

KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

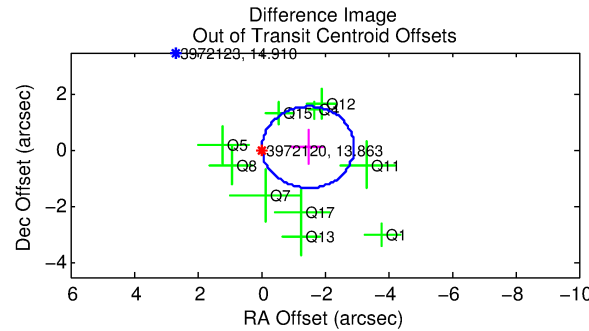
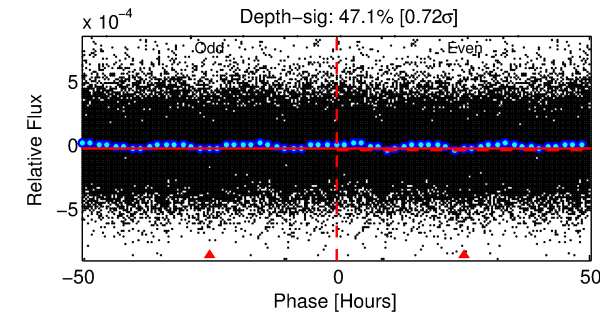
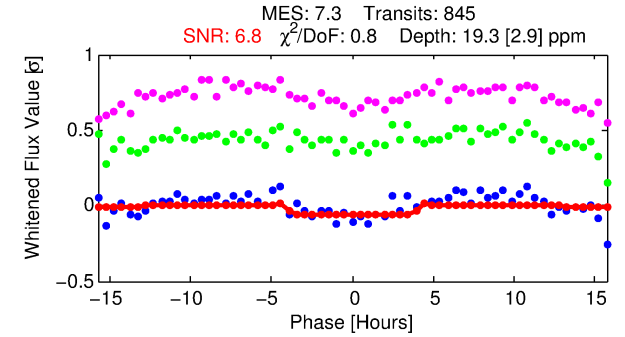
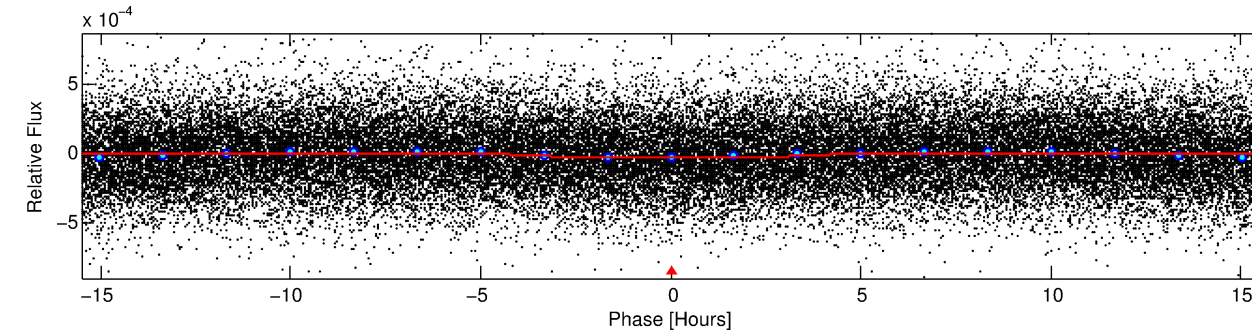
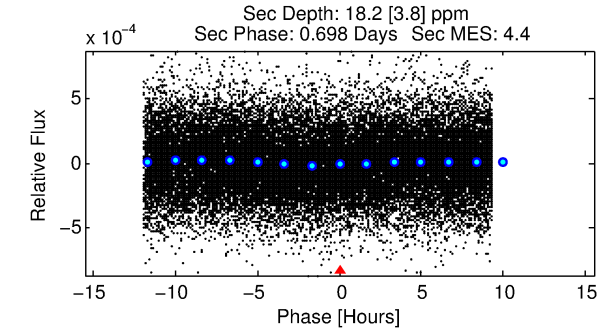
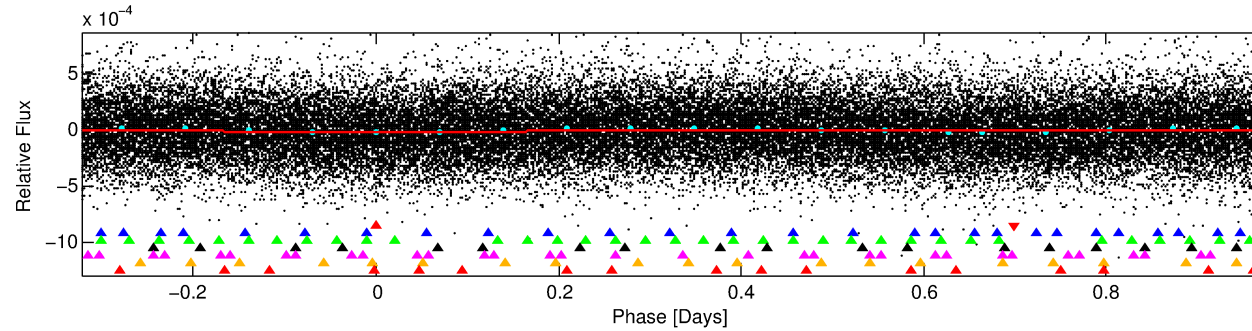
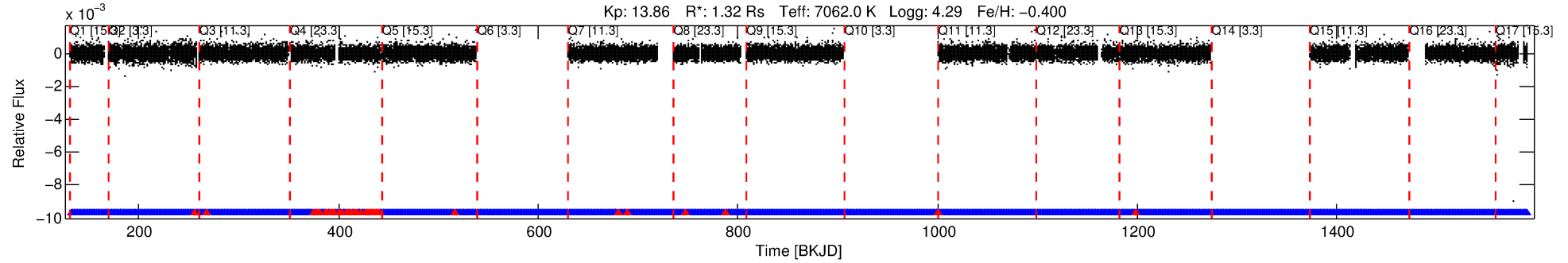
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-01

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 1 of 7 Period: 1.291 d



DV Fit Results:

Period = 1.29105 [0.00003] d
Epoch = 132.4683 [0.0096] BKJD
Rp/R* = 0.0046 [0.0027]
a/R* = 1.08 [0.59]
b = 0.89 [0.84]
Seff = 6222.43 [2445.04]
Teq = 2265 [222] K
Rp = 0.67 [0.44] Re
a = 0.0249 [0.0063] AU
Ag = 13.98 [17.15] [0.76σ]
Teffp = 6771 [2007] K [2.23σ]

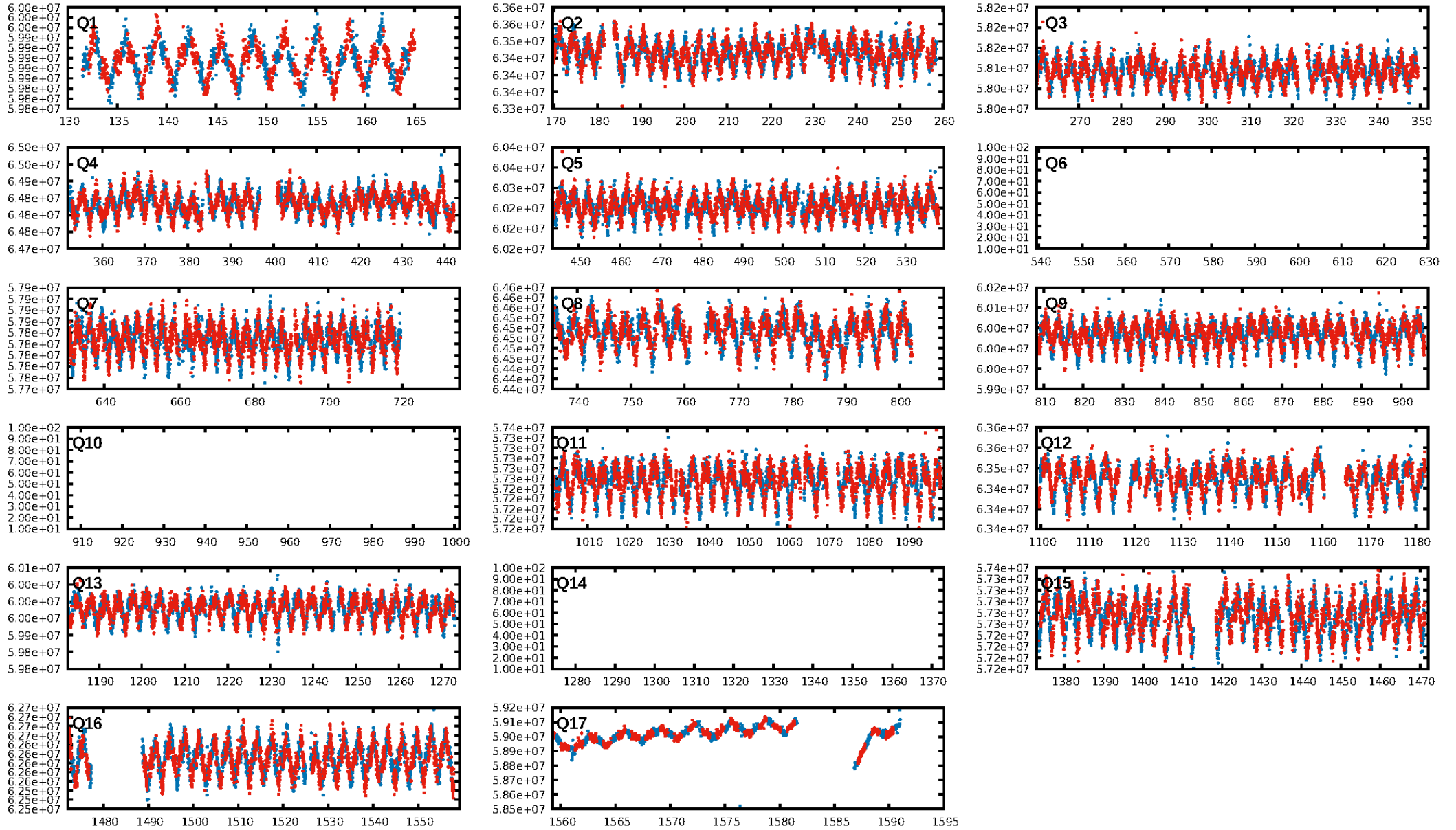
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [108.26σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.29e-09
RollingBand-fgt: 0.95 [757/798]
GhostDiagnostic-chr: 1.478
Centroid-sig: 12.5%
Centroid-so: 0.980 arcsec [0.69σ]
OotOffset-rm: 1.487 arcsec [3.08σ]
OotOffset-st: 0/3/3/4 [10]
KicOffset-rm: 1.361 arcsec [2.59σ]
KicOffset-st: 0/3/3/4 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [14/14]

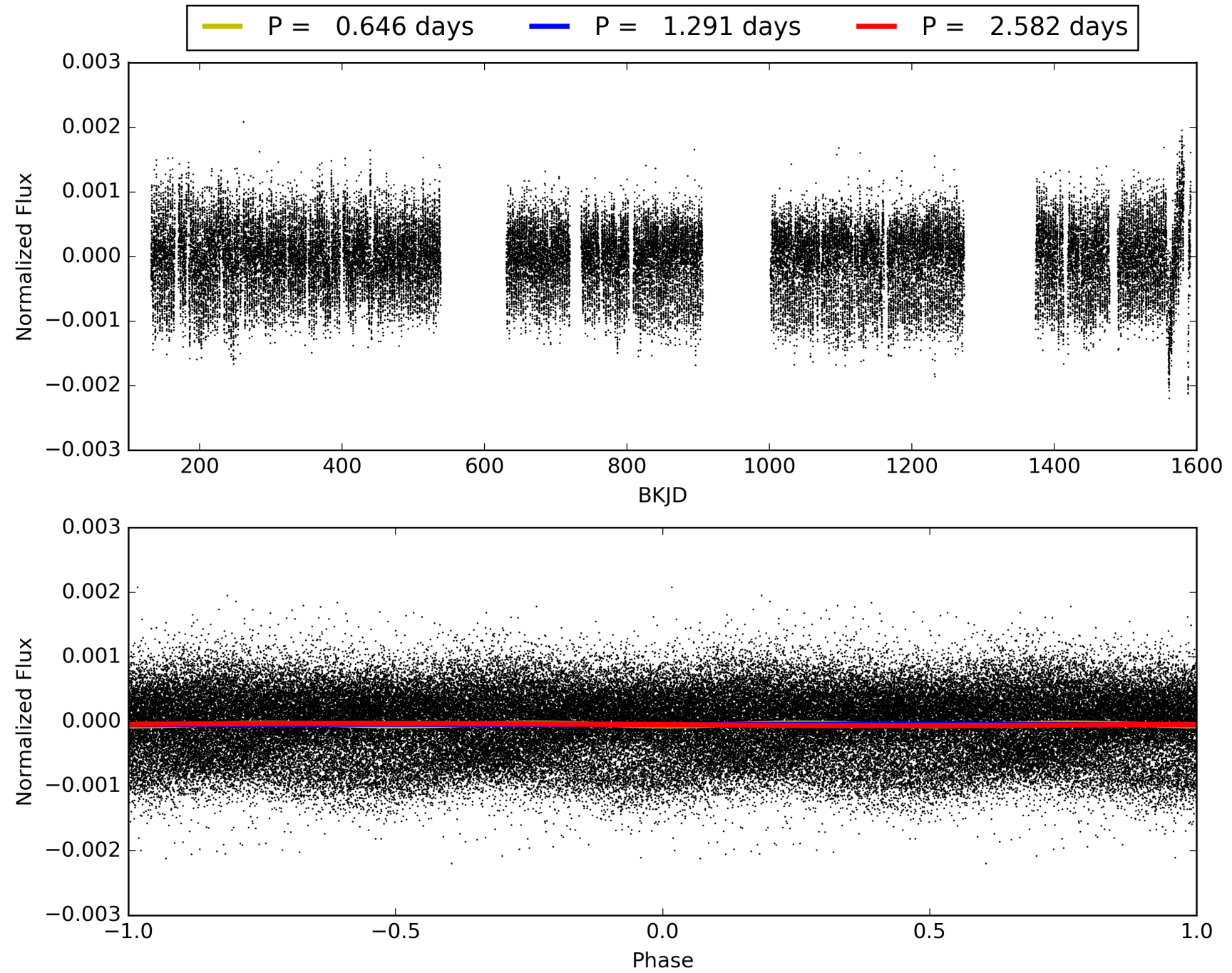
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:00 Z

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

TCE 003972120-01, PDC Light Curves

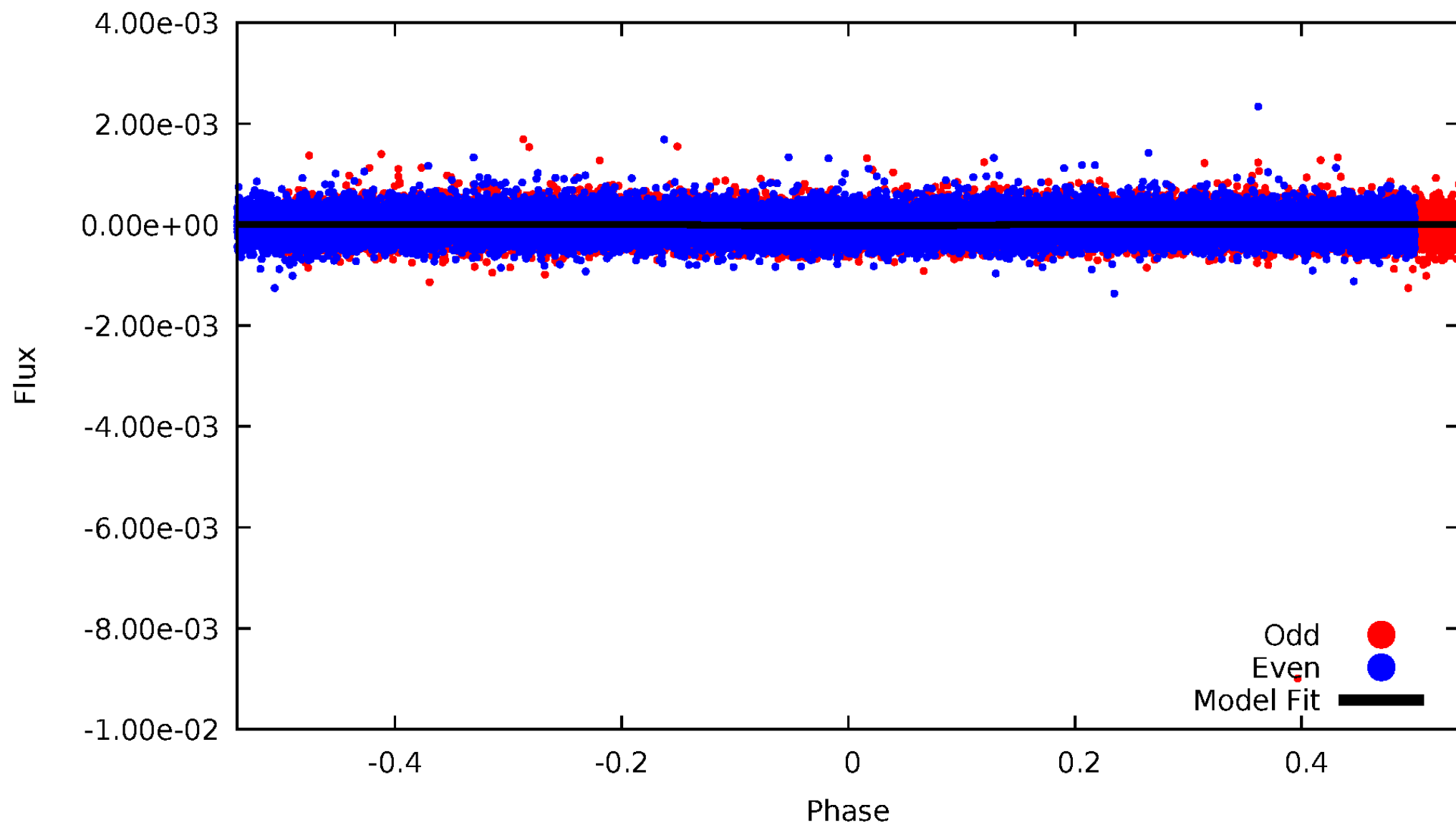


TCE 003972120-01



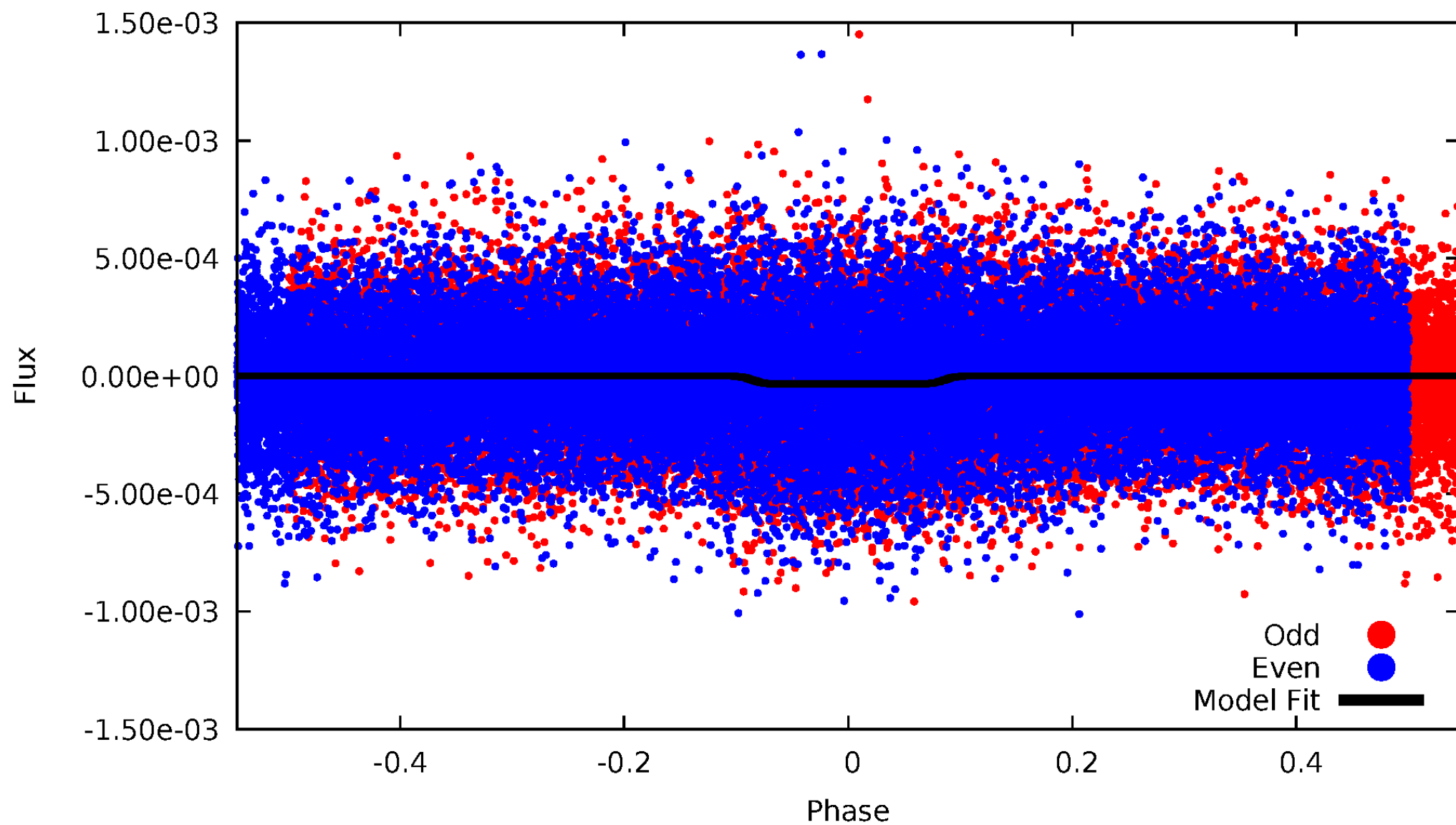
DV Odd/Even

TCE 003972120-01

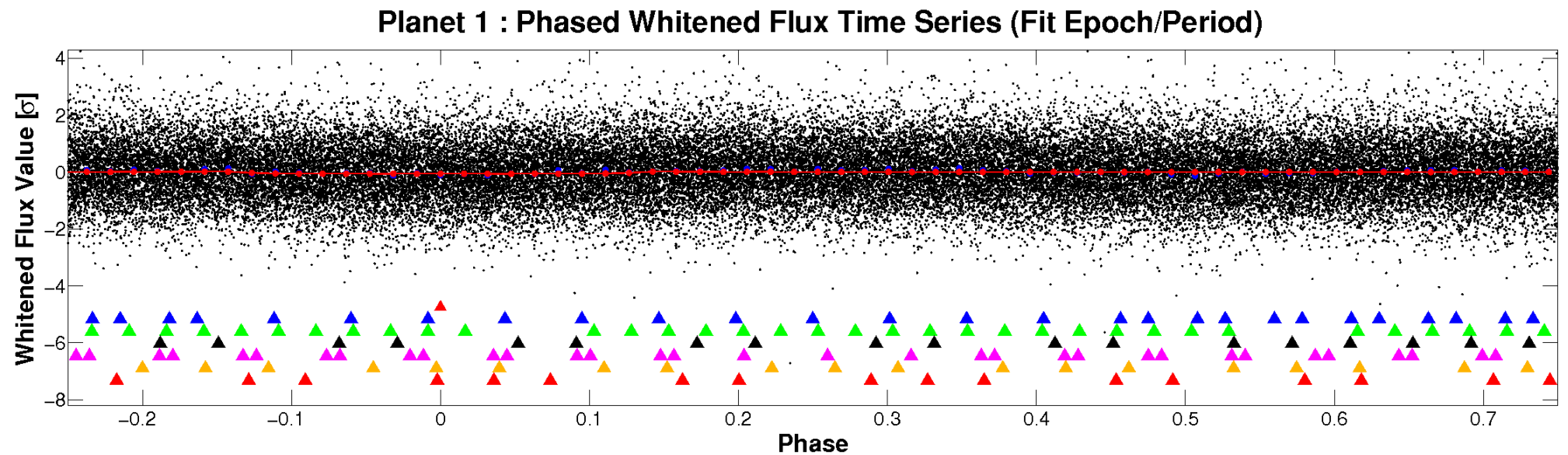
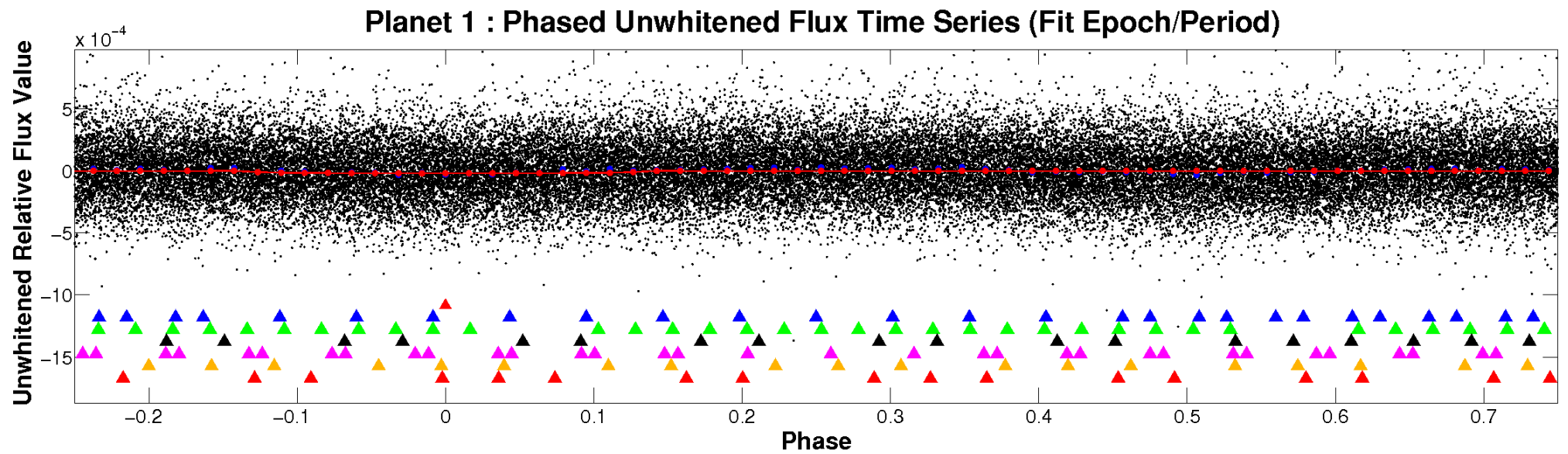


ALT Odd/Even

TCE 003972120-01

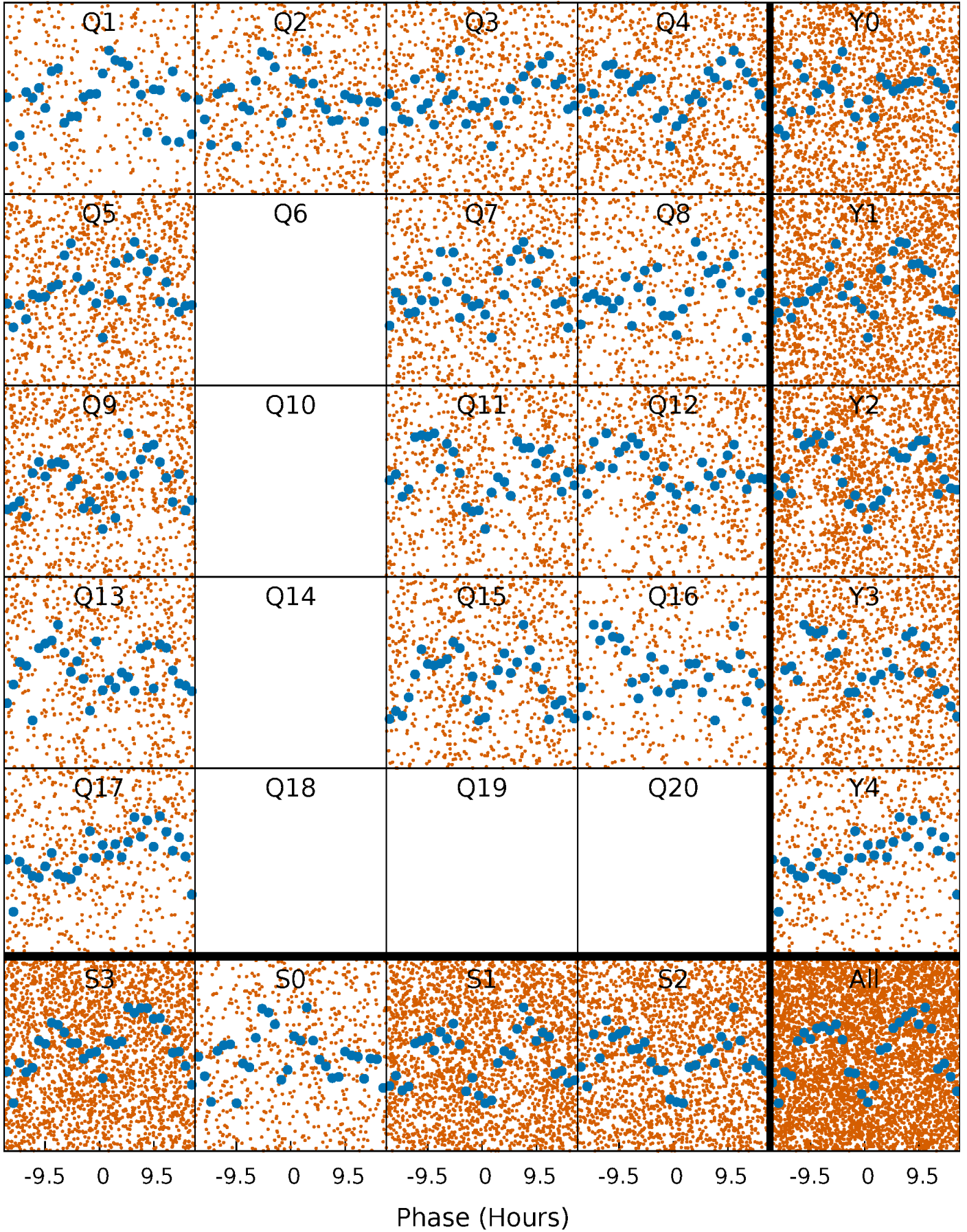


Non-Whitened Vs. Whitened Light Curve



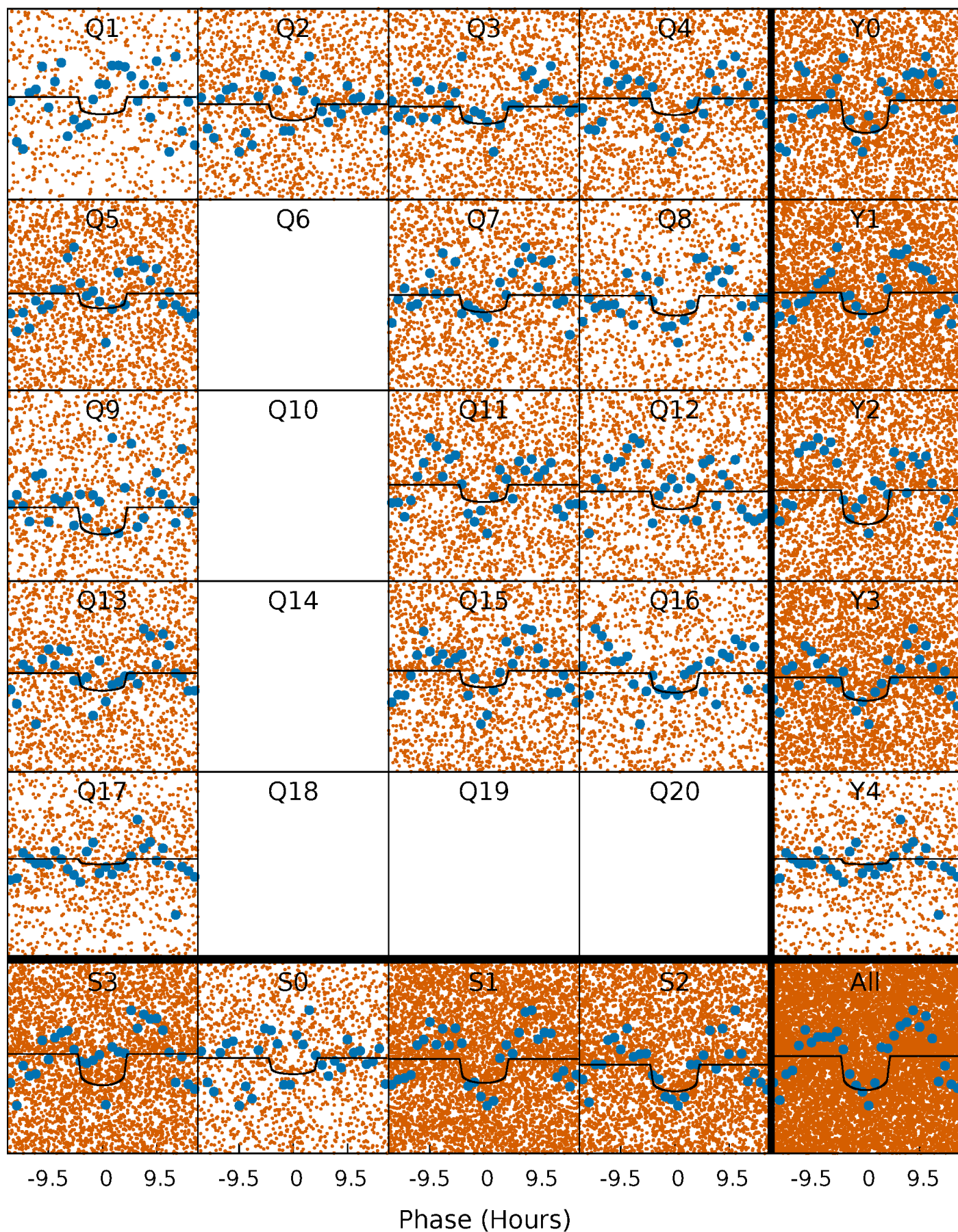
PDC Quarter-Phased Transit Curves

TCE 003972120-01 P= 1.291046 Days $T_0=132.468334$ (BKJD)



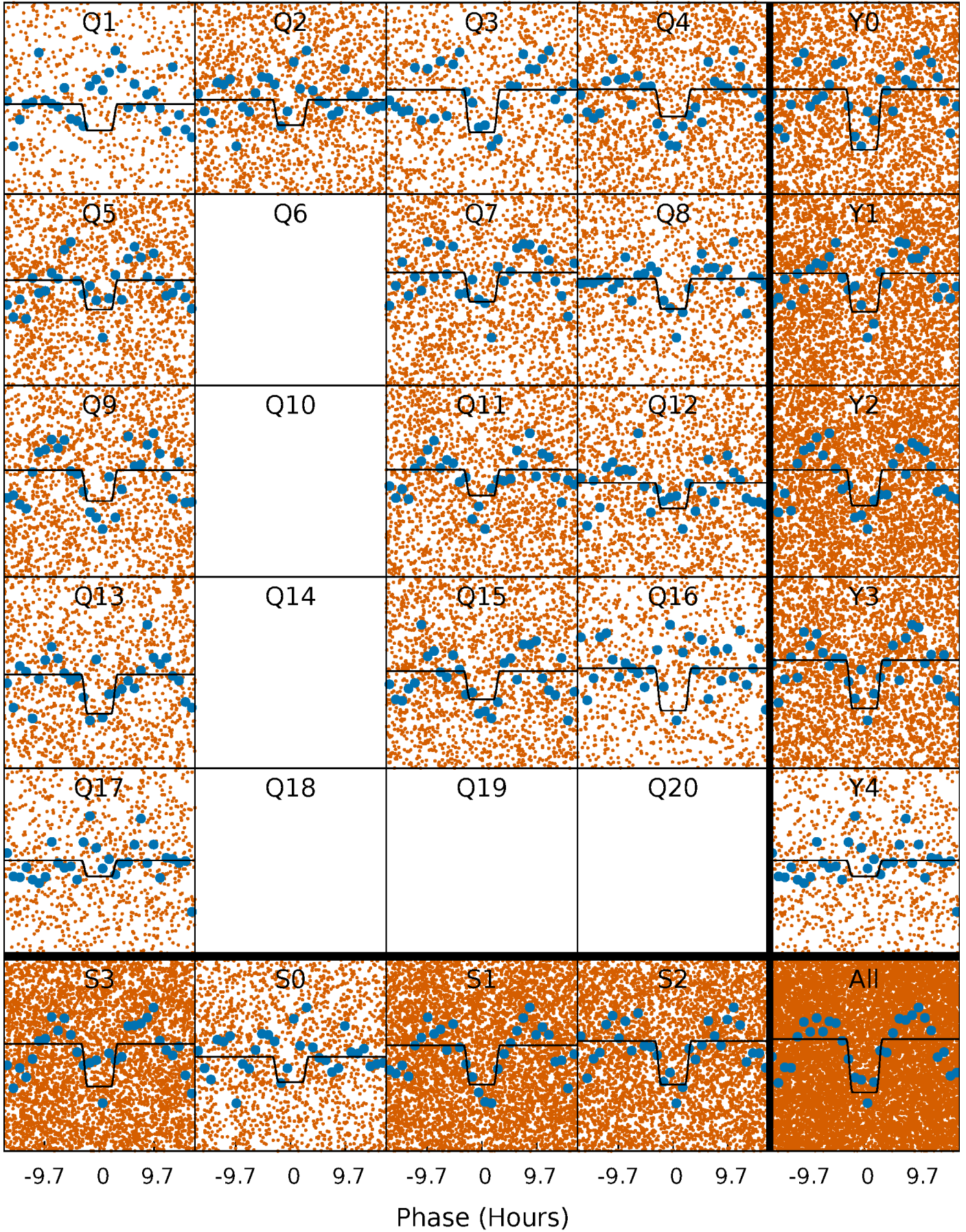
DV Quarter-Phased Transit Curves

TCE 003972120-01 P= 1.291046 Days $T_0=132.468334$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

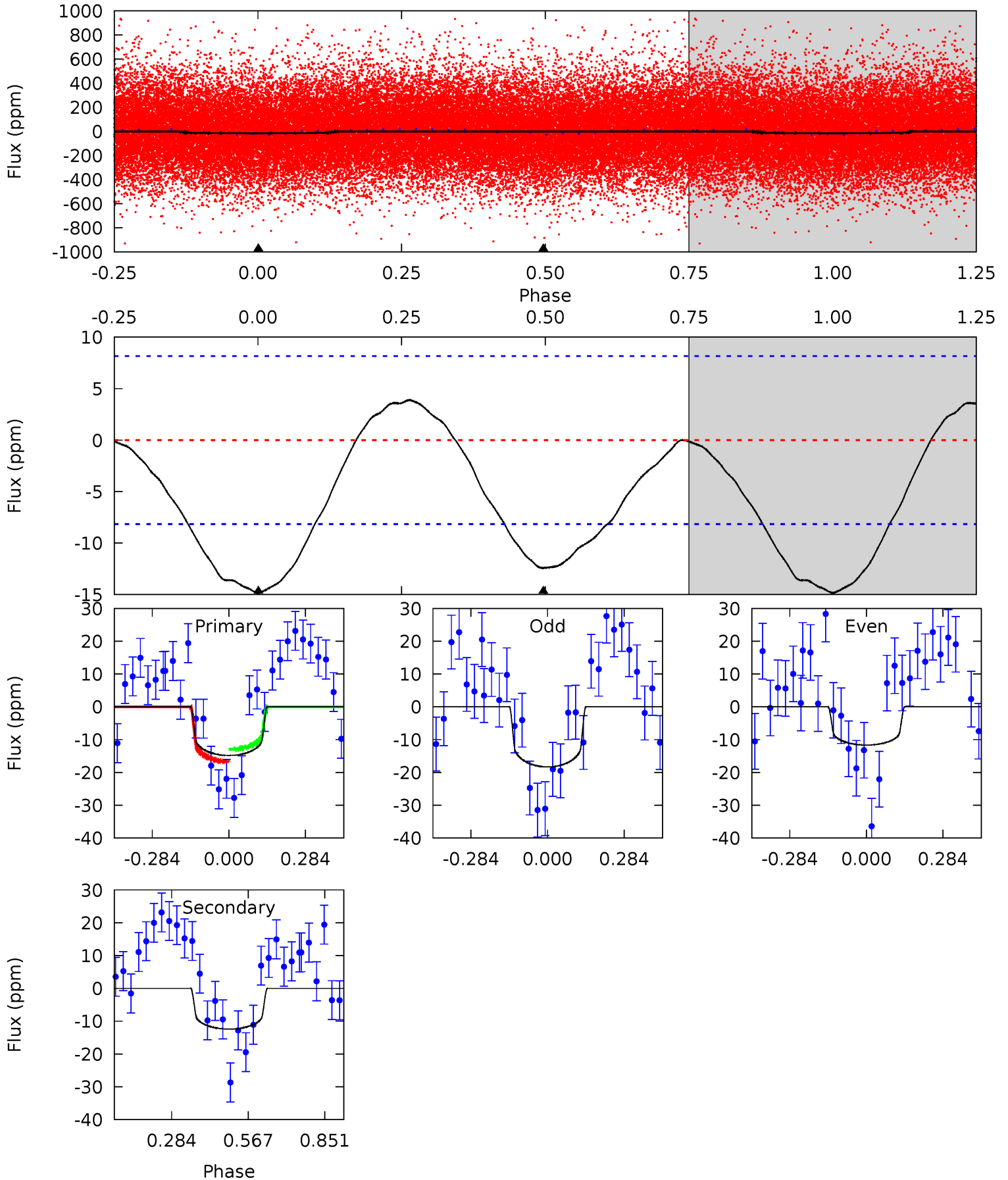
TCE 003972120-01 P= 1.291014 Days $T_0=132.480457$ (BKJD)



DV Model-Shift Uniqueness Test

003972120-01, P = 1.291046 Days, E = 131.177288 Days

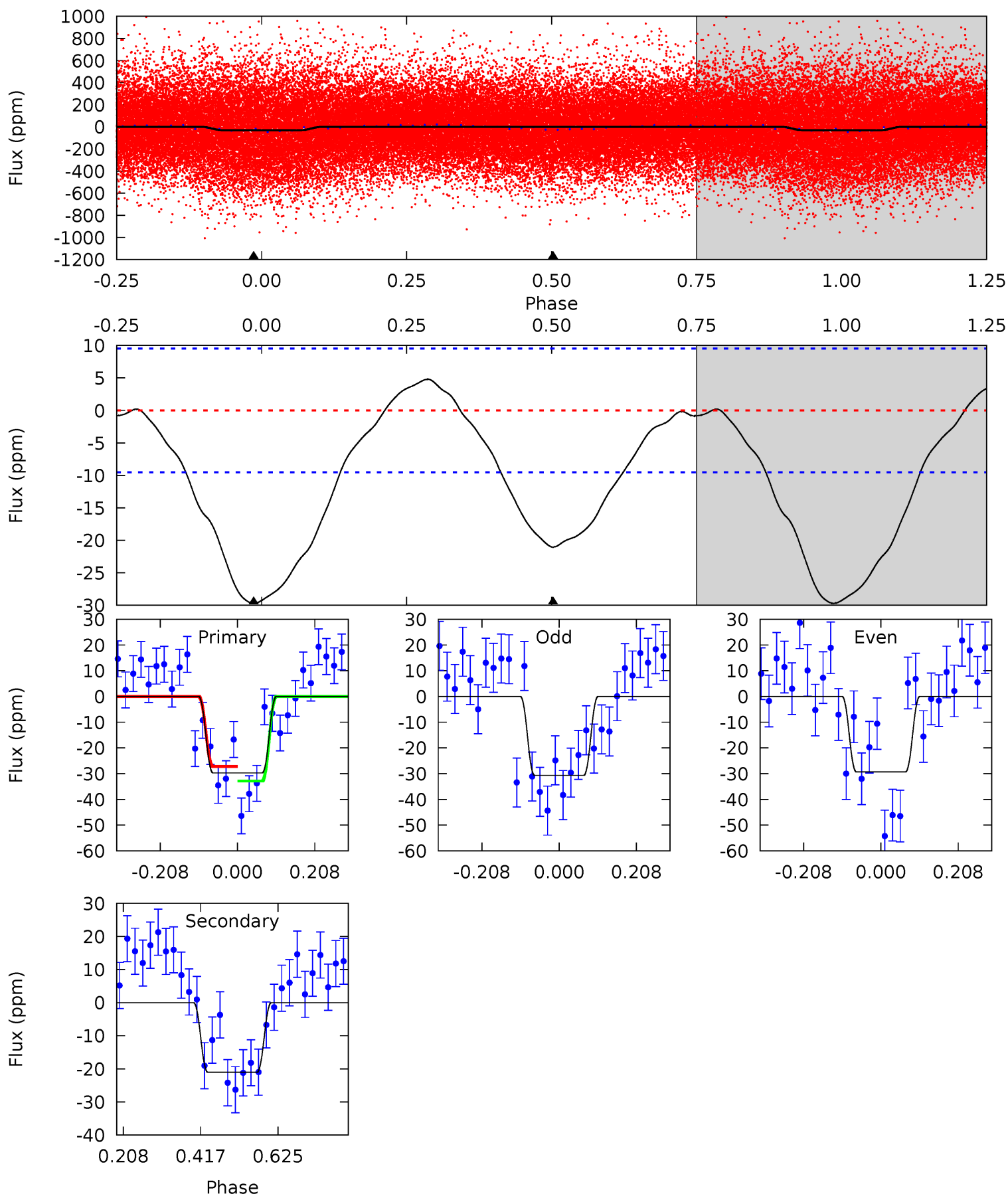
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.89	6.61	0	0	4.34	1.07	1.06	7.89	7.89	6.61	6.61	1.80	0.92	0.21	1.01



Alt Model-Shift Uniqueness Test

003972120-01, P = 1.291014 Days, E = 131.189443 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	9.73	0	0	4.41	1.26	1.00	13.7	13.7	9.73	9.73	0.31	1.49	0.14	1.31



Stellar Parameters For KIC 003972120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 2	$0.69^{+0.43}_{-0.34}$	3179^{+228}_{-185}	5903^{+3045}_{-1118}	$8.889^{+25.795}_{-5.504}$
Alt.	-21 ± 2	$0.86^{+0.43}_{-0.37}$	3188^{+206}_{-171}	6143^{+2389}_{-1120}	$9.575^{+21.325}_{-5.388}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

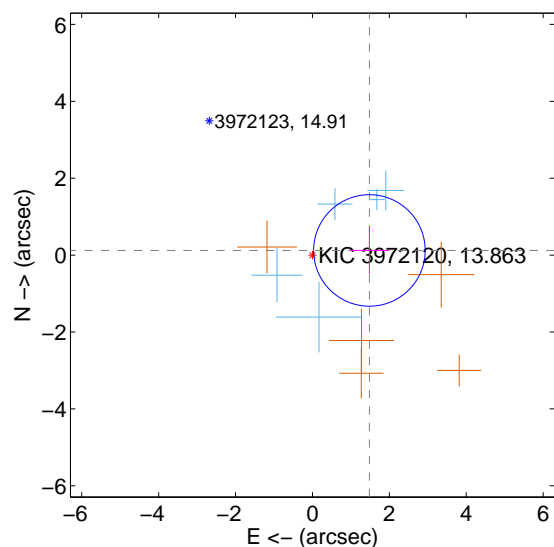
Supplemental centroid analysis for 003972120-01. Kepler magnitude: 13.86. Transit SNR 6.81

There are 5 quarters with good PRF difference image offsets

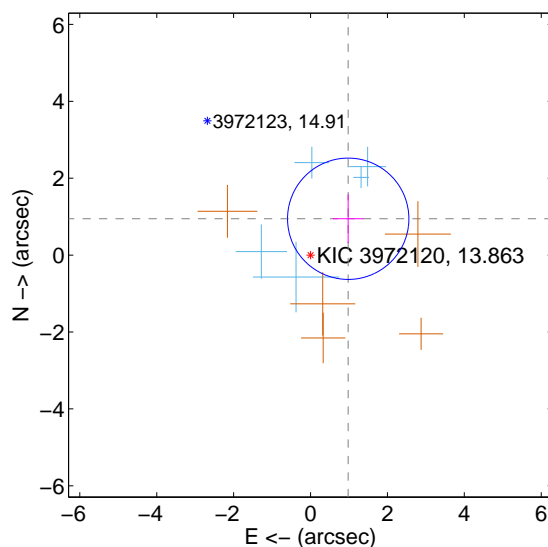
The direct PRF centroid is offset from the target star catalog position by about 1.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.487 ± 0.483	3.08	-1.482 ± 0.497	0.121 ± 0.606
PRF-fit source offset from KIC position	1.361 ± 0.526	2.59	-0.980 ± 0.400	0.945 ± 0.634
photometric centroid source offset	0.98 ± 1.42	0.69	-0.94 ± 1.41	-0.29 ± 1.51

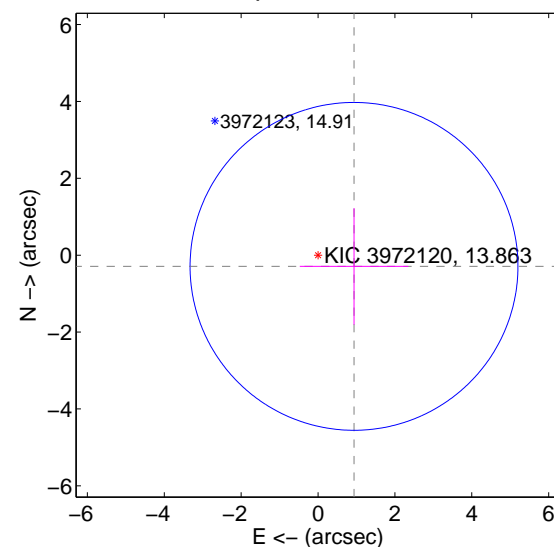
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

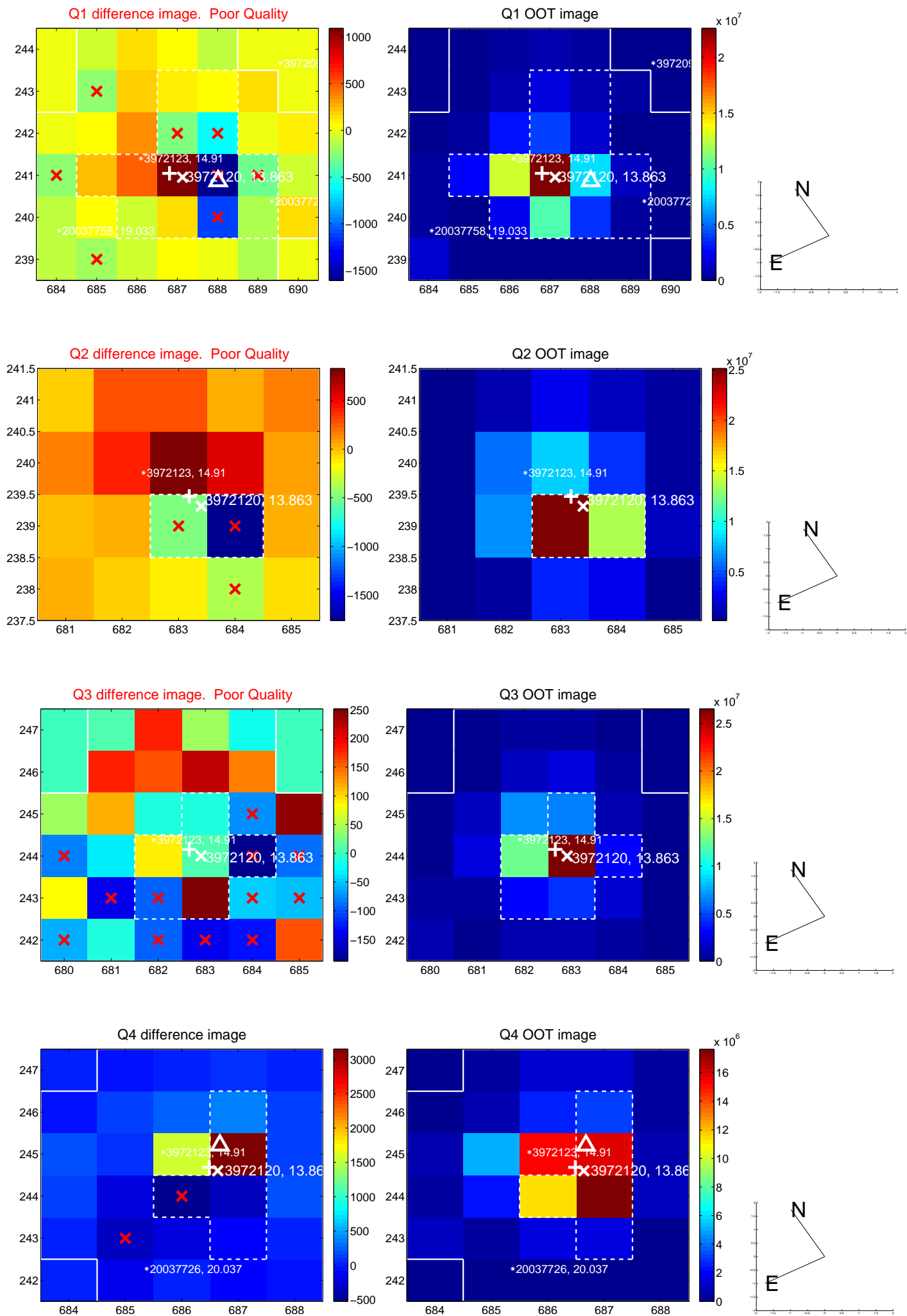


offset from photometric centroids

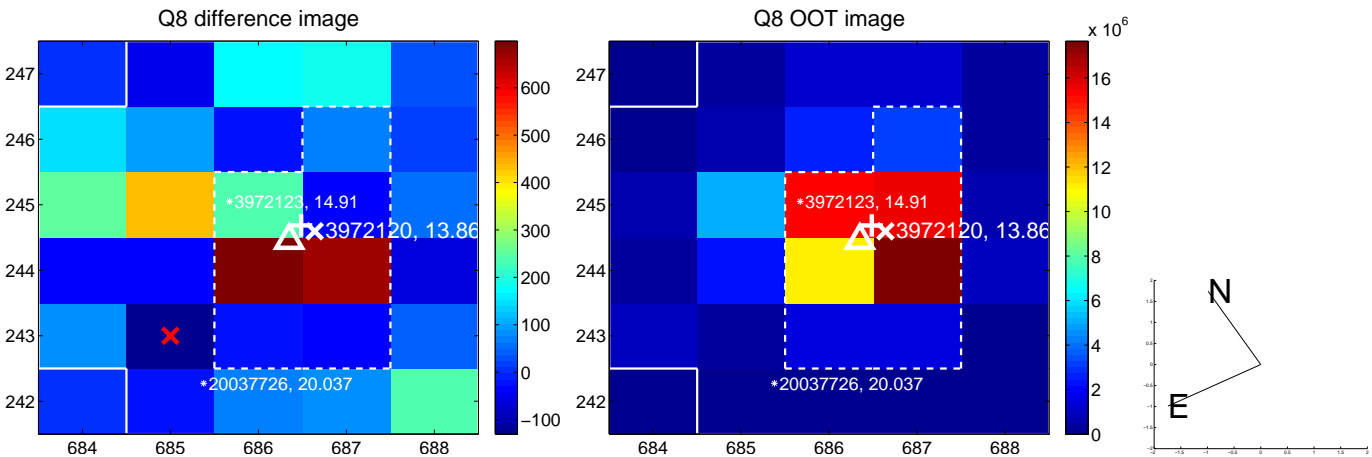
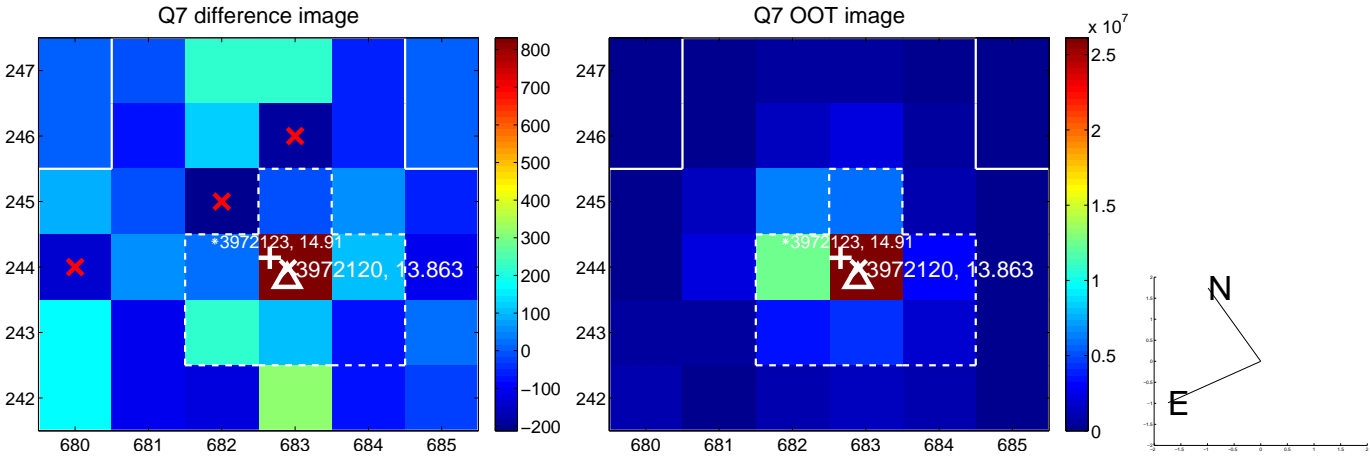
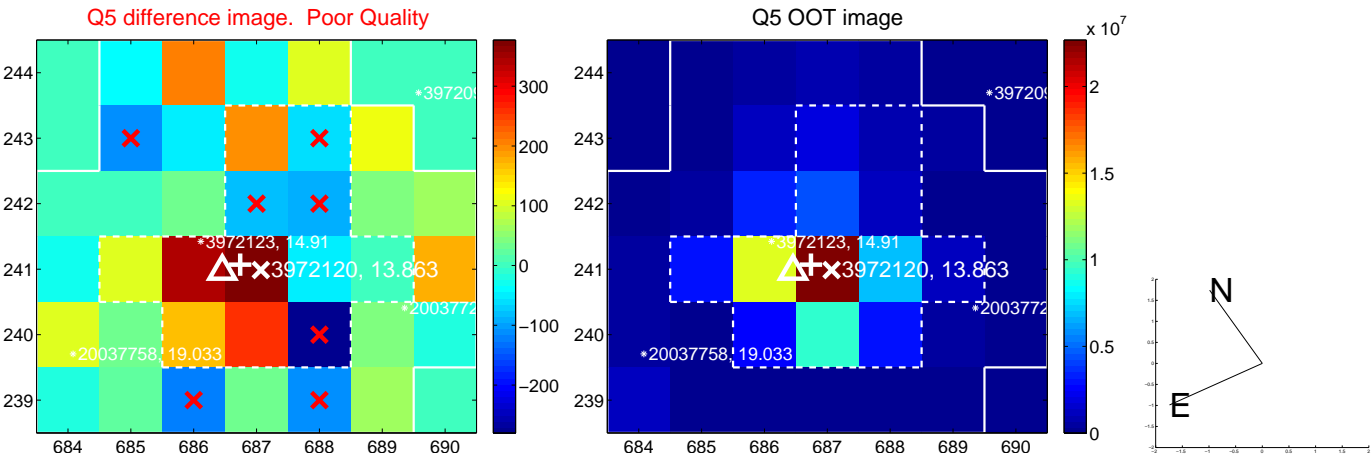


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

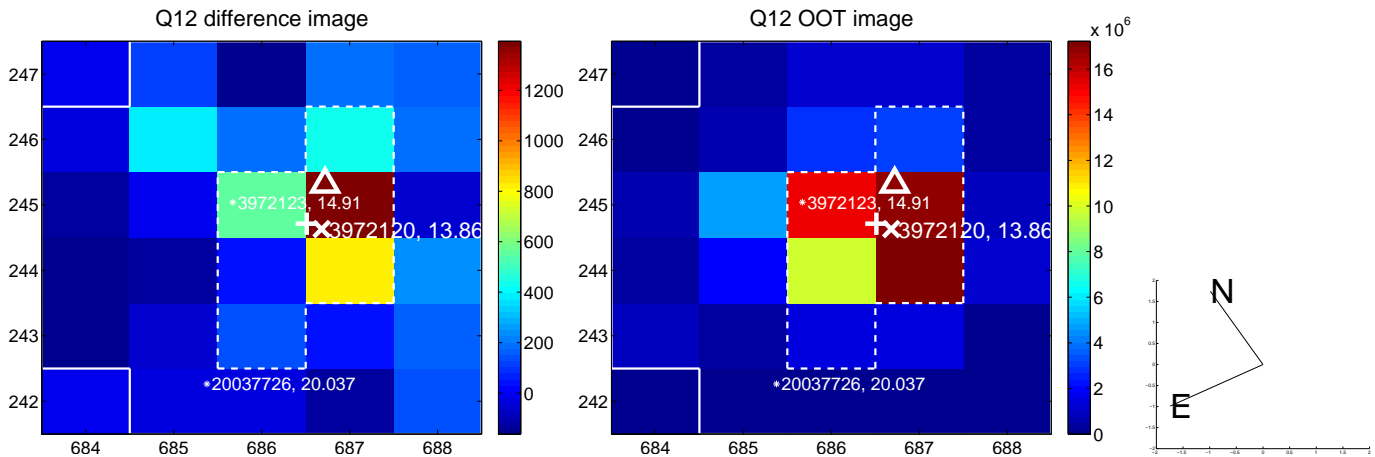
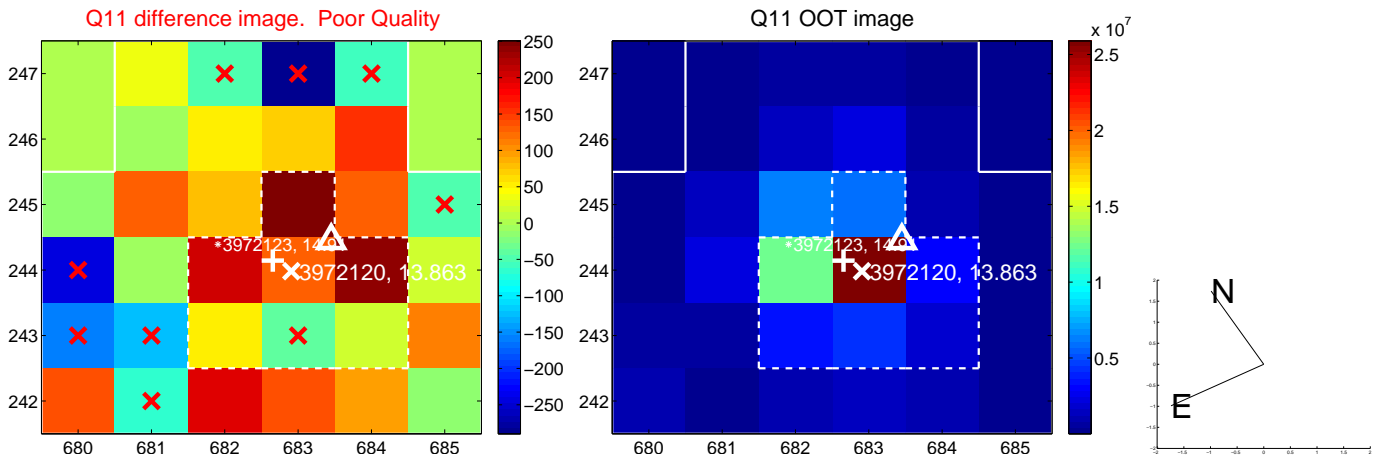
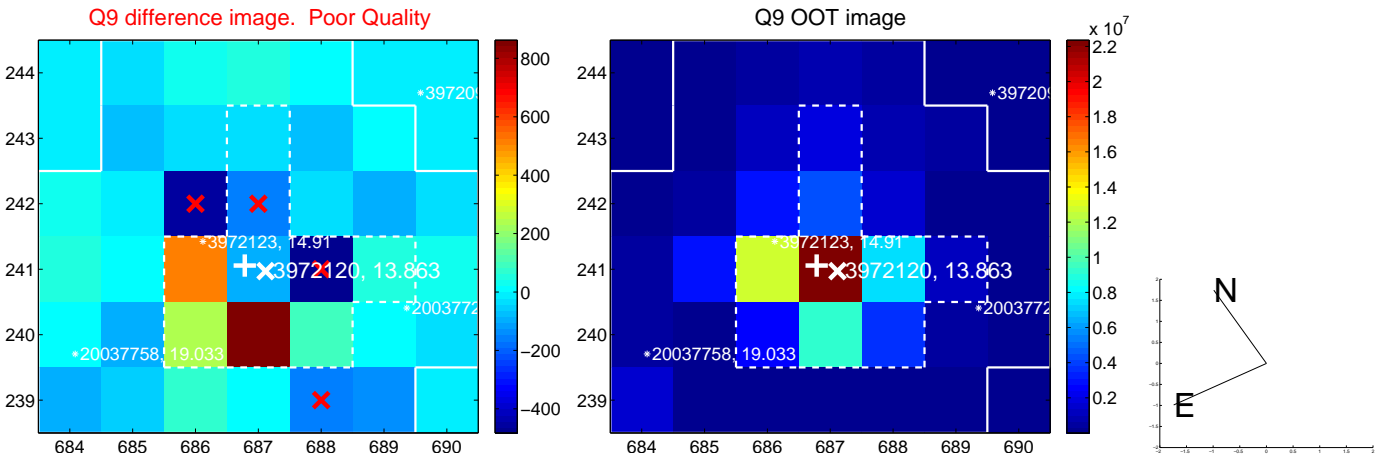
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



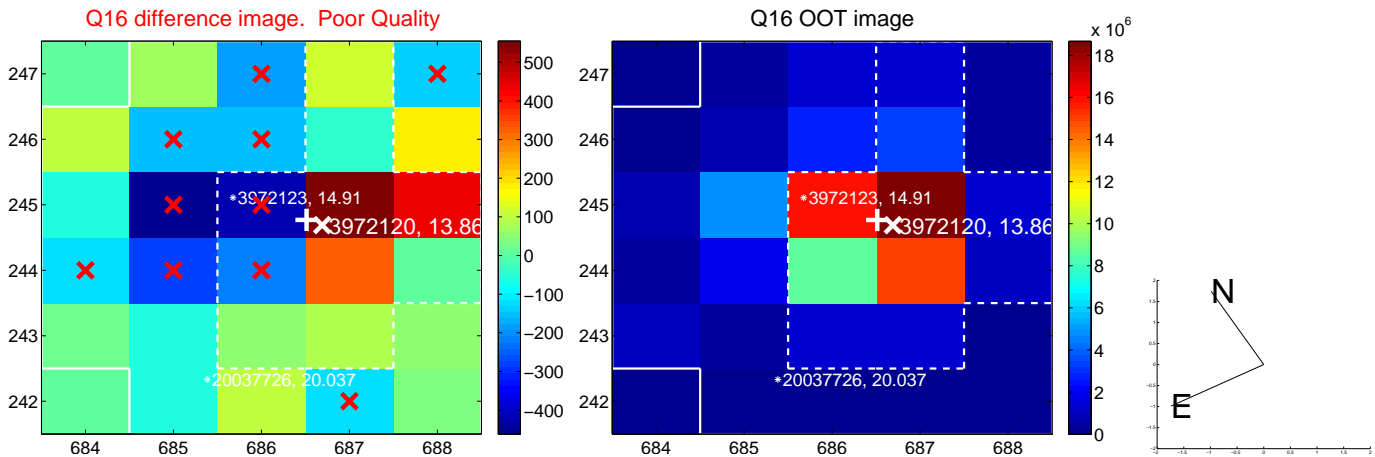
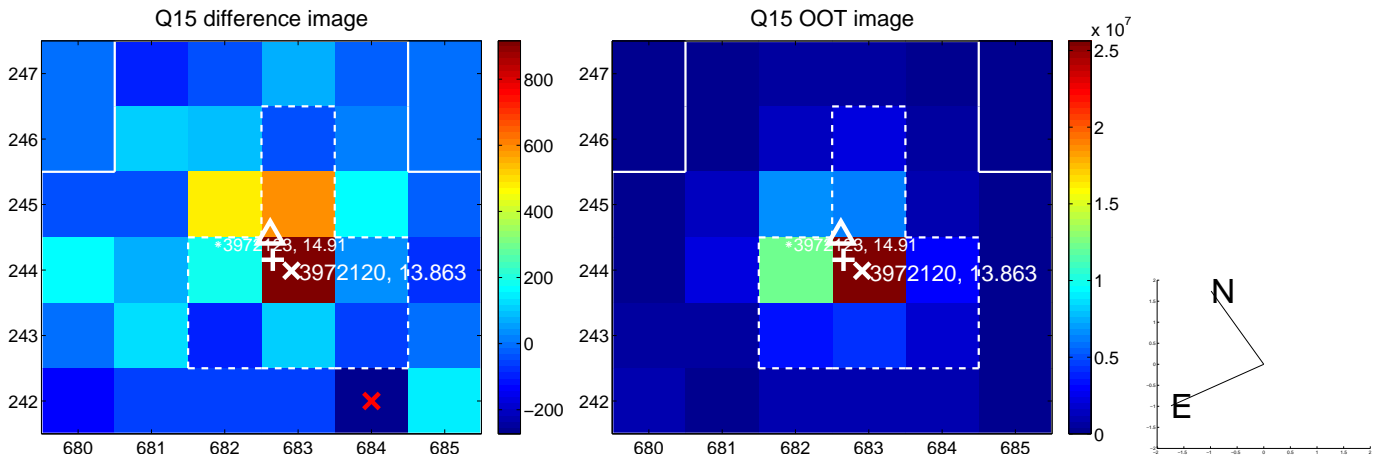
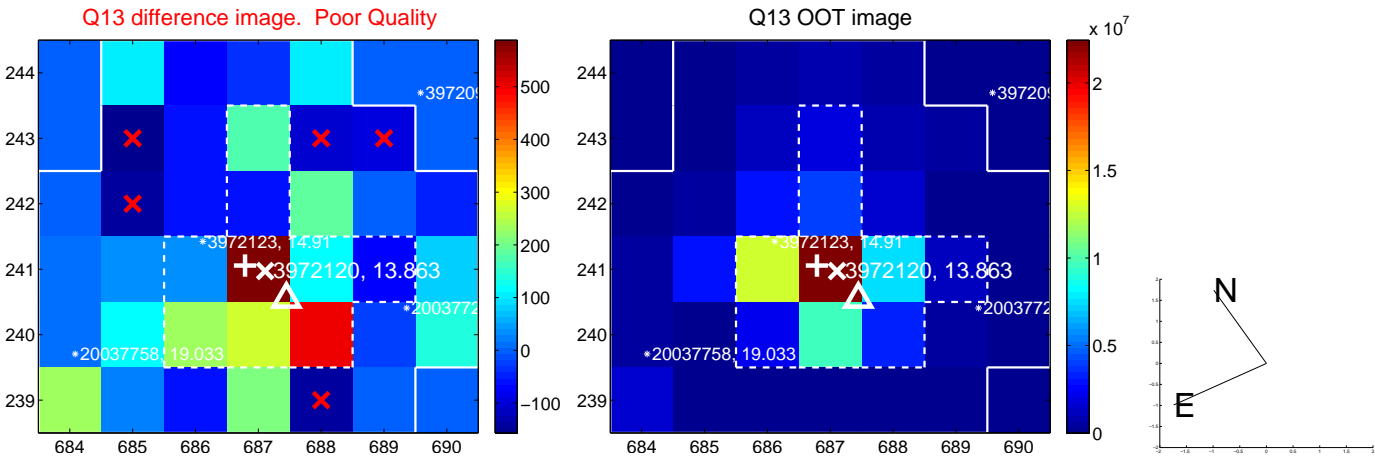
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



This astronomical image shows a field of stars against a dark background. A blue grid is overlaid on the image, with green text labels indicating coordinates. The labels are arranged in two rows: the top row shows '22.0', '21.0', '19:43:20.0', and '19.0', while the bottom row shows '50.039:04:00.0', '140.0', '30.0', and '20.0'. A red horizontal line is visible across the middle of the image, passing through the central star.

