

KIC 008122232

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})
008122232-01	OBS	No	2.955350	131.803096	36.8	15.065	8.5	4.0	1.42	7023	0.95	2233.45
008122232-02	OBS	No	2.953398	133.606301	93.3	13.046	12.8	10.1	1.42	7023	1.45	2235.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008122232-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—HALO_GHOST
008122232-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

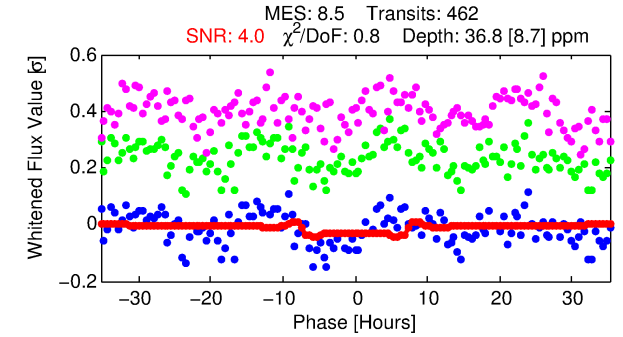
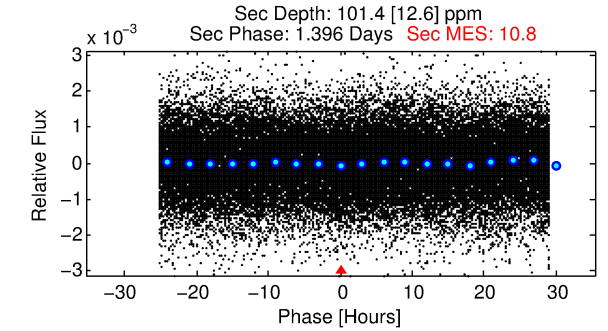
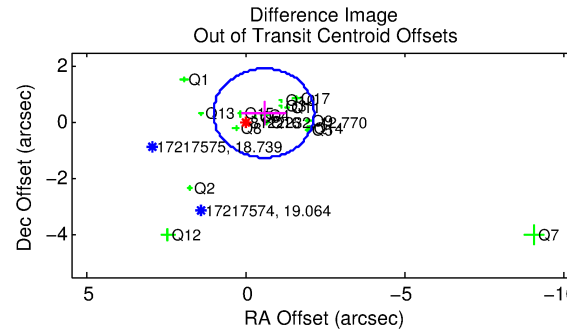
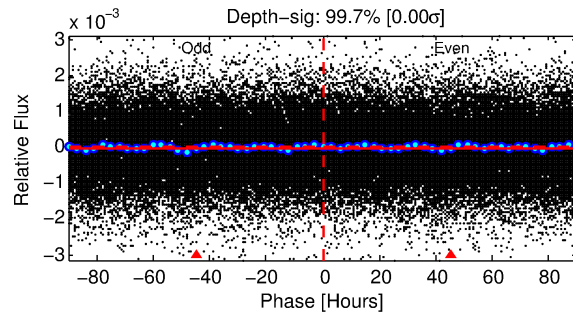
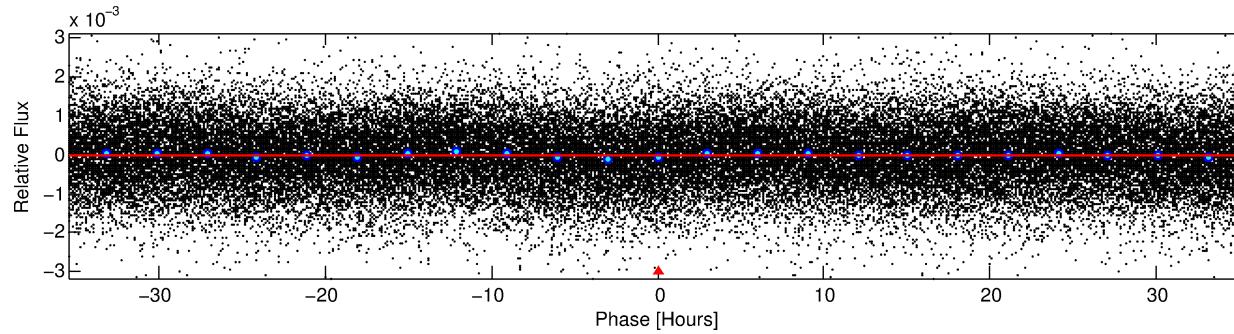
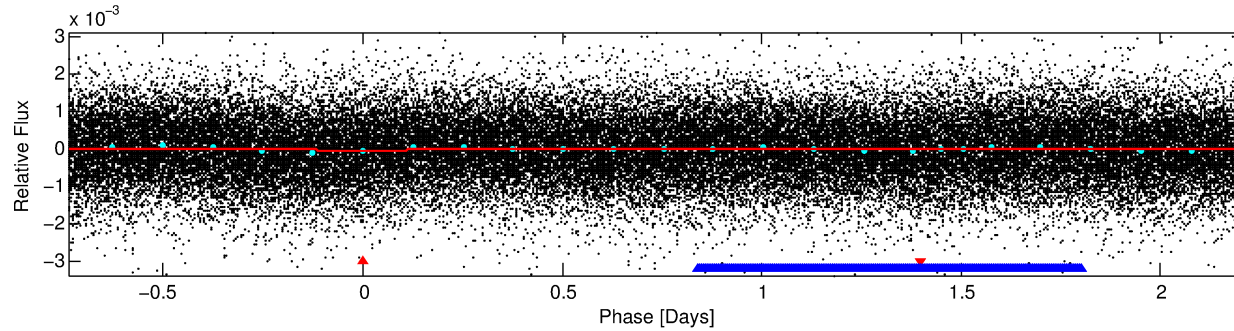
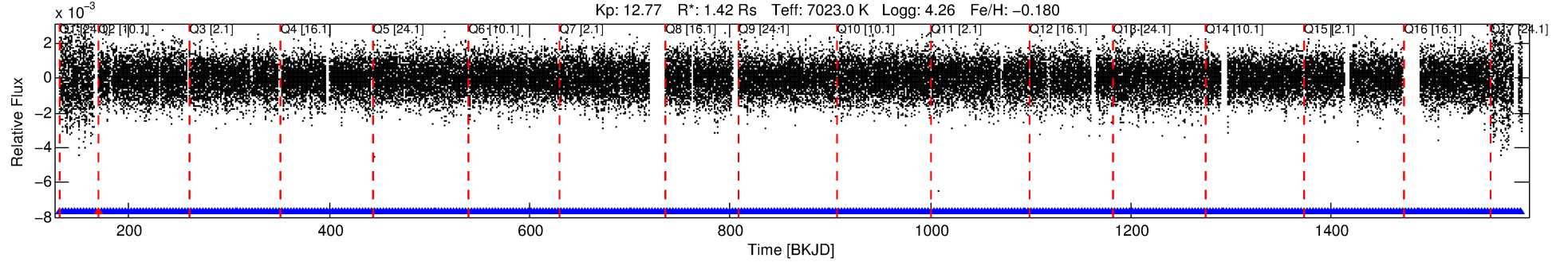
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008122232-01

No Significant Match Found

DV One-Page Summary

KIC: 8122232 Candidate: 1 of 2 Period: 2.955 d



DV Fit Results:

Period = 2.95535 [0.00010] d
Epoch = 131.8031 [0.0214] BKJD
Rp/R* = 0.0061 [0.0036]
a/R* = 1.27 [1.73]
b = 0.80 [1.63]
Seff = 2233.45 [934.31]
Teq = 1753 [183] K
Rp = 0.95 [0.64] Re
a = 0.0445 [0.0120] AU
Ag = 122.05 [152.15] [0.80 σ]
Teff = 9008 [2690] K [2.69 σ]

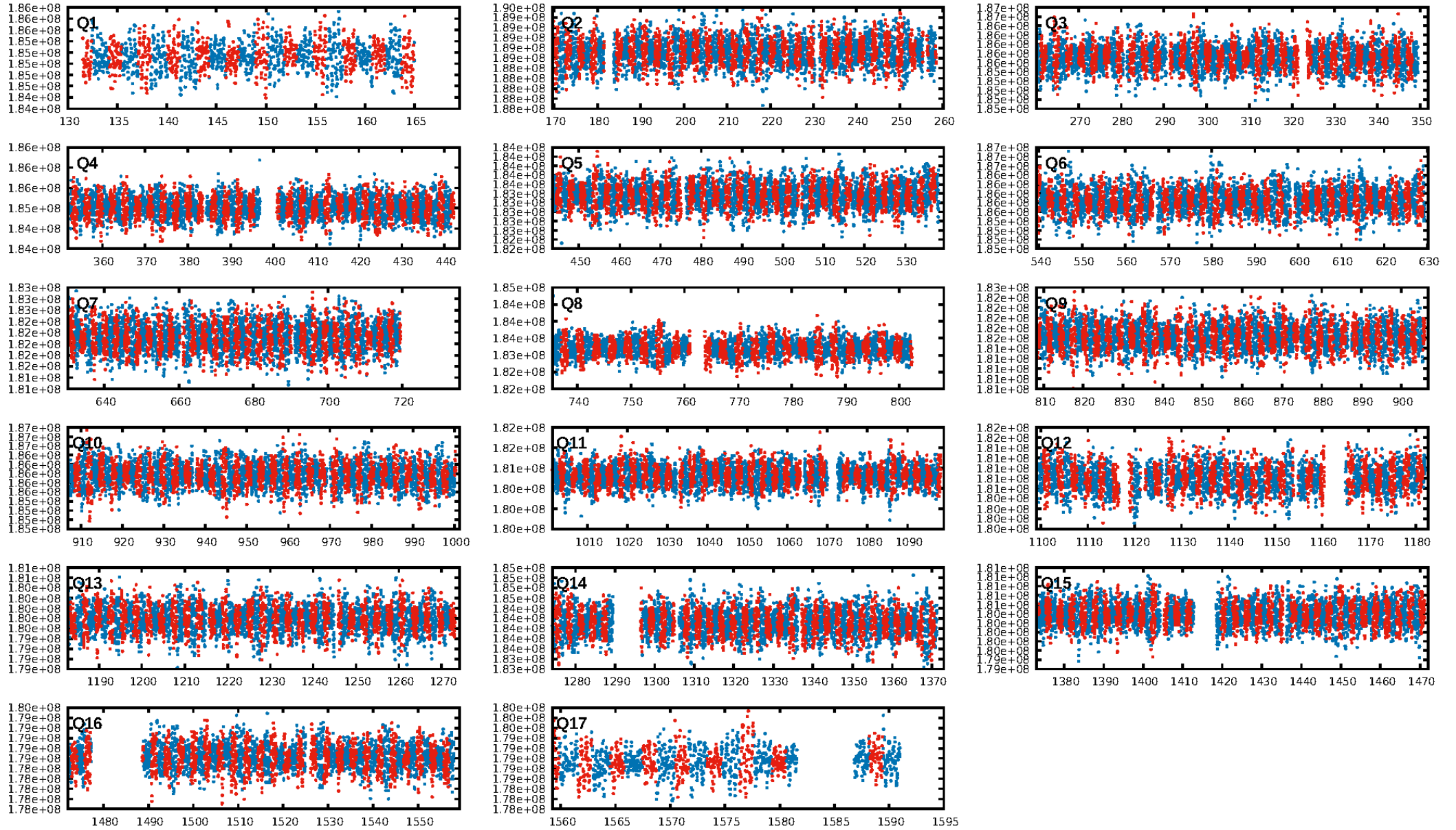
DV Diagnostic Results:

ShortPeriod-sig: 0.2% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [440/441]
GhostDiagnostic-chr: 0.01963
Centroid-sig: 0.1%
Centroid-so: 0.927 arcsec [1.84 σ]
OotOffset-rm: 0.656 arcsec [1.24 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.711 arcsec [1.45 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.35 [6/17]
DiffImageOverlap-fno: 0.35 [6/17]

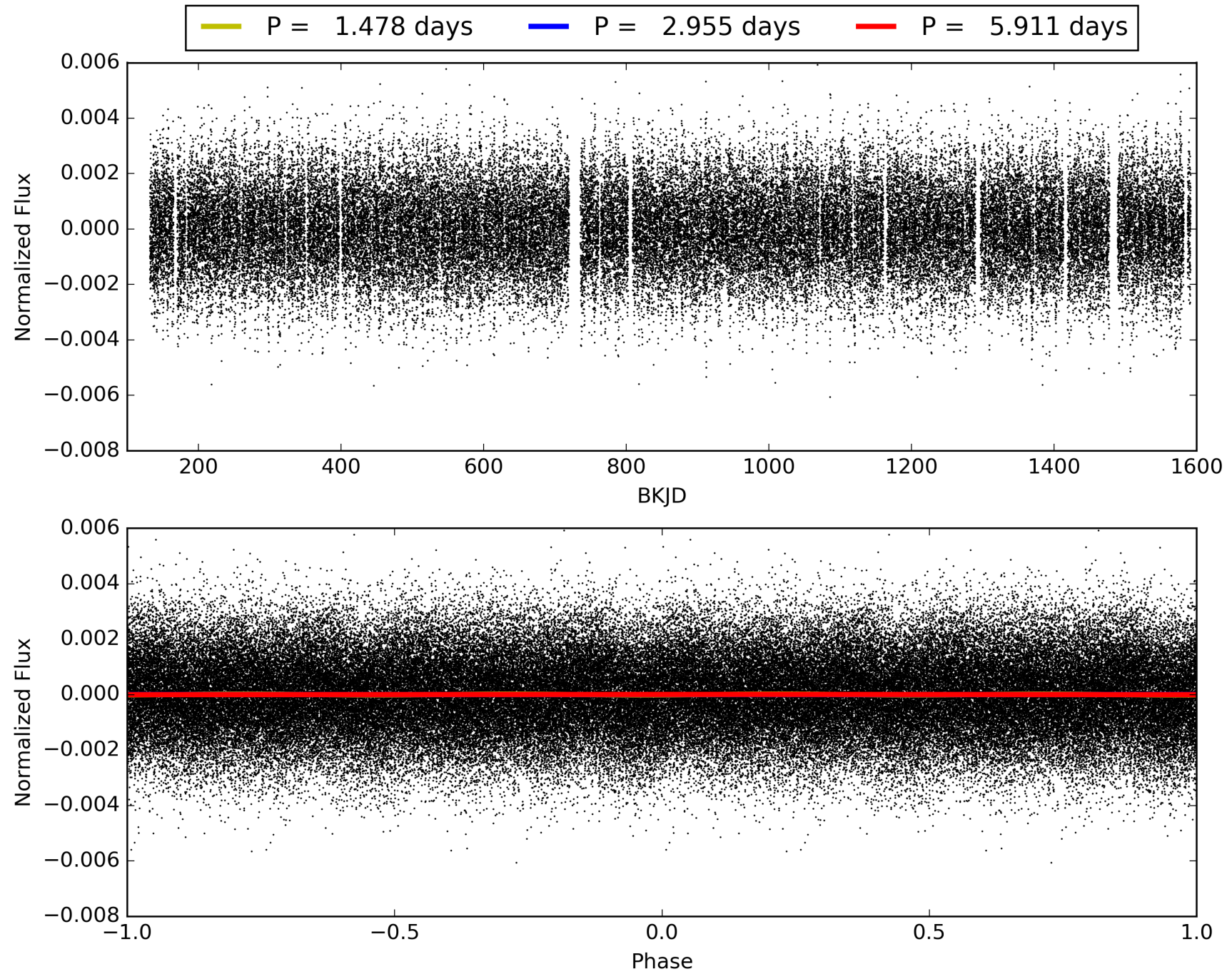
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:17:31 Z

