

KIC 003868420

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})
003868420-01	OBS	No	0.623113	132.020959	2.1	2.297	17.5	0.0	1.75	6781	0.26	23478.63
003868420-02	OBS	No	0.624682	132.018052	10911.8	2.897	24.9	16.4	1.75	6781	18.76	23400.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003868420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003868420-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

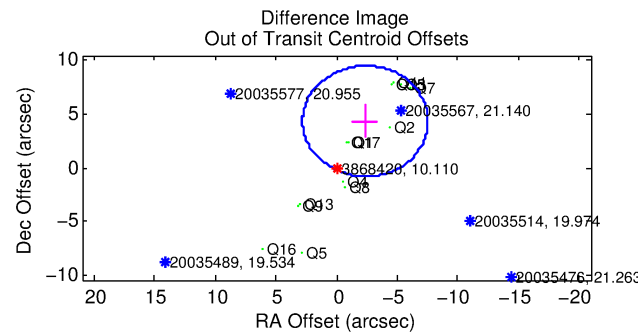
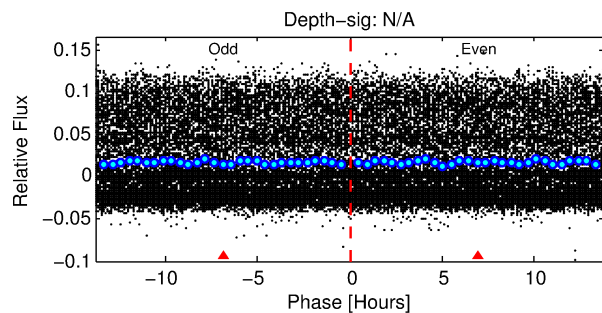
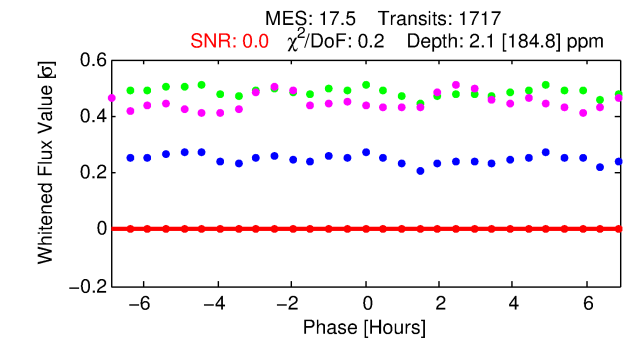
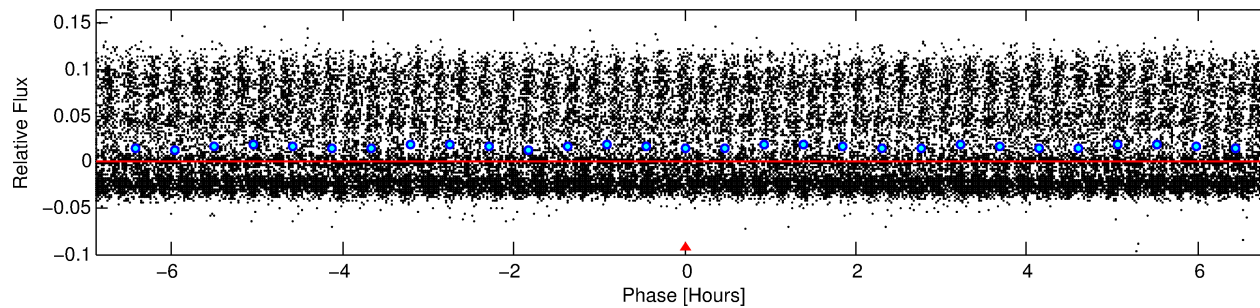
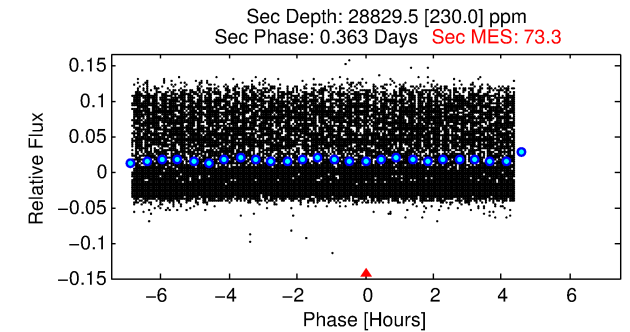
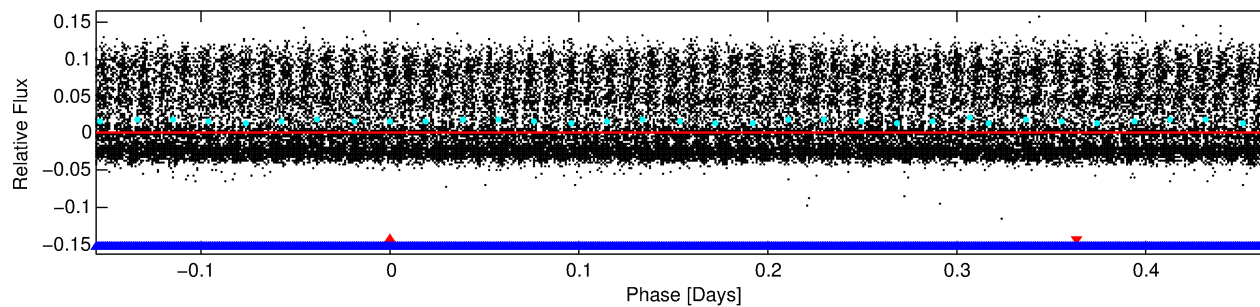
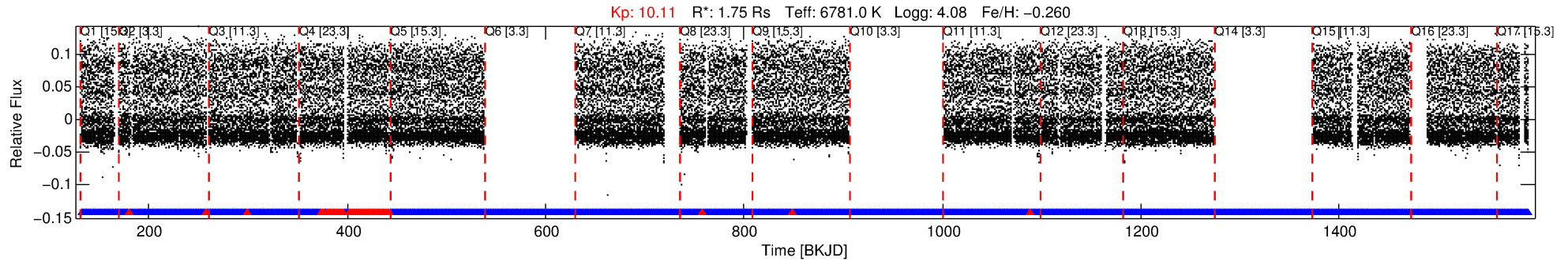
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003868420-01

No Significant Match Found

DV One-Page Summary

KIC: 3868420 Candidate: 1 of 2 Period: 0.623 d



DV Fit Results:

Period = 0.62311 [0.00724] d
Epoch = 132.0210 [2.3866] BKJD
Rp/R* = 0.0014 [0.0838]
a/R* = 1.82 [295.12]
b = 0.61 [242.57]
Seff = 23478.63 [10593.47]
Teq = 3156 [356] K
Rp = 0.26 [16.01] Re
a = 0.0157 [0.0043] AU
Ag = 56040.07 [6785984.78] [0.01σ]
Teffp = 75086 [2273194] K [0.03σ]

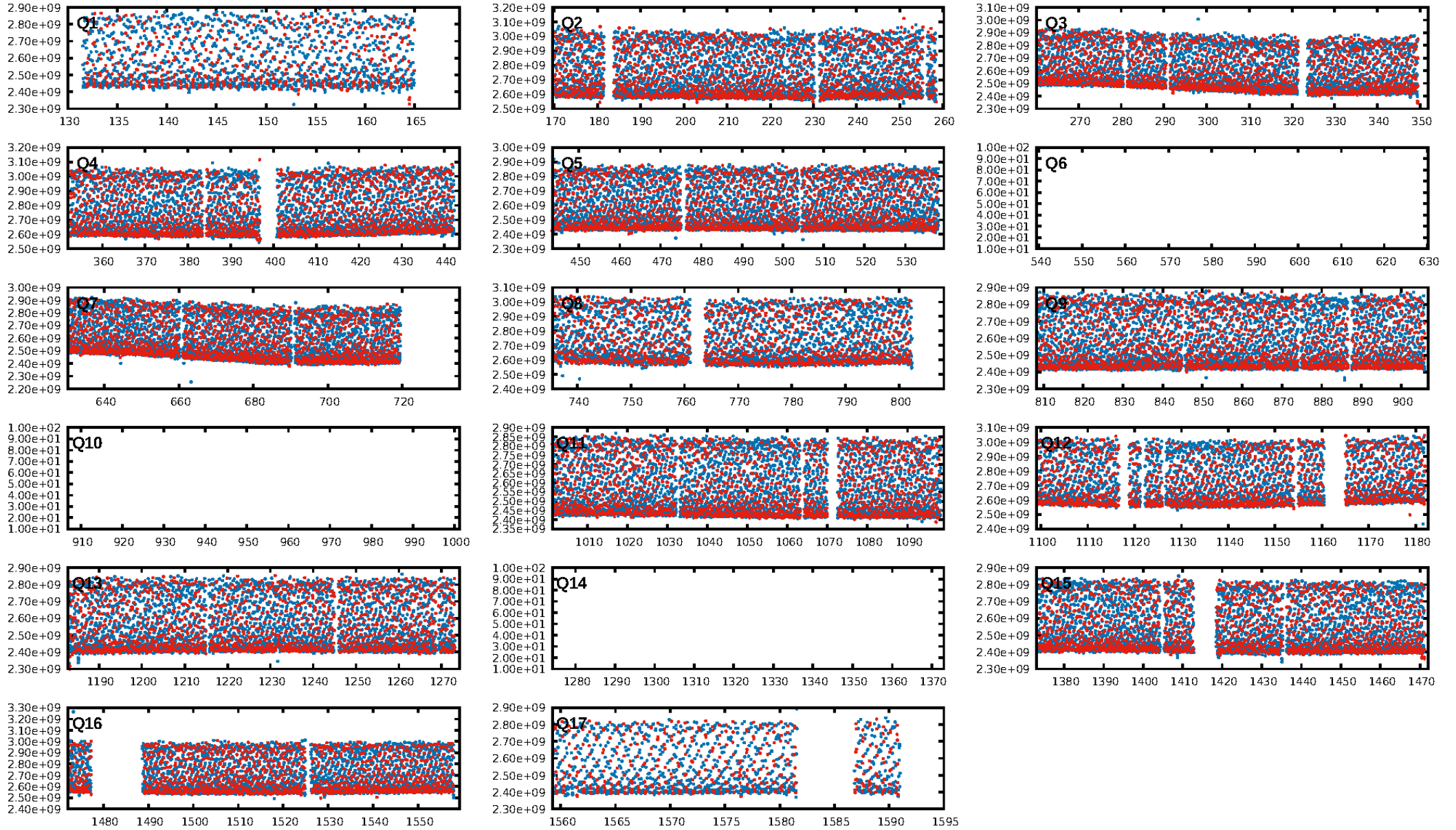
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.8% [0.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.94 [1531/1621]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 4.952 arcsec [2.87σ]
KicOffset-rm: 4.879 arcsec [3.03σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 0.00 [0/13]
DiffImageOverlap-fno: 0.00 [0/14]

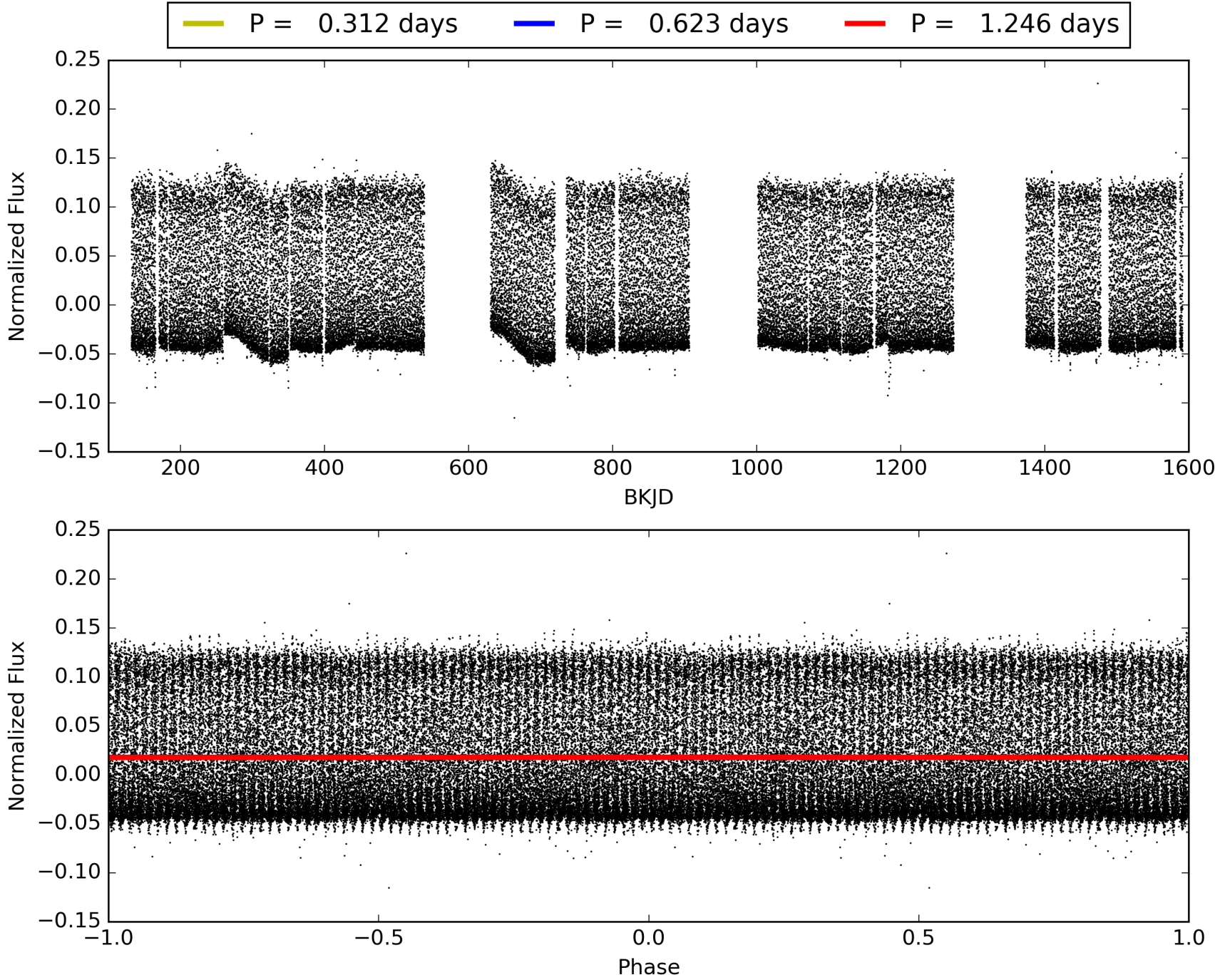
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:56:51 Z

