

KIC 007031942

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})
007031942-01	OBS	4420.01	0.566764	131.858383	19.0	3.831	11.6	10.2	1.06	5642	0.49	6116.93
007031942-02	OBS	No	19.387916	138.305557	415.0	0.890	9.7	8.9	1.06	5642	2.64	55.08
007031942-03	OBS	No	12.080117	138.697085	224.8	3.109	8.6	8.1	1.06	5642	1.76	103.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007031942-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
007031942-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
007031942-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

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

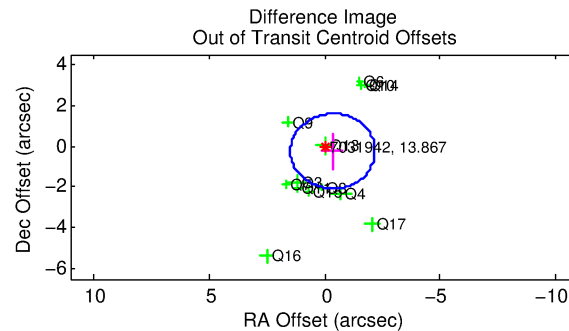
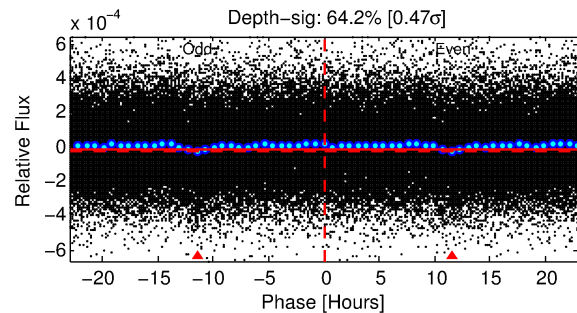
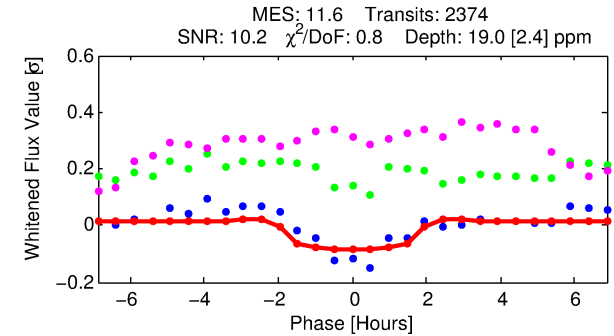
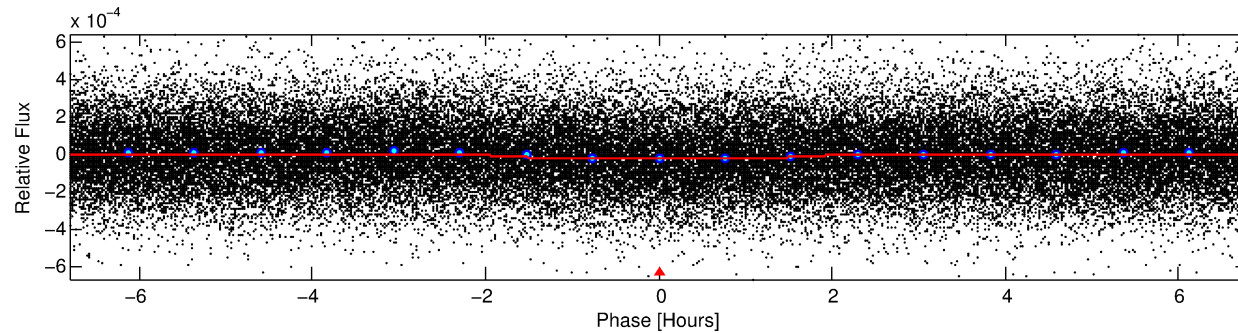
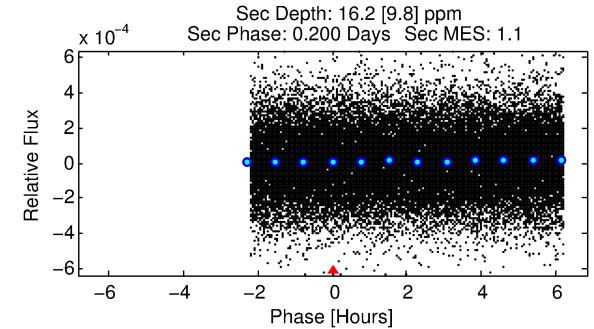
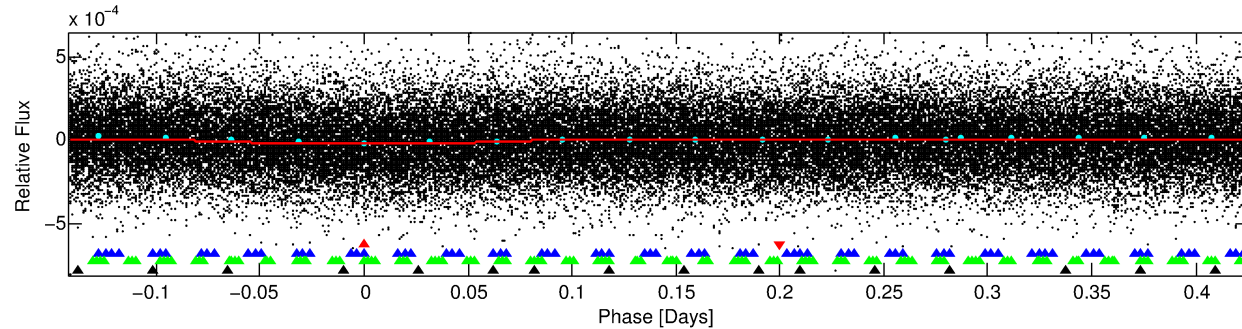
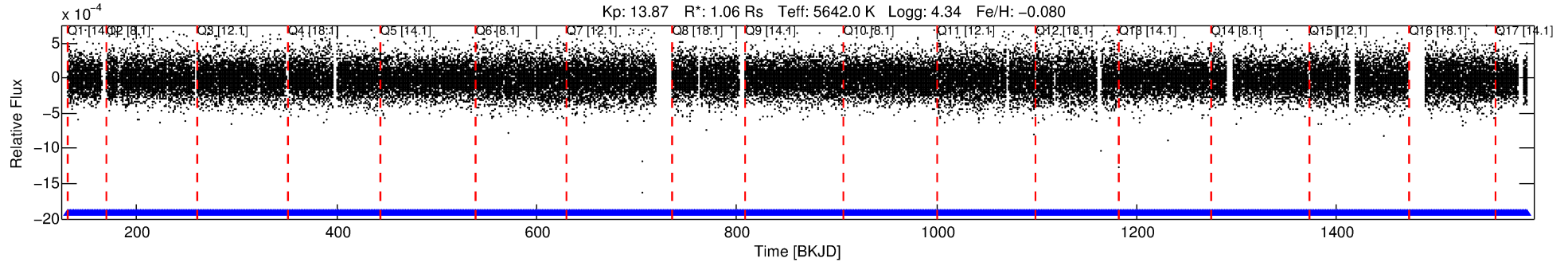
Ephemeris Match Information For 007031942-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (μ)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
007031942-01	7031942	RR-Lyr-pri	7198959	1:1	789.3	117	-161	7.86	13.87	32805.00	Direct-PRF	0	3.24	22.52

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7031942 Candidate: 1 of 4 Period: 0.567 d
KOI: K04420.01 Corr: 0.859



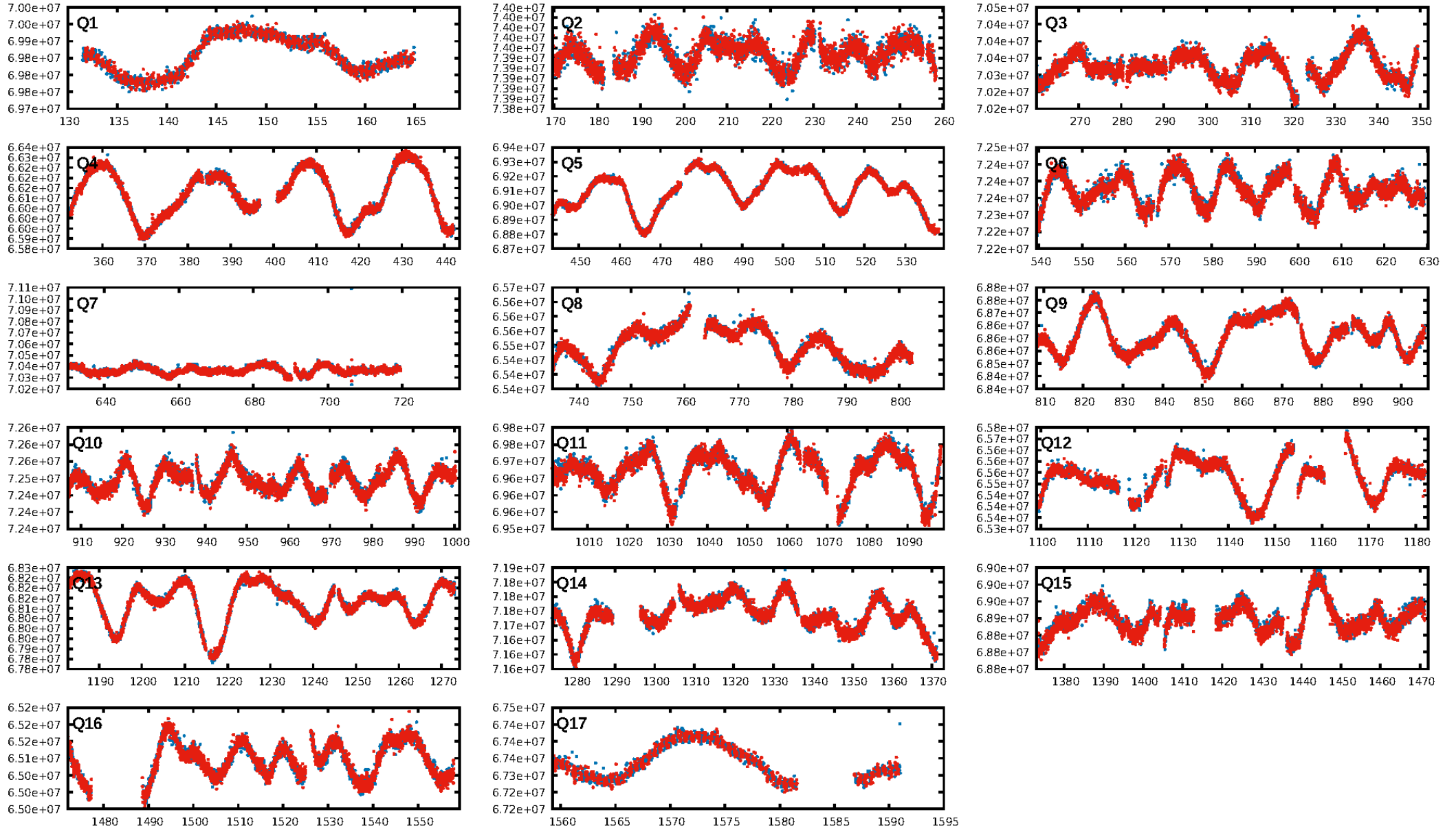
DV Fit Results:

Period = 0.56676 [0.00001] d
Epoch = 131.8584 [0.0038] BKJD
Rp/R* = 0.0043 [0.0024]
a/R* = 1.16 [0.72]
b = 0.71 [1.72]
Seff = 6116.92 [2189.57]
Teq = 2255 [202] K
Rp = 0.49 [0.31] Re
a = 0.0129 [0.0030] AU
Ag = 6.06 [7.97] [0.63σ]
Teffp = 5469 [1745] K [1.83σ]

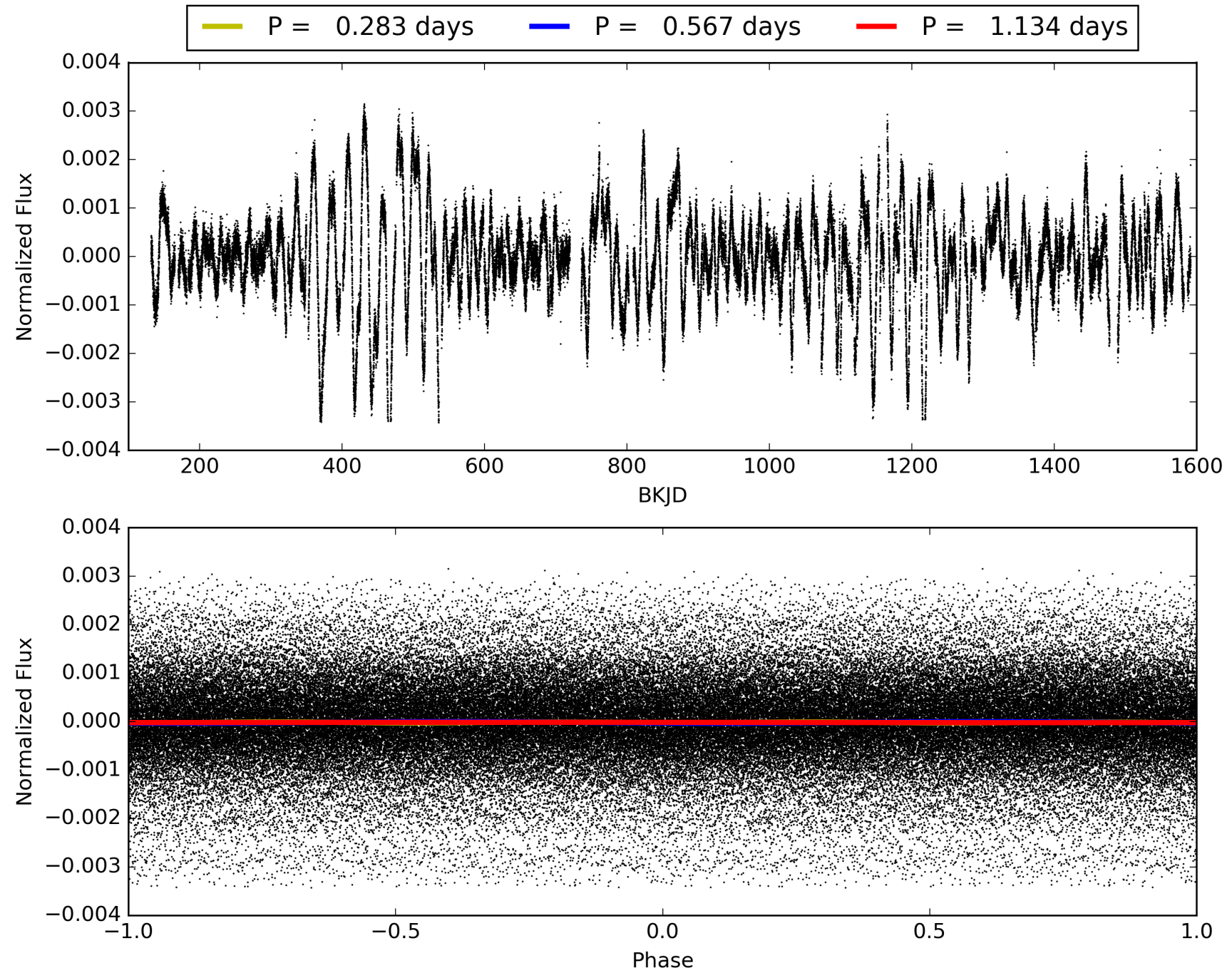
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [56.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.19e-24
RollingBand-fgt: 1.00 [2268/2268]
GhostDiagnostic-chr: 0.2255
Centroid-sig: 0.0%
Centroid-so: 2.742 arcsec [2.73σ]
OotOffset-rm: 0.426 arcsec [0.70σ]
KicOffset-rm: 0.201 arcsec [0.34σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007031942-01, PDC Light Curves

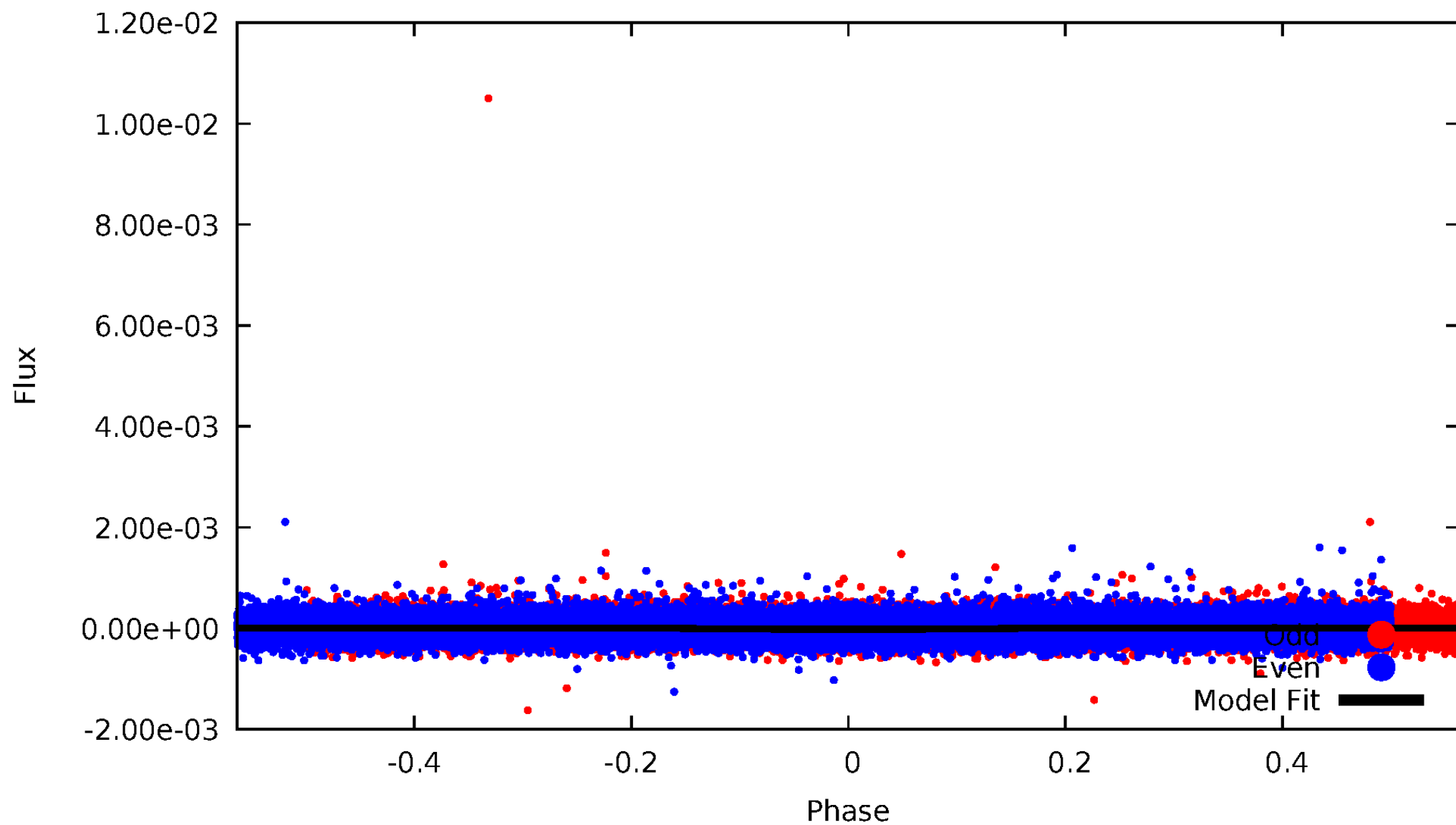


TCE 007031942-01



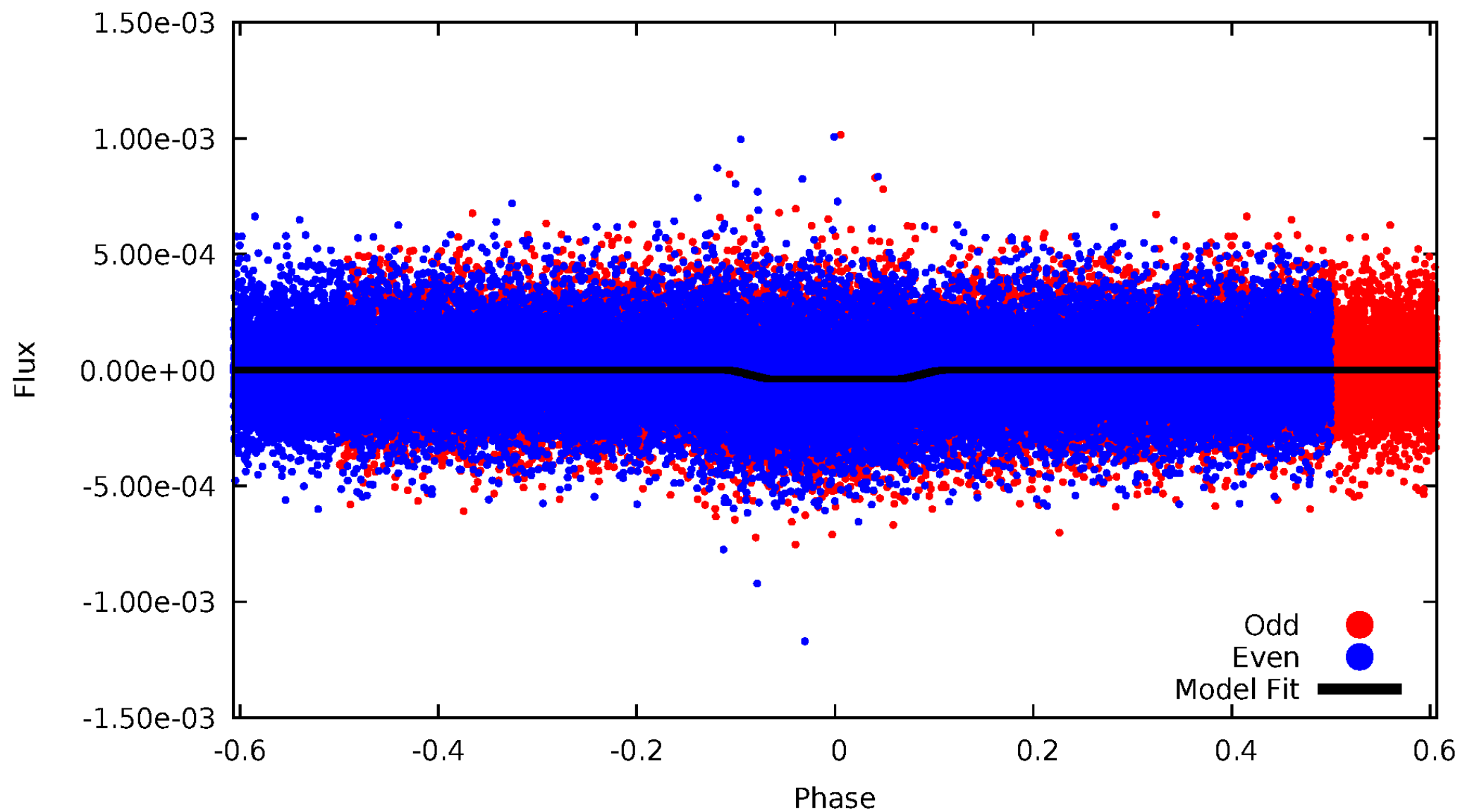
DV Odd/Even

TCE 007031942-01

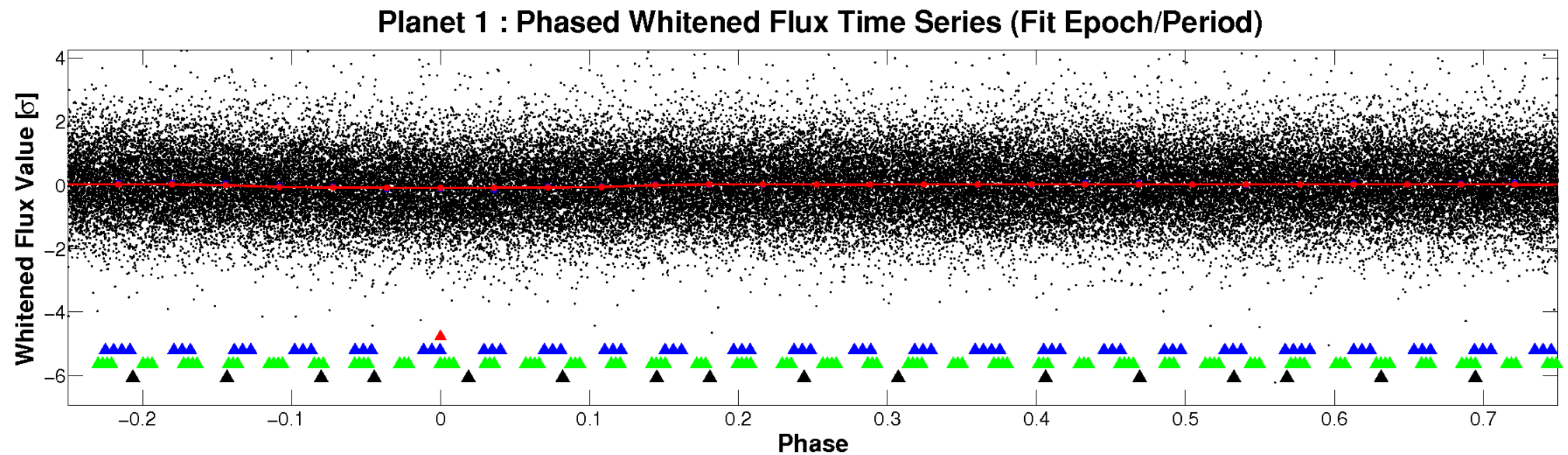
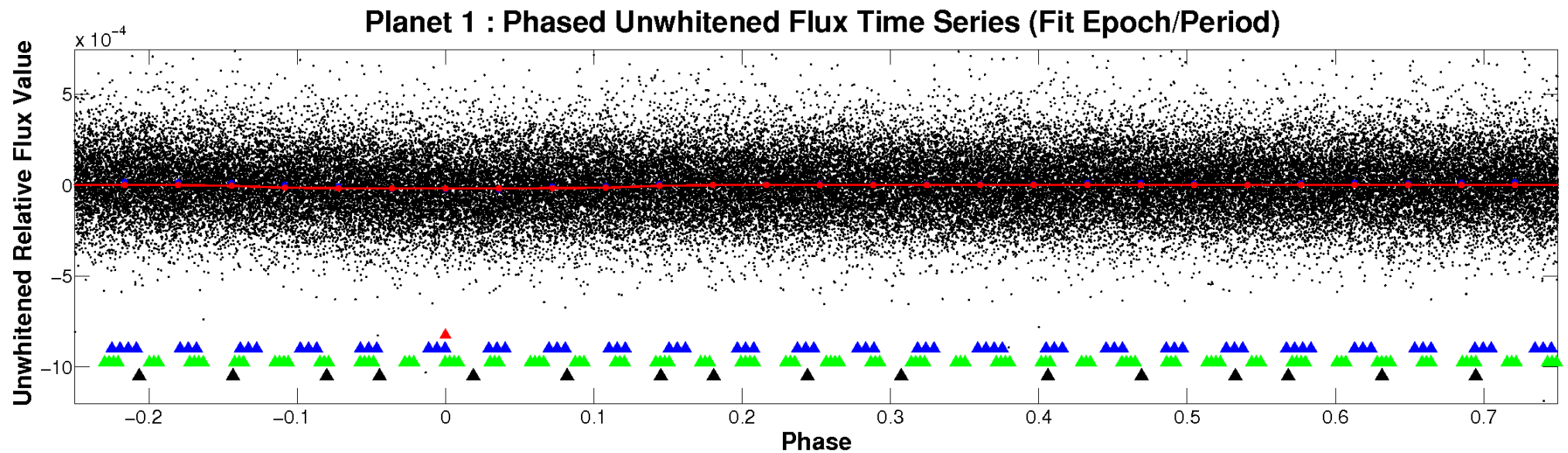


ALT Odd/Even

TCE 007031942-01

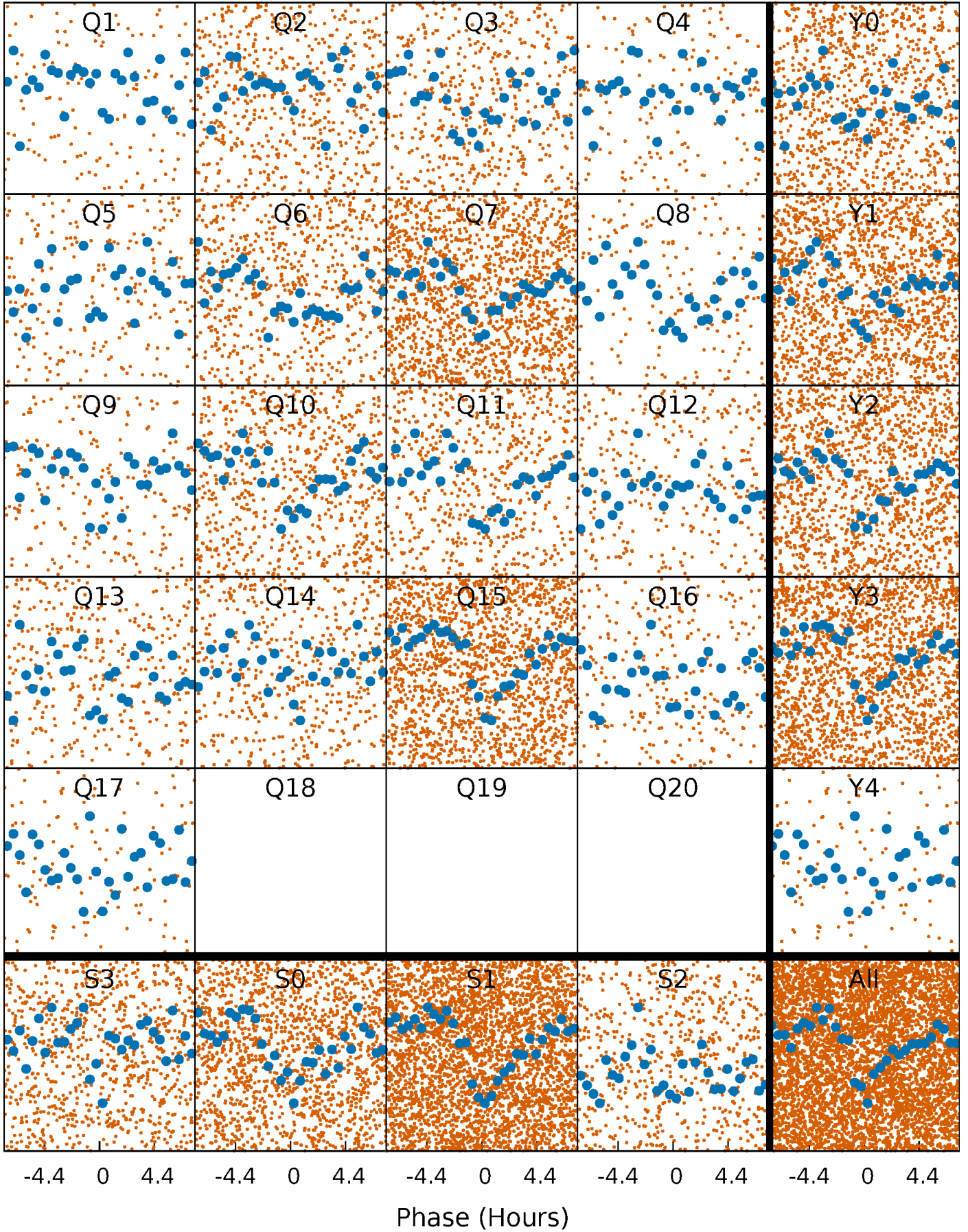


Non-Whitened Vs. Whitened Light Curve



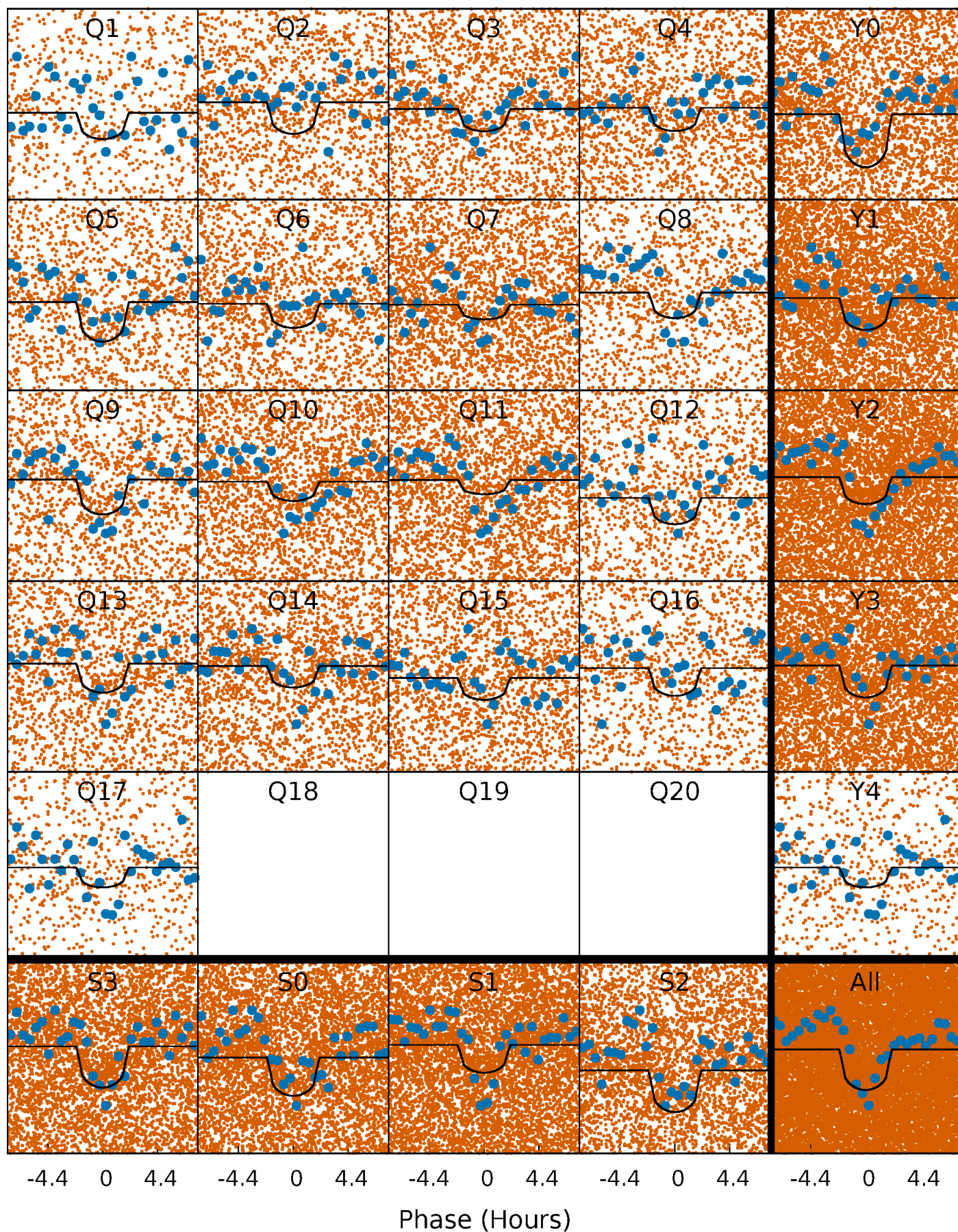
PDC Quarter-Phased Transit Curves

TCE 007031942-01 P= 0.566764 Days $T_0=131.858384$ (BKJD)



