

KIC 004650995

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})
004650995-01	OBS	No	2.650055	132.005886	5.1	18.789	8.0	8.1	2.00	7571	0.48	5815.36
004650995-02	OBS	No	21.972720	134.610454	92.0	1.382	9.5	9.4	2.00	7571	1.96	346.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650995-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
004650995-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

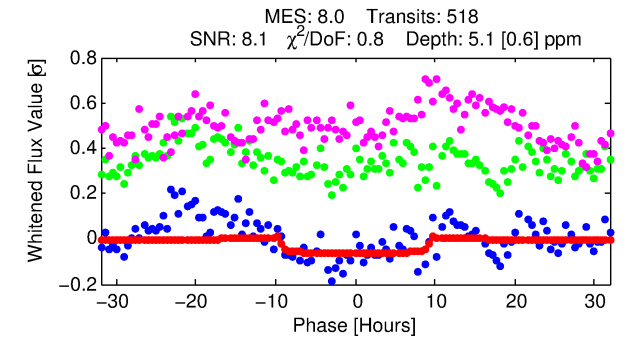
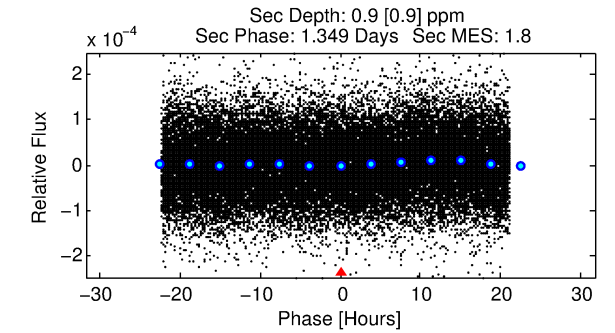
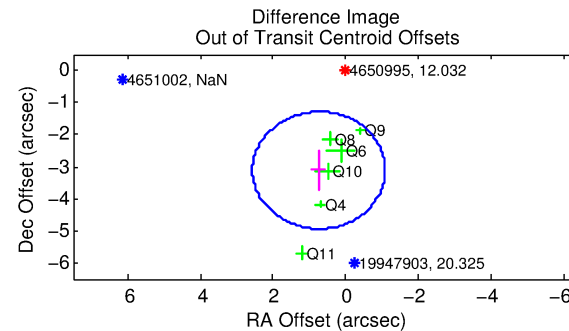
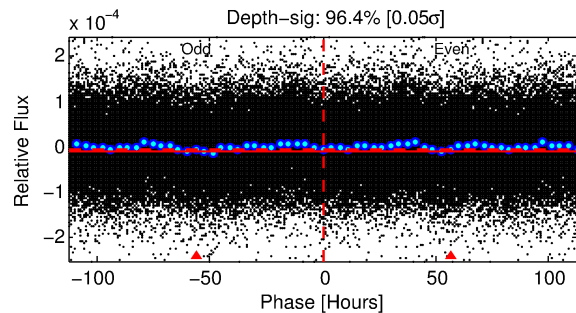
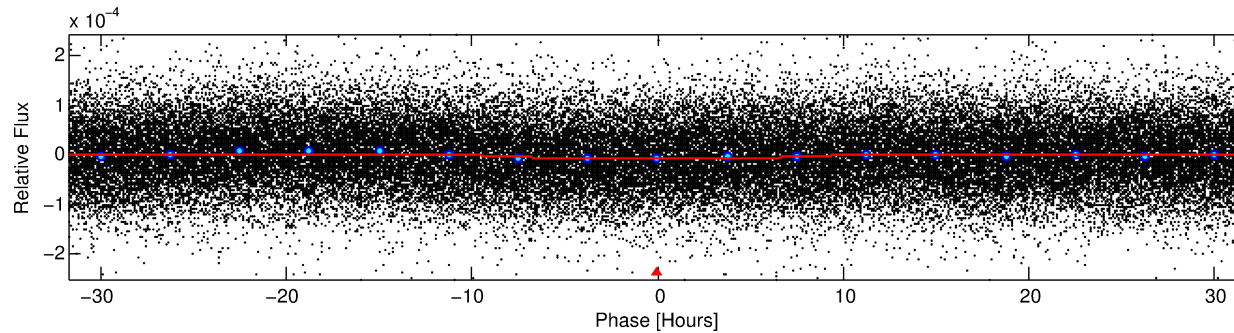
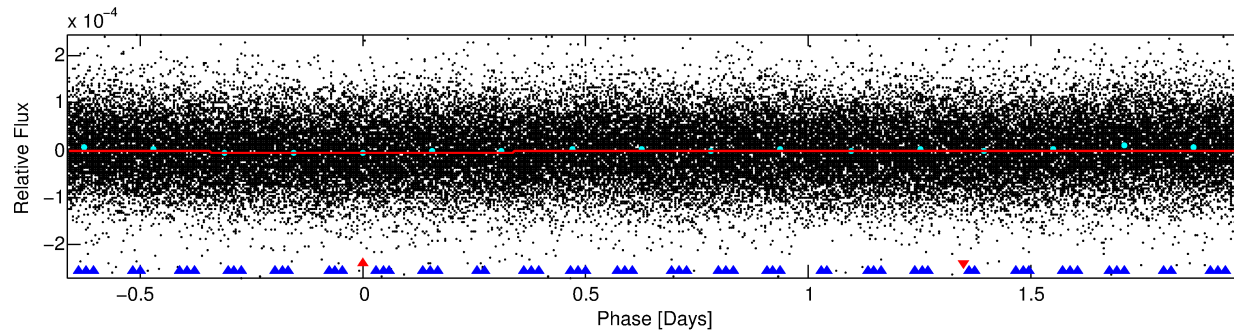
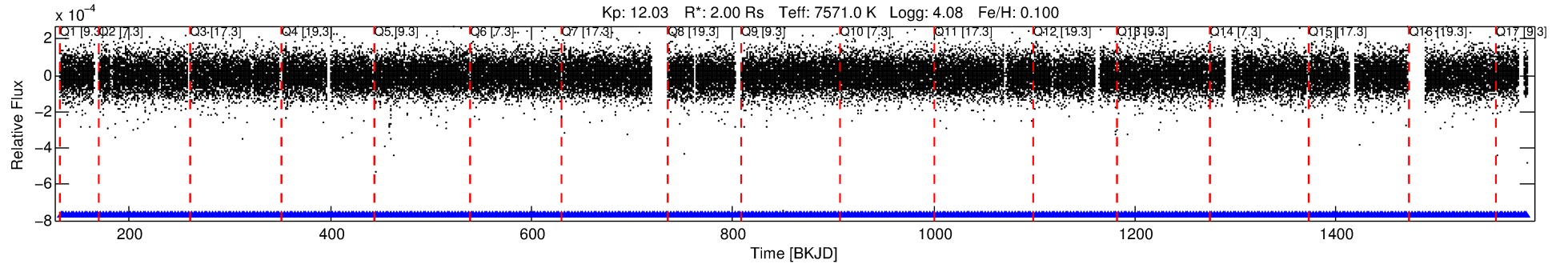
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650995-01

No Significant Match Found

DV One-Page Summary

KIC: 4650995 Candidate: 1 of 2 Period: 2.650 d



DV Fit Results:

Period = 2.65006 [0.00007] d
Epoch = 132.0059 [0.0160] BKJD
Rp/R* = 0.0022 [0.0012]
a/R* = 1.15 [0.96]
b = 0.66 [2.91]
Seff = 5815.37 [2104.72]
Teq = 2227 [201] K
Rp = 0.48 [0.29] Re
a = 0.0451 [0.0098] AU
Ag = 4.43 [6.50] [0.53 σ]
Teffp = 4993 [1805] K [1.52 σ]

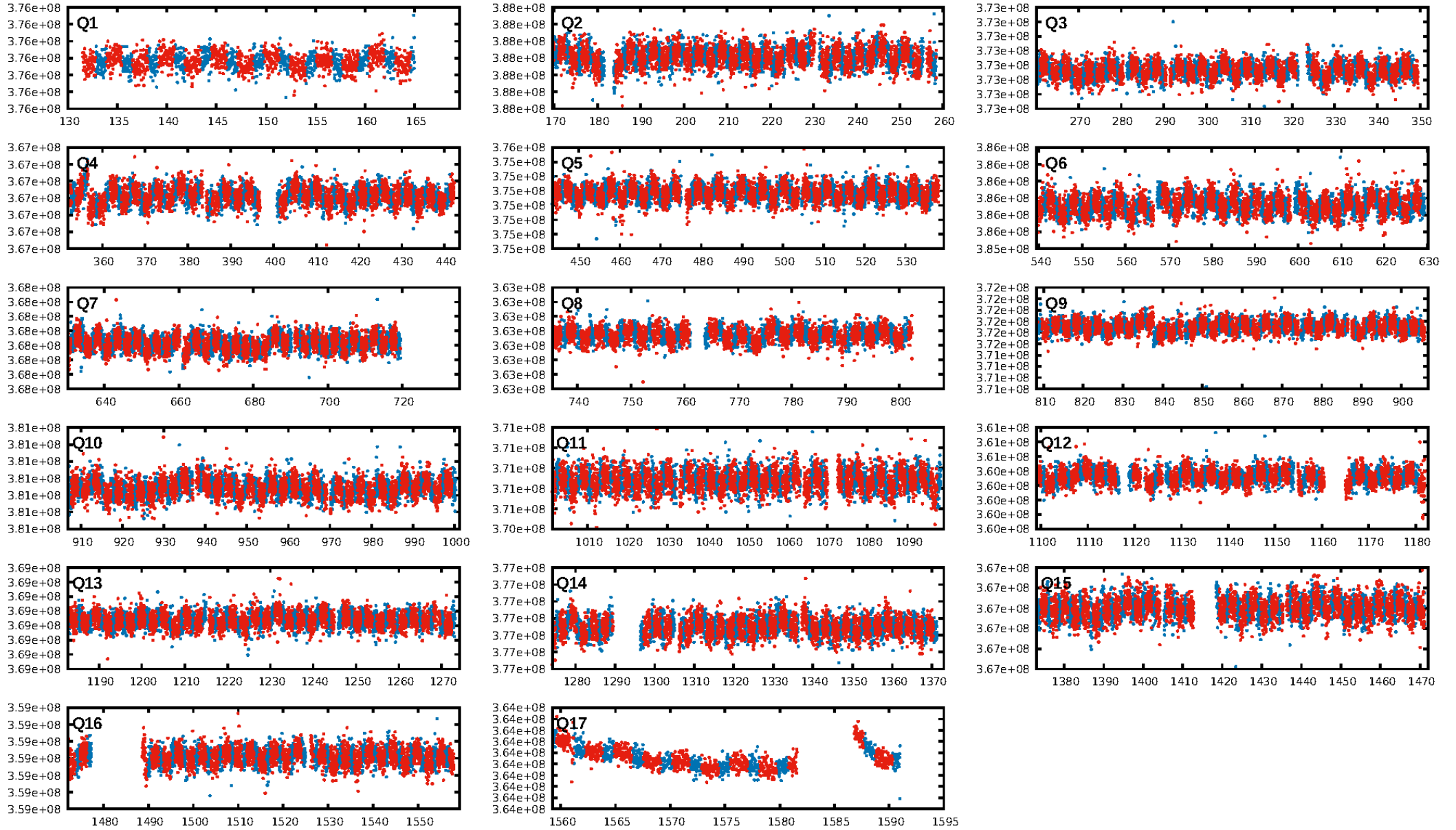
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [24.62 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.28e-09
RollingBand-fgt: 1.00 [494/494]
GhostDiagnostic-chr: 2.589
Centroid-sig: 1.0%
Centroid-so: 3.205 arcsec [2.07 σ]
OotOffset-rm: 3.201 arcsec [5.26 σ]
KicOffset-rm: 3.074 arcsec [4.89 σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 1.00 [17/17]

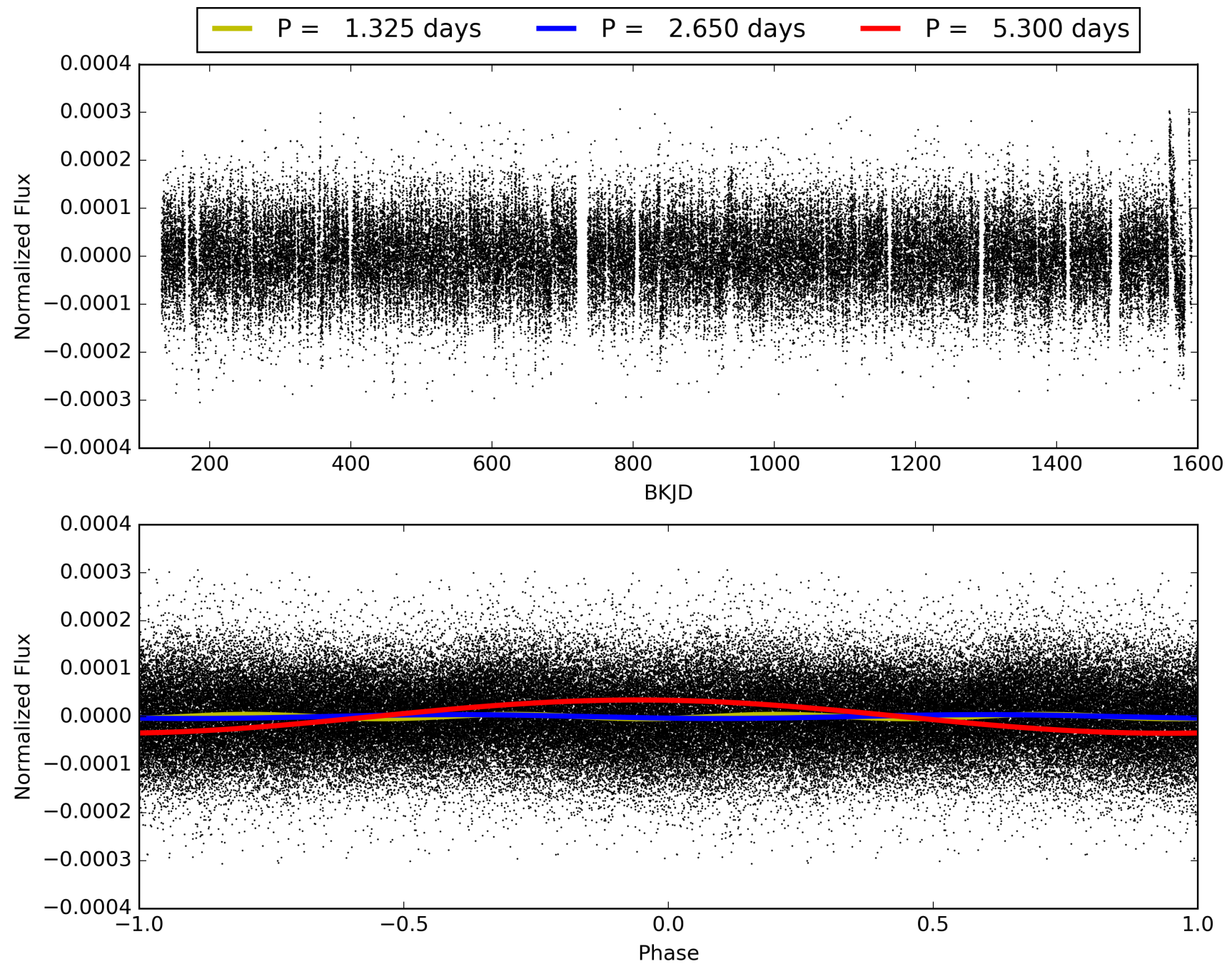
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:57:42 Z