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

TCE 008122232-01, PDC Light Curves

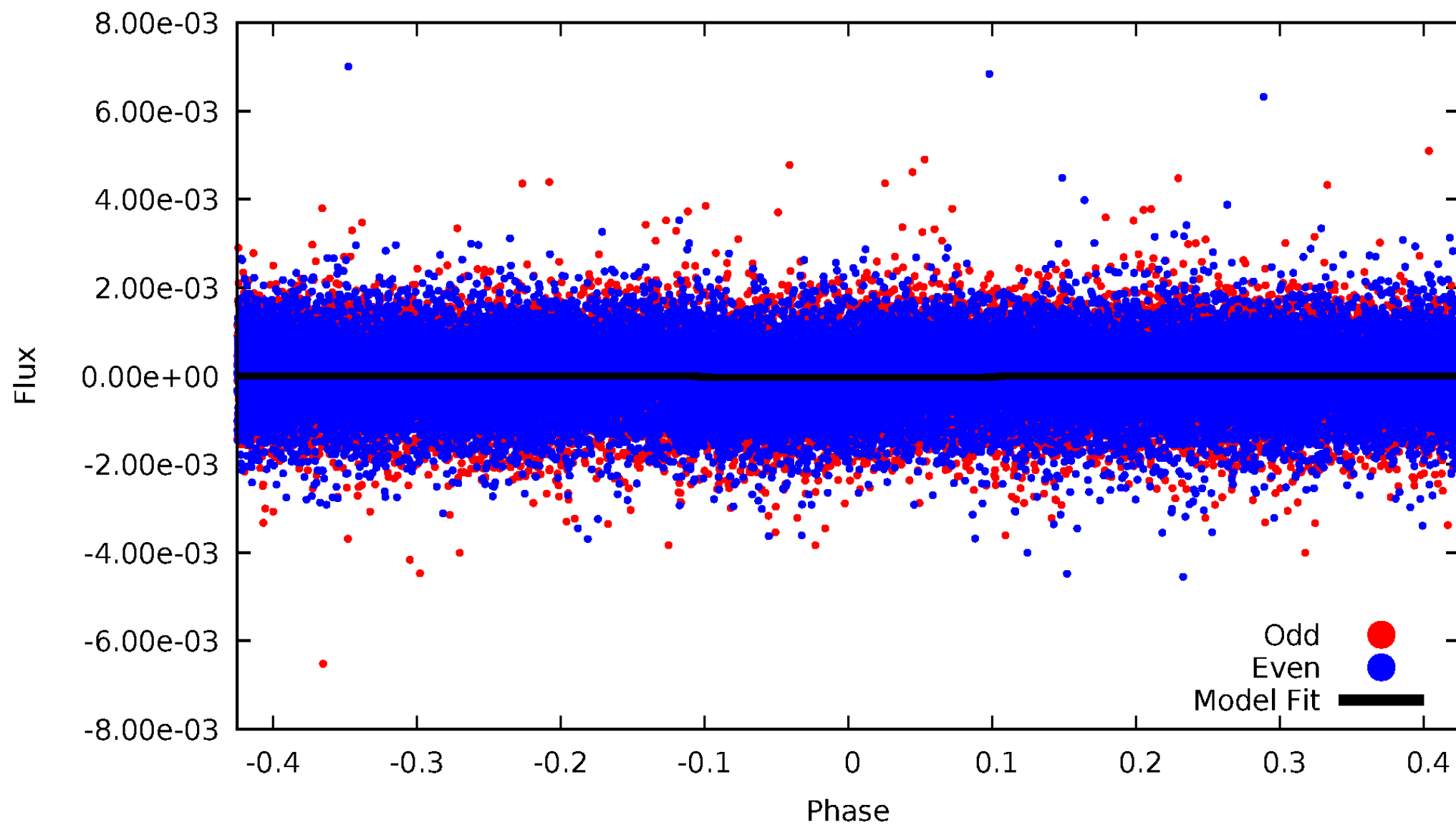


TCE 008122232-01



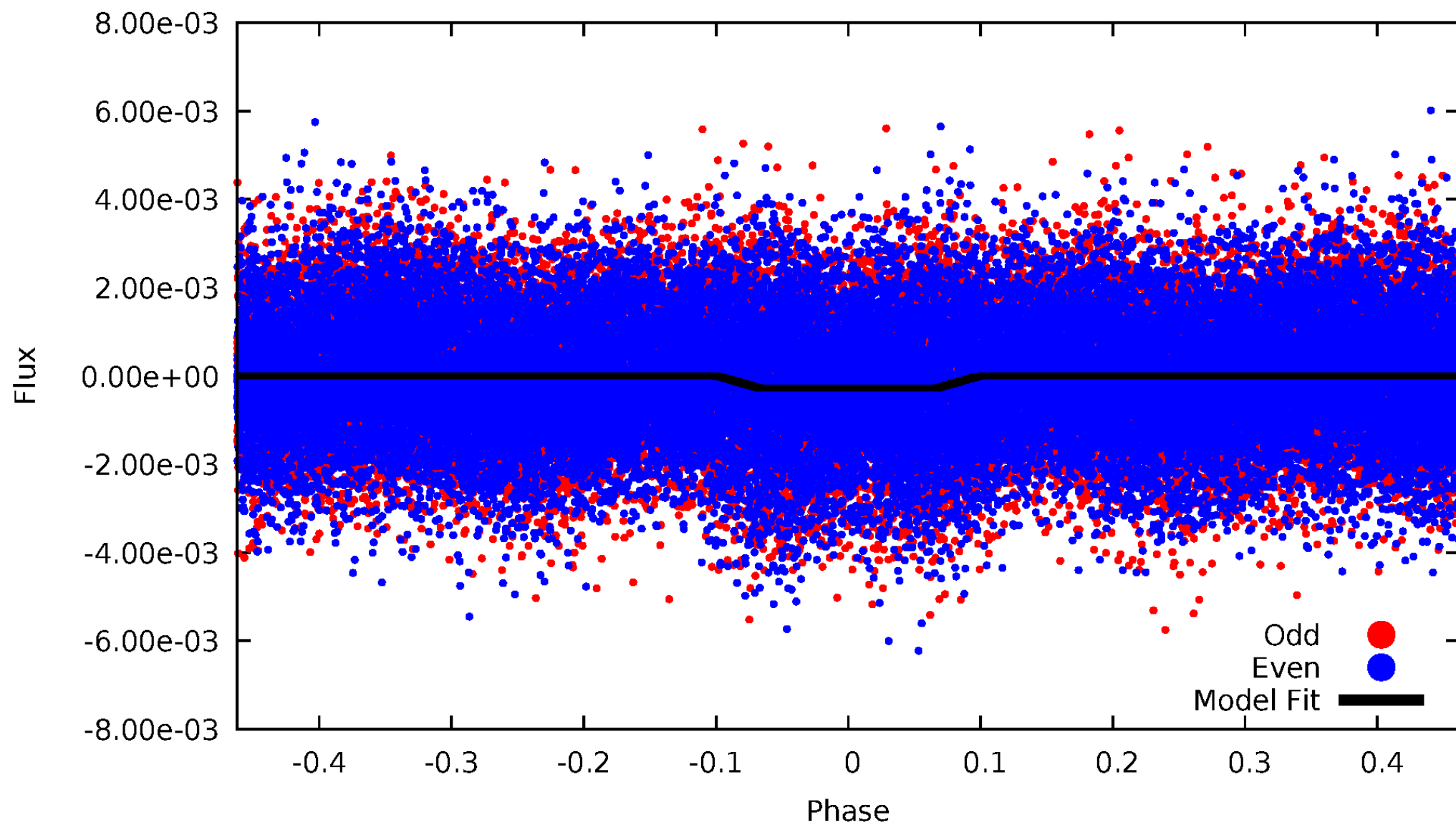
DV Odd/Even

TCE 008122232-01



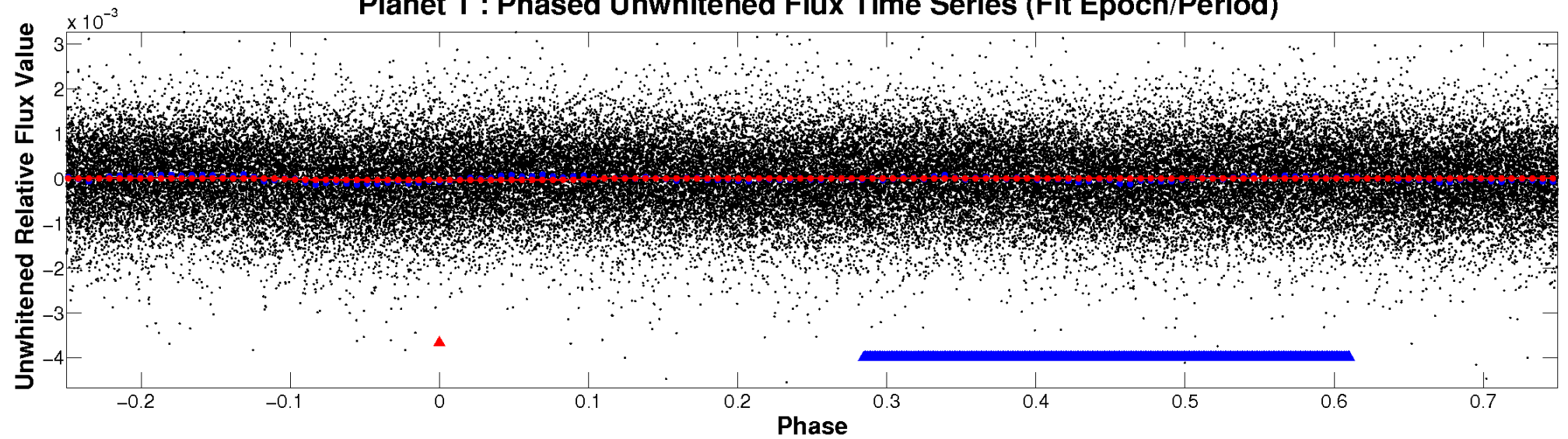
ALT Odd/Even

TCE 008122232-01

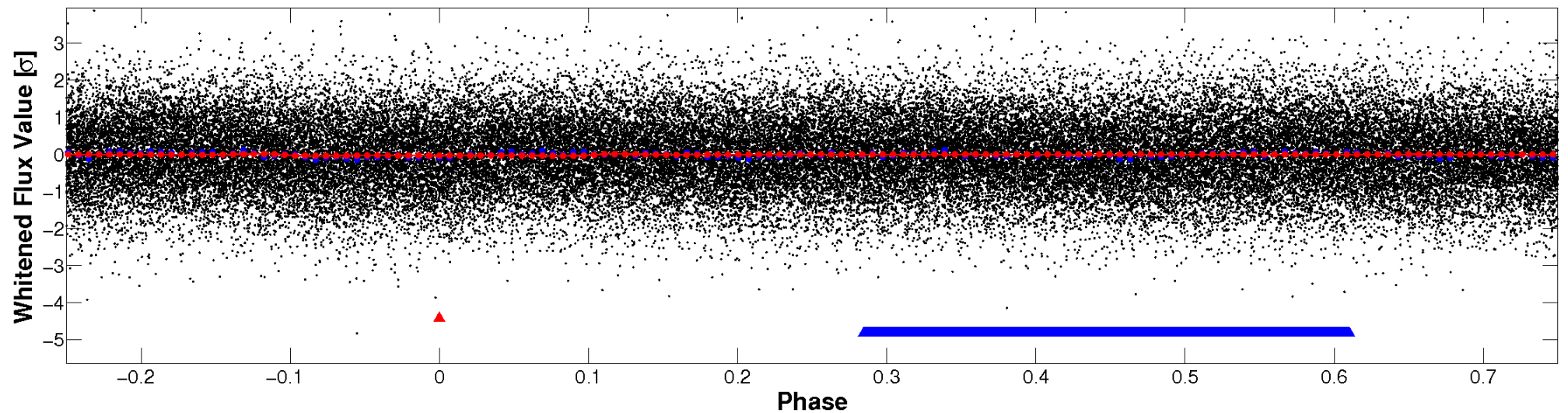


Non-Whitened Vs. Whitened Light Curve

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

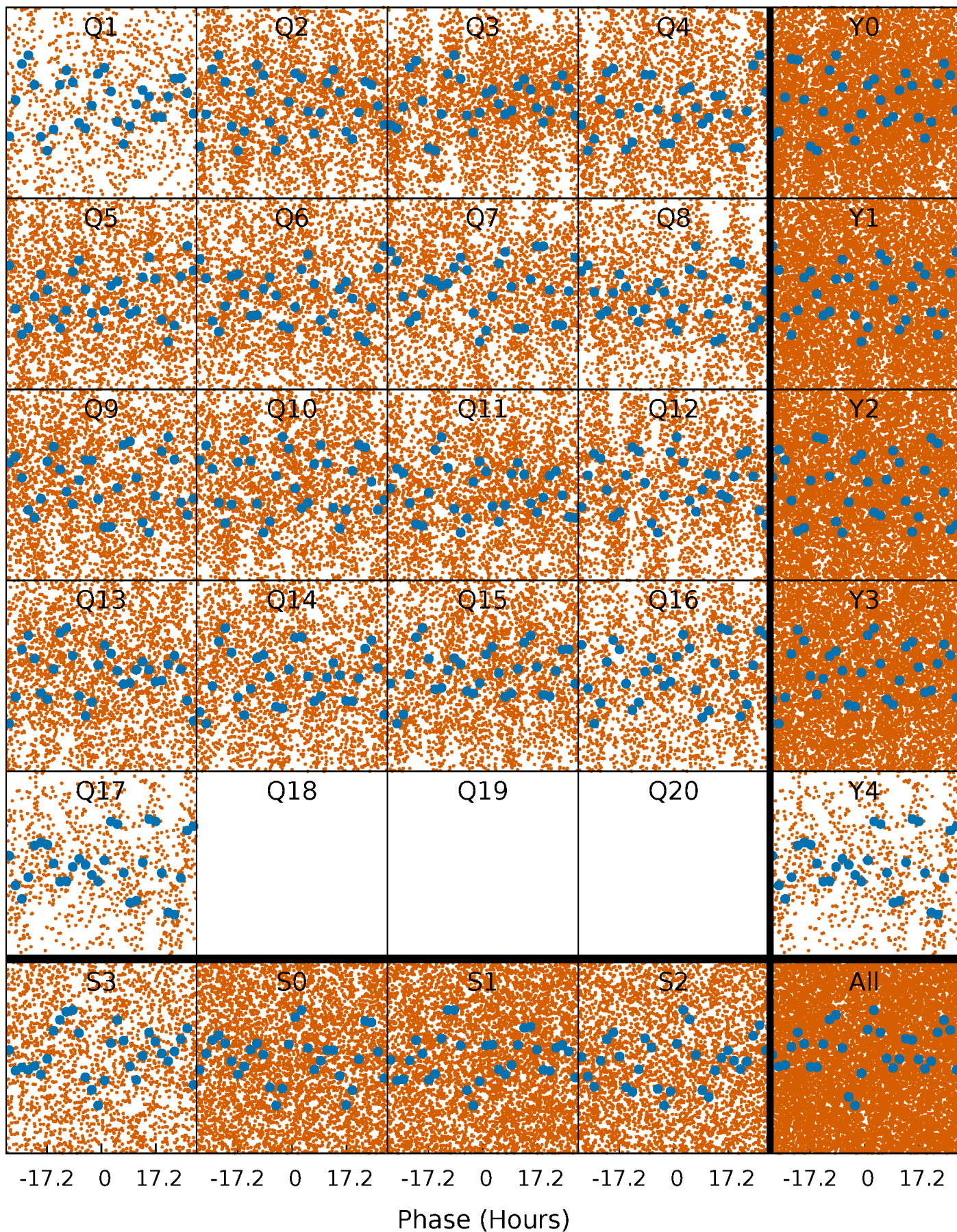


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



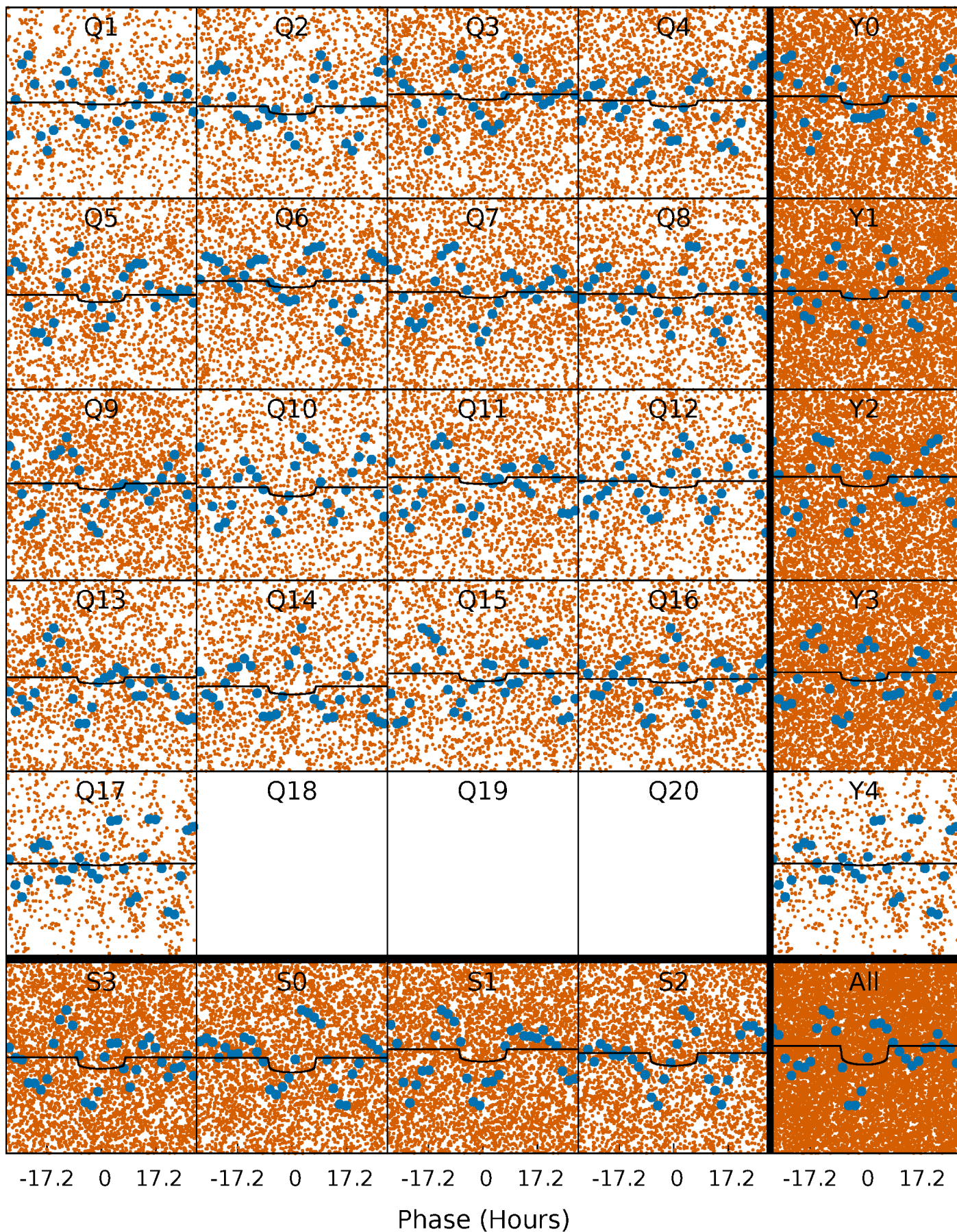
PDC Quarter-Phased Transit Curves

TCE 008122232-01 P= 2.955350 Days $T_0=131.803096$ (BKJD)



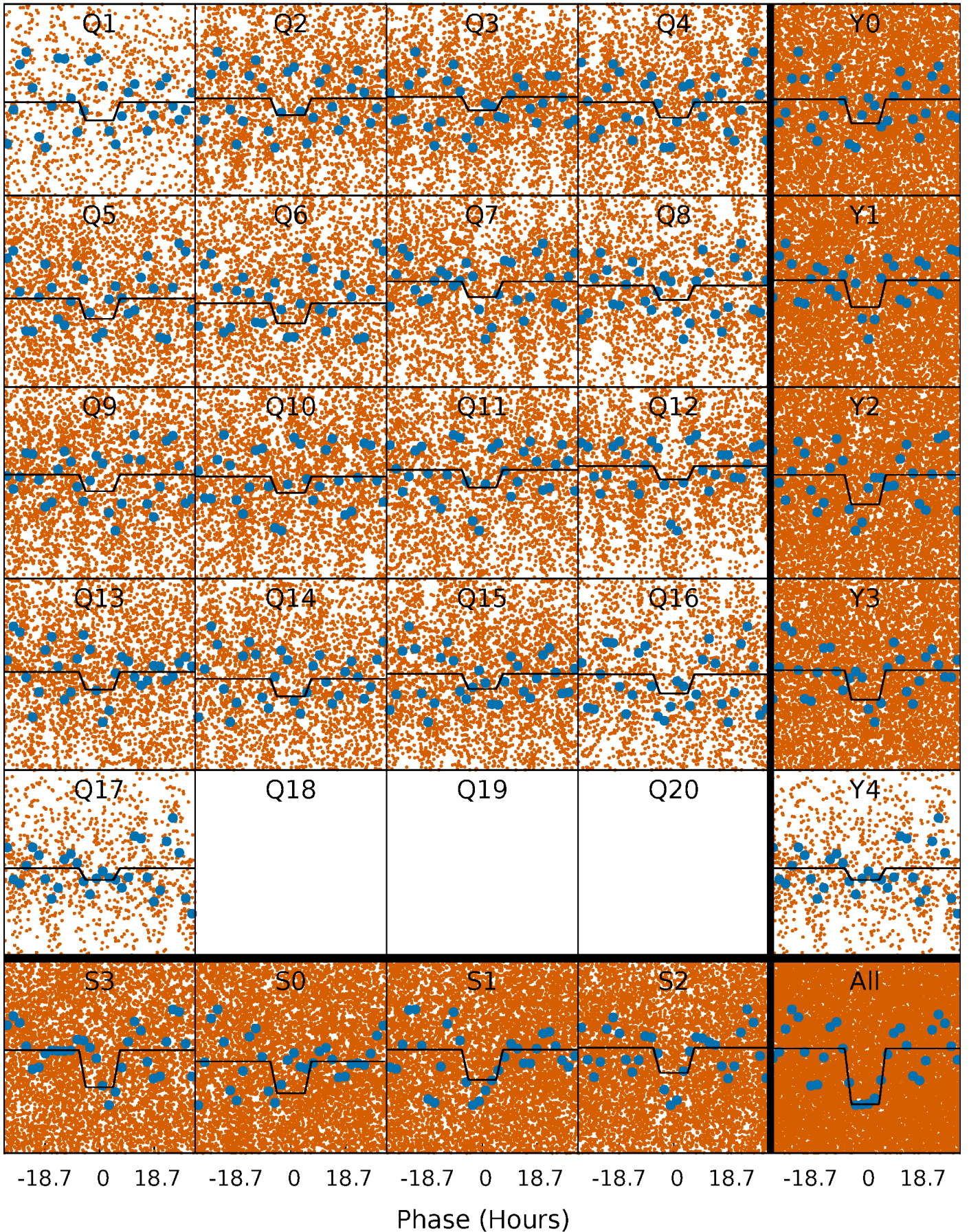
DV Quarter-Phased Transit Curves

TCE 008122232-01 P= 2.955350 Days $T_0=131.803096$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

