

KIC 010594394

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})
010594394-01	OBS	No	2.348315	133.571394	95.3	13.937	10.6	10.0	0.83	5057	0.79	396.12
010594394-02	OBS	No	112.210357	229.733248	923.6	3.106	9.7	10.6	0.83	5057	2.88	2.29
010594394-04	OBS	No	78.344708	142.510836	932.2	3.174	9.7	8.1	0.83	5057	2.79	3.69
010594394-05	OBS	No	99.661265	153.438402	561.3	11.704	7.9	7.7	0.83	5057	2.00	2.68
010594394-06	OBS	No	108.521345	164.324814	529.5	9.633	8.7	6.2	0.83	5057	2.01	2.39
010594394-07	OBS	No	62.535836	139.965446	200.4	9.706	7.6	2.9	0.83	5057	1.28	4.98
010594394-08	OBS	No	54.959553	140.988069	581.5	2.869	7.3	8.0	0.83	5057	2.24	5.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010594394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_FEW_MEAS—HALO_GHOST
010594394-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

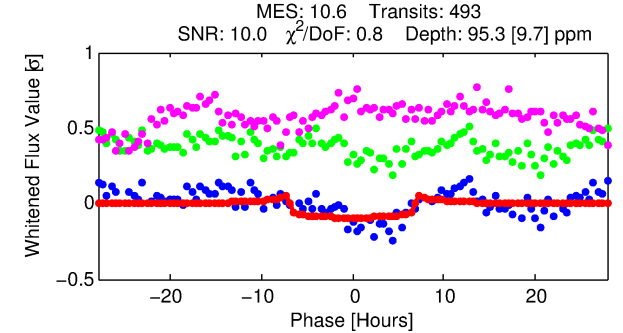
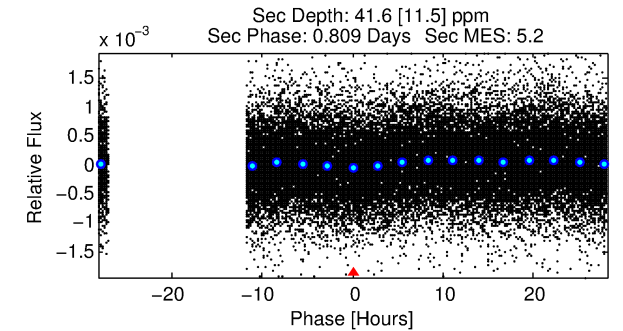
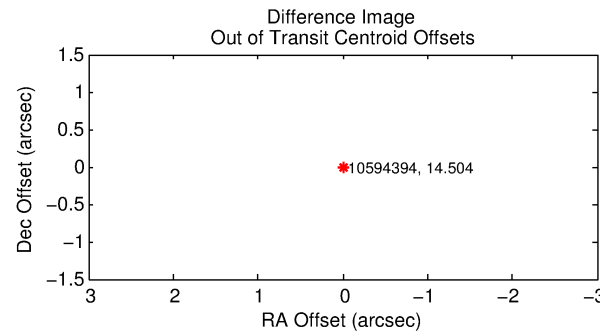
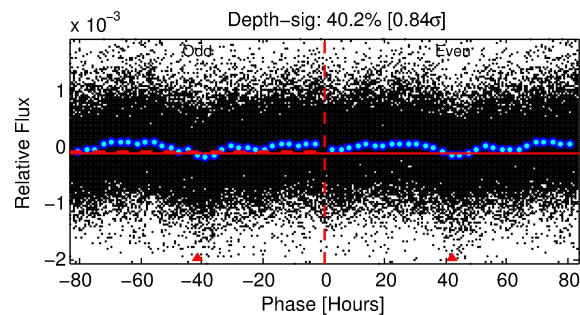
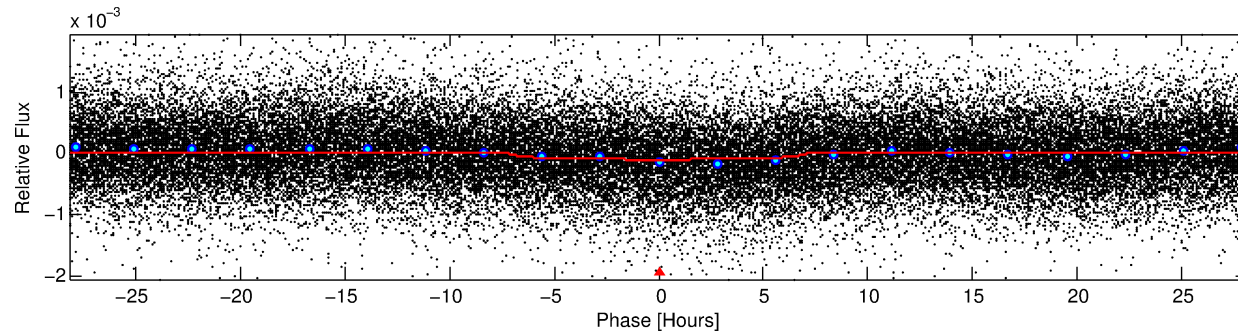
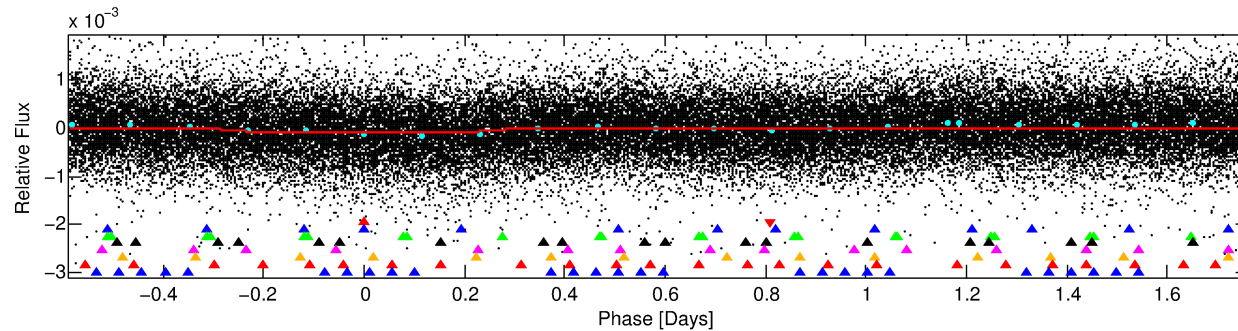
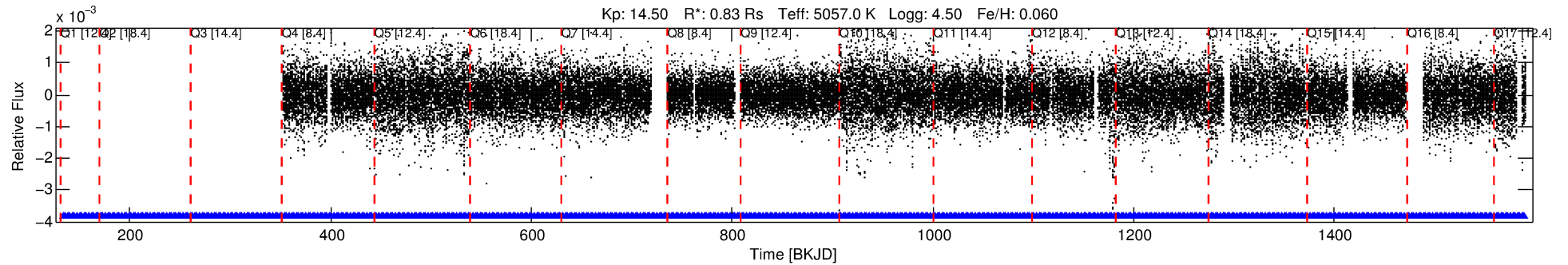
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-01

No Significant Match Found

DV One-Page Summary

KIC: 10594394 Candidate: 1 of 8 Period: 2.348 d



DV Fit Results:

Period = 2.34831 [0.00003] d
Epoch = 133.5714 [0.0083] BKJD
Rp/R* = 0.0087 [0.0060]
a/R* = 1.43 [1.71]
b = 0.18 [12.76]
Seff = 396.12 [83.68]
Teq = 1138 [60] K
Rp = 0.79 [0.55] Re
a = 0.0319 [0.0033] AU
Ag = 37.58 [52.92] [0.69 σ]
Teff = 4355 [1531] K [2.10 σ]

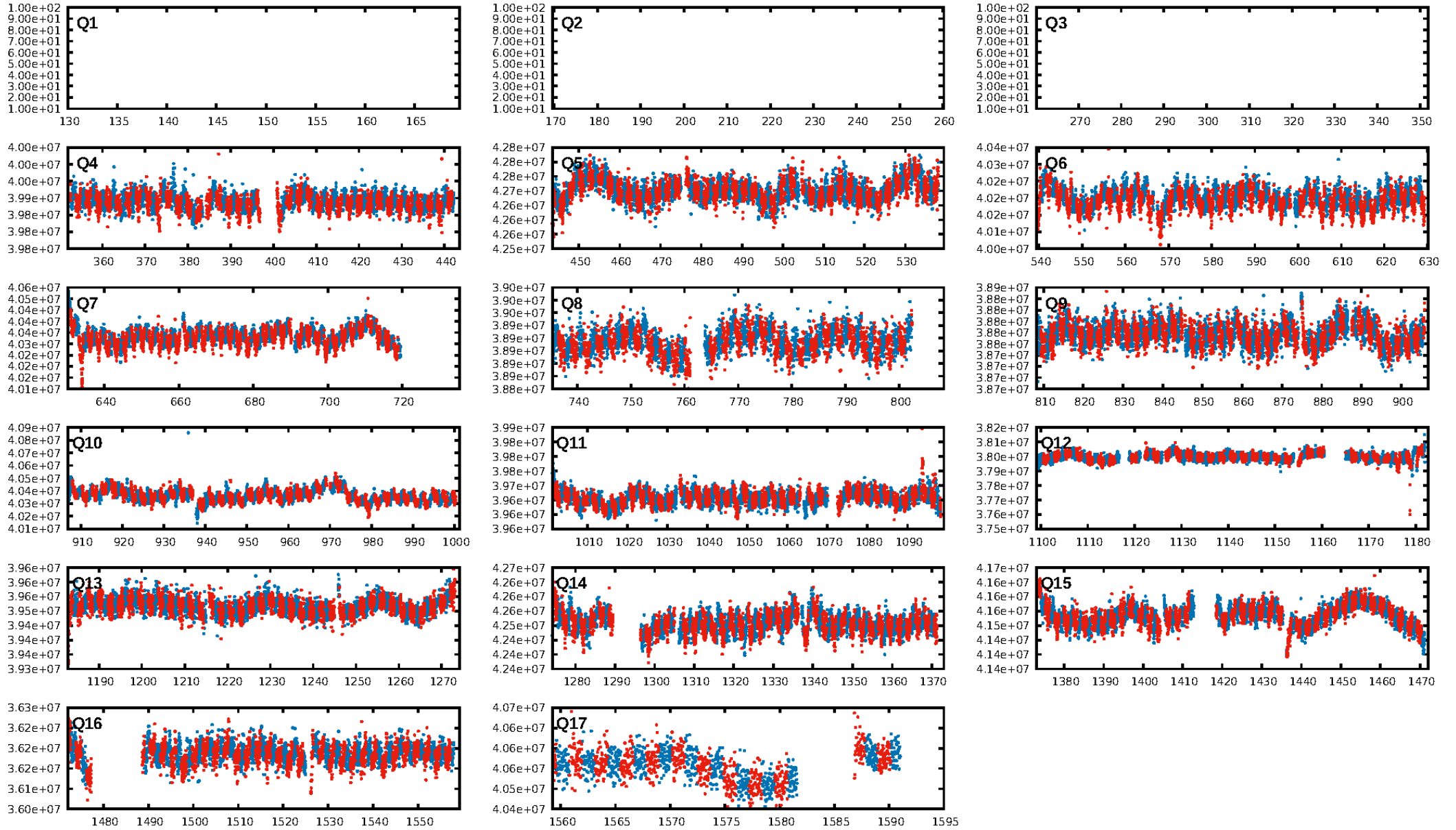
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [88.74 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.95e-16
RollingBand-fgt: 1.00 [481/481]
GhostDiagnostic-chr: 0.0384
Centroid-sig: 0.0%
Centroid-so: 3.463 arcsec [35.06 σ]
OotOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-rm: 3.830 arcsec [49.37 σ]
KicOffset-st: 0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [14/14]

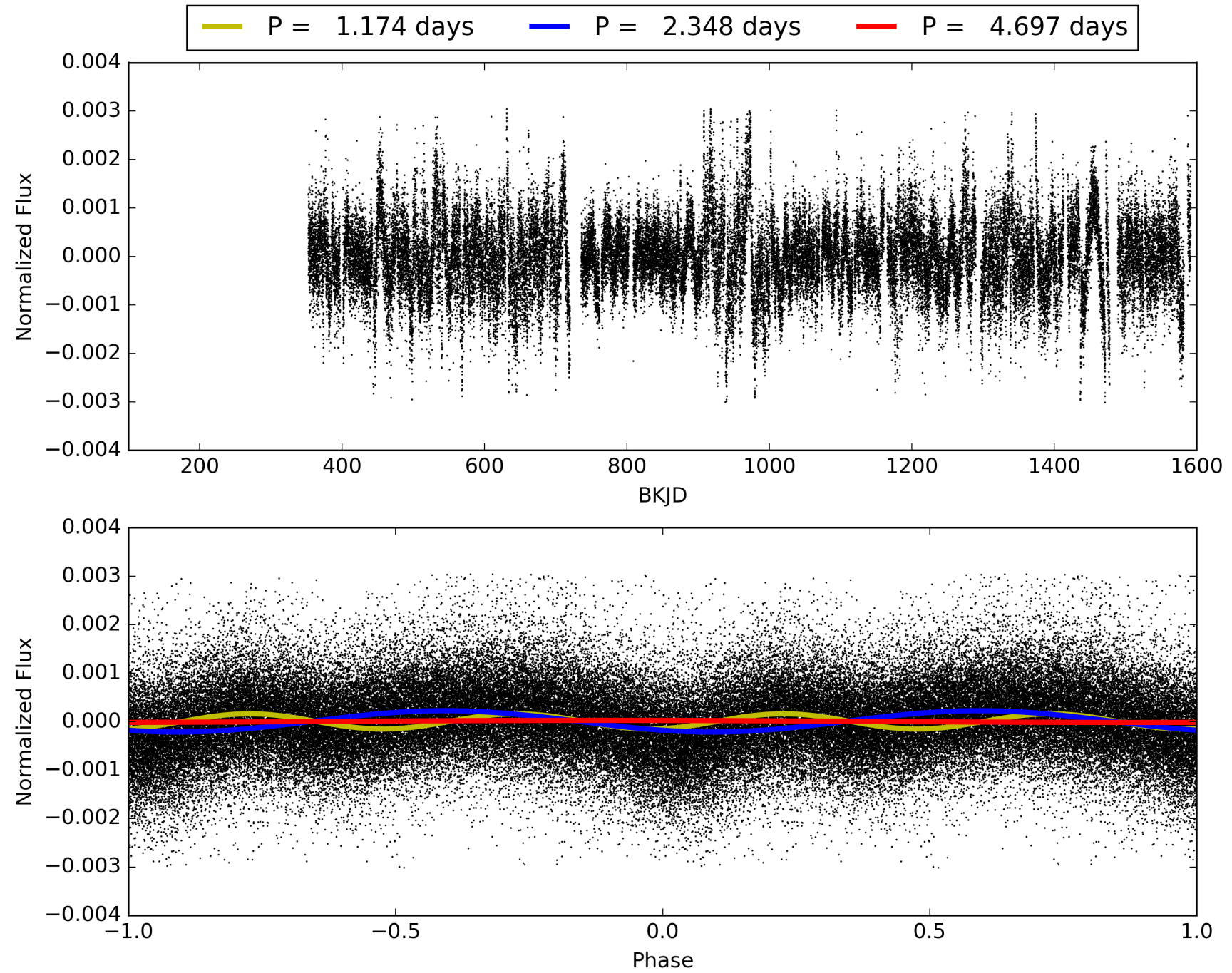
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010594394-01, PDC Light Curves

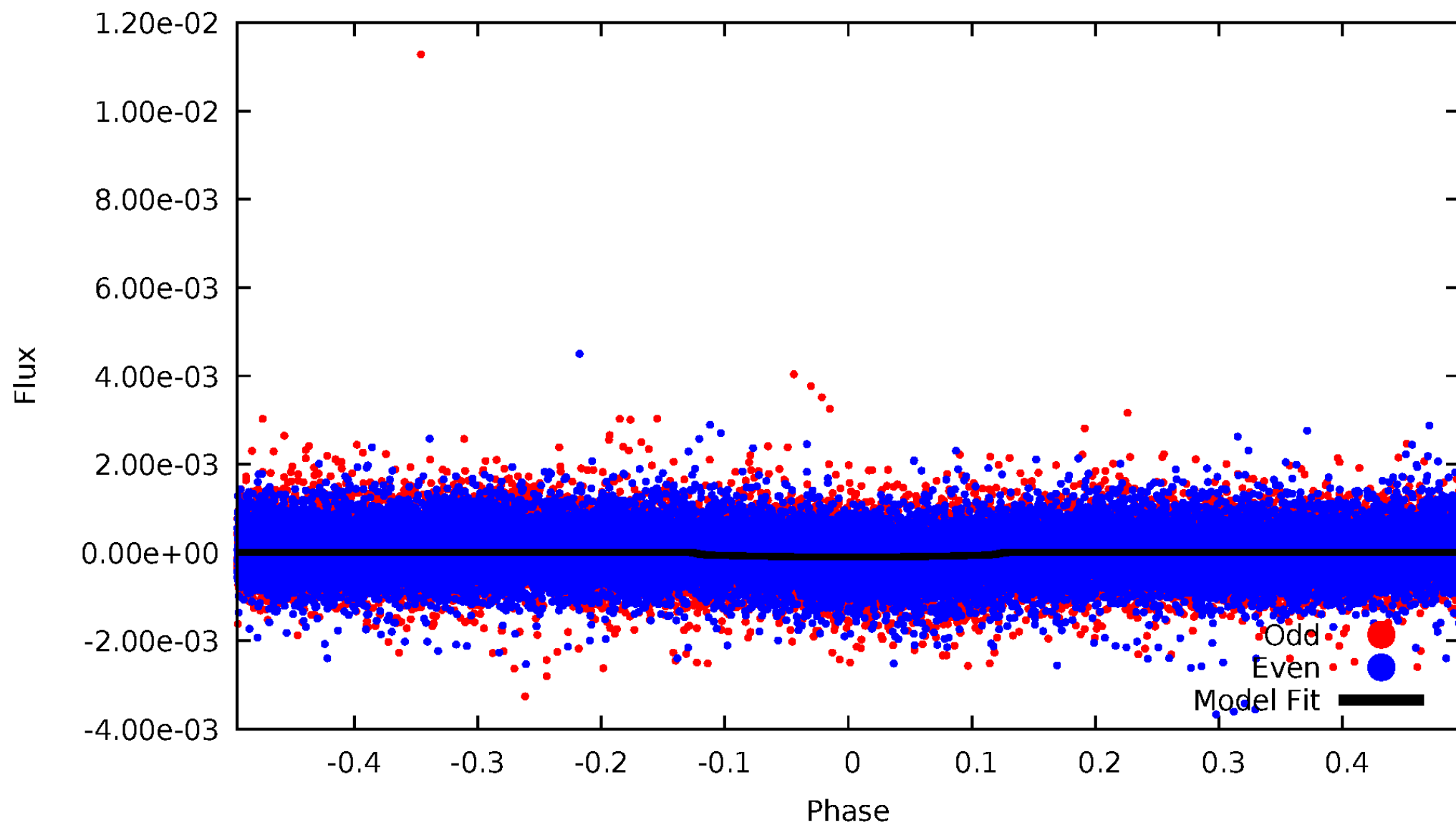


TCE 010594394-01



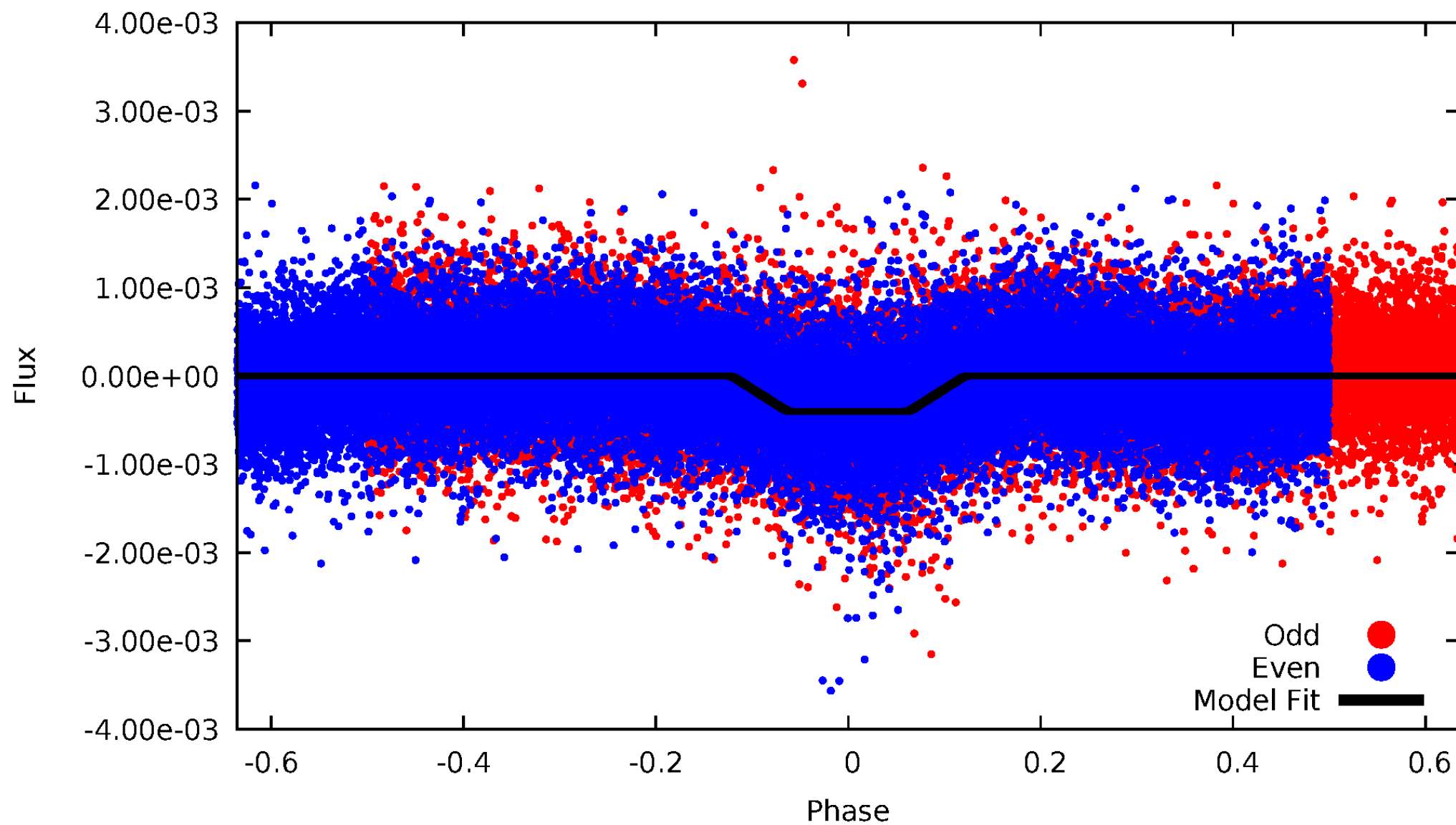
DV Odd/Even

TCE 010594394-01



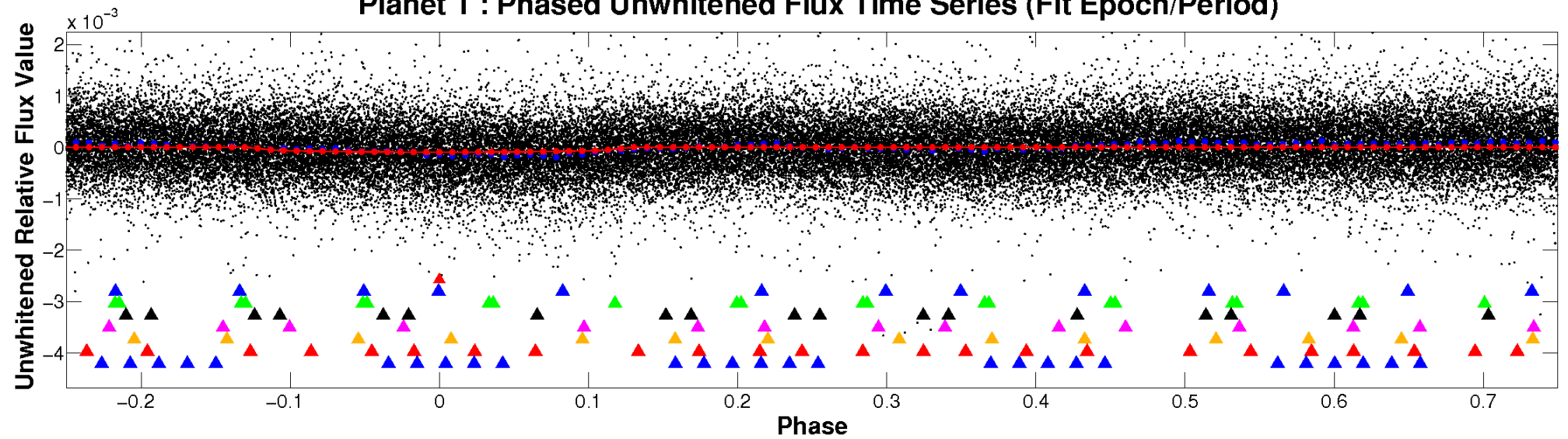
ALT Odd/Even

TCE 010594394-01

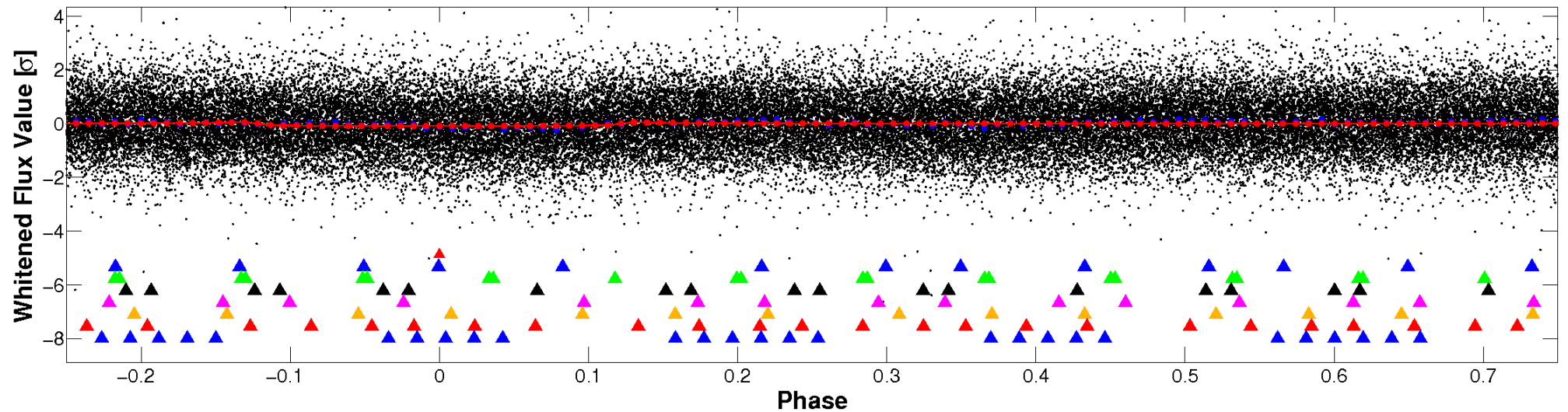


Non-Whitened Vs. Whitened Light Curve

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

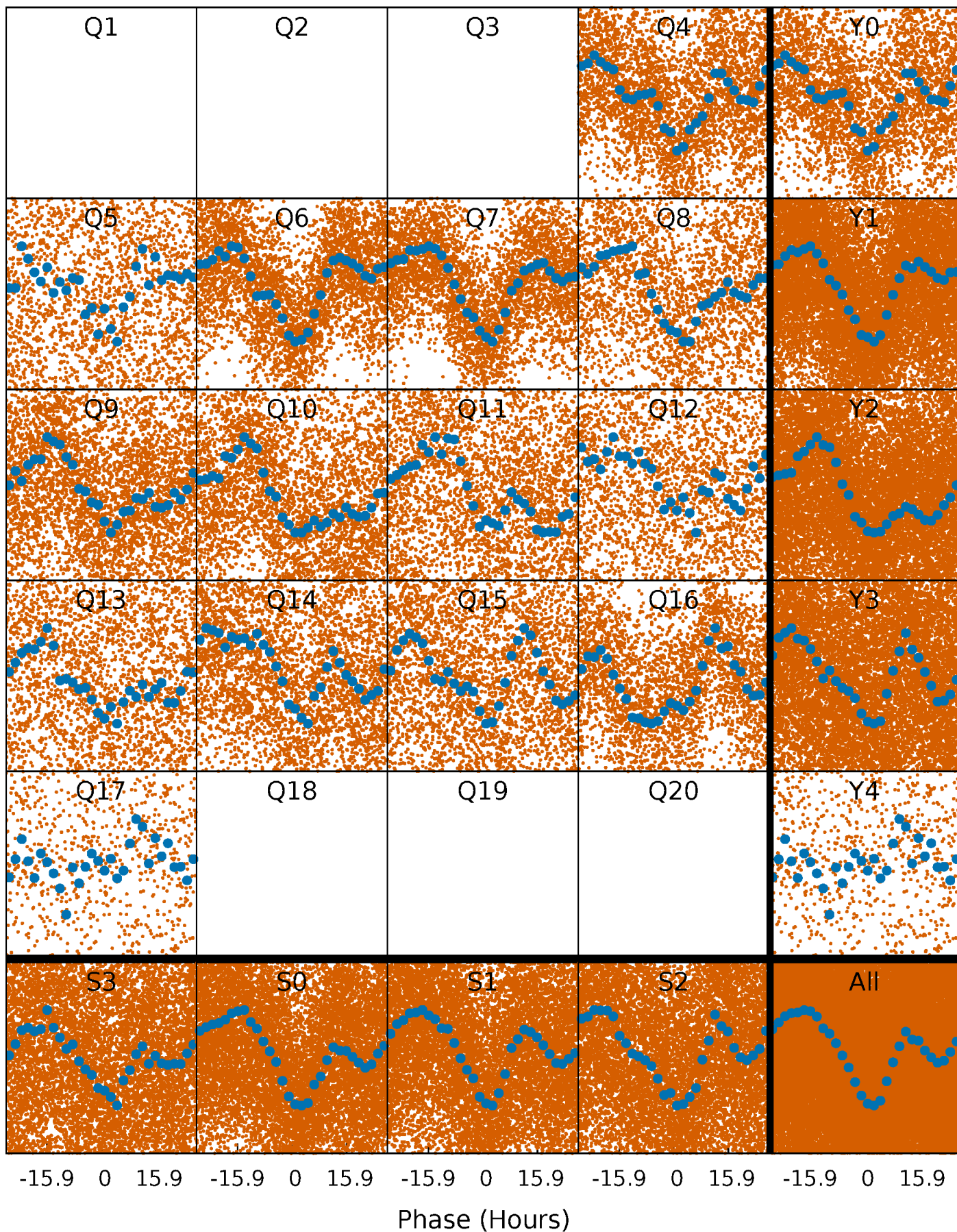


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



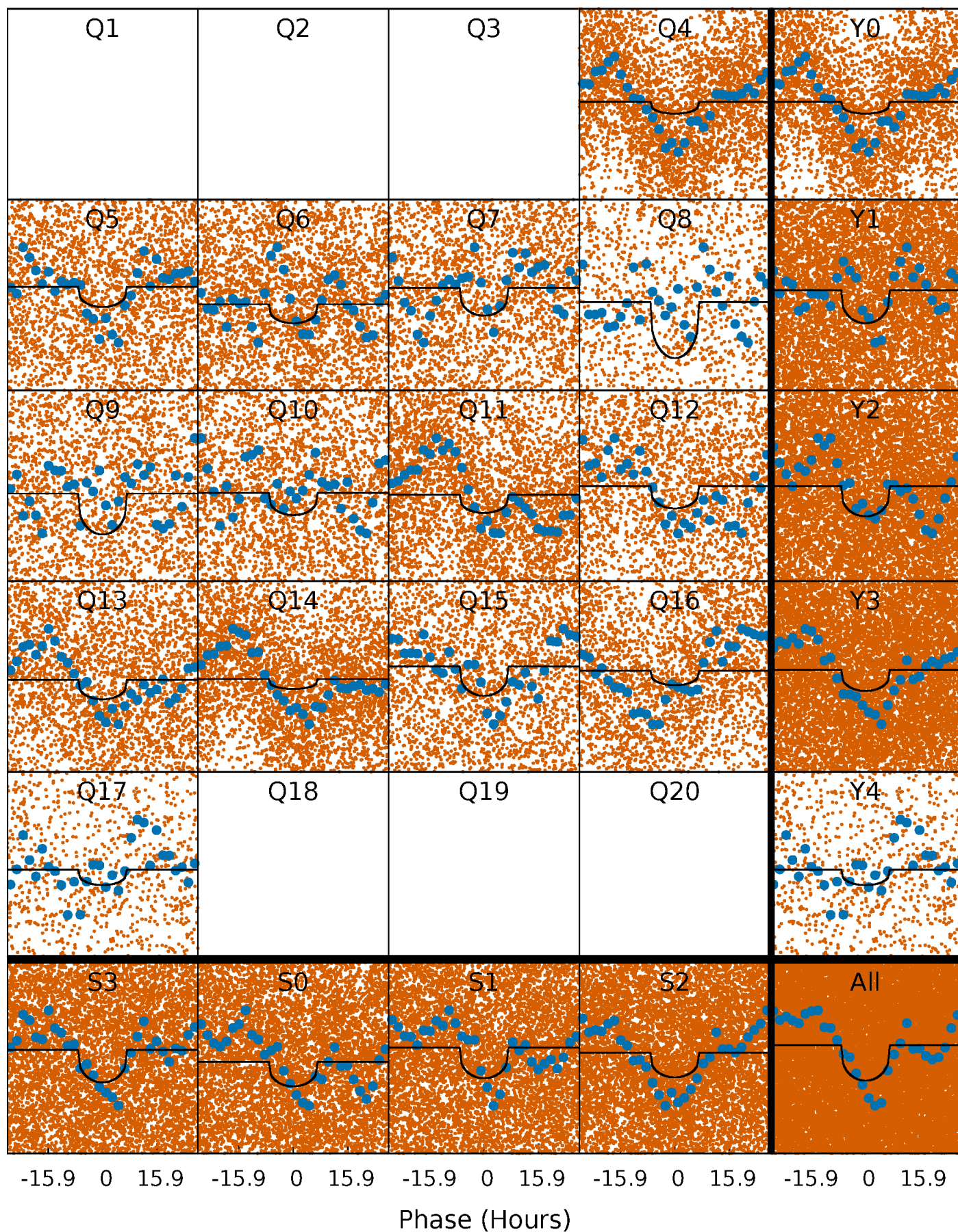
PDC Quarter-Phased Transit Curves

TCE 010594394-01 P= 2.348315 Days $T_0=133.571394$ (BKJD)



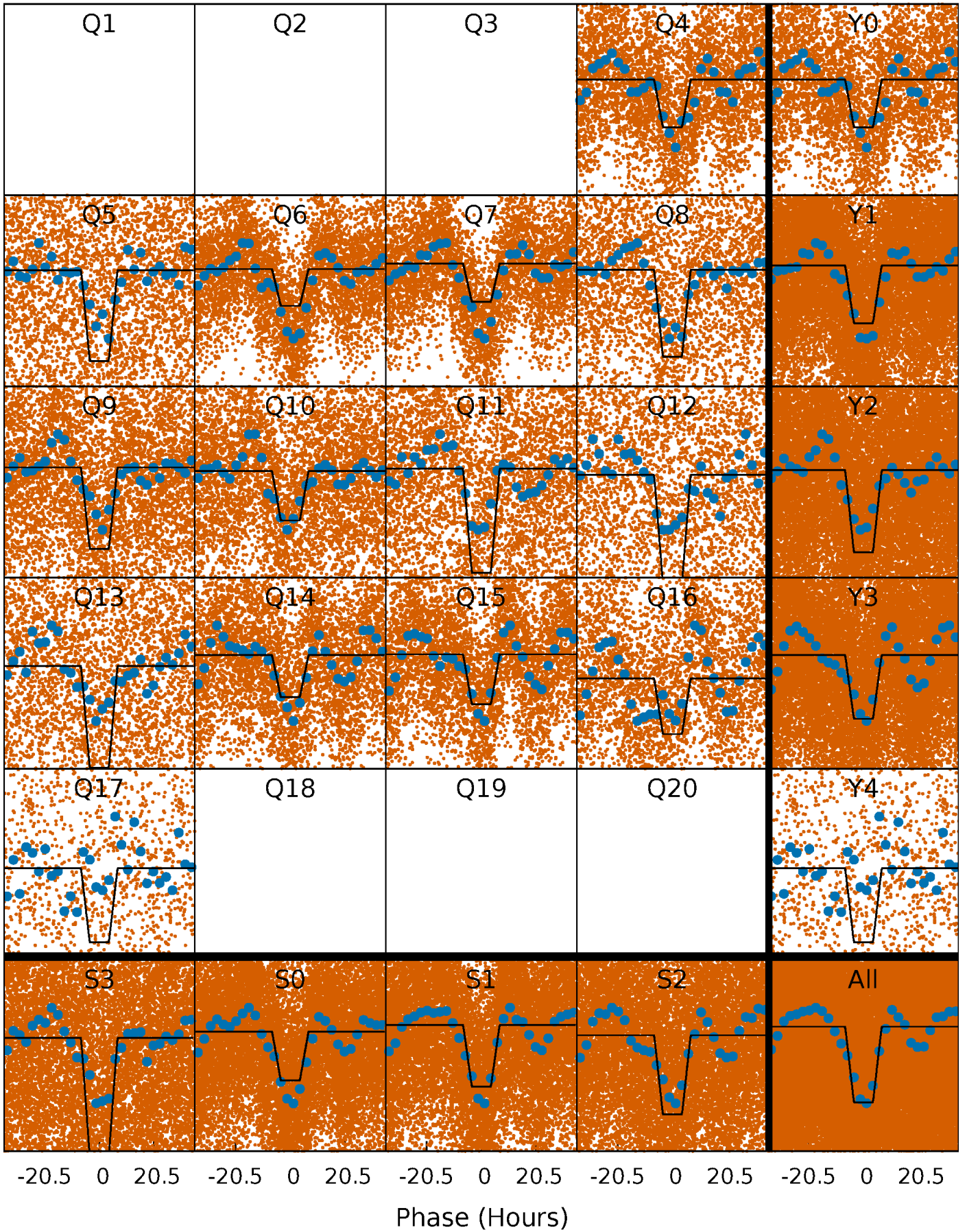
DV Quarter-Phased Transit Curves

TCE 010594394-01 P= 2.348315 Days $T_0=133.571394$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

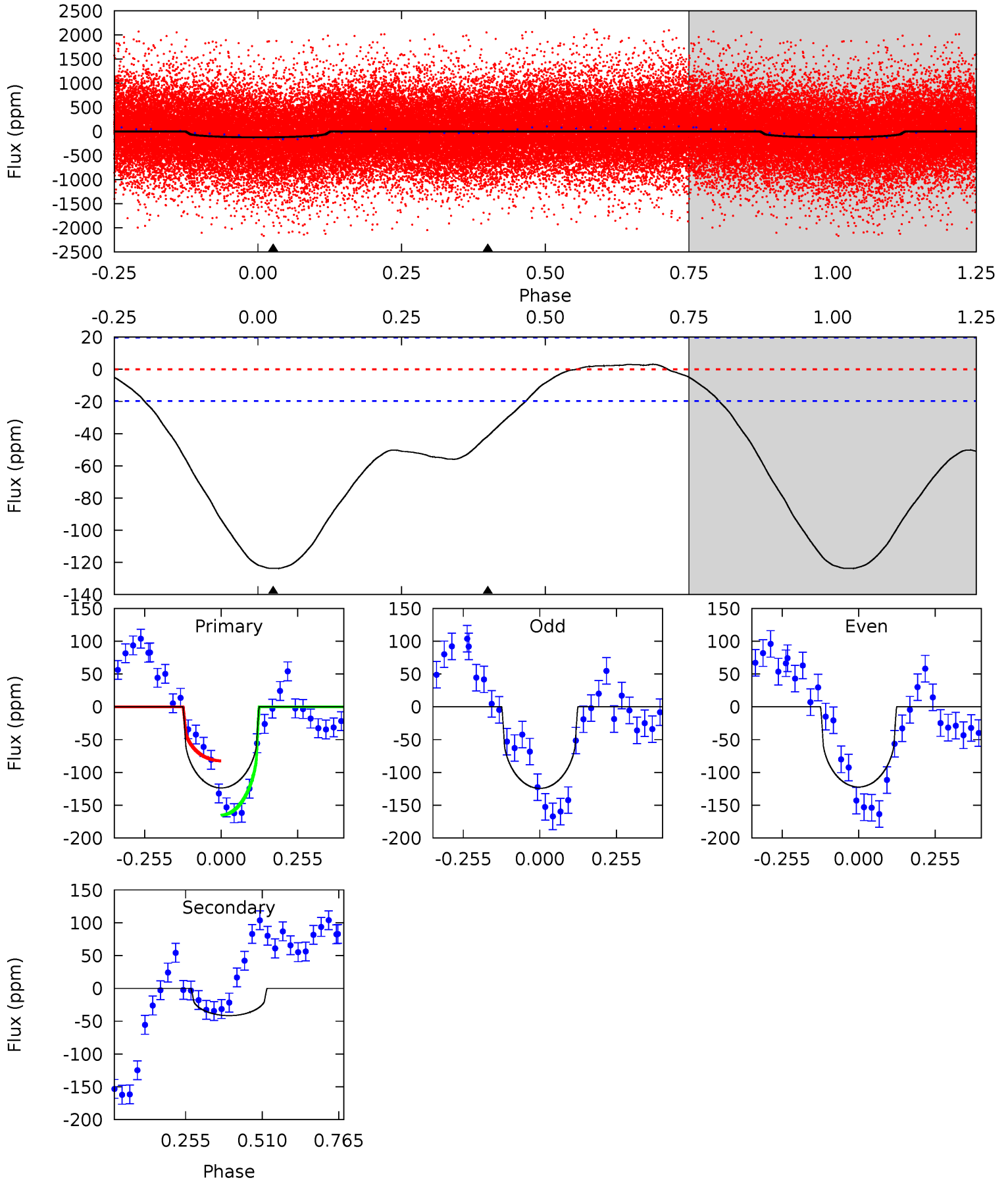
TCE 010594394-01 P= 2.348487 Days $T_0=133.574078$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-01, P = 2.348315 Days, E = 133.571394 Days

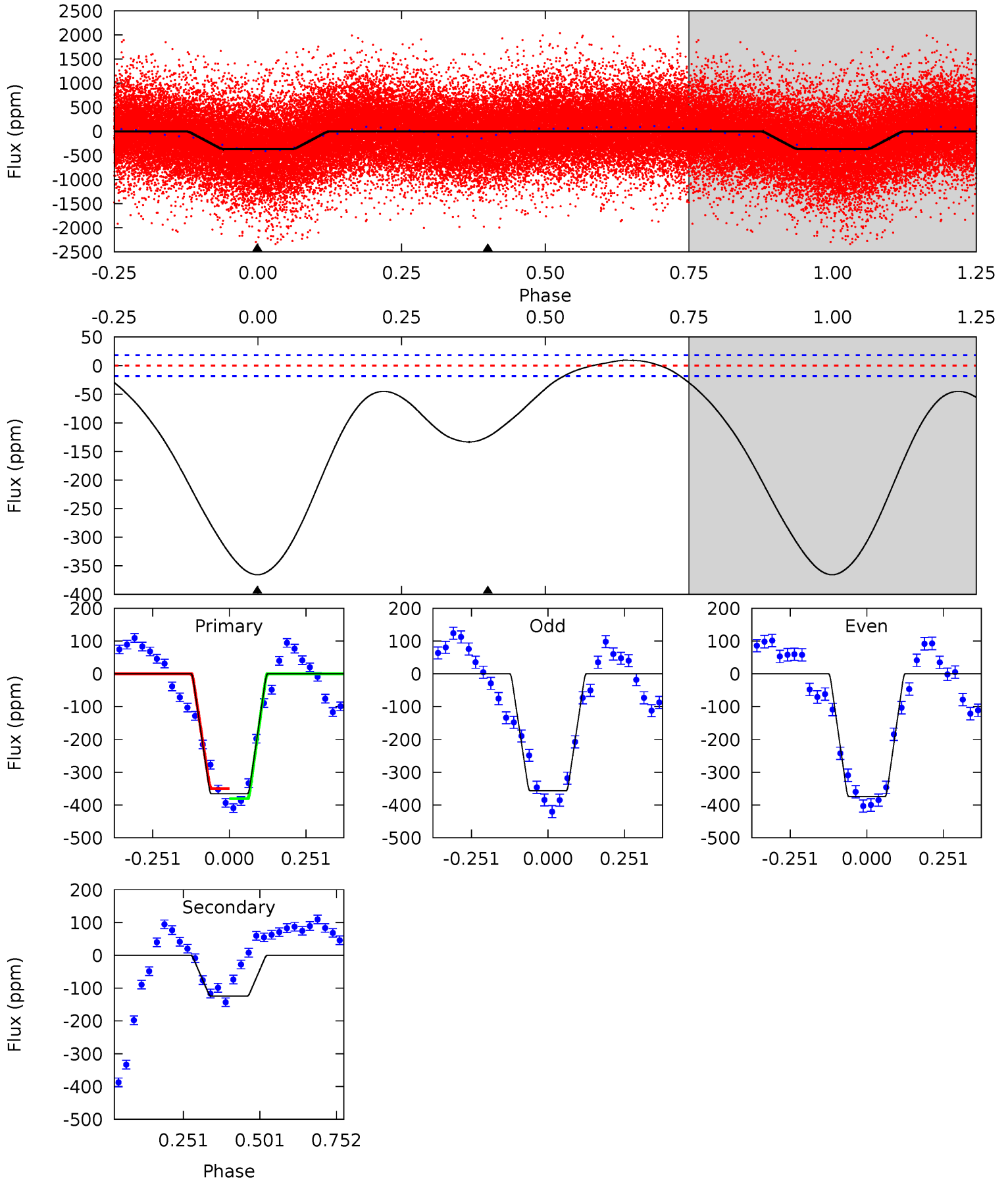
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.4	9.21	0	0	4.36	1.14	0.87	27.4	27.4	9.21	9.21	0.23	1.18	0.02	9.60



Alt Model-Shift Uniqueness Test

010594394-01, P = 2.348487 Days, E = 133.574078 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
86.7	29.5	0	0	4.37	1.15	2.78	86.7	86.7	29.5	29.5	2.12	1.10	0.03	3.72



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-42 ± 5	$0.85^{+0.50}_{-0.48}$	1590^{+71}_{-76}	4328^{+1958}_{-678}	33^{+129}_{-20}
Alt.	-124 ± 4	$1.81^{+0.55}_{-0.53}$	1594^{+75}_{-73}	4019^{+623}_{-360}	21^{+23}_{-9}

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 $A_{obs} \gg 1.0$

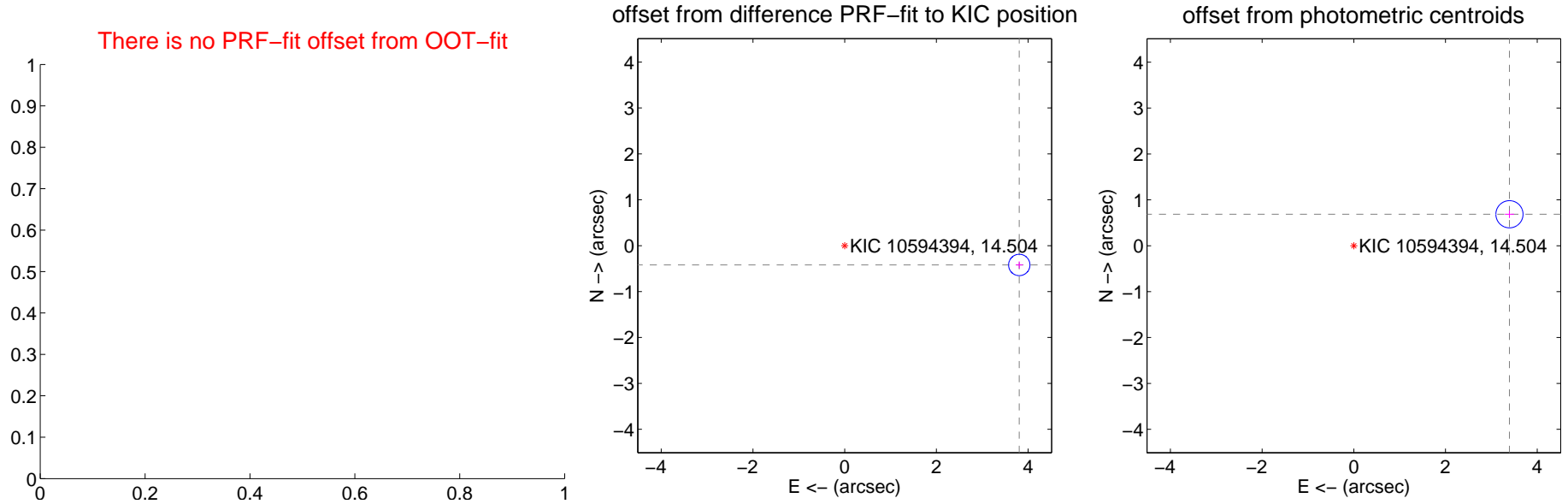
DV Centroid Data

Supplemental centroid analysis for 010594394-01. Kepler magnitude: 14.50. Transit SNR 9.98

There are 1 quarters with good PRF difference image offsets

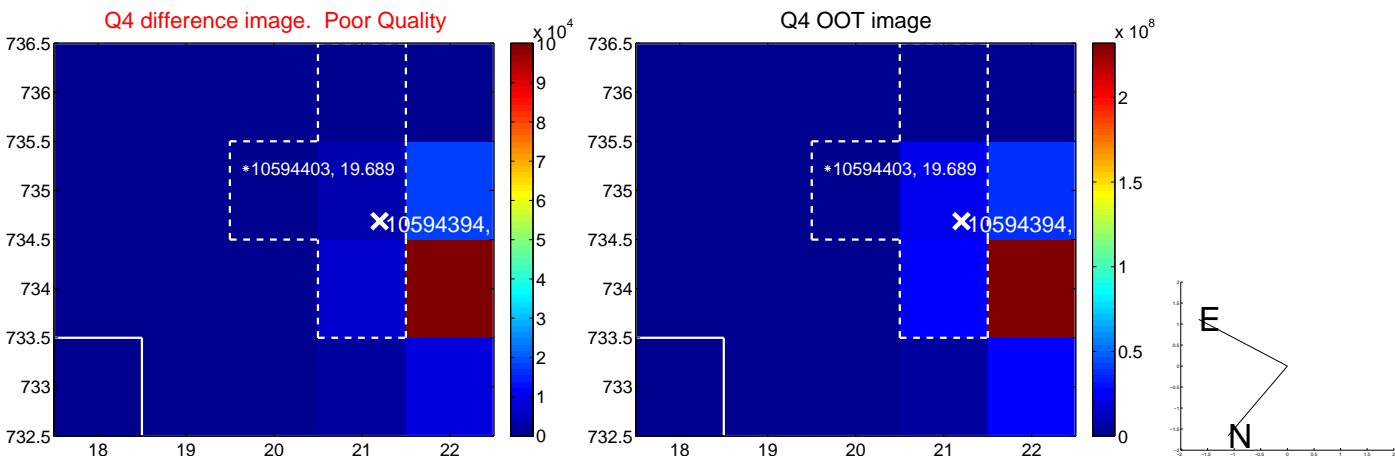
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	3.830 ± 0.078	49.37	-3.806 ± 0.078	-0.420 ± 0.078
photometric centroid source offset	3.46 ± 0.10	35.06	-3.39 ± 0.10	0.69 ± 0.08

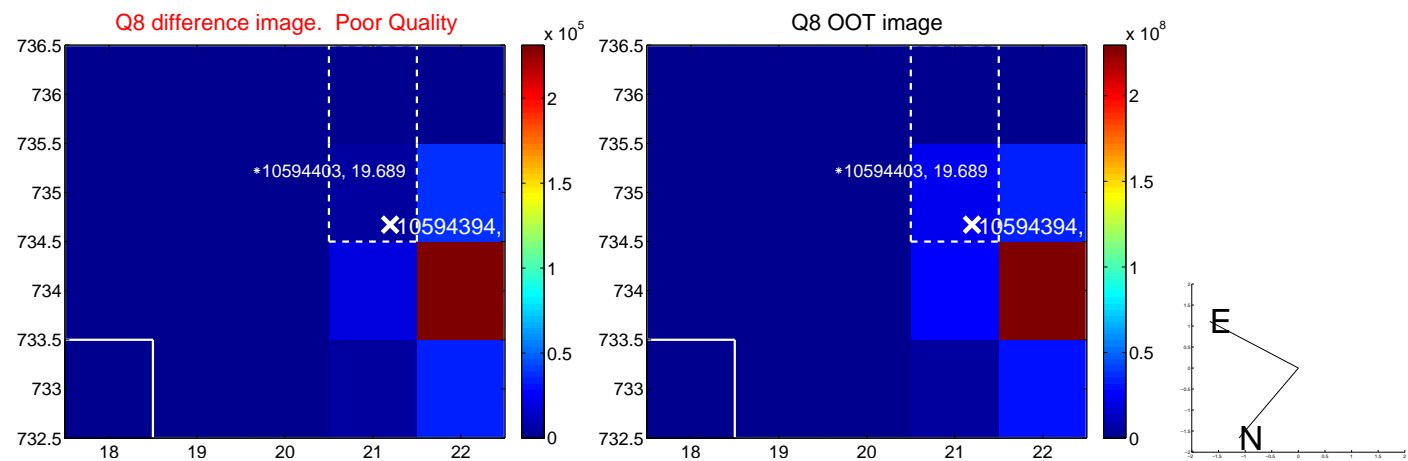
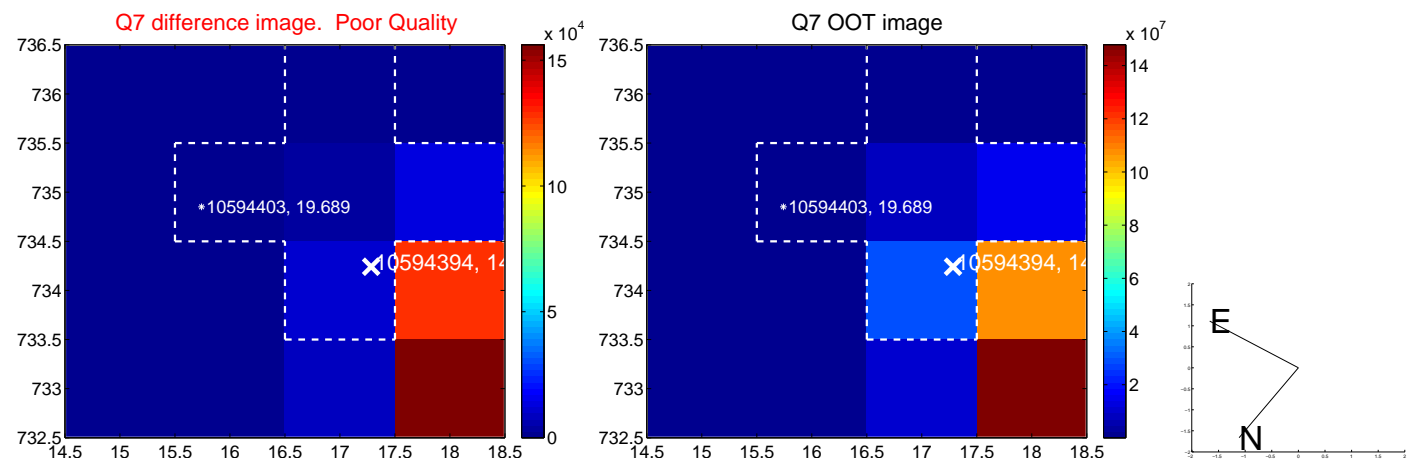
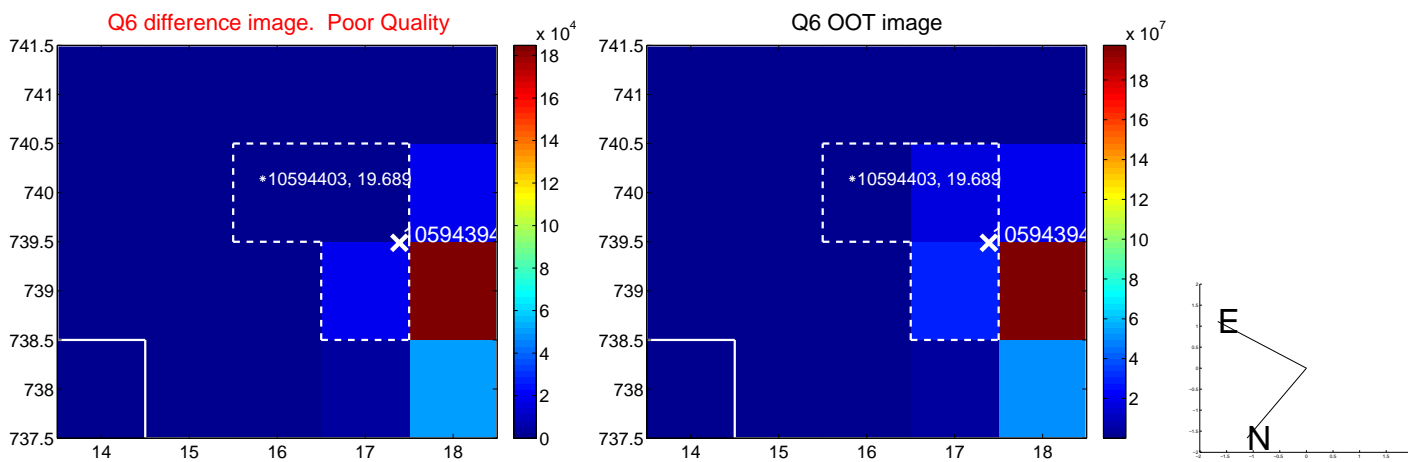
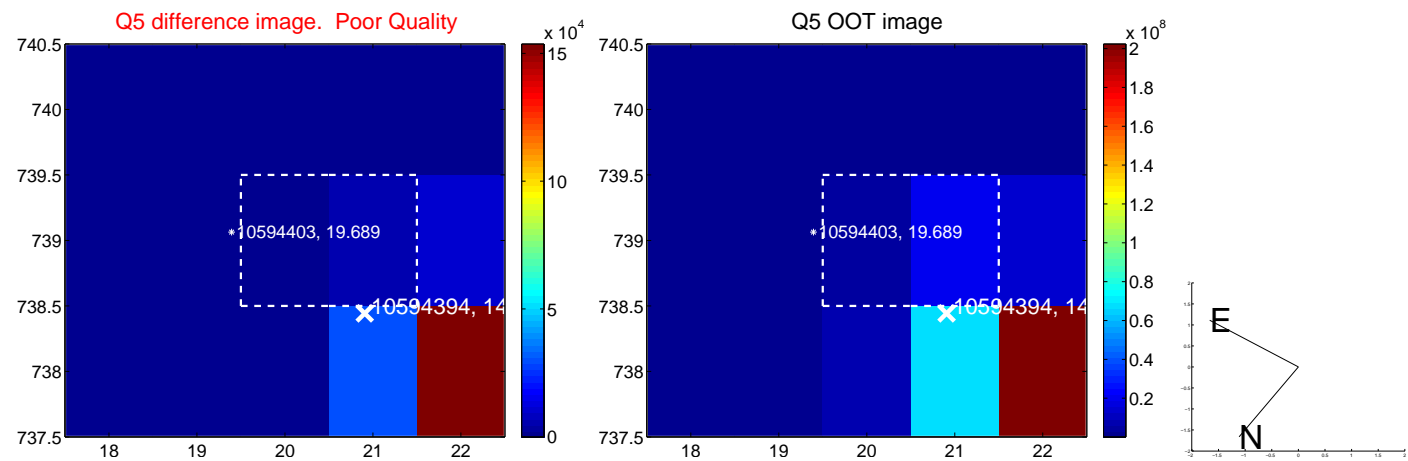


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

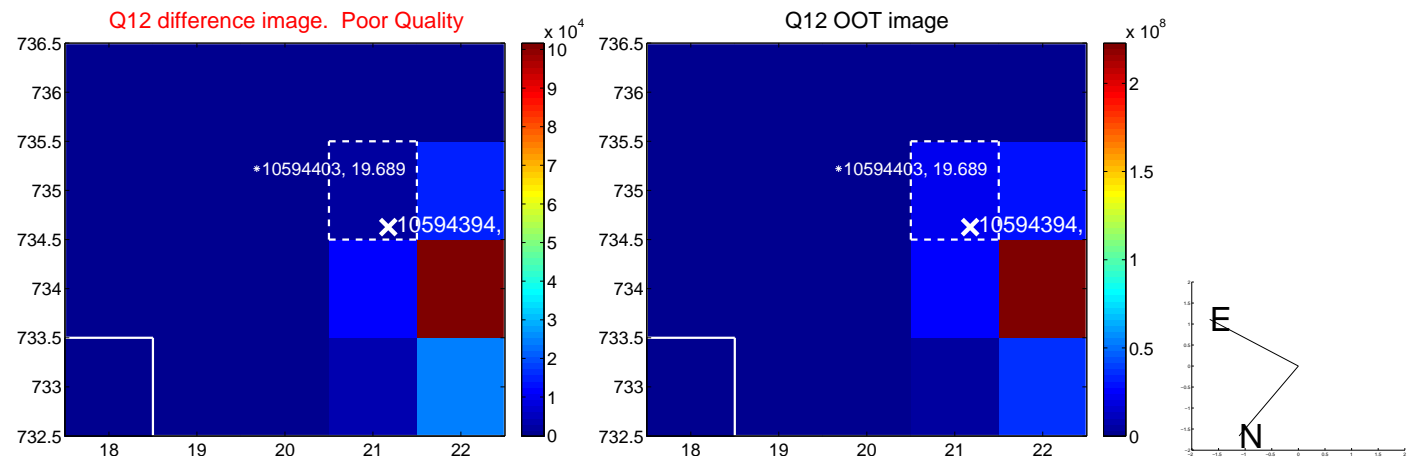
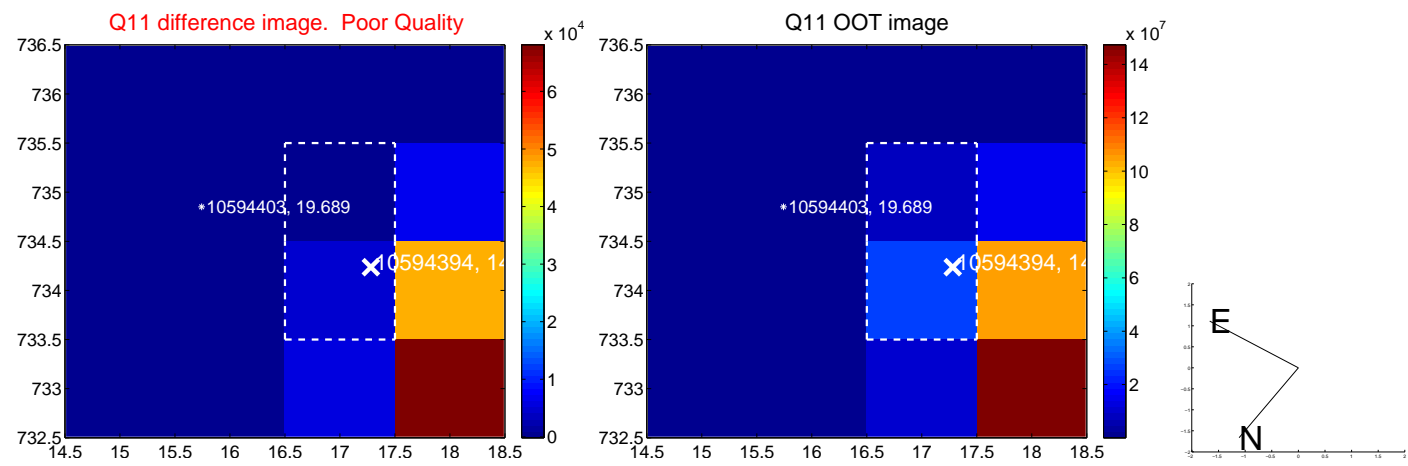
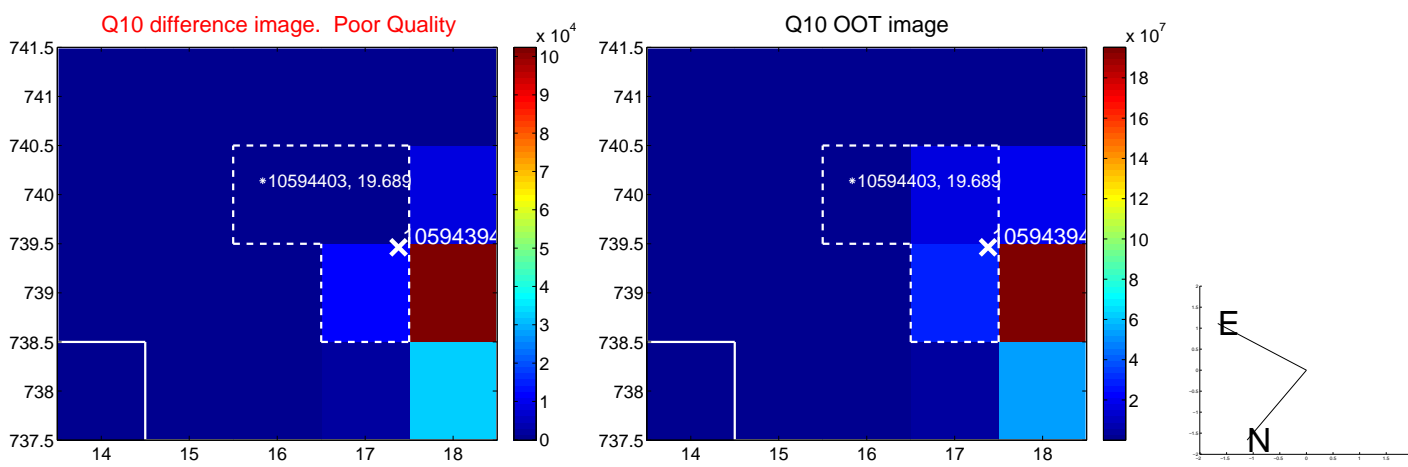
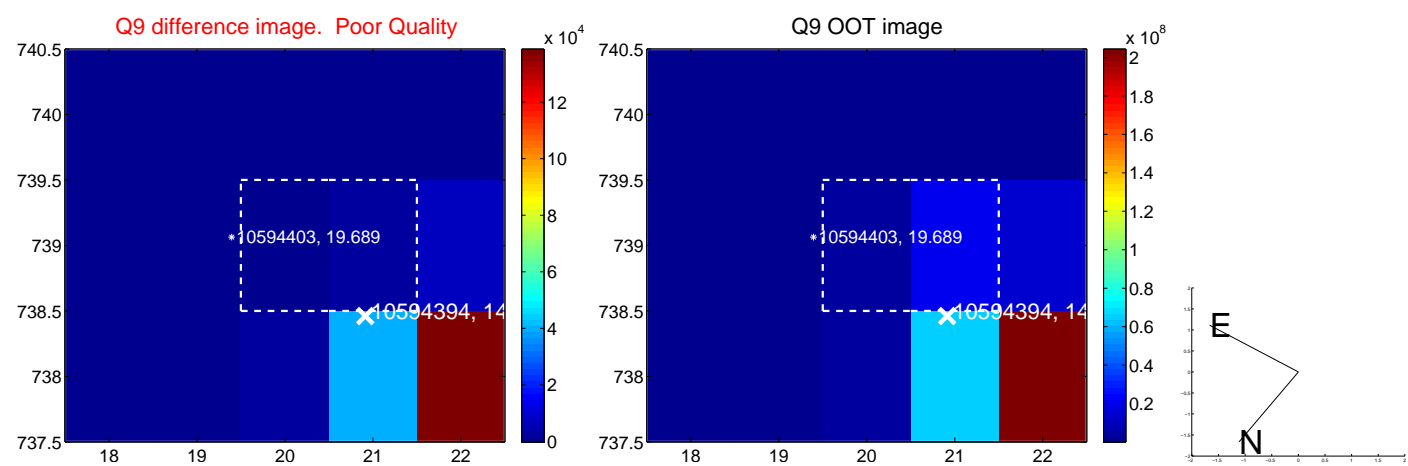
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



