

KIC 009895004

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})
009895004-01	OBS	0328.01	2.250826	132.058045	489.5	1.186	117.4	132.4	1.12	5779	2.96	1163.42
009895004-02	OBS	No	1.987290	133.140838	18.4	14.583	8.8	7.9	1.12	5779	0.48	1373.55
009895004-03	OBS	No	47.676188	159.983767	969.8	5.965	24.4	19.8	1.12	5779	6.76	19.85
009895004-04	OBS	No	24.478594	154.065581	269.9	5.574	16.6	8.8	1.12	5779	2.06	48.28
009895004-05	OBS	No	24.233098	145.246057	227.4	5.792	10.4	7.2	1.12	5779	1.98	48.94
009895004-06	OBS	No	28.231509	140.097809	254.0	3.325	7.4	6.8	1.12	5779	1.97	39.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895004-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET
009895004-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
009895004-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
009895004-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009895004-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
009895004-06	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_DIFFS

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

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

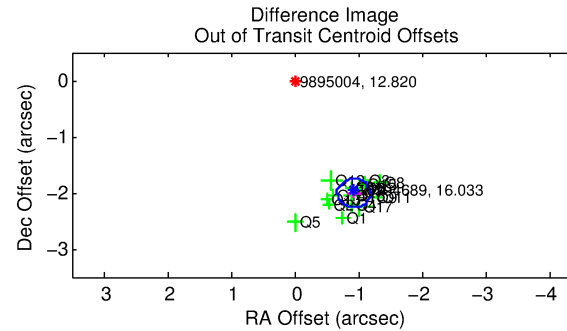
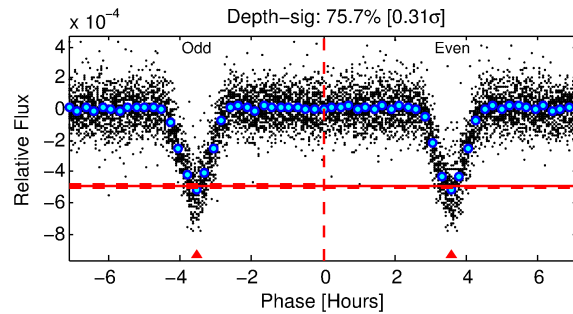
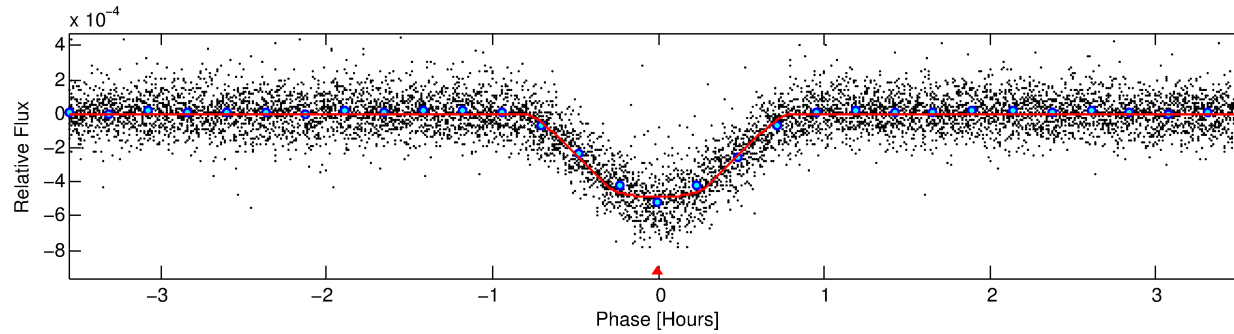
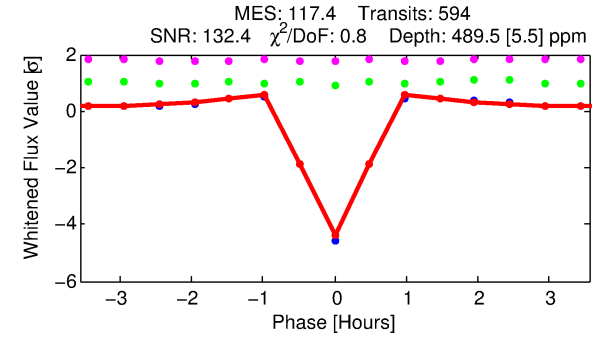
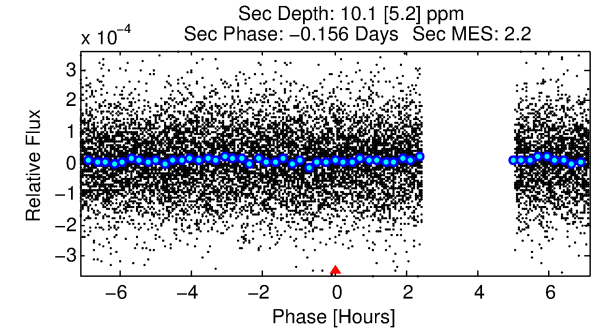
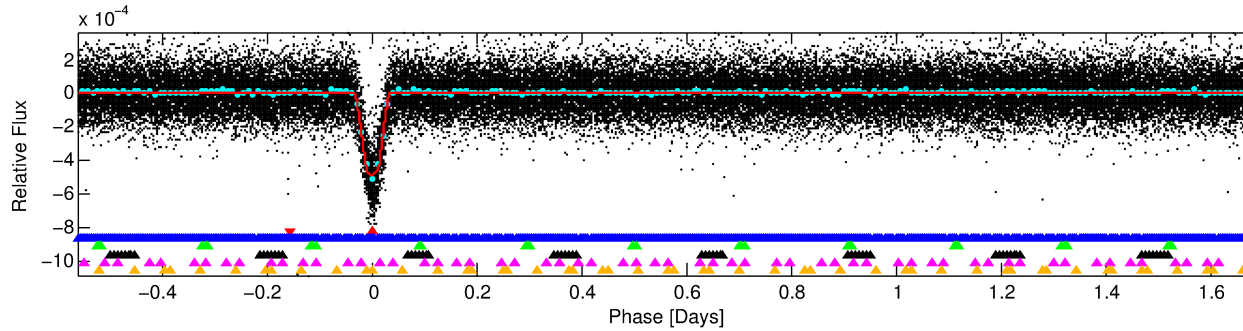
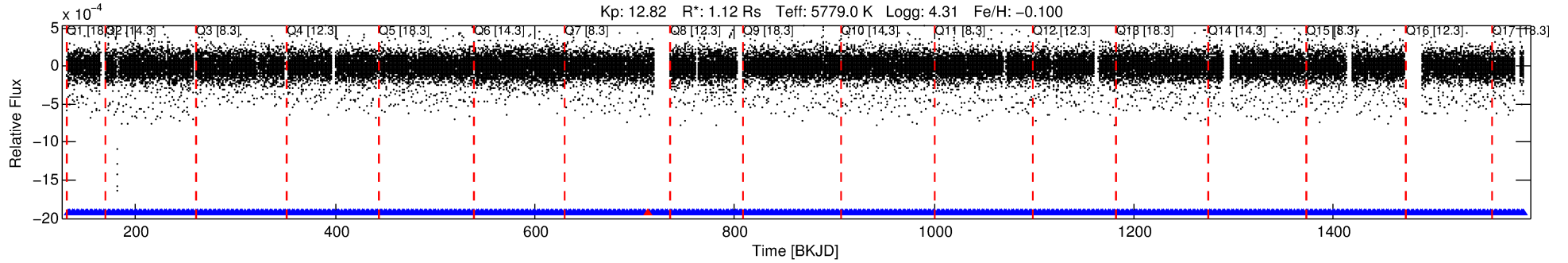
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009895004-01

No Significant Match Found

DV One-Page Summary

KIC: 9895004 Candidate: 1 of 6 Period: 2.251 d
KOI: K00328.01 Corr: 0.875



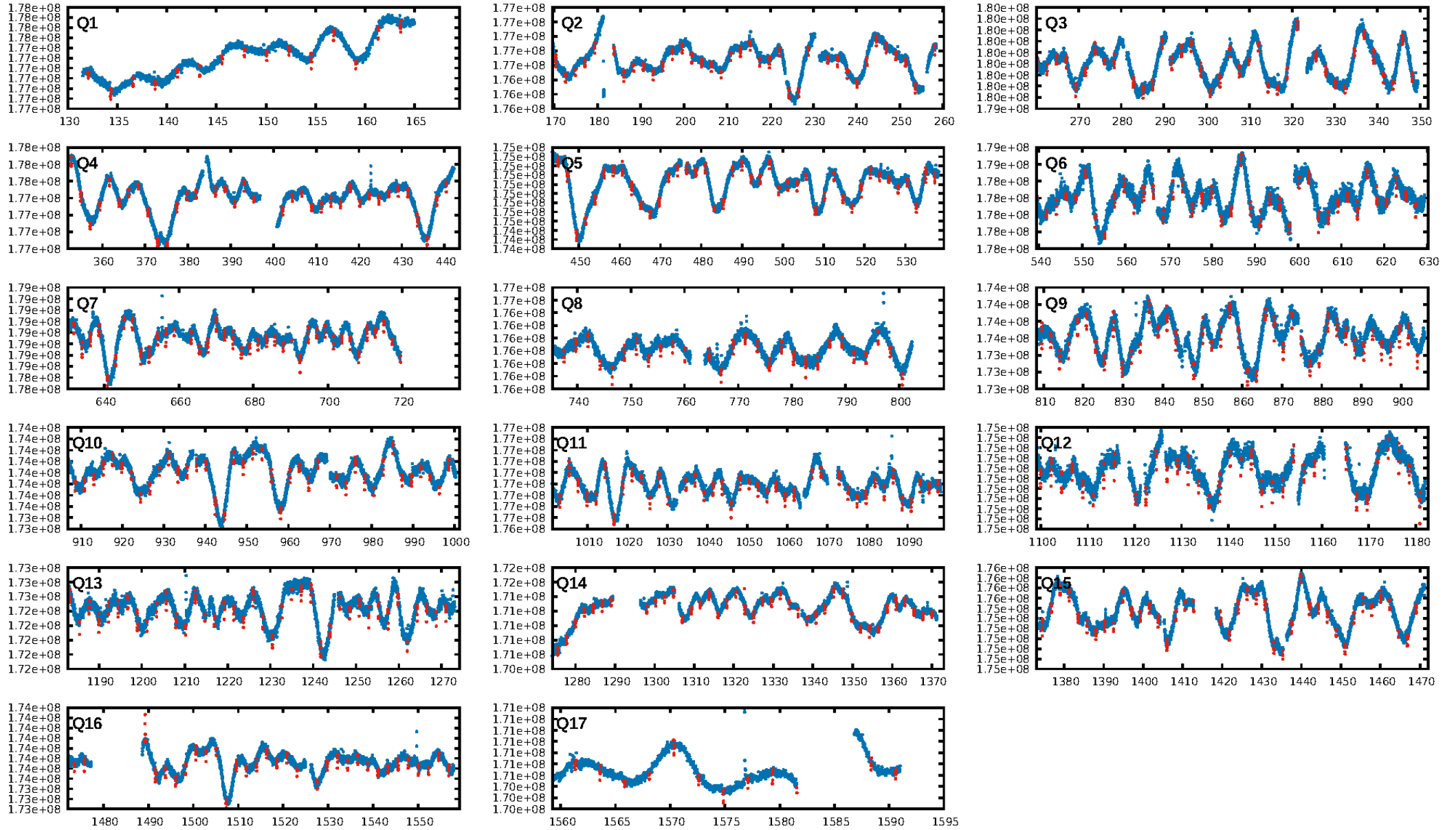
DV Fit Results:

Period = 2.25083 [0.00000] d
Epoch = 132.0580 [0.0001] BKJD
Rp/R* = 0.0242 [0.0011]
a/R* = 7.15 [1.50]
b = 0.90 [0.05]
Seff = 1163.42 [290.72]
Teq = 1489 [93] K
Rp = 2.96 [0.49] Re
a = 0.0328 [0.0049] AU
Ag = 0.68 [0.39] [-0.80σ]
Teffp = 2094 [279] K [2.06σ]

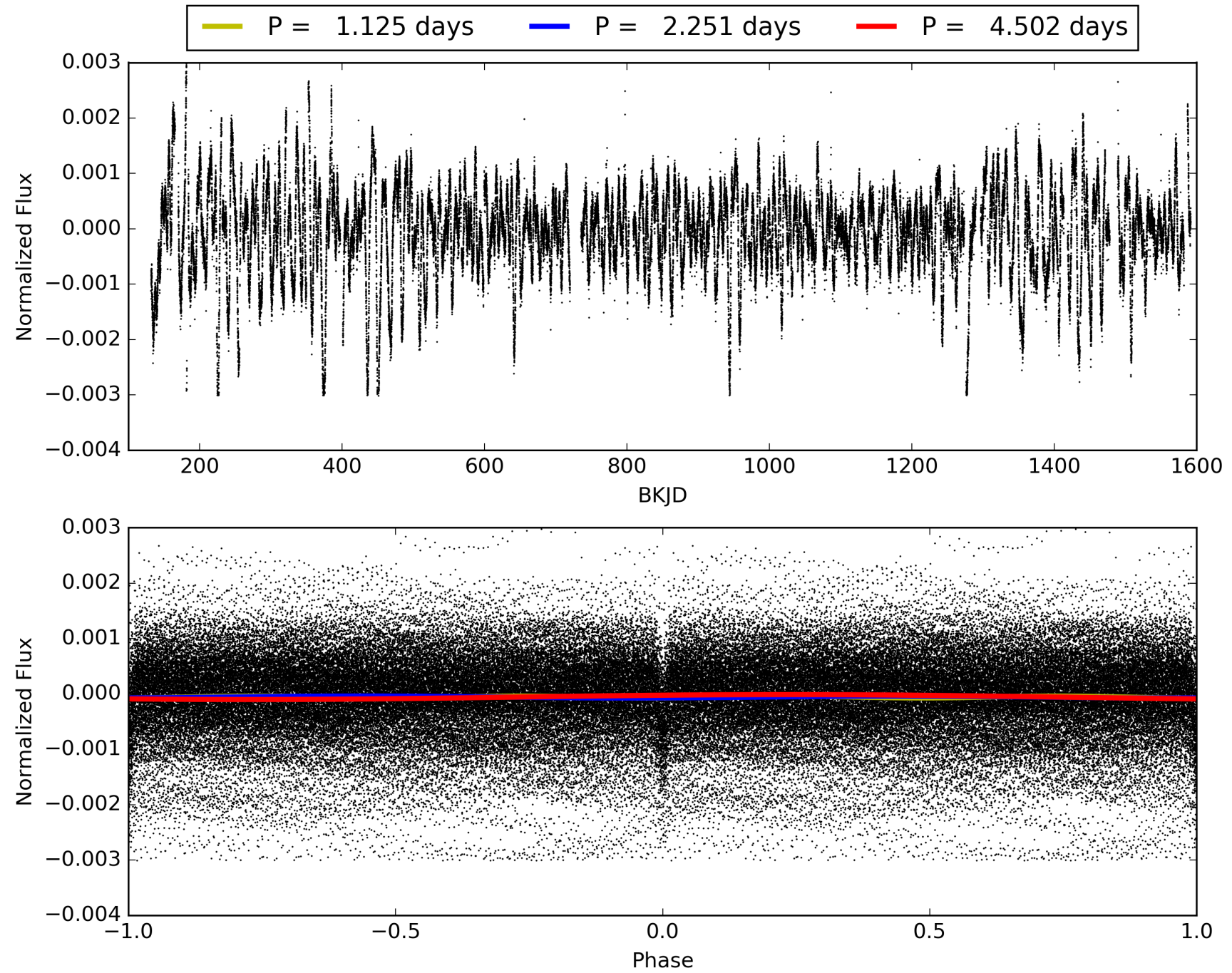
DV Diagnostic Results:

ShortPeriod-sig: 33.4% [0.43σ]
LongPeriod-sig: 100.0% [89.23σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [566/567]
GhostDiagnostic-chr: 1.829
Centroid-sig: 0.0%
Centroid-so: 2.255 arcsec [30.92σ]
OotOffset-rm: 2.213 arcsec [25.76σ]
KicOffset-rm: 2.152 arcsec [24.96σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009895004-01, PDC Light Curves

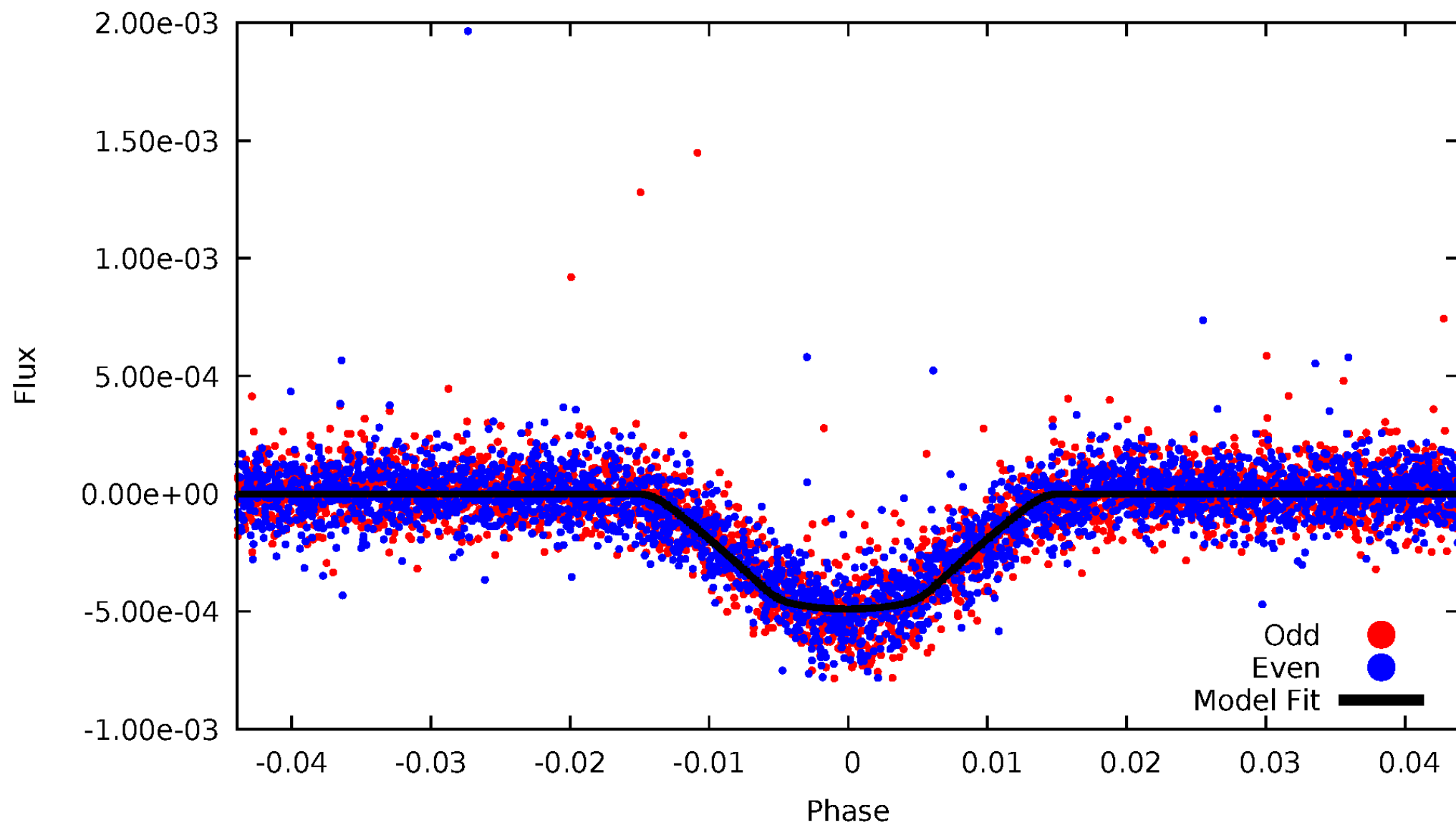


TCE 009895004-01



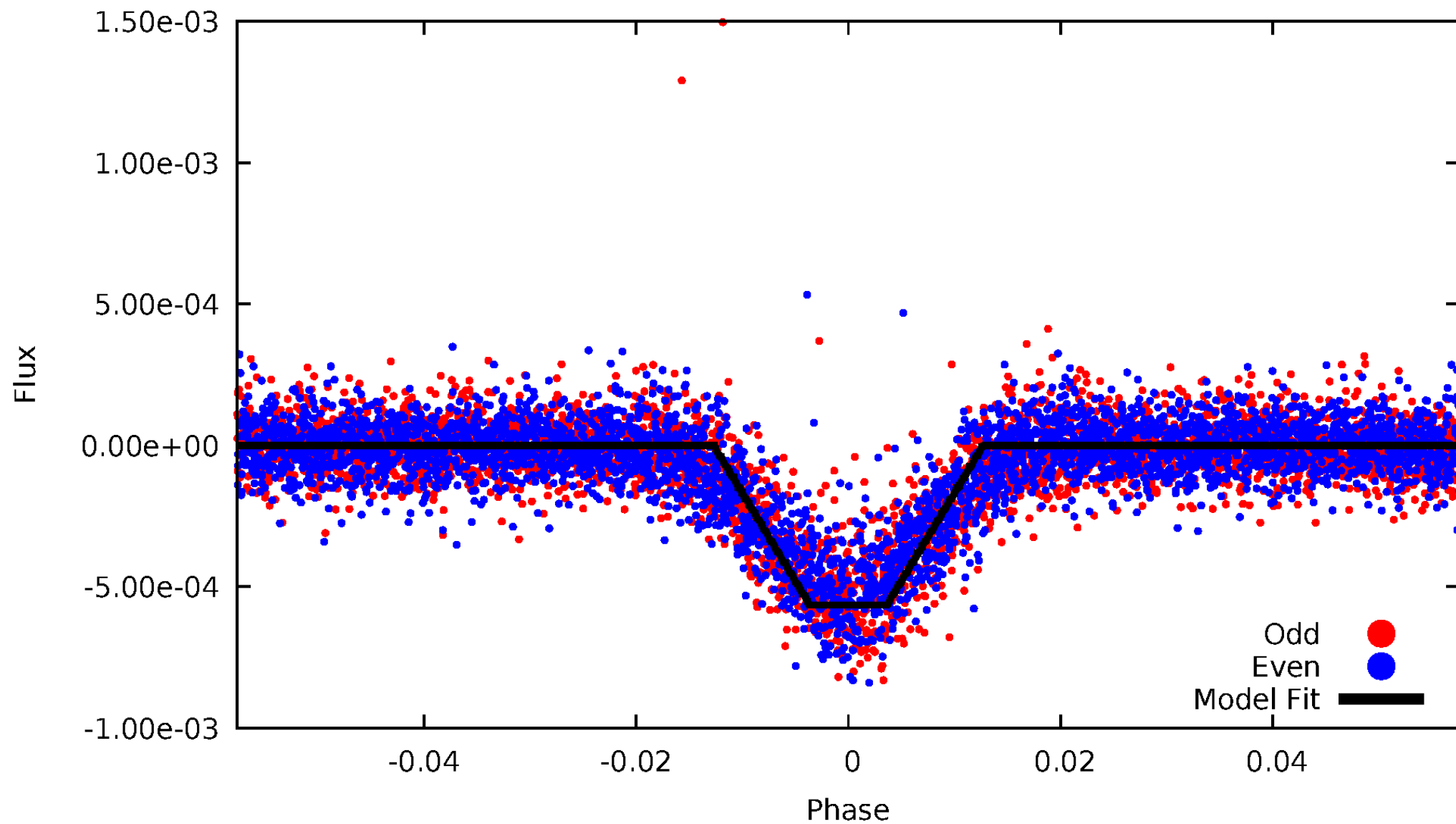
DV Odd/Even

TCE 009895004-01



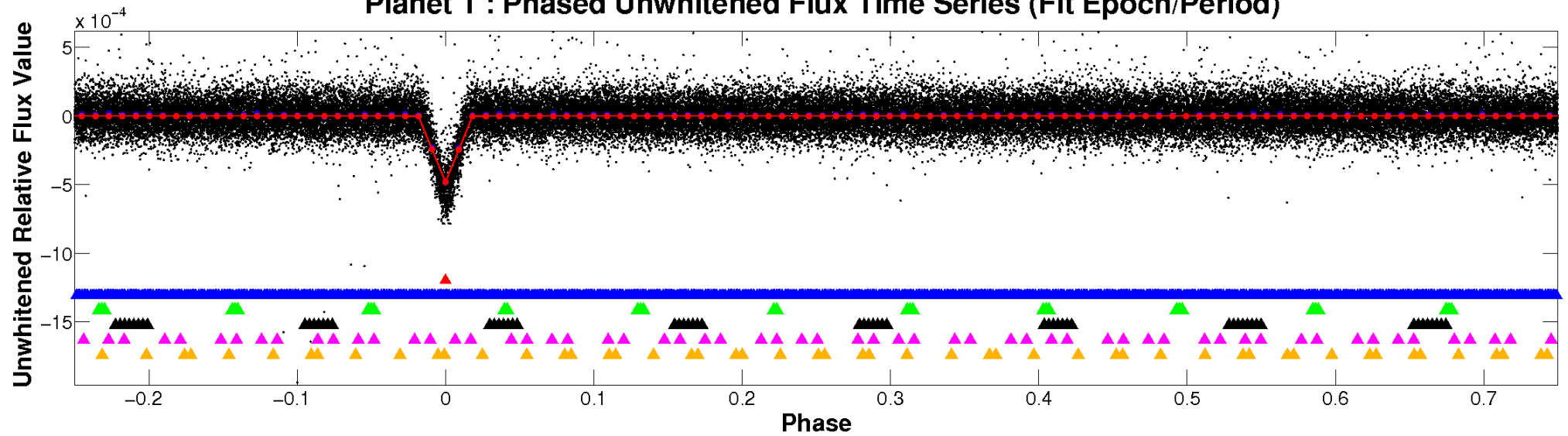
ALT Odd/Even

TCE 009895004-01

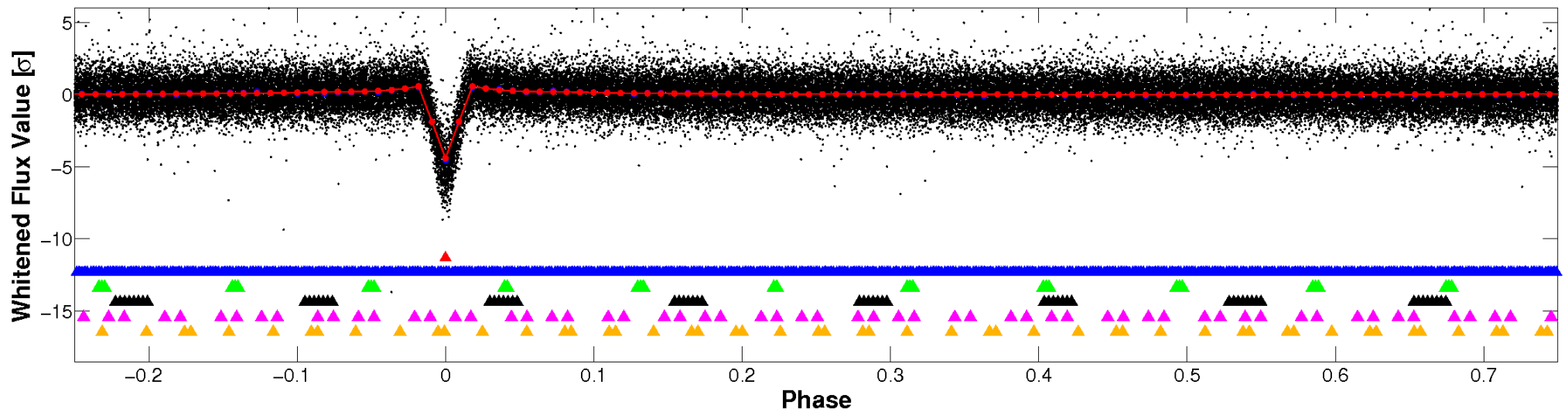


Non-Whitened Vs. Whitened Light Curve

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

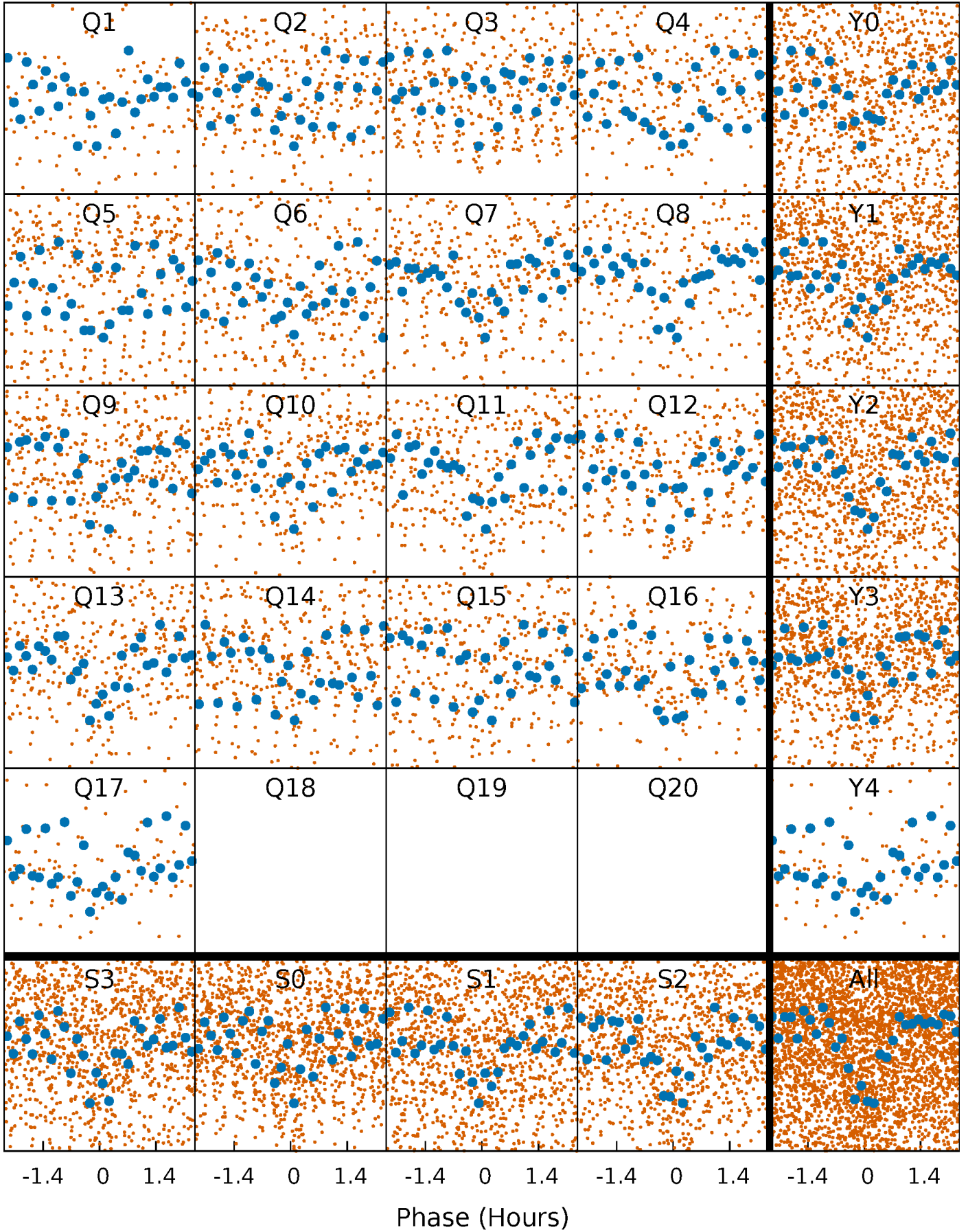


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



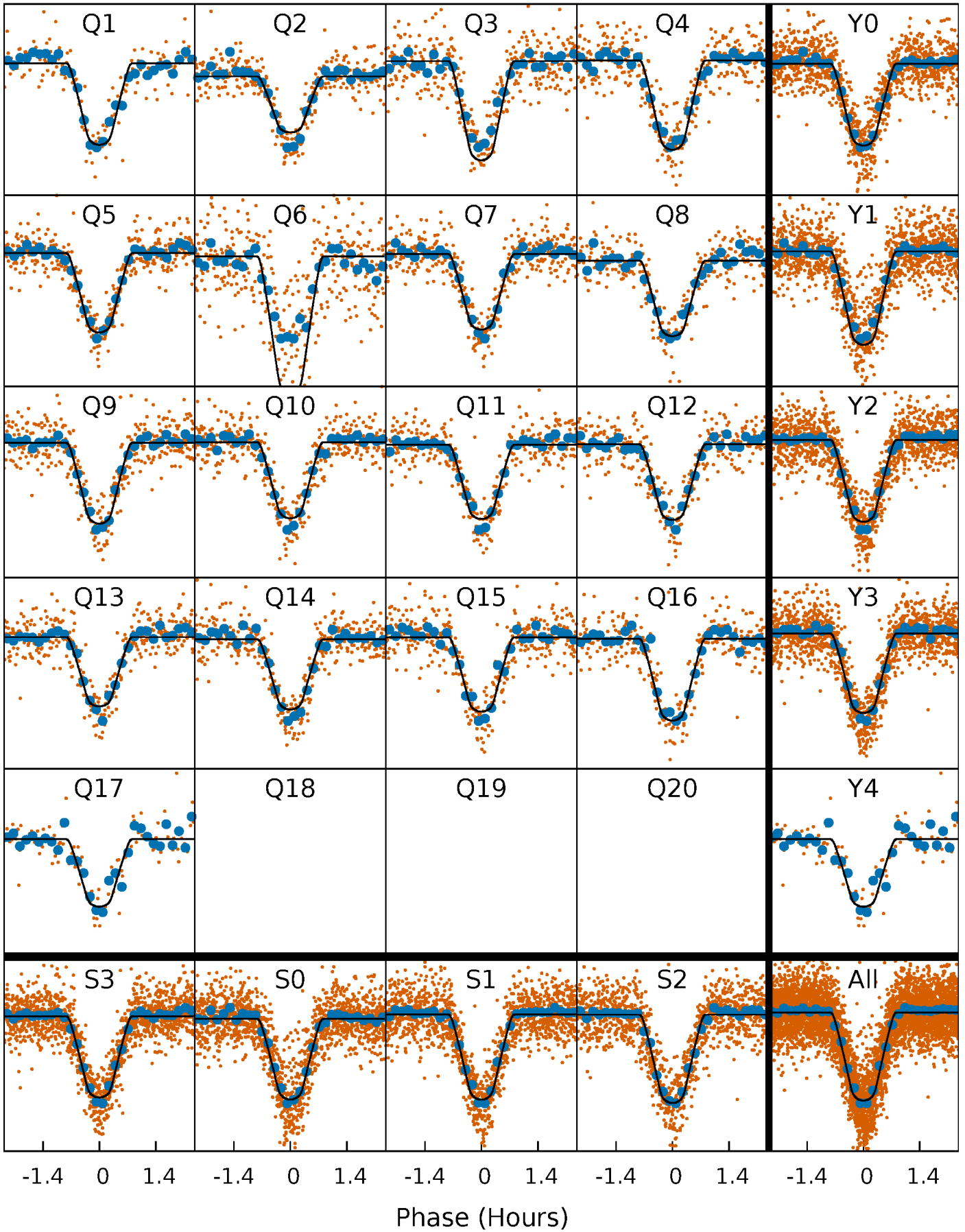
PDC Quarter-Phased Transit Curves

TCE 009895004-01 P= 2.250826 Days $T_0=132.058045$ (BKJD)



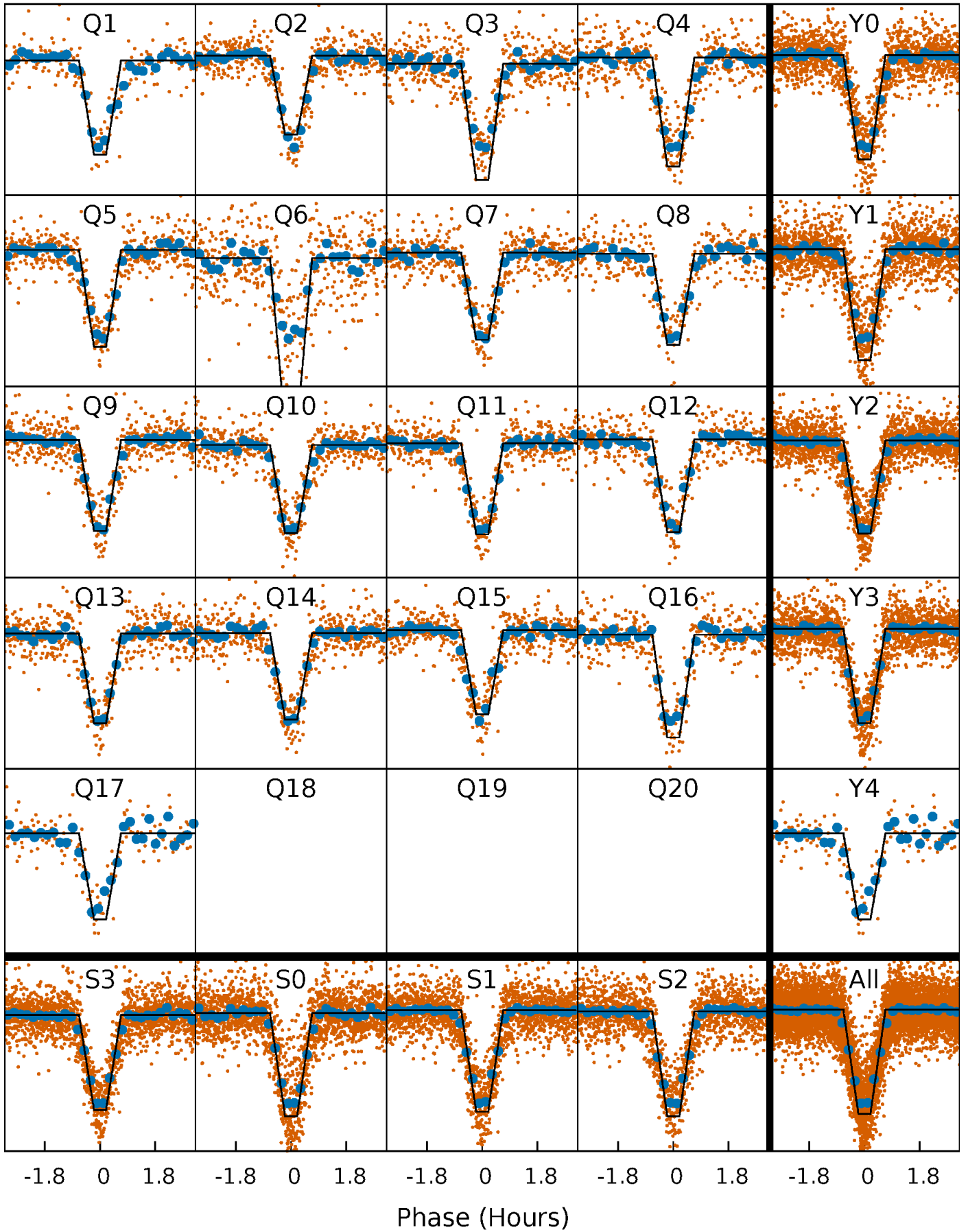
DV Quarter-Phased Transit Curves

TCE 009895004-01 P= 2.250826 Days $T_0=132.058045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

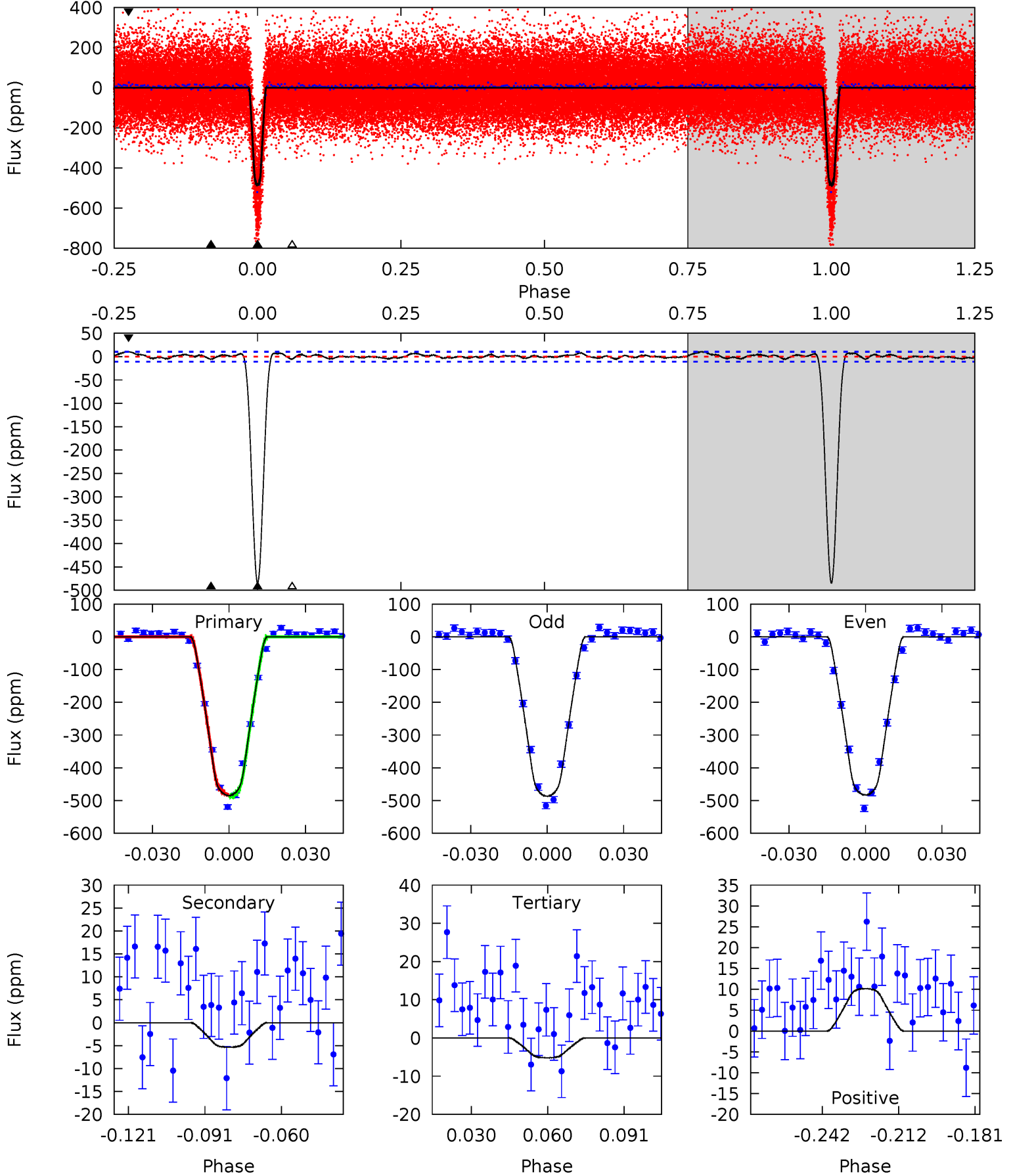
TCE 009895004-01 P= 2.250833 Days $T_0=132.055622$ (BKJD)



DV Model-Shift Uniqueness Test

009895004-01, P = 2.250826 Days, E = 129.807219 Days

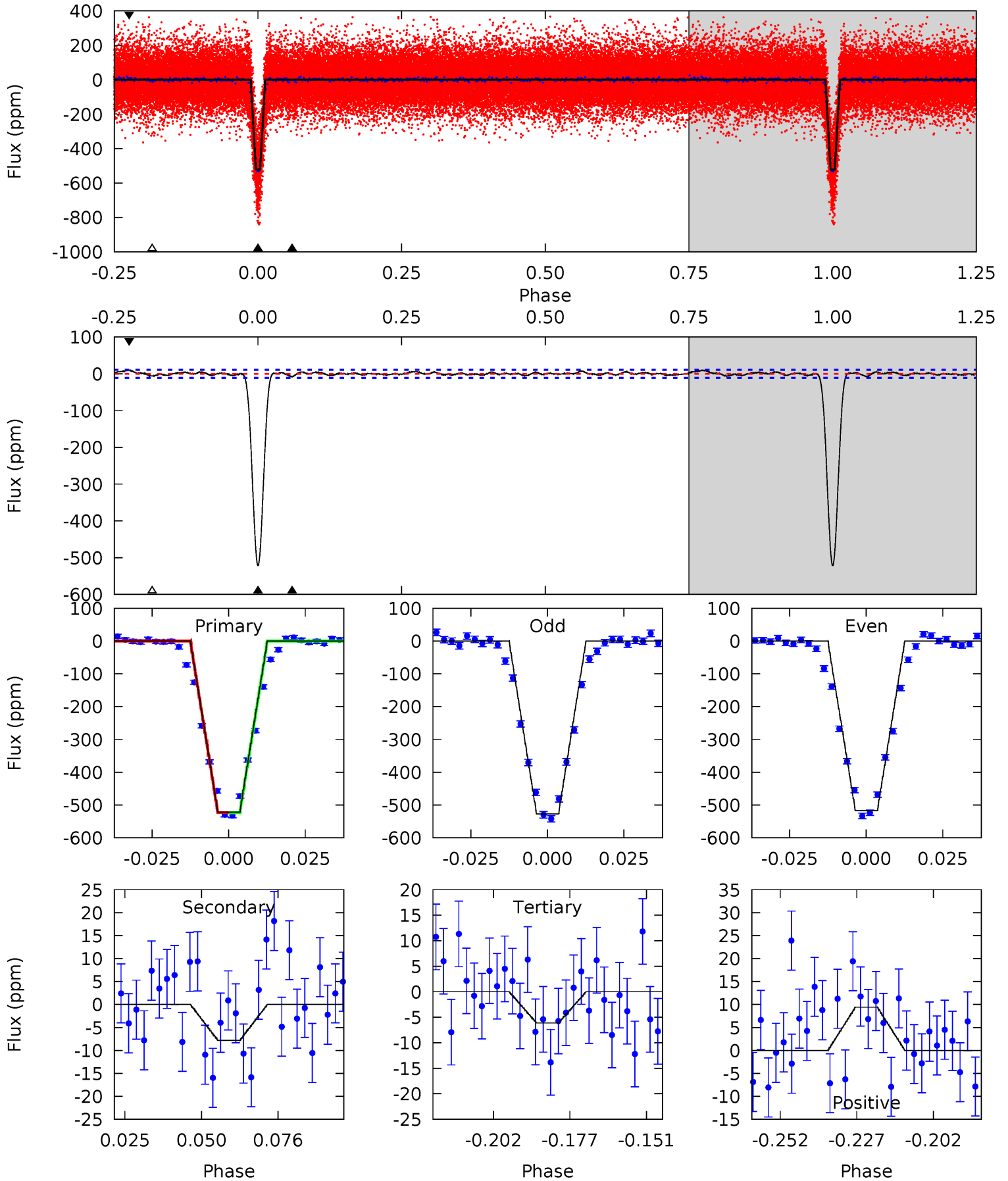
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
217.8	2.41	2.33	4.58	4.81	2.17	1.39	215.5	213.2	0.07	-2.17	0.76	0.98	0.02	1.61



Alt Model-Shift Uniqueness Test

009895004-01, P = 2.250833 Days, E = 129.804789 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
230.8	3.46	2.71	4.16	4.85	2.24	1.24	228.1	226.6	0.75	-0.70	2.18	0.99	0.02	0.10



Stellar Parameters For KIC 009895004

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5779^{+104}_{-116}	$4.308^{+0.138}_{-0.113}$	$-0.100^{+0.150}_{-0.150}$	$1.119^{+0.177}_{-0.159}$	$0.928^{+0.074}_{-0.061}$	$0.933^{+0.585}_{-0.304}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-14%	+8%/-7%	+63%/-33%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009895004-01 / KOI 0328.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5 ± 2	$2.97^{+0.29}_{-0.30}$	2072^{+99}_{-92}	2116^{+355}_{-4350}	$0.359^{+0.188}_{-0.151}$
Alt.	-8 ± 2	$2.90^{+0.32}_{-0.27}$	2077^{+97}_{-100}	2480^{+182}_{-307}	$0.548^{+0.215}_{-0.167}$

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 $A_{obs} \gg 1.0$

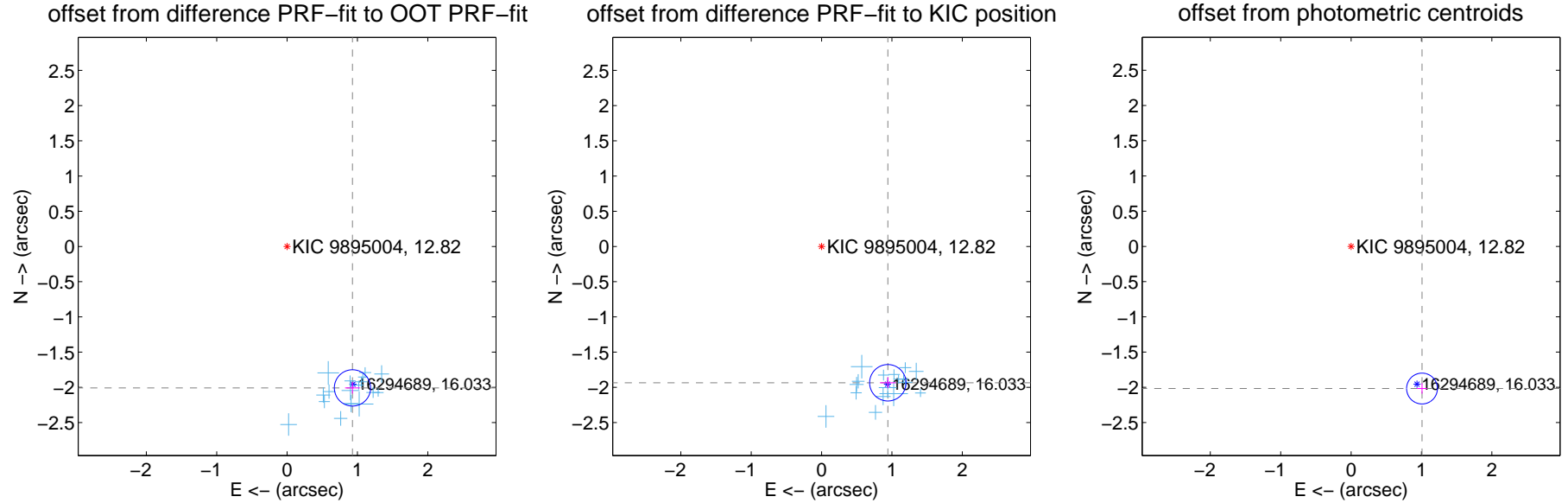
DV Centroid Data

Supplemental centroid analysis for 009895004-01. Kepler magnitude: 12.82. Transit SNR 132.35

There are 17 quarters with good PRF difference image offsets

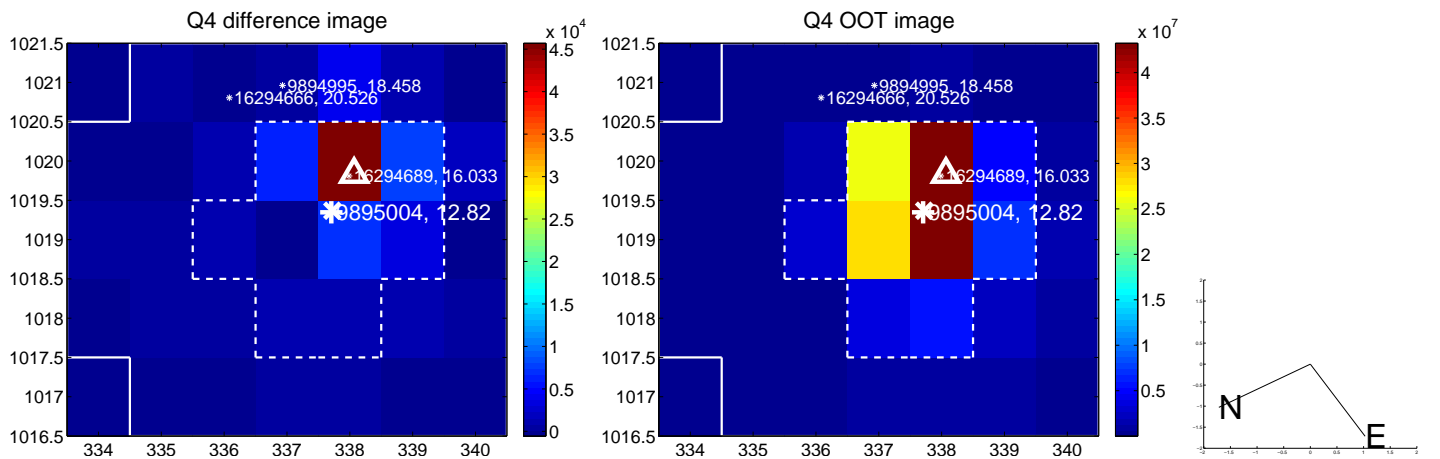
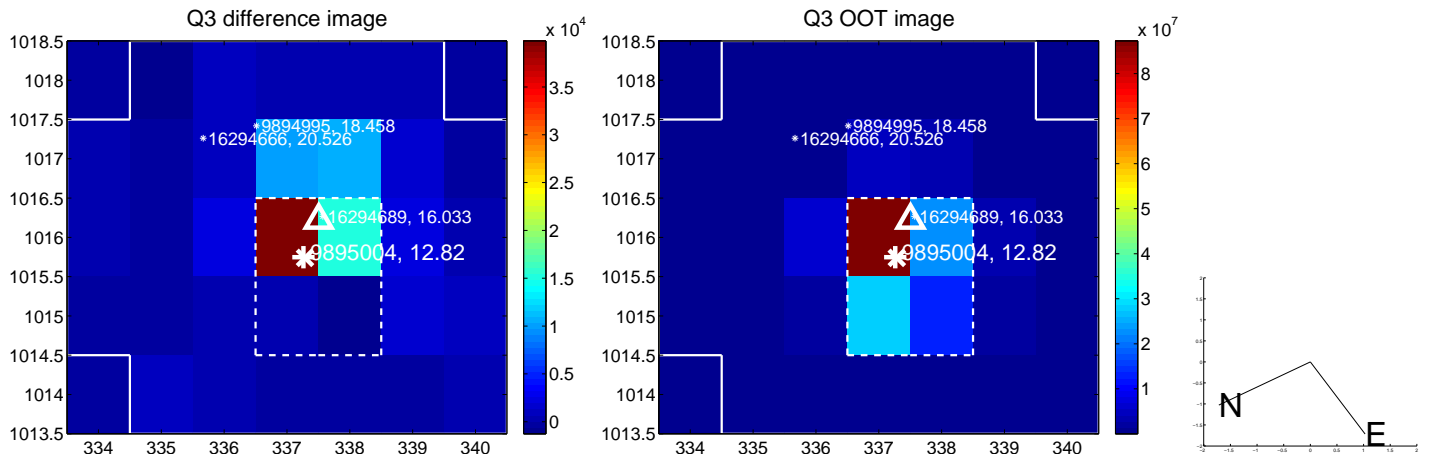
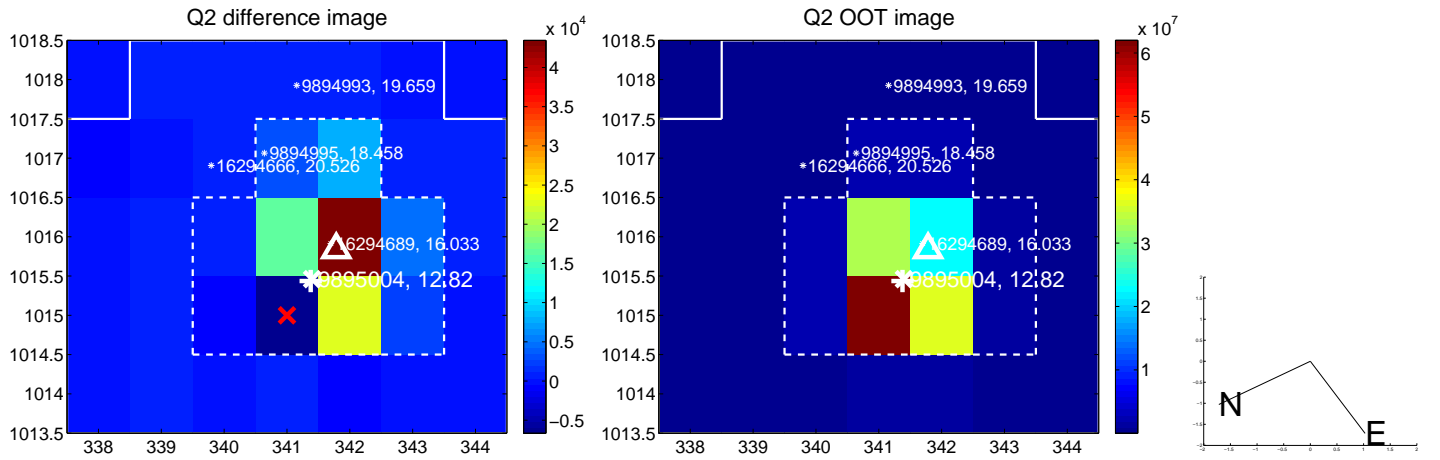
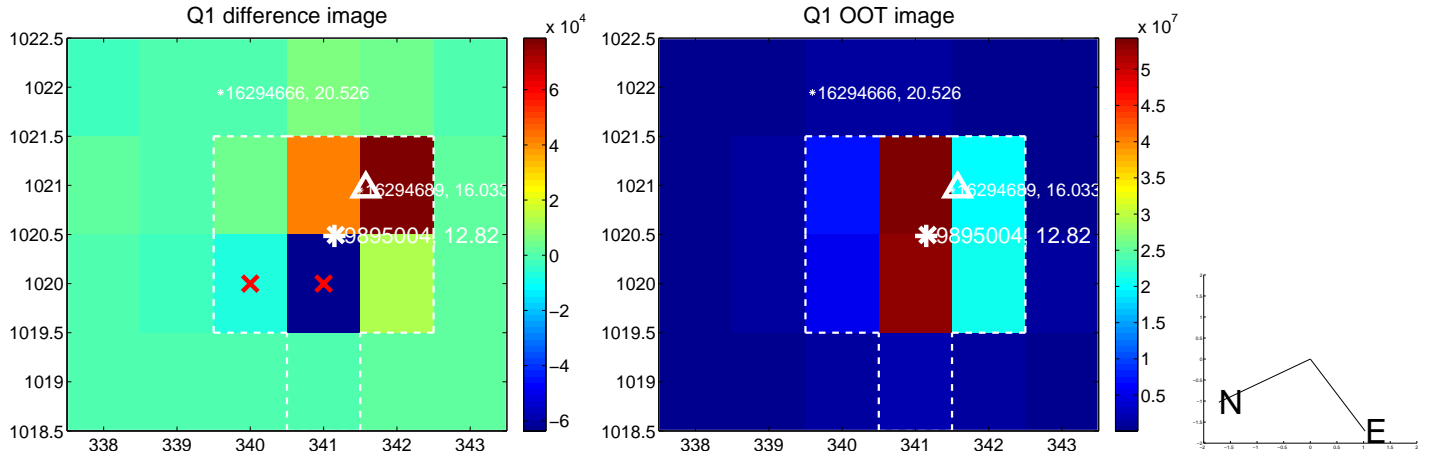
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.213 ± 0.086	25.76	-0.930 ± 0.105	-2.008 ± 0.081
PRF-fit source offset from KIC position	2.152 ± 0.086	24.96	-0.941 ± 0.113	-1.935 ± 0.079
photometric centroid source offset	2.25 ± 0.07	30.92	-1.01 ± 0.07	-2.02 ± 0.07

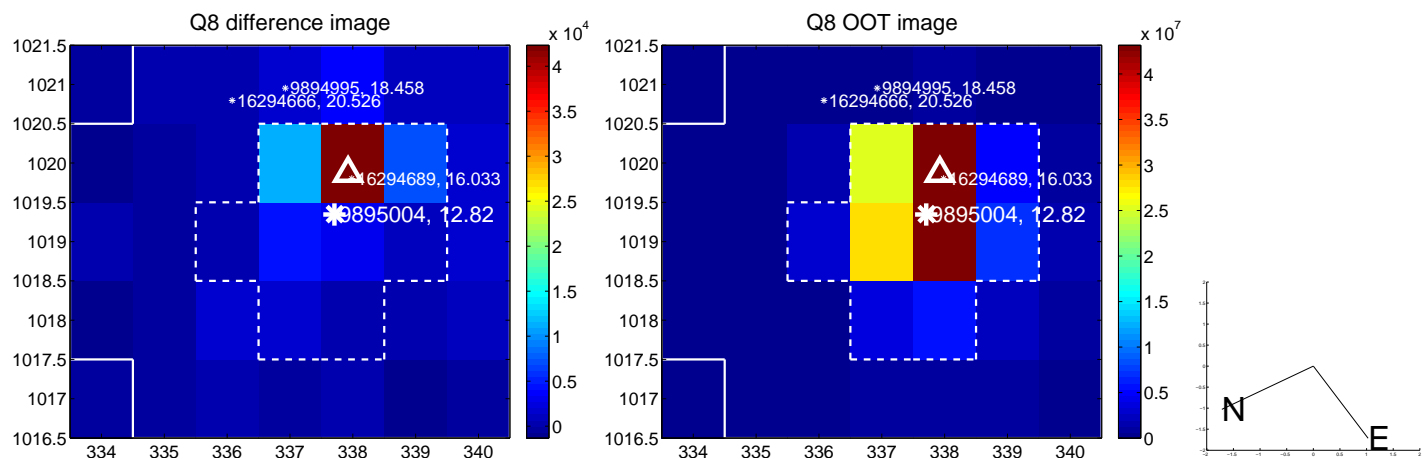
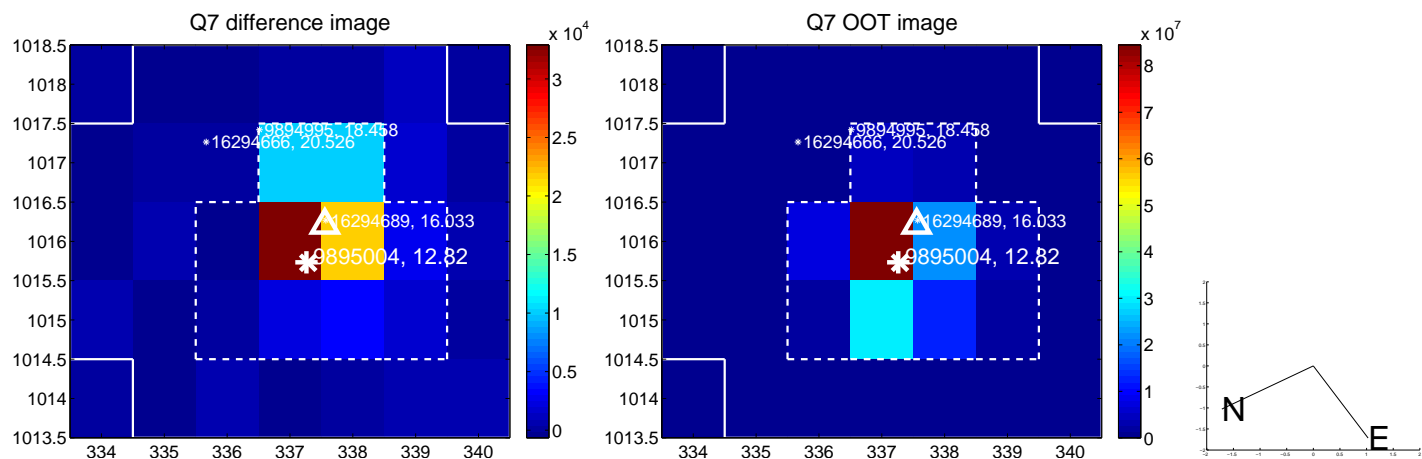
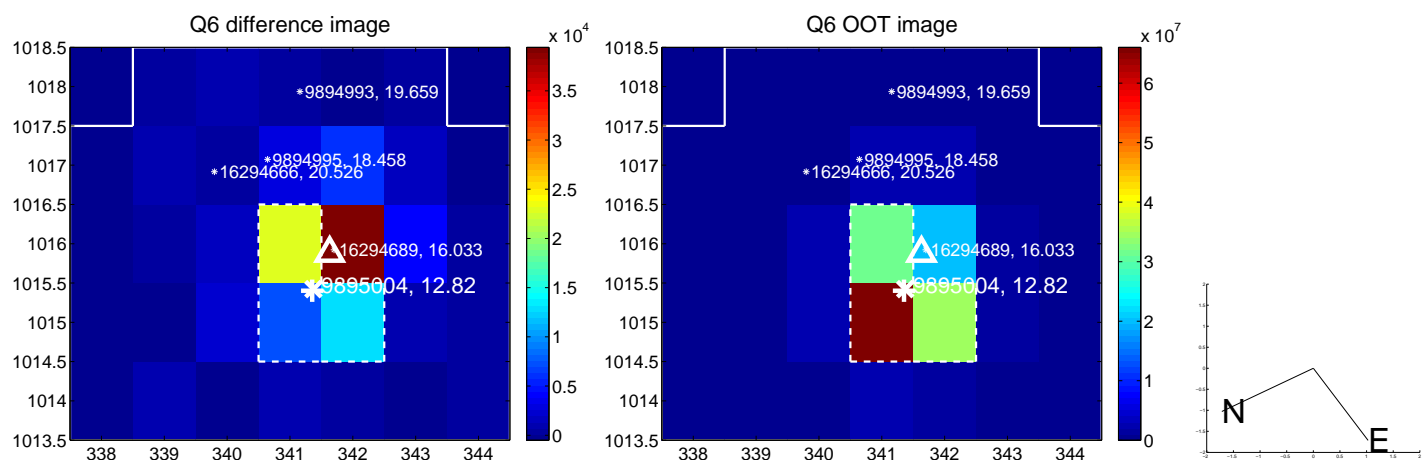
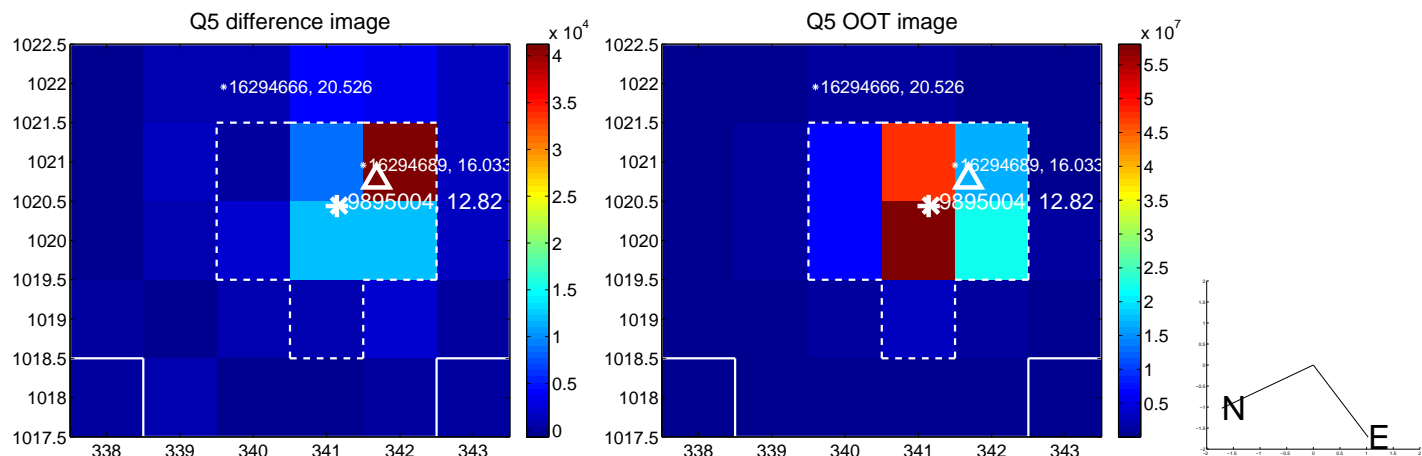


