

KIC 009832678

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})
009832678-01	OBS	No	0.719246	132.106239	0.0	3.772	8.7	0.0	2.16	6701	0.01	25722.94
009832678-02	OBS	No	52.611967	165.492234	95.6	4.780	7.5	7.1	2.16	6701	2.31	84.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009832678-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009832678-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

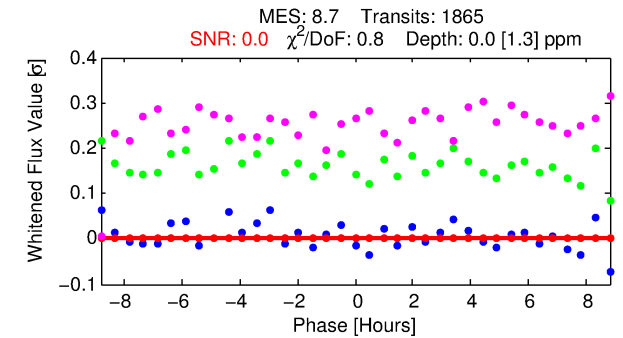
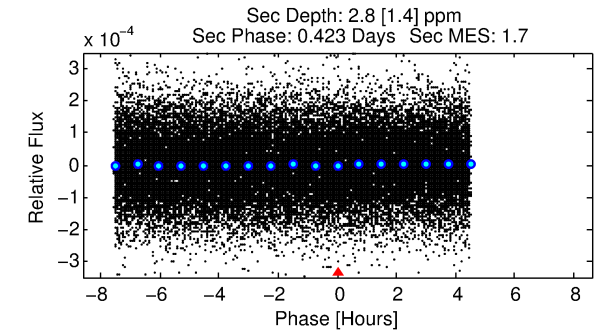
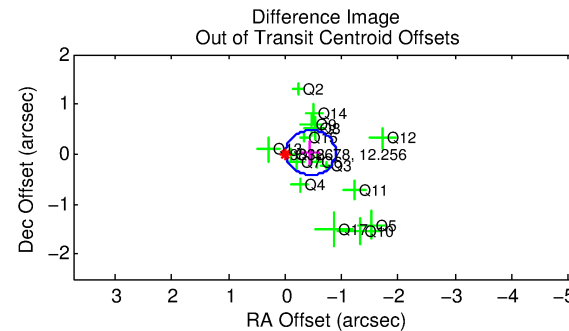
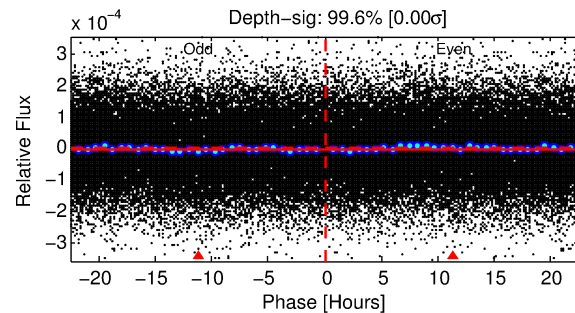
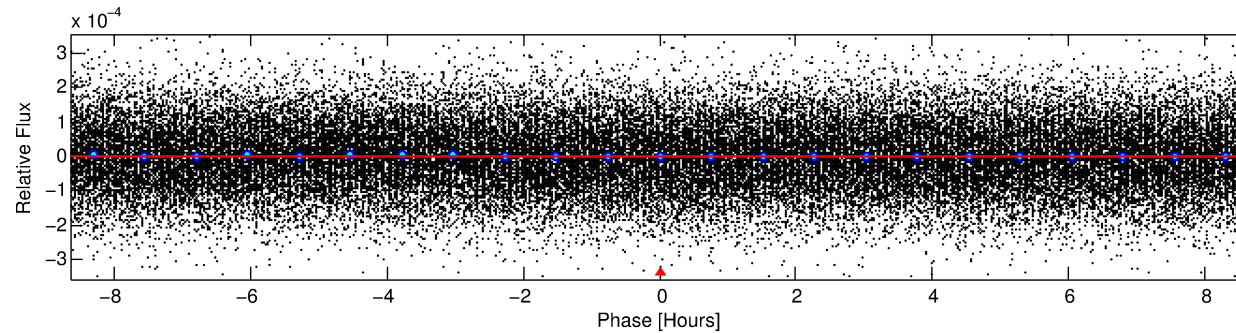
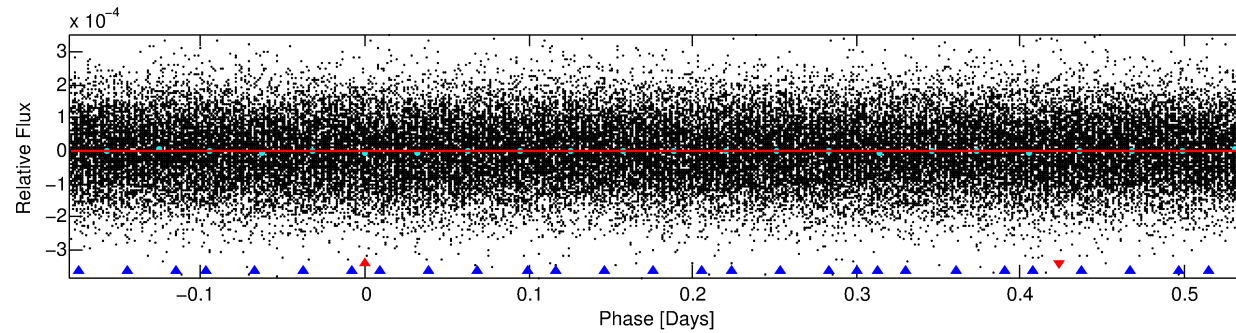
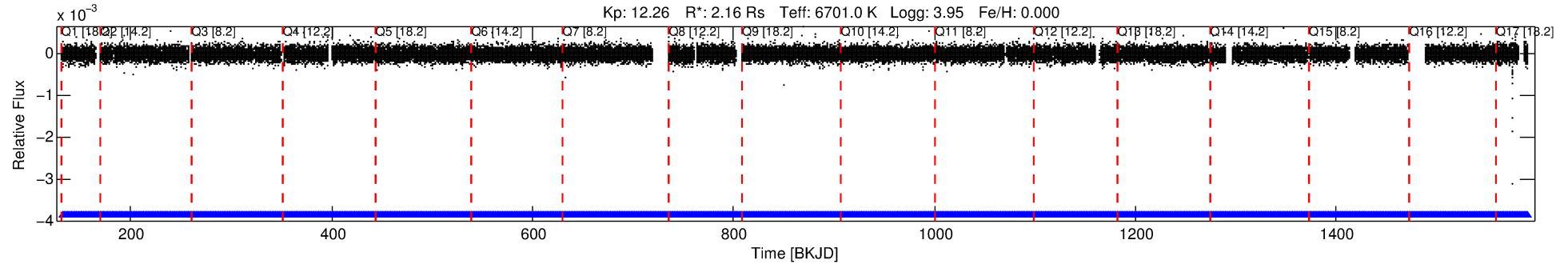
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009832678-01

No Significant Match Found

DV One-Page Summary

KIC: 9832678 Candidate: 1 of 2 Period: 0.719 d



DV Fit Results:

Period = 0.71925 [0.03955] d
Epoch = 132.1062 [12.7927] BKJD
Rp/R* = 0.0001 [0.0114]
a/R* = 1.45 [29.32]
b = 0.51 [72.17]
Seff = 25722.94 [11221.89]
Teq = 3229 [352] K
Rp = 0.01 [2.69] Re
a = 0.0181 [0.0050] AU
Ag = 3228.23 [1396444.86] [0.00σ]
Teffp = 37635 [4070311] K [0.01σ]

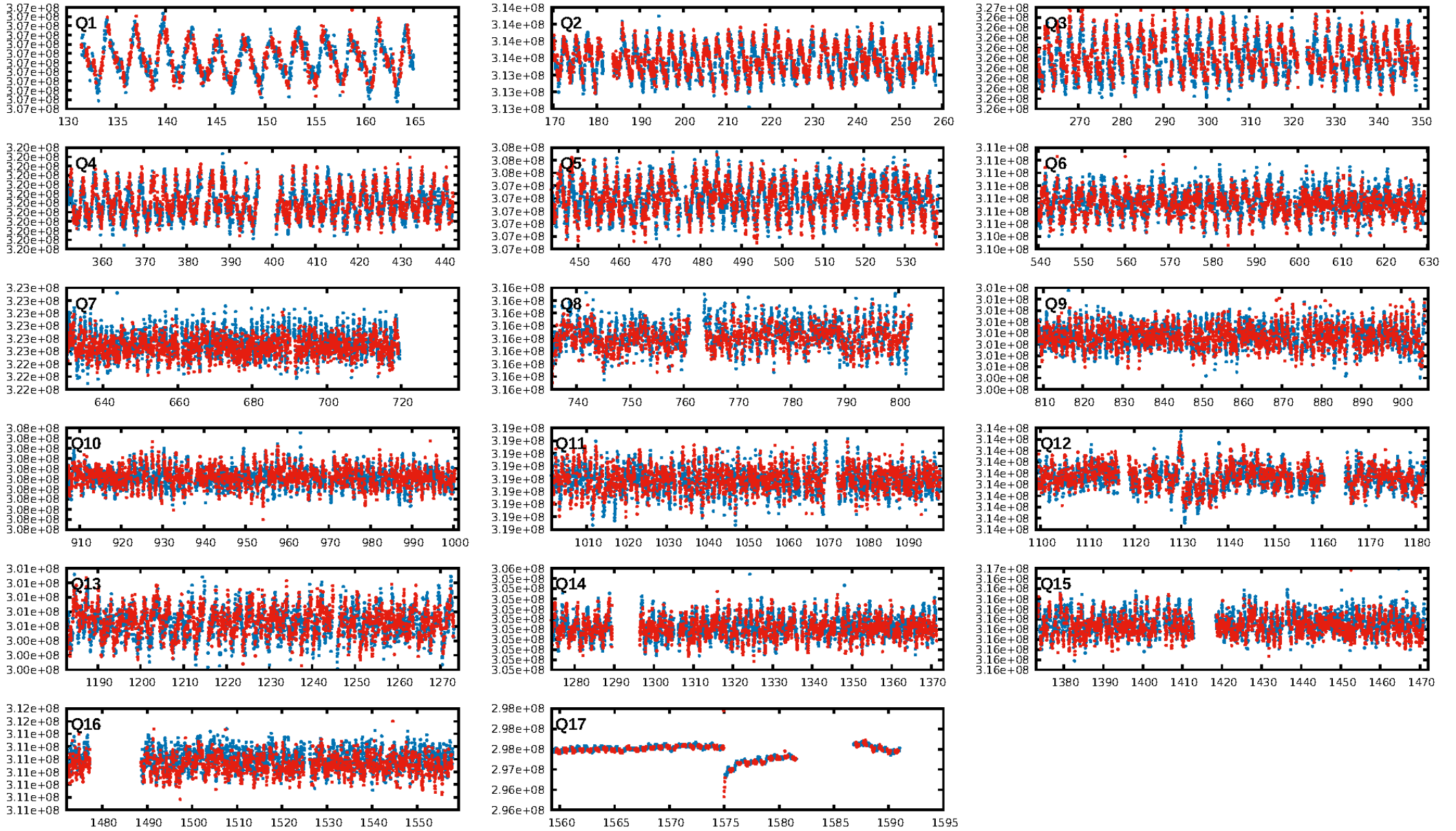
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [204.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.22e-11
RollingBand-fgt: 1.00 [1782/1782]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.452 arcsec [3.04σ]
KicOffset-rm: 0.454 arcsec [3.29σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 1.00 [17/17]

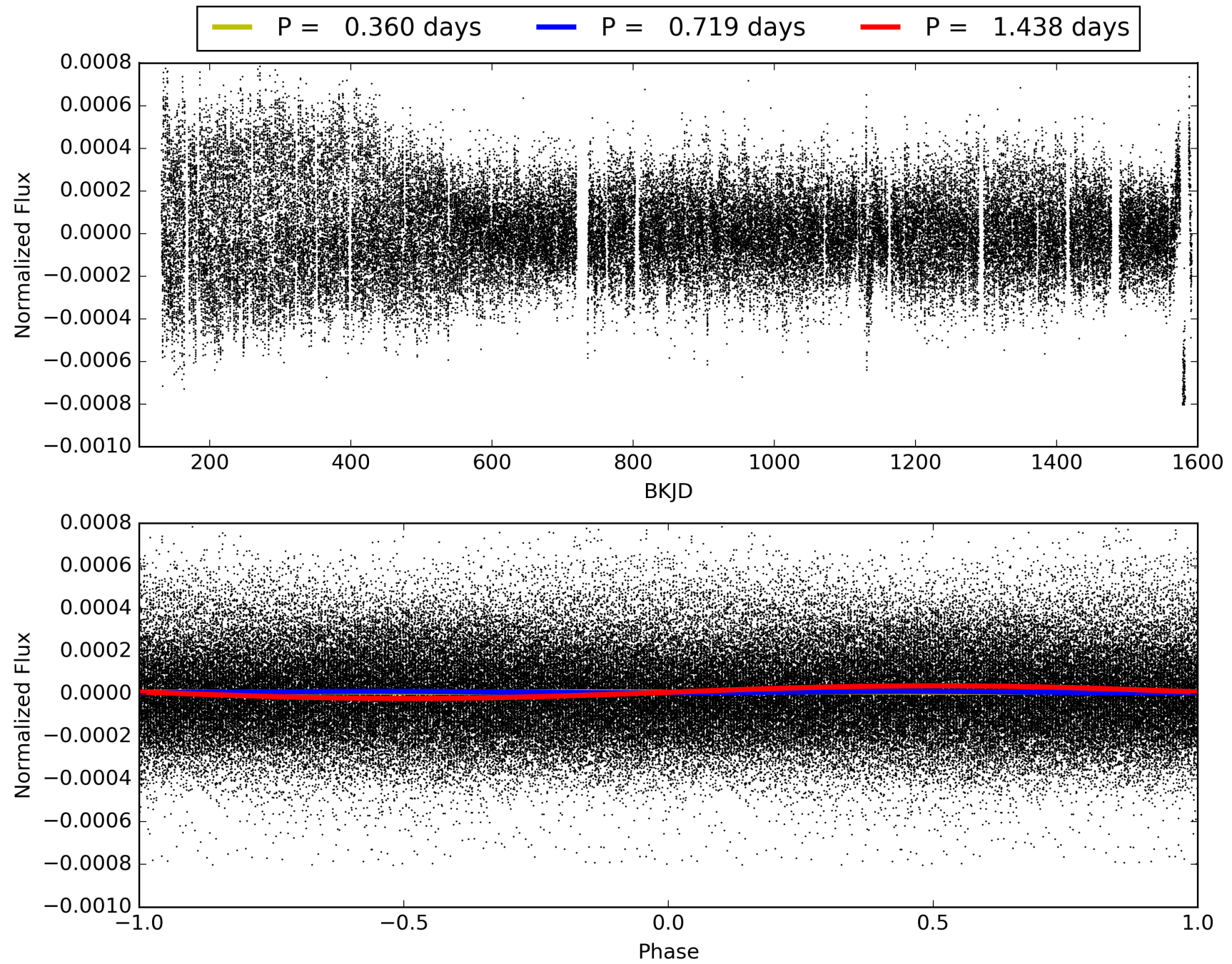
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:16:17 Z