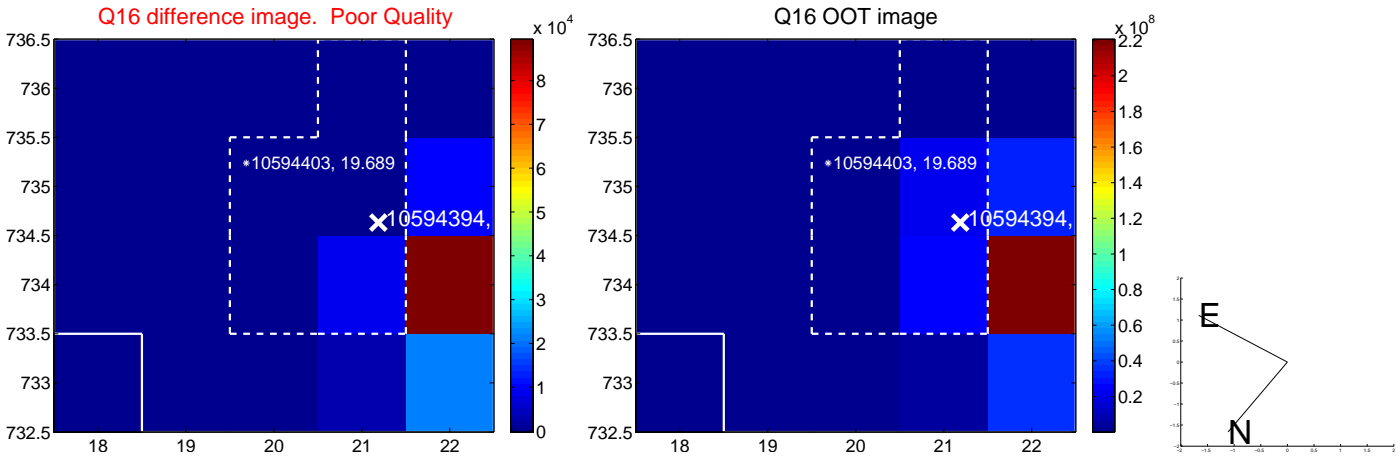
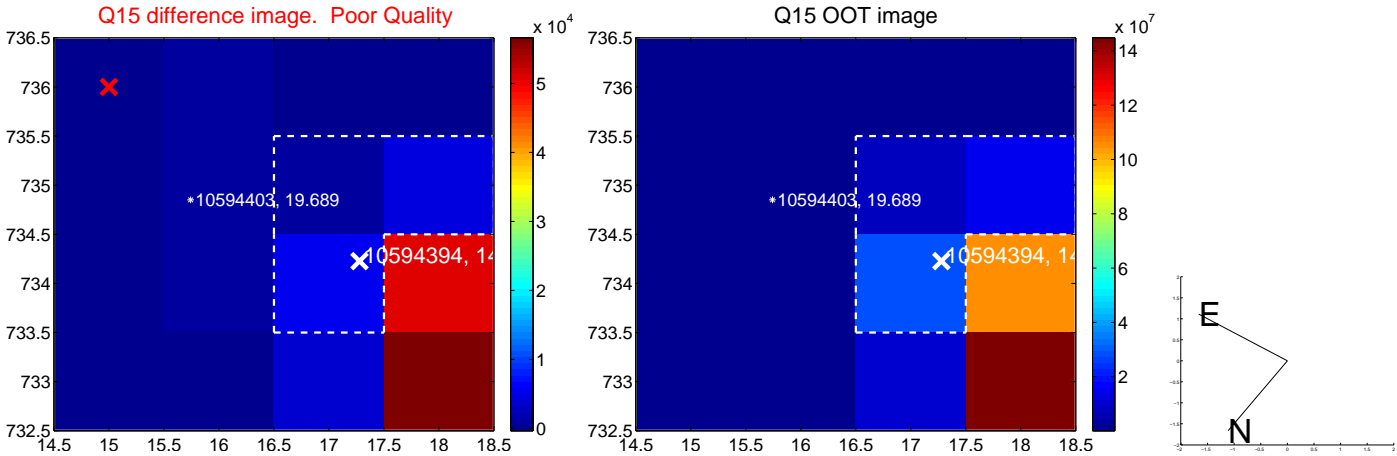
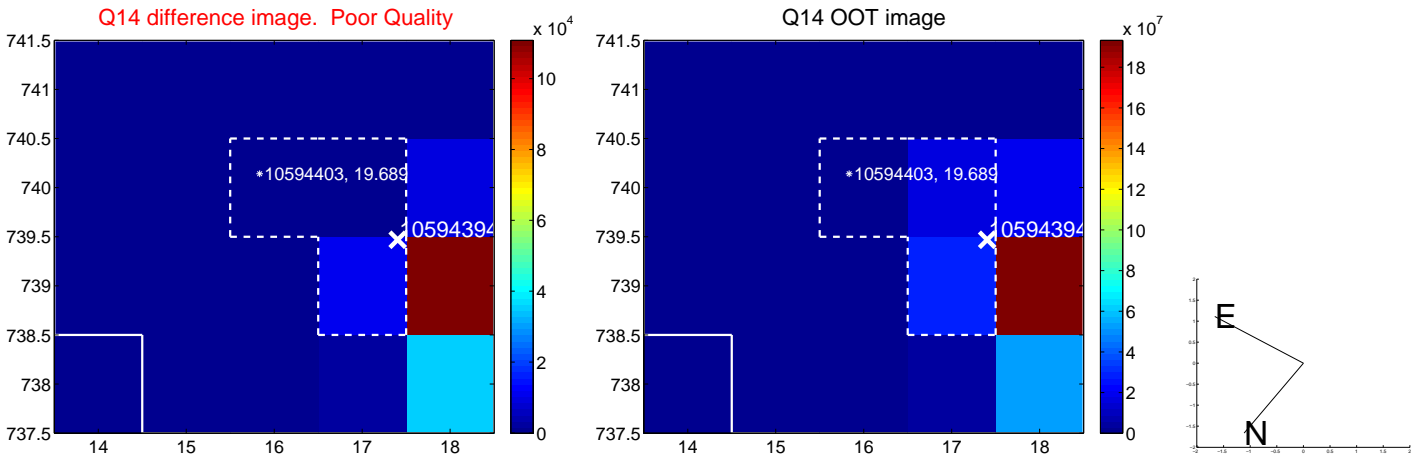
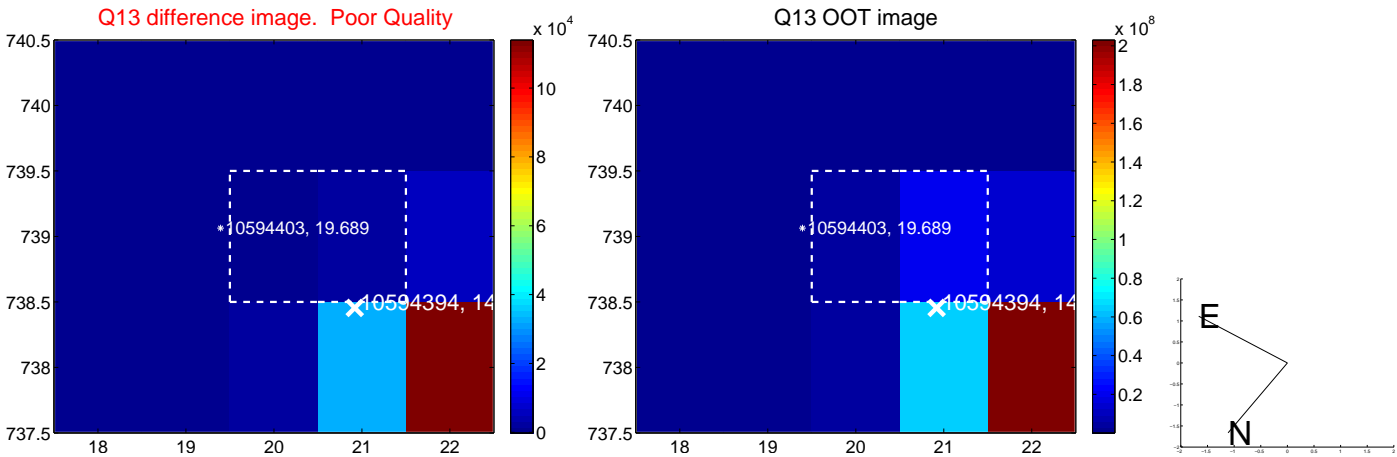
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



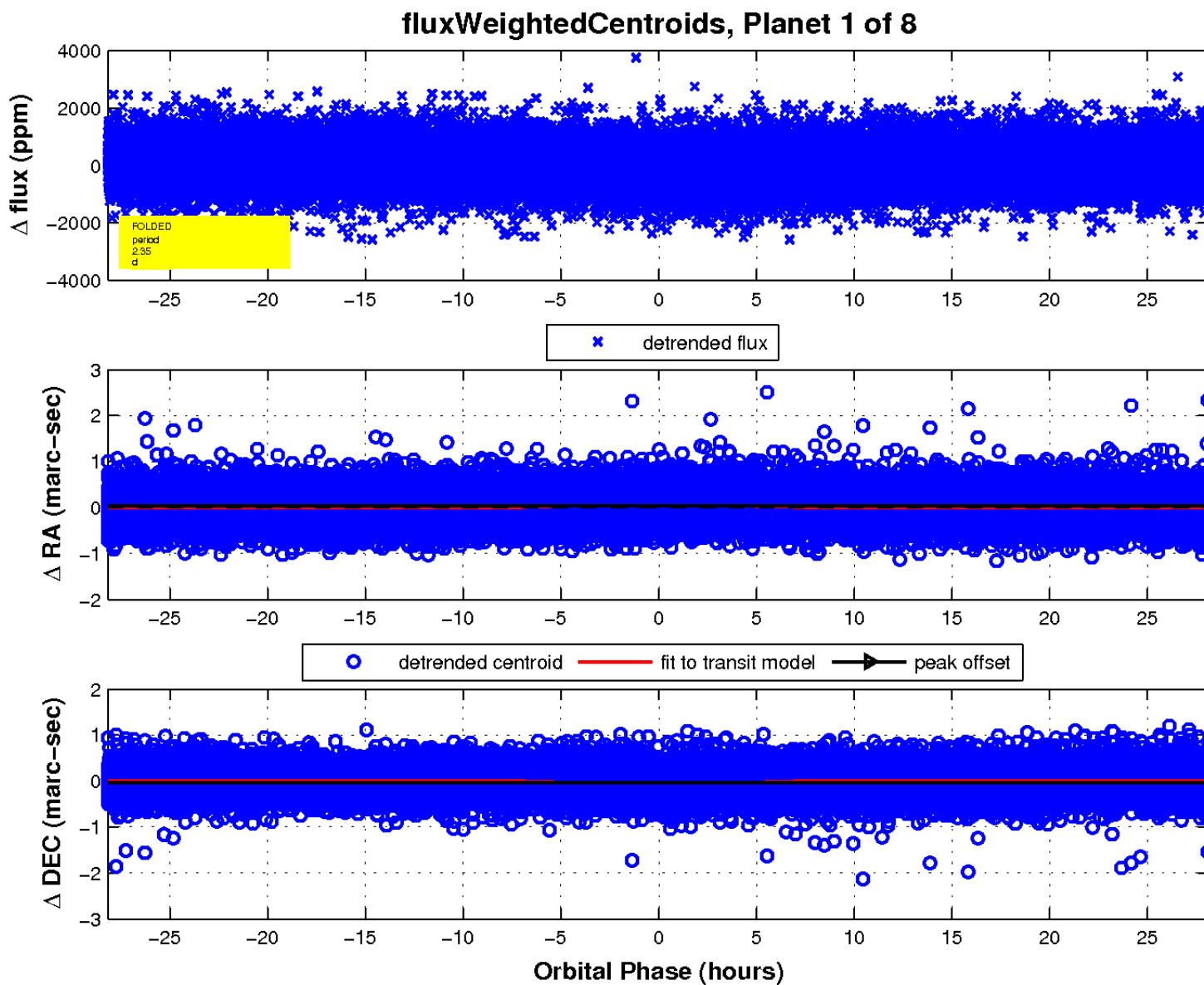
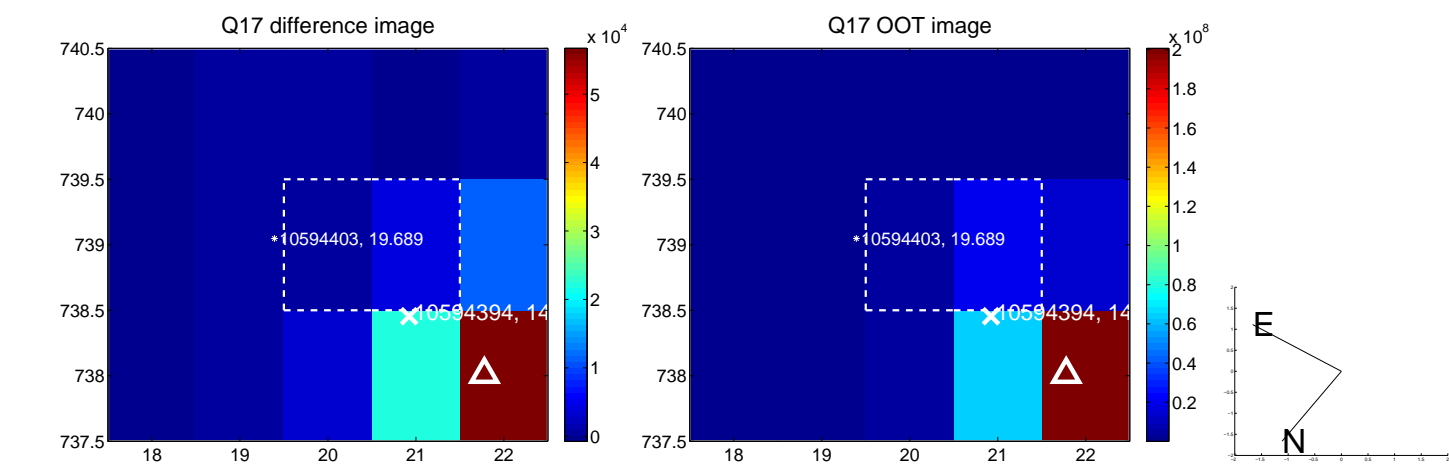
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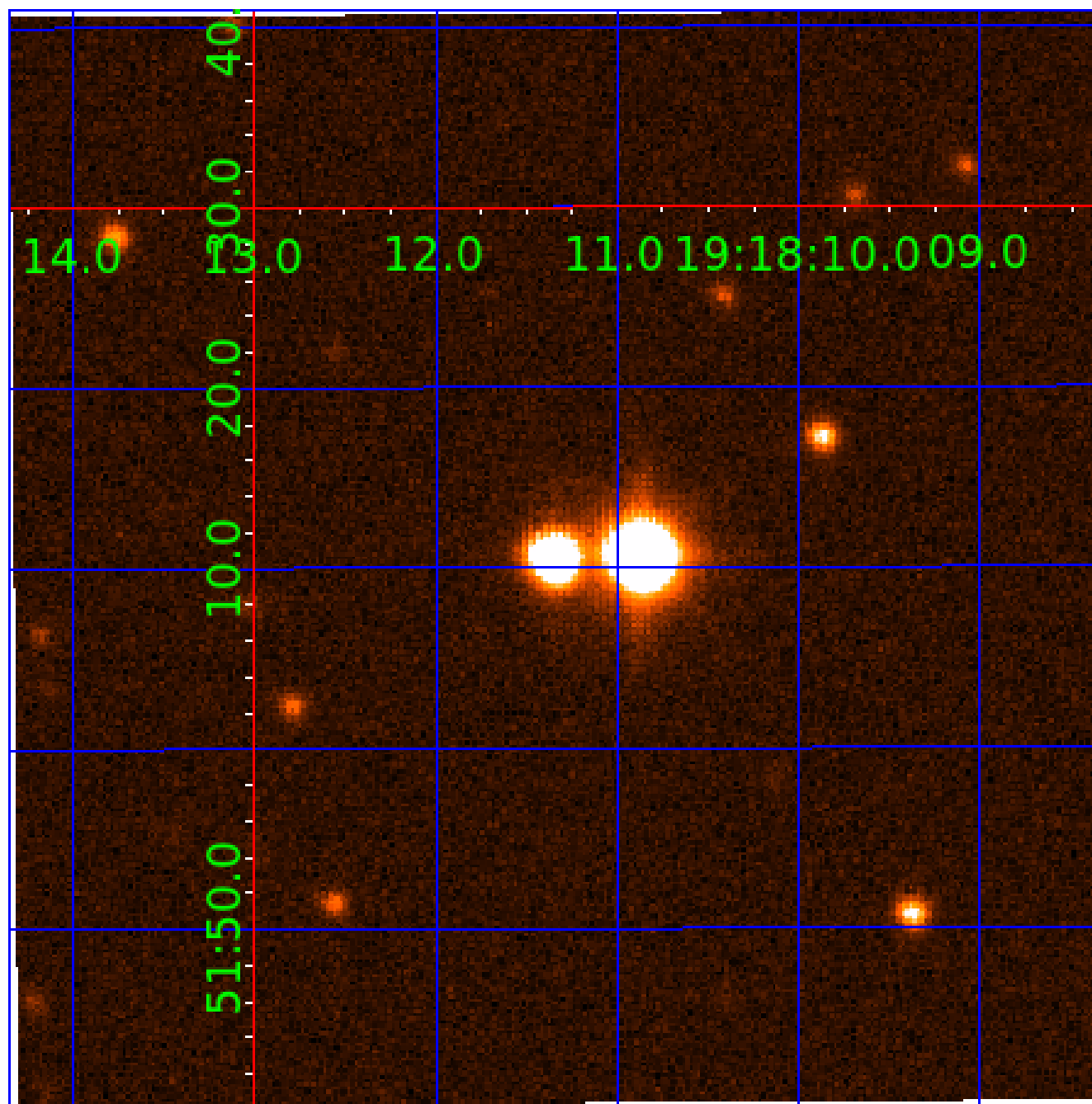


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UKIRT Image

Declination



KIC 010594394

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010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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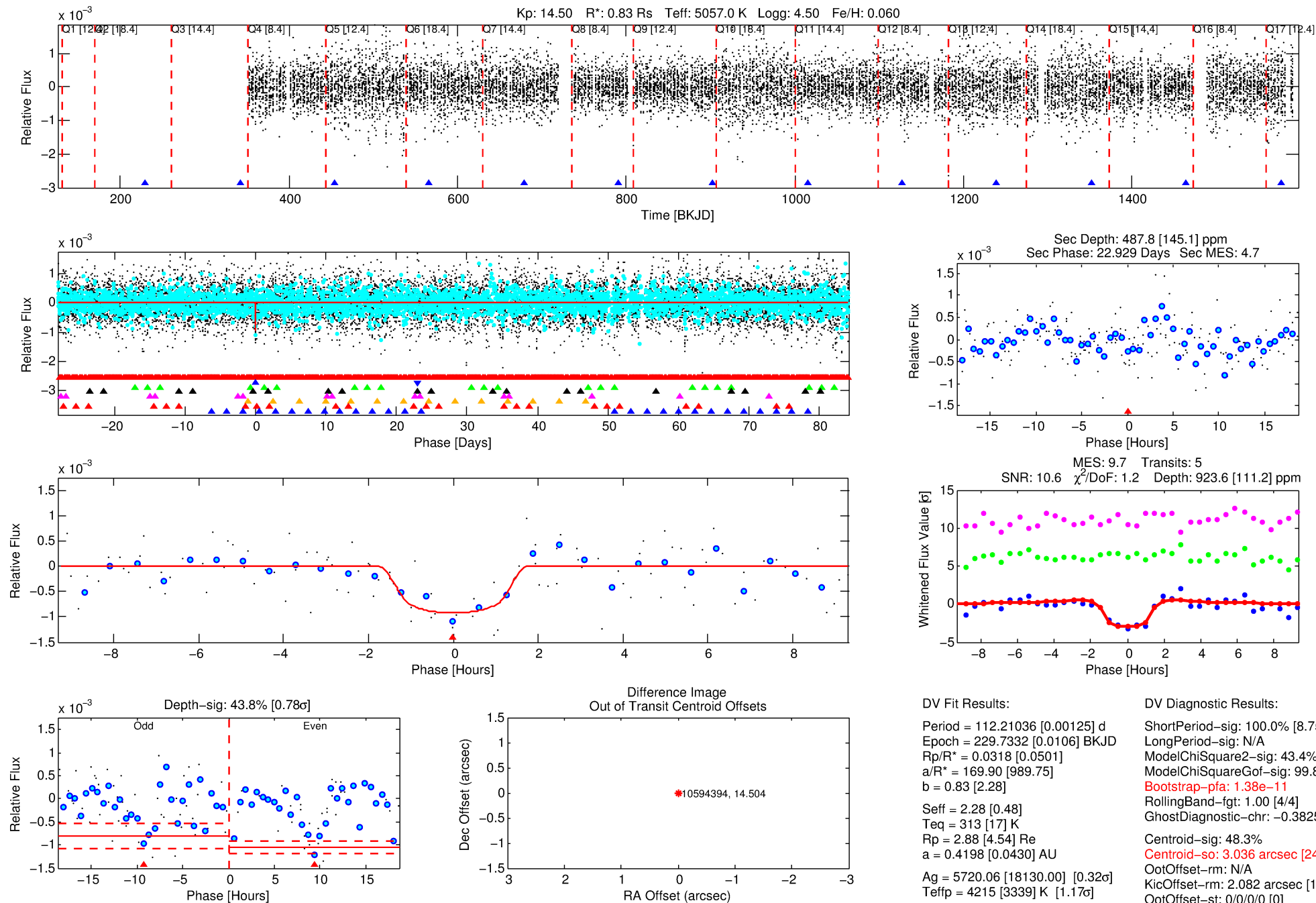
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-02

No Significant Match Found

DV One-Page Summary

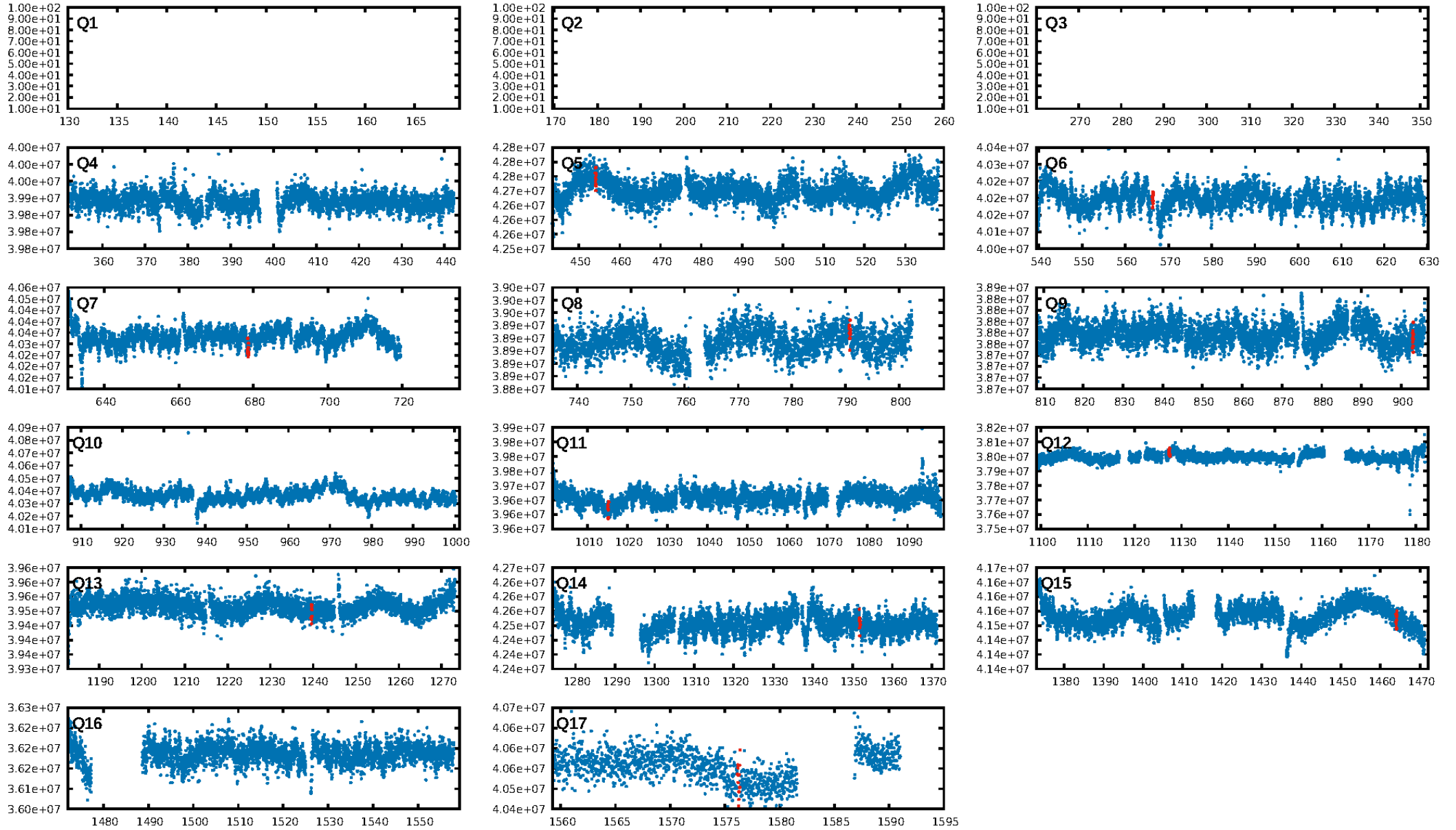
KIC: 10594394 Candidate: 2 of 8 Period: 112.210 d



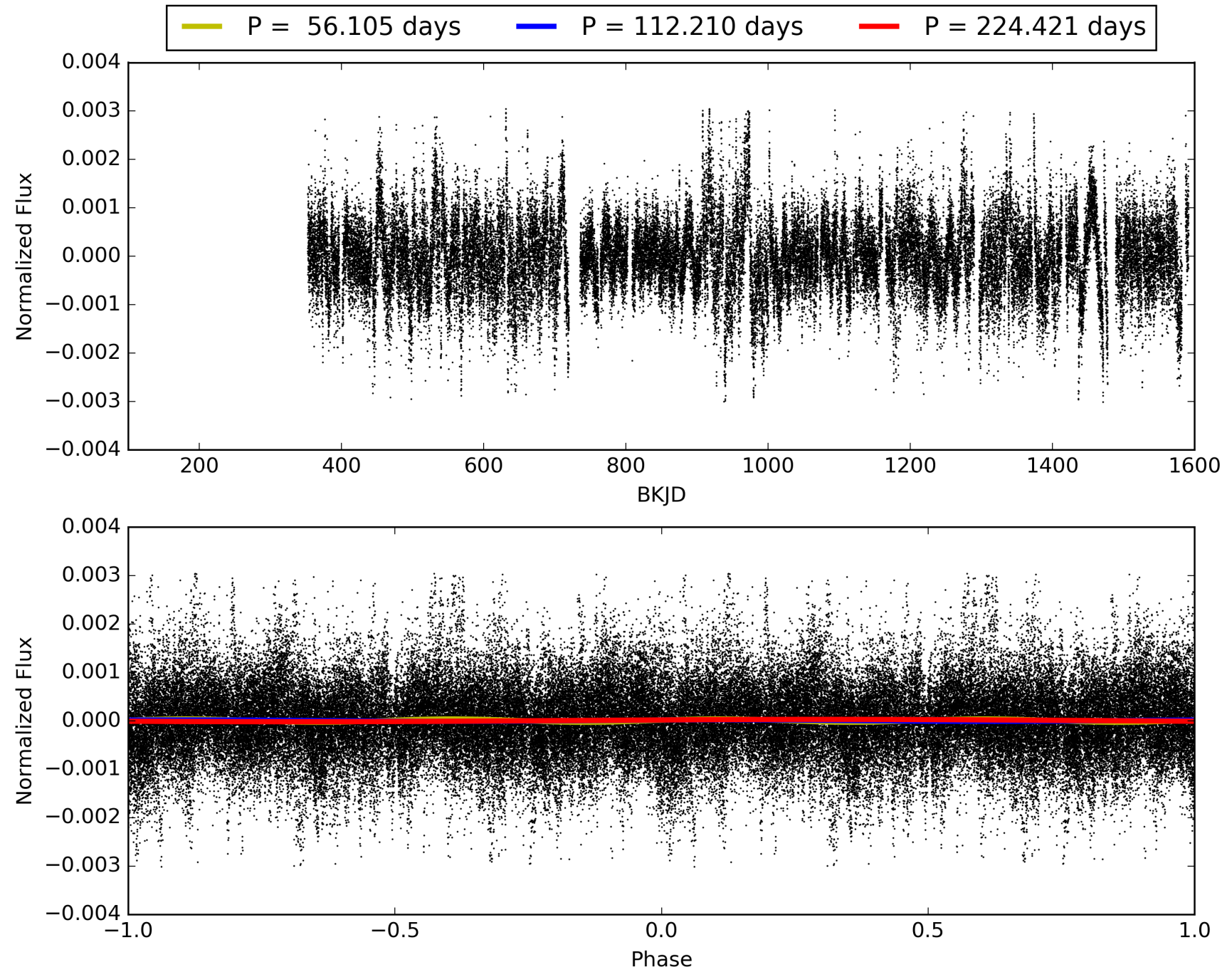
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:36:29 Z

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TCE 010594394-02, PDC Light Curves

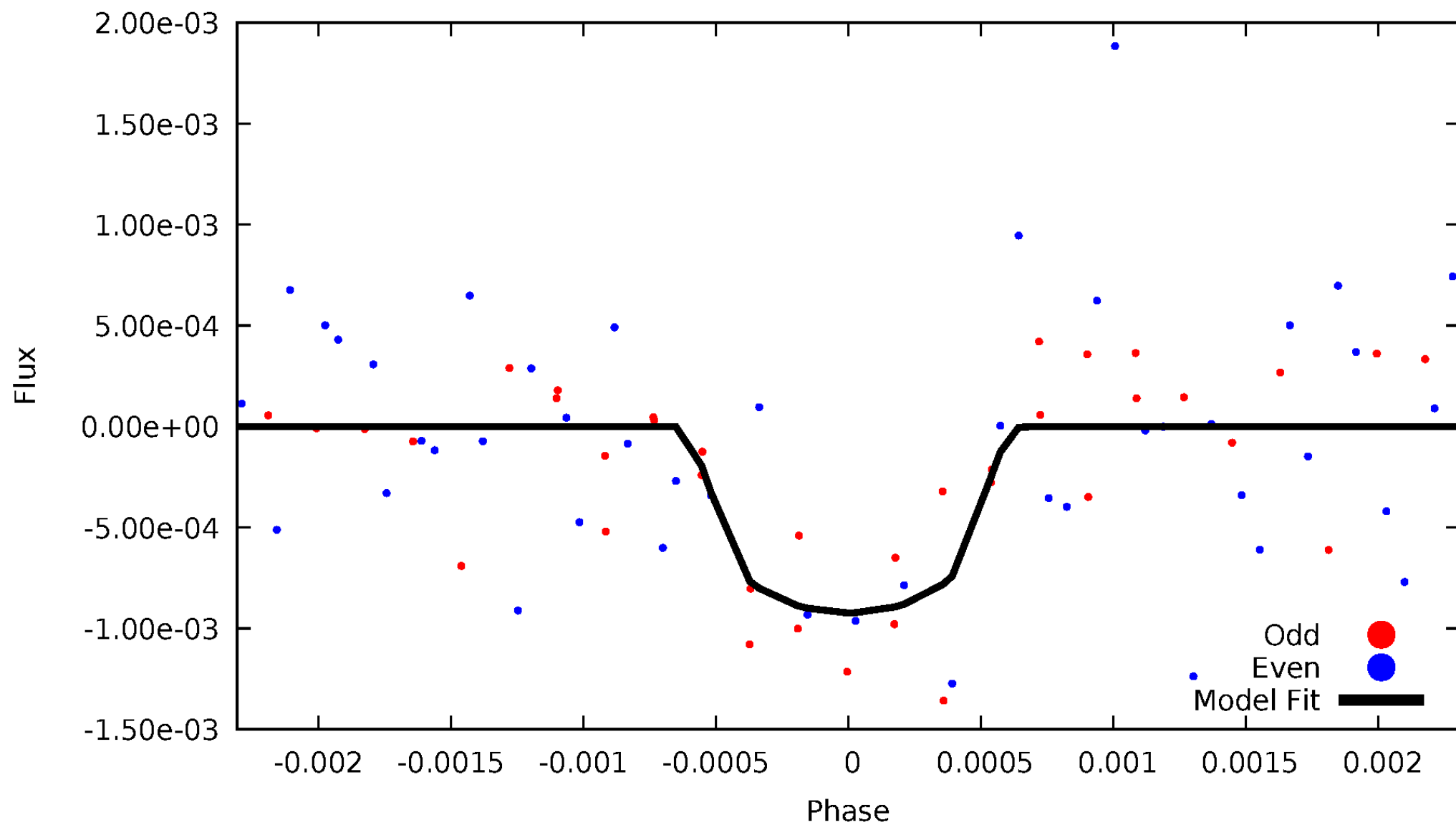


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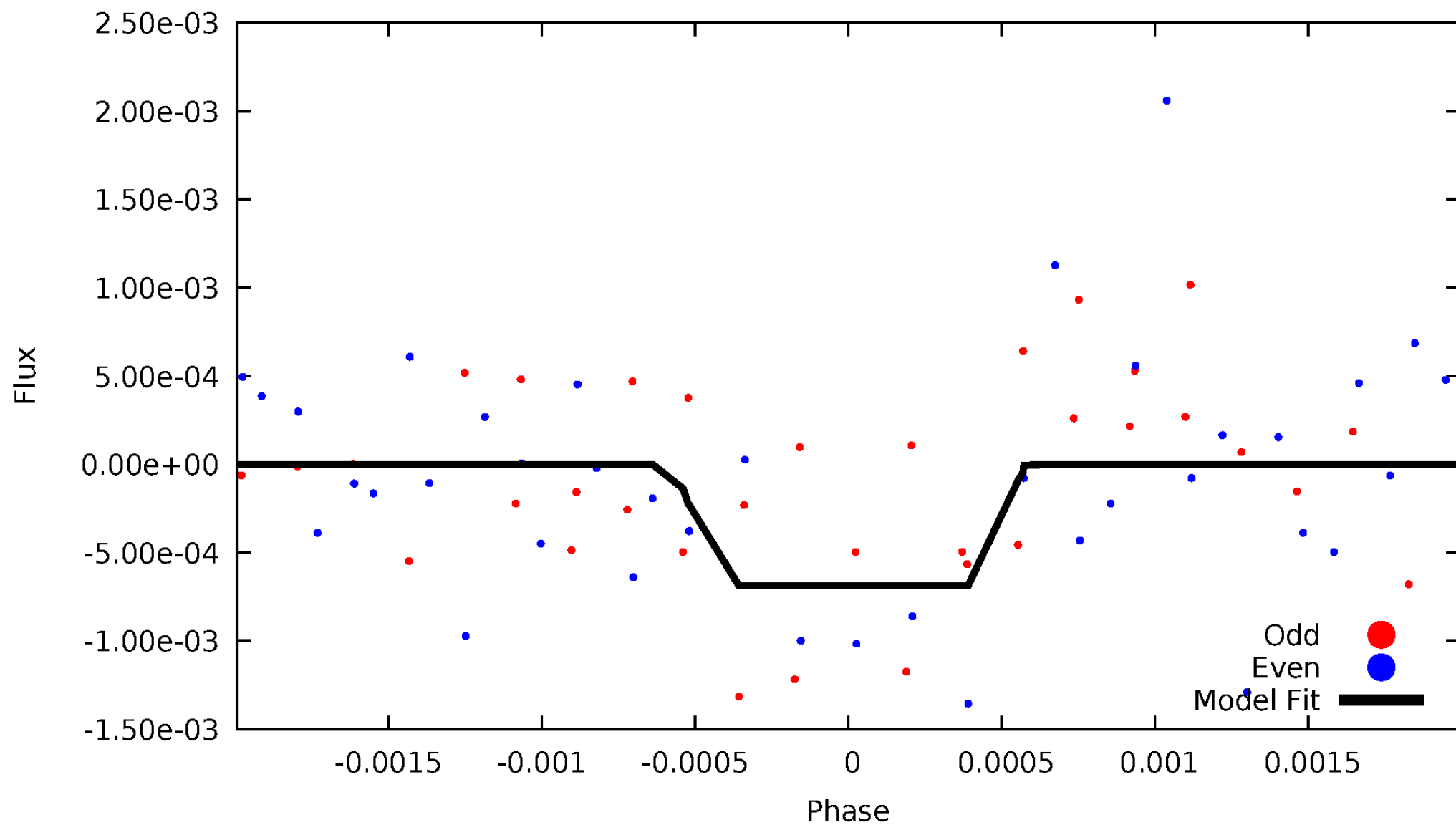
DV Odd/Even

TCE 010594394-02



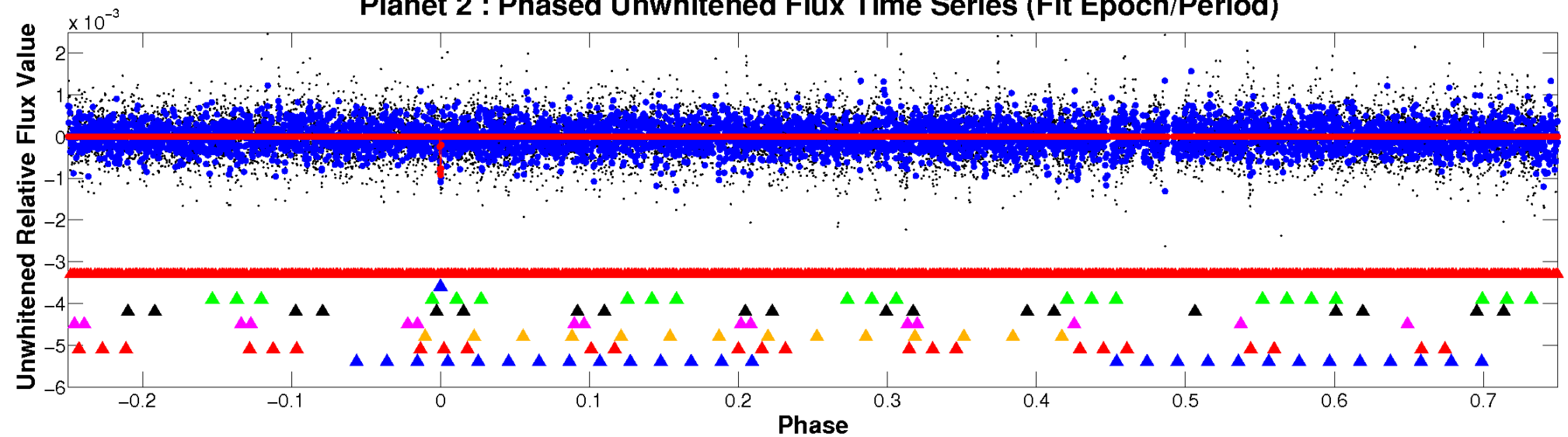
ALT Odd/Even

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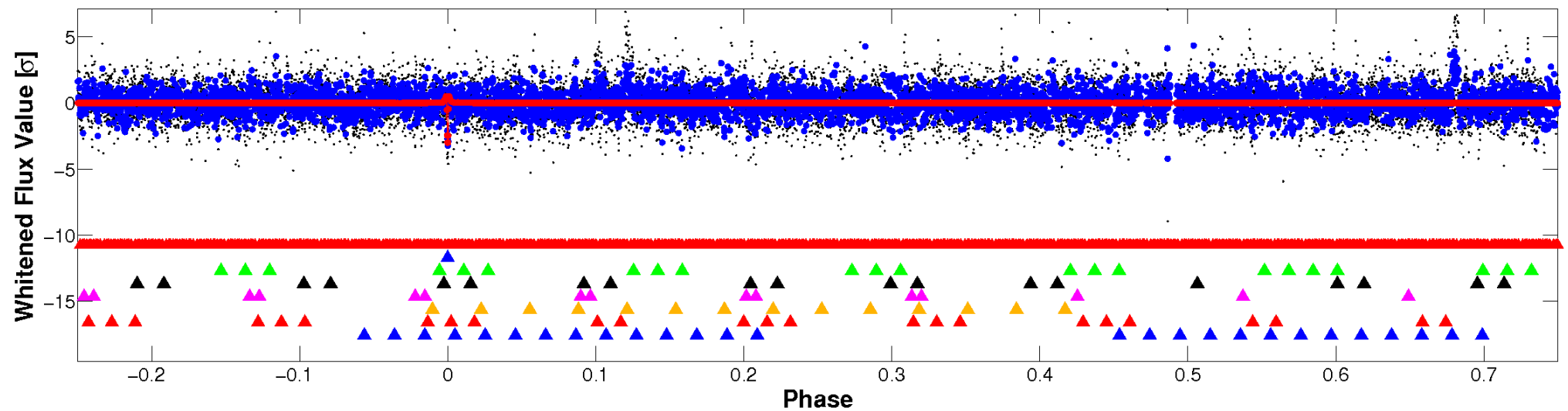


Non-Whitened Vs. Whitened Light Curve

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

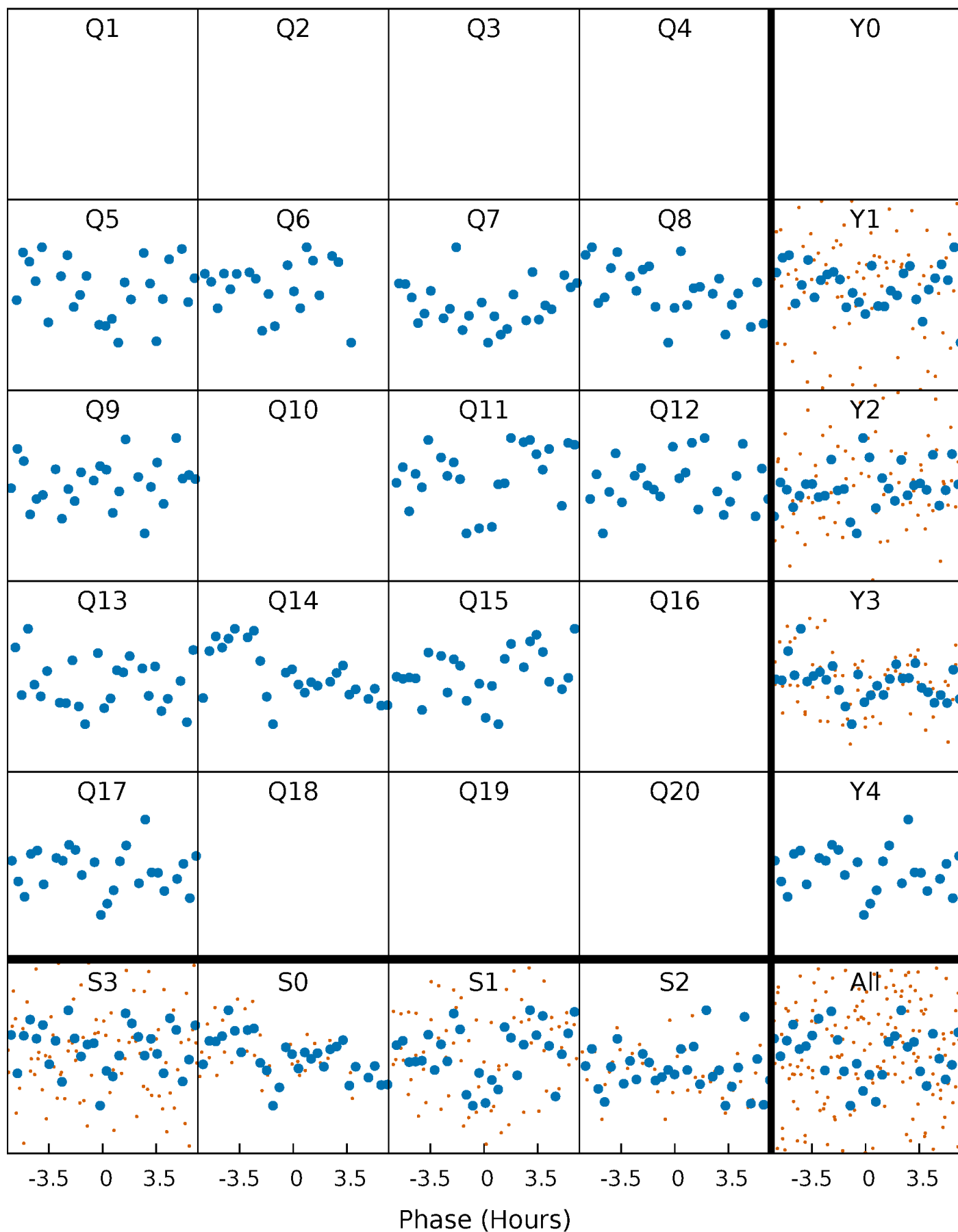


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



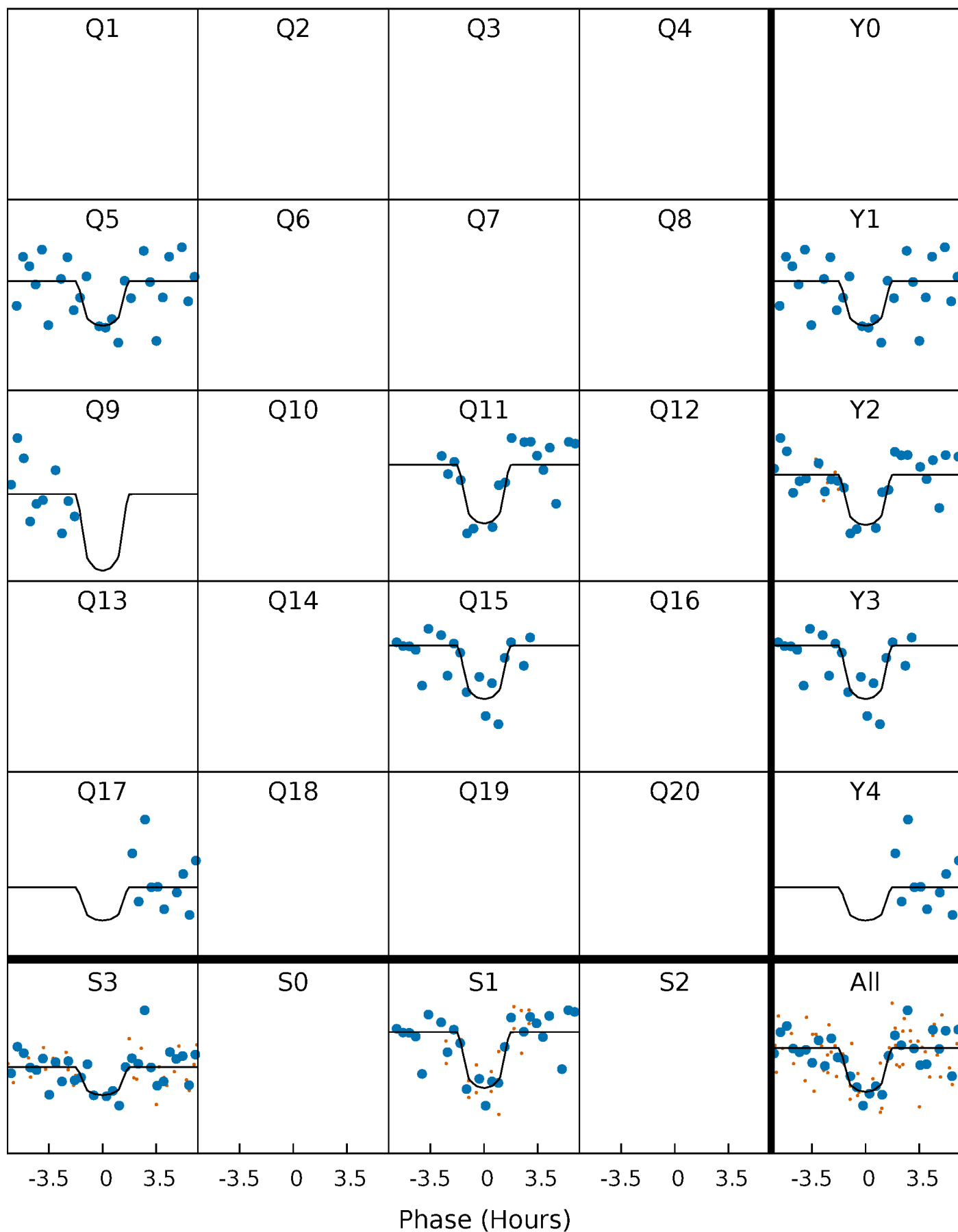
PDC Quarter-Phased Transit Curves

TCE 010594394-02 P=112.210357 Days $T_0=229.733248$ (BKJD)



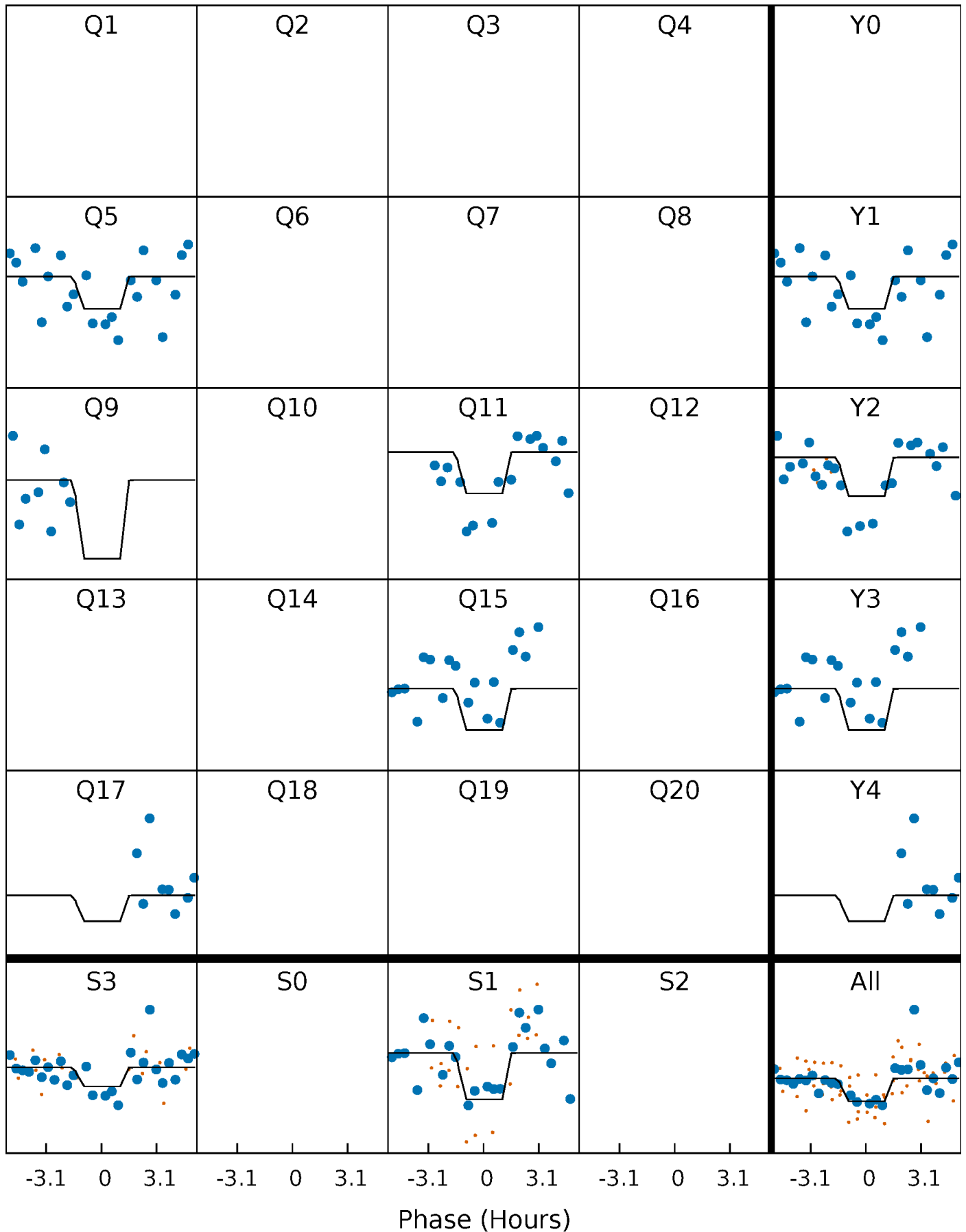
DV Quarter-Phased Transit Curves

TCE 010594394-02 $P=112.210357$ Days $T_0=229.733248$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

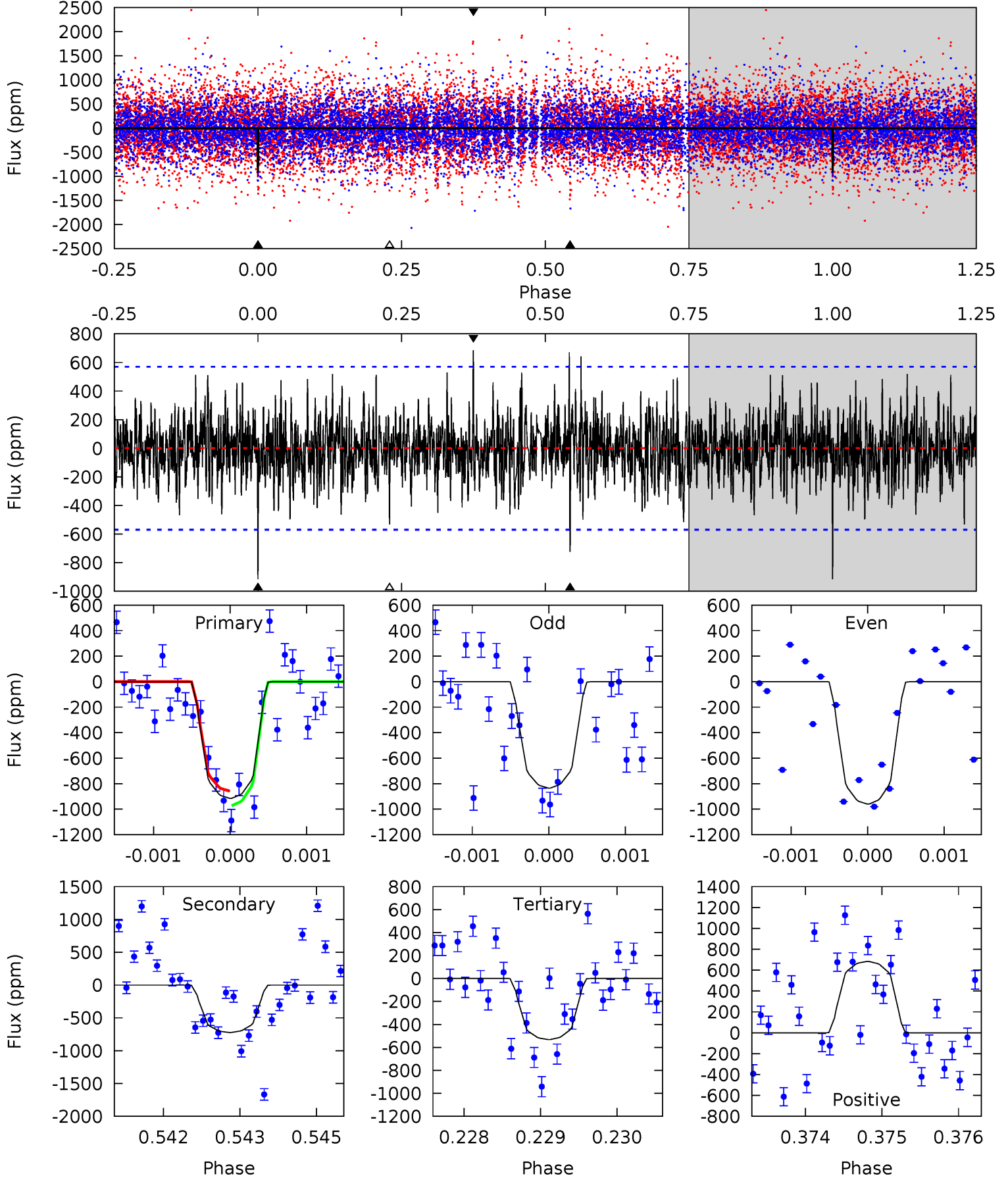
TCE 010594394-02 P=112.209989 Days $T_0=229.734115$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-02, P = 112.210357 Days, E = 229.733248 Days

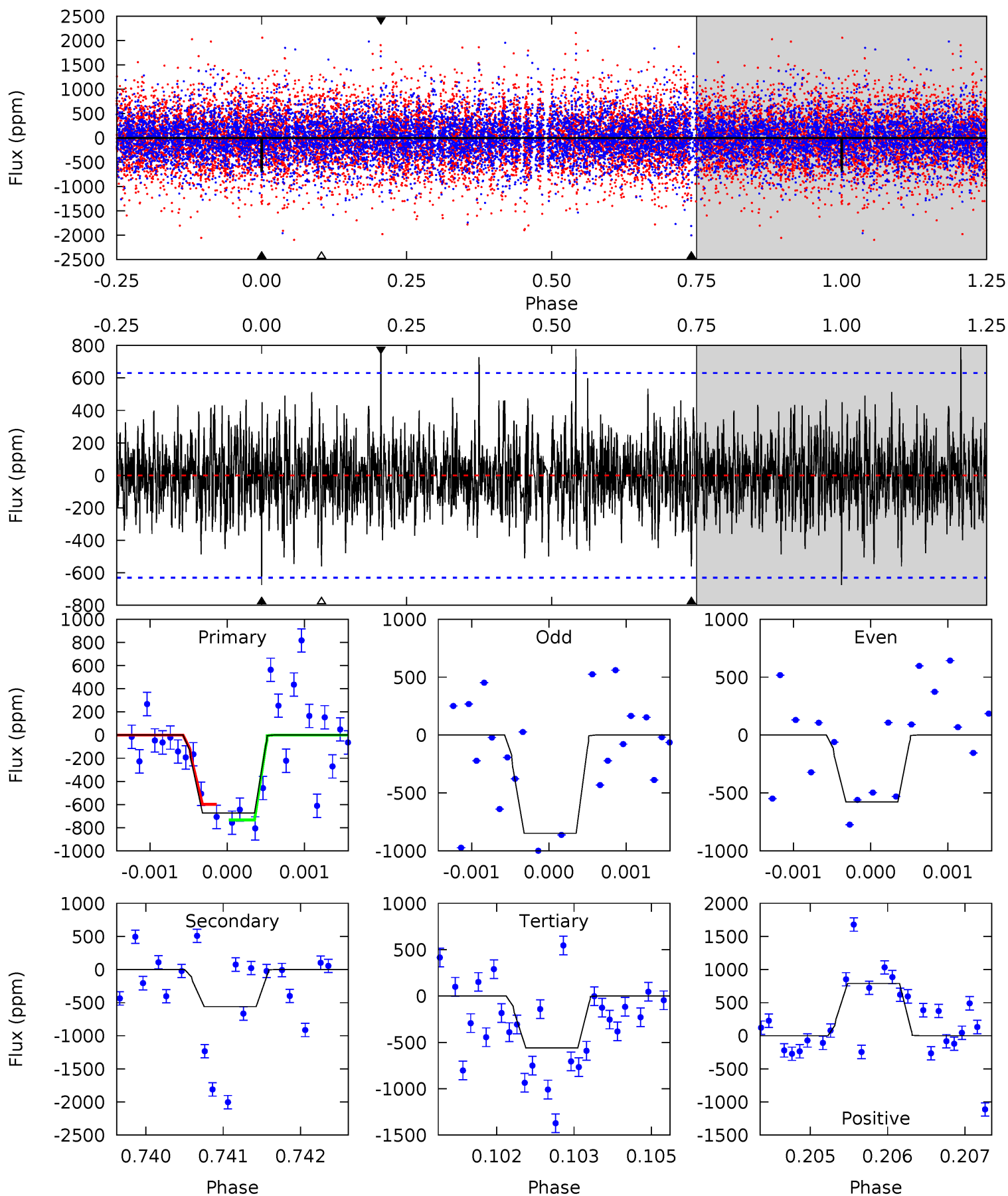
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.69	6.87	5.05	6.49	5.41	3.22	1.56	3.64	2.19	1.82	0.37	0.56	0.97	0.43	0.54



Alt Model-Shift Uniqueness Test

010594394-02, P = 112.209989 Days, E = 229.734115 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.81	4.82	4.82	6.80	5.43	3.26	1.43	0.99	-0.99	0.00	-1.98	1.09	0.83	0.54	0.58



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-724±105	$4.41^{+3.93}_{-2.98}$	438^{+21}_{-21}	4039^{+2382}_{-791}	3669^{+30125}_{-2648}
Alt.	-559±116	$4.20^{+3.85}_{-2.80}$	438^{+20}_{-21}	3893^{+2305}_{-749}	3093^{+24866}_{-2290}

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 $A_{obs} \gg 1.0$

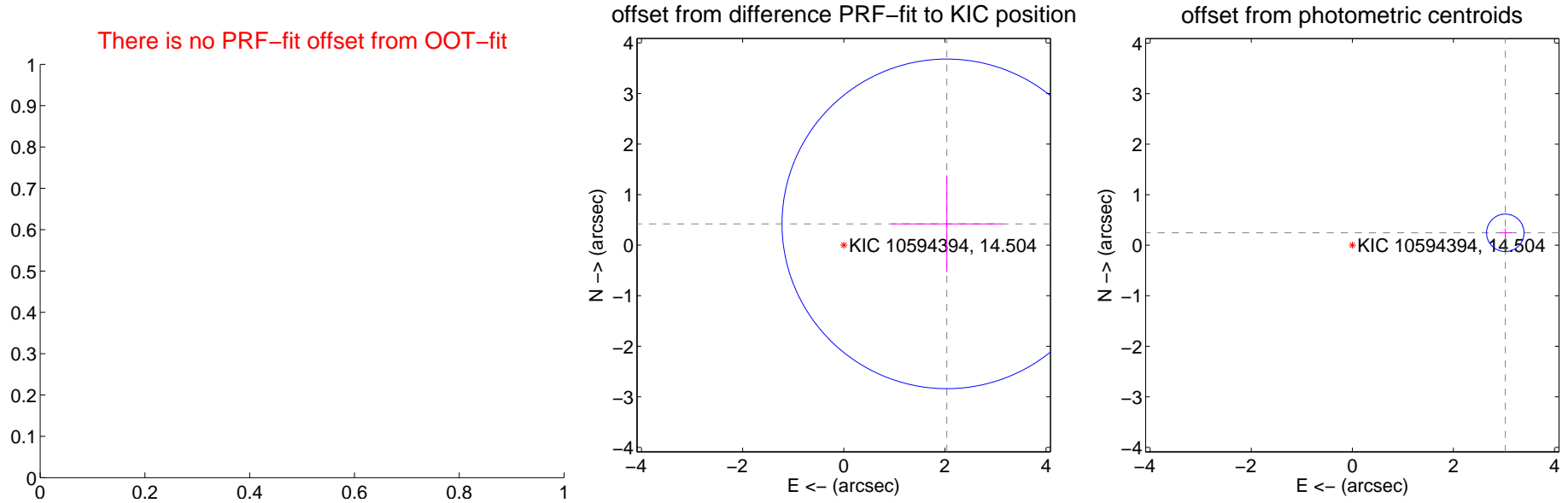
DV Centroid Data

Supplemental centroid analysis for 010594394-02. Kepler magnitude: 14.50. Transit SNR 10.60

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	2.082 ± 1.087	1.92	-2.039 ± 1.092	0.422 ± 0.958
photometric centroid source offset	3.04 ± 0.12	24.59	-3.03 ± 0.12	0.25 ± 0.09

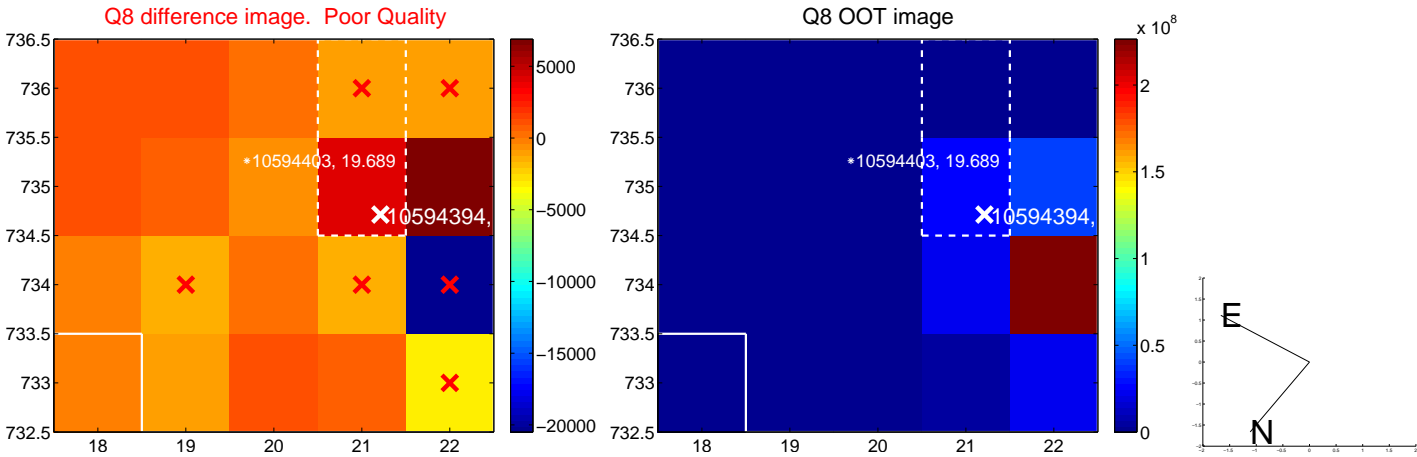
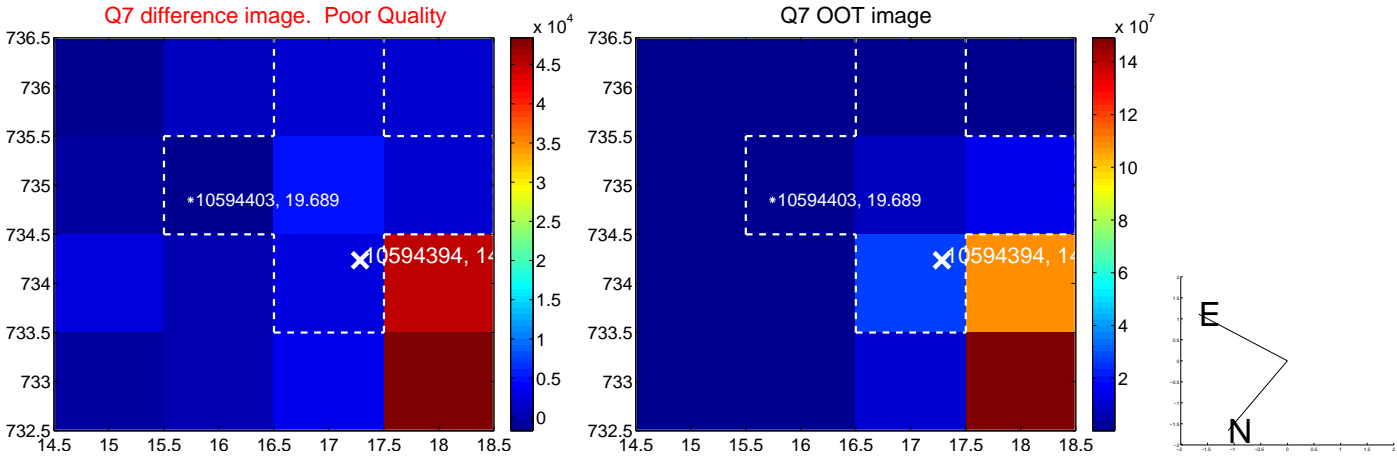
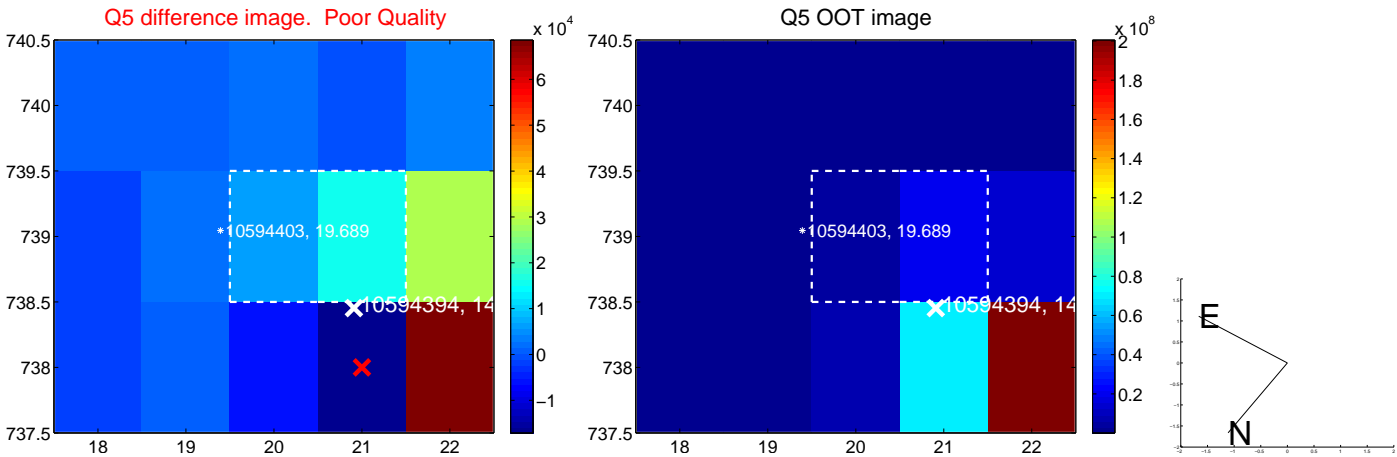


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

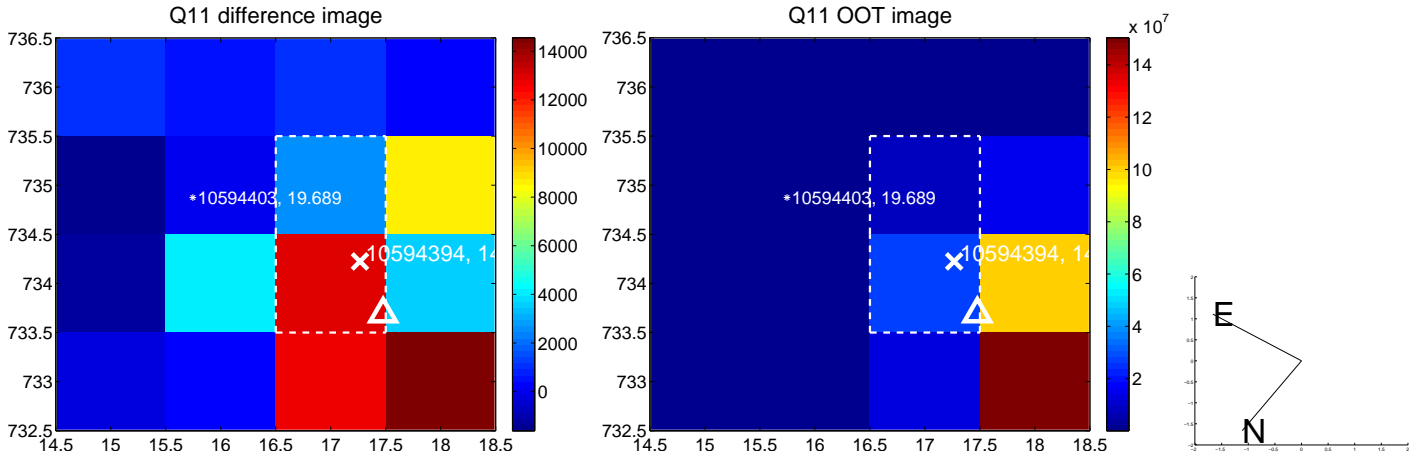
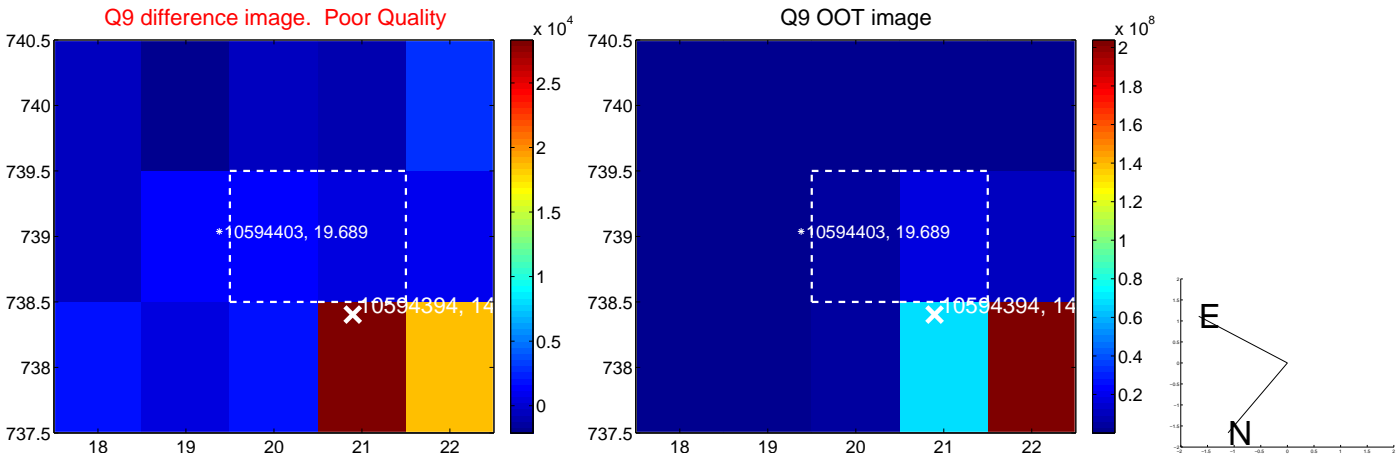
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



