

KIC 010732638

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})
010732638-01	OBS	No	2.088833	131.719325	76.3	7.866	13.1	11.2	2.67	7717	2.79	13815.48
010732638-02	OBS	No	2.088798	132.442953	82.0	6.563	9.7	10.2	2.67	7717	2.82	13815.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010732638-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010732638-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

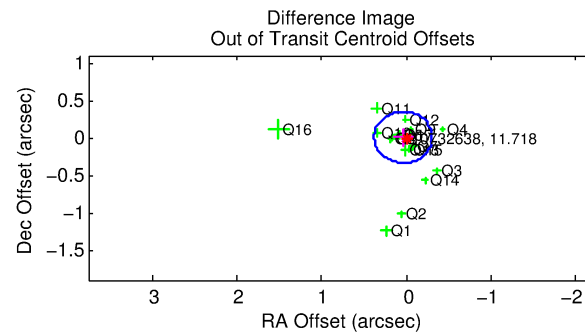
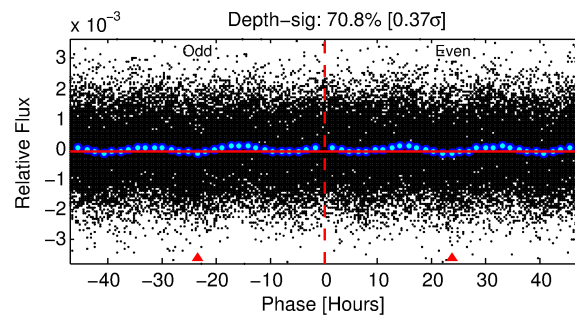
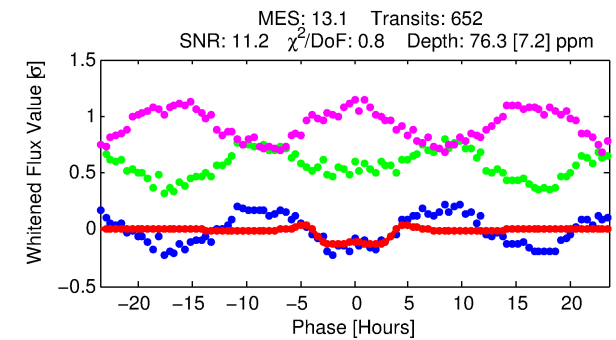
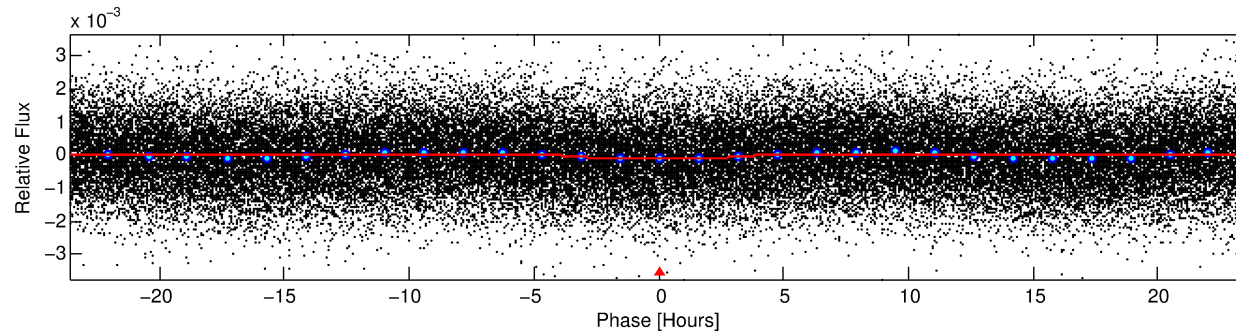
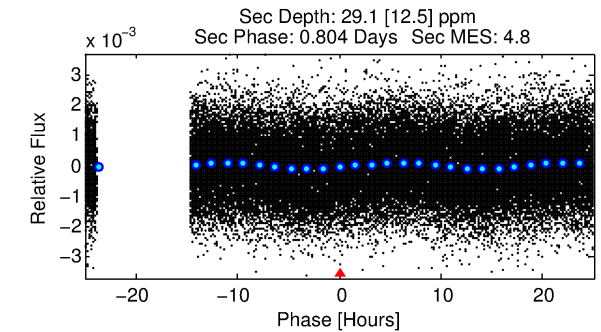
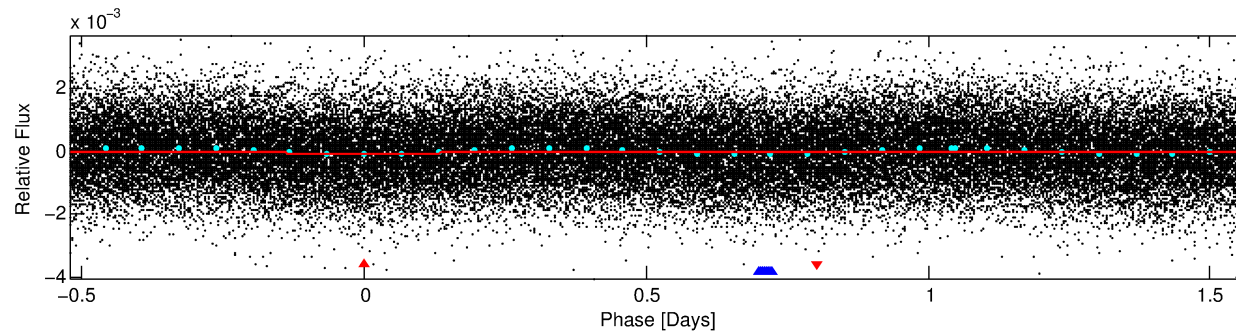
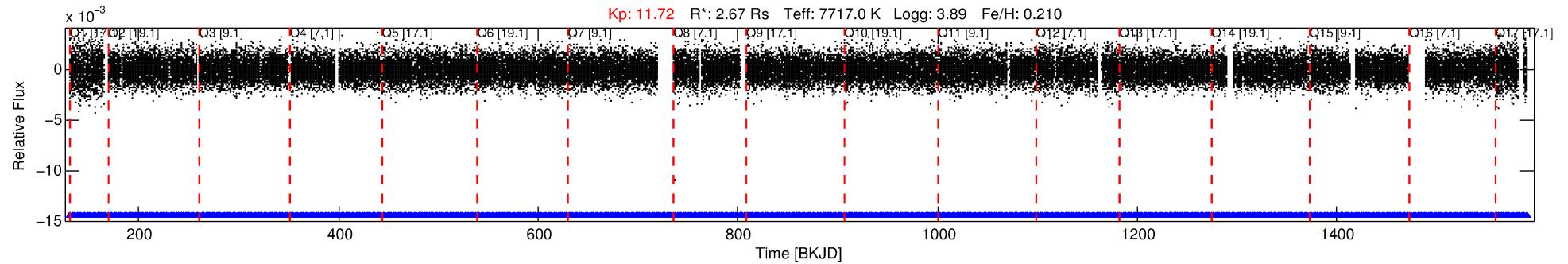
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010732638-01

No Significant Match Found

DV One-Page Summary

KIC: 10732638 Candidate: 1 of 2 Period: 2.089 d



DV Fit Results:

Period = 2.08883 [0.00003] d
Epoch = 131.7193 [0.0081] BKJD
Rp/R* = 0.0096 [0.0022]
a/R* = 1.24 [0.64]
b = 0.93 [0.21]
Seff = 13815.48 [6904.48]
Teq = 2765 [345] K
Rp = 2.79 [1.14] Re
a = 0.0406 [0.0123] AU
Ag = 3.38 [2.66] [0.90σ]
Teffp = 5796 [954] K [2.99σ]

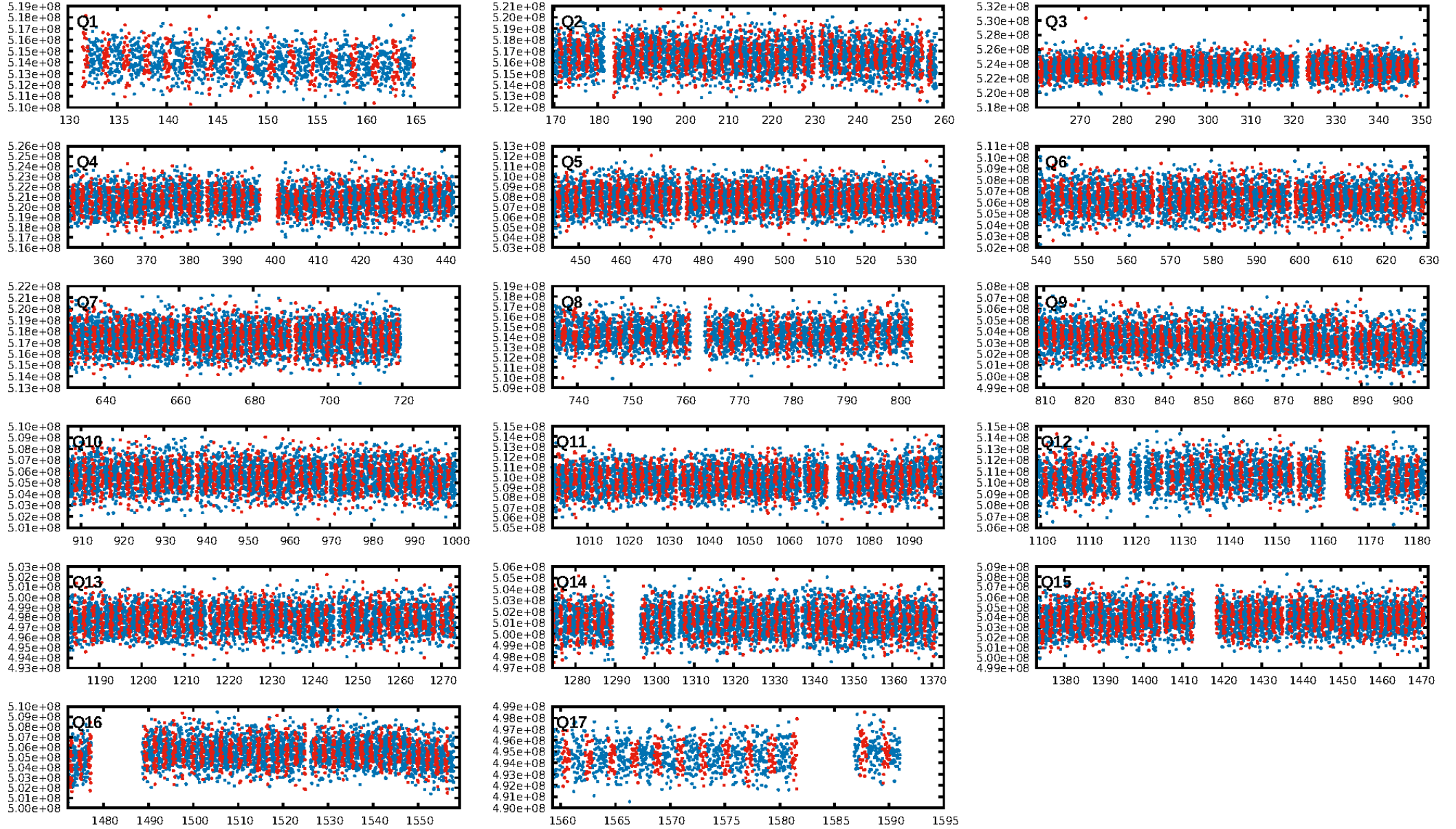
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.32e-26
RollingBand-fgt: 1.00 [622/622]
GhostDiagnostic-chr: 2.068
Centroid-sig: 25.1%
Centroid-so: 0.105 arcsec [0.94σ]
OotOffset-rm: 0.036 arcsec [0.31σ]
KicOffset-rm: 0.054 arcsec [0.47σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

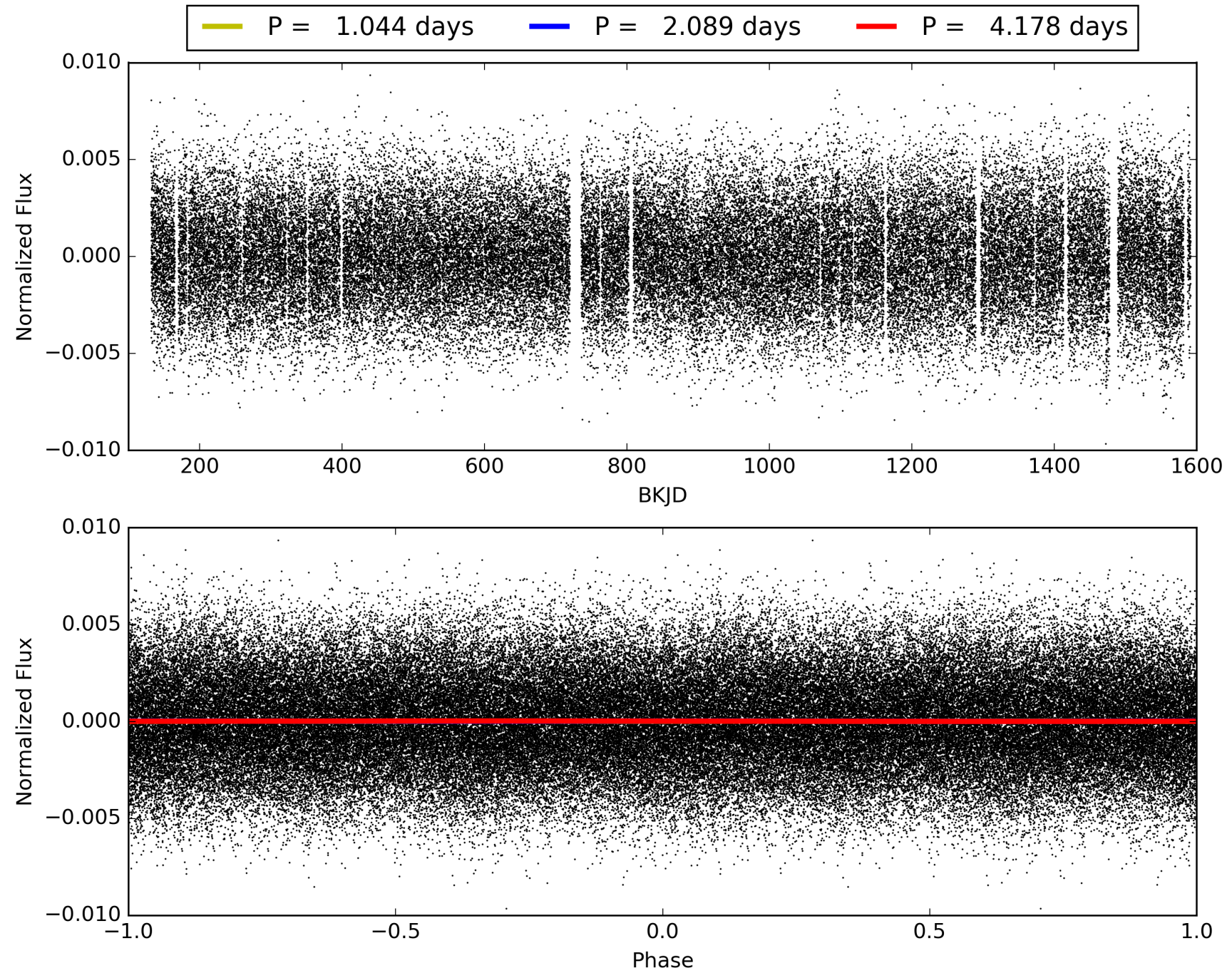
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:09:12 Z