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

TCE 003868420-01, PDC Light Curves

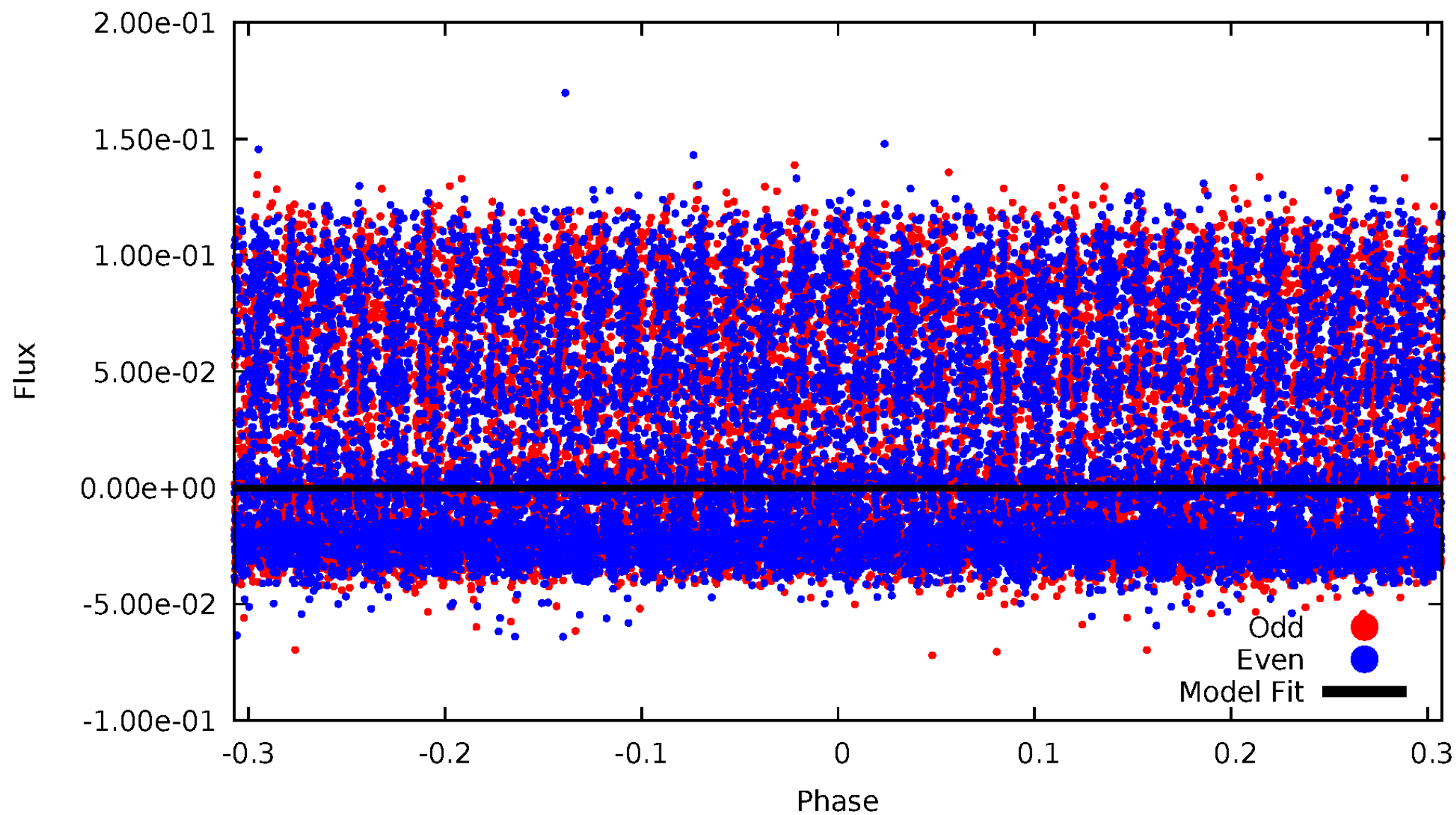


TCE 003868420-01



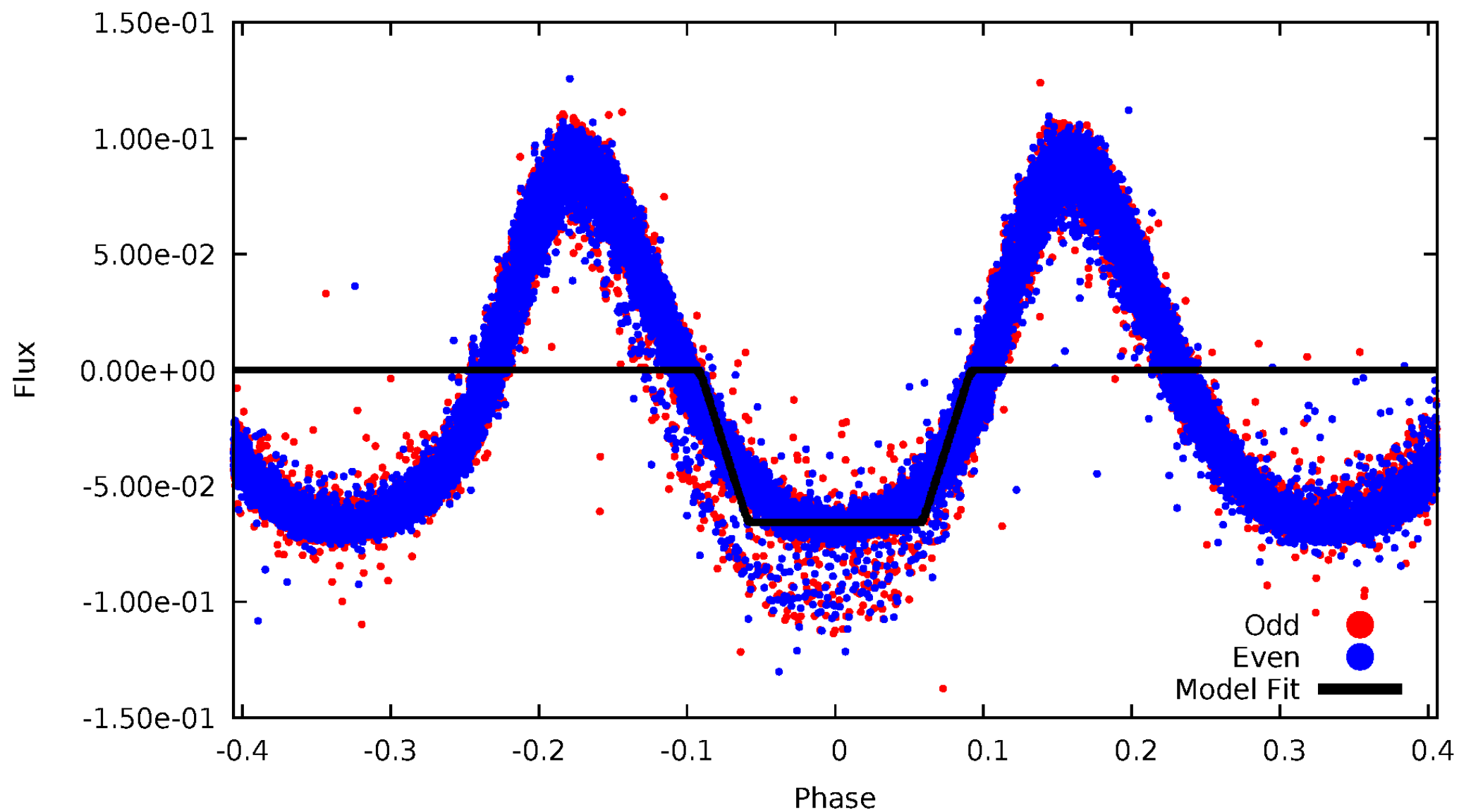
DV Odd/Even

TCE 003868420-01



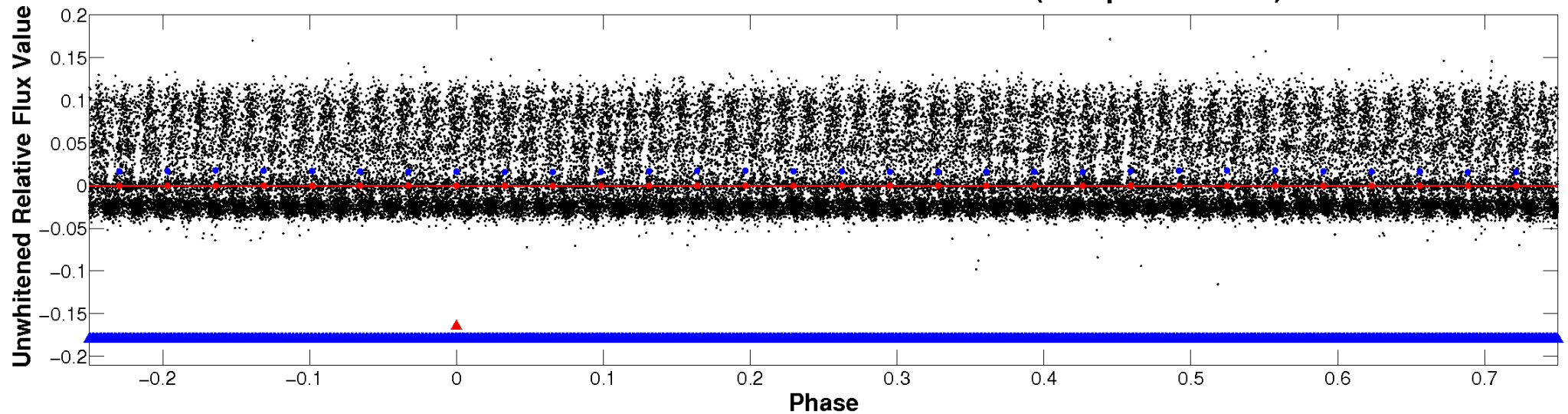
ALT Odd/Even

TCE 003868420-01

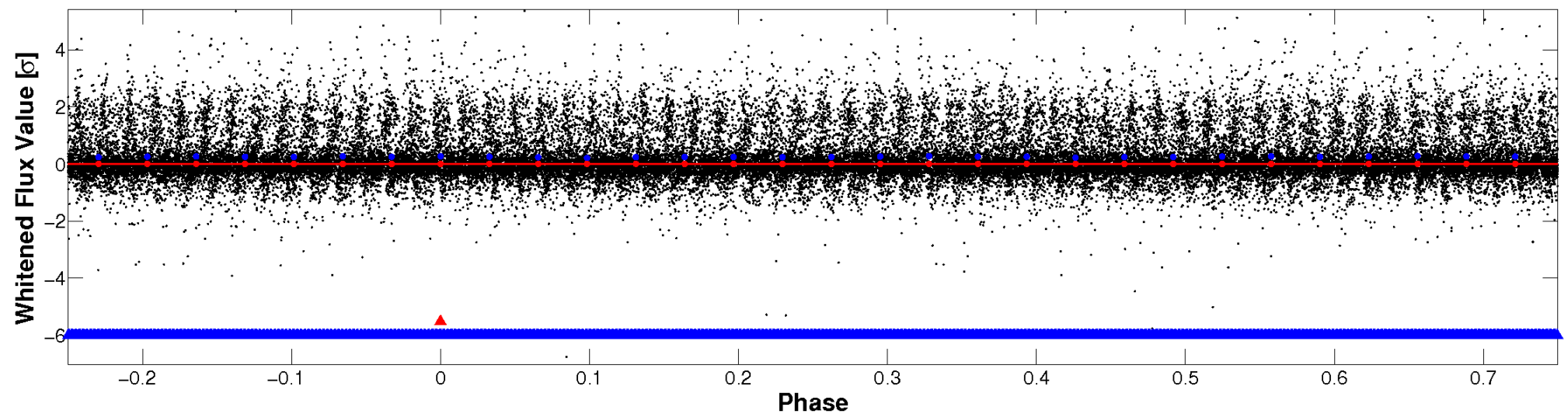


Non-Whitened Vs. Whitened Light Curve

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

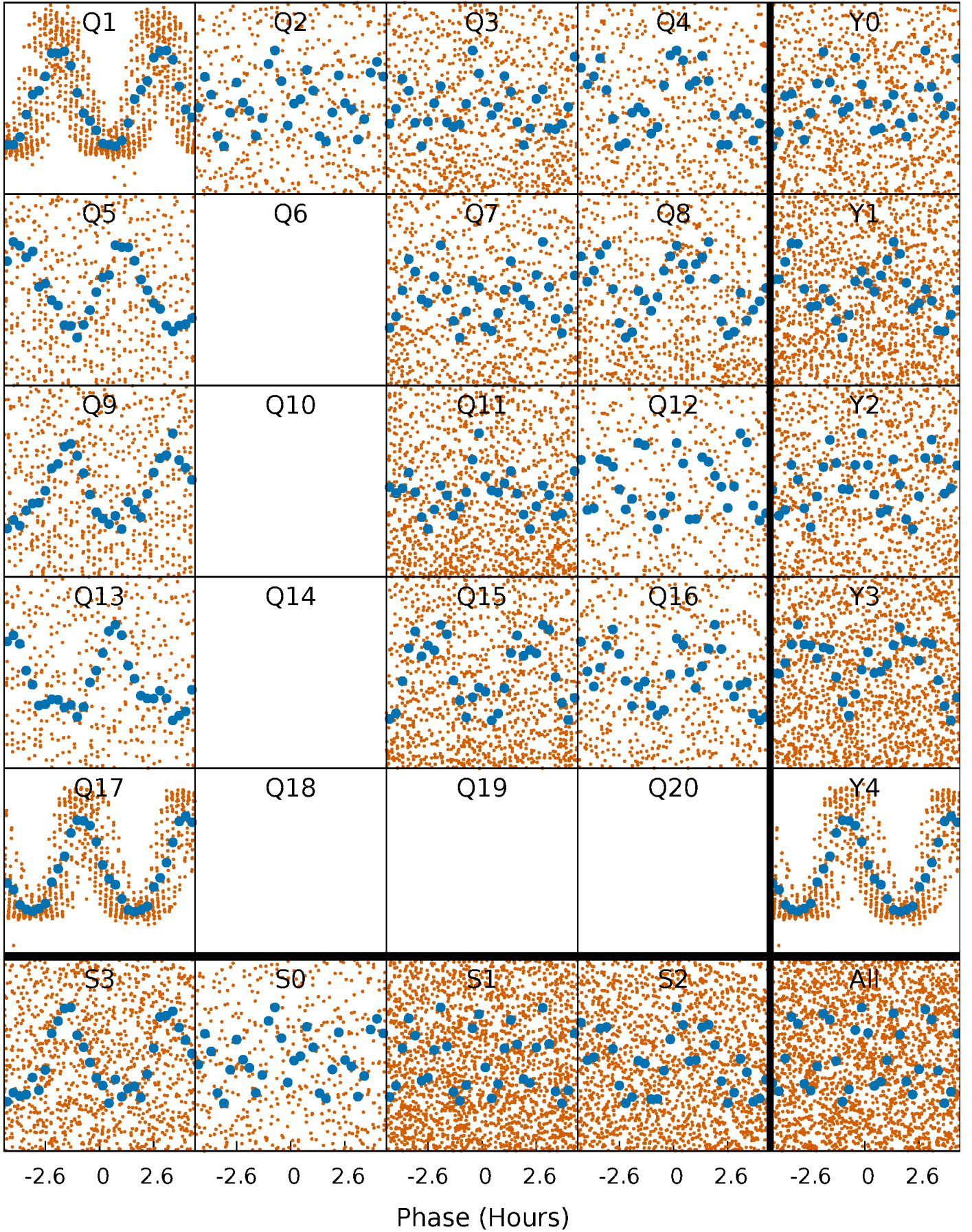


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



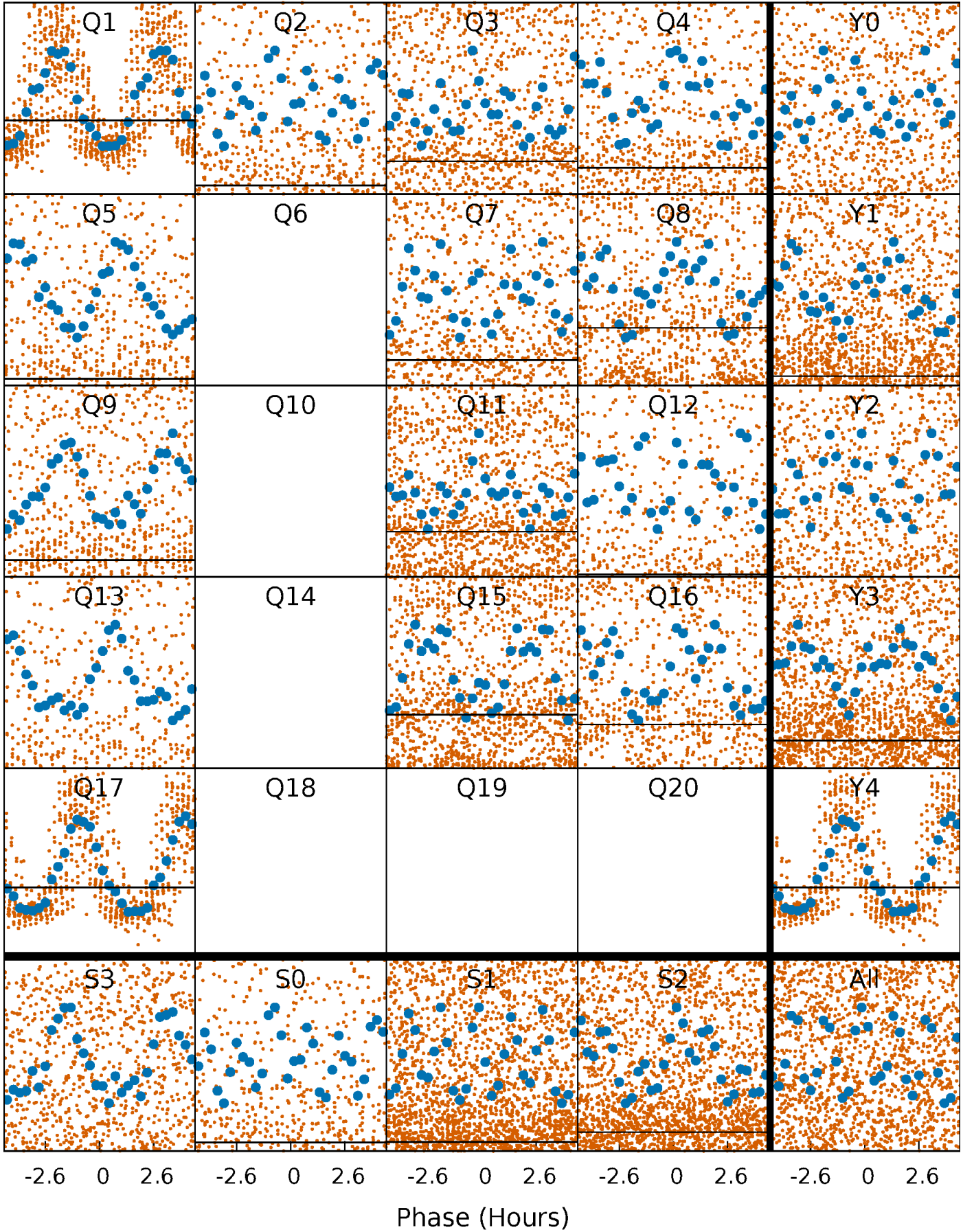
PDC Quarter-Phased Transit Curves

TCE 003868420-01 P= 0.623113 Days $T_0=132.020959$ (BKJD)