This astronomical image shows a field of stars against a dark background. A blue grid is overlaid on the image, with green text labels indicating coordinates. The labels are arranged in two rows: the top row shows '22.0', '21.0', '19:43:20.0', and '19.0', while the bottom row shows '50.039:04:00.0', '40.0', '30.0', and '20.0'. A red horizontal line is visible across the middle of the image, passing through the central star.

KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

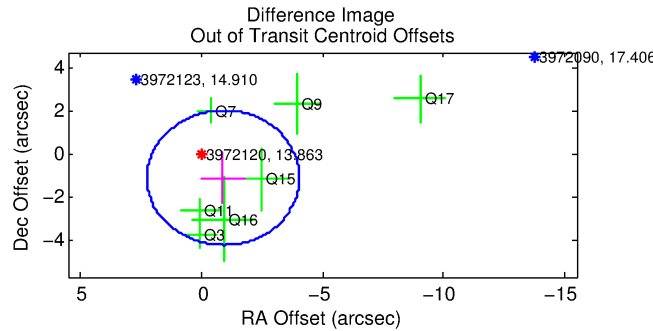
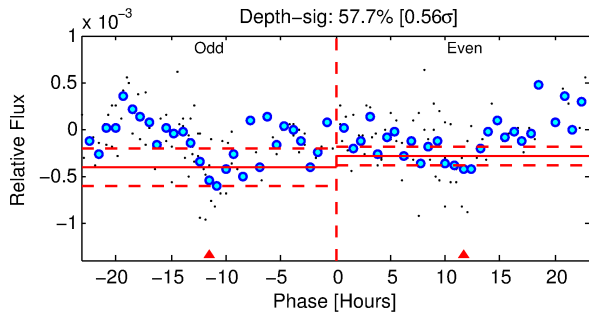
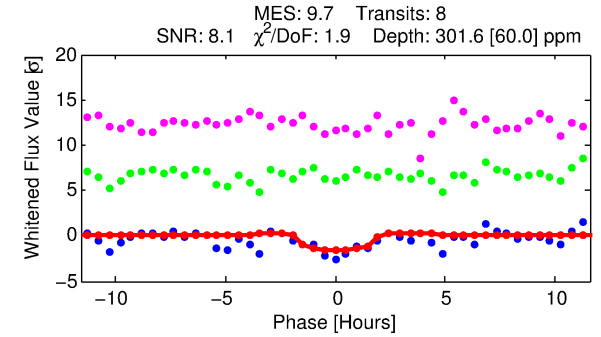
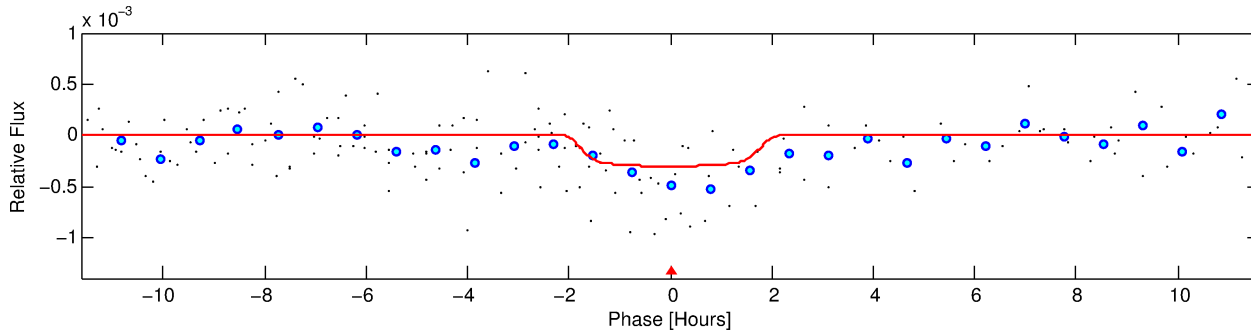
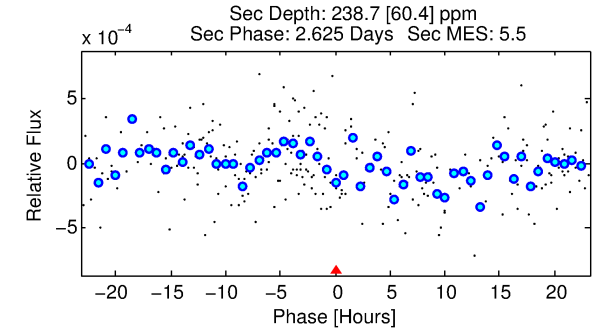
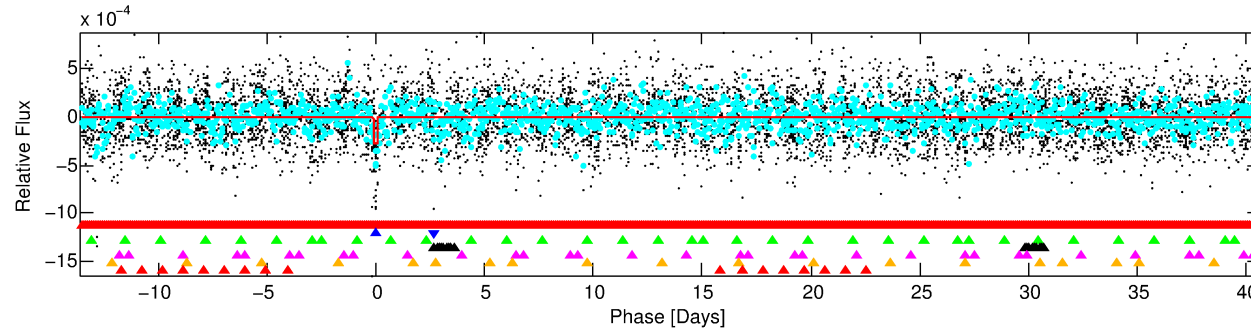
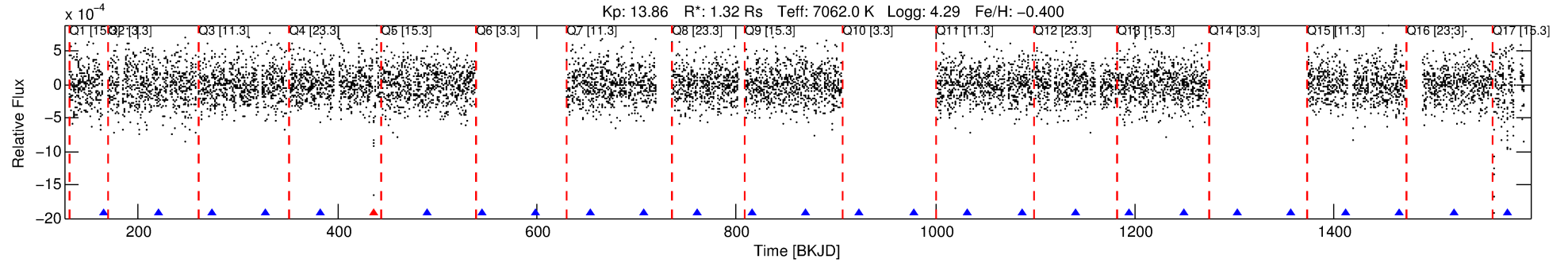
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-02

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 2 of 7 Period: 54.157 d



DV Fit Results:

Period = 54.15726 [0.00075] d
Epoch = 165.8006 [0.0155] BKJD
Rp/R* = 0.0183 [0.0114]
a/R* = 53.40 [201.05]
b = 0.89 [0.91]
Seff = 42.69 [16.78]
Teq = 652 [64] K
Rp = 2.63 [1.83] Re
a = 0.3011 [0.0761] AU
Ag = 1716.54 [2261.81] [0.76σ]
Teffp = 6487 [2075] K [2.81σ]

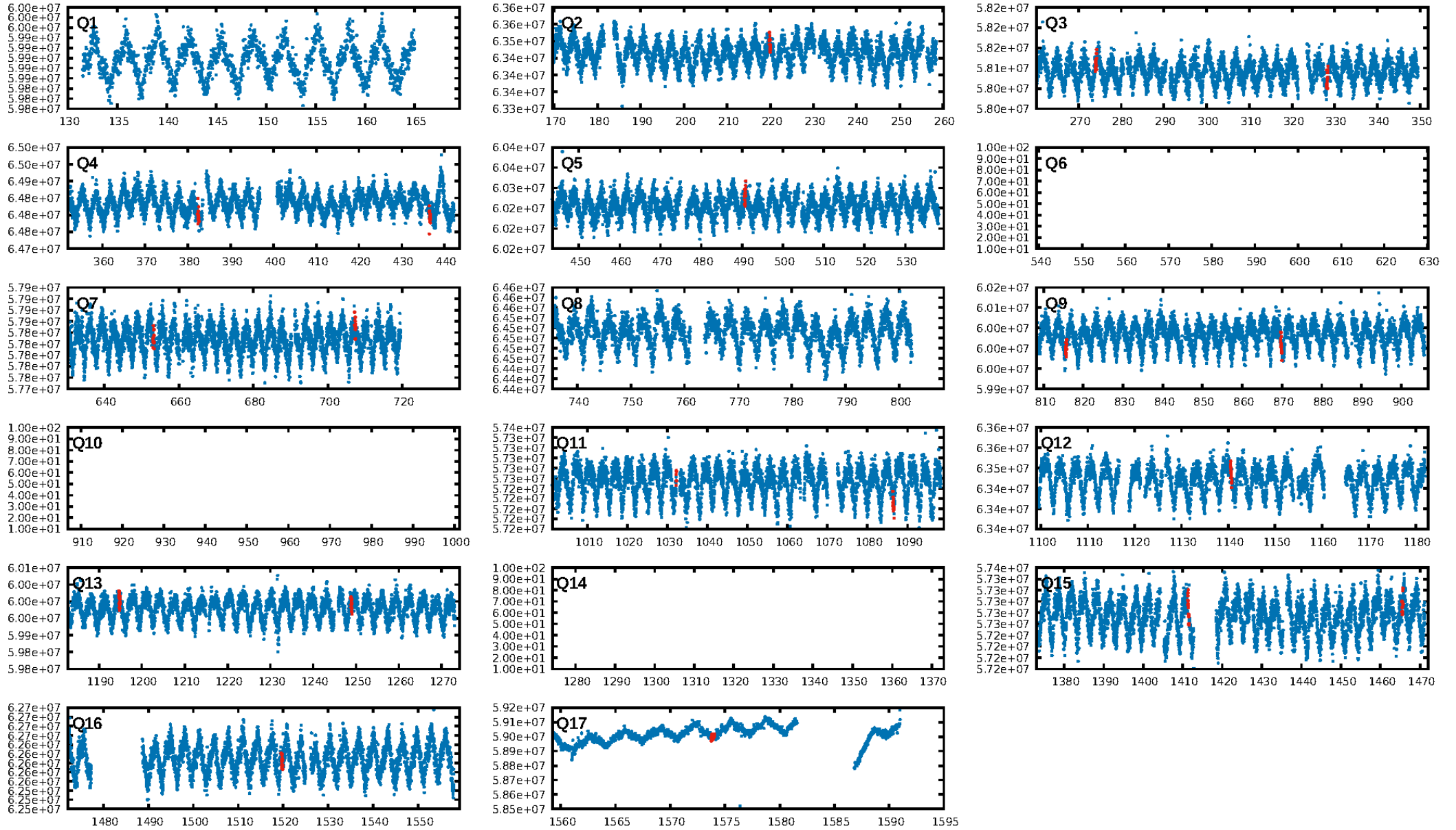
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [58.42σ]
LongPeriod-sig: 100.0% [140.37σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 91.5%
Bootstrap-pfa: 9.23e-11
RollingBand-fgt: 0.86 [6/7]
GhostDiagnostic-chr: 0.05124
Centroid-sig: 18.1%
Centroid-so: 1.001 arcsec [1.14σ]
OotOffset-rm: 1.437 arcsec [1.37σ]
KicOffset-rm: 0.364 arcsec [0.38σ]
OotOffset-st: 0/4/1/2 [7]
KicOffset-st: 0/4/1/2 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.25 [3/12]

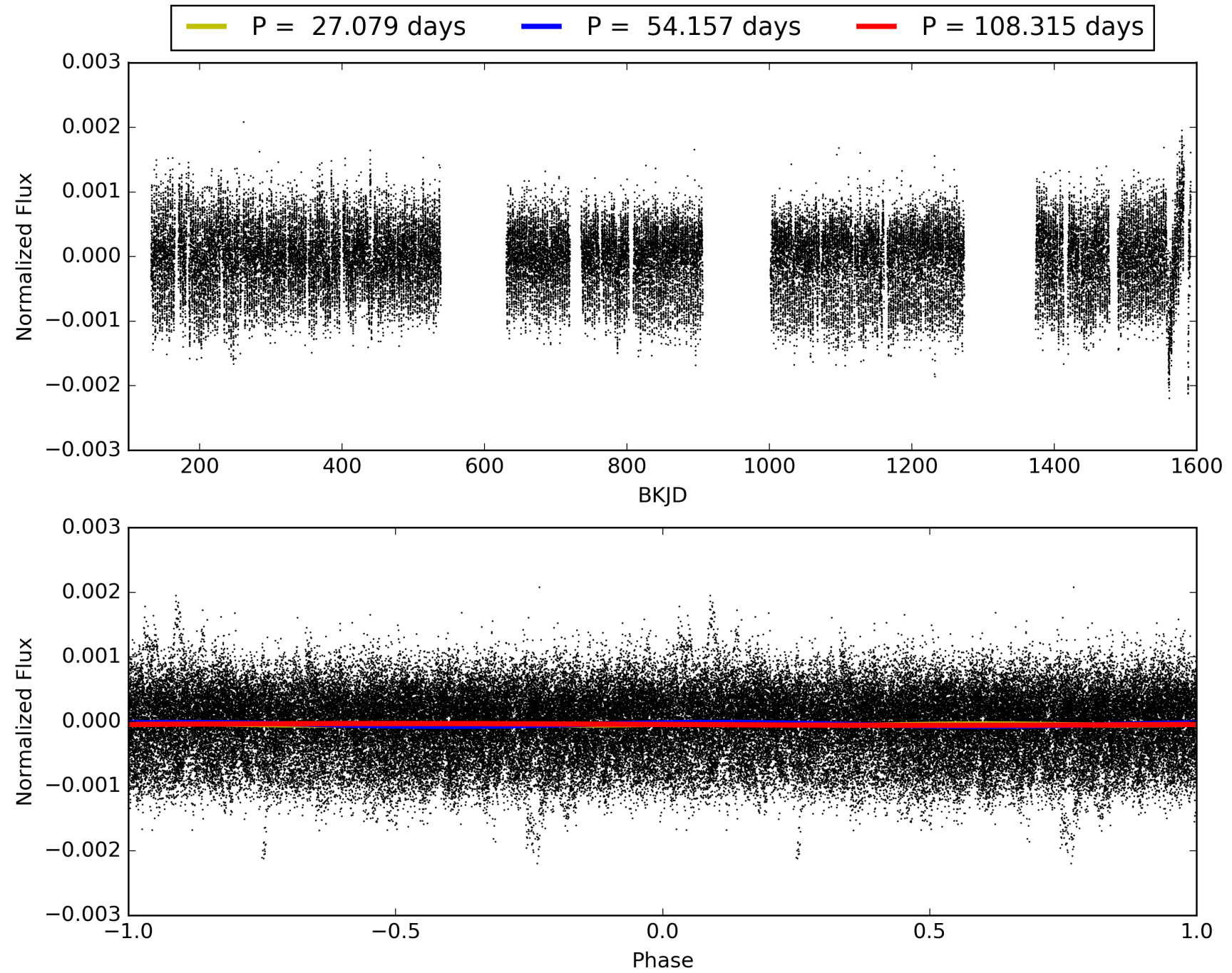
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:10 Z

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

TCE 003972120-02, PDC Light Curves

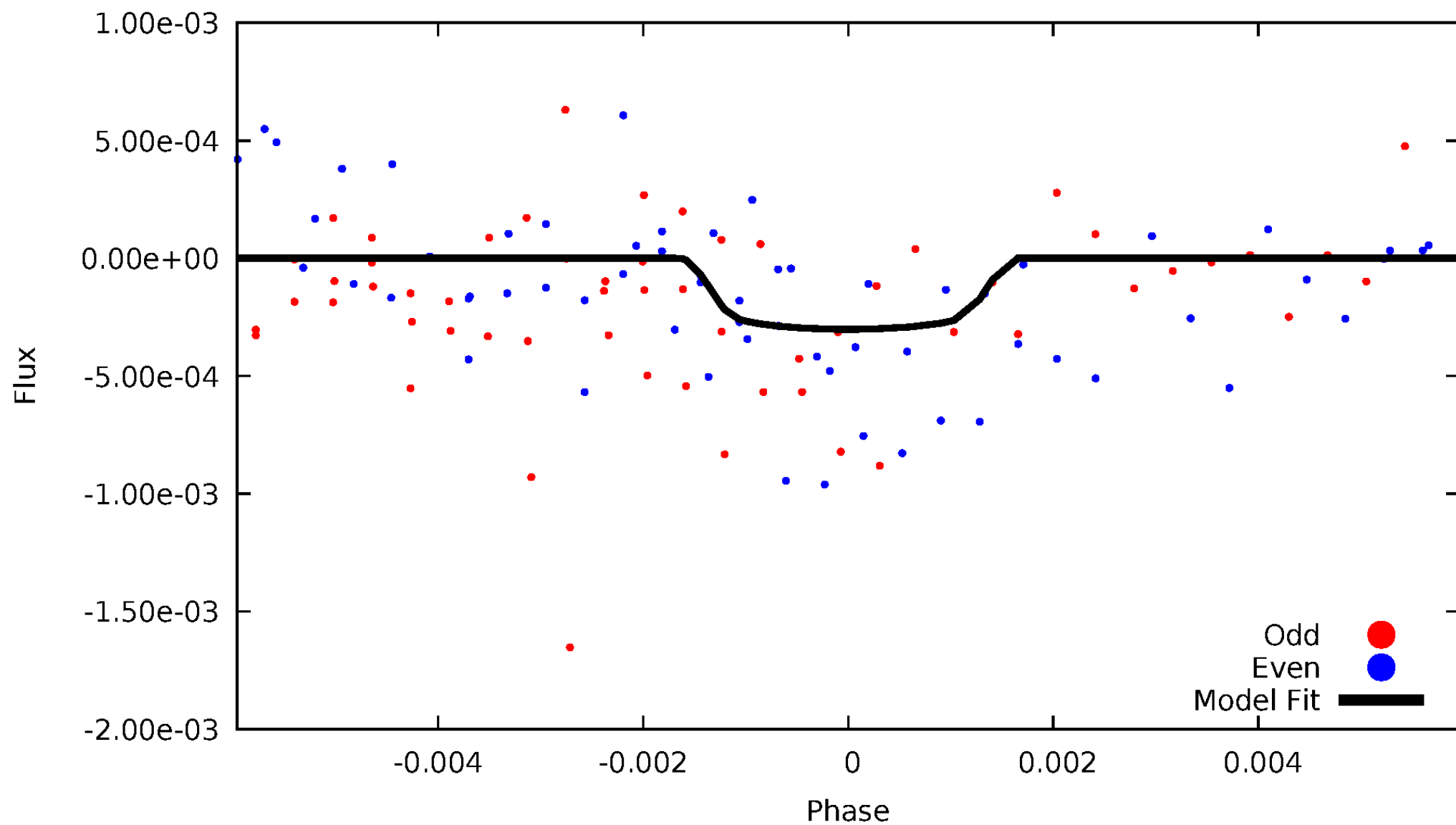


TCE 003972120-02



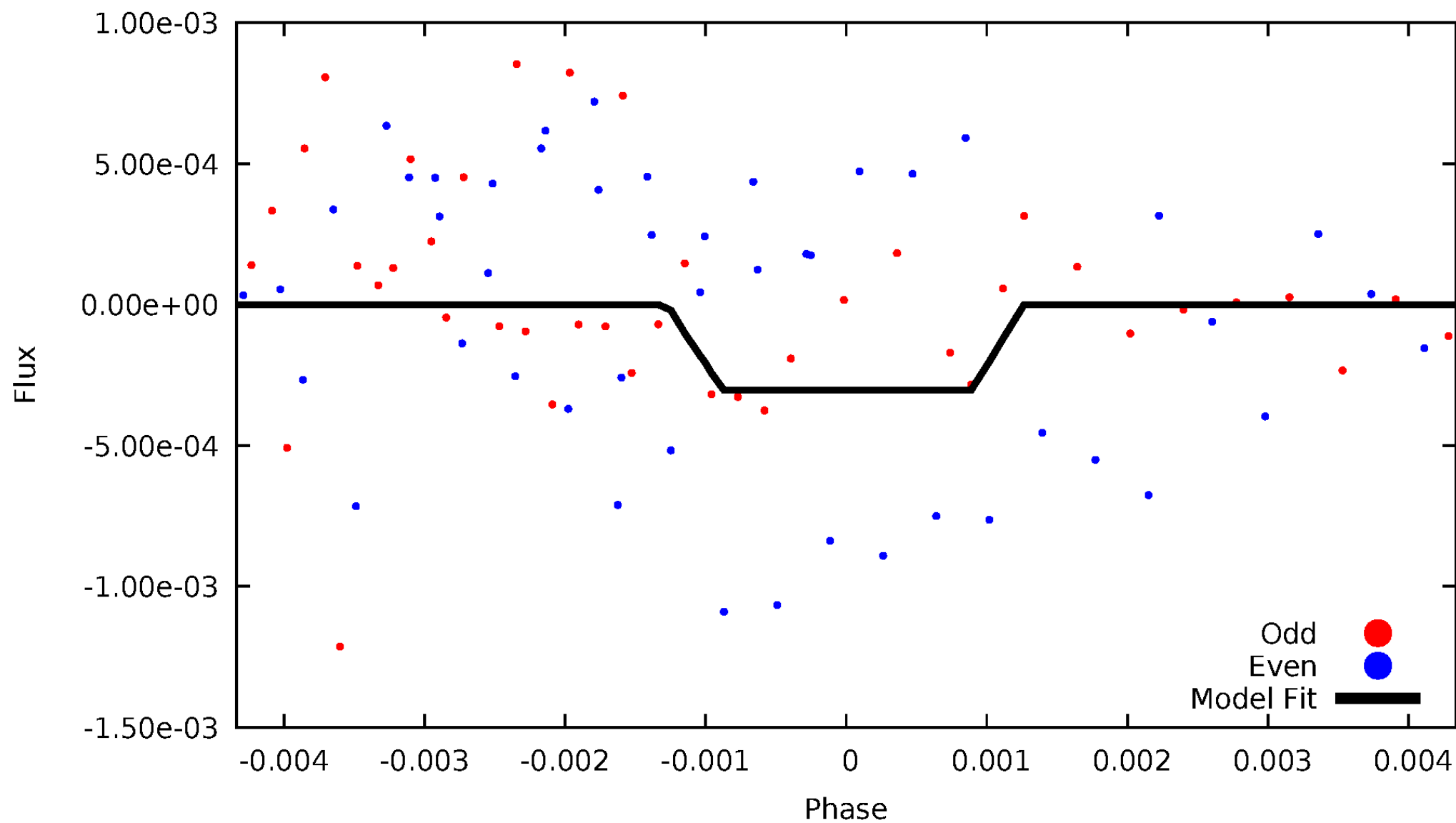
DV Odd/Even

TCE 003972120-02



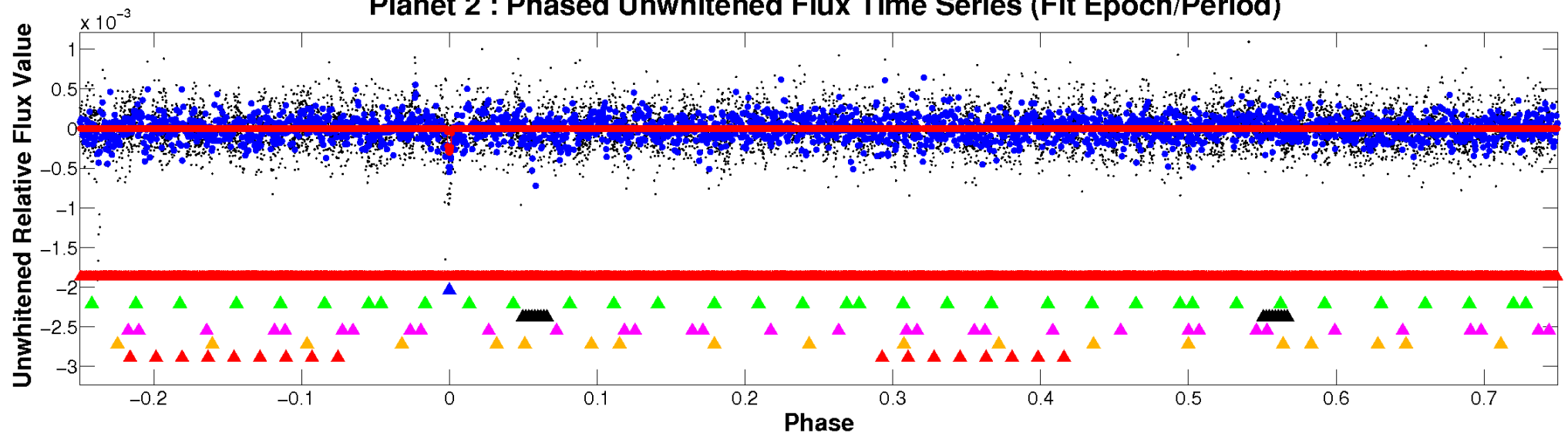
ALT Odd/Even

TCE 003972120-02

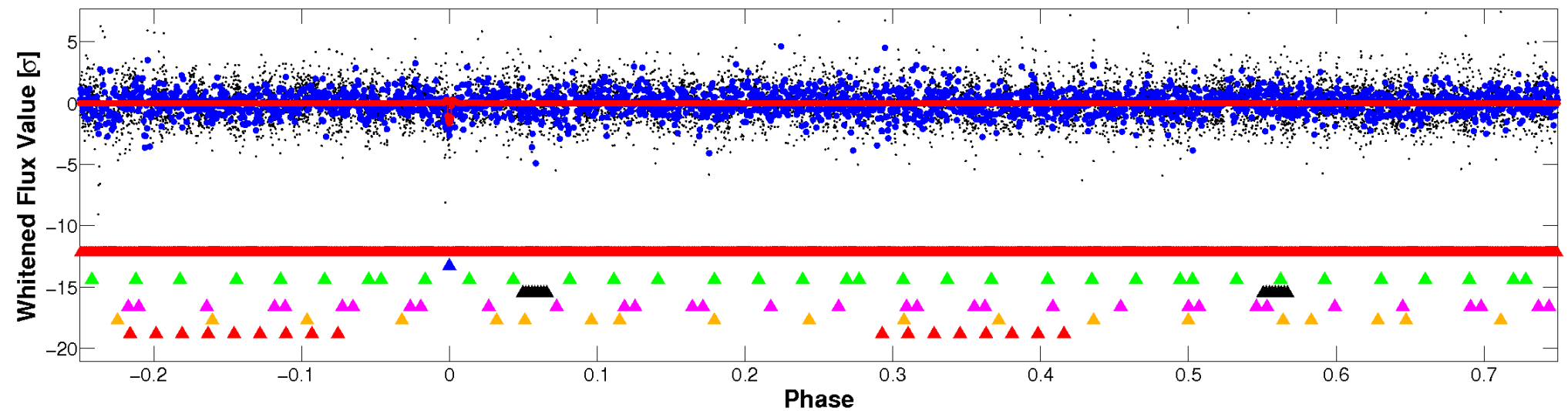


Non-Whitened Vs. Whitened Light Curve

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

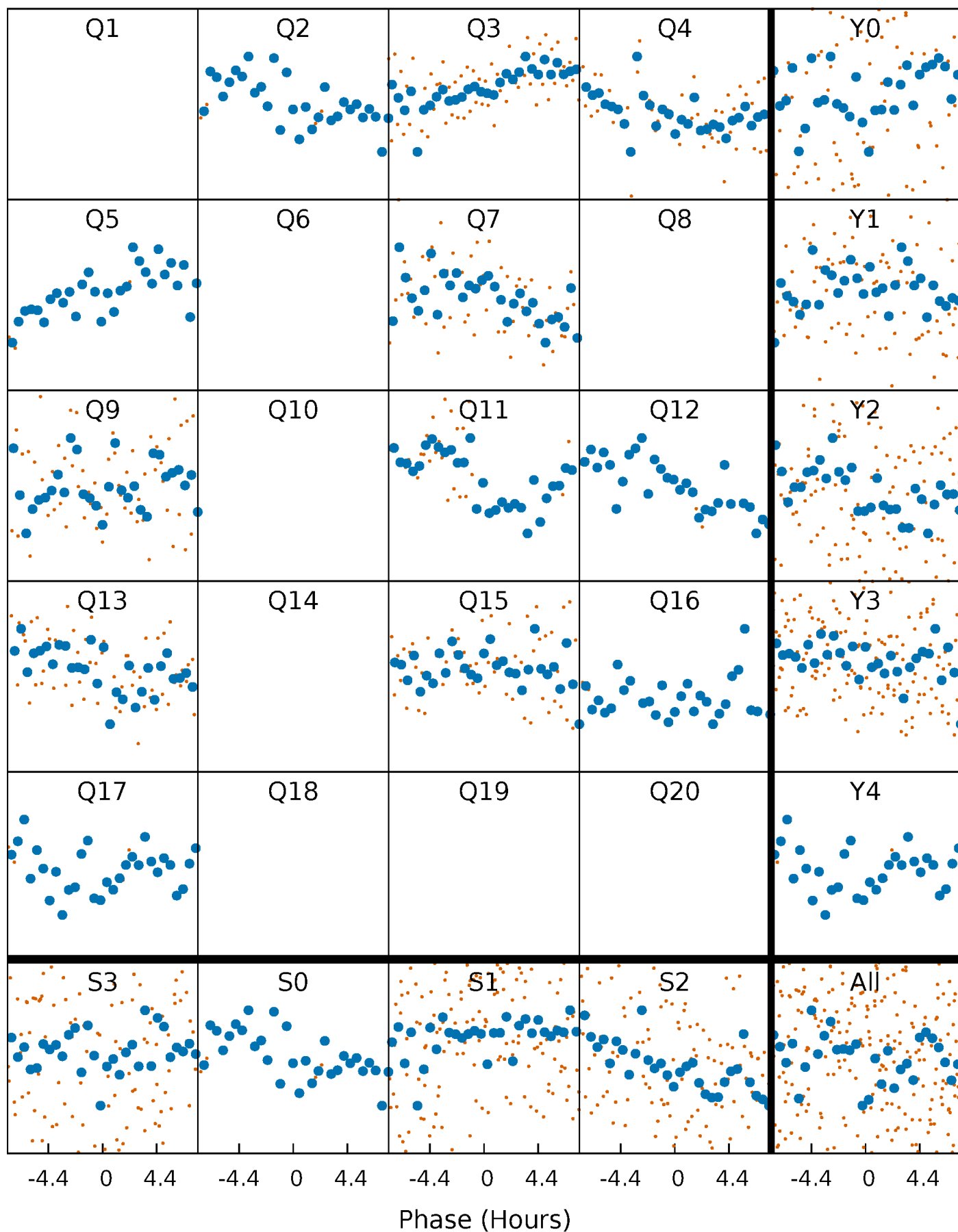


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



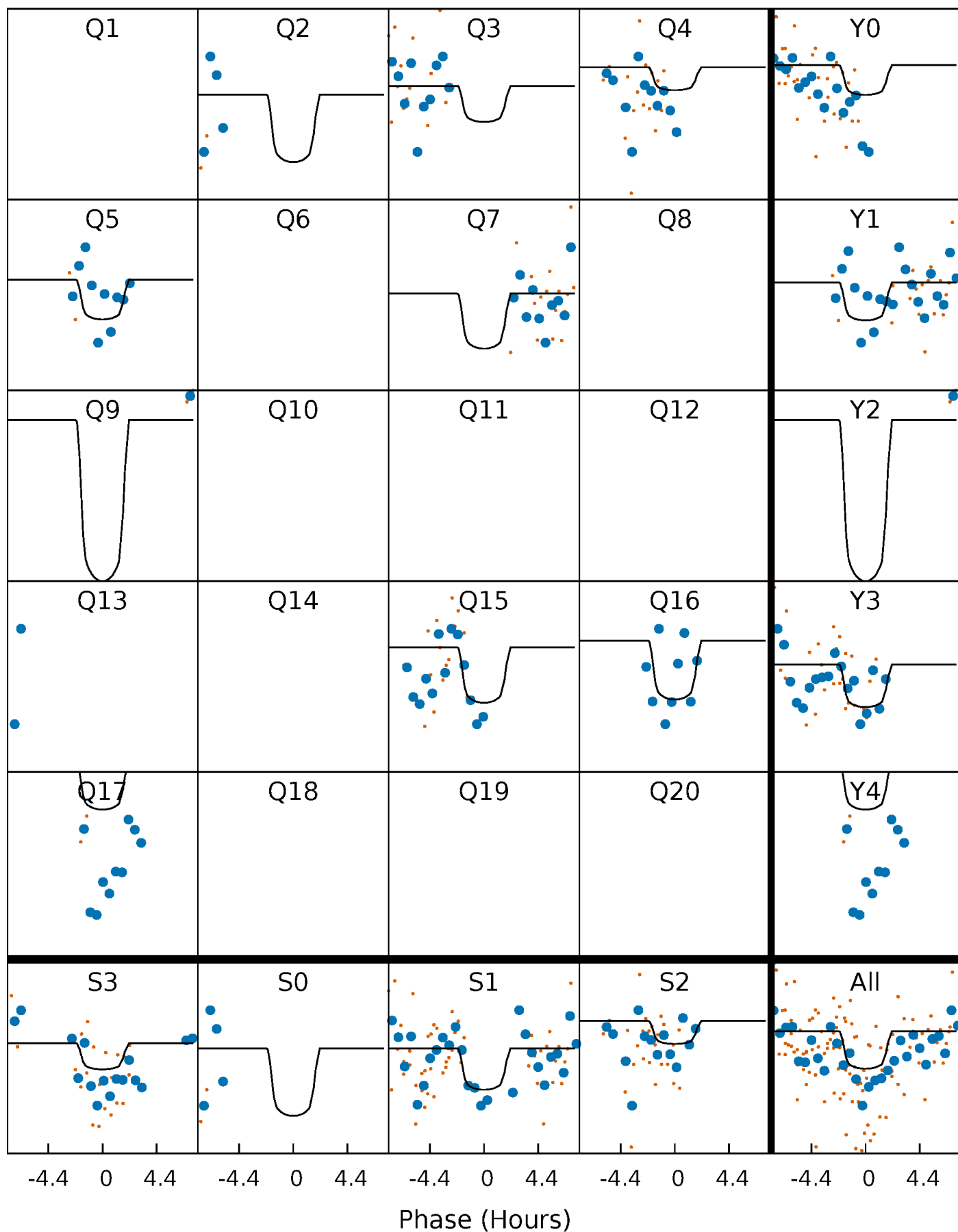
PDC Quarter-Phased Transit Curves

TCE 003972120-02 P= 54.157263 Days $T_0=165.800614$ (BKJD)



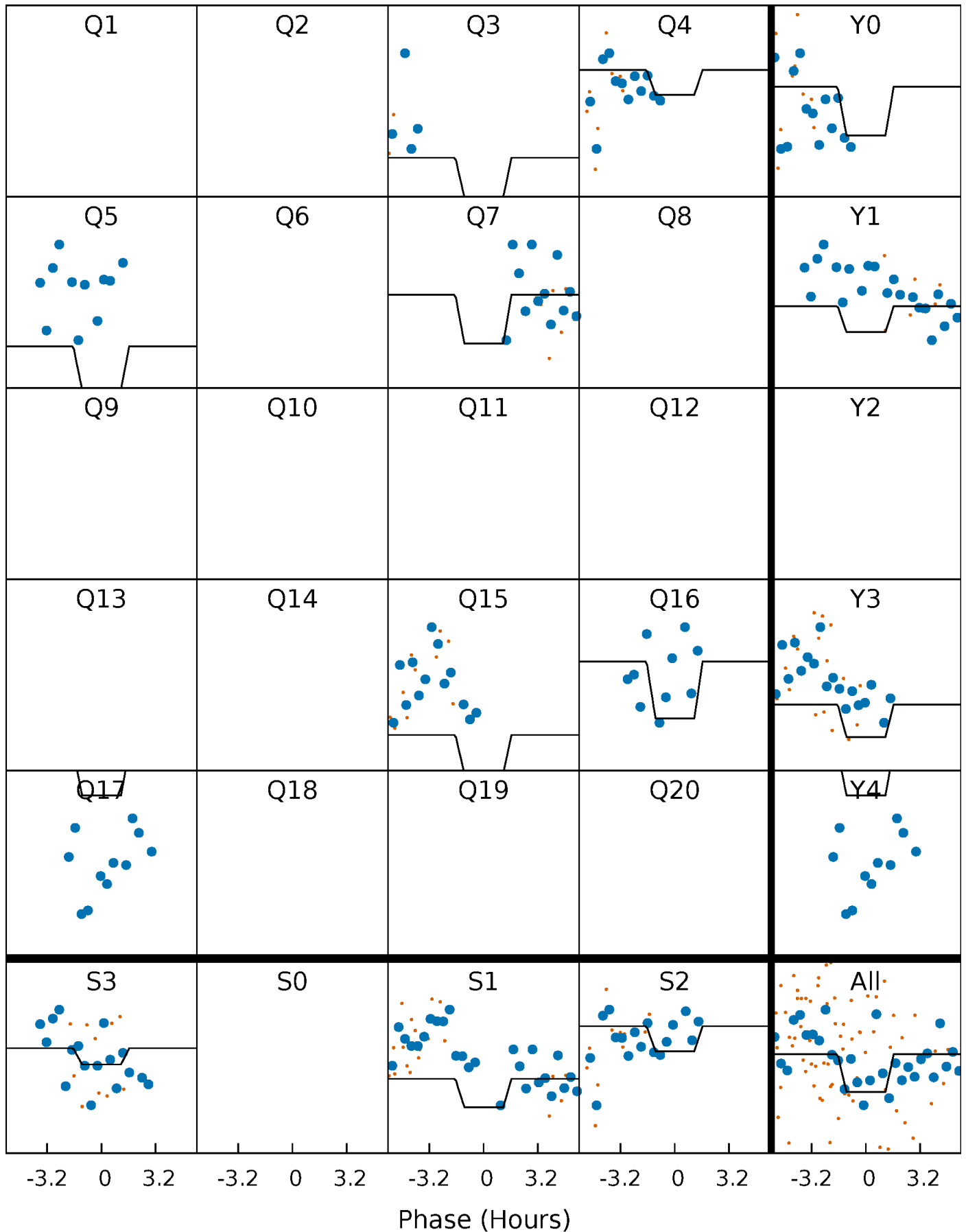
DV Quarter-Phased Transit Curves

TCE 003972120-02 P= 54.157263 Days $T_0=165.800614$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

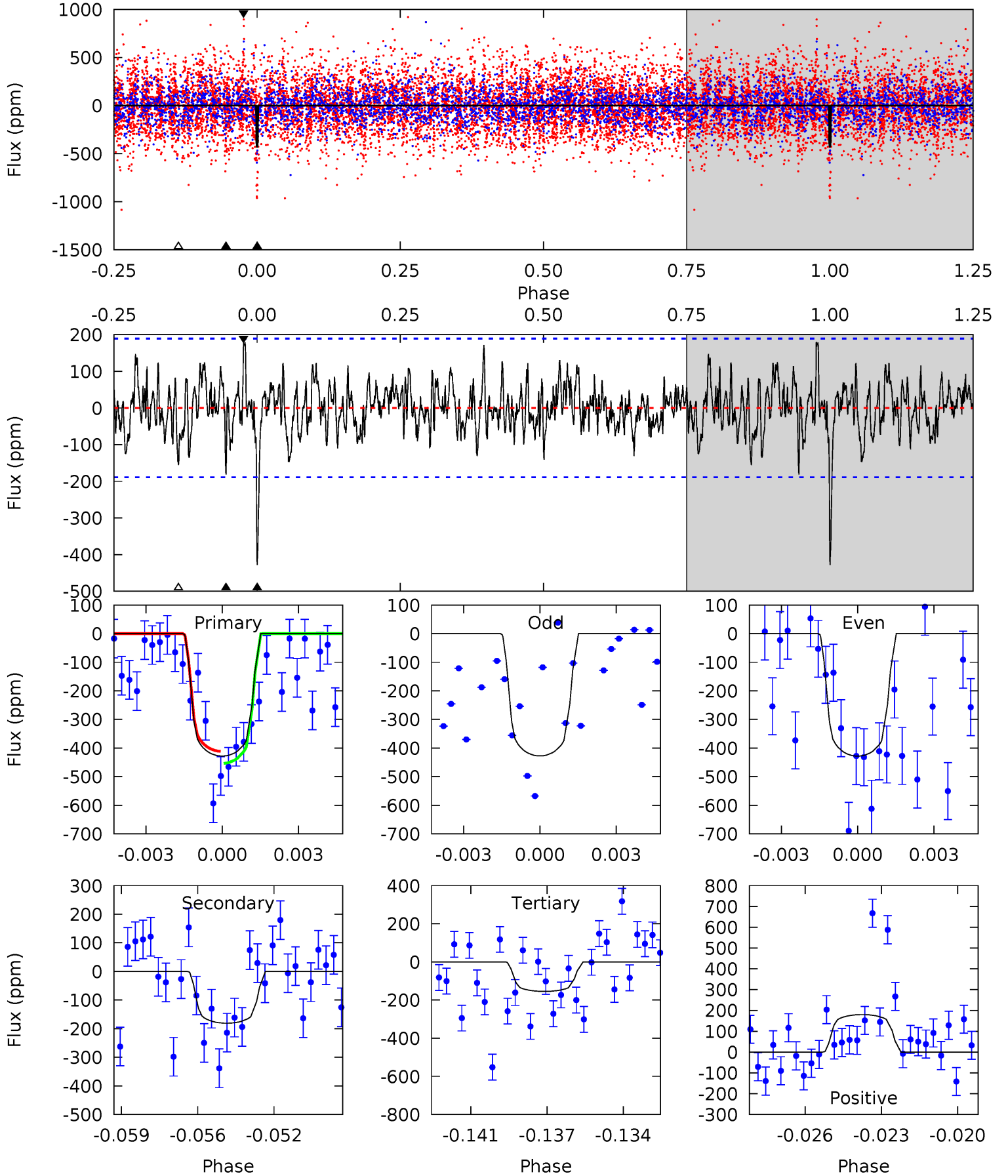
TCE 003972120-02 P= 54.155653 Days $T_0=165.856635$ (BKJD)



DV Model-Shift Uniqueness Test

003972120-02, P = 54.157263 Days, E = 111.643351 Days

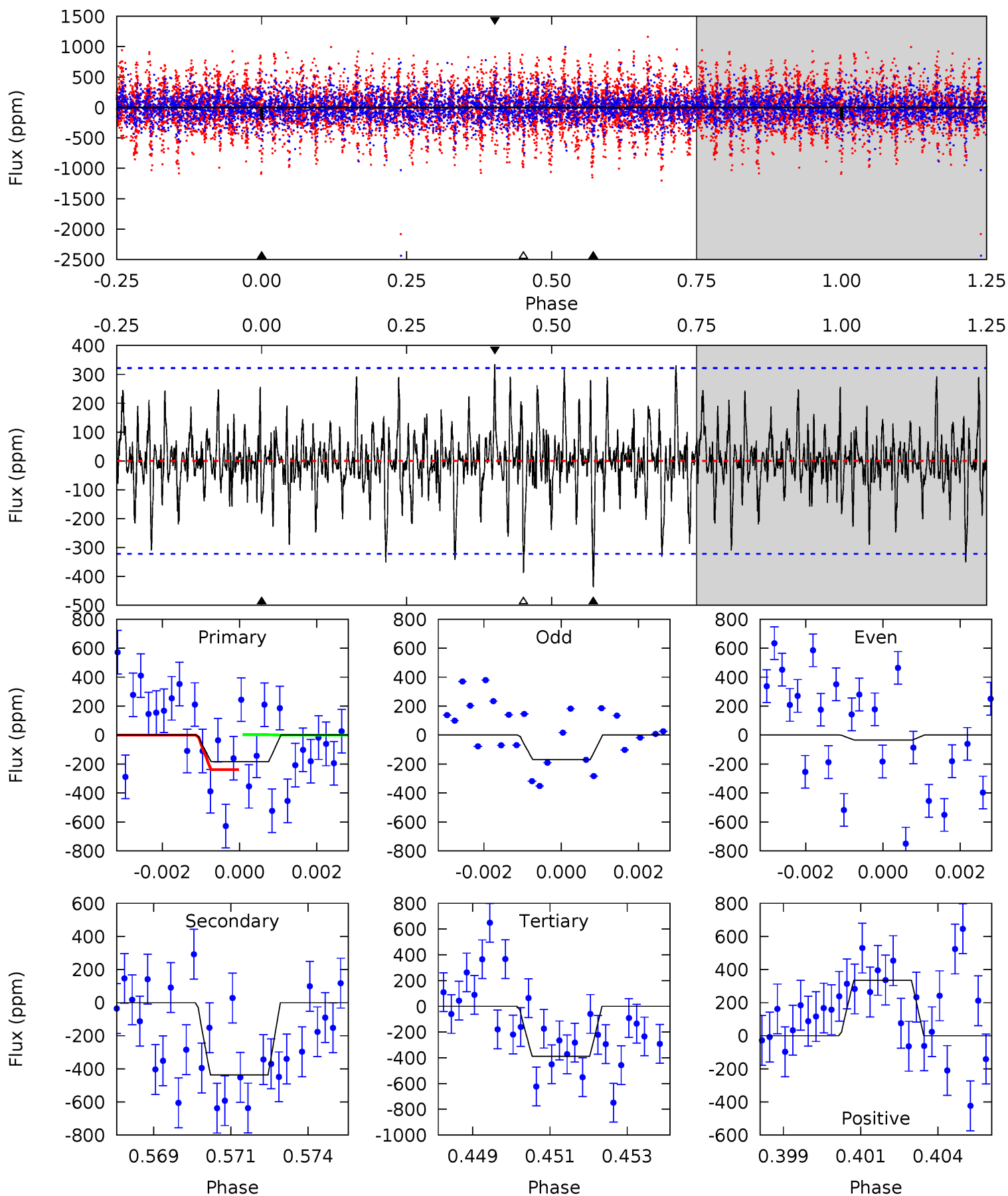
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	5.01	4.28	4.98	5.24	2.94	1.46	7.56	6.86	0.73	0.03	0.01	1.59	0.30	0.56



Alt Model-Shift Uniqueness Test

003972120-02, P = 54.155653 Days, E = 111.700982 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.02	7.19	6.38	5.52	5.30	3.04	1.65	-3.36	-2.50	0.81	1.68	1.01	2.07	0.43	1.81



Stellar Parameters For KIC 003972120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-181 ± 36	$2.87^{+1.72}_{-1.52}$	912^{+68}_{-53}	5776^{+3072}_{-1063}	1077^{+3766}_{-650}
Alt.	-437 ± 61	$2.68^{+1.59}_{-1.51}$	916^{+68}_{-56}	7536^{+6041}_{-1623}	2941^{+12489}_{-1771}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

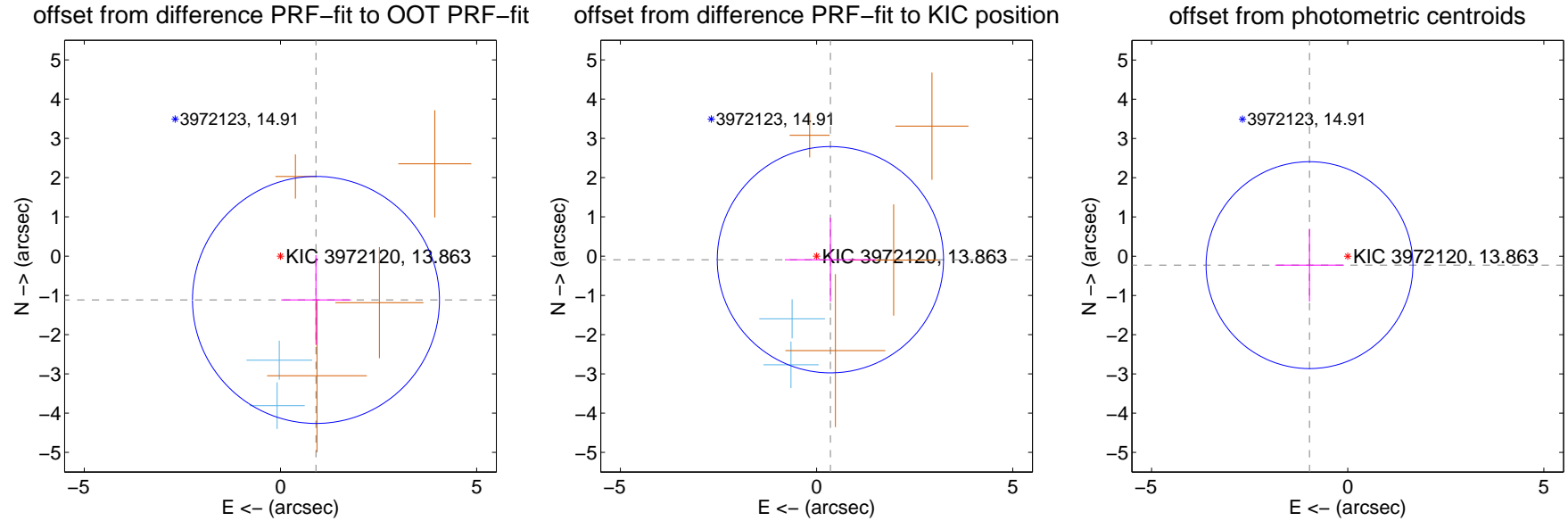
DV Centroid Data

Supplemental centroid analysis for 003972120-02. Kepler magnitude: 13.86. Transit SNR 8.15

There are 2 quarters with good PRF difference image offsets

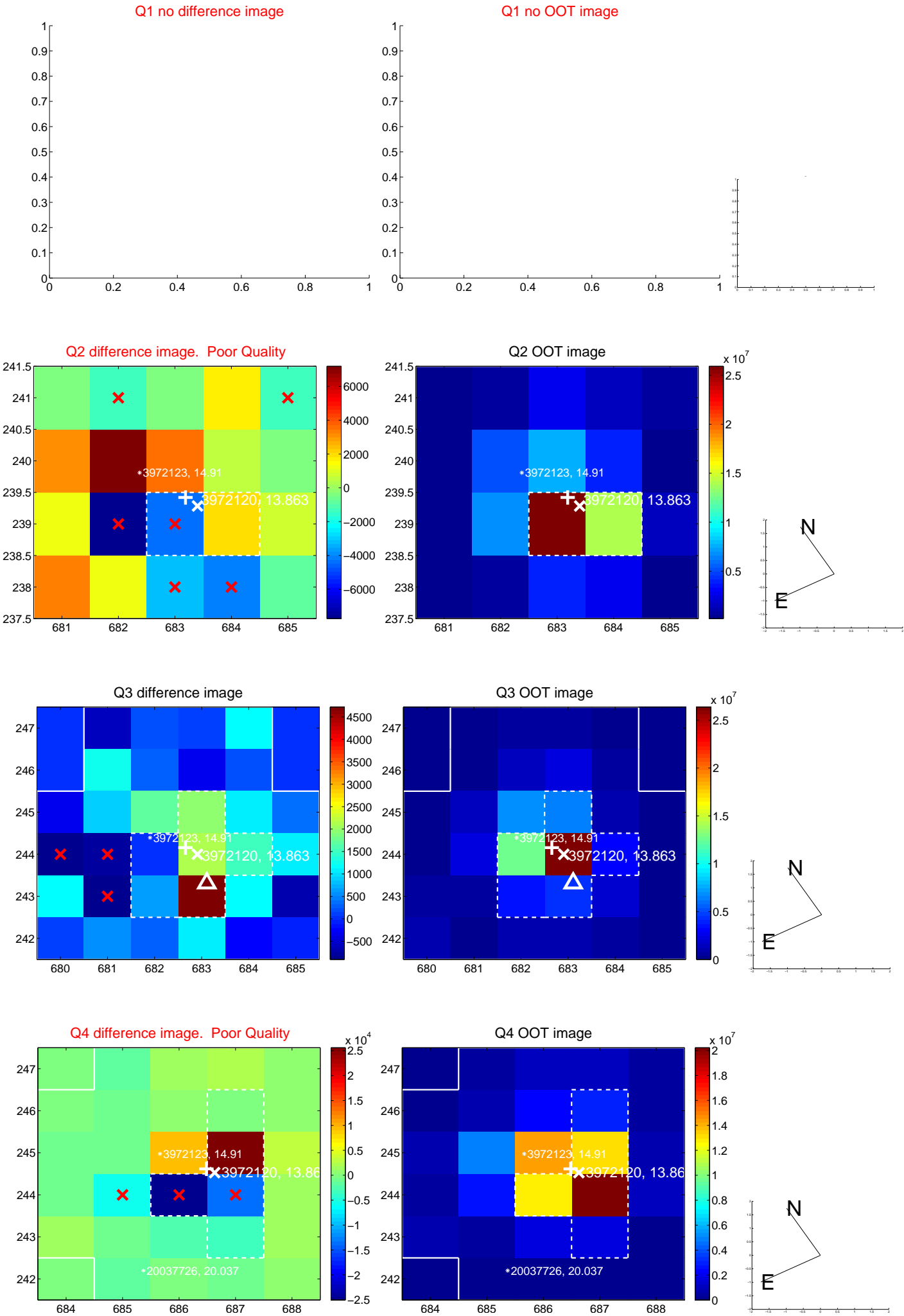
The direct PRF centroid is offset from the target star catalog position by about 1.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.437 ± 1.049	1.37	-0.905 ± 0.886	-1.116 ± 1.144
PRF-fit source offset from KIC position	0.364 ± 0.961	0.38	-0.352 ± 1.161	-0.091 ± 1.069
photometric centroid source offset	1.00 ± 0.88	1.14	0.97 ± 0.88	-0.23 ± 0.93

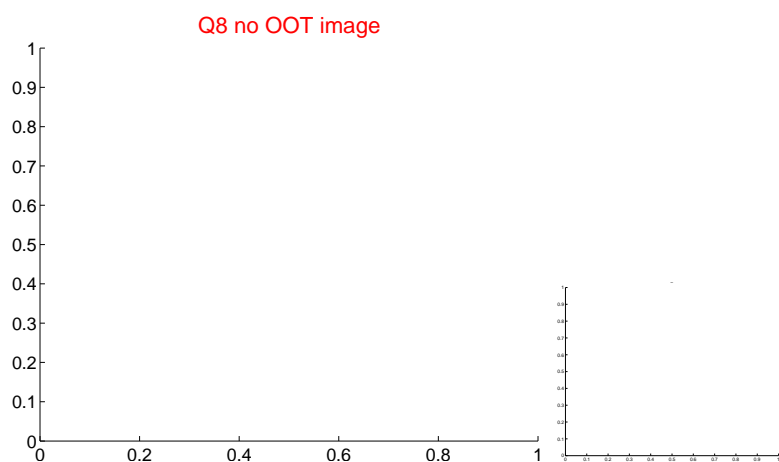
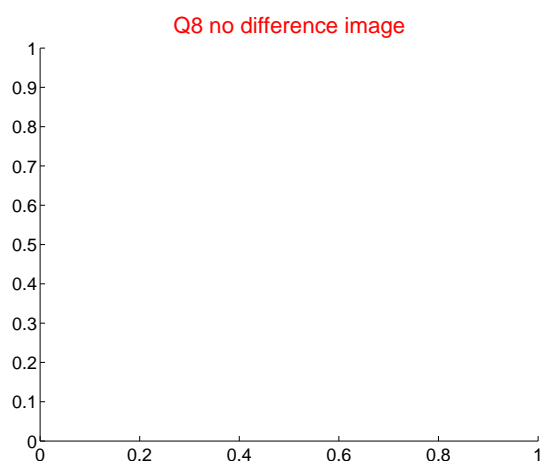
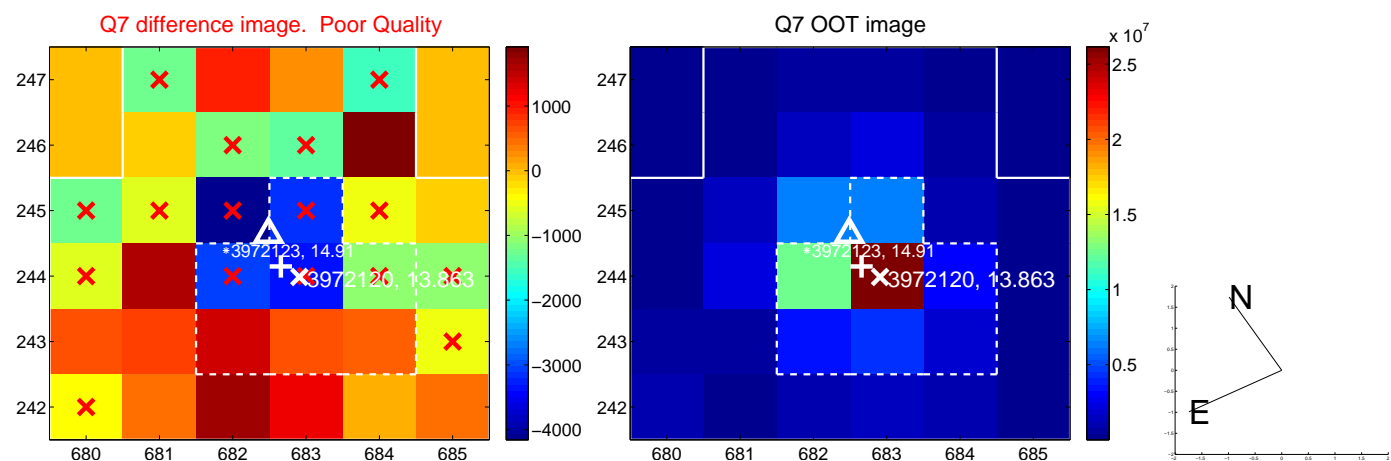
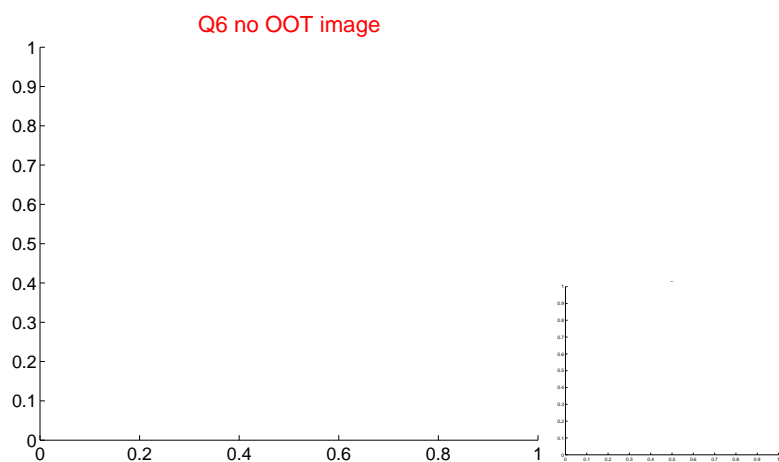
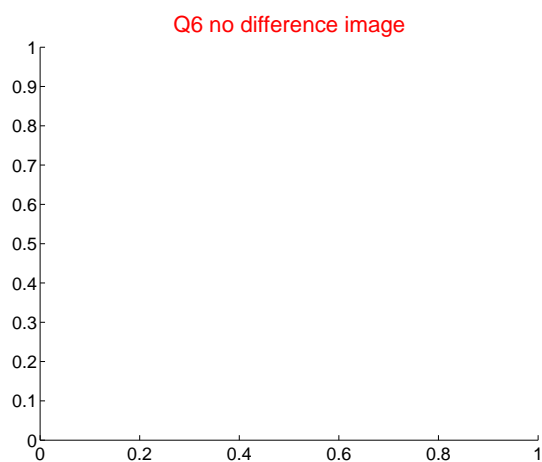
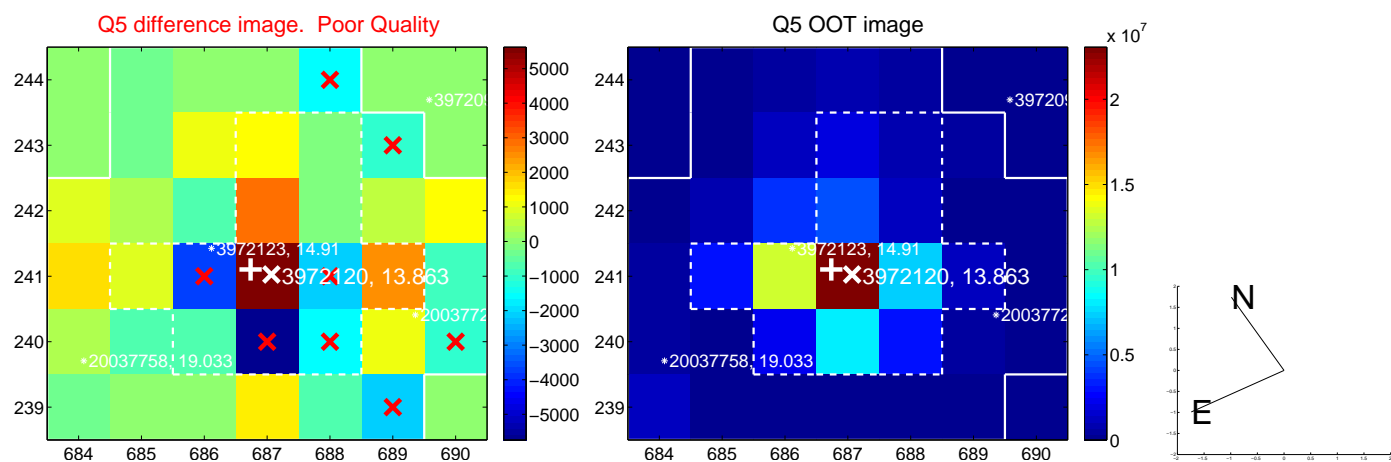


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

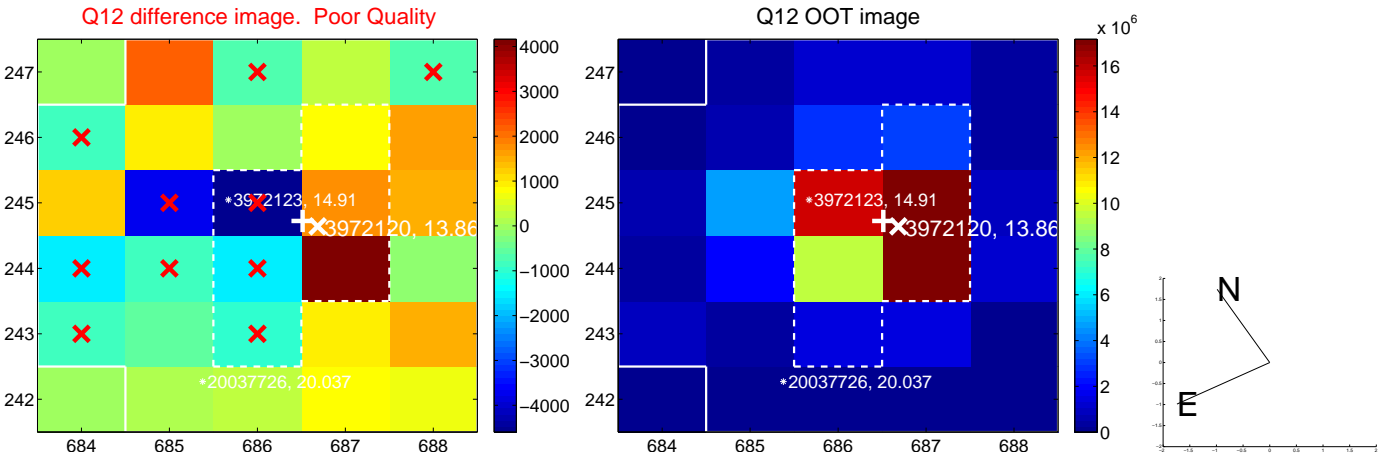
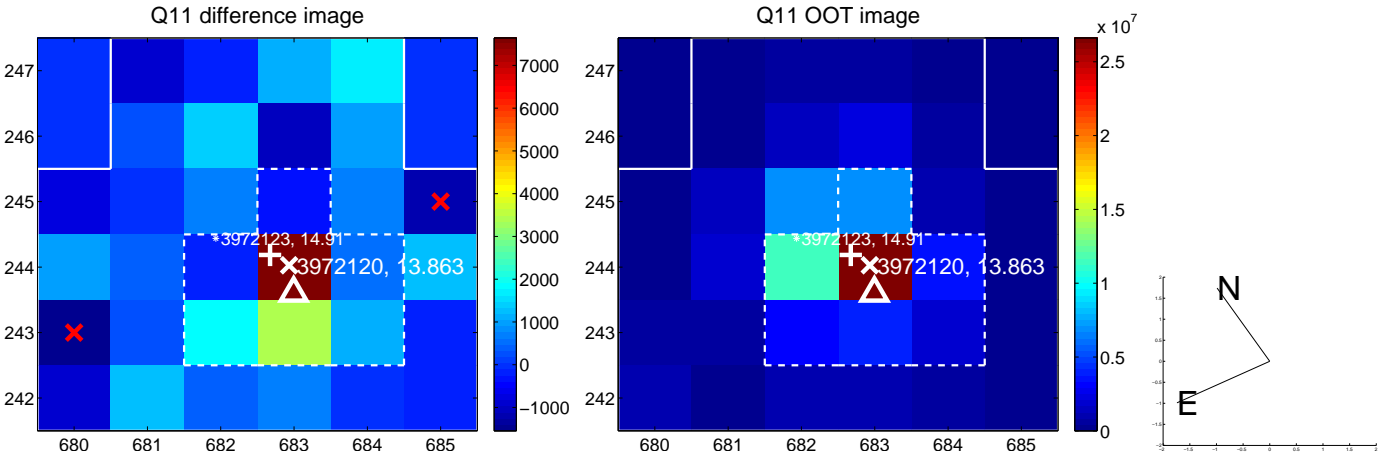
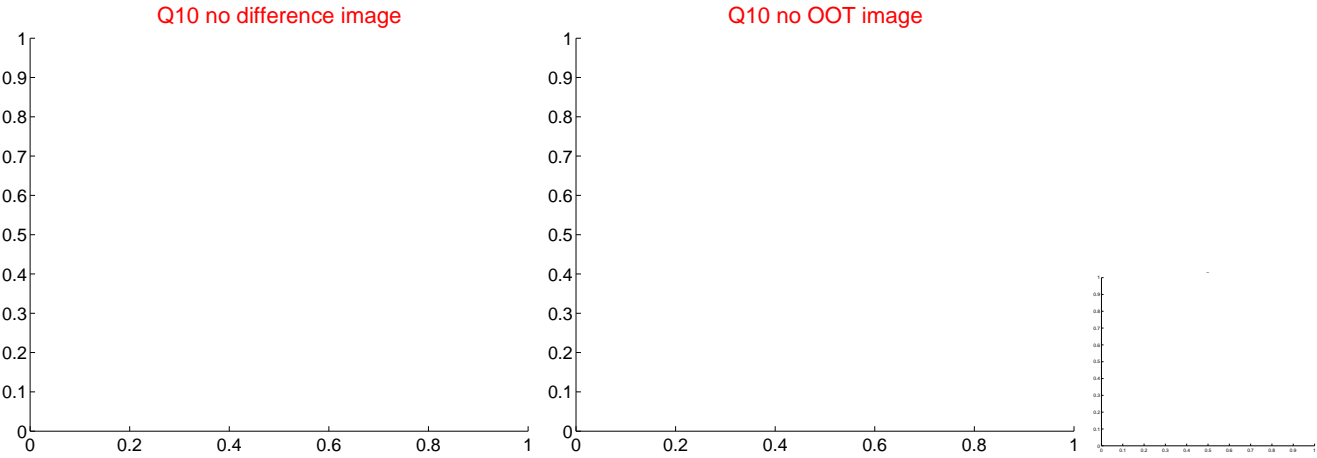
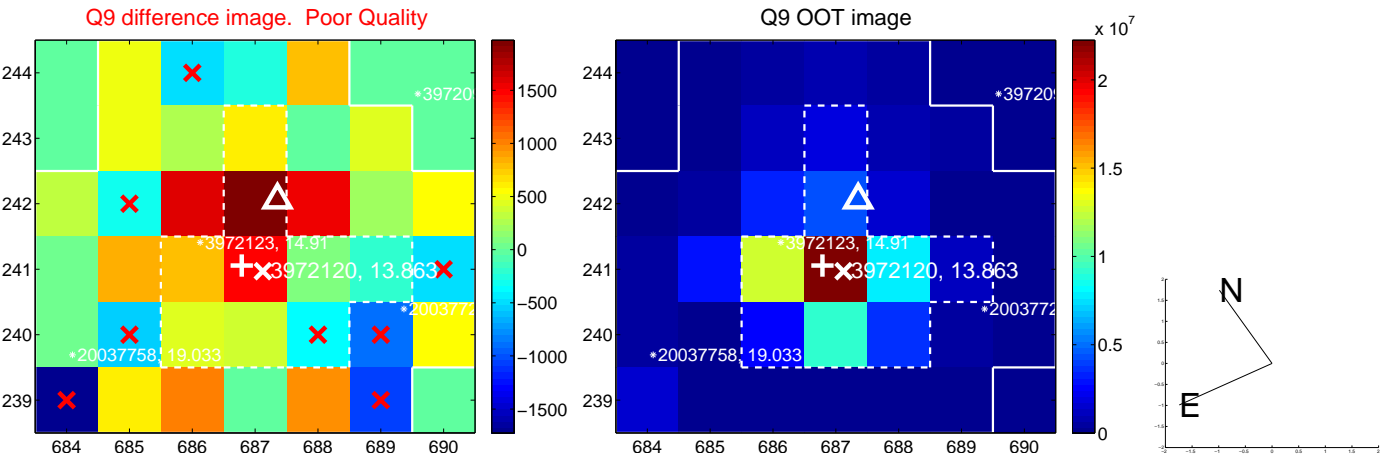
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



