

KIC 012120307

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})
012120307-01	OBS	2597.01	8.005056	138.712161	186.8	3.538	13.9	14.6	1.10	6398	1.72	271.92
012120307-02	OBS	2597.03	5.613579	131.816484	165.6	3.007	12.6	14.2	1.10	6398	1.65	436.46
012120307-03	OBS	2597.02	12.130649	139.901910	204.5	3.957	11.7	12.7	1.10	6398	1.80	156.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012120307-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012120307-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012120307-03	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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.

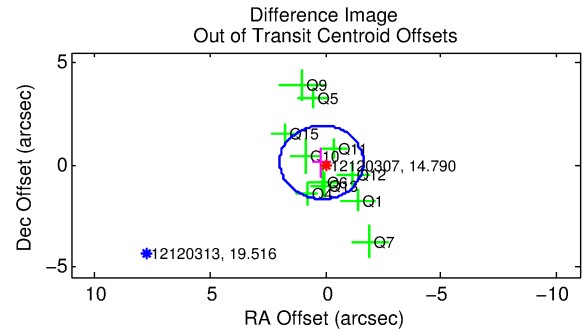
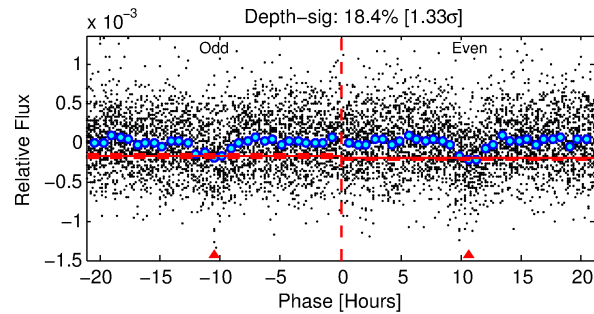
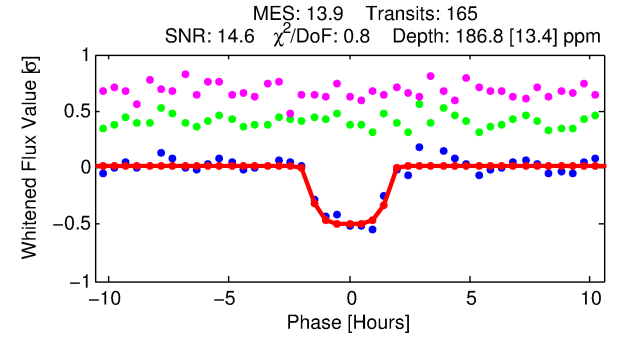
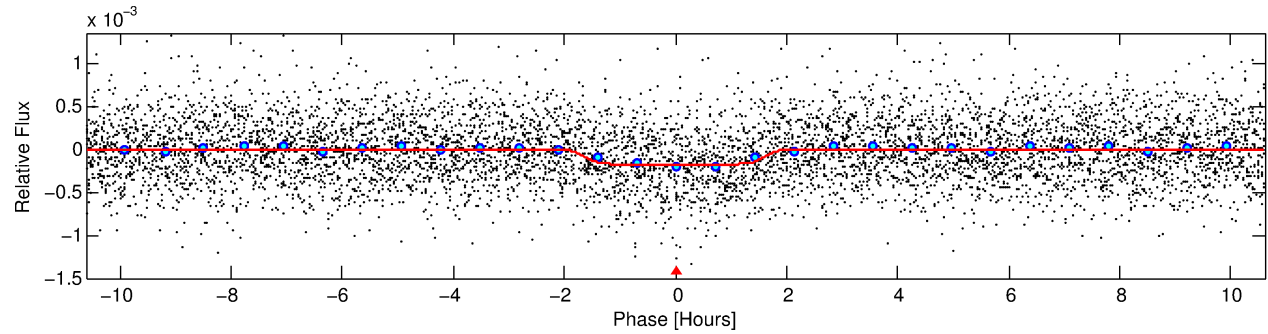
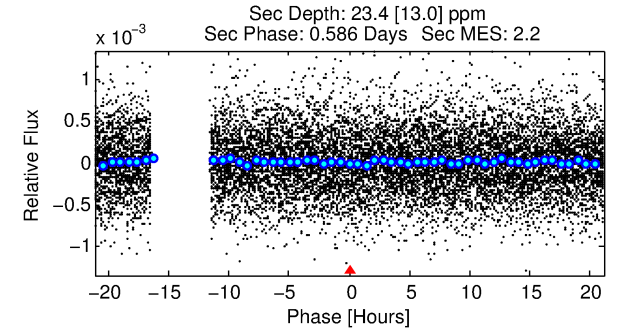
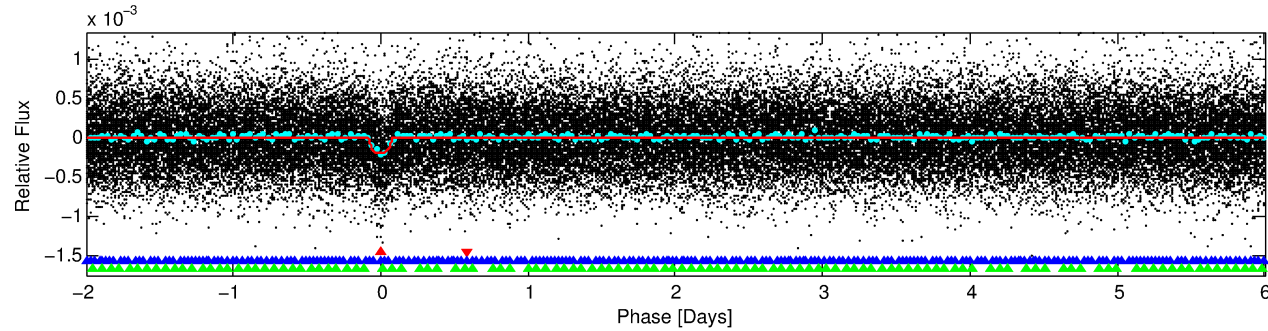
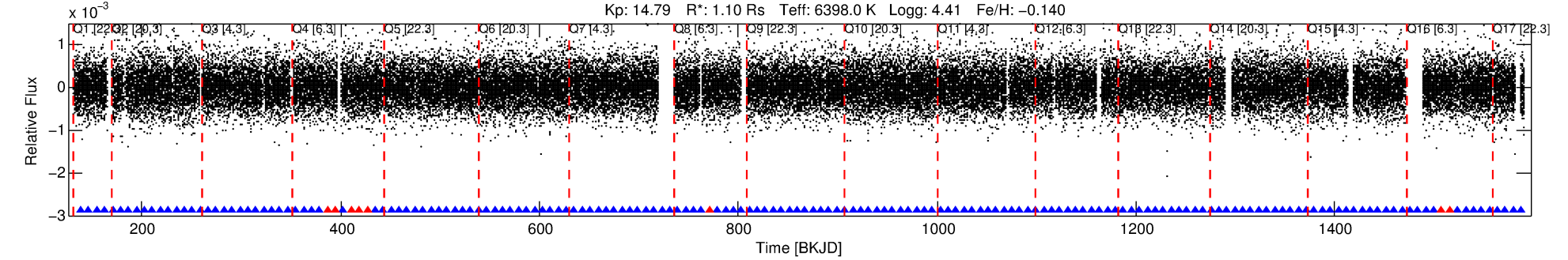
Ephemeris Match Information For 012120307-01

No Significant Match Found

DV One-Page Summary

KIC: 12120307 Candidate: 1 of 3 Period: 8.005 d
KOI: K02597.01 Name: Kepler-394b Corr: 0.970

Kp: 14.79 R*: 1.10 Rs Teff: 6398.0 K Logg: 4.41 Fe/H: -0.140



DV Fit Results:

Period = 8.00506 [0.00005] d
Epoch = 138.7122 [0.0048] BKJD
Rp/R* = 0.0143 [0.0054]
a/R* = 9.16 [18.74]
b = 0.87 [0.60]
Seff = 271.92 [113.34]
Teff = 1035 [108] K
Rp = 1.72 [0.87] Re
a = 0.0818 [0.0226] AU
Ag = 29.18 [29.60] [0.95σ]
Teffp = 3721 [880] K [3.03σ]

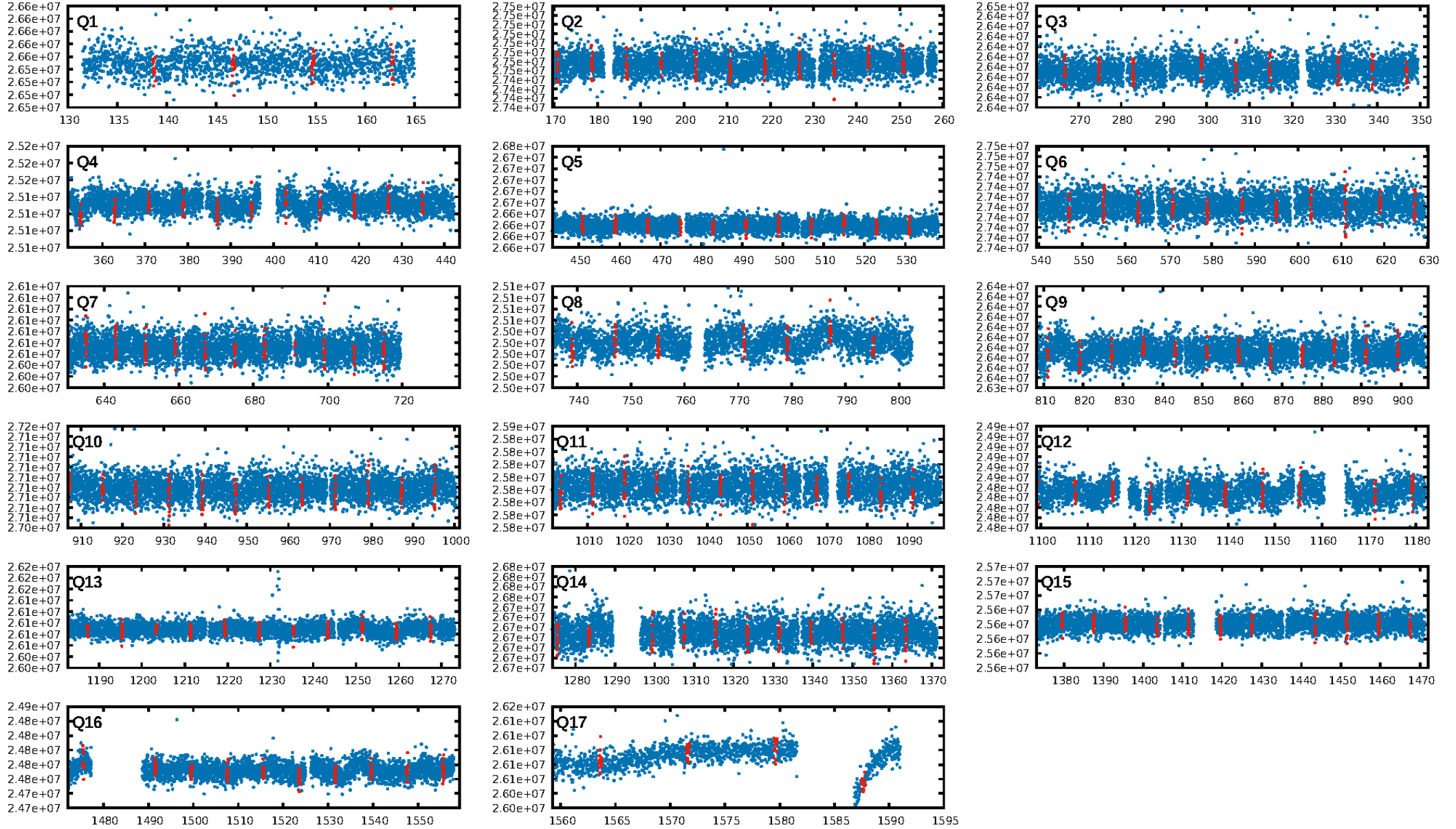
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.36σ]
LongPeriod-sig: 100.0% [18.65σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.27e-45
RollingBand-fgt: 0.95 [149/157]
GhostDiagnostic-chr: 1.63
Centroid-sig: 70.8%
Centroid-so: 1.271 arcsec [1.27σ]
OotOffset-rm: 0.204 arcsec [0.34σ]
KicOffset-rm: 0.201 arcsec [0.31σ]
OotOffset-st: 2/3/2/4 [11]
KicOffset-st: 2/3/2/4 [11]
DiffImageQuality-fgm: 0.91 [10/11]
DiffImageOverlap-fno: 1.00 [17/17]

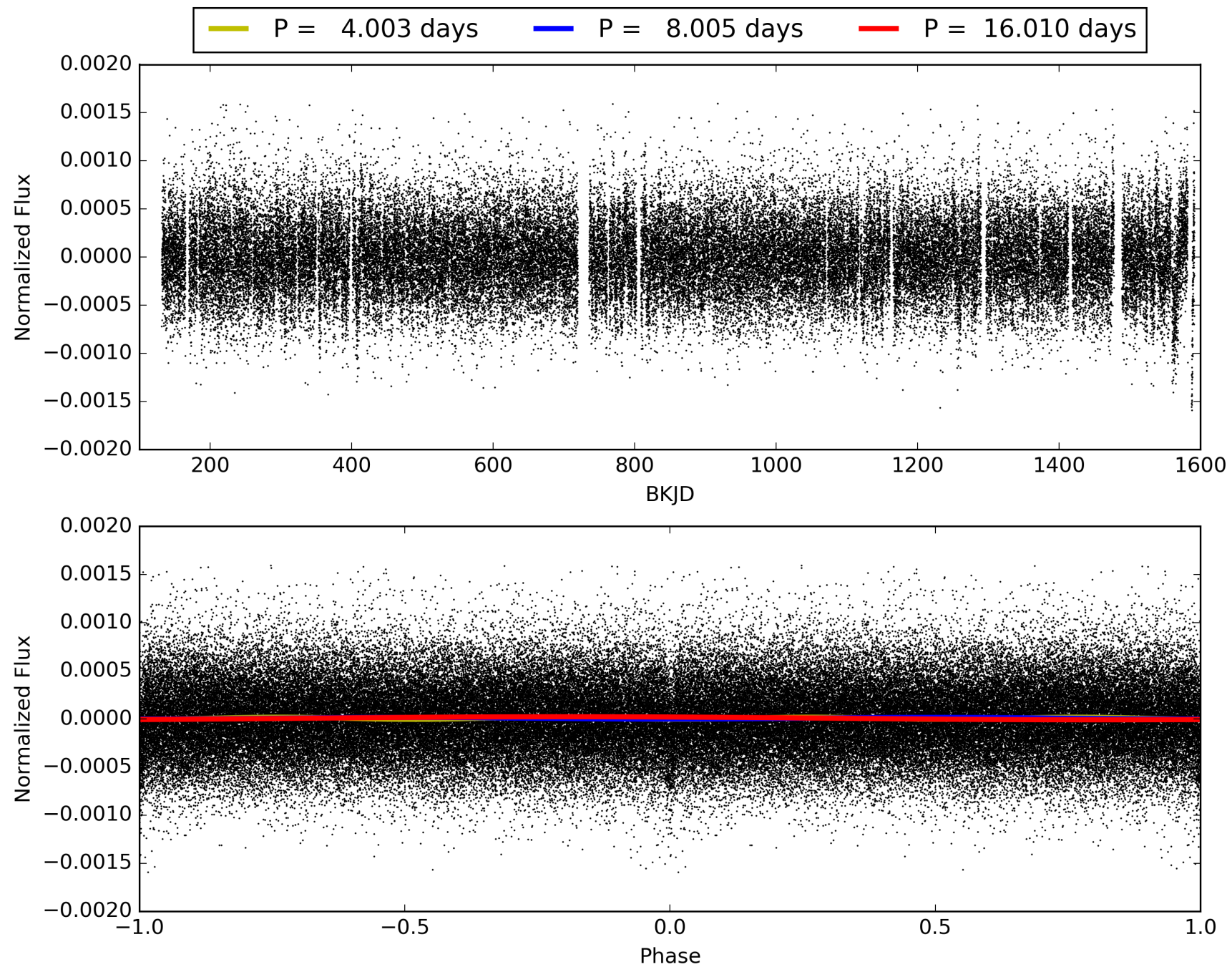
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:13:02 Z

