF-fit source offset from KIC position	2.181 ± 0.315	6.91	1.916 ± 0.320	-1.043 ± 0.301
photometric centroid source offset	0.58 ± 0.85	0.68	0.33 ± 0.80	0.47 ± 0.87

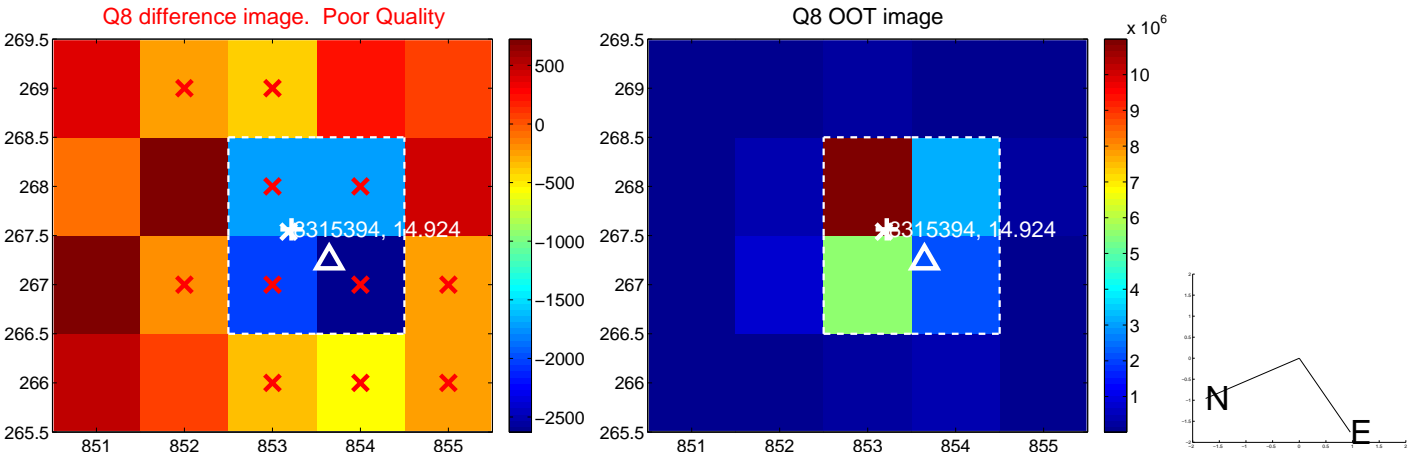
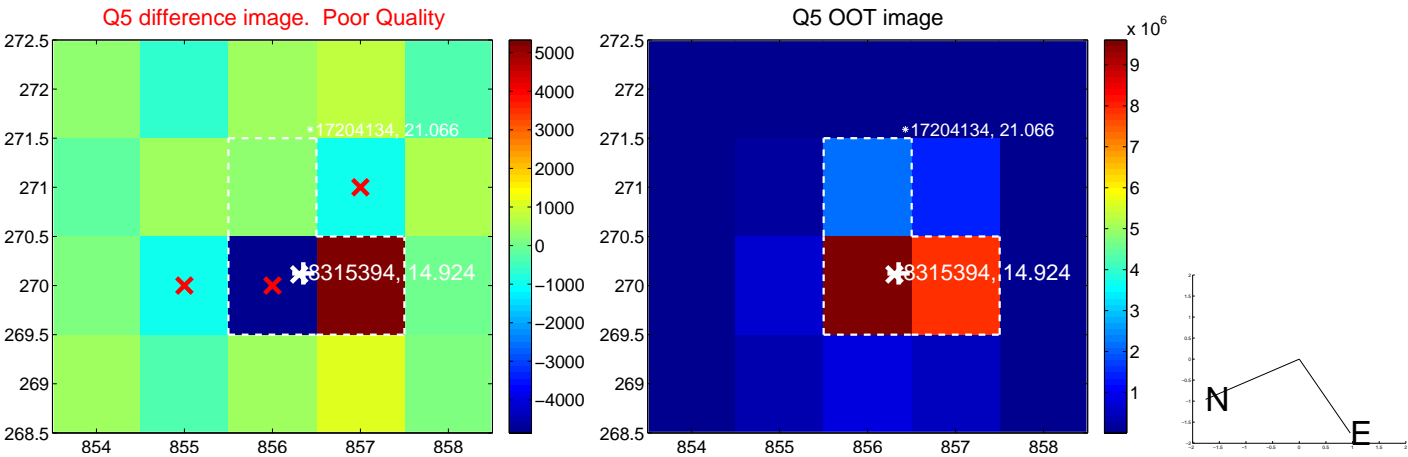


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

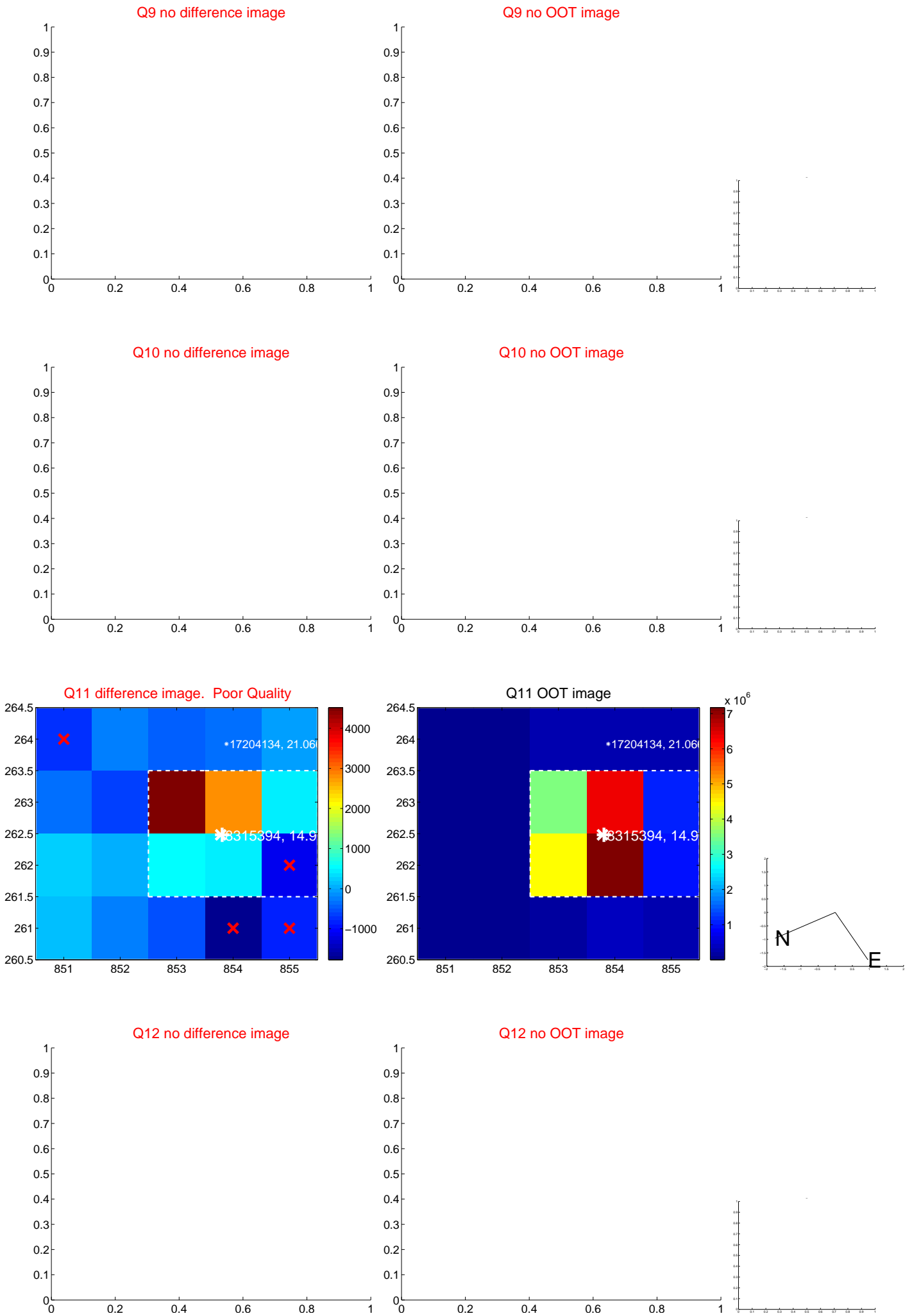
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



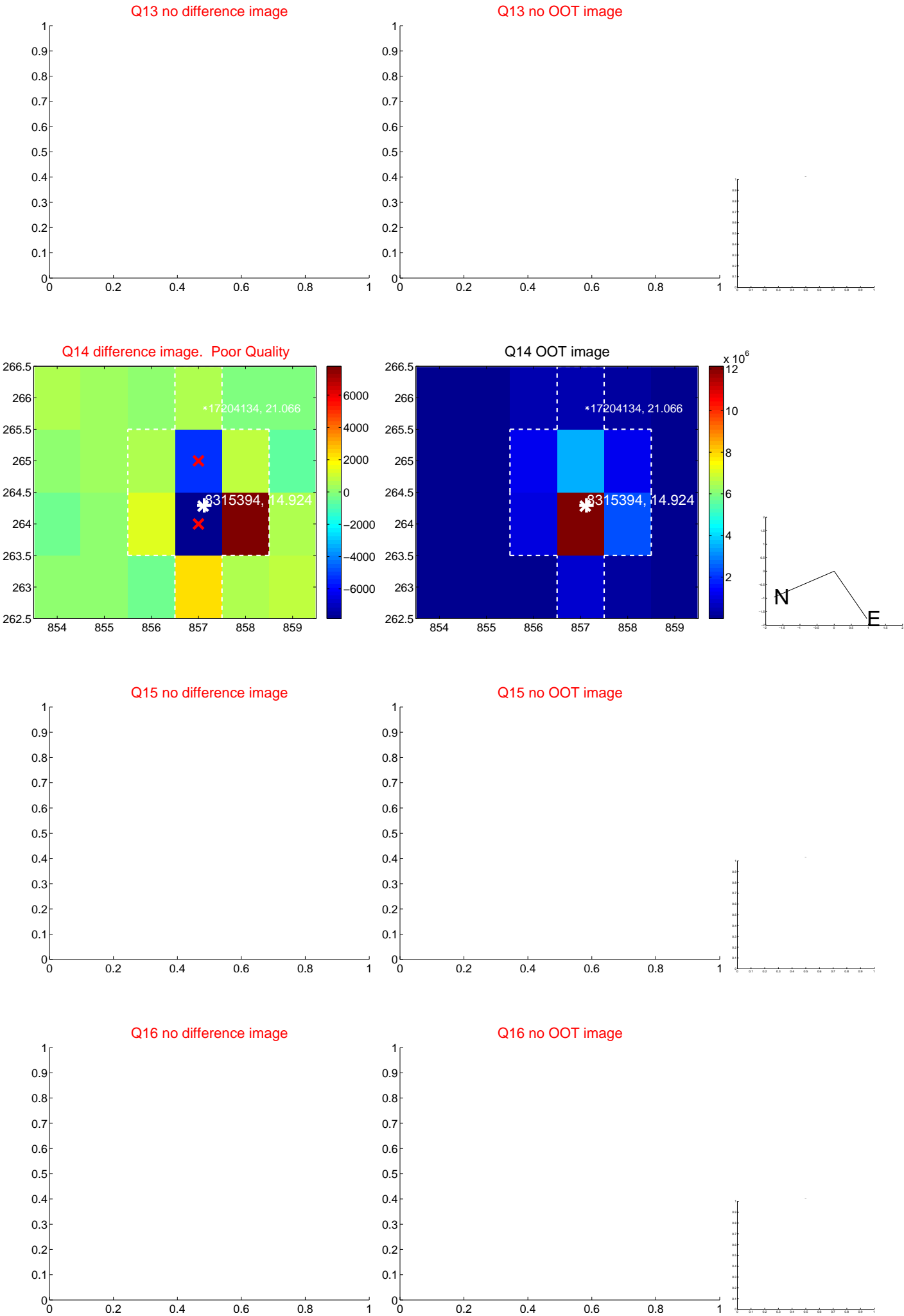
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



Q14 difference image. Poor Quality

Q14 OOT image

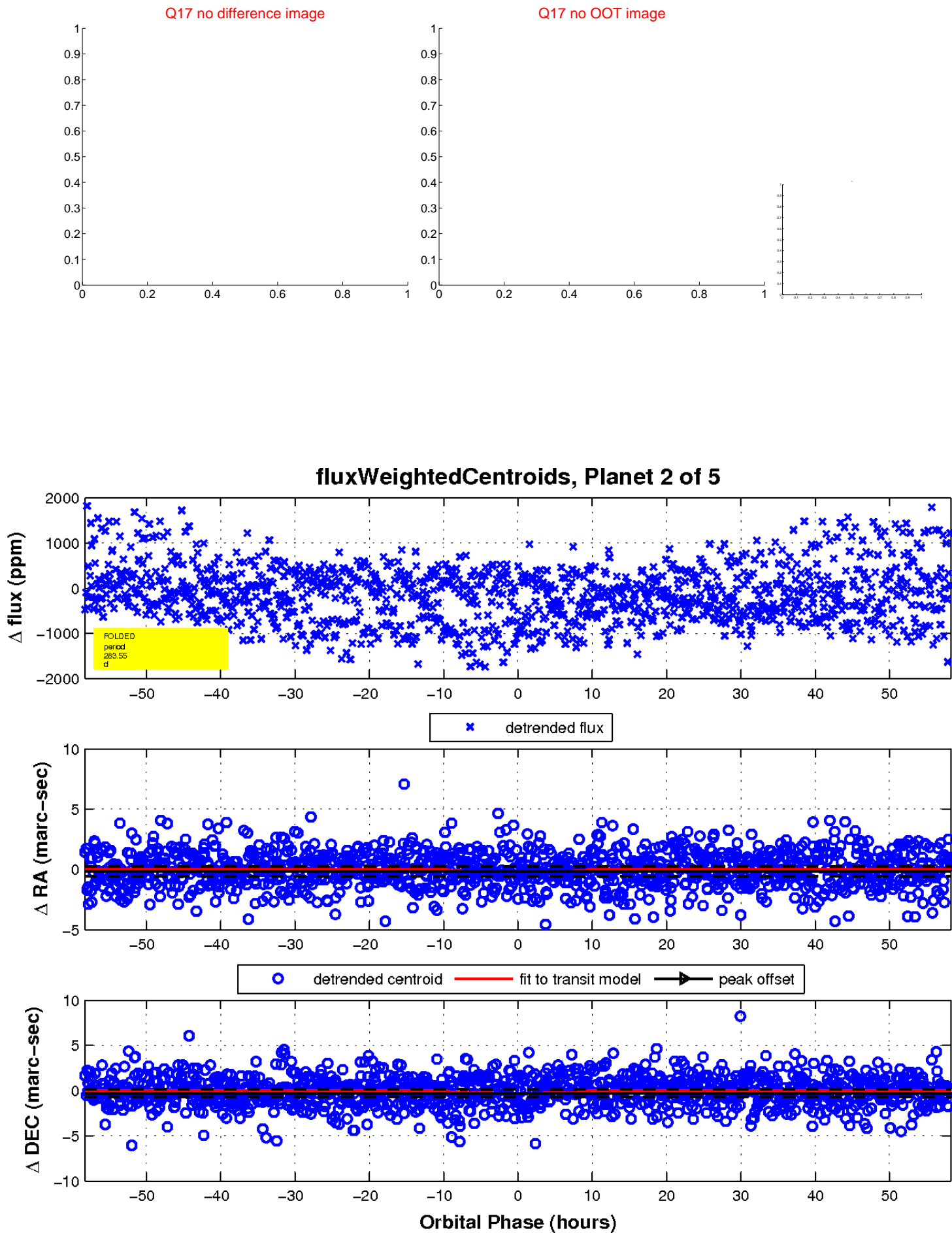
Q15 no difference image

Q15 no OOT image

Q16 no difference image

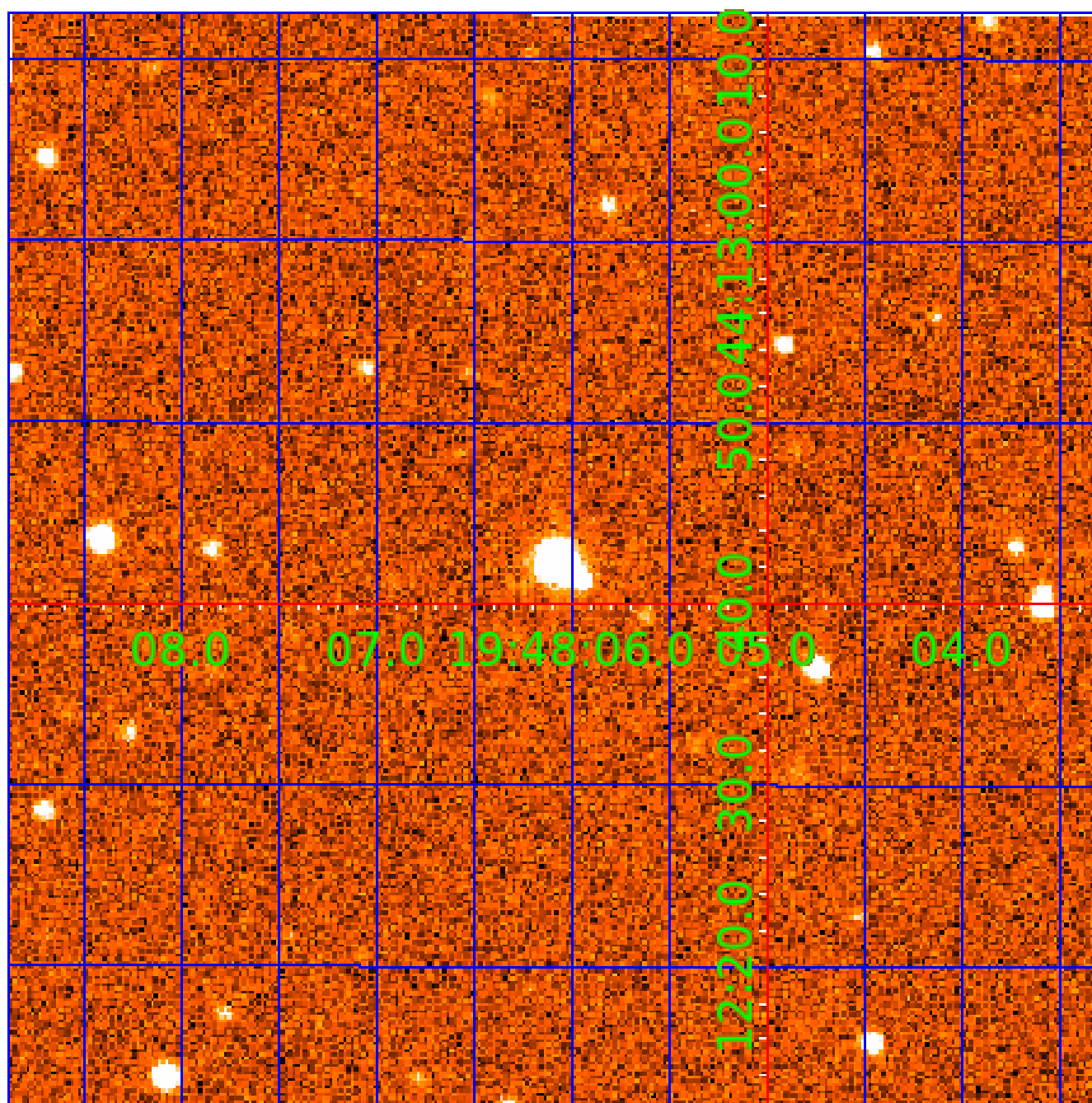
Q16 no OOT image

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



UKIRT Image

Declination



KIC 008315394

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})
008315394-01	OBS	No	1.941258	133.395952	50.5	6.574	7.9	8.9	1.85	4996	1.60	2175.63
008315394-02	OBS	No	283.550816	199.702553	475.6	19.435	19.7	6.6	1.85	4996	4.22	2.83
008315394-03	OBS	No	415.447896	499.111312	740.1	22.597	15.1	8.6	1.85	4996	4.86	1.70
008315394-04	OBS	No	160.383828	261.739582	379.1	20.294	9.5	6.1	1.85	4996	3.87	6.05
008315394-05	OBS	No	178.862302	142.810246	545.6	9.072	9.2	8.2	1.85	4996	4.76	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008315394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
008315394-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008315394-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—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_FEW_DIFFS
008315394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
008315394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

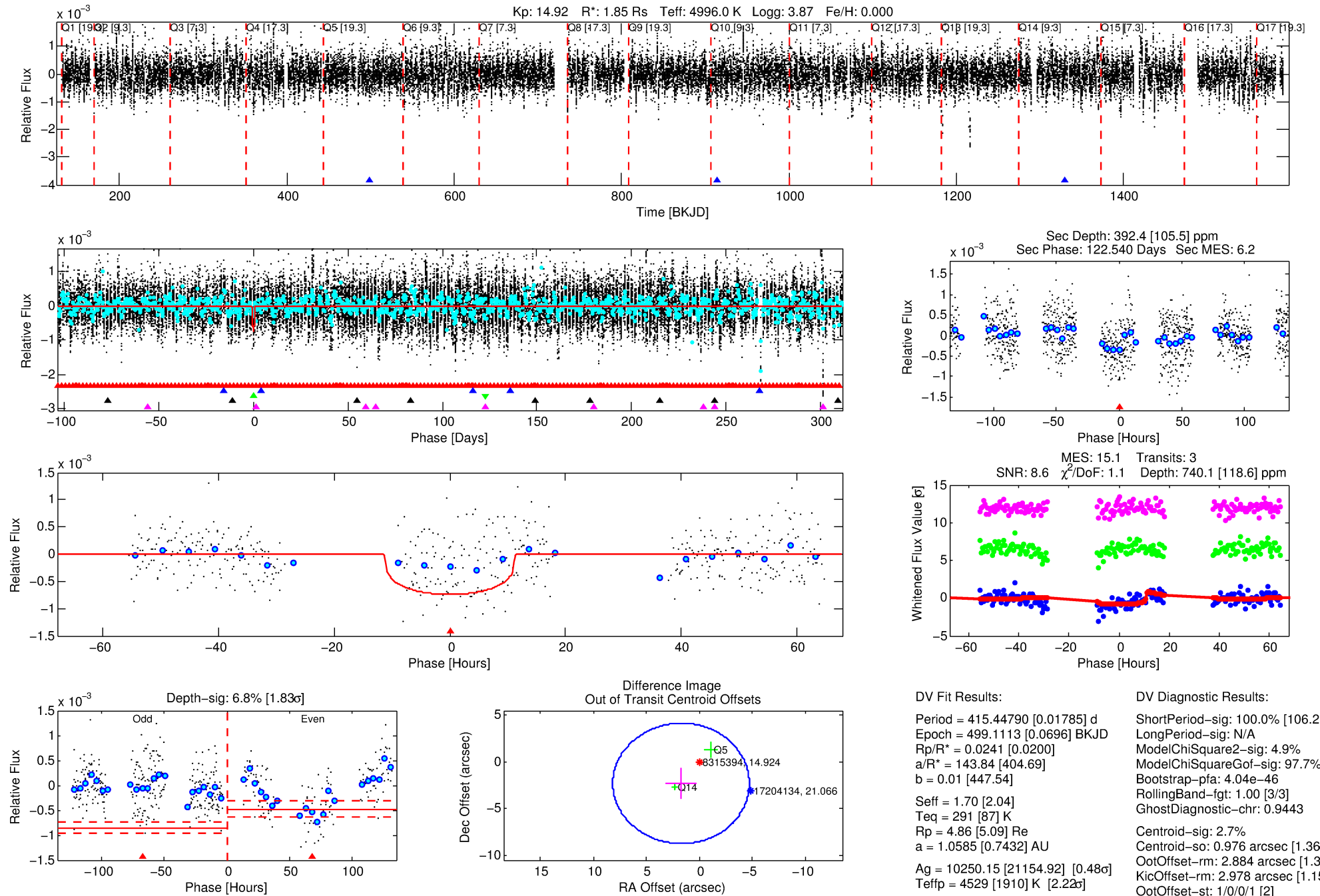
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008315394-03

No Significant Match Found

DV One-Page Summary

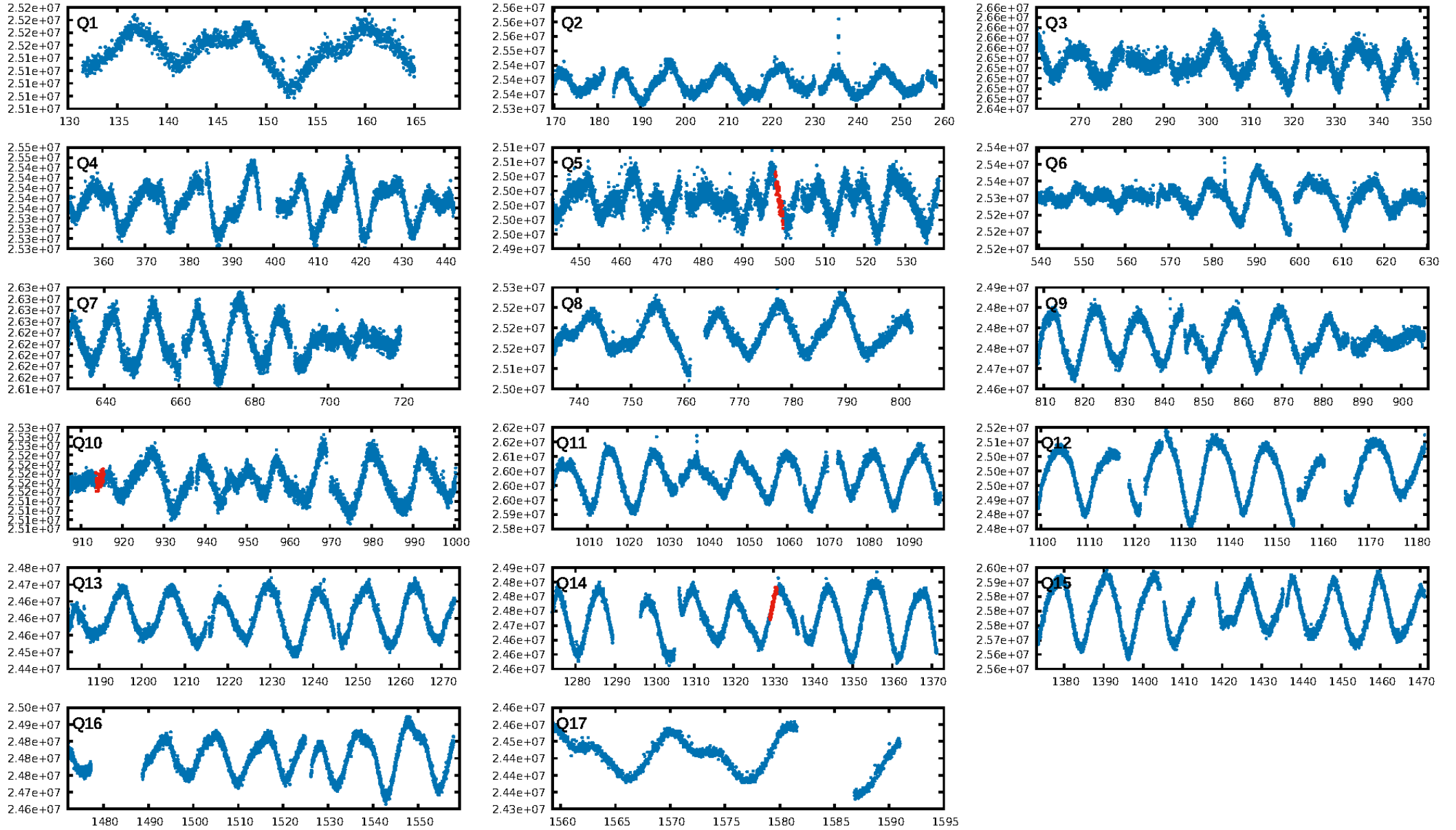
KIC: 8315394 Candidate: 3 of 5 Period: 415.448 d



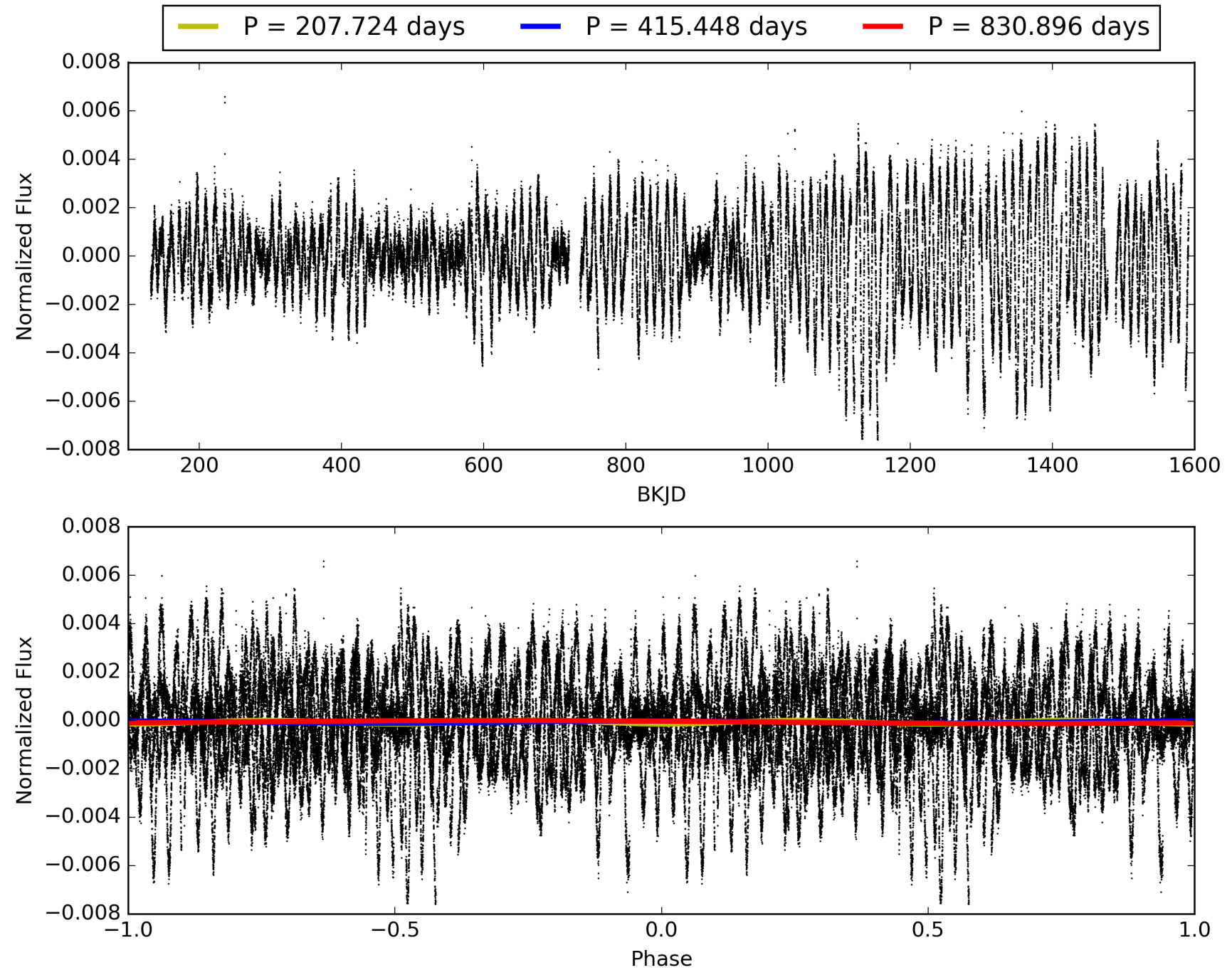
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:35:02 Z