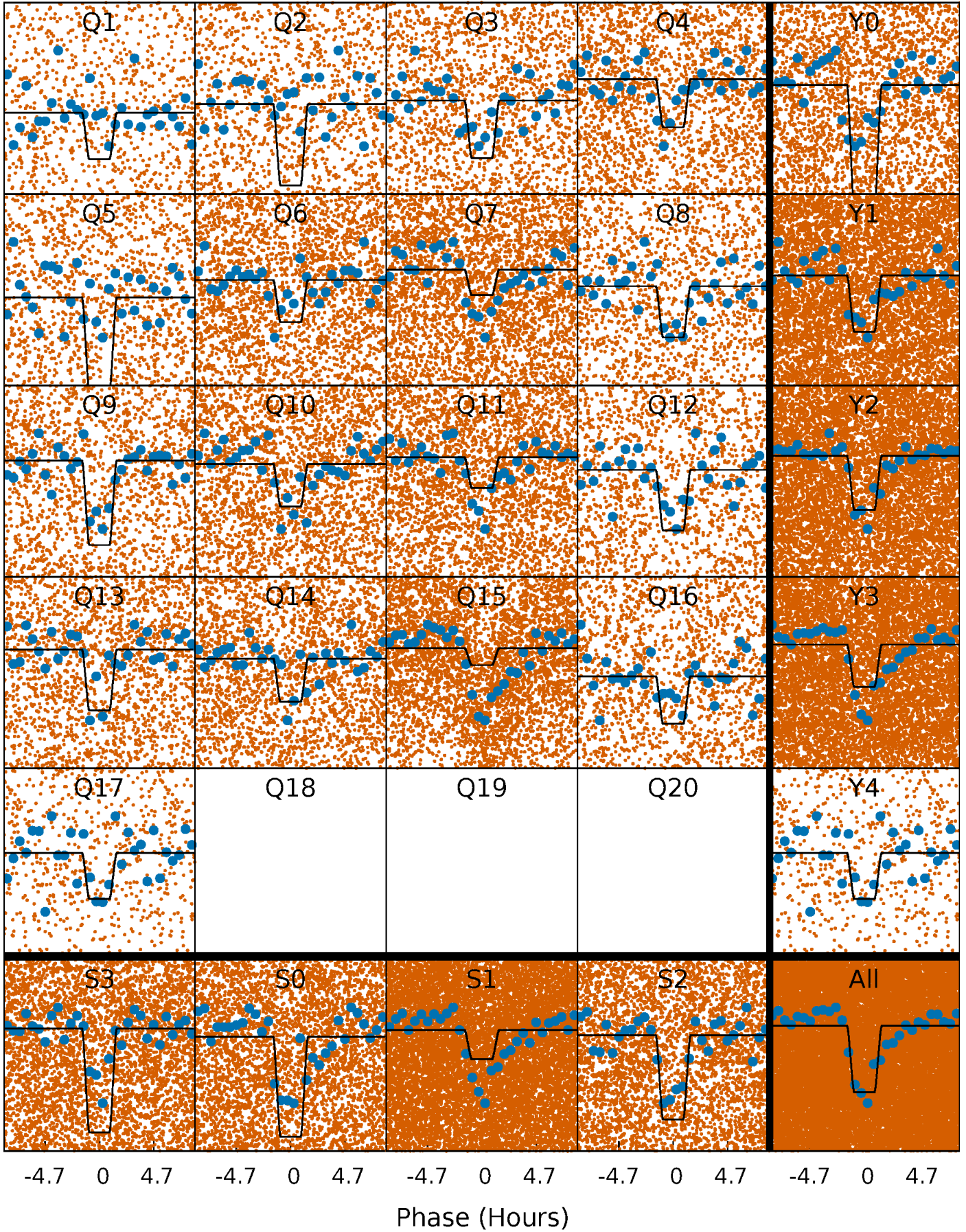
DV Quarter-Phased Transit Curves

TCE 007031942-01 P= 0.566764 Days $T_0=131.858384$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

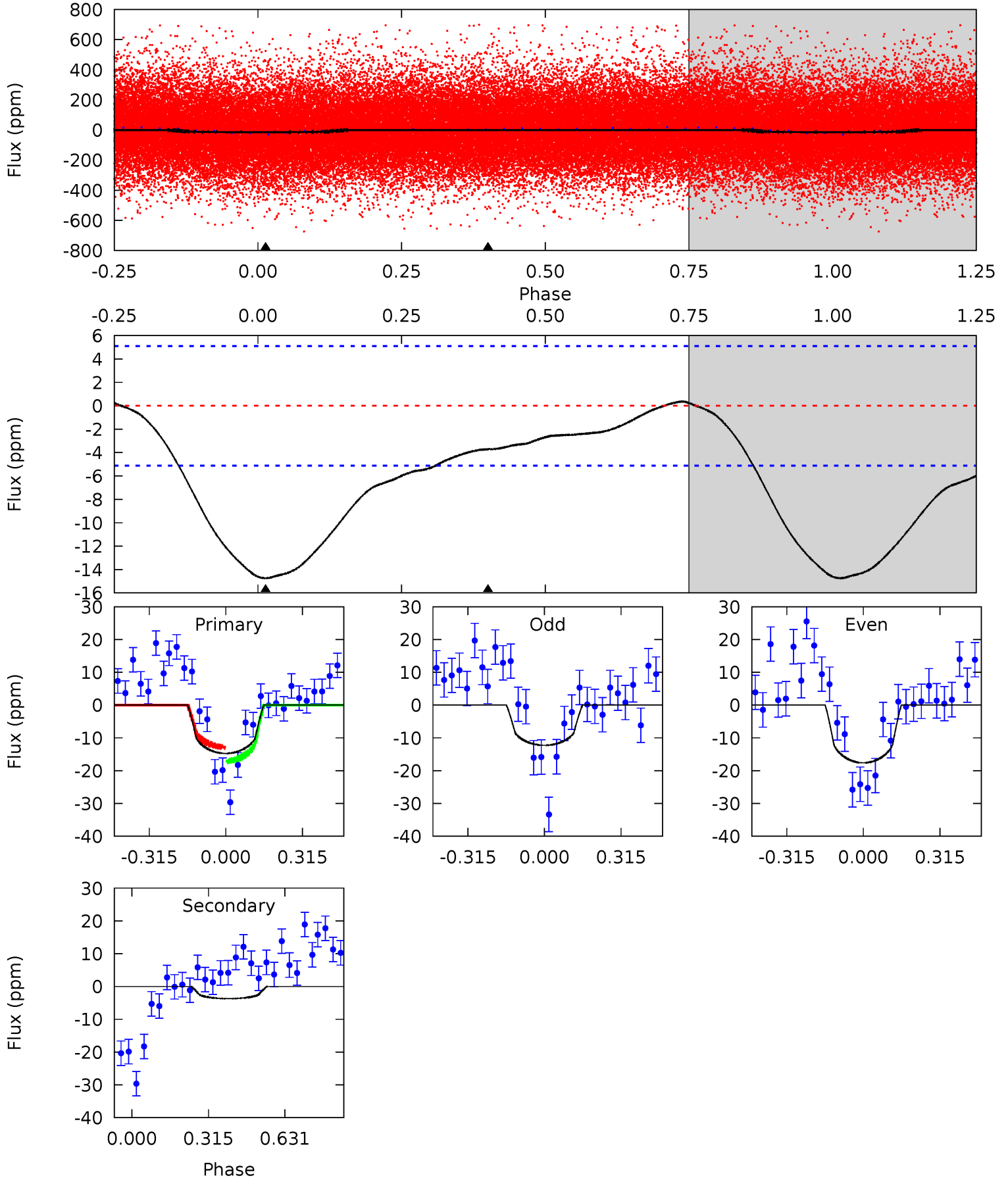
TCE 007031942-01 P= 0.566782 Days $T_0=131.835357$ (BKJD)



DV Model-Shift Uniqueness Test

007031942-01, P = 0.566764 Days, E = 131.291620 Days

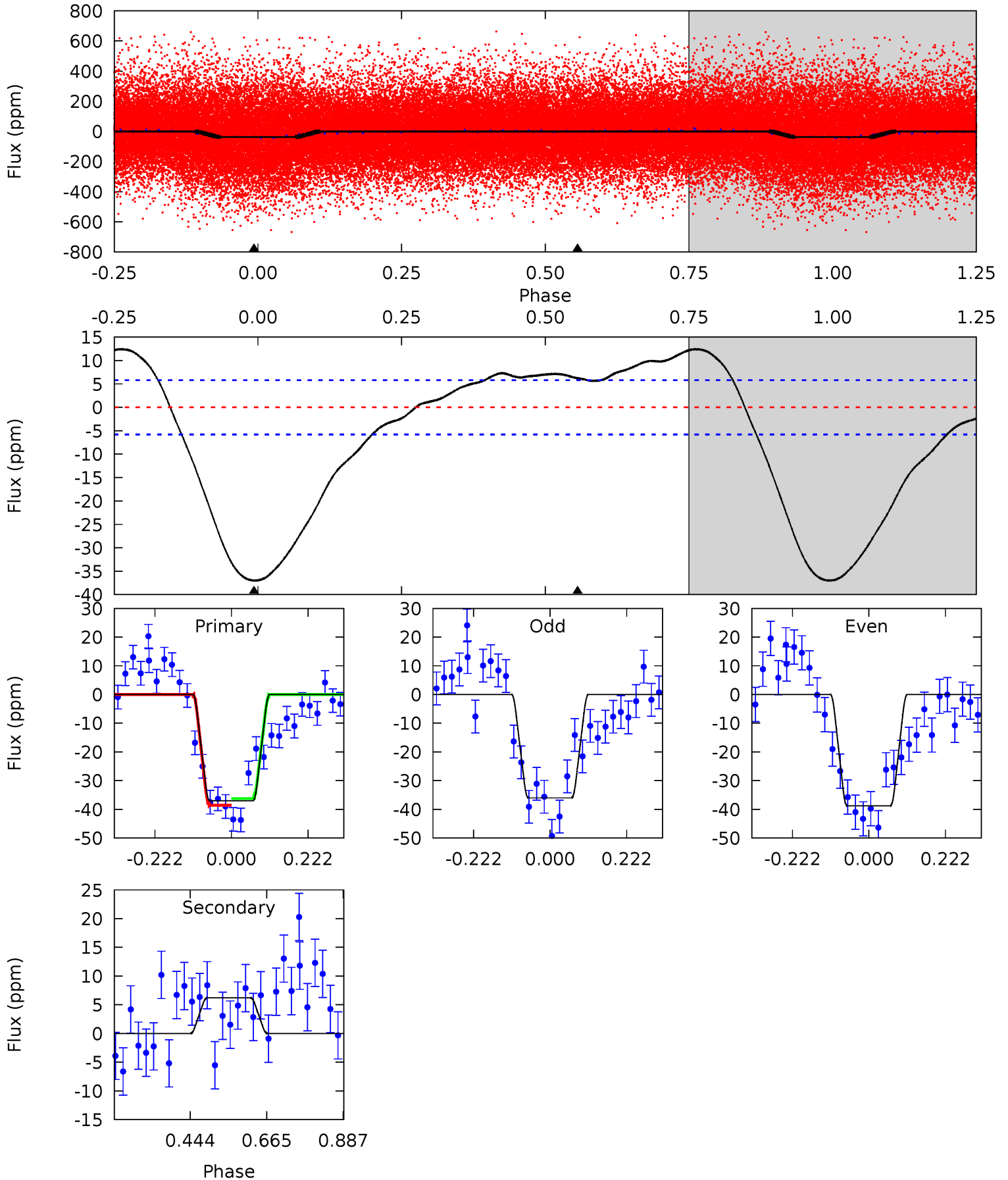
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	3.14	0	0	4.32	1.00	0.37	12.4	12.4	3.14	3.14	2.26	0.98	0.02	1.78



Alt Model-Shift Uniqueness Test

007031942-01, P = 0.566782 Days, E = 131.268575 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.0	-4.70	0	0	4.39	1.22	1.61	28.0	28.0	-4.70	-4.70	1.06	1.01	0.25	0.89



Stellar Parameters For KIC 007031942

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5642^{+152}_{-152}	$4.337^{+0.185}_{-0.185}$	$-0.080^{+0.300}_{-0.300}$	$1.056^{+0.300}_{-0.200}$	$0.886^{+0.125}_{-0.073}$	$1.058^{+0.832}_{-0.537}$
	+3%/-3%	+4%/-4%	+375%/-375%	+28%/-19%	+14%/-8%	+79%/-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 007031942-01 / KOI 4420.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4 ± 1	$0.51^{+0.30}_{-0.26}$	3154^{+228}_{-216}	3798^{+1400}_{-954}	$1.214^{+4.152}_{-0.776}$
Alt.	6 ± 1	$0.71^{+0.31}_{-0.27}$	3148^{+244}_{-206}	-4086^{+340}_{-690}	$-1.083^{+0.581}_{-1.894}$

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 $A_{obs} \gg 1.0$

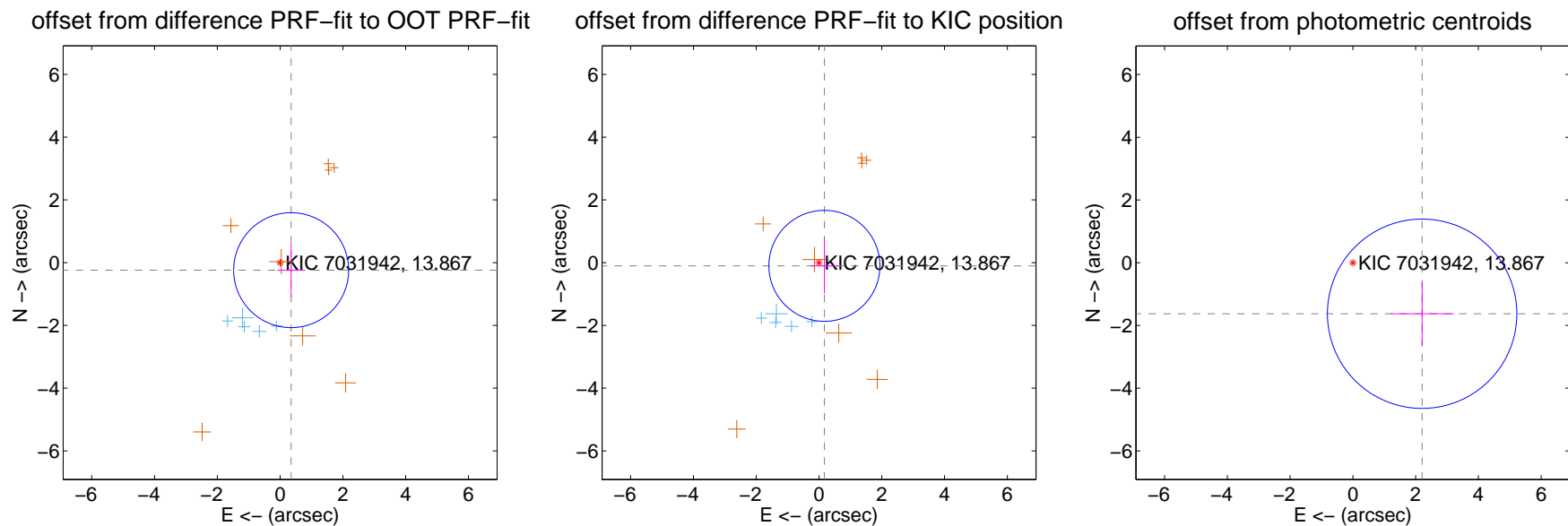
DV Centroid Data

Supplemental centroid analysis for 007031942-01. Kepler magnitude: 13.87. Transit SNR 10.16

There are 5 quarters with good PRF difference image offsets

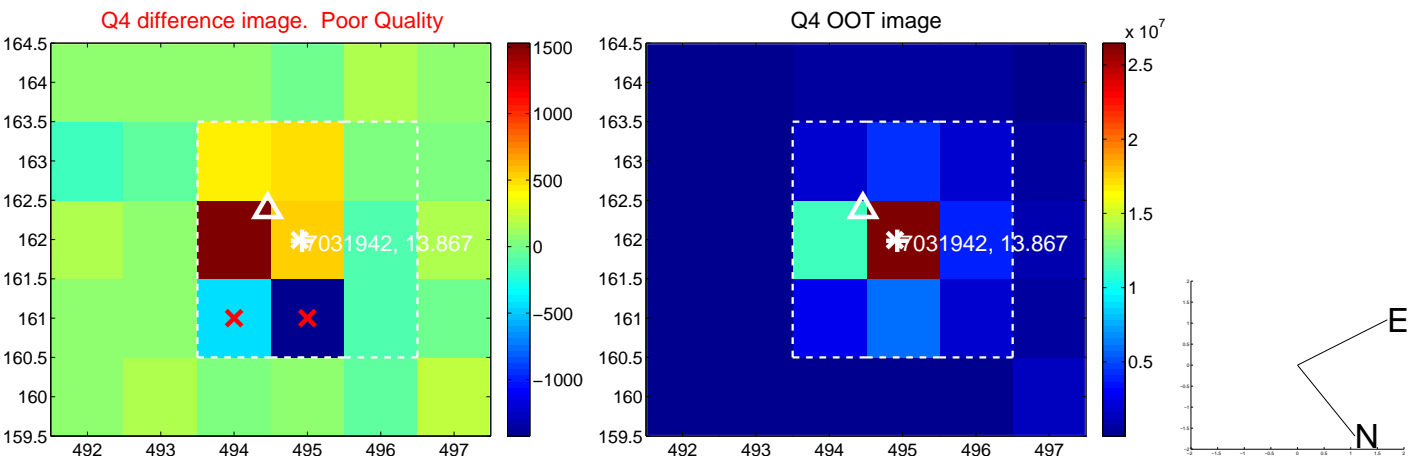
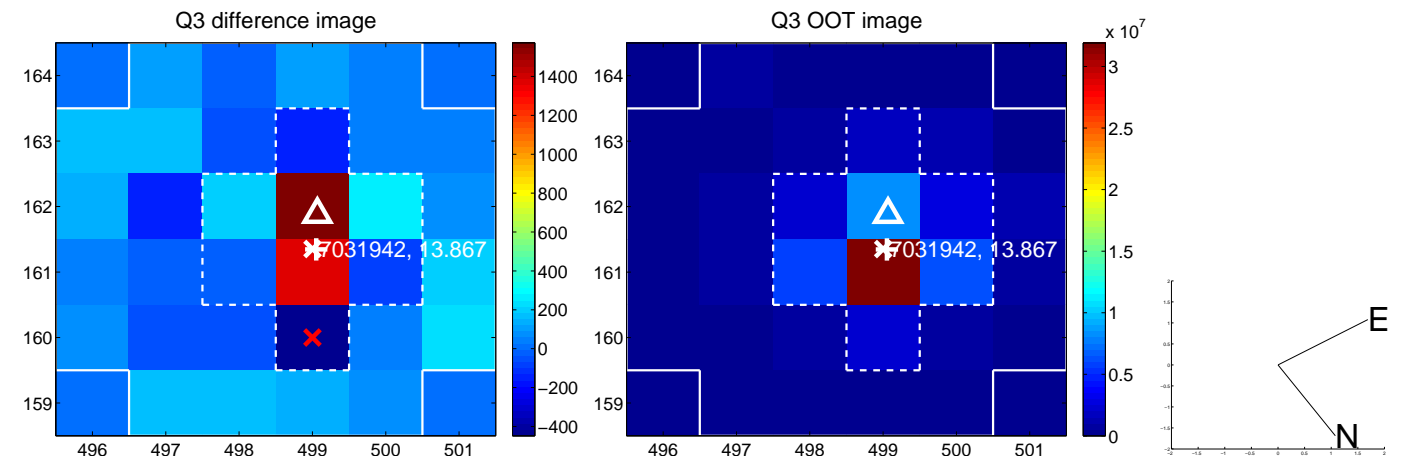
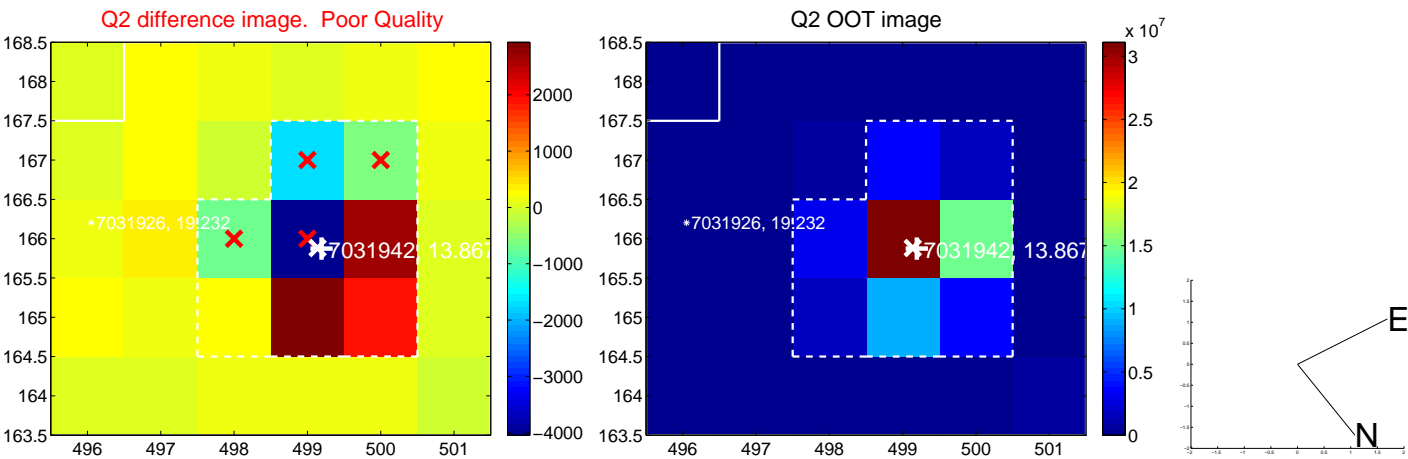
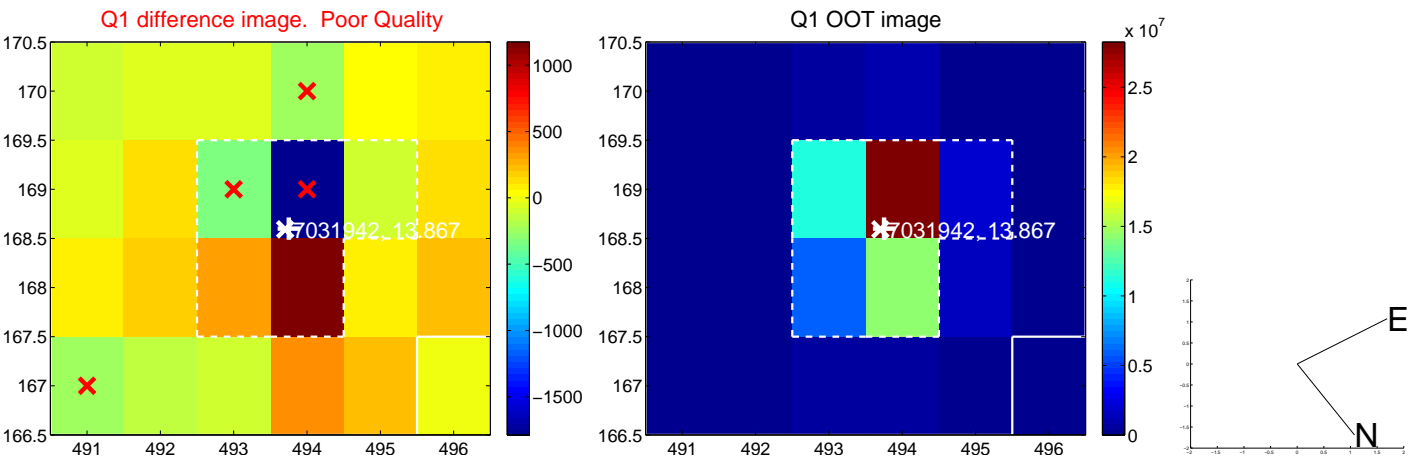
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.426 ± 0.611	0.70	-0.352 ± 0.446	-0.240 ± 0.864
PRF-fit source offset from KIC position	0.201 ± 0.590	0.34	-0.173 ± 0.444	-0.102 ± 0.881
photometric centroid source offset	2.74 ± 1.01	2.73	-2.21 ± 1.00	-1.63 ± 1.01

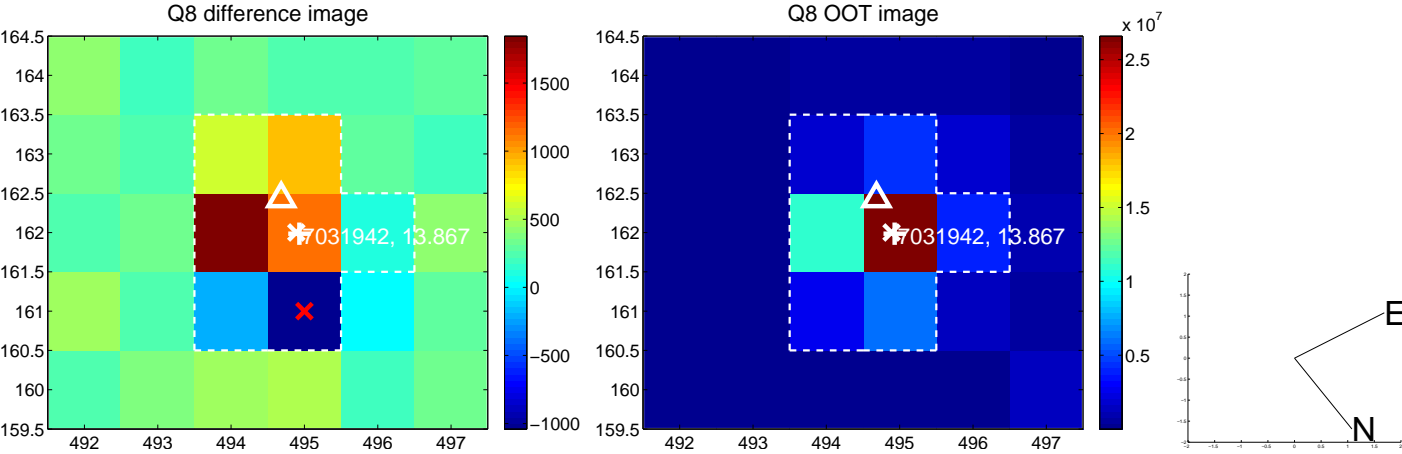
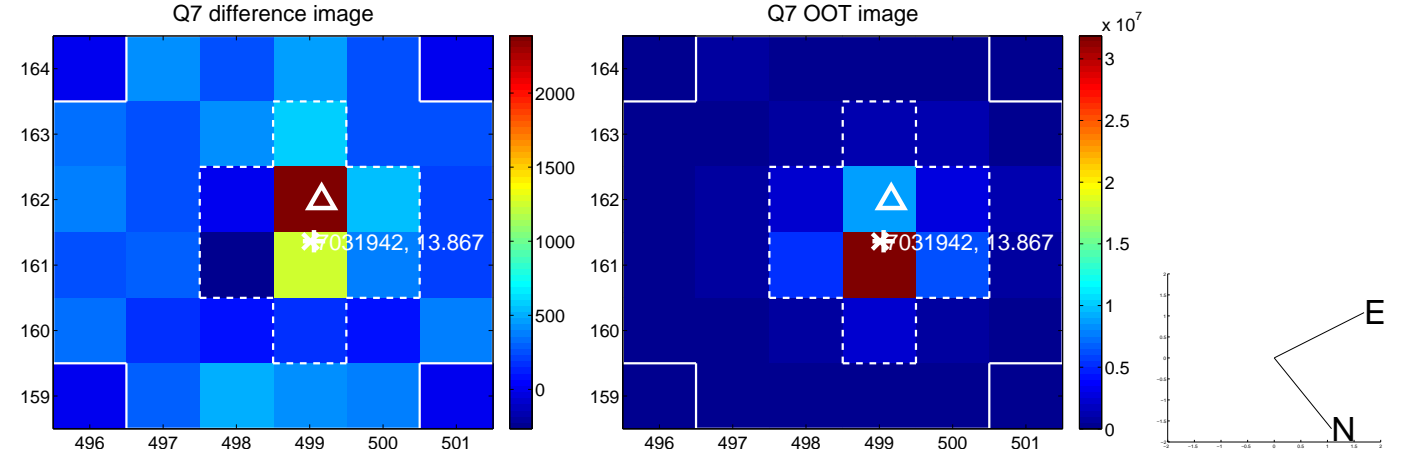
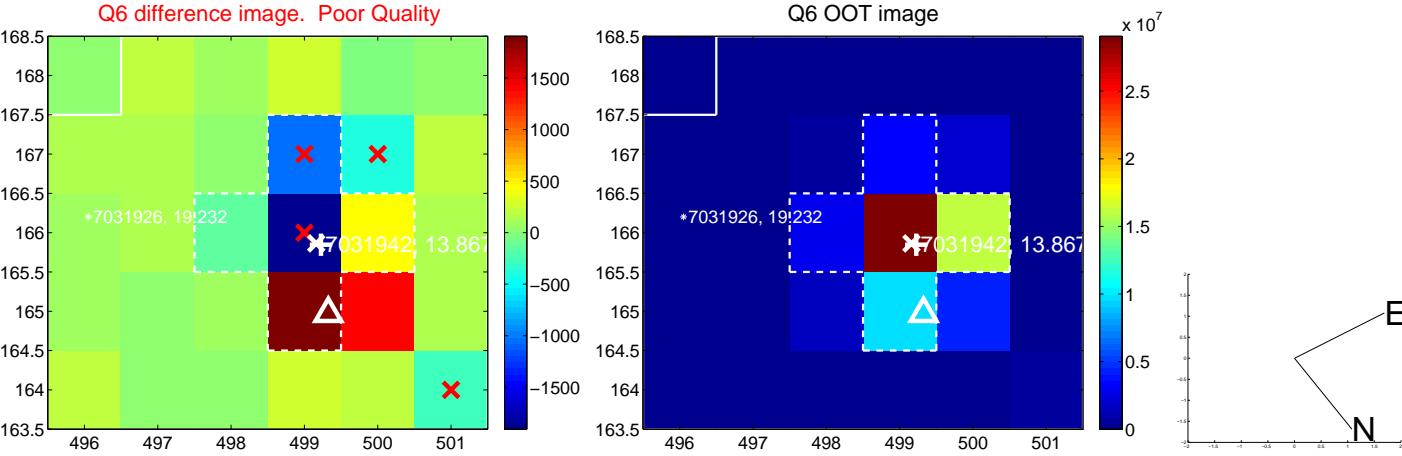
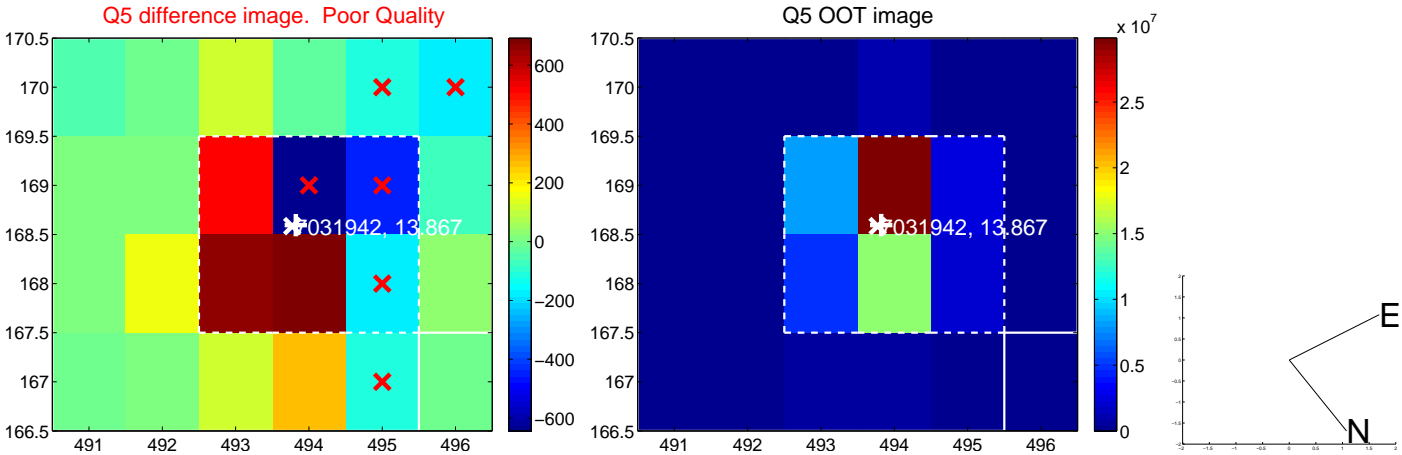