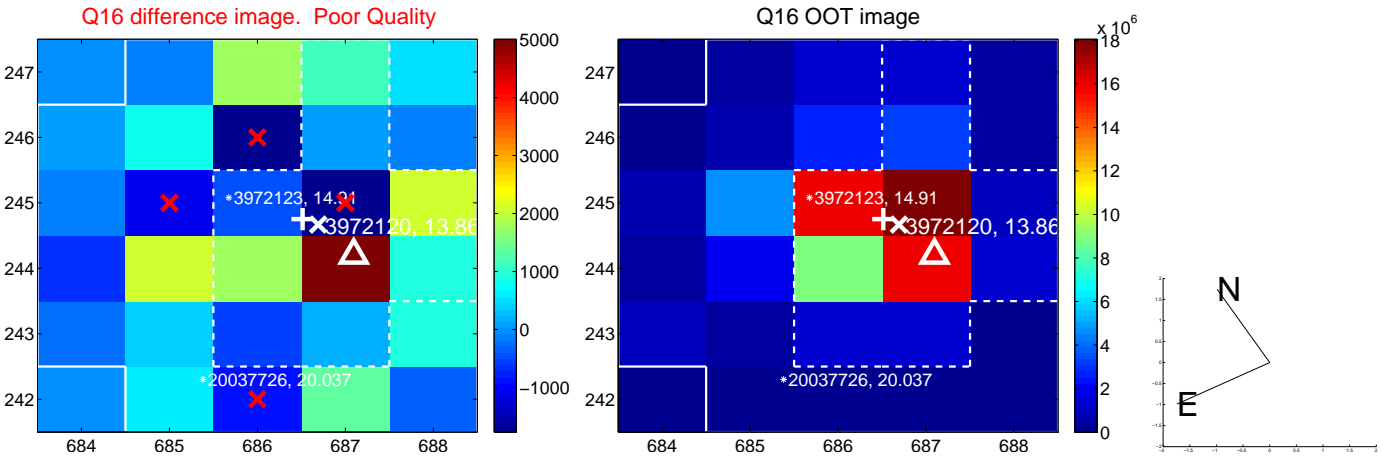
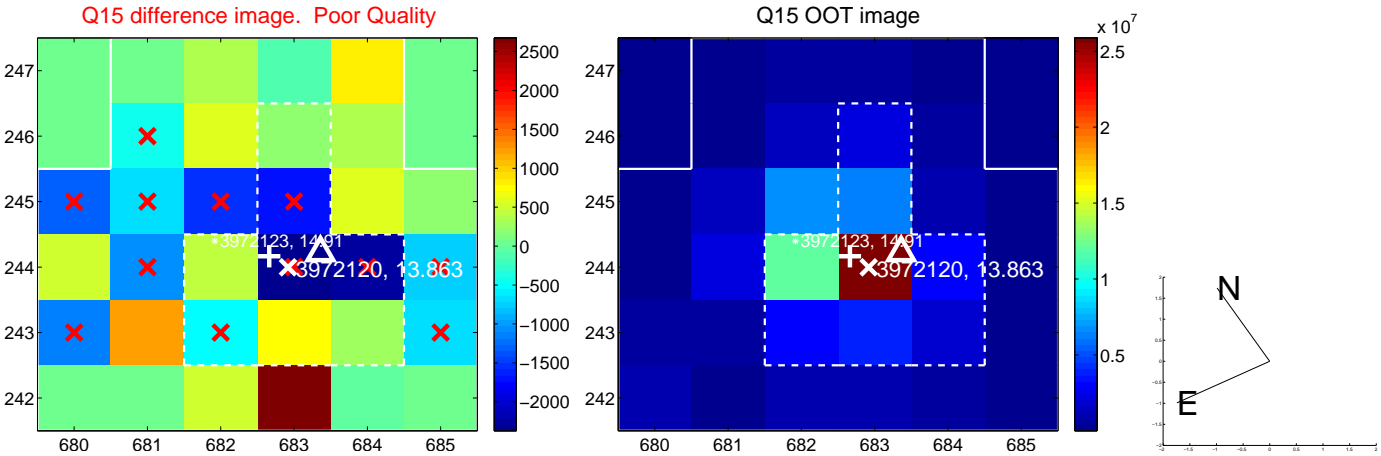
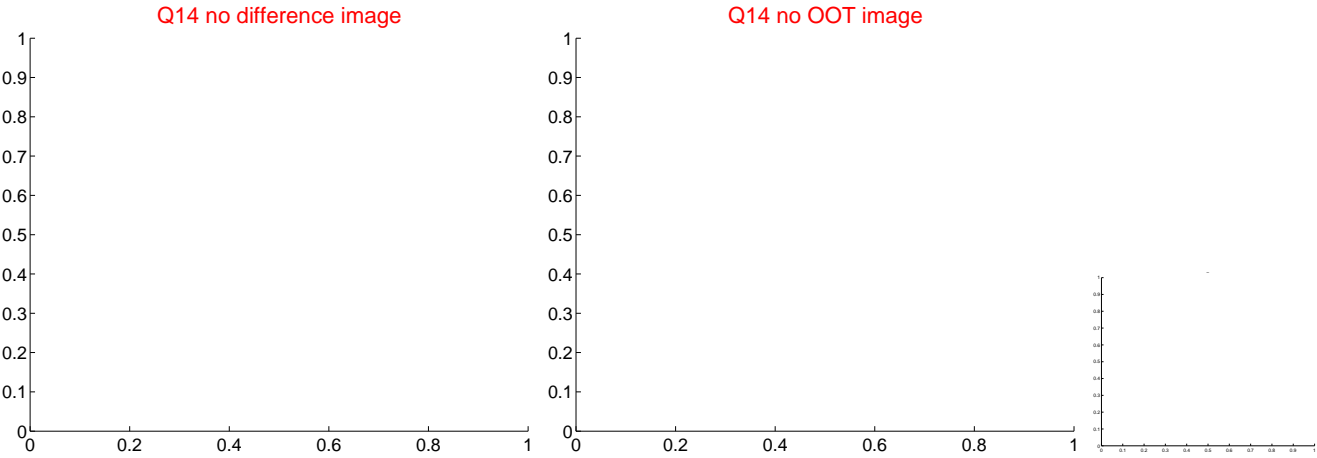
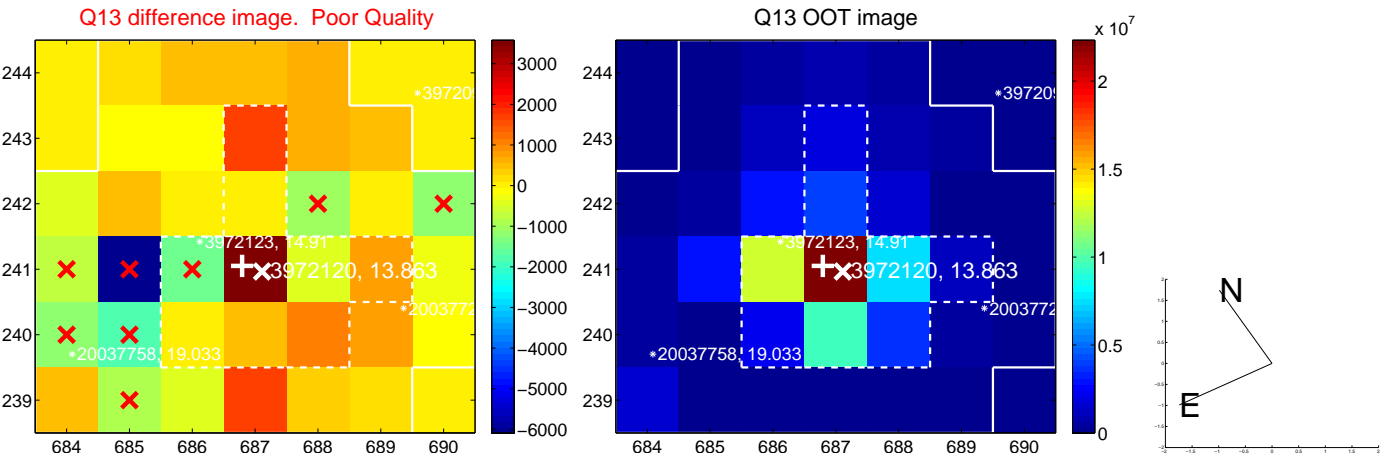
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



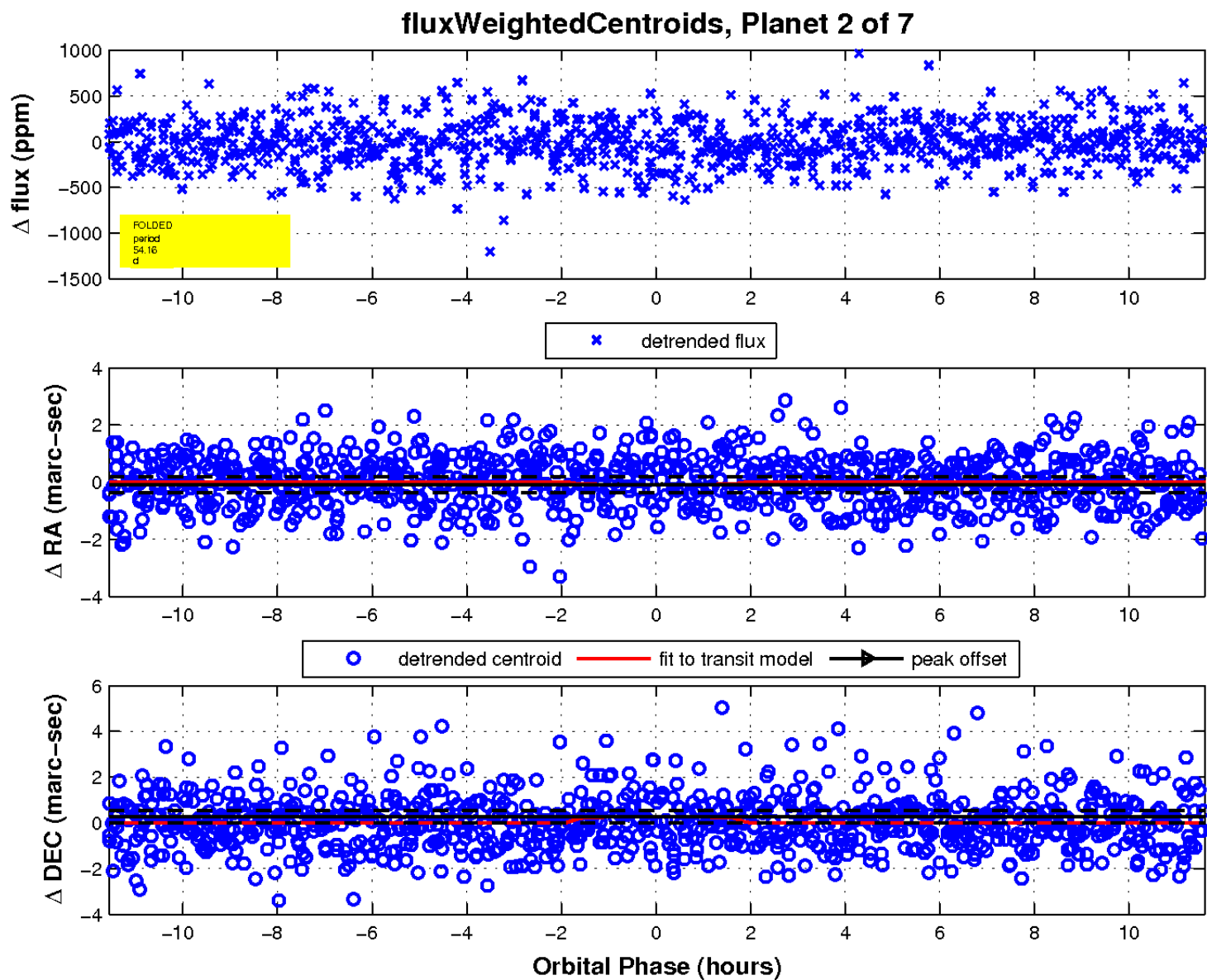
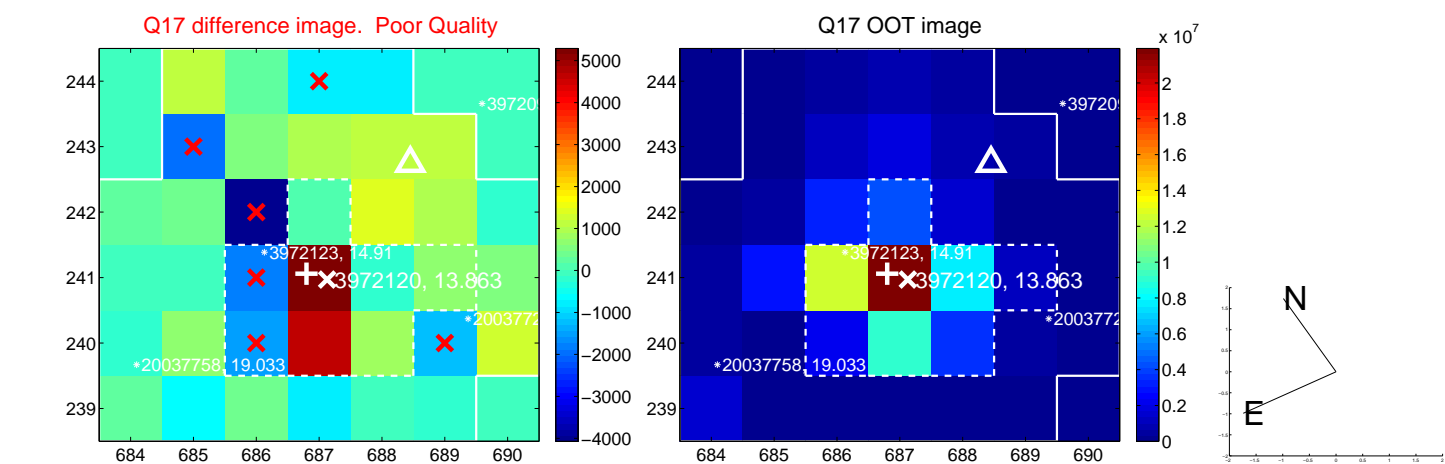
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

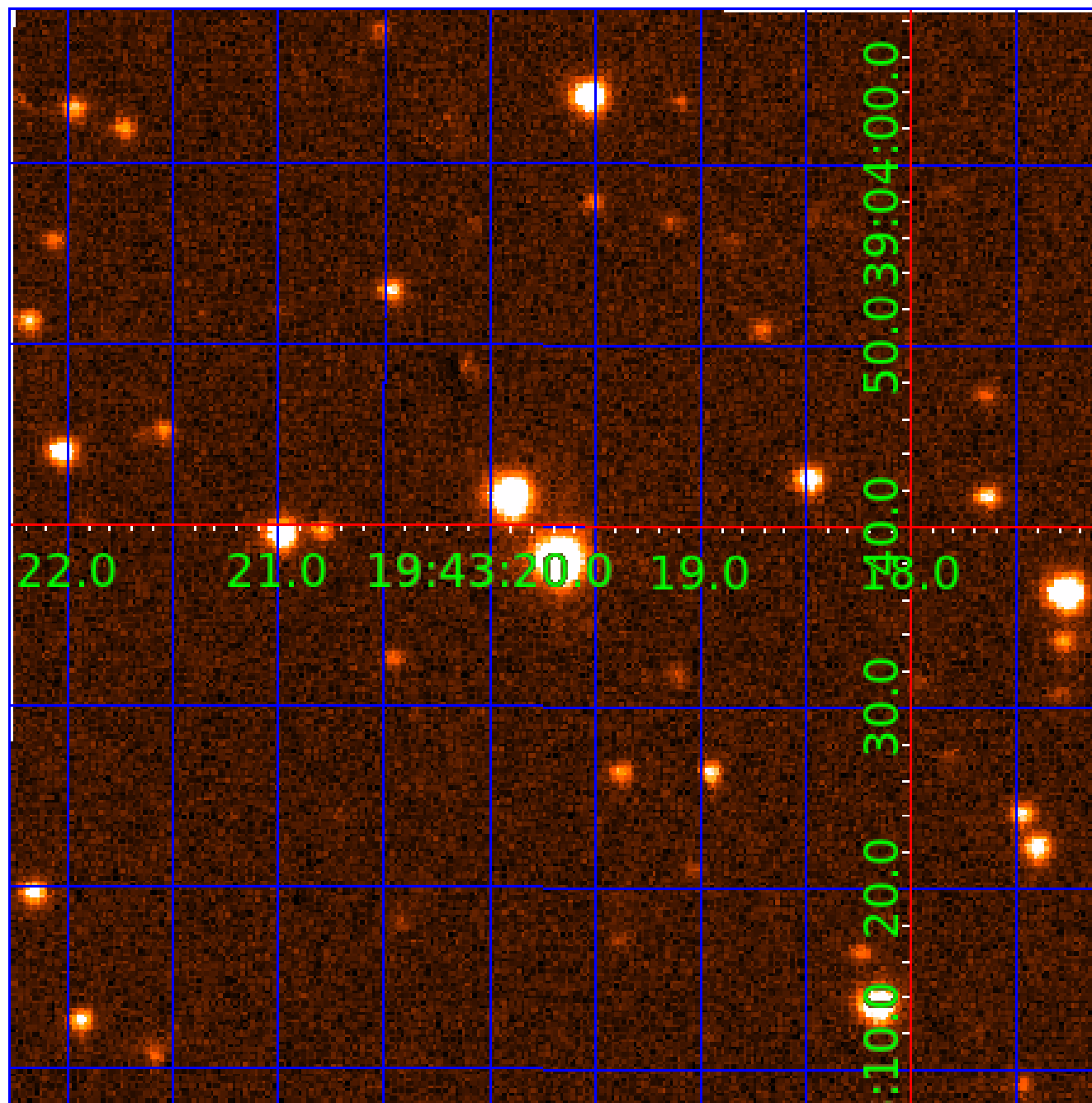


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

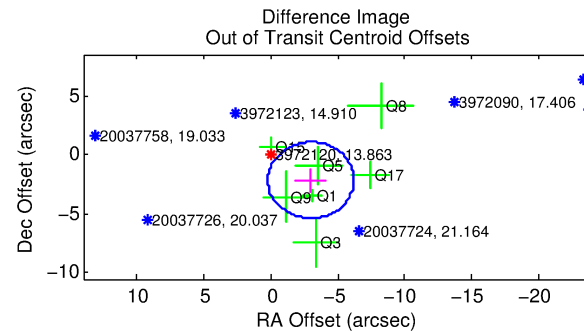
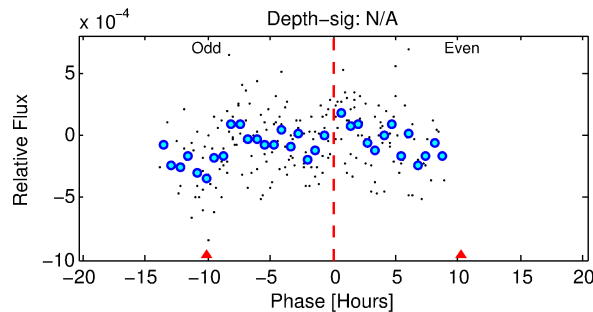
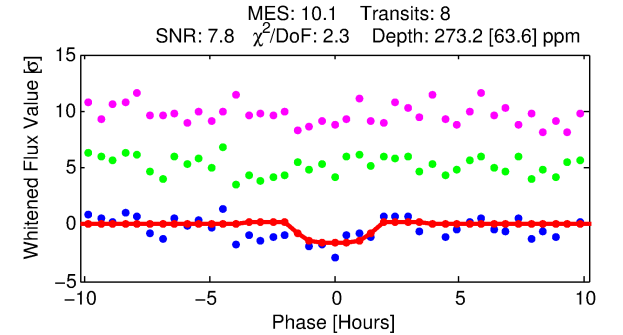
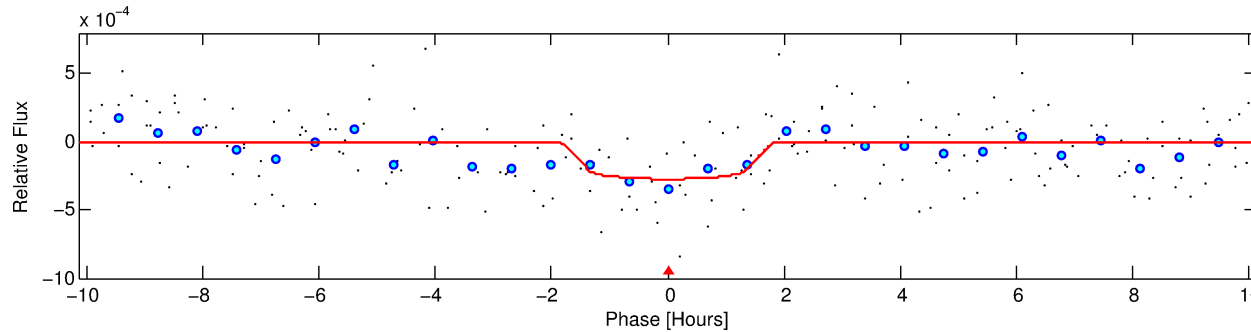
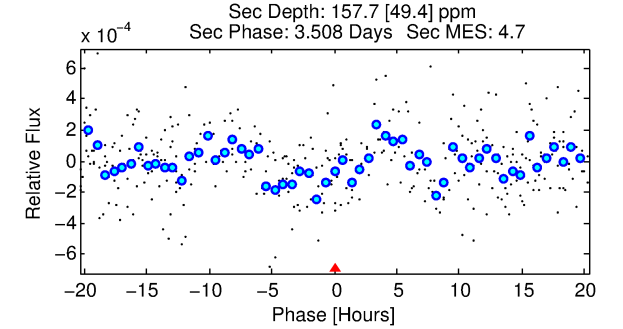
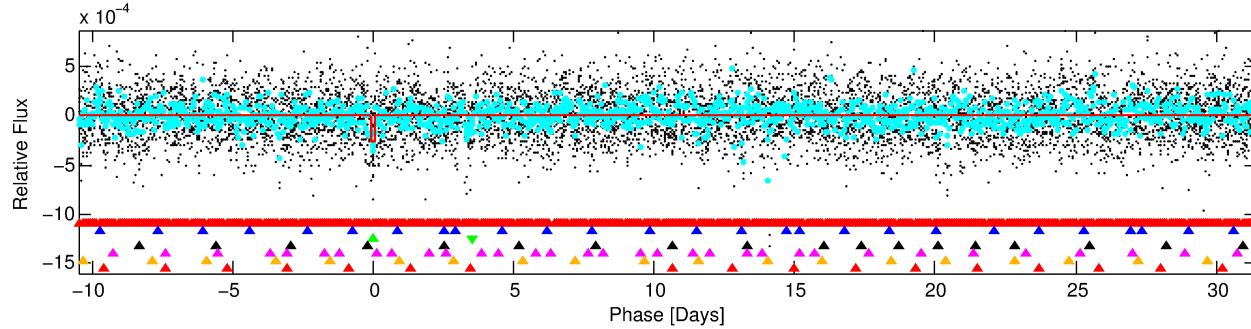
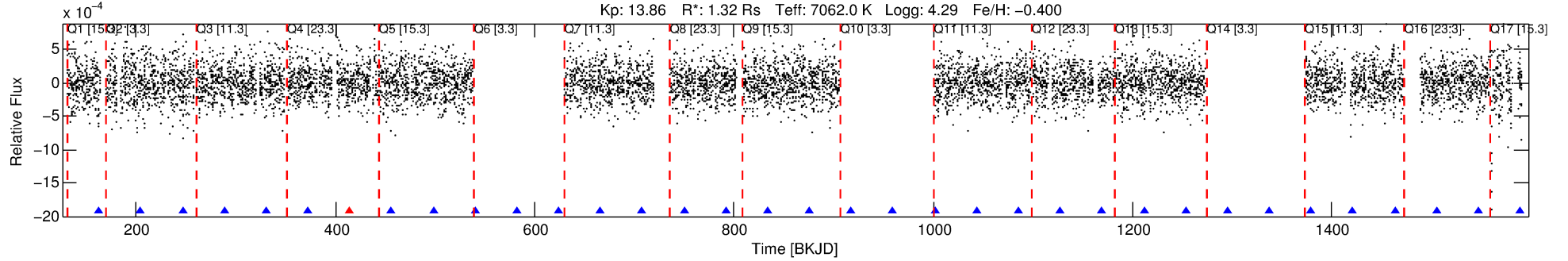
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-03

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 3 of 7 Period: 41.943 d



DV Fit Results:

Period = 41.94282 [0.00079] d
Epoch = 162.8456 [0.0108] BKJD
Rp/R* = 0.0172 [0.0164]
a/R* = 50.79 [287.92]
b = 0.86 [1.69]
Seff = 60.03 [23.59]
Teq = 710 [70] K
Rp = 2.47 [2.48] Re
a = 0.2539 [0.0642] AU
Ag = 915.27 [1801.03] [0.51] σ
Teffp = 6036 [2931] K [1.82] σ

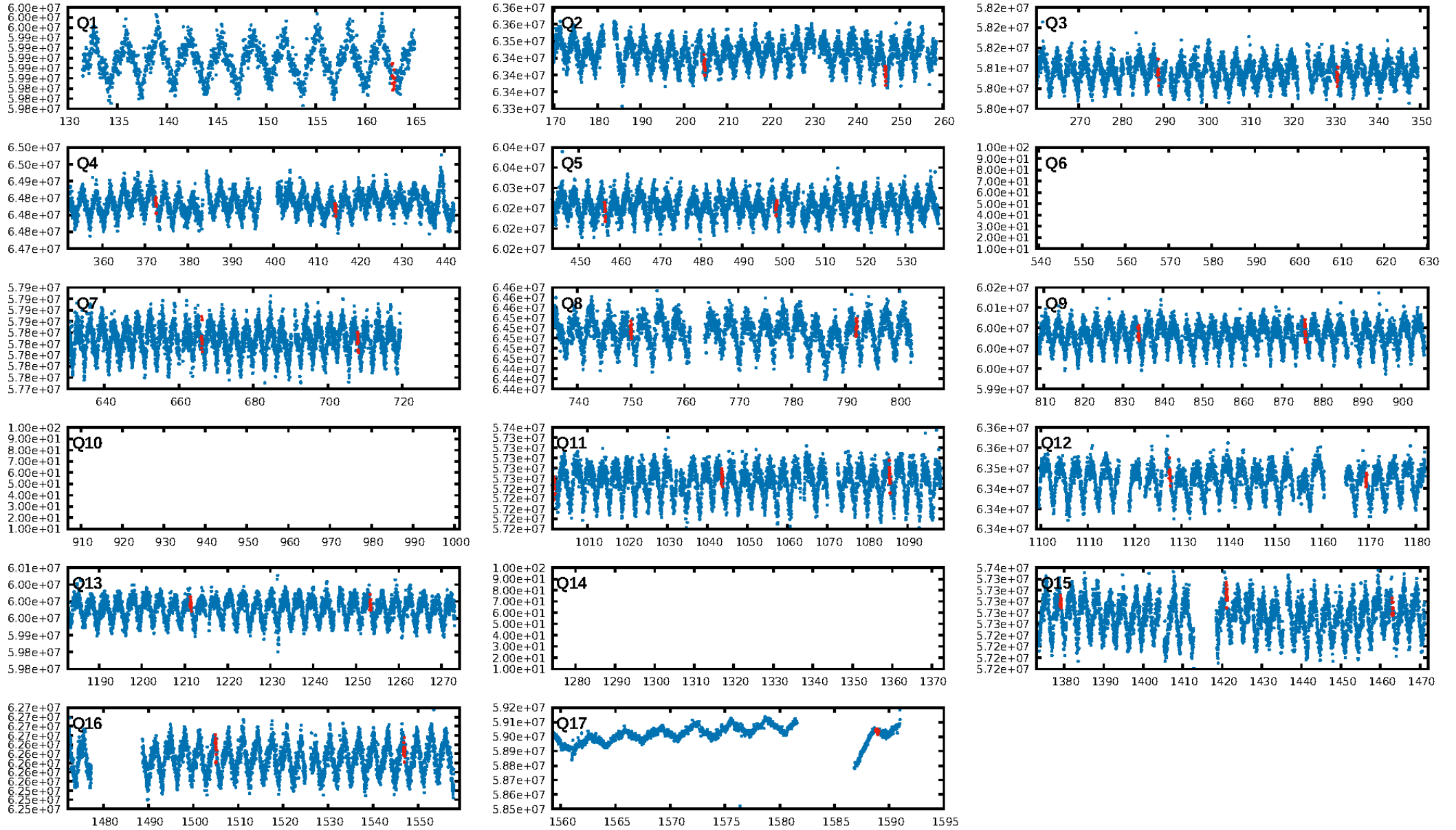
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [108.26] σ
LongPeriod-sig: 100.0% [11.86] σ
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 45.2%
Bootstrap-pfa: 1.16e-14
RollingBand-fgt: 0.86 [6/7]
GhostDiagnostic-chr: -0.5047
Centroid-sig: 73.1%
Centroid-so: 0.820 arcsec [0.99] σ
OotOffset-rm: 3.684 arcsec [3.43] σ
KicOffset-rm: 2.444 arcsec [2.32] σ
OotOffset-st: 0/2/1/4 [7]
KicOffset-st: 0/2/1/4 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.36 [5/14]

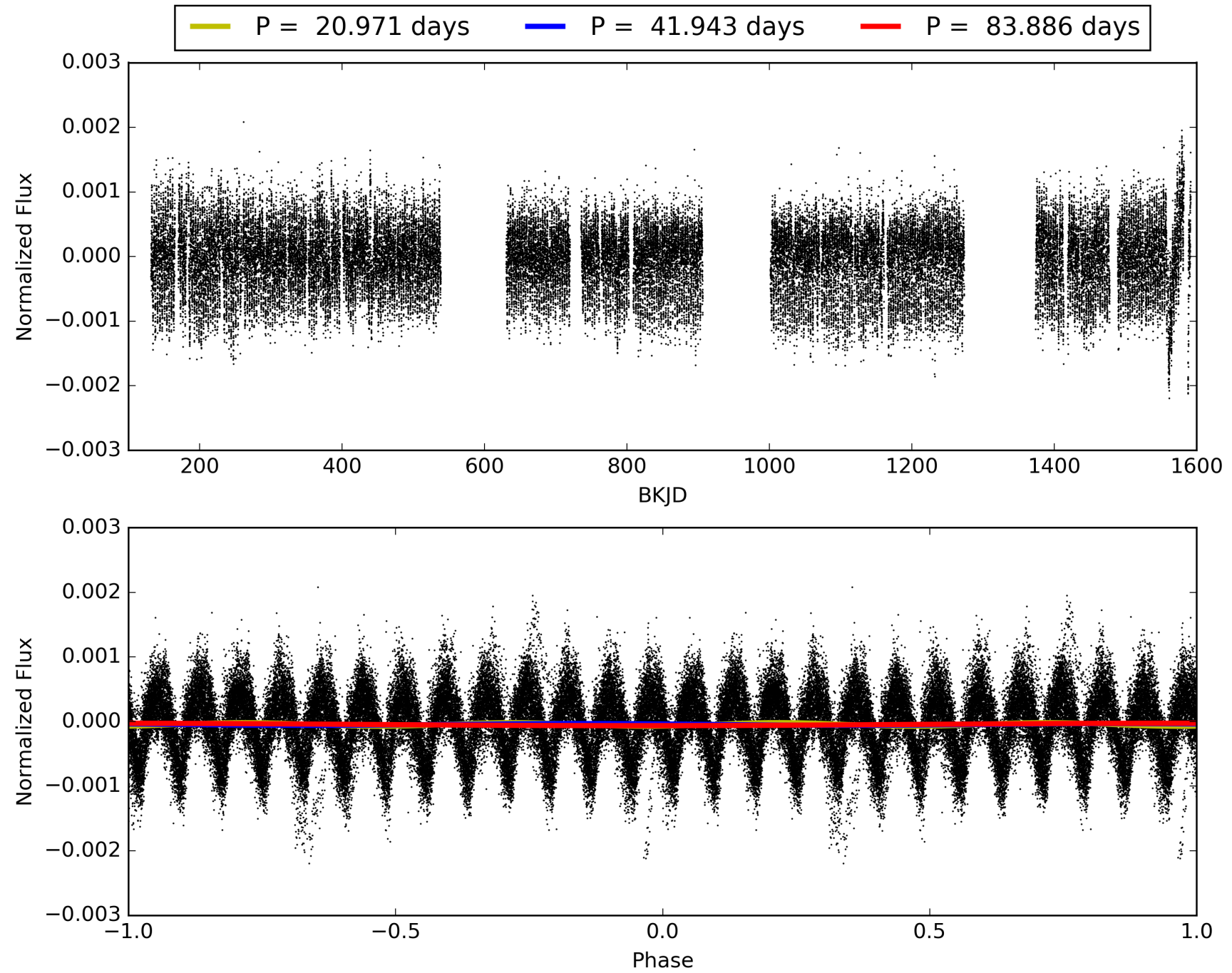
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:13 Z

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

TCE 003972120-03, PDC Light Curves

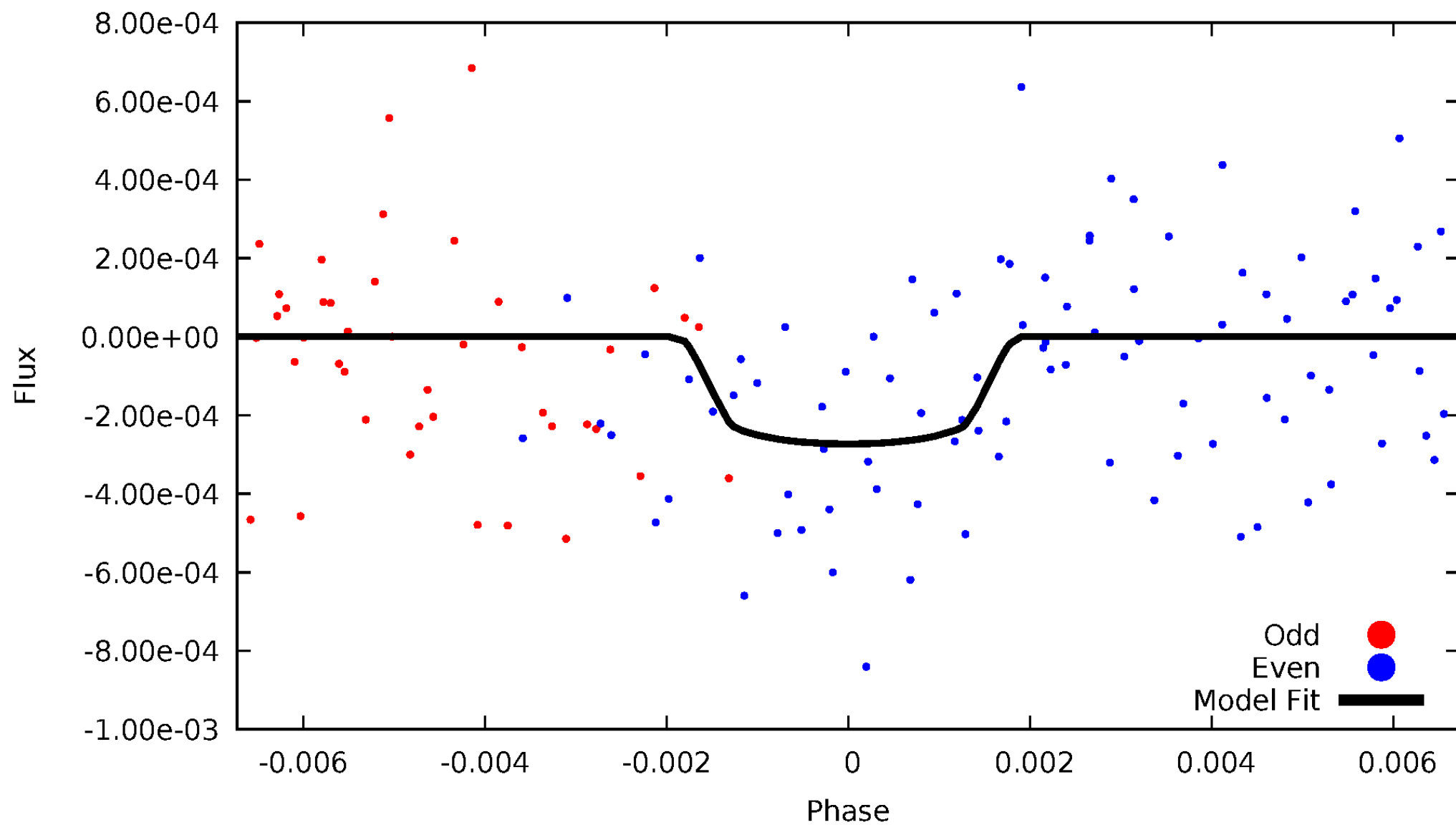


TCE 003972120-03



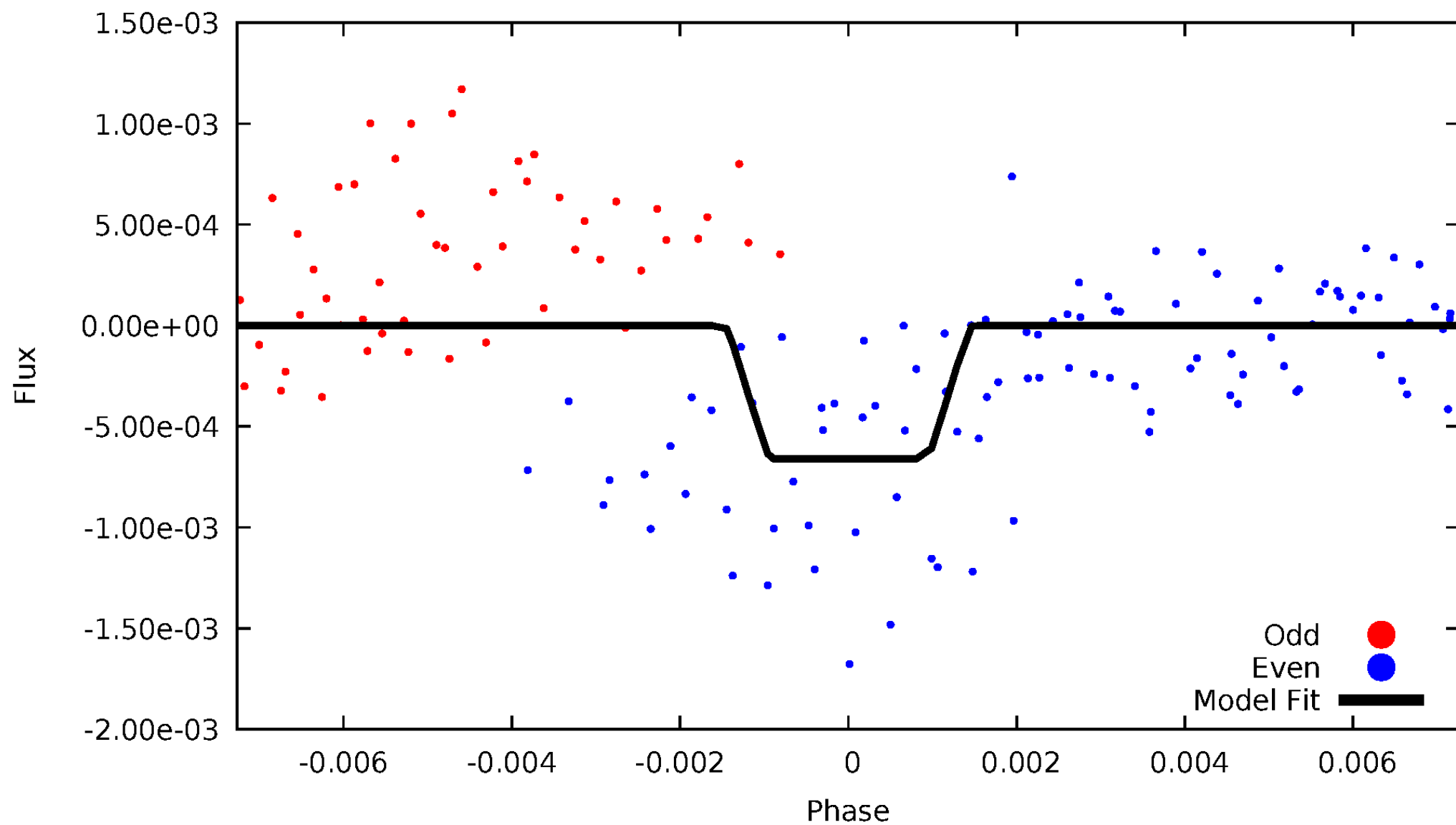
DV Odd/Even

TCE 003972120-03



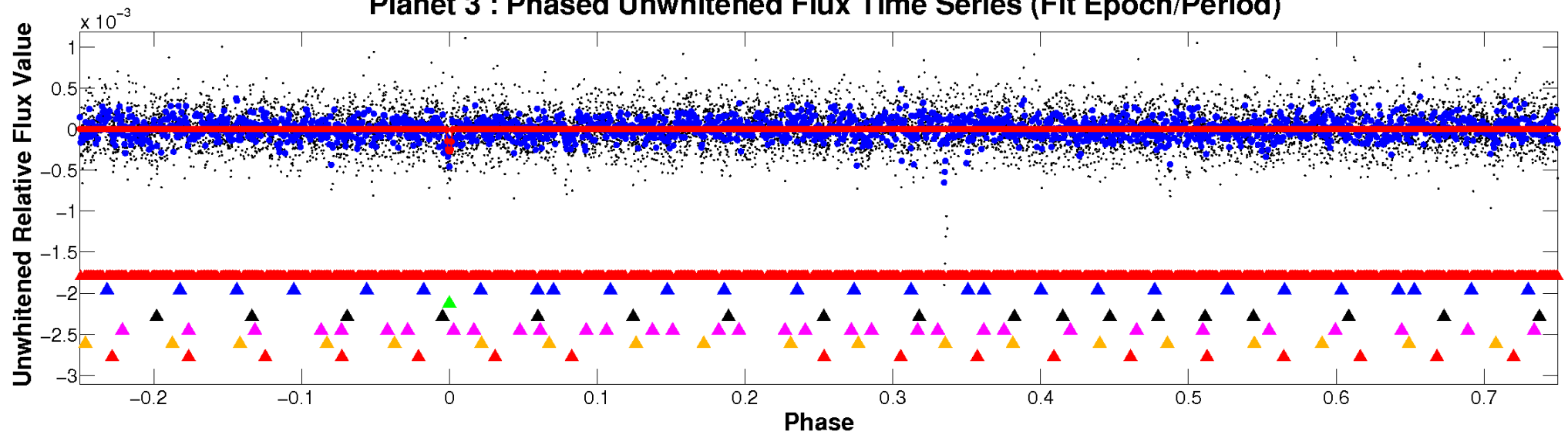
ALT Odd/Even

TCE 003972120-03

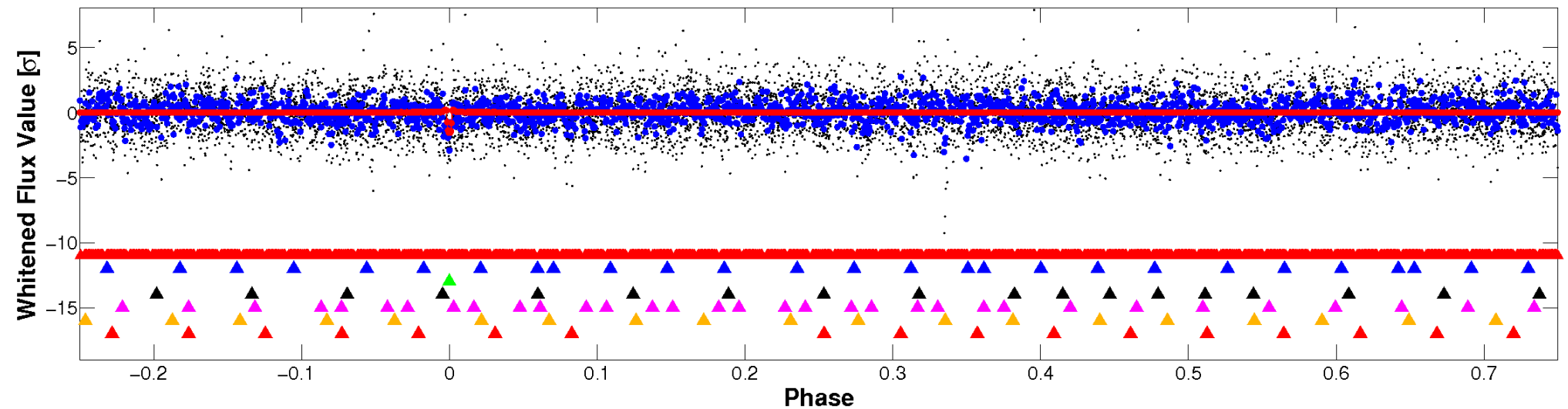


Non-Whitened Vs. Whitened Light Curve

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

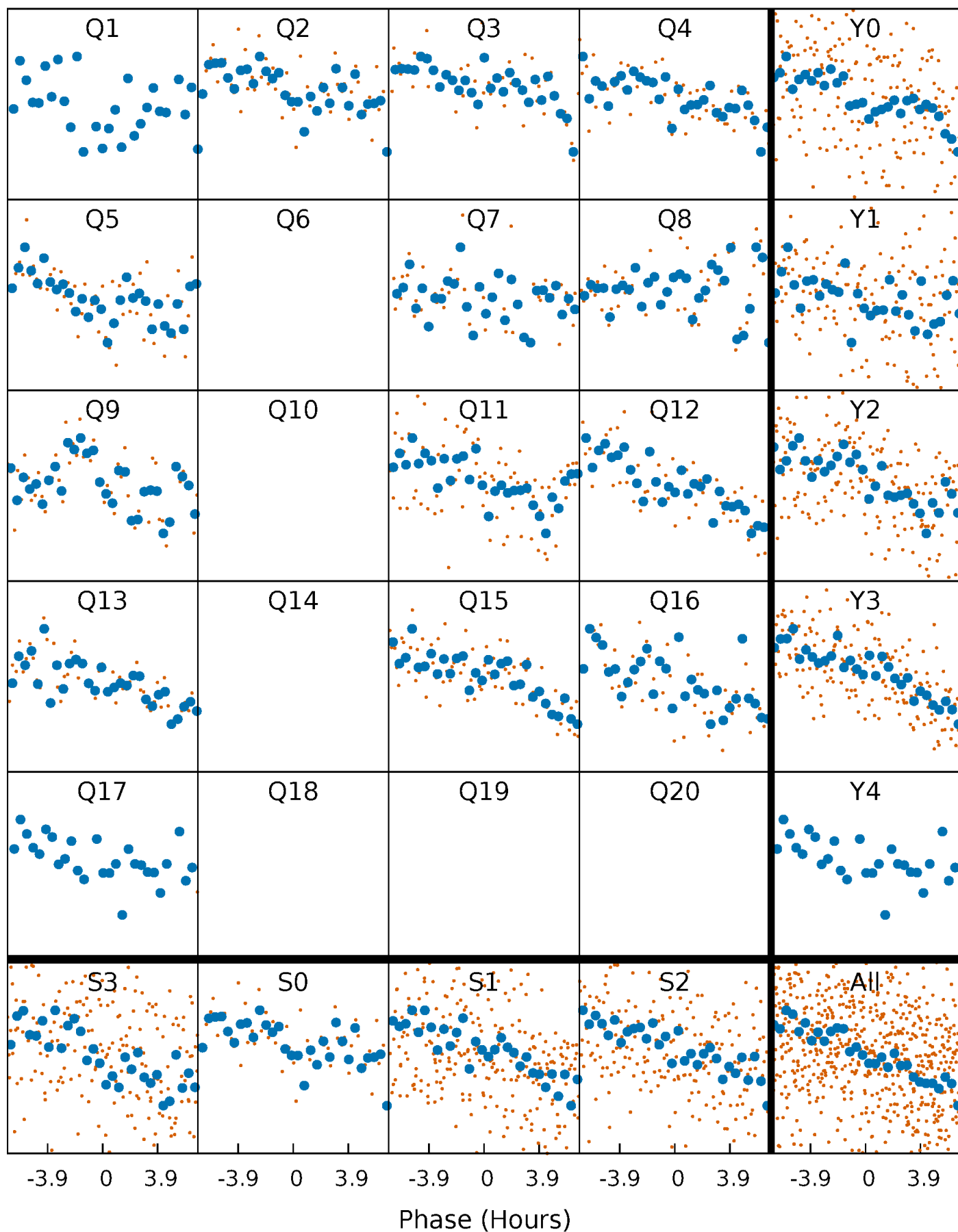


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



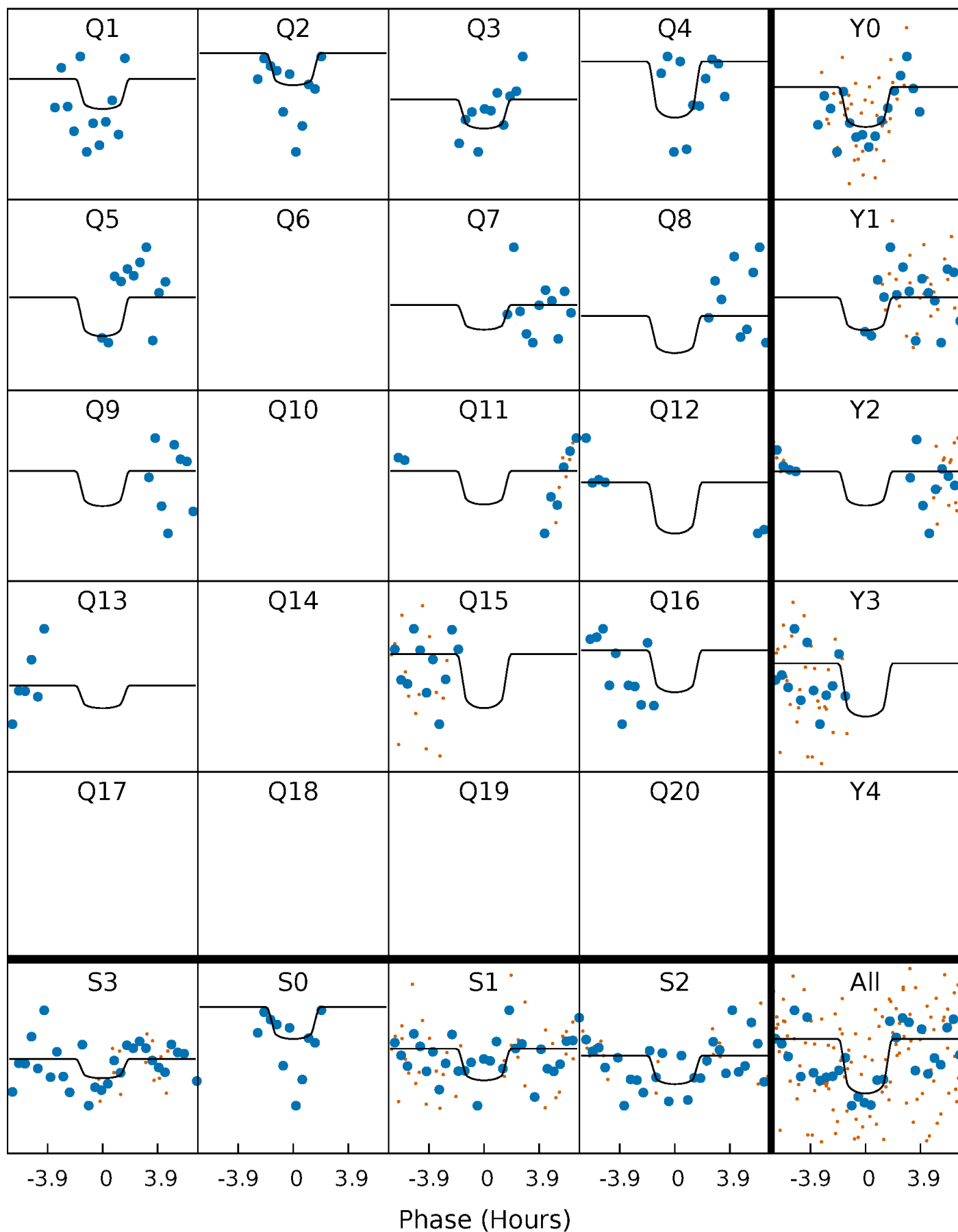
PDC Quarter-Phased Transit Curves

TCE 003972120-03 P= 41.942825 Days $T_0=162.845610$ (BKJD)



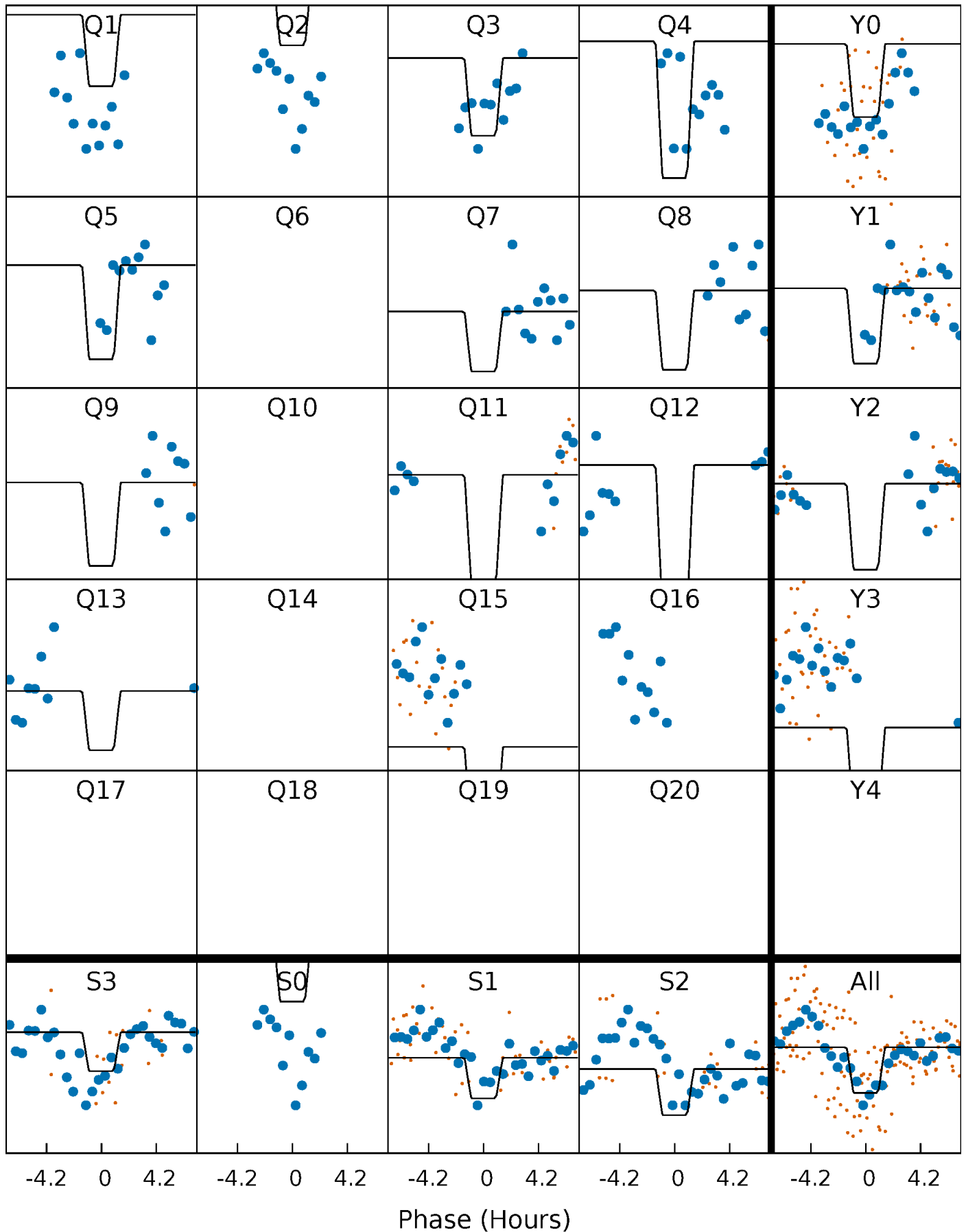
DV Quarter-Phased Transit Curves

TCE 003972120-03 P= 41.942825 Days $T_0=162.845610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

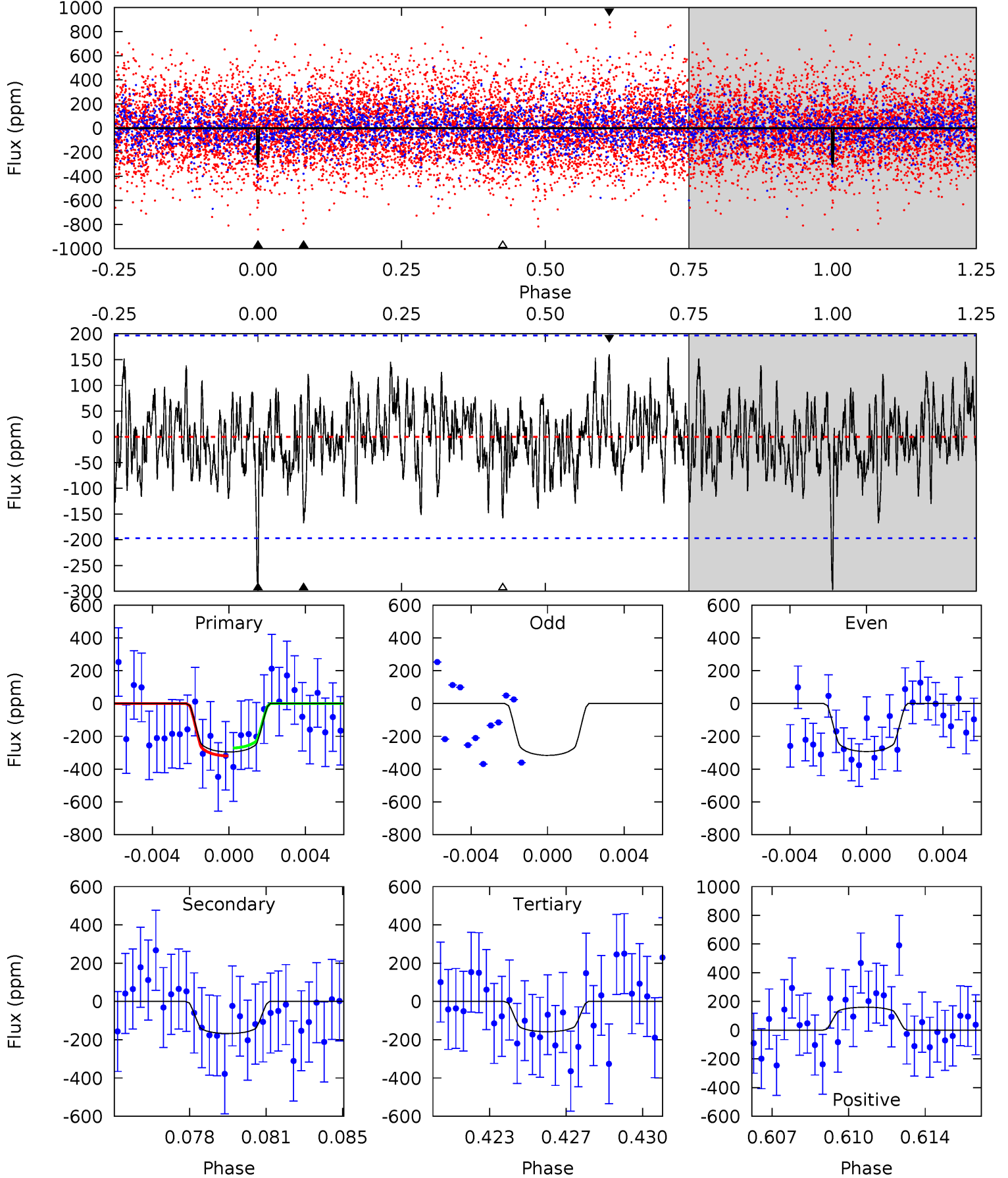
TCE 003972120-03 P= 41.941895 Days $T_0=162.855106$ (BKJD)



DV Model-Shift Uniqueness Test

003972120-03, P = 41.942825 Days, E = 120.902785 Days

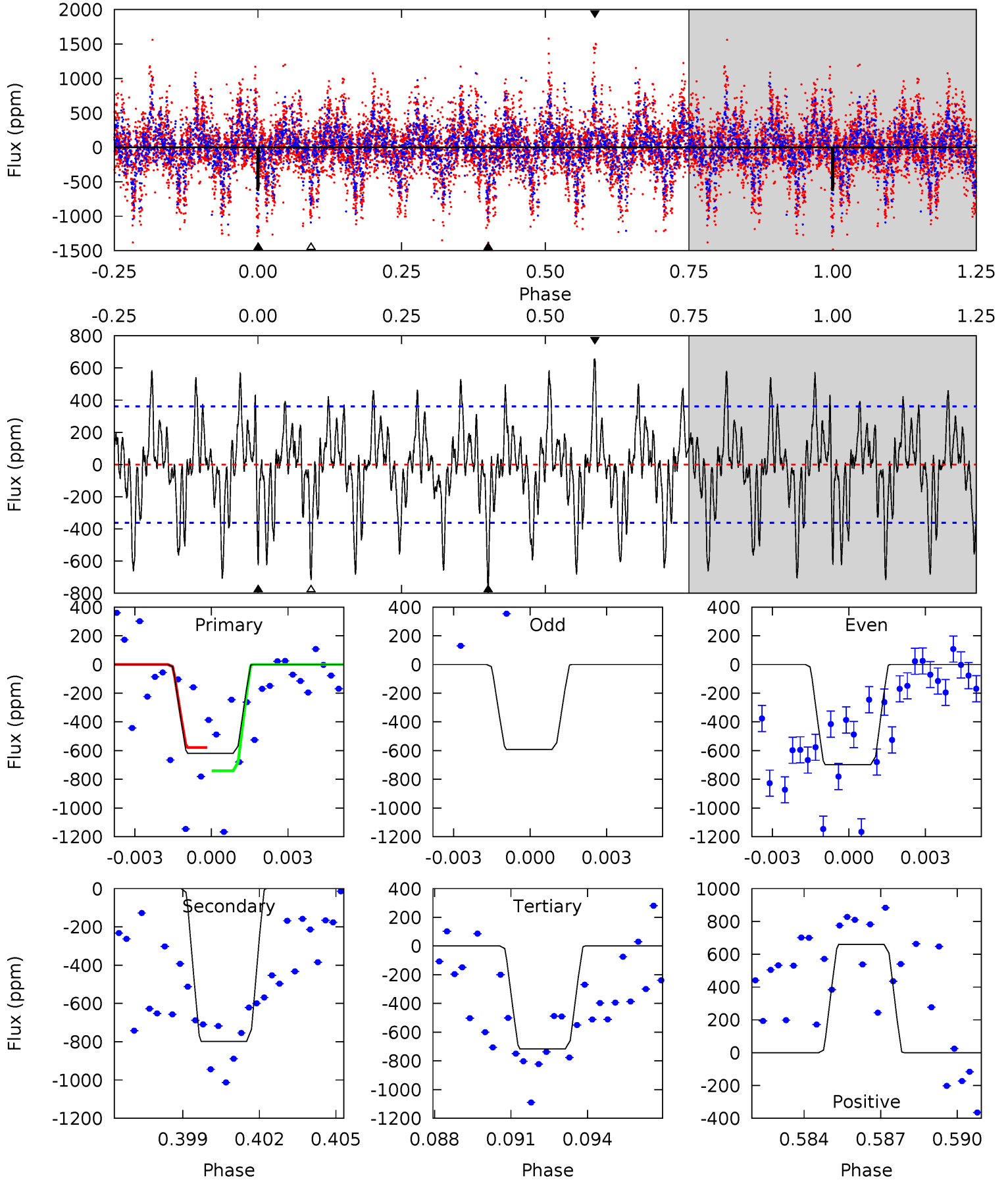
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.85	4.45	4.19	4.25	5.22	2.92	1.42	3.66	3.60	0.26	0.20	0.14	0.95	0.35	0.64



Alt Model-Shift Uniqueness Test

003972120-03, $P = 41.941895$ Days, $E = 120.913211$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.00	11.6	10.4	9.59	5.26	2.98	3.44	-1.42	-0.59	1.19	2.02	0.46	1.25	0.45	1.20



Stellar Parameters For KIC 003972120

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-168 ± 38	$2.98^{+2.21}_{-1.83}$	997^{+72}_{-55}	5576^{+3974}_{-1152}	669^{+3559}_{-459}
Alt.	-798 ± 69	$3.84^{+2.62}_{-2.04}$	999^{+67}_{-59}	7316^{+5386}_{-1633}	1931^{+6763}_{-1251}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

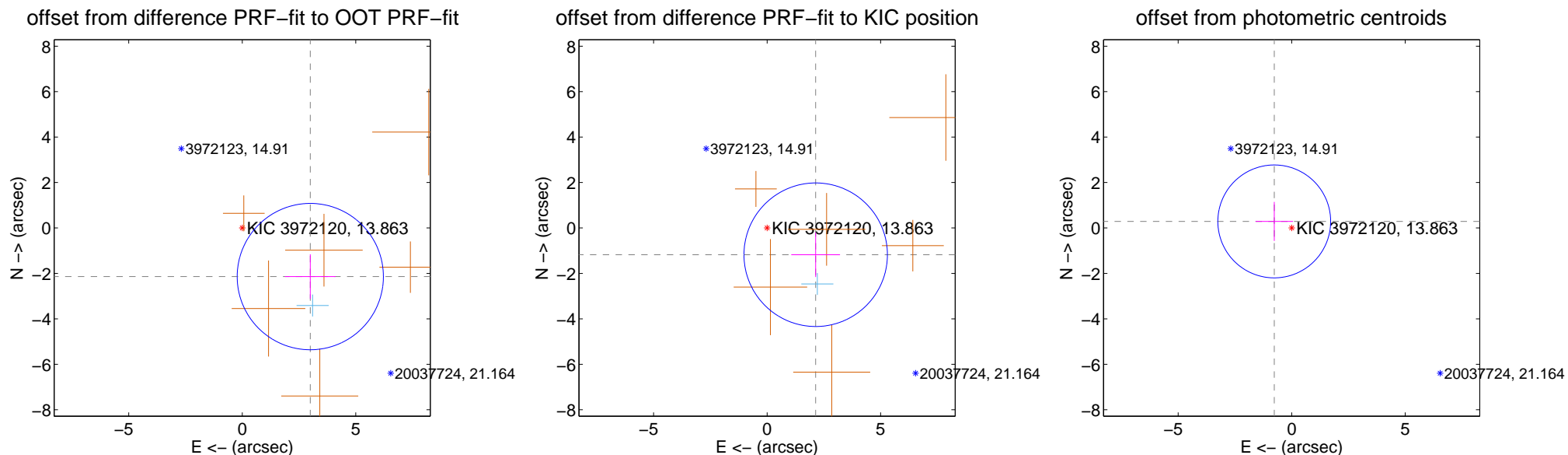
DV Centroid Data

Supplemental centroid analysis for 003972120-03. Kepler magnitude: 13.86. Transit SNR 7.81

There are 1 quarters with good PRF difference image offsets

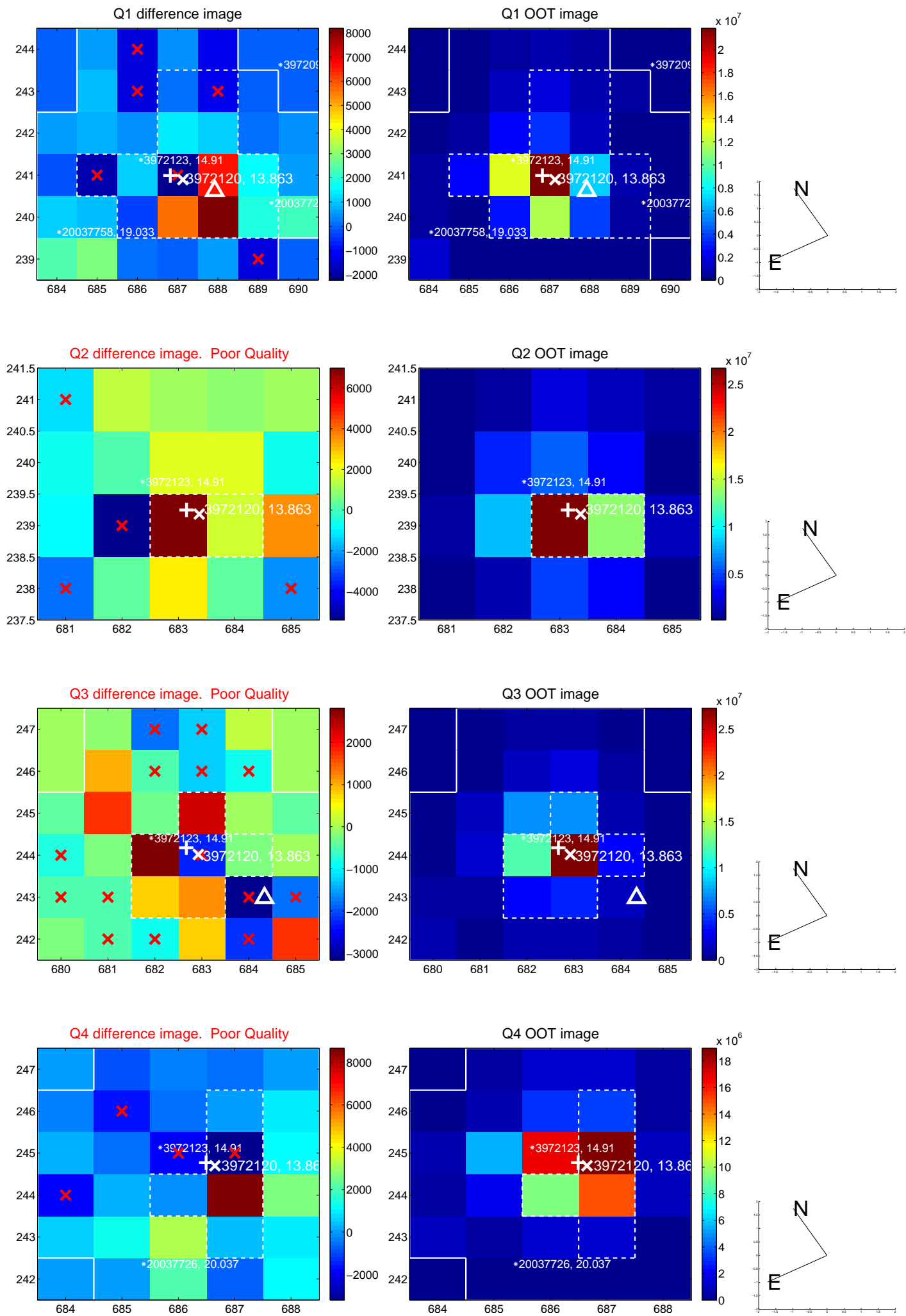
The direct PRF centroid is offset from the target star catalog position by about 1.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.684 ± 1.074	3.43	-2.998 ± 1.118	-2.140 ± 0.981
PRF-fit source offset from KIC position	2.444 ± 1.053	2.32	-2.141 ± 1.074	-1.178 ± 0.980
photometric centroid source offset	0.82 ± 0.83	0.99	0.77 ± 0.82	0.29 ± 0.86