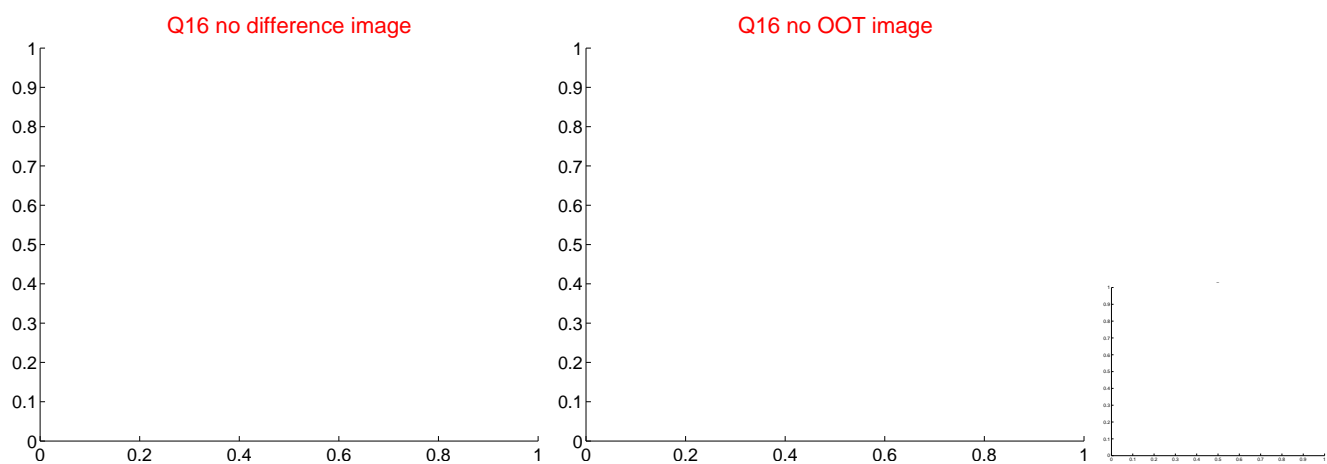
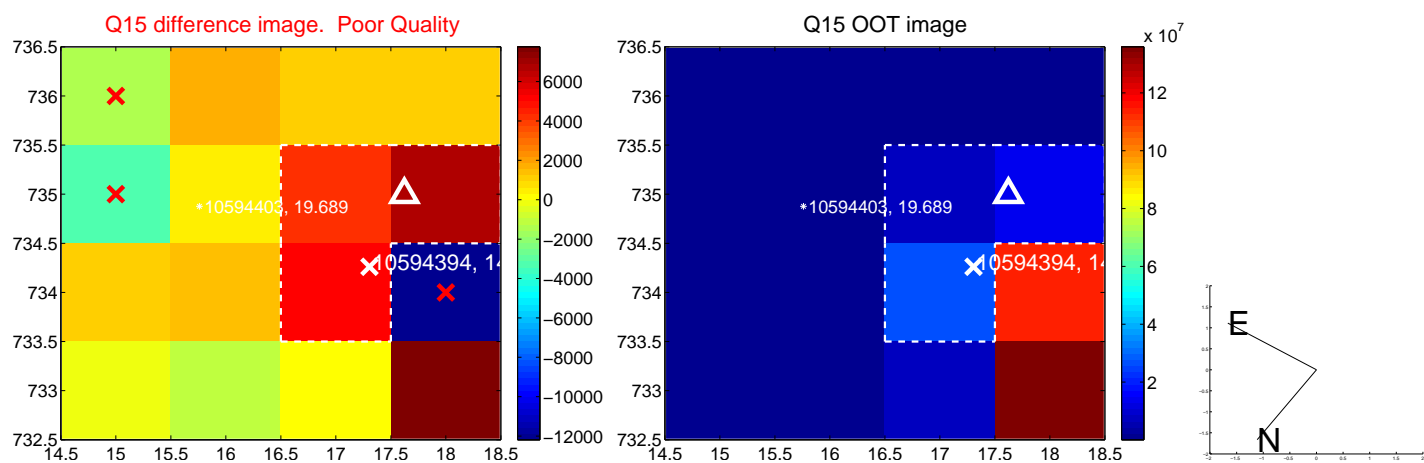
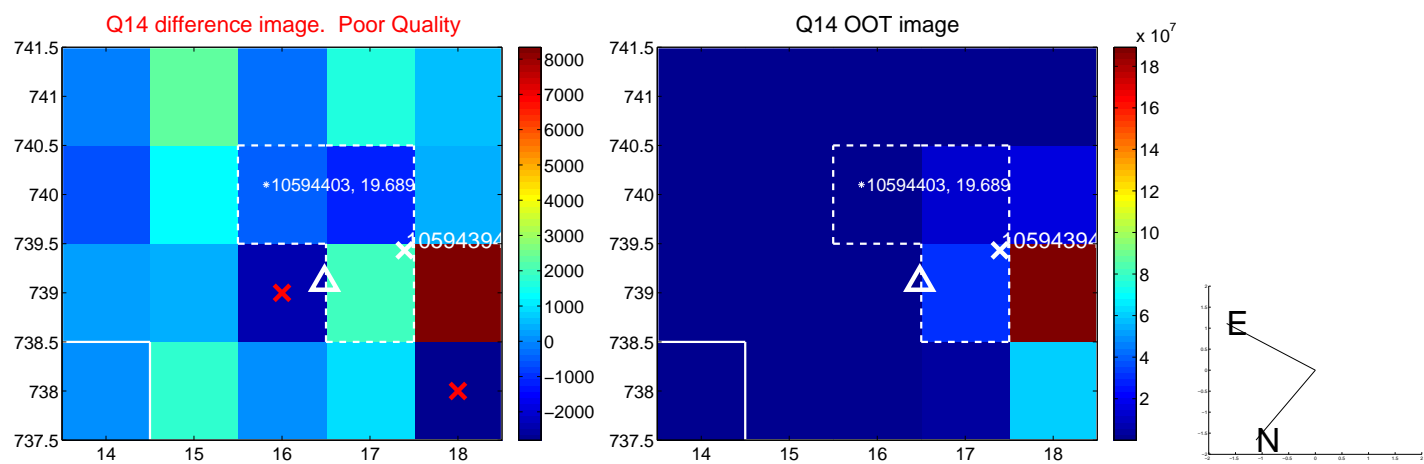
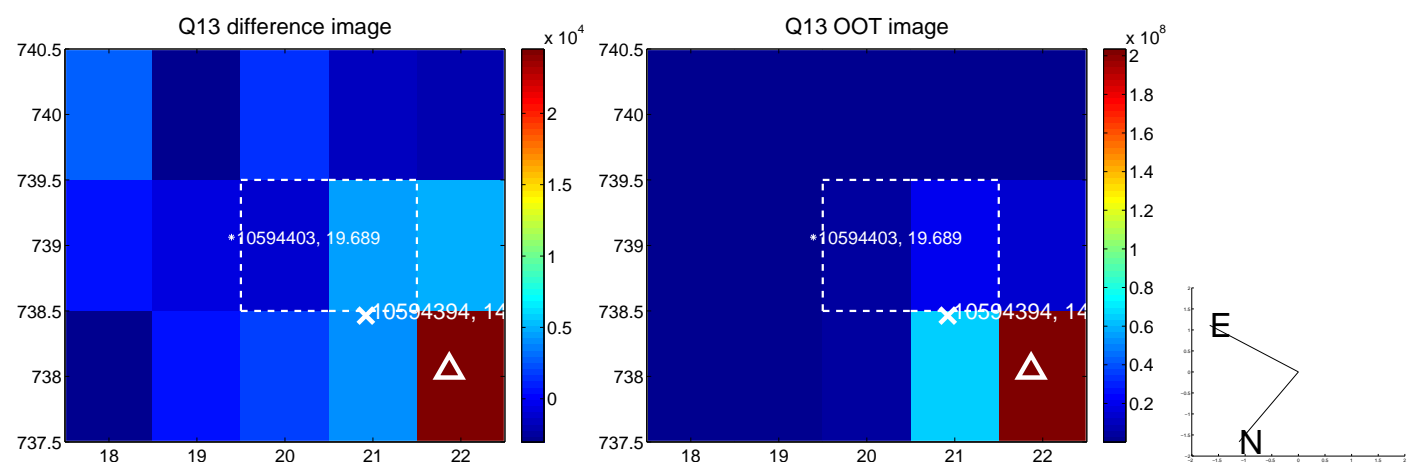
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



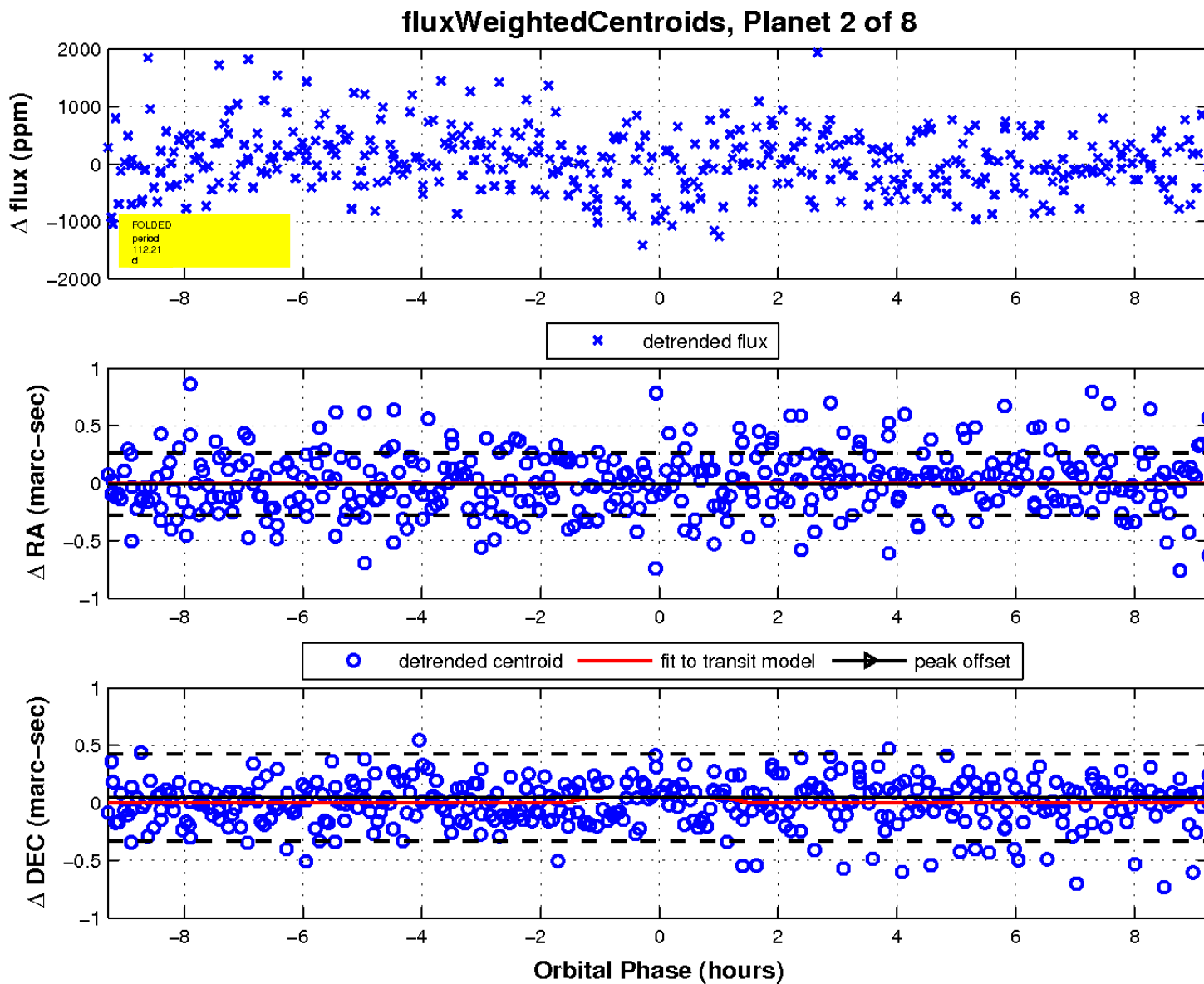
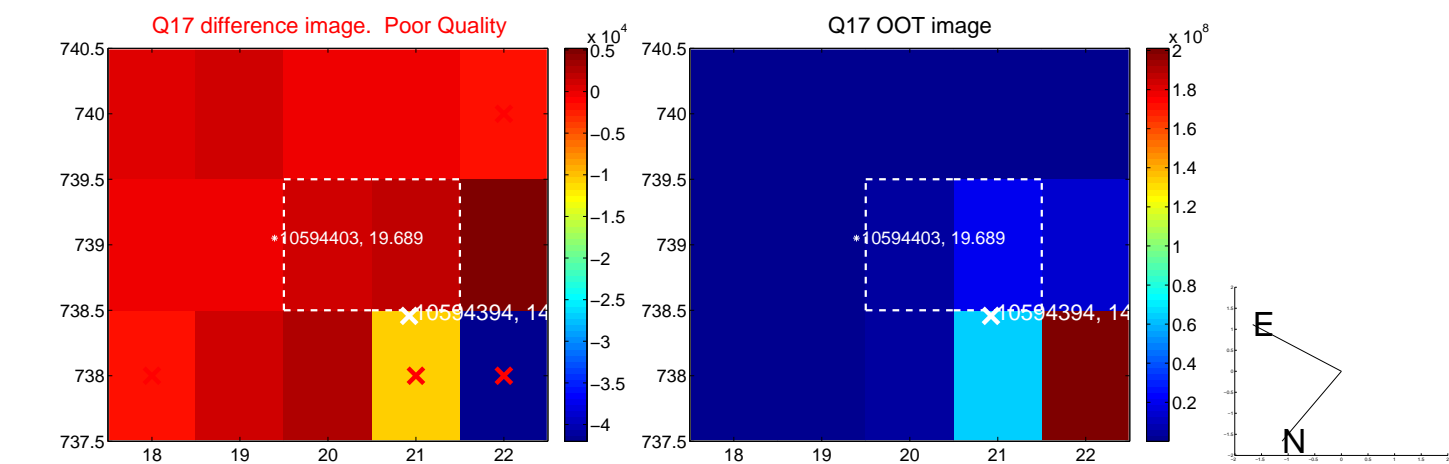
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

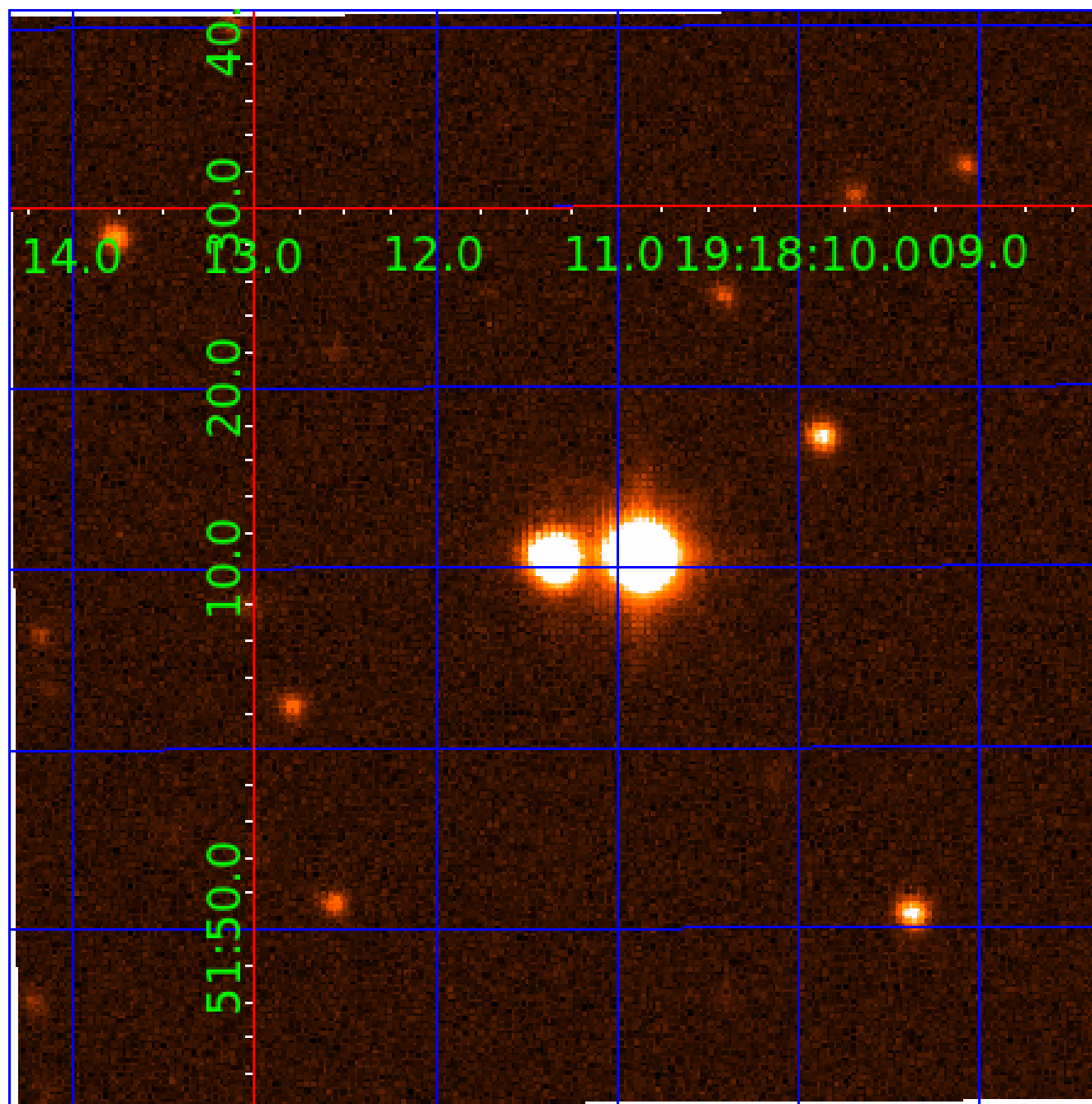


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010594394

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})
010594394-01	OBS	No	2.348315	133.571394	95.3	13.937	10.6	10.0	0.83	5057	0.79	396.12
010594394-02	OBS	No	112.210357	229.733248	923.6	3.106	9.7	10.6	0.83	5057	2.88	2.29
010594394-04	OBS	No	78.344708	142.510836	932.2	3.174	9.7	8.1	0.83	5057	2.79	3.69
010594394-05	OBS	No	99.661265	153.438402	561.3	11.704	7.9	7.7	0.83	5057	2.00	2.68
010594394-06	OBS	No	108.521345	164.324814	529.5	9.633	8.7	6.2	0.83	5057	2.01	2.39
010594394-07	OBS	No	62.535836	139.965446	200.4	9.706	7.6	2.9	0.83	5057	1.28	4.98
010594394-08	OBS	No	54.959553	140.988069	581.5	2.869	7.3	8.0	0.83	5057	2.24	5.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010594394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_FEW_MEAS—HALO_GHOST
010594394-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

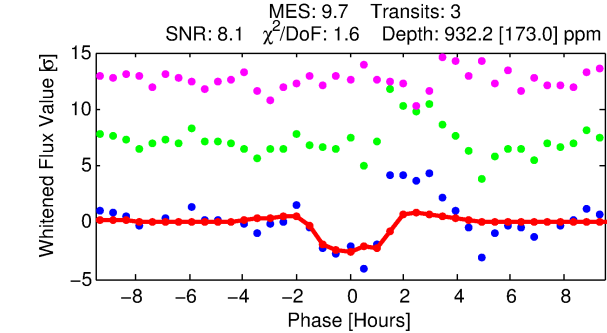
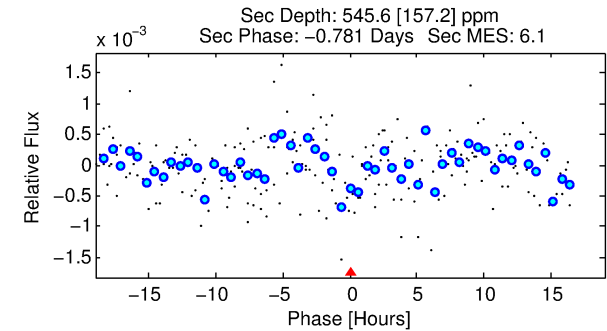
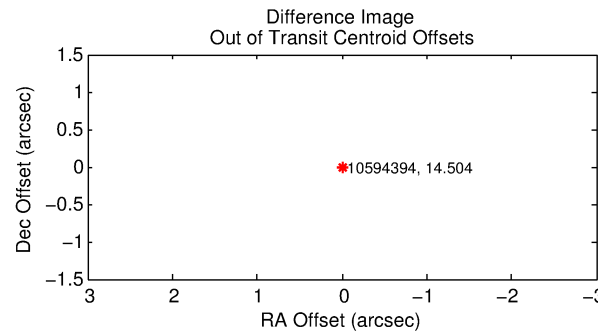
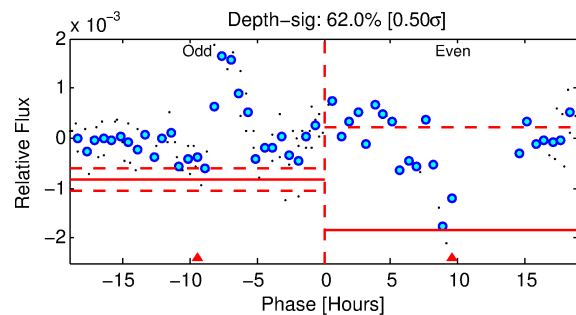
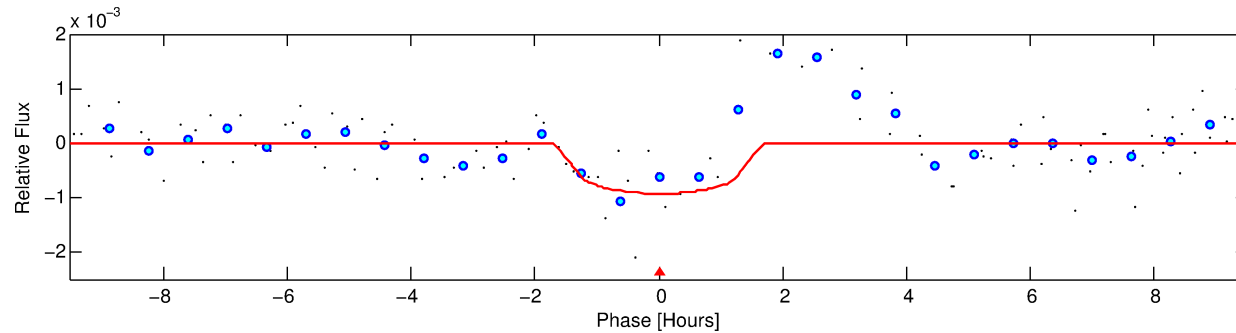
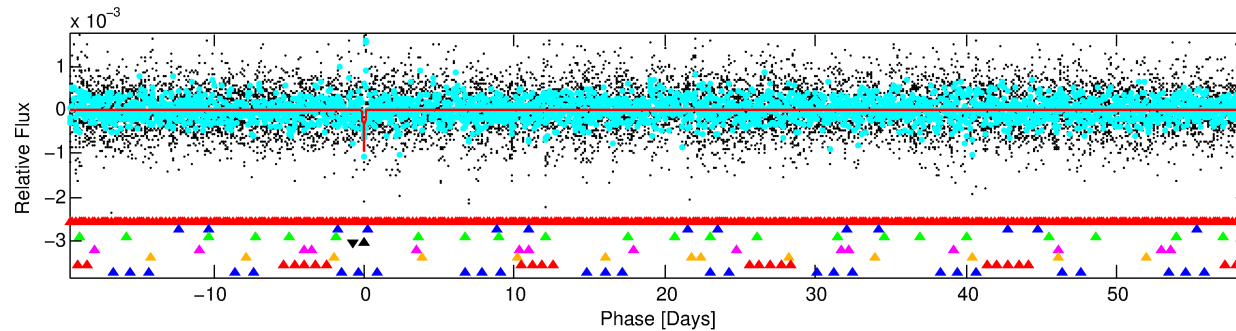
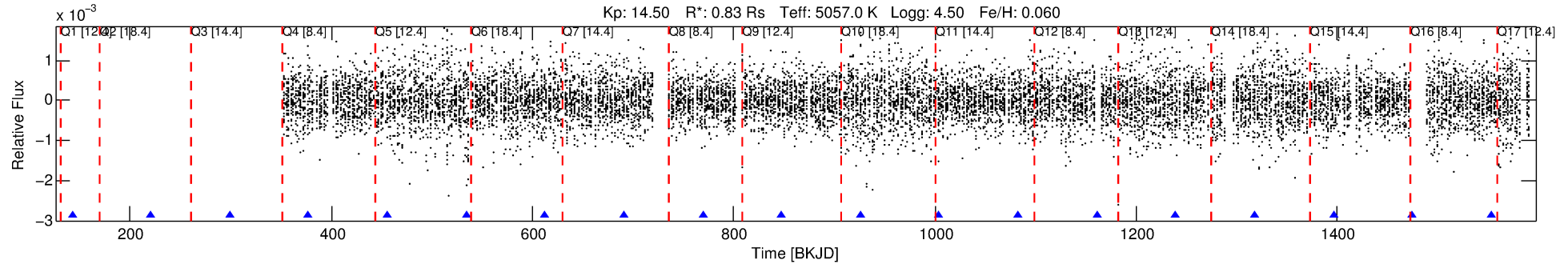
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-04

No Significant Match Found

DV One-Page Summary

KIC: 10594394 Candidate: 4 of 8 Period: 78.345 d



DV Fit Results:

Period = 78.34471 [0.00160] d
Epoch = 142.5108 [0.0198] BKJD
Rp/R* = 0.0309 [0.0954]
a/R* = 128.75 [1419.33]
b = 0.77 [5.93]
Seff = 3.69 [0.78]
Teq = 353 [19] K
Rp = 2.79 [8.64] Re
a = 0.3304 [0.0338] AU
Ag = 4203.17 [26024.52] [0.16 σ]
Teffp = 4399 [6809] K [0.59 σ]

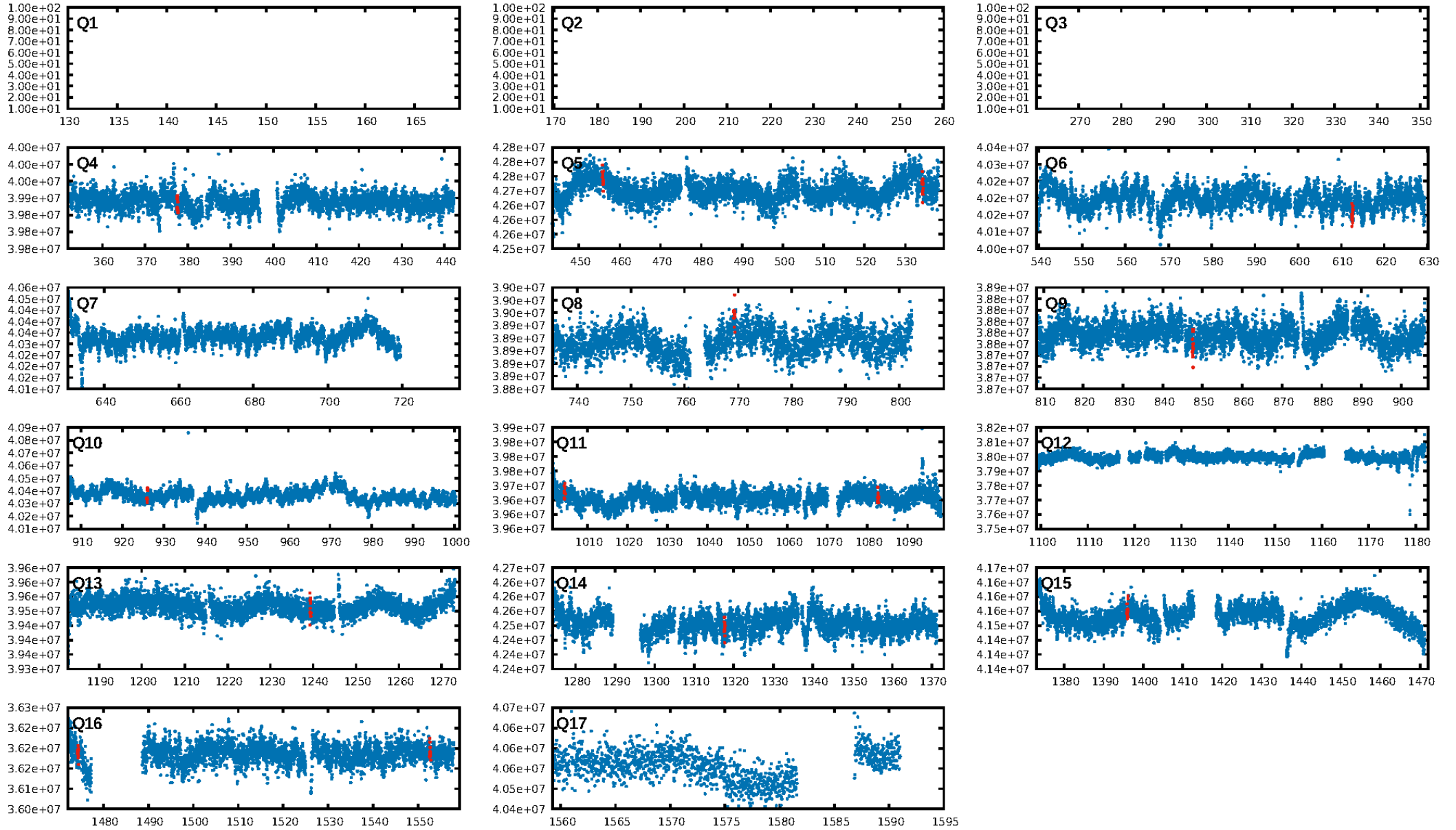
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.30 σ]
LongPeriod-sig: 100.0% [42.19 σ]
ModelChiSquare2-sig: 5.2%
ModelChiSquareGof-sig: 90.1%
Bootstrap-pfa: 4.43e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -11.31
Centroid-sig: 10.5%
Centroid-so: 2.857 arcsec [25.85 σ]
OotOffset-rm: N/A
KicOffset-rm: 3.200 arcsec [2.68 σ]
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.40 [4/10]

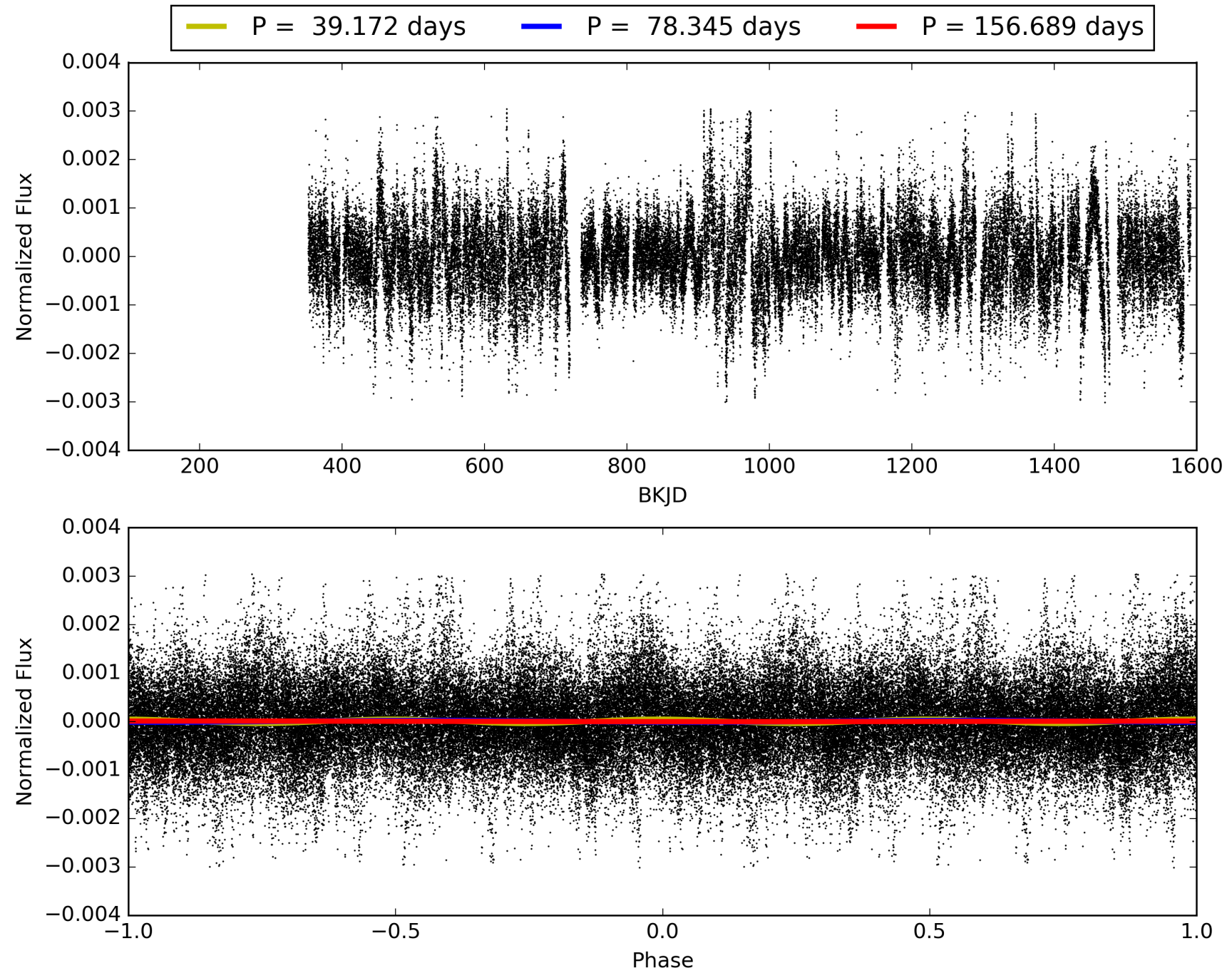
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:36:36 Z

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

TCE 010594394-04, PDC Light Curves

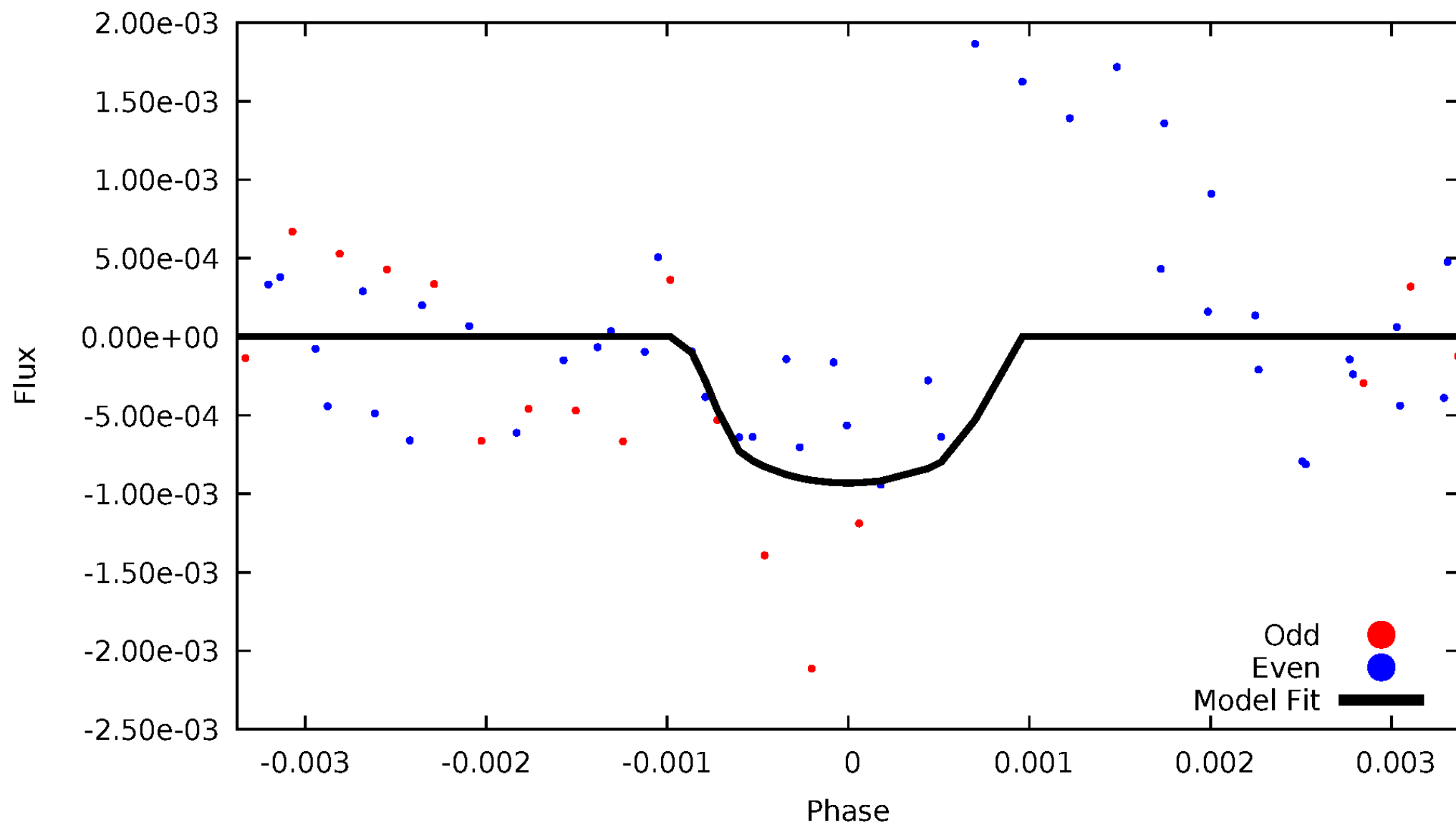


TCE 010594394-04



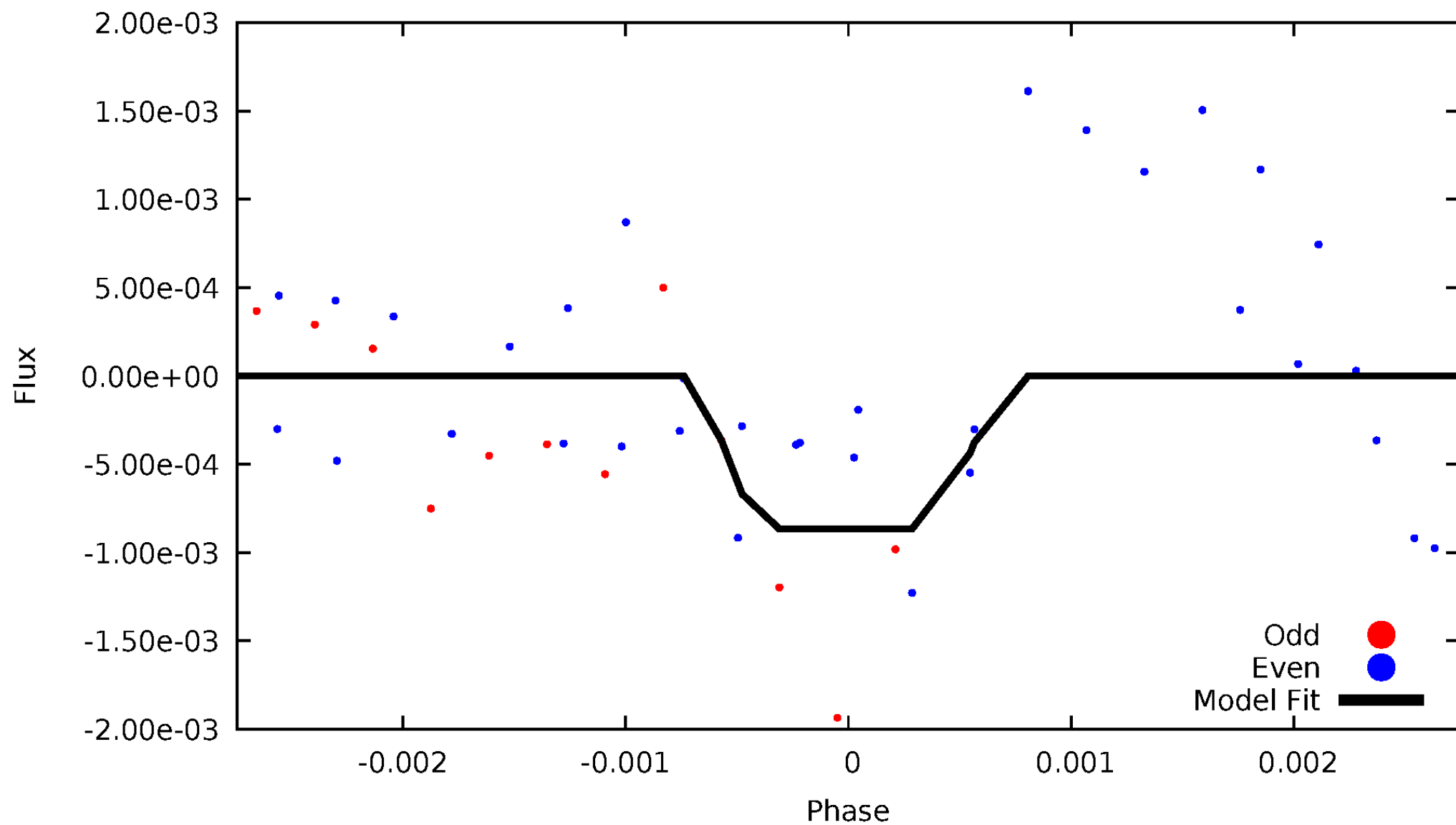
DV Odd/Even

TCE 010594394-04



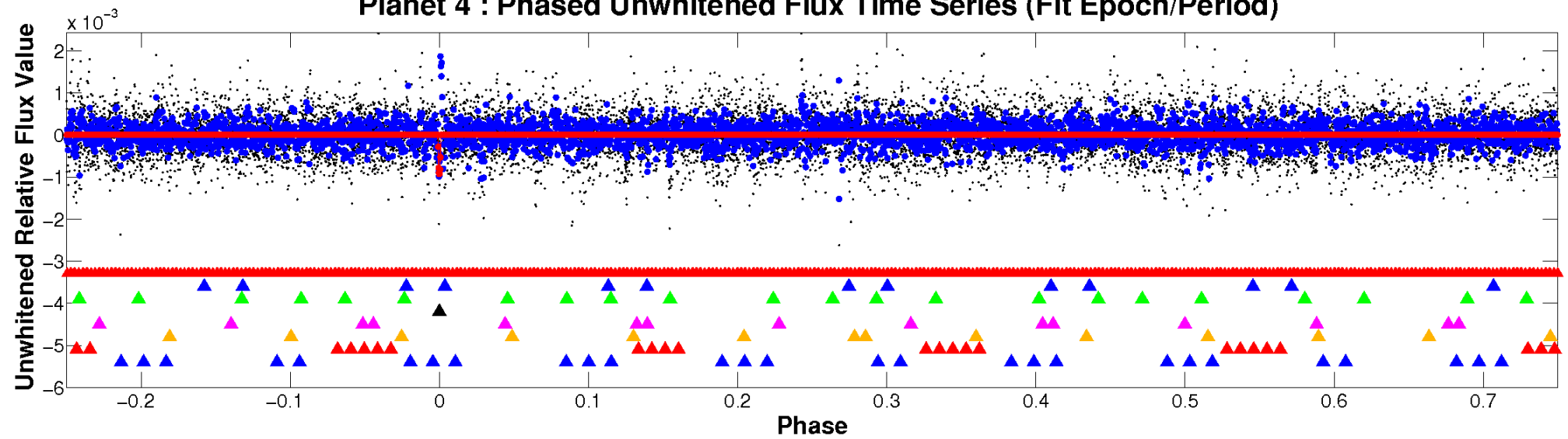
ALT Odd/Even

TCE 010594394-04

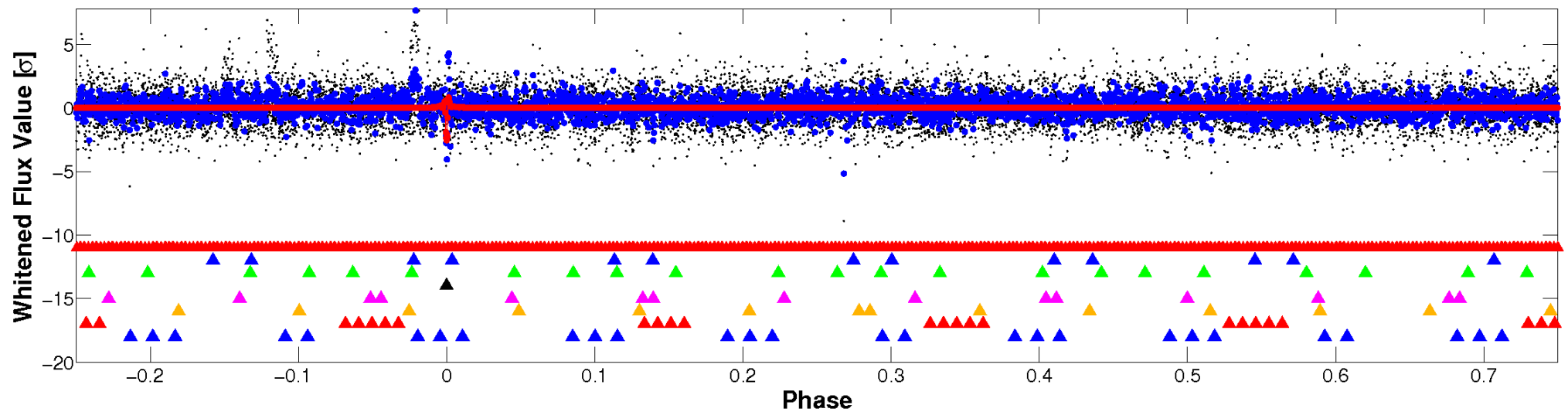


Non-Whitened Vs. Whitened Light Curve

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

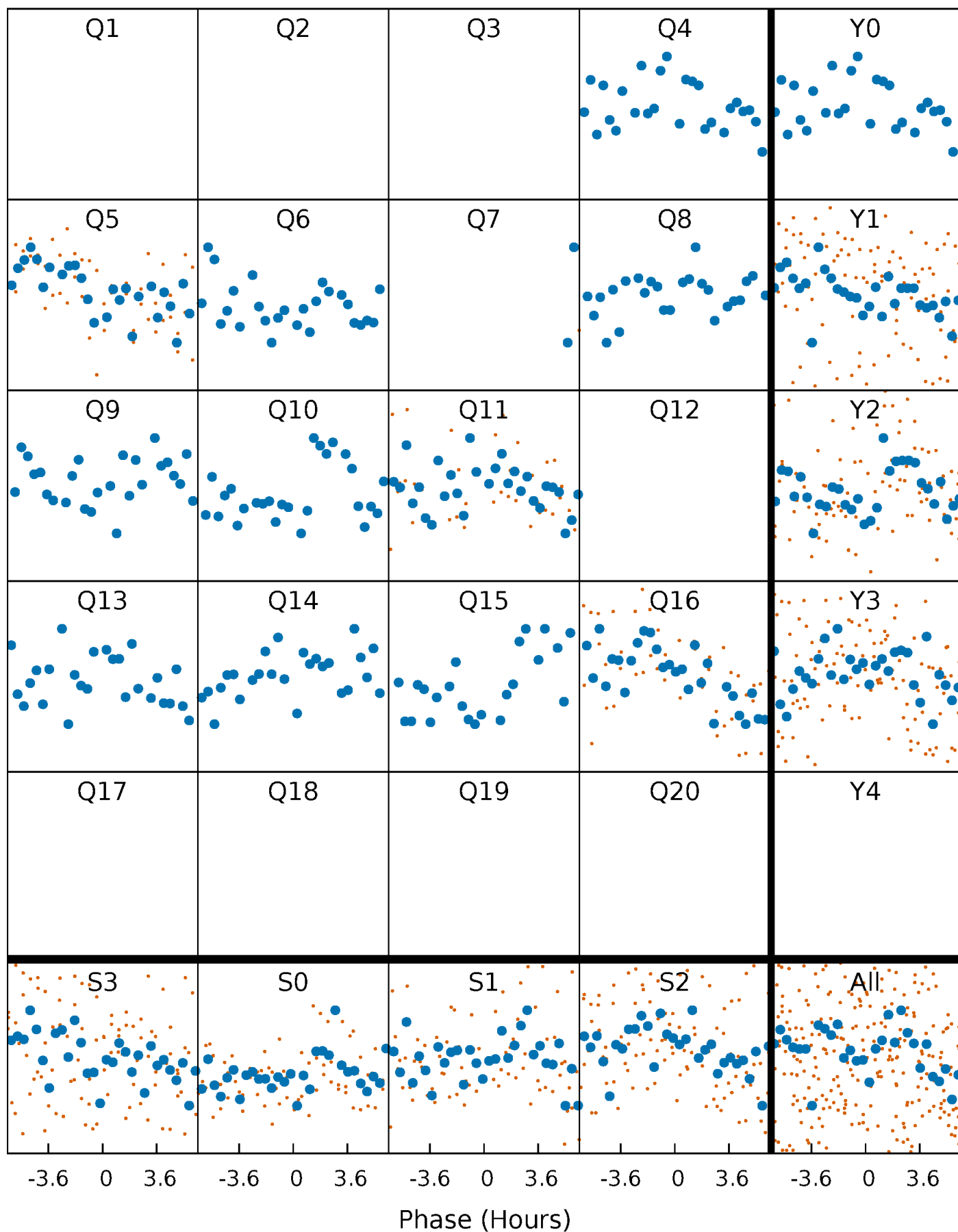


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



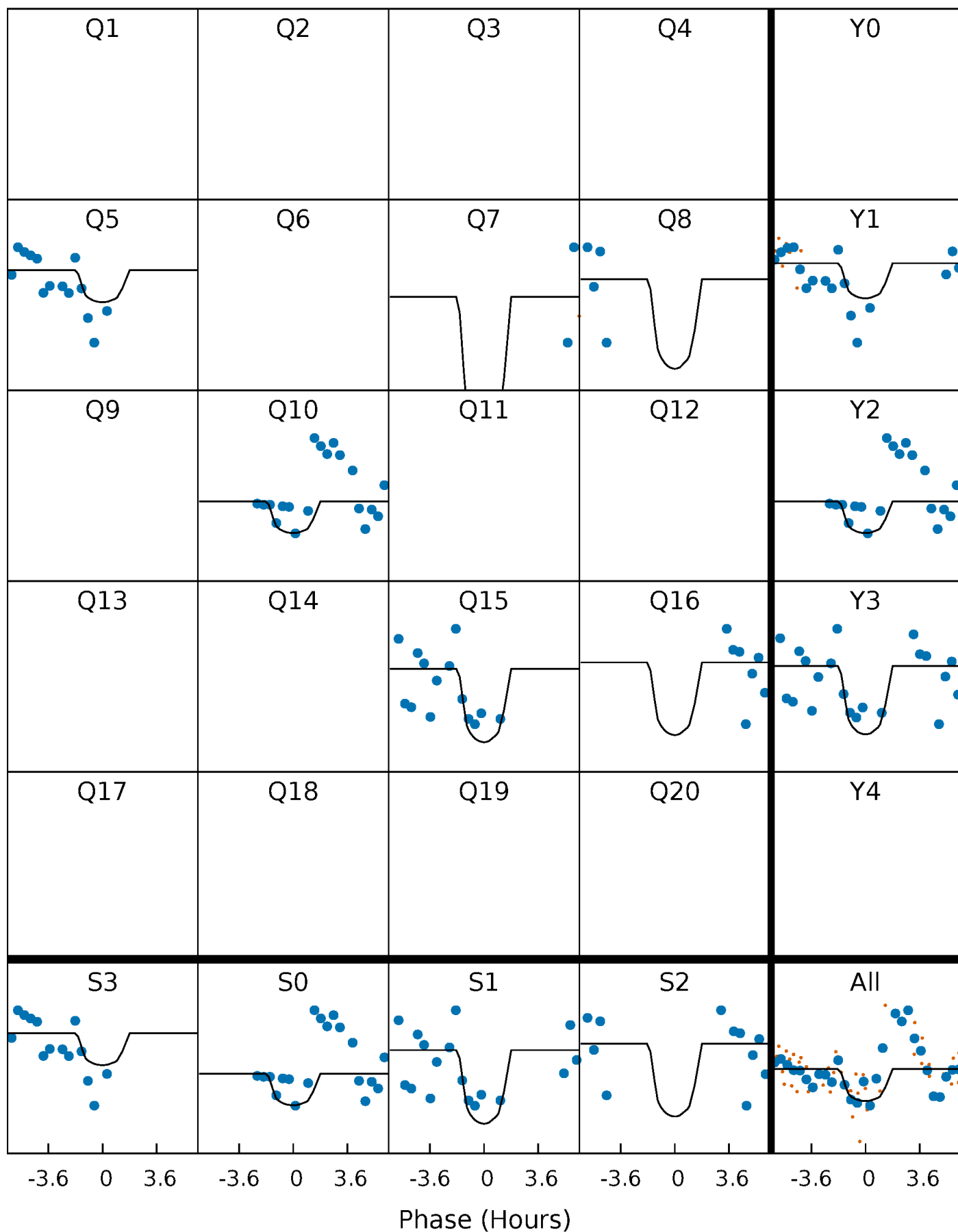
PDC Quarter-Phased Transit Curves

TCE 010594394-04 $P = 78.344708$ Days $T_0 = 142.510836$ (BKJD)



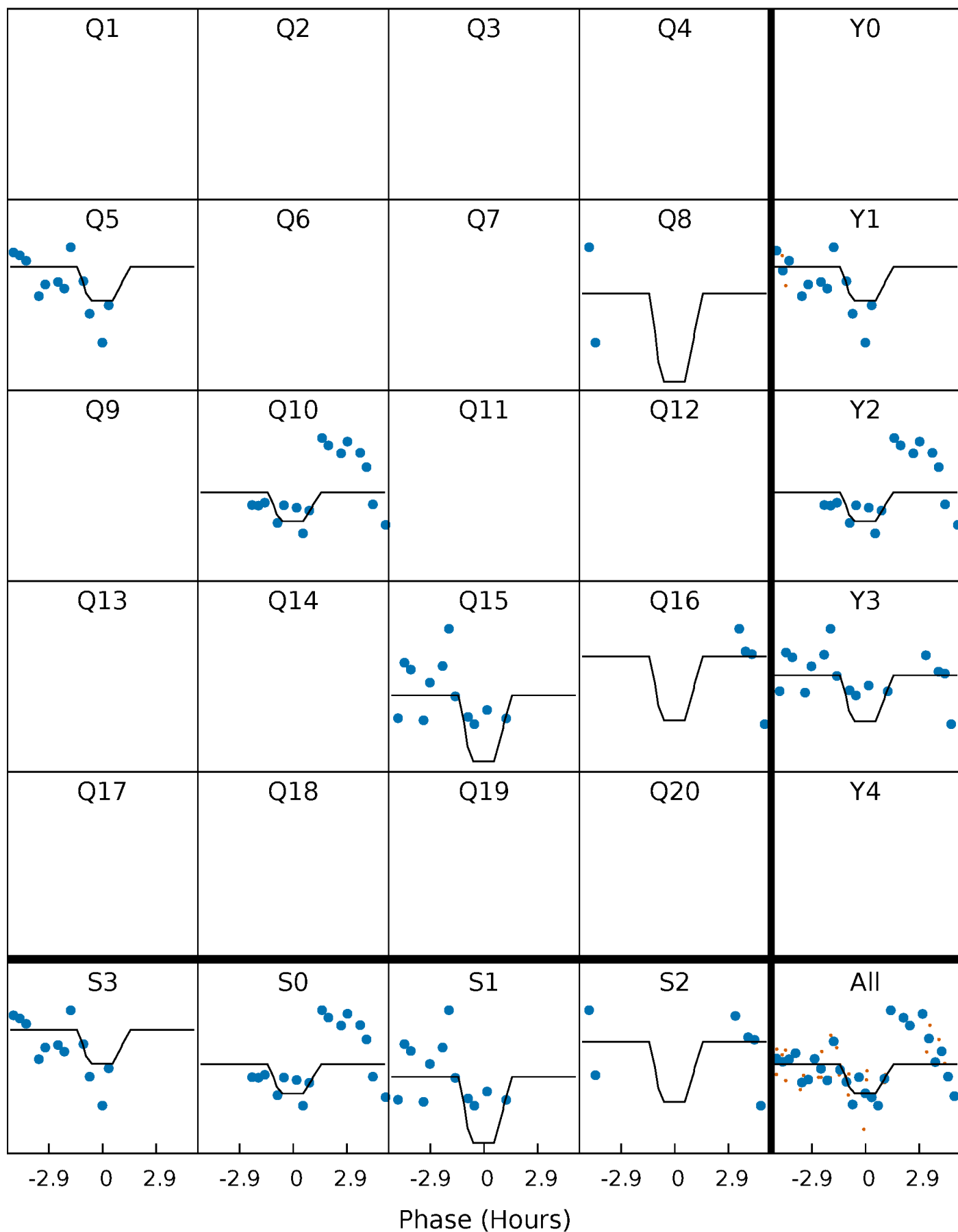
DV Quarter-Phased Transit Curves

TCE 010594394-04 P= 78.344708 Days $T_0=142.510836$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

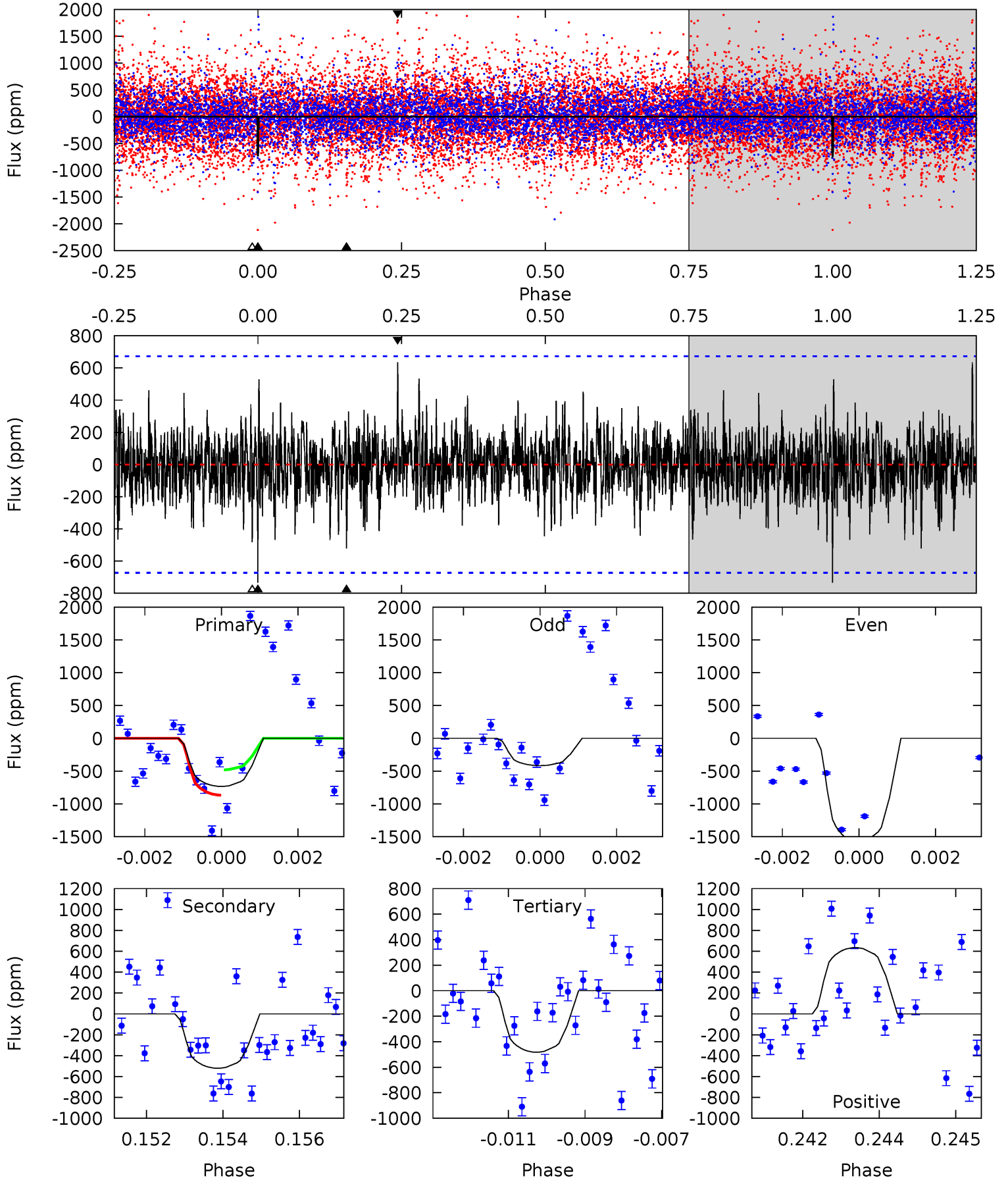
TCE 010594394-04 P= 78.345427 Days $T_0=142.495275$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-04, P = 78.344708 Days, E = 142.510836 Days

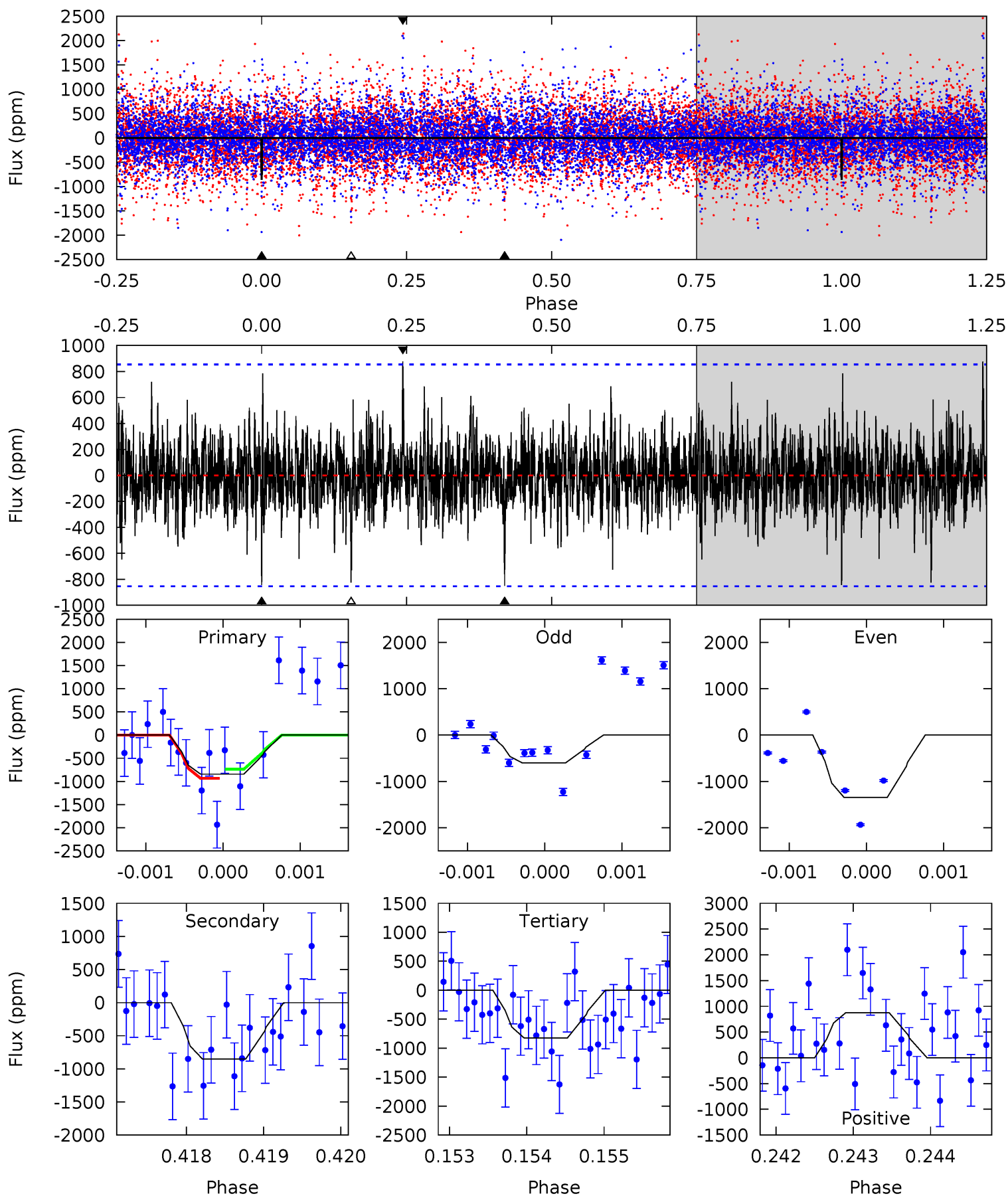
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.83	4.14	3.83	5.04	5.35	3.13	1.11	2.00	0.79	0.31	-0.91	4.21	1.18	0.46	1.46



Alt Model-Shift Uniqueness Test

010594394-04, $P = 78.345427$ Days, $E = 142.495275$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.38	5.42	5.26	5.58	5.44	3.27	1.19	0.12	-0.21	0.17	-0.16	2.17	1.03	0.51	0.63



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-521 ± 126	$6.67^{+7.58}_{-4.46}$	494^{+26}_{-23}	3265^{+1617}_{-595}	636^{+5456}_{-486}
Alt.	-851 ± 157	$7.05^{+7.18}_{-4.86}$	494^{+24}_{-23}	3535^{+1822}_{-665}	1033^{+8799}_{-777}

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 $A_{obs} \gg 1.0$

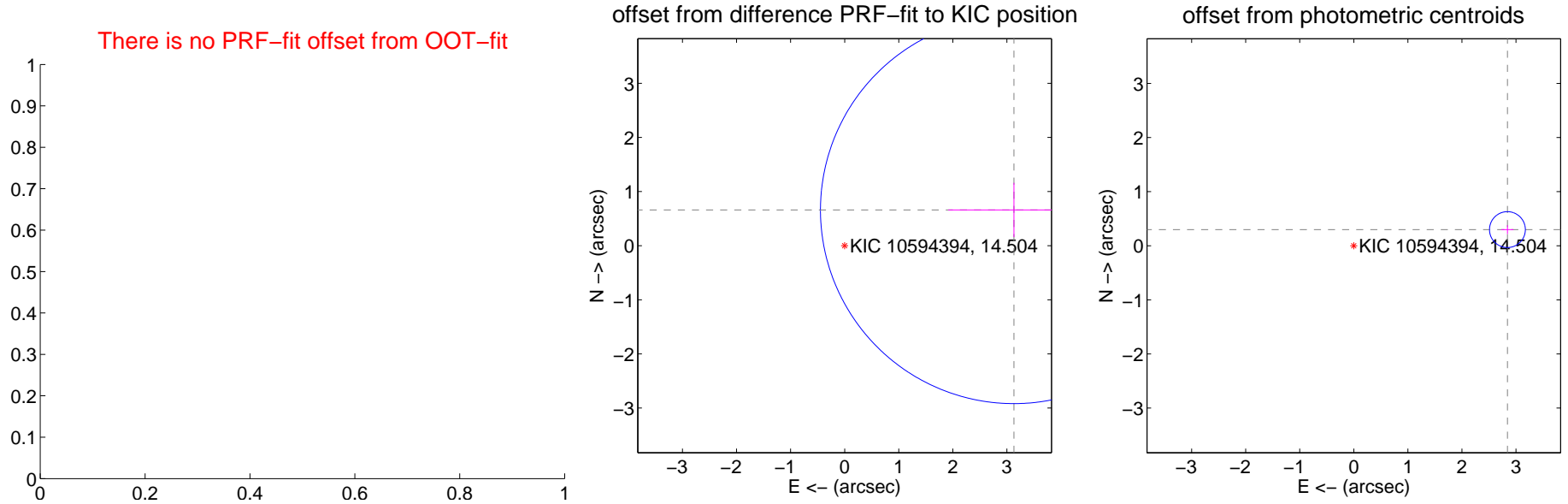
DV Centroid Data

Supplemental centroid analysis for 010594394-04. Kepler magnitude: 14.50. Transit SNR 8.12

There are 1 quarters with good PRF difference image offsets

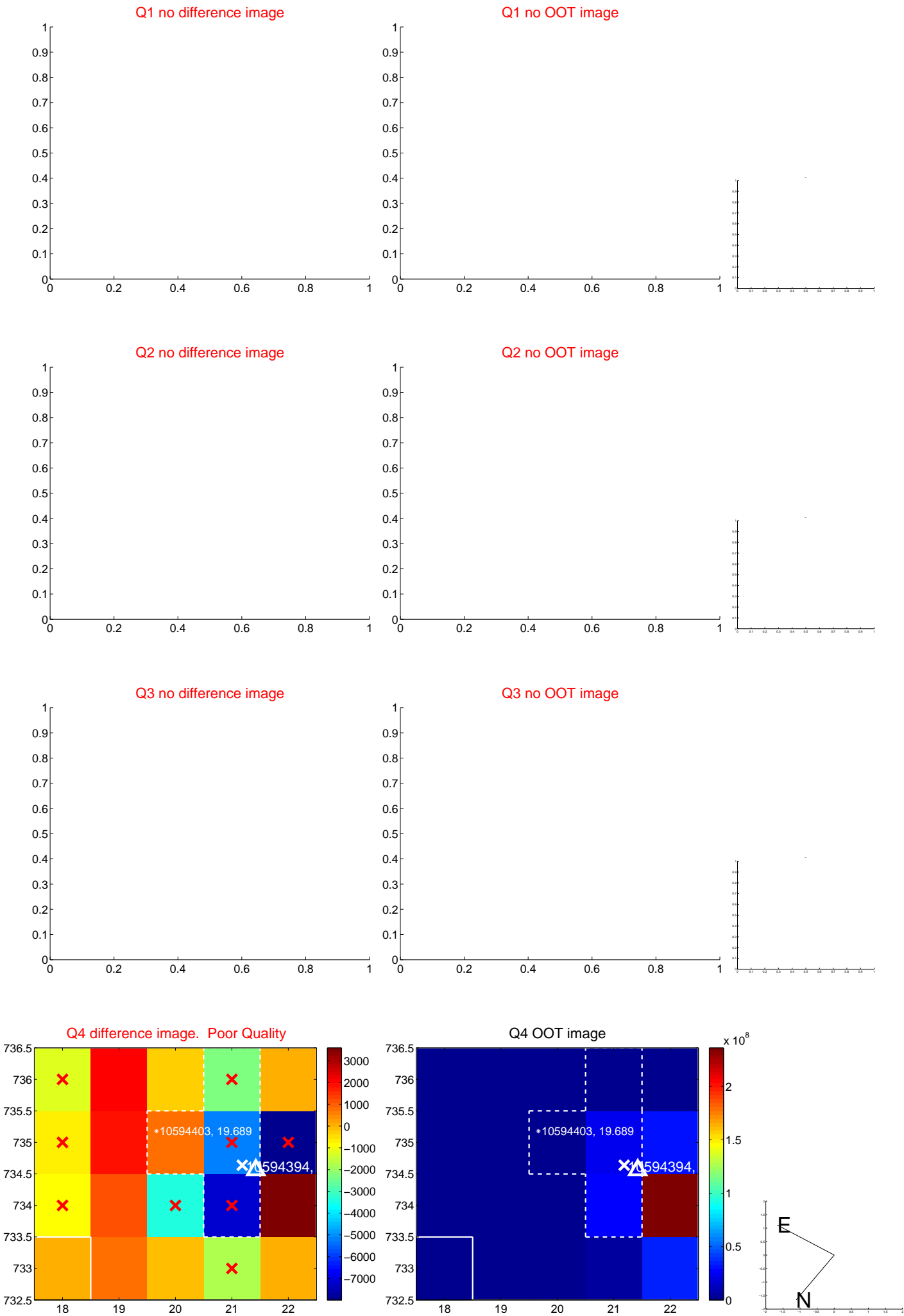
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	3.200 ± 1.193	2.68	-3.131 ± 1.214	0.660 ± 0.501
photometric centroid source offset	2.86 ± 0.11	25.85	-2.84 ± 0.11	0.30 ± 0.08

