

KIC 008390631

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})
008390631-01	OBS	No	0.672109	131.899405	28.0	0.983	9.2	4.1	1.38	6896	0.79	13931.14
008390631-02	OBS	No	1.010720	131.635595	69.9	2.666	9.9	4.9	1.38	6896	1.34	8085.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008390631-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008390631-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

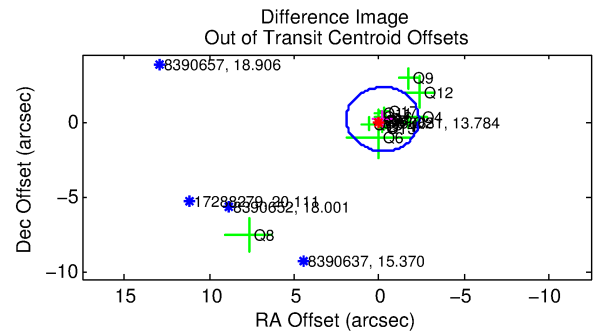
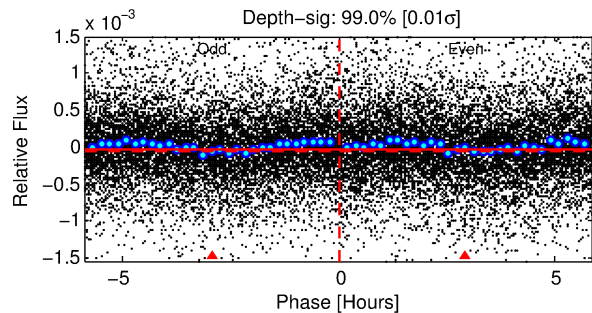
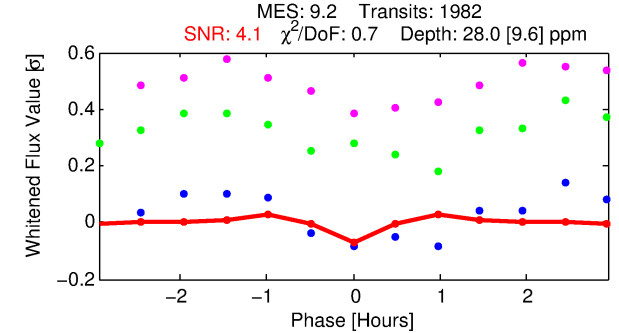
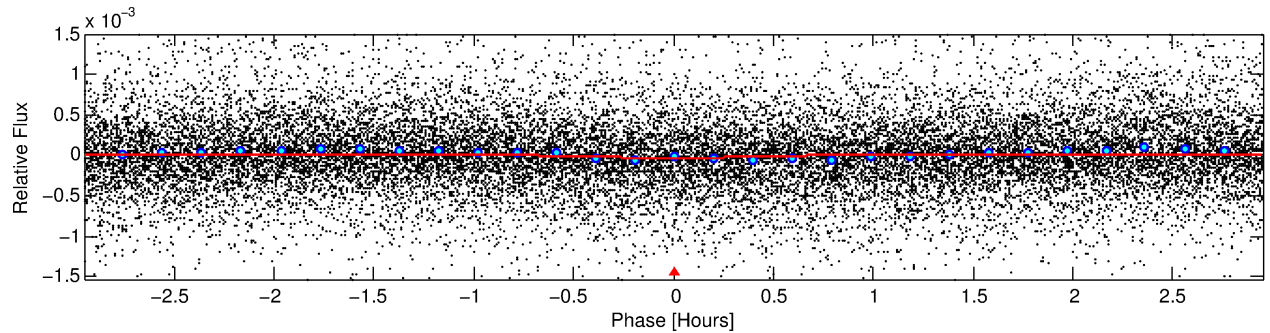
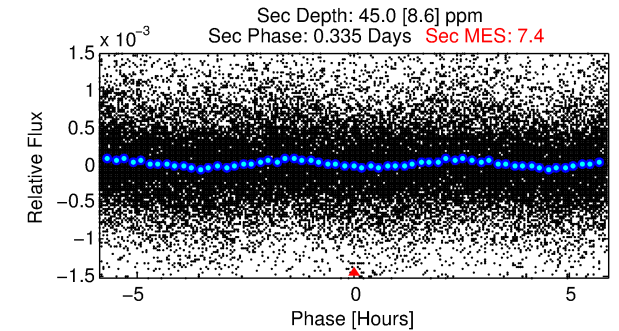
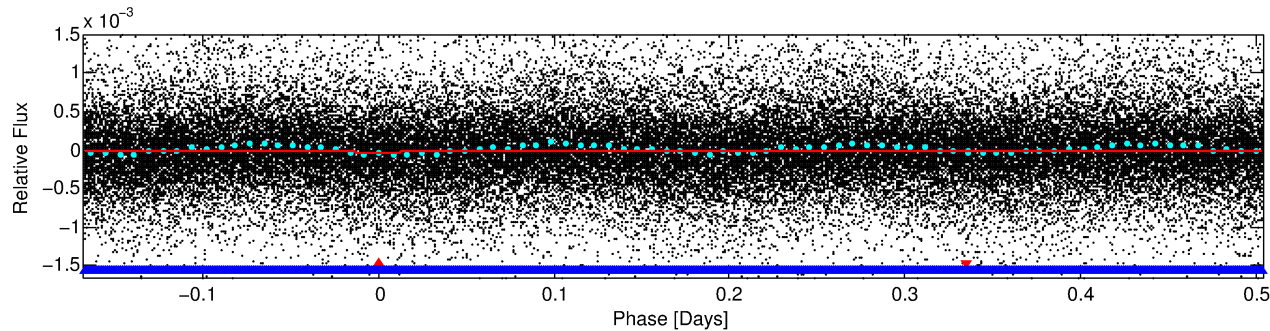
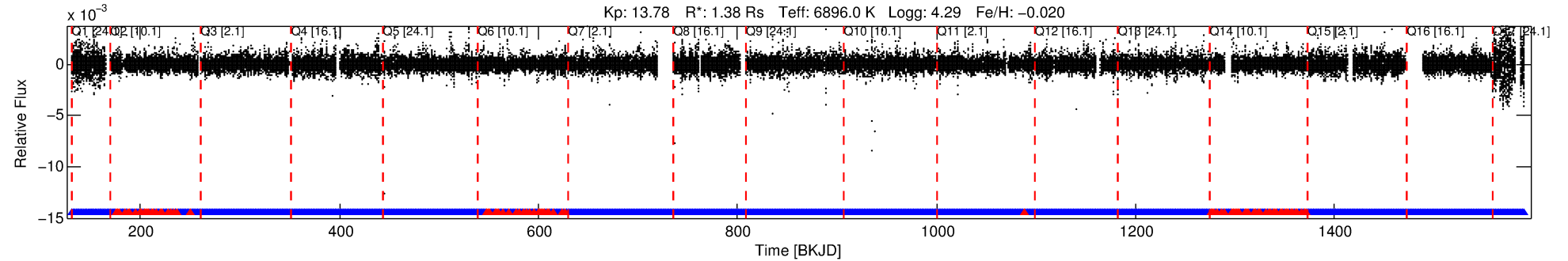
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008390631-01