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

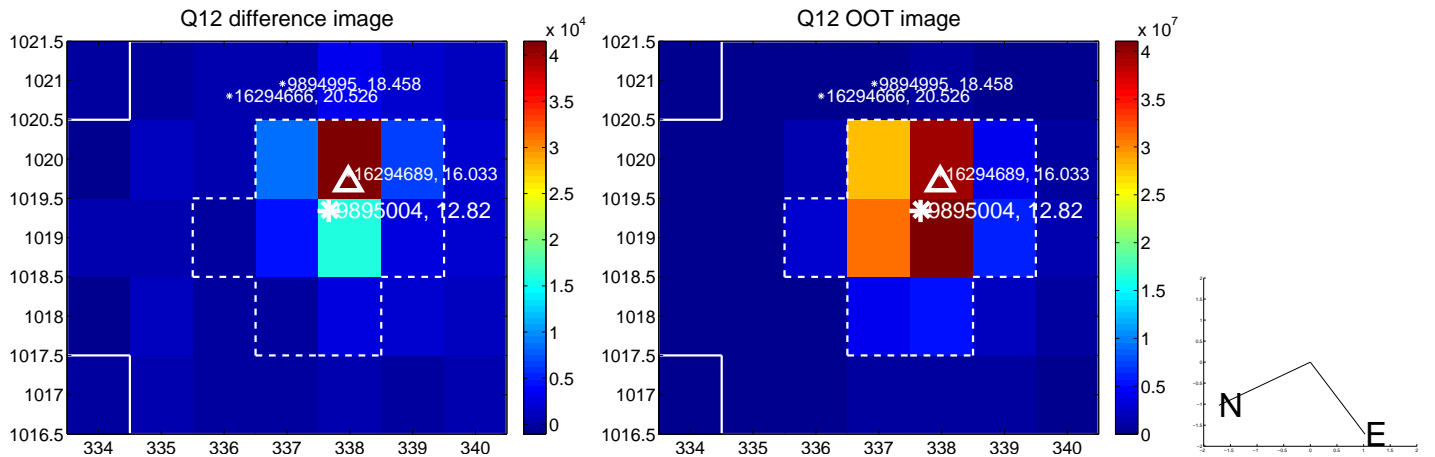
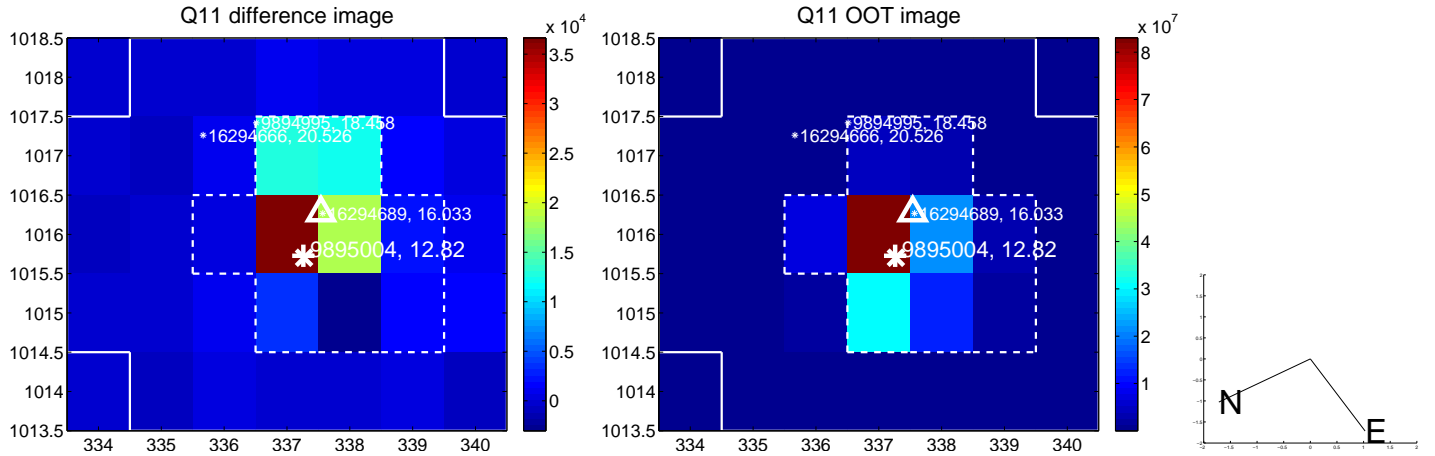
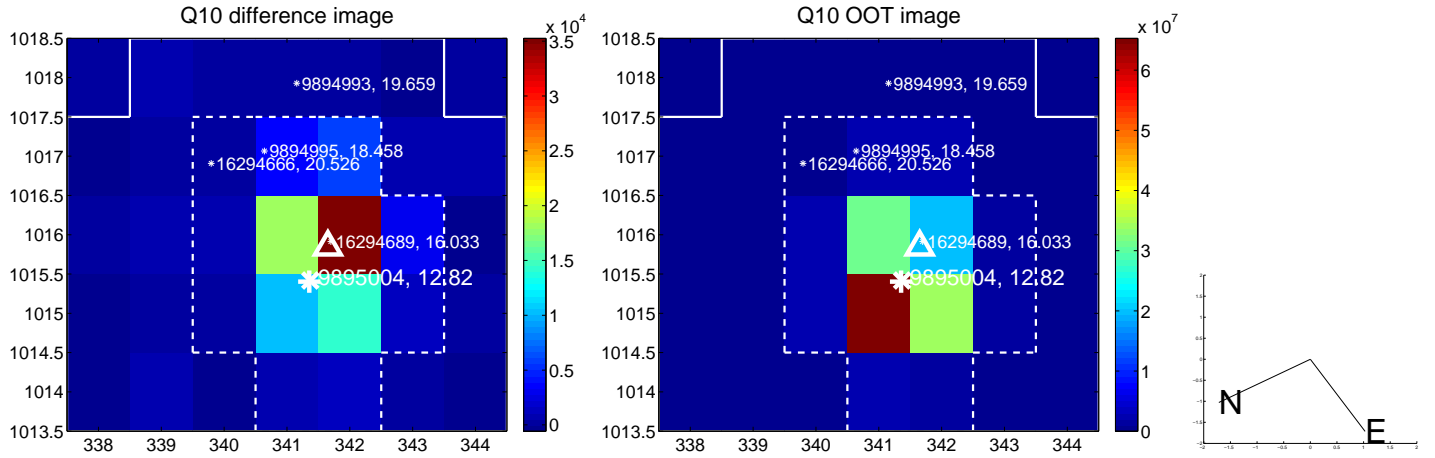
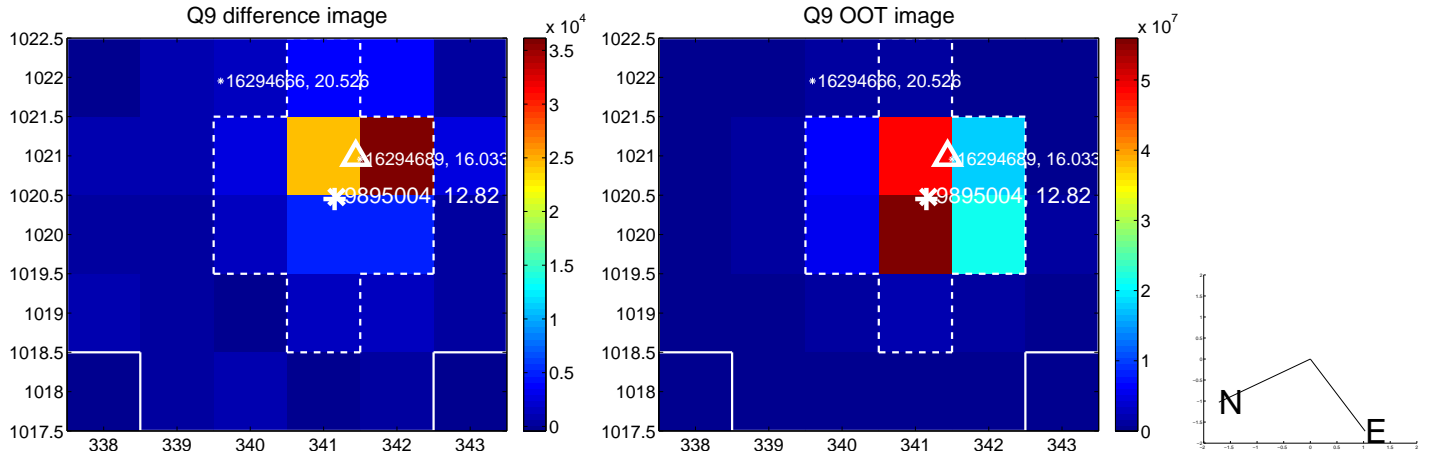
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



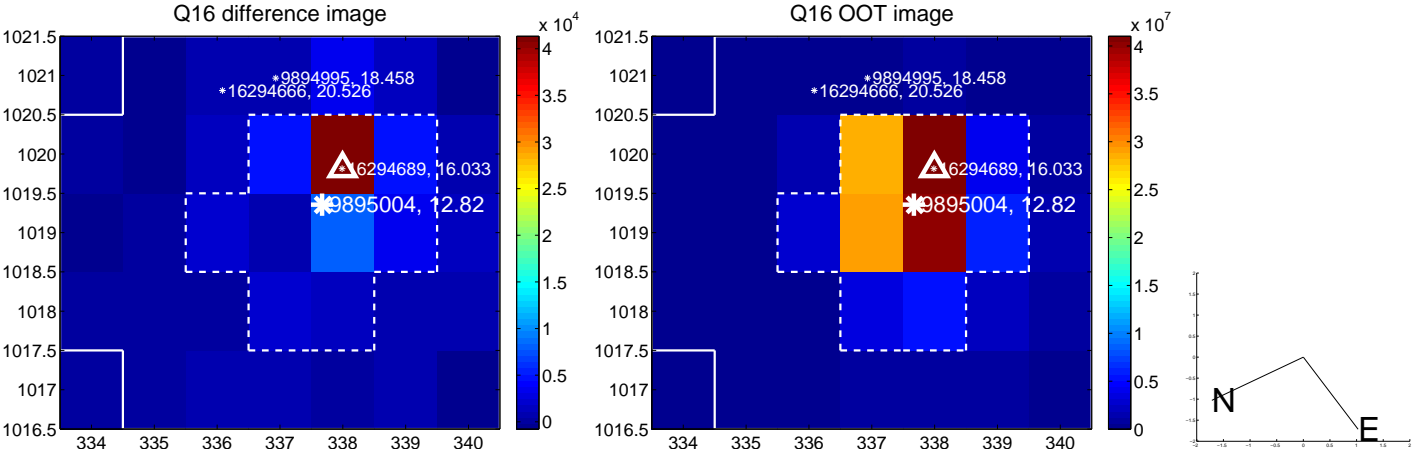
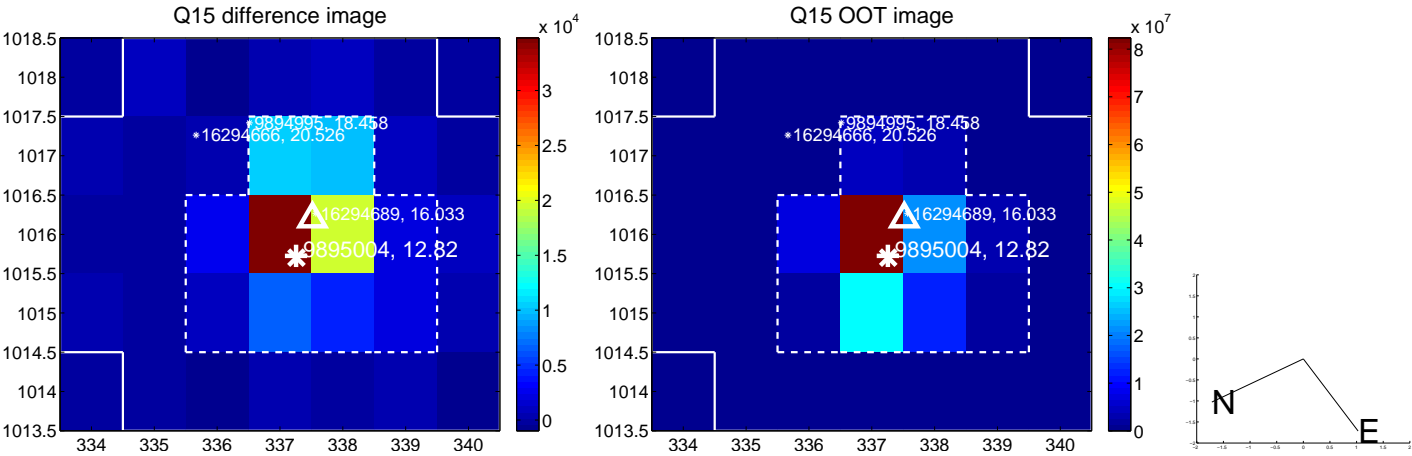
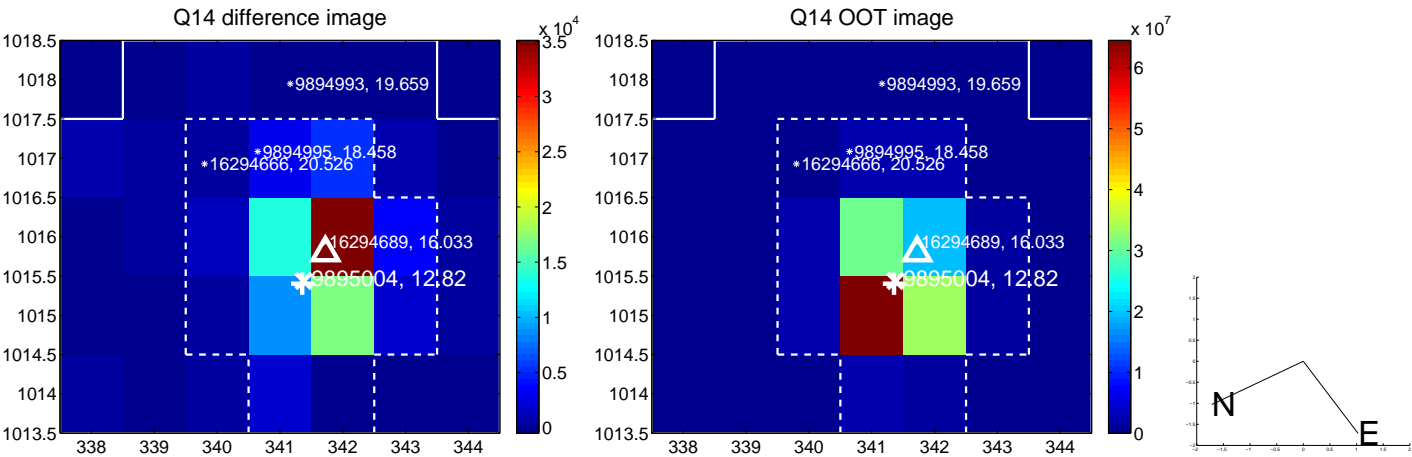
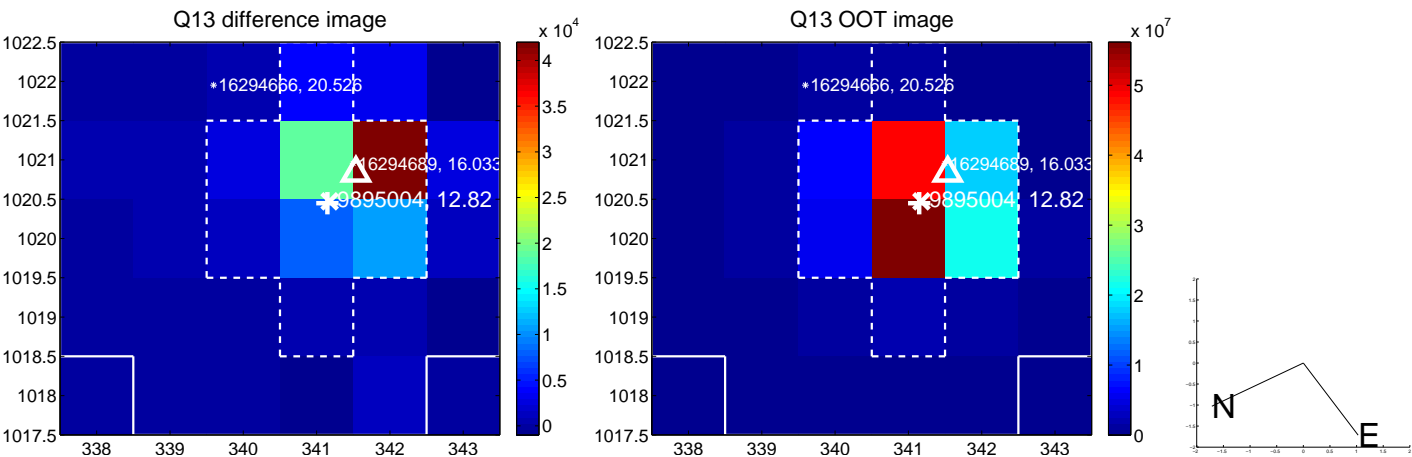
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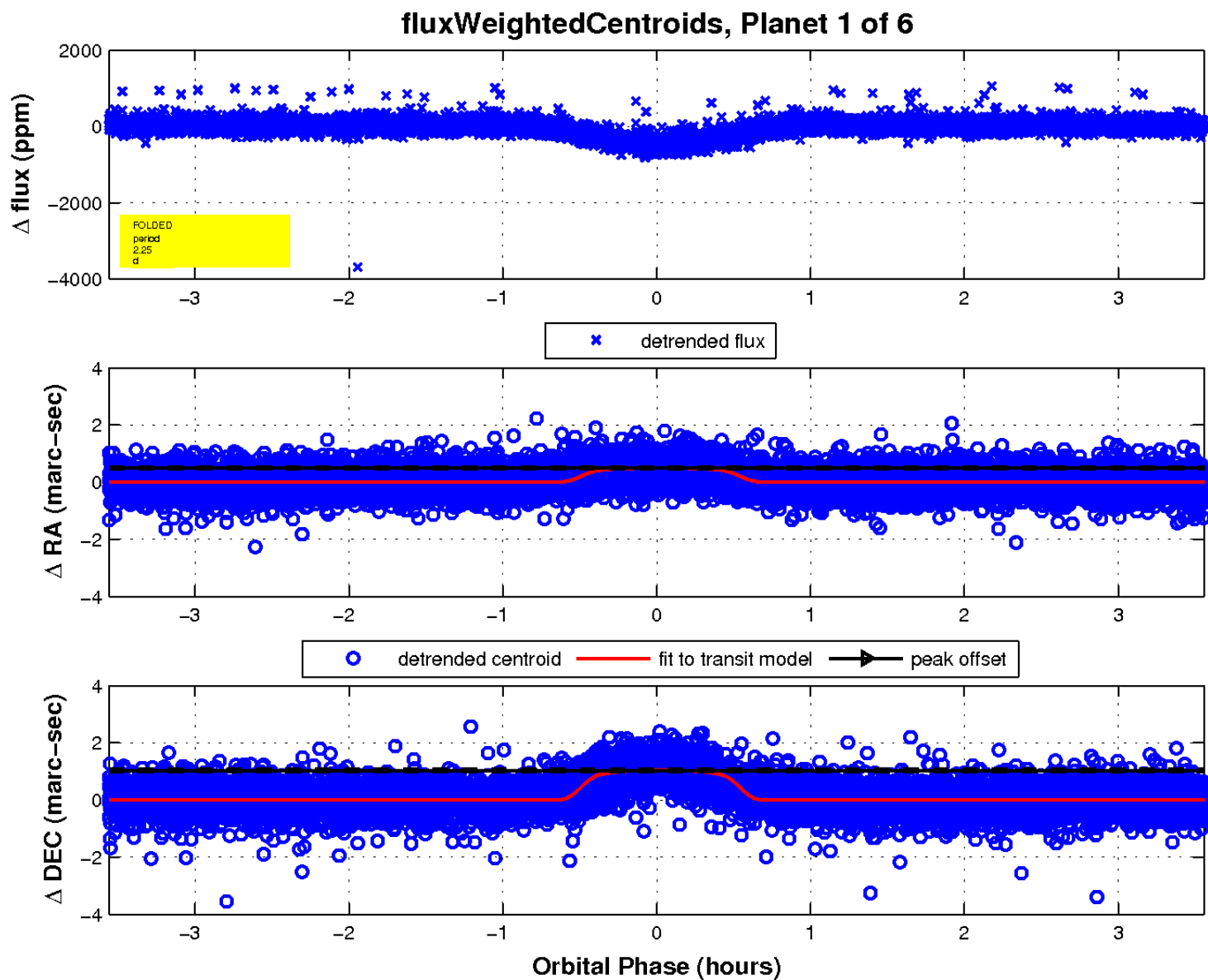
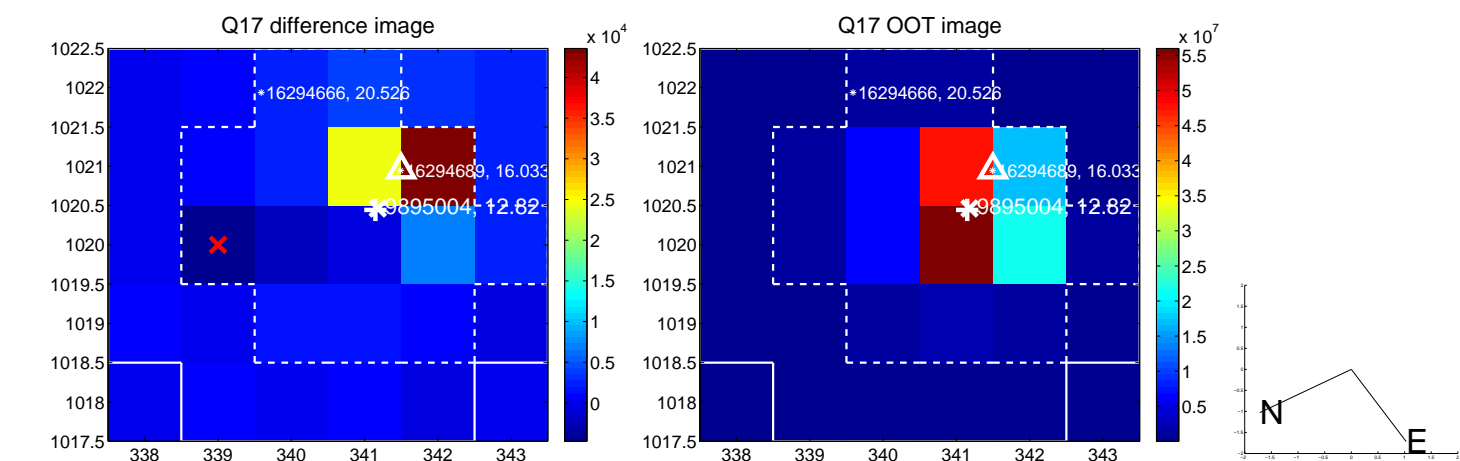
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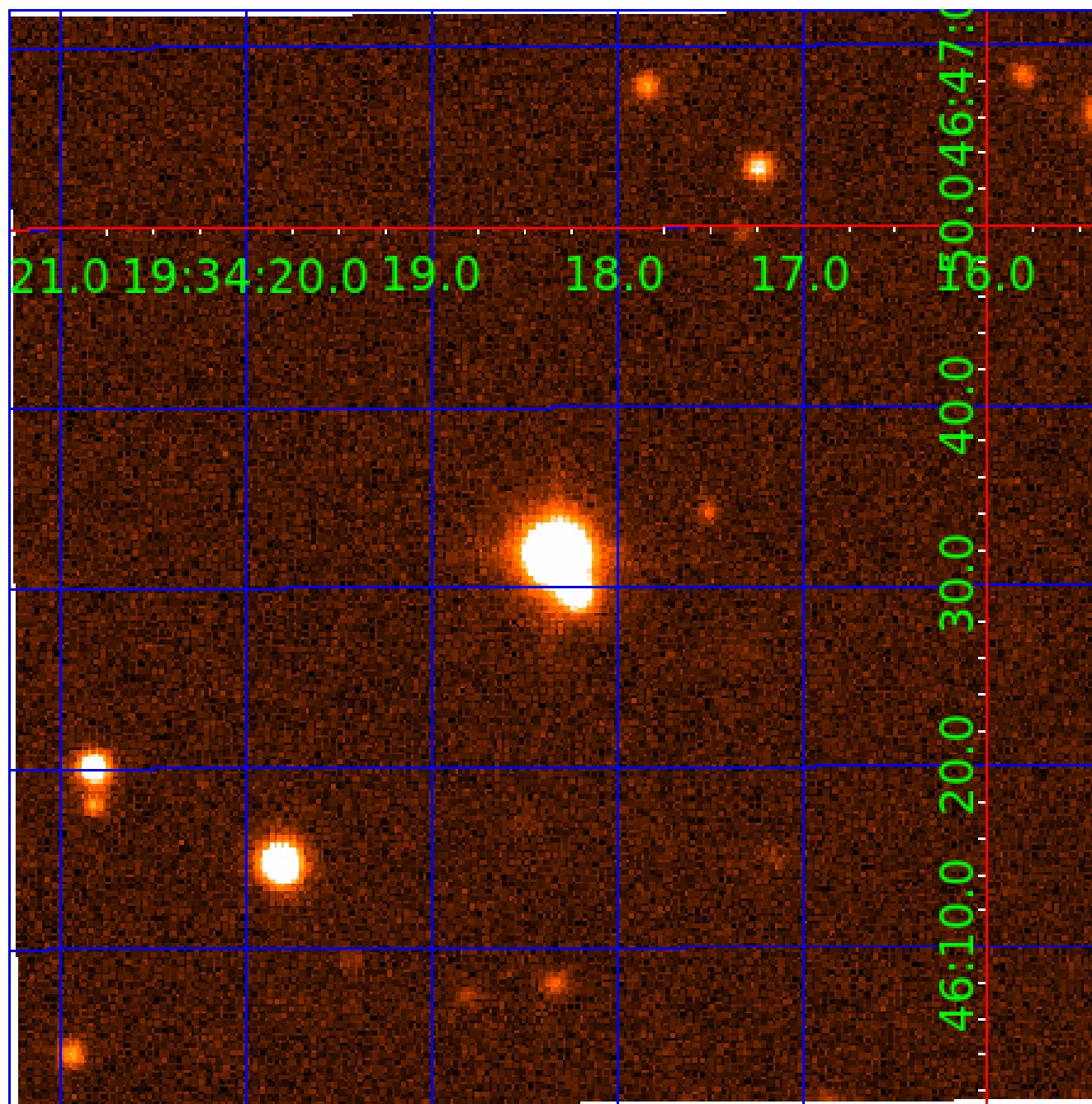


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009895004

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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009895004-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
009895004-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
009895004-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009895004-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
009895004-06	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_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.

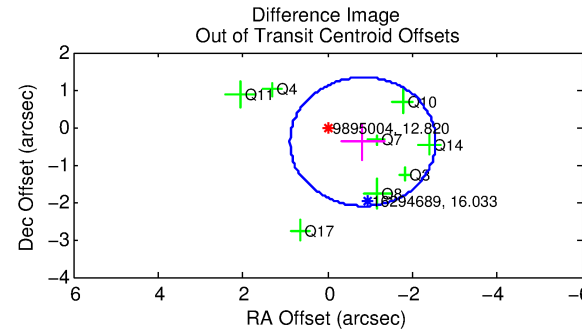
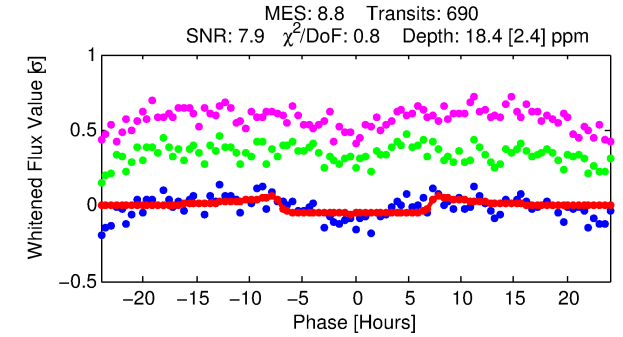
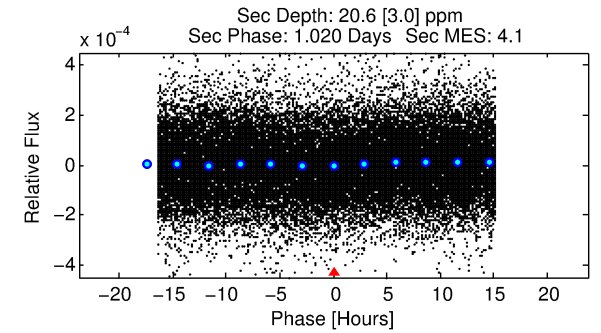
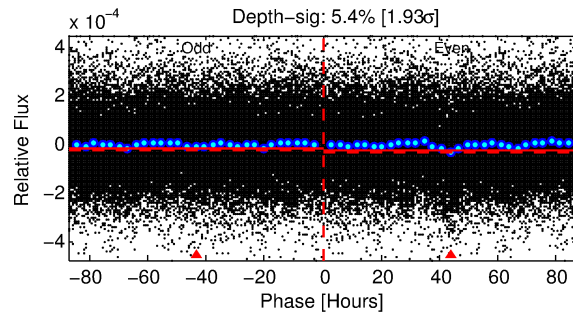
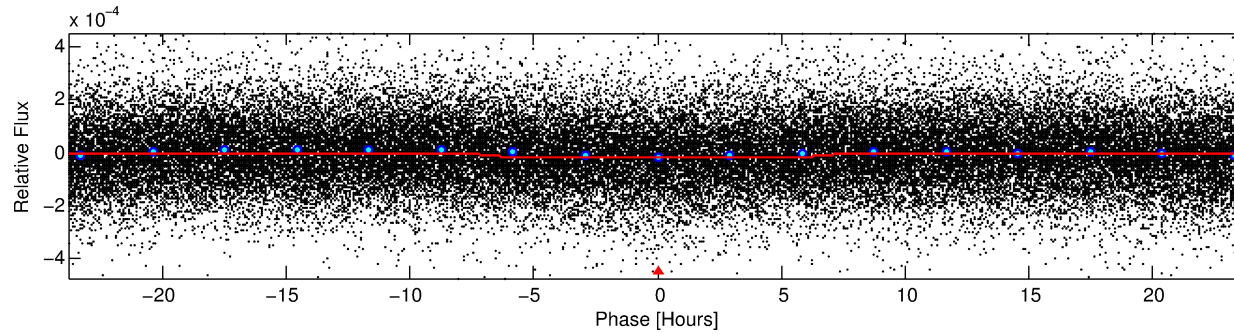
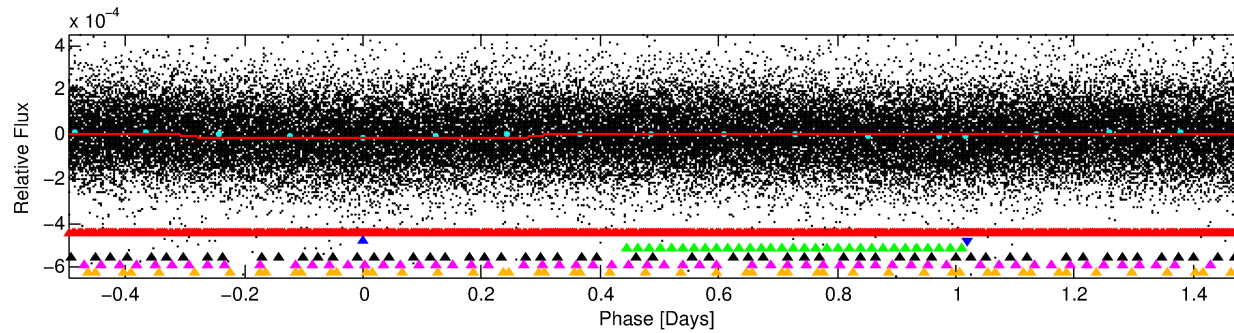
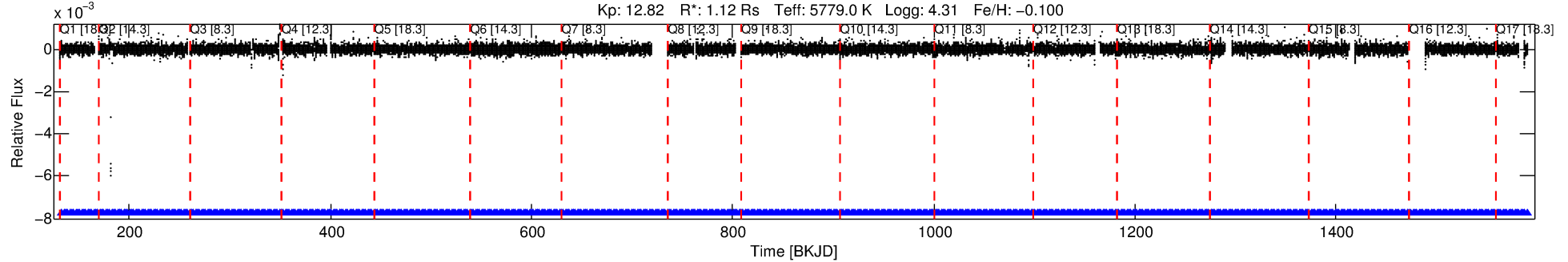
Ephemeris Match Information For 009895004-02

No Significant Match Found

DV One-Page Summary

KIC: 9895004 Candidate: 2 of 6 Period: 1.987 d
KOI: K00328 Corr: No Ephemeris Match

Kp: 12.82 R*: 1.12 Rs Teff: 5779.0 K Logg: 4.31 Fe/H: -0.100



DV Fit Results:

Period = 1.98729 [0.00003] d
Epoch = 133.1408 [0.0073] BKJD
Rp/R* = 0.0039 [0.0029]
a/R* = 1.21 [1.25]
b = 0.31 [9.81]
Seff = 1373.55 [343.23]
Teq = 1552 [97] K
Rp = 0.48 [0.36] Re
a = 0.0302 [0.0045] AU
Ag = 44.66 [67.24] [0.65σ]
Teffp = 6205 [2309] K [2.01σ]

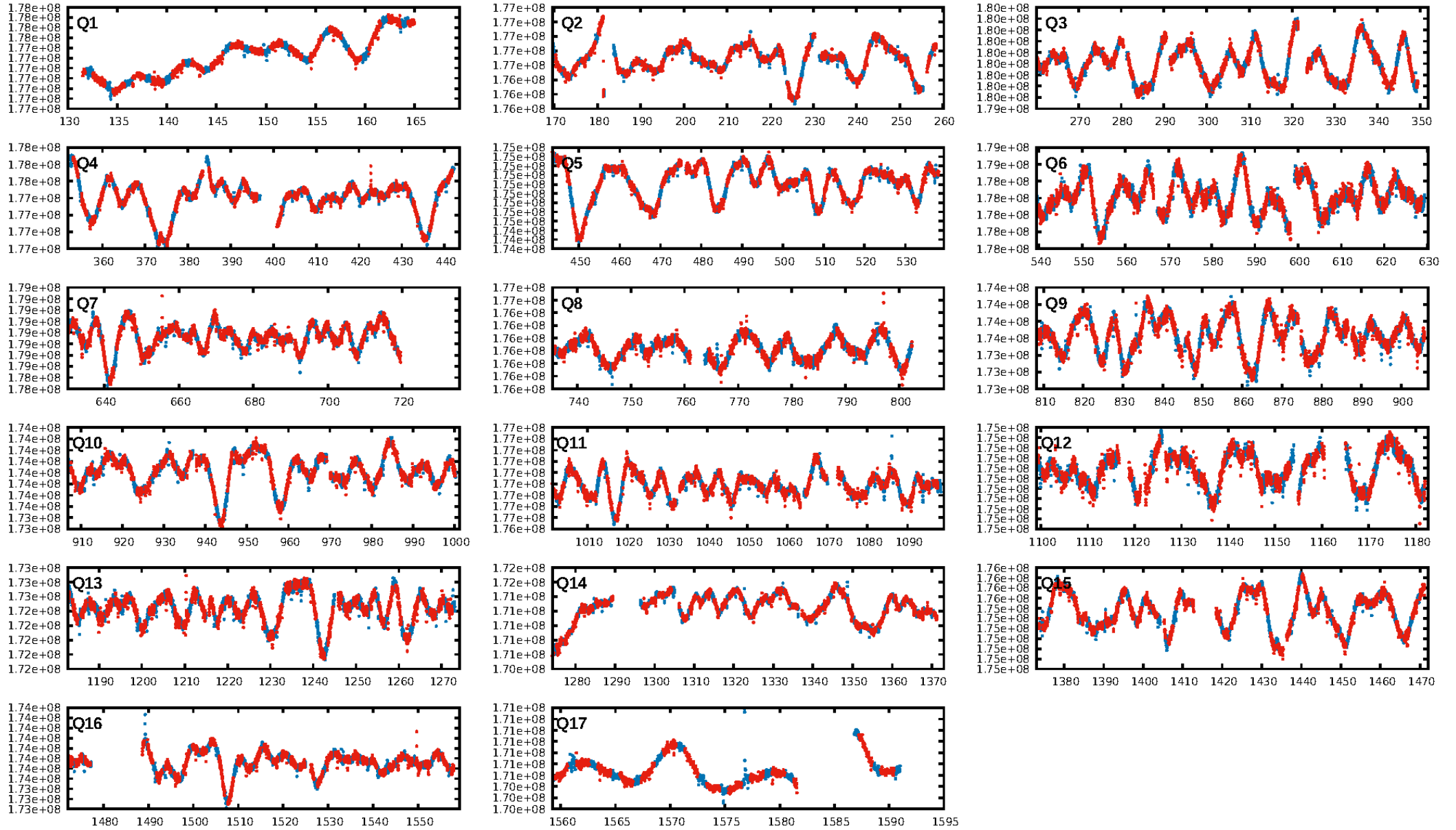
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 33.4% [0.43σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.98e-42
RollingBand-fgt: 1.00 [660/660]
GhostDiagnostic-chr: 2.054
Centroid-sig: 1.1%
Centroid-so: 0.933 arcsec [1.61σ]
OotOffset-rm: 0.920 arcsec [1.60σ]
KicOffset-rm: 0.916 arcsec [1.58σ]
OotOffset-st: 2/3/2/1 [8]
KicOffset-st: 2/3/2/1 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.71 [12/17]

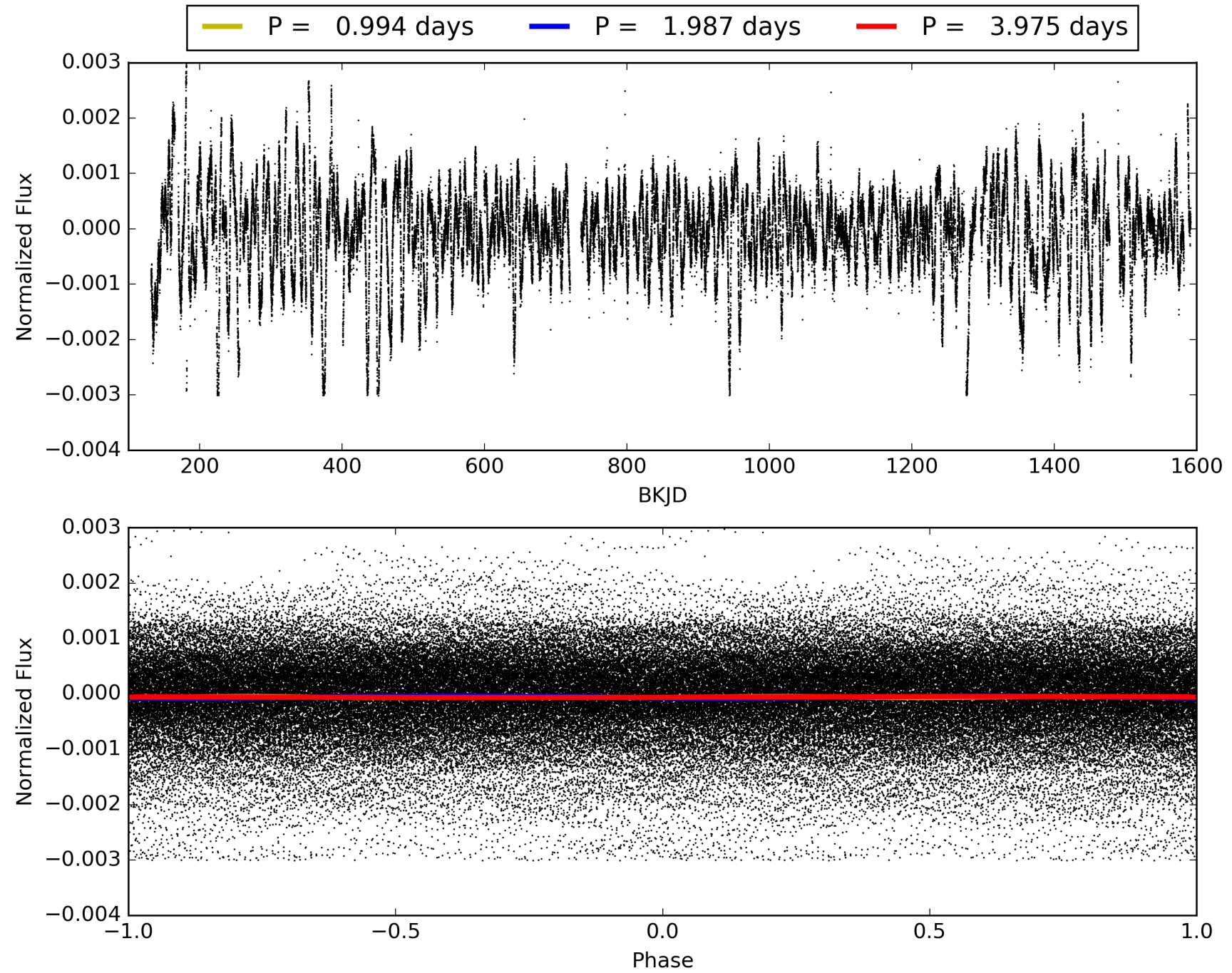
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:29:01 Z

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

TCE 009895004-02, PDC Light Curves

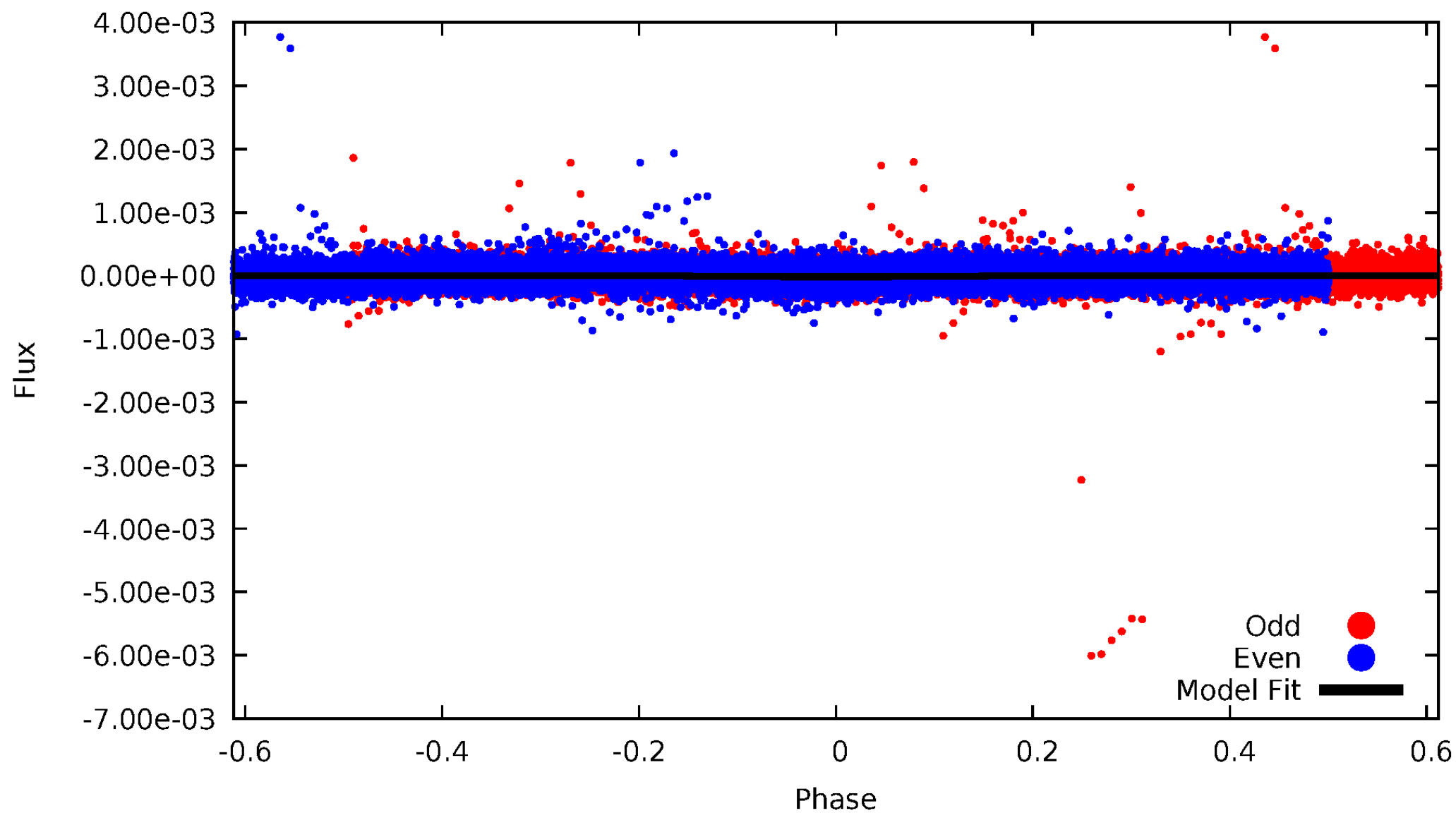


TCE 009895004-02



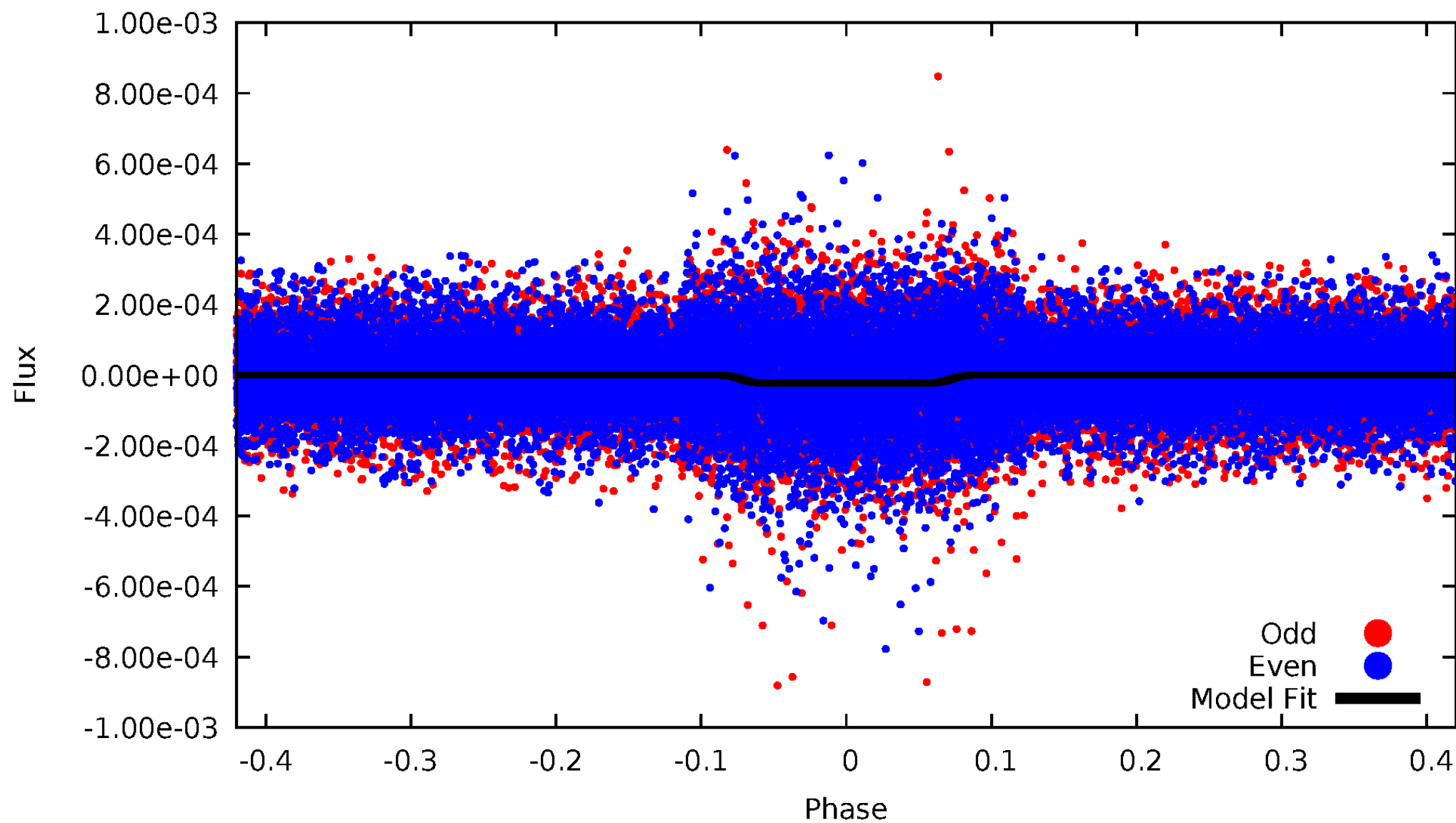
DV Odd/Even

TCE 009895004-02



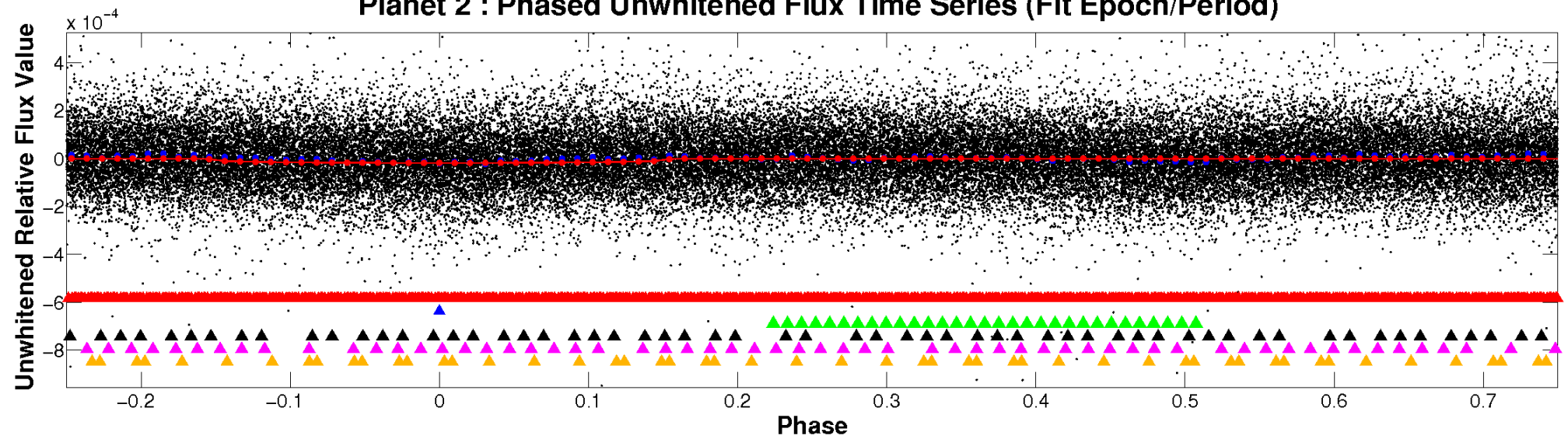
ALT Odd/Even

TCE 009895004-02

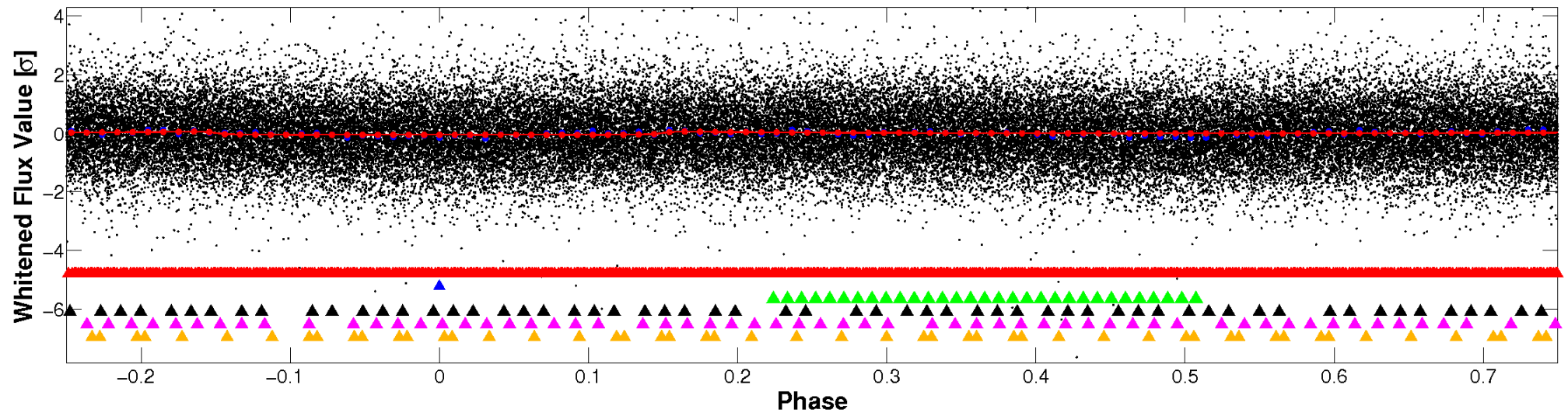


Non-Whitened Vs. Whitened Light Curve

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

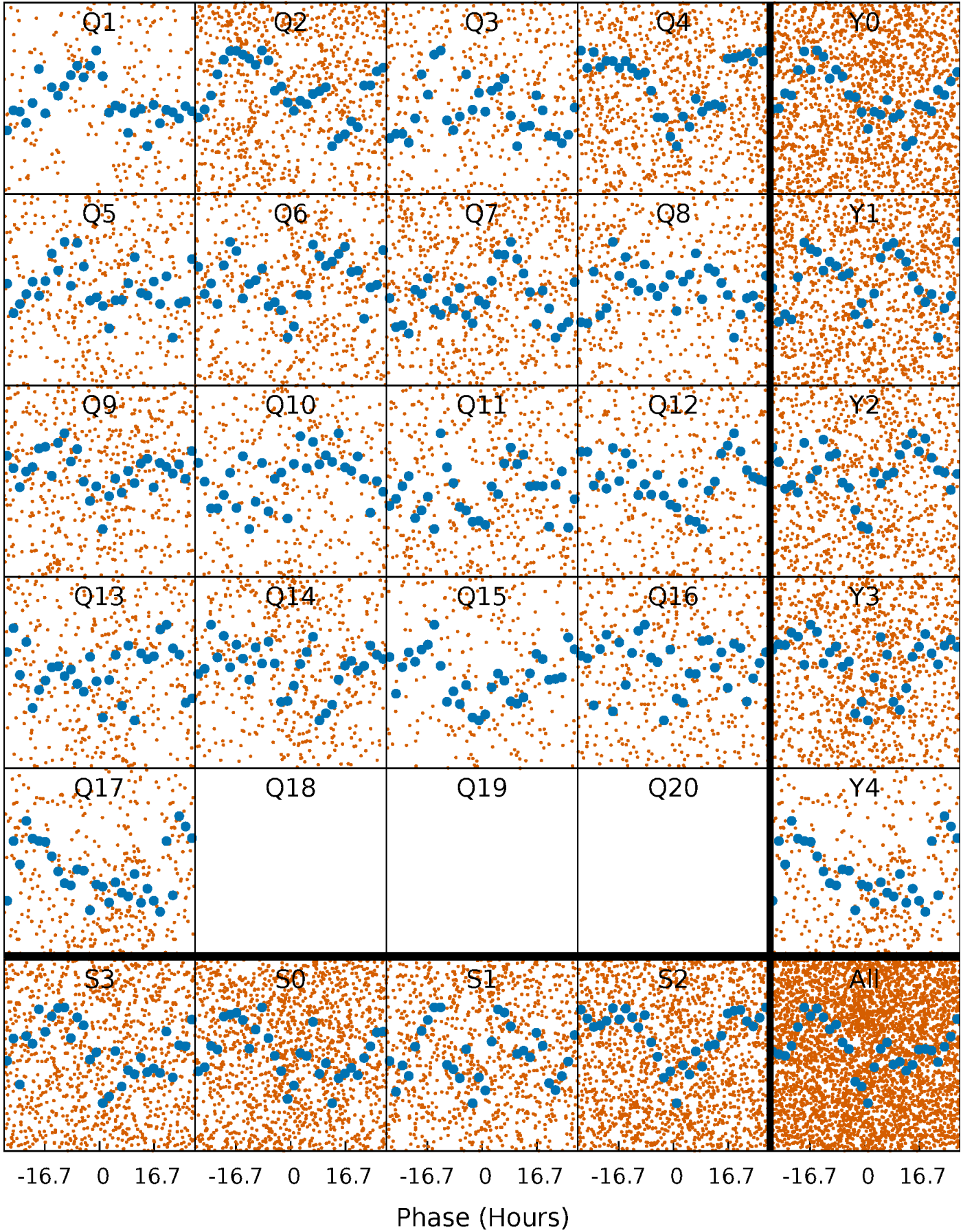


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



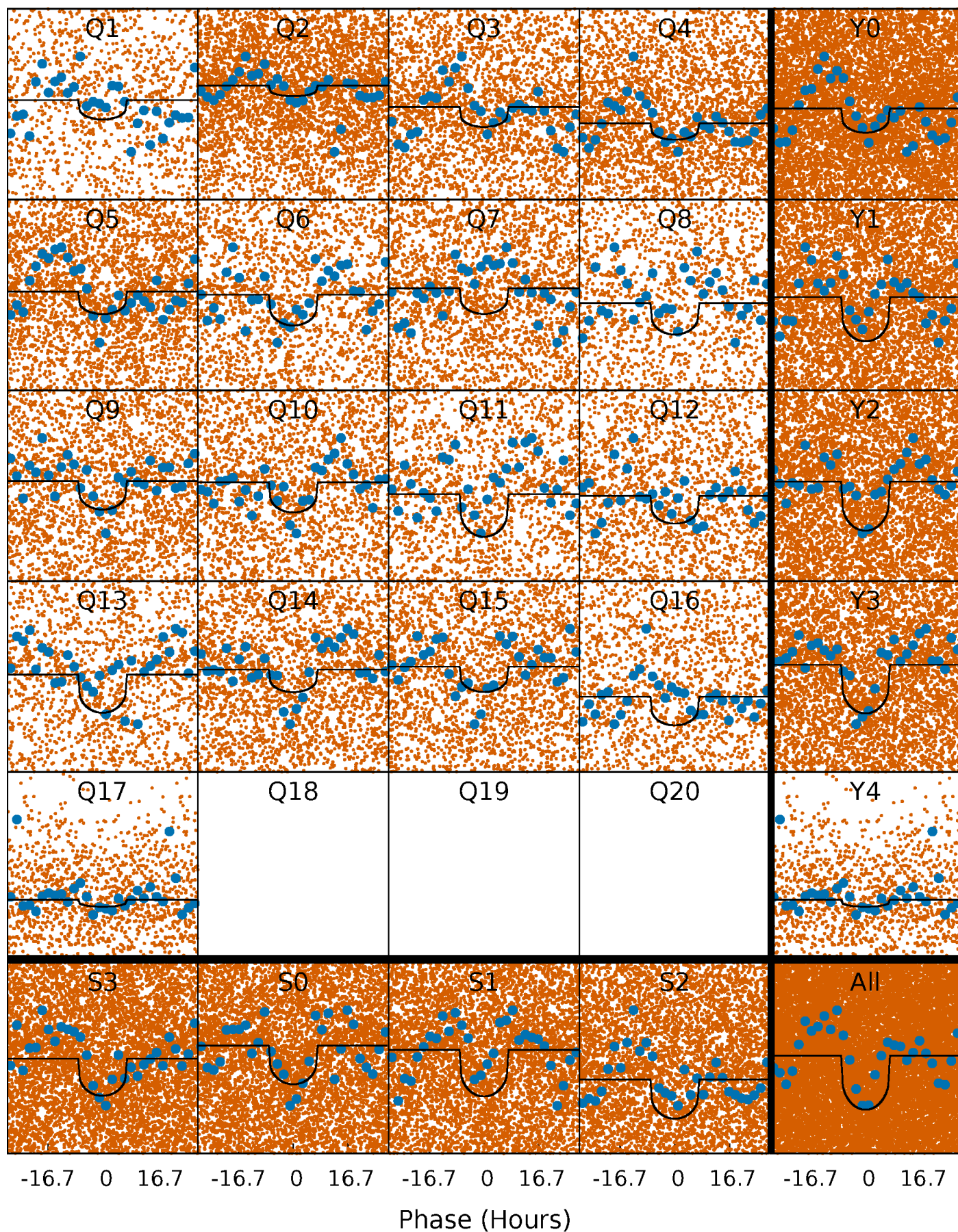
PDC Quarter-Phased Transit Curves

TCE 009895004-02 $P = 1.987290$ Days $T_0 = 133.140838$ (BKJD)



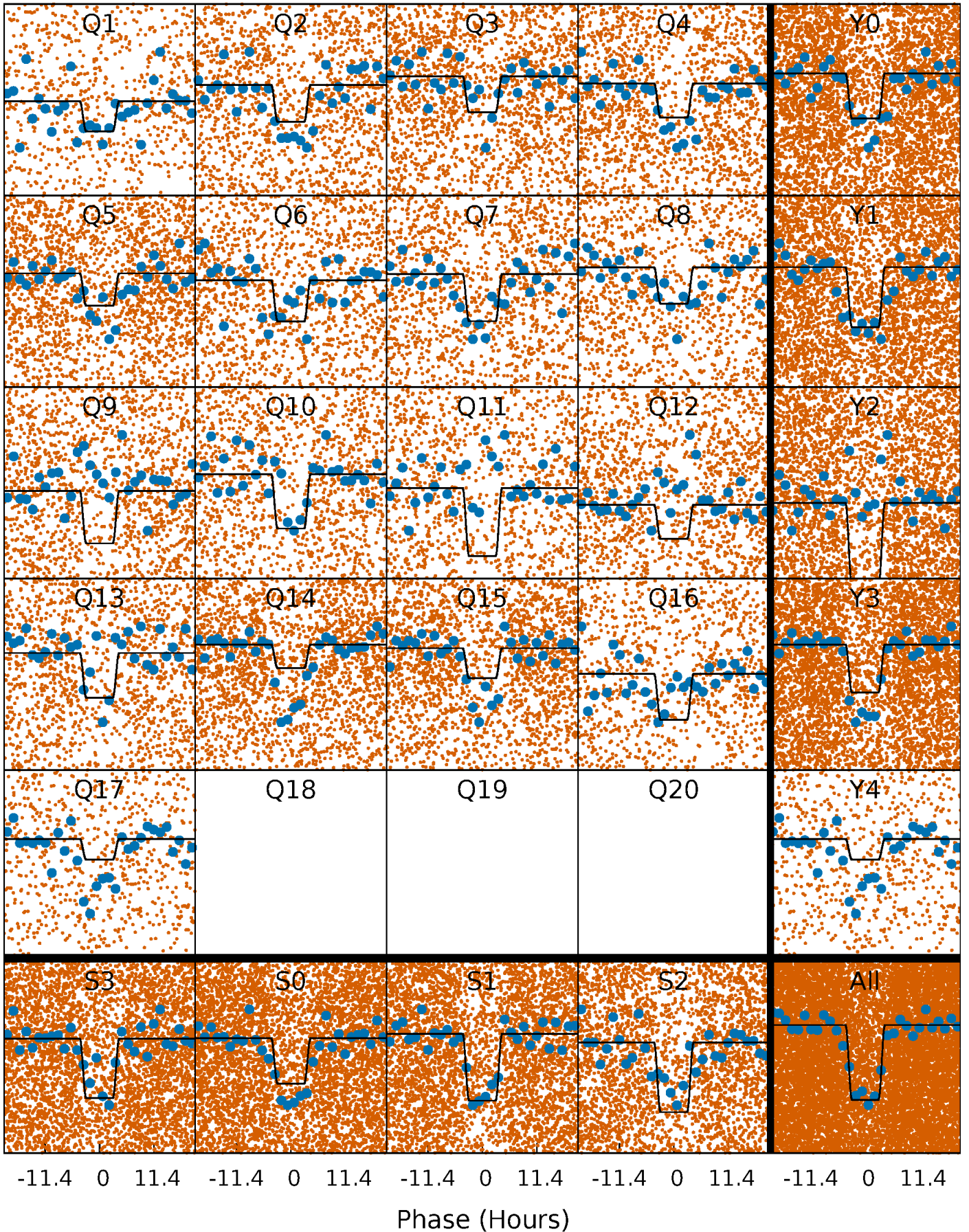
DV Quarter-Phased Transit Curves

TCE 009895004-02 P= 1.987290 Days $T_0=133.140838$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

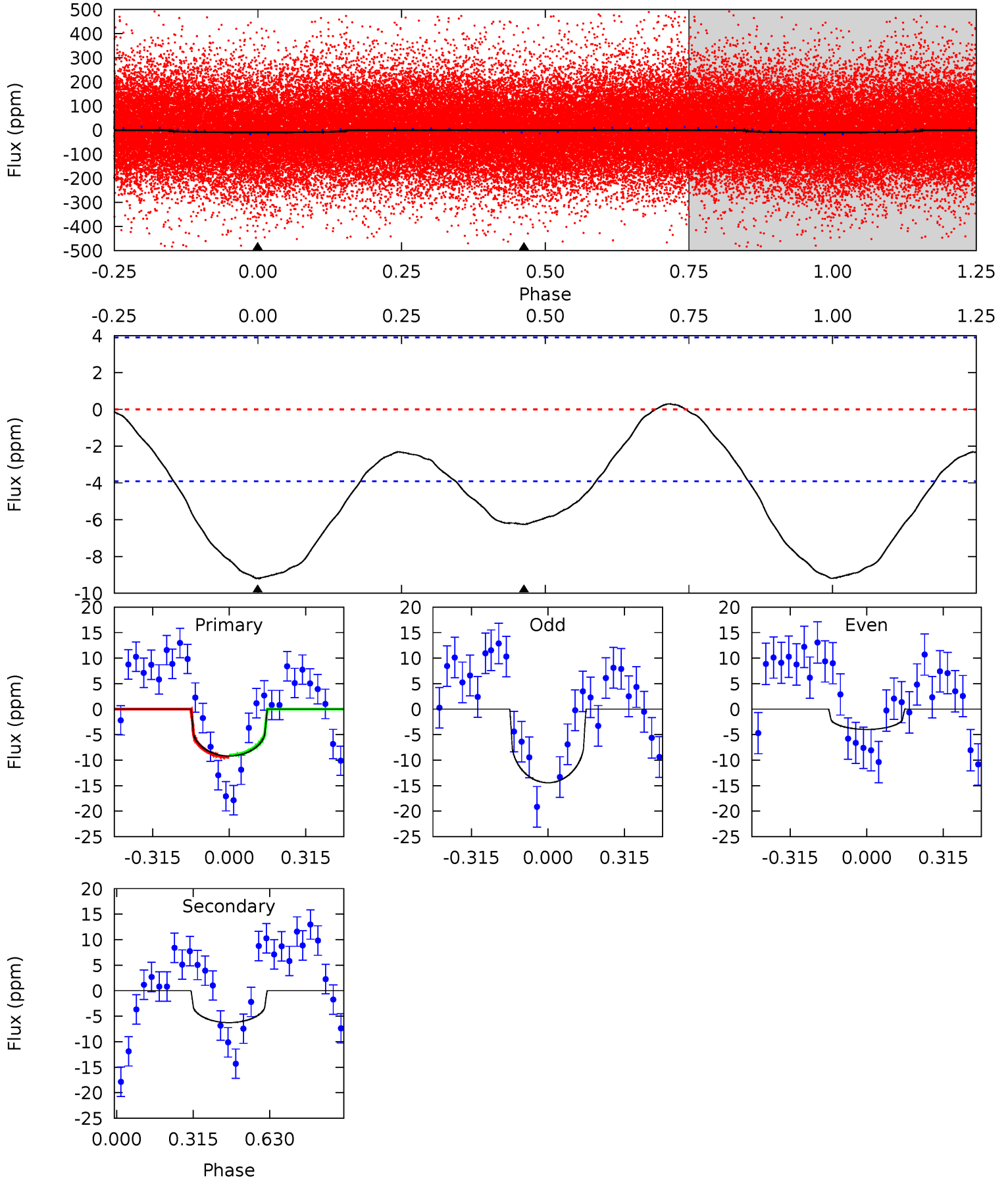
TCE 009895004-02 P= 1.987270 Days $T_0=133.137781$ (BKJD)