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

TCE 010732638-01, PDC Light Curves

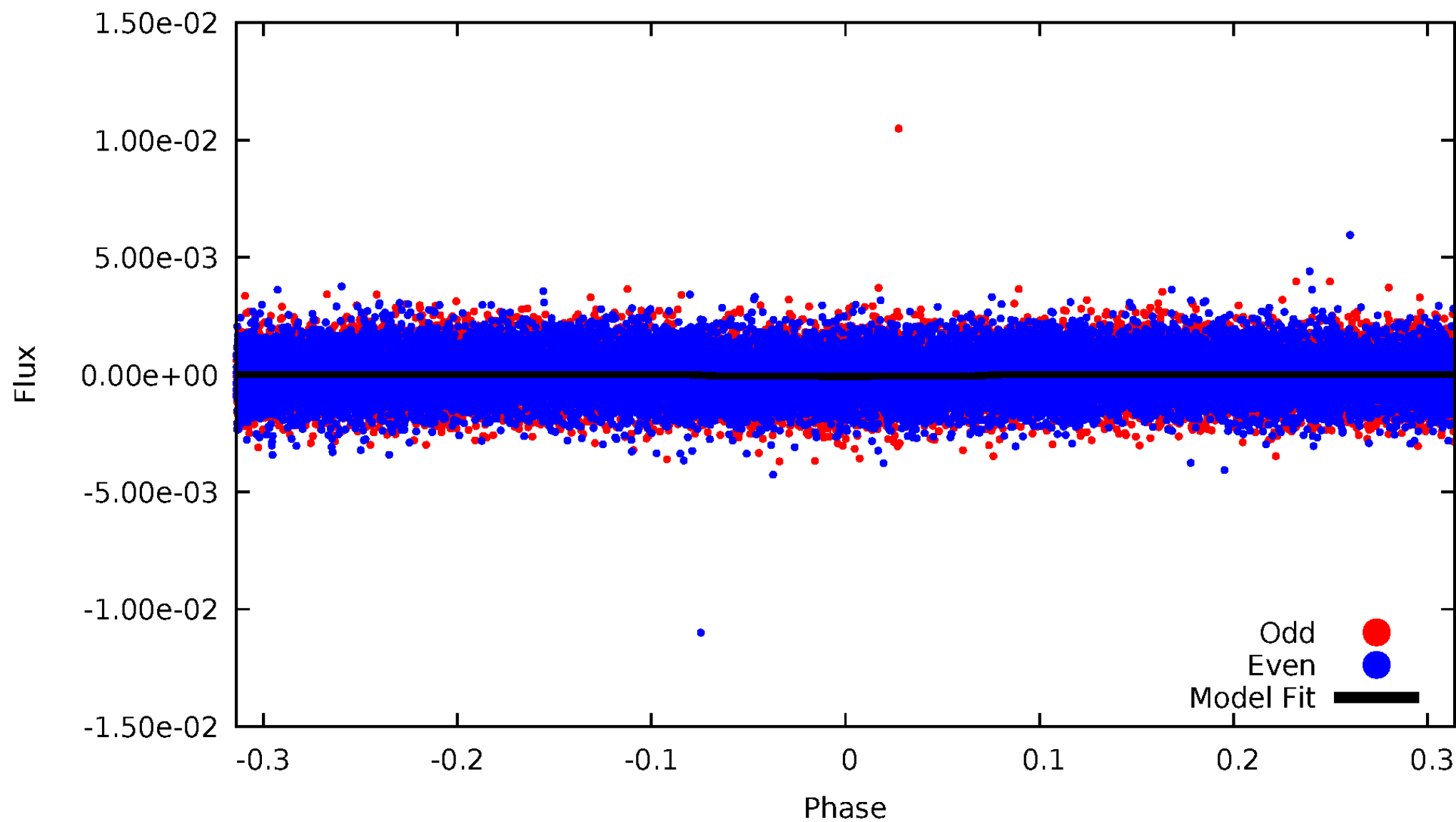


TCE 010732638-01



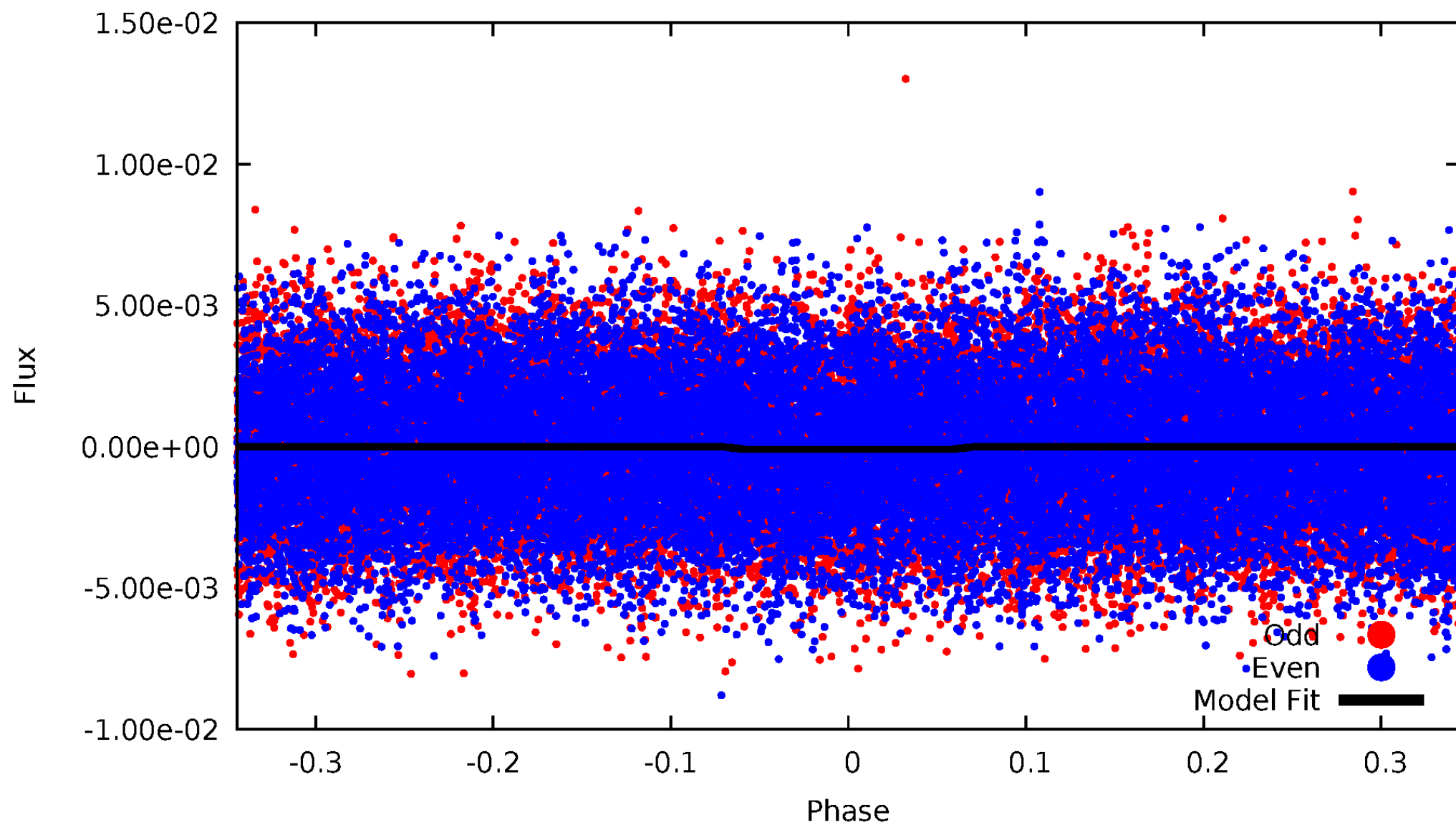
DV Odd/Even

TCE 010732638-01



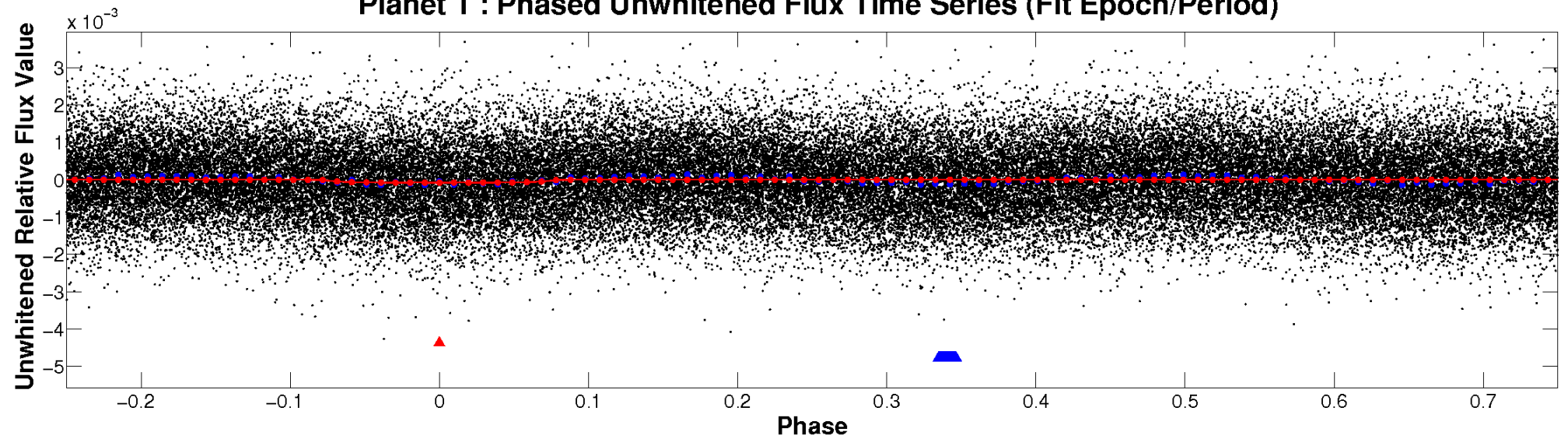
ALT Odd/Even

TCE 010732638-01

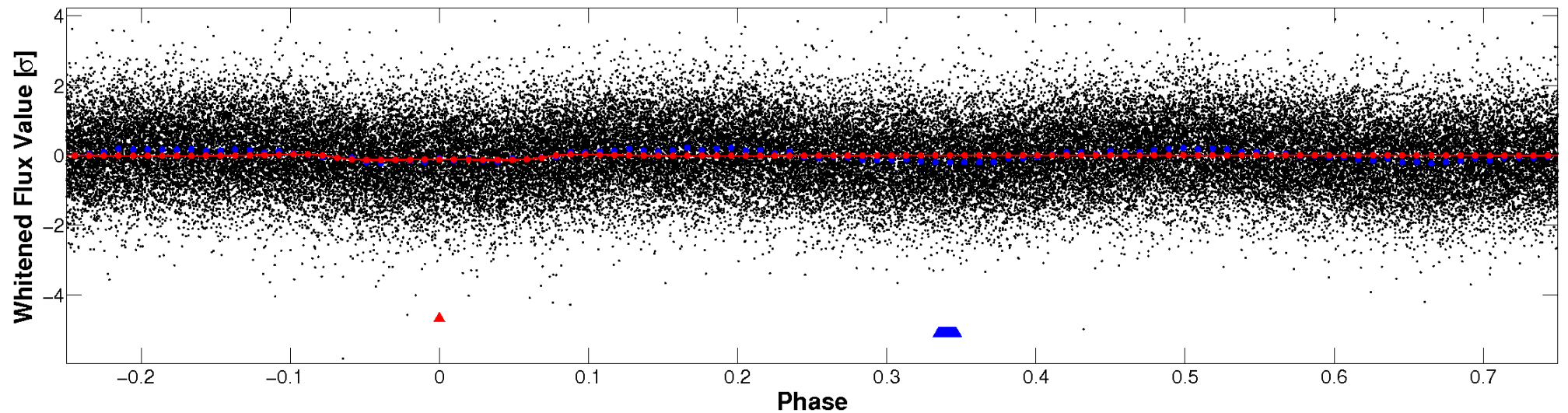


Non-Whitened Vs. Whitened Light Curve

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

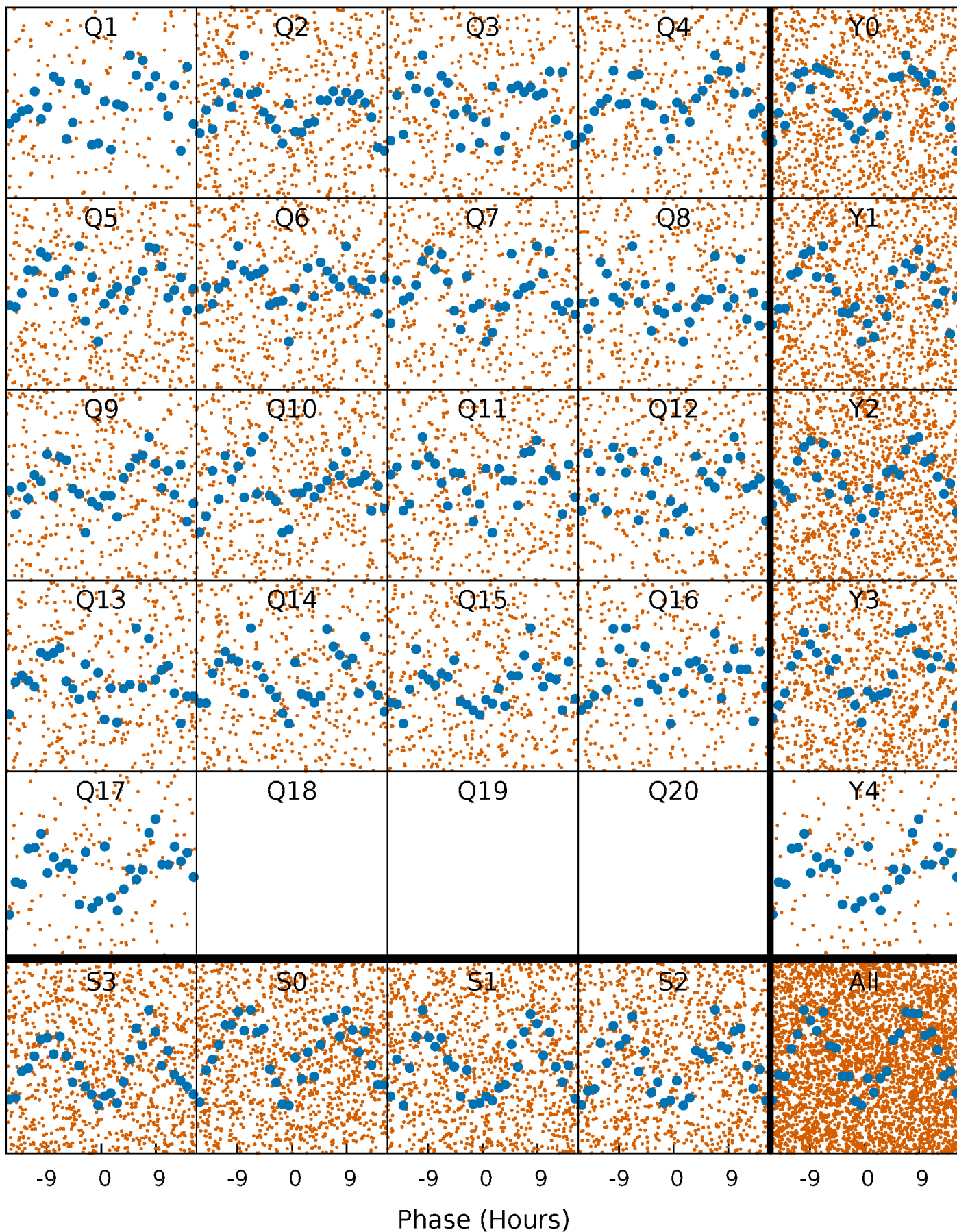


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



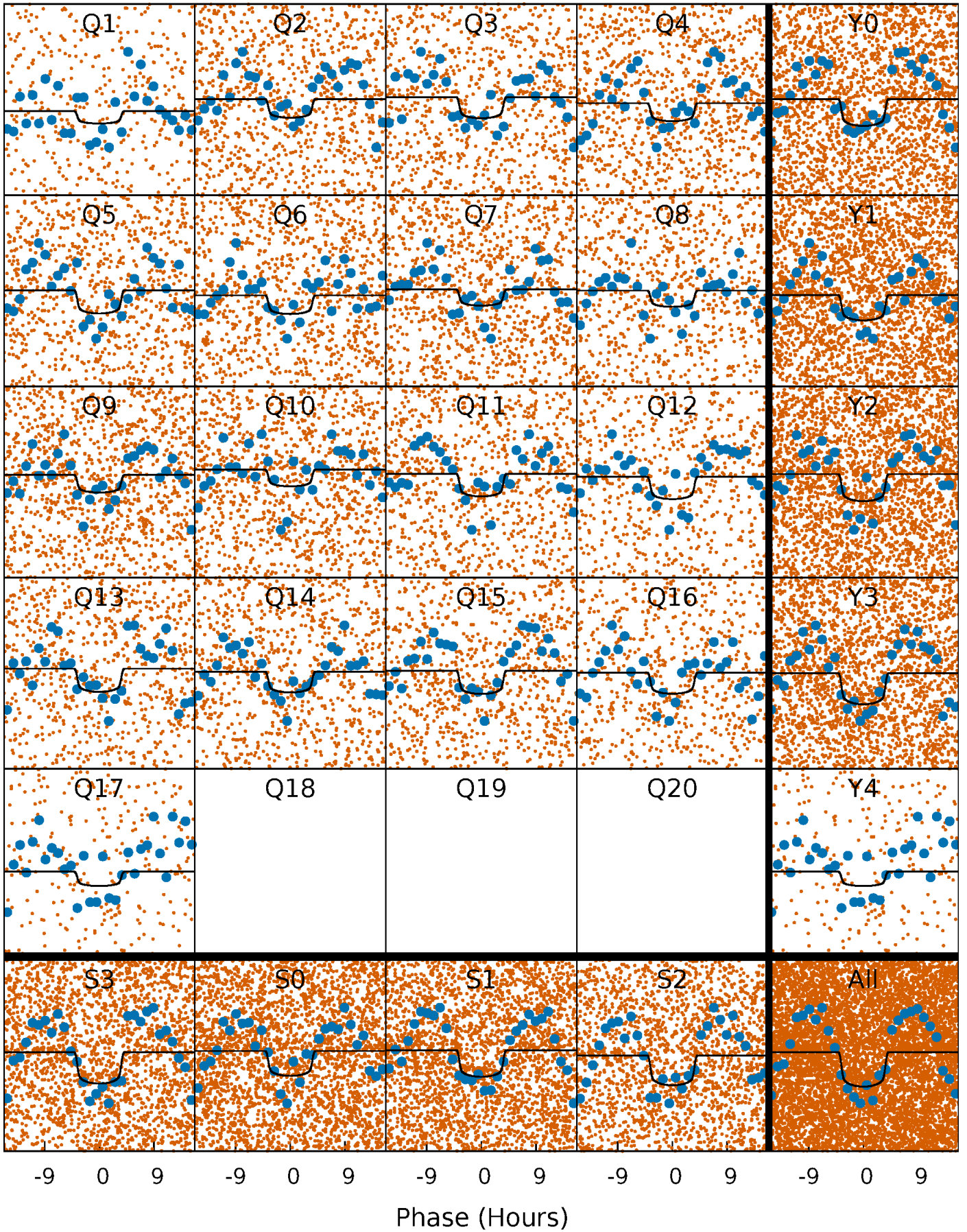
PDC Quarter-Phased Transit Curves

TCE 010732638-01 P= 2.088833 Days $T_0=131.719325$ (BKJD)



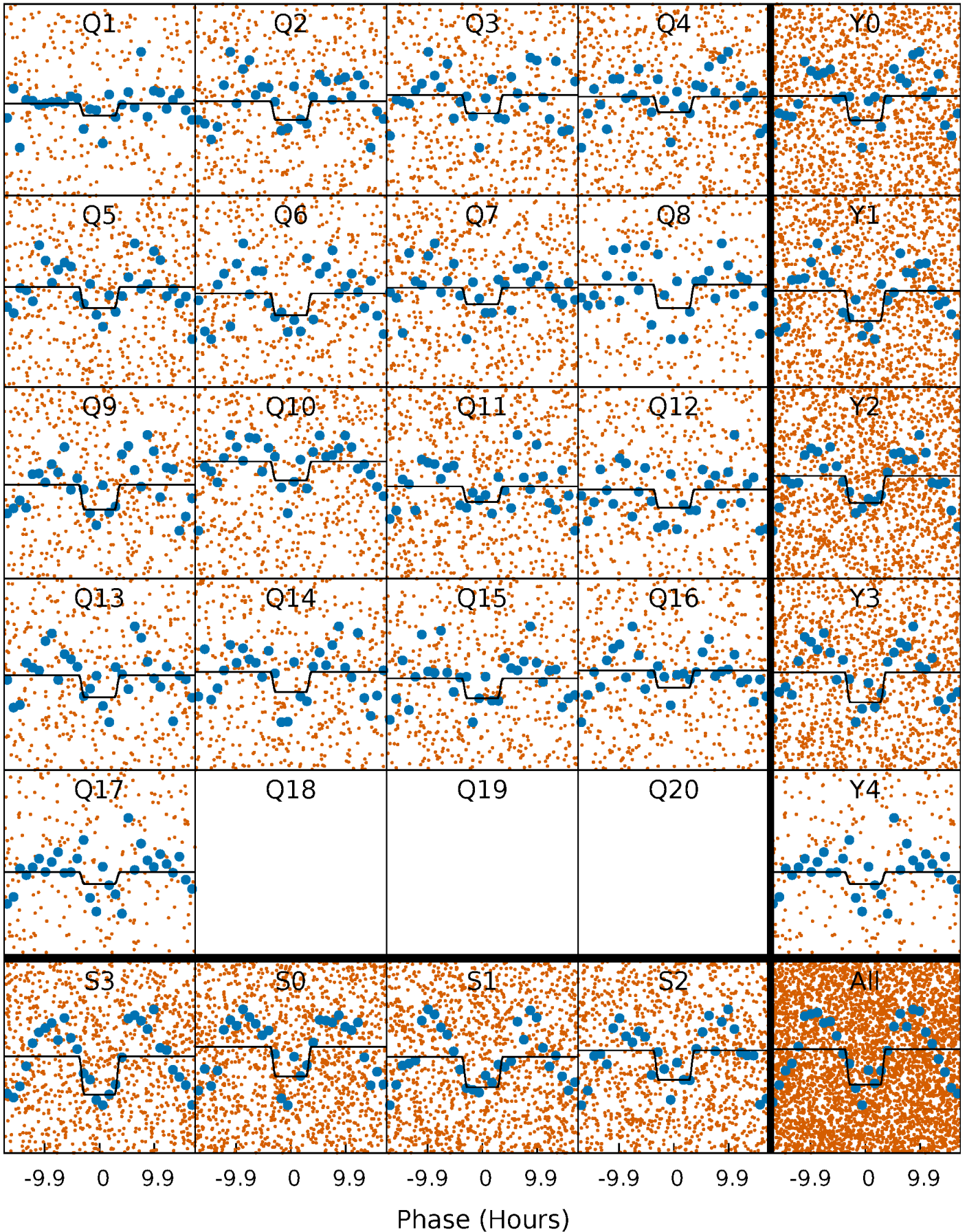
DV Quarter-Phased Transit Curves

TCE 010732638-01 P= 2.088833 Days $T_0=131.719325$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

