

KIC 008417852

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})
008417852-01	OBS	No	0.586517	131.582281	11.6	3.820	7.3	8.8	1.99	7884	0.79	51859.19
008417852-02	OBS	No	29.347106	143.012259	107.1	3.884	7.9	5.8	1.99	7884	2.39	281.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008417852-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008417852-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

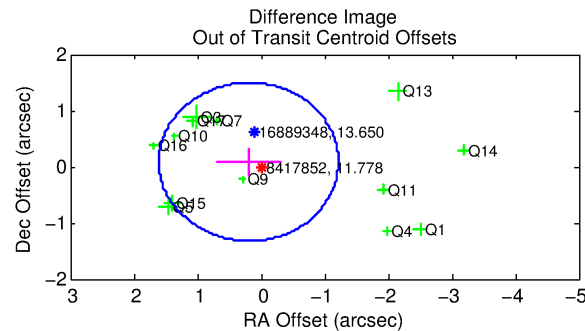
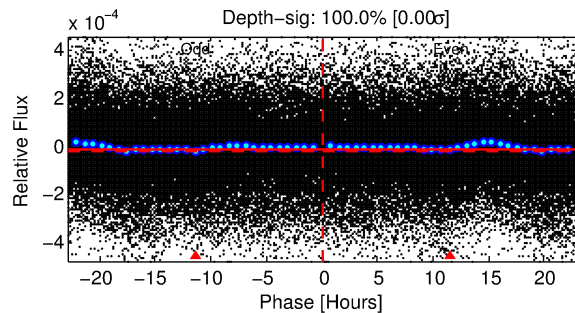
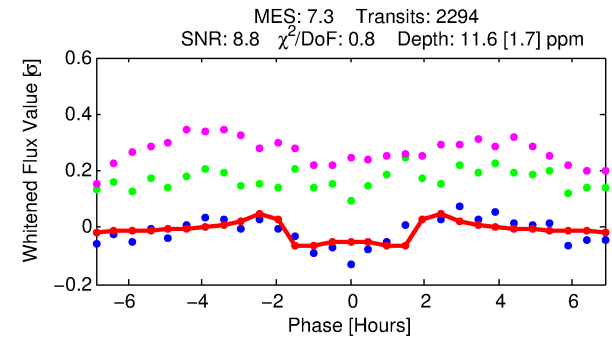
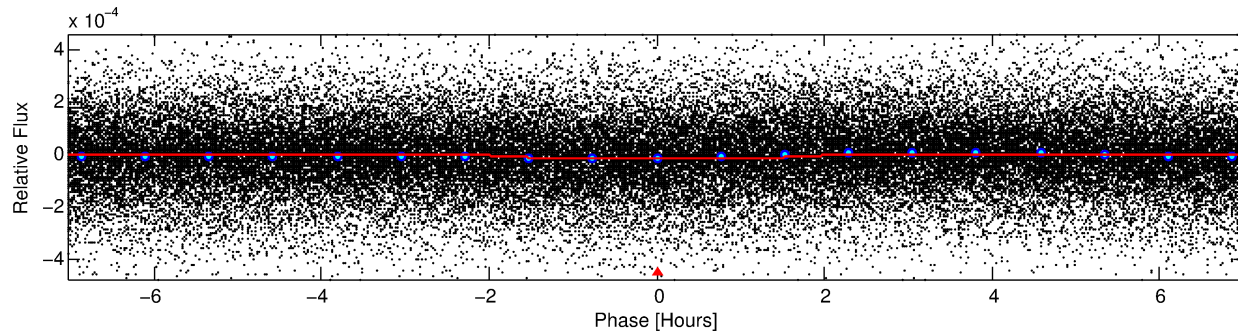
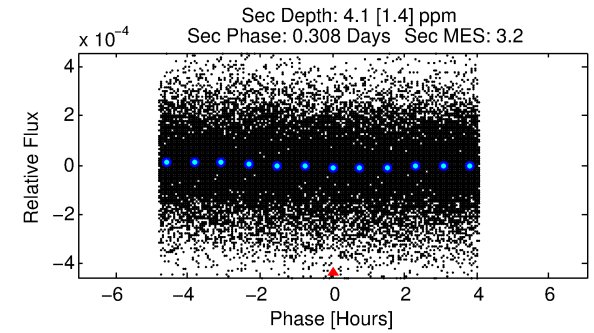
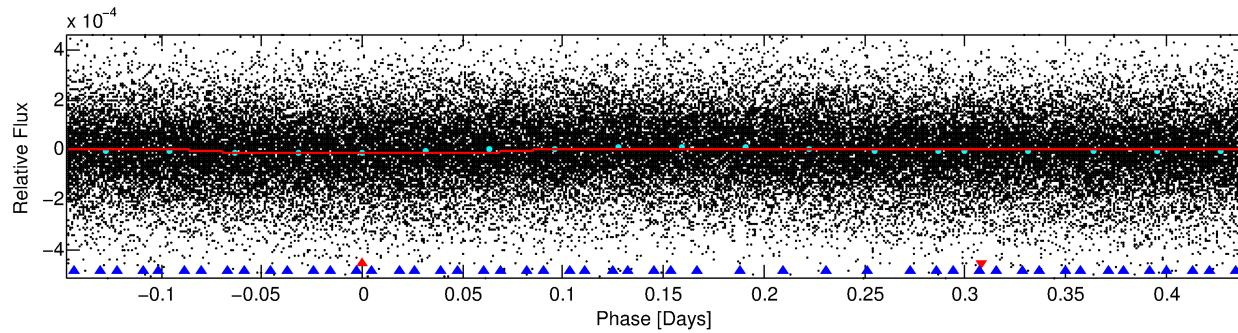
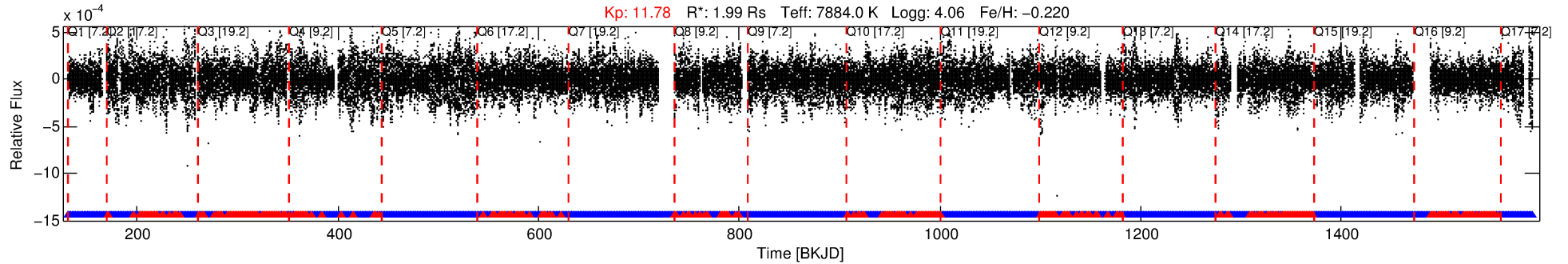
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008417852-01

No Significant Match Found

DV One-Page Summary

KIC: 8417852 Candidate: 1 of 2 Period: 0.587 d



DV Fit Results:

Period = 0.58652 [0.00001] d
Epoch = 131.5823 [0.0022] BKJD
 $R_p/R^* = 0.0037$ [0.0009]
 $a/R^* = 1.08$ [0.22]
 $b = 0.90$ [0.33]
 $S_{\text{eff}} = 51859.19$ [18902.13]
 $T_{\text{eq}} = 3848$ [351] K
 $R_p = 0.79$ [0.28] R_e
 $a = 0.0162$ [0.0035] AU
 $A_g = 0.93$ [0.65] $[-0.10\sigma]$
 $T_{\text{eff}} = 5849$ [925] K $[2.02\sigma]$

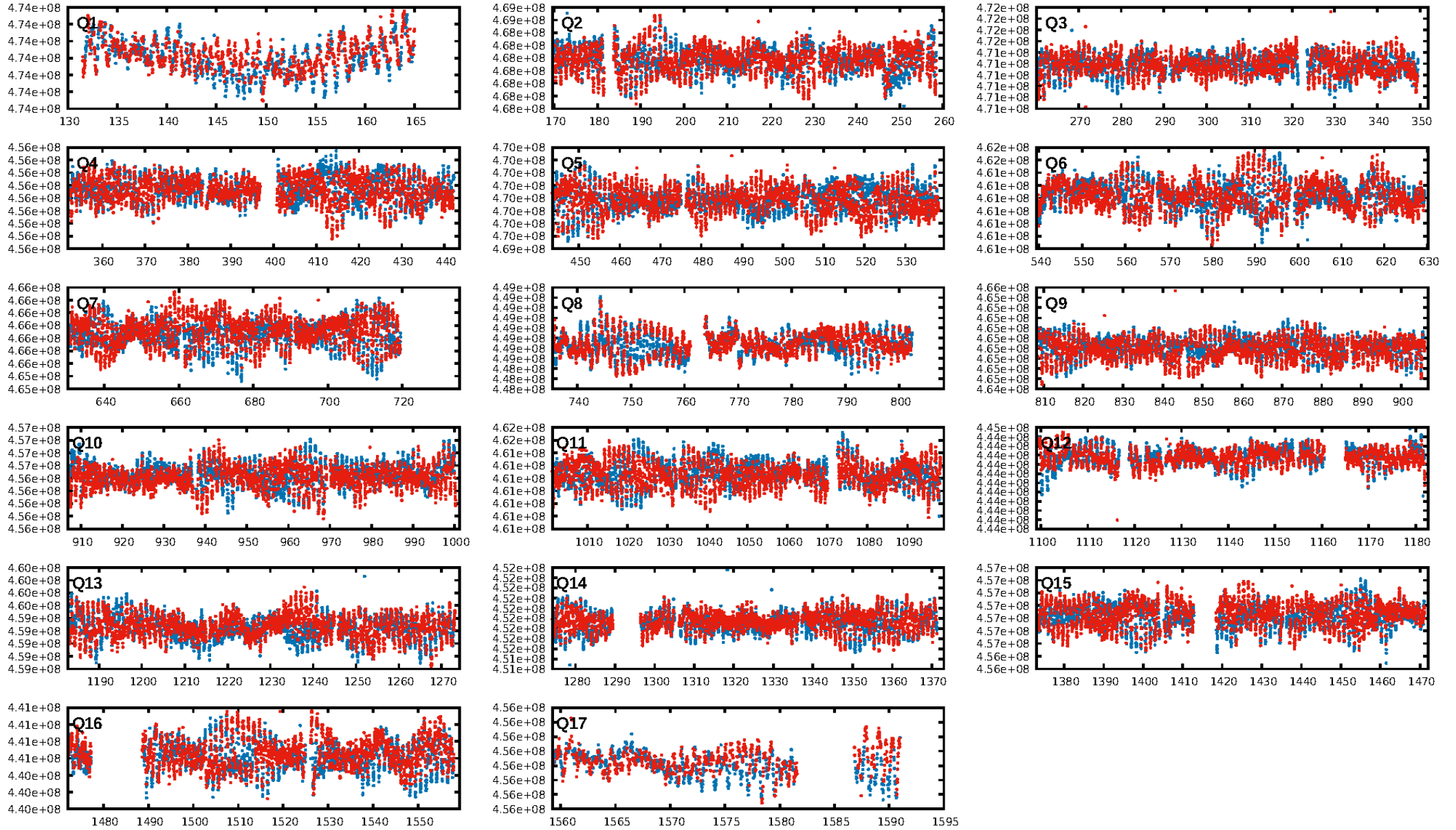
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [126.71σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.00e-06
RollingBand-fgt: 0.80 [1757/2190]
GhostDiagnostic-chr: 2.586
Centroid-sig: 3.1%
Centroid-so: 1.077 arcsec [1.50σ]
OotOffset-rm: 0.212 arcsec [0.45σ]
KicOffset-rm: 0.282 arcsec [0.53σ]
OotOffset-st: 2/4/2/5 [13]
KicOffset-st: 2/4/2/5 [13]
DiffImageQuality-fgm: 0.38 [5/13]
DiffImageOverlap-fno: 1.00 [17/17]

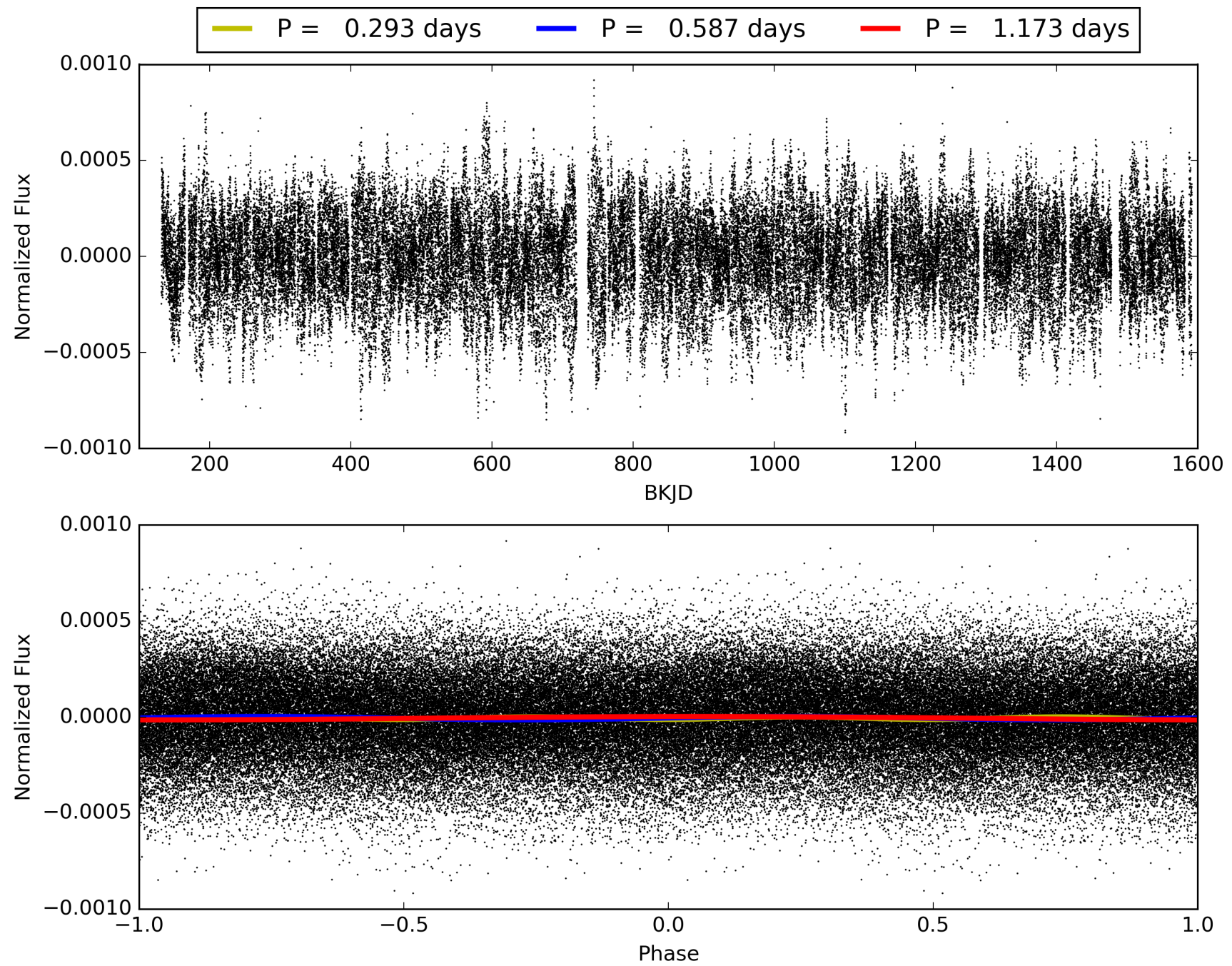
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:28:10 Z