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

TCE 009832678-01, PDC Light Curves

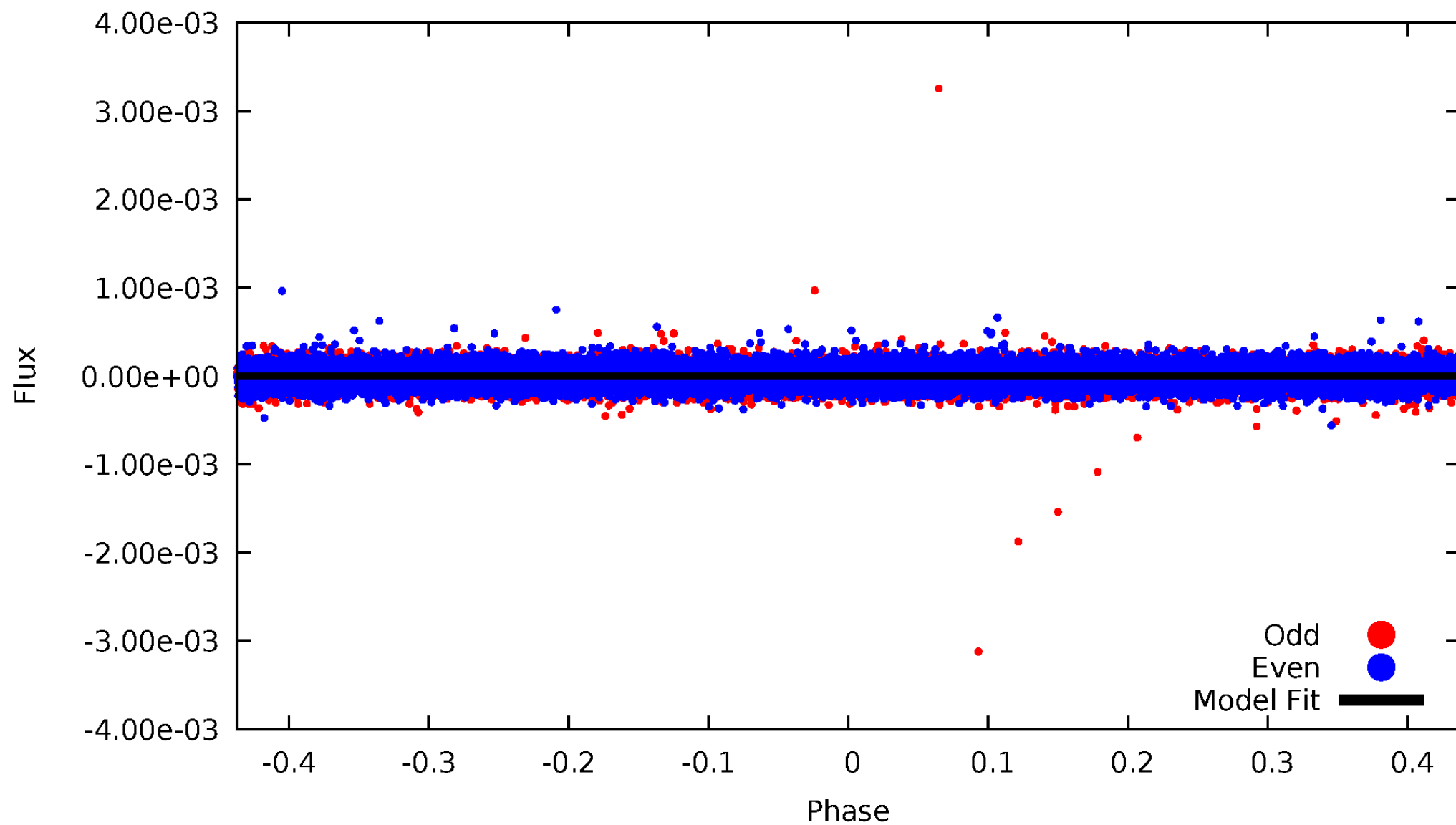


TCE 009832678-01



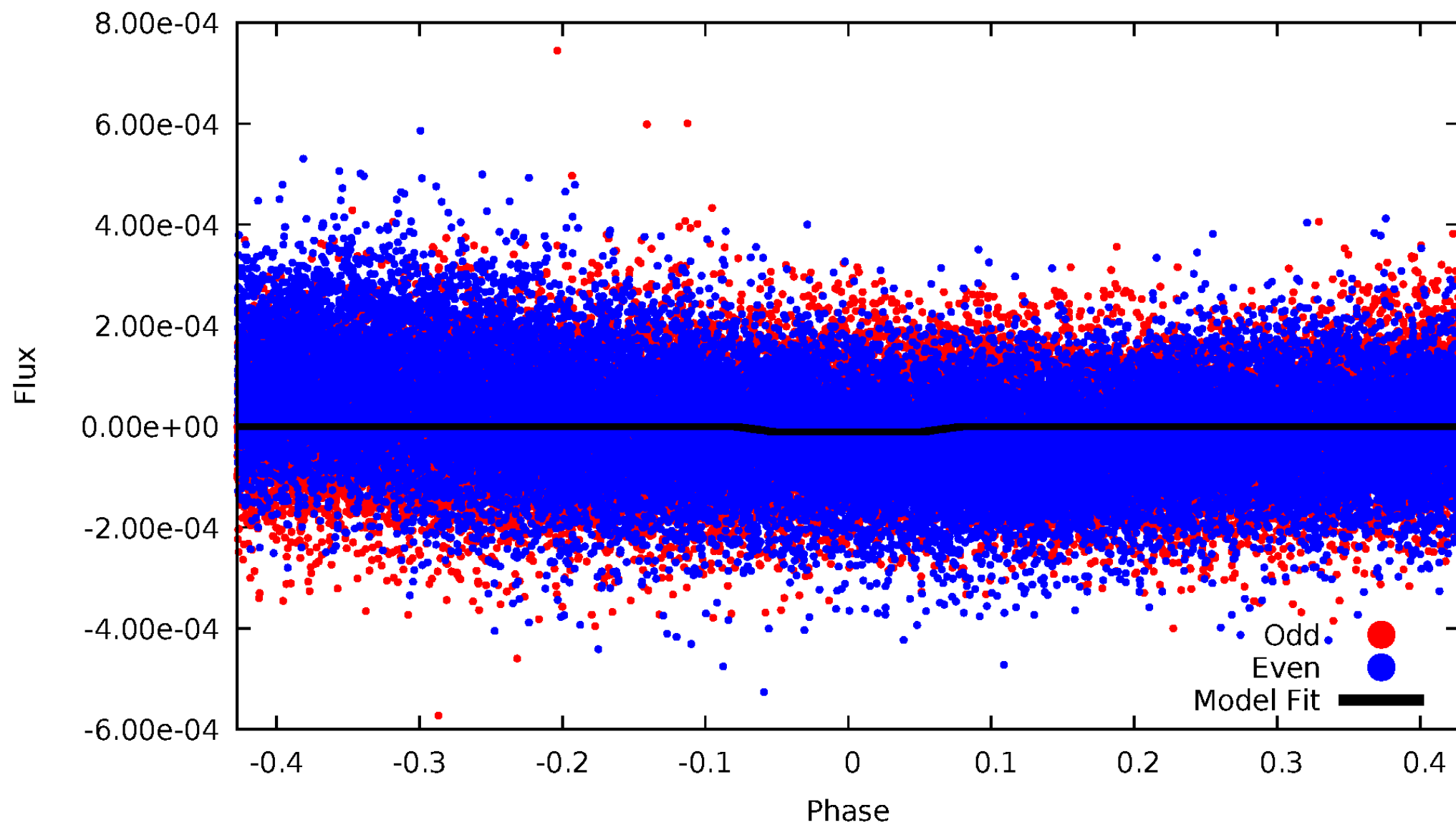
DV Odd/Even

TCE 009832678-01

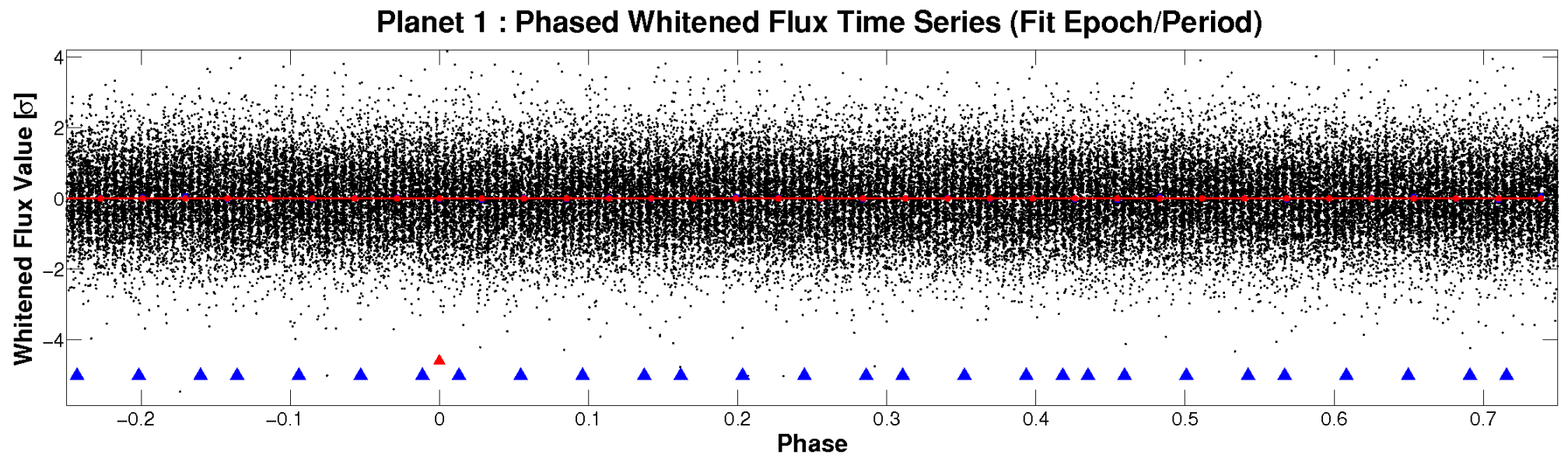
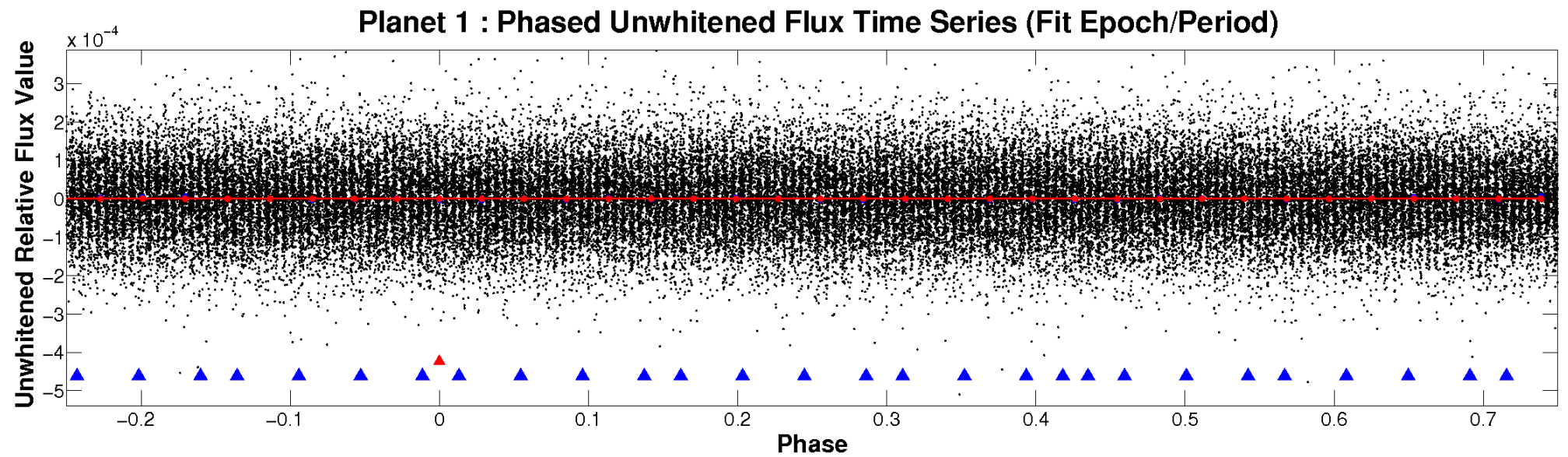


ALT Odd/Even

TCE 009832678-01

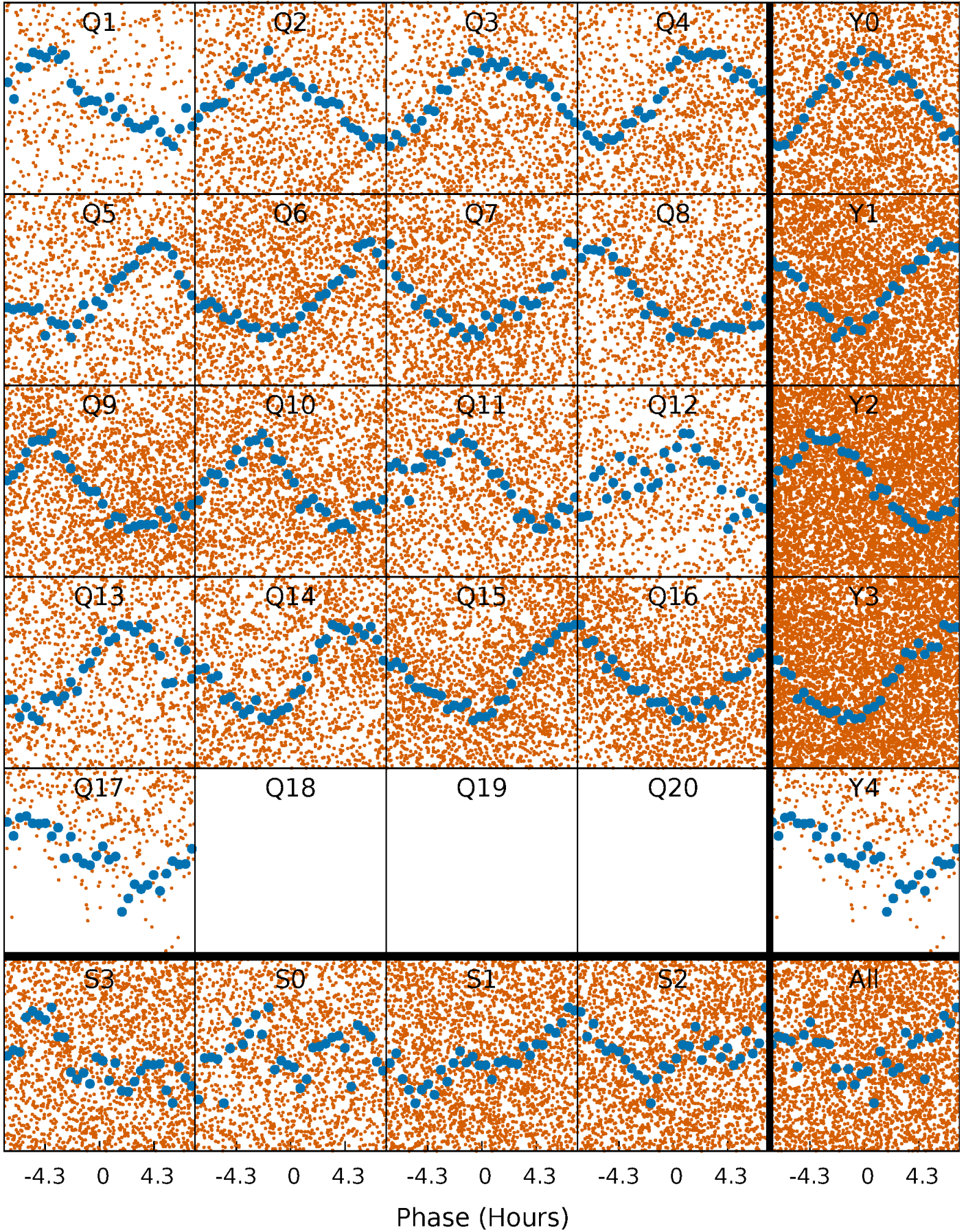


Non-Whitened Vs. Whitened Light Curve



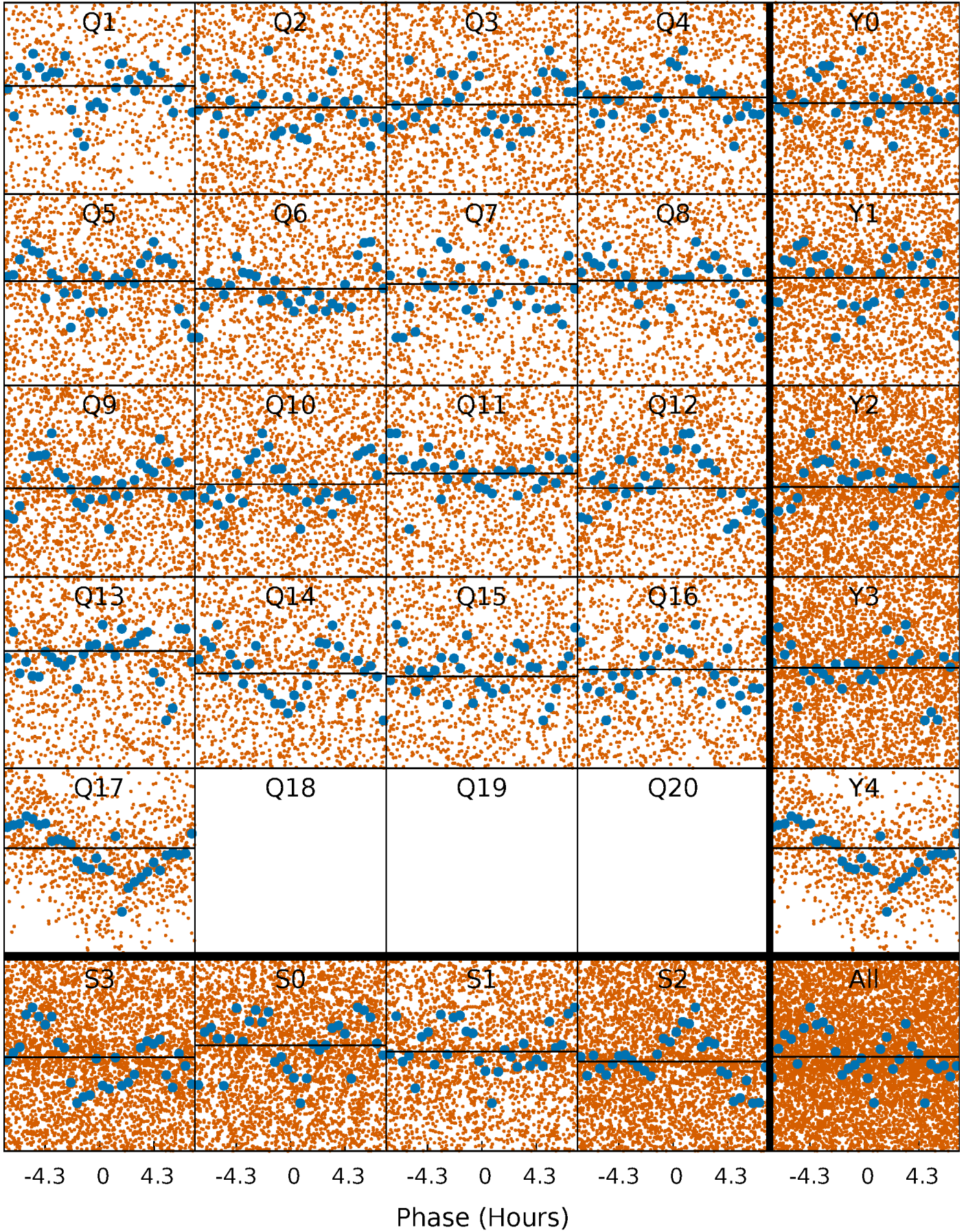
PDC Quarter-Phased Transit Curves

TCE 009832678-01 P= 0.719246 Days $T_0=132.106238$ (BKJD)



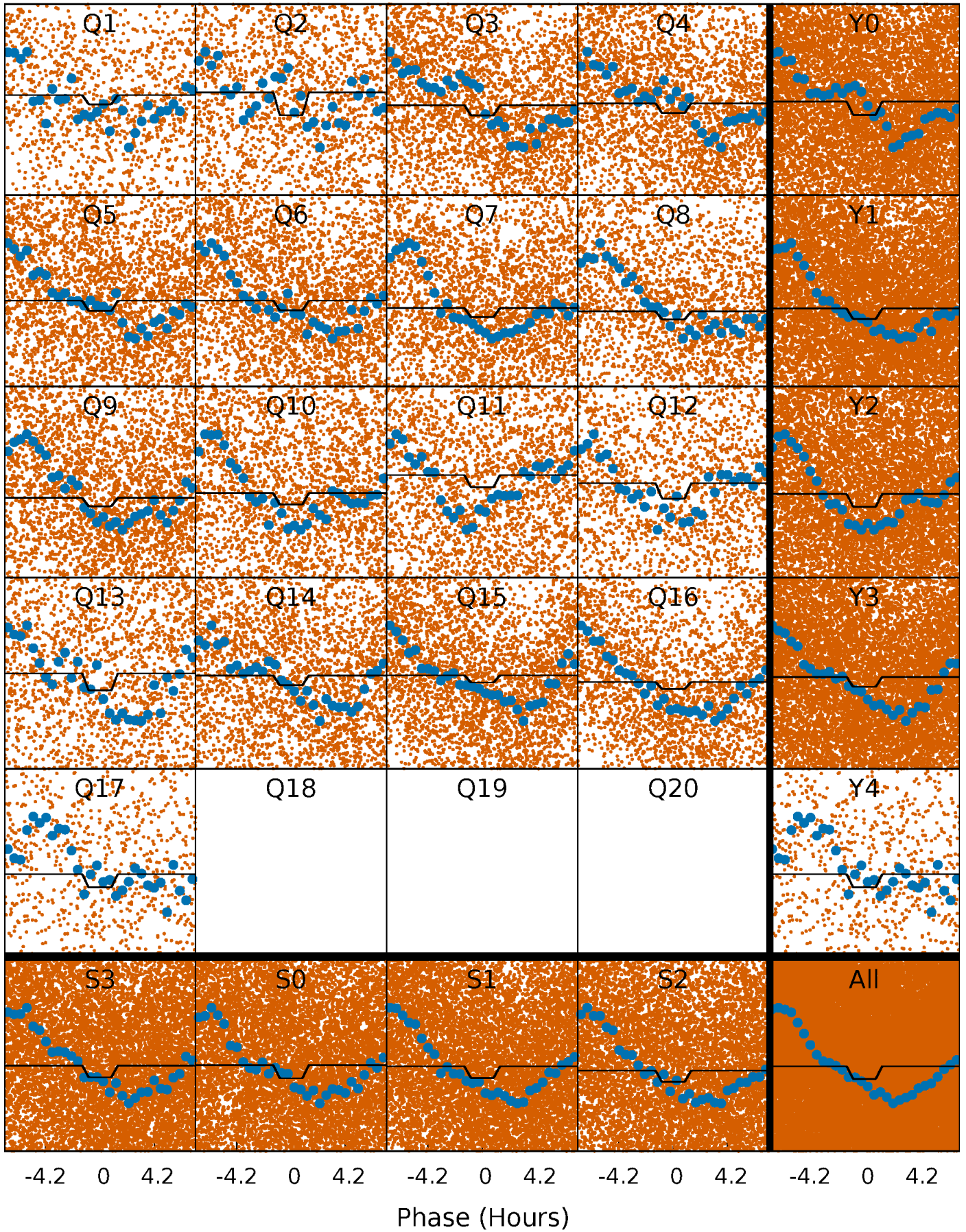
DV Quarter-Phased Transit Curves

TCE 009832678-01 P= 0.719246 Days $T_0=132.106238$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