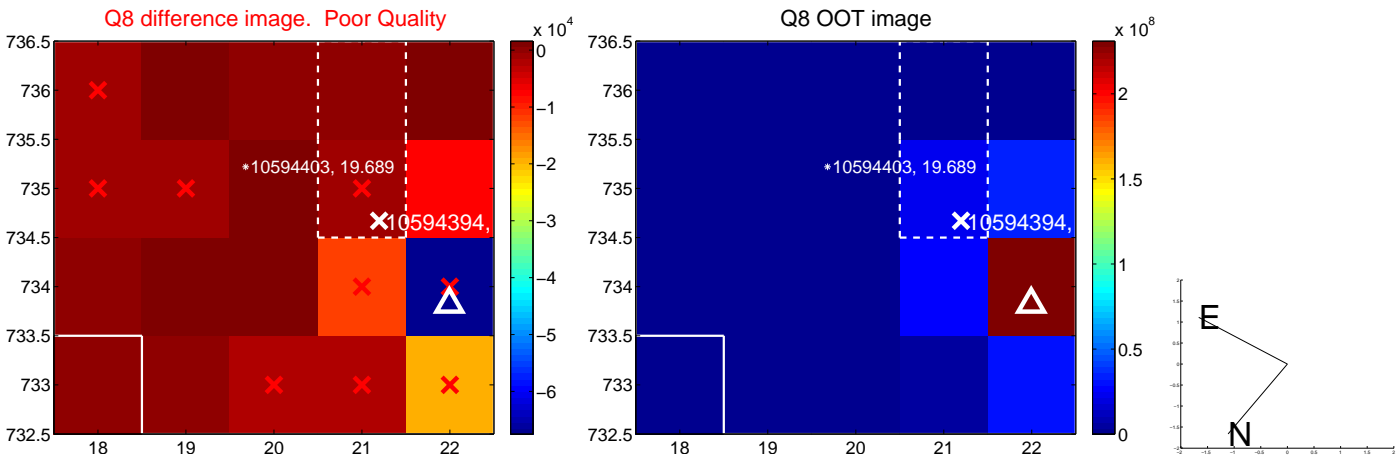
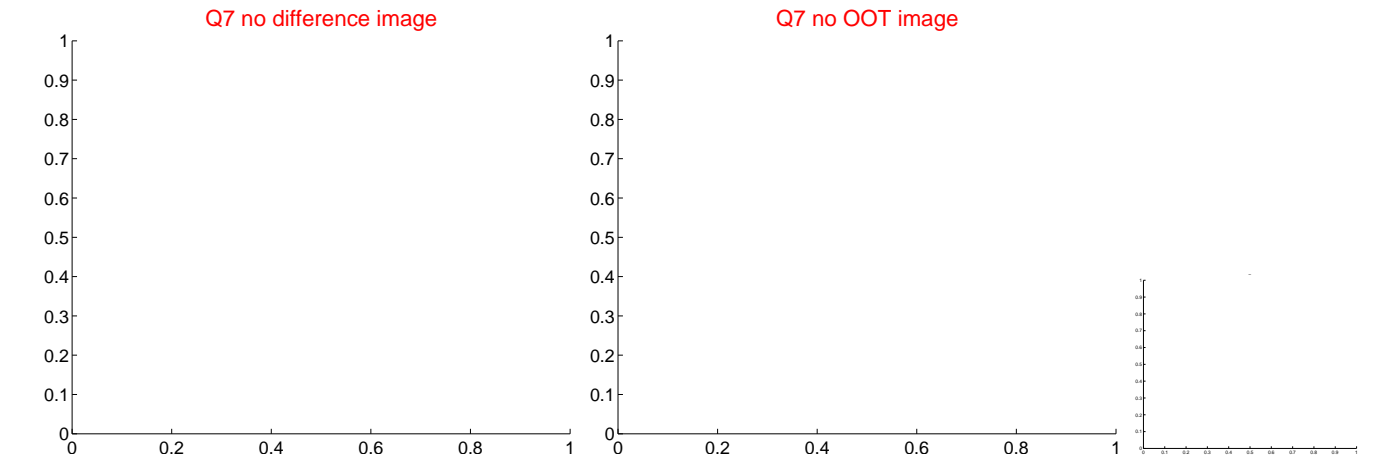
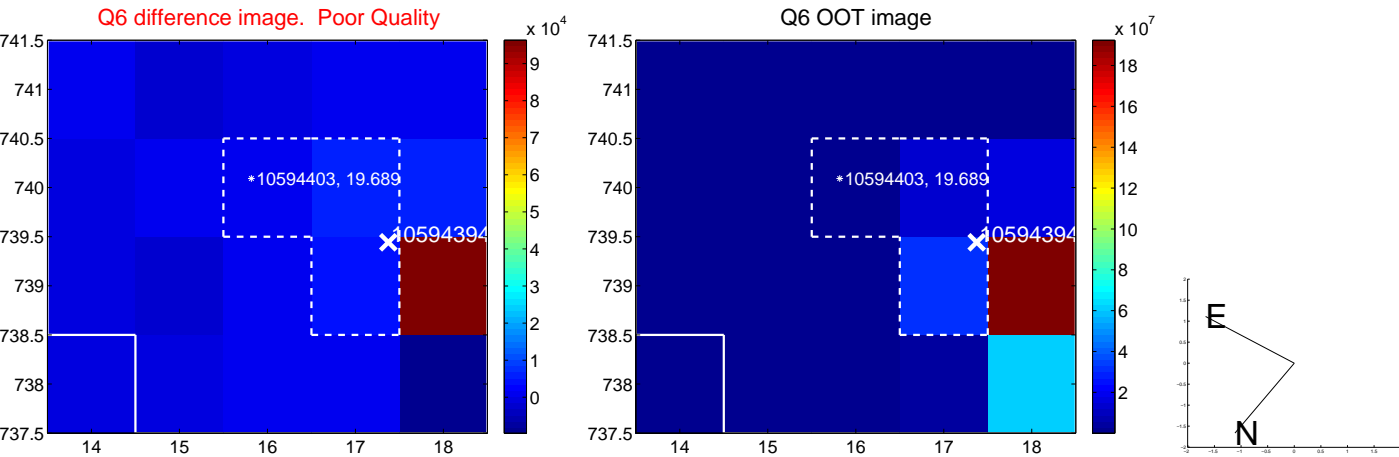
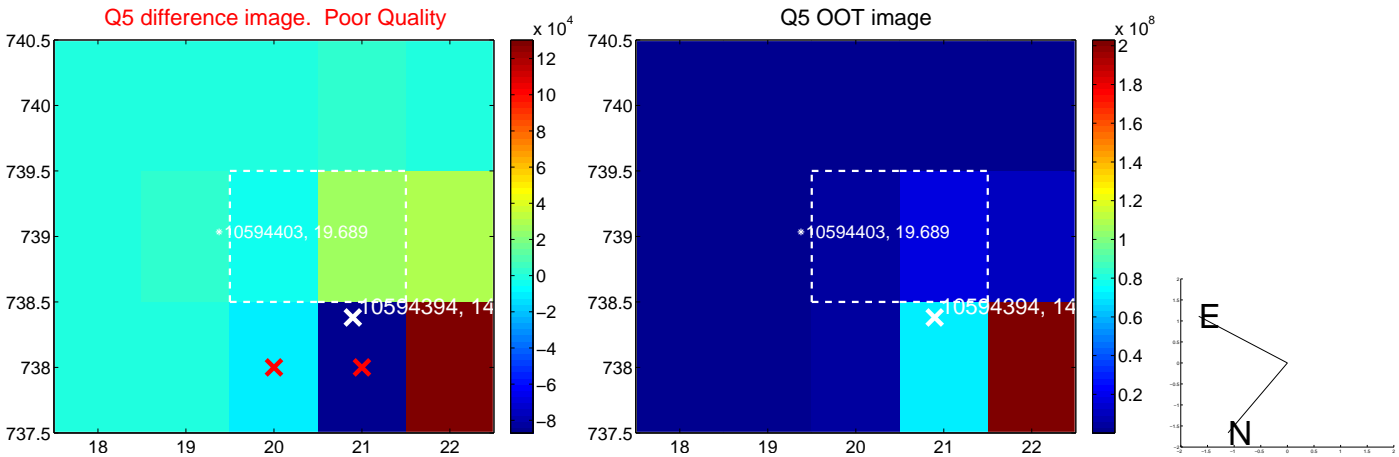


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

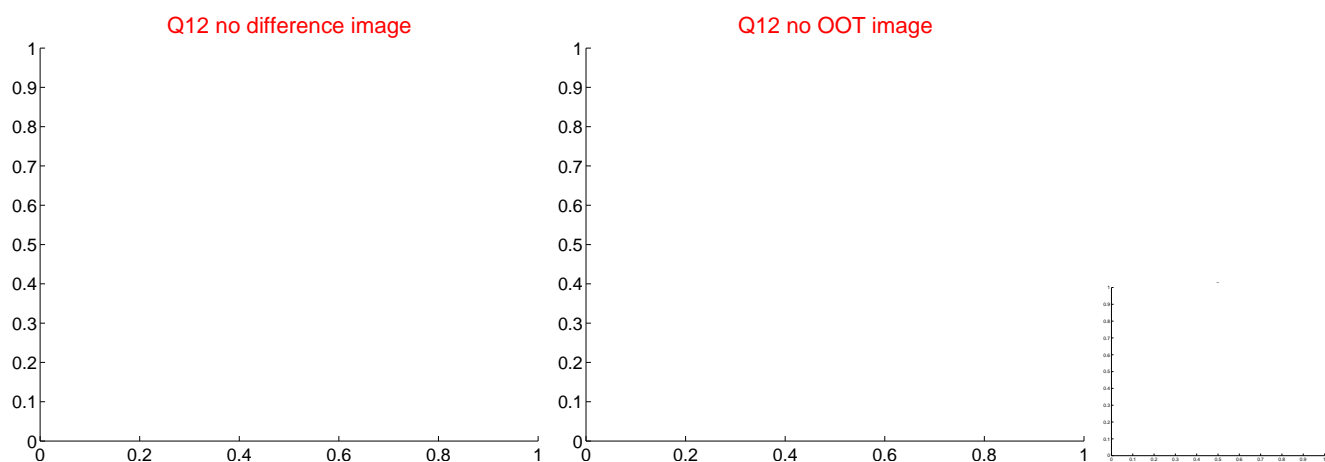
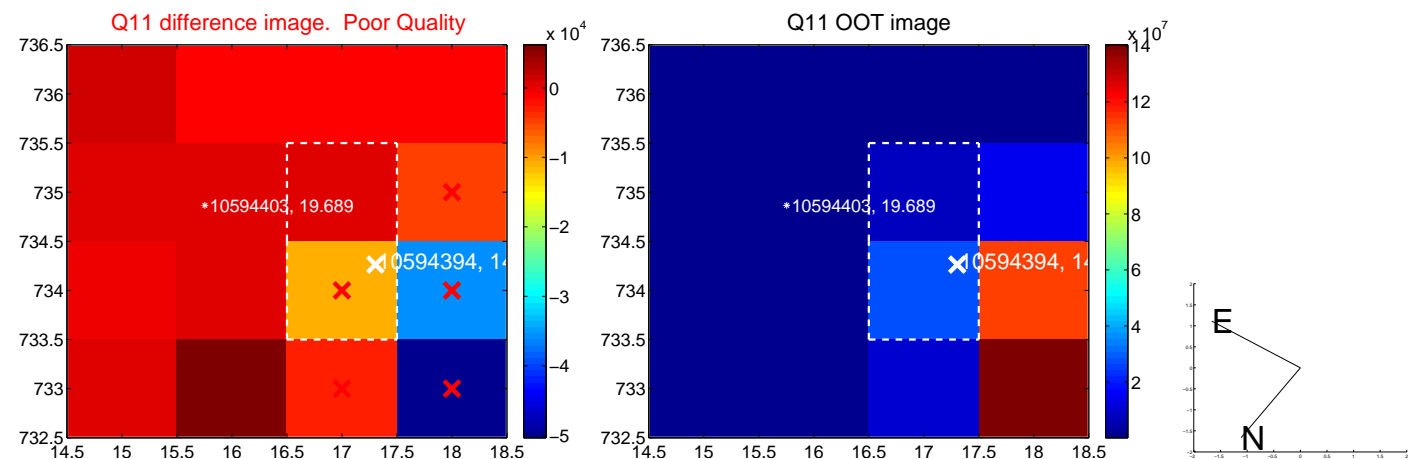
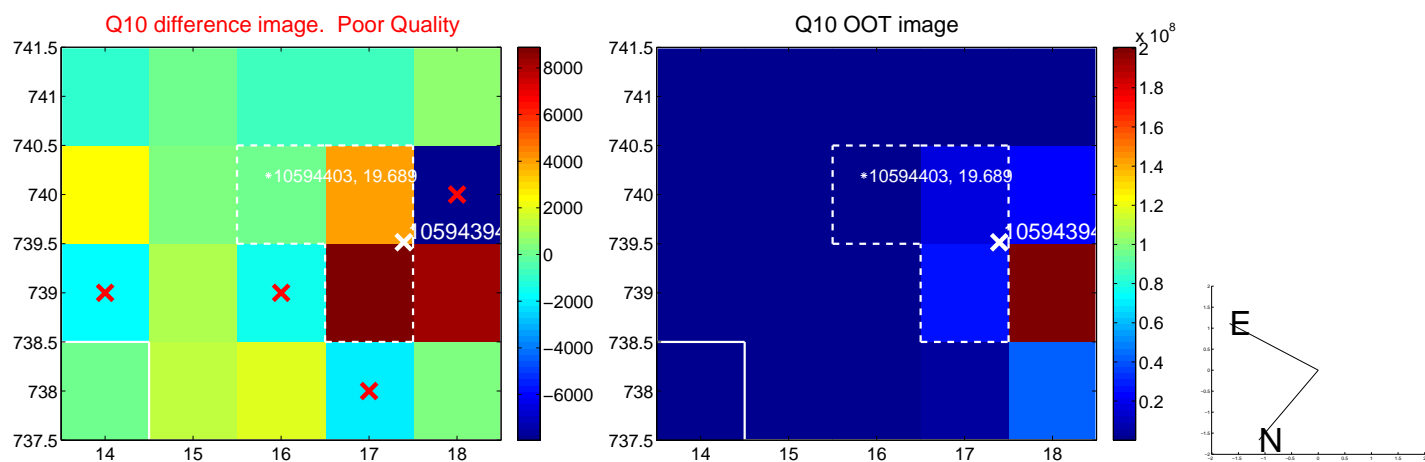
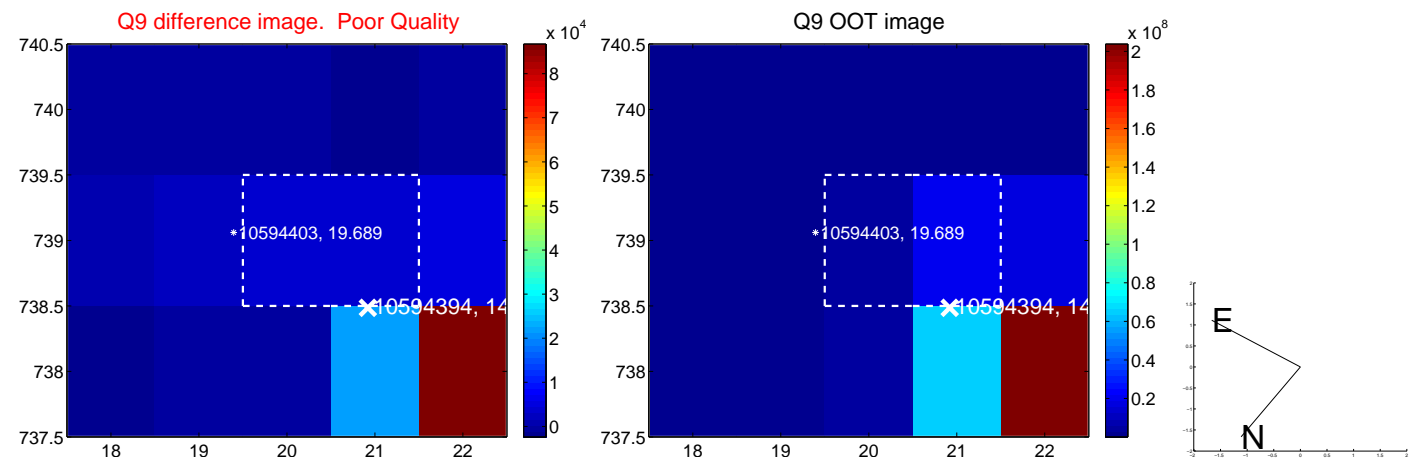
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



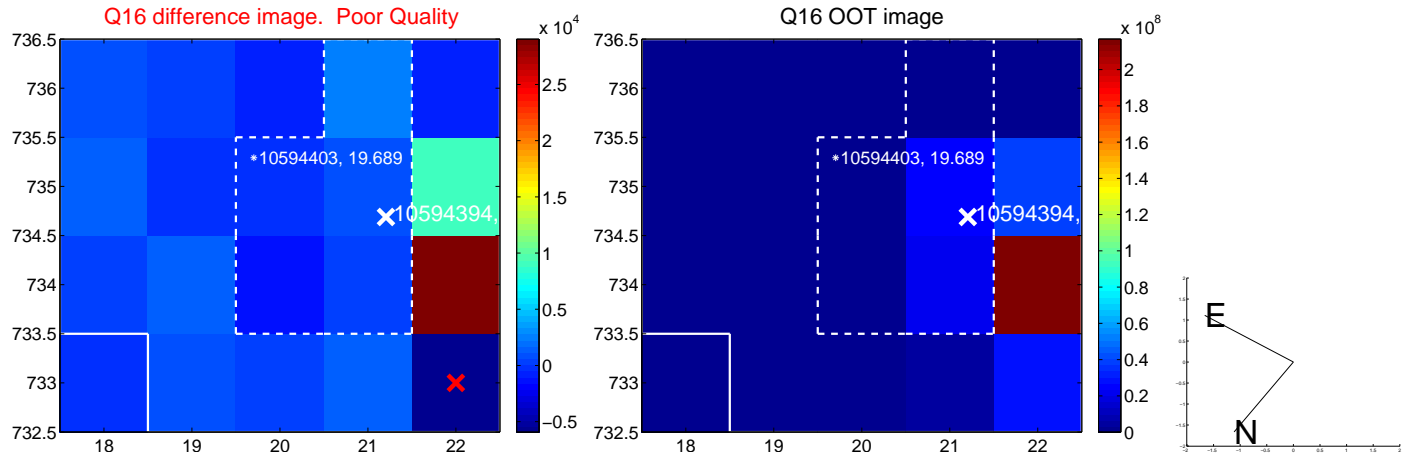
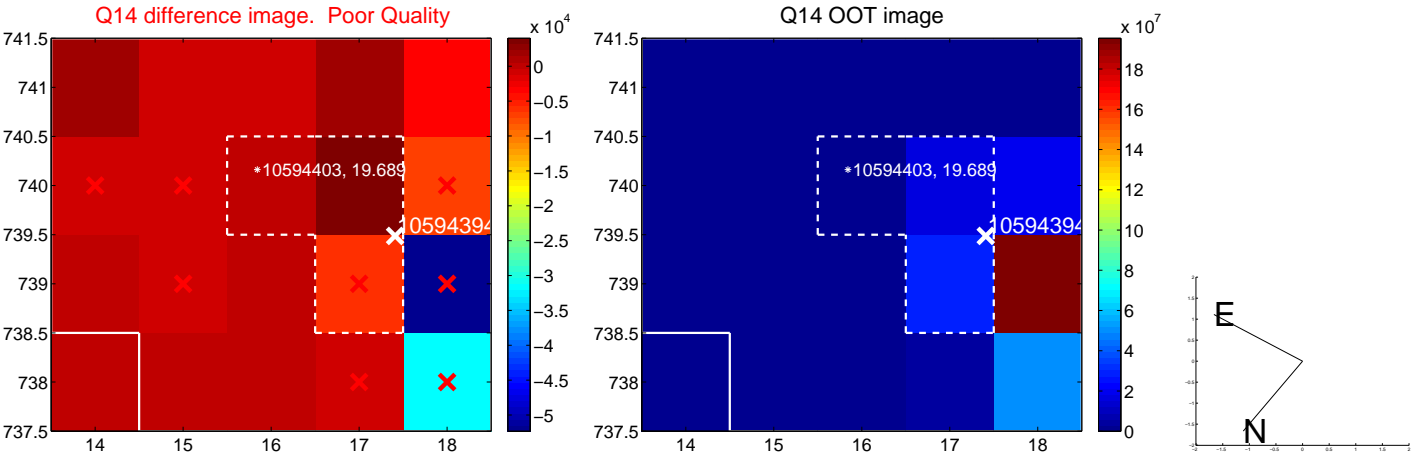
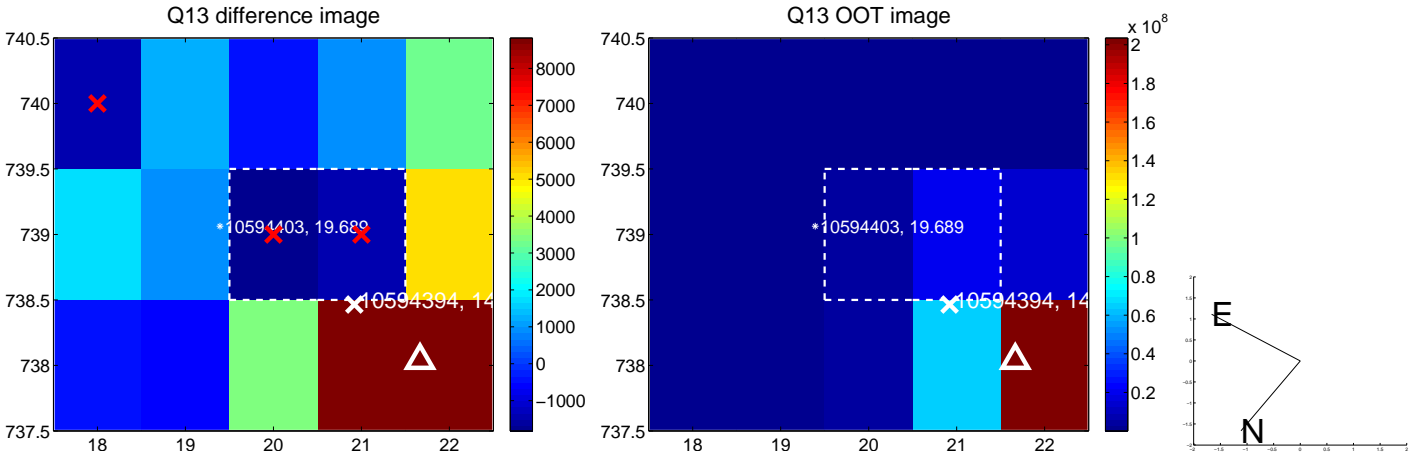
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



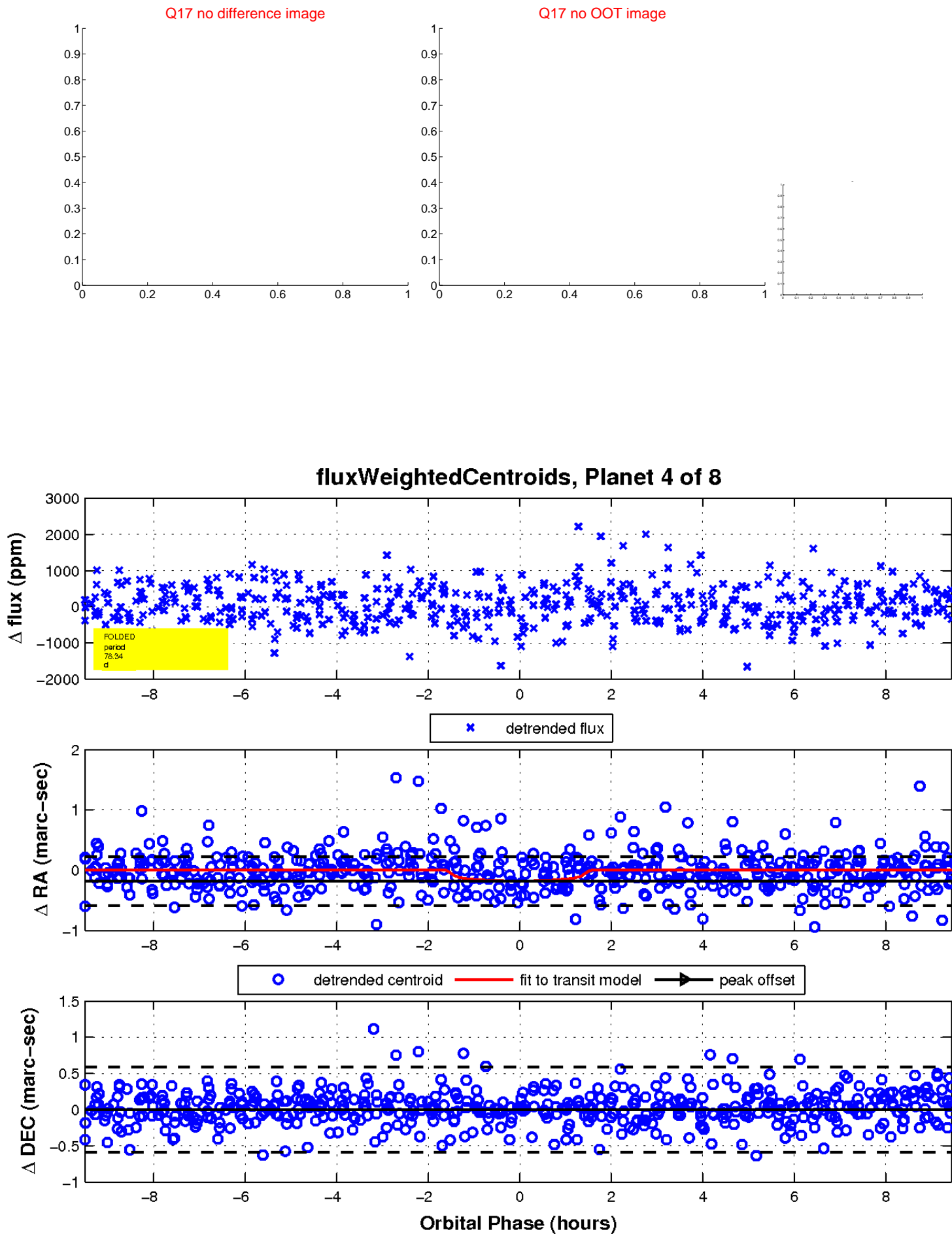
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

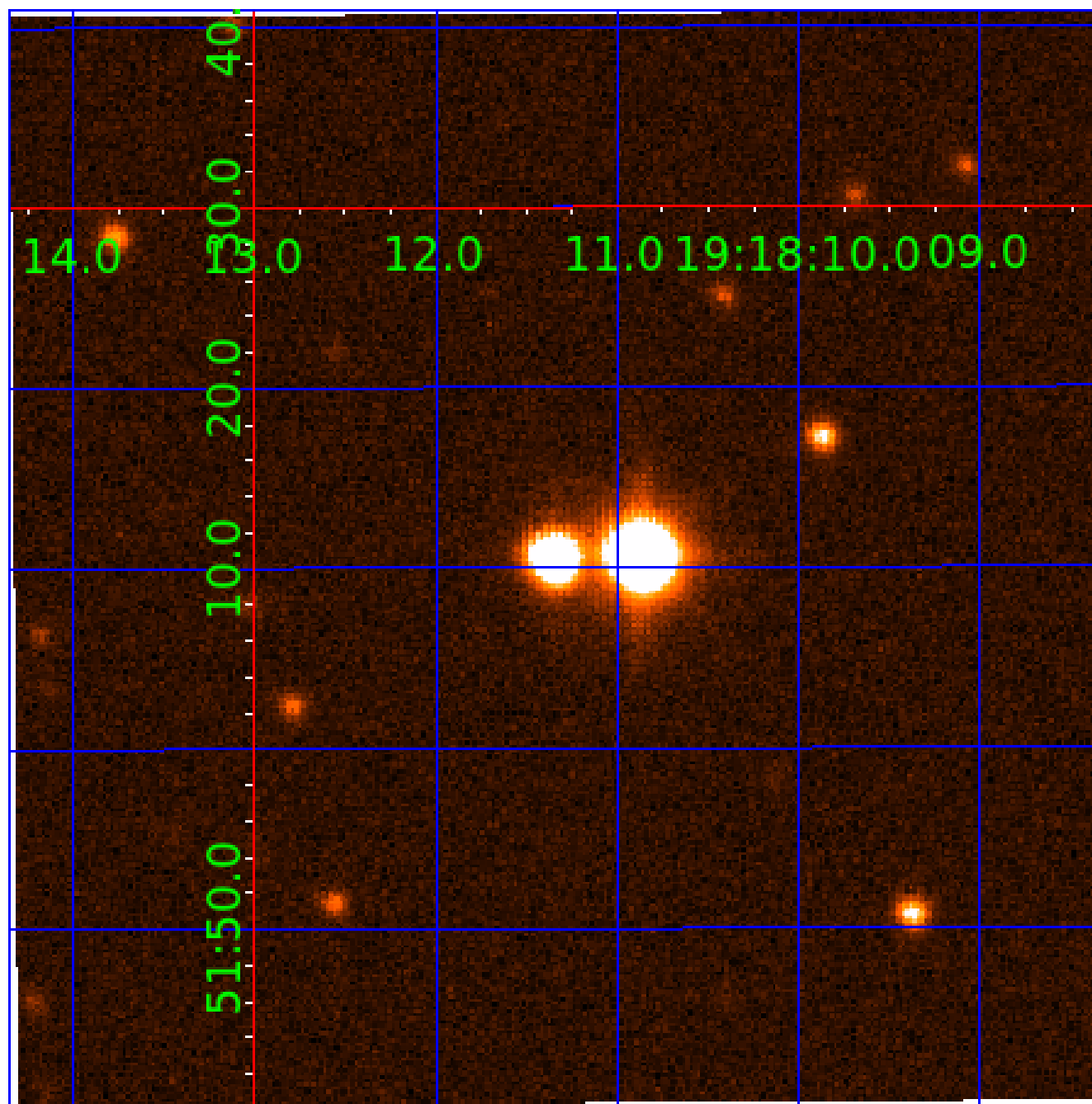


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010594394

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})
010594394-01	OBS	No	2.348315	133.571394	95.3	13.937	10.6	10.0	0.83	5057	0.79	396.12
010594394-02	OBS	No	112.210357	229.733248	923.6	3.106	9.7	10.6	0.83	5057	2.88	2.29
010594394-04	OBS	No	78.344708	142.510836	932.2	3.174	9.7	8.1	0.83	5057	2.79	3.69
010594394-05	OBS	No	99.661265	153.438402	561.3	11.704	7.9	7.7	0.83	5057	2.00	2.68
010594394-06	OBS	No	108.521345	164.324814	529.5	9.633	8.7	6.2	0.83	5057	2.01	2.39
010594394-07	OBS	No	62.535836	139.965446	200.4	9.706	7.6	2.9	0.83	5057	1.28	4.98
010594394-08	OBS	No	54.959553	140.988069	581.5	2.869	7.3	8.0	0.83	5057	2.24	5.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010594394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_FEW_MEAS—HALO_GHOST
010594394-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

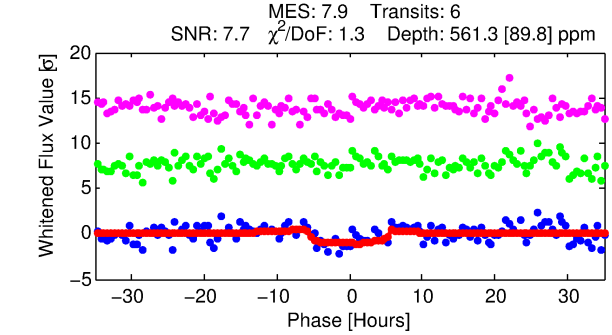
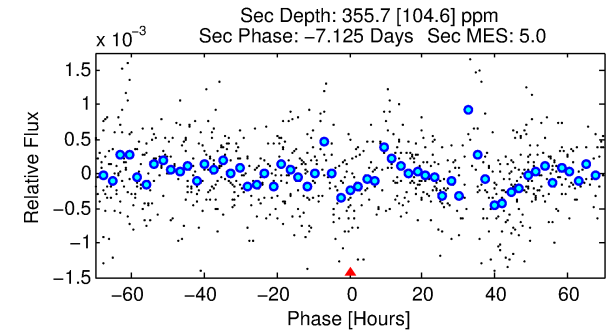
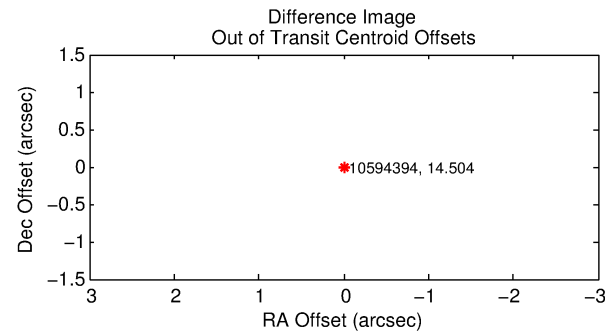
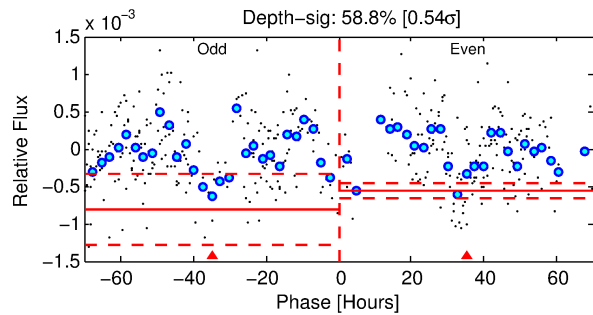
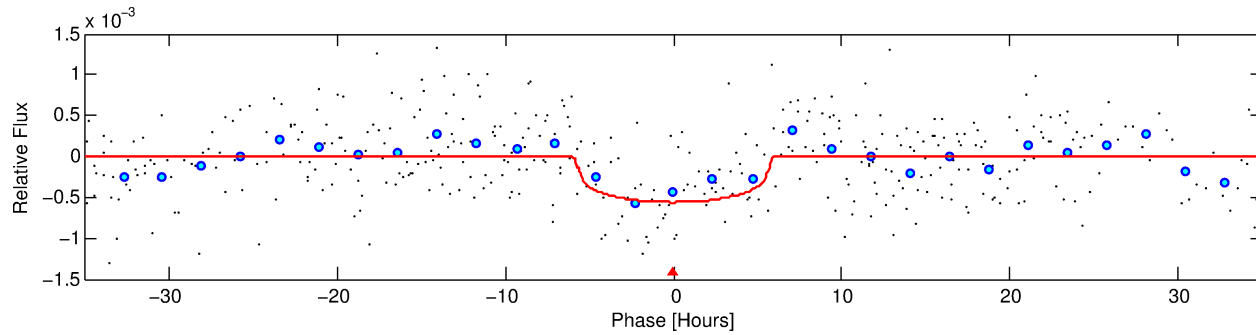
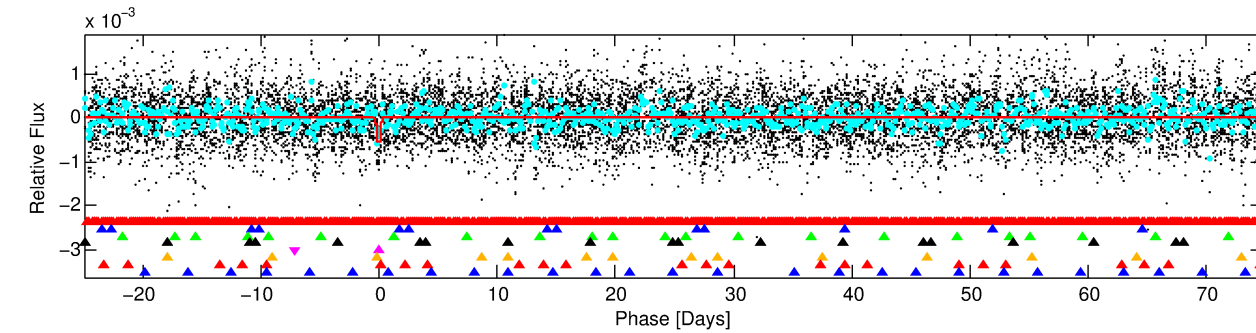
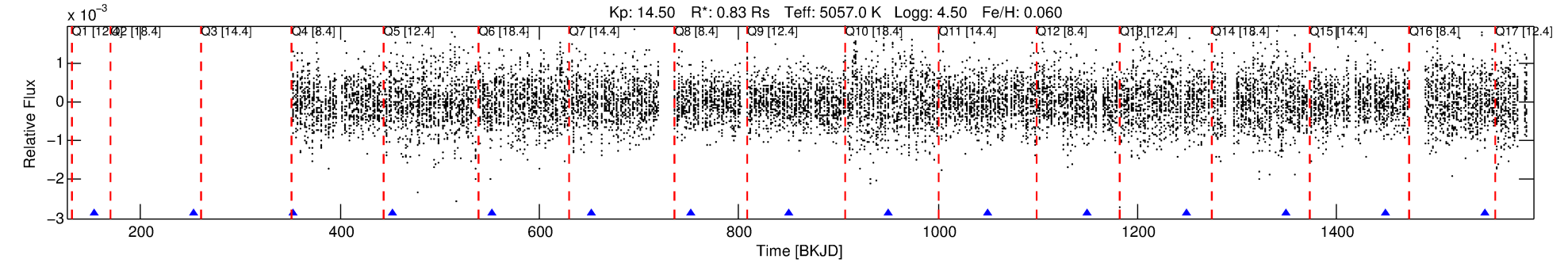
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-05

No Significant Match Found

DV One-Page Summary

KIC: 10594394 Candidate: 5 of 8 Period: 99.661 d



DV Fit Results:

Period = 99.66127 [0.00370] d
Epoch = 153.4384 [0.0363] BKJD
Rp/R* = 0.0221 [0.0255]
a/R* = 56.60 [226.38]
b = 0.54 [5.39]
Seff = 2.68 [0.57]
Teq = 326 [17] K
Rp = 2.00 [2.32] Re
a = 0.3879 [0.0397] AU
Ag = 7393.17 [17279.55] [0.43σ]
Teffp = 4676 [2731] K [1.59σ]

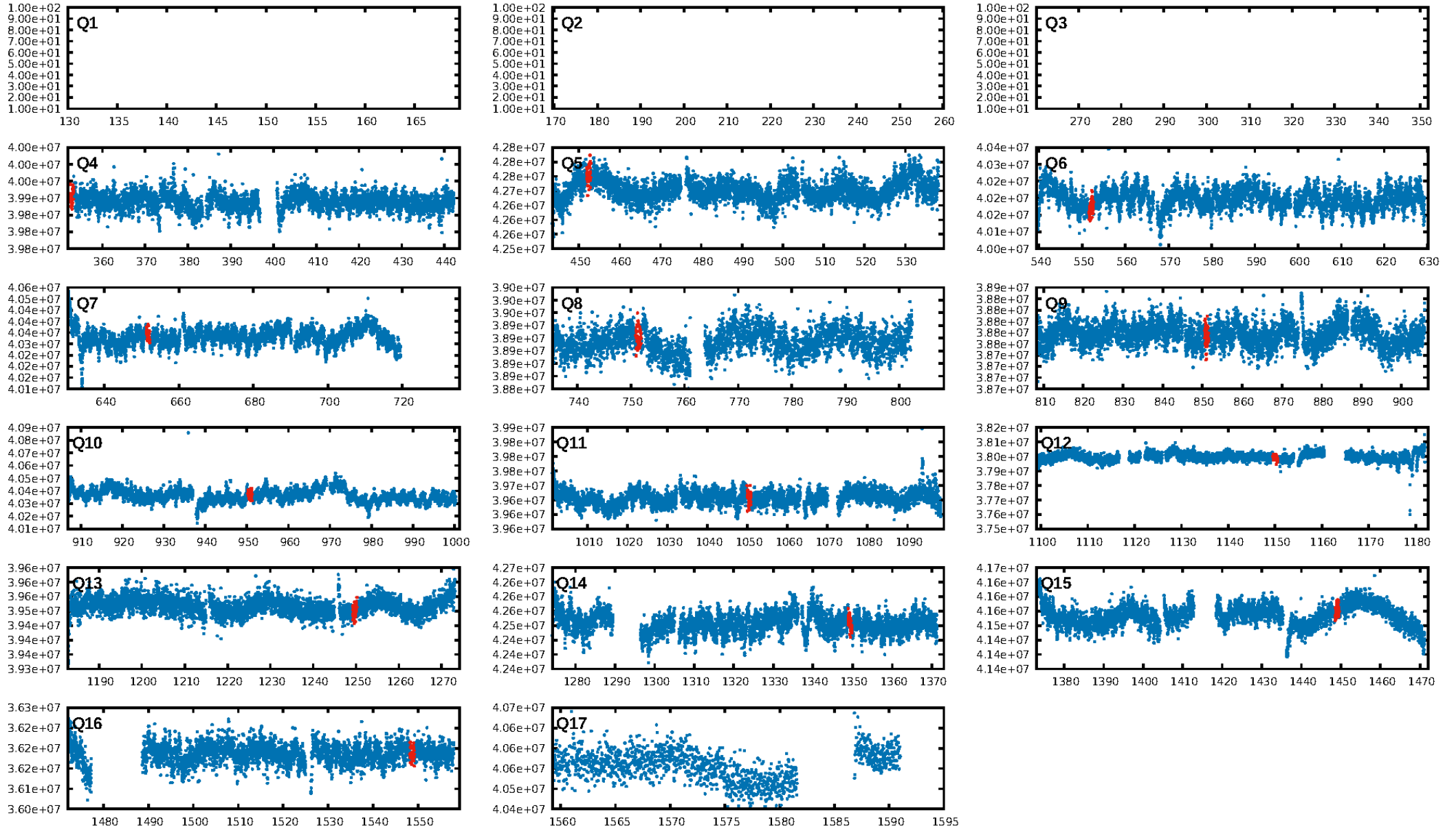
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.19σ]
LongPeriod-sig: 100.0% [14.03σ]
ModelChiSquare2-sig: 14.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.94e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 2.953
Centroid-sig: 47.8%
Centroid-so: 3.161 arcsec [26.28σ]
OotOffset-rm: N/A
KicOffset-rm: 3.980 arcsec [15.51σ]
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/11]

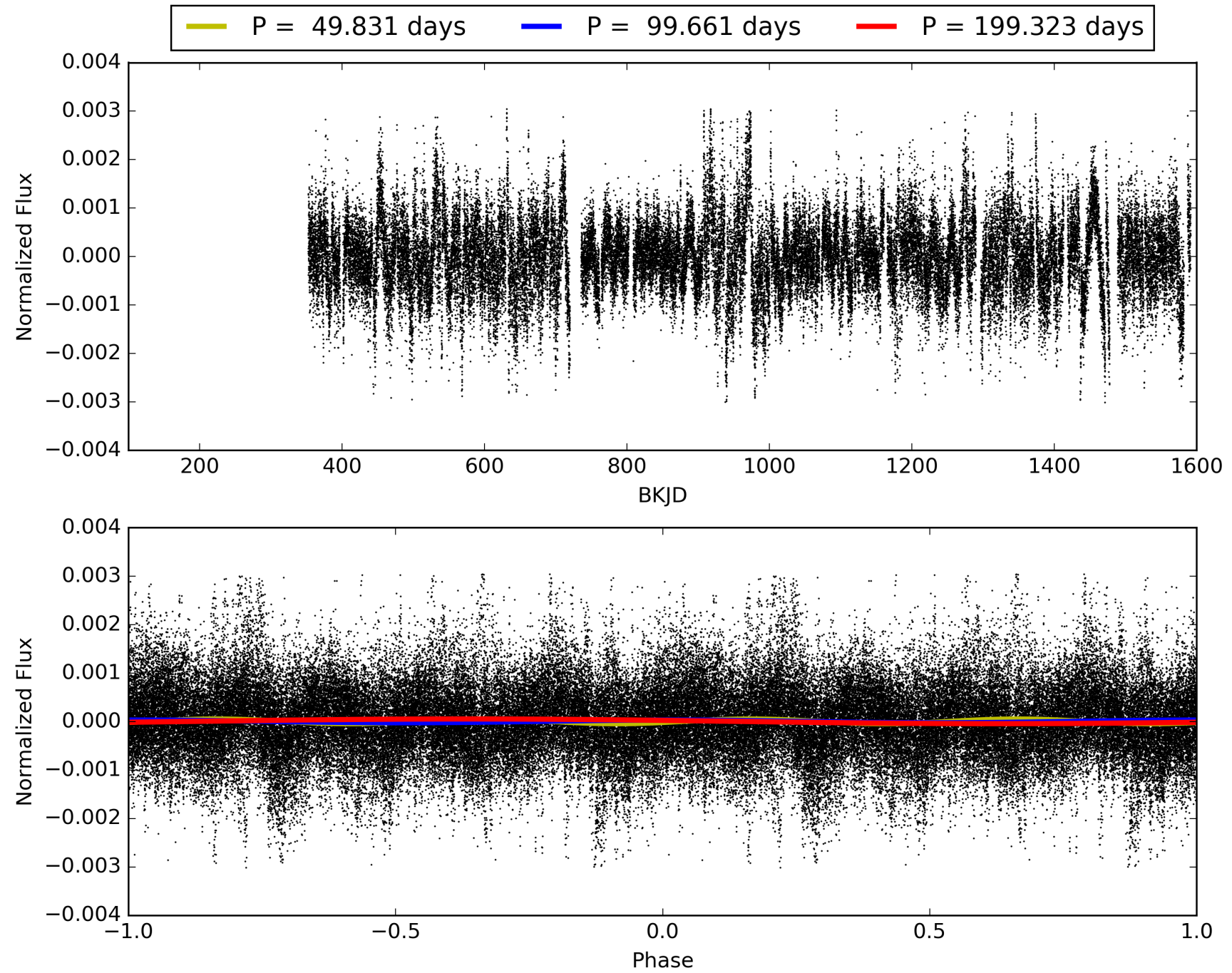
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:36:40 Z

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

TCE 010594394-05, PDC Light Curves

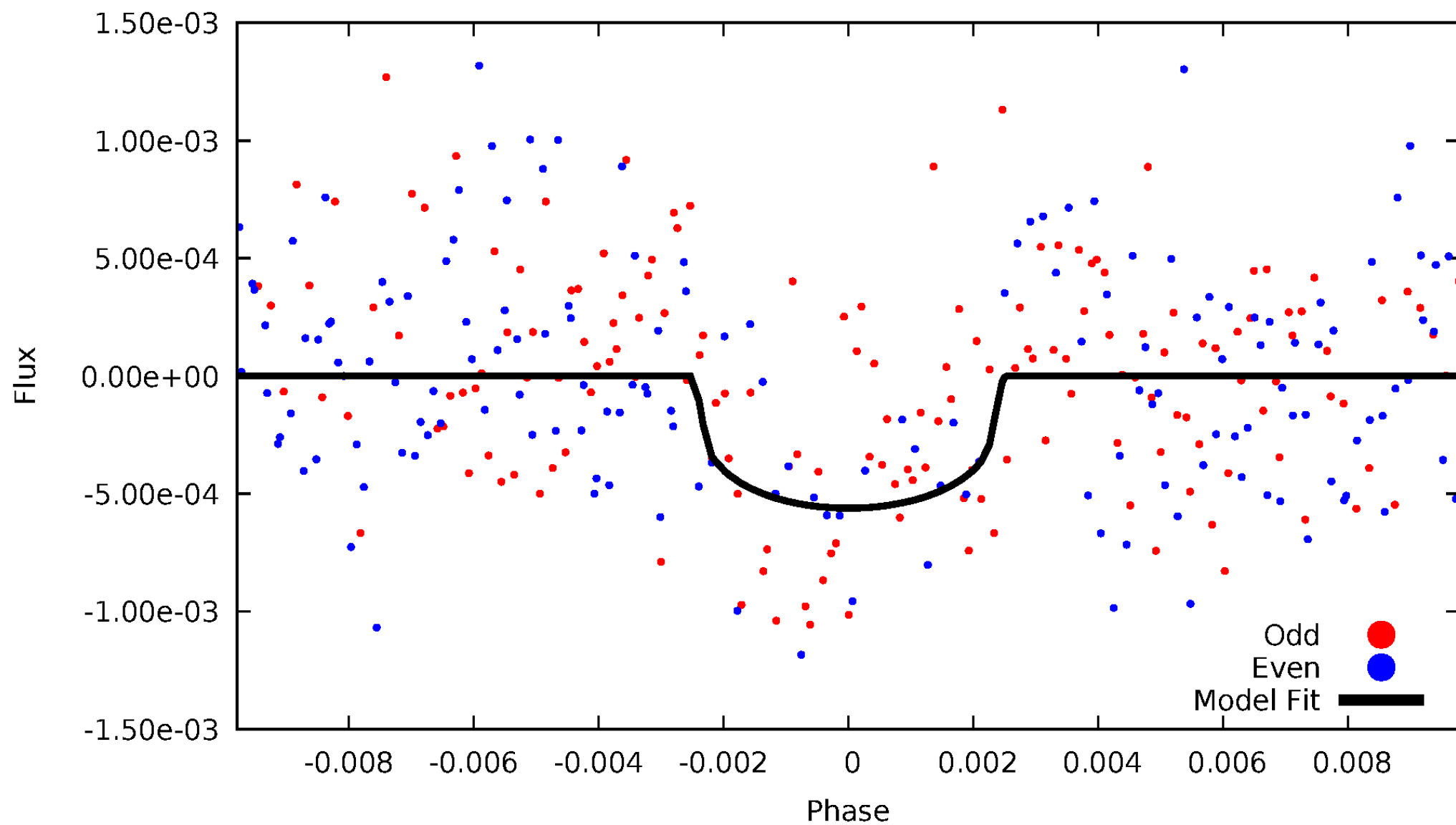


TCE 010594394-05



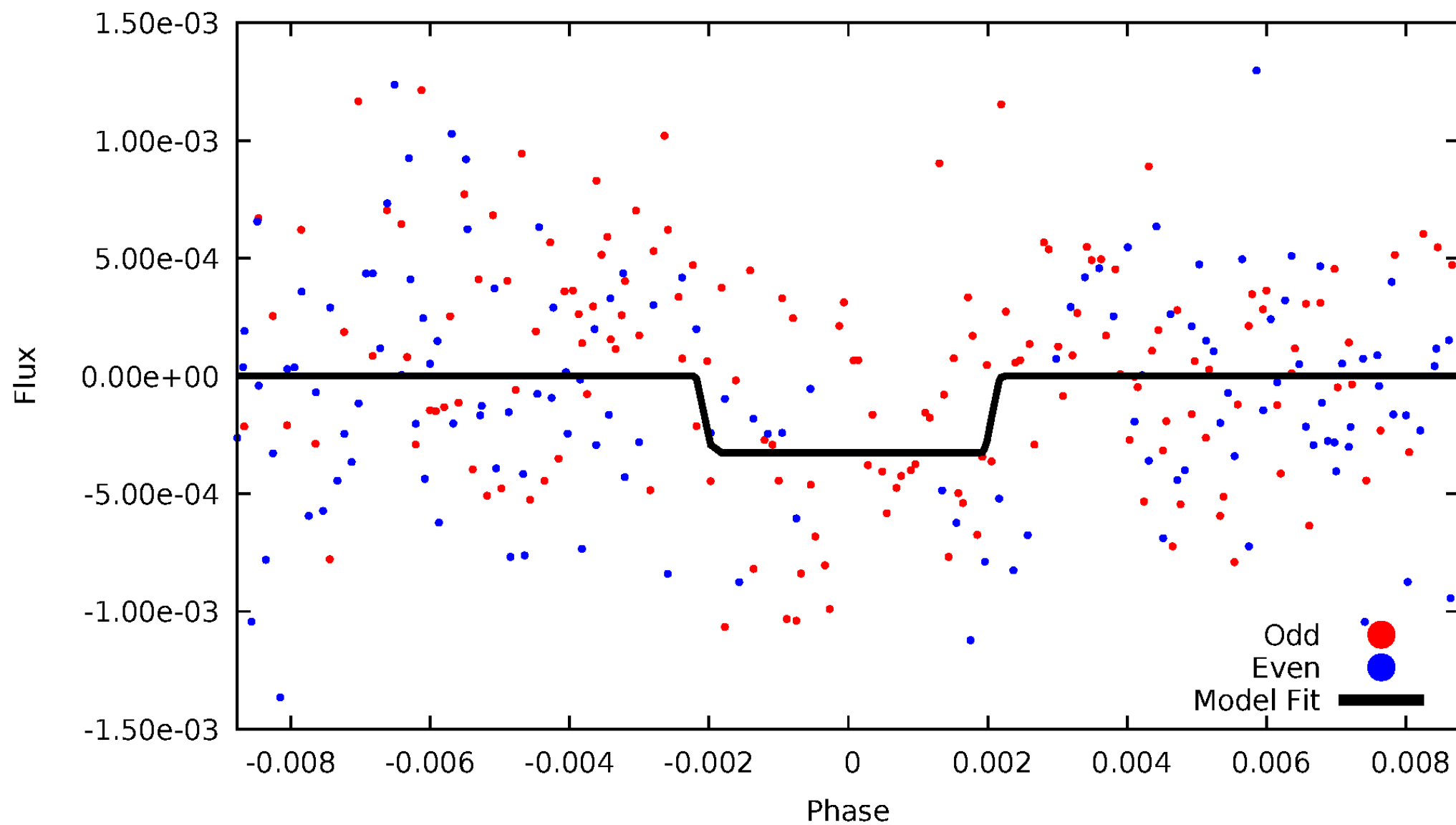
DV Odd/Even

TCE 010594394-05



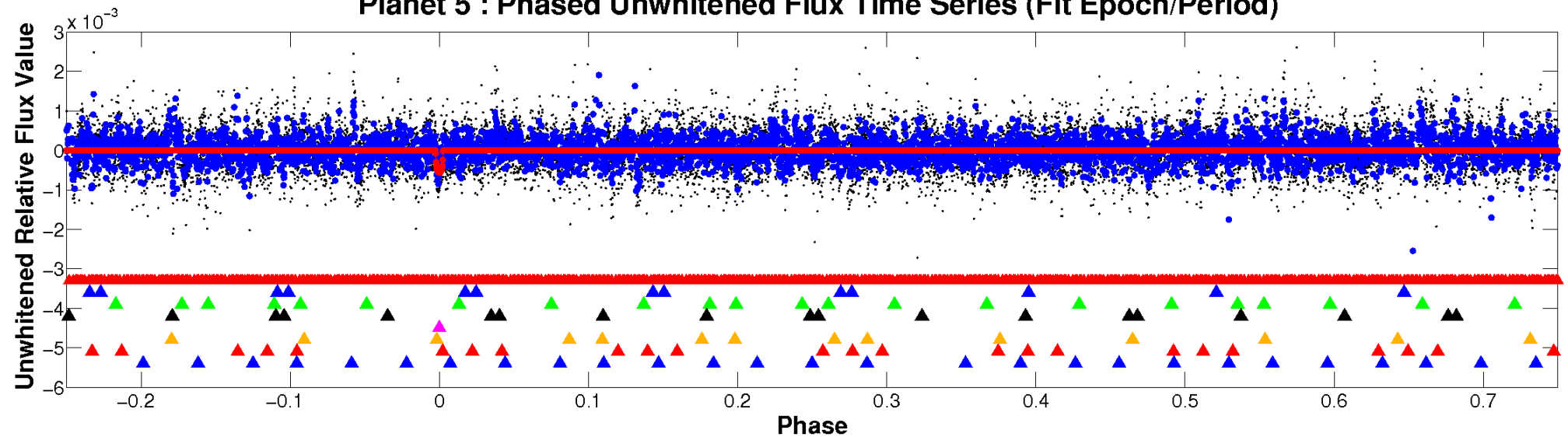
ALT Odd/Even

TCE 010594394-05

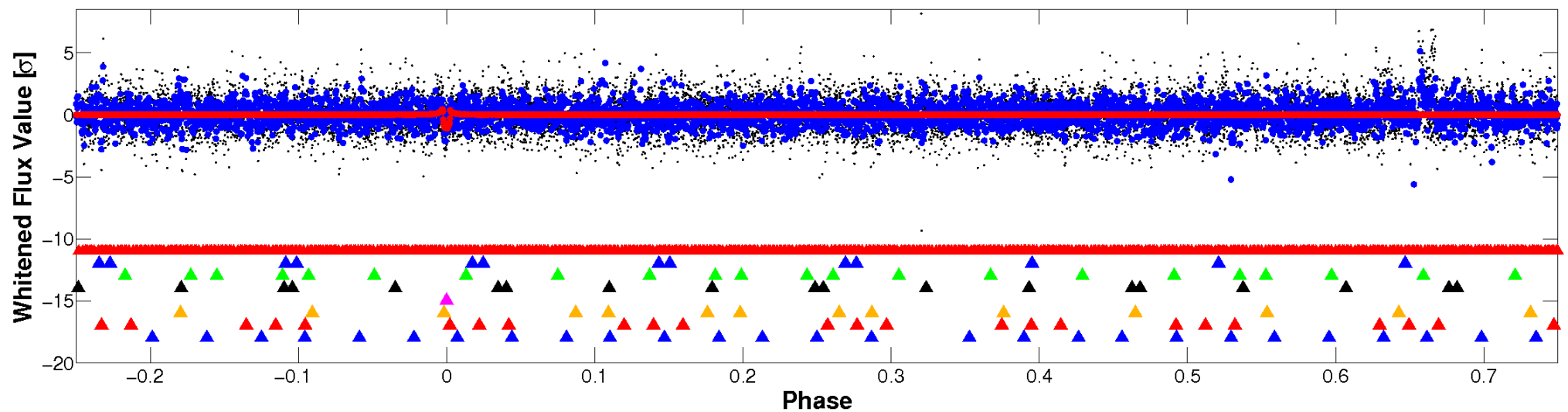


Non-Whitened Vs. Whitened Light Curve

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

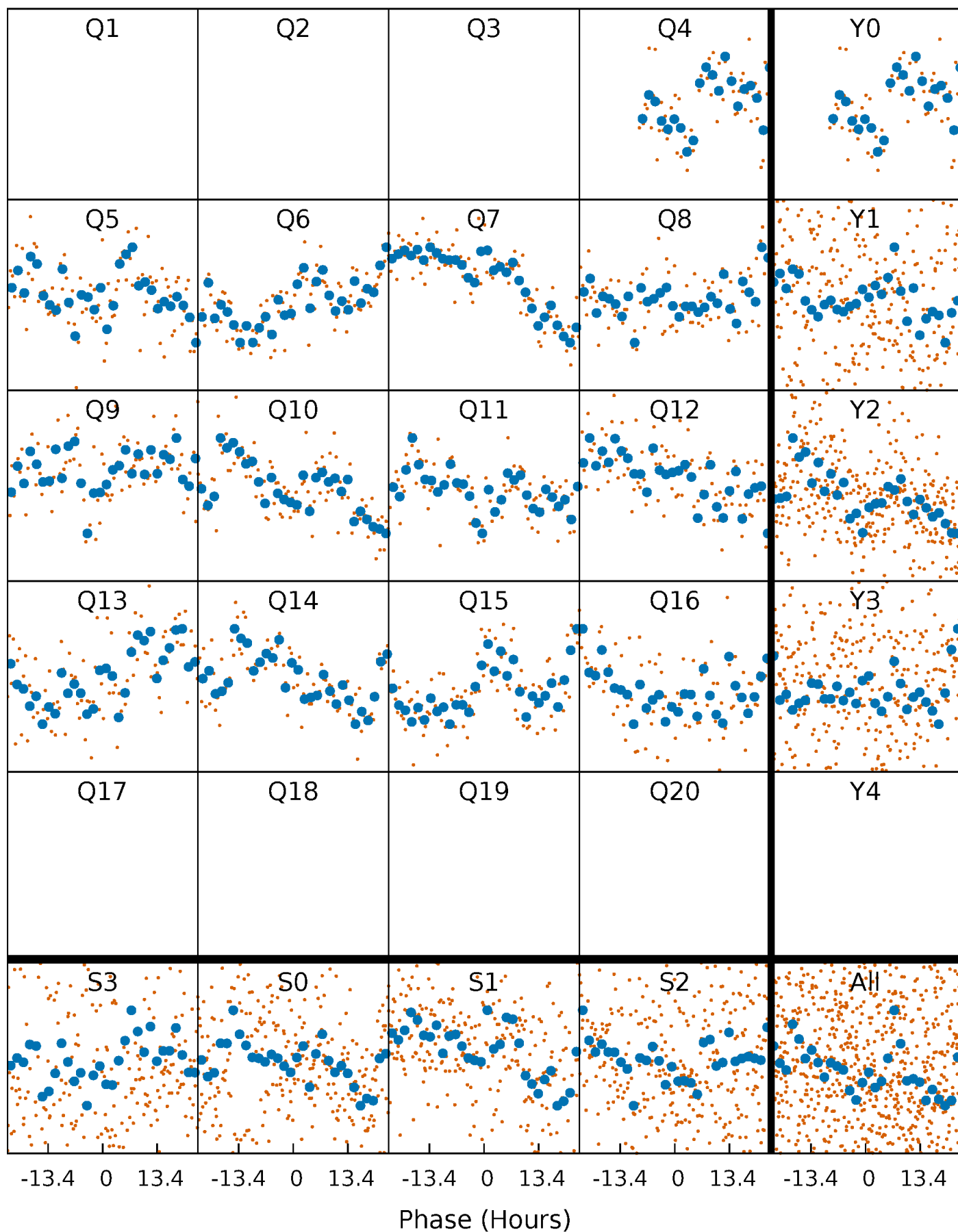


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



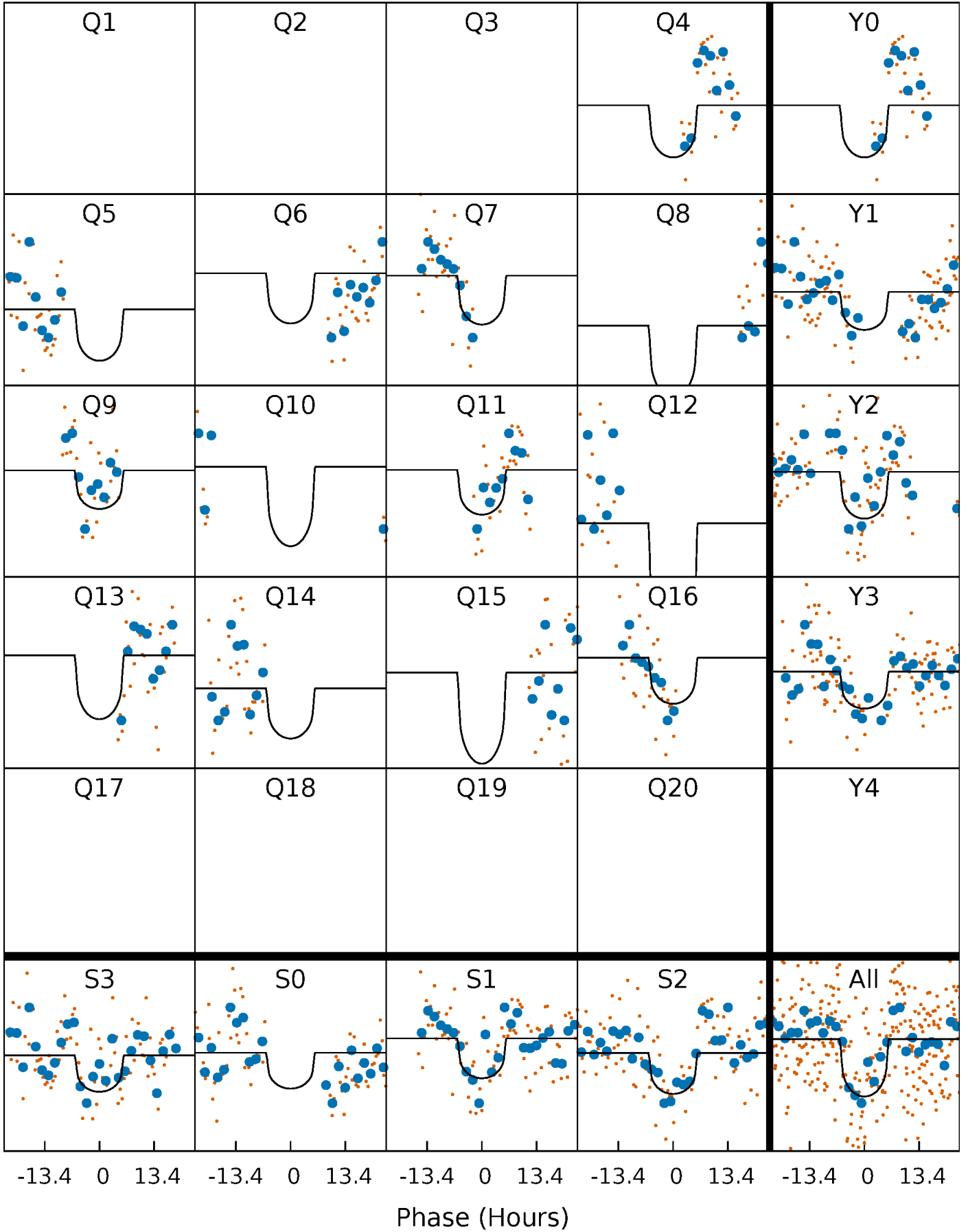
PDC Quarter-Phased Transit Curves

TCE 010594394-05 P= 99.661265 Days $T_0=153.438402$ (BKJD)



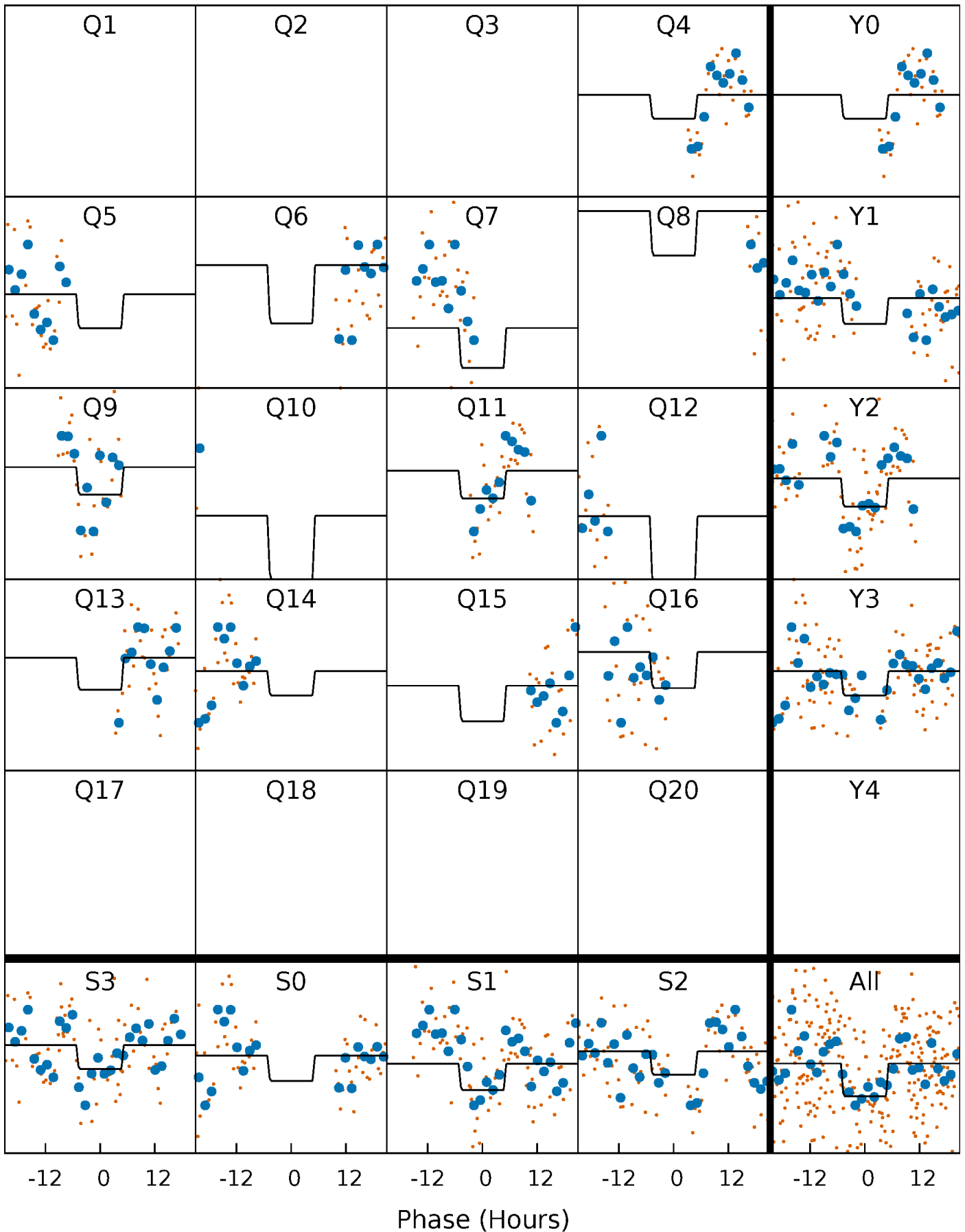
DV Quarter-Phased Transit Curves

TCE 010594394-05 $P = 99.661265$ Days $T_0 = 153.438402$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

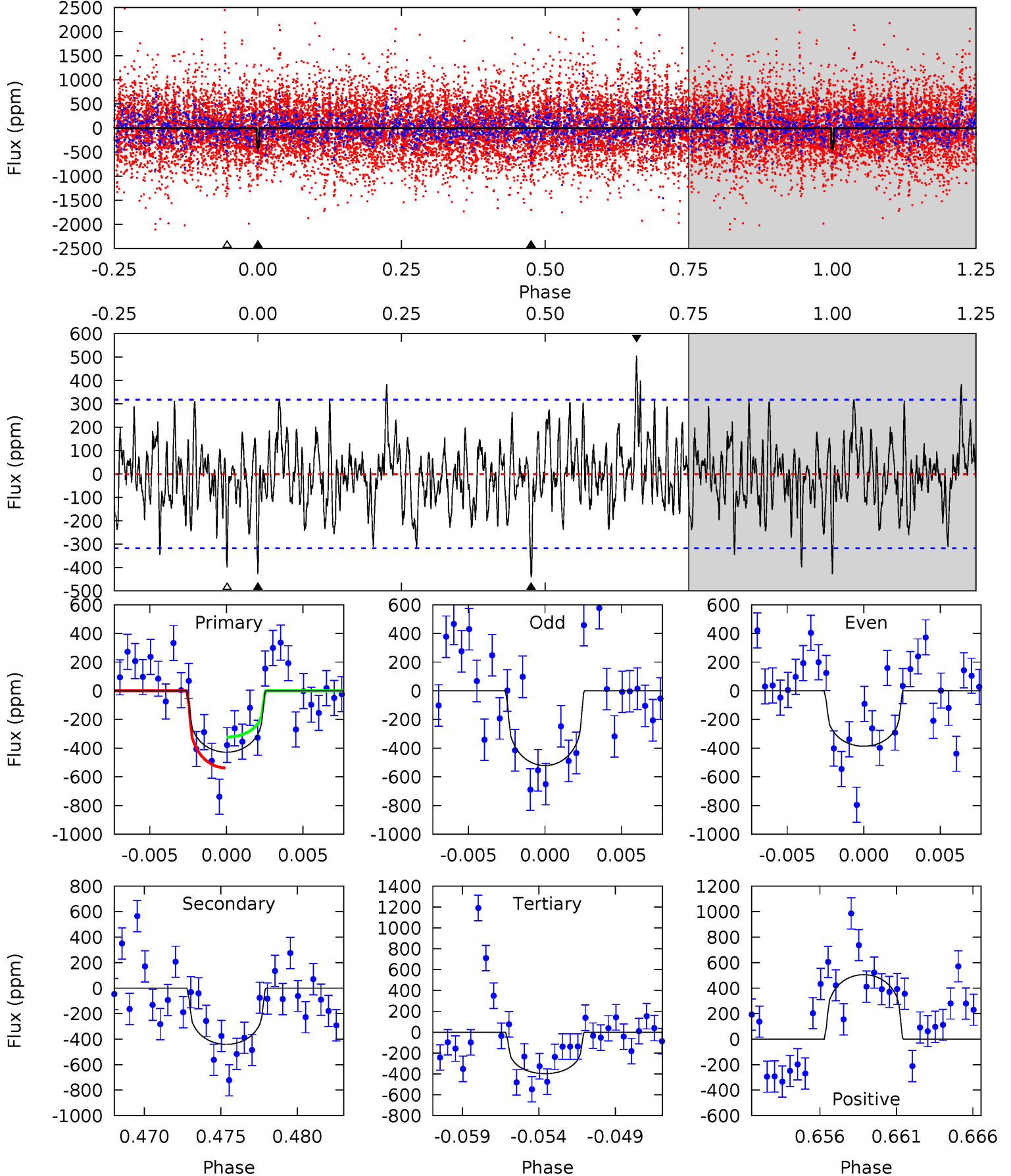
TCE 010594394-05 $P = 99.672008$ Days $T_0 = 153.368984$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-05, P = 99.661265 Days, E = 153.438402 Days