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

TCE 008315394-03, PDC Light Curves

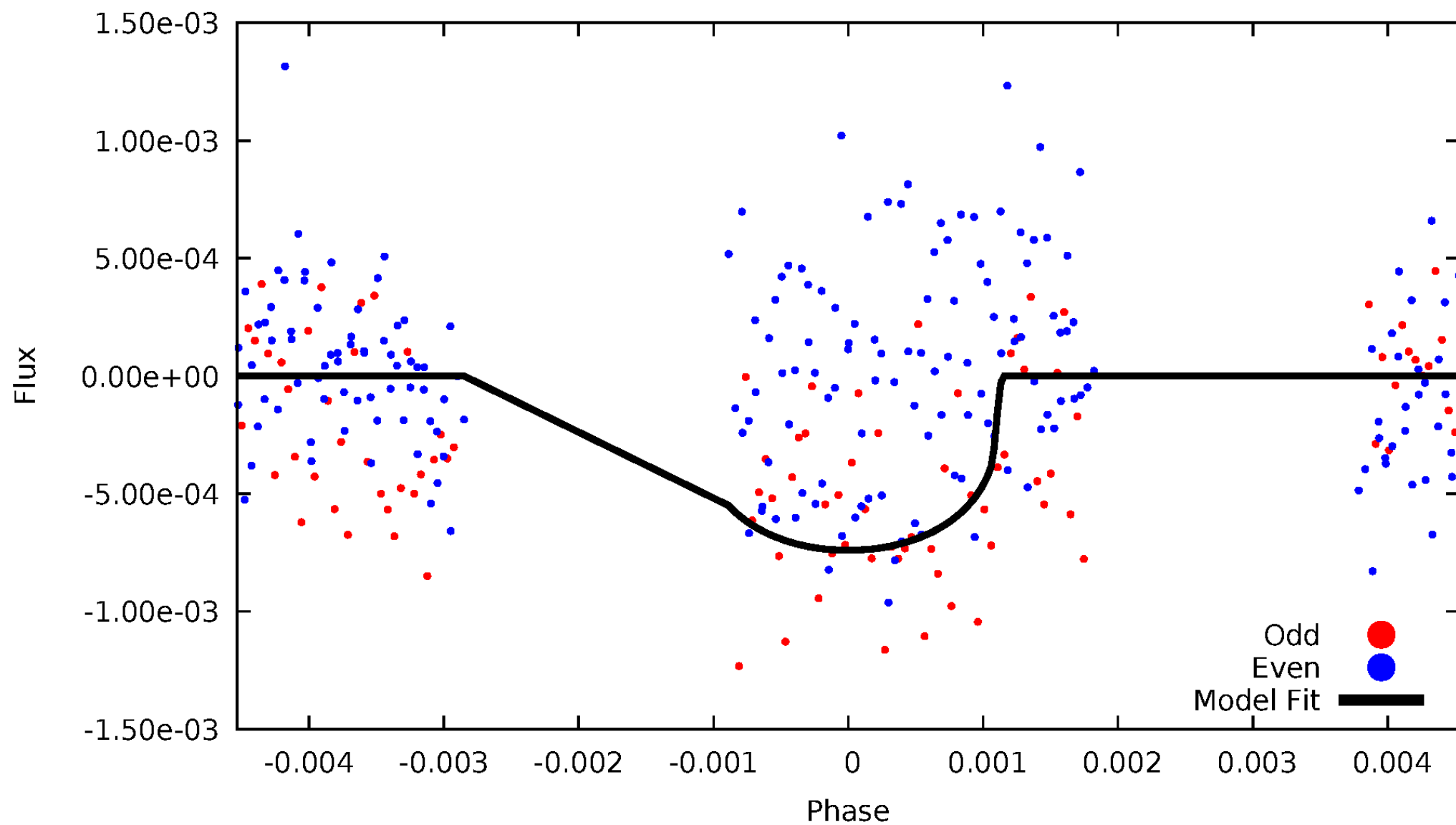


TCE 008315394-03



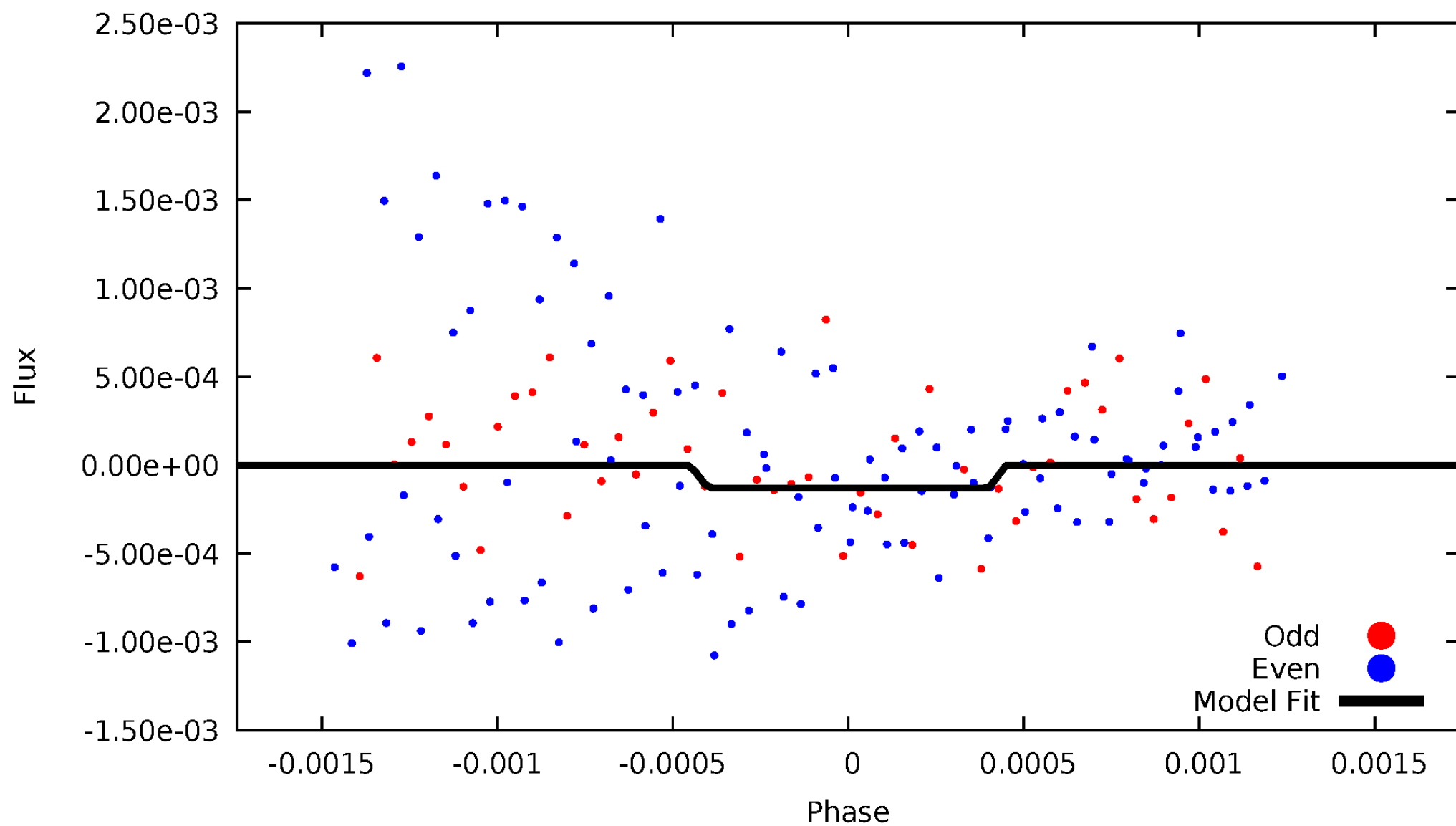
DV Odd/Even

TCE 008315394-03



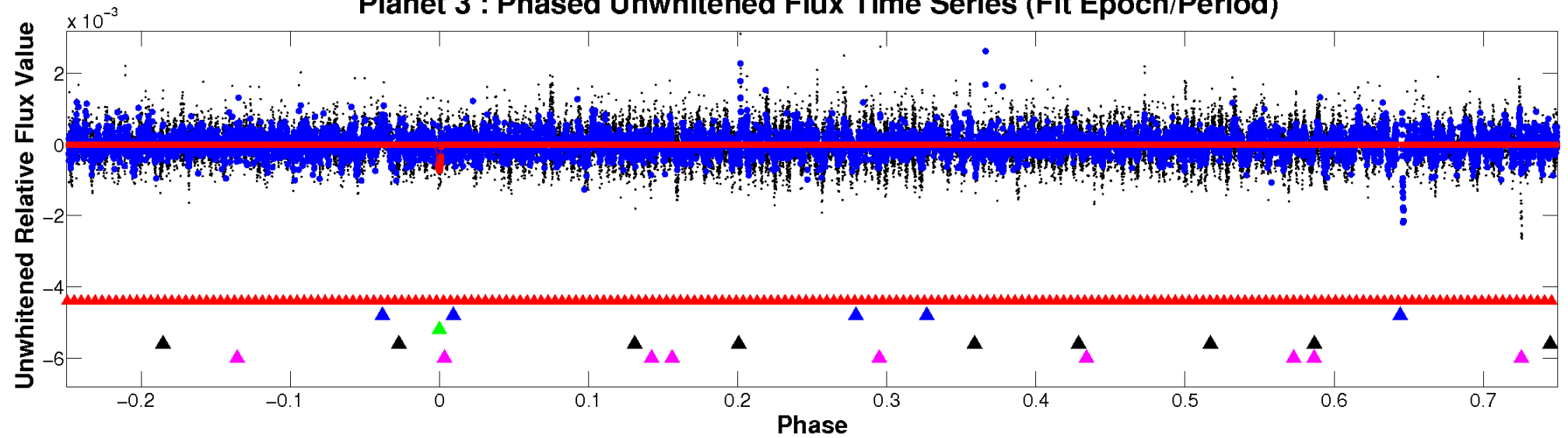
ALT Odd/Even

TCE 008315394-03

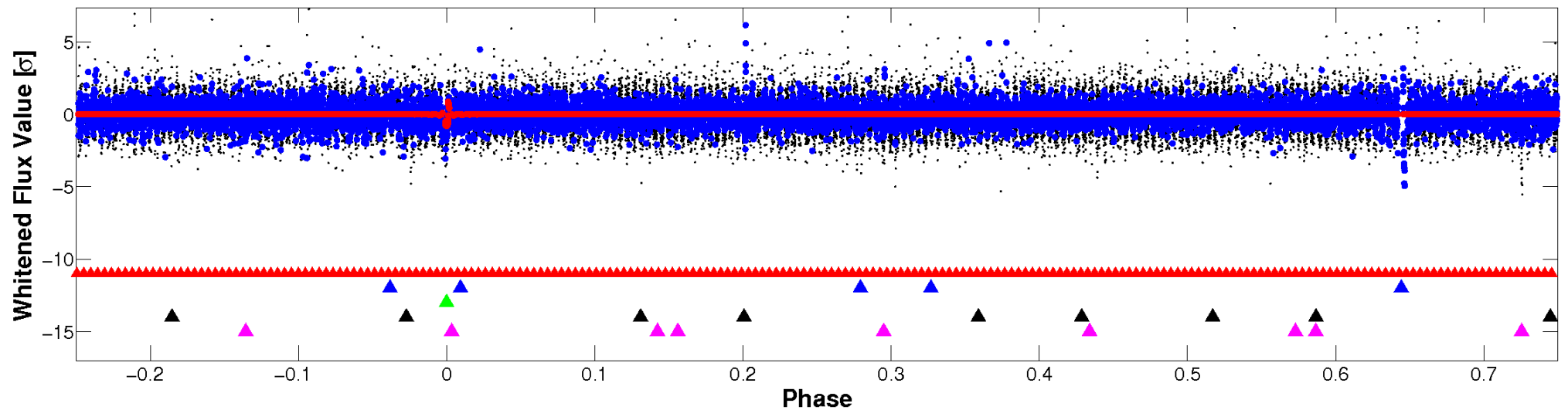


Non-Whitened Vs. Whitened Light Curve

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

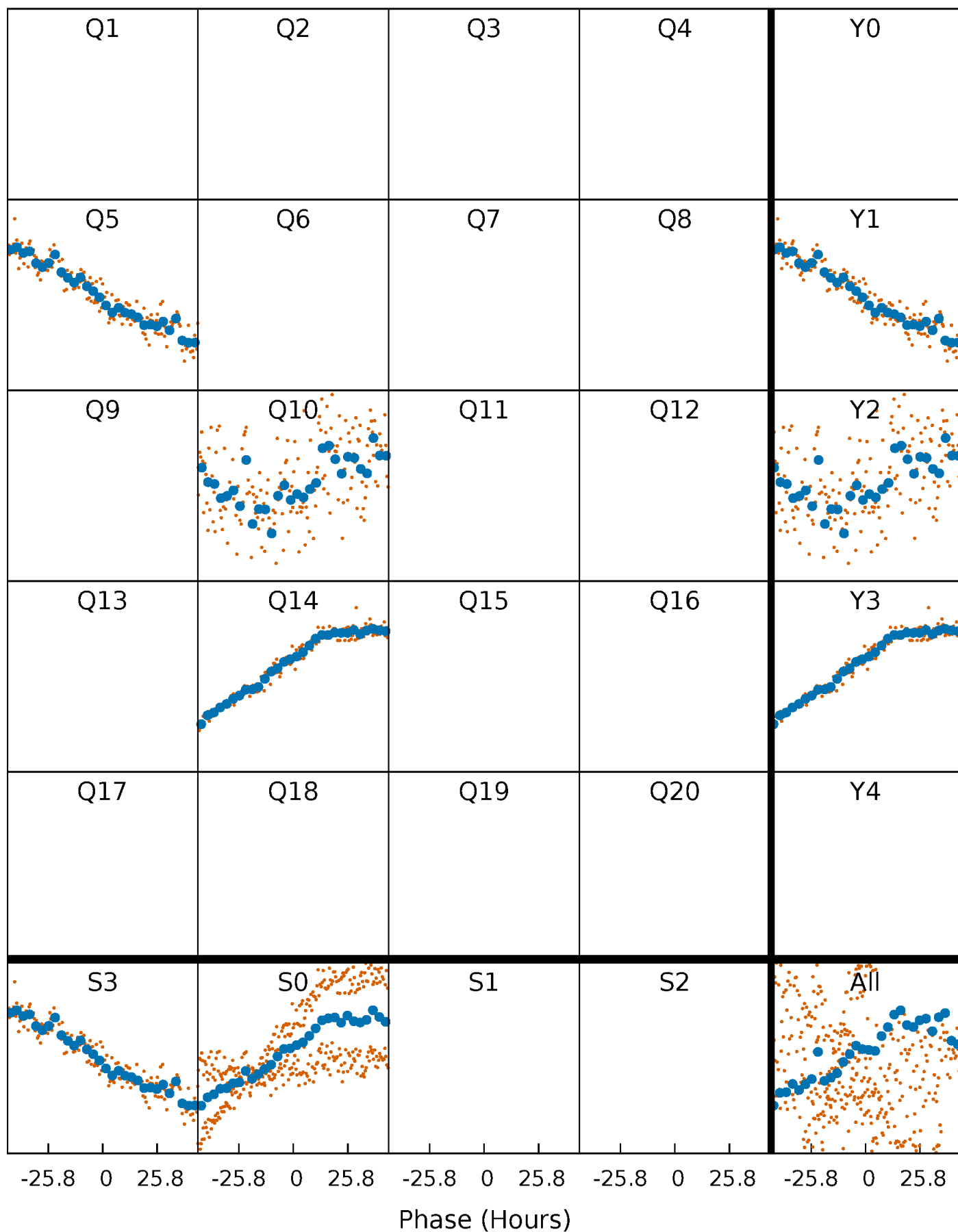


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



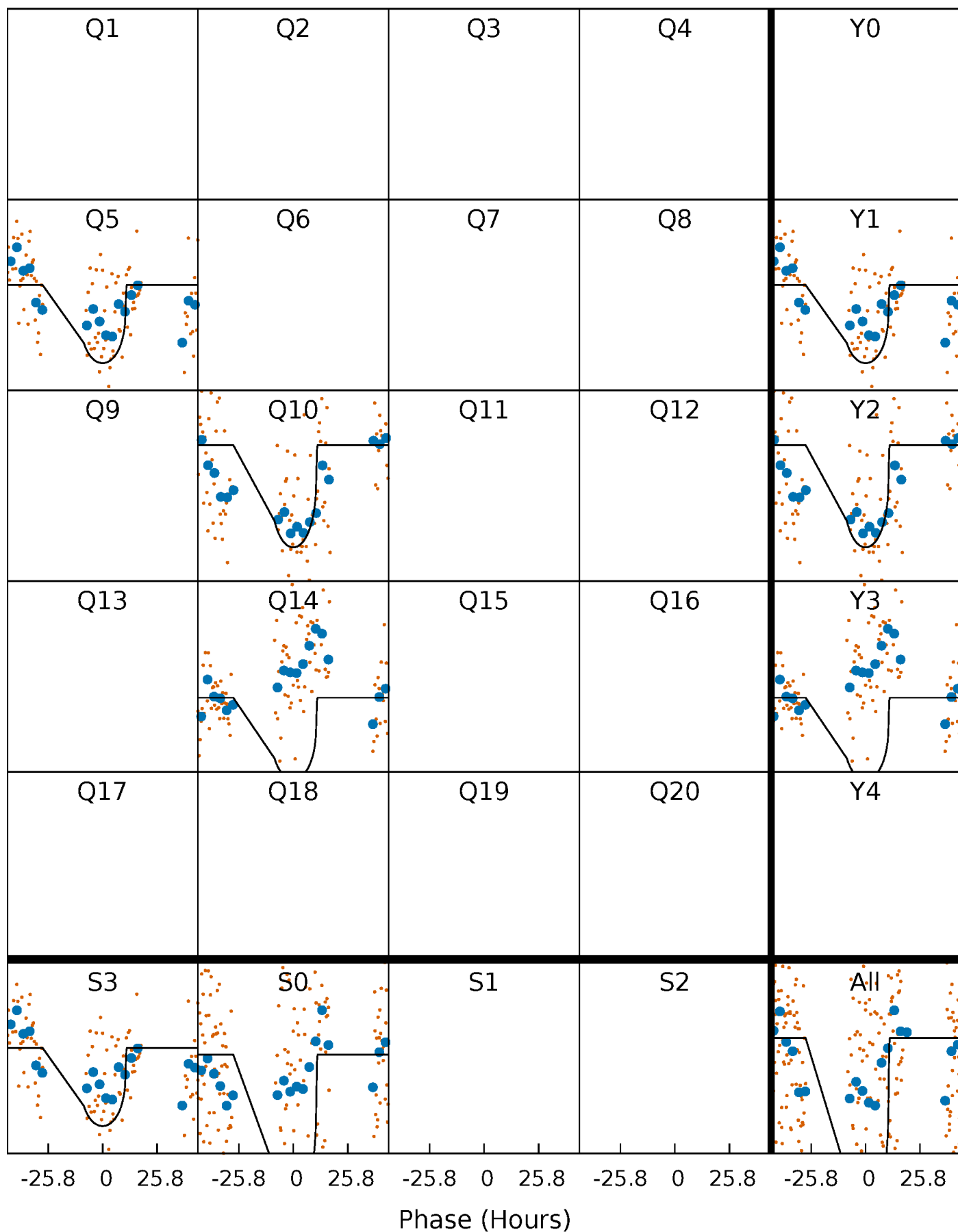
PDC Quarter-Phased Transit Curves

TCE 008315394-03 P=415.447896 Days $T_0=499.111312$ (BKJD)



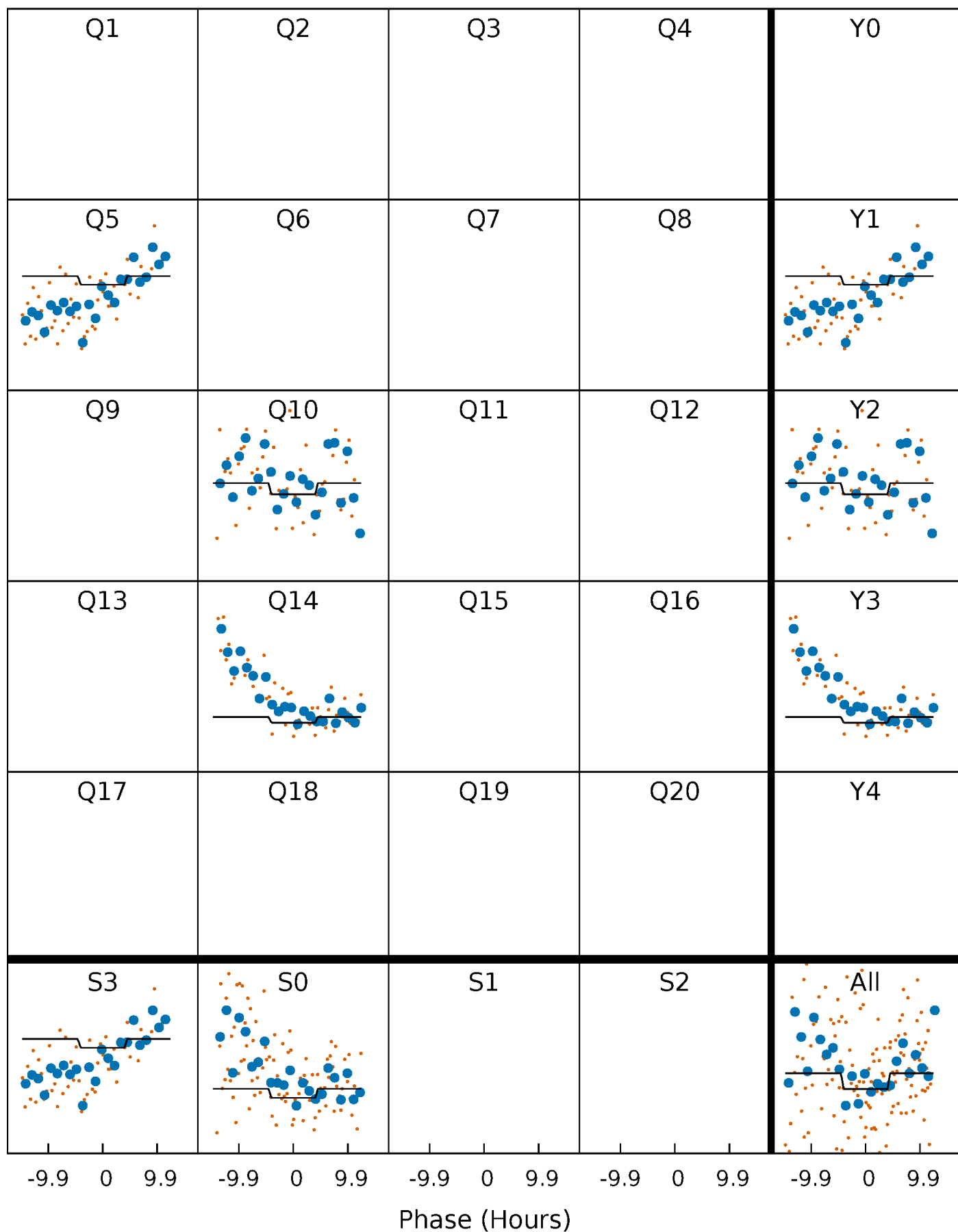
DV Quarter-Phased Transit Curves

TCE 008315394-03 $P=415.447896$ Days $T_0=499.111312$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

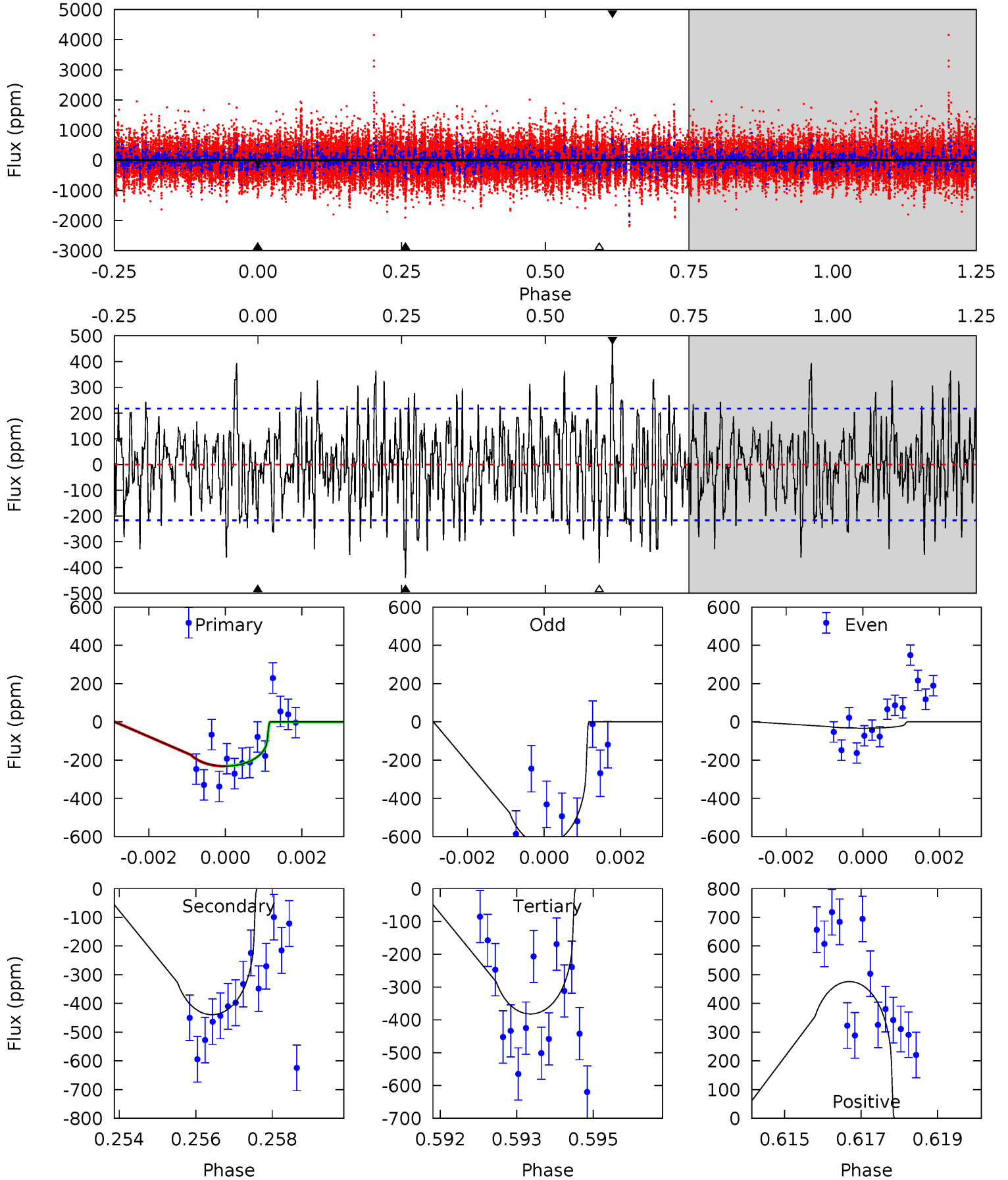
TCE 008315394-03 $P=415.407464$ Days $T_0=499.393310$ (BKJD)



DV Model-Shift Uniqueness Test

008315394-03, $P = 415.447896$ Days, $E = 83.663416$ Days

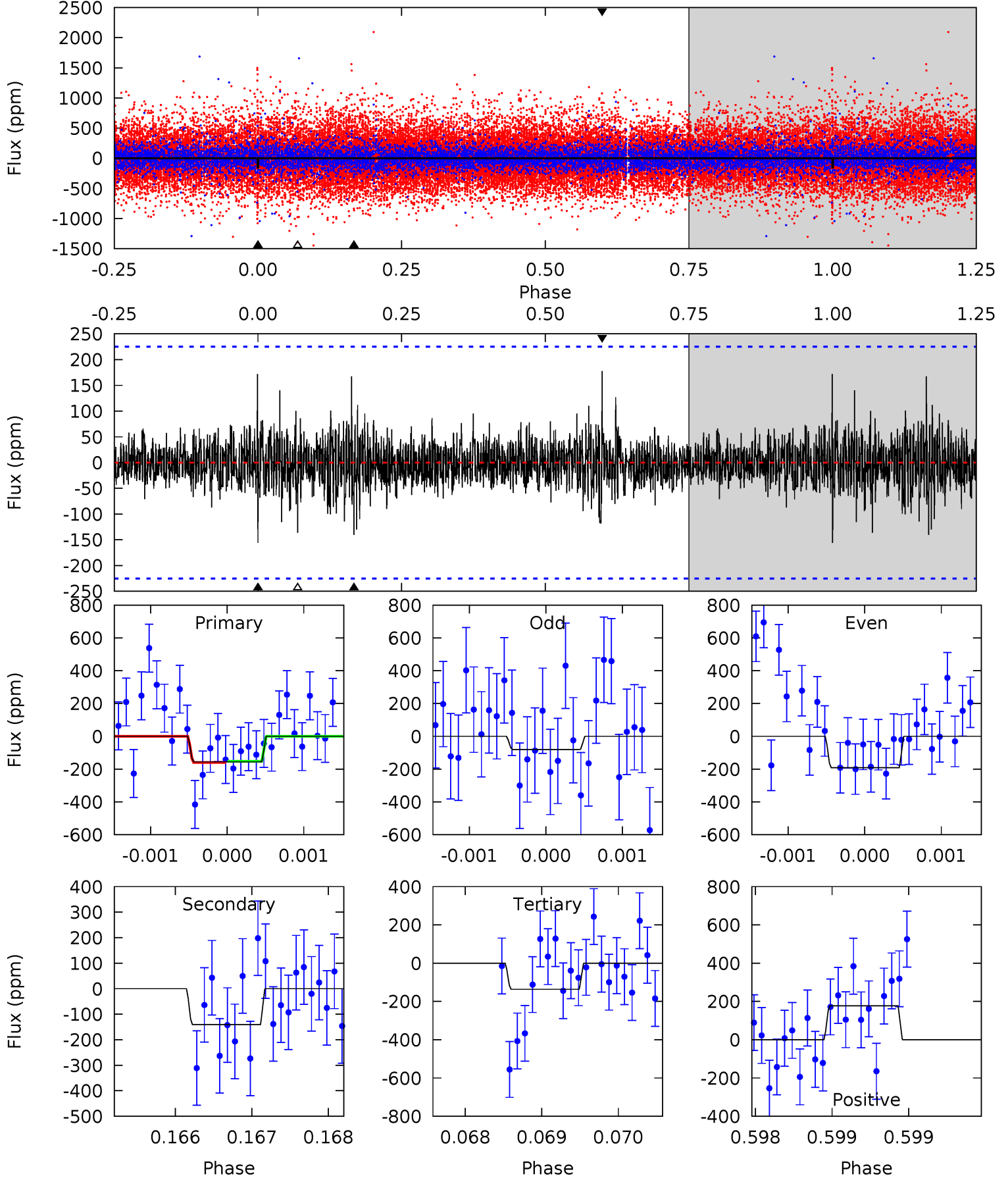
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.68	10.8	9.38	11.7	5.33	3.09	3.35	-3.71	-6.02	1.40	-0.91	6.91	0.63	0.52	0.03



Alt Model-Shift Uniqueness Test

008315394-03, P = 415.407464 Days, E = 83.985846 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.79	3.42	3.31	4.31	5.47	3.32	0.69	0.47	-0.53	0.10	-0.89	1.27	1.70	0.53	0.08