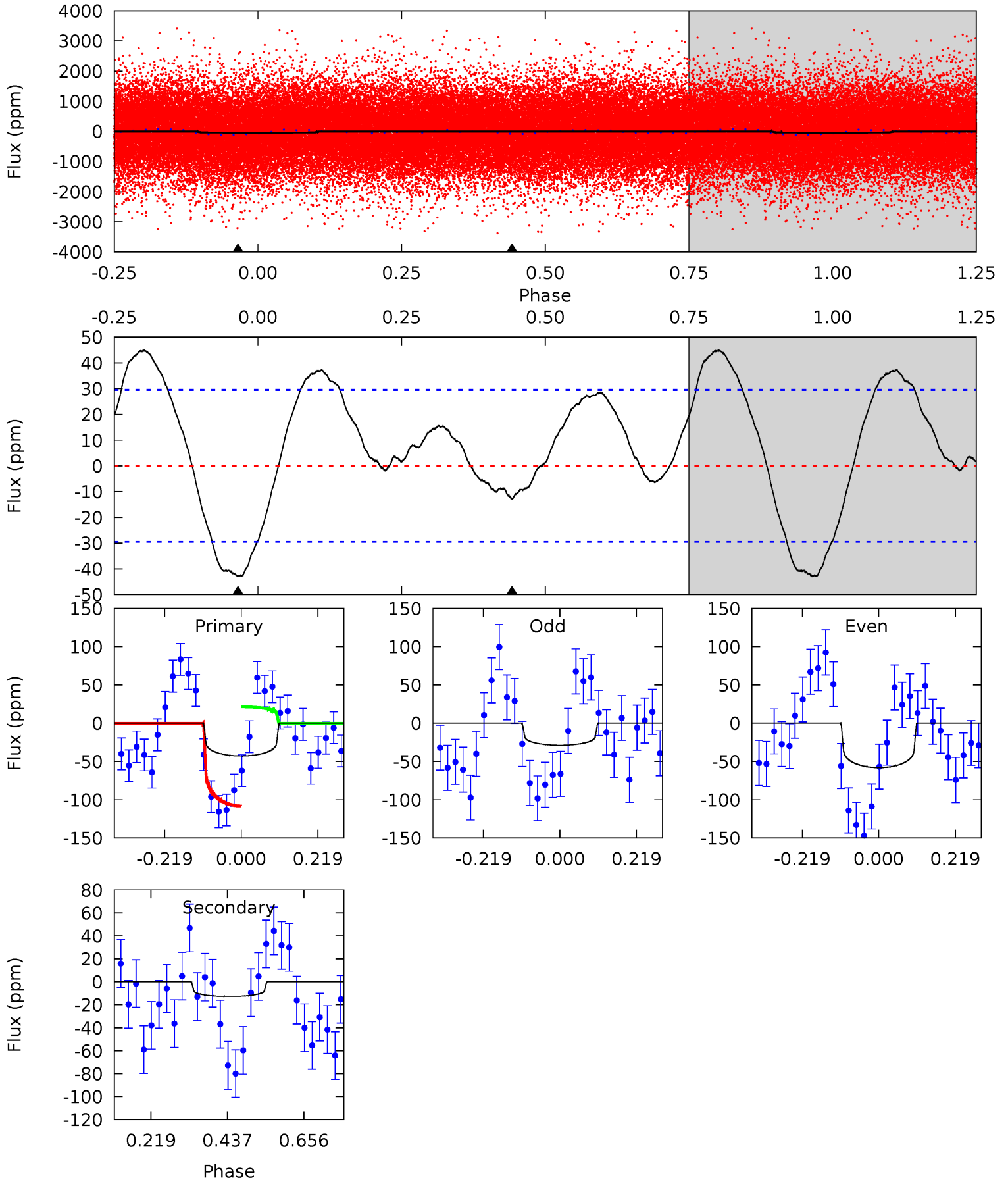
TCE 008122232-01 P= 2.954392 Days $T_0=131.889787$ (BKJD)



DV Model-Shift Uniqueness Test

008122232-01, P = 2.955350 Days, E = 128.847746 Days

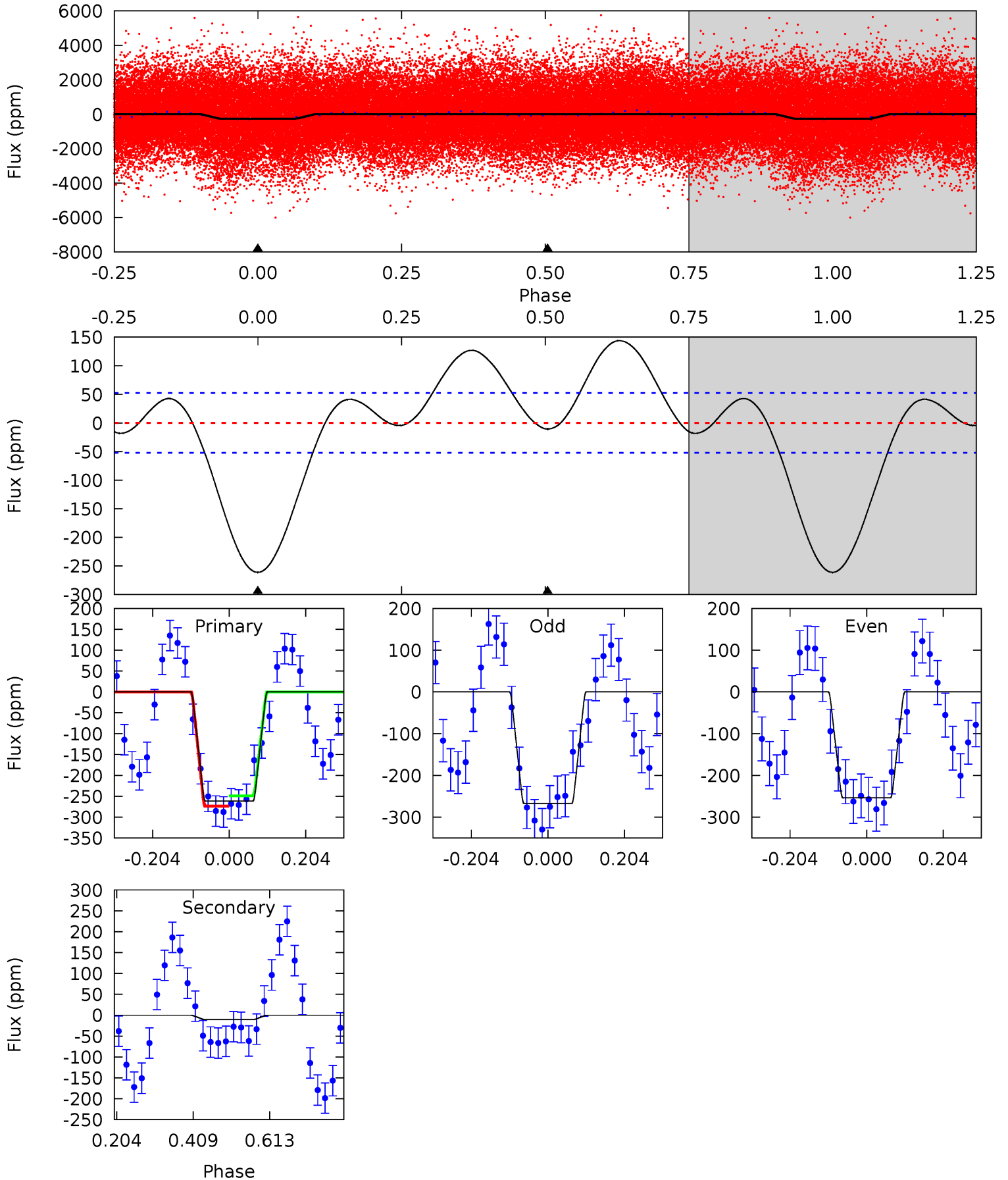
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	1.91	0	0	4.40	1.23	0.88	6.38	6.38	1.91	1.91	2.19	1.04	0.51	6.37



Alt Model-Shift Uniqueness Test

008122232-01, P = 2.954392 Days, E = 128.935395 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	0.90	0	0	4.41	1.27	1.33	22.0	22.0	0.90	0.90	0.58	1.00	0.36	1.05



Stellar Parameters For KIC 008122232

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7023^{+197}_{-271}	$4.259^{+0.090}_{-0.210}$	$-0.180^{+0.250}_{-0.350}$	$1.423^{+0.464}_{-0.214}$	$1.349^{+0.203}_{-0.203}$	$0.660^{+0.270}_{-0.366}$
	+3%/-4%	+2%/-5%	+139%/-194%	+33%/-15%	+15%/-15%	+41%/-56%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008122232-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13 ± 7	$1.02^{+0.58}_{-0.51}$	2484^{+193}_{-147}	5180^{+2437}_{-1073}	12^{+43}_{-8}
Alt.	-11 ± 12	$2.66^{+0.76}_{-0.62}$	2485^{+183}_{-139}	3411^{+664}_{-6392}	$1.586^{+2.300}_{-1.812}$

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 $A_{obs} \gg 1.0$

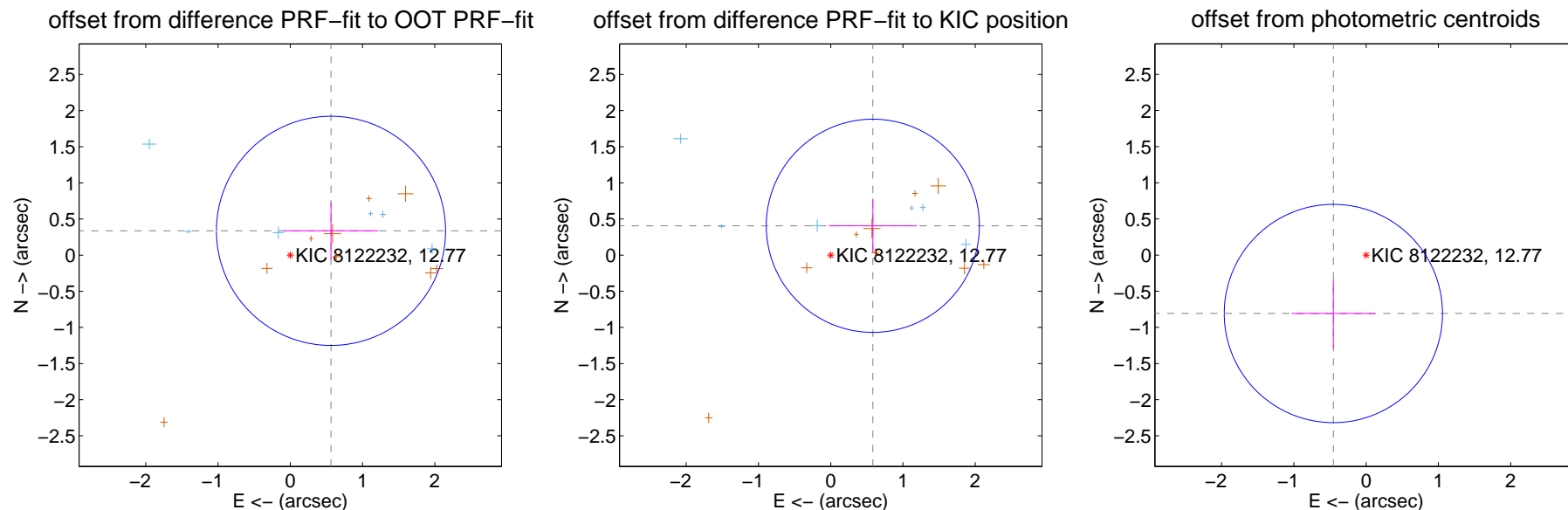
DV Centroid Data

Supplemental centroid analysis for 008122232-01. Kepler magnitude: 12.77. Transit SNR 4.00

There are 6 quarters with good PRF difference image offsets

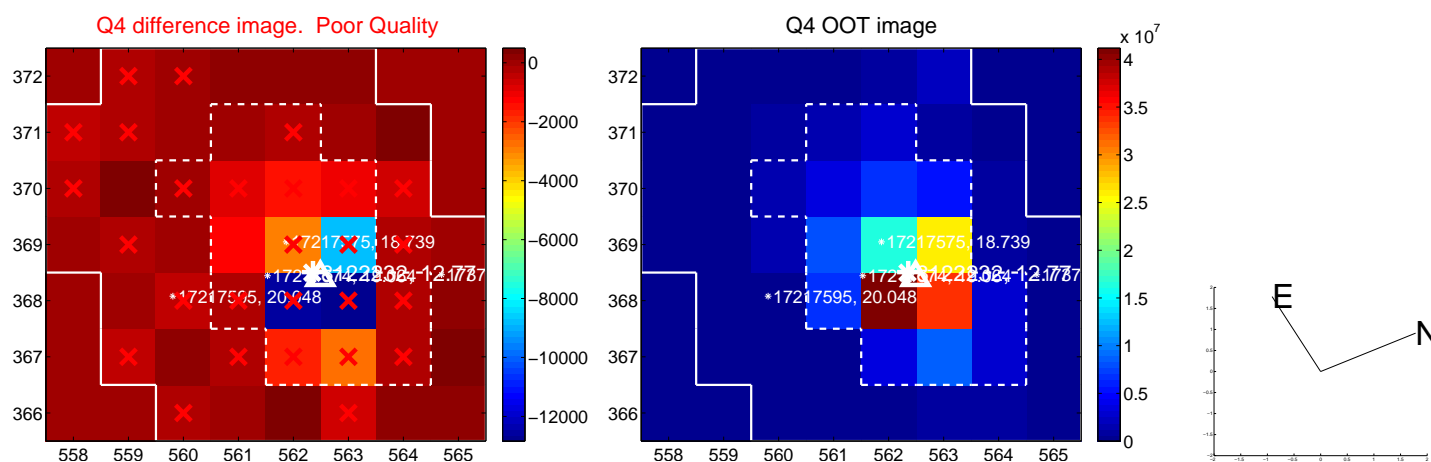
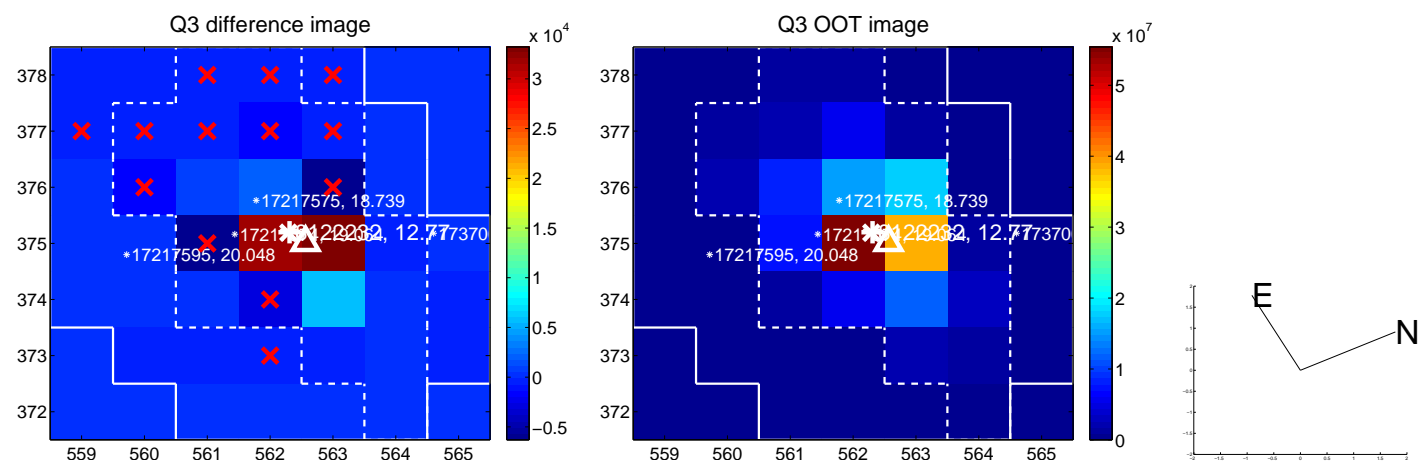
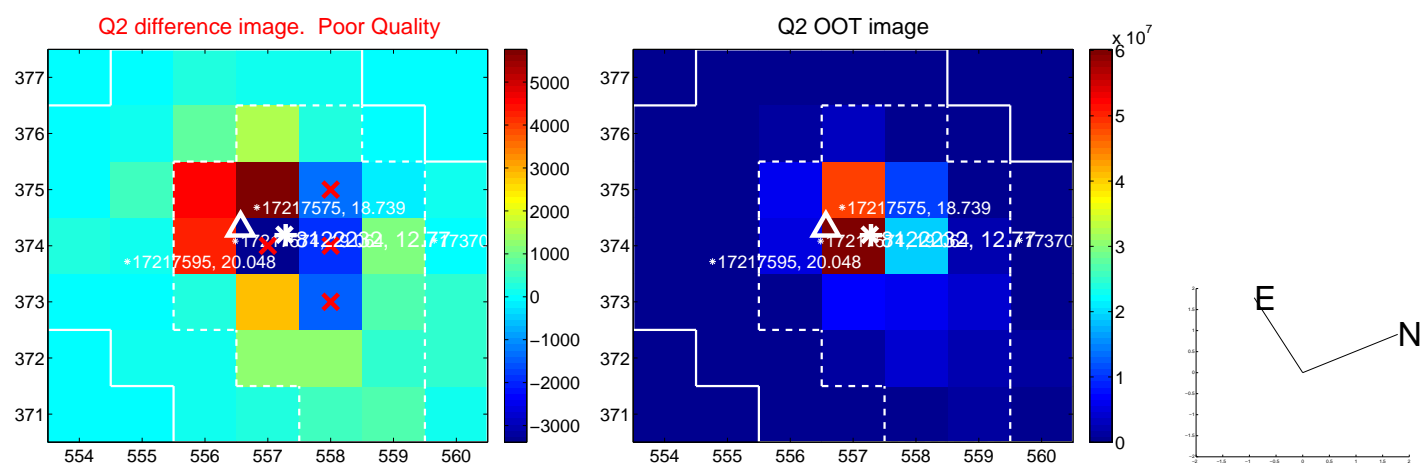
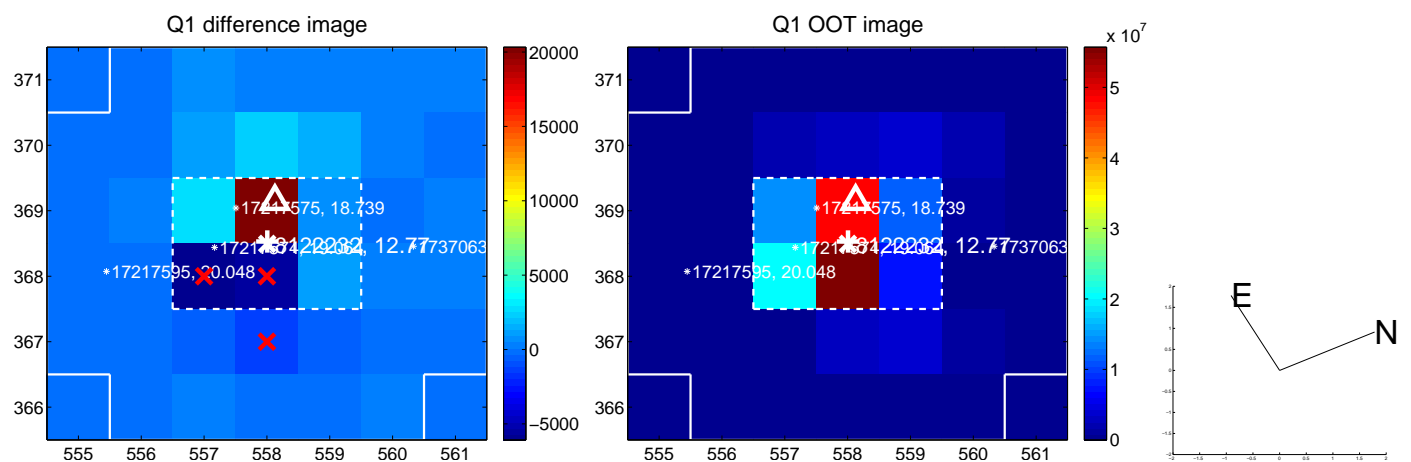
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.656 ± 0.529	1.24	-0.564 ± 0.655	0.336 ± 0.395
PRF-fit source offset from KIC position	0.711 ± 0.492	1.45	-0.583 ± 0.612	0.407 ± 0.378
photometric centroid source offset	0.93 ± 0.50	1.84	0.45 ± 0.58	-0.81 ± 0.48