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

TCE 008417852-01, PDC Light Curves

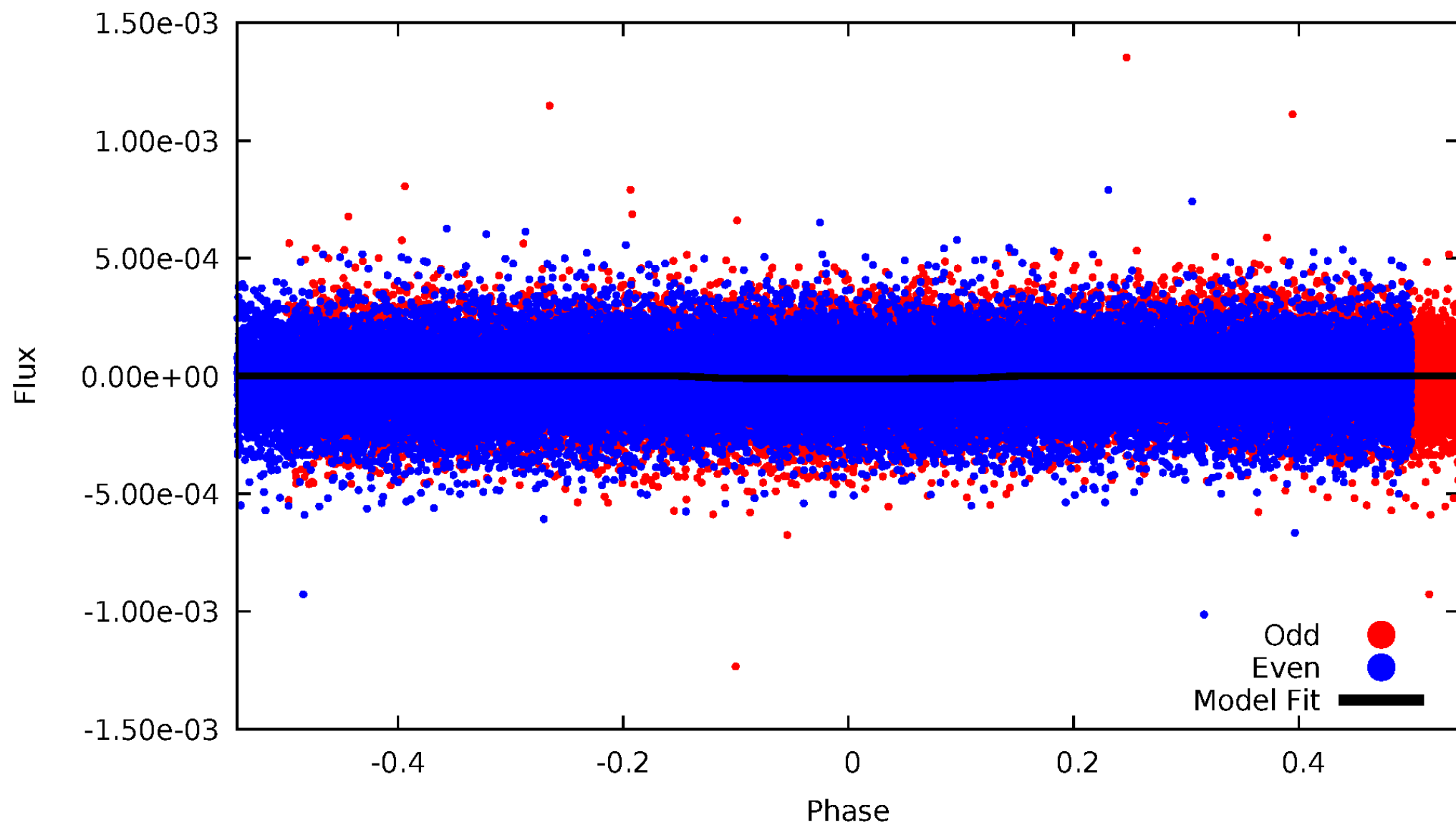


TCE 008417852-01



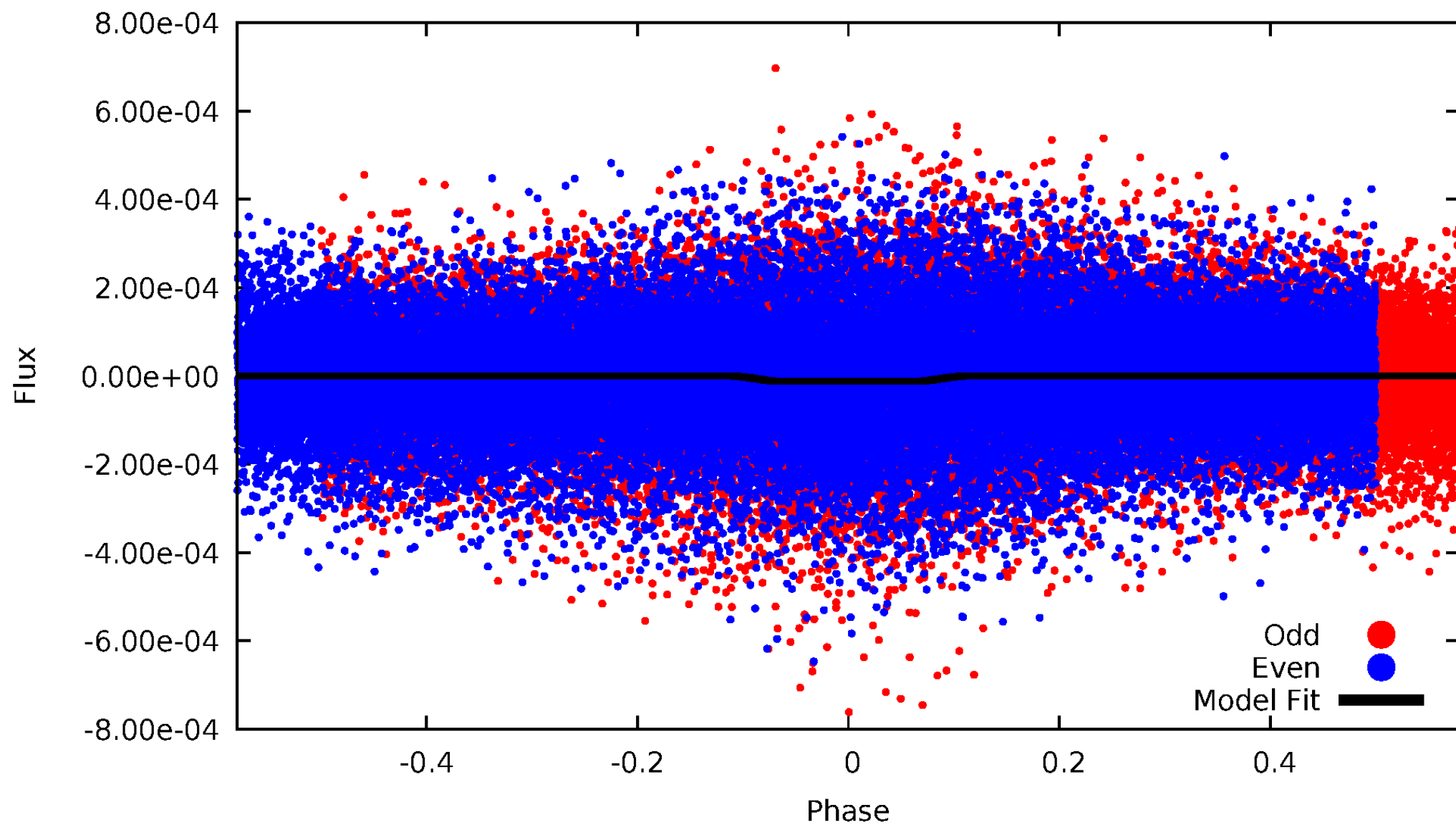
DV Odd/Even

TCE 008417852-01

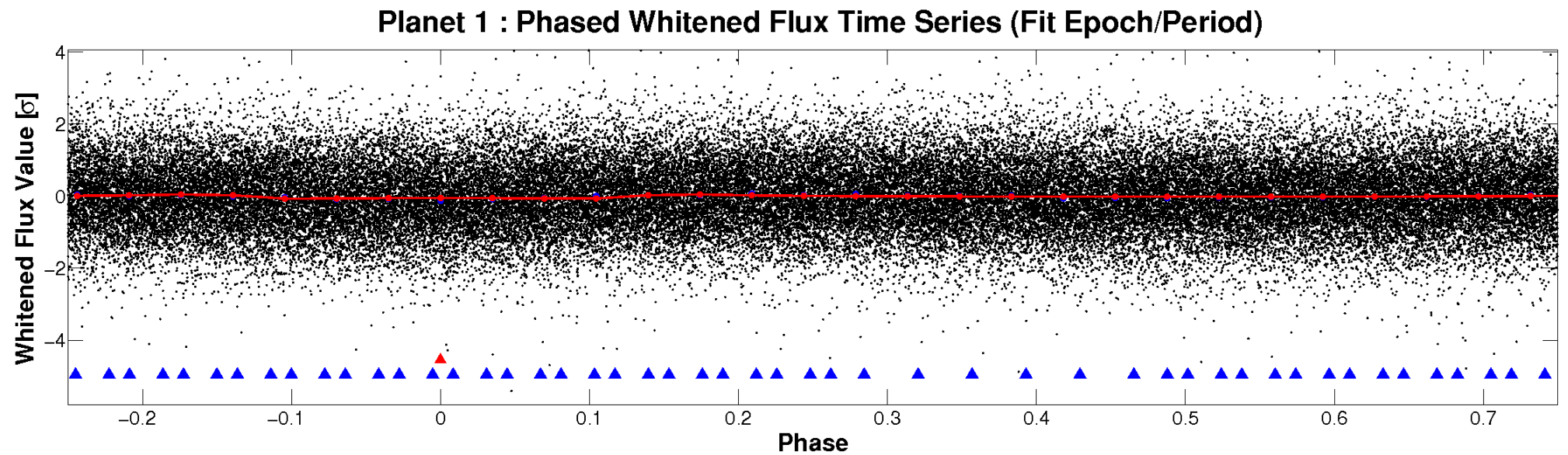
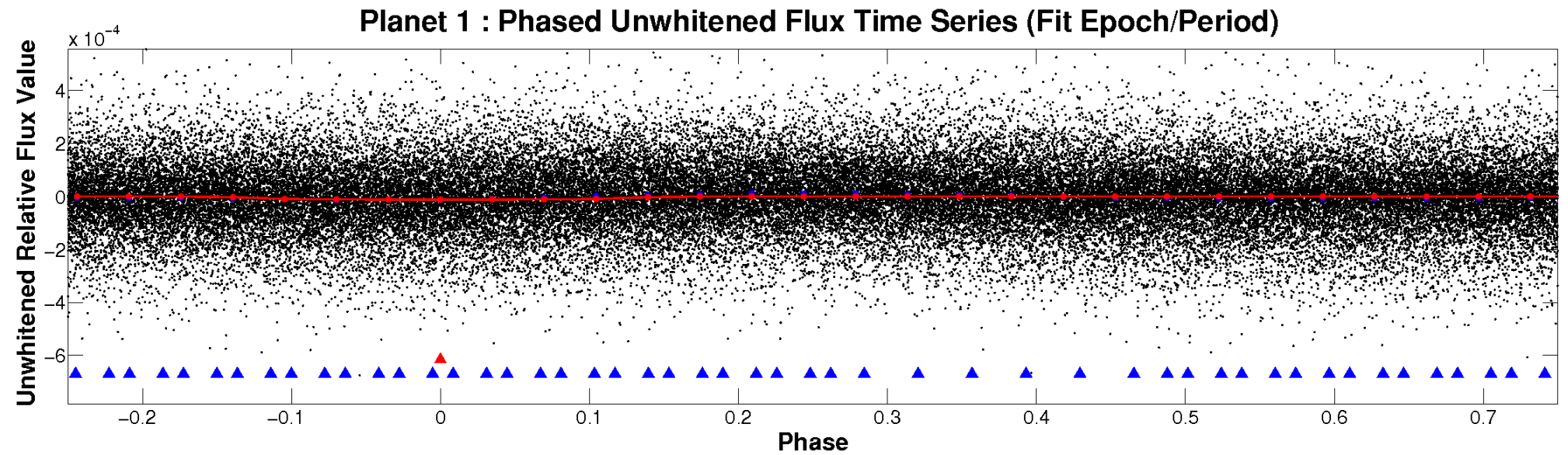


ALT Odd/Even

TCE 008417852-01

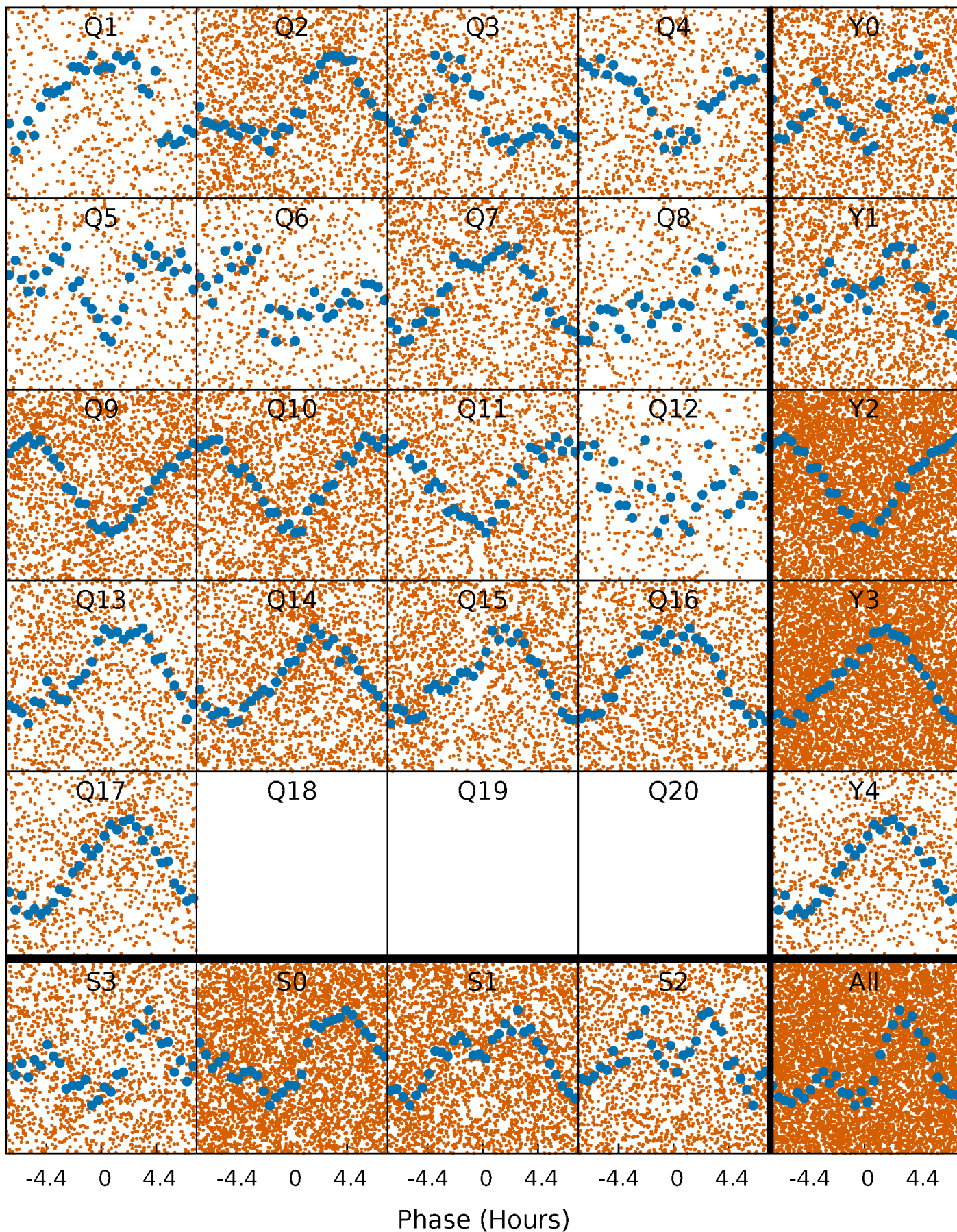


Non-Whitened Vs. Whitened Light Curve



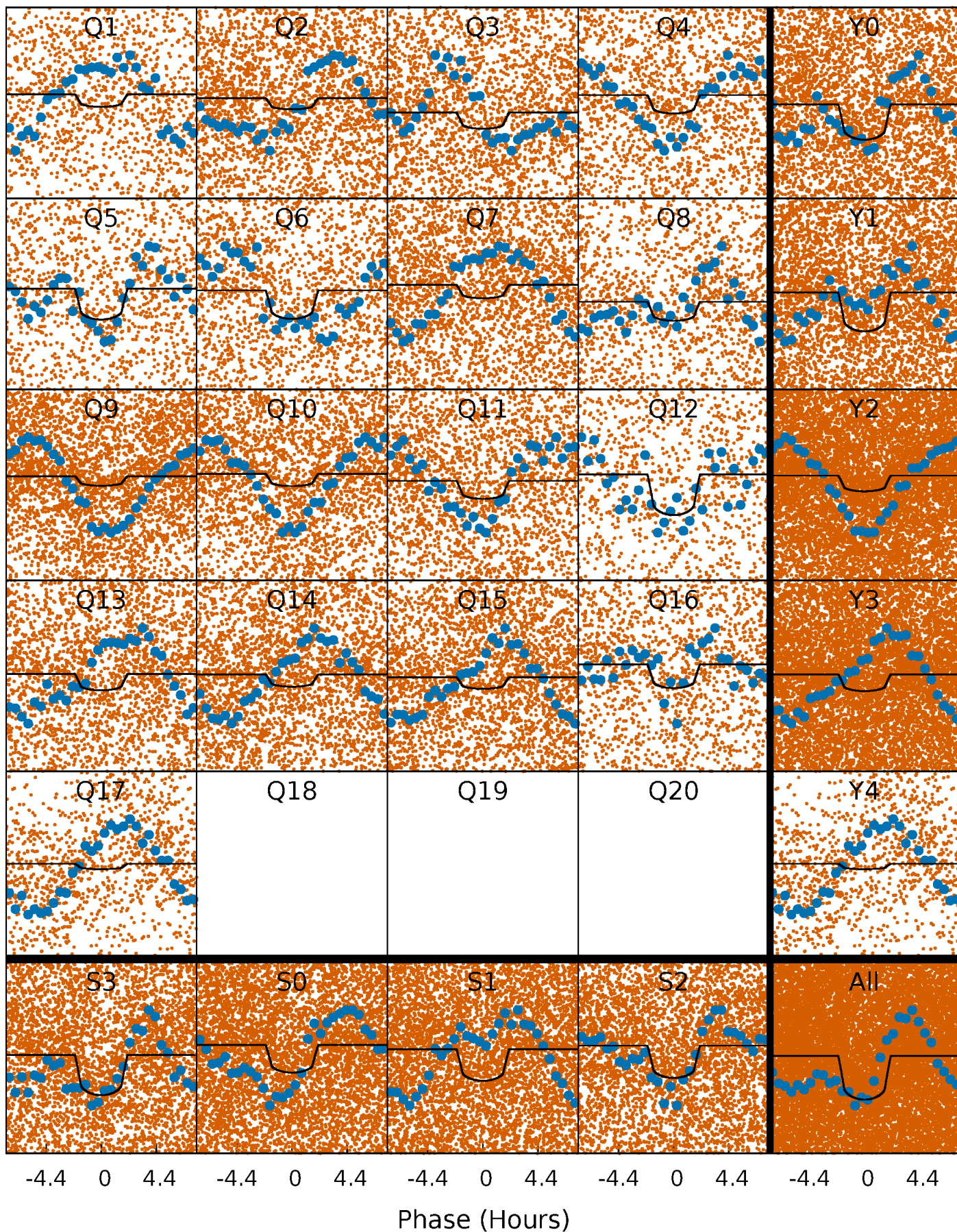
PDC Quarter-Phased Transit Curves

TCE 008417852-01 P= 0.586517 Days $T_0=131.582281$ (BKJD)



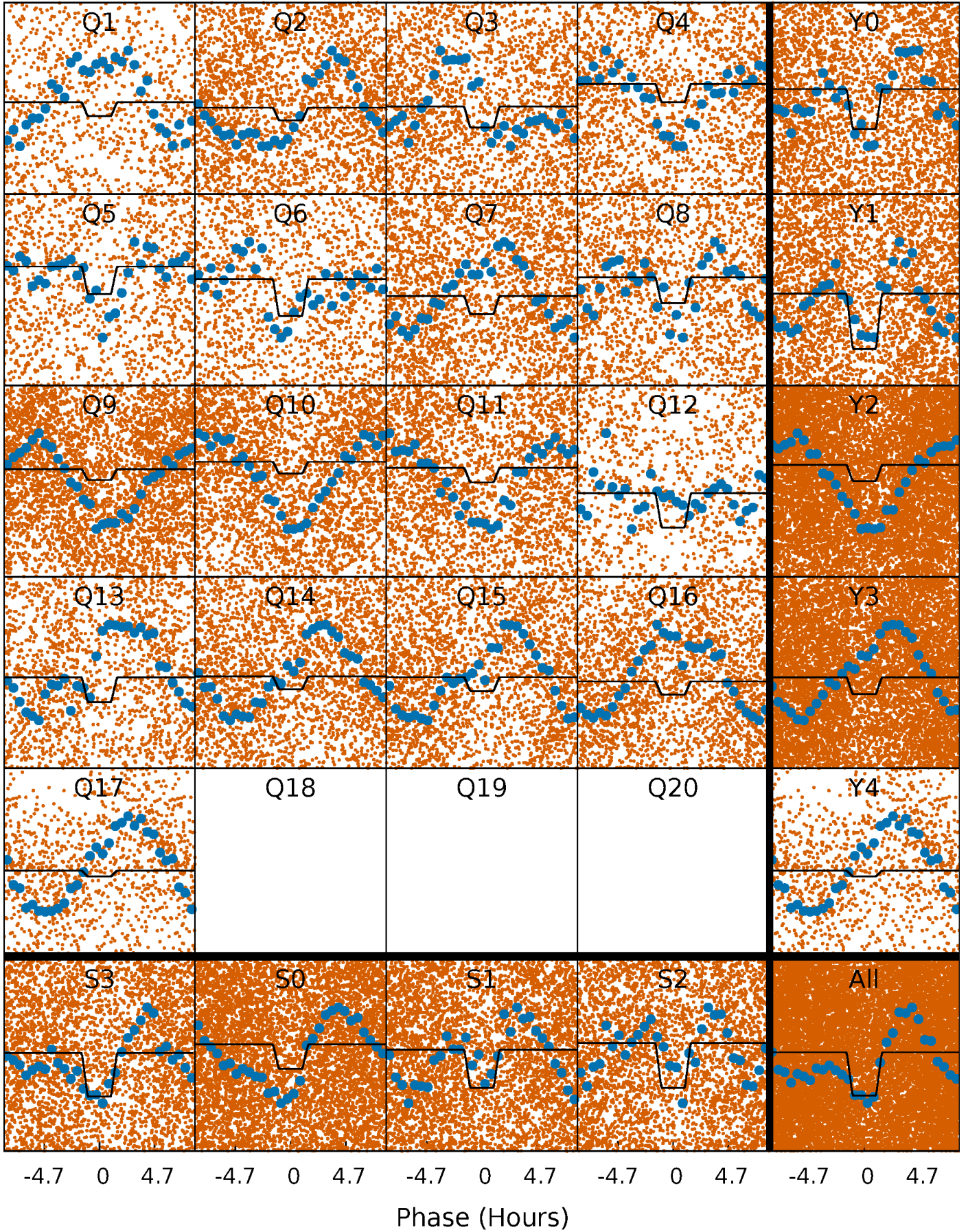
DV Quarter-Phased Transit Curves

TCE 008417852-01 P= 0.586517 Days $T_0=131.582281$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