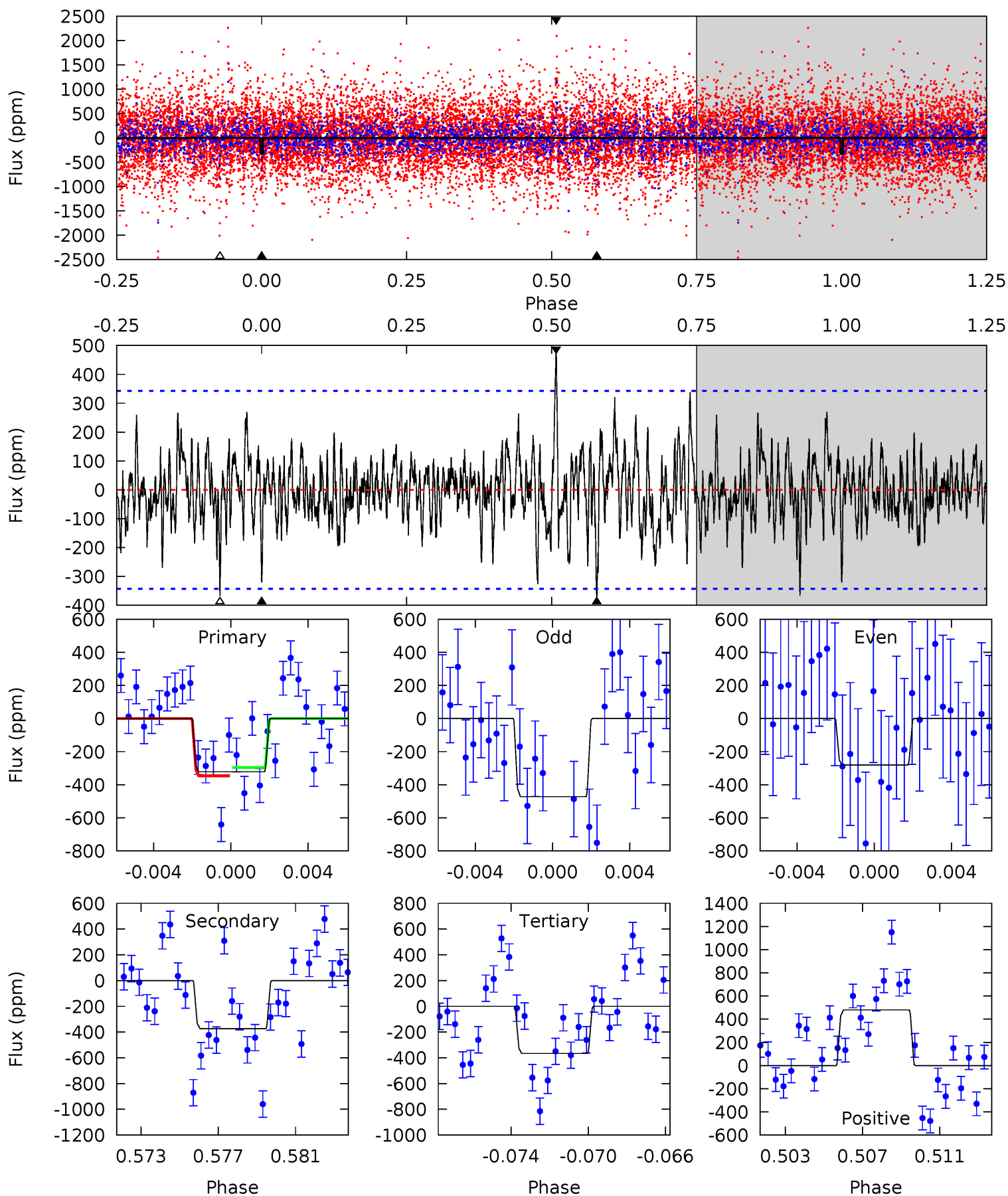
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.96	7.17	6.47	8.22	5.16	2.81	1.98	0.50	-1.25	0.70	-1.05	0.98	1.08	0.53	1.75



Alt Model-Shift Uniqueness Test

010594394-05, P = 99.672008 Days, E = 153.368984 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.86	5.66	5.54	7.26	5.18	2.85	1.51	-0.68	-2.40	0.12	-1.60	1.19	1.15	0.56	0.37



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-441 ± 62	$2.58^{+1.95}_{-1.67}$	455^{+22}_{-21}	4509^{+2724}_{-885}	5690^{+37337}_{-3962}
Alt.	-374 ± 66	$2.40^{+1.95}_{-1.57}$	456^{+23}_{-19}	4430^{+2973}_{-847}	5217^{+41297}_{-3649}

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 $A_{obs} \gg 1.0$

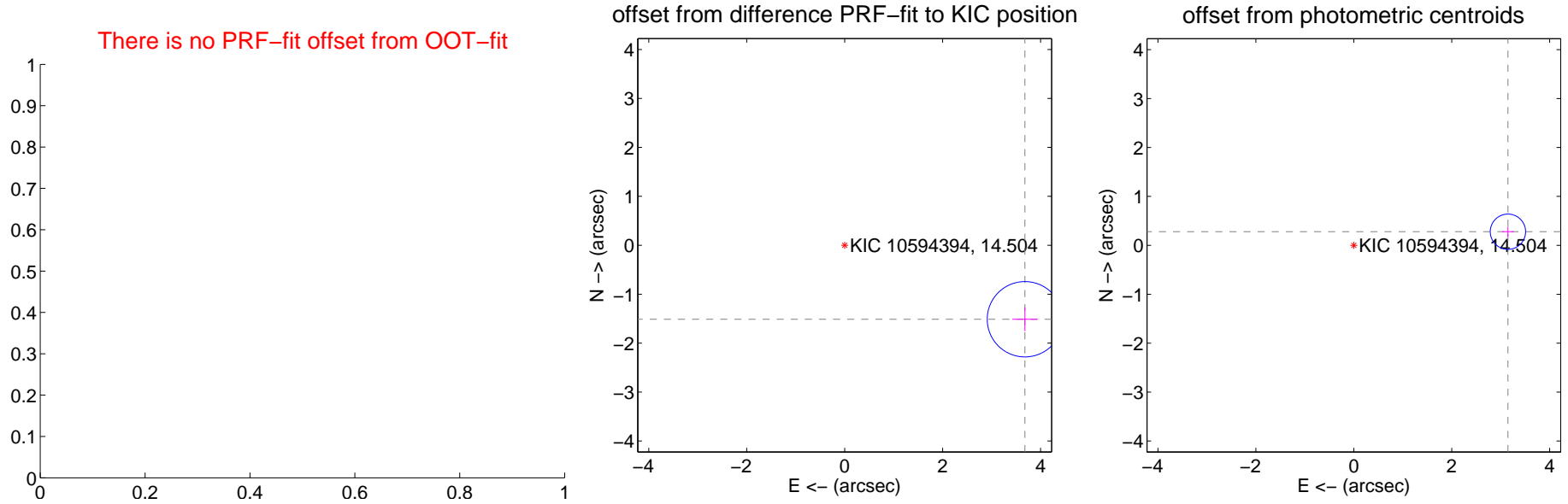
DV Centroid Data

Supplemental centroid analysis for 010594394-05. Kepler magnitude: 14.50. Transit SNR 7.69

There are 0 quarters with good PRF difference image offsets

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

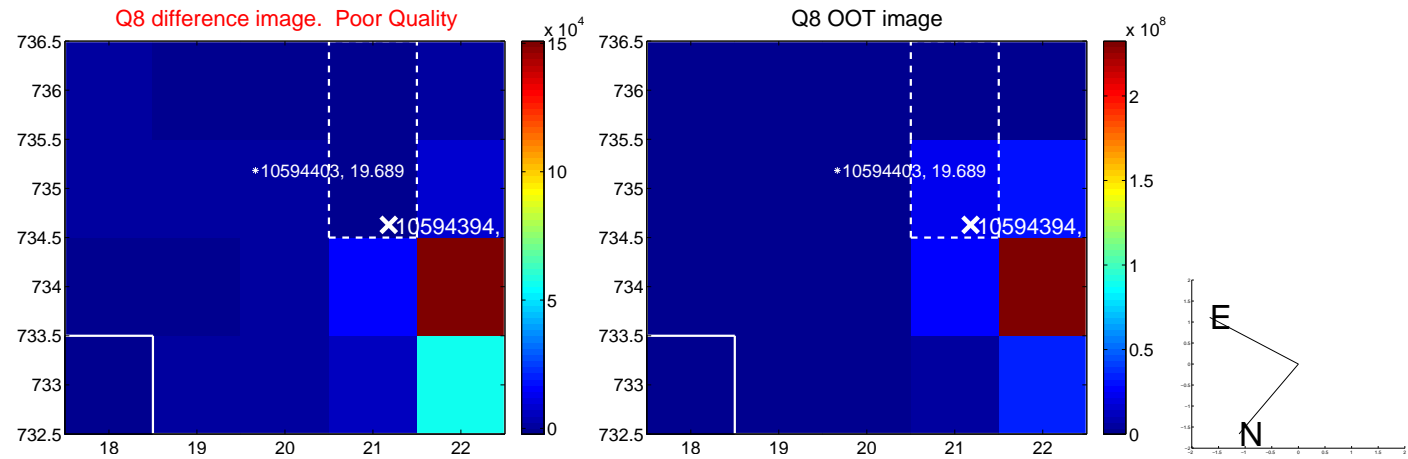
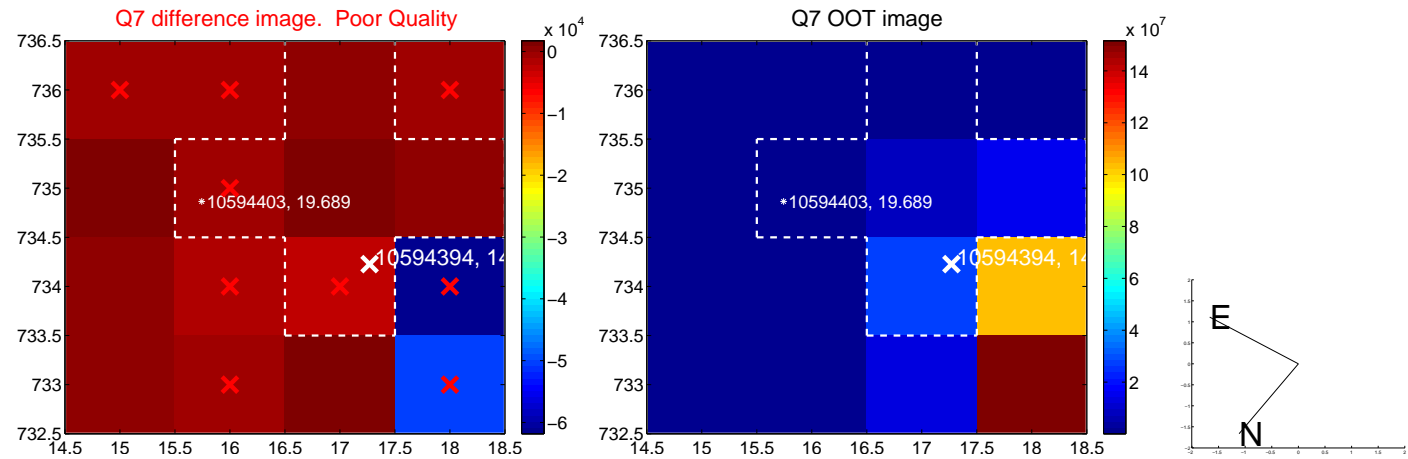
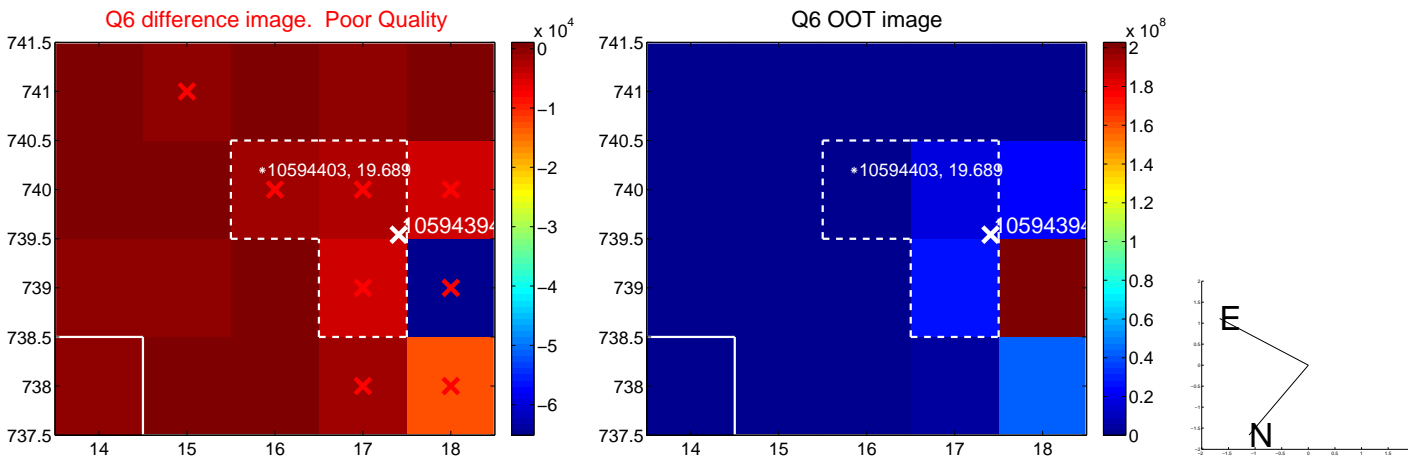
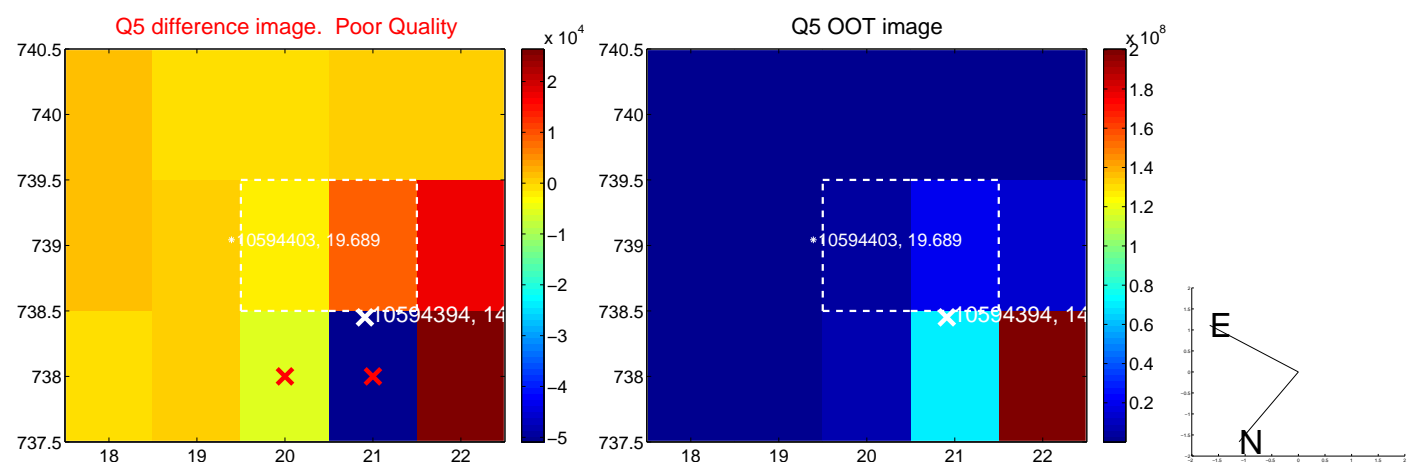
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	3.980 ± 0.257	15.51	-3.681 ± 0.259	-1.513 ± 0.243
photometric centroid source offset	3.16 ± 0.12	26.28	-3.15 ± 0.12	0.28 ± 0.10



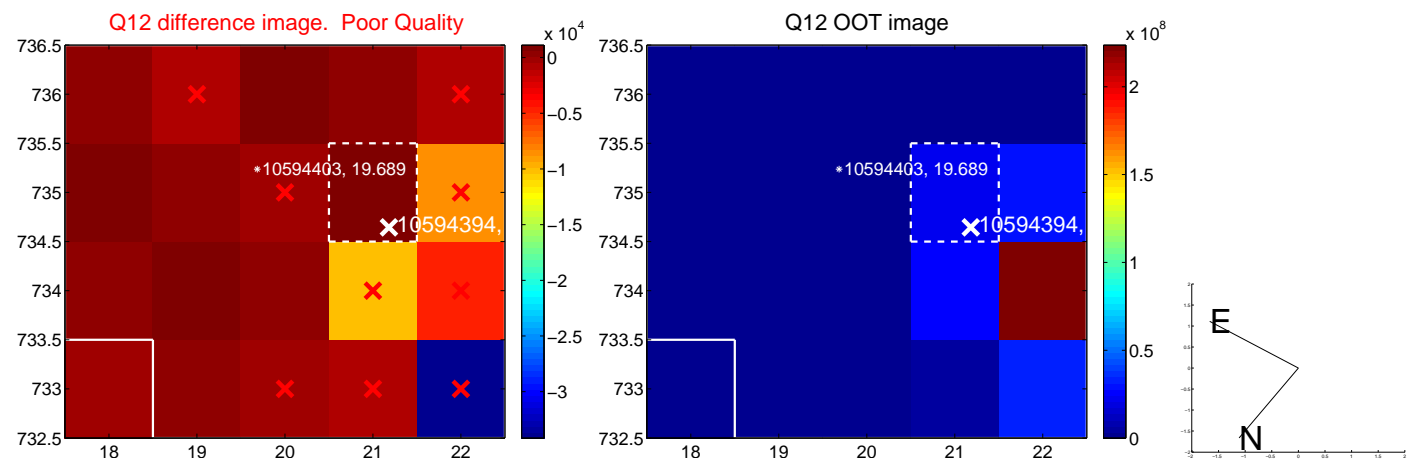
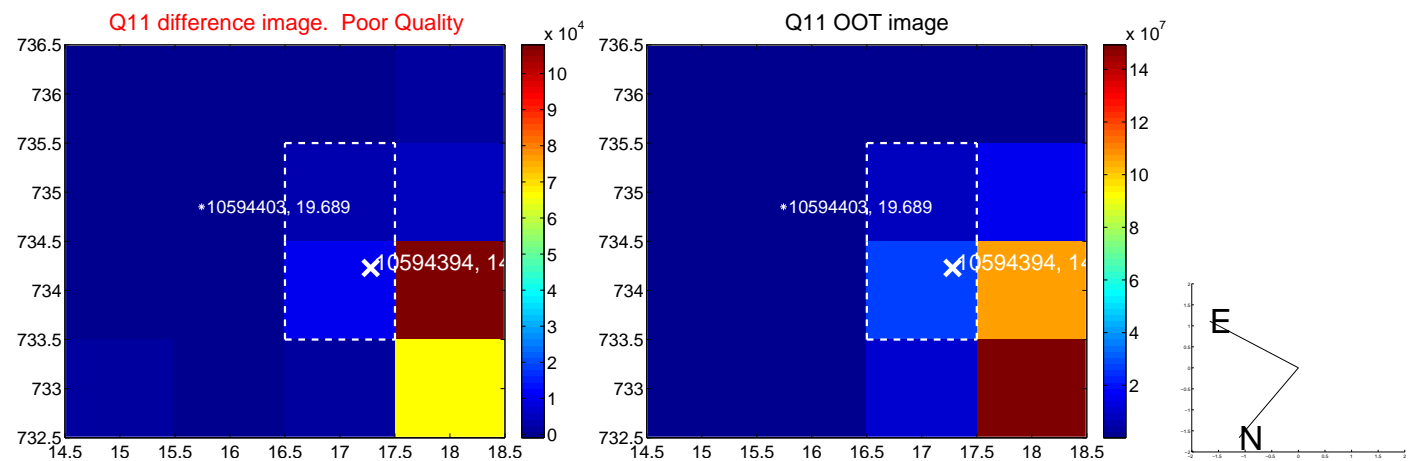
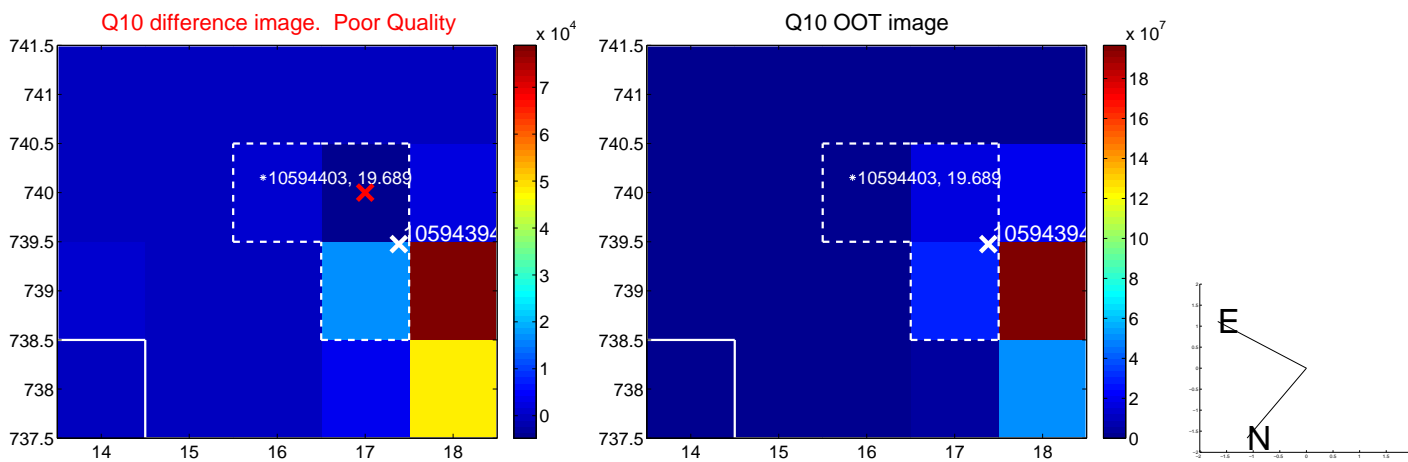
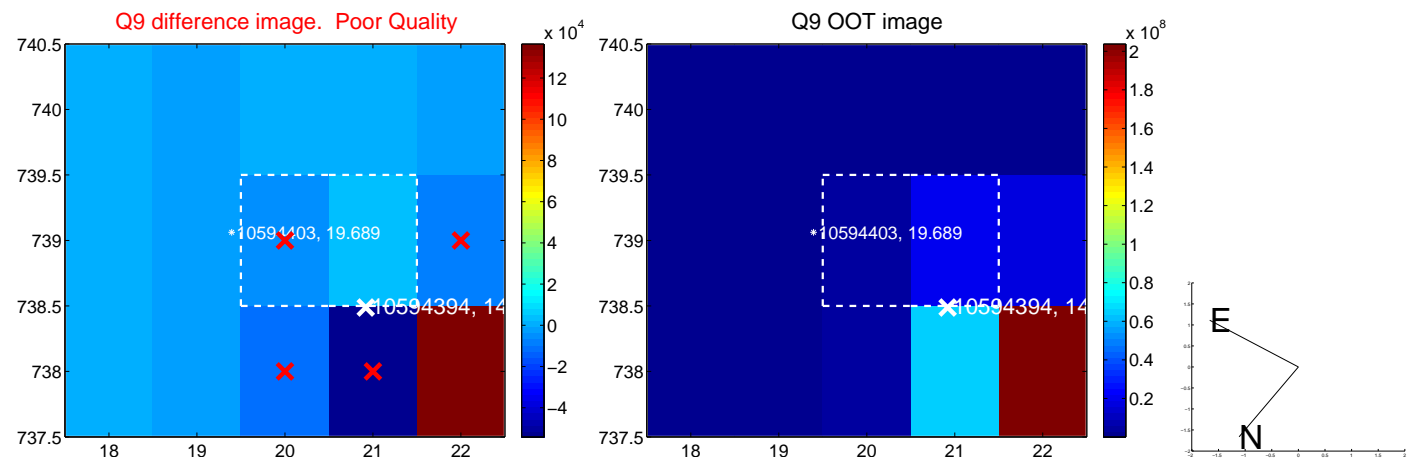
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



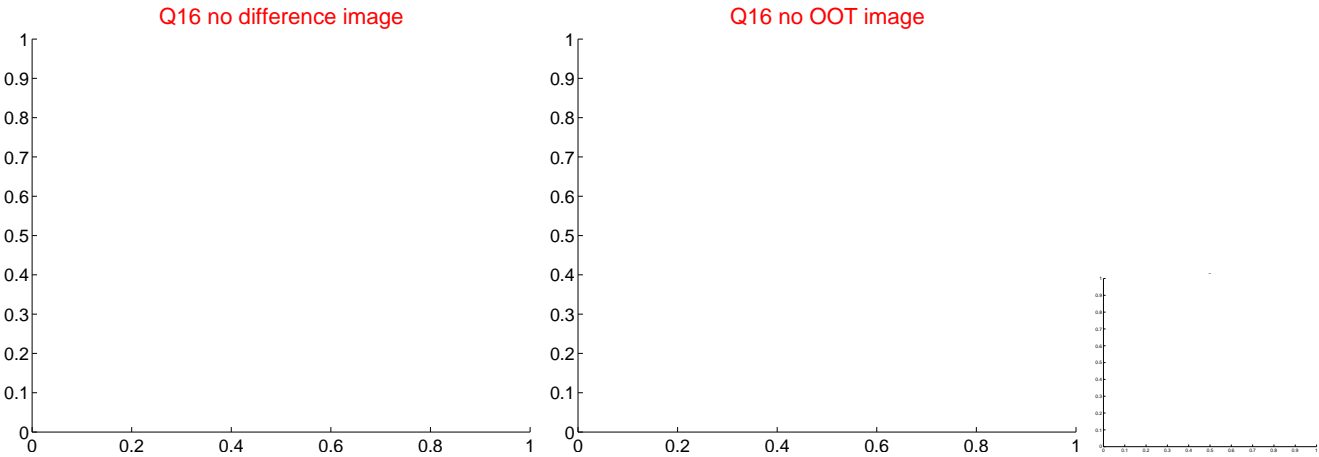
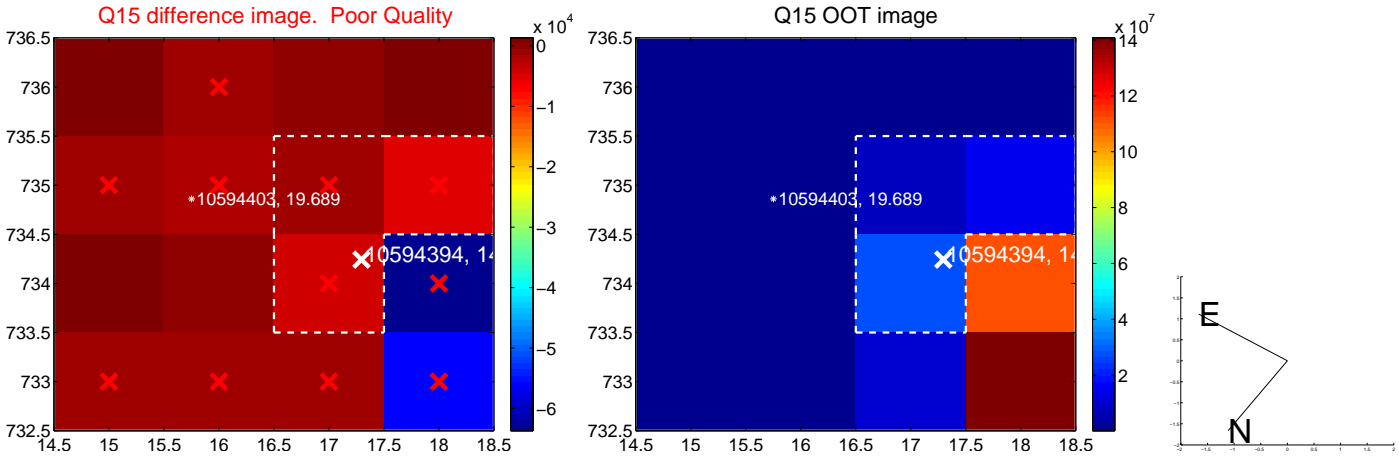
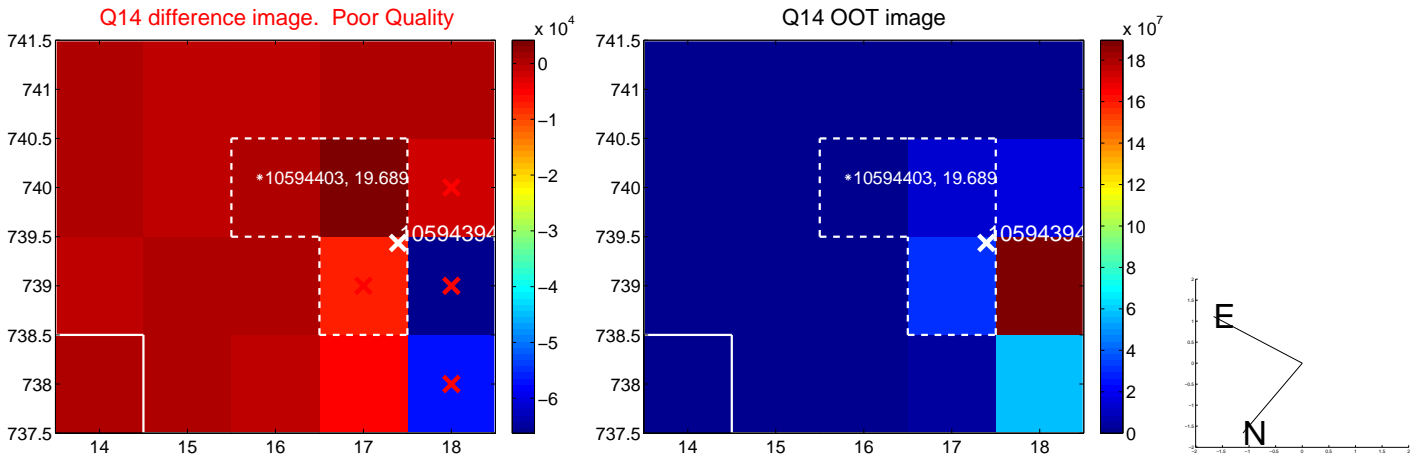
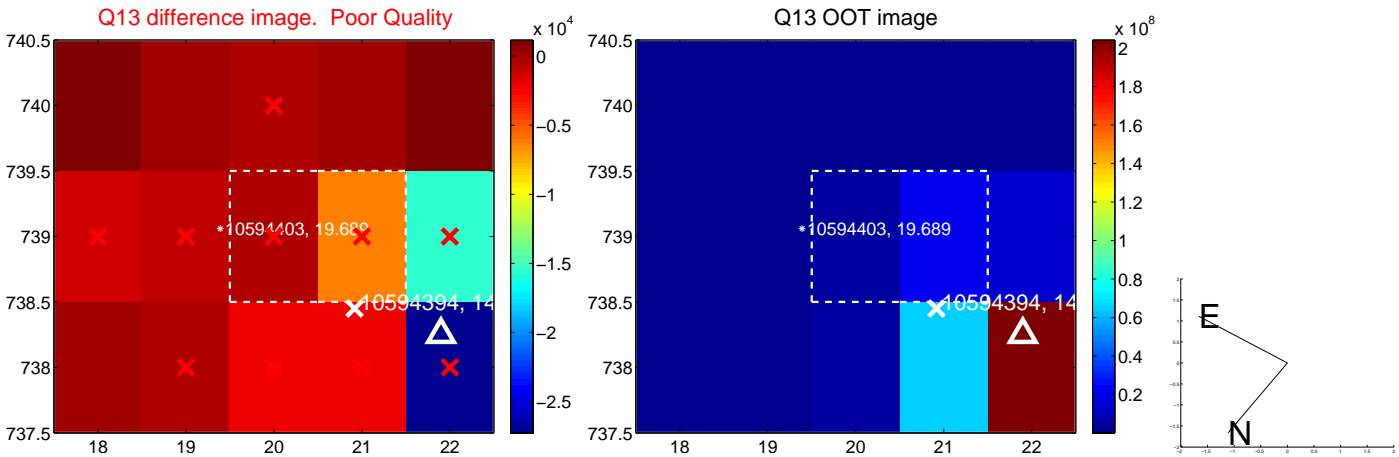
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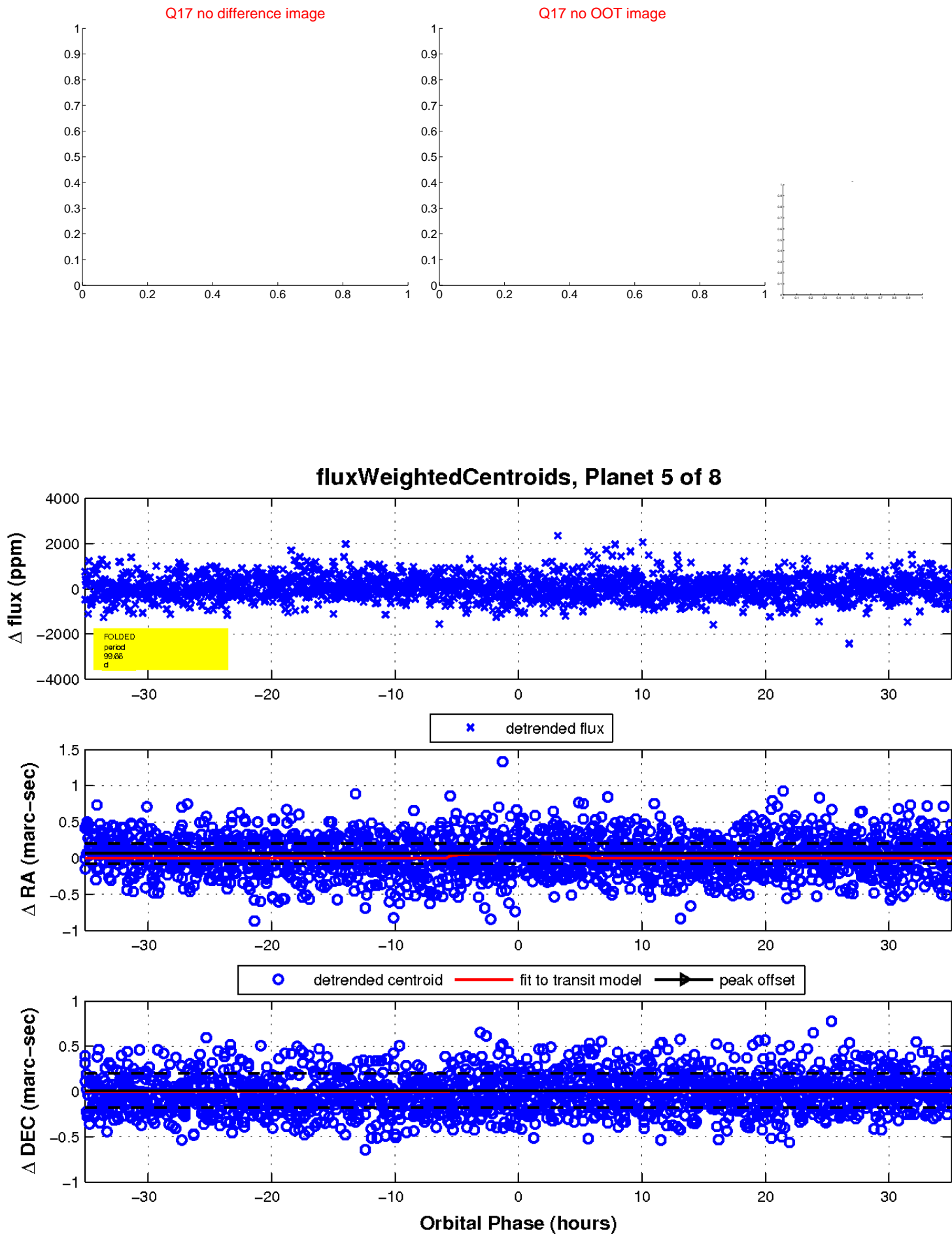
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



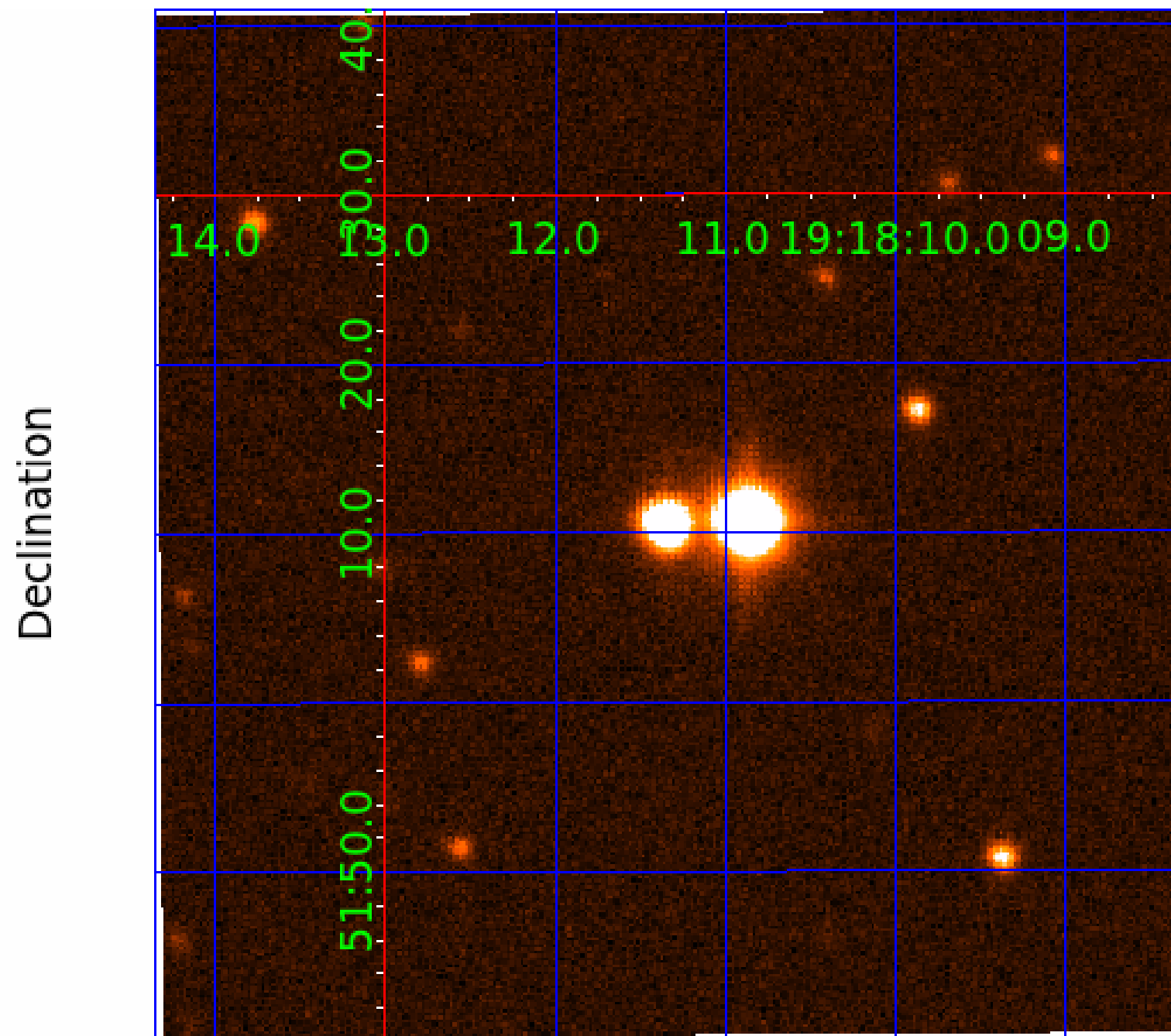
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image



KIC 010594394

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})
010594394-01	OBS	No	2.348315	133.571394	95.3	13.937	10.6	10.0	0.83	5057	0.79	396.12
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010594394-04	OBS	No	78.344708	142.510836	932.2	3.174	9.7	8.1	0.83	5057	2.79	3.69
010594394-05	OBS	No	99.661265	153.438402	561.3	11.704	7.9	7.7	0.83	5057	2.00	2.68
010594394-06	OBS	No	108.521345	164.324814	529.5	9.633	8.7	6.2	0.83	5057	2.01	2.39
010594394-07	OBS	No	62.535836	139.965446	200.4	9.706	7.6	2.9	0.83	5057	1.28	4.98
010594394-08	OBS	No	54.959553	140.988069	581.5	2.869	7.3	8.0	0.83	5057	2.24	5.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010594394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_FEW_MEAS—HALO_GHOST
010594394-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

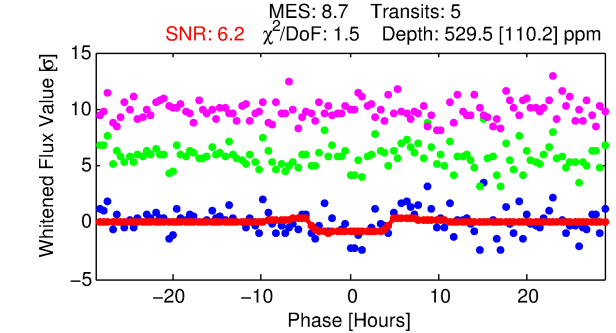
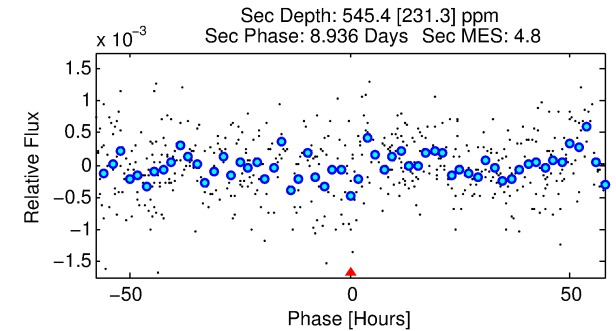
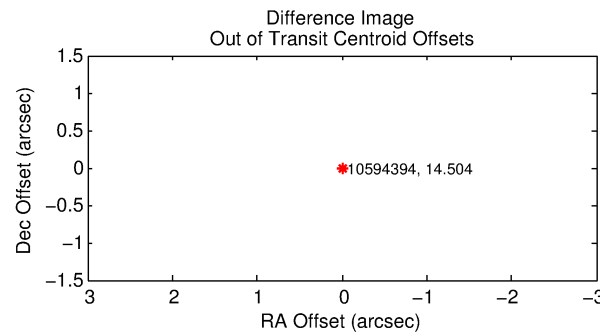
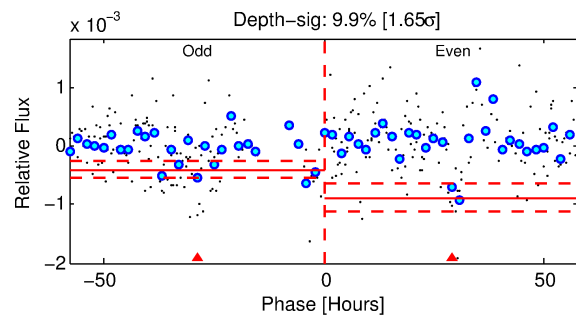
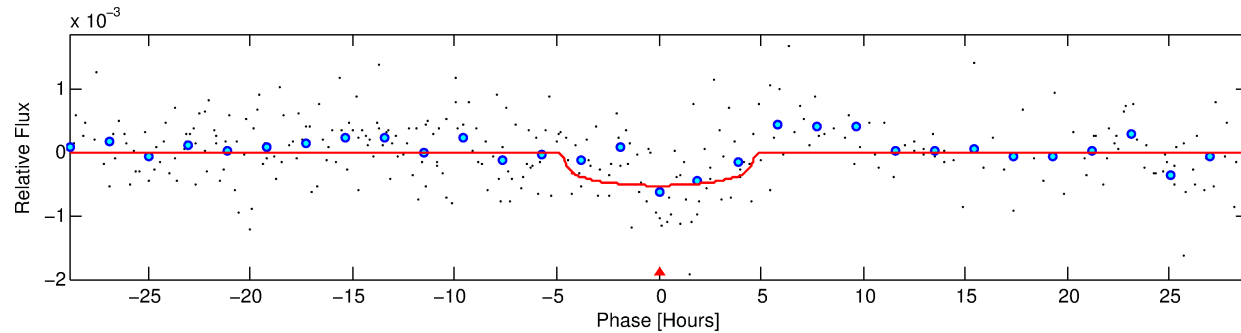
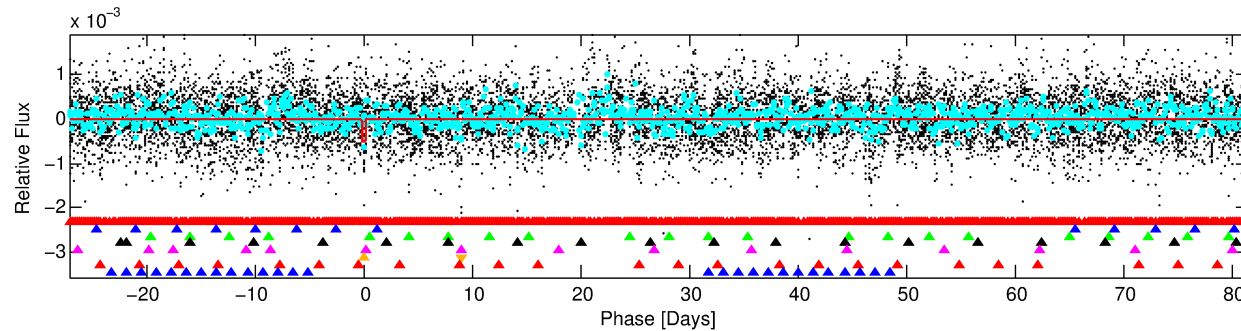
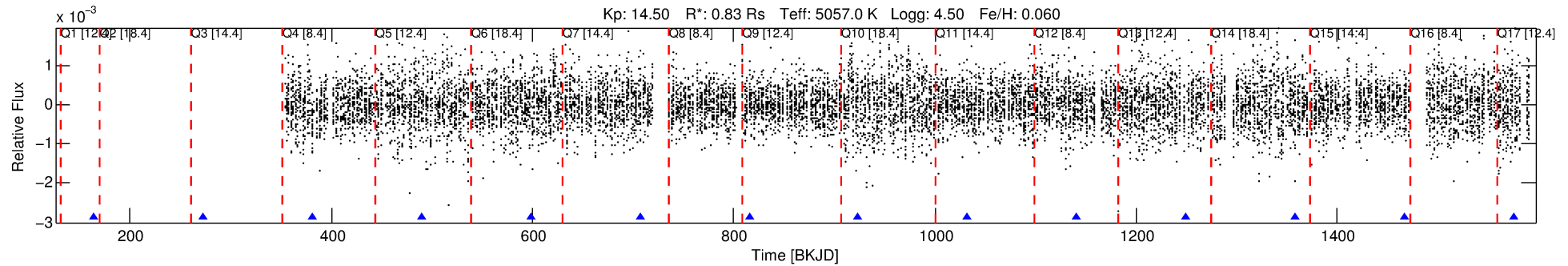
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-06

No Significant Match Found

DV One-Page Summary

KIC: 10594394 Candidate: 6 of 8 Period: 108.521 d



DV Fit Results:

Period = 108.52135 [0.00347] d
Epoch = 164.3248 [0.0264] BKJD
Rp/R* = 0.0222 [0.0244]
a/R* = 66.63 [257.22]
b = 0.67 [3.25]
Seff = 2.39 [0.50]
Teq = 317 [17] K
Rp = 2.01 [2.22] Re
a = 0.4106 [0.0420] AU
Ag = 12521.59 [28123.35] [0.45σ]
Teffp = 5185 [2910] K [1.67σ]

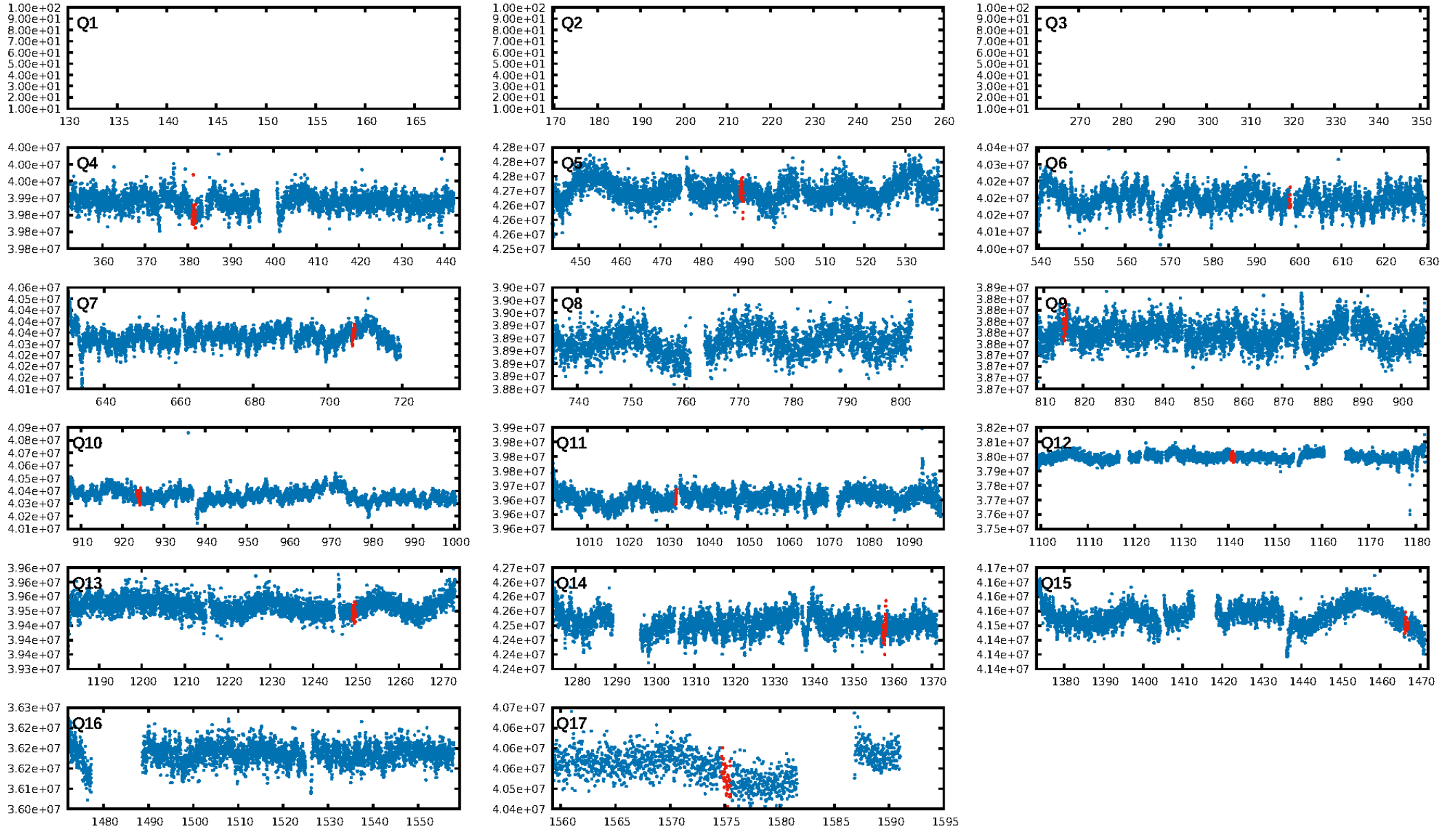
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.03σ]
LongPeriod-sig: 100.0% [8.75σ]
ModelChiSquare2-sig: 2.5%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 1.77e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.8585
Centroid-sig: 86.9%
Centroid-so: 3.111 arcsec [19.38σ]
OotOffset-rm: N/A
KicOffset-rm: 3.438 arcsec [4.37σ]
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.10 [1/10]

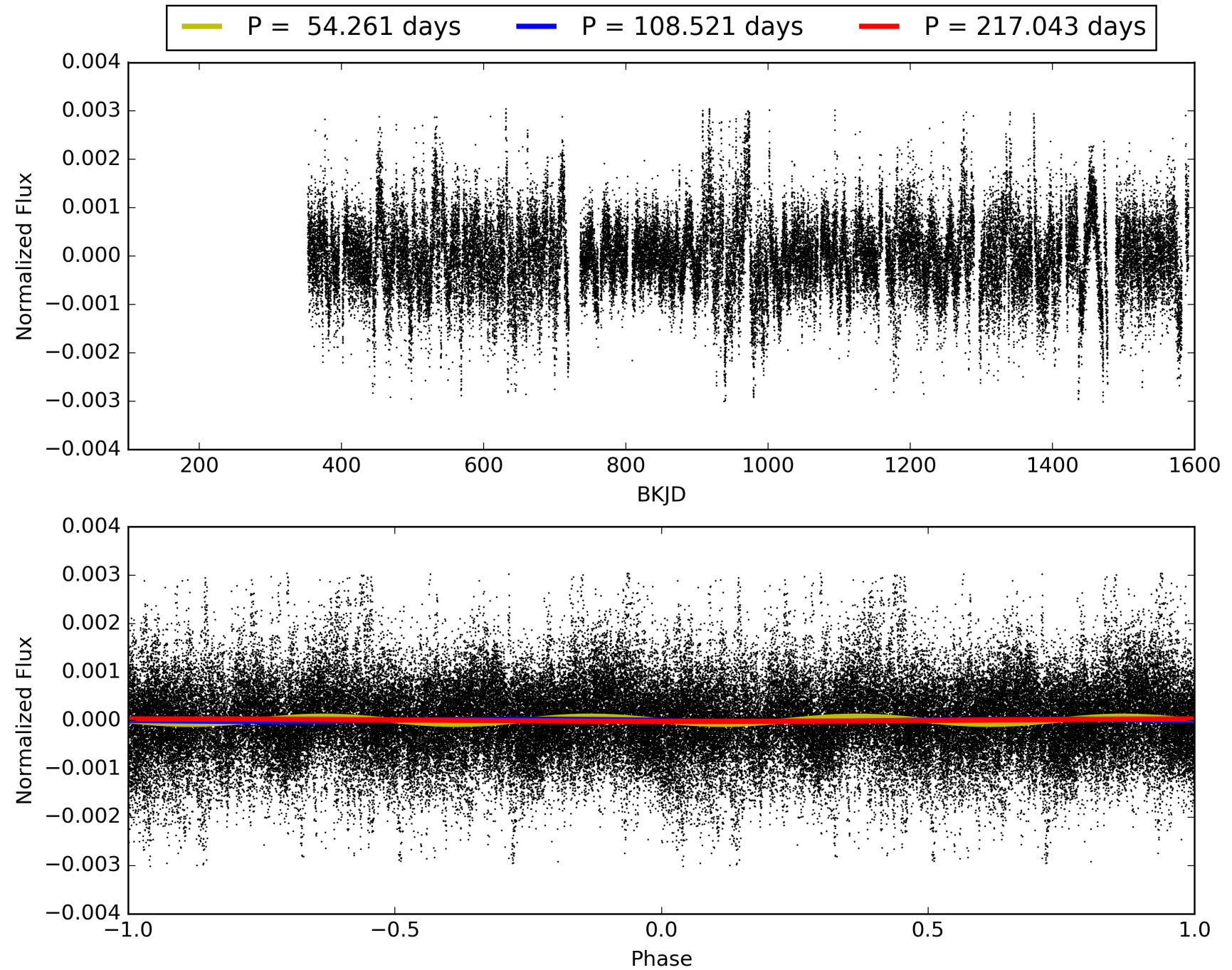
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:36:44 Z

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

TCE 010594394-06, PDC Light Curves

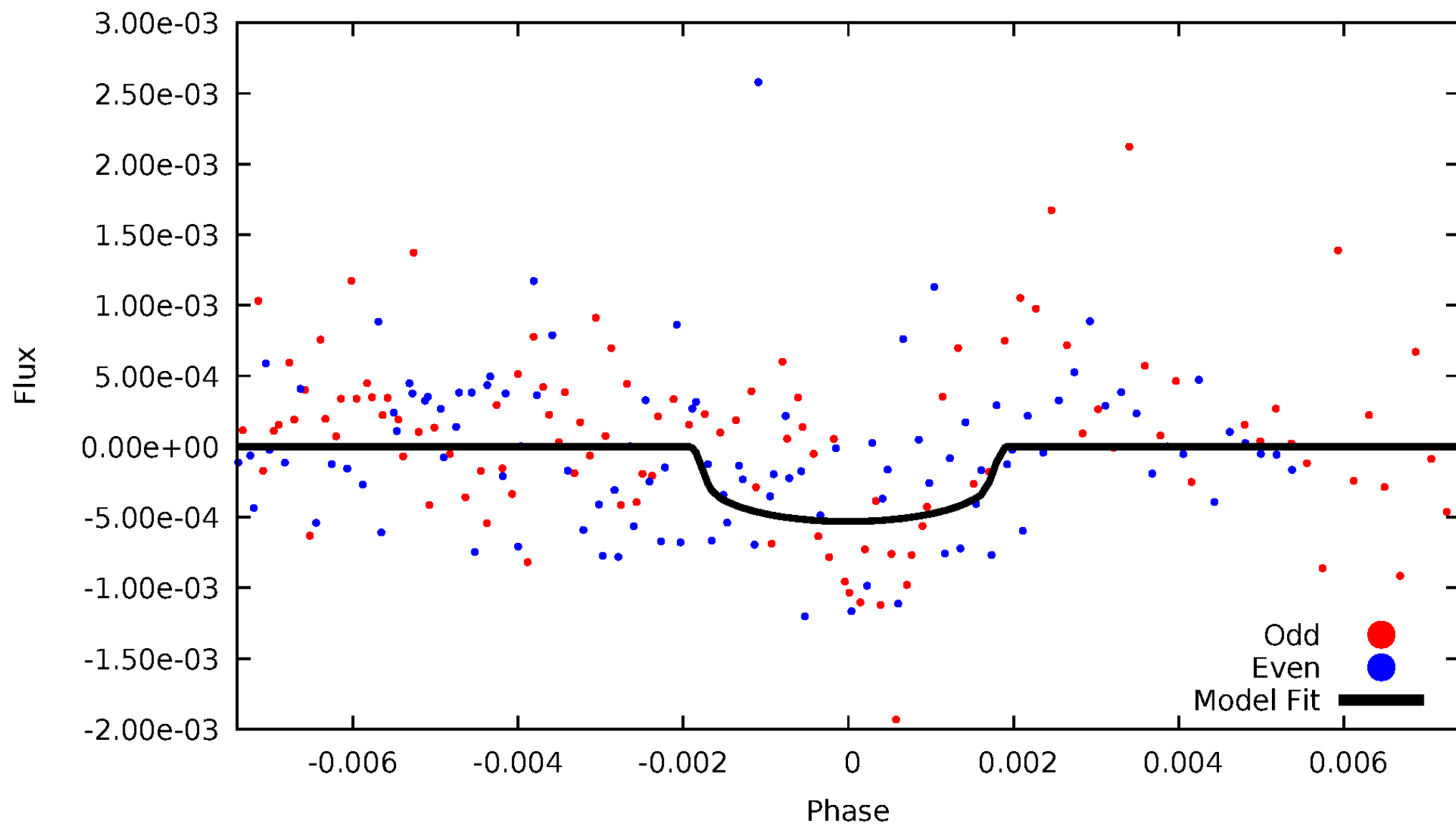


TCE 010594394-06



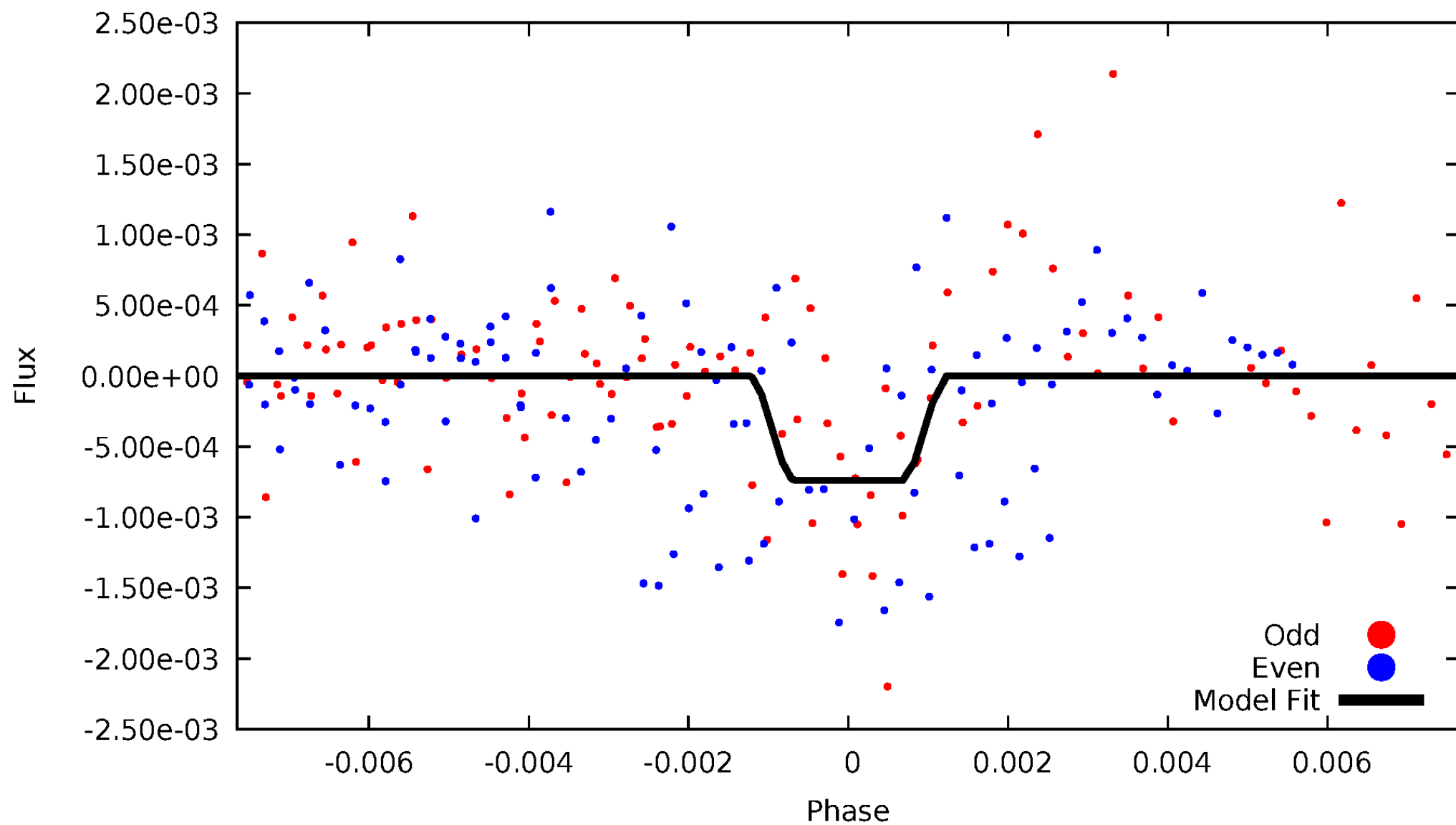
DV Odd/Even

TCE 010594394-06



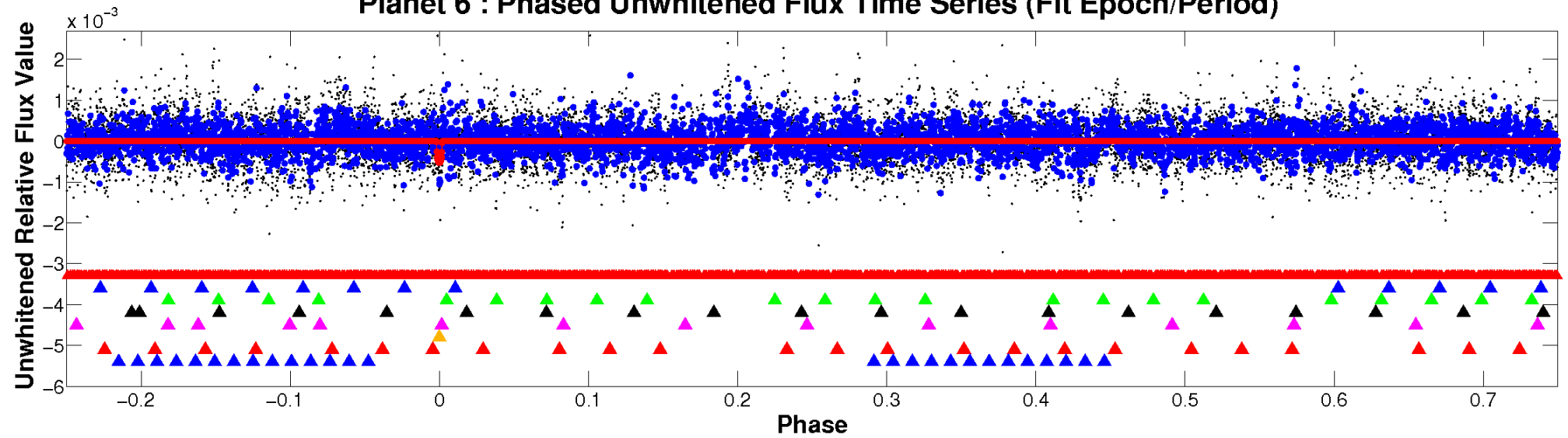
ALT Odd/Even

TCE 010594394-06

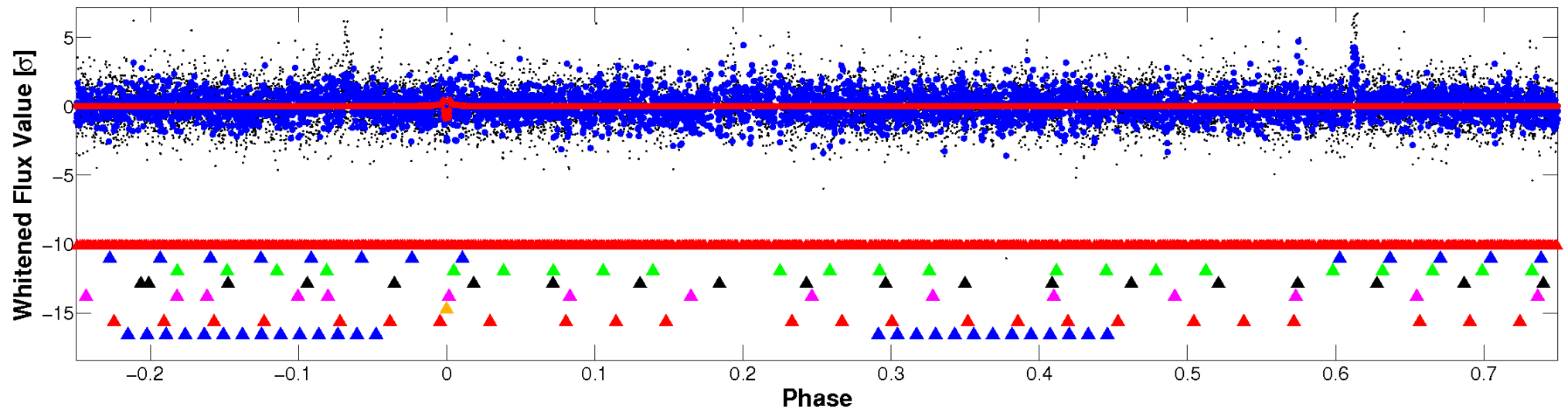


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

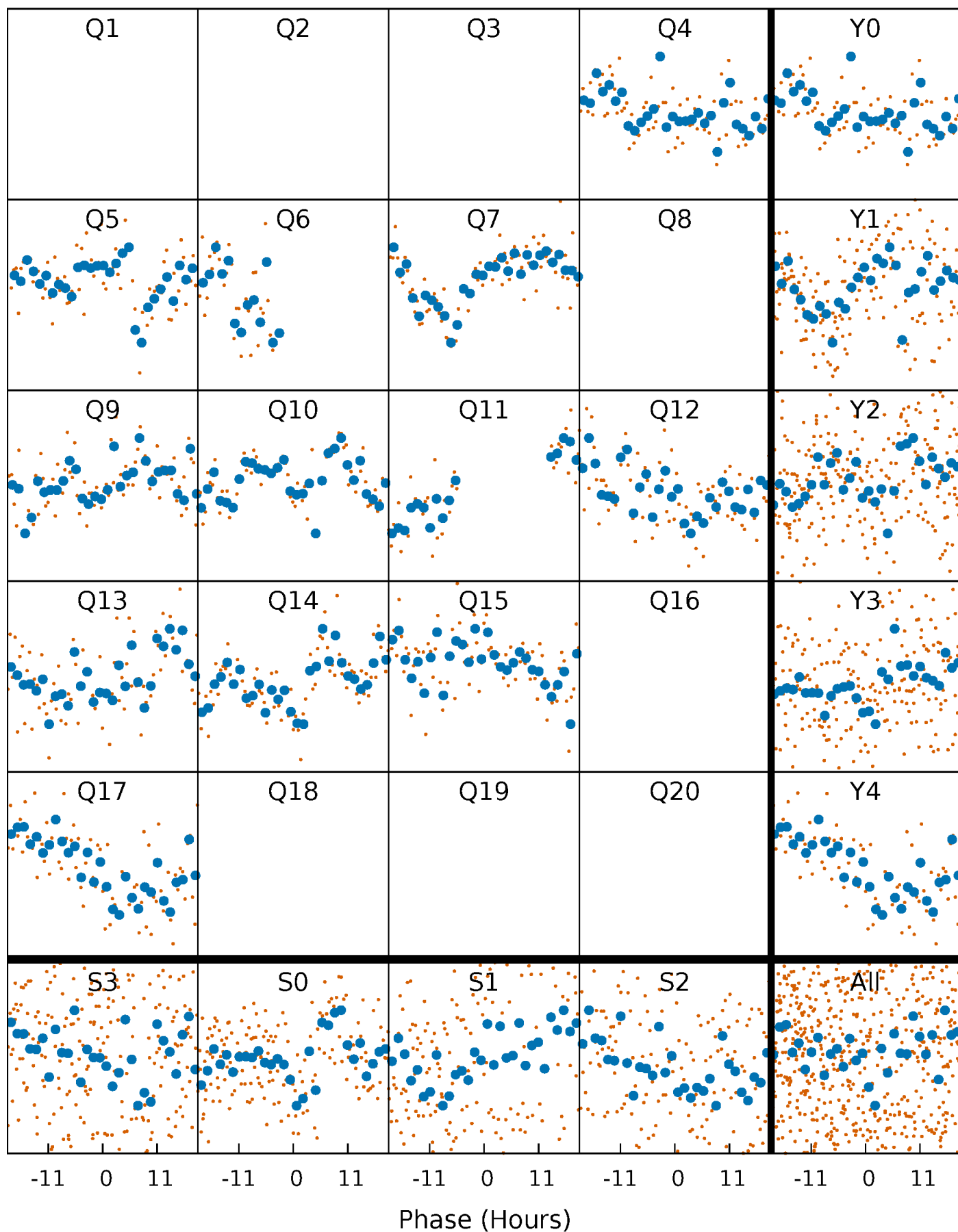


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



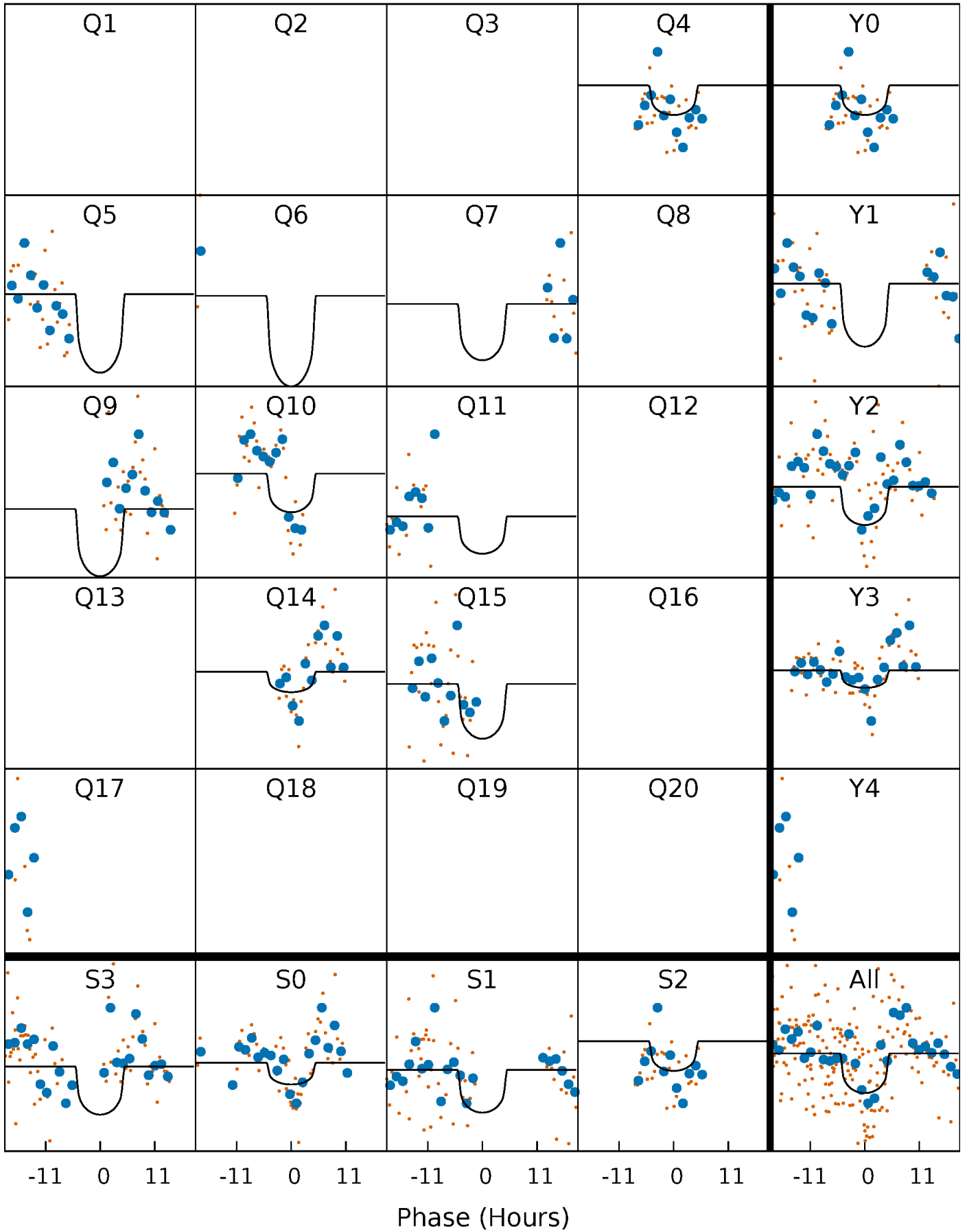
PDC Quarter-Phased Transit Curves

TCE 010594394-06 P=108.521345 Days $T_0=164.324814$ (BKJD)