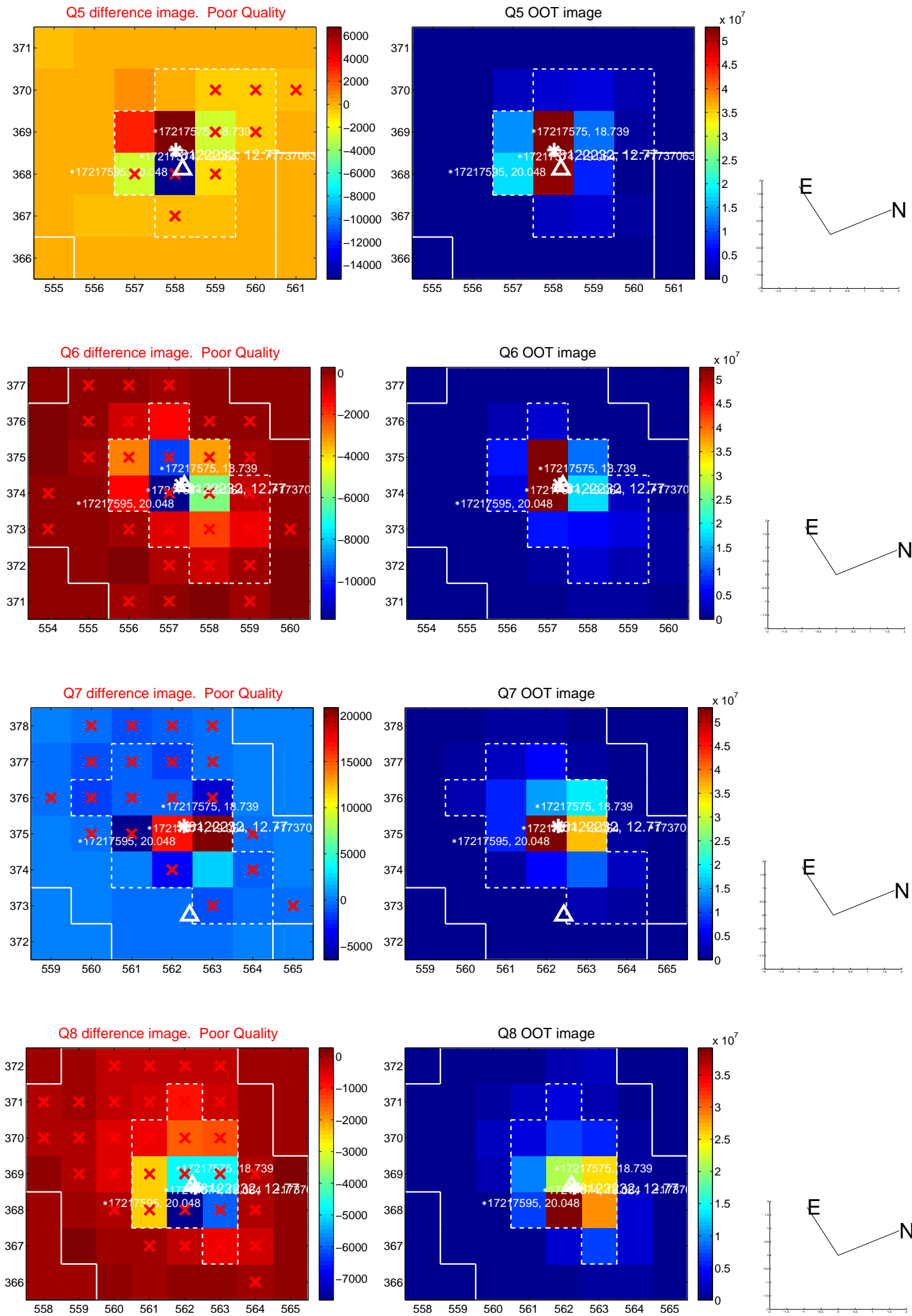


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

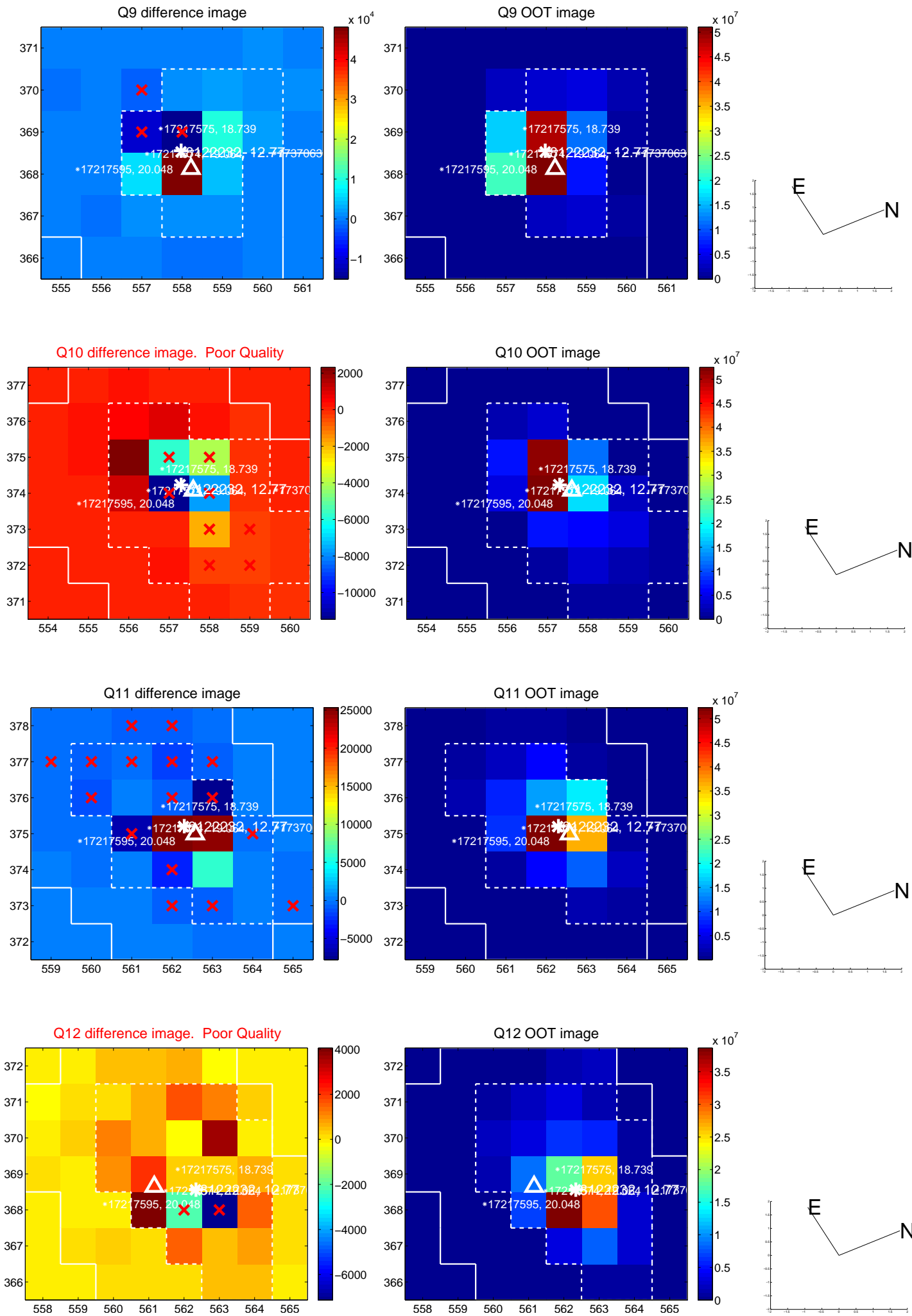
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



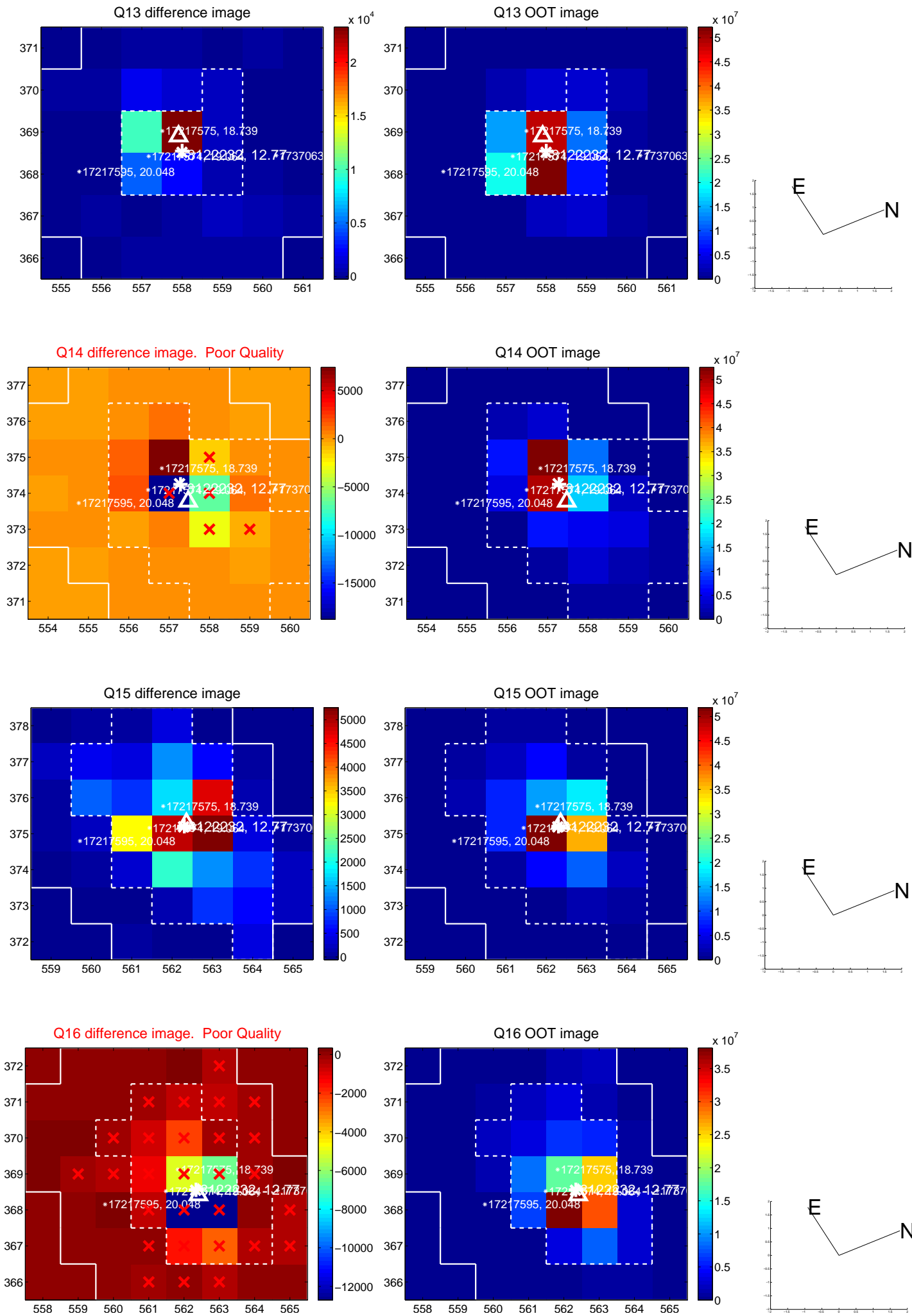
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



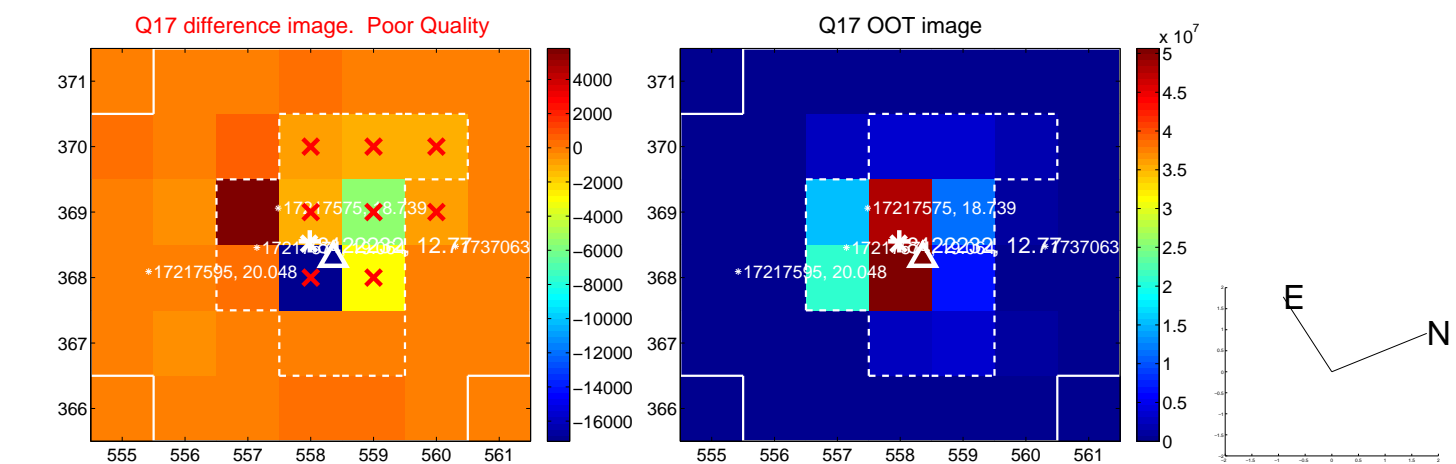
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



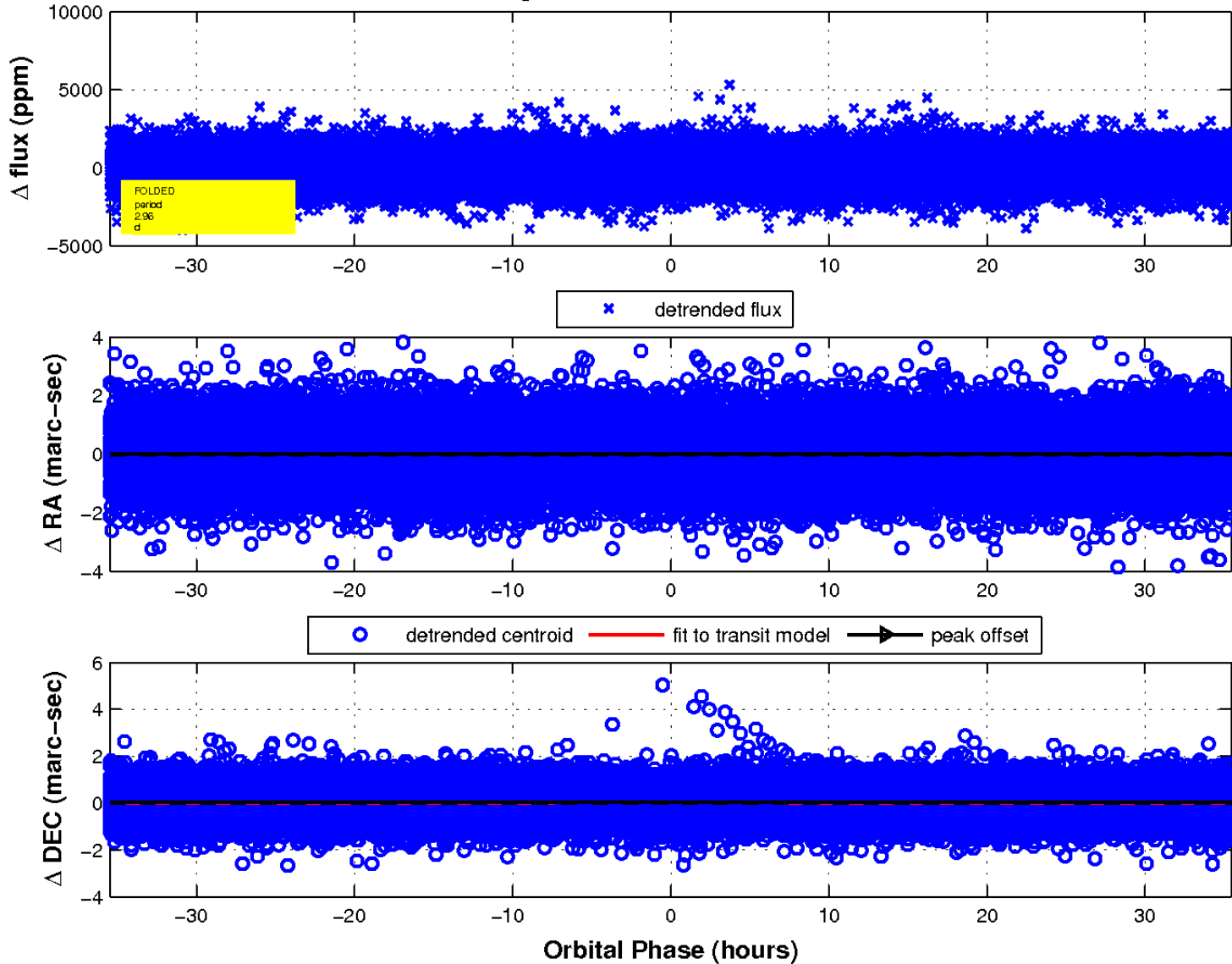
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