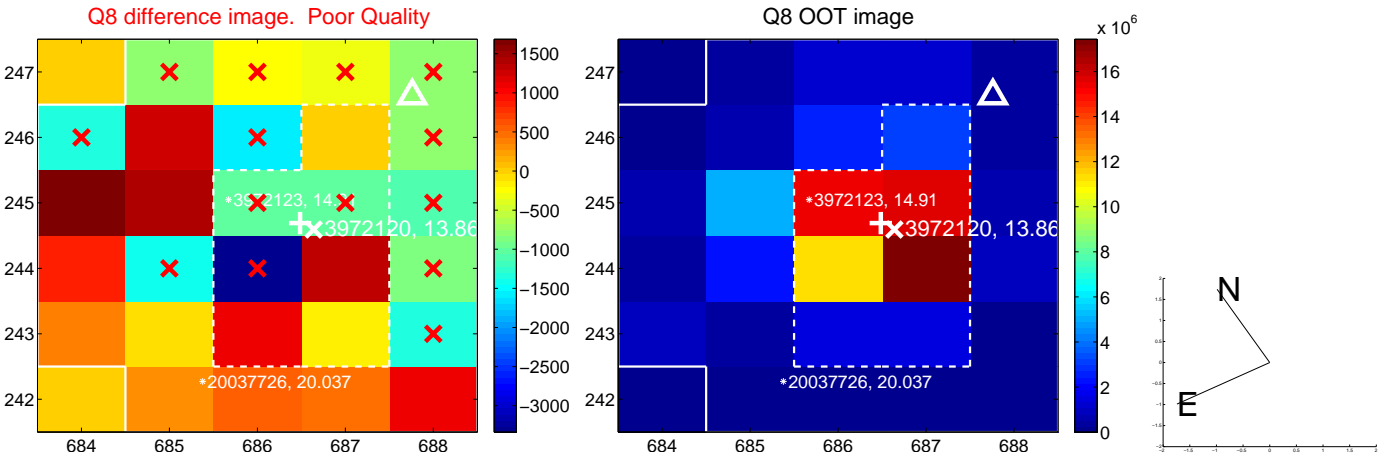
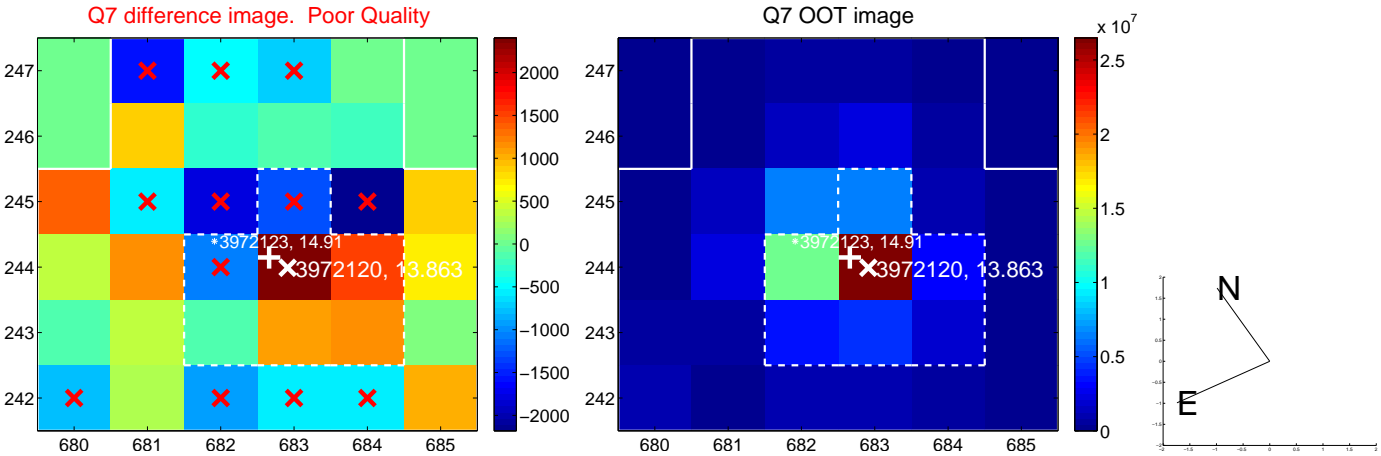
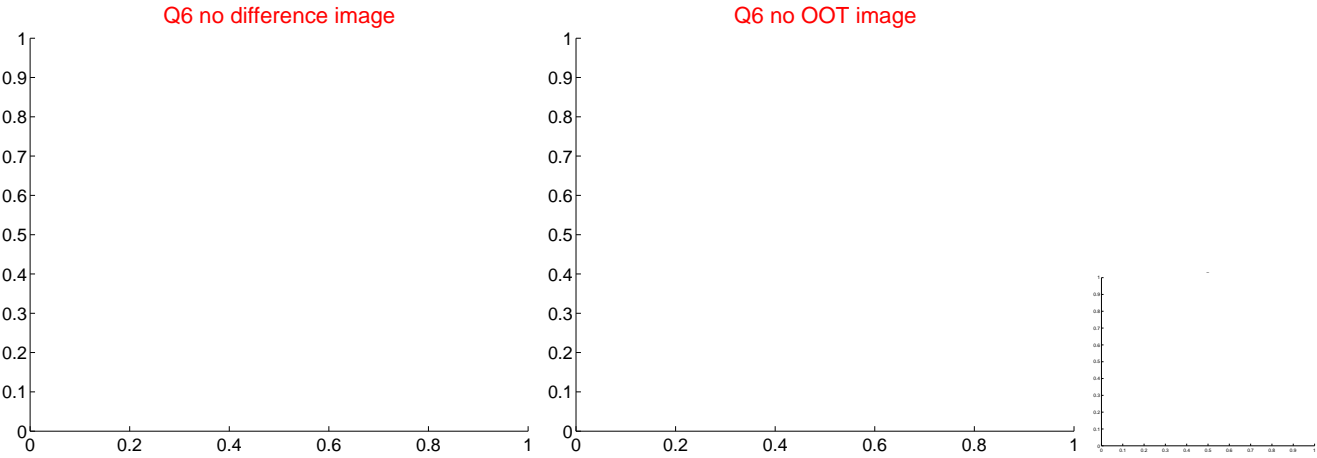
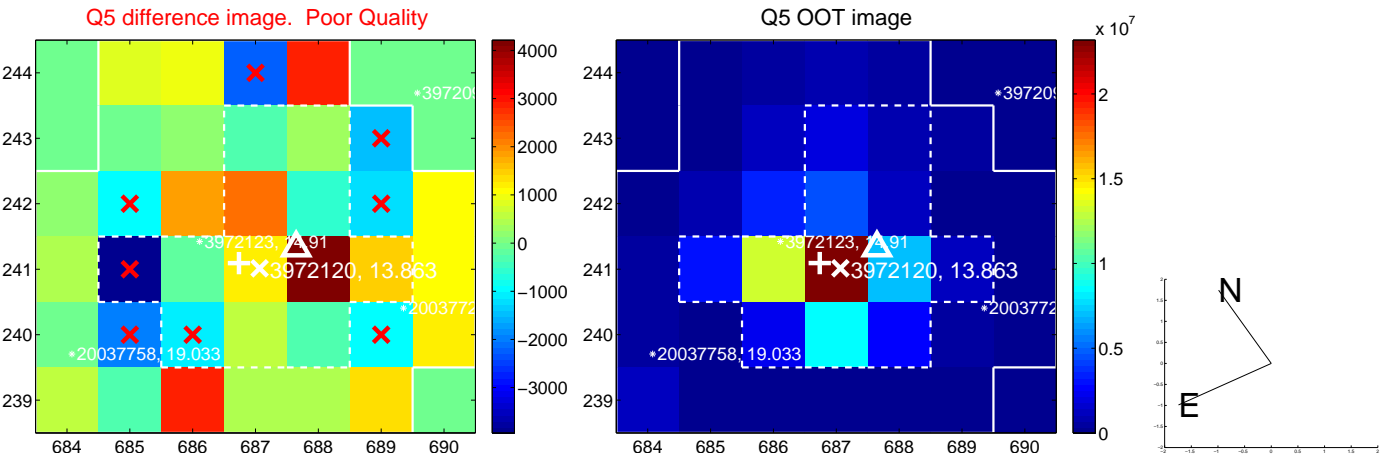


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

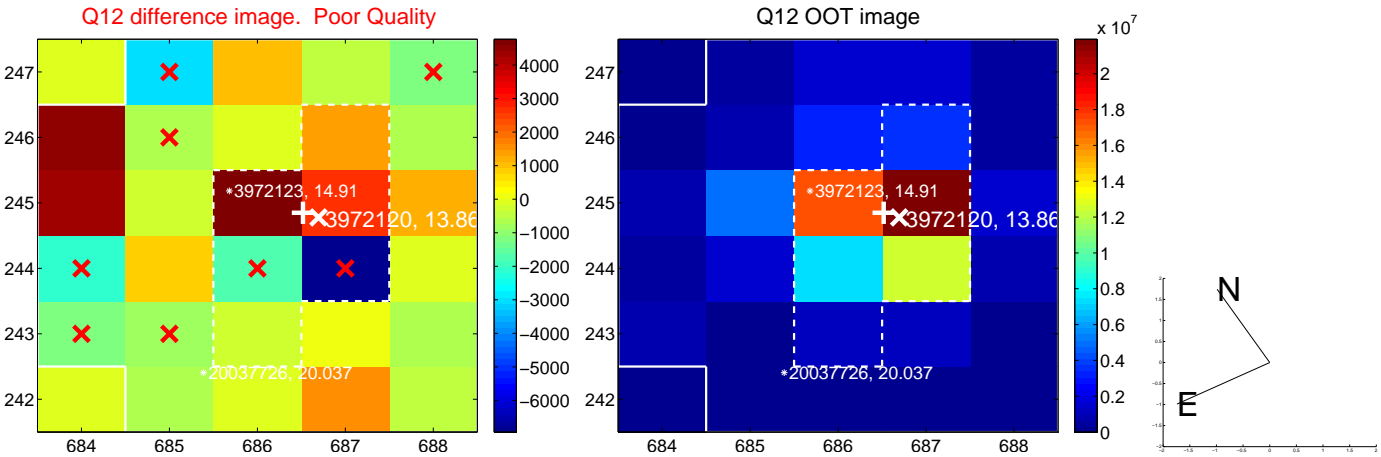
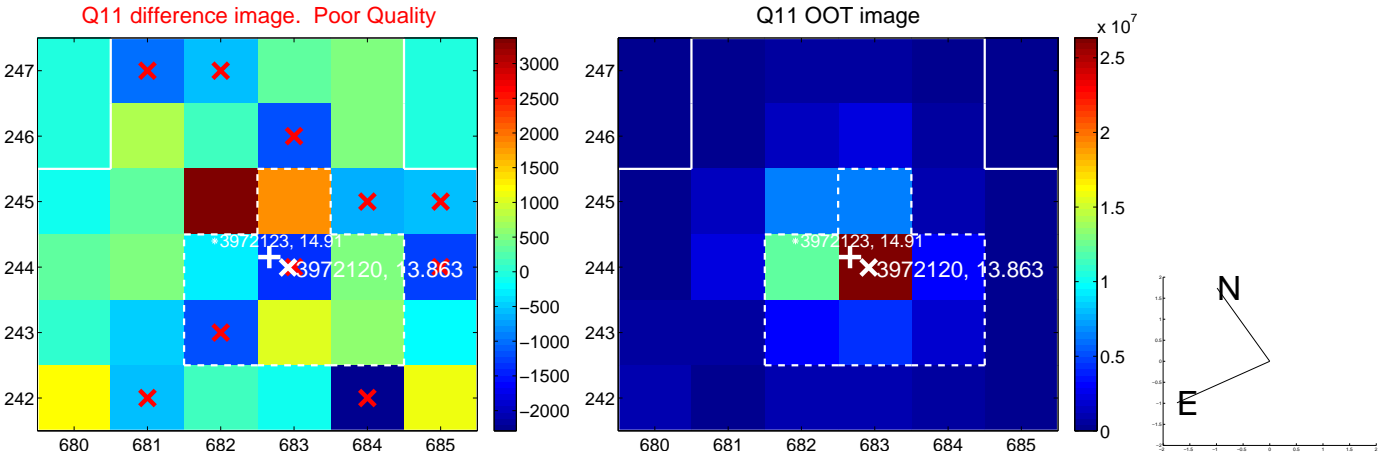
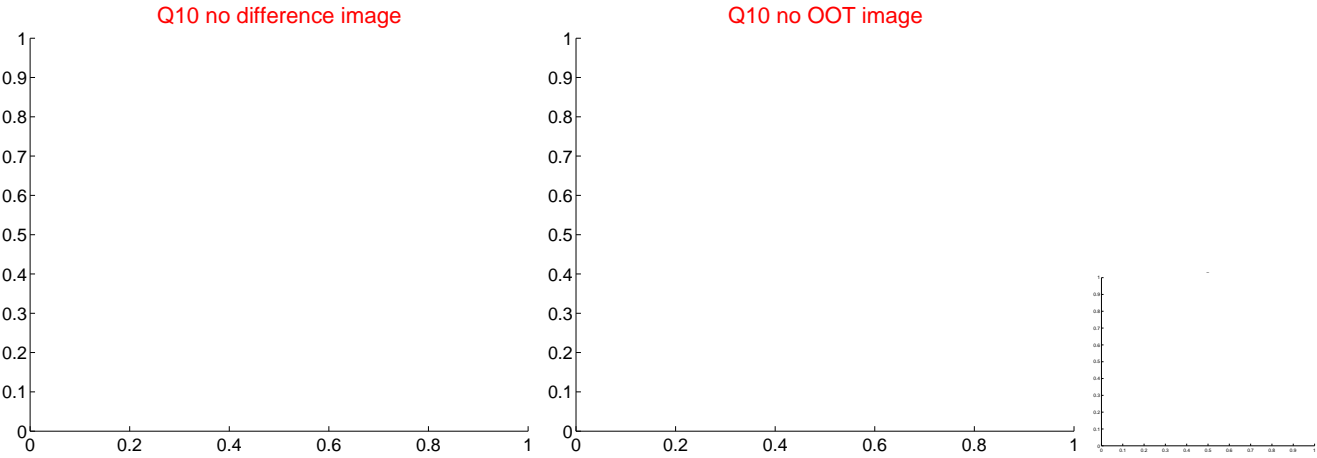
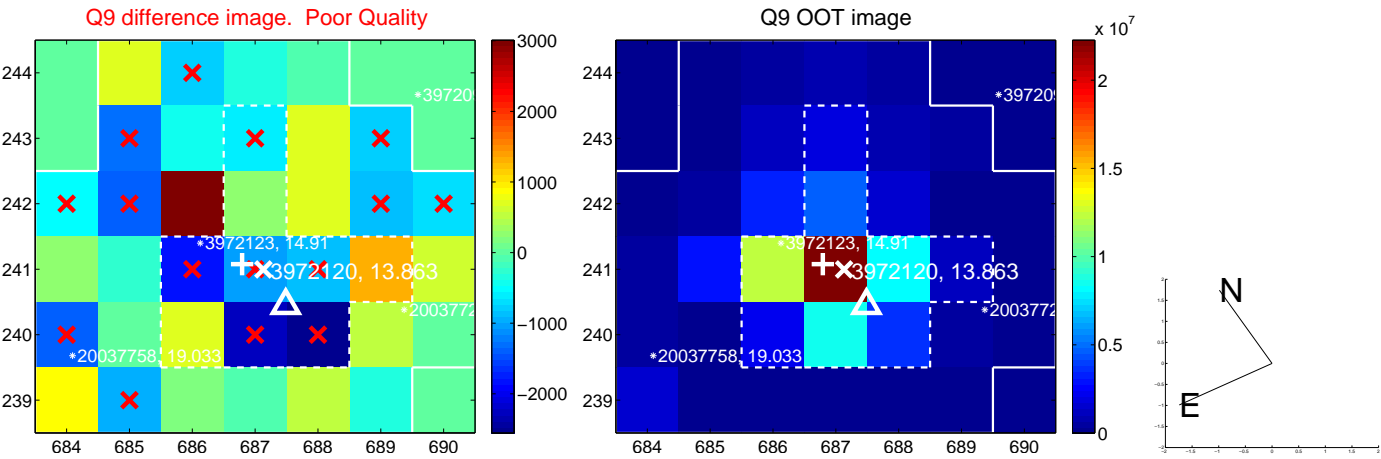
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



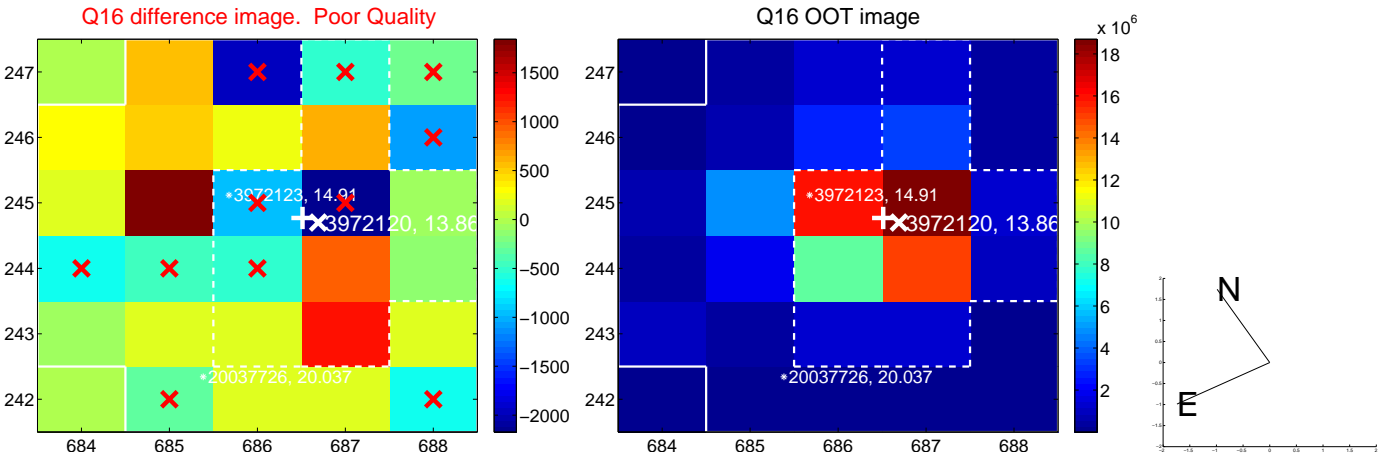
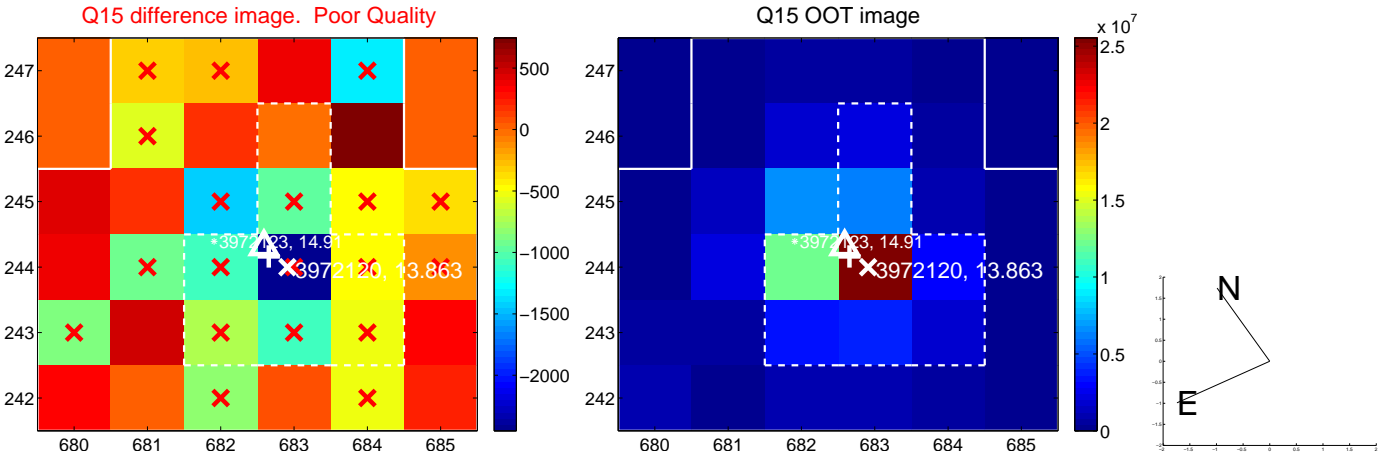
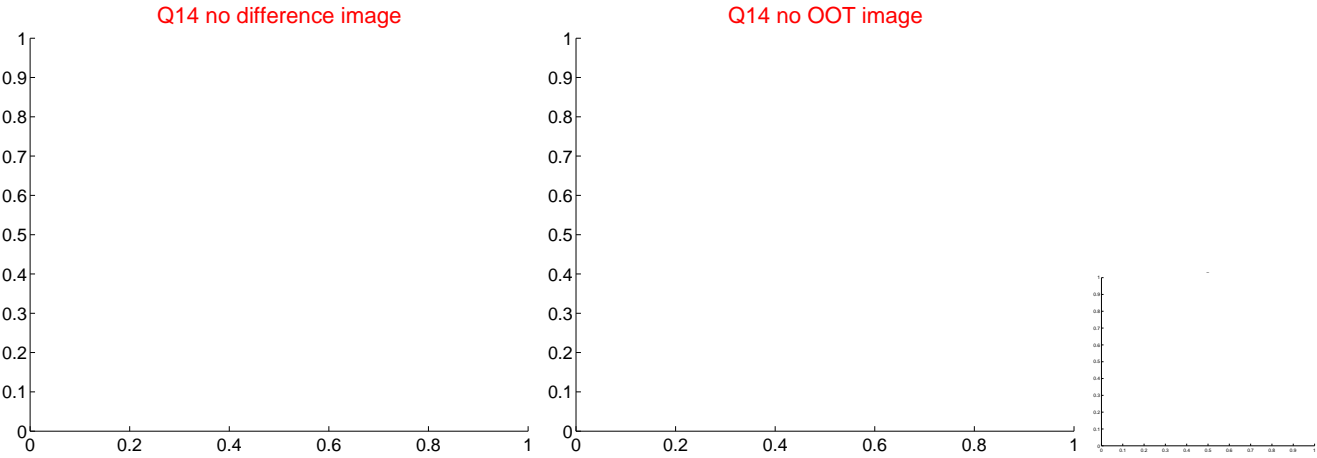
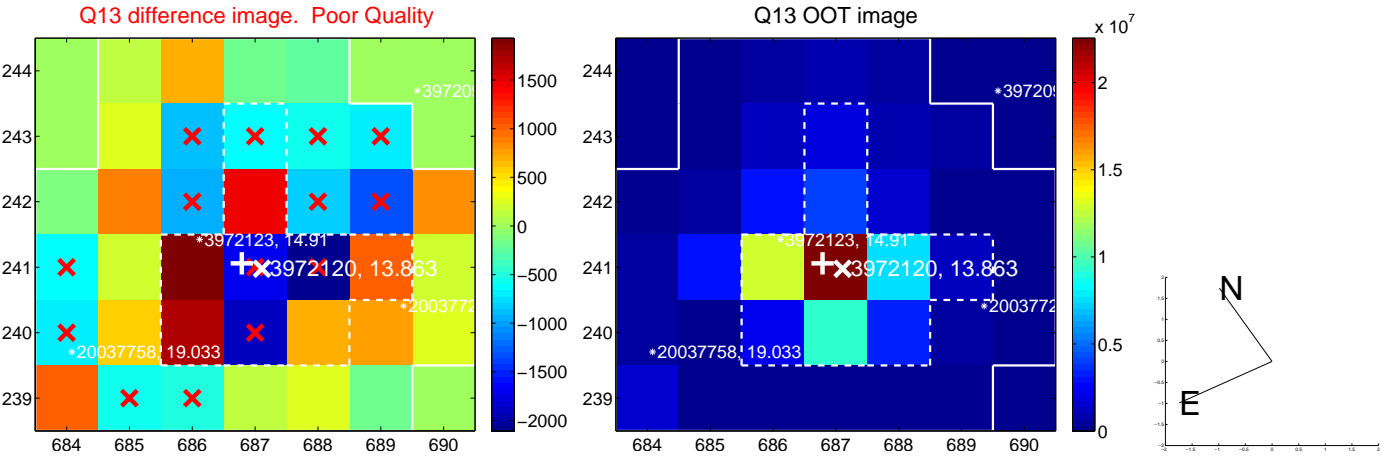
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



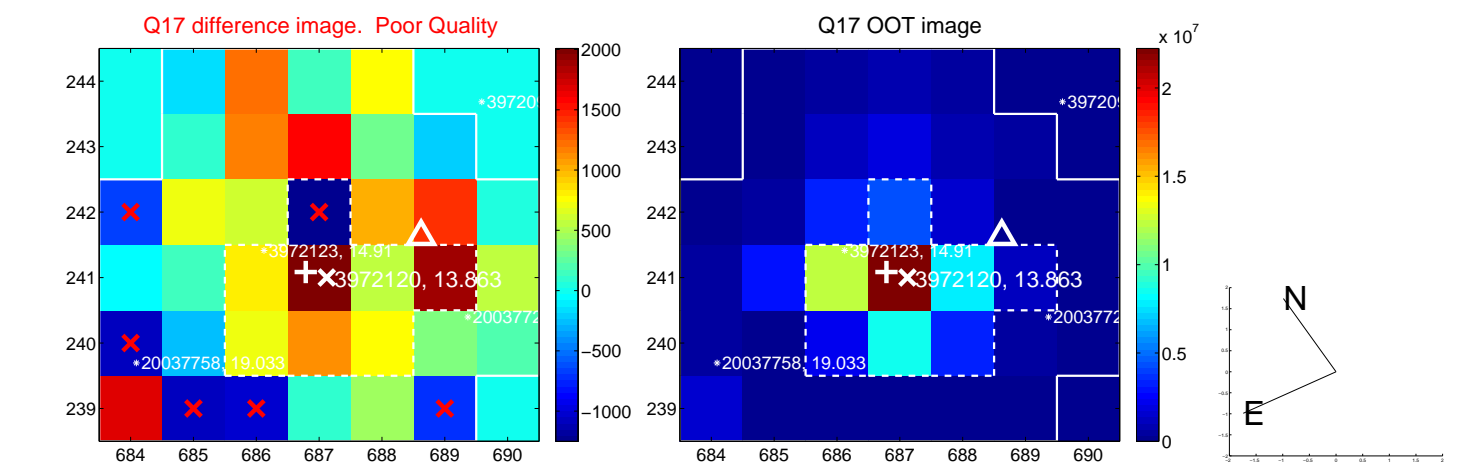
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



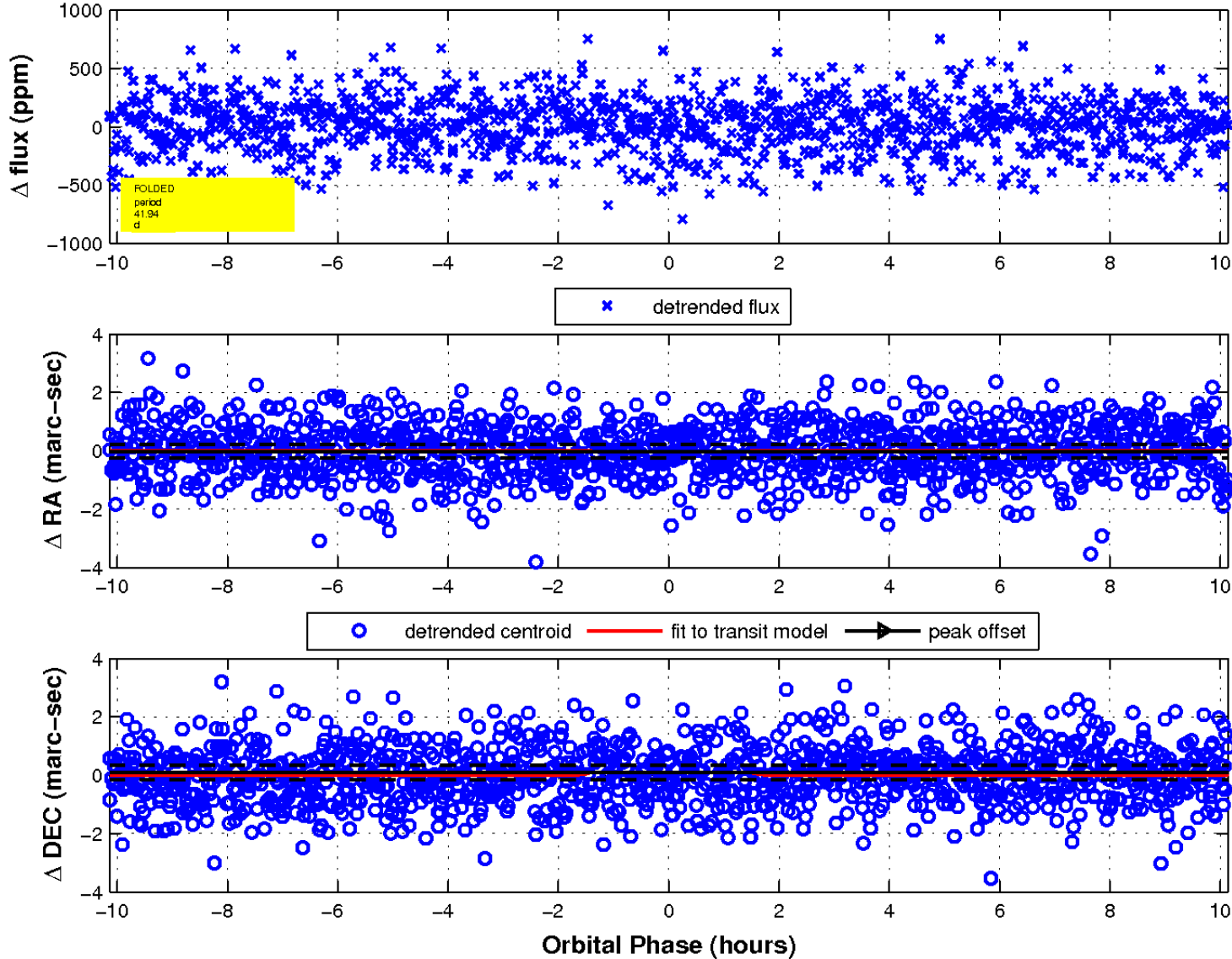
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 7



This astronomical image shows a field of stars against a dark background. A blue grid is overlaid on the image, with green text labels indicating coordinates. The labels are arranged in two rows: the top row shows '22.0', '21.0', '19:43:20.0', and '19.0', while the bottom row shows '50.039:04:00.0', '40.0', '30.0', and '20.0'. A red horizontal line is visible across the middle of the image, passing through the central star.

Declination

KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

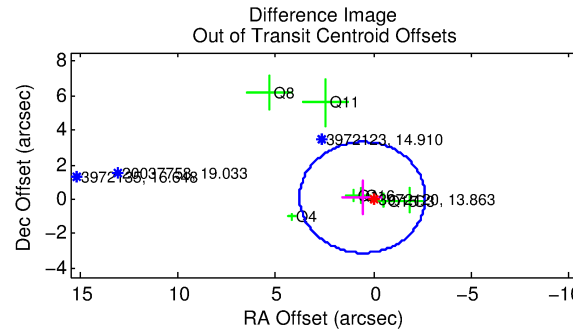
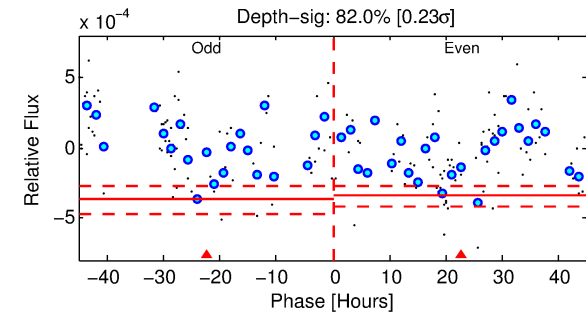
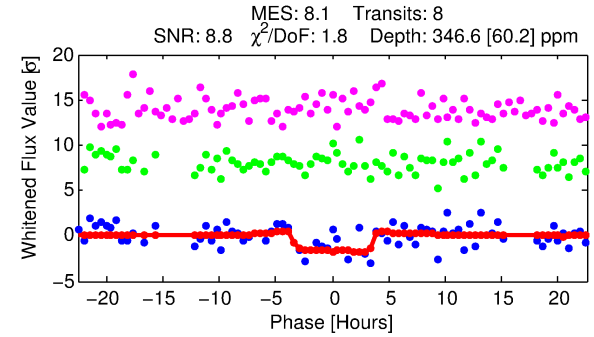
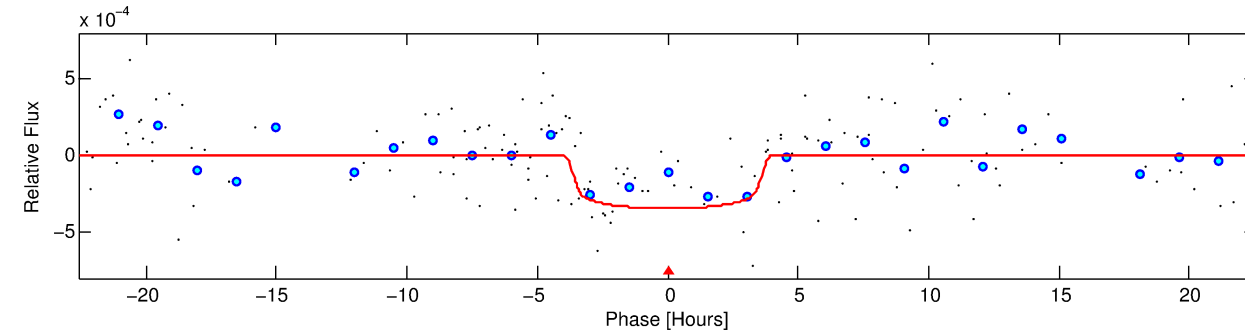
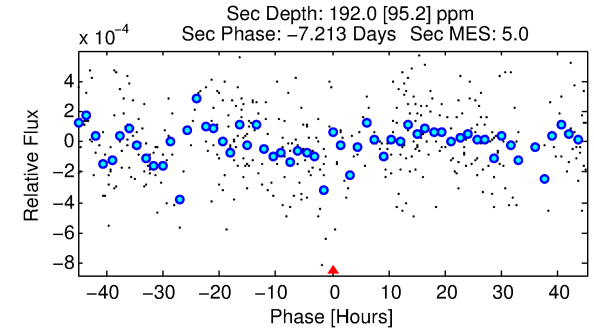
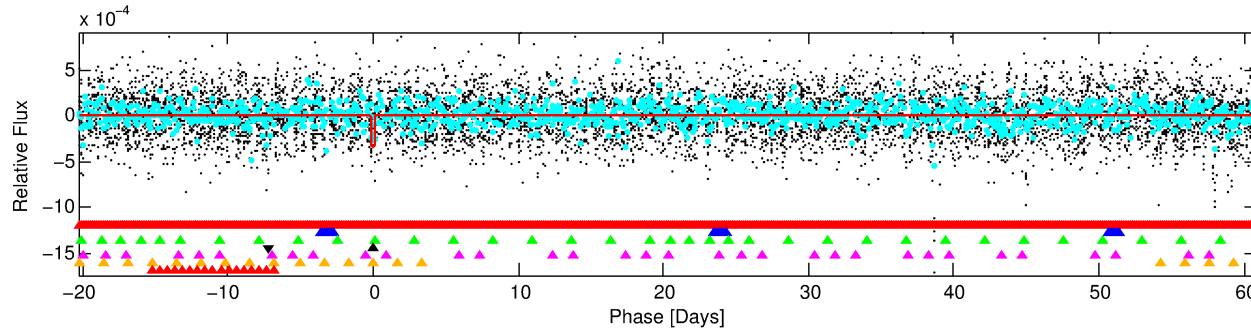
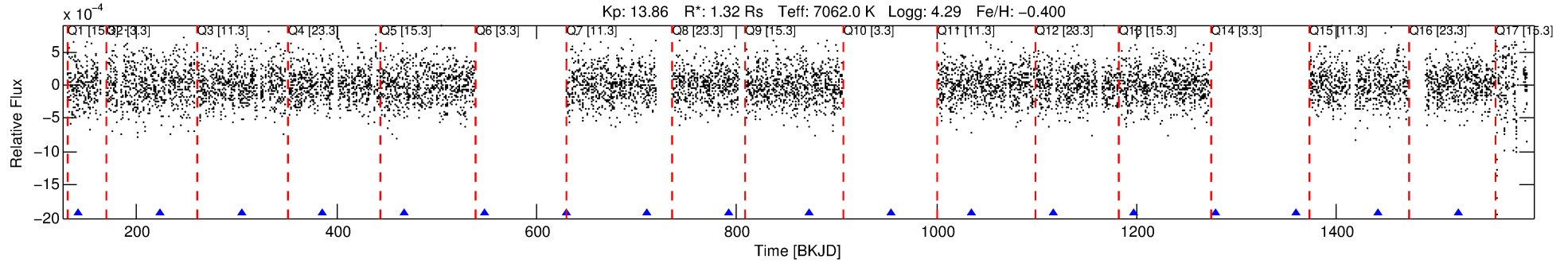
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-04

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 4 of 7 Period: 81.181 d



DV Fit Results:

Period = 81.18084 [0.00116] d
Epoch = 142.3484 [0.0101] BKJD
Rp/R* = 0.0183 [0.0086]
a/R* = 60.51 [160.12]
b = 0.70 [1.92]
Seff = 24.89 [9.78]
Teq = 570 [56] K
Rp = 2.63 [1.48] Re
a = 0.3944 [0.0996] AU
Ag = 2372.38 [2651.31] [0.89σ]
Teffp = 6145 [1648] K [3.38σ]

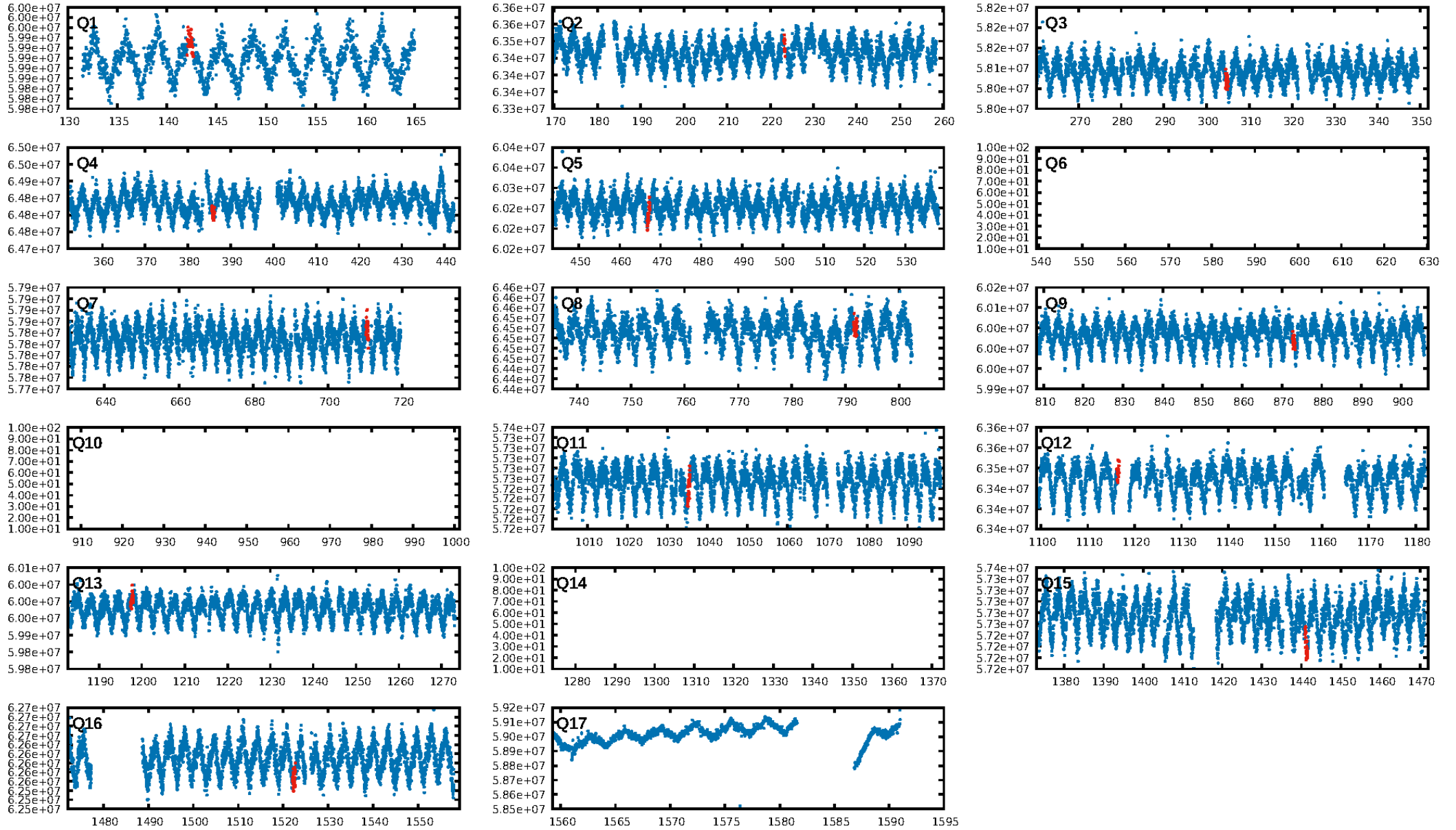
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.19σ]
LongPeriod-sig: 67.2% [0.98σ]
ModelChiSquare2-sig: 66.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.38e-08
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.434
Centroid-sig: 19.5%
Centroid-so: 1.649 arcsec [2.29σ]
OotOffset-rm: 0.579 arcsec [0.54σ]
OotOffset-st: 0/3/3/1 [7]
KicOffset-rm: 1.614 arcsec [1.30σ]
KicOffset-st: 0/3/3/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.00 [0/9]

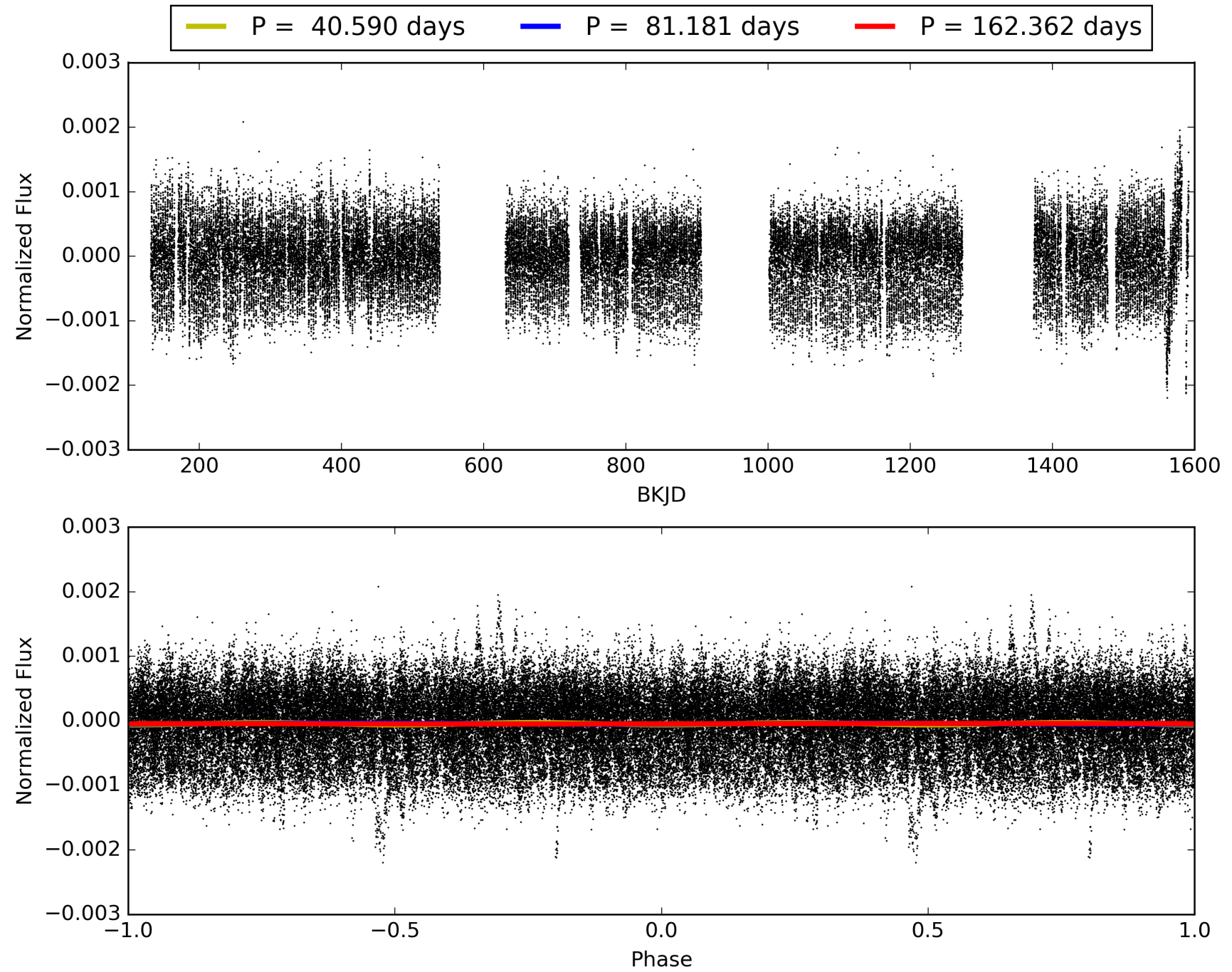
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:16 Z

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

TCE 003972120-04, PDC Light Curves

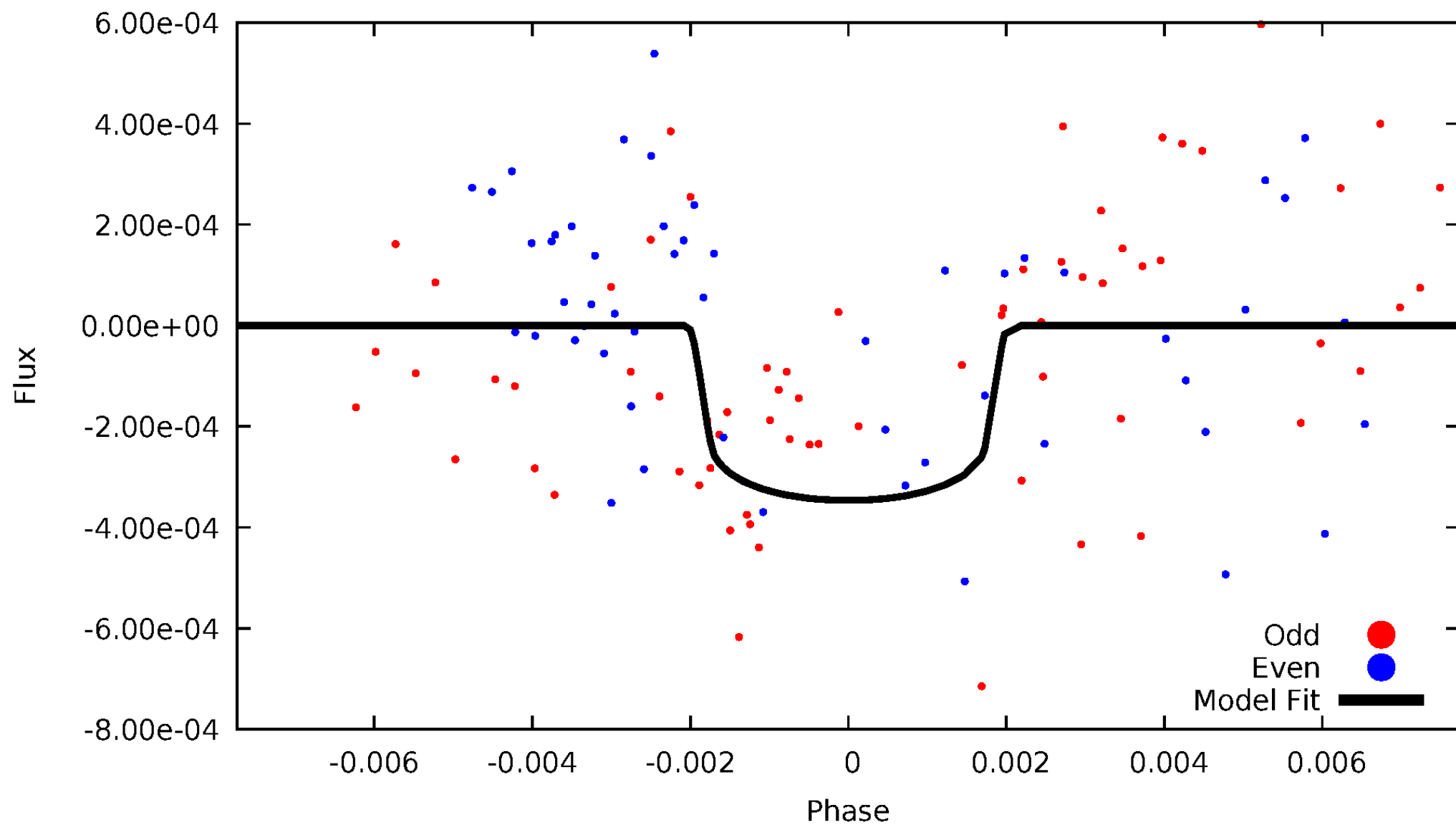


TCE 003972120-04



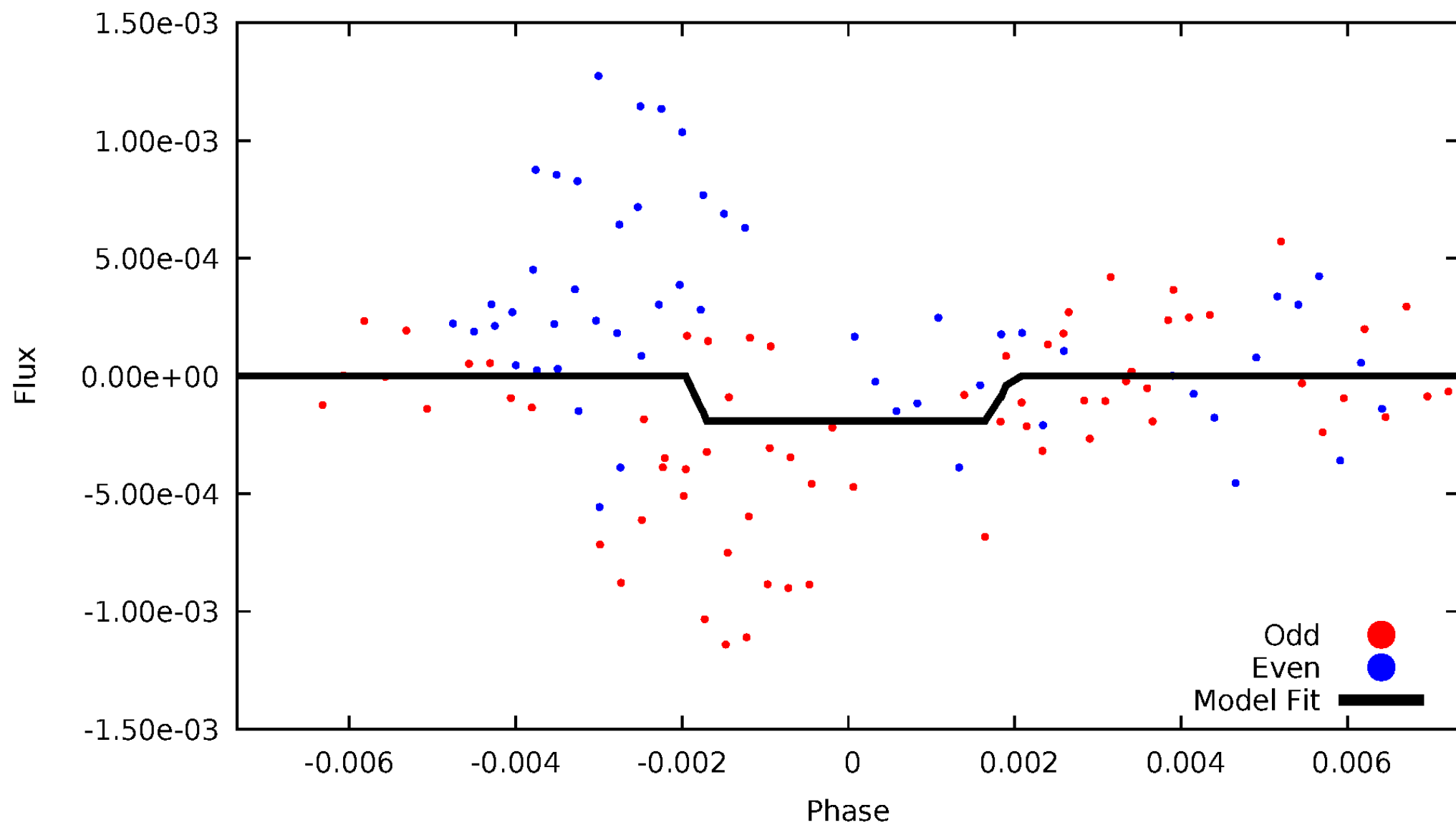
DV Odd/Even

TCE 003972120-04



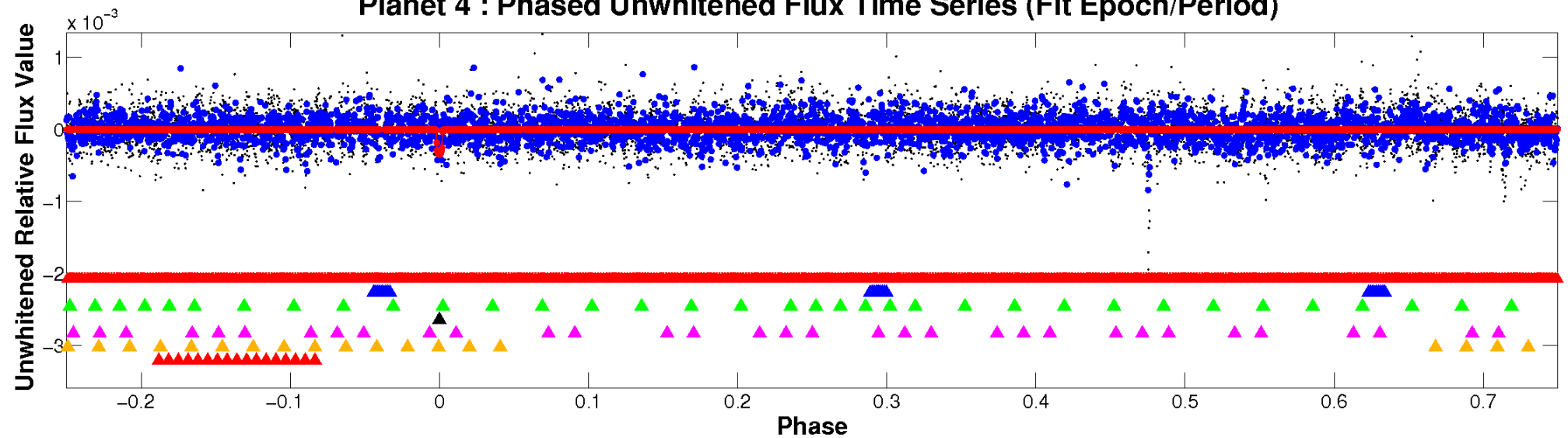
ALT Odd/Even

TCE 003972120-04

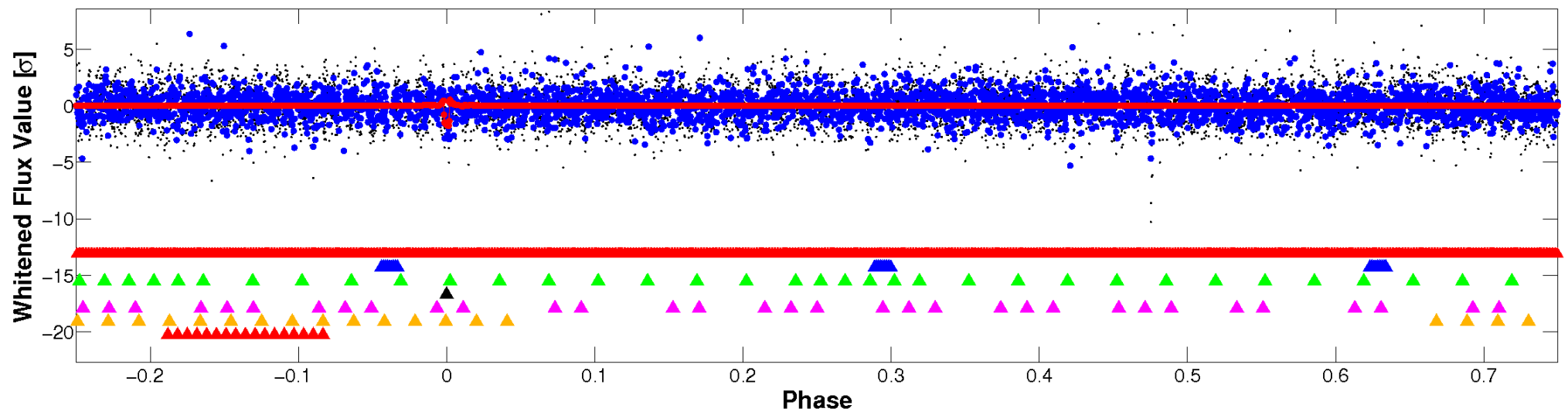


Non-Whitened Vs. Whitened Light Curve

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

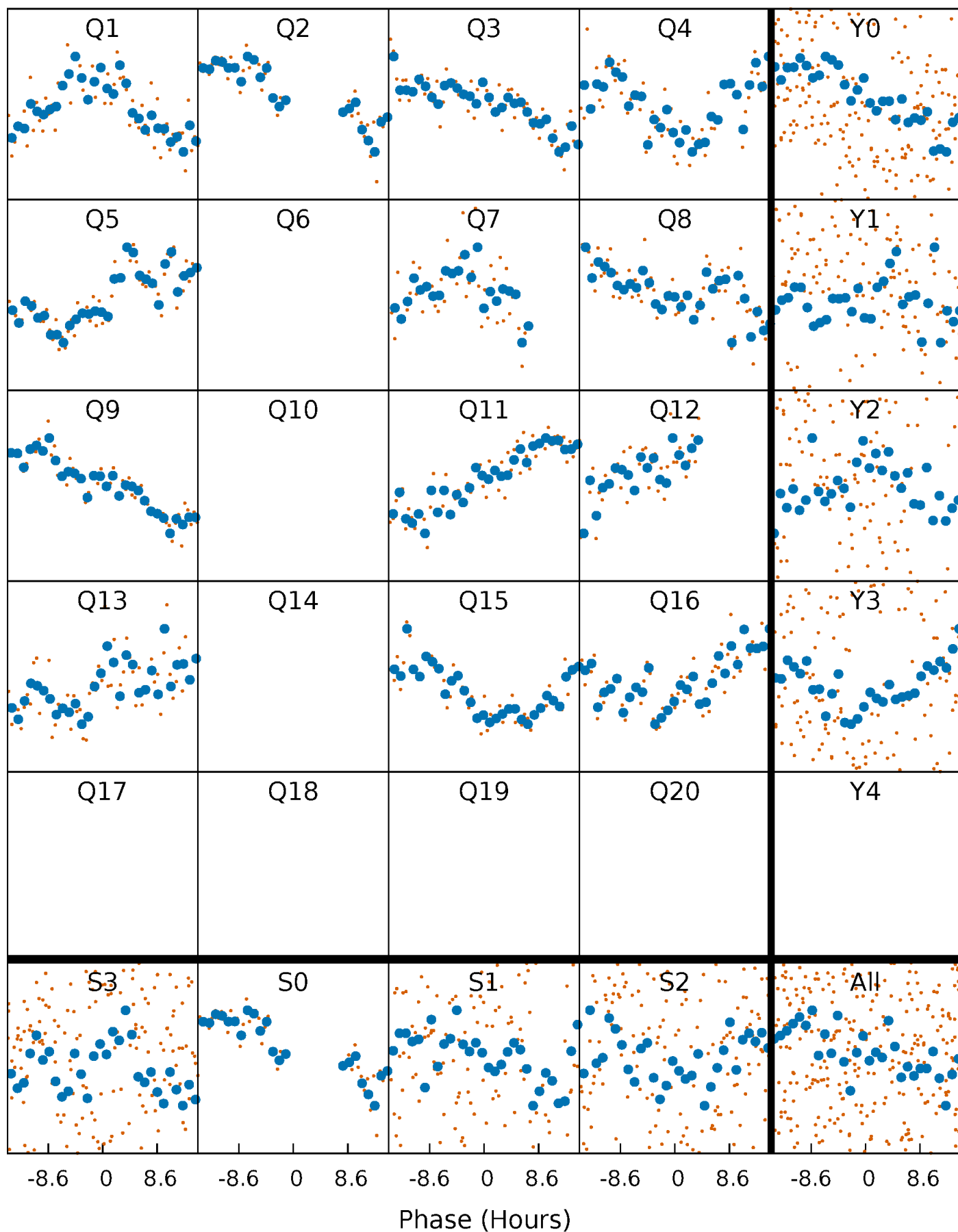


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



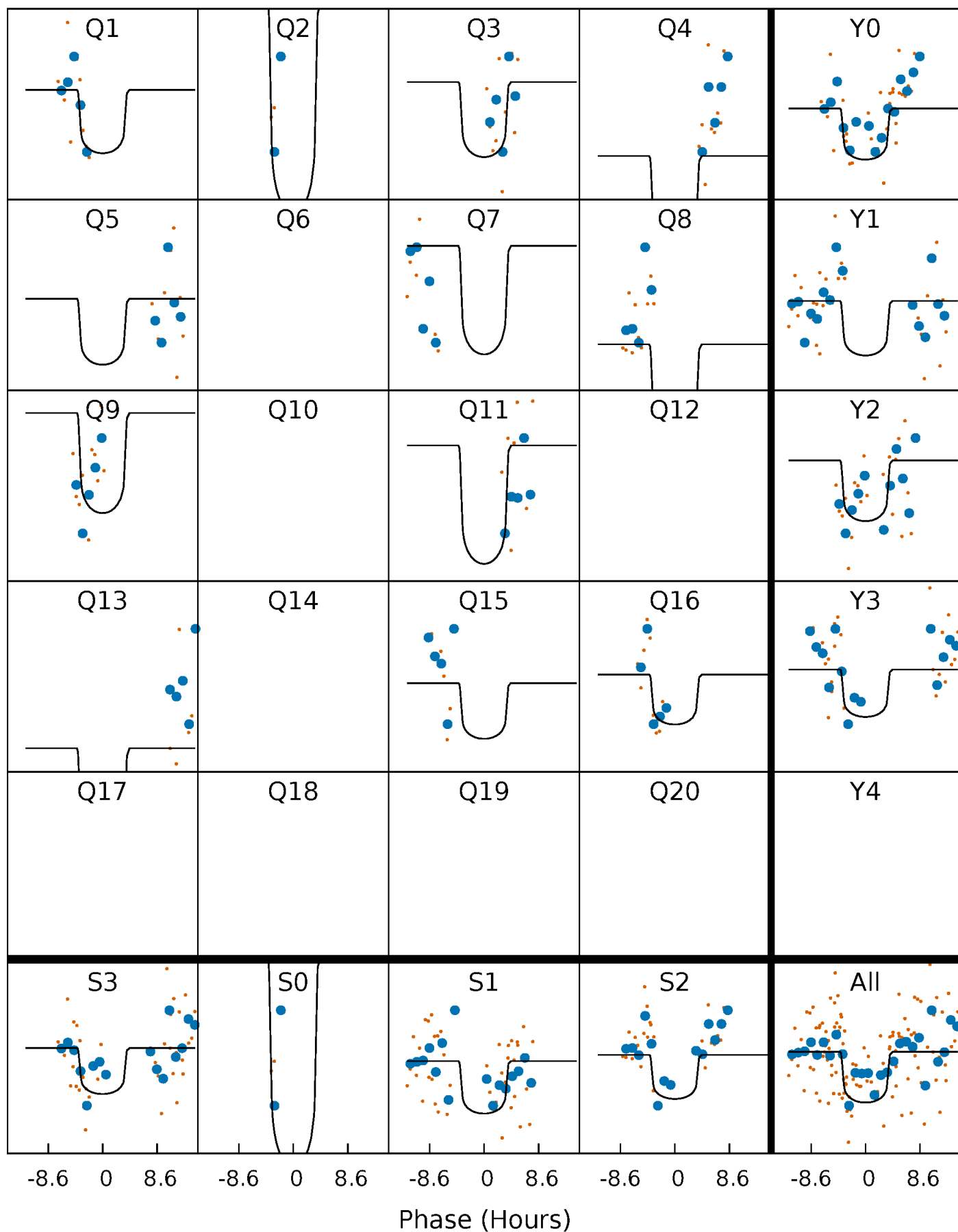
PDC Quarter-Phased Transit Curves

TCE 003972120-04 P= 81.180838 Days $T_0=142.348386$ (BKJD)



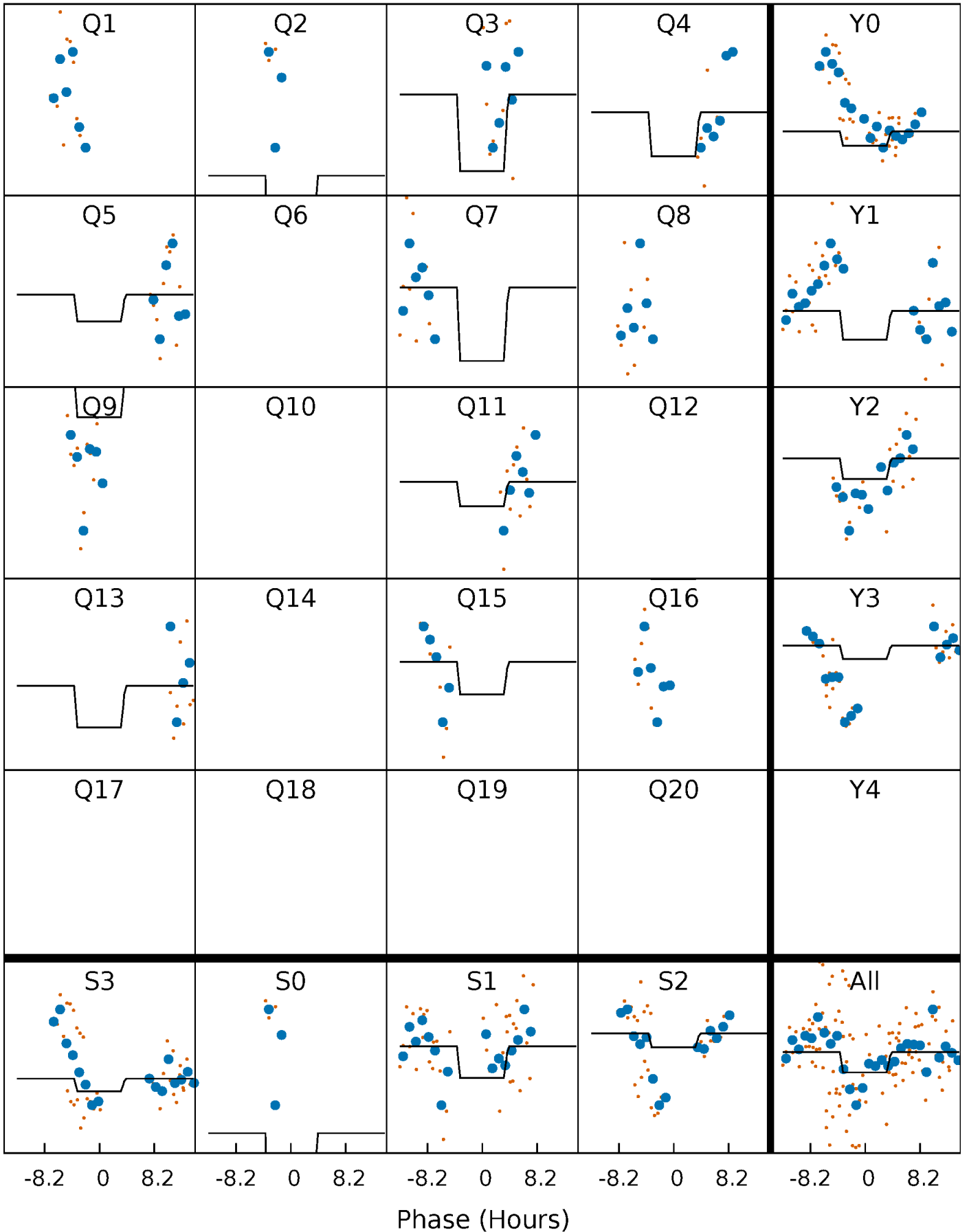
DV Quarter-Phased Transit Curves

TCE 003972120-04 P= 81.180838 Days $T_0=142.348386$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

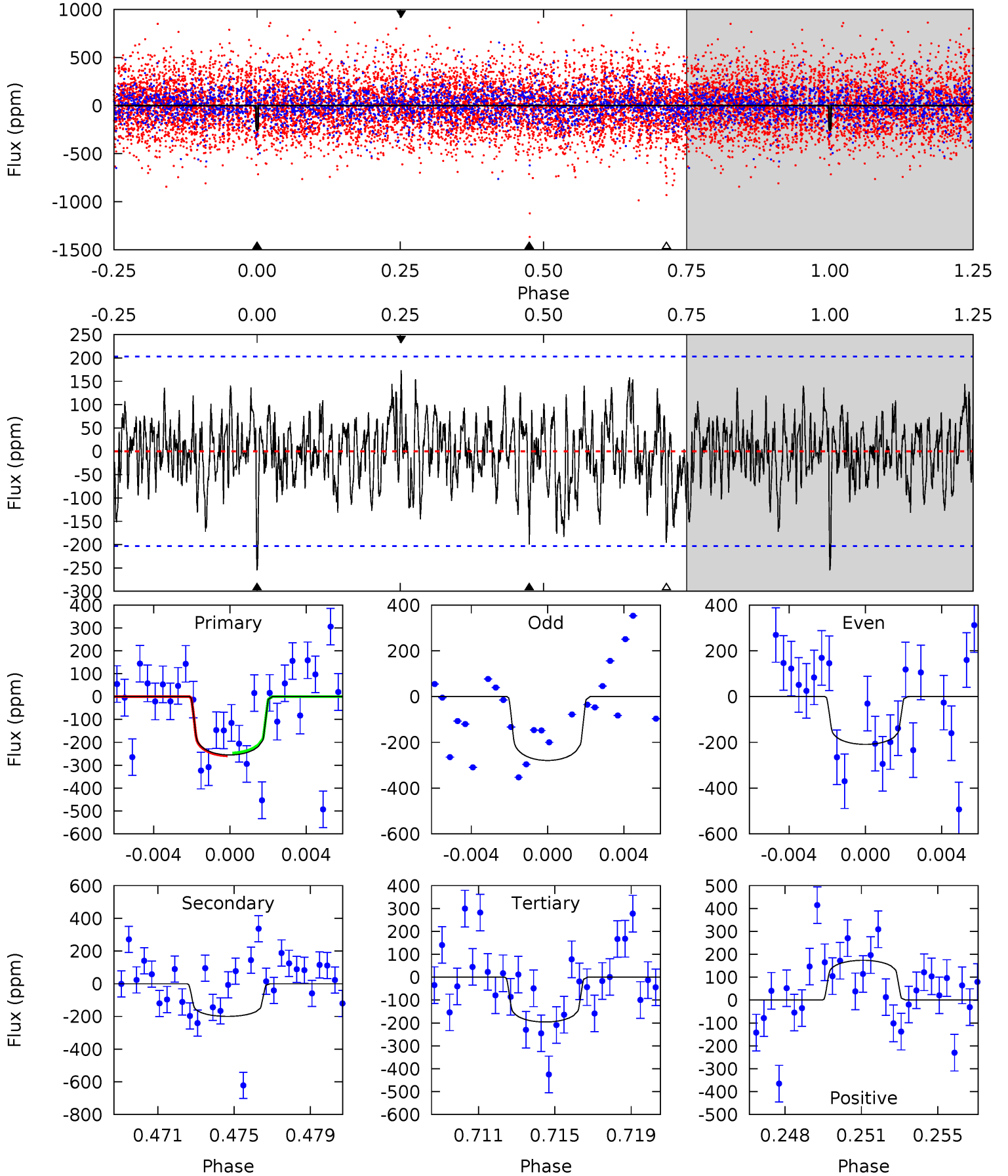
TCE 003972120-04 P= 81.179960 Days $T_0=142.361682$ (BKJD)