Stellar Parameters For KIC 008315394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4996^{+136}_{-151}	$3.867^{+0.728}_{-0.312}$	$0.000^{+0.250}_{-0.300}$	$1.847^{+0.964}_{-1.178}$	$0.916^{+0.190}_{-0.171}$	$0.205^{+2.837}_{-0.147}$
	+3%/-3%	+19%/-8%	+inf%/-inf%	+52%/-64%	+21%/-19%	+1387%/-72%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008315394-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-439 ± 41	$5.25^{+4.19}_{-3.21}$	403^{+63}_{-70}	4427^{+2079}_{-697}	10144^{+59198}_{-7083}
Alt.	-141 ± 41	$3.67^{+3.77}_{-2.59}$	405^{+61}_{-78}	4104^{+2571}_{-798}	6121^{+66054}_{-4615}

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

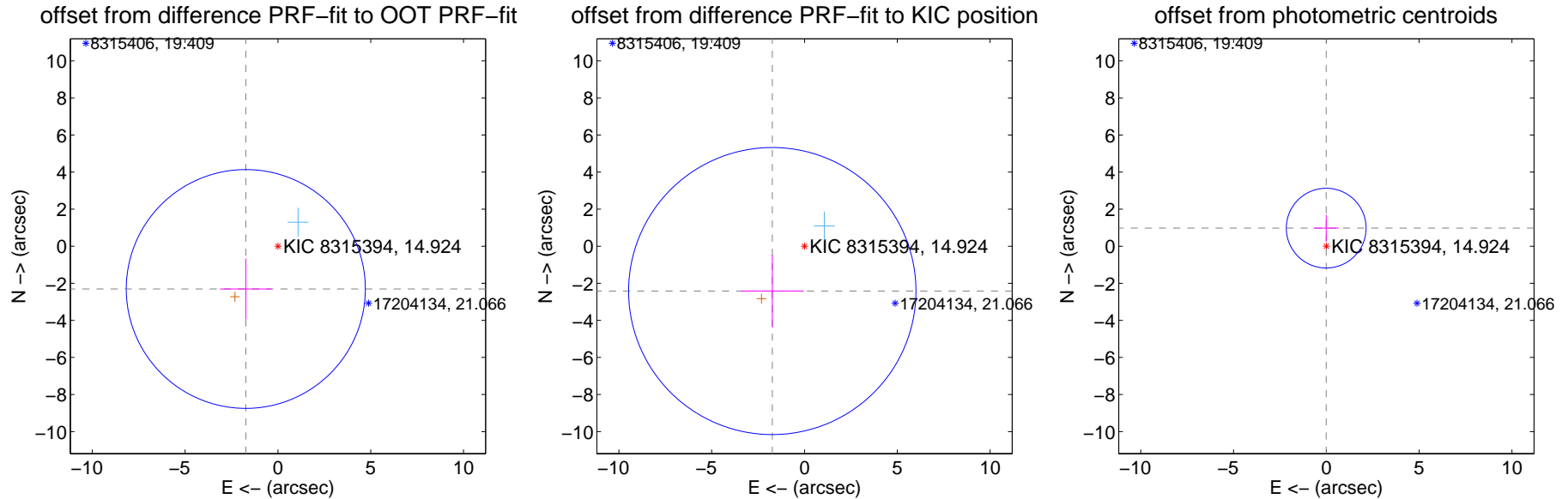
DV Centroid Data

Supplemental centroid analysis for 008315394-03. Kepler magnitude: 14.92. Transit SNR 8.63

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	2.884 ± 2.147	1.34	1.732 ± 1.391	-2.307 ± 1.642
PRF-fit source offset from KIC position	2.978 ± 2.581	1.15	1.736 ± 1.694	-2.419 ± 1.962
photometric centroid source offset	0.98 ± 0.72	1.36	0.01 ± 0.68	0.98 ± 0.72

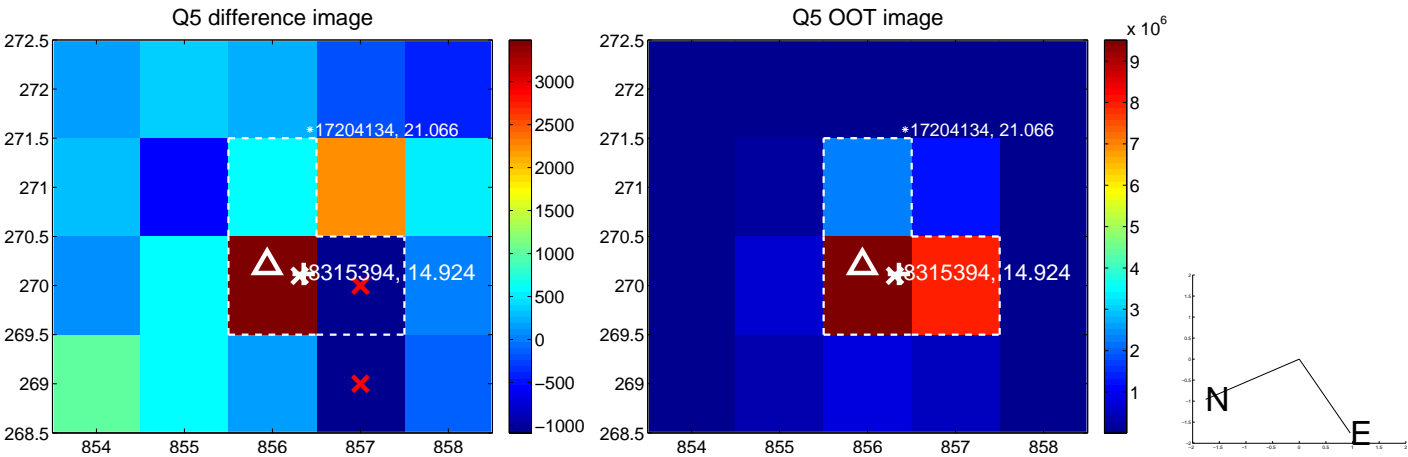


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

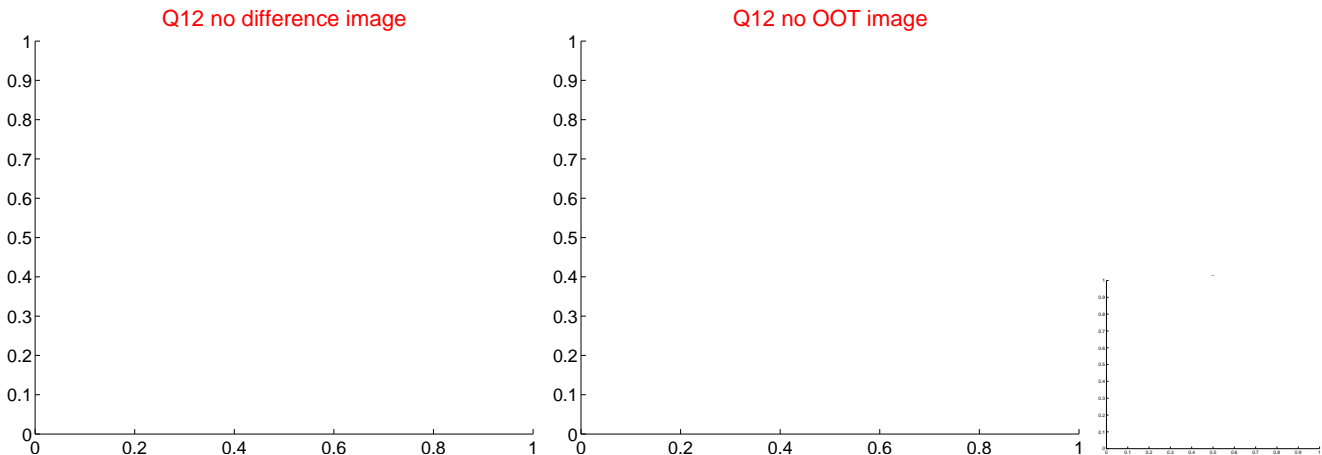
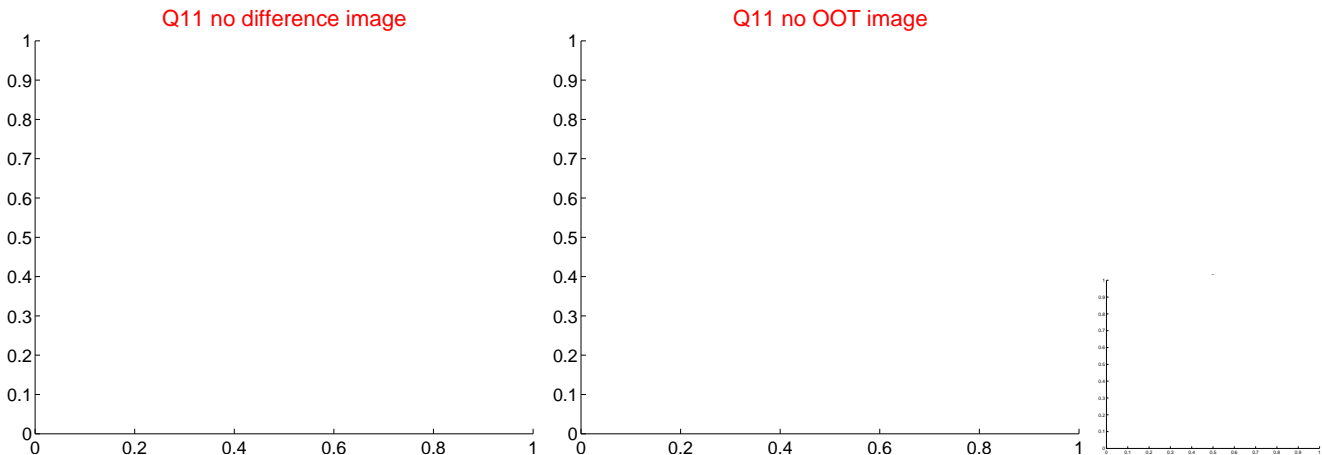
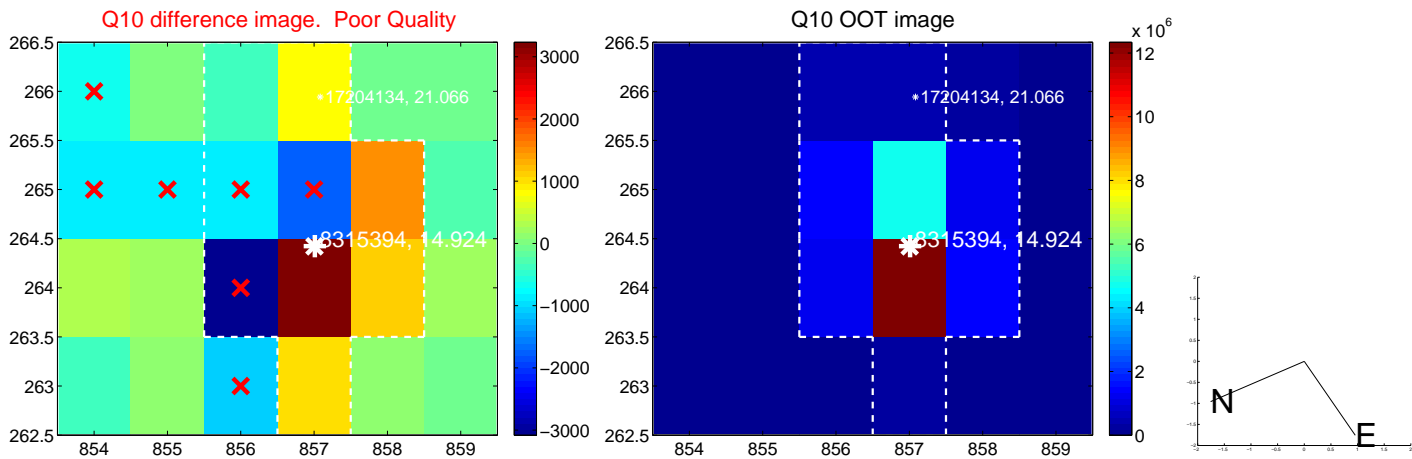
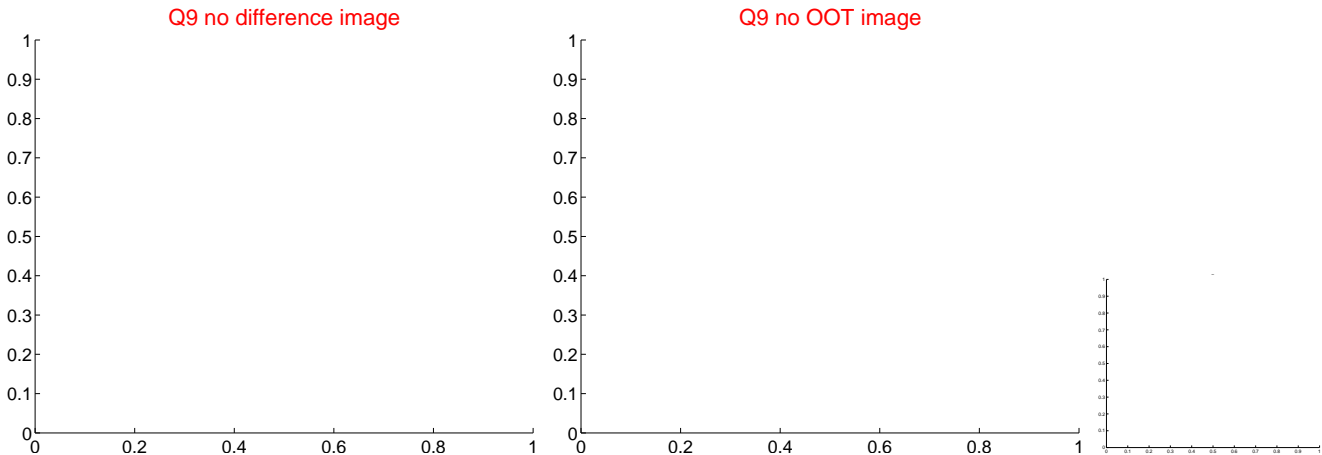
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



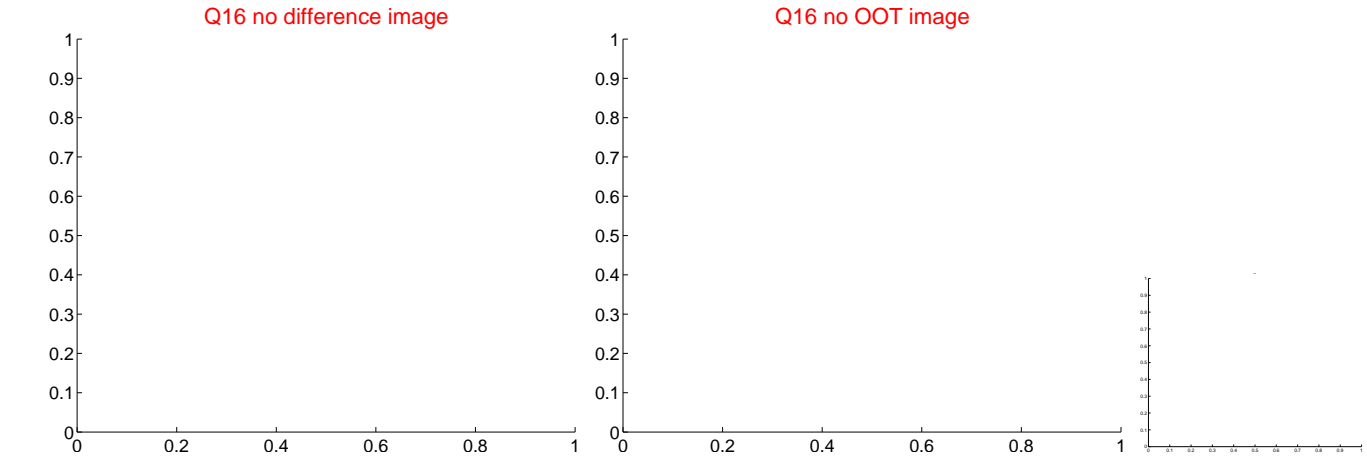
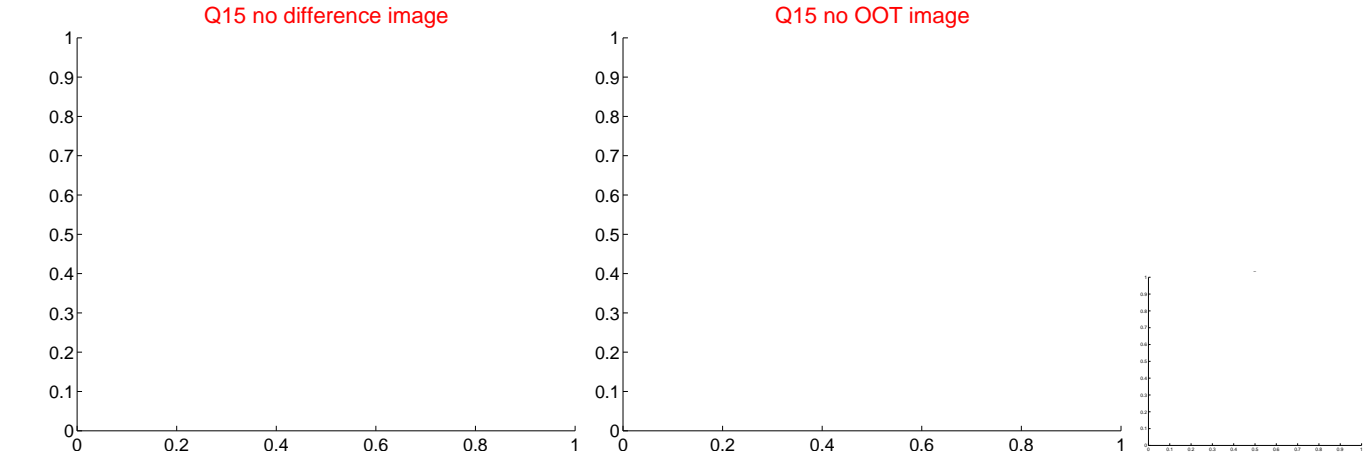
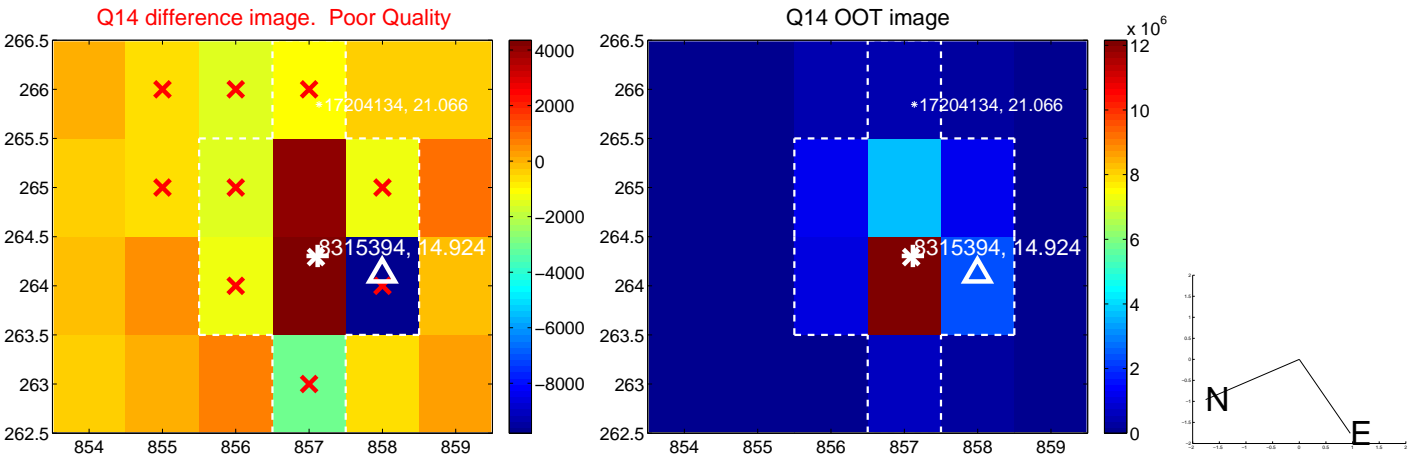
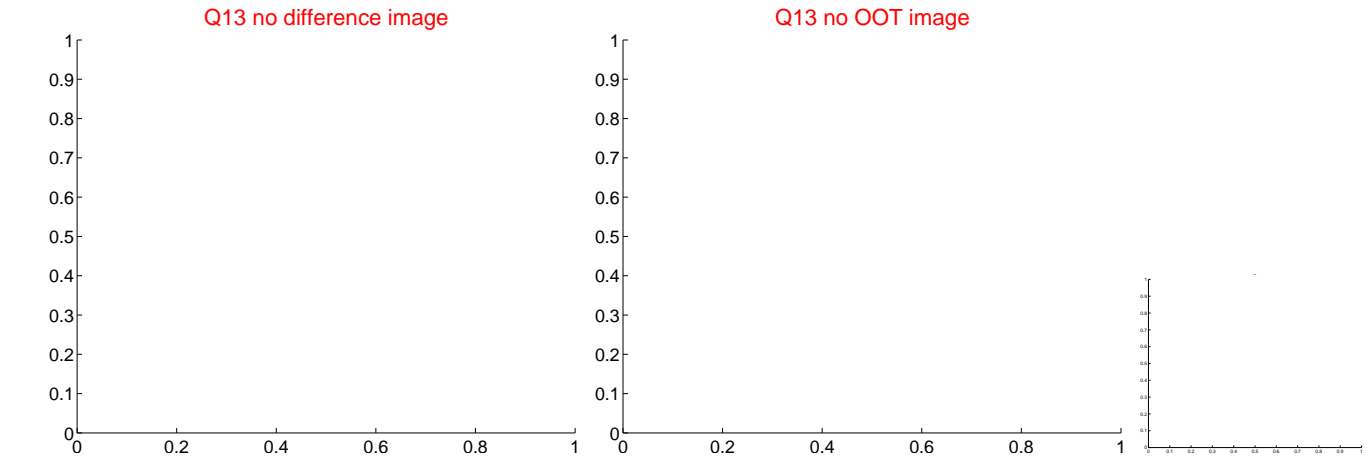
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



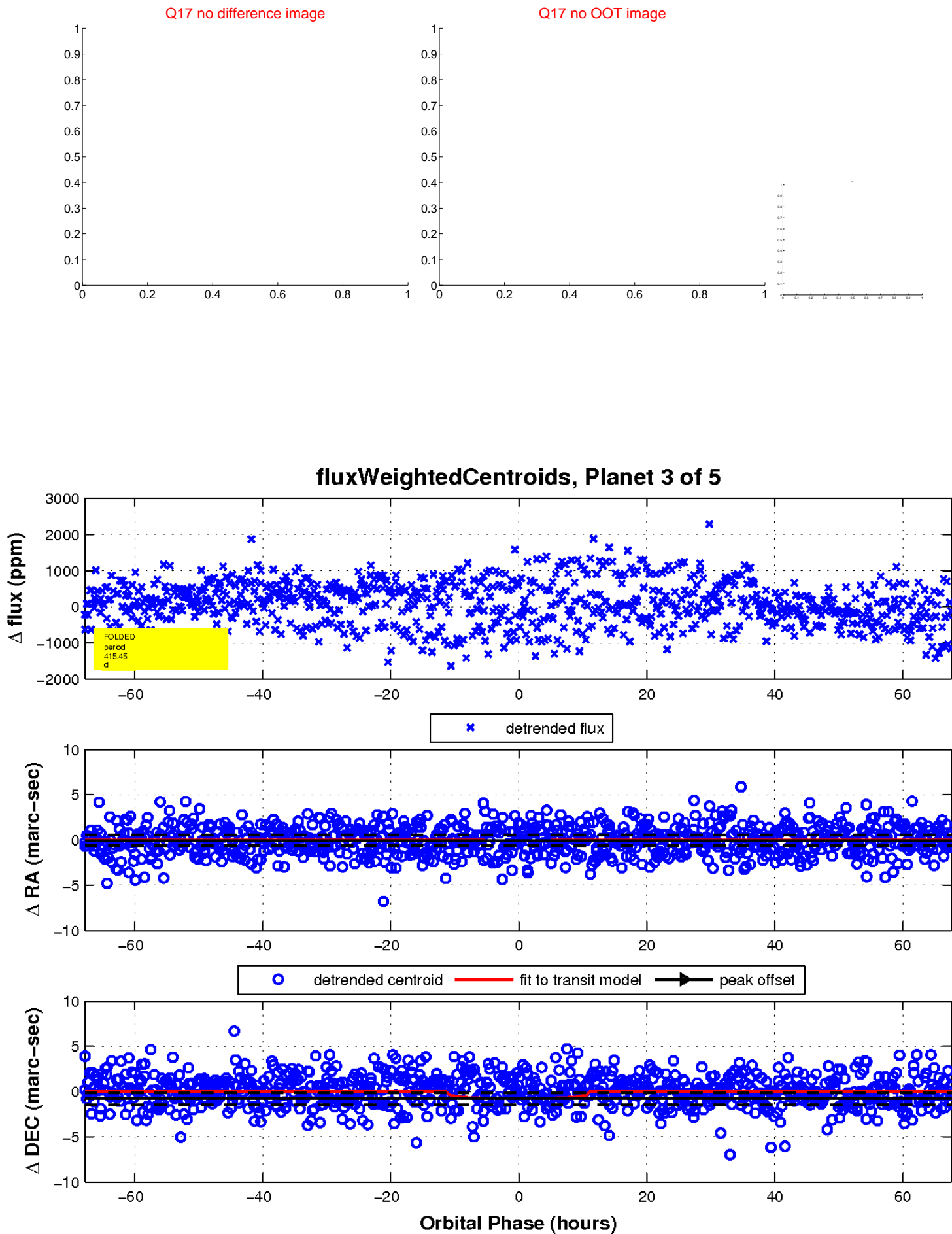
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

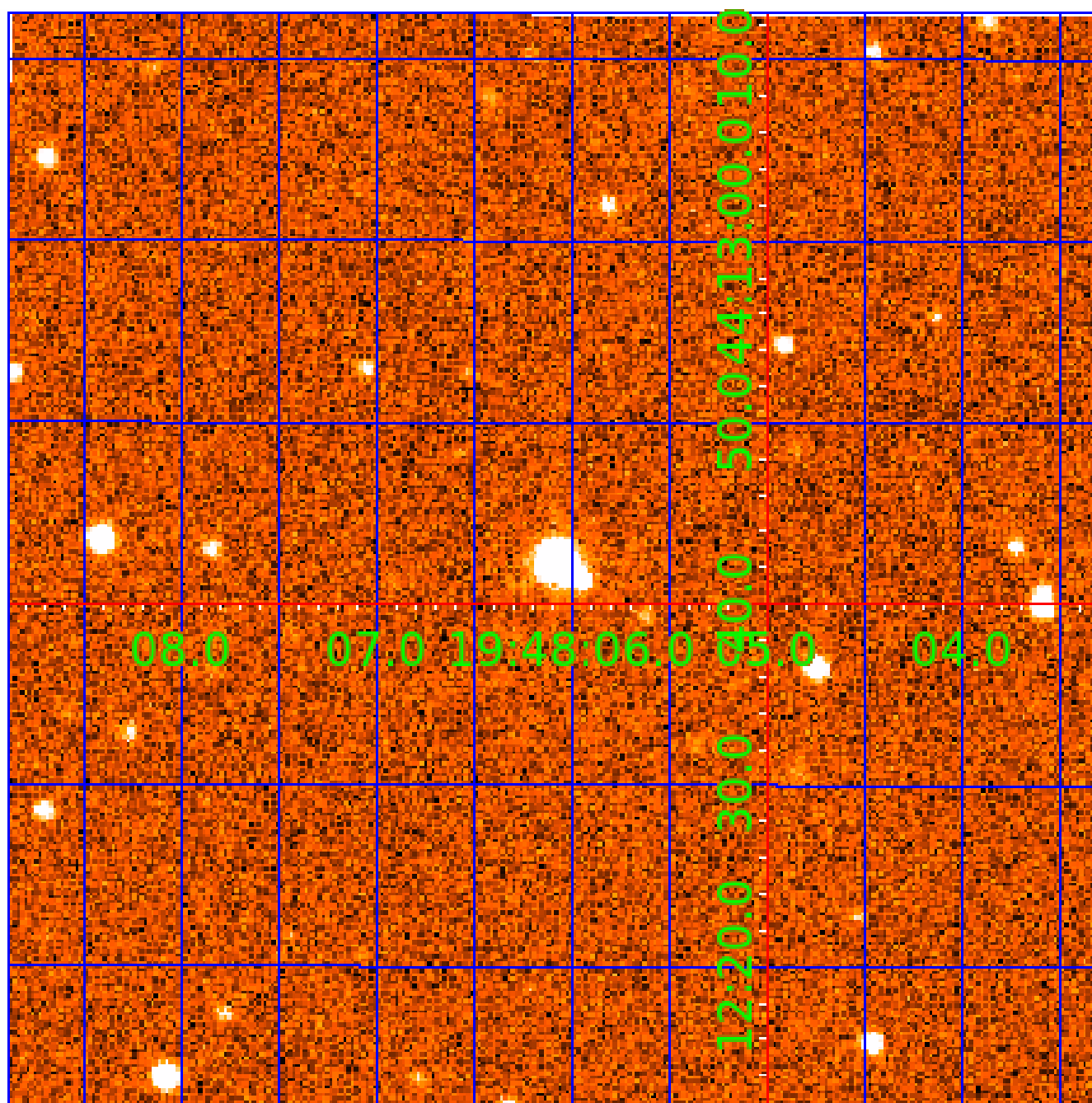


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008315394

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})
008315394-01	OBS	No	1.941258	133.395952	50.5	6.574	7.9	8.9	1.85	4996	1.60	2175.63
008315394-02	OBS	No	283.550816	199.702553	475.6	19.435	19.7	6.6	1.85	4996	4.22	2.83
008315394-03	OBS	No	415.447896	499.111312	740.1	22.597	15.1	8.6	1.85	4996	4.86	1.70
008315394-04	OBS	No	160.383828	261.739582	379.1	20.294	9.5	6.1	1.85	4996	3.87	6.05
008315394-05	OBS	No	178.862302	142.810246	545.6	9.072	9.2	8.2	1.85	4996	4.76	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008315394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
008315394-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008315394-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—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_FEW_DIFFS
008315394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
008315394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