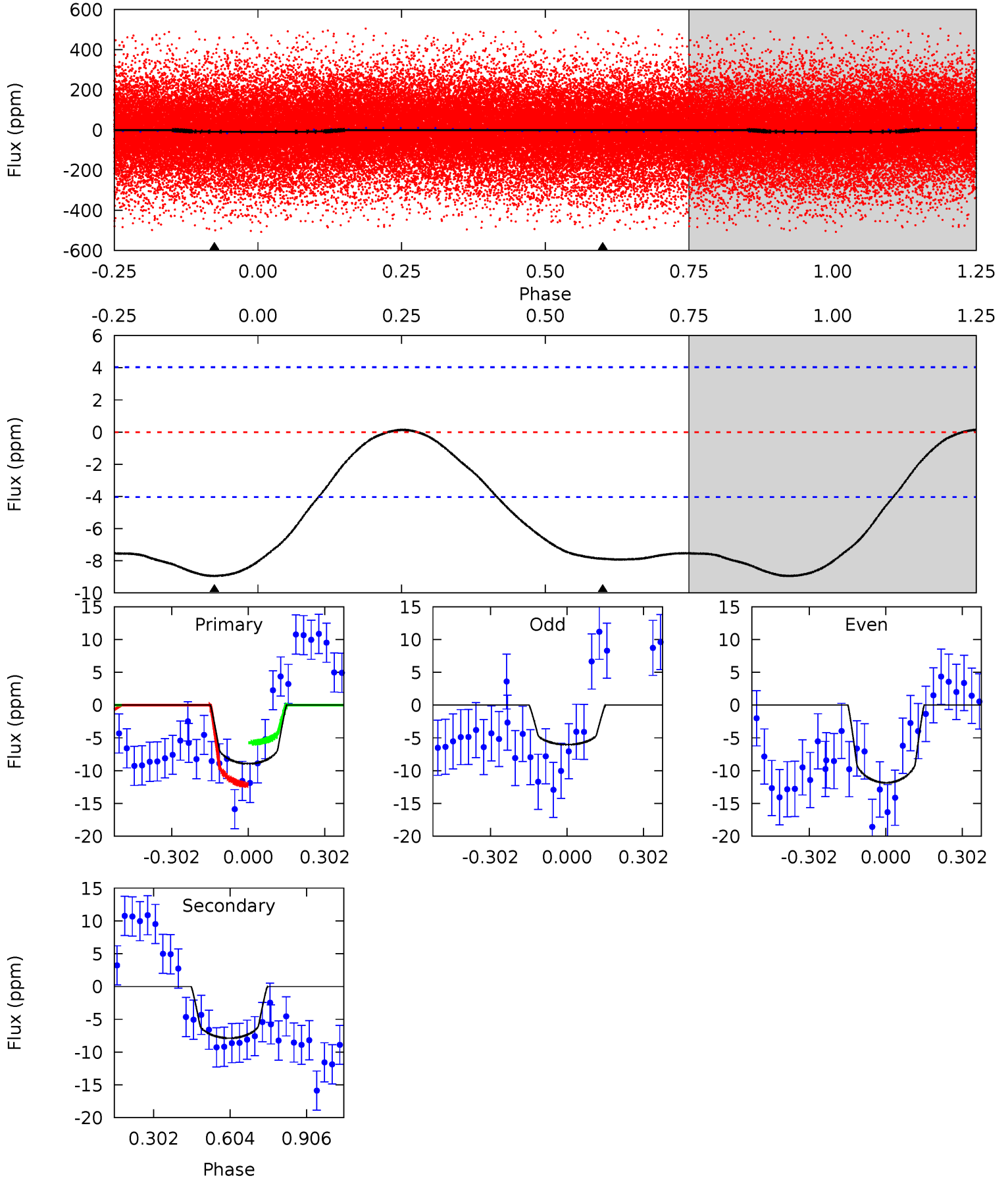
TCE 008417852-01 P= 0.586504 Days $T_0=131.580432$ (BKJD)



DV Model-Shift Uniqueness Test

008417852-01, P = 0.586517 Days, E = 130.995764 Days

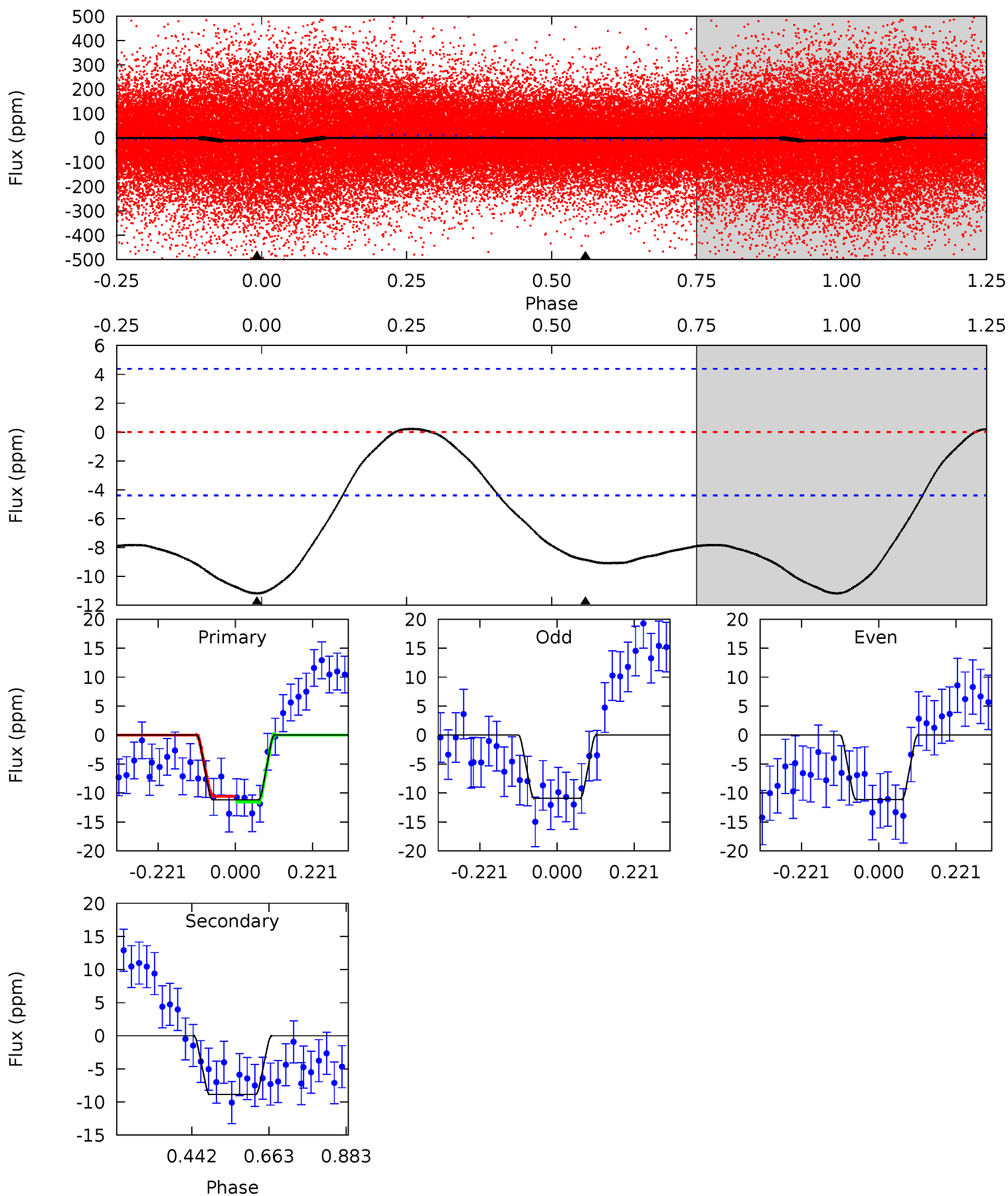
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.59	8.45	0	0	4.33	1.03	0.22	9.59	9.59	8.45	8.45	3.13	1.65	0.02	3.35



Alt Model-Shift Uniqueness Test

008417852-01, P = 0.586504 Days, E = 130.993928 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	8.87	0	0	4.40	1.22	0.37	11.2	11.2	8.87	8.87	0.09	1.17	0.02	0.47



Stellar Parameters For KIC 008417852

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7884^{+244}_{-325}	$4.061^{+0.182}_{-0.149}$	$-0.220^{+0.200}_{-0.300}$	$1.986^{+0.495}_{-0.495}$	$1.656^{+0.208}_{-0.254}$	$0.298^{+0.308}_{-0.133}$
	+3%/-4%	+4%/-4%	+91%/-136%	+25%/-25%	+13%/-15%	+104%/-45%
Source	KIC0	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 008417852-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-8 ± 1	$0.77^{+0.25}_{-0.20}$	5357^{+360}_{-380}	6471^{+1295}_{-900}	$1.898^{+1.647}_{-0.800}$
Alt.	-9 ± 1	$0.74^{+0.23}_{-0.21}$	5349^{+398}_{-373}	6897^{+1517}_{-987}	$2.325^{+2.170}_{-0.967}$

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

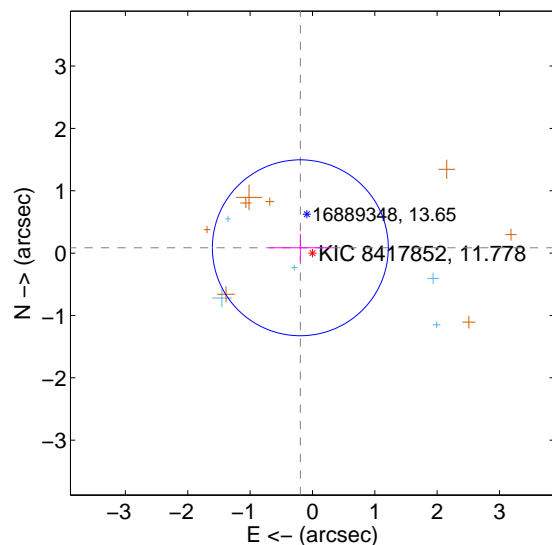
Supplemental centroid analysis for 008417852-01. **Kepler magnitude: 11.78.** Transit SNR 8.84

There are 5 quarters with good PRF difference image offsets

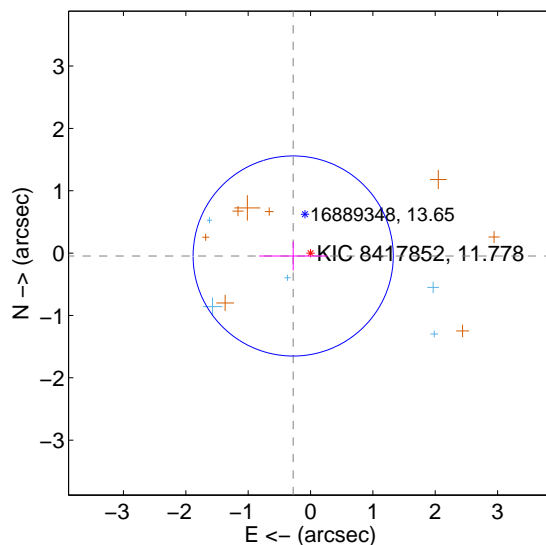
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.212 ± 0.470	0.45	0.194 ± 0.504	0.085 ± 0.224
PRF-fit source offset from KIC position	0.282 ± 0.535	0.53	0.278 ± 0.546	-0.046 ± 0.232
photometric centroid source offset	1.08 ± 0.72	1.50	-0.28 ± 0.54	-1.04 ± 0.73

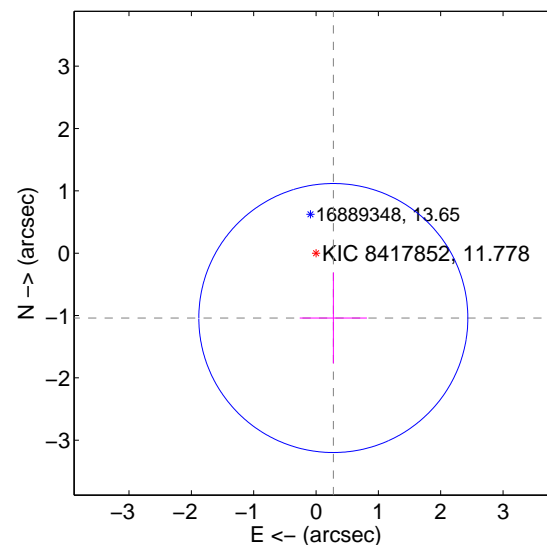
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

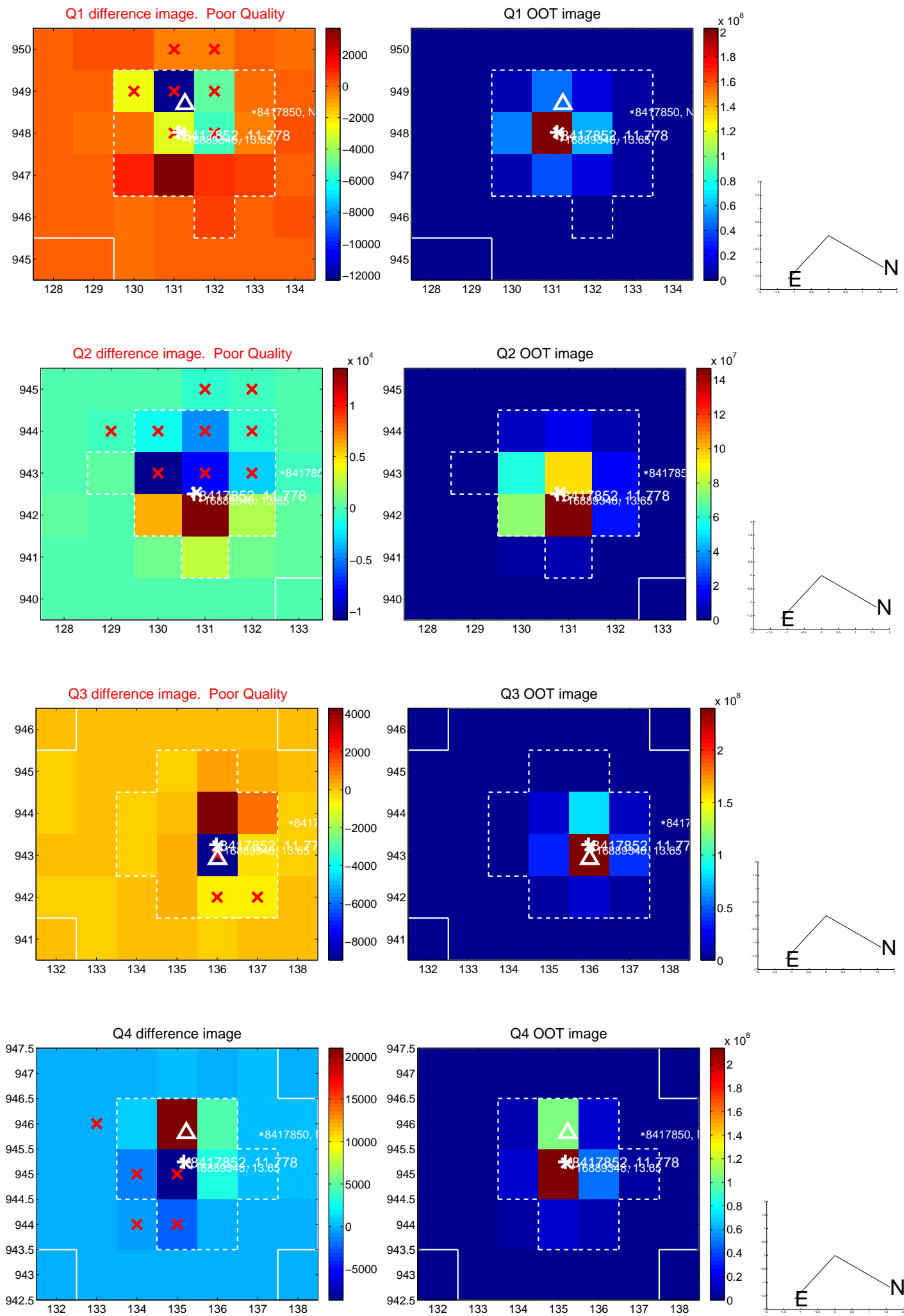


offset from photometric centroids

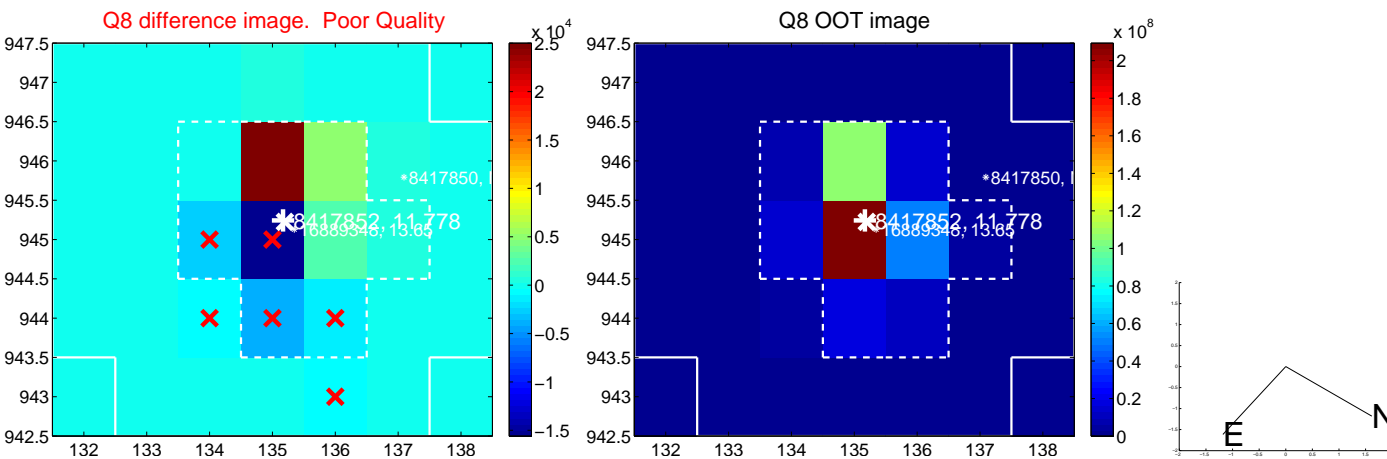
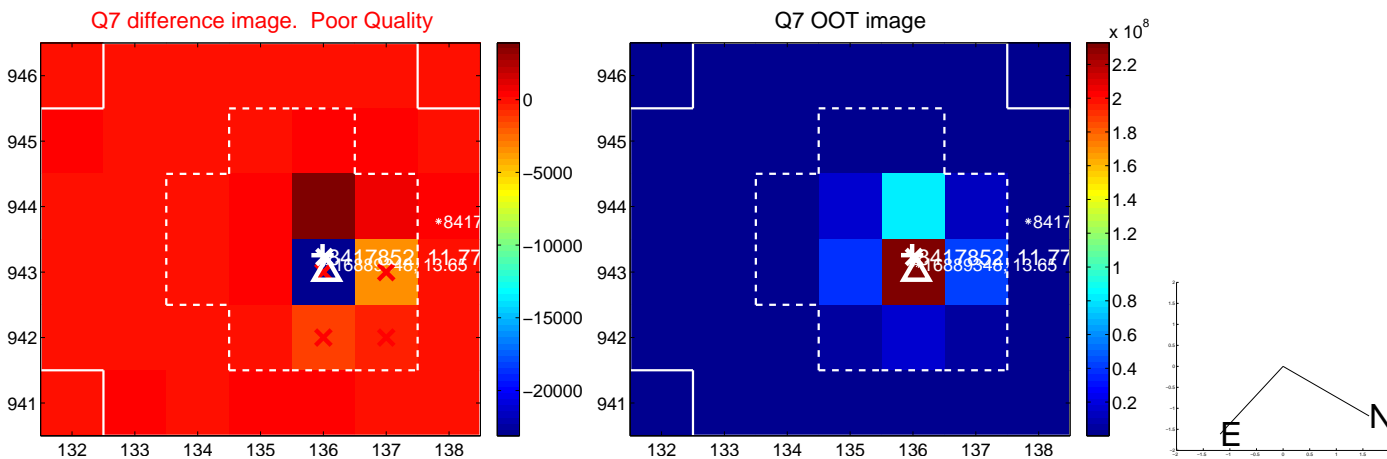
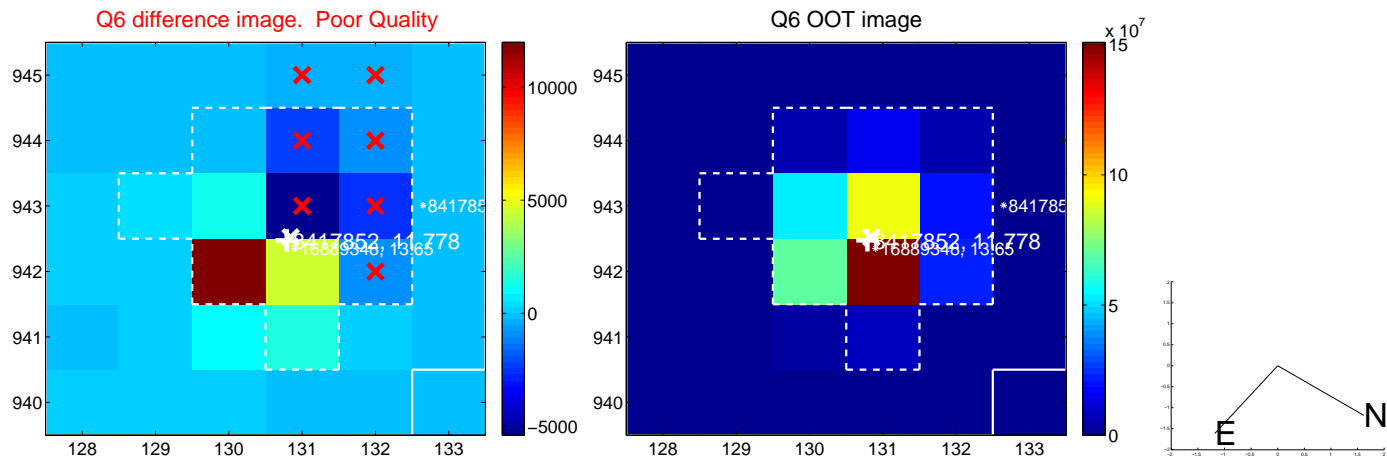
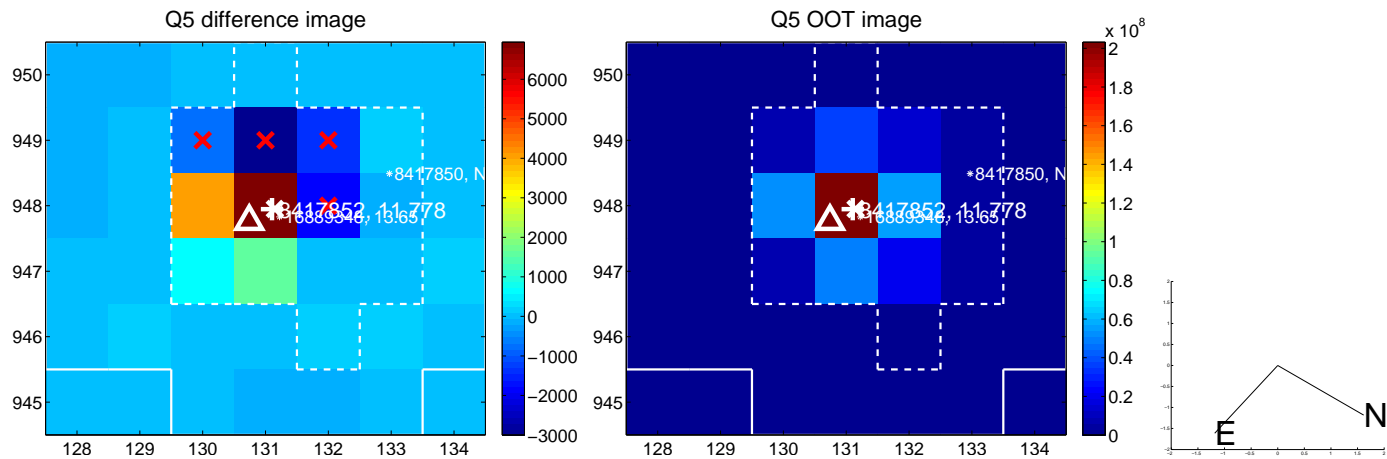