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

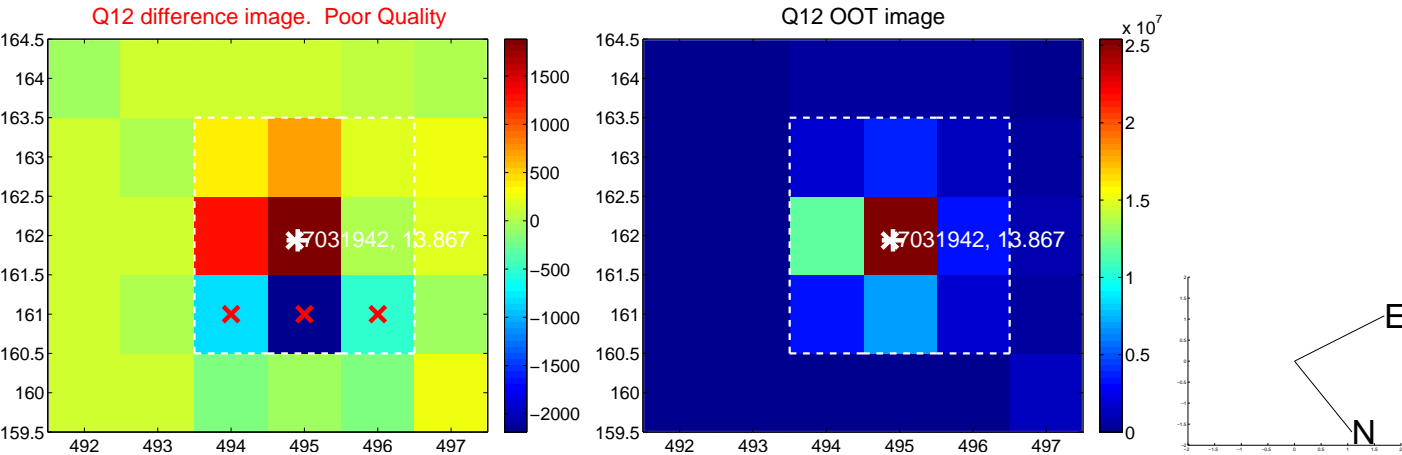
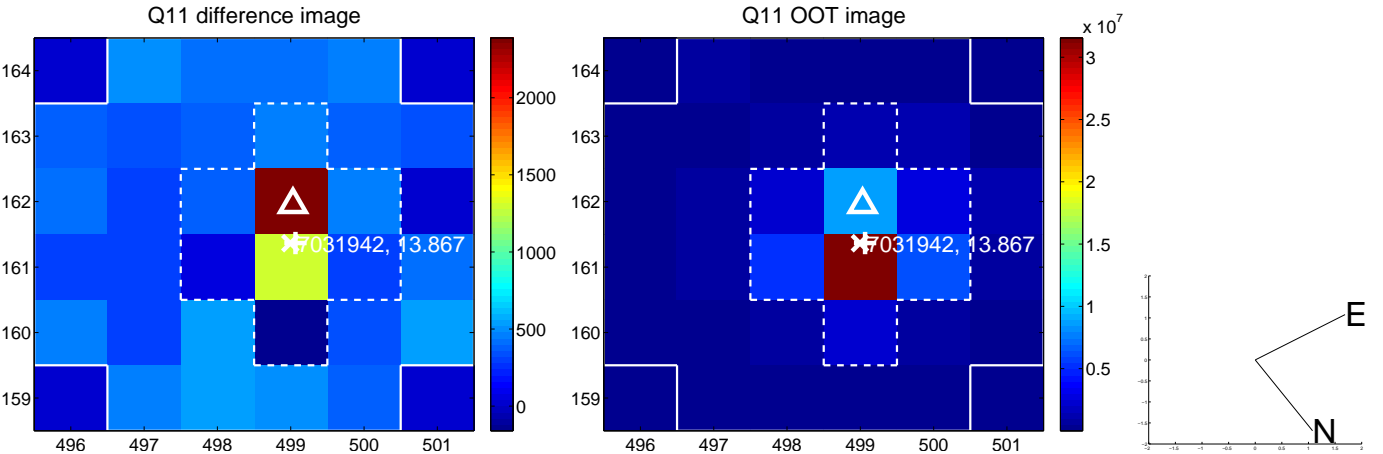
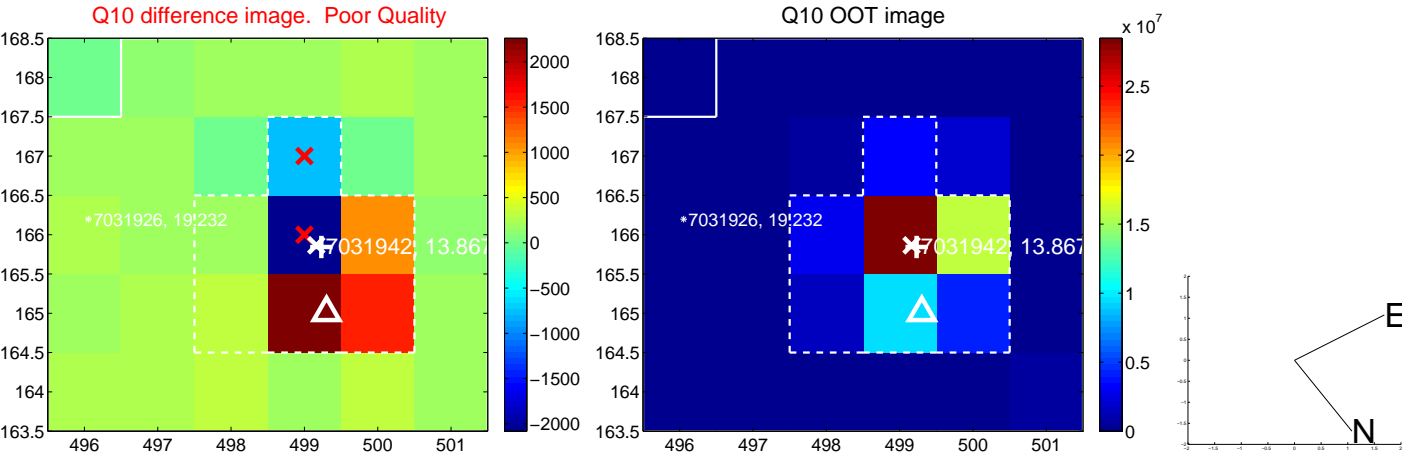
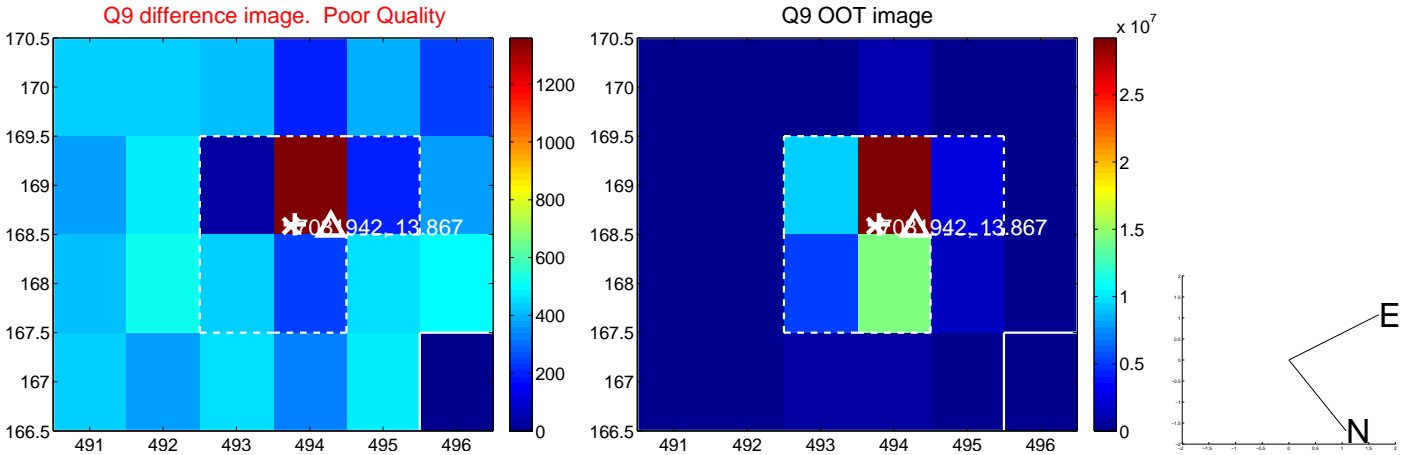
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



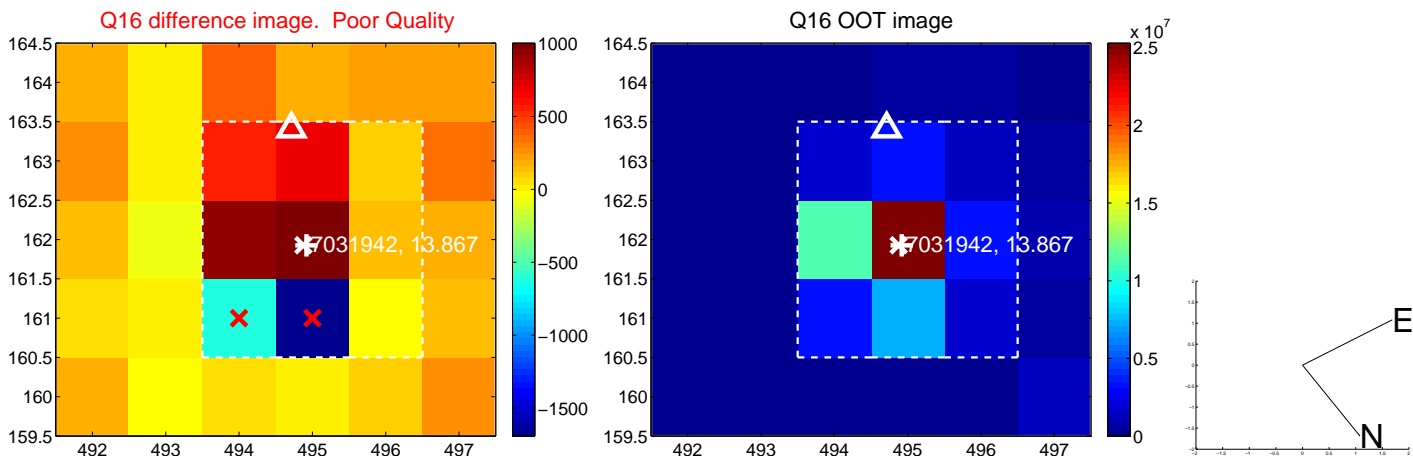
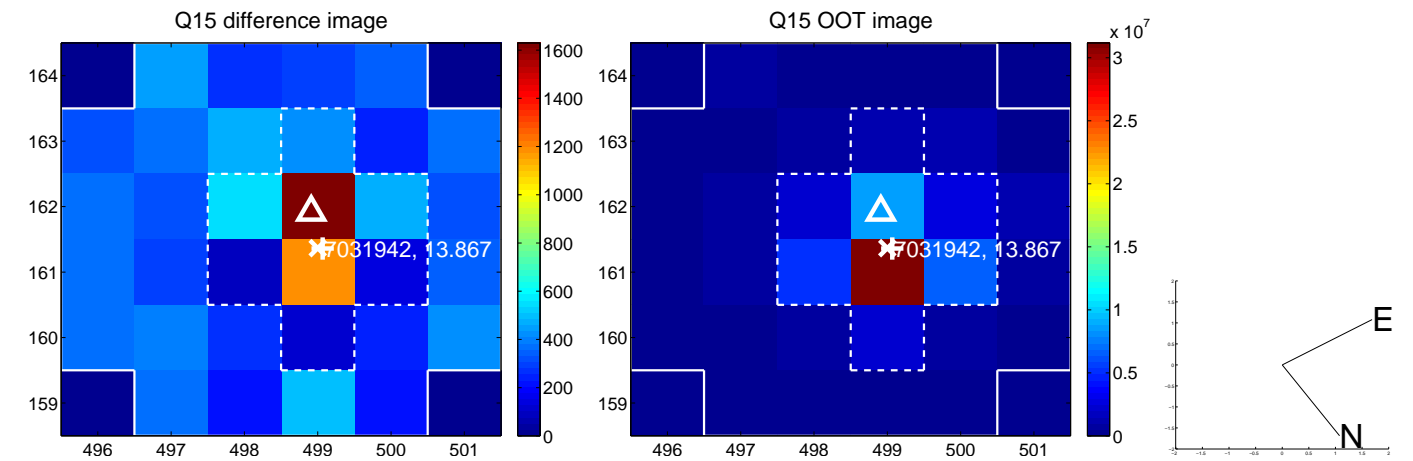
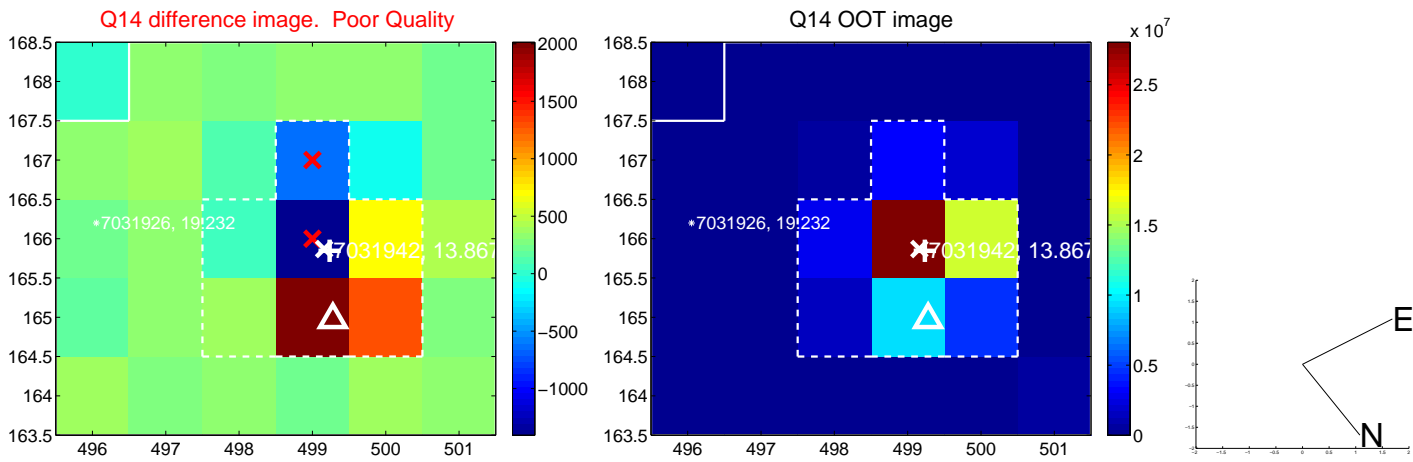
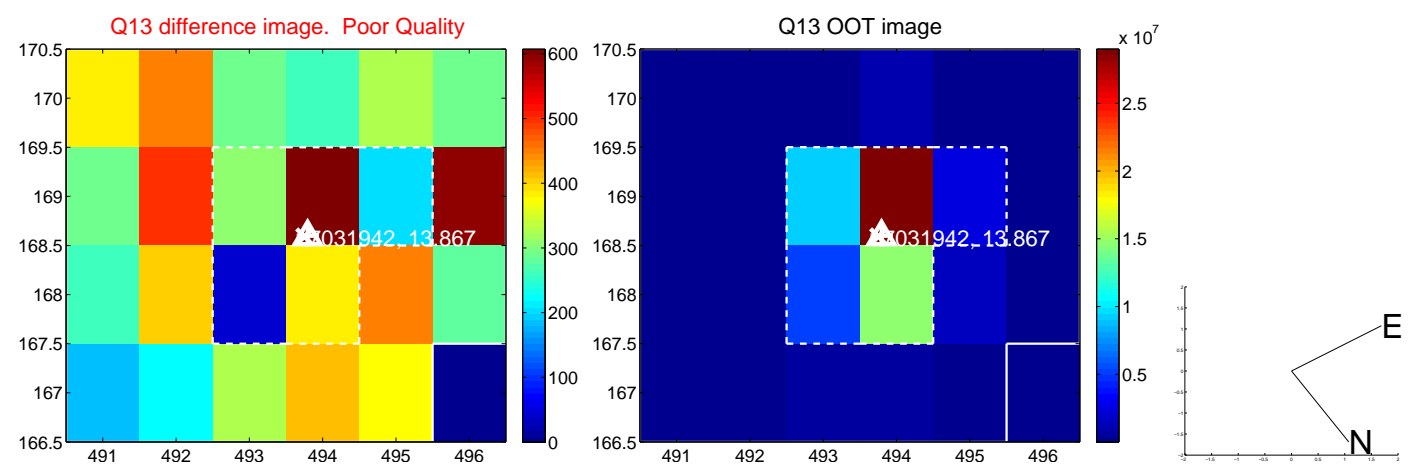
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



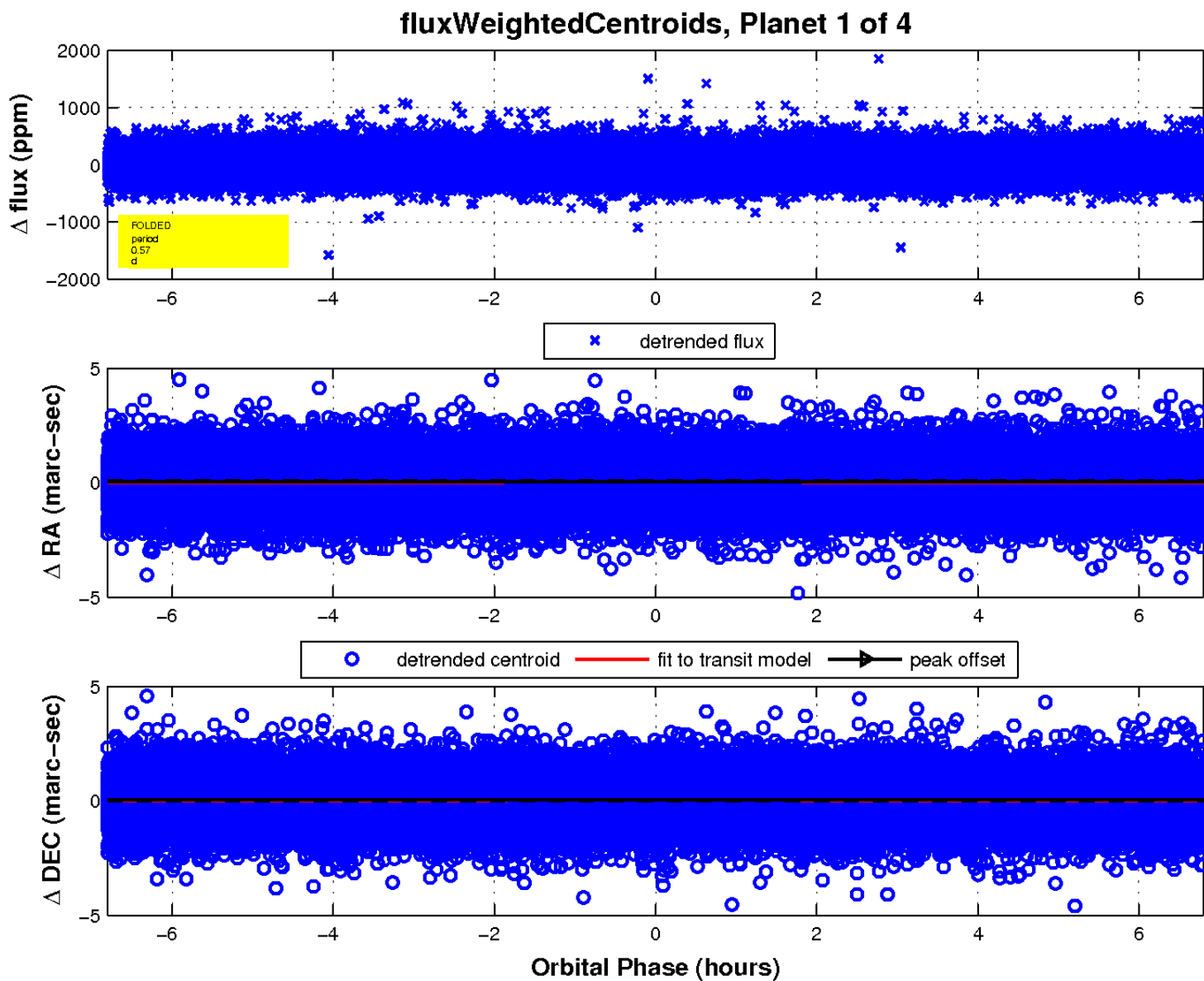
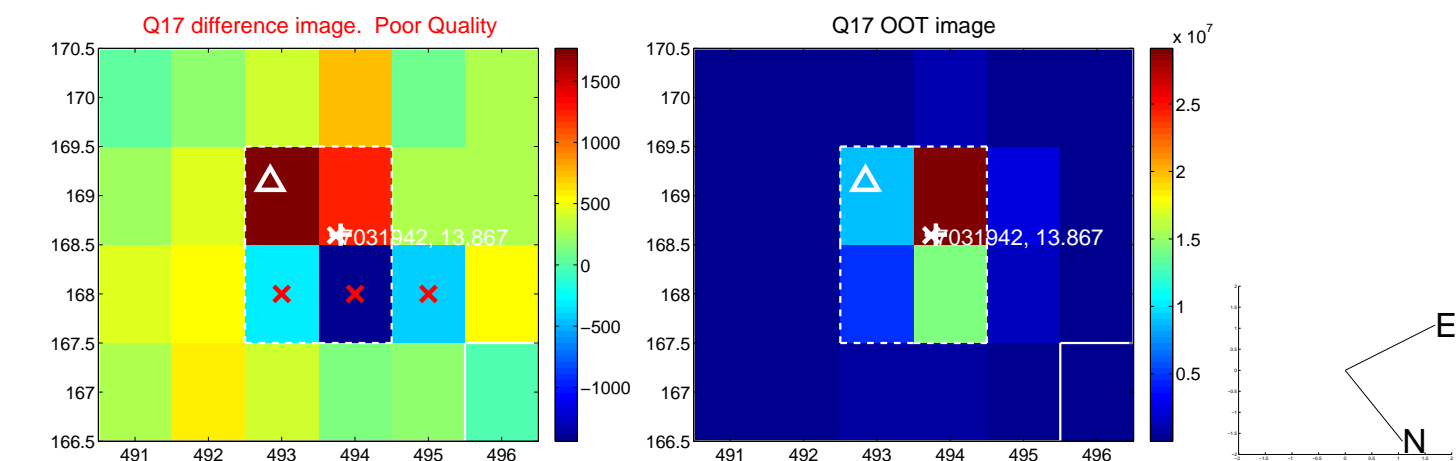
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

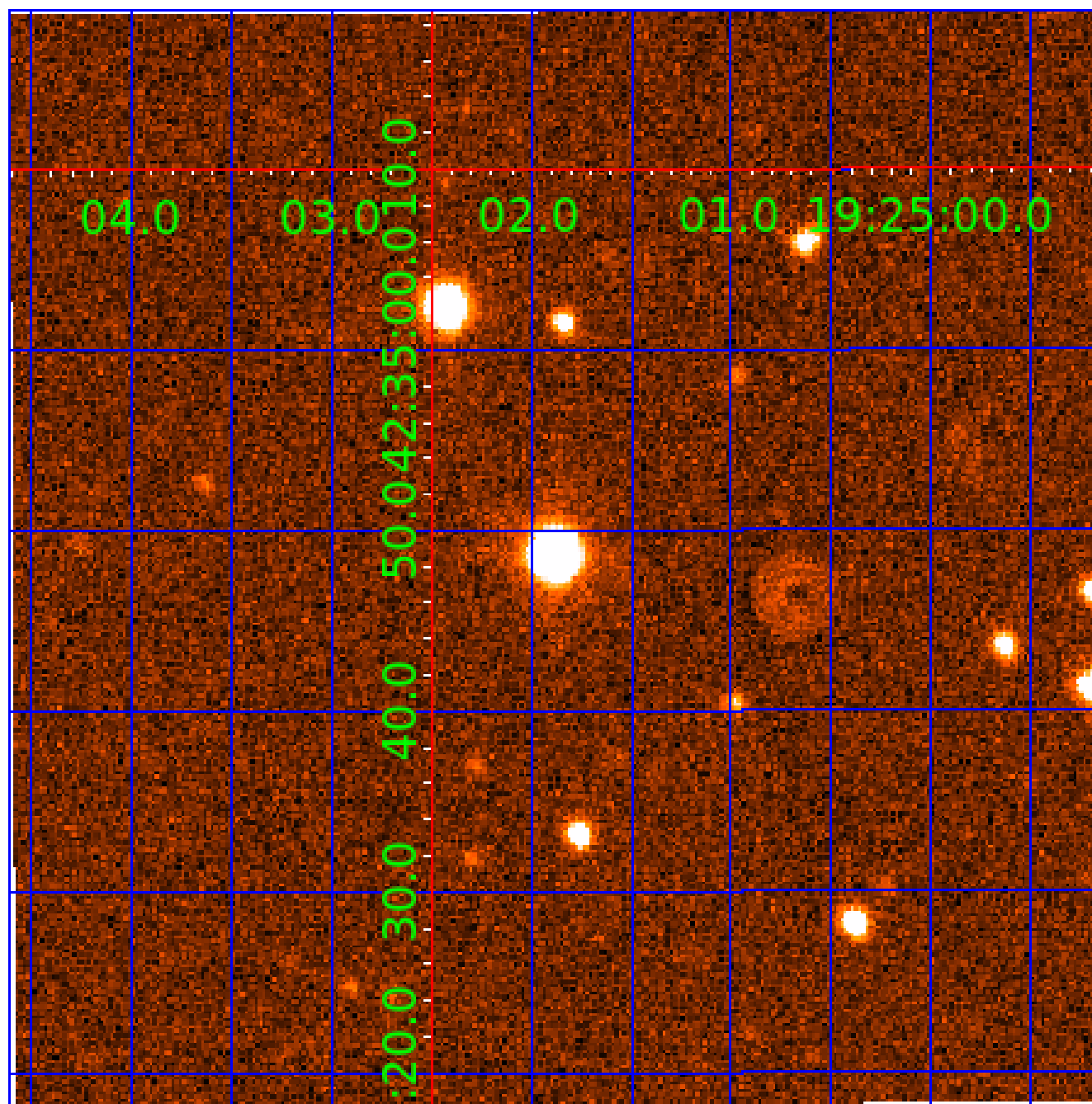


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007031942

Q1-17 DR25 TCE Parameters

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007031942-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

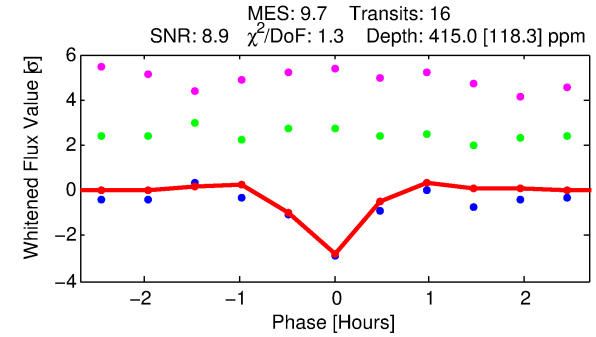
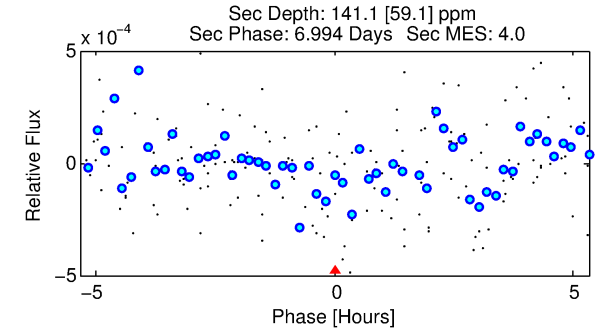
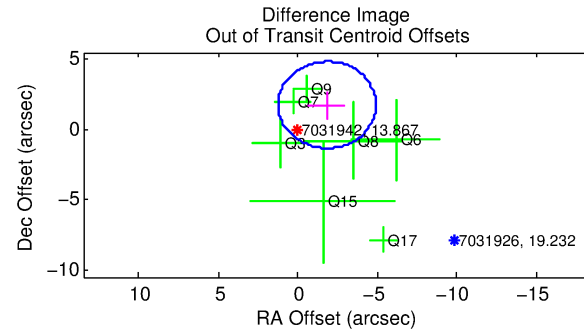
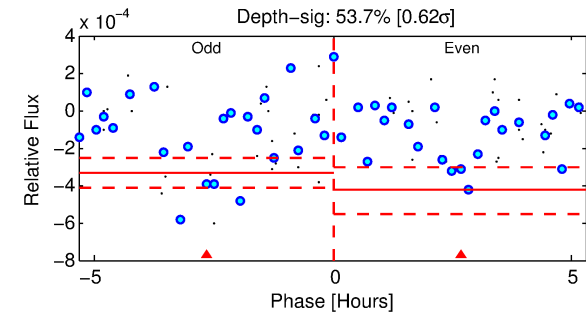
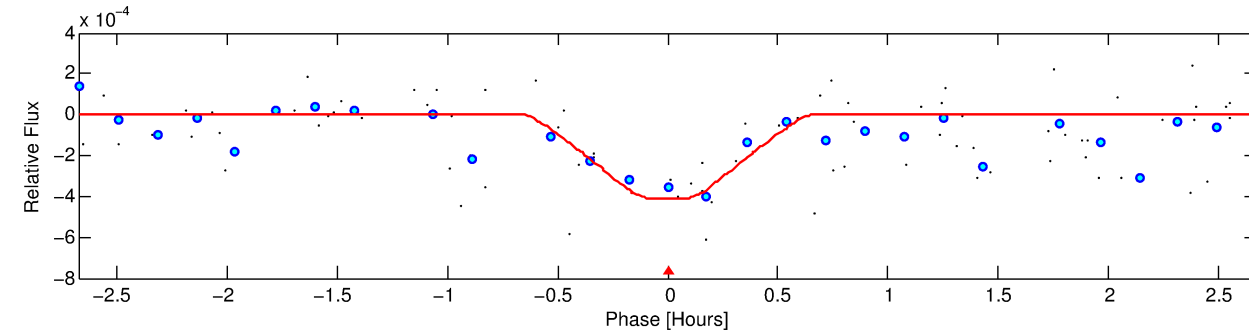
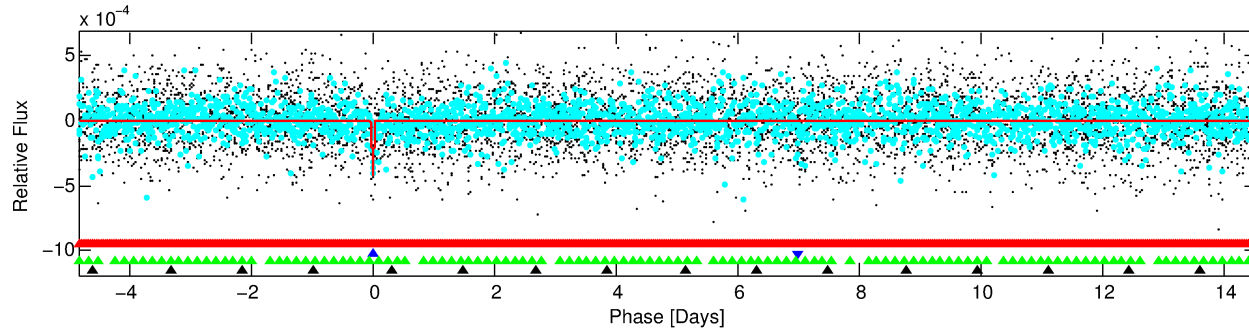
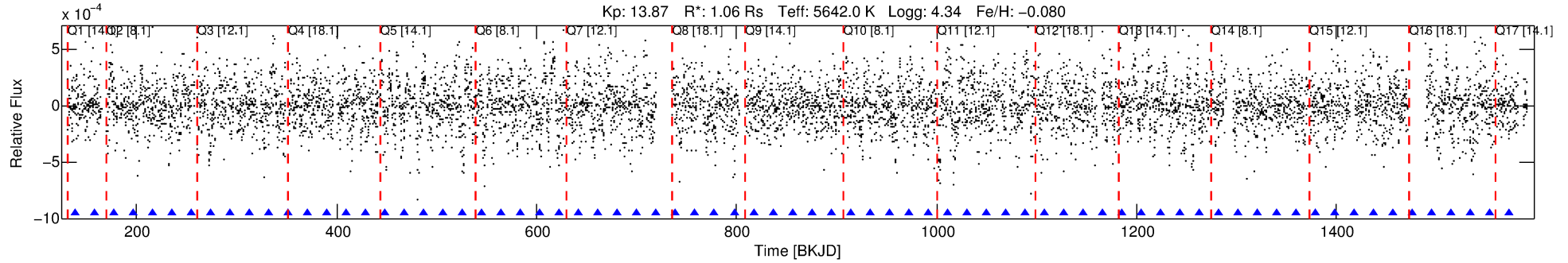
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007031942-02

No Significant Match Found

DV One-Page Summary

KIC: 7031942 Candidate: 2 of 4 Period: 19.388 d
KOI: K04420 Corr: No Ephemeris Match



DV Fit Results:

Period = 19.38792 [0.00012] d
Epoch = 138.3056 [0.0060] BKJD
Rp/R* = 0.0229 [0.0224]
a/R* = 76.61 [326.28]
b = 0.91 [0.80]
Seff = 55.08 [19.72]
Teff = 695 [62] K
Rp = 2.64 [2.68] Re
a = 0.1356 [0.0321] AU
Ag = 204.85 [415.09] [0.49 σ]
Teffp = 4063 [2032] K [1.66 σ]

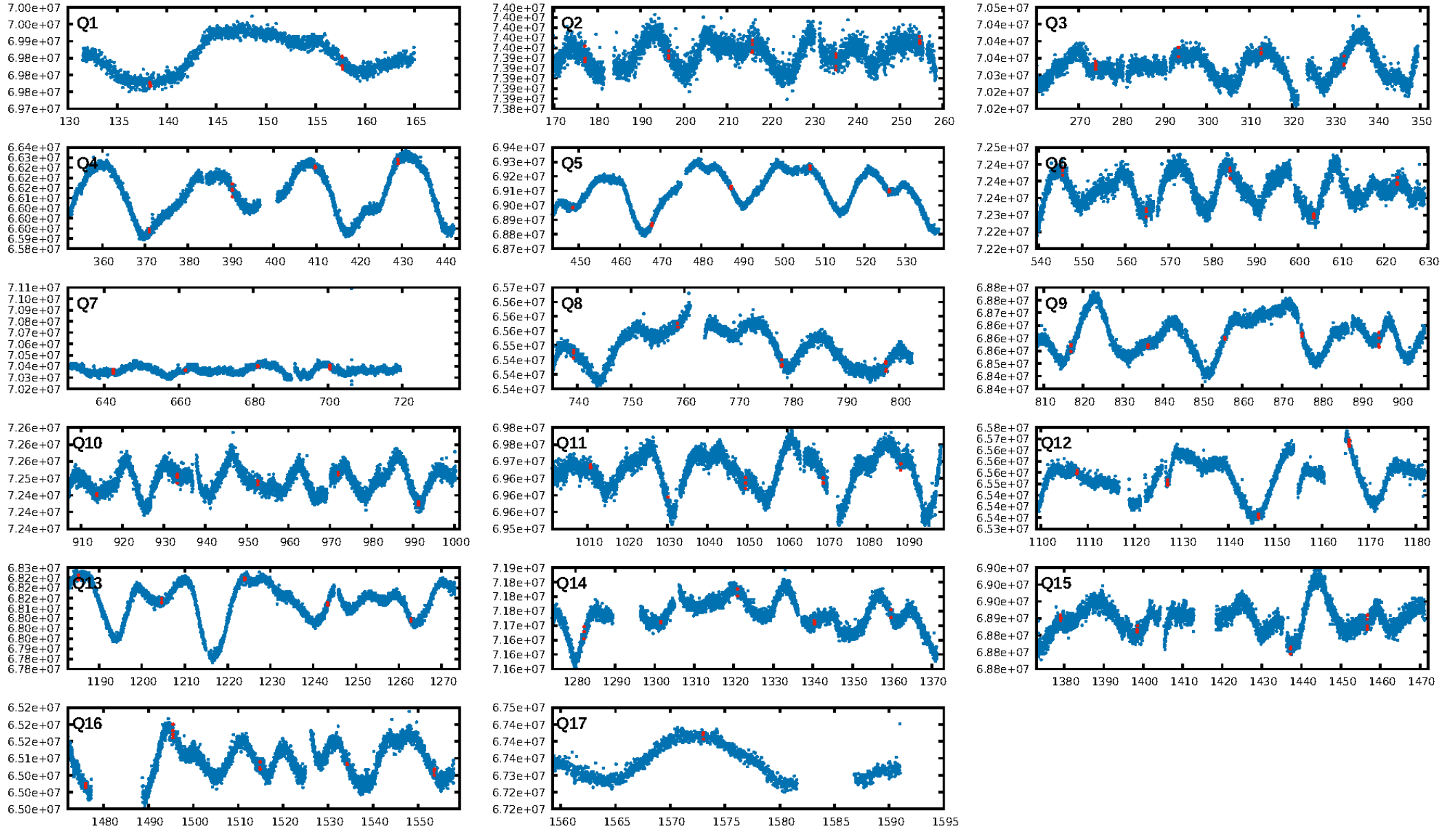
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.23 σ]
LongPeriod-sig: 100.0% [234.86 σ]
ModelChiSquare2-sig: 46.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.92e-12
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: -0.4724
Centroid-sig: 28.6%
Centroid-so: 0.825 arcsec [1.42 σ]
OotOffset-rm: 2.535 arcsec [2.47 σ]
KicOffset-rm: 2.452 arcsec [2.44 σ]
OotOffset-st: 1/3/1/2 [7]
KicOffset-st: 1/3/1/2 [7]
DiffImageQuality-fgm: 0.14 [1/7]
DiffImageOverlap-fno: 0.00 [0/17]