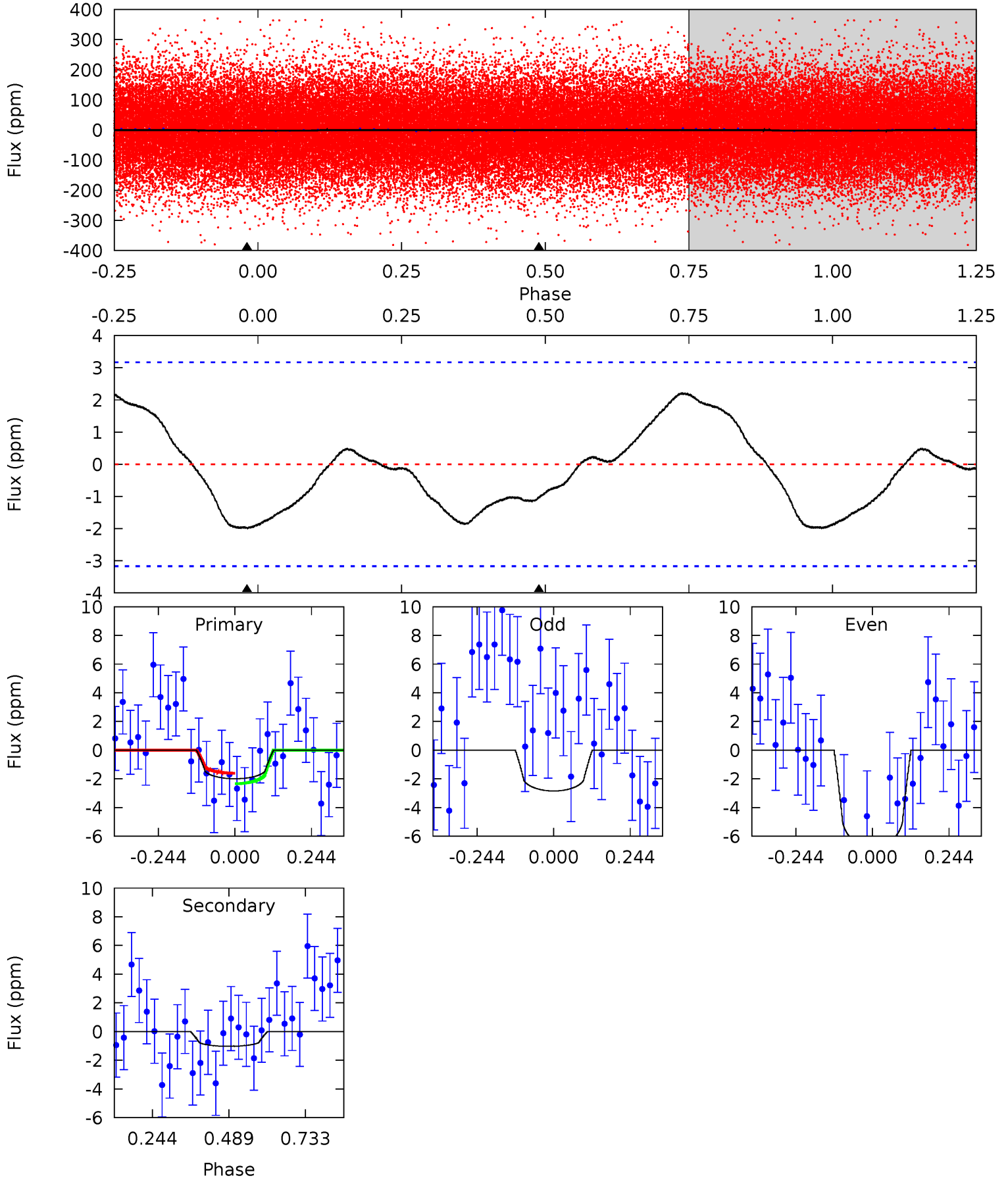
TCE 009832678-01 P= 0.719910 Days $T_0=132.220086$ (BKJD)



DV Model-Shift Uniqueness Test

009832678-01, P = 0.719246 Days, E = 131.386992 Days

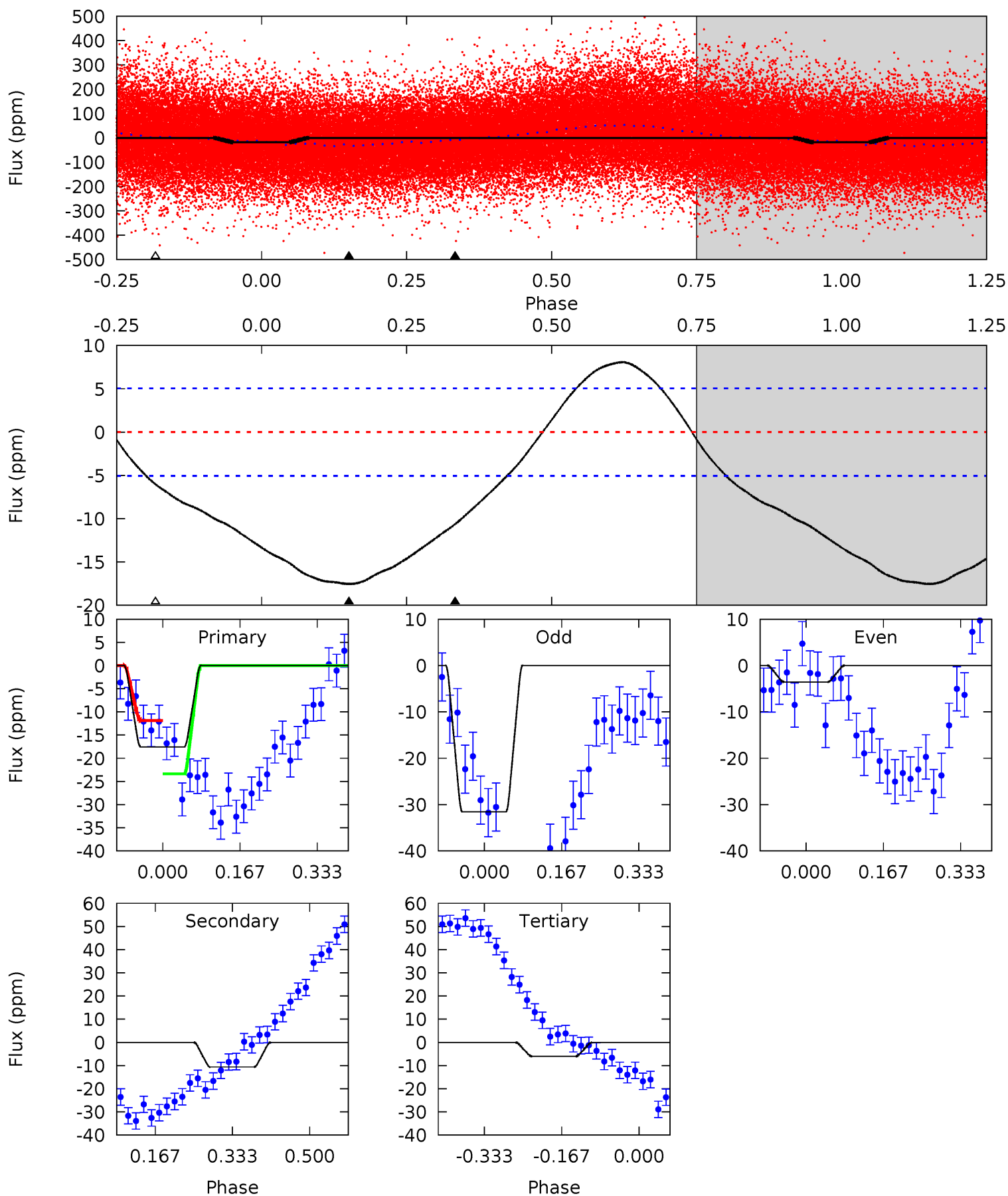
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.75	1.42	0	0	4.37	1.16	1.52	2.75	2.75	1.42	1.42	2.74	0.91	0.53	0.51



Alt Model-Shift Uniqueness Test

009832678-01, P = 0.719910 Days, E = 131.500176 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	9.37	5.32	0	4.46	1.38	6.19	10.1	15.5	4.05	9.37	12.3	1.36	0.32	5.42



Stellar Parameters For KIC 009832678

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6701^{+151}_{-202}	$3.954^{+0.234}_{-0.126}$	$0.000^{+0.250}_{-0.300}$	$2.163^{+0.440}_{-0.660}$	$1.531^{+0.174}_{-0.283}$	$0.213^{+0.319}_{-0.084}$
	+2%/-3%	+6%/-3%	+inf%/-inf%	+20%/-31%	+11%/-18%	+149%/-39%
Source	PHO1	FLK73	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 009832678-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1 ± 1	$1.75^{+1.82}_{-1.23}$	4456^{+321}_{-322}	-3774^{+7679}_{-293}	$0.047^{+0.549}_{-0.040}$
Alt.	-11 ± 1	$2.03^{+2.34}_{-1.42}$	4452^{+280}_{-375}	3570^{+3584}_{-7287}	$0.486^{+4.644}_{-0.386}$

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

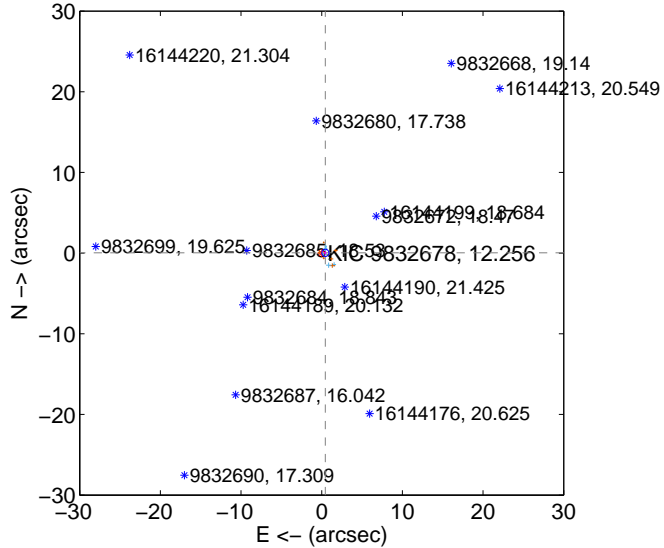
Supplemental centroid analysis for 009832678-01. Kepler magnitude: 12.26. Transit SNR 0.00

There are 9 quarters with good PRF difference image offsets

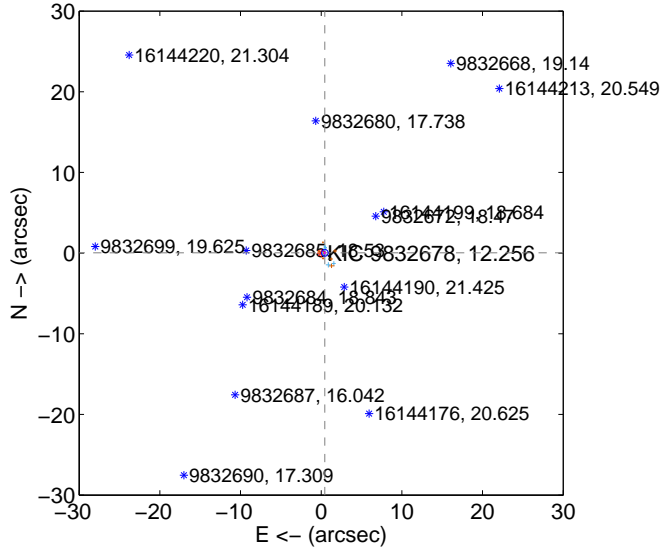
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.452 ± 0.149	3.04	-0.451 ± 0.153	0.029 ± 0.210
PRF-fit source offset from KIC position	0.454 ± 0.138	3.29	-0.454 ± 0.143	0.029 ± 0.214
photometric centroid source offset	—	—	—	—

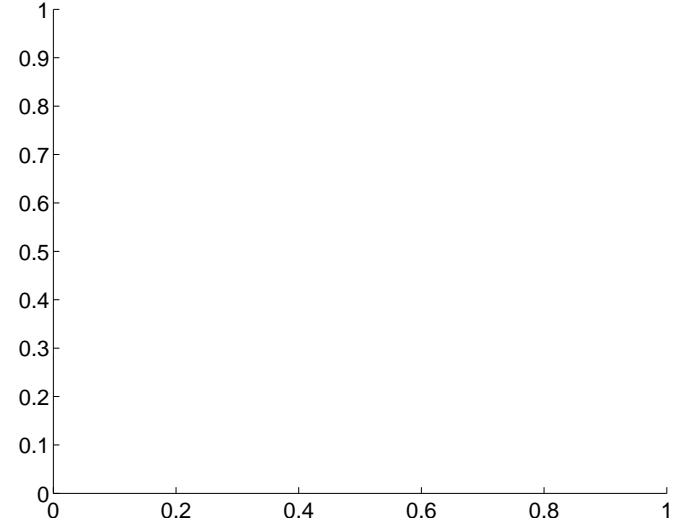
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