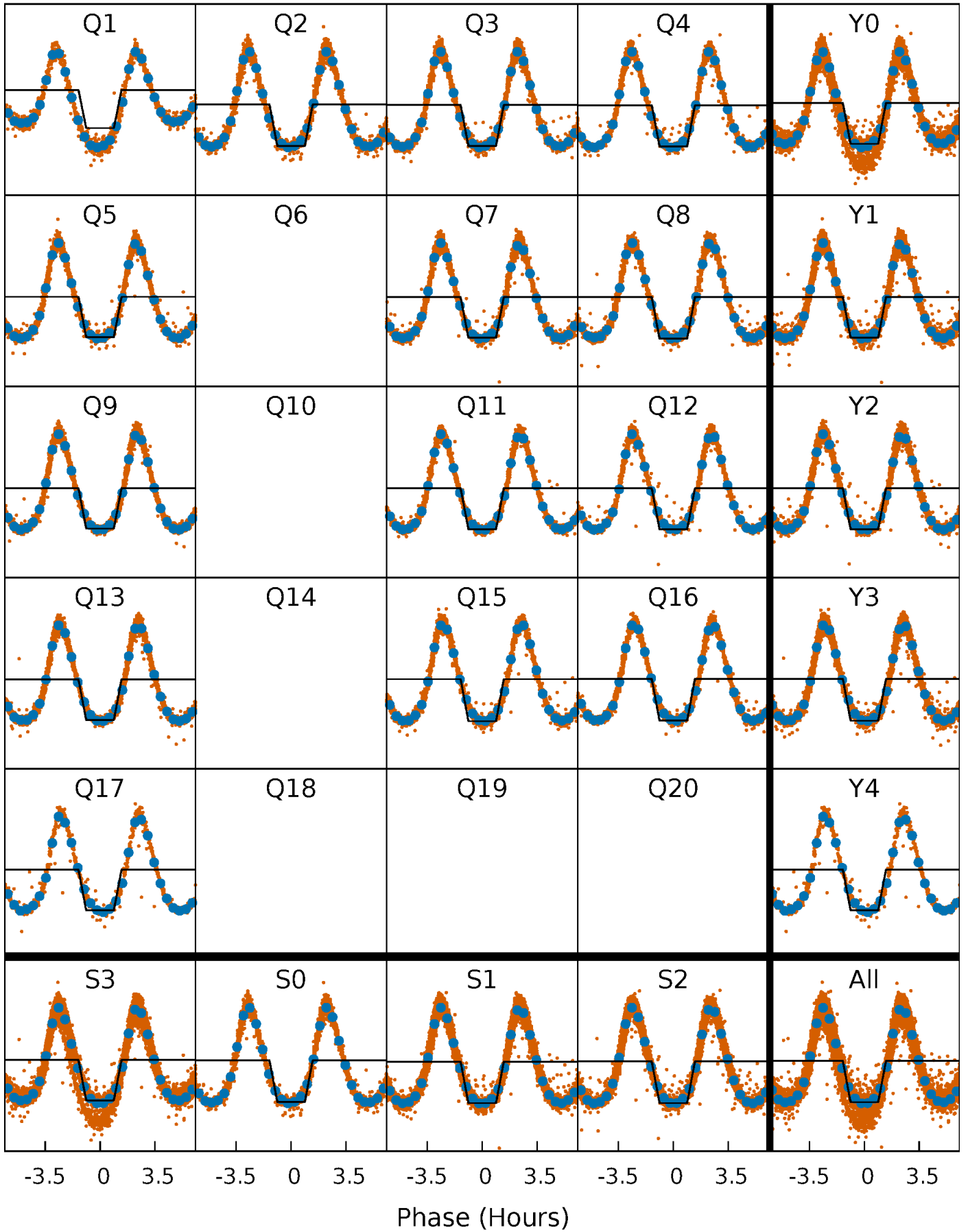
DV Quarter-Phased Transit Curves

TCE 003868420-01 P= 0.623113 Days $T_0=132.020959$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

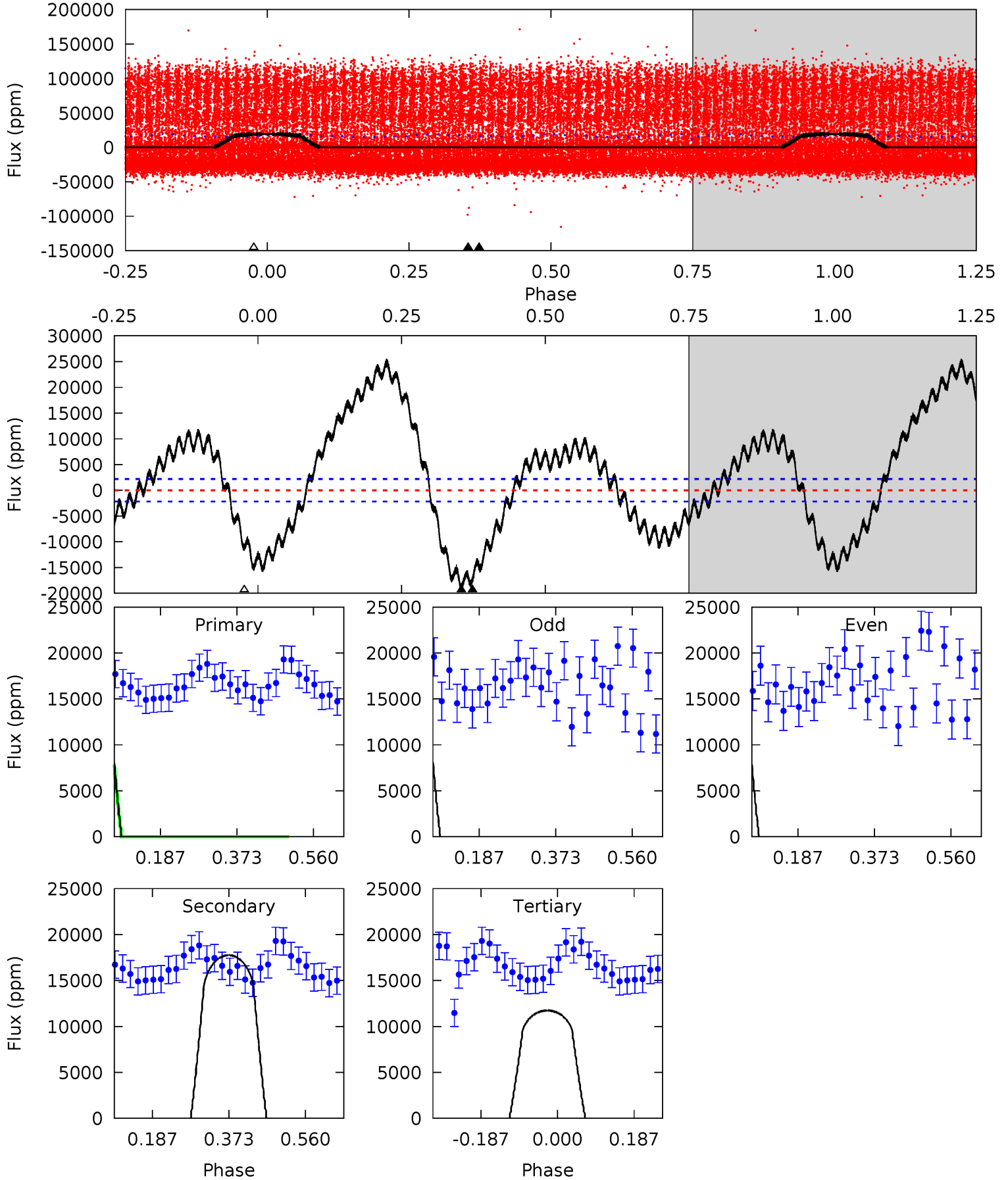
TCE 003868420-01 P= 0.624678 Days $T_0=131.589752$ (BKJD)



DV Model-Shift Uniqueness Test

003868420-01, P = 0.623113 Days, E = 131.397846 Days

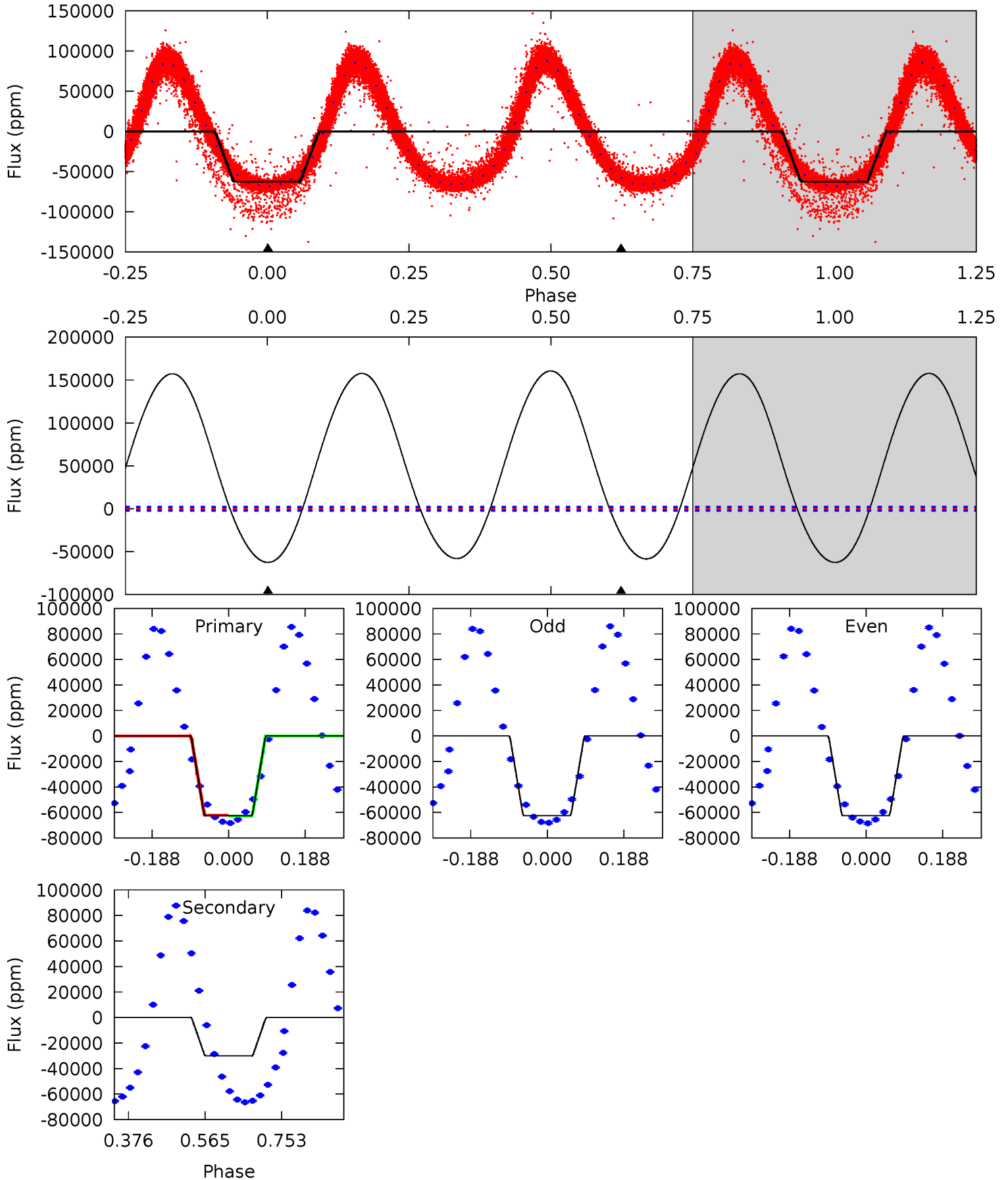
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.5	36.2	23.9	0	4.43	1.32	16.5	15.6	39.5	12.3	36.2	0.37	1.22	0.57	1.36



Alt Model-Shift Uniqueness Test

003868420-01, P = 0.624678 Days, E = 130.965074 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
126.1	60.7	0	0	4.43	1.32	125.7	126.1	126.1	60.7	60.7	0.01	1.01	0.72	2.92



Stellar Parameters For KIC 003868420

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6781^{+189}_{-284}	$4.077^{+0.240}_{-0.180}$	$-0.260^{+0.300}_{-0.300}$	$1.750^{+0.522}_{-0.522}$	$1.336^{+0.194}_{-0.259}$	$0.351^{+0.480}_{-0.180}$
	+3%/-4%	+6%/-4%	+115%/-115%	+30%/-30%	+15%/-19%	+137%/-51%
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 003868420-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-17757 ± 491	$10.65^{+12.36}_{-7.83}$	4387^{+334}_{-374}	11975^{+47954}_{-5026}	22^{+287}_{-17}
Alt.	-30098 ± 496	$47.41^{+18.87}_{-17.11}$	4386^{+337}_{-384}	5378^{+1249}_{-790}	$1.865^{+2.545}_{-0.898}$

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

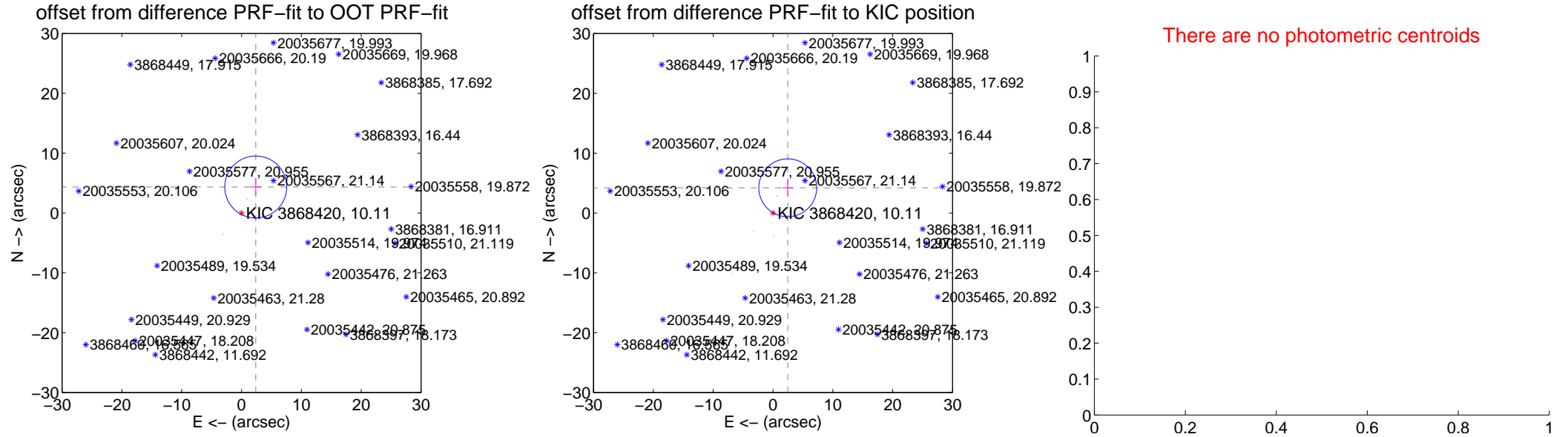
DV Centroid Data

Supplemental centroid analysis for 003868420-01. **Kepler magnitude: 10.11.** Transit SNR 0.01

There are 0 quarters with good PRF difference image offsets

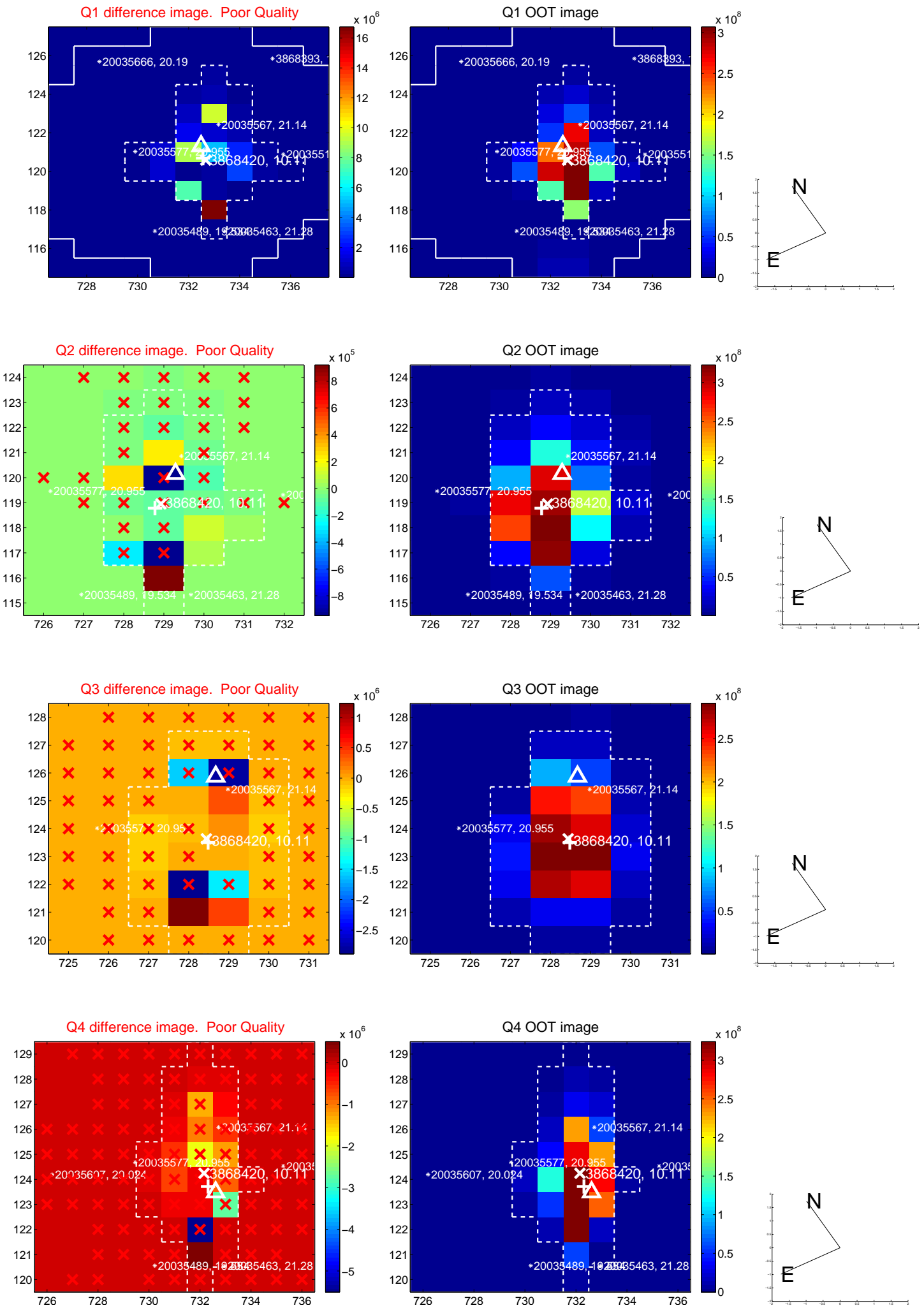
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.952 ± 1.726	2.87	-2.374 ± 0.985	4.346 ± 1.454
PRF-fit source offset from KIC position	4.879 ± 1.611	3.03	-2.460 ± 0.869	4.213 ± 1.395
photometric centroid source offset	—	—	—	—