No Significant Match Found

DV One-Page Summary

KIC: 8390631 Candidate: 1 of 2 Period: 0.672 d



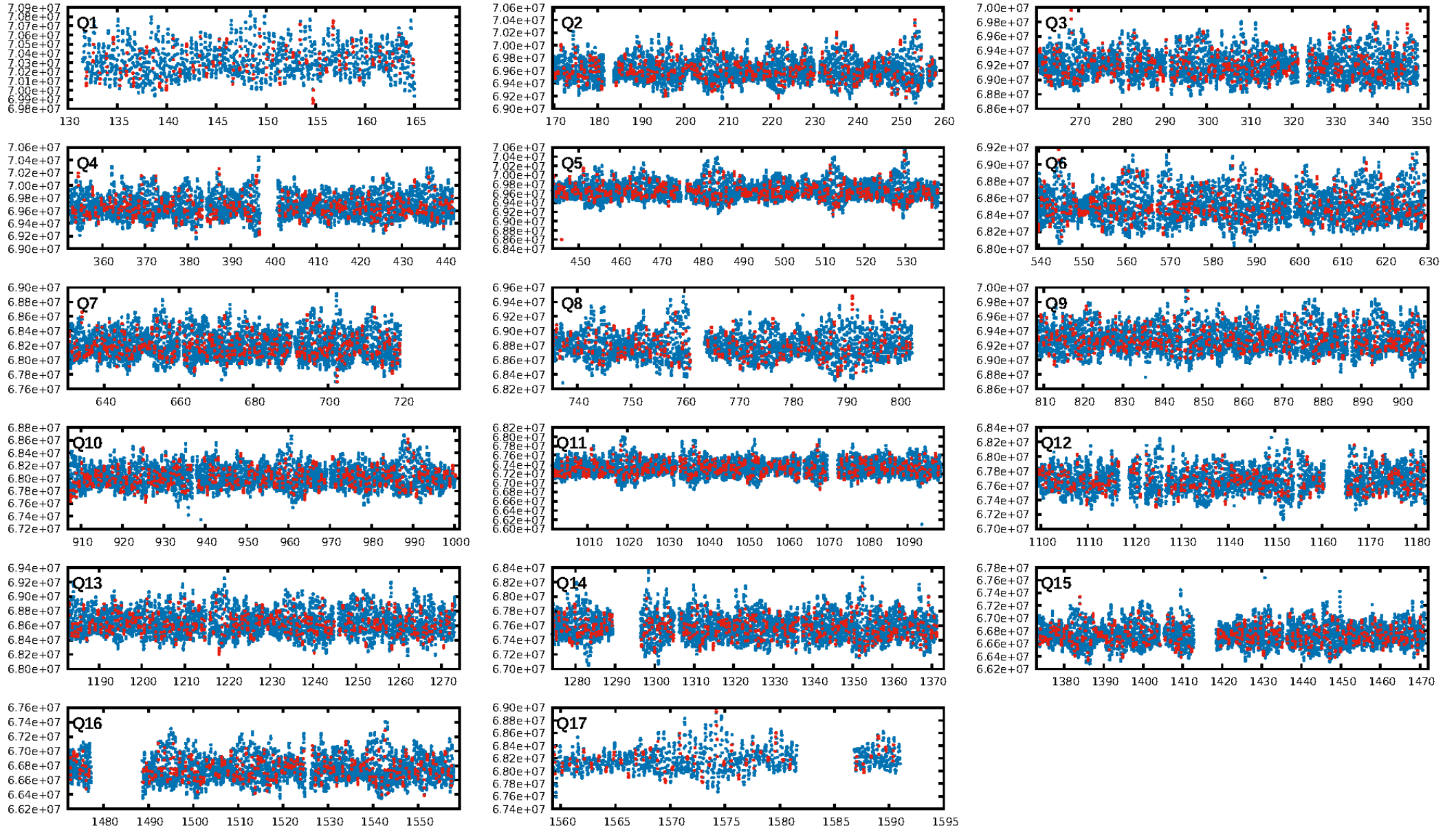
DV Fit Results:

Period = 0.67211 [0.00003] d
Epoch = 131.8994 [0.0028] BKJD
Rp/R* = 0.0052 [0.0019]
a/R* = 3.85 [6.79]
b = 0.70 [1.38]
Seff = 13931.14 [6082.30]
Teff = 2770 [302] K
Rp = 0.79 [0.41] Re
a = 0.0166 [0.0048] AU
Ag = 11.06 [9.52] [1.06σ]
Teffp = 7811 [1522] K [3.25σ]