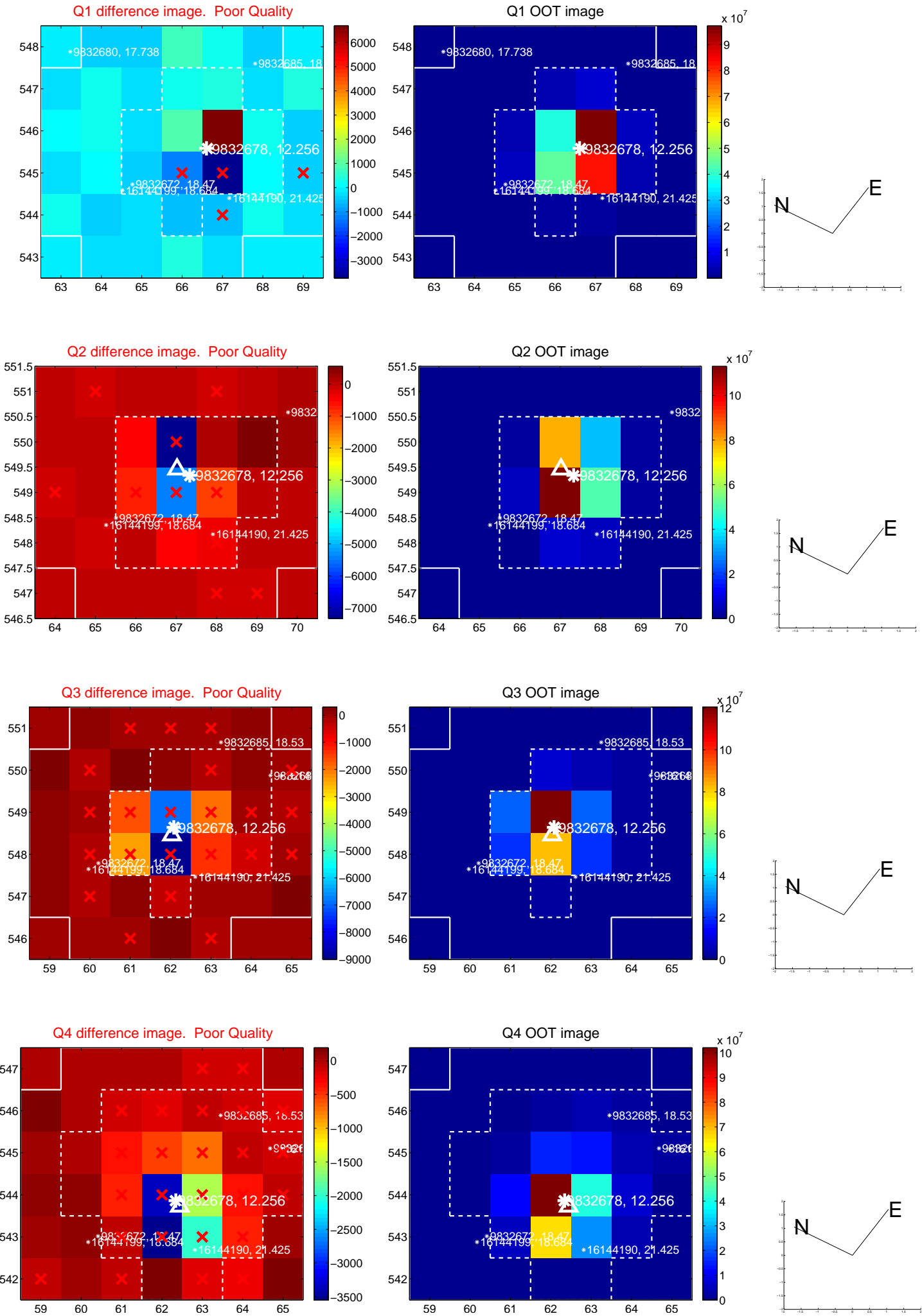


There are no photometric centroids

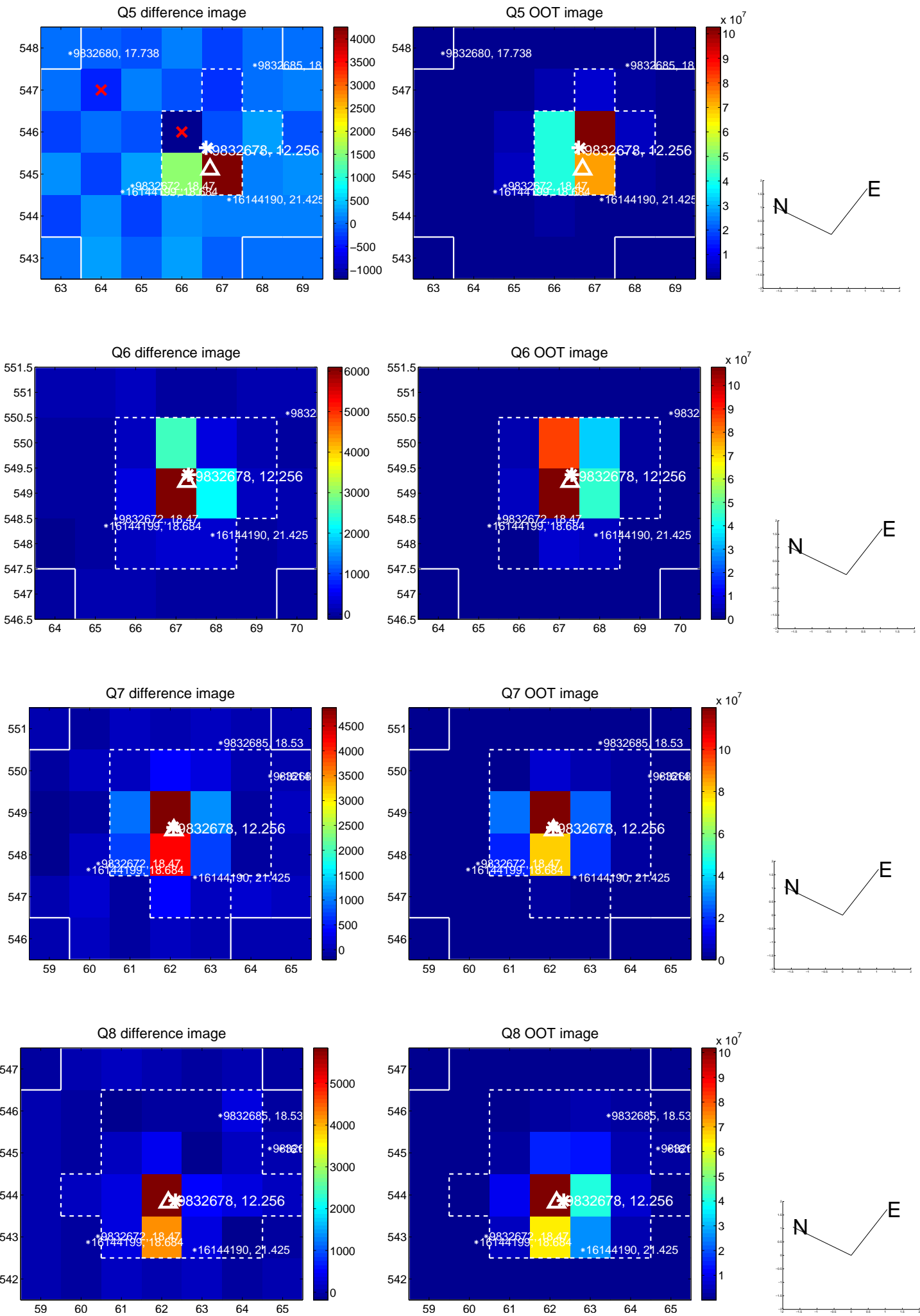


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

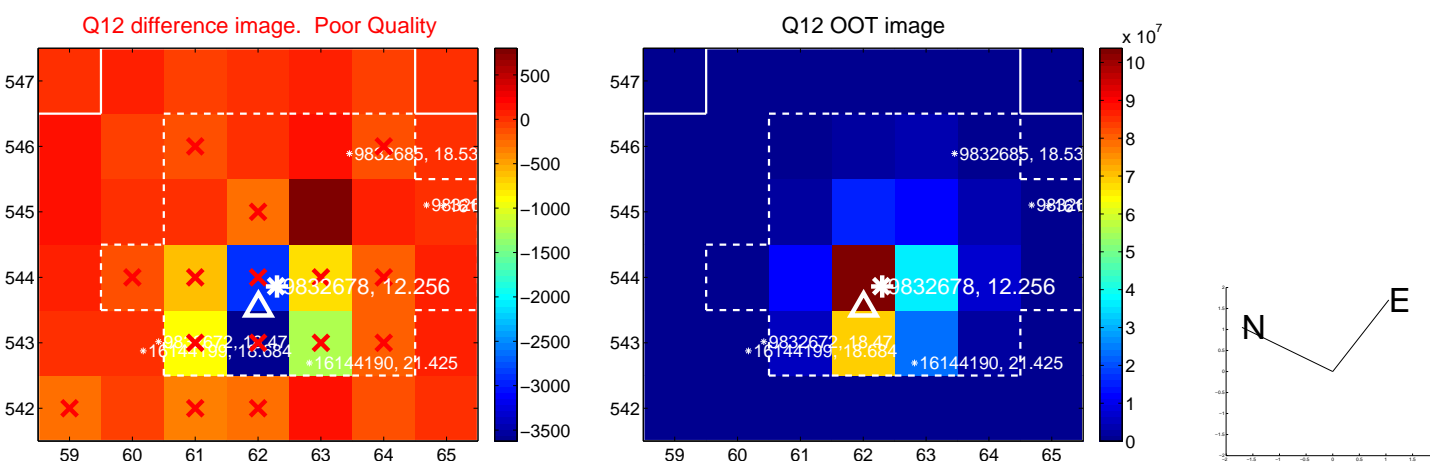
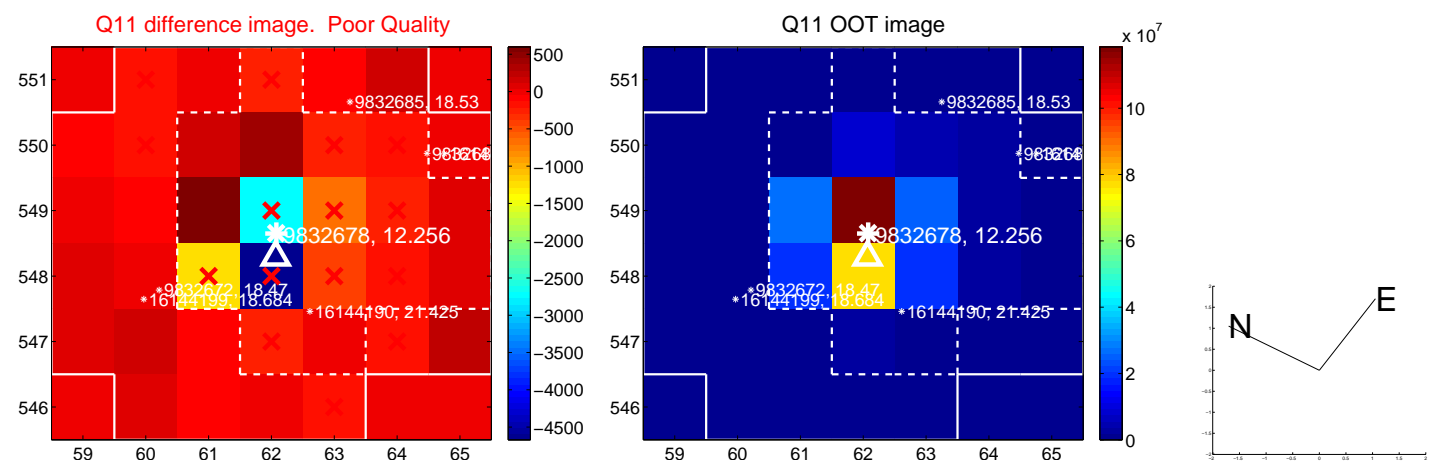
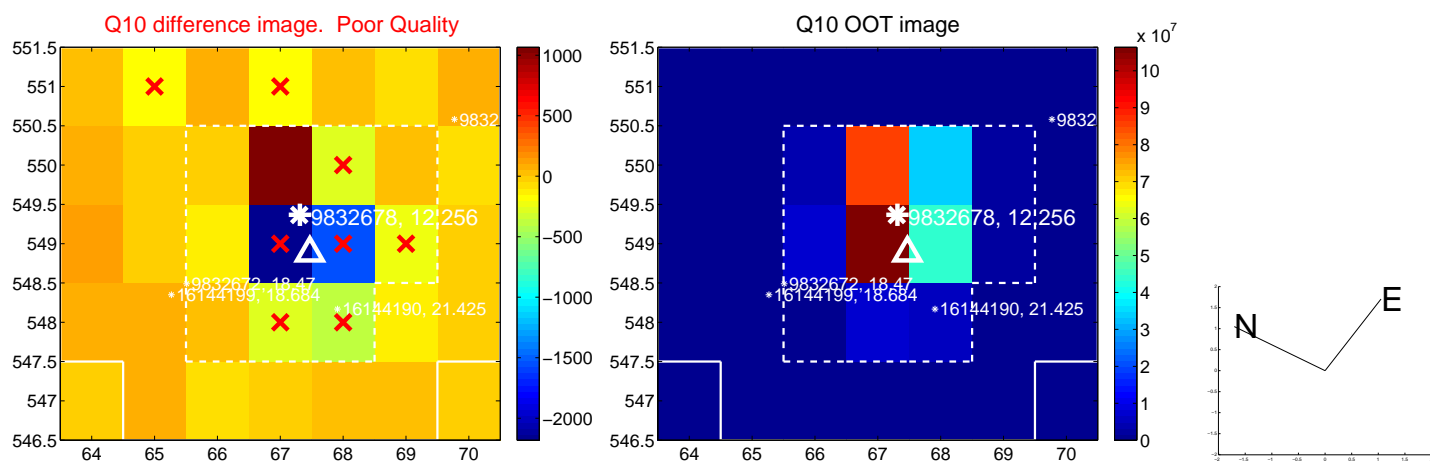
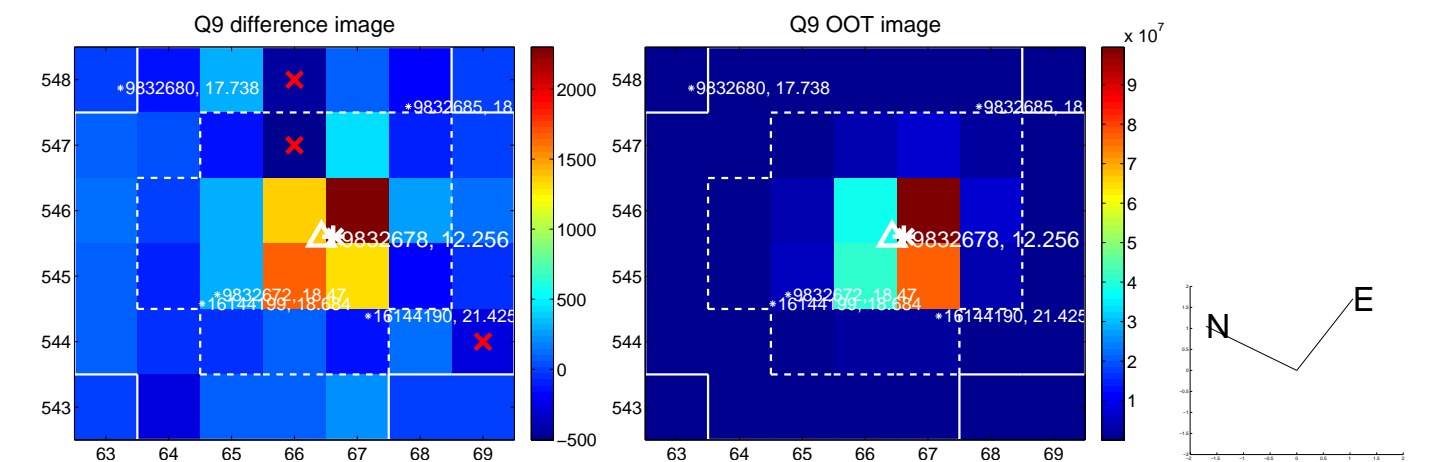
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



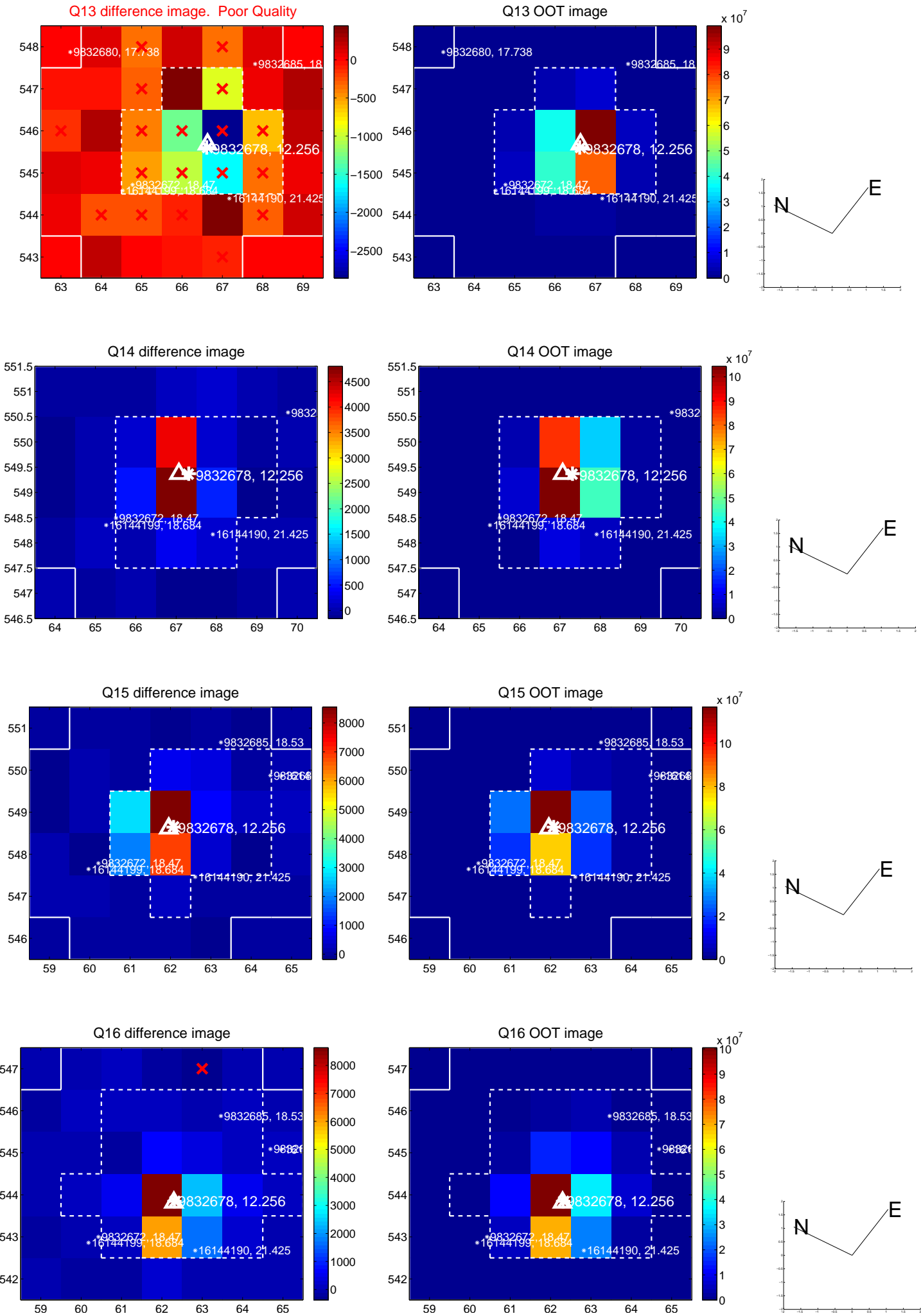
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



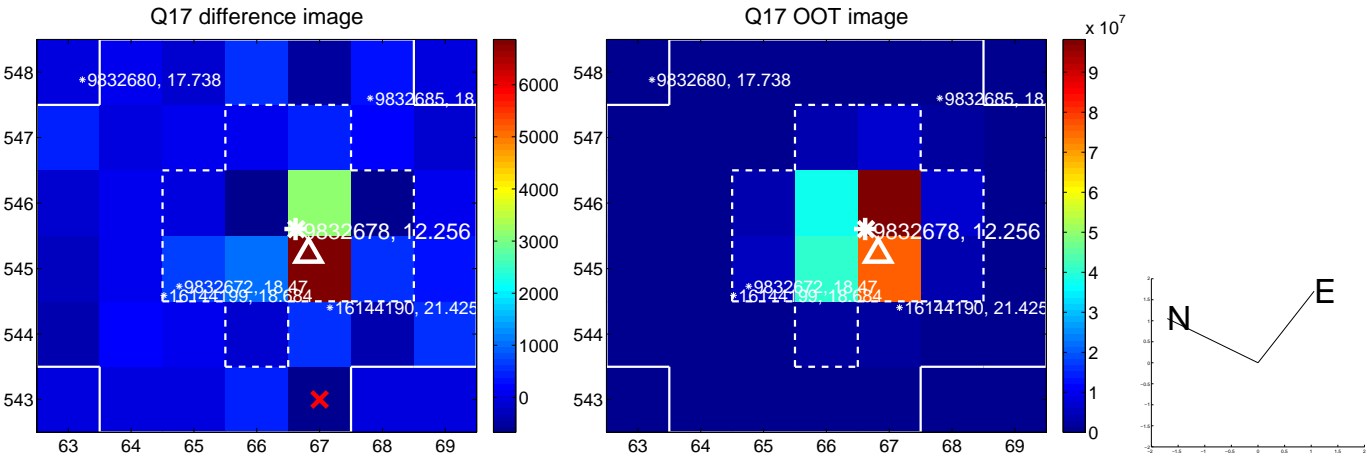
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



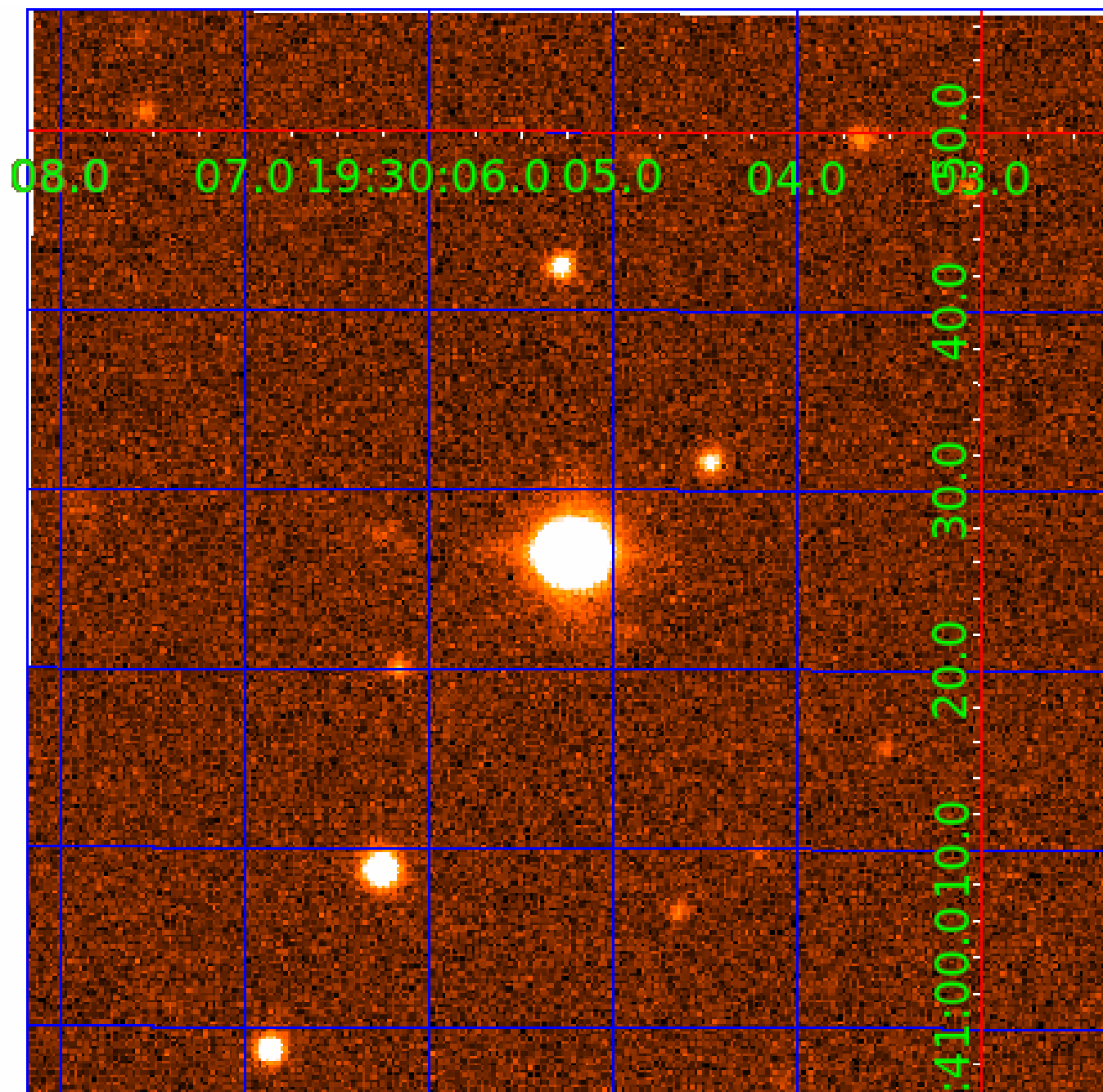
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 009832678