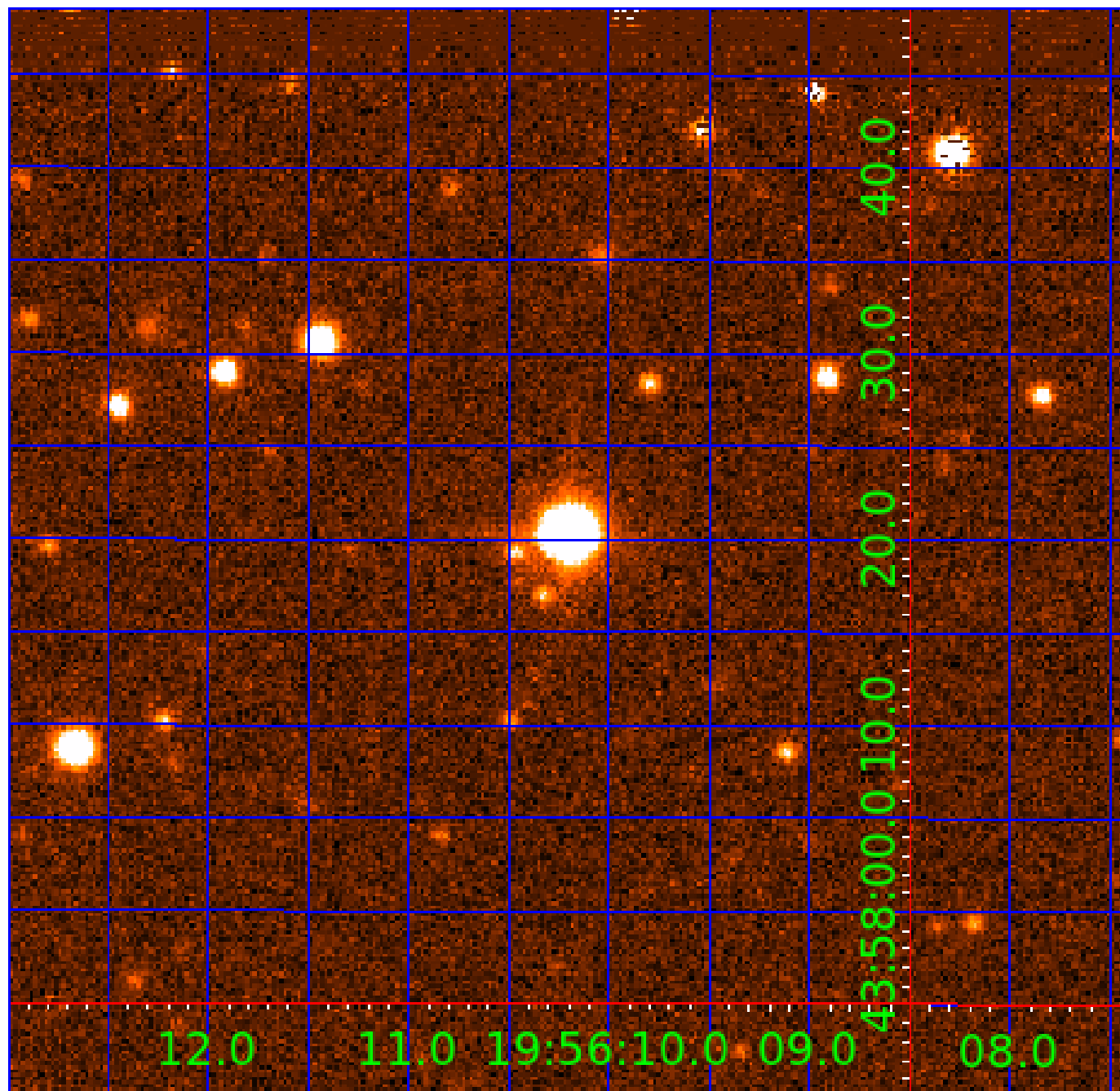


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008122232

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})
008122232-01	OBS	No	2.955350	131.803096	36.8	15.065	8.5	4.0	1.42	7023	0.95	2233.45
008122232-02	OBS	No	2.953398	133.606301	93.3	13.046	12.8	10.1	1.42	7023	1.45	2235.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008122232-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—HALO_GHOST
008122232-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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

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

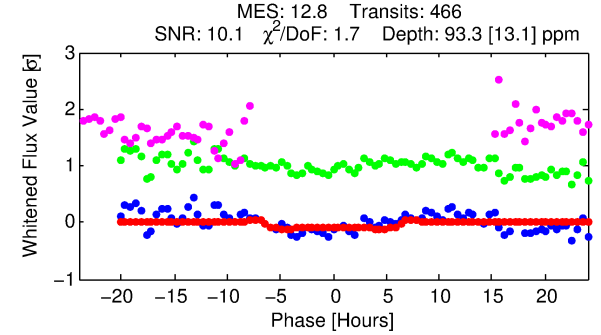
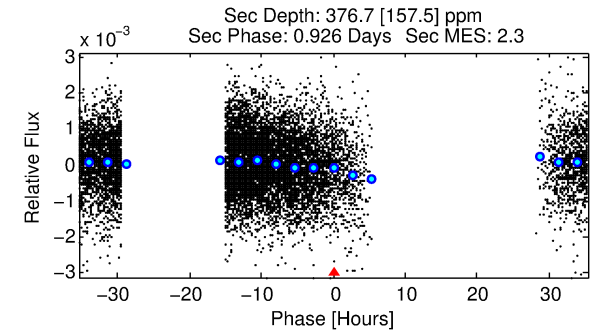
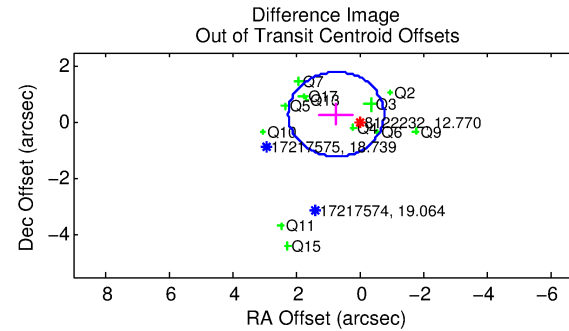
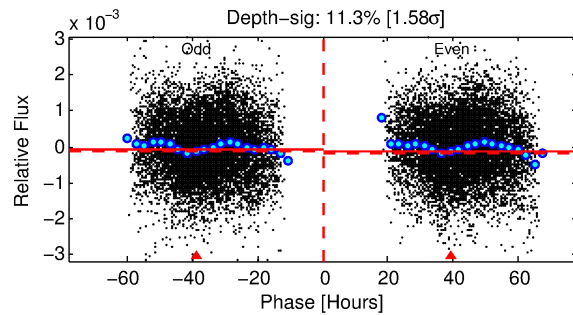
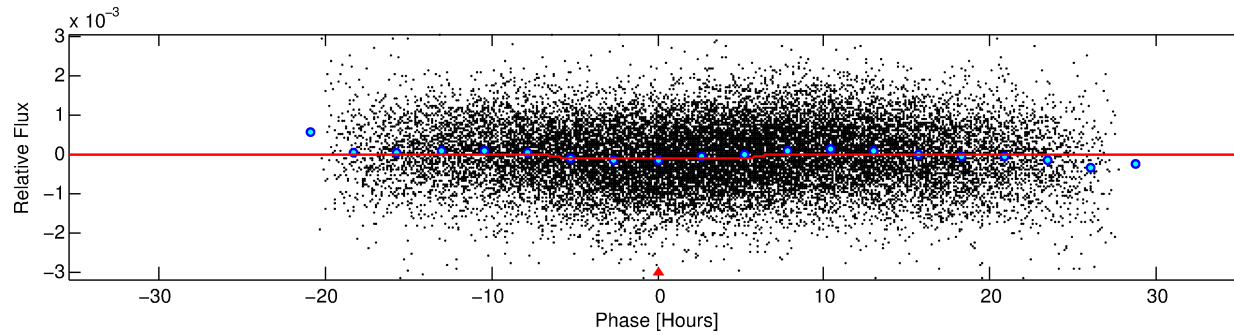
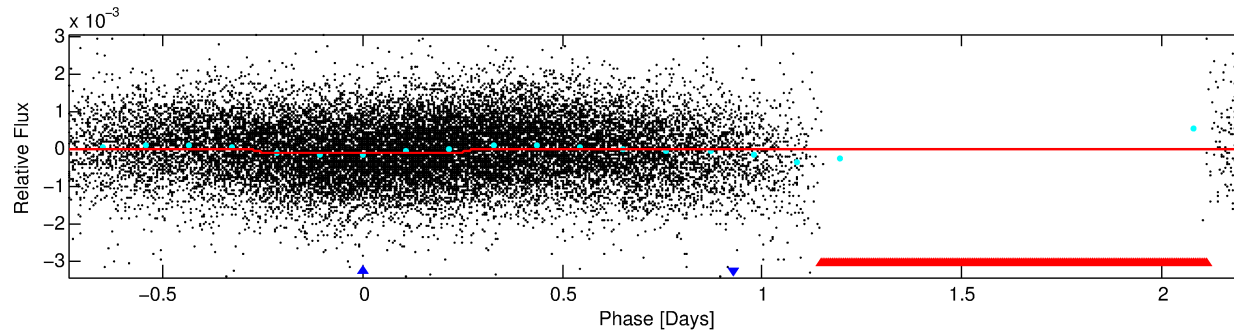
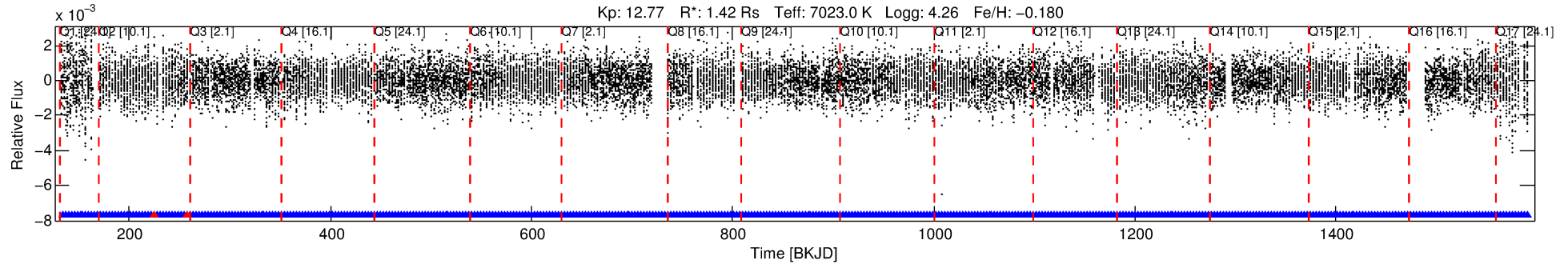
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008122232-02

No Significant Match Found

DV One-Page Summary

KIC: 8122232 Candidate: 2 of 2 Period: 2.953 d



DV Fit Results:

Period = 2.95340 [0.00006] d
Epoch = 133.6063 [0.0120] BKJD
Rp/R* = 0.0093 [0.0056]
a/R* = 1.59 [3.45]
b = 0.61 [3.71]
Seff = 2235.42 [935.13]
Teq = 1753 [183] K
Rp = 1.45 [0.99] Re
a = 0.0444 [0.0120] AU
Ag = 195.69 [262.06] [0.74 σ]
Teffp = 10139 [3272] K [2.5 σ]

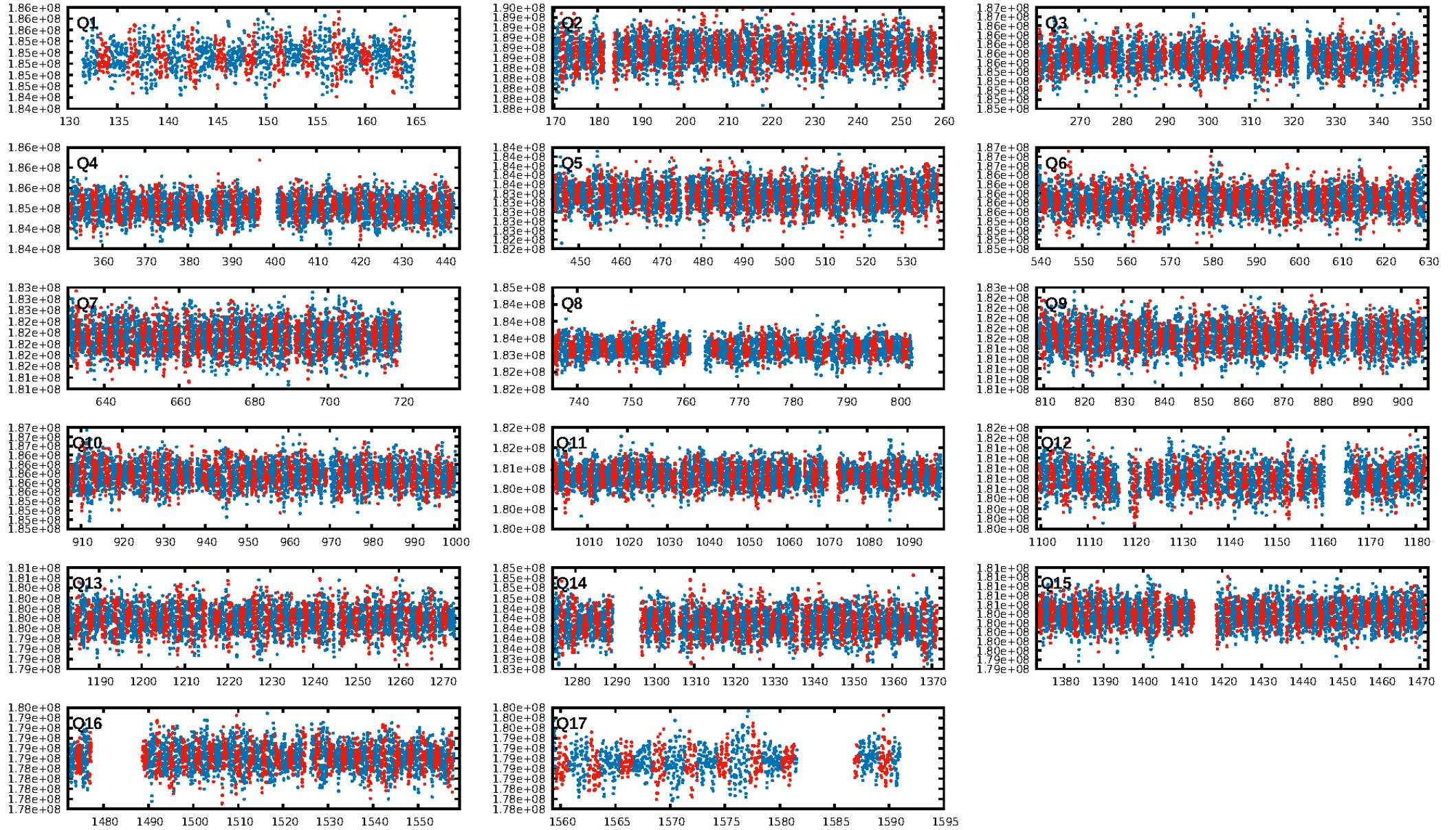
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.2% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [443/445]
GhostDiagnostic-chr: 3.25
Centroid-sig: 0.1%
Centroid-so: 0.408 arcsec [1.78 σ]
OotOffset-rm: 0.789 arcsec [1.57 σ]
KicOffset-rm: 0.835 arcsec [1.65 σ]
OotOffset-st: 3/4/1/4 [12]
KicOffset-st: 3/4/1/4 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 0.47 [8/17]

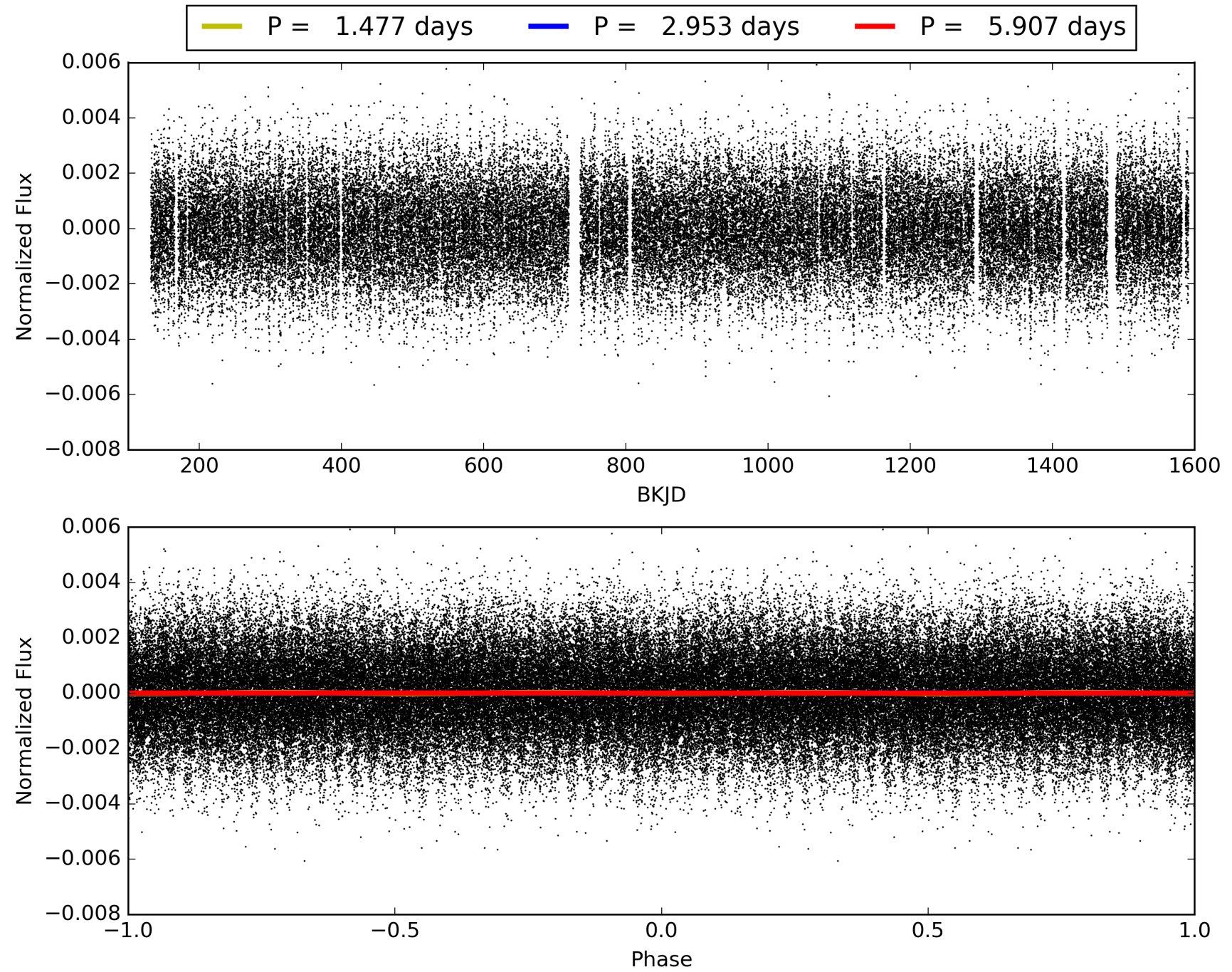
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:17:44 Z