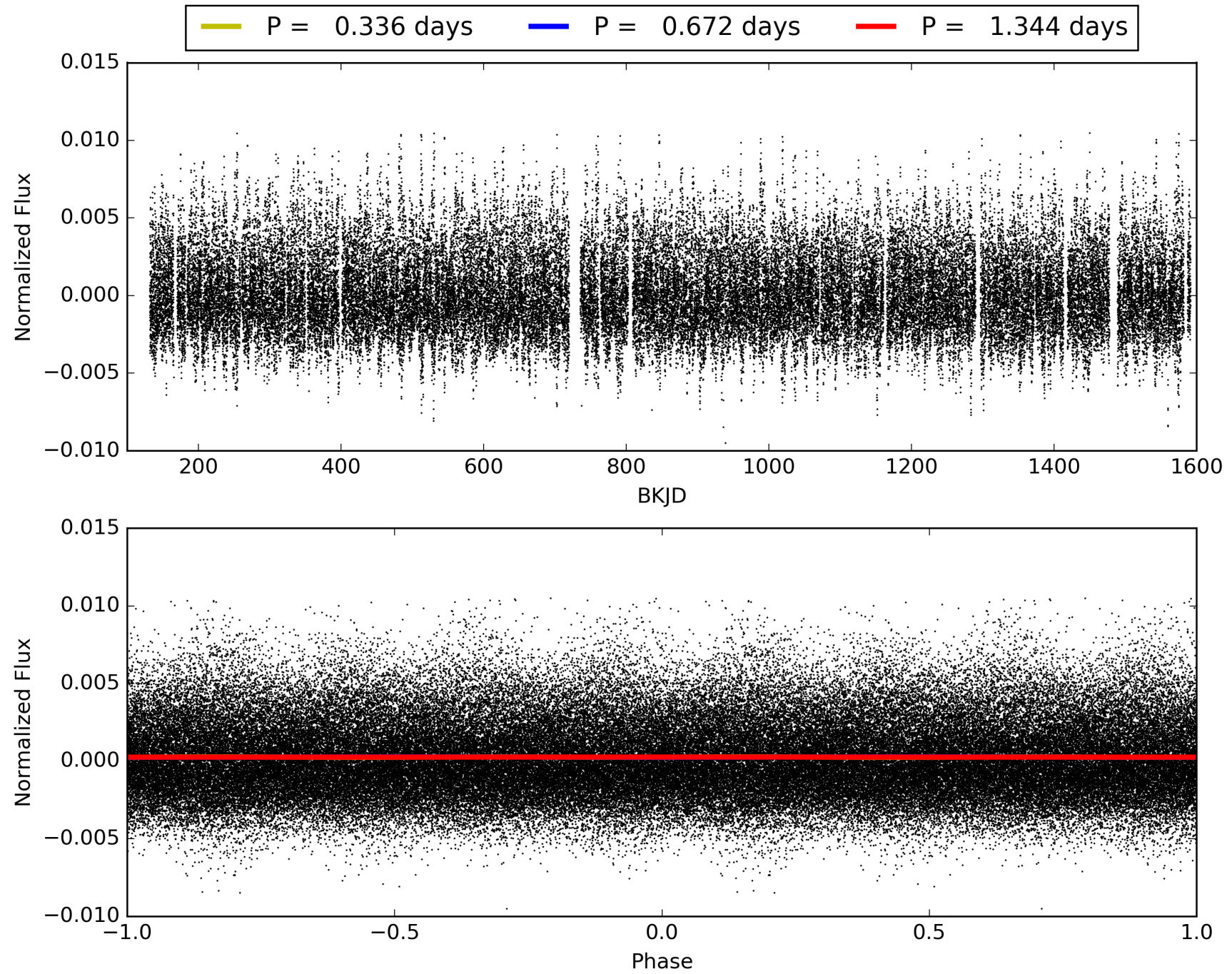
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.6% [2.86σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.63e-19
RollingBand-fgt: 0.95 [1799/1893]
GhostDiagnostic-chr: 0.2584
Centroid-sig: 0.9%
Centroid-so: 2.628 arcsec [1.31σ]
OotOffset-rm: 0.278 arcsec [0.39σ]
KicOffset-rm: 0.293 arcsec [0.46σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008390631-01, PDC Light Curves