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

TCE 012120307-01, PDC Light Curves

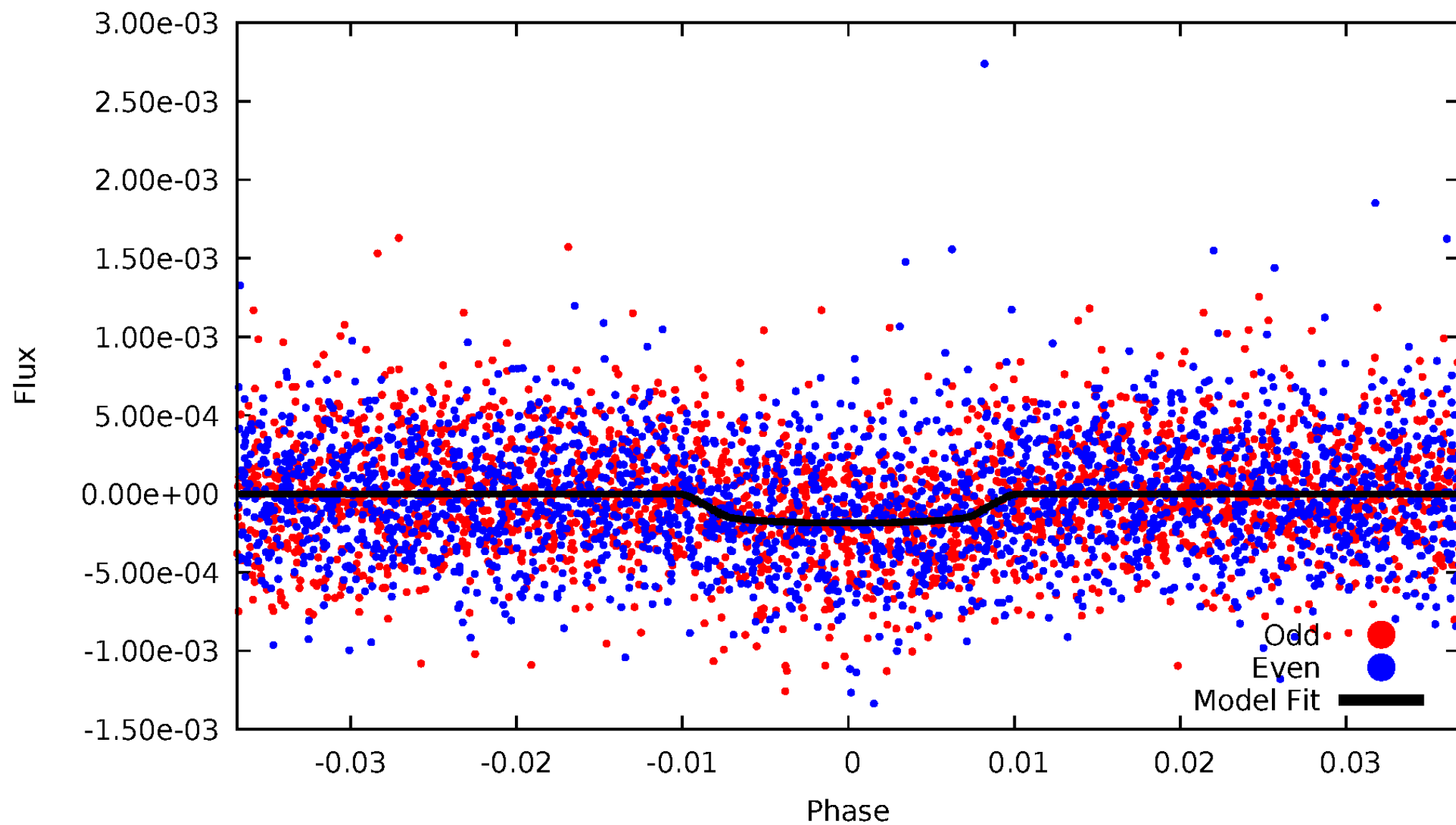


TCE 012120307-01



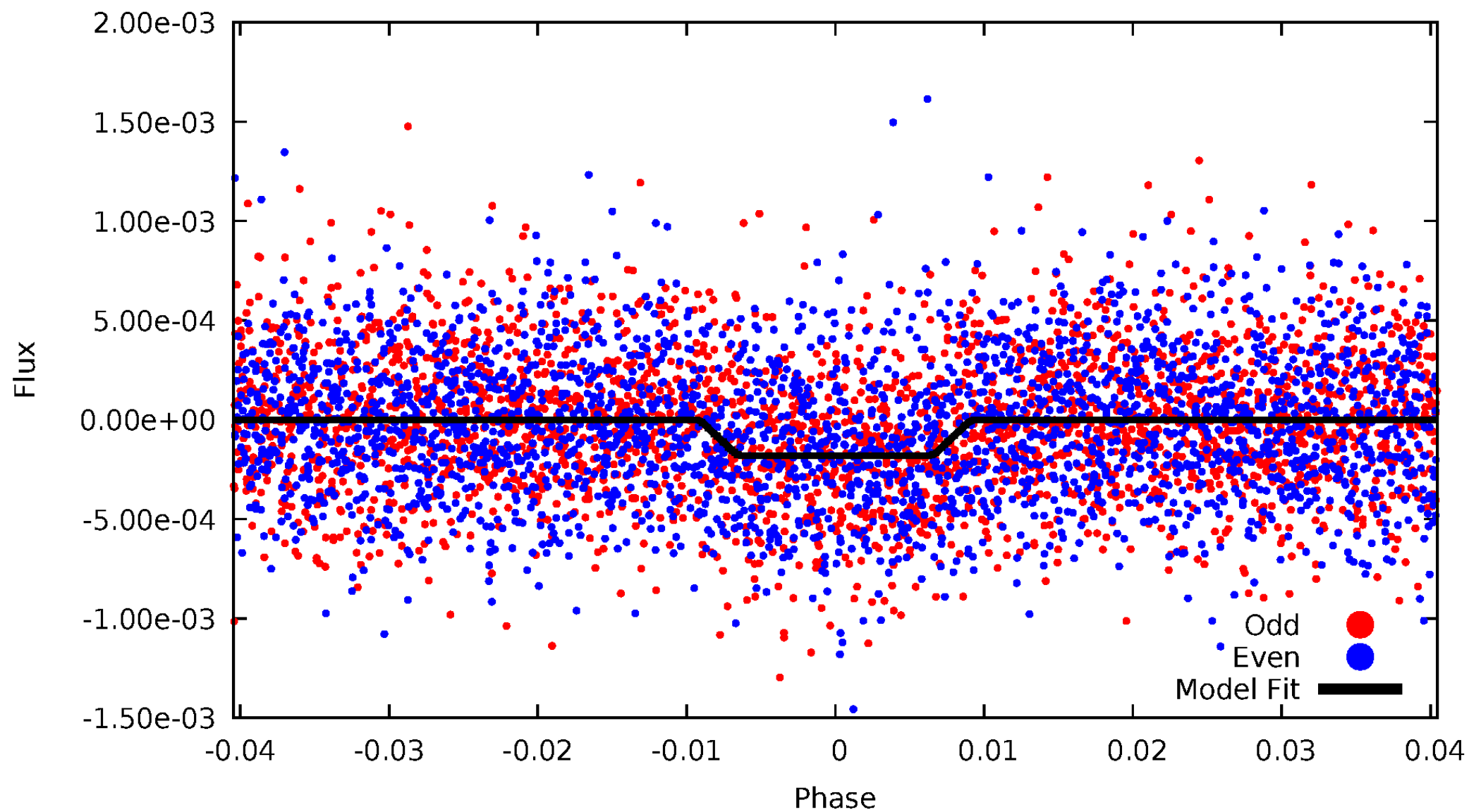
DV Odd/Even

TCE 012120307-01



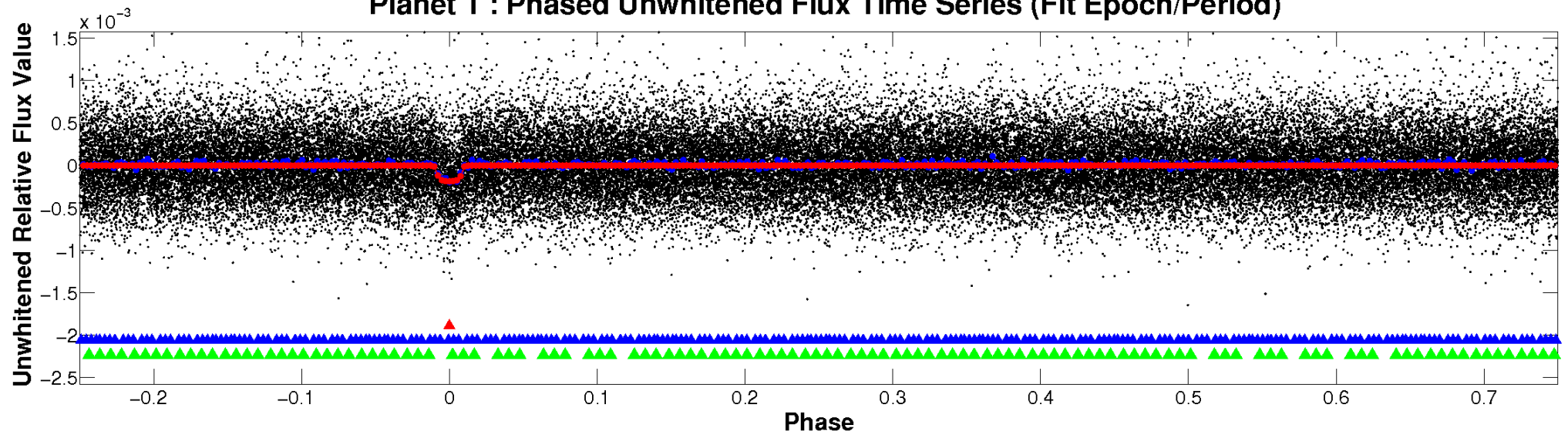
ALT Odd/Even

TCE 012120307-01

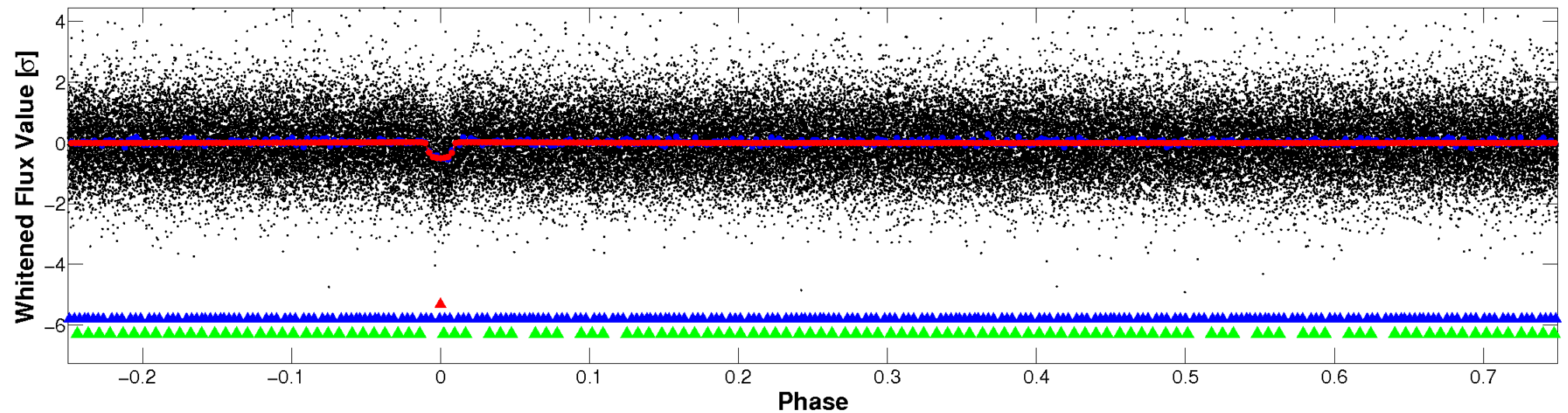


Non-Whitened Vs. Whitened Light Curve

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

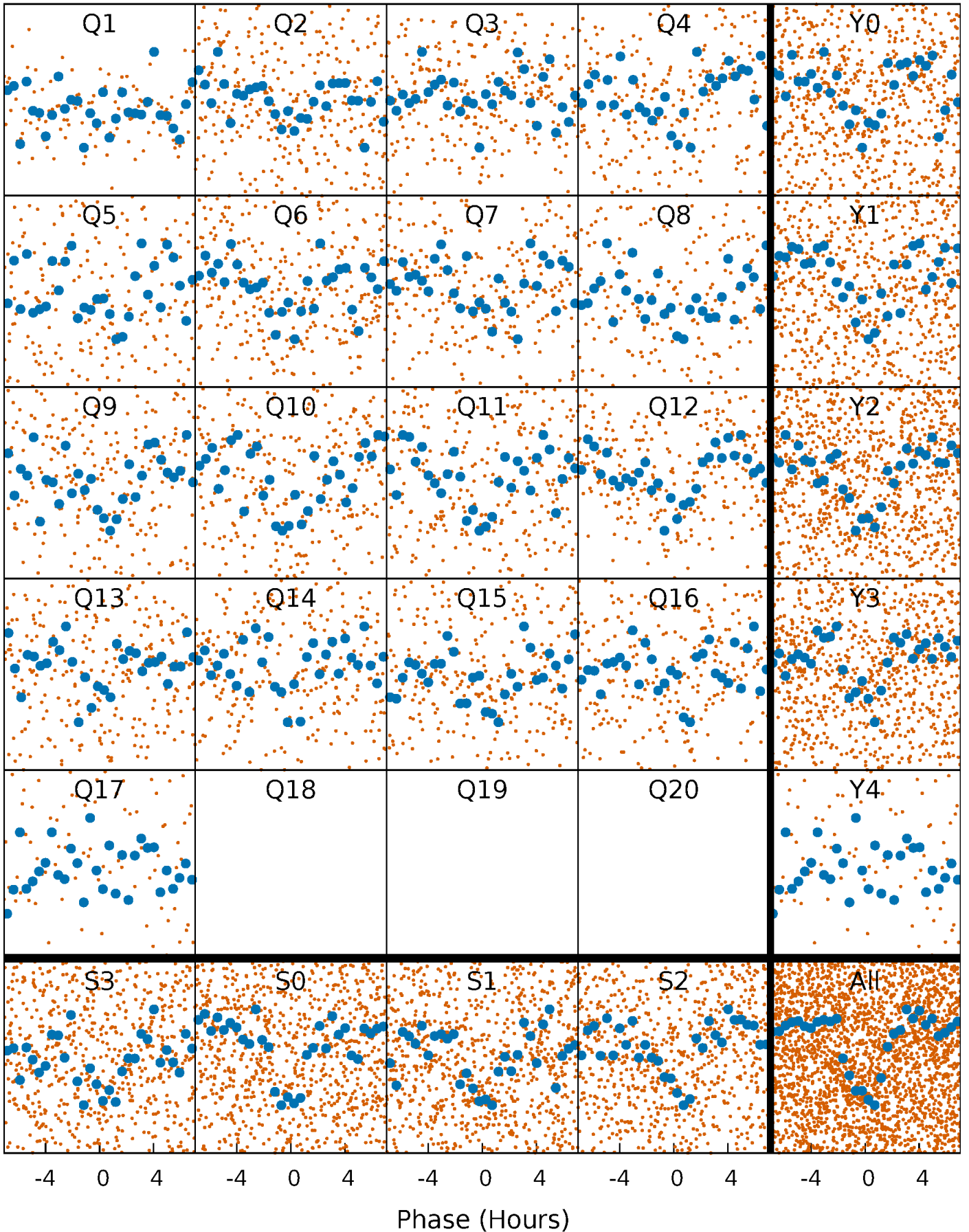


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



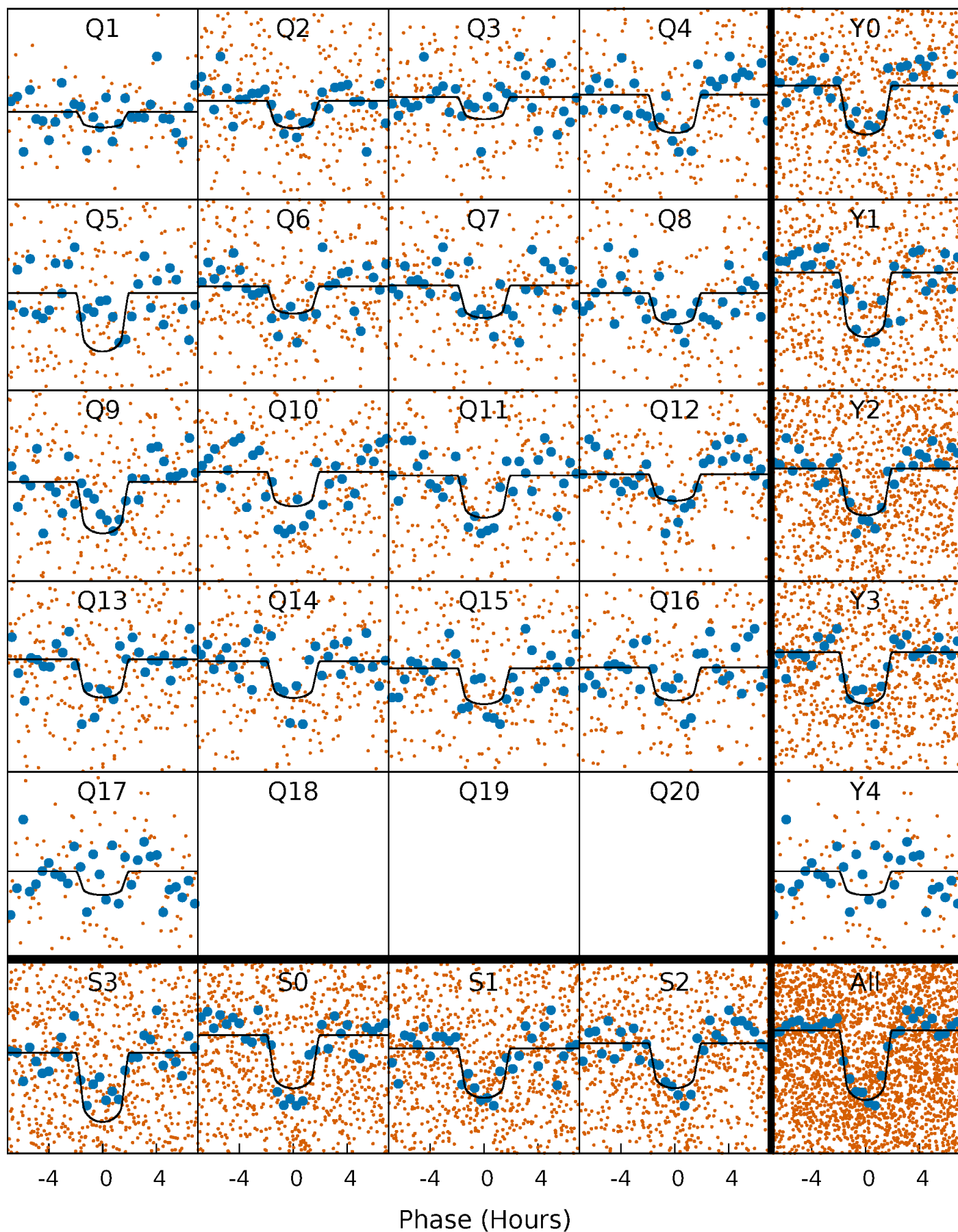
PDC Quarter-Phased Transit Curves

TCE 012120307-01 P= 8.005056 Days $T_0=138.712161$ (BKJD)



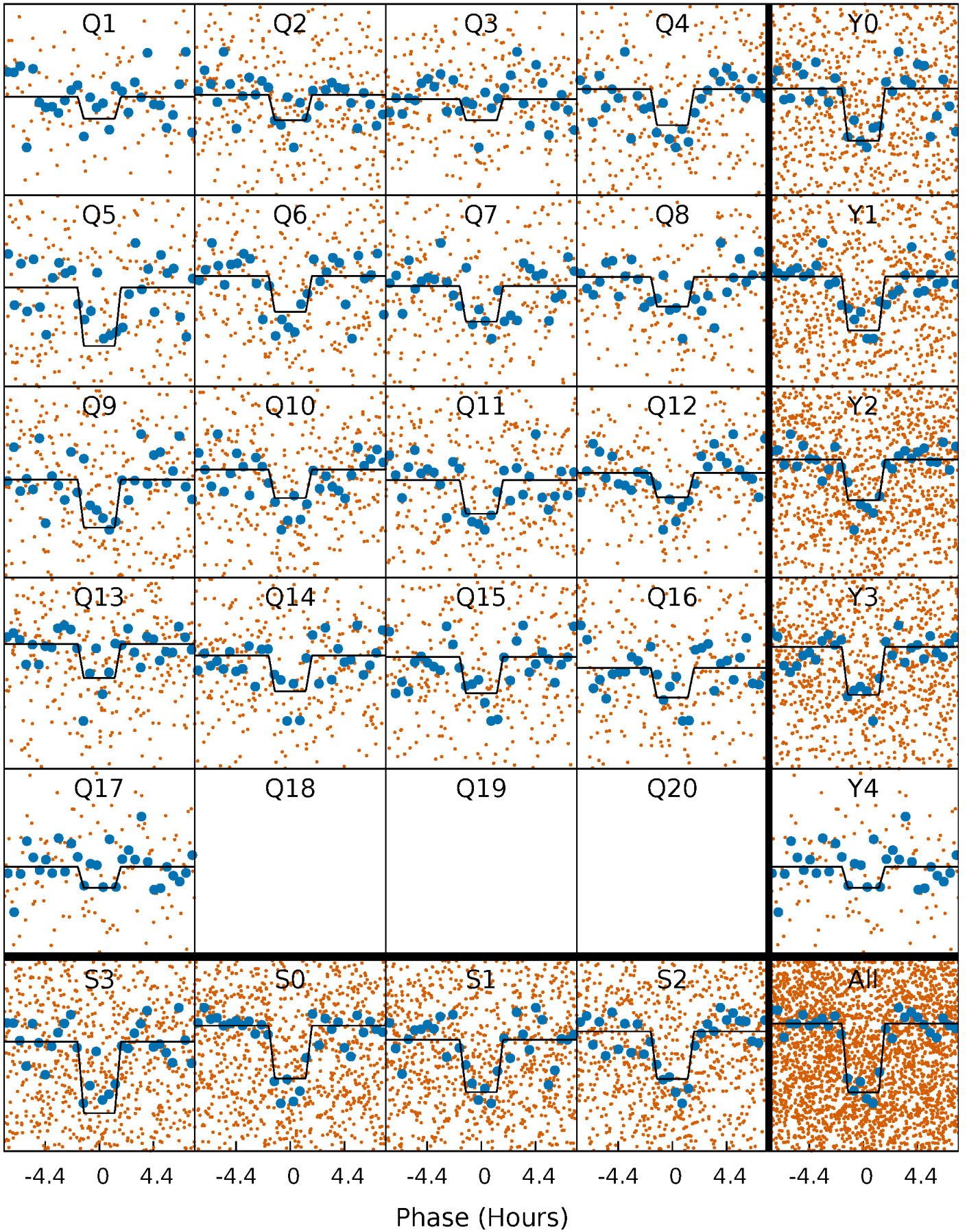
DV Quarter-Phased Transit Curves

TCE 012120307-01 P= 8.005056 Days $T_0=138.712161$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

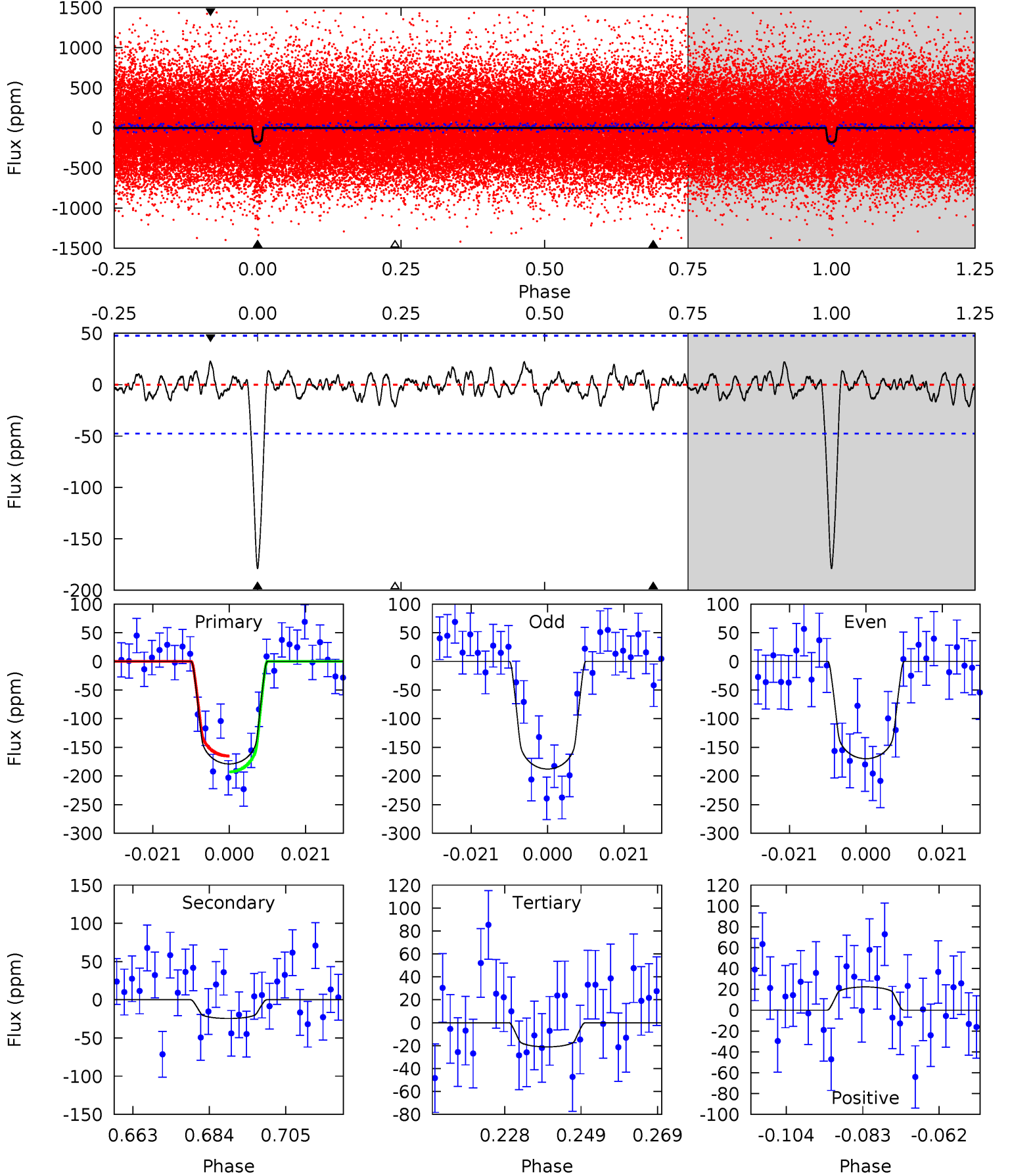
TCE 012120307-01 P= 8.005018 Days $T_0=138.715277$ (BKJD)



DV Model-Shift Uniqueness Test

012120307-01, P = 8.005056 Days, E = 130.707105 Days

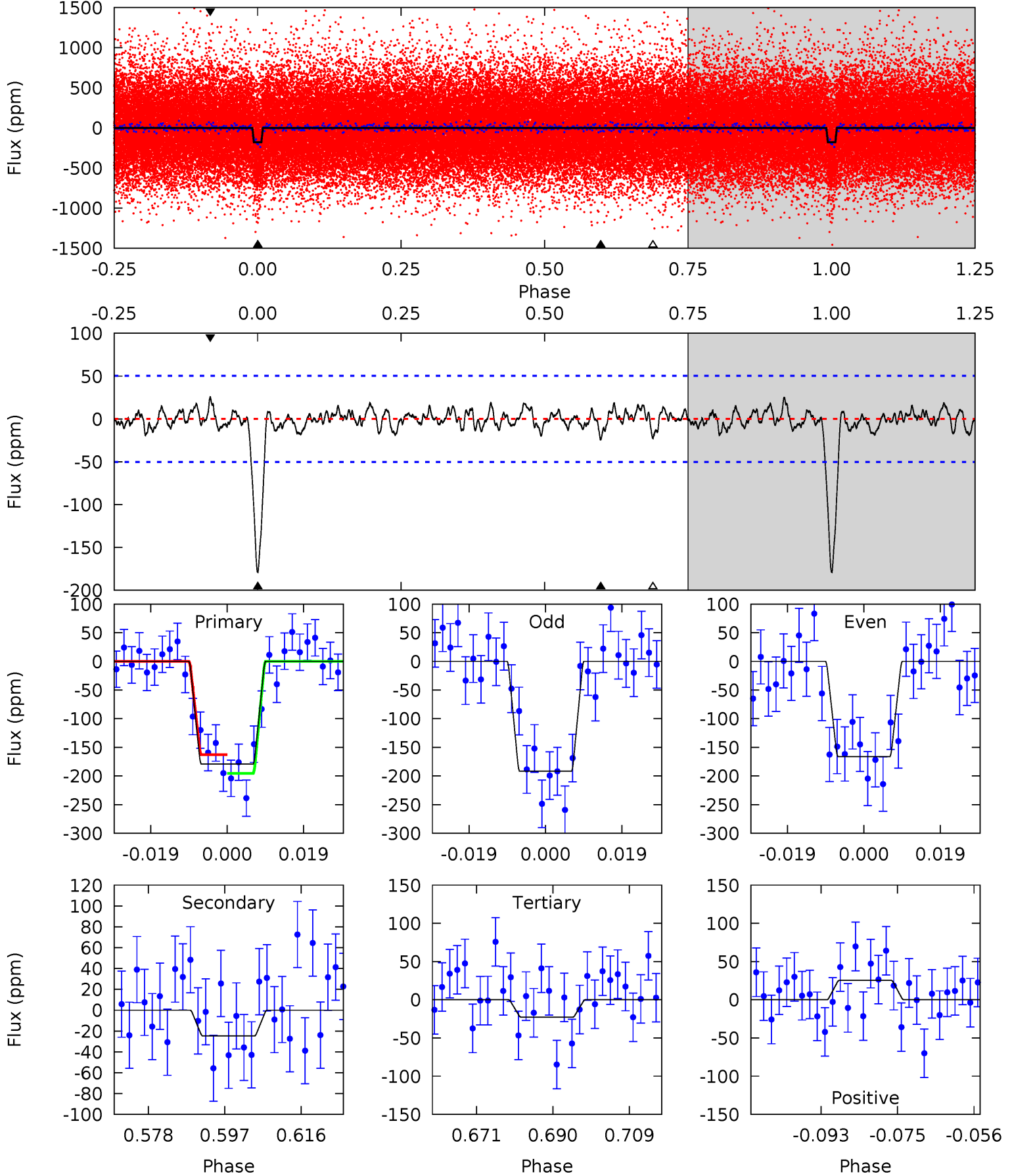
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	2.52	2.17	2.29	4.88	2.31	0.81	16.2	16.1	0.35	0.23	0.92	1.10	0.11	1.42



Alt Model-Shift Uniqueness Test

012120307-01, P = 8.005018 Days, E = 130.710259 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	2.40	2.21	2.48	4.91	2.35	0.81	15.3	15.0	0.19	-0.08	1.25	0.97	0.12	1.58



Stellar Parameters For KIC 012120307

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6398^{+157}_{-224}	$4.411^{+0.056}_{-0.210}$	$-0.140^{+0.250}_{-0.300}$	$1.101^{+0.370}_{-0.123}$	$1.141^{+0.169}_{-0.152}$	$1.204^{+0.350}_{-0.639}$
	+2%/-4%	+1%/-5%	+179%/-214%	+34%/-11%	+15%/-13%	+29%/-53%
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 012120307-01 / KOI 2597.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-25 ± 10	$1.89^{+0.73}_{-0.73}$	1473^{+112}_{-72}	3978^{+860}_{-511}	25^{+44}_{-14}
Alt.	-25 ± 10	$1.68^{+0.75}_{-0.71}$	1479^{+114}_{-78}	4137^{+994}_{-590}	30^{+62}_{-17}

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 $A_{obs} \gg 1.0$

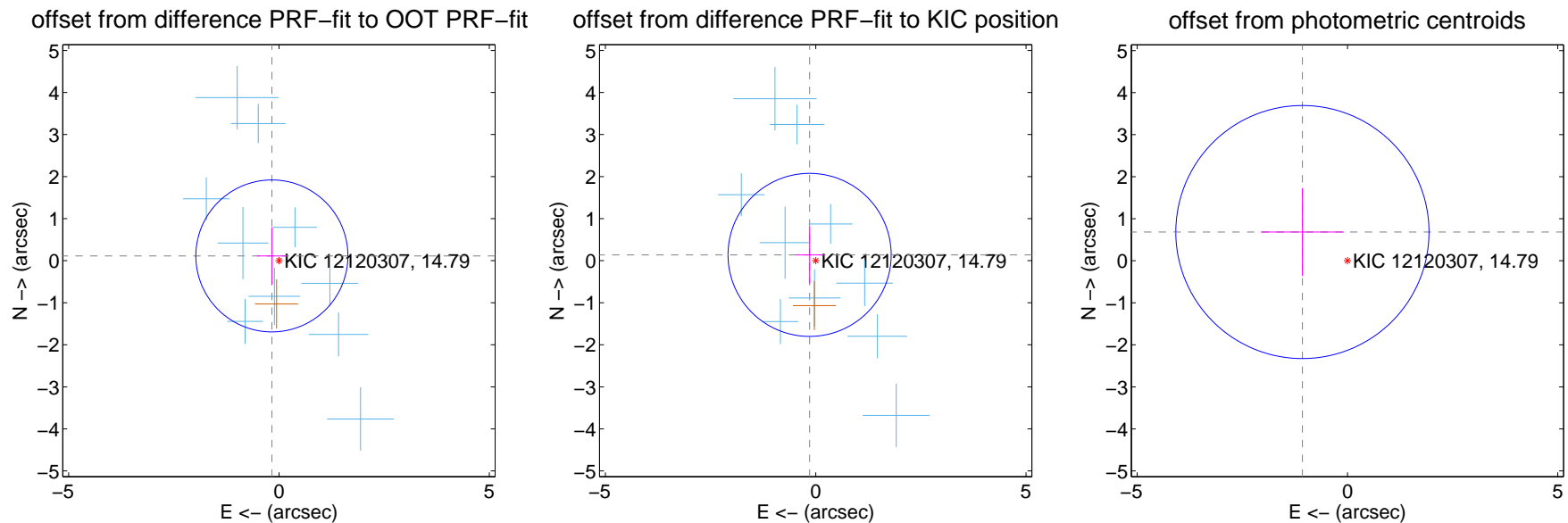
DV Centroid Data

Supplemental centroid analysis for 012120307-01. Kepler magnitude: 14.79. Transit SNR 14.56

There are 10 quarters with good PRF difference image offsets

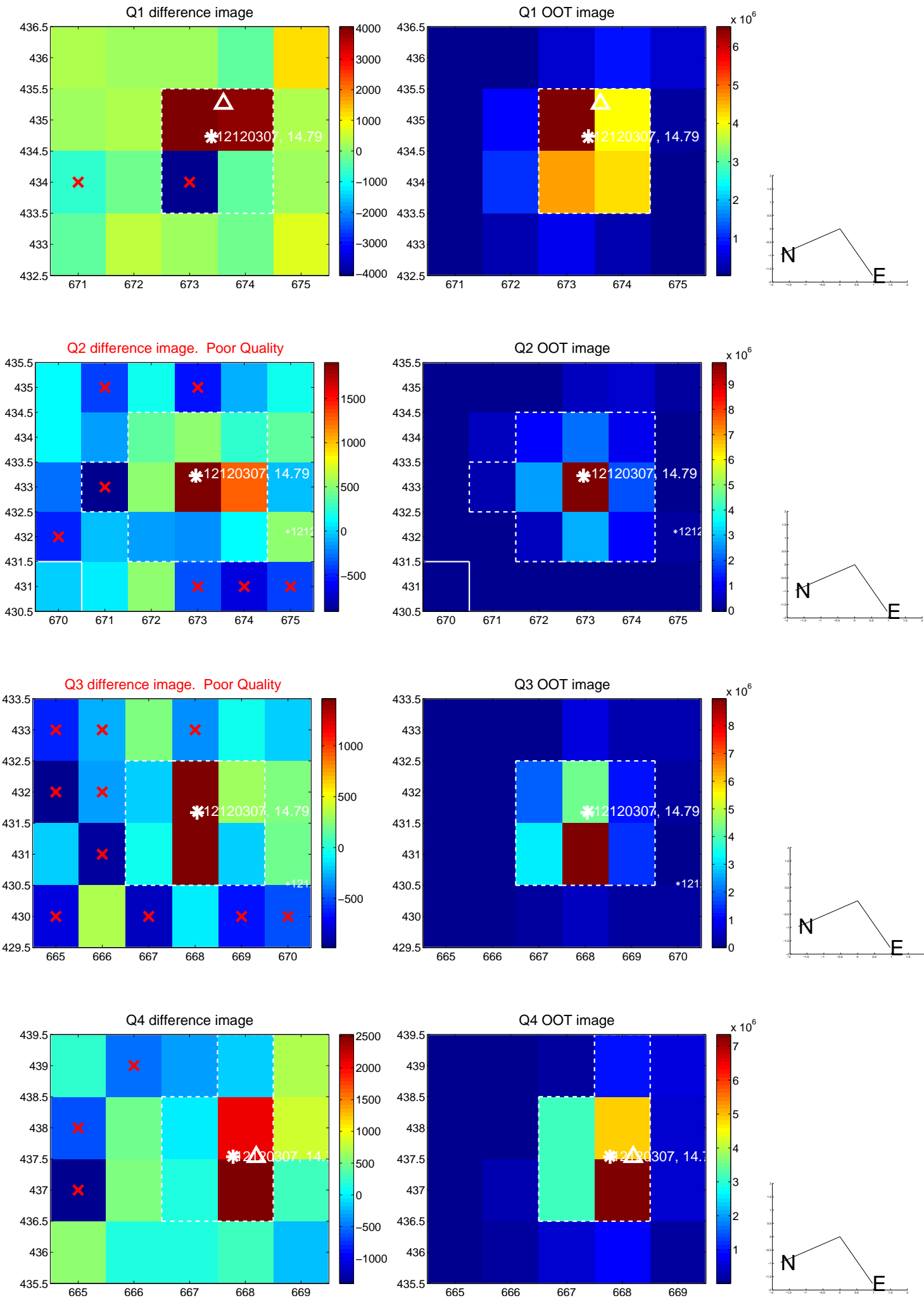
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.204 ± 0.602	0.34	0.169 ± 0.345	0.114 ± 0.681
PRF-fit source offset from KIC position	0.201 ± 0.646	0.31	0.145 ± 0.332	0.138 ± 0.678
photometric centroid source offset	1.27 ± 1.00	1.27	1.07 ± 0.99	0.68 ± 1.04

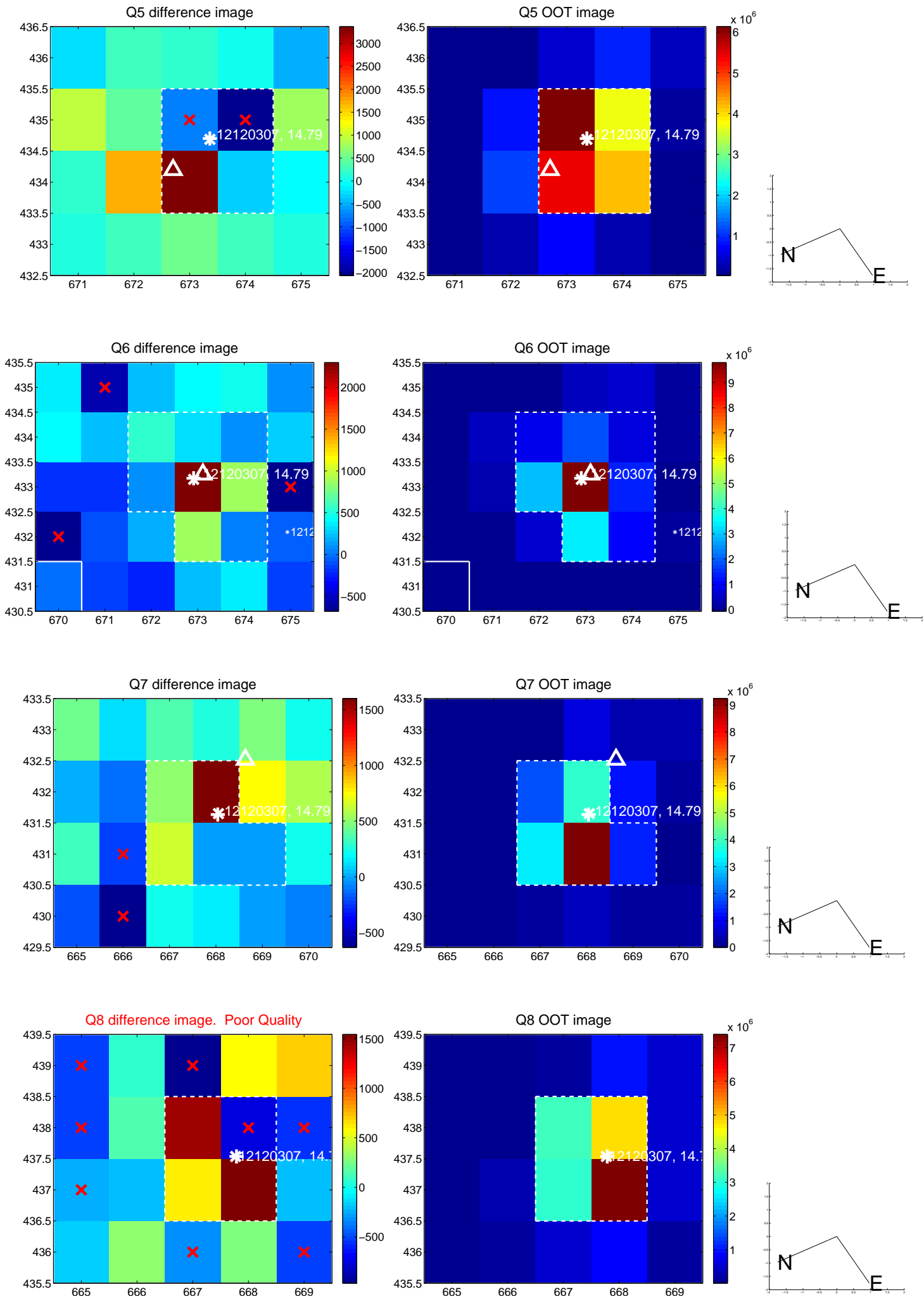


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

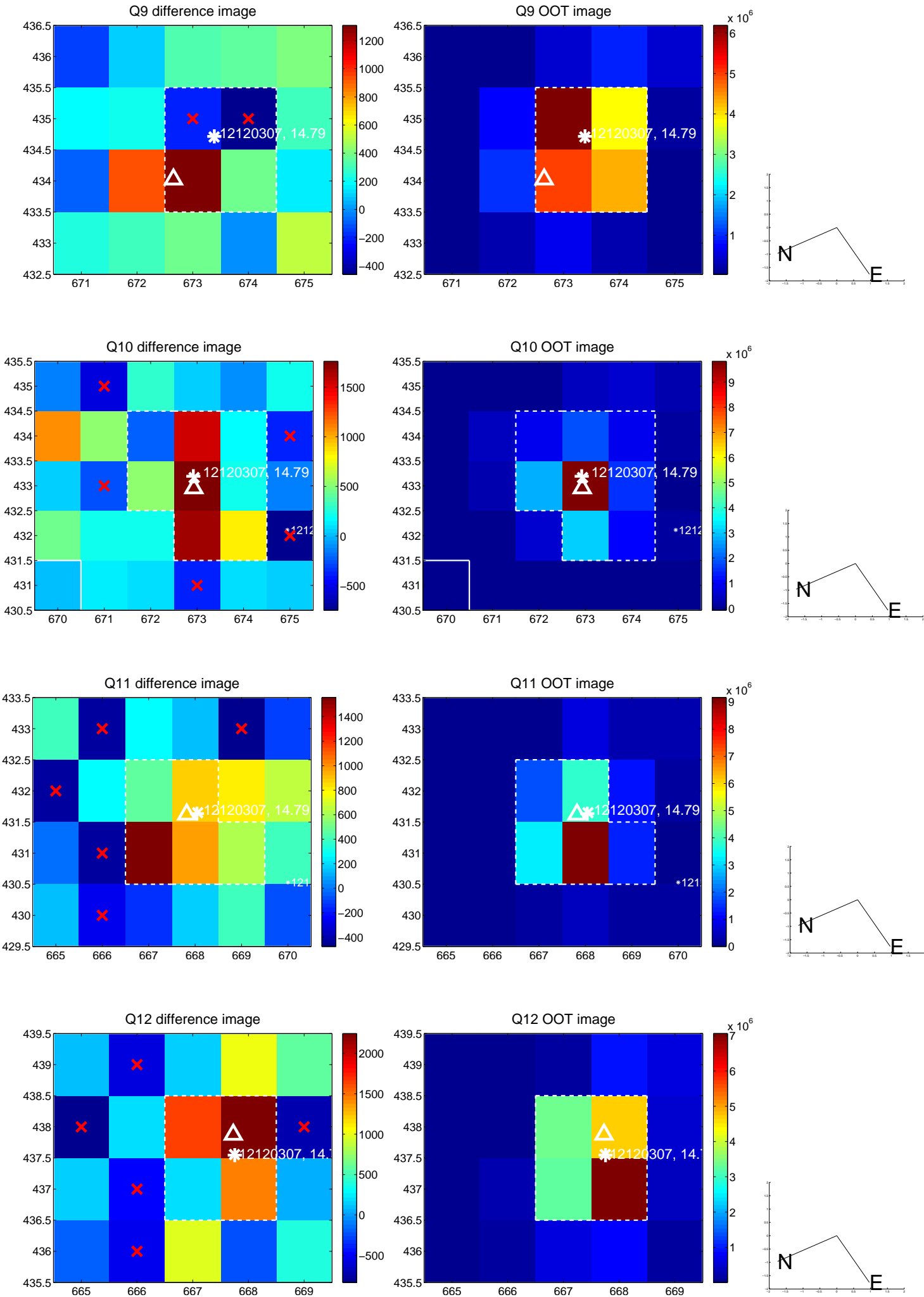
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