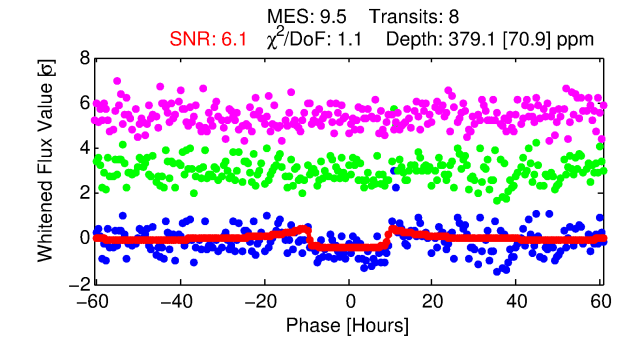
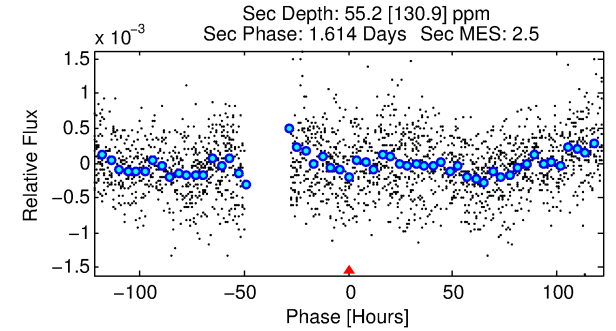
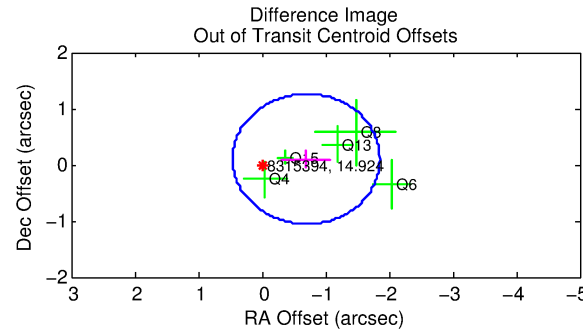
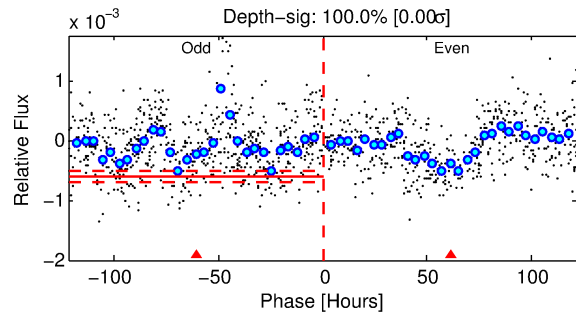
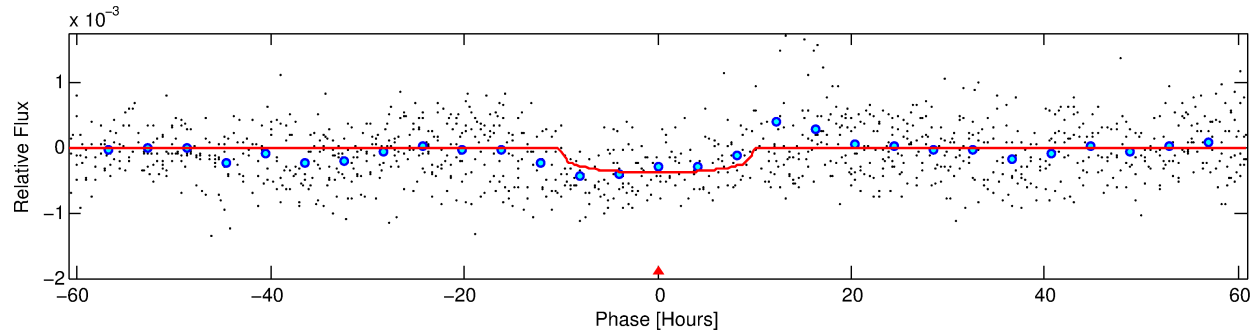
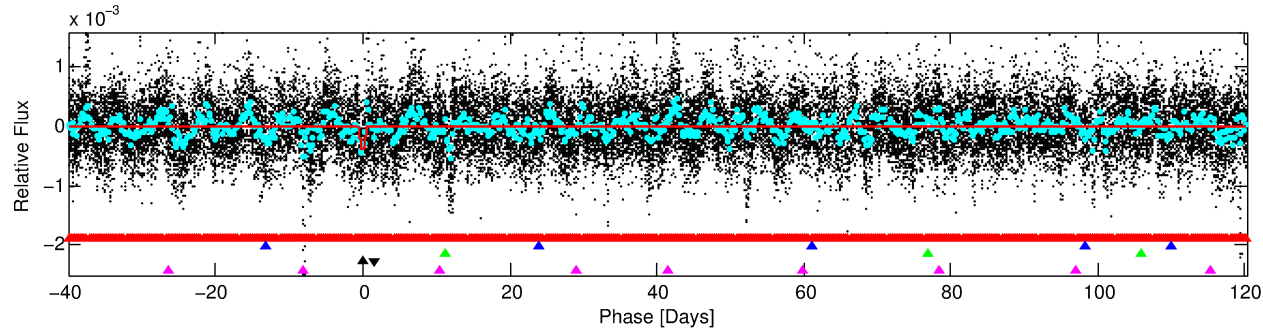
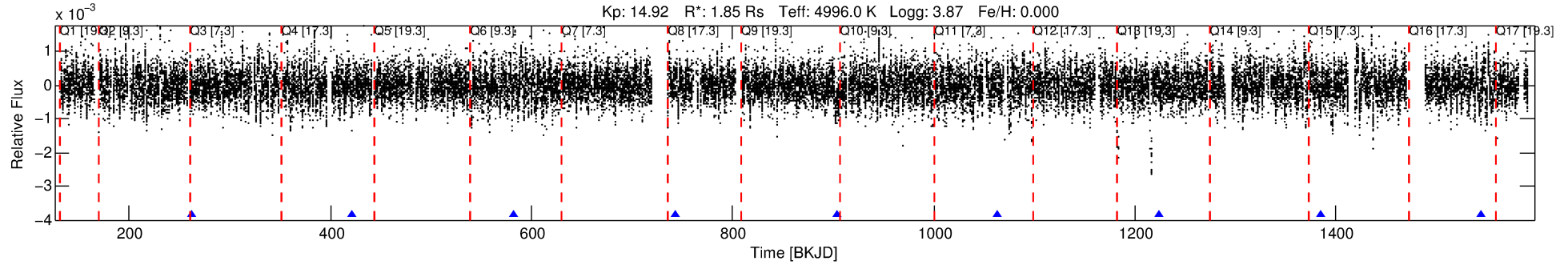
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008315394-04

No Significant Match Found

DV One-Page Summary

KIC: 8315394 Candidate: 4 of 5 Period: 160.384 d



DV Fit Results:

Period = 160.38383 [0.00575] d
Epoch = 261.7396 [0.0293] BKJD
Rp/R* = 0.0192 [0.0059]
a/R* = 43.32 [44.99]
b = 0.72 [0.69]
Seff = 6.05 [7.27]
Teq = 400 [120] K
Rp = 3.87 [2.74] Re
a = 0.5612 [0.3940] AU
Ag = 638.77 [1740.94] [0.37σ]
Teffp = 3108 [1905] K [1.42σ]

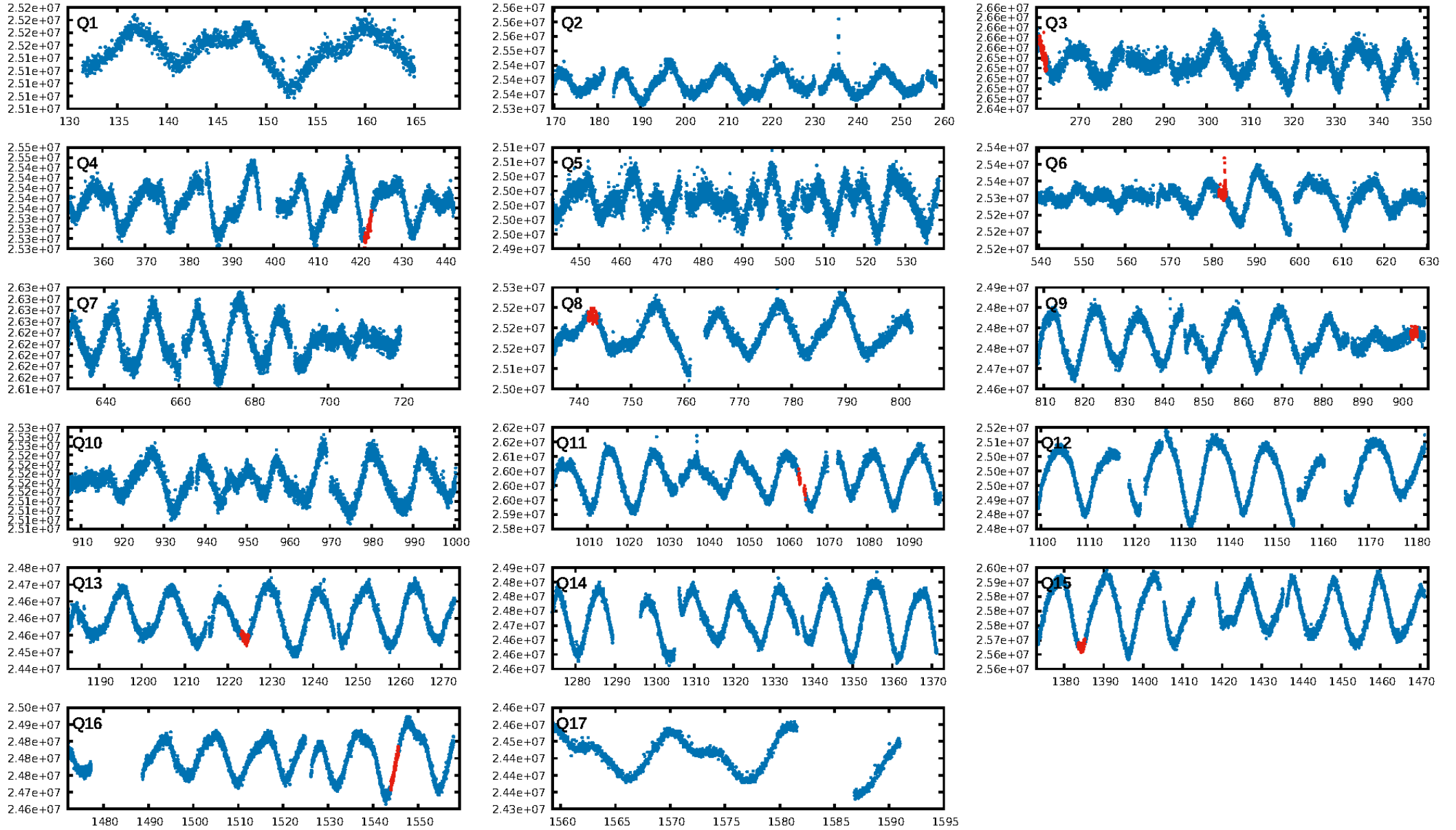
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [178.26σ]
LongPeriod-sig: 100.0% [19.95σ]
ModelChiSquare2-sig: 39.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.30e-19
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -4.294
Centroid-sig: 18.9%
Centroid-so: 0.970 arcsec [1.29σ]
OotOffset-rm: 0.703 arcsec [1.82σ]
KicOffset-rm: 0.728 arcsec [2.05σ]
OotOffset-st: 1/1/2/1 [5]
KicOffset-st: 1/1/2/1 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.00 [0/7]

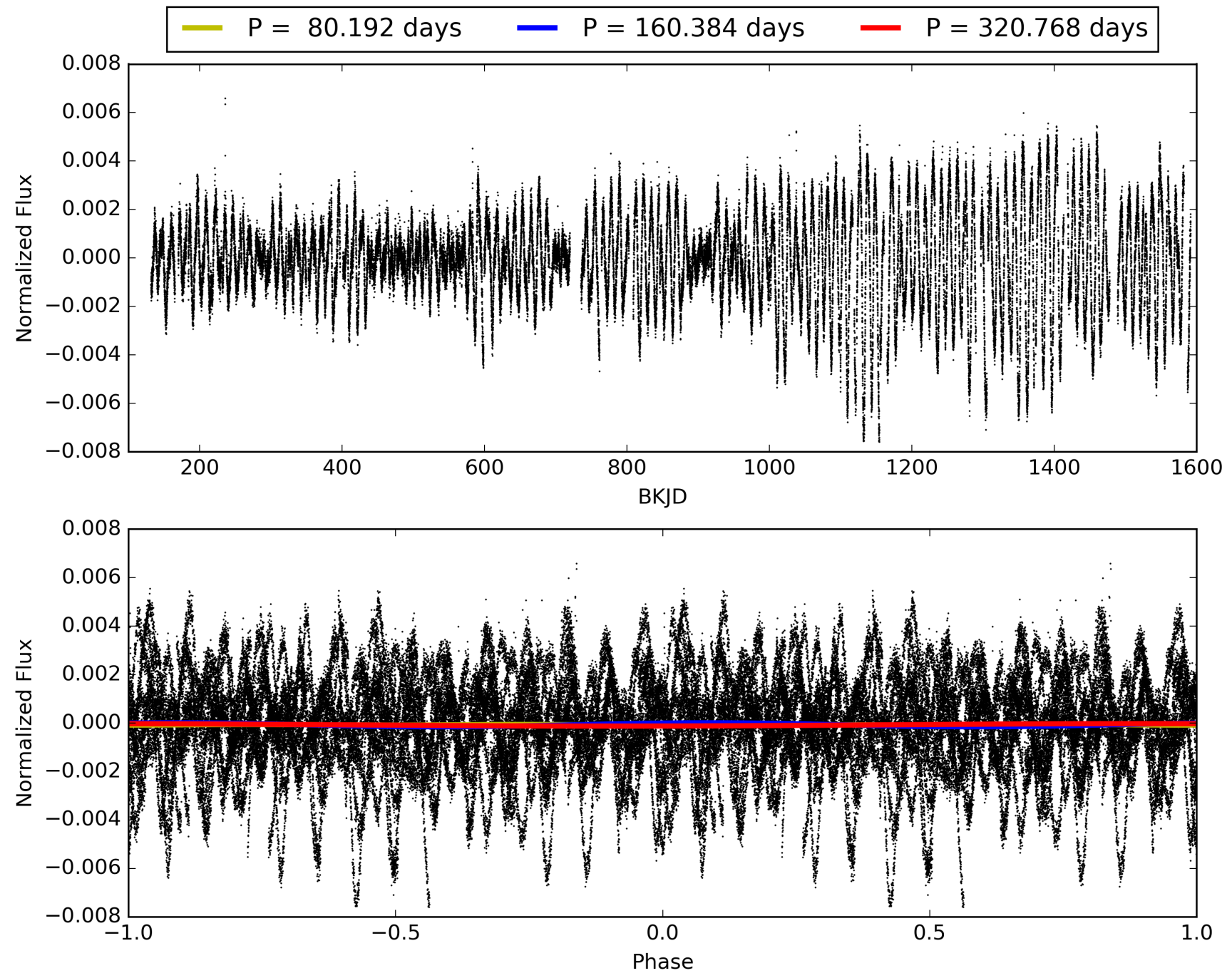
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:35:07 Z

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

TCE 008315394-04, PDC Light Curves

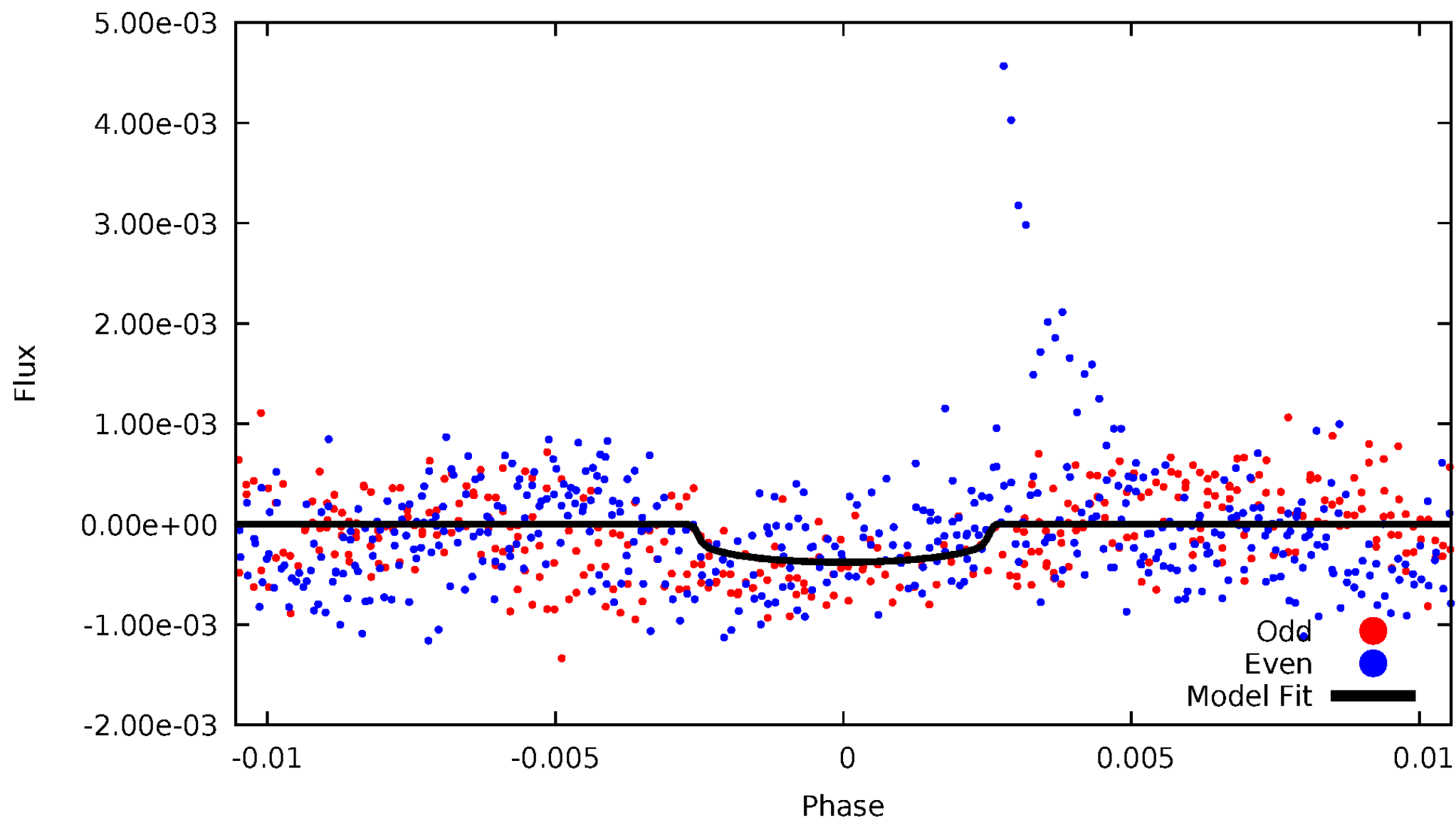


TCE 008315394-04



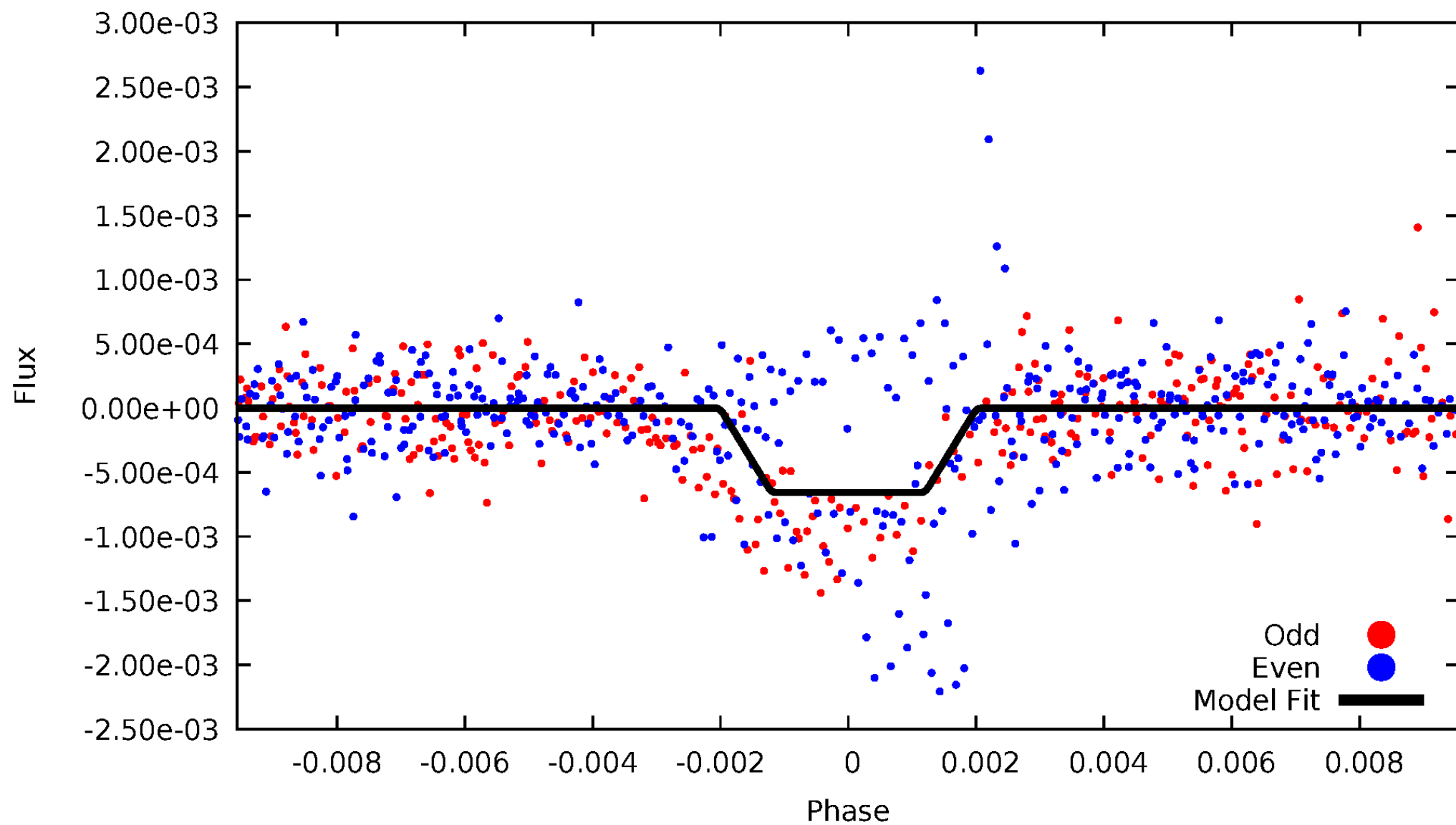
DV Odd/Even

TCE 008315394-04



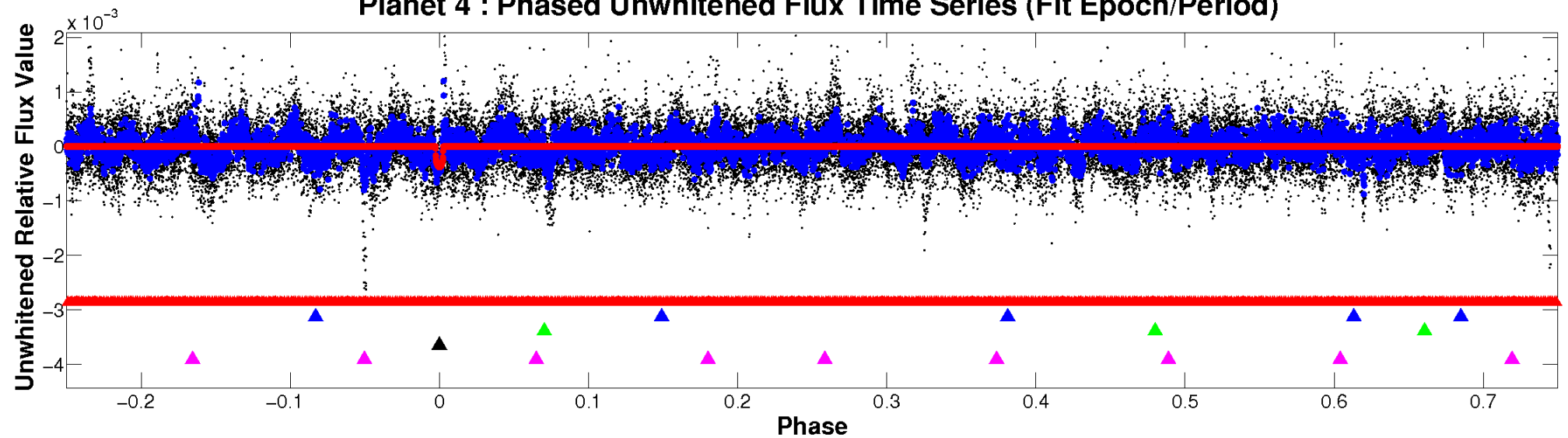
ALT Odd/Even

TCE 008315394-04

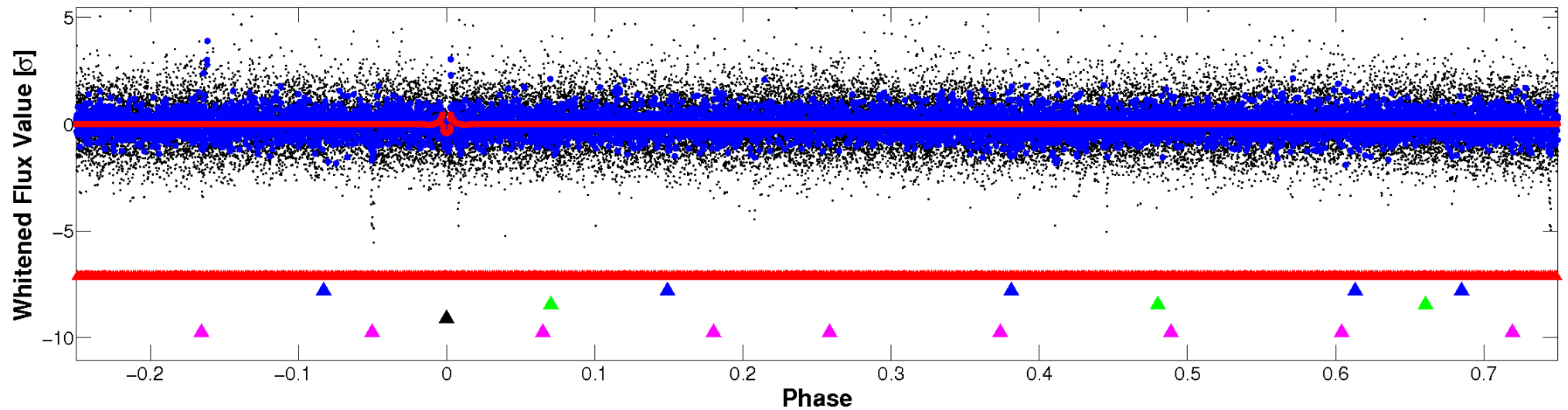


Non-Whitened Vs. Whitened Light Curve

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

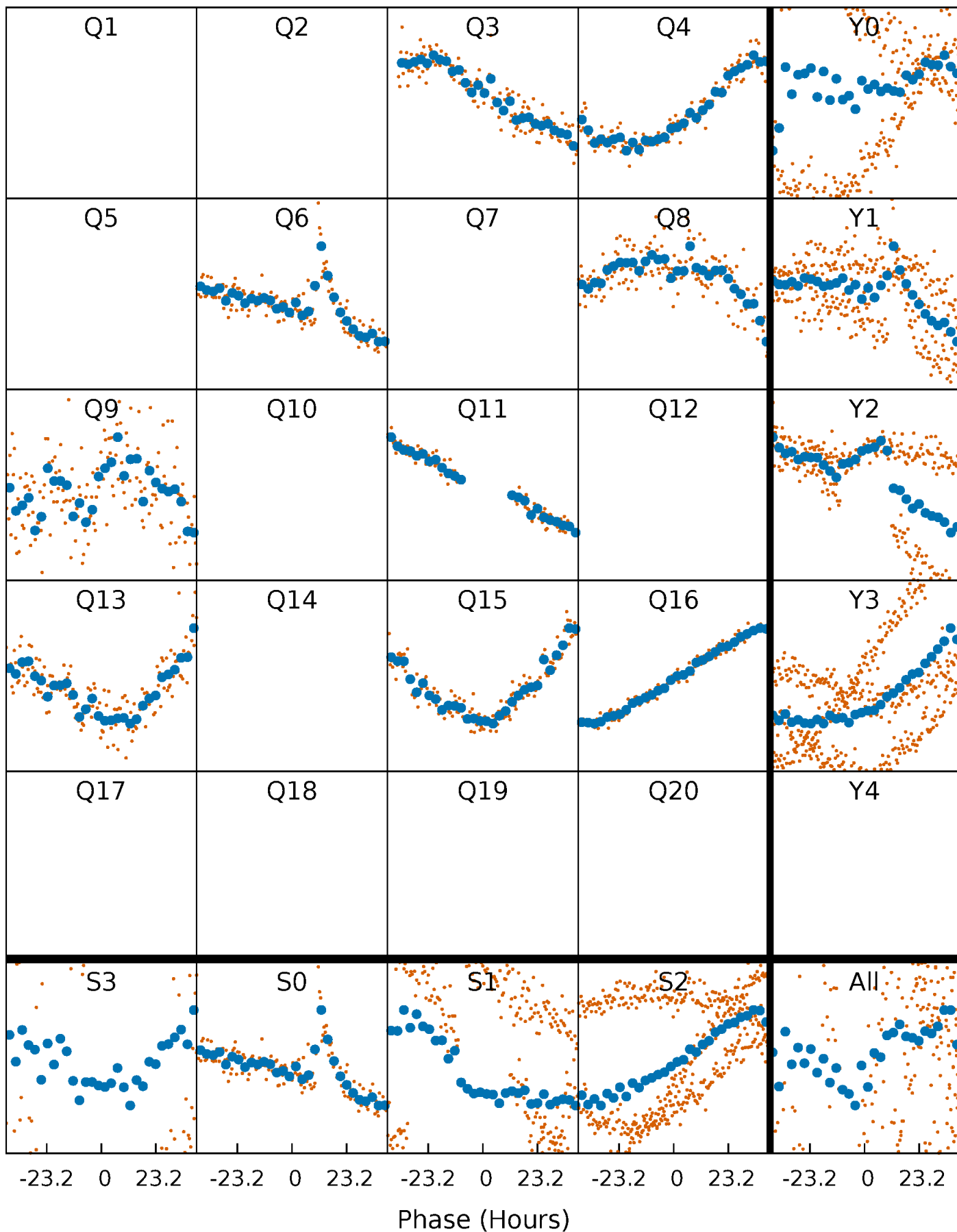


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



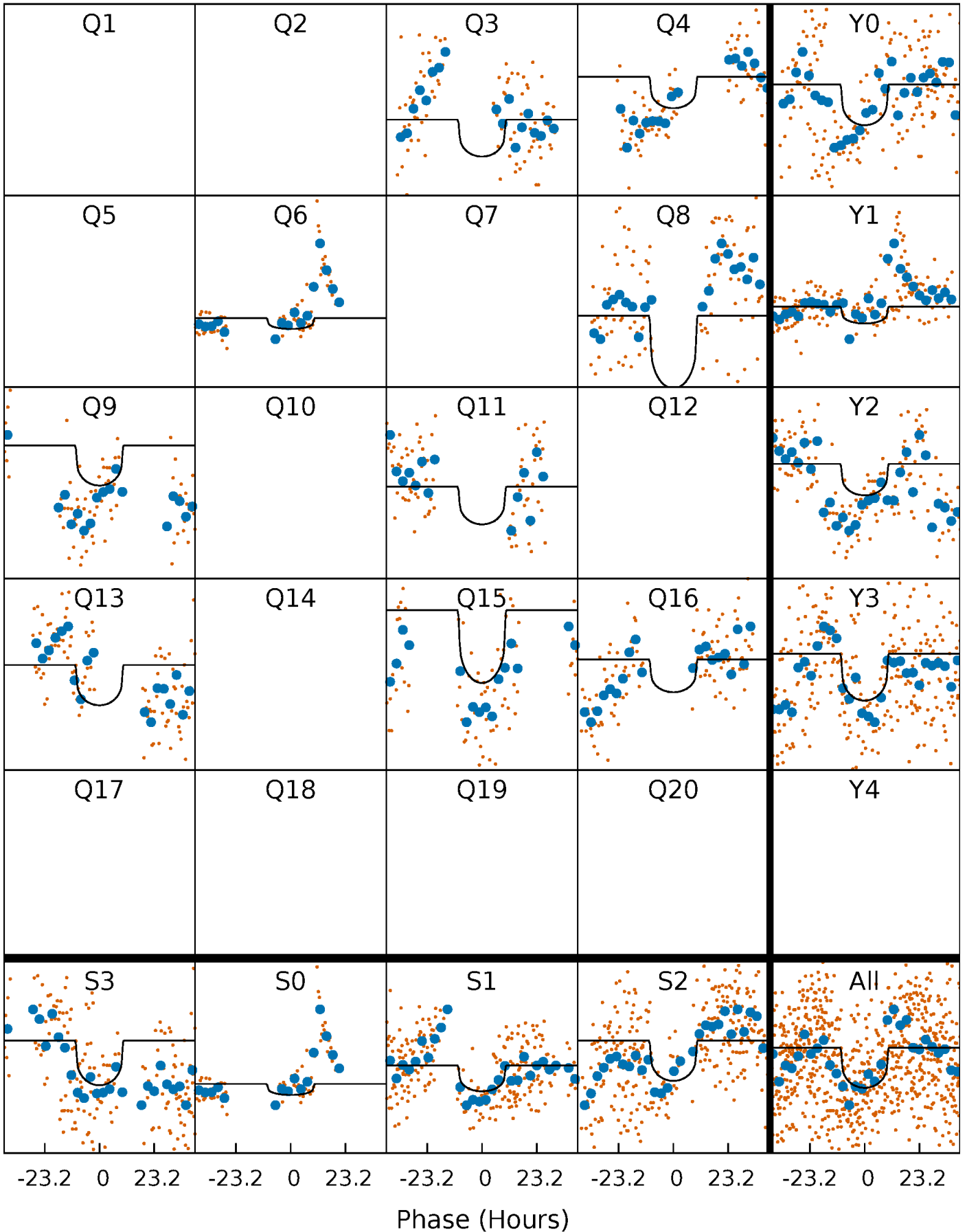
PDC Quarter-Phased Transit Curves

TCE 008315394-04 $P=160.383828$ Days $T_0=261.739582$ (BKJD)