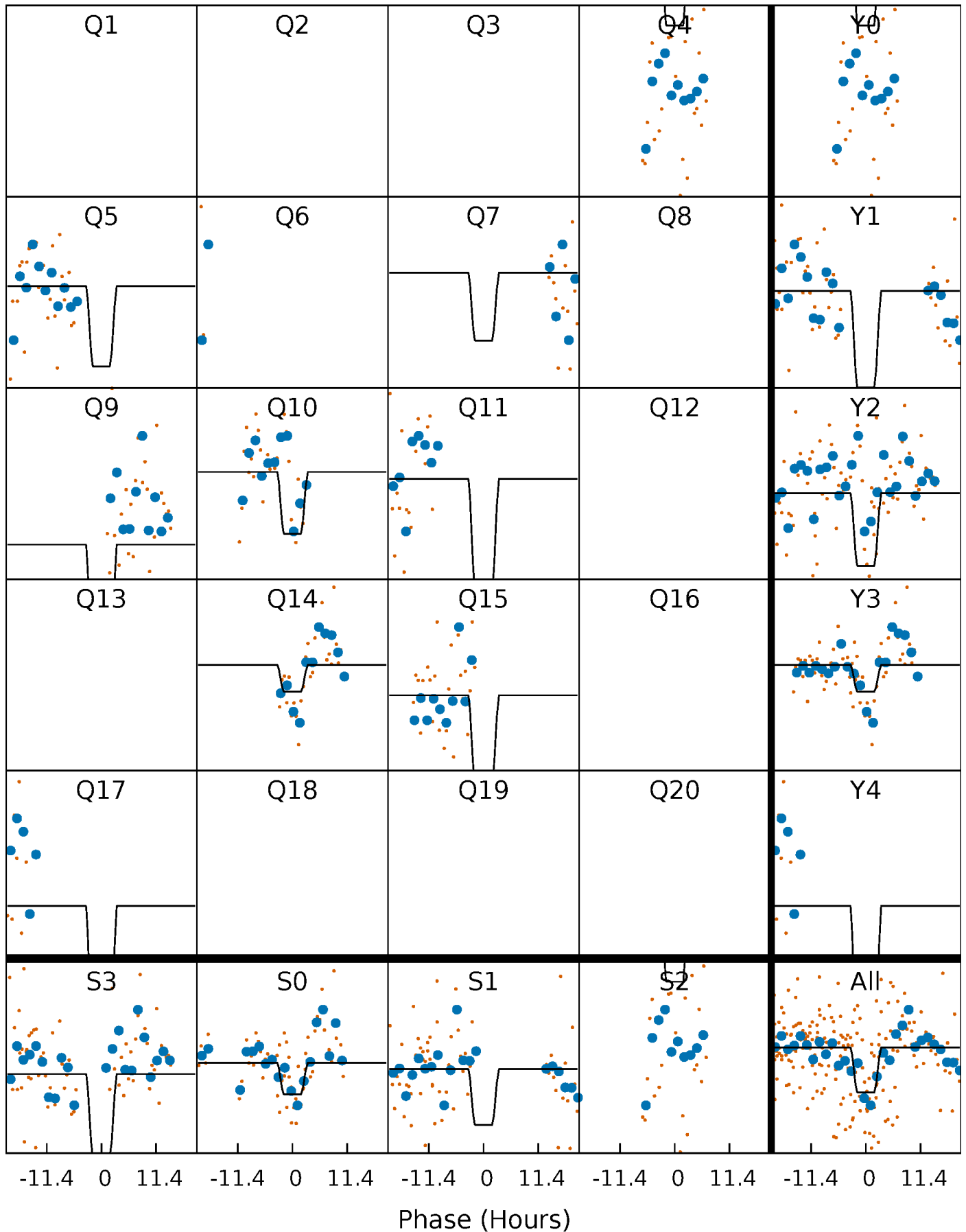
DV Quarter-Phased Transit Curves

TCE 010594394-06 $P=108.521345$ Days $T_0=164.324814$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

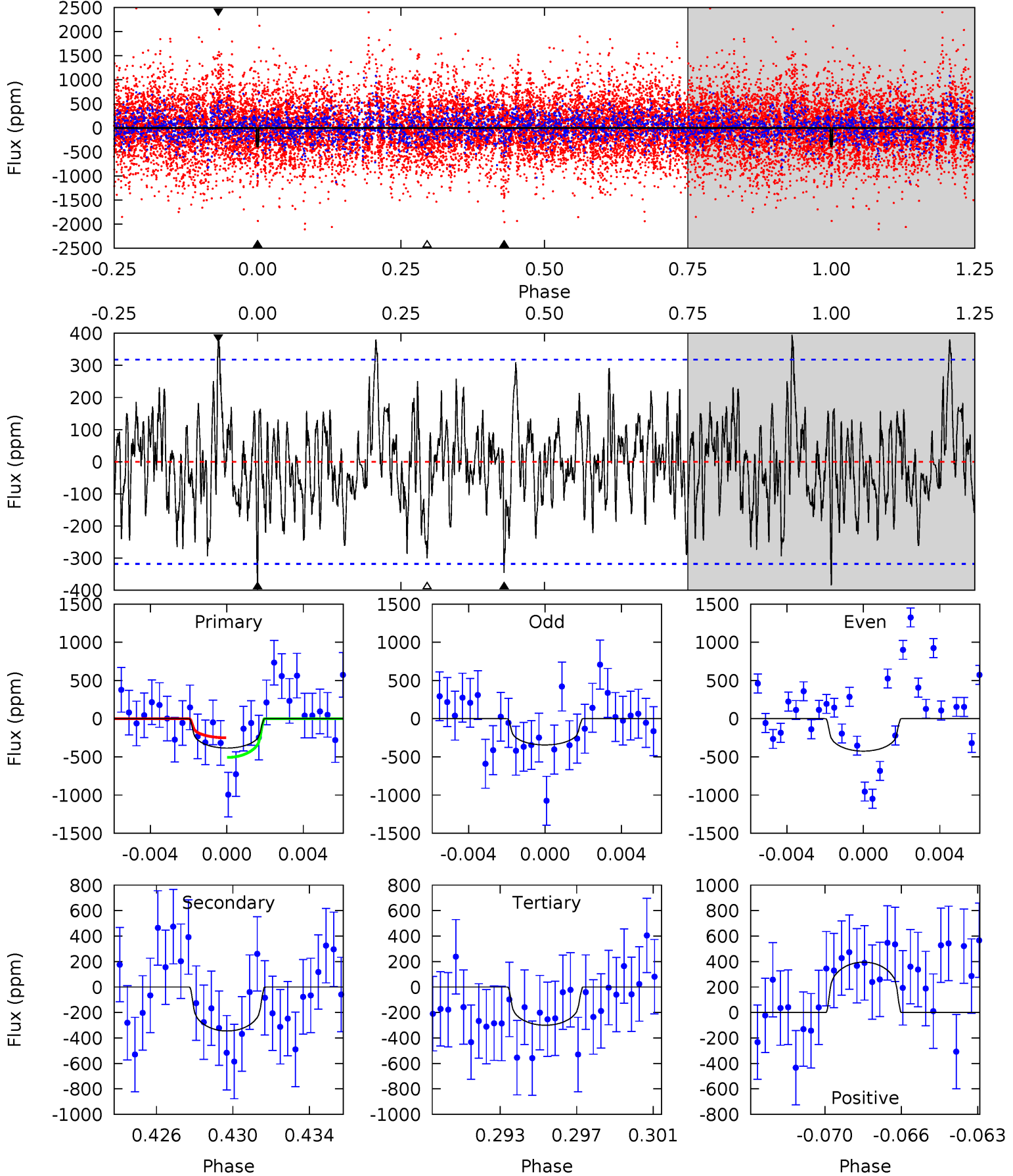
TCE 010594394-06 P=108.527325 Days $T_0=164.268369$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-06, P = 108.521345 Days, E = 164.324814 Days

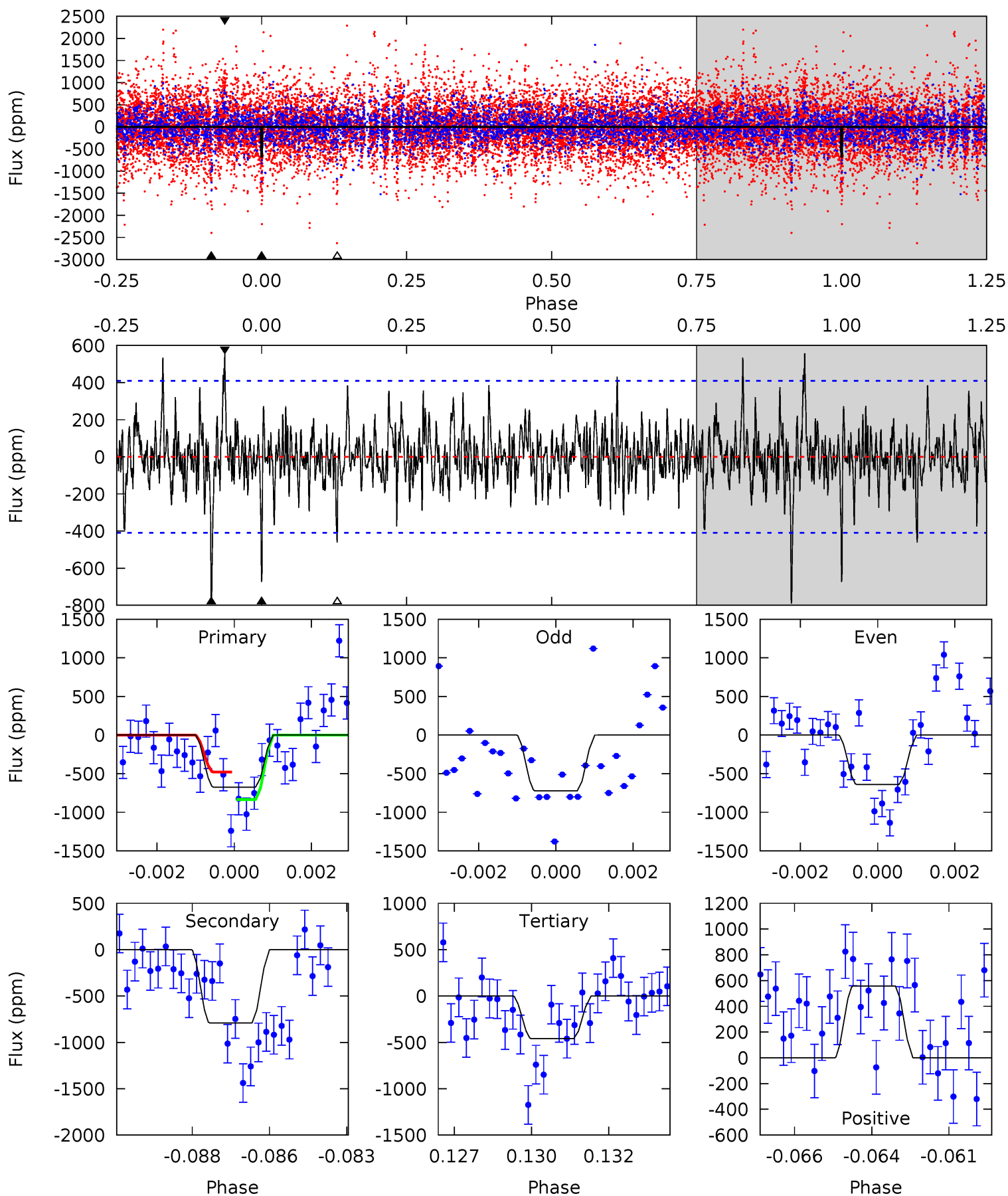
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.30	5.65	4.91	6.47	5.20	2.89	1.85	1.39	-0.17	0.74	-0.82	0.66	0.76	0.51	2.10



Alt Model-Shift Uniqueness Test

010594394-06, P = 108.527325 Days, E = 164.268369 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.70	10.2	5.95	7.21	5.29	3.03	1.62	2.75	1.49	4.26	3.01	0.54	1.81	0.41	2.30



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-345 ± 61	$2.53^{+2.07}_{-1.67}$	442^{+22}_{-20}	4317^{+2673}_{-844}	5244^{+37129}_{-3763}
Alt.	-790 ± 77	$2.88^{+2.03}_{-1.84}$	444^{+19}_{-23}	4807^{+3112}_{-858}	8968^{+58964}_{-5879}

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 $A_{obs} \gg 1.0$

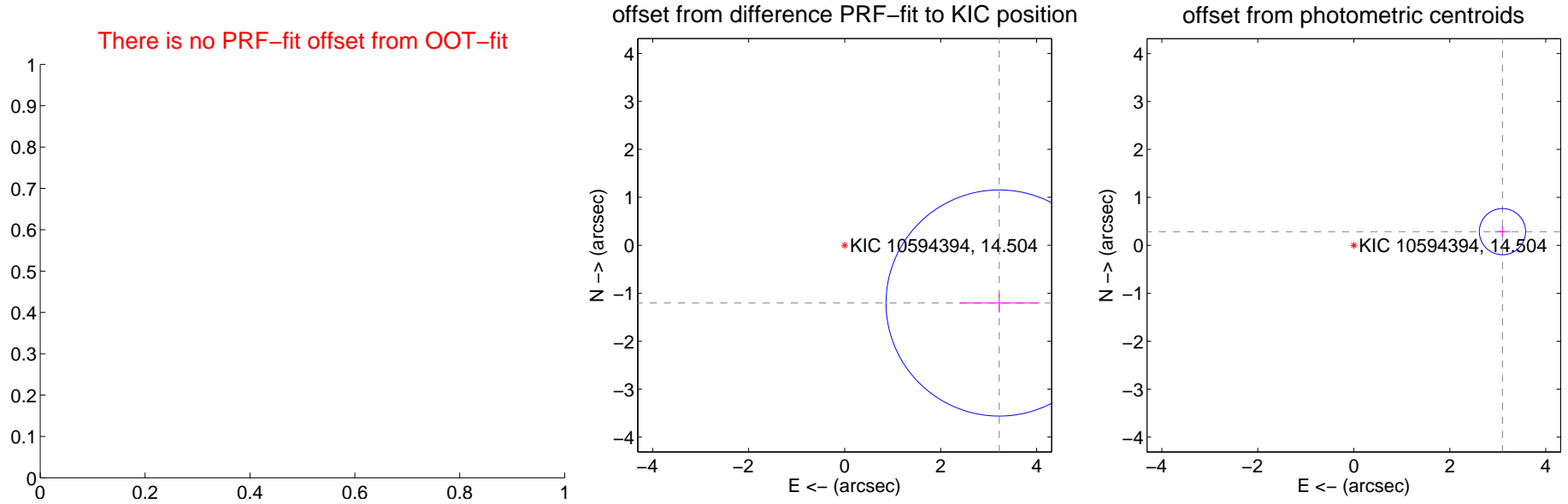
DV Centroid Data

Supplemental centroid analysis for 010594394-06. Kepler magnitude: 14.50. Transit SNR 6.22

There are 0 quarters with good PRF difference image offsets

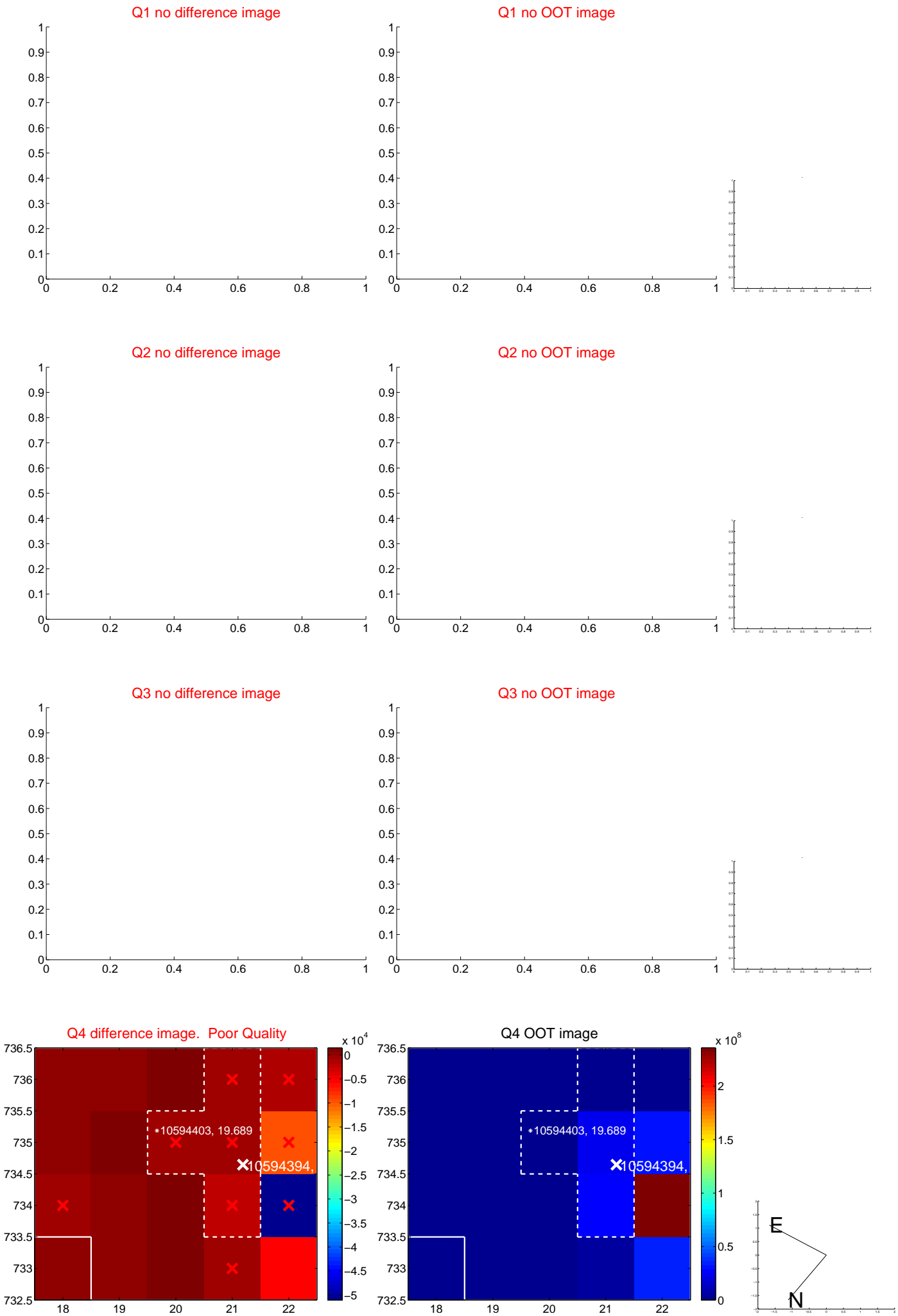
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	3.438 ± 0.786	4.37	-3.221 ± 0.836	-1.204 ± 0.201
photometric centroid source offset	3.11 ± 0.16	19.38	-3.10 ± 0.16	0.29 ± 0.11

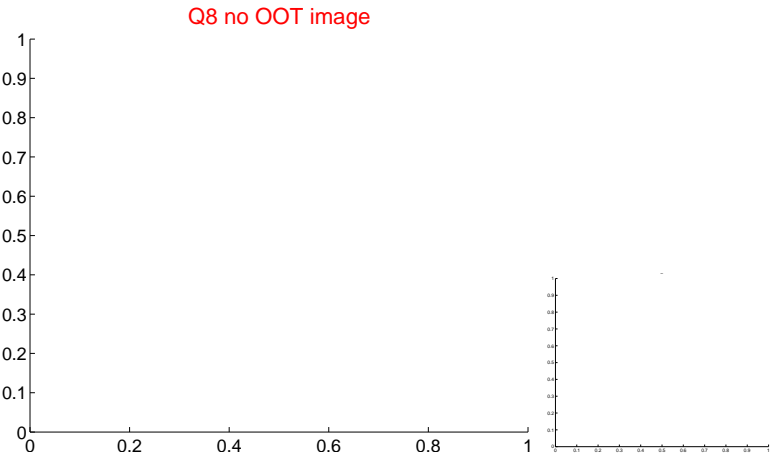
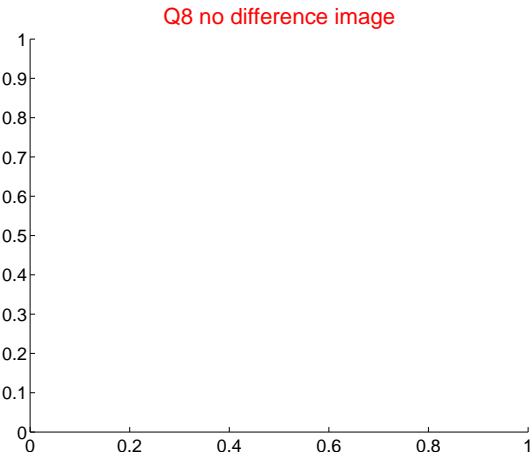
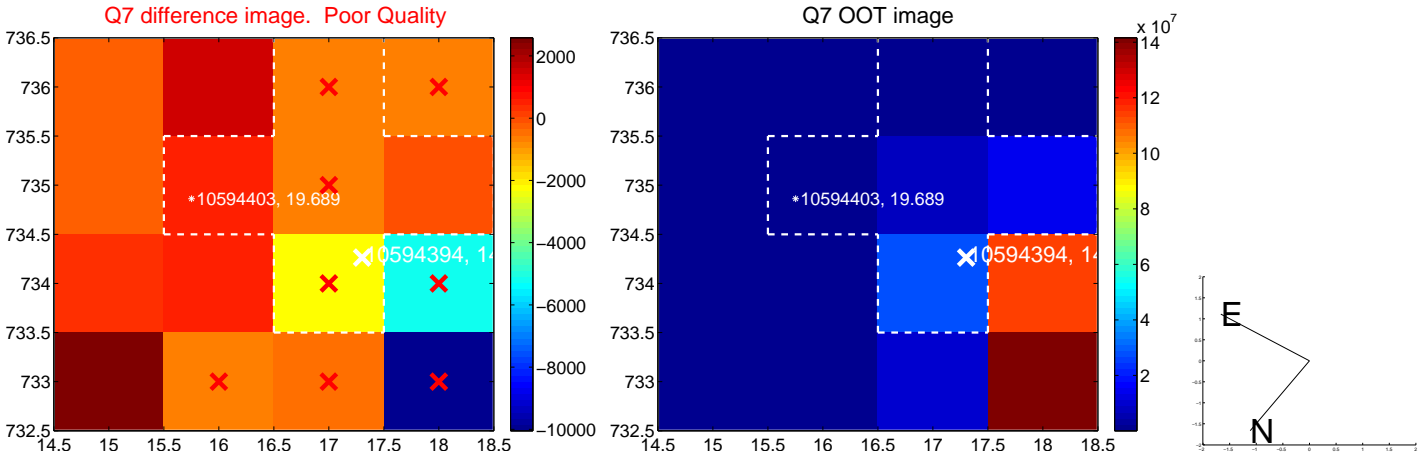
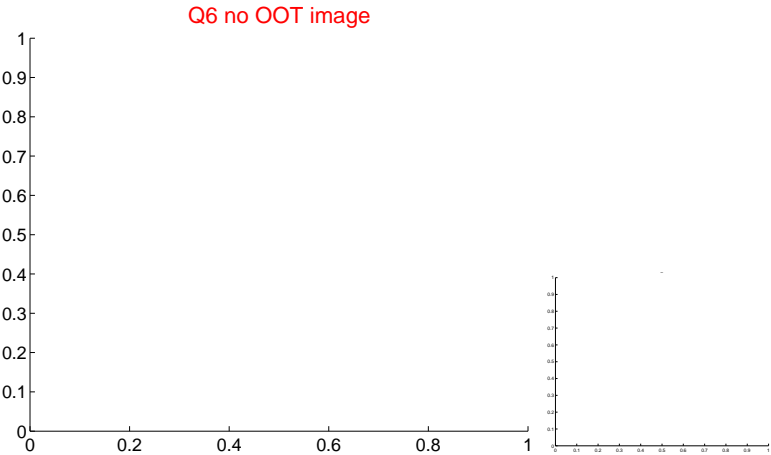
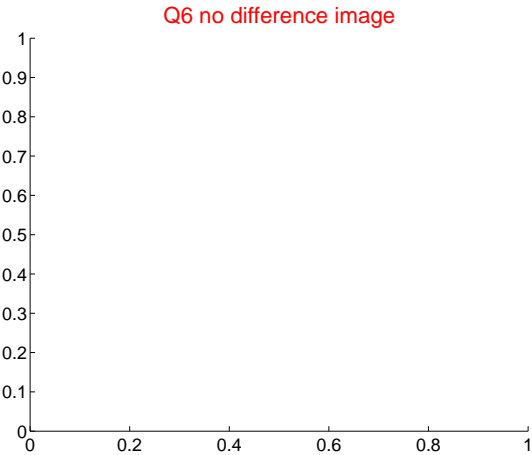
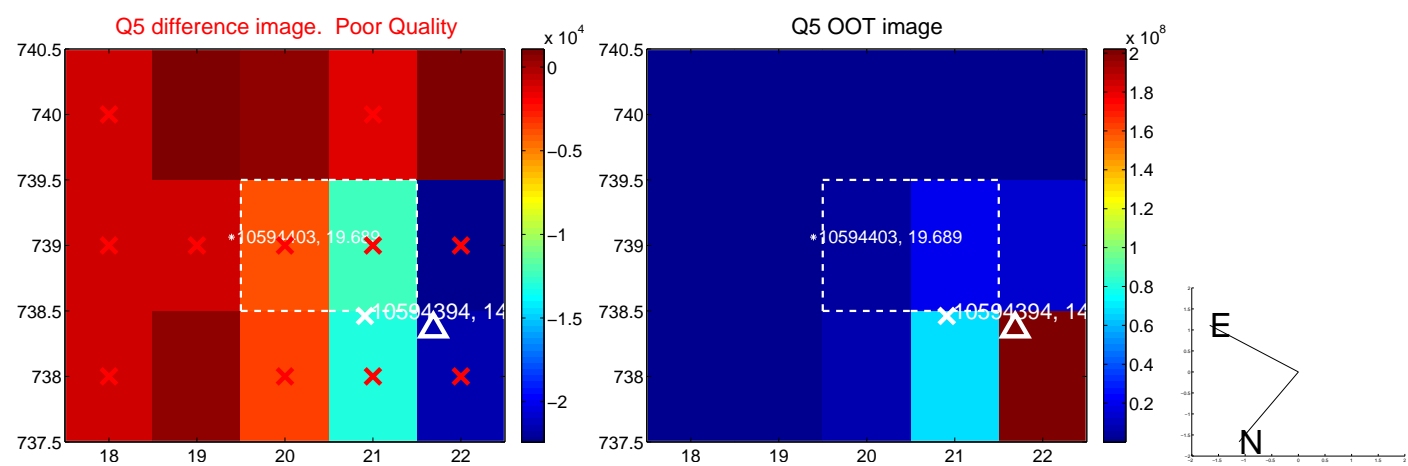


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

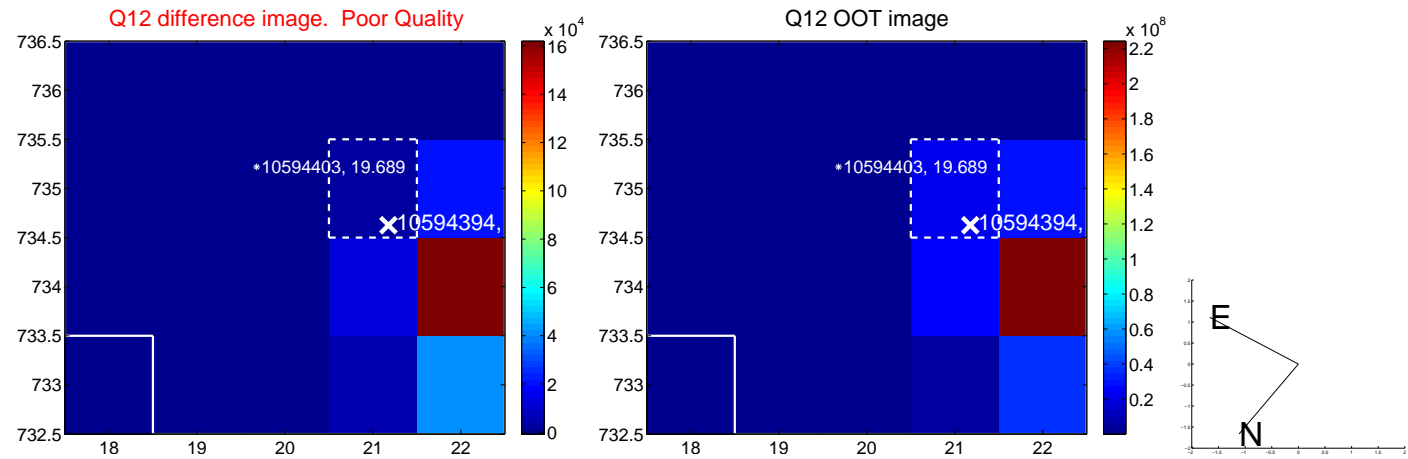
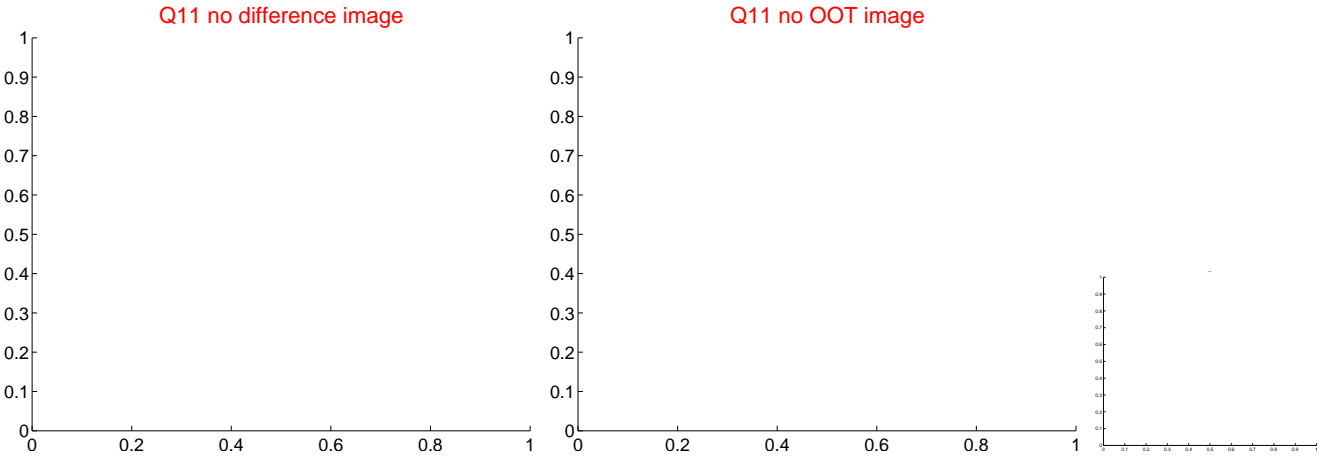
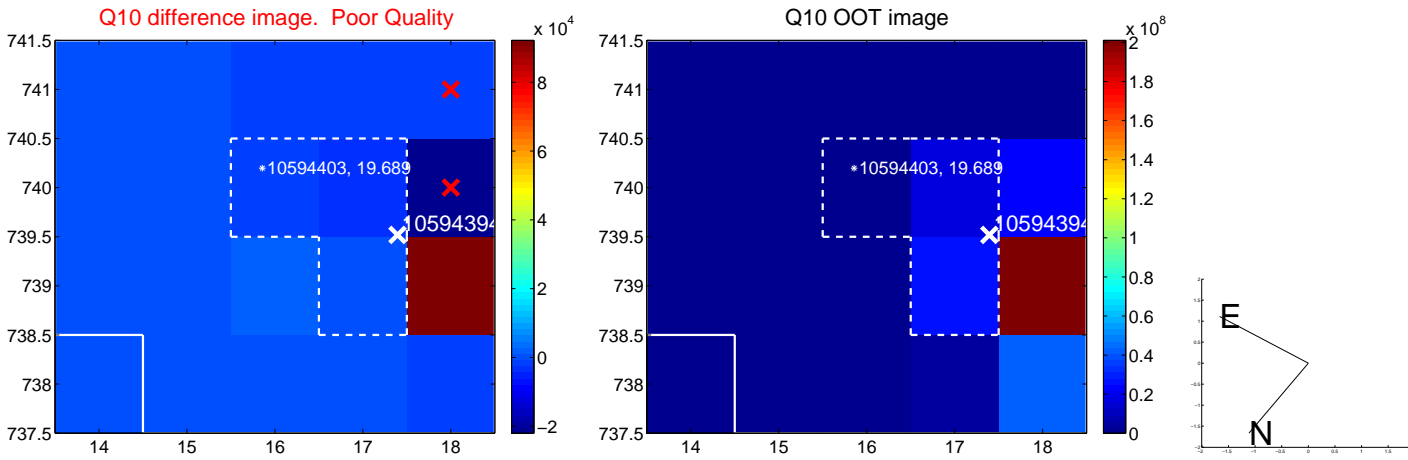
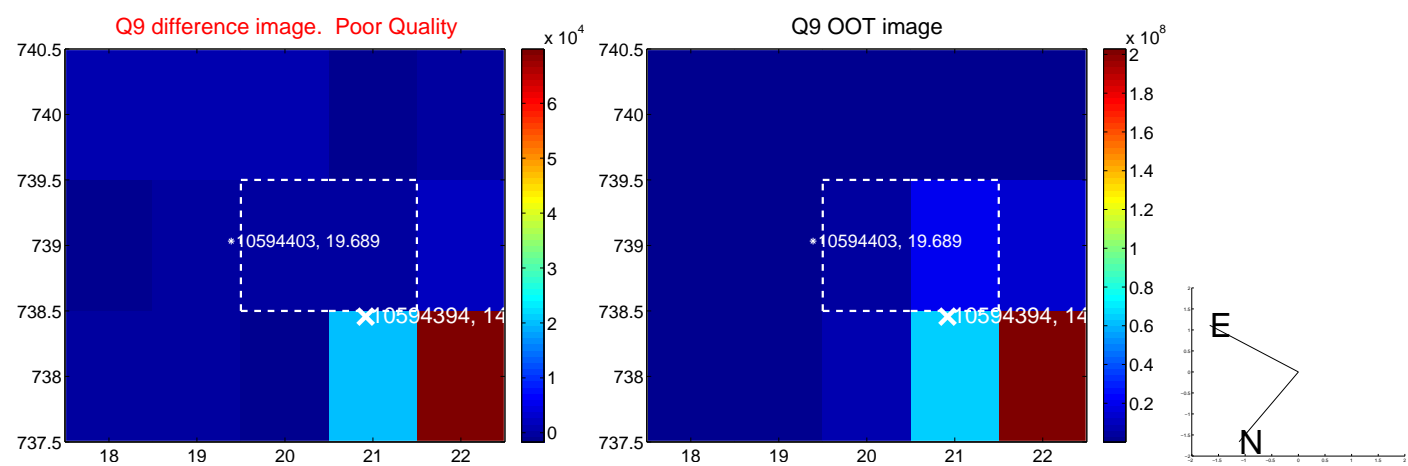
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



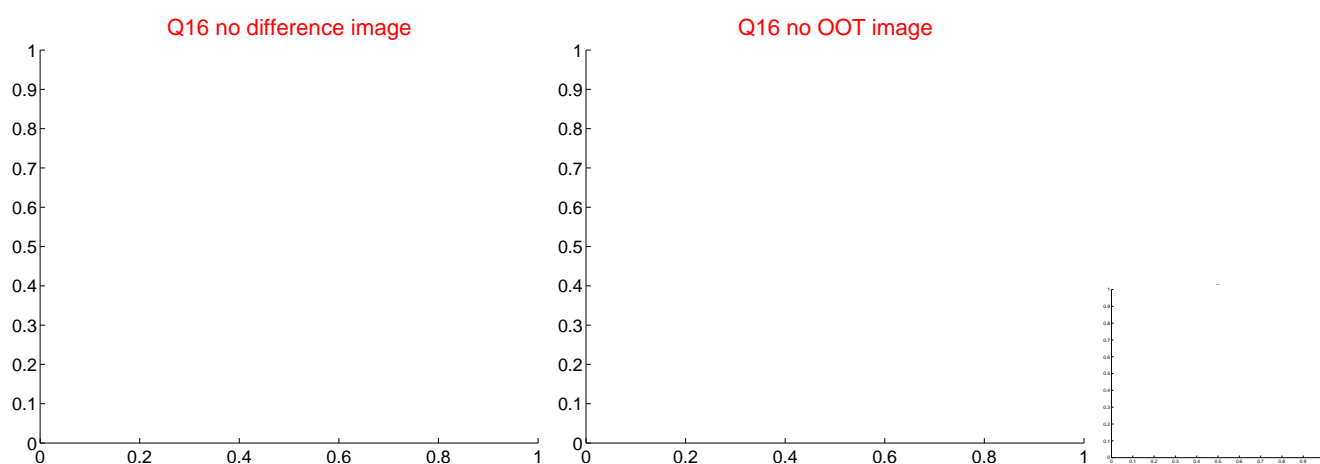
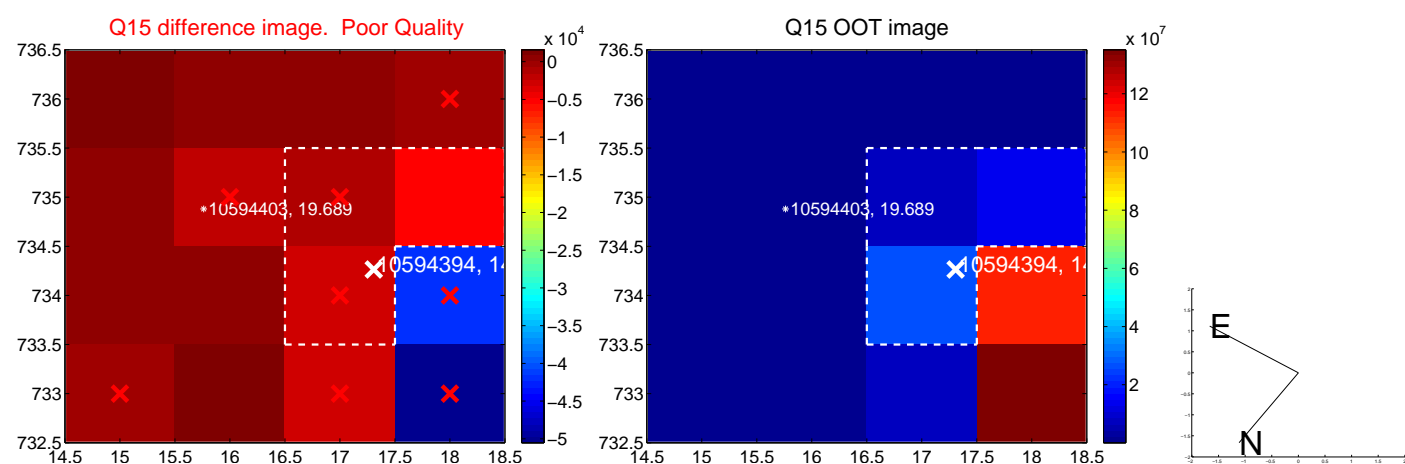
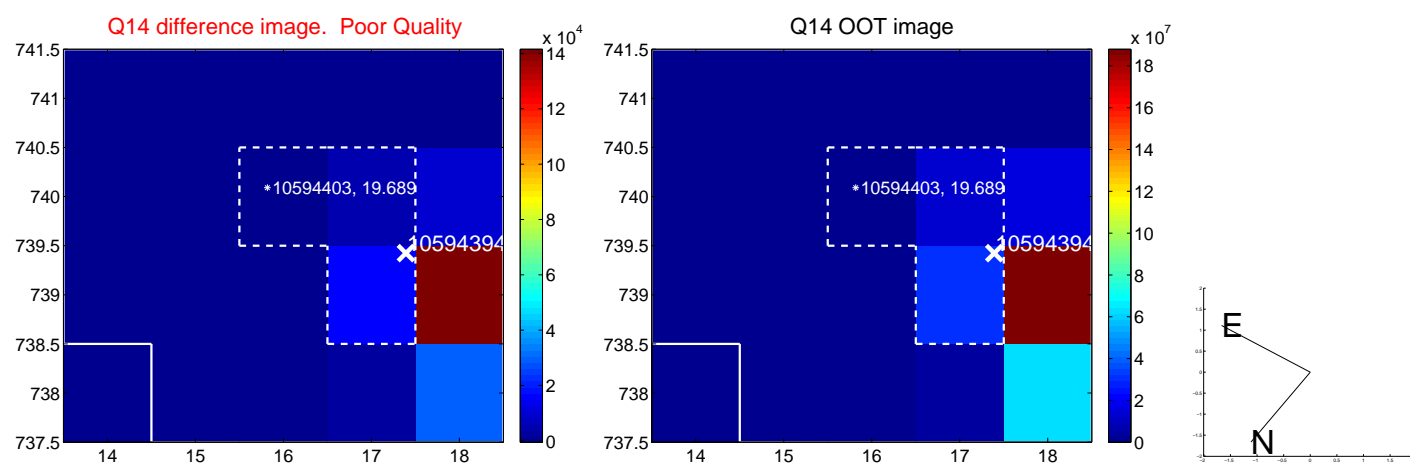
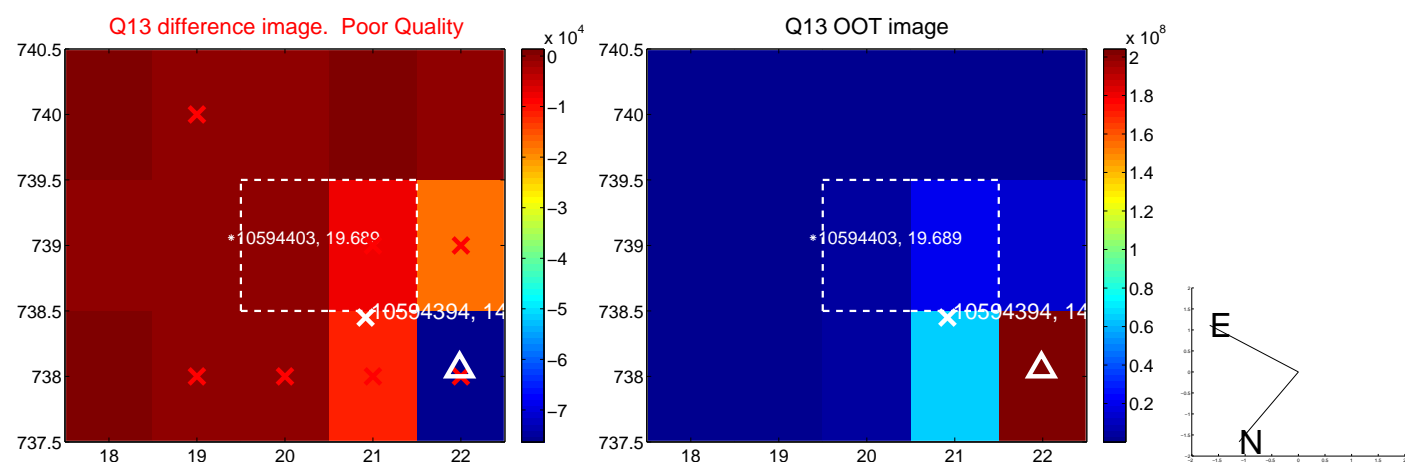
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



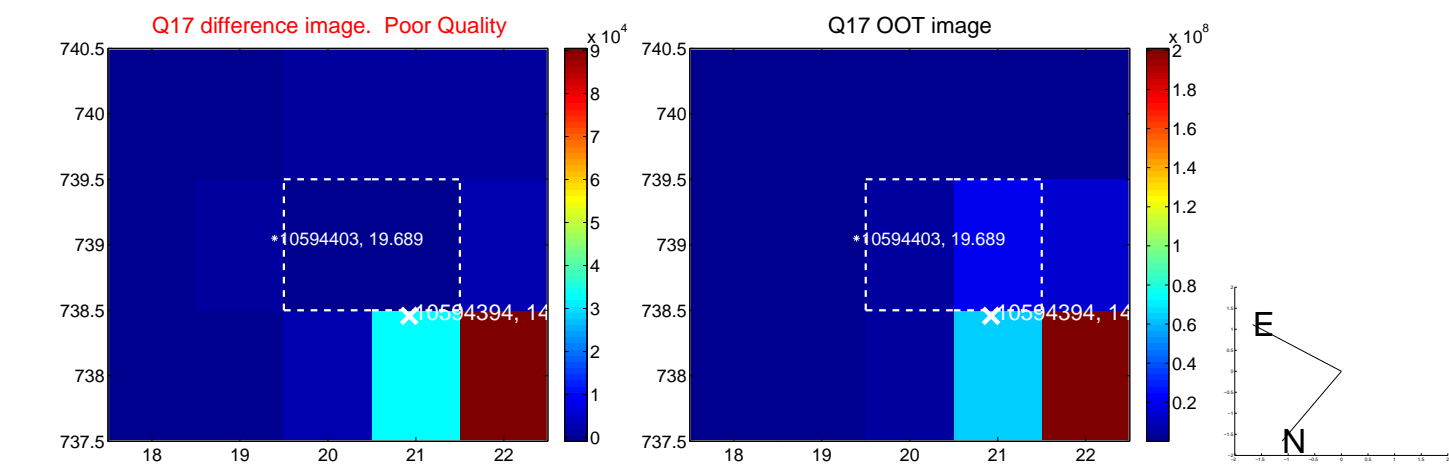
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



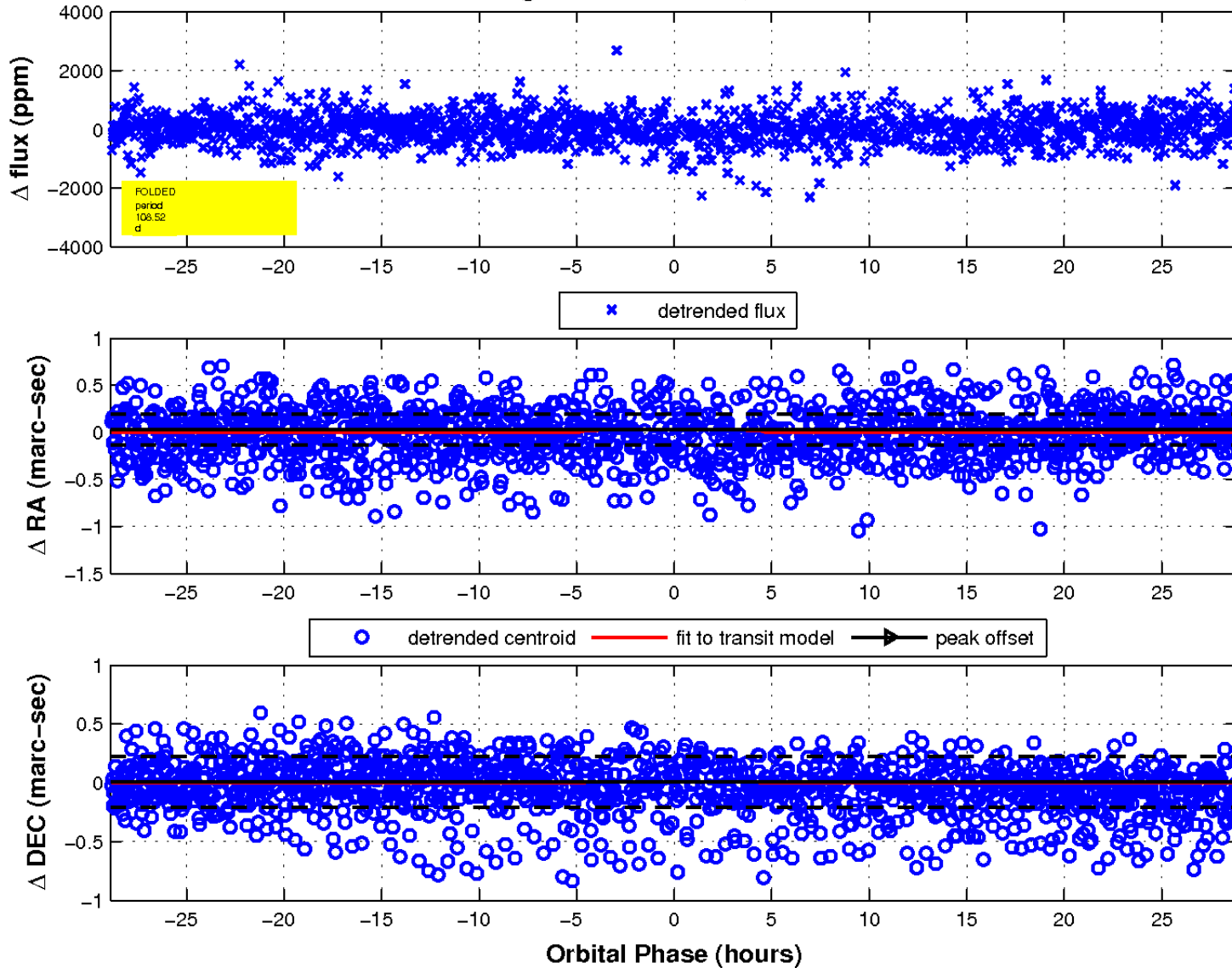
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

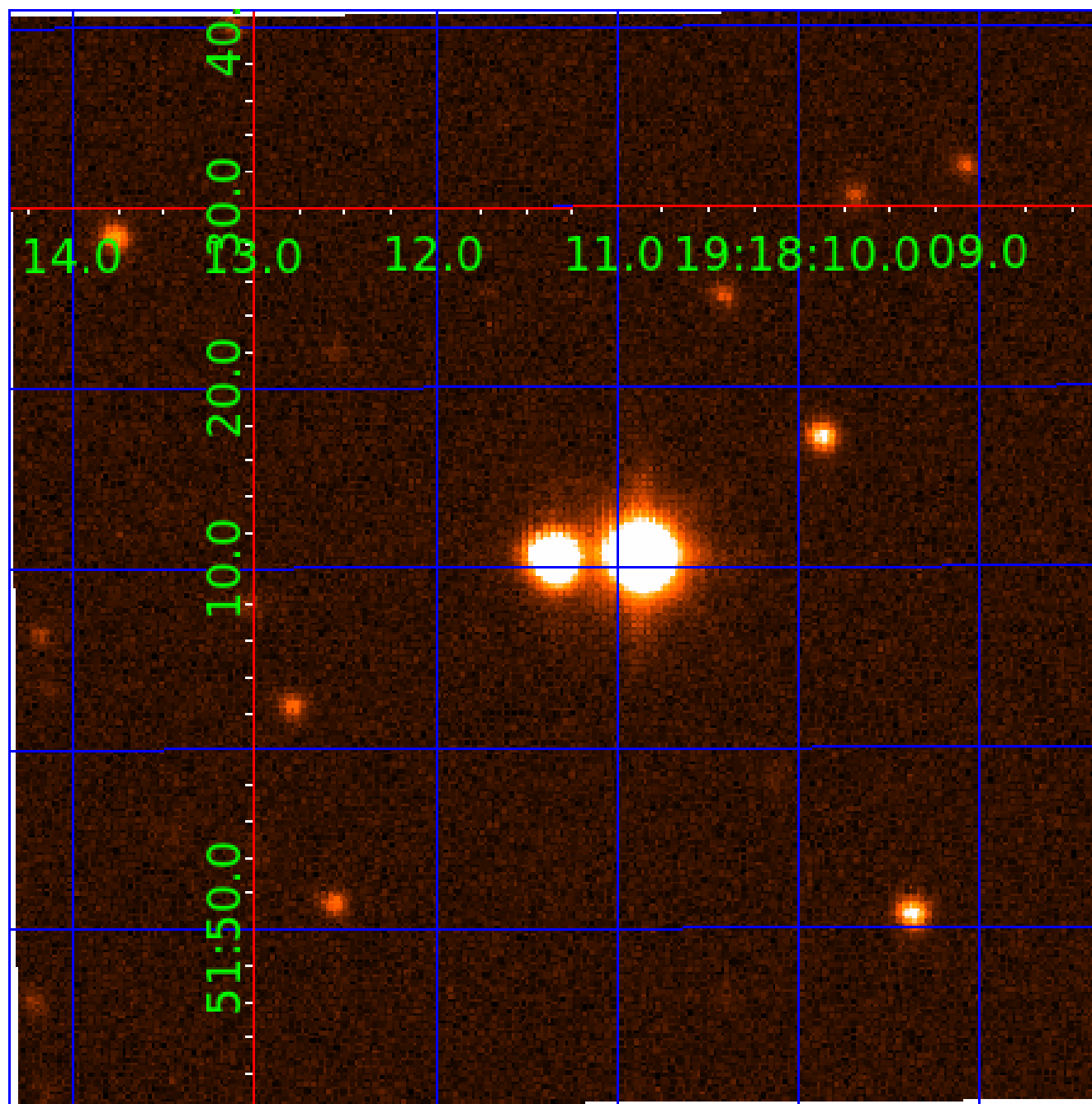


fluxWeightedCentroids, Planet 6 of 8



UKIRT Image

Declination



KIC 010594394

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})
010594394-01	OBS	No	2.348315	133.571394	95.3	13.937	10.6	10.0	0.83	5057	0.79	396.12
010594394-02	OBS	No	112.210357	229.733248	923.6	3.106	9.7	10.6	0.83	5057	2.88	2.29
010594394-04	OBS	No	78.344708	142.510836	932.2	3.174	9.7	8.1	0.83	5057	2.79	3.69
010594394-05	OBS	No	99.661265	153.438402	561.3	11.704	7.9	7.7	0.83	5057	2.00	2.68
010594394-06	OBS	No	108.521345	164.324814	529.5	9.633	8.7	6.2	0.83	5057	2.01	2.39
010594394-07	OBS	No	62.535836	139.965446	200.4	9.706	7.6	2.9	0.83	5057	1.28	4.98
010594394-08	OBS	No	54.959553	140.988069	581.5	2.869	7.3	8.0	0.83	5057	2.24	5.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010594394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_FEW_MEAS—HALO_GHOST
010594394-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

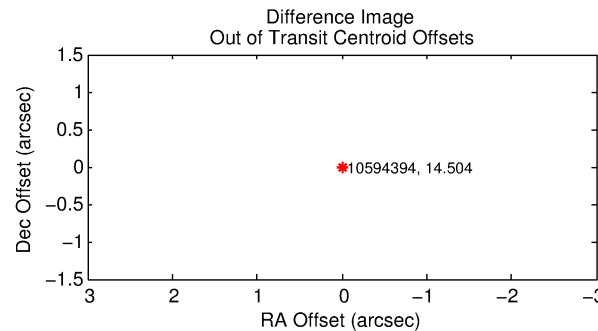
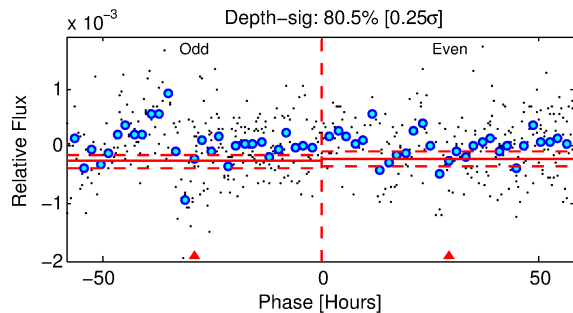
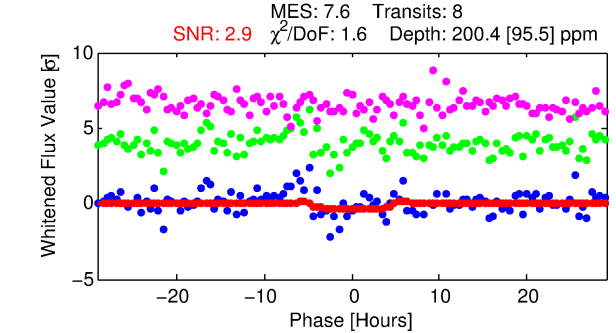
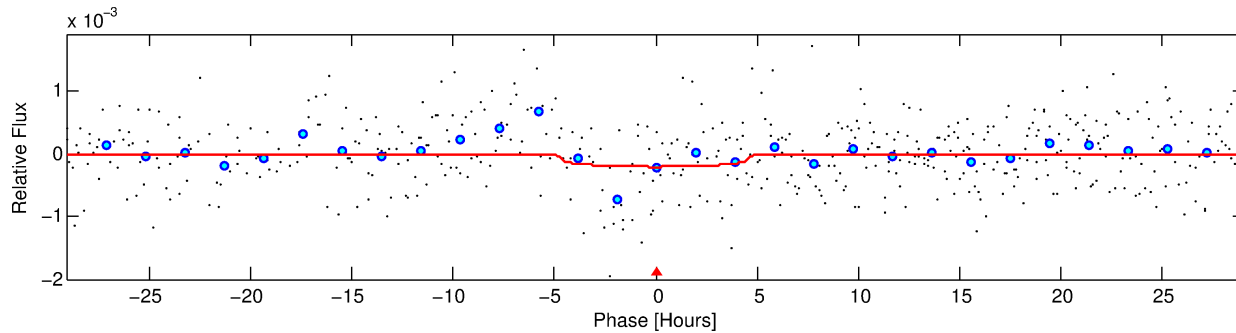
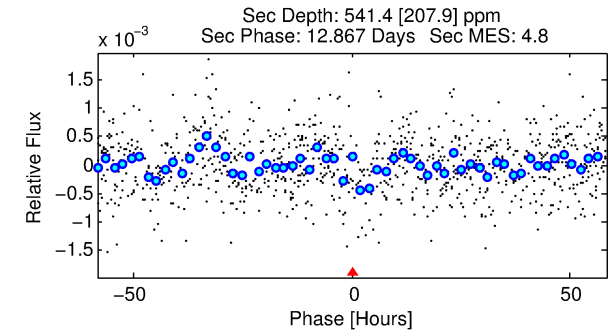
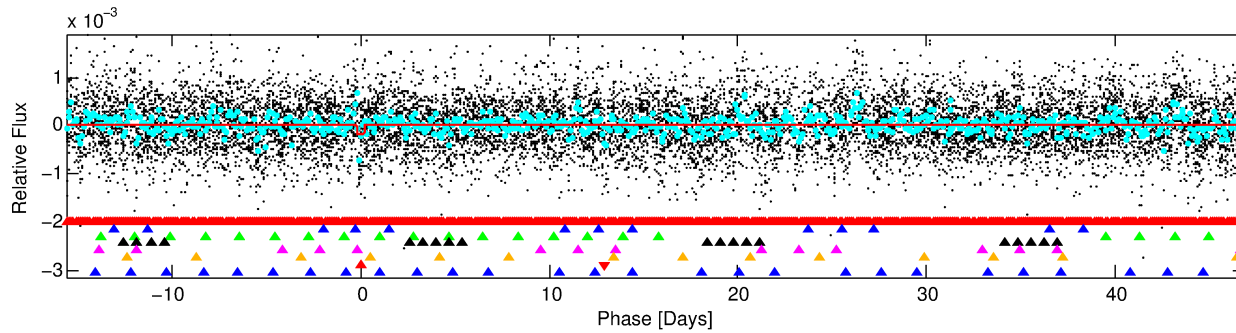
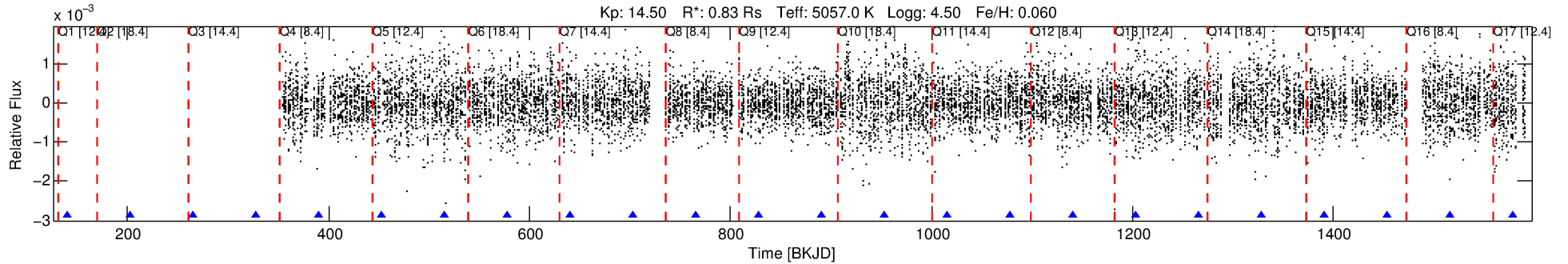
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-07

No Significant Match Found

DV One-Page Summary

KIC: 10594394 Candidate: 7 of 8 Period: 62.536 d



DV Fit Results:

Period = 62.53584 [0.00539] d
Epoch = 139.9654 [0.0775] BKJD
Rp/R* = 0.0142 [0.0323]
a/R* = 33.41 [278.60]
b = 0.75 [4.82]
Seff = 4.98 [1.05]
Teq = 381 [20] K
Rp = 1.28 [2.92] Re
a = 0.2843 [0.0291] AU
Ag = 14683.00 [67205.57] [0.22σ]
Teffp = 6483 [7418] K [0.82σ]

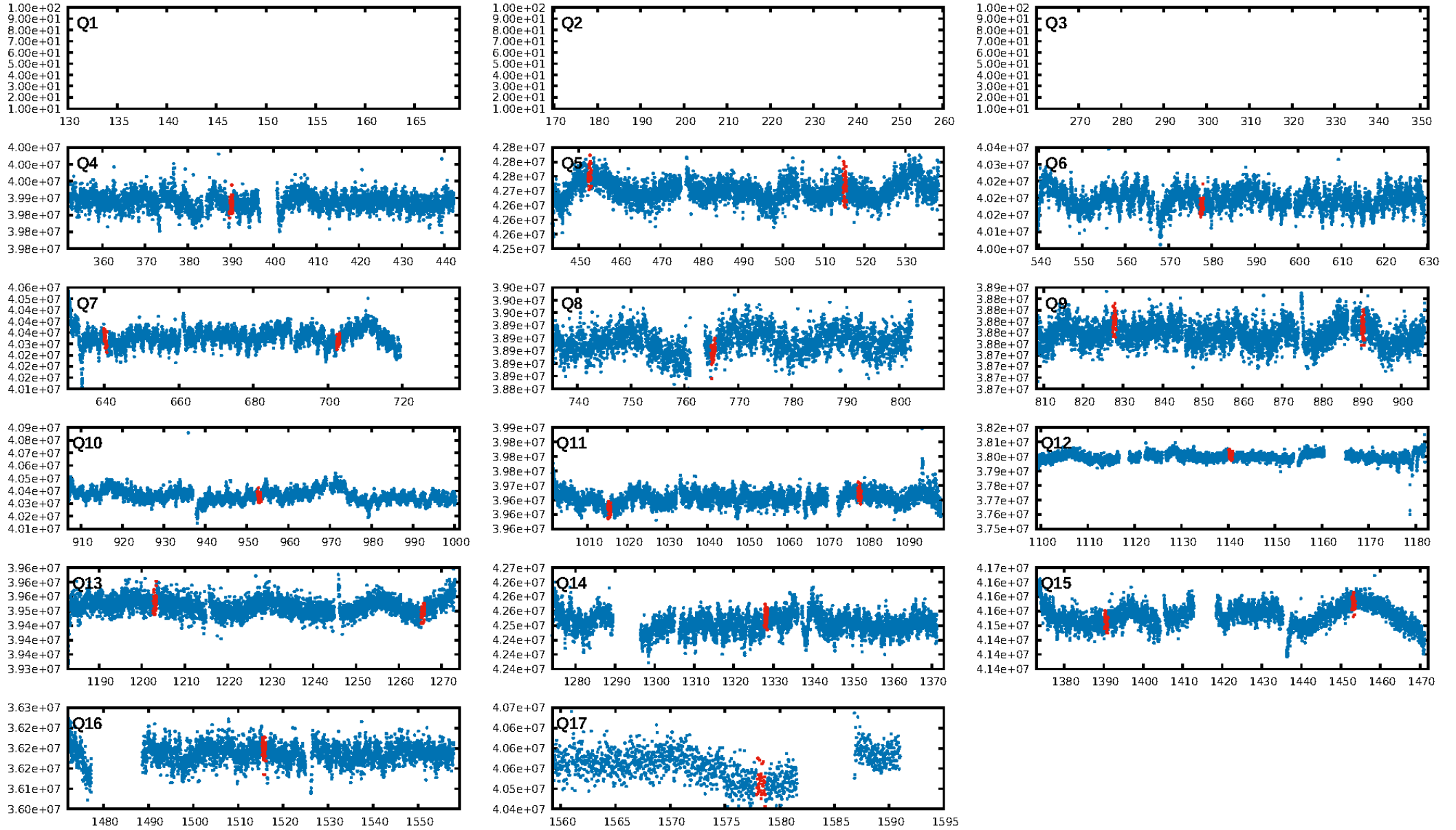
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.97σ]
LongPeriod-sig: 100.0% [4.17σ]
ModelChiSquare2-sig: 3.8%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 1.82e-08
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -0.8672
Centroid-sig: 0.0%
Centroid-so: 2.571 arcsec [8.76σ]
OotOffset-rm: N/A
KicOffset-rm: 3.210 arcsec [8.15σ]
OotOffset-st: 0/0/0 [0]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.08 [1/12]

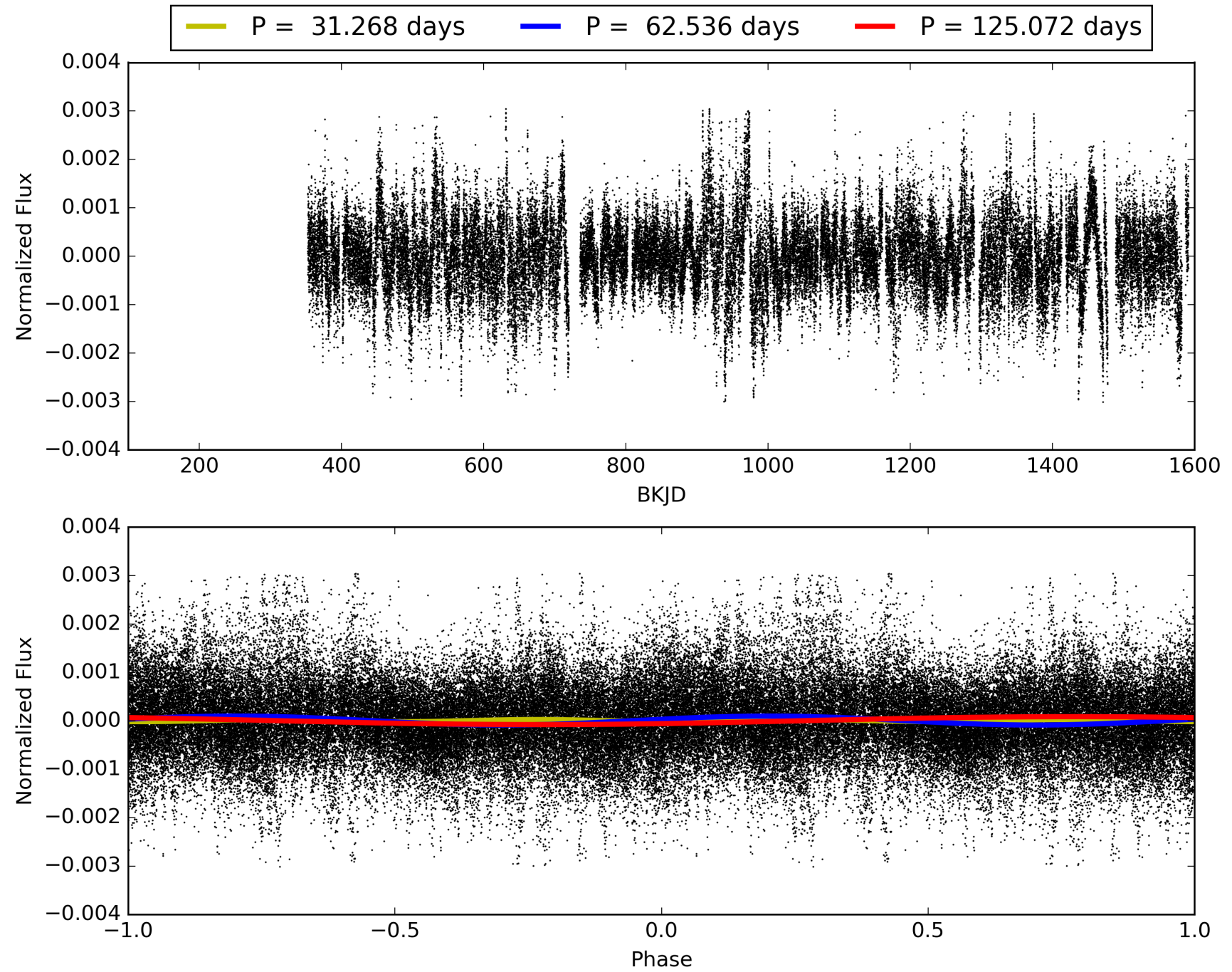
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:36:48 Z