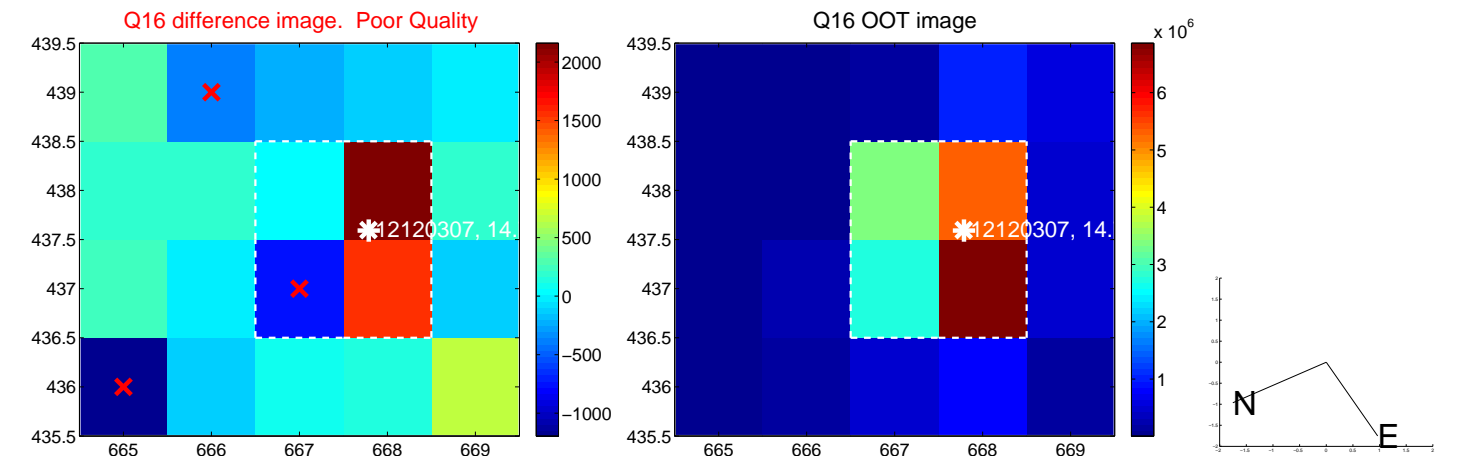
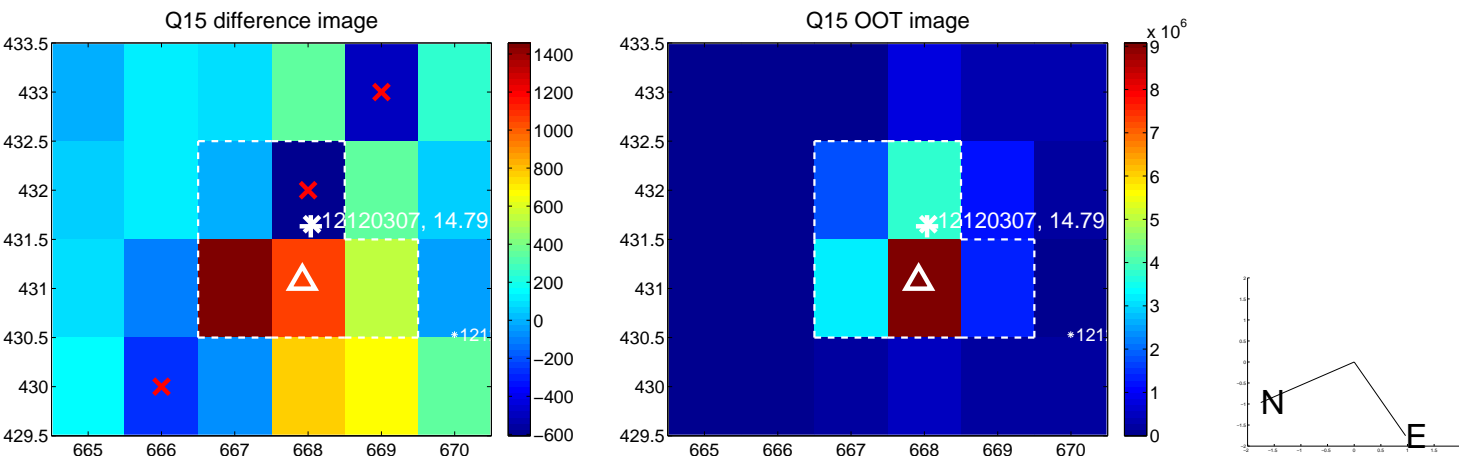
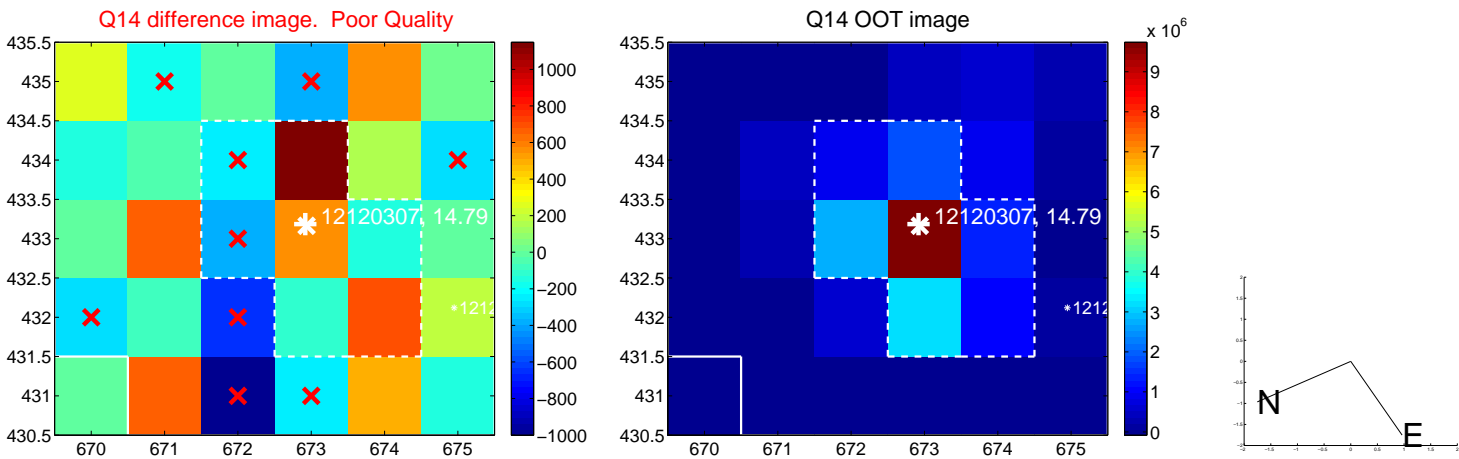
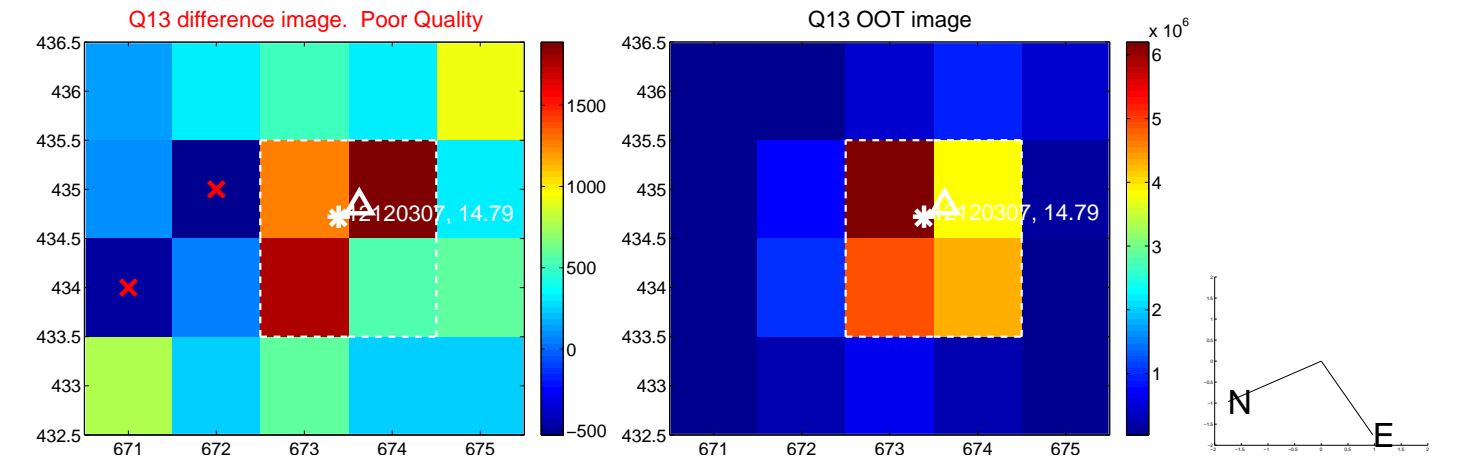
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



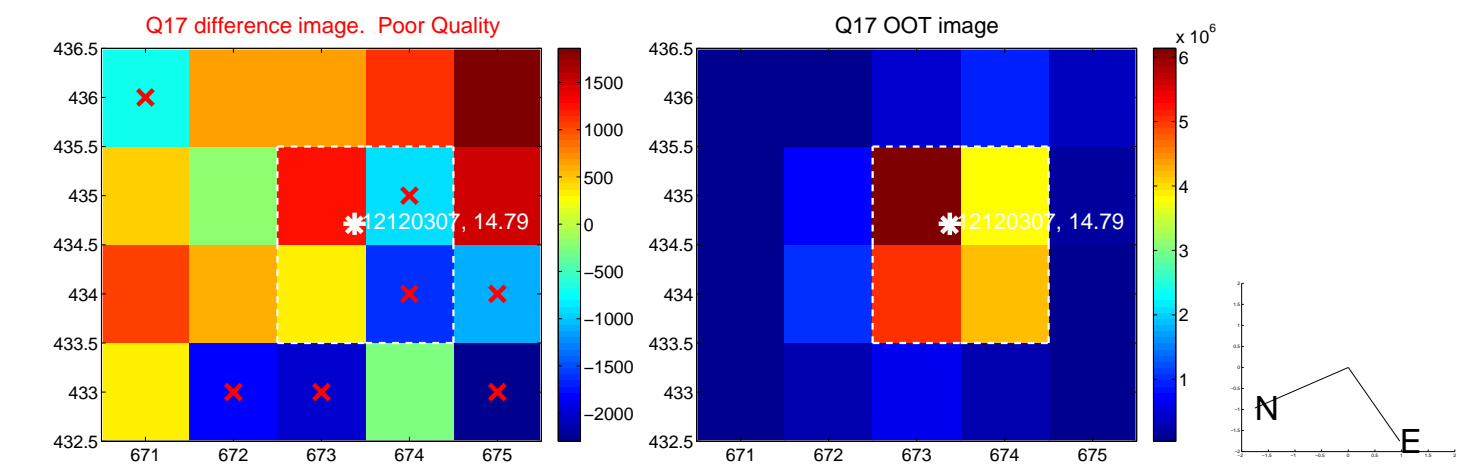
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



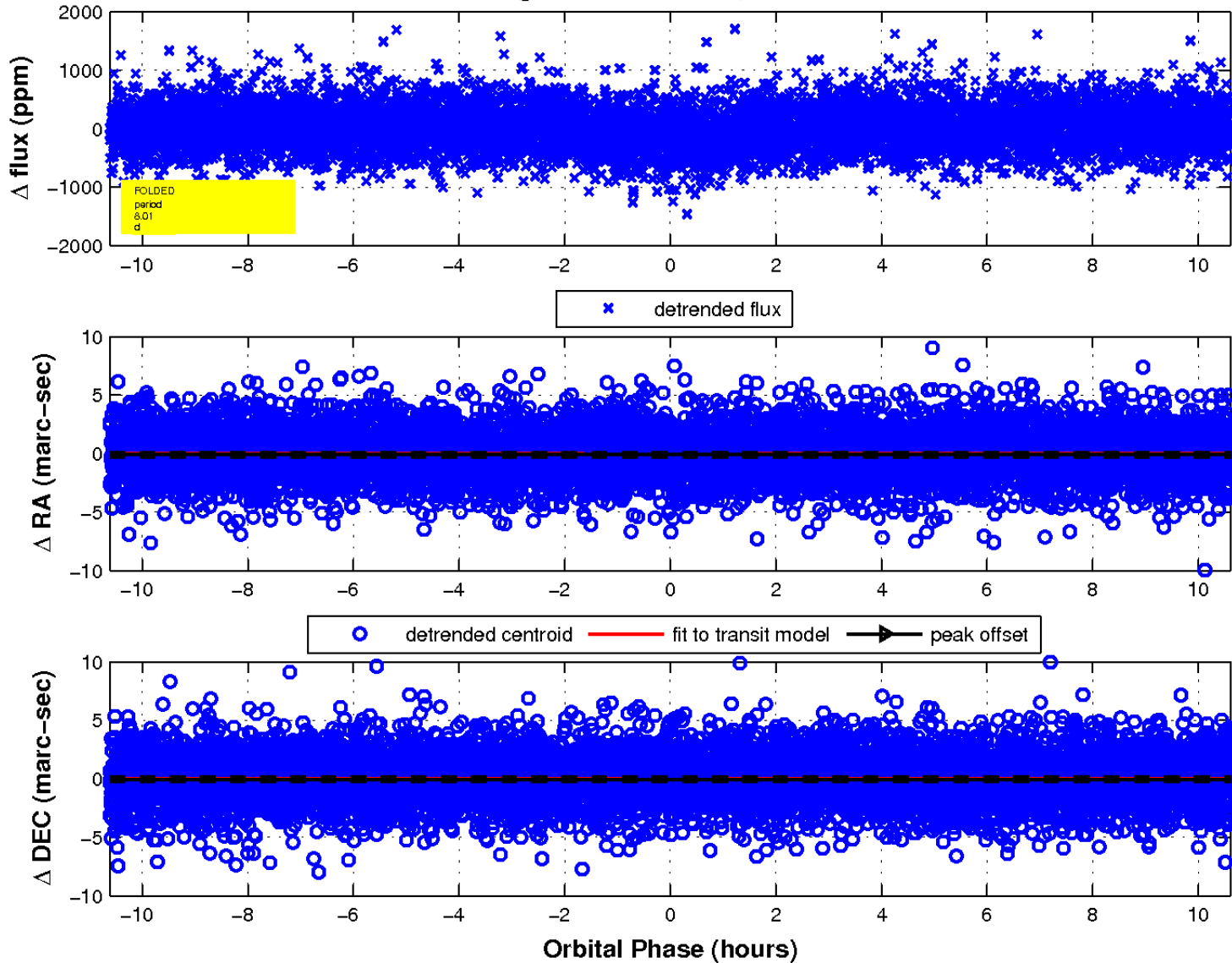
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

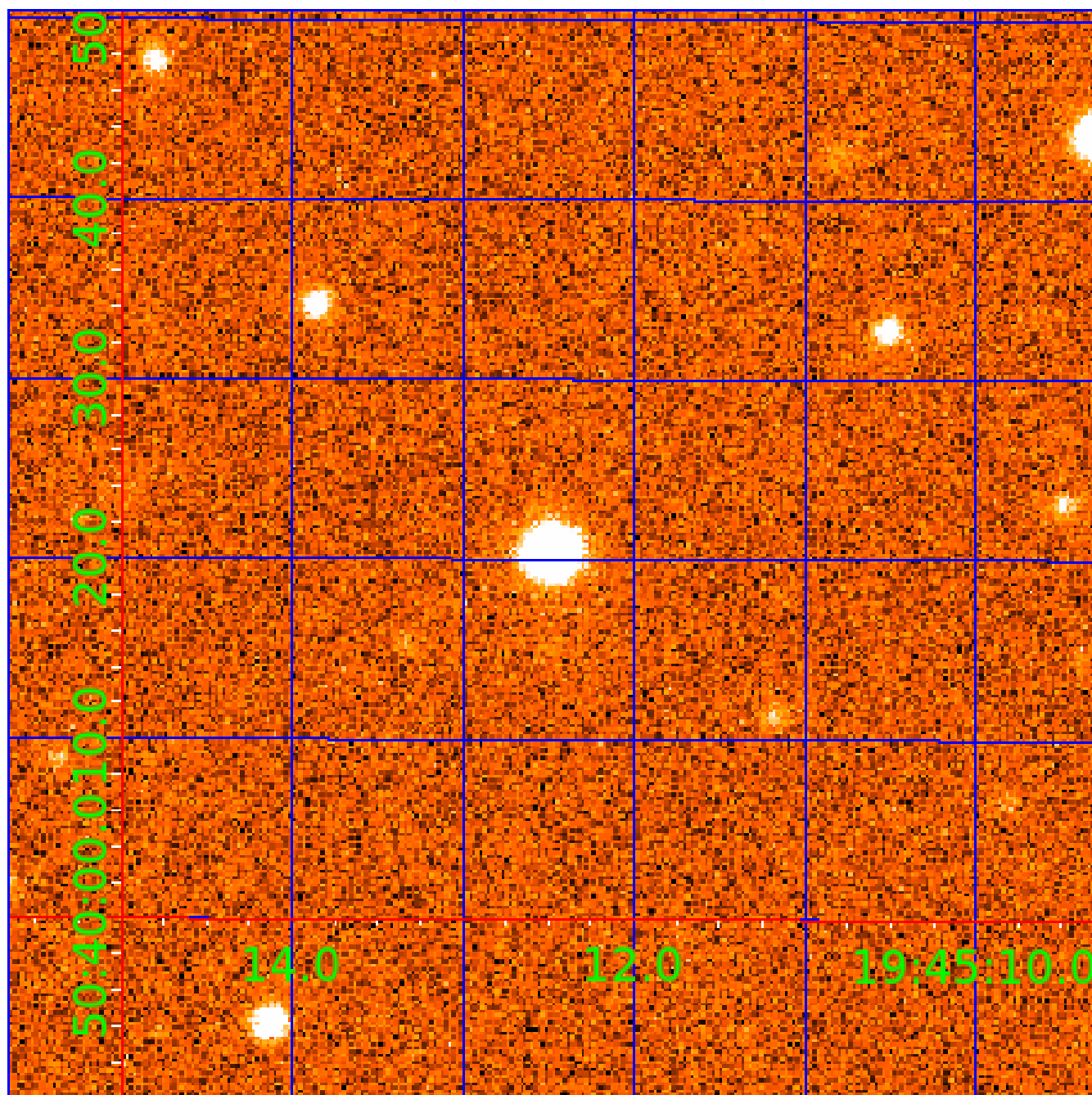


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 012120307

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})
012120307-01	OBS	2597.01	8.005056	138.712161	186.8	3.538	13.9	14.6	1.10	6398	1.72	271.92
012120307-02	OBS	2597.03	5.613579	131.816484	165.6	3.007	12.6	14.2	1.10	6398	1.65	436.46
012120307-03	OBS	2597.02	12.130649	139.901910	204.5	3.957	11.7	12.7	1.10	6398	1.80	156.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012120307-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012120307-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012120307-03	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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.

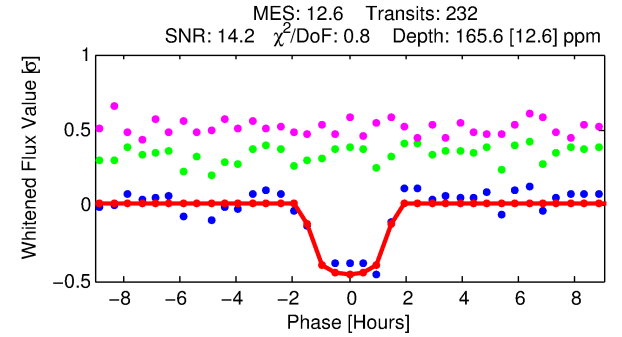
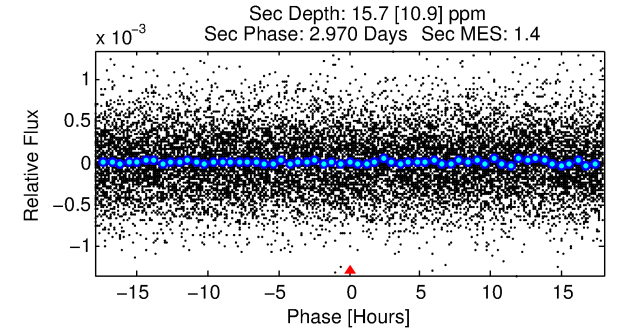
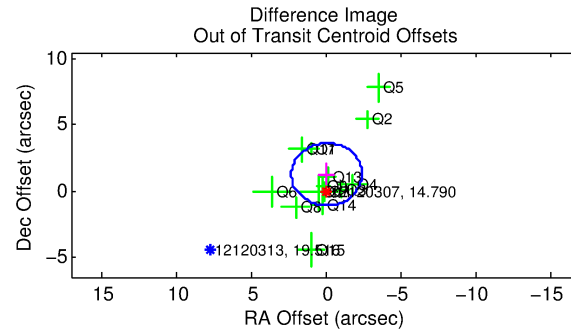
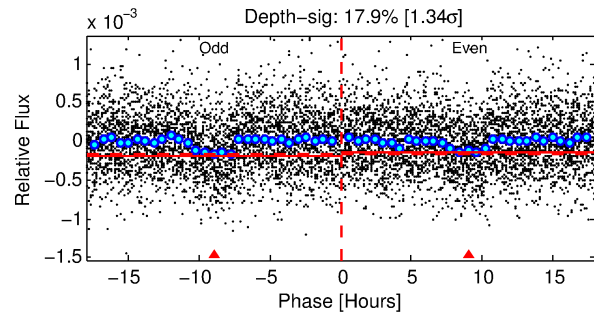
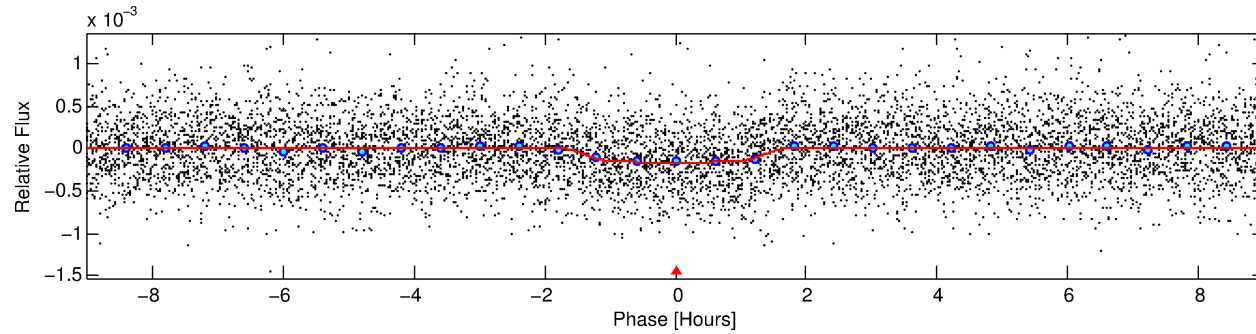
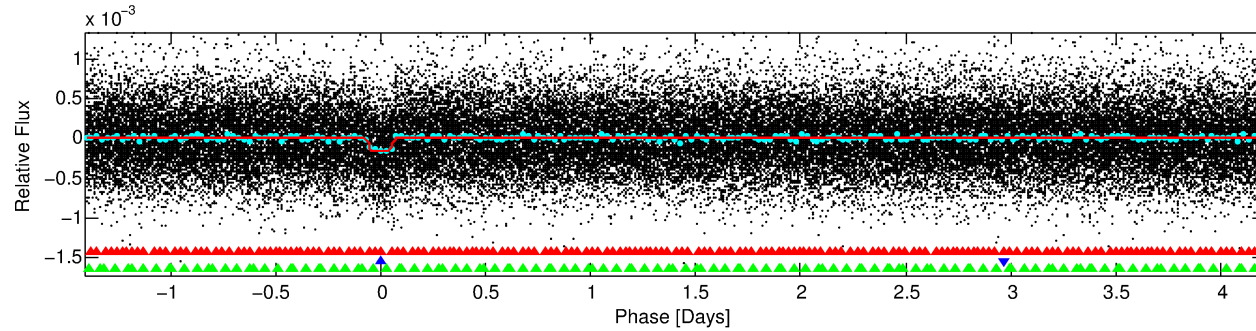
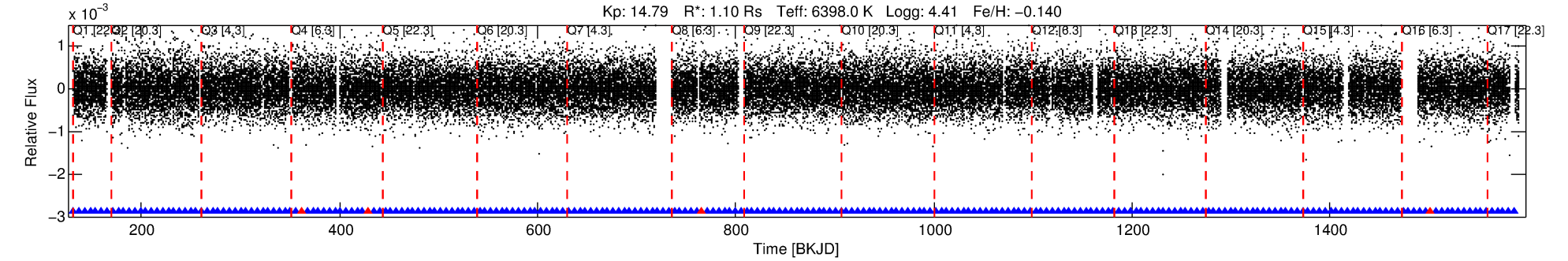
Ephemeris Match Information For 012120307-02

No Significant Match Found

DV One-Page Summary

KIC: 12120307 Candidate: 2 of 3 Period: 5.614 d

KOI: K02597.03 Corr: 0.985



DV Fit Results:

Period = 5.61358 [0.00003] d
Epoch = 131.8165 [0.0039] BKJD
Rp/R* = 0.0137 [0.0055]
a/R* = 7.01 [15.29]
b = 0.89 [0.53]
Seff = 436.46 [181.92]
Teq = 1165 [121] K
Rp = 1.64 [0.86] Re
a = 0.0646 [0.0178] AU
Ag = 13.28 [15.01] [0.82 σ]
Teffp = 3440 [919] K [2.45 σ]

