

KIC 007435780

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})
007435780-01	OBS	4757.01	0.933153	132.362251	58.3	1.849	10.3	11.2	1.17	6499	1.04	5566.13
007435780-02	OBS	No	0.933136	131.892607	38.5	2.451	10.2	8.7	1.17	6499	0.85	5566.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007435780-01	OBS	FP	0.00	1	0	1	1	LPP_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
007435780-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—HALO_GHOST

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 007435780-01

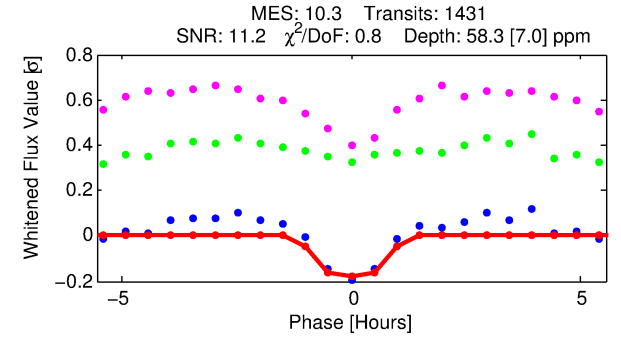
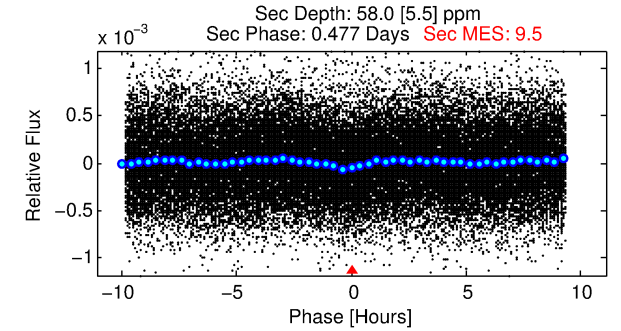
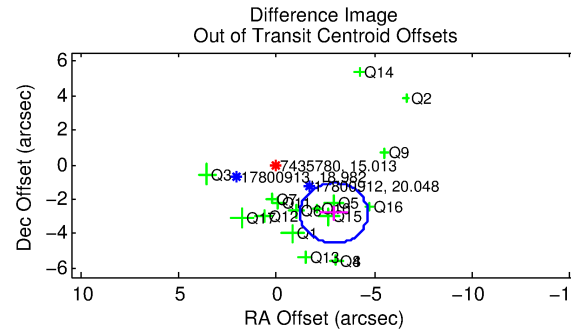
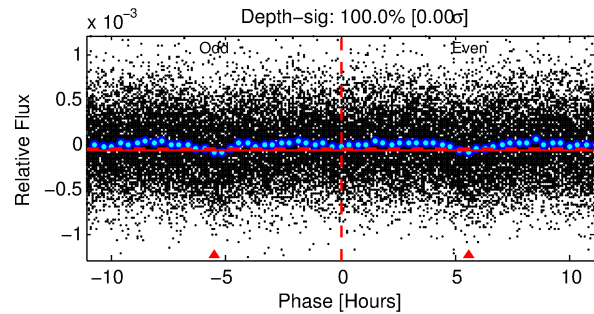
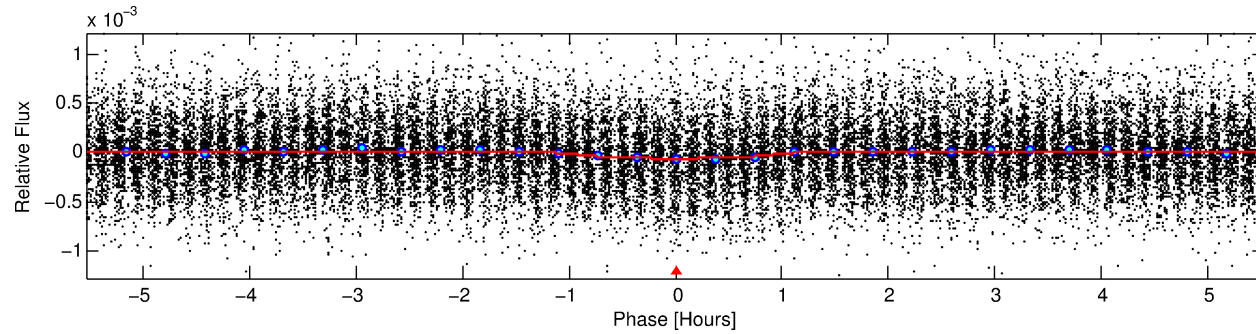
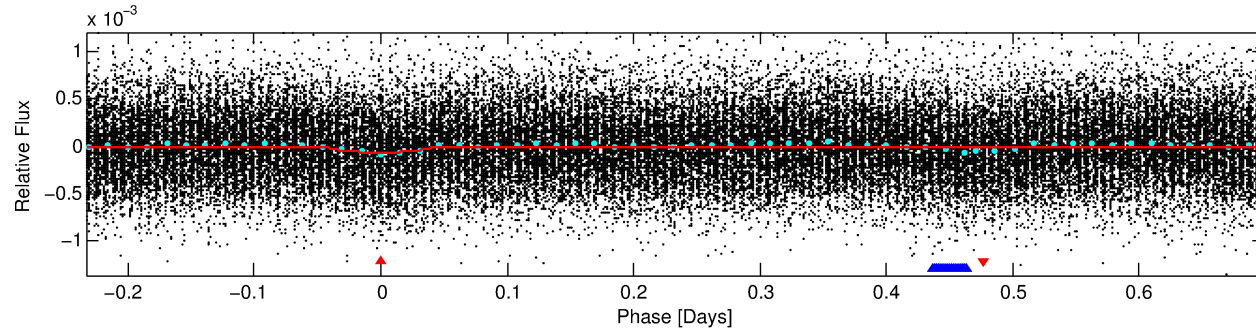
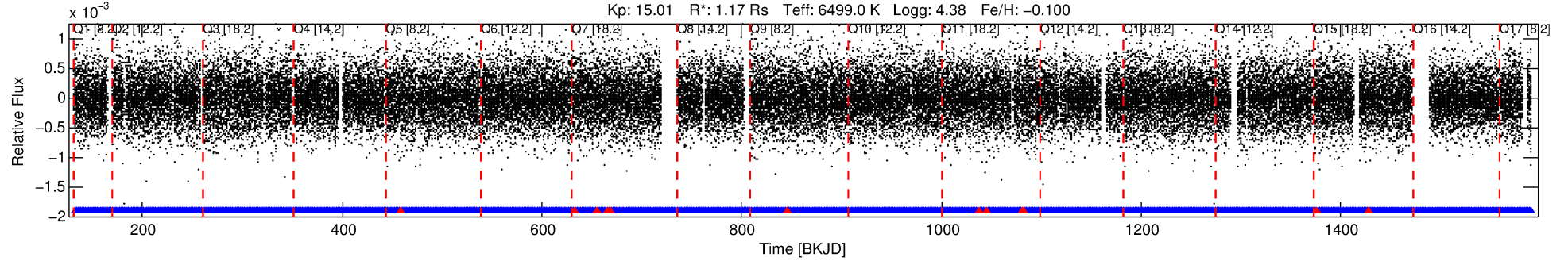
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
007435780-01	7435780	007518816-pri	7518816	2:1	40.3	-1	-10	12.85	15.02	5351.70	Direct-PRF	0	1.84	0.62

Notes: $P_1:P_2$ 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. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 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: 7435780 Candidate: 1 of 2 Period: 0.933 d

KOI: K04757.01 Corr: 0.788



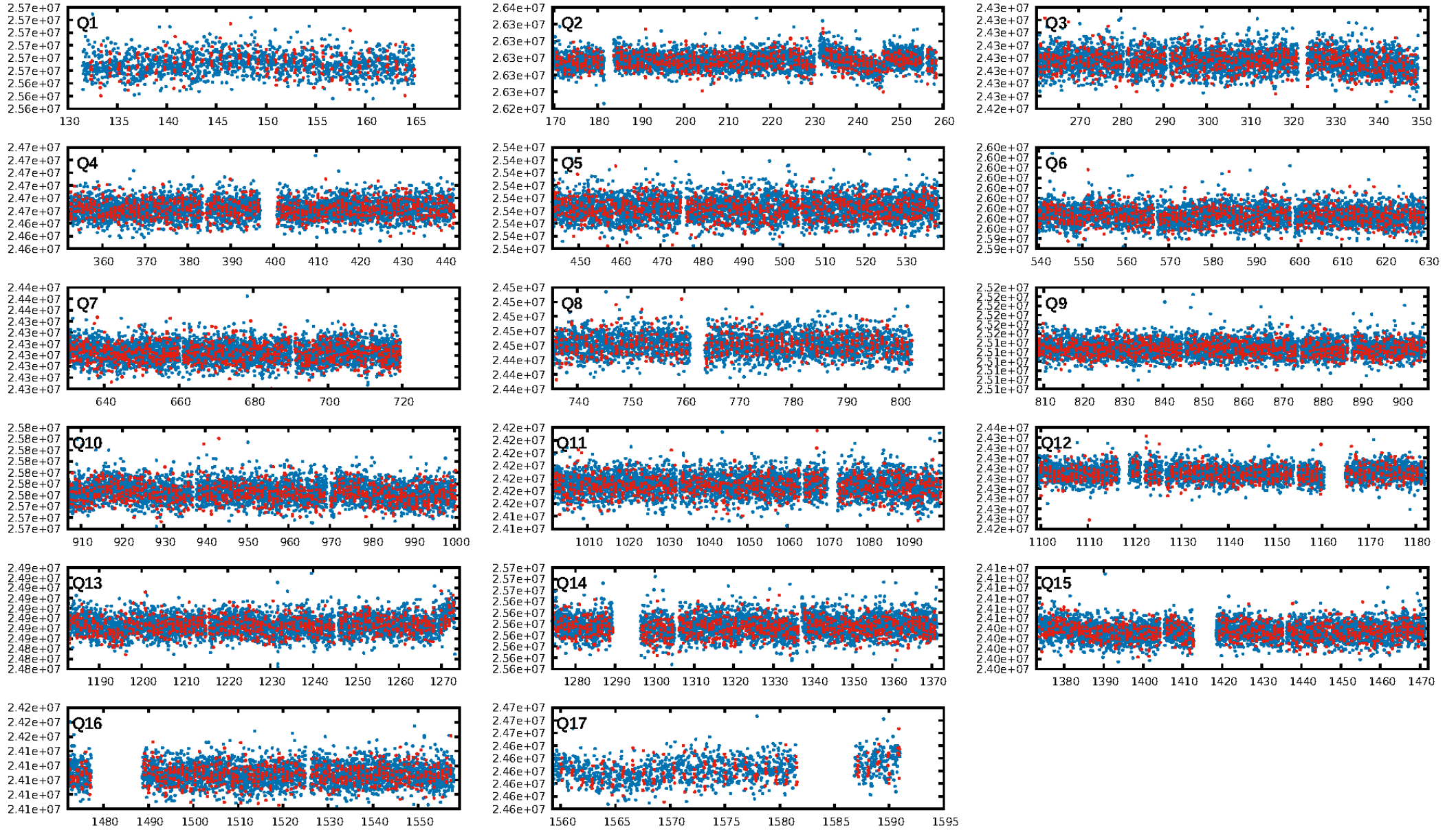
DV Fit Results:

Period = 0.93315 [0.00001] d
Epoch = 132.3623 [0.0024] BKJD
Rp/R* = 0.0082 [0.0039]
a/R* = 1.99 [3.99]
b = 0.90 [0.58]
Seff = 5566.13 [2093.99]
Teq = 2202 [207] K
Rp = 1.05 [0.59] Re
a = 0.0198 [0.0049] AU
Ag = 11.46 [11.57] [0.90σ]
Teffp = 6266 [1495] K [2.69σ]

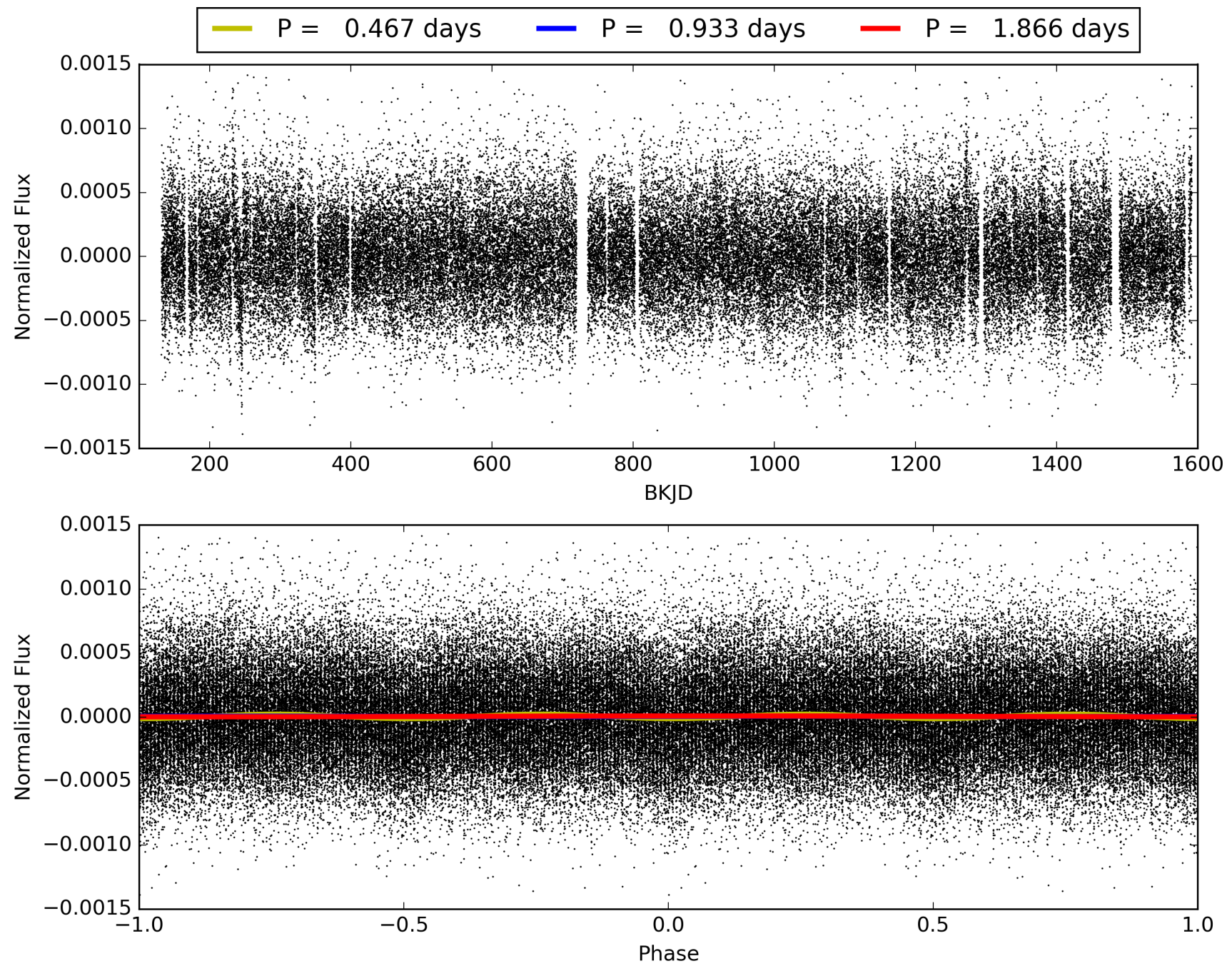
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.38e-24
RollingBand-fgt: 0.99 [1354/1366]
GhostDiagnostic-chr: 0.1165
Centroid-sig: 0.0%
Centroid-so: 6.254 arcsec [4.88σ]
OotOffset-rm: 4.062 arcsec [7.02σ]
KicOffset-rm: 4.150 arcsec [7.28σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.18 [3/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007435780-01, PDC Light Curves