DV Model-Shift Uniqueness Test

003972120-04, P = 81.180838 Days, E = 61.167548 Days

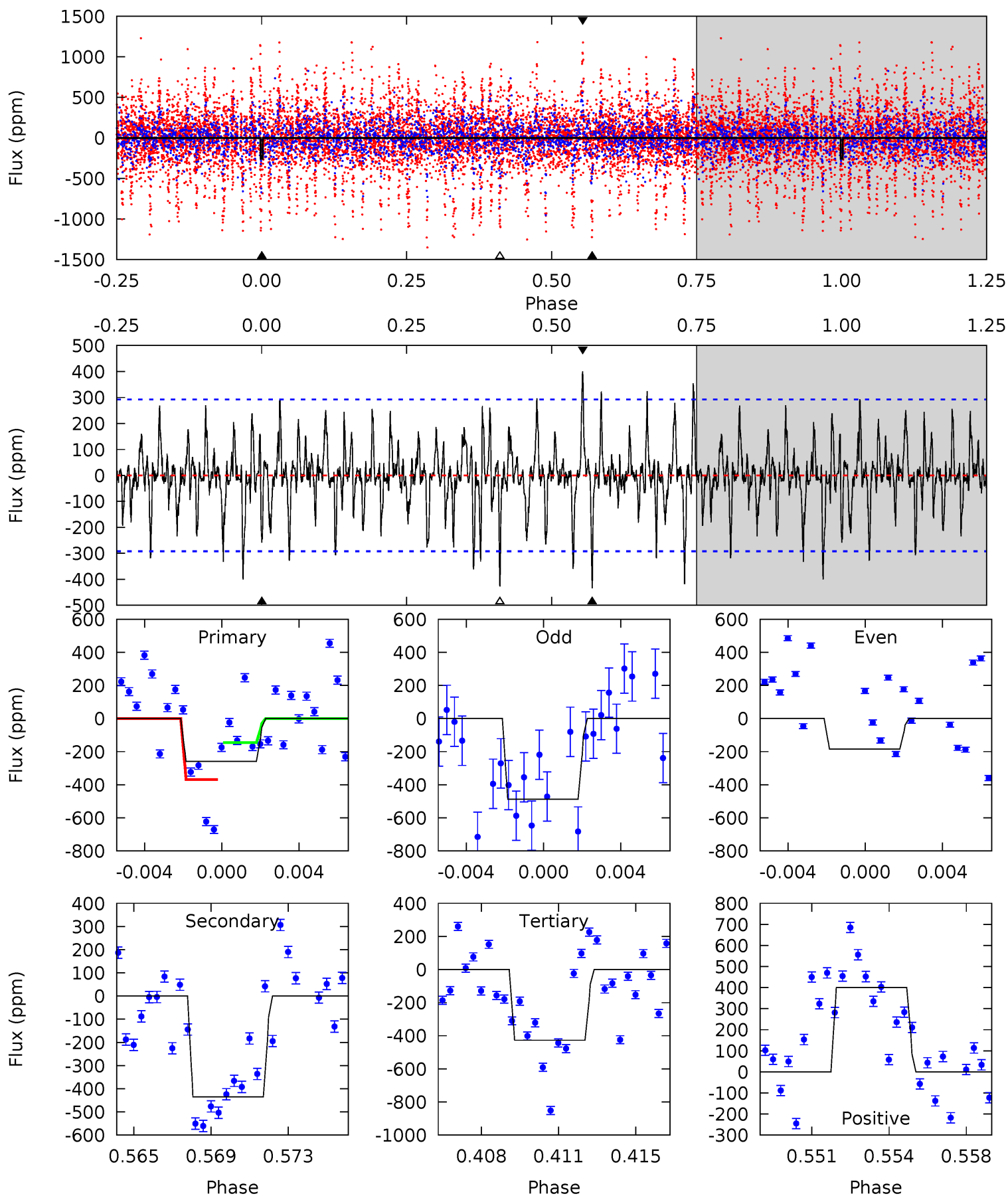
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.53	5.11	5.02	4.44	5.20	2.88	1.56	1.51	2.09	0.10	0.67	0.84	0.83	0.40	0.15



Alt Model-Shift Uniqueness Test

003972120-04, P = 81.179960 Days, E = 61.181722 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.62	7.76	7.62	7.14	5.22	2.91	2.00	-3.00	-2.53	0.14	0.61	2.69	0.86	0.48	1.90



Stellar Parameters For KIC 003972120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-200 ± 39	$2.65^{+1.39}_{-1.29}$	801^{+60}_{-49}	6135^{+2648}_{-1044}	2421^{+6268}_{-1391}
Alt.	-435 ± 56	$2.11^{+1.37}_{-1.13}$	800^{+55}_{-46}	8731^{+7511}_{-2080}	8159^{+30296}_{-5079}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

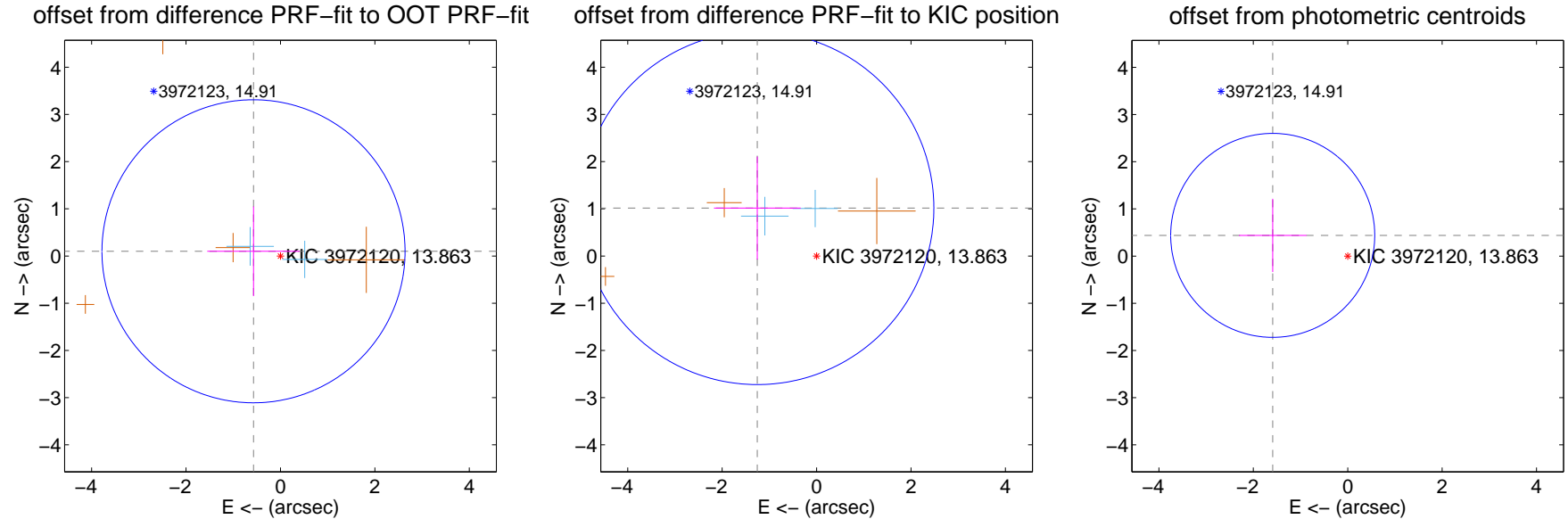
DV Centroid Data

Supplemental centroid analysis for 003972120-04. Kepler magnitude: 13.86. Transit SNR 8.79

There are 2 quarters with good PRF difference image offsets

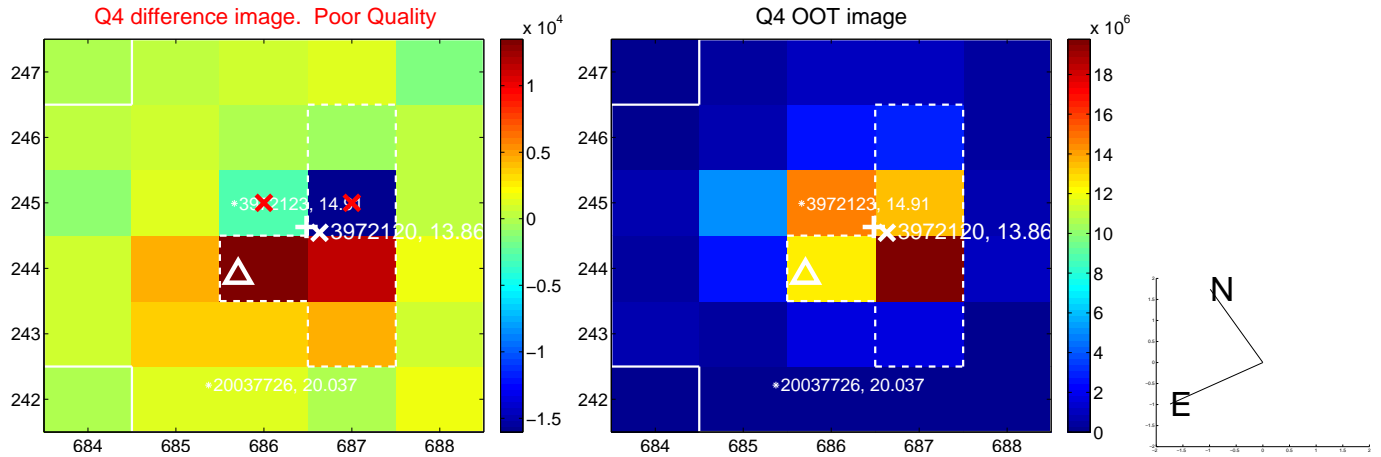
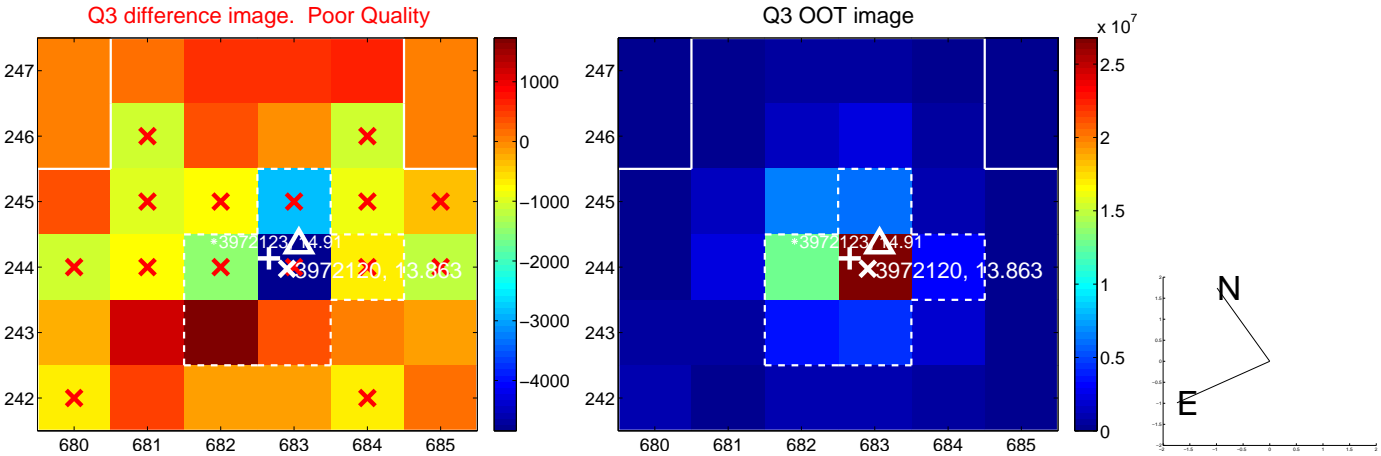
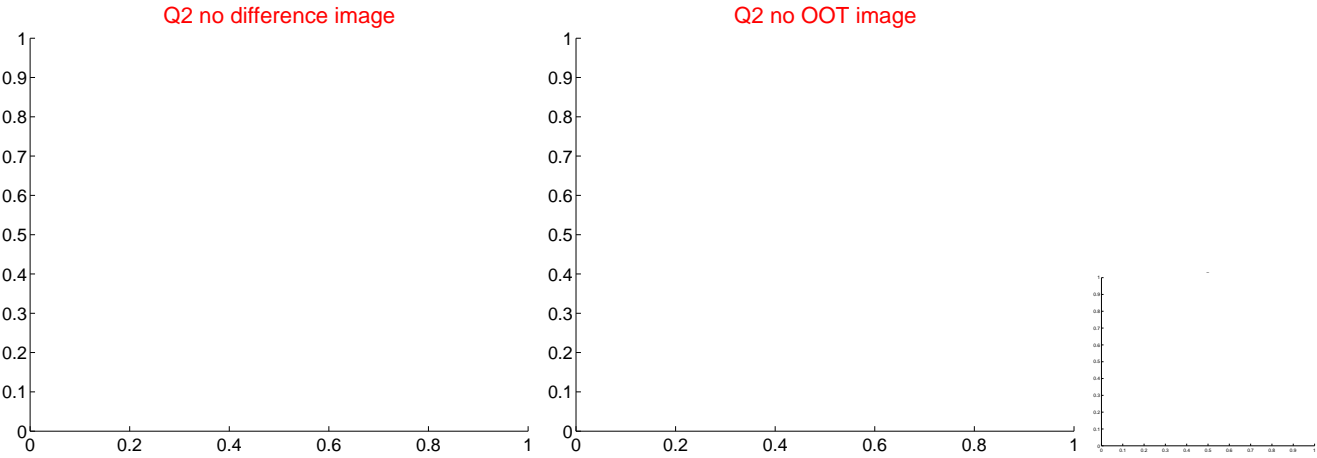
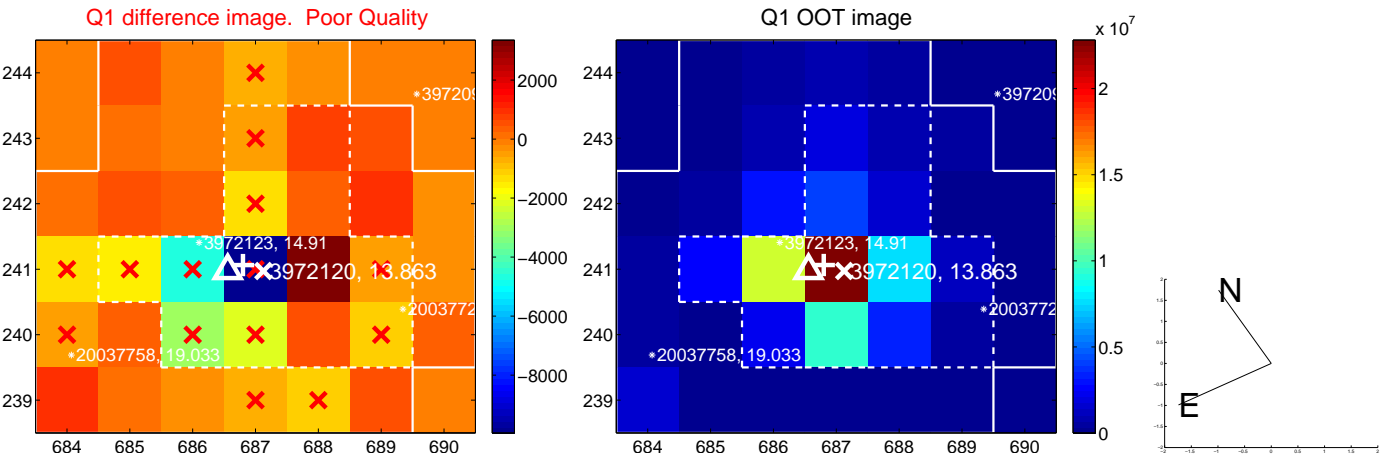
The direct PRF centroid is offset from the target star catalog position by about 0.78 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.579 ± 1.070	0.54	0.571 ± 0.980	0.100 ± 0.950
PRF-fit source offset from KIC position	1.614 ± 1.246	1.30	1.255 ± 0.919	1.015 ± 1.091
photometric centroid source offset	1.65 ± 0.72	2.29	1.59 ± 0.72	0.44 ± 0.77

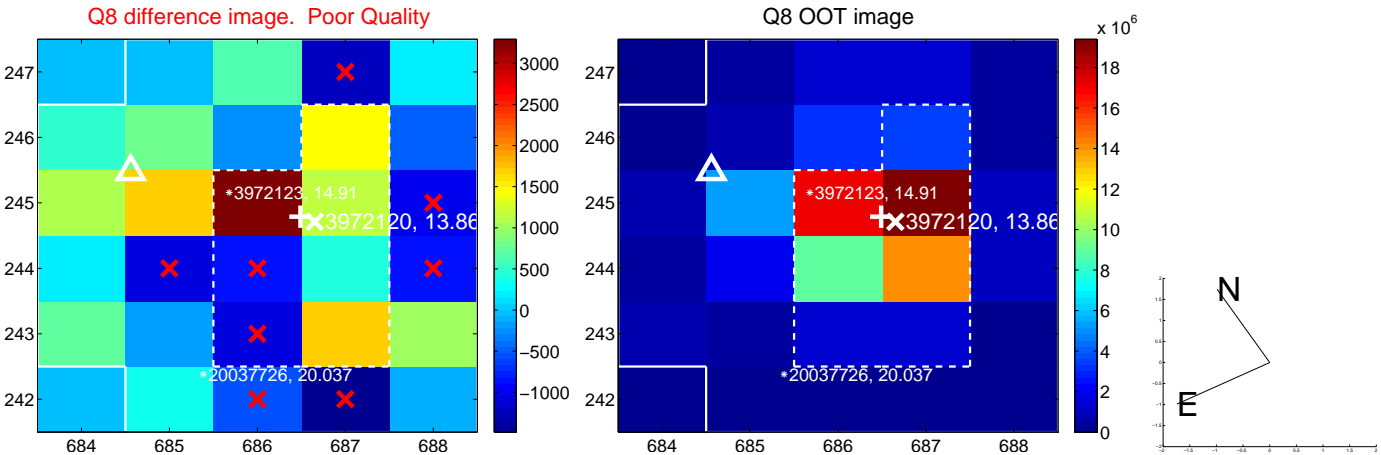
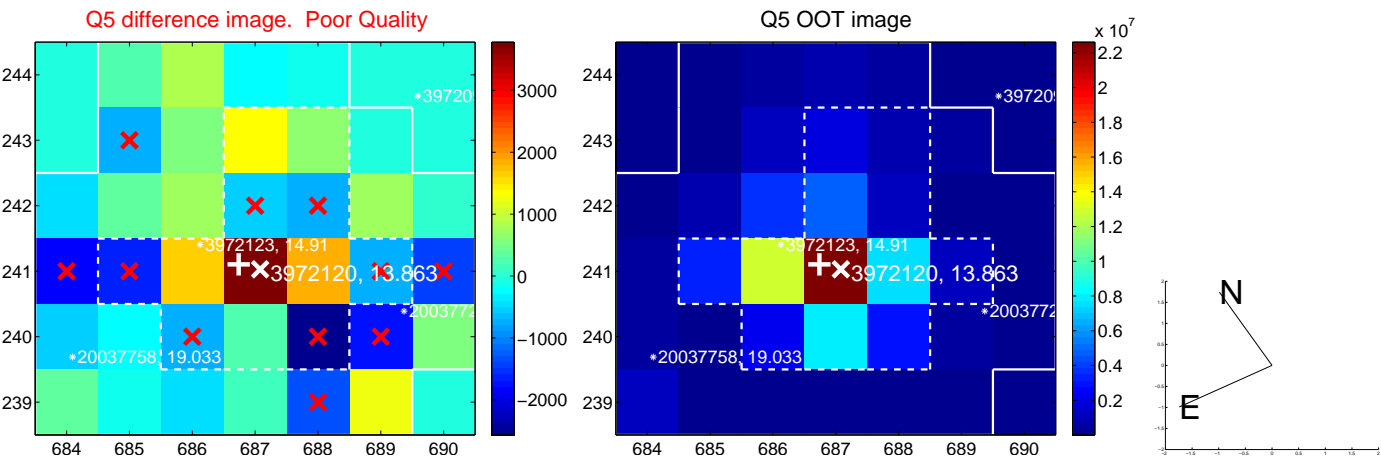


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

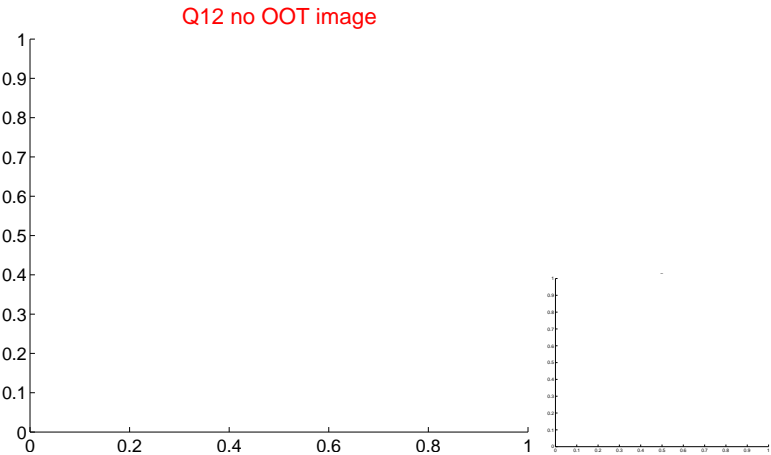
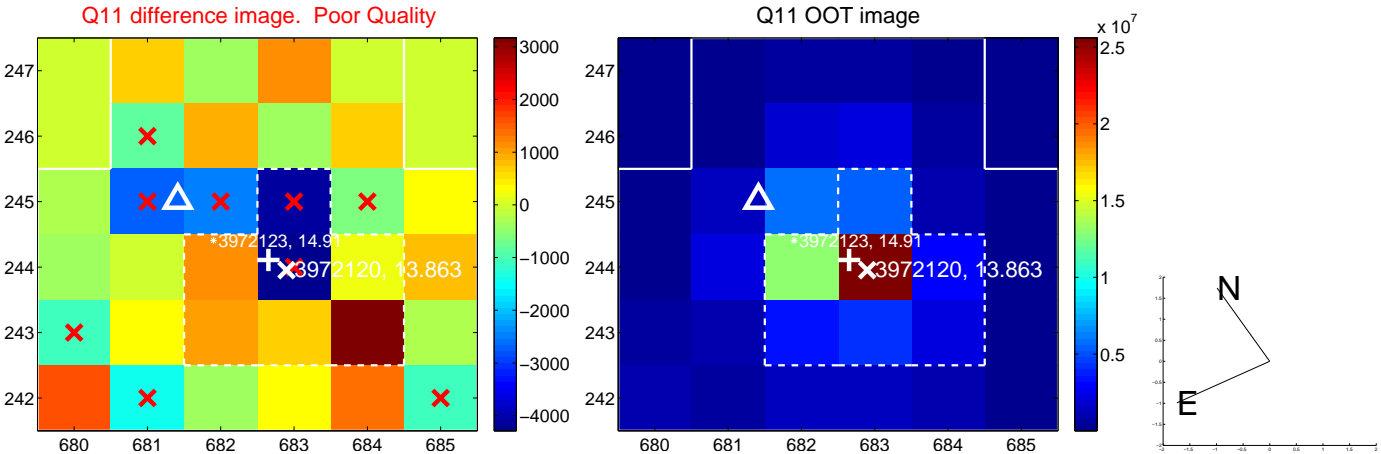
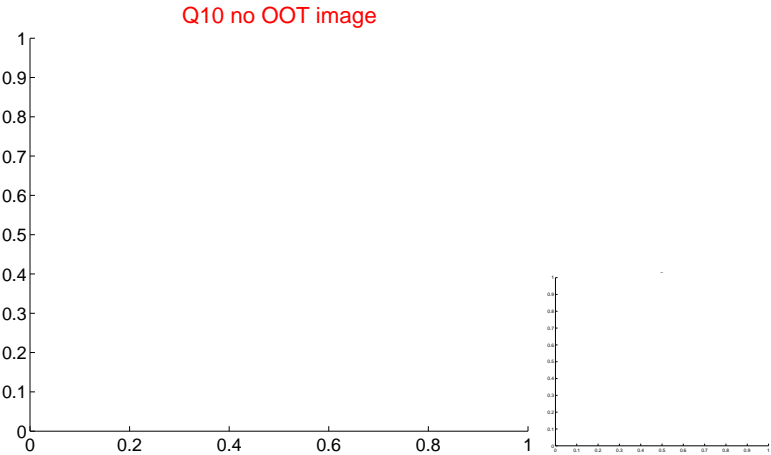
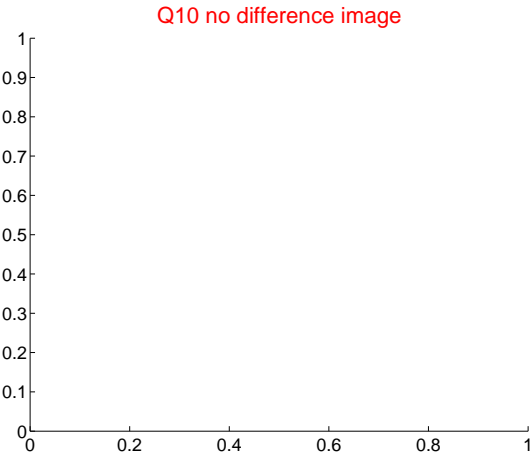
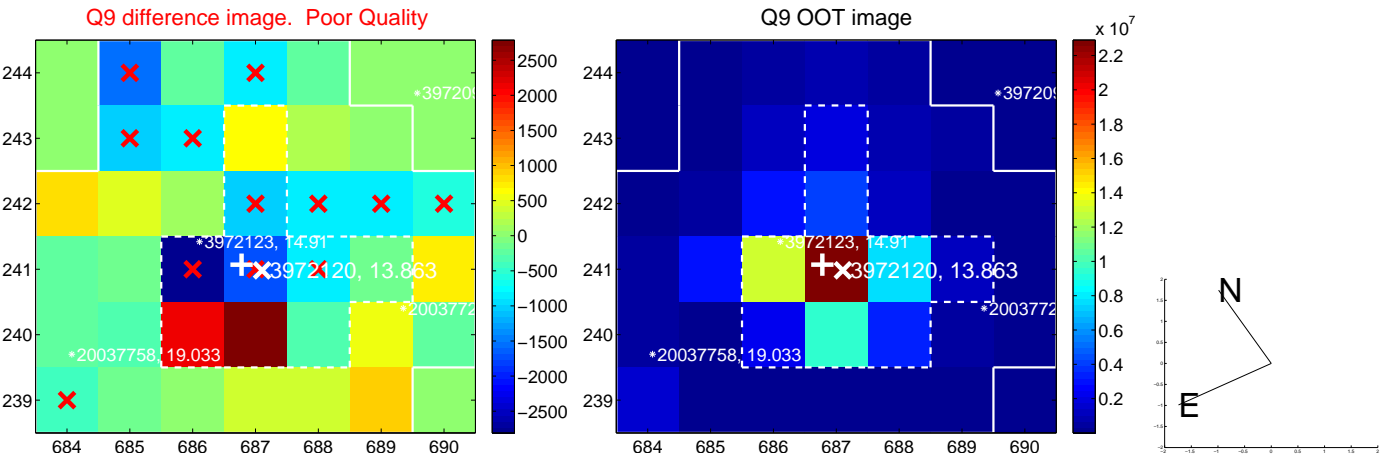
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



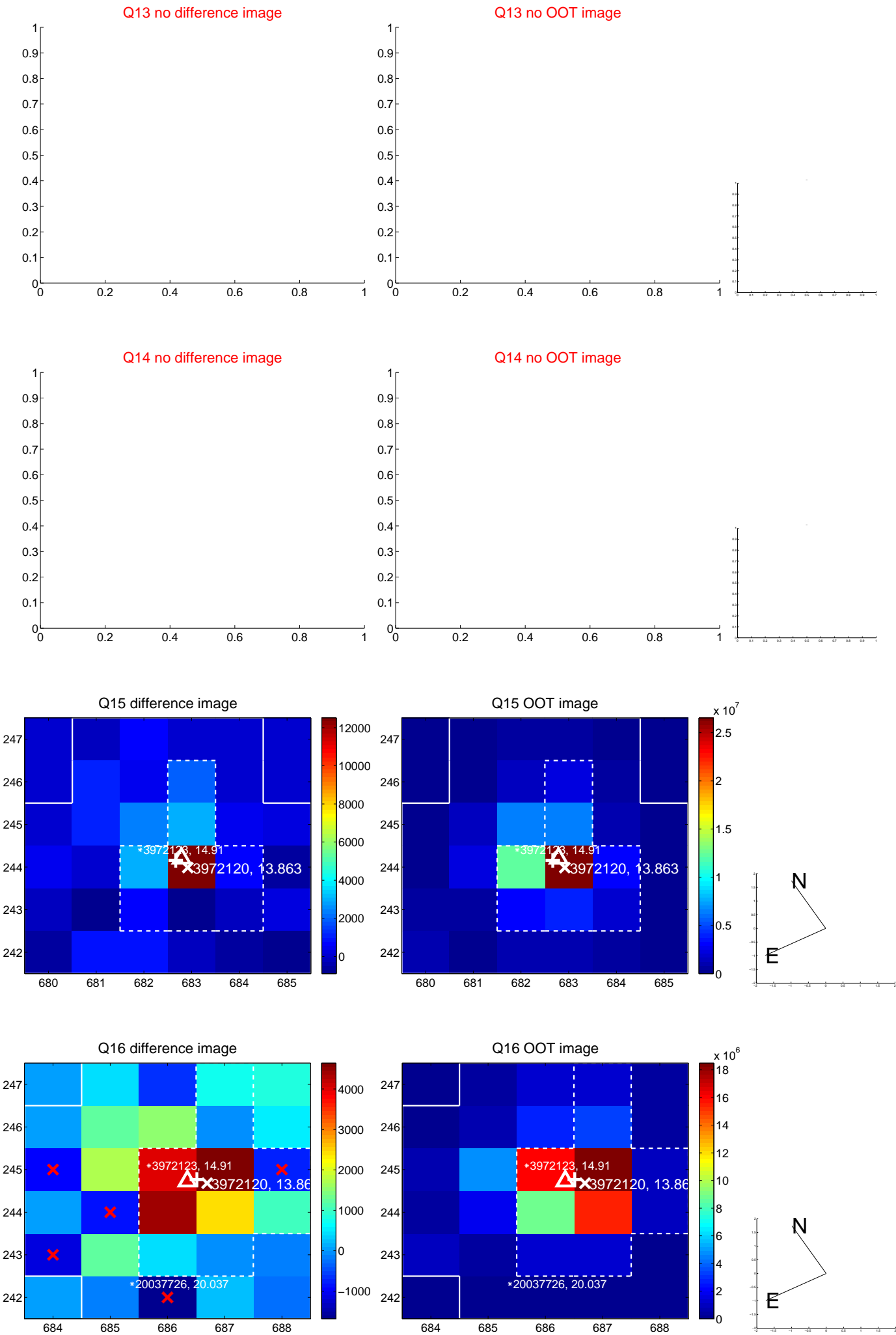
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



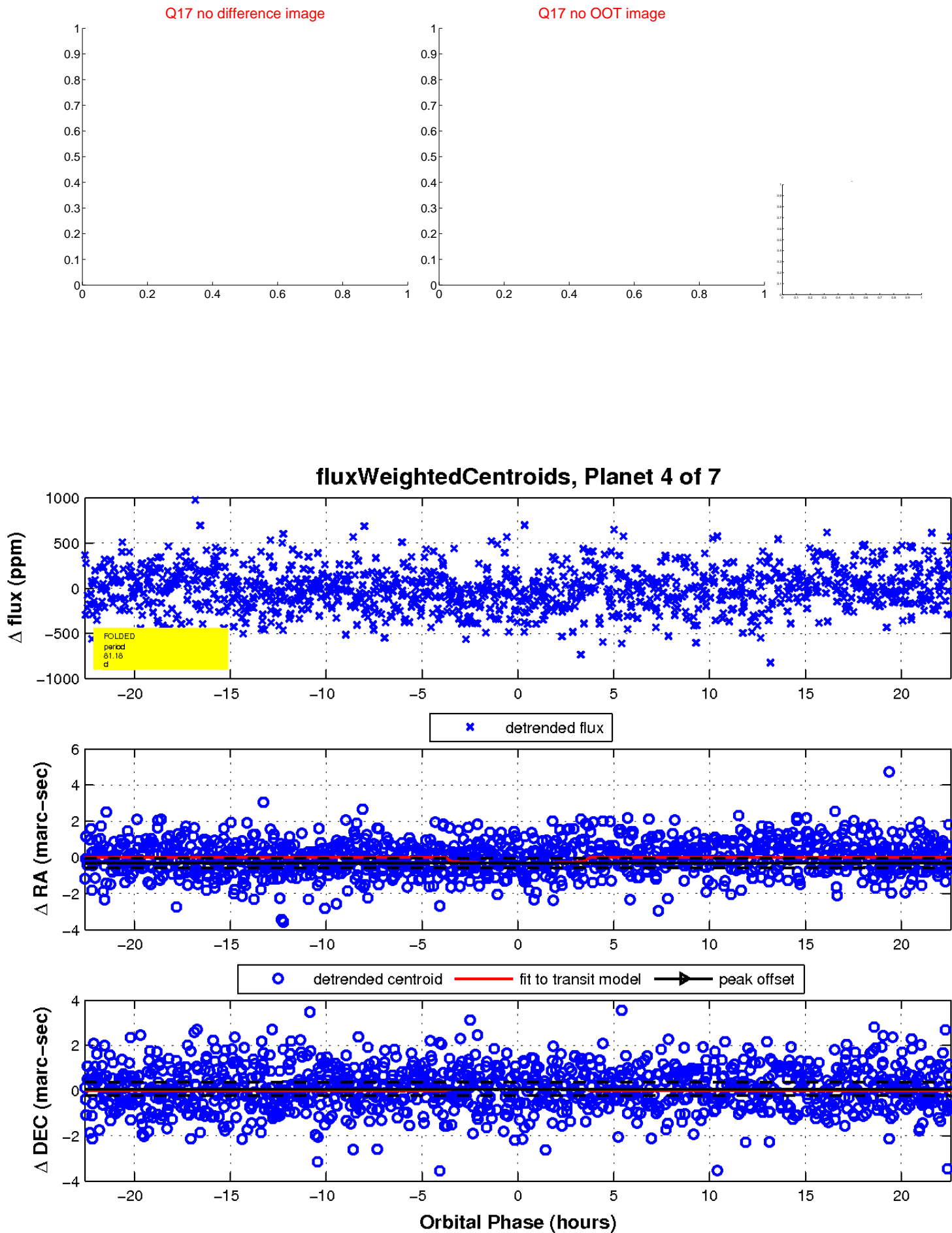
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

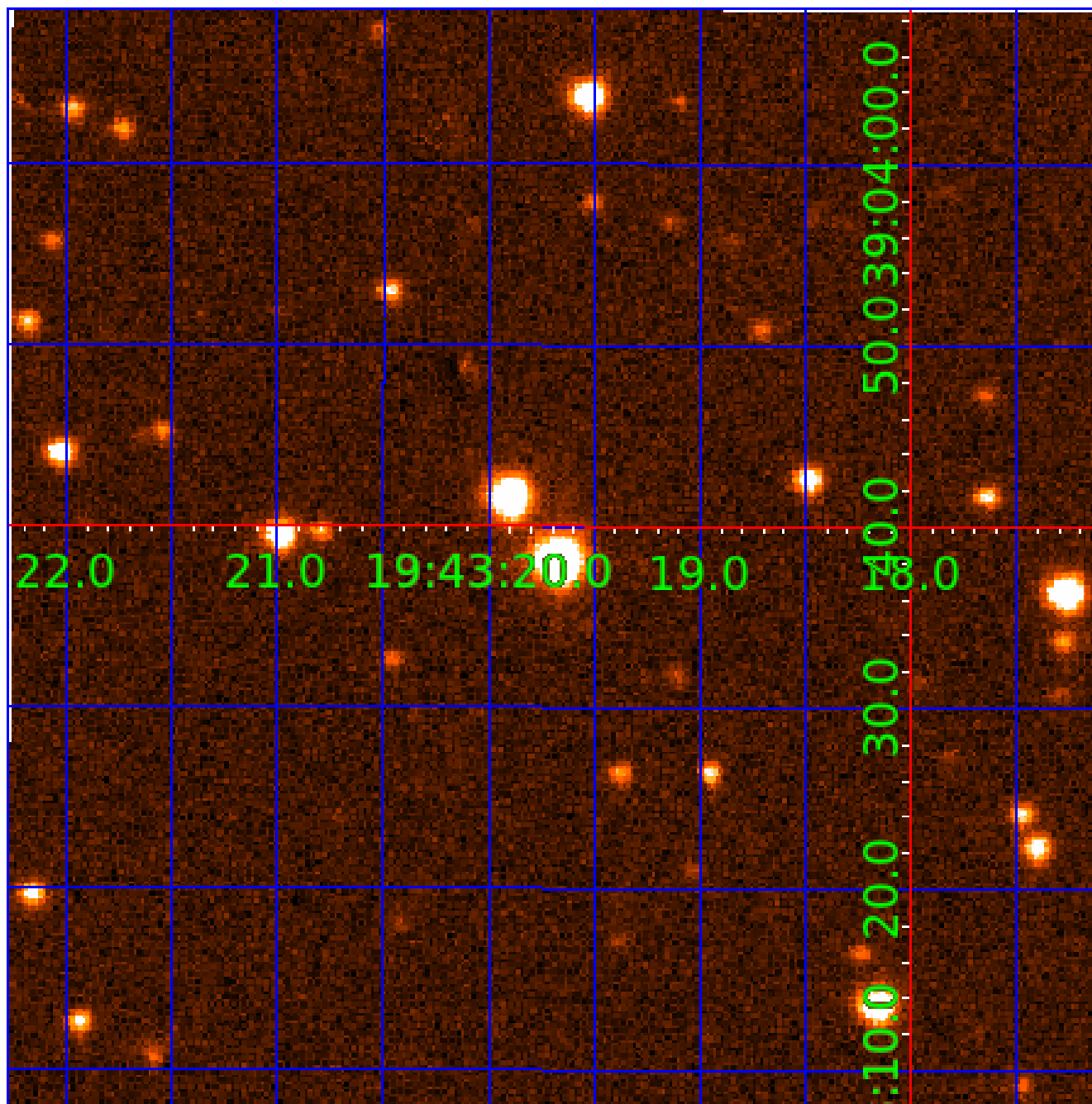


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

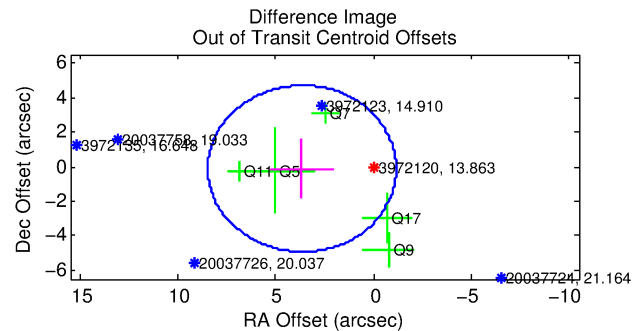
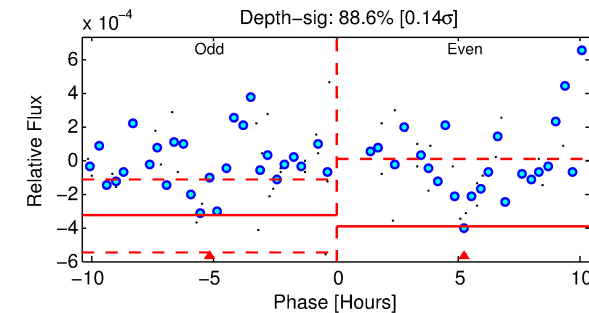
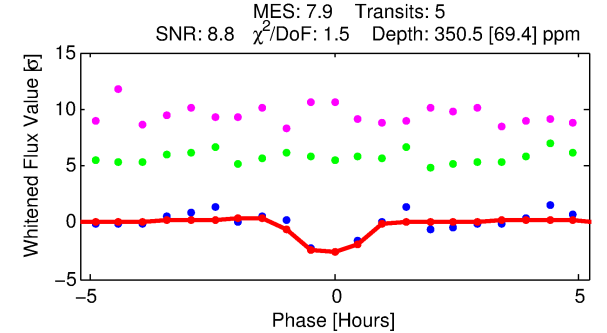
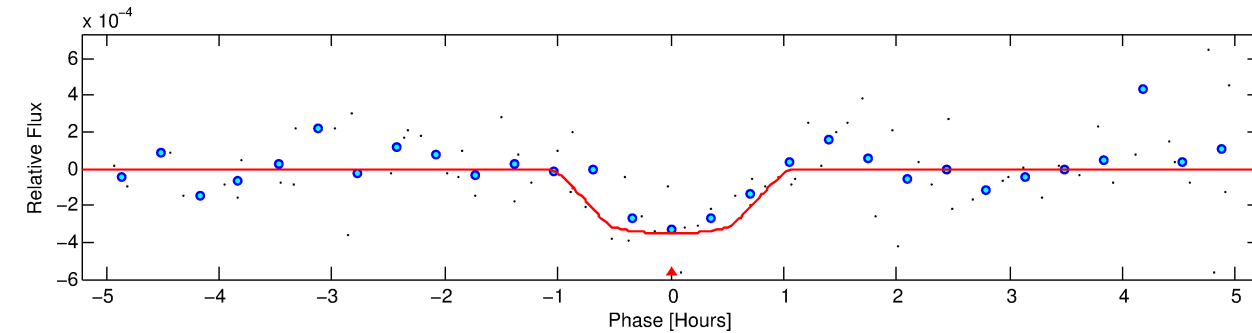
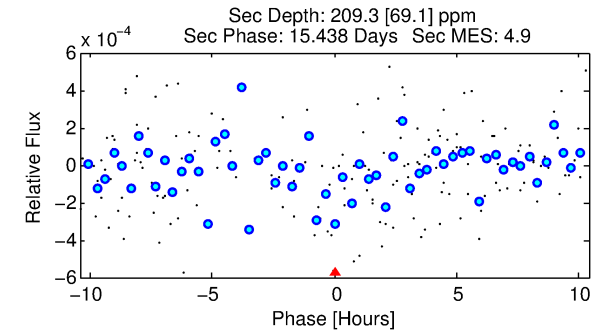
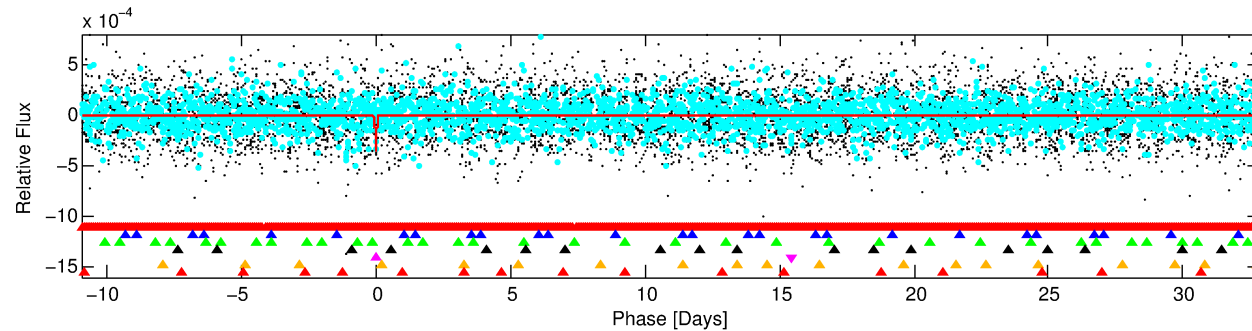
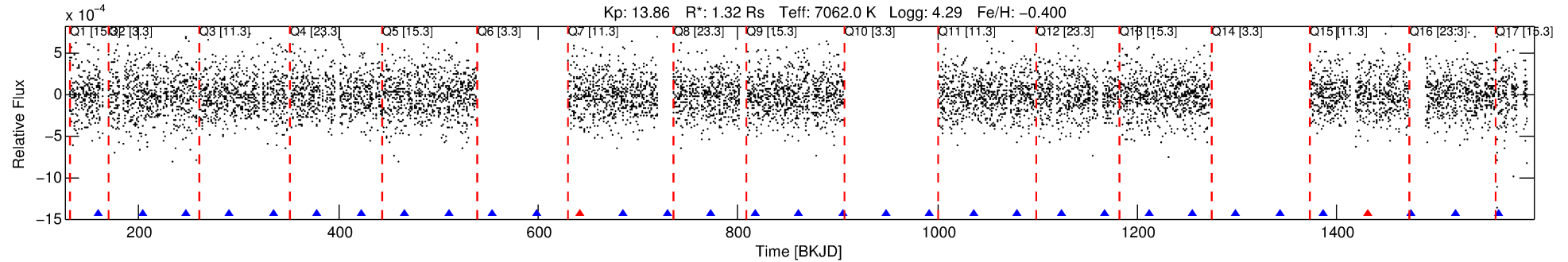
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-05

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 5 of 7 Period: 43.823 d



DV Fit Results:

Period = 43.82321 [0.00049] d
Epoch = 159.7826 [0.0094] BKJD
Rp/R* = 0.0197 [0.0237]
a/R* = 99.45 [724.04]
b = 0.88 [1.91]
Seff = 56.62 [22.25]
Teq = 699 [69] K
Rp = 2.83 [3.52] Re
a = 0.2615 [0.0661] AU
Ag = 983.03 [2418.41] [0.41σ]
Teffp = 6055 [3694] K [1.45σ]

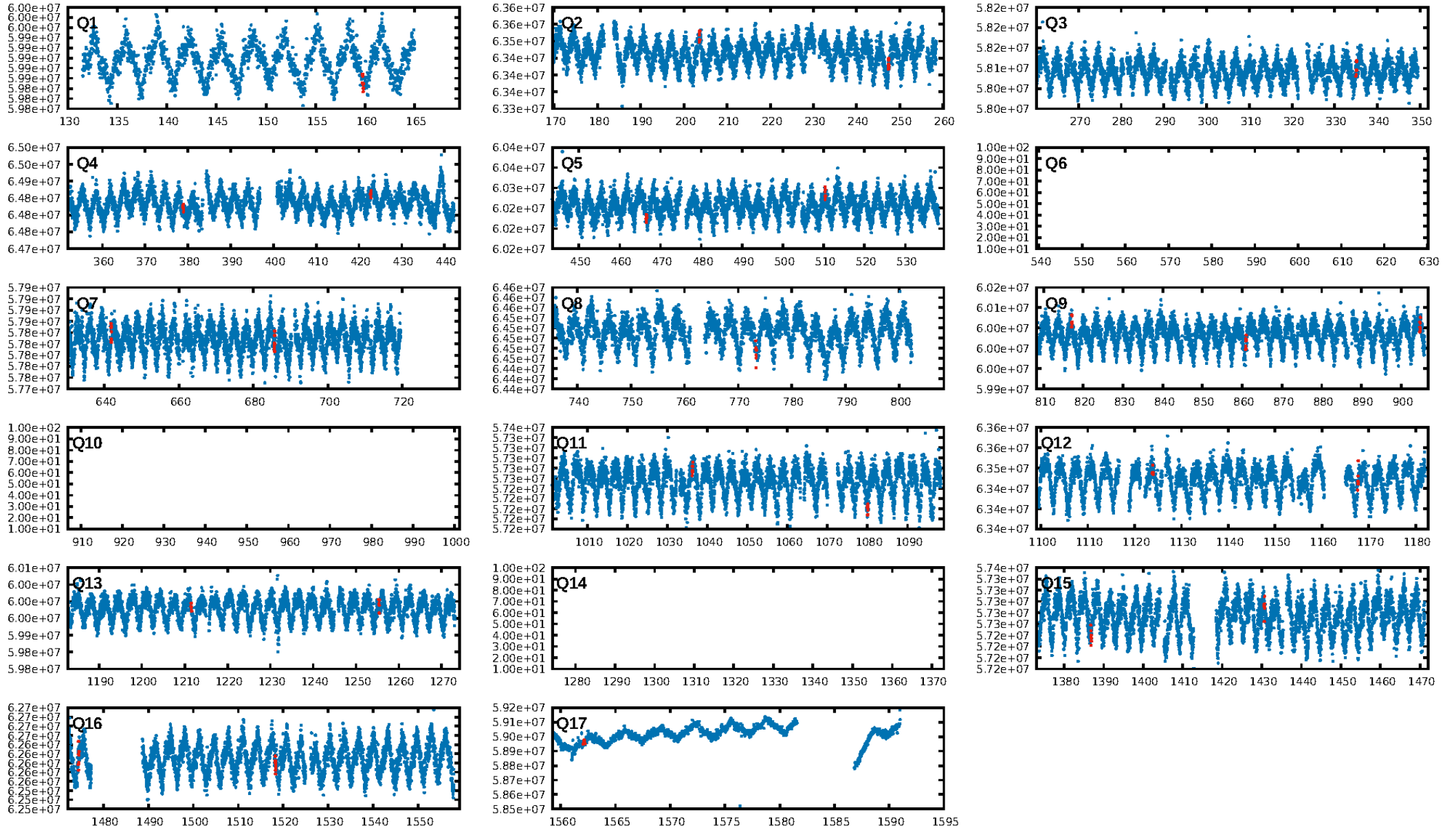
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.86σ]
LongPeriod-sig: 100.0% [58.42σ]
ModelChiSquare2-sig: 70.0%
ModelChiSquareGof-sig: 98.0%
Bootstrap-pfa: 4.20e-08
RollingBand-fgt: 0.60 [3/5]
GhostDiagnostic-chr: -2.261
Centroid-sig: 18.2%
Centroid-so: 1.755 arcsec [1.80σ]
OotOffset-rm: 3.655 arcsec [2.28σ]
KicOffset-rm: 4.388 arcsec [2.81σ]
OotOffset-st: 0/2/0/3 [5]
KicOffset-st: 0/2/0/3 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.36 [5/14]

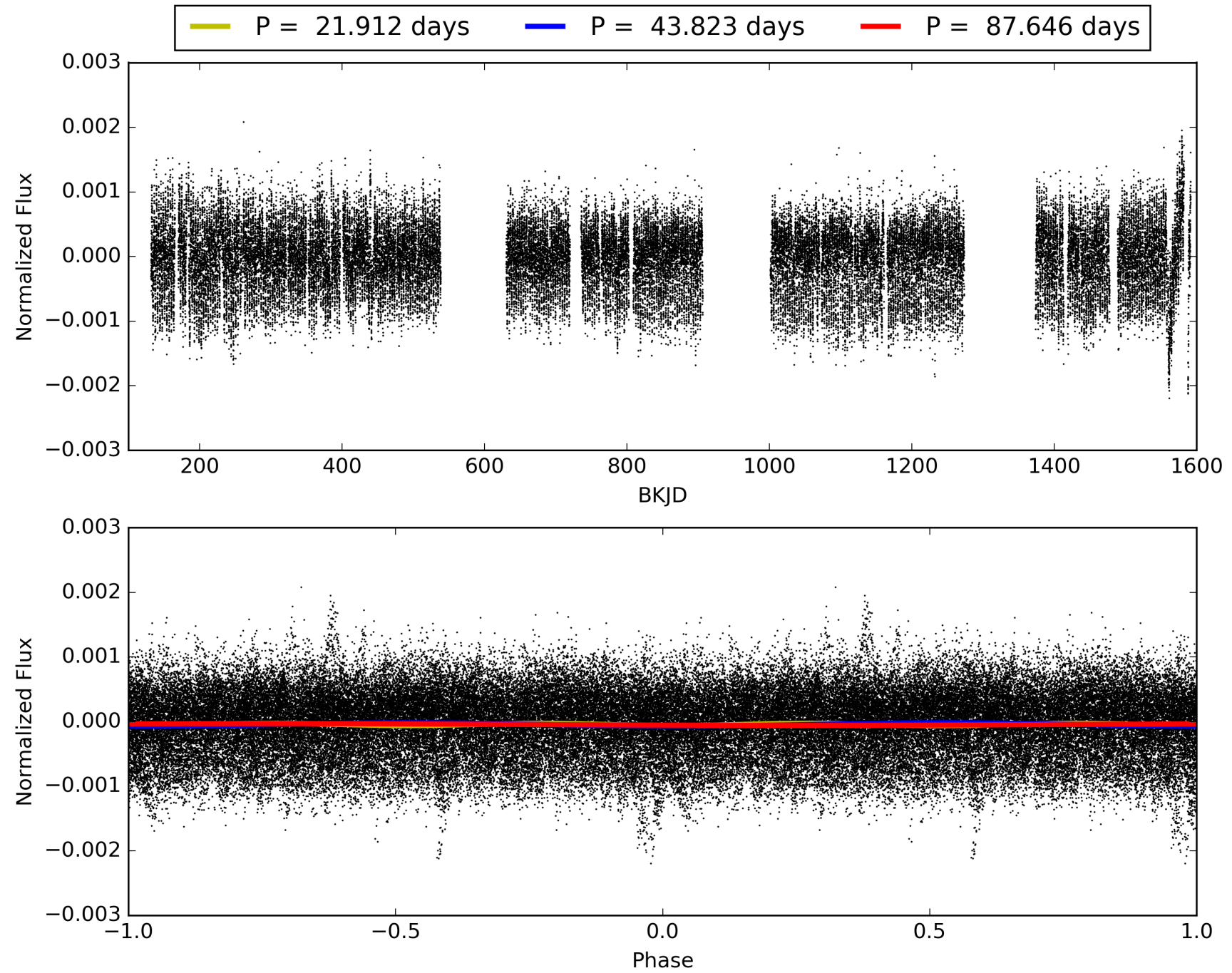
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:20 Z

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

TCE 003972120-05, PDC Light Curves

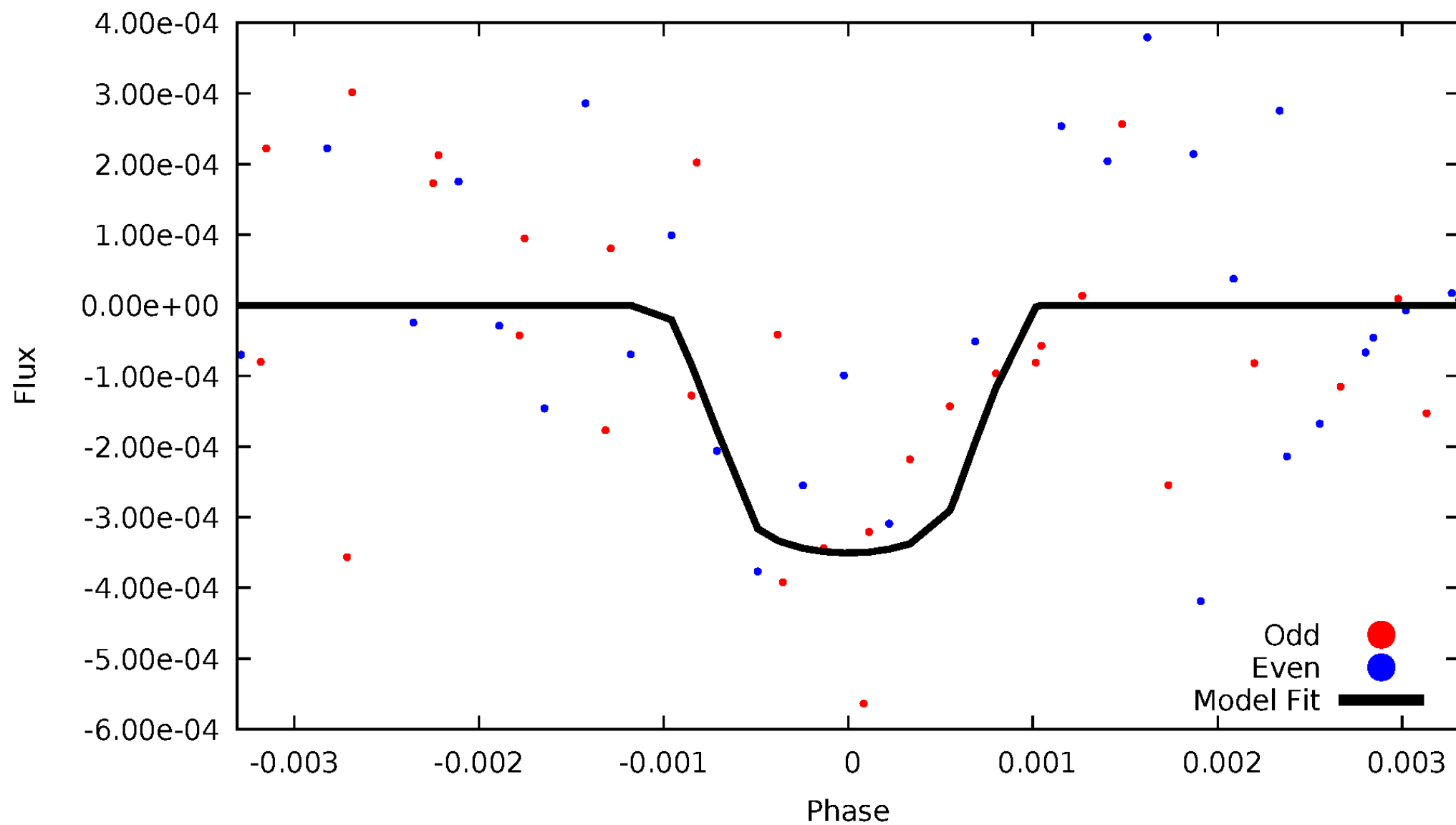


TCE 003972120-05



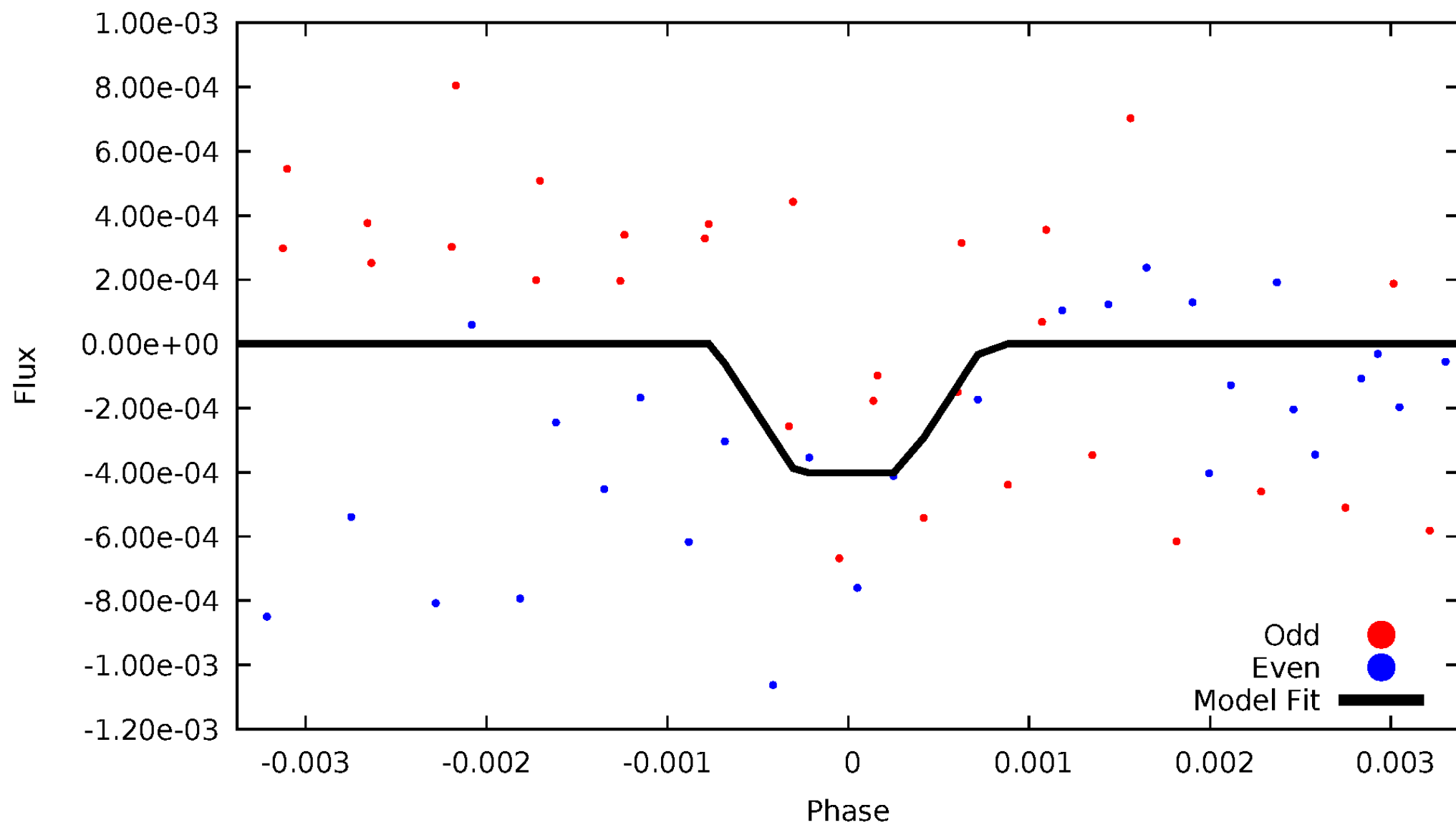
DV Odd/Even

TCE 003972120-05



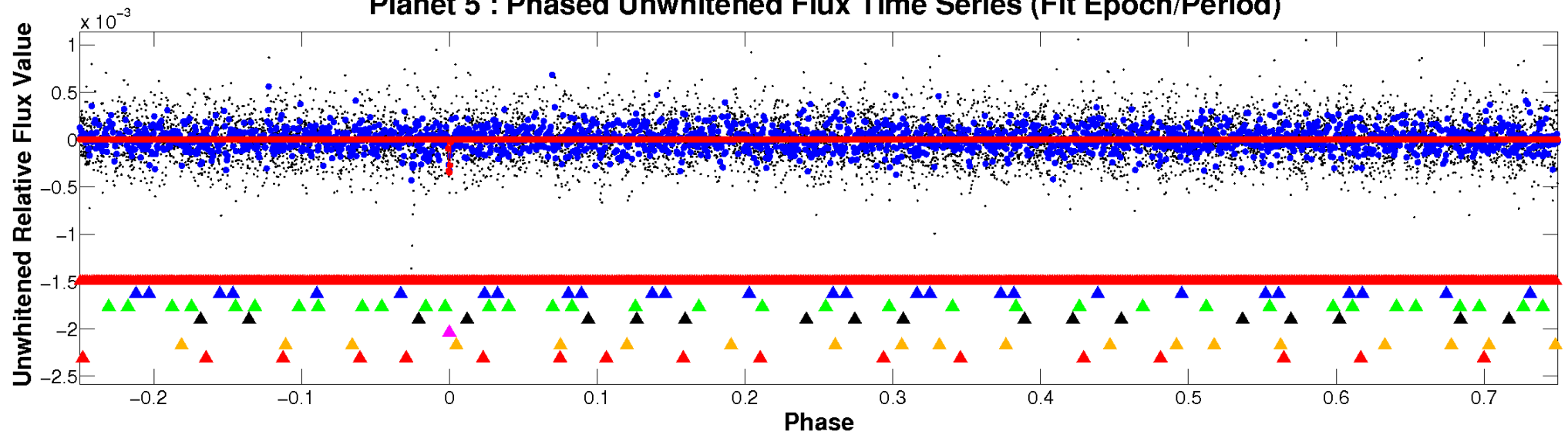
ALT Odd/Even

TCE 003972120-05

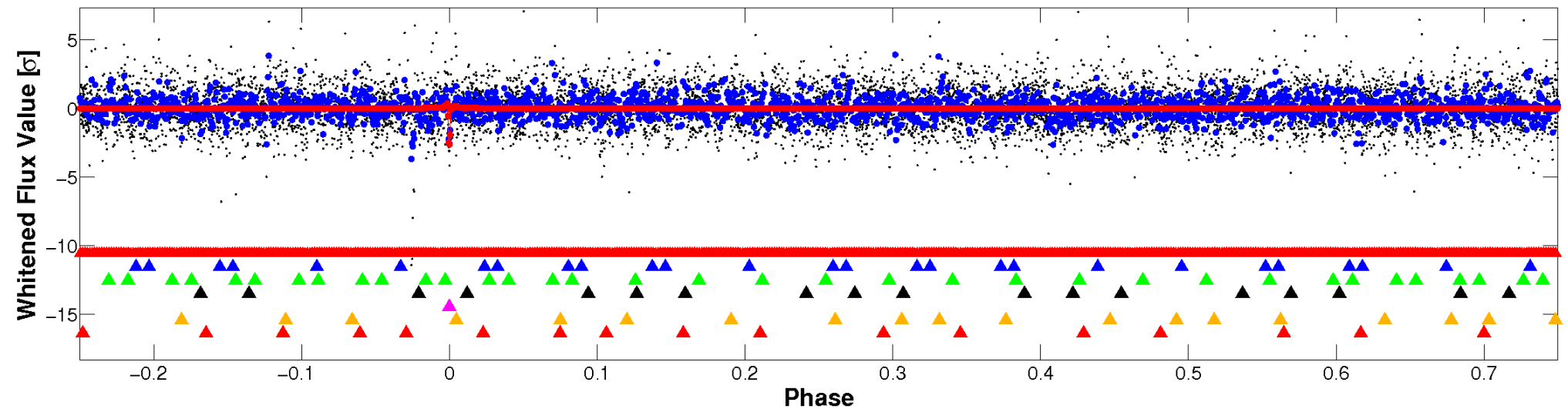


Non-Whitened Vs. Whitened Light Curve

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

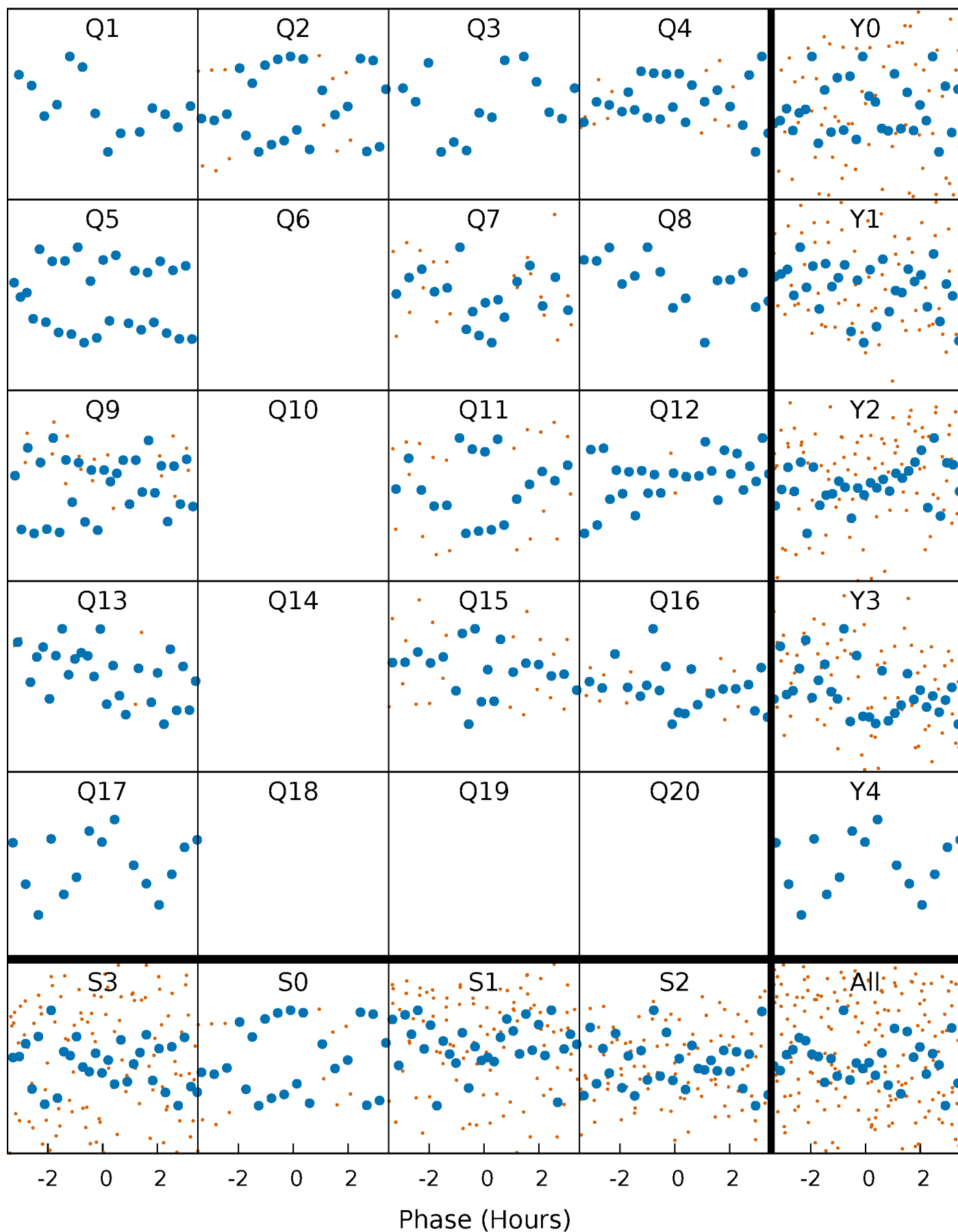


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



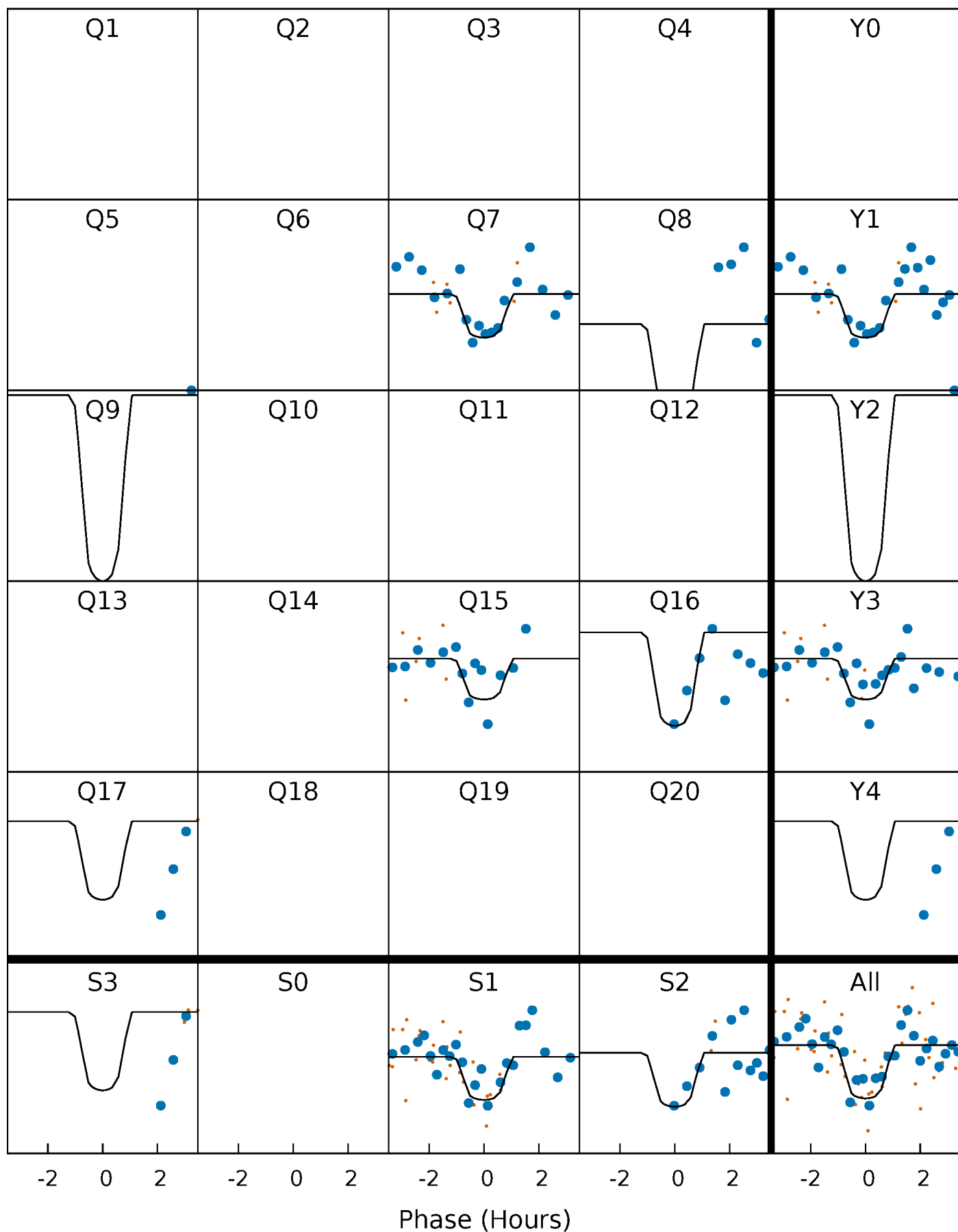
PDC Quarter-Phased Transit Curves

TCE 003972120-05 $P = 43.823208$ Days $T_0 = 159.782615$ (BKJD)