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

TCE 008122232-02, PDC Light Curves

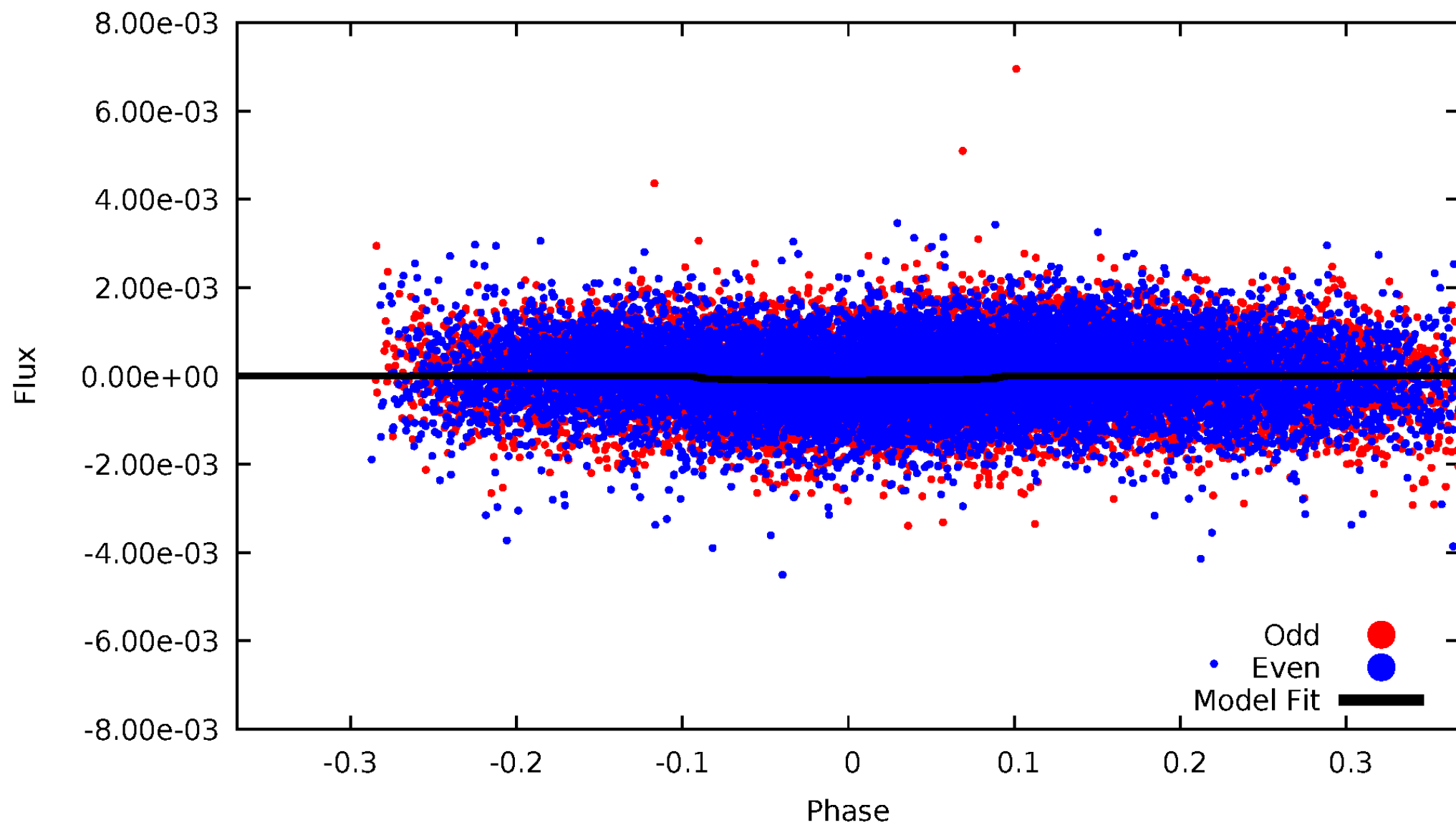


TCE 008122232-02



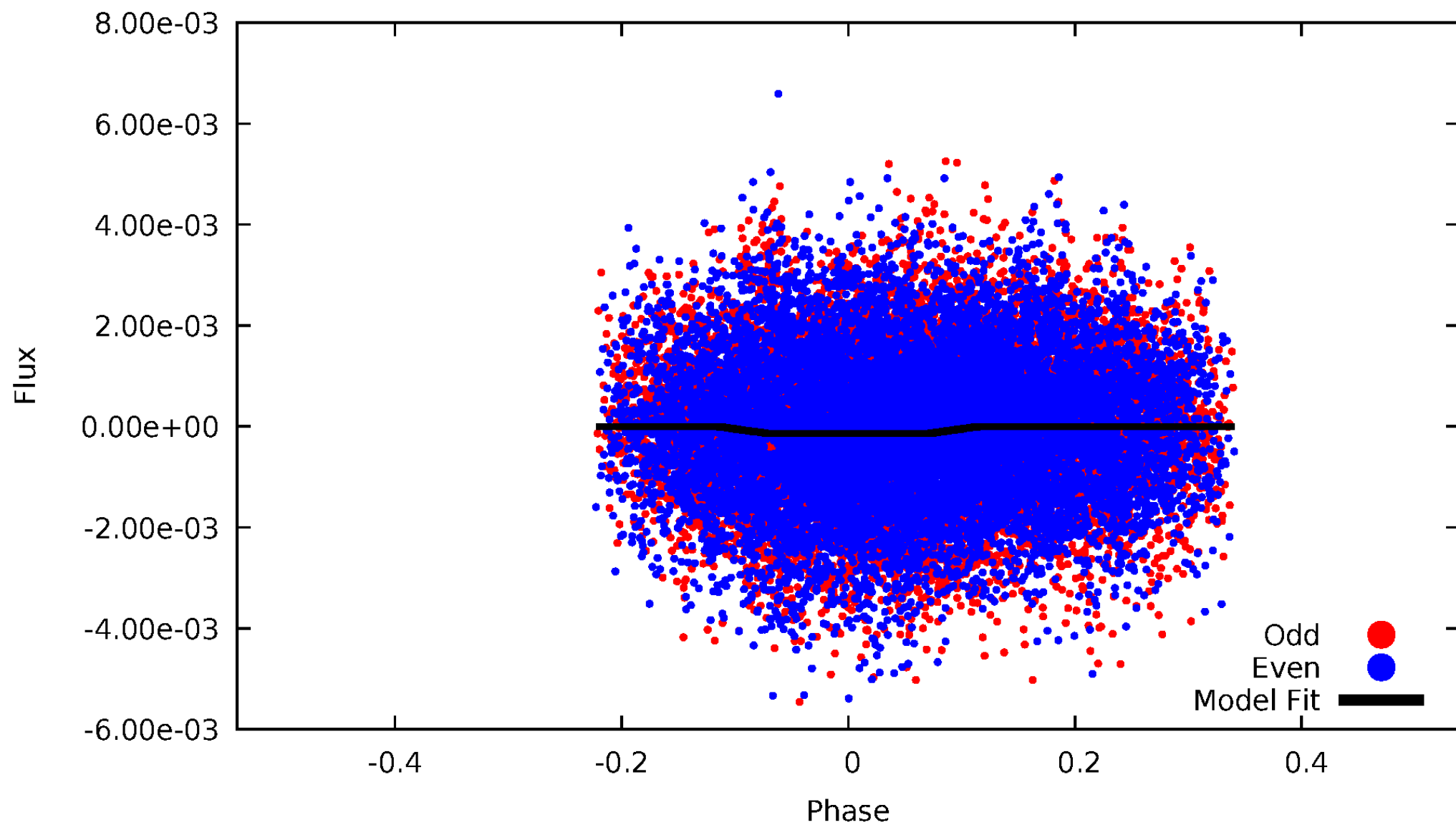
DV Odd/Even

TCE 008122232-02



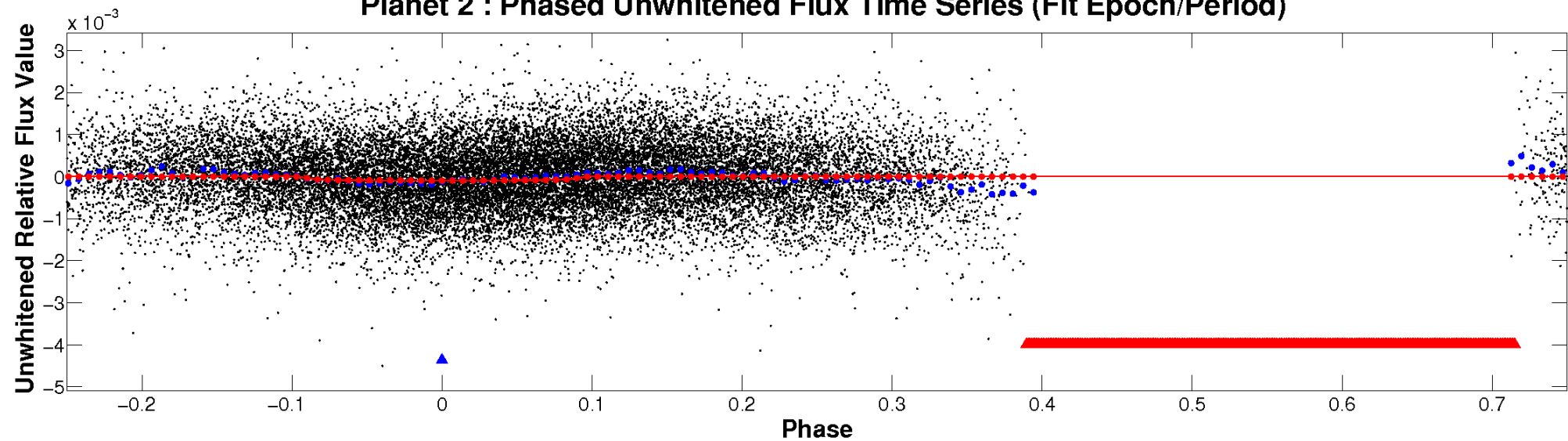
ALT Odd/Even

TCE 008122232-02

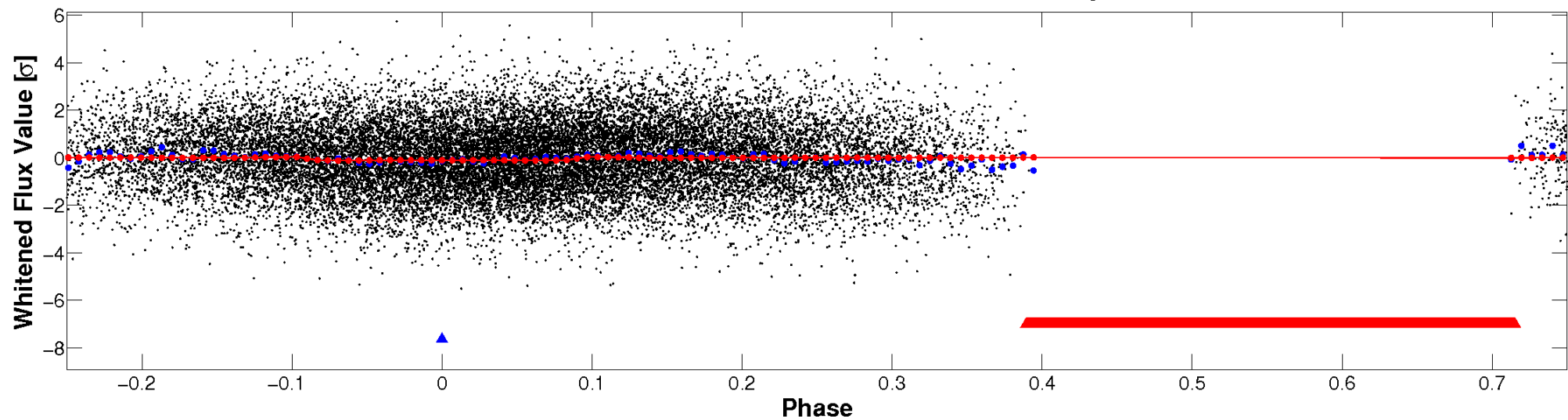


Non-Whitened Vs. Whitened Light Curve

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

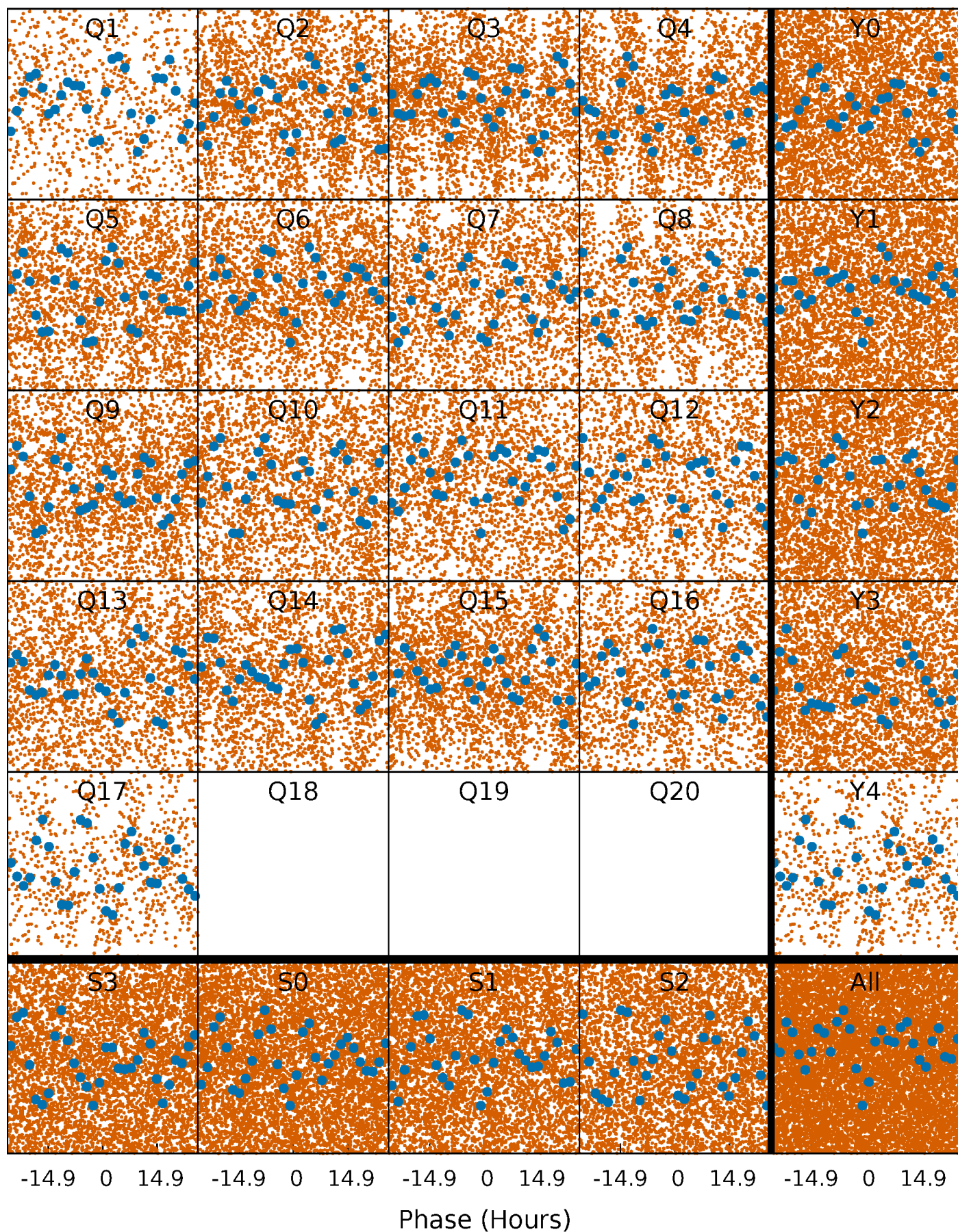


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



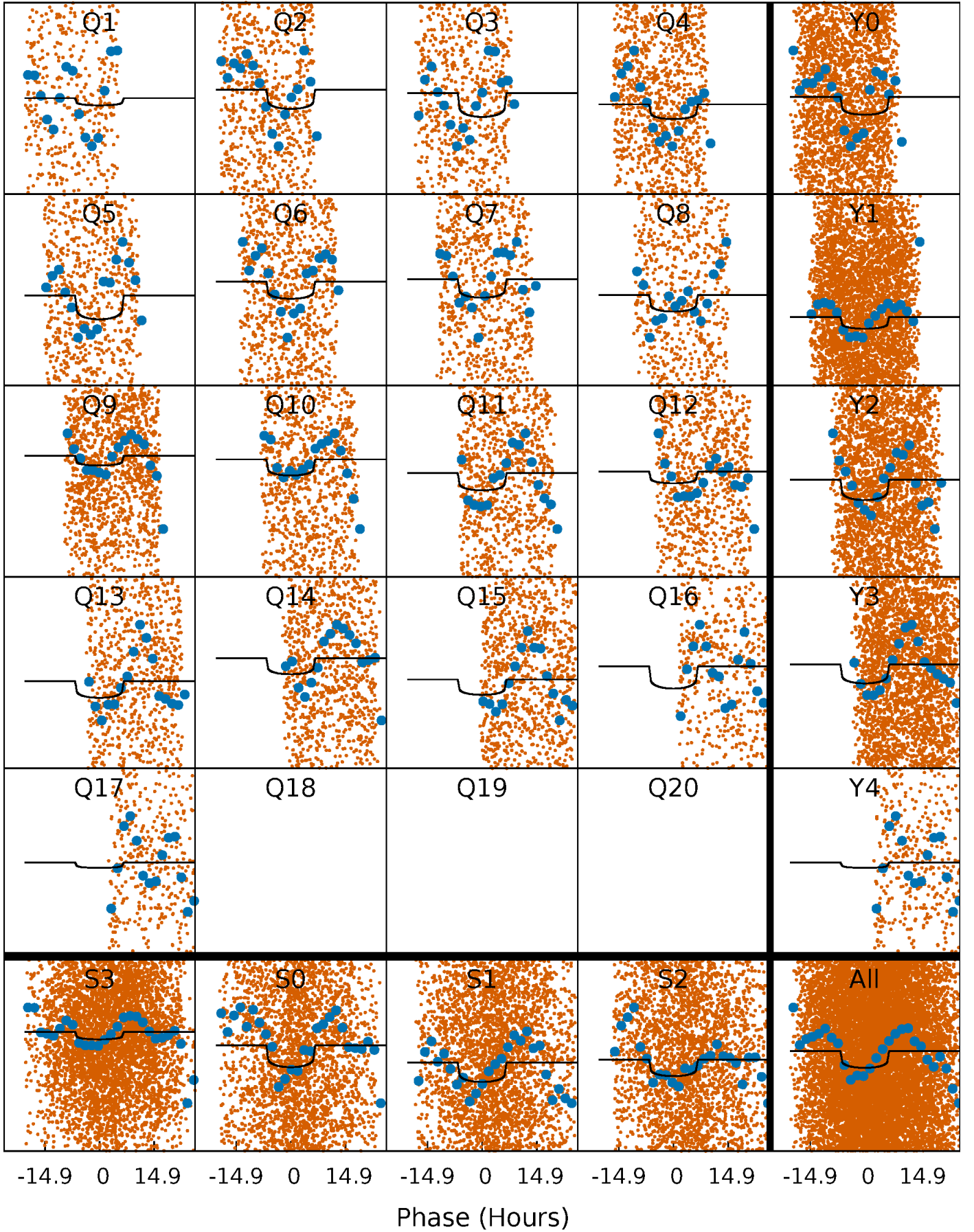
PDC Quarter-Phased Transit Curves

TCE 008122232-02 P= 2.953398 Days $T_0=133.606301$ (BKJD)