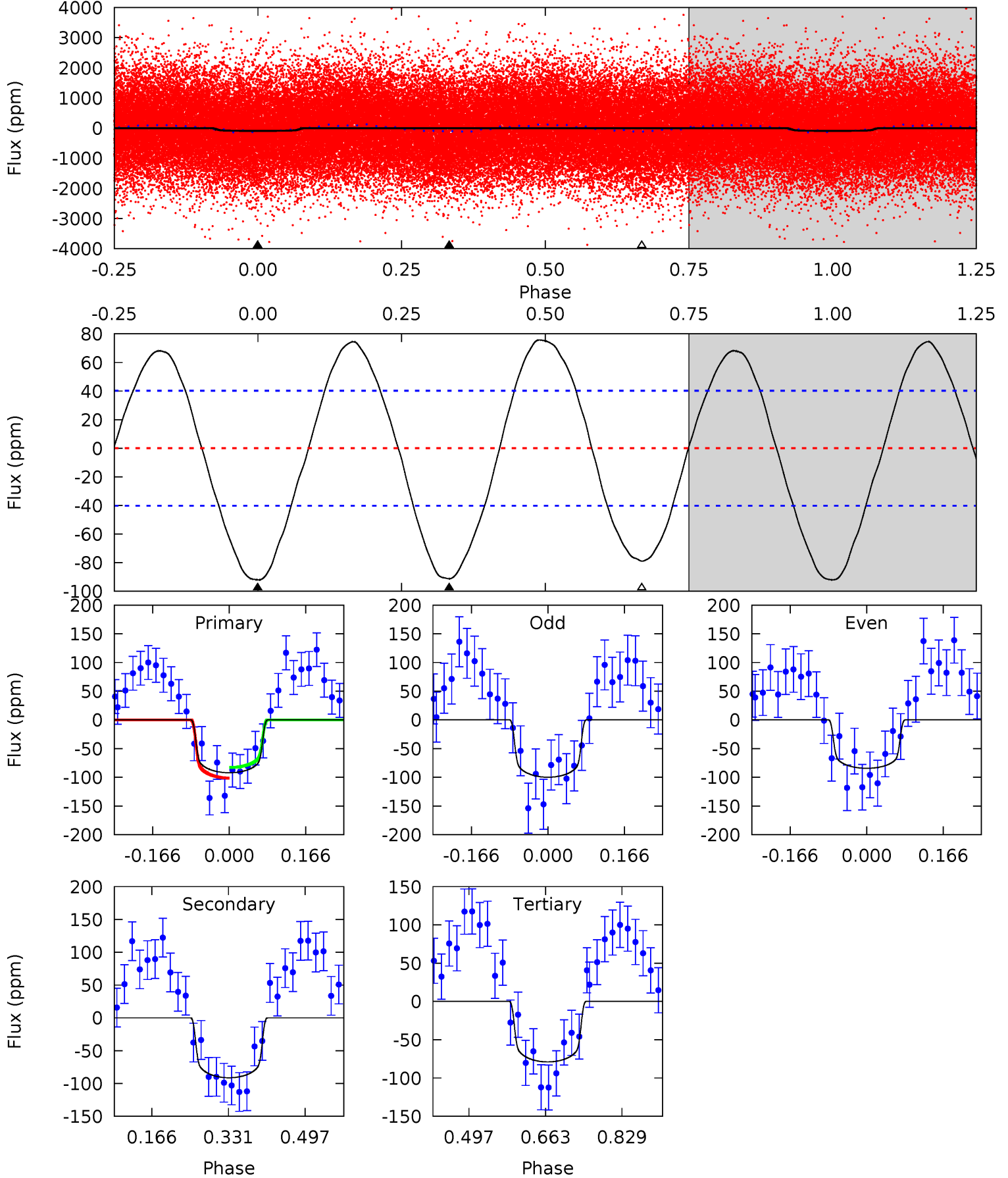
TCE 010732638-01 P= 2.088851 Days $T_0=131.707860$ (BKJD)



DV Model-Shift Uniqueness Test

010732638-01, P = 2.088833 Days, E = 129.630492 Days

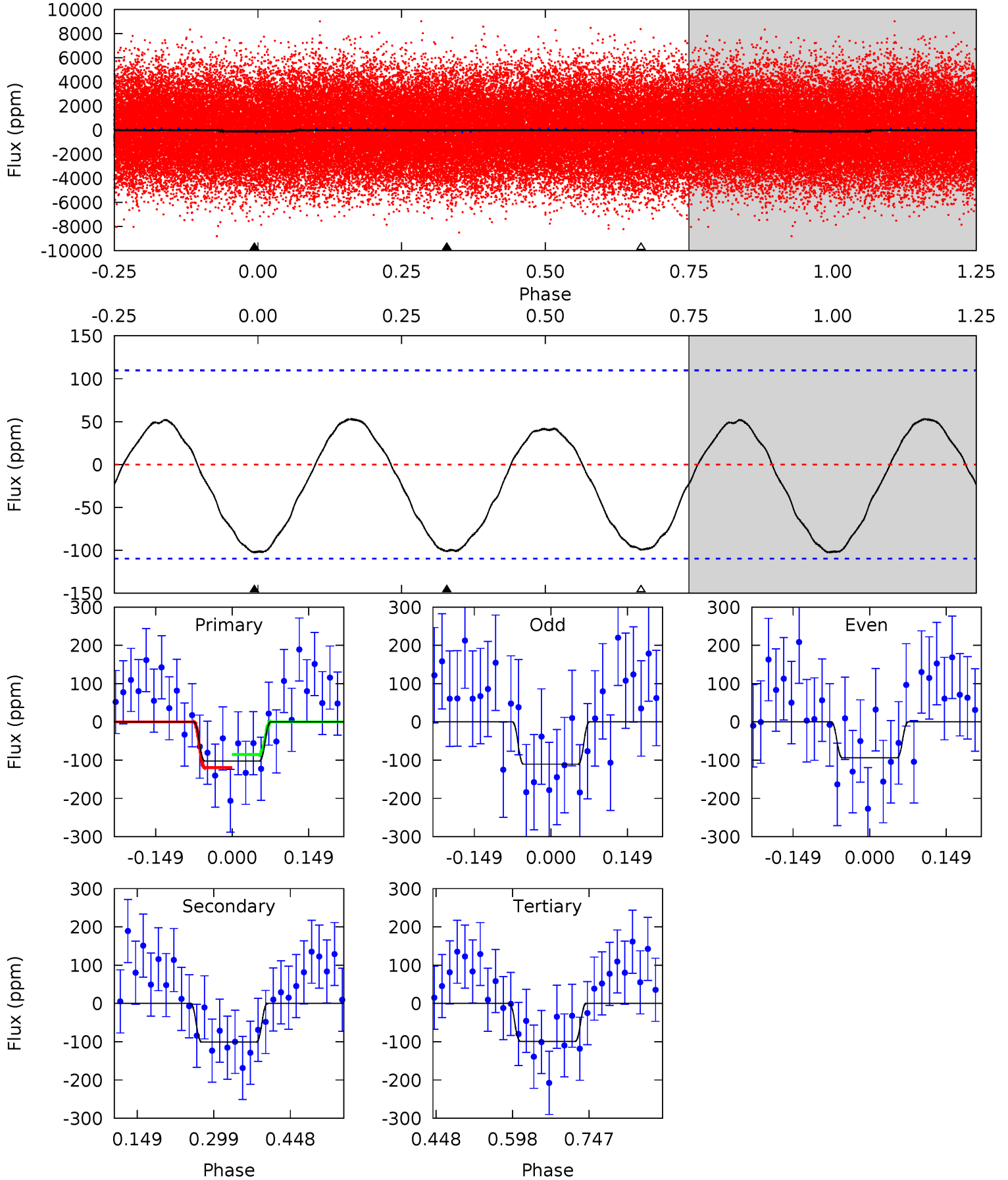
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	10.1	8.75	0	4.46	1.39	6.00	1.46	10.2	1.37	10.1	0.86	0.92	0.45	1.02



Alt Model-Shift Uniqueness Test

010732638-01, P = 2.088851 Days, E = 129.619009 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.17	4.12	4.05	0	4.48	1.44	2.24	0.13	4.17	0.07	4.12	0.34	0.98	0.34	0.70



Stellar Parameters For KIC 010732638

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7717^{+214}_{-349}	$3.893^{+0.266}_{-0.133}$	$0.210^{+0.150}_{-0.450}$	$2.675^{+0.484}_{-0.900}$	$2.038^{+0.260}_{-0.483}$	$0.150^{+0.270}_{-0.053}$
	+3%/-5%	+7%/-3%	+71%/-214%	+18%/-34%	+13%/-24%	+180%/-36%
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 010732638-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-91 ± 9	$2.70^{+0.73}_{-0.78}$	3808^{+249}_{-341}	7601^{+1447}_{-964}	11^{+10}_{-5}
Alt.	-101 ± 24	$2.87^{+0.83}_{-0.73}$	3788^{+292}_{-326}	7366^{+1464}_{-908}	11^{+9}_{-4}

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 $A_{obs} \gg 1.0$

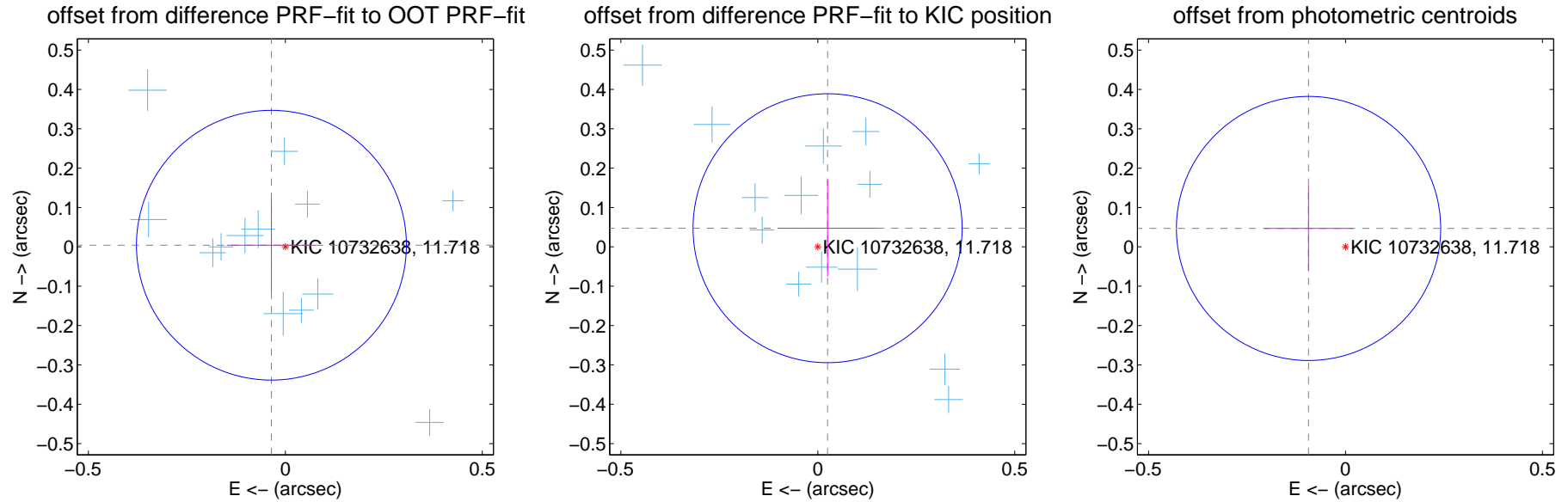
DV Centroid Data

Supplemental centroid analysis for 010732638-01. **Kepler magnitude: 11.72.** Transit SNR 11.20

There are 17 quarters with good PRF difference image offsets

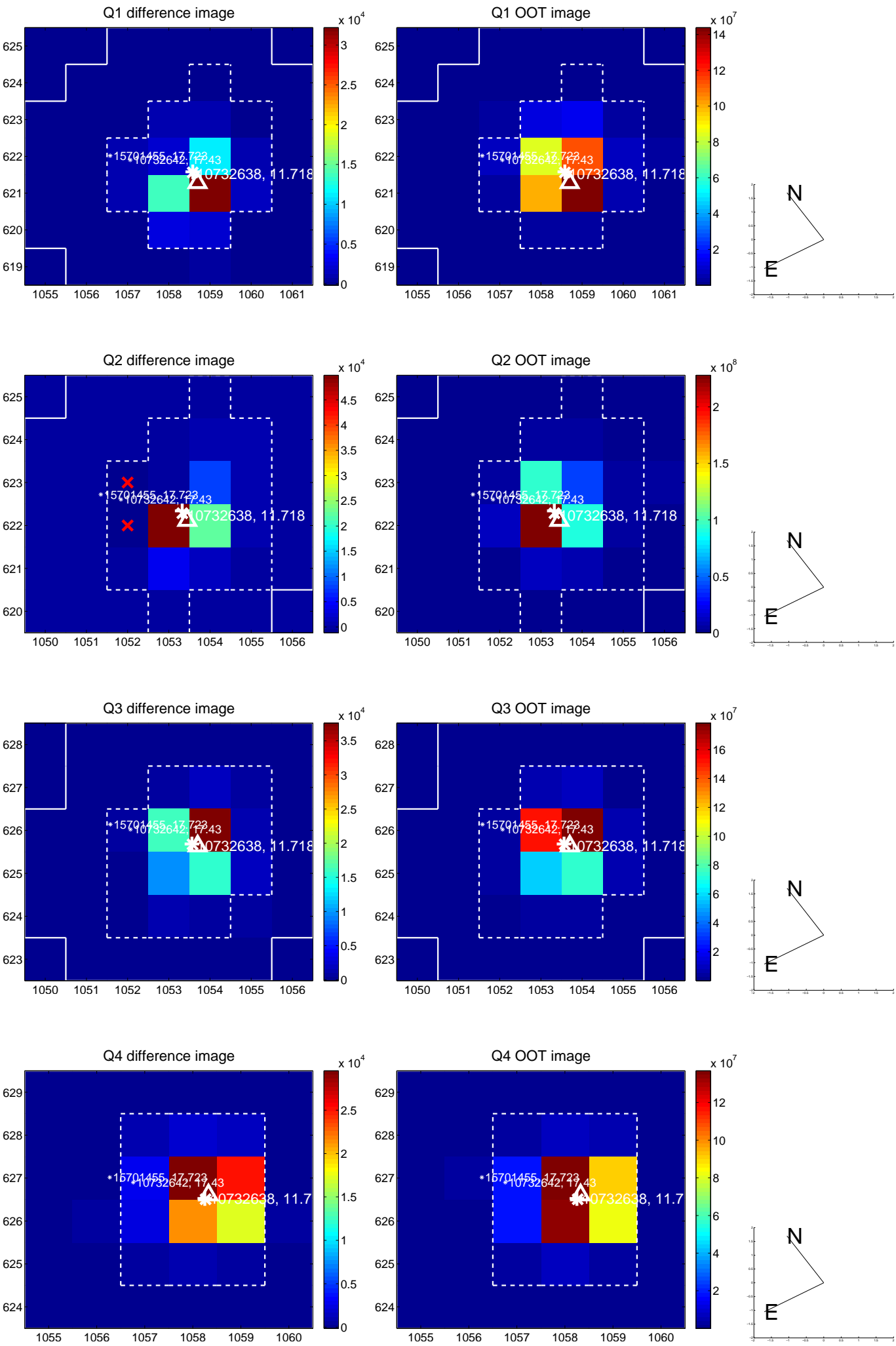
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.036 ± 0.114	0.31	0.035 ± 0.113	0.004 ± 0.119
PRF-fit source offset from KIC position	0.054 ± 0.114	0.47	-0.025 ± 0.126	0.047 ± 0.123
photometric centroid source offset	0.10 ± 0.11	0.94	0.09 ± 0.11	0.05 ± 0.11