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

TCE 010594394-07, PDC Light Curves

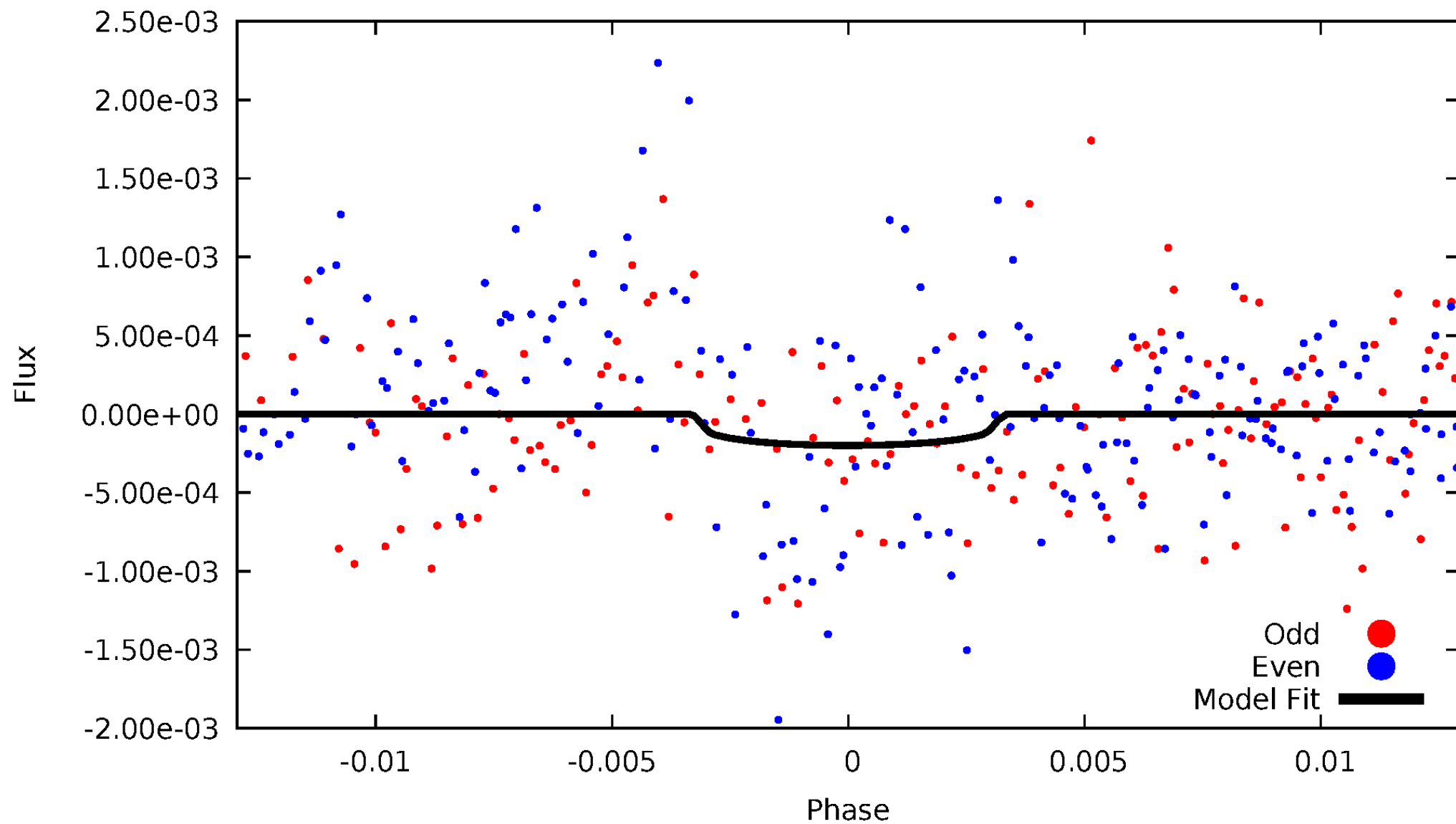


TCE 010594394-07



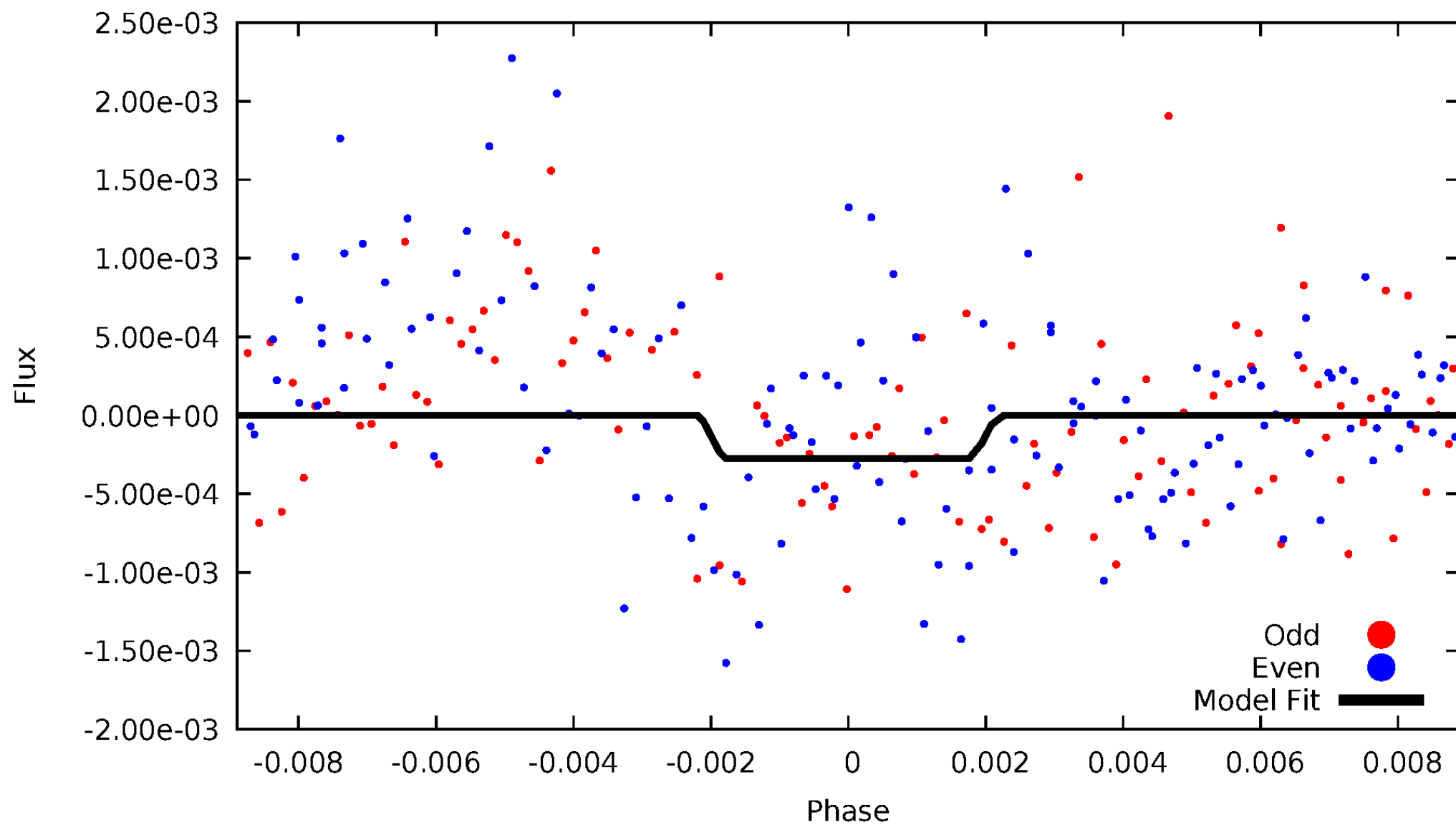
DV Odd/Even

TCE 010594394-07



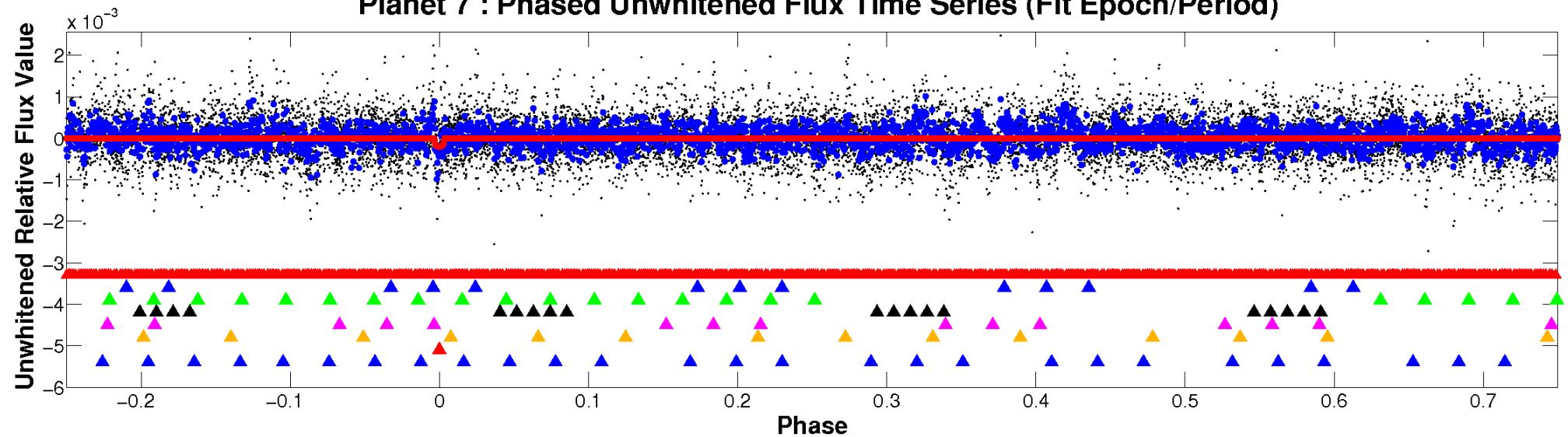
ALT Odd/Even

TCE 010594394-07

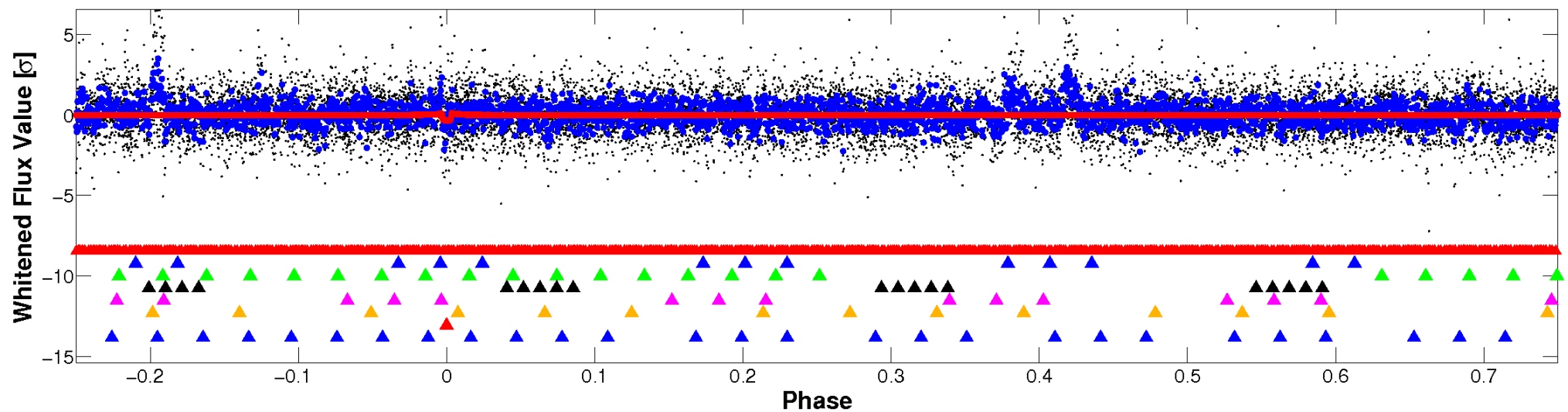


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

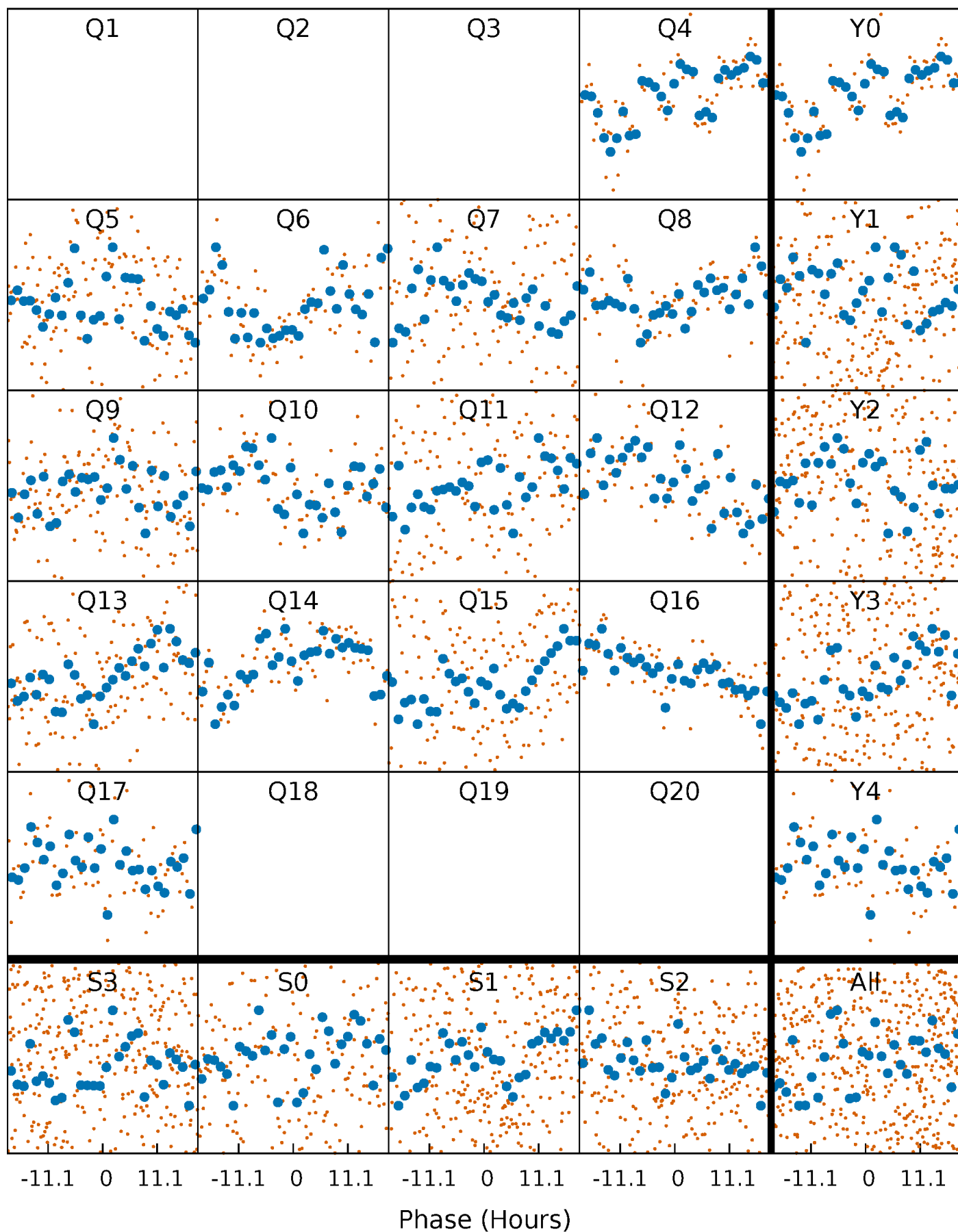


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



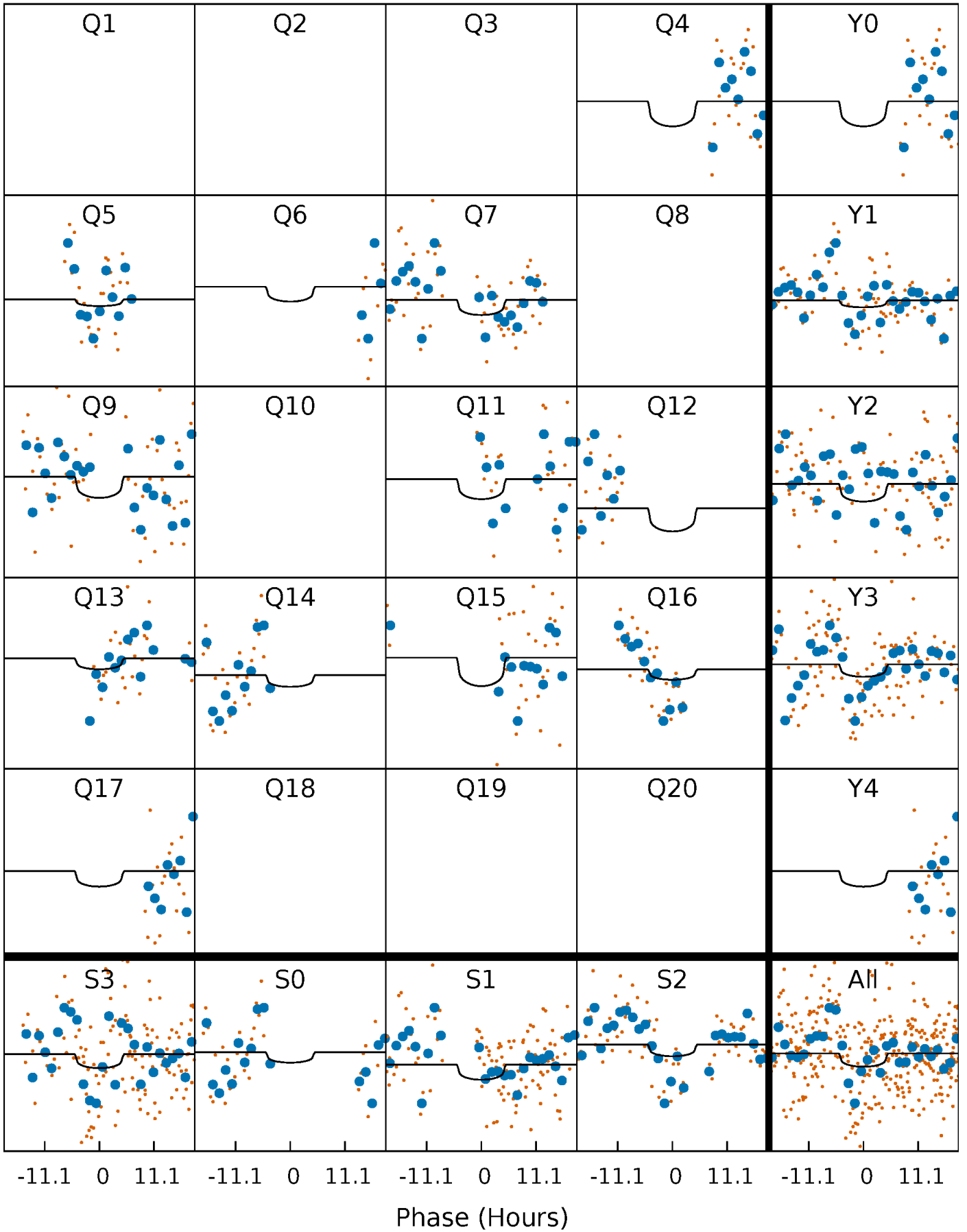
PDC Quarter-Phased Transit Curves

TCE 010594394-07 $P = 62.535836$ Days $T_0 = 139.965446$ (BKJD)



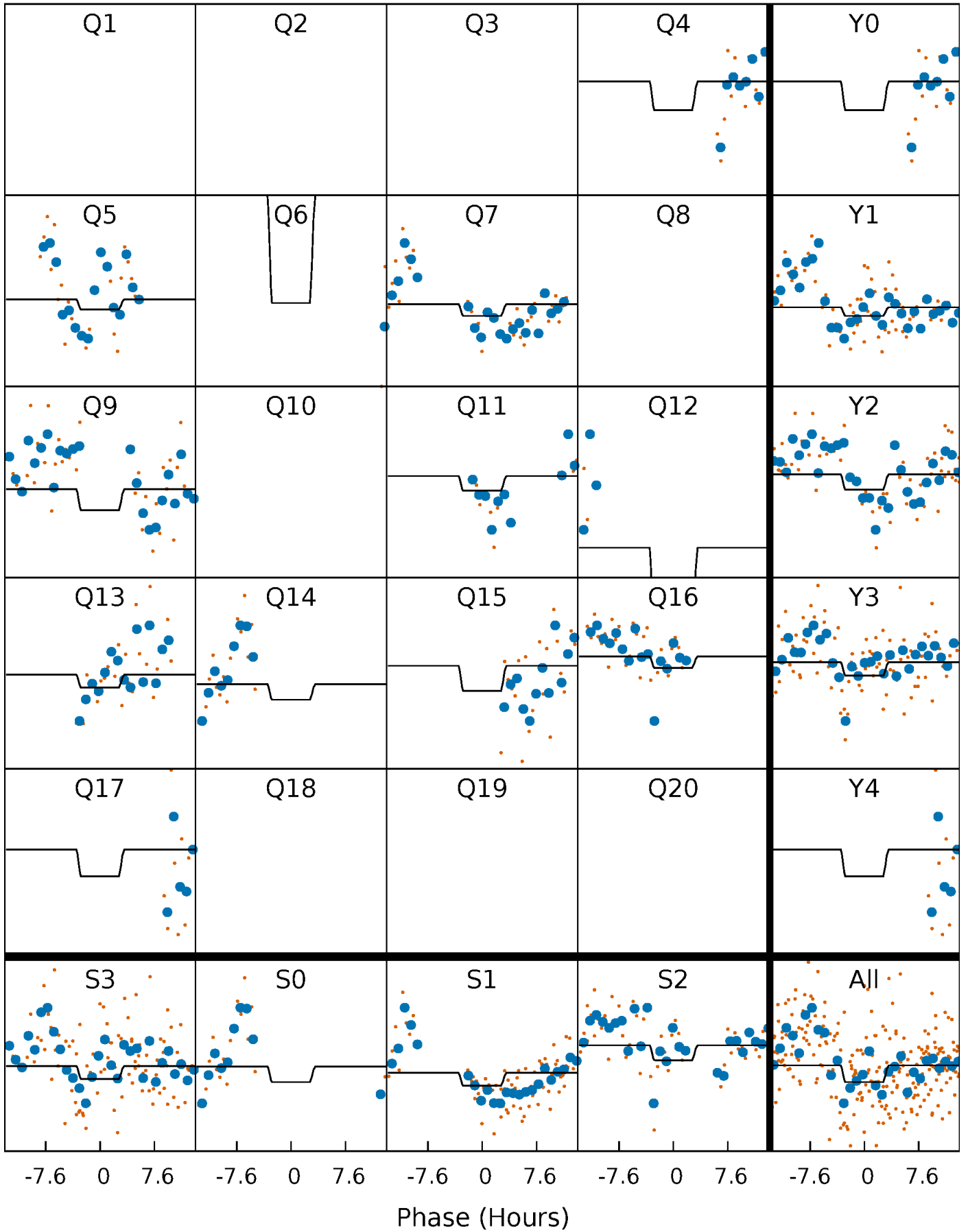
DV Quarter-Phased Transit Curves

TCE 010594394-07 $P = 62.535836$ Days $T_0 = 139.965446$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

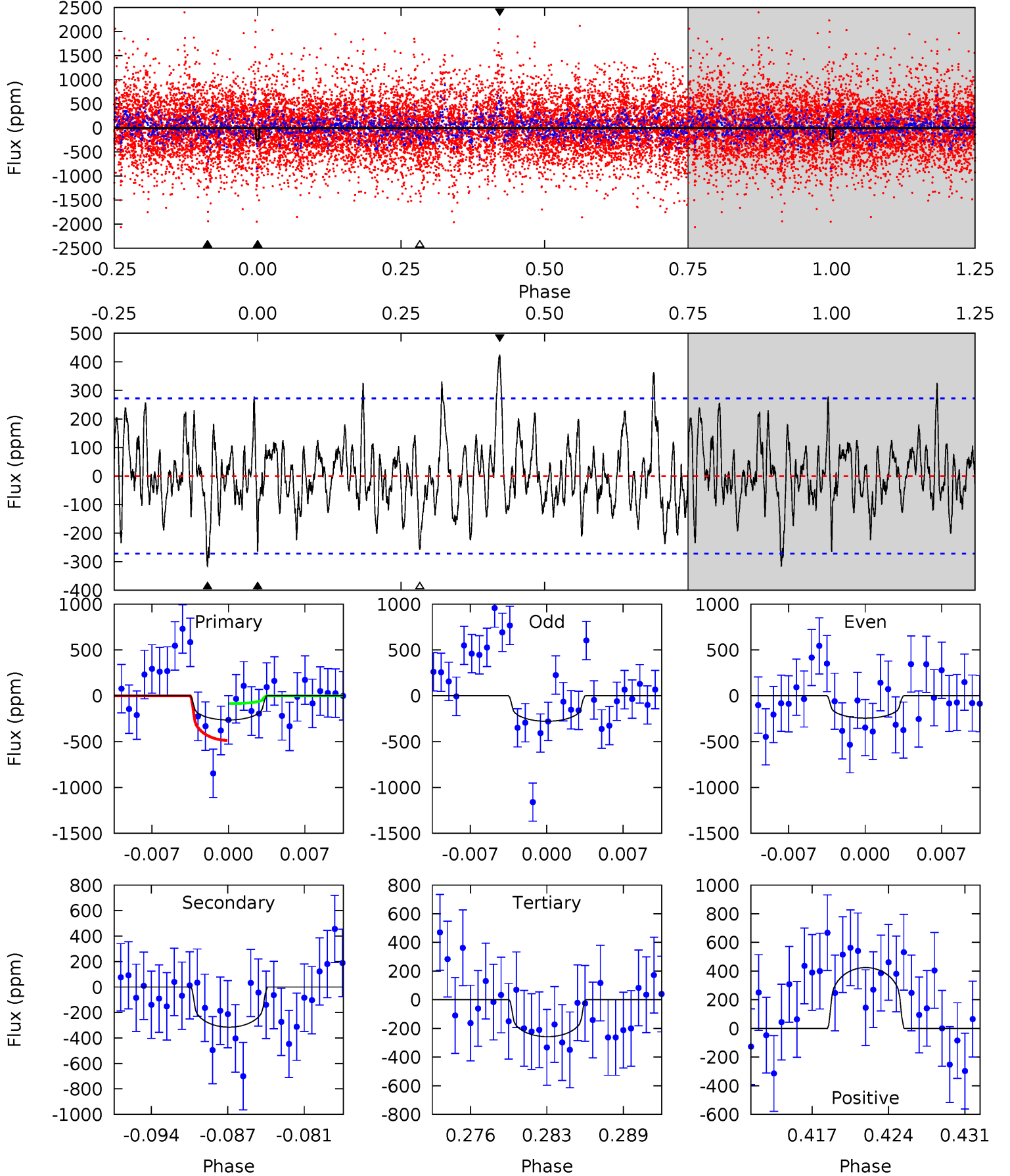
TCE 010594394-07 P= 62.533603 Days $T_0=140.033249$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-07, P = 62.535836 Days, E = 139.965446 Days

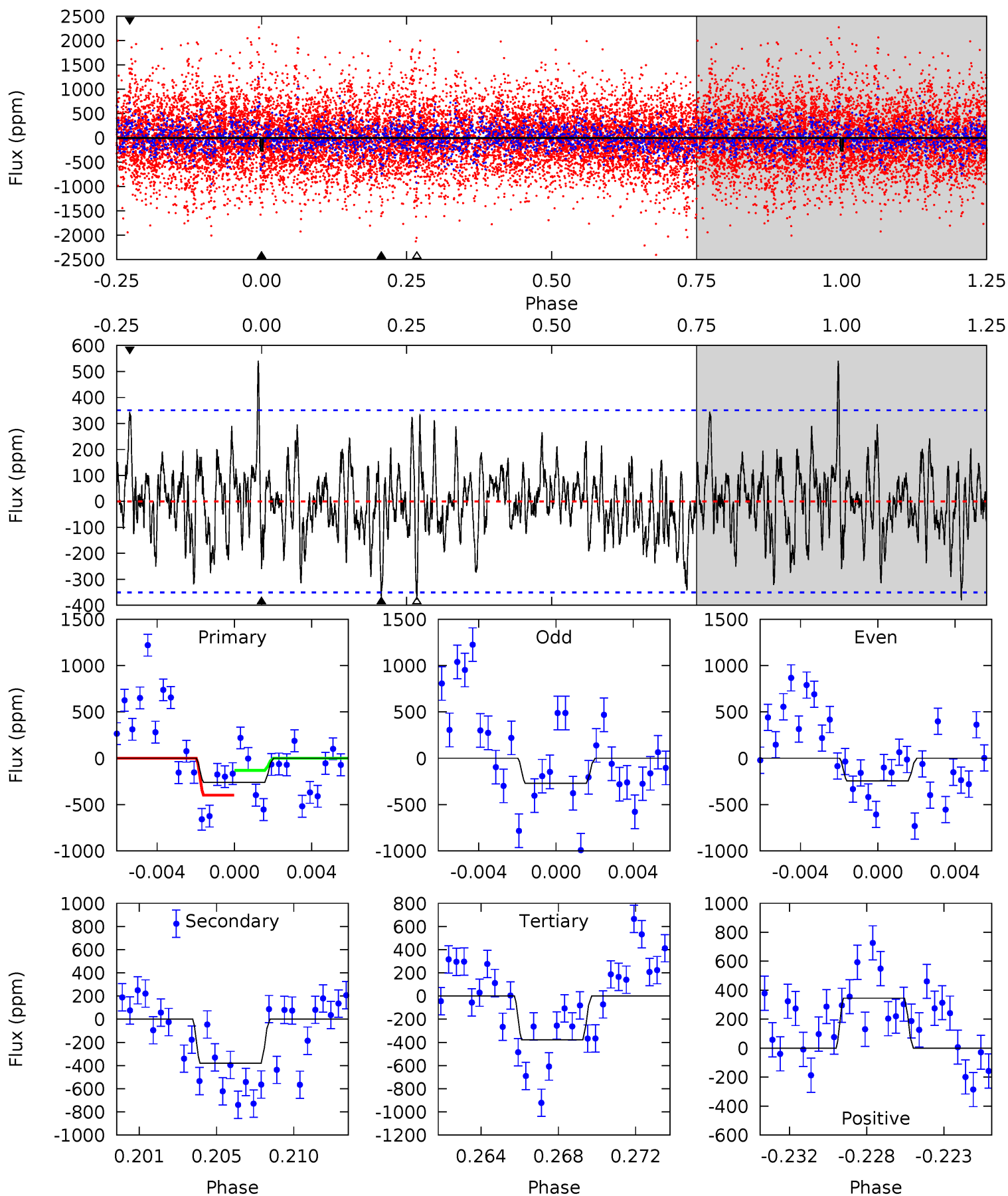
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.97	5.92	4.84	7.97	5.10	2.71	1.94	0.12	-3.01	1.08	-2.05	0.32	0.98	0.57	3.75



Alt Model-Shift Uniqueness Test

010594394-07, P = 62.533603 Days, E = 140.033249 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.85	5.62	5.59	5.11	5.18	2.84	1.69	-1.74	-1.25	0.03	0.51	0.18	1.22	0.59	1.99



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-315 ± 53	$2.48^{+2.38}_{-1.69}$	532^{+27}_{-26}	4286^{+2971}_{-895}	2266^{+21007}_{-1692}
Alt.	-380 ± 68	$2.67^{+2.54}_{-1.78}$	534^{+25}_{-27}	4303^{+2724}_{-910}	2455^{+18569}_{-1833}

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 $A_{obs} \gg 1.0$

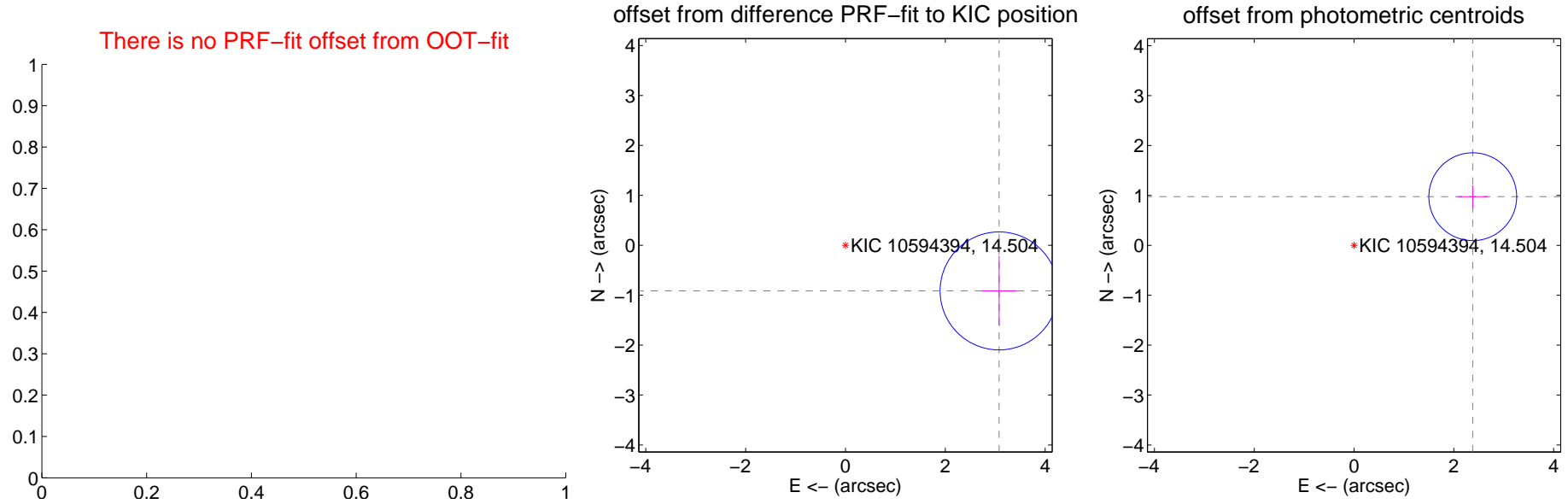
DV Centroid Data

Supplemental centroid analysis for 010594394-07. Kepler magnitude: 14.50. Transit SNR 2.94

There are 1 quarters with good PRF difference image offsets

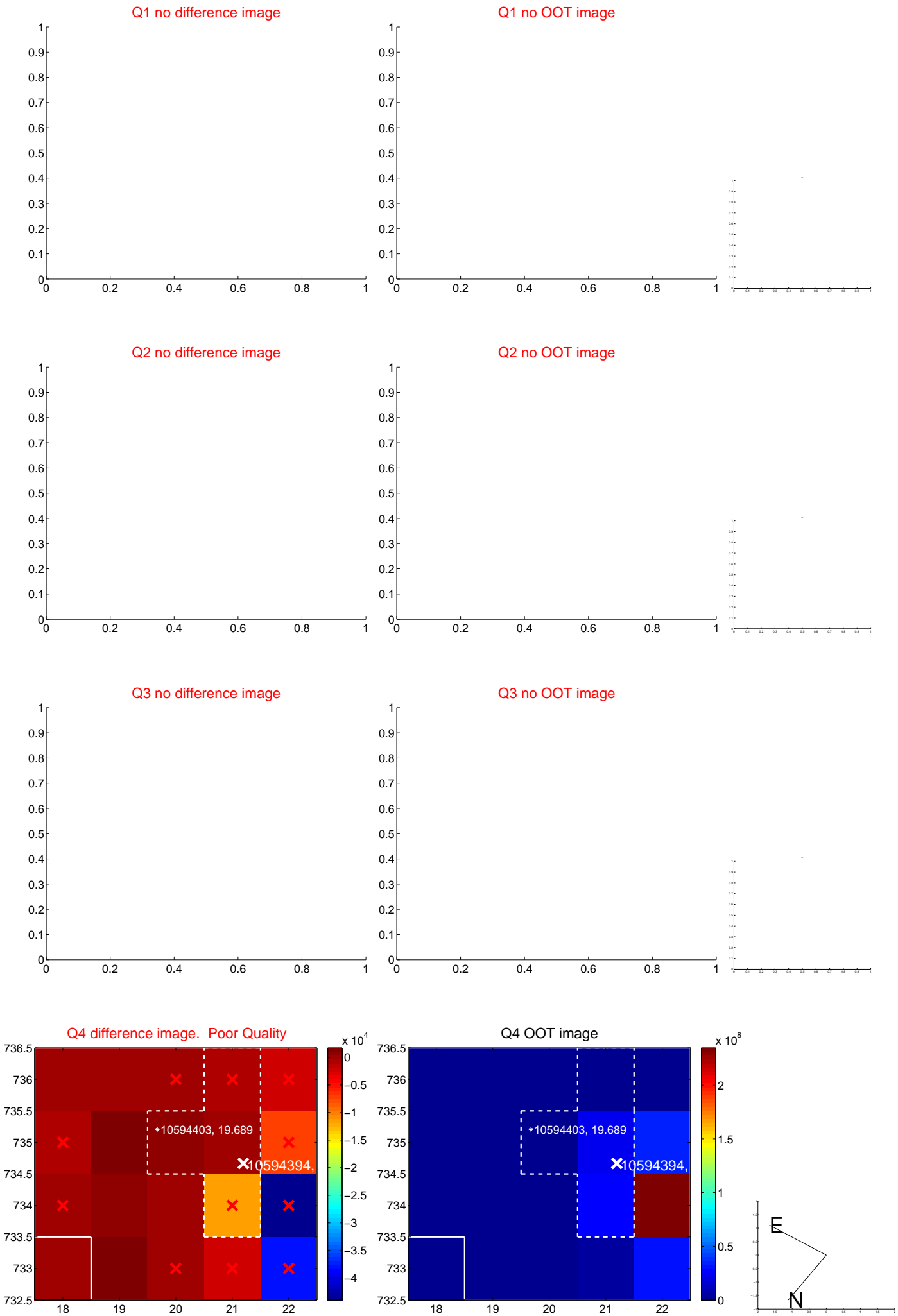
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	3.210 ± 0.394	8.15	-3.077 ± 0.354	-0.915 ± 0.702
photometric centroid source offset	2.57 ± 0.29	8.76	-2.38 ± 0.30	0.97 ± 0.23

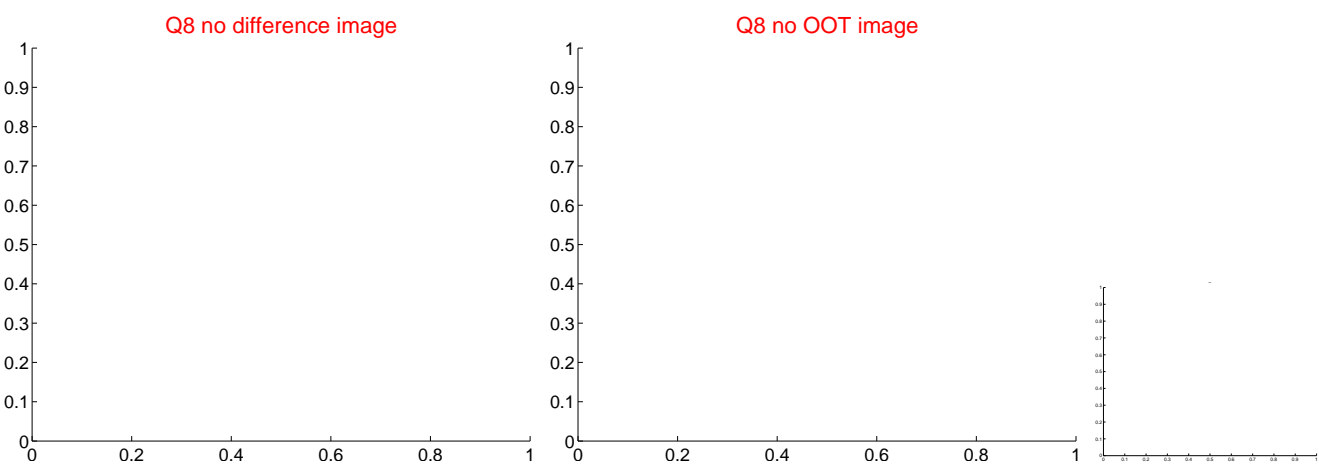
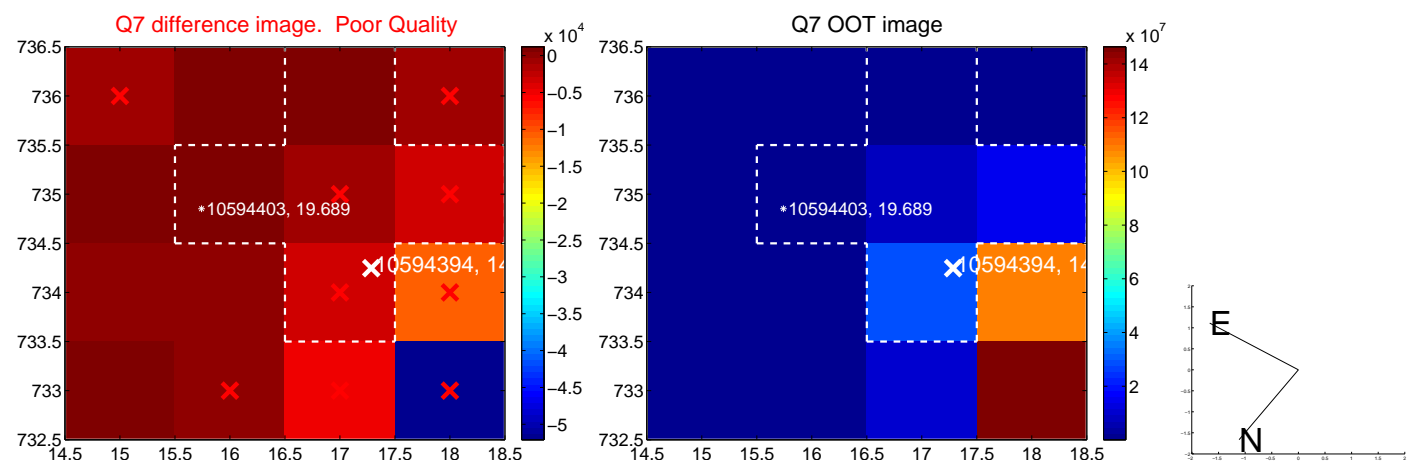
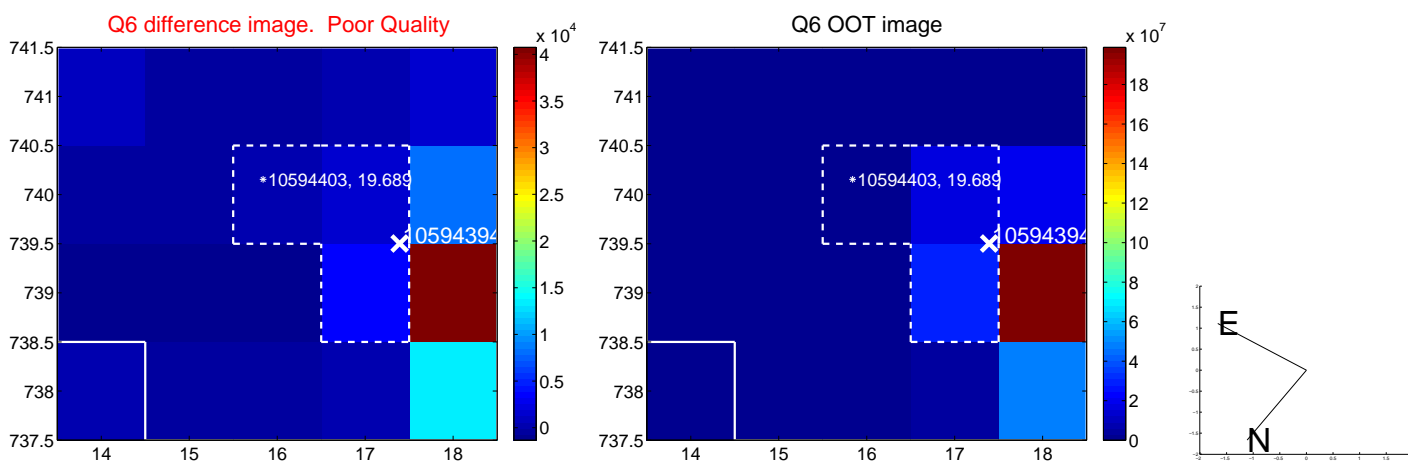
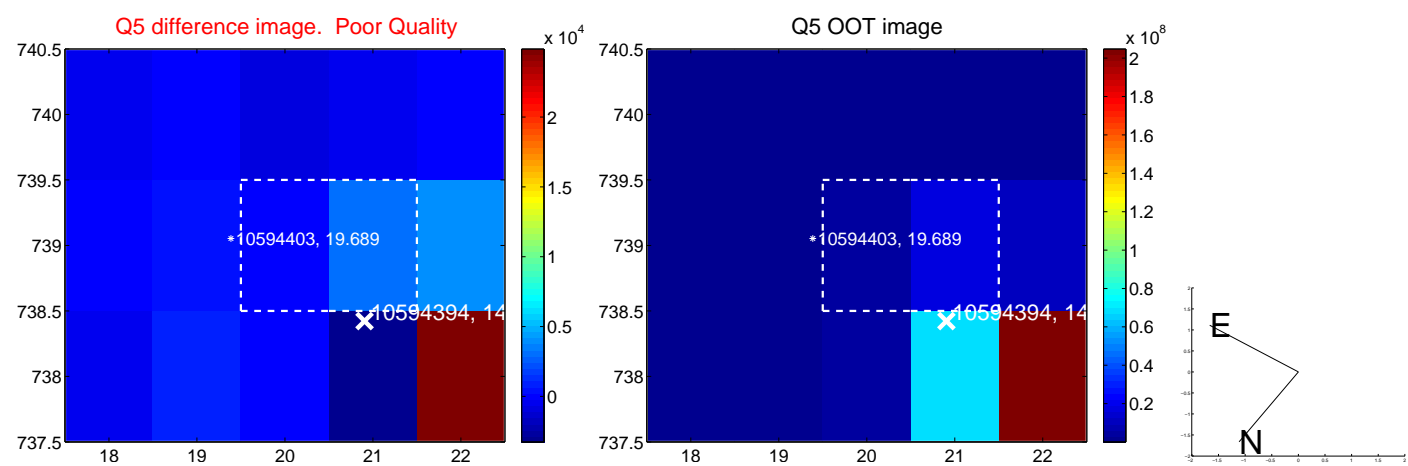


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

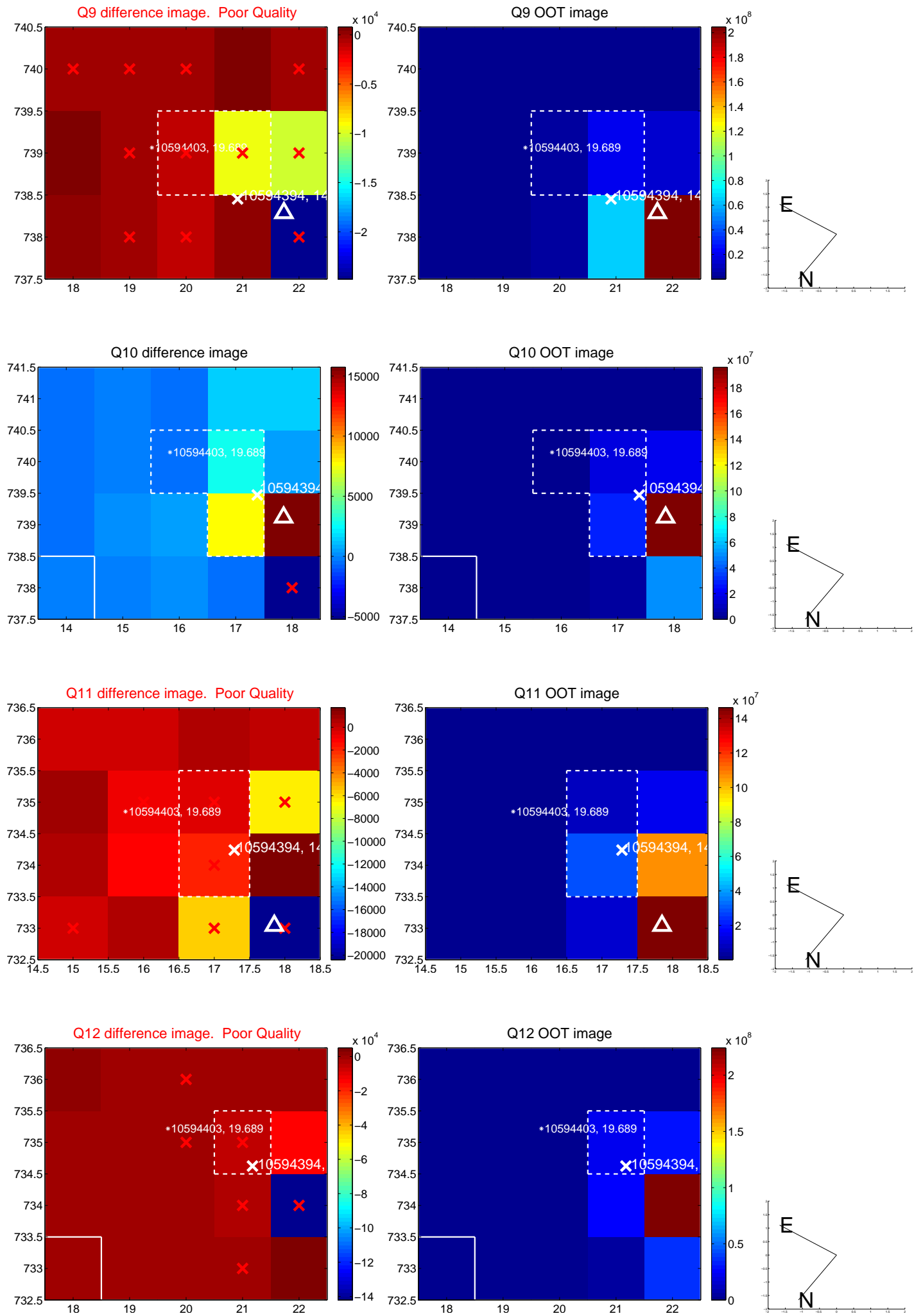
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



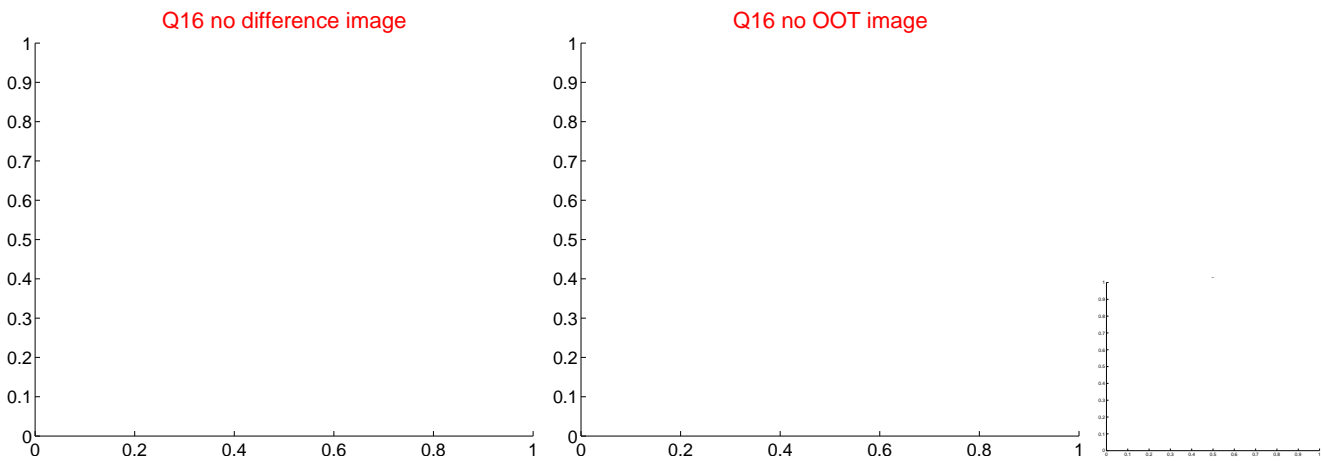
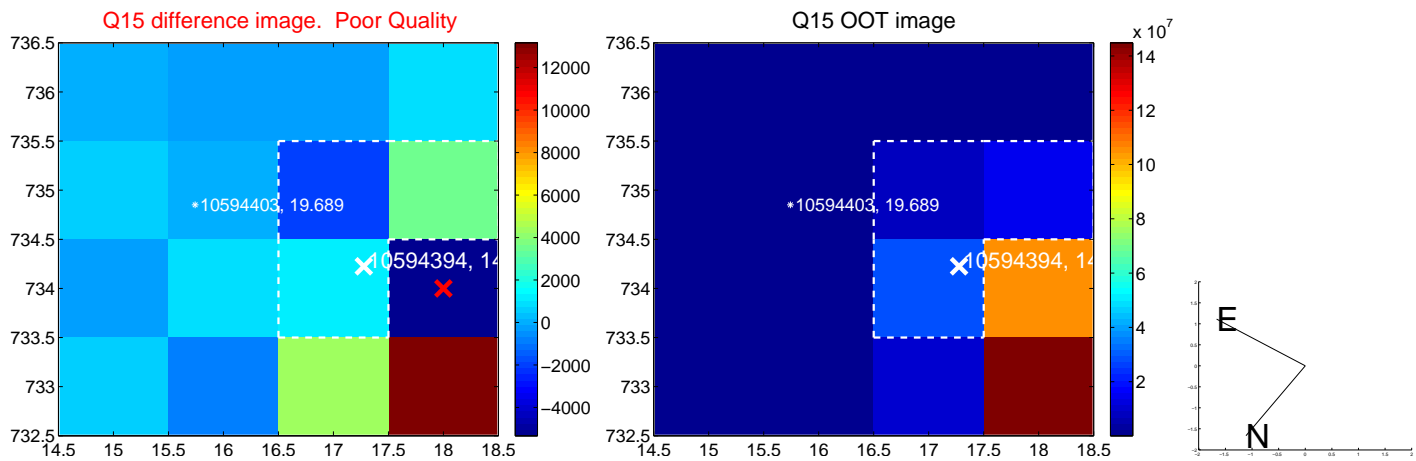
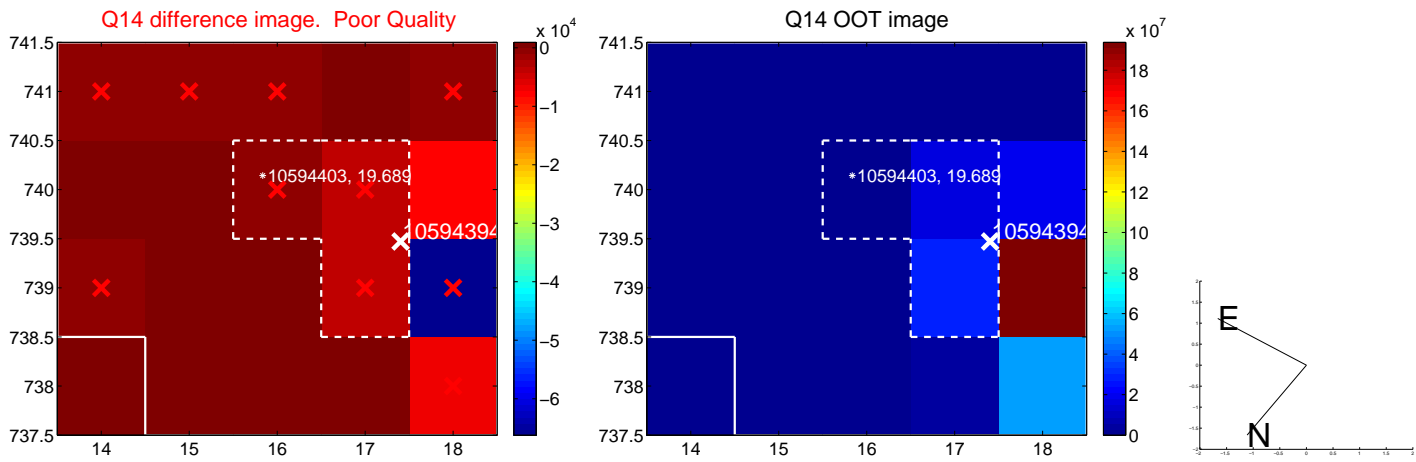
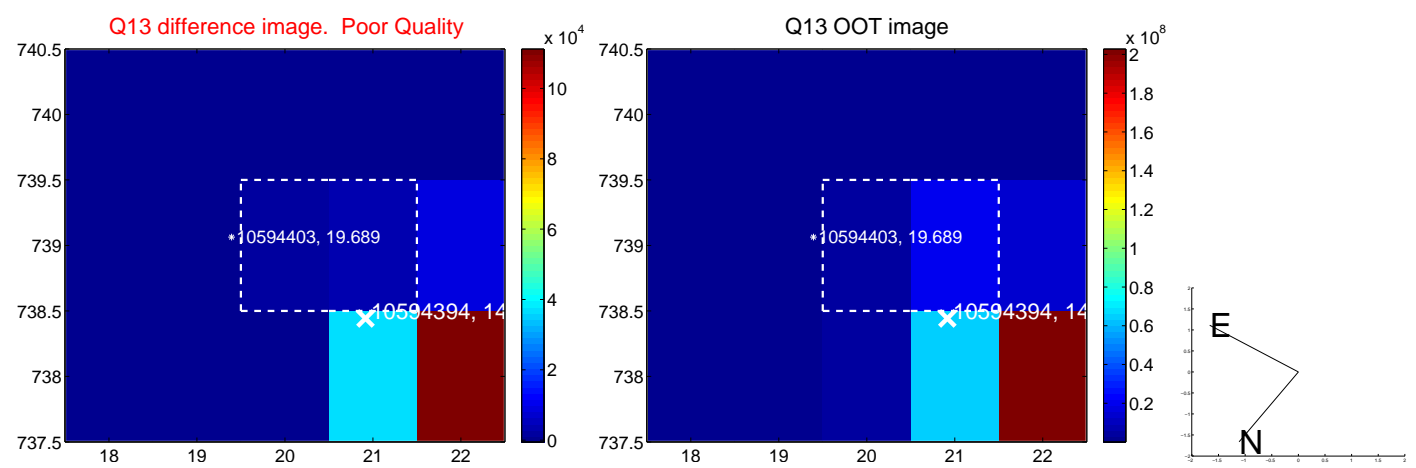
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



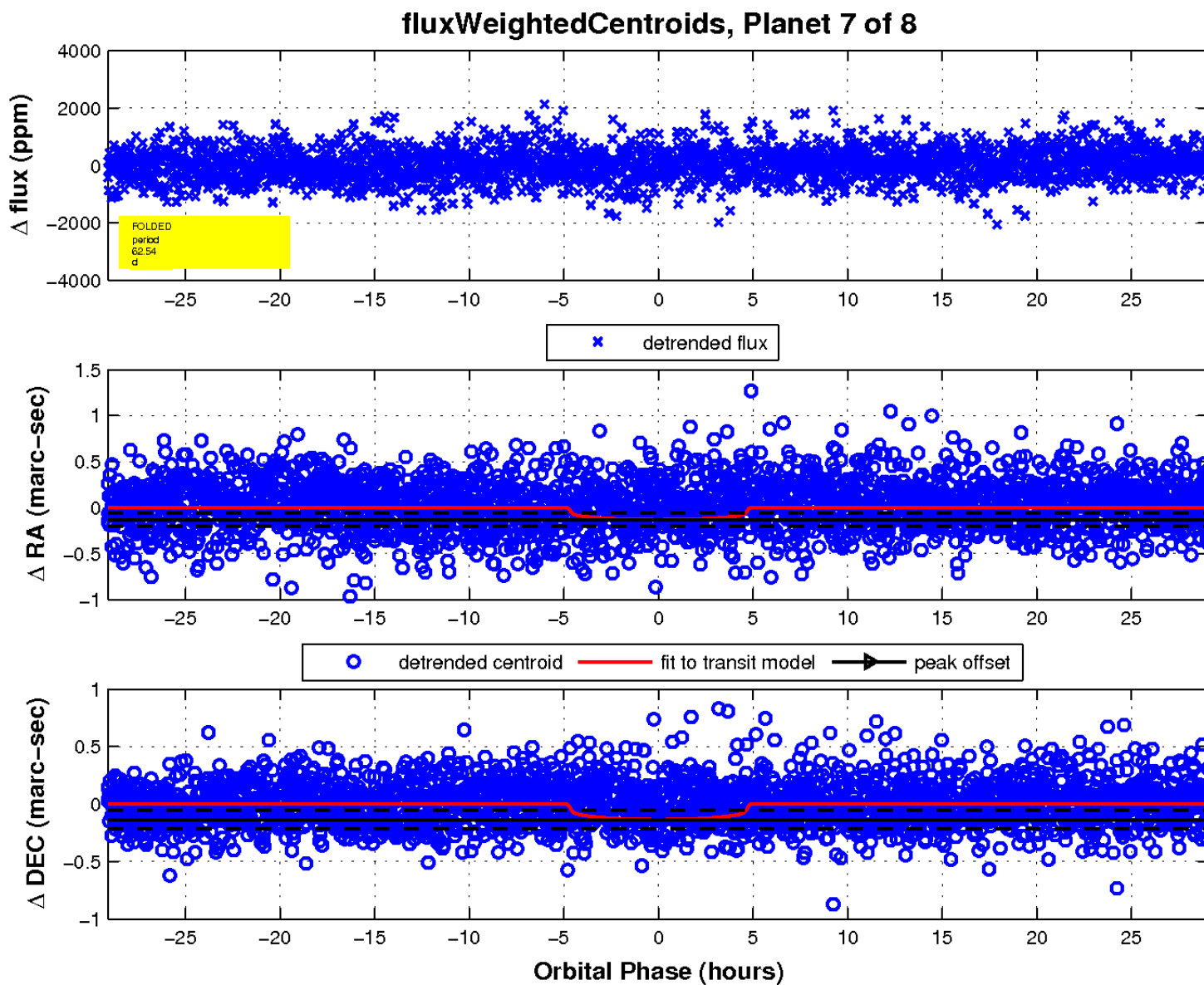
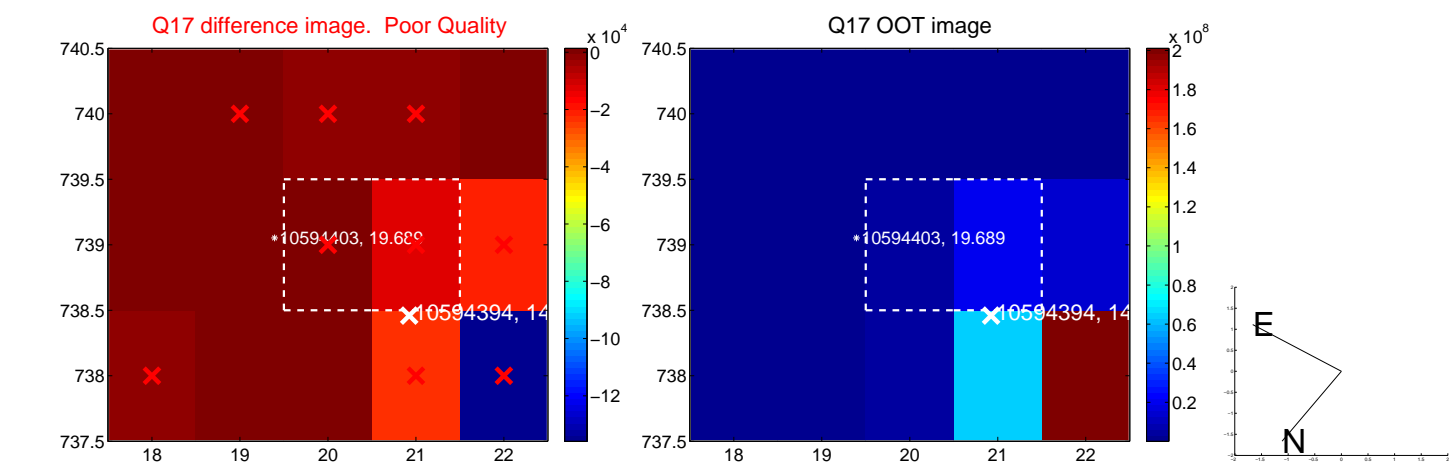
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

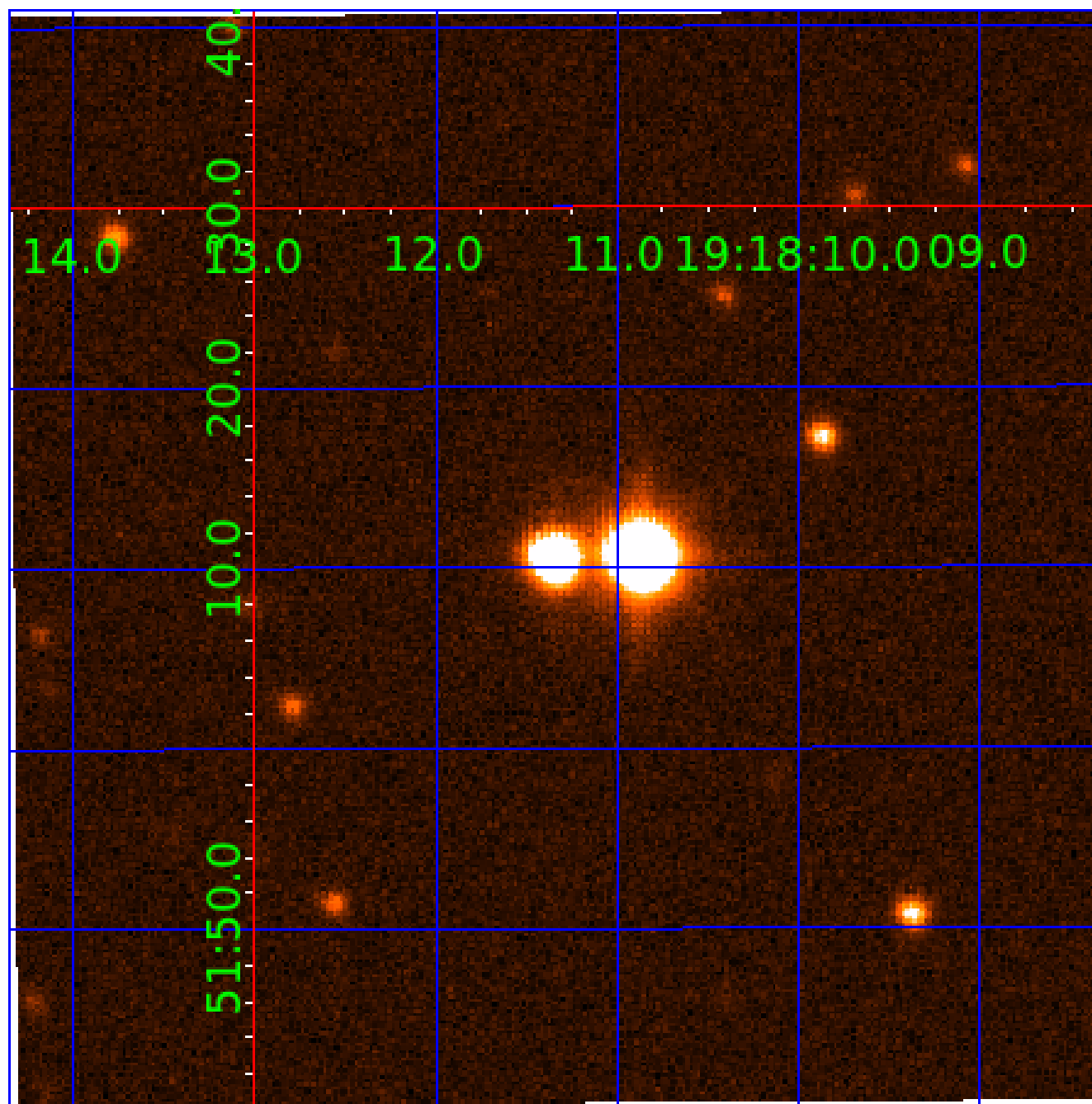


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010594394

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})
010594394-01	OBS	No	2.348315	133.571394	95.3	13.937	10.6	10.0	0.83	5057	0.79	396.12
010594394-02	OBS	No	112.210357	229.733248	923.6	3.106	9.7	10.6	0.83	5057	2.88	2.29
010594394-04	OBS	No	78.344708	142.510836	932.2	3.174	9.7	8.1	0.83	5057	2.79	3.69
010594394-05	OBS	No	99.661265	153.438402	561.3	11.704	7.9	7.7	0.83	5057	2.00	2.68
010594394-06	OBS	No	108.521345	164.324814	529.5	9.633	8.7	6.2	0.83	5057	2.01	2.39
010594394-07	OBS	No	62.535836	139.965446	200.4	9.706	7.6	2.9	0.83	5057	1.28	4.98
010594394-08	OBS	No	54.959553	140.988069	581.5	2.869	7.3	8.0	0.83	5057	2.24	5.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010594394-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_FEW_MEAS—HALO_GHOST
010594394-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
010594394-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

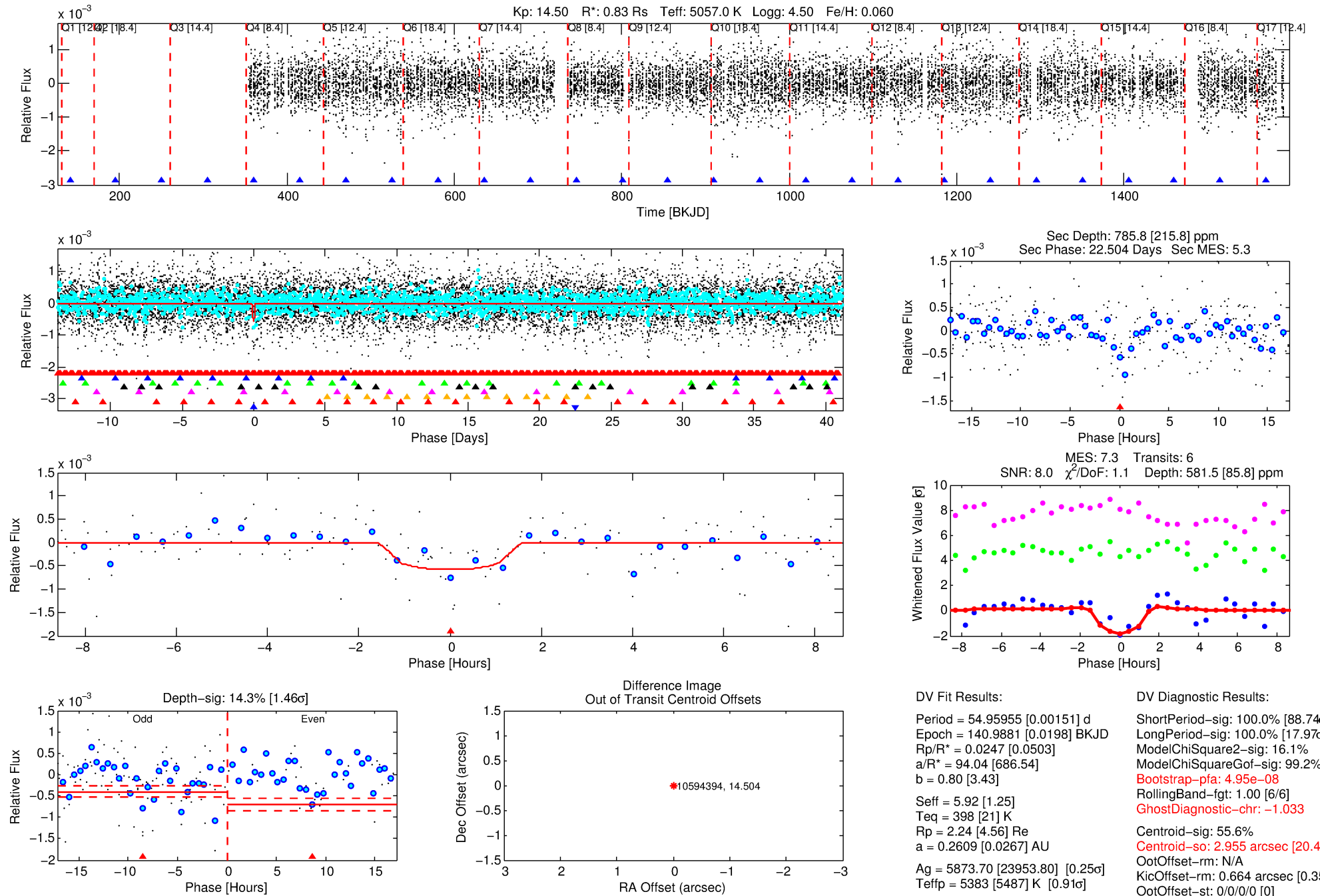
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010594394-08