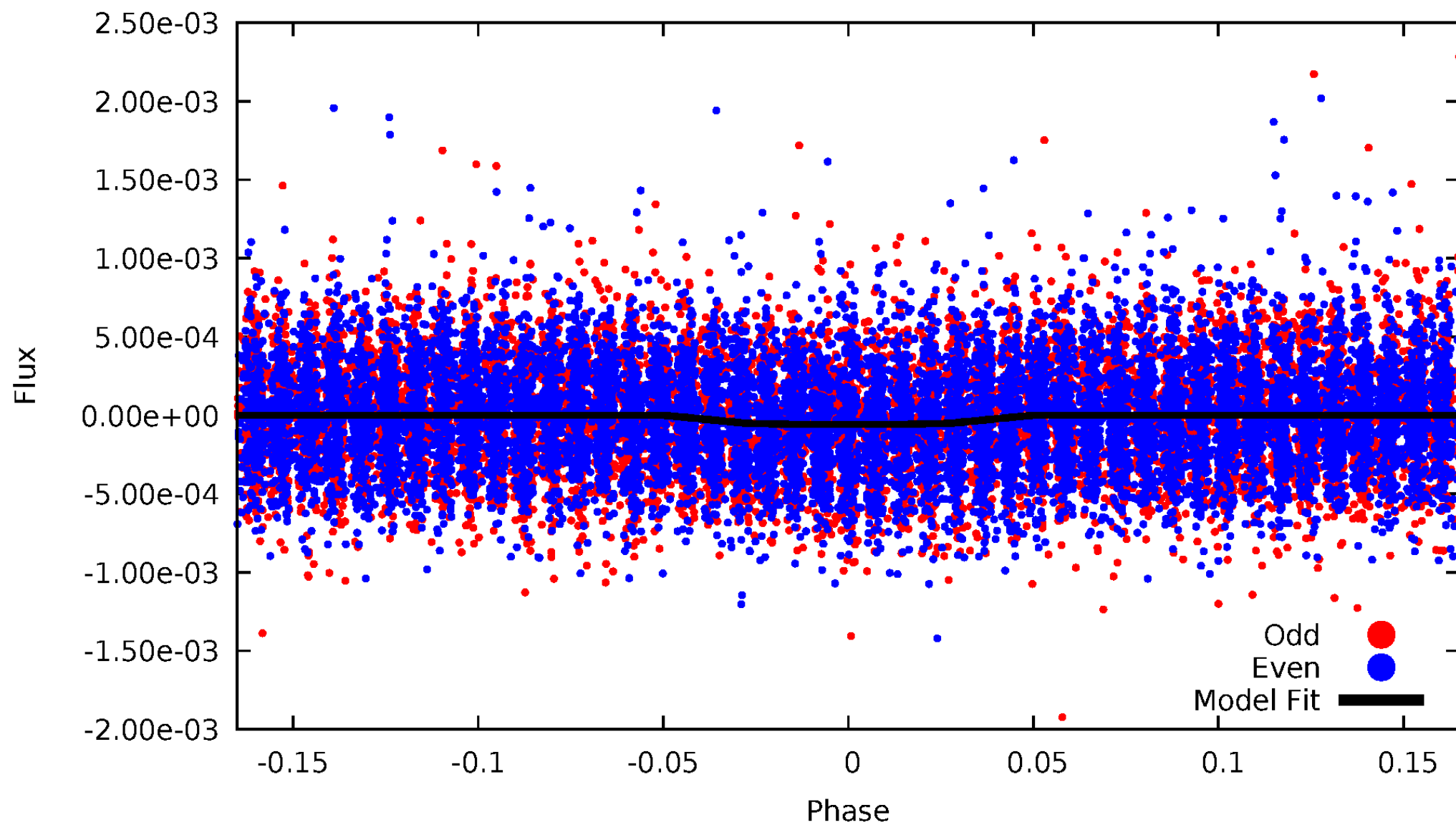


TCE 007435780-01



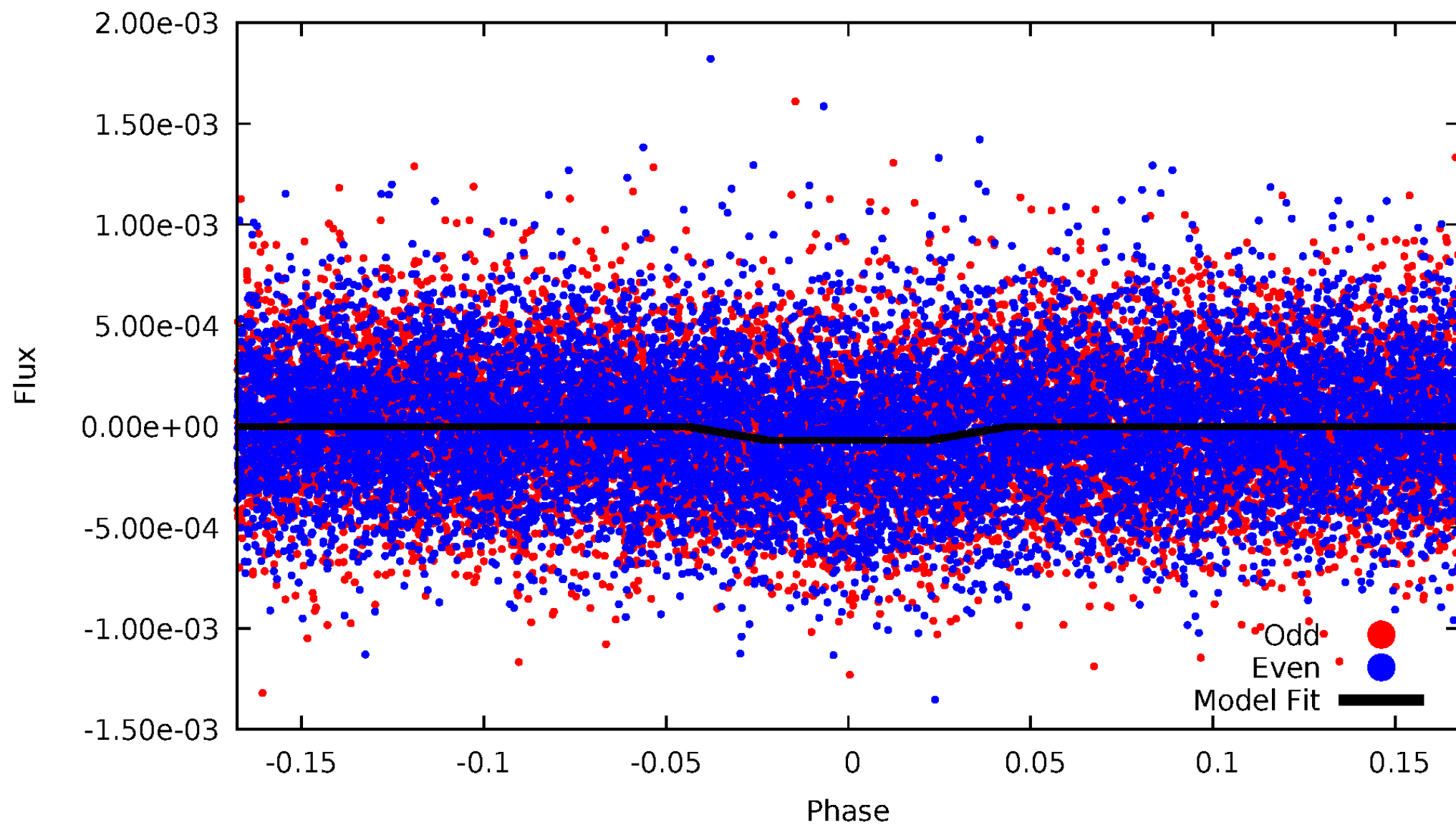
DV Odd/Even

TCE 007435780-01



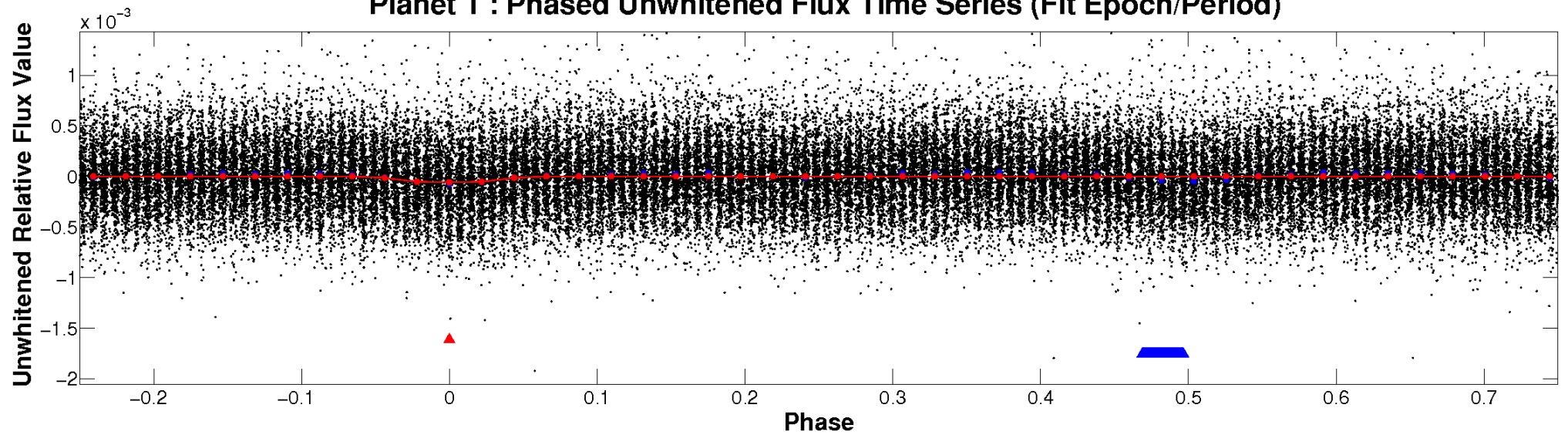
ALT Odd/Even

TCE 007435780-01

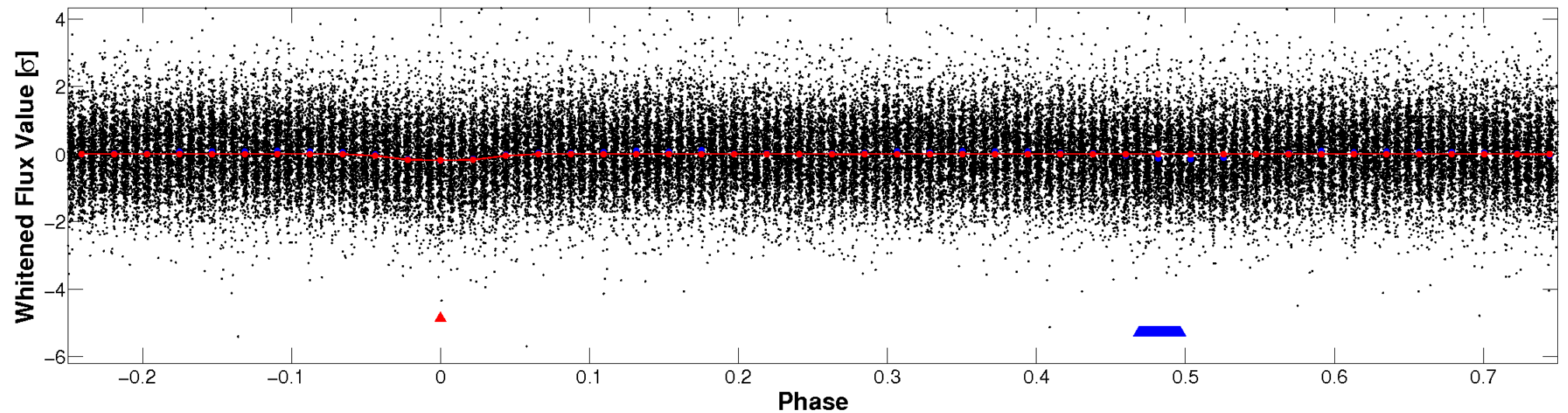


Non-Whitened Vs. Whitened Light Curve

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

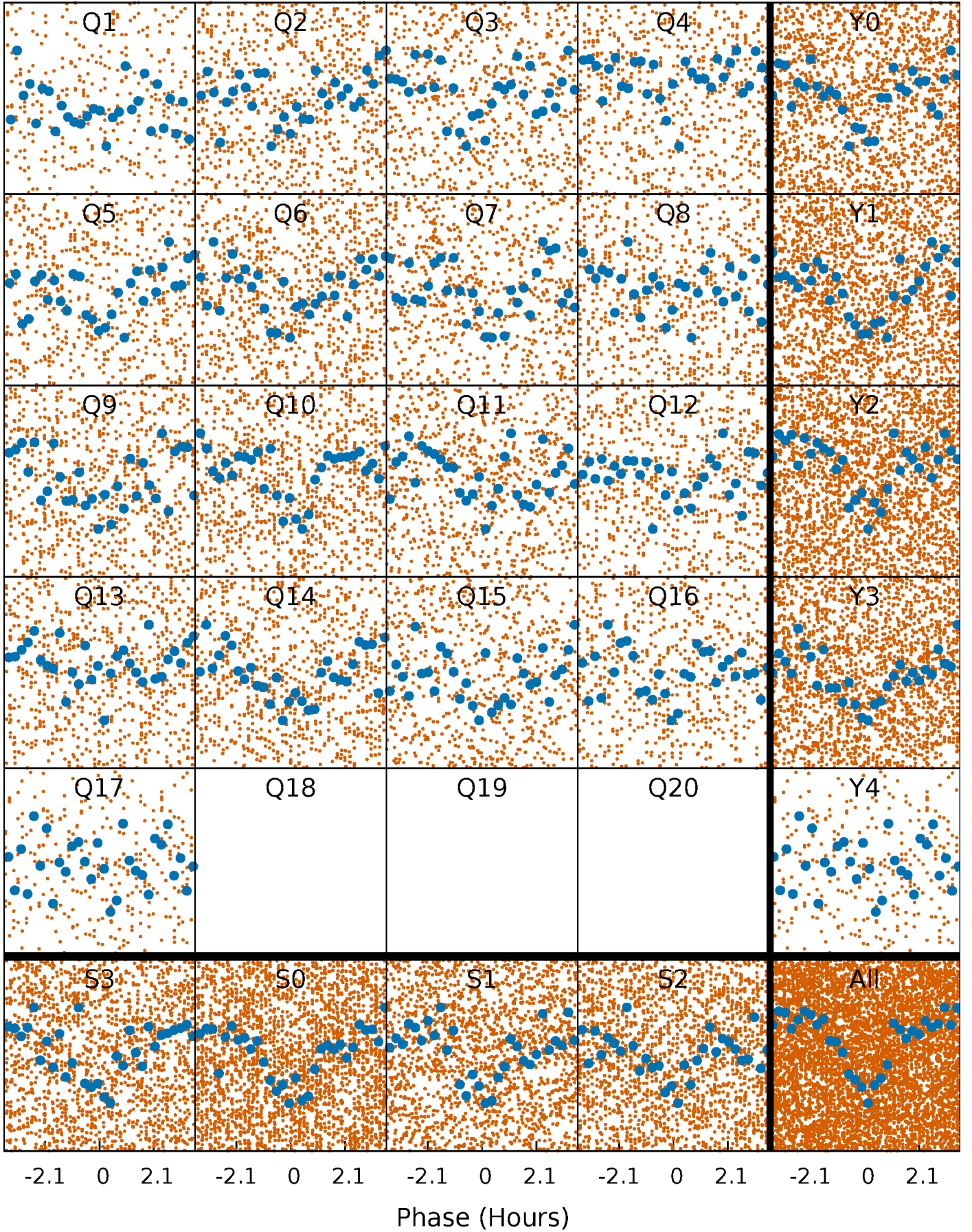


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



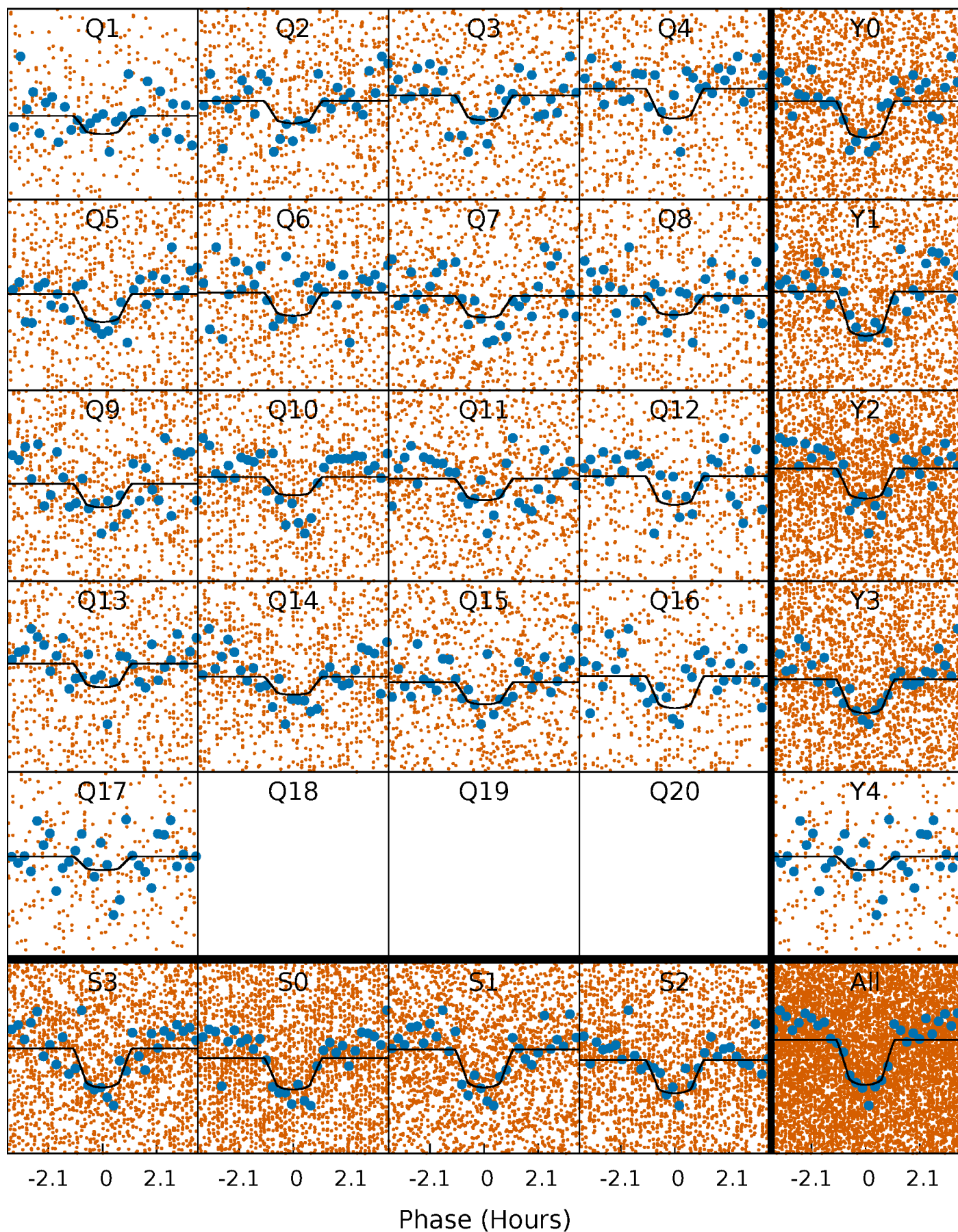
PDC Quarter-Phased Transit Curves

TCE 007435780-01 P= 0.933153 Days $T_0=132.362251$ (BKJD)



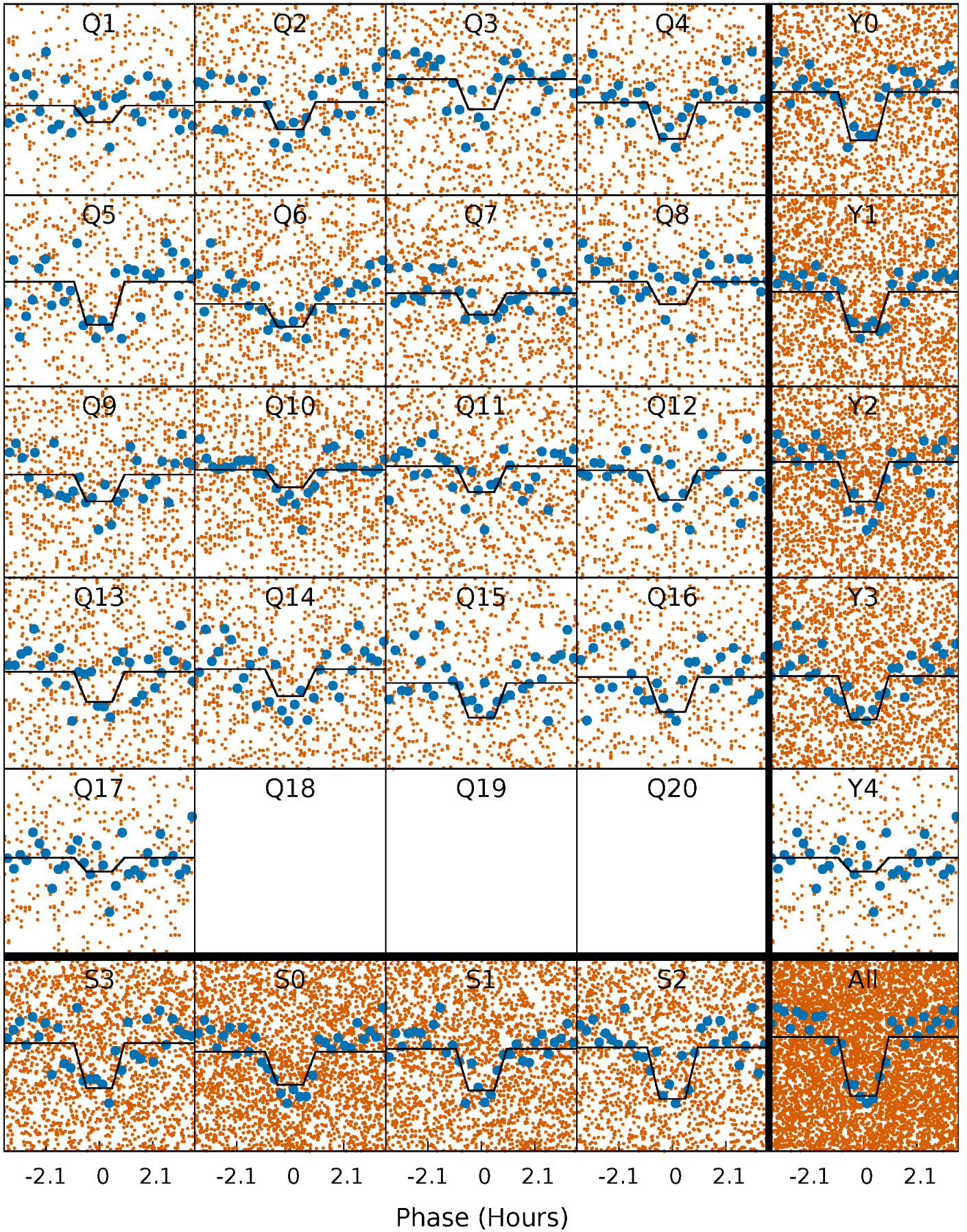
DV Quarter-Phased Transit Curves

TCE 007435780-01 P= 0.933153 Days $T_0=132.362251$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

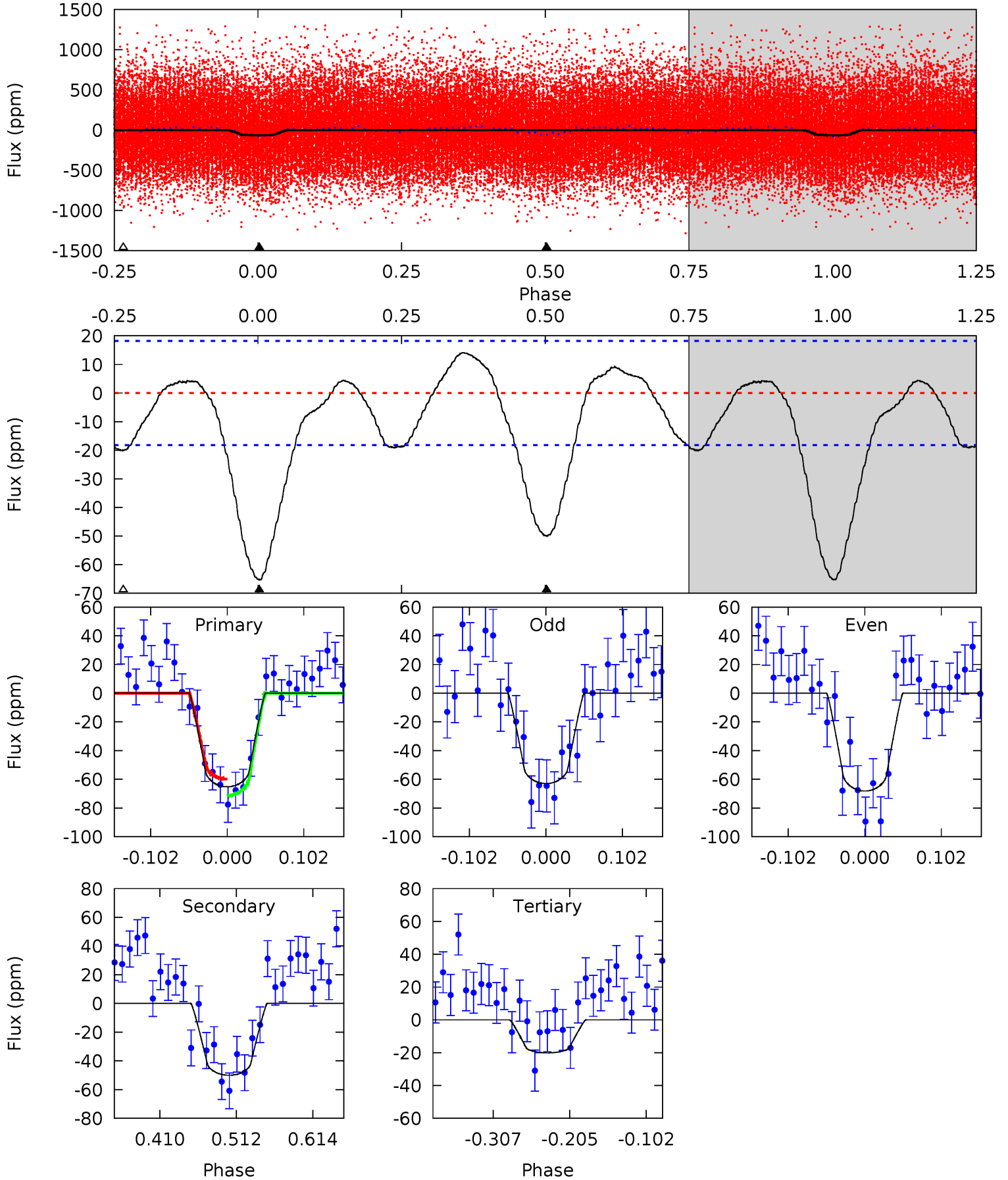
TCE 007435780-01 P= 0.933155 Days $T_0=132.362288$ (BKJD)