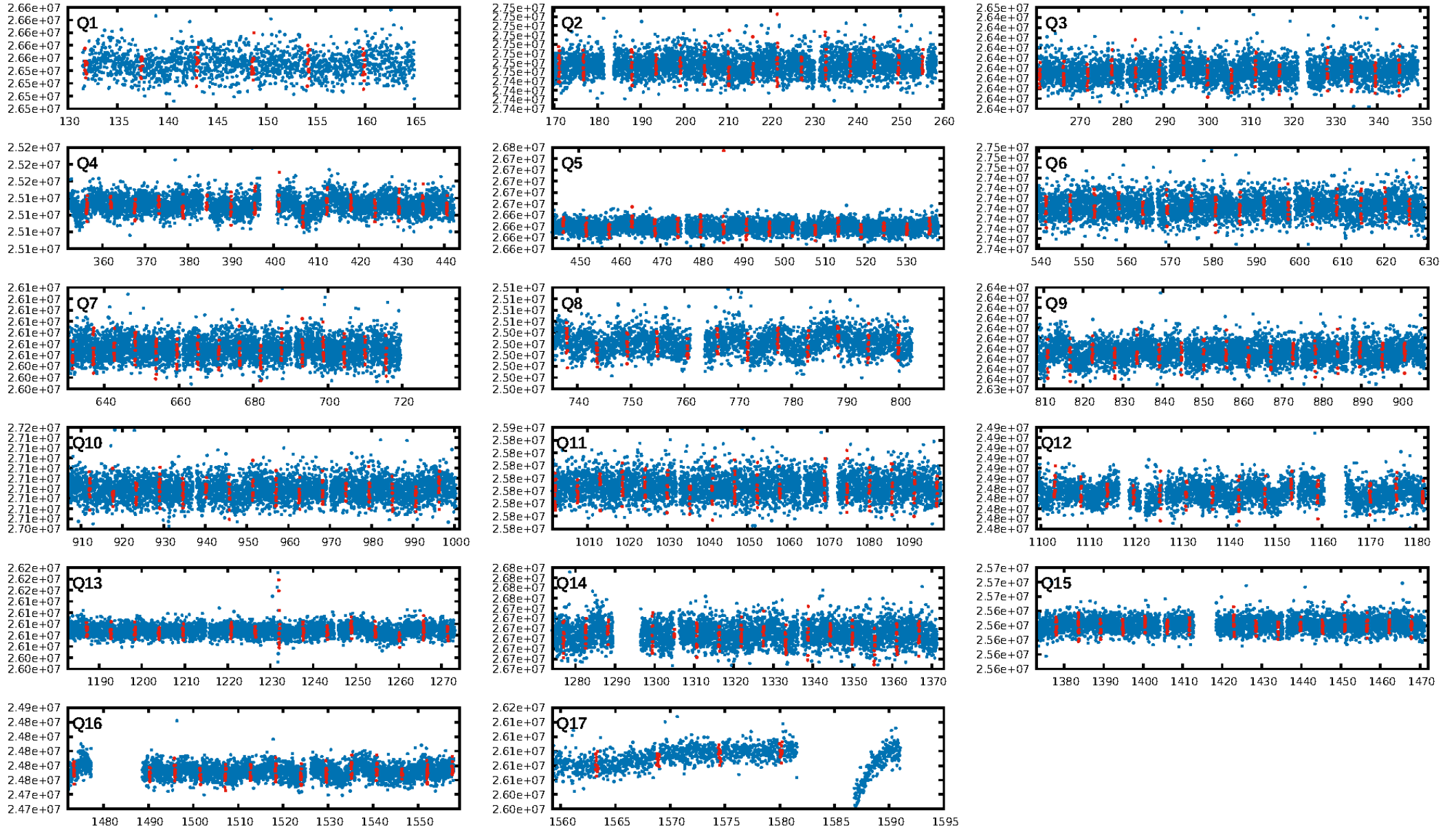
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [12.36 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.86e-37
RollingBand-fgt: 0.98 [218/222]
GhostDiagnostic-chr: 7.562
Centroid-sig: 59.6%
Centroid-so: 1.340 arcsec [1.31 σ]
OotOffset-rm: 1.263 arcsec [1.61 σ]
KicOffset-rm: 1.230 arcsec [1.49 σ]
OotOffset-st: 3/4/2/5 [14]
KicOffset-st: 3/4/2/5 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 1.00 [17/17]

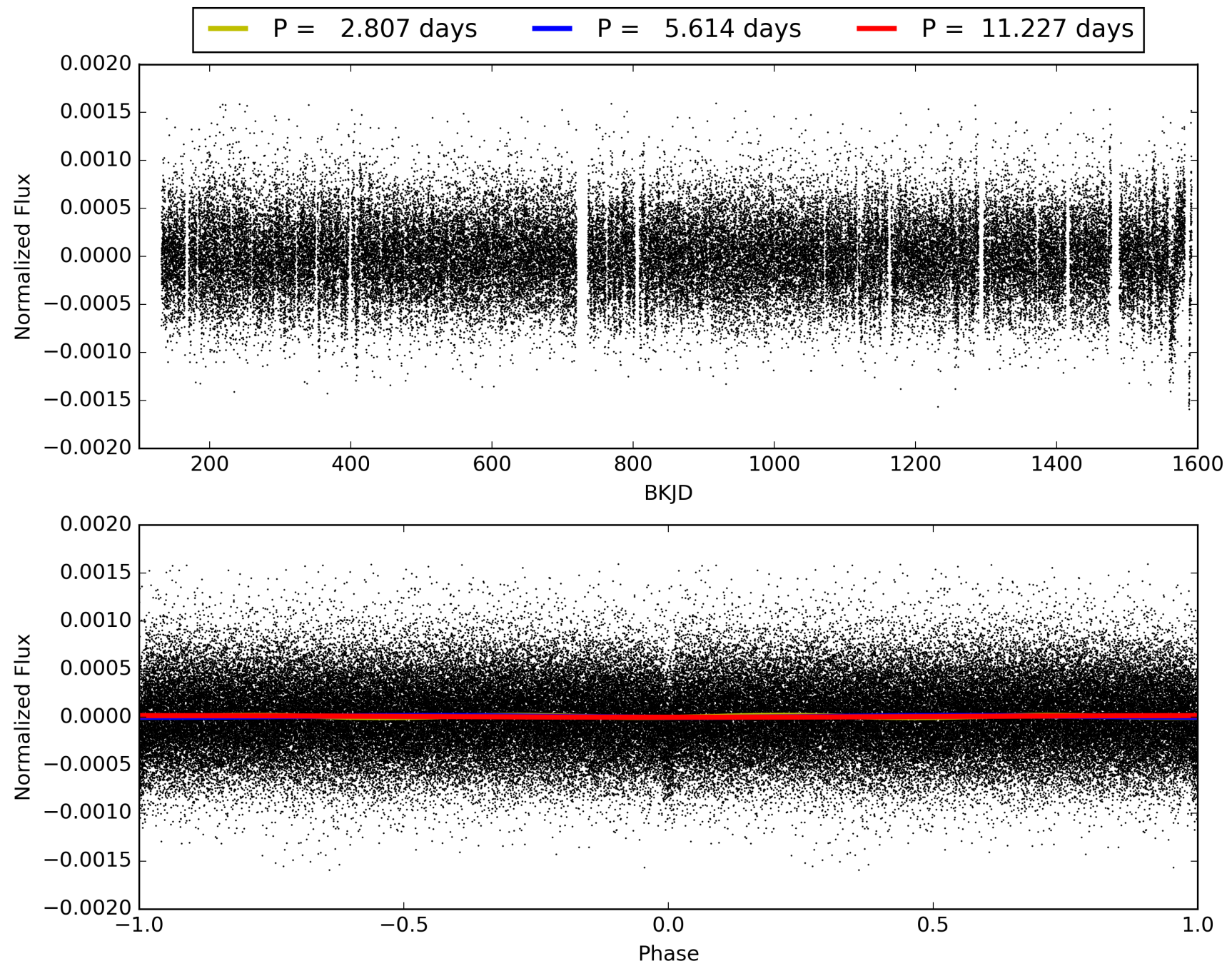
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 06:13:09 Z

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

TCE 012120307-02, PDC Light Curves

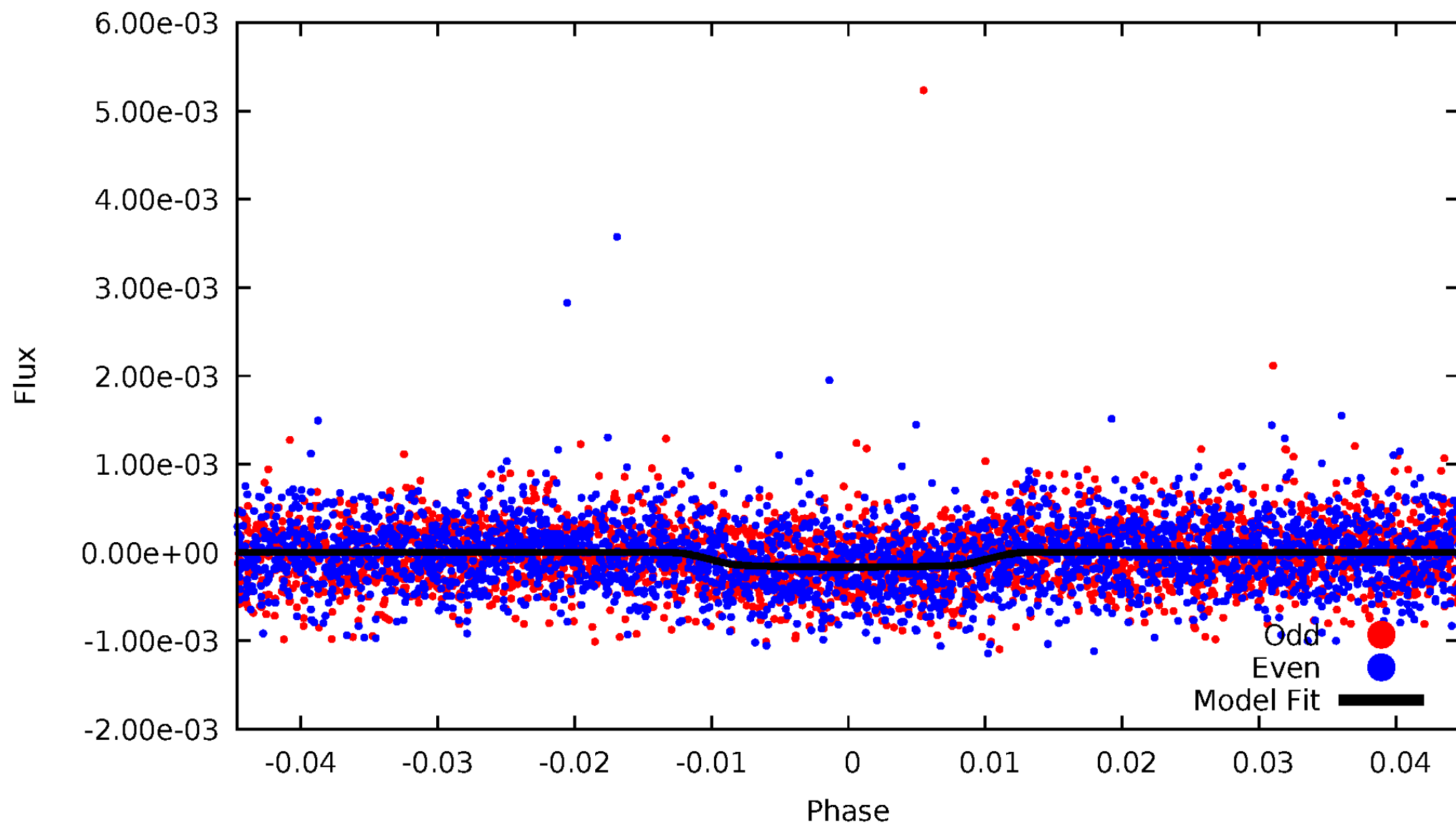


TCE 012120307-02



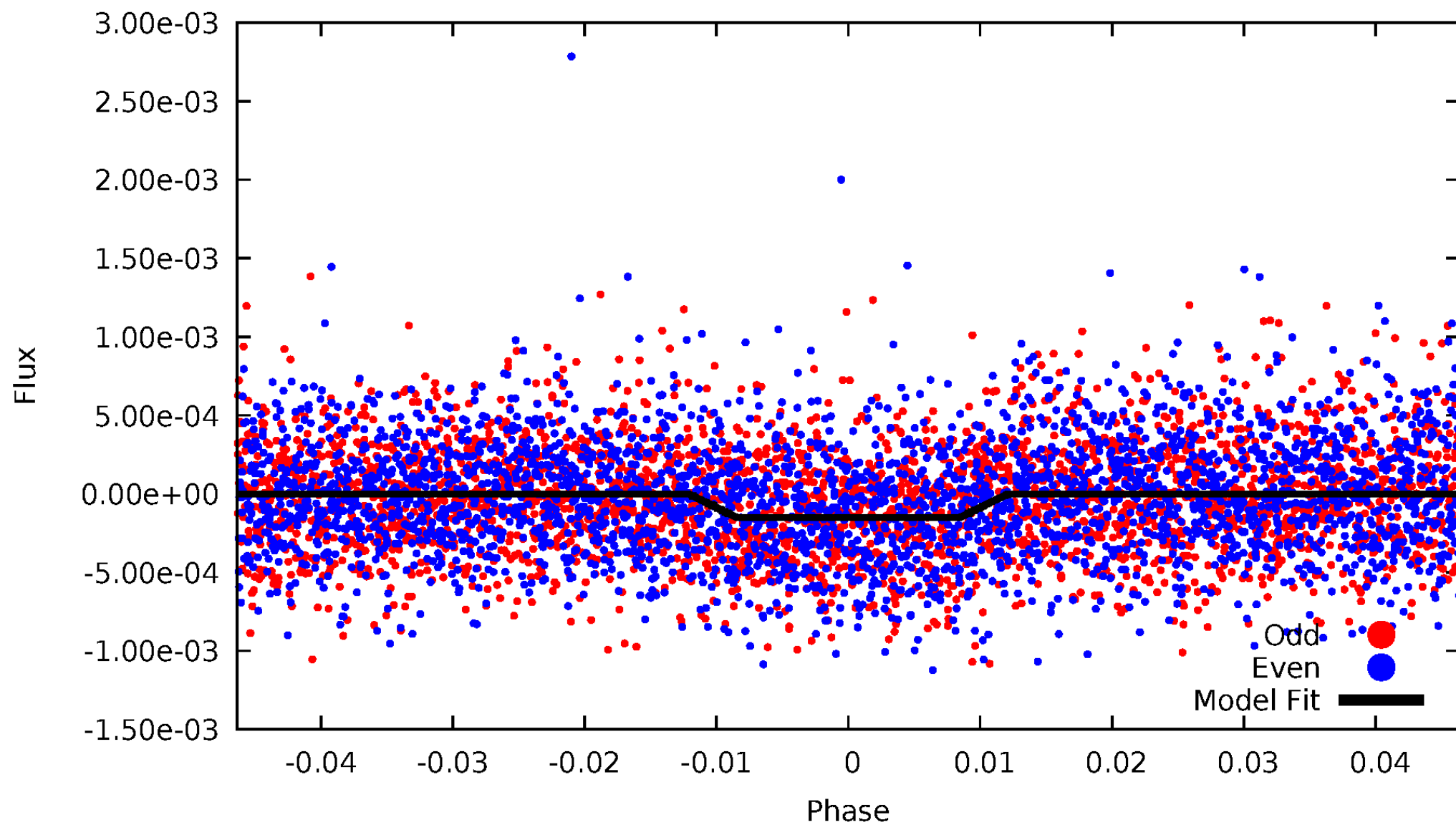
DV Odd/Even

TCE 012120307-02



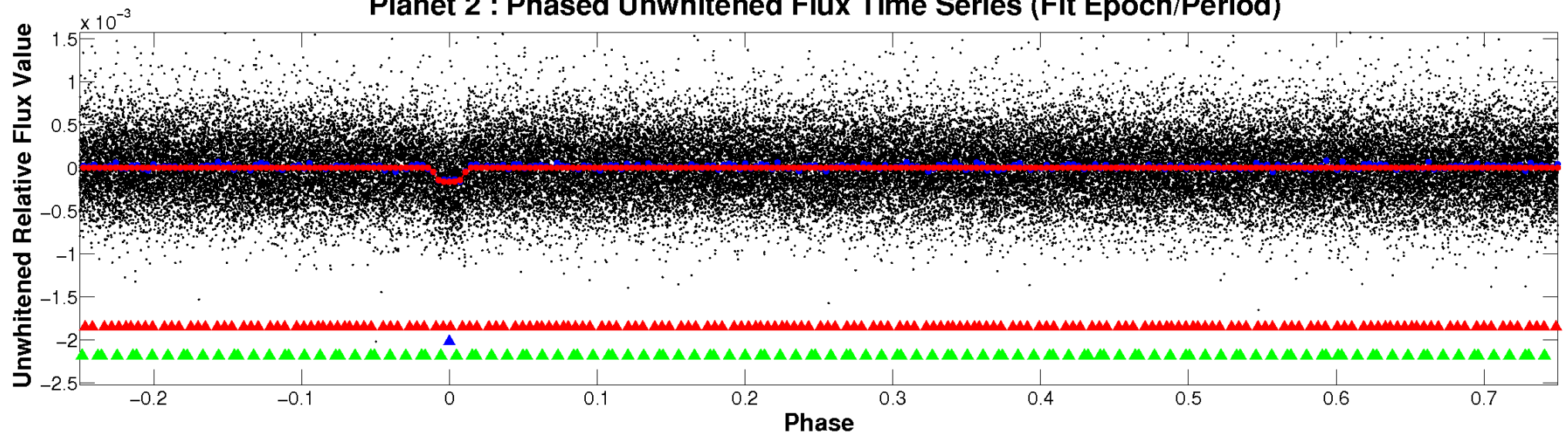
ALT Odd/Even

TCE 012120307-02

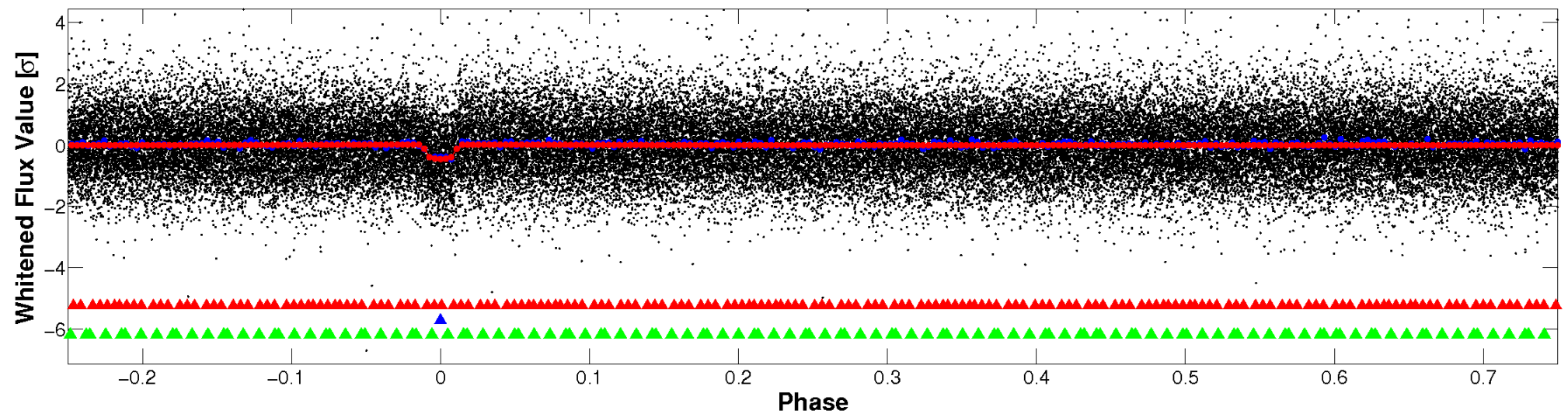


Non-Whitened Vs. Whitened Light Curve

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

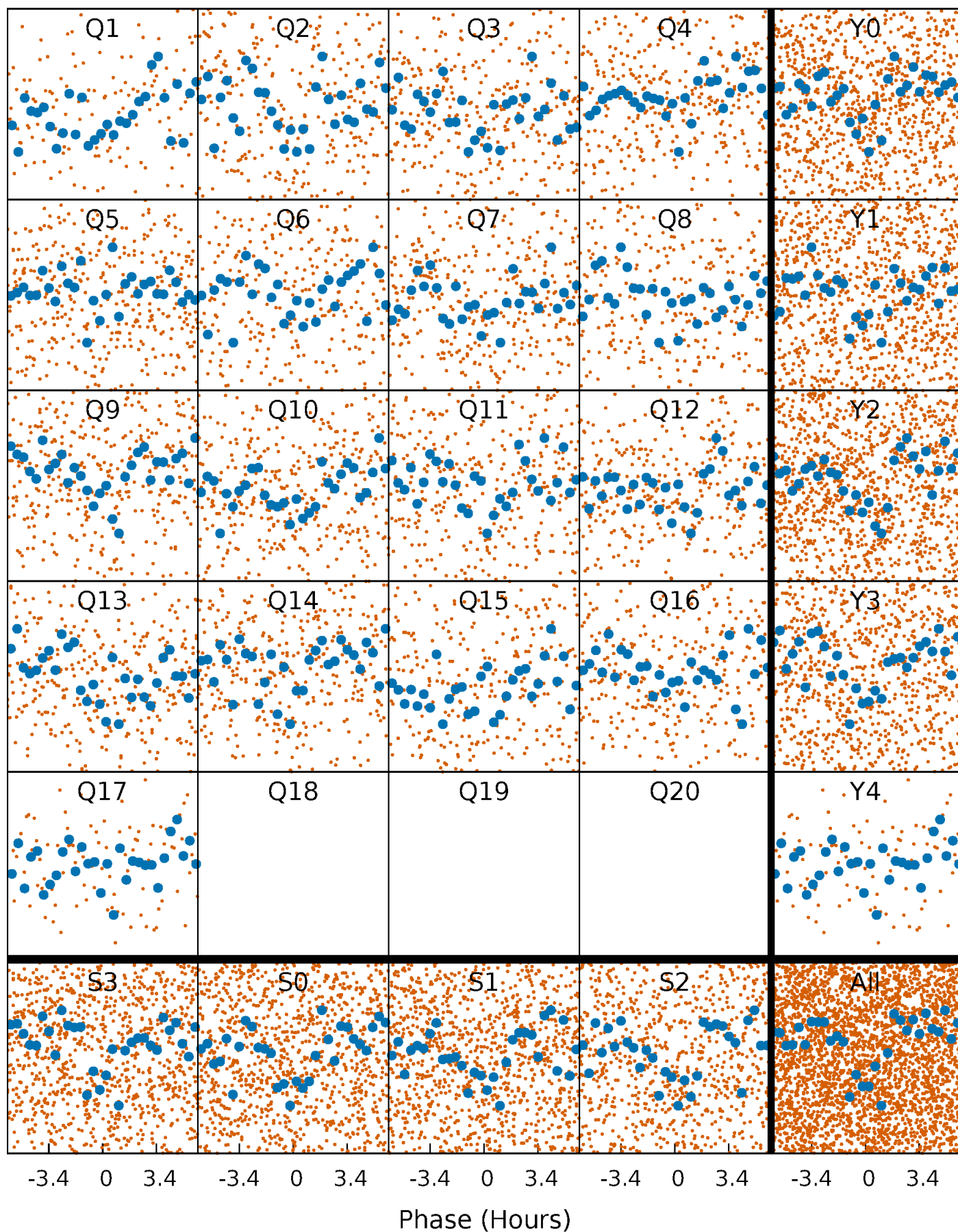


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



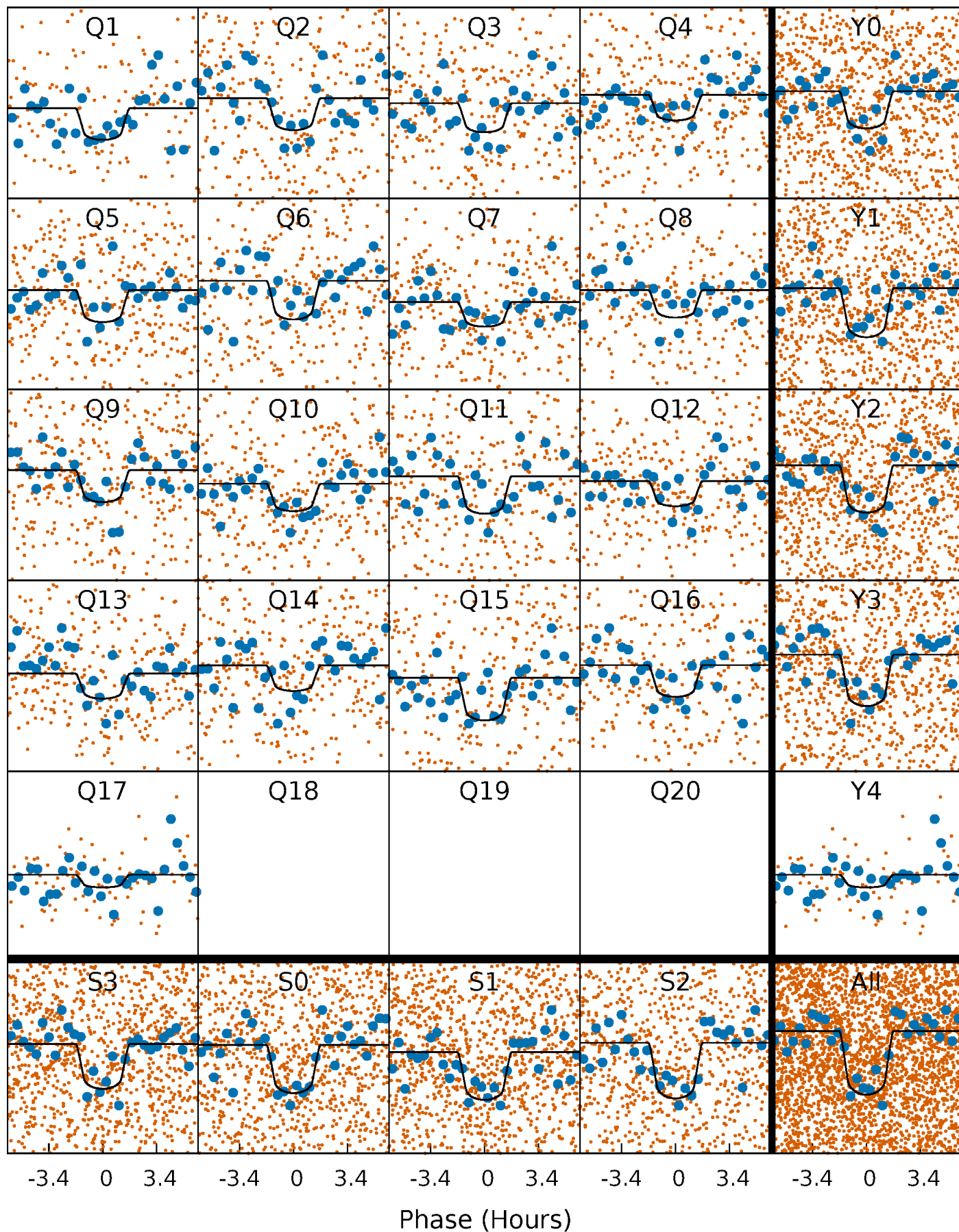
PDC Quarter-Phased Transit Curves

TCE 012120307-02 P= 5.613579 Days $T_0=131.816484$ (BKJD)



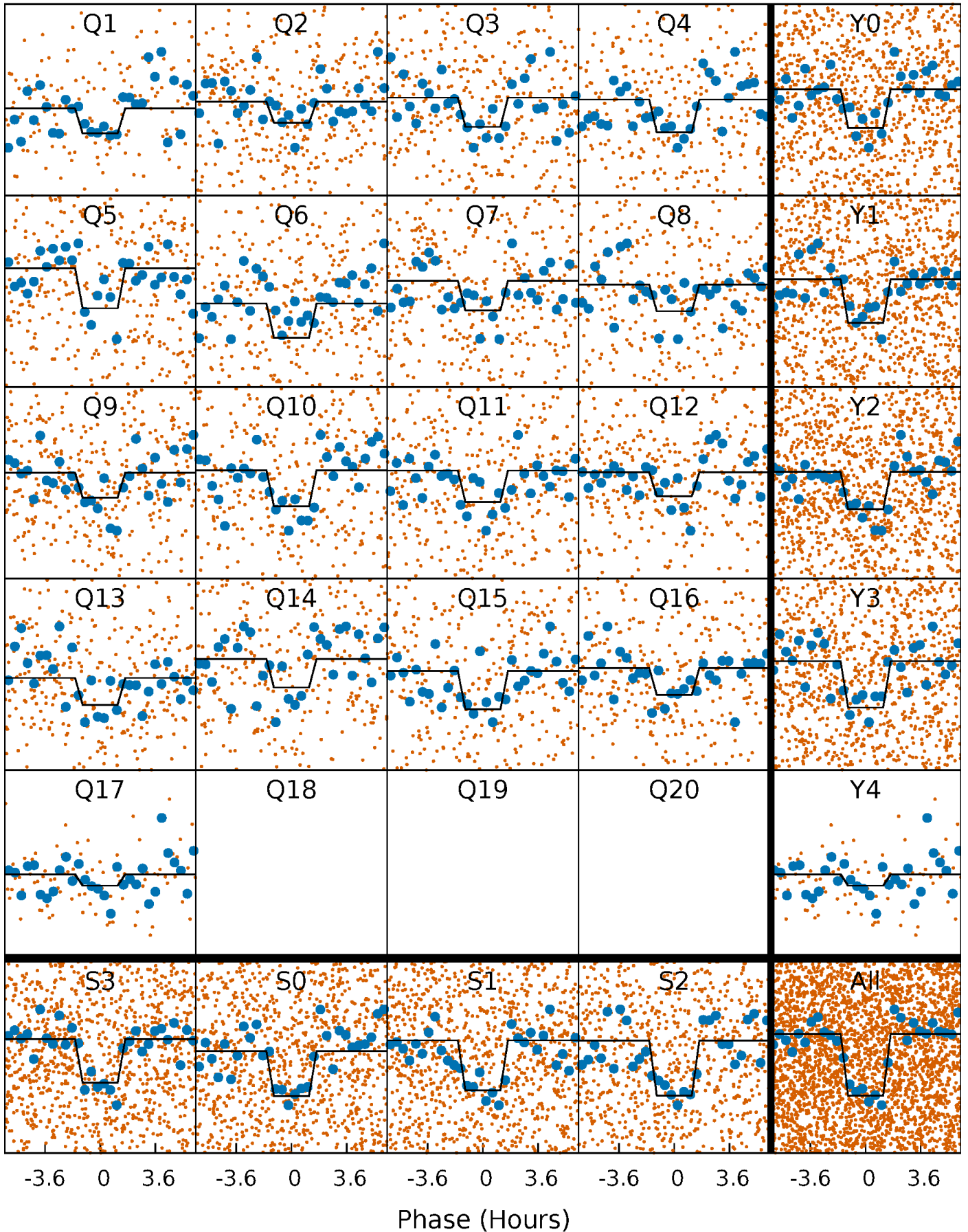
DV Quarter-Phased Transit Curves

TCE 012120307-02 P= 5.613579 Days $T_0=131.816484$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