DV Model-Shift Uniqueness Test

009895004-02, P = 1.987290 Days, E = 131.153548 Days

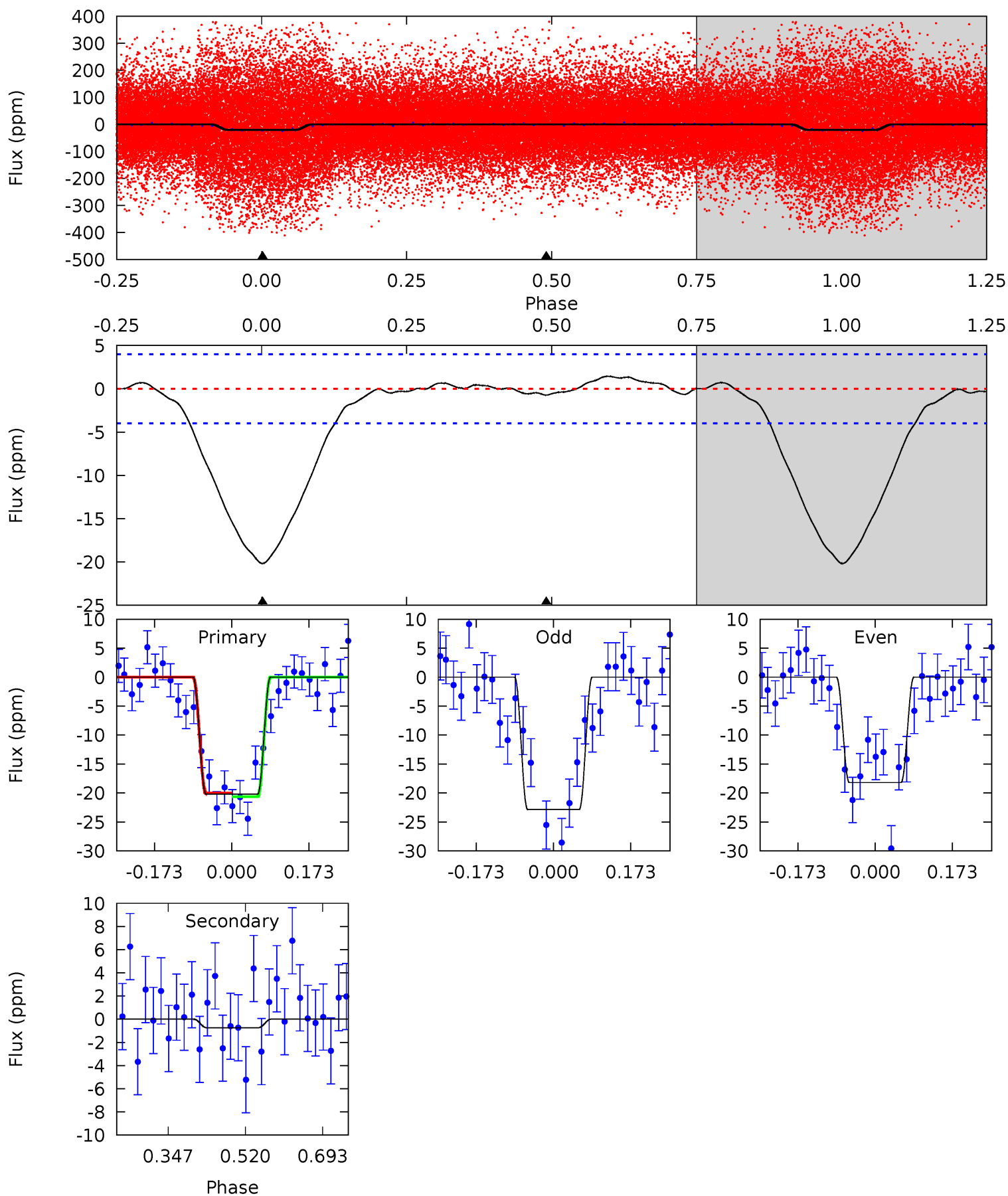
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	6.91	0	0	4.32	1.00	1.01	10.2	10.2	6.91	6.91	5.73	0.65	0.03	0.22



Alt Model-Shift Uniqueness Test

009895004-02, P = 1.987270 Days, E = 131.150511 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.5	0.82	0	0	4.45	1.36	0.48	22.5	22.5	0.82	0.82	2.57	1.03	0.07	0.33



Stellar Parameters For KIC 009895004

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5779^{+104}_{-116}	$4.308^{+0.138}_{-0.113}$	$-0.100^{+0.150}_{-0.150}$	$1.119^{+0.177}_{-0.159}$	$0.928^{+0.074}_{-0.061}$	$0.933^{+0.585}_{-0.304}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-14%	+8%/-7%	+63%/-33%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009895004-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6 ± 1	$0.51^{+0.34}_{-0.29}$	2164^{+105}_{-103}	4594^{+2306}_{-833}	12^{+56}_{-8}
Alt.	-1 ± 1	$0.60^{+0.35}_{-0.32}$	2162^{+98}_{-107}	2766^{+1100}_{-5515}	$0.800^{+4.377}_{-0.983}$

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 $A_{obs} \gg 1.0$

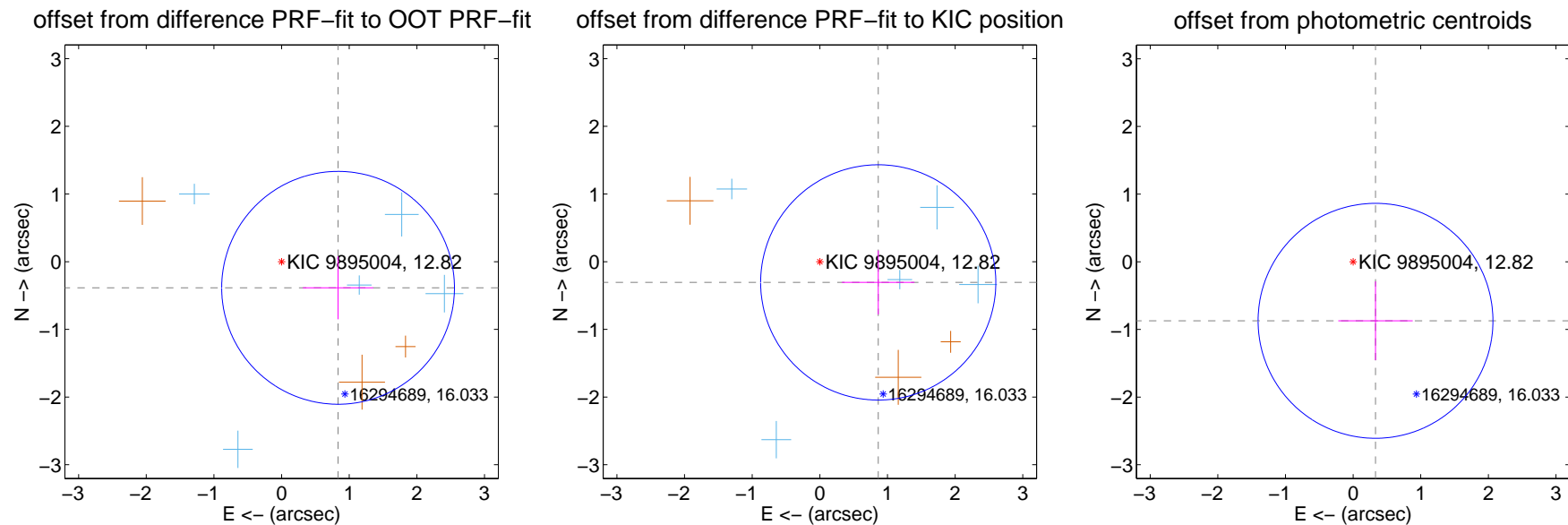
DV Centroid Data

Supplemental centroid analysis for 009895004-02. Kepler magnitude: 12.82. Transit SNR 7.92

There are 5 quarters with good PRF difference image offsets

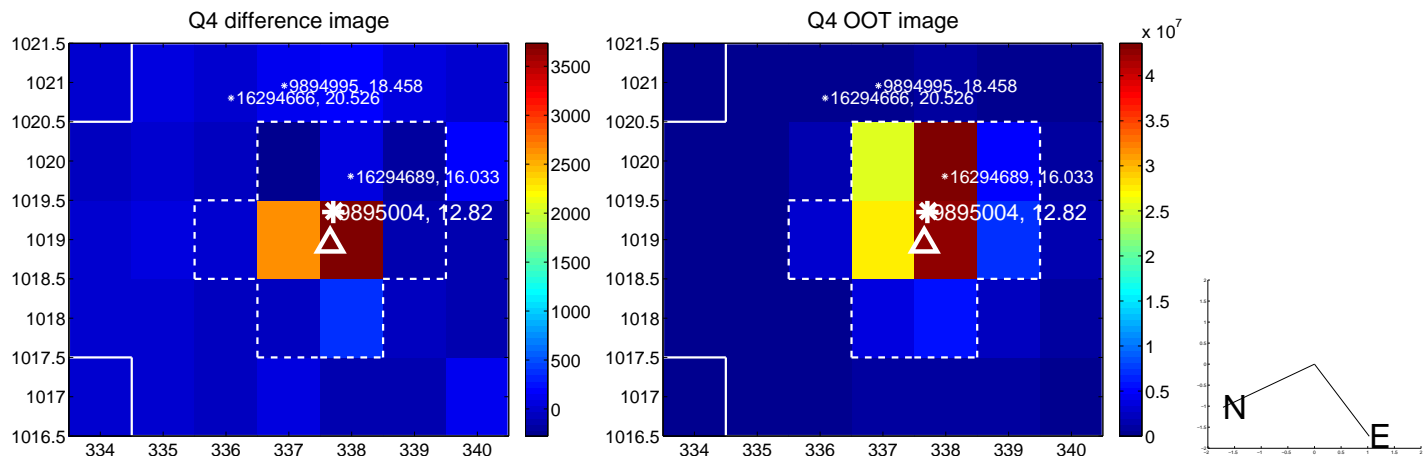
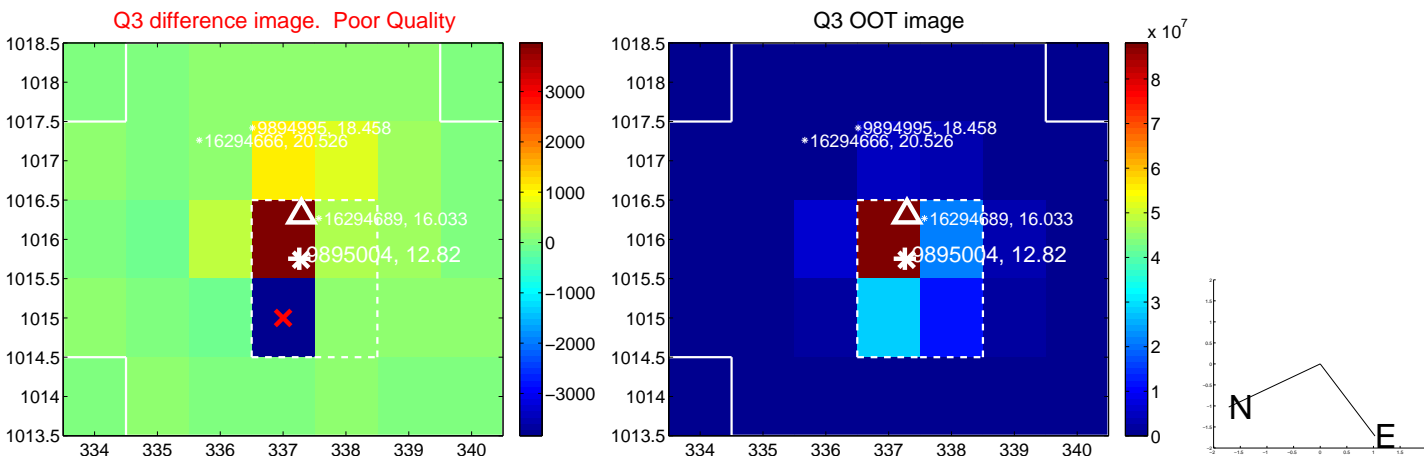
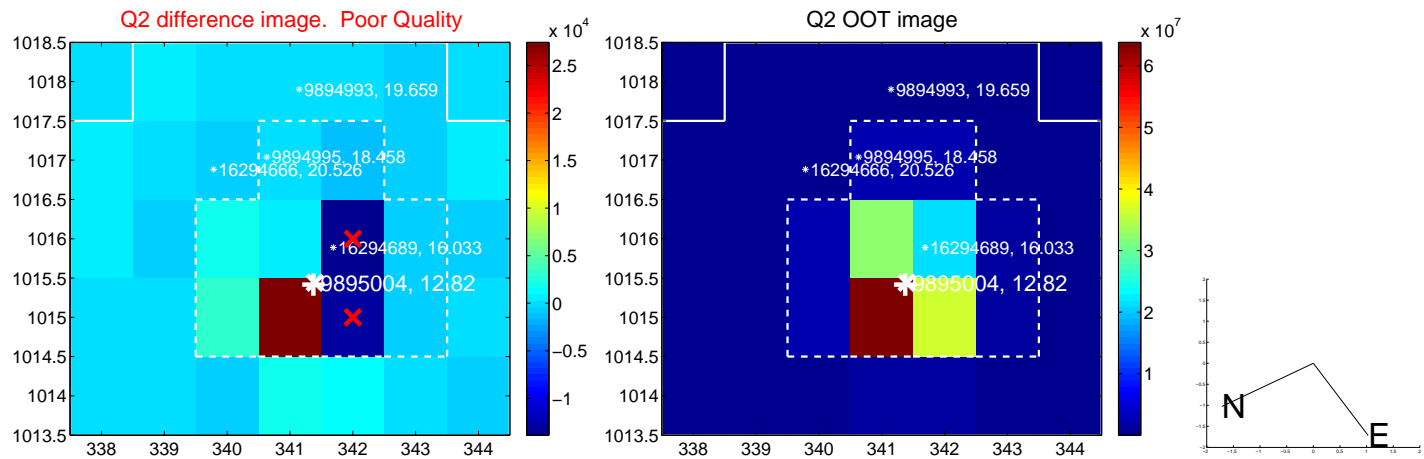
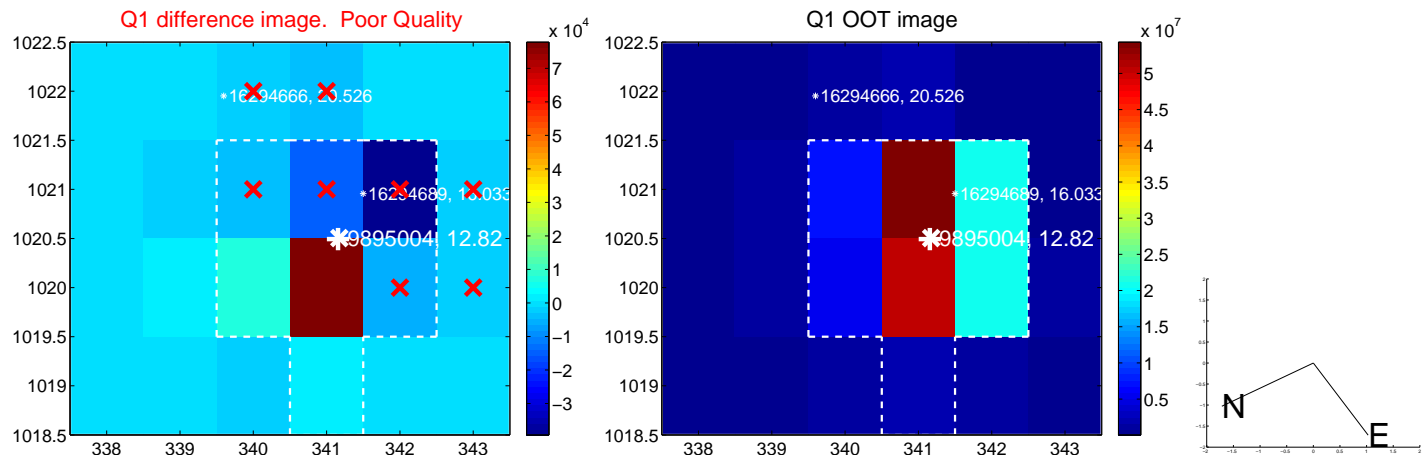
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.920 ± 0.573	1.60	-0.835 ± 0.520	-0.386 ± 0.465
PRF-fit source offset from KIC position	0.916 ± 0.579	1.58	-0.863 ± 0.536	-0.306 ± 0.473
photometric centroid source offset	0.93 ± 0.58	1.61	-0.33 ± 0.55	-0.87 ± 0.58

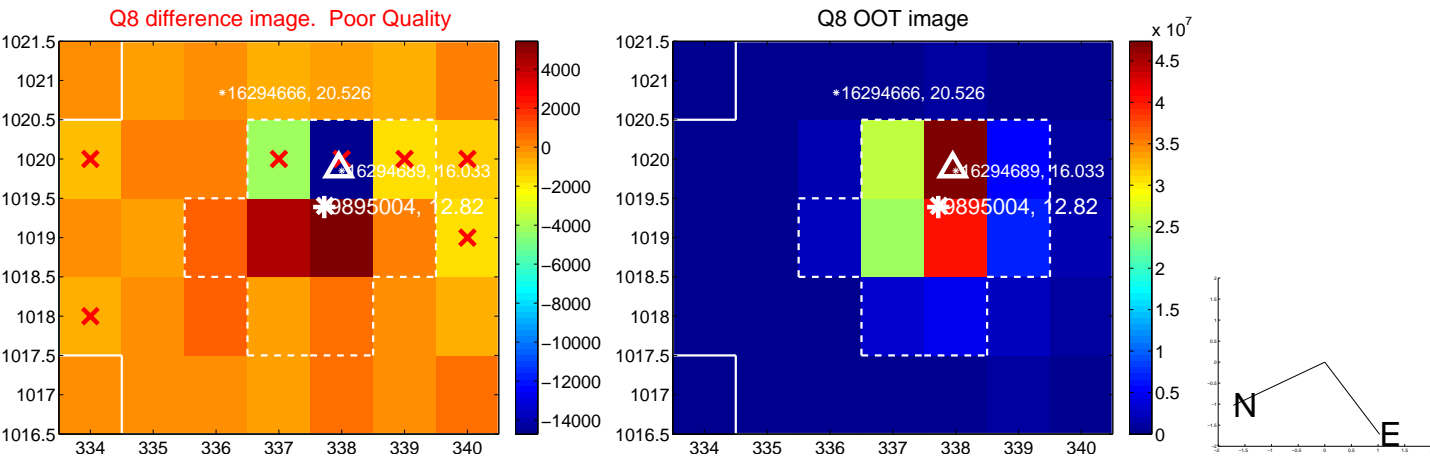
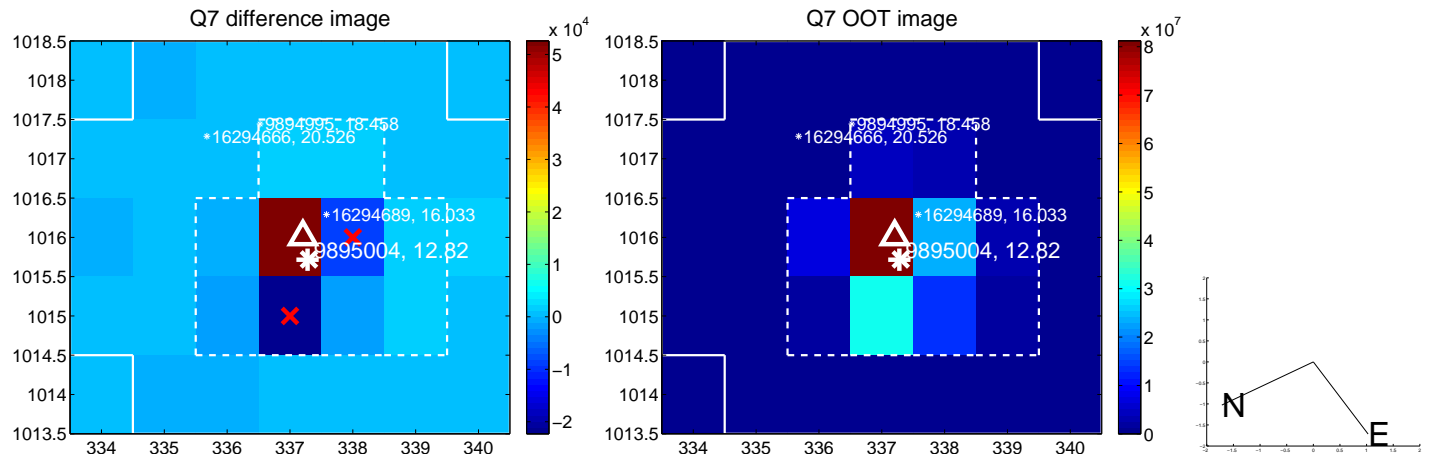
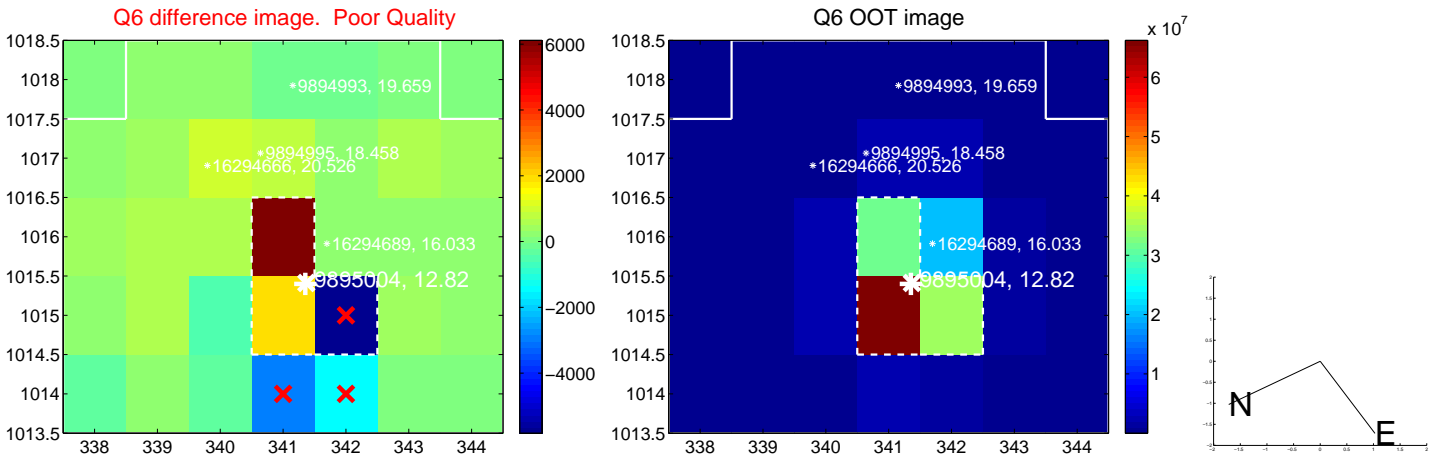
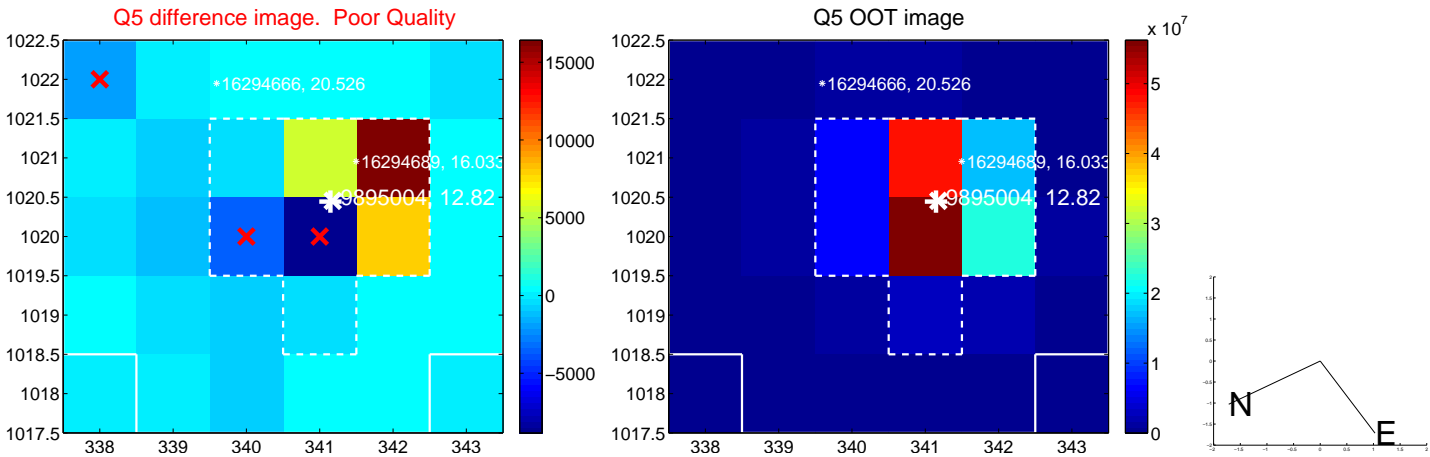


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

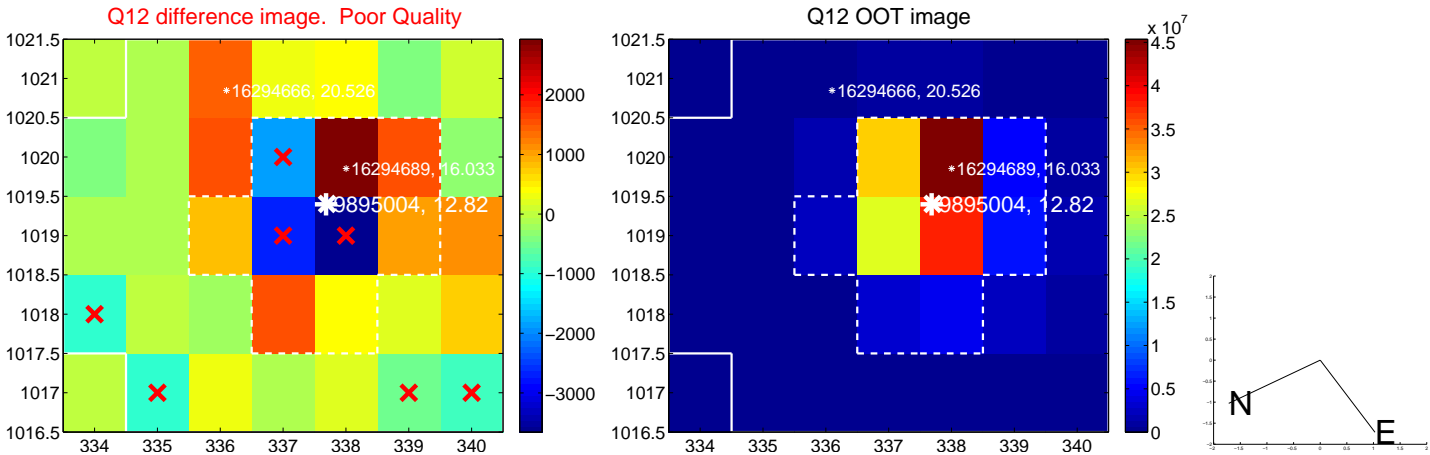
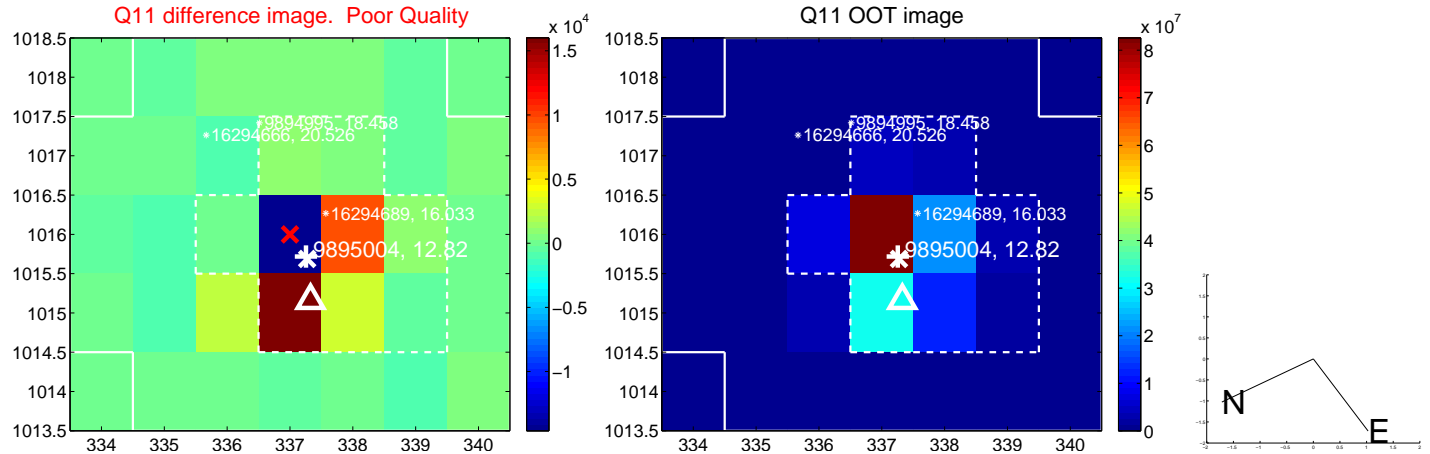
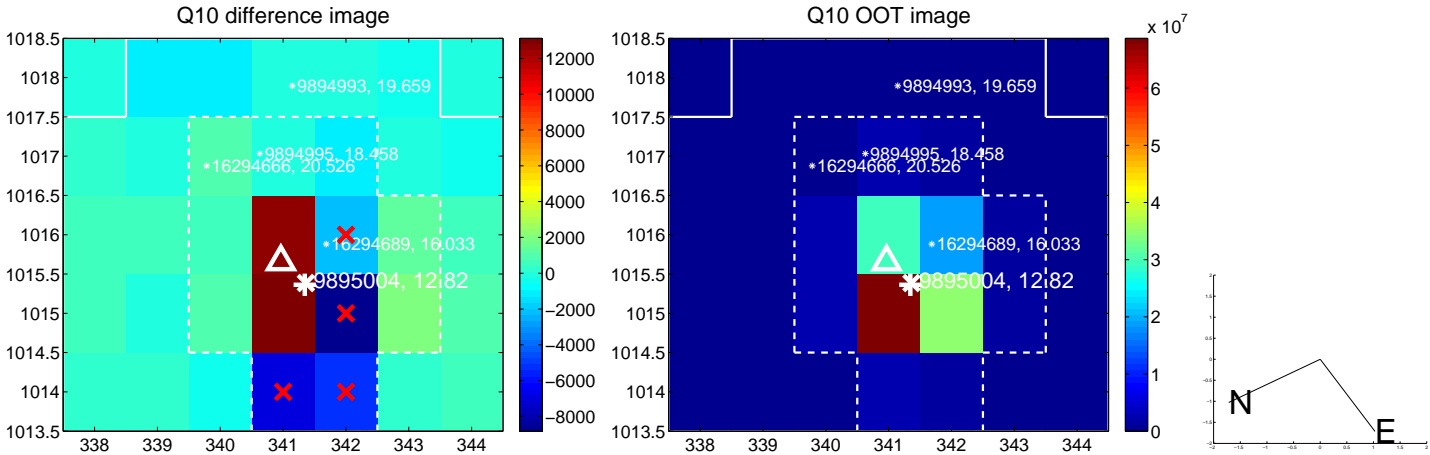
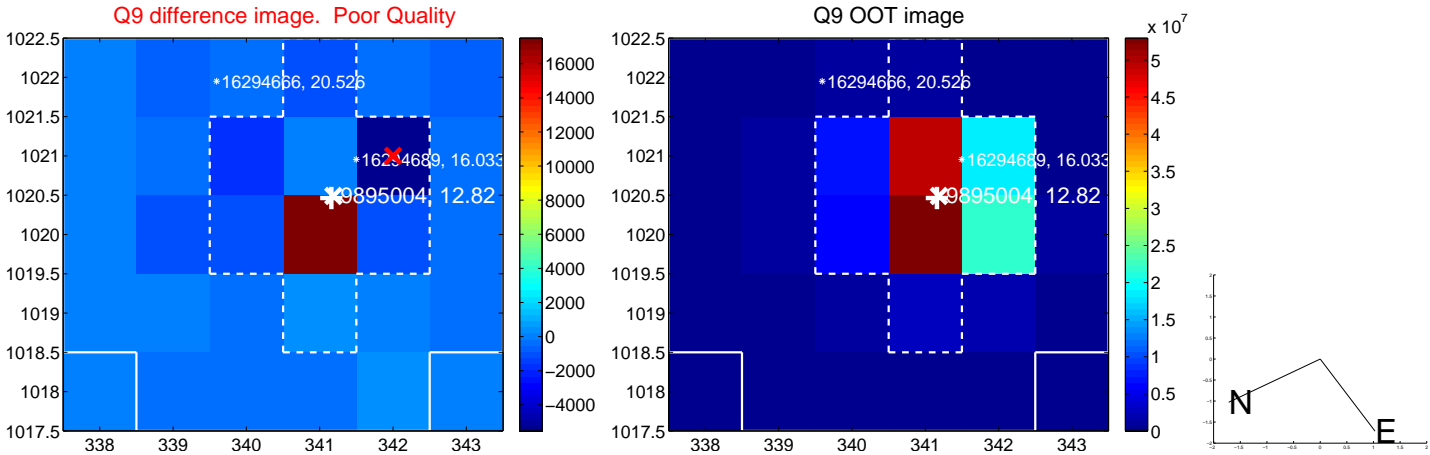
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



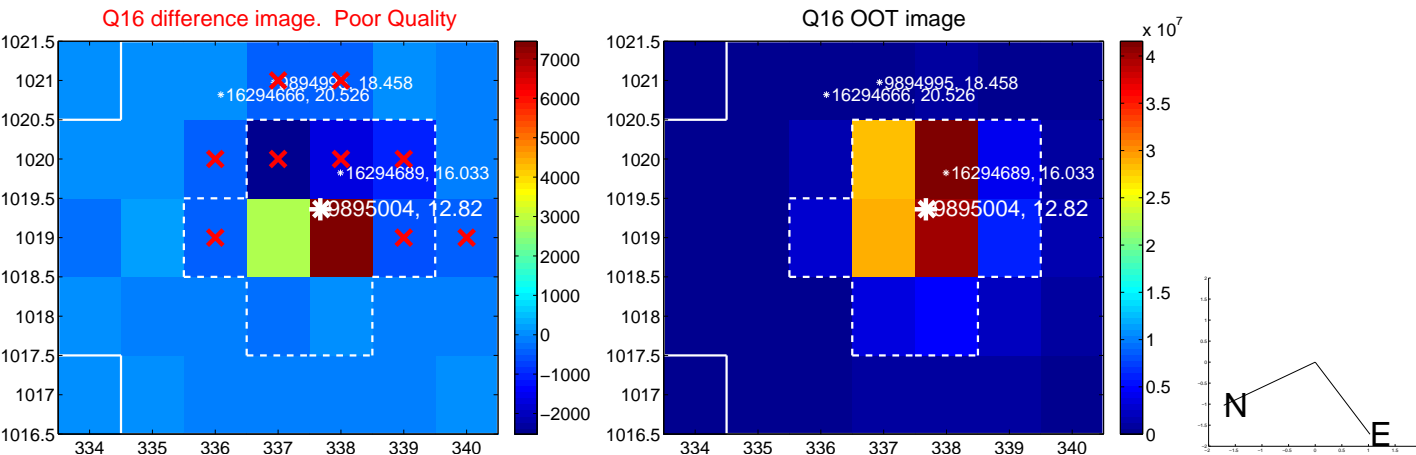
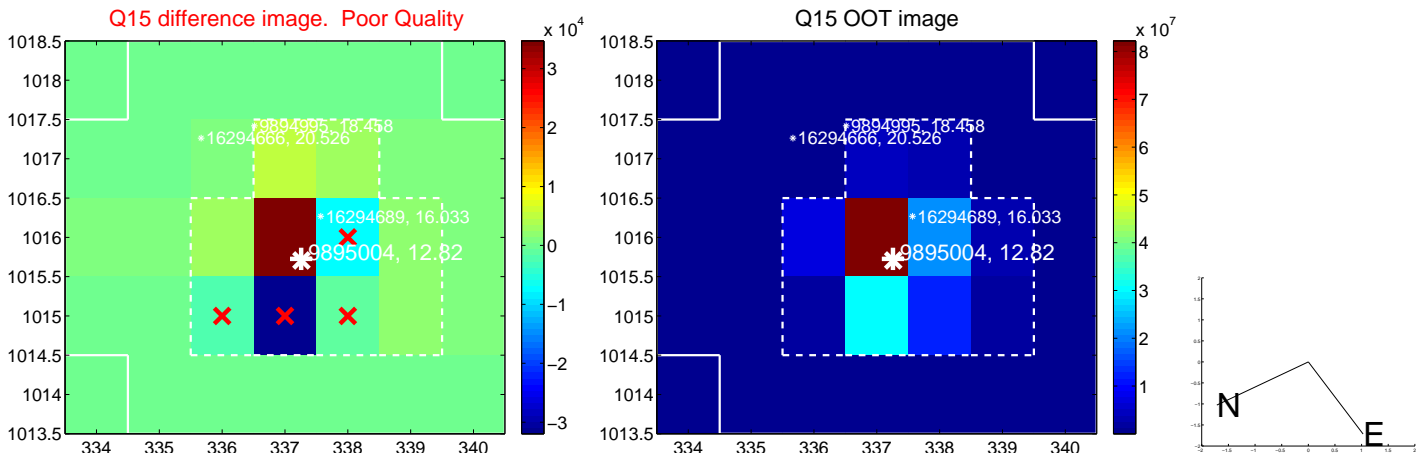
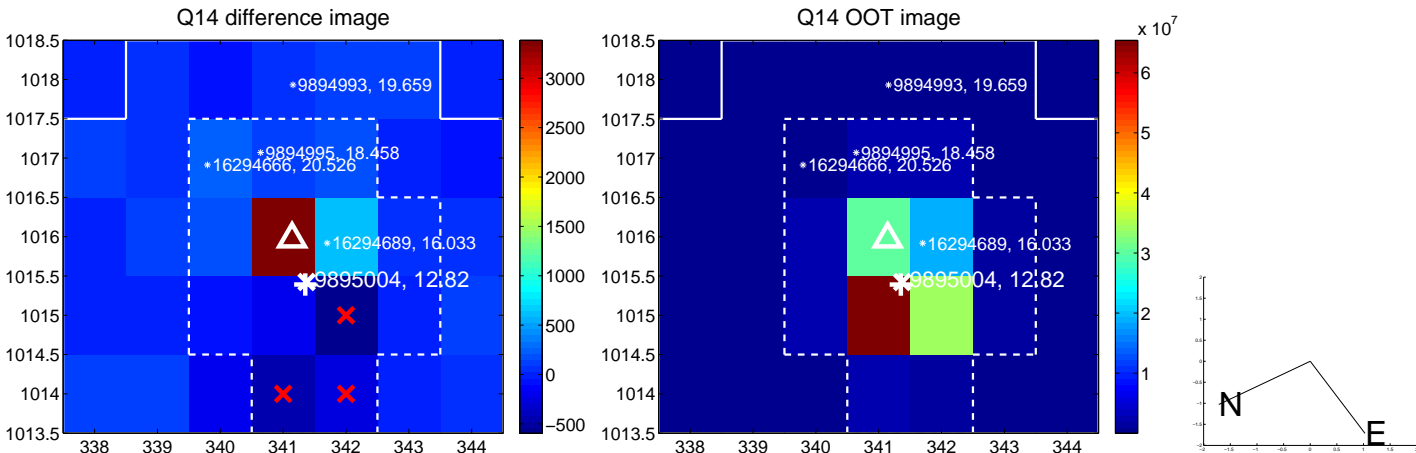
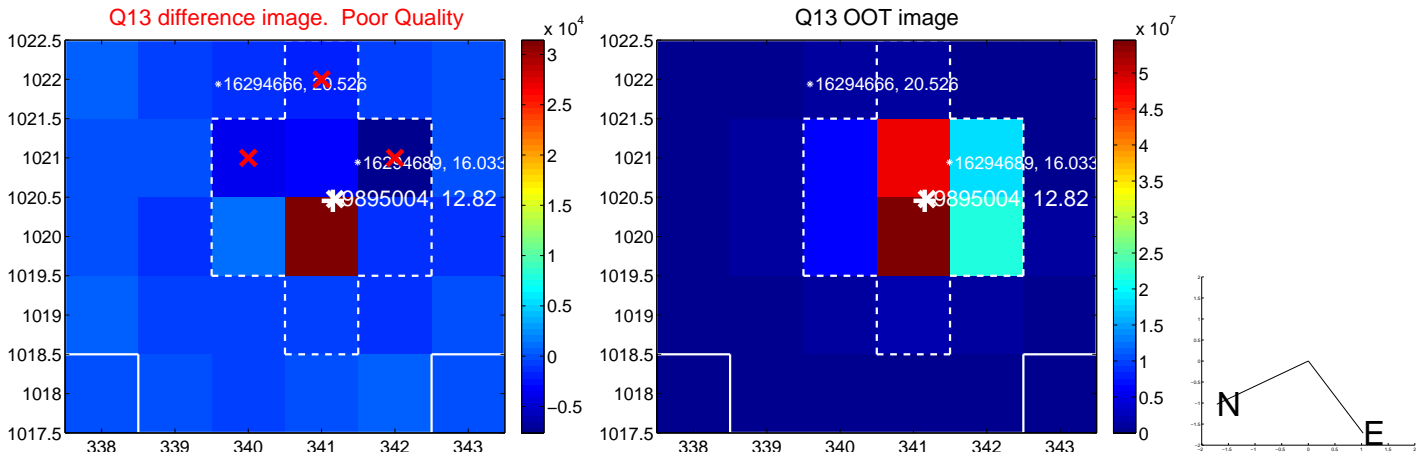
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



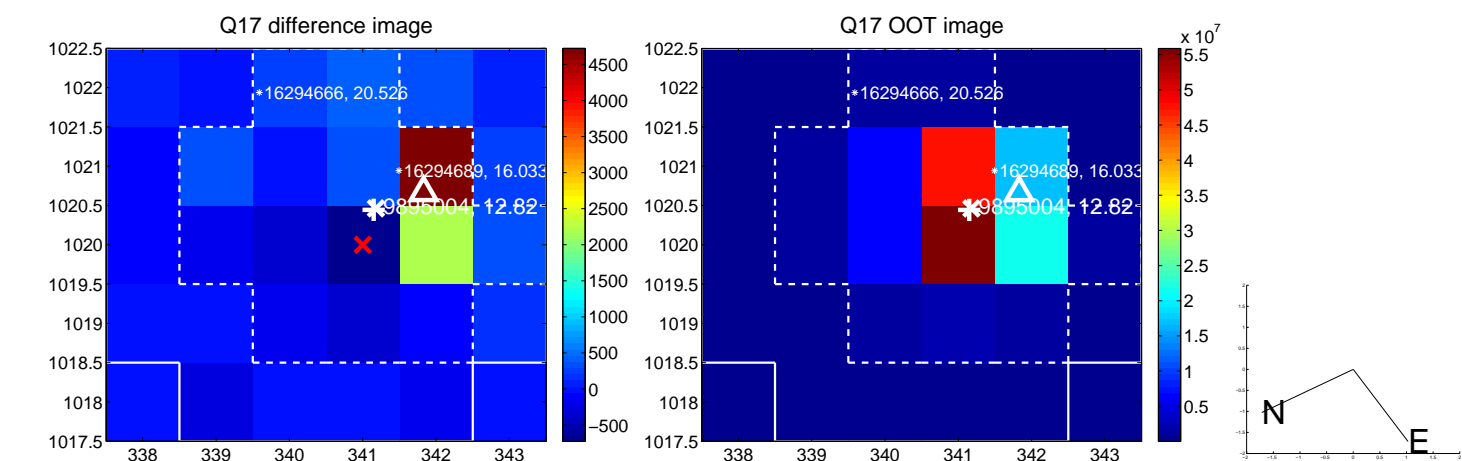
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



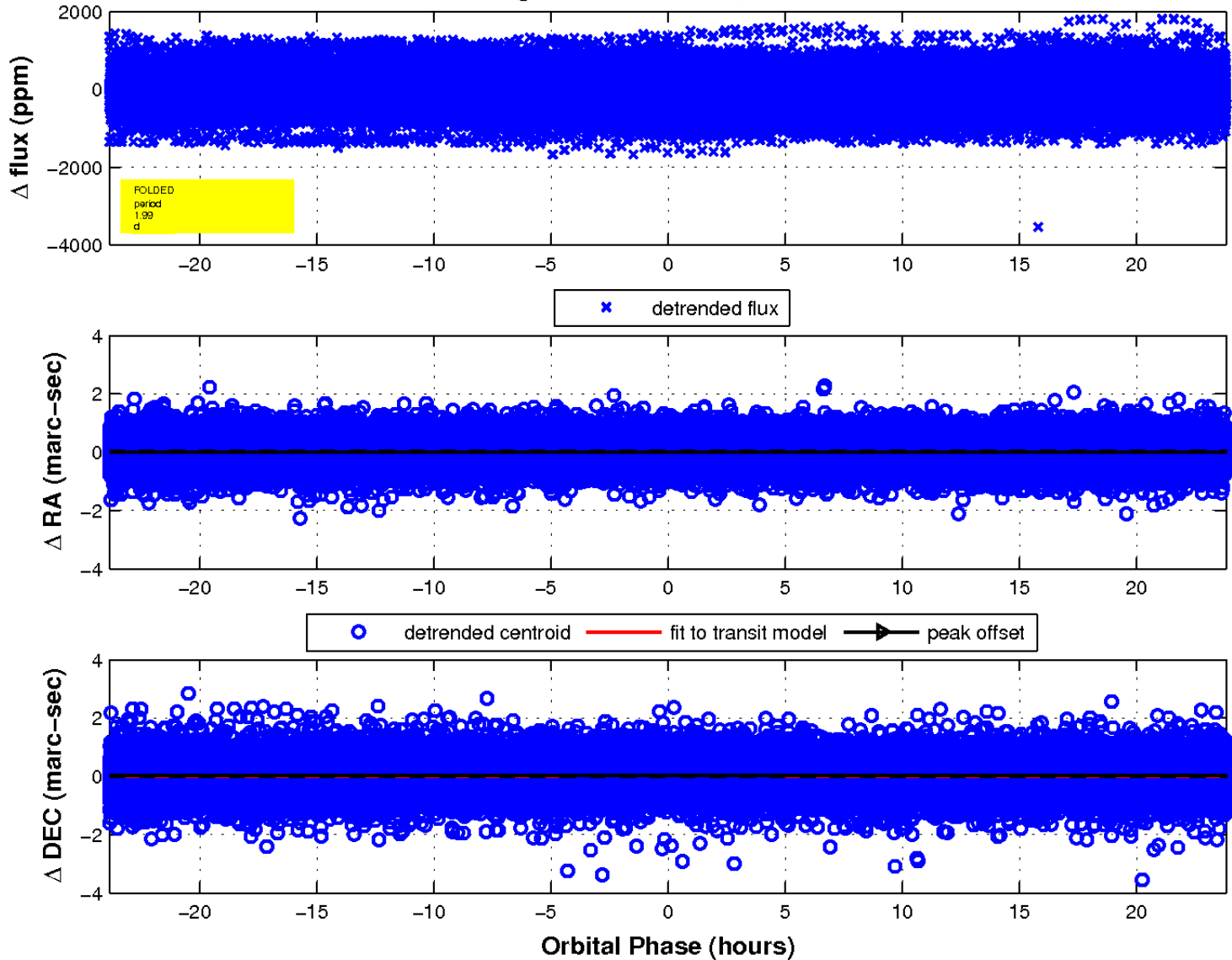
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

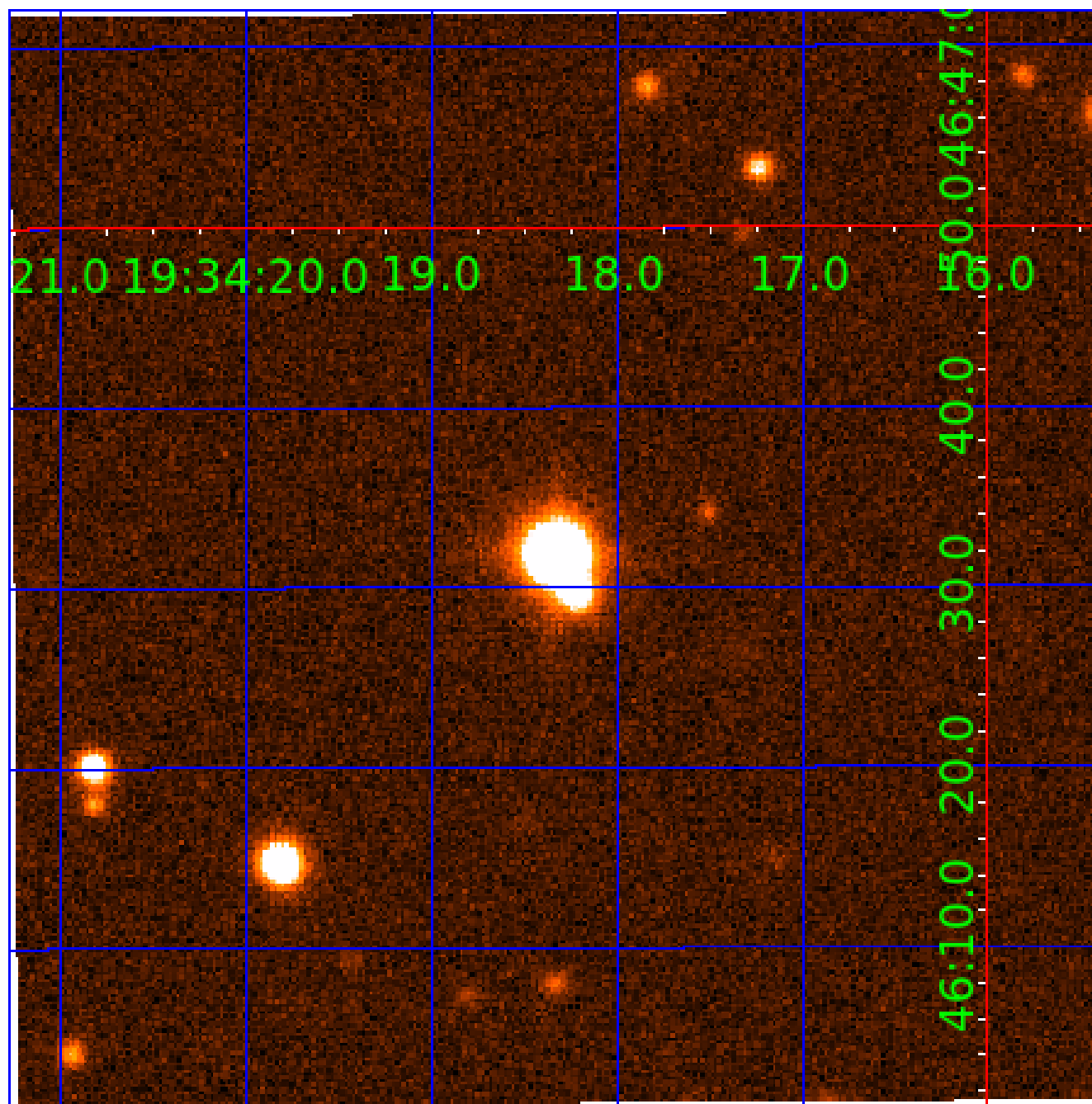


fluxWeightedCentroids, Planet 2 of 6



UKIRT Image

Declination



KIC 009895004

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})
009895004-01	OBS	0328.01	2.250826	132.058045	489.5	1.186	117.4	132.4	1.12	5779	2.96	1163.42
009895004-02	OBS	No	1.987290	133.140838	18.4	14.583	8.8	7.9	1.12	5779	0.48	1373.55
009895004-03	OBS	No	47.676188	159.983767	969.8	5.965	24.4	19.8	1.12	5779	6.76	19.85
009895004-04	OBS	No	24.478594	154.065581	269.9	5.574	16.6	8.8	1.12	5779	2.06	48.28
009895004-05	OBS	No	24.233098	145.246057	227.4	5.792	10.4	7.2	1.12	5779	1.98	48.94
009895004-06	OBS	No	28.231509	140.097809	254.0	3.325	7.4	6.8	1.12	5779	1.97	39.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895004-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET
009895004-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
009895004-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
009895004-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009895004-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
009895004-06	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_DIFFS

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

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

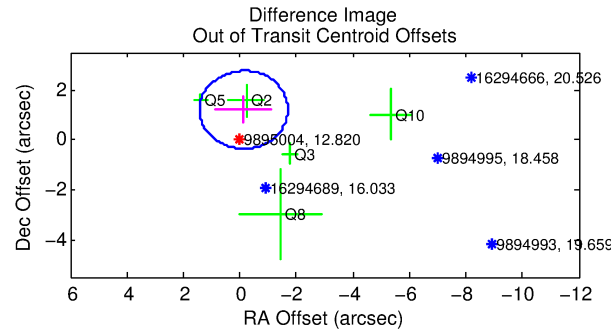
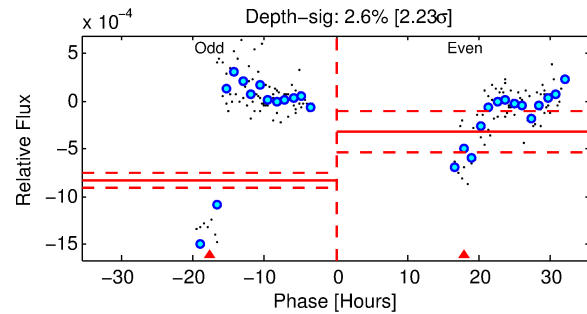
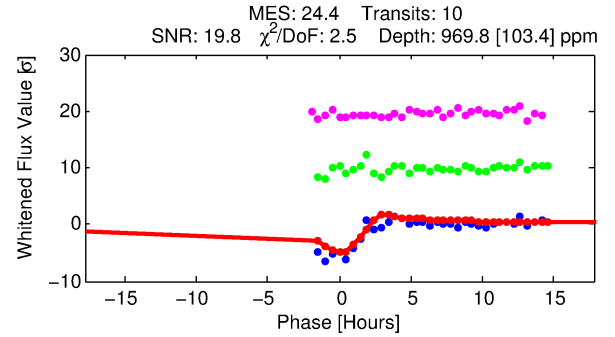
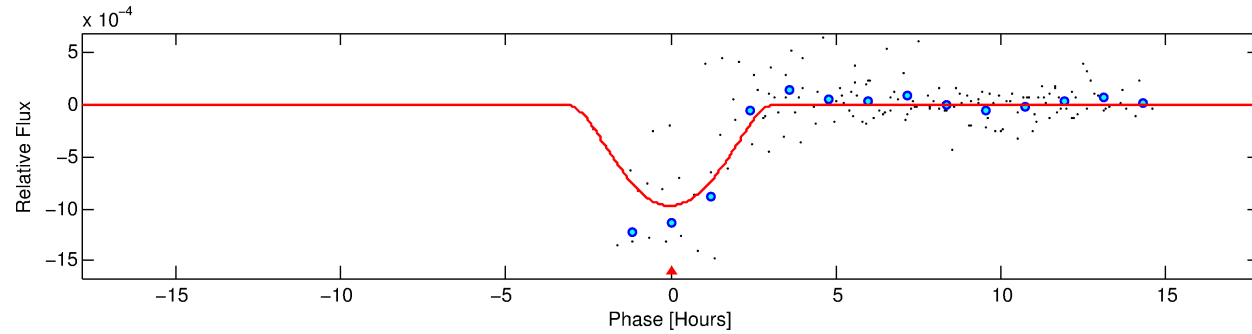
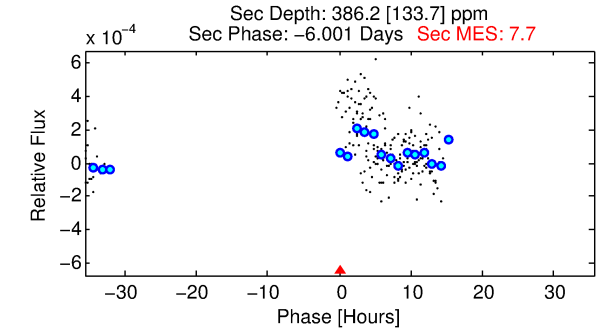
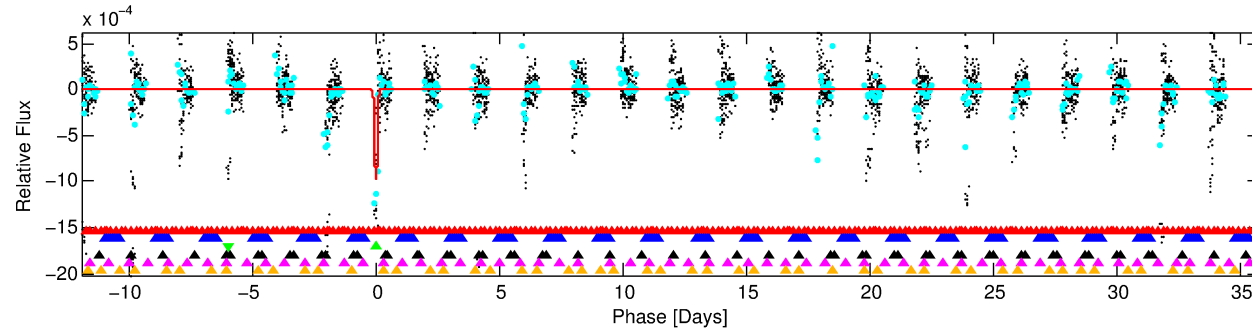
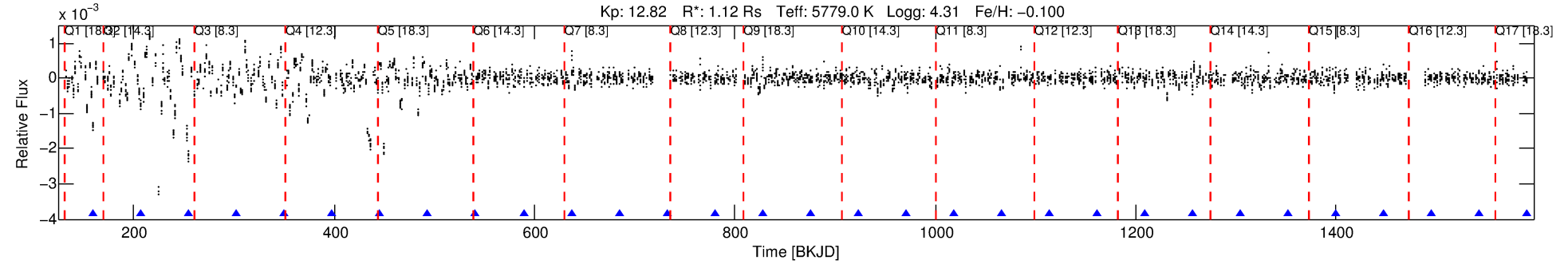
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009895004-03

No Significant Match Found

DV One-Page Summary

KIC: 9895004 Candidate: 3 of 6 Period: 47.676 d
KOI: K00328 Corr: No Ephemeris Match



DV Fit Results:

Period = 47.67619 [0.00209] d
Epoch = 159.9838 [0.0087] BKJD
Rp/R* = 0.0554 [0.1441]
a/R* = 20.70 [13.95]
b = 1.00 [0.20]
Seff = 19.85 [4.96]
Teq = 538 [34] K
Rp = 6.76 [17.62] Re
a = 0.2511 [0.0375] AU
Ag = 293.00 [1529.81] [0.19 σ]
Teffp = 3443 [4490] K [0.65 σ]

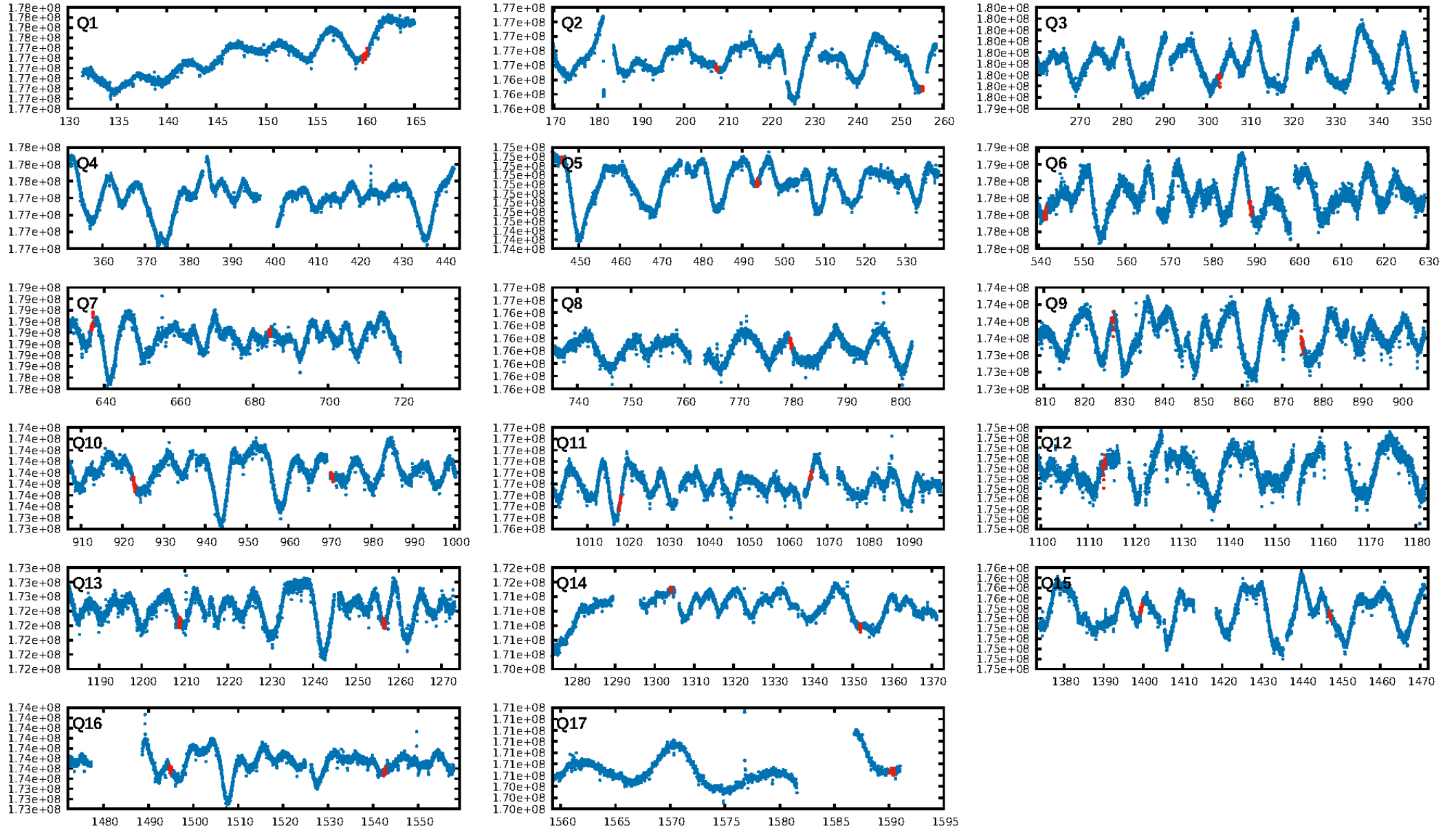
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.34 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.40e-78
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -4.011
Centroid-sig: 0.1%
Centroid-so: 0.164 arcsec [1.58 σ]
OotOffset-rm: 1.205 arcsec [2.31 σ]
KicOffset-rm: 1.330 arcsec [1.71 σ]
OotOffset-st: 2/1/1/1 [5]
KicOffset-st: 2/1/1/1 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.20 [3/15]

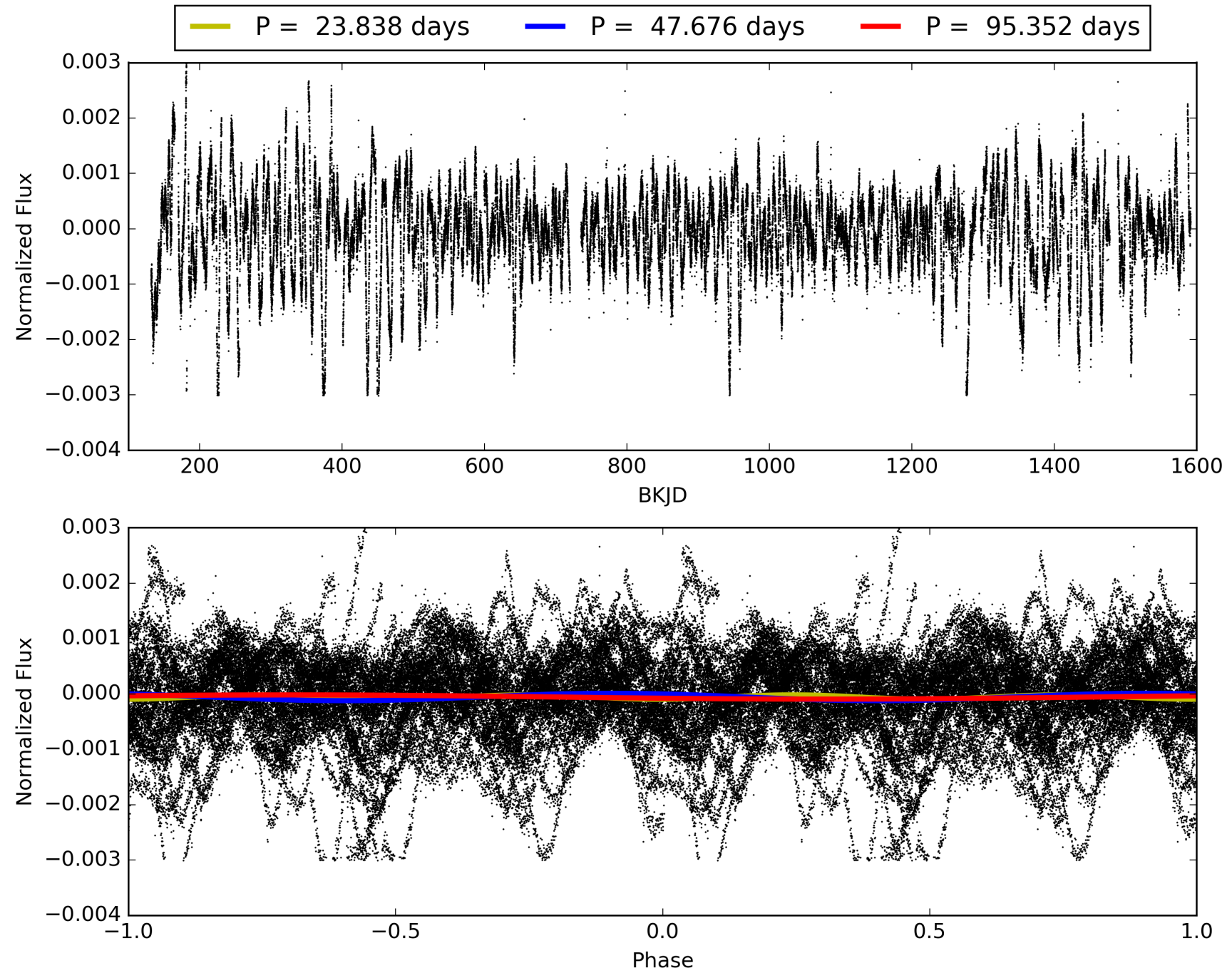
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:29:11 Z