DV Model-Shift Uniqueness Test

007435780-01, P = 0.933153 Days, E = 131.429098 Days

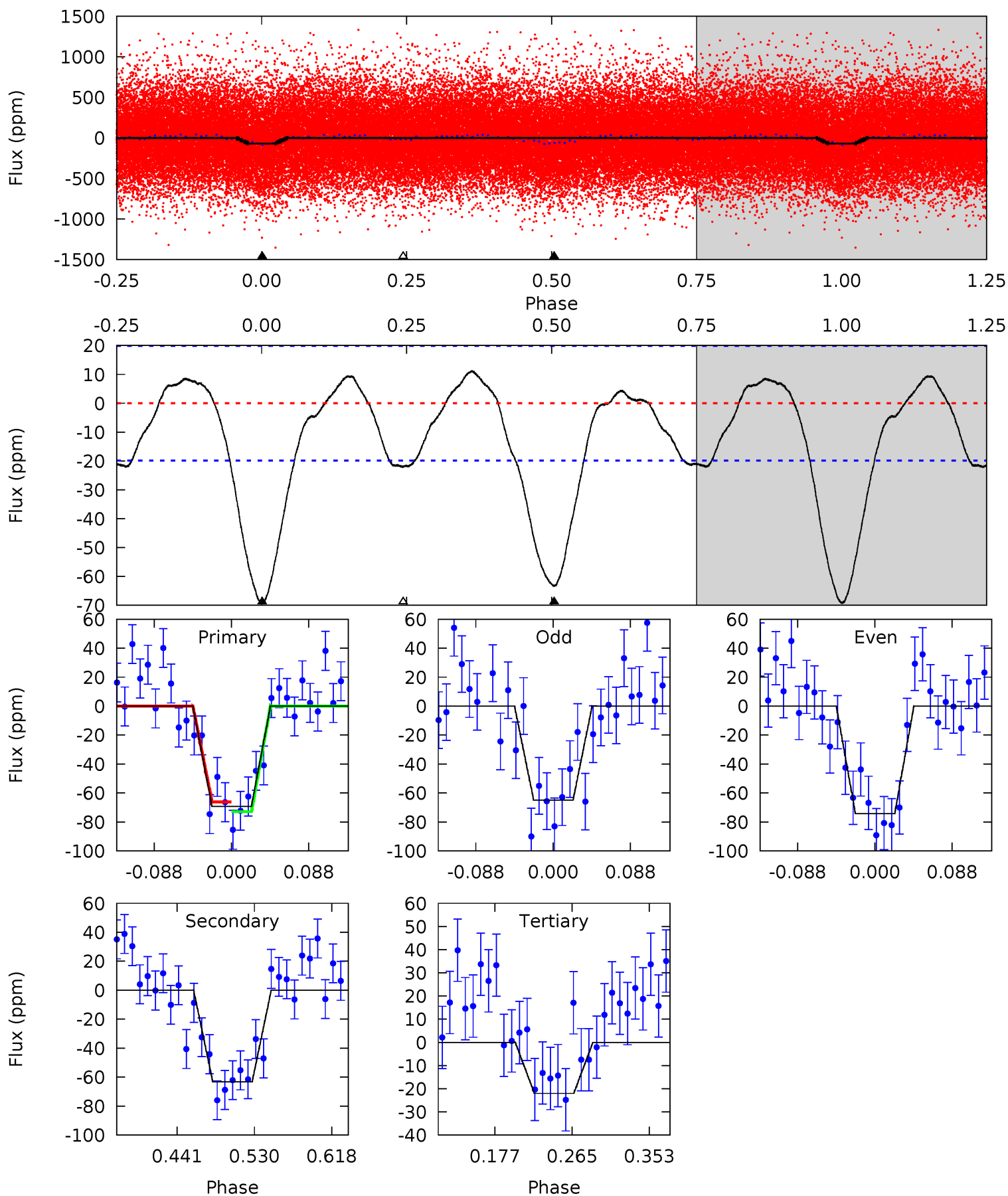
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	12.5	5.04	0	4.56	1.63	2.53	11.3	16.4	7.49	12.5	0.65	1.05	0.18	1.43



Alt Model-Shift Uniqueness Test

007435780-01, P = 0.933155 Days, E = 131.429133 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	14.6	5.09	0	4.59	1.70	2.41	10.9	16.0	9.54	14.6	1.07	1.08	0.14	0.78



Stellar Parameters For KIC 007435780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6499^{+154}_{-212}	$4.378^{+0.062}_{-0.188}$	$-0.100^{+0.250}_{-0.300}$	$1.169^{+0.356}_{-0.153}$	$1.191^{+0.164}_{-0.164}$	$1.050^{+0.301}_{-0.535}$
	+2%/-3%	+1%/-4%	+250%/-300%	+30%/-13%	+14%/-14%	+29%/-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 007435780-01 / KOI 4757.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-50 ± 4	$1.12^{+0.55}_{-0.49}$	3131^{+208}_{-151}	5879^{+2109}_{-974}	$8.470^{+17.554}_{-4.623}$
Alt.	-63 ± 4	$1.09^{+0.53}_{-0.47}$	3123^{+216}_{-153}	6364^{+2219}_{-1130}	11^{+25}_{-6}

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

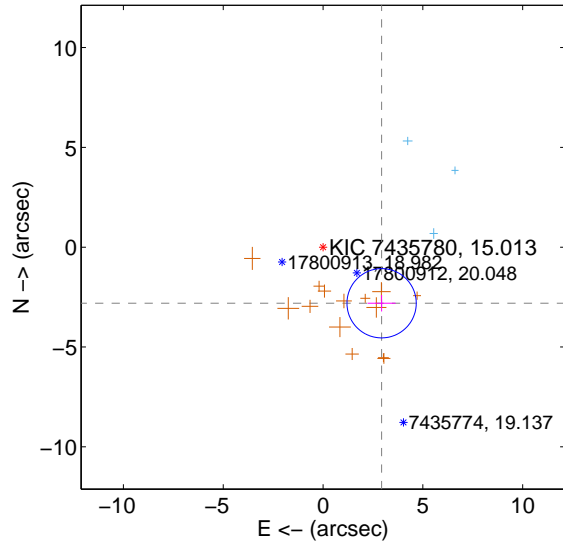
Supplemental centroid analysis for 007435780-01. Kepler magnitude: 15.01. Transit SNR 11.25

There are 3 quarters with good PRF difference image offsets

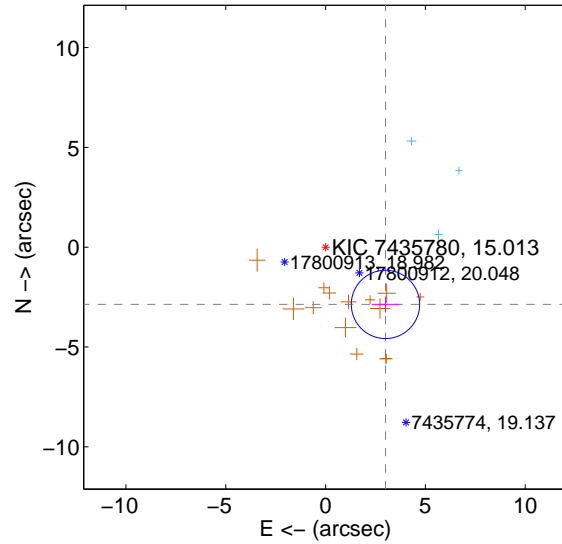
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.062 ± 0.578	7.02	-2.934 ± 0.697	-2.809 ± 0.411
PRF-fit source offset from KIC position	4.150 ± 0.570	7.28	-3.000 ± 0.690	-2.867 ± 0.400
photometric centroid source offset	6.25 ± 1.28	4.88	-6.22 ± 1.28	-0.64 ± 1.36

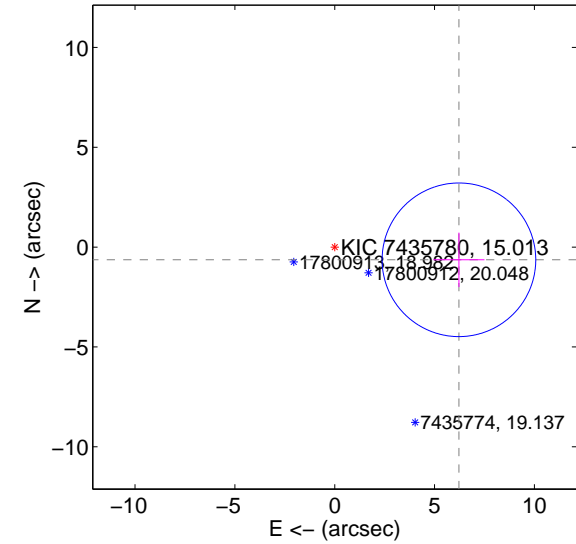
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

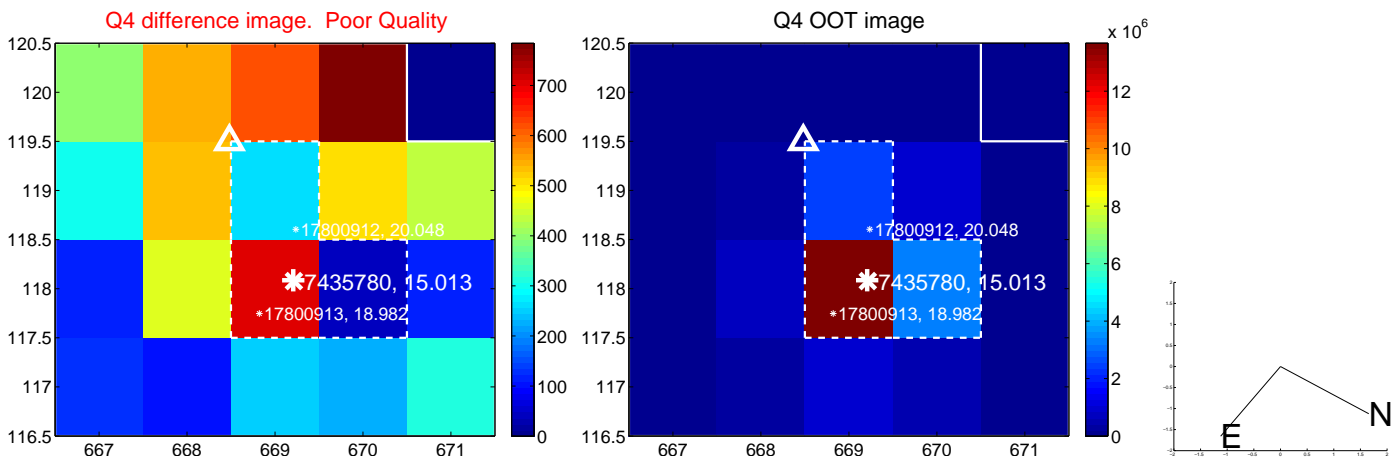
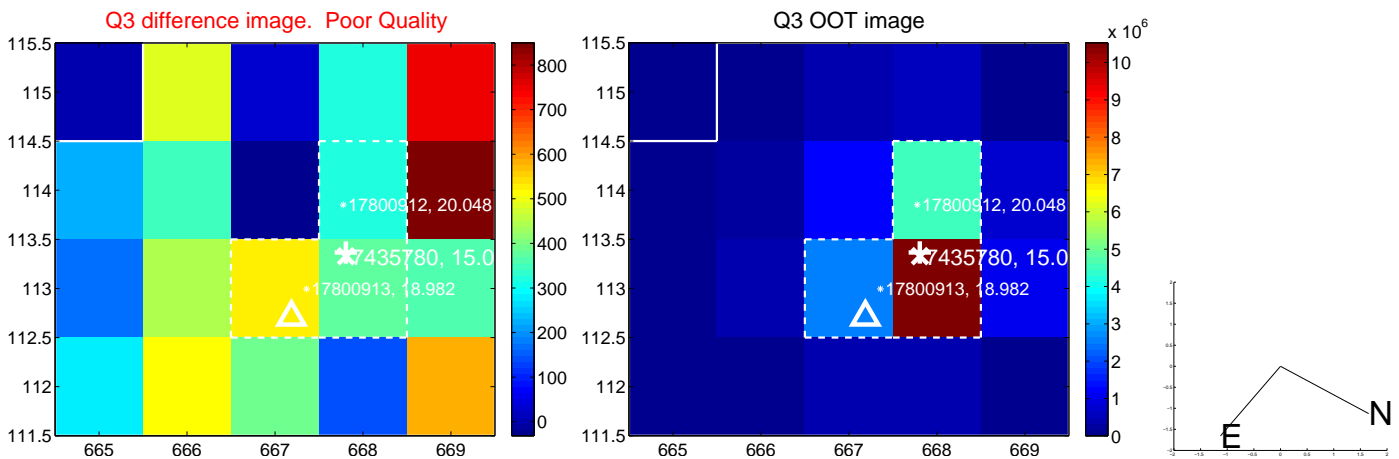
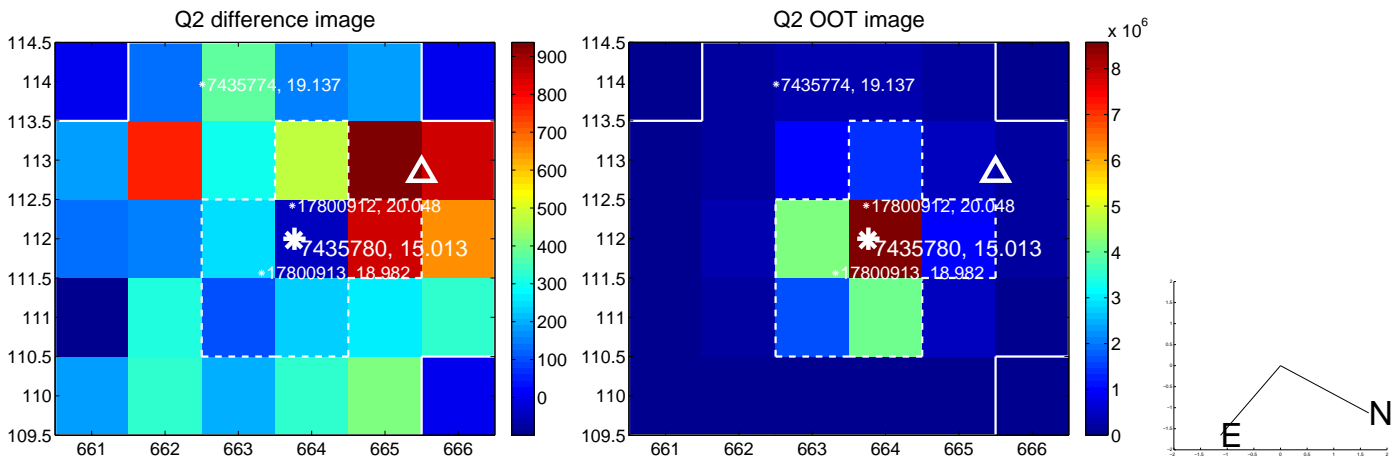
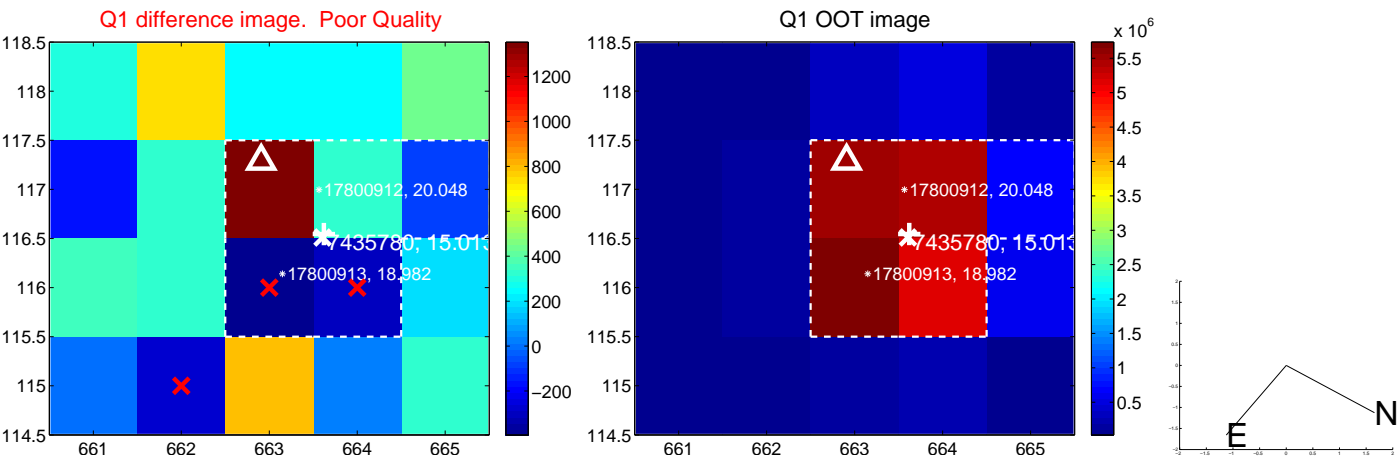


offset from photometric centroids

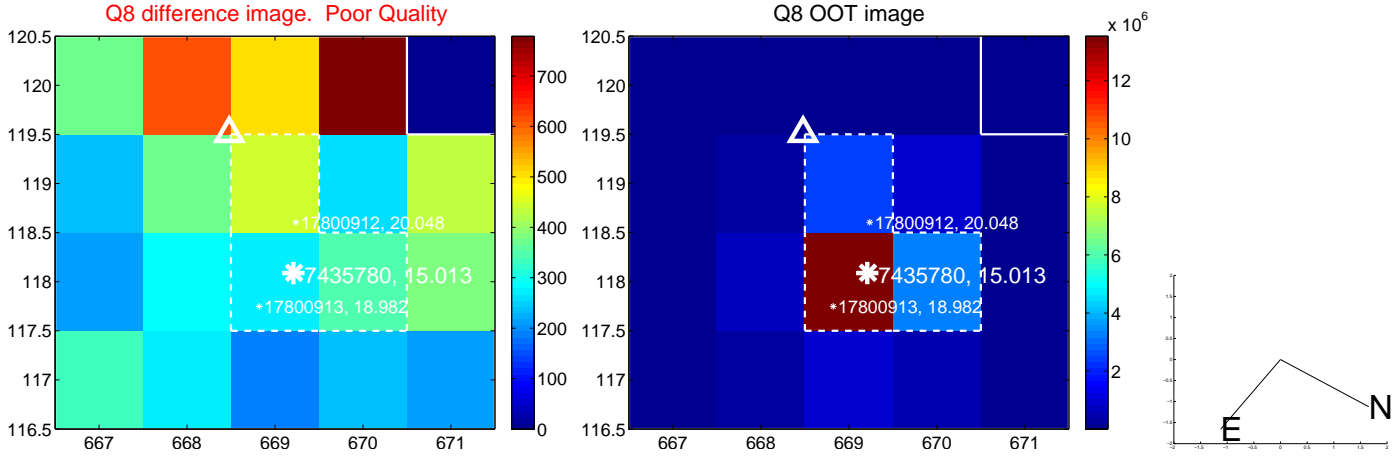
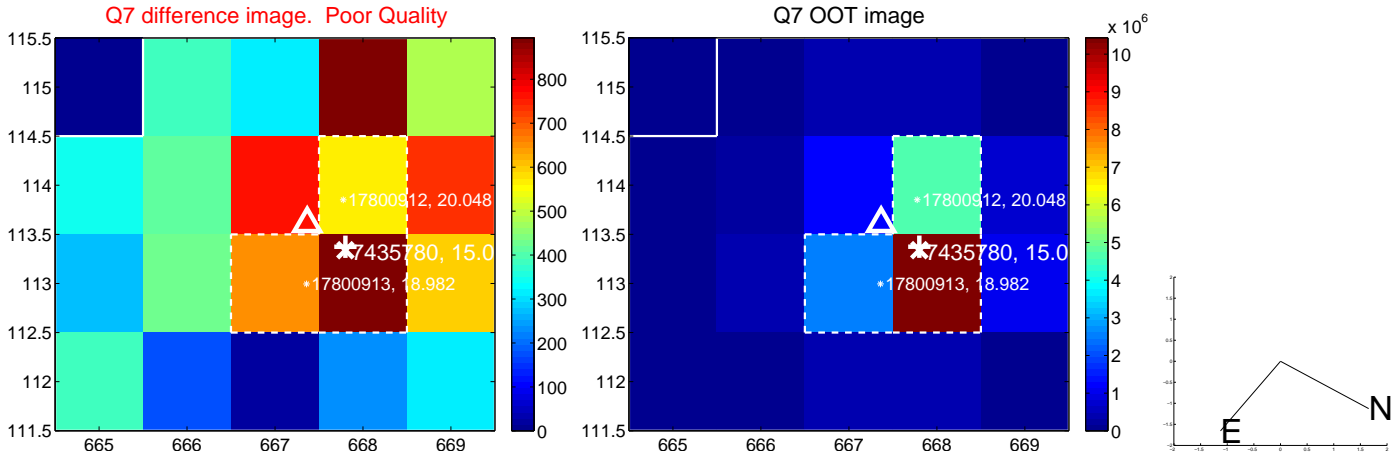
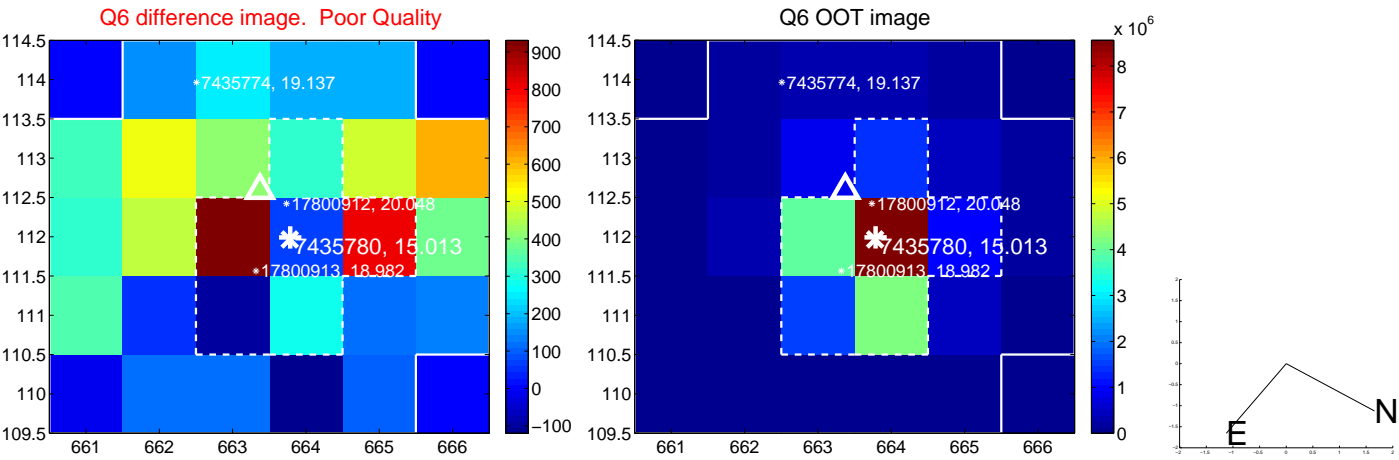
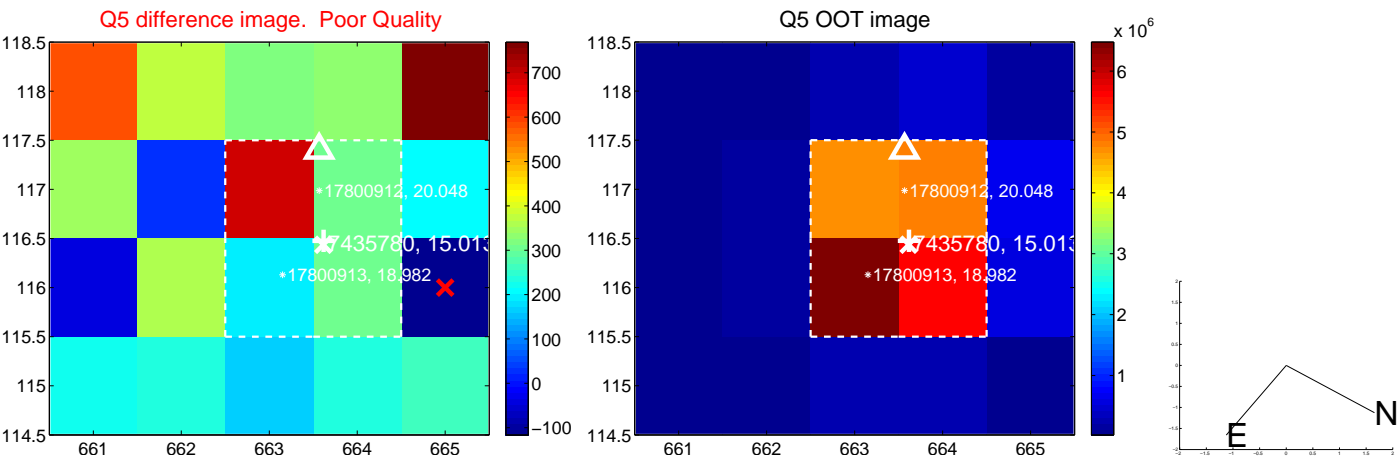