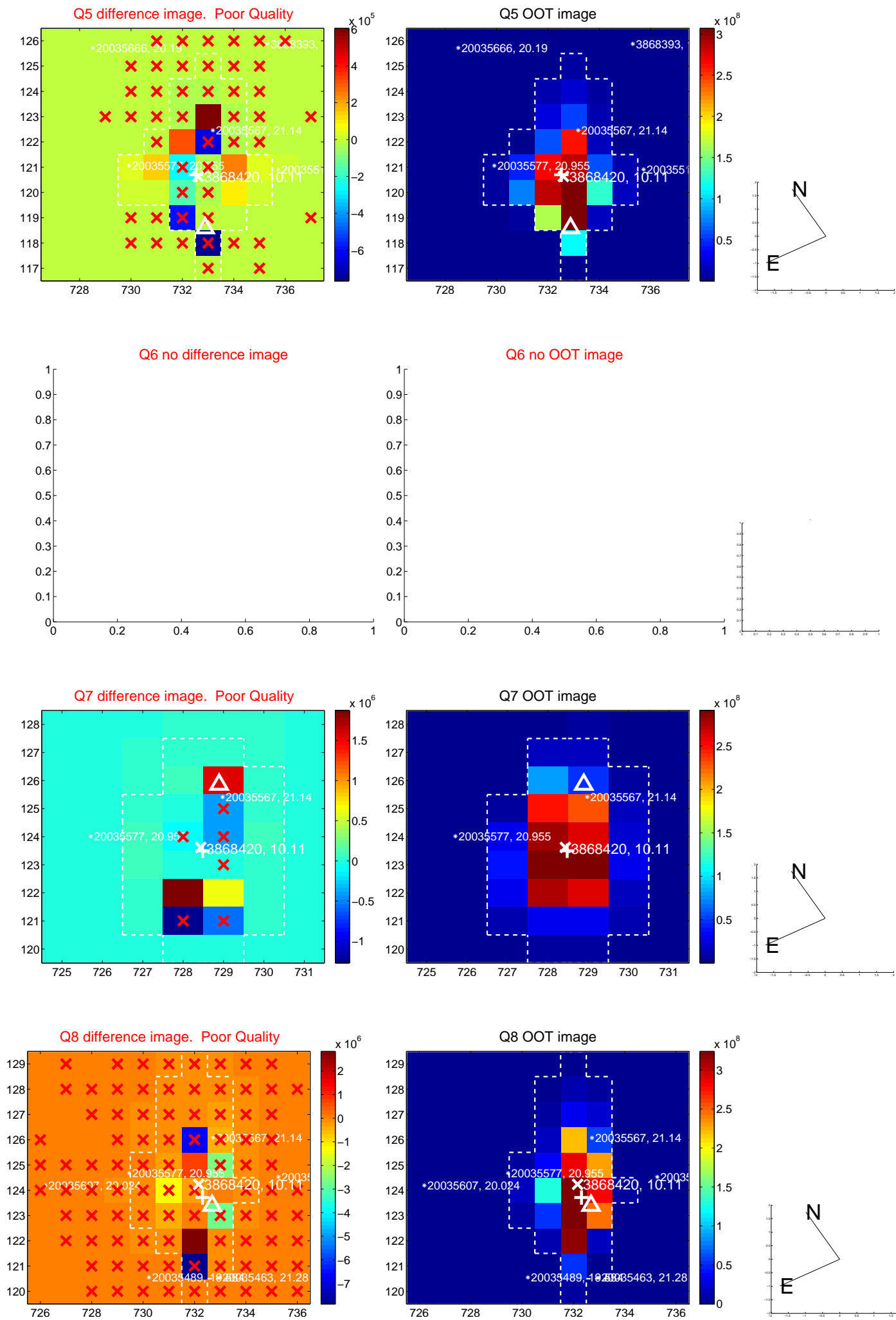


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

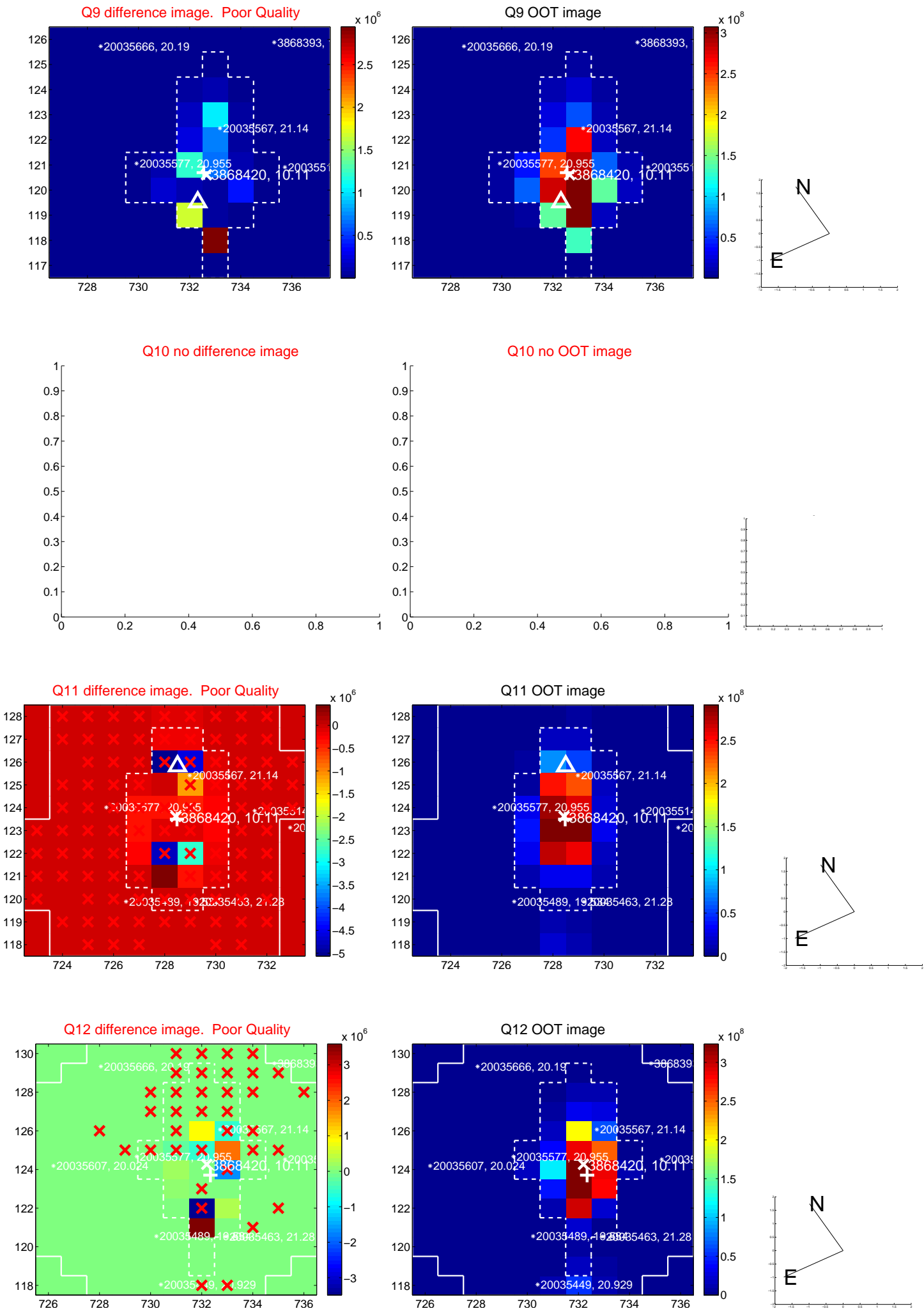
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



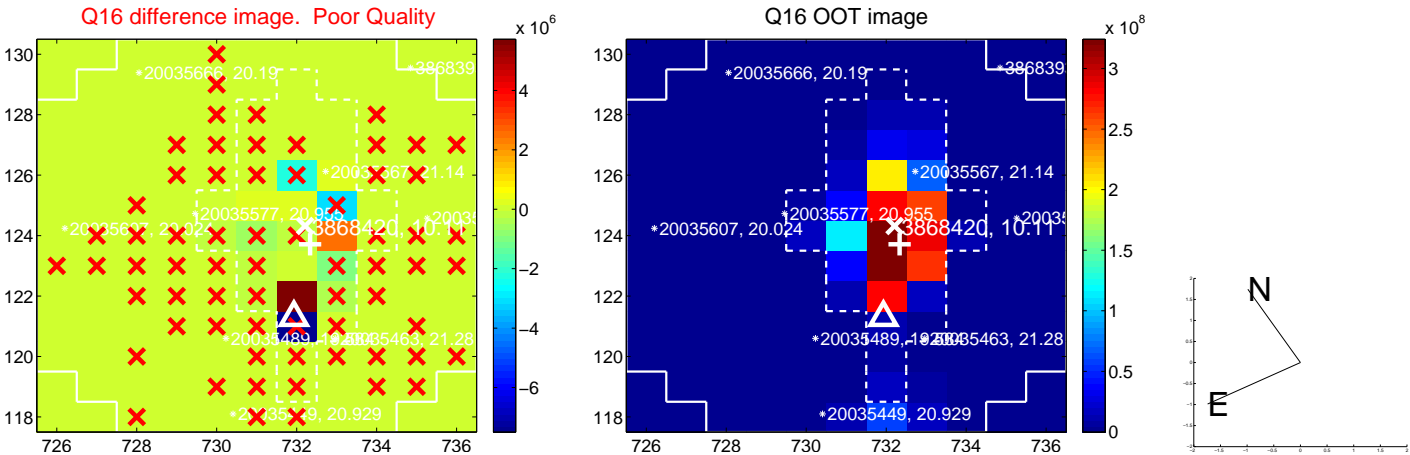
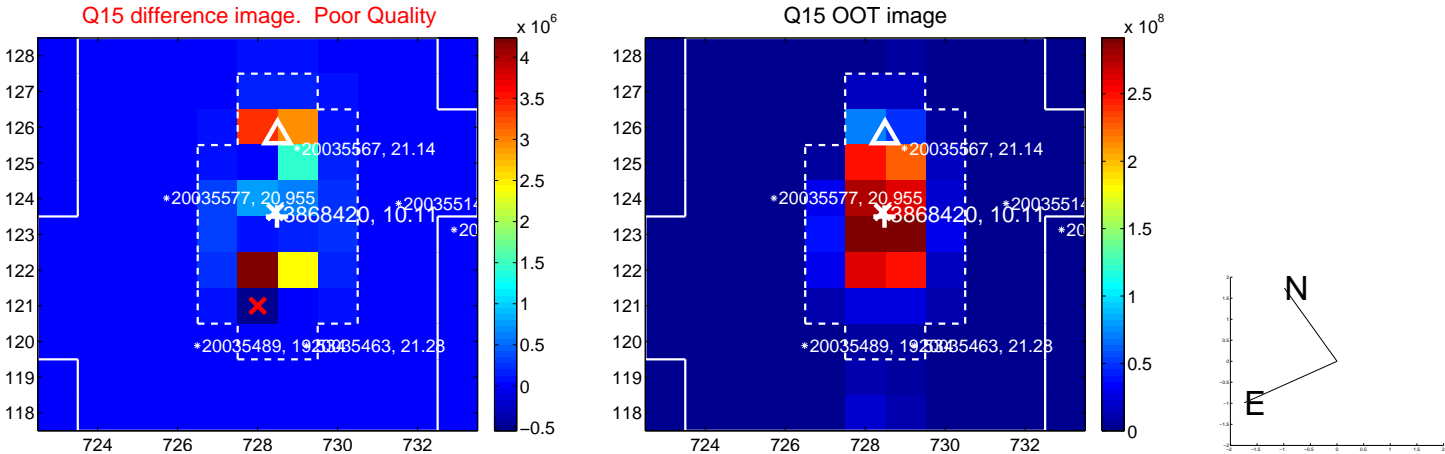
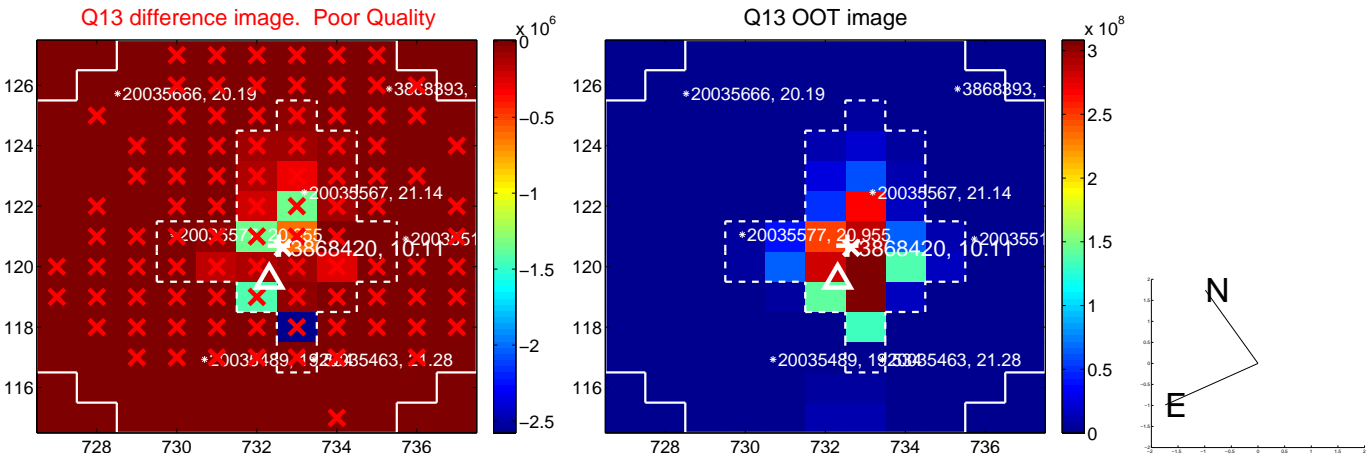
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



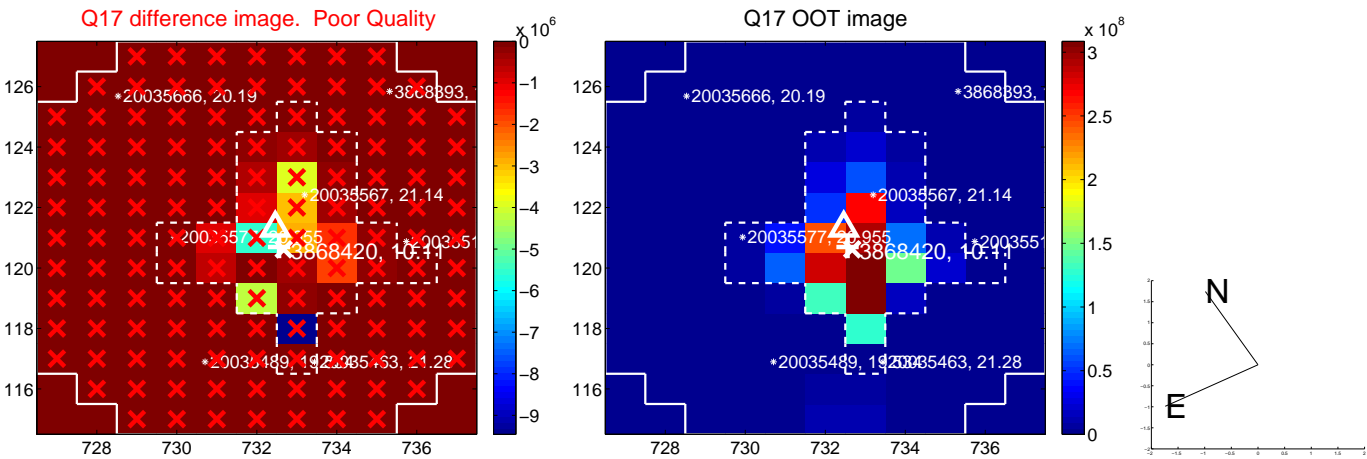
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