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})
009832678-01	OBS	No	0.719246	132.106239	0.0	3.772	8.7	0.0	2.16	6701	0.01	25722.94
009832678-02	OBS	No	52.611967	165.492234	95.6	4.780	7.5	7.1	2.16	6701	2.31	84.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009832678-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009832678-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

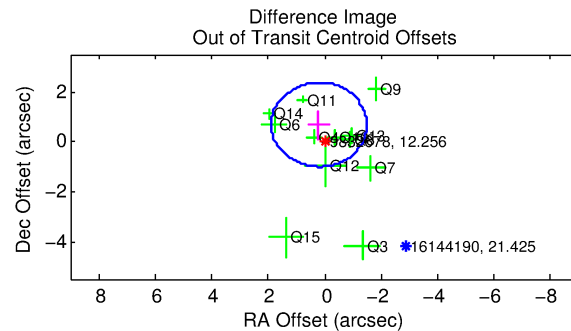
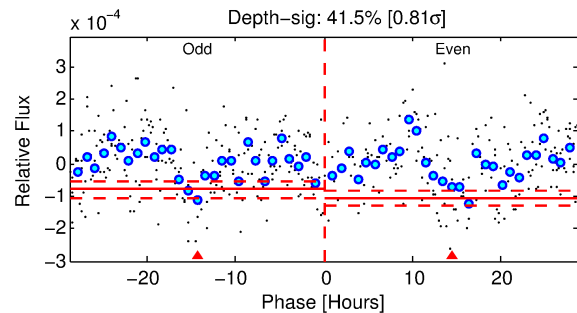
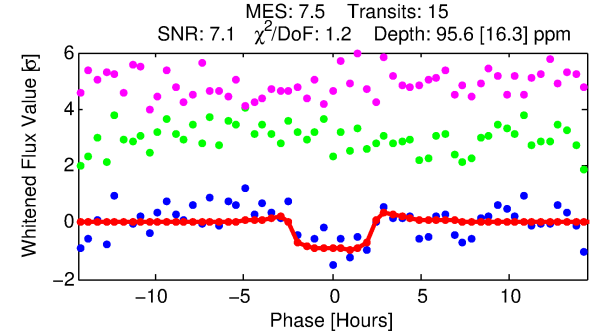
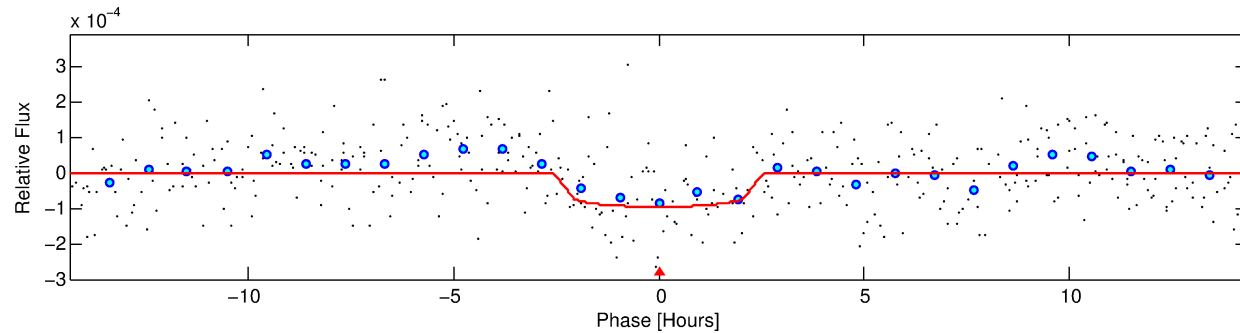
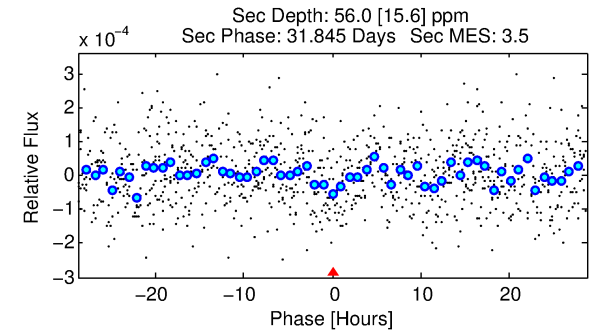
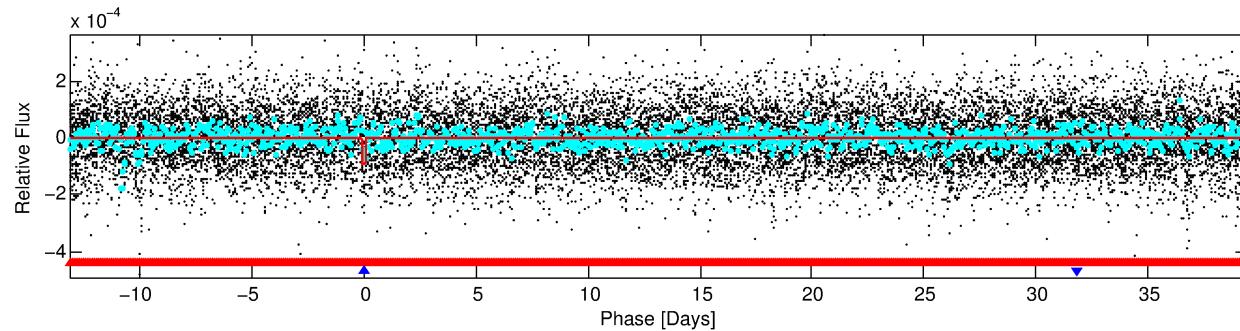
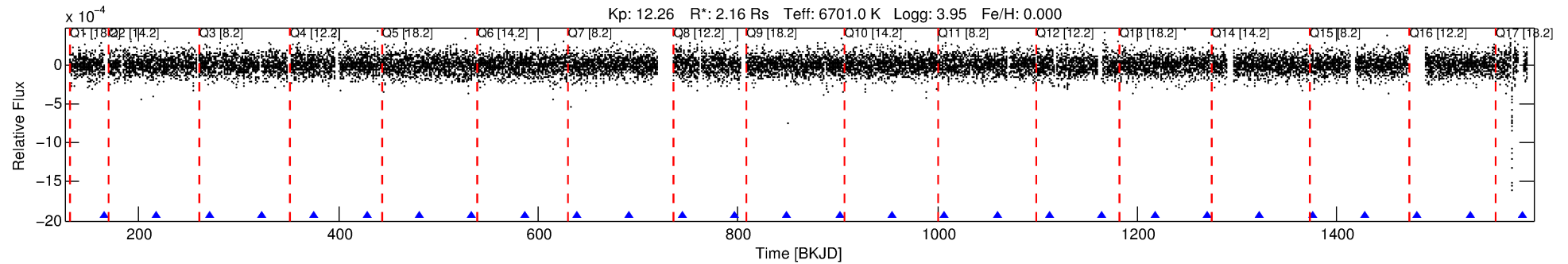
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009832678-02

No Significant Match Found

DV One-Page Summary

KIC: 9832678 Candidate: 2 of 2 Period: 52.612 d



DV Fit Results:

Period = 52.61197 [0.00087] d
Epoch = 165.4922 [0.0130] BKJD
Rp/R* = 0.0098 [0.0063]
a/R* = 55.14 [200.50]
b = 0.77 [1.96]
Seff = 84.08 [36.16]
Teq = 772 [83] K
Rp = 2.31 [1.65] Re
a = 0.3170 [0.0860] AU
Ag = 580.51 [805.05] [0.72σ]
Teffp = 5860 [1948] K [2.61σ]

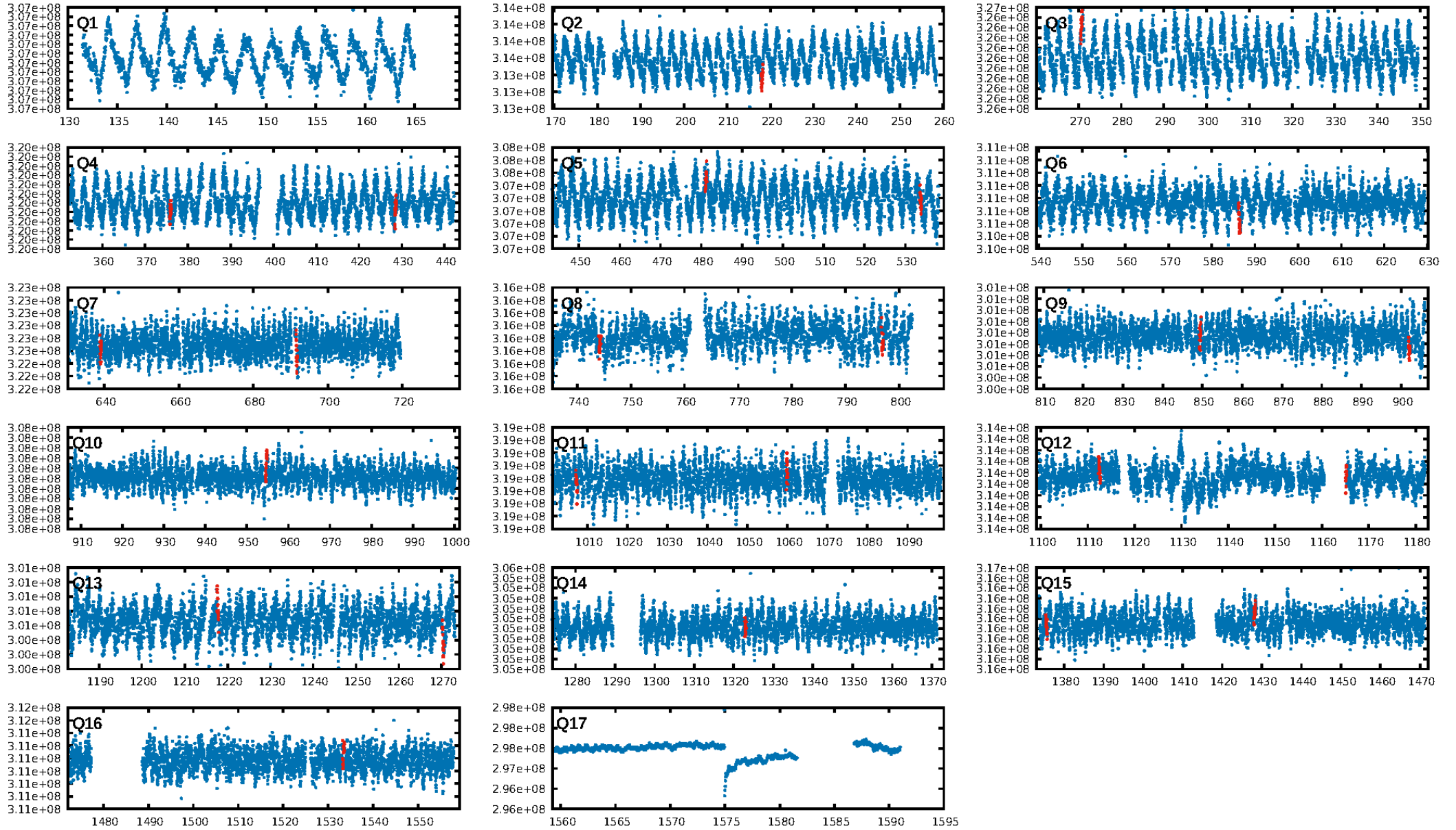
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [204.55σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 8.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.34e-09
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 1.347
Centroid-sig: 33.1%
Centroid-so: 0.802 arcsec [0.93σ]
OotOffset-rm: 0.712 arcsec [1.27σ]
KicOffset-rm: 0.710 arcsec [1.25σ]
OotOffset-st: 3/4/3/2 [12]
KicOffset-st: 3/4/3/2 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.00 [0/14]

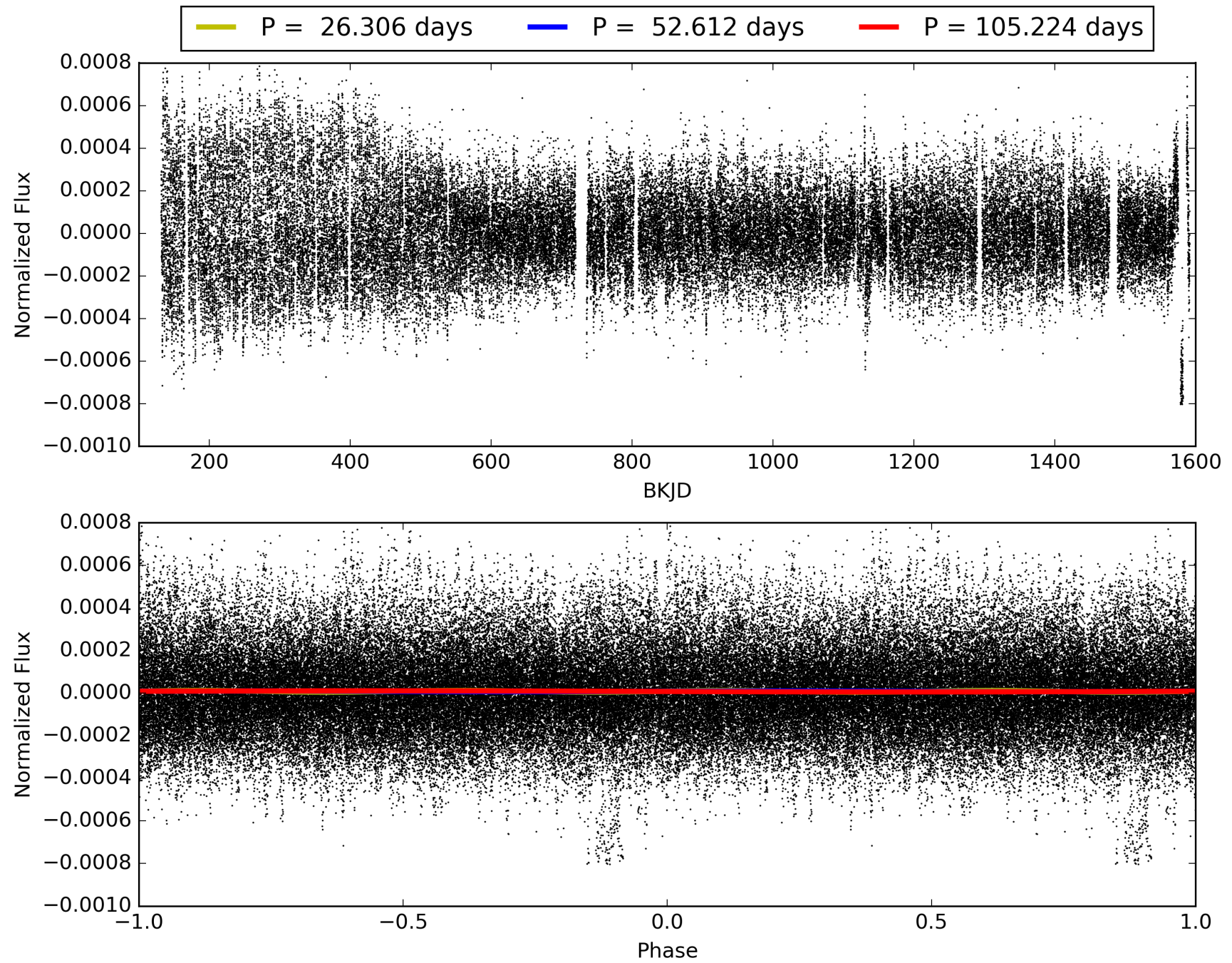
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:16:27 Z