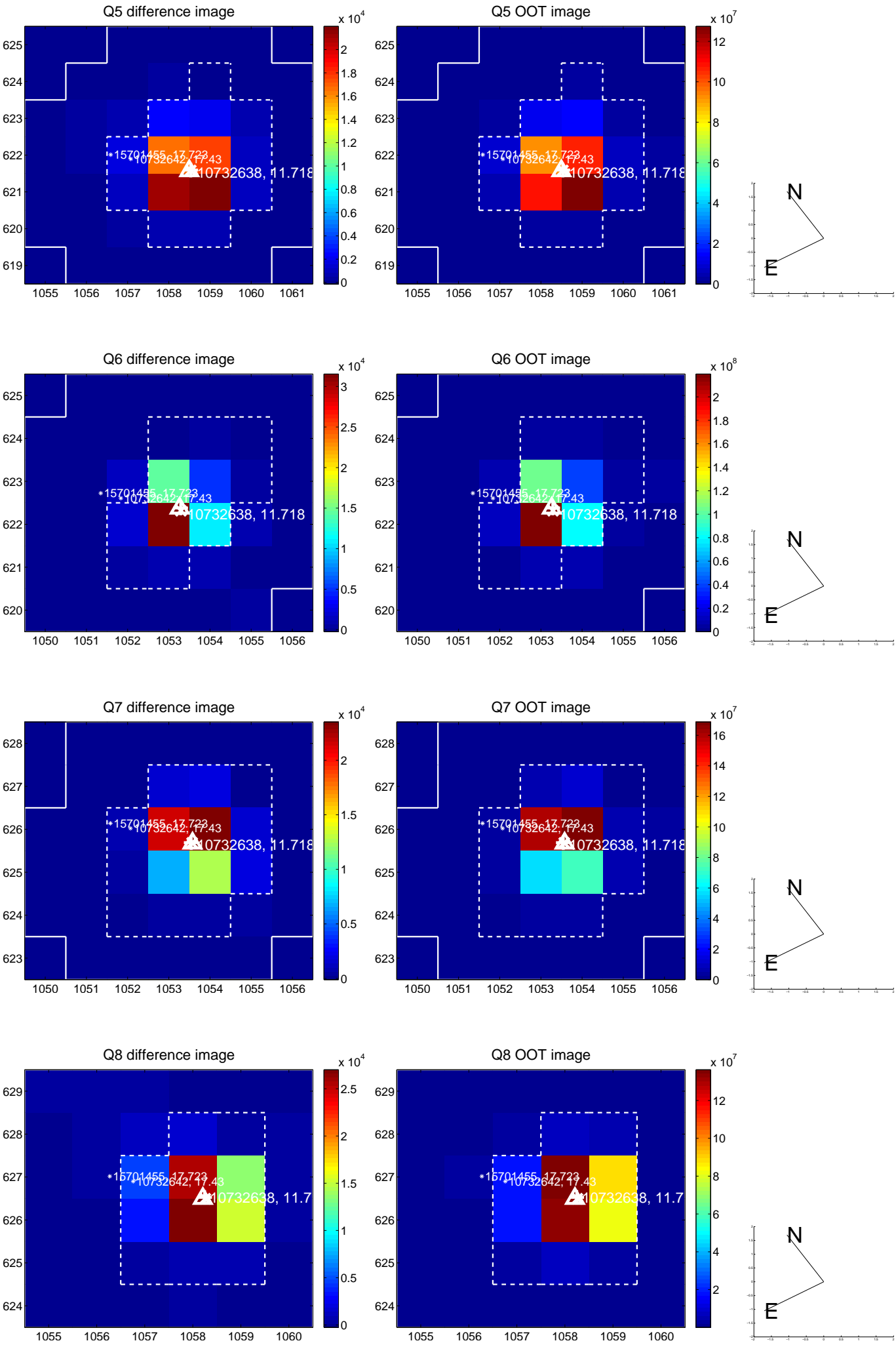


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

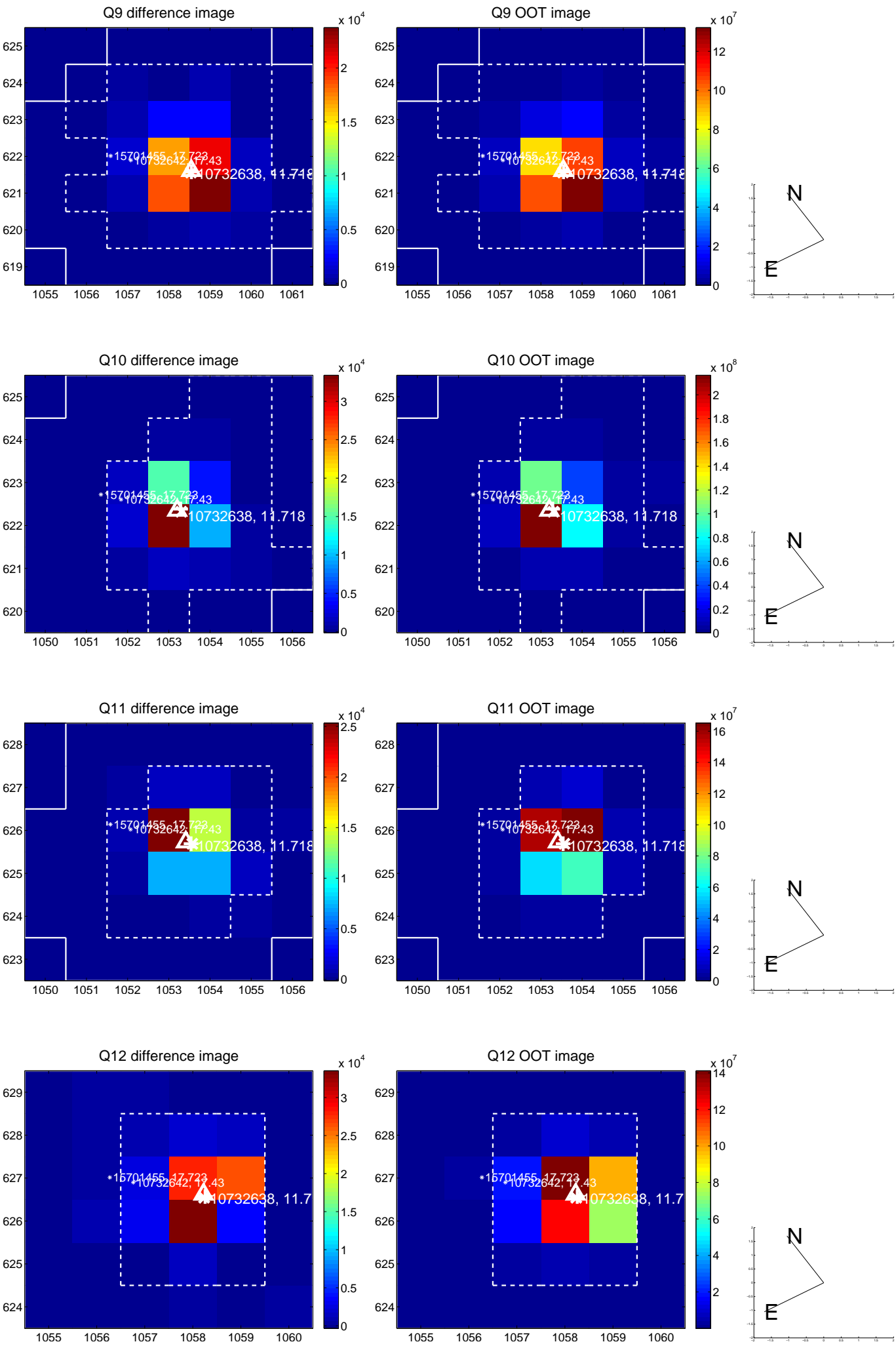
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



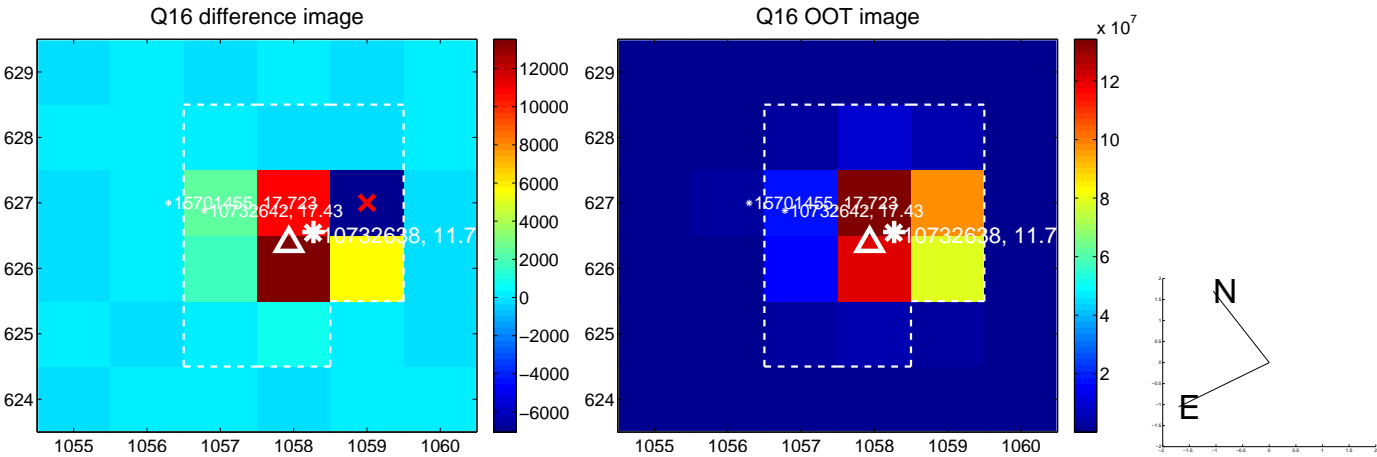
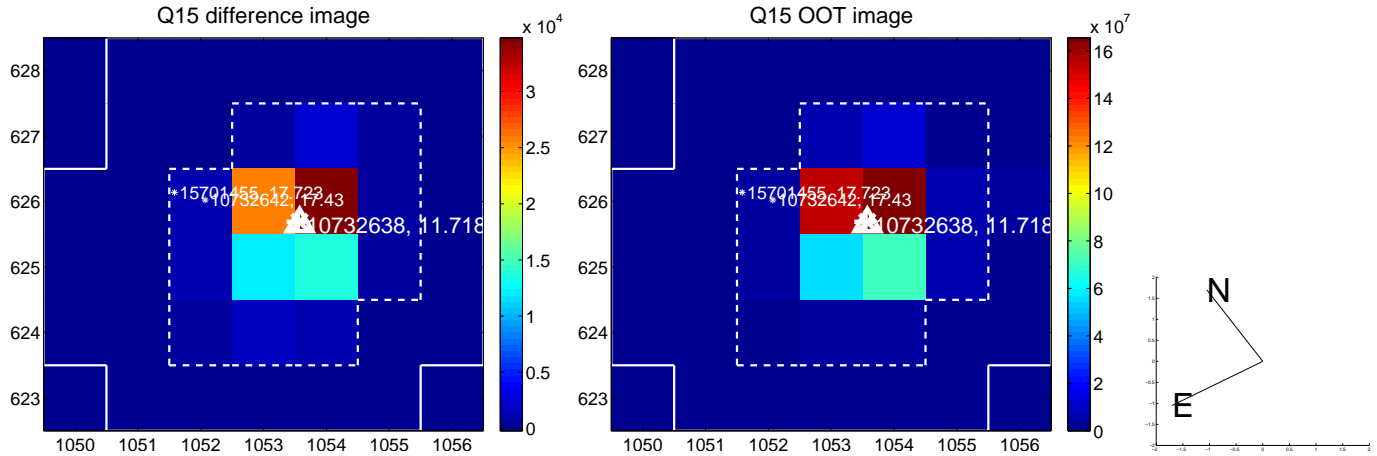
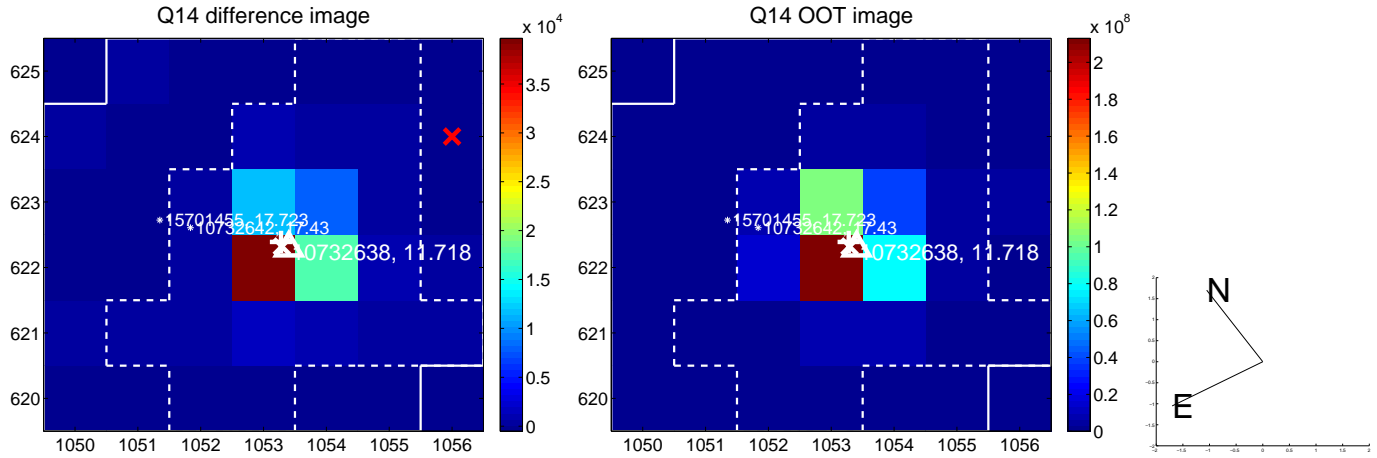
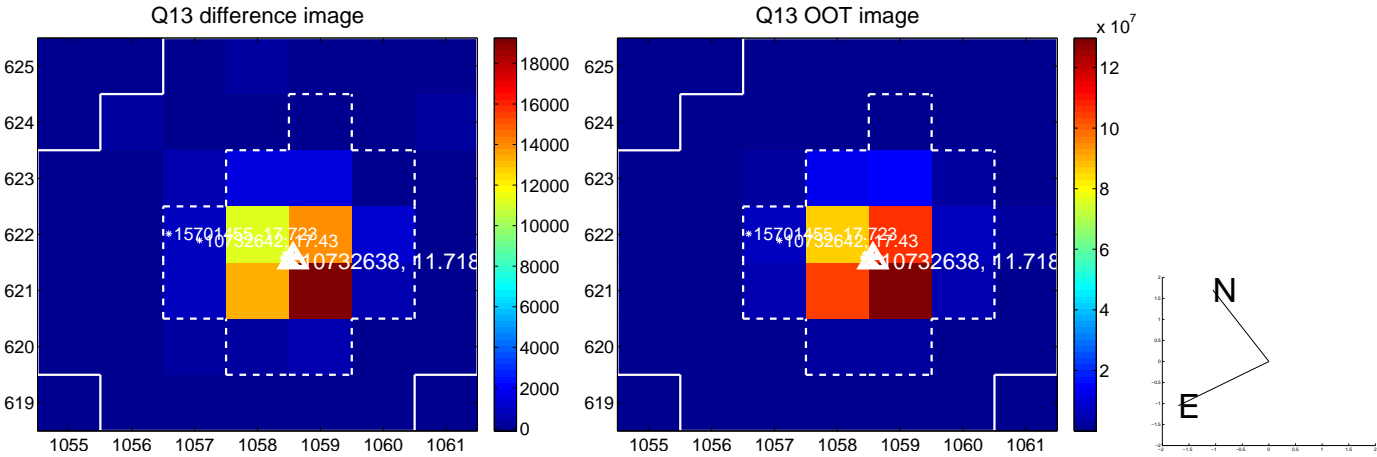
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



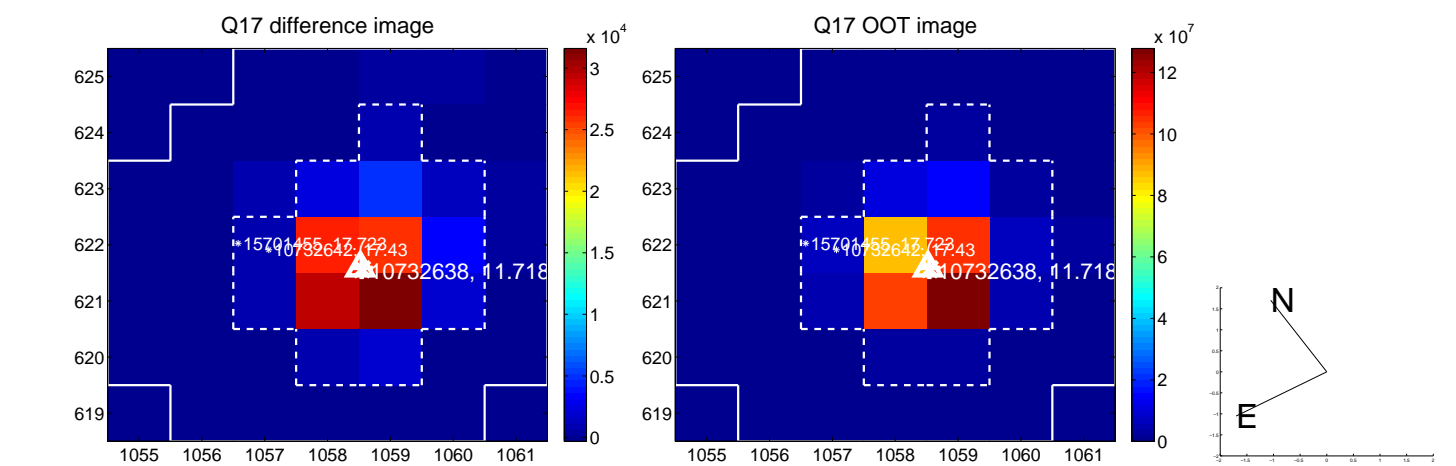
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



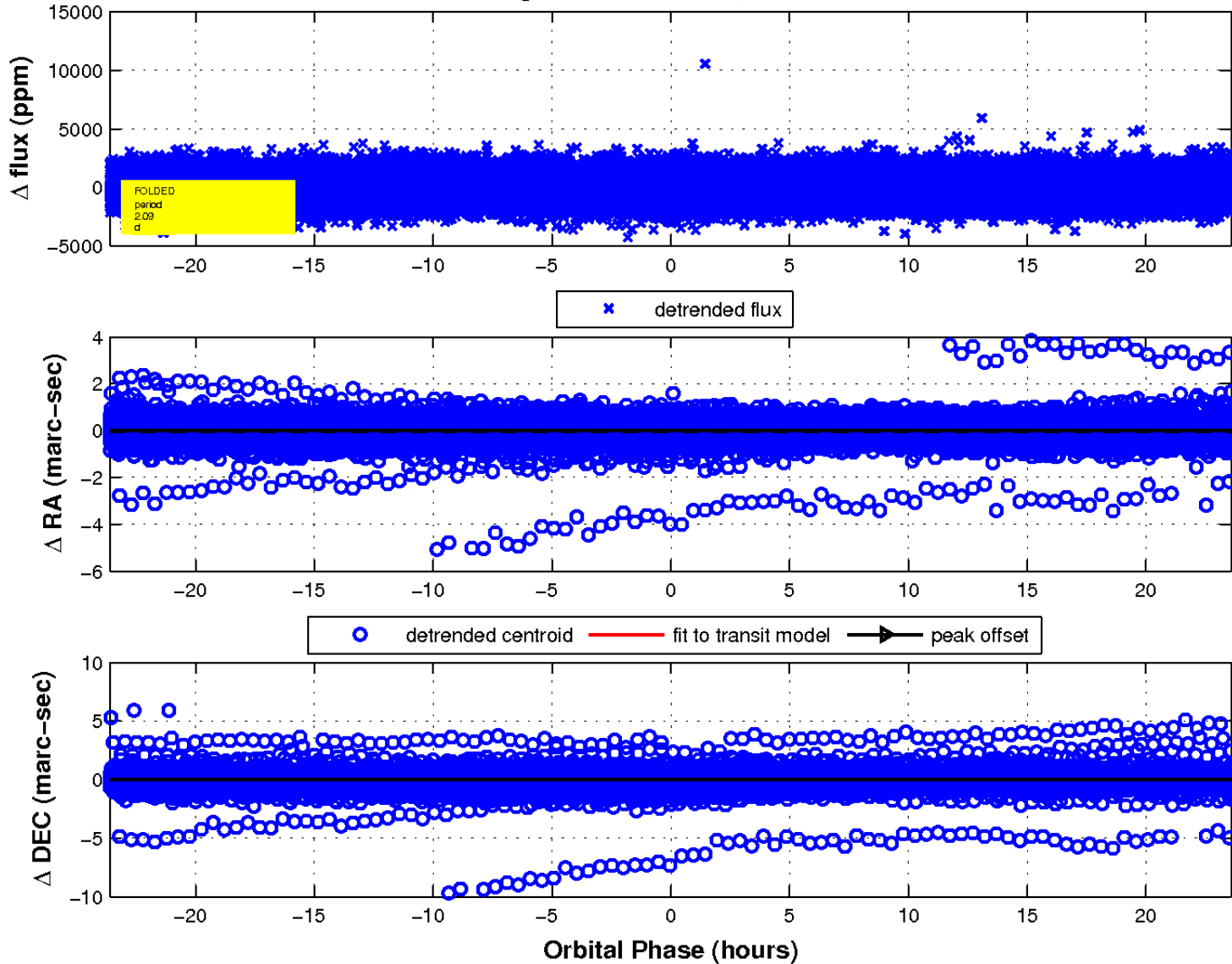
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