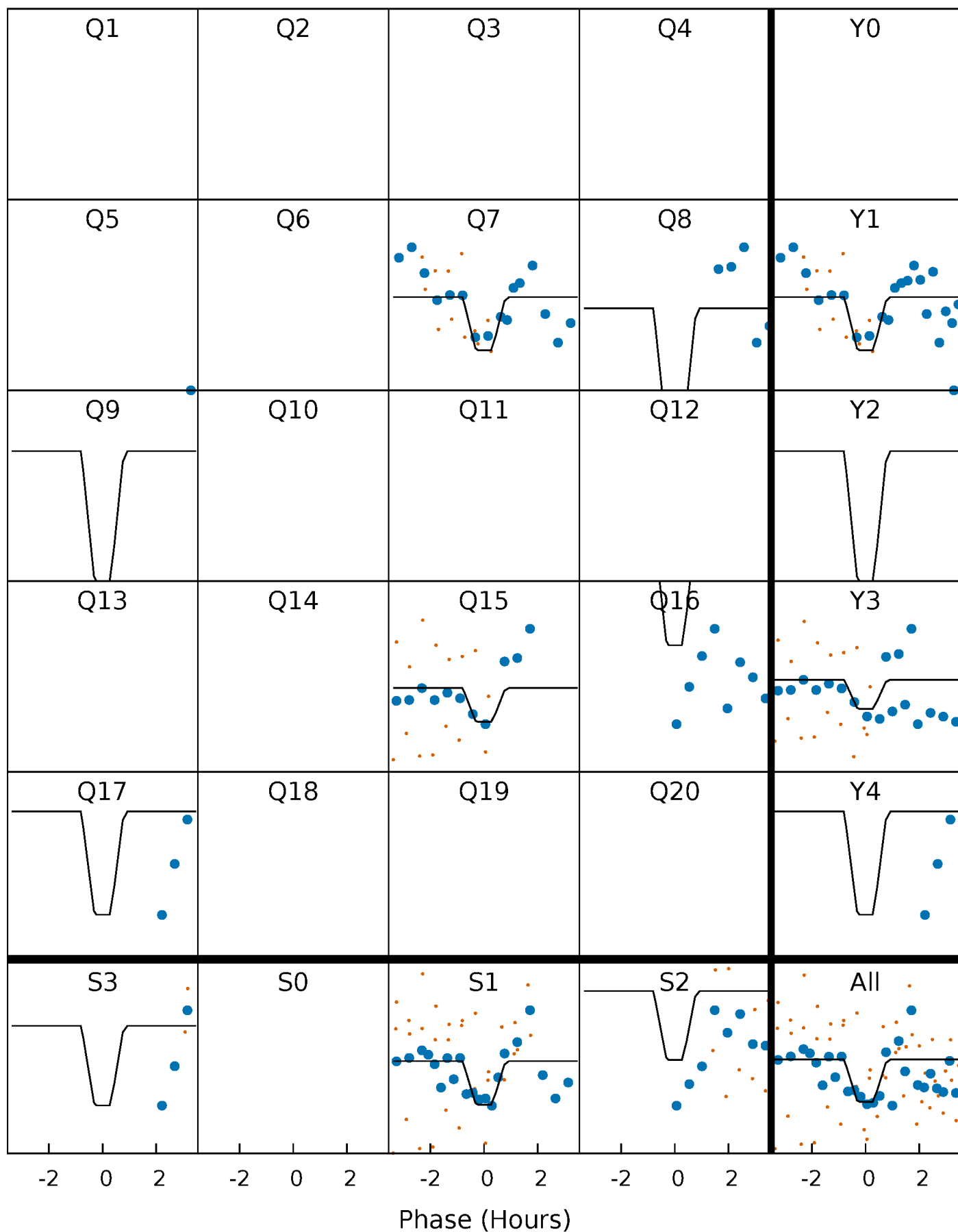
DV Quarter-Phased Transit Curves

TCE 003972120-05 P= 43.823208 Days $T_0=159.782615$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

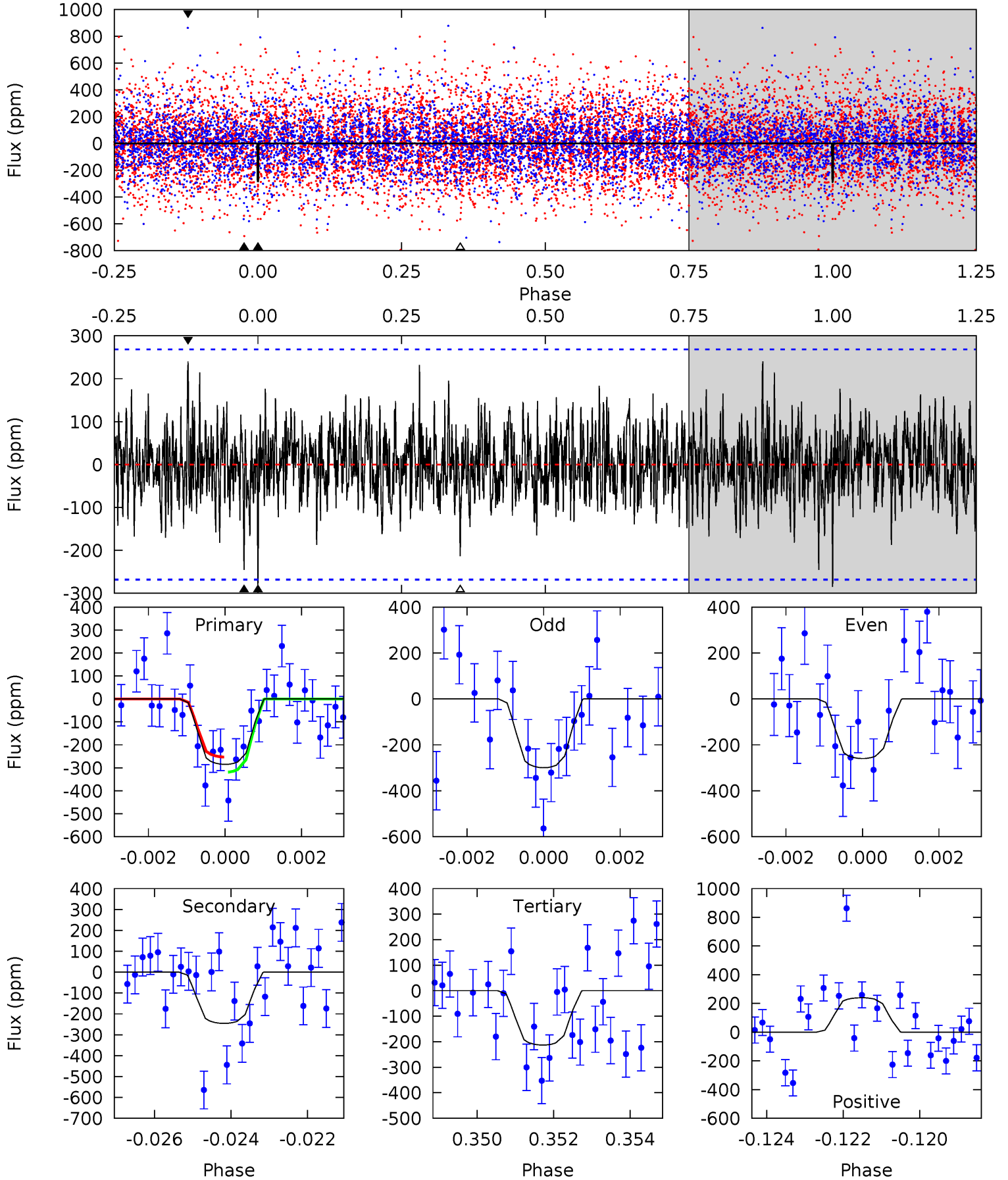
TCE 003972120-05 $P = 43.823084$ Days $T_0 = 159.782837$ (BKJD)



DV Model-Shift Uniqueness Test

003972120-05, P = 43.823208 Days, E = 115.959407 Days

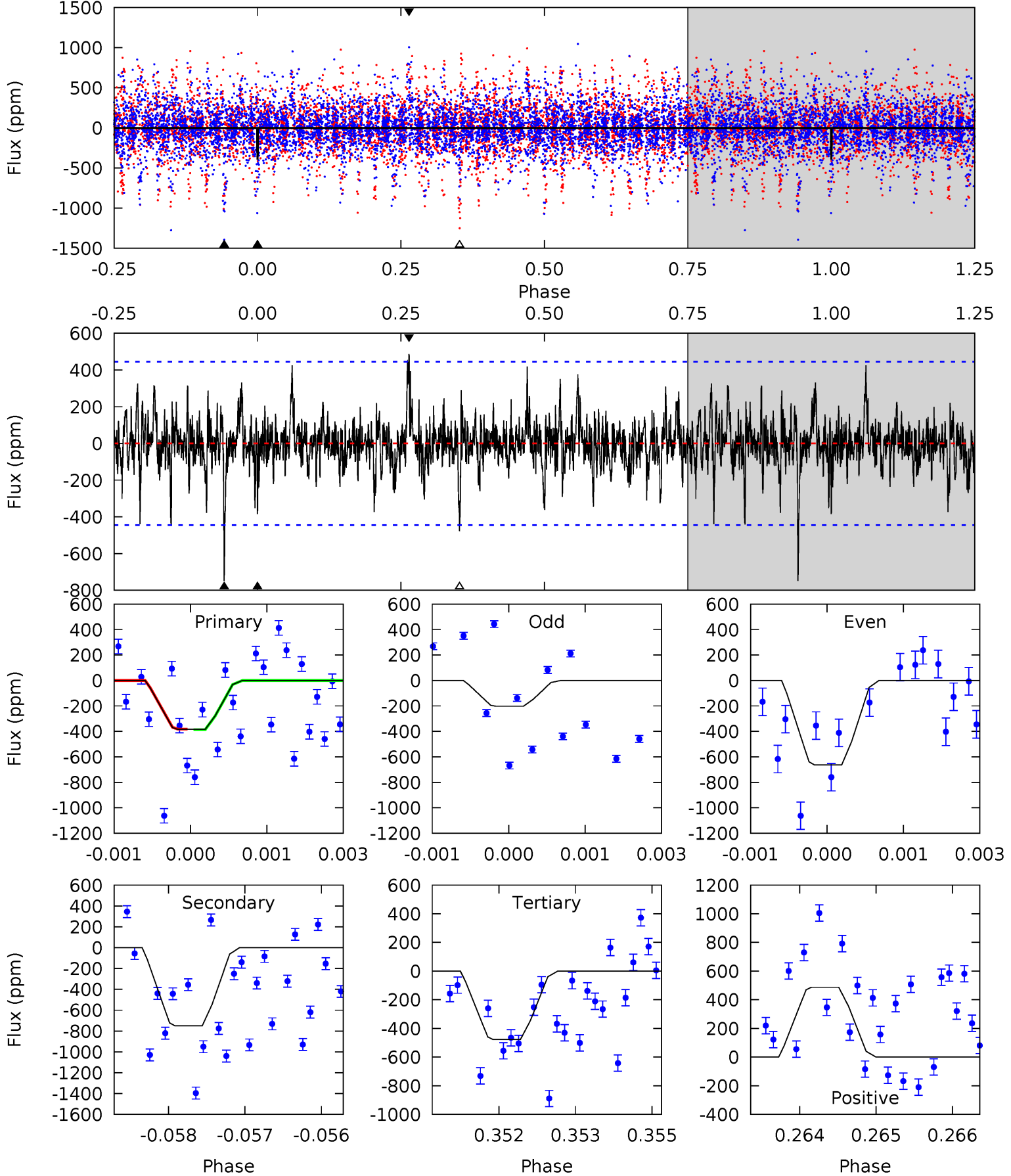
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.66	4.87	4.23	4.76	5.33	3.09	1.25	1.43	0.90	0.64	0.11	0.37	0.99	0.46	0.65



Alt Model-Shift Uniqueness Test

003972120-05, $P = 43.823084$ Days, $E = 115.959753$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.66	9.10	5.80	5.91	5.40	3.22	1.27	-1.13	-1.25	3.30	3.19	2.61	1.05	0.39	0.02



Stellar Parameters For KIC 003972120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-246 ± 50	$3.82^{+3.11}_{-2.37}$	984^{+74}_{-57}	5483^{+3828}_{-1278}	615^{+3801}_{-435}
Alt.	-749 ± 82	$4.08^{+3.03}_{-2.67}$	983^{+70}_{-53}	7095^{+8572}_{-1838}	1742^{+12172}_{-1191}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

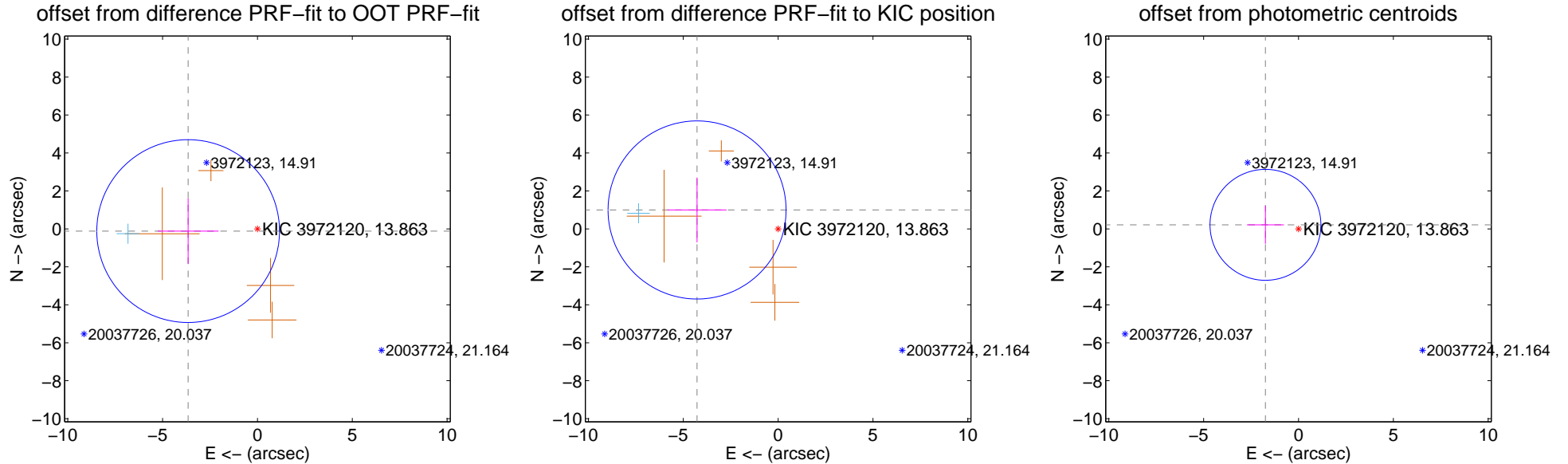
DV Centroid Data

Supplemental centroid analysis for 003972120-05. Kepler magnitude: 13.86. Transit SNR 8.85

There are 1 quarters with good PRF difference image offsets

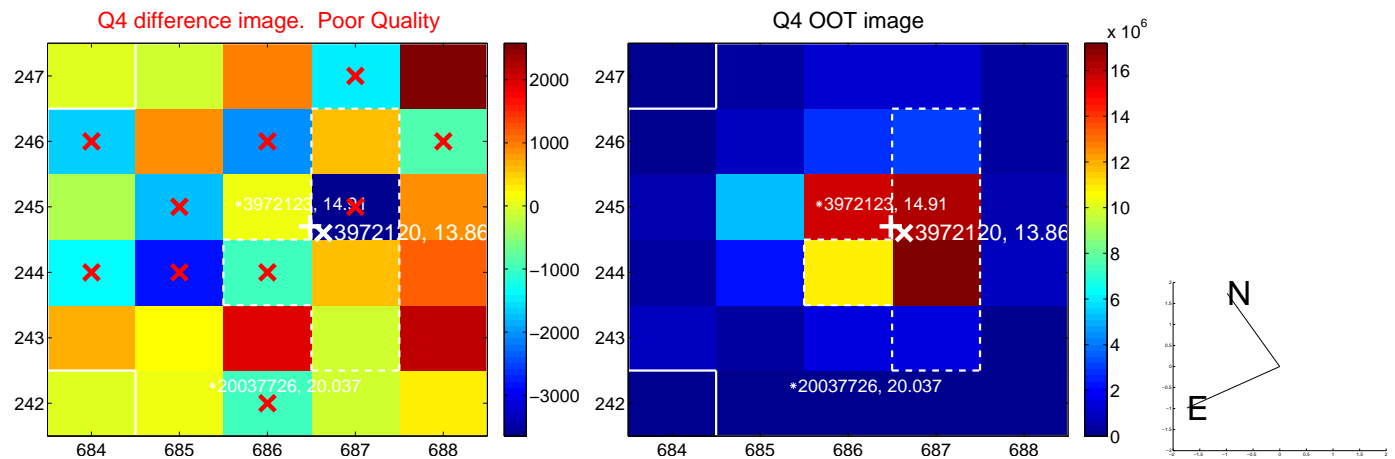
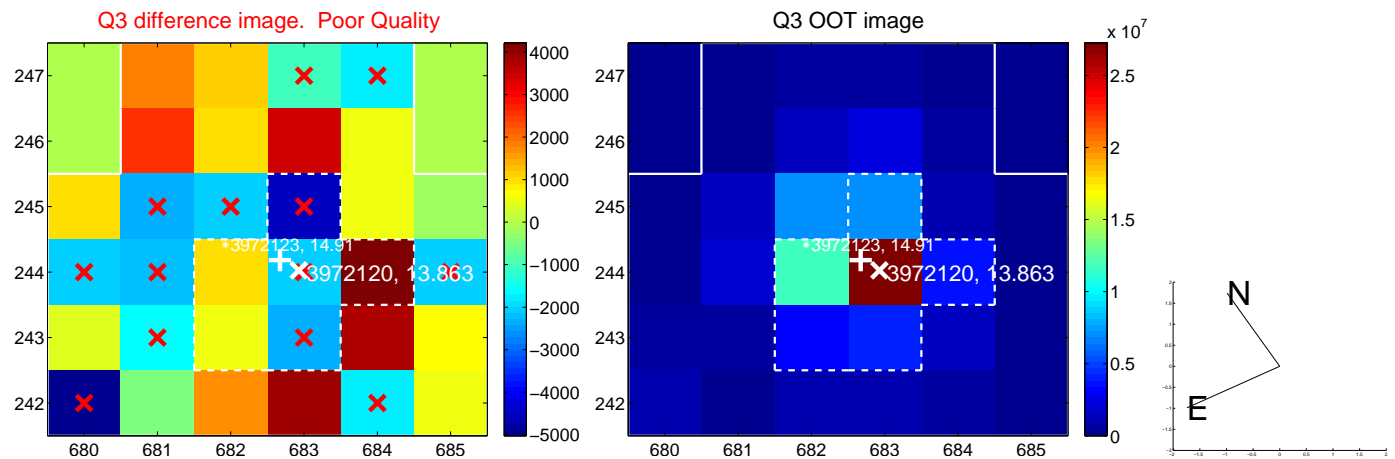
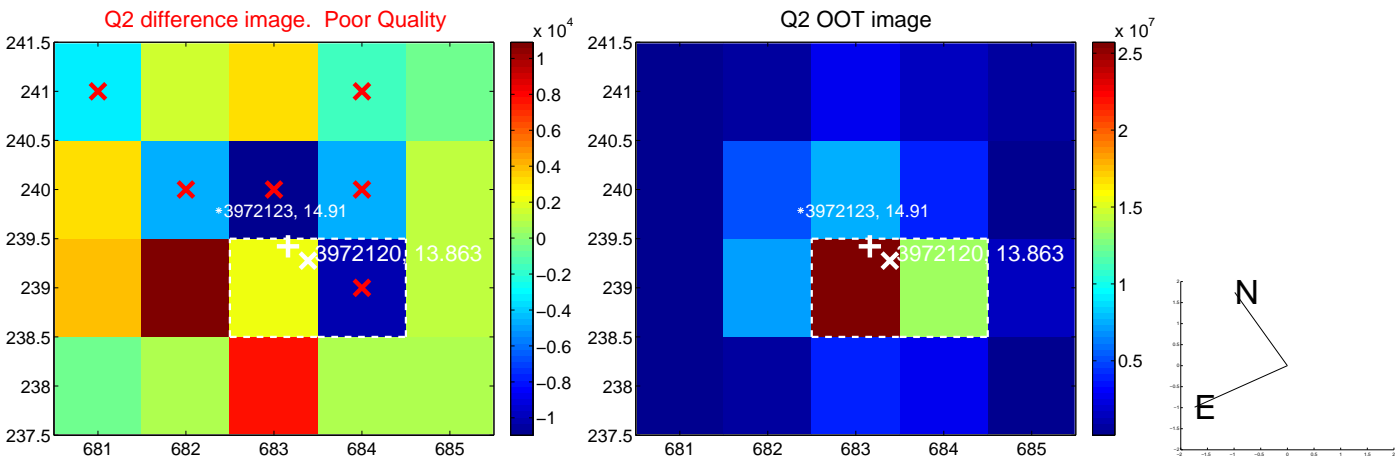
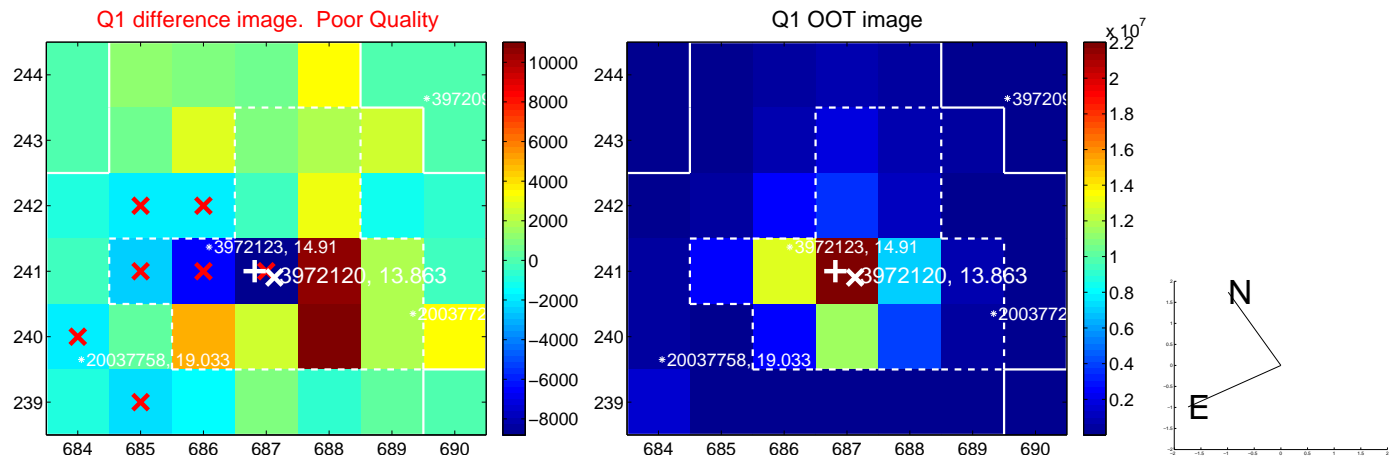
The direct PRF centroid is offset from the target star catalog position by about 1.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.655 ± 1.605	2.28	3.653 ± 1.605	-0.116 ± 1.719
PRF-fit source offset from KIC position	4.388 ± 1.564	2.81	4.273 ± 1.556	0.997 ± 1.708
photometric centroid source offset	1.76 ± 0.97	1.80	1.74 ± 0.97	0.21 ± 1.00

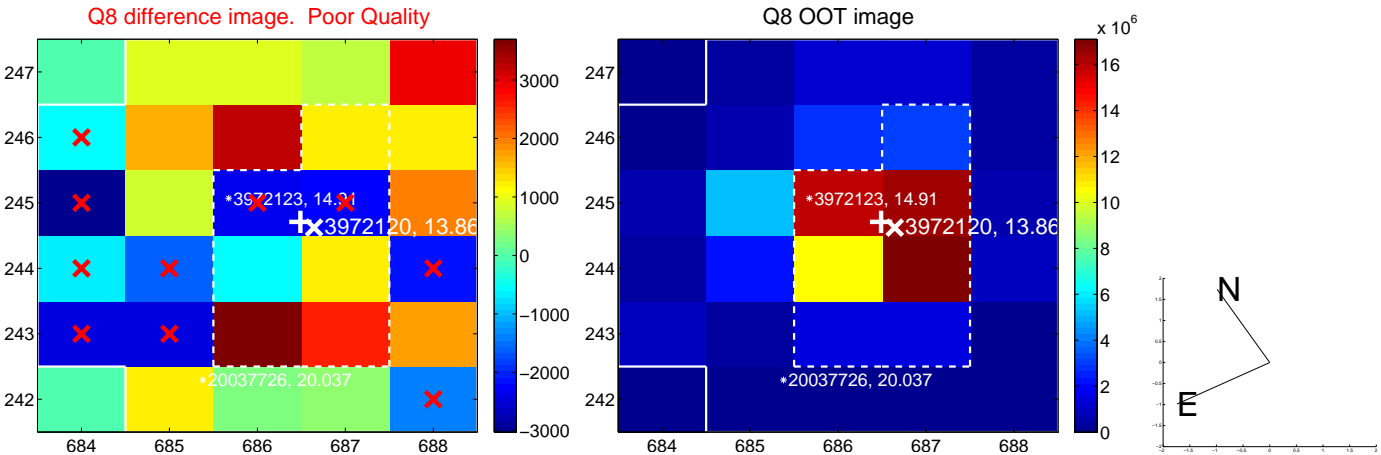
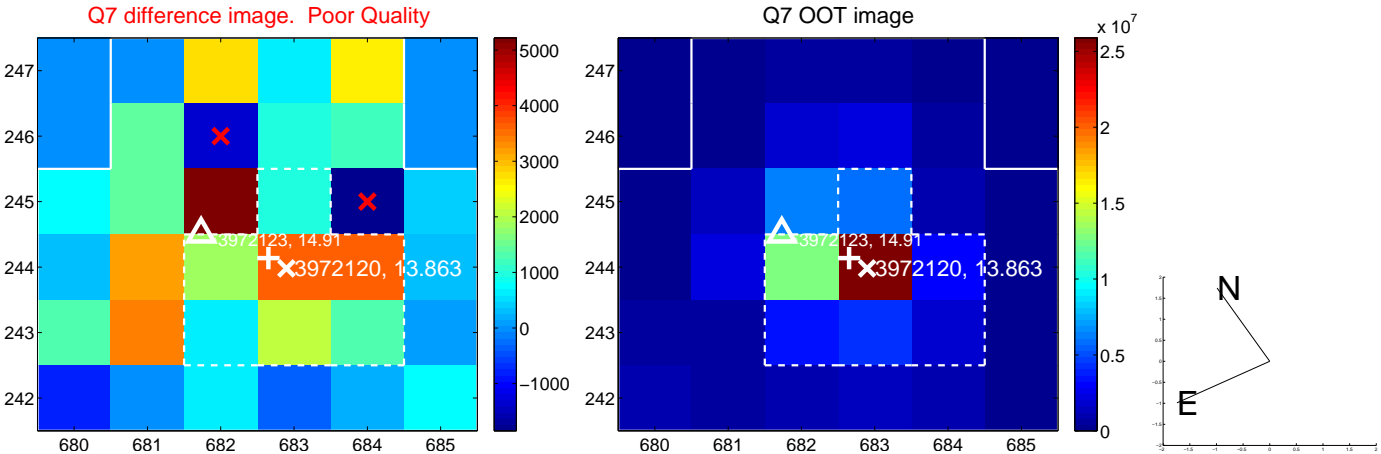
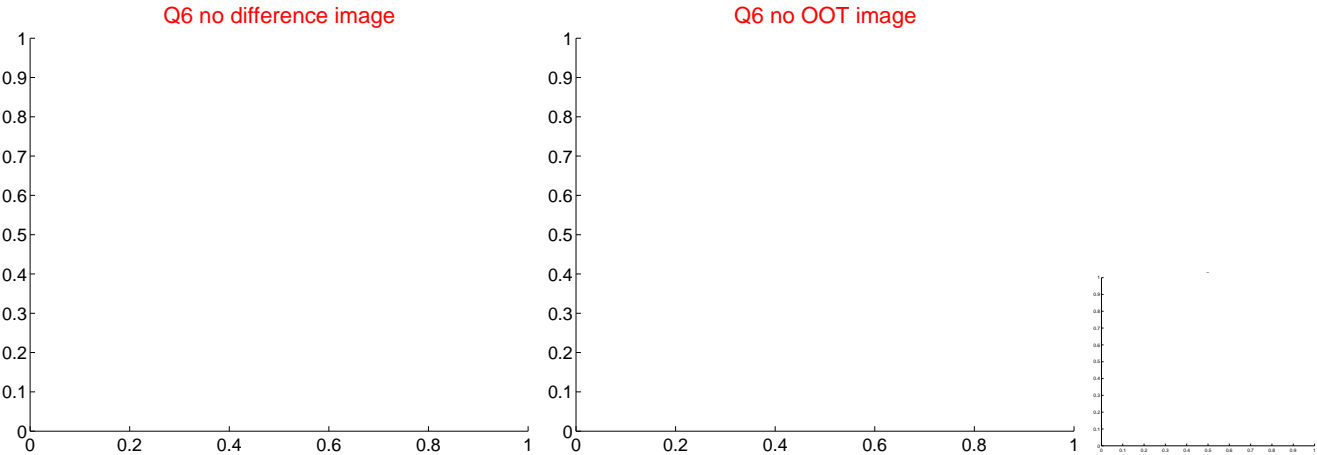
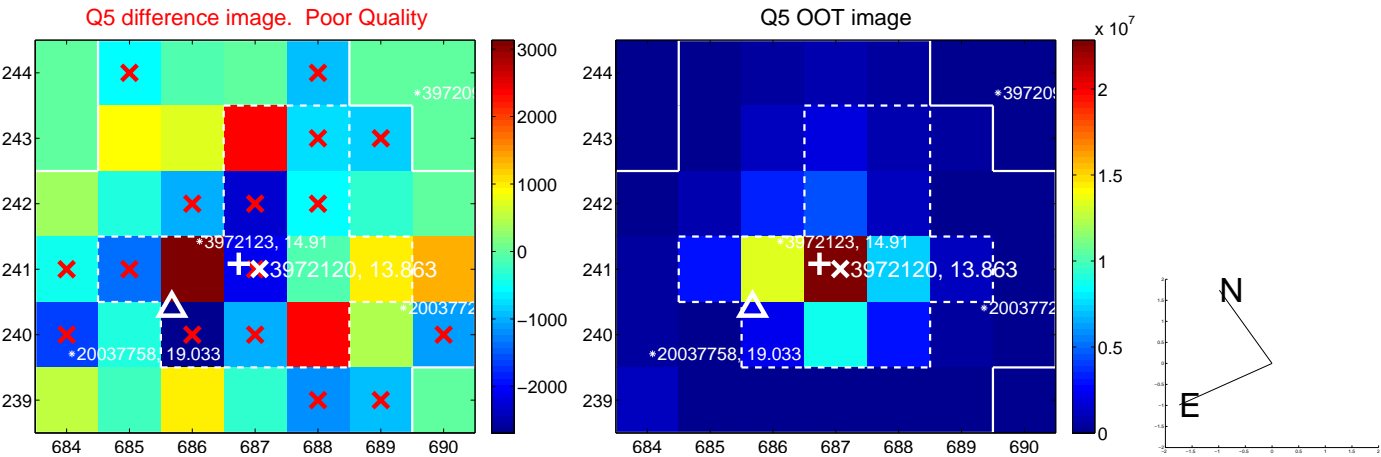


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

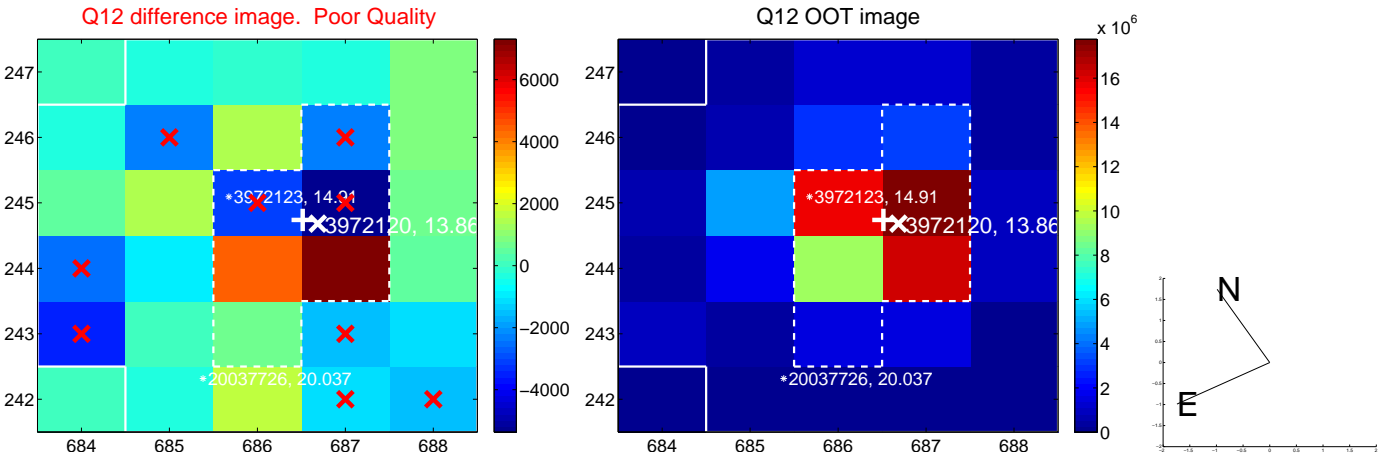
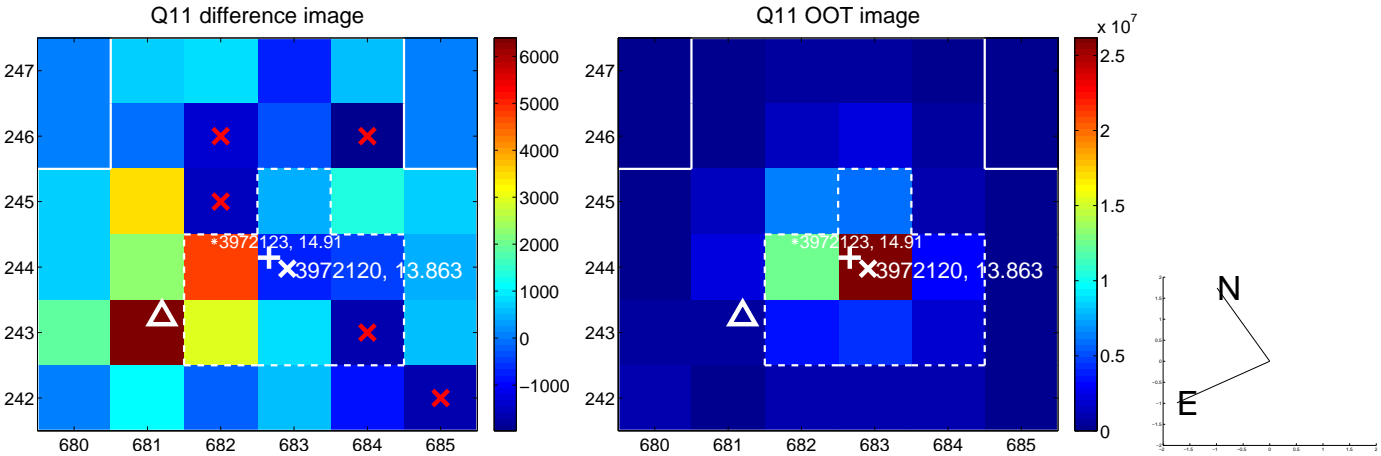
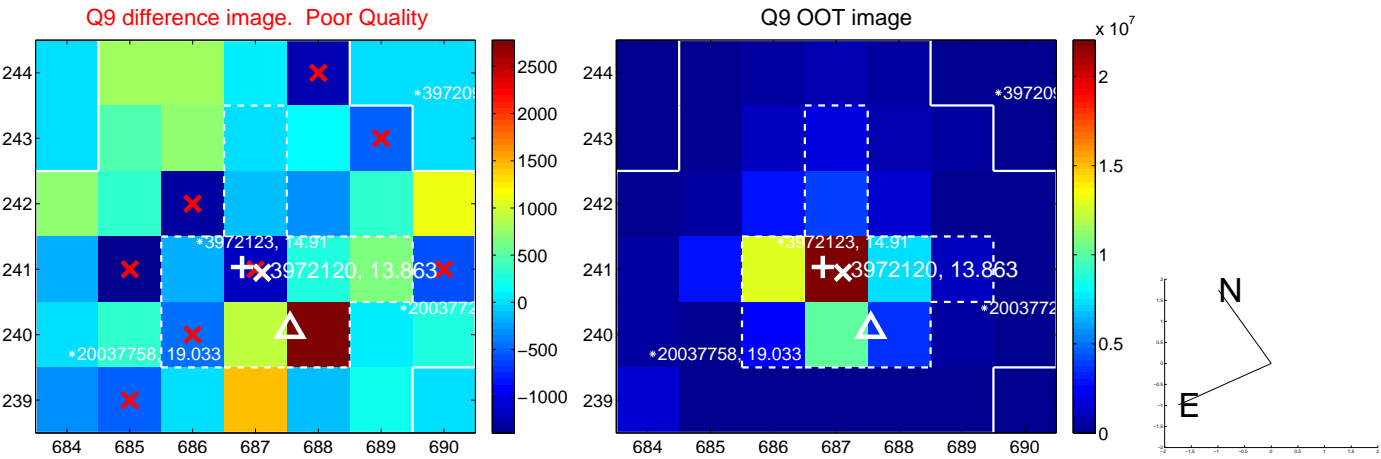
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



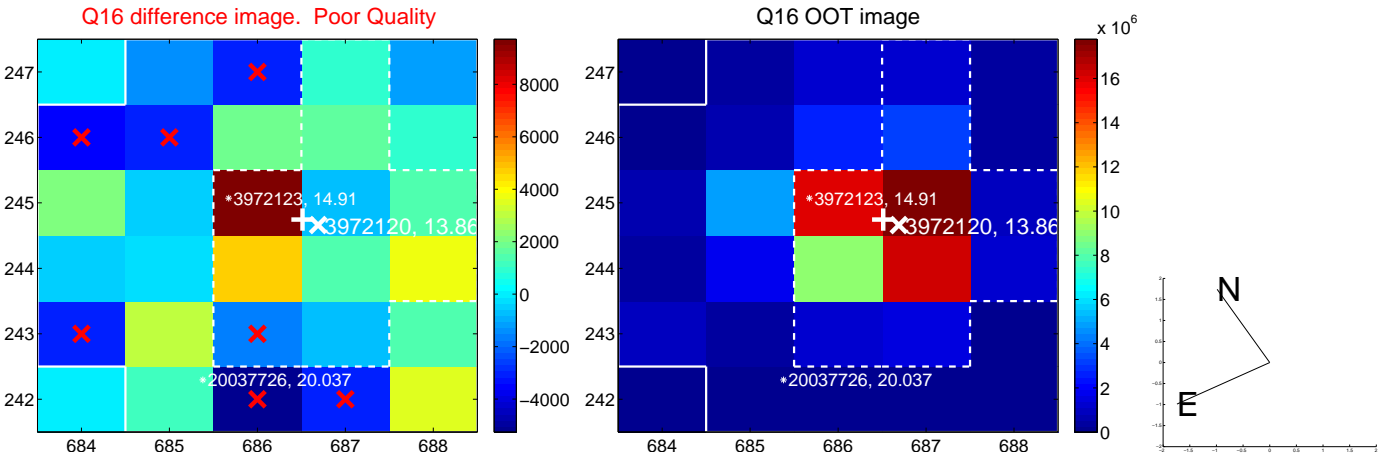
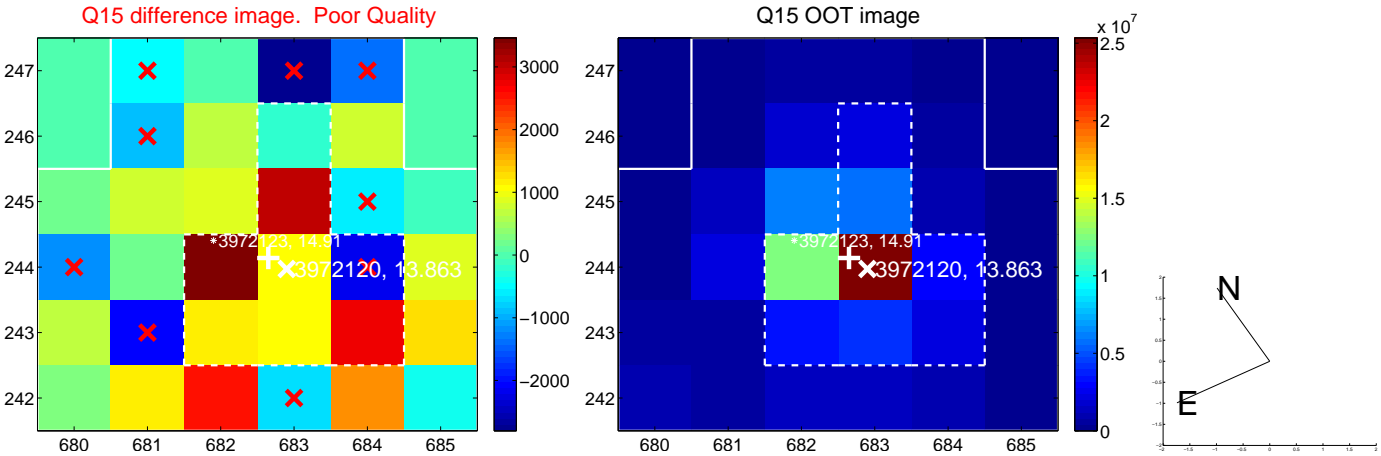
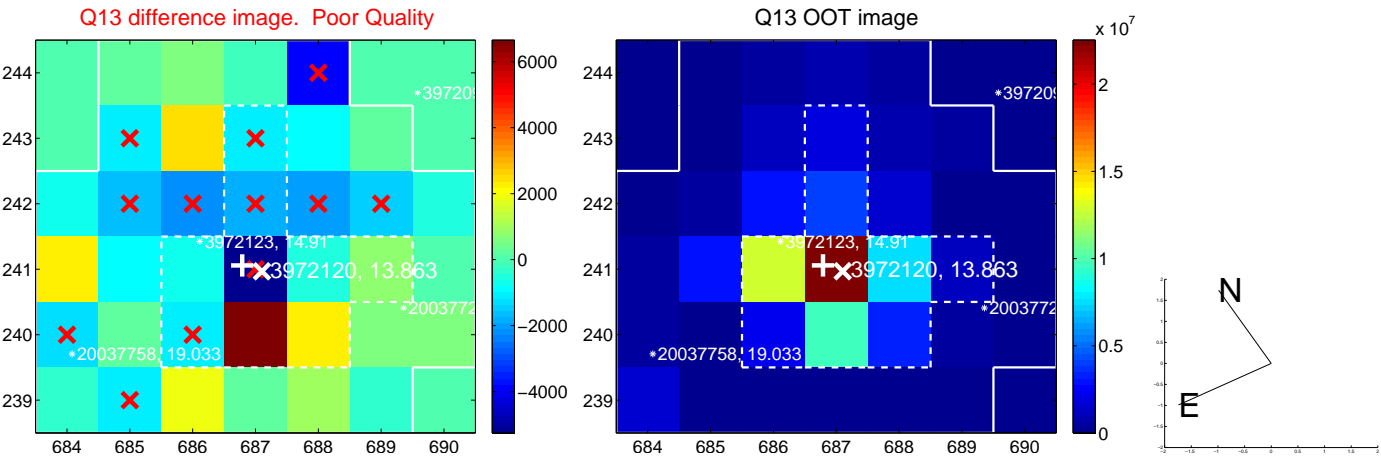
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



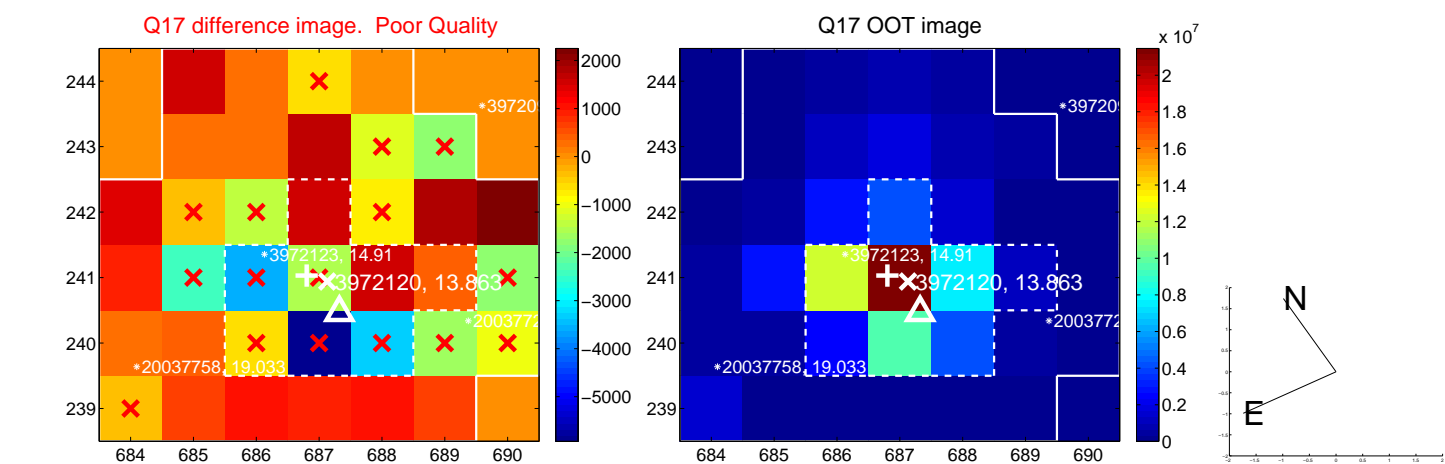
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



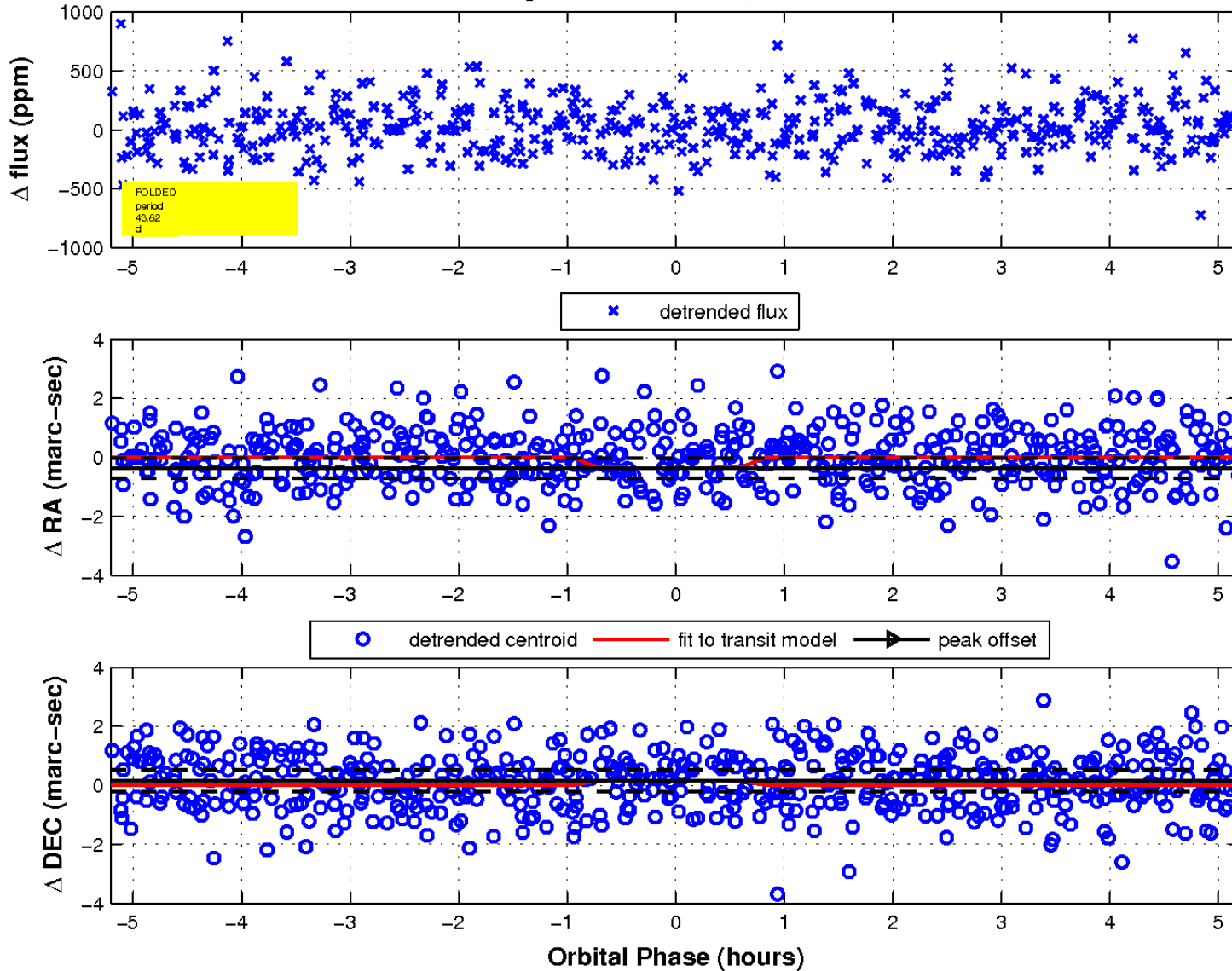
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

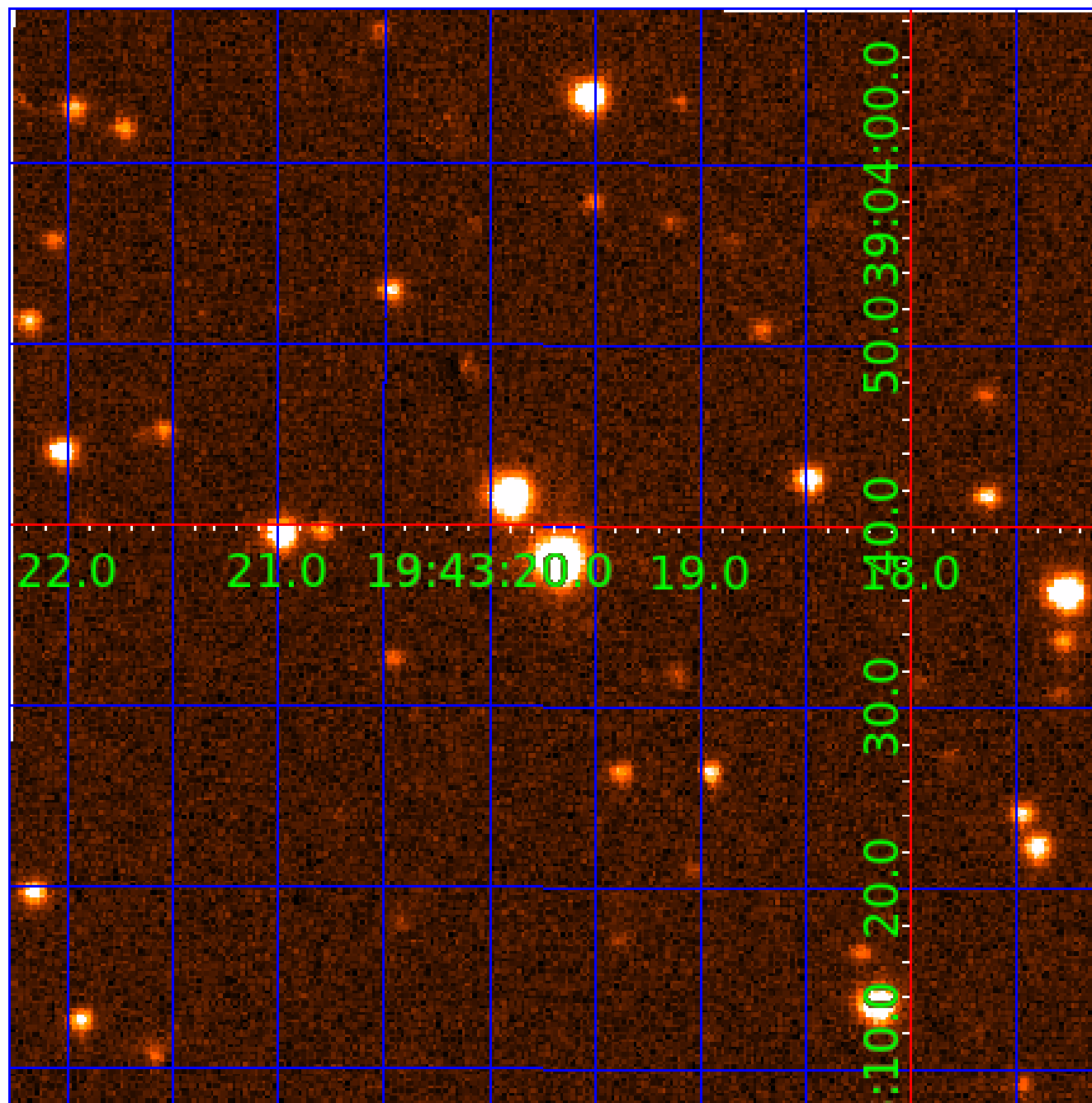


fluxWeightedCentroids, Planet 5 of 7



UKIRT Image

Declination



KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

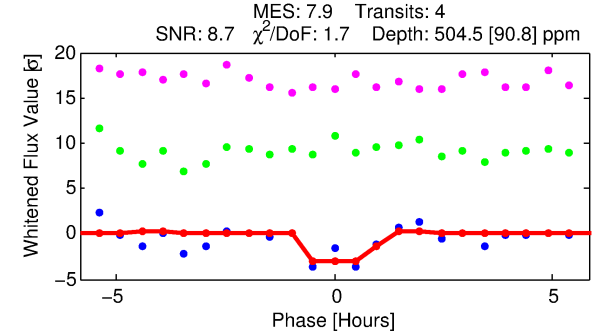
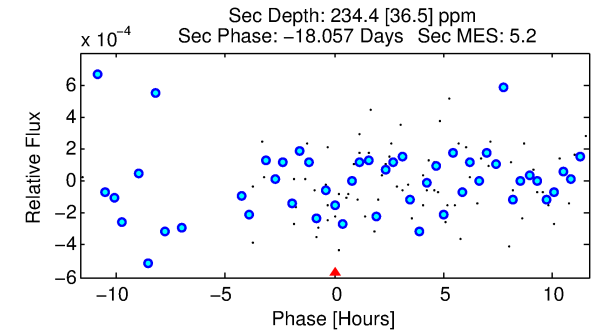
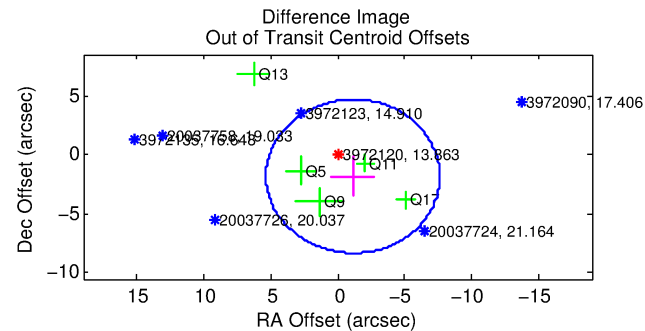
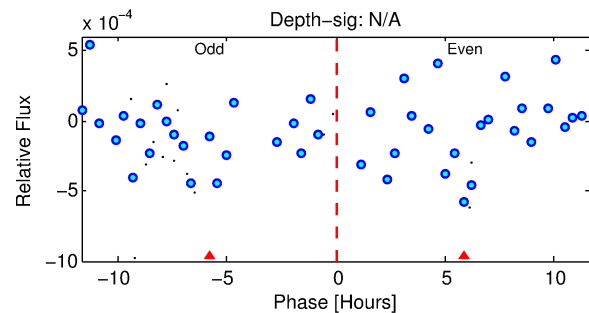
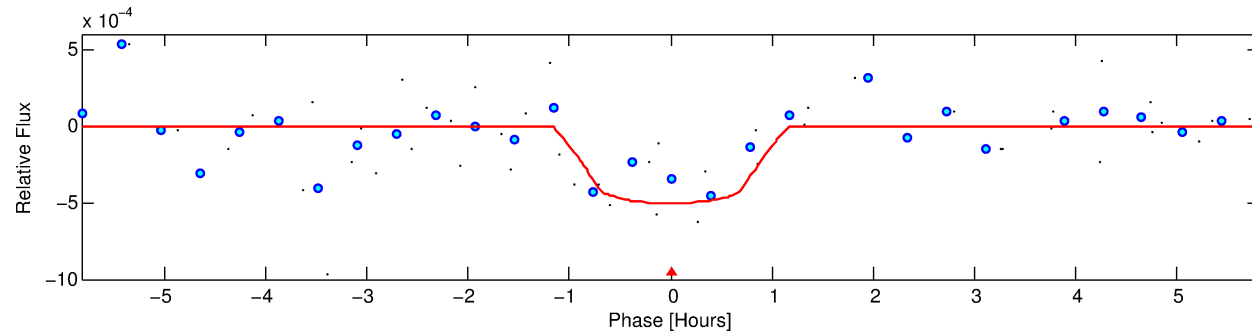
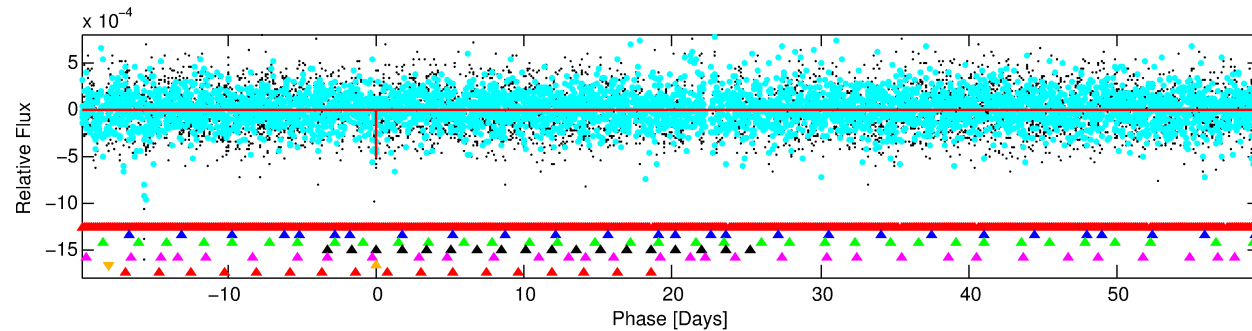
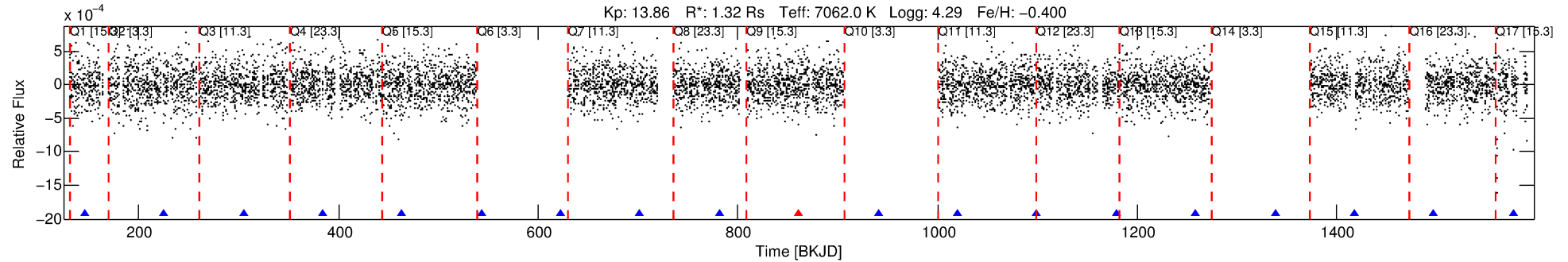
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-06

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 6 of 7 Period: 79.499 d



DV Fit Results:

Period = 79.49937 [0.00132] d
Epoch = 145.6660 [0.0125] BKJD
Rp/R* = 0.0221 [0.0378]
a/R* = 231.91 [2312.74]
b = 0.70 [7.31]
Seff = 25.59 [10.06]
Teq = 574 [56] K
Rp = 3.18 [5.53] Re
a = 0.3889 [0.0983] AU
Ag = 1929.79 [6641.78] [0.29σ]
Teffp = 5877 [5036] K [1.05σ]

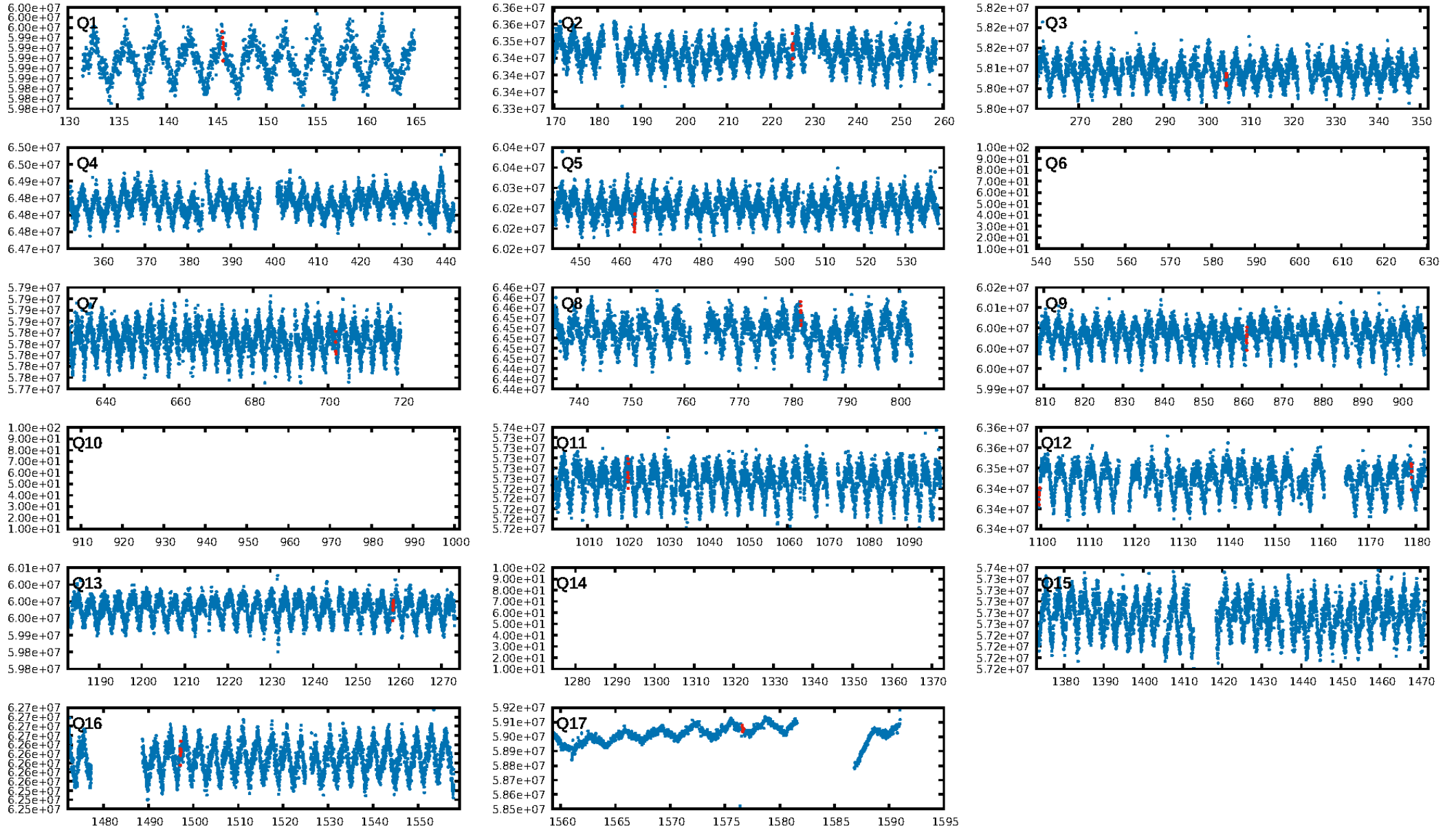
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [140.37σ]
LongPeriod-sig: 100.0% [5.19σ]
ModelChiSquare2-sig: 61.0%
ModelChiSquareGof-sig: 86.0%
Bootstrap-pfa: 1.11e-07
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: -0.2568
Centroid-sig: 0.3%
Centroid-so: 1.920 arcsec [2.24σ]
OotOffset-rm: 2.147 arcsec [0.99σ]
OotOffset-st: 0.1/0/4 [5]
KicOffset-rm: 0.927 arcsec [0.49σ]
KicOffset-st: 0.1/0/4 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.25 [3/12]

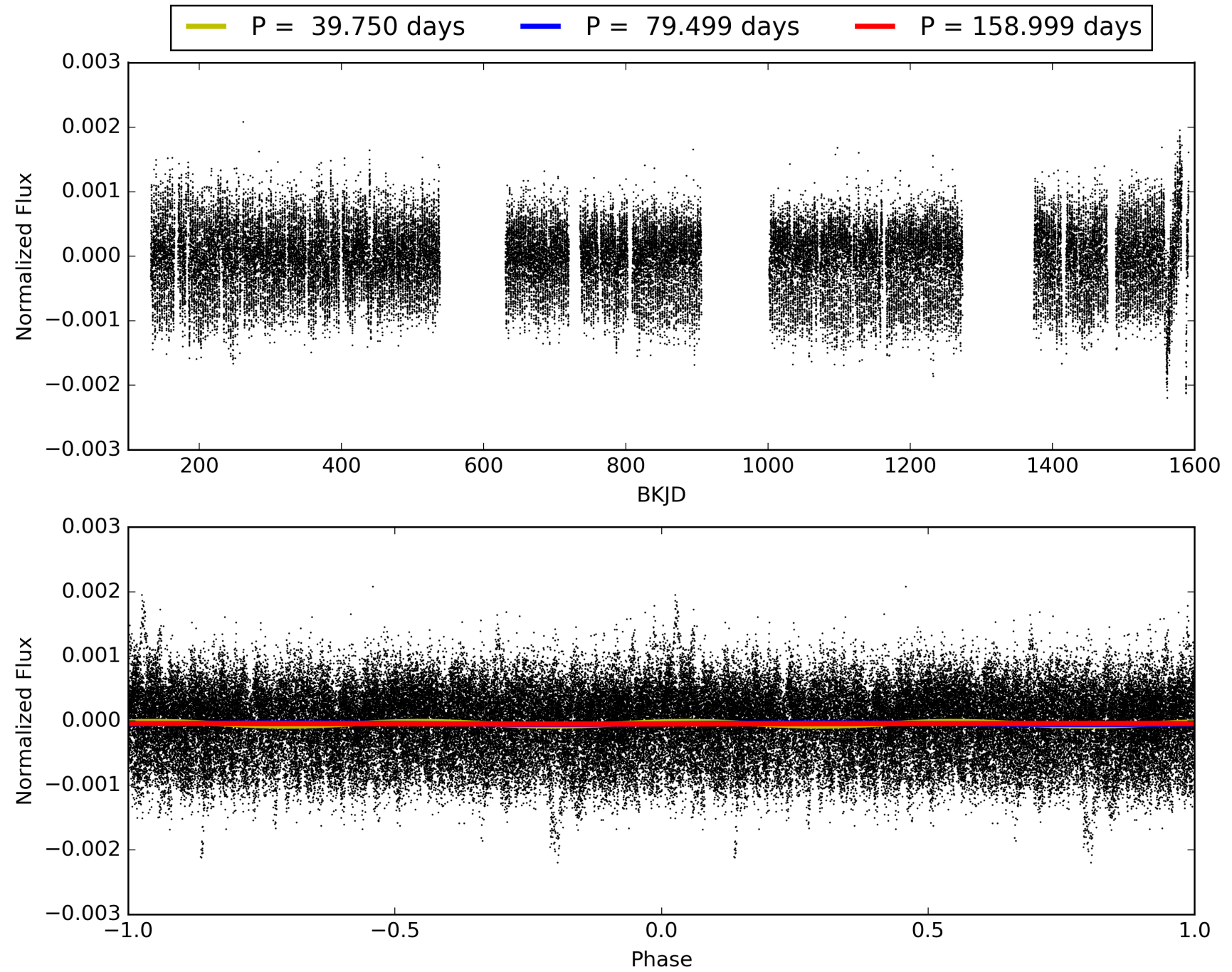
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:24 Z