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

TCE 009895004-03, PDC Light Curves

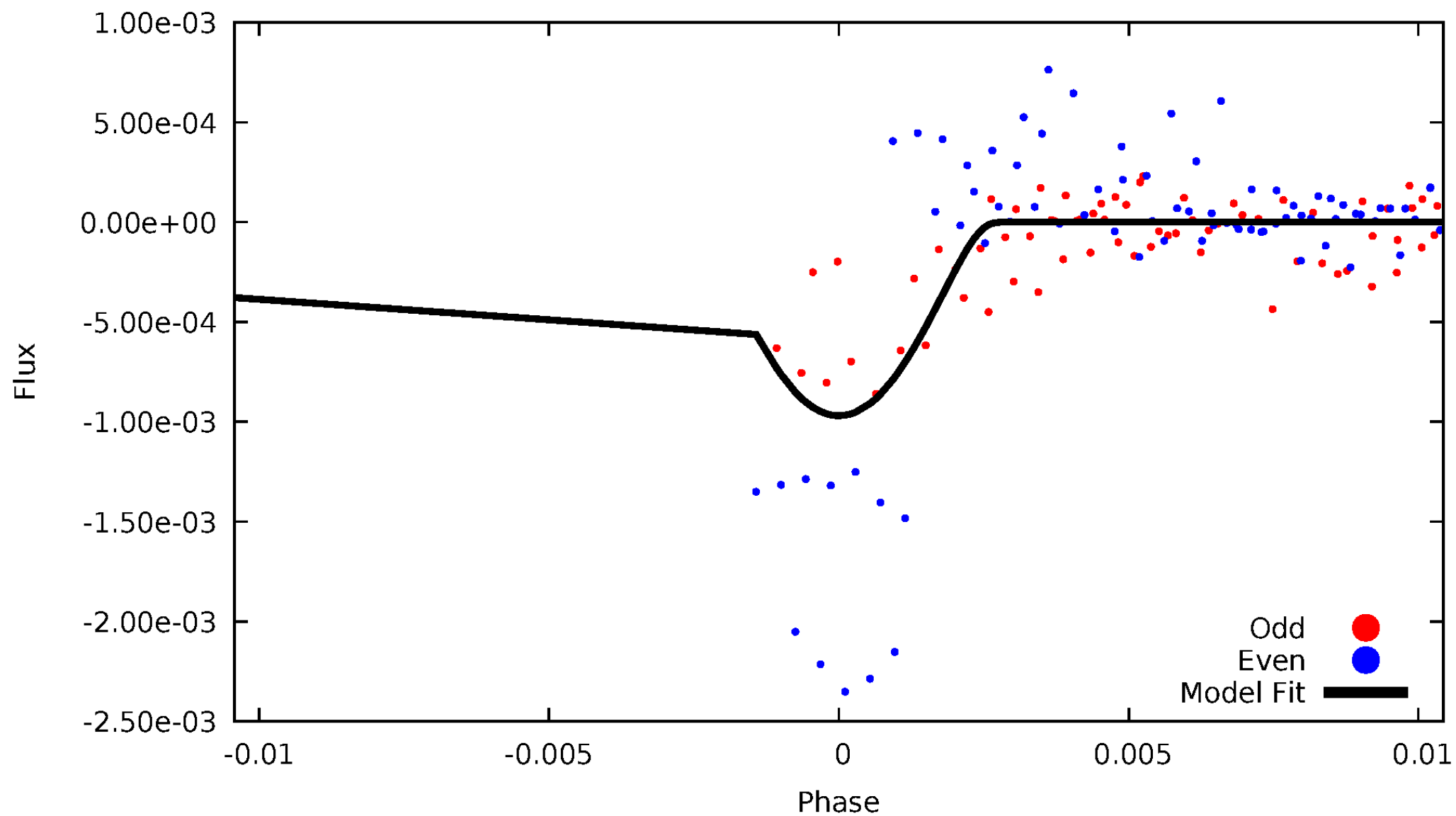


TCE 009895004-03



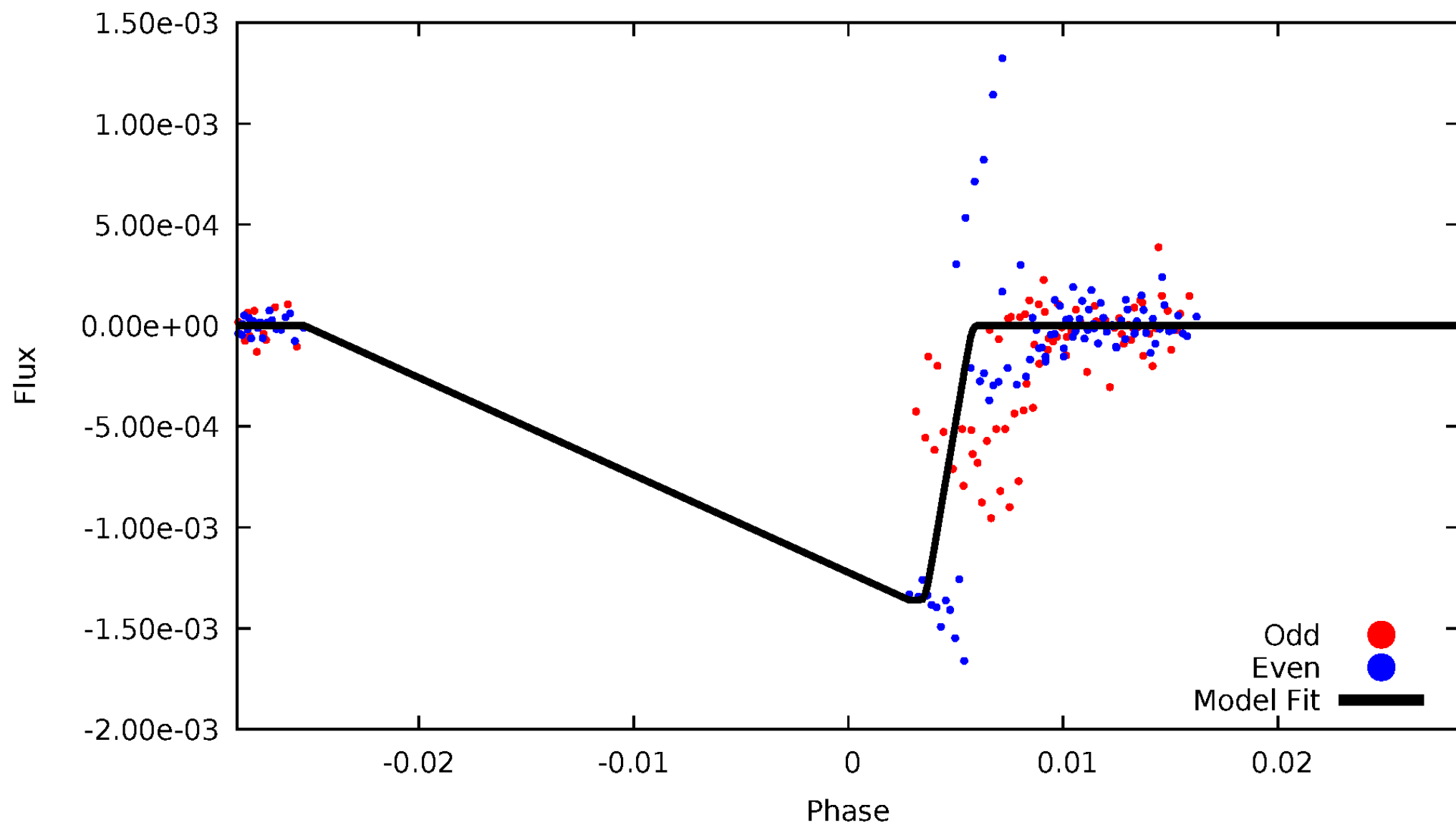
DV Odd/Even

TCE 009895004-03



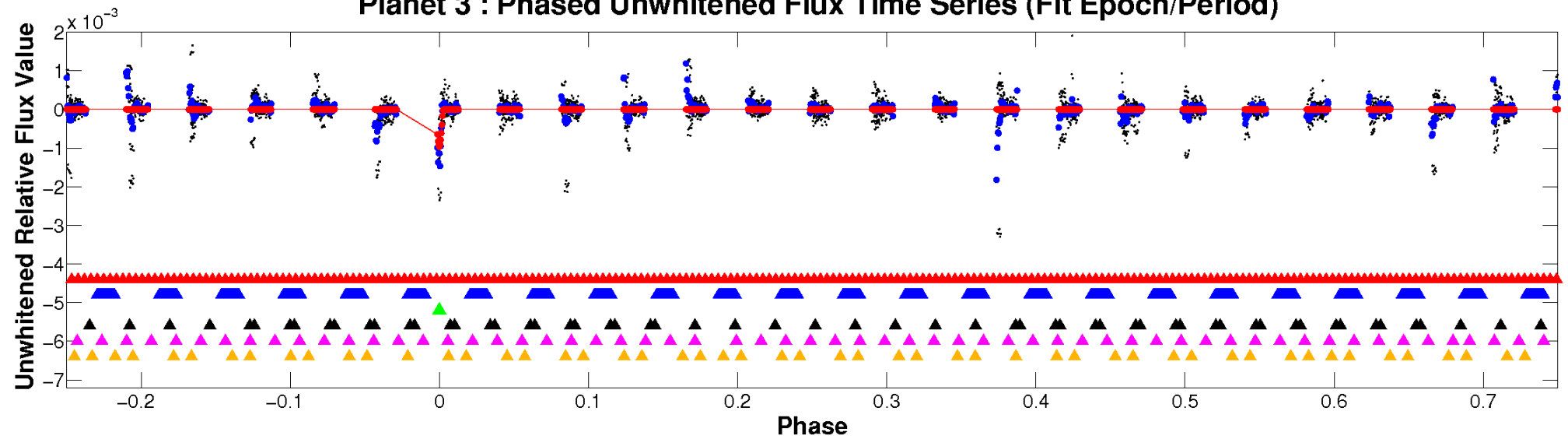
ALT Odd/Even

TCE 009895004-03

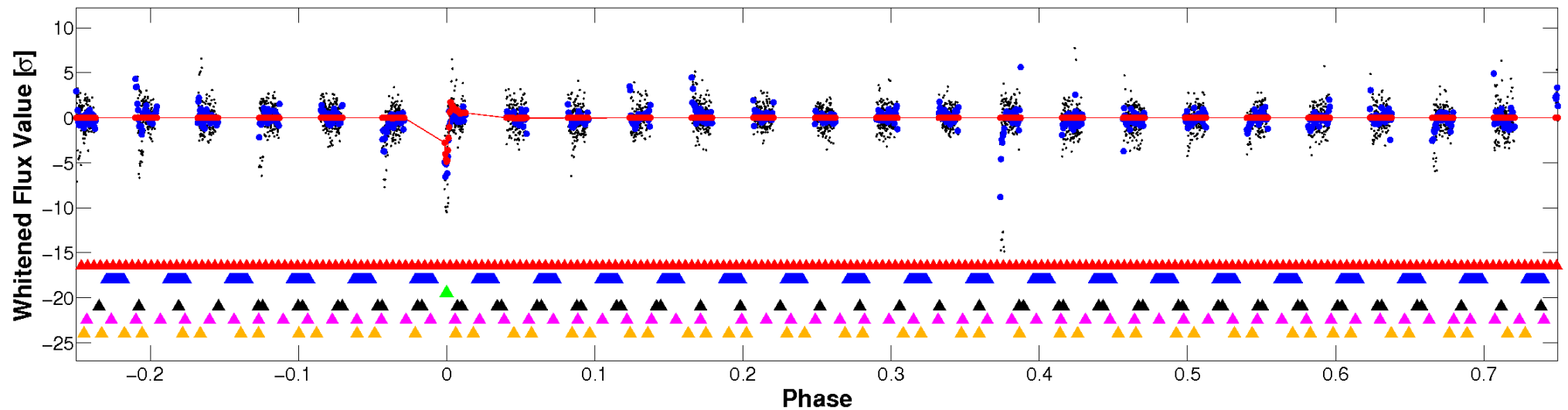


Non-Whitened Vs. Whitened Light Curve

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

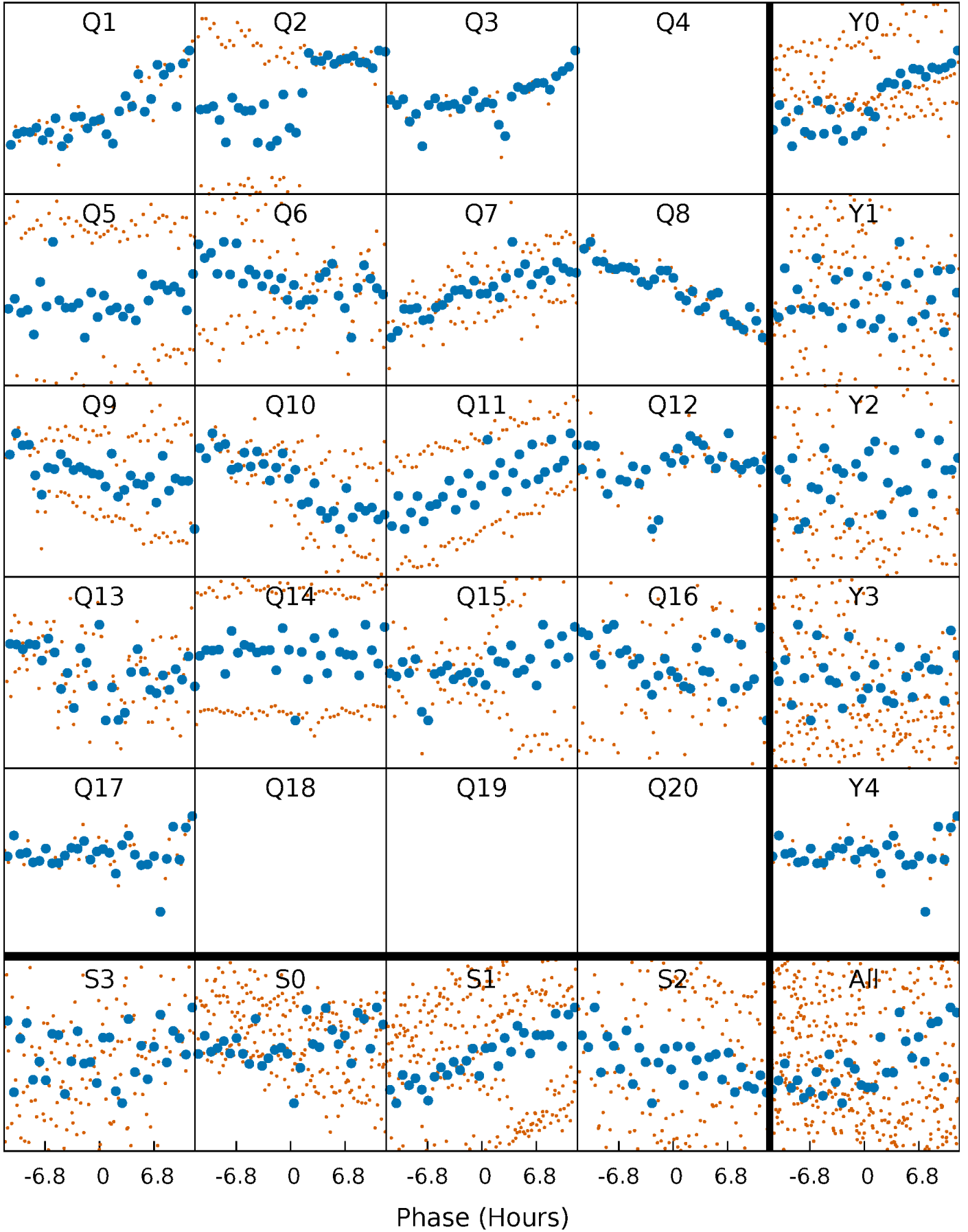


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



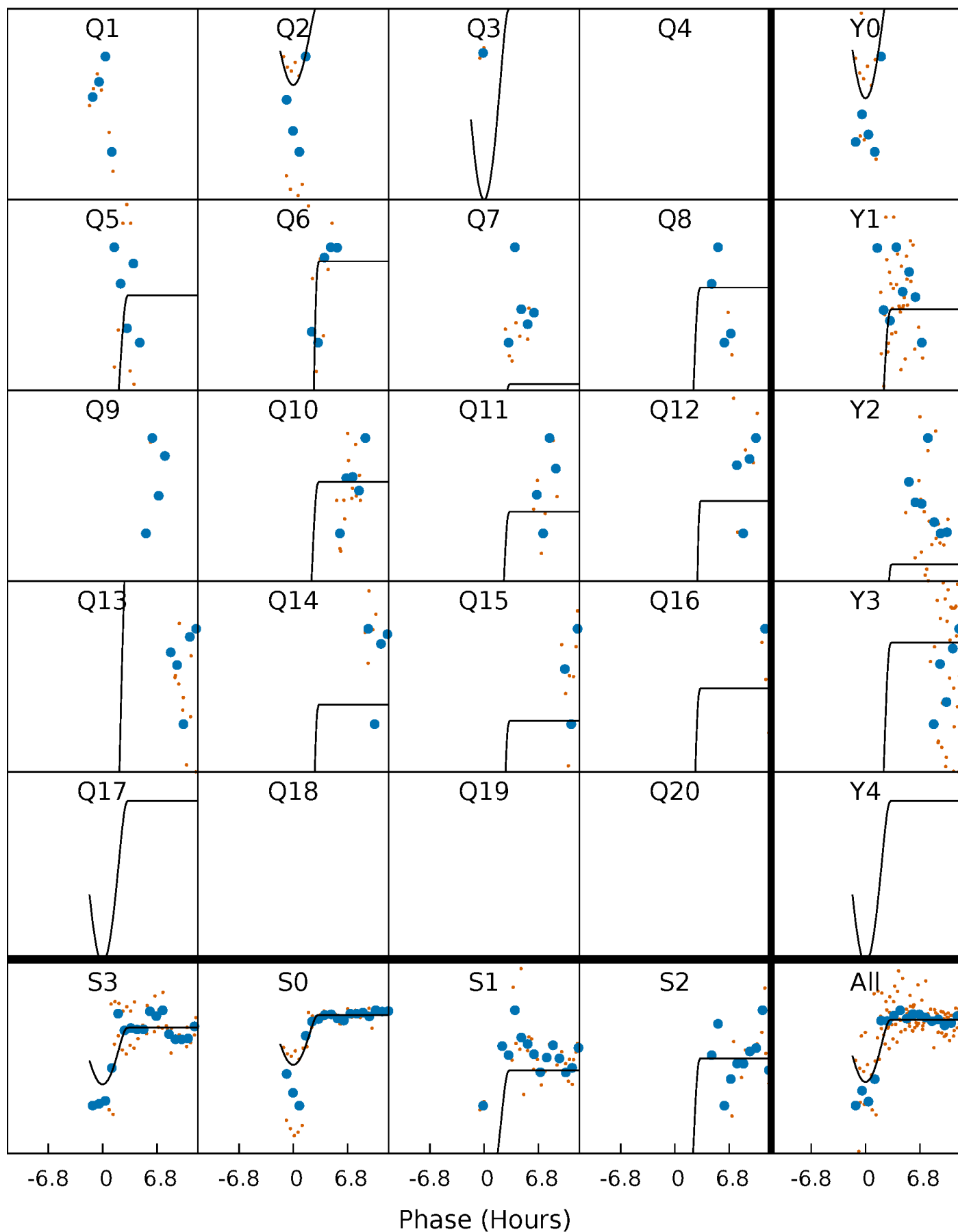
PDC Quarter-Phased Transit Curves

TCE 009895004-03 P= 47.676188 Days $T_0=159.983767$ (BKJD)



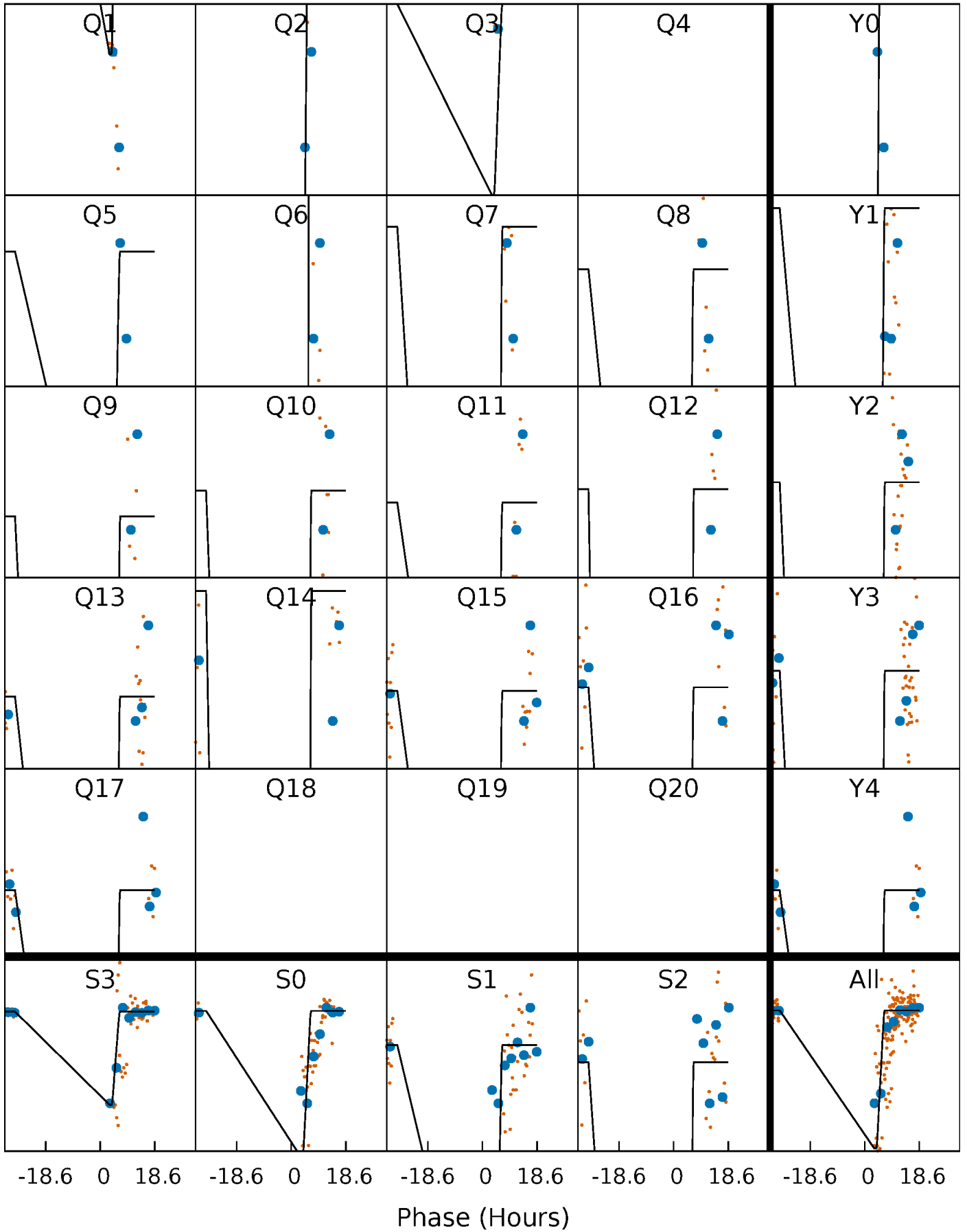
DV Quarter-Phased Transit Curves

TCE 009895004-03 $P = 47.676188$ Days $T_0 = 159.983767$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

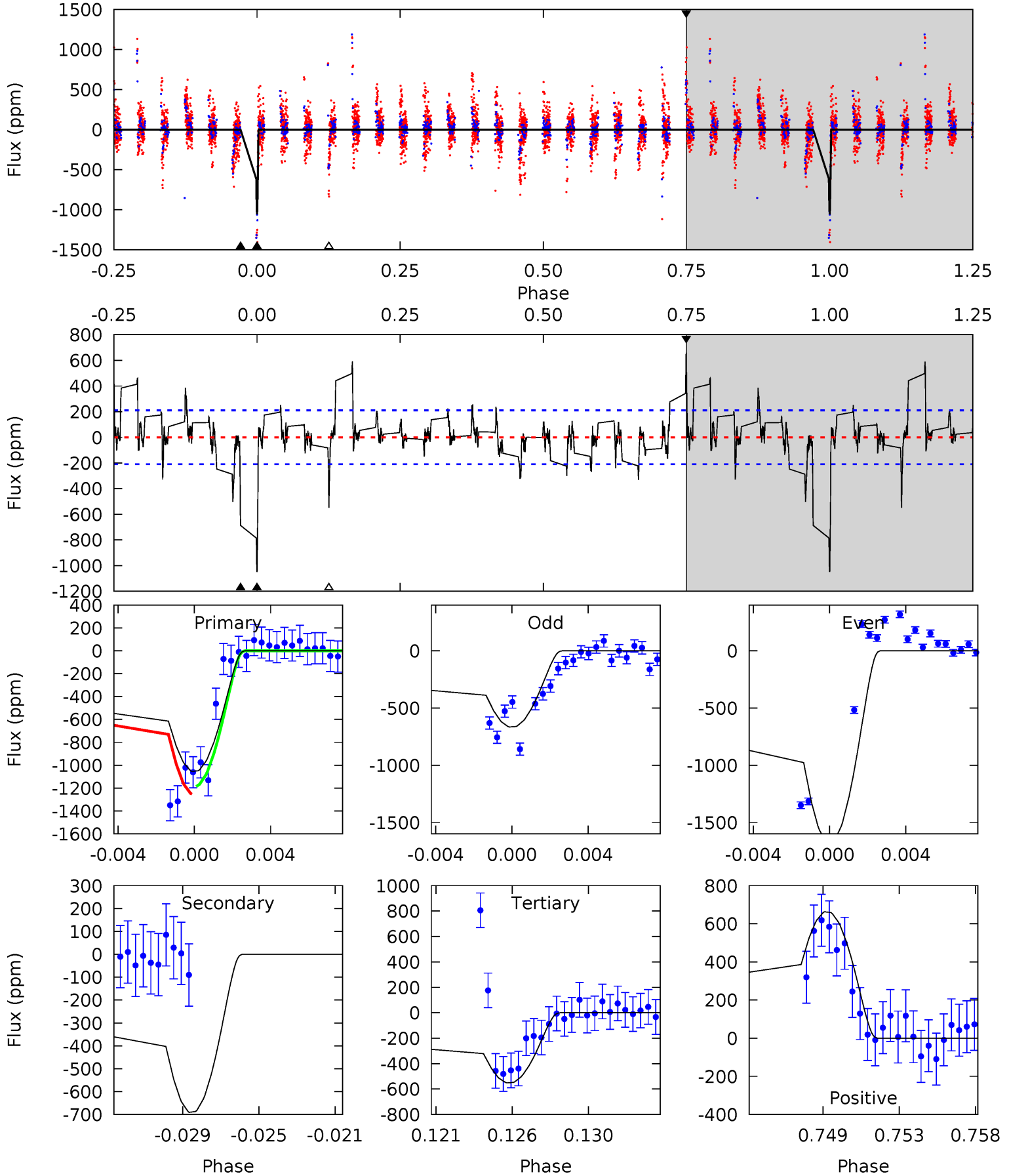
TCE 009895004-03 P= 47.677479 Days $T_0=159.780889$ (BKJD)



DV Model-Shift Uniqueness Test

009895004-03, P = 47.676188 Days, E = 112.307579 Days

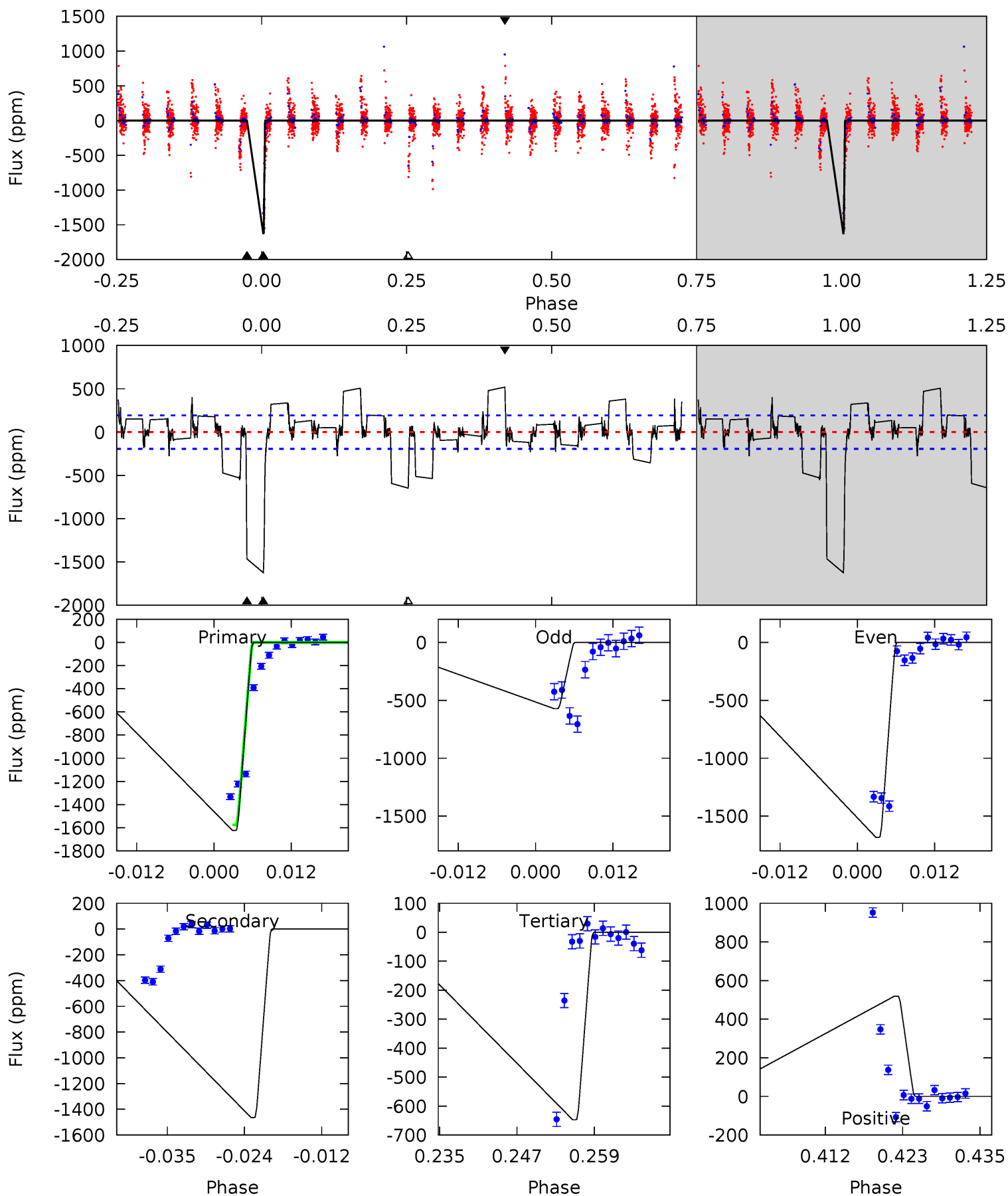
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.9	17.0	13.6	16.3	5.19	2.86	2.77	12.4	9.63	3.43	0.69	13.5	0.89	0.39	0



Alt Model-Shift Uniqueness Test

009895004-03, P = 47.677479 Days, E = 112.103410 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.2	38.1	16.8	13.5	5.00	2.52	2.73	25.4	28.7	21.2	24.6	14.2	1.08	0.24	0



Stellar Parameters For KIC 009895004

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5779^{+104}_{-116}	$4.308^{+0.138}_{-0.113}$	$-0.100^{+0.150}_{-0.150}$	$1.119^{+0.177}_{-0.159}$	$0.928^{+0.074}_{-0.061}$	$0.933^{+0.585}_{-0.304}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-14%	+8%/-7%	+63%/-33%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009895004-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-687 ± 40	$14.96^{+14.69}_{-10.24}$	749^{+36}_{-35}	3228^{+1651}_{-557}	108^{+986}_{-81}
Alt.	-1464 ± 38	$12.69^{+13.81}_{-8.47}$	748^{+35}_{-35}	3867^{+2226}_{-809}	314^{+2533}_{-242}

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 $A_{obs} \gg 1.0$

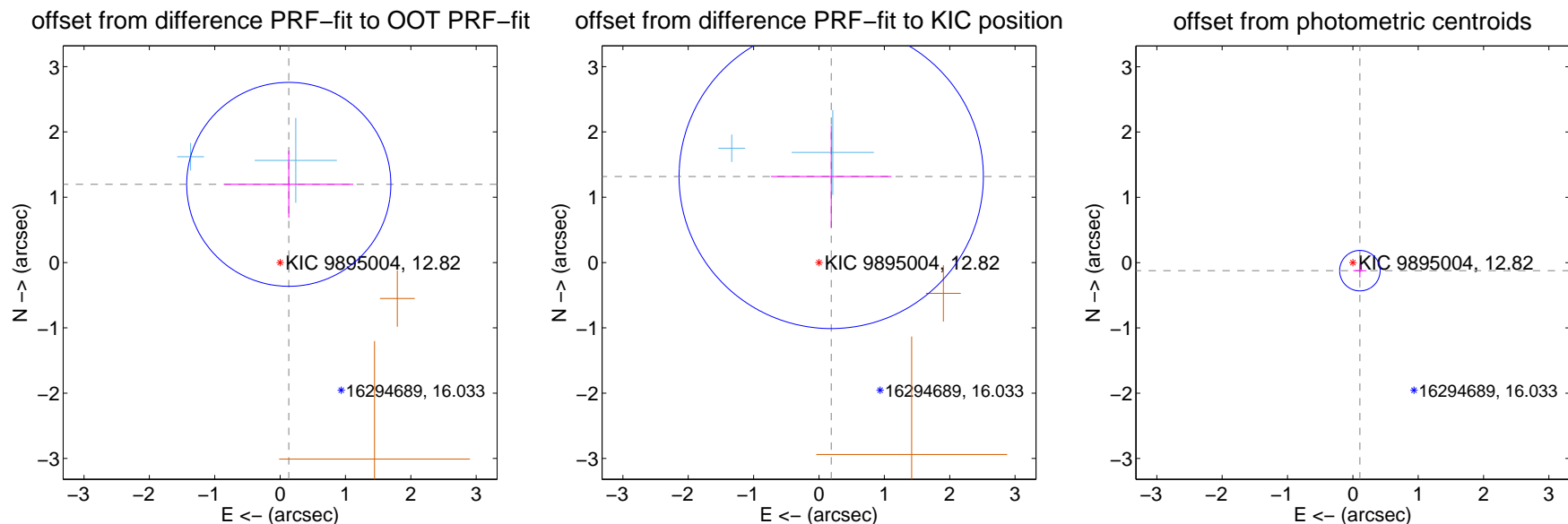
DV Centroid Data

Supplemental centroid analysis for 009895004-03. Kepler magnitude: 12.82. Transit SNR 19.85

There are 2 quarters with good PRF difference image offsets

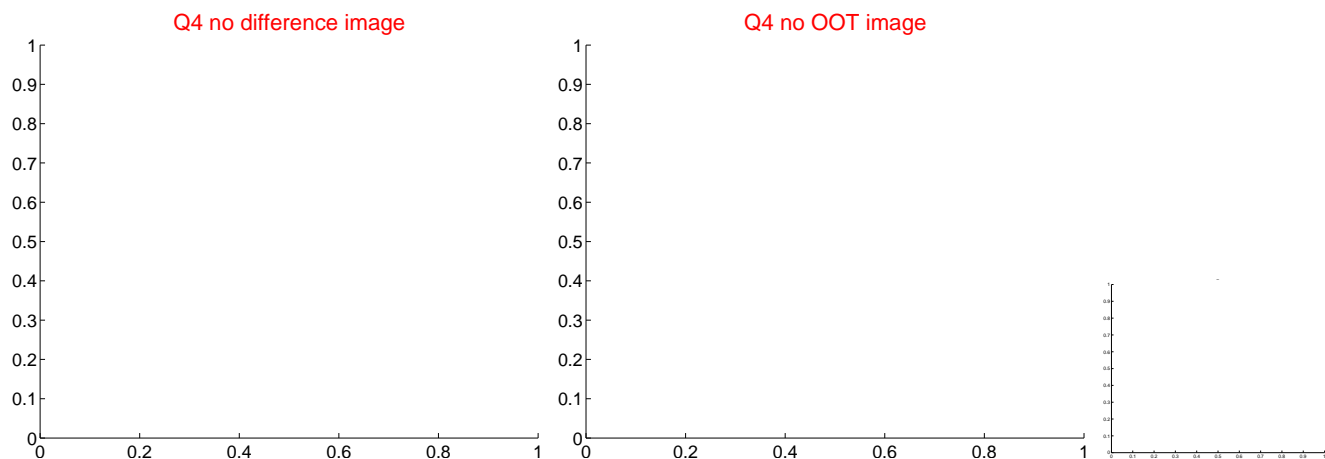
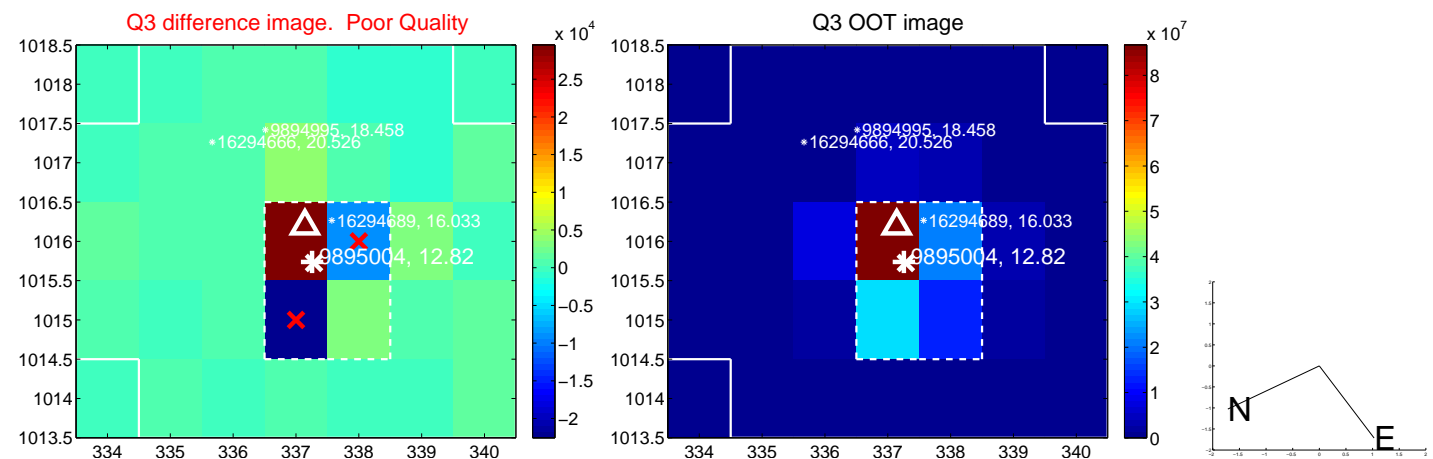
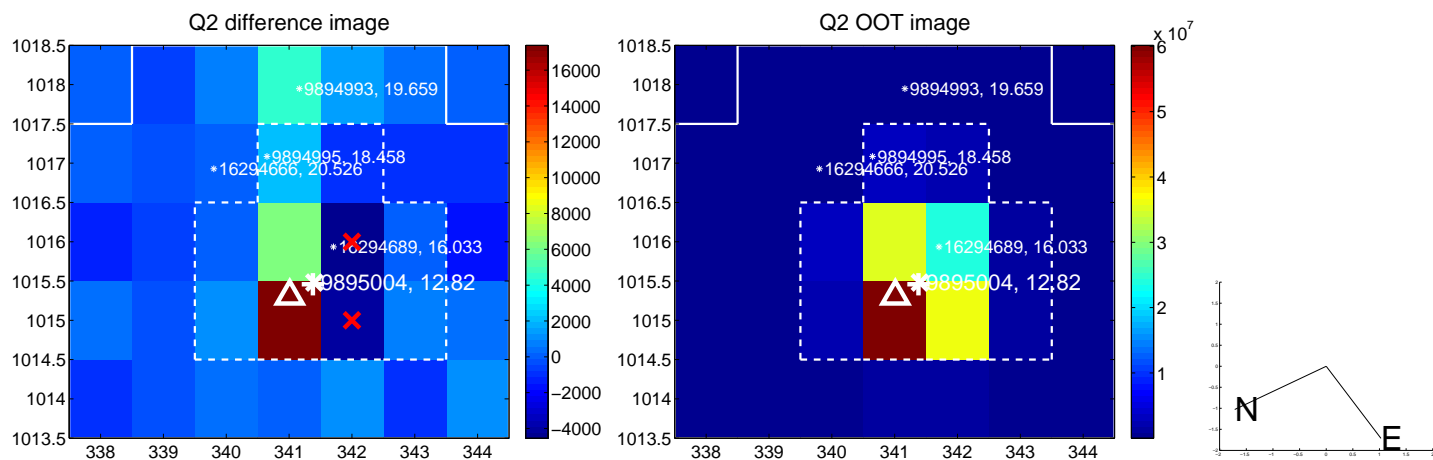
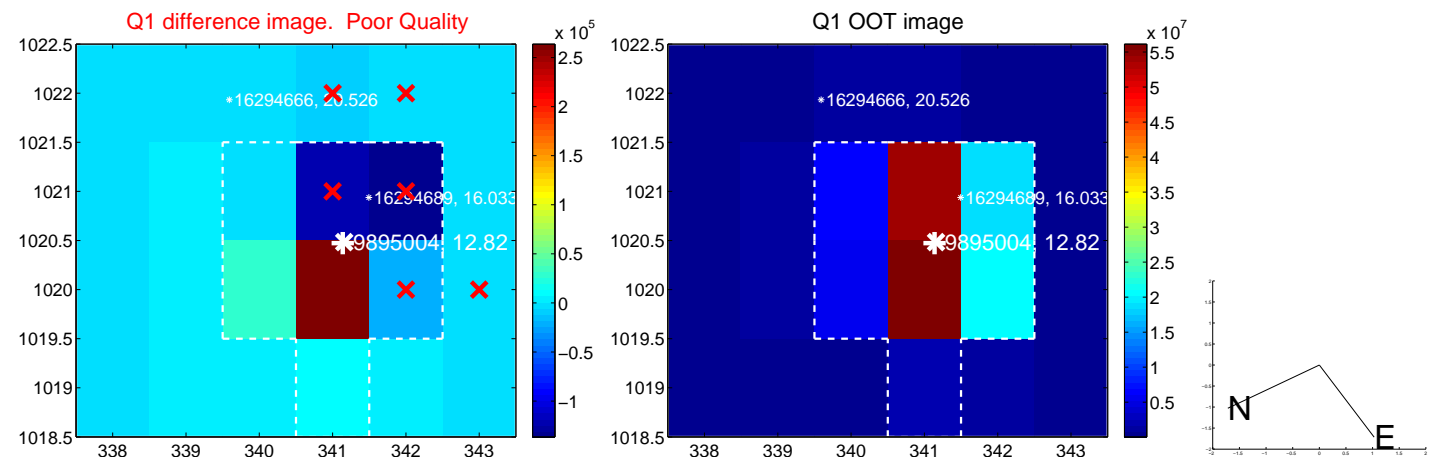
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.205 ± 0.520	2.31	-0.133 ± 0.987	1.197 ± 0.512
PRF-fit source offset from KIC position	1.330 ± 0.776	1.71	-0.187 ± 0.922	1.316 ± 0.782
photometric centroid source offset	0.16 ± 0.10	1.58	-0.11 ± 0.10	-0.12 ± 0.11

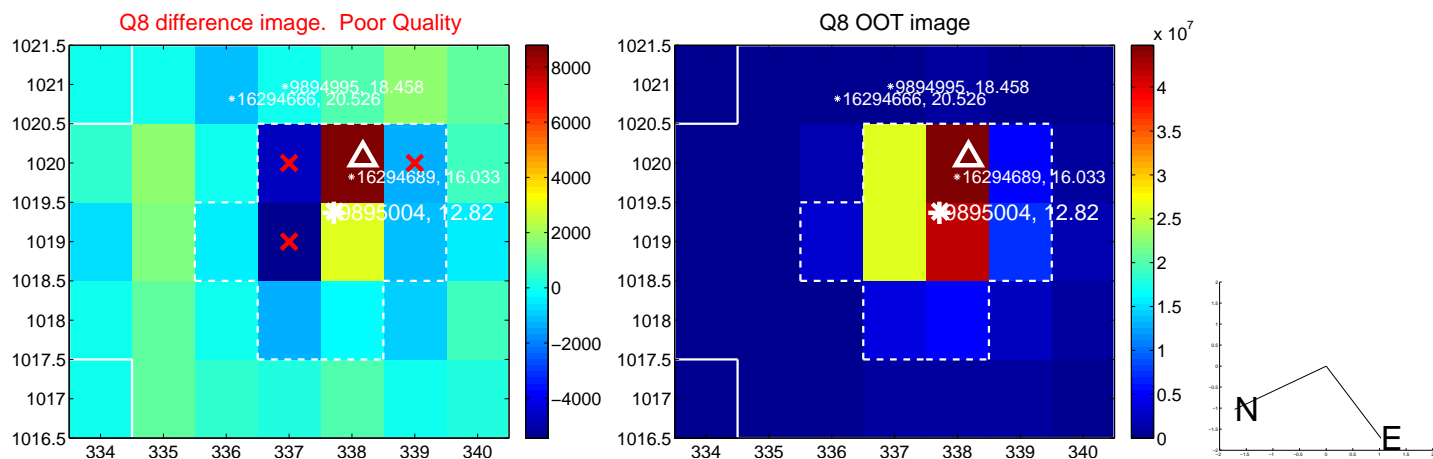
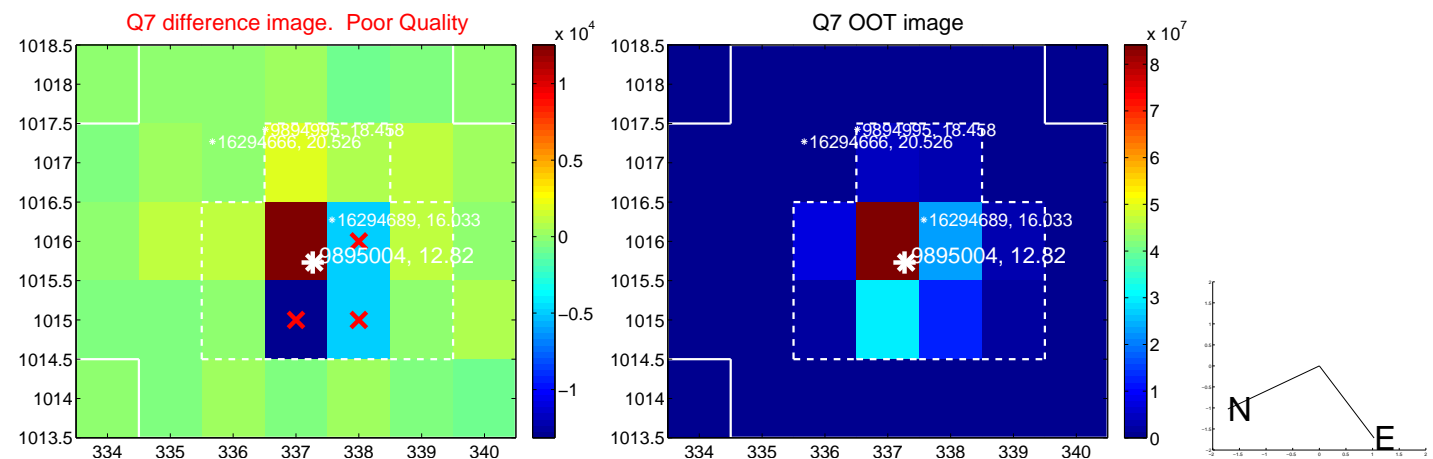
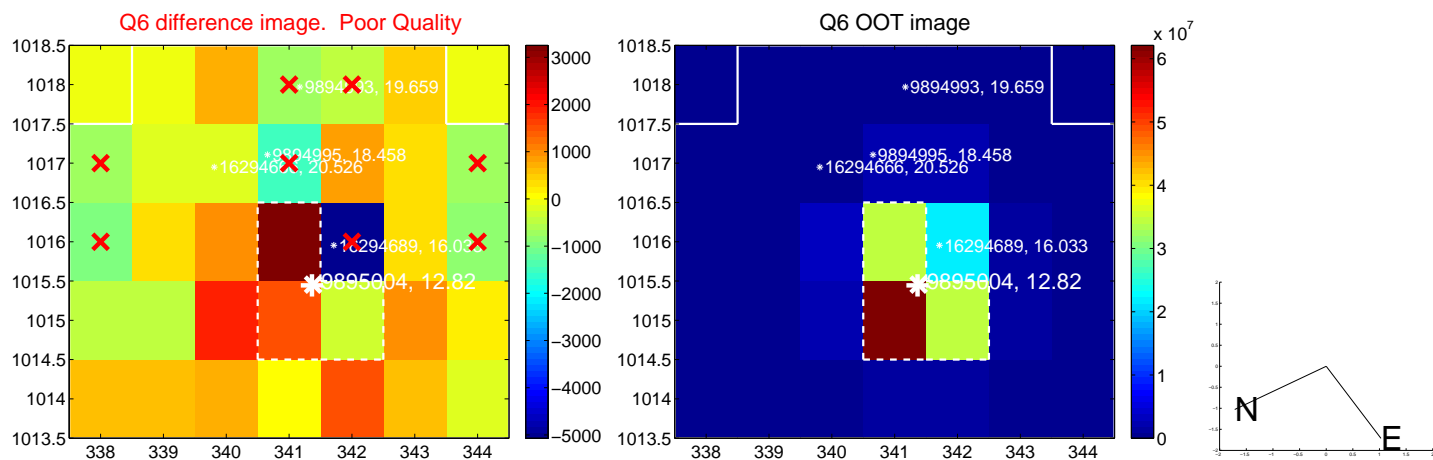
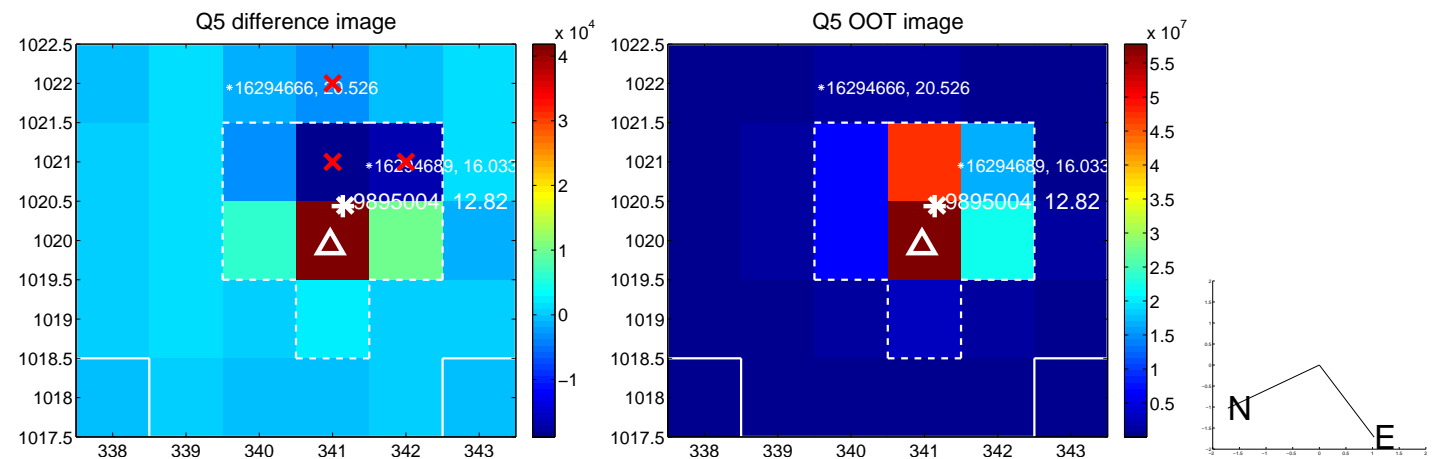


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

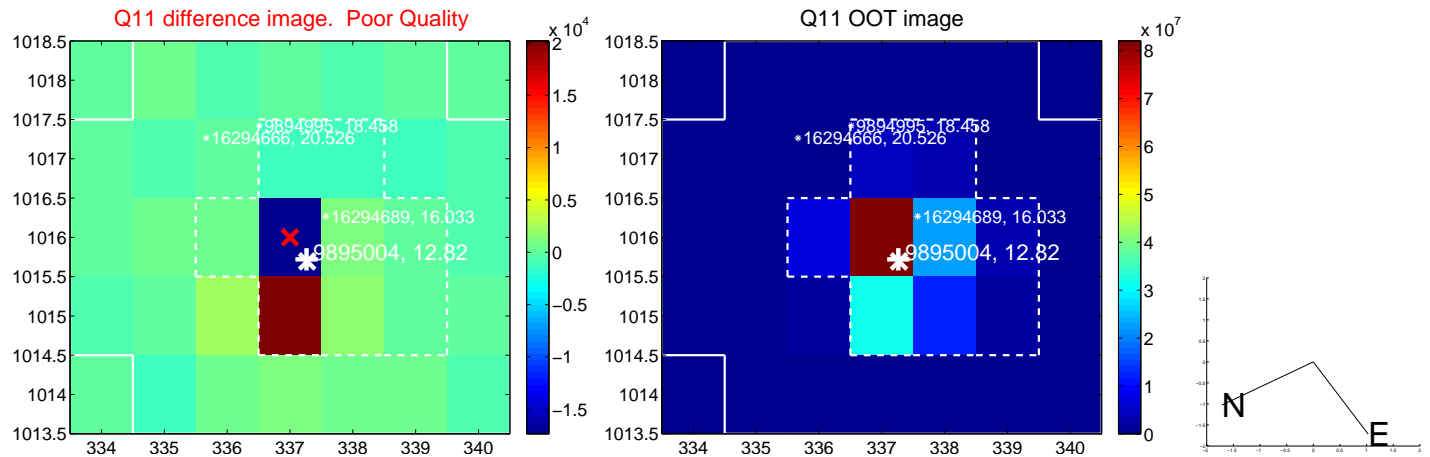
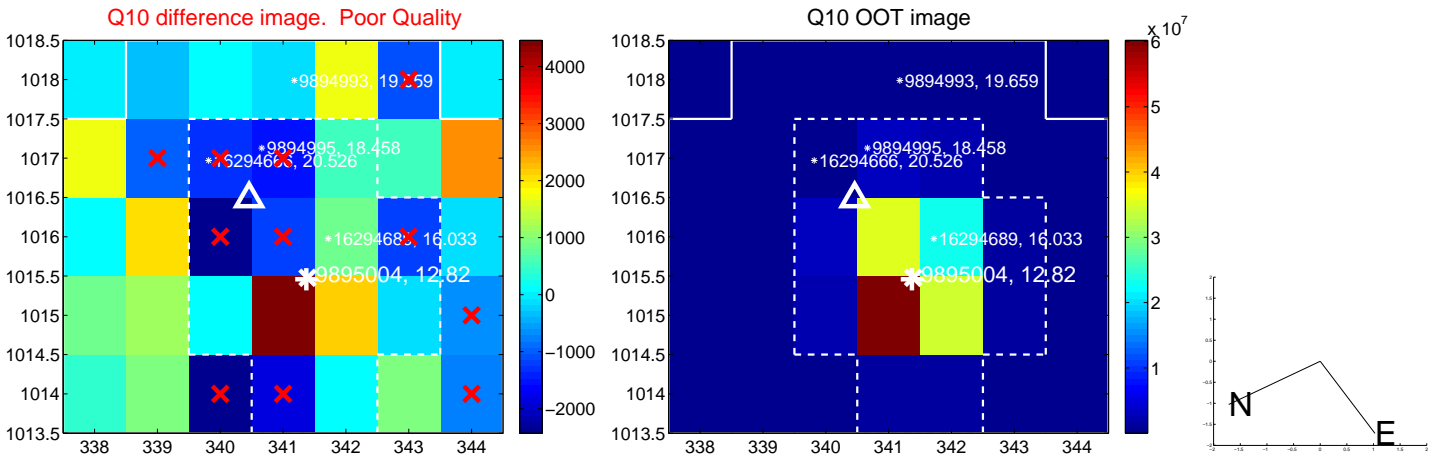
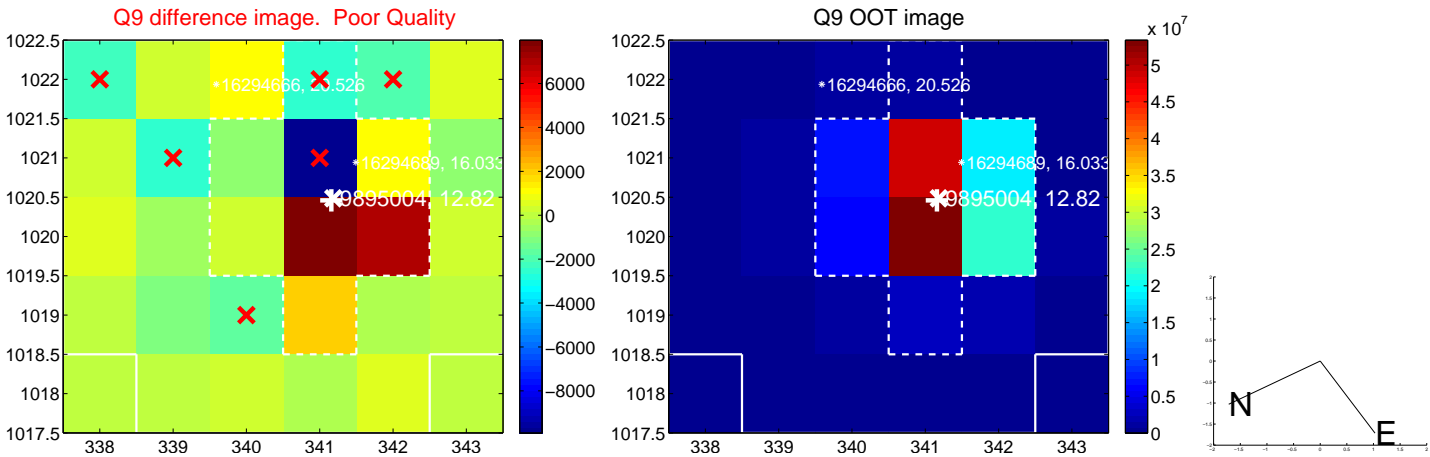
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



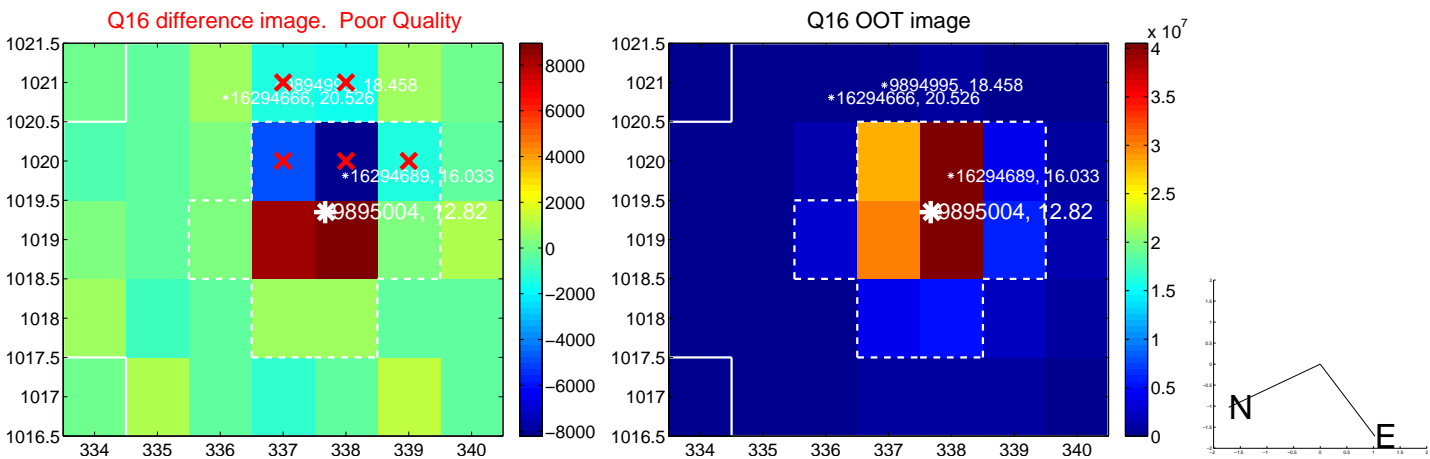
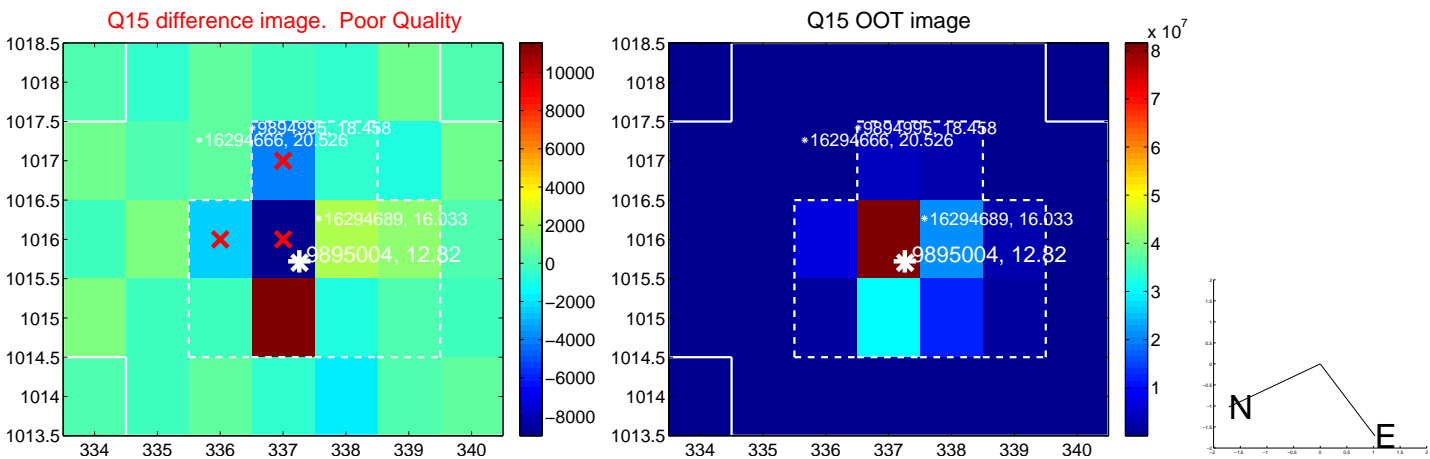
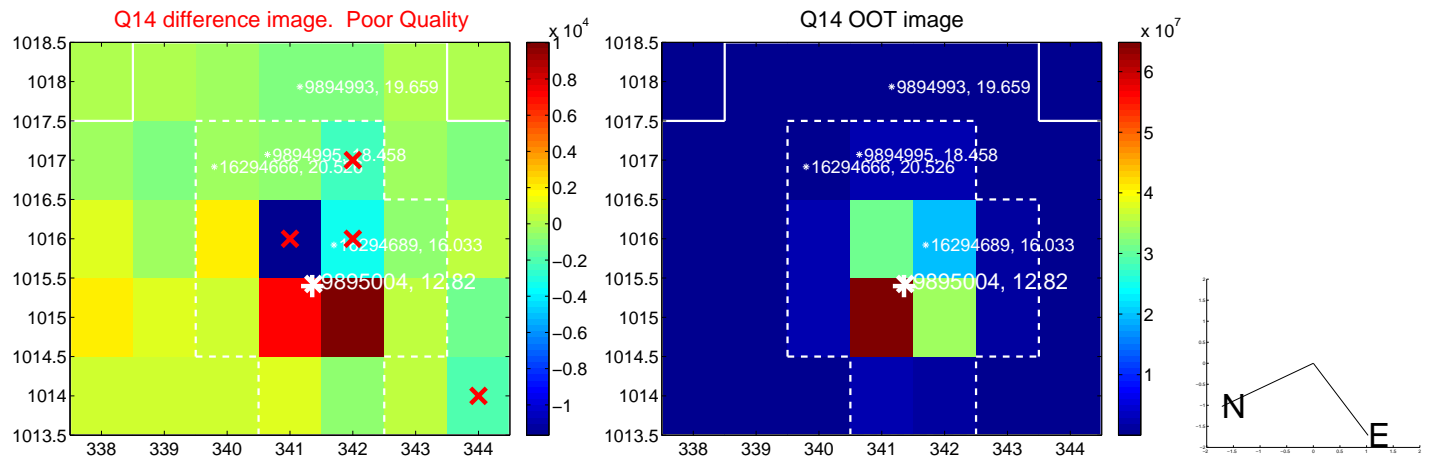
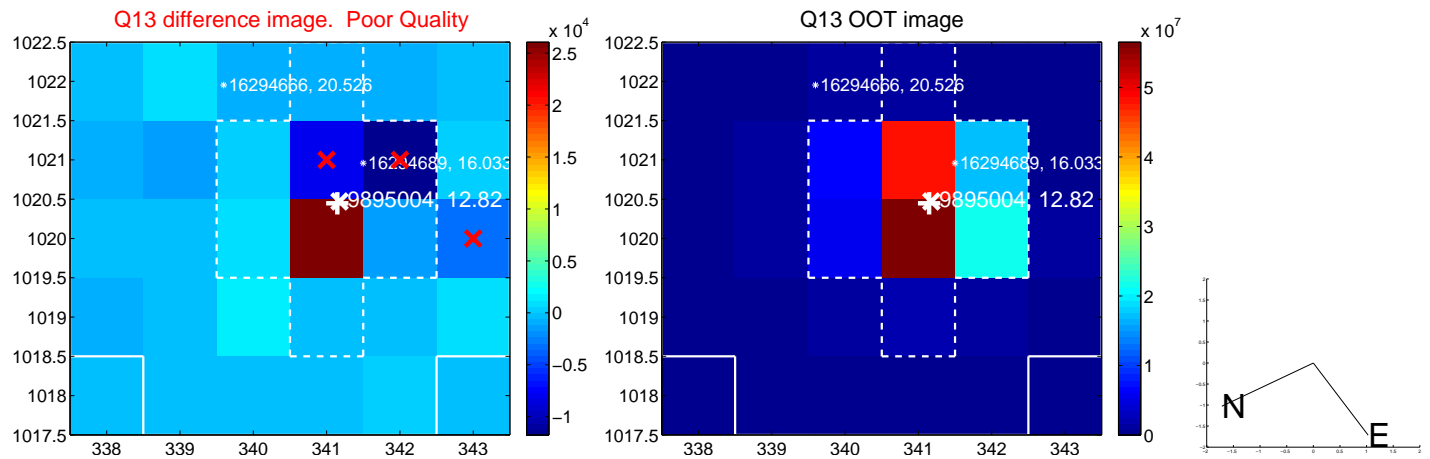
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