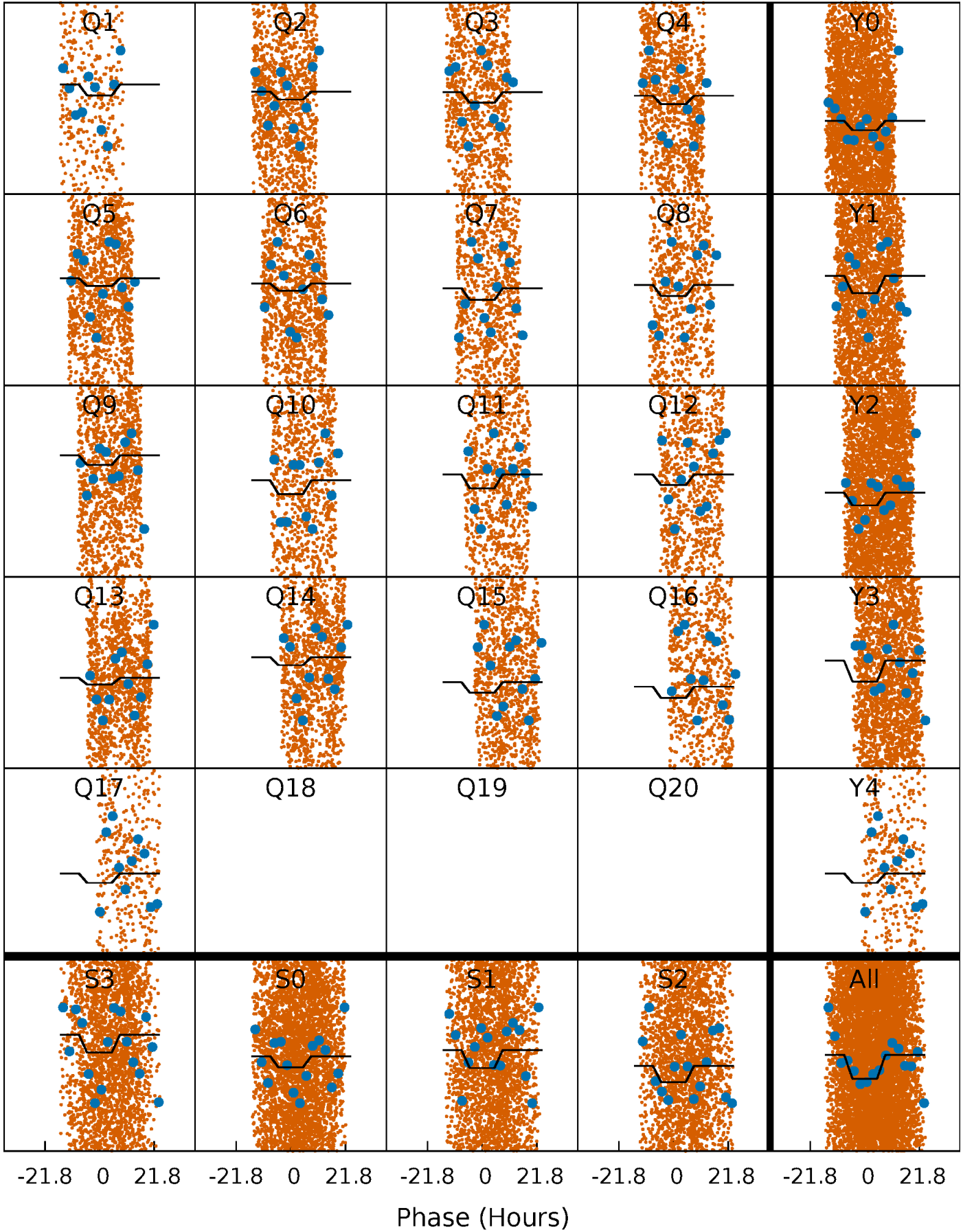
DV Quarter-Phased Transit Curves

TCE 008122232-02 P= 2.953398 Days $T_0=133.606301$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

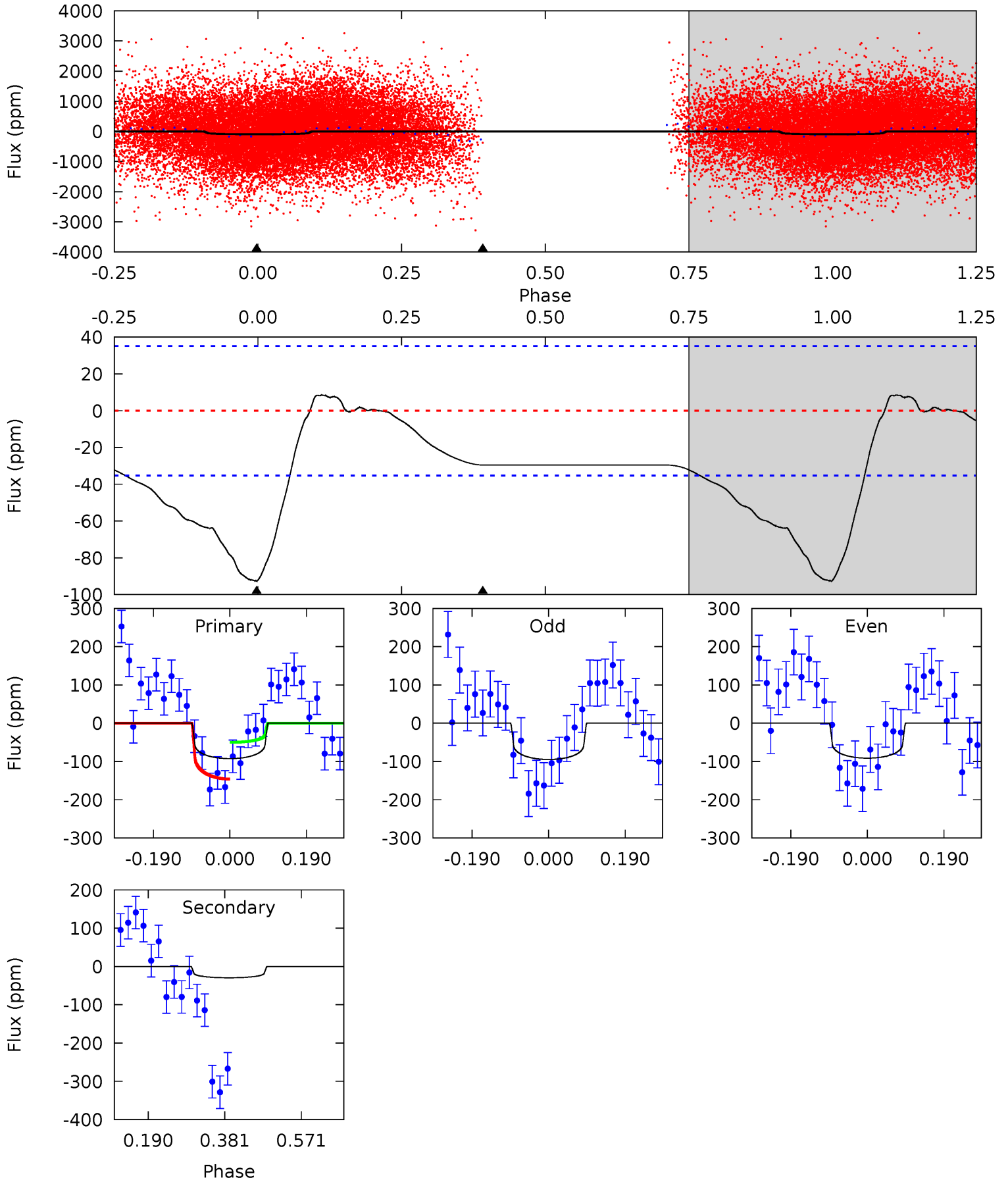
TCE 008122232-02 P= 2.954089 Days $T_0=133.415886$ (BKJD)



DV Model-Shift Uniqueness Test

008122232-02, P = 2.953398 Days, E = 130.652903 Days

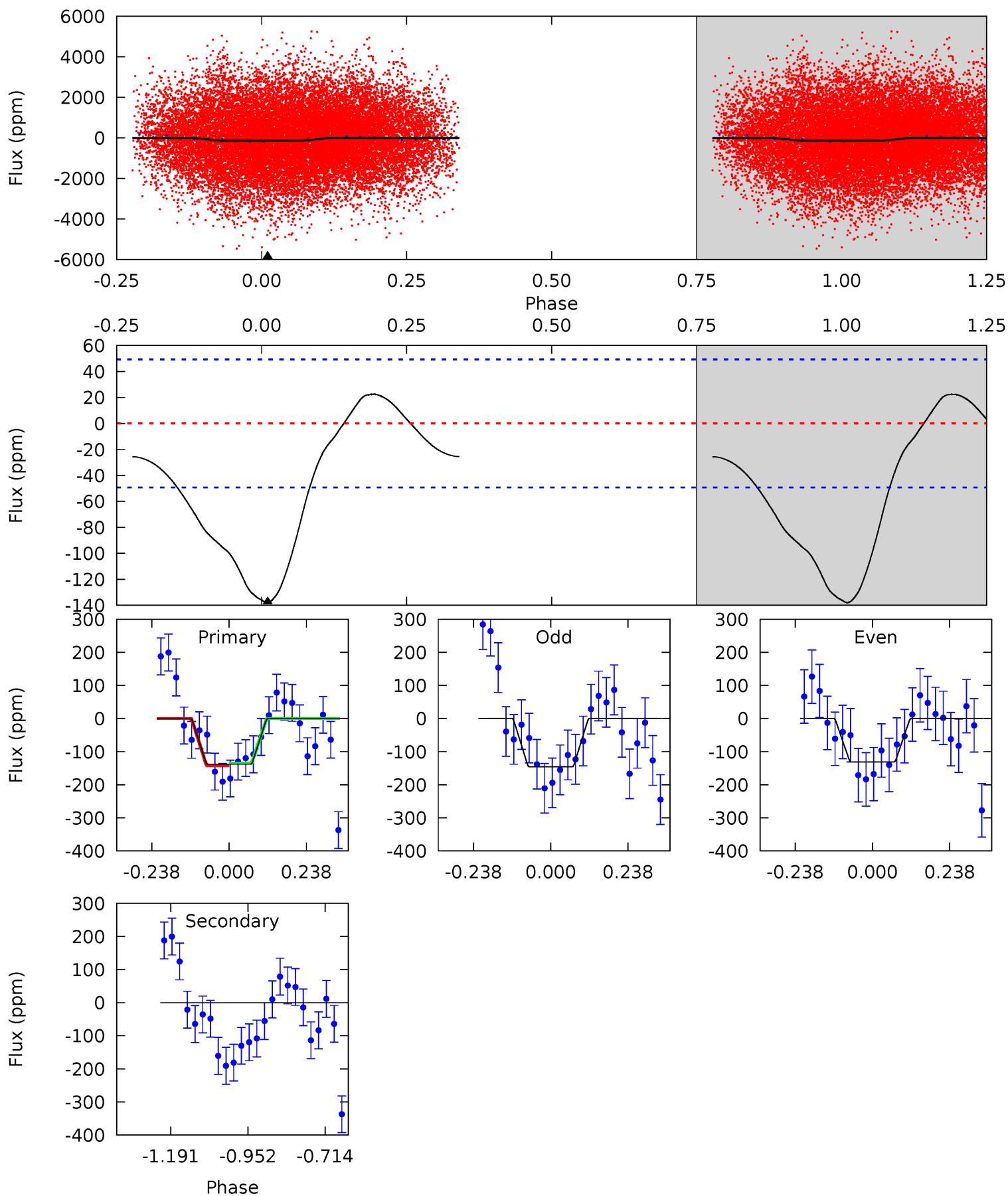
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	3.71	0	0	4.43	1.31	2.41	11.6	11.6	3.71	3.71	0.22	0.88	0.08	6.36



Alt Model-Shift Uniqueness Test

008122232-02, P = 2.954089 Days, E = 130.461797 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	0	0	0	4.38	1.18	1.18	12.3	12.3	0	0	0.66	0.94	0.14	0.33



Stellar Parameters For KIC 008122232

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7023^{+197}_{-271}	$4.259^{+0.090}_{-0.210}$	$-0.180^{+0.250}_{-0.350}$	$1.423^{+0.464}_{-0.214}$	$1.349^{+0.203}_{-0.203}$	$0.660^{+0.270}_{-0.366}$
	+3%/-4%	+2%/-5%	+139%/-194%	+33%/-15%	+15%/-15%	+41%/-56%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008122232-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-30 ± 8	$1.55^{+0.90}_{-0.78}$	2488^{+165}_{-143}	5193^{+2265}_{-954}	13^{+39}_{-8}
Alt.	0 ± 11	$1.92^{+0.97}_{-0.89}$	2488^{+175}_{-146}	-2878^{+6971}_{-1367}	$-0.061^{+4.069}_{-4.143}$

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

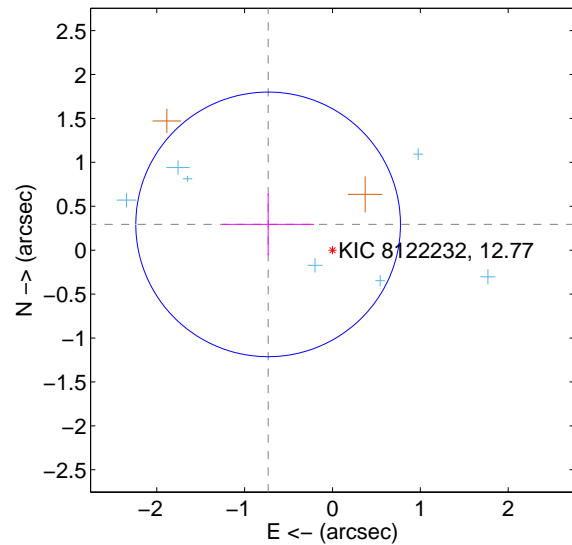
Supplemental centroid analysis for 008122232-02. Kepler magnitude: 12.77. Transit SNR 10.12

There are 8 quarters with good PRF difference image offsets

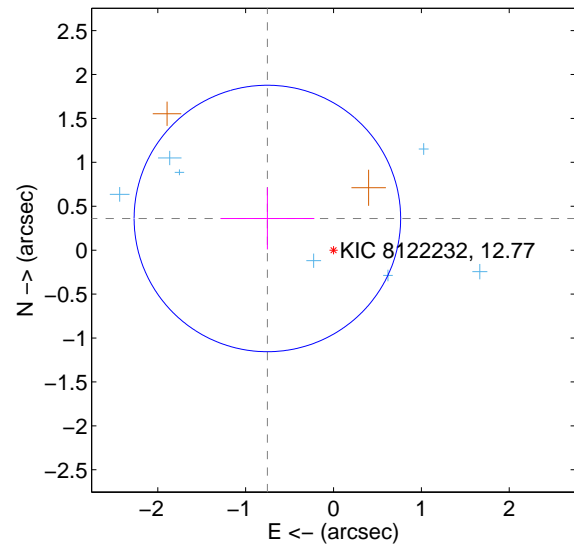
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.789 ± 0.502	1.57	0.732 ± 0.522	0.294 ± 0.350
PRF-fit source offset from KIC position	0.835 ± 0.506	1.65	0.753 ± 0.535	0.361 ± 0.352
photometric centroid source offset	0.41 ± 0.23	1.78	-0.33 ± 0.24	-0.24 ± 0.20

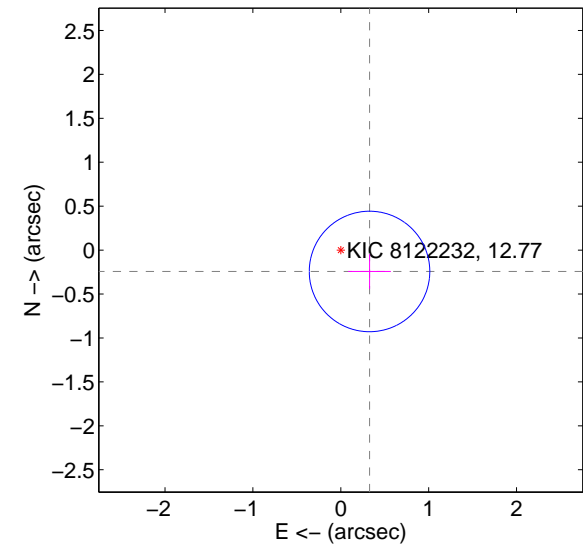
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