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

TCE 003972120-06, PDC Light Curves

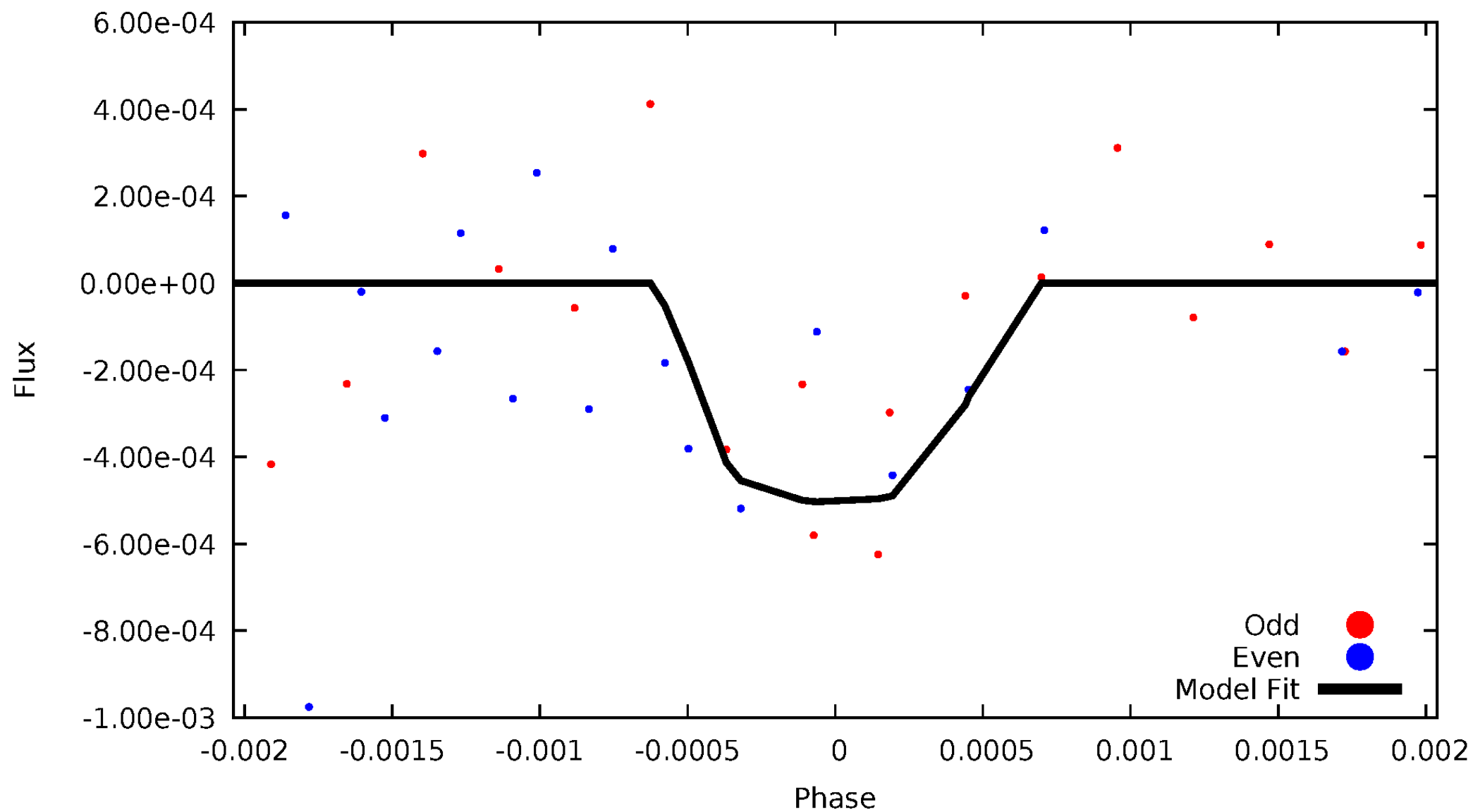


TCE 003972120-06



DV Odd/Even

TCE 003972120-06

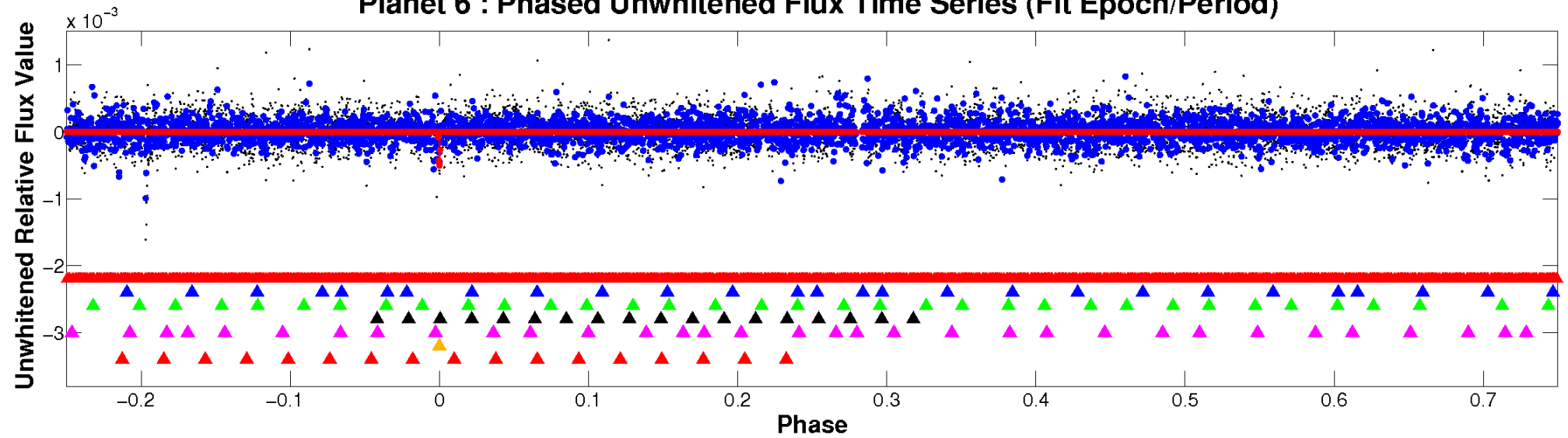


ALT Odd/Even

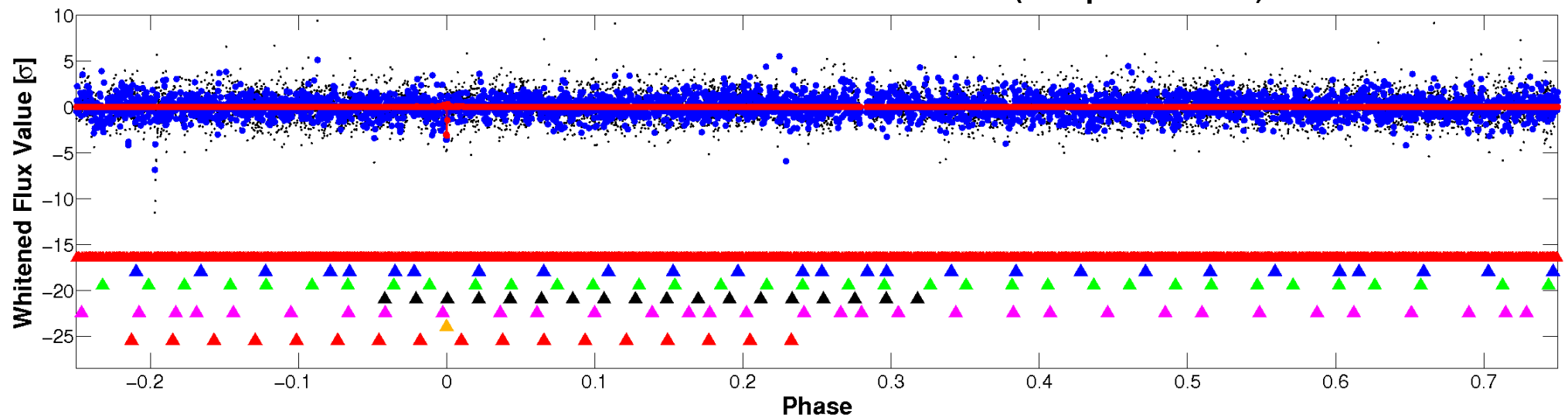
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

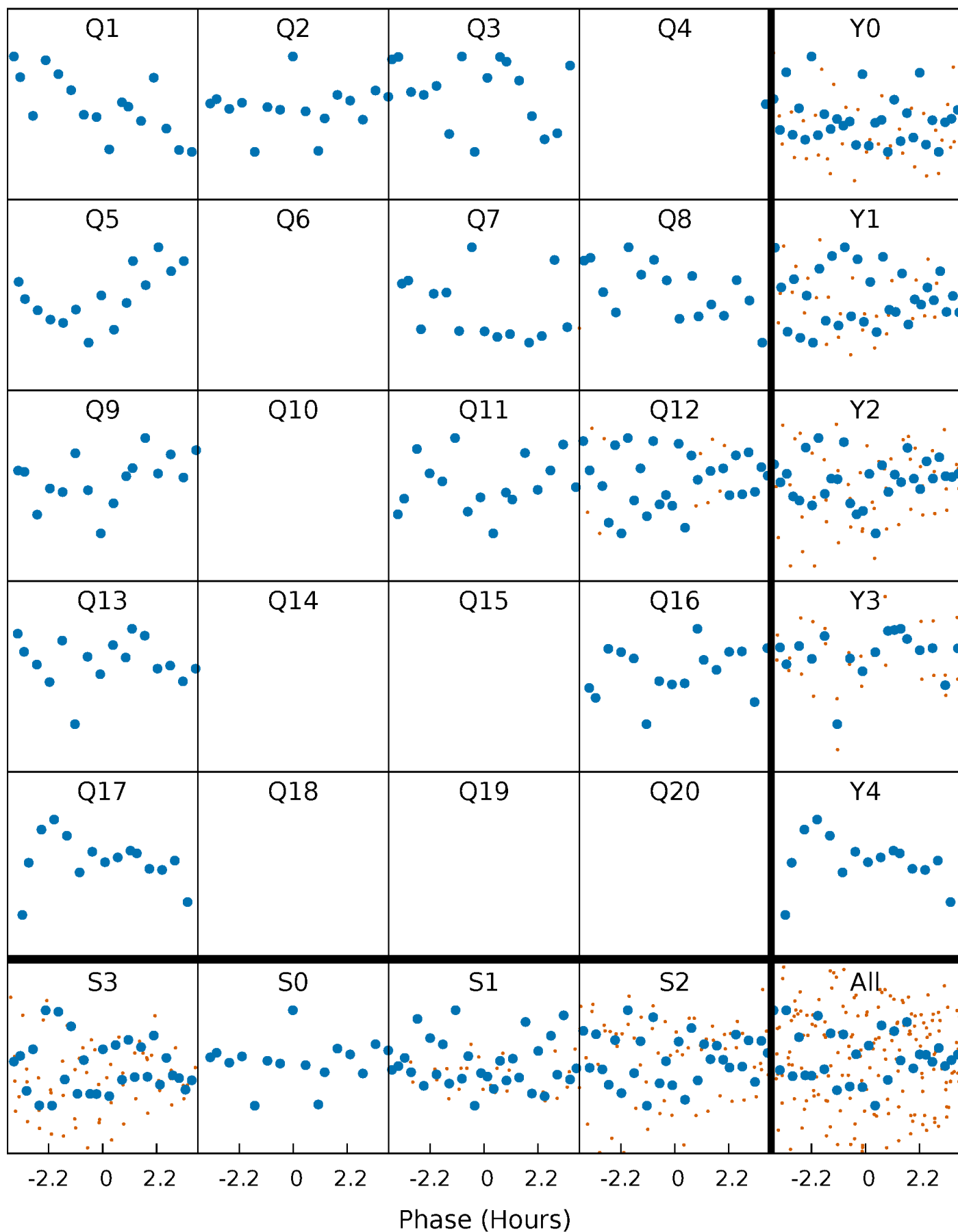


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



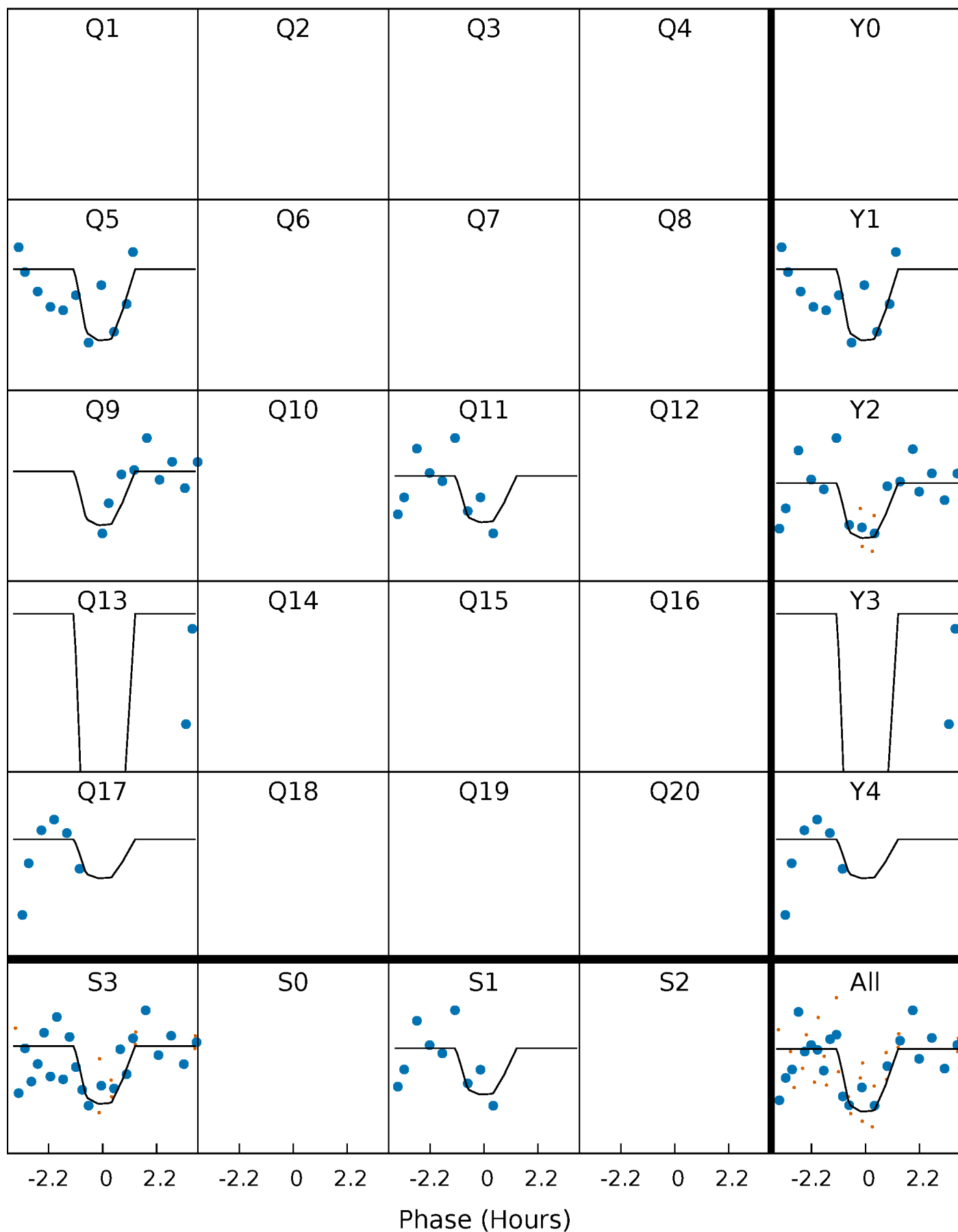
PDC Quarter-Phased Transit Curves

TCE 003972120-06 $P = 79.499371$ Days $T_0 = 145.666025$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 003972120-06 P= 79.499371 Days $T_0=145.666025$ (BKJD)

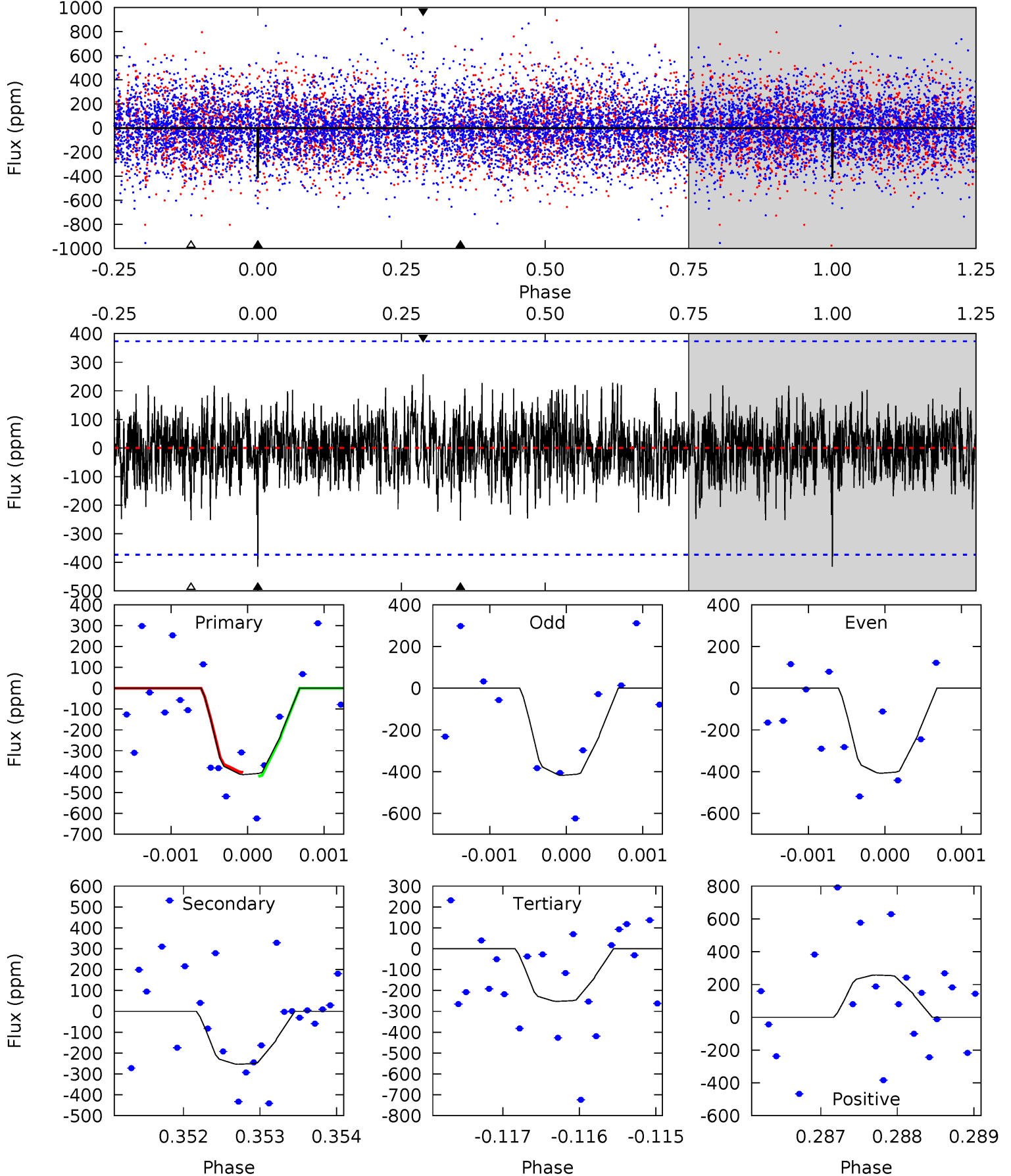


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

003972120-06, P = 79.499371 Days, E = 66.166654 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.05	3.71	3.69	3.76	5.45	3.28	1.13	2.36	2.29	0.02	-0.06	0.07	1.03	0.38	0.14



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 003972120

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-254 ± 68	$5.36^{+4.86}_{-3.64}$	806^{+60}_{-48}	4707^{+3722}_{-1000}	674^{+5835}_{-485}
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

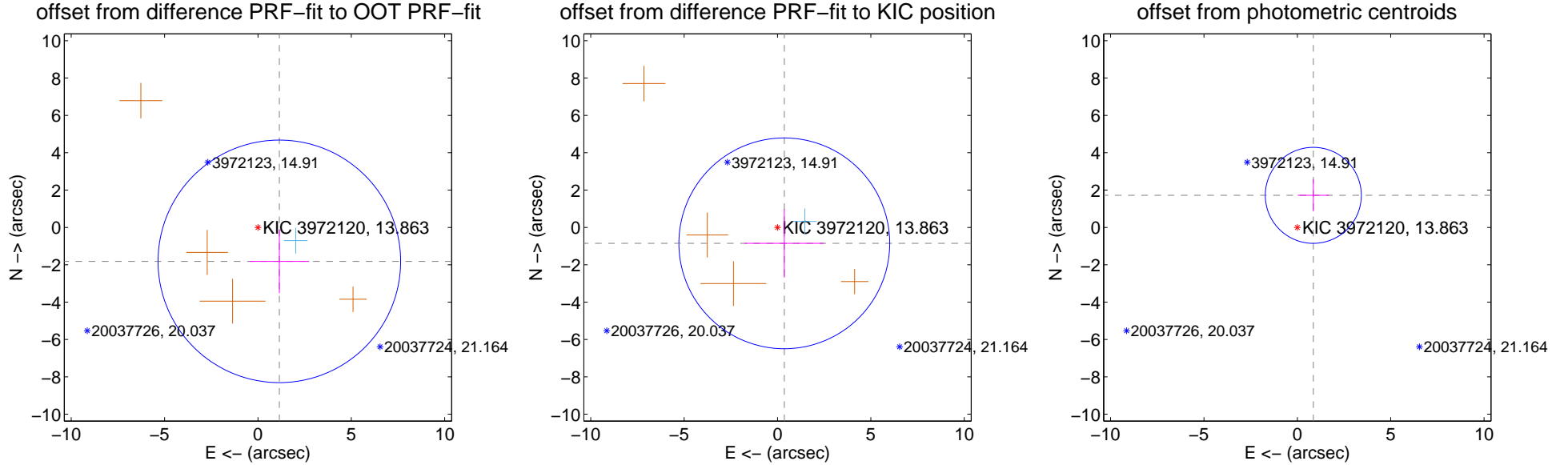
DV Centroid Data

Supplemental centroid analysis for 003972120-06. Kepler magnitude: 13.86. Transit SNR 8.72

There are 1 quarters with good PRF difference image offsets

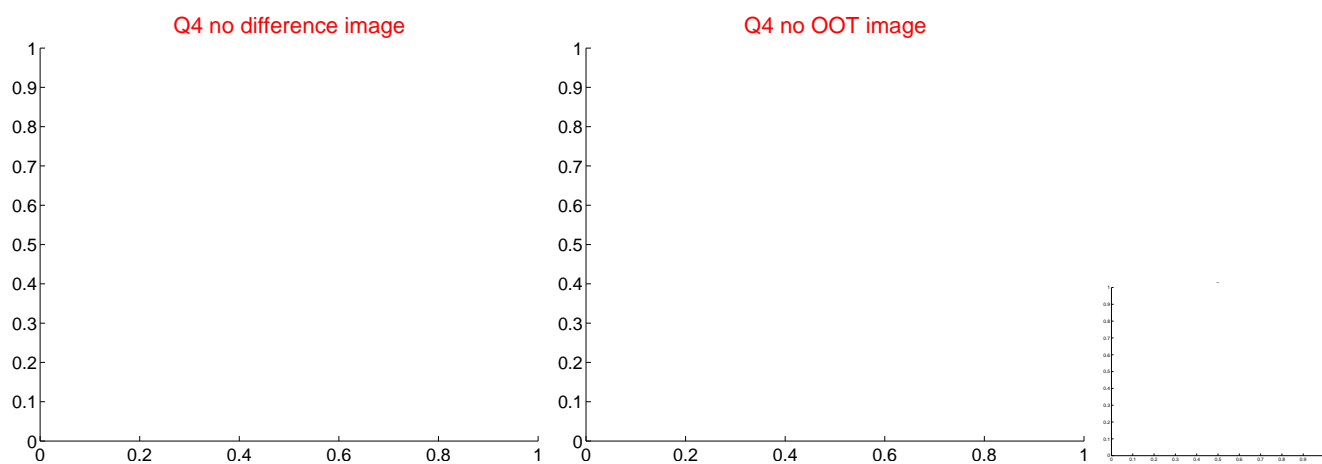
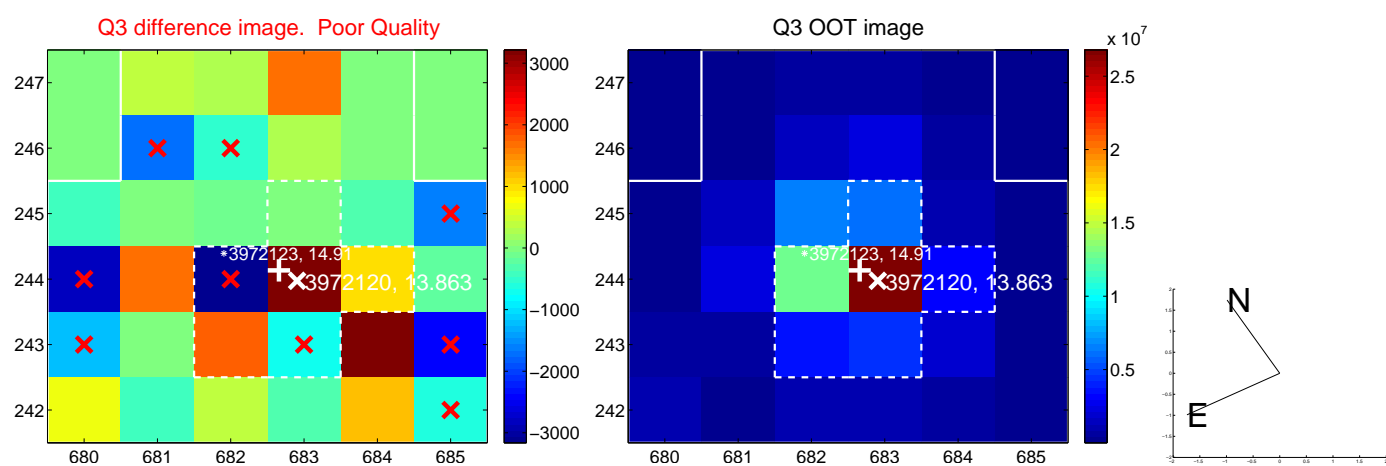
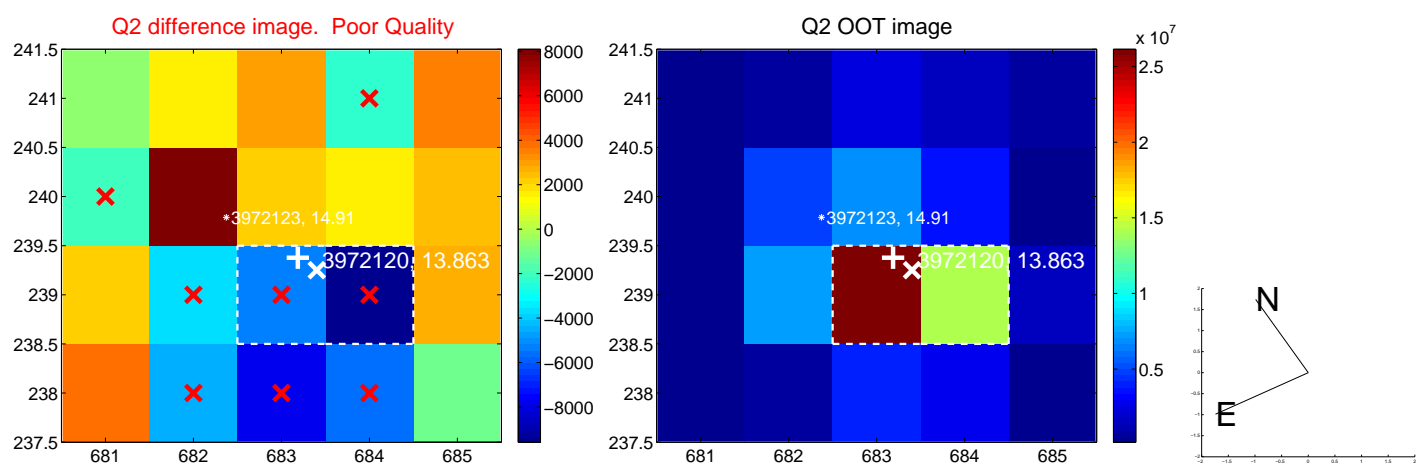
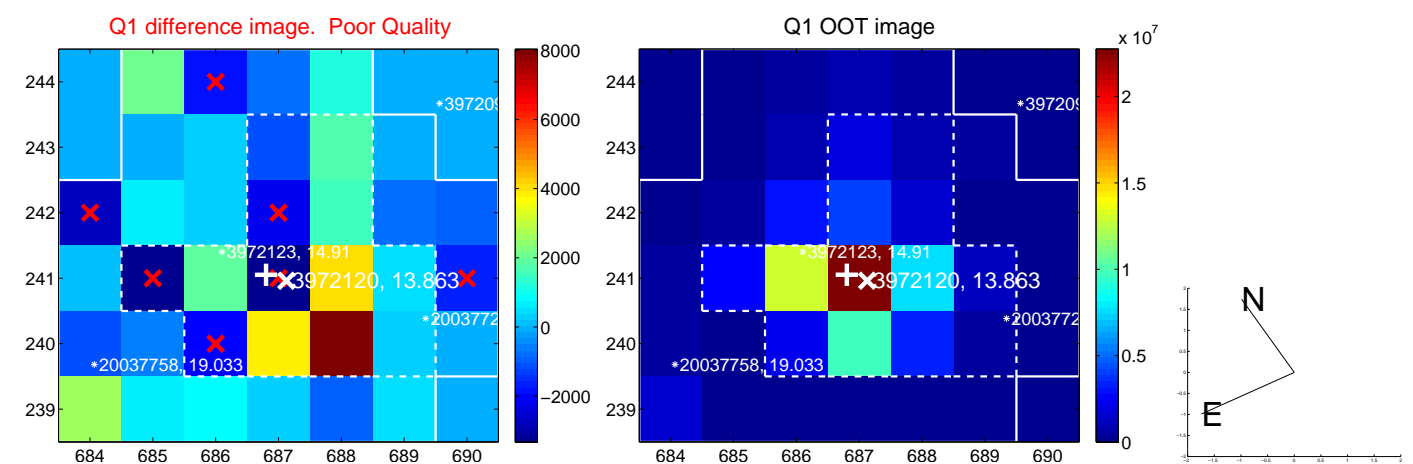
The direct PRF centroid is offset from the target star catalog position by about 1.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.147 ± 2.165	0.99	-1.145 ± 1.595	-1.816 ± 1.712
PRF-fit source offset from KIC position	0.927 ± 1.881	0.49	-0.364 ± 2.119	-0.852 ± 1.835
photometric centroid source offset	1.92 ± 0.86	2.24	-0.86 ± 0.84	1.72 ± 0.86

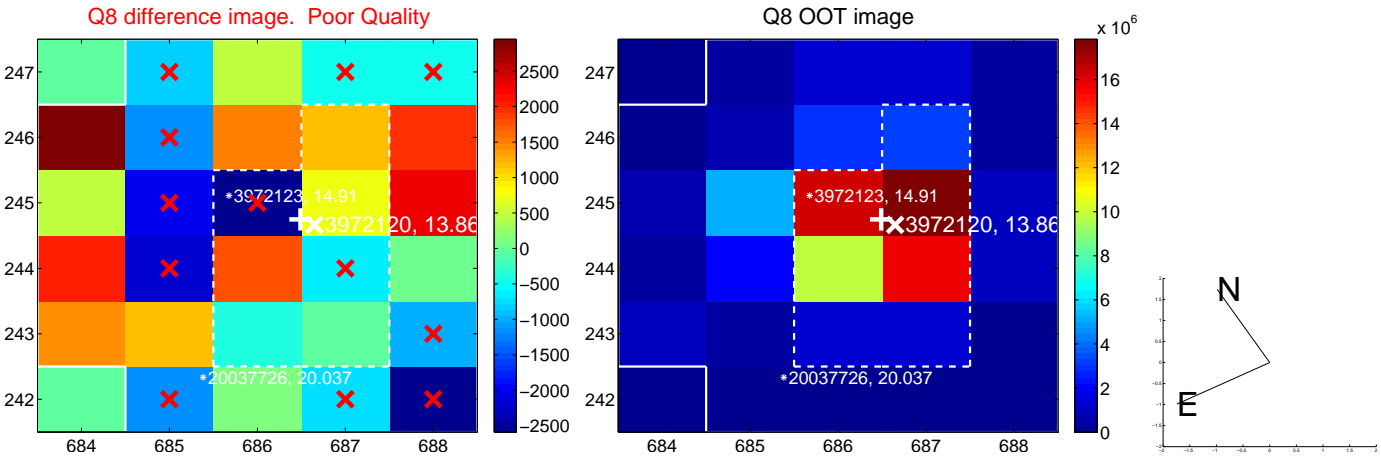
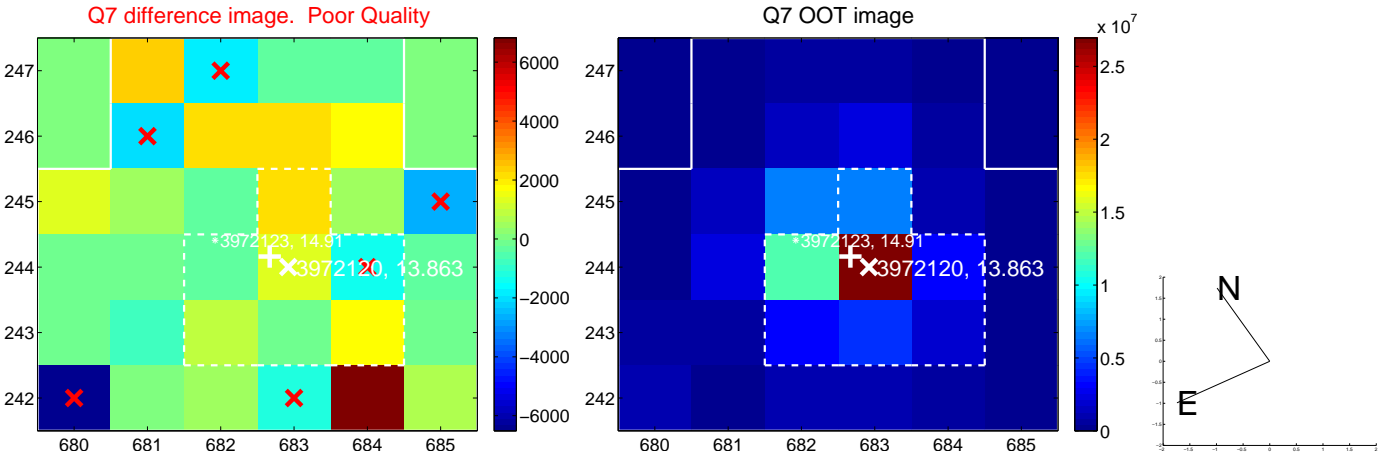
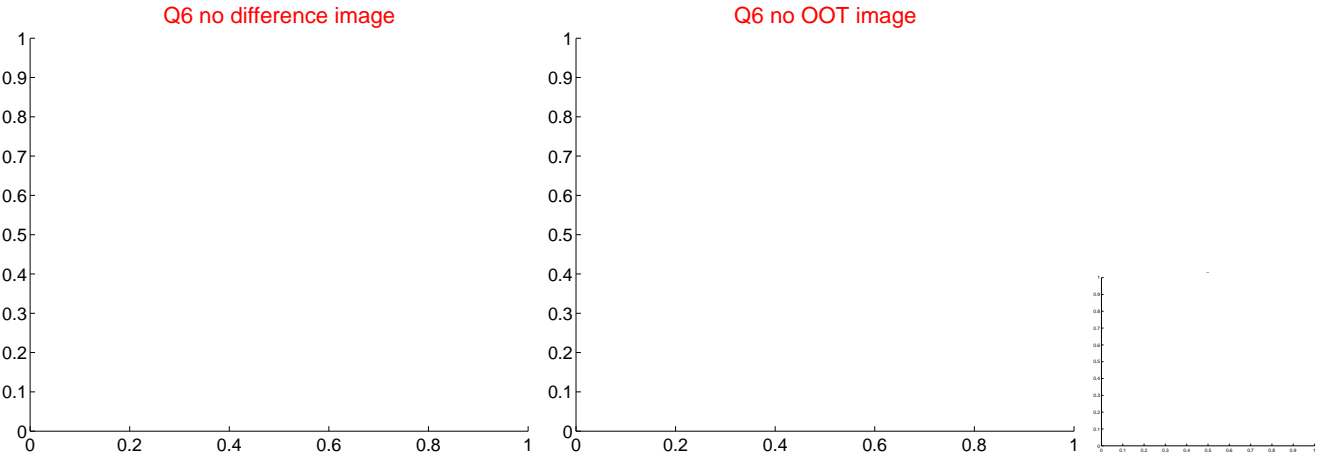
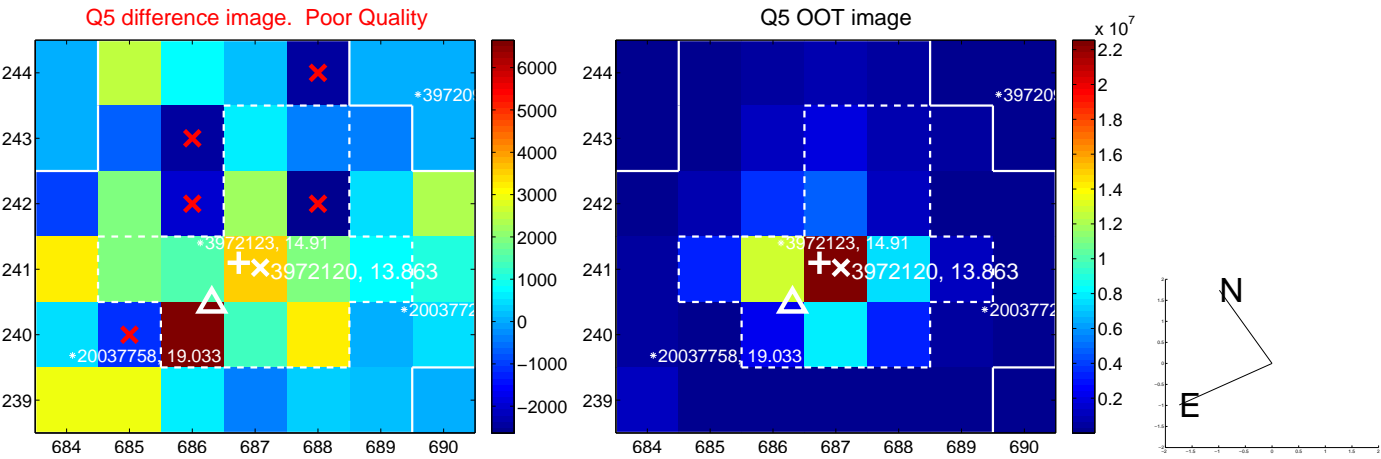


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

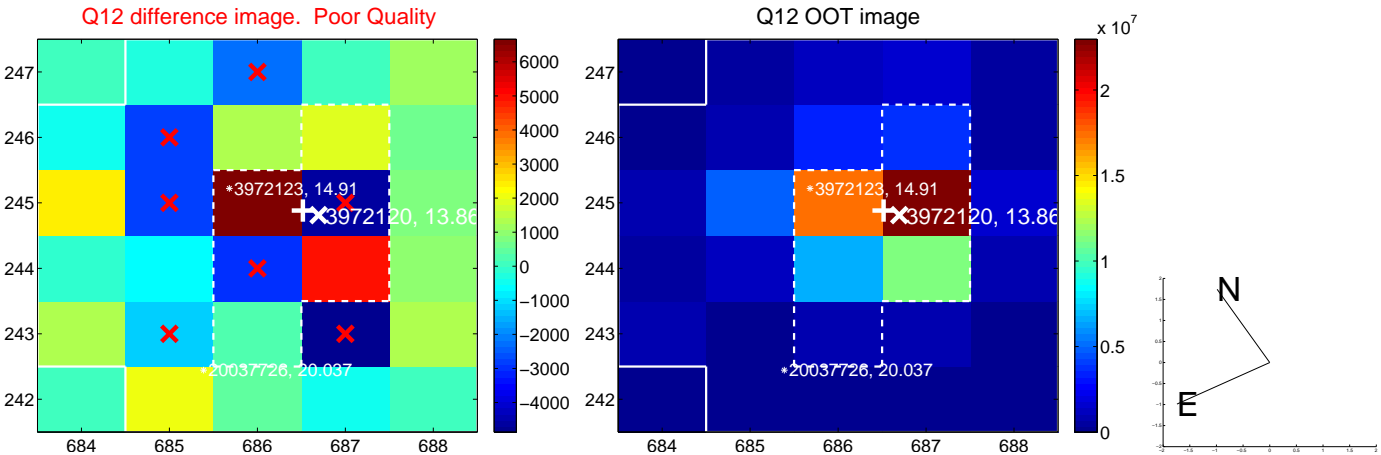
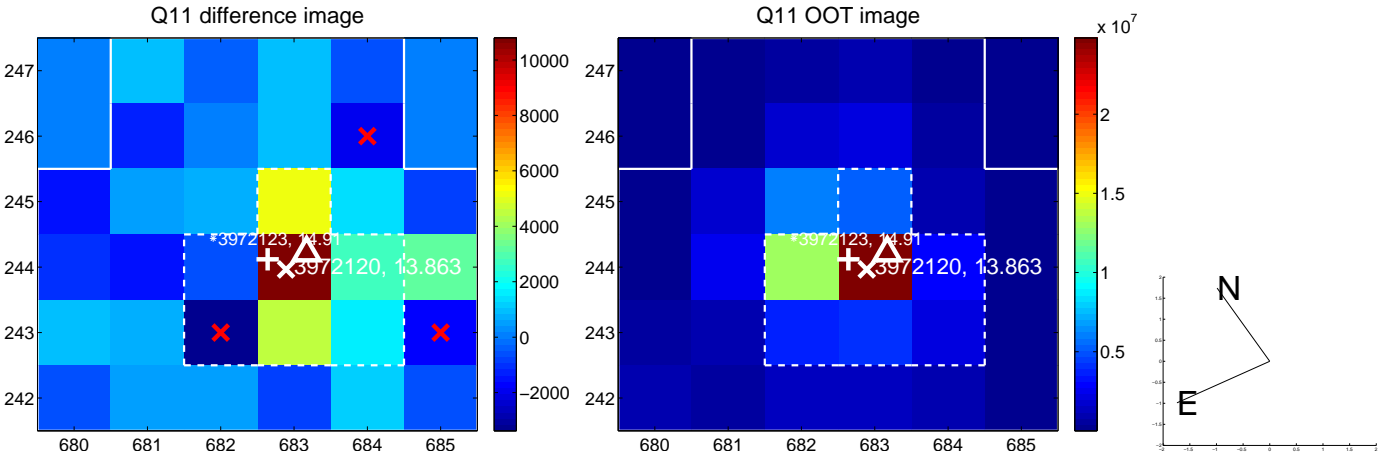
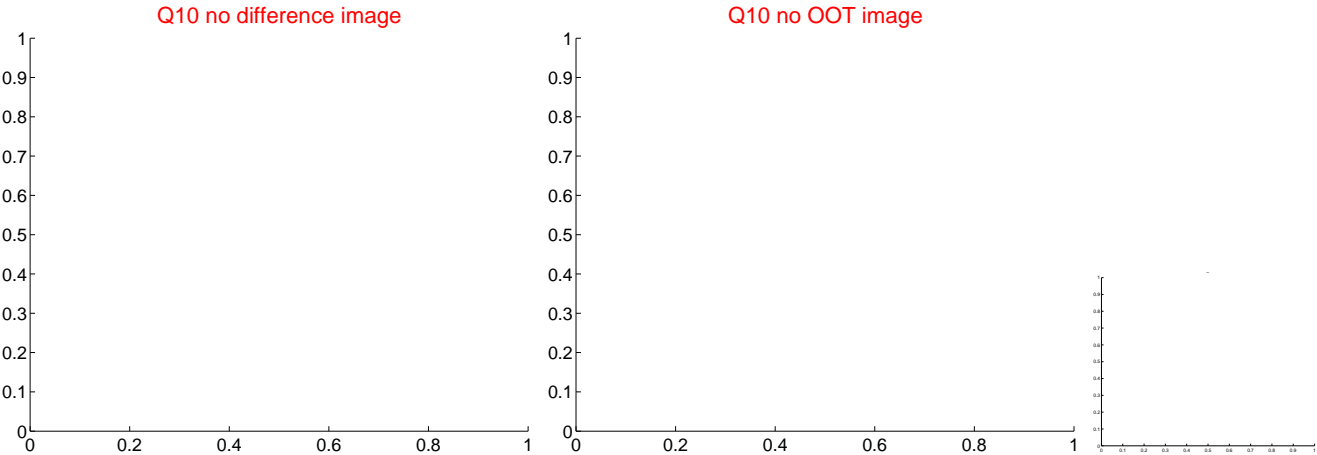
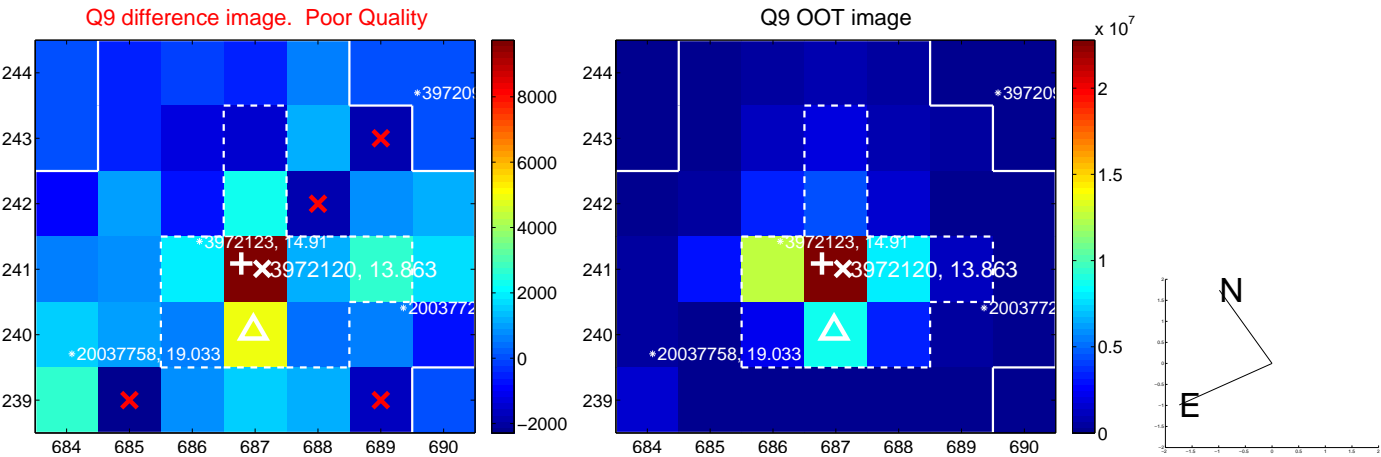
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



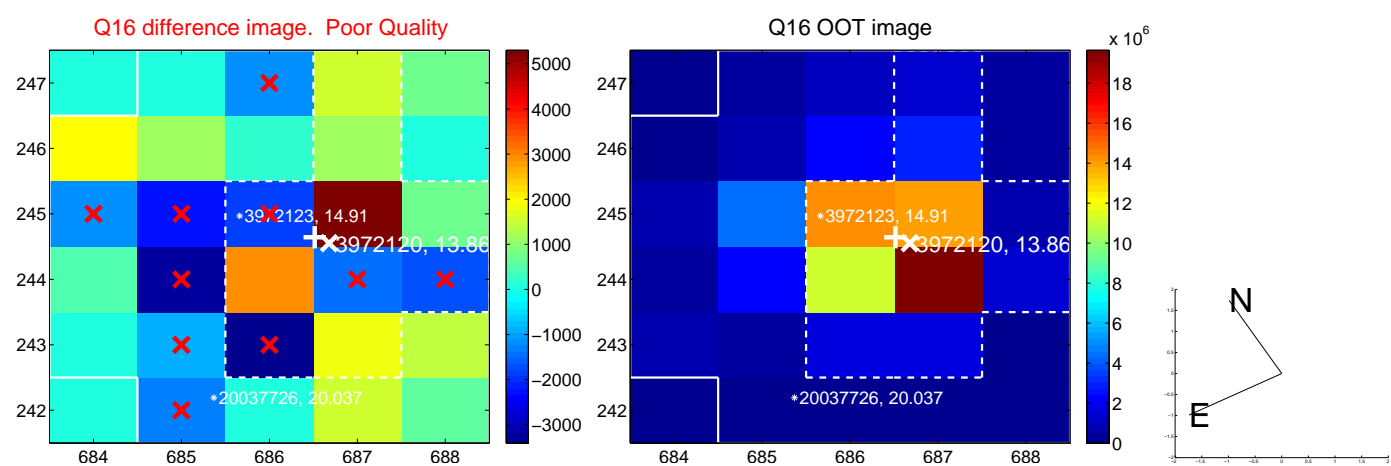
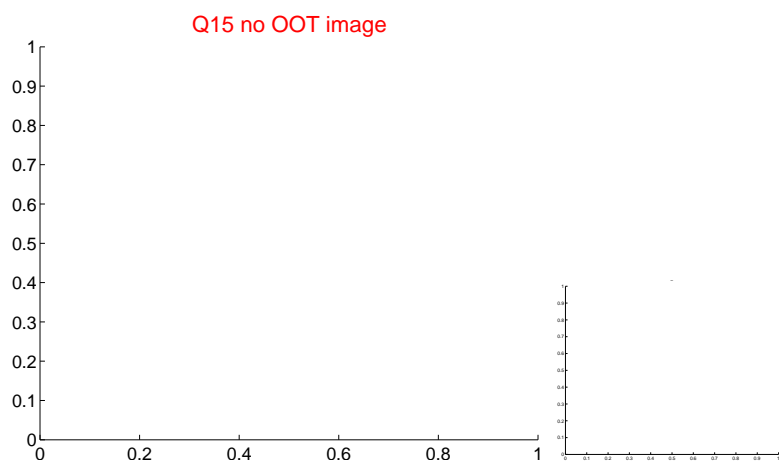
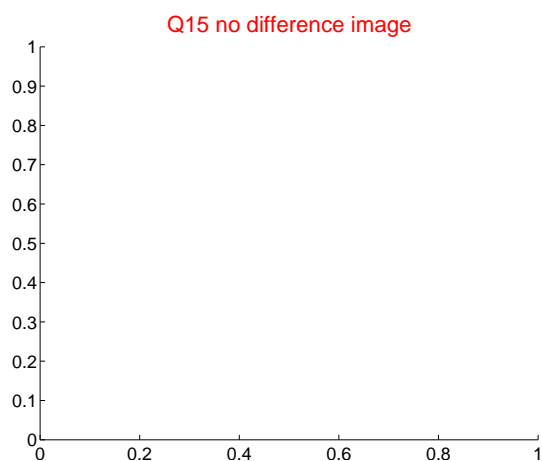
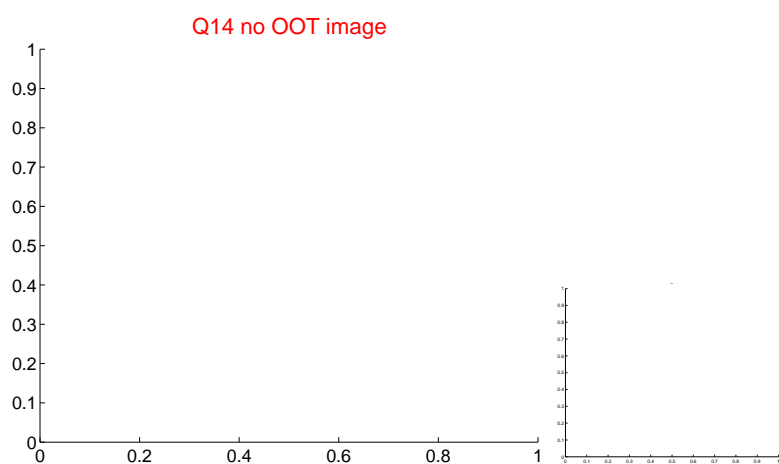
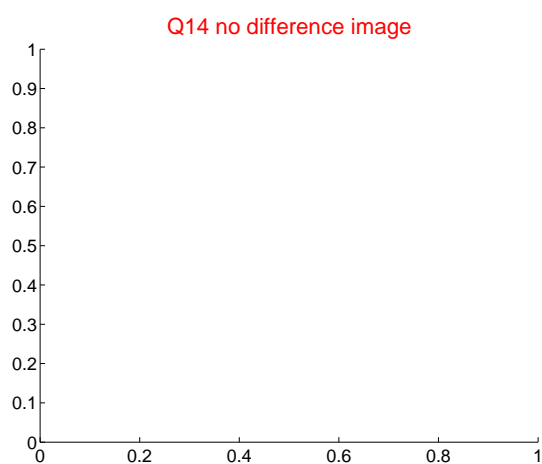
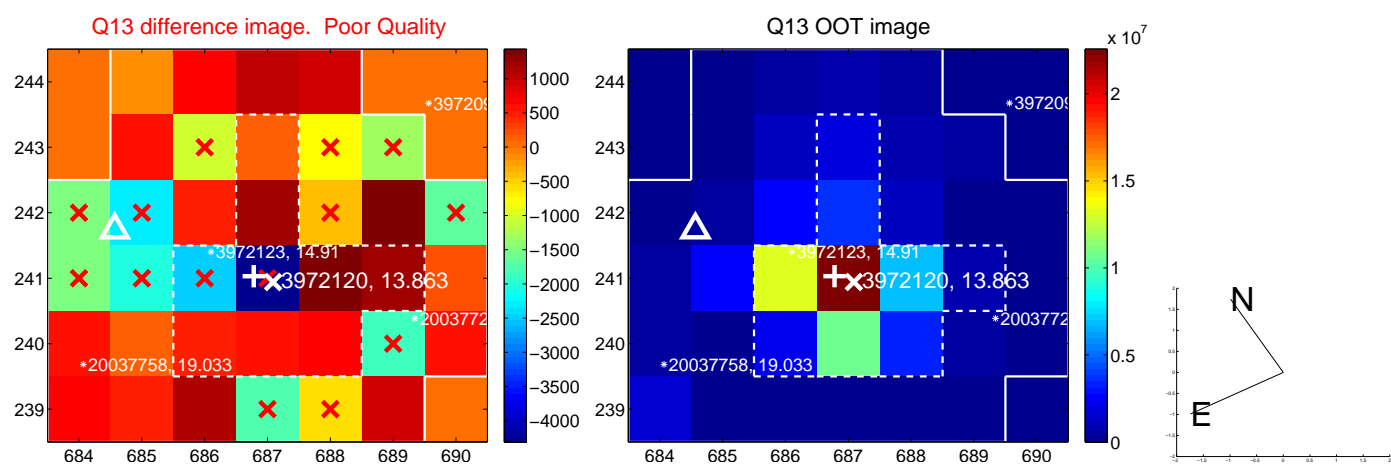
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



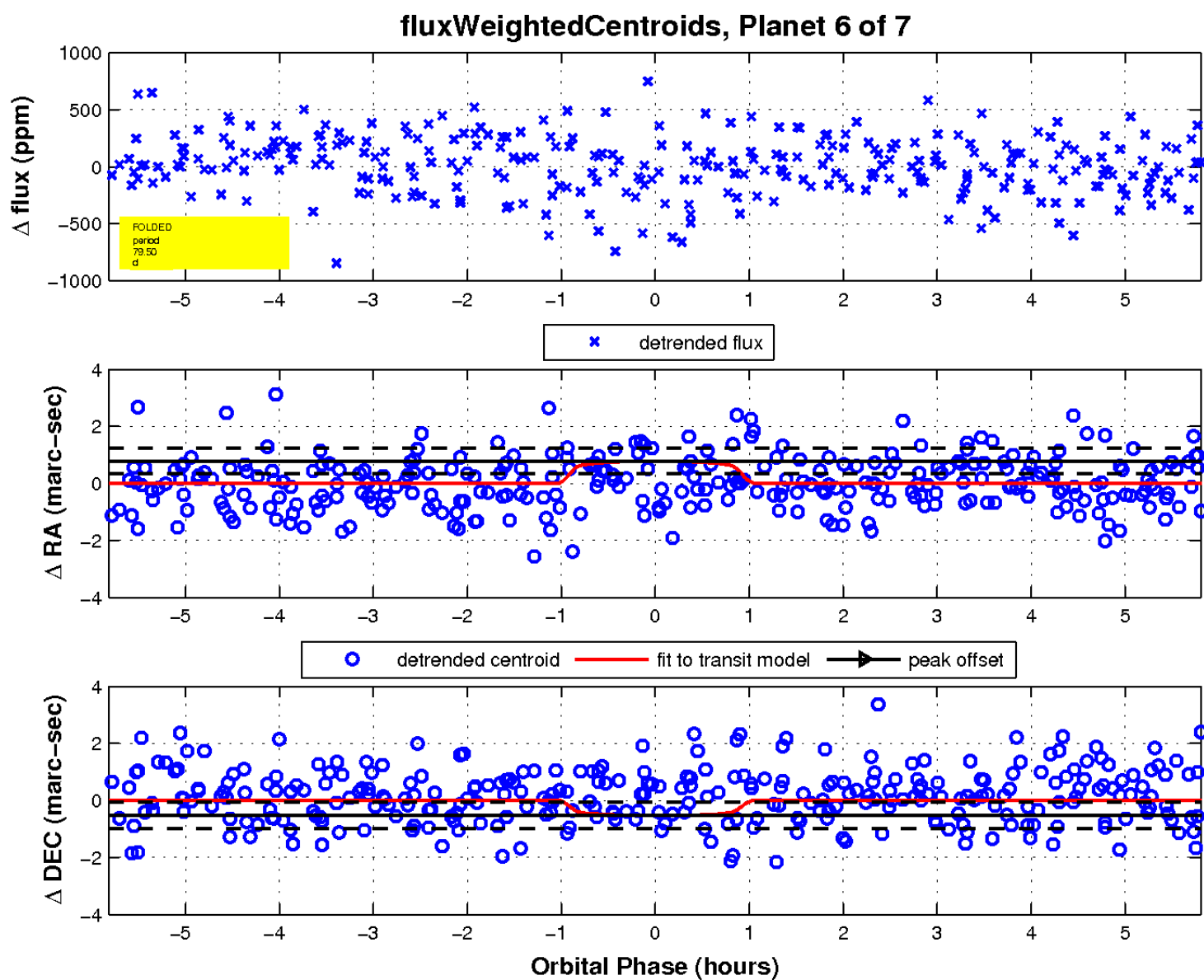
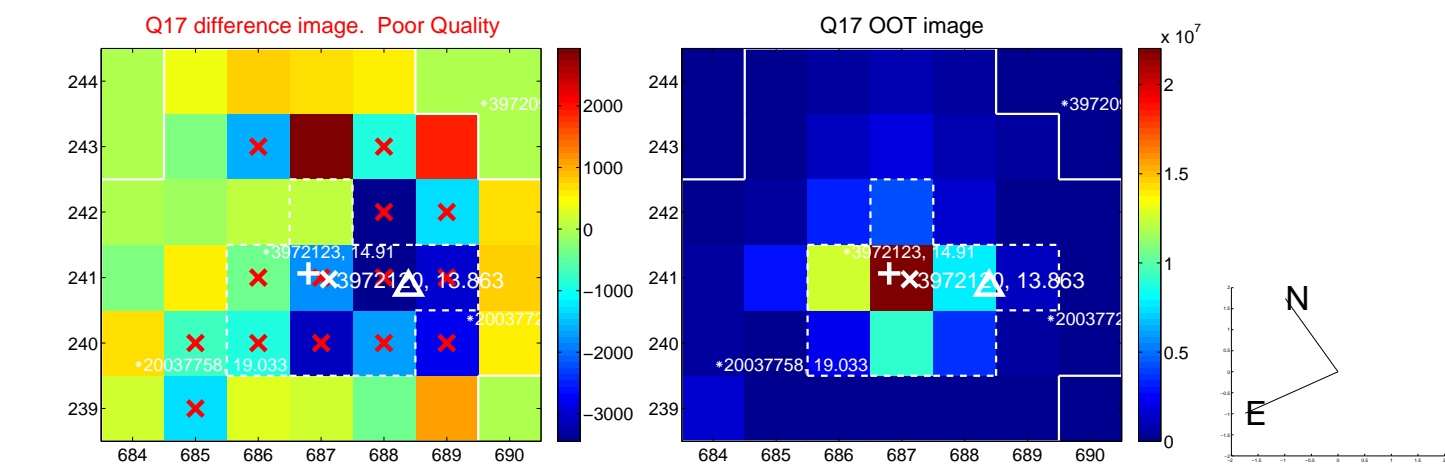
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

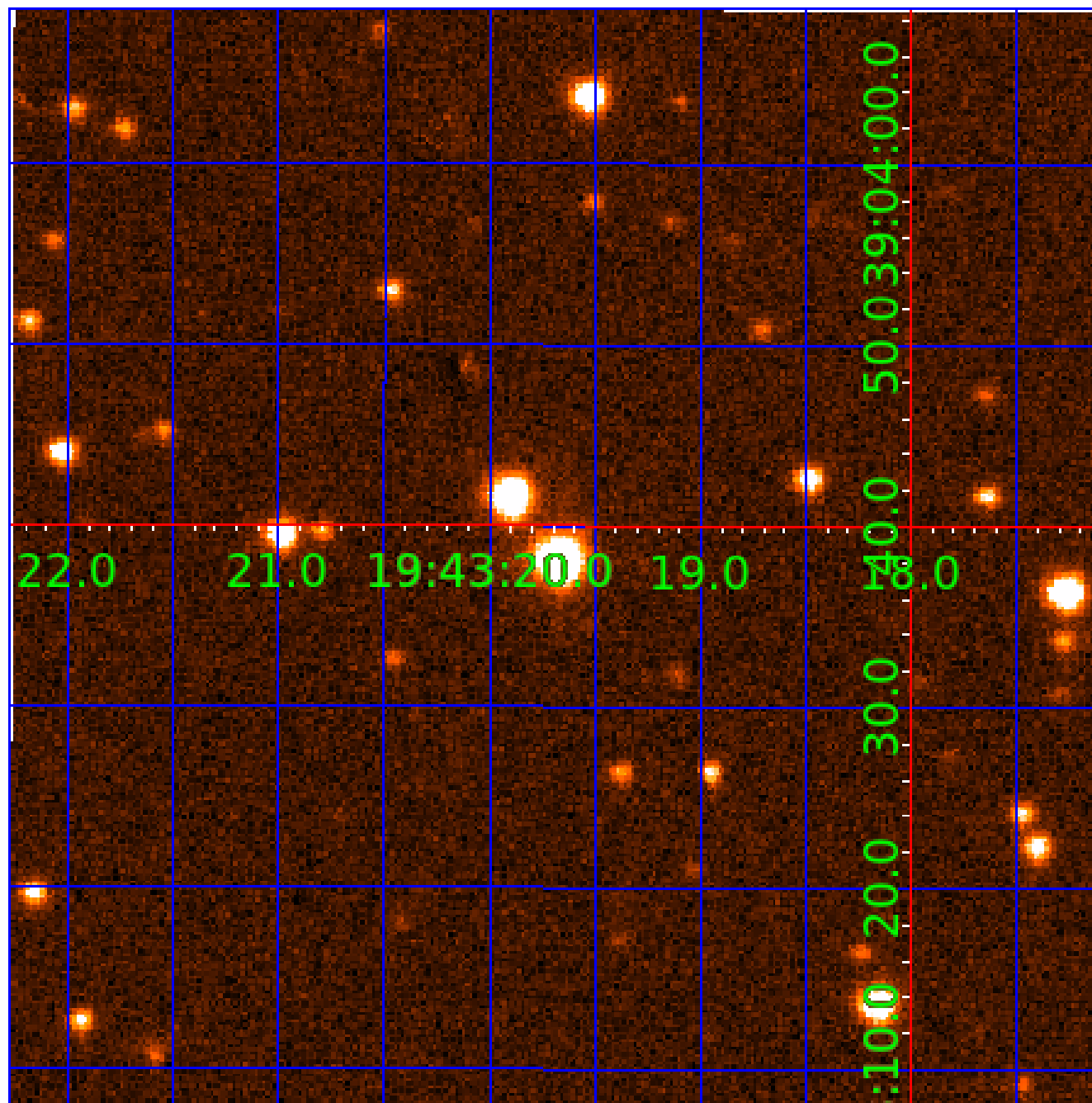


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003972120

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})
003972120-01	OBS	No	1.291046	132.468334	19.3	8.351	7.3	6.8	1.32	7062	0.67	6222.43
003972120-02	OBS	No	54.157263	165.800614	301.6	3.872	9.7	8.1	1.32	7062	2.63	42.69
003972120-03	OBS	No	41.942825	162.845610	273.2	3.386	10.1	7.8	1.32	7062	2.47	60.03
003972120-04	OBS	No	81.180838	142.348386	346.6	7.536	8.1	8.8	1.32	7062	2.63	24.89
003972120-05	OBS	No	43.823208	159.782615	350.5	1.740	7.9	8.8	1.32	7062	2.83	56.62
003972120-06	OBS	No	79.499371	145.666025	504.5	1.944	7.9	8.7	1.32	7062	3.18	25.59
003972120-07	OBS	No	81.711791	208.261476	197.3	10.634	8.2	6.5	1.32	7062	2.01	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003972120-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_KIC_POS
003972120-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS—HALO_GHOST
003972120-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003972120-04	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_KIC_POS
003972120-05	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_DIFFS
003972120-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS
003972120-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

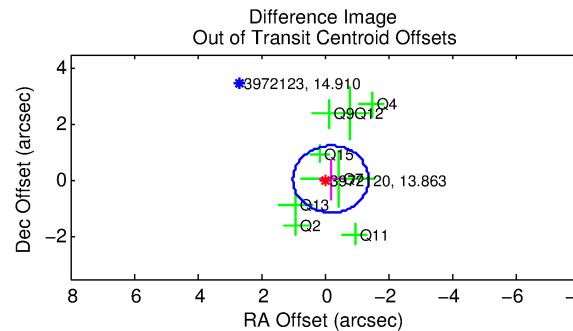
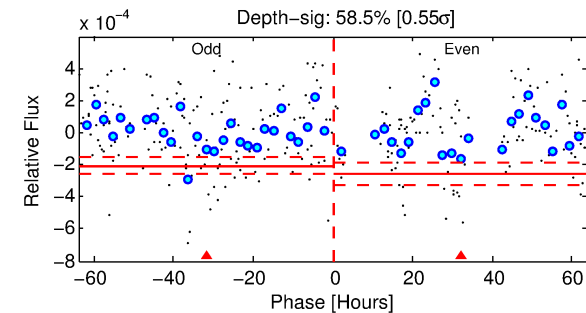
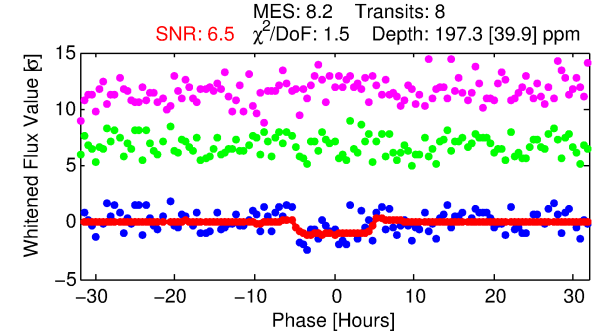
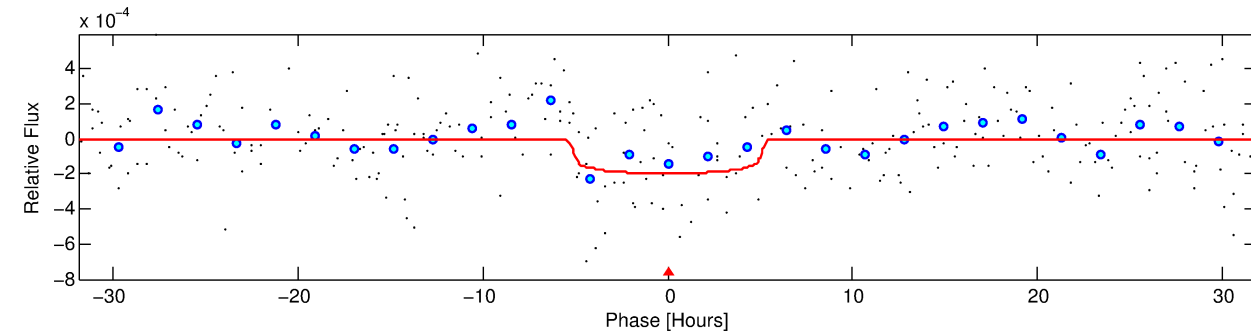
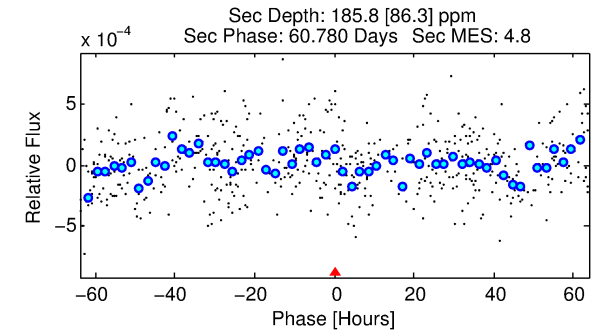
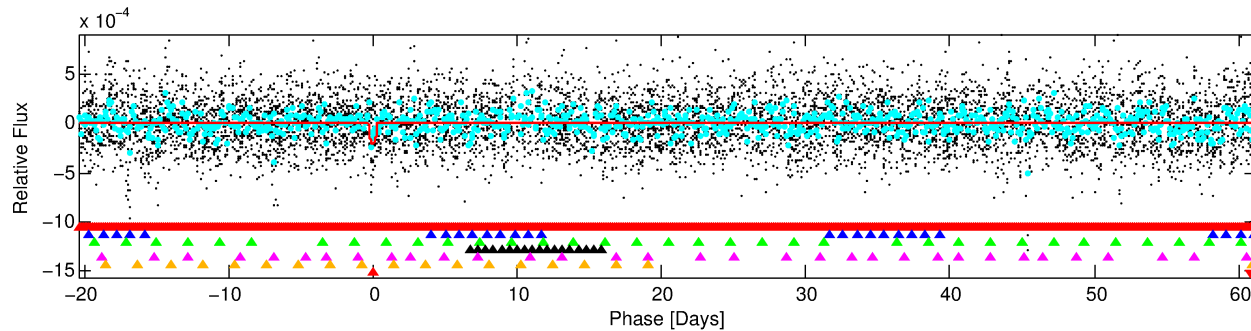
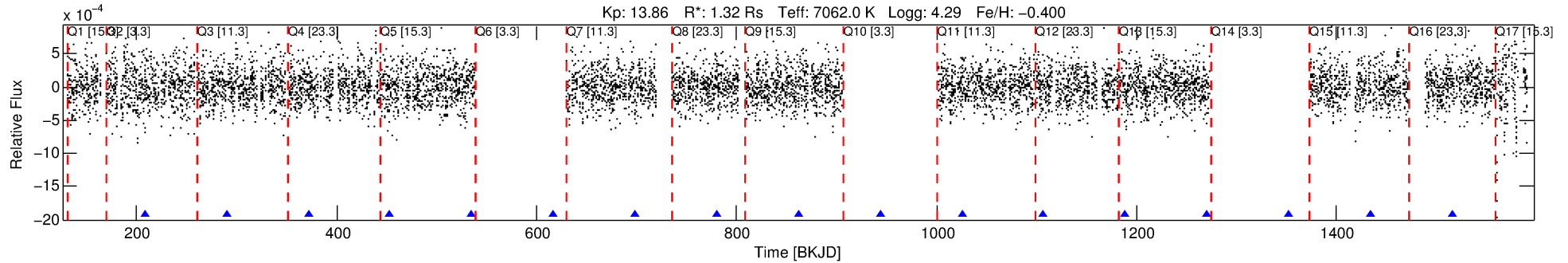
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003972120-07

No Significant Match Found

DV One-Page Summary

KIC: 3972120 Candidate: 7 of 7 Period: 81.712 d



DV Fit Results:

Period = 81.71179 [0.00257] d
Epoch = 208.2615 [0.0270] BKJD
Rp/R* = 0.0140 [0.0072]
a/R* = 39.75 [118.83]
b = 0.75 [1.72]
Seff = 24.67 [9.69]
Teff = 568 [56] K
Rp = 2.01 [1.21] Re
a = 0.3961 [0.1001] AU
Ag = 3965.24 [4689.42] [0.85σ]
Teffp = 6972 [1988] K [3.22σ]

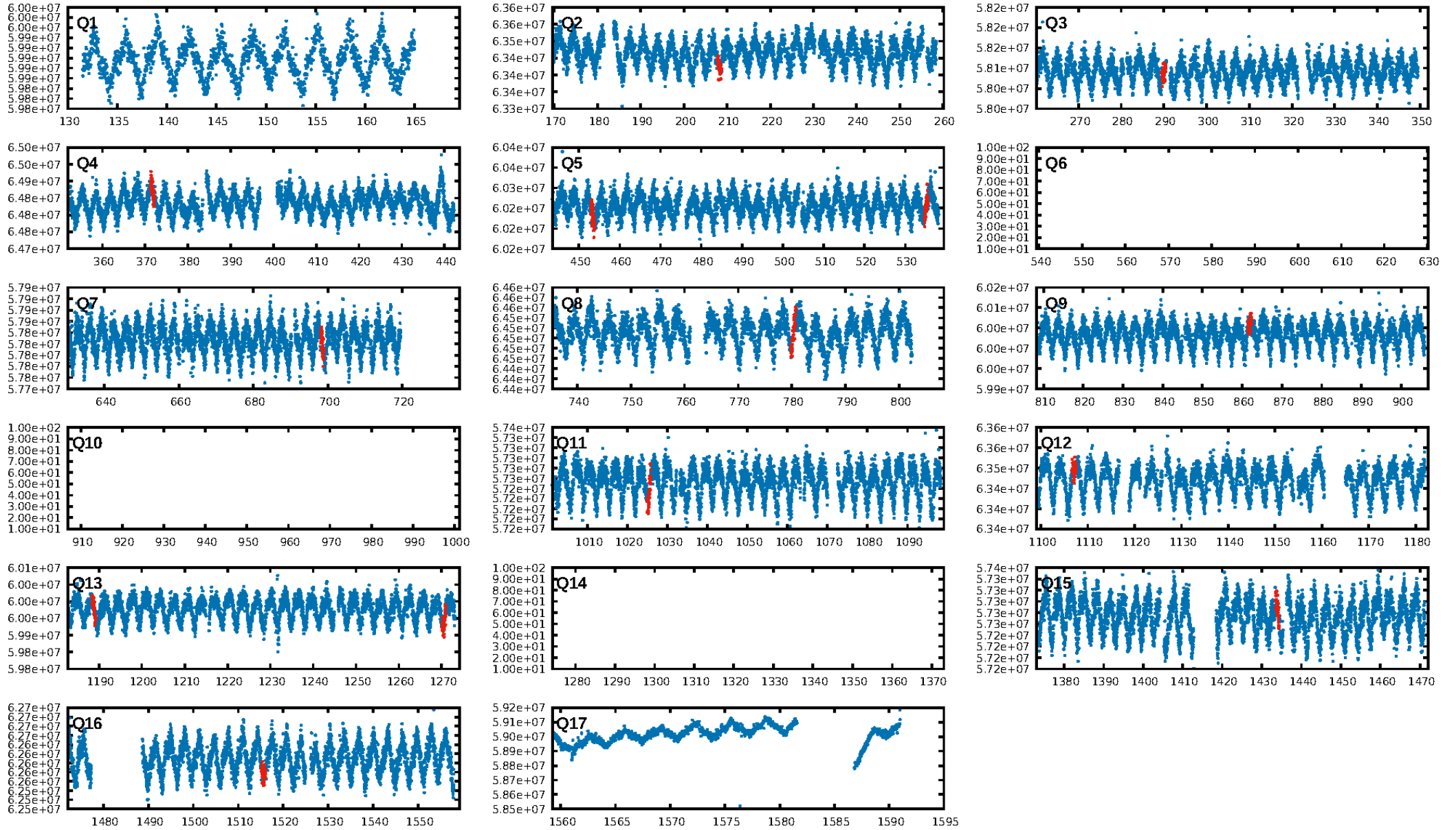
DV Diagnostic Results:

ShortPeriod-sig: 67.2% [0.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.33e-08
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 0.5266
Centroid-sig: 7.0%
Centroid-so: 0.731 arcsec [0.68σ]
OotOffset-rm: 0.195 arcsec [0.49σ]
OotOffset-st: 1/3/2/2 [8]
KicOffset-rm: 1.009 arcsec [1.51σ]
KicOffset-st: 1/3/2/2 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.00 [0/10]

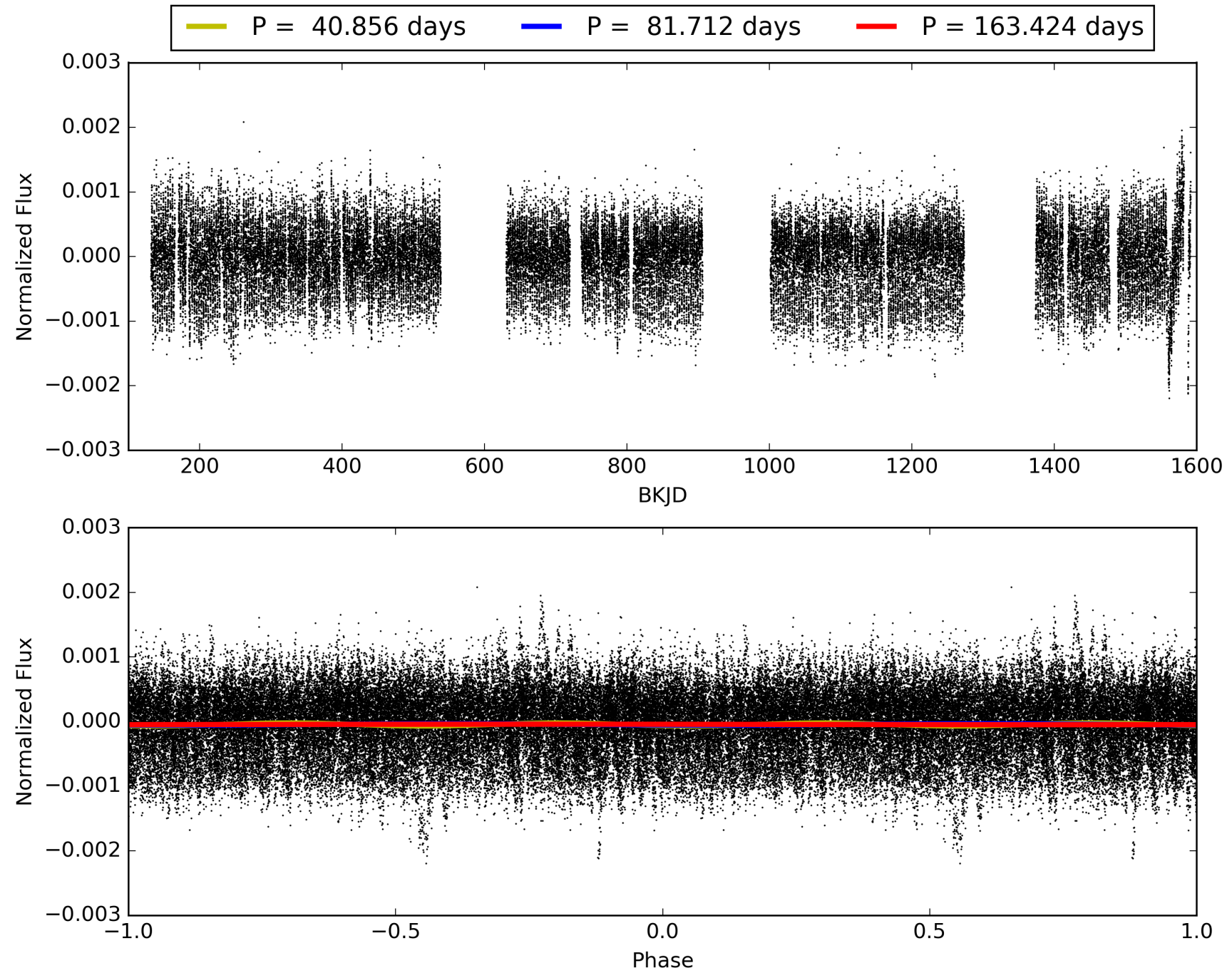
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:27:28 Z

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

TCE 003972120-07, PDC Light Curves

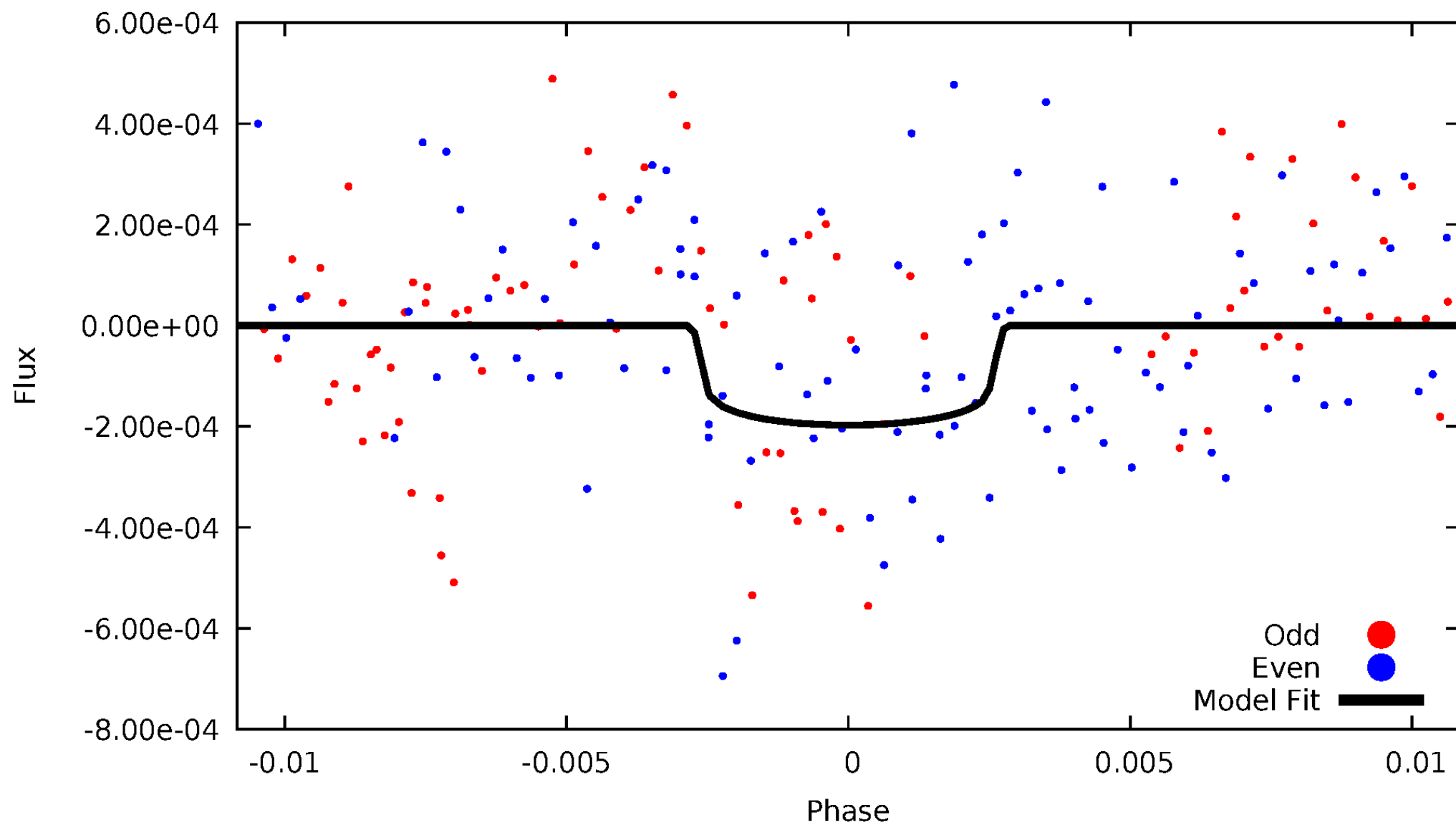


TCE 003972120-07



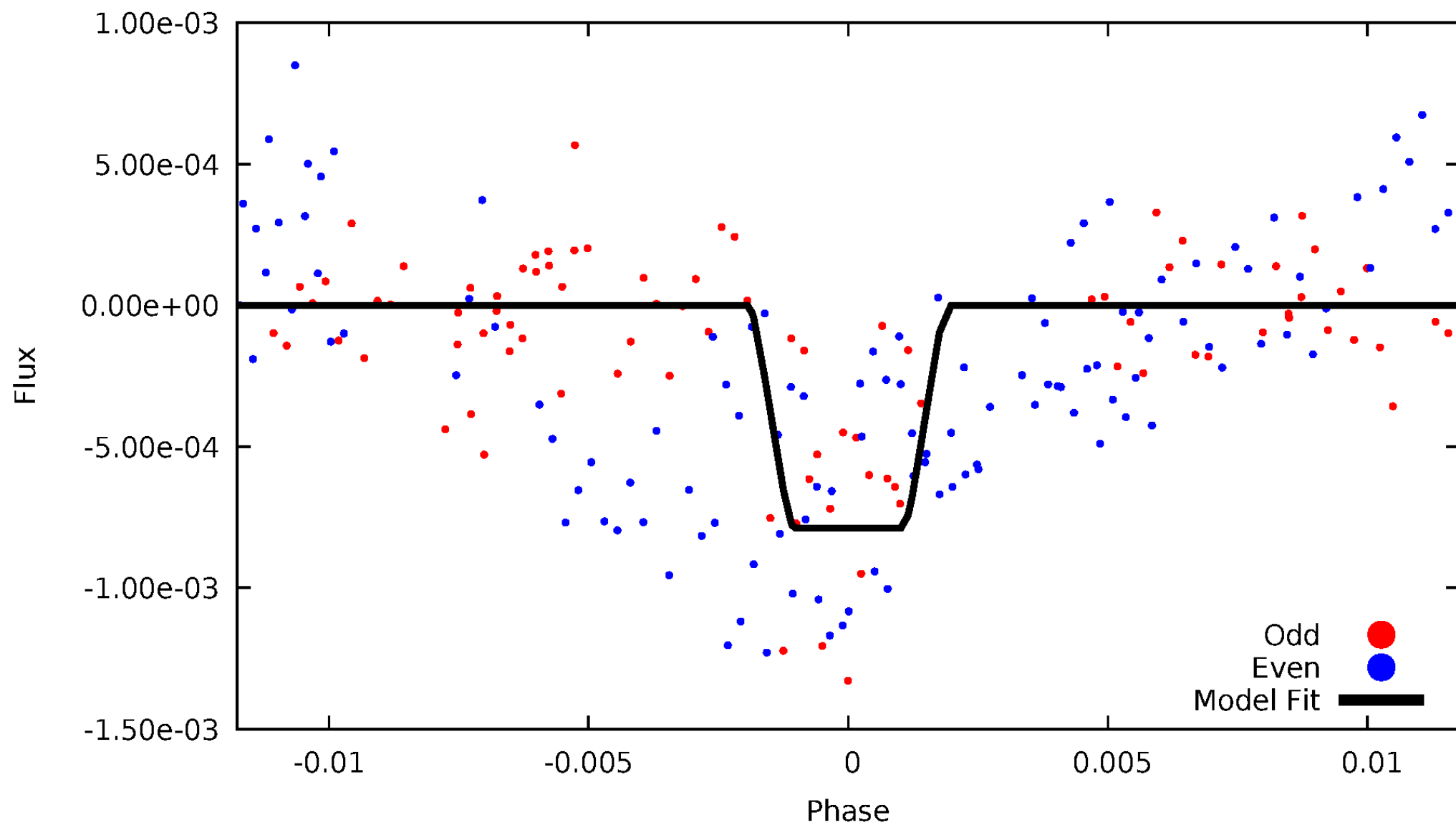
DV Odd/Even

TCE 003972120-07



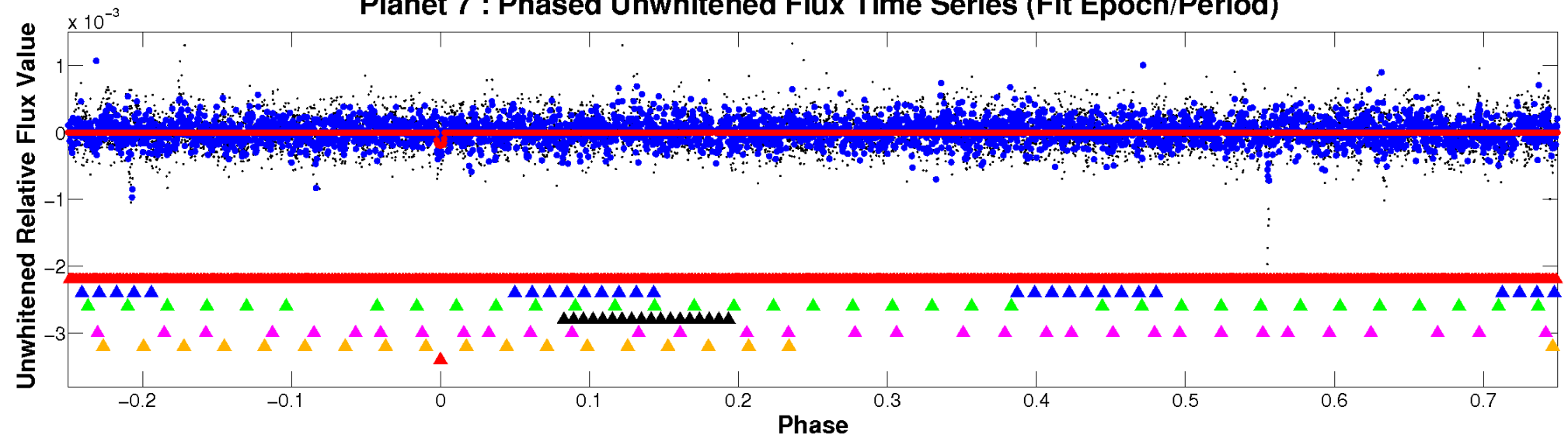
ALT Odd/Even

TCE 003972120-07

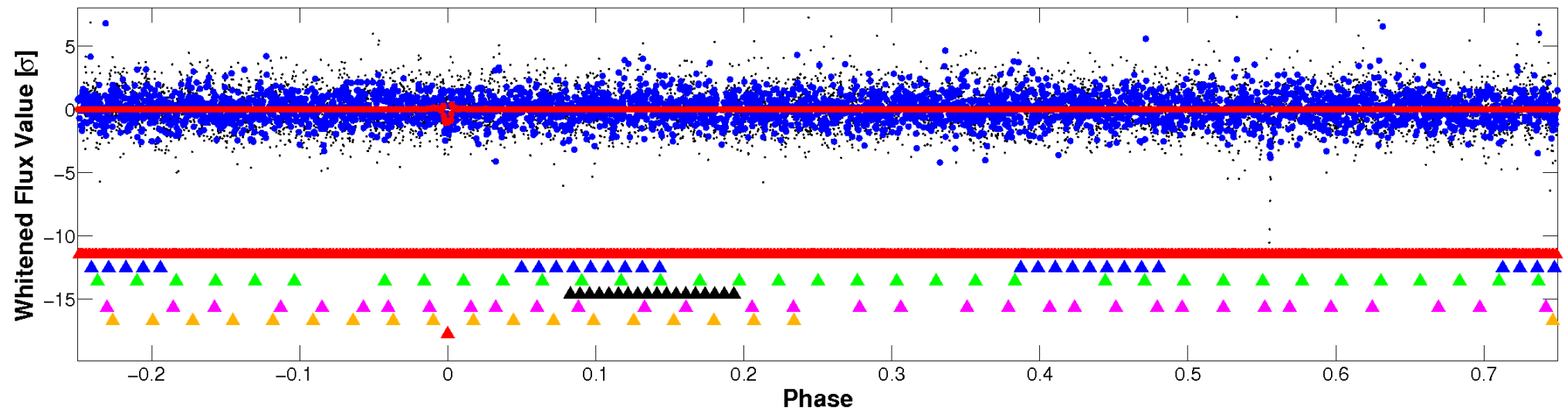


Non-Whitened Vs. Whitened Light Curve

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

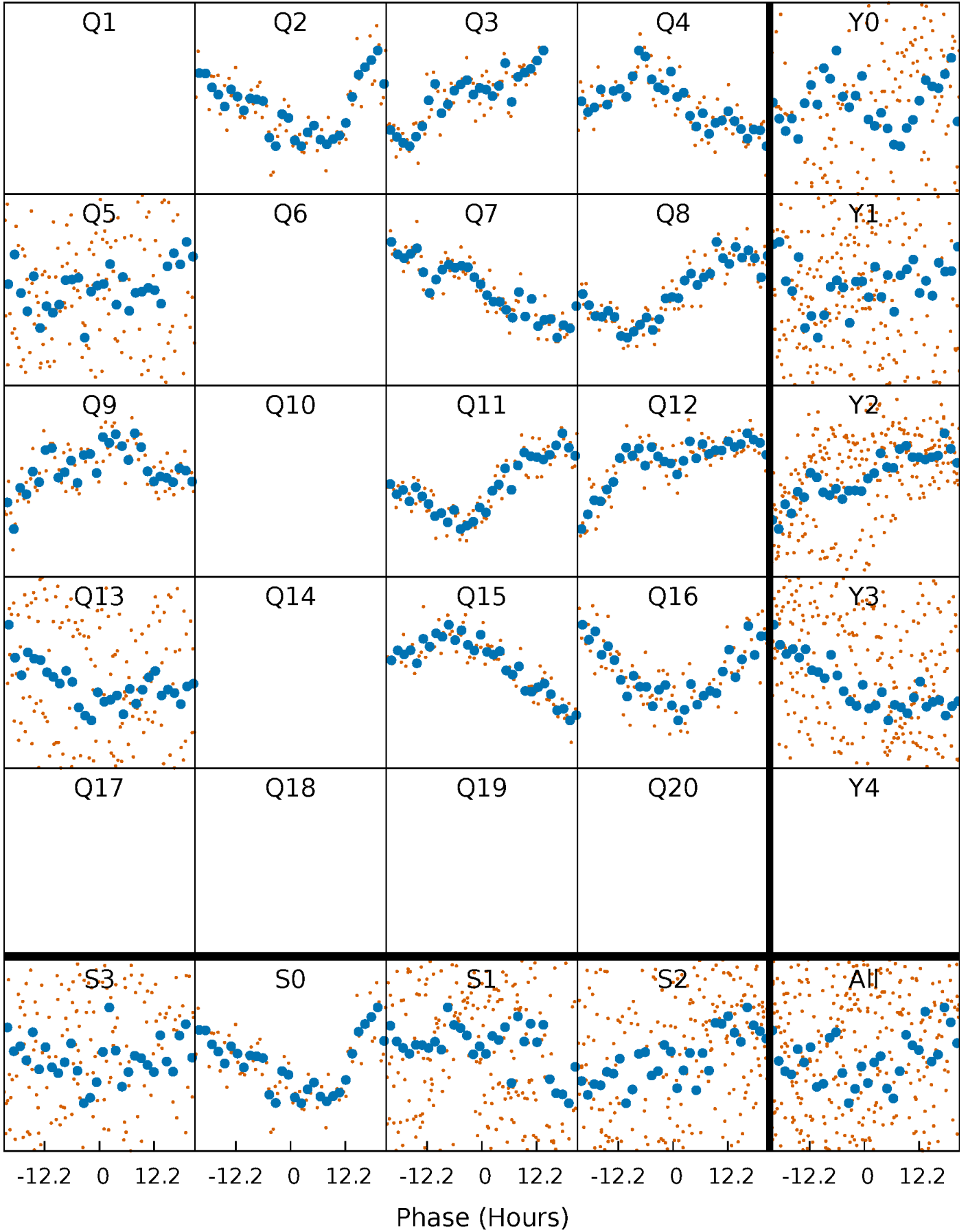


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



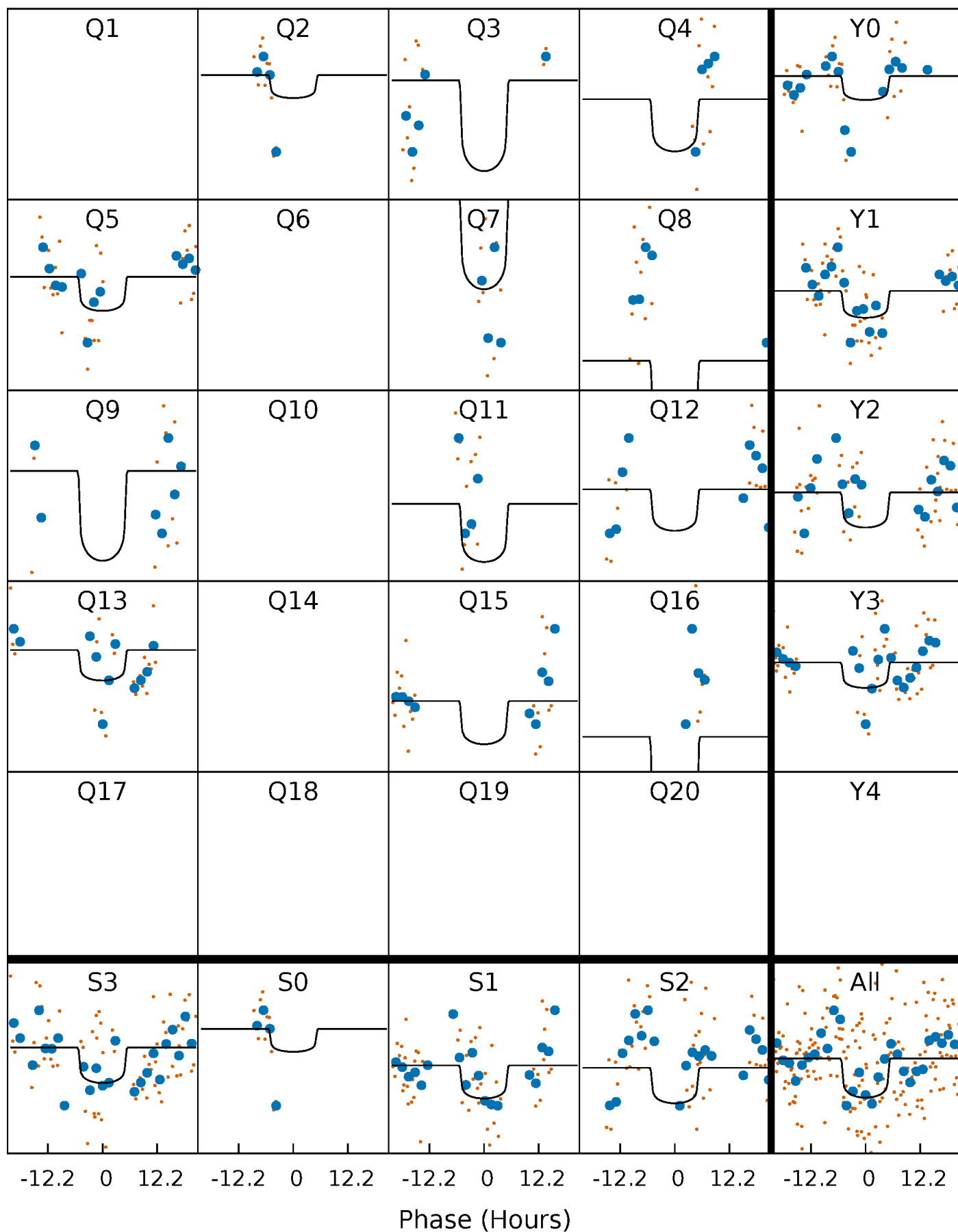
PDC Quarter-Phased Transit Curves

TCE 003972120-07 P= 81.711791 Days $T_0=208.261476$ (BKJD)



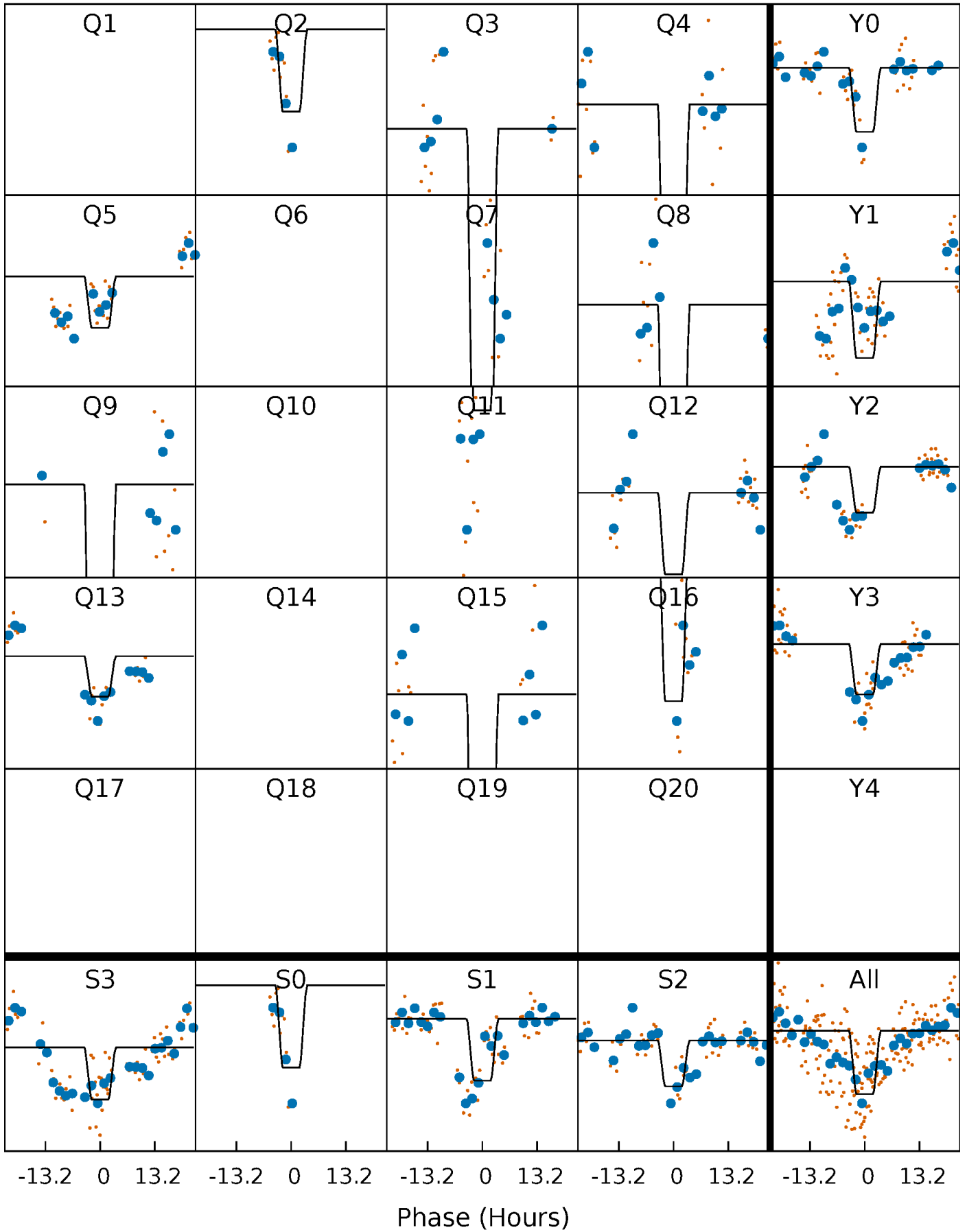
DV Quarter-Phased Transit Curves

TCE 003972120-07 $P = 81.711791$ Days $T_0 = 208.261476$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

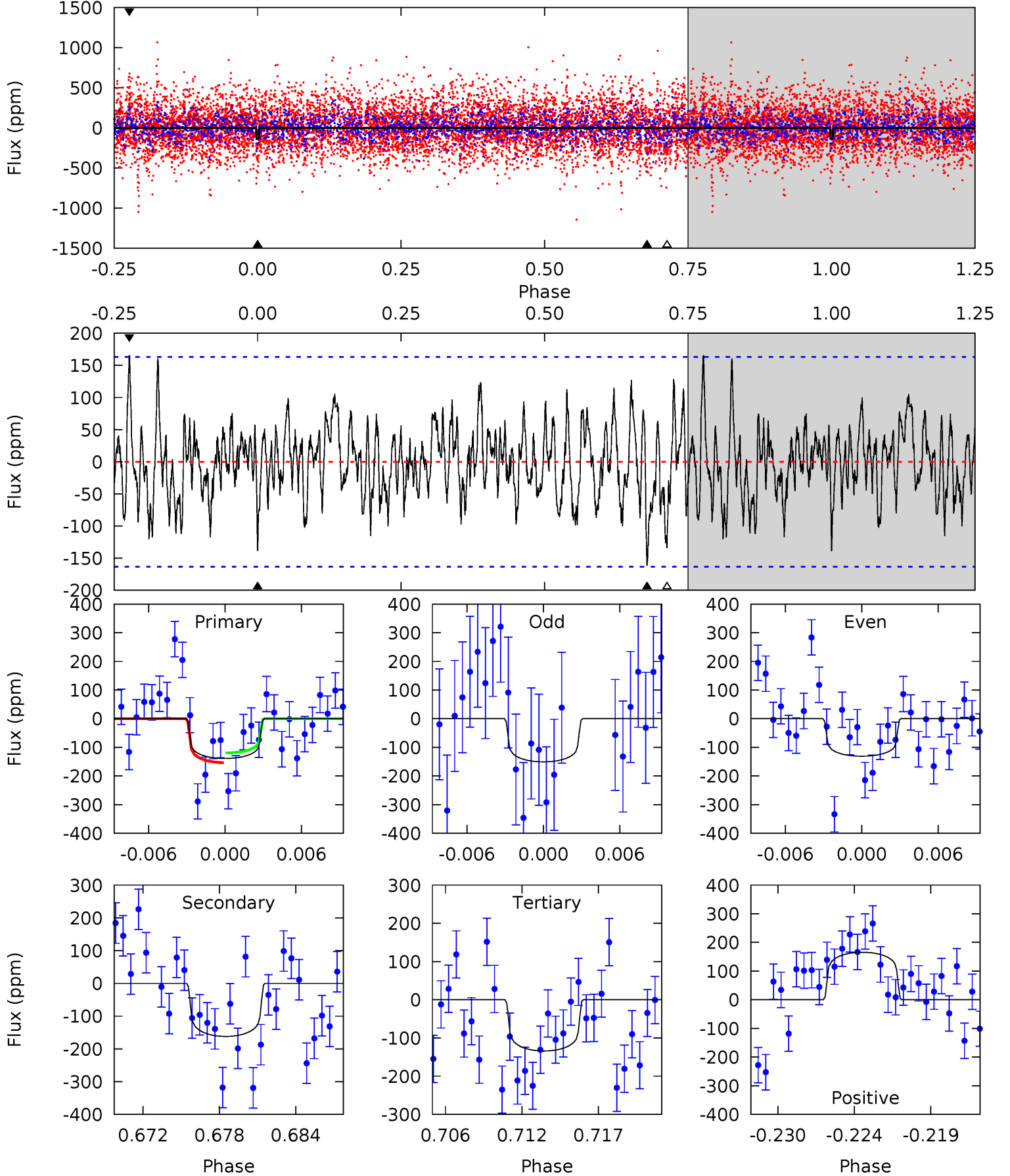
TCE 003972120-07 $P = 81.725772$ Days $T_0 = 208.108672$ (BKJD)



DV Model-Shift Uniqueness Test

003972120-07, P = 81.711791 Days, E = 126.549685 Days

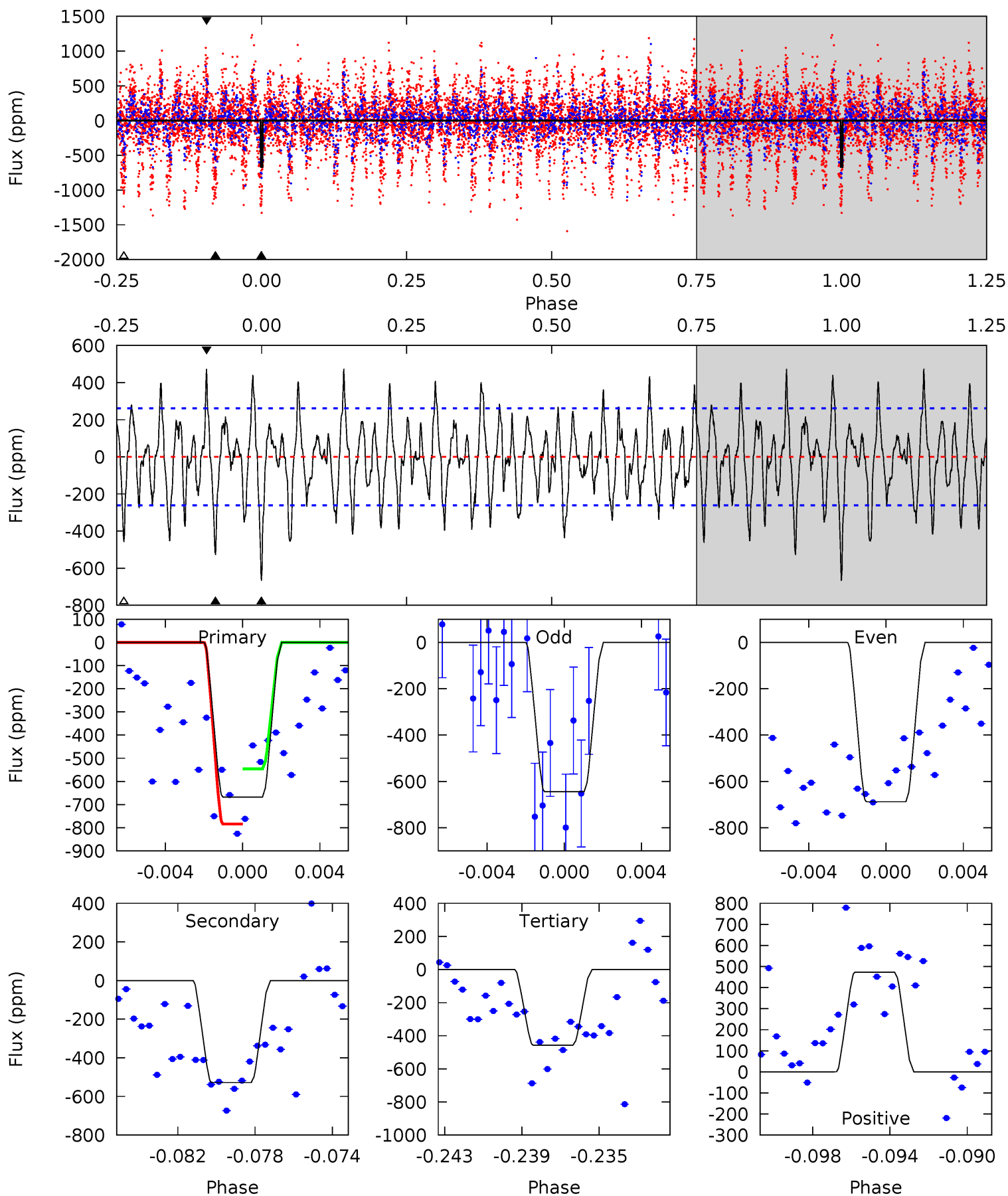
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.37	5.10	4.22	5.21	5.14	2.77	1.58	0.15	-0.84	0.88	-0.12	0.30	1.08	0.51	0.53



Alt Model-Shift Uniqueness Test

003972120-07, P = 81.725772 Days, E = 126.382900 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	10.5	9.11	9.42	5.20	2.88	3.50	4.18	3.87	1.40	1.09	0.44	0.93	0.41	2.36



Stellar Parameters For KIC 003972120

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7062^{+197}_{-296}	$4.292^{+0.101}_{-0.188}$	$-0.400^{+0.250}_{-0.300}$	$1.318^{+0.410}_{-0.176}$	$1.249^{+0.179}_{-0.179}$	$0.768^{+0.354}_{-0.389}$
	+3%/-4%	+2%/-4%	+62%/-75%	+31%/-13%	+14%/-14%	+46%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003972120-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-162 ± 32	$2.06^{+1.12}_{-0.99}$	799^{+52}_{-41}	6612^{+3211}_{-1246}	3152^{+8425}_{-1794}
Alt.	-528 ± 50	$4.12^{+1.30}_{-1.13}$	798^{+58}_{-43}	6266^{+1336}_{-687}	2621^{+2390}_{-1088}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

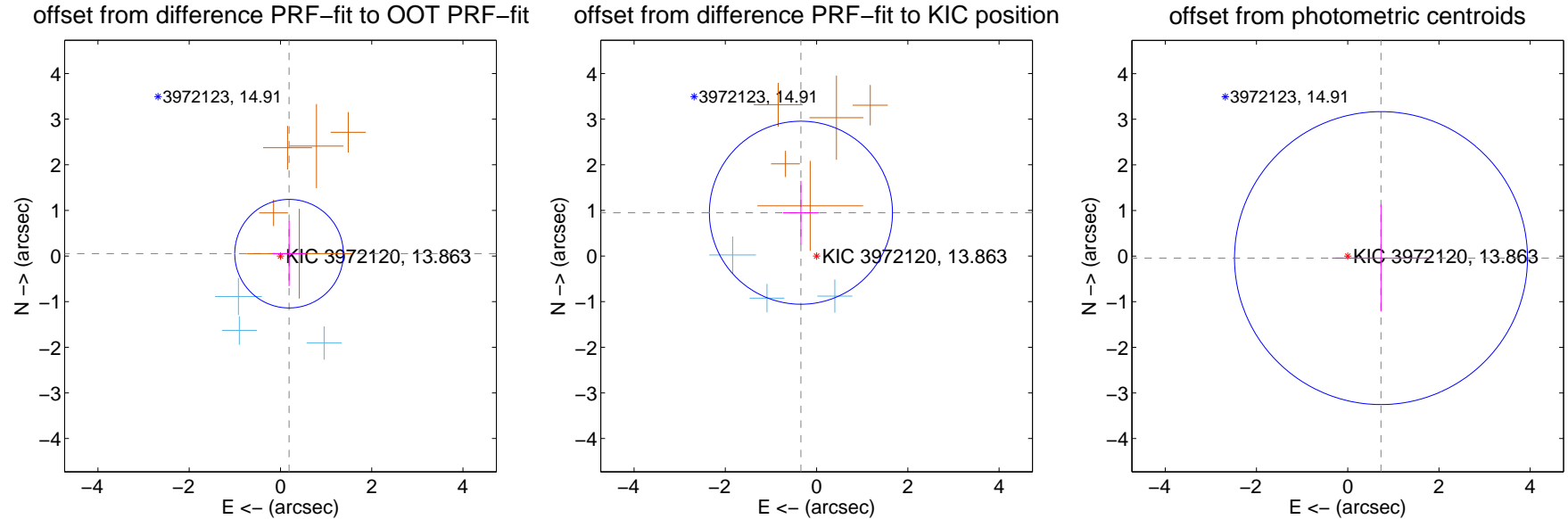
DV Centroid Data

Supplemental centroid analysis for 003972120-07. Kepler magnitude: 13.86. Transit SNR 6.48

There are 3 quarters with good PRF difference image offsets

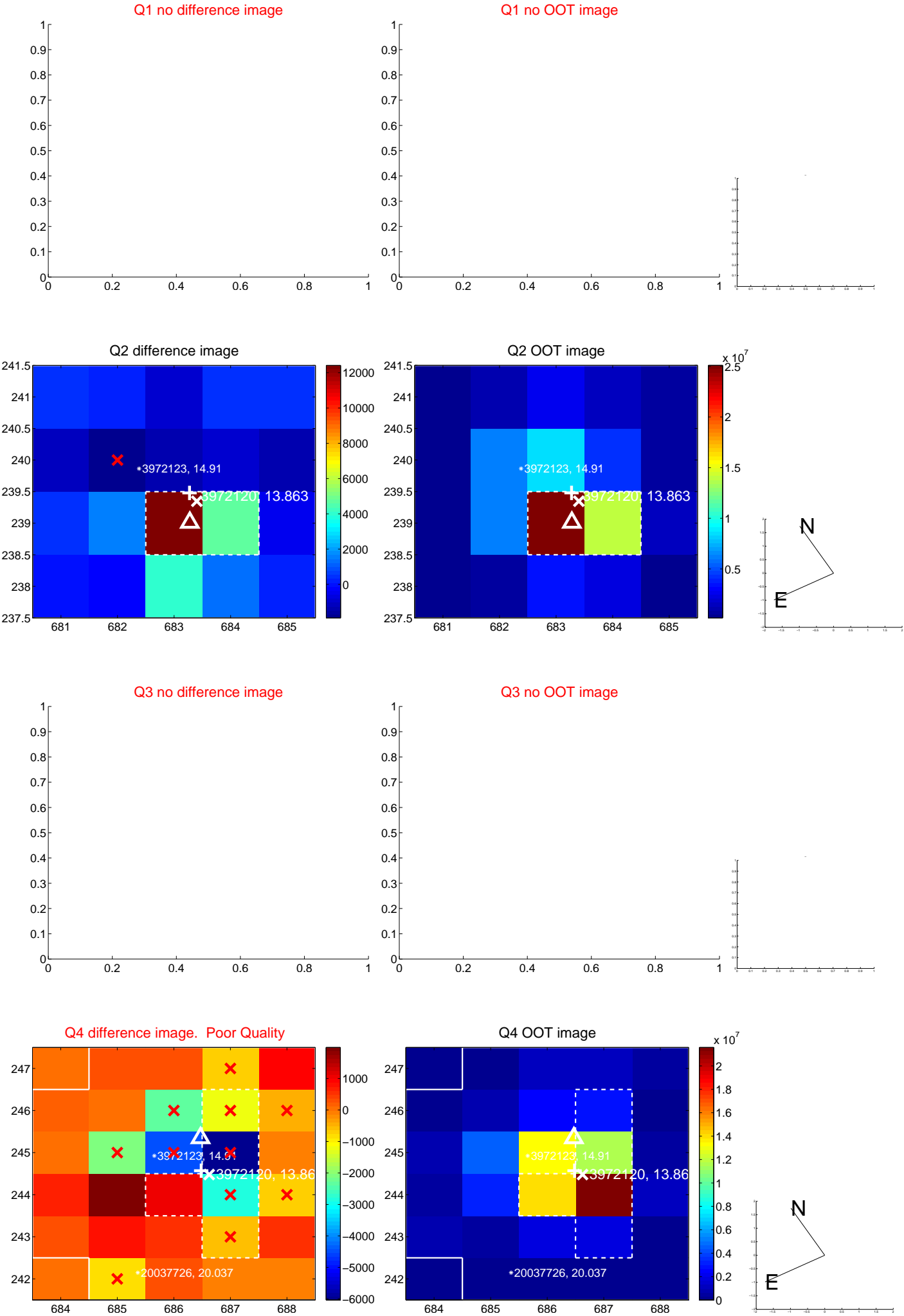
The direct PRF centroid is offset from the target star catalog position by about 1.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.195 ± 0.397	0.49	-0.188 ± 0.362	0.052 ± 0.709
PRF-fit source offset from KIC position	1.009 ± 0.669	1.51	0.343 ± 0.390	0.949 ± 0.697
photometric centroid source offset	0.73 ± 1.07	0.68	-0.73 ± 1.07	-0.04 ± 1.17

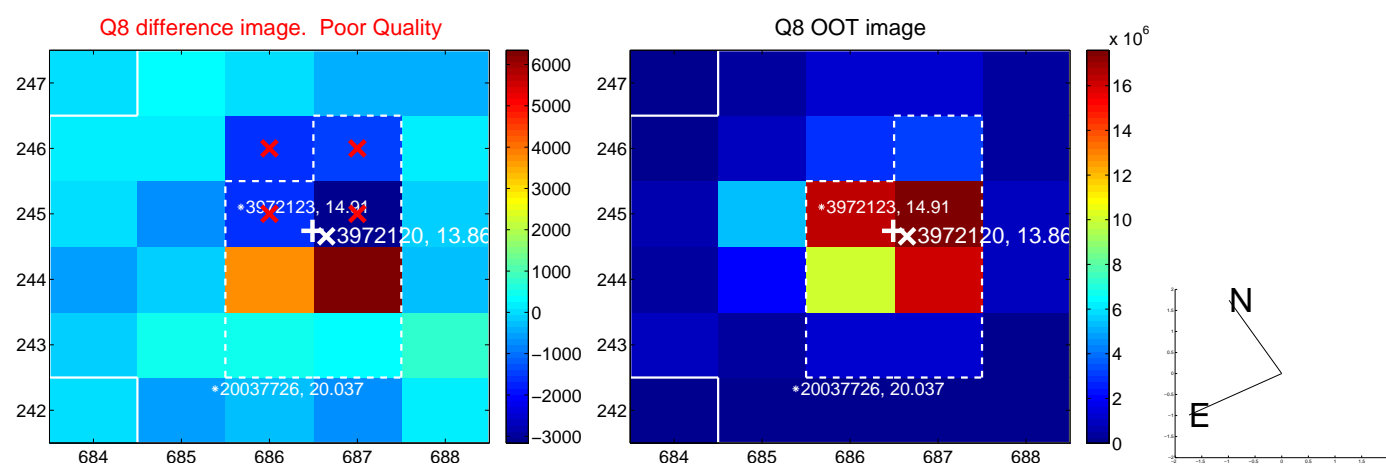
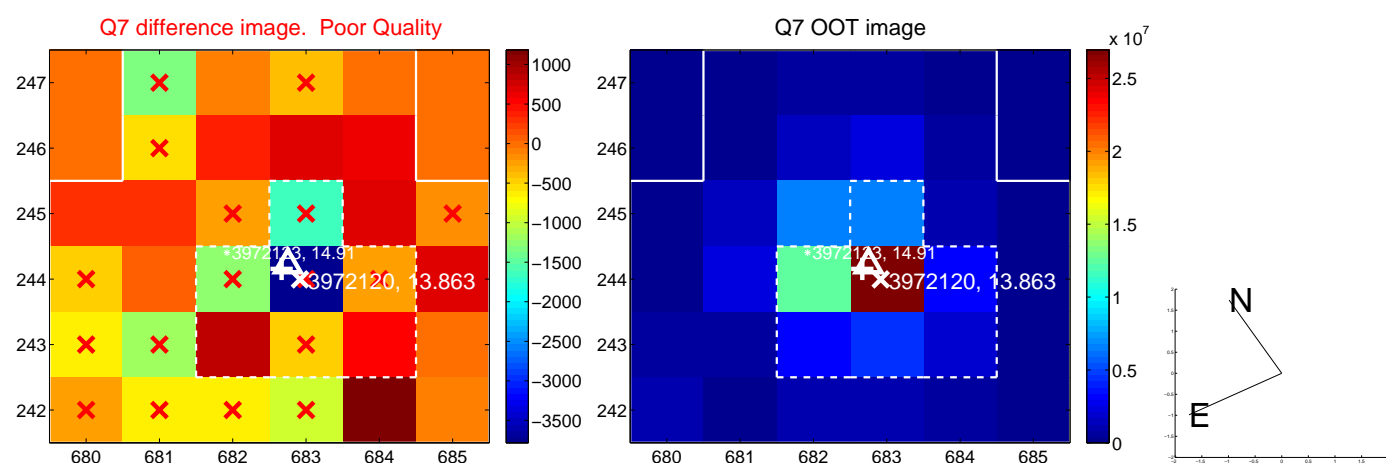
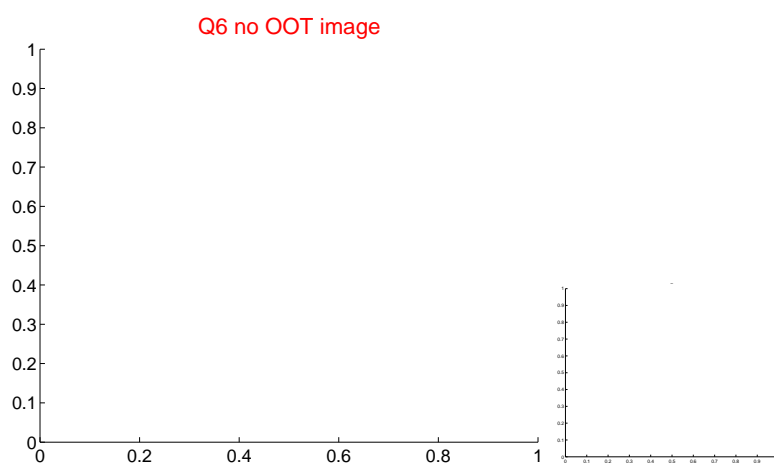
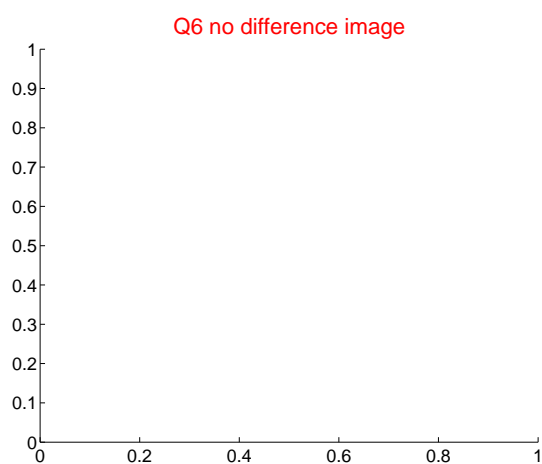
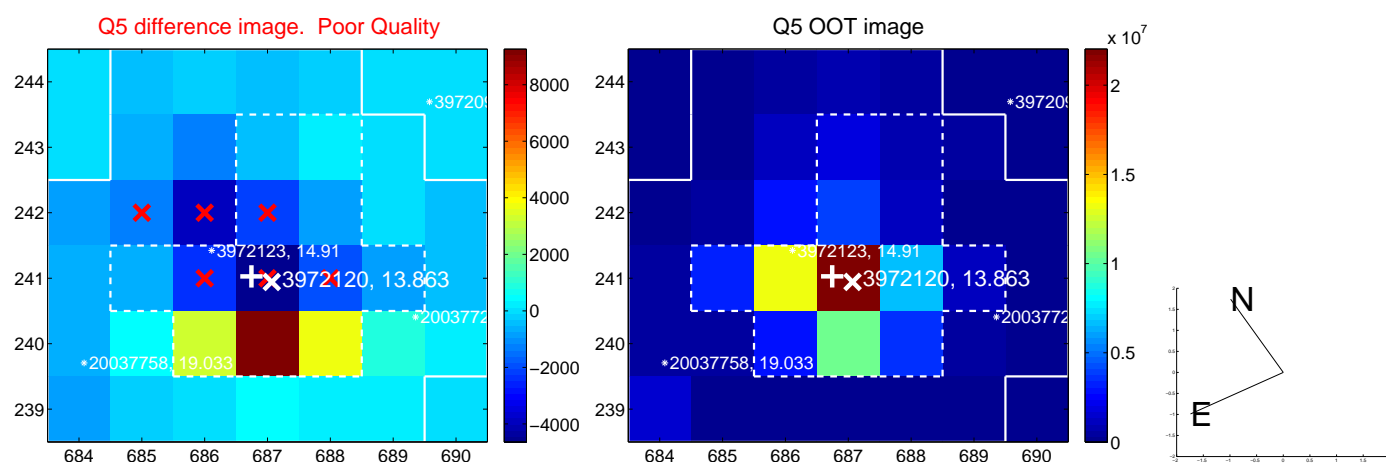


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

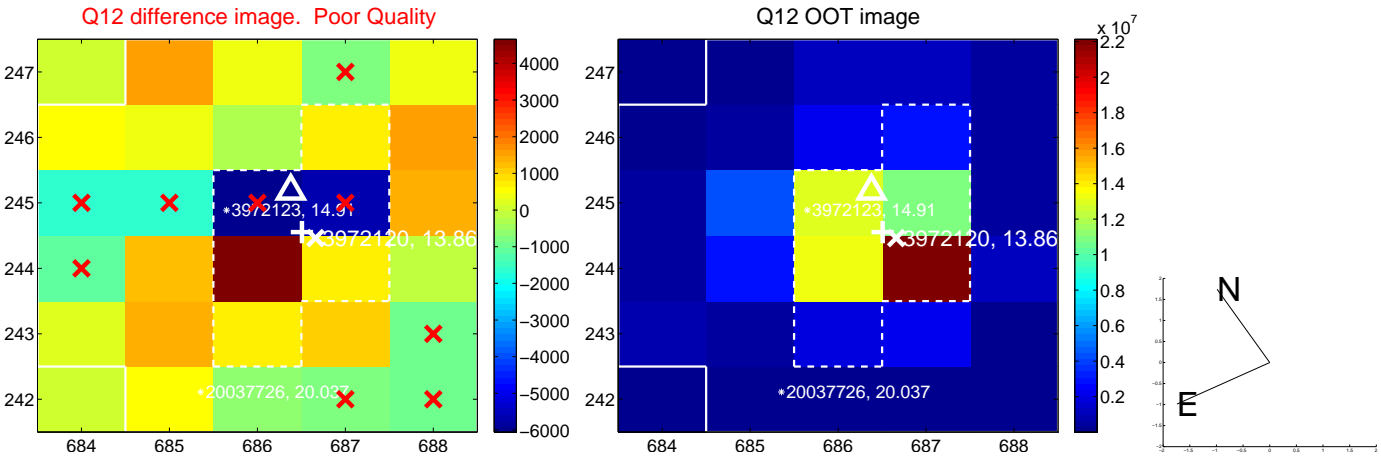
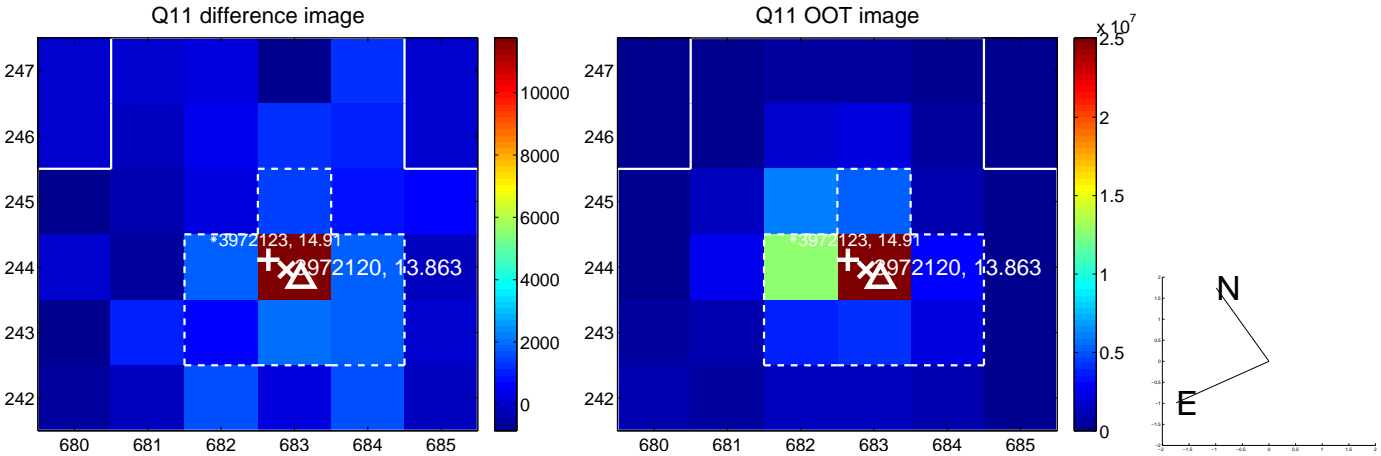
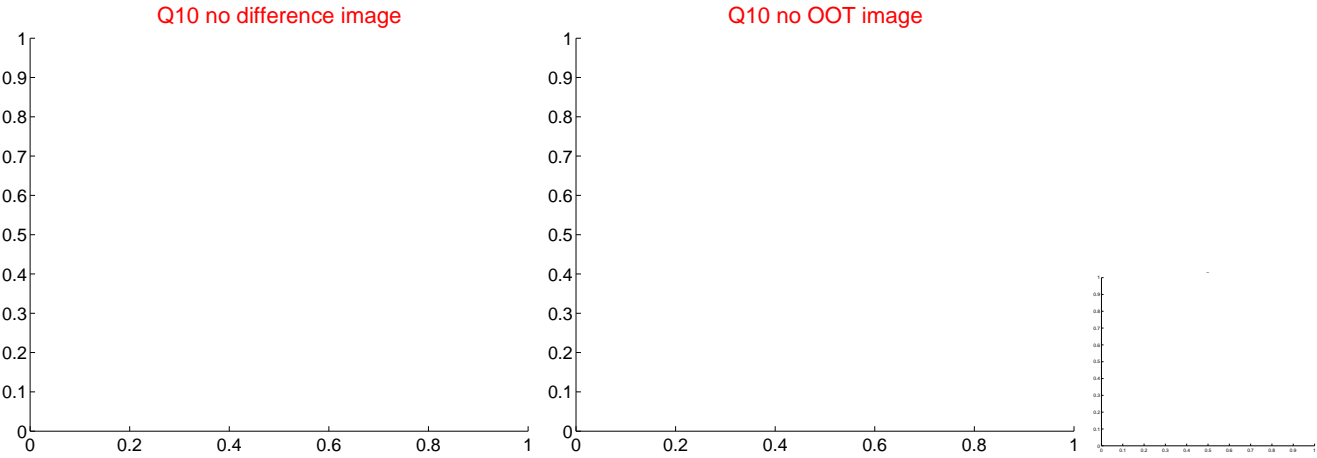
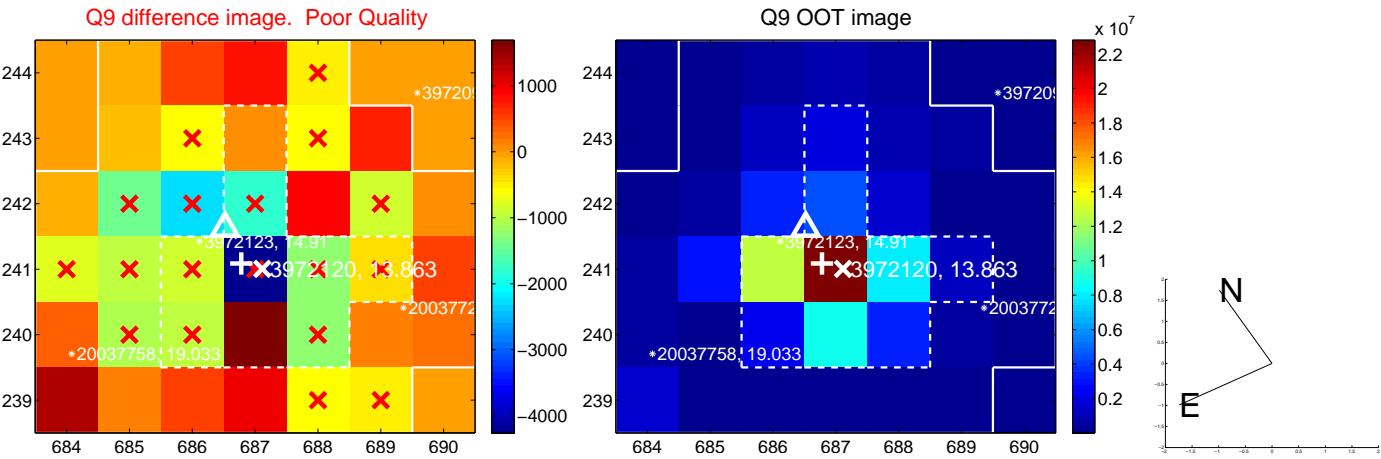
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



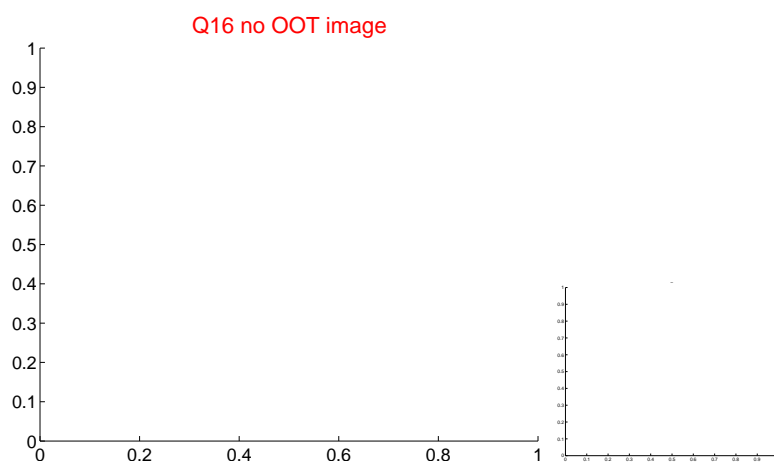
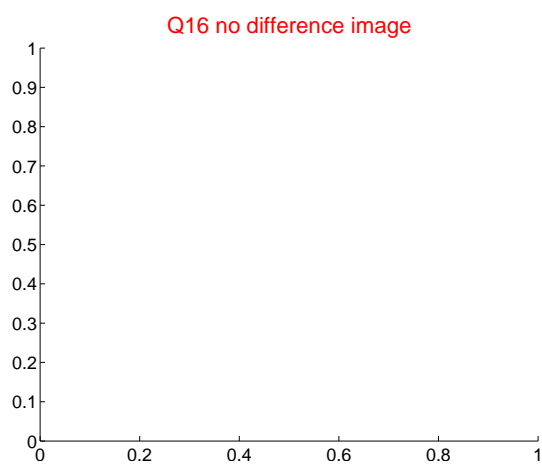
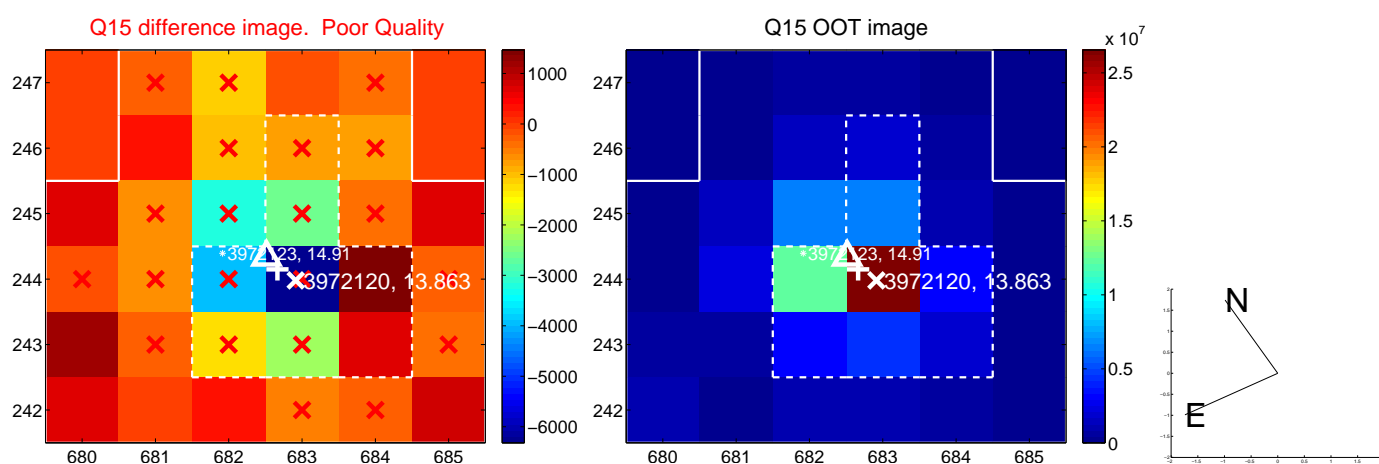
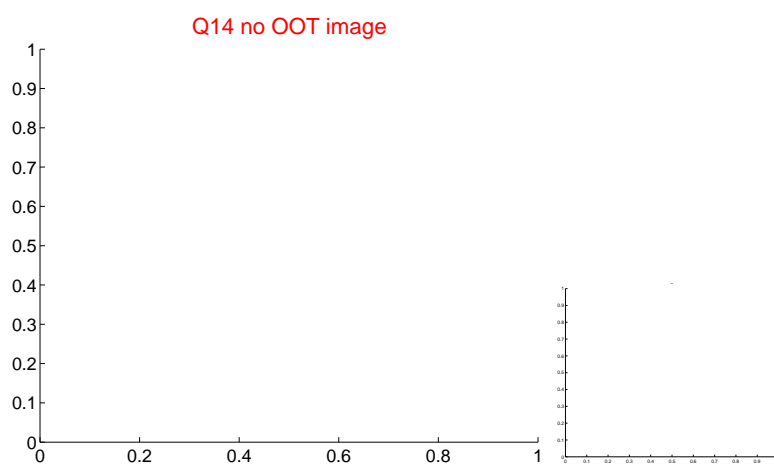
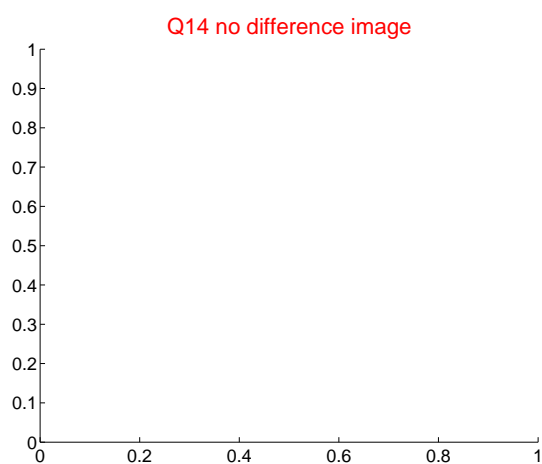
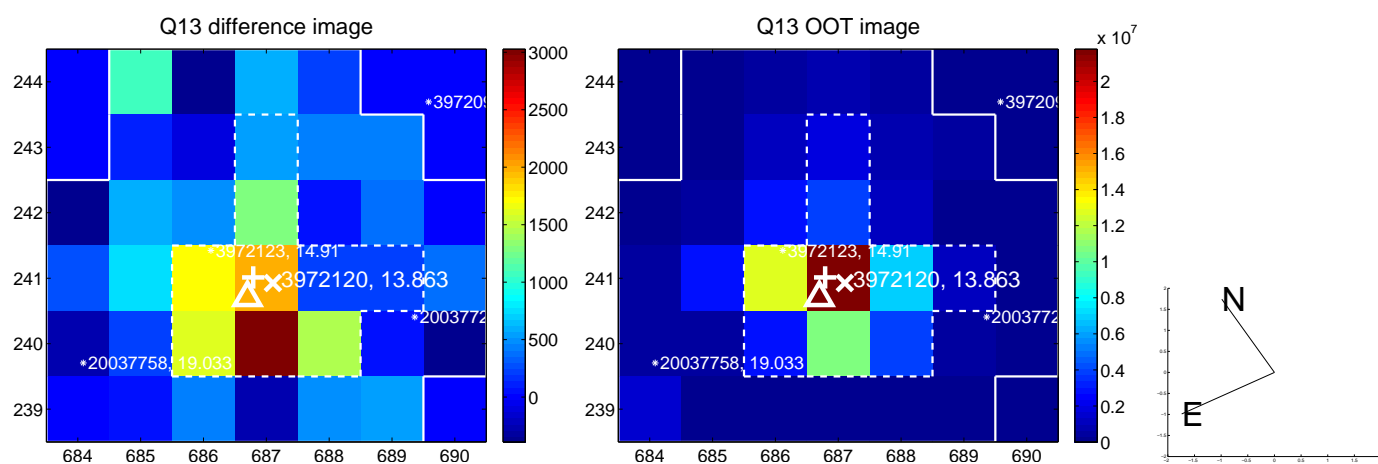
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



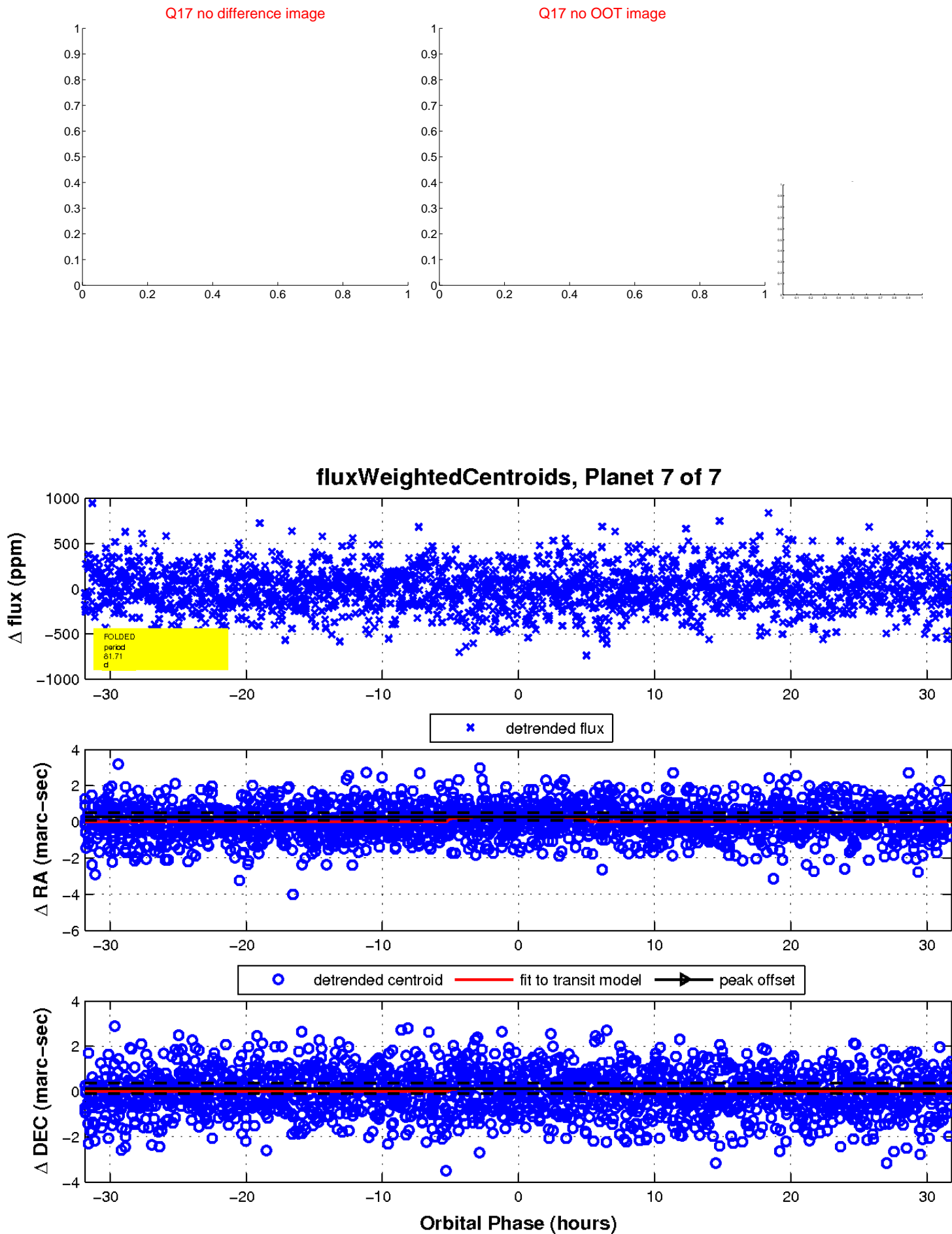
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