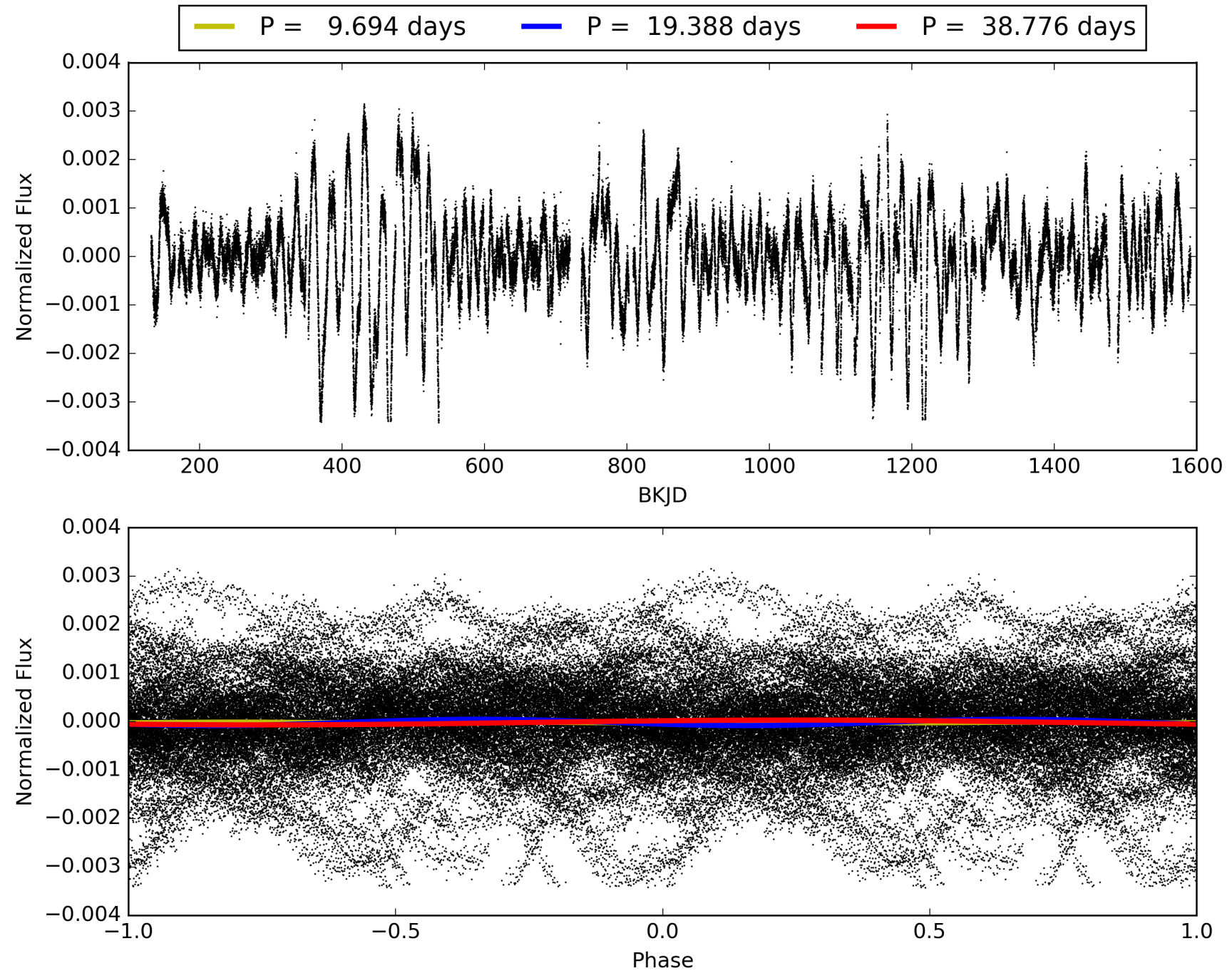
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:47:57 Z

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

TCE 007031942-02, PDC Light Curves

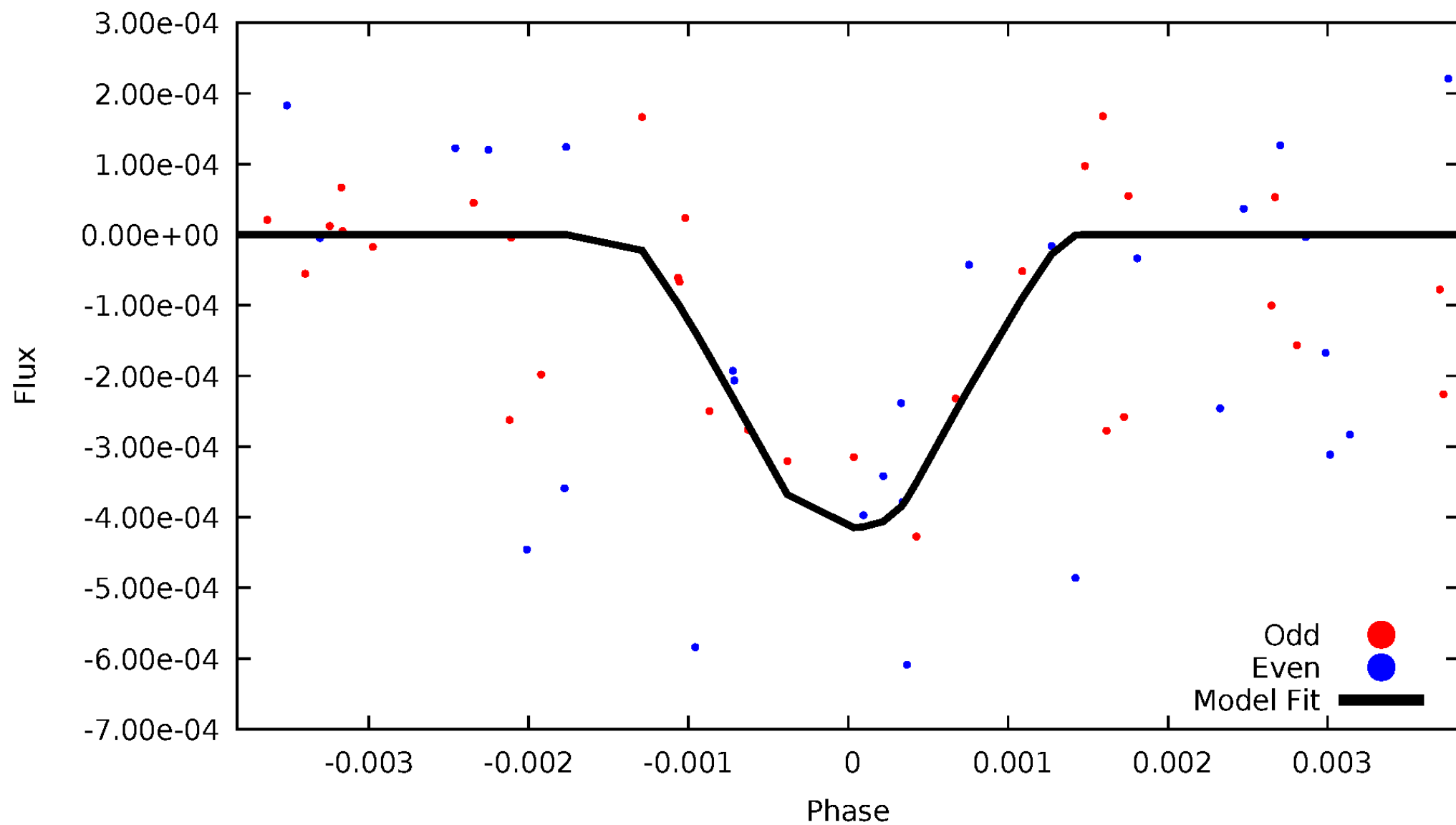


TCE 007031942-02



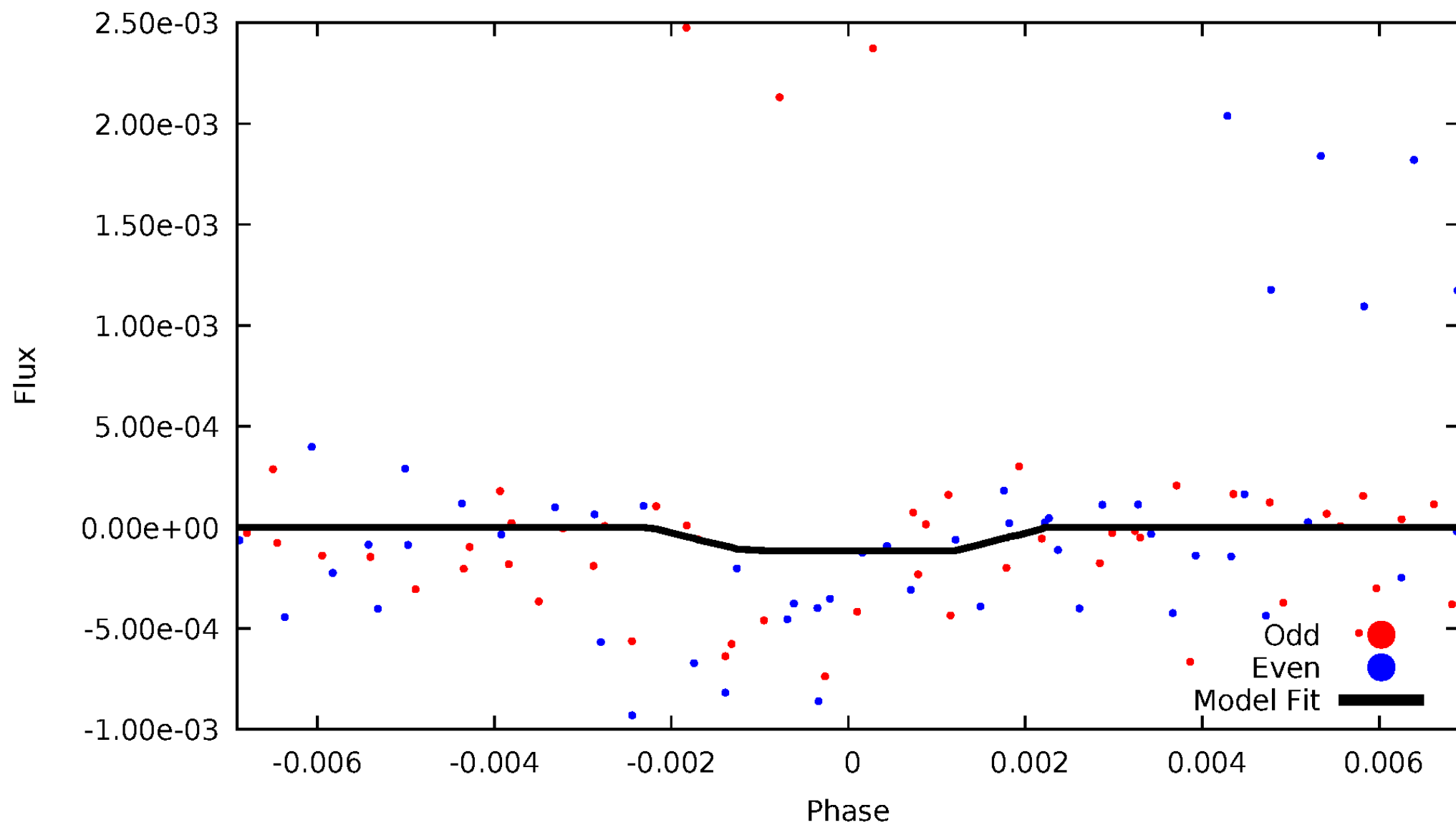
DV Odd/Even

TCE 007031942-02



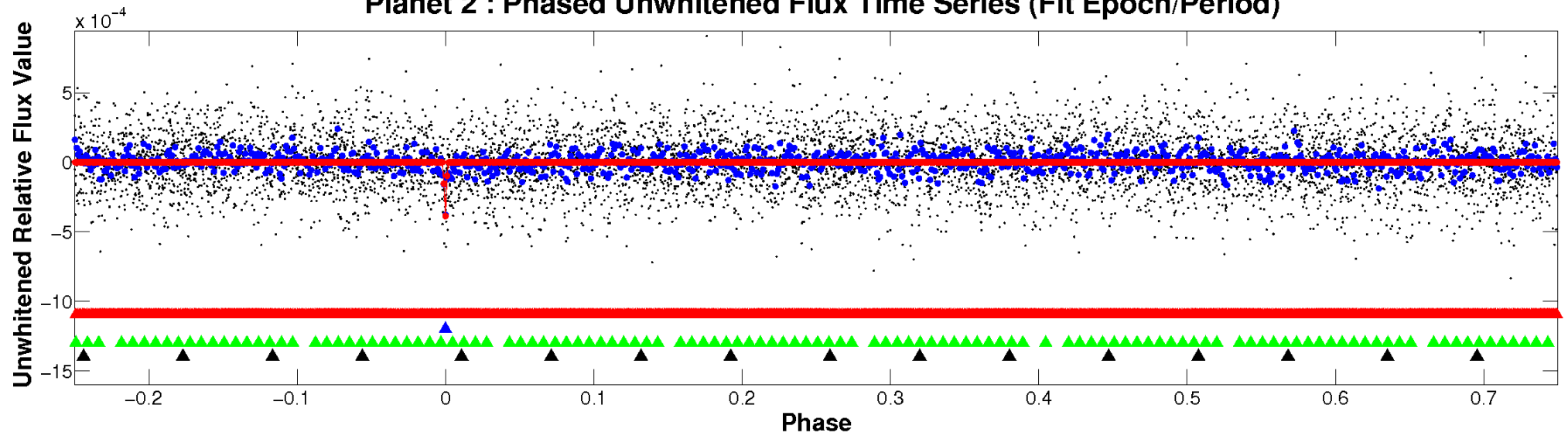
ALT Odd/Even

TCE 007031942-02

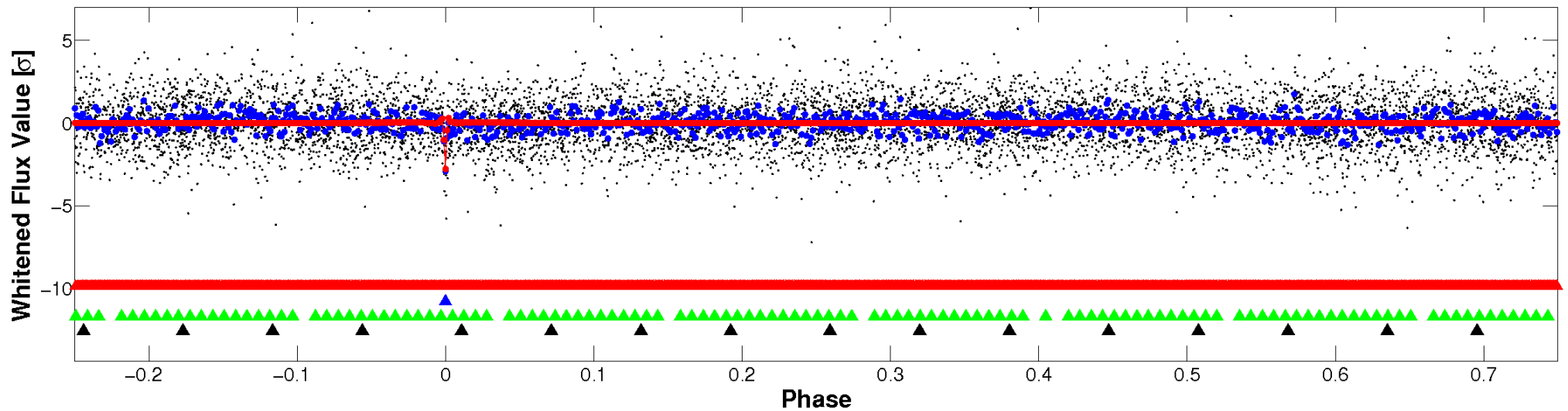


Non-Whitened Vs. Whitened Light Curve

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

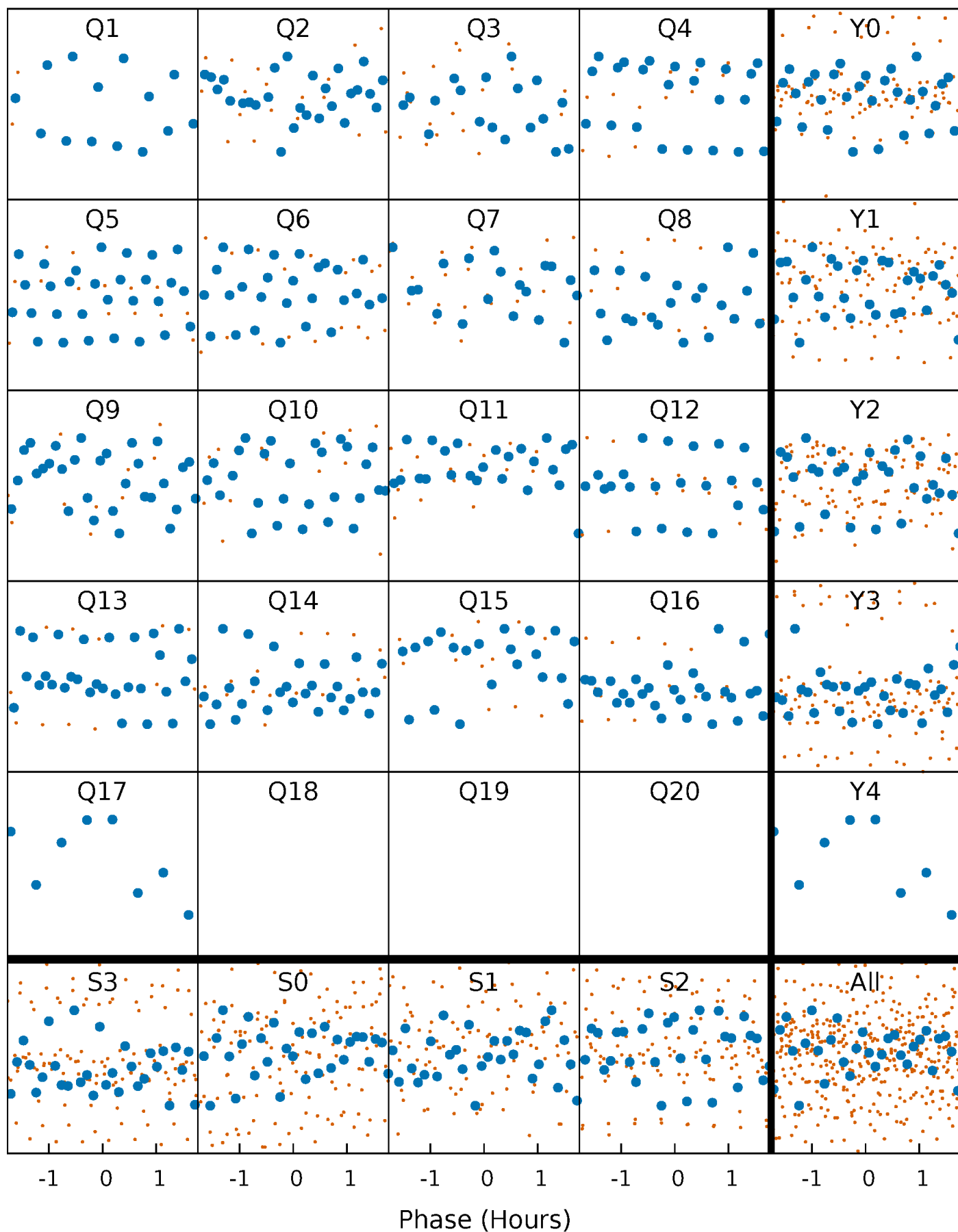


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



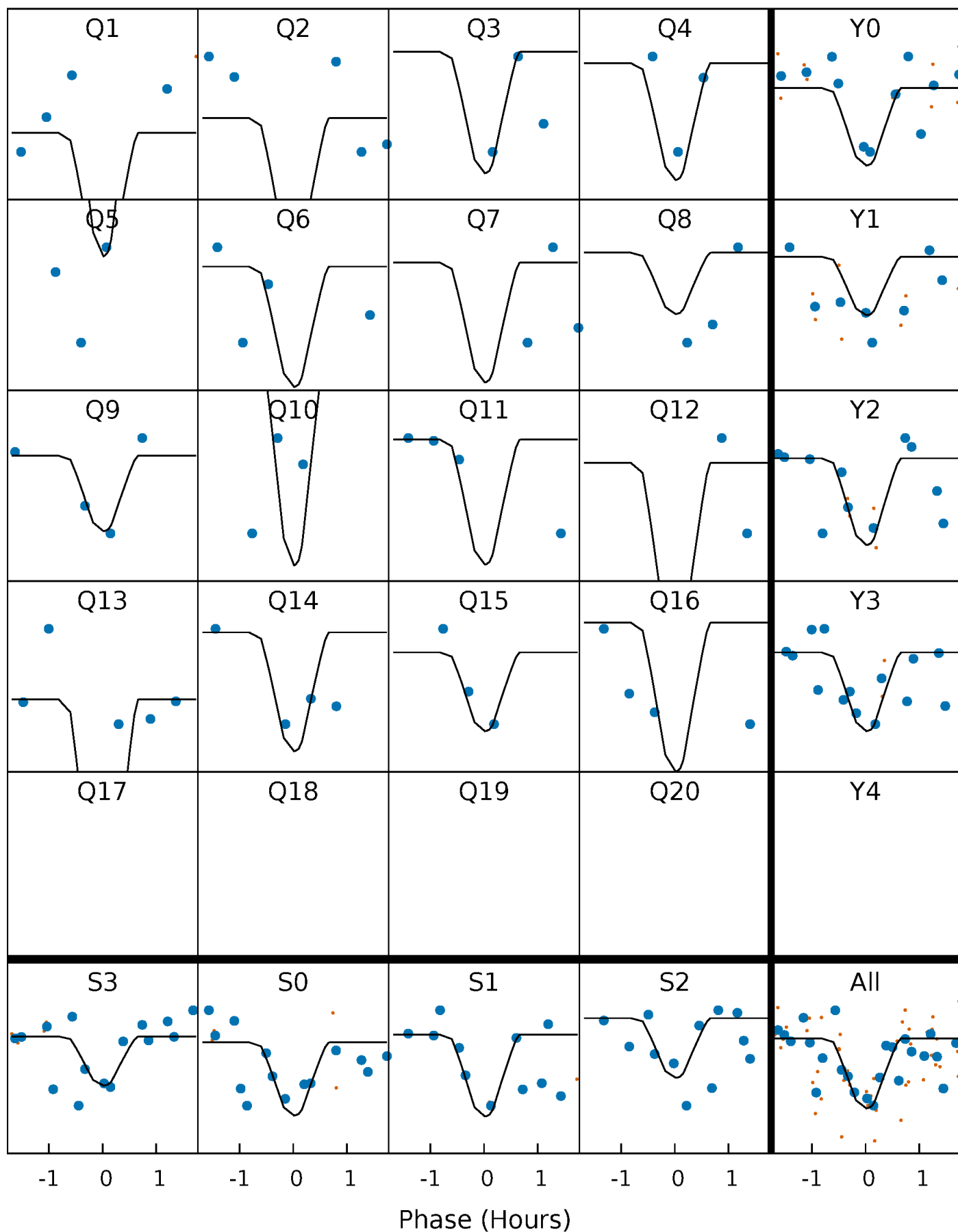
PDC Quarter-Phased Transit Curves

TCE 007031942-02 P= 19.387916 Days $T_0=138.305557$ (BKJD)



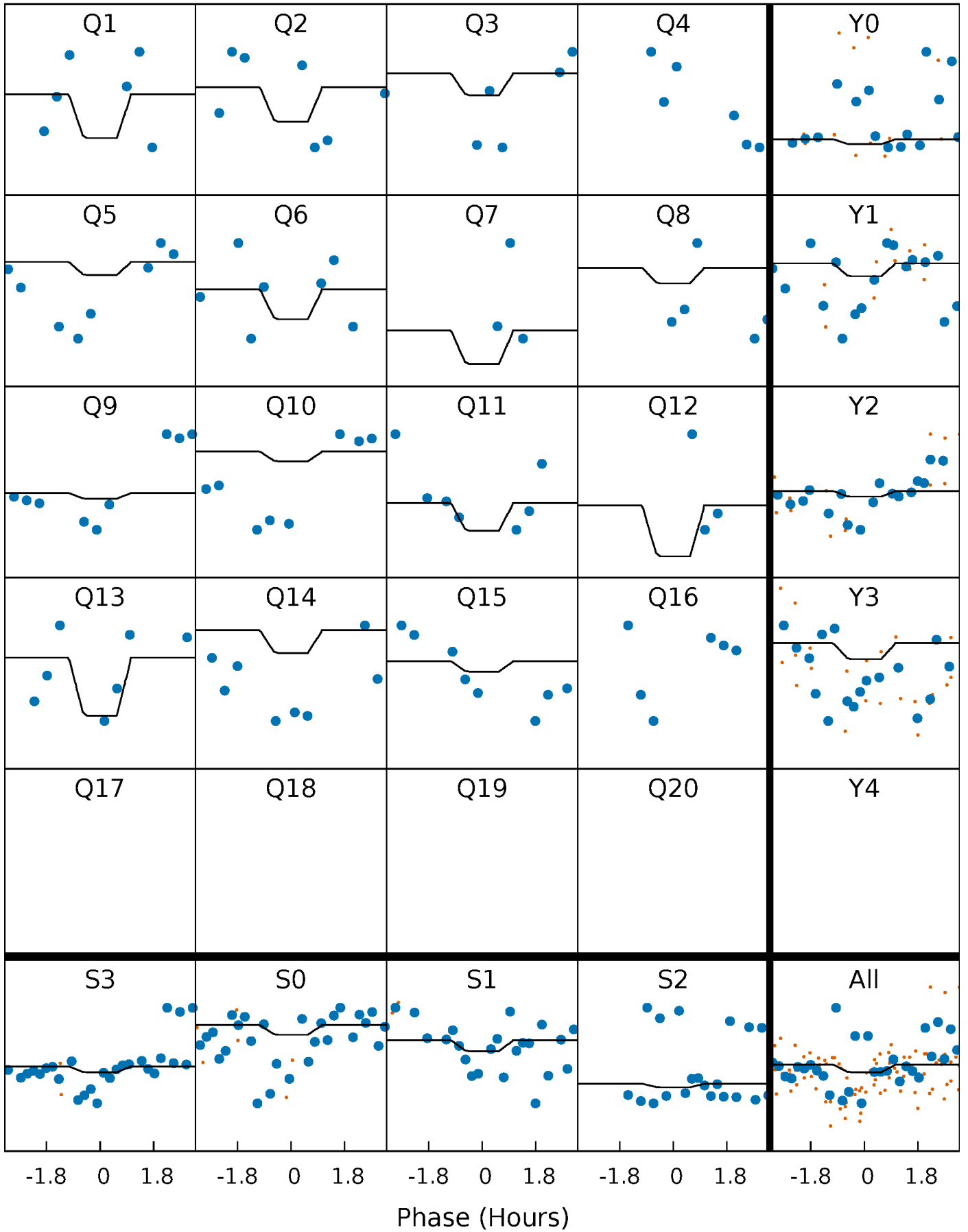
DV Quarter-Phased Transit Curves

TCE 007031942-02 P= 19.387916 Days $T_0=138.305557$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

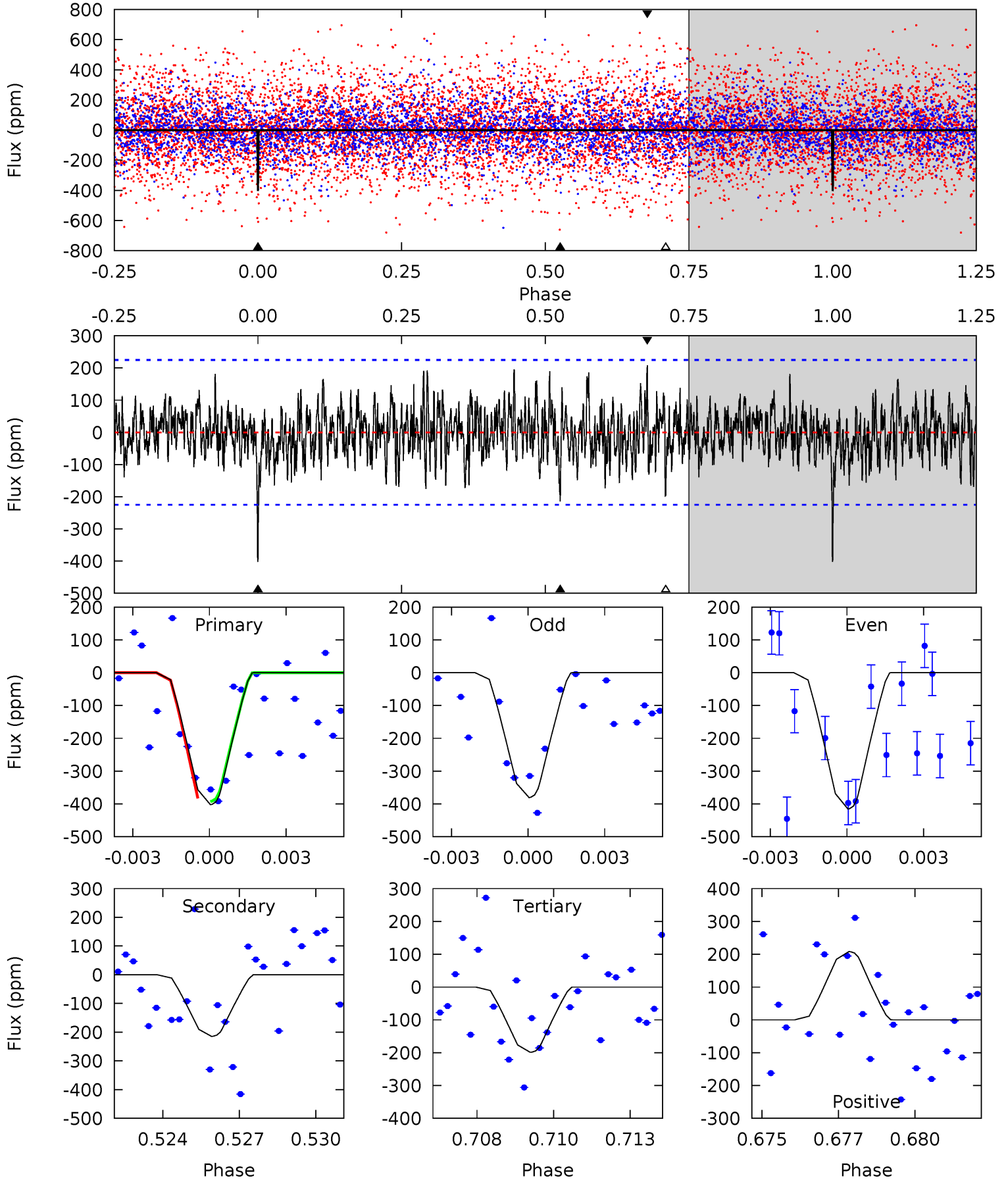
TCE 007031942-02 $P = 19.387819$ Days $T_0 = 138.322719$ (BKJD)



DV Model-Shift Uniqueness Test

007031942-02, $P = 19.387916$ Days, $E = 118.917641$ Days

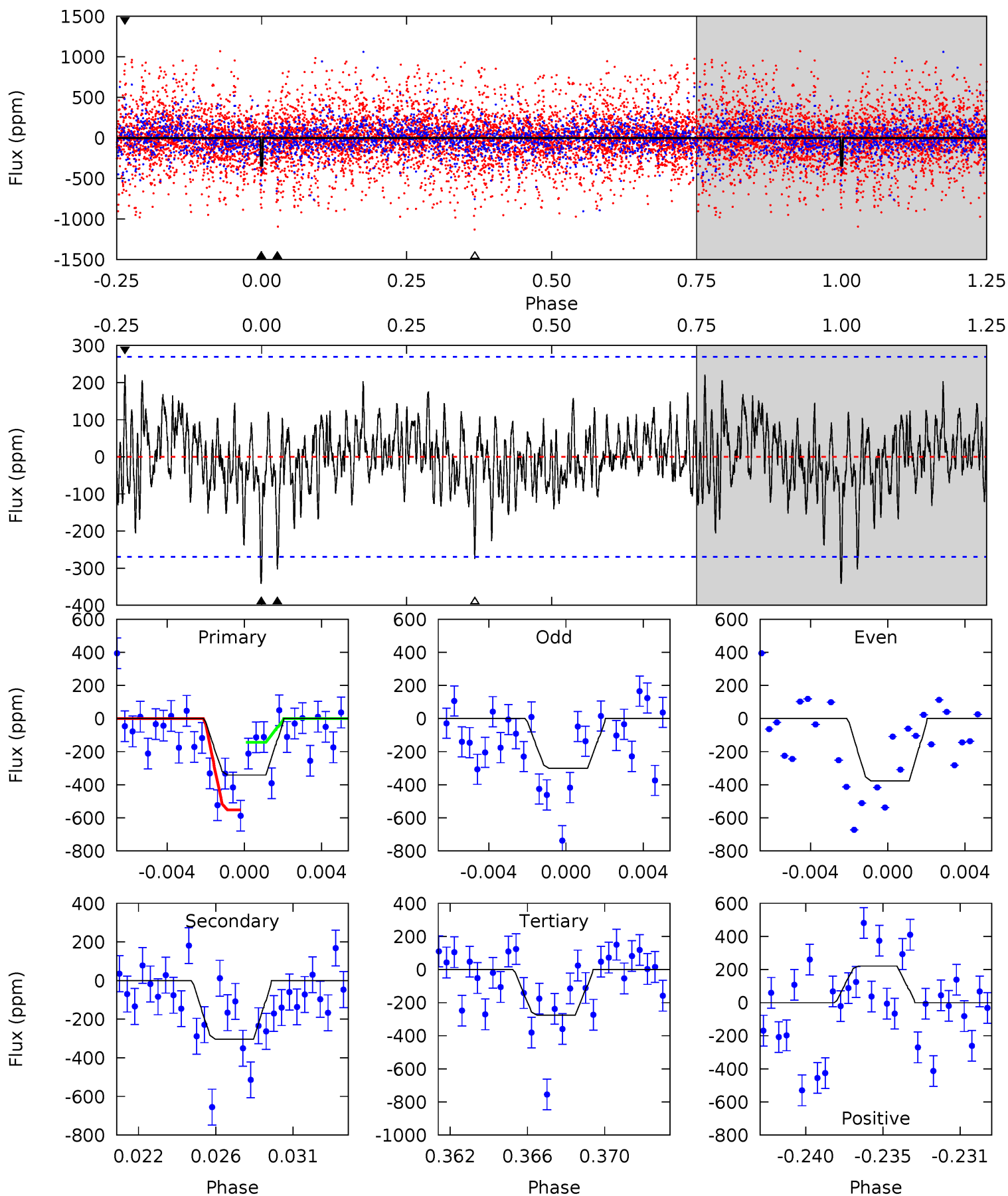
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.45	5.04	4.67	4.89	5.28	3.02	1.50	4.78	4.56	0.37	0.15	0.41	1.10	0.34	0.11