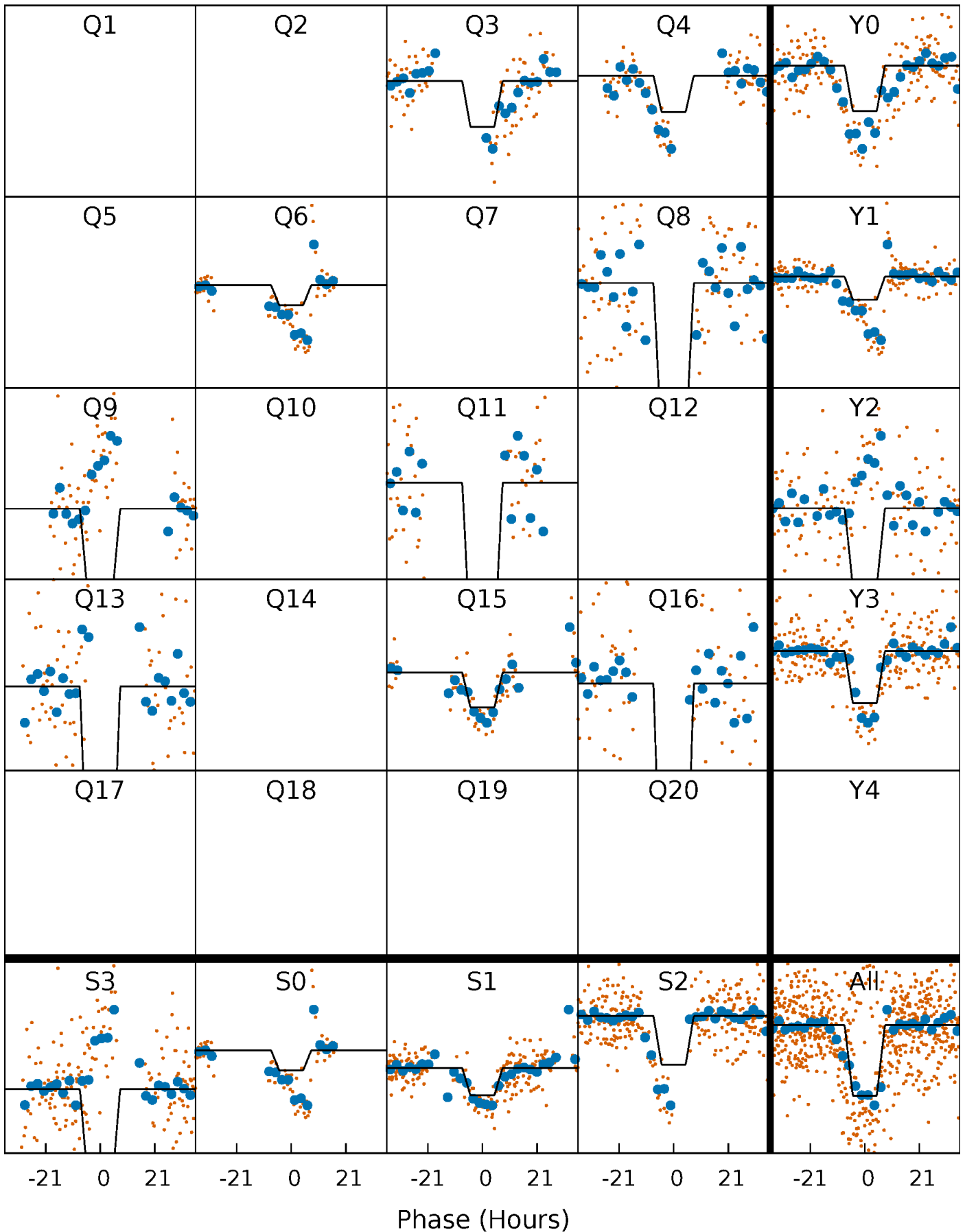
DV Quarter-Phased Transit Curves

TCE 008315394-04 $P=160.383828$ Days $T_0=261.739582$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

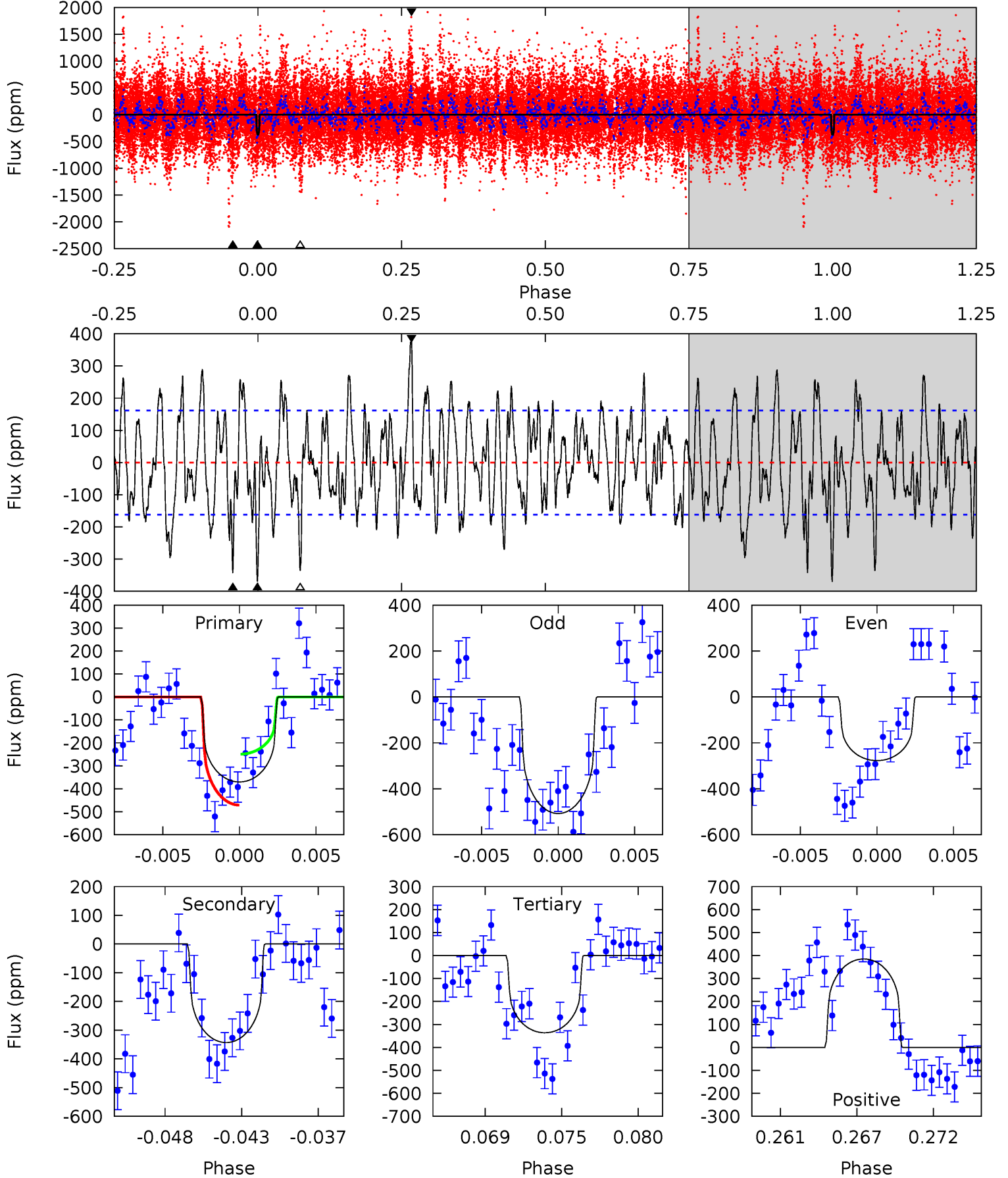
TCE 008315394-04 P=160.376201 Days $T_0=261.869927$ (BKJD)



DV Model-Shift Uniqueness Test

008315394-04, P = 160.383828 Days, E = 101.355754 Days

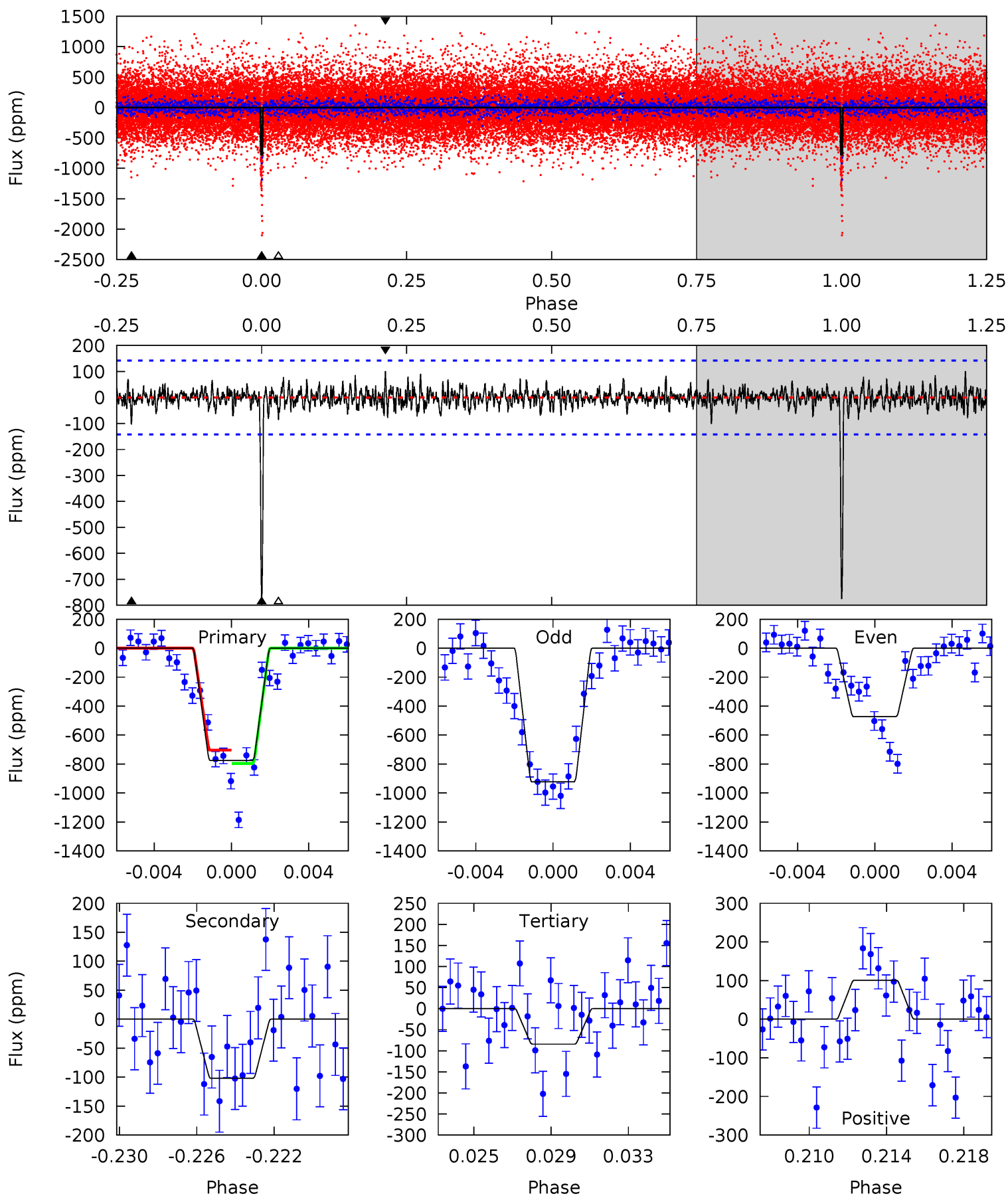
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	10.9	10.7	12.2	5.15	2.79	3.90	1.08	-0.47	0.22	-1.33	3.58	1.34	0.51	3.53



Alt Model-Shift Uniqueness Test

008315394-04, P = 160.376201 Days, E = 101.493726 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	3.72	3.07	3.67	5.19	2.87	0.93	25.2	24.6	0.65	0.05	8.23	0.72	0.11	1.63



Stellar Parameters For KIC 008315394

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4996^{+136}_{-151}	$3.867^{+0.728}_{-0.312}$	$0.000^{+0.250}_{-0.300}$	$1.847^{+0.964}_{-1.178}$	$0.916^{+0.190}_{-0.171}$	$0.205^{+2.837}_{-0.147}$
	+3%/-3%	+19%/-8%	+inf%/-inf%	+52%/-64%	+21%/-19%	+1387%/-72%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008315394-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-343 ± 31	$3.69^{+1.87}_{-1.52}$	557^{+80}_{-102}	4914^{+959}_{-535}	4393^{+8159}_{-2448}
Alt.	-102 ± 27	$4.94^{+2.03}_{-1.84}$	555^{+72}_{-96}	3536^{+384}_{-271}	720^{+1109}_{-386}

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

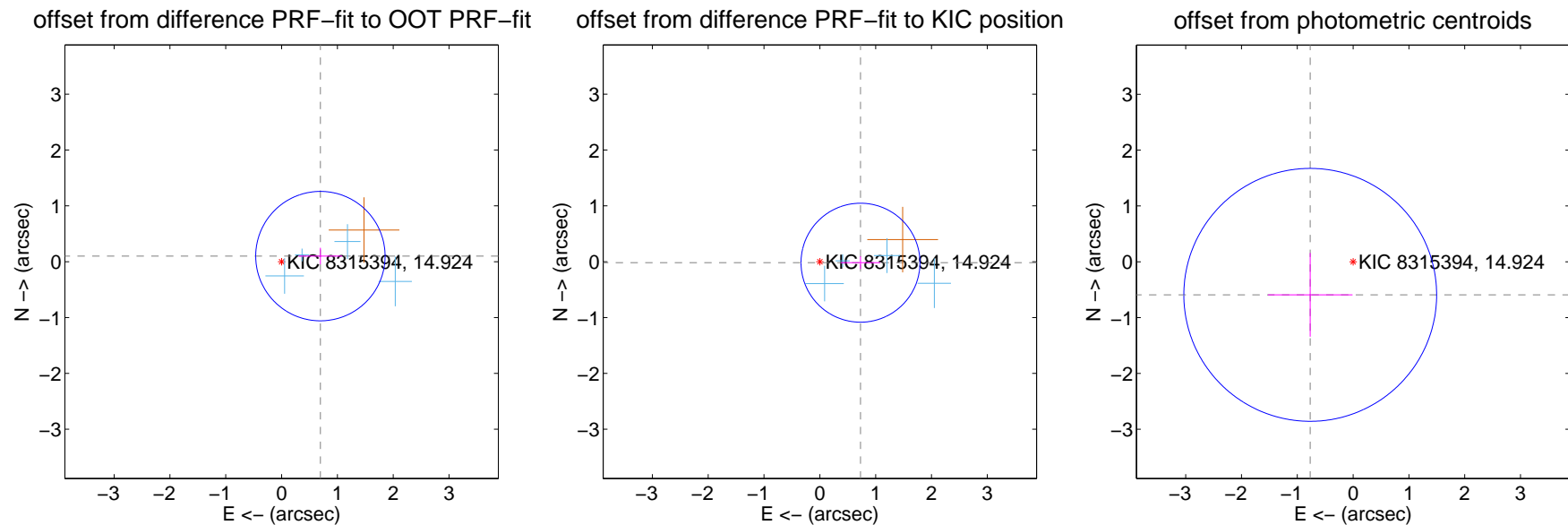
DV Centroid Data

Supplemental centroid analysis for 008315394-04. Kepler magnitude: 14.92. Transit SNR 6.08

There are 4 quarters with good PRF difference image offsets

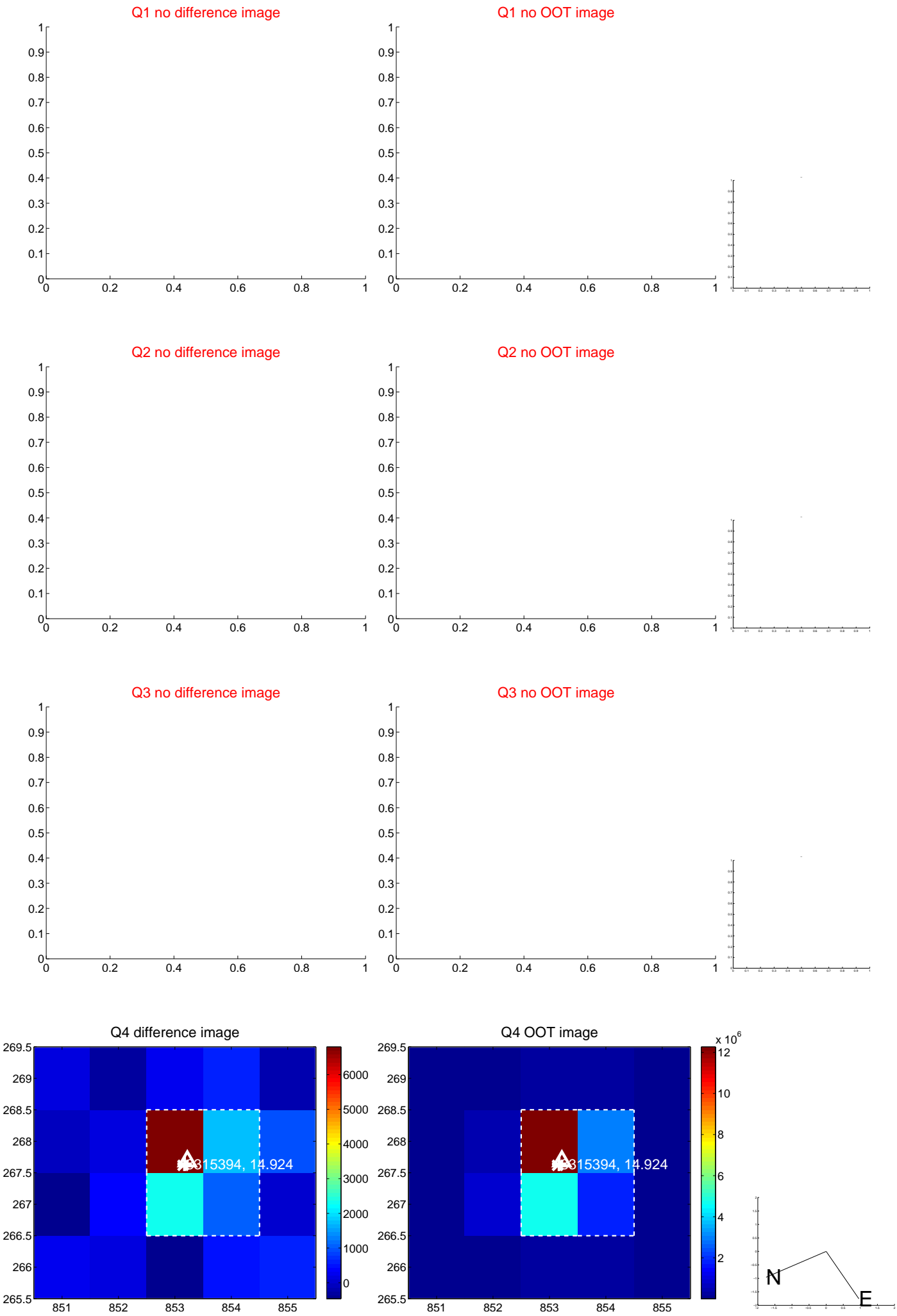
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.703 ± 0.386	1.82	-0.695 ± 0.391	0.100 ± 0.149
PRF-fit source offset from KIC position	0.728 ± 0.355	2.05	-0.728 ± 0.355	-0.018 ± 0.114
photometric centroid source offset	0.97 ± 0.76	1.29	0.77 ± 0.76	-0.59 ± 0.75

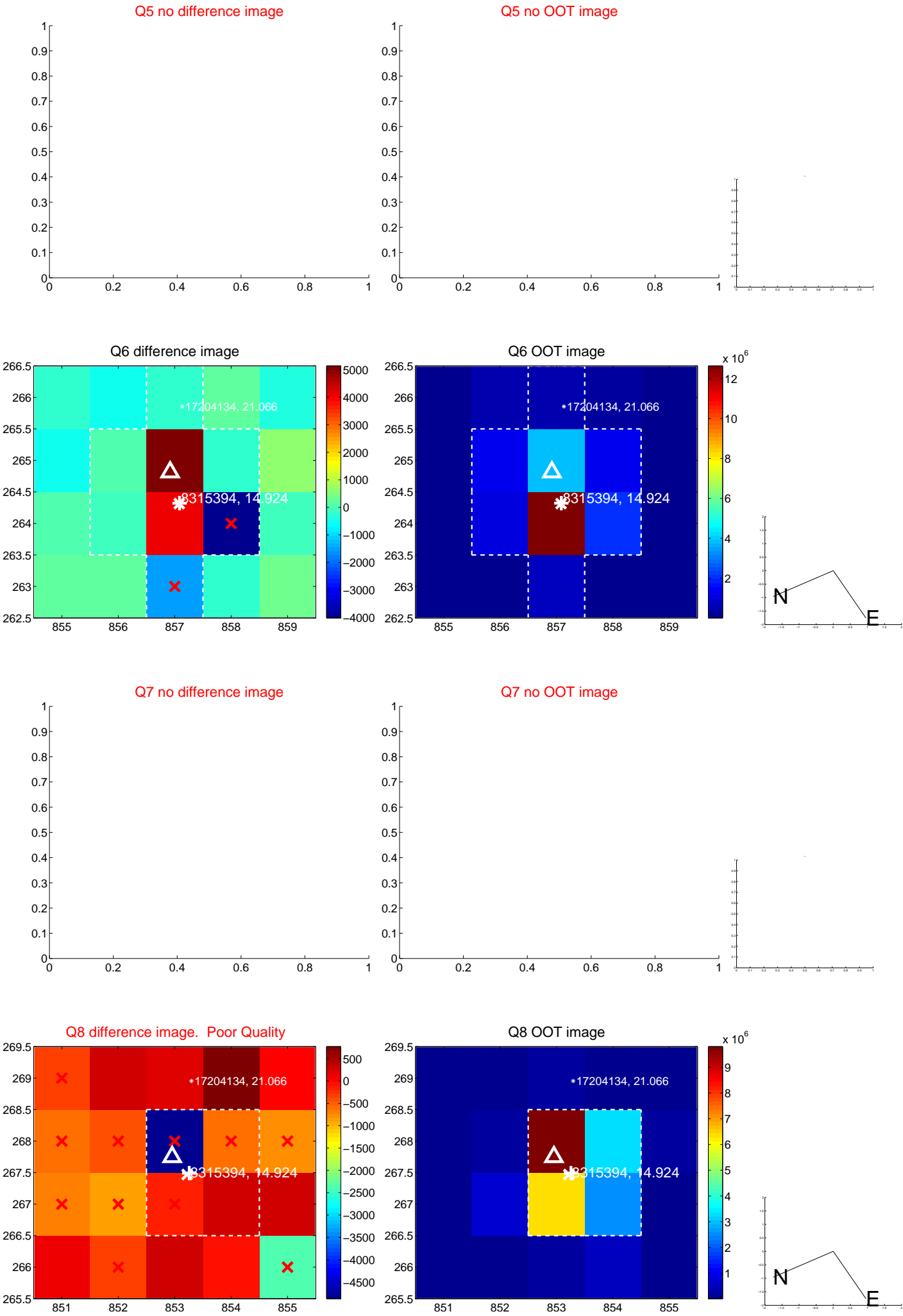


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

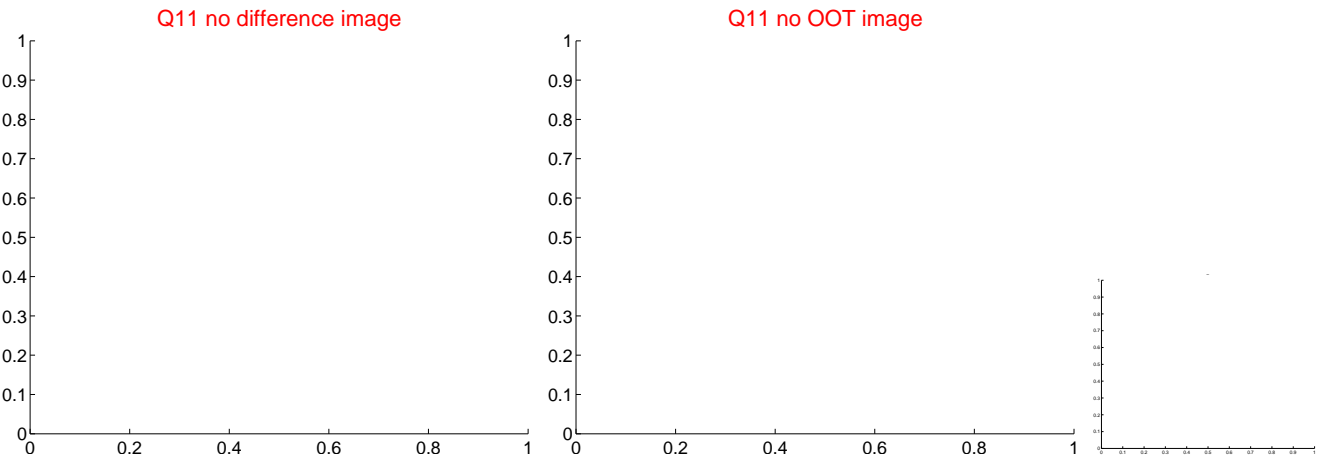
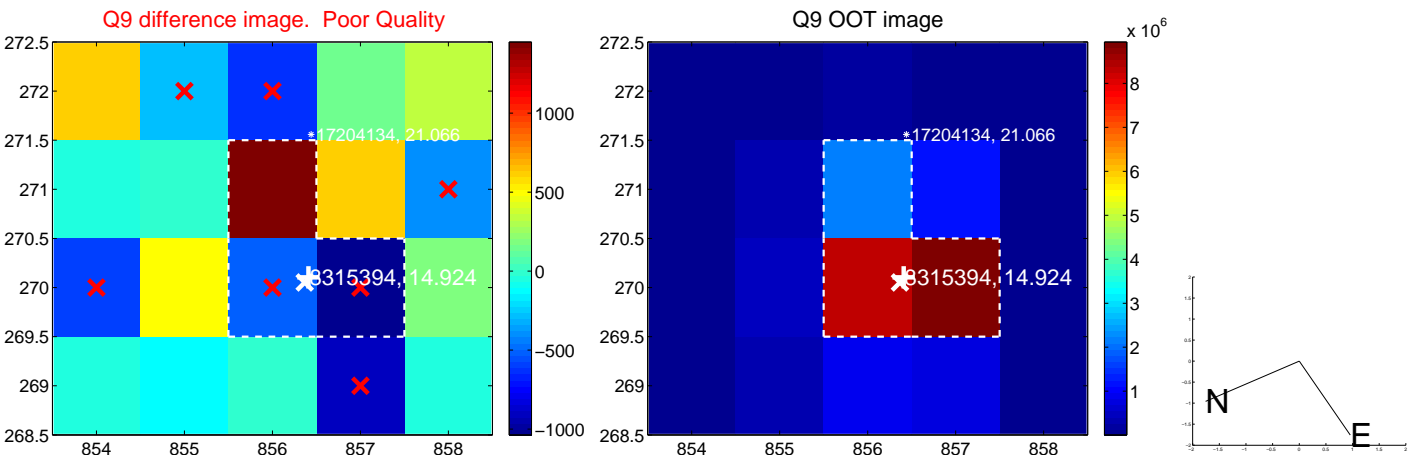
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