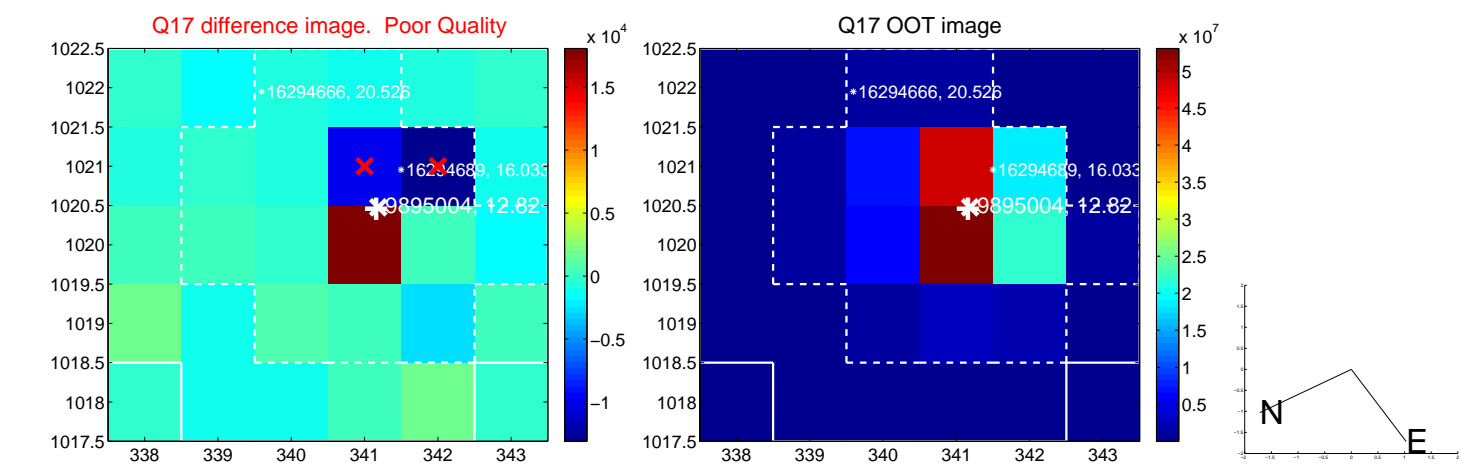
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



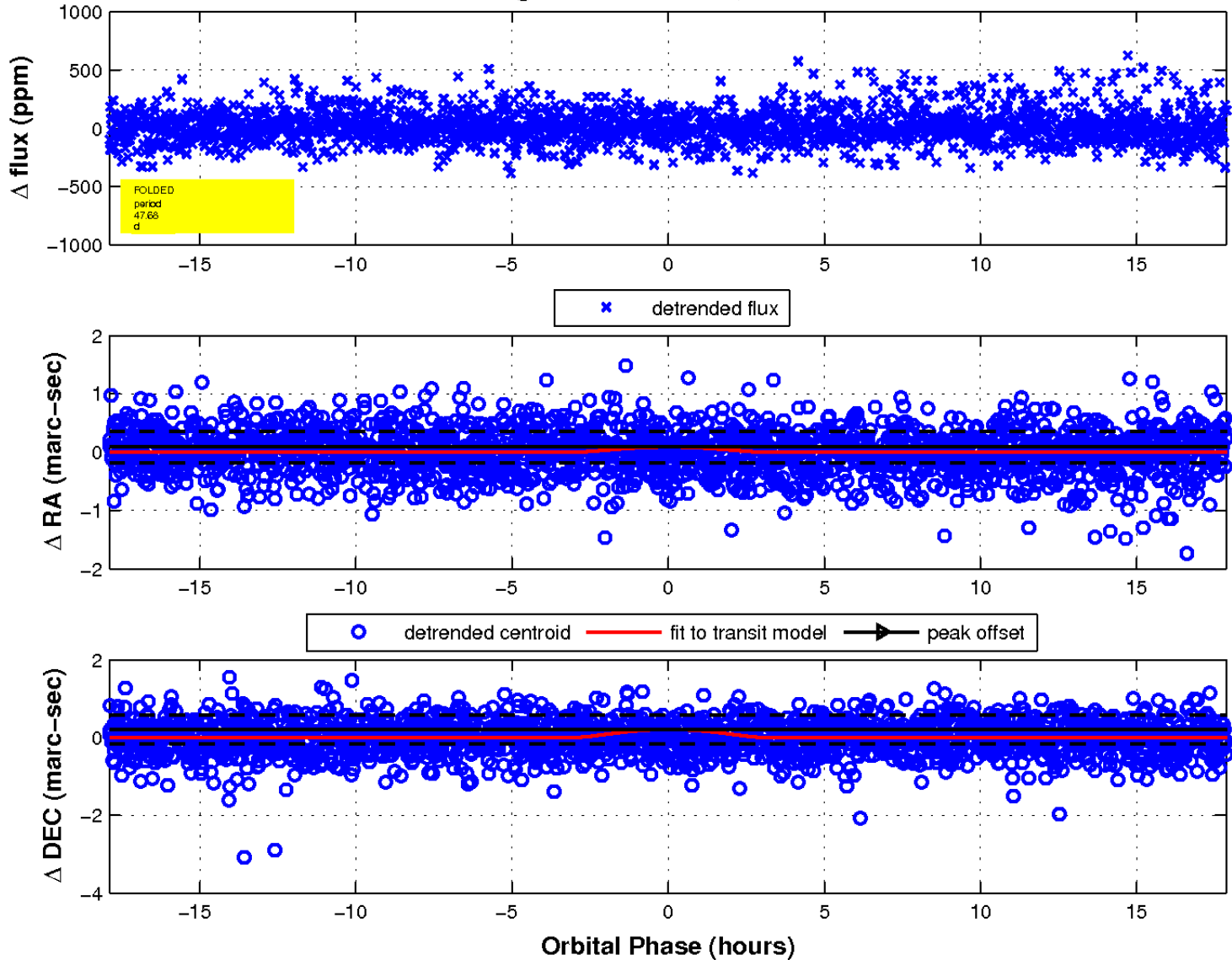
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

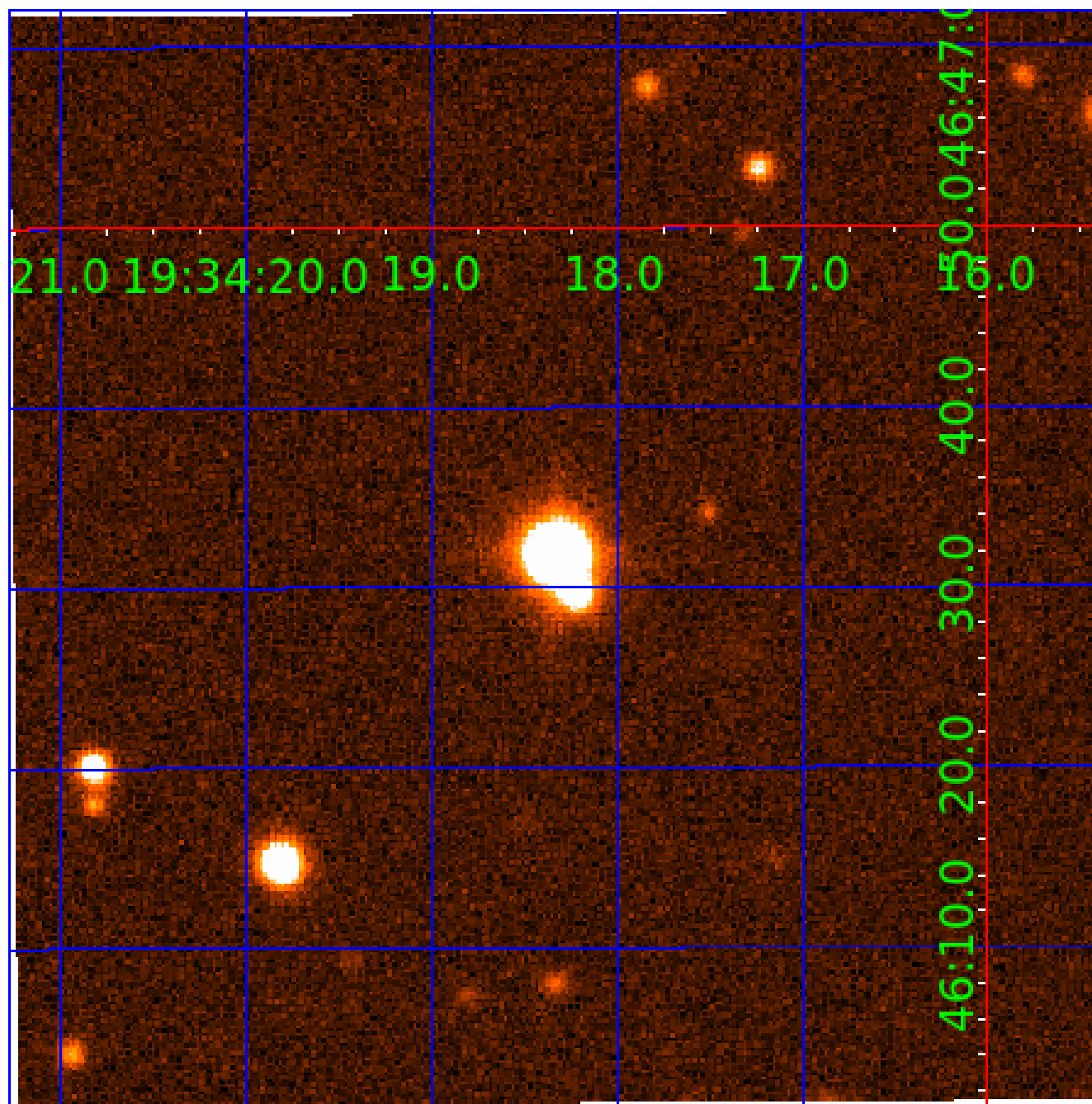


fluxWeightedCentroids, Planet 3 of 6



UKIRT Image

Declination



KIC 009895004

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})
009895004-01	OBS	0328.01	2.250826	132.058045	489.5	1.186	117.4	132.4	1.12	5779	2.96	1163.42
009895004-02	OBS	No	1.987290	133.140838	18.4	14.583	8.8	7.9	1.12	5779	0.48	1373.55
009895004-03	OBS	No	47.676188	159.983767	969.8	5.965	24.4	19.8	1.12	5779	6.76	19.85
009895004-04	OBS	No	24.478594	154.065581	269.9	5.574	16.6	8.8	1.12	5779	2.06	48.28
009895004-05	OBS	No	24.233098	145.246057	227.4	5.792	10.4	7.2	1.12	5779	1.98	48.94
009895004-06	OBS	No	28.231509	140.097809	254.0	3.325	7.4	6.8	1.12	5779	1.97	39.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895004-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET
009895004-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
009895004-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
009895004-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009895004-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
009895004-06	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_DIFFS

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

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

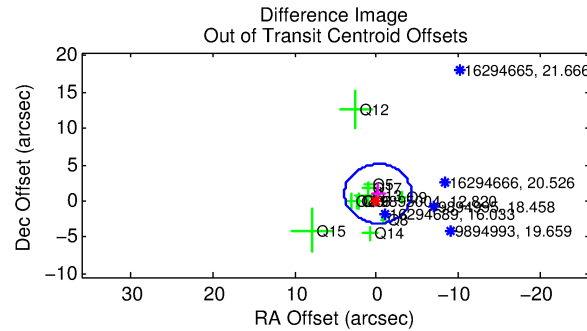
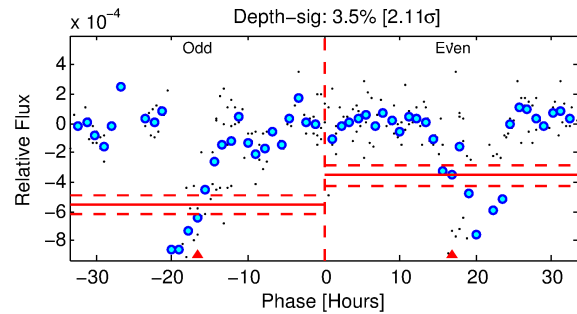
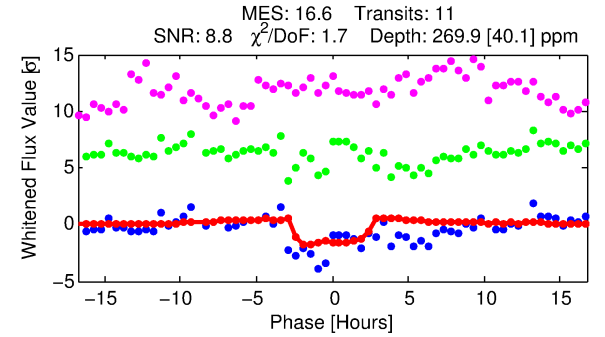
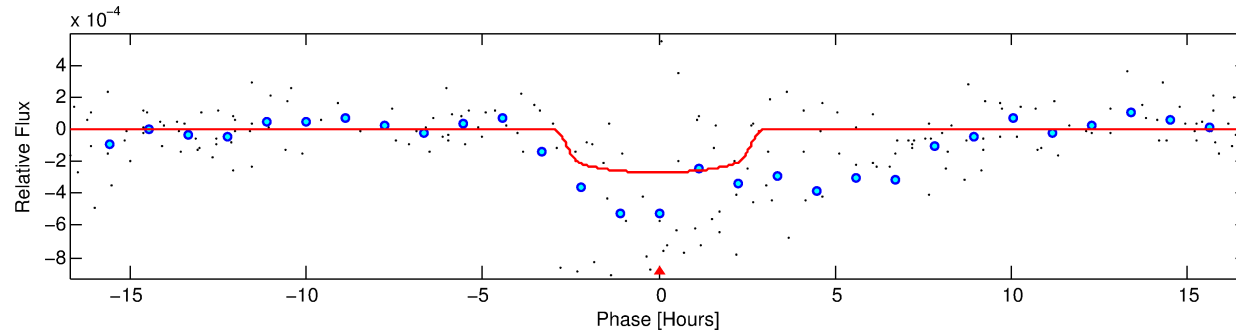
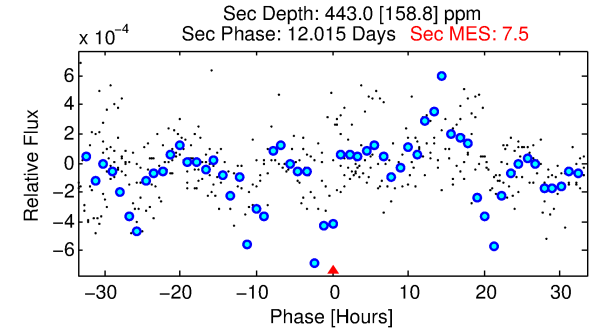
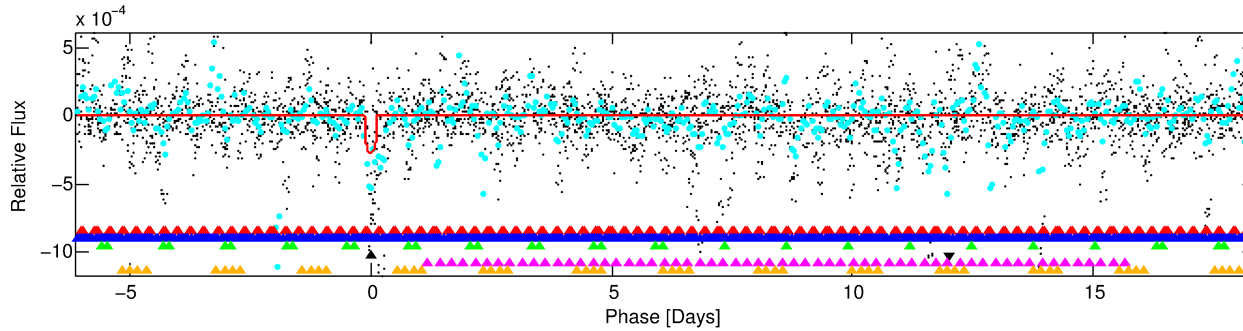
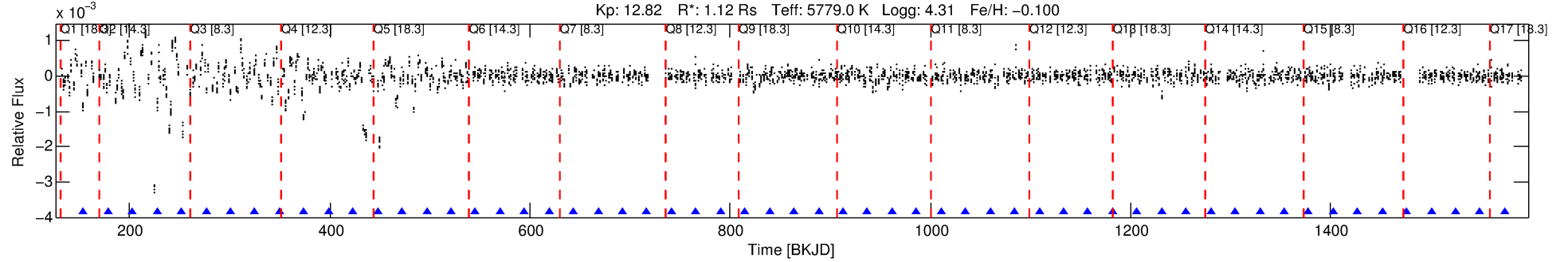
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009895004-04

No Significant Match Found

DV One-Page Summary

KIC: 9895004 Candidate: 4 of 6 Period: 24.479 d
KOI: K00328 Corr: No Ephemeris Match



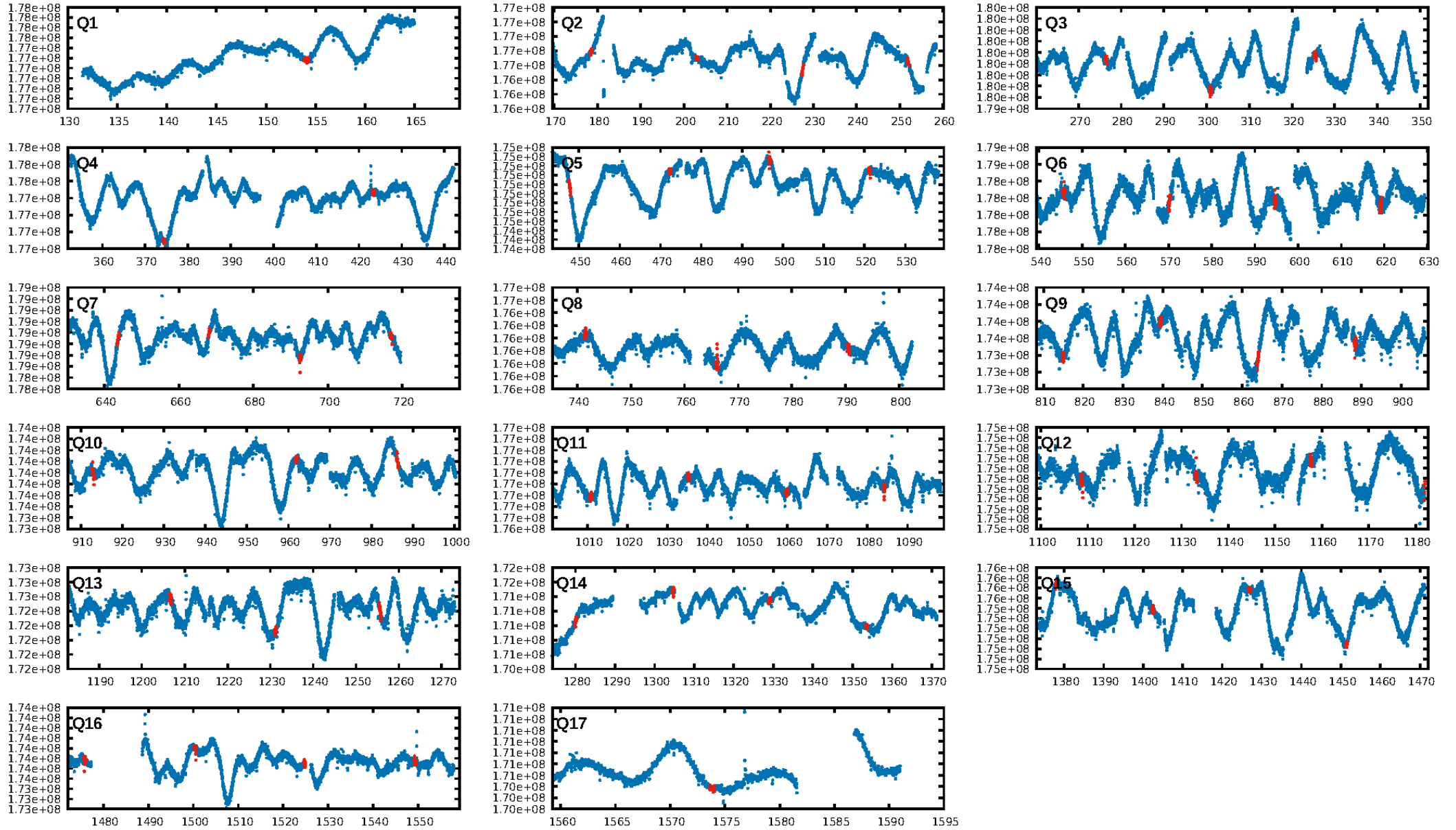
DV Fit Results:

Period = 24.47859 [0.00041] d
Epoch = 154.0656 [0.0127] BKJD
Rp/R* = 0.0169 [0.0119]
a/R* = 20.24 [65.69]
b = 0.82 [1.33]
Seff = 48.28 [12.07]
Teq = 672 [42] K
Rp = 2.06 [1.49] Re
a = 0.1610 [0.0241] AU
Ag = 1489.63 [2197.25] [0.68σ]
Teffp = 6456 [2354] K [2.46σ]

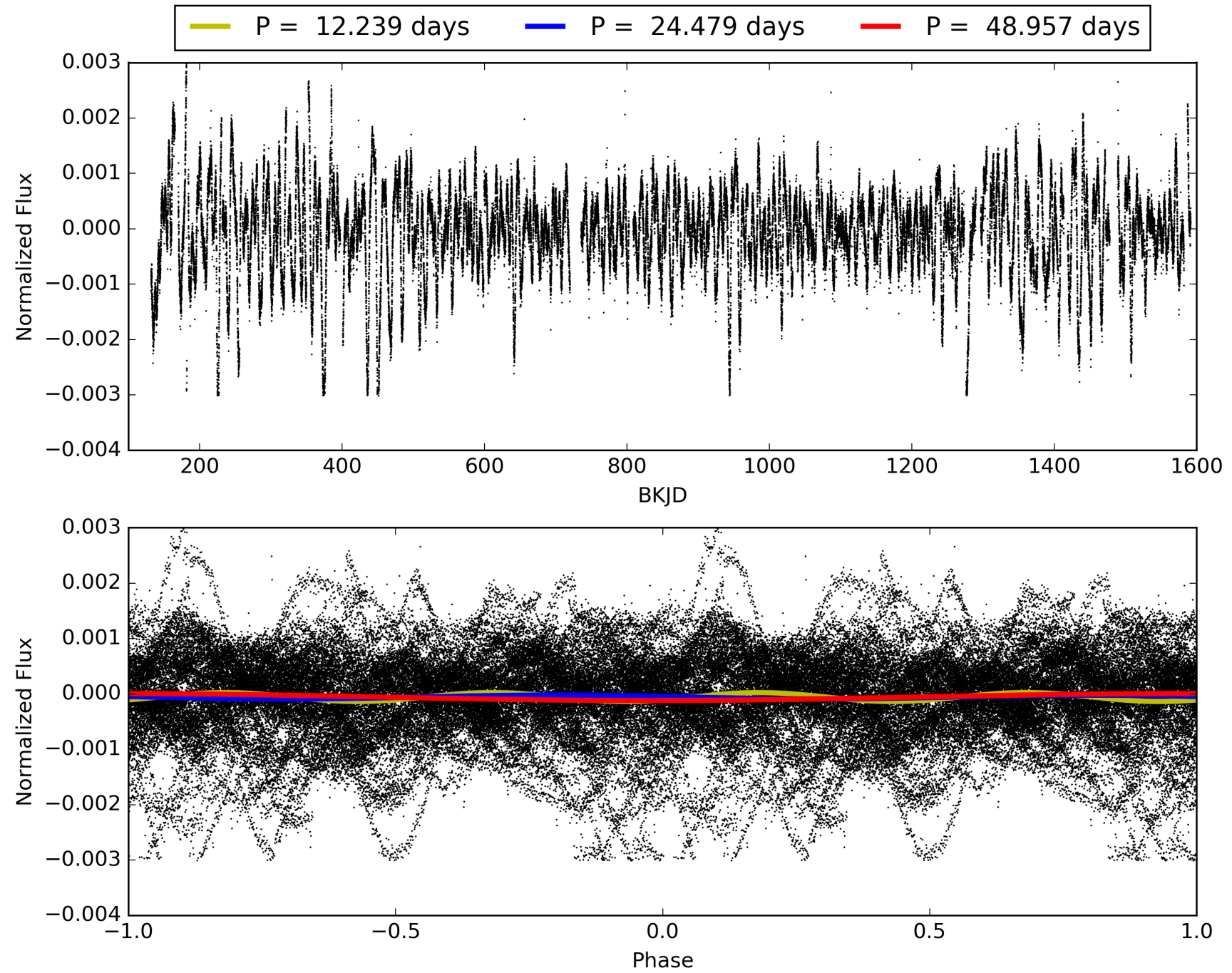
DV Diagnostic Results:

ShortPeriod-sig: 53.6% [0.73σ]
LongPeriod-sig: 100.0% [13.88σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 6.03e-46
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 1.041
Centroid-sig: 46.3%
Centroid-so: 0.226 arcsec [1.06σ]
OotOffset-rm: 1.005 arcsec [0.74σ]
KicOffset-rm: 1.091 arcsec [0.80σ]
OotOffset-st: 1/2/4/4 [11]
KicOffset-st: 1/2/4/4 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 0.41 [7/17]

TCE 009895004-04, PDC Light Curves

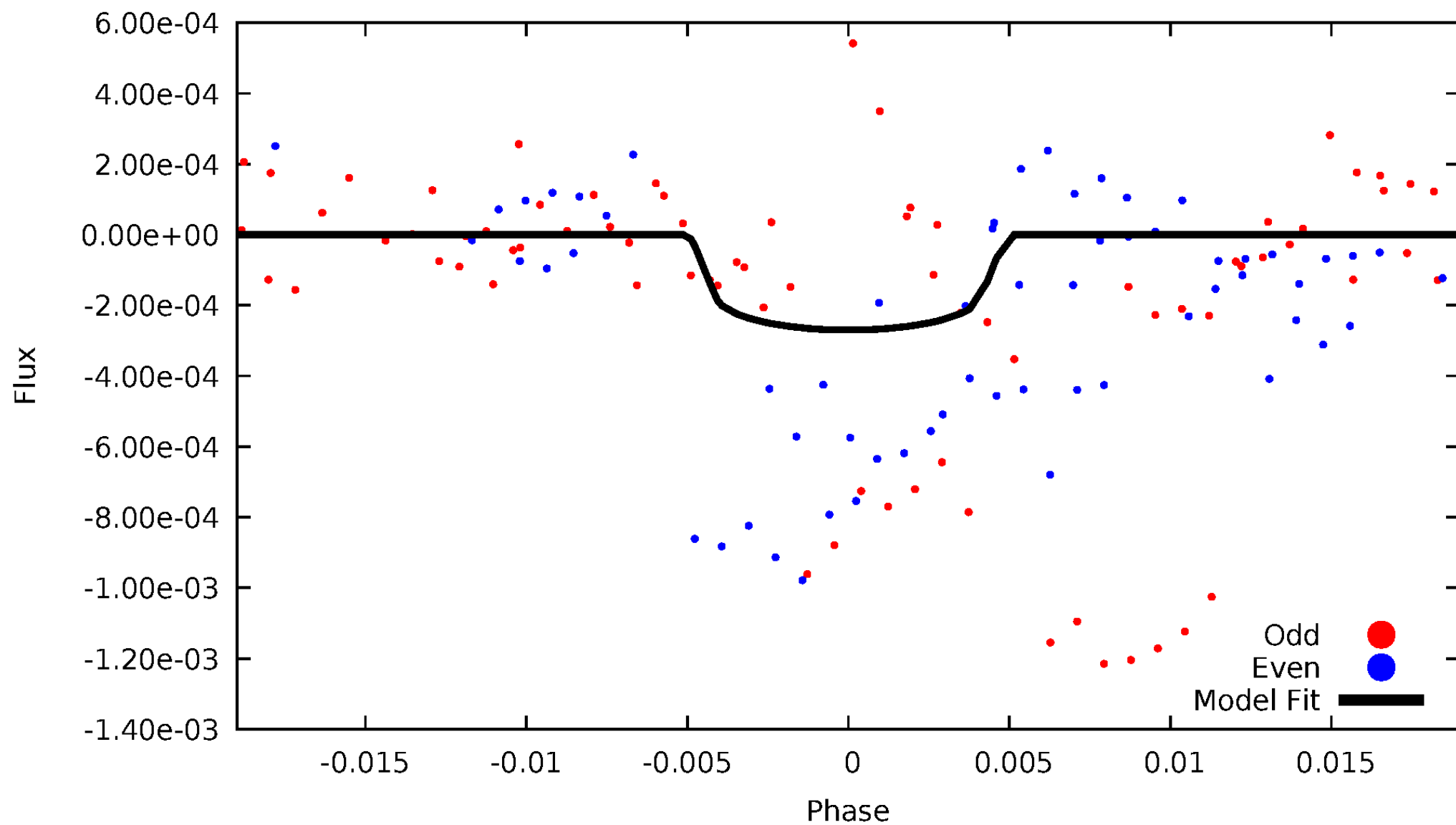


TCE 009895004-04



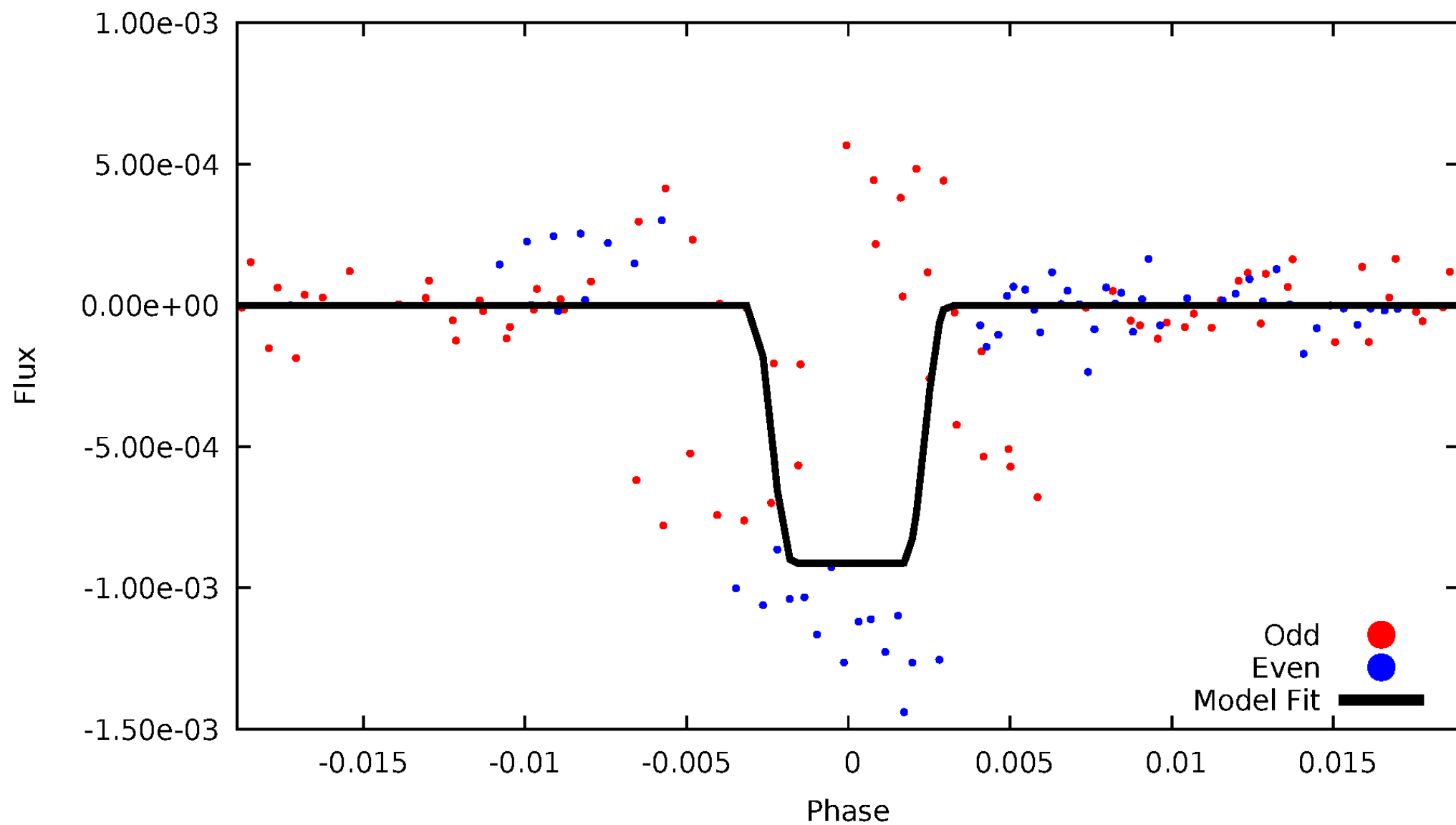
DV Odd/Even

TCE 009895004-04



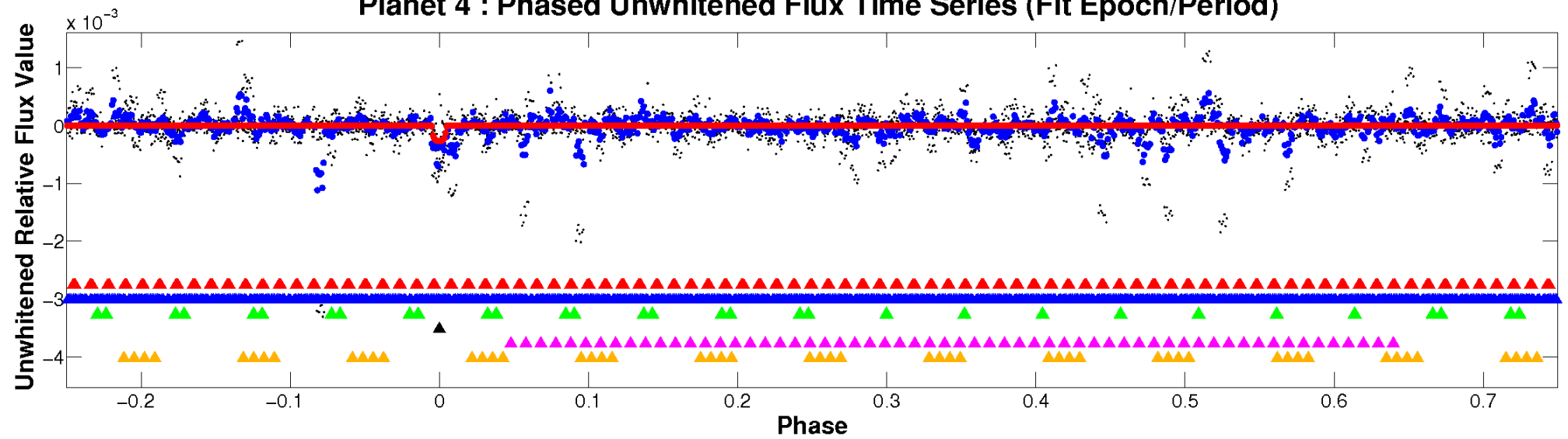
ALT Odd/Even

TCE 009895004-04

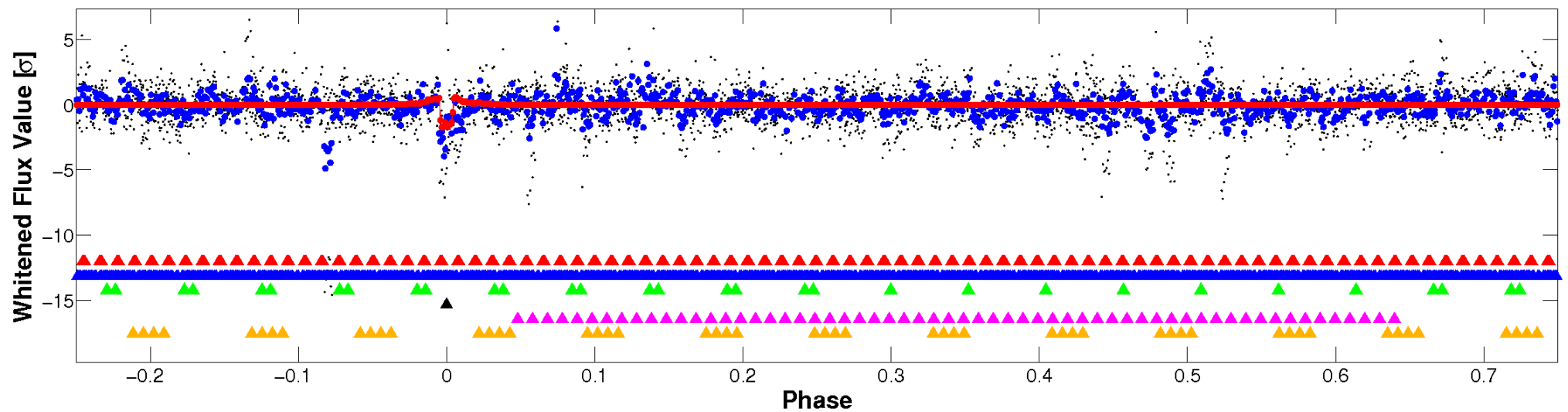


Non-Whitened Vs. Whitened Light Curve

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

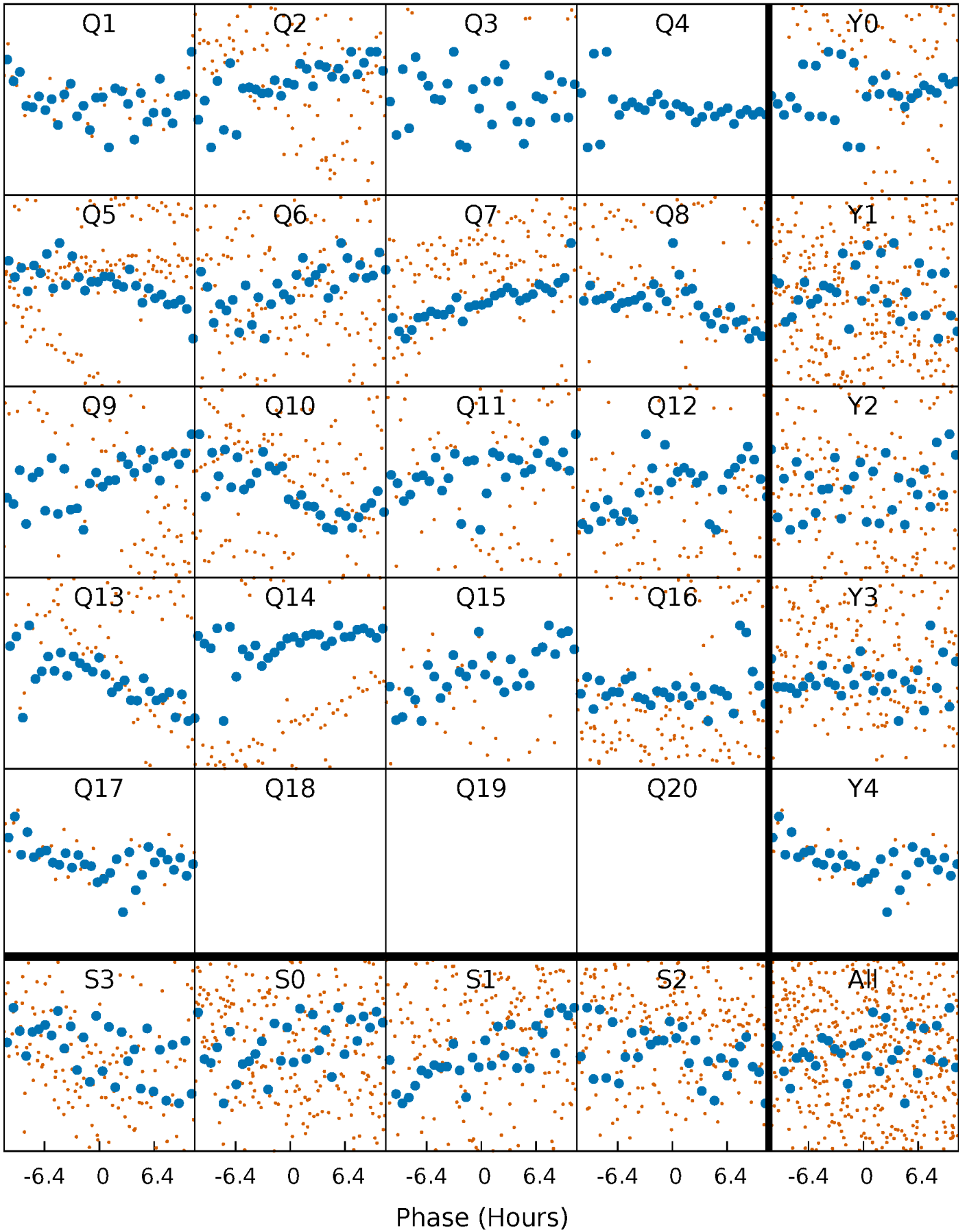


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



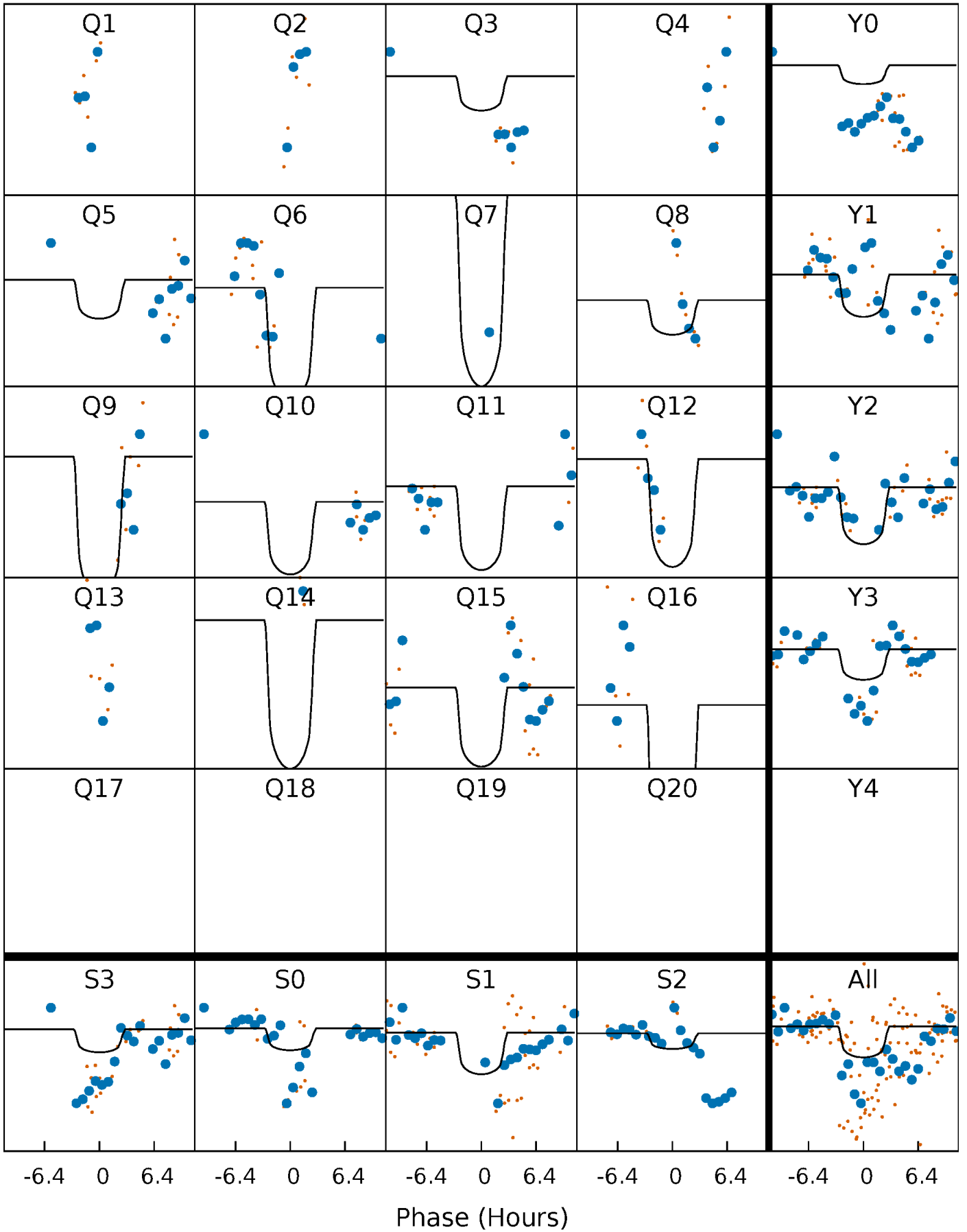
PDC Quarter-Phased Transit Curves

TCE 009895004-04 P= 24.478594 Days $T_0=154.065581$ (BKJD)



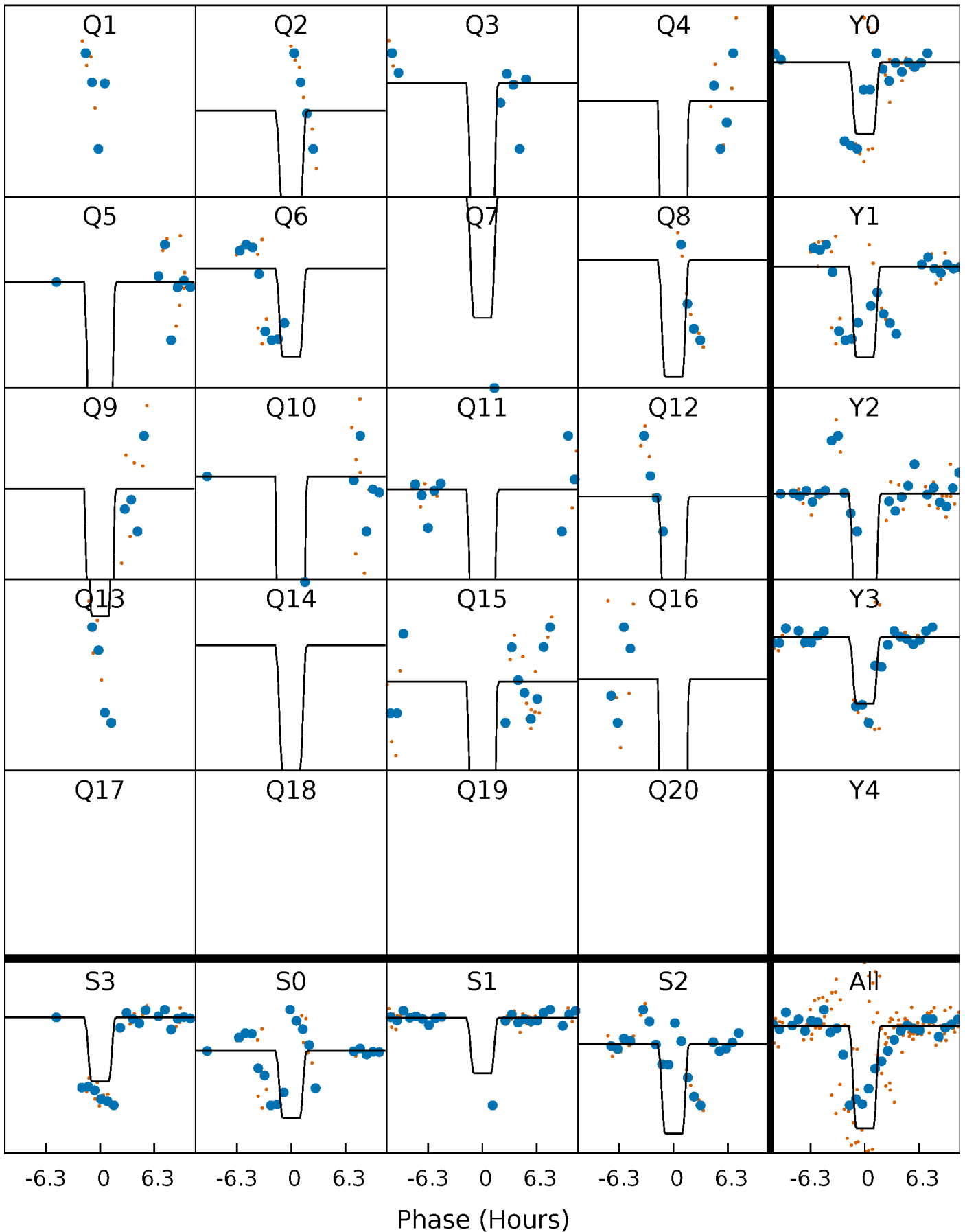
DV Quarter-Phased Transit Curves

TCE 009895004-04 P= 24.478594 Days $T_0=154.065581$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

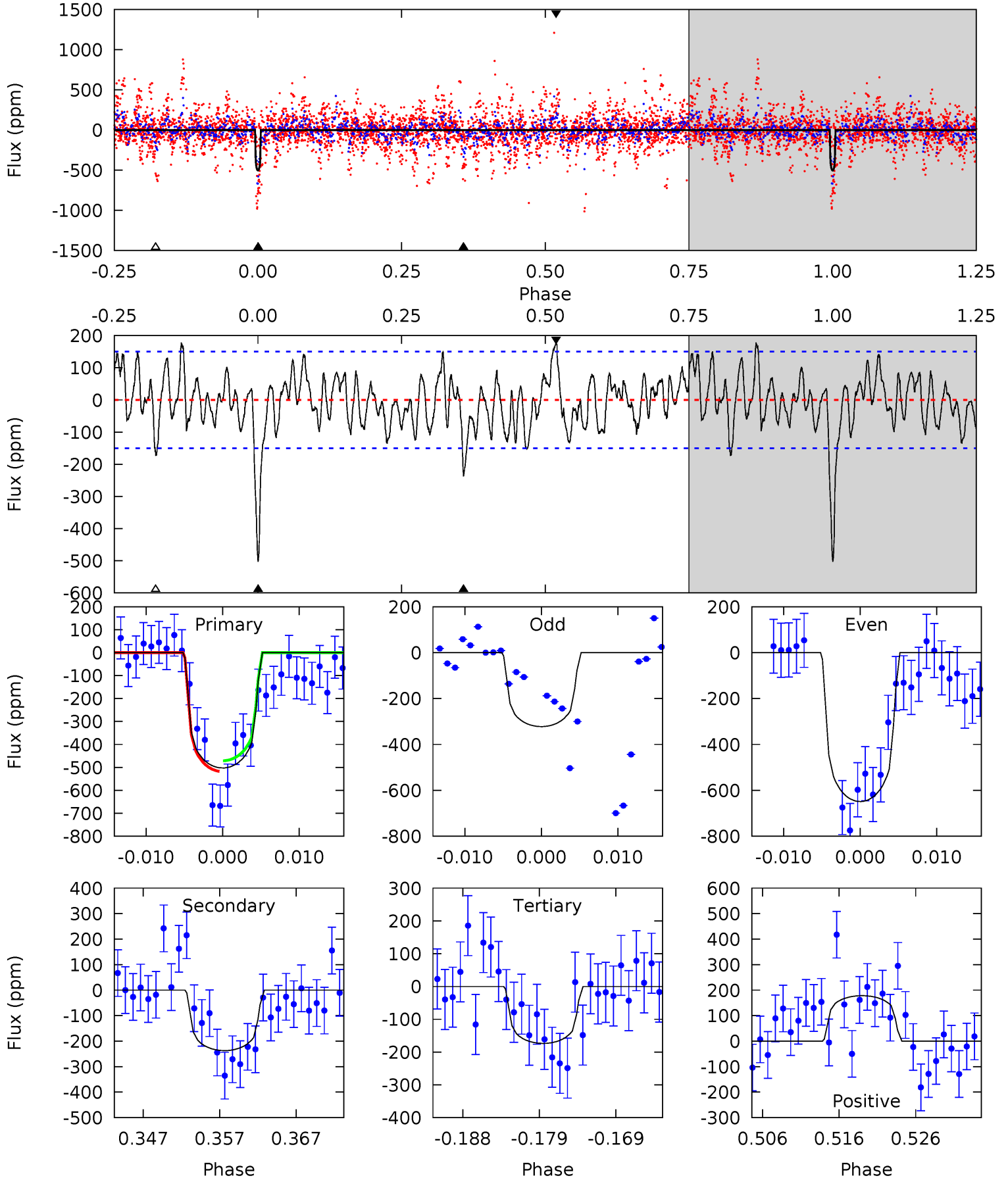
TCE 009895004-04 $P = 24.479171$ Days $T_0 = 154.034053$ (BKJD)



DV Model-Shift Uniqueness Test

009895004-04, P = 24.478594 Days, E = 129.586987 Days

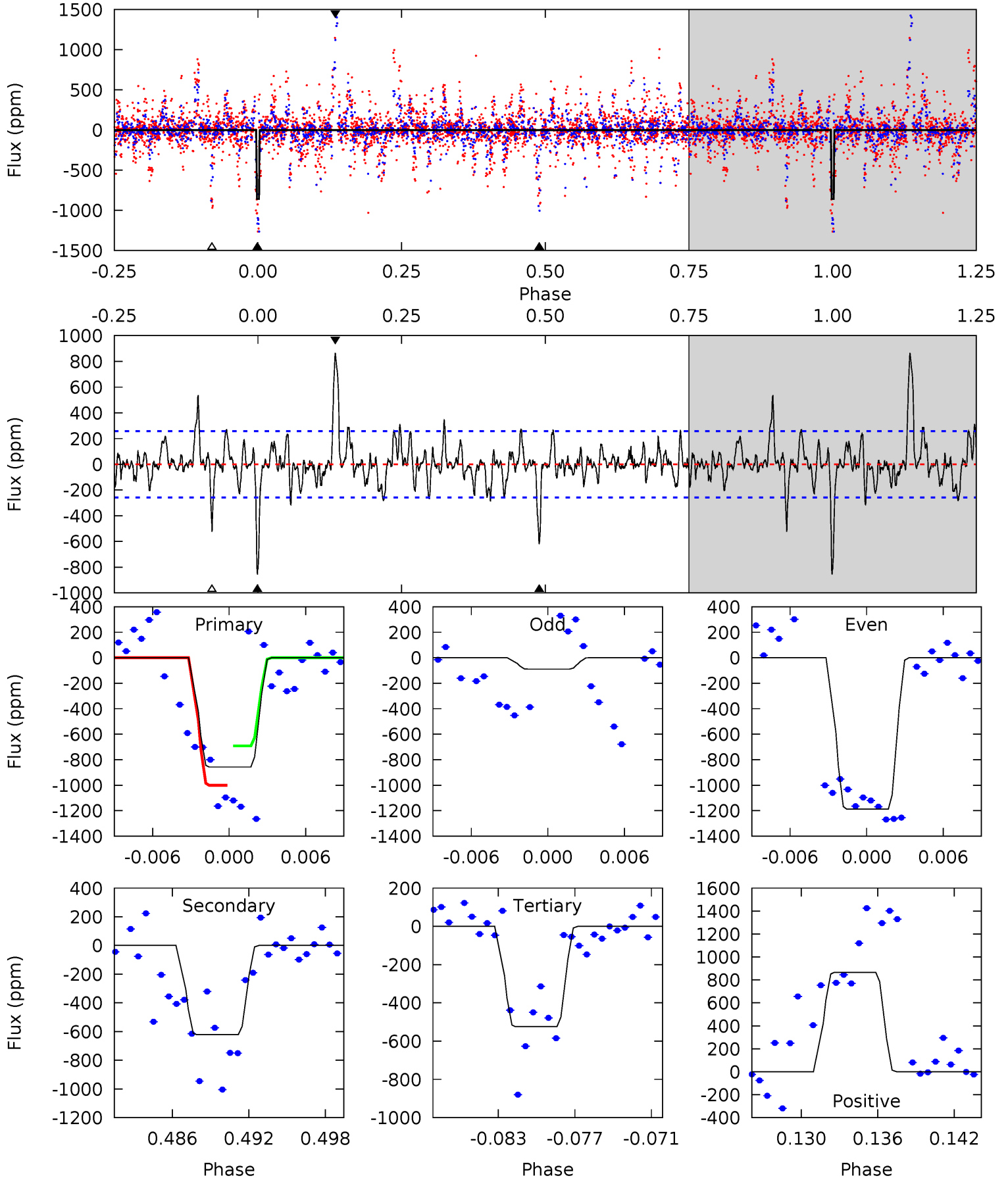
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	7.92	5.80	5.95	5.03	2.58	2.23	11.0	10.8	2.12	1.97	4.44	1.76	0.26	0.76



Alt Model-Shift Uniqueness Test

009895004-04, P = 24.479171 Days, E = 129.554882 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	12.4	10.4	17.2	5.13	2.75	2.27	6.64	-0.16	1.95	-4.85	11.4	1.26	0.50	0



Stellar Parameters For KIC 009895004

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5779^{+104}_{-116}	$4.308^{+0.138}_{-0.113}$	$-0.100^{+0.150}_{-0.150}$	$1.119^{+0.177}_{-0.159}$	$0.928^{+0.074}_{-0.061}$	$0.933^{+0.585}_{-0.304}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-14%	+8%/-7%	+63%/-33%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009895004-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-237 ± 30	$2.16^{+1.44}_{-1.24}$	934^{+44}_{-43}	5398^{+3104}_{-1020}	719^{+3256}_{-457}
Alt.	-622 ± 50	$3.63^{+1.54}_{-1.42}$	935^{+43}_{-44}	5297^{+1455}_{-698}	677^{+1168}_{-349}

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 $A_{obs} \gg 1.0$

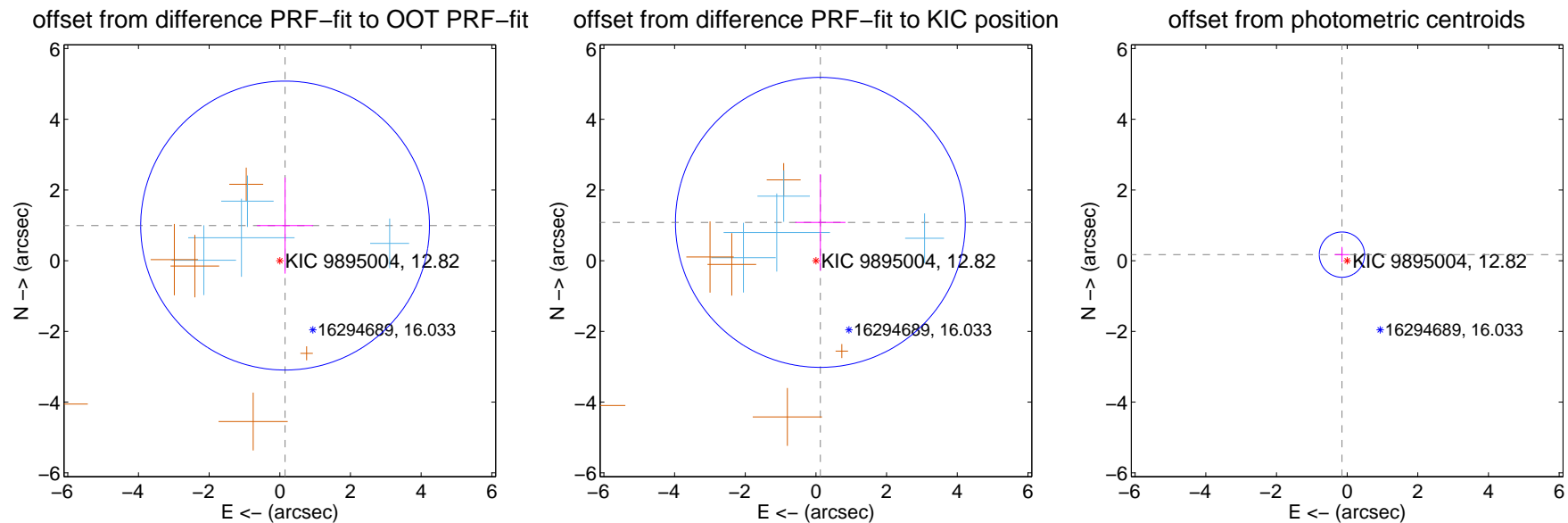
DV Centroid Data

Supplemental centroid analysis for 009895004-04. Kepler magnitude: 12.82. Transit SNR 8.83

There are 4 quarters with good PRF difference image offsets

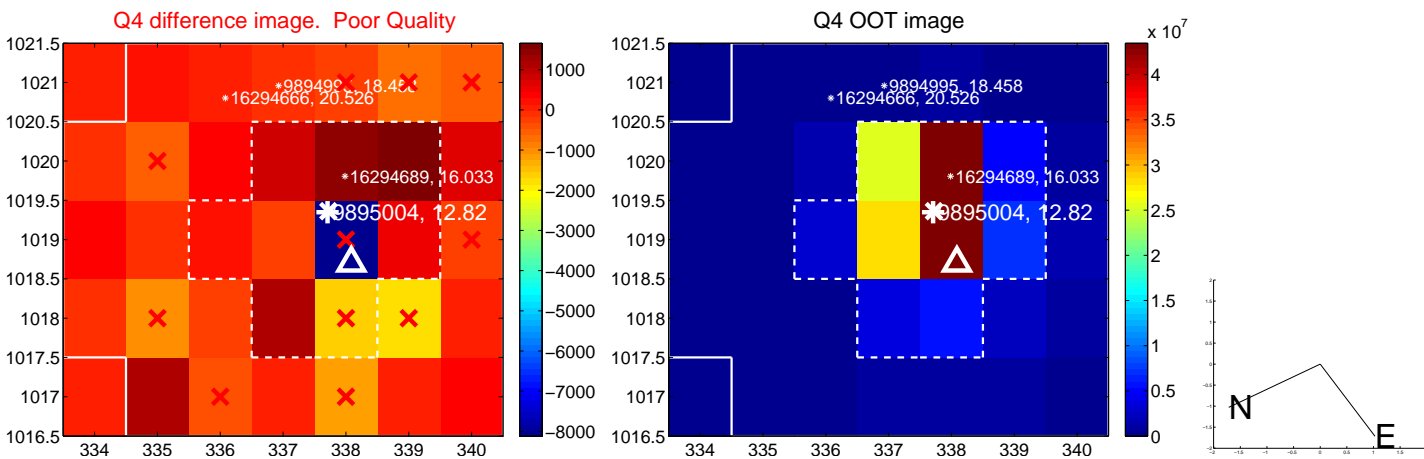
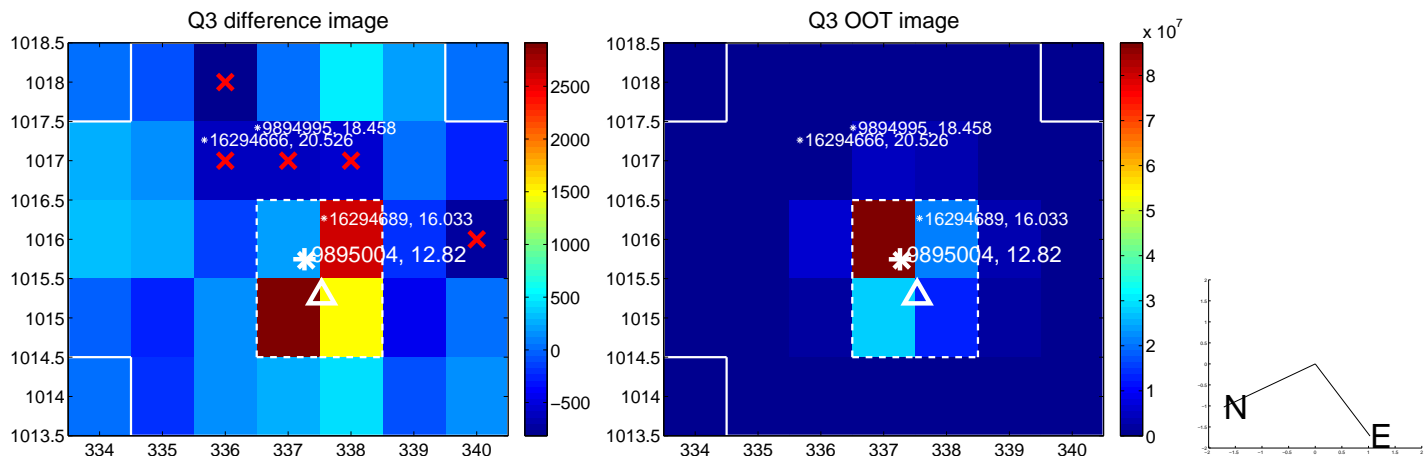
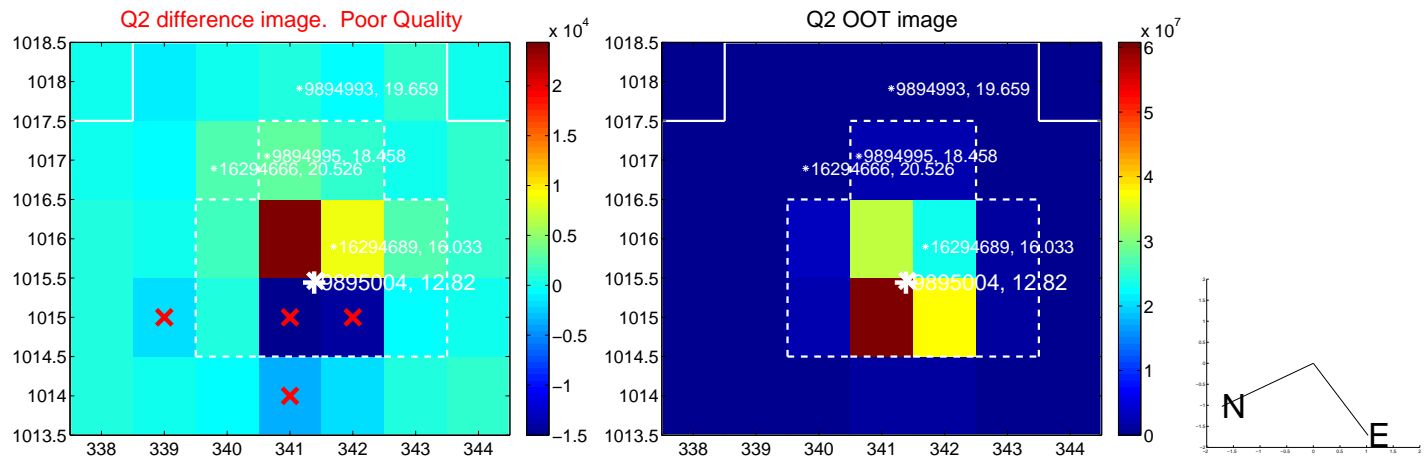
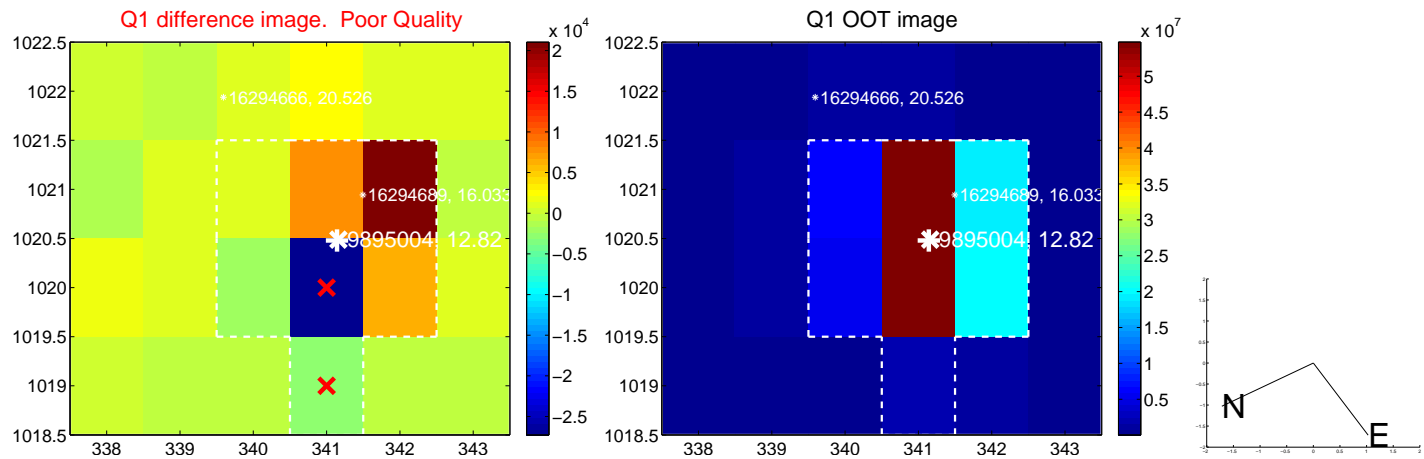
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.005 ± 1.362	0.74	-0.149 ± 0.796	0.994 ± 1.359
PRF-fit source offset from KIC position	1.091 ± 1.367	0.80	-0.126 ± 0.711	1.084 ± 1.365
photometric centroid source offset	0.23 ± 0.21	1.06	0.15 ± 0.21	0.17 ± 0.22