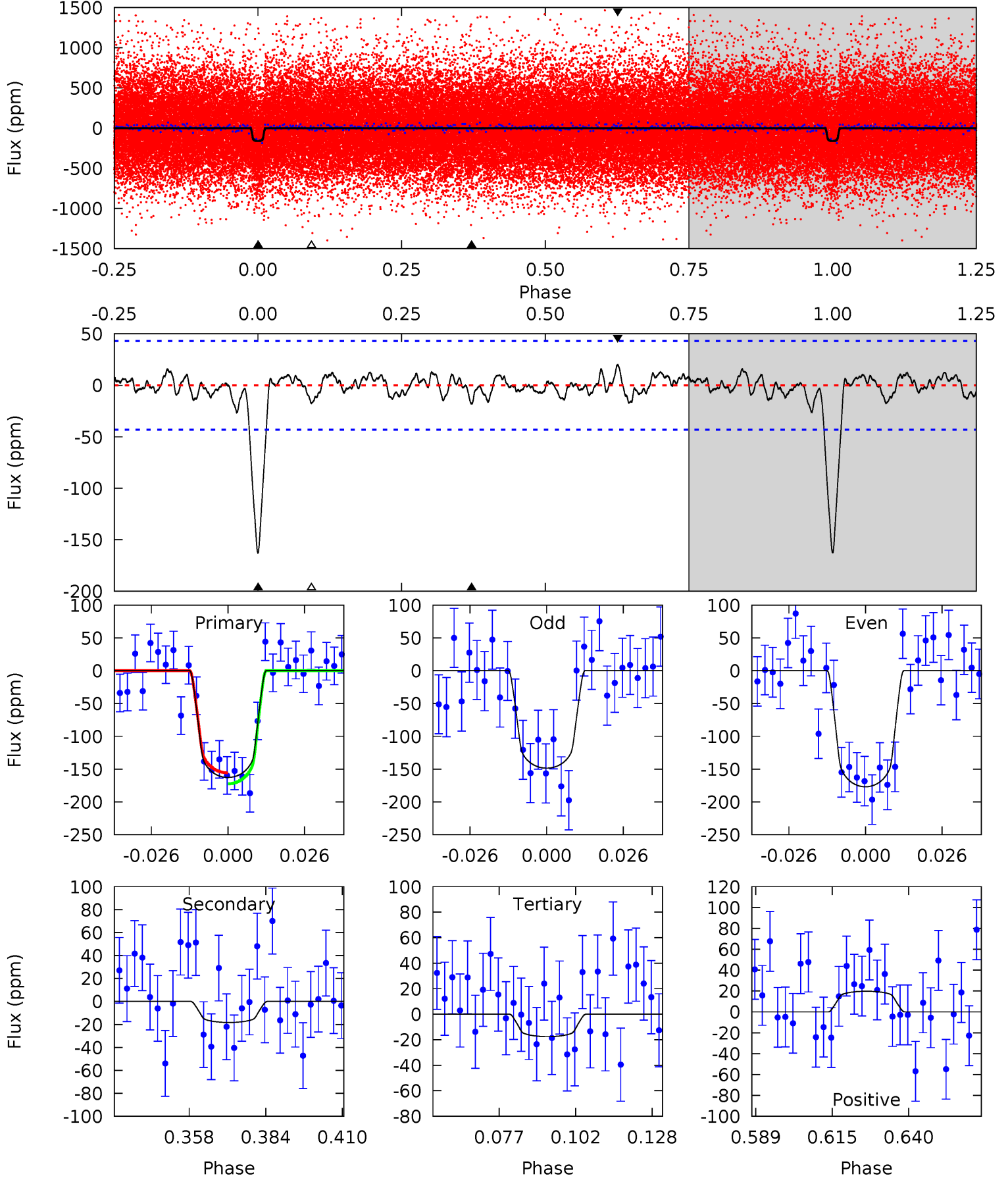
TCE 012120307-02 P= 5.613620 Days $T_0=131.811069$ (BKJD)



DV Model-Shift Uniqueness Test

012120307-02, P = 5.613579 Days, E = 126.202905 Days

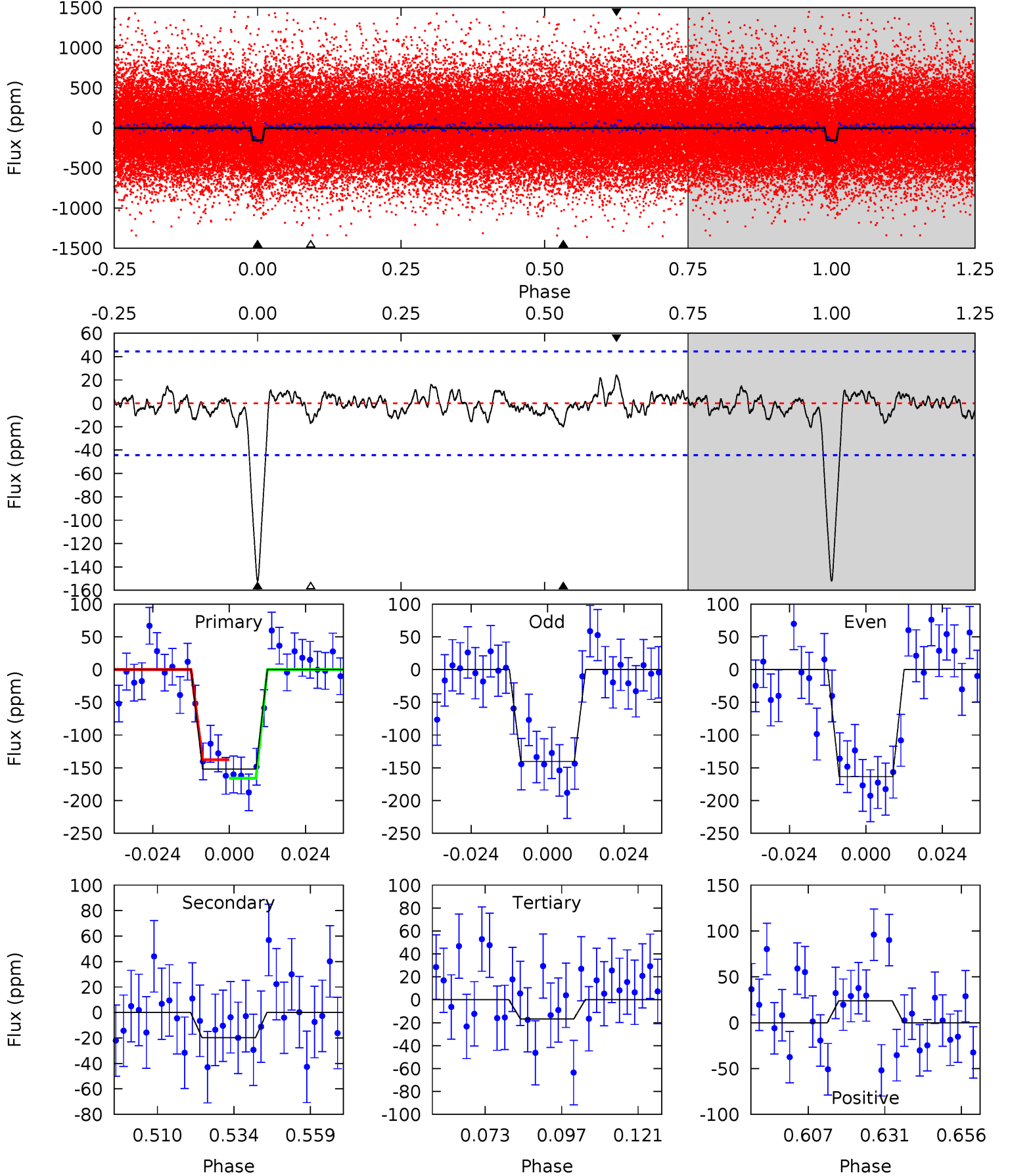
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	2.06	1.97	2.23	4.84	2.23	0.87	16.3	16.1	0.08	-0.17	1.60	0.94	0.11	0.94



Alt Model-Shift Uniqueness Test

012120307-02, P = 5.613620 Days, E = 126.197449 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	2.17	1.83	2.61	4.85	2.25	0.79	14.8	14.0	0.34	-0.44	1.27	1.02	0.14	1.55



Stellar Parameters For KIC 012120307

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6398^{+157}_{-224}	$4.411^{+0.056}_{-0.210}$	$-0.140^{+0.250}_{-0.300}$	$1.101^{+0.370}_{-0.123}$	$1.141^{+0.169}_{-0.152}$	$1.204^{+0.350}_{-0.639}$
	+2%/-4%	+1%/-5%	+179%/-214%	+34%/-11%	+15%/-13%	+29%/-53%
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 012120307-02 / KOI 2597.03

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-18 ± 9	$1.72^{+0.74}_{-0.69}$	1660^{+117}_{-82}	3866^{+838}_{-570}	13^{+26}_{-8}
Alt.	-20 ± 9	$1.57^{+0.75}_{-0.65}$	1660^{+117}_{-86}	4065^{+977}_{-618}	17^{+36}_{-11}

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 $A_{obs} \gg 1.0$

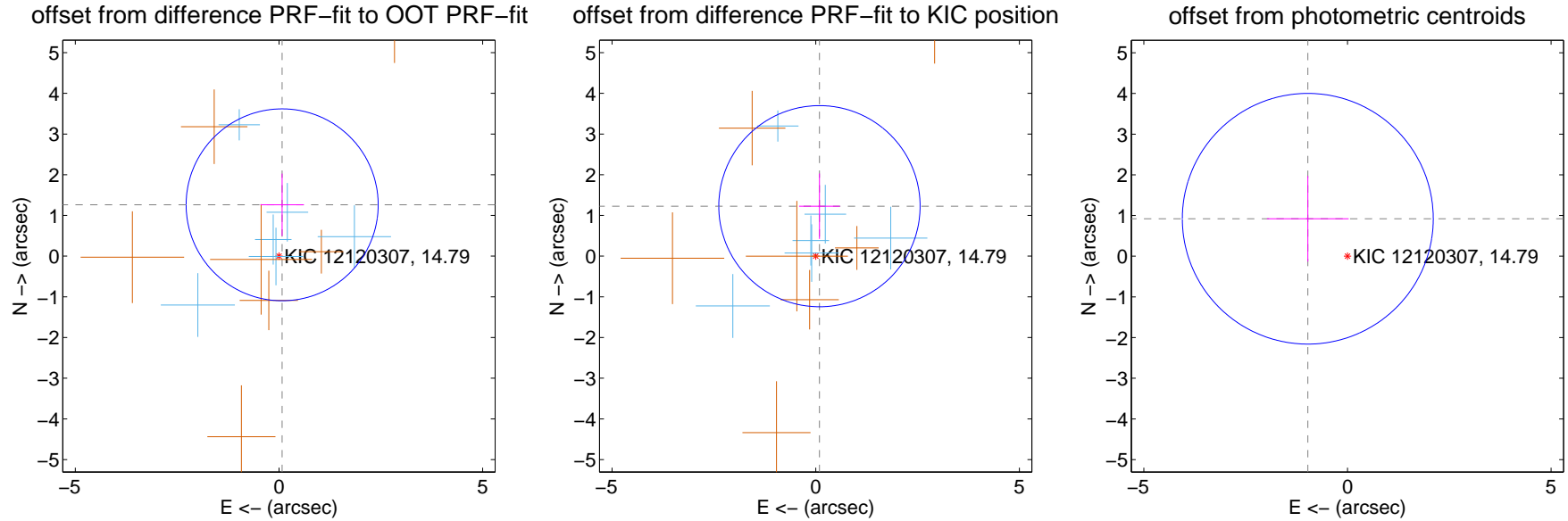
DV Centroid Data

Supplemental centroid analysis for 012120307-02. Kepler magnitude: 14.79. Transit SNR 14.19

There are 6 quarters with good PRF difference image offsets

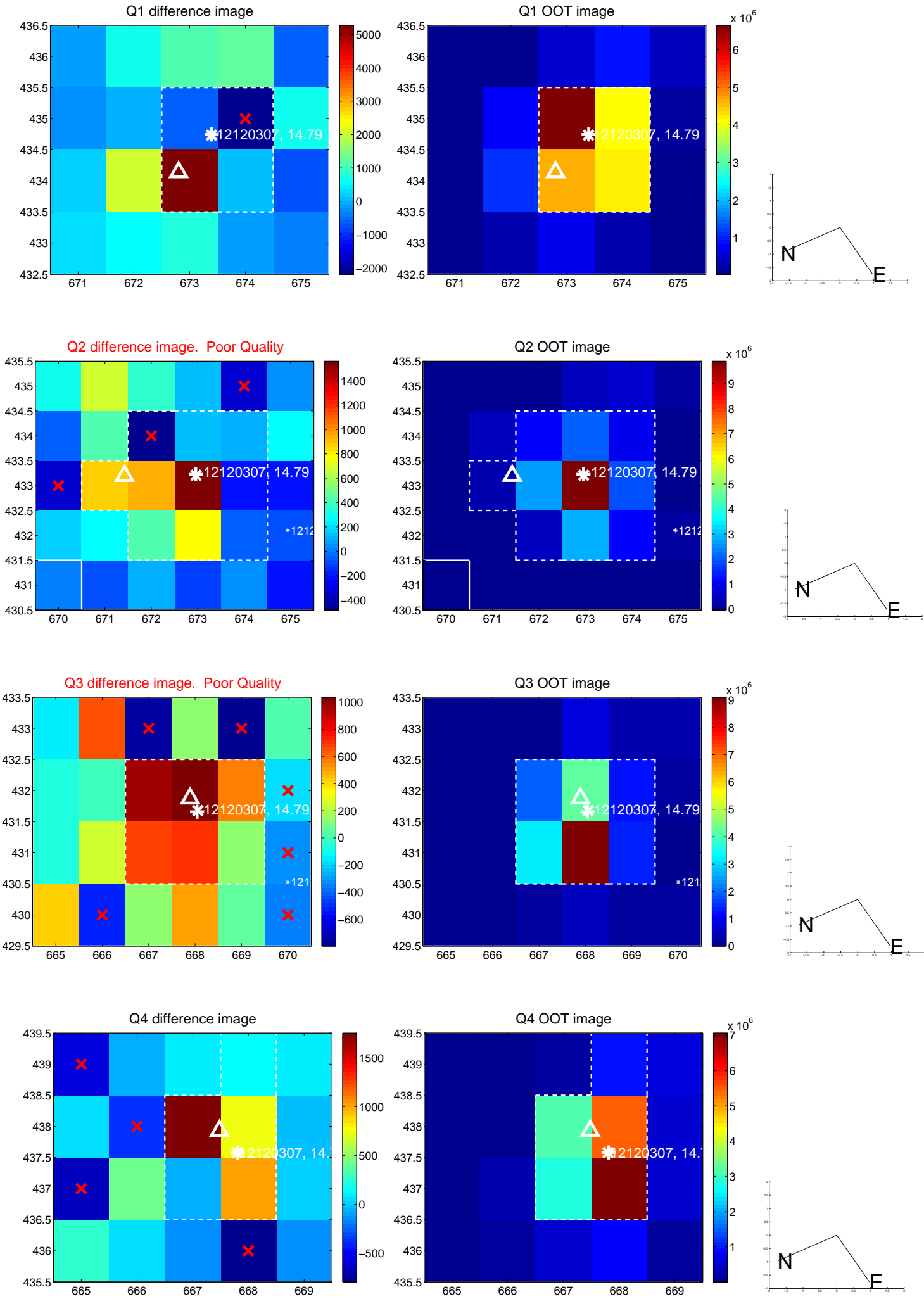
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.263 ± 0.786	1.61	-0.078 ± 0.534	1.261 ± 0.766
PRF-fit source offset from KIC position	1.230 ± 0.824	1.49	-0.091 ± 0.501	1.227 ± 0.803
photometric centroid source offset	1.34 ± 1.03	1.31	0.97 ± 1.00	0.92 ± 1.05

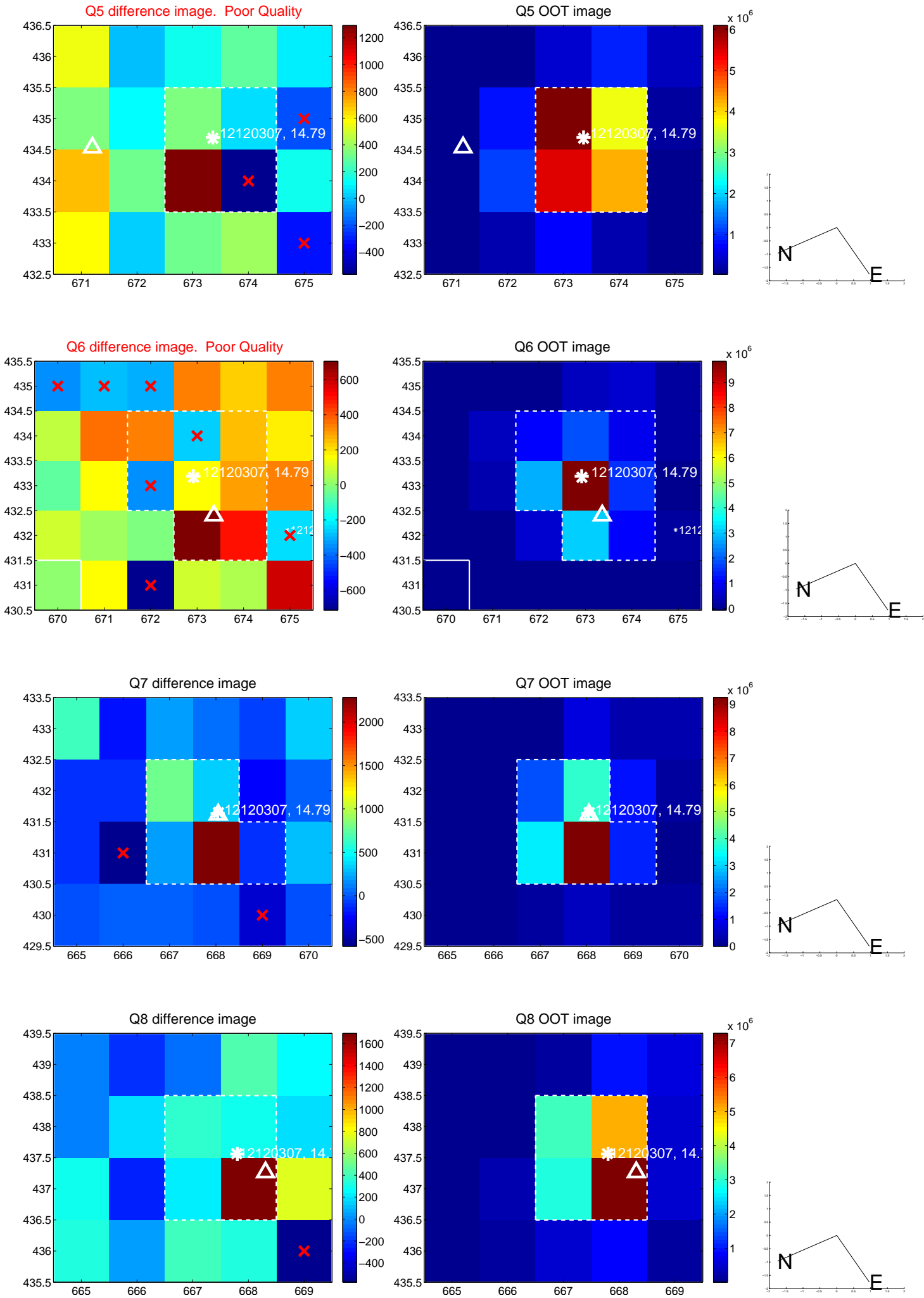


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

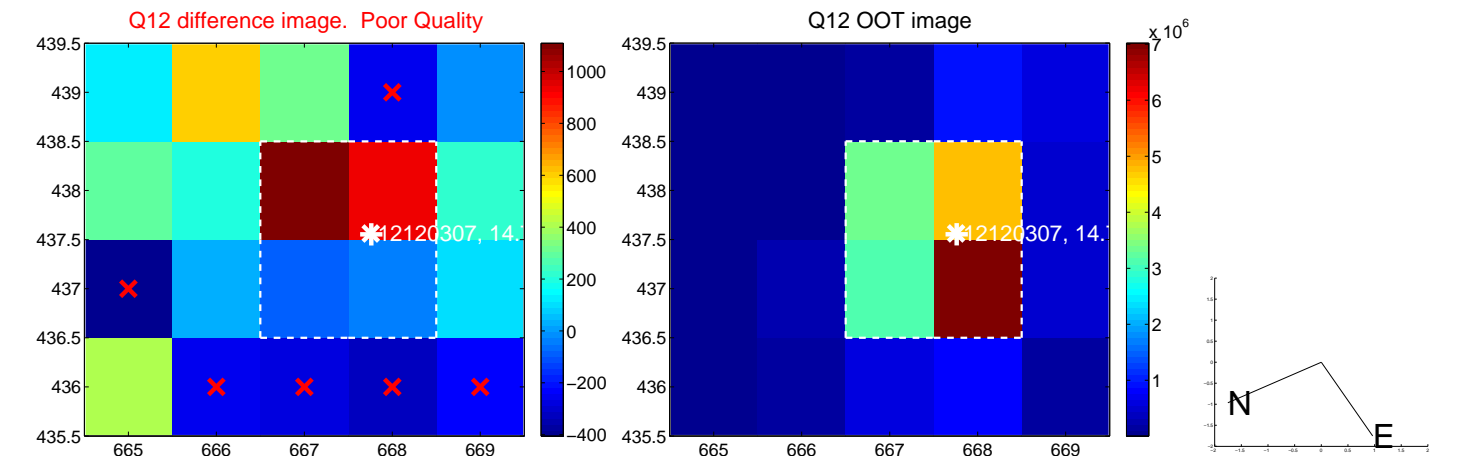
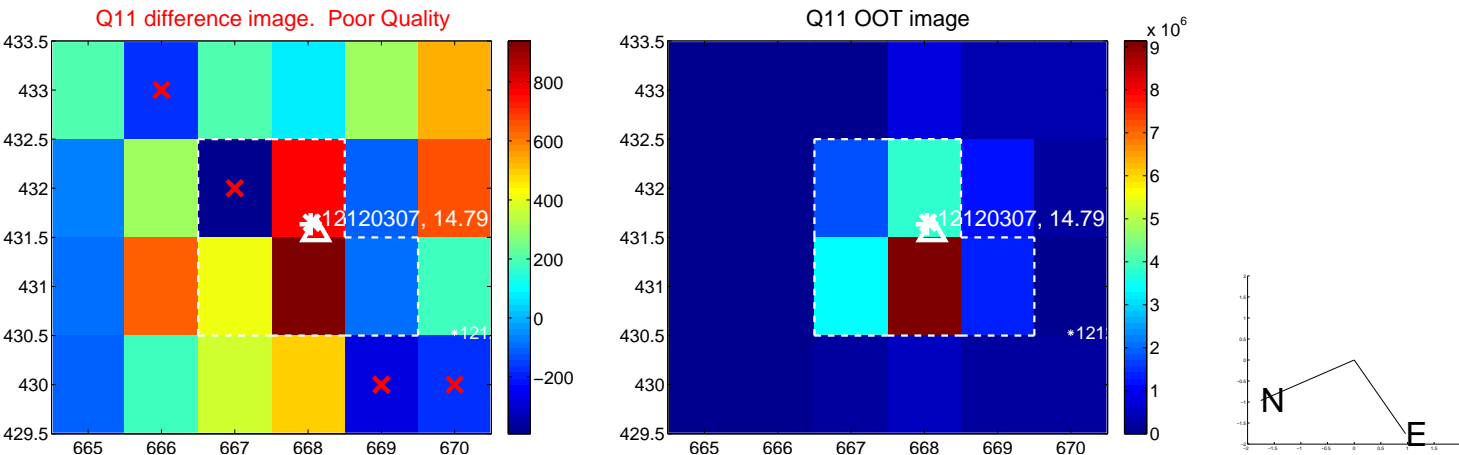
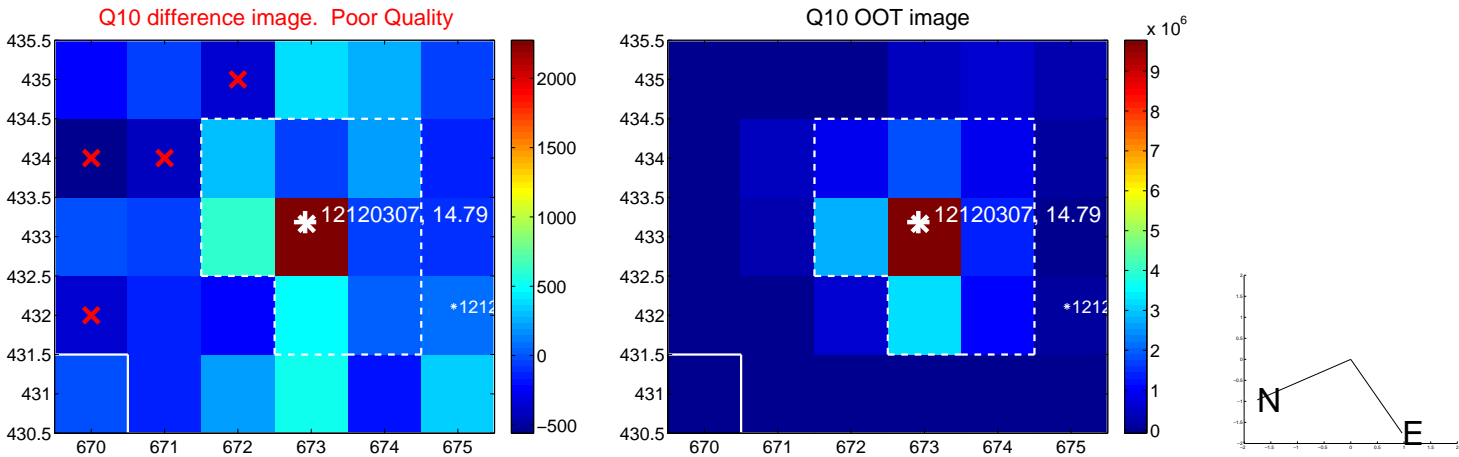
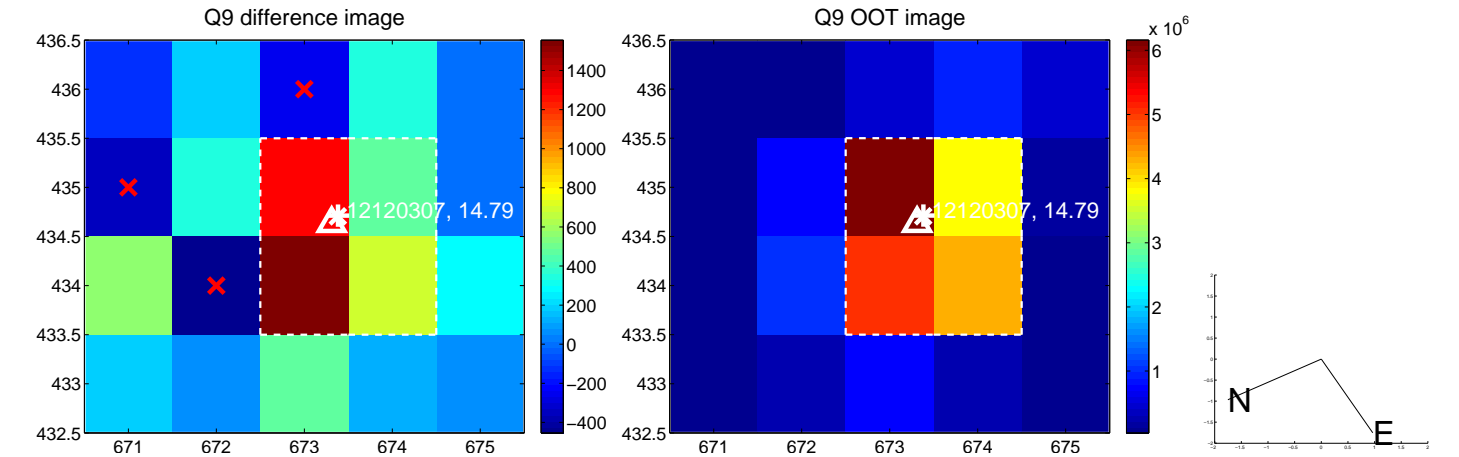
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