Alt Model-Shift Uniqueness Test

007031942-02, P = 19.387819 Days, E = 118.934900 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.57	5.83	5.29	4.26	5.18	2.85	1.35	1.28	2.32	0.54	1.57	0.72	0.21	0.39	4.01



Stellar Parameters For KIC 007031942

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5642^{+152}_{-152}	$4.337^{+0.185}_{-0.185}$	$-0.080^{+0.300}_{-0.300}$	$1.056^{+0.300}_{-0.200}$	$0.886^{+0.125}_{-0.073}$	$1.058^{+0.832}_{-0.537}$
	+3%/-3%	+4%/-4%	+375%/-375%	+28%/-19%	+14%/-8%	+79%/-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 007031942-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-215 ± 43	$3.01^{+2.53}_{-1.91}$	970^{+70}_{-67}	4362^{+2616}_{-809}	230^{+1514}_{-163}
Alt.	-303 ± 52	$2.35^{+2.05}_{-1.55}$	971^{+70}_{-61}	5258^{+4317}_{-1155}	566^{+4145}_{-415}

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 $A_{obs} \gg 1.0$

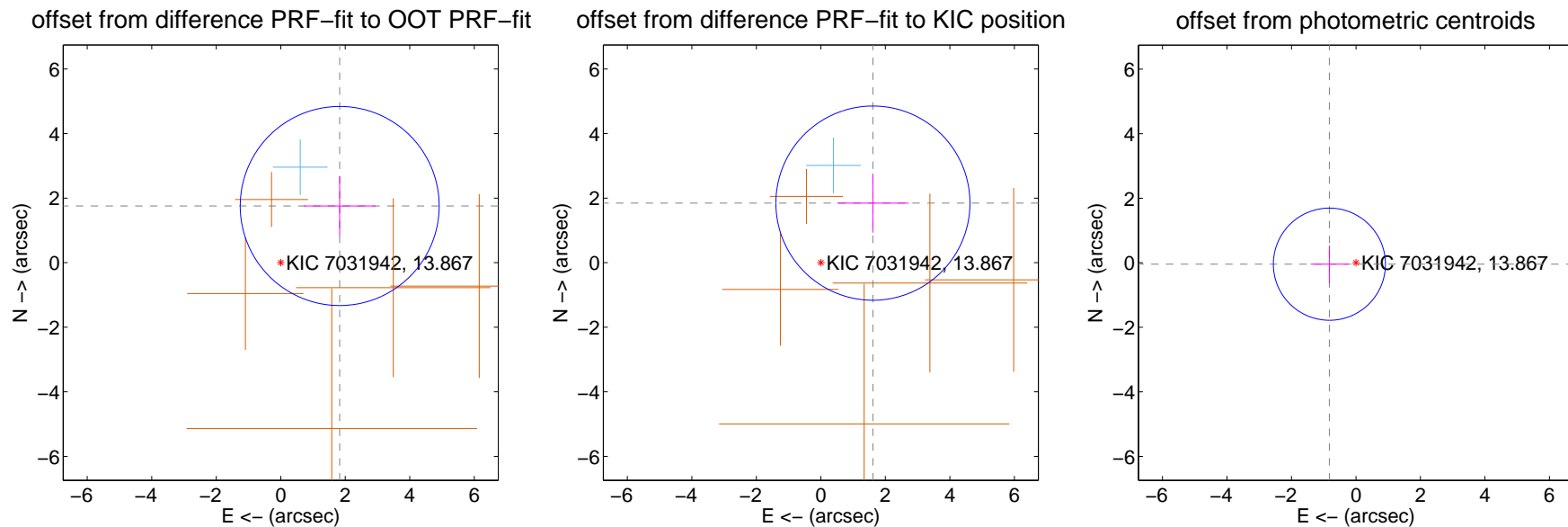
DV Centroid Data

Supplemental centroid analysis for 007031942-02. Kepler magnitude: 13.87. Transit SNR 8.89

There are 1 quarters with good PRF difference image offsets

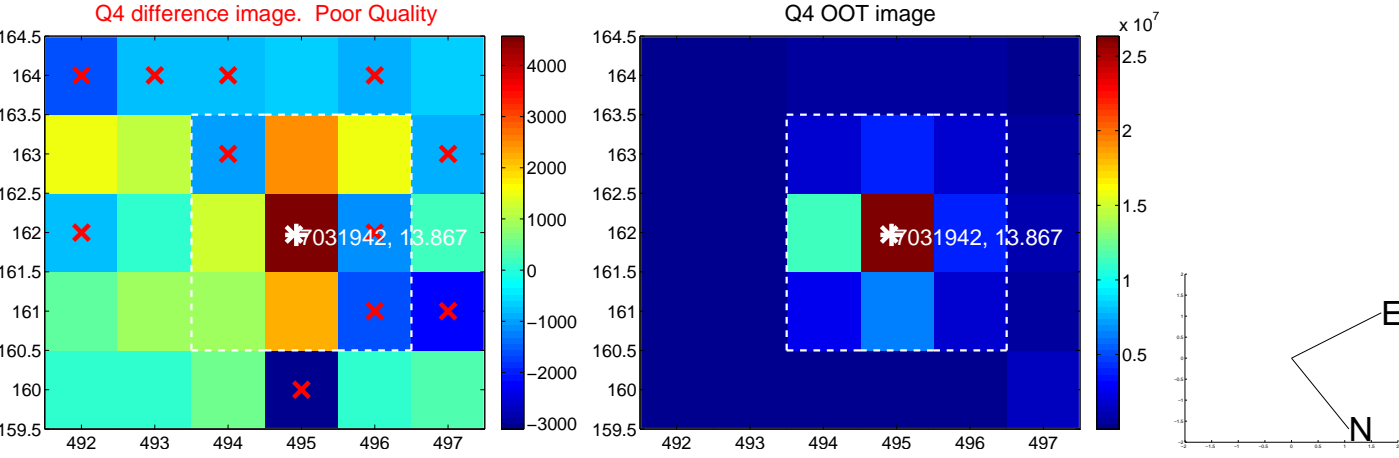
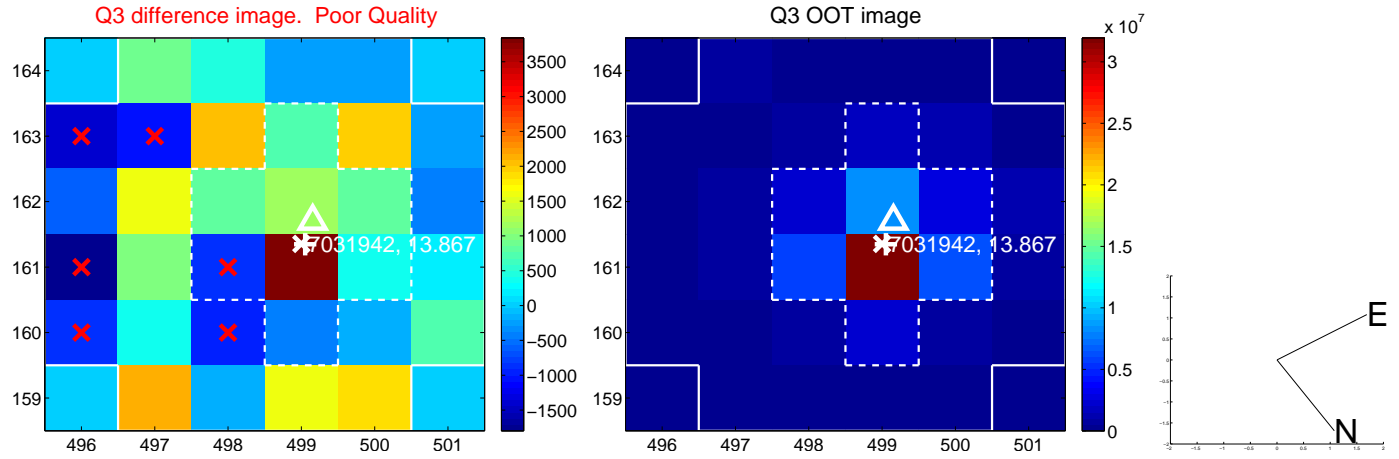
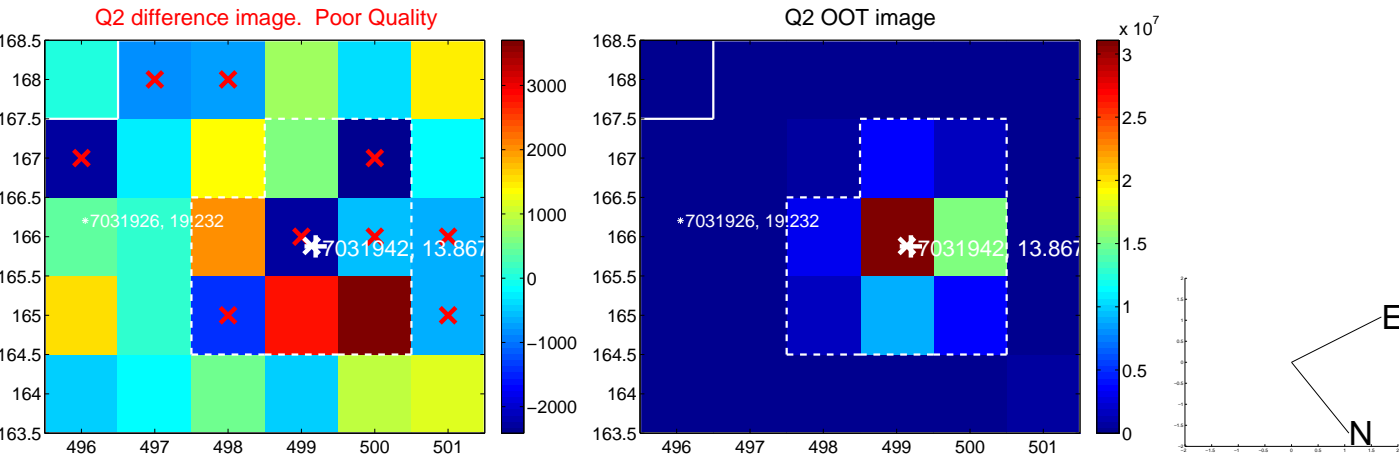
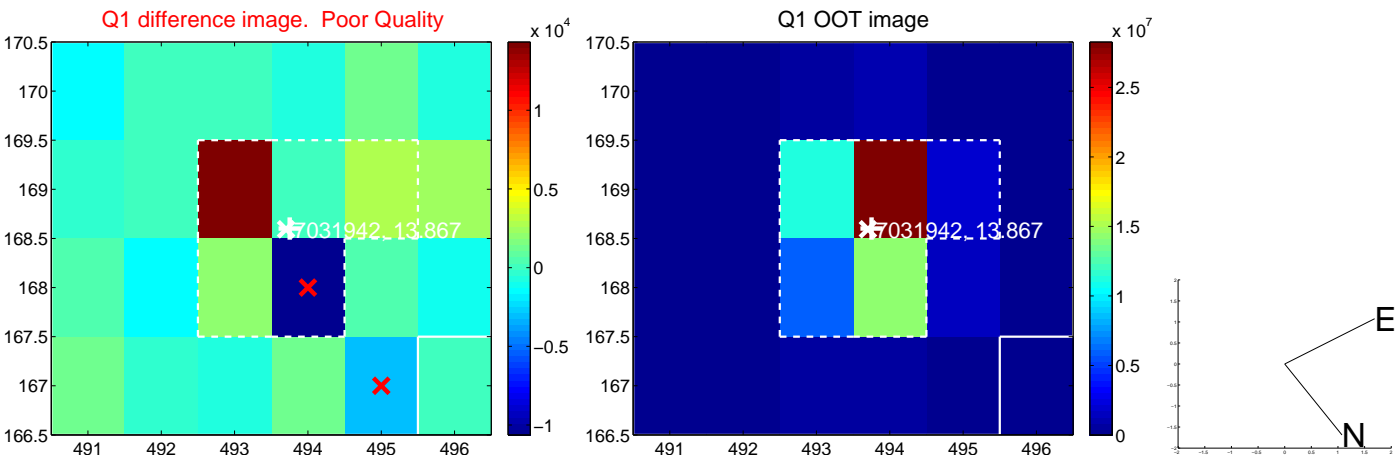
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.535 ± 1.028	2.47	-1.828 ± 1.113	1.757 ± 0.927
PRF-fit source offset from KIC position	2.452 ± 1.003	2.44	-1.614 ± 1.106	1.845 ± 0.916
photometric centroid source offset	0.83 ± 0.58	1.42	0.82 ± 0.58	-0.04 ± 0.58

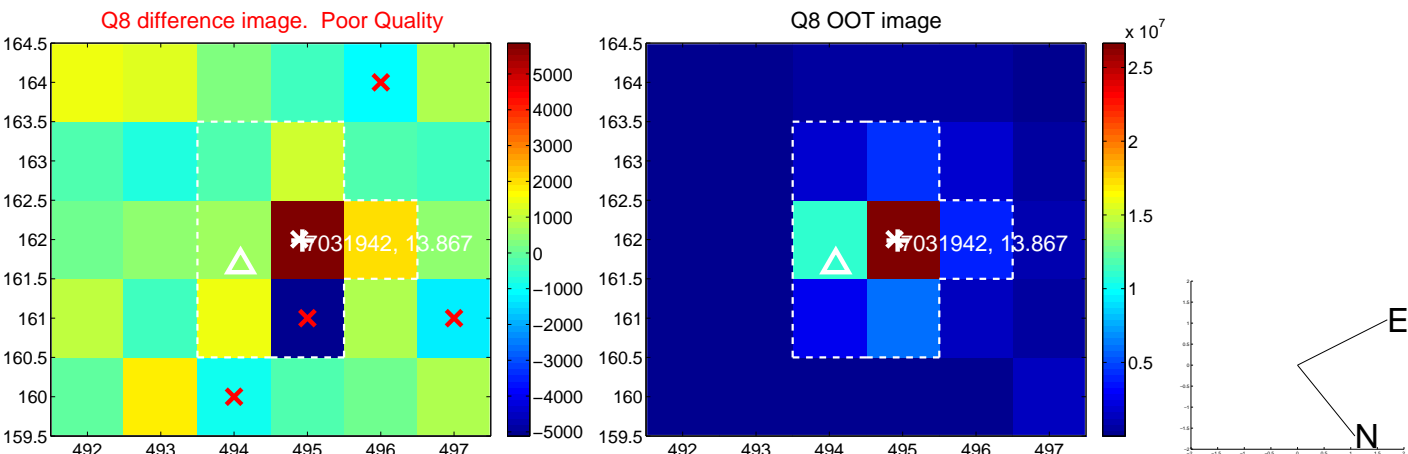
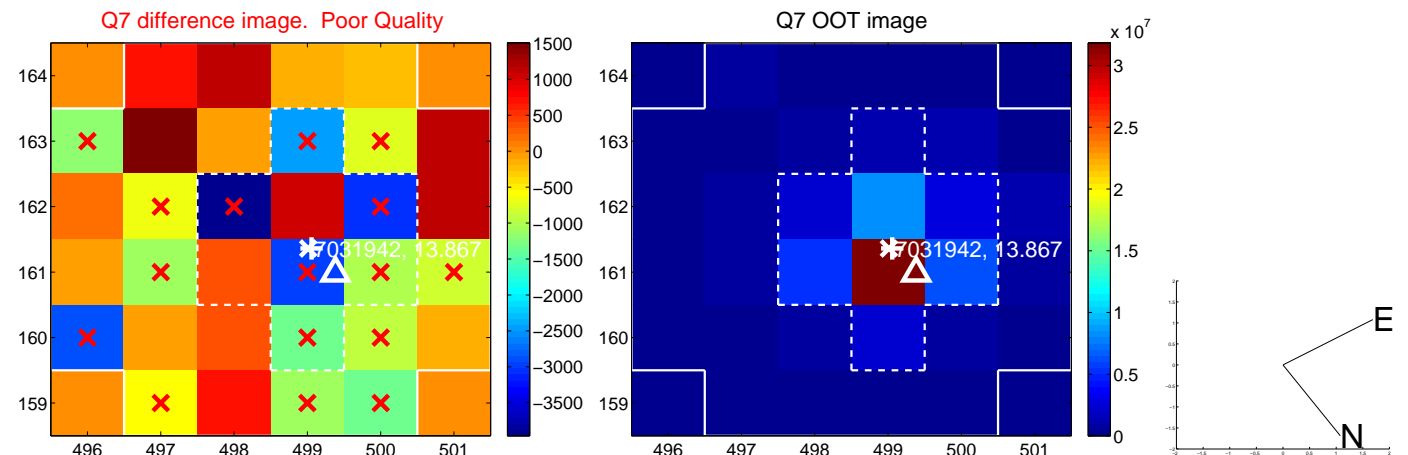
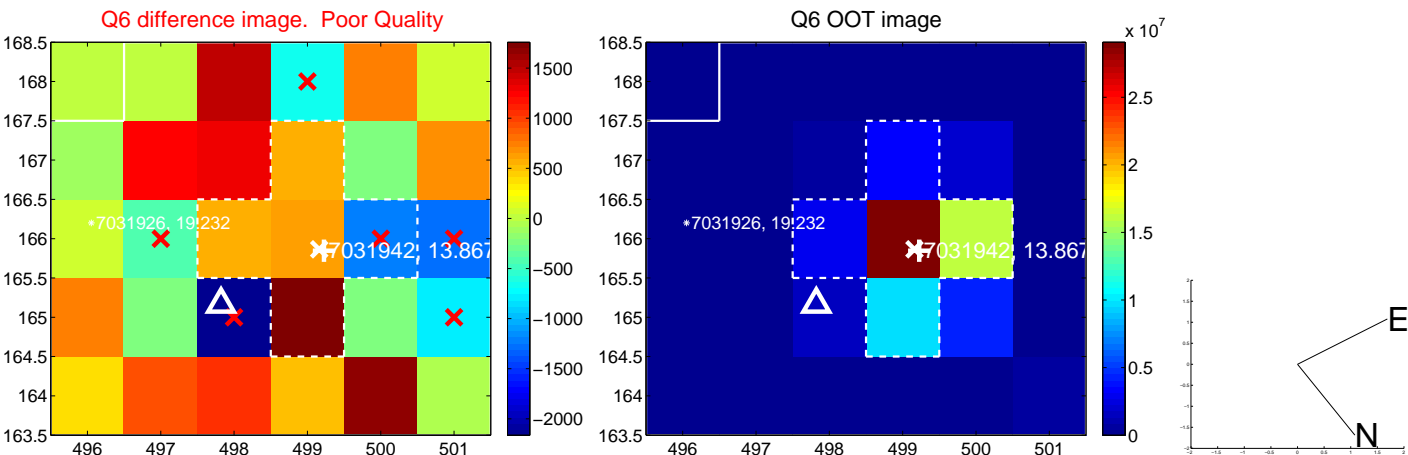
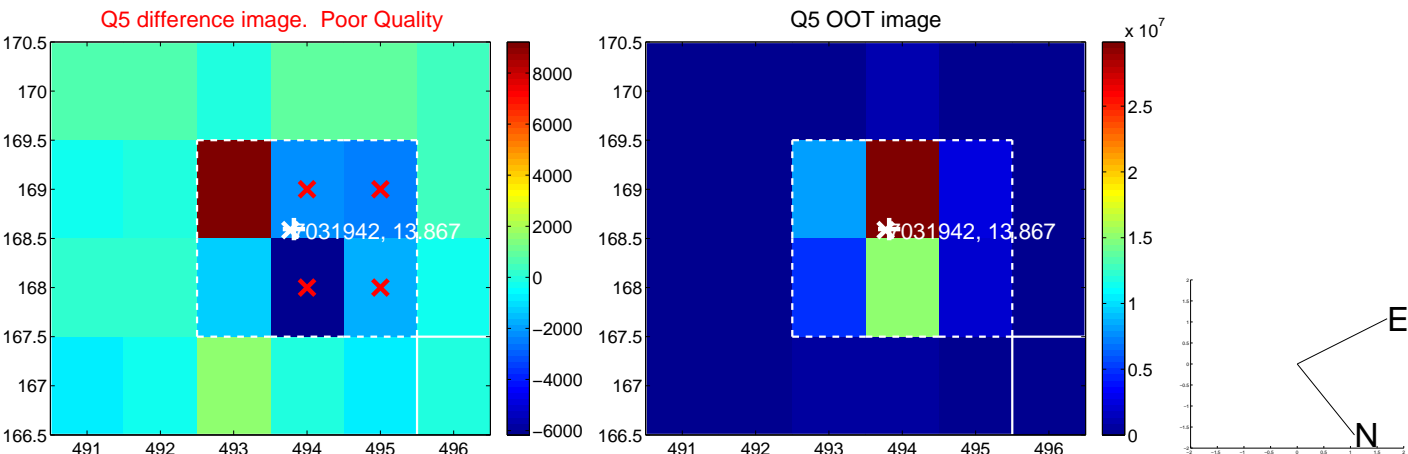


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

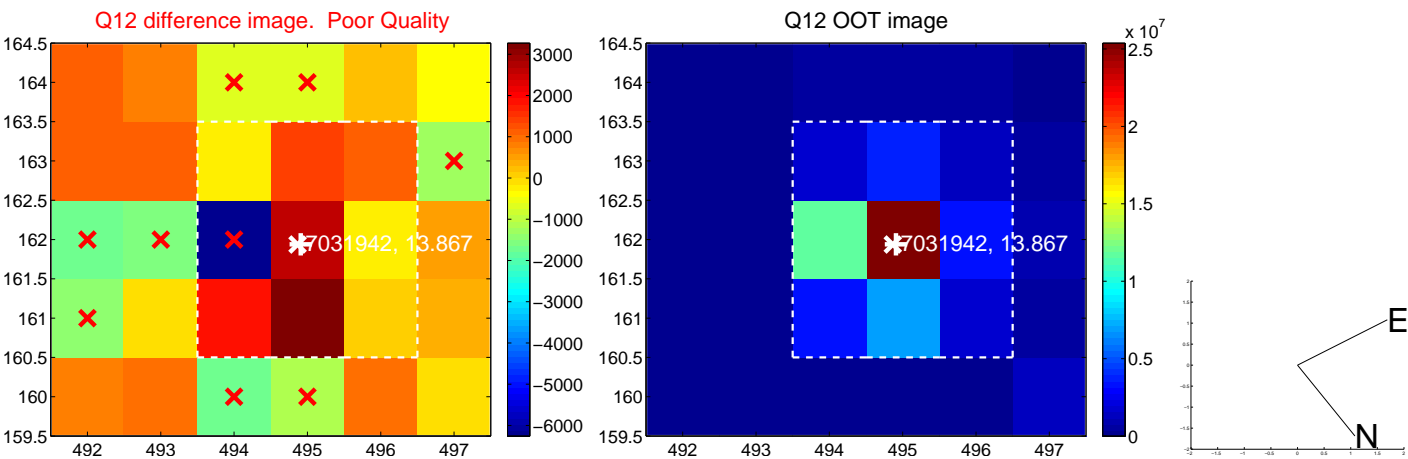
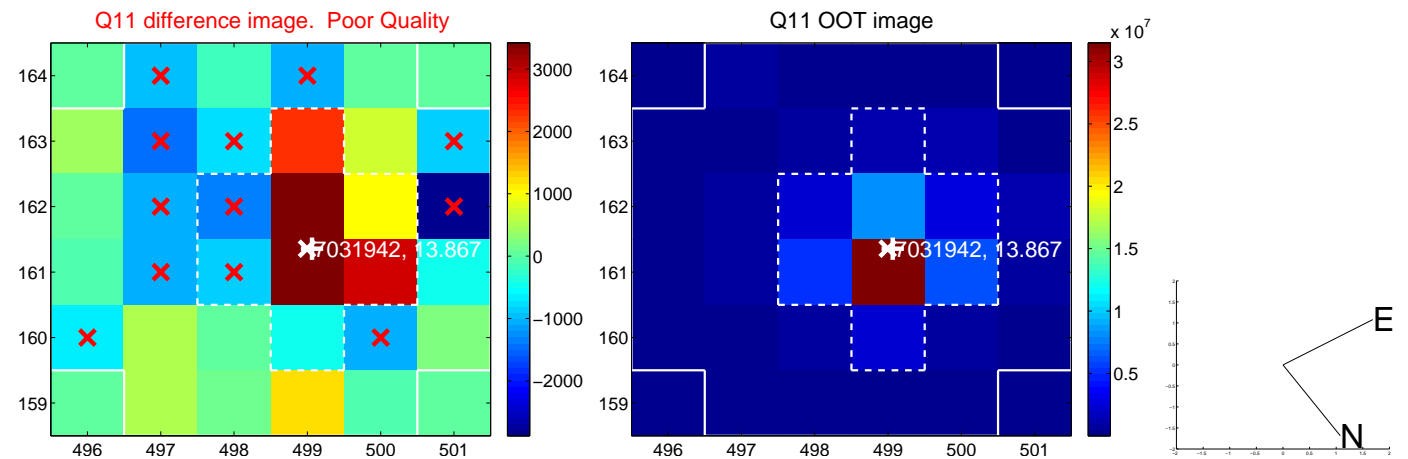
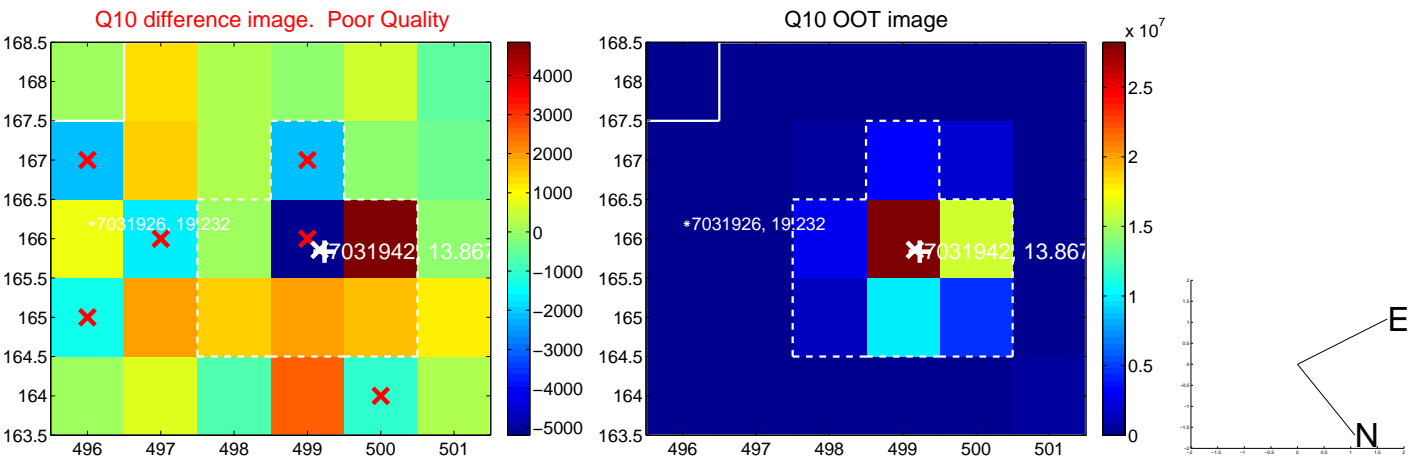
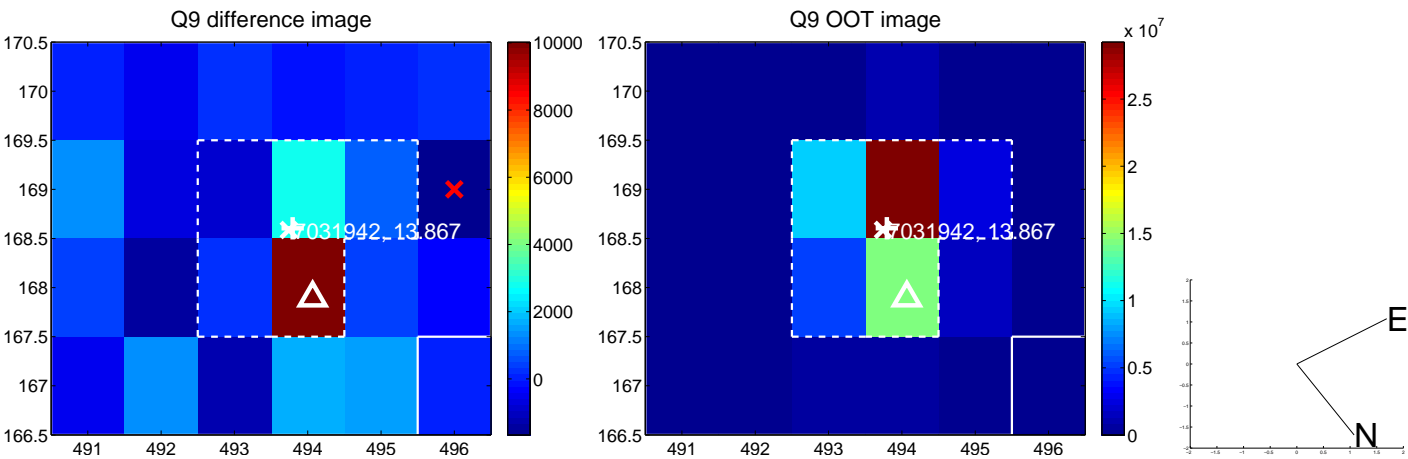
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



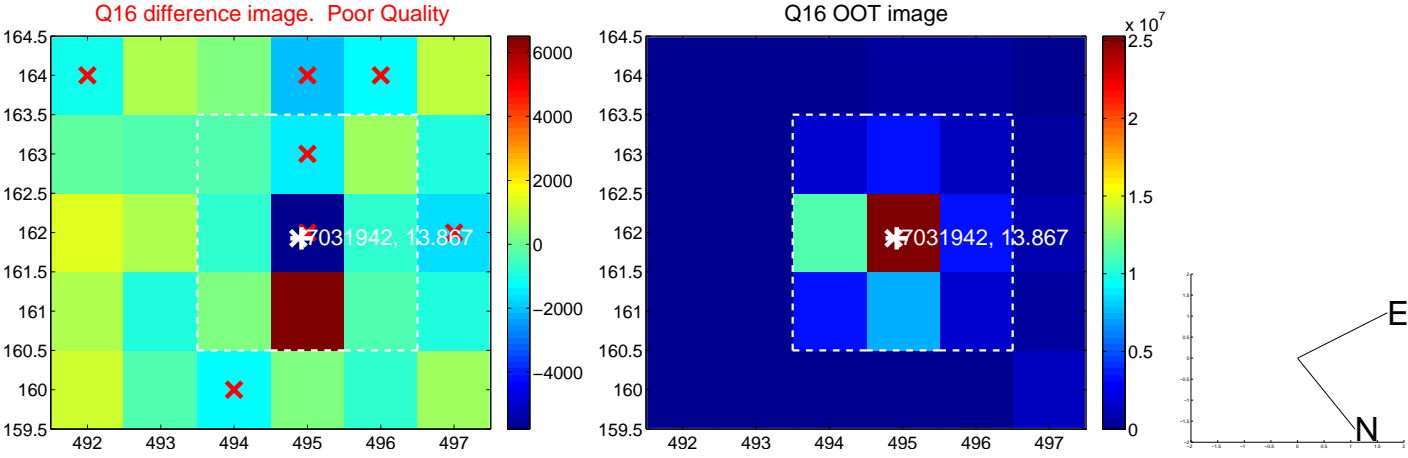
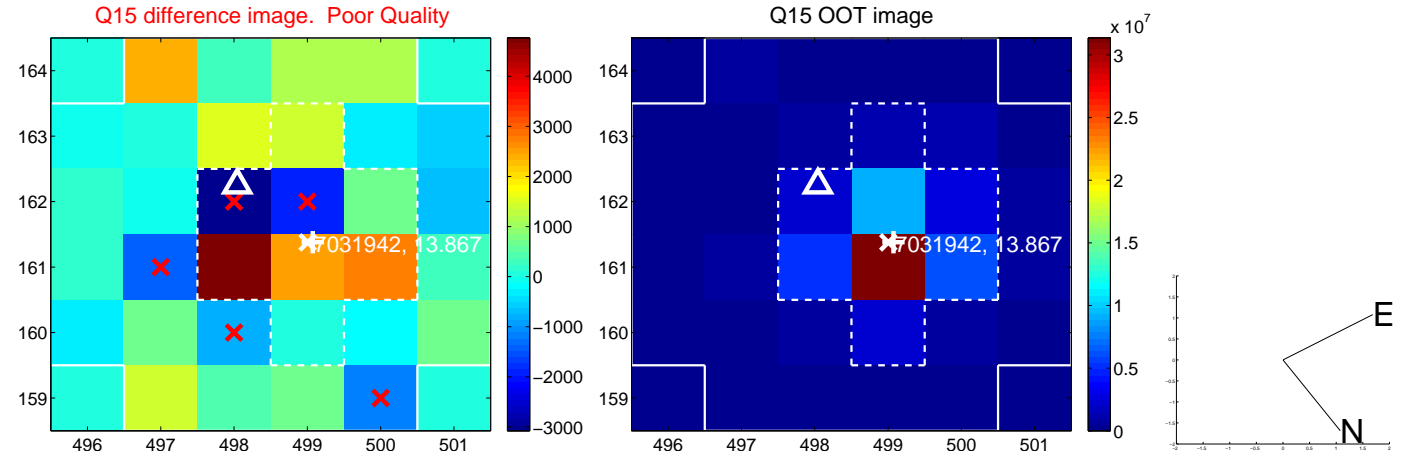
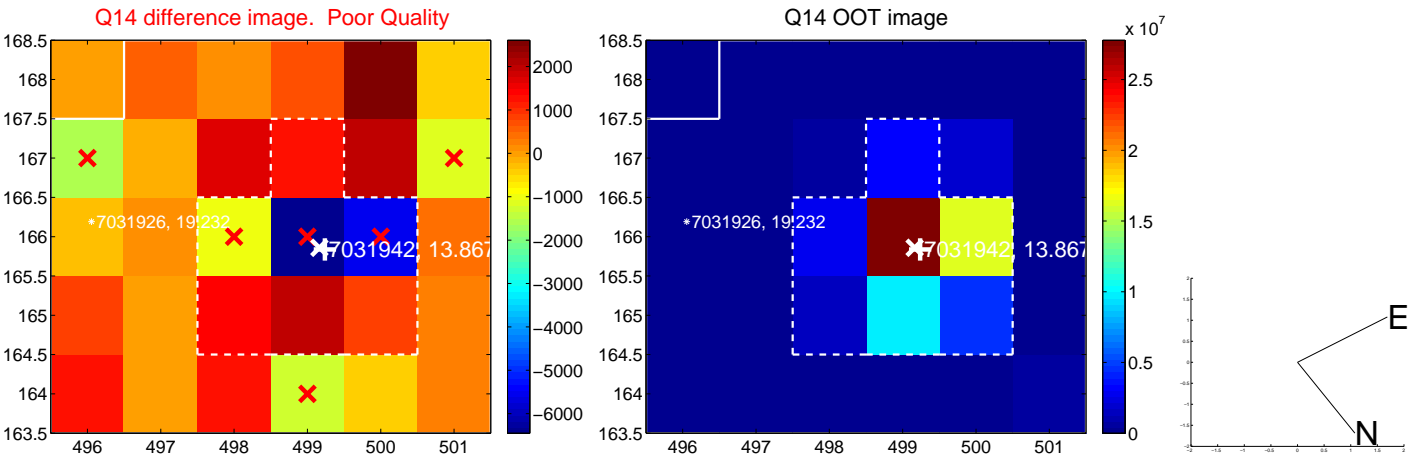
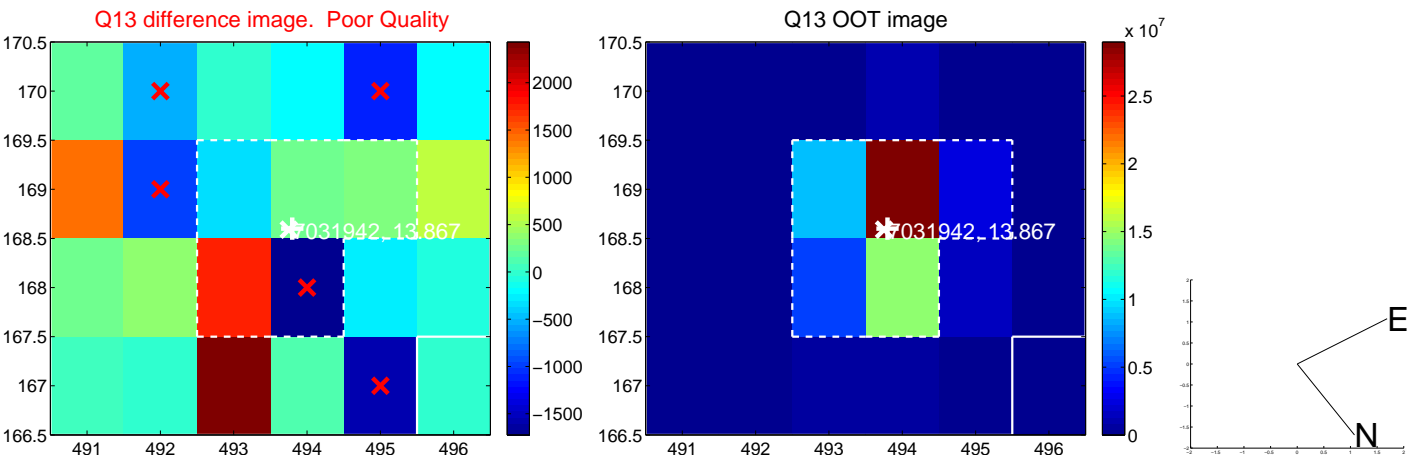
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