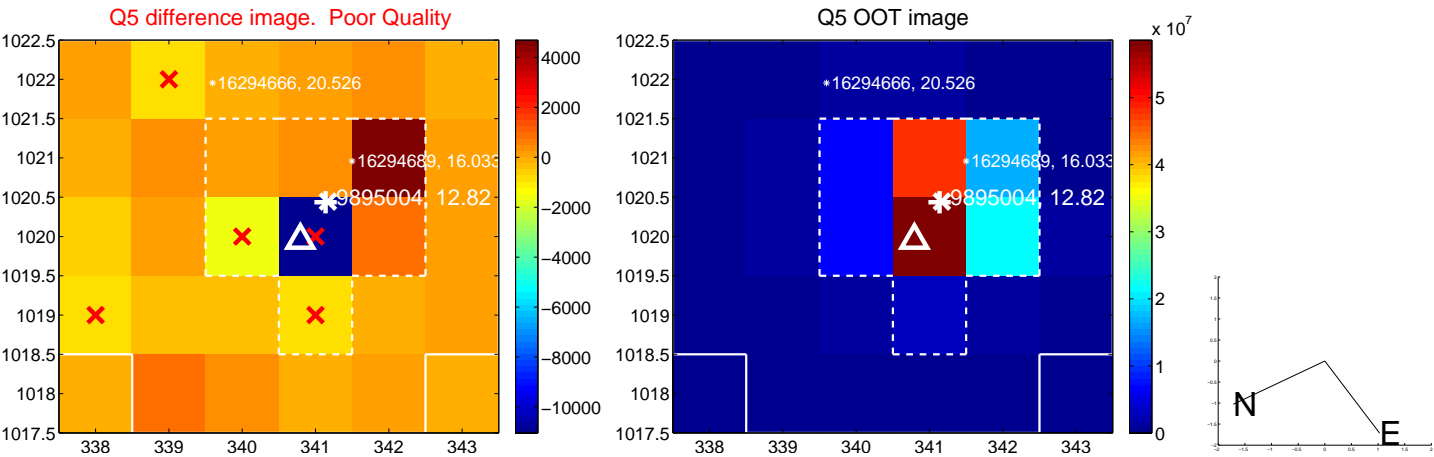


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

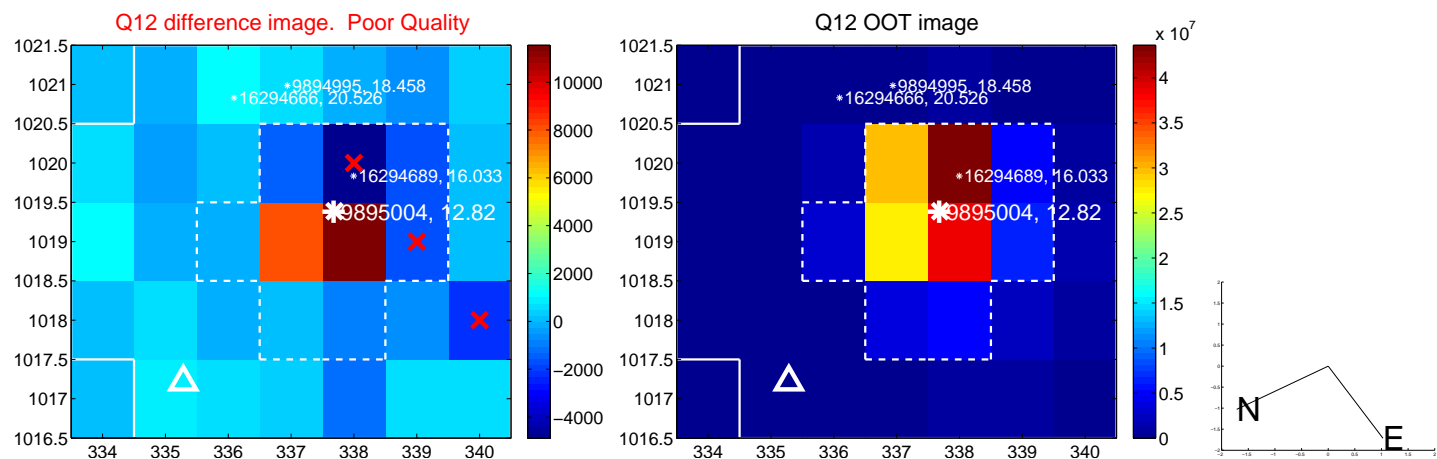
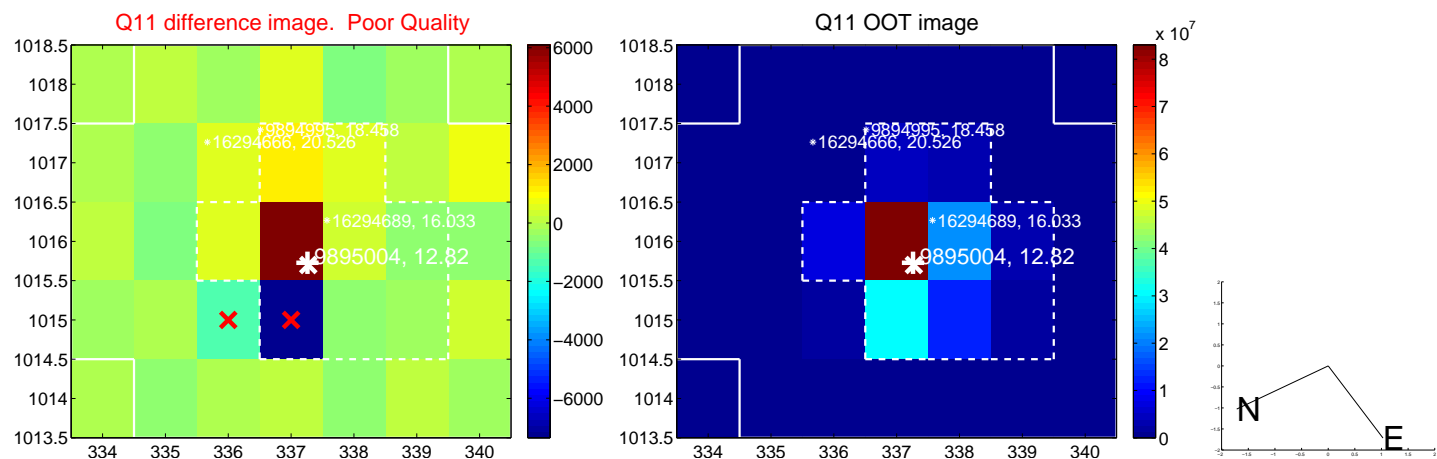
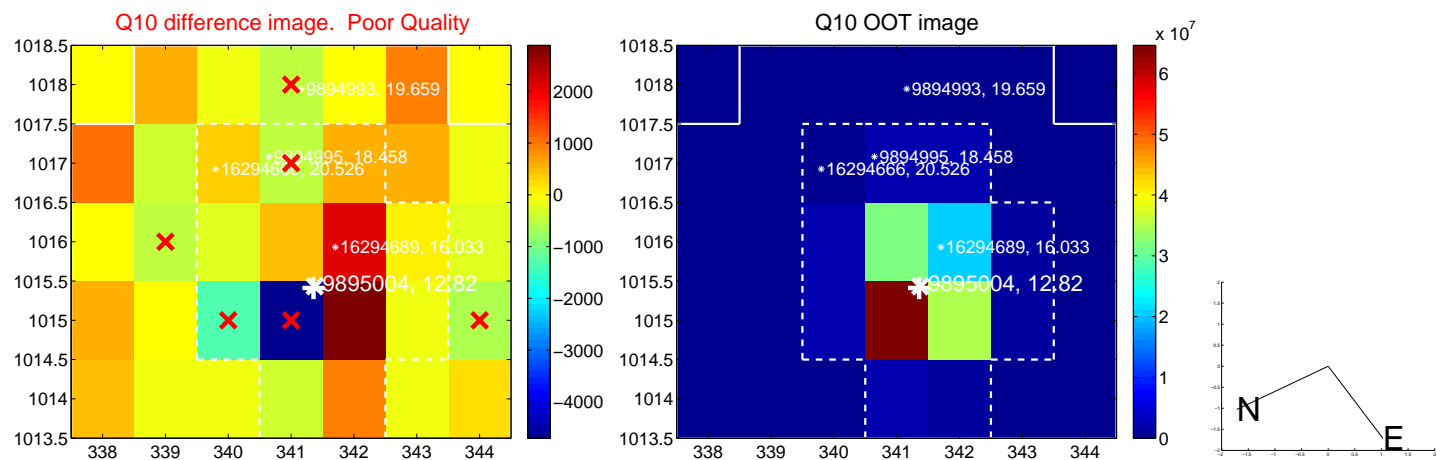
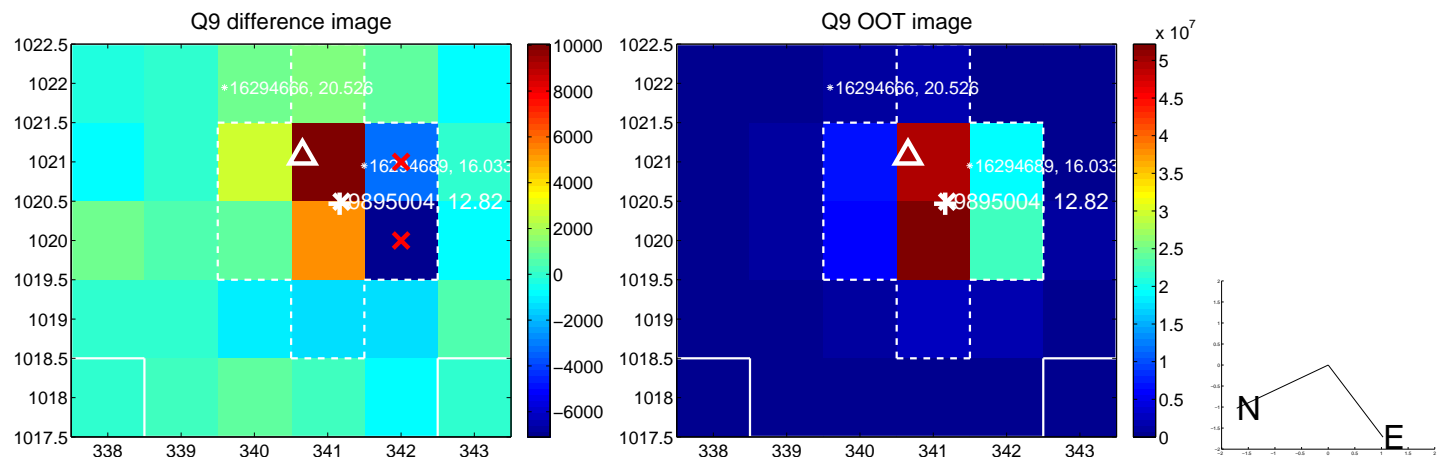
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



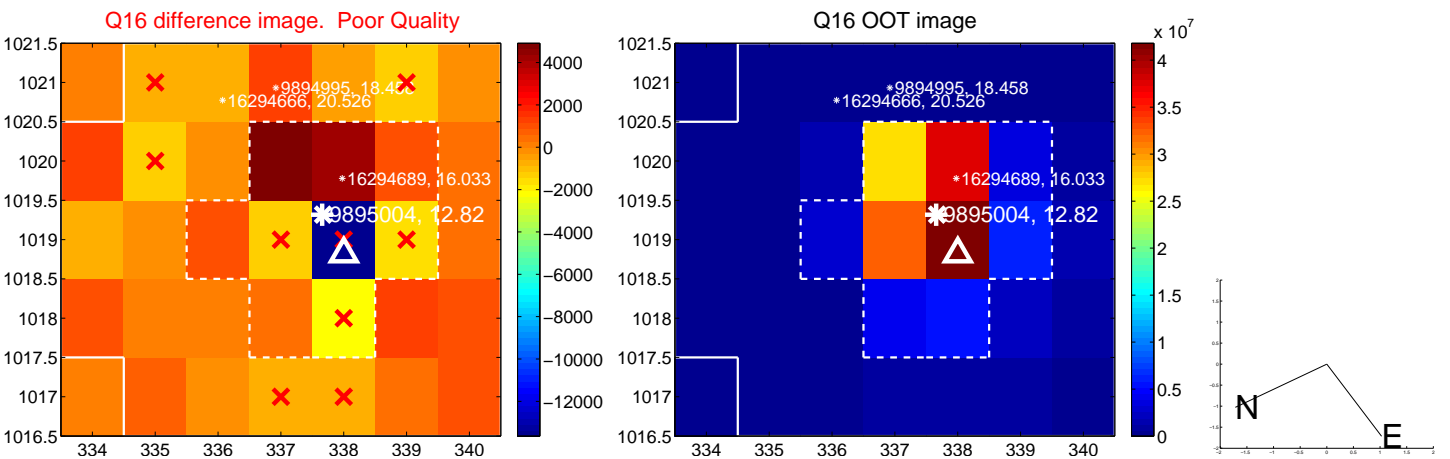
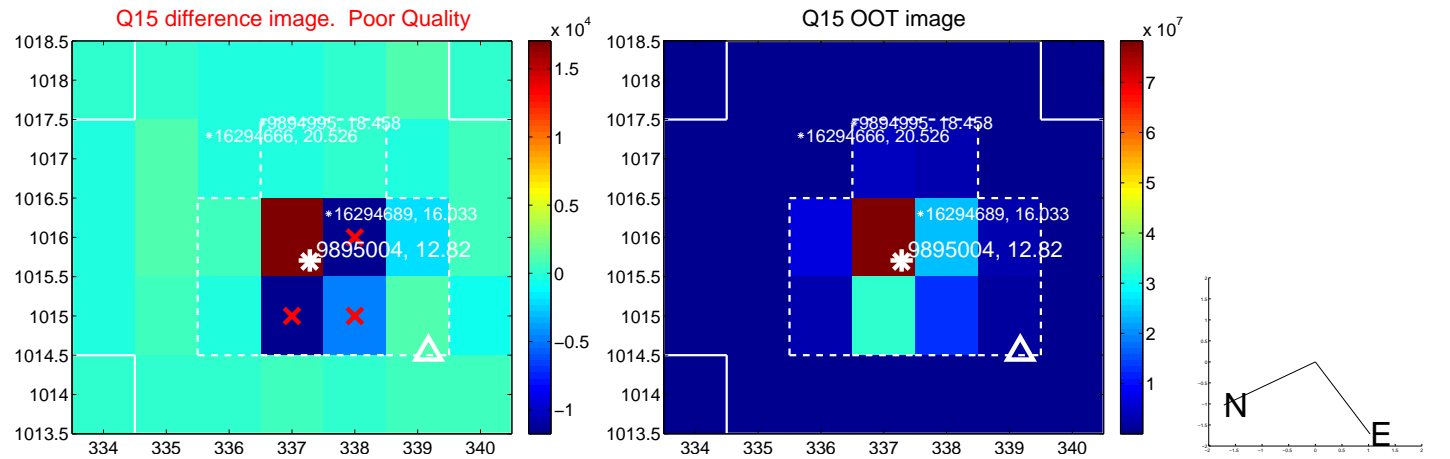
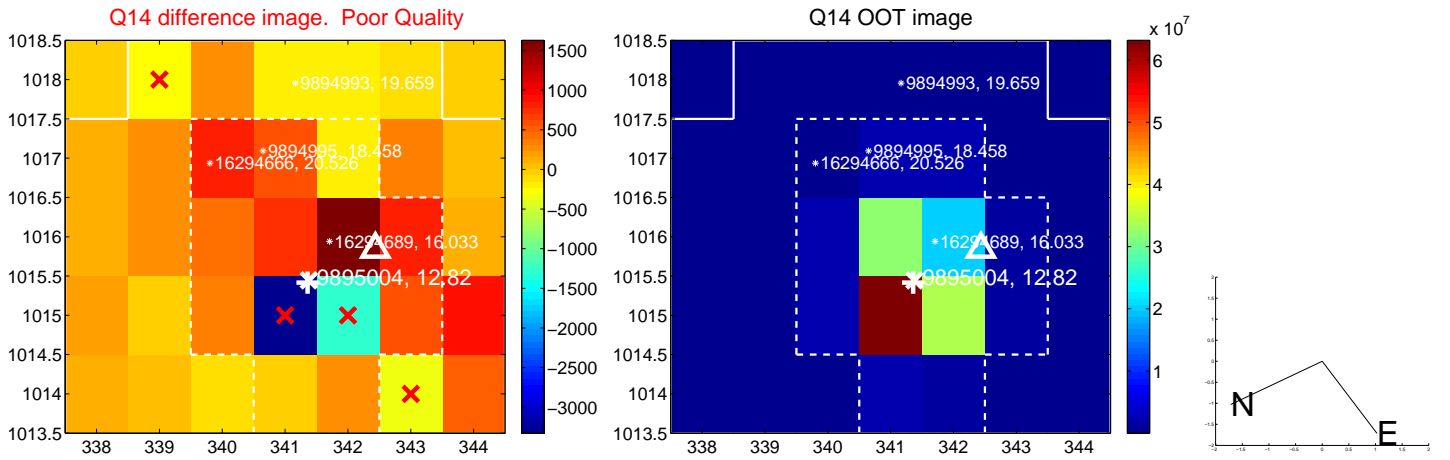
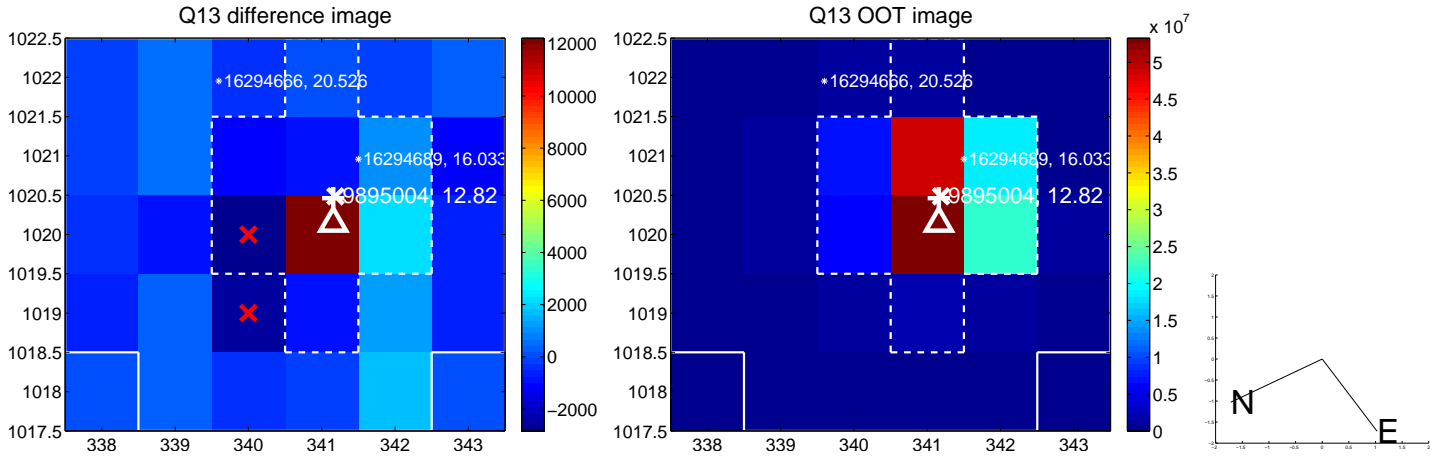
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



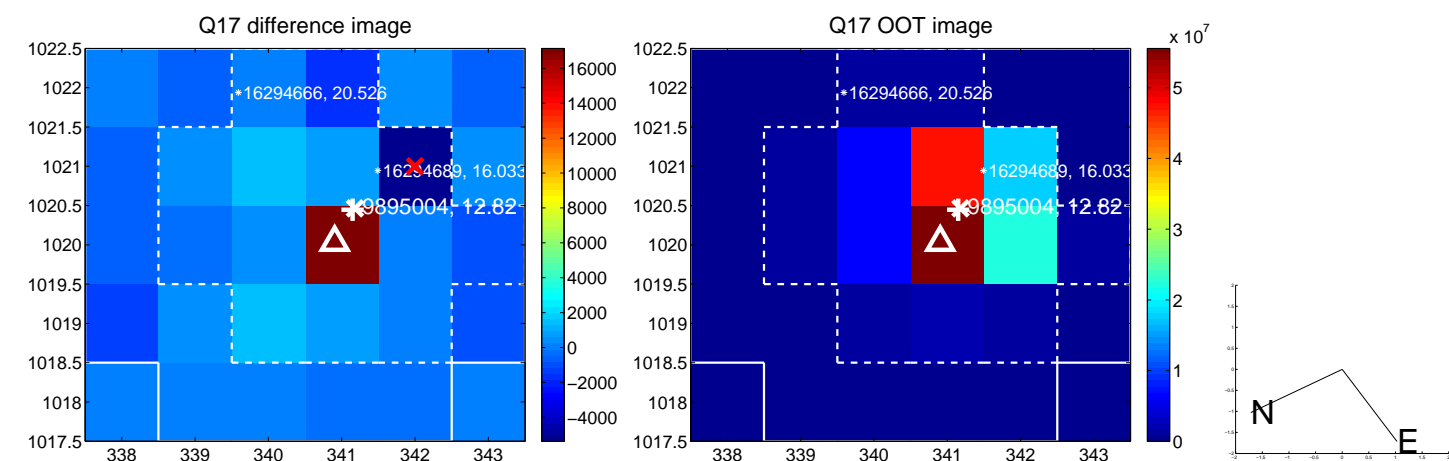
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



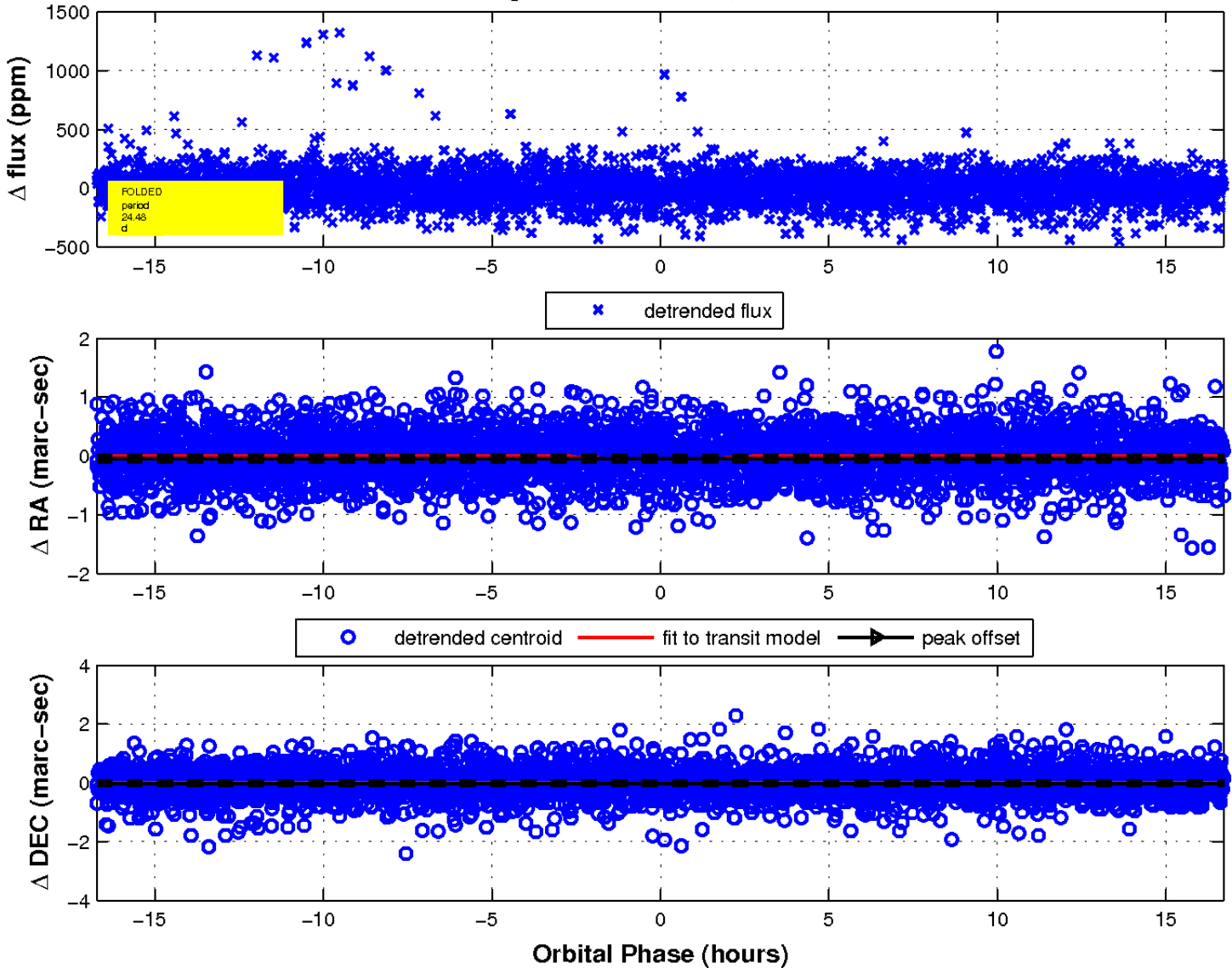
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

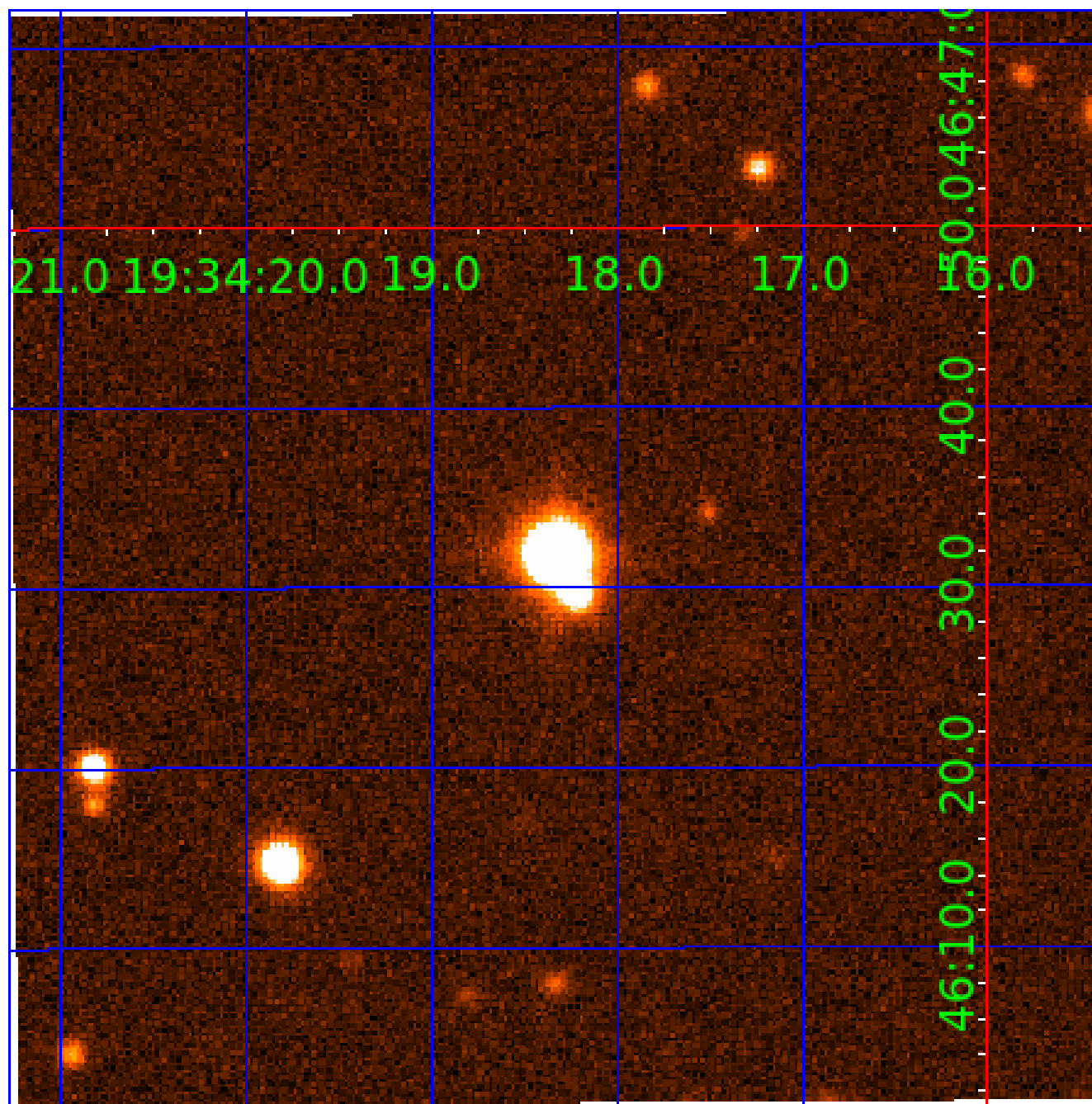


fluxWeightedCentroids, Planet 4 of 6



UKIRT Image

Declination



KIC 009895004

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})
009895004-01	OBS	0328.01	2.250826	132.058045	489.5	1.186	117.4	132.4	1.12	5779	2.96	1163.42
009895004-02	OBS	No	1.987290	133.140838	18.4	14.583	8.8	7.9	1.12	5779	0.48	1373.55
009895004-03	OBS	No	47.676188	159.983767	969.8	5.965	24.4	19.8	1.12	5779	6.76	19.85
009895004-04	OBS	No	24.478594	154.065581	269.9	5.574	16.6	8.8	1.12	5779	2.06	48.28
009895004-05	OBS	No	24.233098	145.246057	227.4	5.792	10.4	7.2	1.12	5779	1.98	48.94
009895004-06	OBS	No	28.231509	140.097809	254.0	3.325	7.4	6.8	1.12	5779	1.97	39.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895004-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET
009895004-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
009895004-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
009895004-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009895004-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
009895004-06	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_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 009895004-05

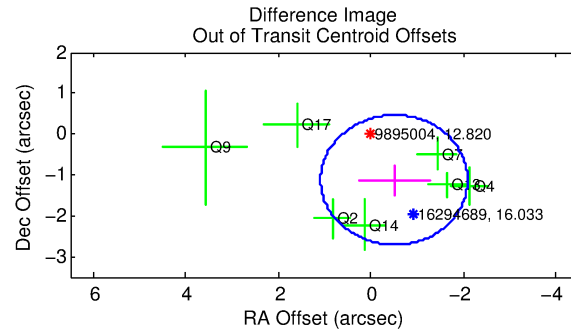
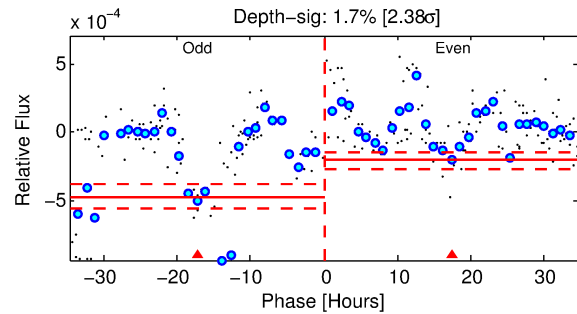
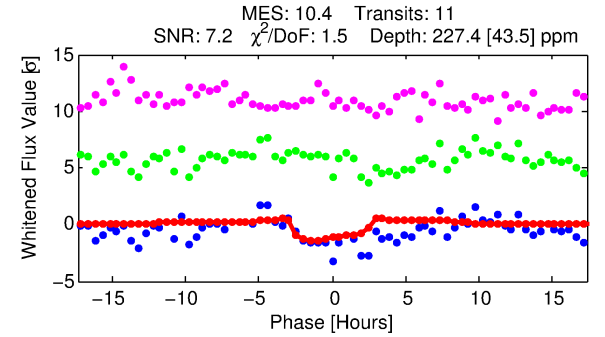
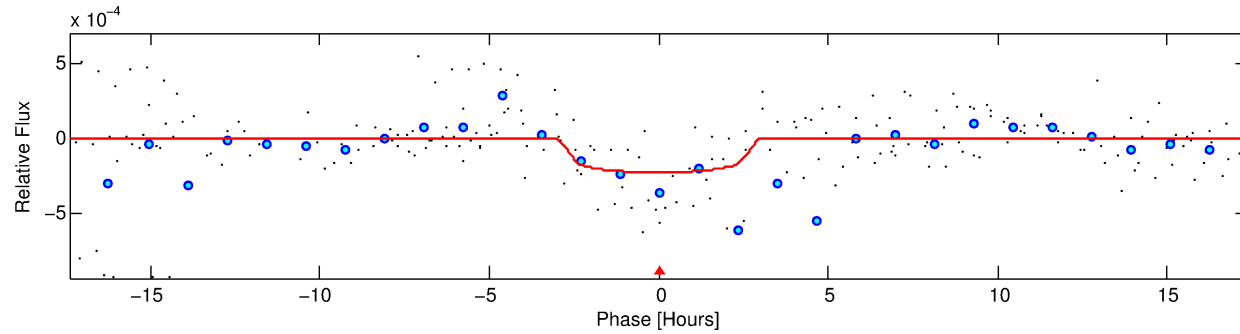
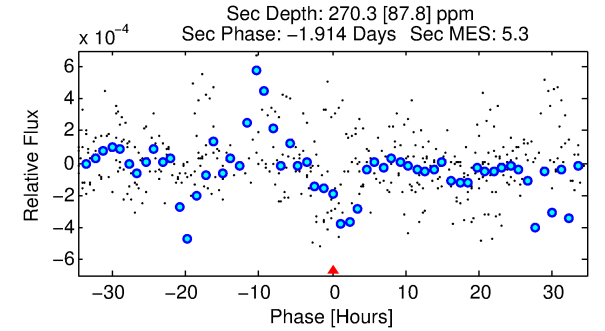
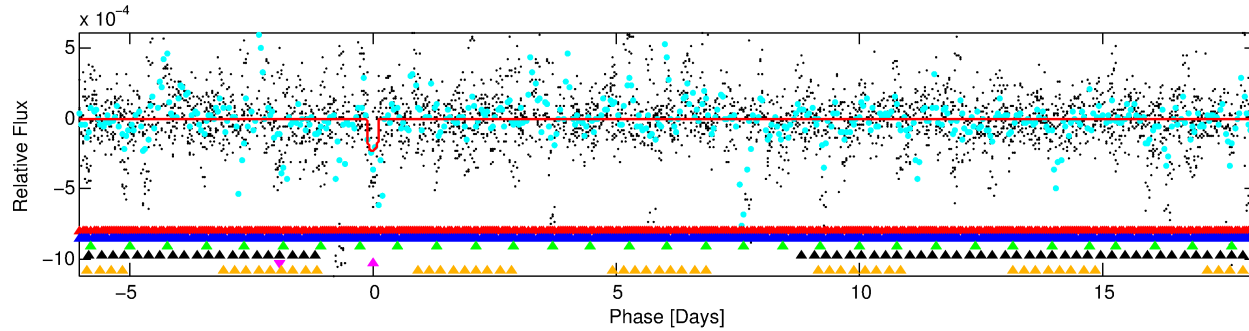
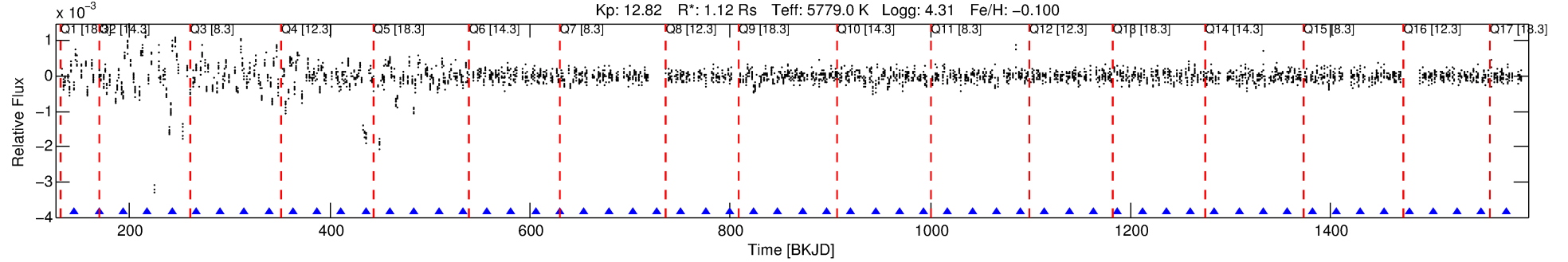
No Significant Match Found

DV One-Page Summary

KIC: 9895004 Candidate: 5 of 6 Period: 24.233 d

KOI: K00328 Corr: No Ephemeris Match

Kp: 12.82 R*: 1.12 Rs Teff: 5779.0 K Logg: 4.31 Fe/H: -0.100



DV Fit Results:

Period = 24.23310 [0.00051] d
Epoch = 145.2461 [0.0168] BKJD
Rp/R* = 0.0162 [0.0060]
a/R* = 15.83 [26.56]
b = 0.89 [0.40]
Seff = 48.94 [12.23]
Teq = 674 [42] K
Rp = 1.98 [0.80] Re
a = 0.1599 [0.0239] AU
Ag = 970.05 [819.70] [1.18σ]
Teff = 5819 [1186] K [4.34σ]

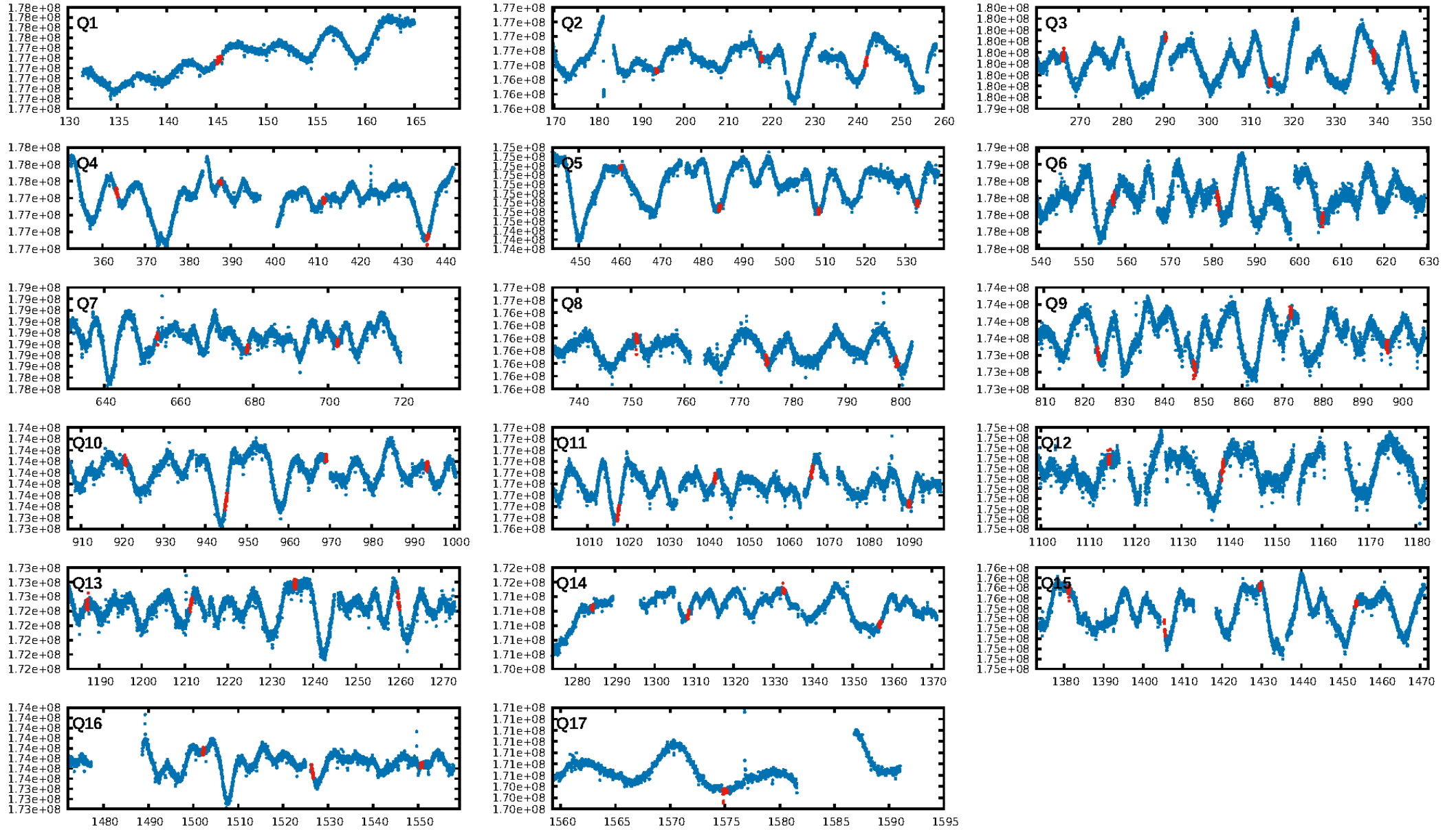
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [89.23σ]
LongPeriod-sig: 53.6% [0.73σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.16e-25
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -0.6516
Centroid-sig: 0.1%
Centroid-so: 0.641 arcsec [2.48σ]
OotOffset-rm: 1.233 arcsec [2.33σ]
KicOffset-rm: 1.125 arcsec [2.26σ]
OotOffset-st: 2/1/1/3 [7]
KicOffset-st: 2/1/1/3 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.35 [6/17]

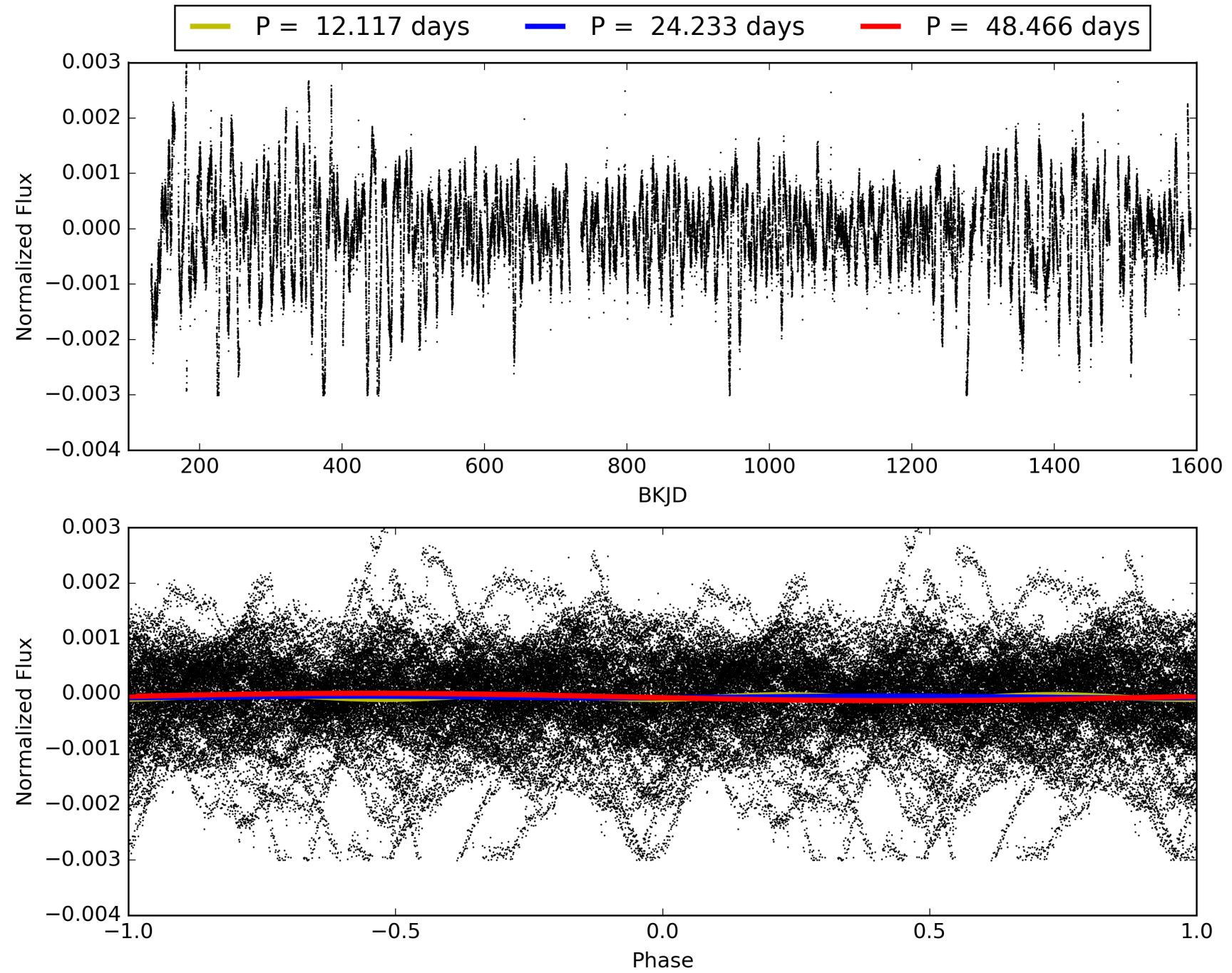
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:29:17 Z

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

TCE 009895004-05, PDC Light Curves

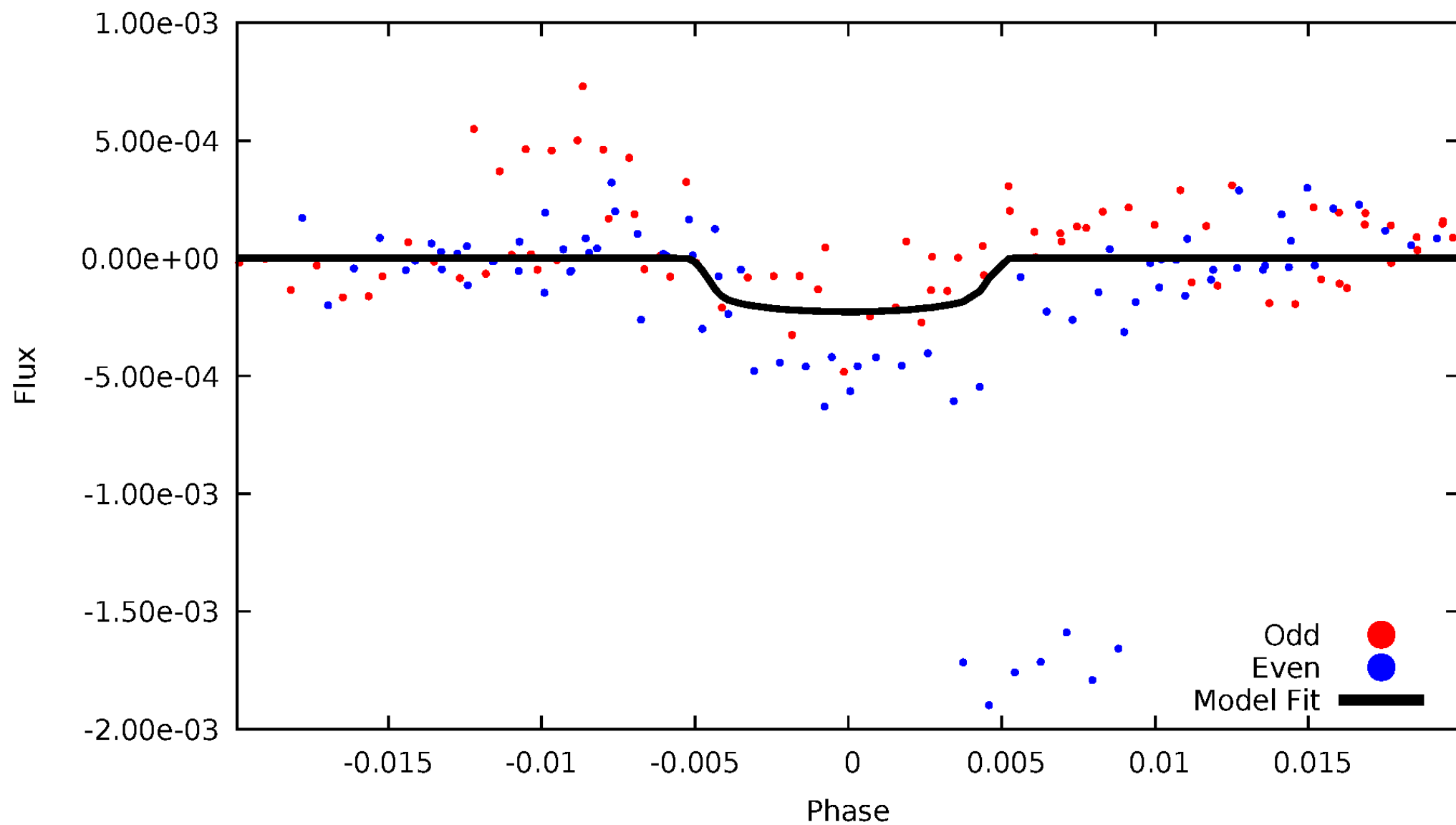


TCE 009895004-05



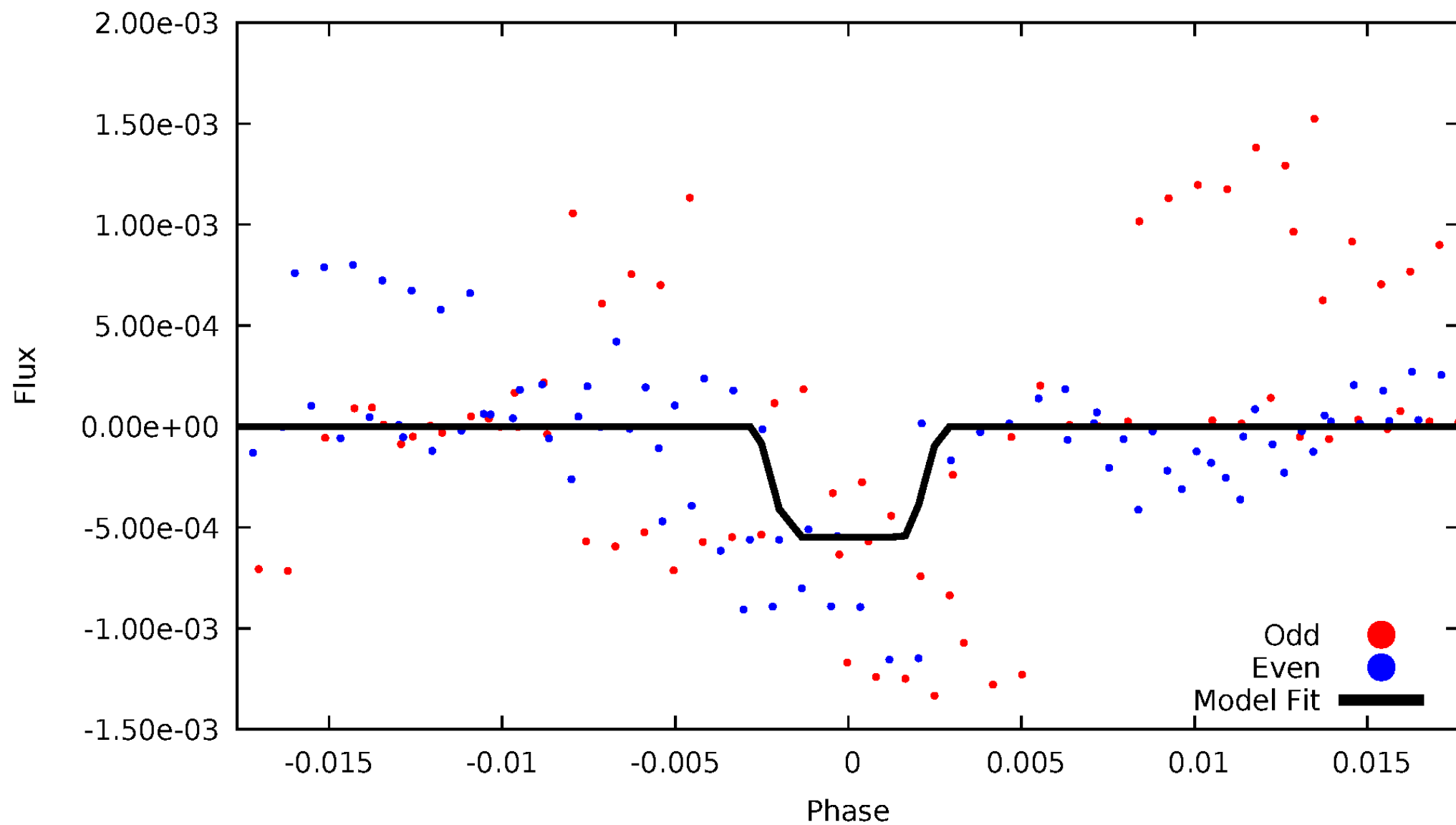
DV Odd/Even

TCE 009895004-05



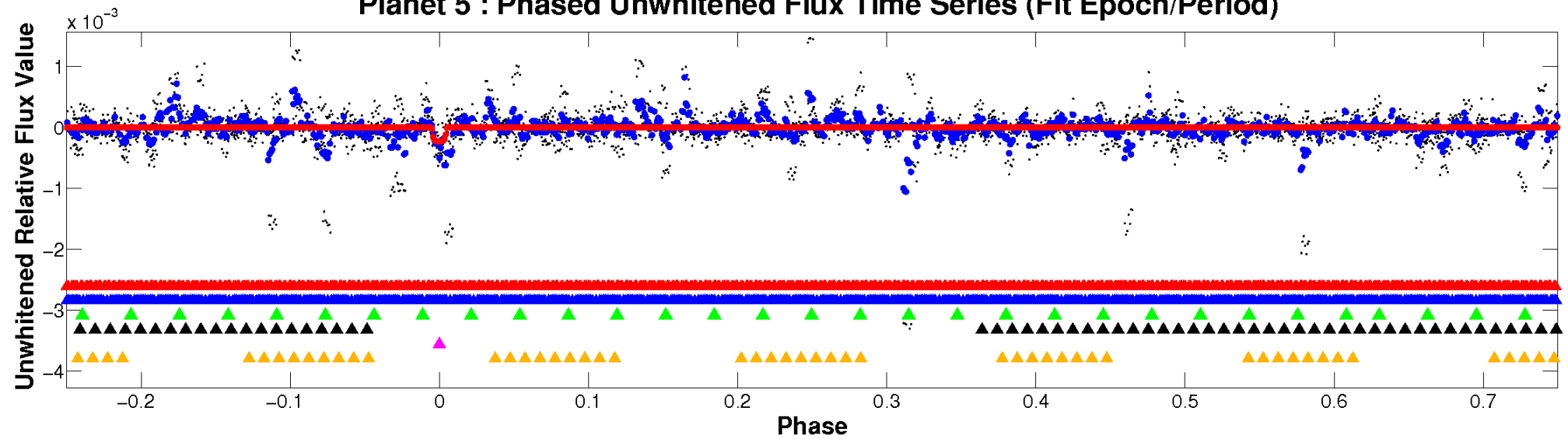
ALT Odd/Even

TCE 009895004-05

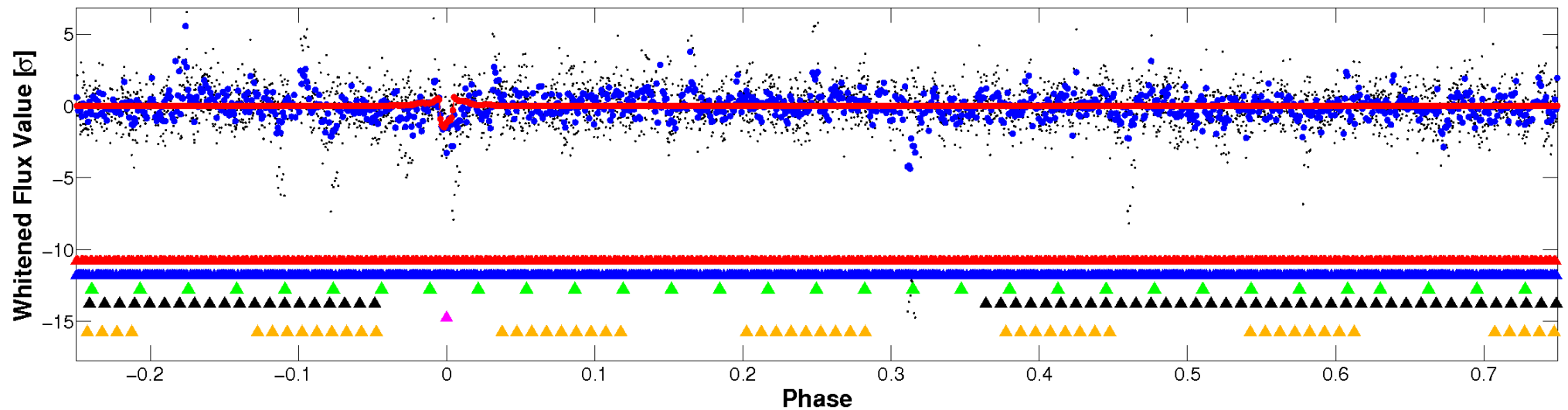


Non-Whitened Vs. Whitened Light Curve

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

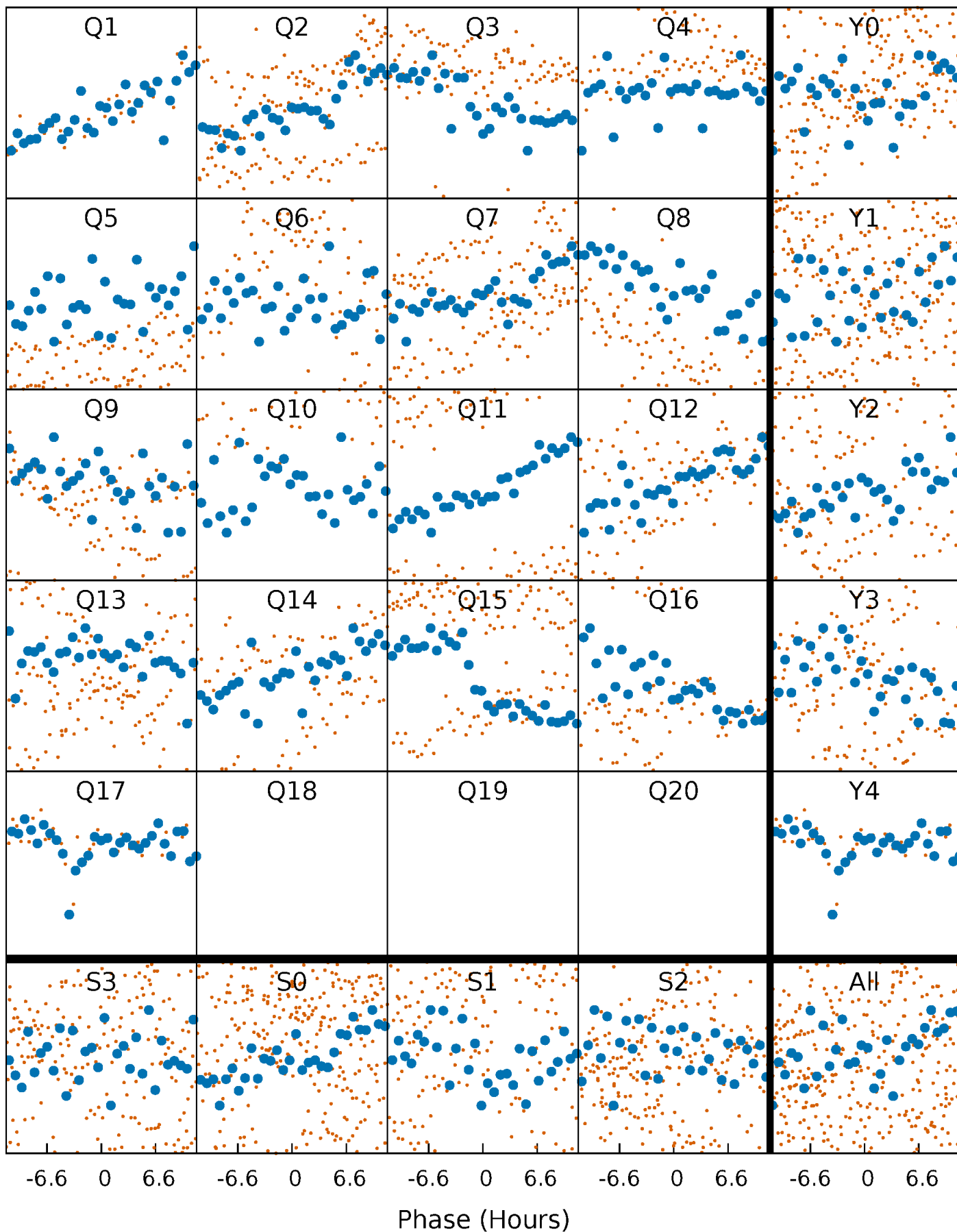


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



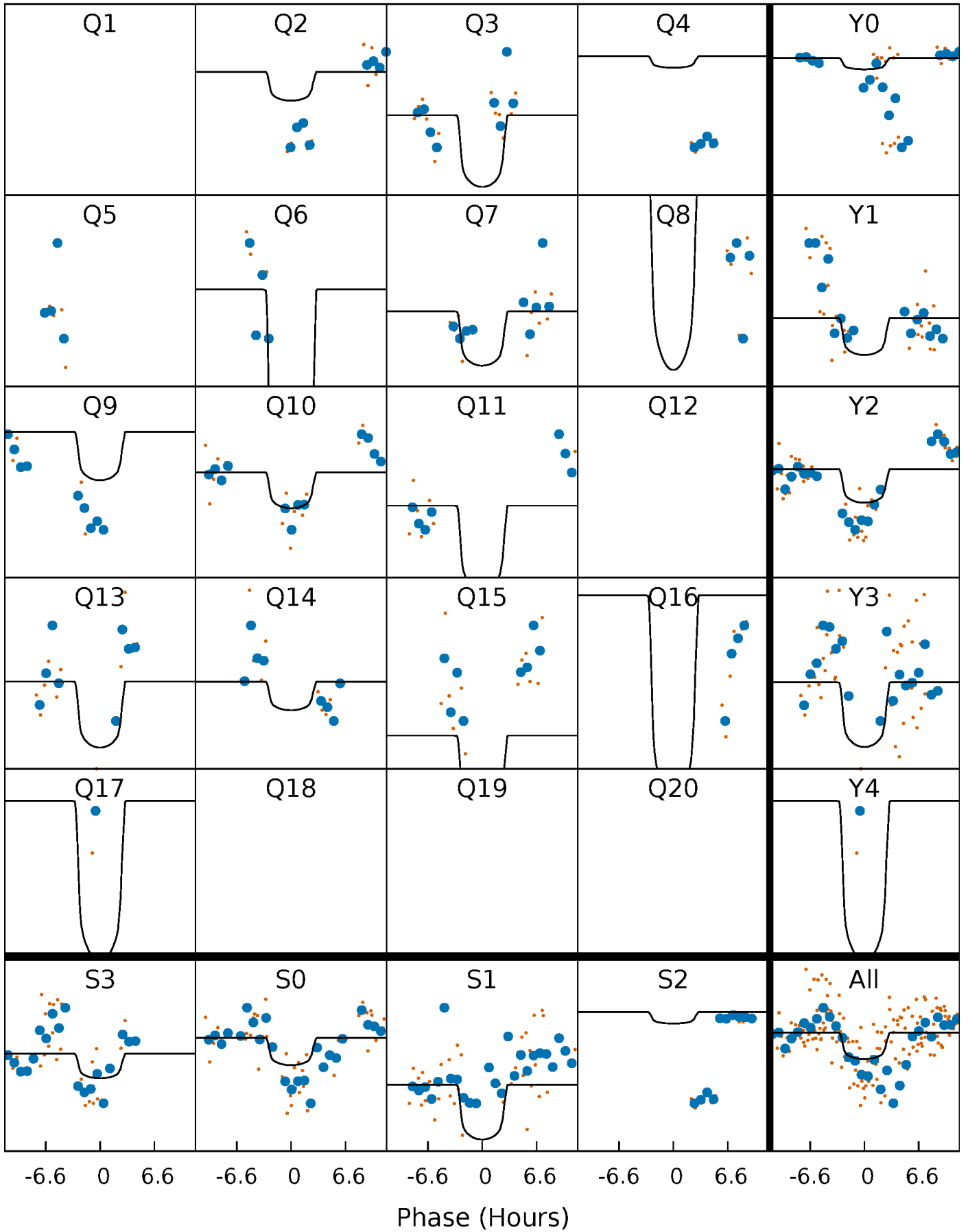
PDC Quarter-Phased Transit Curves

TCE 009895004-05 $P = 24.233098$ Days $T_0 = 145.246057$ (BKJD)