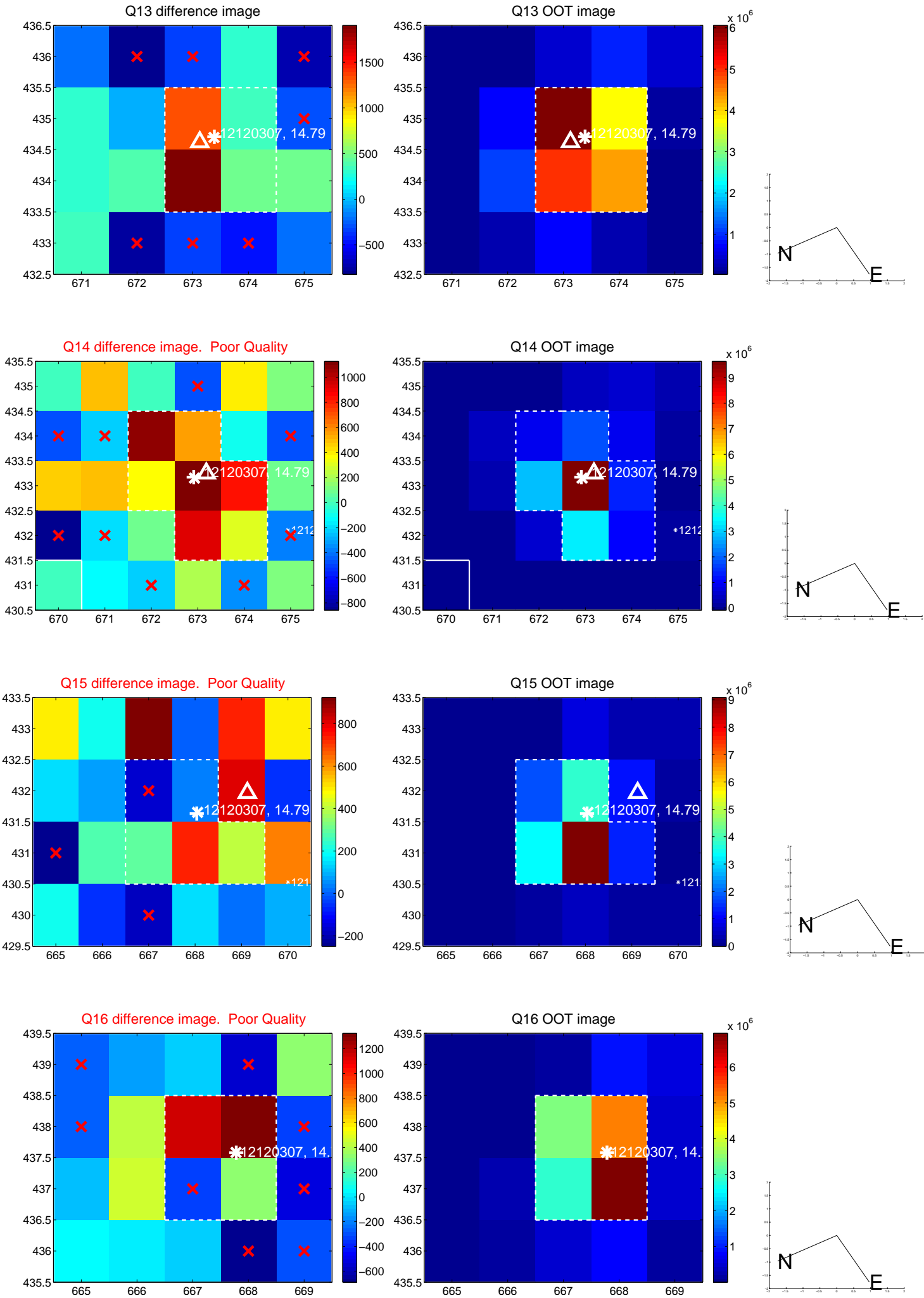
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



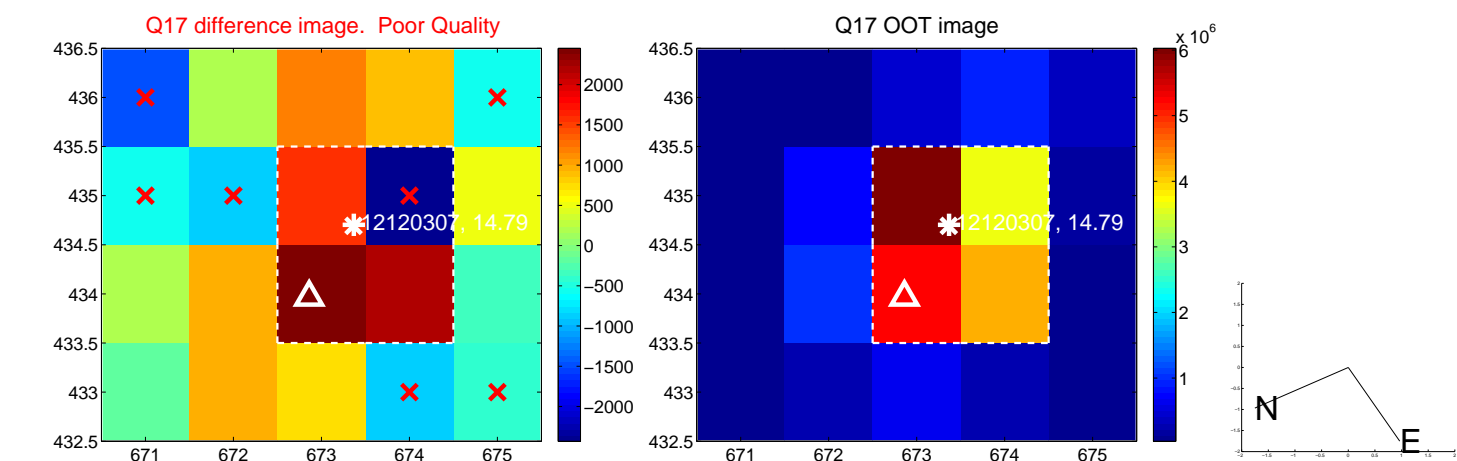
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



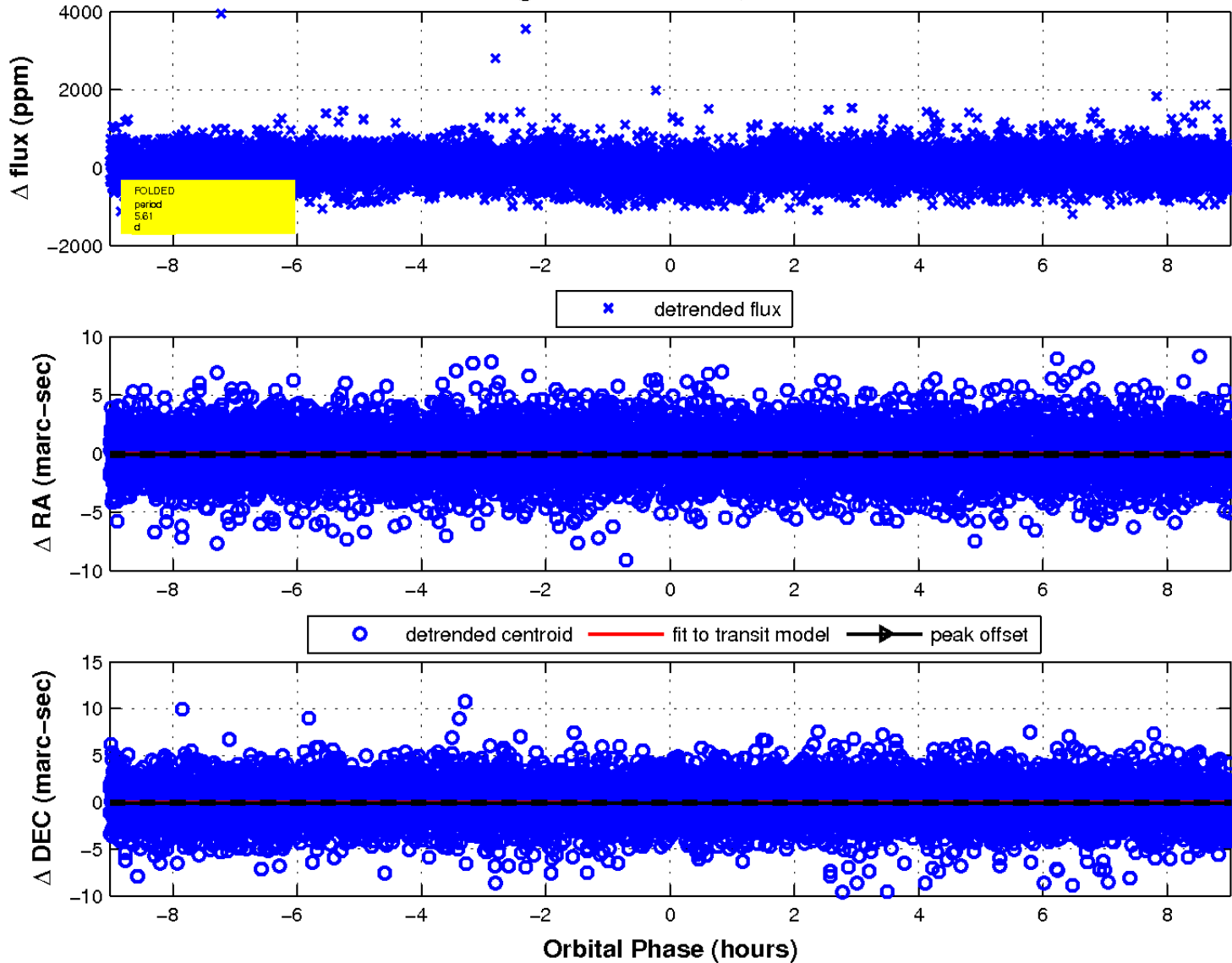
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

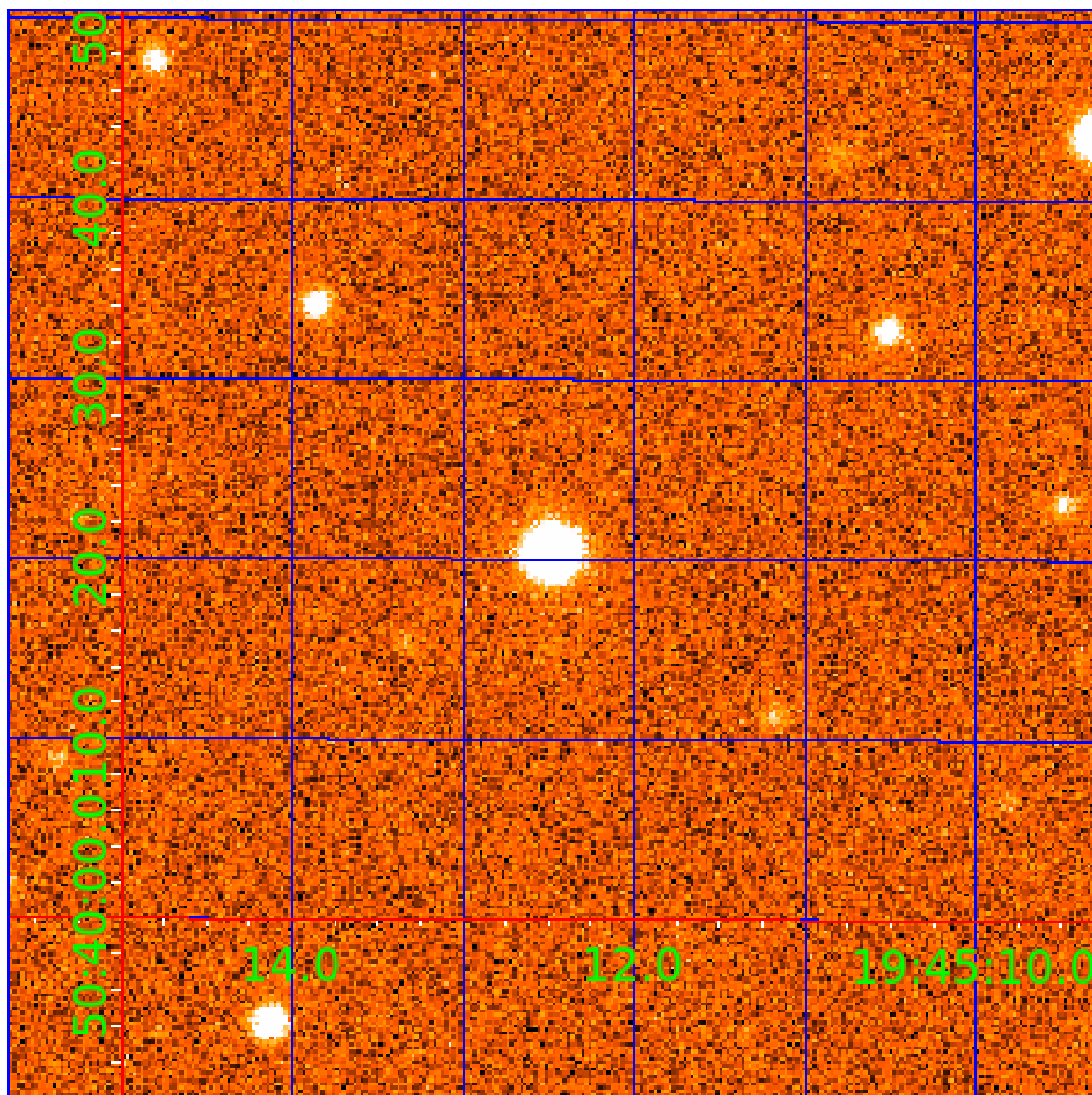


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 012120307

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})
012120307-01	OBS	2597.01	8.005056	138.712161	186.8	3.538	13.9	14.6	1.10	6398	1.72	271.92
012120307-02	OBS	2597.03	5.613579	131.816484	165.6	3.007	12.6	14.2	1.10	6398	1.65	436.46
012120307-03	OBS	2597.02	12.130649	139.901910	204.5	3.957	11.7	12.7	1.10	6398	1.80	156.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012120307-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012120307-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
012120307-03	OBS	PC	0.97	0	0	0	0	NO_COMMENT

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

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

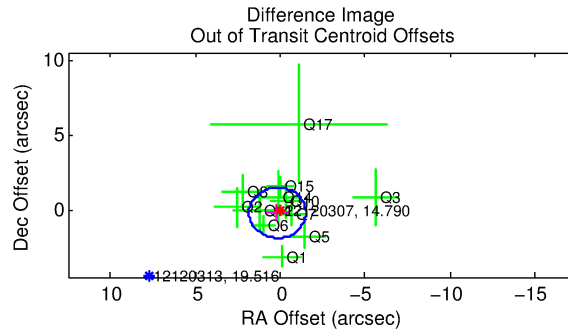
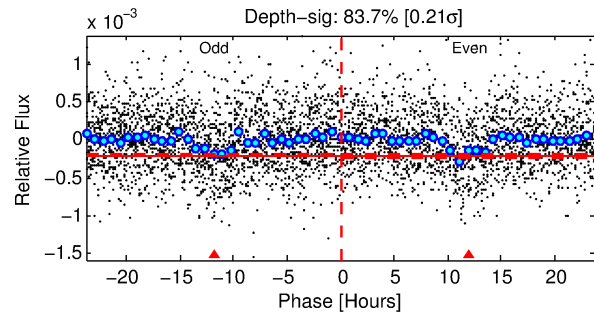
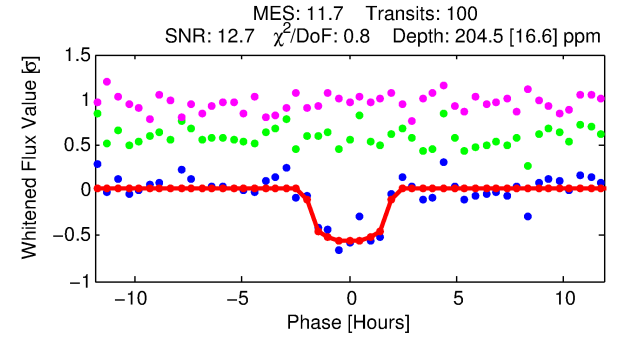
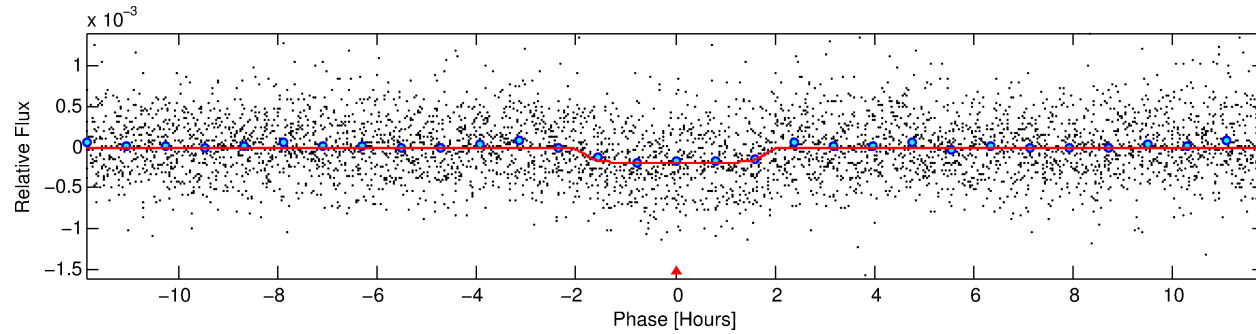
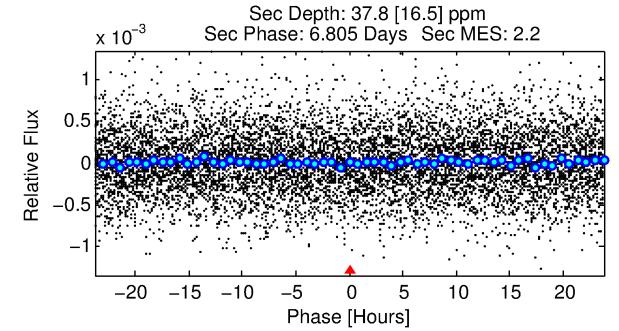
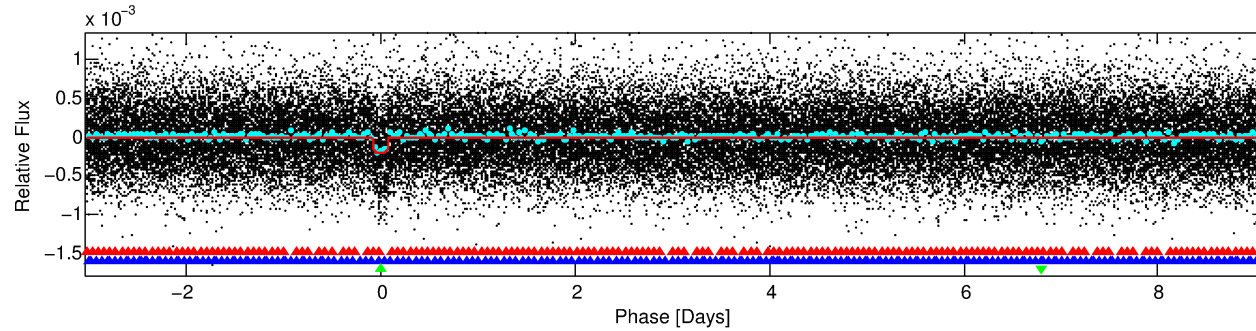
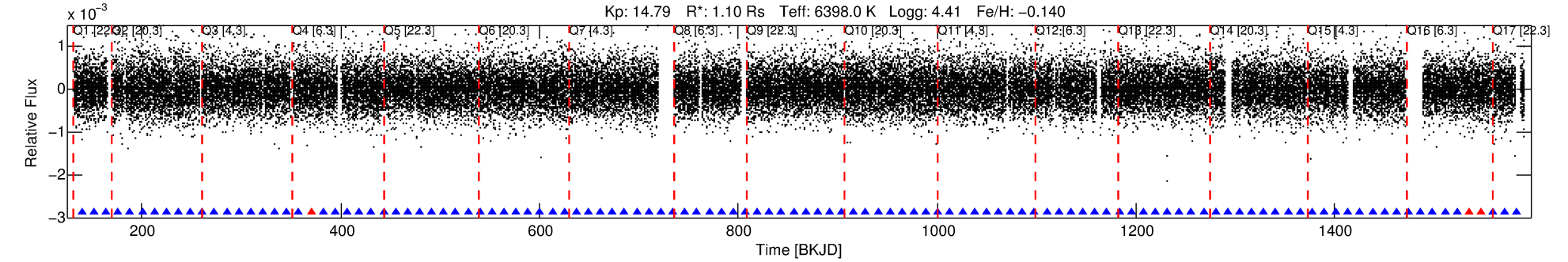
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012120307-03

No Significant Match Found

DV One-Page Summary

KIC: 12120307 Candidate: 3 of 3 Period: 12.131 d
KOI: K02597.02 Name: Kepler-394c Corr: 0.974



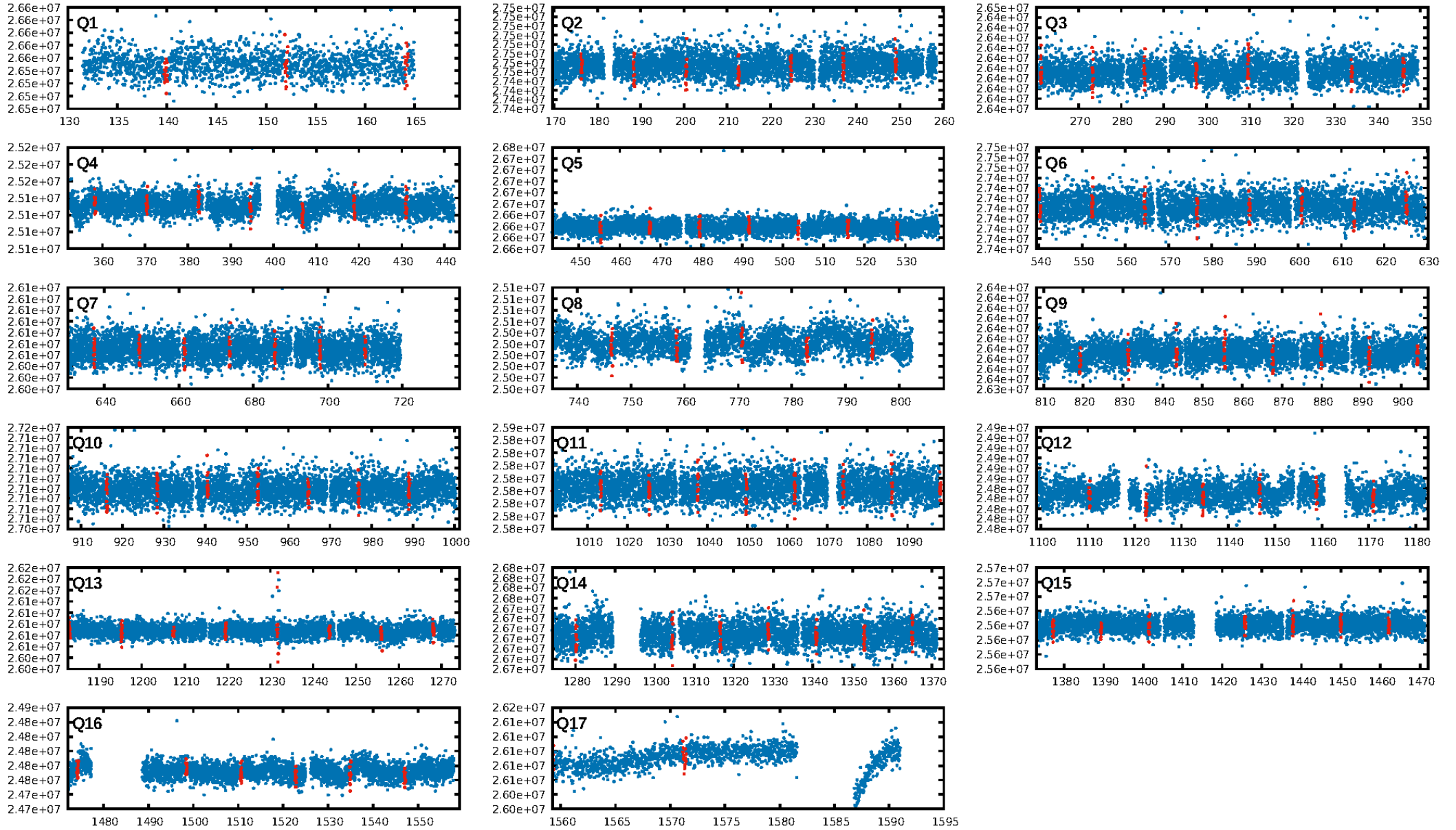
DV Fit Results:

Period = 12.13065 [0.00010] d
Epoch = 139.9019 [0.0064] BKJD
Rp/R* = 0.0150 [0.0059]
a/R* = 12.30 [26.46]
b = 0.87 [0.61]
Seff = 156.23 [65.11]
Teq = 901 [94] K
Rp = 1.80 [0.93] Re
a = 0.1079 [0.0298] AU
Ag = 74.44 [73.12] [1.00σ]
Teffp = 4094 [933] K [3.41σ]

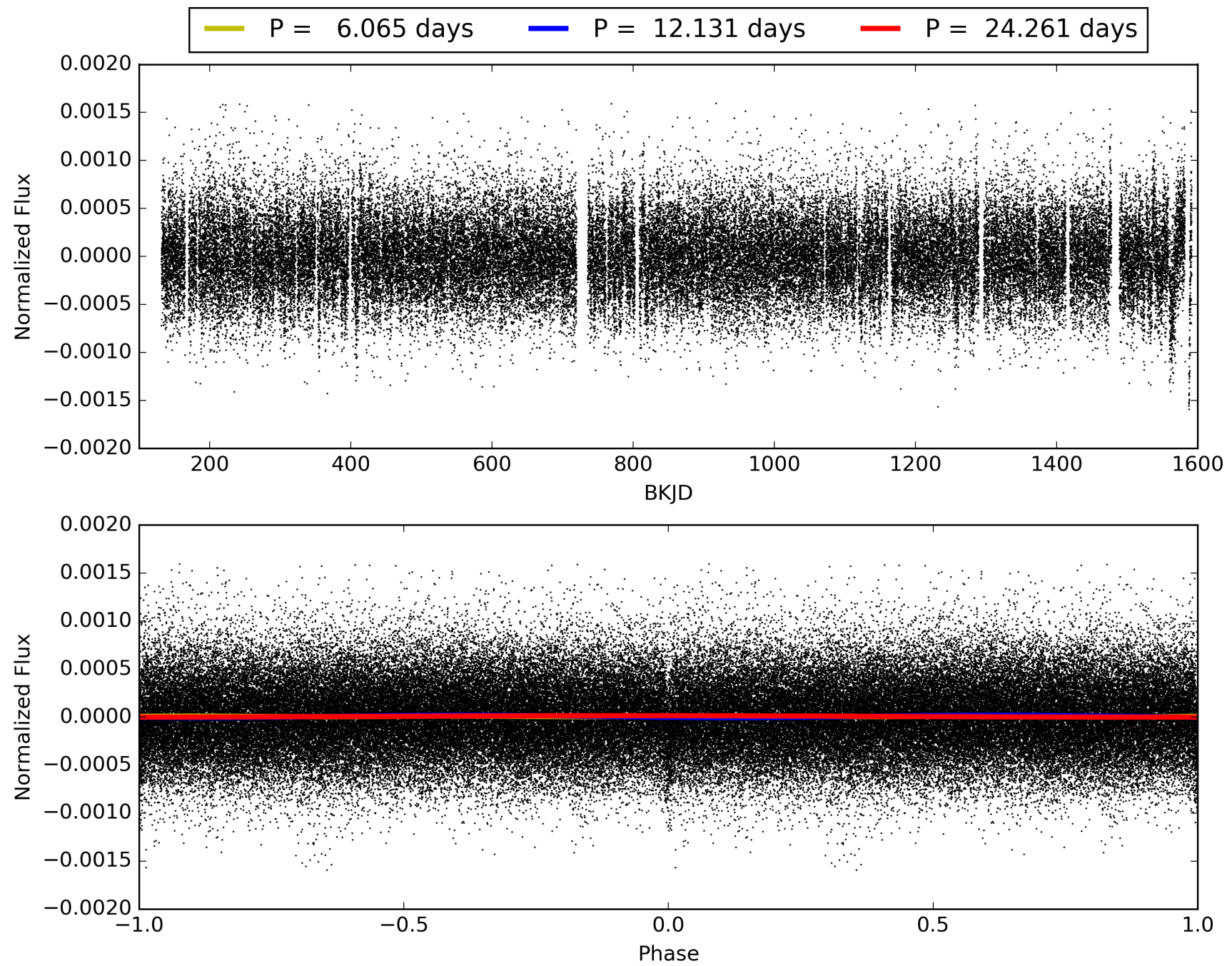
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.65σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.51e-33
RollingBand-fgt: 0.97 [92/95]
GhostDiagnostic-chr: 5.076
Centroid-sig: 7.4%
Centroid-so: 2.314 arcsec [2.17σ]
OotOffset-rm: 0.266 arcsec [0.47σ]
KicOffset-rm: 0.149 arcsec [0.25σ]
OotOffset-st: 4/3/2/3 [12]
KicOffset-st: 4/3/2/3 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.94 [16/17]