No Significant Match Found

DV One-Page Summary

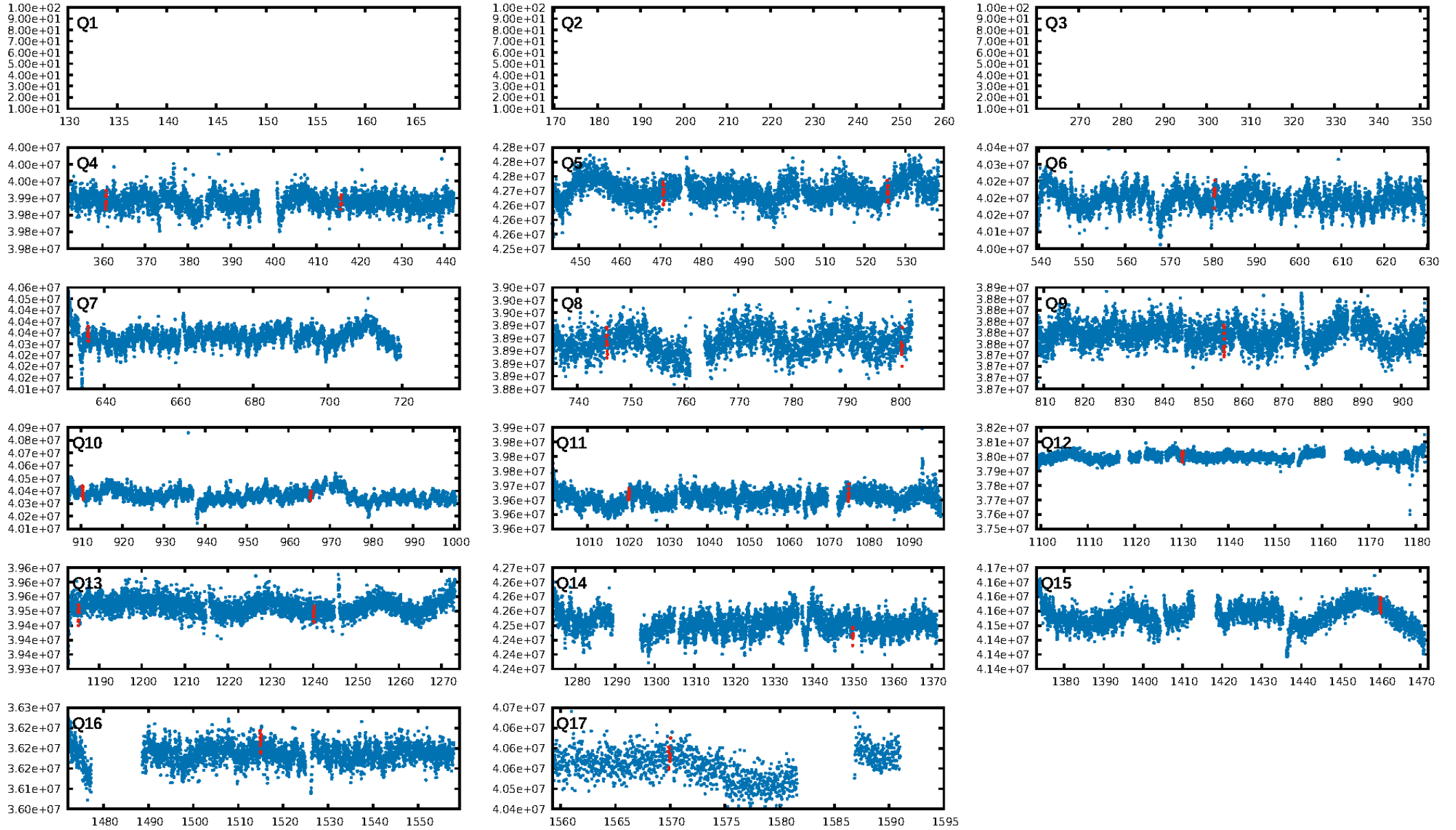
KIC: 10594394 Candidate: 8 of 8 Period: 54.960 d



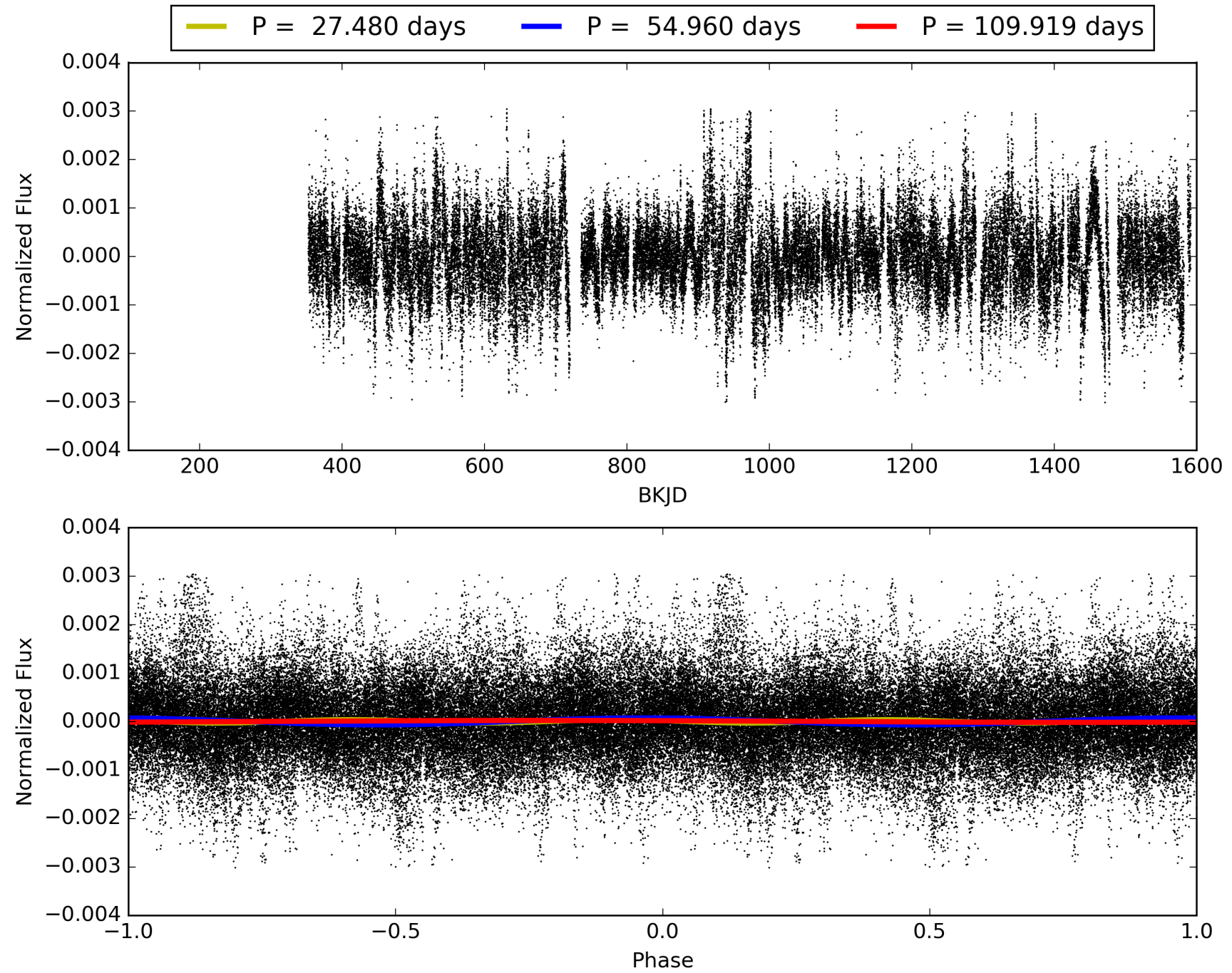
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:36:52 Z

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

TCE 010594394-08, PDC Light Curves

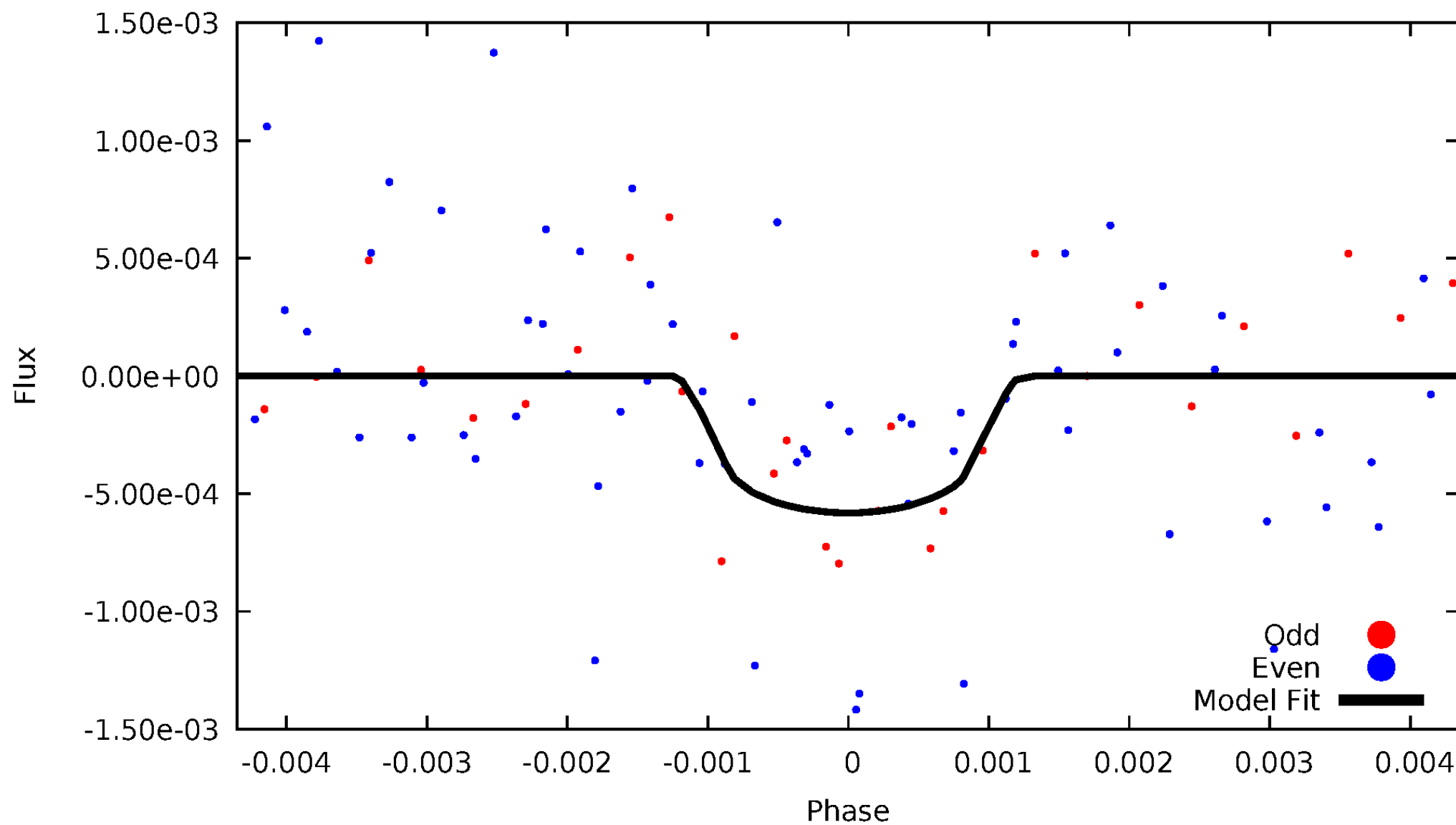


TCE 010594394-08



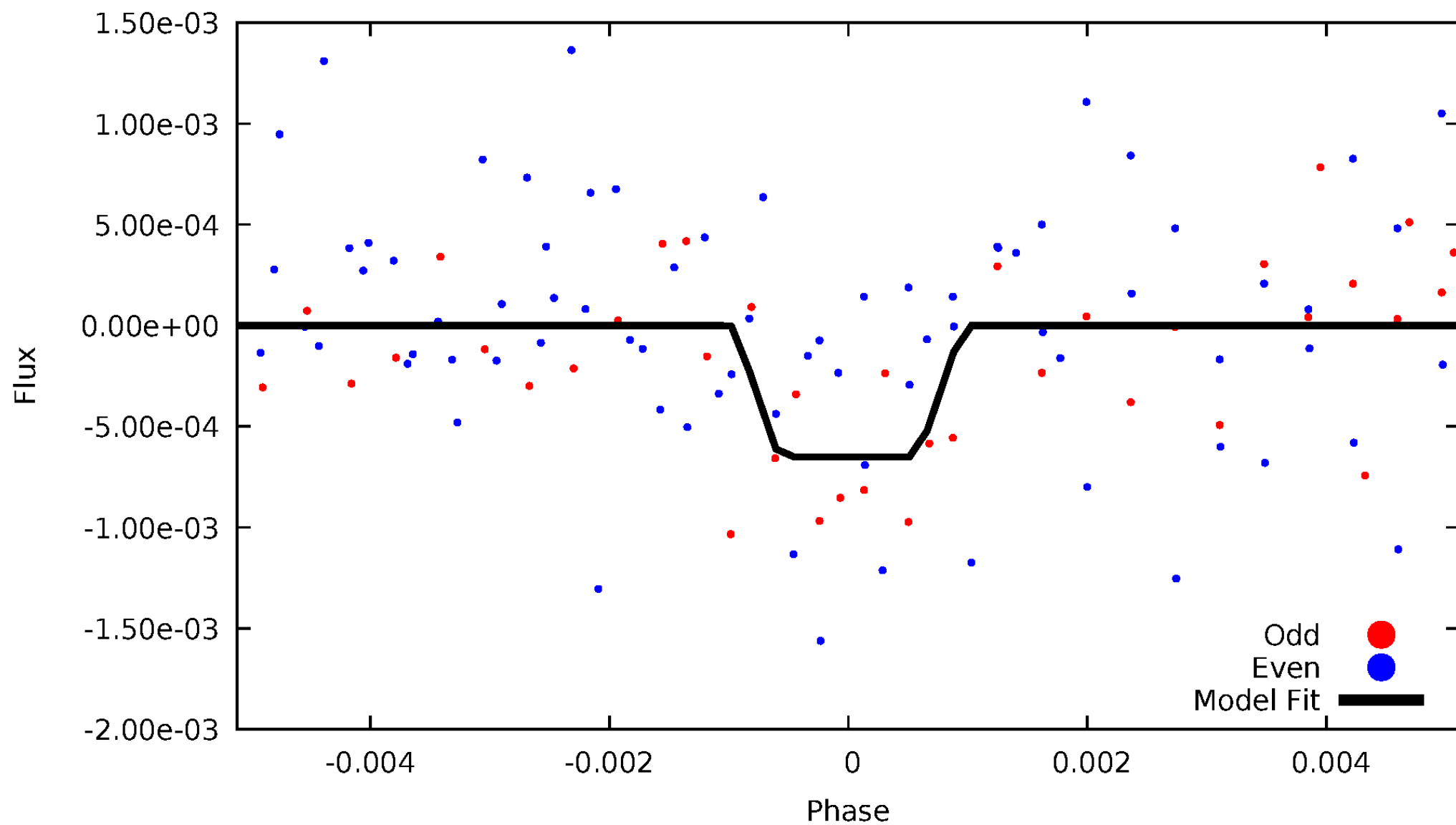
DV Odd/Even

TCE 010594394-08



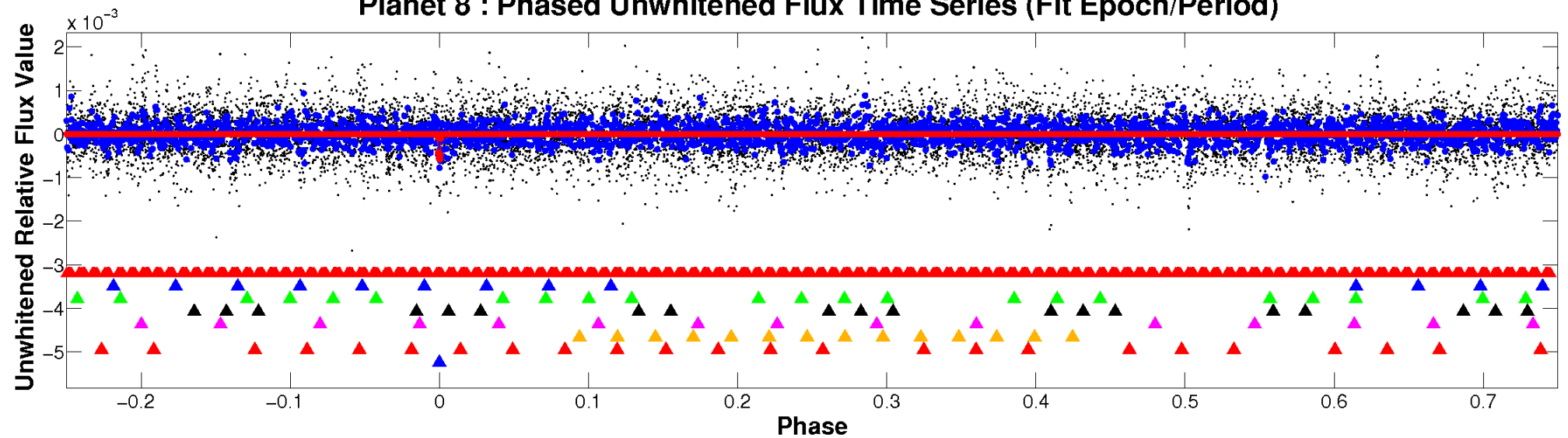
ALT Odd/Even

TCE 010594394-08

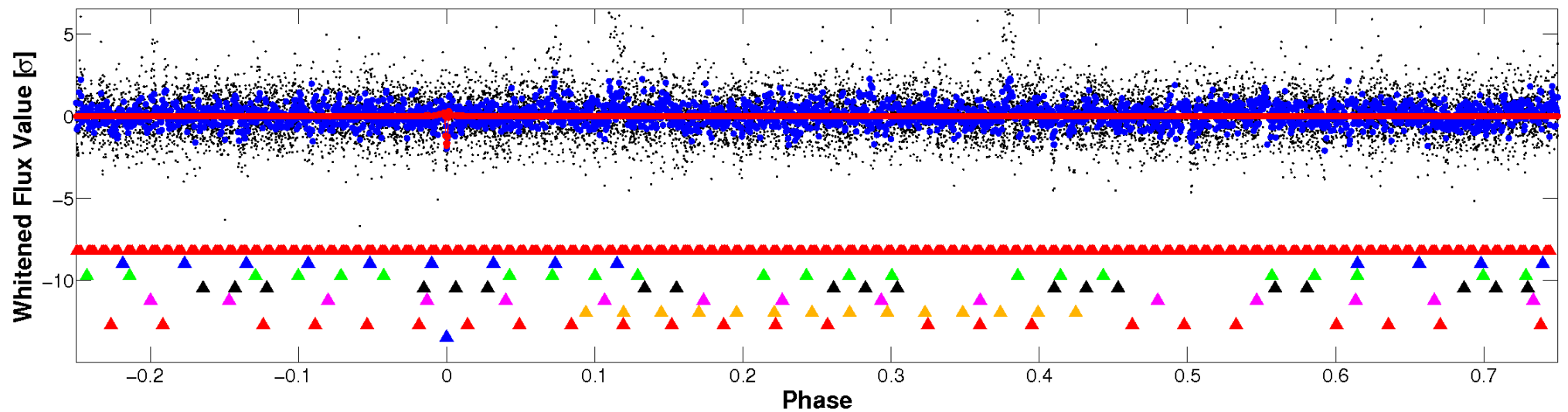


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

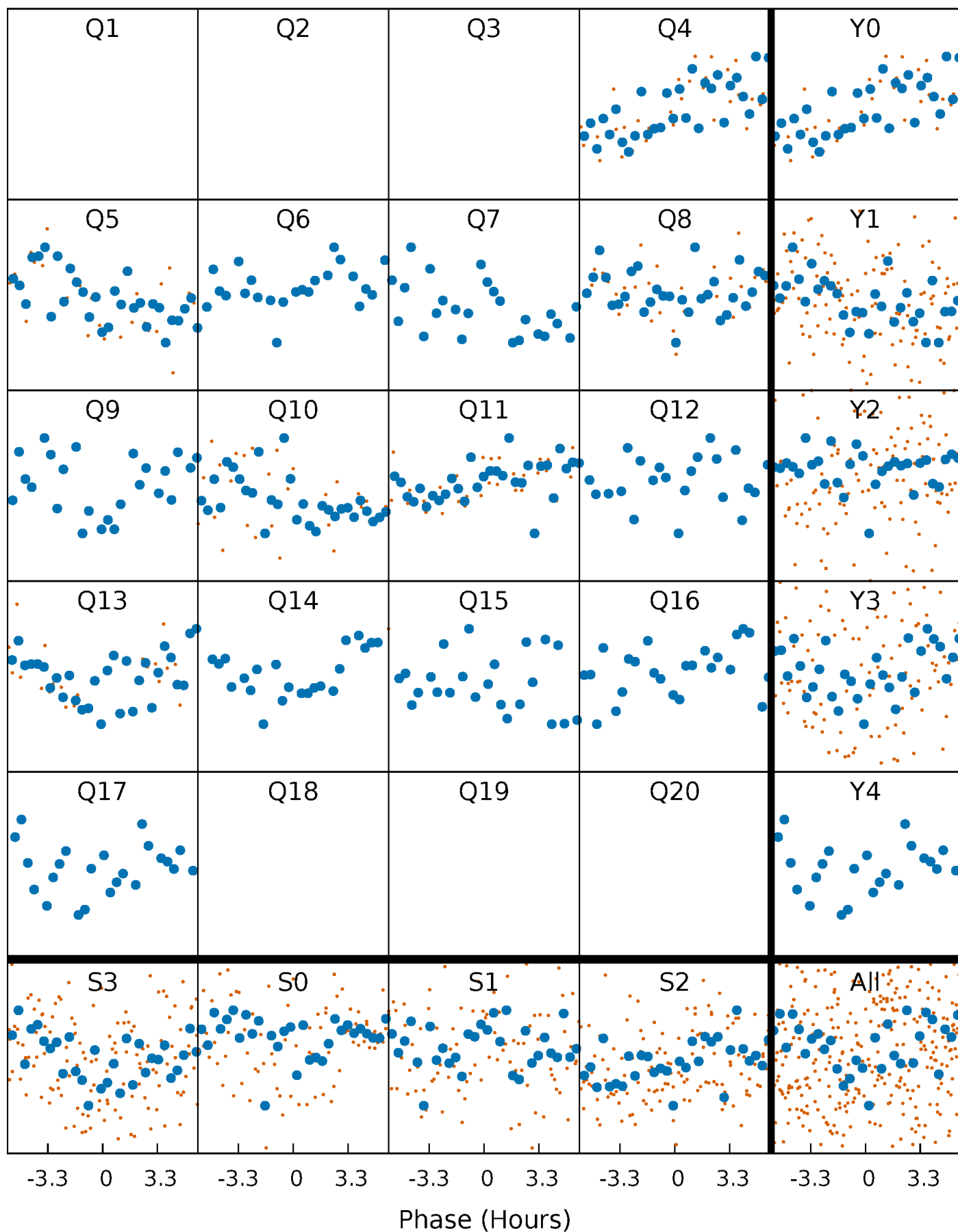


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



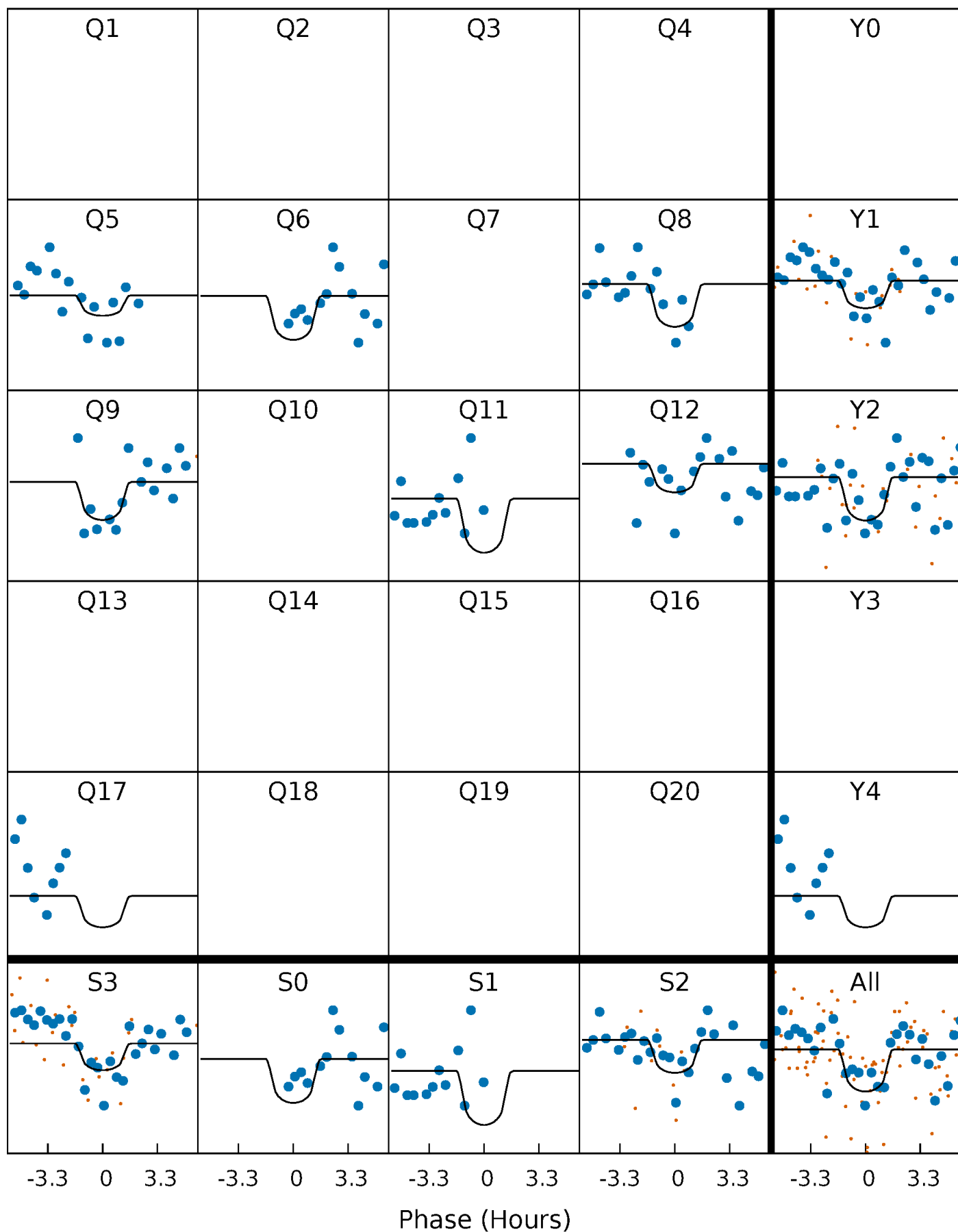
PDC Quarter-Phased Transit Curves

TCE 010594394-08 $P = 54.959553$ Days $T_0 = 140.988069$ (BKJD)



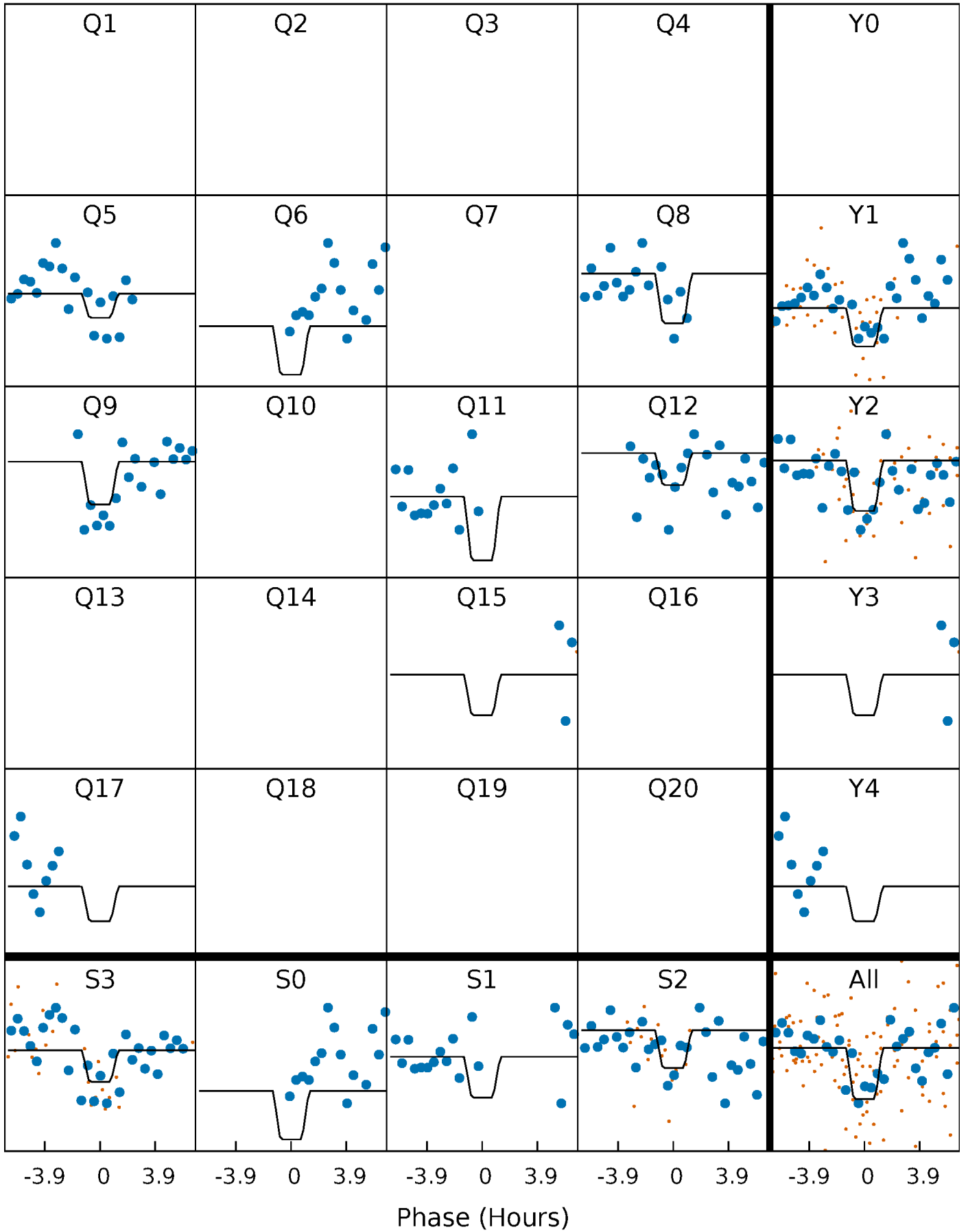
DV Quarter-Phased Transit Curves

TCE 010594394-08 $P = 54.959553$ Days $T_0 = 140.988069$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

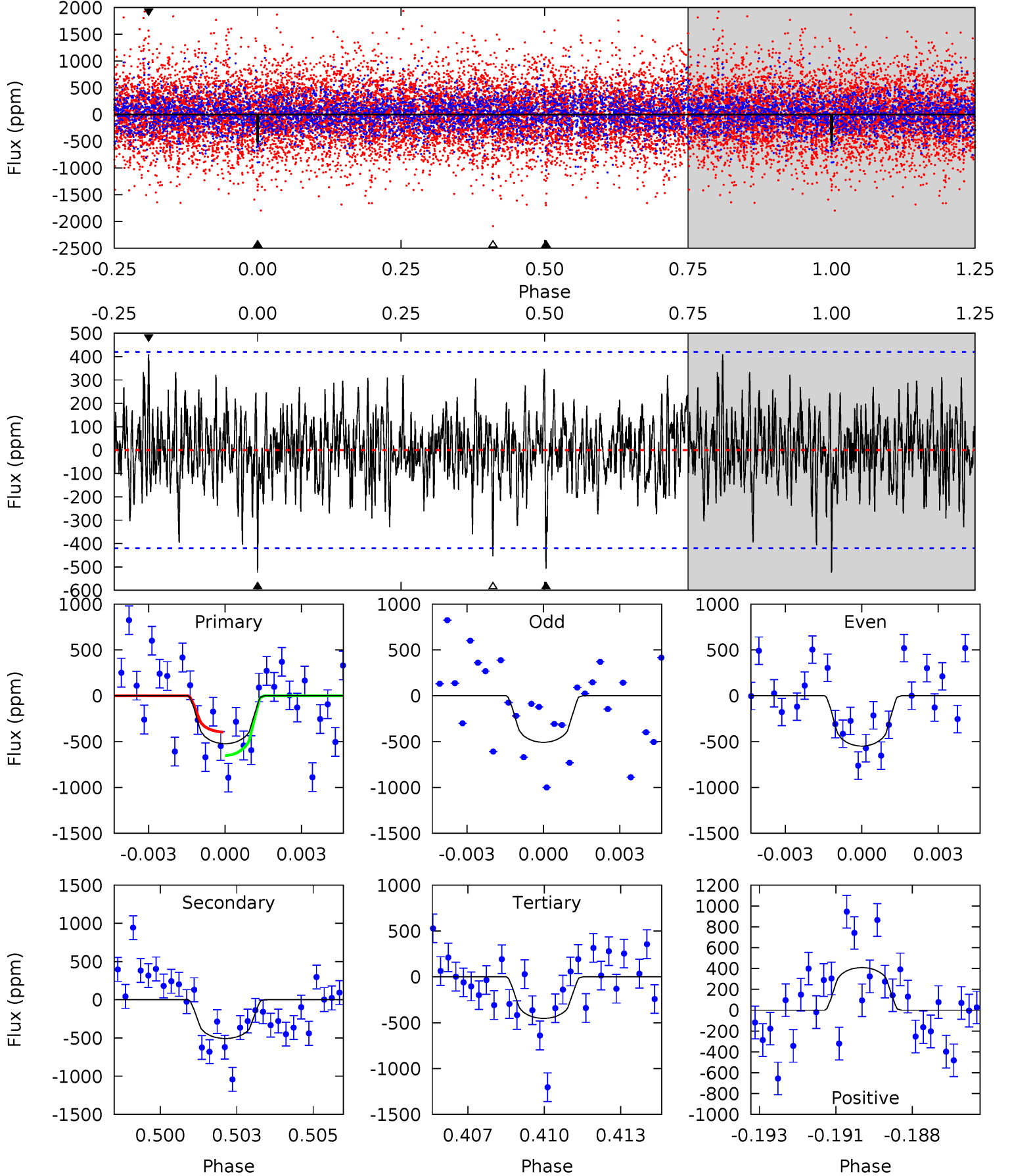
TCE 010594394-08 P= 54.961826 Days $T_0=140.963014$ (BKJD)



DV Model-Shift Uniqueness Test

010594394-08, P = 54.959553 Days, E = 140.988069 Days

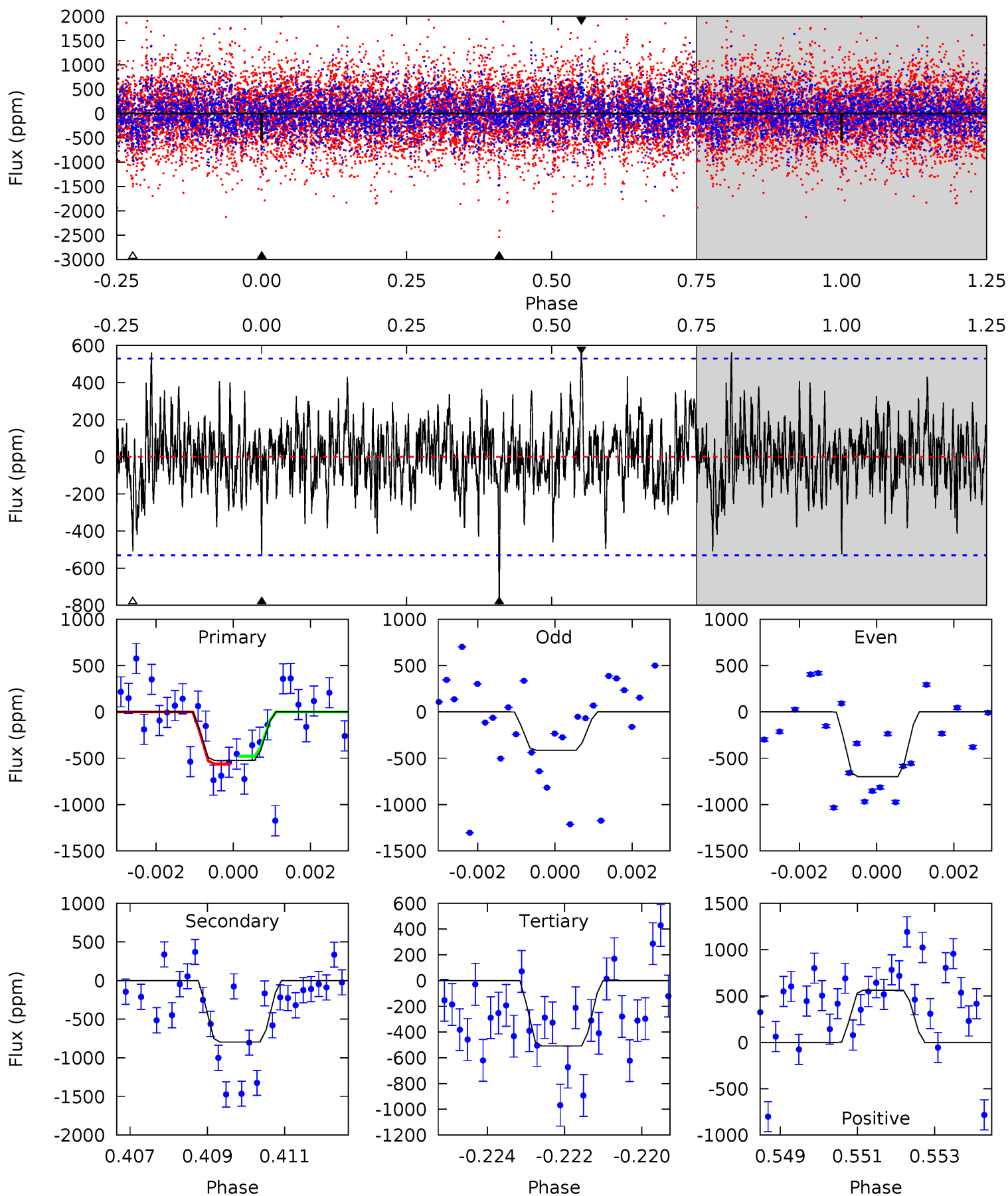
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.58	6.37	5.70	5.14	5.28	3.01	1.46	0.88	1.44	0.68	1.23	0.25	0.94	0.44	1.61



Alt Model-Shift Uniqueness Test

010594394-08, P = 54.961826 Days, E = 140.963014 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.27	8.02	5.12	5.68	5.34	3.11	1.45	0.15	-0.40	2.90	2.35	1.40	0.72	0.41	0.42



Stellar Parameters For KIC 010594394

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5057^{+178}_{-178}	$4.495^{+0.090}_{-0.090}$	$0.060^{+0.250}_{-0.300}$	$0.829^{+0.094}_{-0.094}$	$0.783^{+0.085}_{-0.062}$	$1.937^{+0.819}_{-0.530}$
	+4%/-4%	+2%/-2%	+417%/-500%	+11%/-11%	+11%/-8%	+42%/-27%
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 010594394-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-507 ± 80	$4.14^{+3.55}_{-2.73}$	556^{+28}_{-27}	3859^{+2084}_{-696}	1086^{+8516}_{-776}
Alt.	-796 ± 99	$3.93^{+3.56}_{-2.76}$	556^{+27}_{-25}	4276^{+3111}_{-840}	1945^{+20014}_{-1420}

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 $A_{obs} \gg 1.0$

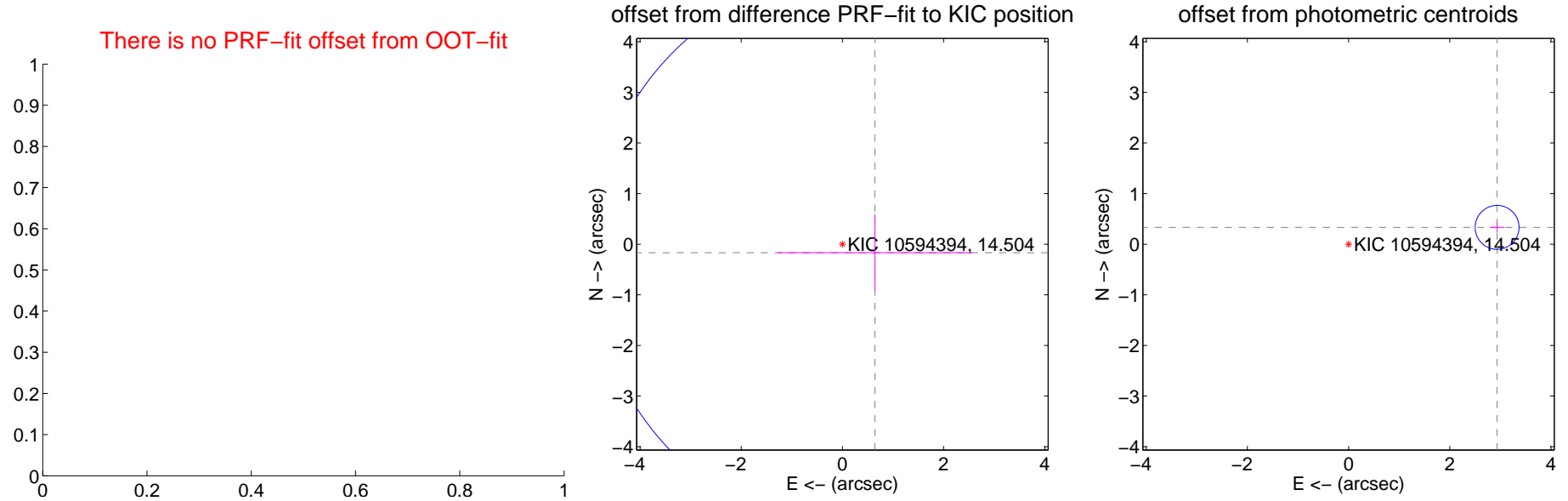
DV Centroid Data

Supplemental centroid analysis for 010594394-08. Kepler magnitude: 14.50. Transit SNR 8.05

There are 2 quarters with good PRF difference image offsets

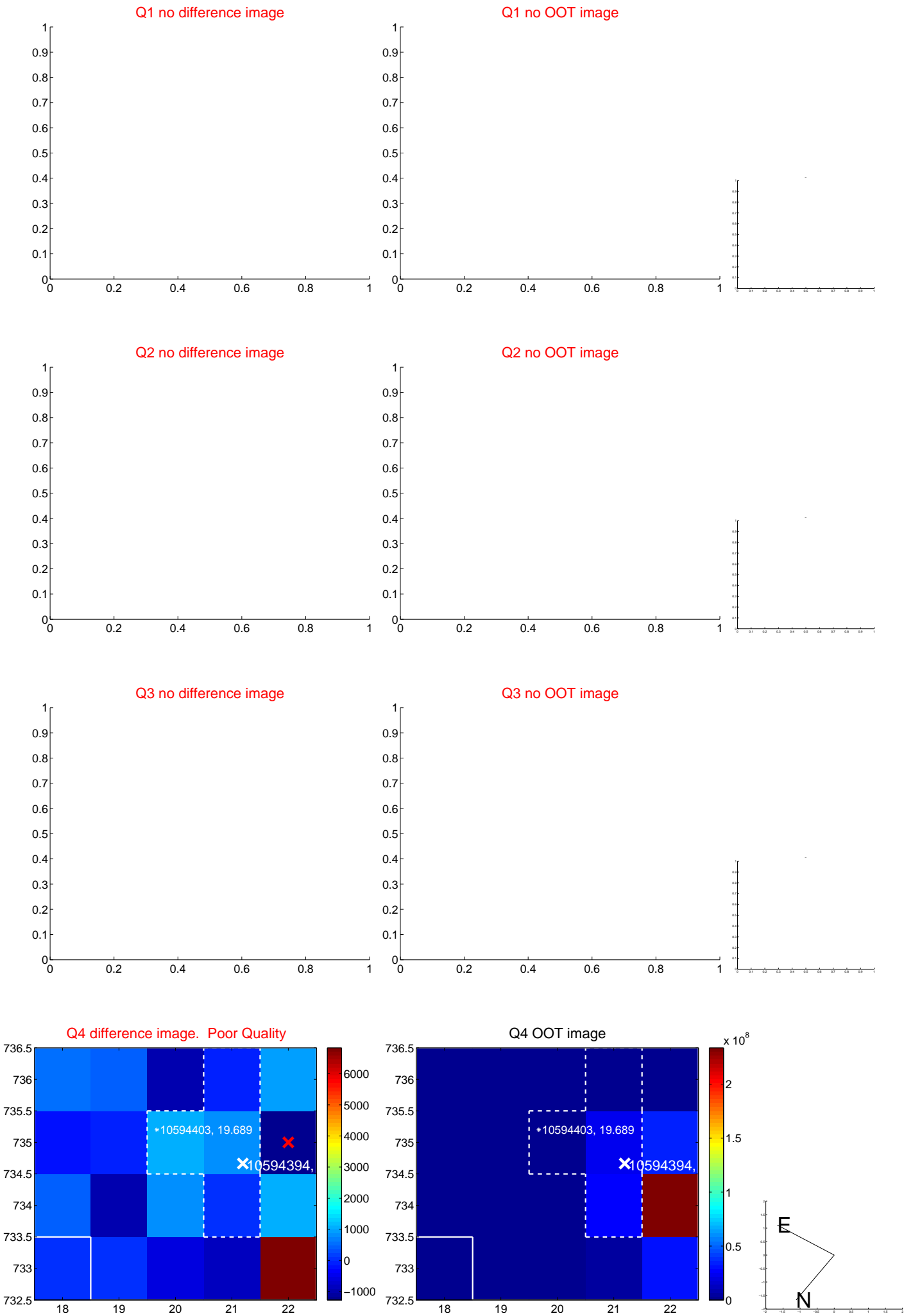
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	0.664 ± 1.874	0.35	-0.642 ± 1.928	-0.169 ± 0.761
photometric centroid source offset	2.96 ± 0.14	20.43	-2.94 ± 0.15	0.33 ± 0.10

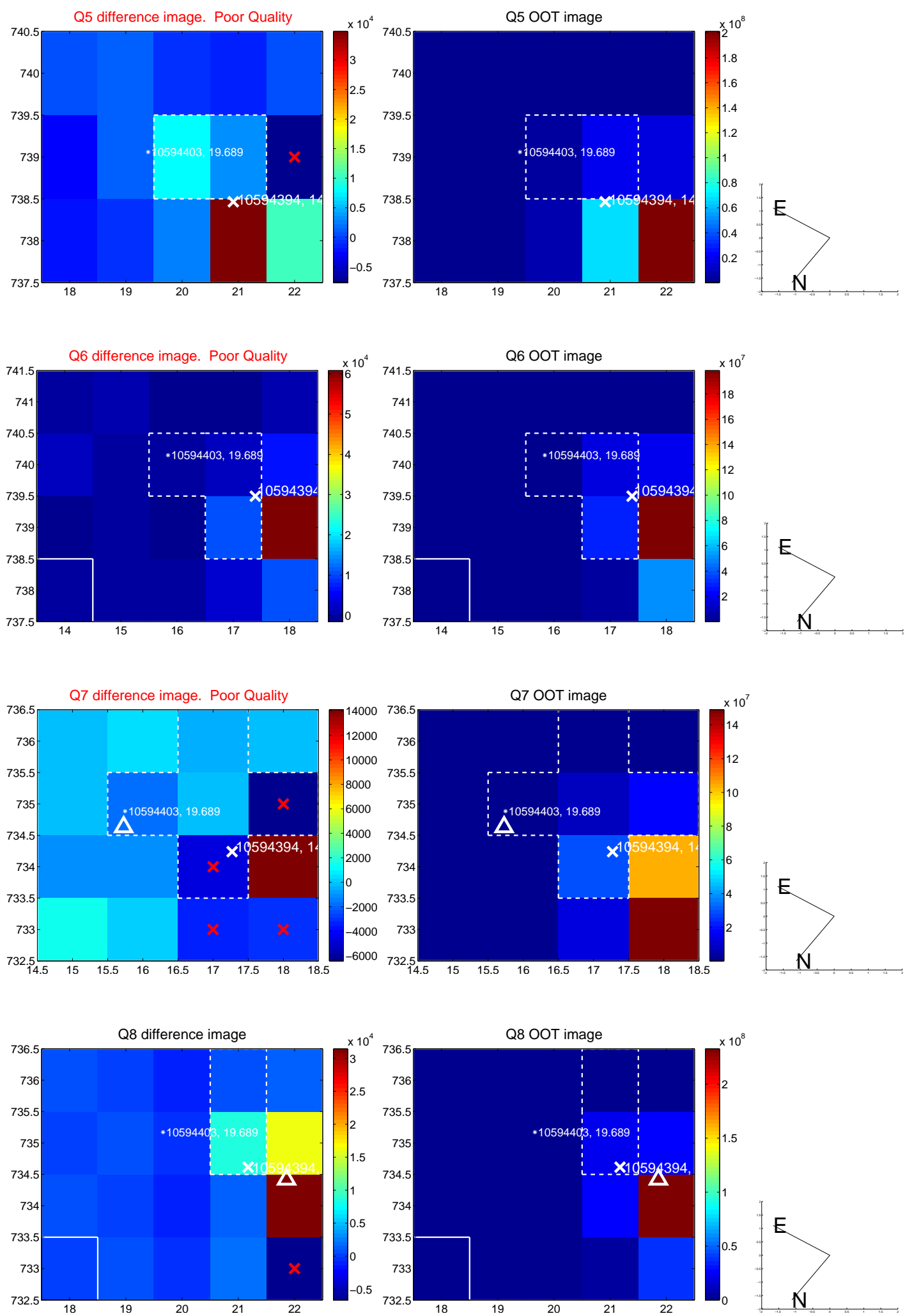


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

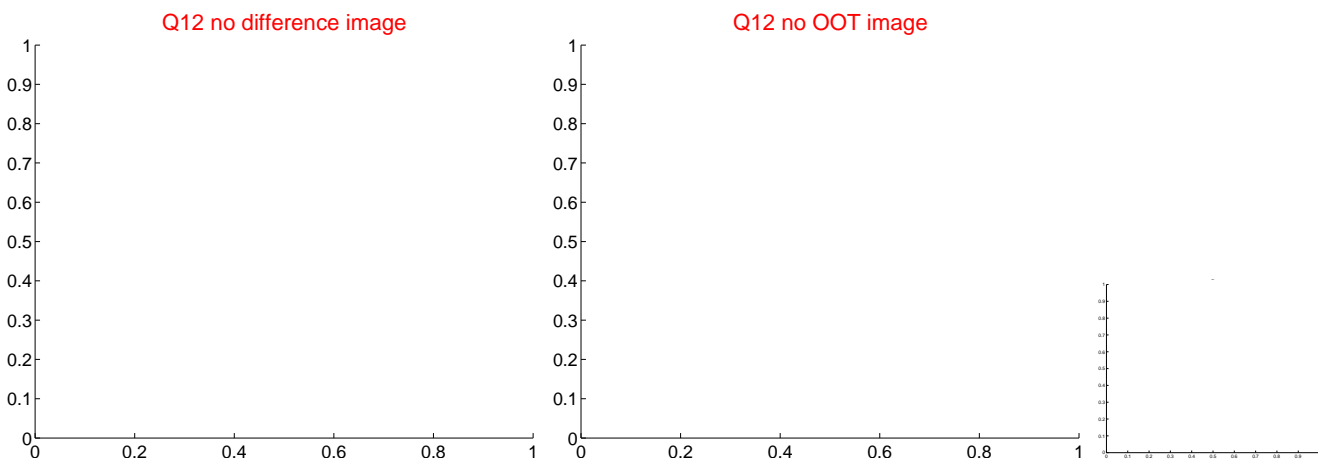
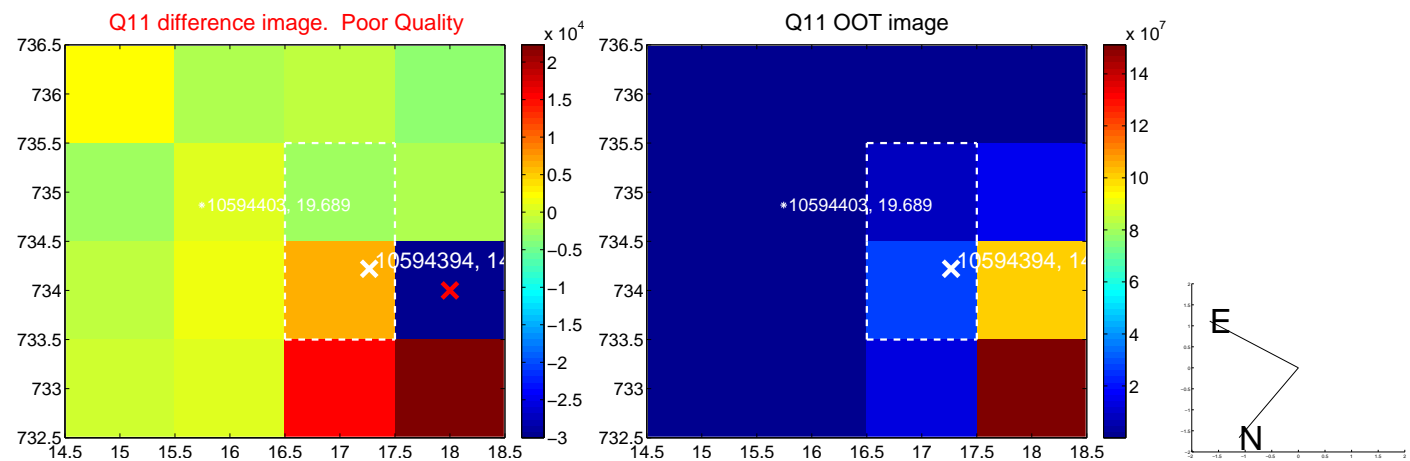
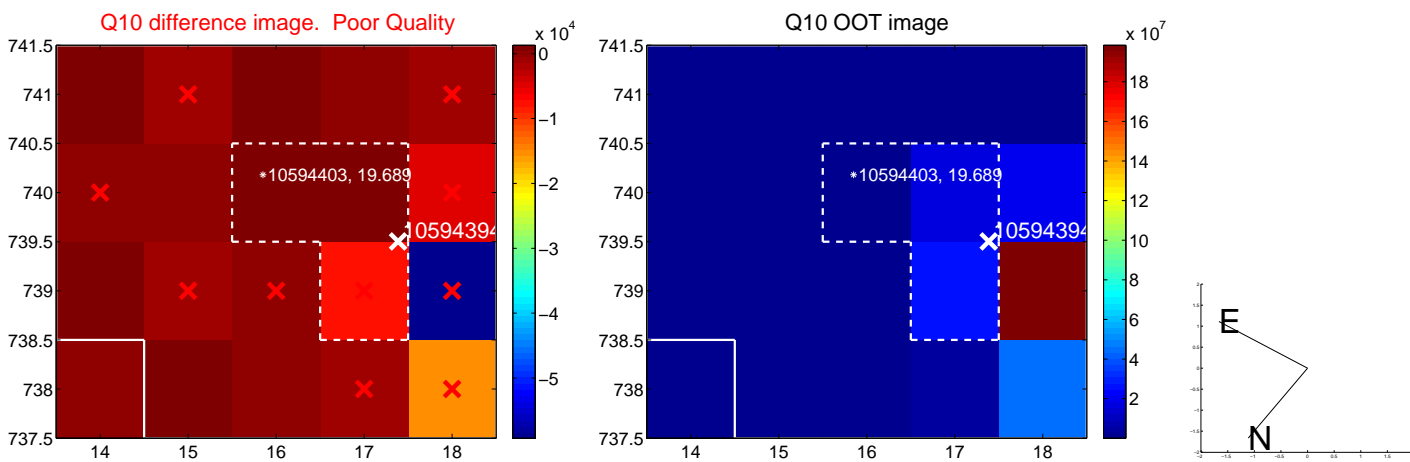
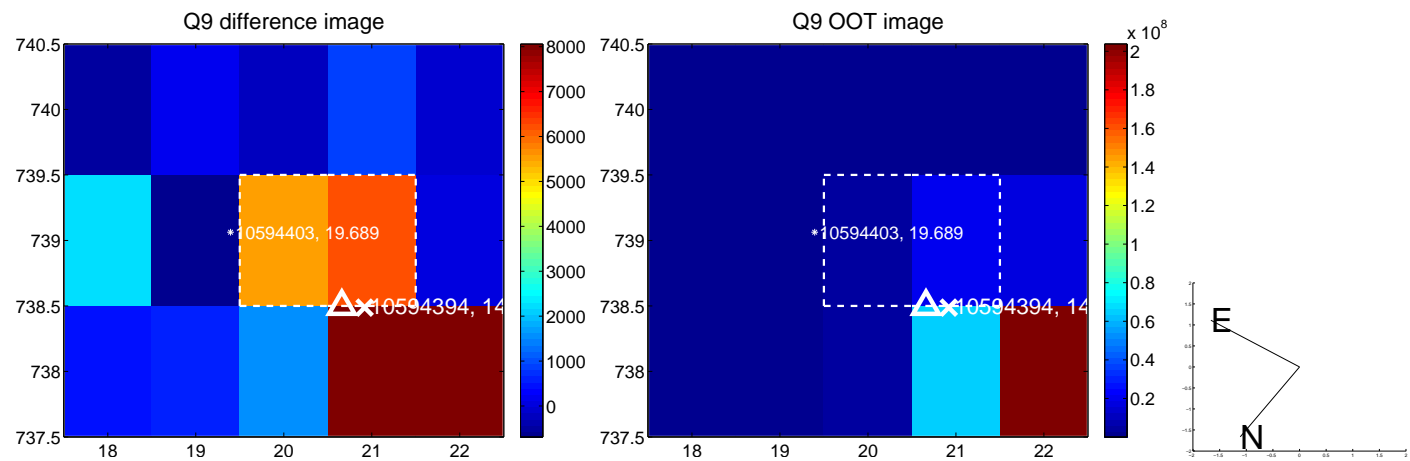
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



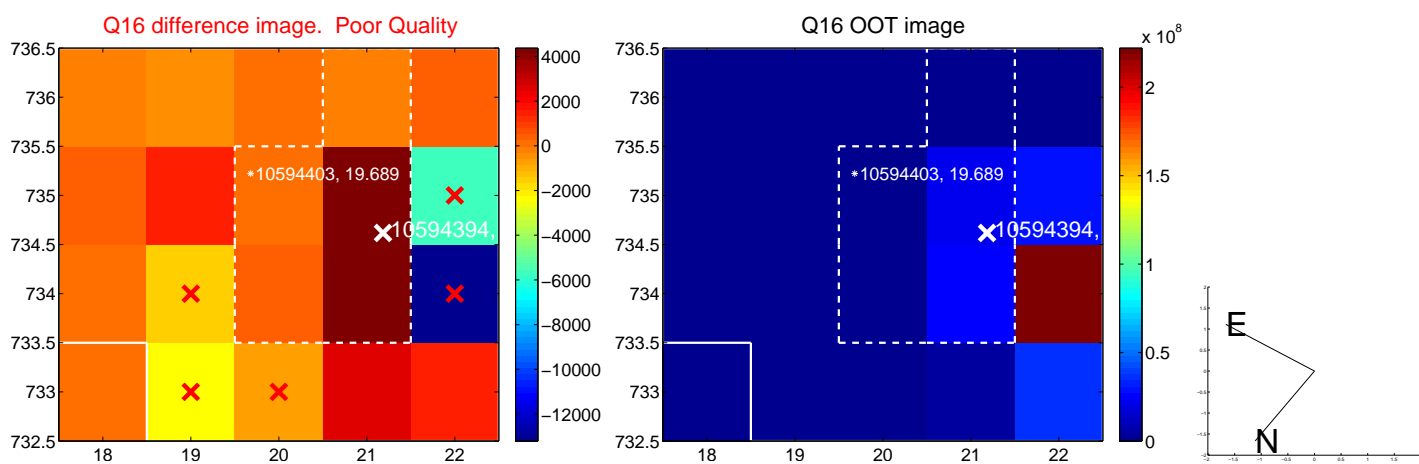
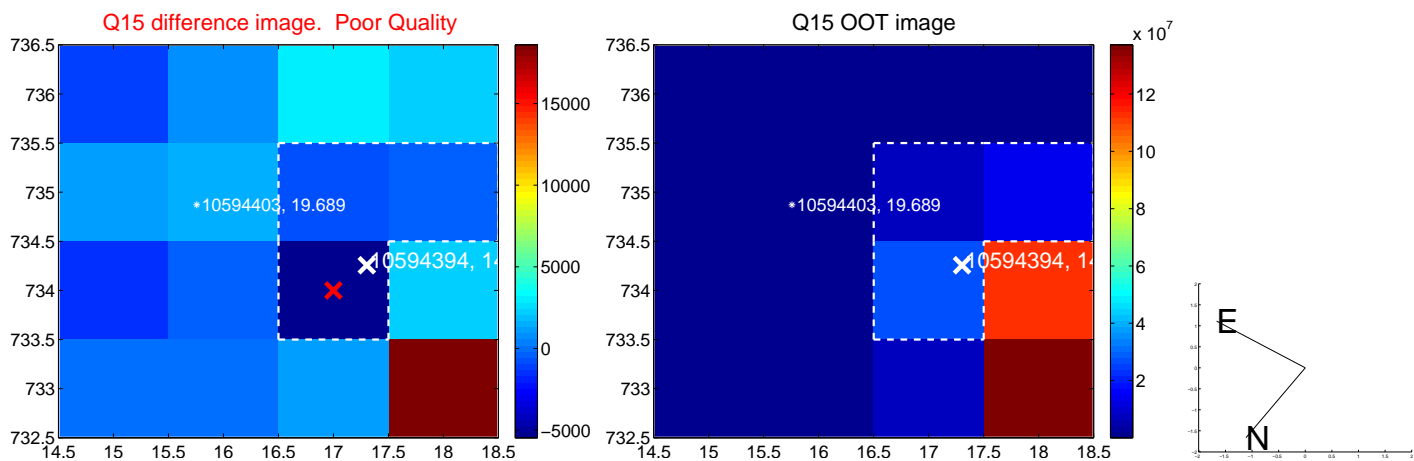
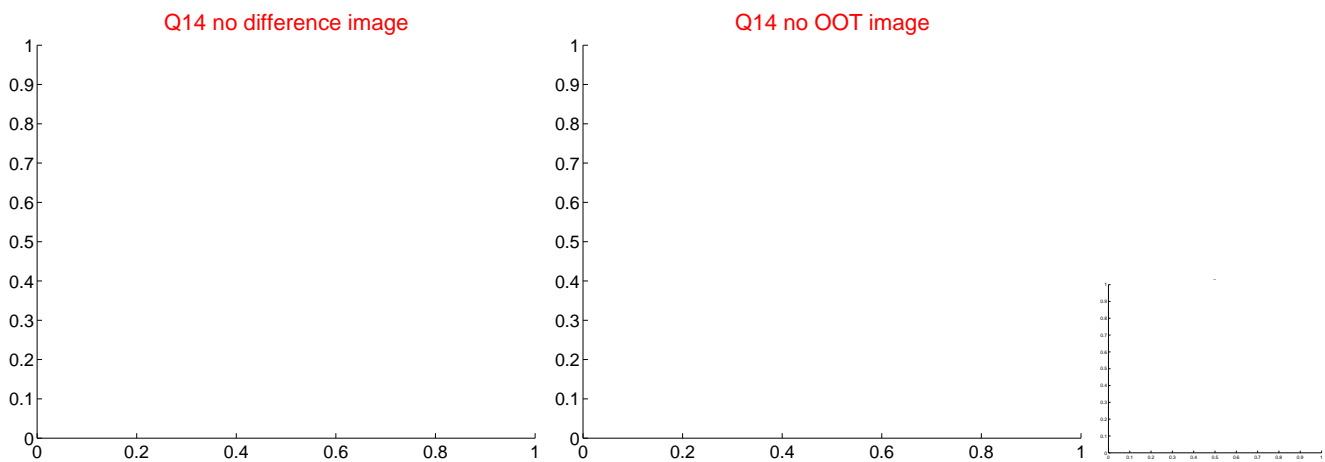
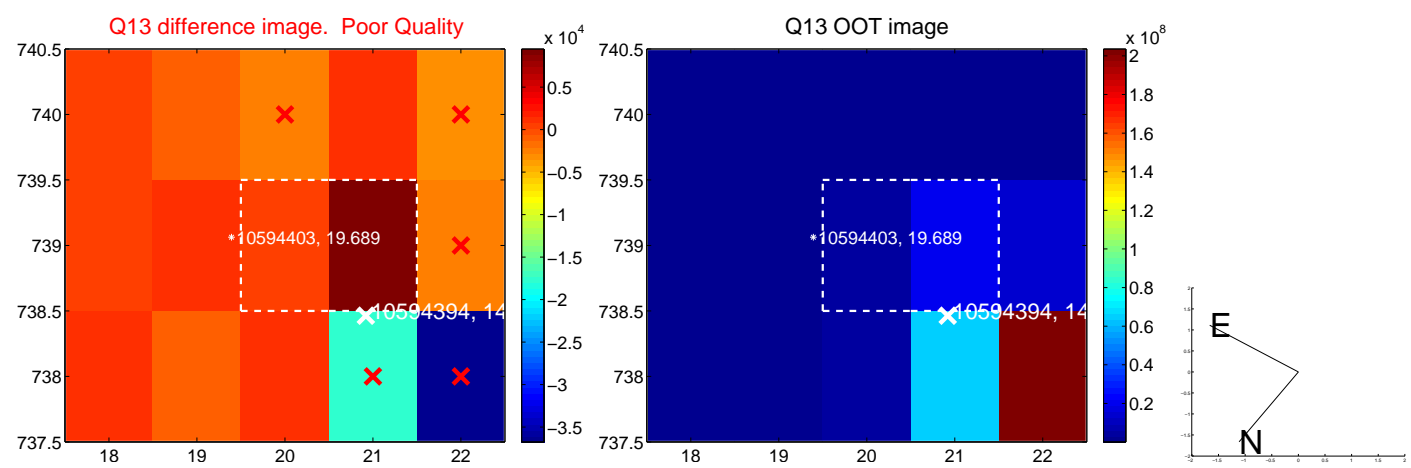
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



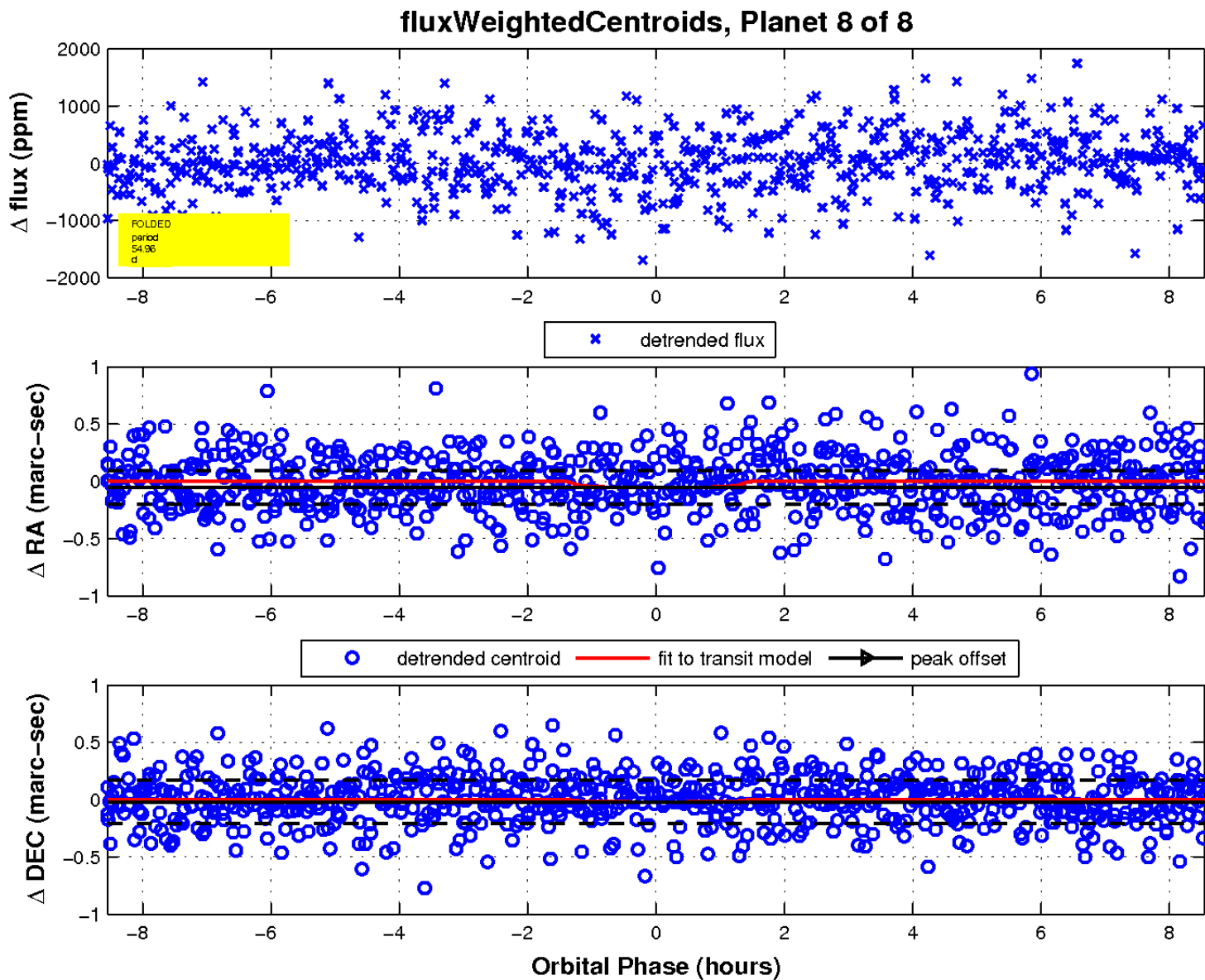
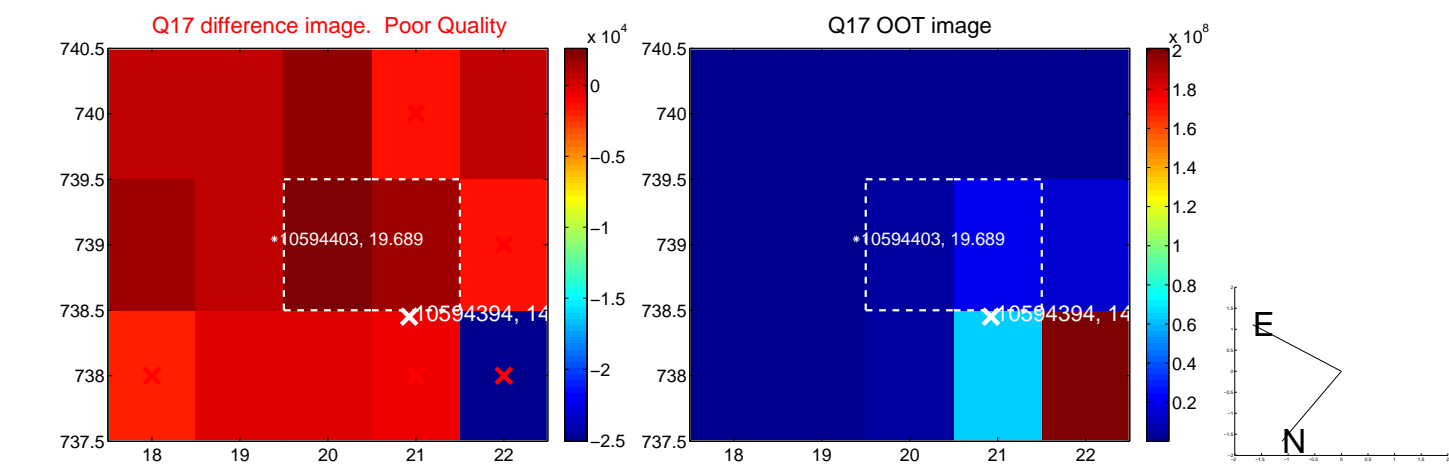
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