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

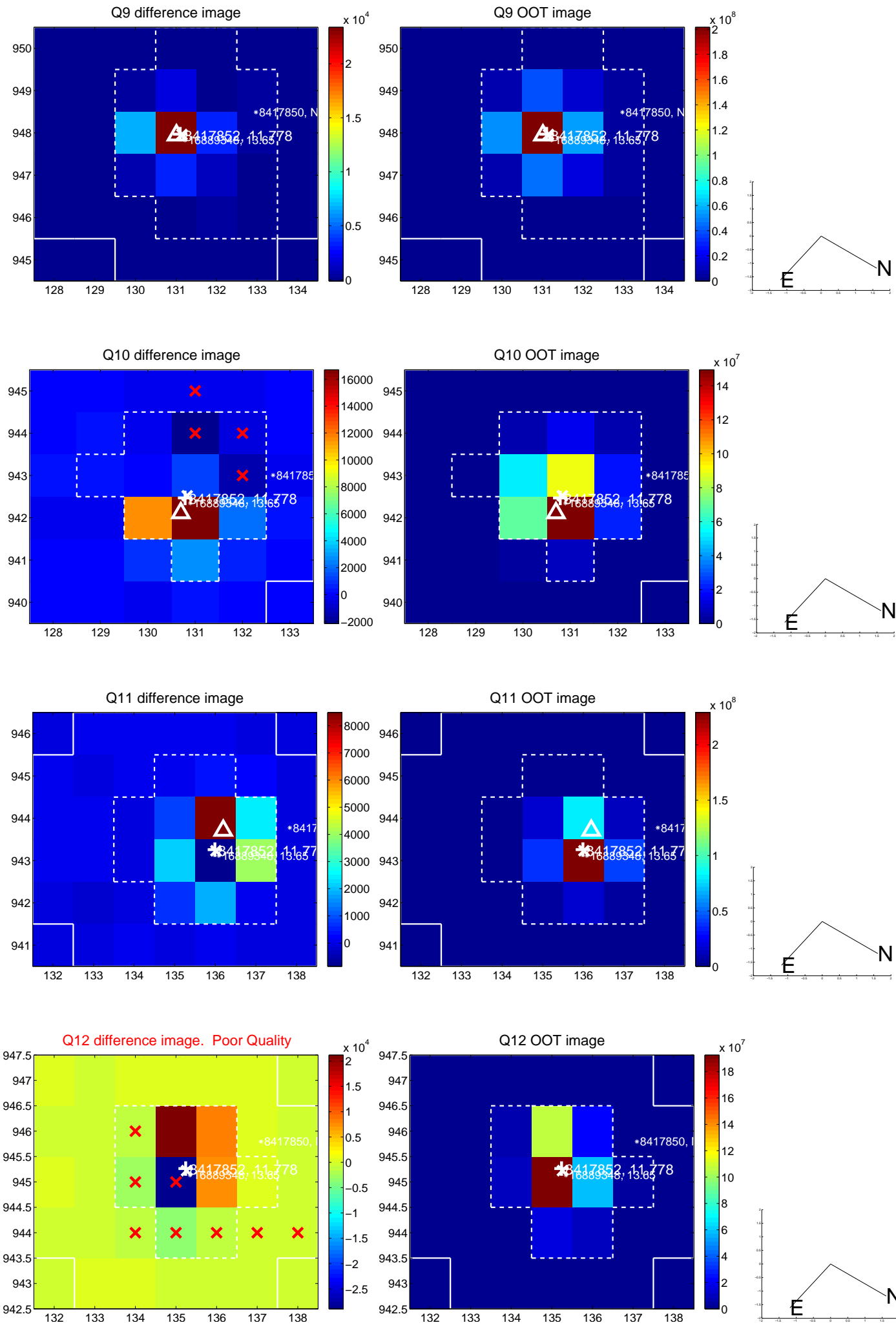
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



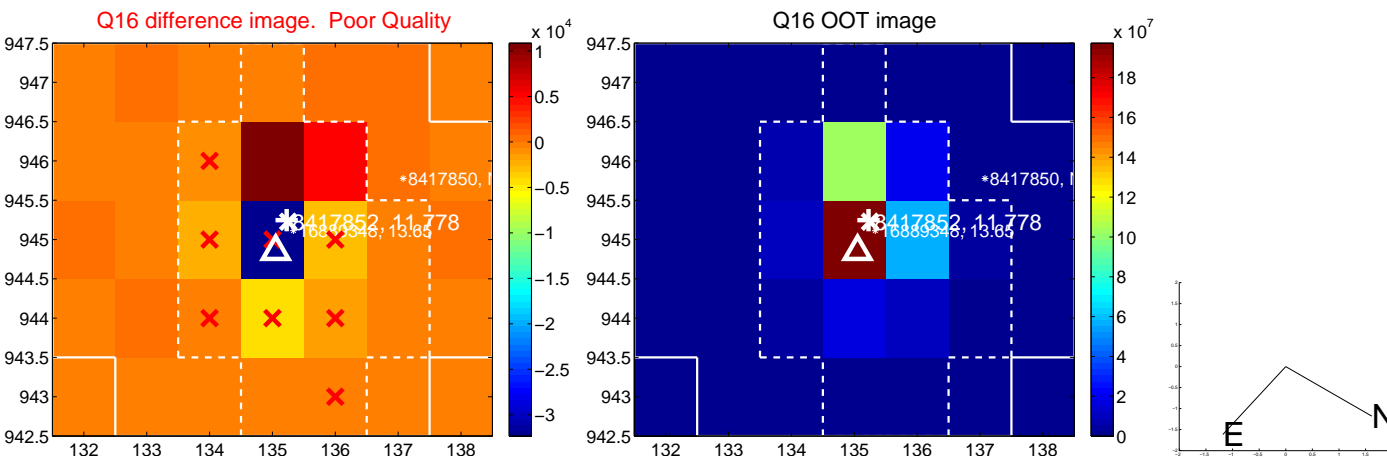
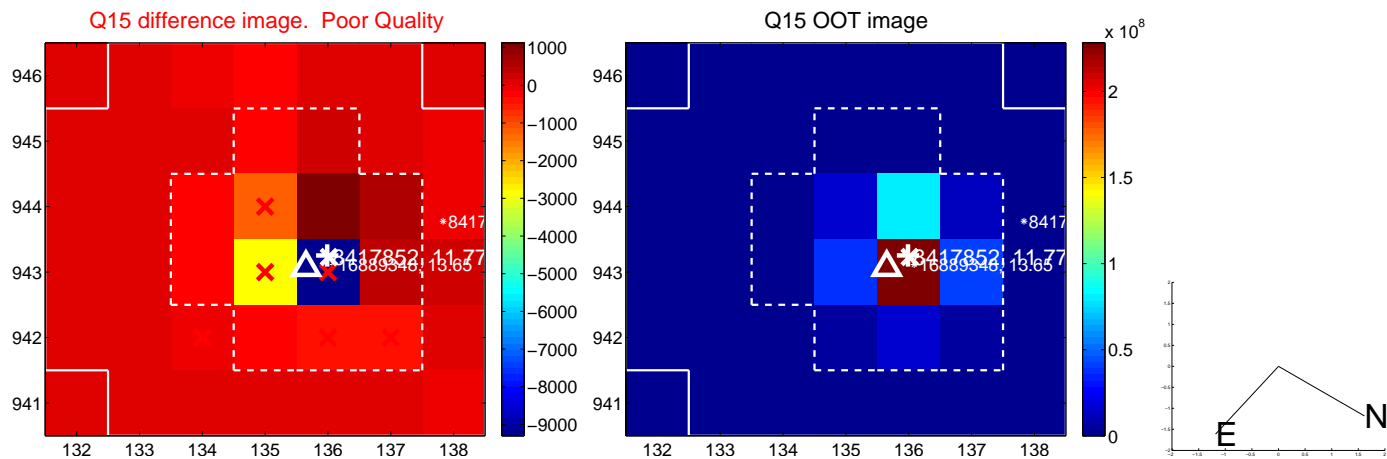
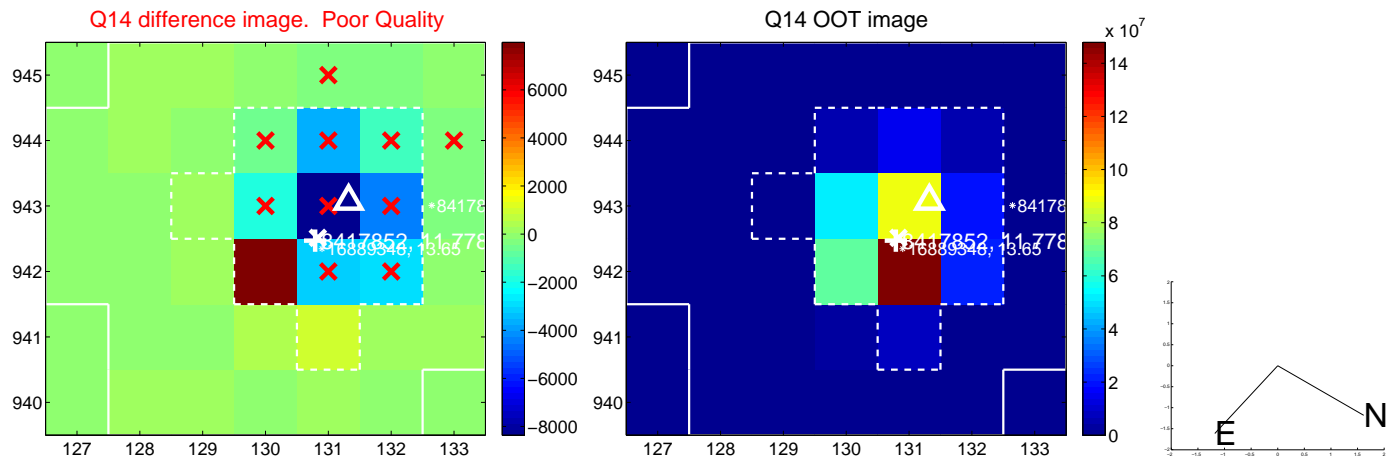
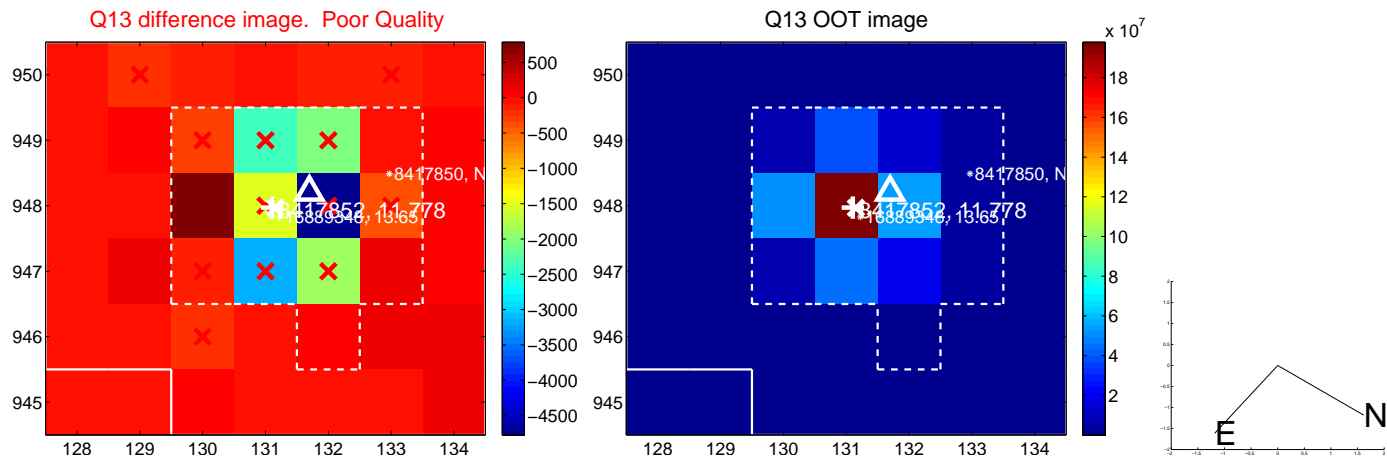
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



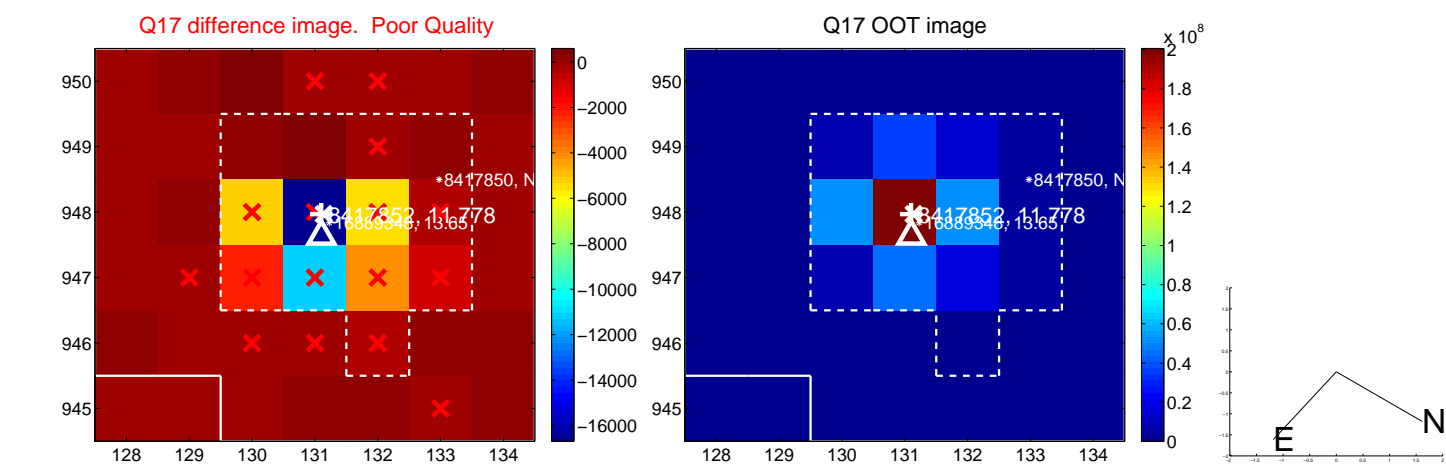
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



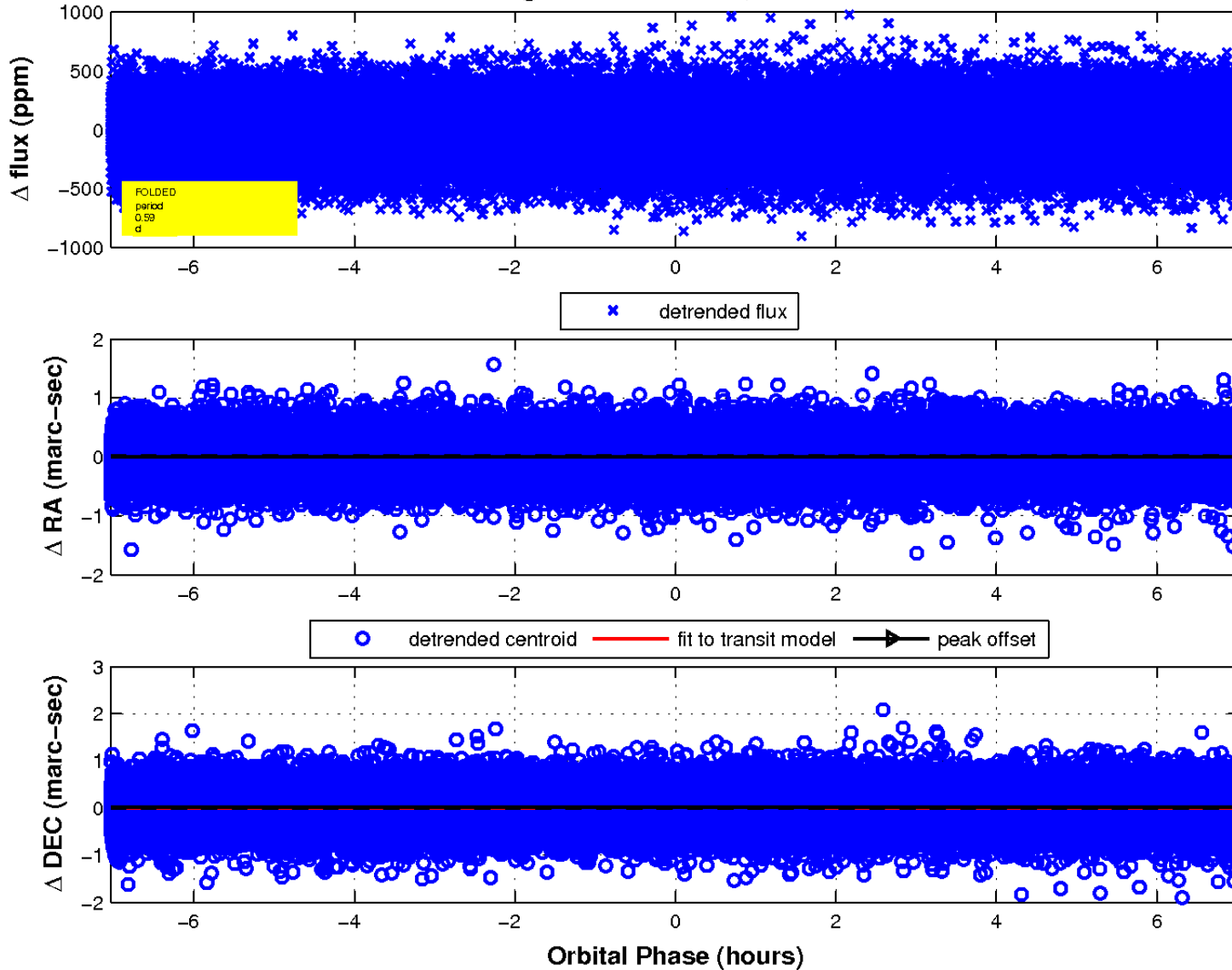
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