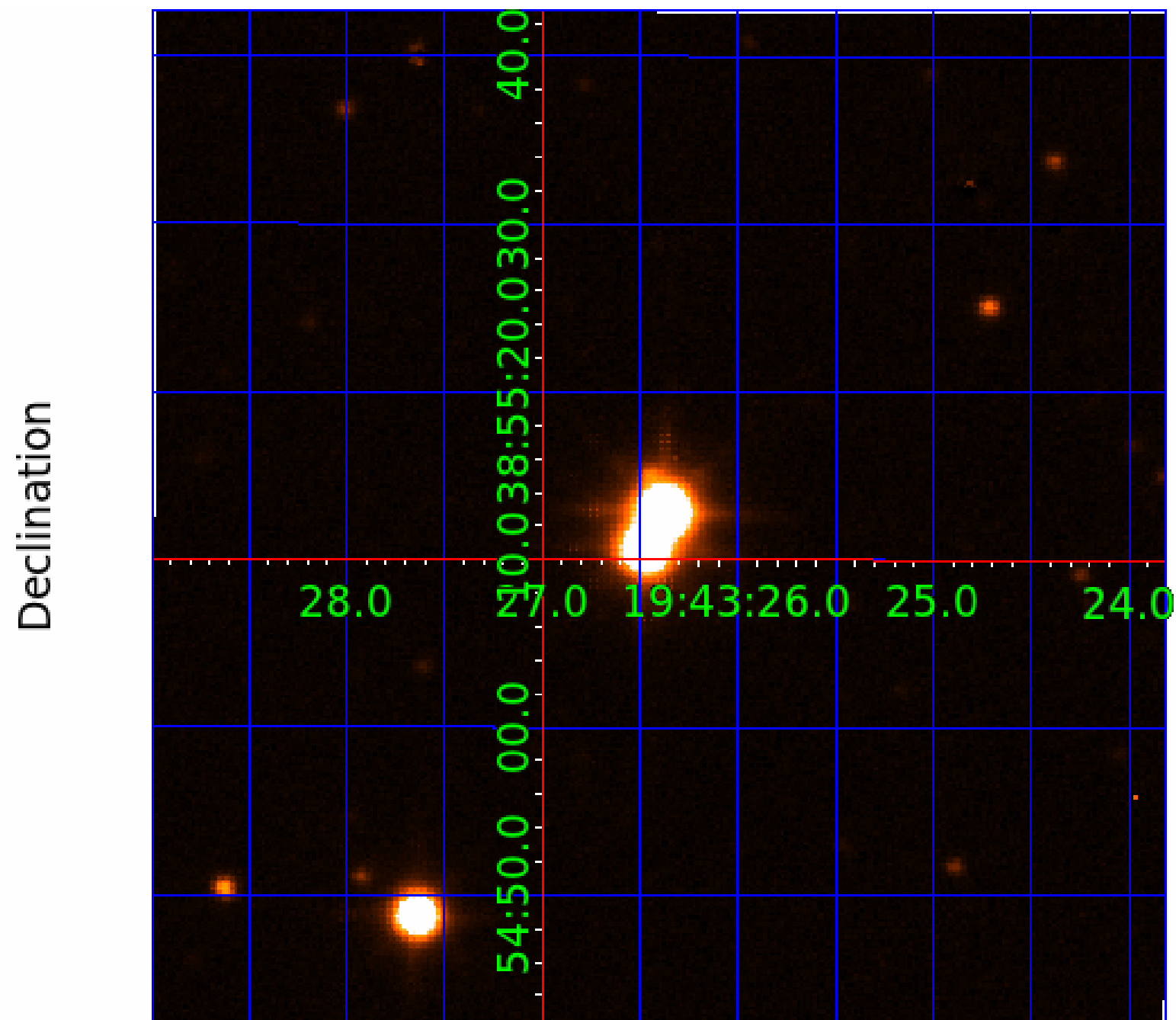


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 003868420

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})
003868420-01	OBS	No	0.623113	132.020959	2.1	2.297	17.5	0.0	1.75	6781	0.26	23478.63
003868420-02	OBS	No	0.624682	132.018052	10911.8	2.897	24.9	16.4	1.75	6781	18.76	23400.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003868420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003868420-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

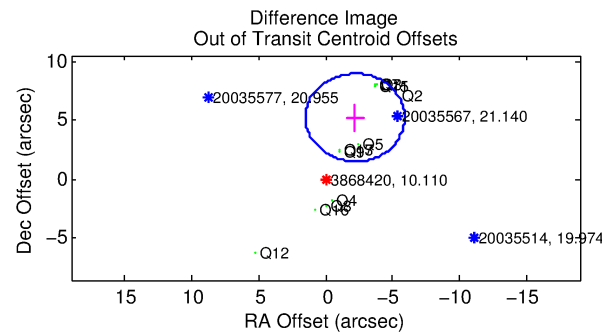
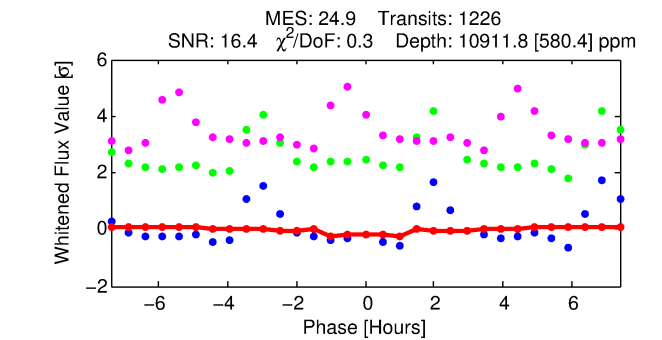
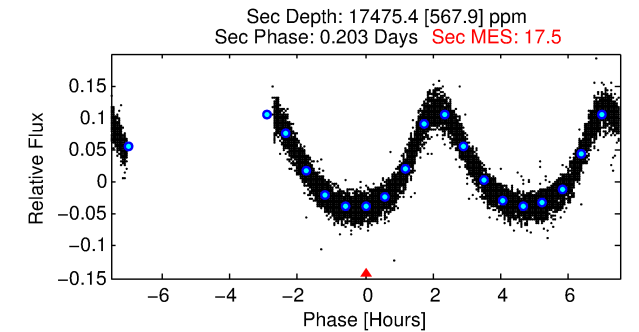
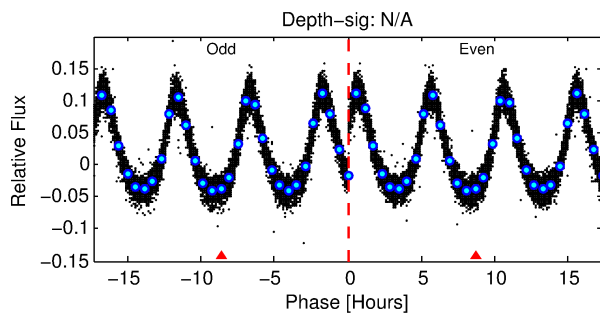
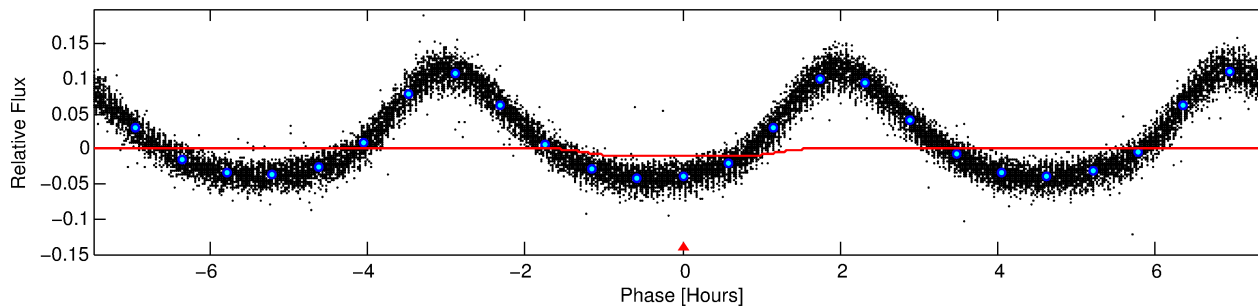
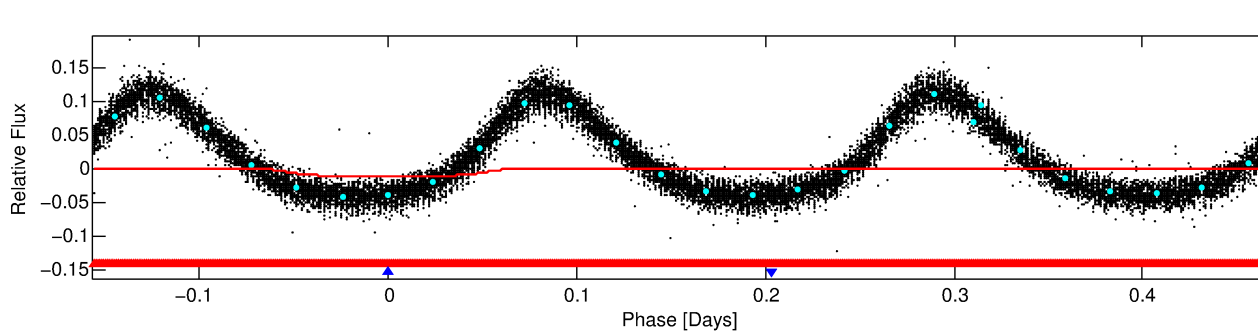
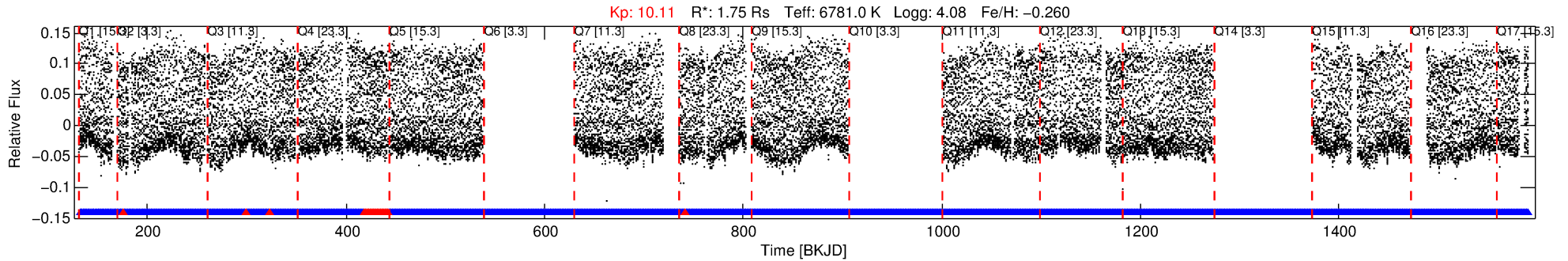
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003868420-02

No Significant Match Found

DV One-Page Summary

KIC: 3868420 Candidate: 2 of 2 Period: 0.625 d



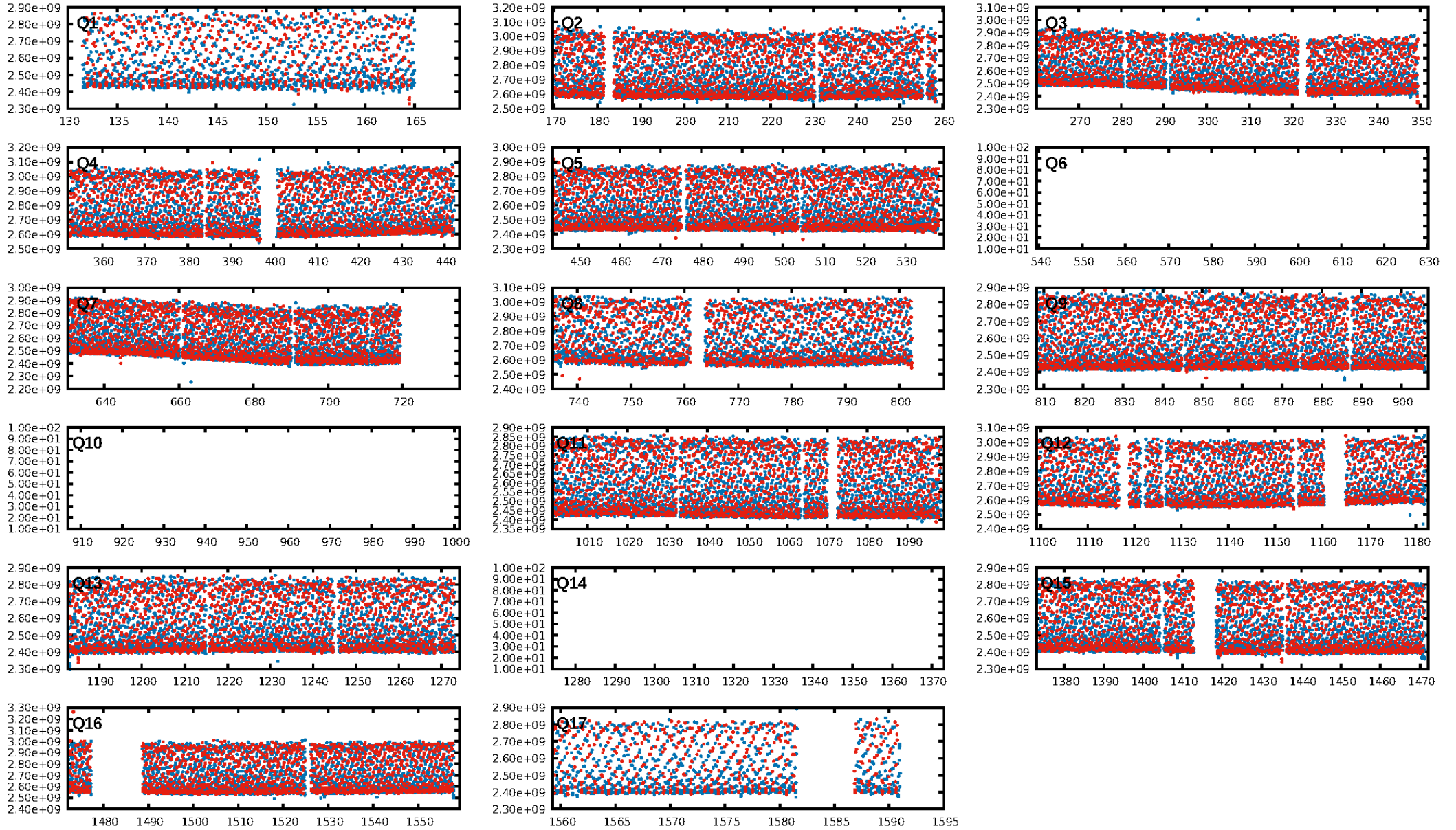
DV Fit Results:

Period = 0.62468 [0.00000] d
Epoch = 132.0181 [0.0007] BKJD
Rp/R* = 0.0983 [0.0051]
a/R* = 1.84 [0.28]
b = 0.40 [0.46]
Seff = 23400.03 [10551.78]
Teff = 3154 [356] K
Rp = 18.76 [5.68] Re
a = 0.0157 [0.0043] AU
Ag = 6.77 [2.93] [1.97σ]
Teffp = 7865 [394] K [8.88σ]

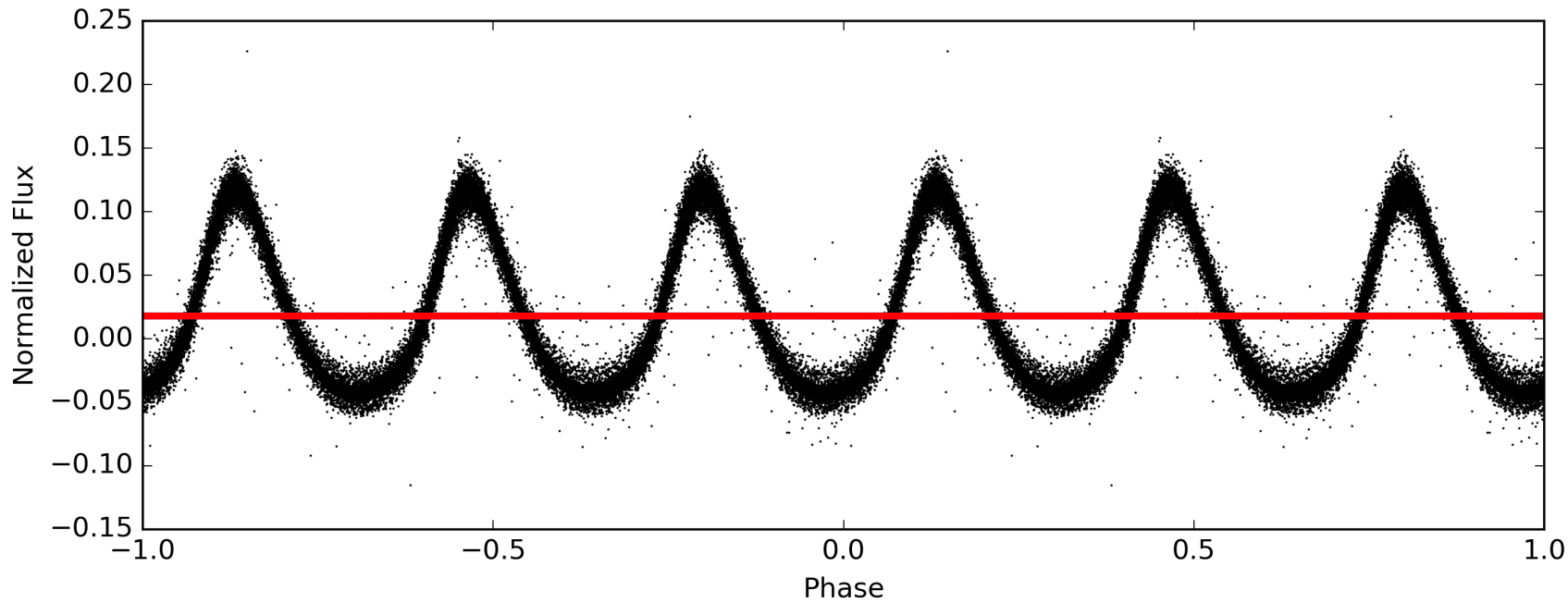
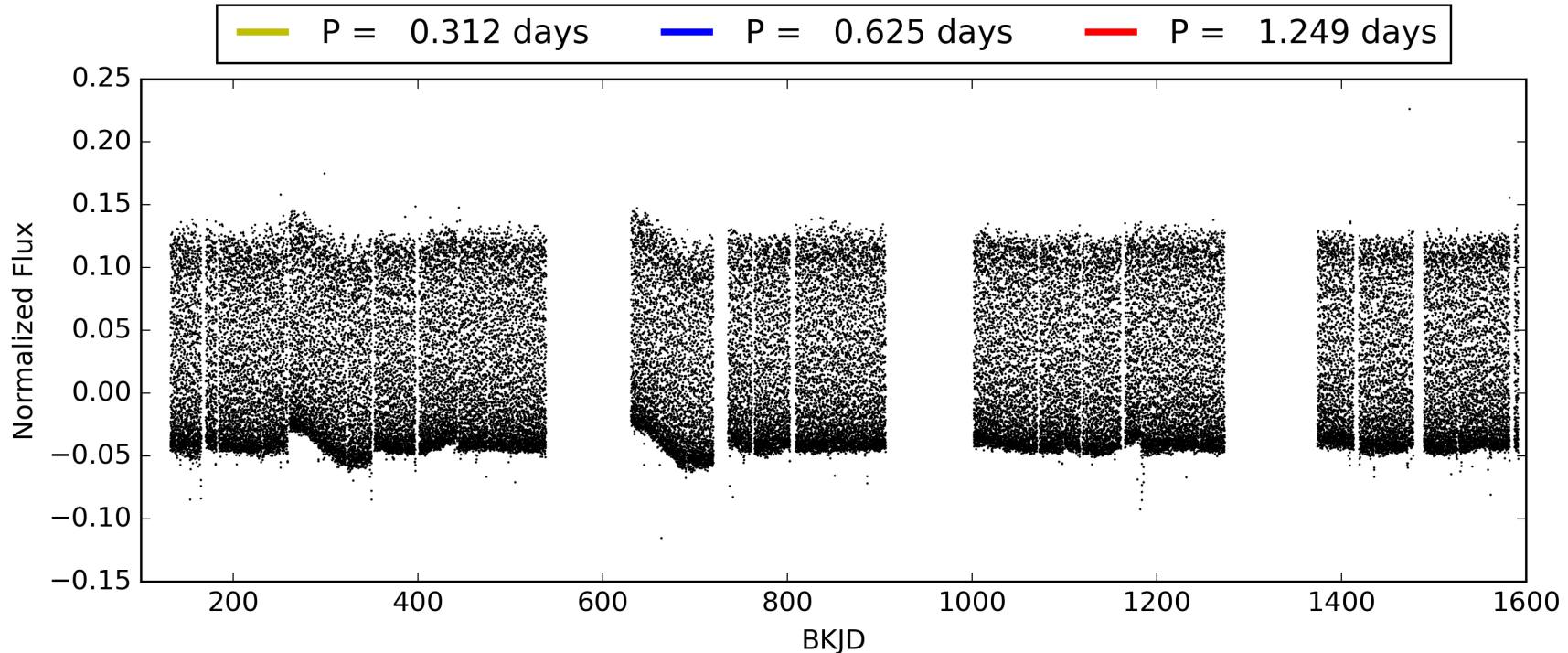
DV Diagnostic Results:

ShortPeriod-sig: 0.8% [0.01σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [1151/1189]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 5.679 arcsec [4.59σ]
KicOffset-rm: 6.151 arcsec [4.05σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.21 [3/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 003868420-02, PDC Light Curves

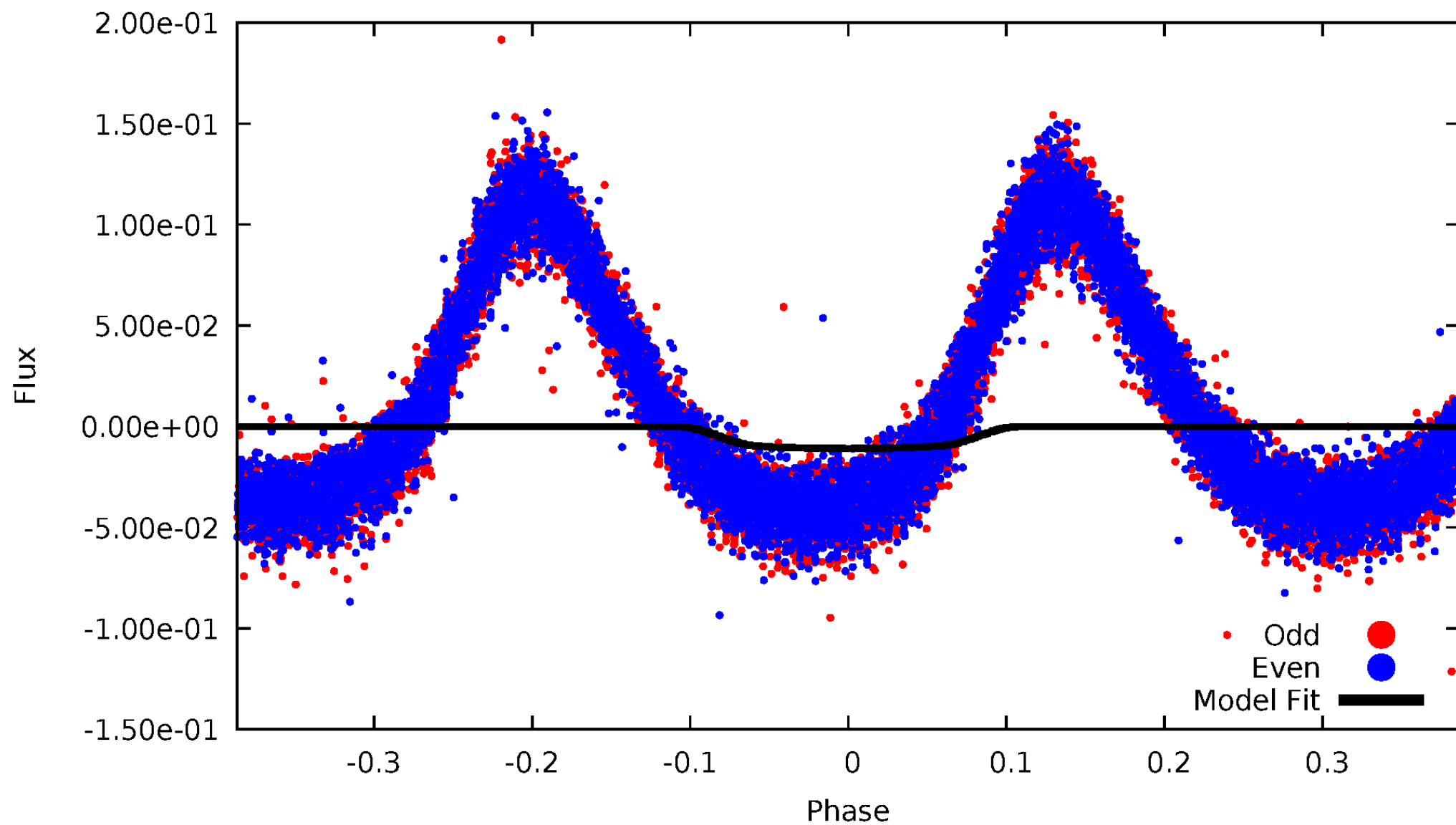


TCE 003868420-02



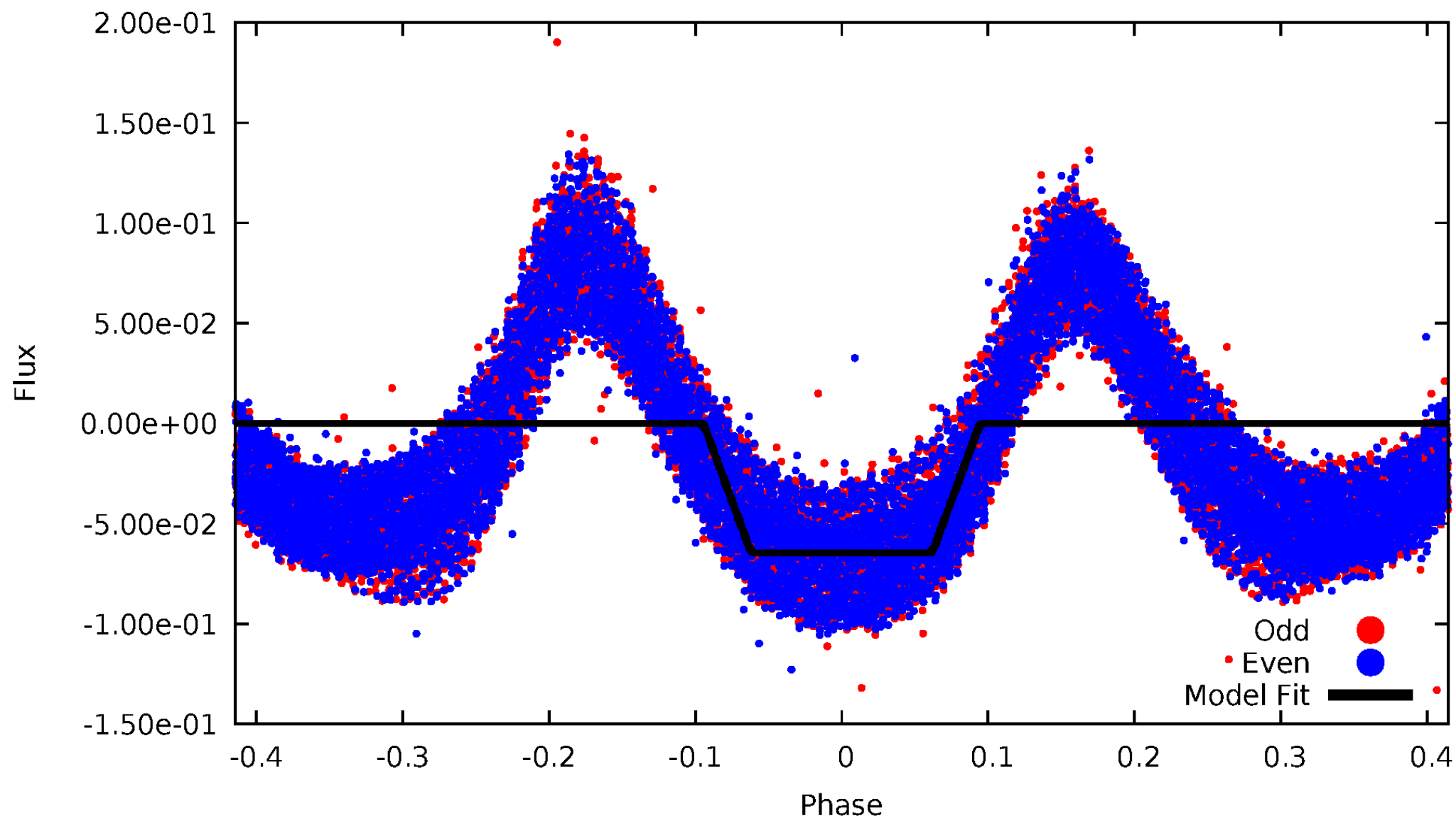
DV Odd/Even

TCE 003868420-02



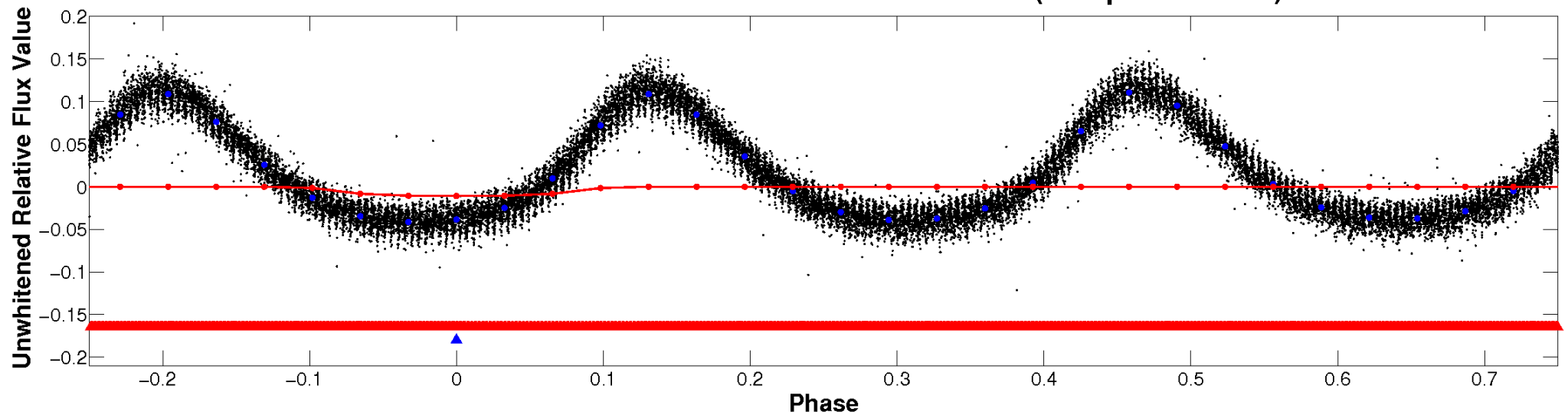
ALT Odd/Even

TCE 003868420-02

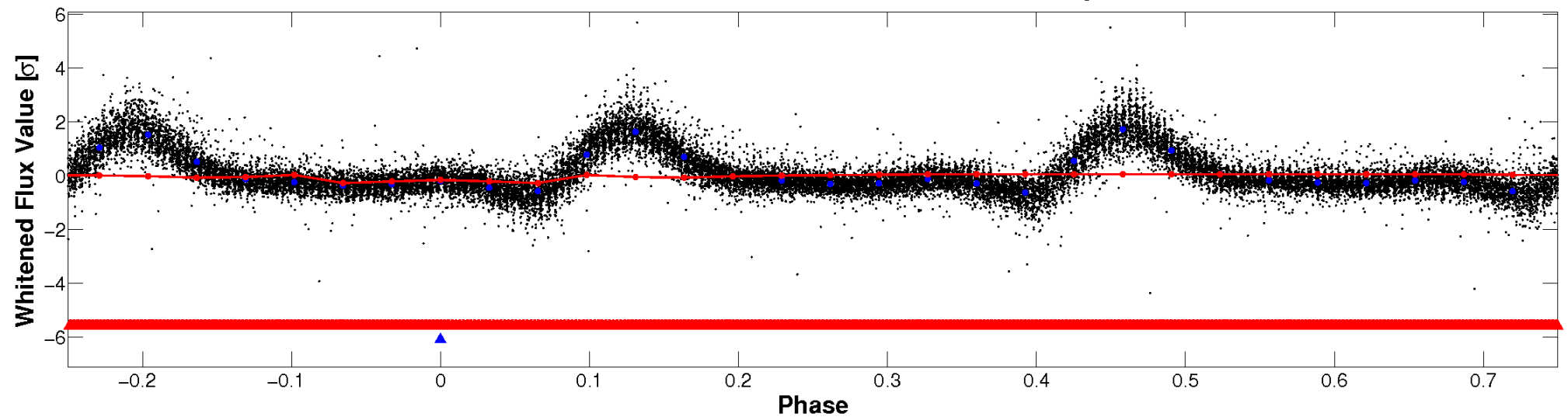


Non-Whitened Vs. Whitened Light Curve

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

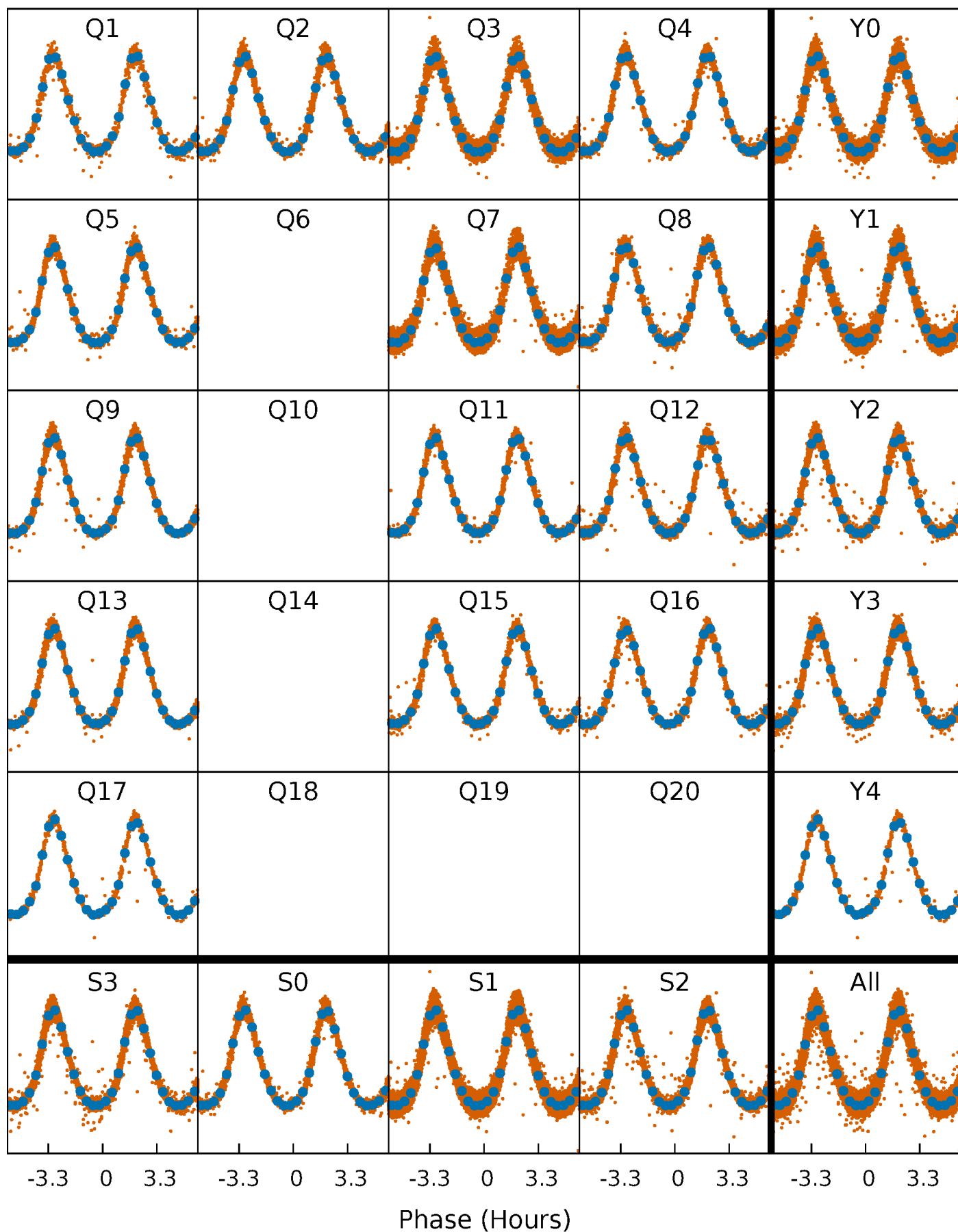


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



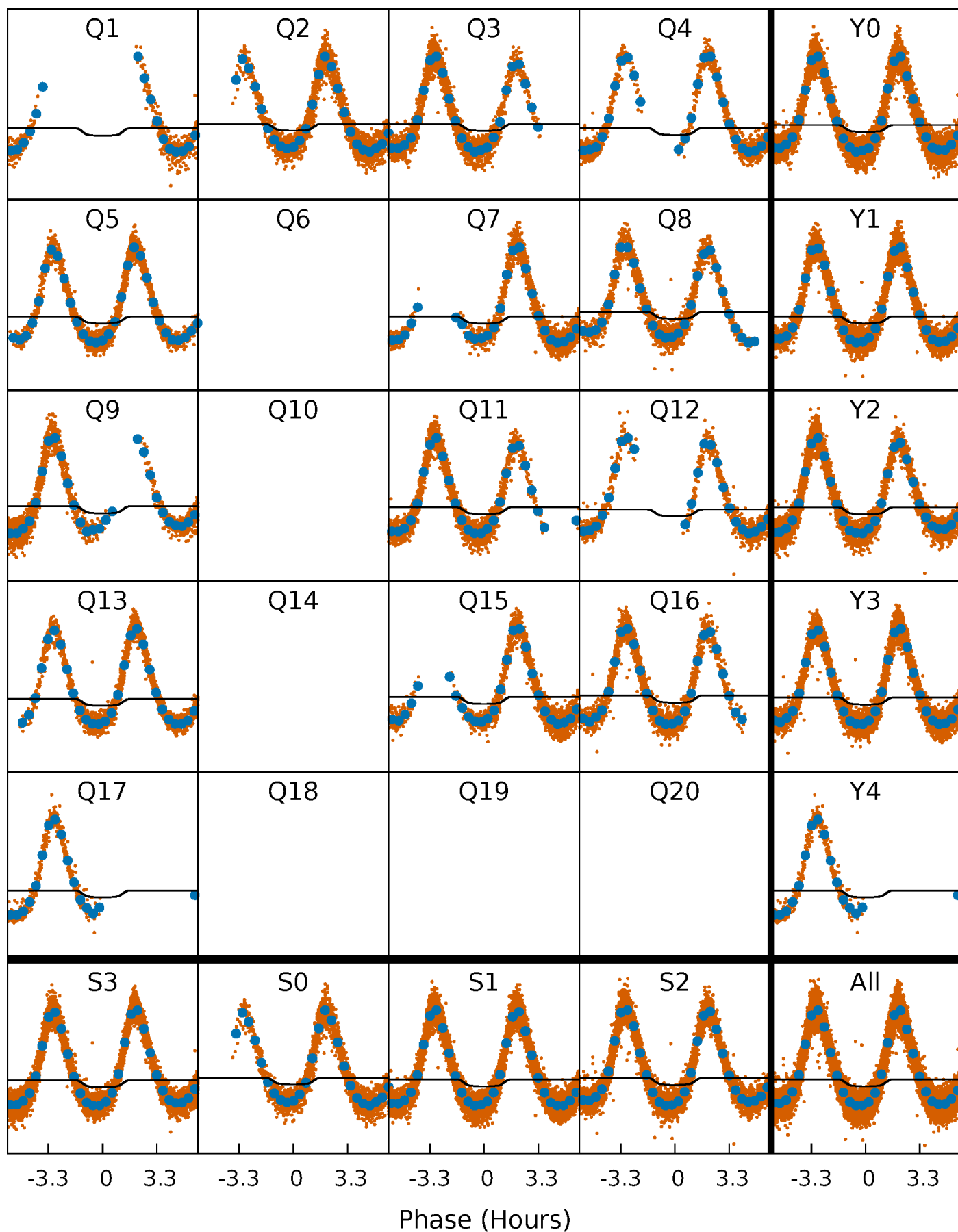
PDC Quarter-Phased Transit Curves

TCE 003868420-02 P= 0.624682 Days $T_0=132.018052$ (BKJD)



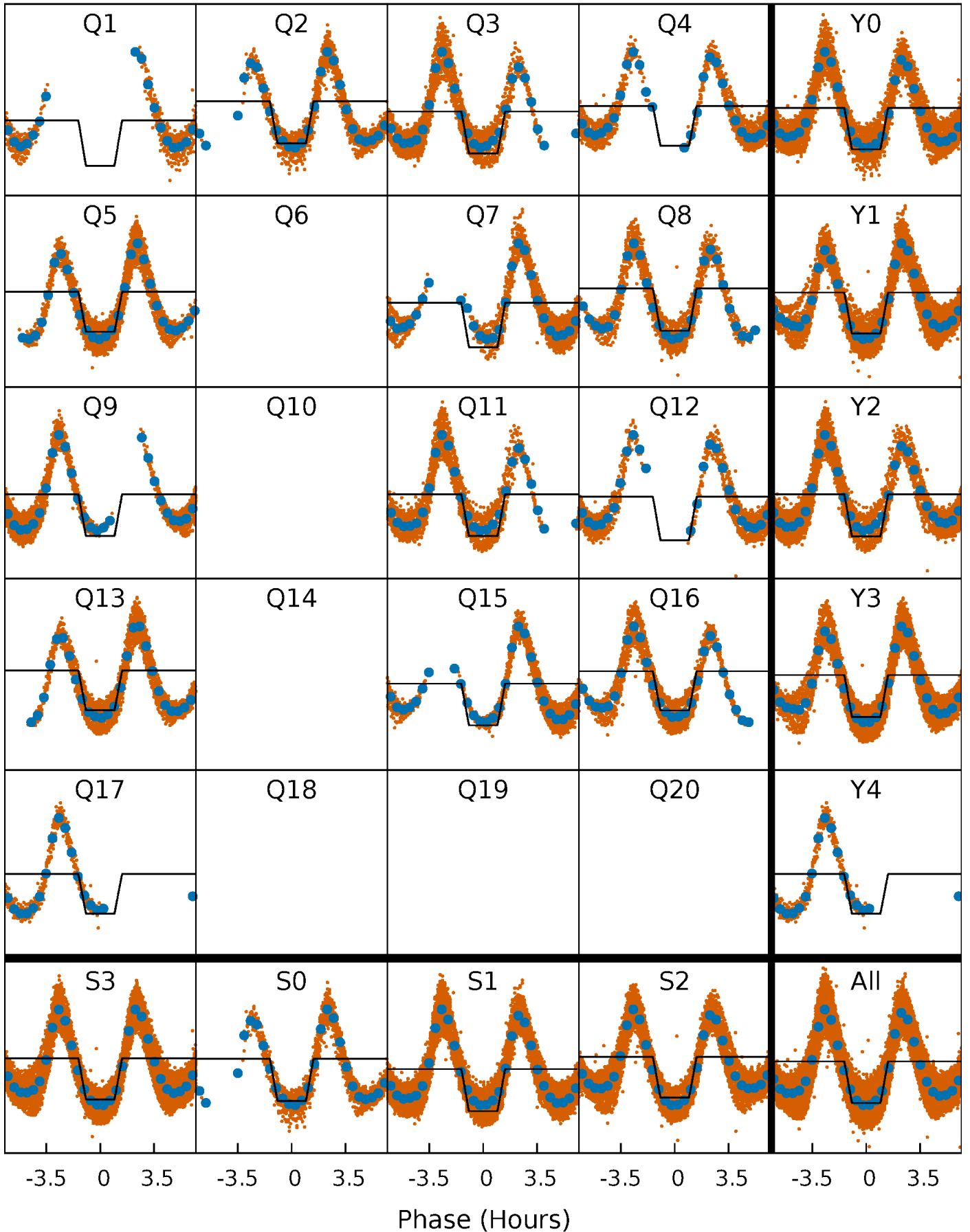
DV Quarter-Phased Transit Curves

TCE 003868420-02 P= 0.624682 Days $T_0=132.018052$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

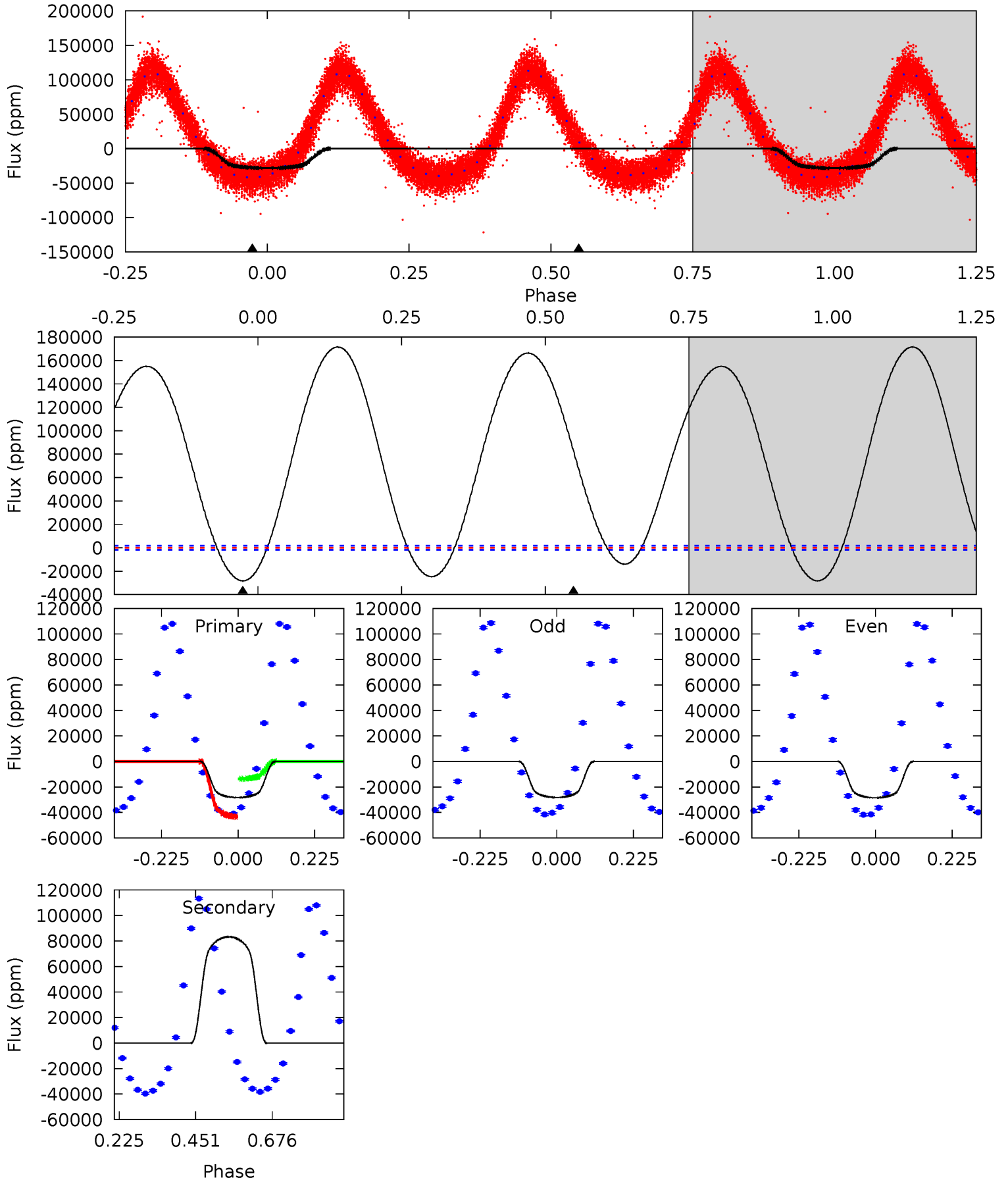
TCE 003868420-02 P= 0.624682 Days $T_0=132.002408$ (BKJD)



DV Model-Shift Uniqueness Test