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

TCE 004650995-01, PDC Light Curves

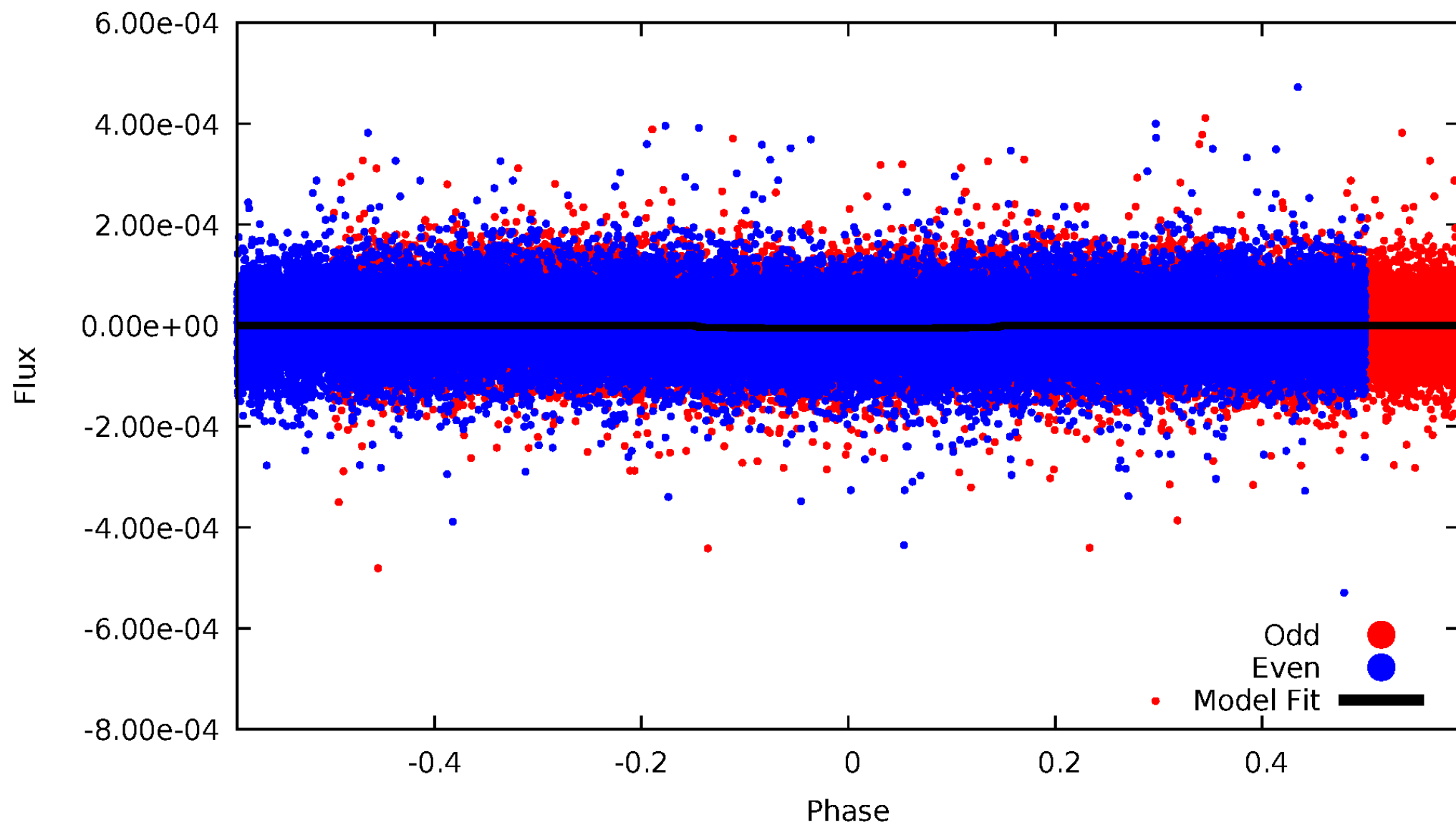


TCE 004650995-01



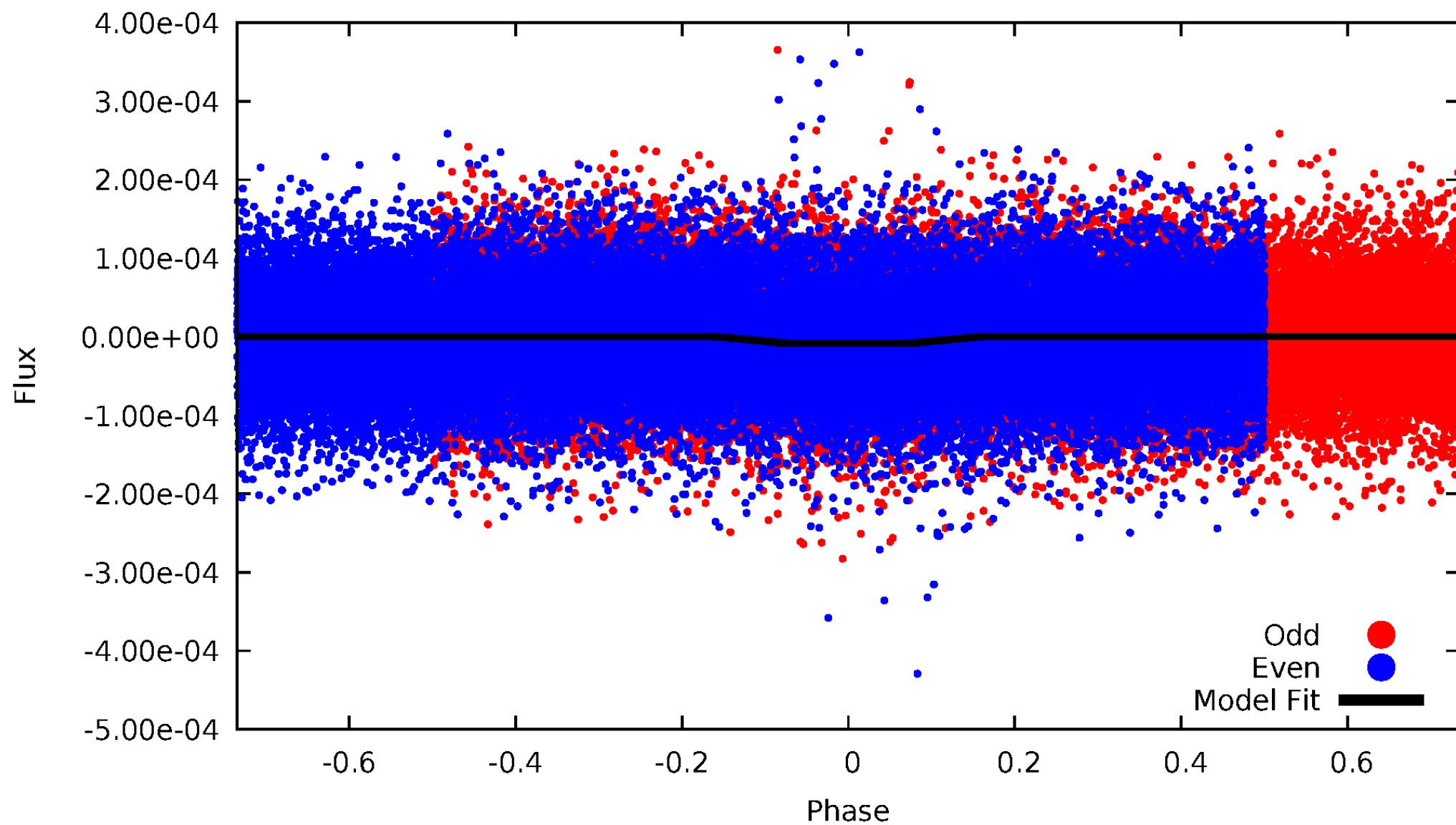
DV Odd/Even

TCE 004650995-01



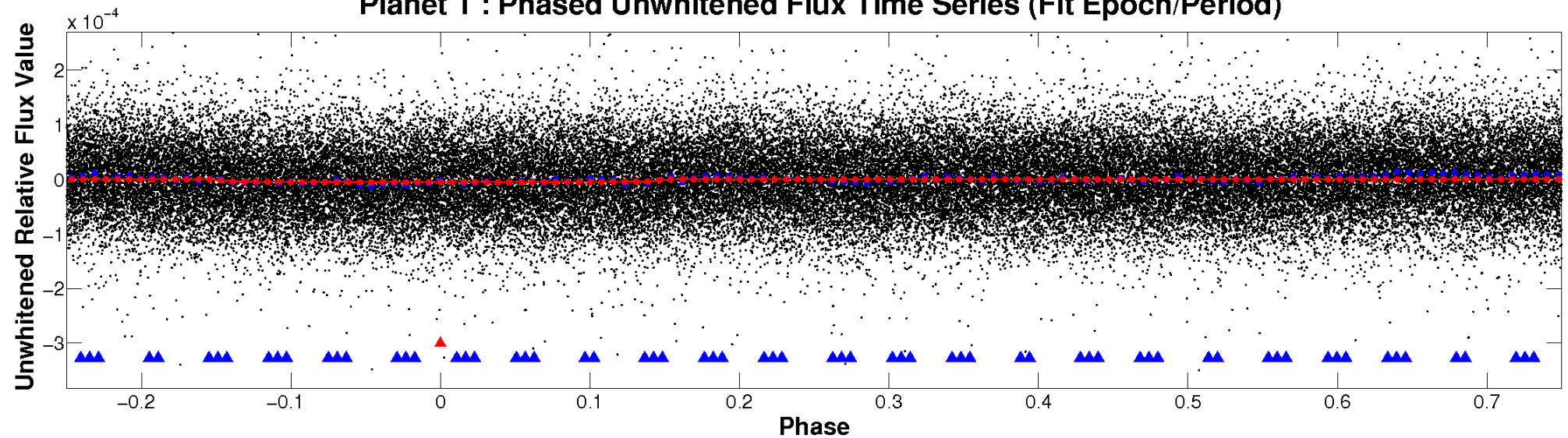
ALT Odd/Even

TCE 004650995-01

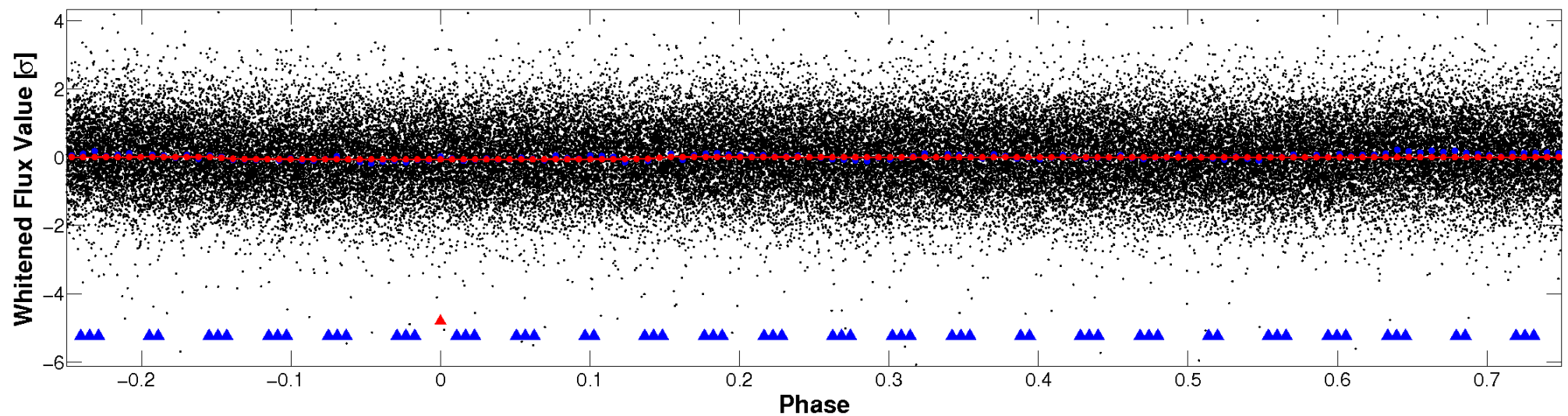


Non-Whitened Vs. Whitened Light Curve

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

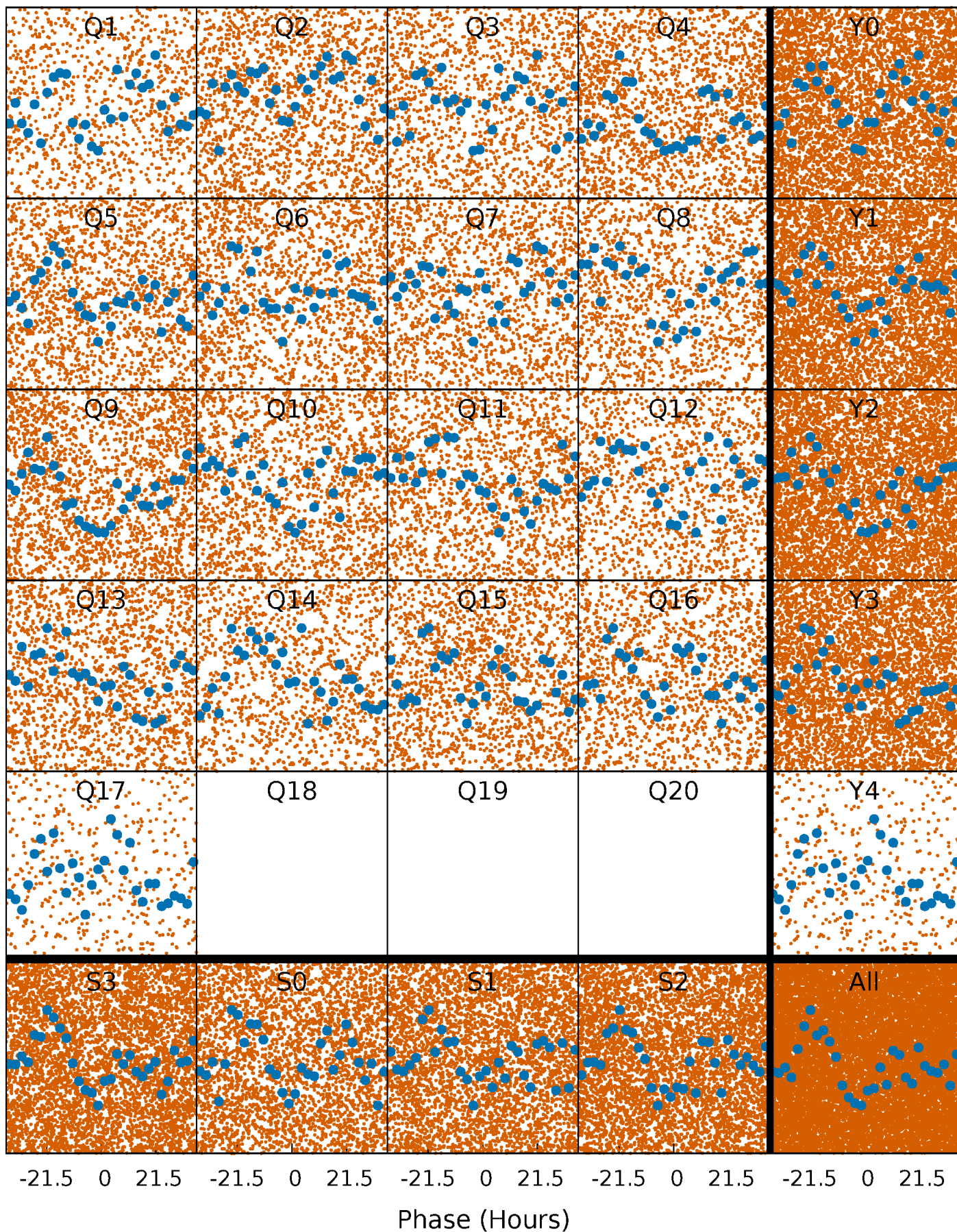


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



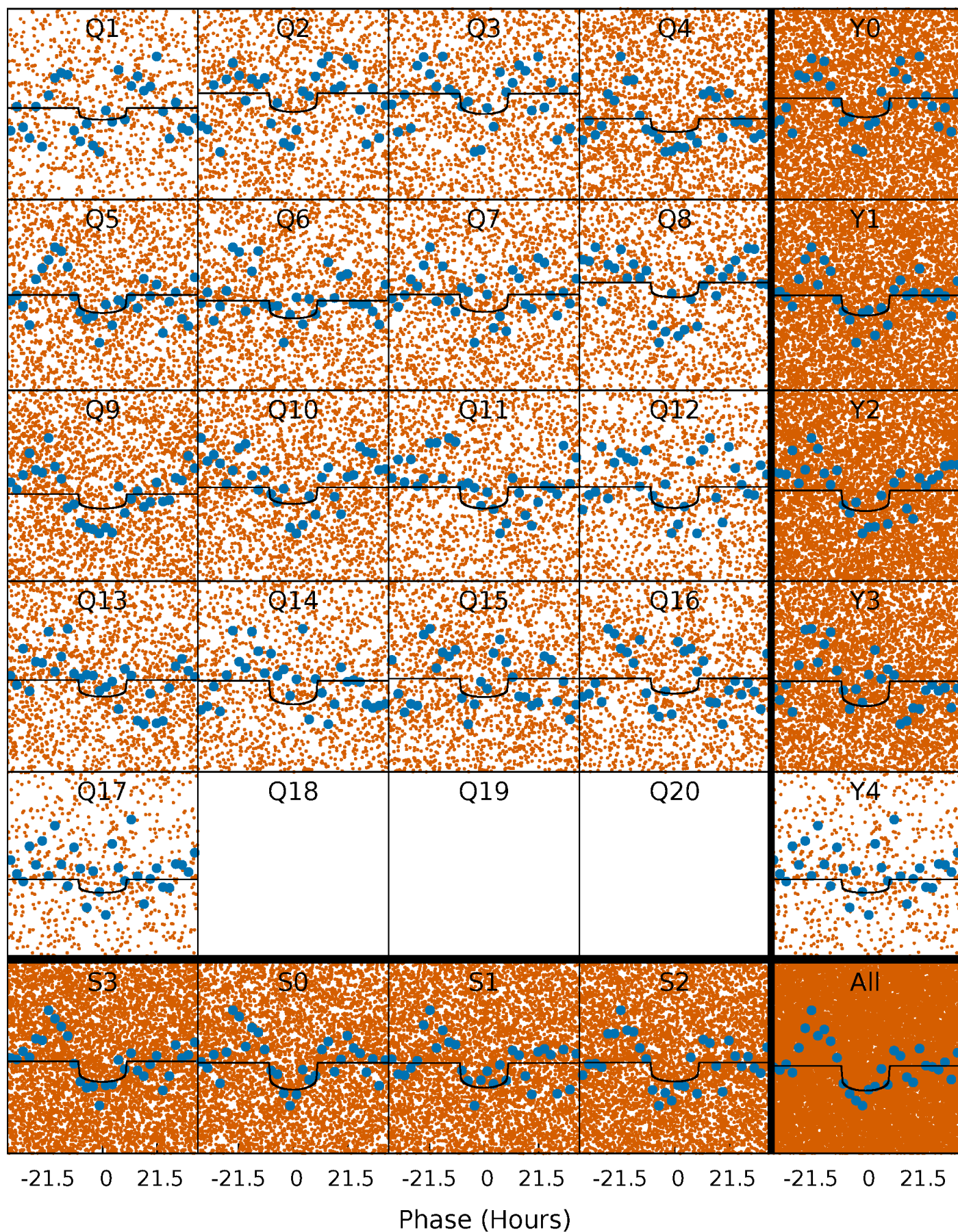
PDC Quarter-Phased Transit Curves

TCE 004650995-01 P= 2.650055 Days $T_0=132.005886$ (BKJD)