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

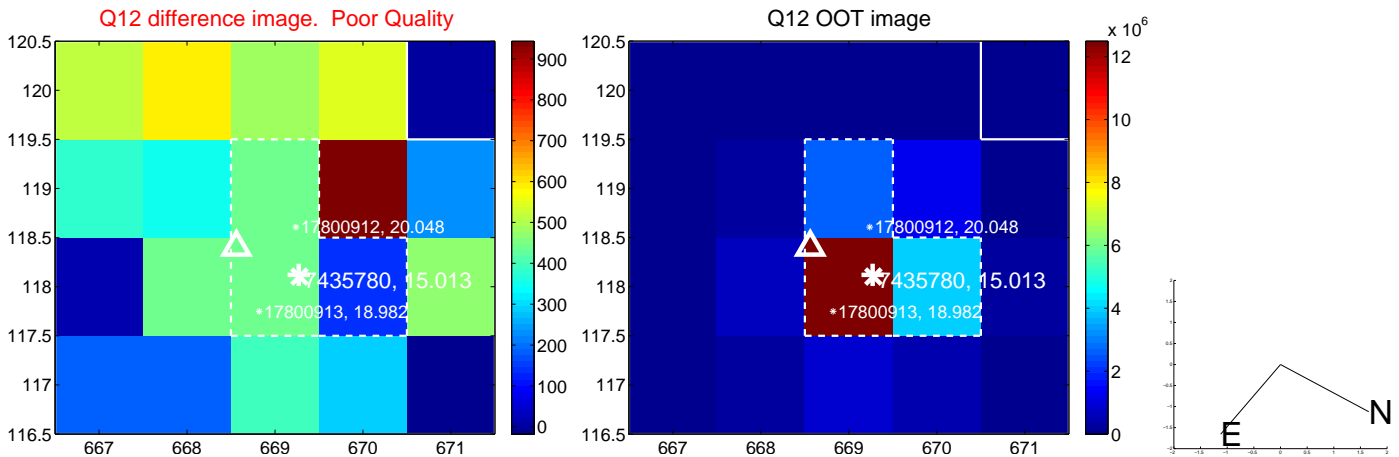
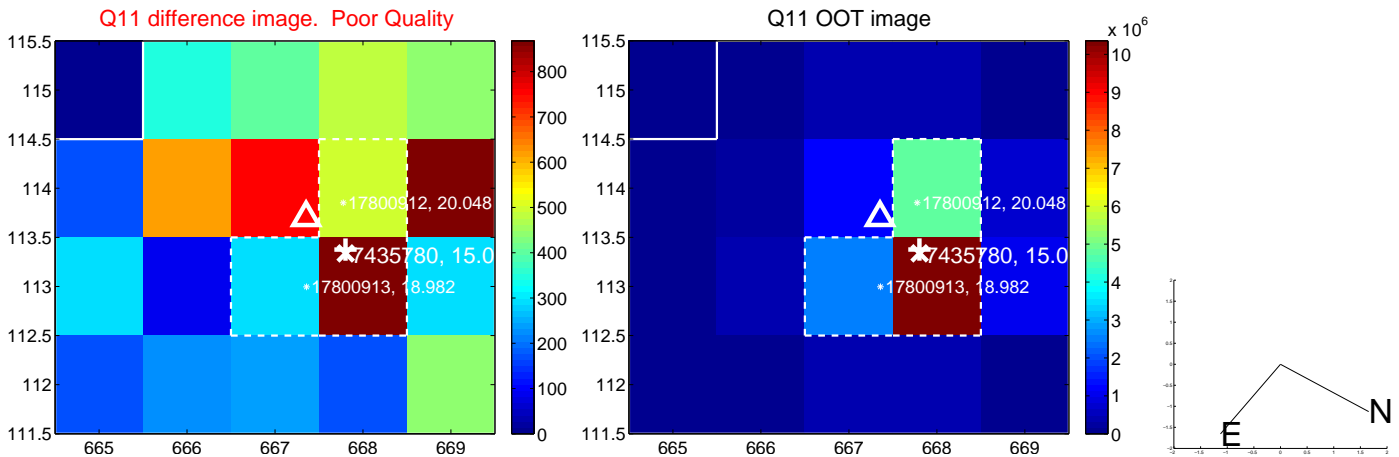
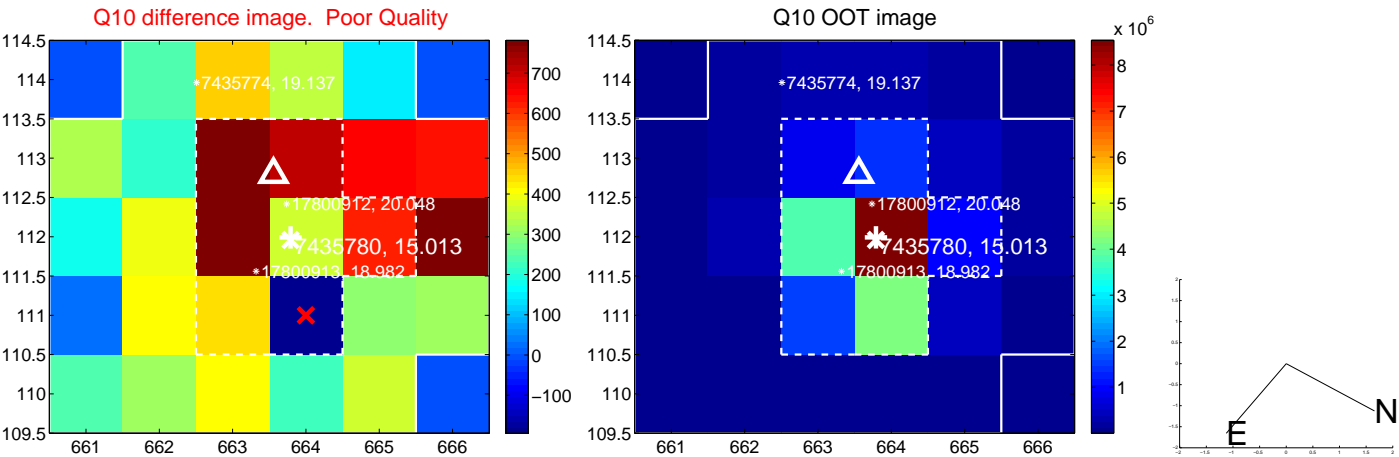
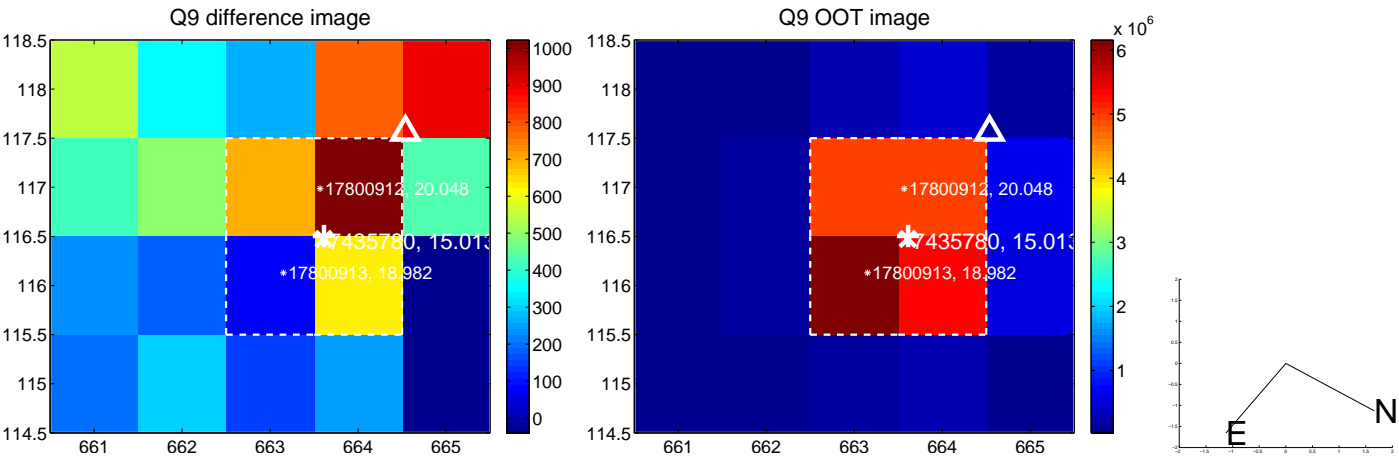
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



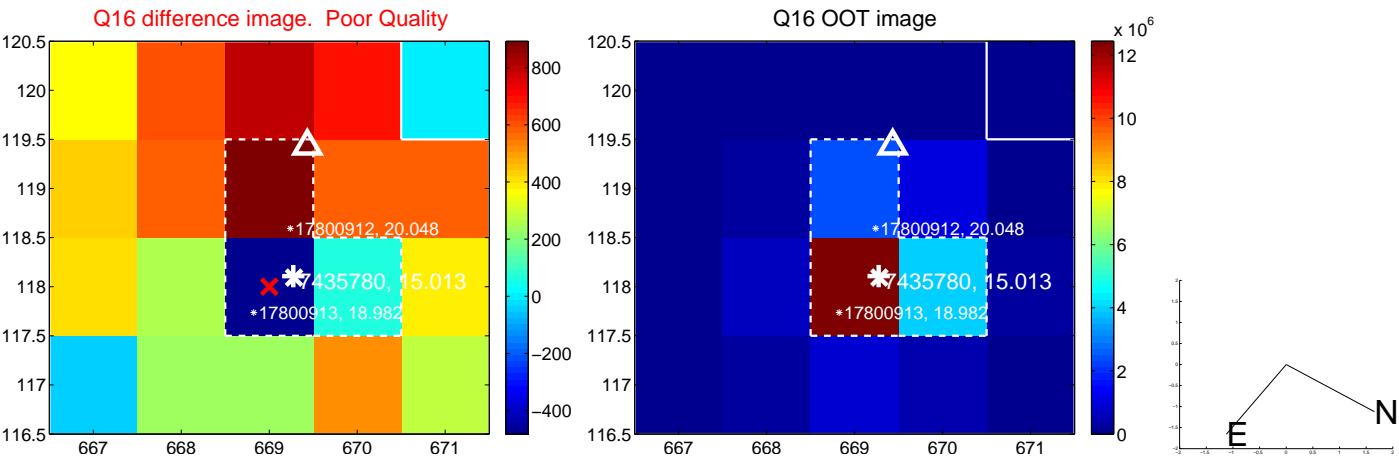
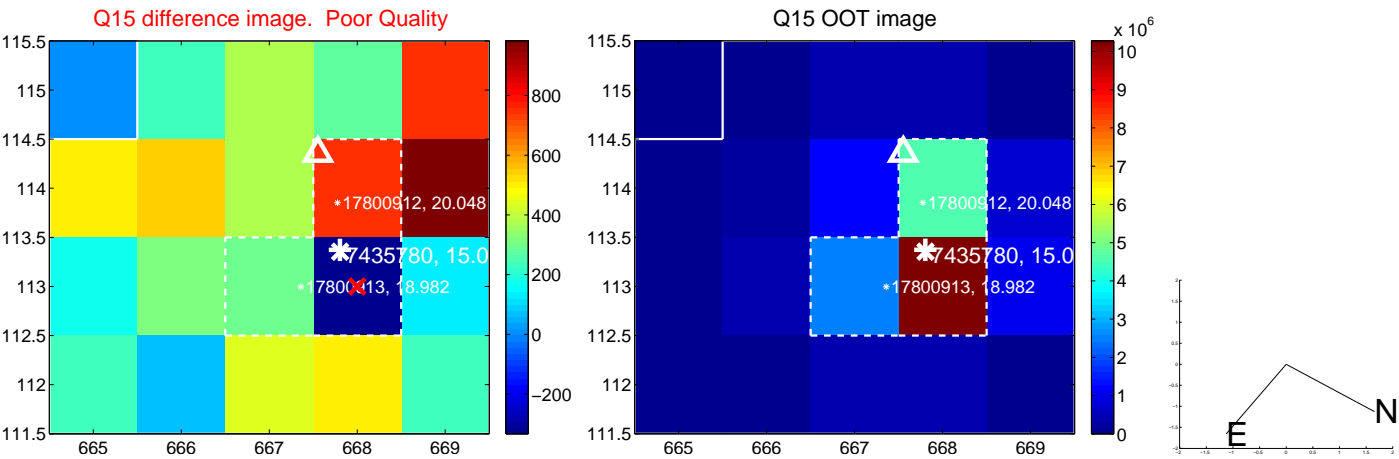
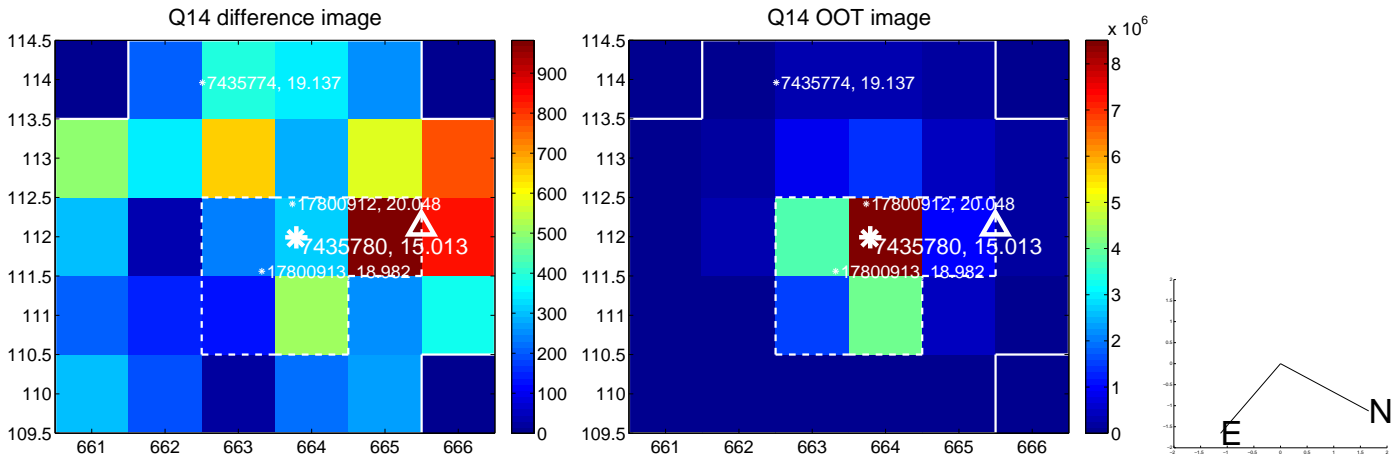
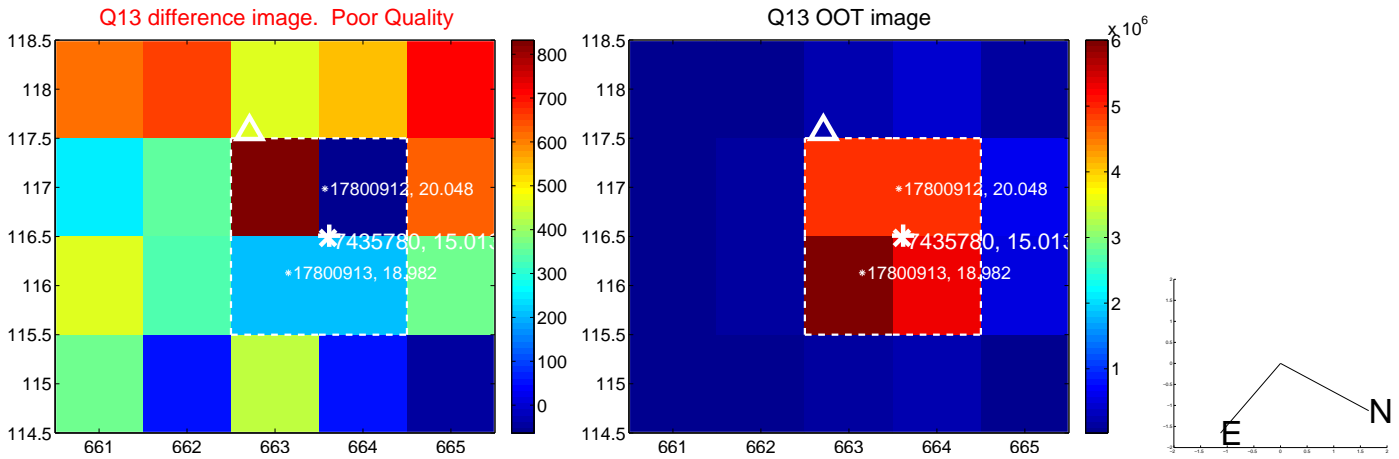
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



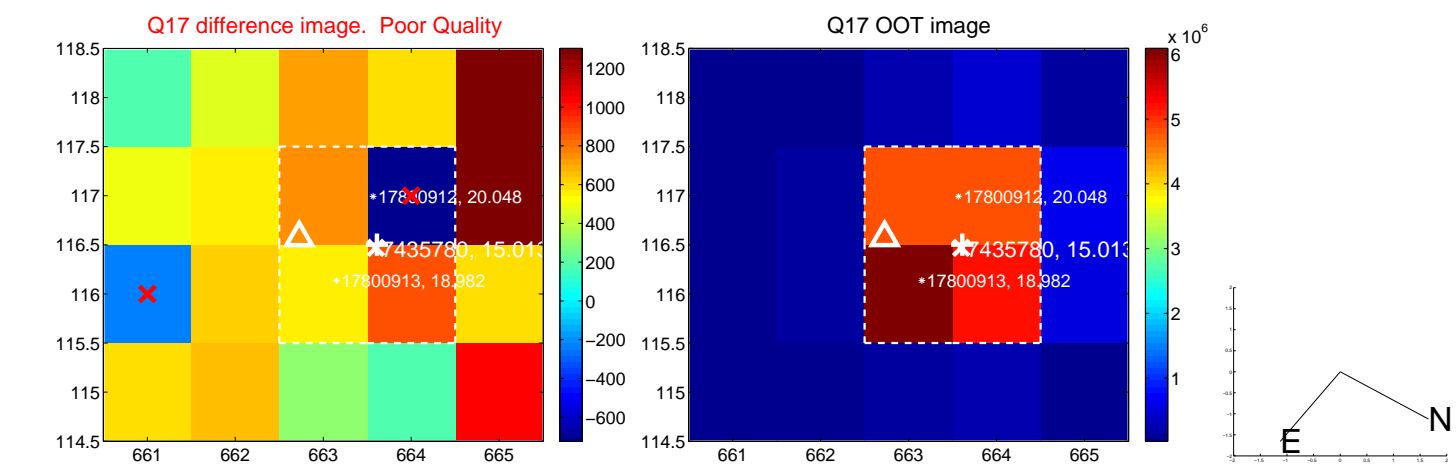
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



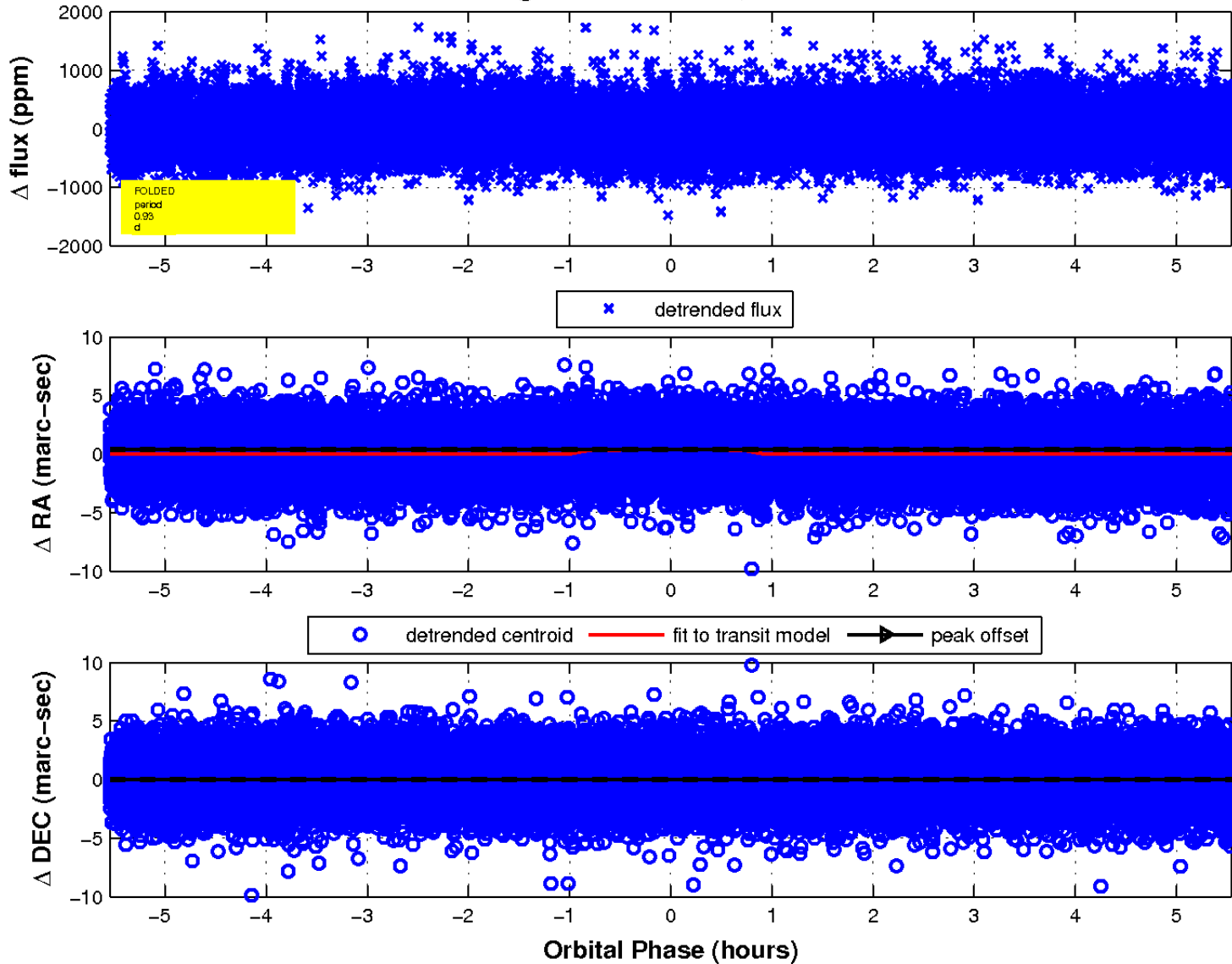
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