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

TCE 009832678-02, PDC Light Curves

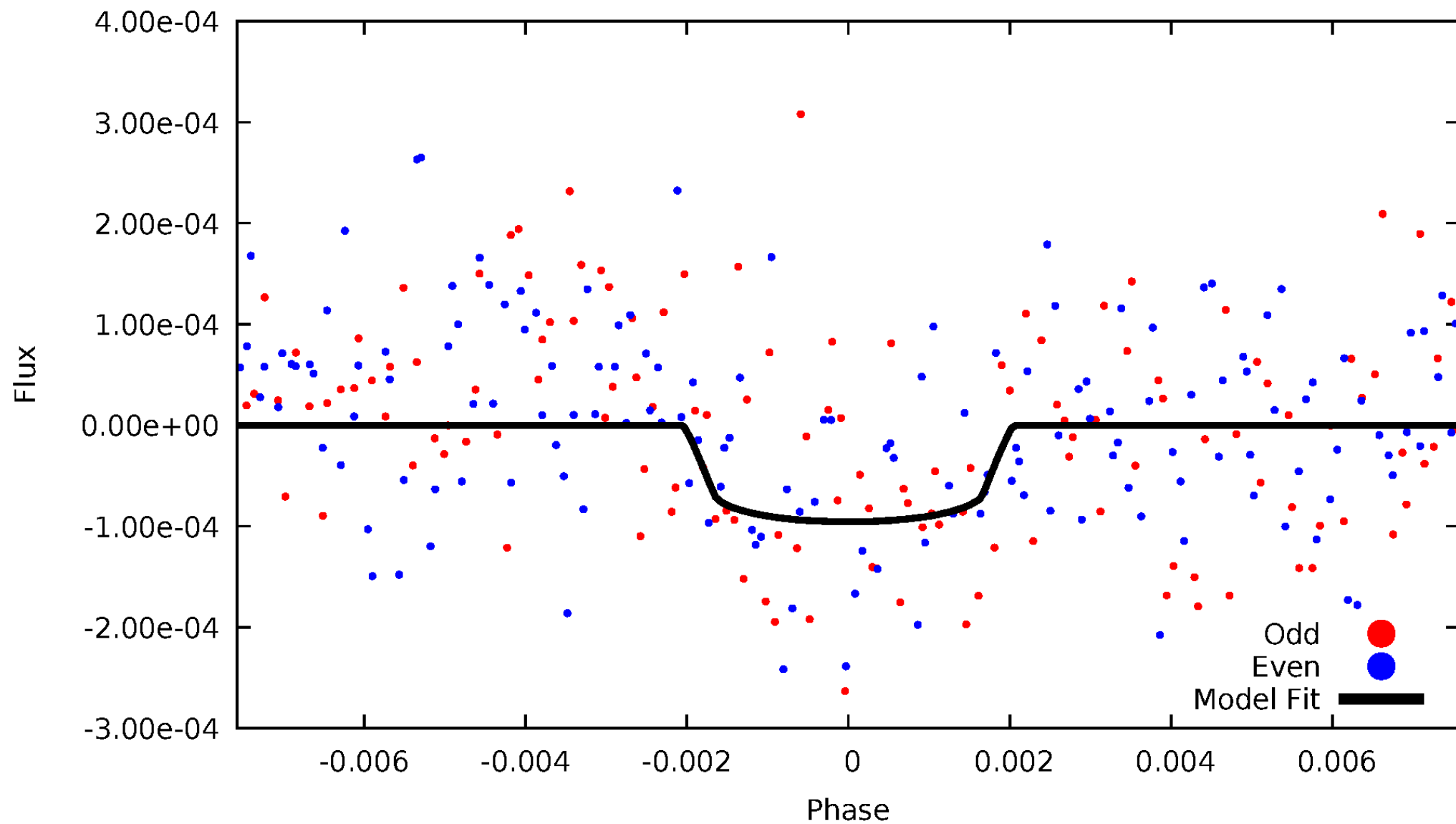


TCE 009832678-02



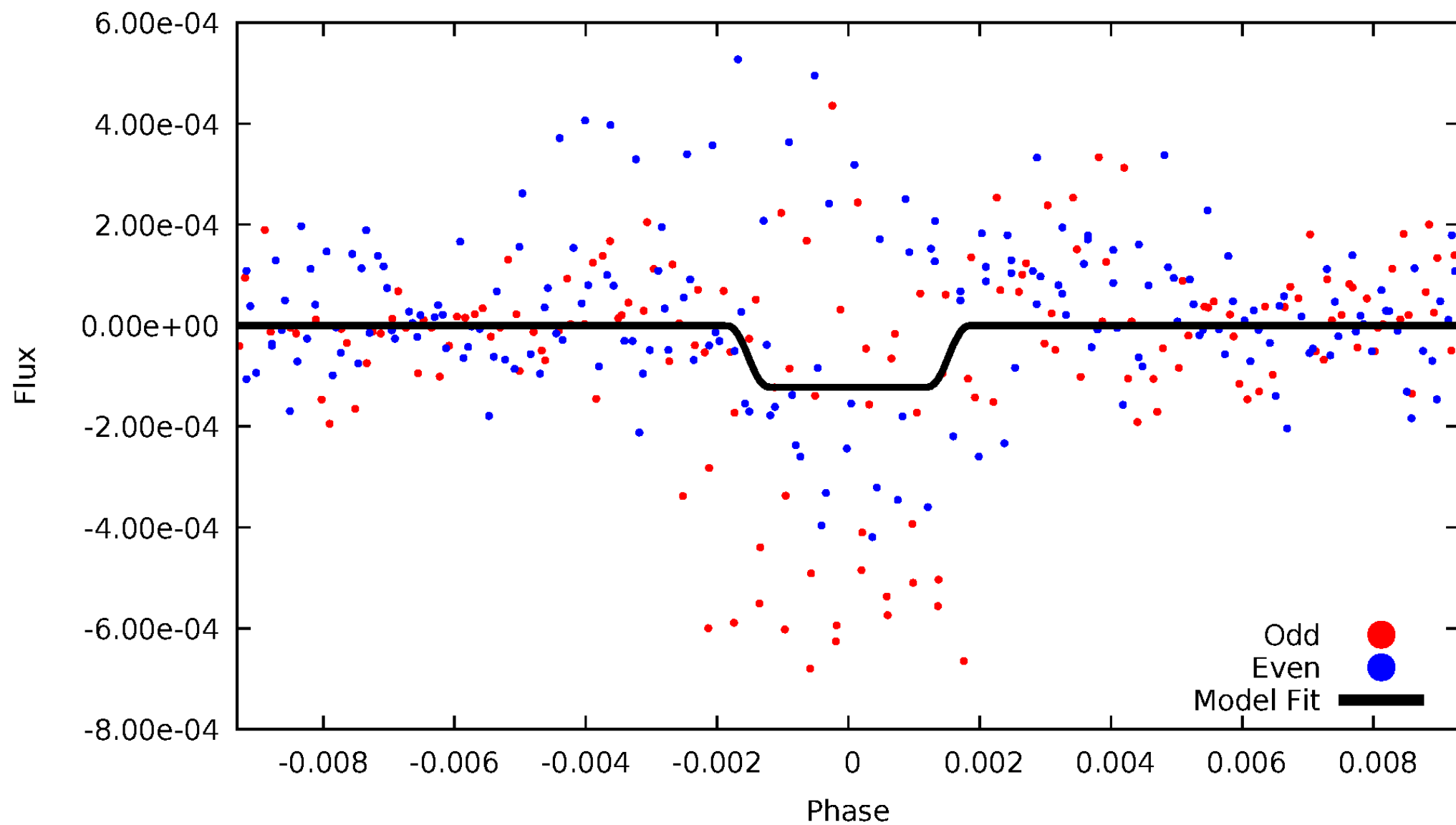
DV Odd/Even

TCE 009832678-02



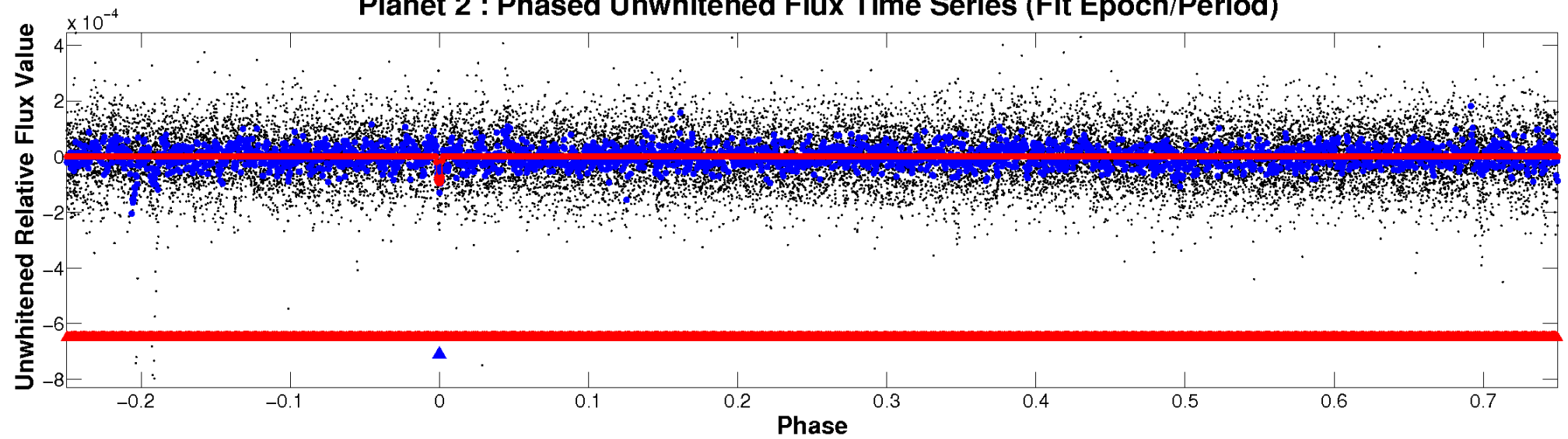
ALT Odd/Even

TCE 009832678-02

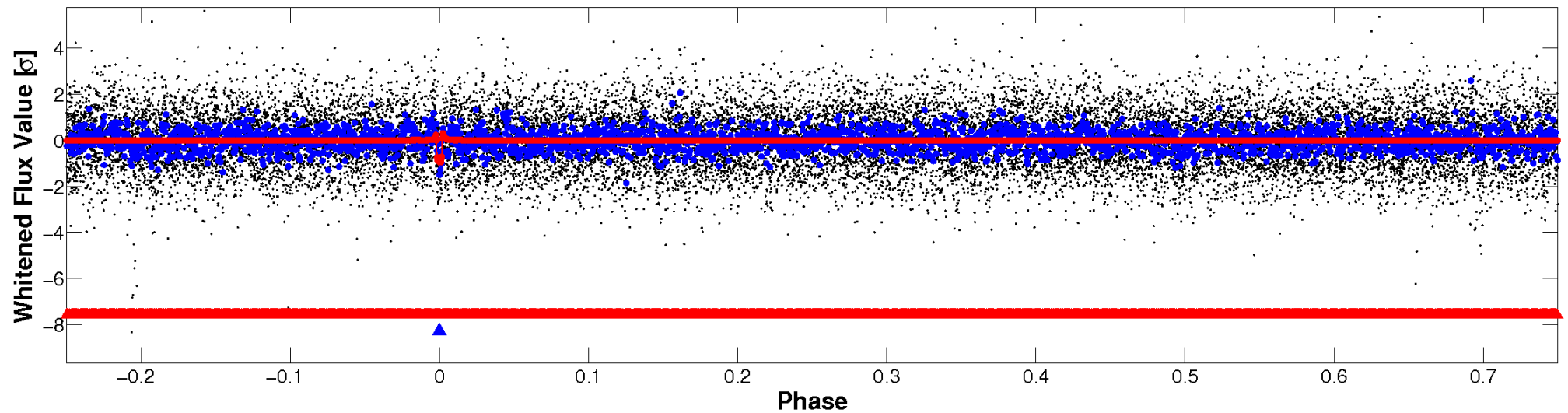


Non-Whitened Vs. Whitened Light Curve

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

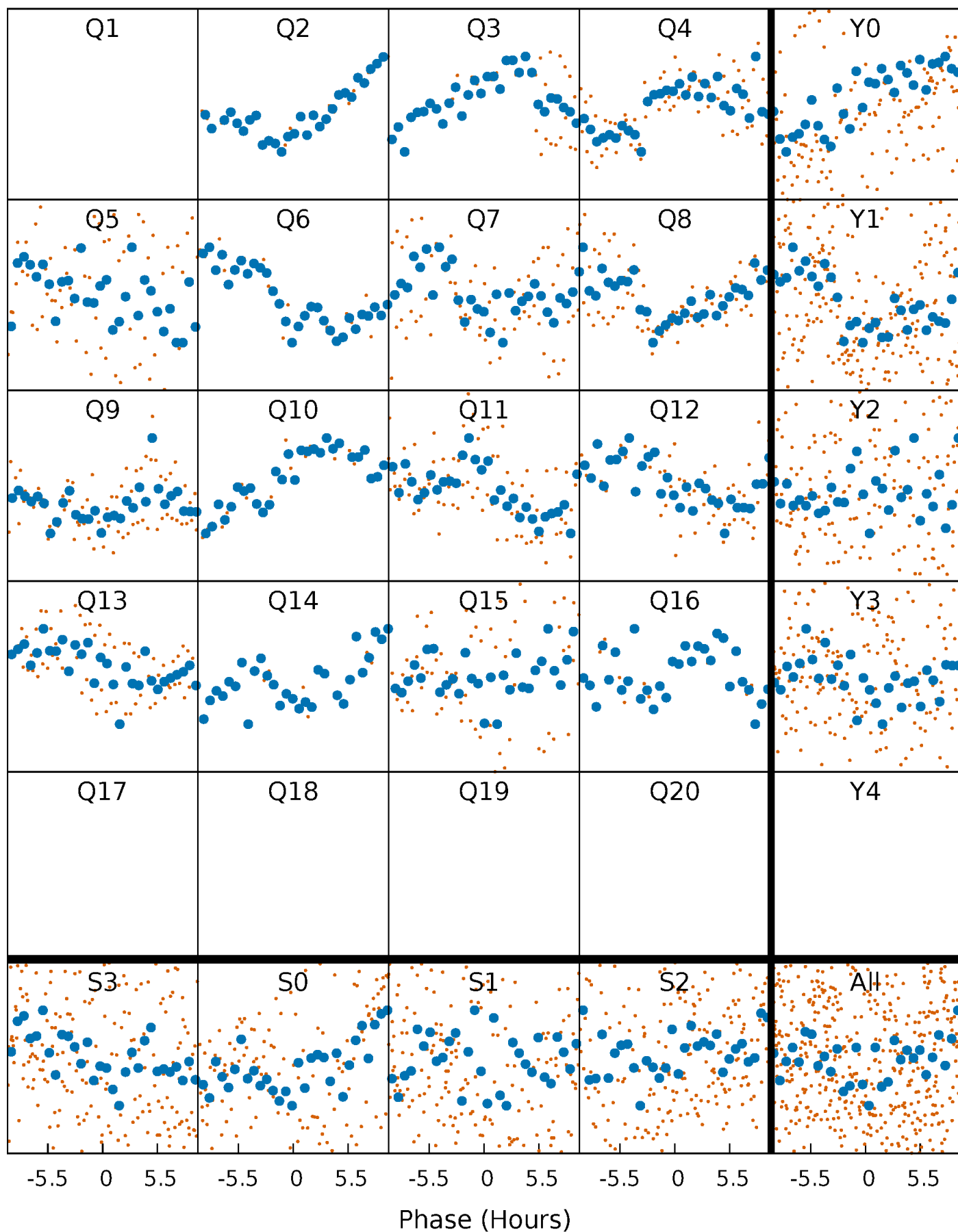


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



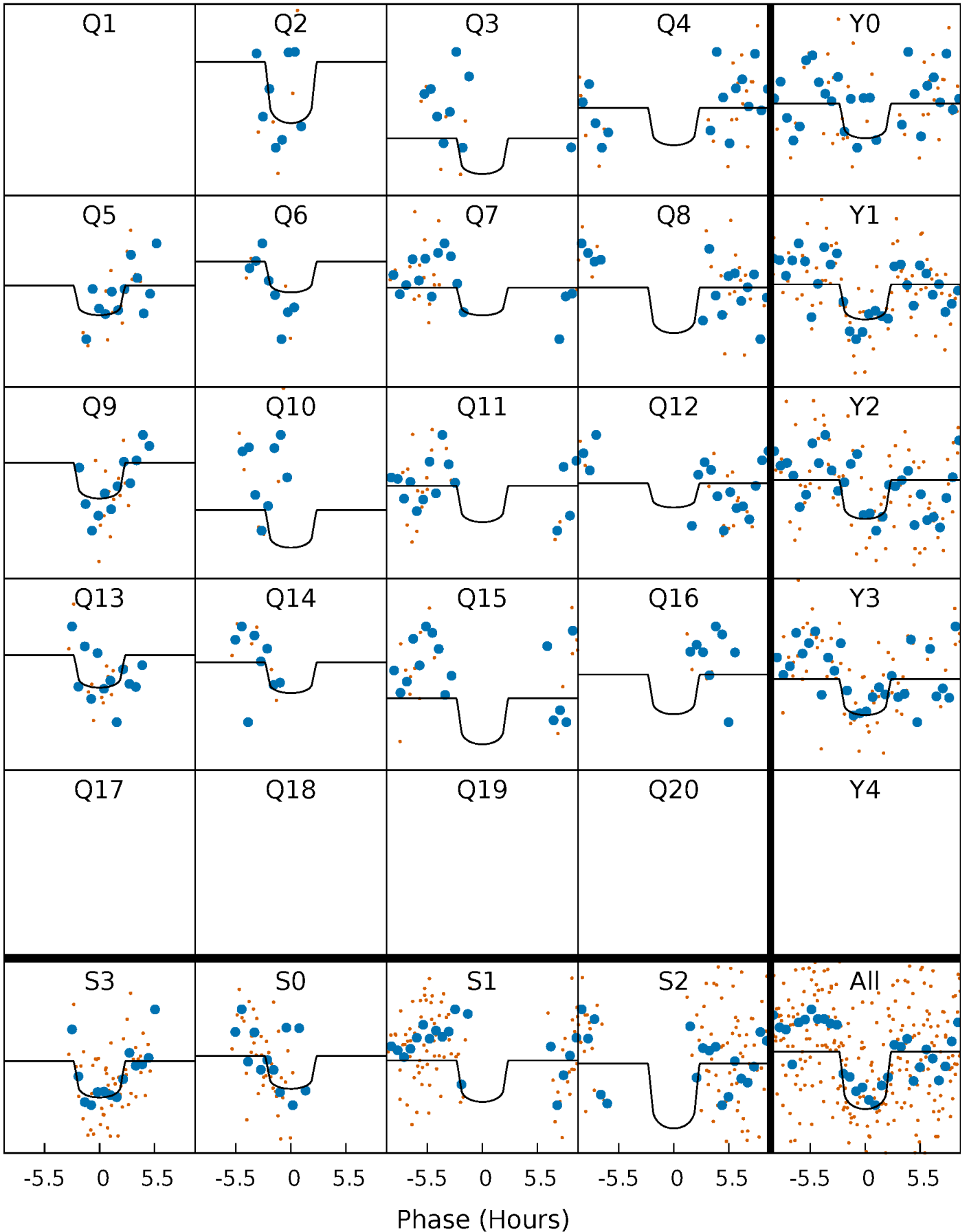
PDC Quarter-Phased Transit Curves

TCE 009832678-02 P= 52.611967 Days $T_0=165.492234$ (BKJD)