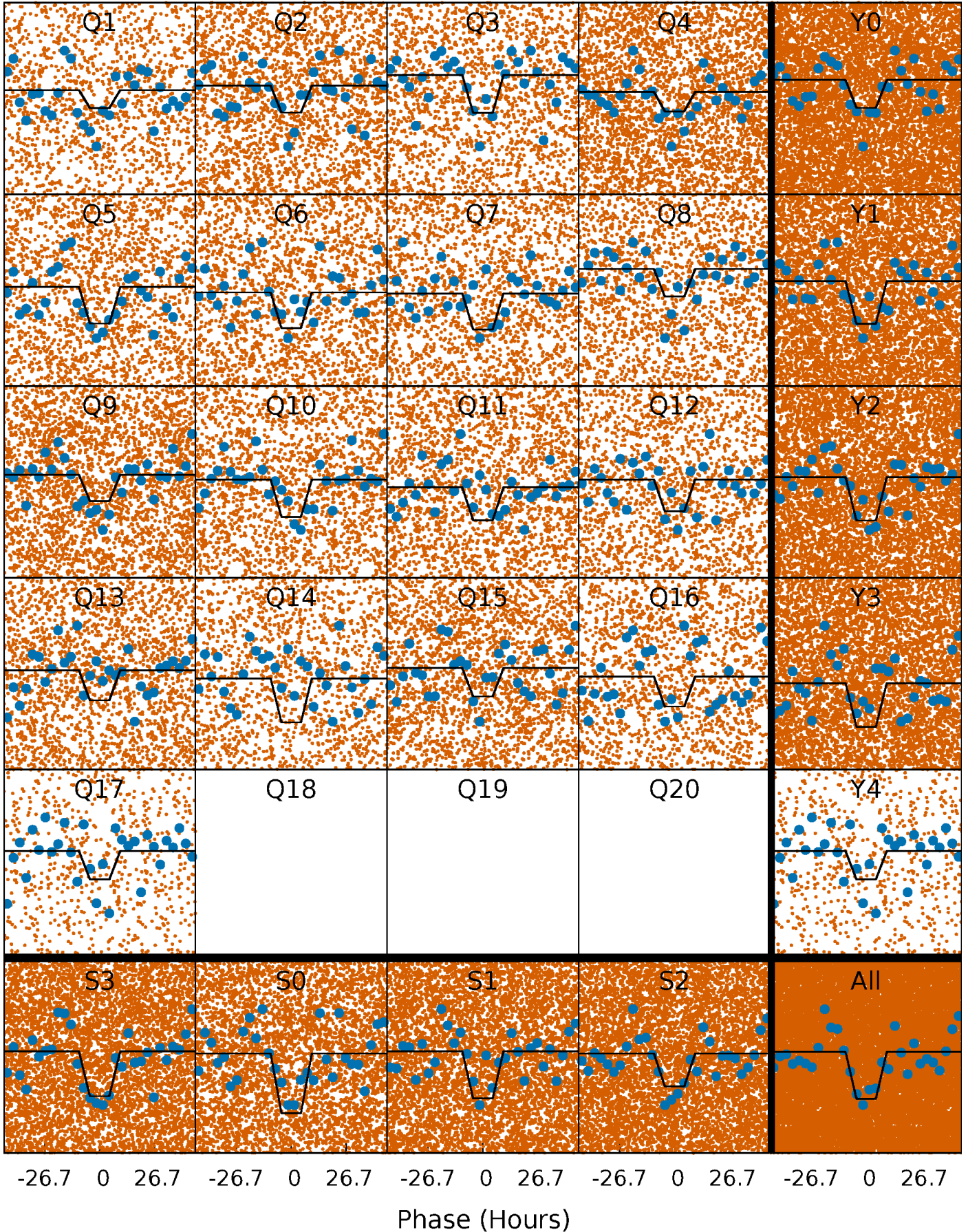
DV Quarter-Phased Transit Curves

TCE 004650995-01 P= 2.650055 Days $T_0=132.005886$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

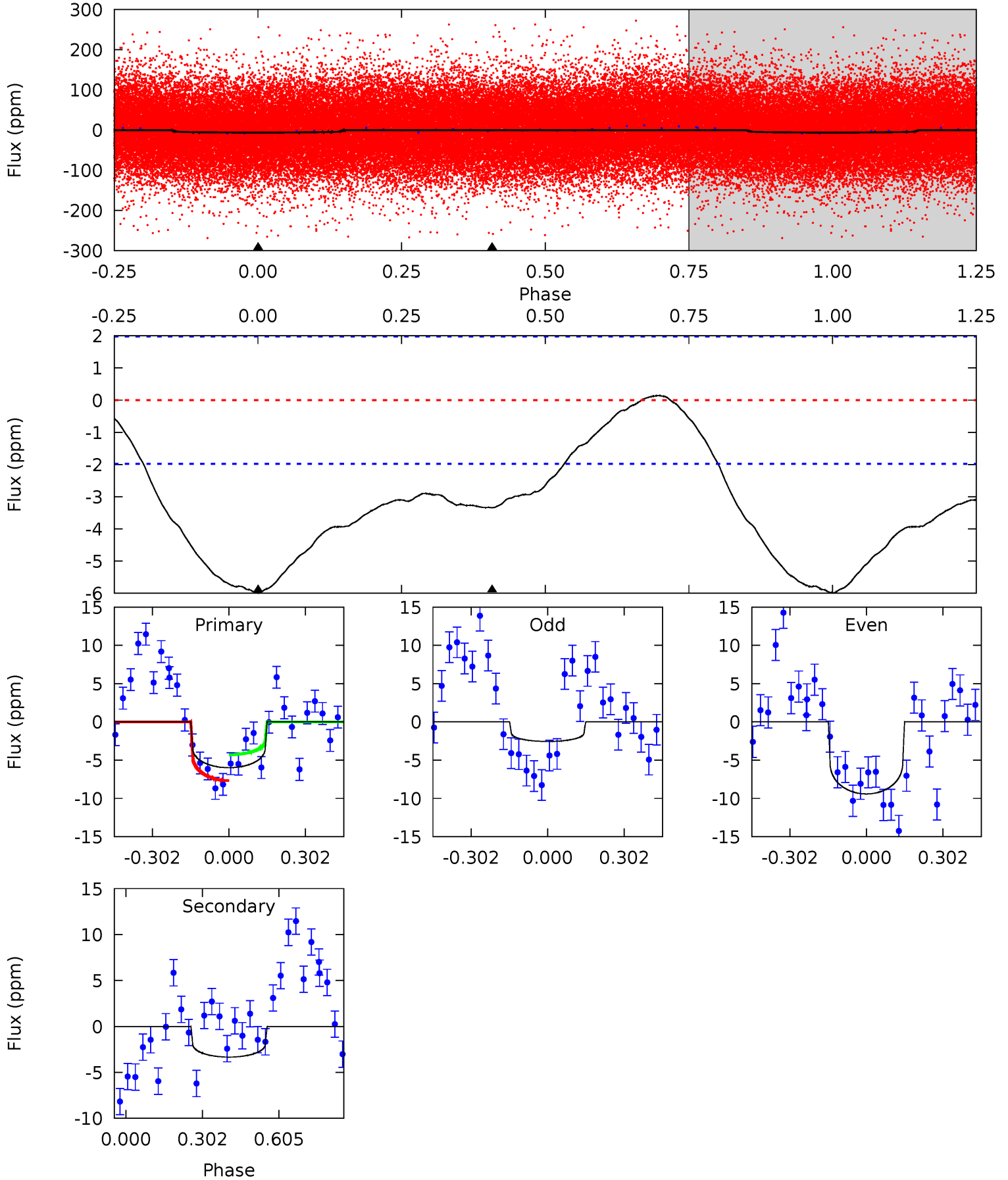
TCE 004650995-01 P= 2.649871 Days $T_0=131.971128$ (BKJD)



DV Model-Shift Uniqueness Test

004650995-01, P = 2.650055 Days, E = 129.355831 Days

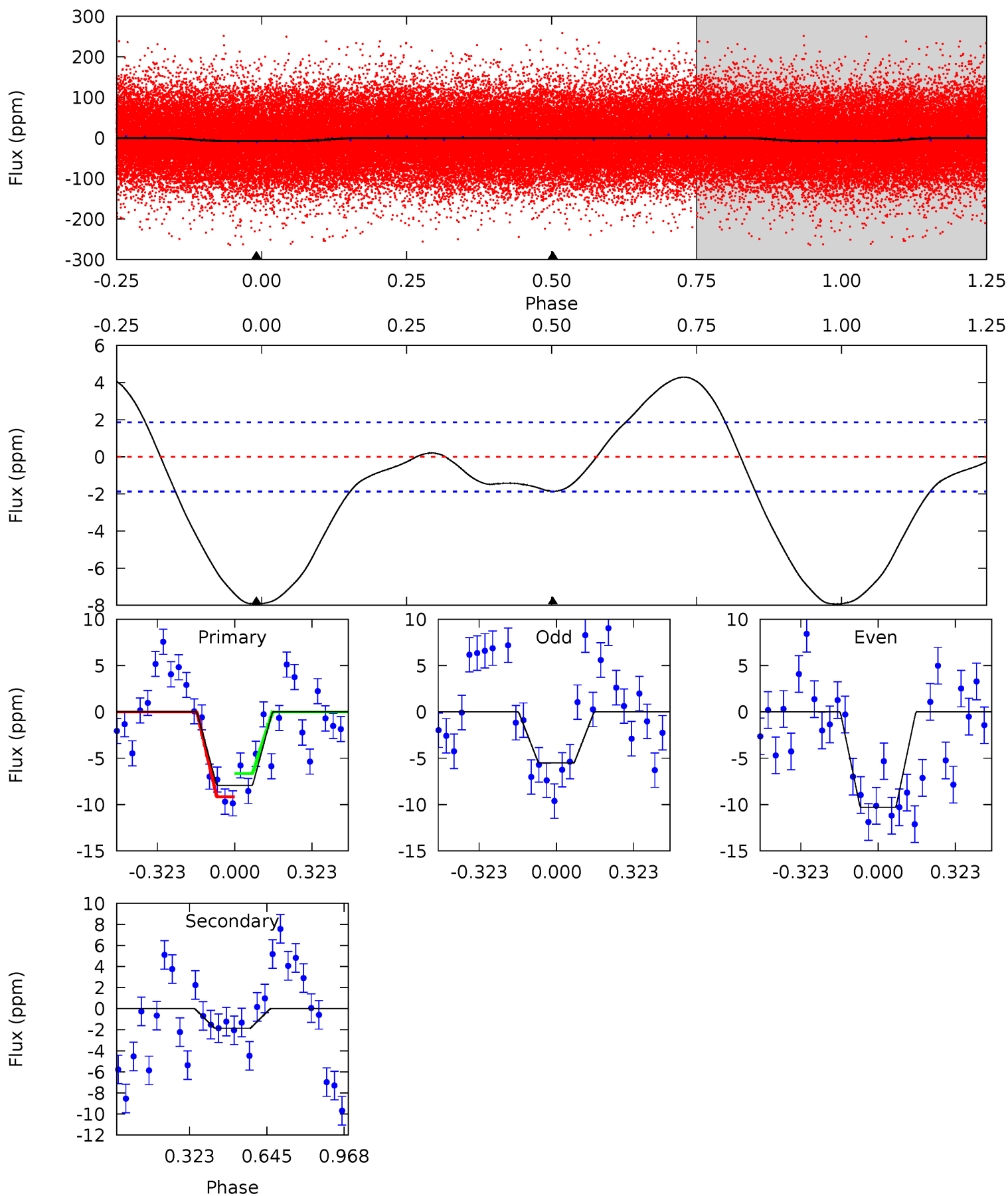
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	7.30	0	0	4.33	1.03	0.47	13.1	13.1	7.30	7.30	7.61	1.03	0.02	3.76



Alt Model-Shift Uniqueness Test

004650995-01, P = 2.649871 Days, E = 129.321257 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	4.30	0	0	4.31	0.99	4.97	18.3	18.3	4.30	4.30	5.58	0.93	0.35	2.90



Stellar Parameters For KIC 004650995

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7571^{+211}_{-342}	$4.075^{+0.124}_{-0.170}$	$0.100^{+0.200}_{-0.350}$	$2.005^{+0.523}_{-0.428}$	$1.742^{+0.195}_{-0.268}$	$0.304^{+0.234}_{-0.141}$
	+3%/-5%	+3%/-4%	+200%/-350%	+26%/-21%	+11%/-15%	+77%/-46%
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 004650995-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3 ± 0	$0.52^{+0.27}_{-0.27}$	3126^{+206}_{-212}	6475^{+3953}_{-1223}	14^{+49}_{-8}
Alt.	-2 ± 0	$0.66^{+0.26}_{-0.28}$	3122^{+217}_{-205}	4997^{+1492}_{-732}	$4.683^{+9.563}_{-2.453}$

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

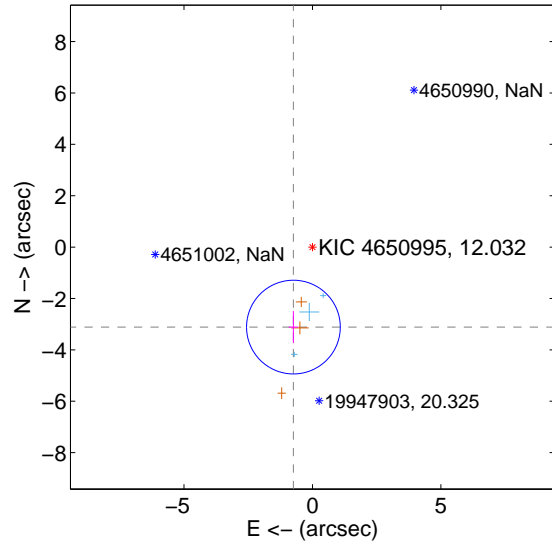
Supplemental centroid analysis for 004650995-01. Kepler magnitude: 12.03. Transit SNR 8.14

There are 3 quarters with good PRF difference image offsets

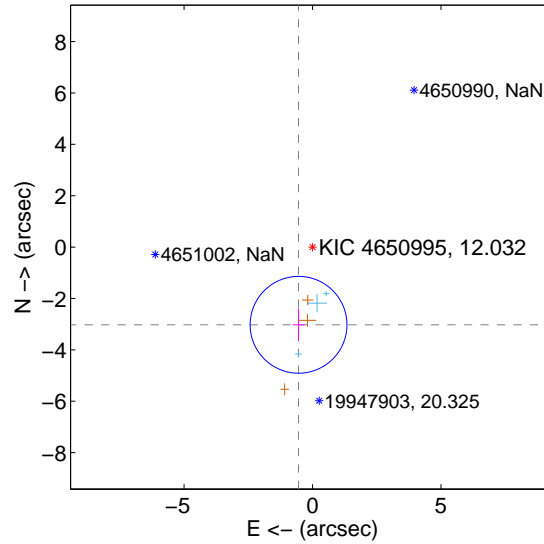
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.201 ± 0.608	5.26	0.740 ± 0.185	-3.114 ± 0.623
PRF-fit source offset from KIC position	3.074 ± 0.628	4.89	0.544 ± 0.231	-3.025 ± 0.637
photometric centroid source offset	3.20 ± 1.55	2.07	3.01 ± 1.51	1.10 ± 1.79

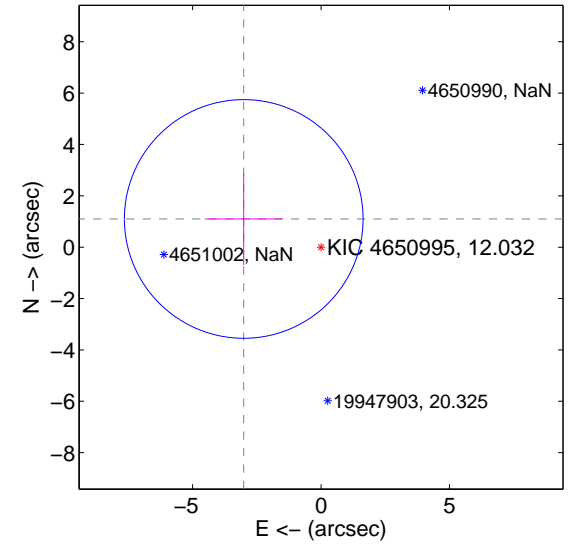
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