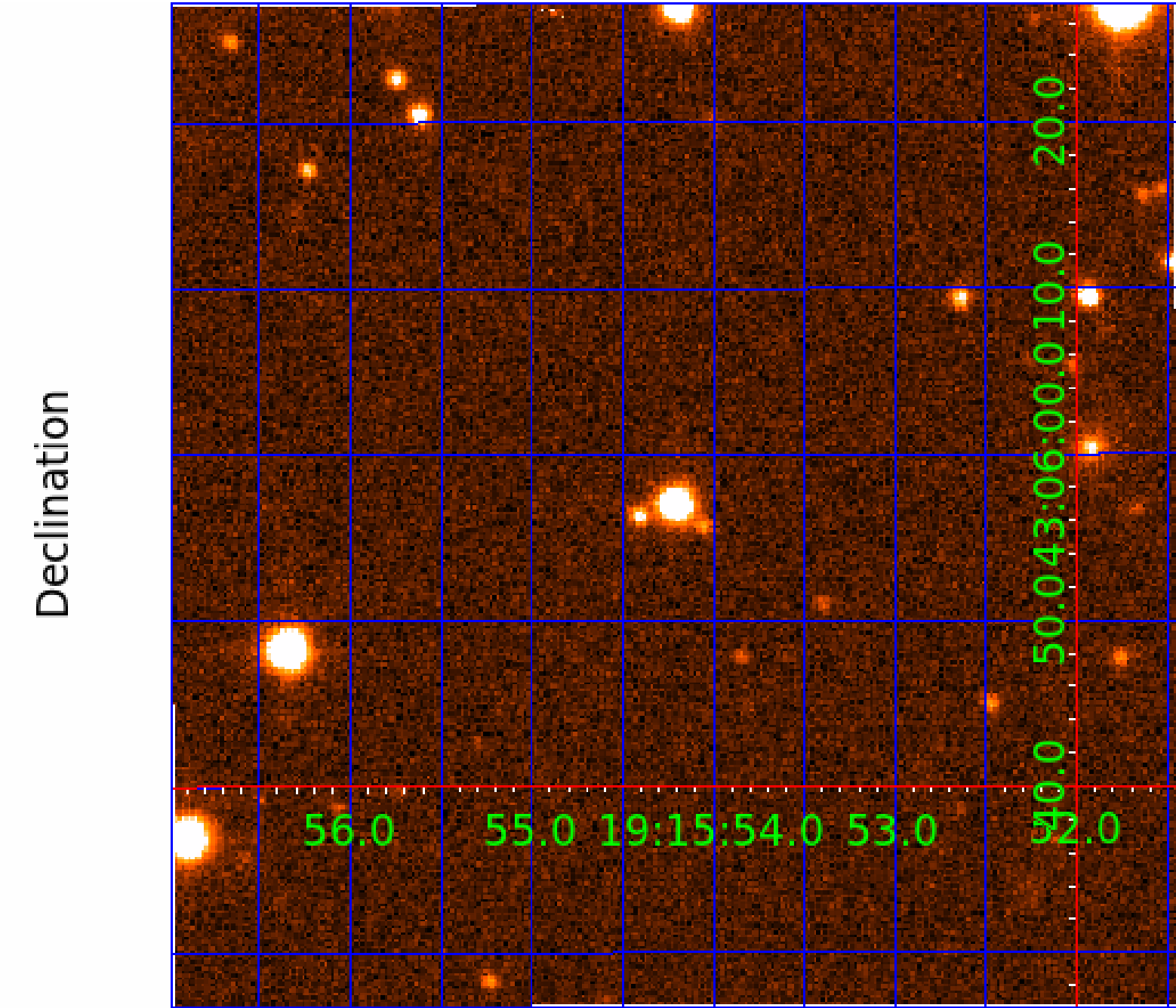
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 007435780

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007435780-02	OBS	FP	0.00	1	0	1	0	LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—HALO_GHOST

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.

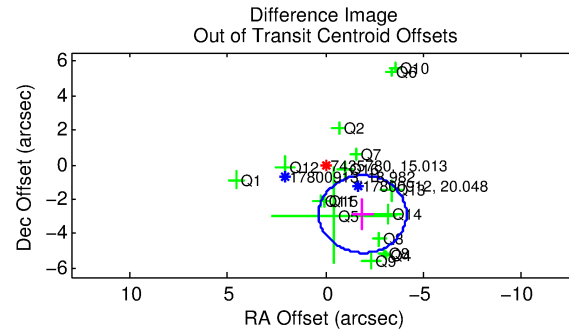
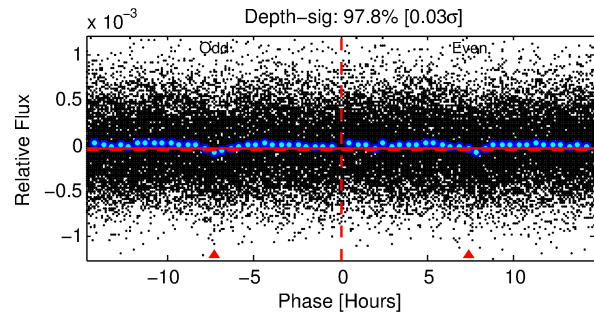
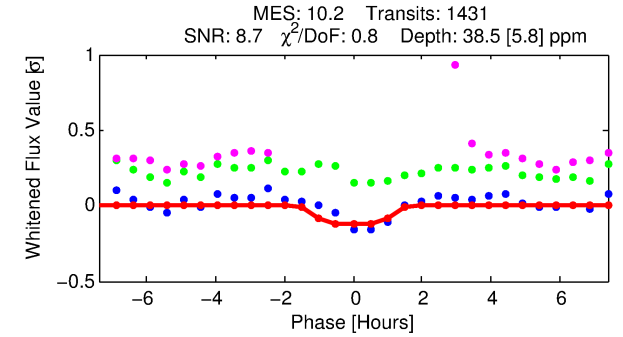
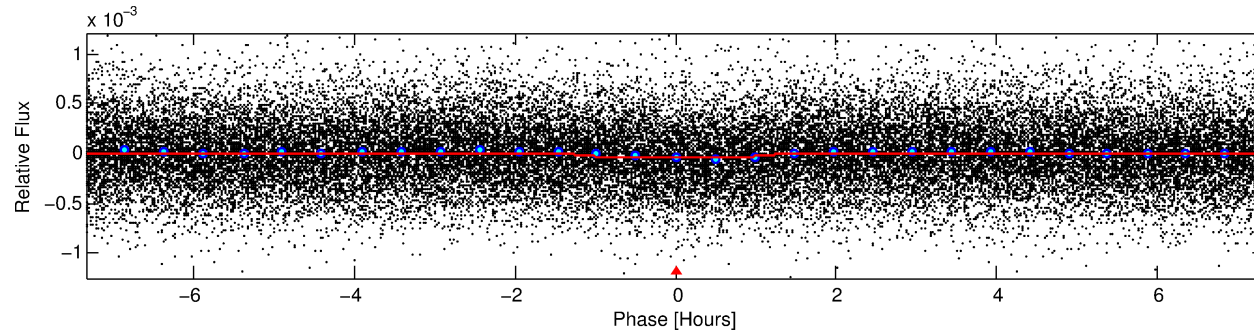
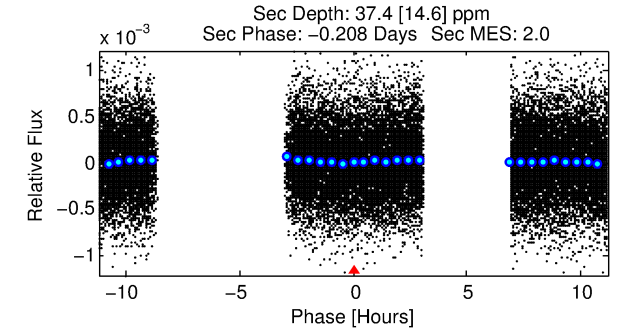
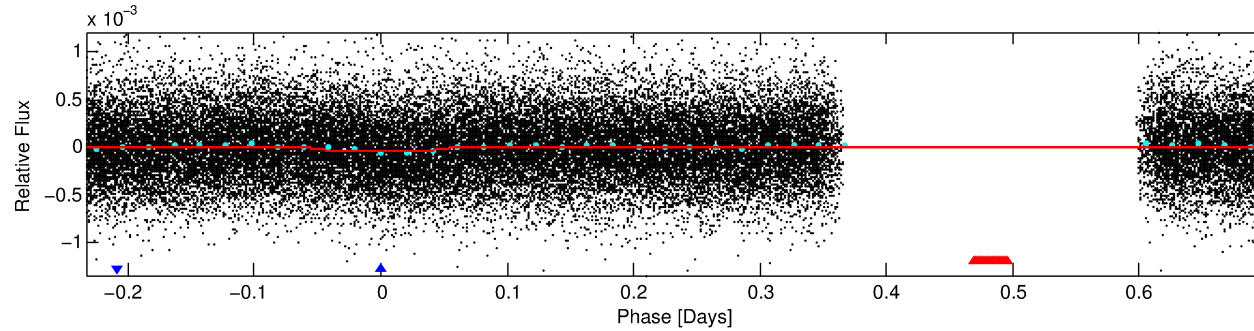
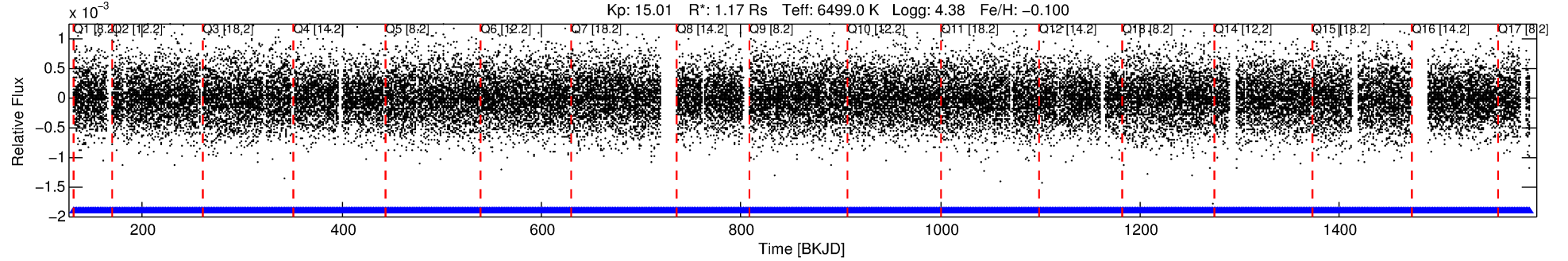
Ephemeris Match Information For 007435780-02

No Significant Match Found

DV One-Page Summary

KIC: 7435780 Candidate: 2 of 2 Period: 0.933 d

KOI: K04757 Corr: No Ephemeris Match



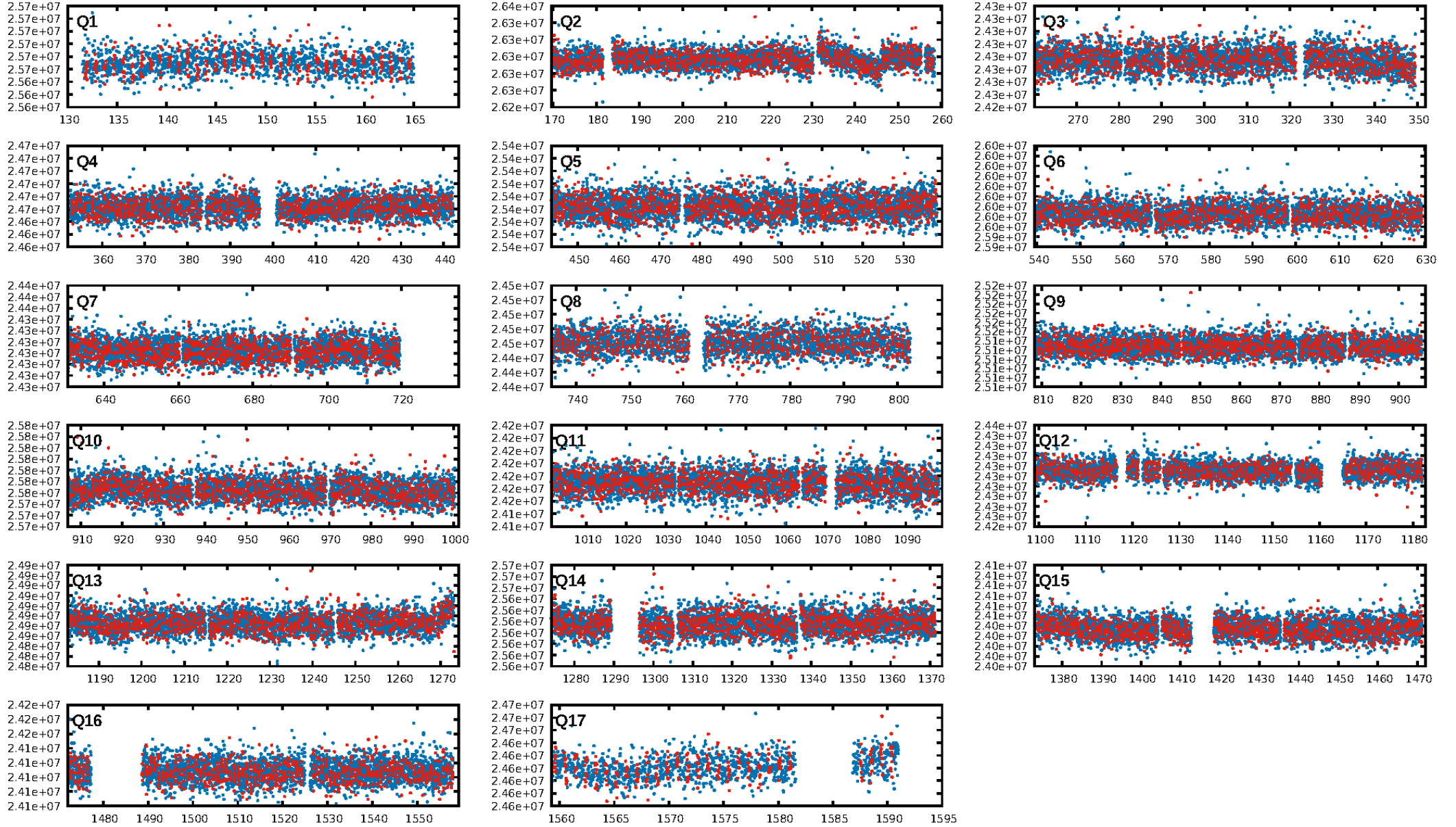
DV Fit Results:

Period = 0.93314 [0.00001] d
Epoch = 131.8926 [0.0039] BKJD
Rp/R* = 0.0066 [0.0034]
a/R* = 1.61 [2.88]
b = 0.90 [0.62]
Seff = 5566.26 [2094.04]
Teq = 2203 [207] K
Rp = 0.85 [0.50] Re
a = 0.0198 [0.0049] AU
Ag = 11.21 [12.77] [0.80σ]
Teffp = 6232 [1699] K [2.35σ]

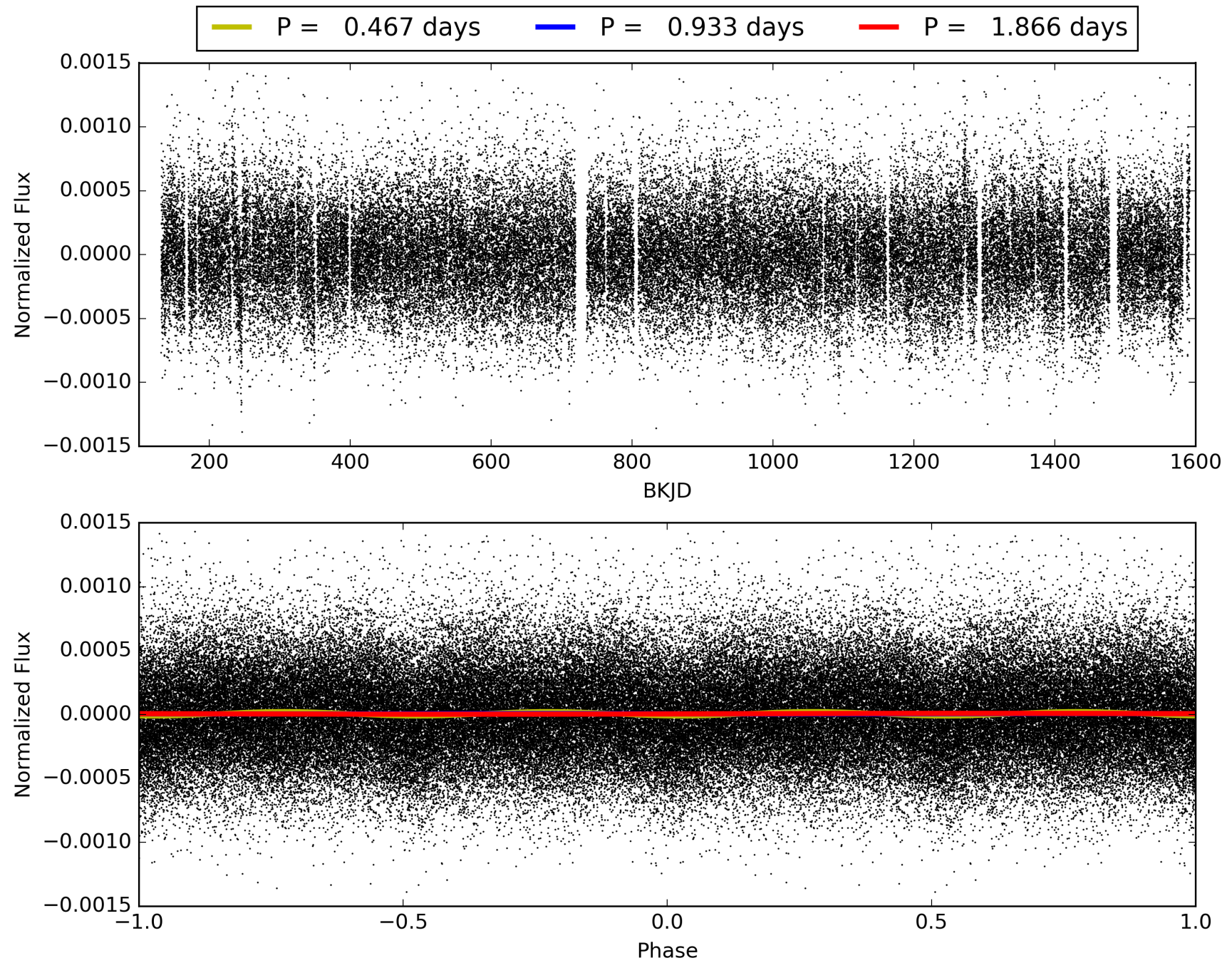
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.12e-24
RollingBand-fgt: 1.00 [1367/1367]
GhostDiagnostic-chr: 0.05797
Centroid-sig: 0.0%
Centroid-so: 7.702 arcsec [4.62σ]
OotOffset-rm: 3.435 arcsec [4.60σ]
KicOffset-rm: 3.500 arcsec [4.70σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.00 [0/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007435780-02, PDC Light Curves