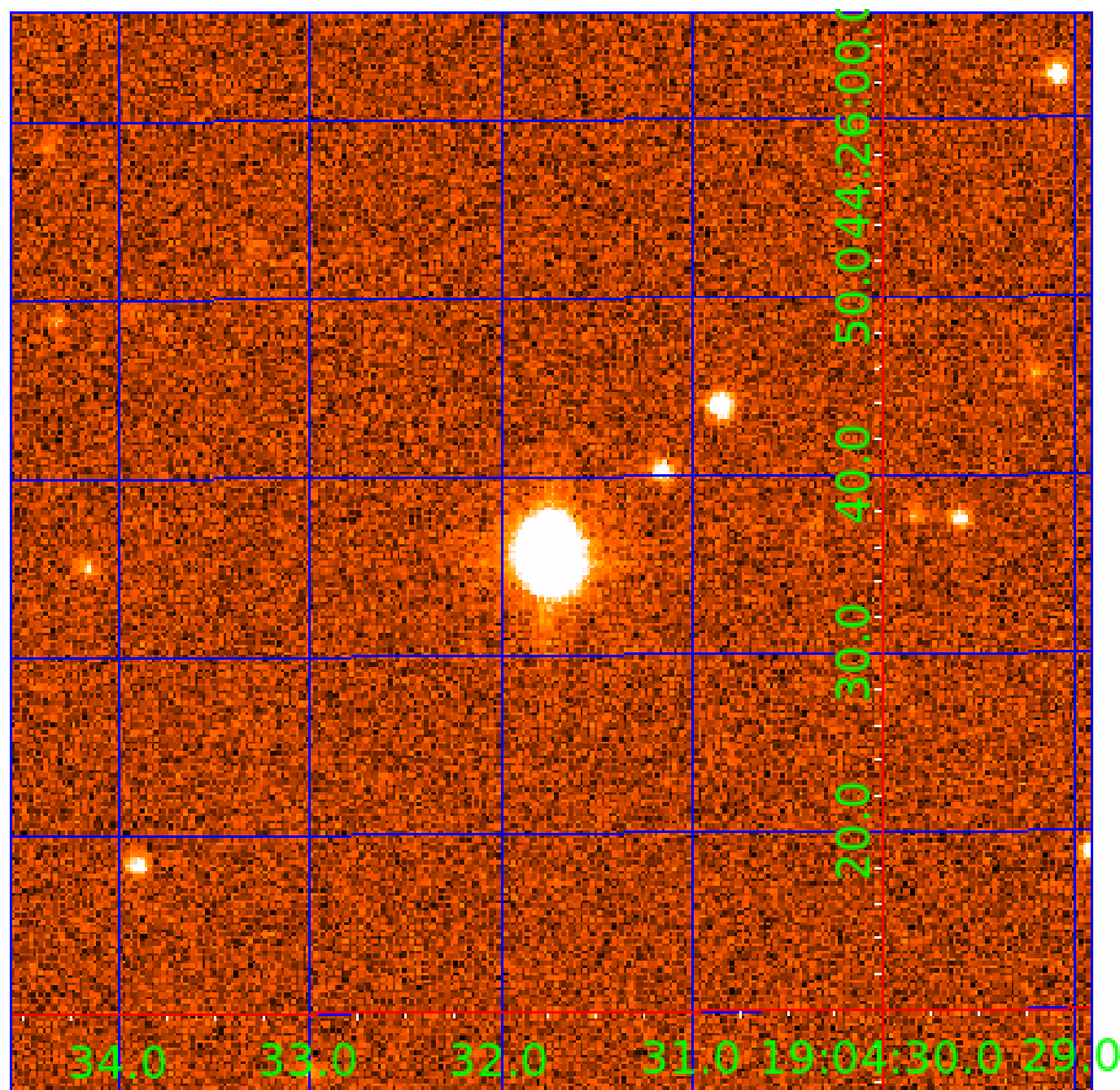


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008417852

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})
008417852-01	OBS	No	0.586517	131.582281	11.6	3.820	7.3	8.8	1.99	7884	0.79	51859.19
008417852-02	OBS	No	29.347106	143.012259	107.1	3.884	7.9	5.8	1.99	7884	2.39	281.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008417852-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008417852-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

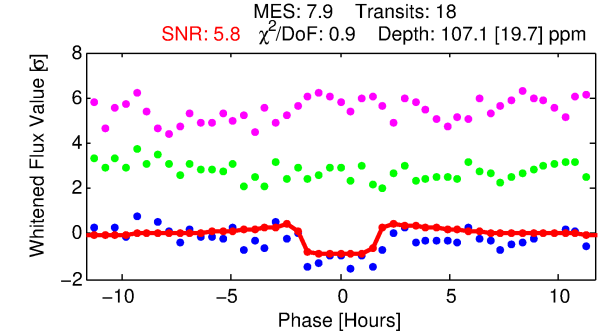
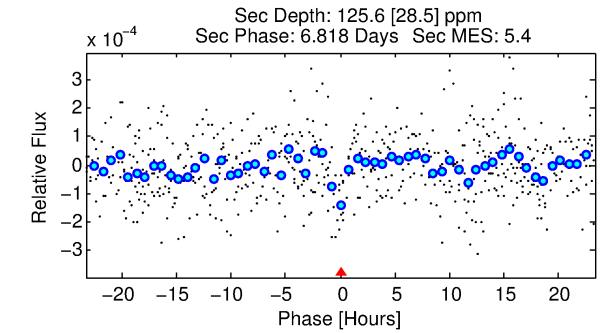
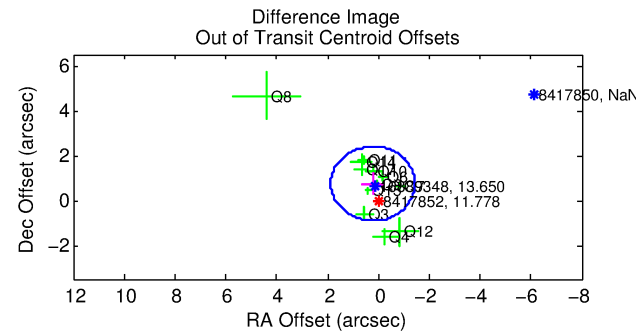
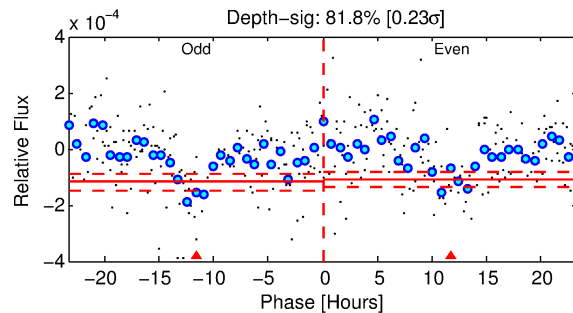
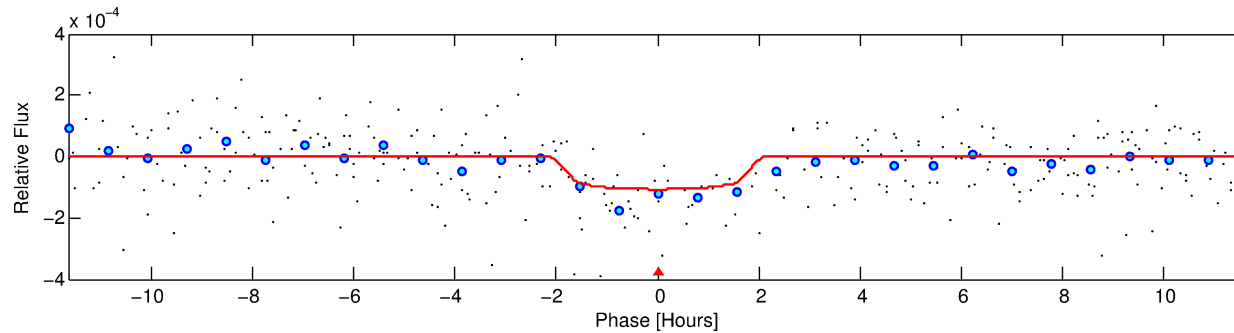
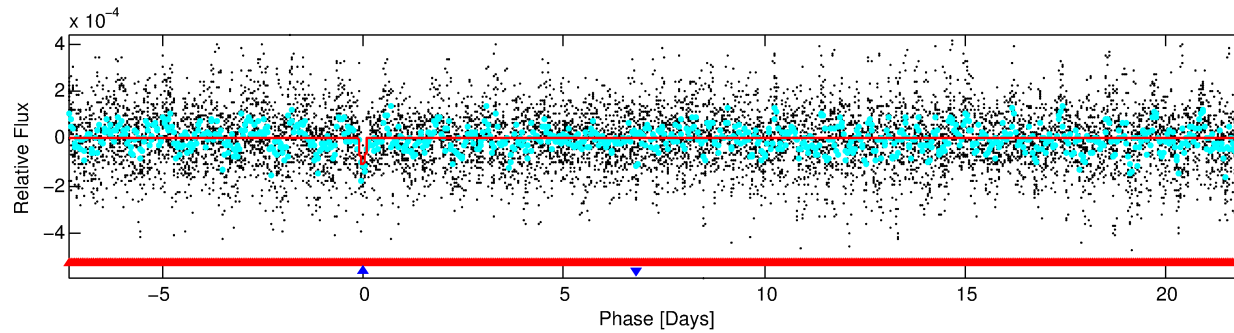
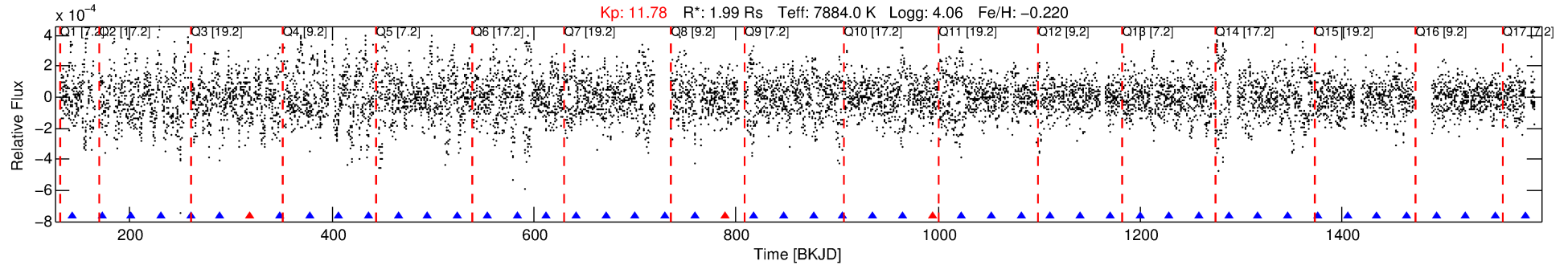
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008417852-02

No Significant Match Found

DV One-Page Summary

KIC: 8417852 Candidate: 2 of 2 Period: 29.347 d



DV Fit Results:

Period = 29.34711 [0.00056] d
Epoch = 143.0123 [0.0150] BKJD
Rp/R* = 0.0110 [0.0077]
a/R* = 27.41 [108.69]
b = 0.89 [0.92]
Seff = 281.26 [102.52]
Teq = 1044 [95] K
Rp = 2.39 [1.77] Re
a = 0.2203 [0.0478] AU
Ag = 587.27 [853.75] [0.69 σ]
Teffp = 7948 [2834] K [2.43 σ]

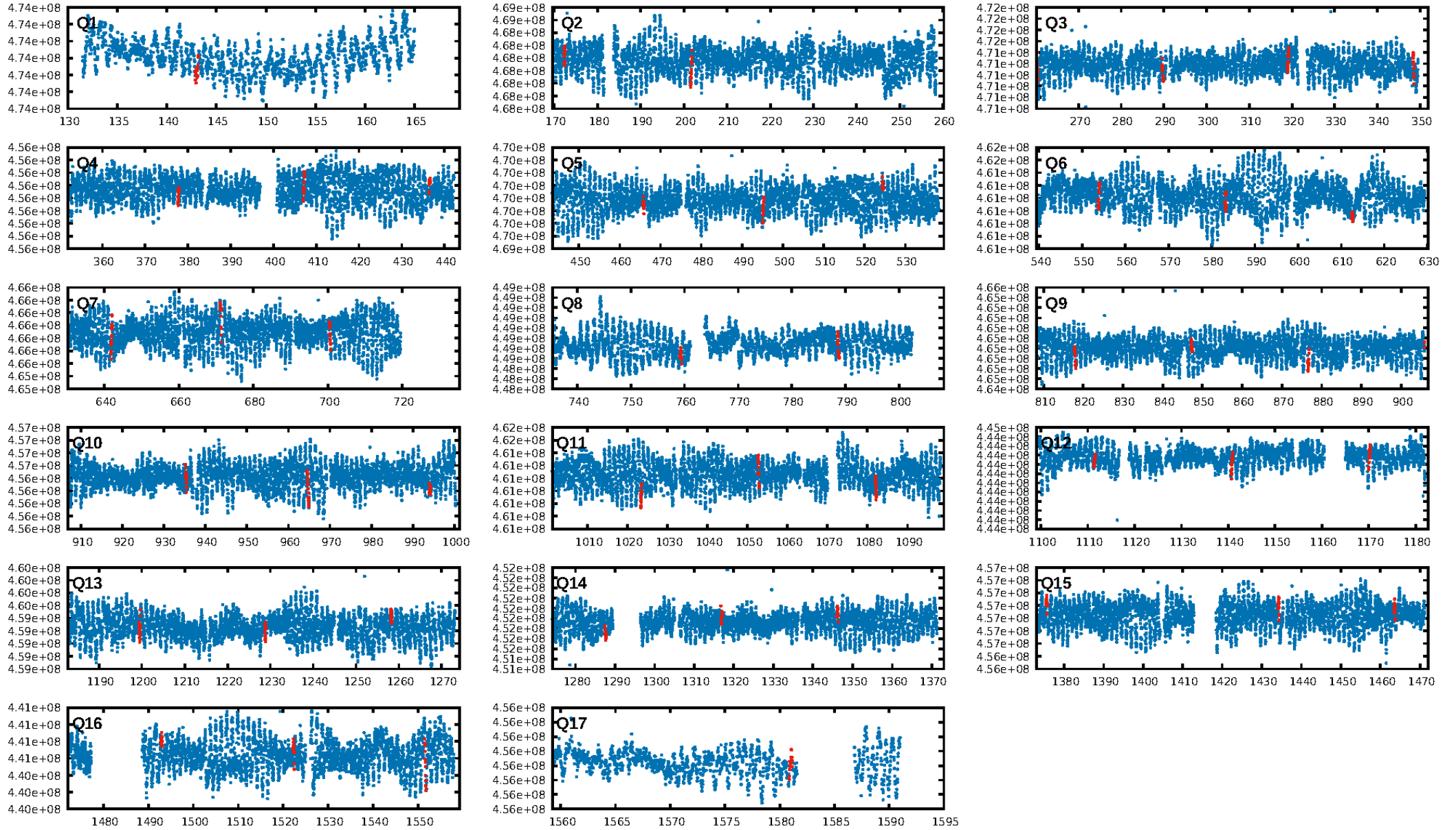
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [126.71 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 89.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.18e-11
RollingBand-fgt: 0.82 [14/17]
GhostDiagnostic-chr: 0.2149
Centroid-sig: 12.6%
Centroid-so: 0.743 arcsec [1.19 σ]
OotOffset-rm: 0.775 arcsec [1.41 σ]
KicOffset-rm: 0.692 arcsec [1.11 σ]
OotOffset-st: 3/4/3/2 [12]
KicOffset-st: 3/4/3/2 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.00 [0/17]

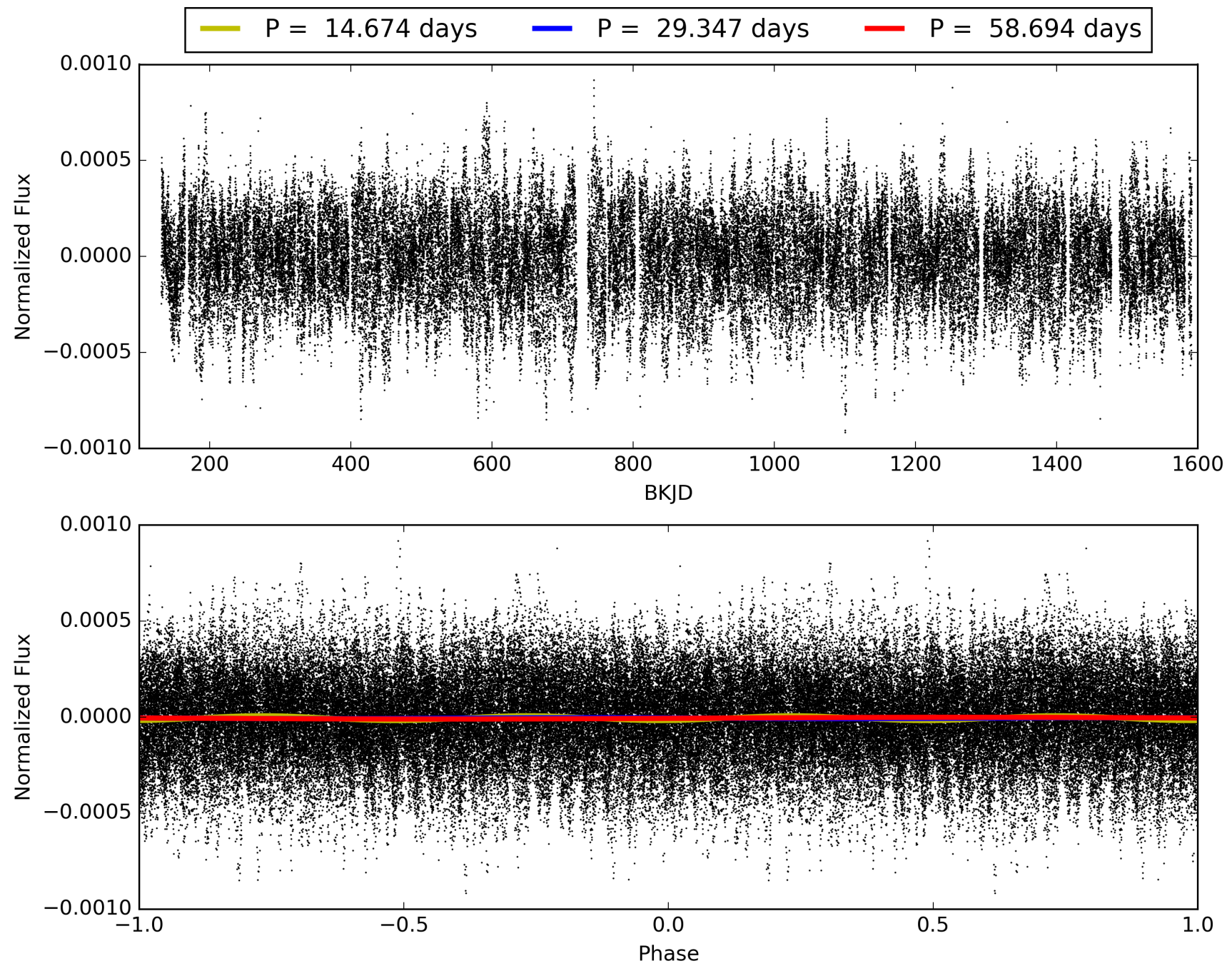
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:28:21 Z