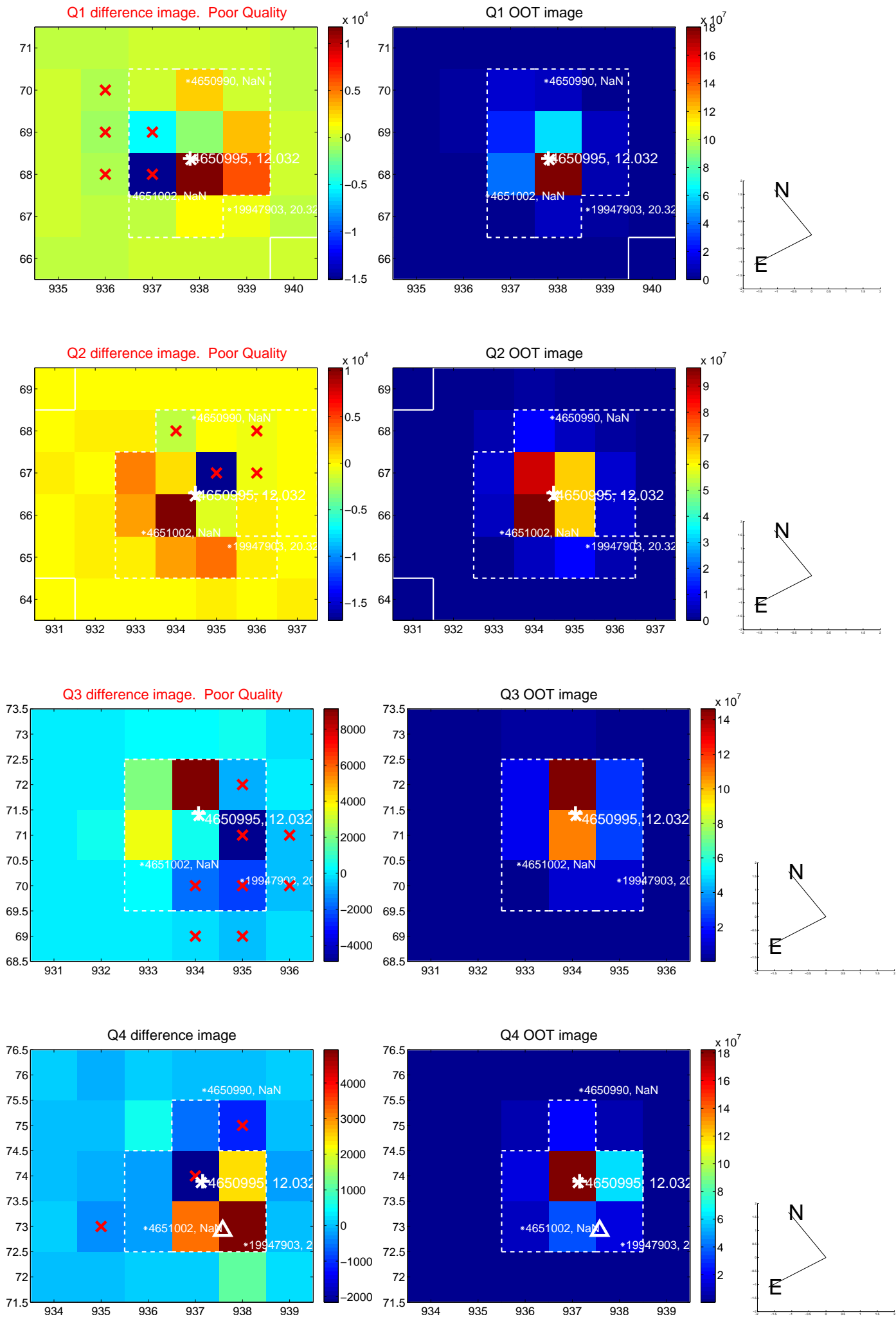


offset from photometric centroids

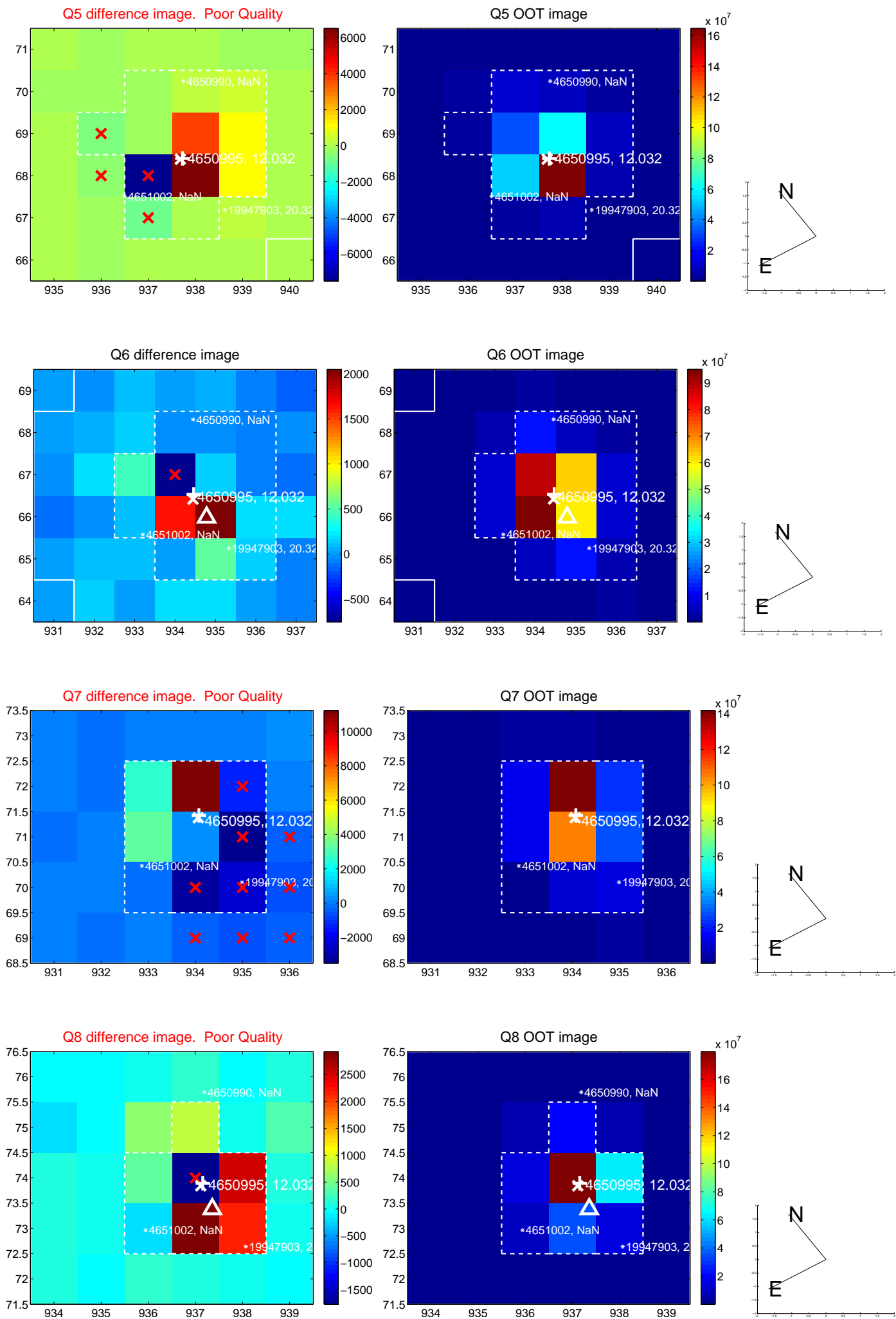


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

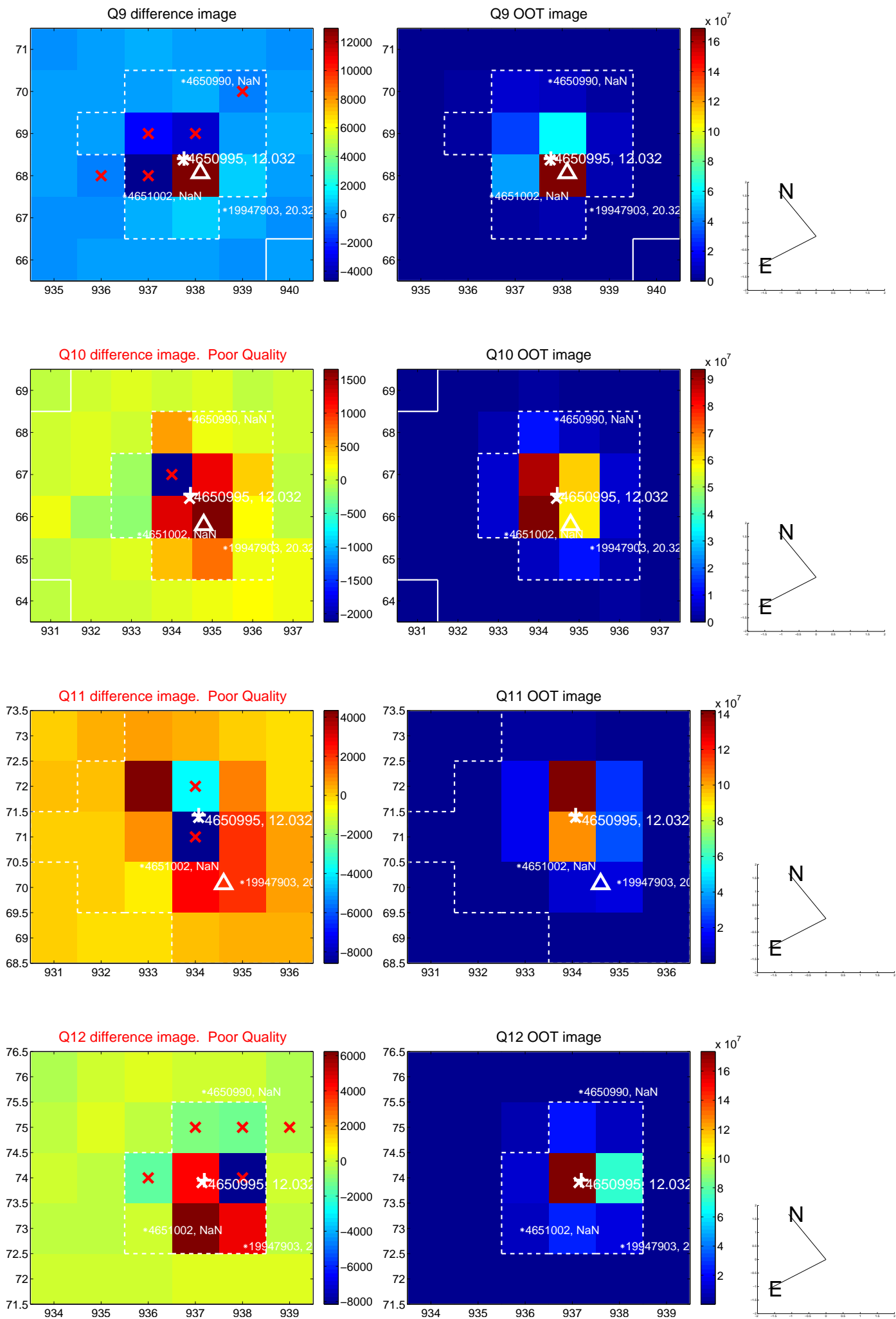
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



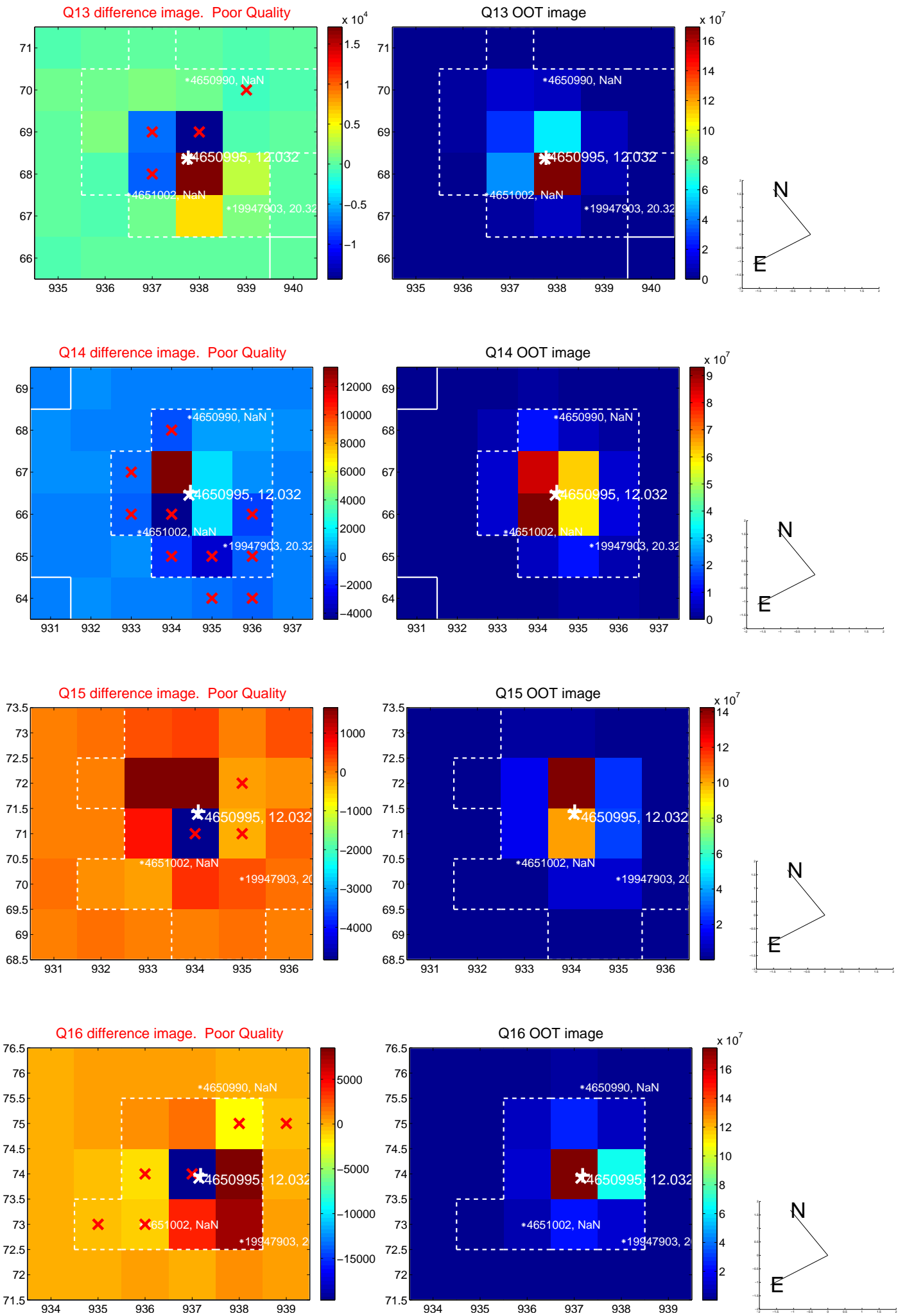
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



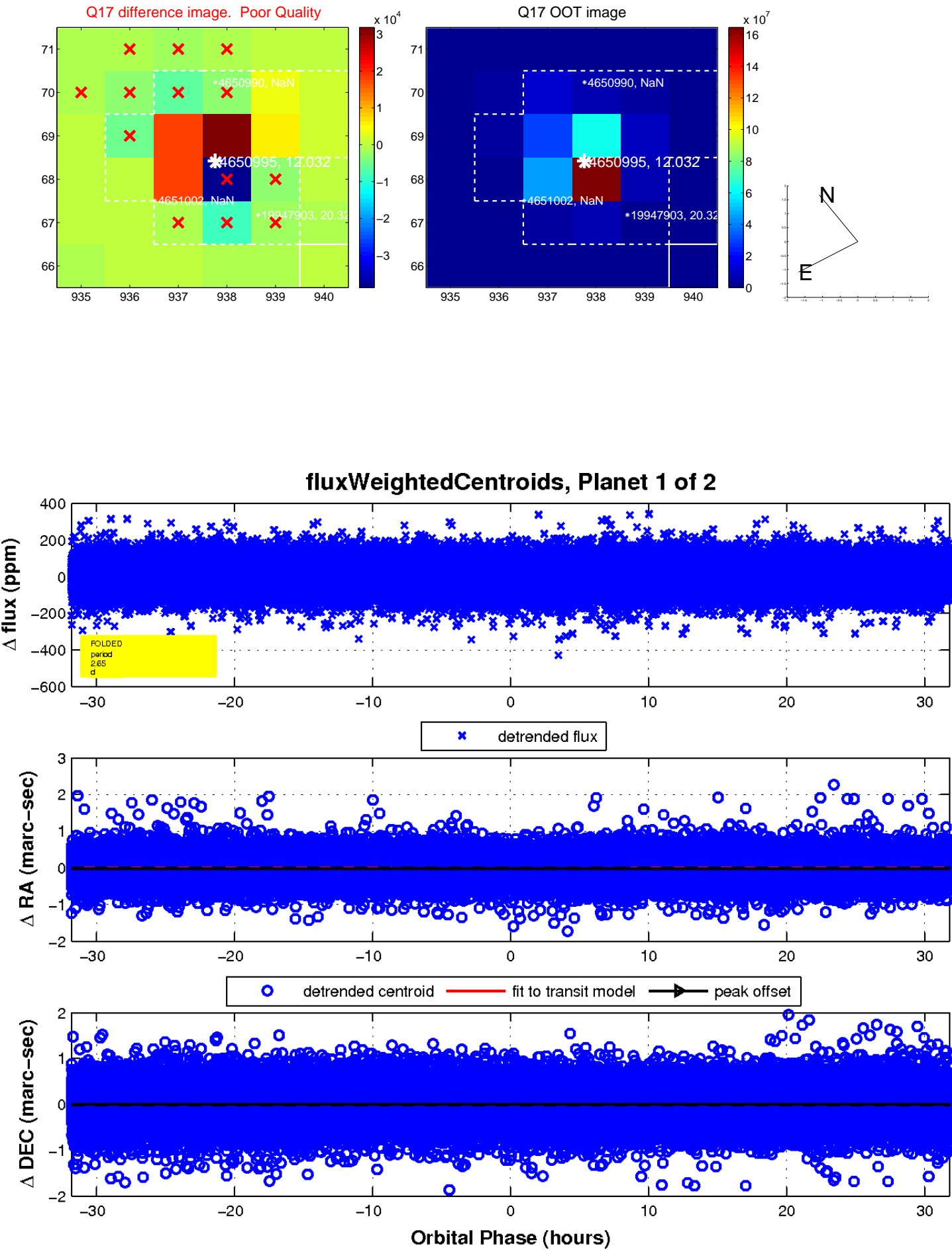
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