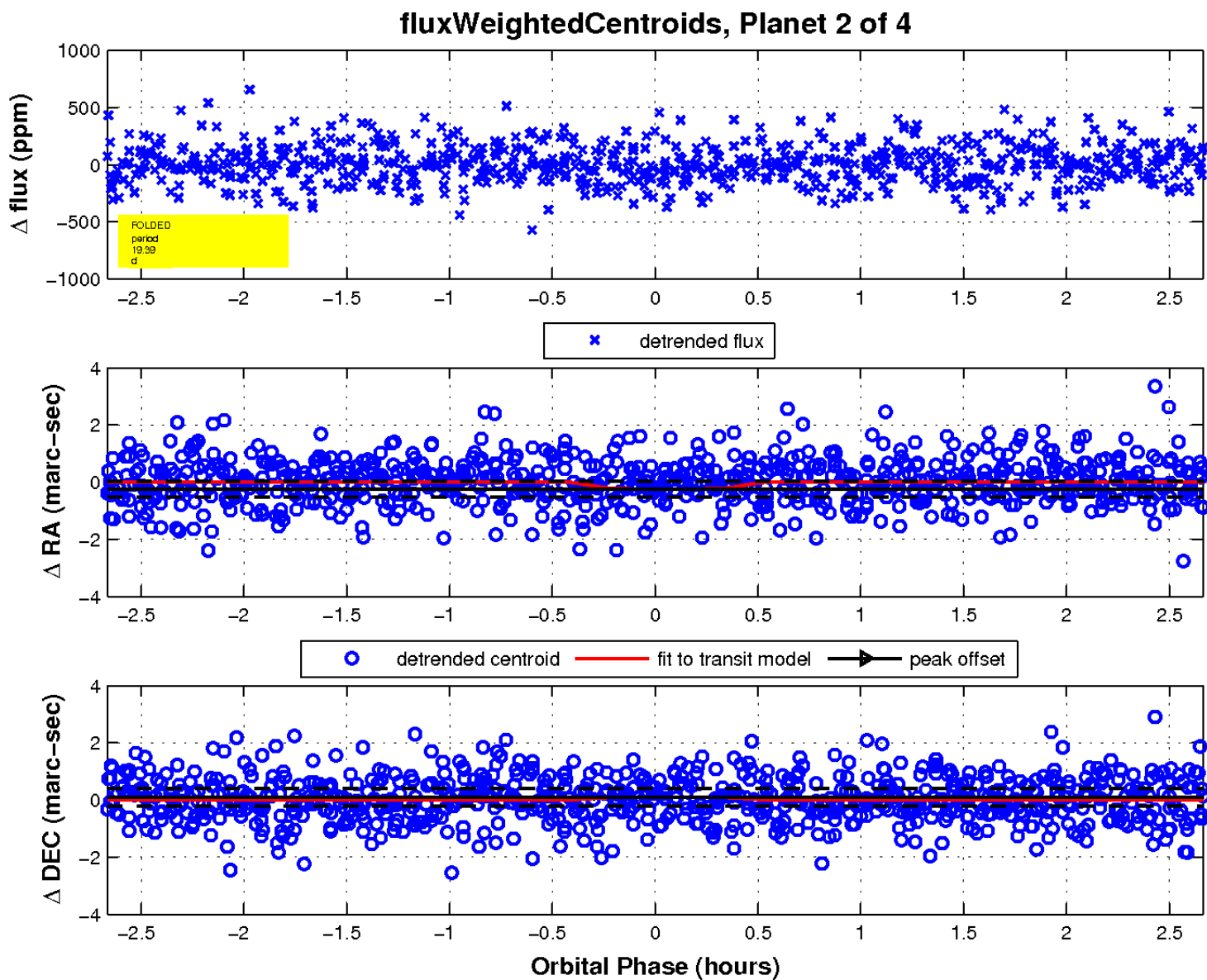
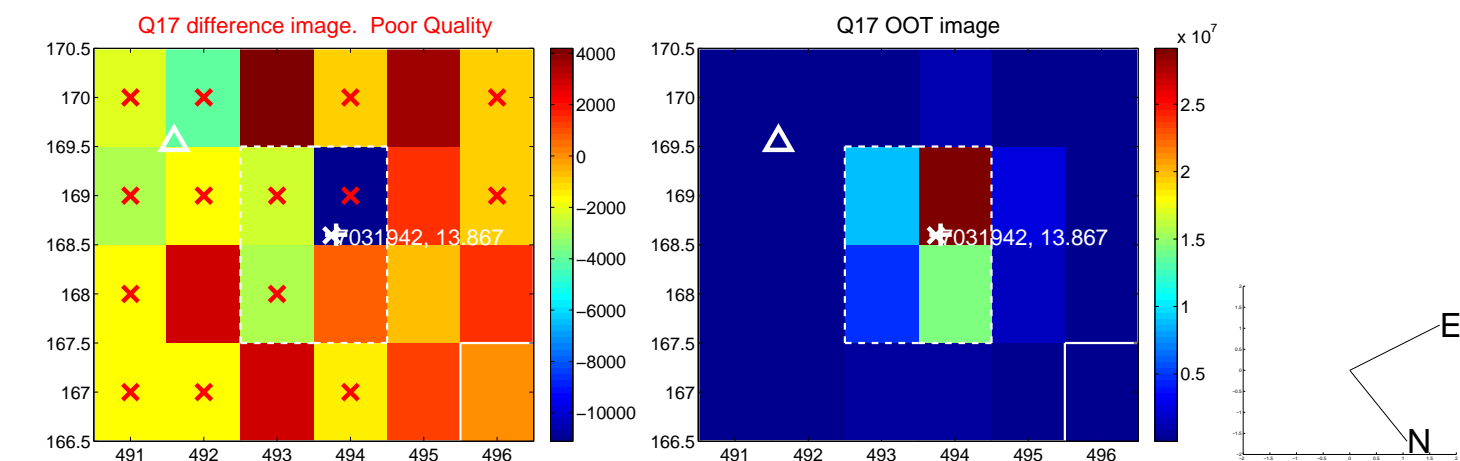
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

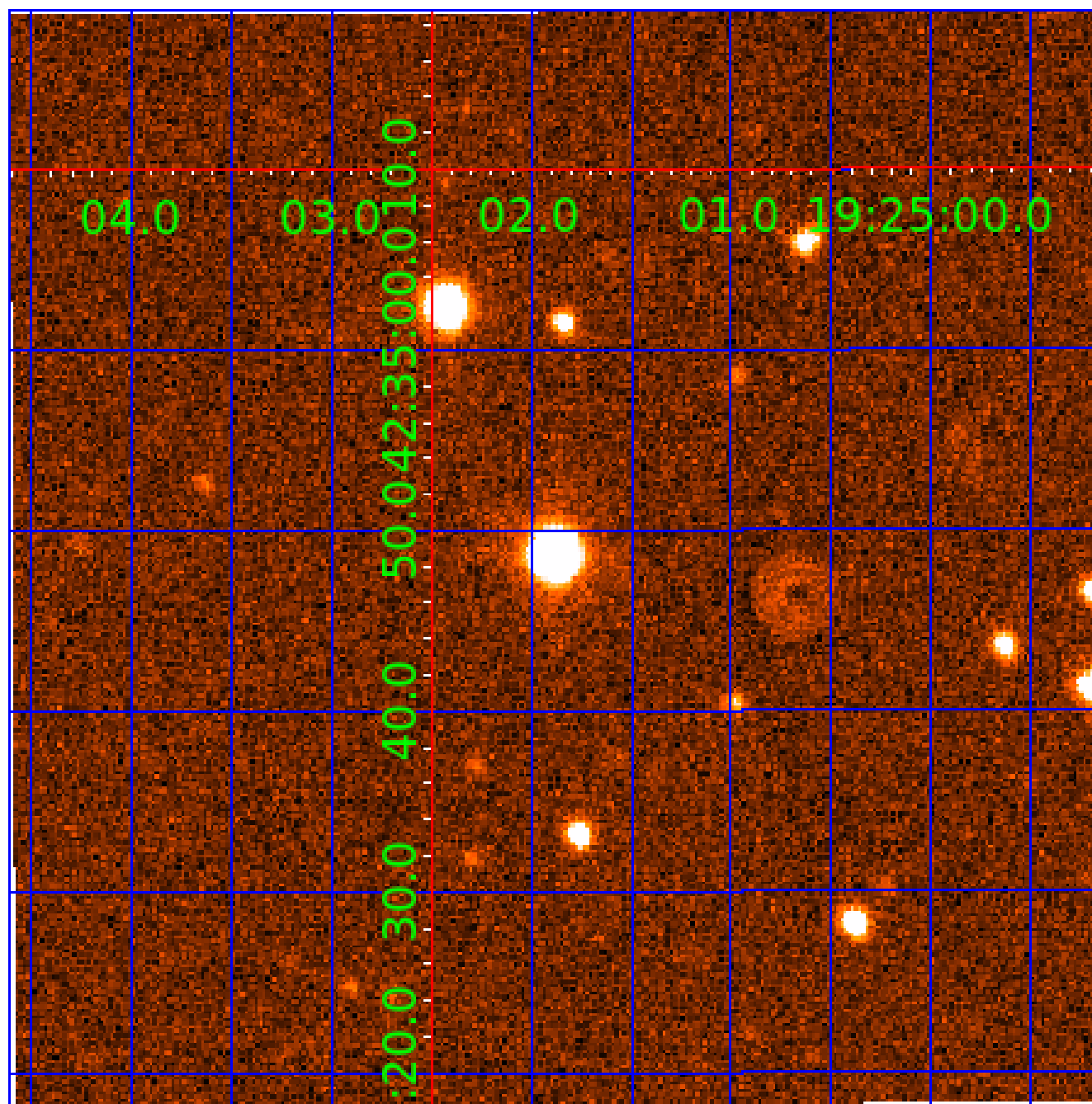


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007031942

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})
007031942-01	OBS	4420.01	0.566764	131.858383	19.0	3.831	11.6	10.2	1.06	5642	0.49	6116.93
007031942-02	OBS	No	19.387916	138.305557	415.0	0.890	9.7	8.9	1.06	5642	2.64	55.08
007031942-03	OBS	No	12.080117	138.697085	224.8	3.109	8.6	8.1	1.06	5642	1.76	103.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007031942-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
007031942-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
007031942-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

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

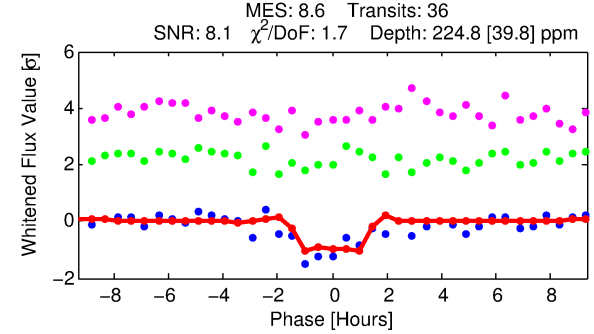
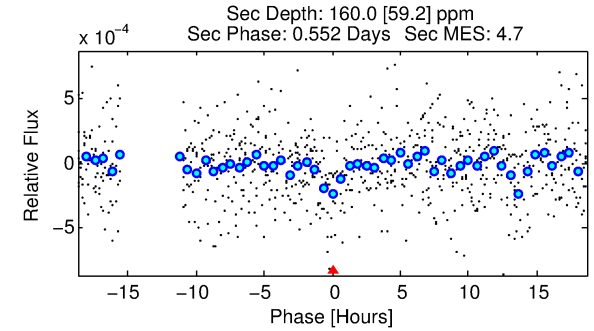
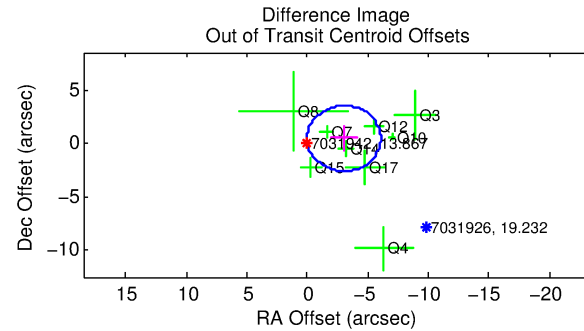
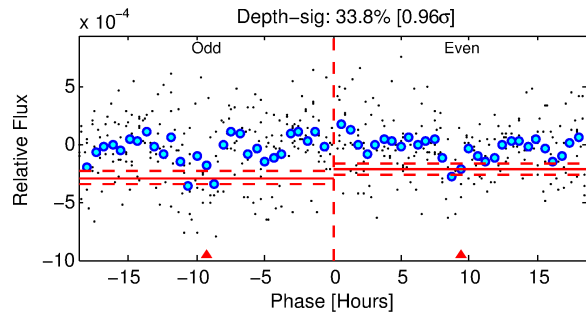
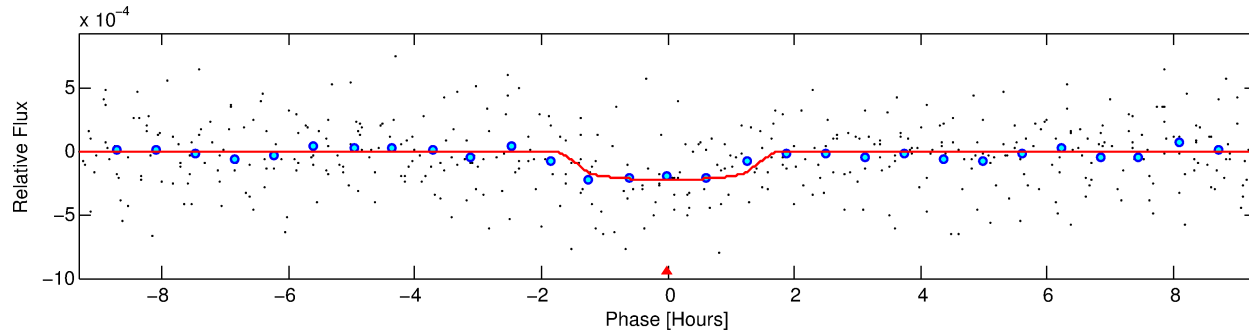
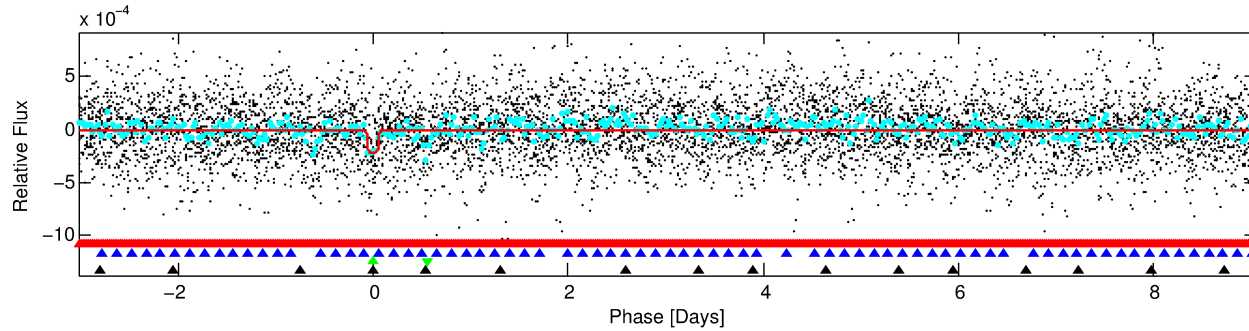
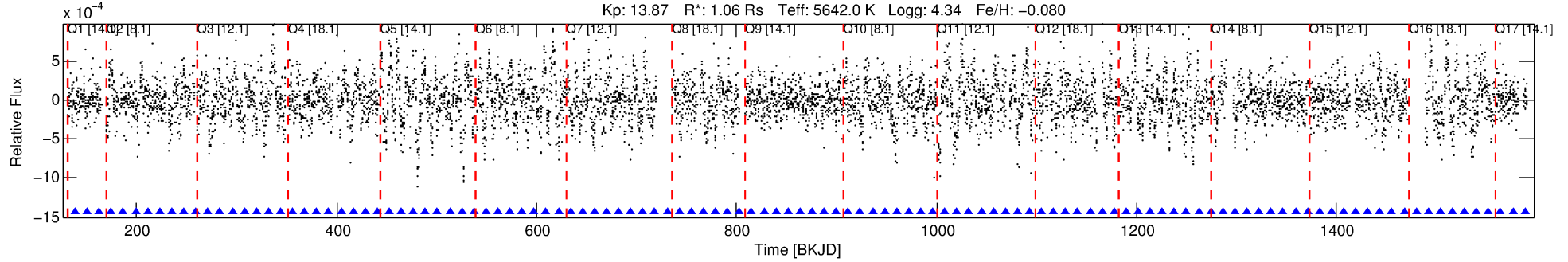
Ephemeris Match Information For 007031942-03

No Significant Match Found

DV One-Page Summary

KIC: 7031942 Candidate: 3 of 4 Period: 12.080 d
KOI: K04420 Corr: No Ephemeris Match

Kp: 13.87 R*: 1.06 Rs Teff: 5642.0 K Logg: 4.34 Fe/H: -0.080



DV Fit Results:

Period = 12.08012 [0.00012] d
Epoch = 138.6971 [0.0074] BKJD
Rp/R* = 0.0153 [0.0164]
a/R* = 18.56 [88.07]
b = 0.80 [2.18]
Seff = 103.51 [37.05]
Teq = 813 [73] K
Rp = 1.76 [1.96] Re
a = 0.0989 [0.0234] AU
Ag = 277.81 [613.64] [0.45σ]
Teffp = 5134 [2804] K [1.54σ]

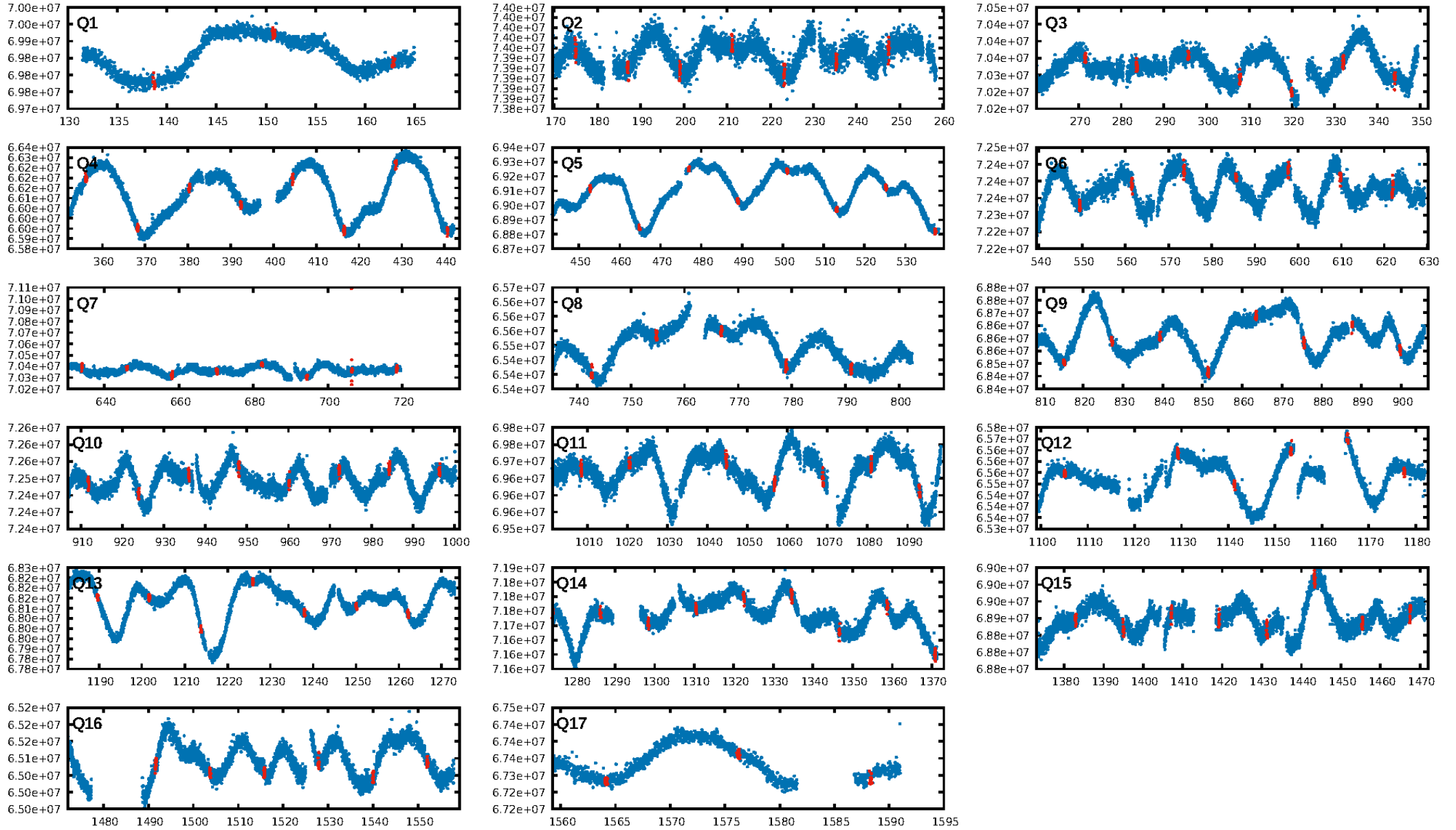
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.01σ]
LongPeriod-sig: 100.0% [54.23σ]
ModelChiSquare2-sig: 4.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.14e-12
RollingBand-fgt: 1.00 [34/34]
GhostDiagnostic-chr: -1.22
Centroid-sig: 8.4%
Centroid-so: 0.600 arcsec [1.41σ]
OotOffset-rm: 3.047 arcsec [2.99σ]
KicOffset-rm: 2.909 arcsec [3.00σ]
OotOffset-st: 2/3/3/1 [9]
KicOffset-st: 2/3/3/1 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.00 [0/17]

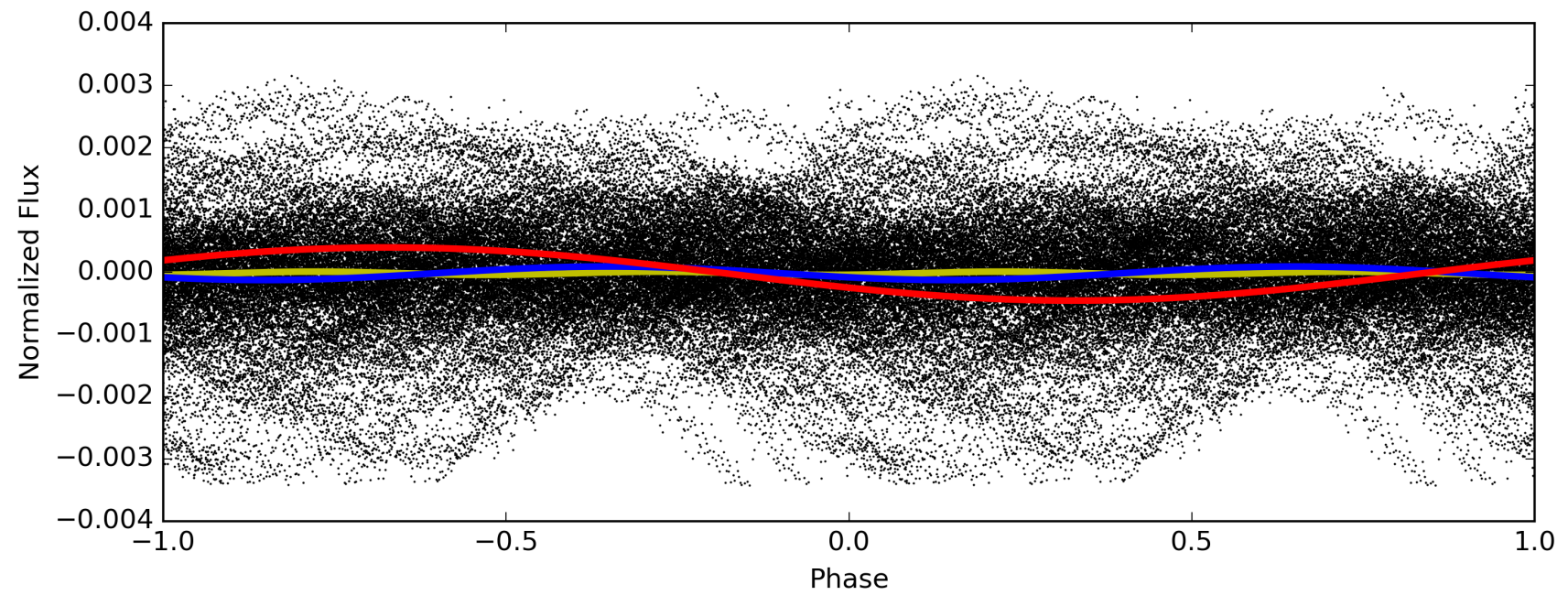
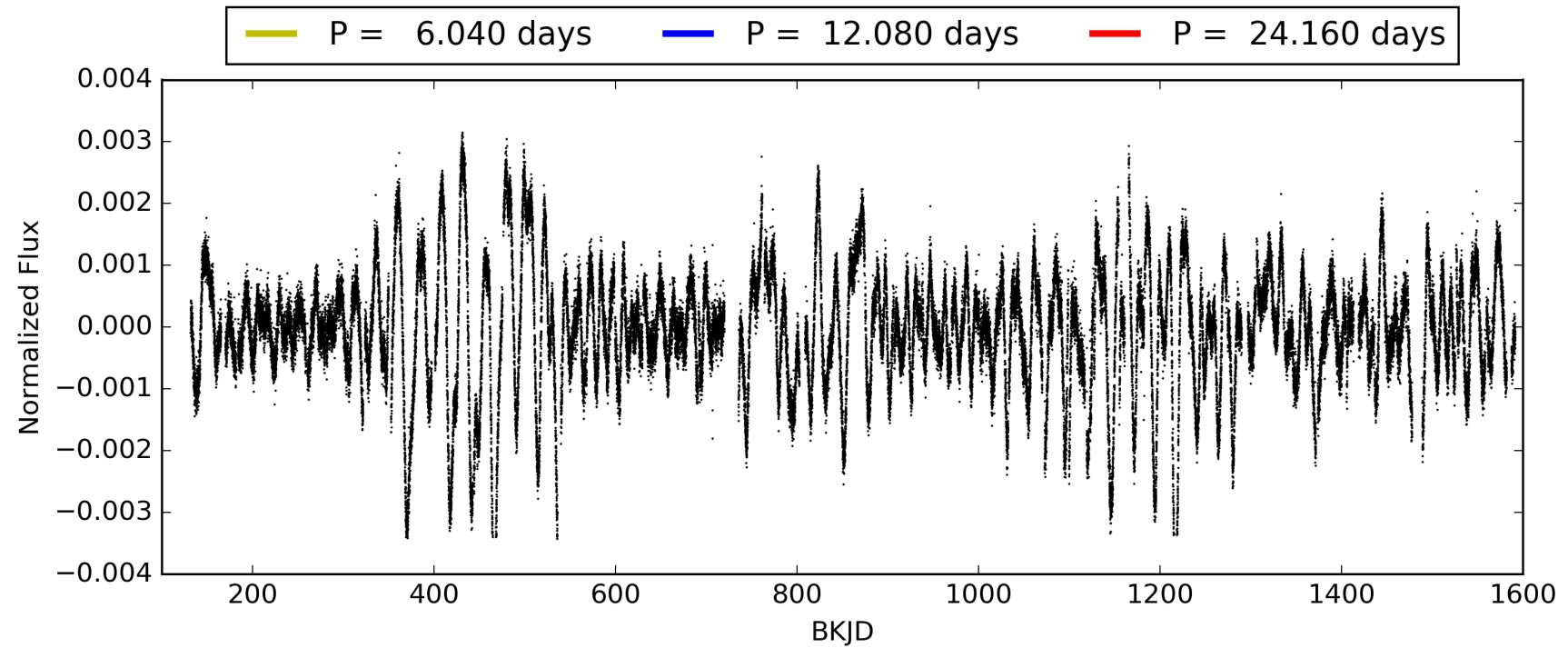
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:48:01 Z