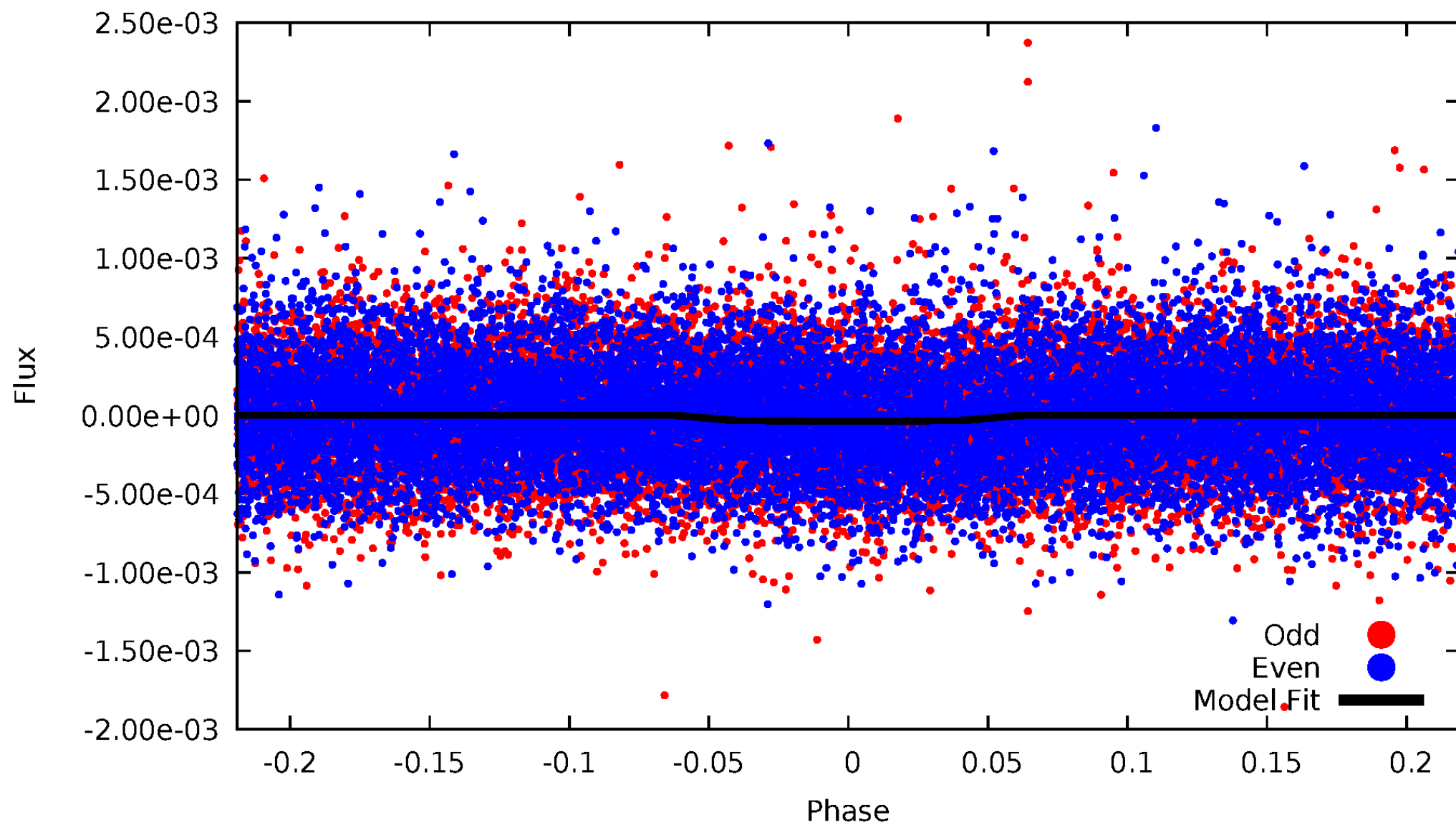


TCE 007435780-02



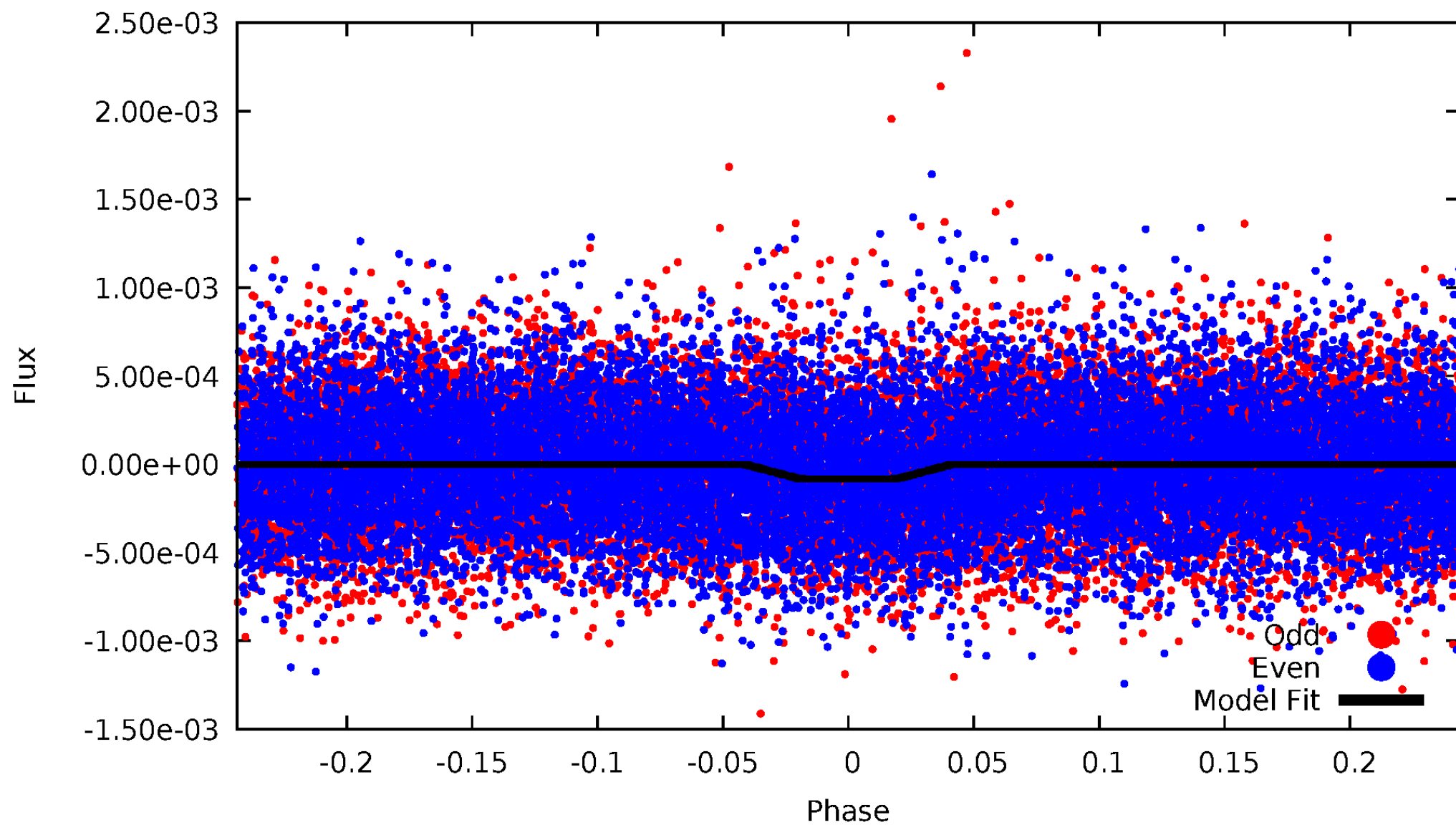
DV Odd/Even

TCE 007435780-02



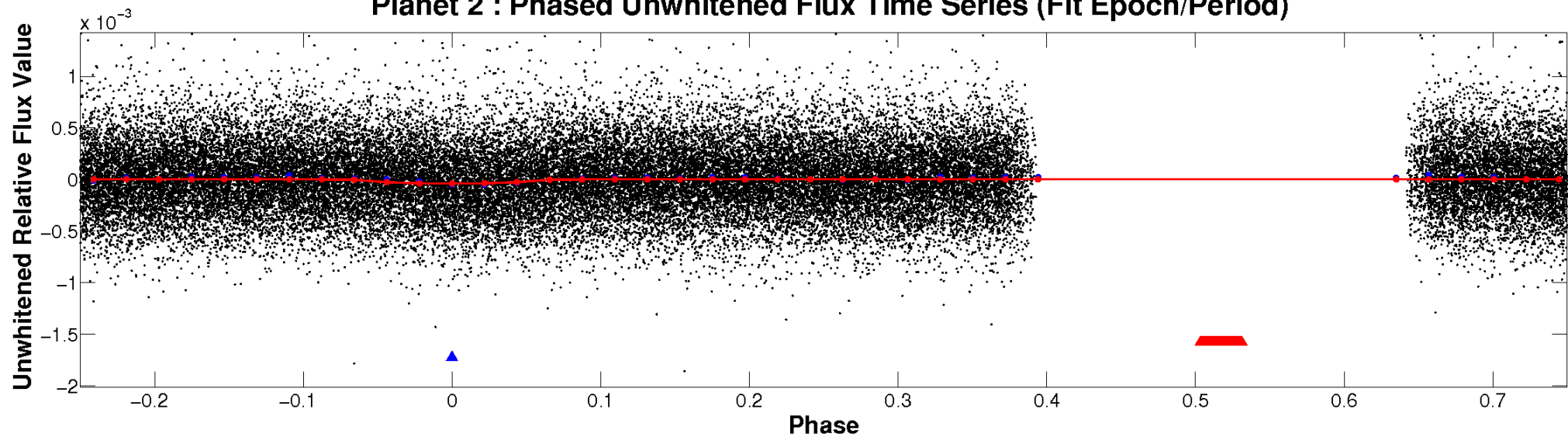
ALT Odd/Even

TCE 007435780-02

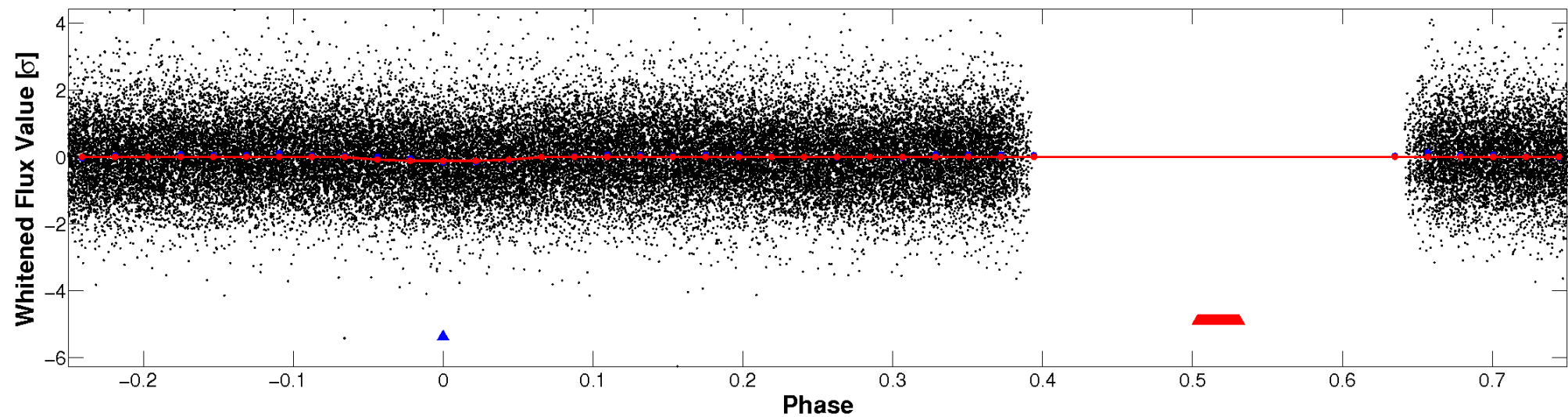


Non-Whitened Vs. Whitened Light Curve

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

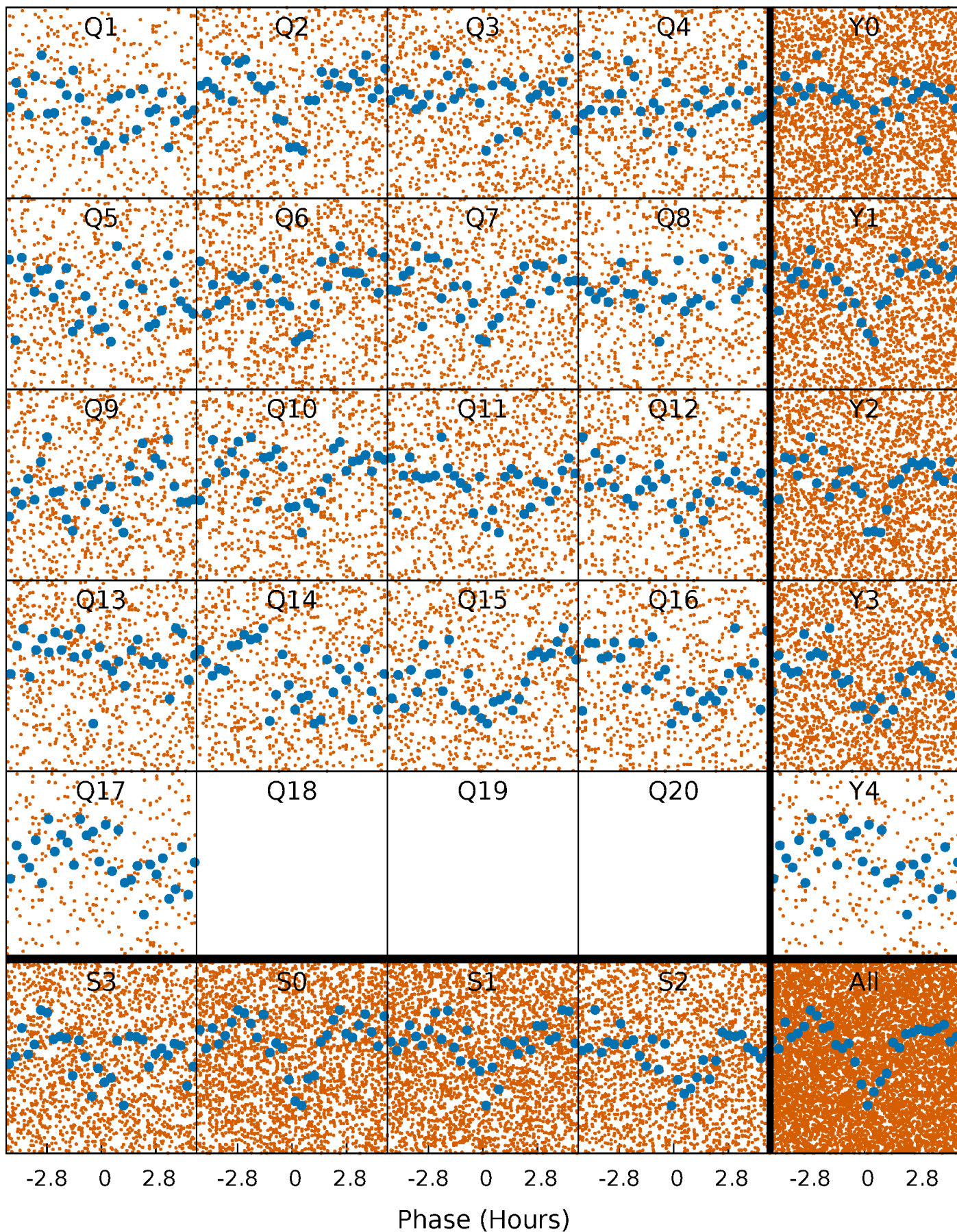


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



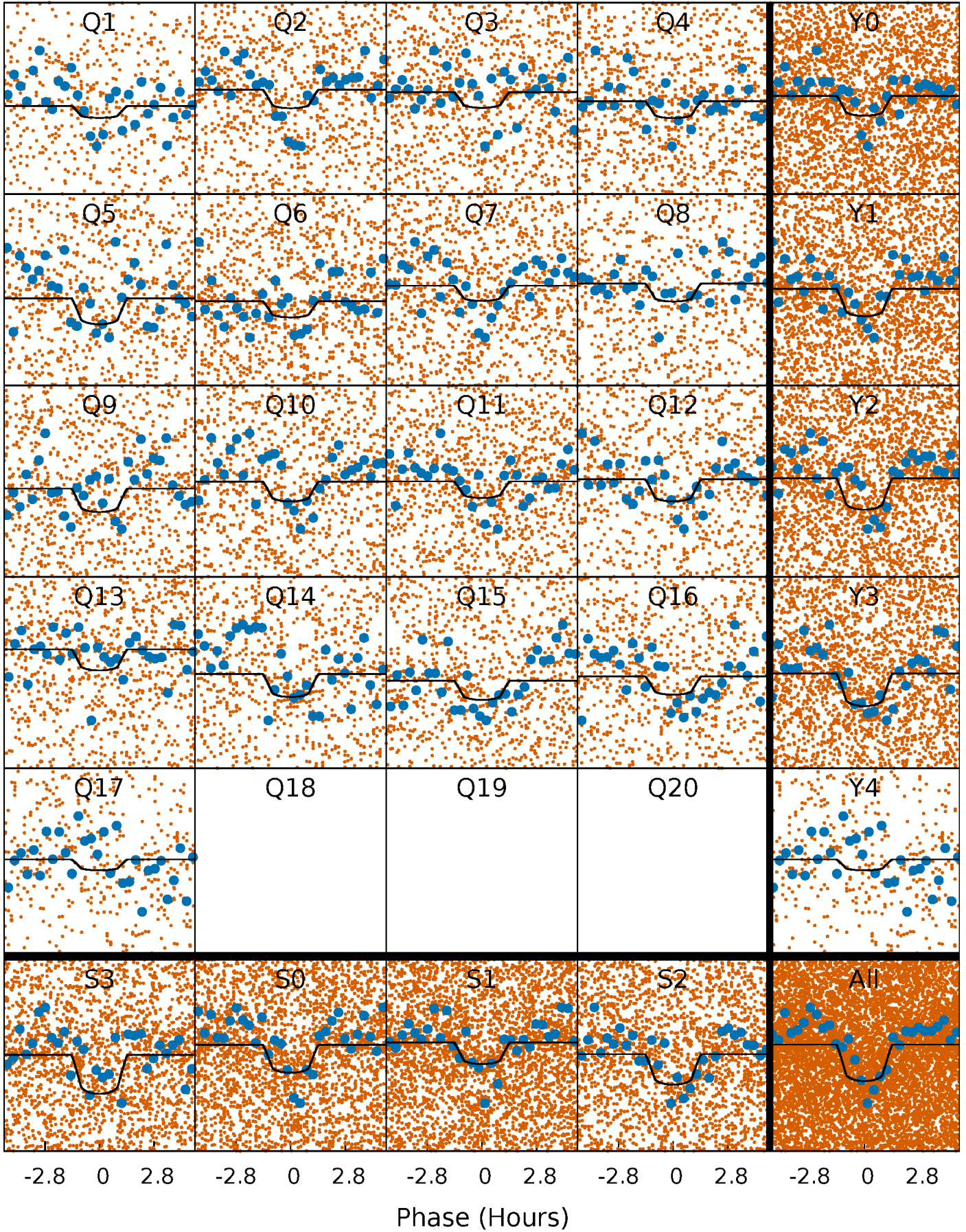
PDC Quarter-Phased Transit Curves

TCE 007435780-02 P= 0.933136 Days $T_0=131.892607$ (BKJD)



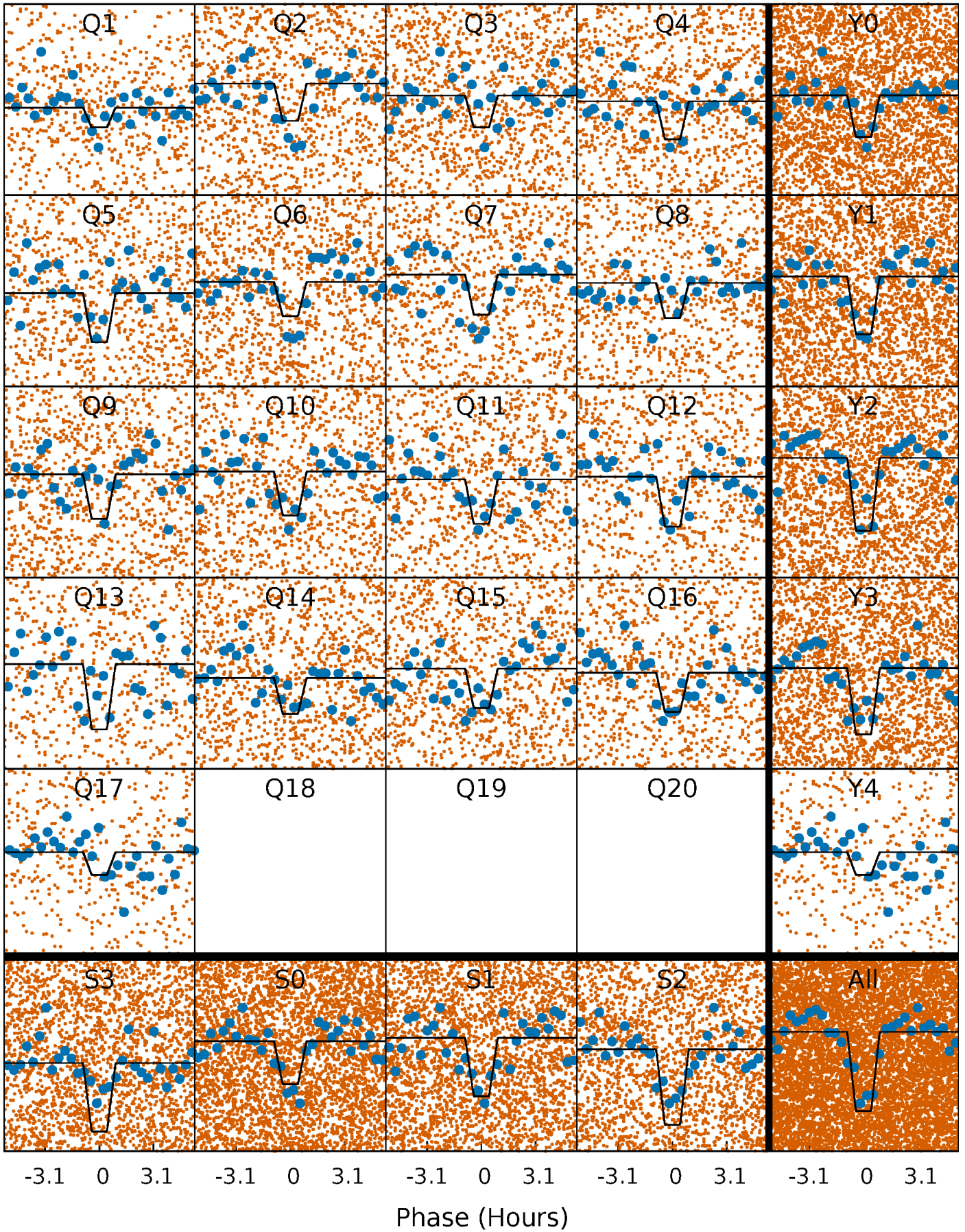
DV Quarter-Phased Transit Curves

TCE 007435780-02 P= 0.933136 Days $T_0=131.892607$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