TCE 012120307-03, PDC Light Curves

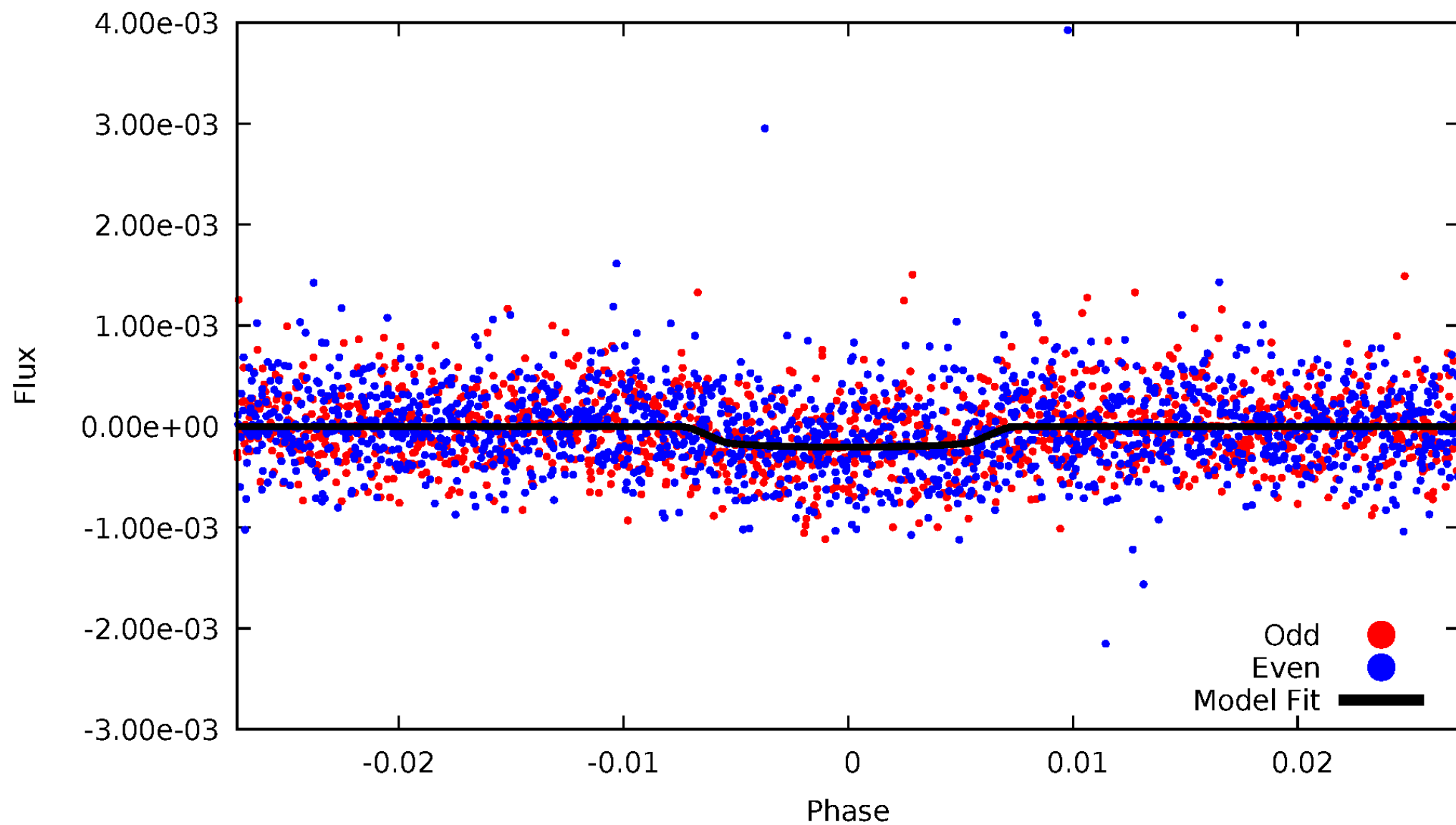


TCE 012120307-03



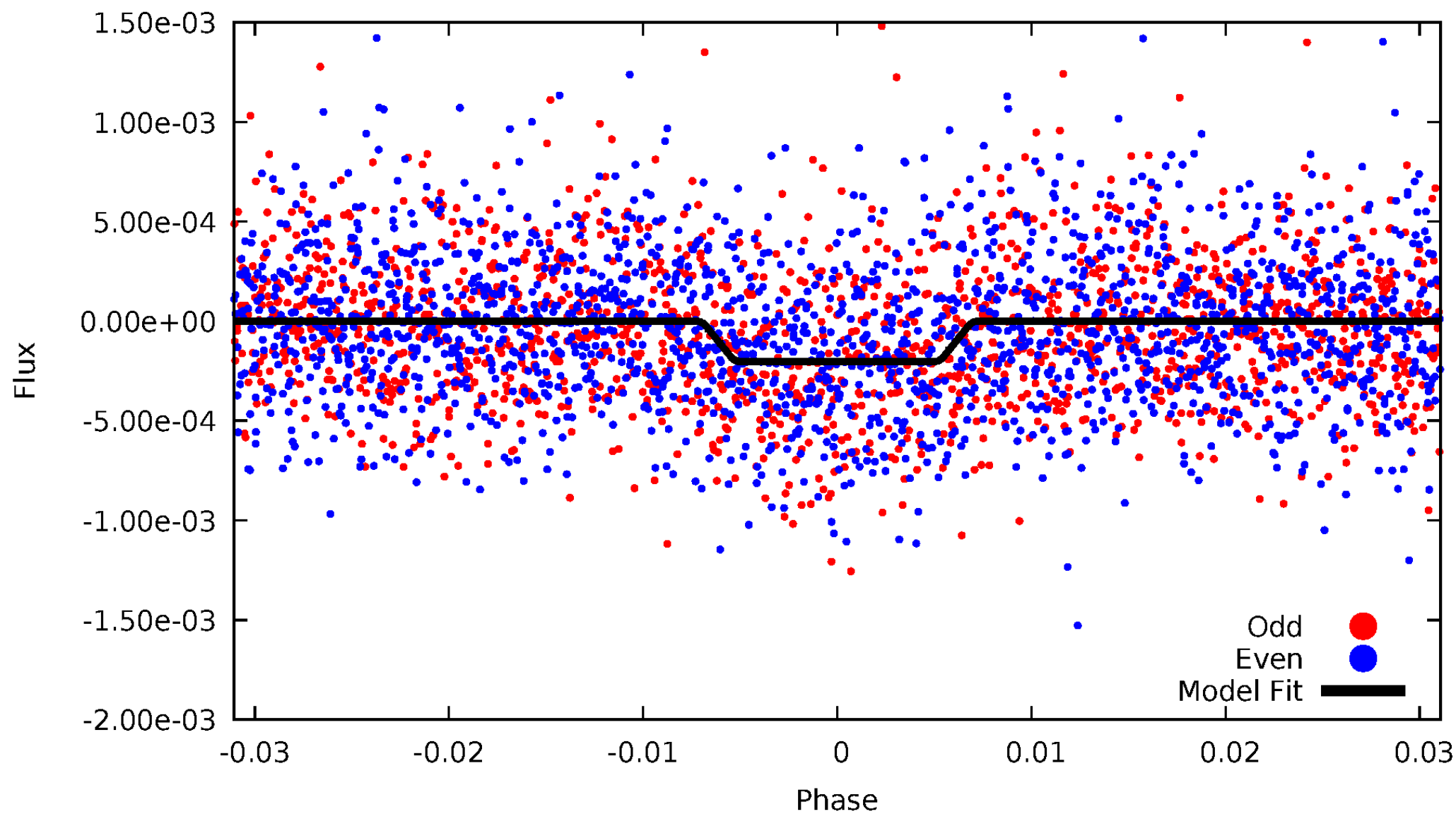
DV Odd/Even

TCE 012120307-03

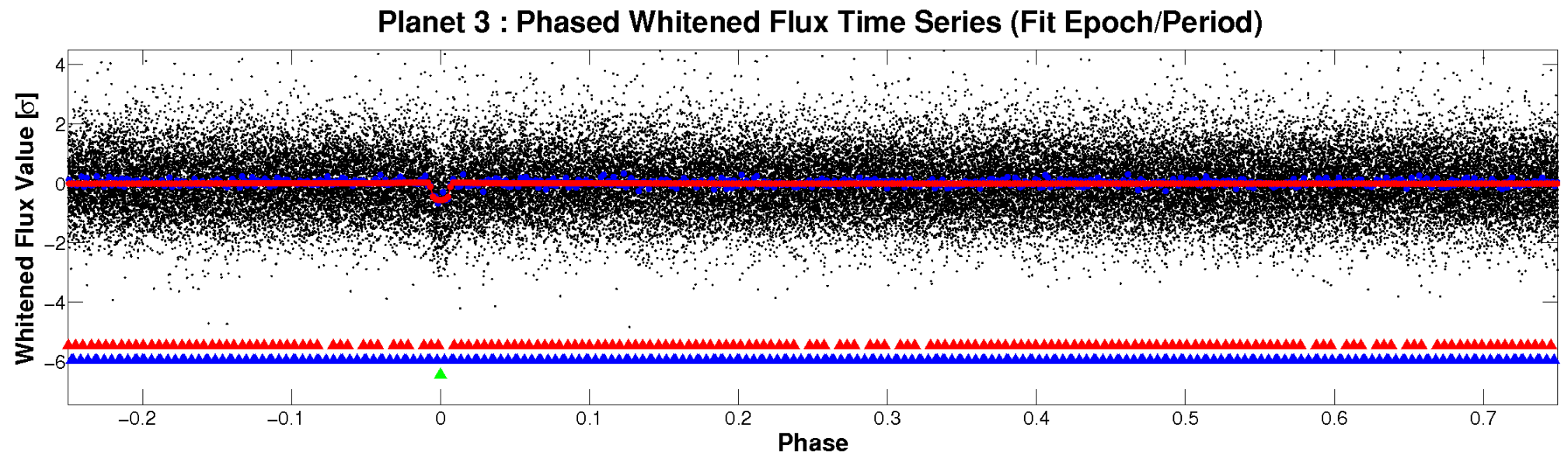
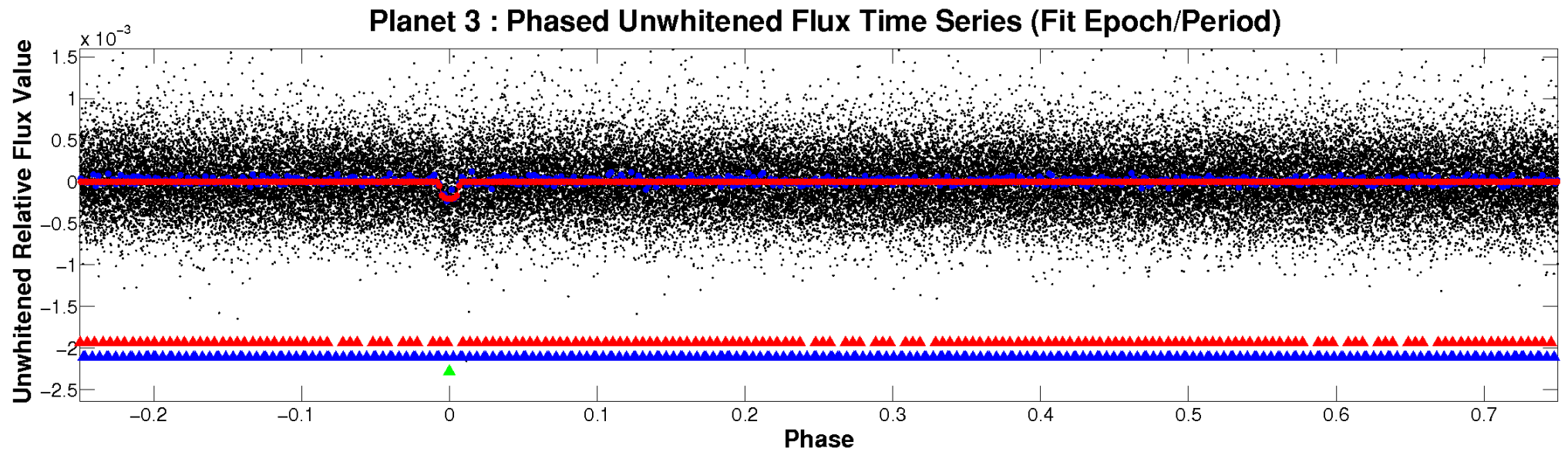


ALT Odd/Even

TCE 012120307-03

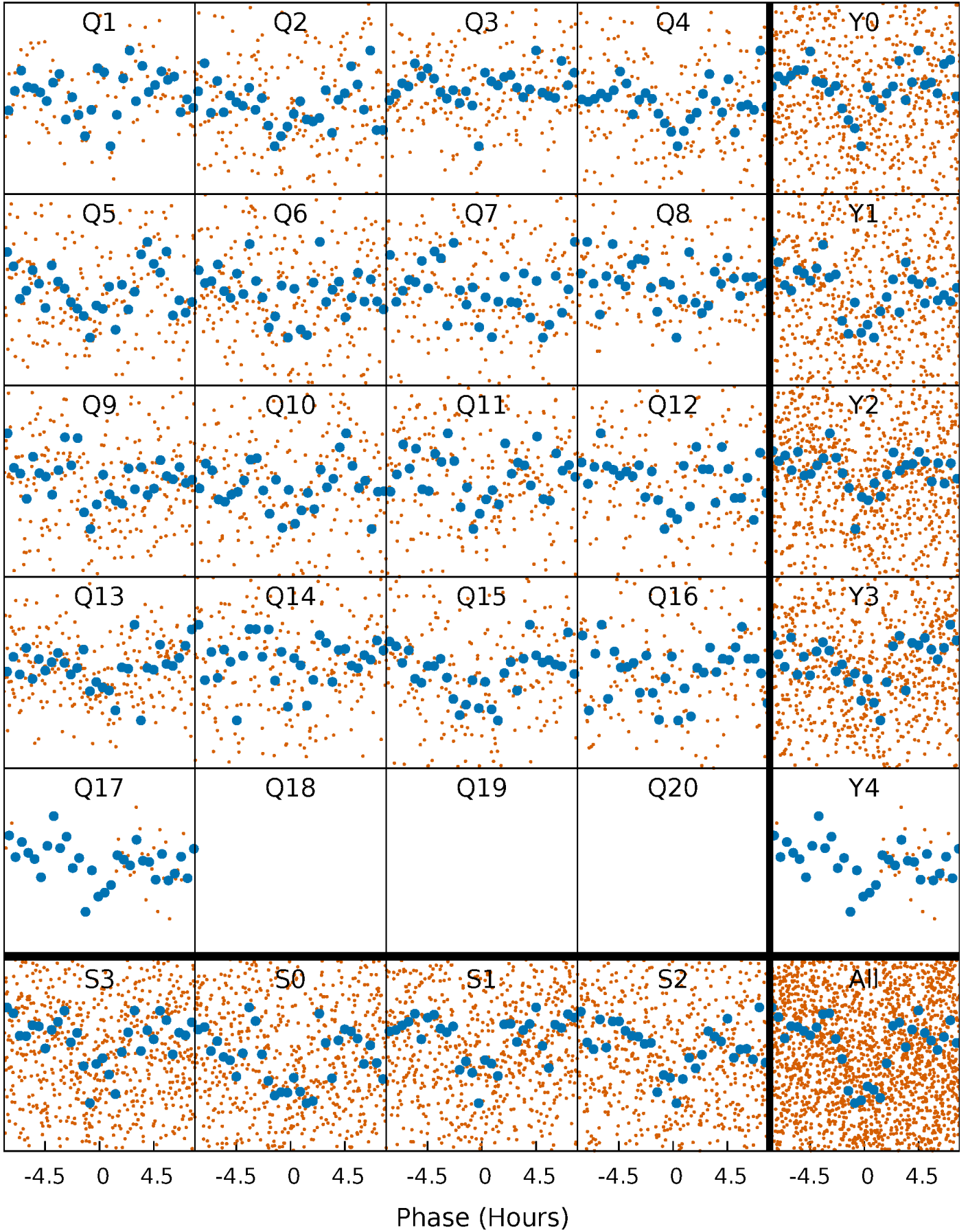


Non-Whitened Vs. Whitened Light Curve



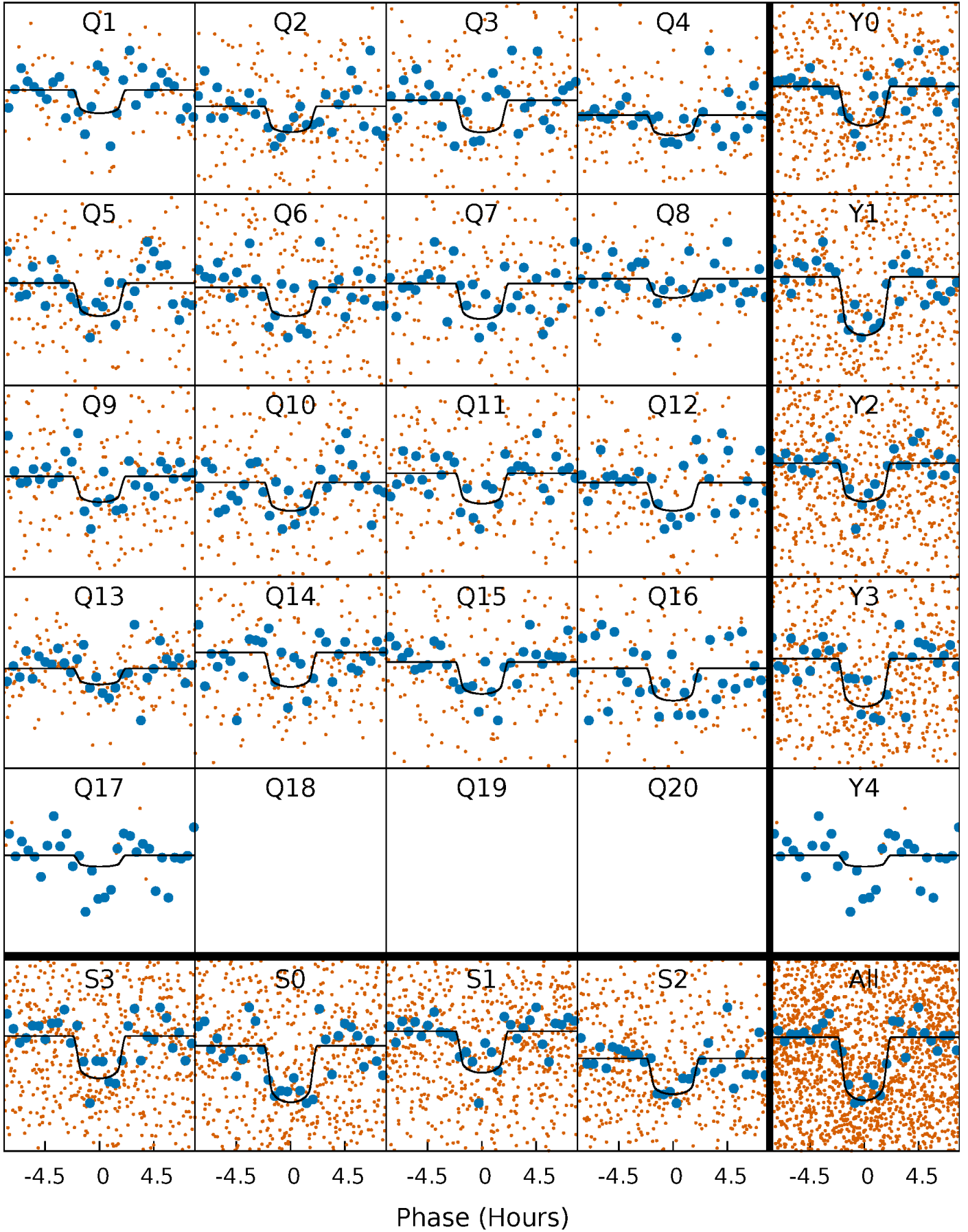
PDC Quarter-Phased Transit Curves

TCE 012120307-03 P= 12.130649 Days $T_0=139.901909$ (BKJD)



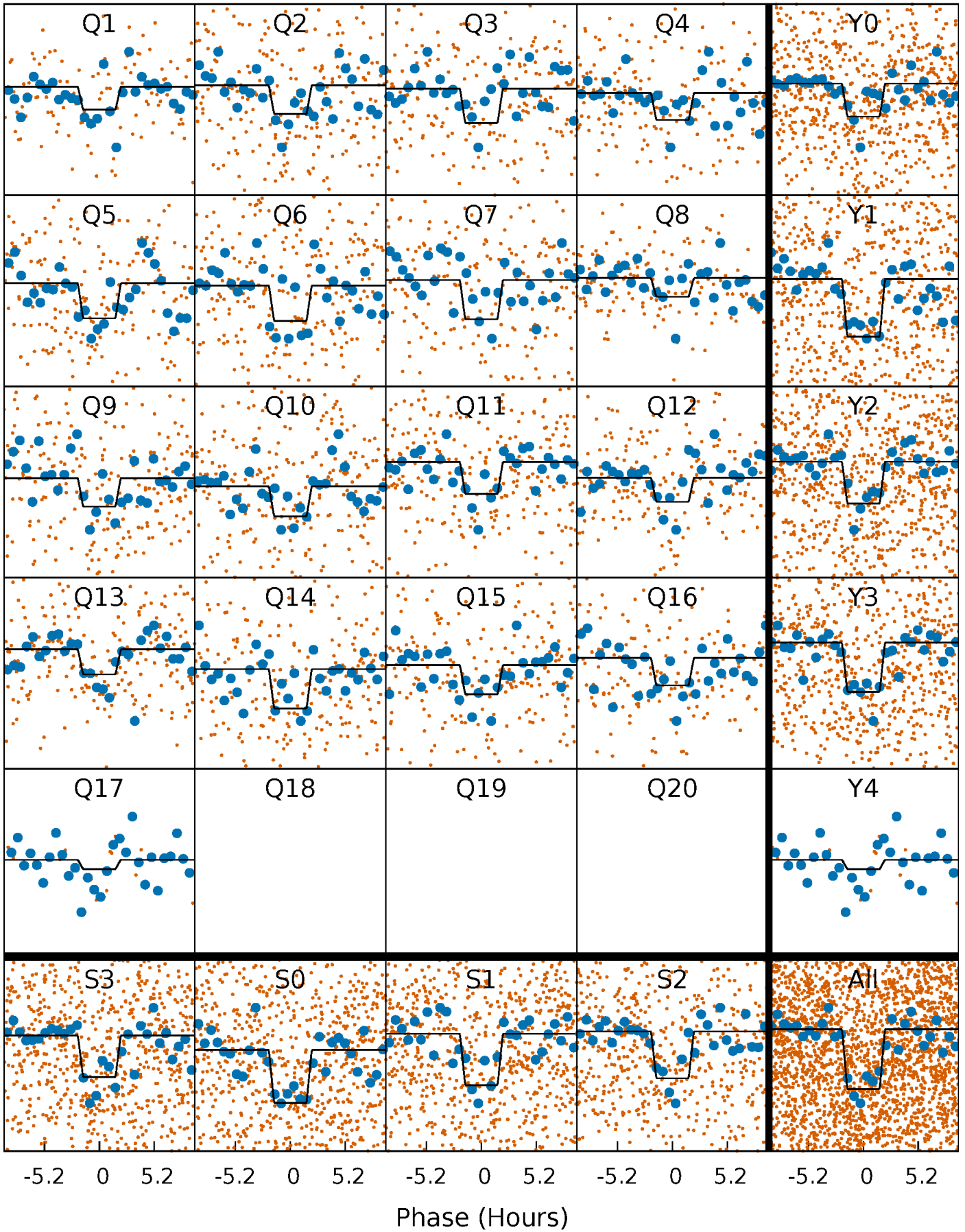
DV Quarter-Phased Transit Curves

TCE 012120307-03 P= 12.130649 Days $T_0=139.901909$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

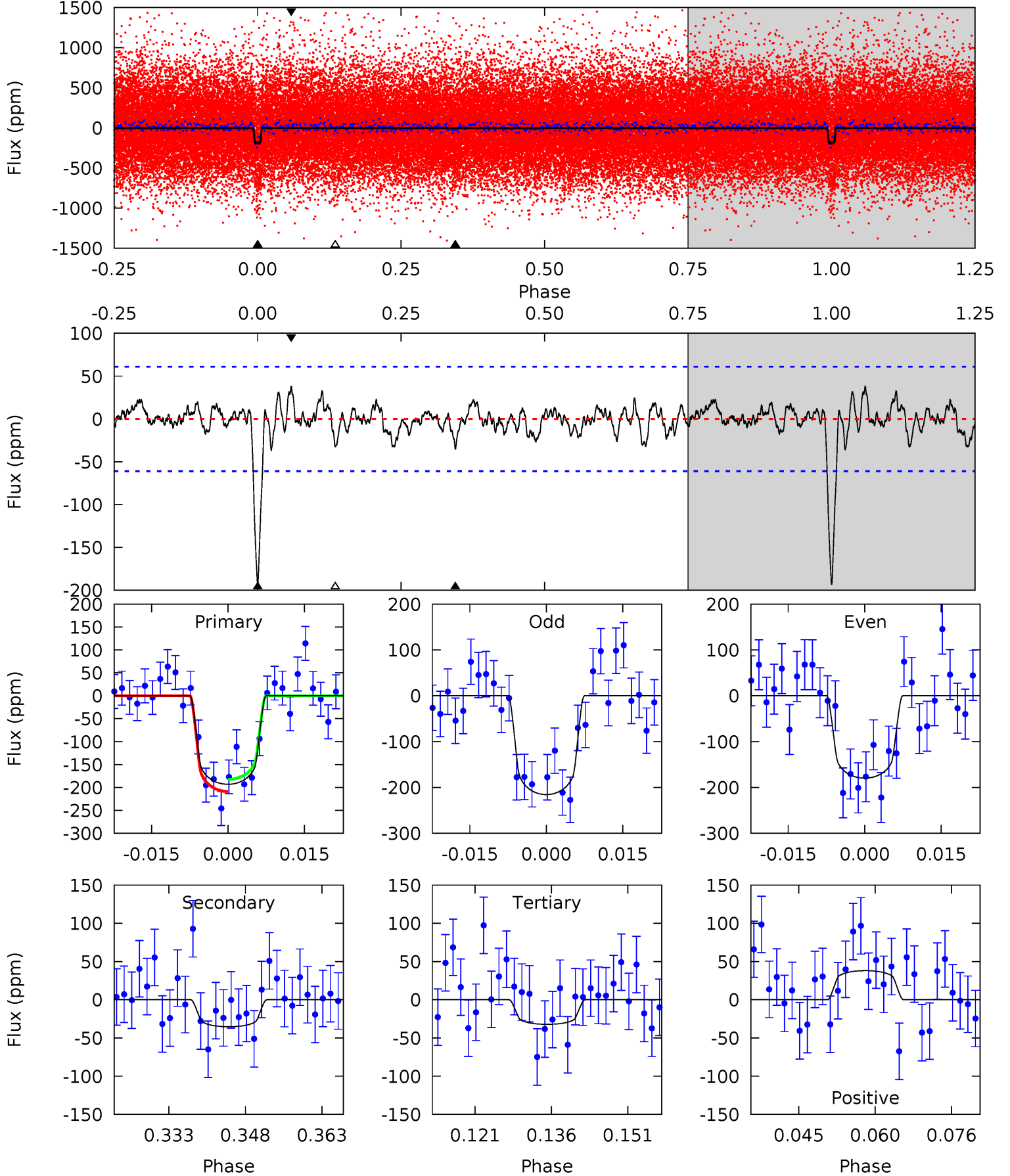
TCE 012120307-03 P= 12.130907 Days $T_0=139.887744$ (BKJD)



DV Model-Shift Uniqueness Test

012120307-03, P = 12.130649 Days, E = 127.771260 Days

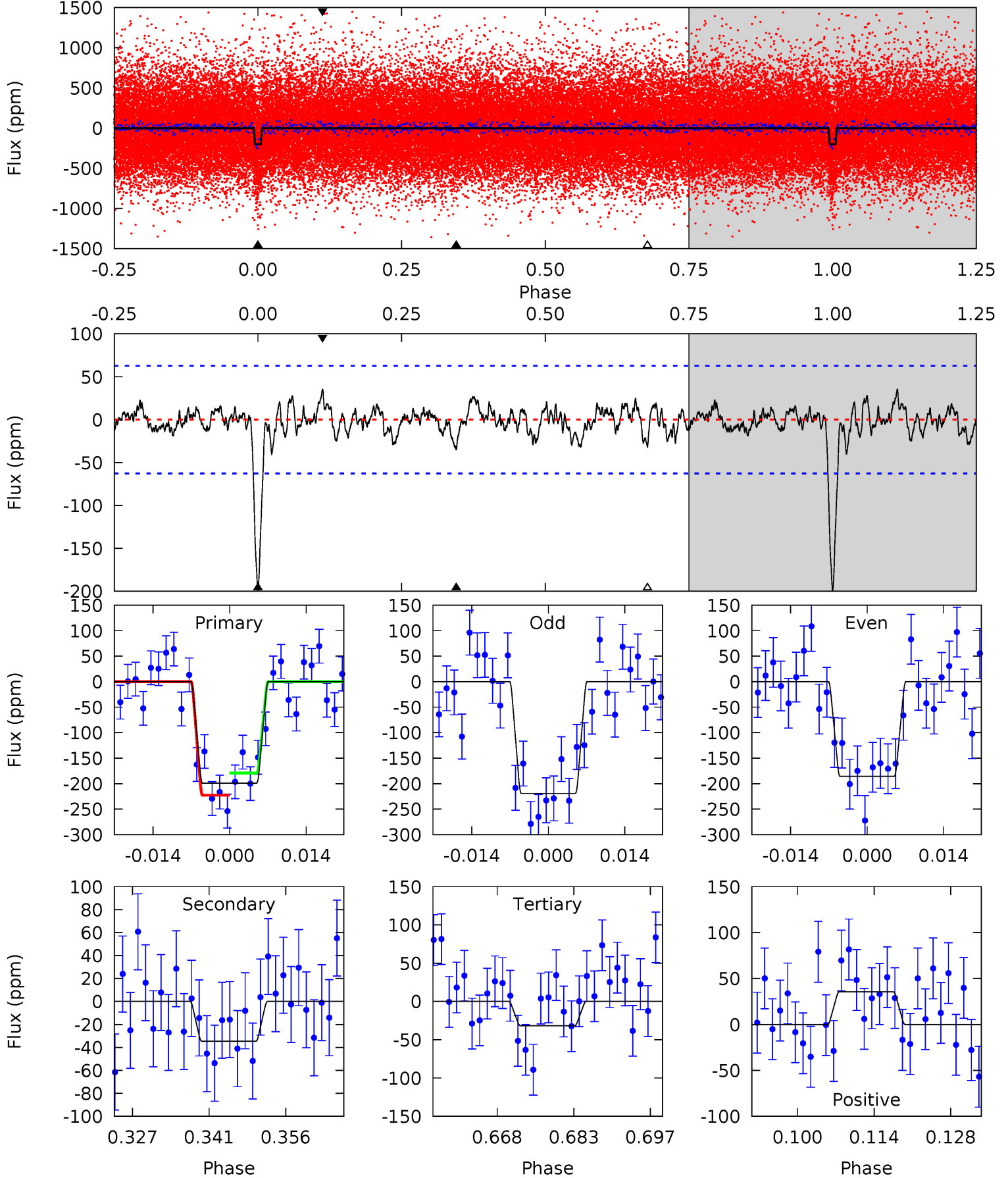
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	2.87	2.61	3.09	4.95	2.43	0.97	13.1	12.6	0.25	-0.23	1.45	0.83	0.16	1.08