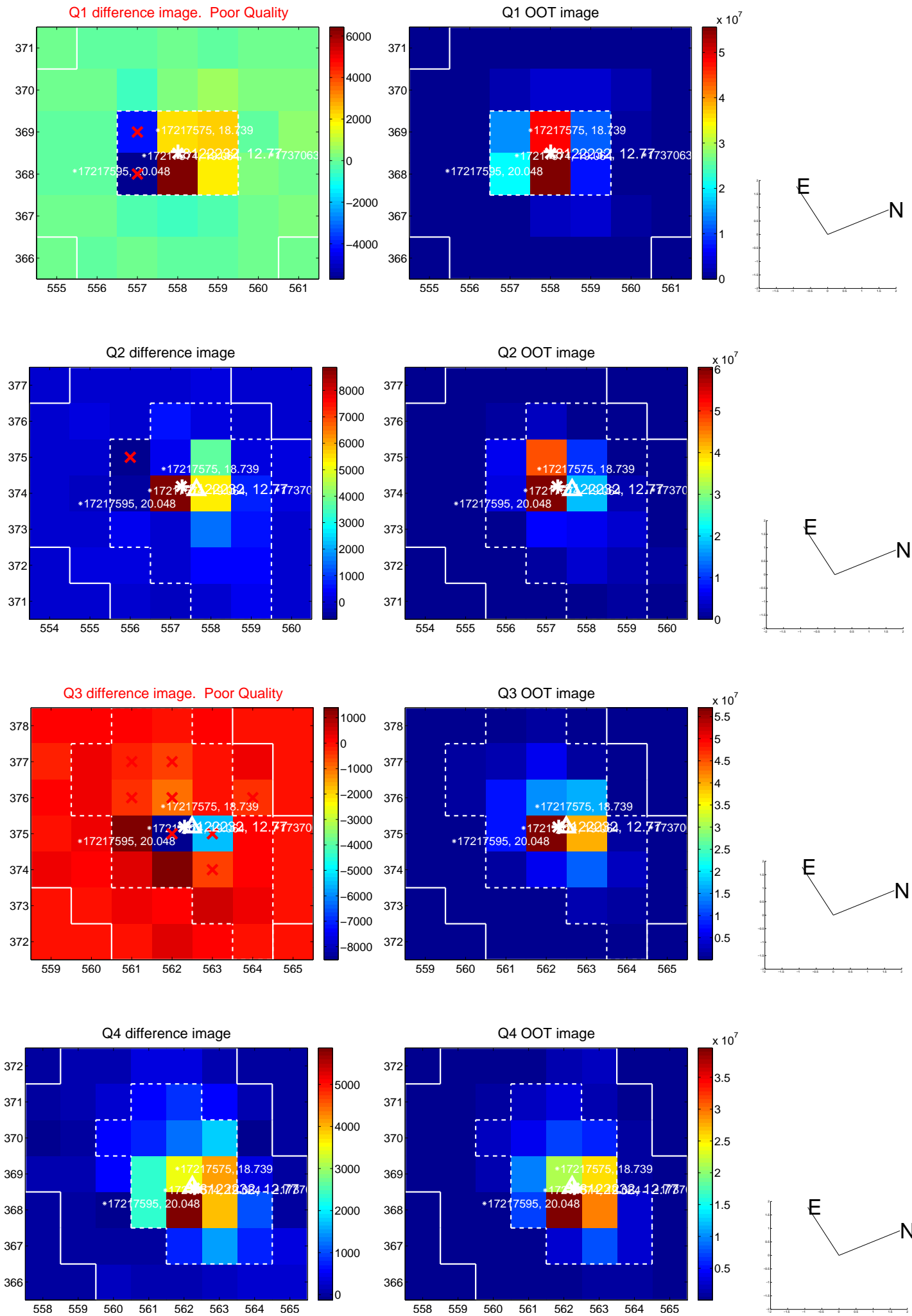


offset from photometric centroids

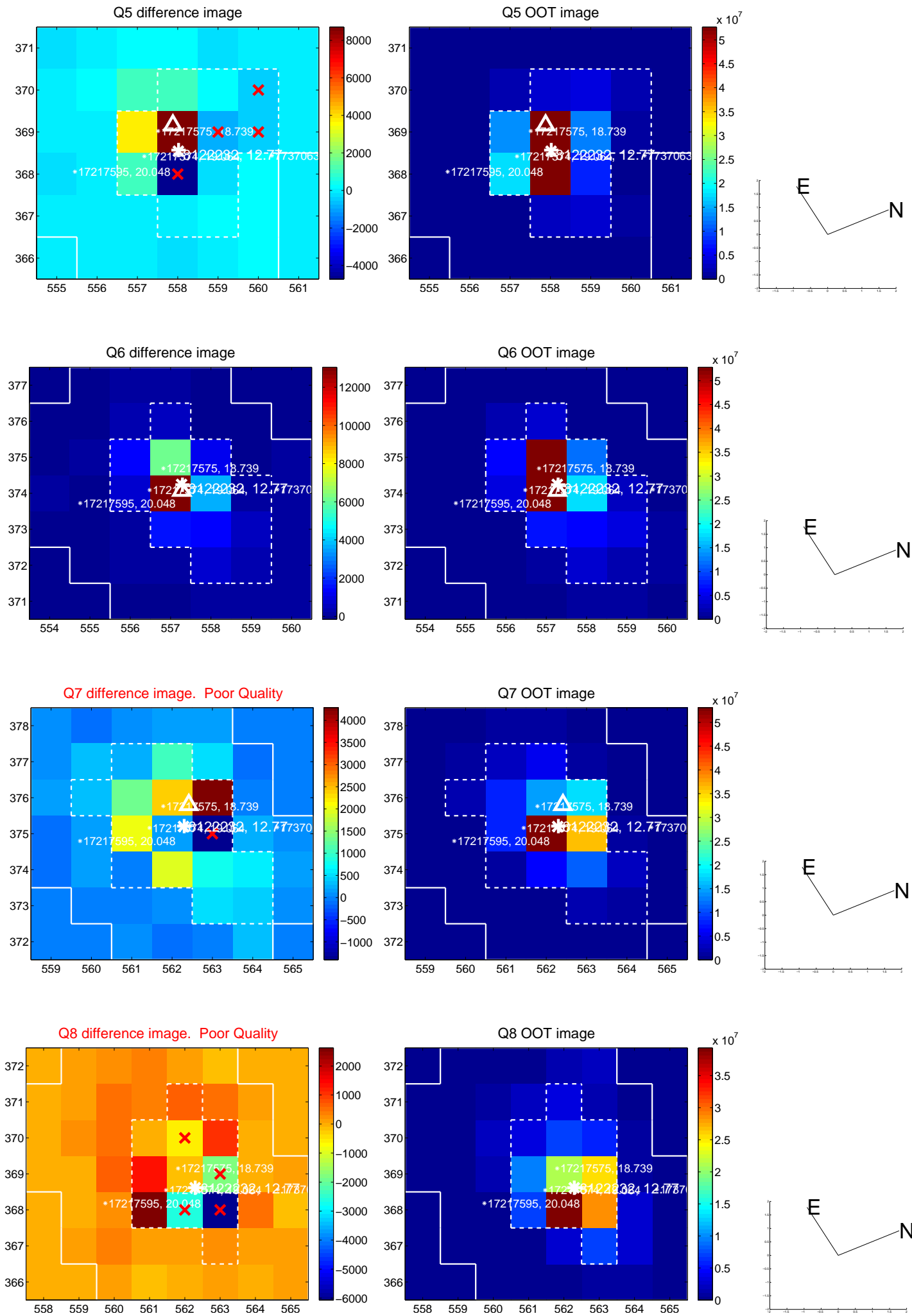


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

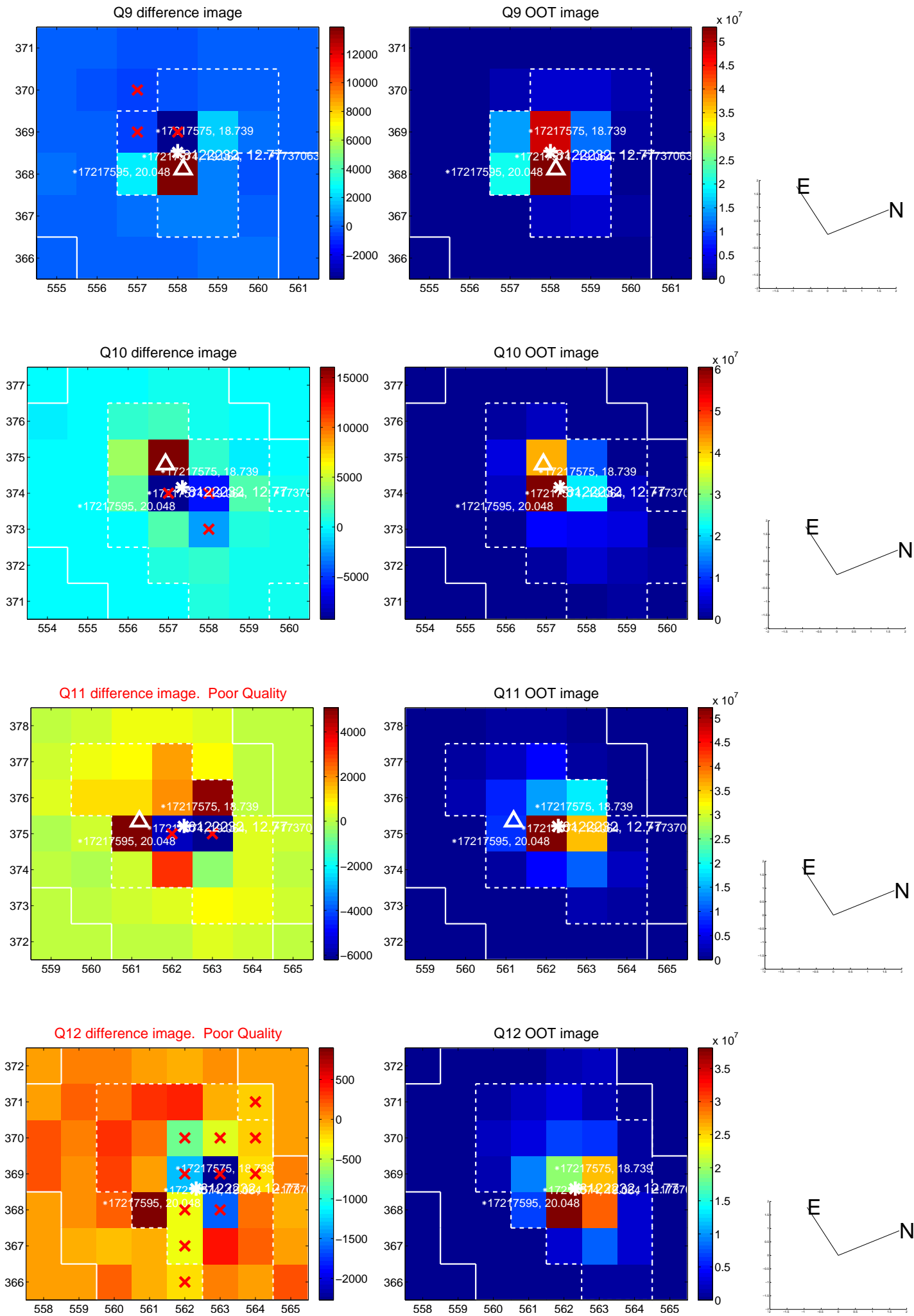
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



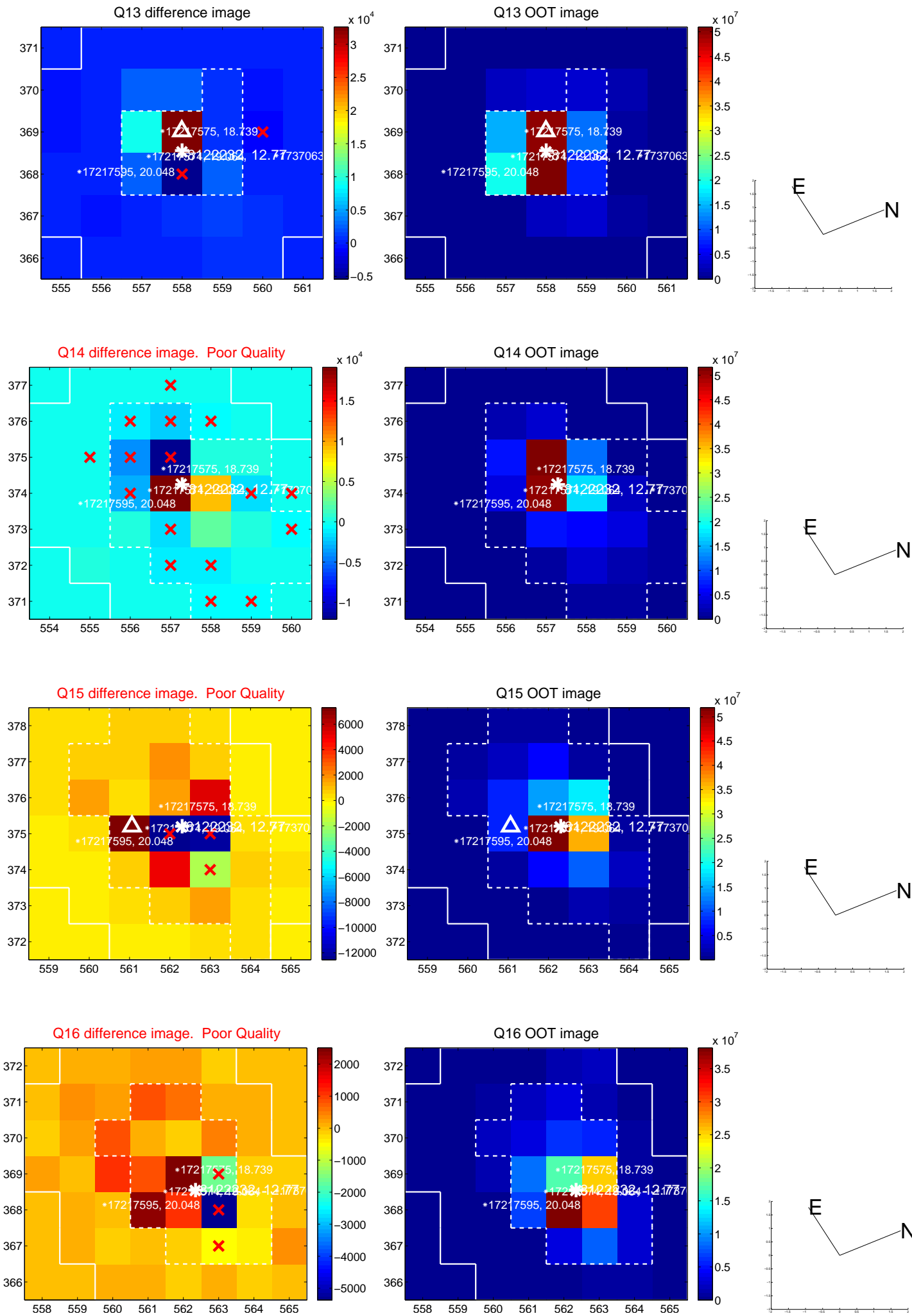
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



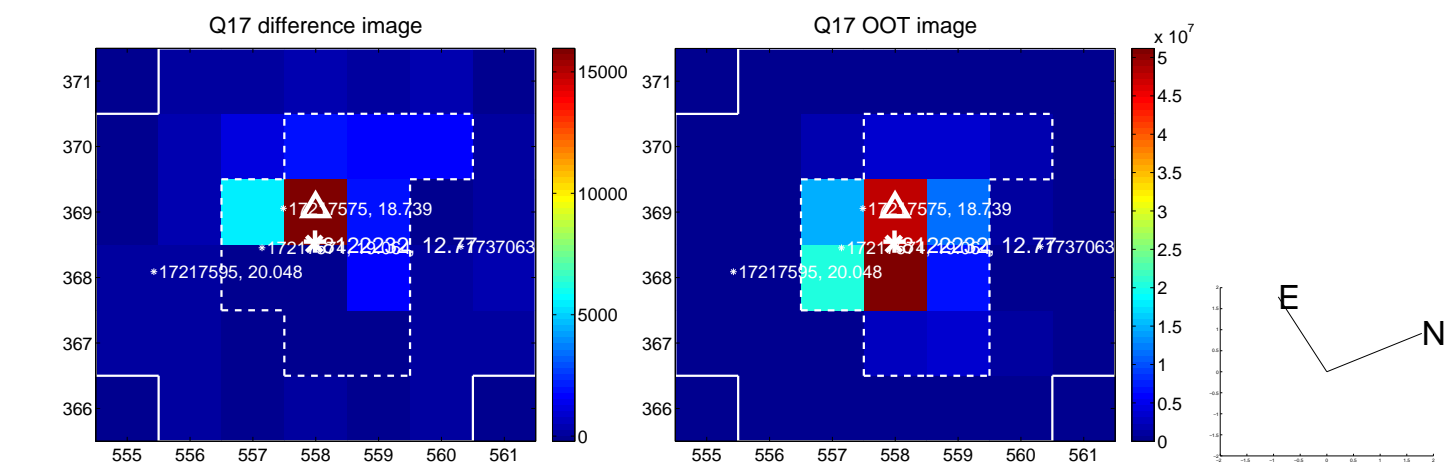
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



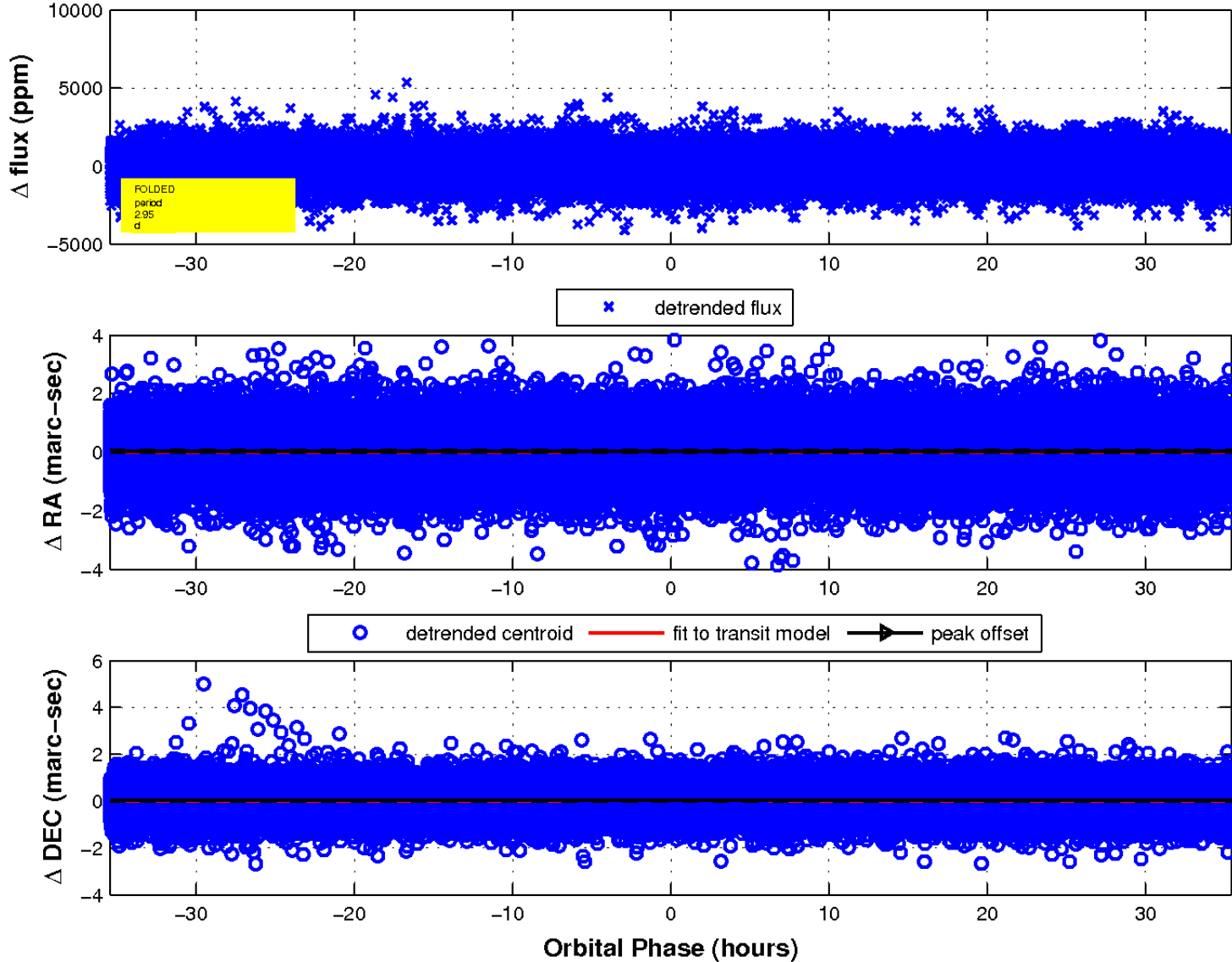
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