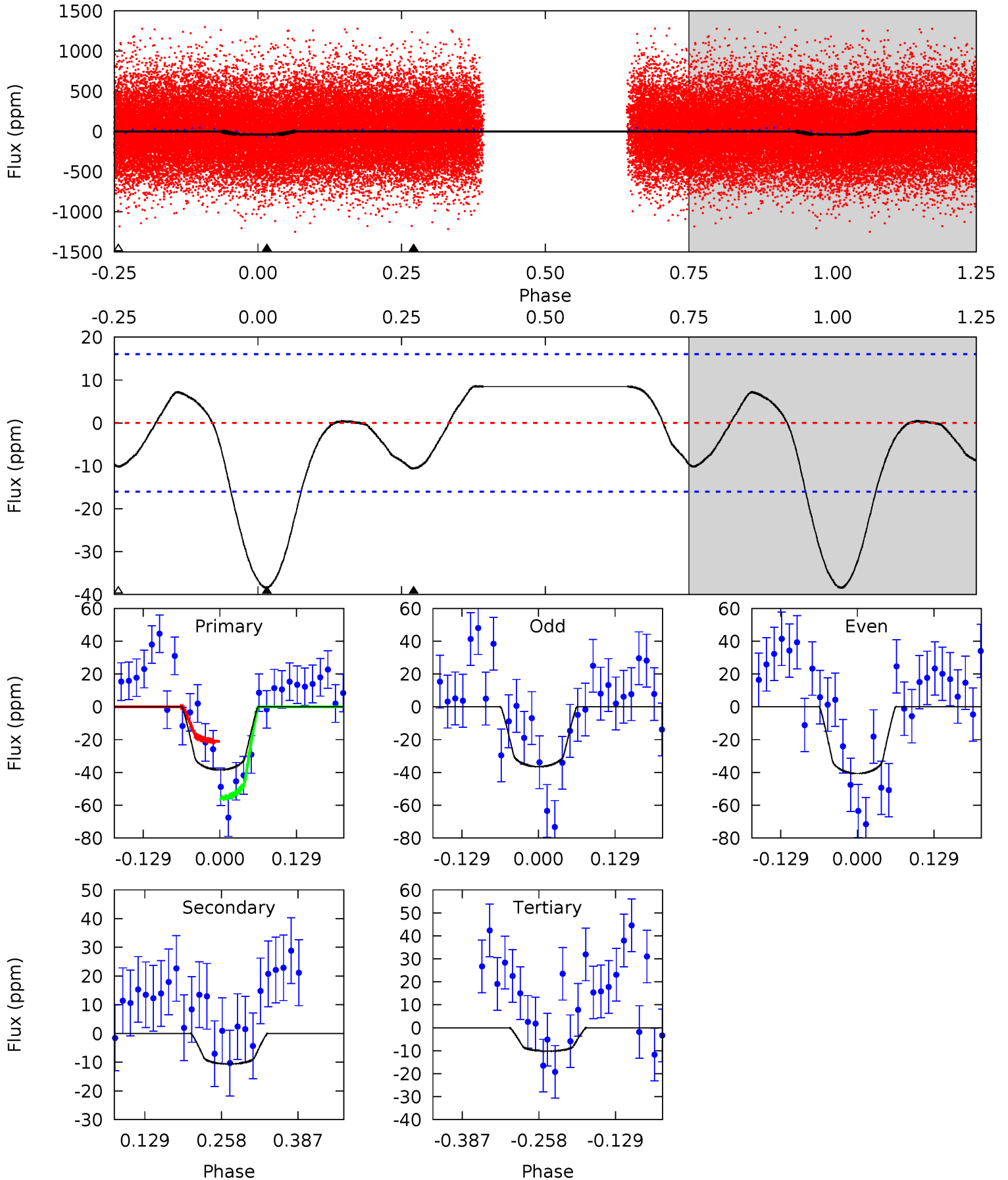
TCE 007435780-02 P= 0.933159 Days $T_0=131.891011$ (BKJD)



DV Model-Shift Uniqueness Test

007435780-02, P = 0.933136 Days, E = 130.959471 Days

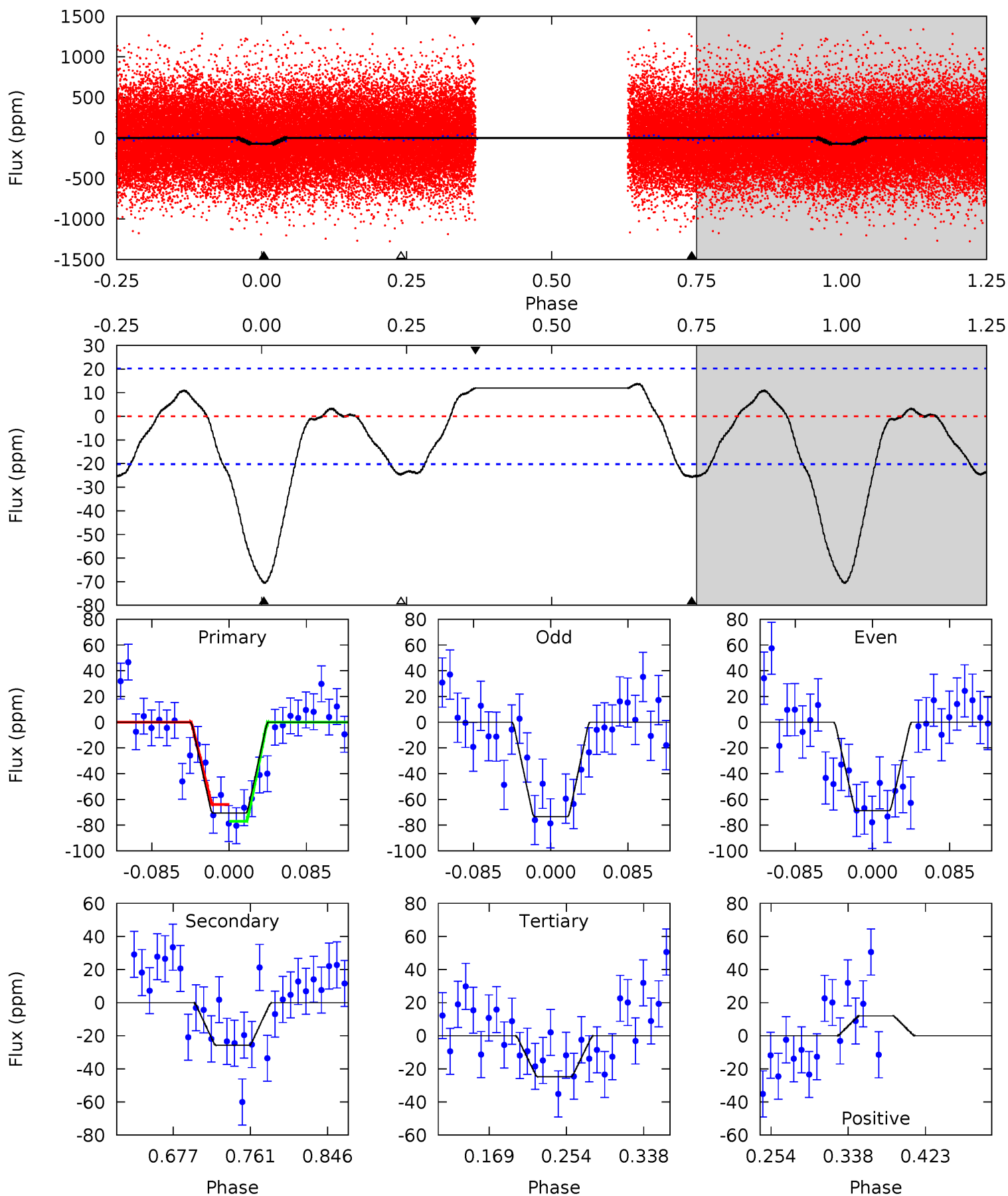
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	2.99	2.87	0	4.51	1.52	1.79	7.95	10.8	0.12	2.99	0.59	0.96	0.18	4.88



Alt Model-Shift Uniqueness Test

007435780-02, P = 0.933159 Days, E = 130.957852 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	5.84	5.63	2.72	4.60	1.72	2.65	10.4	13.3	0.21	3.12	0.52	0.97	0.16	1.48



Stellar Parameters For KIC 007435780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6499^{+154}_{-212}	$4.378^{+0.062}_{-0.188}$	$-0.100^{+0.250}_{-0.300}$	$1.169^{+0.356}_{-0.153}$	$1.191^{+0.164}_{-0.164}$	$1.050^{+0.301}_{-0.535}$
	+2%/-3%	+1%/-4%	+250%/-300%	+30%/-13%	+14%/-14%	+29%/-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 007435780-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-11 ± 4	$0.88^{+0.43}_{-0.41}$	3119^{+212}_{-155}	4554^{+1599}_{-810}	$2.897^{+7.493}_{-1.735}$
Alt.	-26 ± 4	$1.24^{+0.47}_{-0.44}$	3137^{+199}_{-158}	4833^{+1046}_{-662}	$3.664^{+5.070}_{-1.830}$

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 $A_{obs} \gg 1.0$

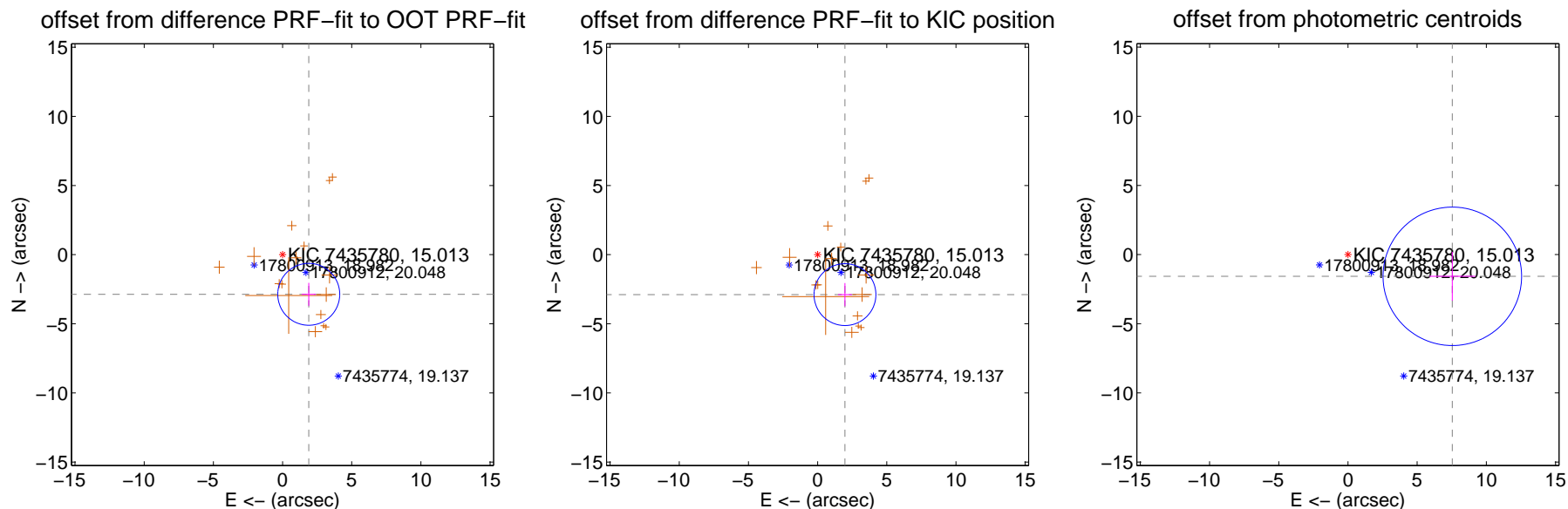
DV Centroid Data

Supplemental centroid analysis for 007435780-02. Kepler magnitude: 15.01. Transit SNR 8.68

There are 0 quarters with good PRF difference image offsets

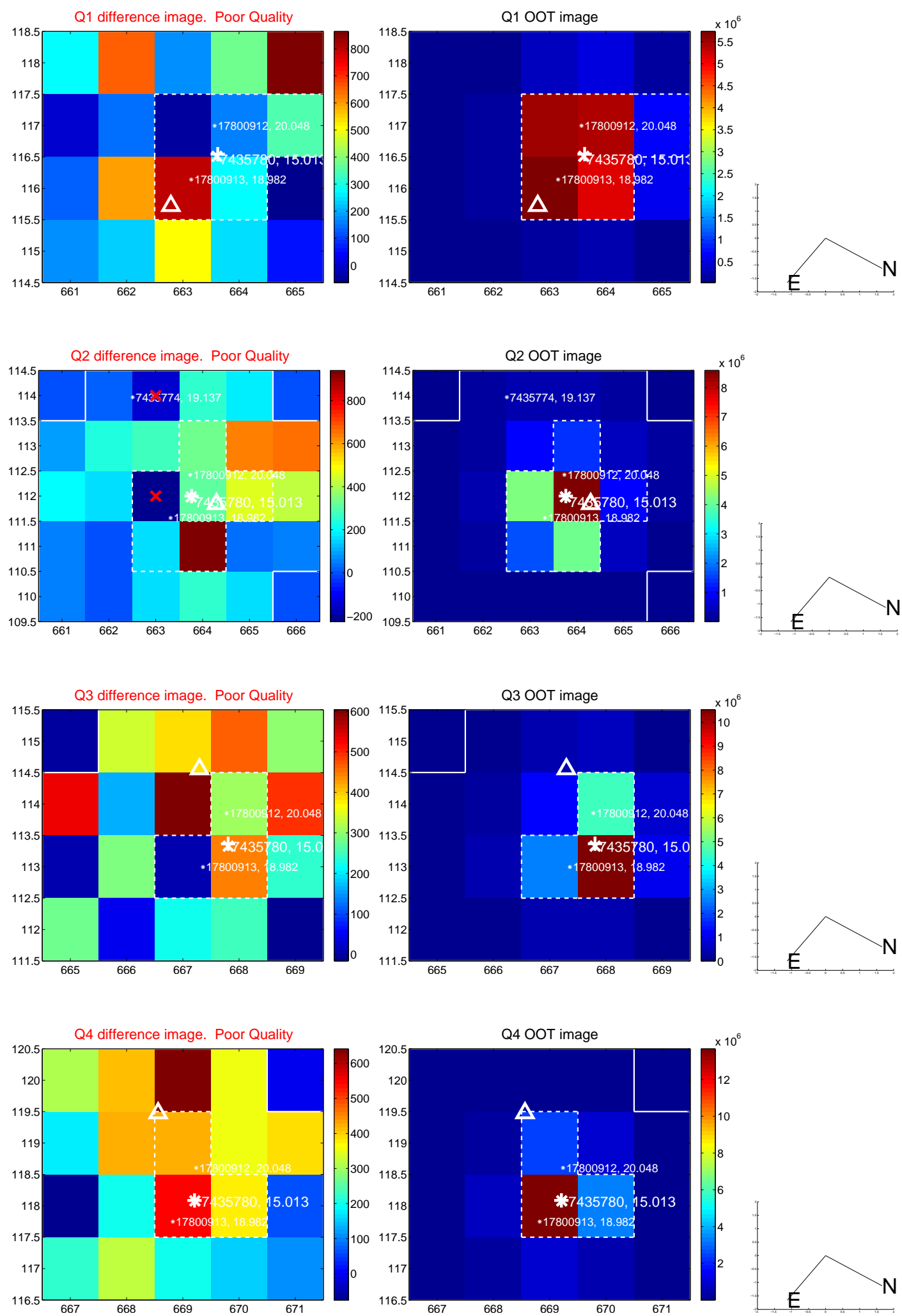
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.435 ± 0.746	4.60	-1.892 ± 0.505	-2.867 ± 0.830
PRF-fit source offset from KIC position	3.500 ± 0.745	4.70	-1.975 ± 0.501	-2.889 ± 0.835
photometric centroid source offset	7.70 ± 1.67	4.62	-7.54 ± 1.66	-1.57 ± 1.77

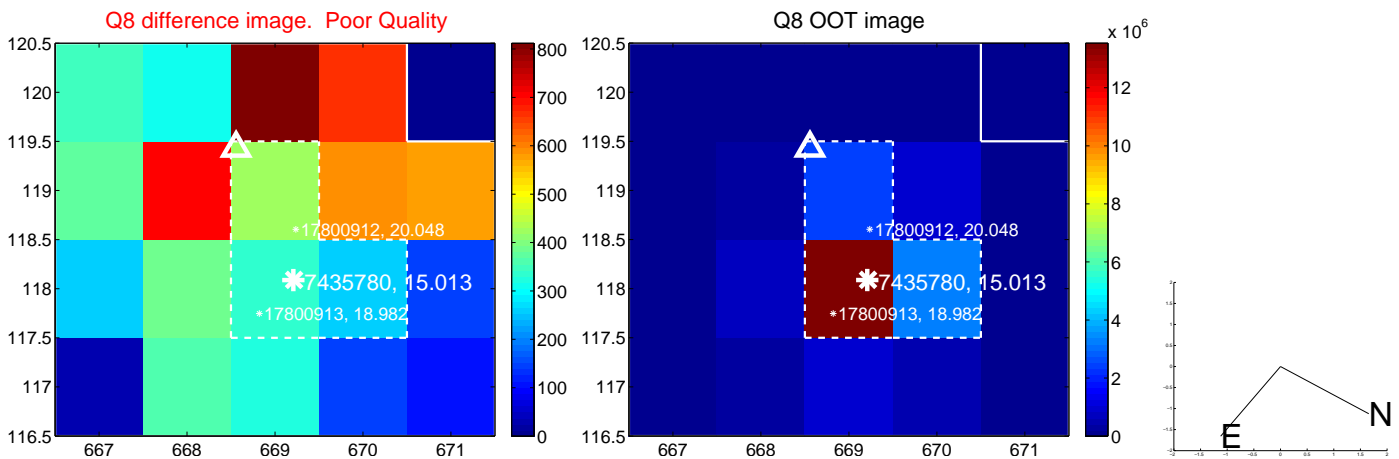
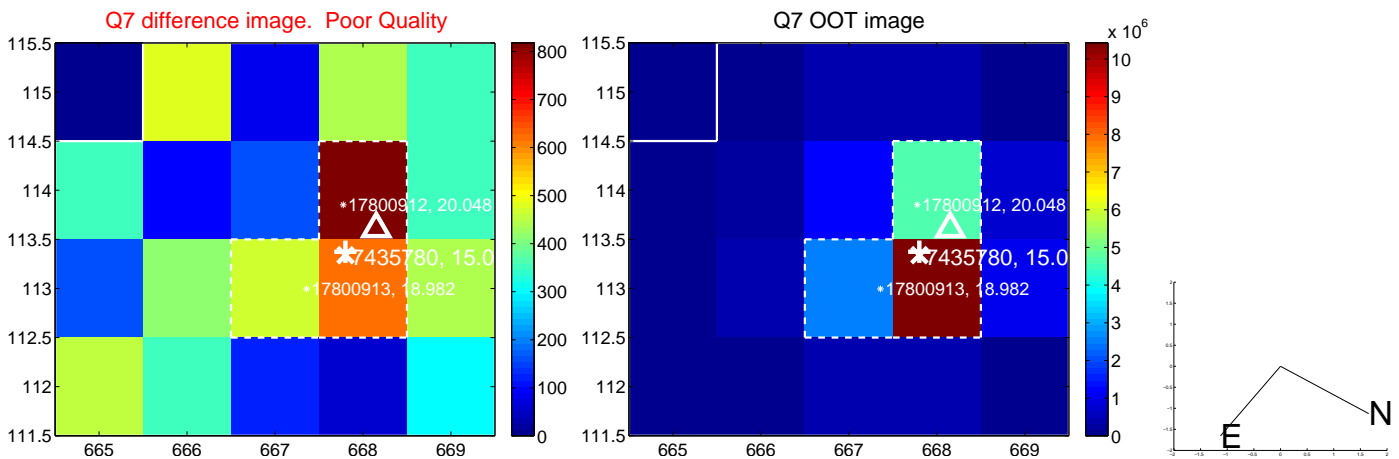
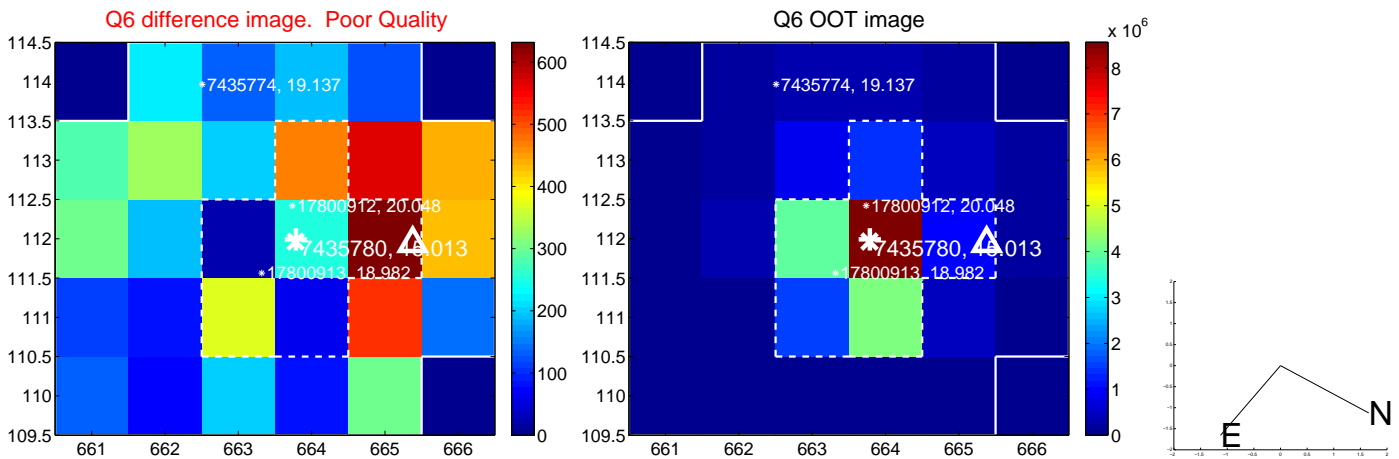
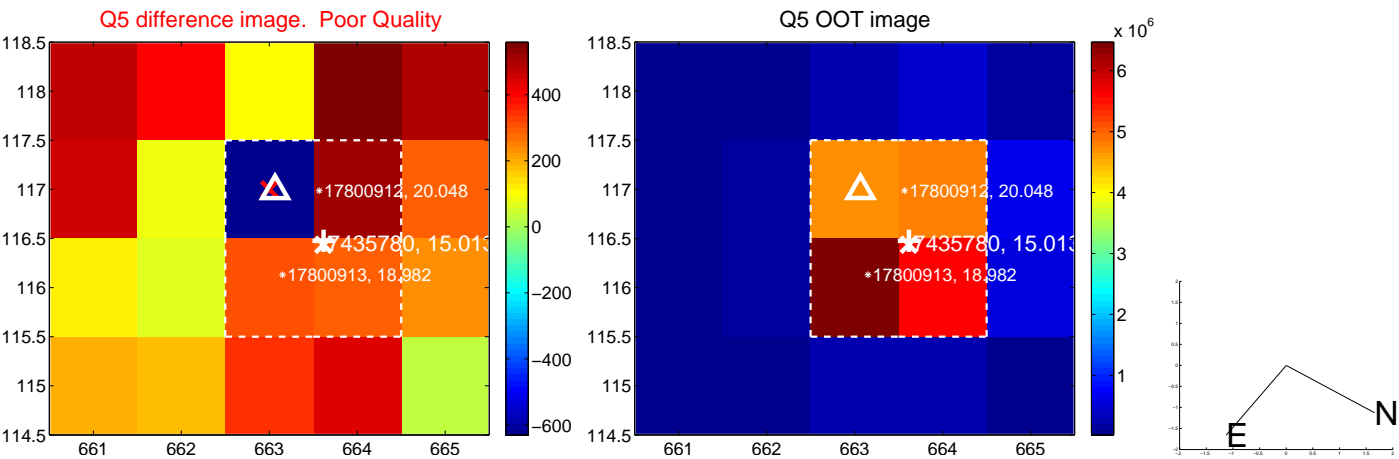