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

TCE 007031942-03, PDC Light Curves

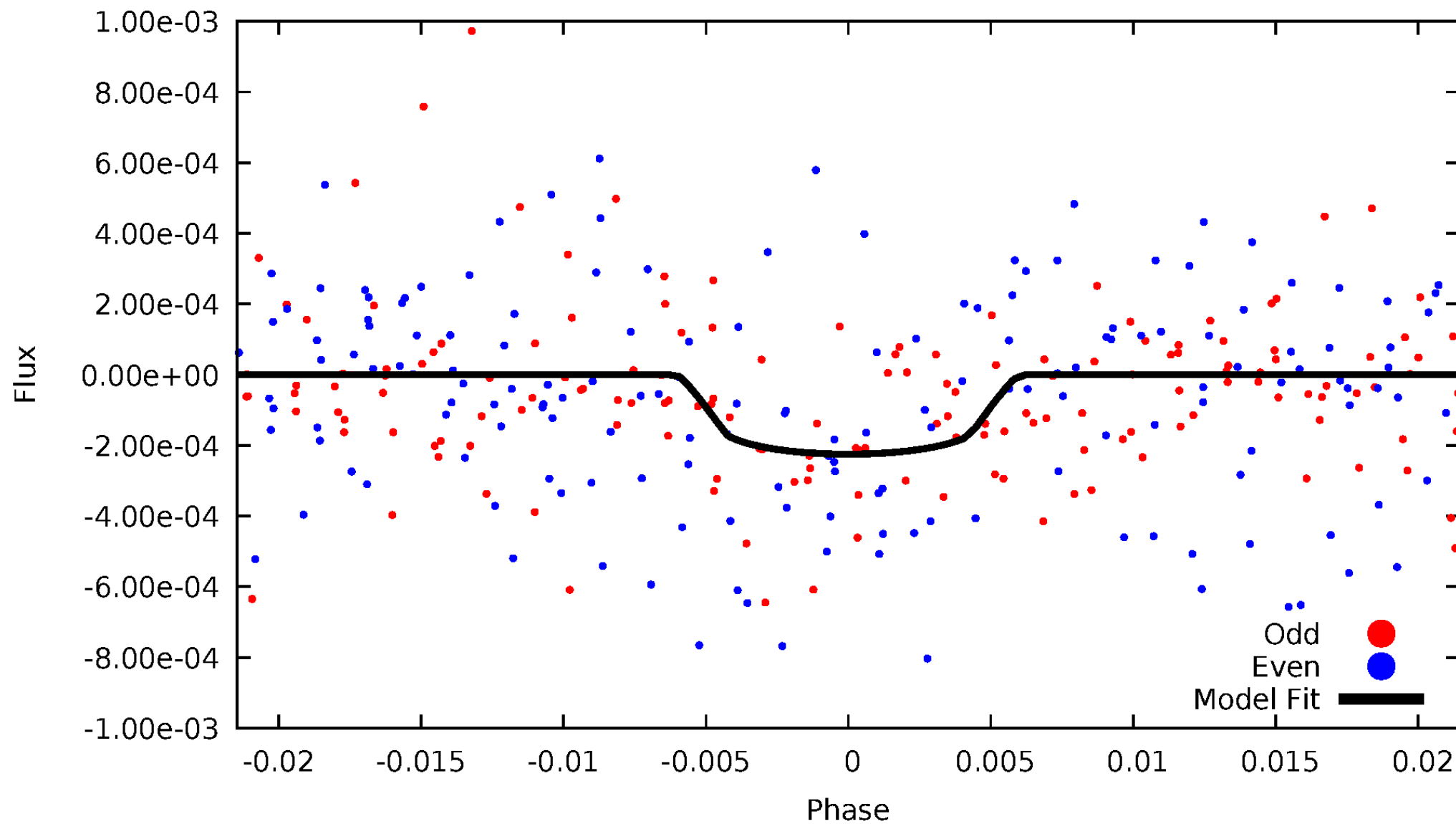


TCE 007031942-03



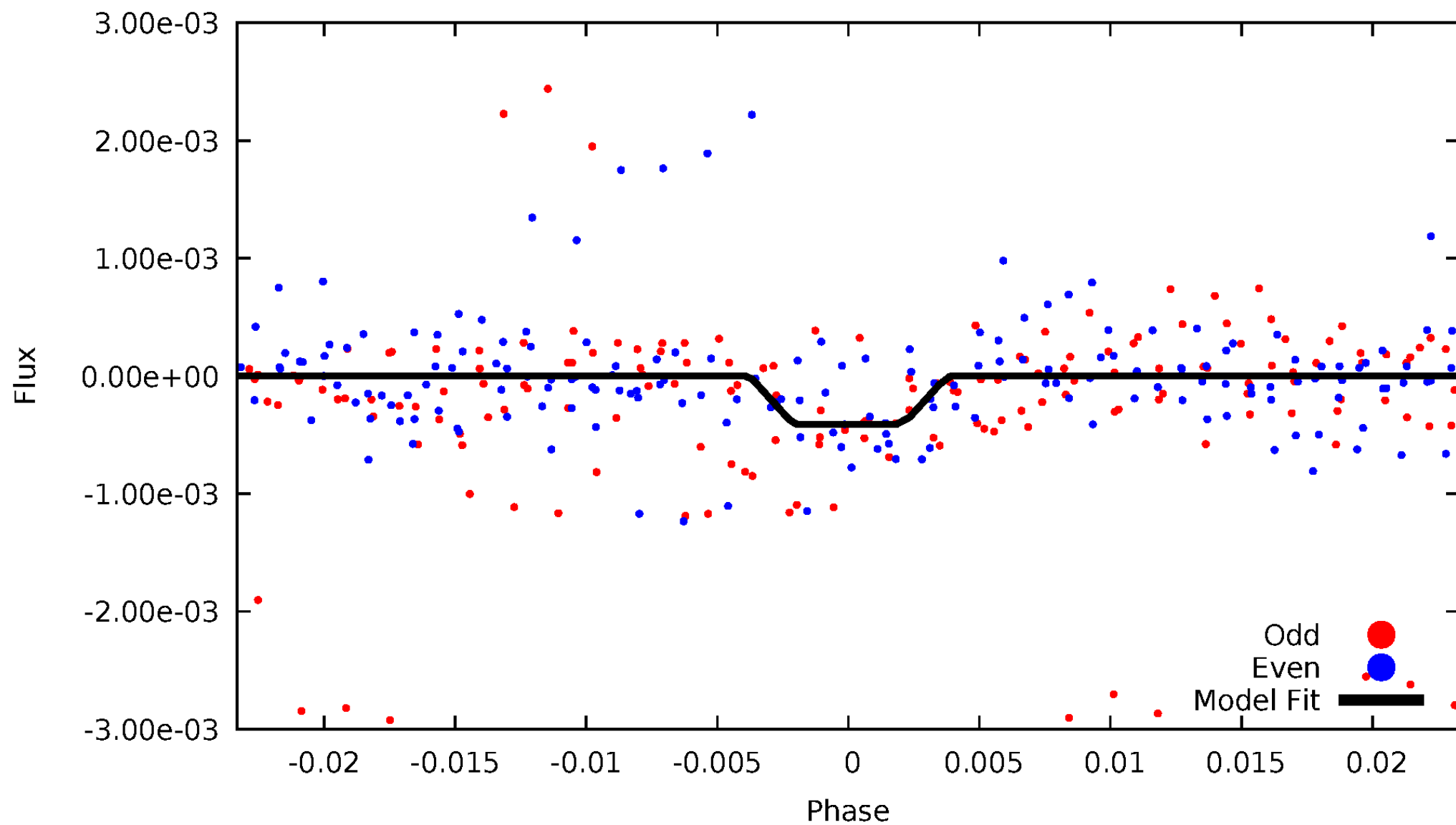
DV Odd/Even

TCE 007031942-03



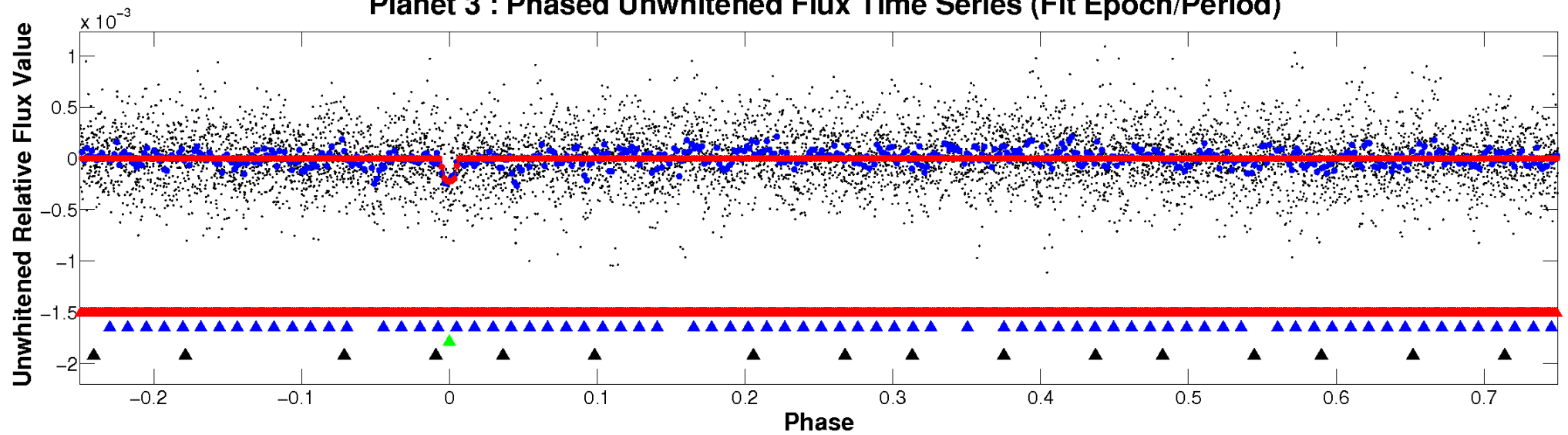
ALT Odd/Even

TCE 007031942-03

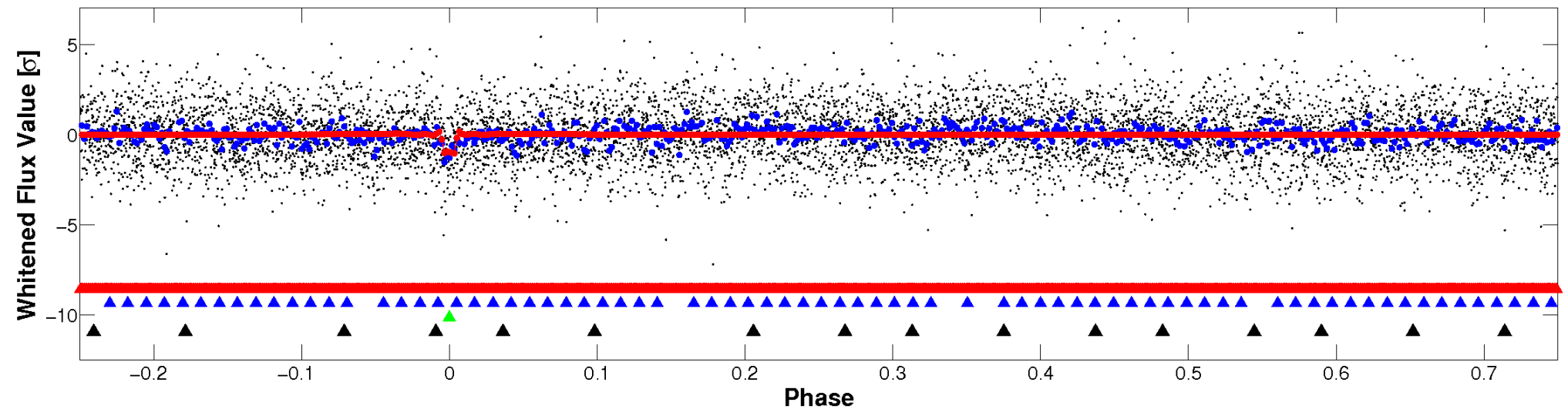


Non-Whitened Vs. Whitened Light Curve

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

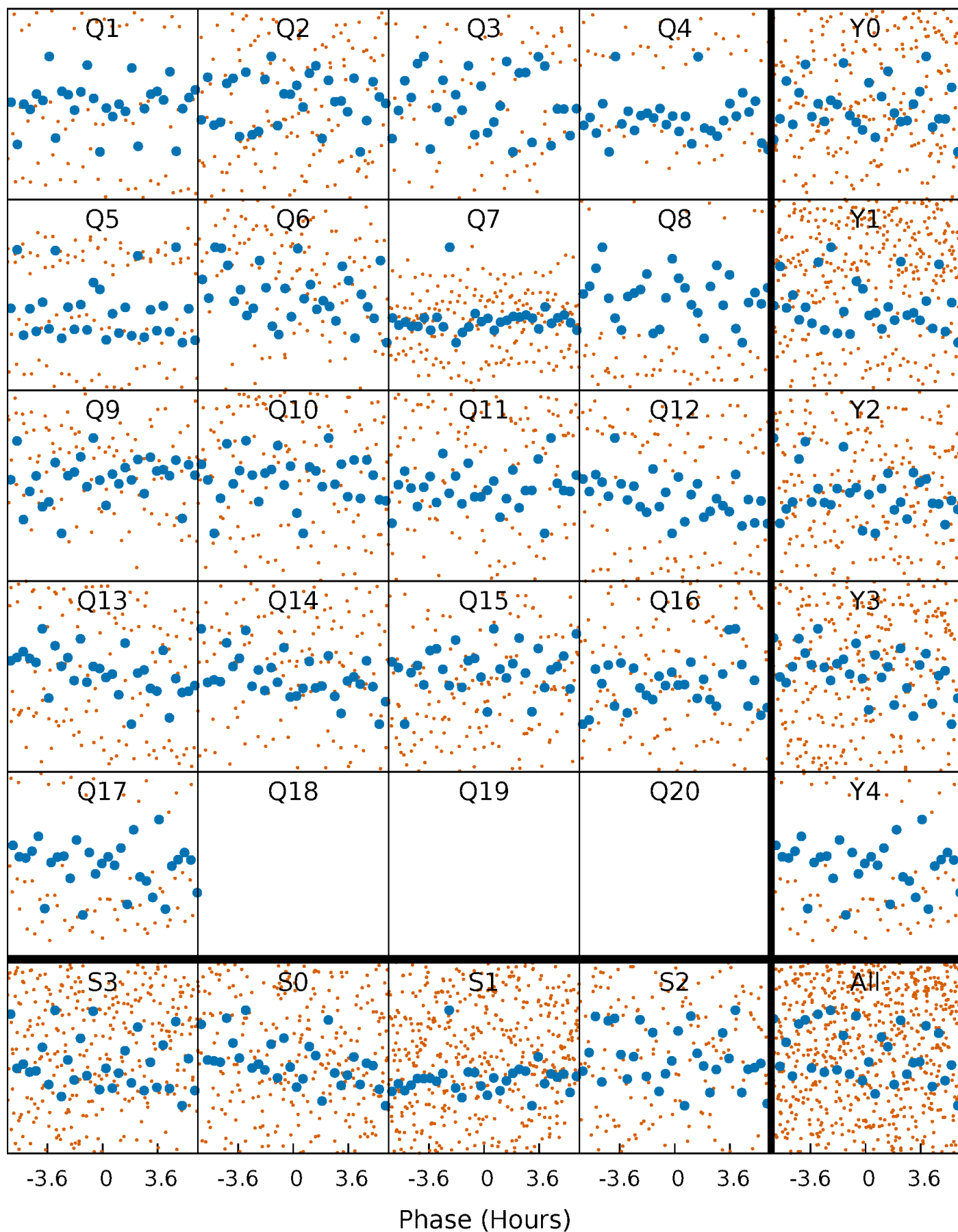


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



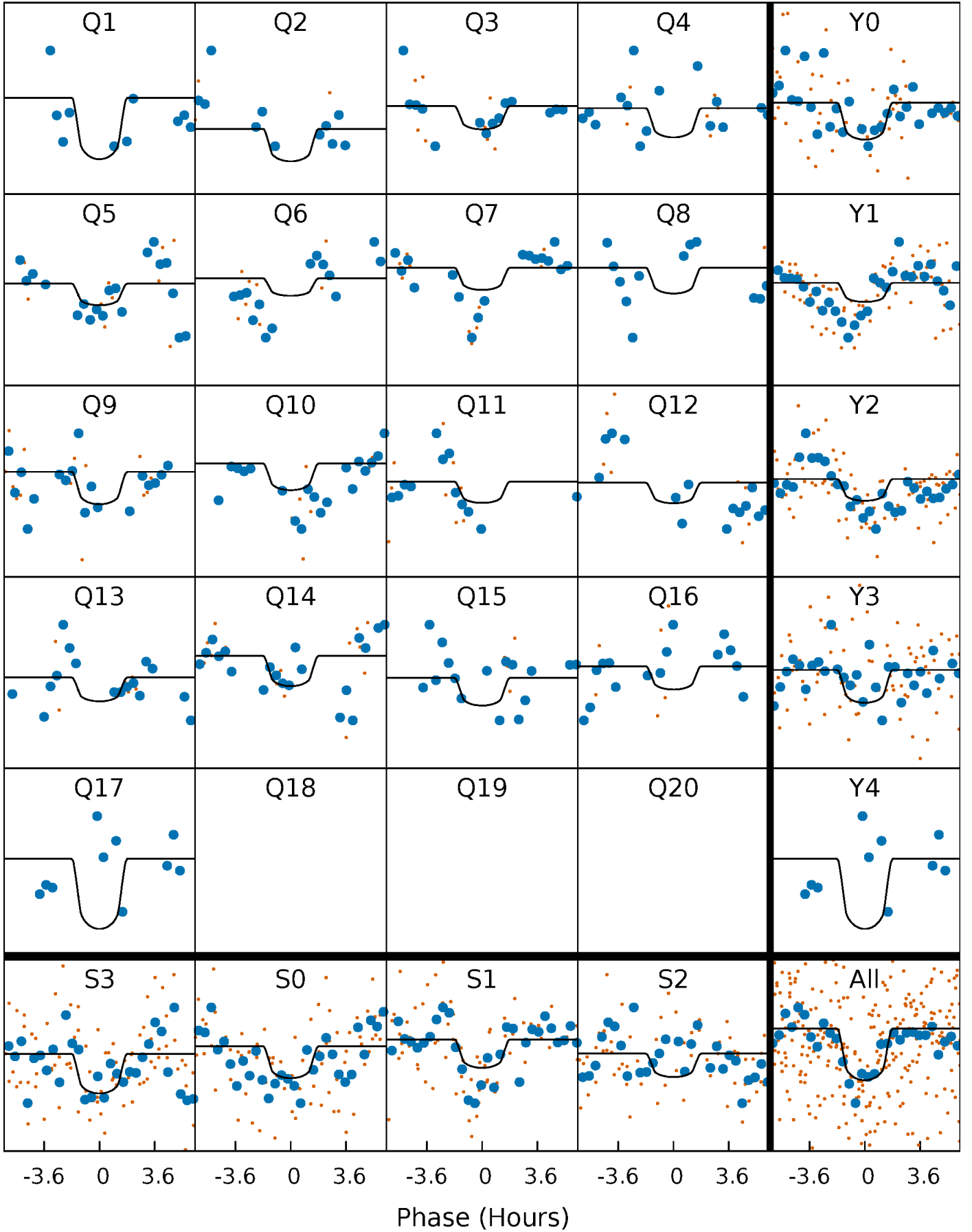
PDC Quarter-Phased Transit Curves

TCE 007031942-03 P= 12.080117 Days $T_0=138.697085$ (BKJD)



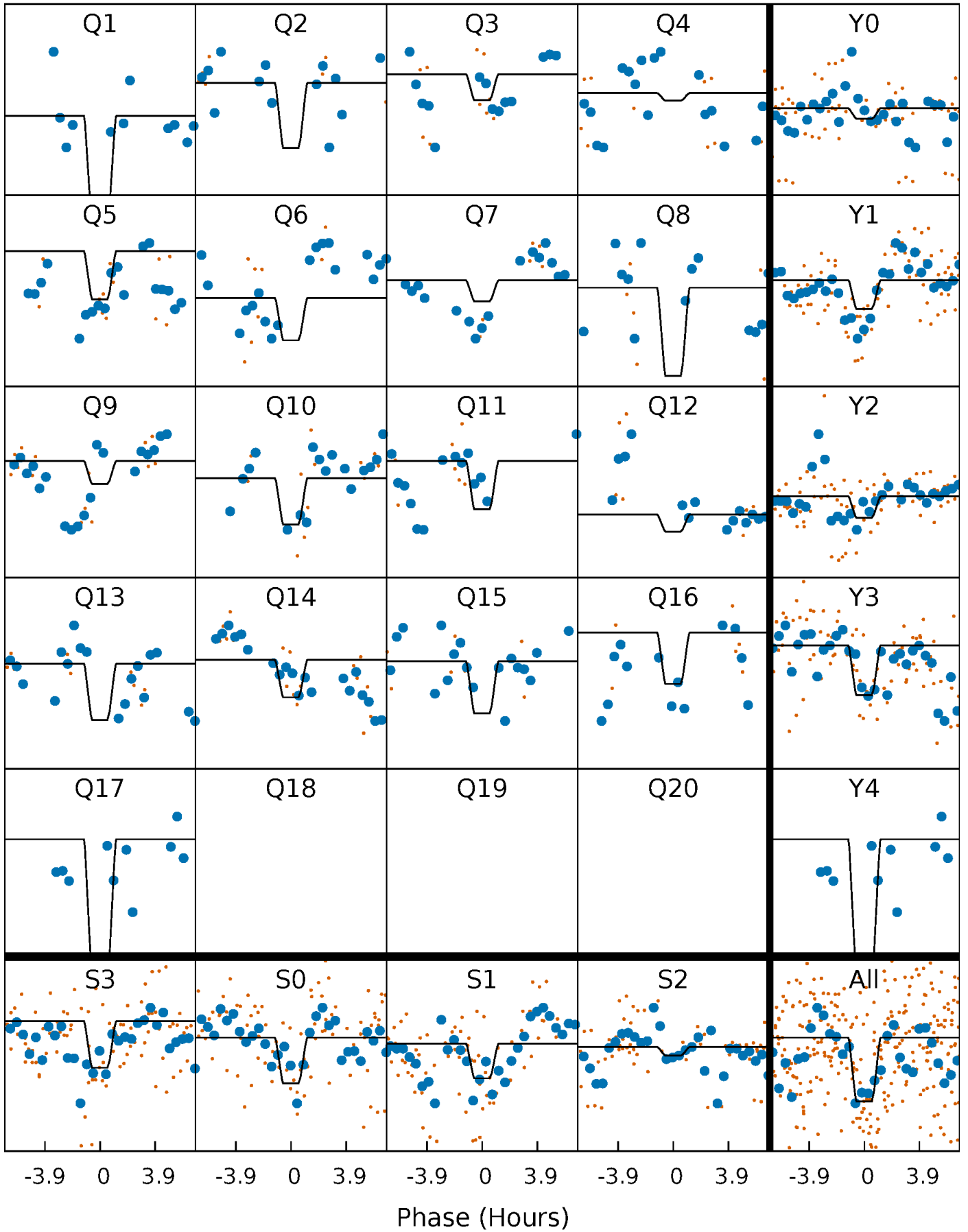
DV Quarter-Phased Transit Curves

TCE 007031942-03 P= 12.080117 Days $T_0=138.697085$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

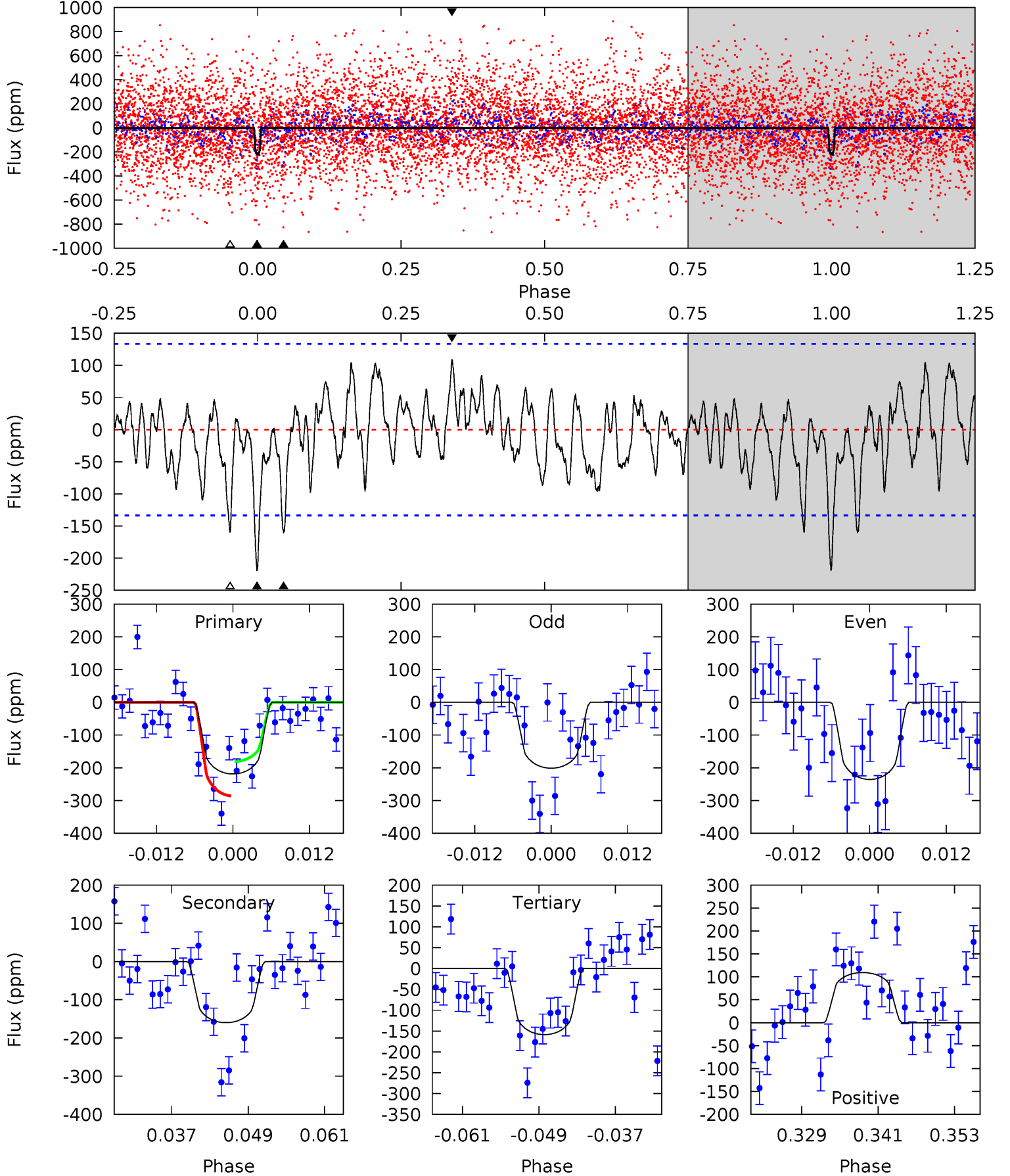
TCE 007031942-03 P= 12.079805 Days $T_0=138.702449$ (BKJD)



DV Model-Shift Uniqueness Test

007031942-03, P = 12.080117 Days, E = 126.616968 Days

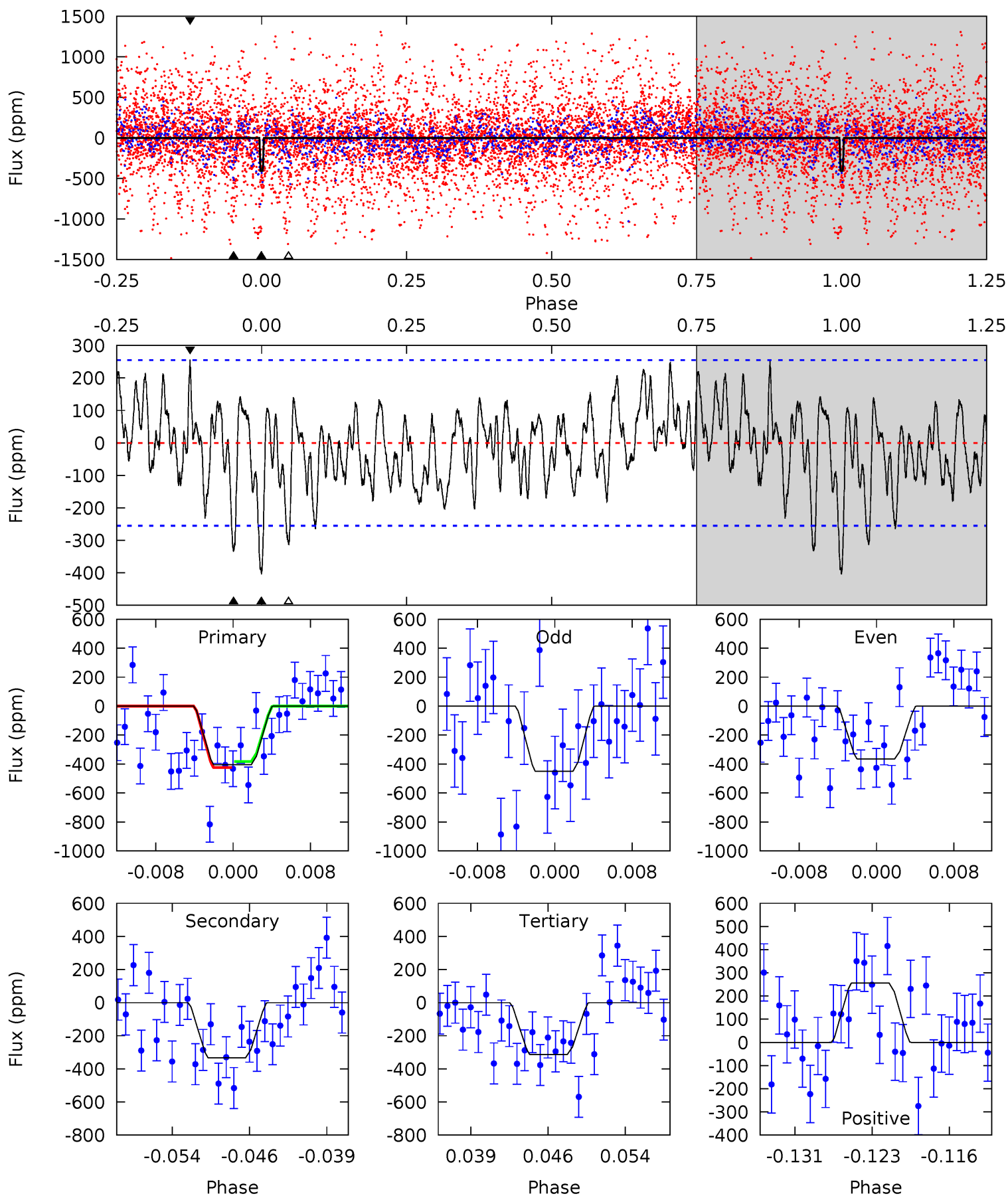
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.17	5.97	5.92	4.08	4.99	2.51	1.65	2.25	4.09	0.05	1.89	0.64	0.98	0.33	1.95



Alt Model-Shift Uniqueness Test

007031942-03, P = 12.079805 Days, E = 126.622644 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.05	6.63	6.24	5.10	5.08	2.66	1.98	1.82	2.95	0.39	1.52	0.85	0.91	0.39	0.42



Stellar Parameters For KIC 007031942

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5642^{+152}_{-152}	$4.337^{+0.185}_{-0.185}$	$-0.080^{+0.300}_{-0.300}$	$1.056^{+0.300}_{-0.200}$	$0.886^{+0.125}_{-0.073}$	$1.058^{+0.832}_{-0.537}$
	+3%/-3%	+4%/-4%	+375%/-375%	+28%/-19%	+14%/-8%	+79%/-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 007031942-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-160 ± 27	$2.30^{+1.67}_{-1.52}$	1134^{+87}_{-72}	4642^{+3199}_{-844}	171^{+1134}_{-115}
Alt.	-333 ± 50	$2.59^{+1.79}_{-1.48}$	1136^{+91}_{-73}	5158^{+2849}_{-991}	271^{+1082}_{-180}

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 $A_{obs} \gg 1.0$

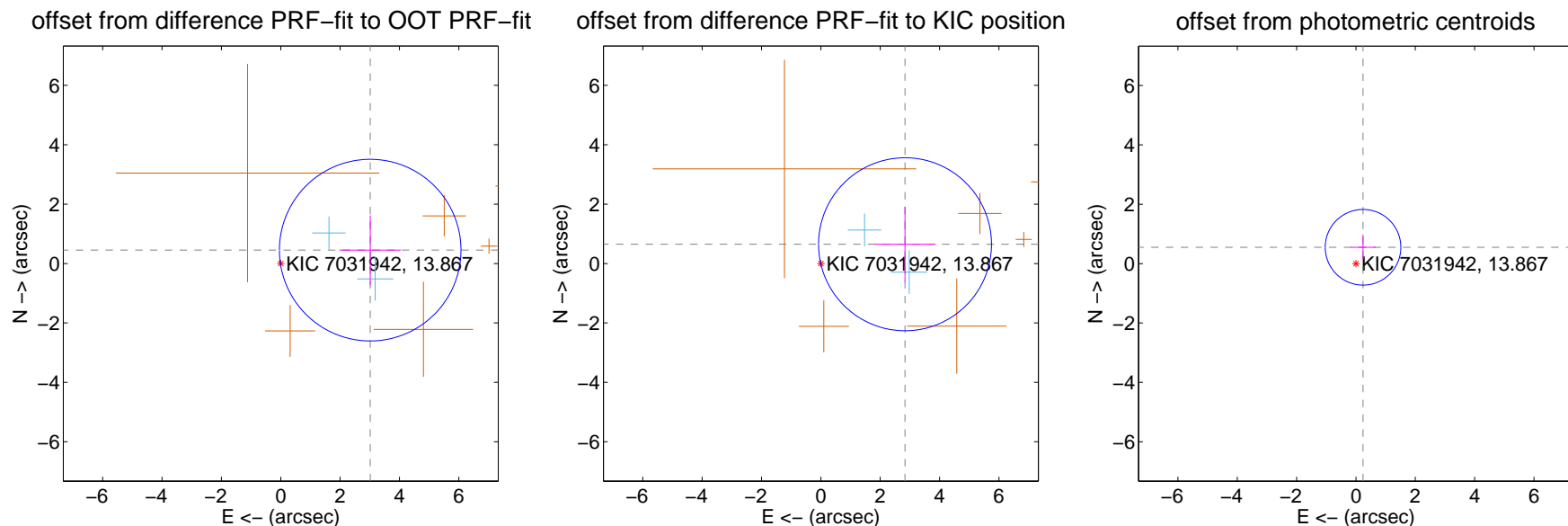
DV Centroid Data

Supplemental centroid analysis for 007031942-03. Kepler magnitude: 13.87. Transit SNR 8.11

There are 2 quarters with good PRF difference image offsets

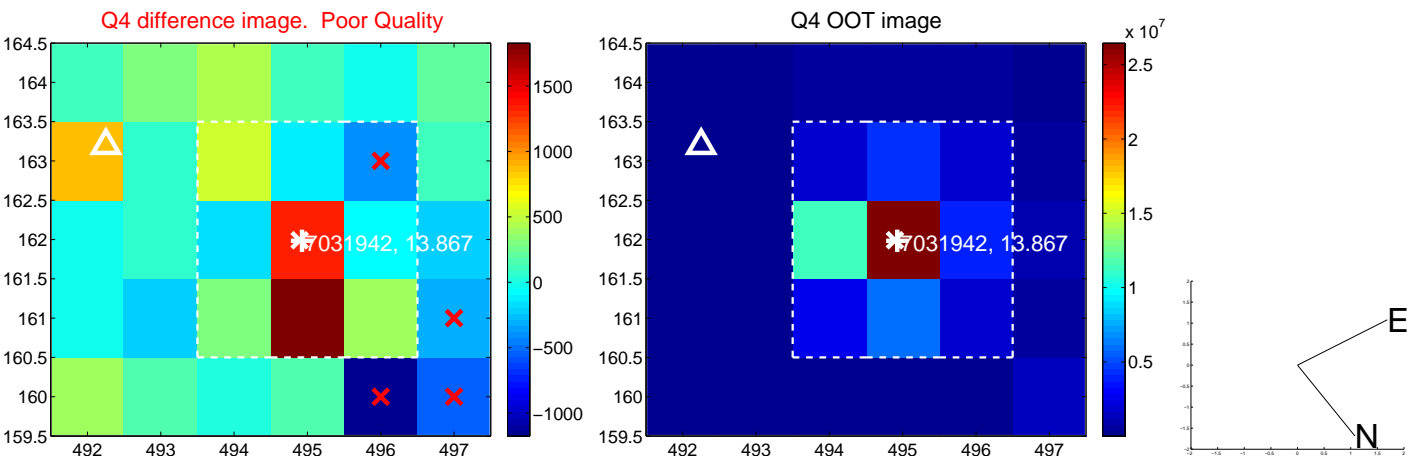
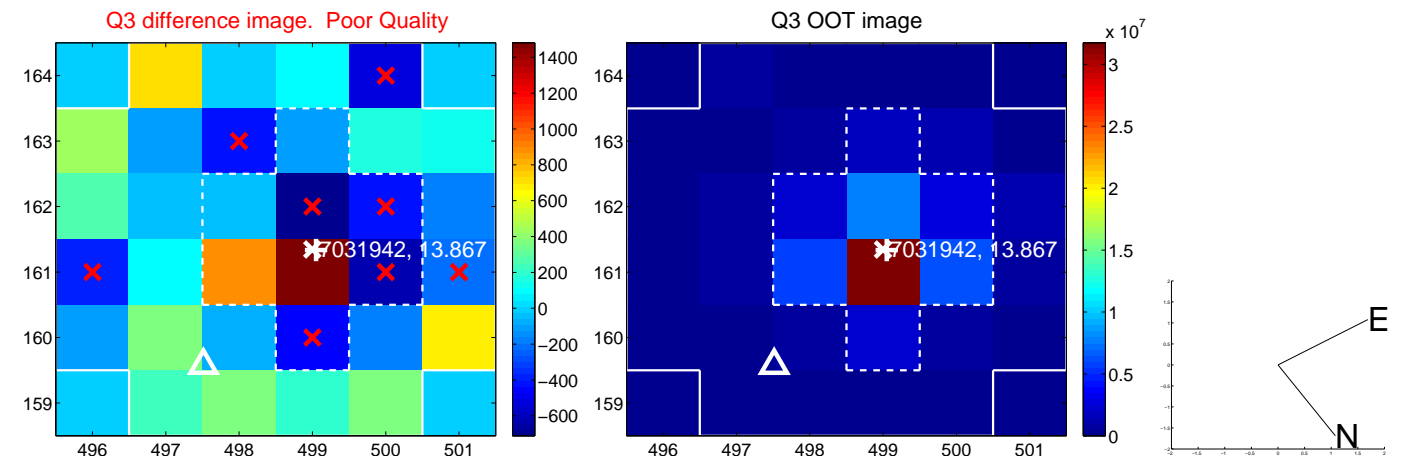
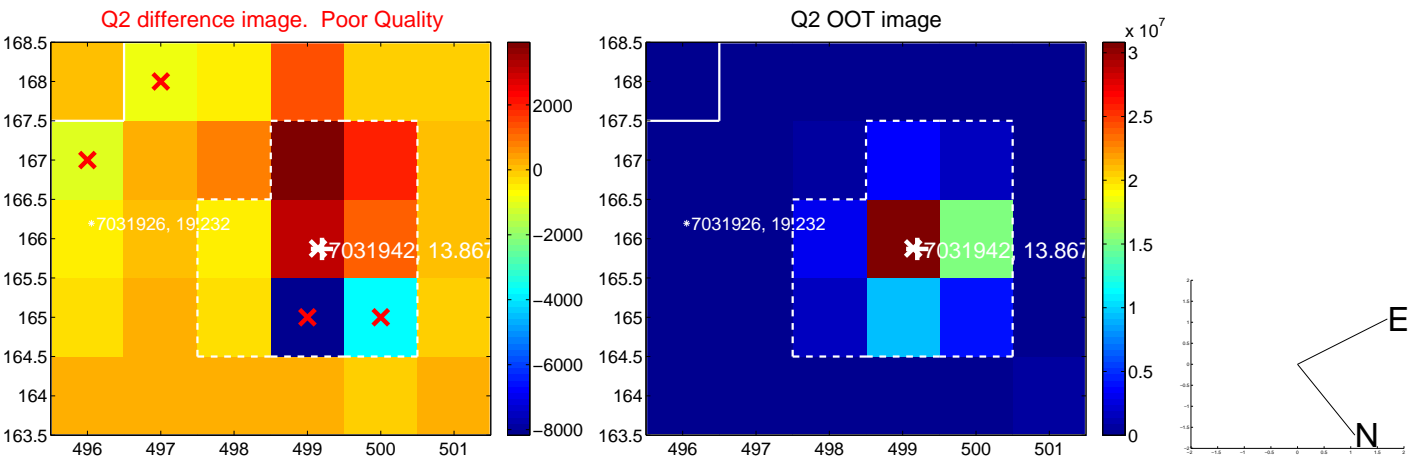
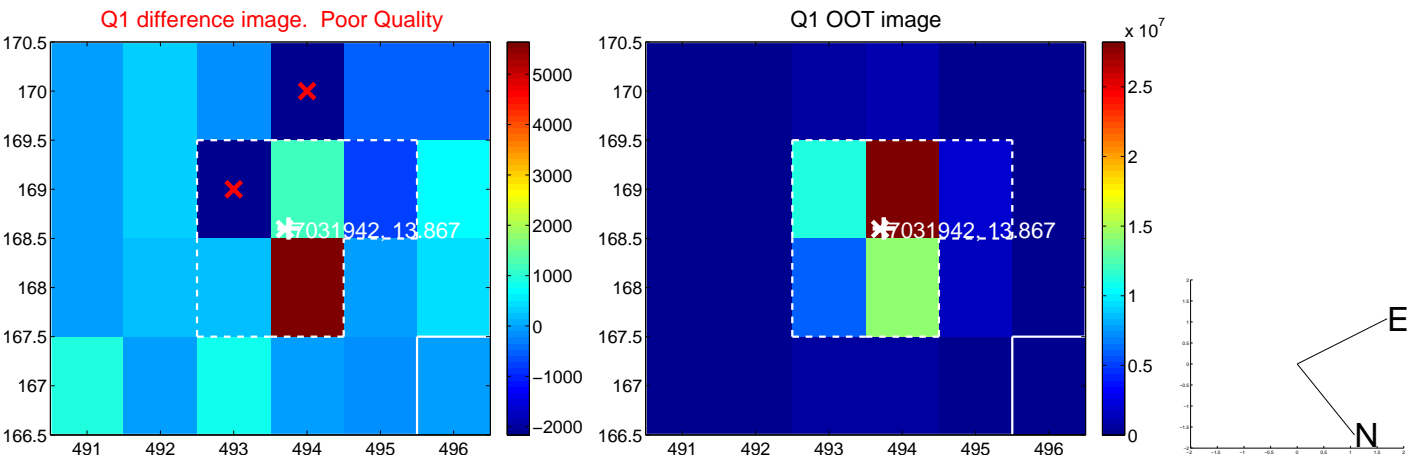
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.047 ± 1.020	2.99	-3.013 ± 1.032	0.451 ± 1.167
PRF-fit source offset from KIC position	2.909 ± 0.971	3.00	-2.835 ± 1.033	0.649 ± 1.263
photometric centroid source offset	0.60 ± 0.42	1.41	-0.24 ± 0.42	0.55 ± 0.43