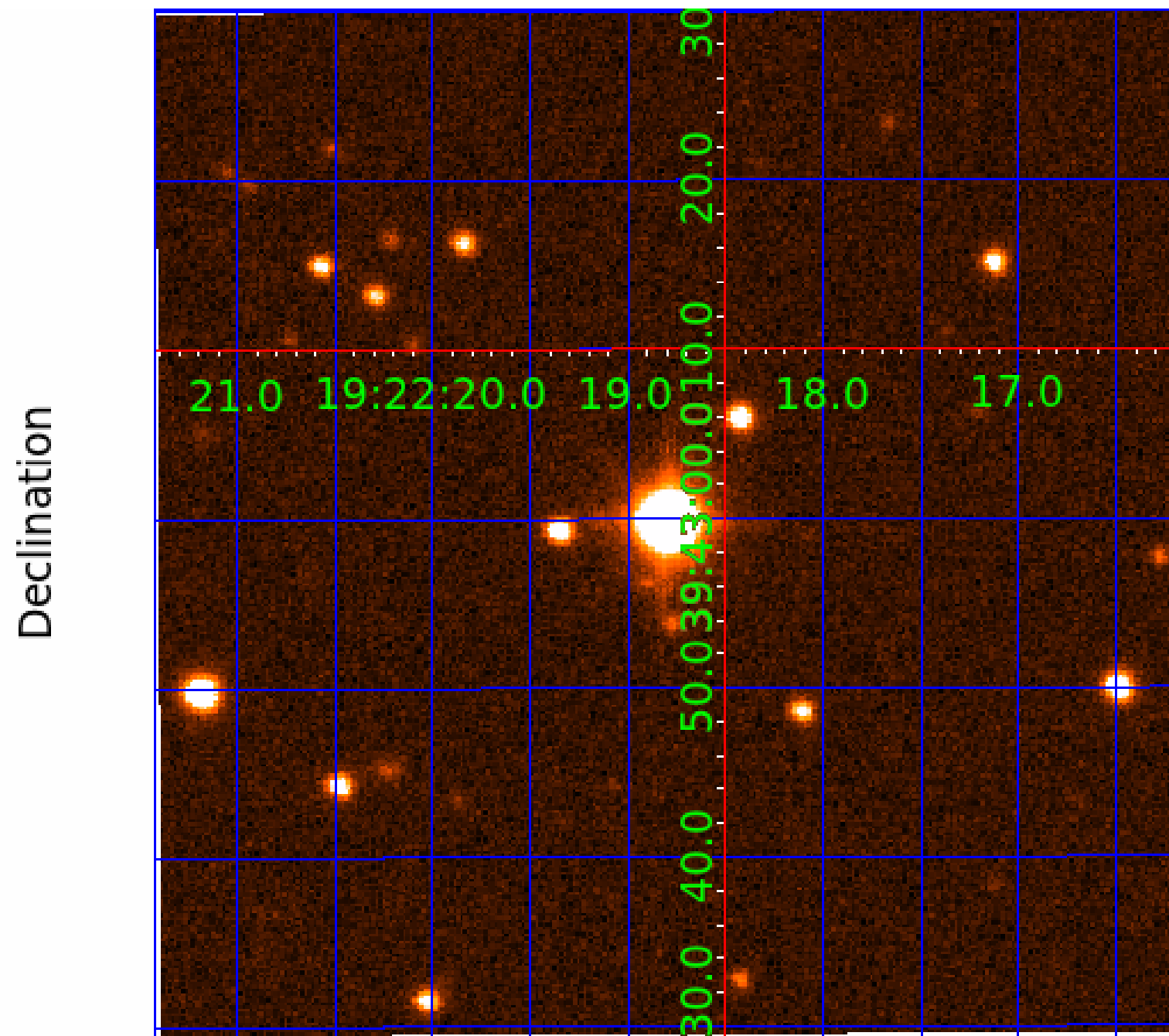
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004650995

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})
004650995-01	OBS	No	2.650055	132.005886	5.1	18.789	8.0	8.1	2.00	7571	0.48	5815.36
004650995-02	OBS	No	21.972720	134.610454	92.0	1.382	9.5	9.4	2.00	7571	1.96	346.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004650995-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
004650995-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

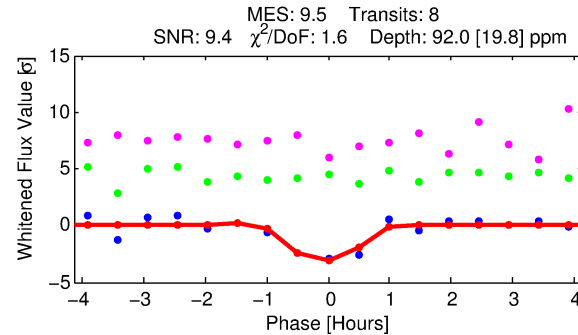
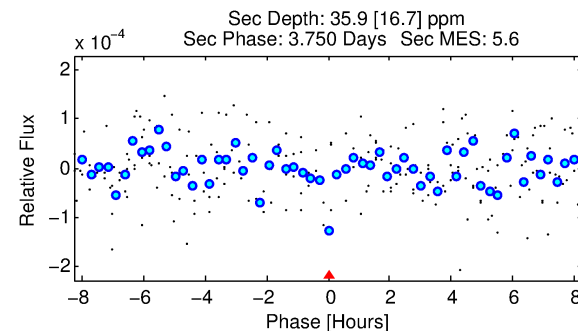
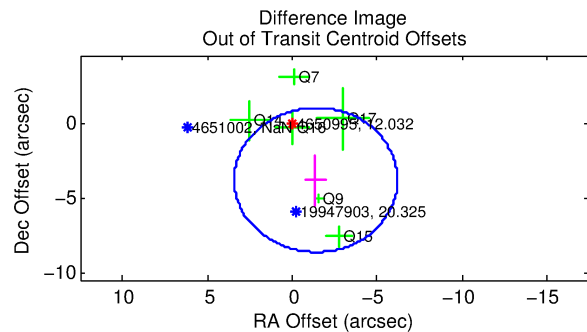
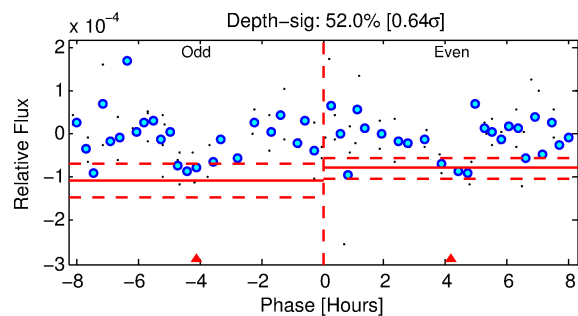
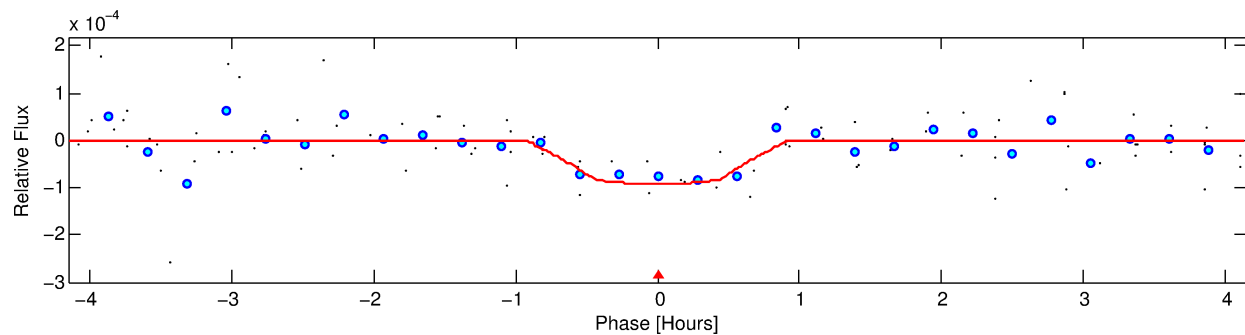
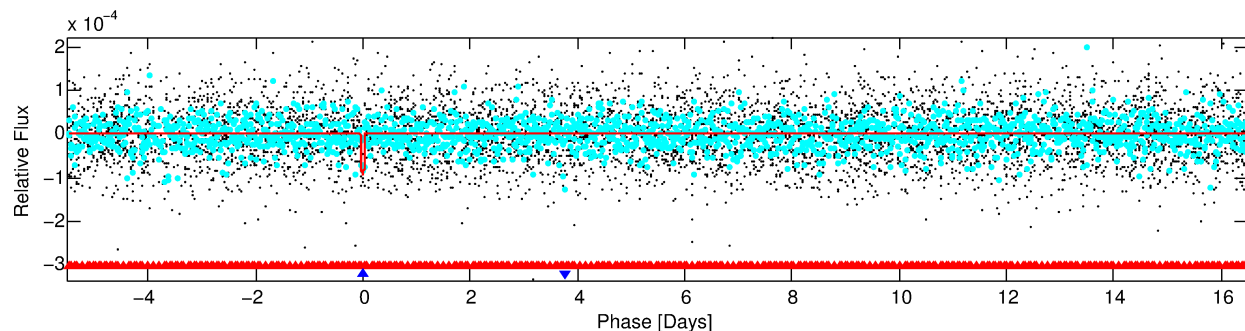
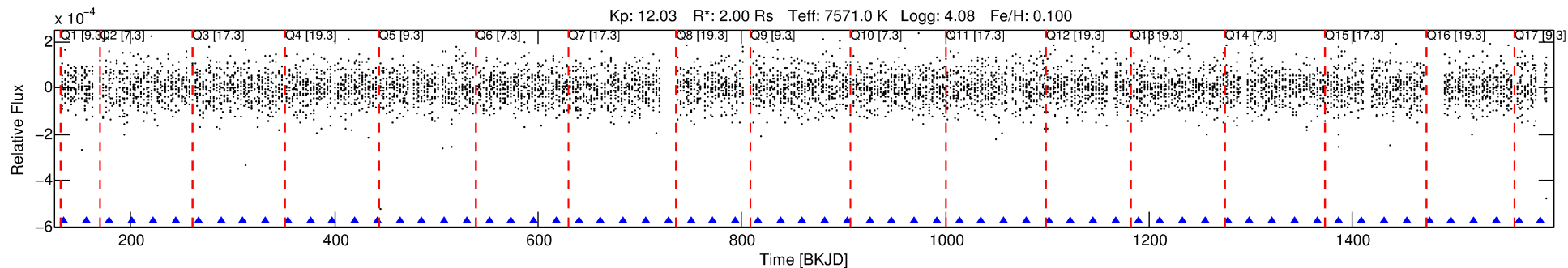
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004650995-02

No Significant Match Found

DV One-Page Summary

KIC: 4650995 Candidate: 2 of 2 Period: 21.973 d



DV Fit Results:

Period = 21.97272 [0.00027] d
Epoch = 134.6105 [0.0097] BKJD
Rp/R* = 0.0090 [0.0249]
a/R* = 122.25 [2067.88]
b = 0.07 [253.34]
Seff = 346.53 [125.42]
Teq = 1100 [100] K
Rp = 1.96 [5.48] Re
a = 0.1848 [0.0402] AU
Ag = 175.74 [983.07] [0.18 σ]
Teffp = 6193 [8652] K [0.59 σ]

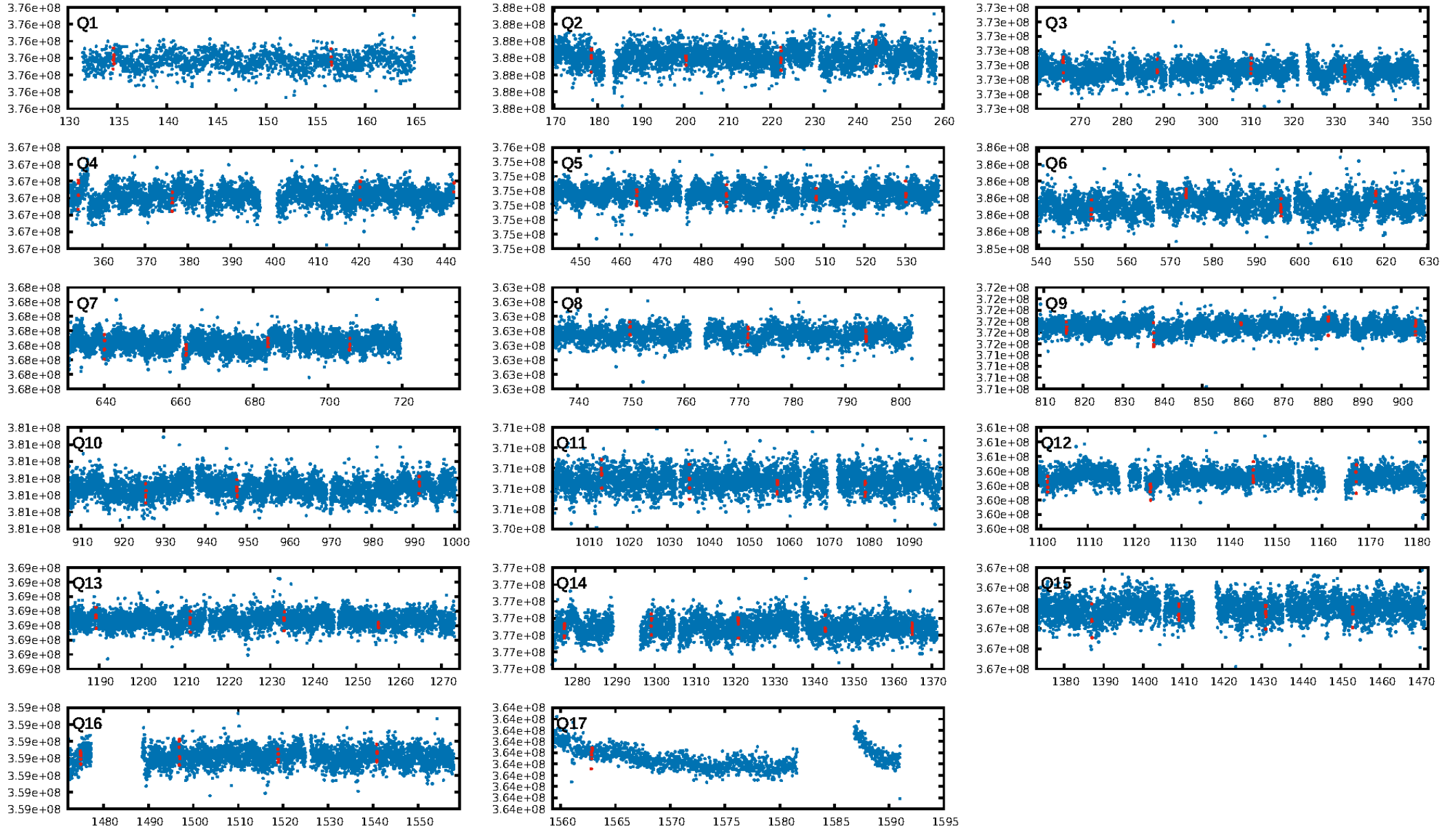
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [24.62 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 30.9%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: 2.74e-07
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 8.112
Centroid-sig: 0.6%
Centroid-so: 1.217 arcsec [1.72 σ]
OotOffset-rm: 4.073 arcsec [2.54 σ]
KicOffset-rm: 4.044 arcsec [2.54 σ]
OotOffset-st: 1/2/1/2 [6]
KicOffset-st: 1/2/1/2 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.88 [15/17]