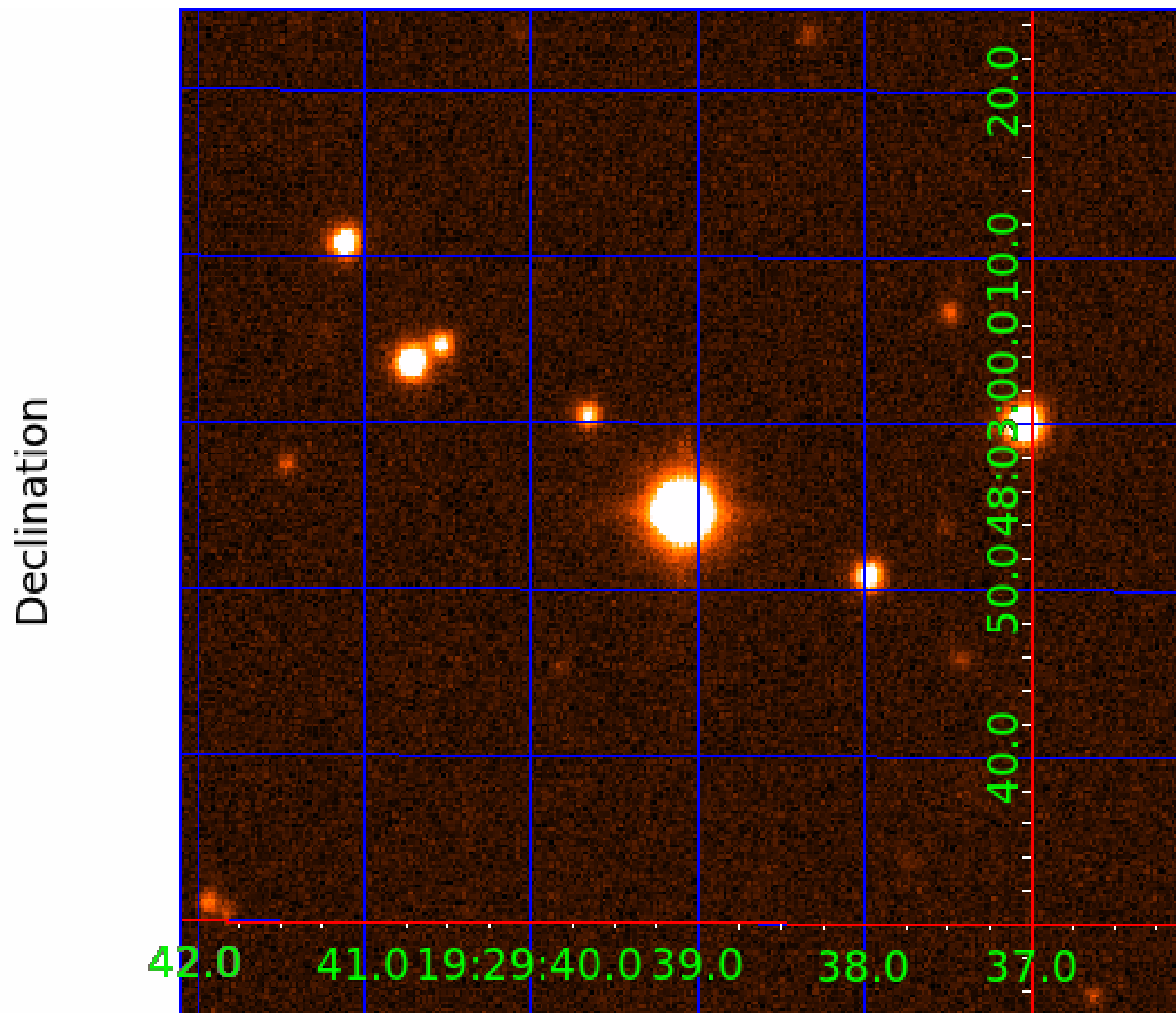
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 010732638

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})
010732638-01	OBS	No	2.088833	131.719325	76.3	7.866	13.1	11.2	2.67	7717	2.79	13815.48
010732638-02	OBS	No	2.088798	132.442953	82.0	6.563	9.7	10.2	2.67	7717	2.82	13815.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010732638-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
010732638-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

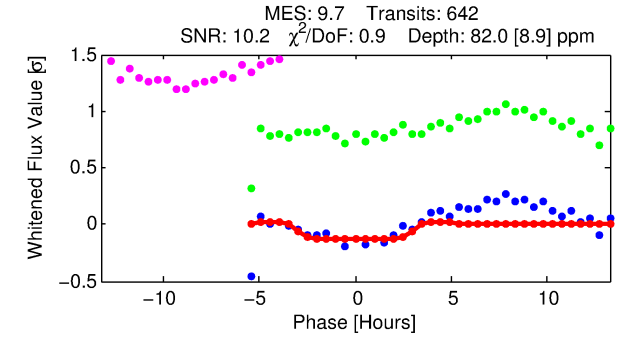
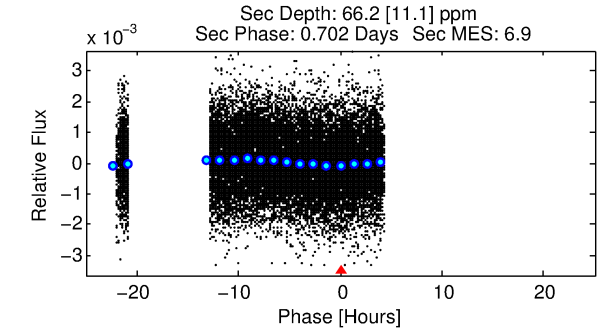
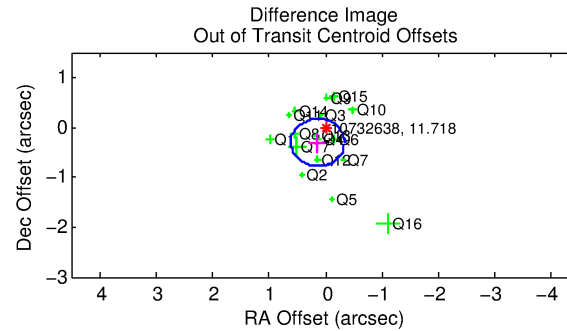
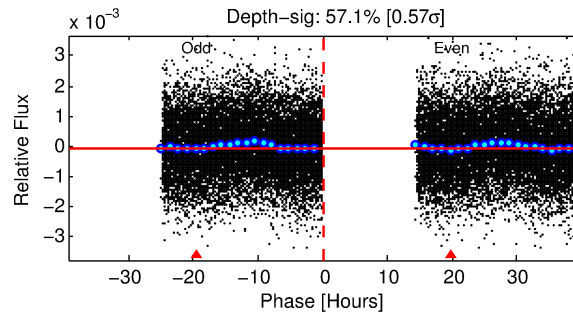
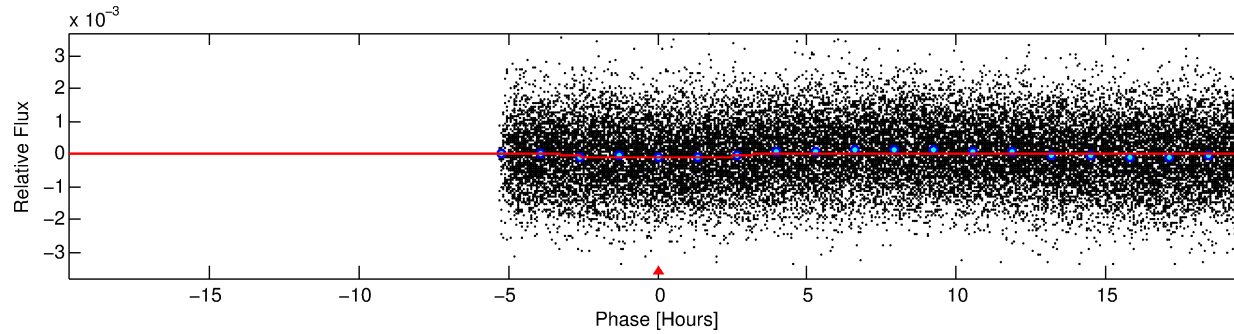
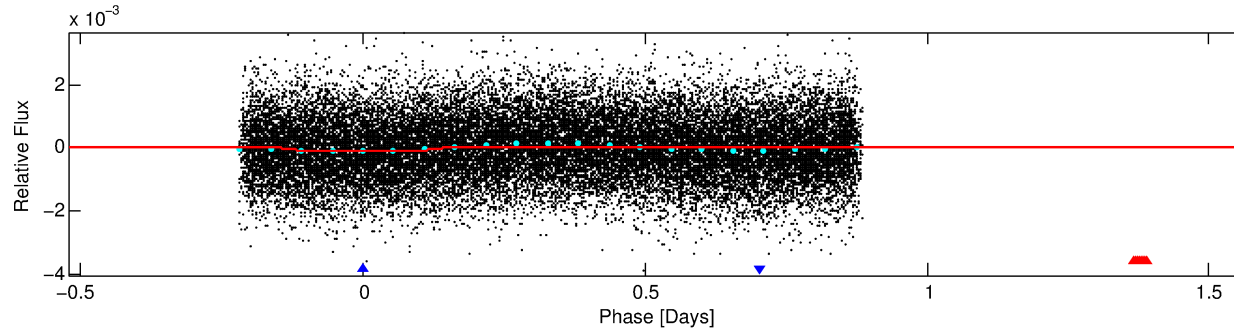
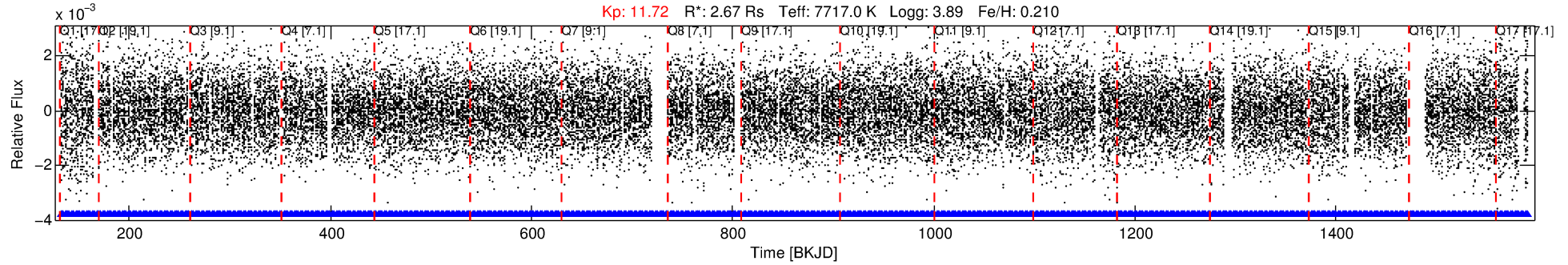
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010732638-02

No Significant Match Found

DV One-Page Summary

KIC: 10732638 Candidate: 2 of 2 Period: 2.089 d



DV Fit Results:

Period = 2.08880 [0.00003] d
Epoch = 132.4430 [0.0085] BKJD
Rp/R* = 0.0097 [0.0037]
a/R* = 1.44 [1.80]
b = 0.91 [0.49]
Seff = 13815.78 [6904.63]
Teq = 2765 [345] K
Rp = 2.82 [1.45] Re
a = 0.0406 [0.0123] AU
Ag = 7.52 [6.90] [0.95 σ]
Teffp = 7078 [1434] K [2.92 σ]

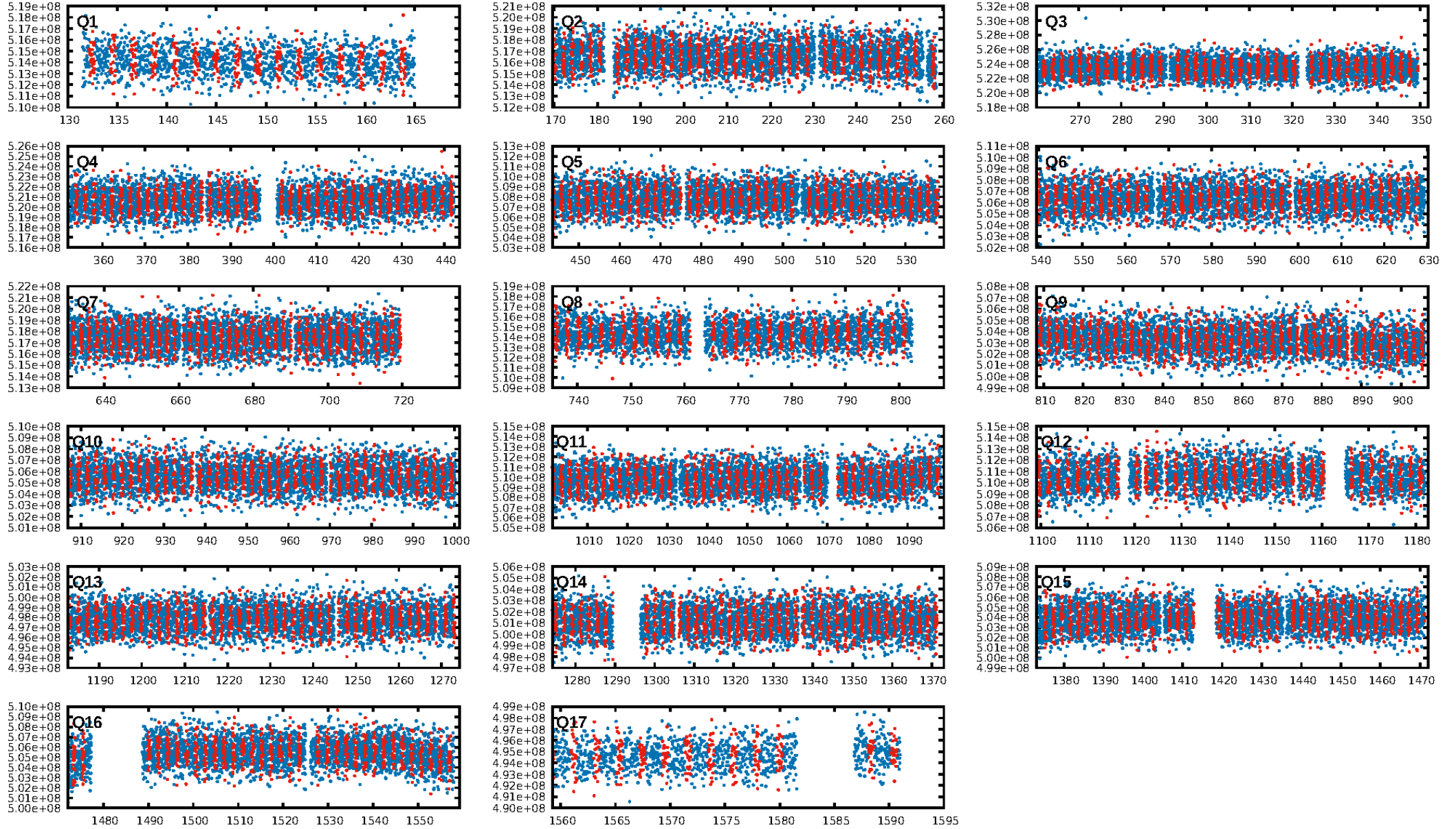
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.79e-14
RollingBand-fgt: 1.00 [614/614]
GhostDiagnostic-chr: 2.199
Centroid-sig: 1.5%
Centroid-so: 0.226 arcsec [2.10 σ]
OotOffset-rm: 0.335 arcsec [2.12 σ]
KicOffset-rm: 0.226 arcsec [1.48 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

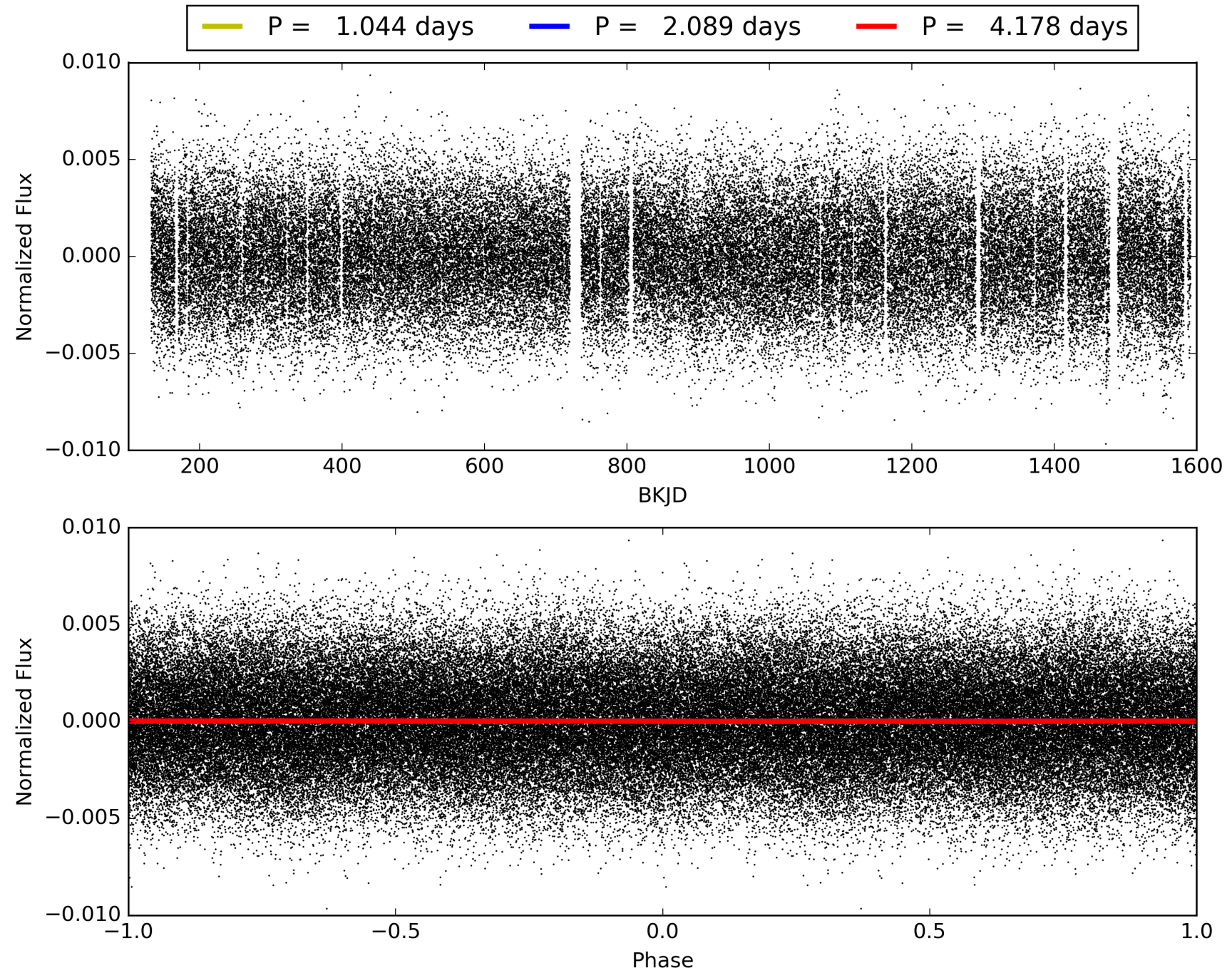
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:09:24 Z