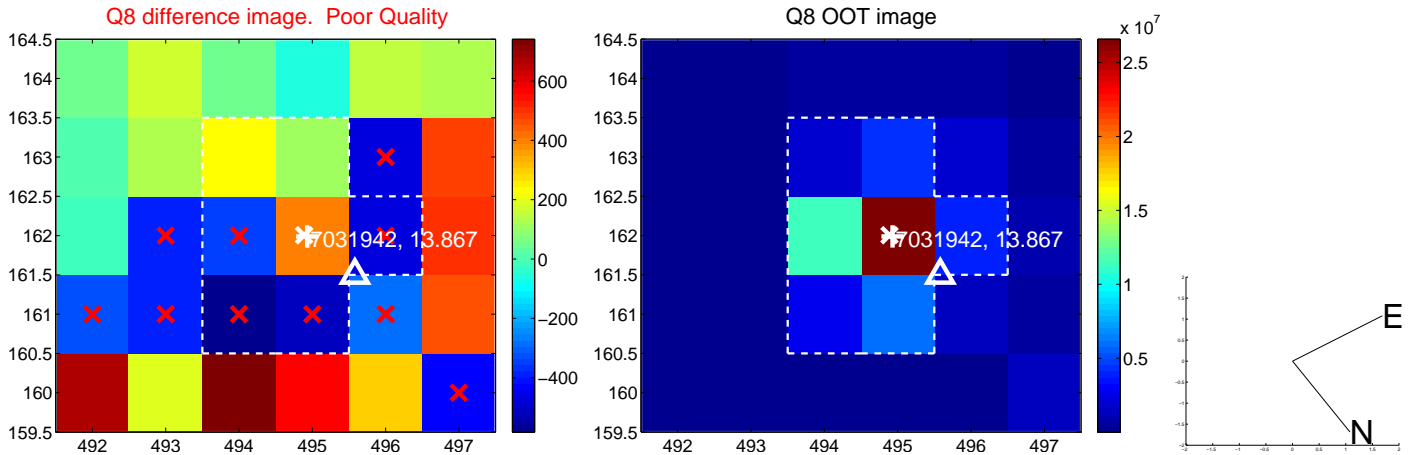
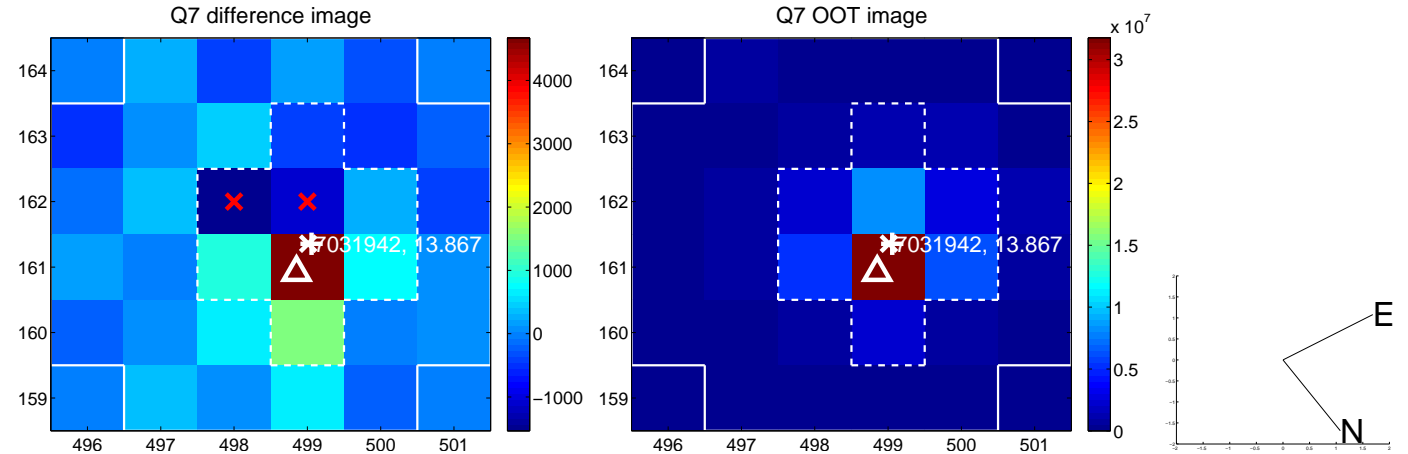
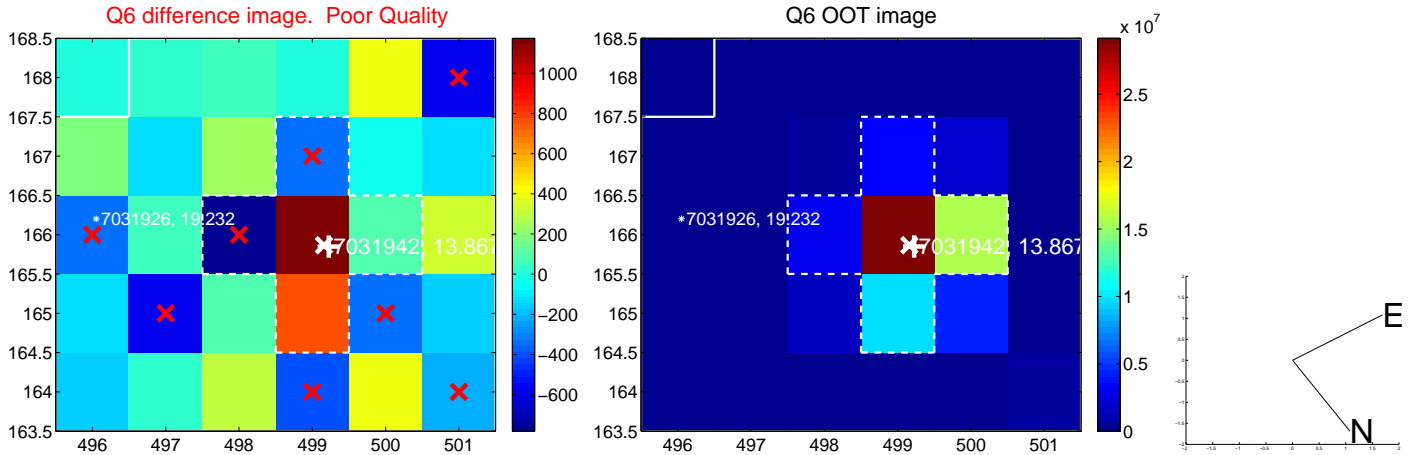
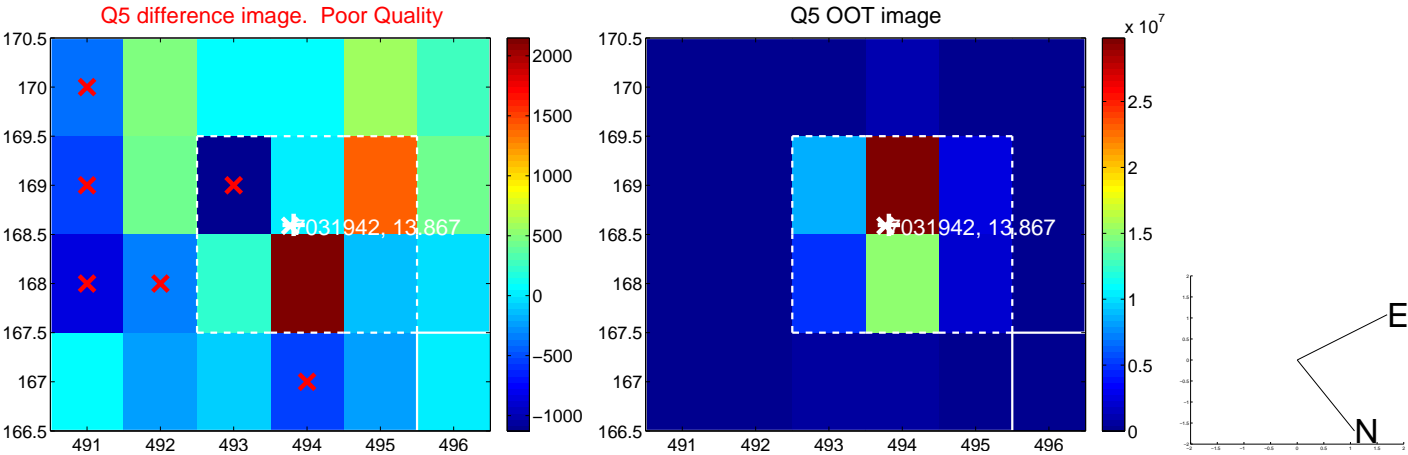


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

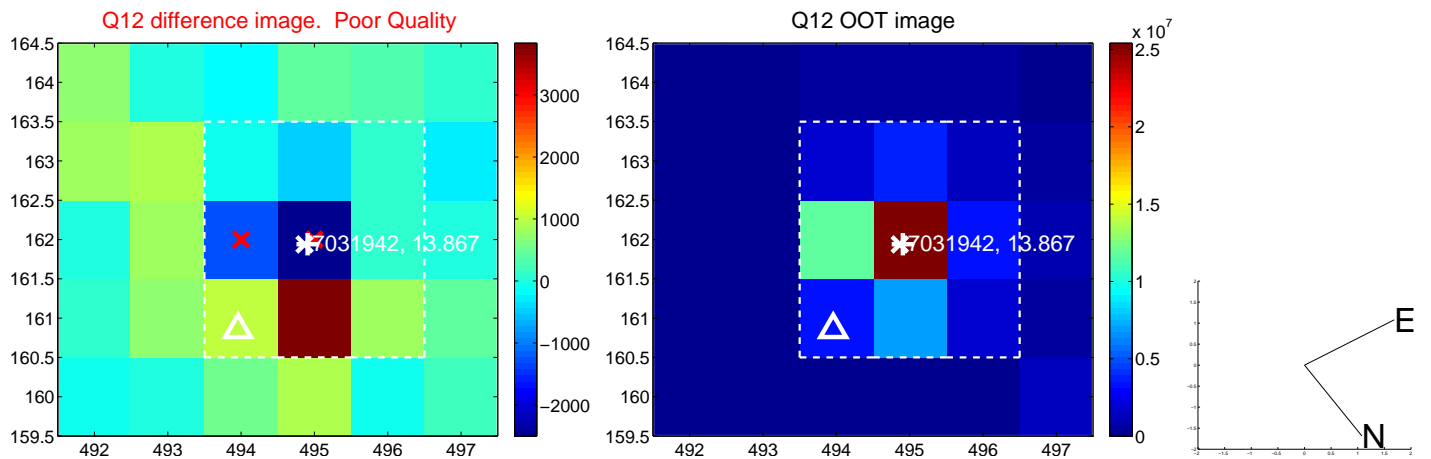
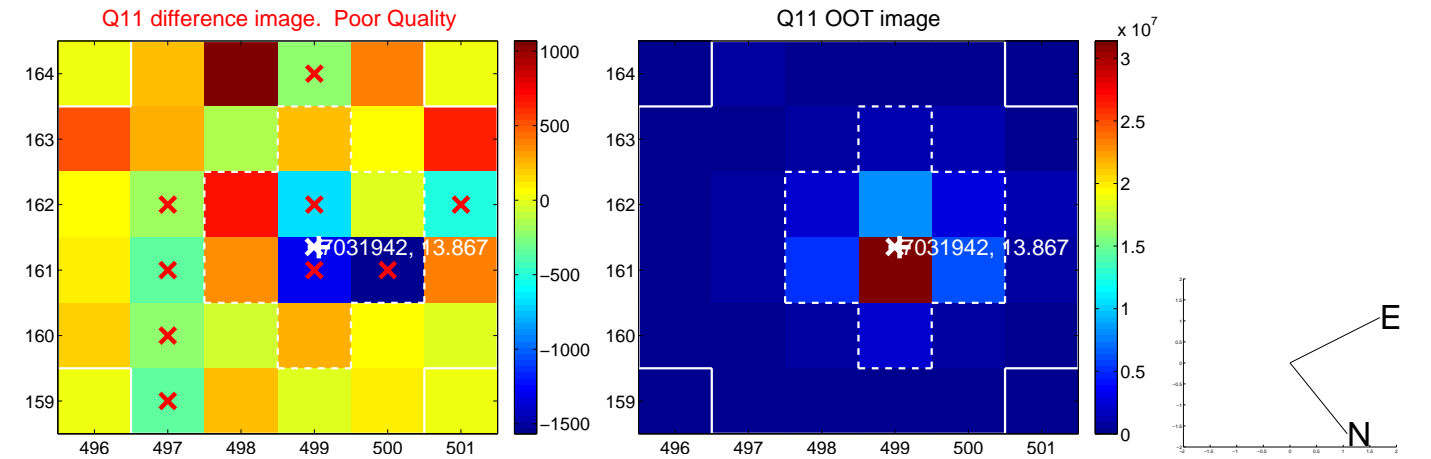
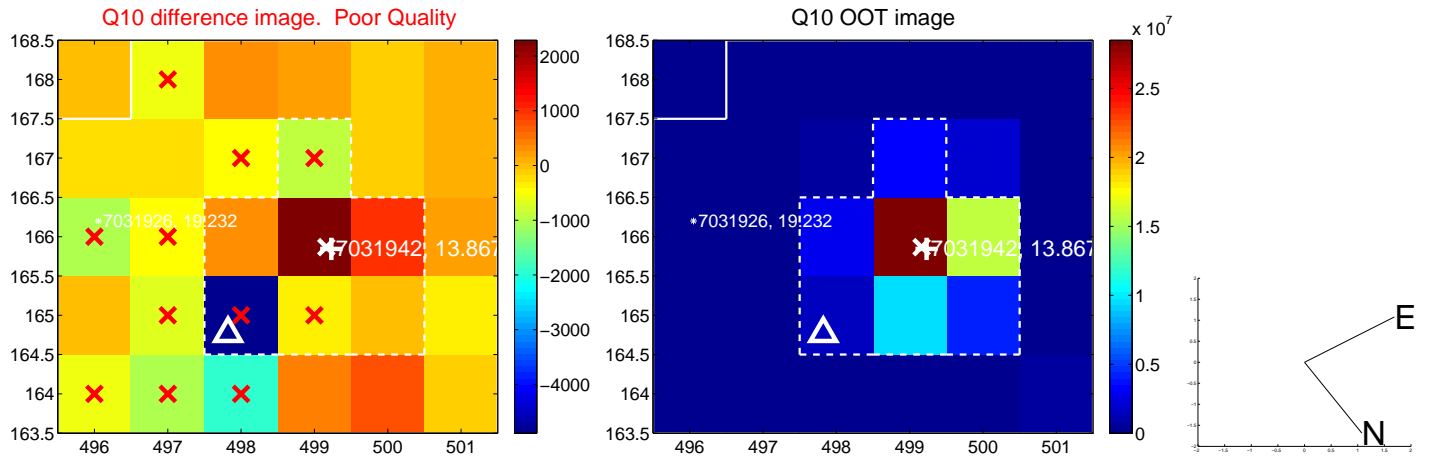
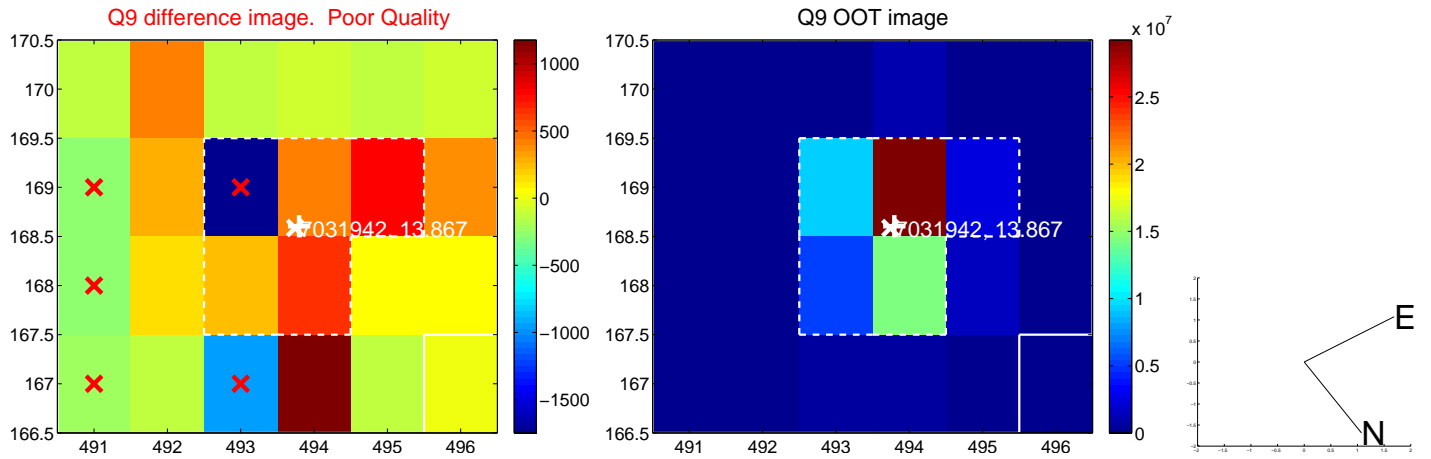
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



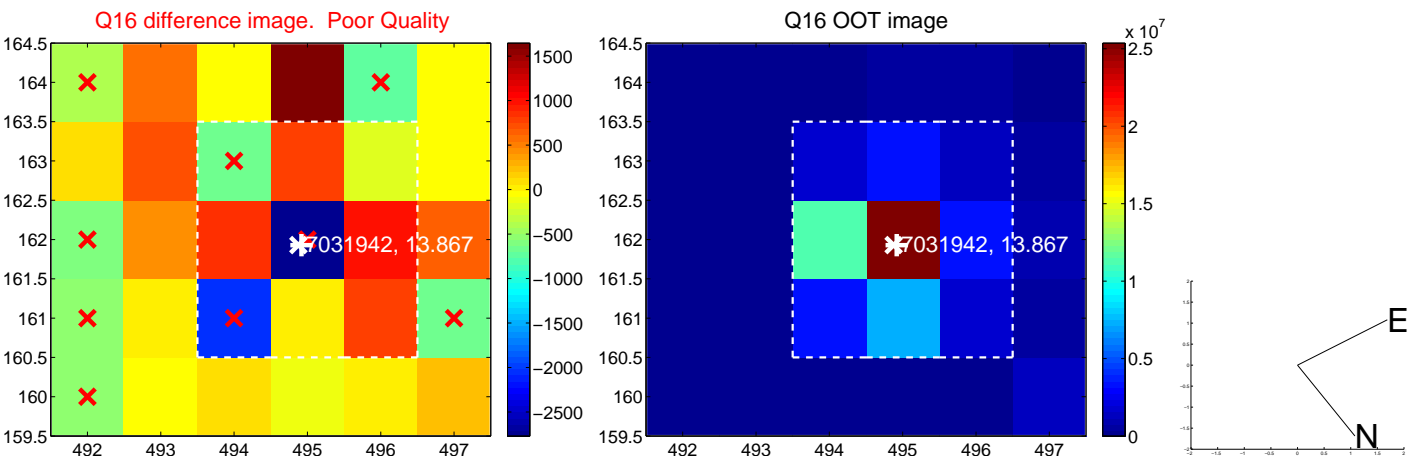
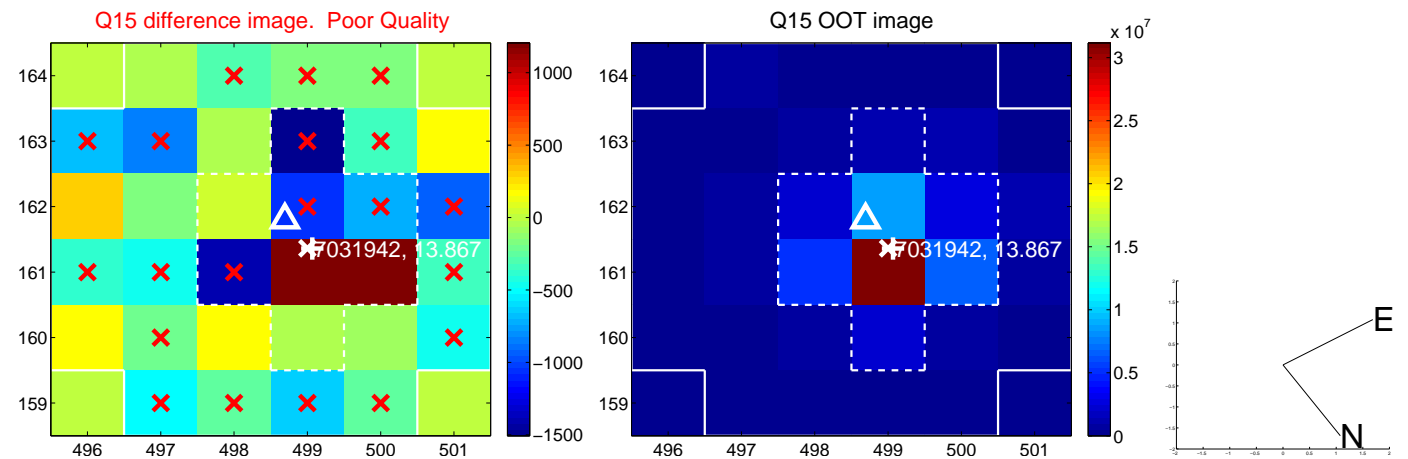
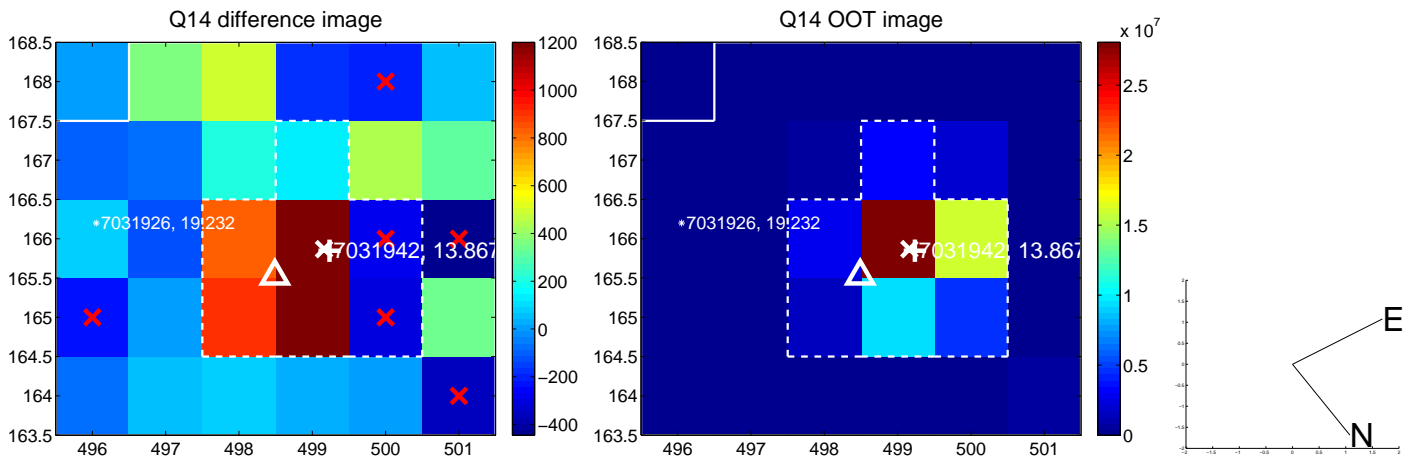
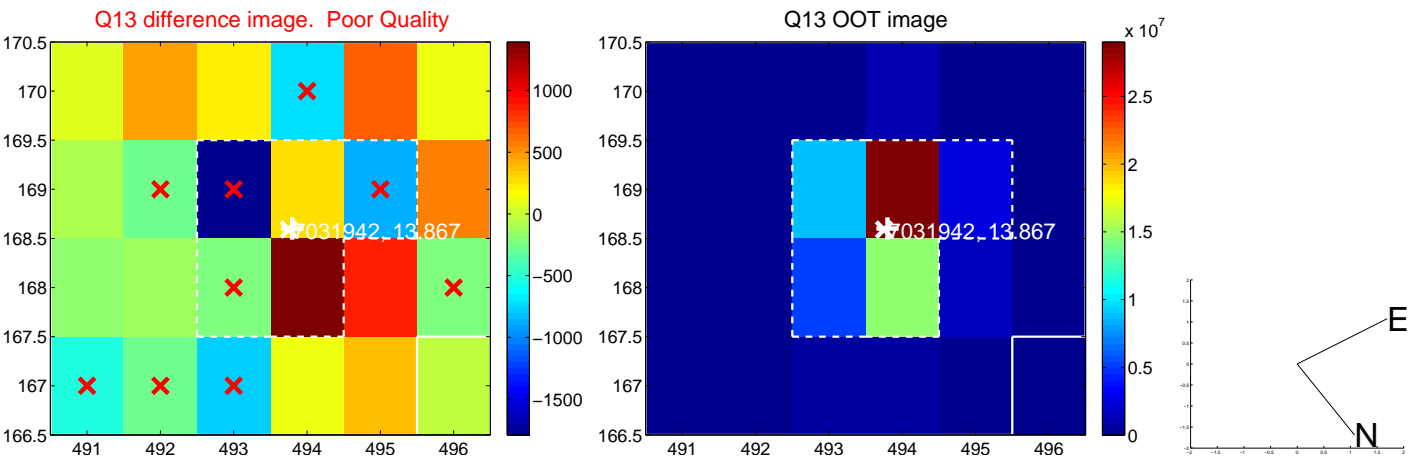
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



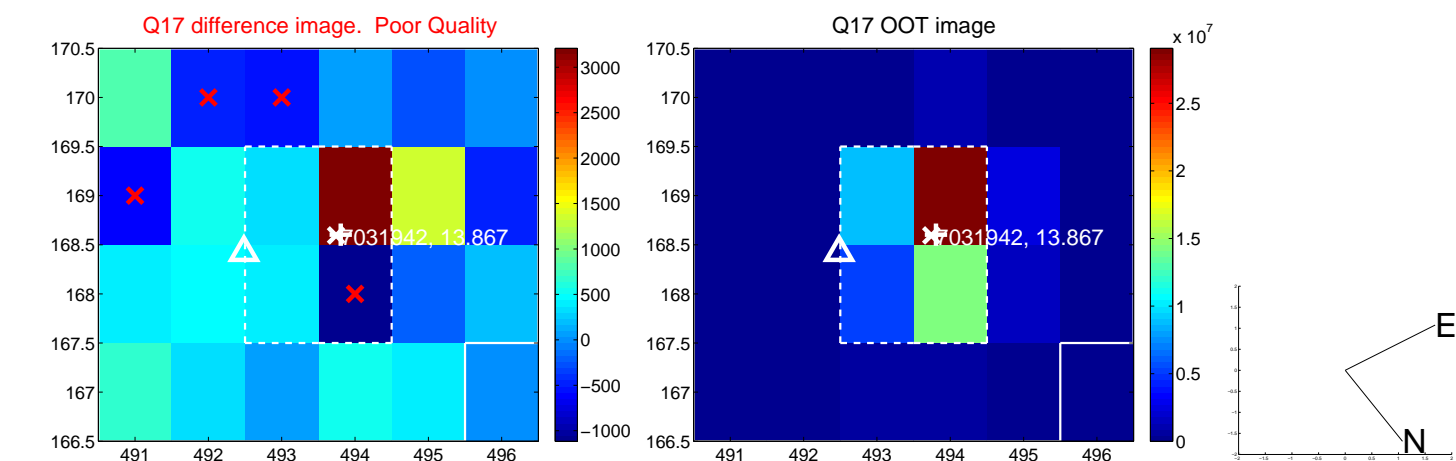
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



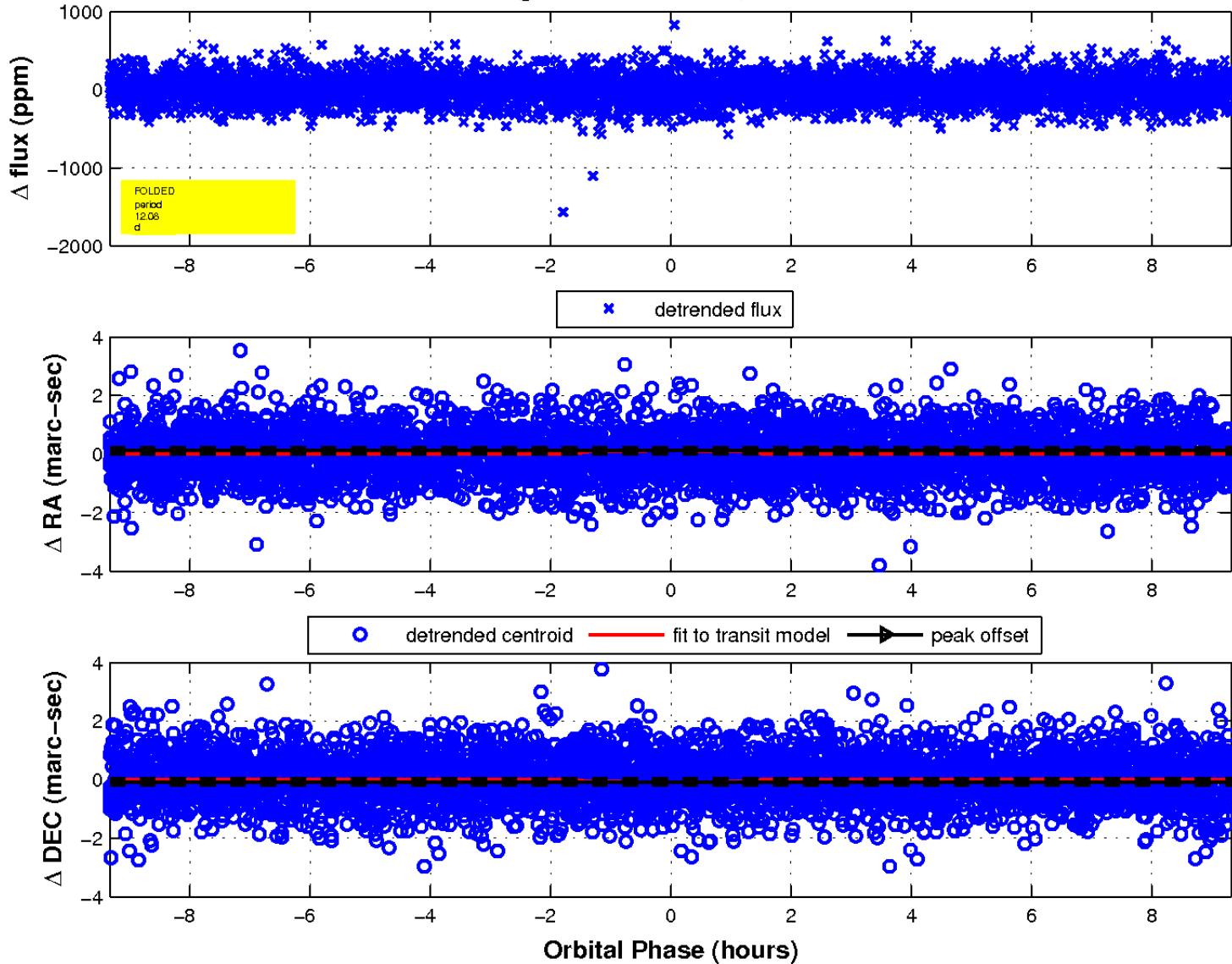
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination