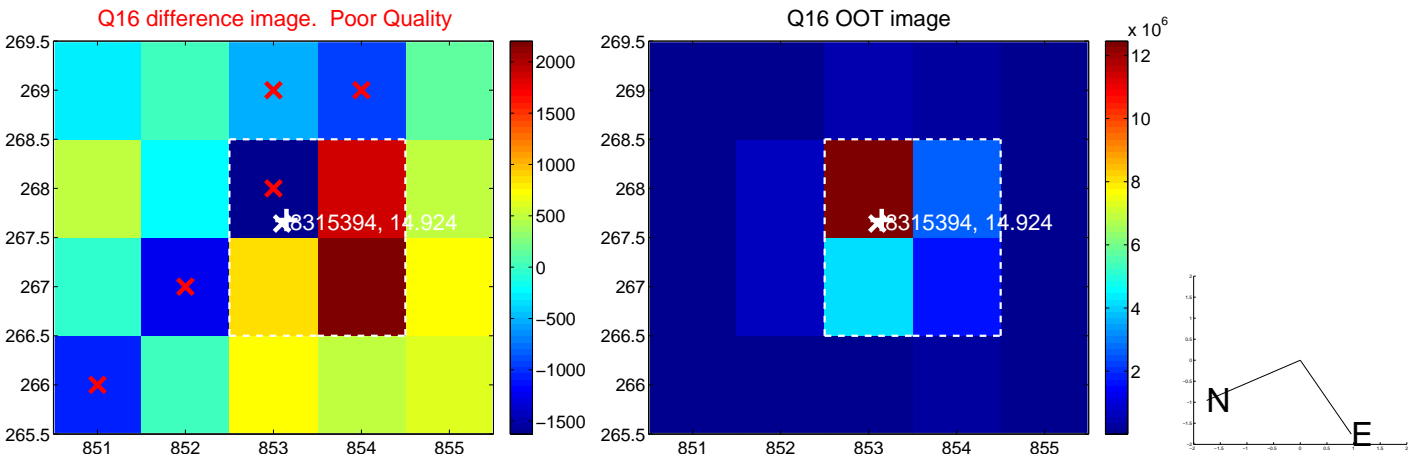
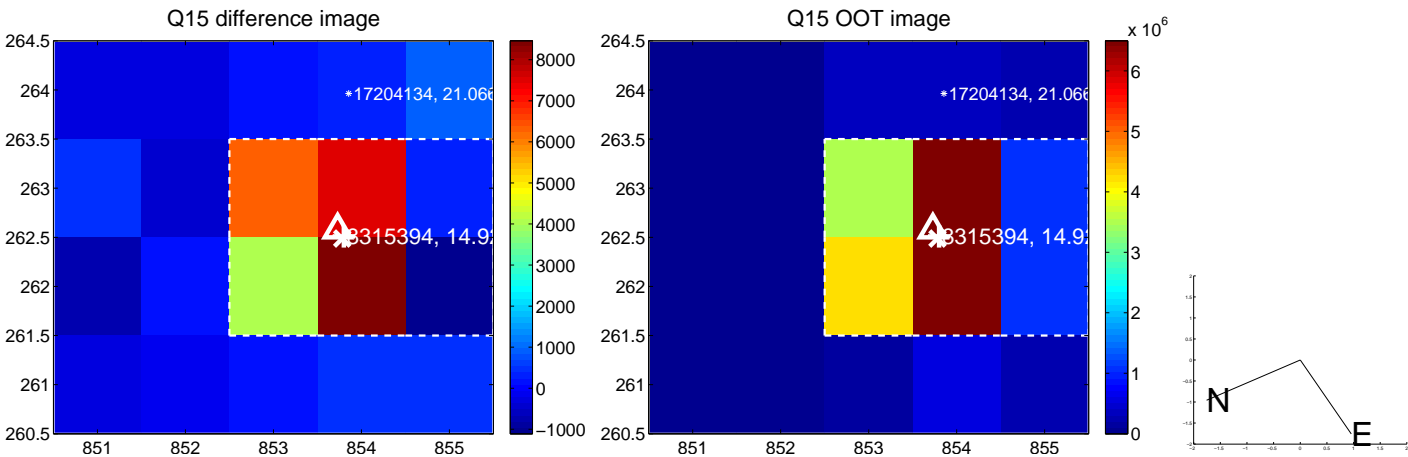
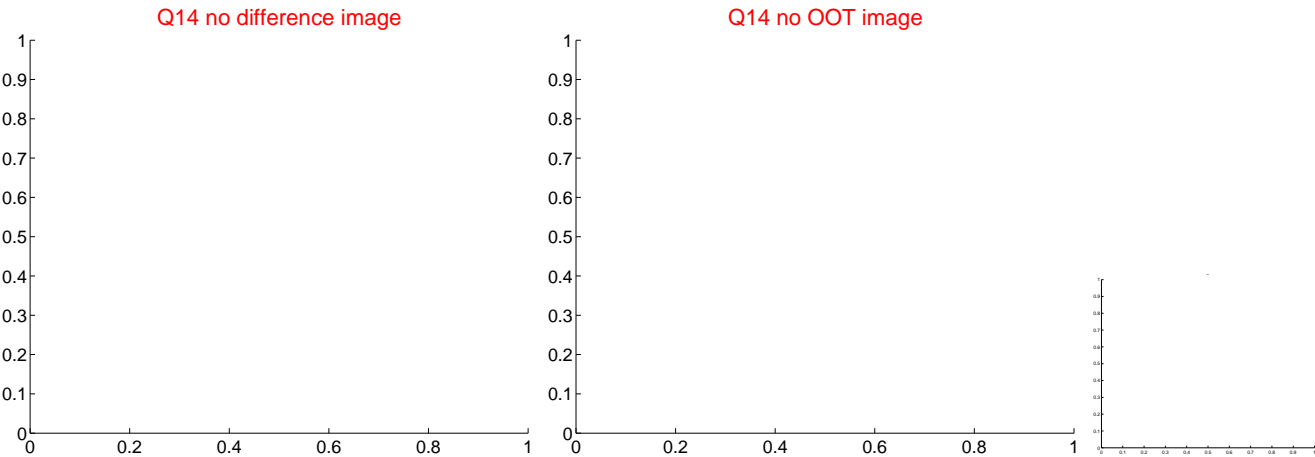
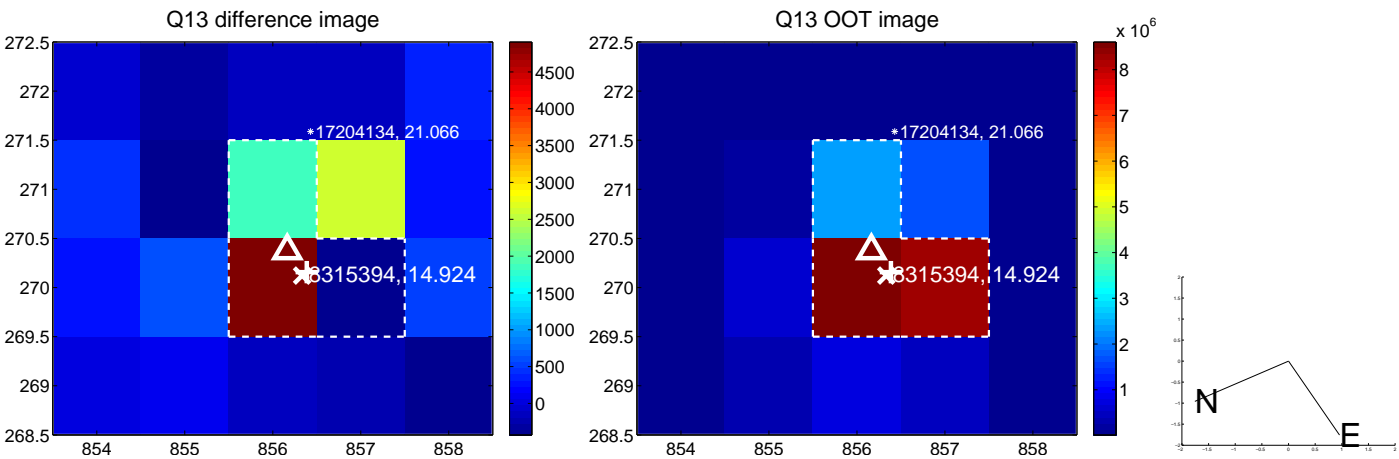
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



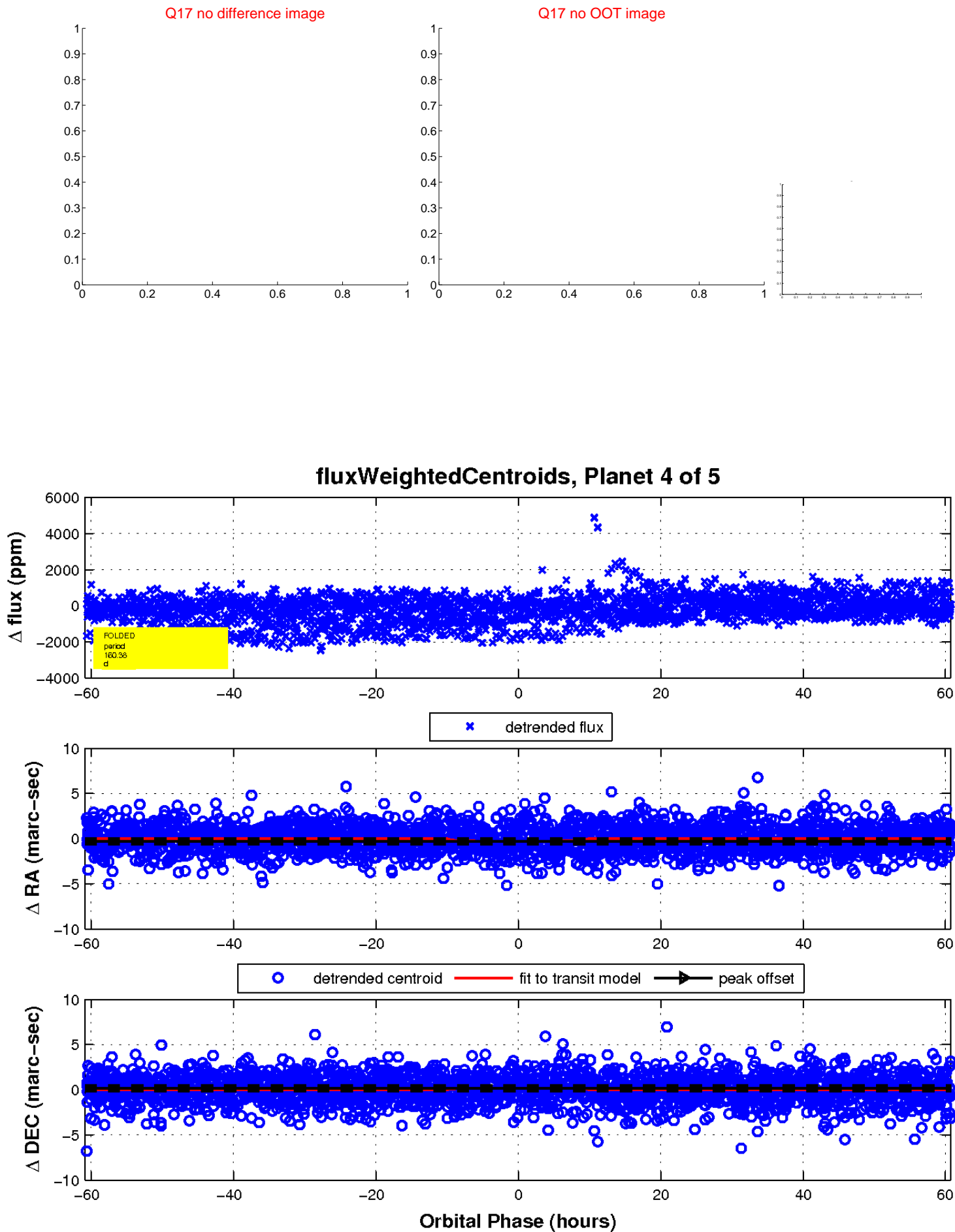
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

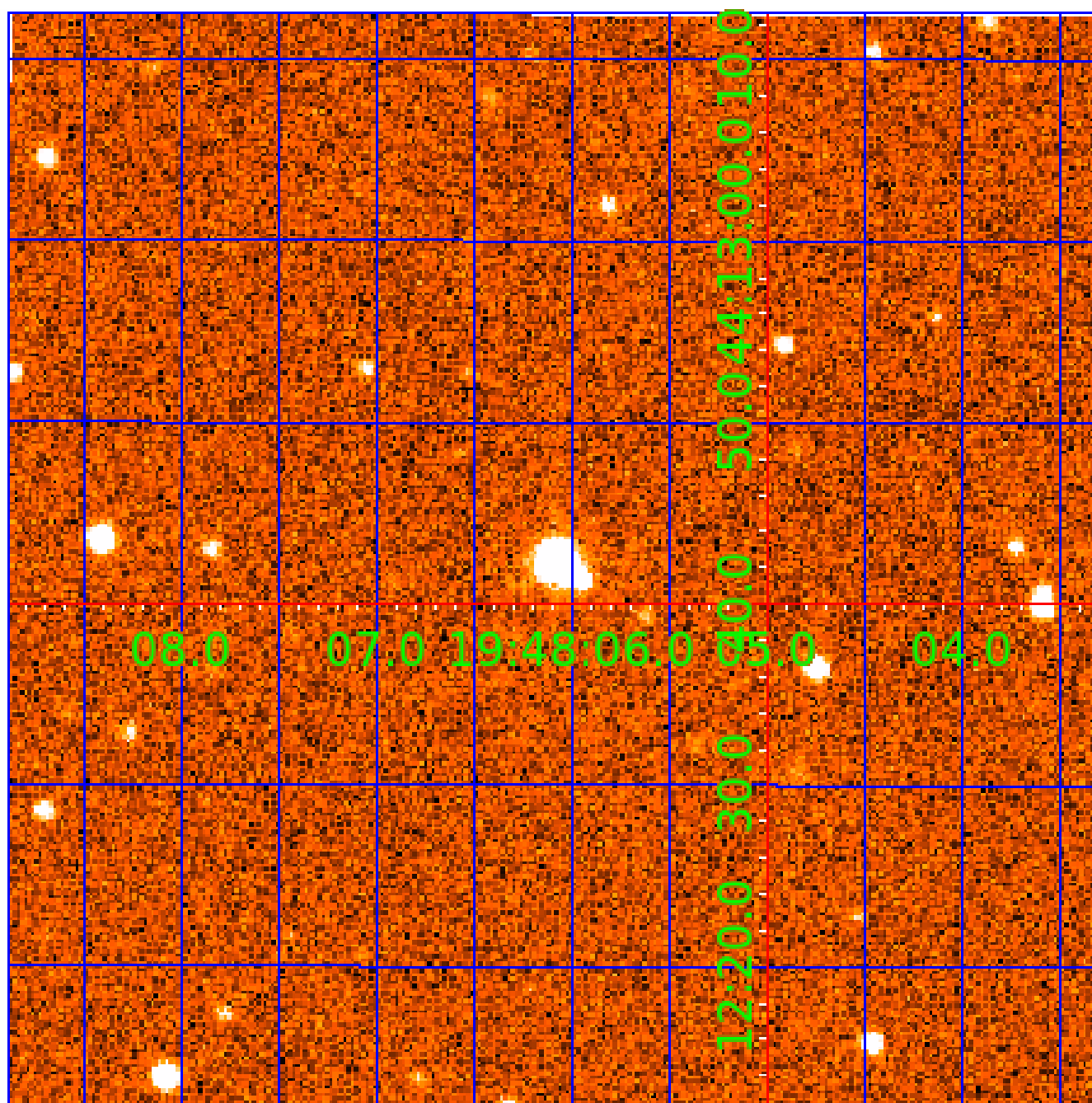


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008315394

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})
008315394-01	OBS	No	1.941258	133.395952	50.5	6.574	7.9	8.9	1.85	4996	1.60	2175.63
008315394-02	OBS	No	283.550816	199.702553	475.6	19.435	19.7	6.6	1.85	4996	4.22	2.83
008315394-03	OBS	No	415.447896	499.111312	740.1	22.597	15.1	8.6	1.85	4996	4.86	1.70
008315394-04	OBS	No	160.383828	261.739582	379.1	20.294	9.5	6.1	1.85	4996	3.87	6.05
008315394-05	OBS	No	178.862302	142.810246	545.6	9.072	9.2	8.2	1.85	4996	4.76	5.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008315394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
008315394-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008315394-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—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_FEW_DIFFS
008315394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
008315394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

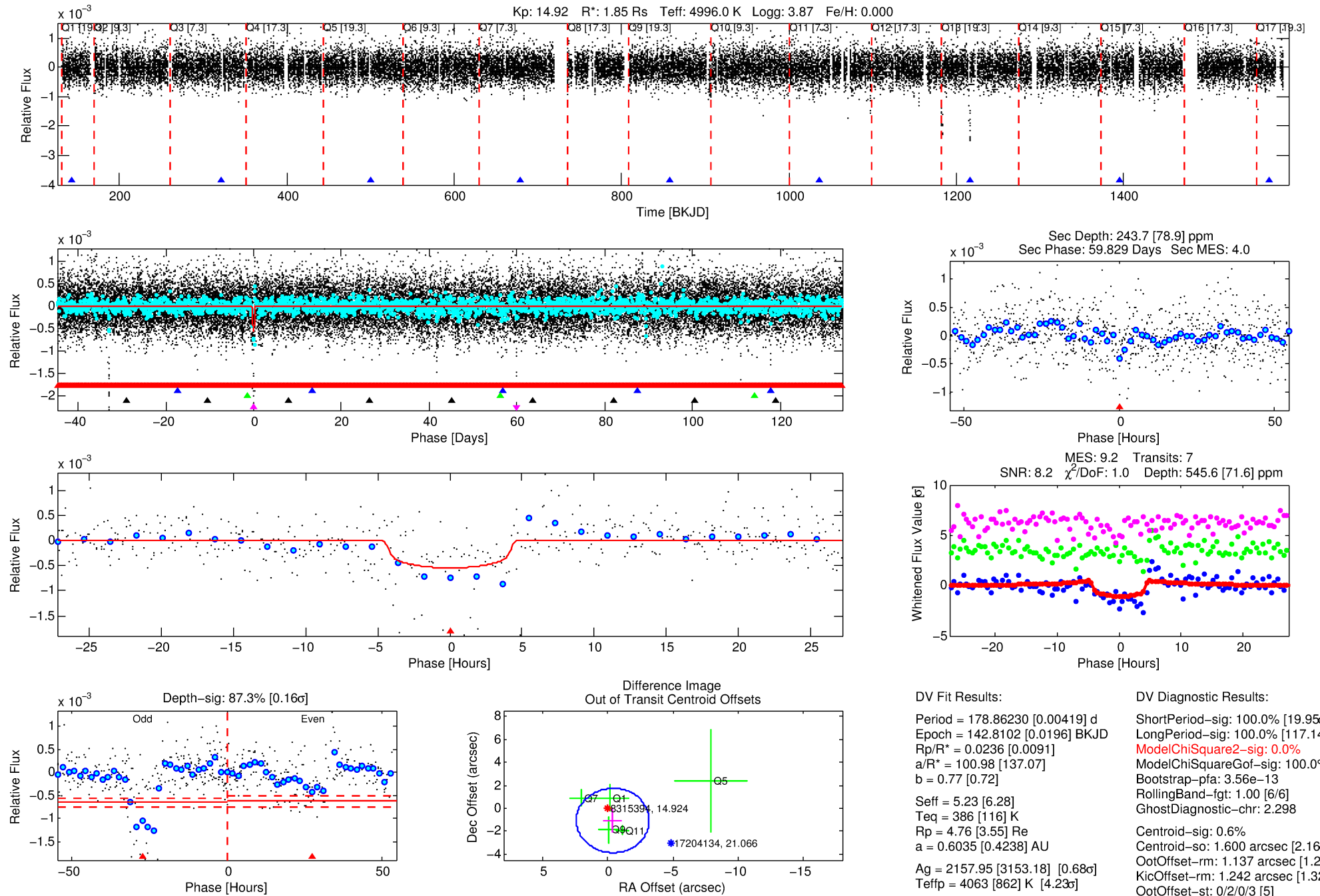
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008315394-05

No Significant Match Found

DV One-Page Summary

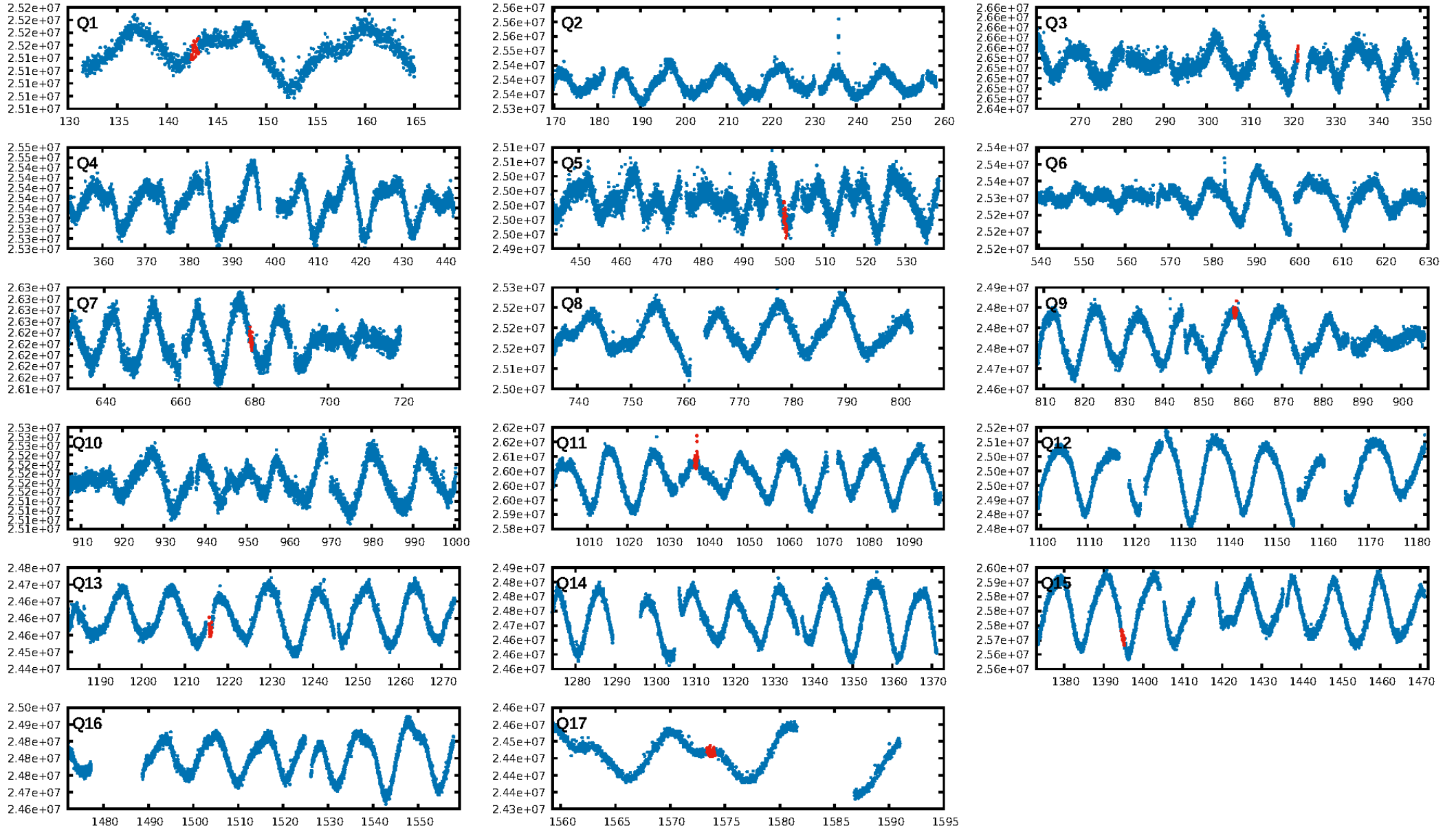
KIC: 8315394 Candidate: 5 of 5 Period: 178.862 d



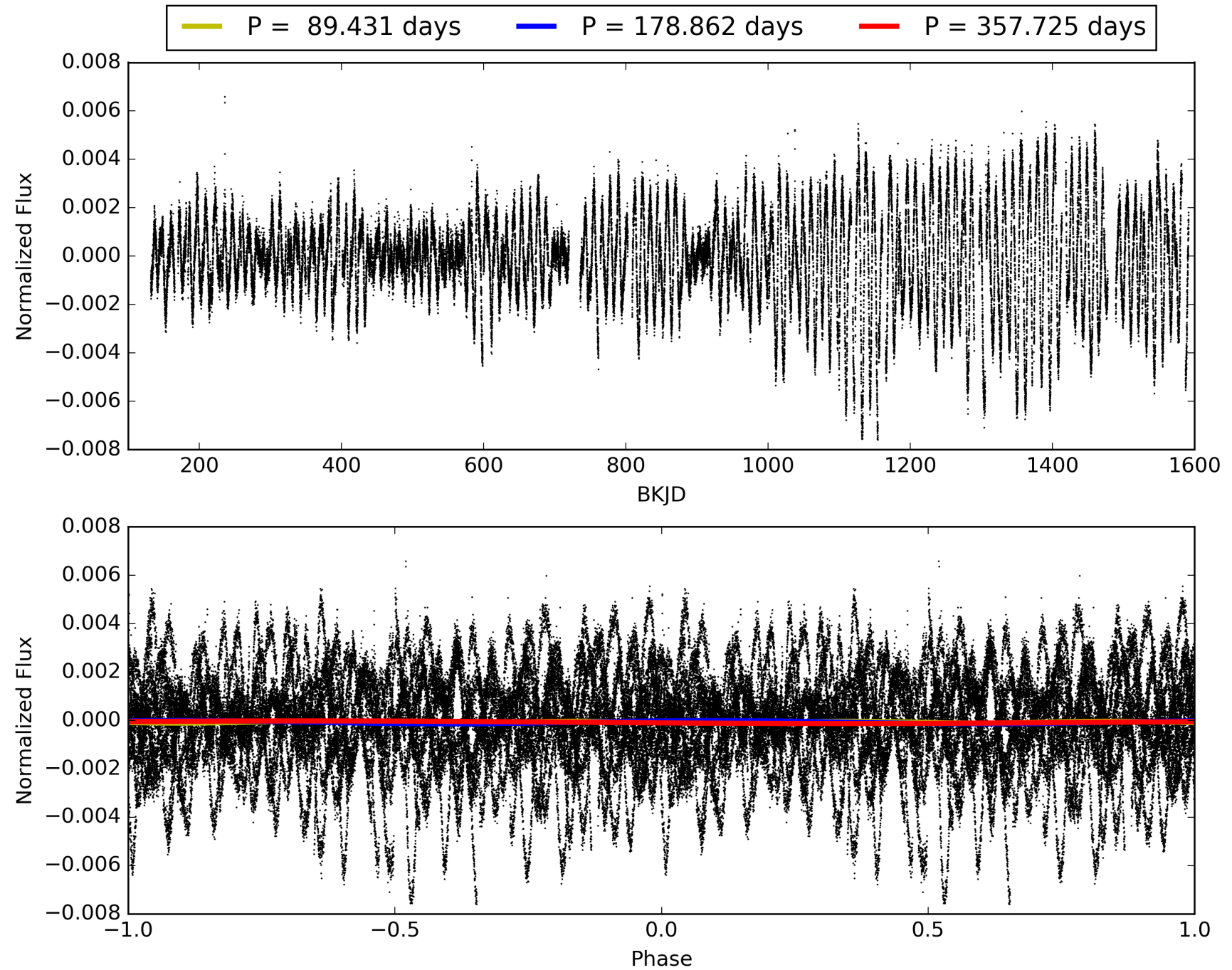
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 03:35:13 Z