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

TCE 010732638-02, PDC Light Curves

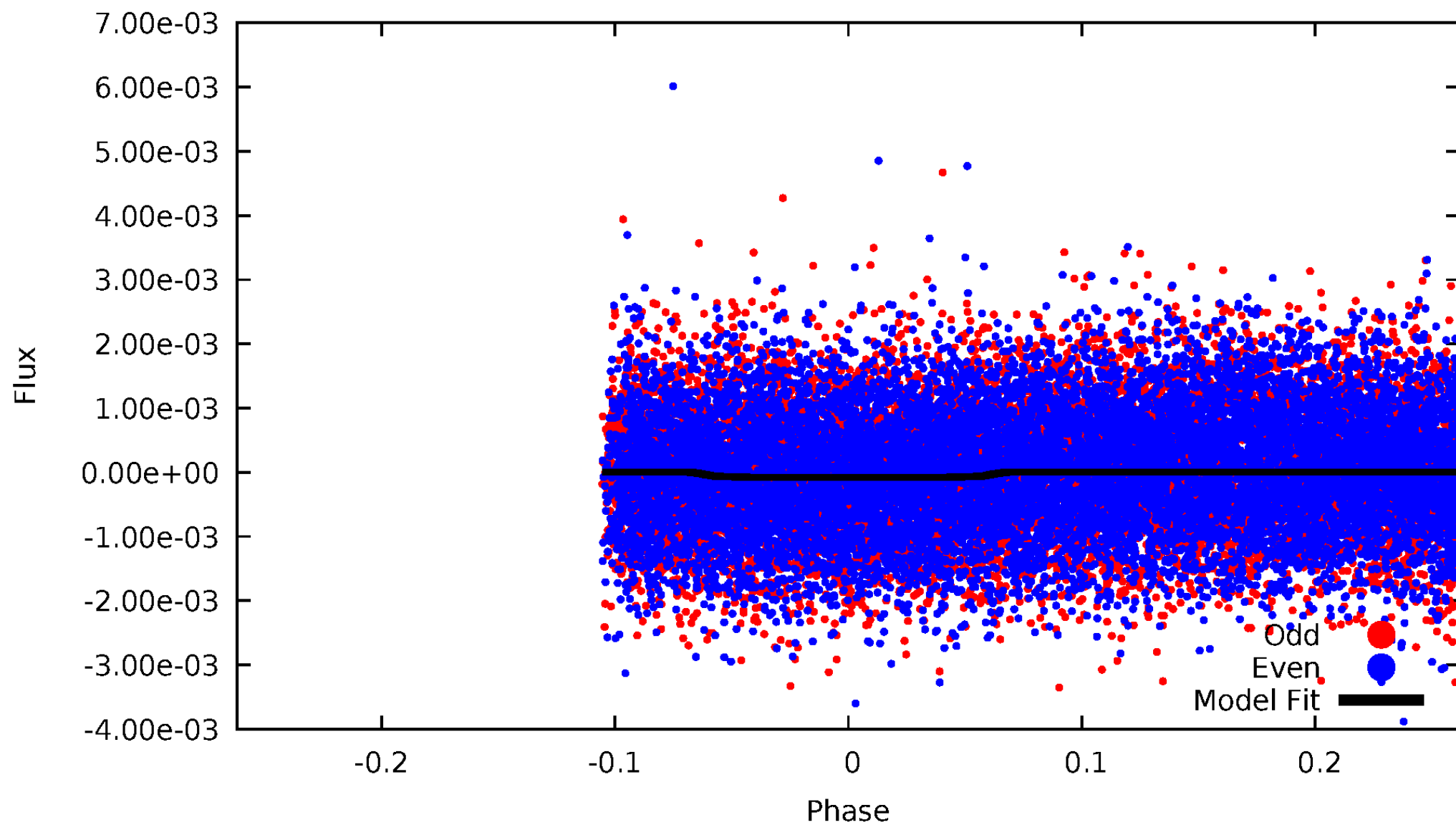


TCE 010732638-02



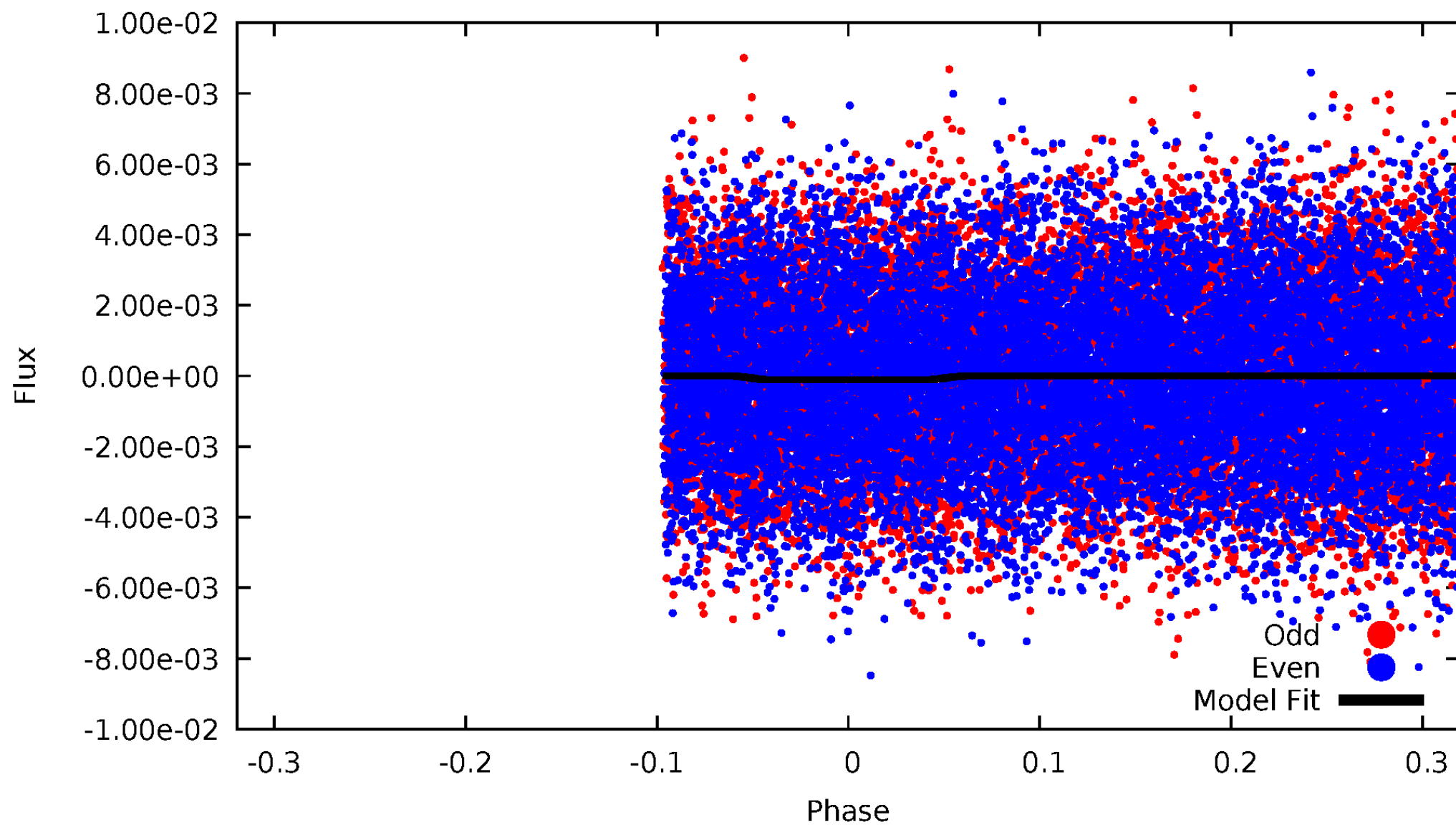
DV Odd/Even

TCE 010732638-02



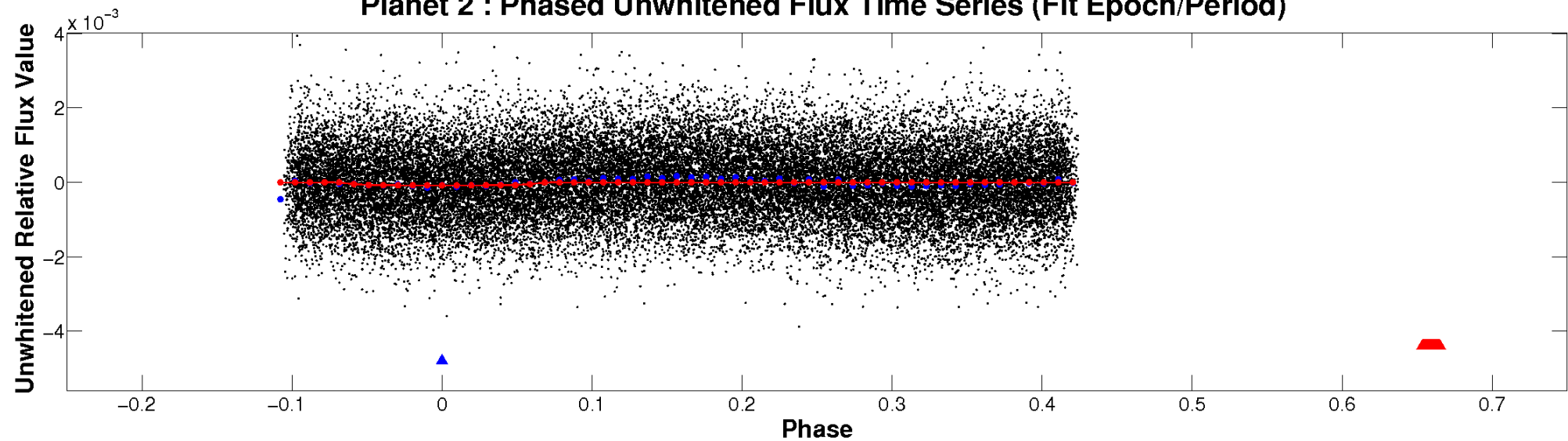
ALT Odd/Even

TCE 010732638-02

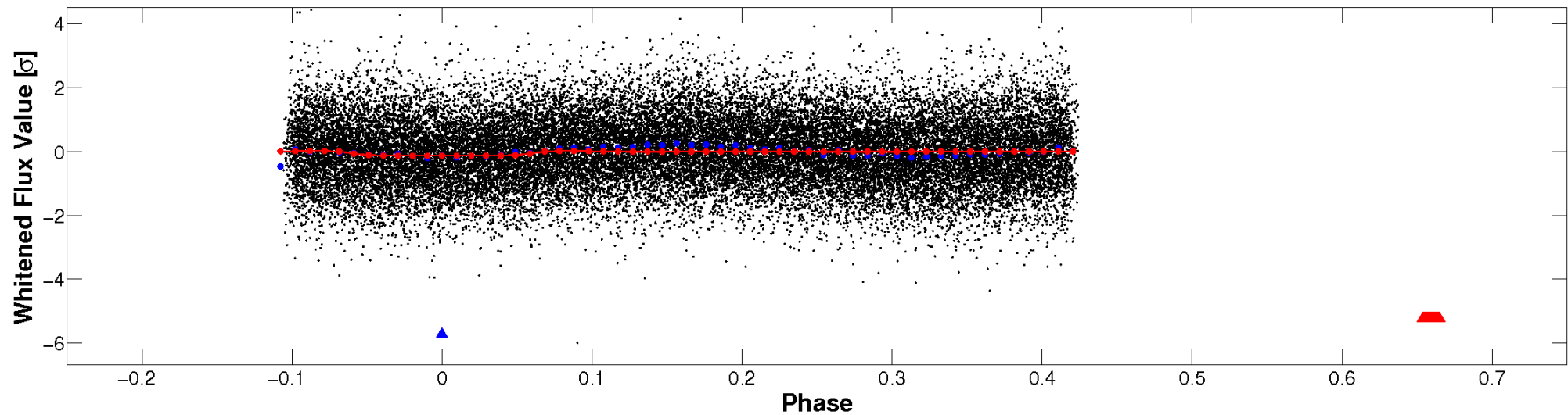


Non-Whitened Vs. Whitened Light Curve

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

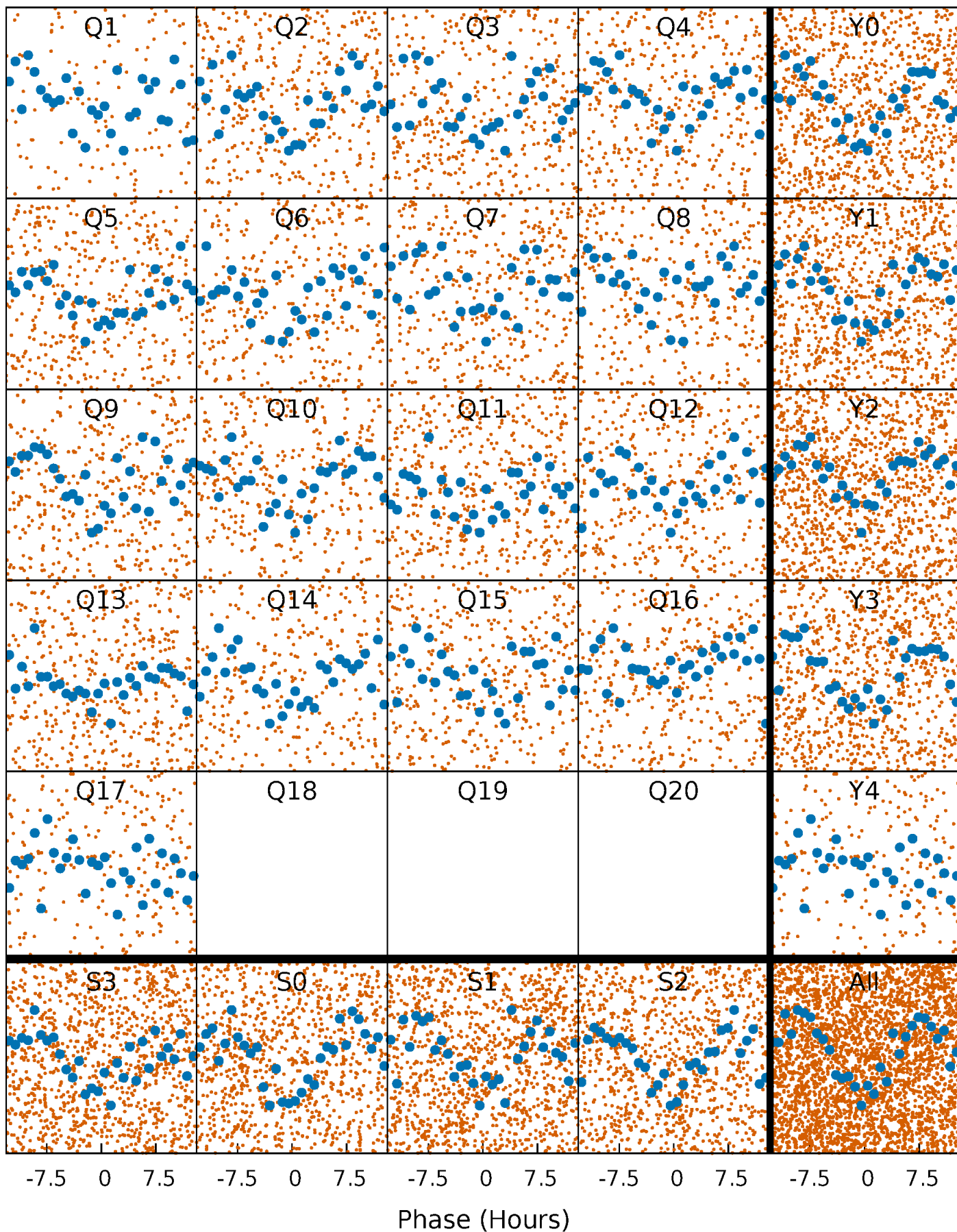


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



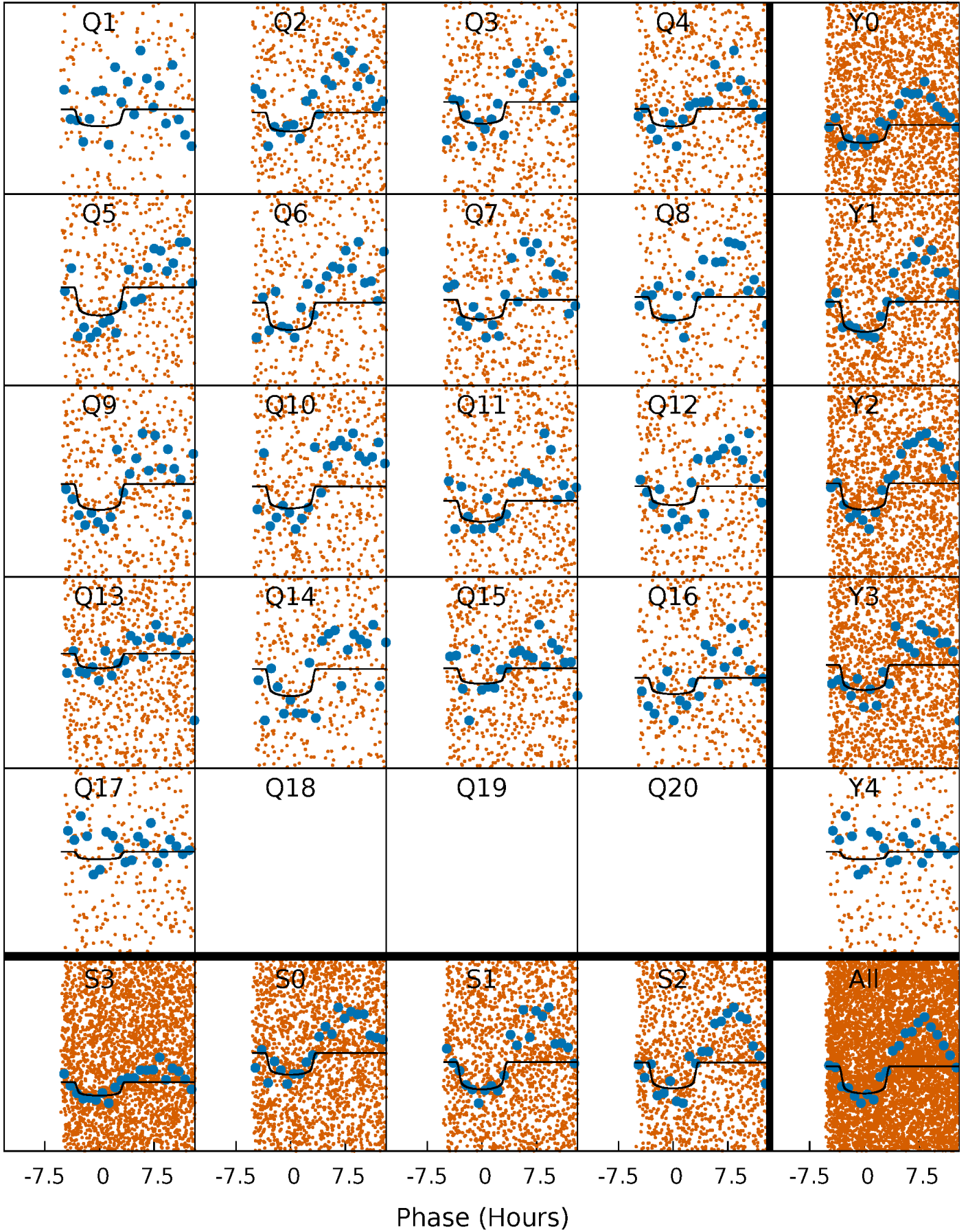
PDC Quarter-Phased Transit Curves

TCE 010732638-02 P= 2.088798 Days $T_0=132.442953$ (BKJD)