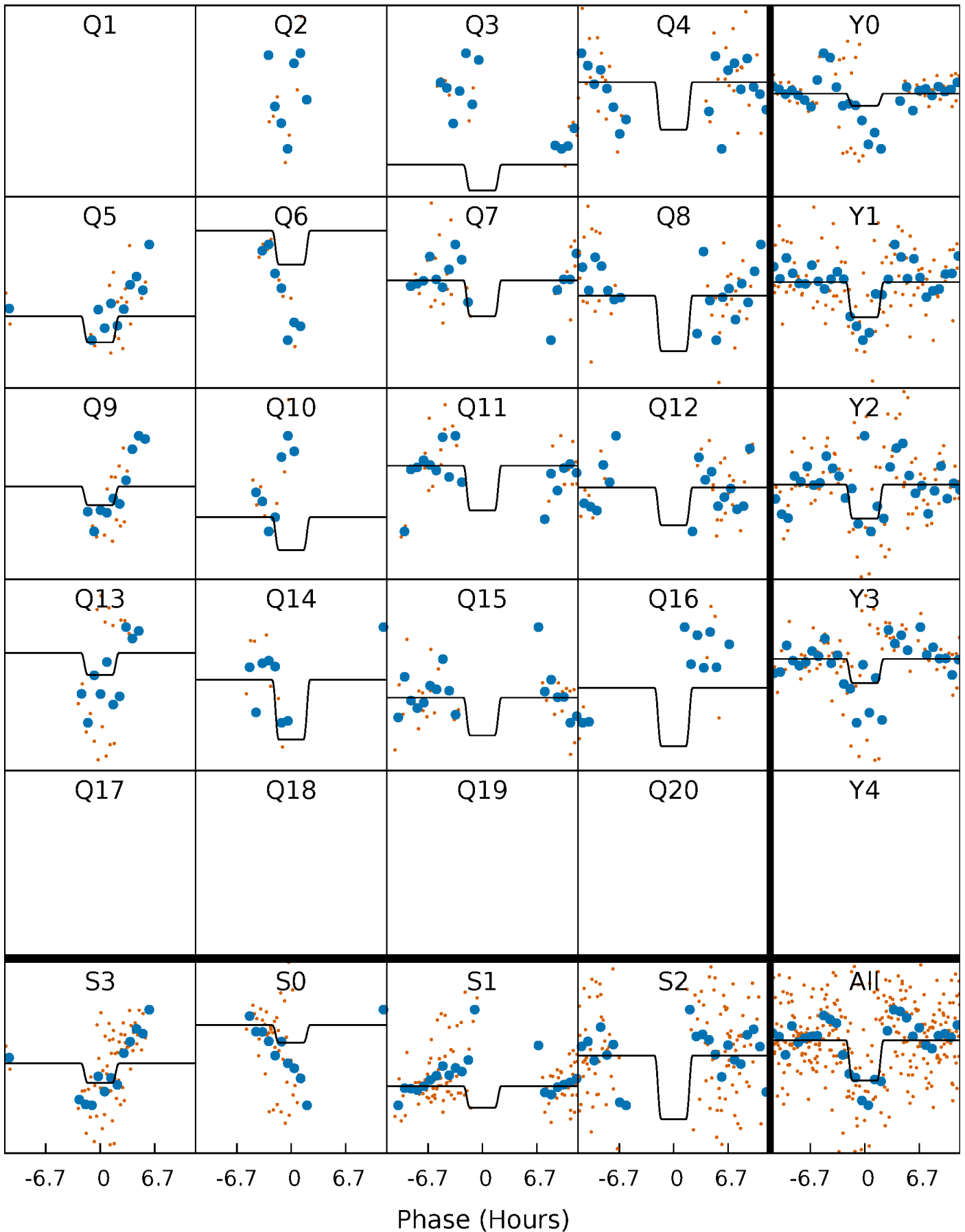
DV Quarter-Phased Transit Curves

TCE 009832678-02 P= 52.611967 Days $T_0=165.492234$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

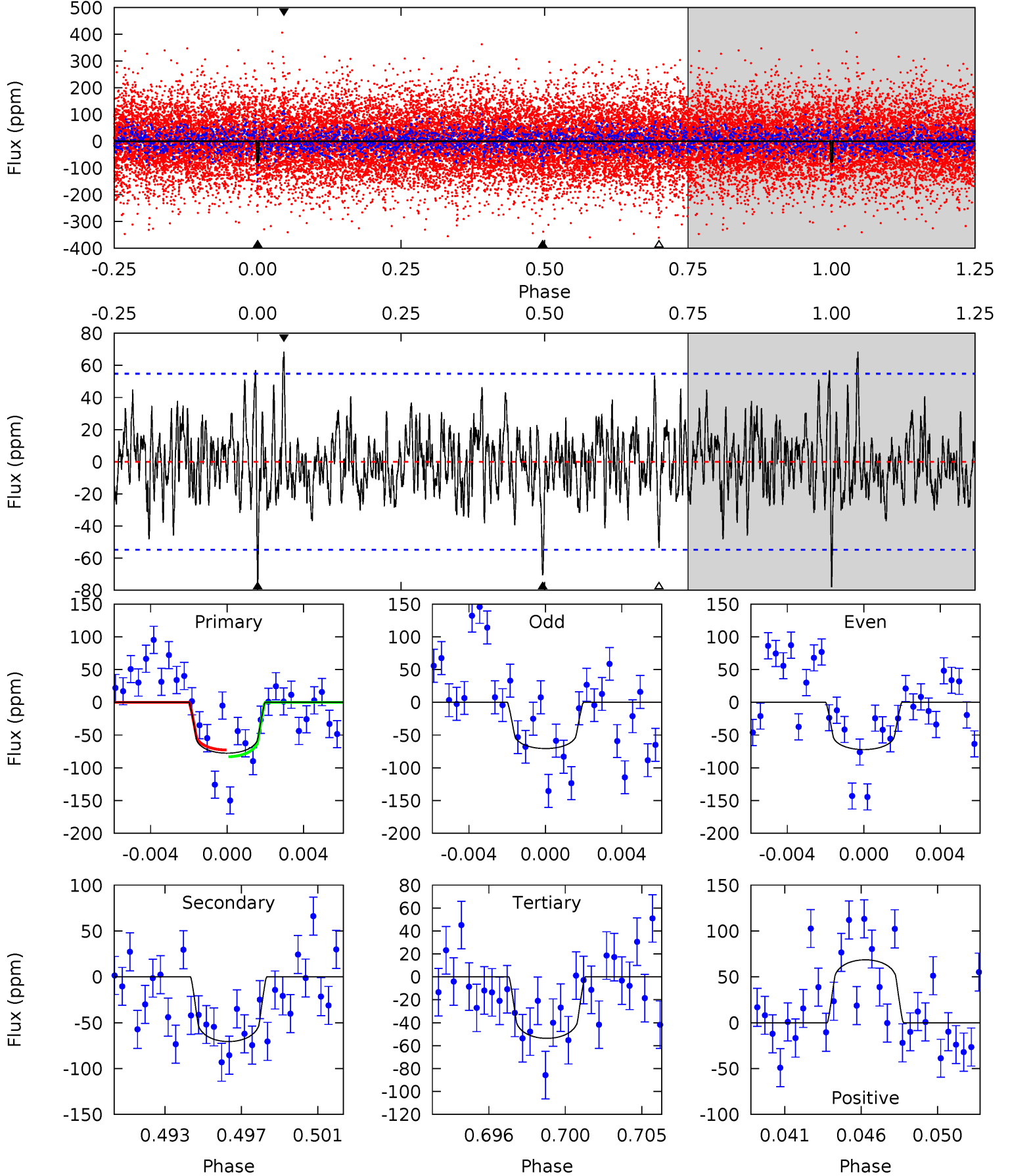
TCE 009832678-02 P= 52.612345 Days $T_0=165.468465$ (BKJD)



DV Model-Shift Uniqueness Test

009832678-02, P = 52.611967 Days, E = 112.880267 Days

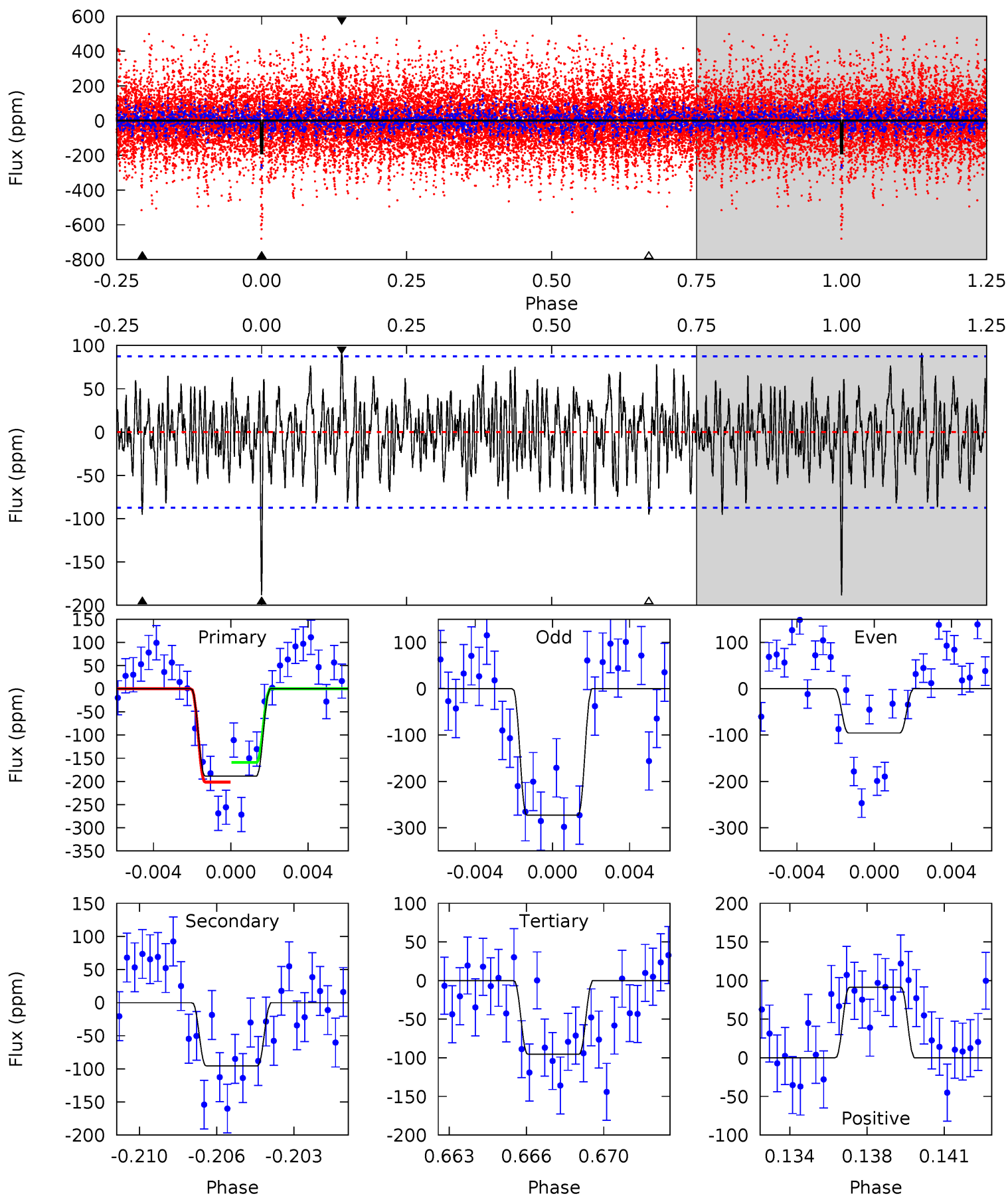
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.37	6.69	5.09	6.50	5.19	2.87	1.62	2.28	0.87	1.61	0.19	0.07	0.74	0.47	0.49



Alt Model-Shift Uniqueness Test

009832678-02, P = 52.612345 Days, E = 112.856120 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	5.70	5.69	5.45	5.22	2.91	1.86	5.57	5.80	0.01	0.25	5.27	0.70	0.33	1.25



Stellar Parameters For KIC 009832678

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6701^{+151}_{-202}	$3.954^{+0.234}_{-0.126}$	$0.000^{+0.250}_{-0.300}$	$2.163^{+0.440}_{-0.660}$	$1.531^{+0.174}_{-0.283}$	$0.213^{+0.319}_{-0.084}$
	+2%/-3%	+6%/-3%	+inf%/-inf%	+20%/-31%	+11%/-18%	+149%/-39%
Source	PHO1	FLK73	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 009832678-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-71 ± 11	$2.28^{+1.53}_{-1.24}$	1070^{+65}_{-82}	6048^{+3243}_{-1174}	763^{+2706}_{-498}
Alt.	-95 ± 17	$2.51^{+1.59}_{-1.44}$	1066^{+70}_{-85}	6214^{+3849}_{-1157}	815^{+3401}_{-517}

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 $A_{obs} \gg 1.0$

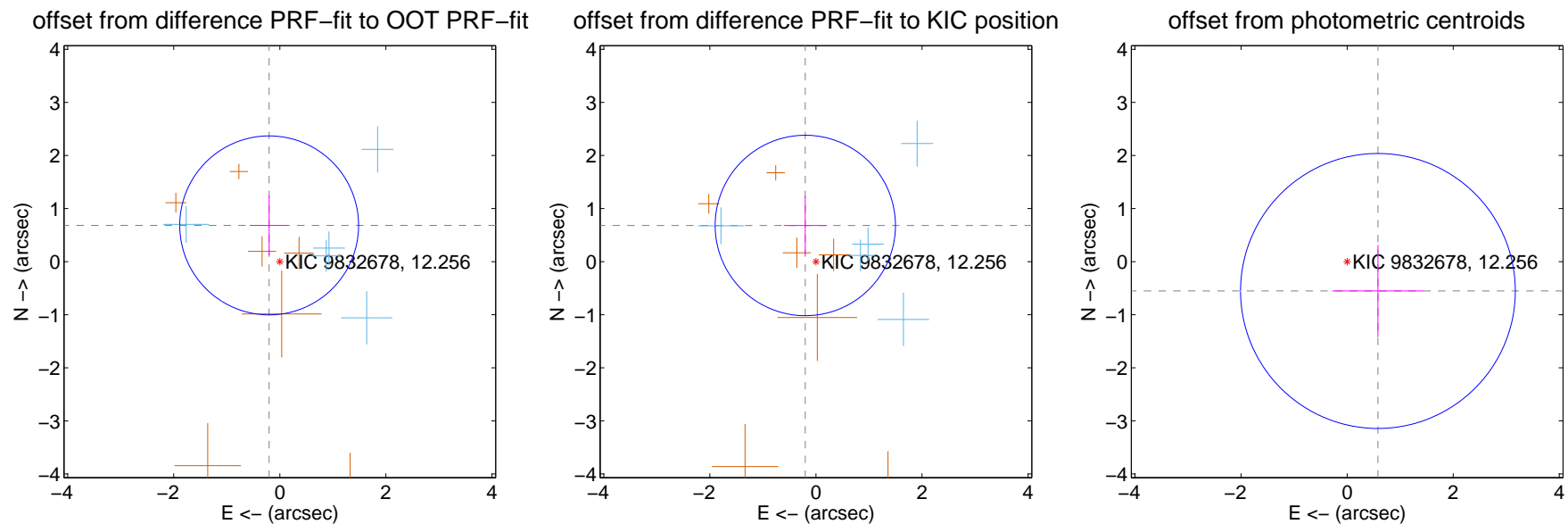
DV Centroid Data

Supplemental centroid analysis for 009832678-02. Kepler magnitude: 12.26. Transit SNR 7.11

There are 5 quarters with good PRF difference image offsets

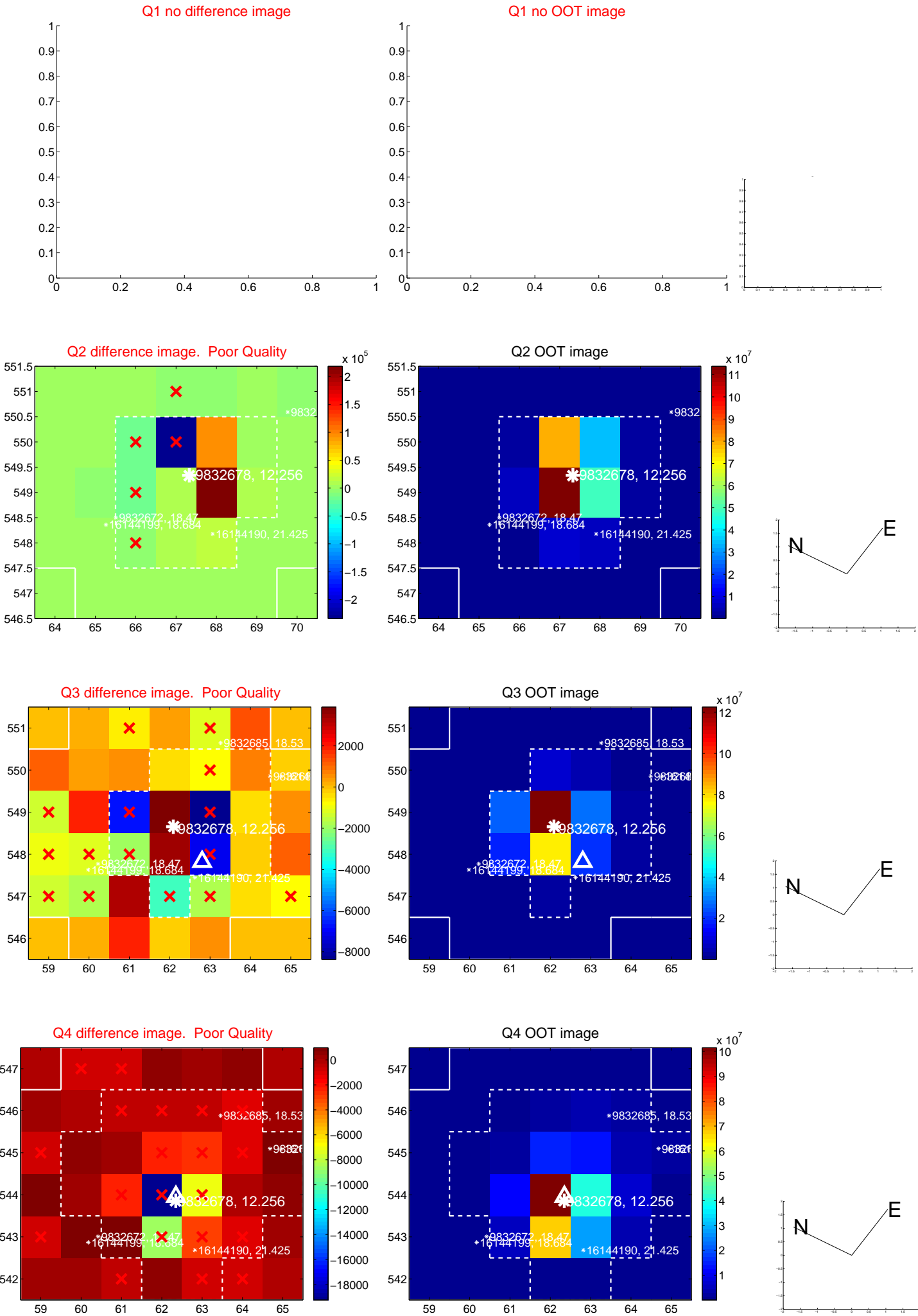
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.712 ± 0.562	1.27	0.201 ± 0.365	0.683 ± 0.566
PRF-fit source offset from KIC position	0.710 ± 0.567	1.25	0.200 ± 0.406	0.681 ± 0.557
photometric centroid source offset	0.80 ± 0.86	0.93	-0.58 ± 0.86	-0.55 ± 0.87