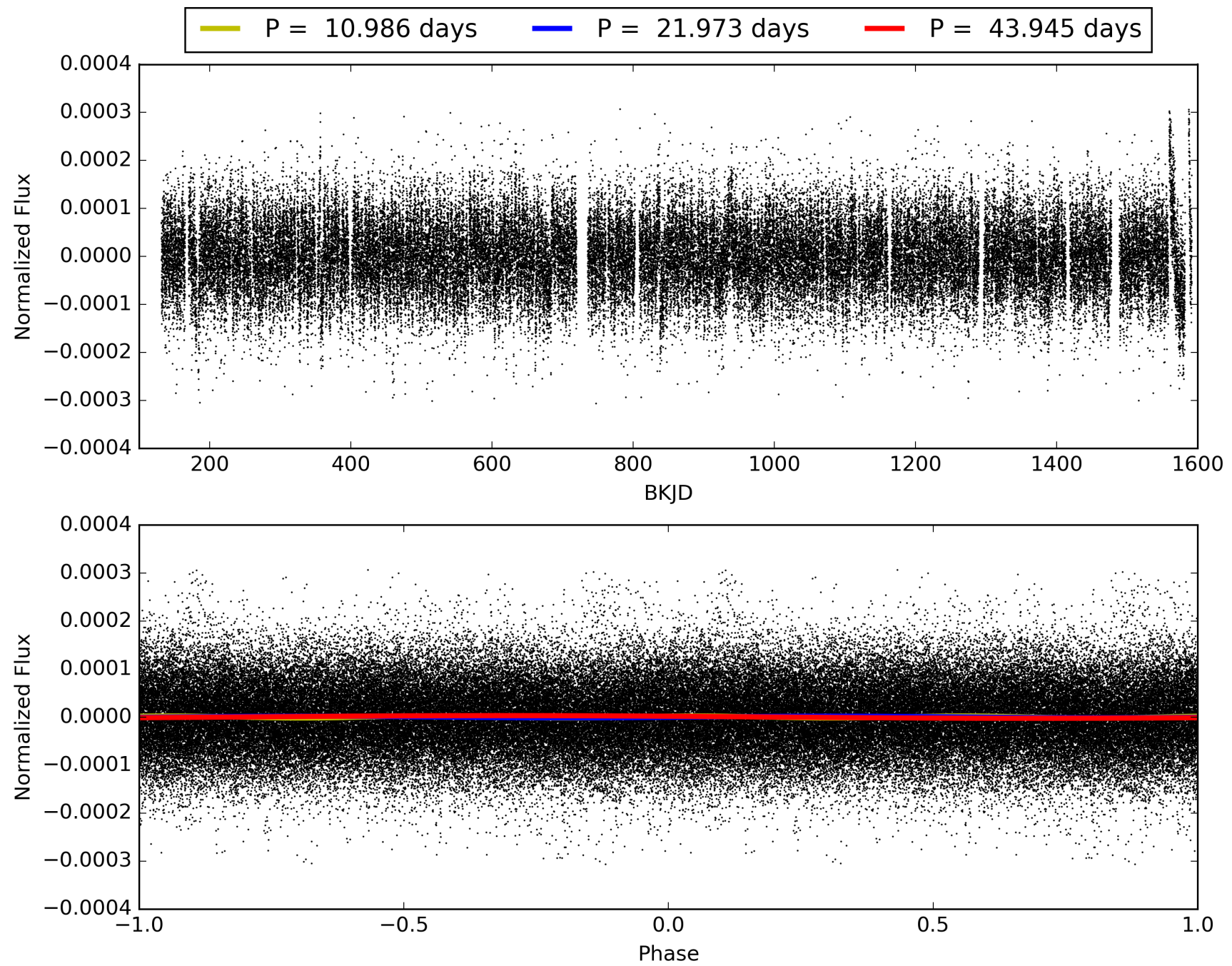
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:57:53 Z

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

TCE 004650995-02, PDC Light Curves

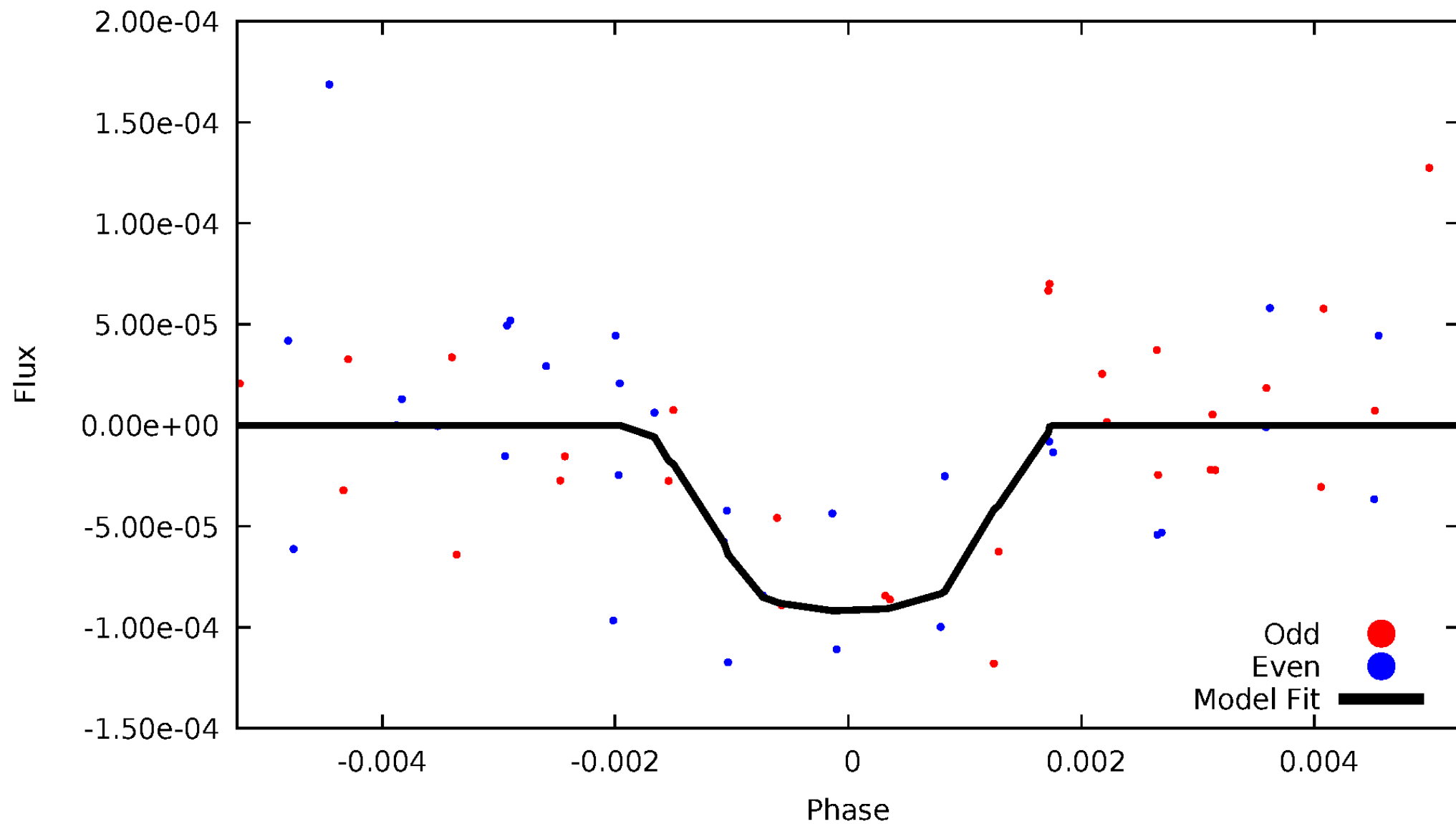


TCE 004650995-02



DV Odd/Even

TCE 004650995-02

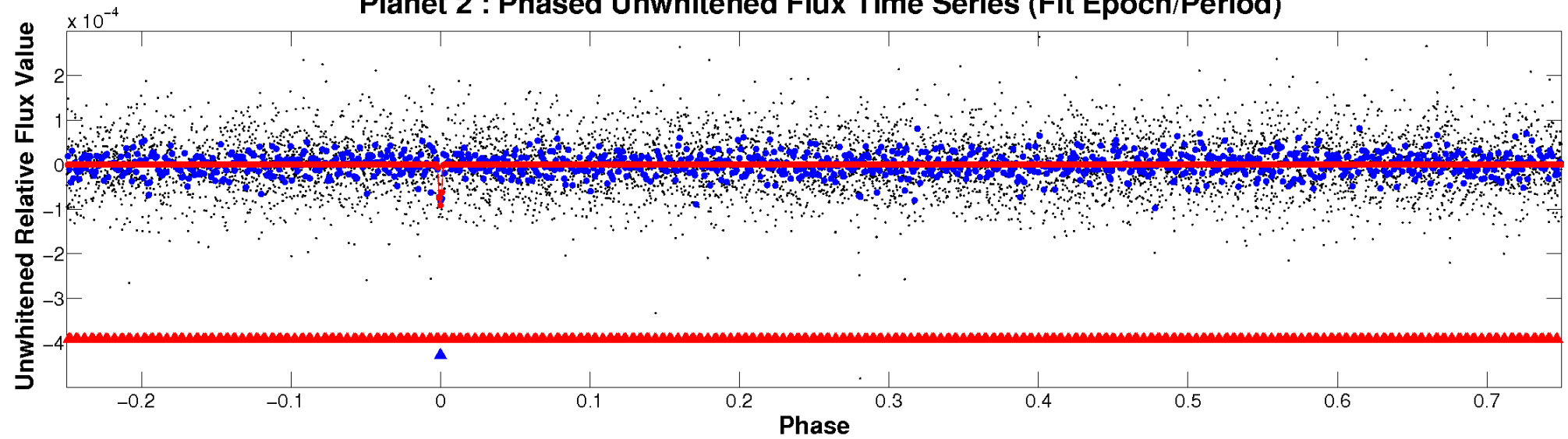


ALT Odd/Even

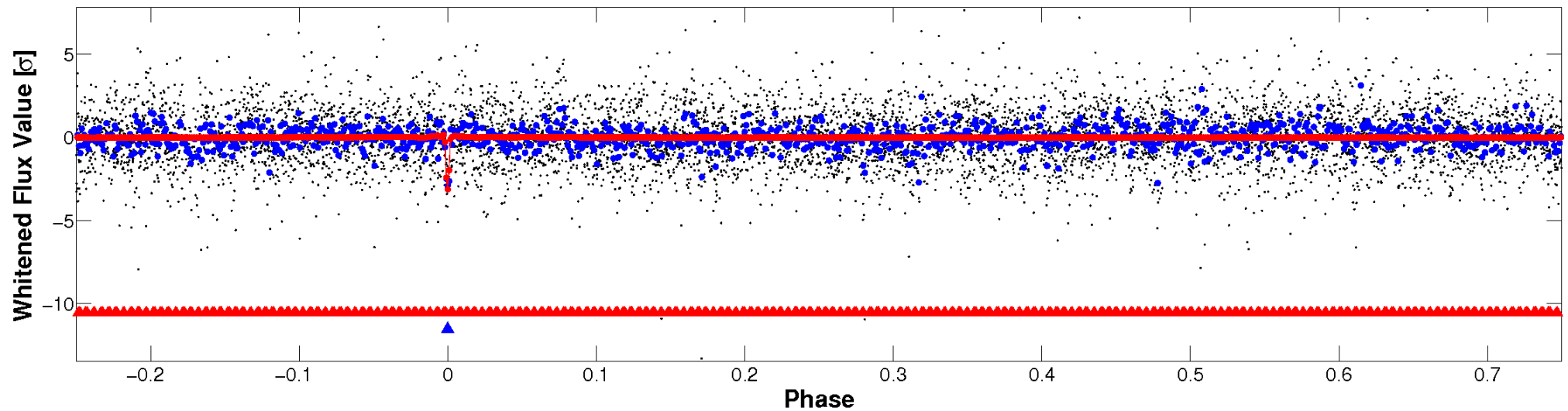
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

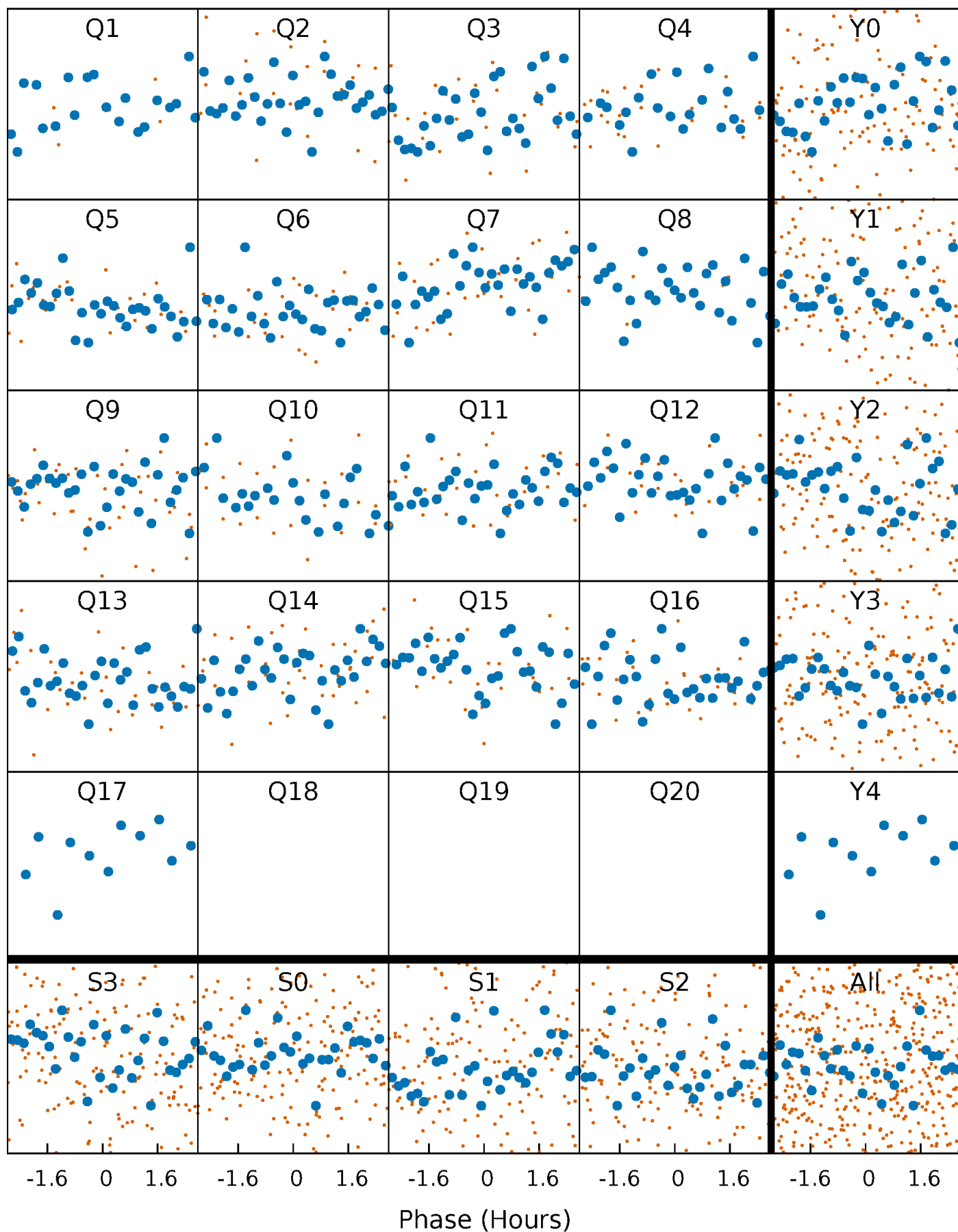


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



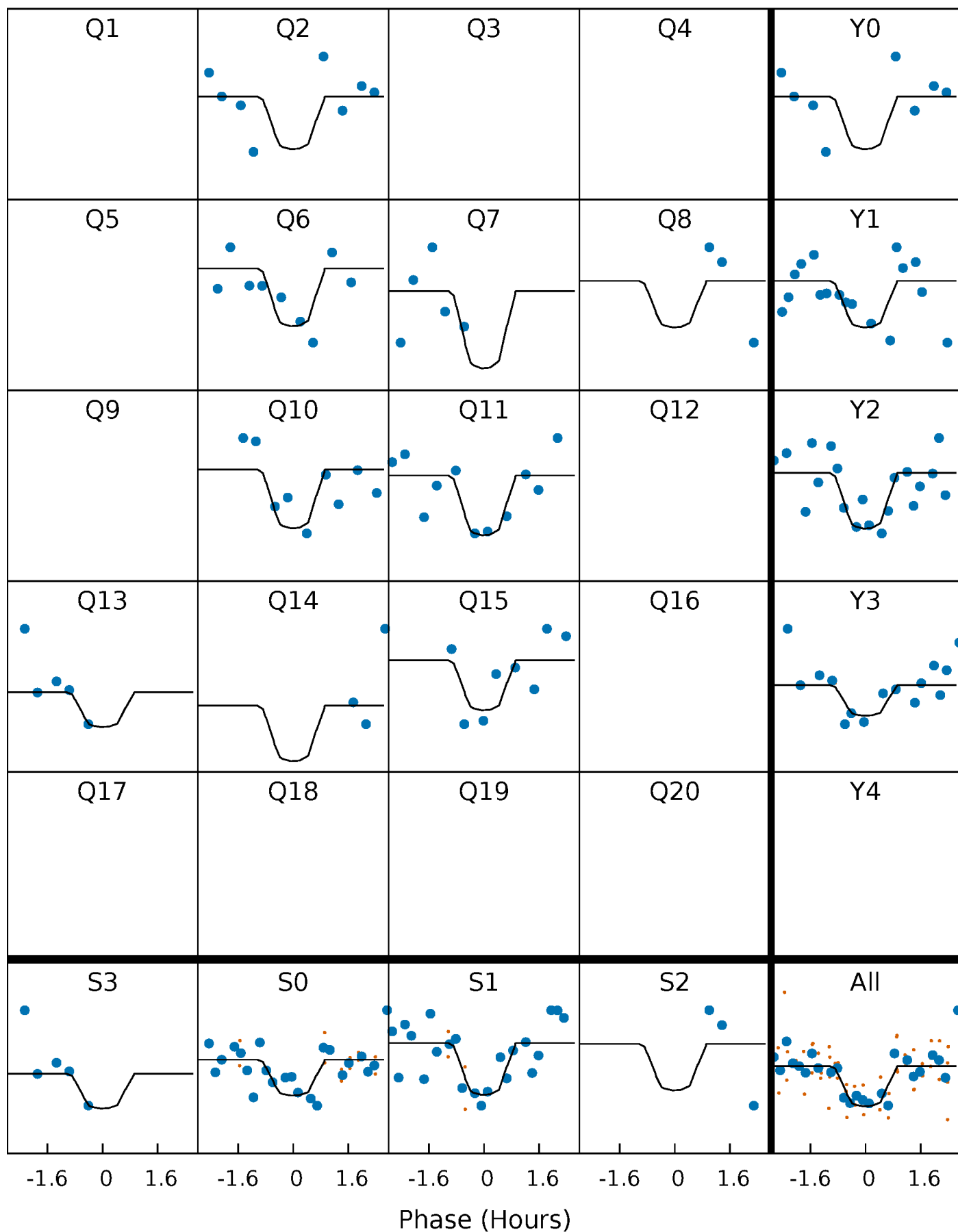
PDC Quarter-Phased Transit Curves

TCE 004650995-02 P= 21.972720 Days $T_0=134.610454$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004650995-02 P= 21.972720 Days $T_0=134.610454$ (BKJD)