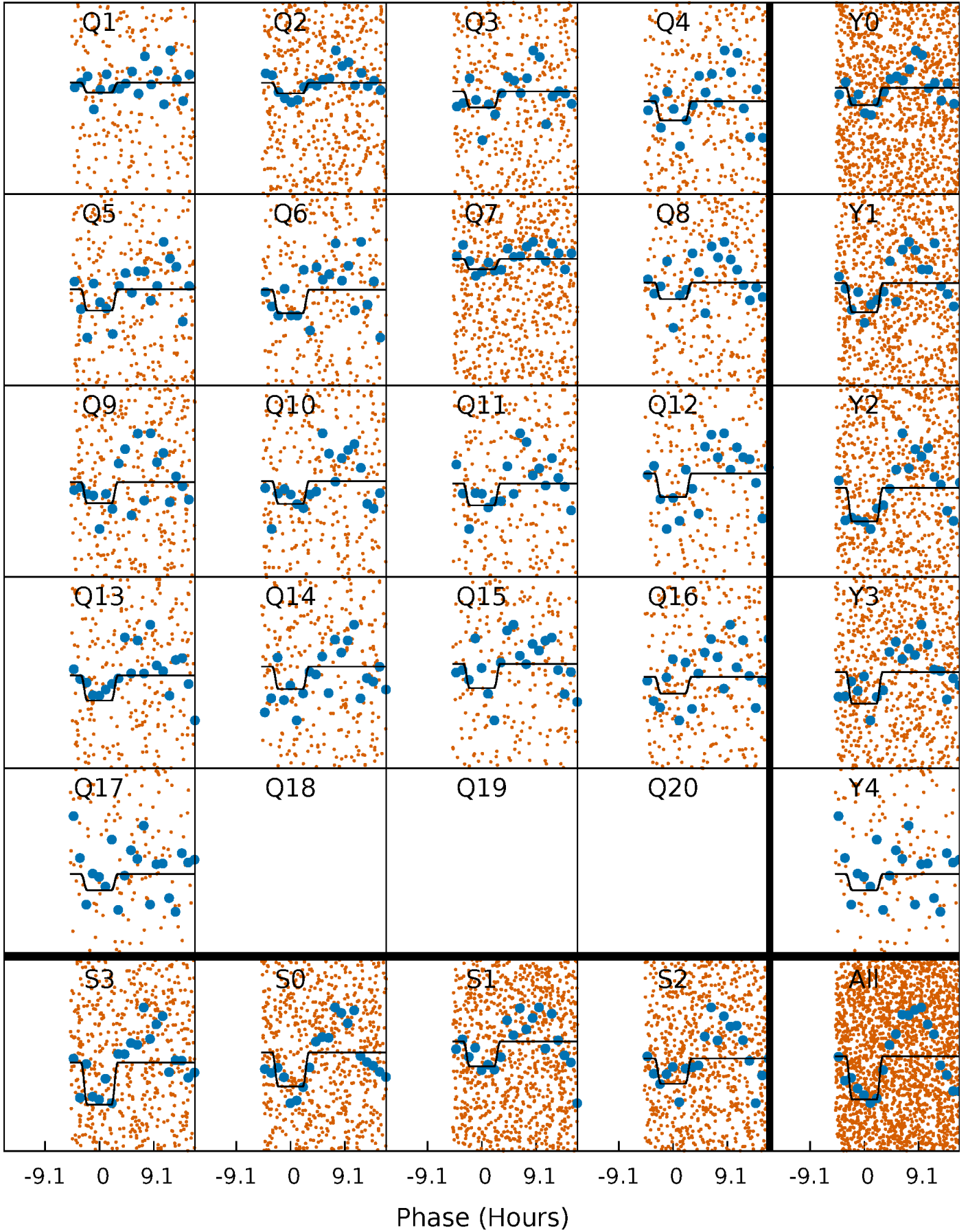
DV Quarter-Phased Transit Curves

TCE 010732638-02 P= 2.088798 Days $T_0=132.442953$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

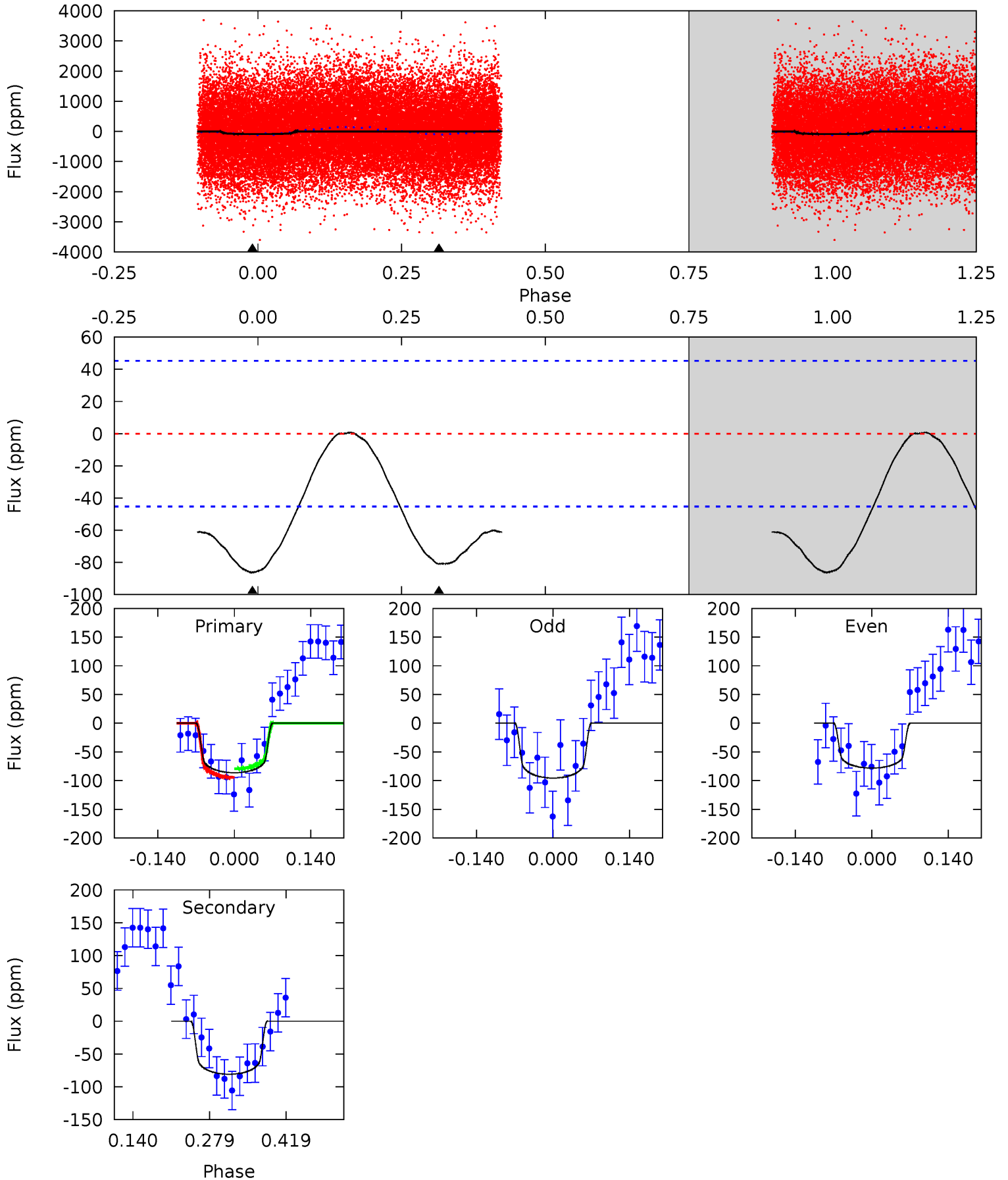
TCE 010732638-02 P= 2.088844 Days $T_0=132.416656$ (BKJD)



DV Model-Shift Uniqueness Test

010732638-02, P = 2.088798 Days, E = 130.354155 Days

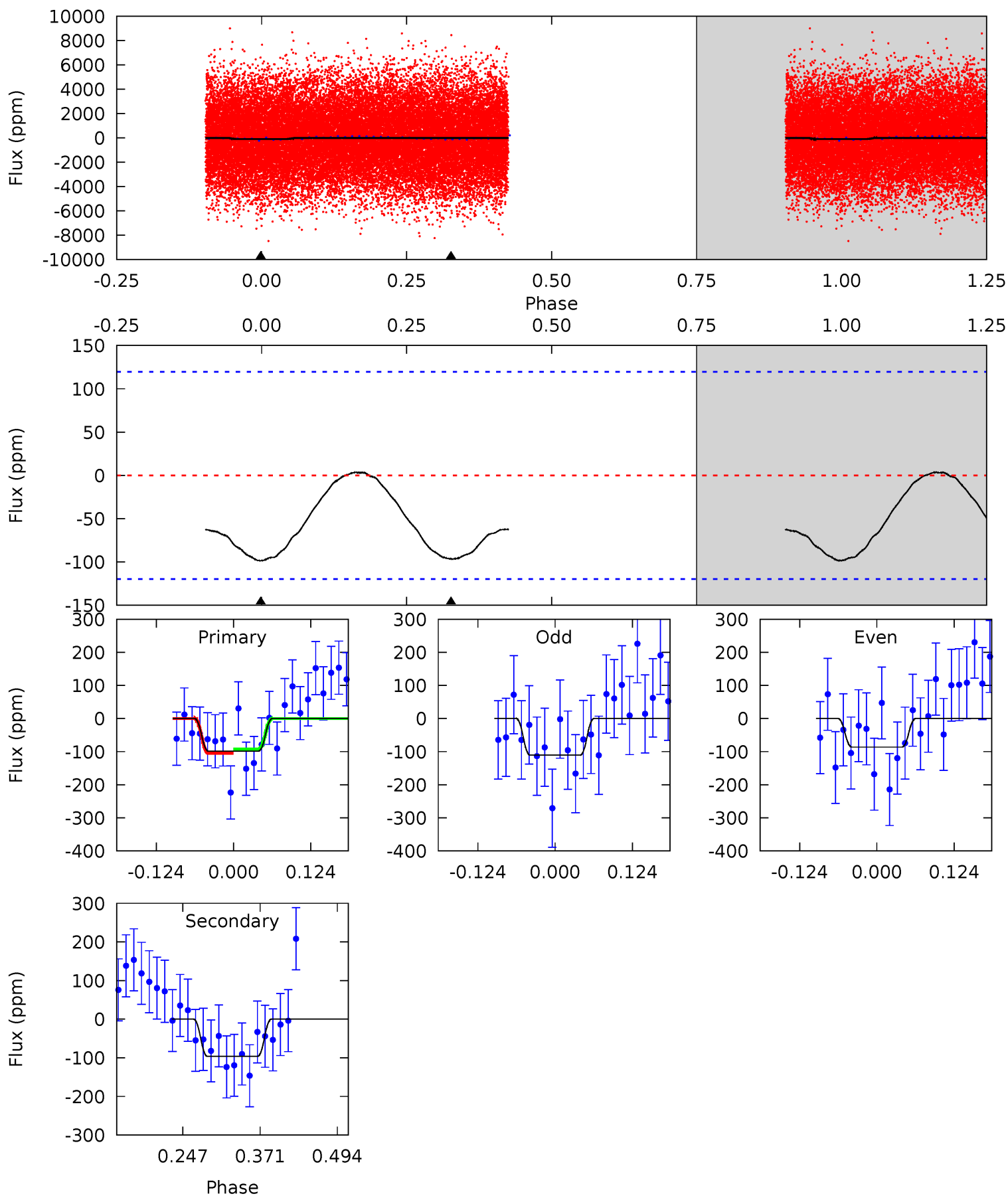
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.57	8.03	0	0	4.49	1.48	0.13	8.57	8.57	8.03	8.03	0.87	0.96	0.01	0.75



Alt Model-Shift Uniqueness Test

010732638-02, P = 2.088844 Days, E = 130.327812 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.72	3.64	0	0	4.52	1.54	0.14	3.72	3.72	3.64	3.64	0.46	0.92	0.03	0.23



Stellar Parameters For KIC 010732638

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7717^{+214}_{-349}	$3.893^{+0.266}_{-0.133}$	$0.210^{+0.150}_{-0.450}$	$2.675^{+0.484}_{-0.900}$	$2.038^{+0.260}_{-0.483}$	$0.150^{+0.270}_{-0.053}$
	+3%/-5%	+7%/-3%	+71%/-214%	+18%/-34%	+13%/-24%	+180%/-36%
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 010732638-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-81 ± 10	$2.70^{+1.15}_{-0.98}$	3799^{+282}_{-306}	7216^{+2676}_{-1173}	$9.956^{+15.131}_{-5.007}$
Alt.	-96 ± 26	$2.95^{+1.24}_{-1.17}$	3805^{+257}_{-295}	7282^{+2752}_{-1241}	$9.969^{+17.222}_{-5.383}$

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

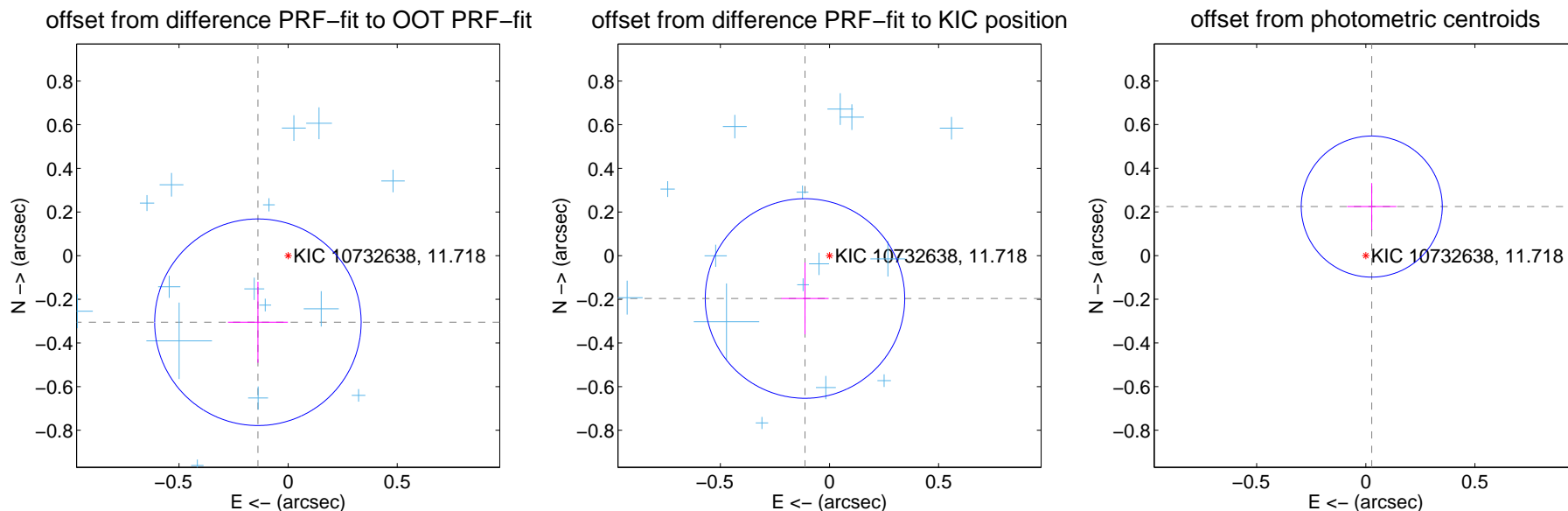
DV Centroid Data

Supplemental centroid analysis for 010732638-02. **Kepler magnitude: 11.72.** Transit SNR 10.19

There are 17 quarters with good PRF difference image offsets

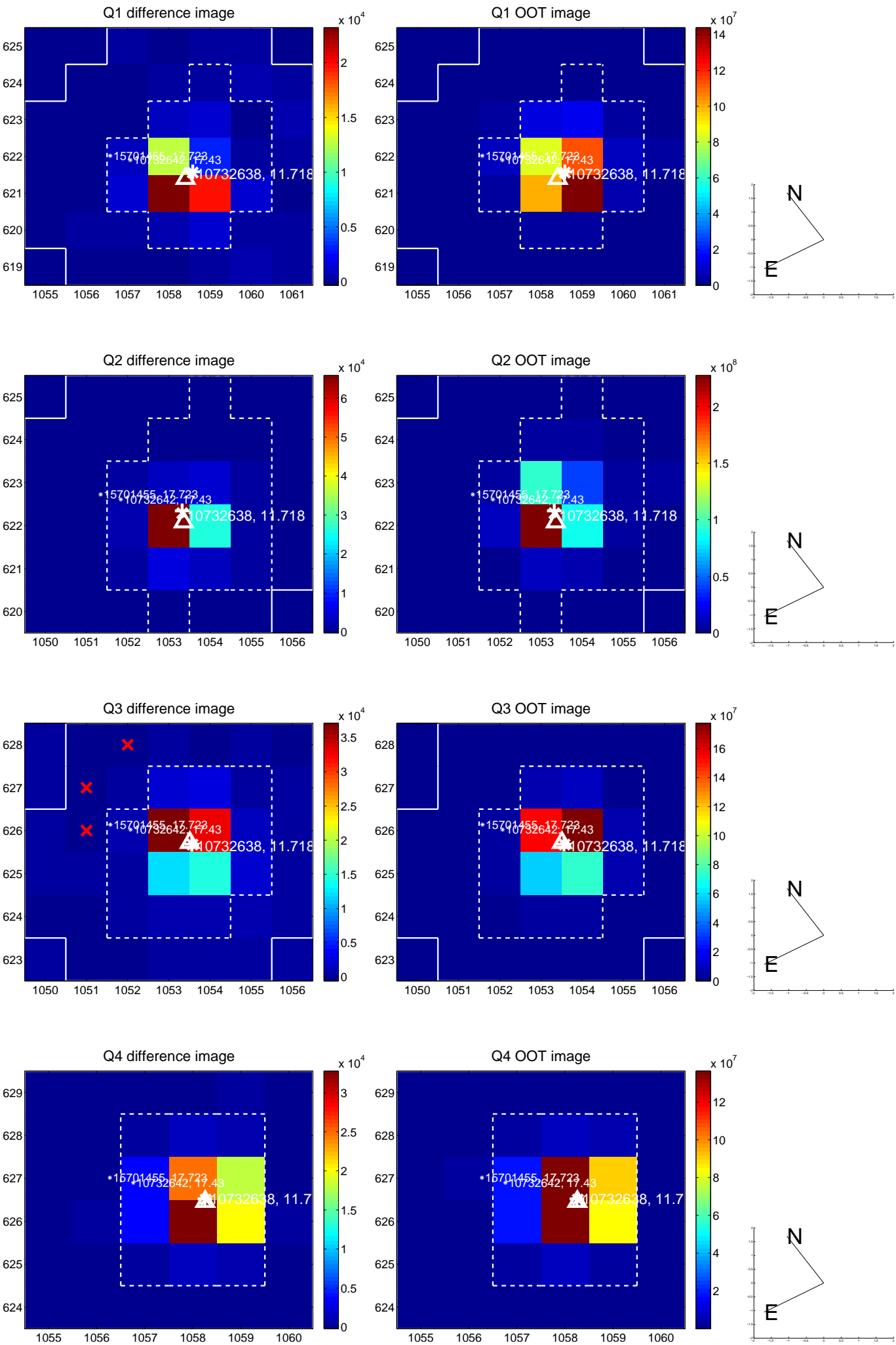
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.335 ± 0.158	2.12	0.139 ± 0.137	-0.305 ± 0.186
PRF-fit source offset from KIC position	0.226 ± 0.152	1.48	0.112 ± 0.109	-0.196 ± 0.164
photometric centroid source offset	0.23 ± 0.11	2.10	-0.03 ± 0.11	0.22 ± 0.11