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

TCE 008315394-05, PDC Light Curves

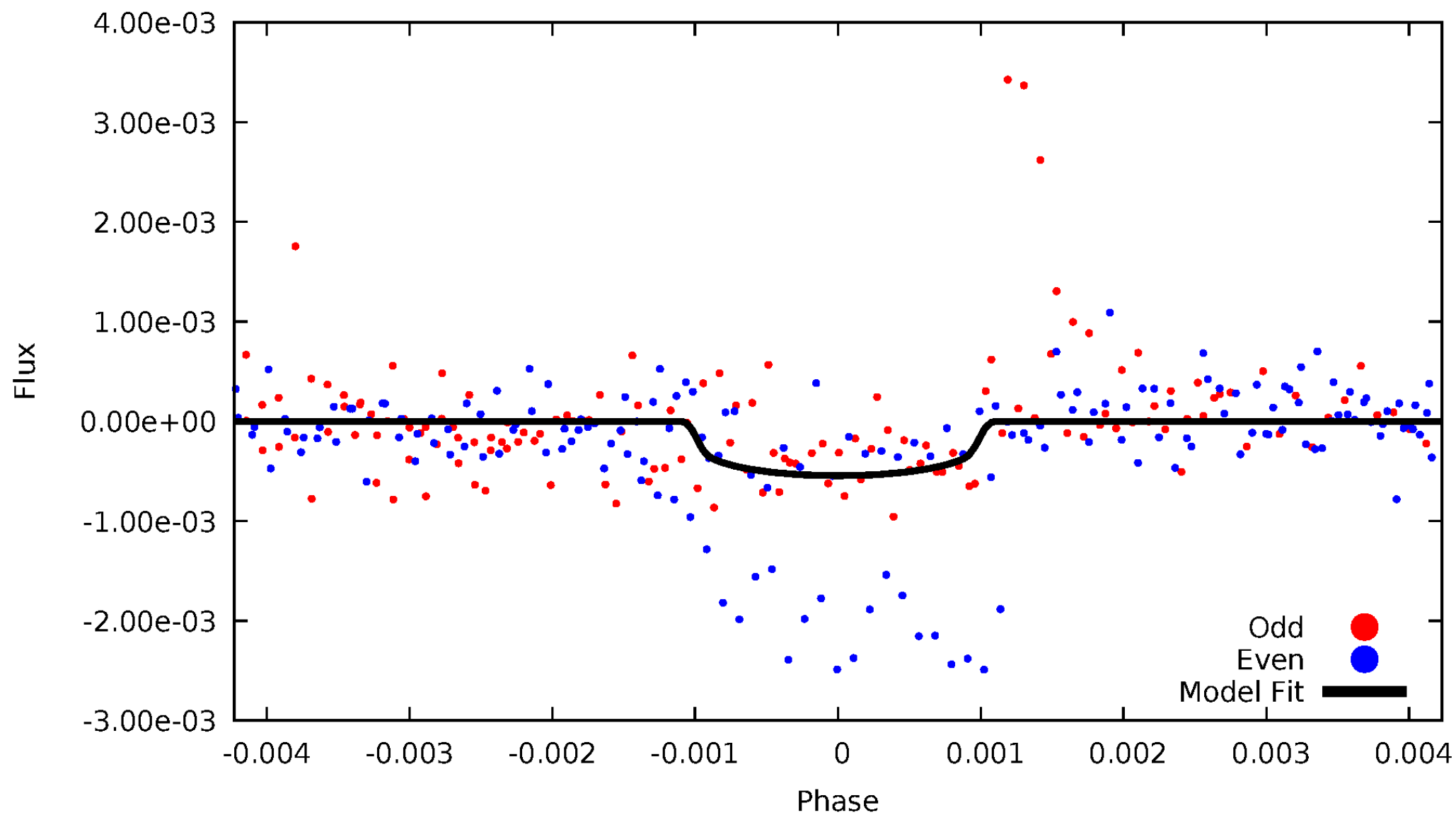


TCE 008315394-05



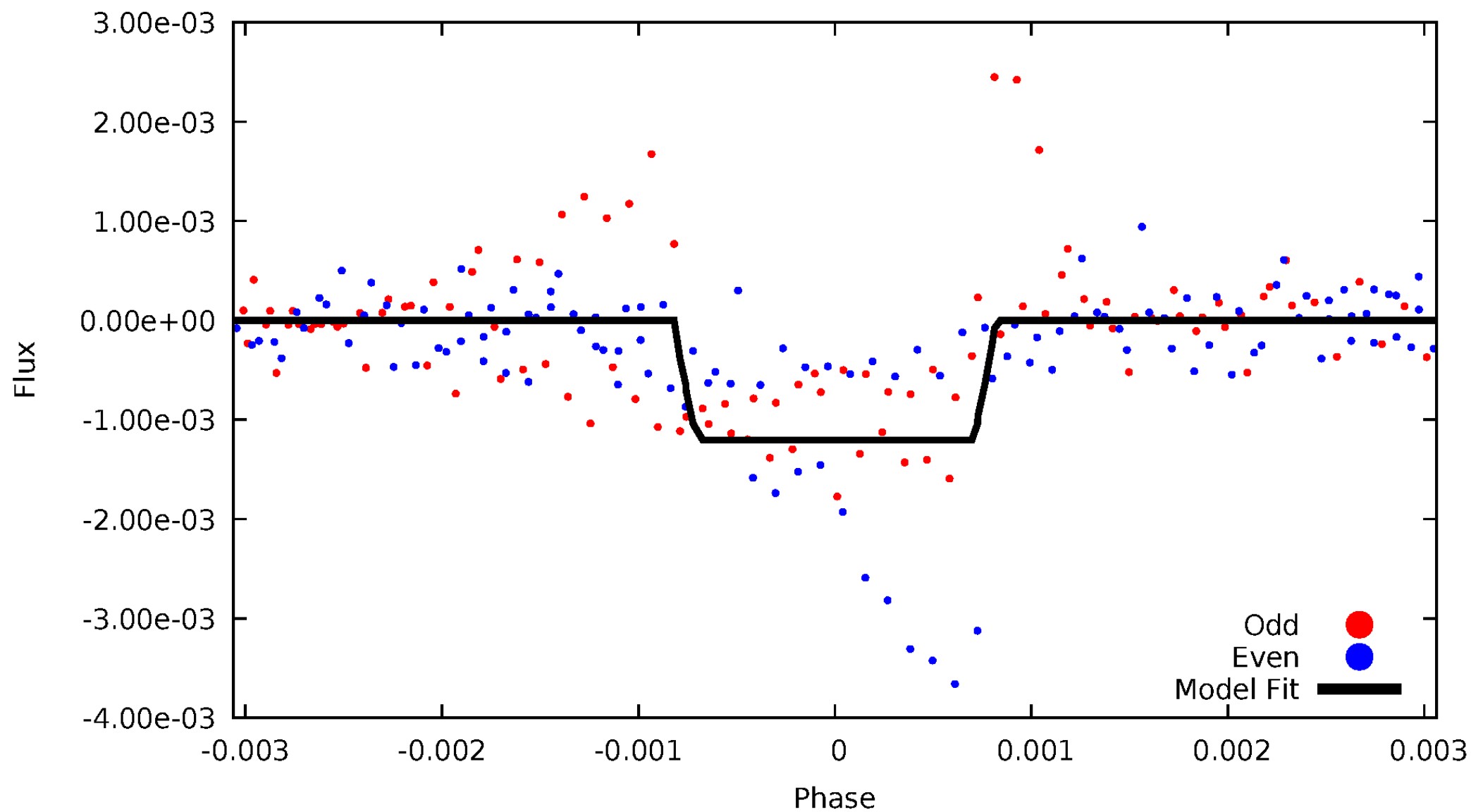
DV Odd/Even

TCE 008315394-05



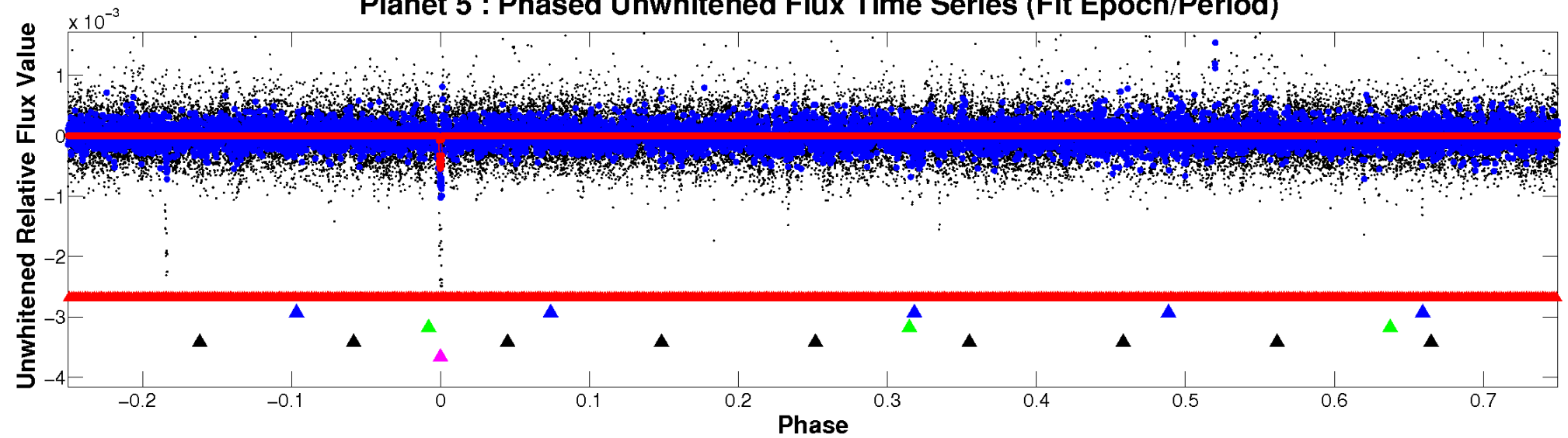
ALT Odd/Even

TCE 008315394-05

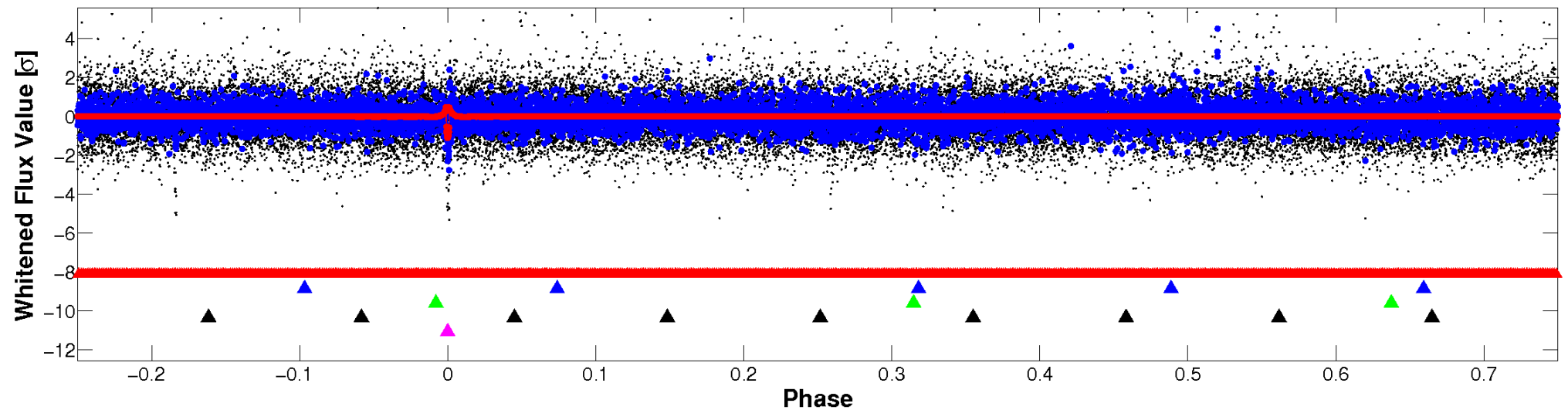


Non-Whitened Vs. Whitened Light Curve

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

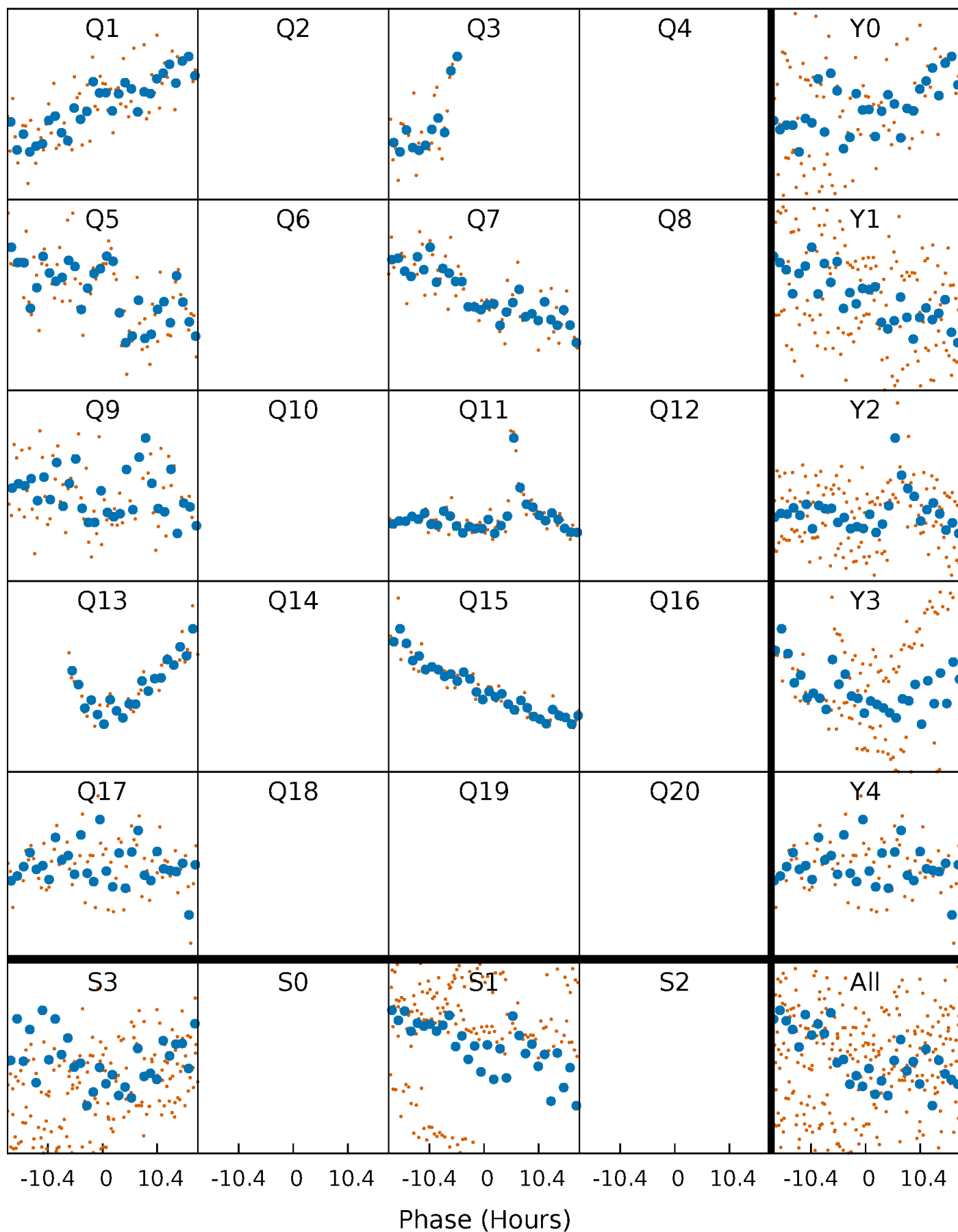


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



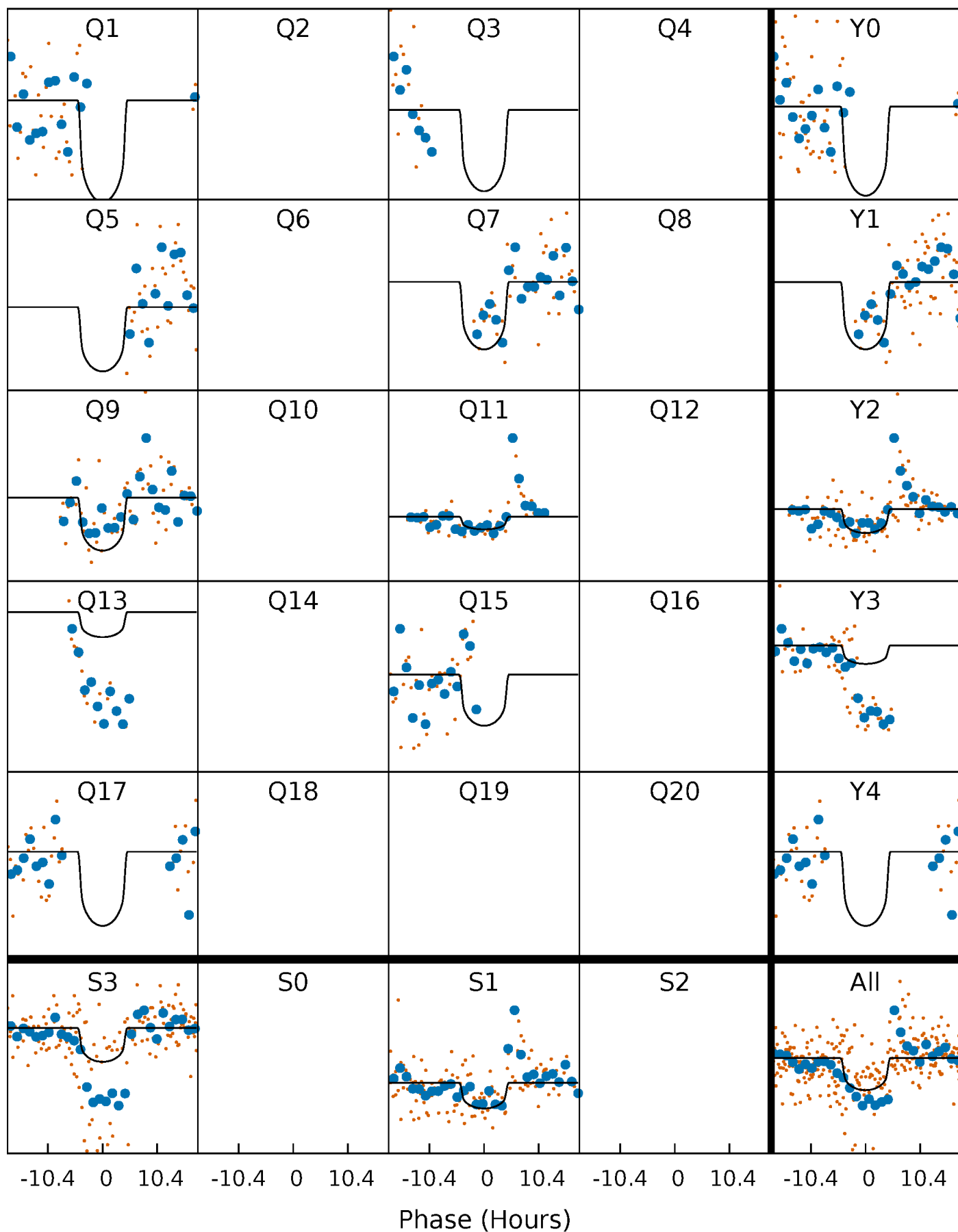
PDC Quarter-Phased Transit Curves

TCE 008315394-05 $P=178.862302$ Days $T_0=142.810246$ (BKJD)



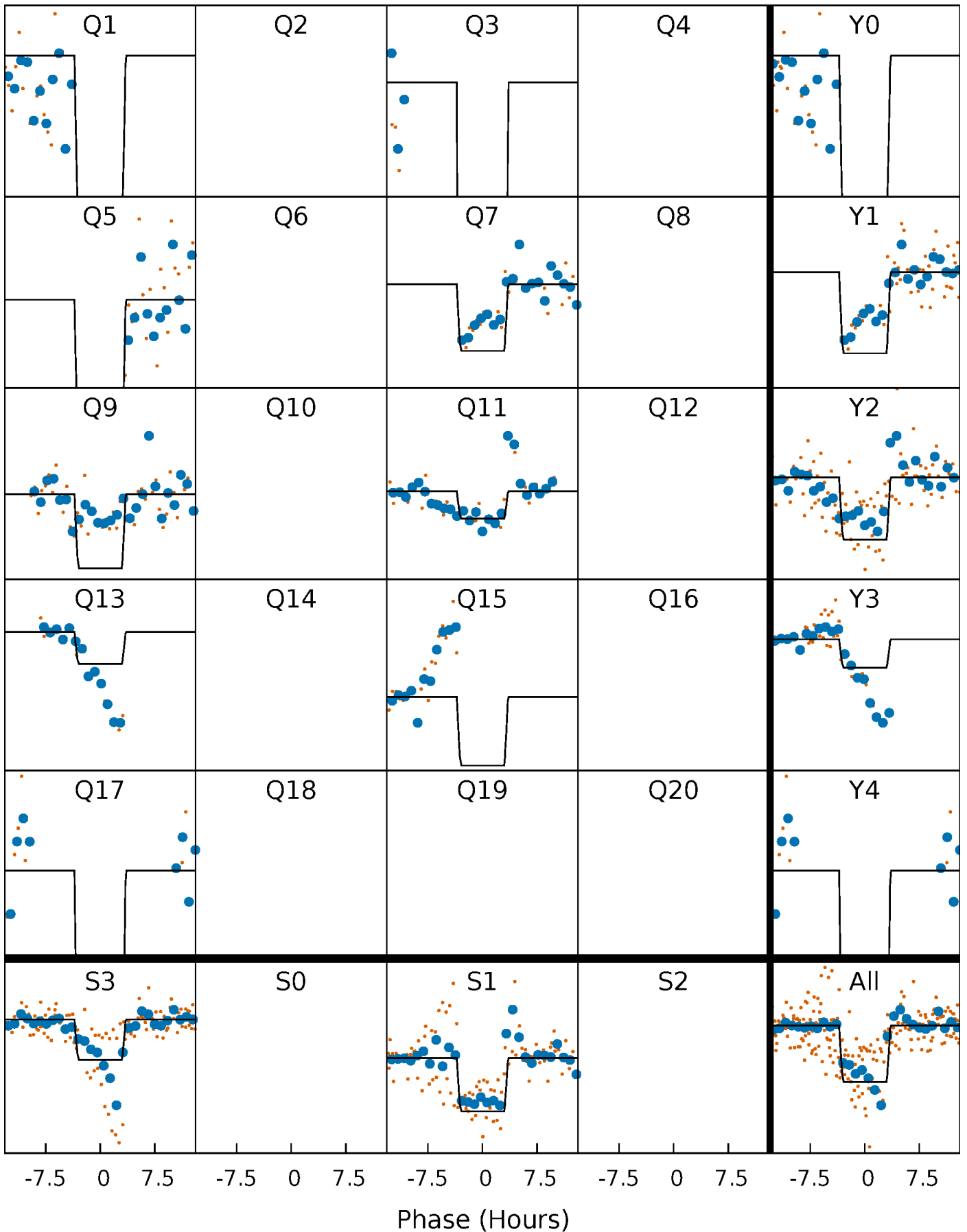
DV Quarter-Phased Transit Curves

TCE 008315394-05 $P=178.862302$ Days $T_0=142.810246$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

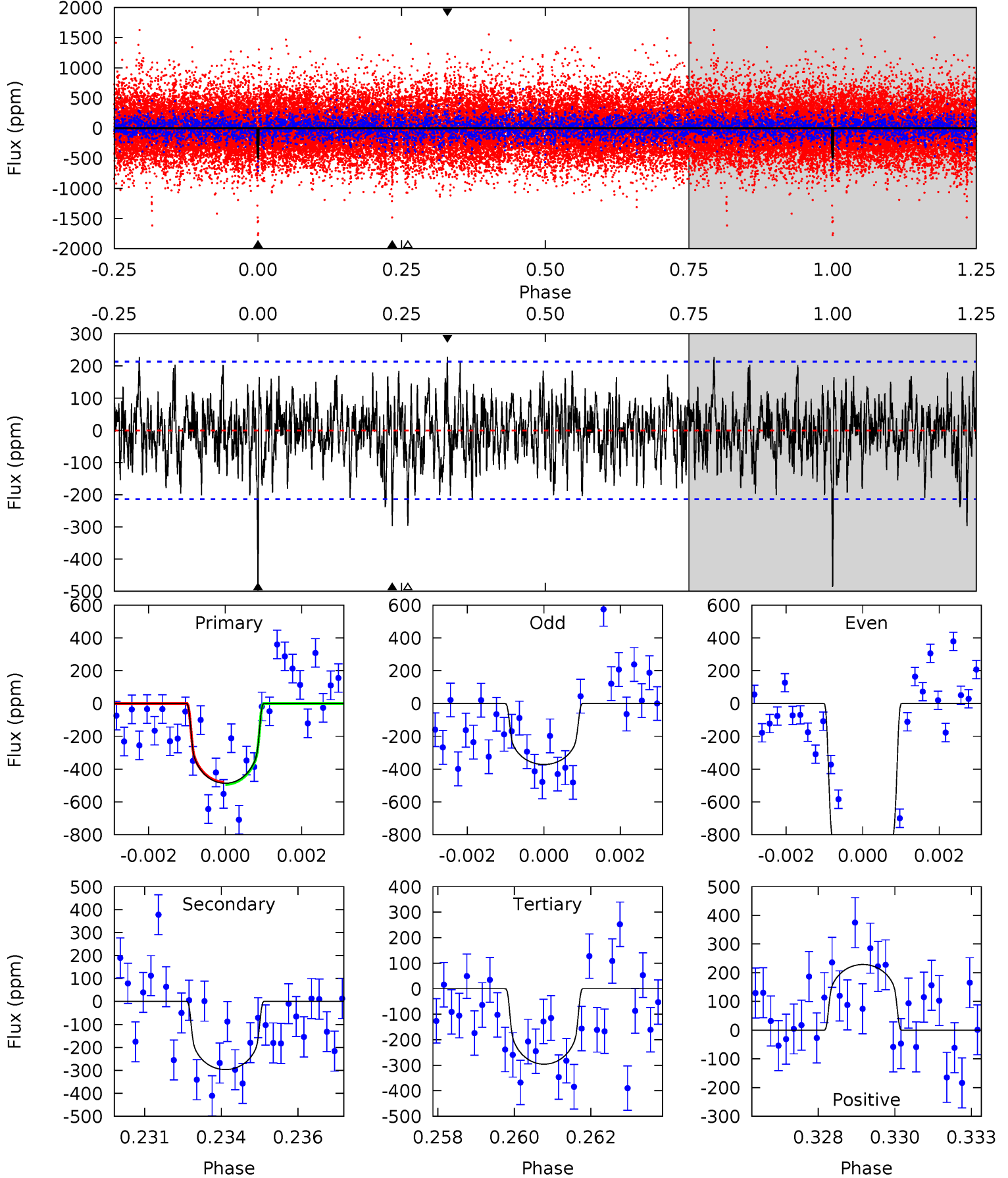
TCE 008315394-05 P=178.868573 Days $T_0=142.846130$ (BKJD)



DV Model-Shift Uniqueness Test

008315394-05, P = 178.862302 Days, E = 142.810246 Days

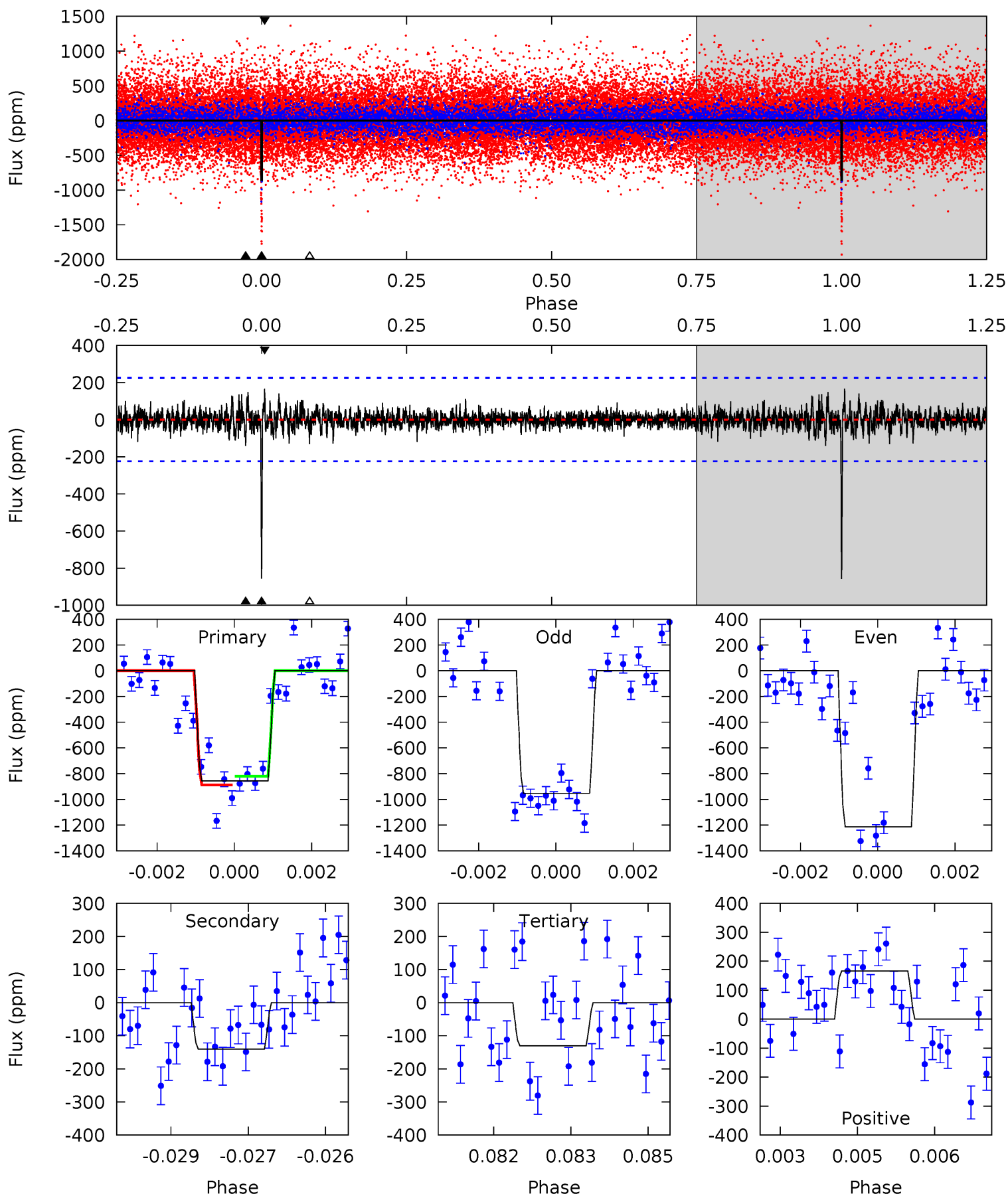
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	7.37	7.35	5.68	5.31	3.06	1.86	4.74	6.40	0.02	1.69	10.9	1.69	0.32	0



Alt Model-Shift Uniqueness Test

008315394-05, P = 178.868573 Days, E = 142.846130 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	3.36	3.12	3.97	5.37	3.16	0.80	17.4	16.5	0.23	-0.61	3.27	1.18	0.16	0.81



Stellar Parameters For KIC 008315394

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4996^{+136}_{-151}	$3.867^{+0.728}_{-0.312}$	$0.000^{+0.250}_{-0.300}$	$1.847^{+0.964}_{-1.178}$	$0.916^{+0.190}_{-0.171}$	$0.205^{+2.837}_{-0.147}$
	+3%/-3%	+19%/-8%	+inf%/-inf%	+52%/-64%	+21%/-19%	+1387%/-72%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008315394-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-297 ± 40	$4.42^{+2.53}_{-2.10}$	533^{+75}_{-93}	4409^{+941}_{-524}	3051^{+8036}_{-1815}
Alt.	-140 ± 42	$6.65^{+3.16}_{-2.79}$	529^{+78}_{-92}	3386^{+411}_{-291}	634^{+1179}_{-384}

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

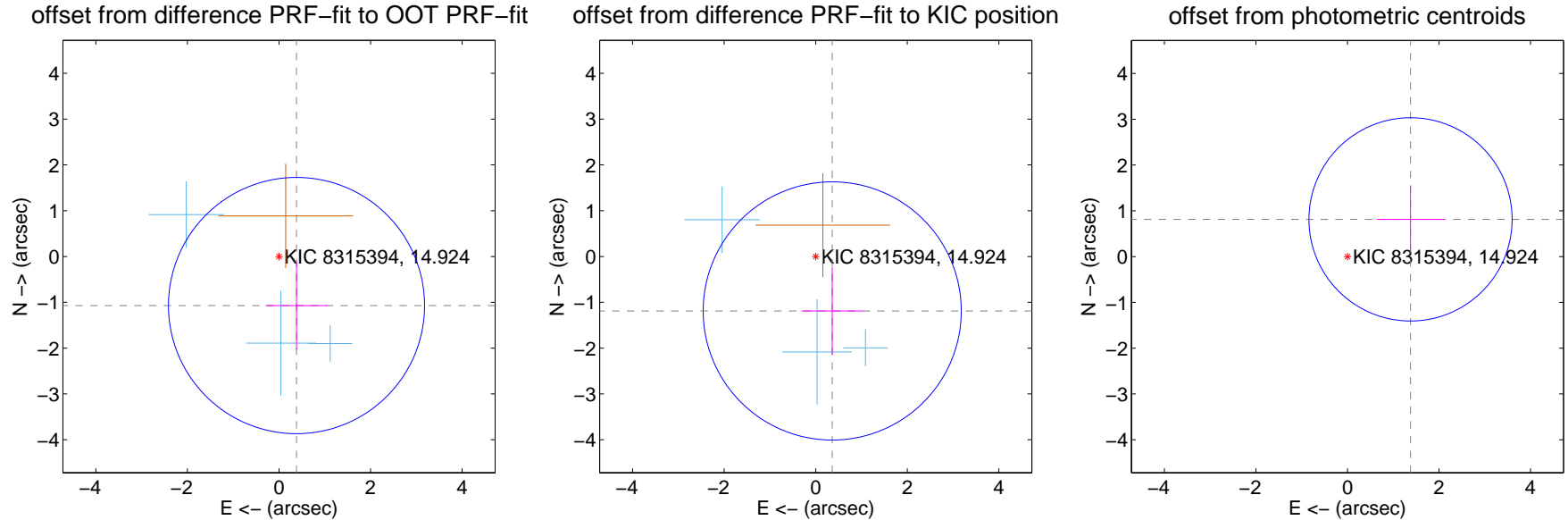
DV Centroid Data

Supplemental centroid analysis for 008315394-05. Kepler magnitude: 14.92. Transit SNR 8.15