003868420-02, P = 0.624682 Days, E = 131.393370 Days

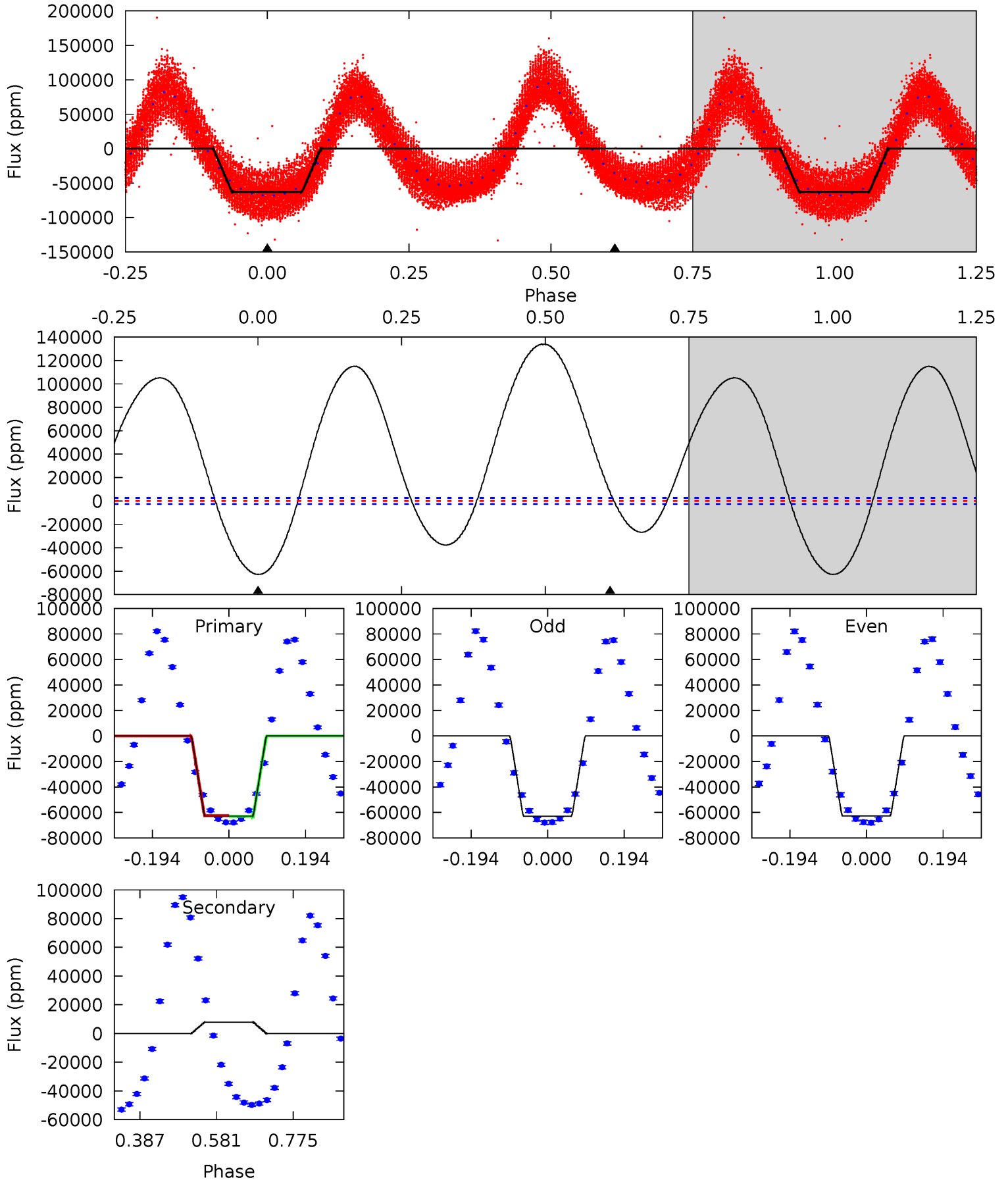
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.9	-205.5	0	0	4.39	1.21	101.0	69.9	69.9	-205.5	-205.5	0.34	0.99	0.86	27.0



Alt Model-Shift Uniqueness Test

003868420-02, P = 0.624682 Days, E = 131.377726 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
104.5	-13.1	0	0	4.42	1.30	70.5	104.5	104.5	-13.1	-13.1	0.13	1.02	0.68	0.51



Stellar Parameters For KIC 003868420

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6781^{+189}_{-284}	$4.077^{+0.240}_{-0.180}$	$-0.260^{+0.300}_{-0.300}$	$1.750^{+0.522}_{-0.522}$	$1.336^{+0.194}_{-0.259}$	$0.351^{+0.480}_{-0.180}$
	+3%/-4%	+6%/-4%	+115%/-115%	+30%/-30%	+15%/-19%	+137%/-51%
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 003868420-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	83237 ± 405	$18.78^{+2.95}_{-3.25}$	4385^{+346}_{-359}	-14203^{+1107}_{-1021}	$-29.784^{+7.174}_{-12.197}$
Alt.	7870 ± 601	$48.34^{+8.35}_{-7.60}$	4401^{+338}_{-407}	-4665^{+179}_{-164}	$-0.455^{+0.121}_{-0.175}$

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

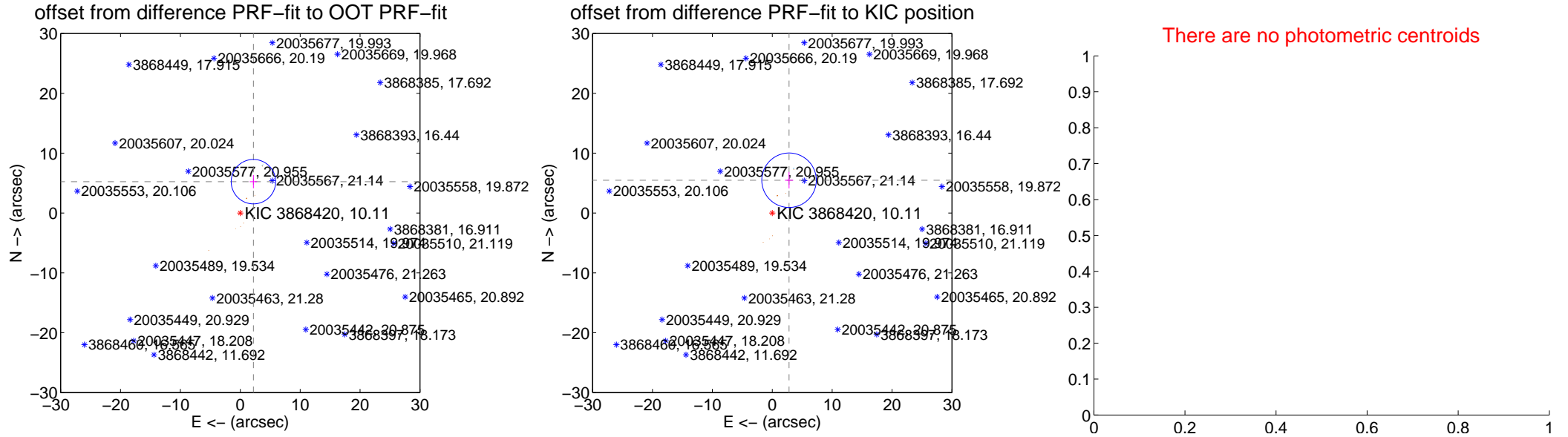
DV Centroid Data

Supplemental centroid analysis for 003868420-02. **Kepler magnitude: 10.11.** Transit SNR 16.39