Alt Model-Shift Uniqueness Test

012120307-03, P = 12.130907 Days, E = 127.756837 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	2.74	2.51	2.80	4.96	2.45	0.95	13.2	12.9	0.22	-0.07	1.31	0.87	0.15	1.73



Stellar Parameters For KIC 012120307

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6398^{+157}_{-224}	$4.411^{+0.056}_{-0.210}$	$-0.140^{+0.250}_{-0.300}$	$1.101^{+0.370}_{-0.123}$	$1.141^{+0.169}_{-0.152}$	$1.204^{+0.350}_{-0.639}$
	+2%/-4%	+1%/-5%	+179%/-214%	+34%/-11%	+15%/-13%	+29%/-53%
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 012120307-03 / KOI 2597.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-35 ± 12	$1.90^{+0.88}_{-0.74}$	1282^{+99}_{-62}	4232^{+968}_{-562}	61^{+113}_{-34}
Alt.	-35 ± 13	$1.83^{+0.76}_{-0.75}$	1283^{+90}_{-61}	4293^{+1002}_{-596}	63^{+132}_{-35}

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

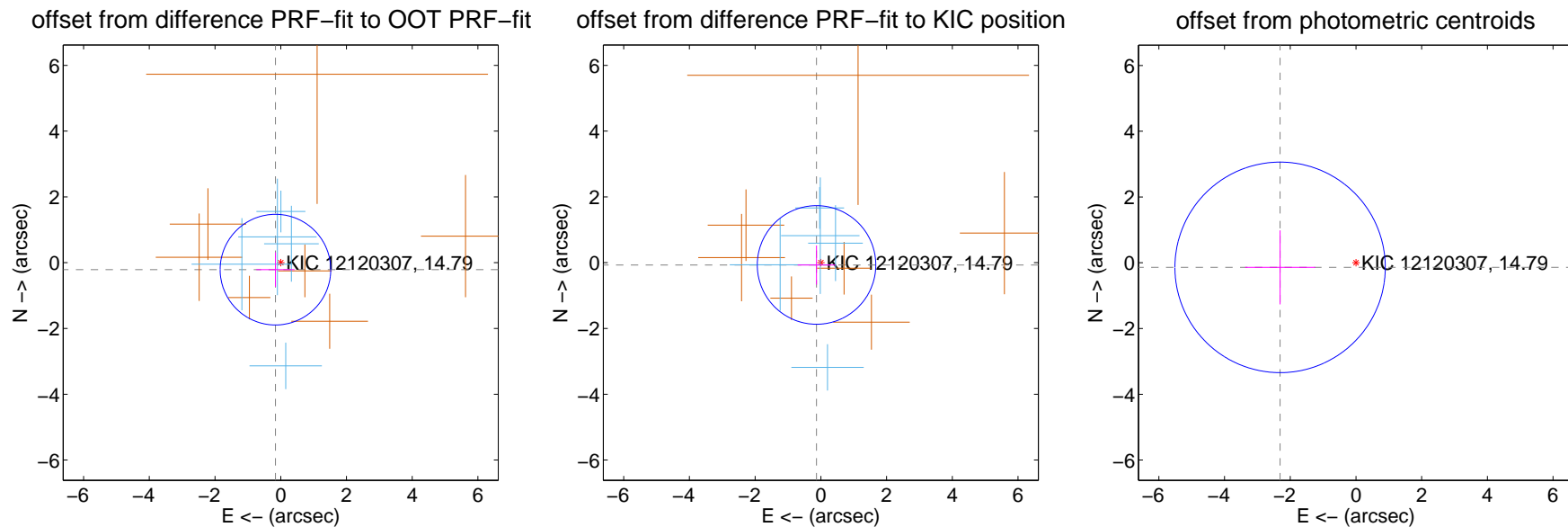
DV Centroid Data

Supplemental centroid analysis for 012120307-03. Kepler magnitude: 14.79. Transit SNR 12.70

There are 5 quarters with good PRF difference image offsets

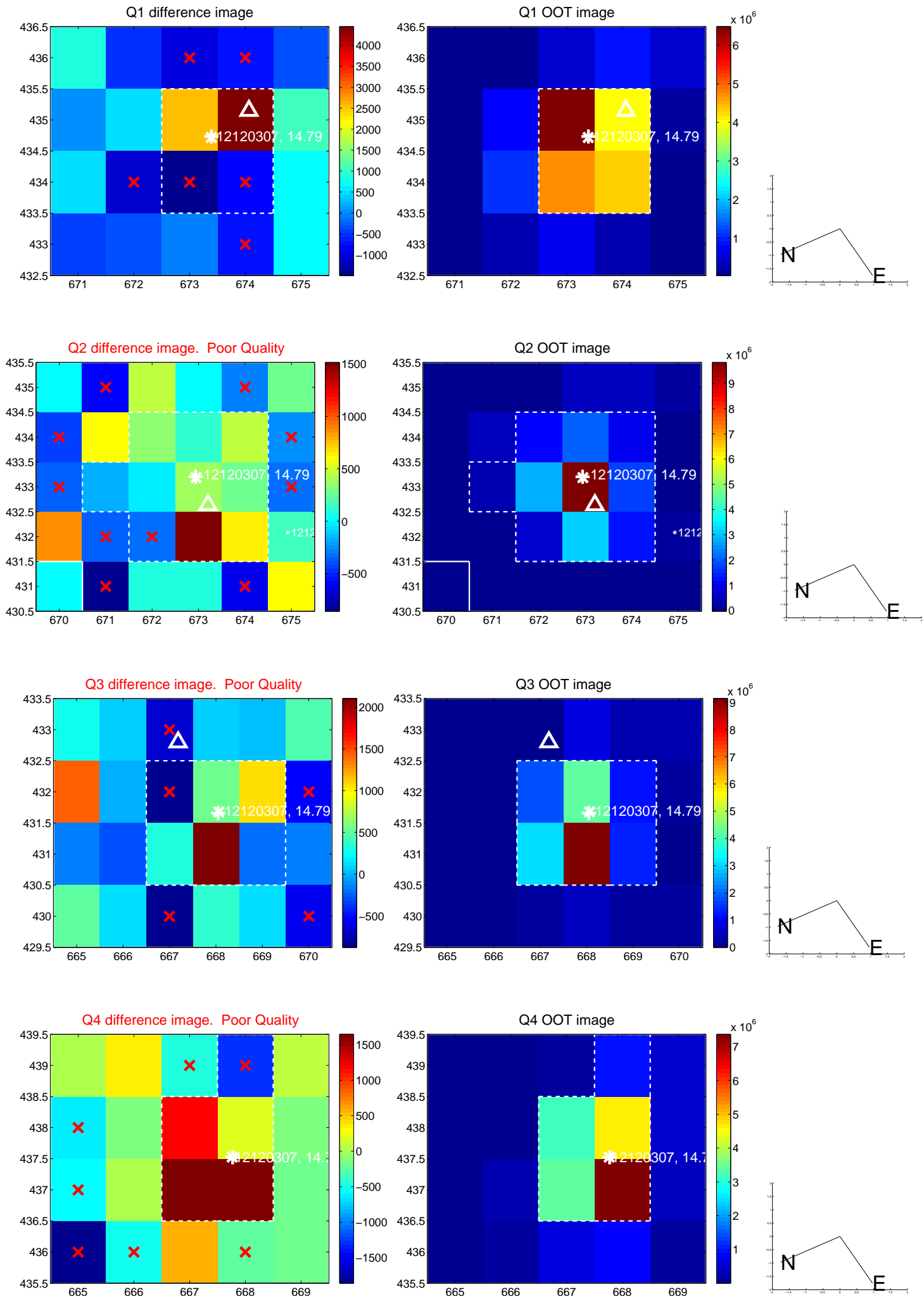
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.266 ± 0.561	0.47	0.162 ± 0.582	-0.212 ± 0.522
PRF-fit source offset from KIC position	0.149 ± 0.601	0.25	0.132 ± 0.573	-0.069 ± 0.595
photometric centroid source offset	2.31 ± 1.07	2.17	2.31 ± 1.07	-0.14 ± 1.13

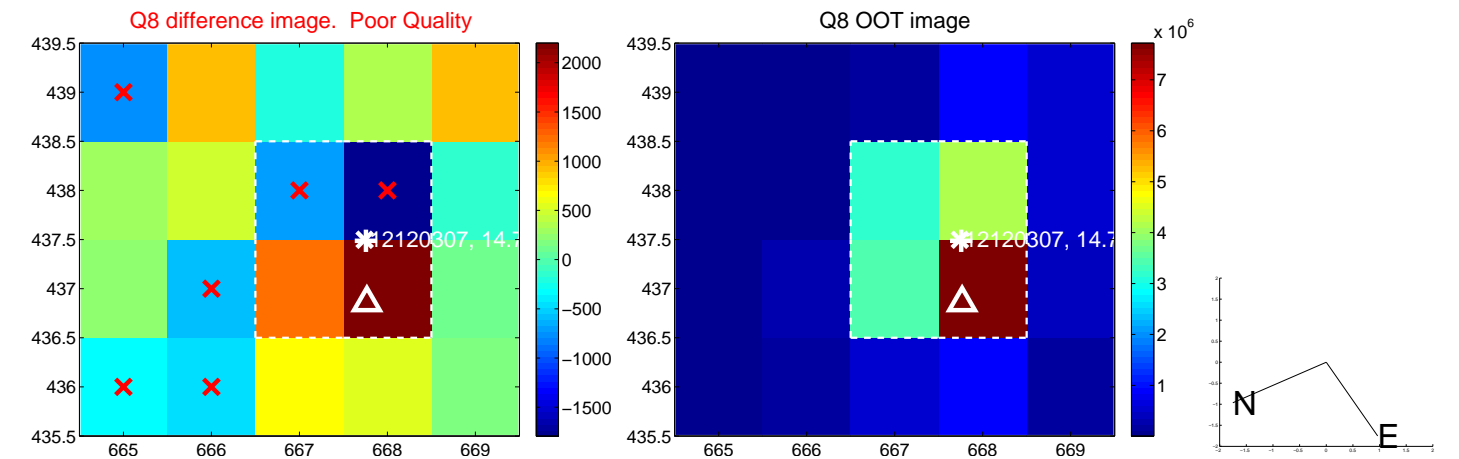
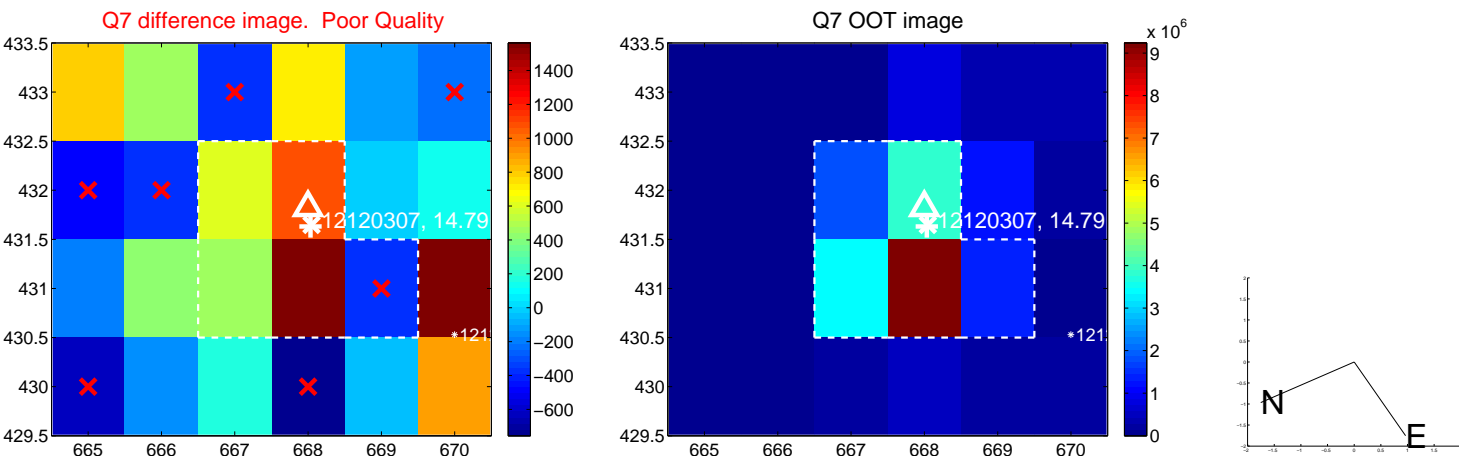
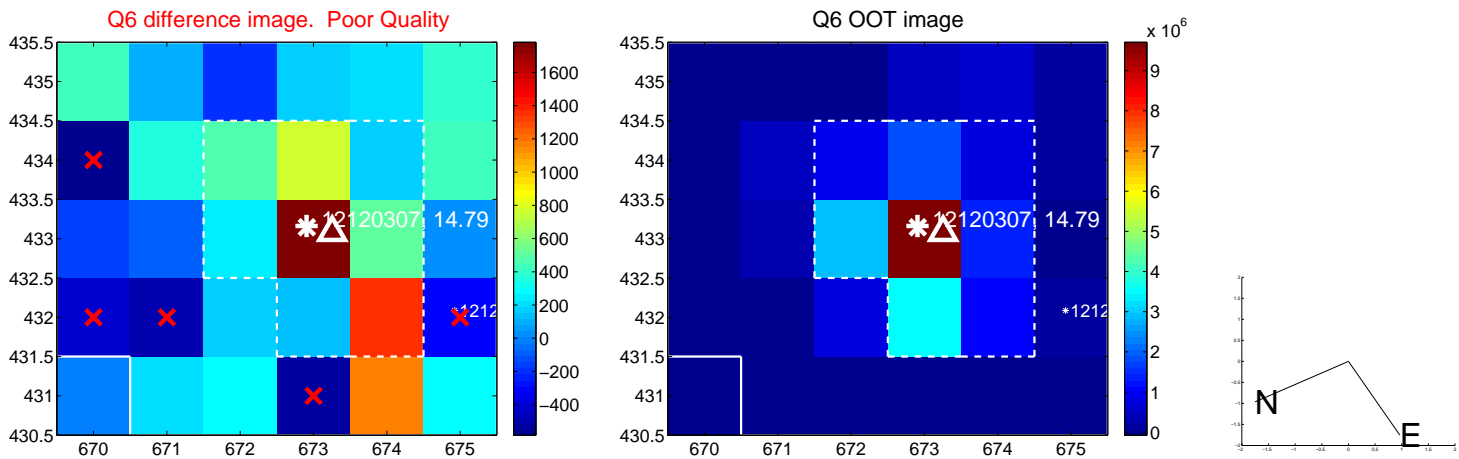
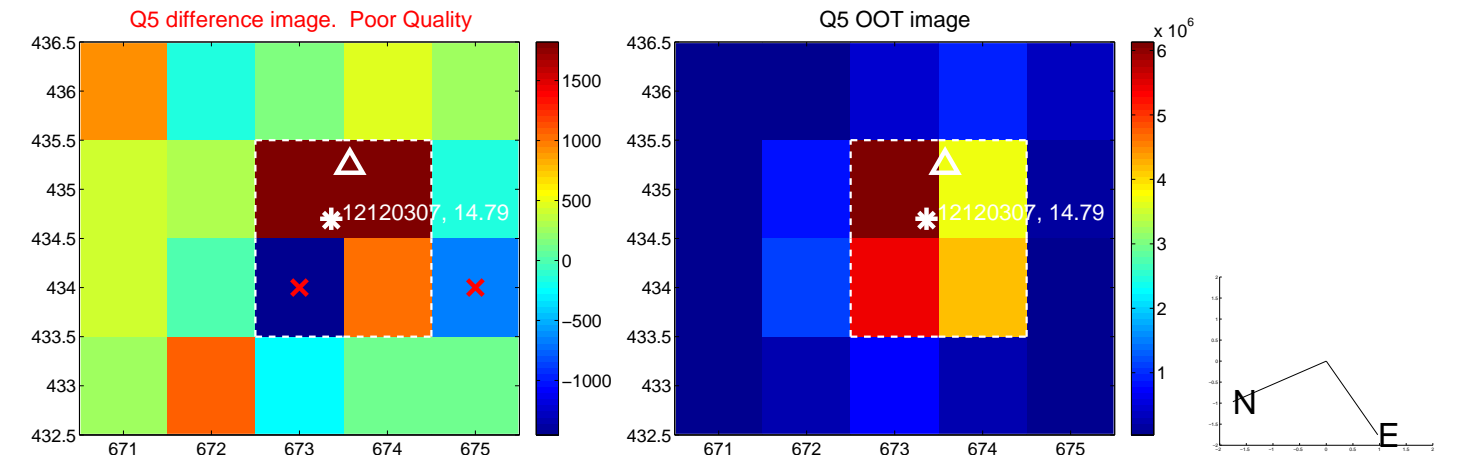


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

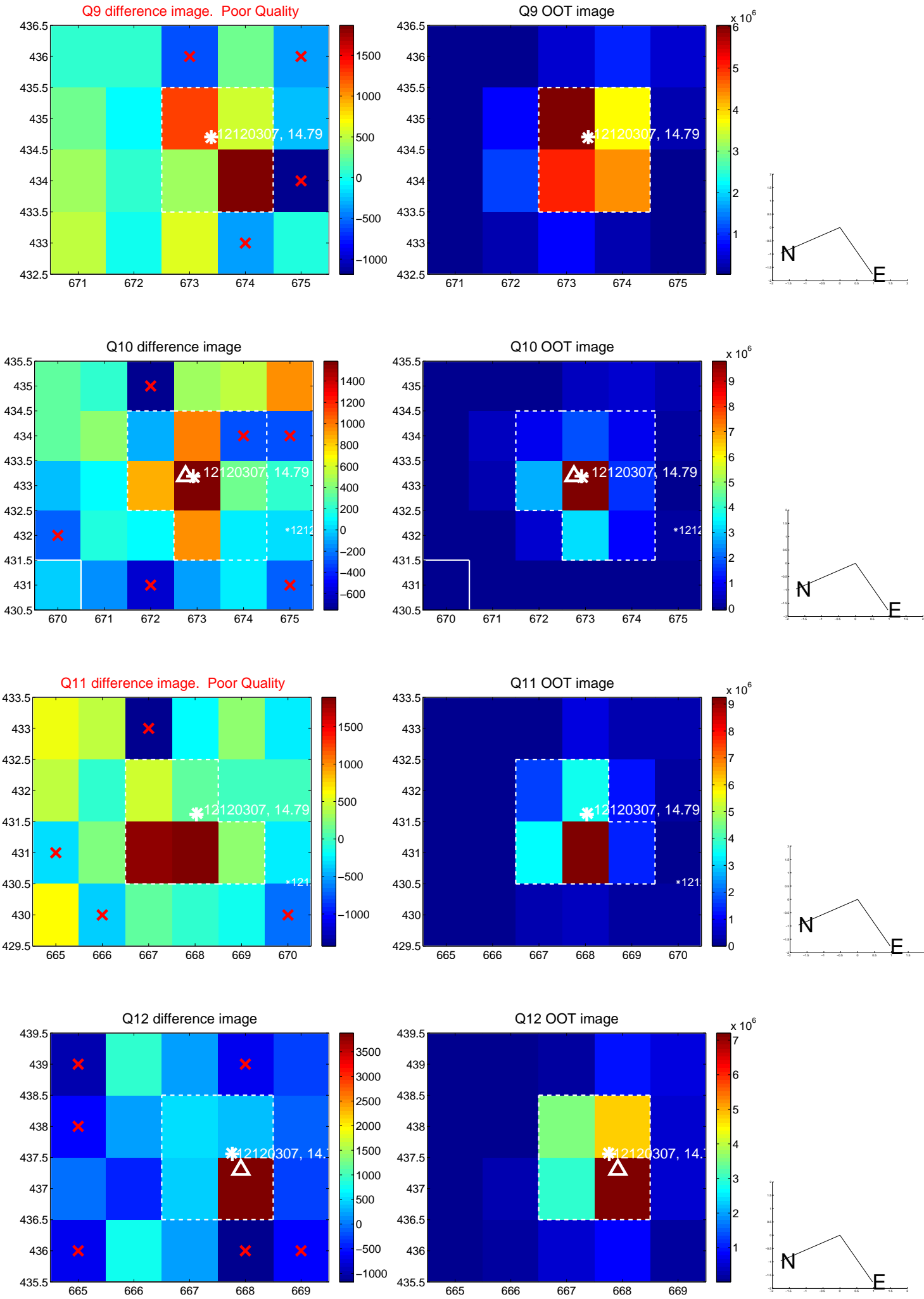
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



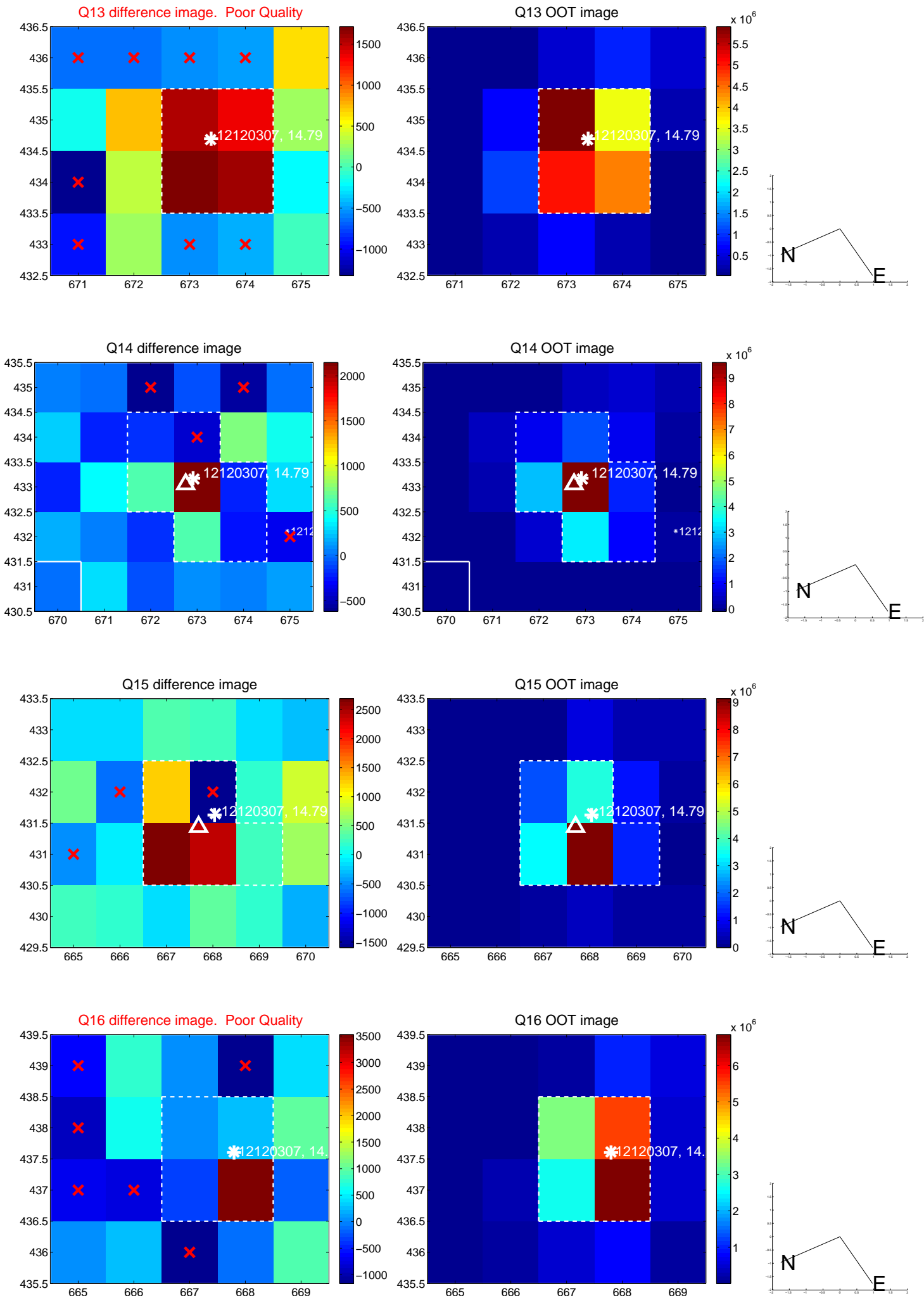
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



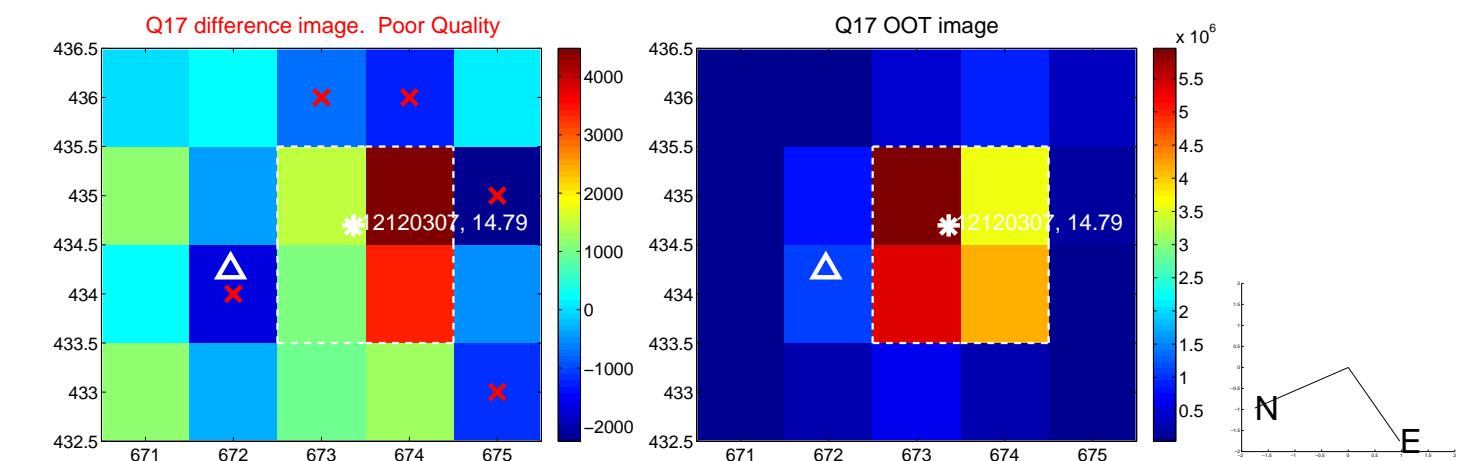
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



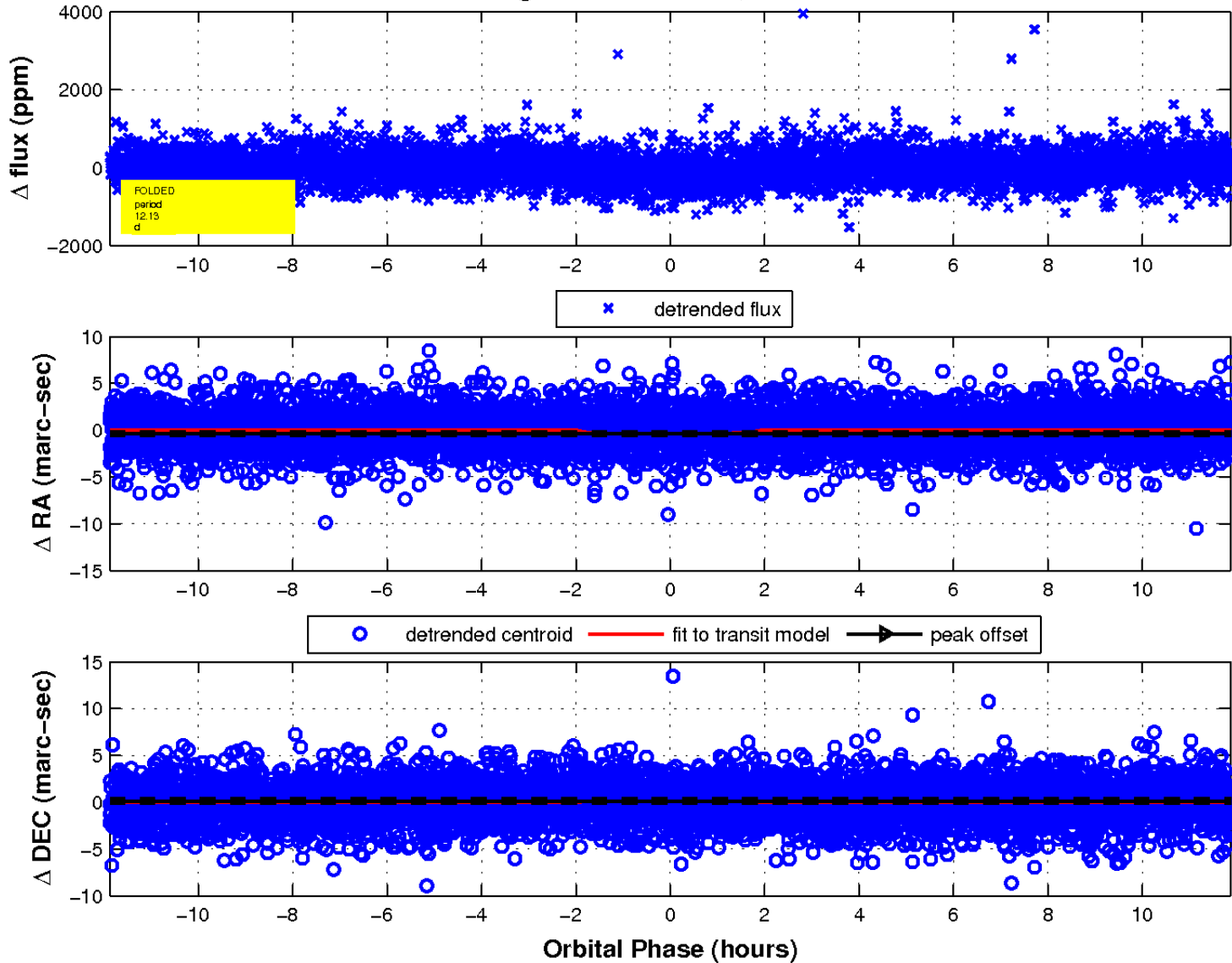
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