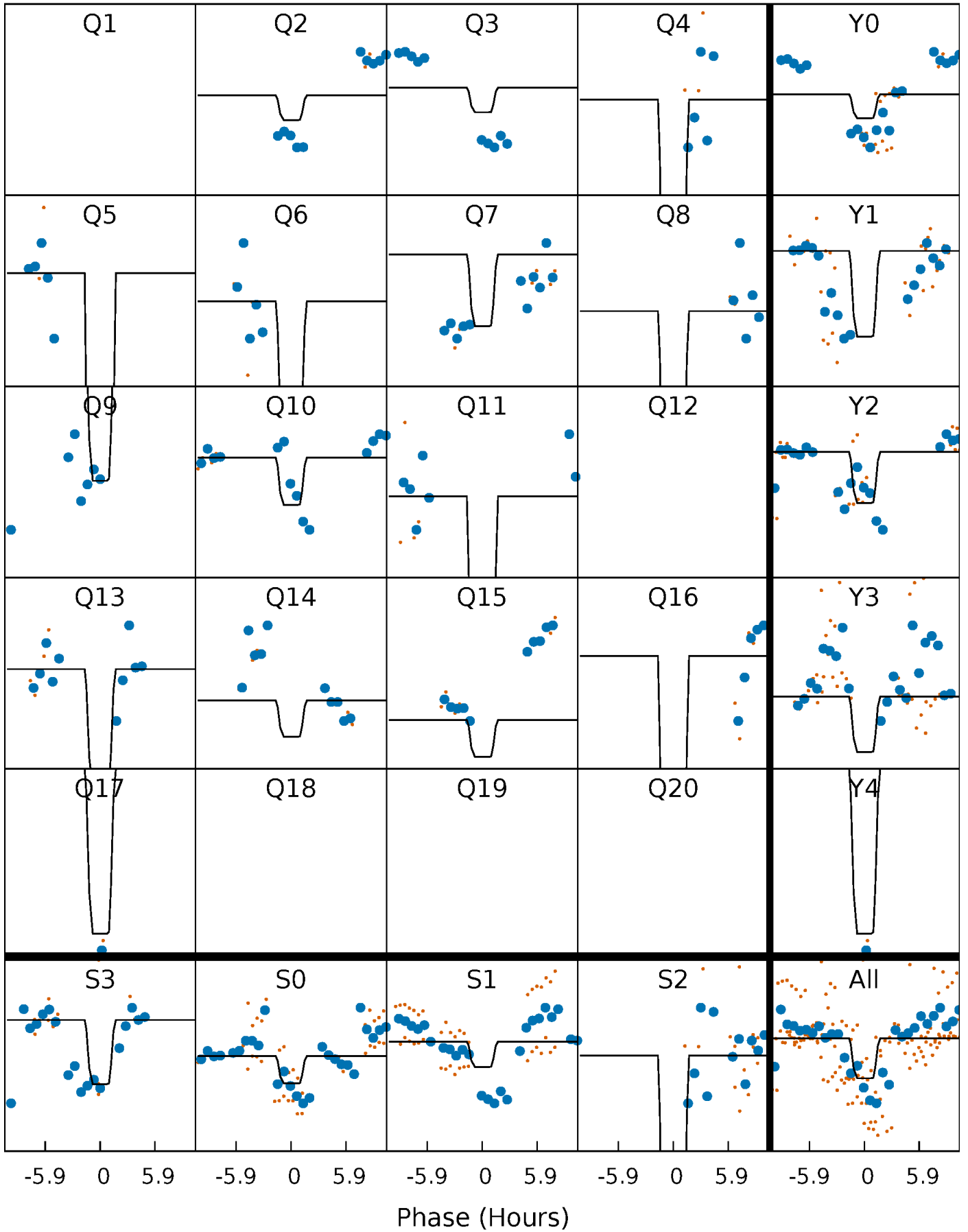
DV Quarter-Phased Transit Curves

TCE 009895004-05 $P = 24.233098$ Days $T_0 = 145.246057$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

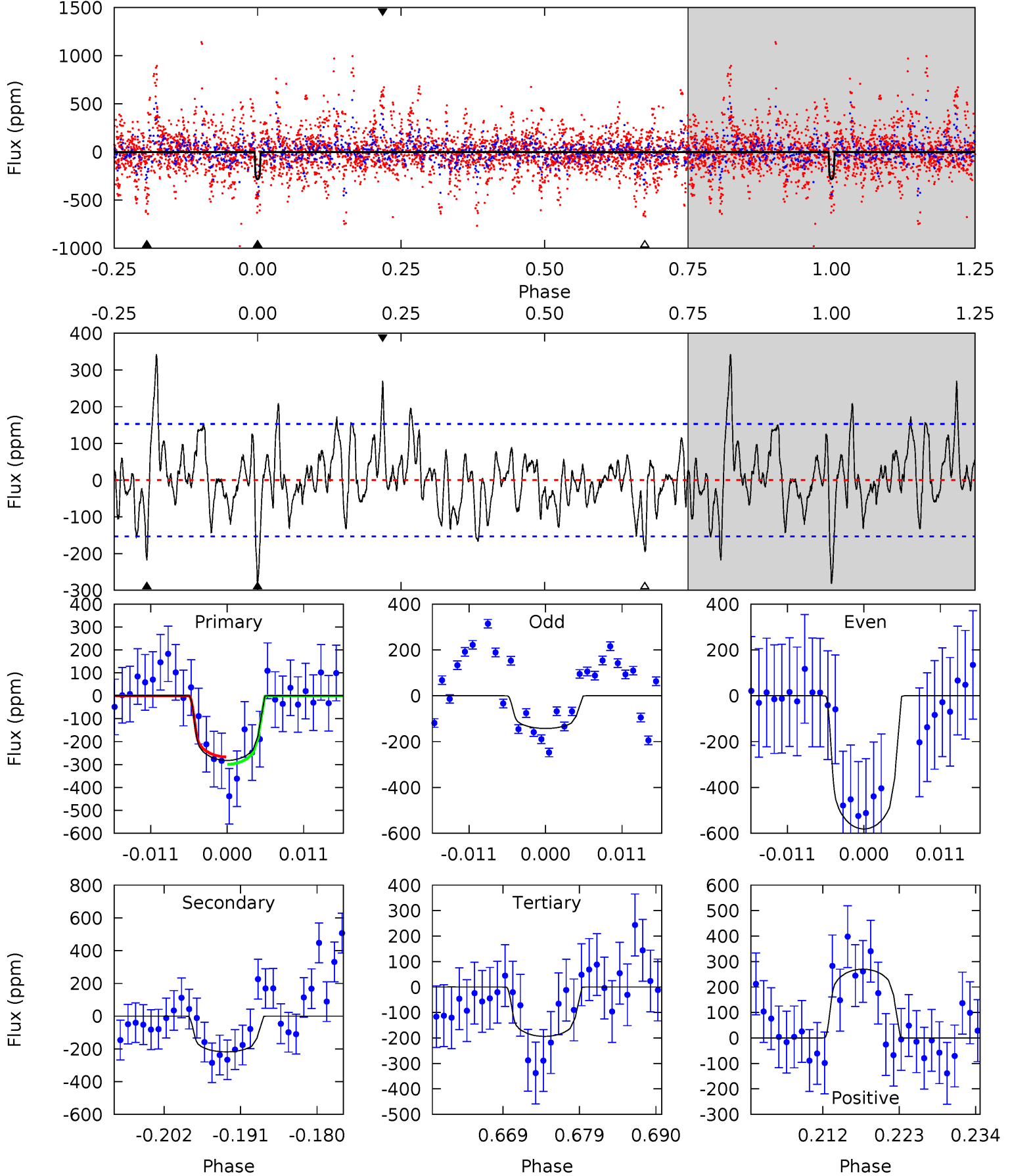
TCE 009895004-05 $P = 24.231576$ Days $T_0 = 145.303573$ (BKJD)



DV Model-Shift Uniqueness Test

009895004-05, P = 24.233098 Days, E = 121.012959 Days

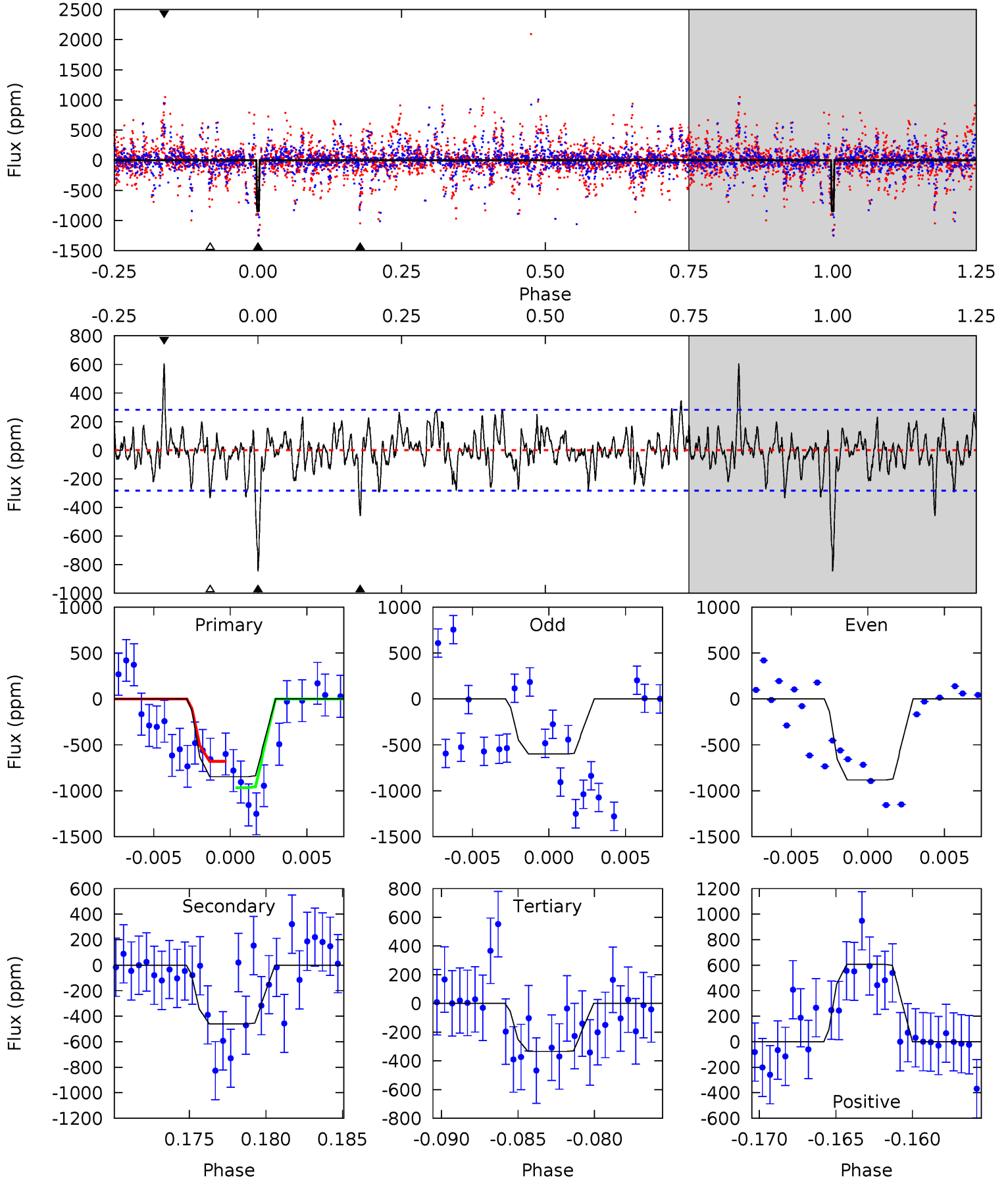
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.24	7.14	6.34	8.84	5.01	2.56	2.41	2.89	0.40	0.80	-1.70	5.97	3.59	0.55	0.53



Alt Model-Shift Uniqueness Test

009895004-05, P = 24.231576 Days, E = 121.071997 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	8.40	6.11	11.1	5.16	2.81	1.96	9.38	4.41	2.29	-2.68	1.99	1.26	0.42	0



Stellar Parameters For KIC 009895004

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5779^{+104}_{-116}	$4.308^{+0.138}_{-0.113}$	$-0.100^{+0.150}_{-0.150}$	$1.119^{+0.177}_{-0.159}$	$0.928^{+0.074}_{-0.061}$	$0.933^{+0.585}_{-0.304}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-14%	+8%/-7%	+63%/-33%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009895004-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-218 ± 31	$1.98^{+0.76}_{-0.76}$	941^{+44}_{-45}	5555^{+1490}_{-771}	779^{+1342}_{-387}
Alt.	-459 ± 55	$2.90^{+0.77}_{-0.81}$	939^{+45}_{-43}	5516^{+879}_{-558}	784^{+681}_{-314}

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 $A_{obs} \gg 1.0$

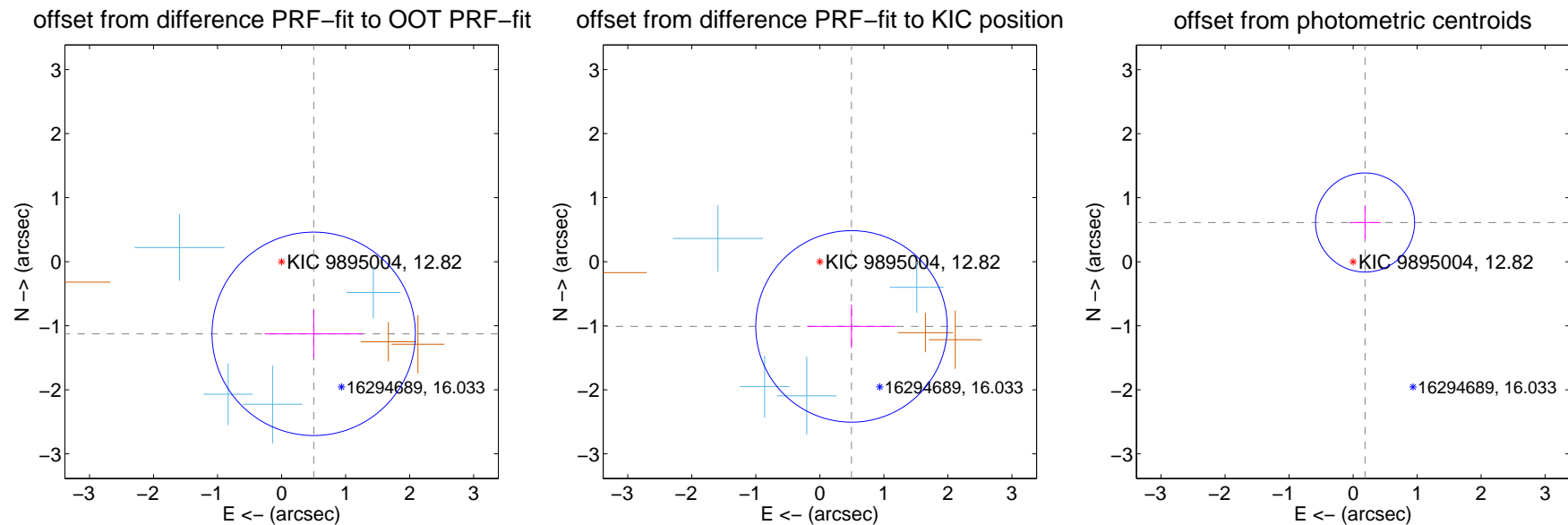
DV Centroid Data

Supplemental centroid analysis for 009895004-05. Kepler magnitude: 12.82. Transit SNR 7.23

There are 4 quarters with good PRF difference image offsets

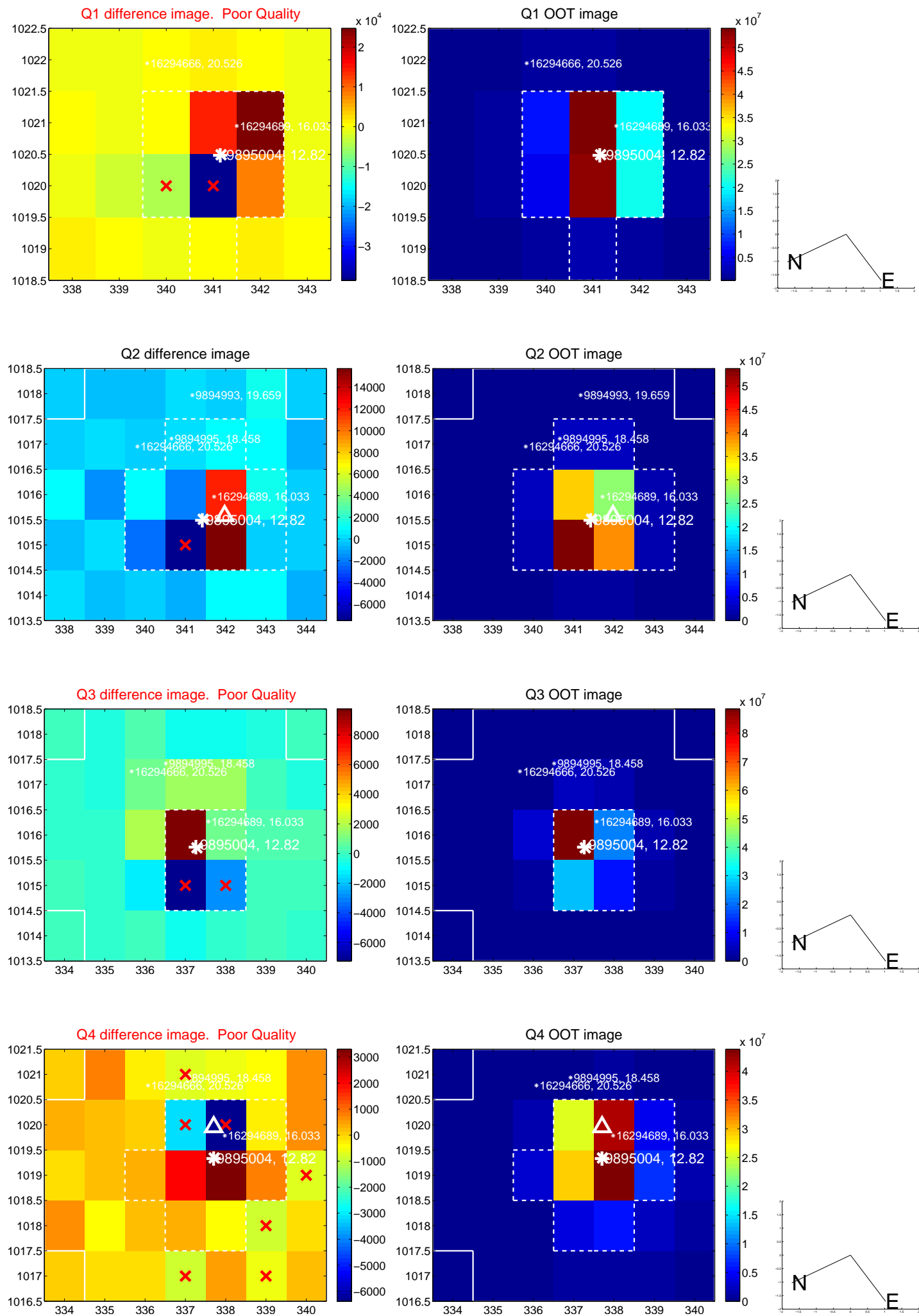
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.233 ± 0.529	2.33	-0.502 ± 0.766	-1.126 ± 0.372
PRF-fit source offset from KIC position	1.125 ± 0.498	2.26	-0.494 ± 0.691	-1.011 ± 0.340
photometric centroid source offset	0.64 ± 0.26	2.48	-0.19 ± 0.24	0.61 ± 0.26

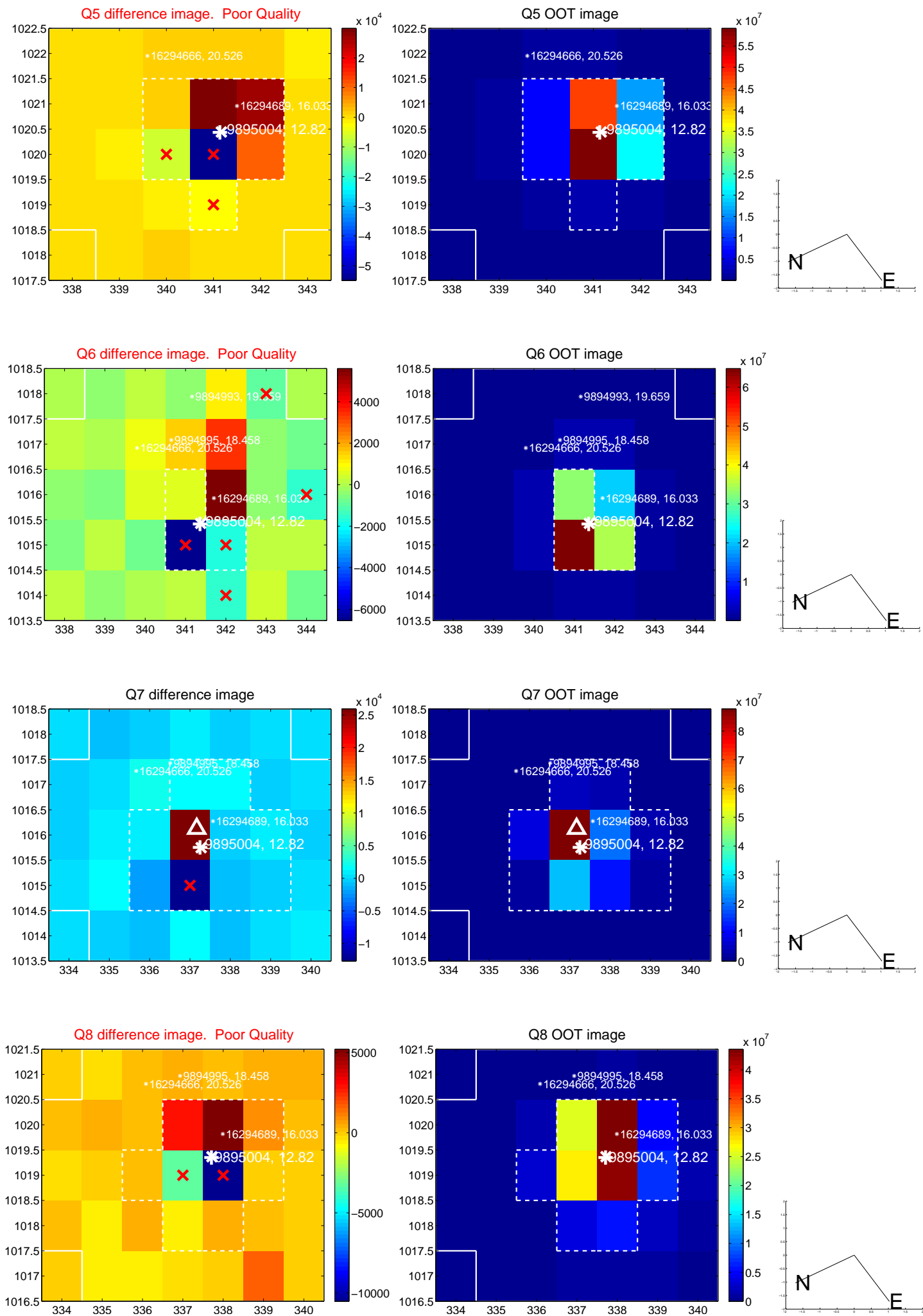


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

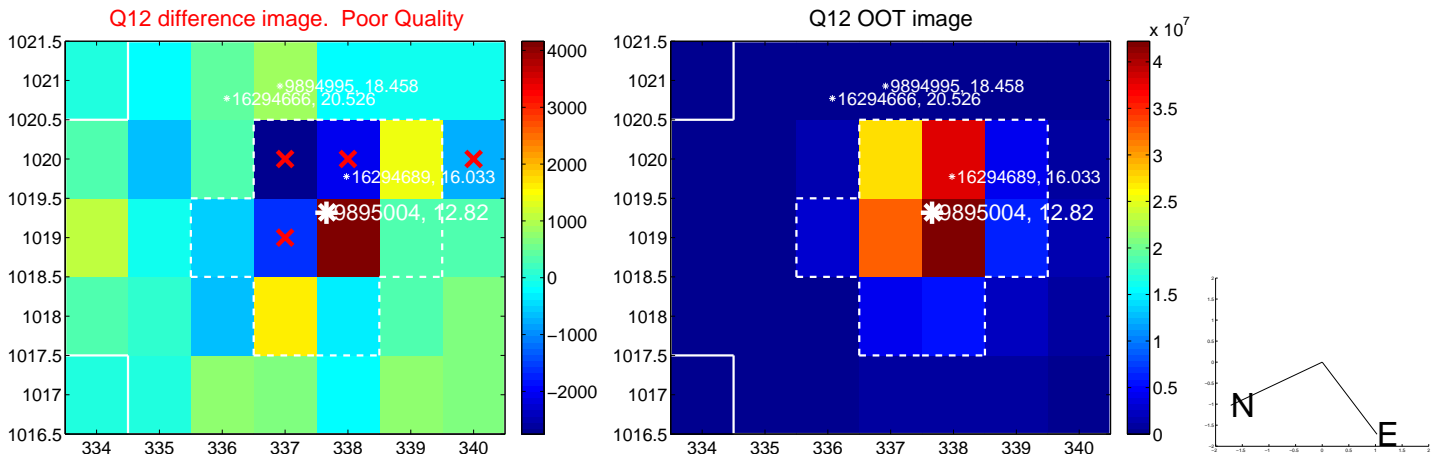
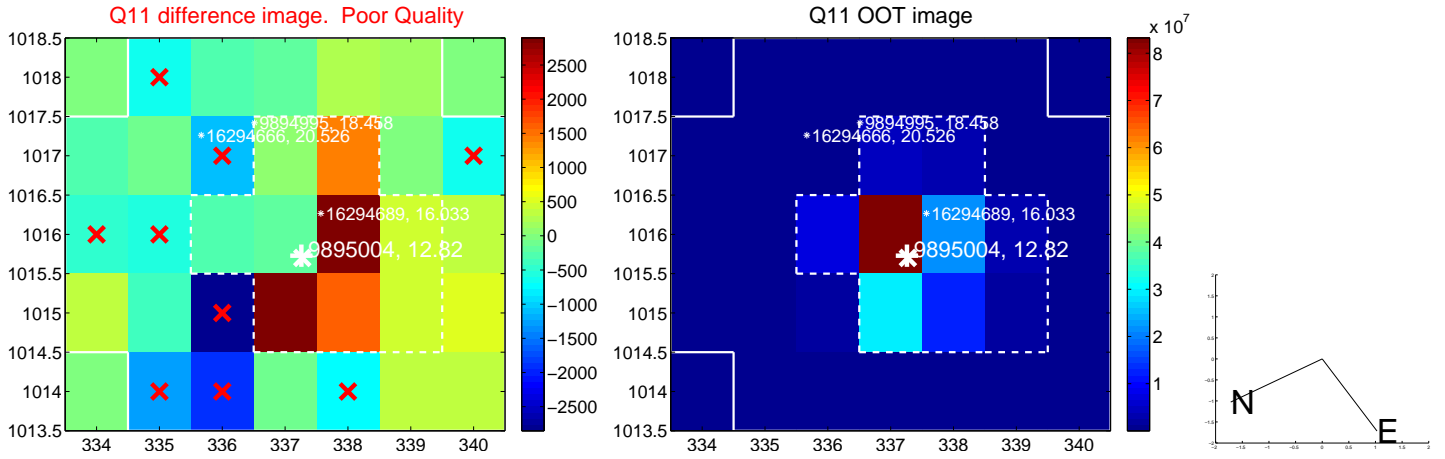
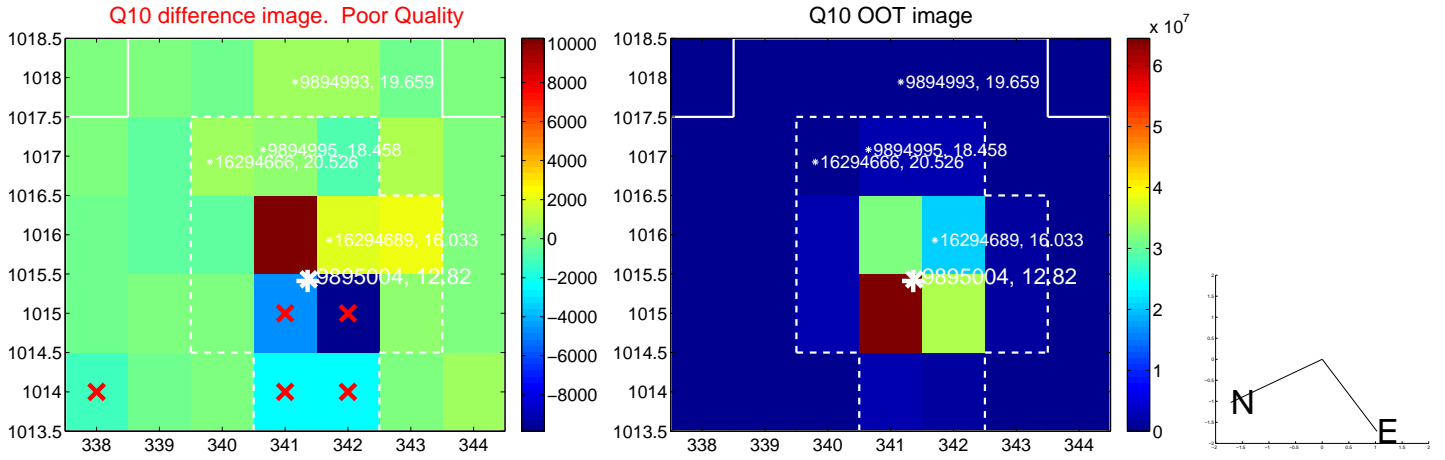
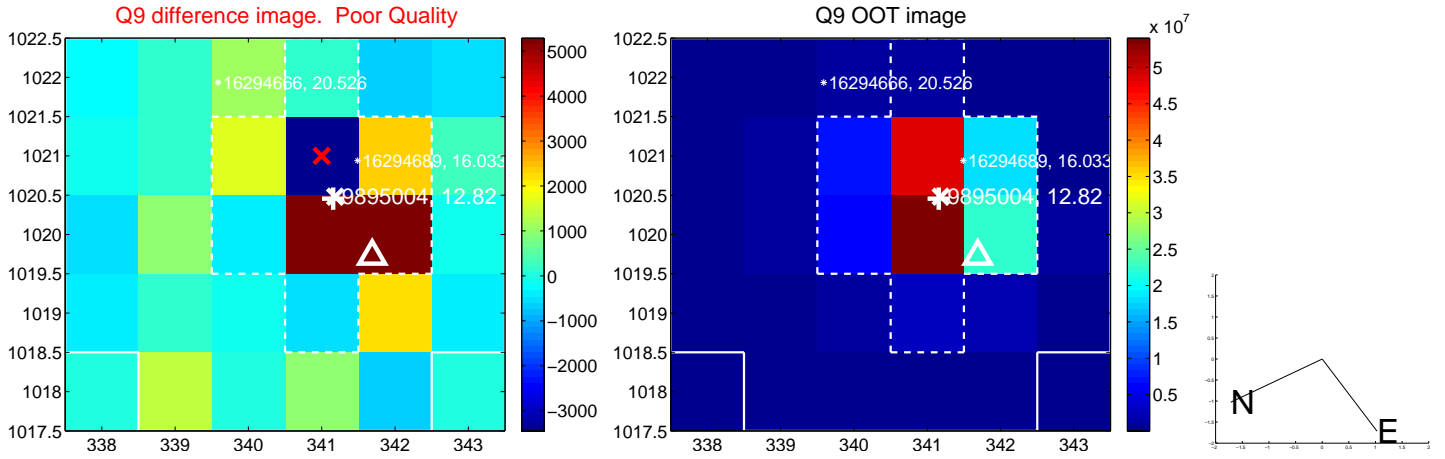
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



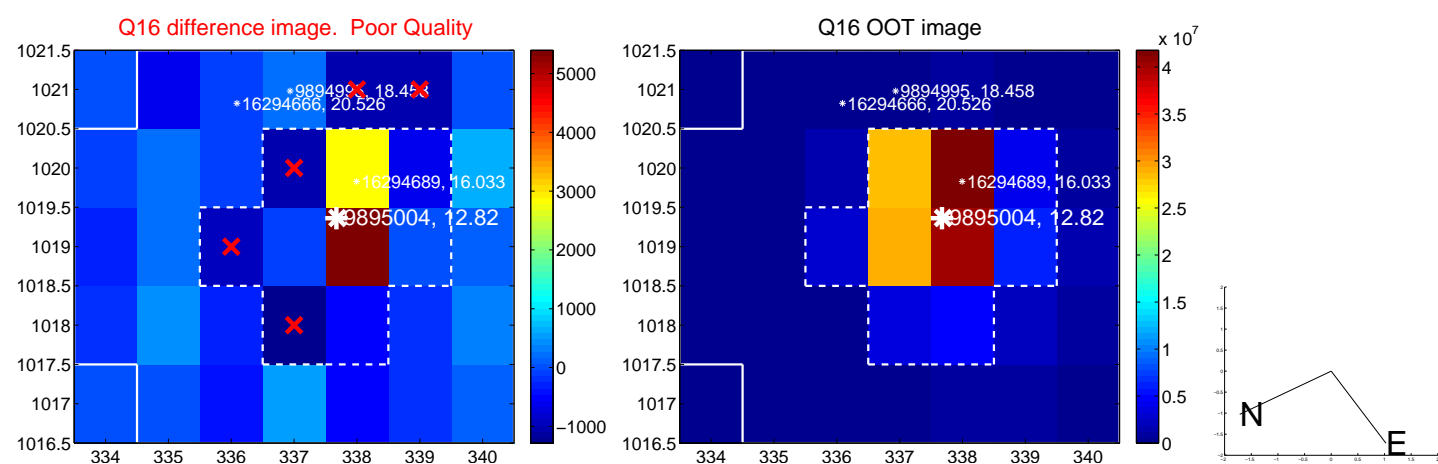
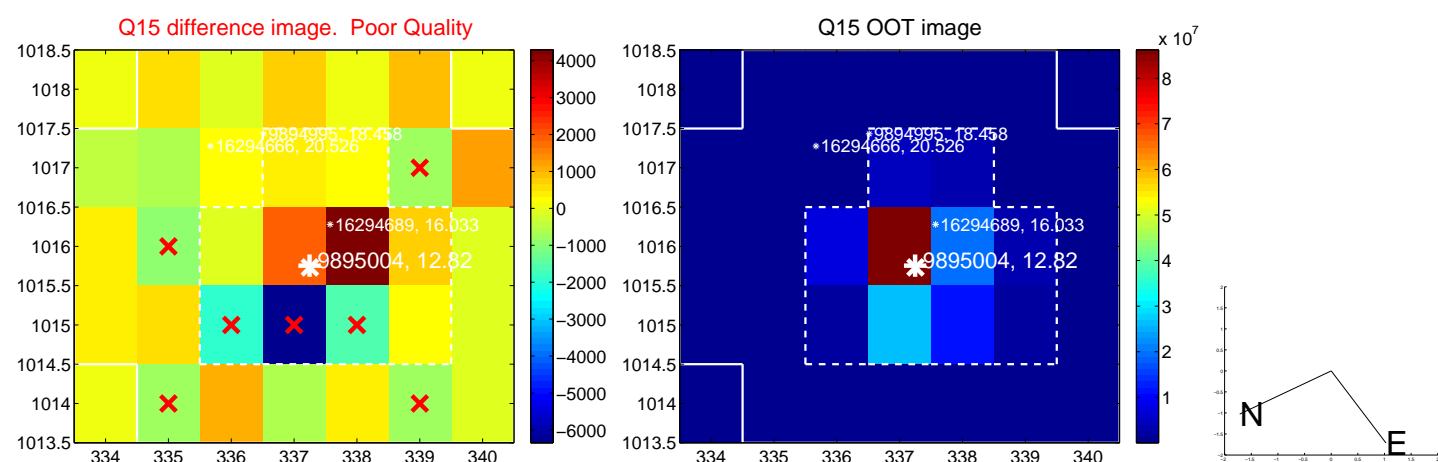
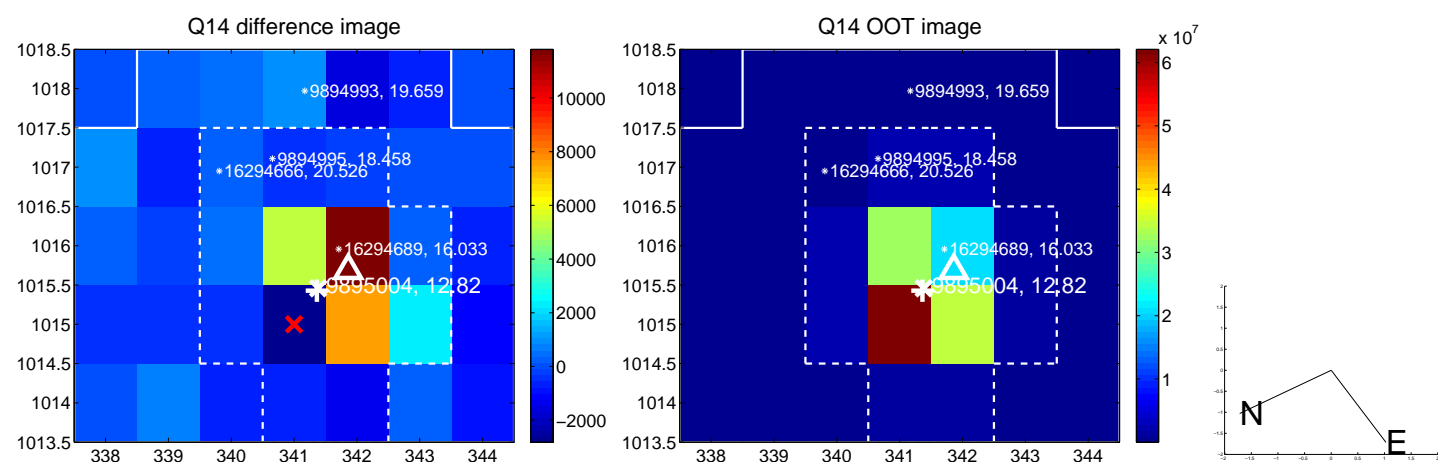
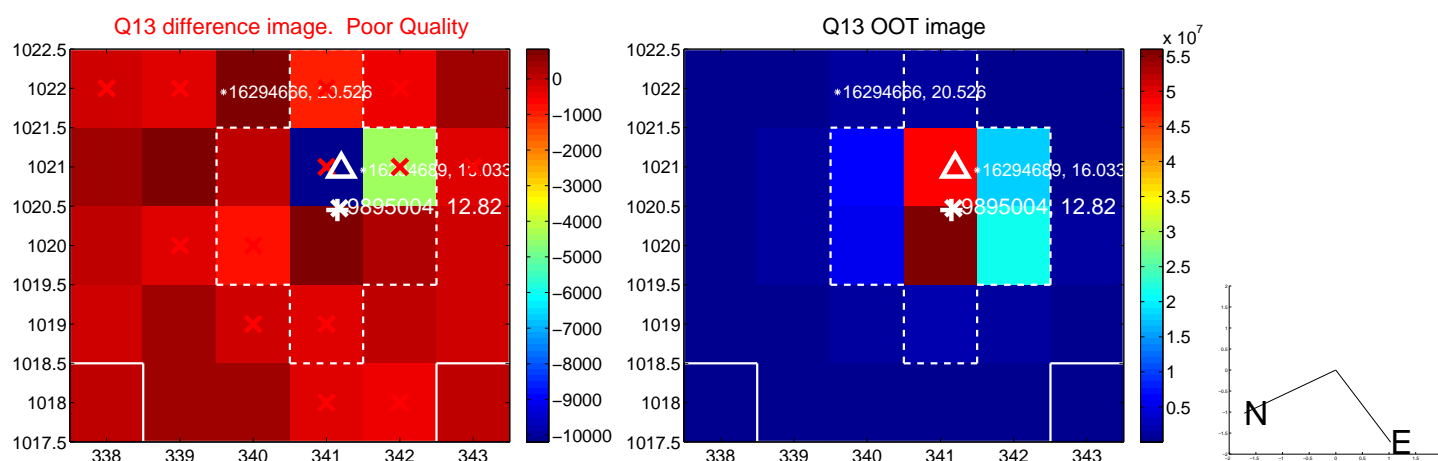
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



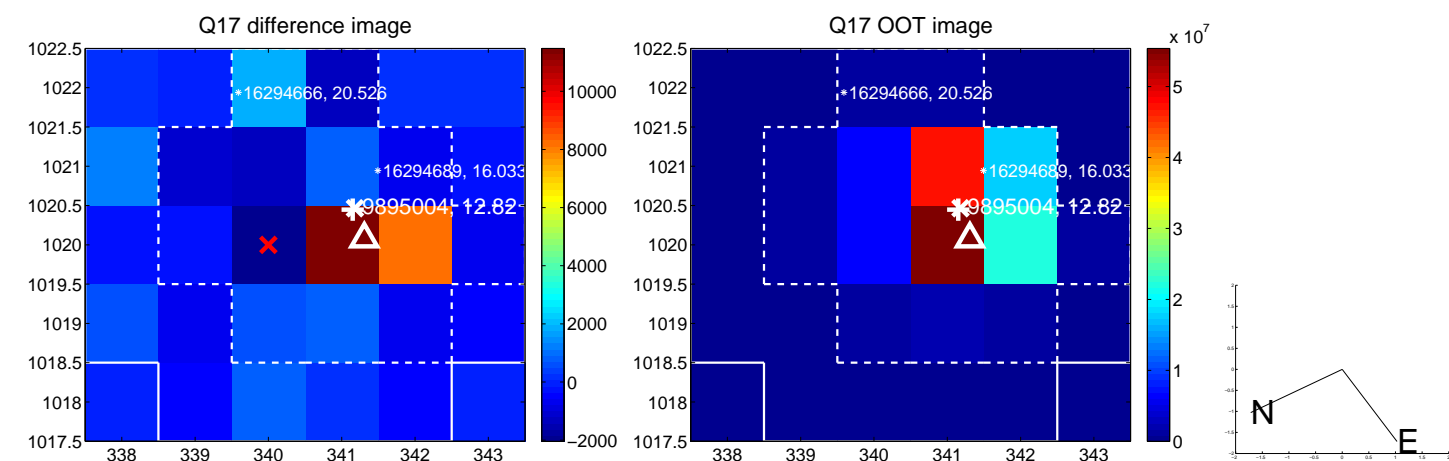
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



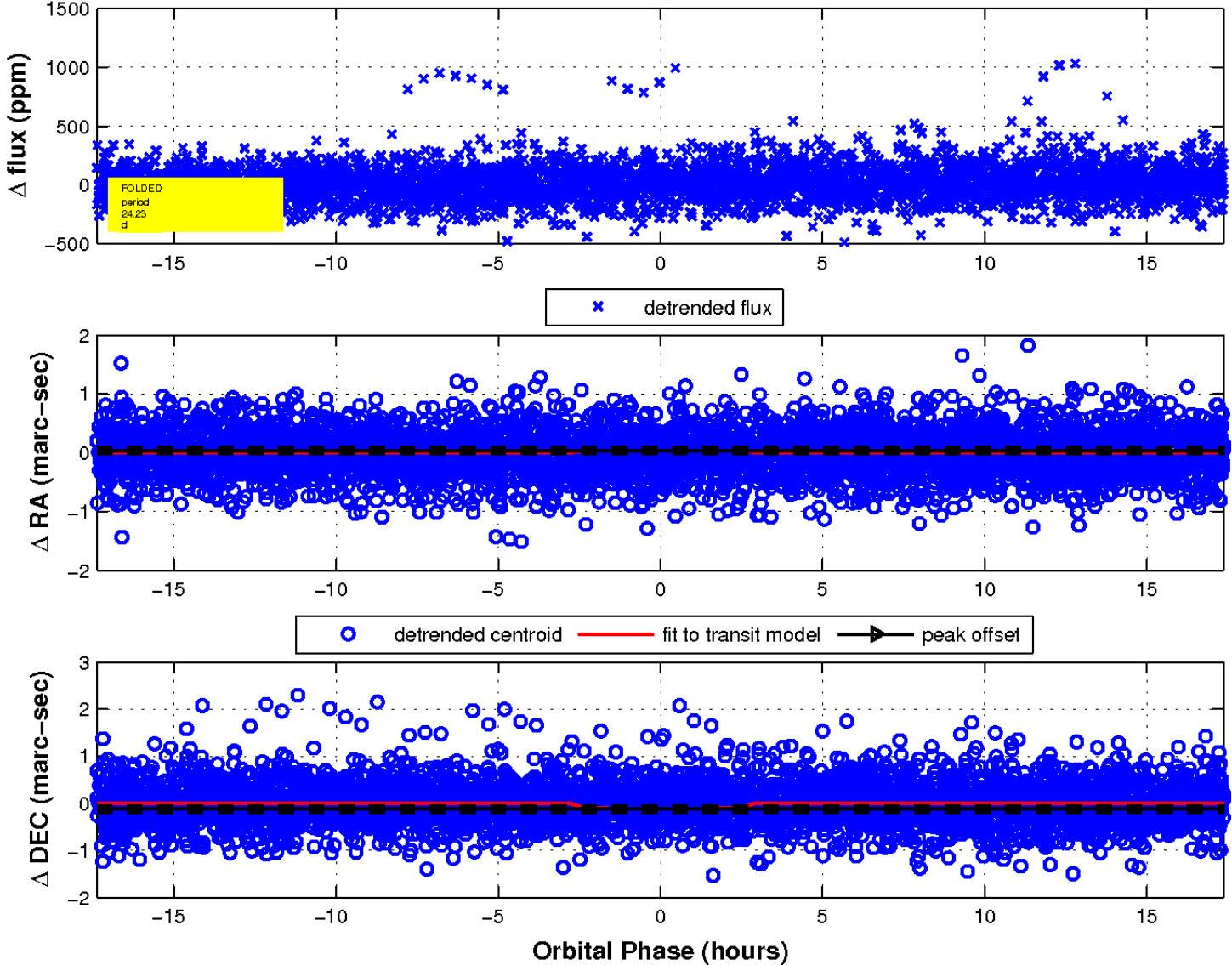
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

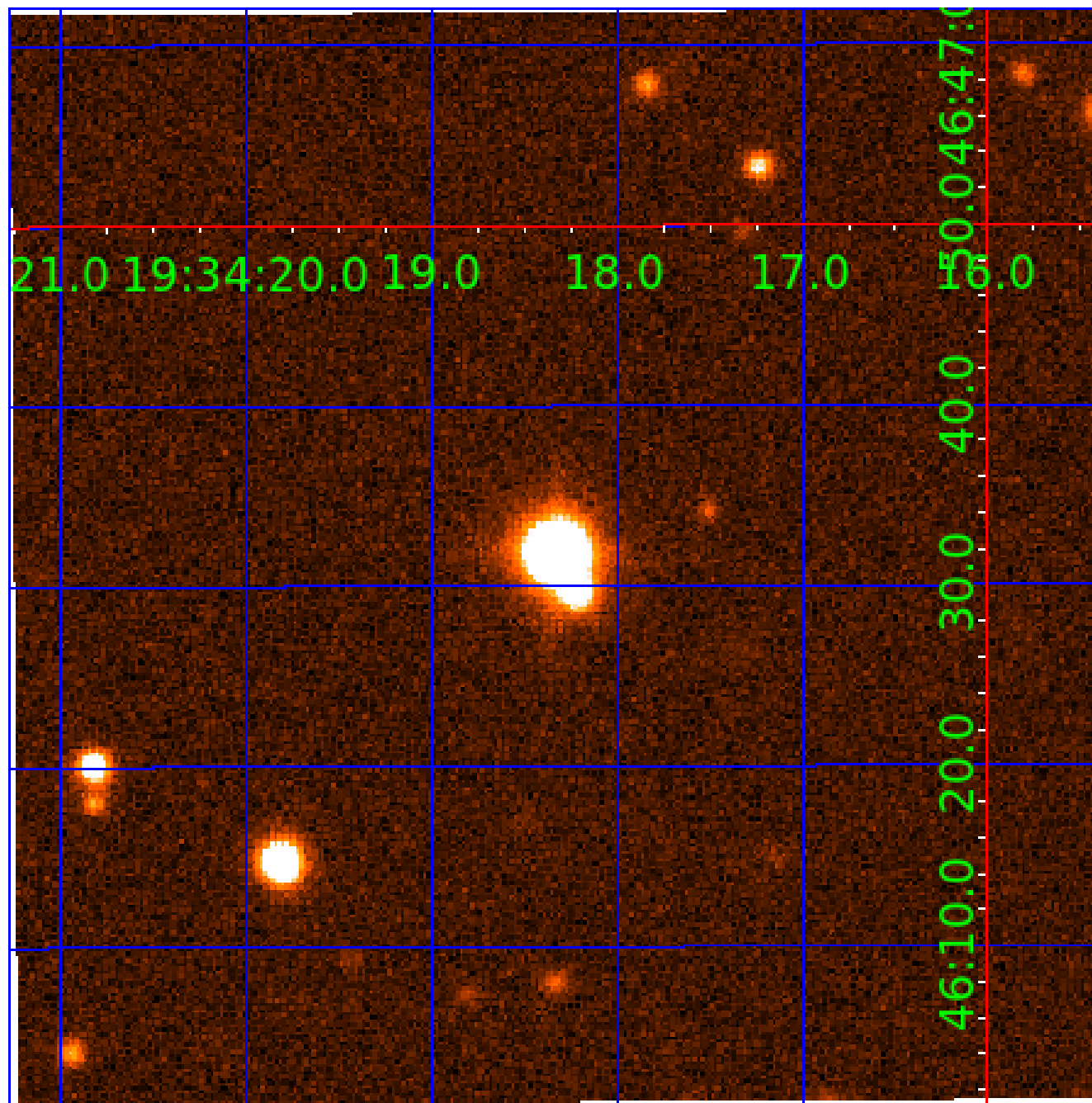


fluxWeightedCentroids, Planet 5 of 6



UKIRT Image

Declination



KIC 009895004

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})
009895004-01	OBS	0328.01	2.250826	132.058045	489.5	1.186	117.4	132.4	1.12	5779	2.96	1163.42
009895004-02	OBS	No	1.987290	133.140838	18.4	14.583	8.8	7.9	1.12	5779	0.48	1373.55
009895004-03	OBS	No	47.676188	159.983767	969.8	5.965	24.4	19.8	1.12	5779	6.76	19.85
009895004-04	OBS	No	24.478594	154.065581	269.9	5.574	16.6	8.8	1.12	5779	2.06	48.28
009895004-05	OBS	No	24.233098	145.246057	227.4	5.792	10.4	7.2	1.12	5779	1.98	48.94
009895004-06	OBS	No	28.231509	140.097809	254.0	3.325	7.4	6.8	1.12	5779	1.97	39.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895004-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET
009895004-02	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
009895004-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
009895004-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009895004-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
009895004-06	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_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 009895004-06

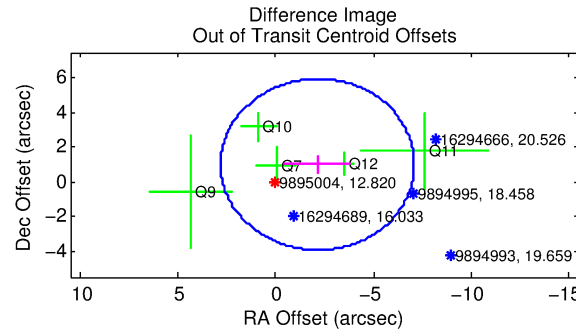
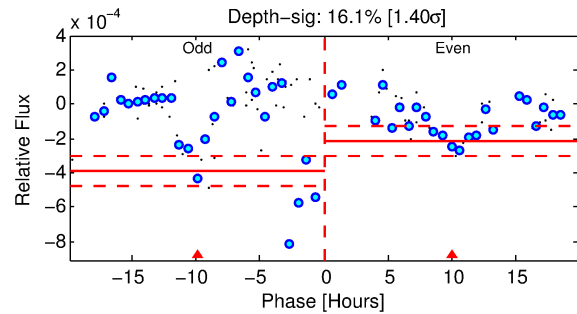
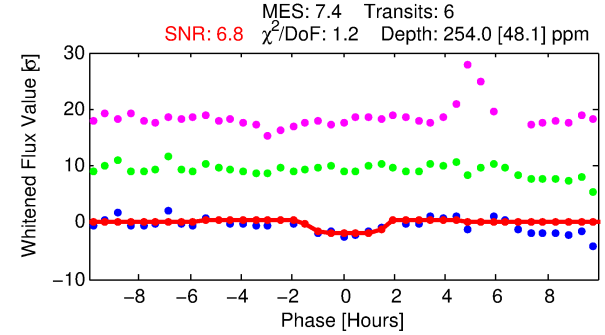
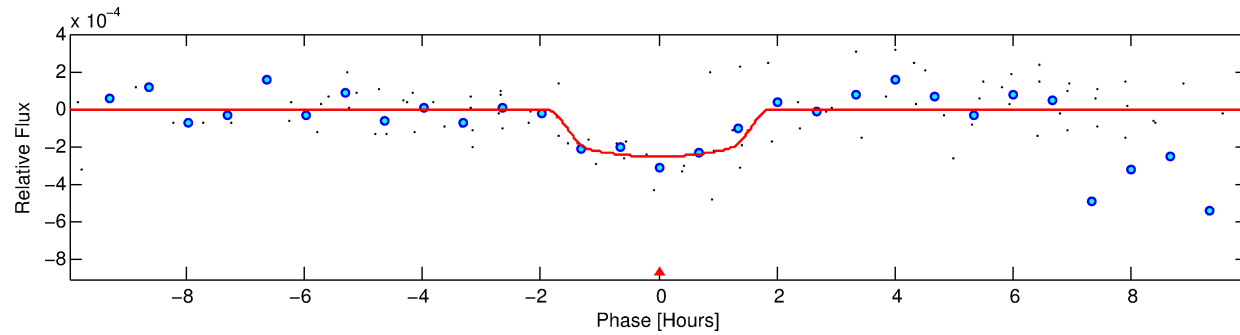
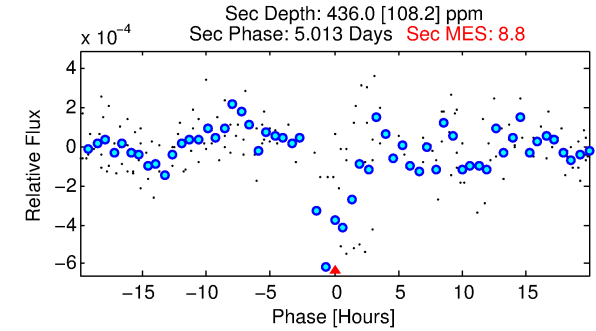
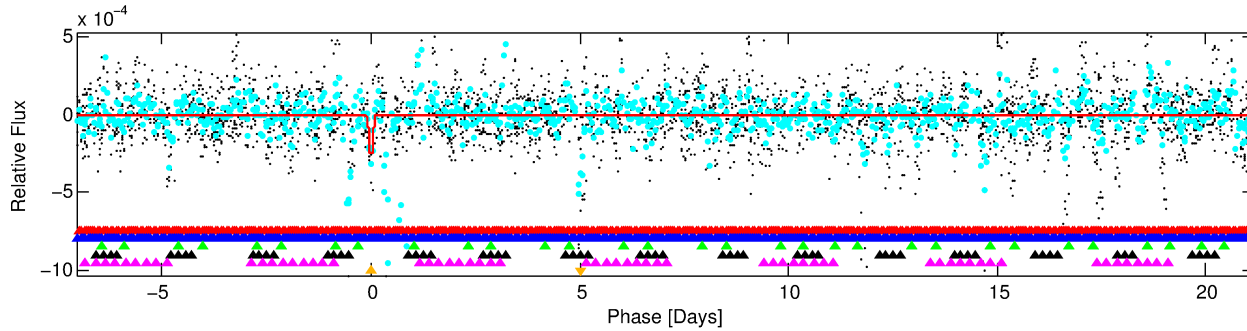
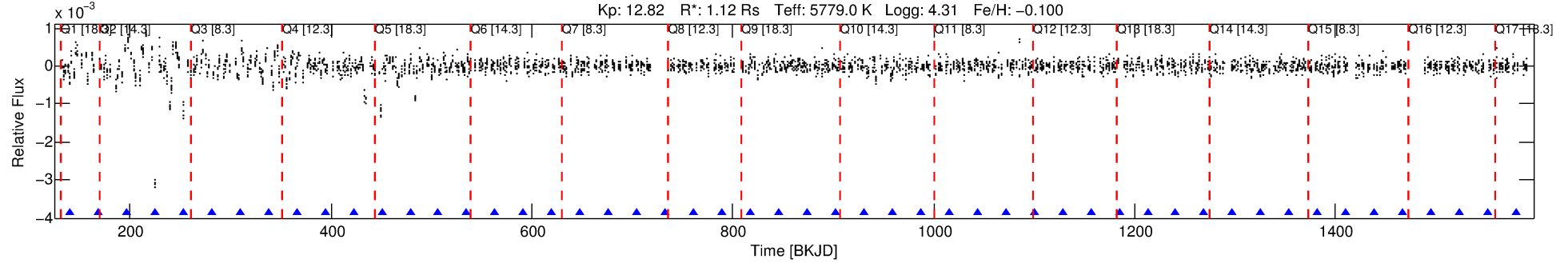
No Significant Match Found

DV One-Page Summary

KIC: 9895004 Candidate: 6 of 6 Period: 28.232 d

KOI: K00328 Corr: No Ephemeris Match

Kp: 12.82 R*: 1.12 Rs Teff: 5779.0 K Logg: 4.31 Fe/H: -0.100



DV Fit Results:

Period = 28.23151 [0.00036] d
Epoch = 140.0978 [0.0101] BKJD
Rp/R* = 0.0161 [0.0231]
a/R* = 41.31 [271.84]
b = 0.79 [3.14]
Seff = 39.92 [9.98]
Teq = 641 [40] K
Rp = 1.97 [2.84] Re
a = 0.1770 [0.0265] AU
Ag = 1933.46 [5575.98] [0.35σ]
Teffp = 6571 [4724] K [1.26σ]

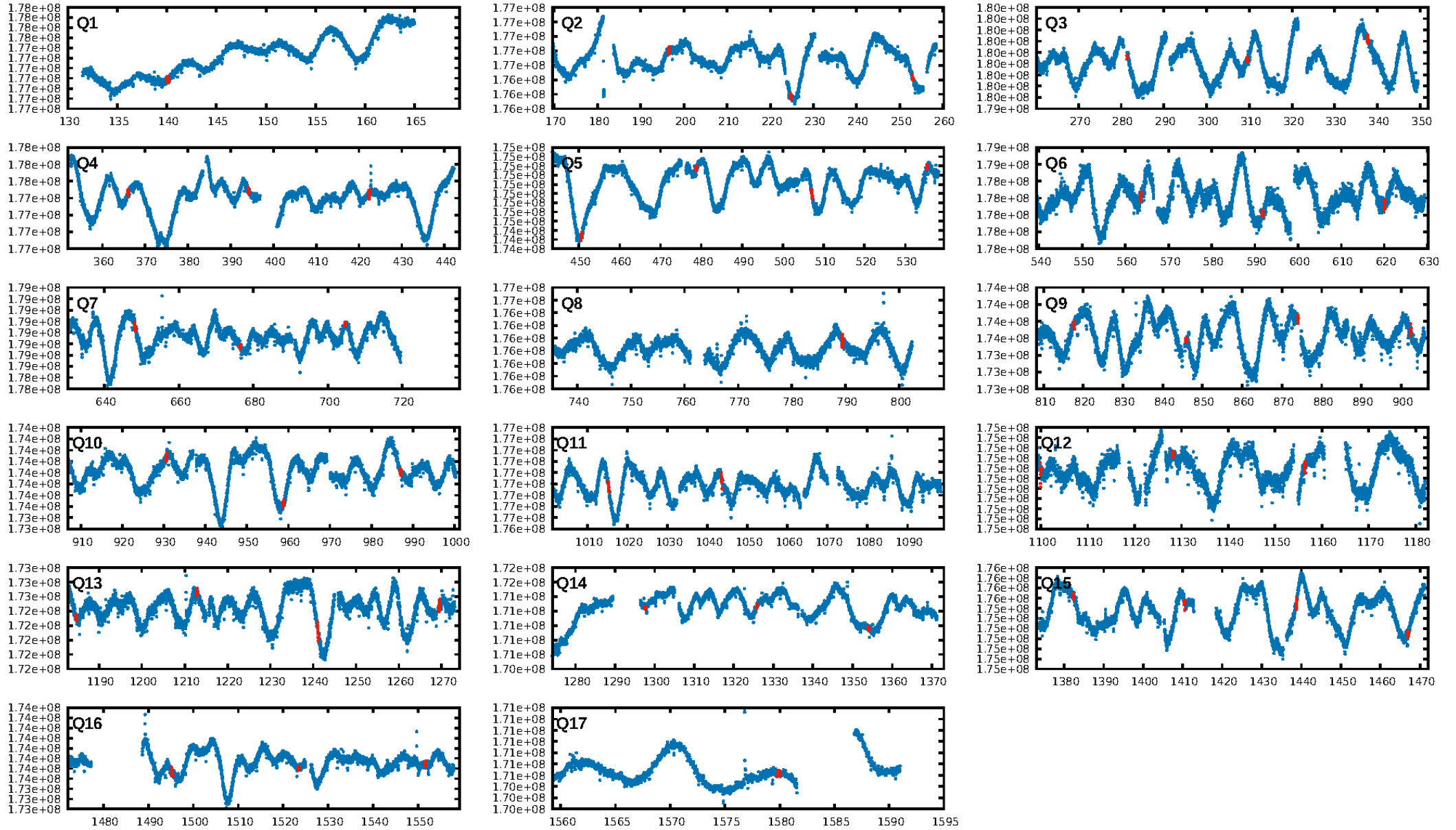
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.88σ]
LongPeriod-sig: 100.0% [68.34σ]
ModelChiSquare2-sig: 11.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.43e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.2926
Centroid-sig: 8.8%
Centroid-so: 0.523 arcsec [1.78σ]
OotOffset-rm: 2.360 arcsec [1.43σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-rm: 2.398 arcsec [1.17σ]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.59 [10/17]

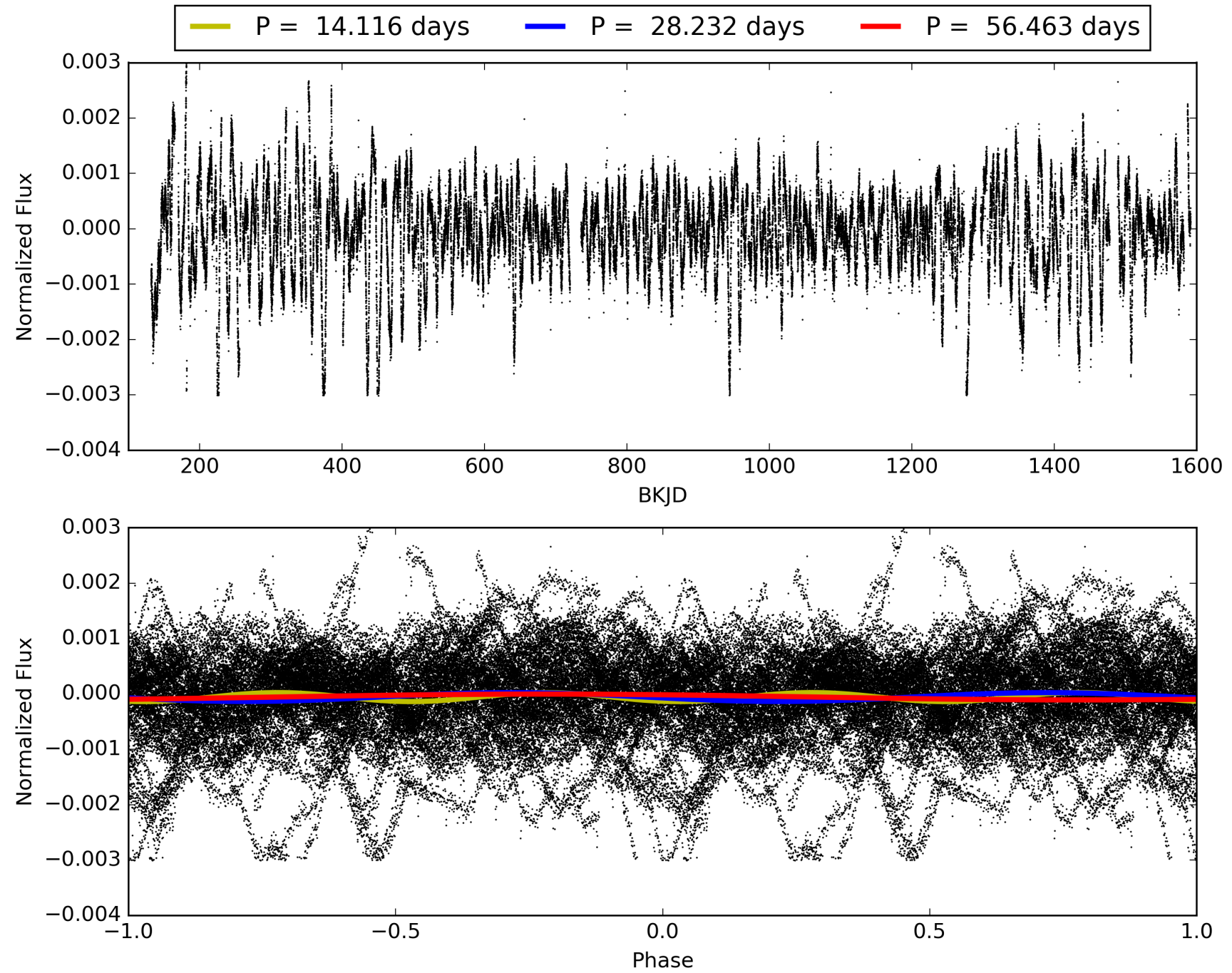
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:29:20 Z