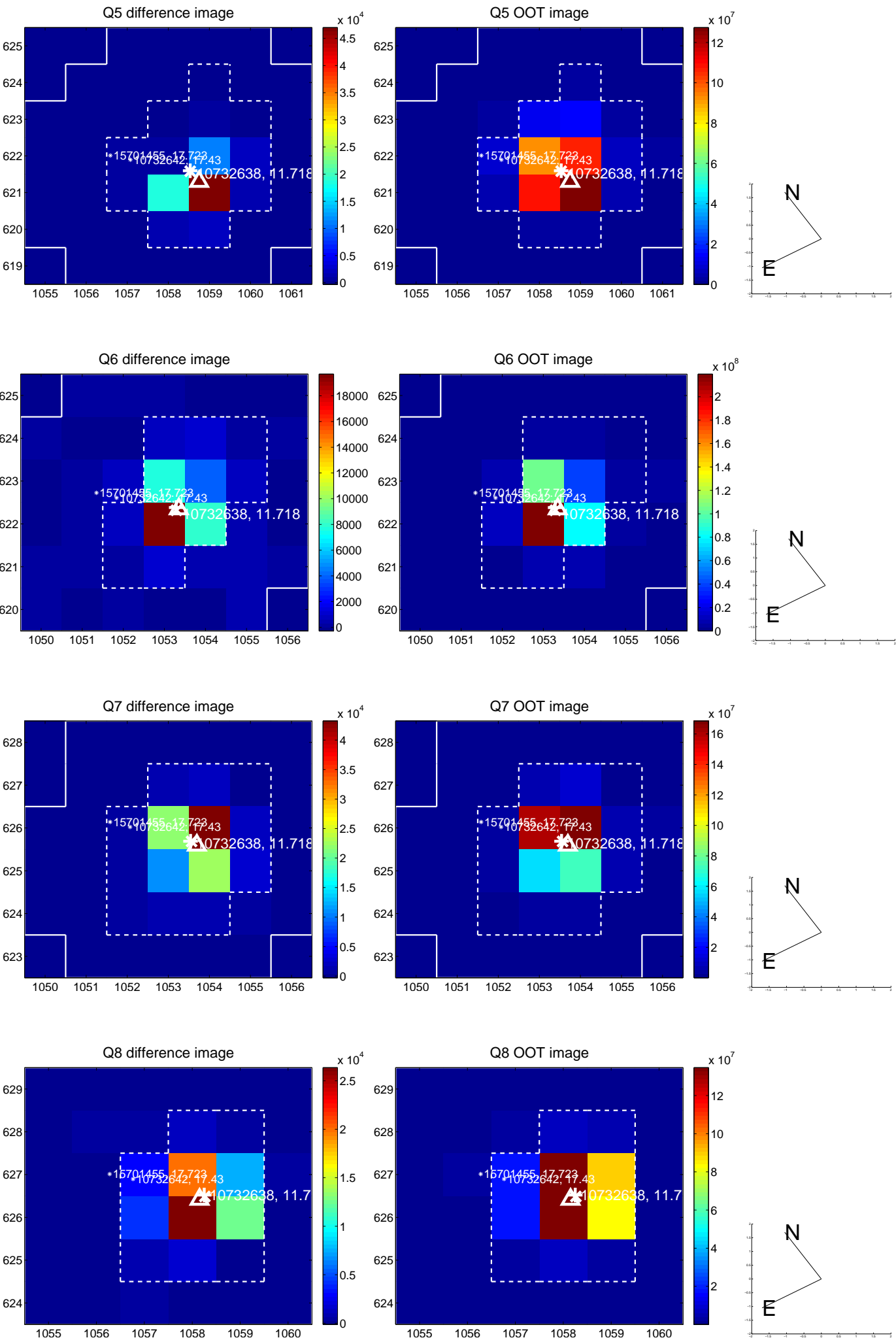


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

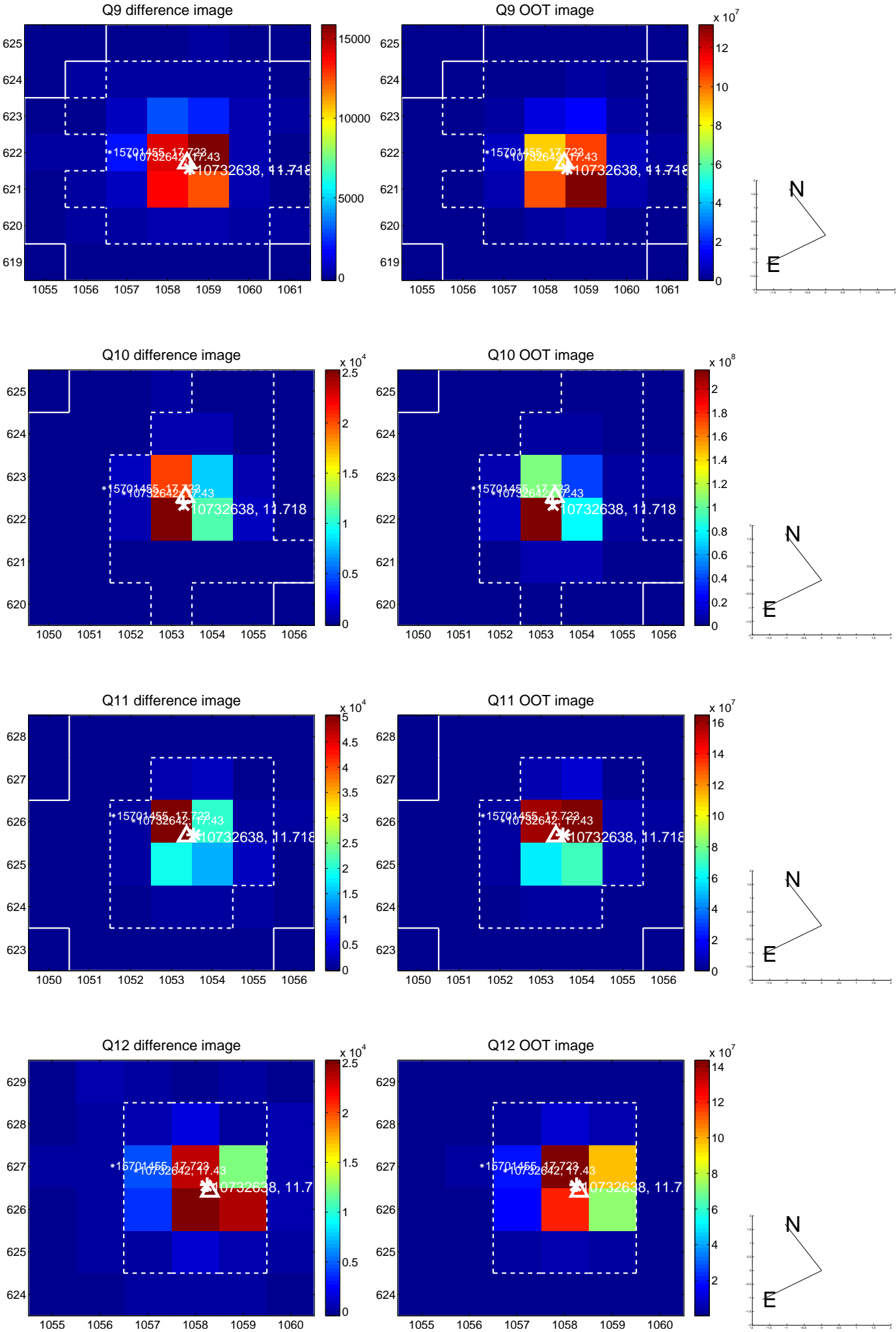
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



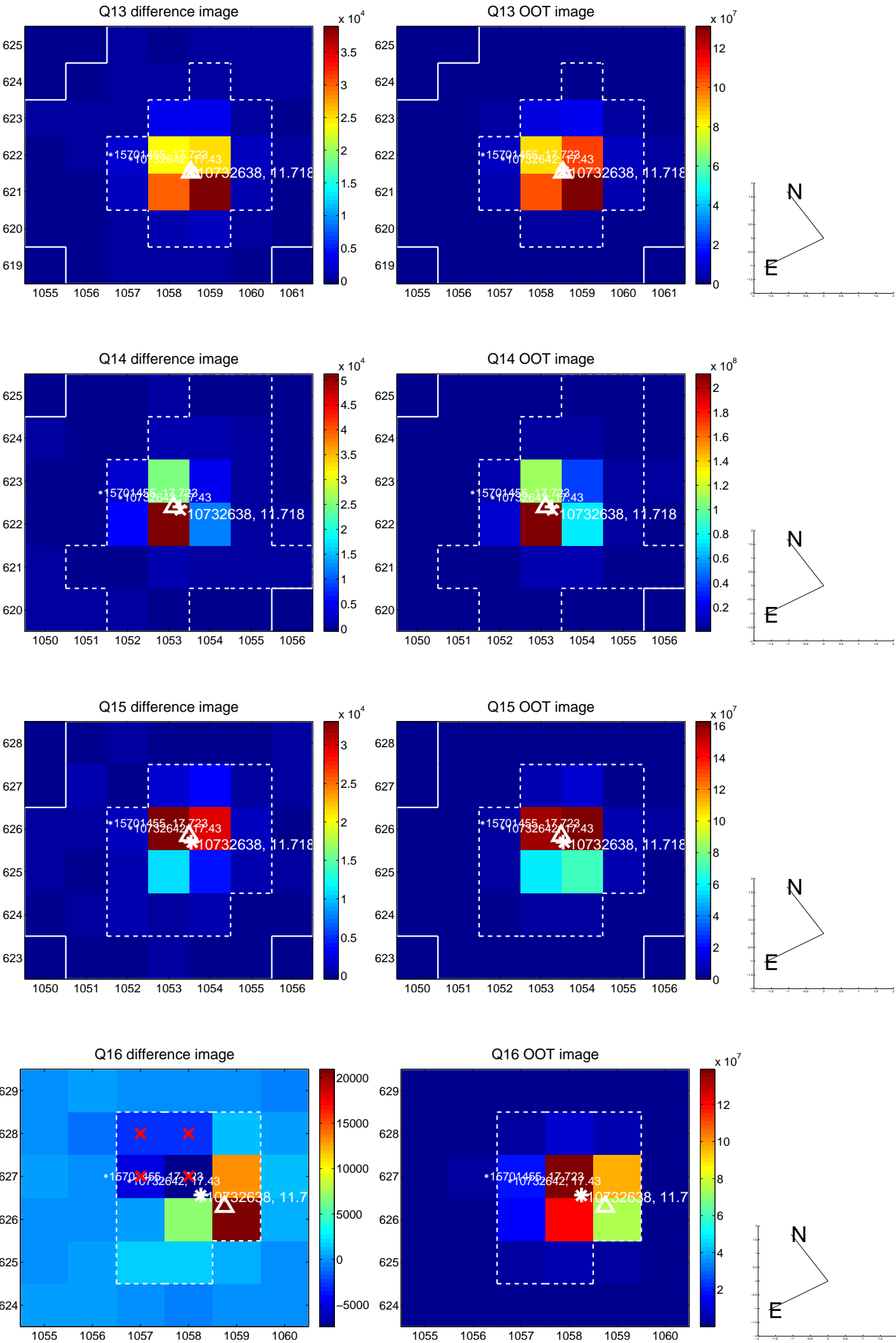
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



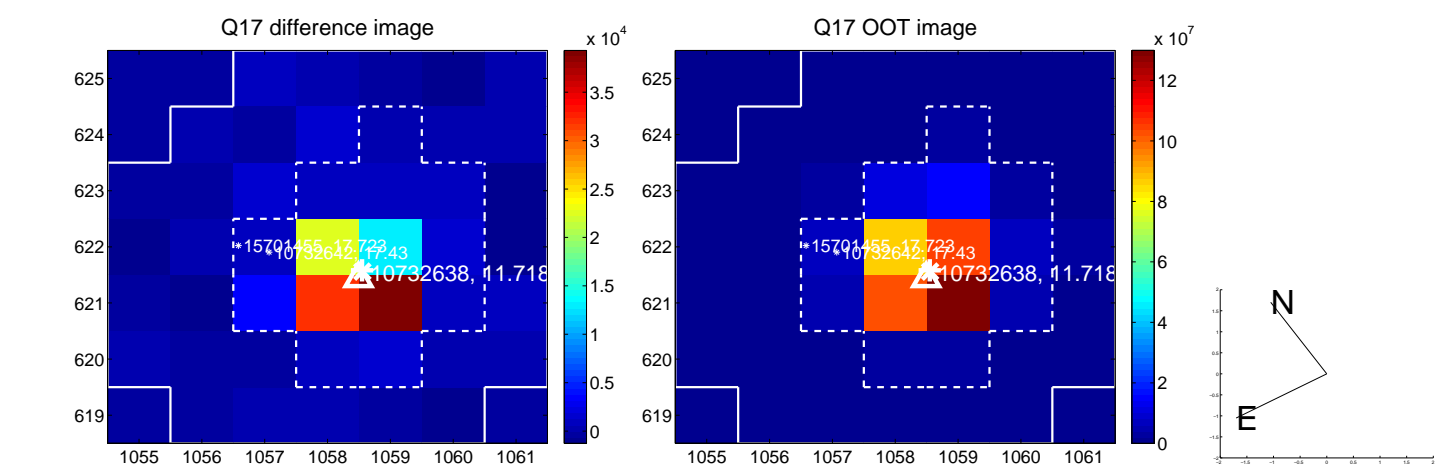
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



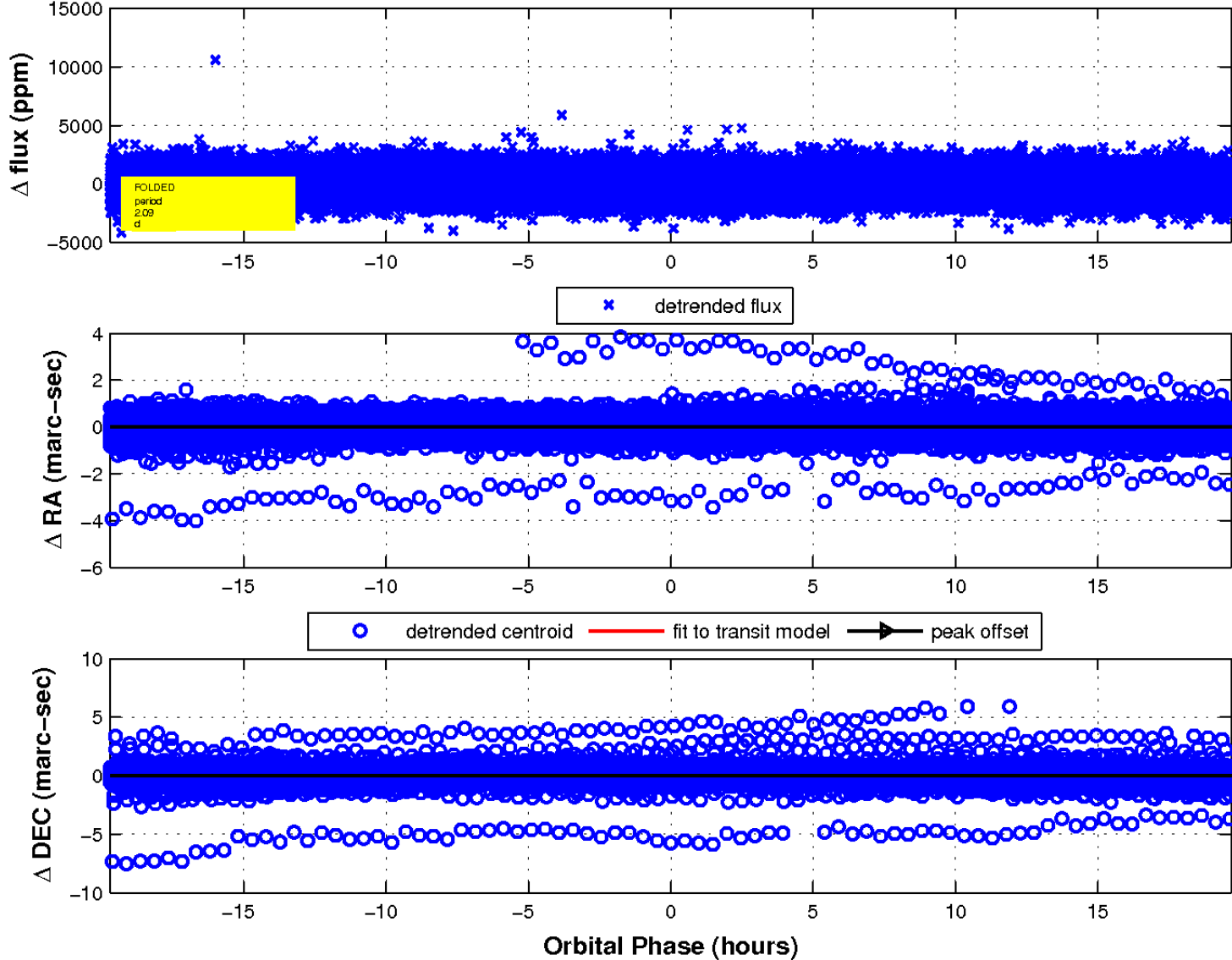
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