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

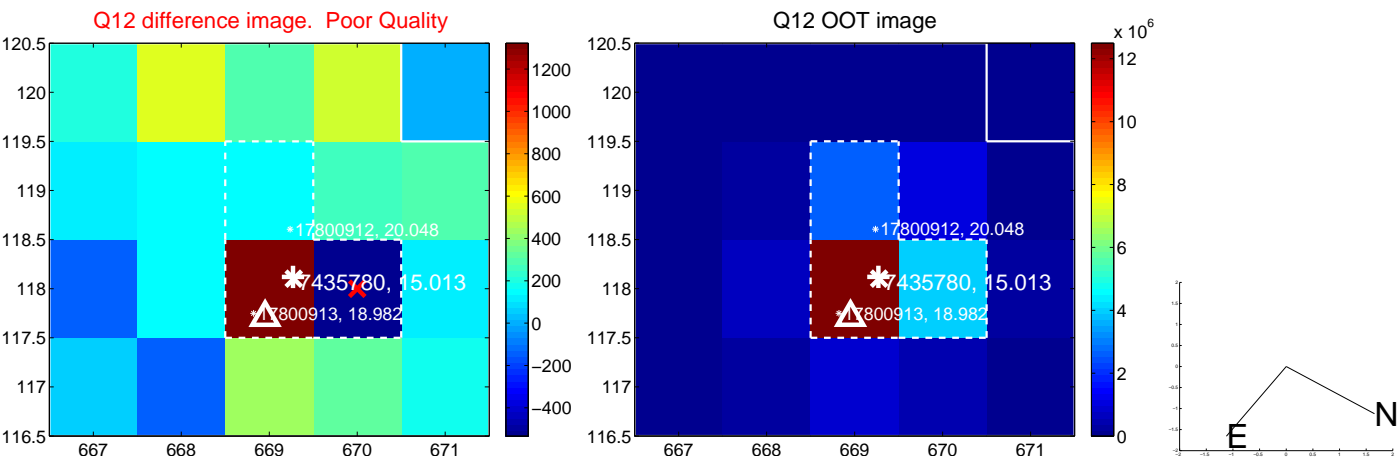
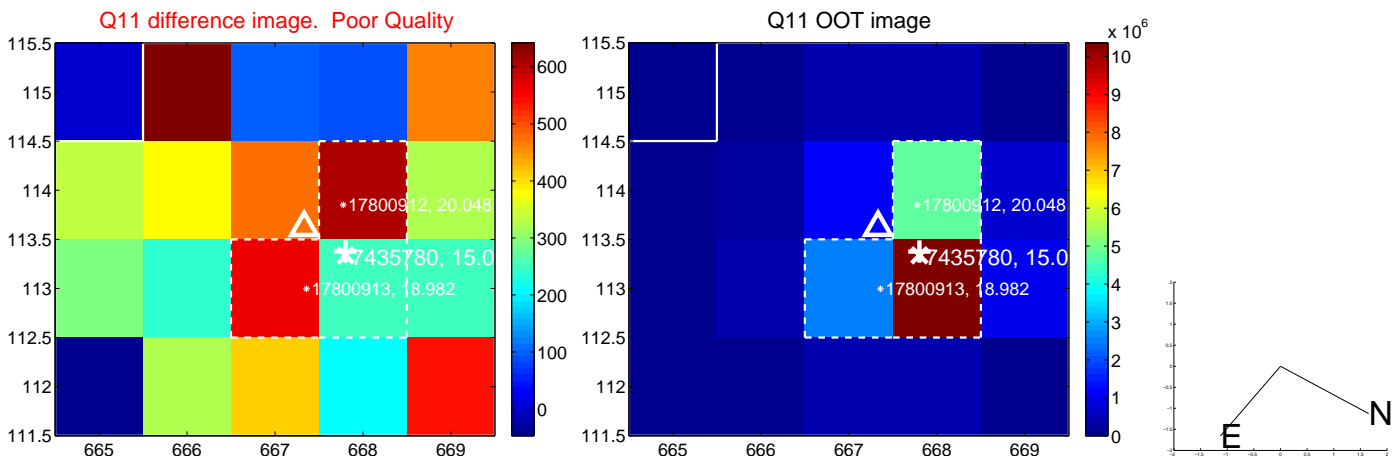
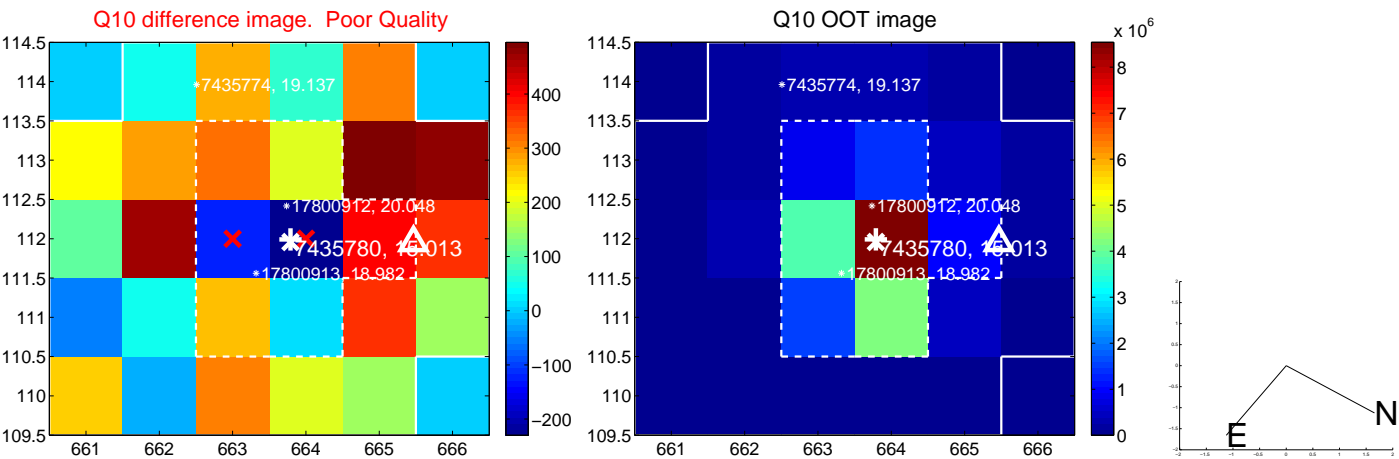
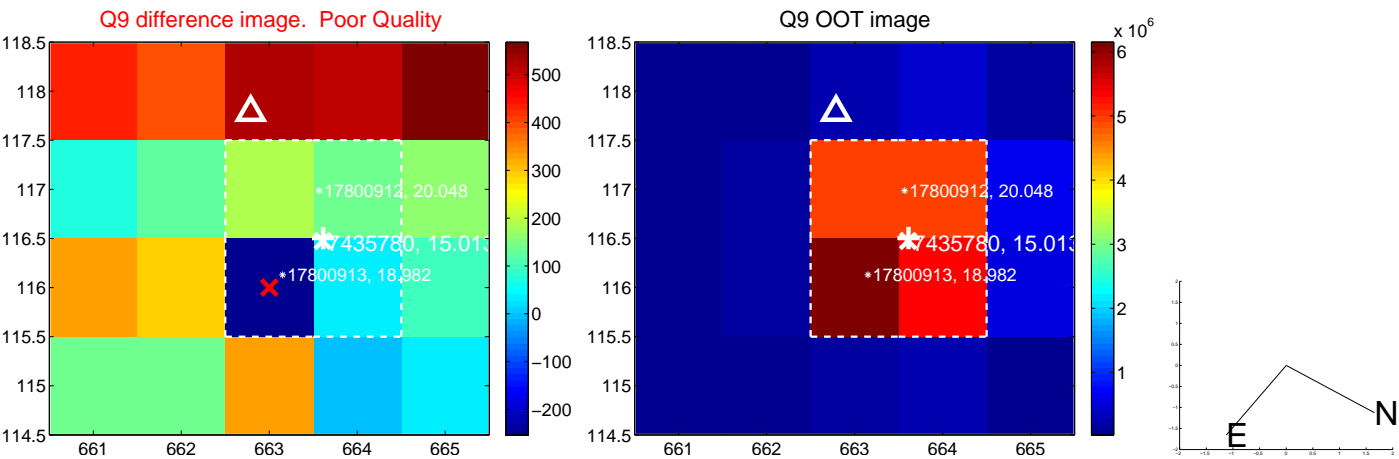
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



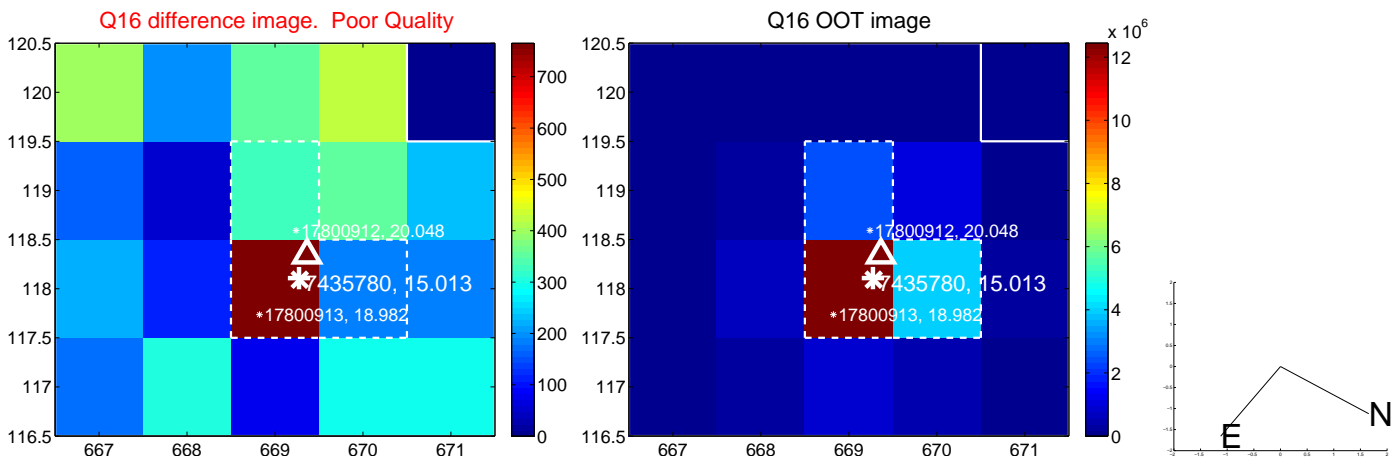
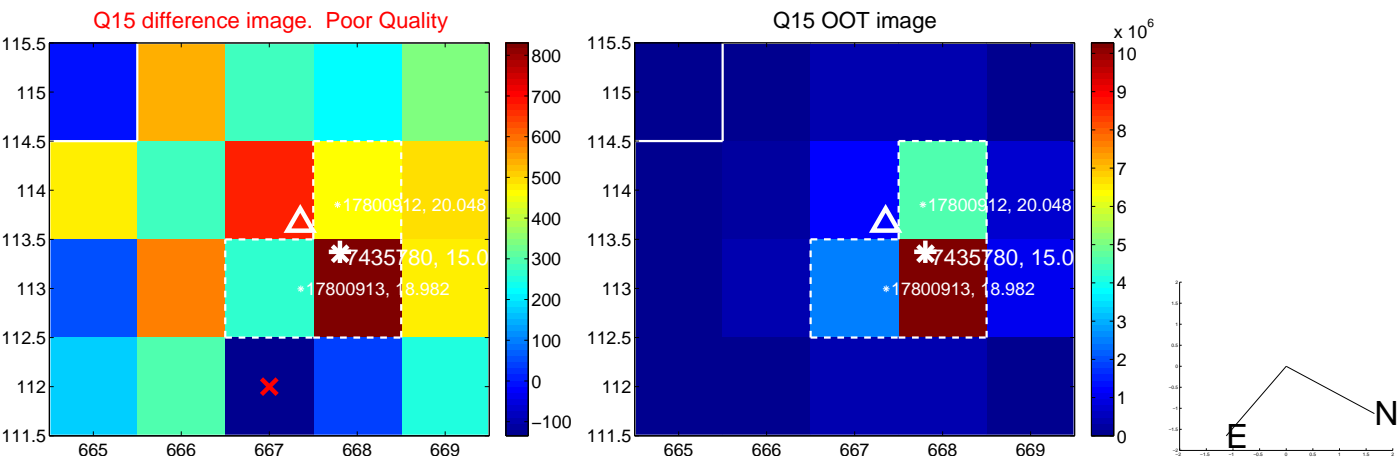
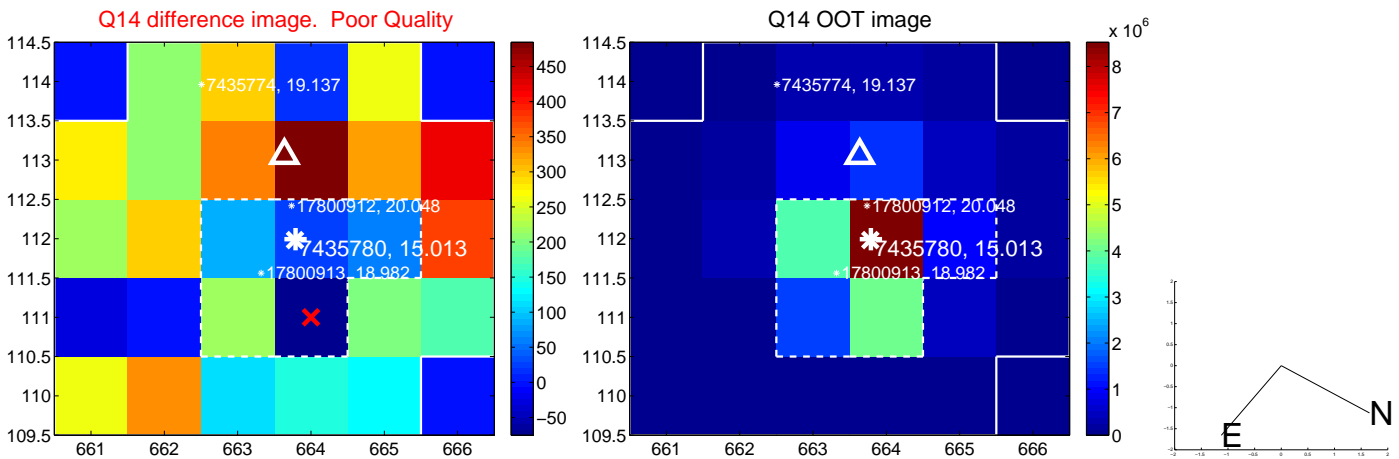
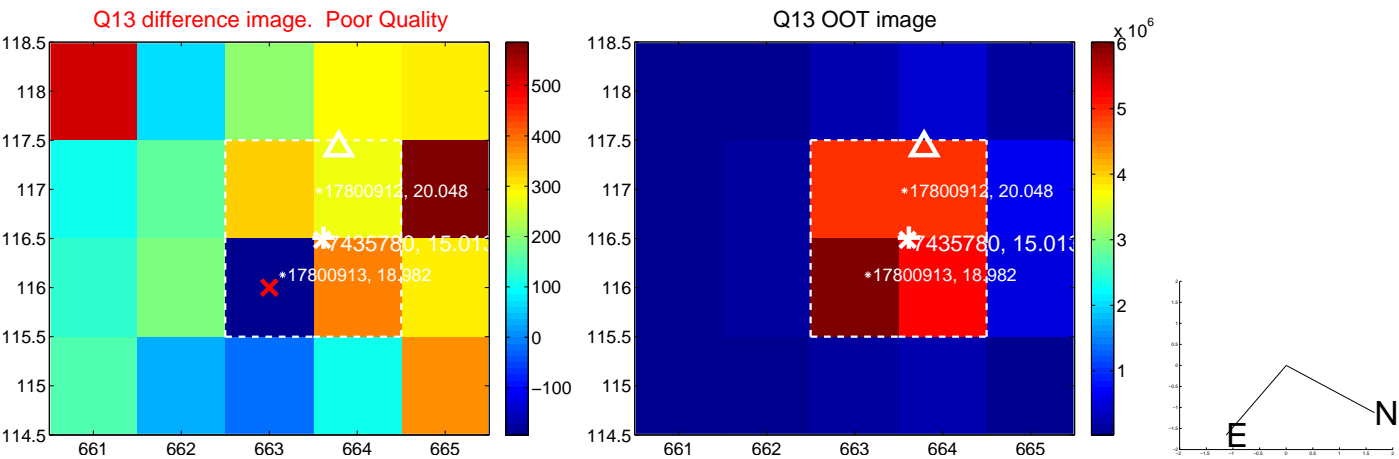
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



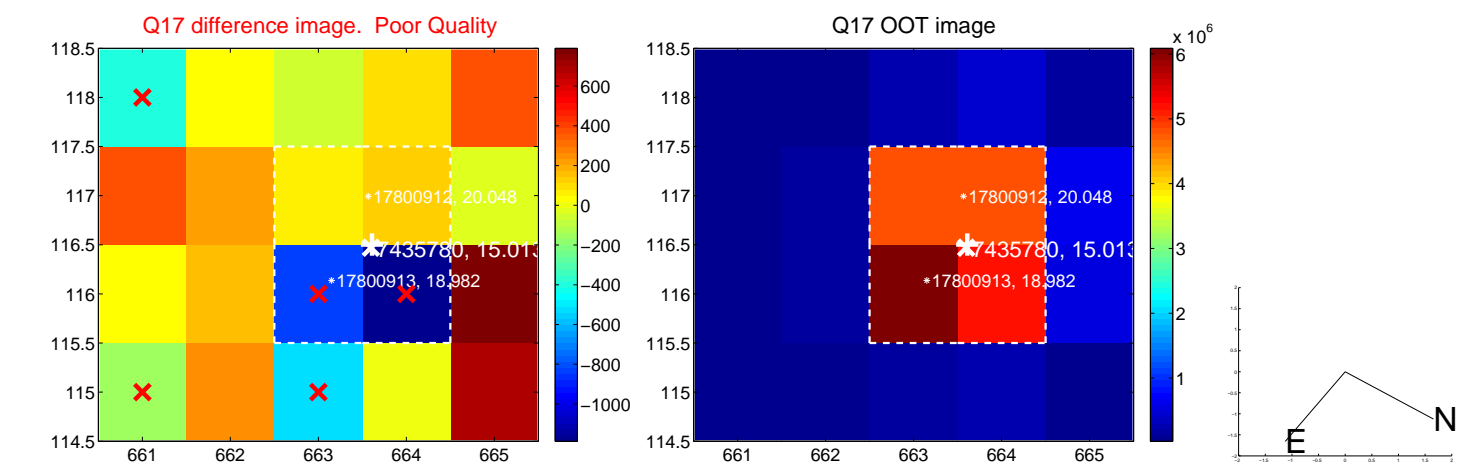
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



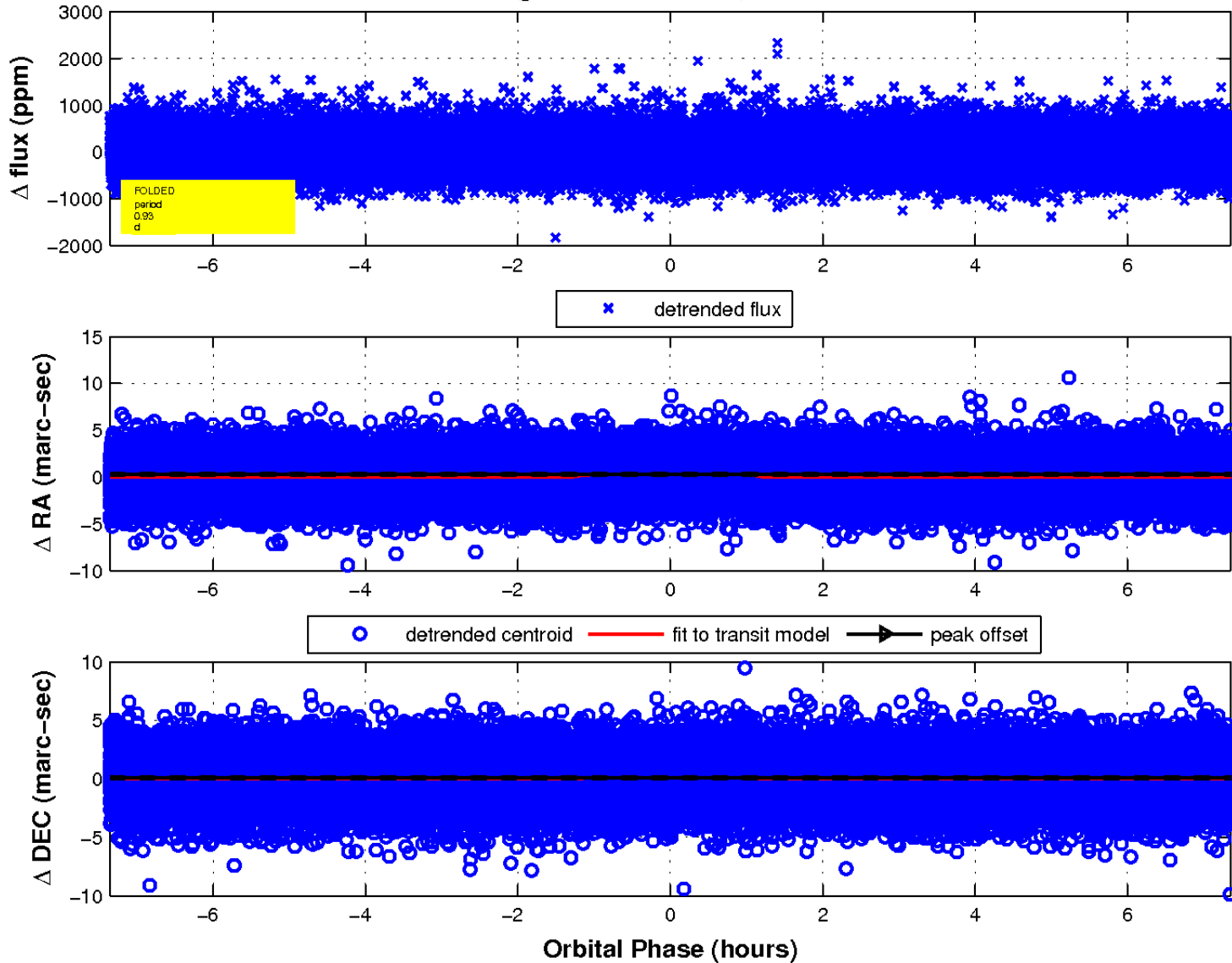
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