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

TCE 009895004-06, PDC Light Curves

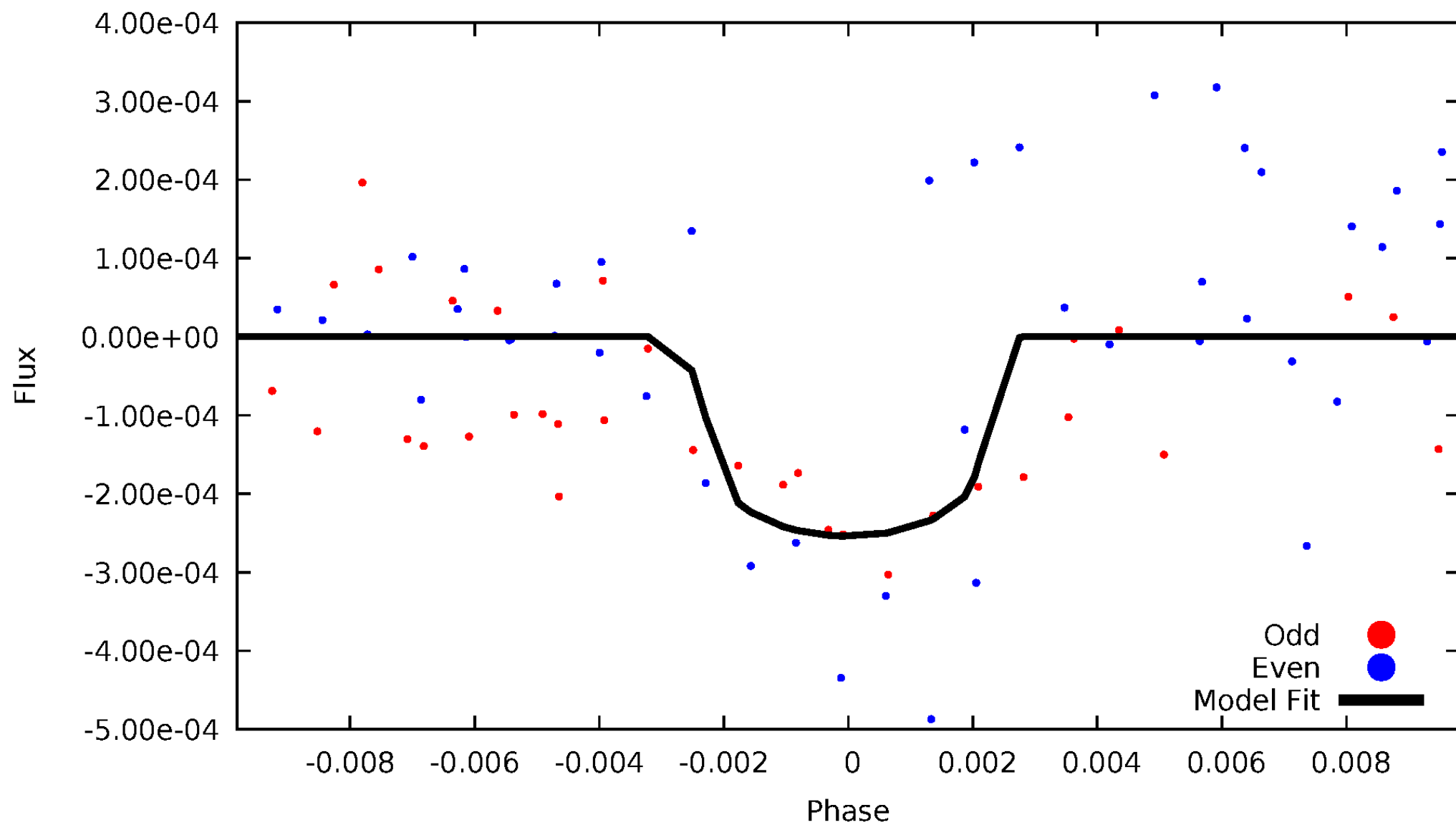


TCE 009895004-06



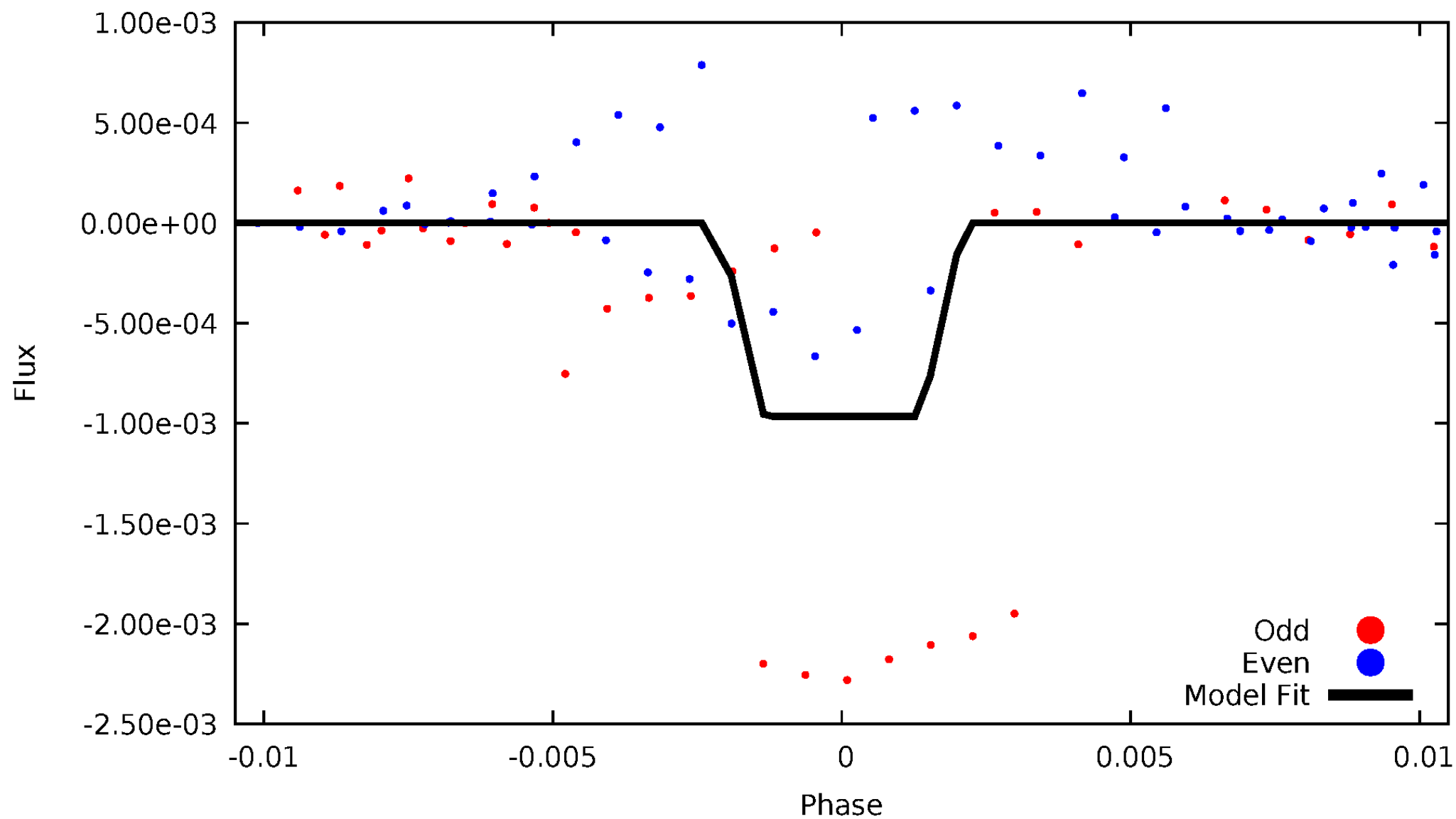
DV Odd/Even

TCE 009895004-06



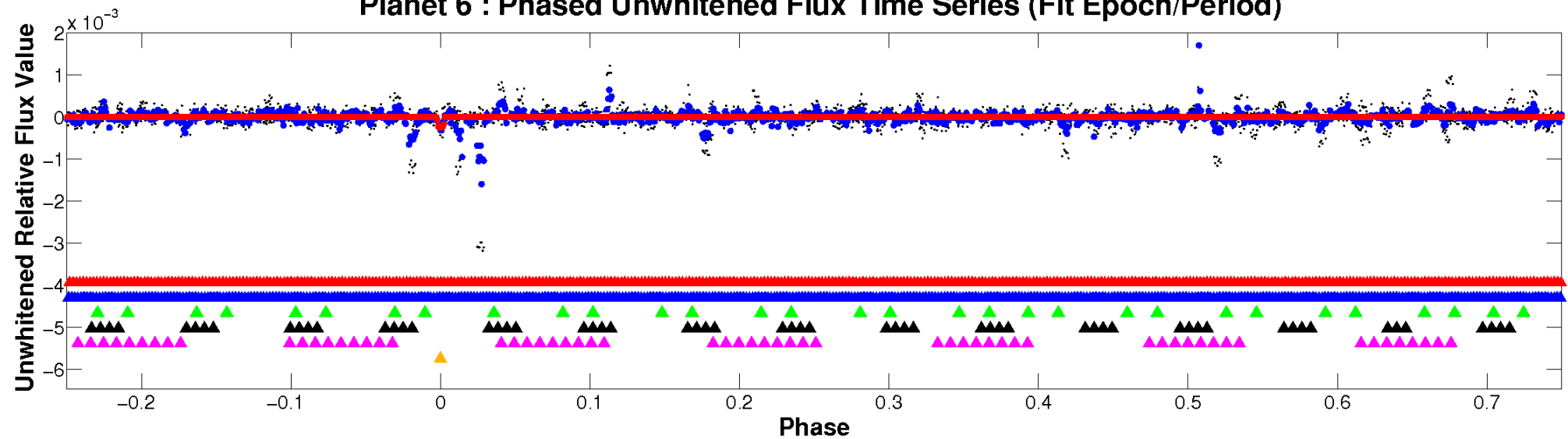
ALT Odd/Even

TCE 009895004-06

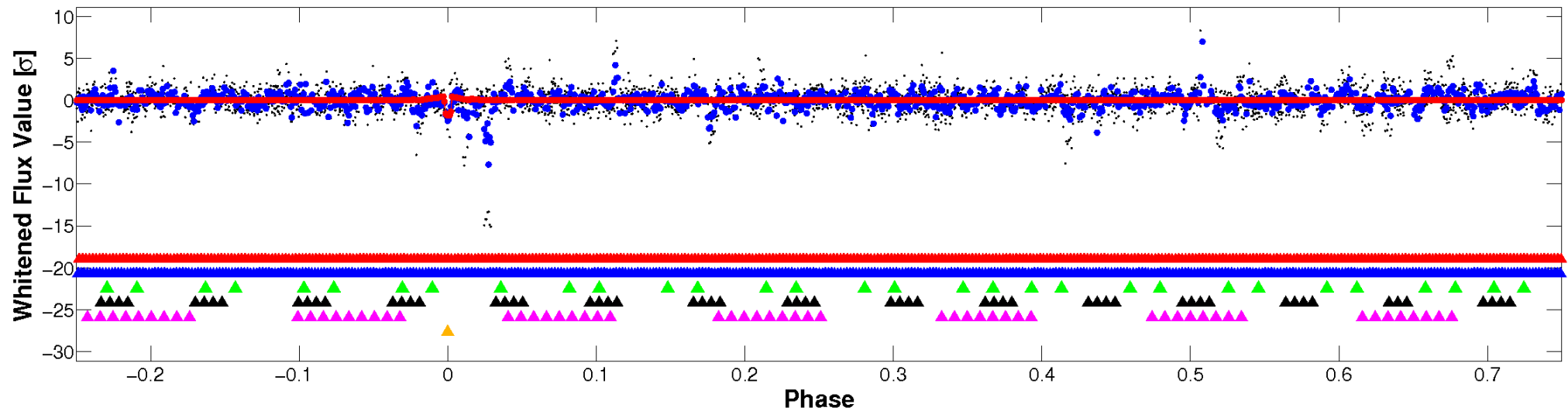


Non-Whitened Vs. Whitened Light Curve

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

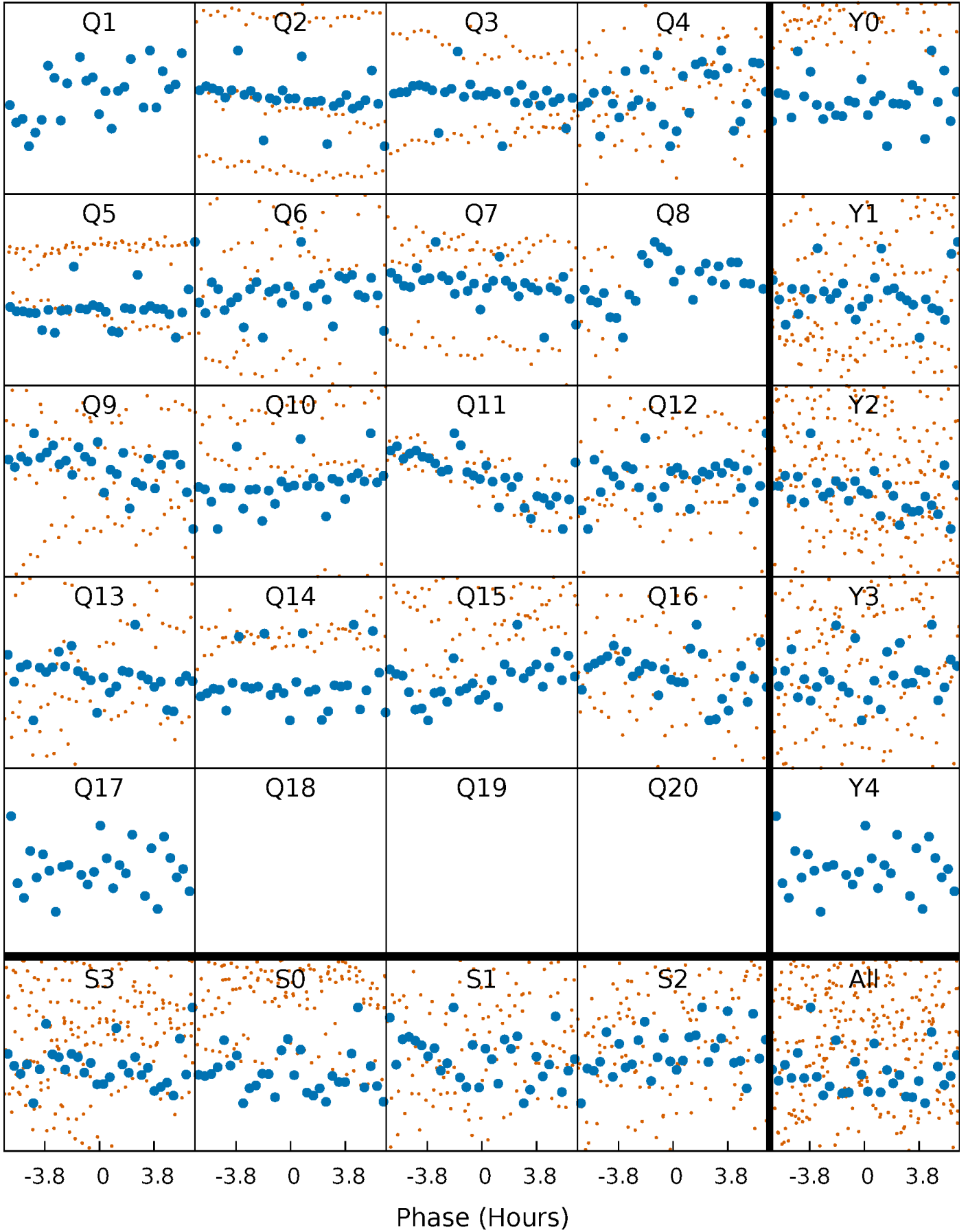


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



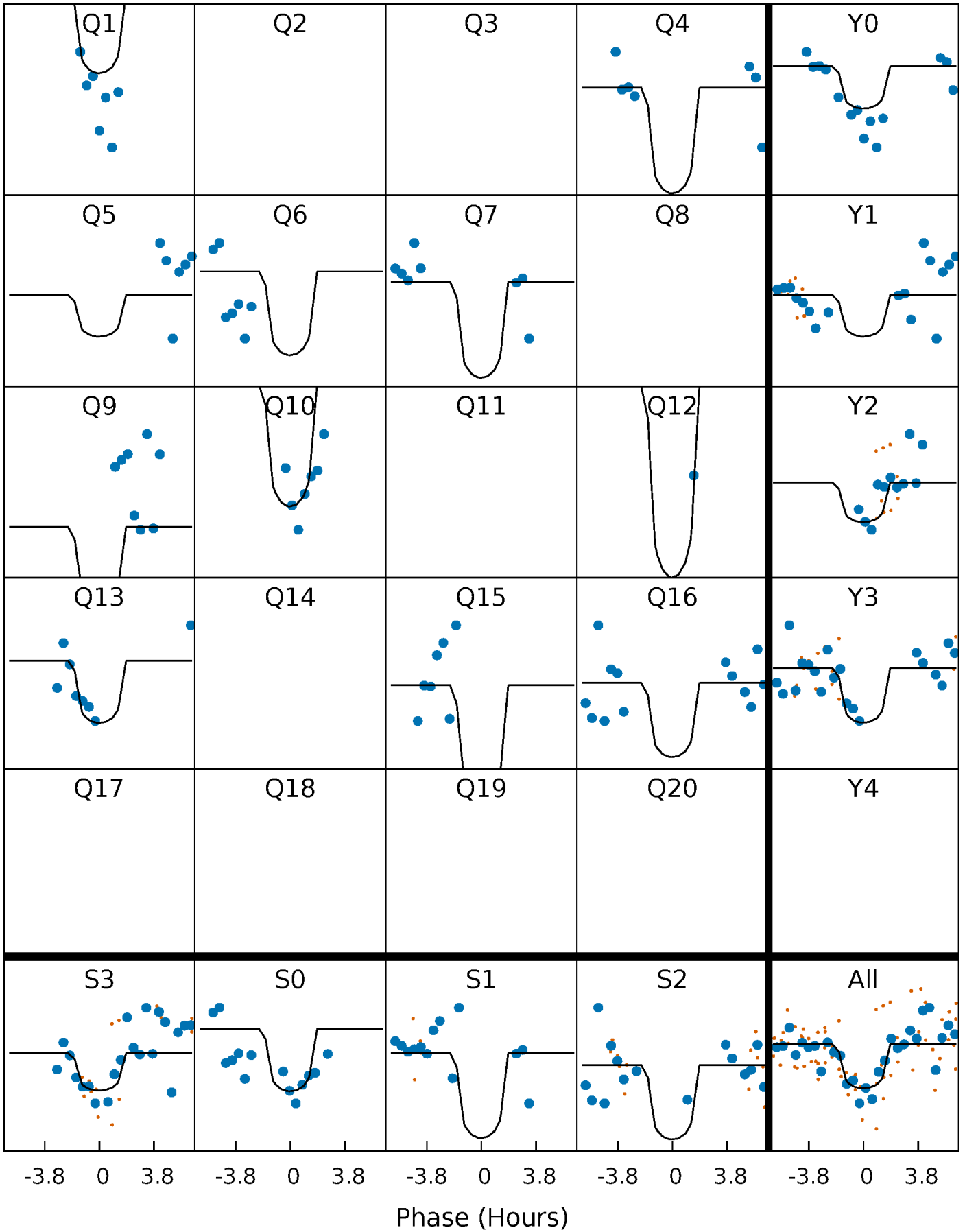
PDC Quarter-Phased Transit Curves

TCE 009895004-06 P= 28.231509 Days $T_0=140.097810$ (BKJD)



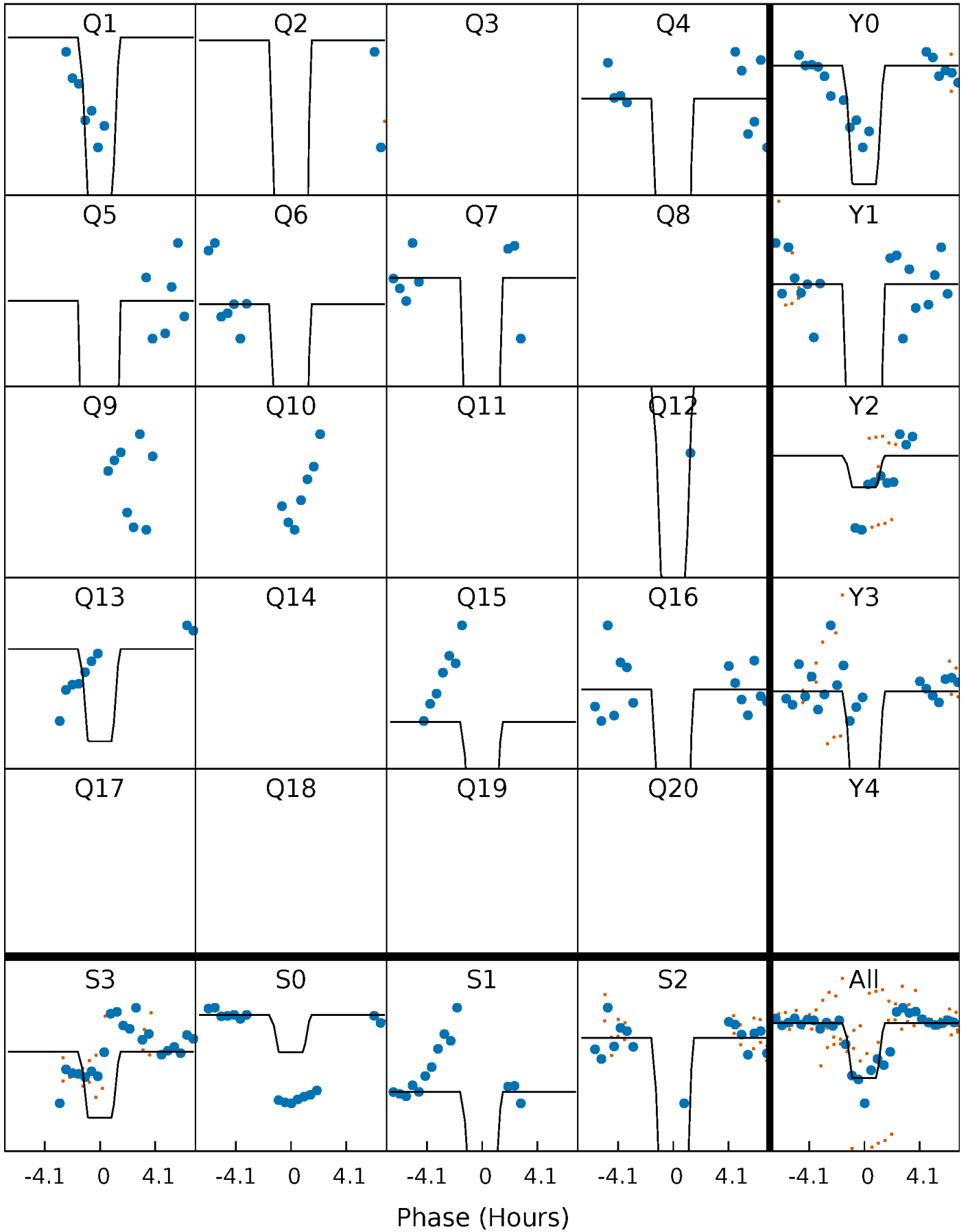
DV Quarter-Phased Transit Curves

TCE 009895004-06 $P = 28.231509$ Days $T_0 = 140.097810$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

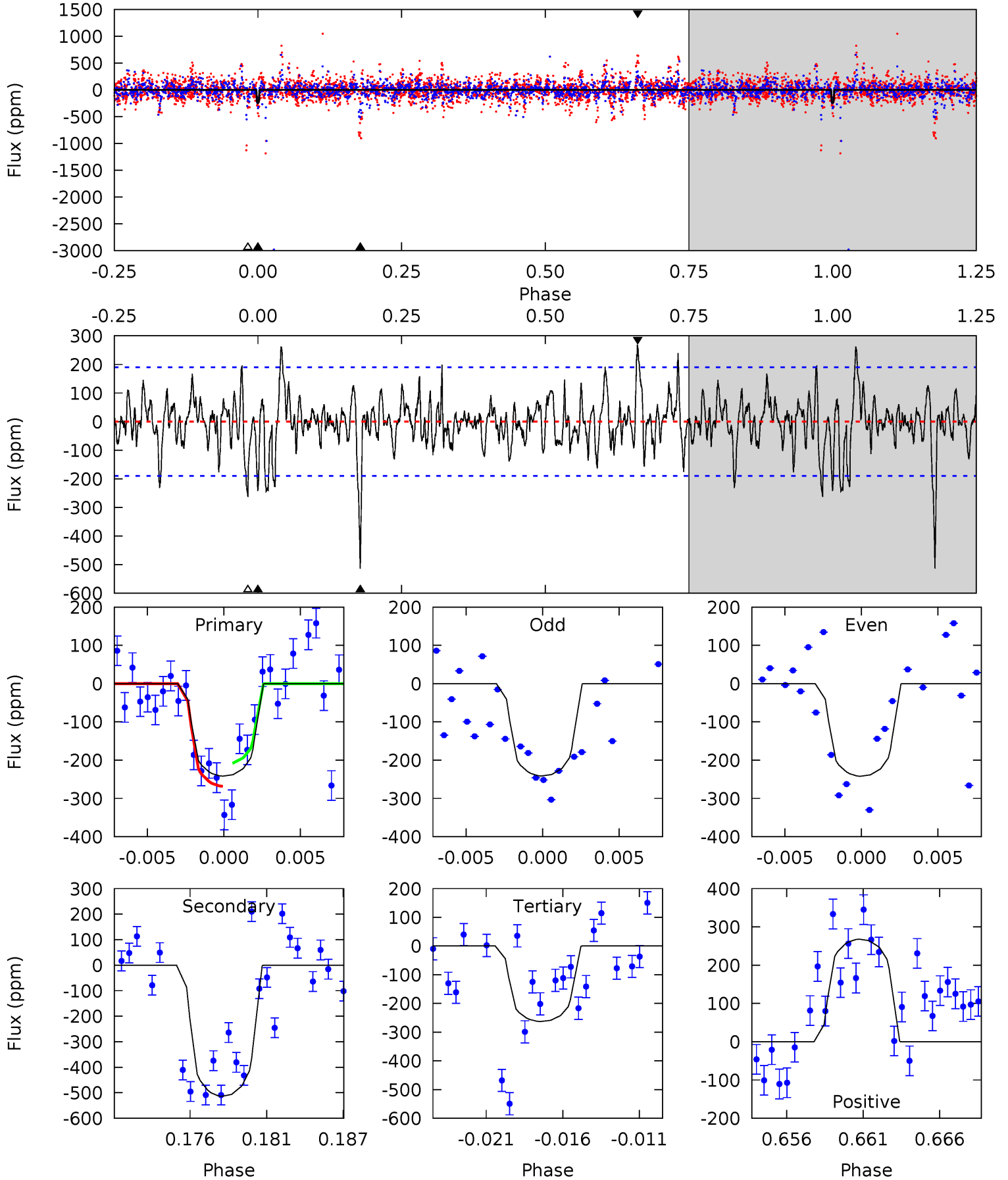
TCE 009895004-06 P= 28.230298 Days $T_0=140.148346$ (BKJD)



DV Model-Shift Uniqueness Test

009895004-06, P = 28.231509 Days, E = 111.866301 Days

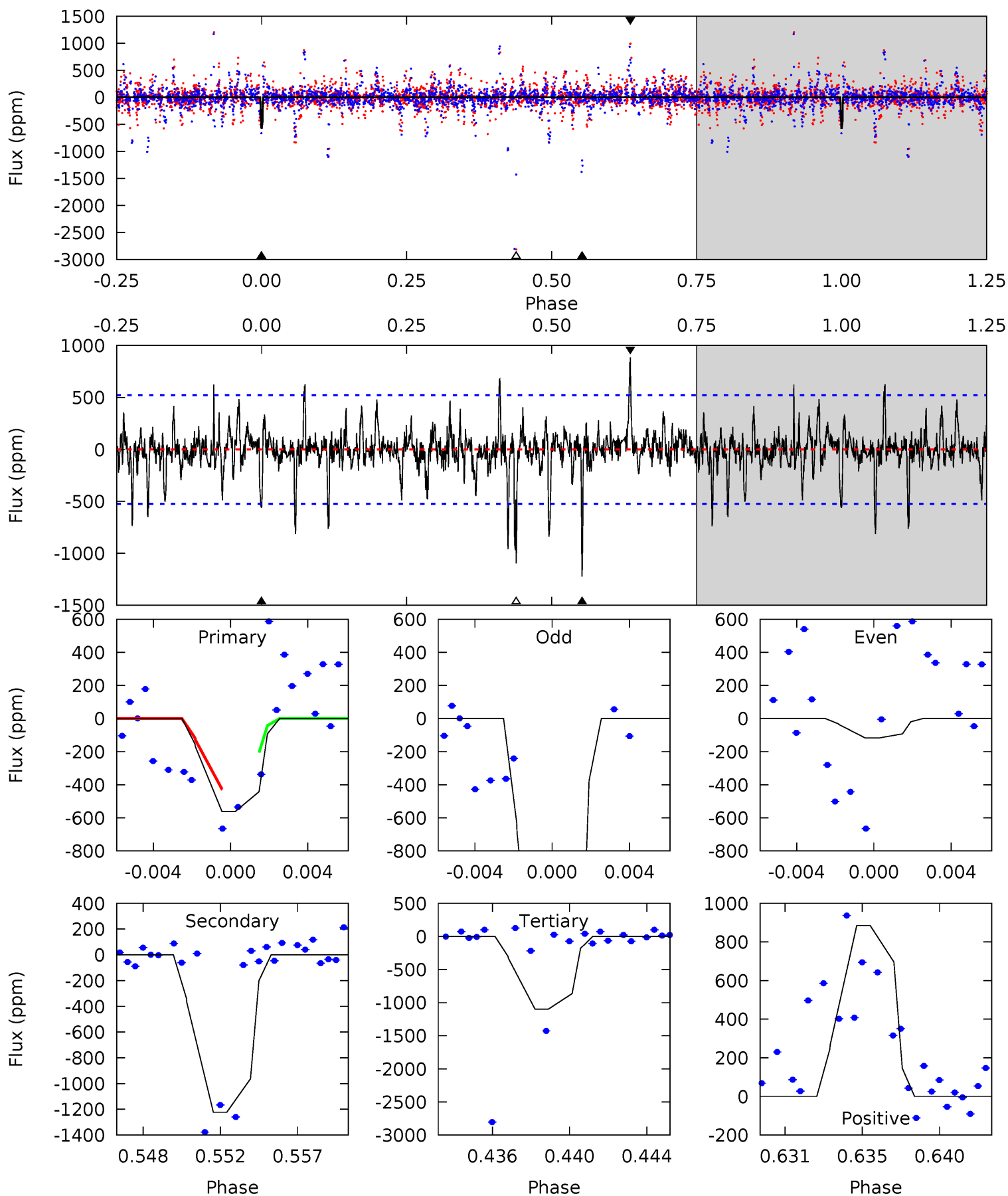
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.55	13.9	7.13	7.26	5.15	2.79	1.96	-0.58	-0.71	6.80	6.66	0.01	0.64	0.34	0.83



Alt Model-Shift Uniqueness Test

009895004-06, P = 28.230298 Days, E = 111.918048 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.58	12.2	10.9	8.79	5.19	2.87	1.49	-5.32	-3.21	1.25	3.36	15.0	1.73	0.42	1.18



Stellar Parameters For KIC 009895004

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5779^{+104}_{-116}	$4.308^{+0.138}_{-0.113}$	$-0.100^{+0.150}_{-0.150}$	$1.119^{+0.177}_{-0.159}$	$0.928^{+0.074}_{-0.061}$	$0.933^{+0.585}_{-0.304}$
	+2%/-2%	+3%/-3%	+150%/-150%	+16%/-14%	+8%/-7%	+63%/-33%
Source	SPE18	SPE18	SPE18	DSEP		

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

Secondary Eclipse Parameters for KIC 009895004-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-514 ± 37	$2.91^{+2.58}_{-1.86}$	893^{+42}_{-39}	5618^{+4418}_{-1314}	1044^{+7392}_{-754}
Alt.	-1223 ± 101	$3.95^{+2.67}_{-2.26}$	893^{+43}_{-41}	6060^{+3776}_{-1297}	1364^{+6125}_{-884}

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 $A_{obs} \gg 1.0$

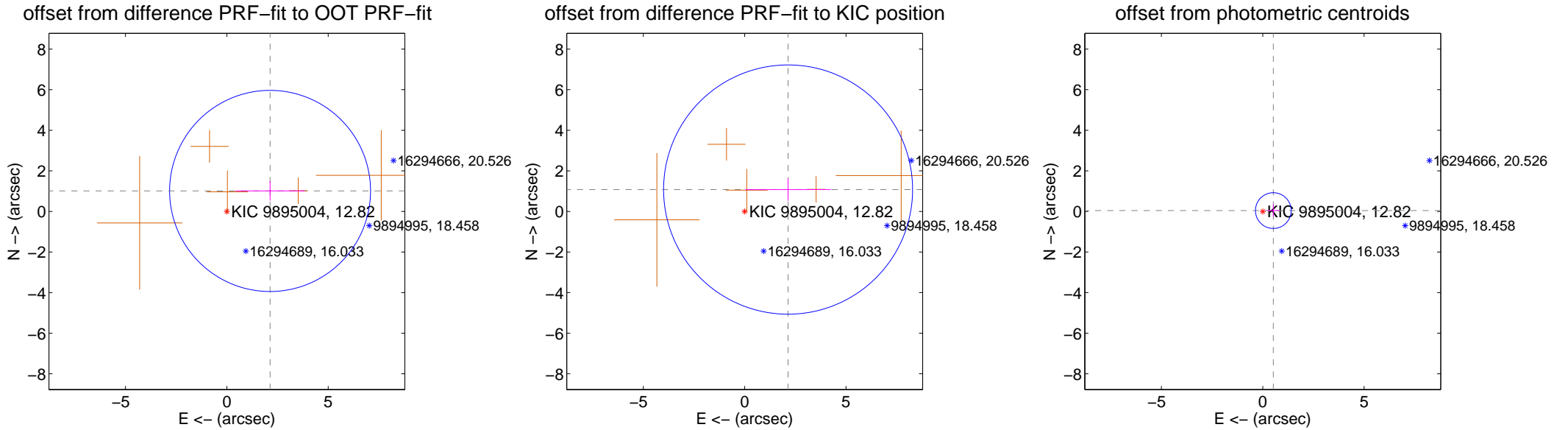
DV Centroid Data

Supplemental centroid analysis for 009895004-06. Kepler magnitude: 12.82. Transit SNR 6.84

There are 0 quarters with good PRF difference image offsets

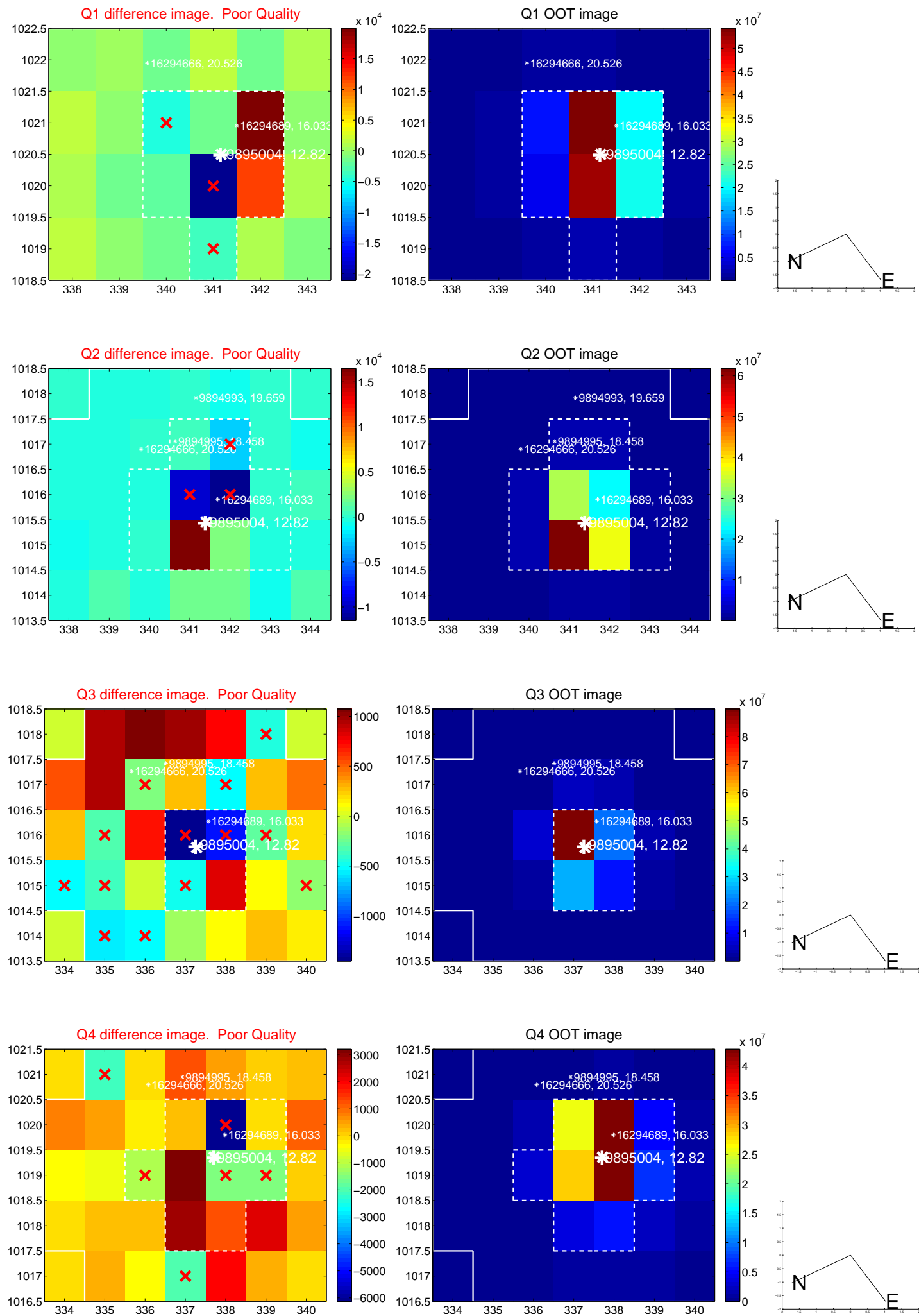
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.360 ± 1.652	1.43	-2.132 ± 1.703	1.010 ± 0.474
PRF-fit source offset from KIC position	2.398 ± 2.047	1.17	-2.142 ± 2.115	1.078 ± 0.550
photometric centroid source offset	0.52 ± 0.29	1.78	-0.52 ± 0.29	0.04 ± 0.31

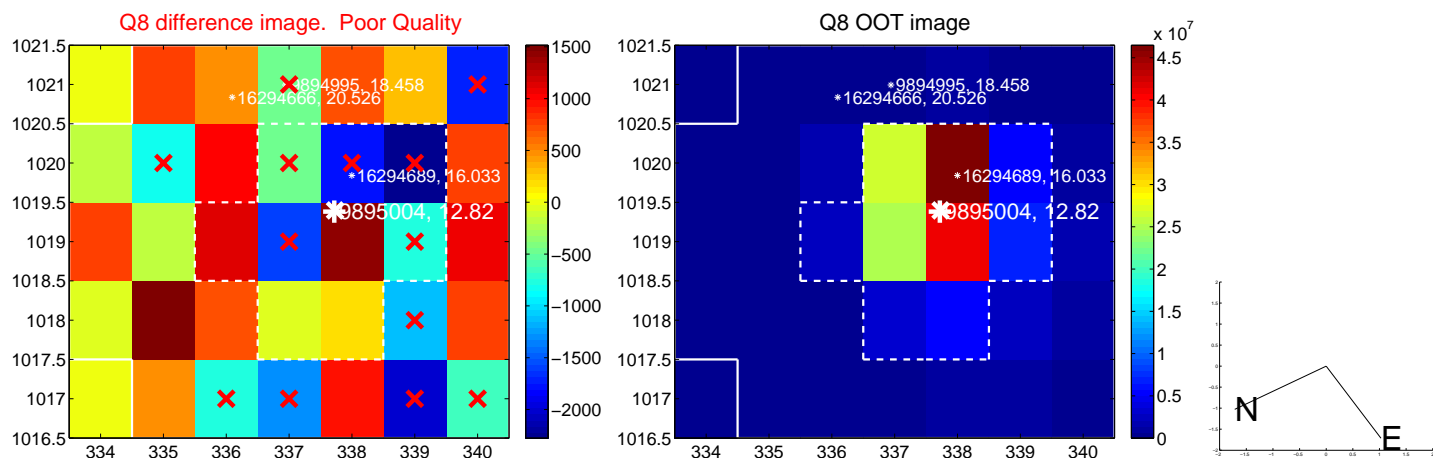
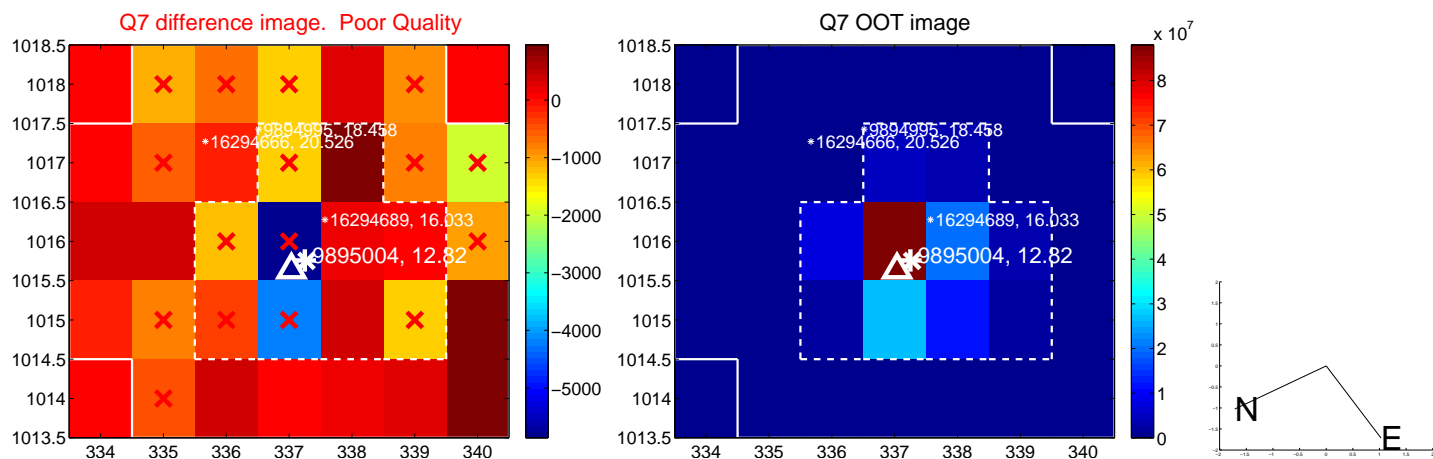
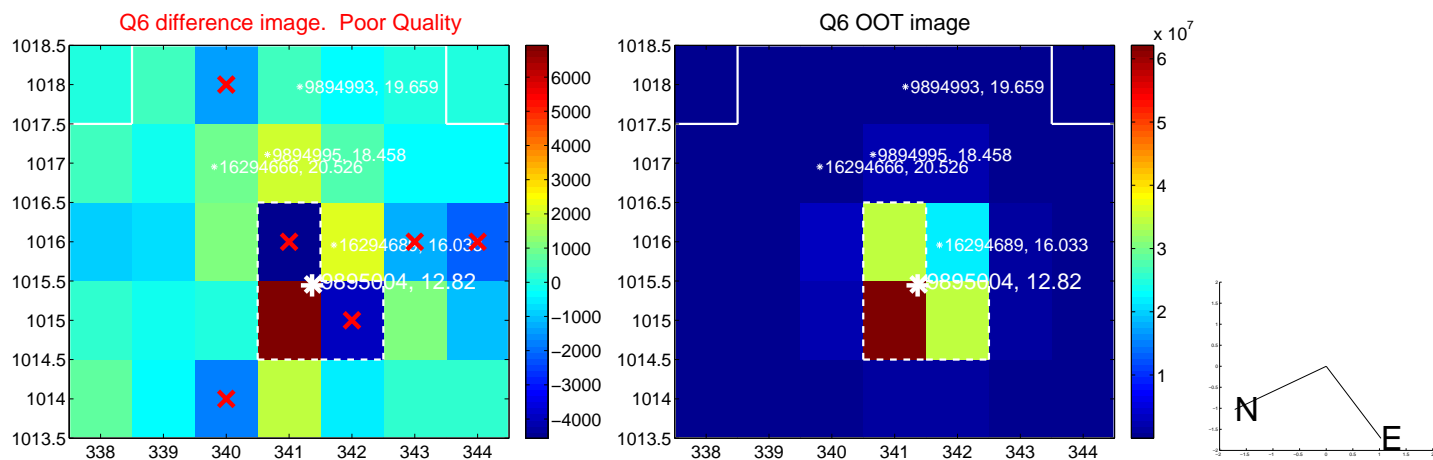
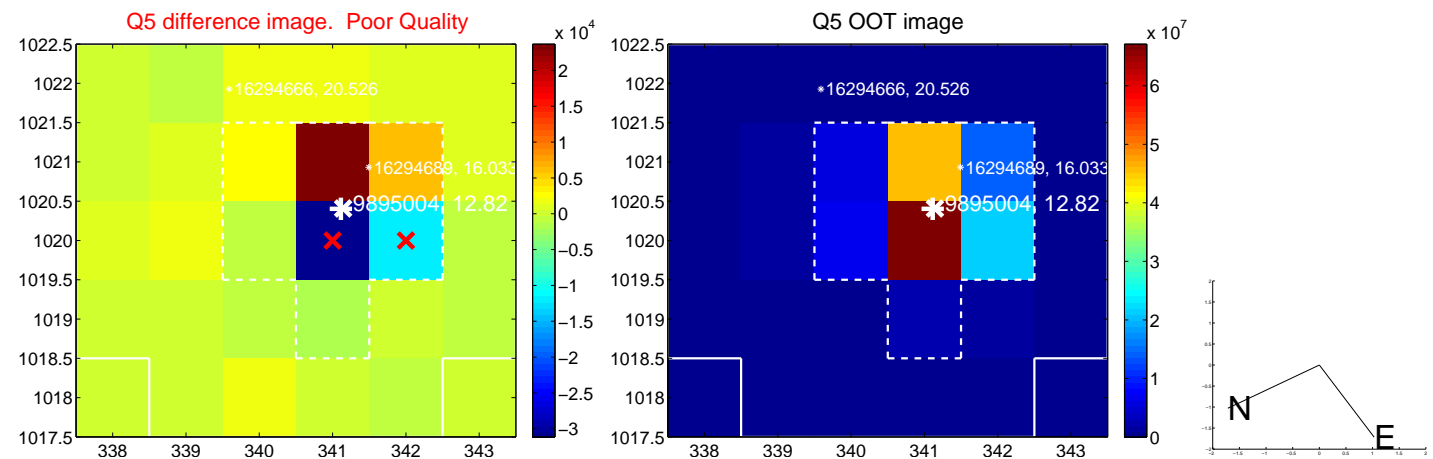


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

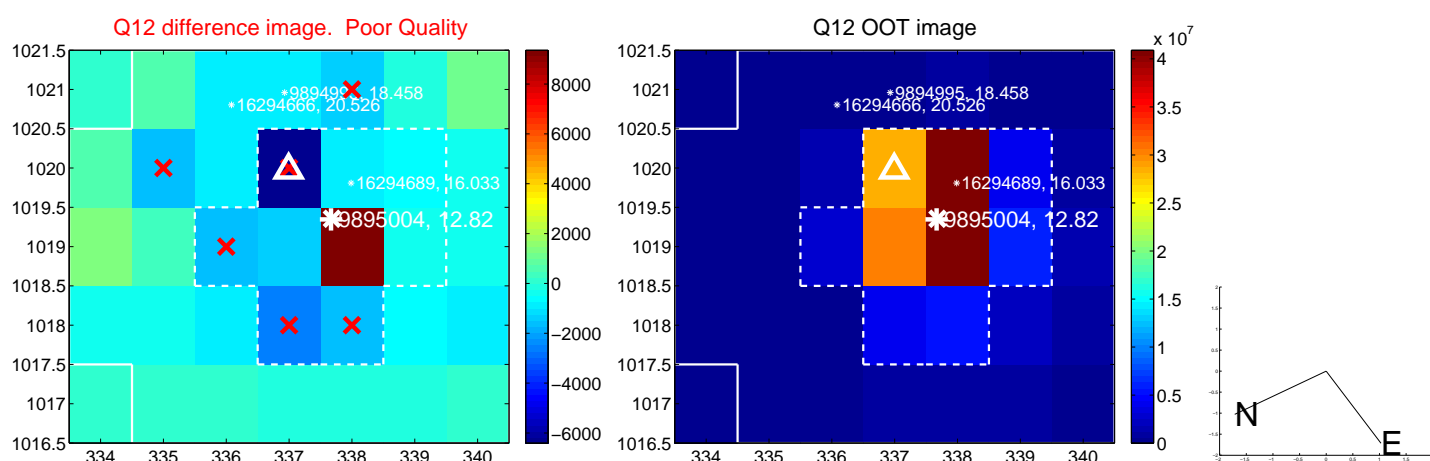
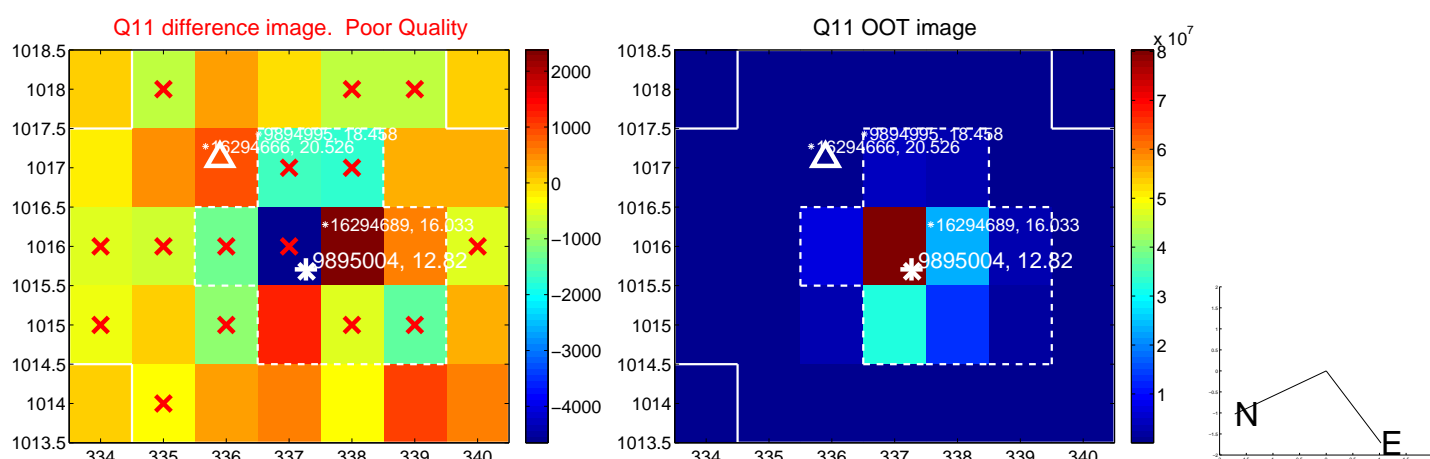
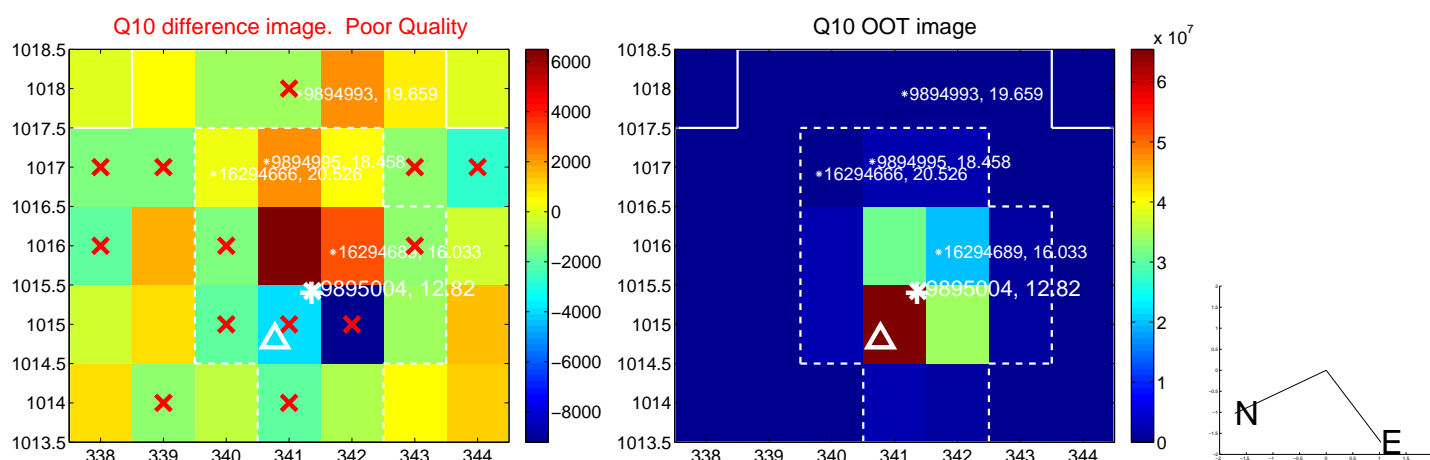
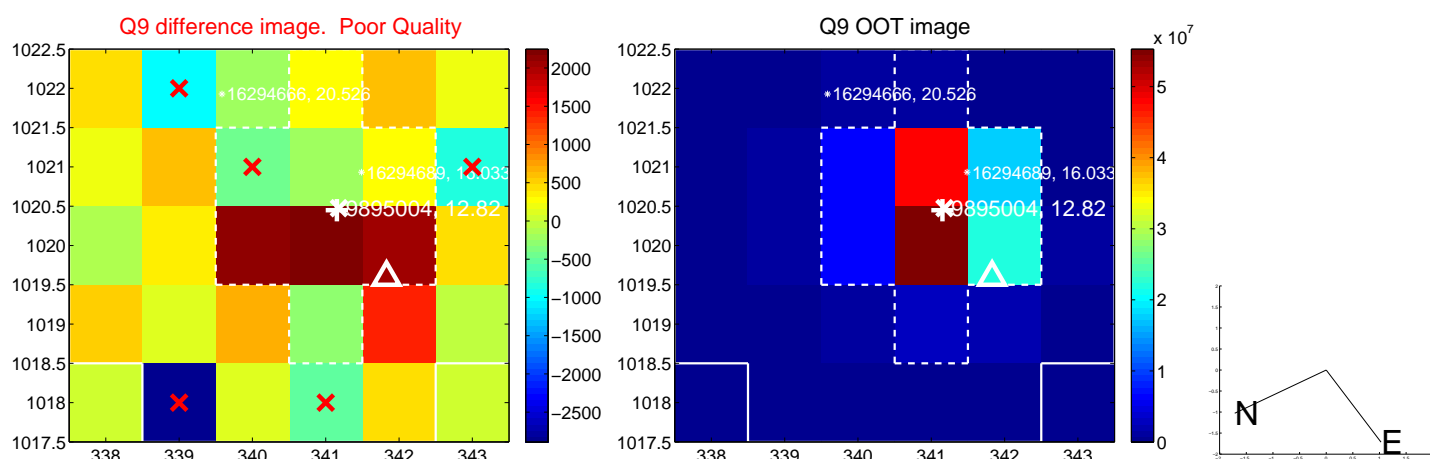
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



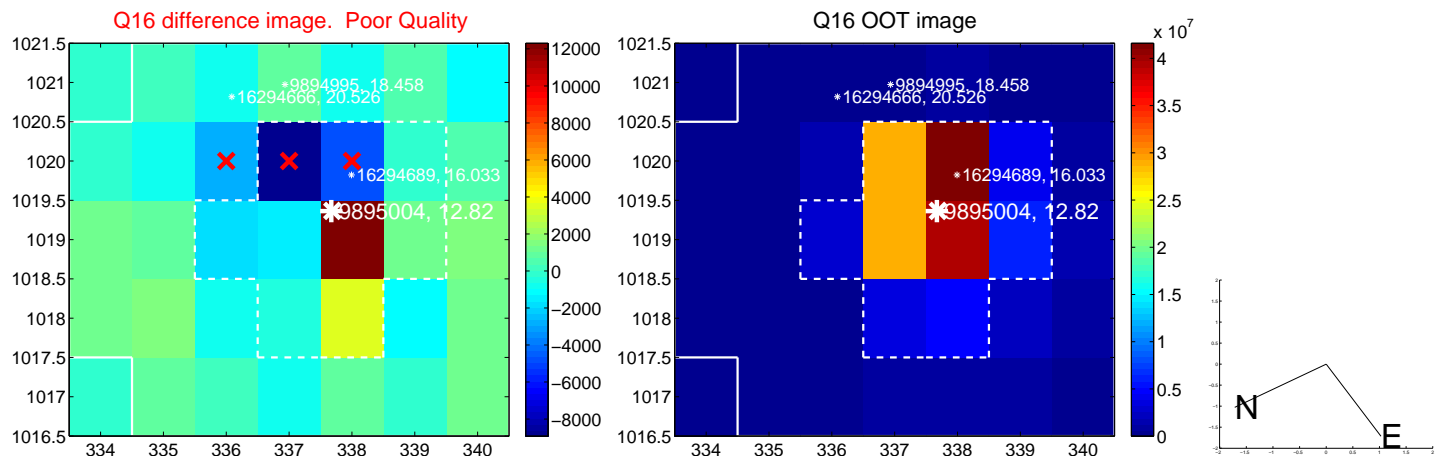
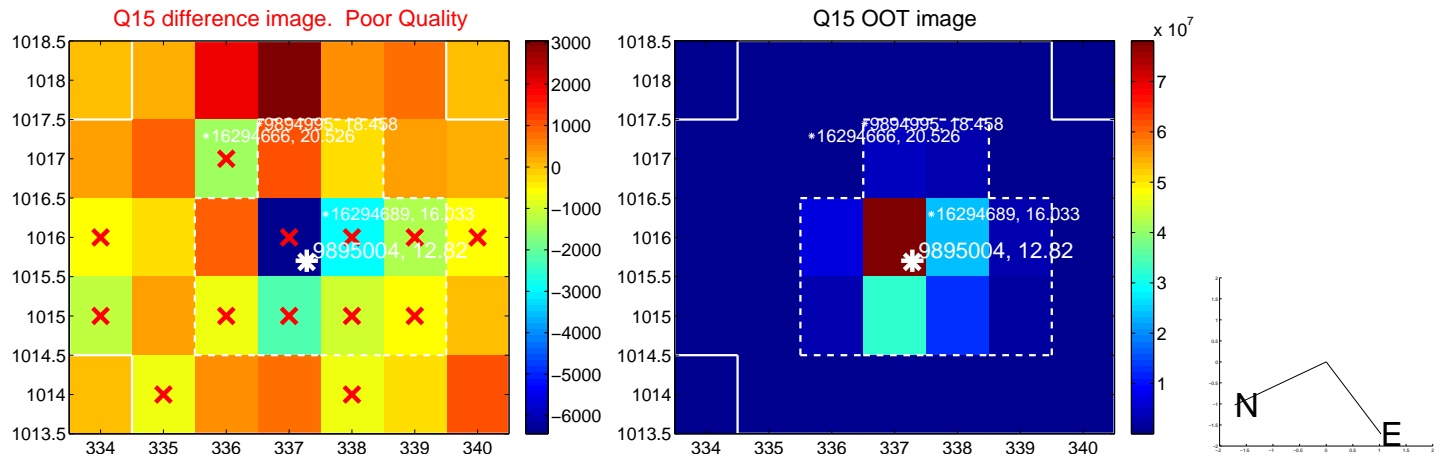
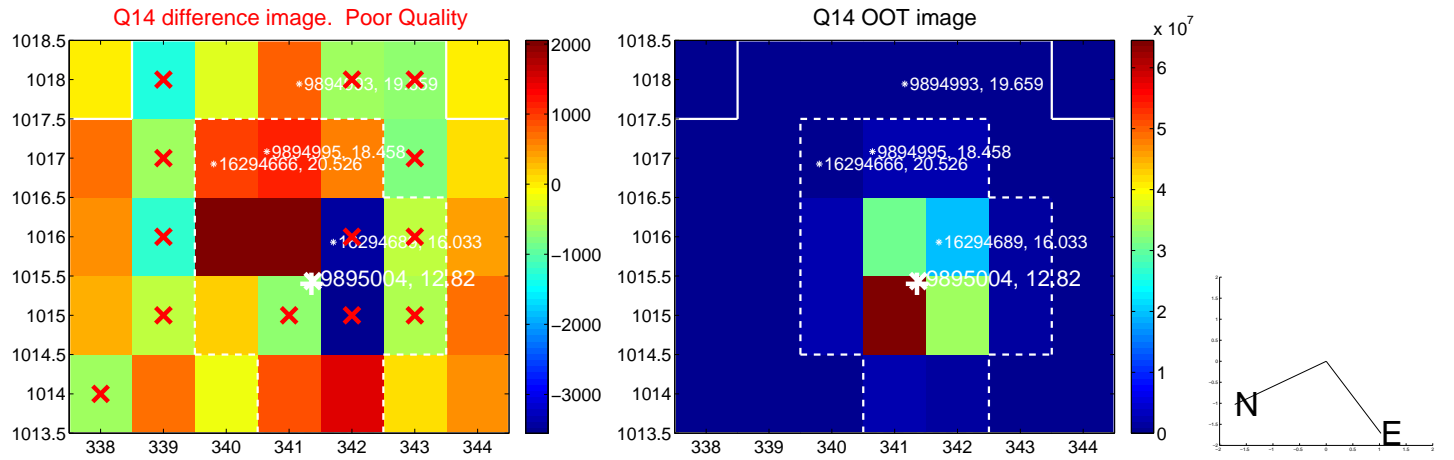
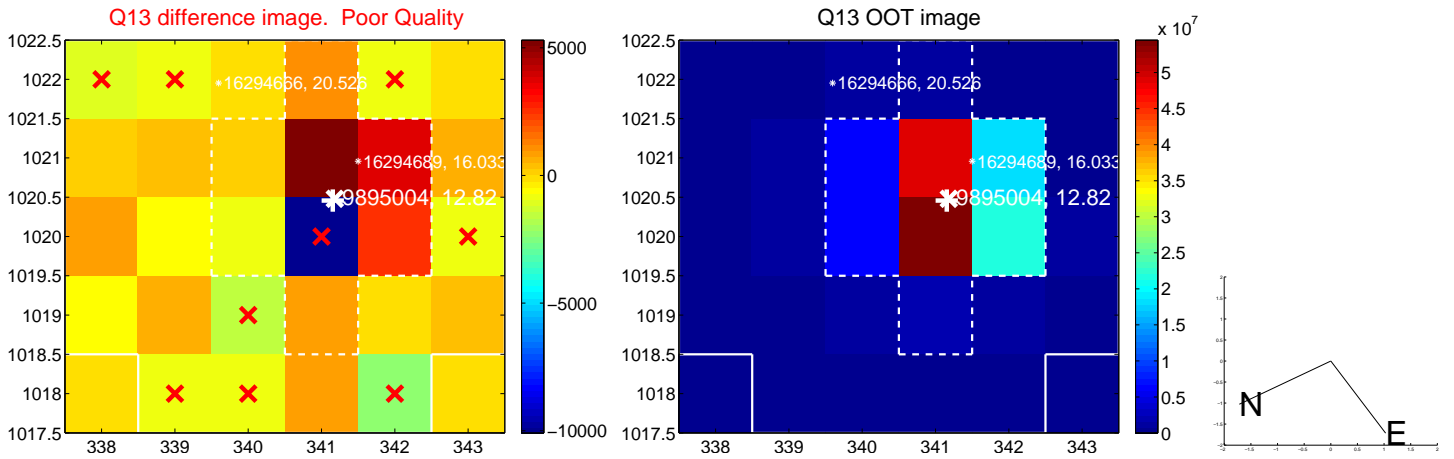
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



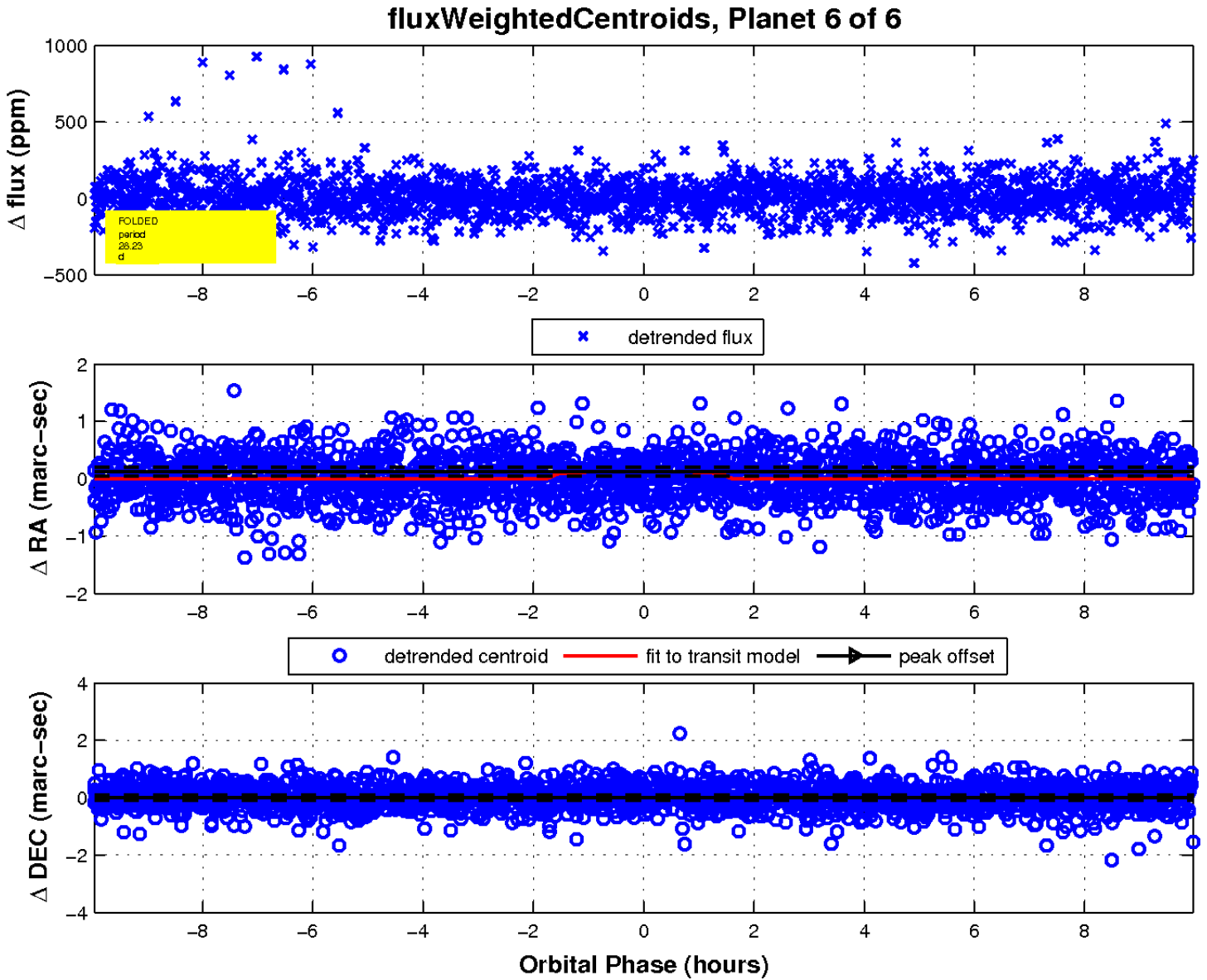
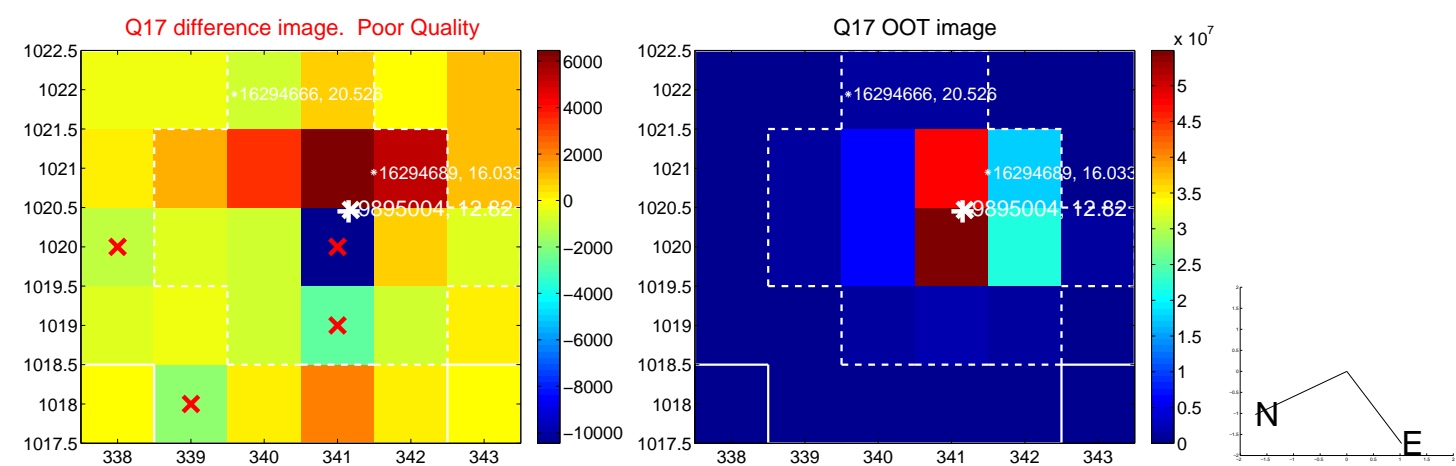
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