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

TCE 008417852-02, PDC Light Curves

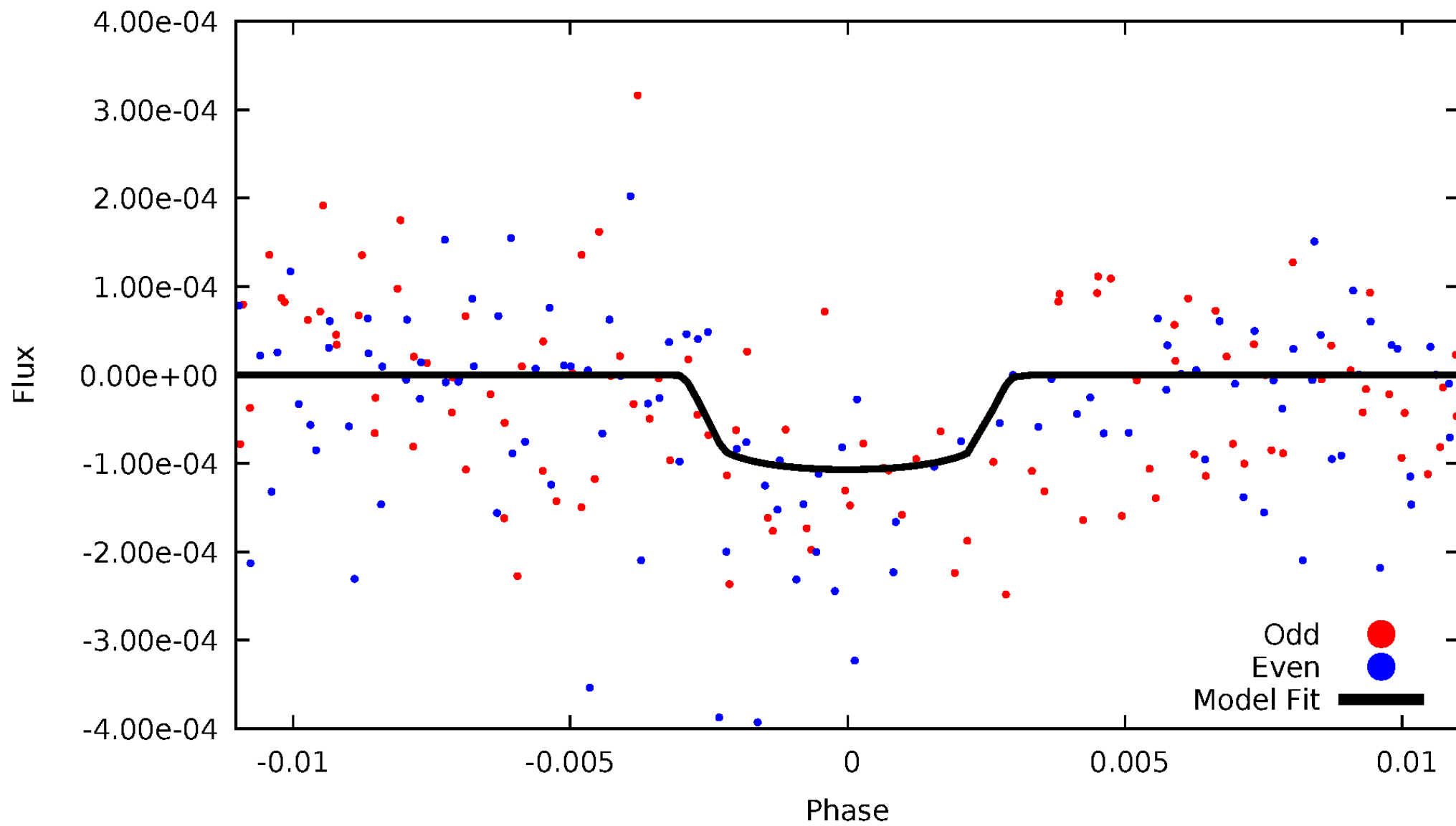


TCE 008417852-02



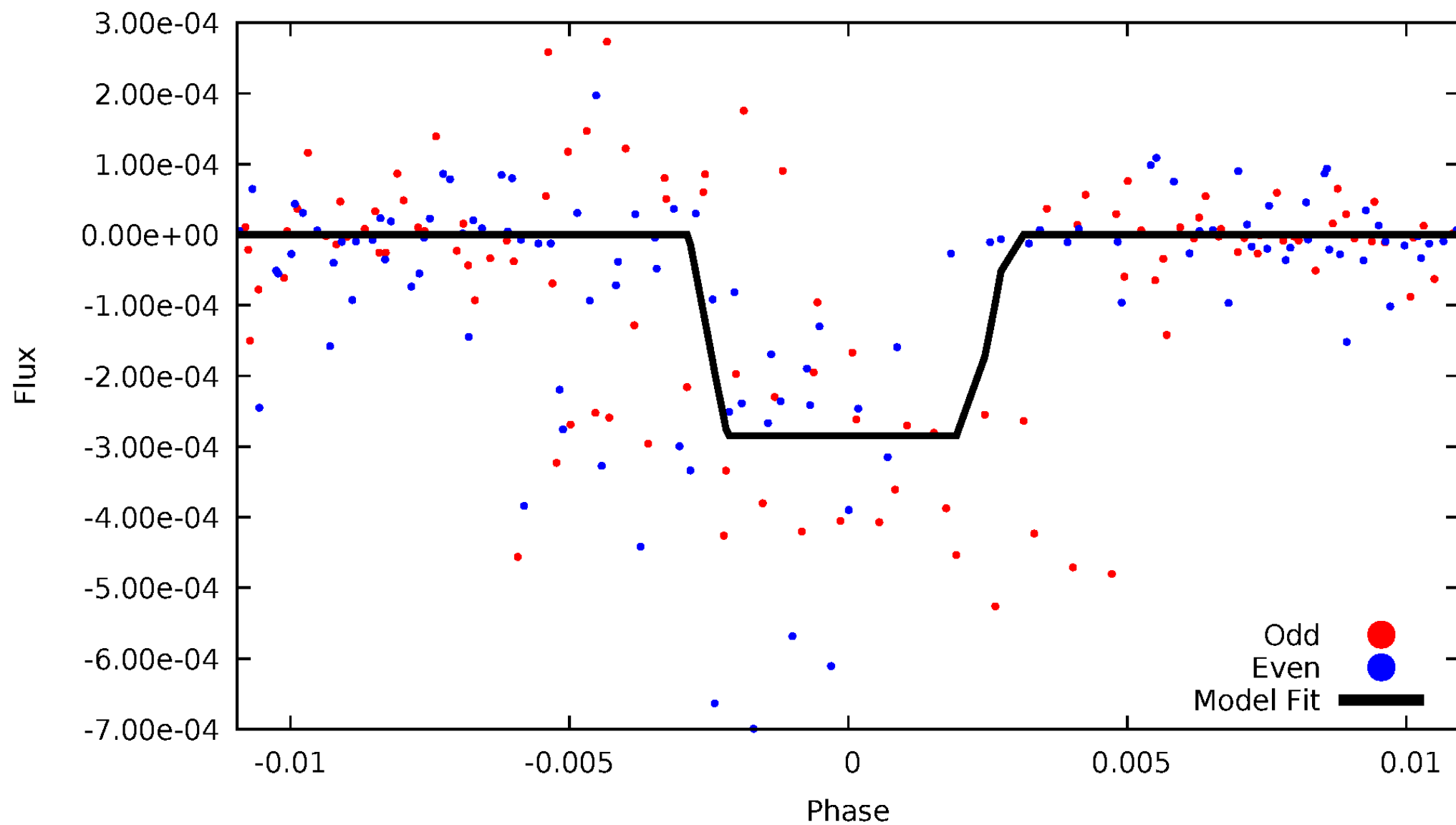
DV Odd/Even

TCE 008417852-02



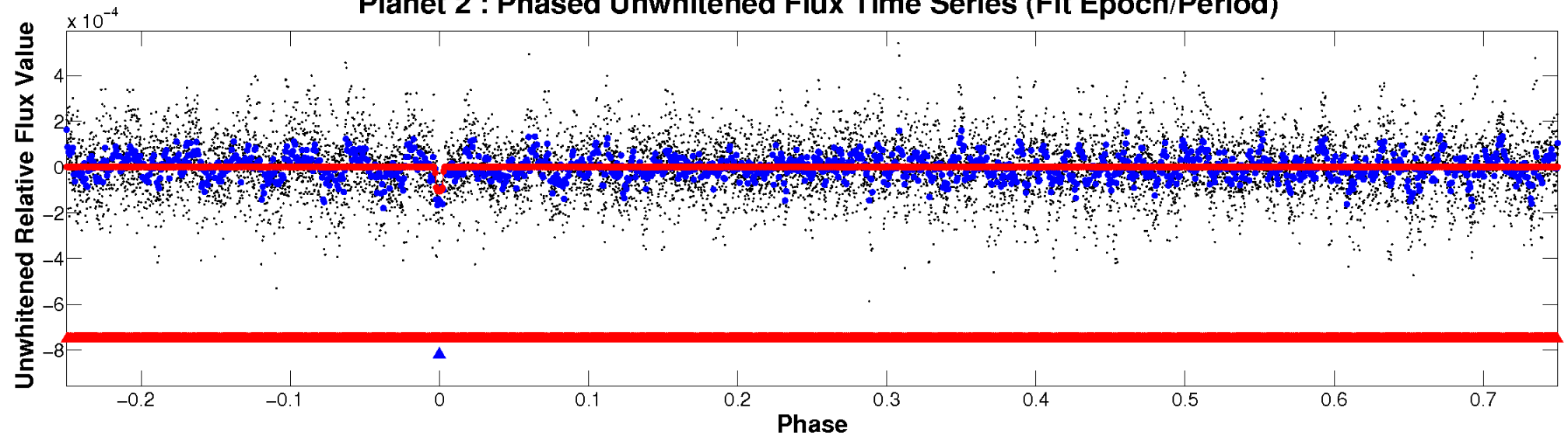
ALT Odd/Even

TCE 008417852-02

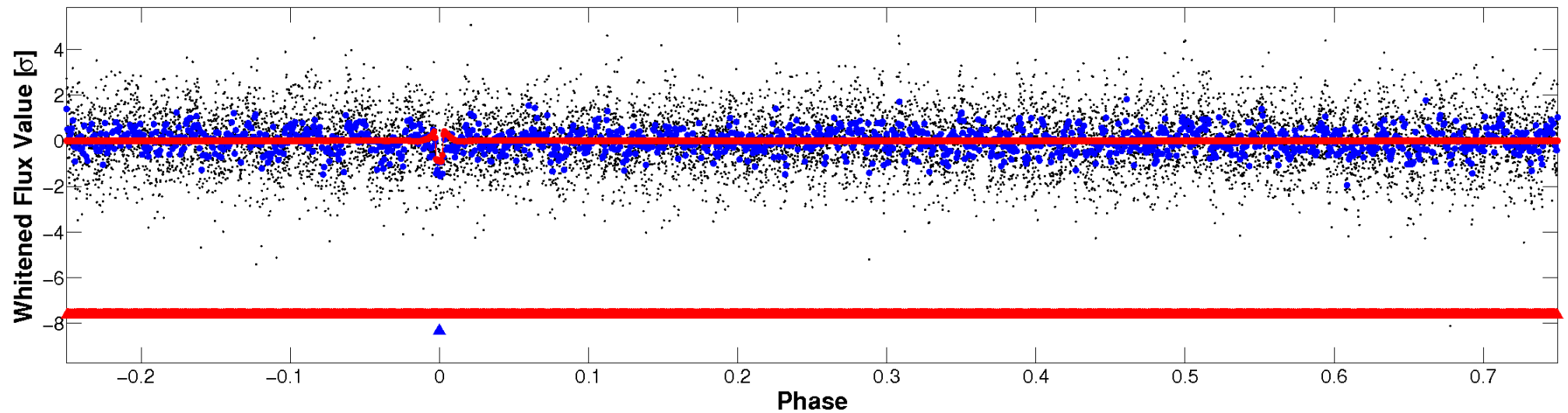


Non-Whitened Vs. Whitened Light Curve

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

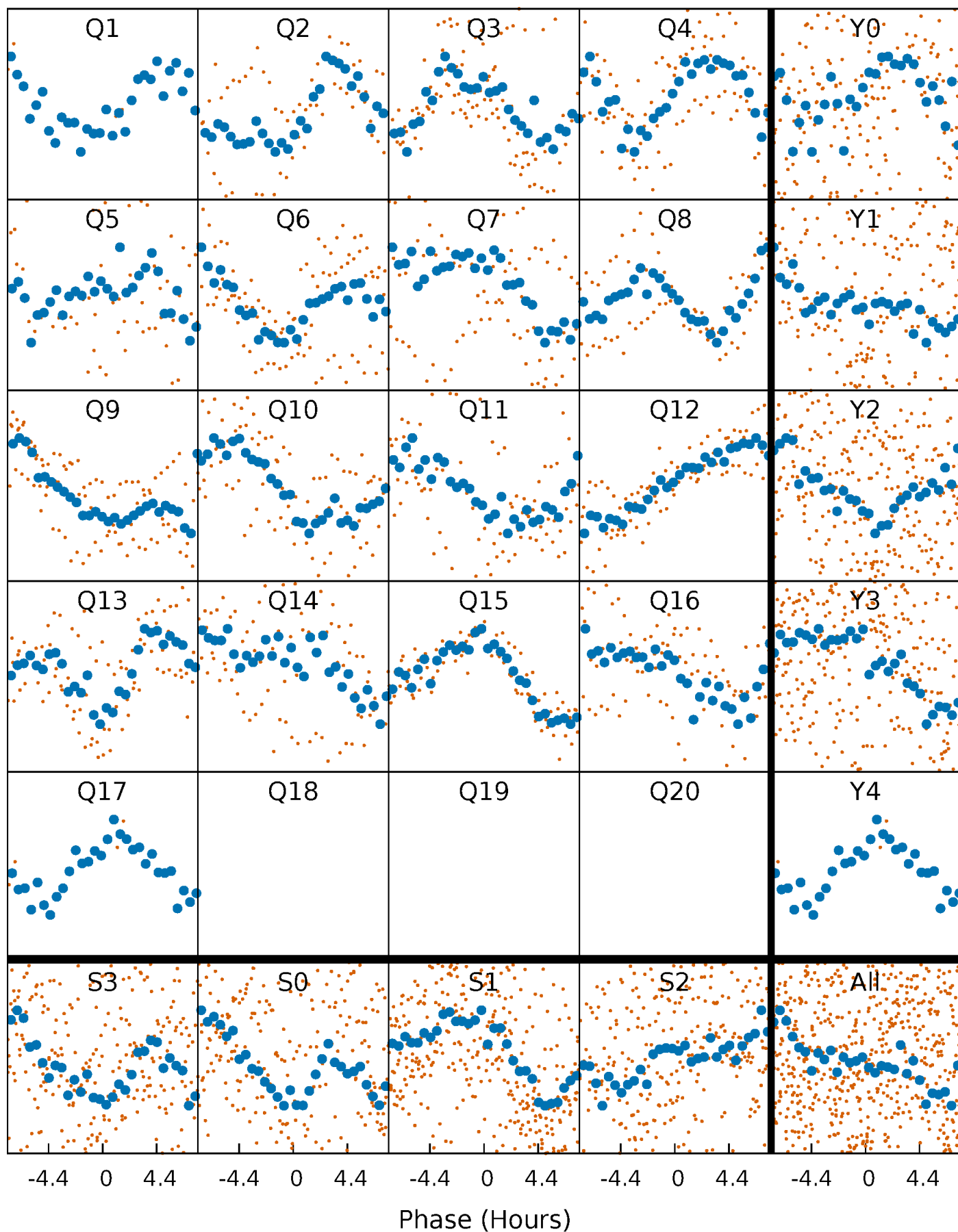


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



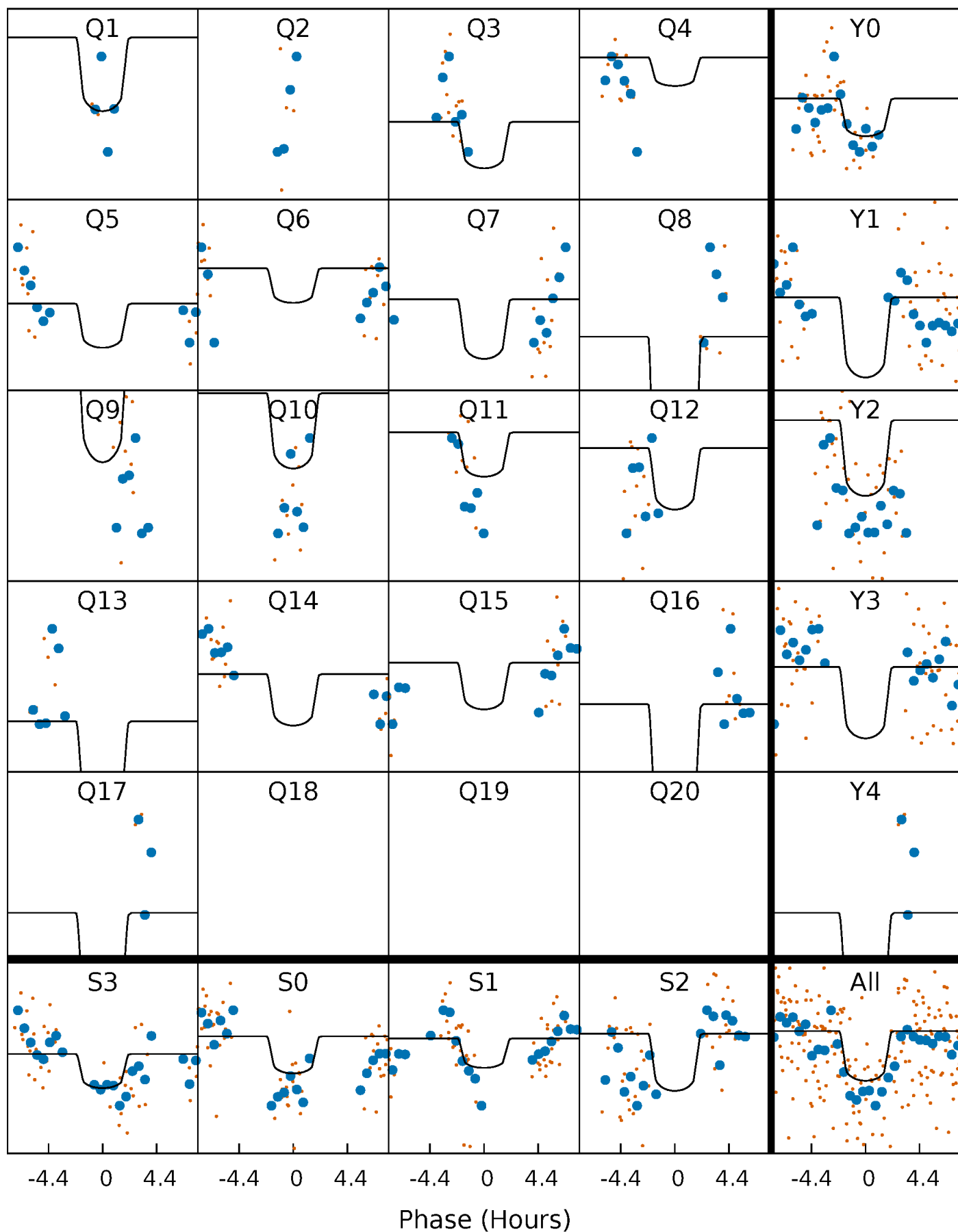
PDC Quarter-Phased Transit Curves

TCE 008417852-02 P= 29.347106 Days $T_0=143.012259$ (BKJD)