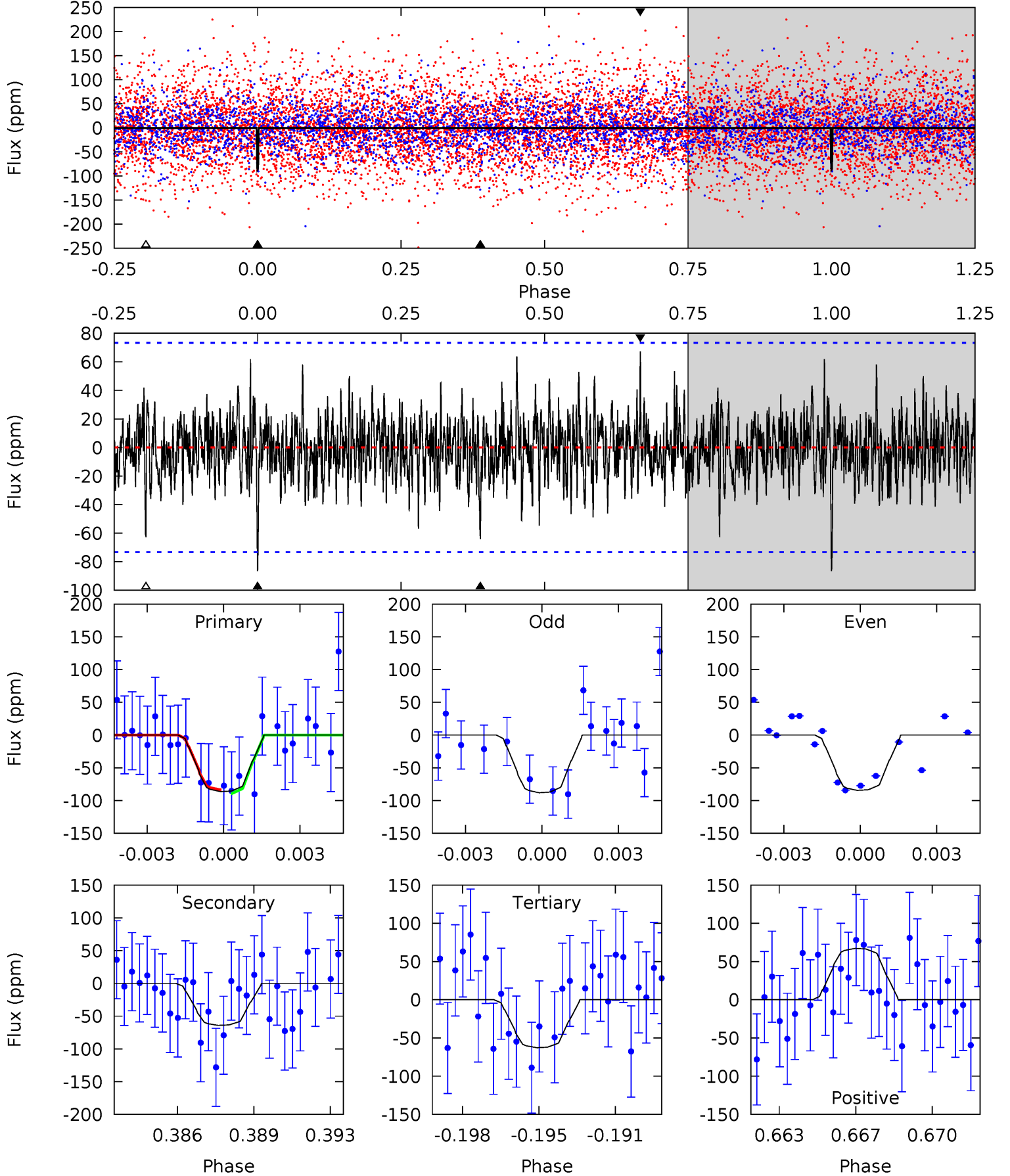


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004650995-02, P = 21.972720 Days, E = 112.637734 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.17	4.58	4.48	4.80	5.23	2.94	1.26	1.69	1.37	0.10	-0.23	0.13	0.98	0.44	0.21



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004650995

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7571^{+211}_{-342}	$4.075^{+0.124}_{-0.170}$	$0.100^{+0.200}_{-0.350}$	$2.005^{+0.523}_{-0.428}$	$1.742^{+0.195}_{-0.268}$	$0.304^{+0.234}_{-0.141}$
	+3%/-5%	+3%/-4%	+200%/-350%	+26%/-21%	+11%/-15%	+77%/-46%
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 004650995-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-64 ± 14	$4.72^{+4.46}_{-3.17}$	1542^{+109}_{-101}	4704^{+3424}_{-1033}	54^{+440}_{-40}
Alt.	N/A	N/A	N/A	N/A	N/A

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

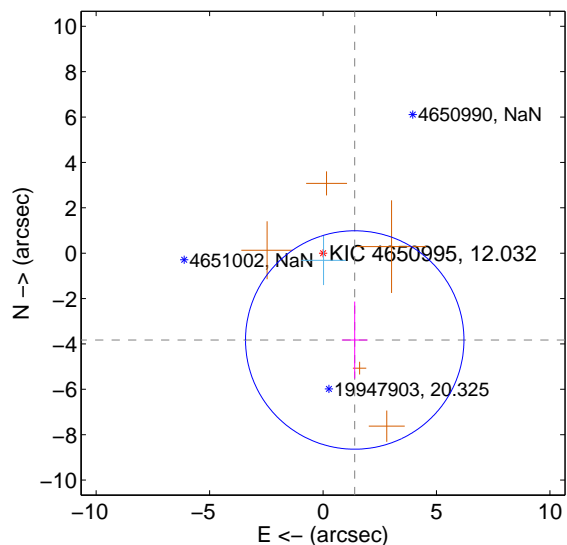
Supplemental centroid analysis for 004650995-02. Kepler magnitude: 12.03. Transit SNR 9.45

There are 1 quarters with good PRF difference image offsets

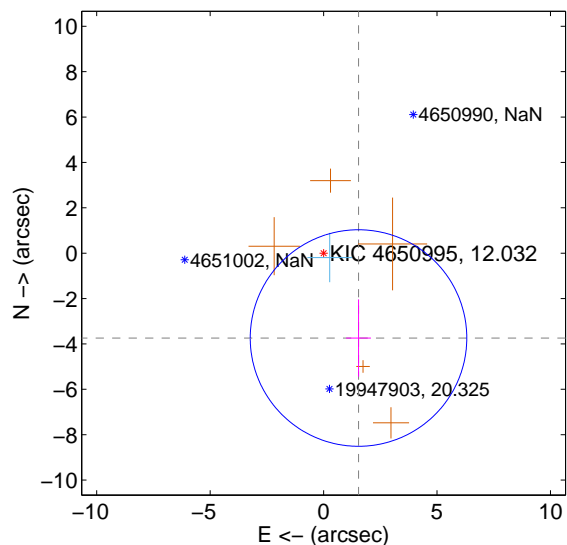
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.073 ± 1.604	2.54	-1.397 ± 0.565	-3.826 ± 1.695
PRF-fit source offset from KIC position	4.044 ± 1.591	2.54	-1.539 ± 0.548	-3.740 ± 1.705
photometric centroid source offset	1.22 ± 0.71	1.72	1.01 ± 0.68	-0.68 ± 0.76

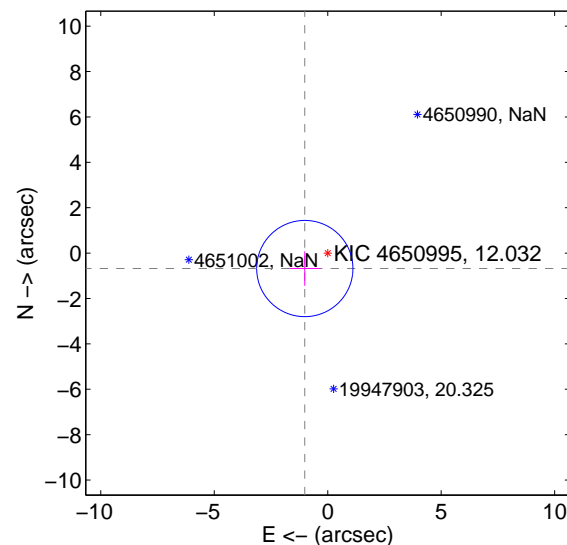
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