There are 3 quarters with good PRF difference image offsets

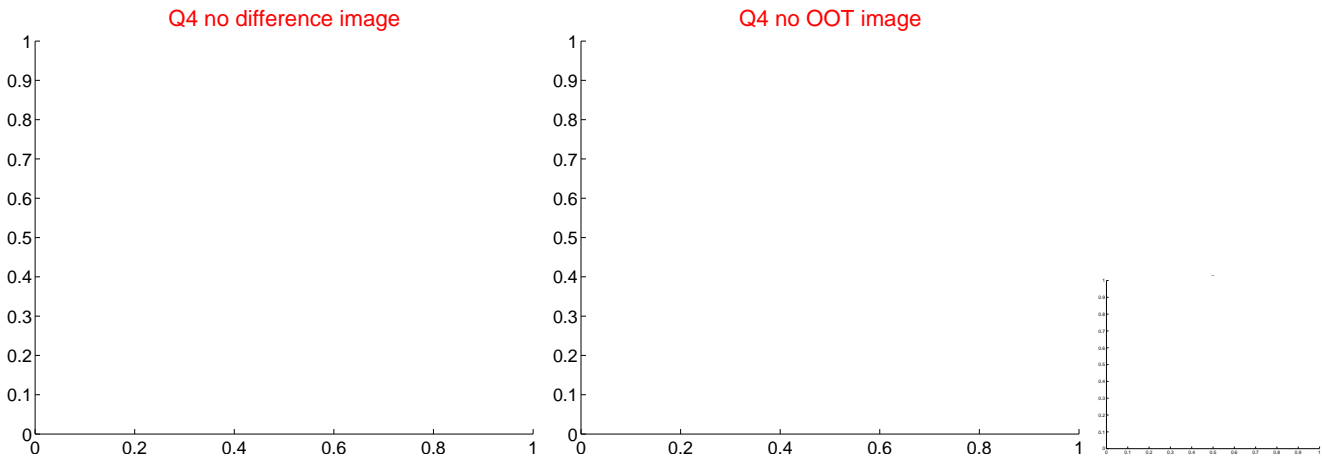
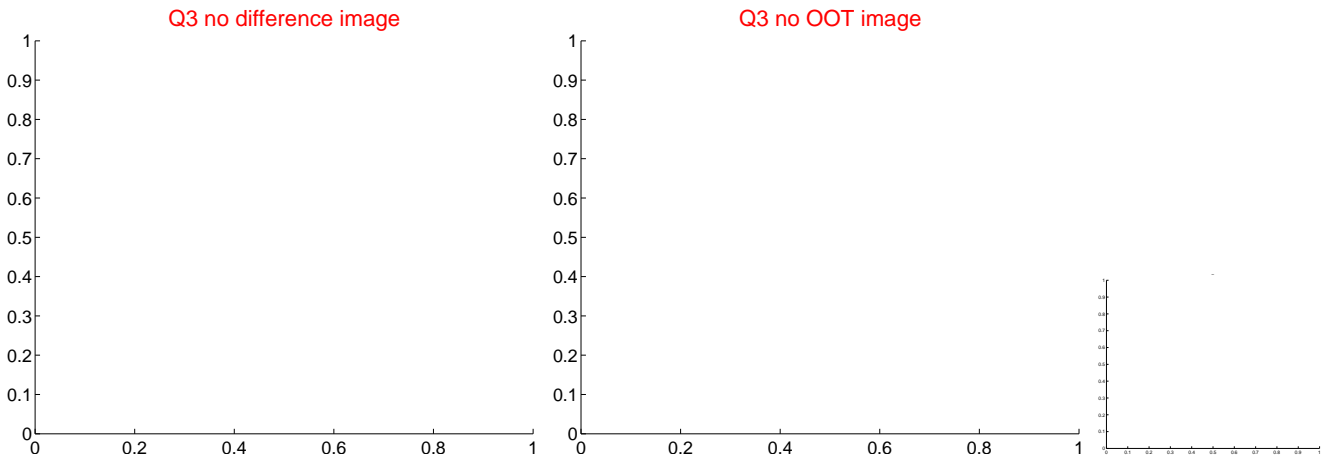
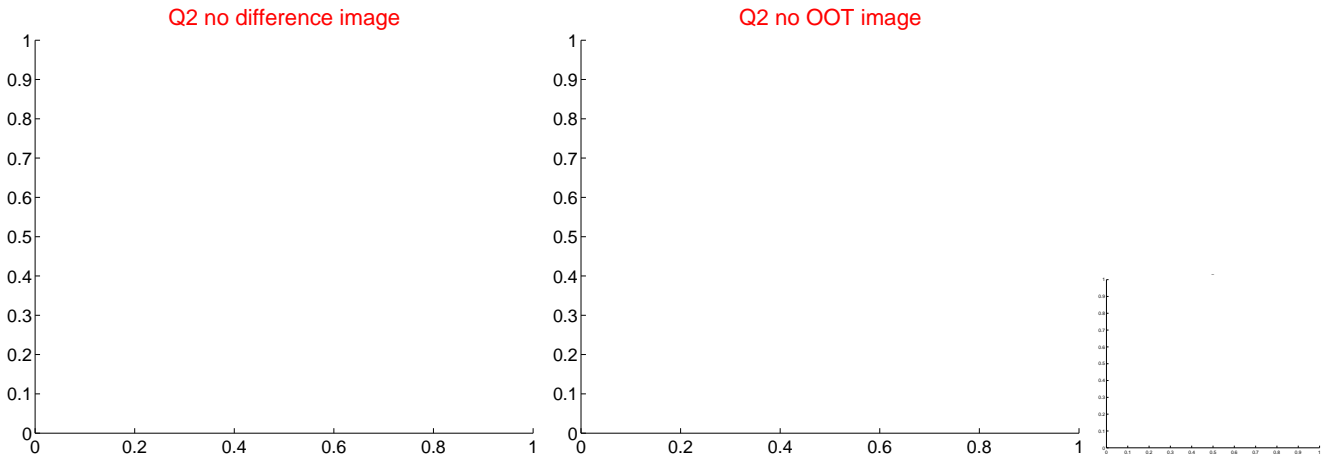
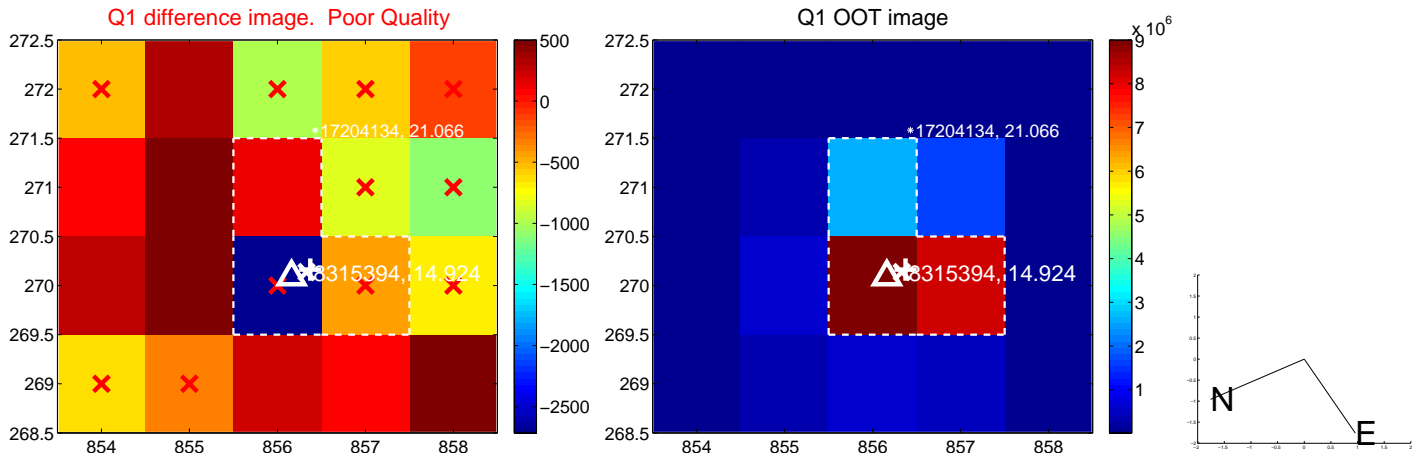
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.137 ± 0.932	1.22	-0.382 ± 0.675	-1.070 ± 0.960
PRF-fit source offset from KIC position	1.242 ± 0.940	1.32	-0.361 ± 0.675	-1.189 ± 0.960
photometric centroid source offset	1.60 ± 0.74	2.16	-1.38 ± 0.74	0.81 ± 0.74

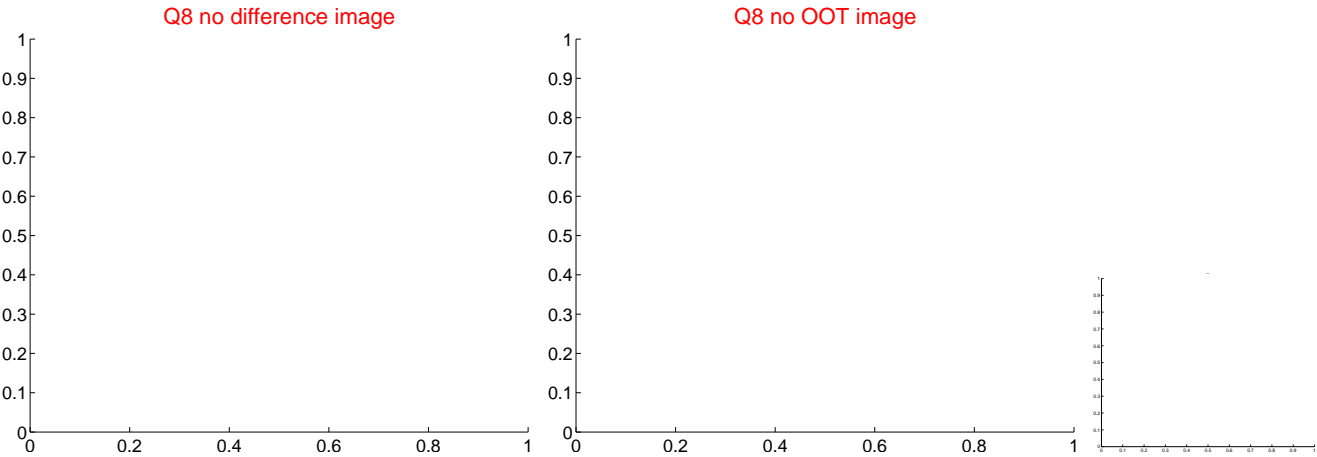
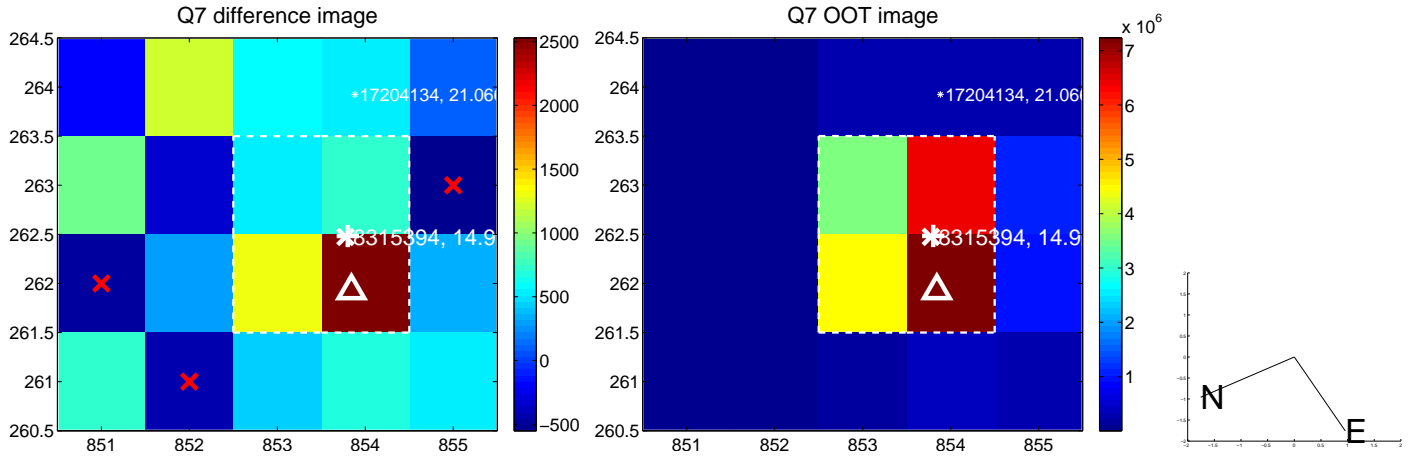
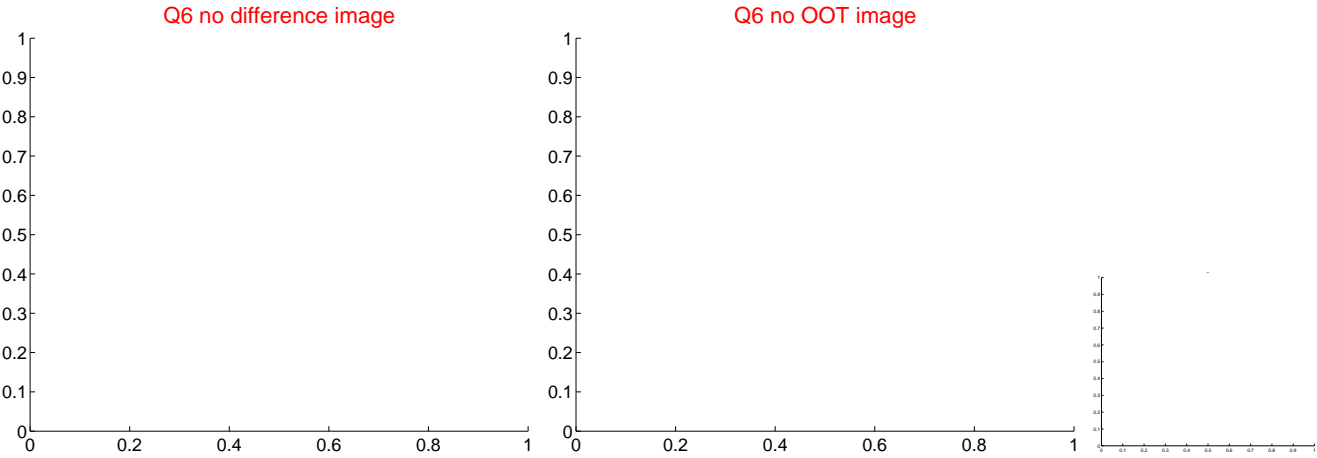
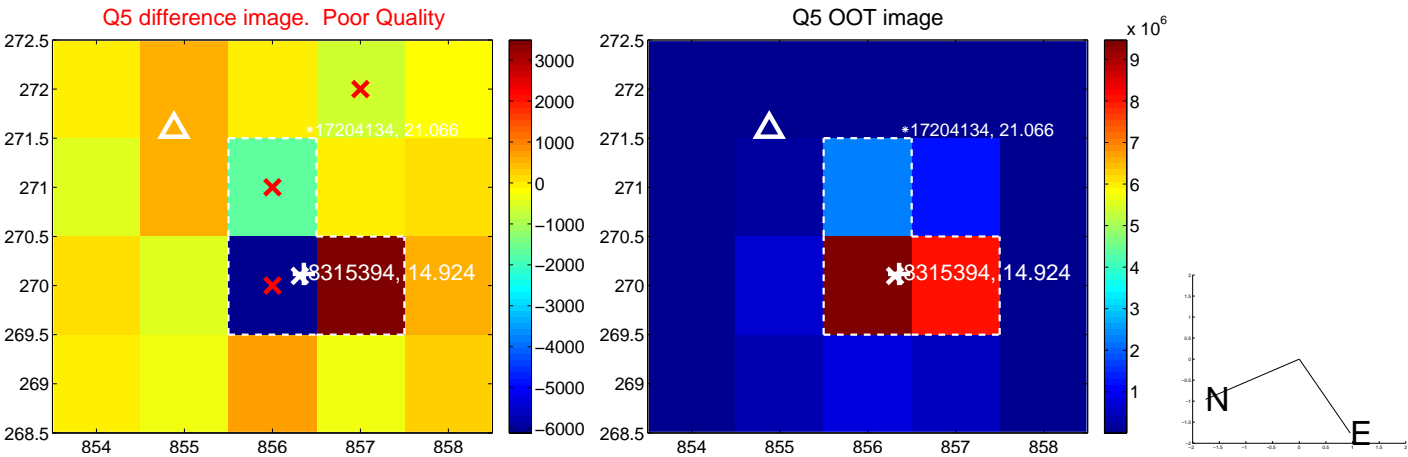


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

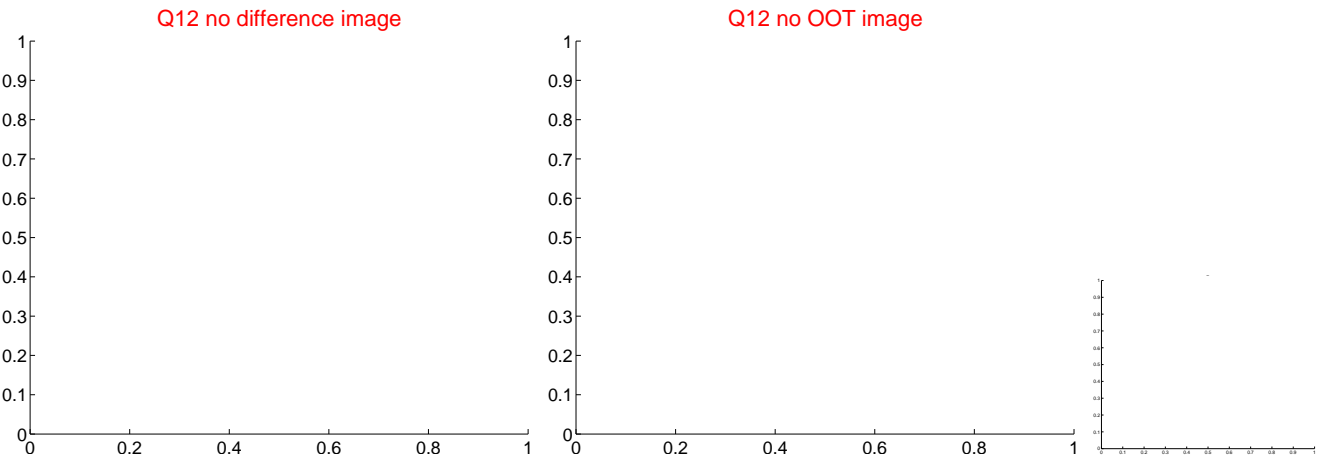
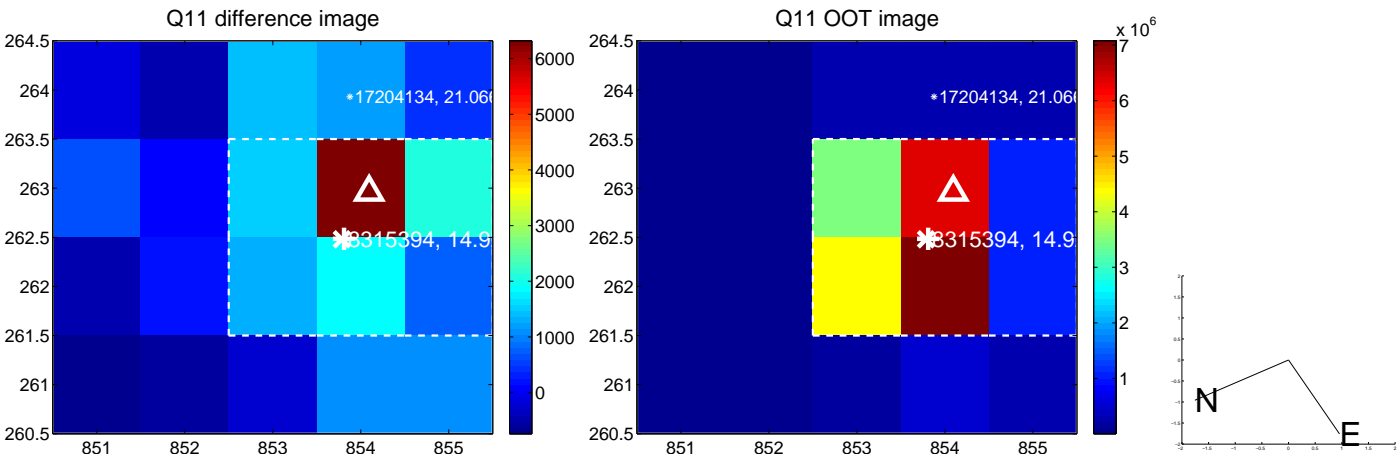
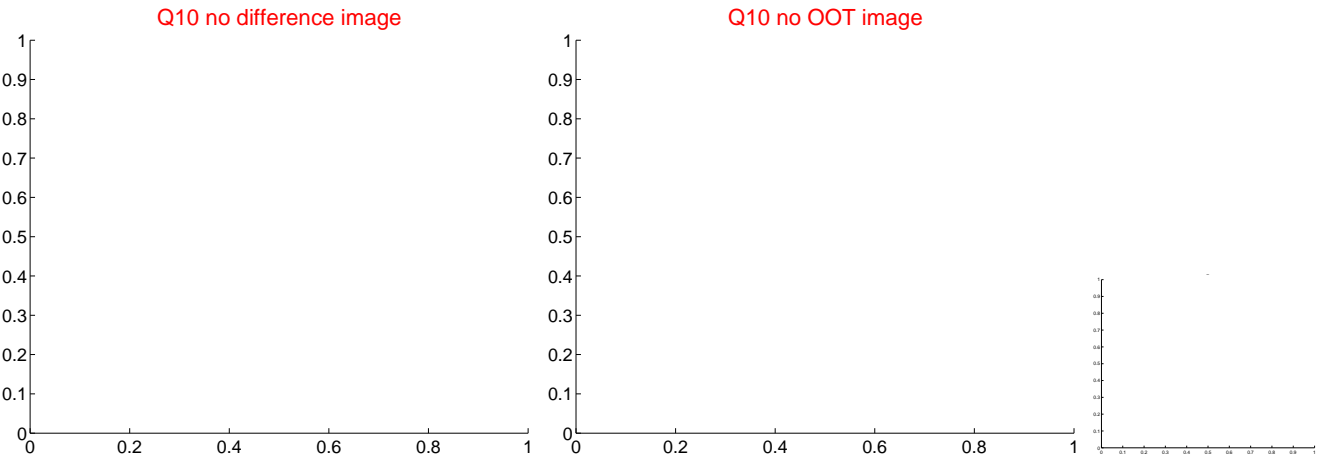
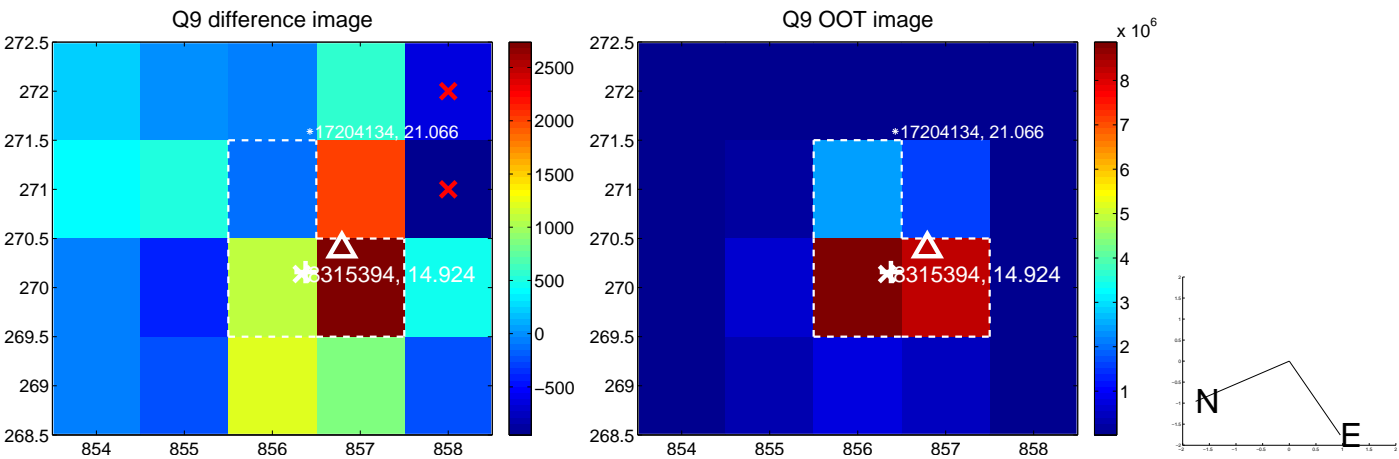
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



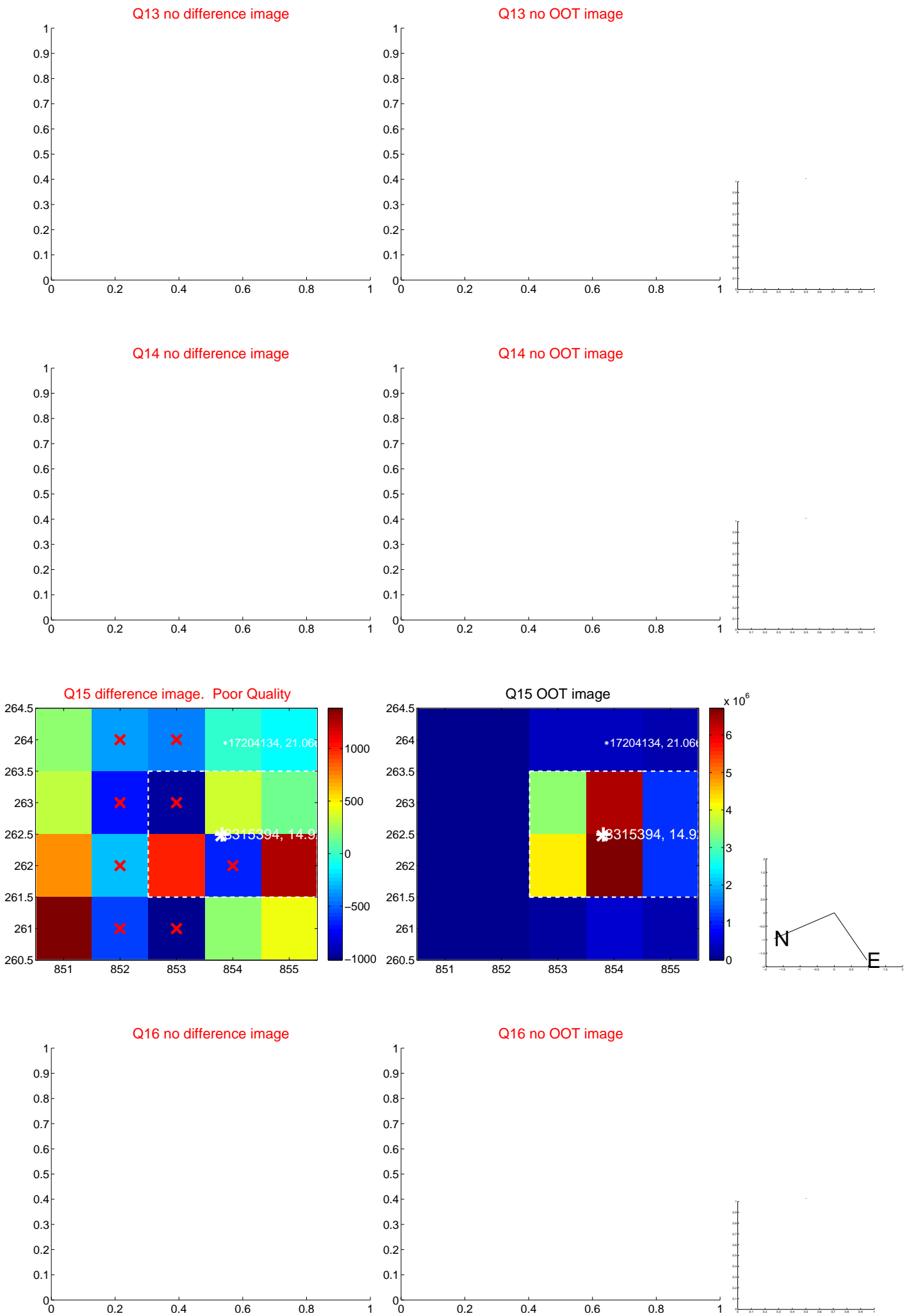
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



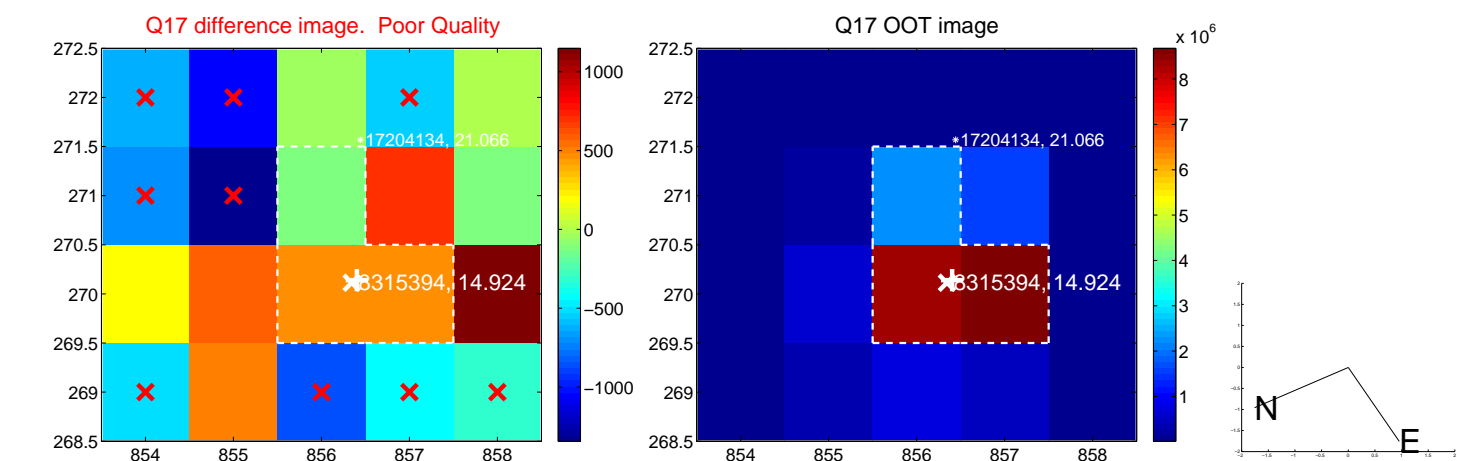
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



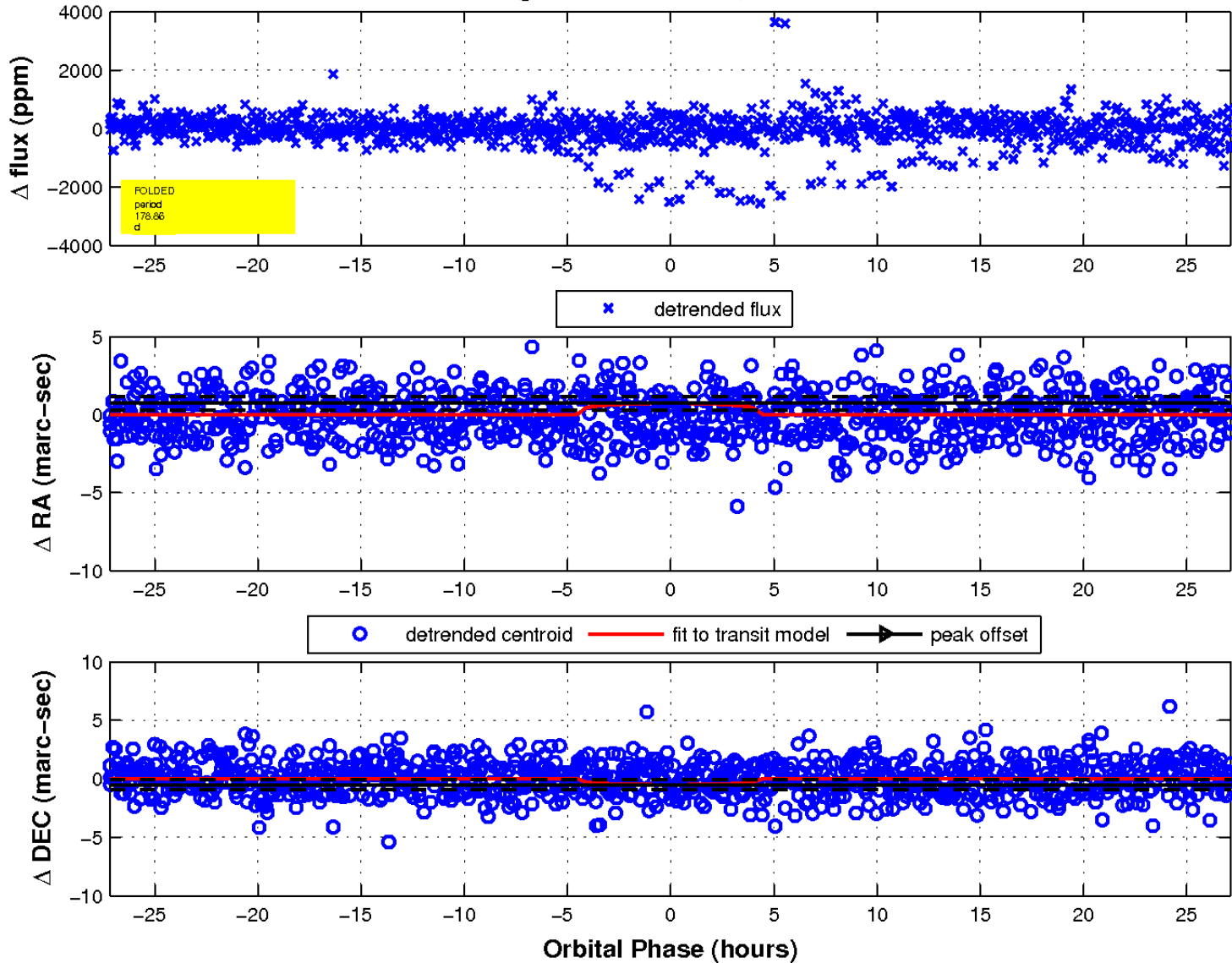
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