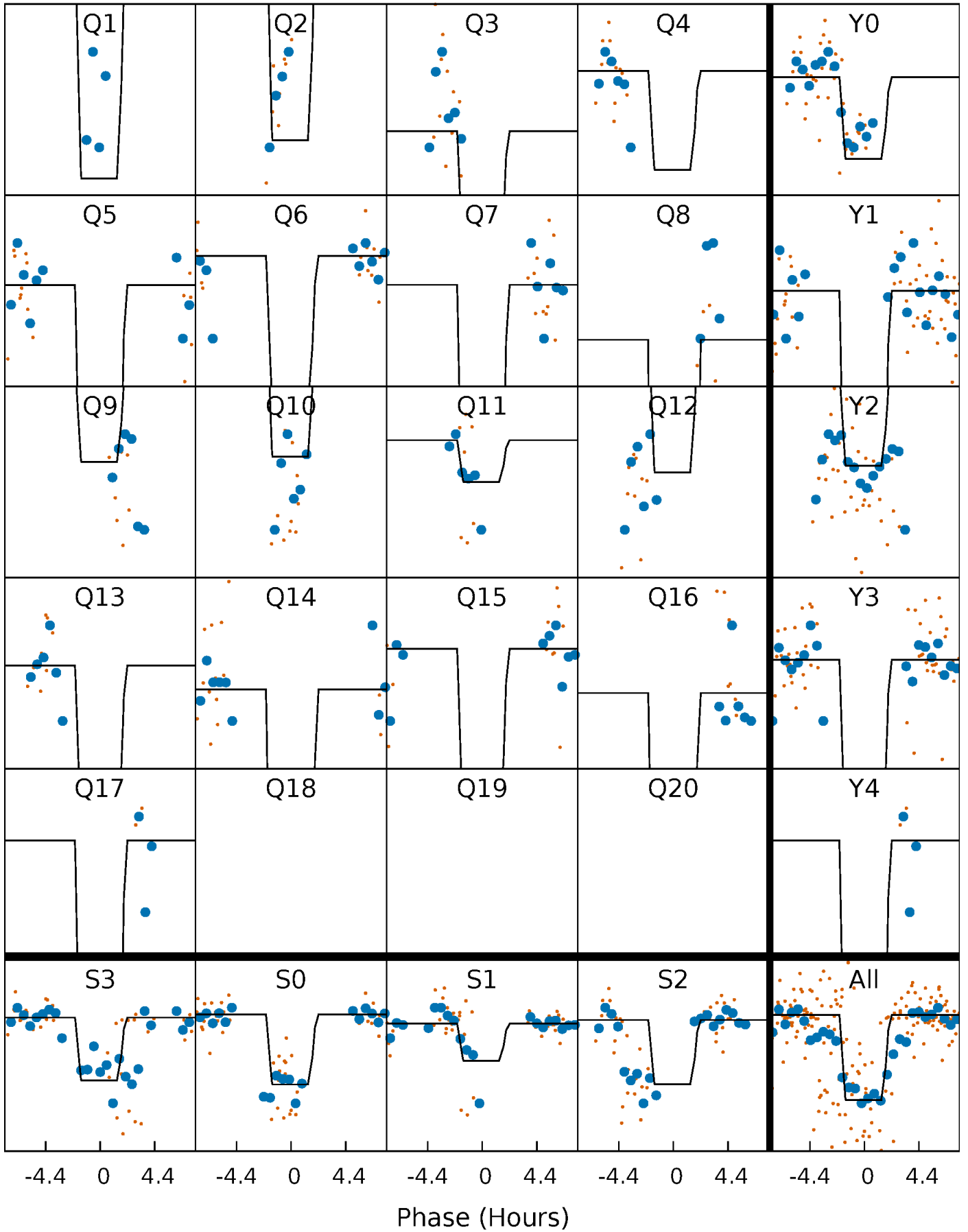
DV Quarter-Phased Transit Curves

TCE 008417852-02 P= 29.347106 Days $T_0=143.012259$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

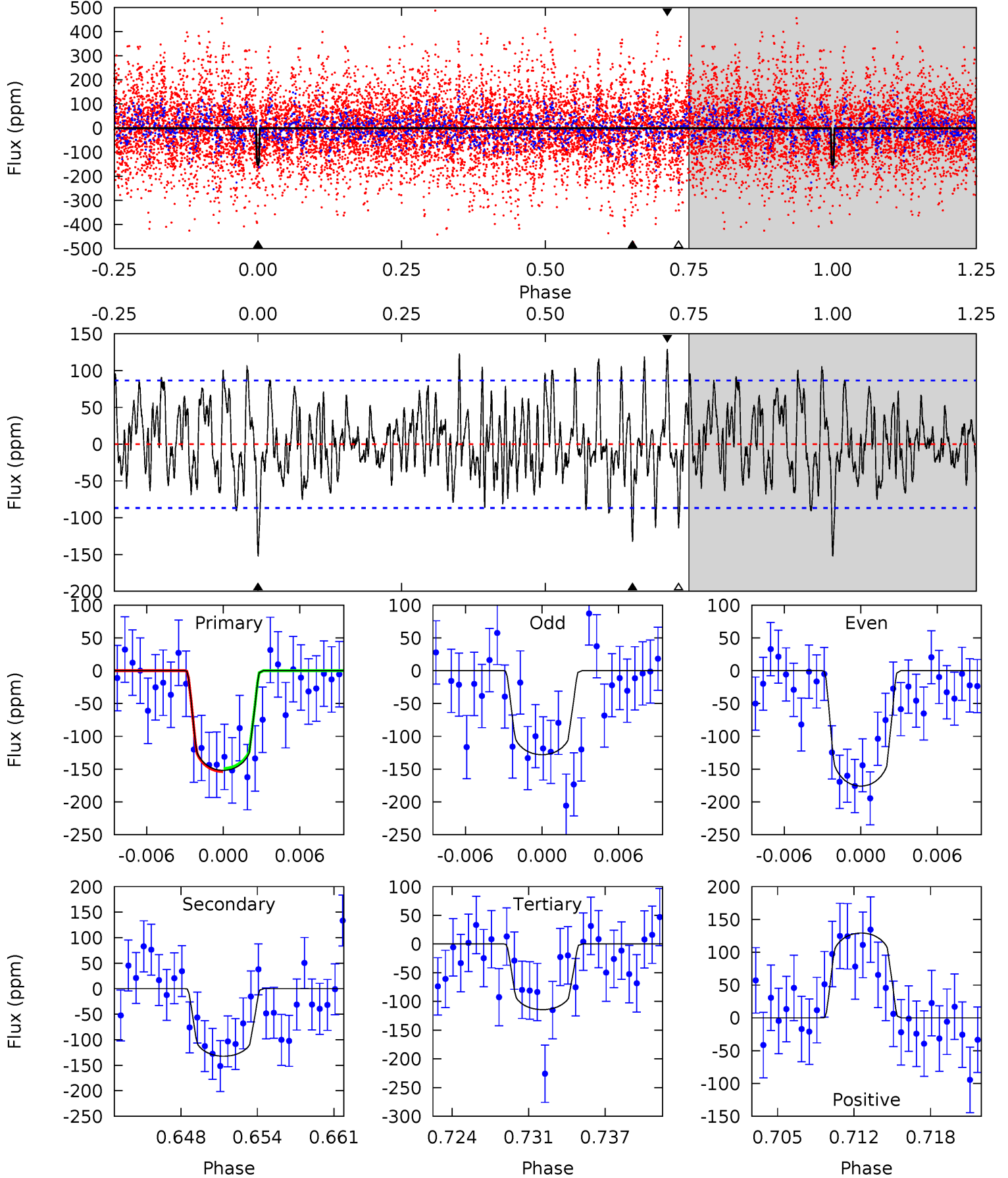
TCE 008417852-02 P= 29.346512 Days $T_0=143.032347$ (BKJD)



DV Model-Shift Uniqueness Test

008417852-02, P = 29.347106 Days, E = 113.665153 Days

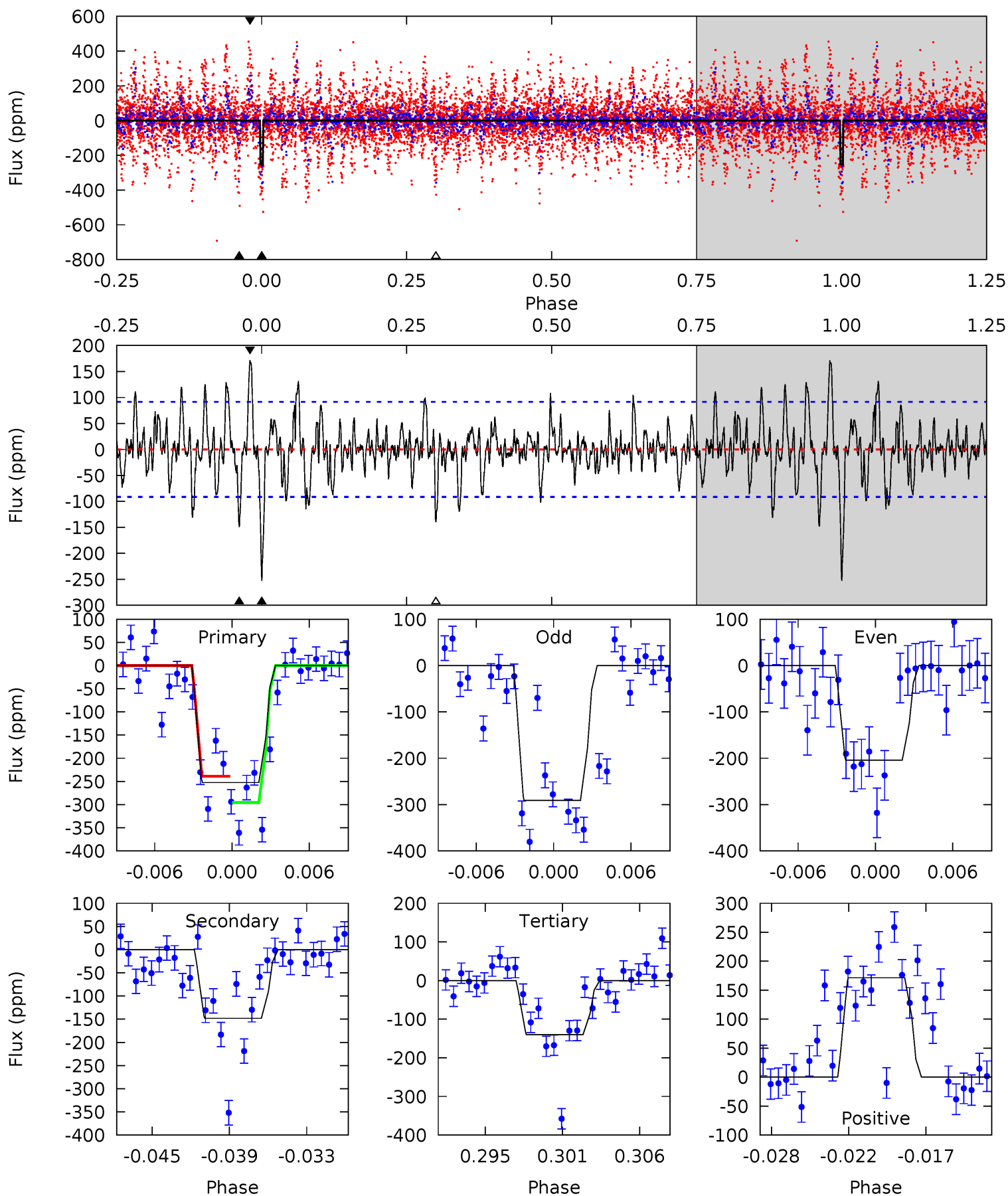
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.96	7.81	6.74	7.63	5.11	2.73	2.45	2.22	1.34	1.07	0.18	1.42	1.04	0.46	0.14



Alt Model-Shift Uniqueness Test

008417852-02, P = 29.346512 Days, E = 113.685835 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	8.33	7.87	9.63	5.14	2.77	2.02	6.32	4.56	0.45	-1.31	2.32	1.06	0.40	1.57



Stellar Parameters For KIC 008417852

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7884^{+244}_{-325}	$4.061^{+0.182}_{-0.149}$	$-0.220^{+0.200}_{-0.300}$	$1.986^{+0.495}_{-0.495}$	$1.656^{+0.208}_{-0.254}$	$0.298^{+0.308}_{-0.133}$
	+3%/-4%	+4%/-4%	+91%/-136%	+25%/-25%	+13%/-15%	+104%/-45%
Source	KIC0	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 008417852-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-132 ± 17	$2.50^{+1.83}_{-1.35}$	1452^{+104}_{-101}	7738^{+6273}_{-1891}	564^{+2095}_{-373}
Alt.	-148 ± 18	$3.65^{+1.92}_{-1.69}$	1451^{+109}_{-107}	6494^{+2838}_{-1154}	298^{+710}_{-171}

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

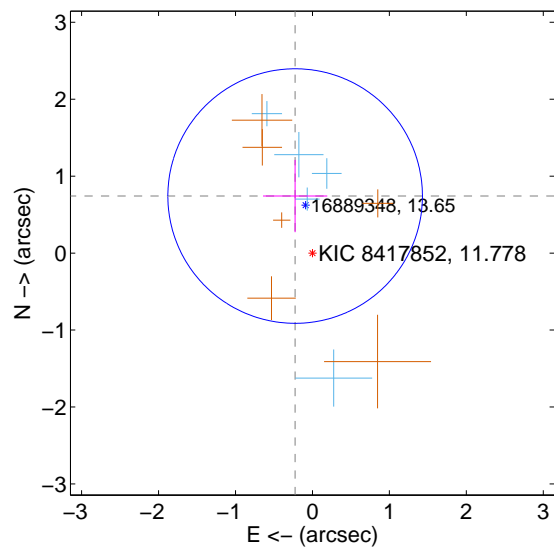
Supplemental centroid analysis for 008417852-02. **Kepler magnitude: 11.78.** Transit SNR 5.84

There are 5 quarters with good PRF difference image offsets

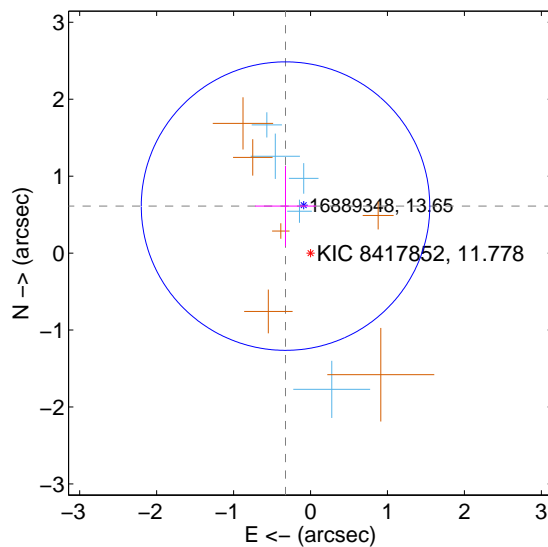
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.775 ± 0.551	1.41	0.225 ± 0.417	0.741 ± 0.470
PRF-fit source offset from KIC position	0.692 ± 0.625	1.11	0.325 ± 0.397	0.611 ± 0.522
photometric centroid source offset	0.74 ± 0.63	1.19	-0.11 ± 0.45	-0.74 ± 0.63

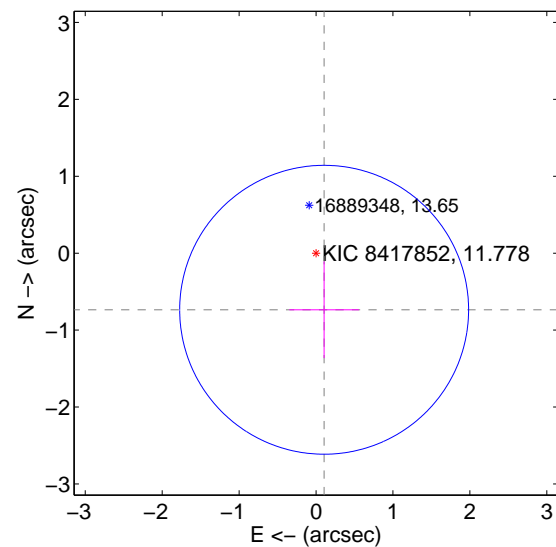
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