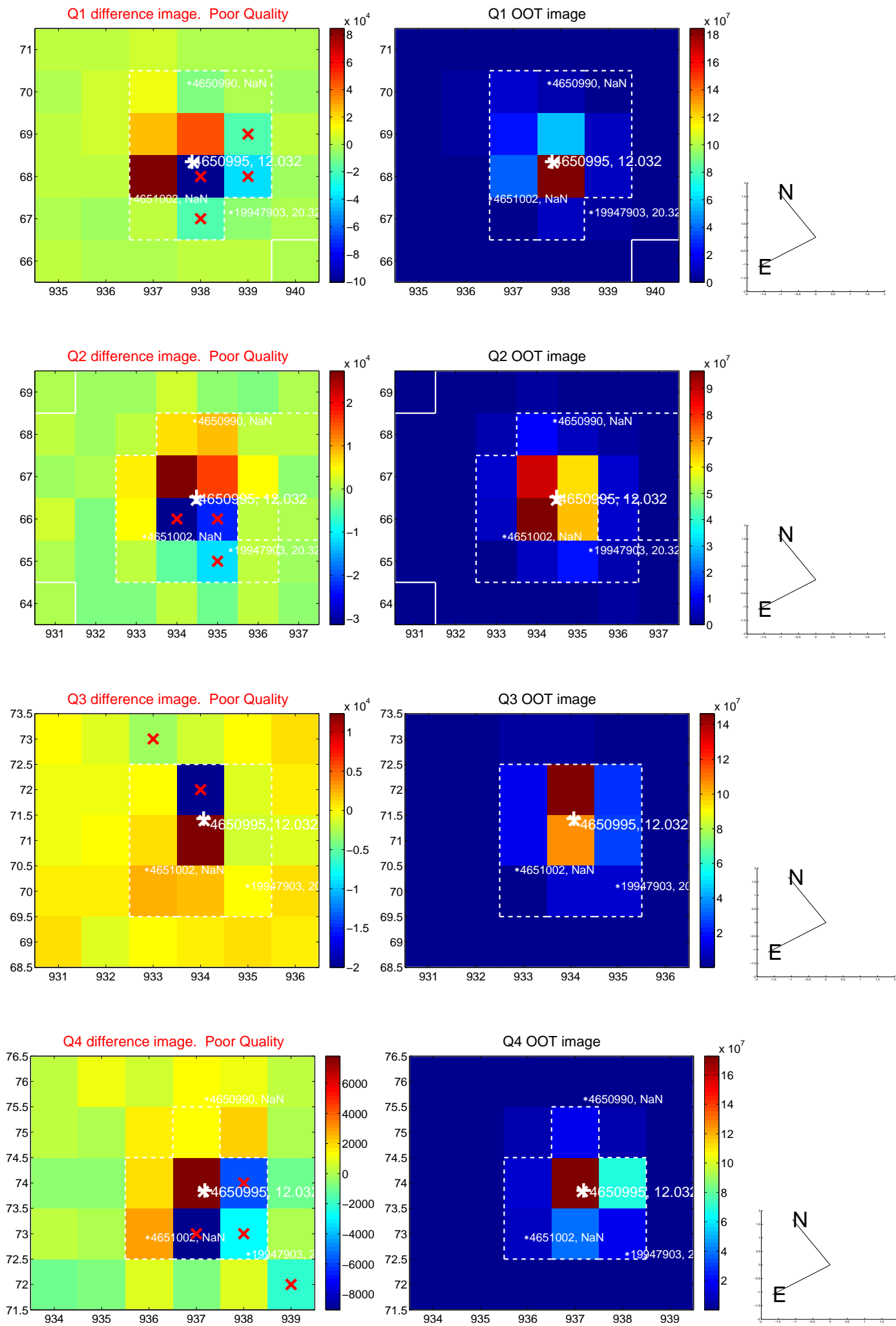


offset from photometric centroids

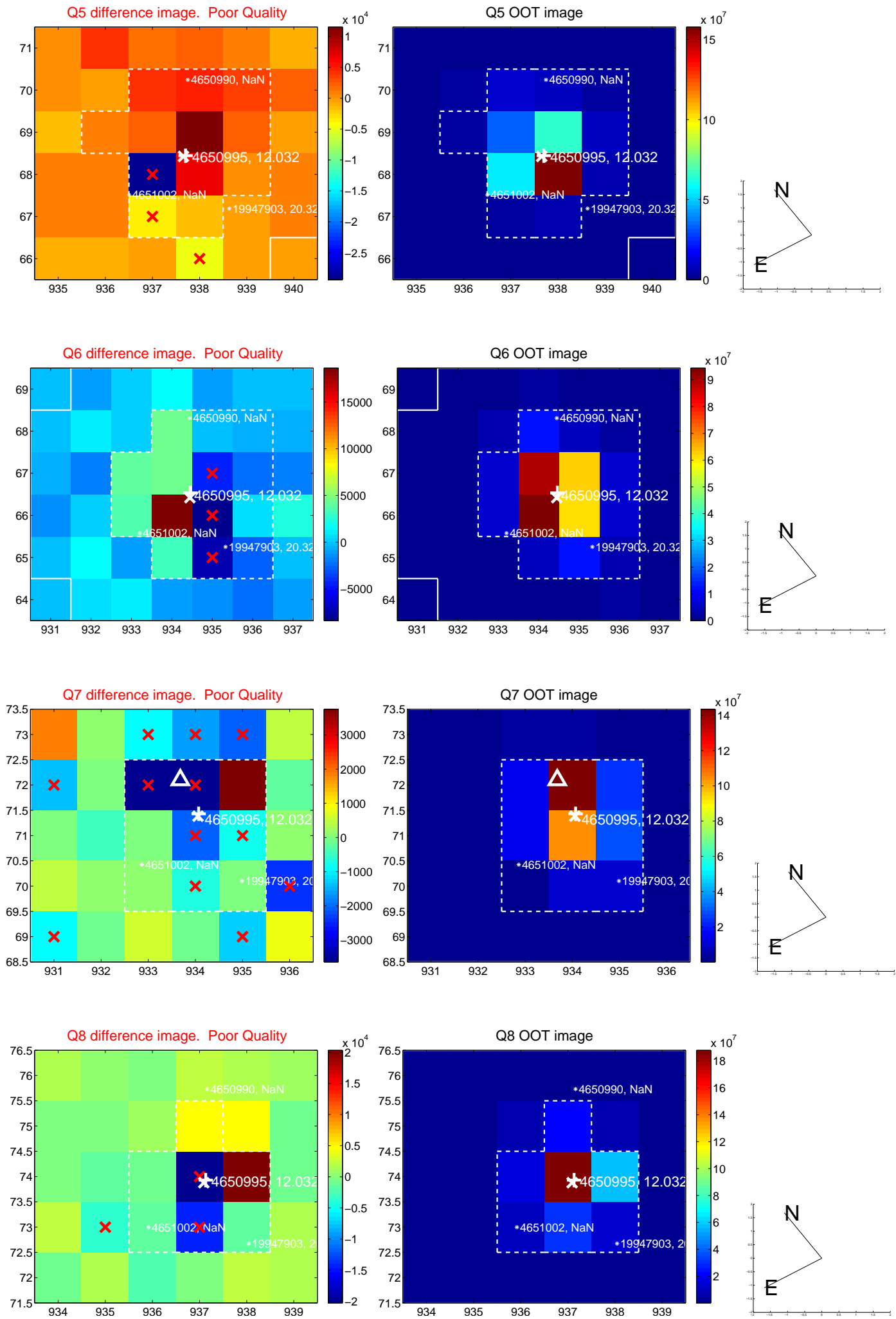


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

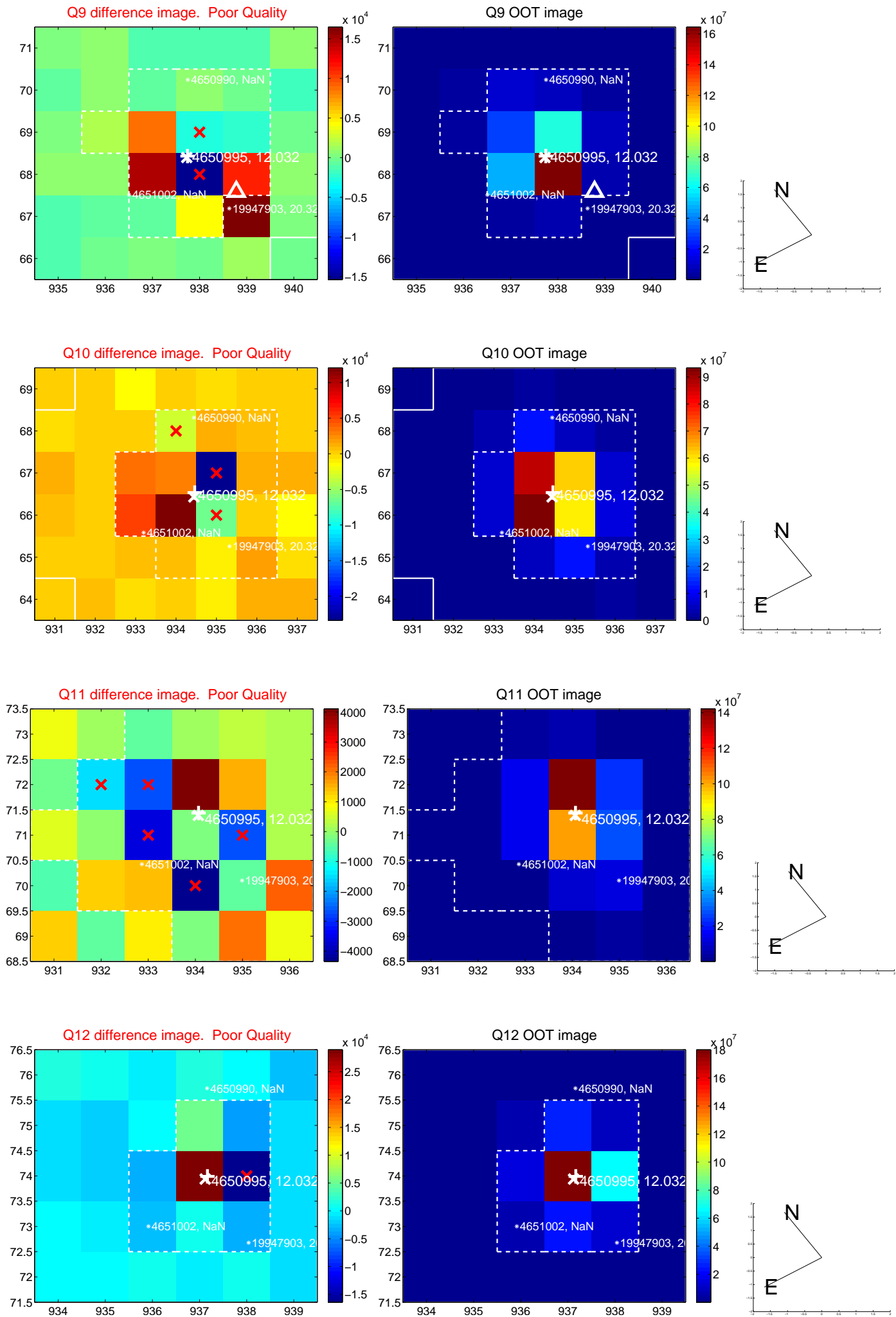
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



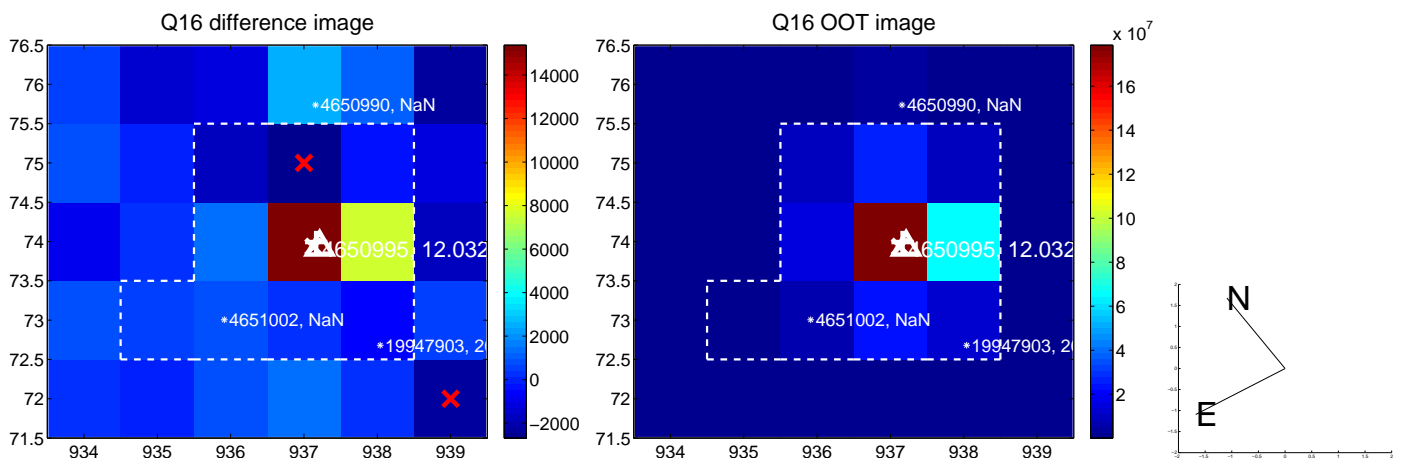
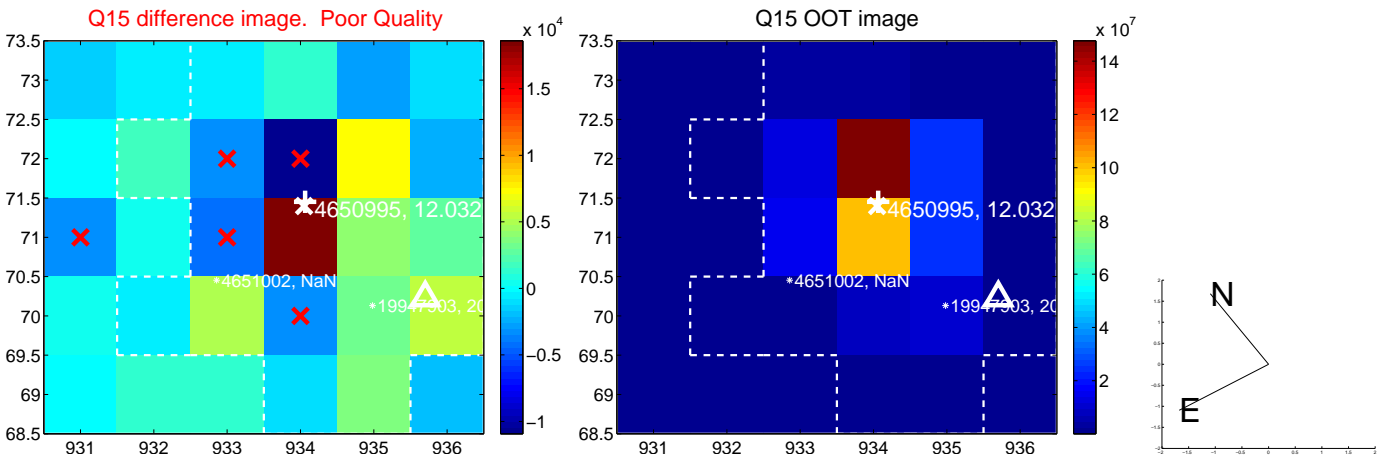
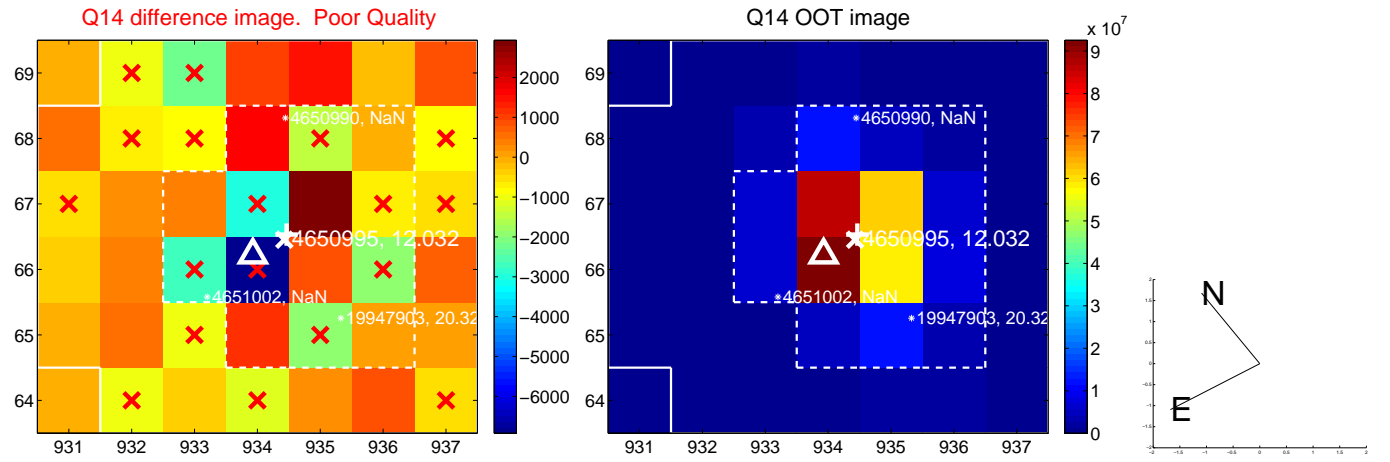
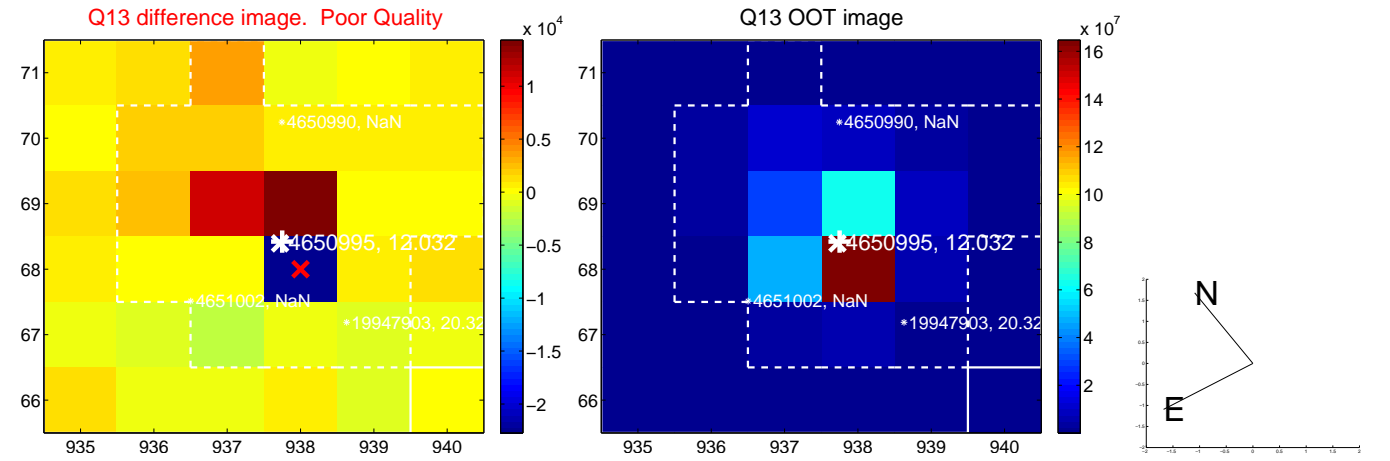
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



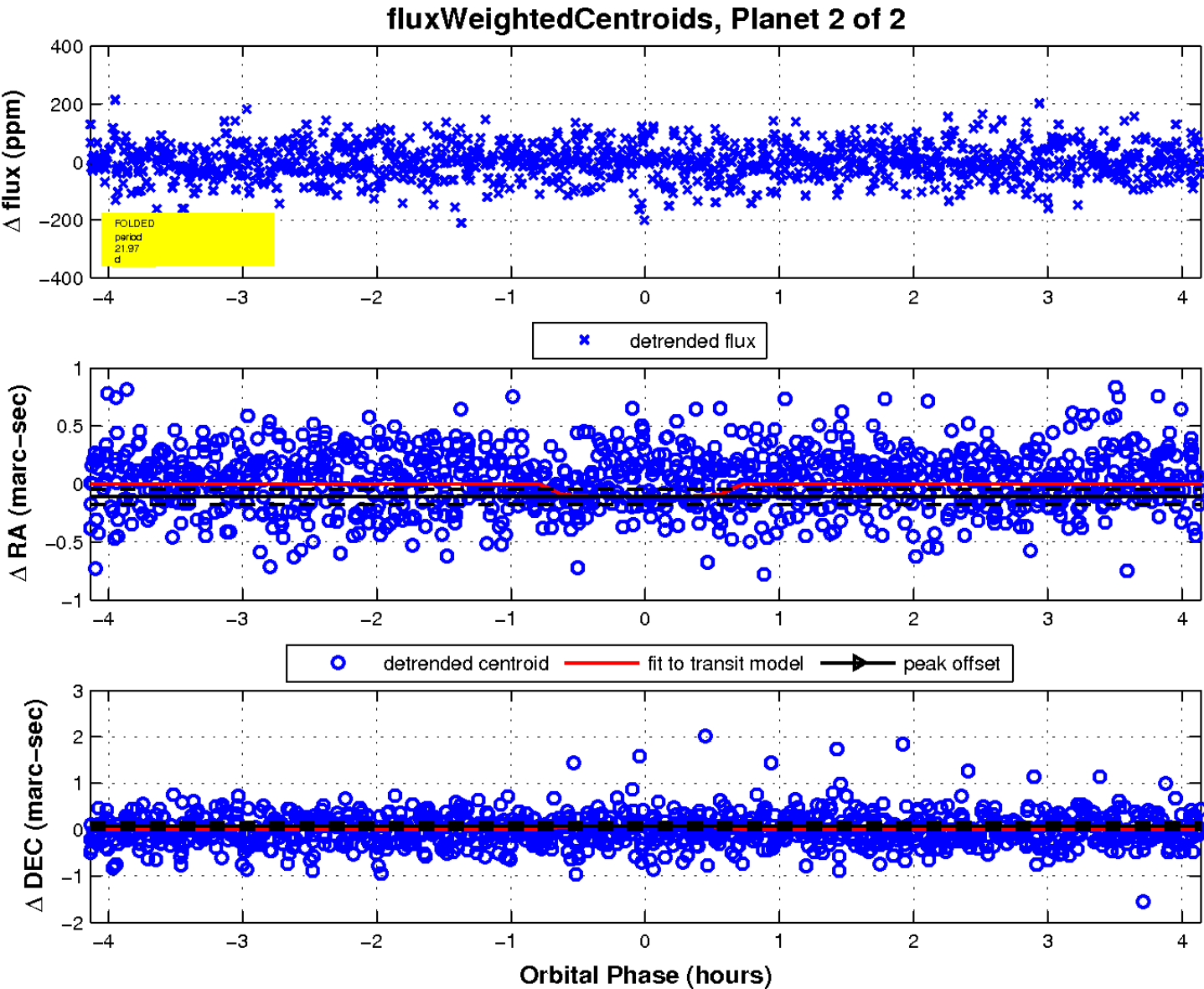
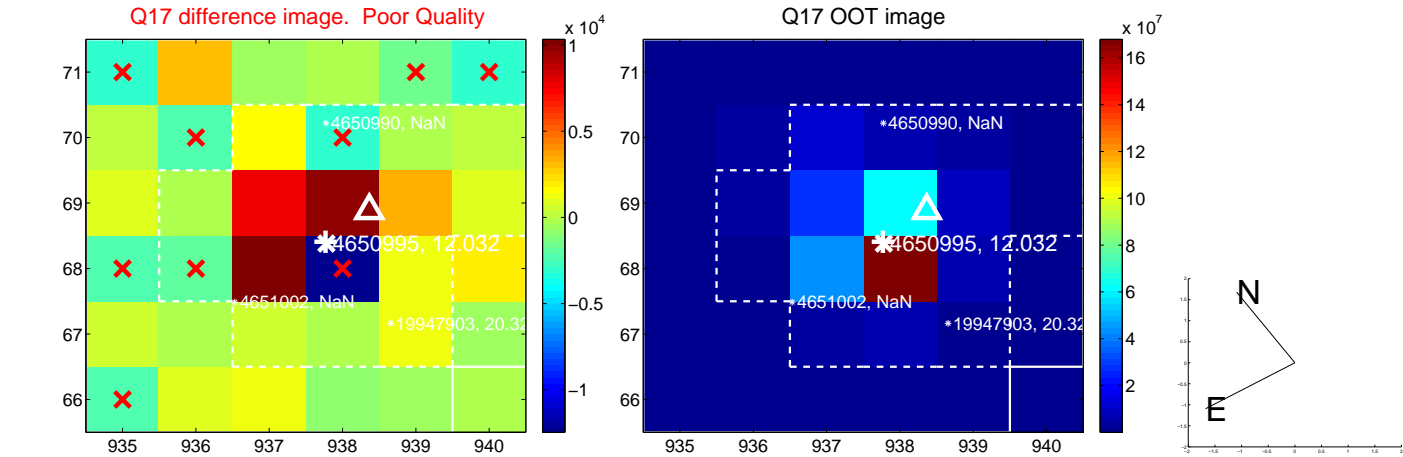
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