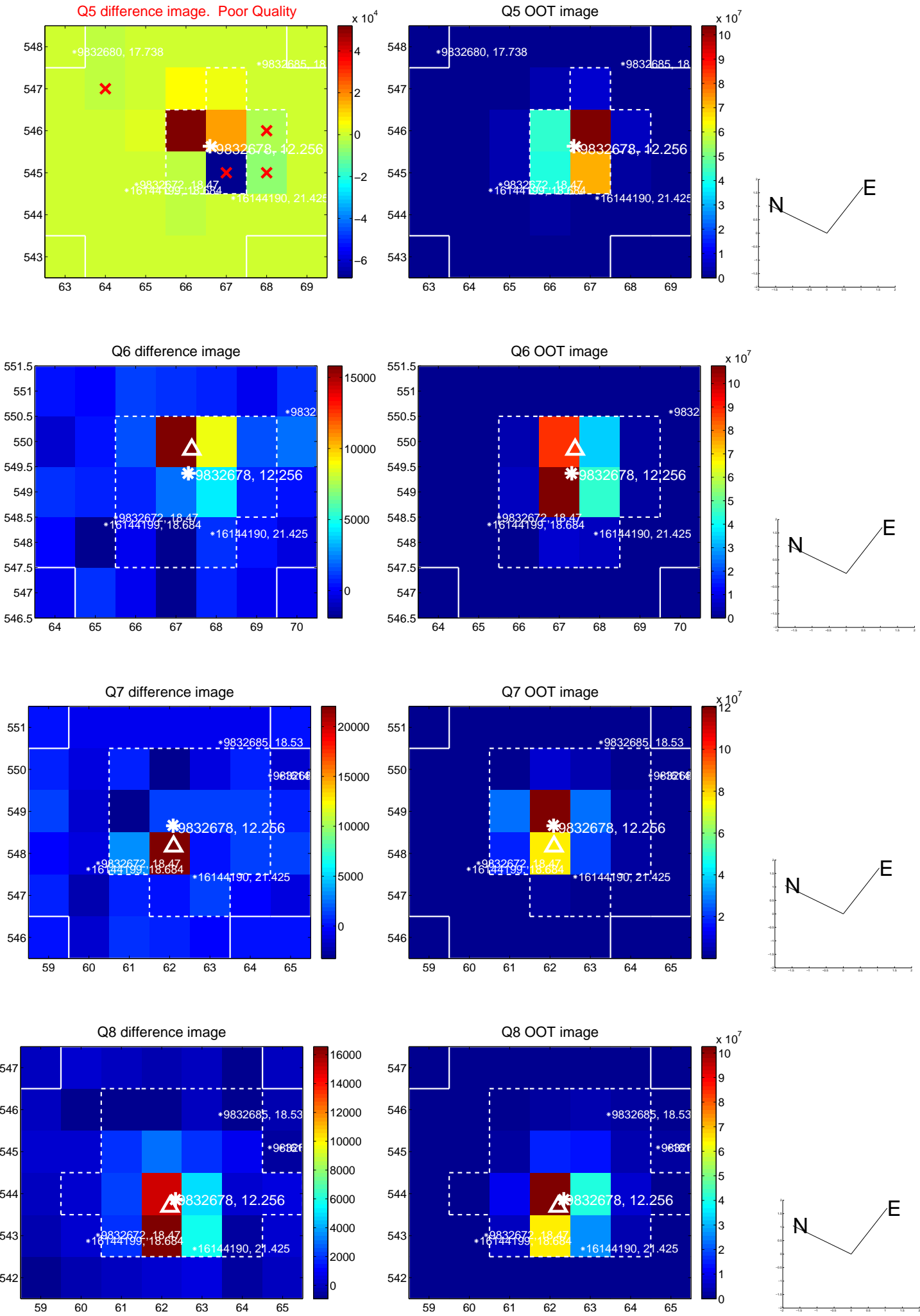


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

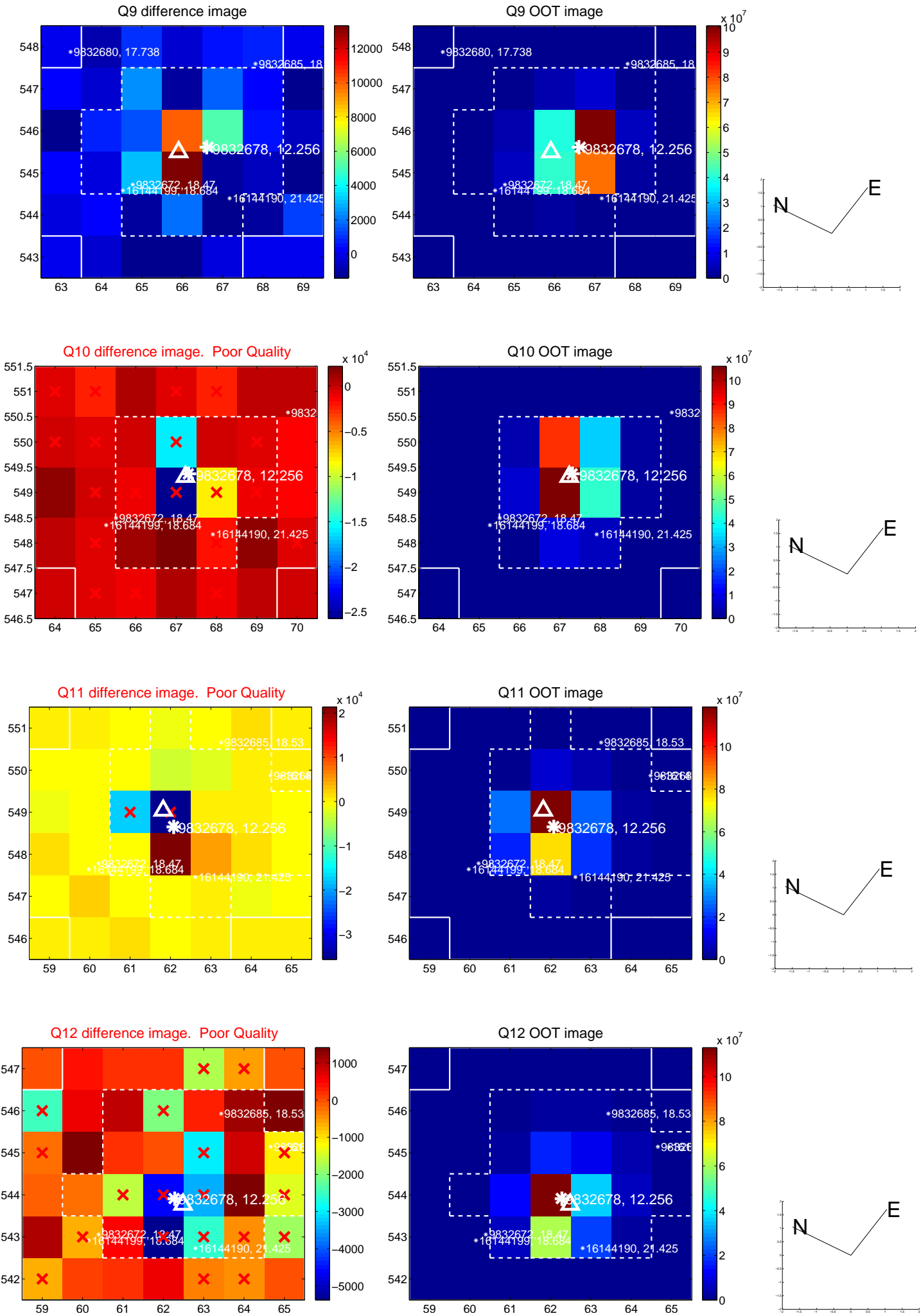
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



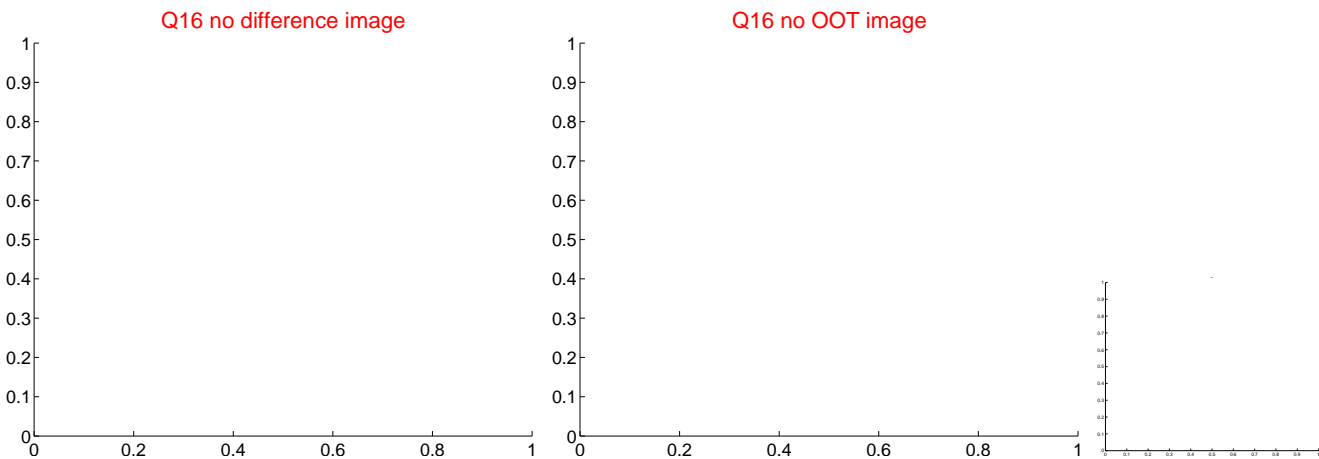
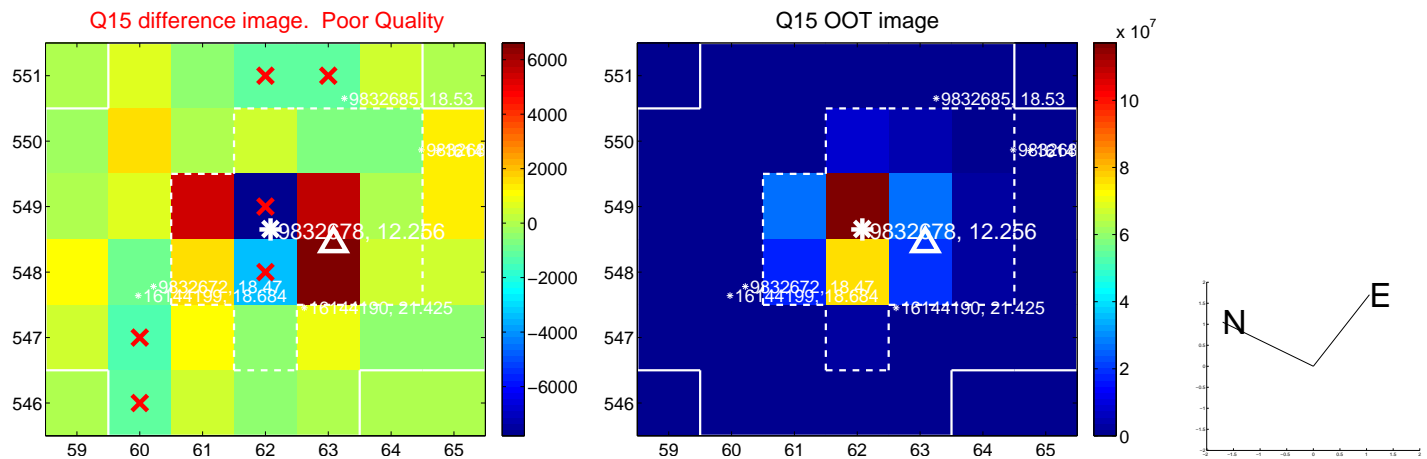
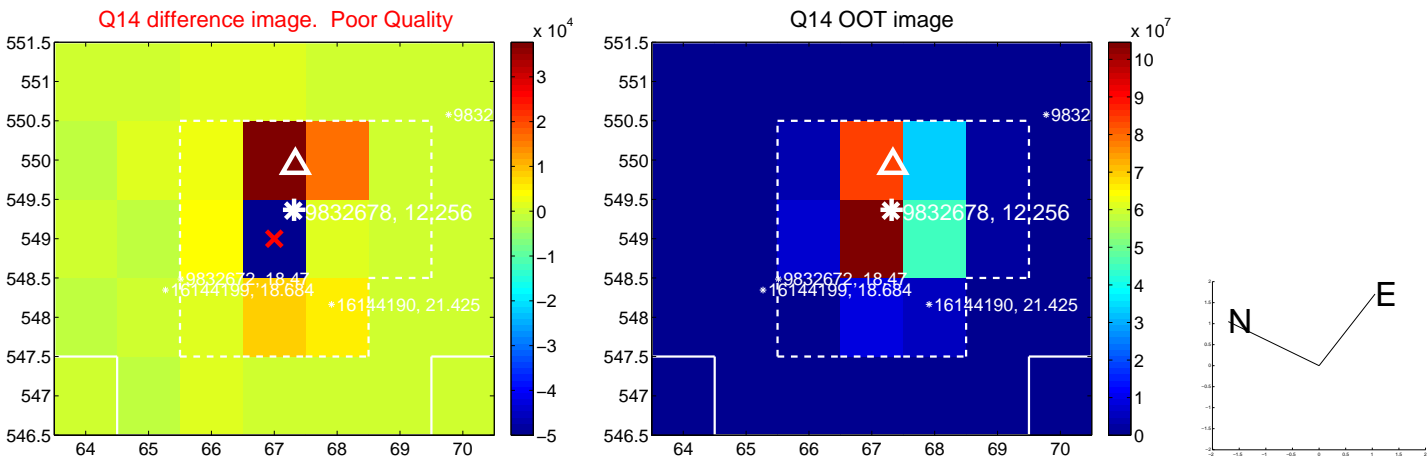
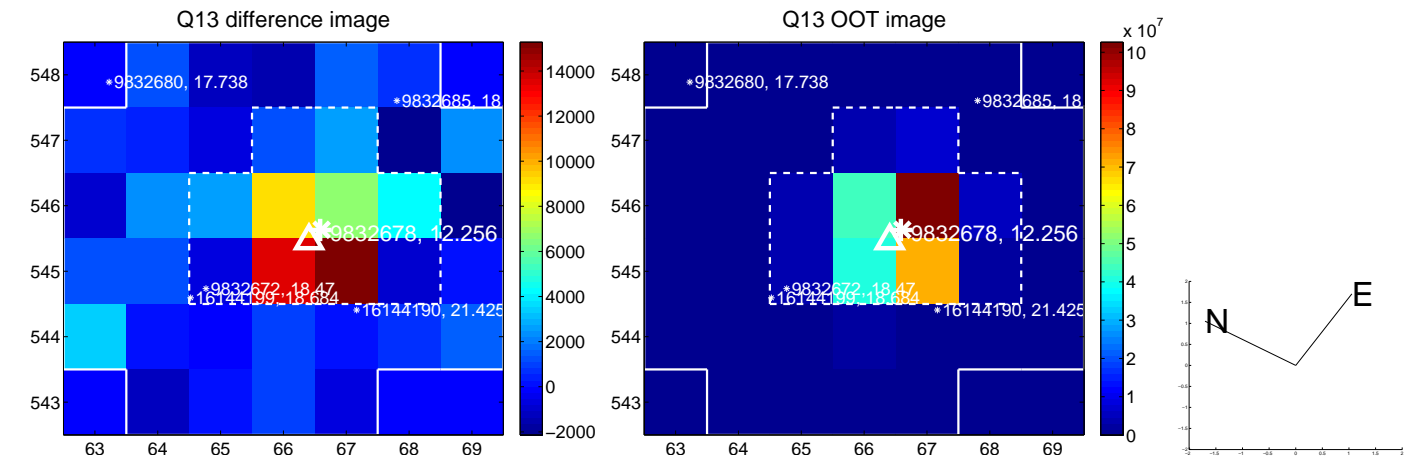
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



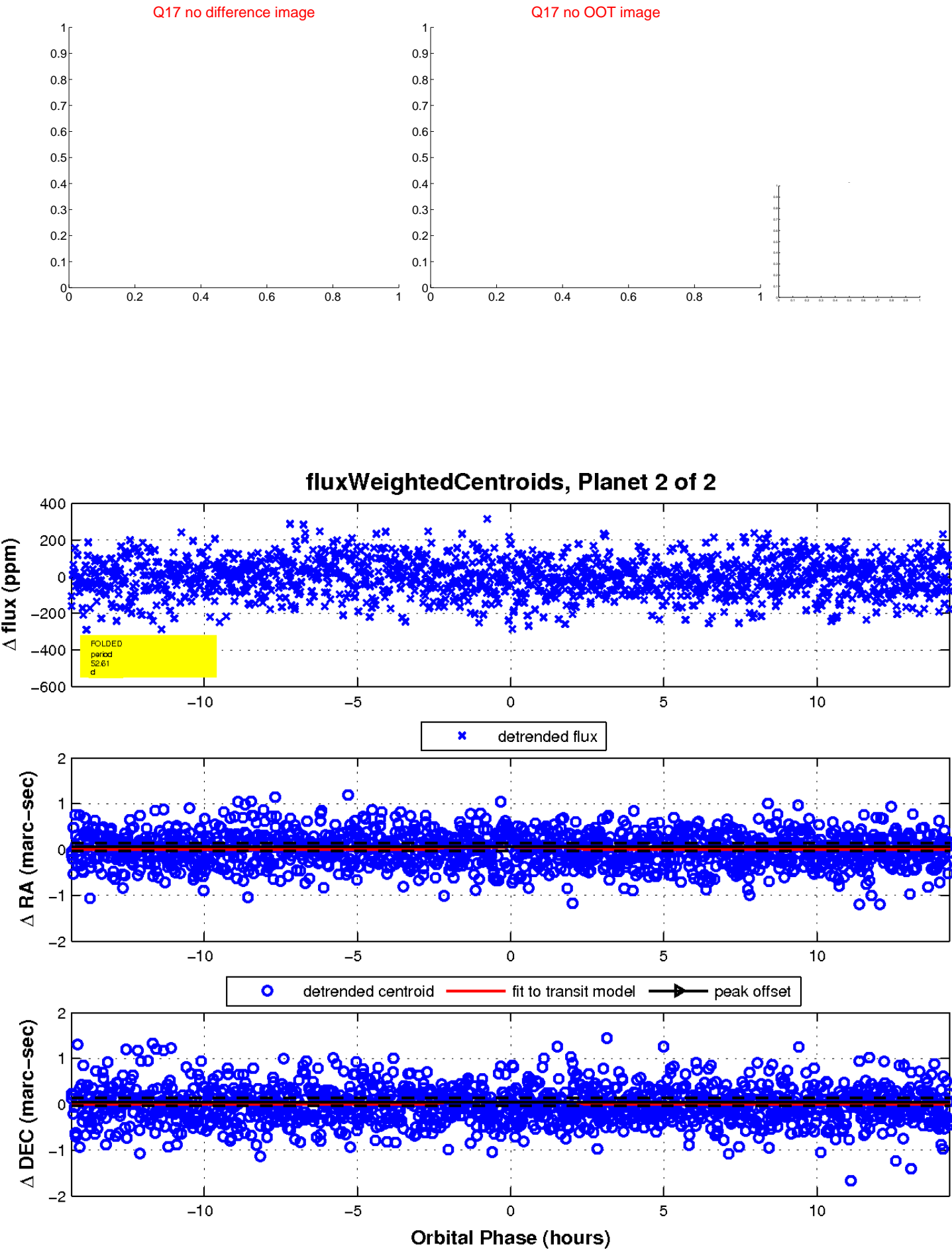
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