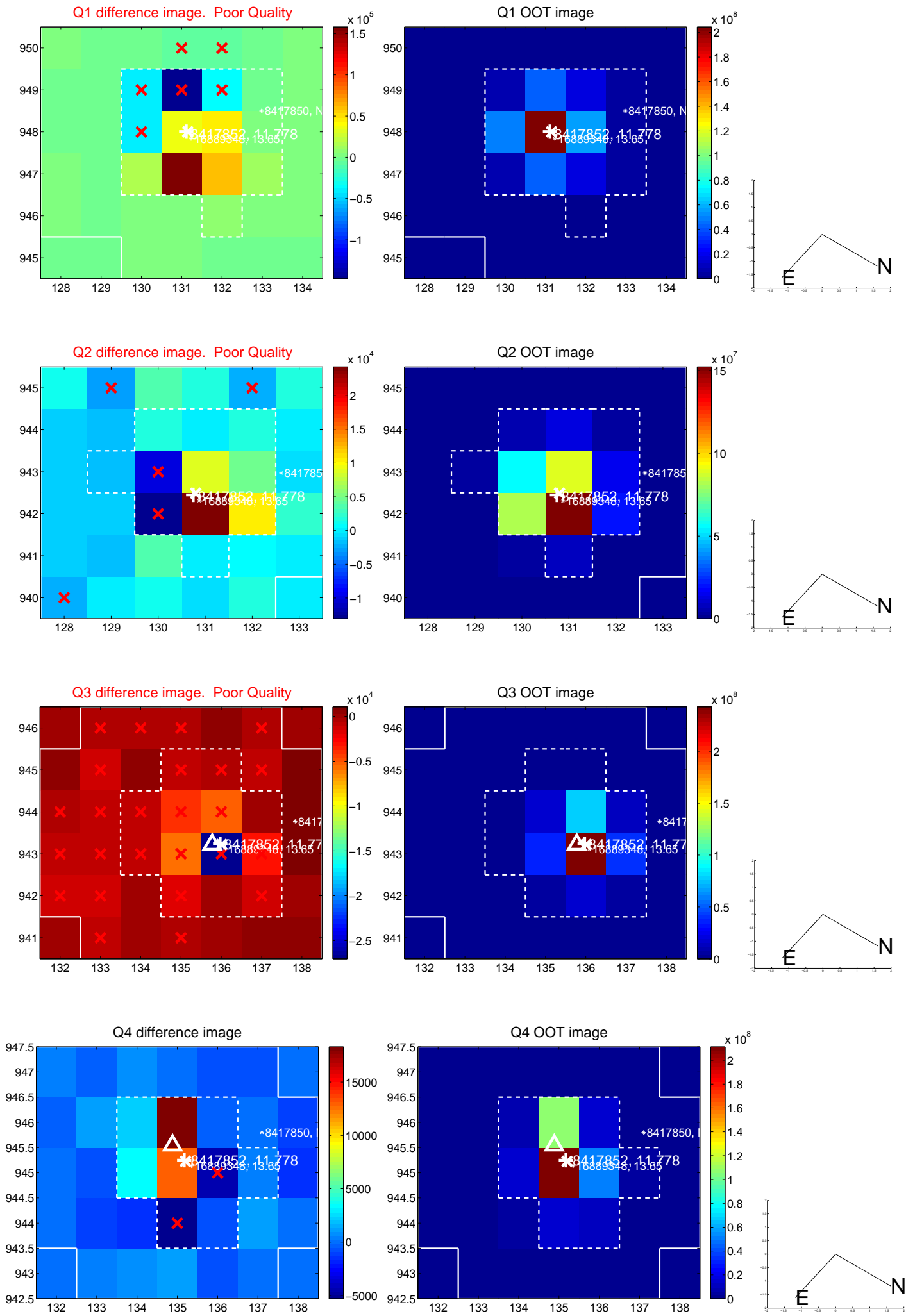


offset from photometric centroids

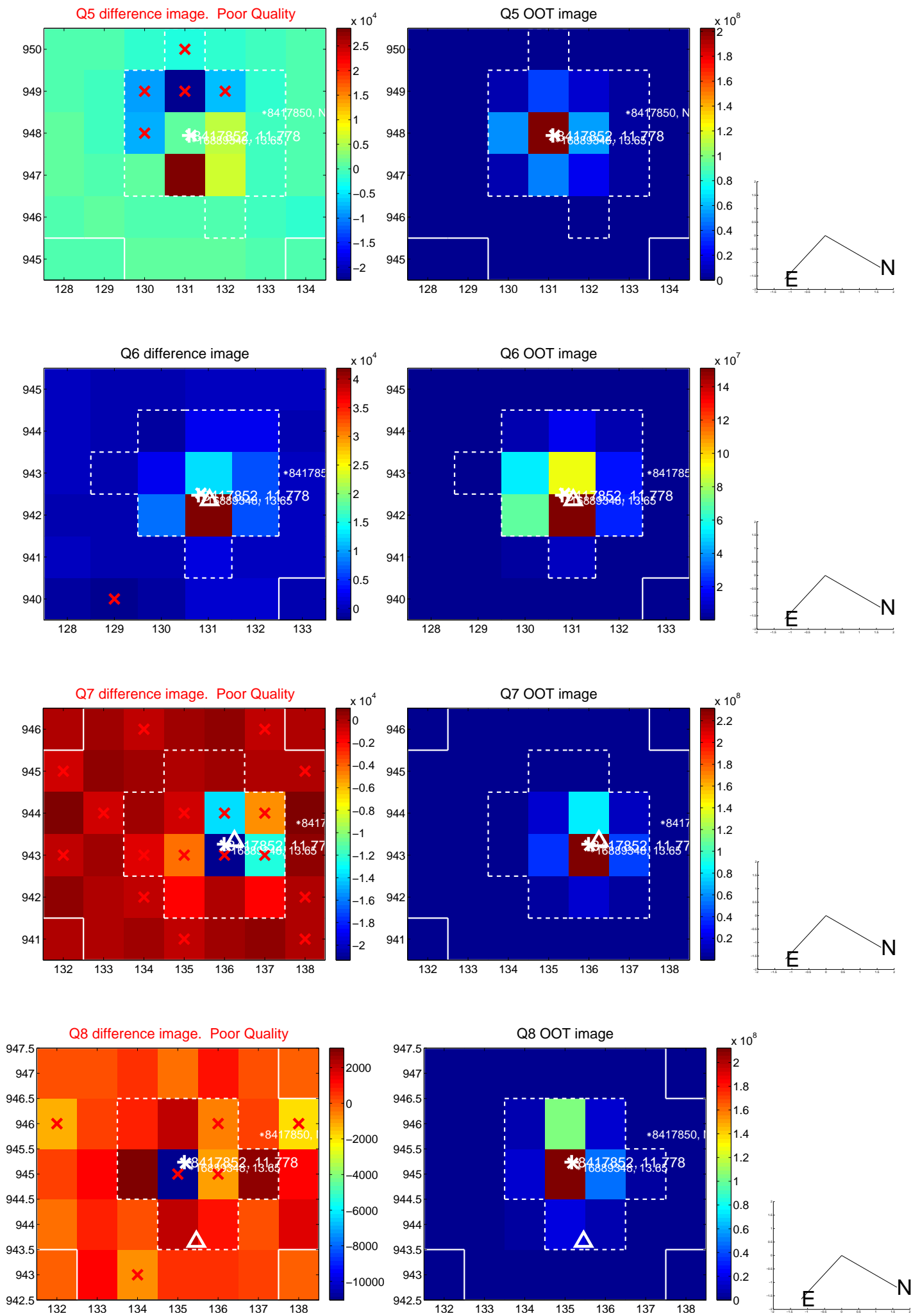


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

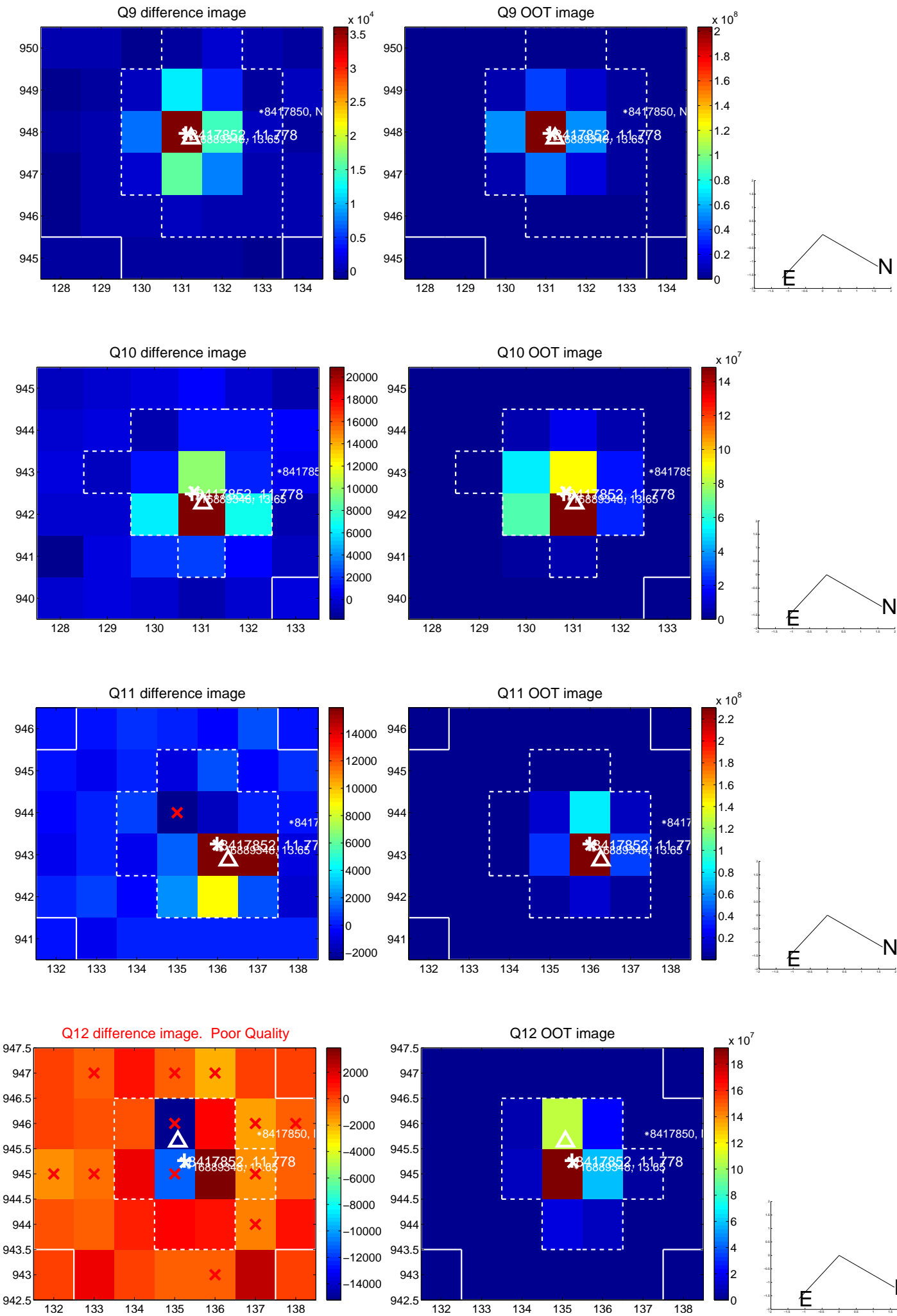
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



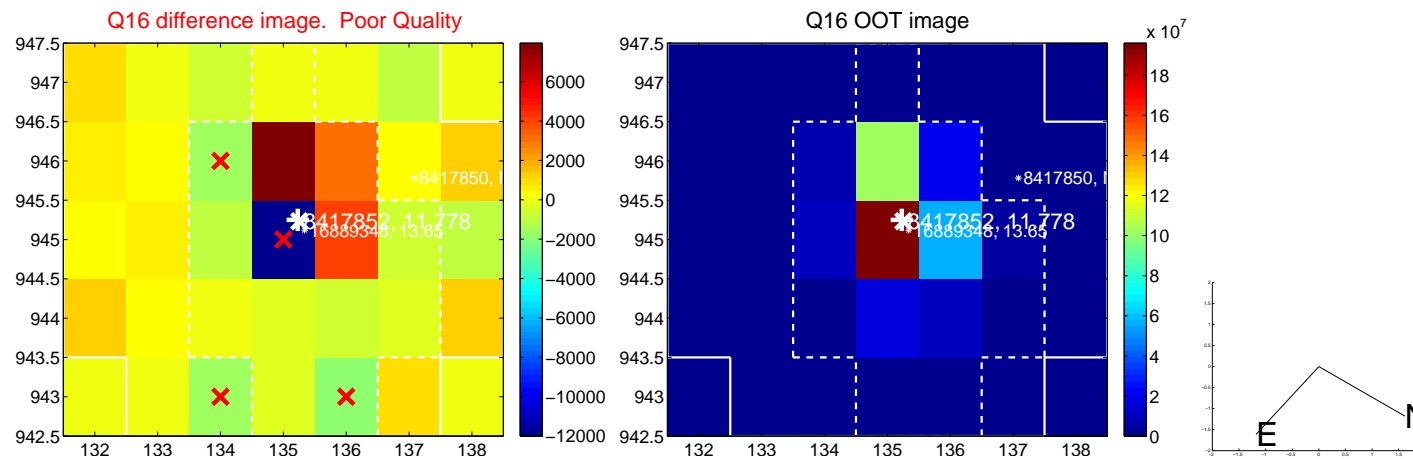
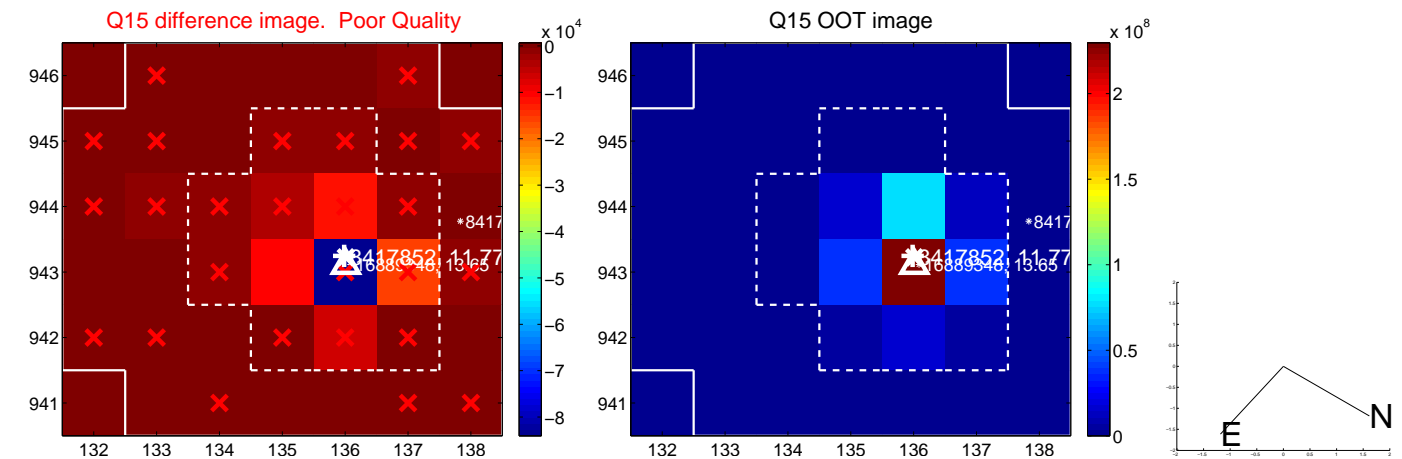
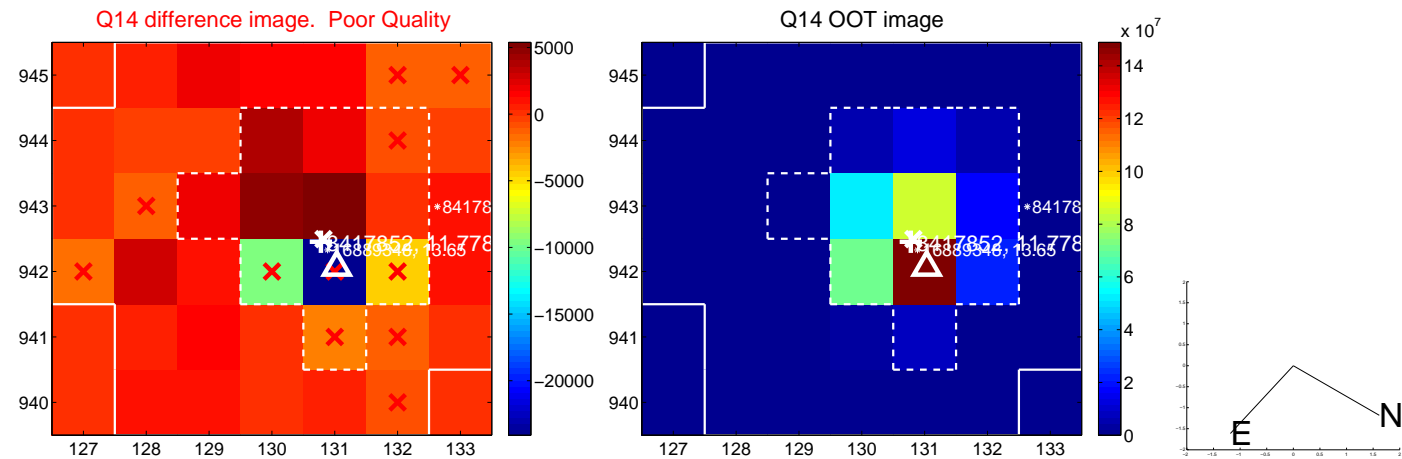
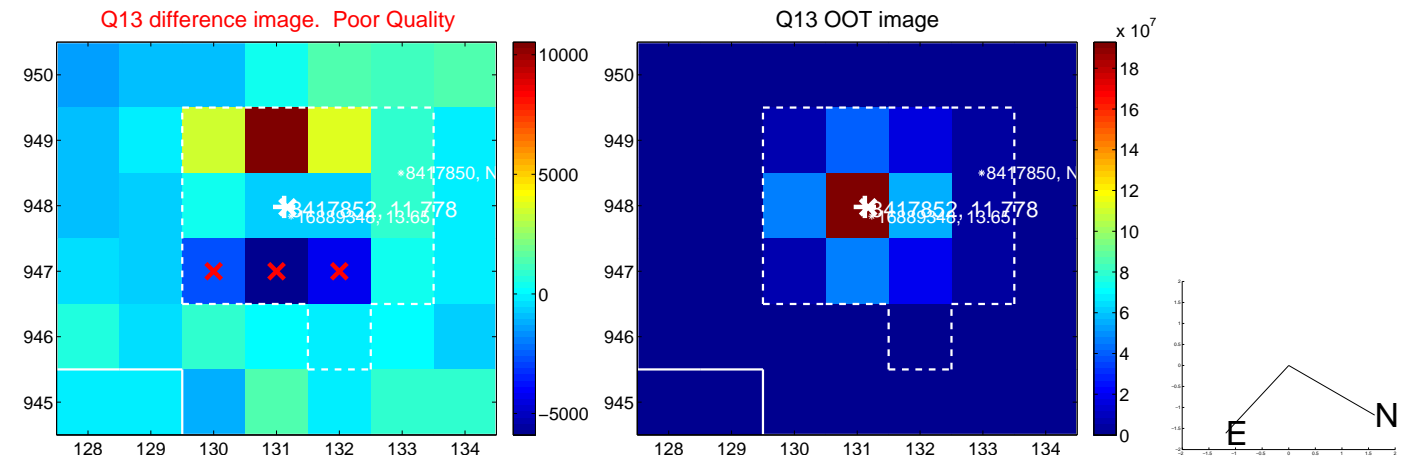
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



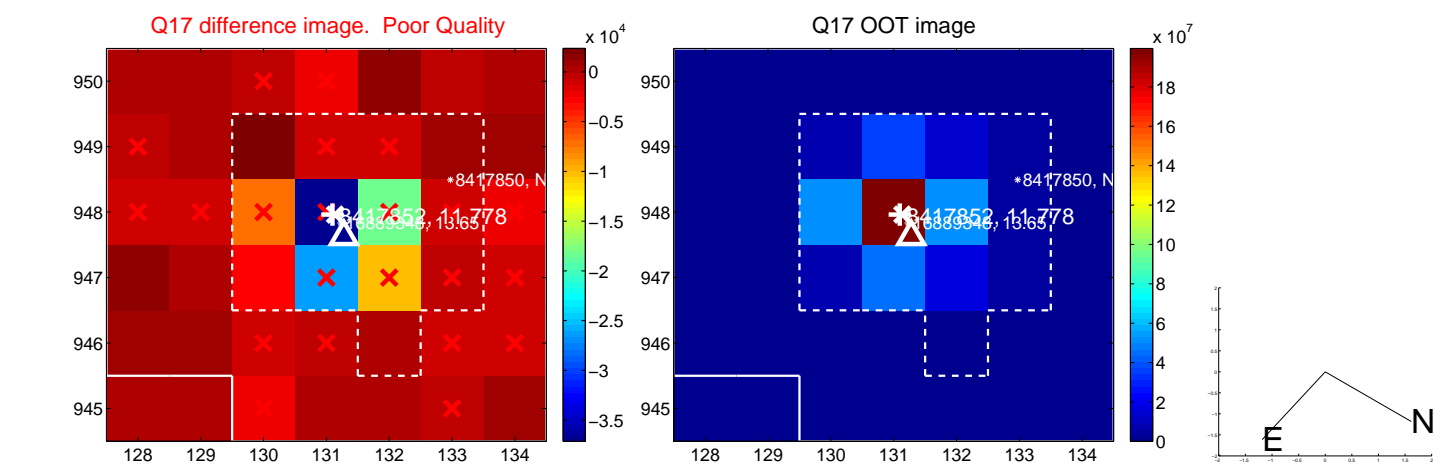
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



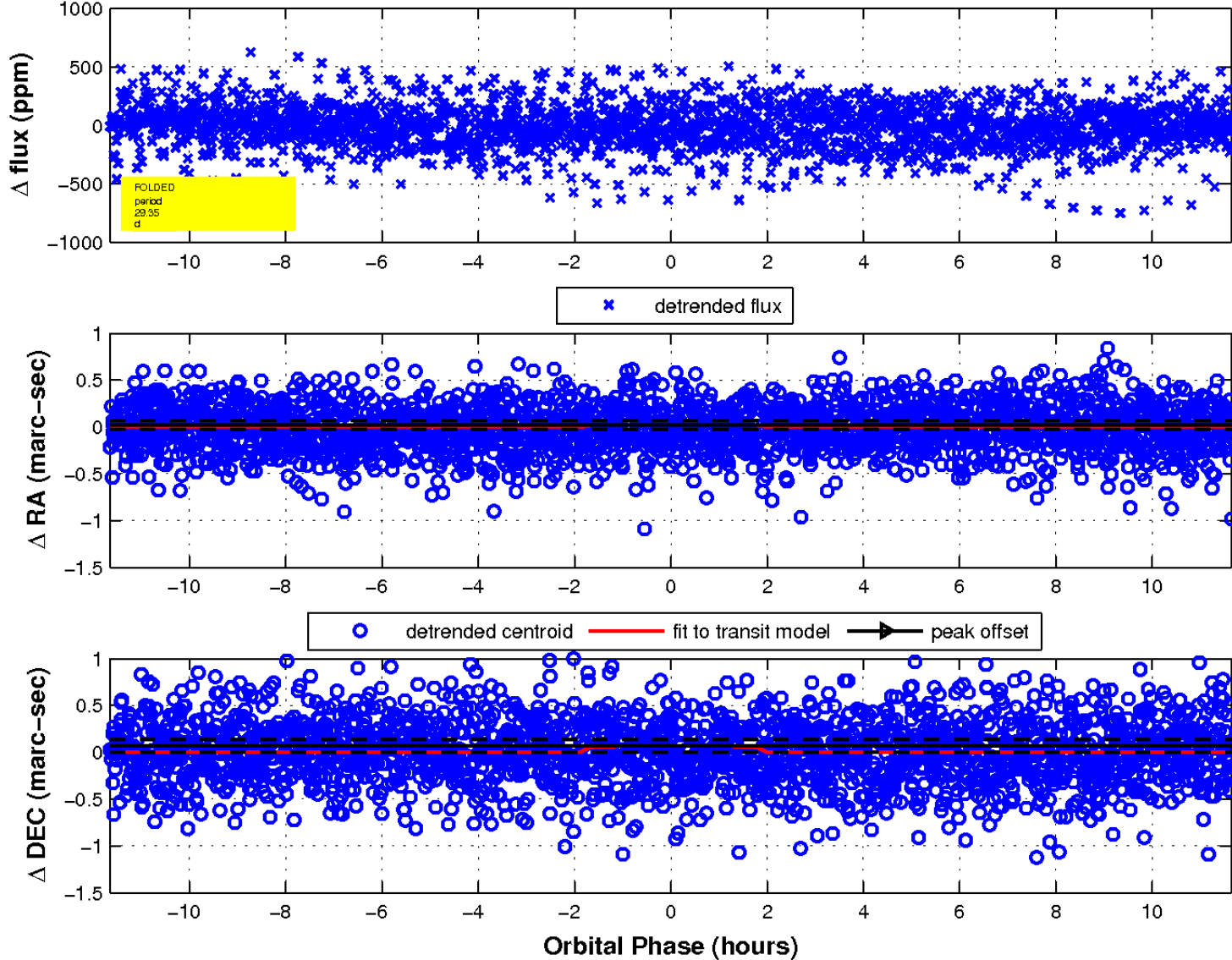
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