There are 3 quarters with good PRF difference image offsets

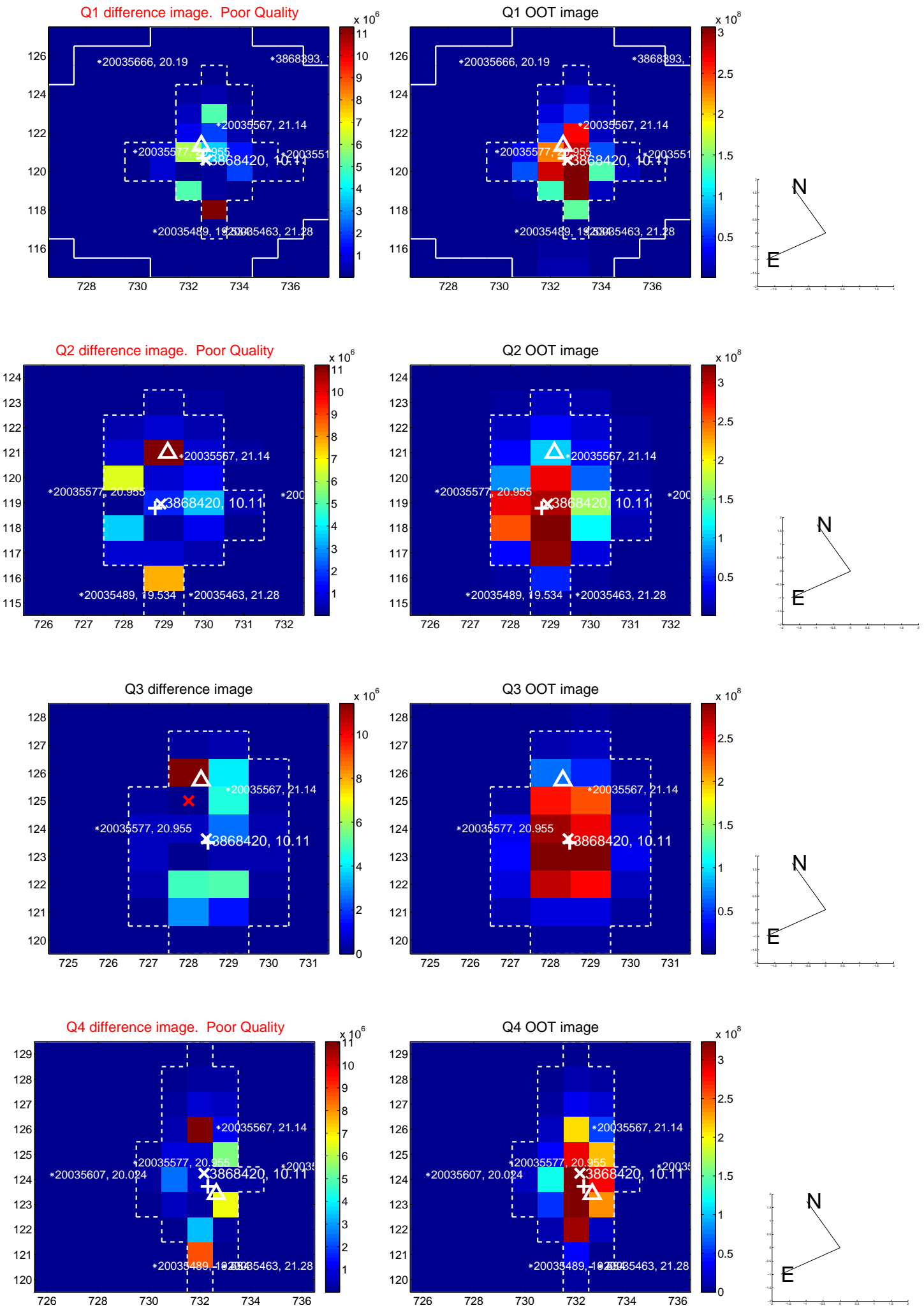
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.679 ± 1.238	4.59	-2.197 ± 0.611	5.237 ± 1.105
PRF-fit source offset from KIC position	6.151 ± 1.517	4.05	-2.802 ± 0.697	5.476 ± 1.368
photometric centroid source offset	—	—	—	—

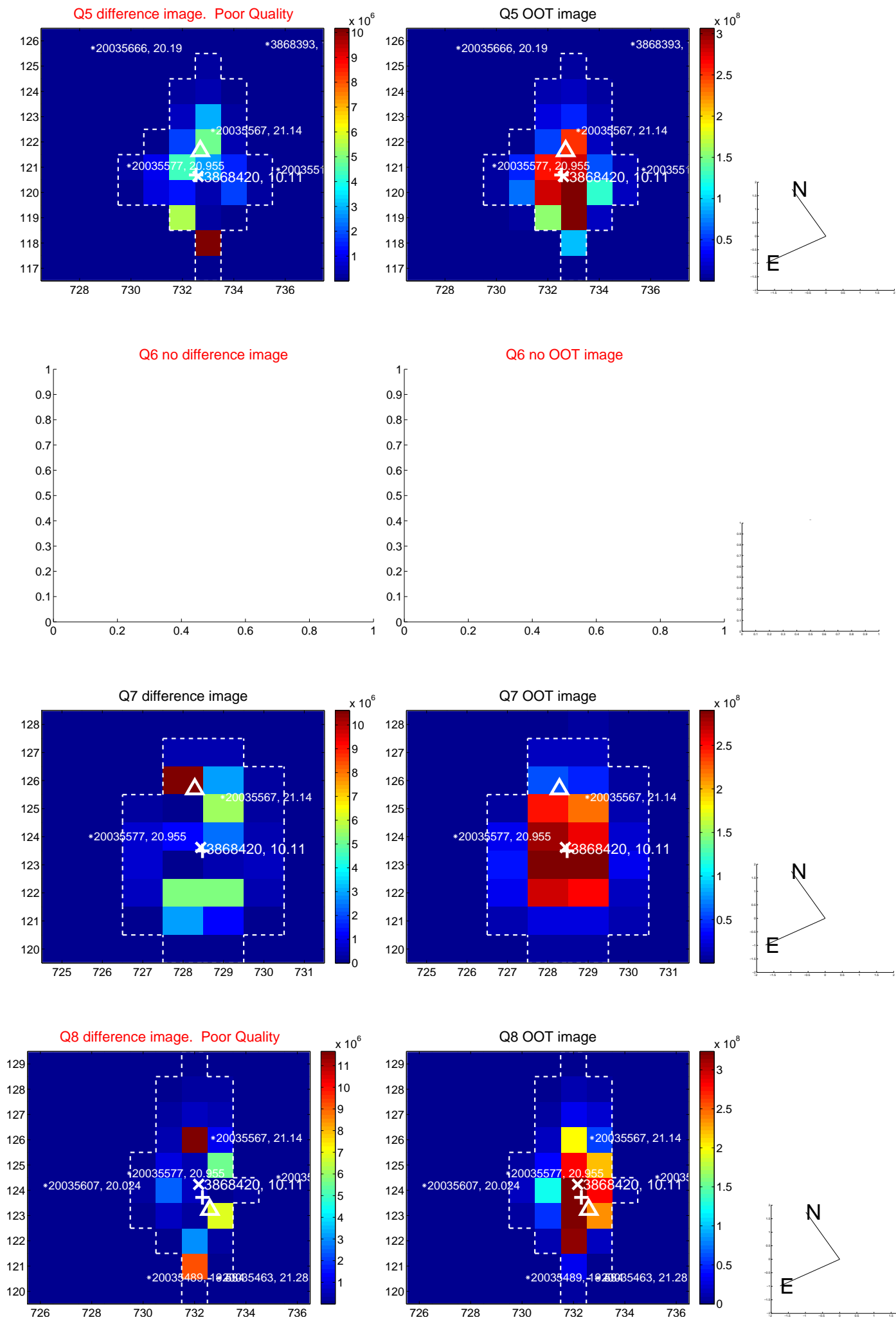


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

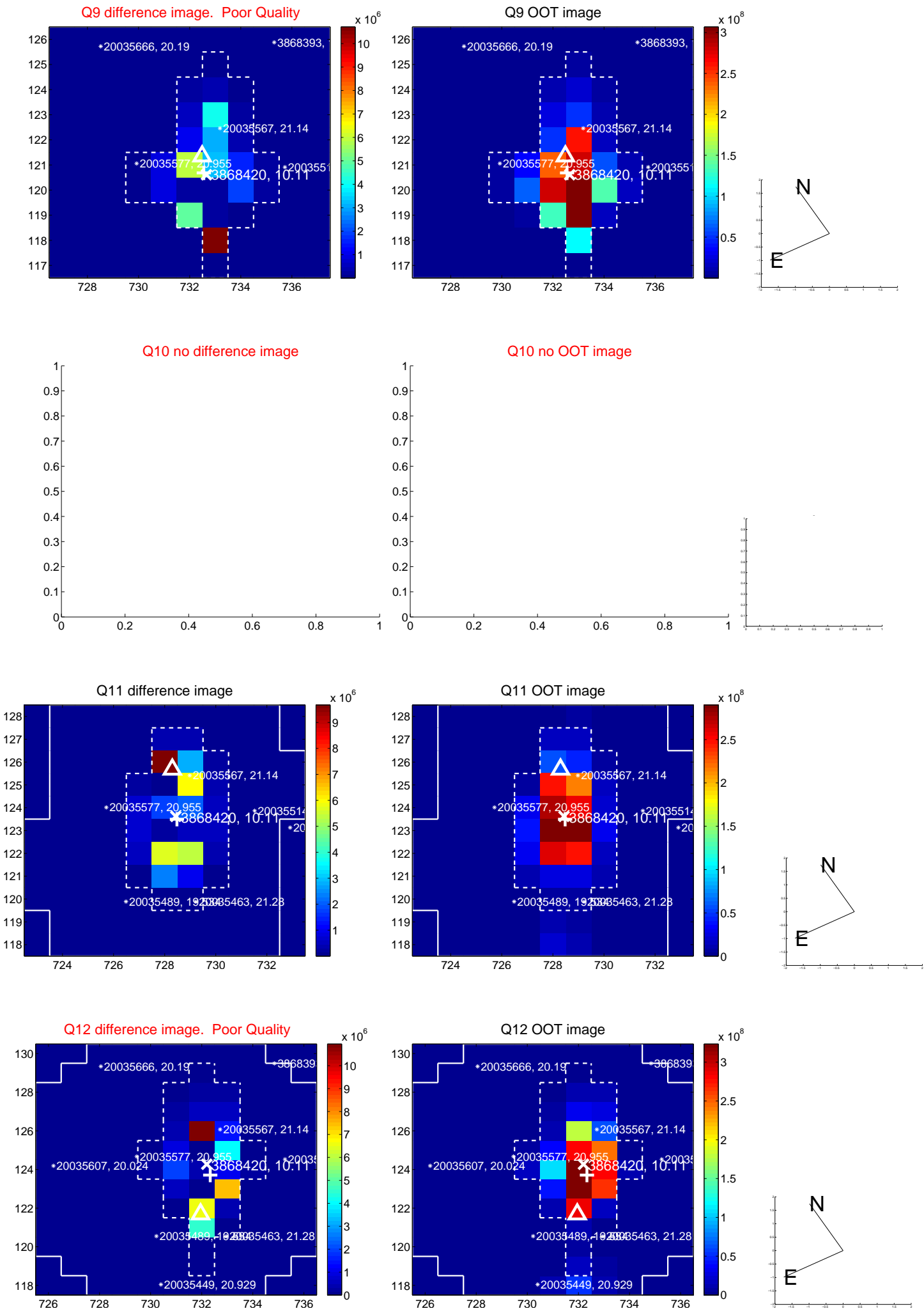
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



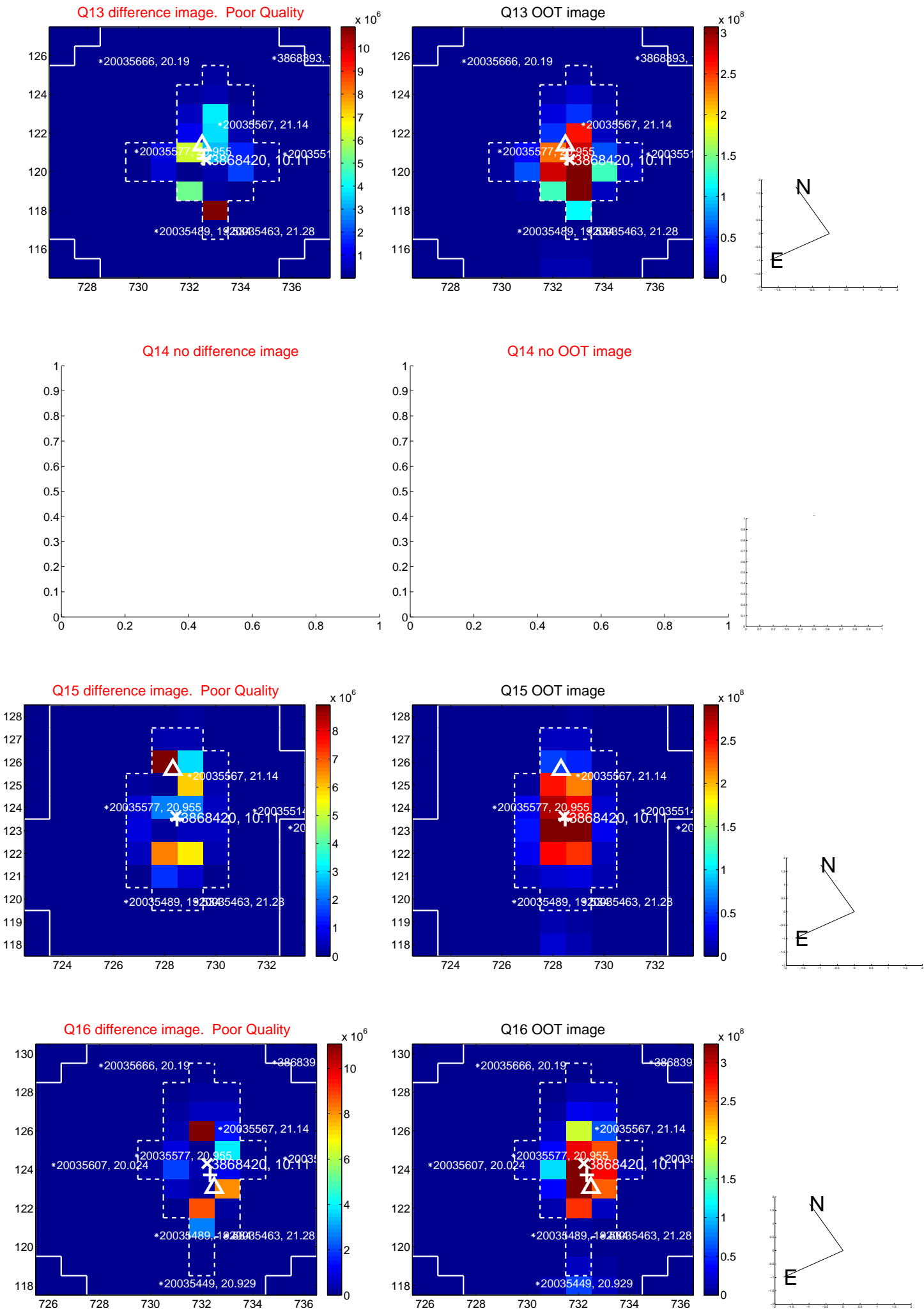
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



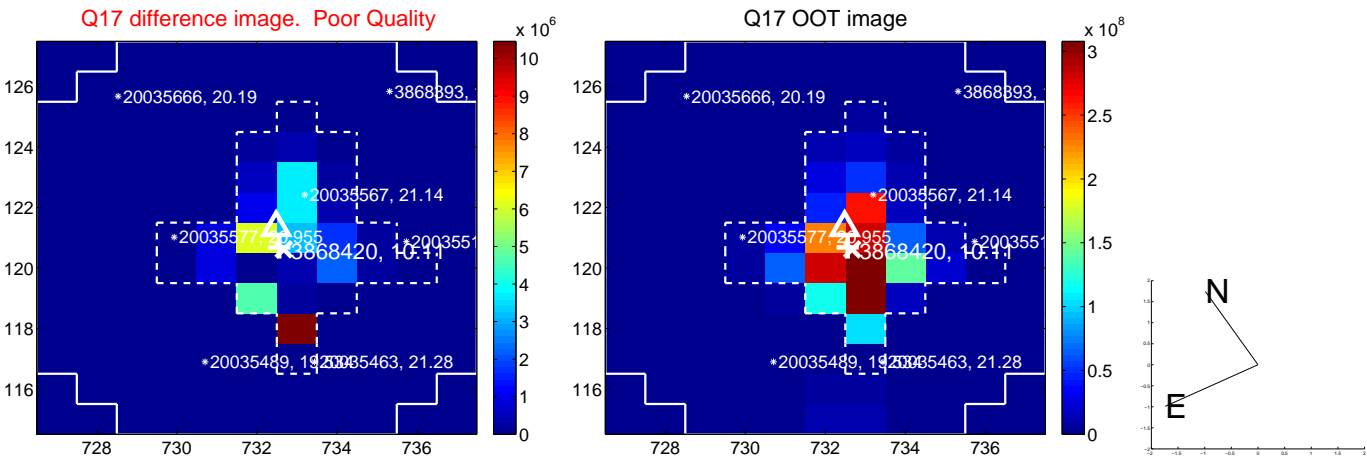
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