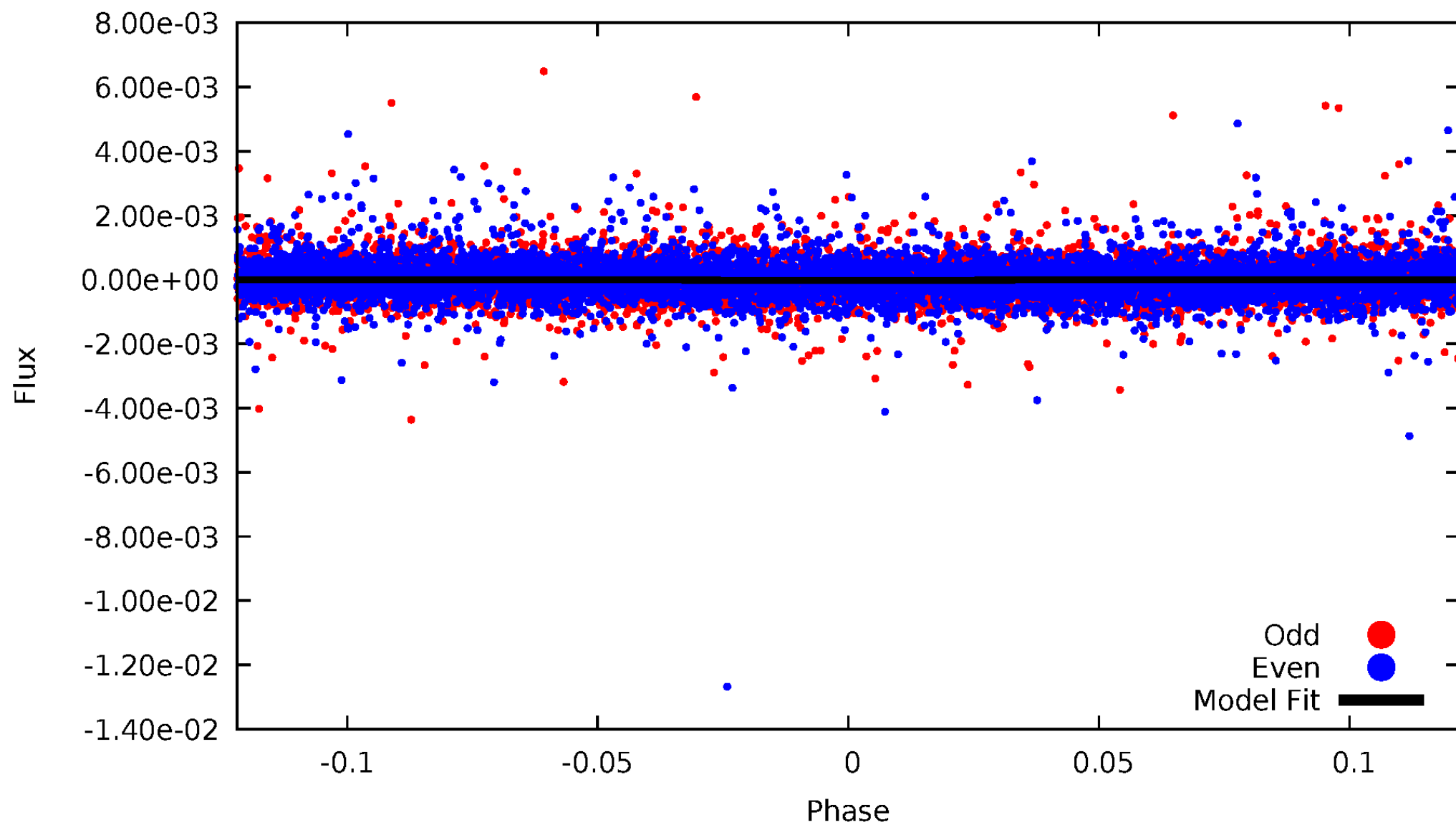


TCE 008390631-01



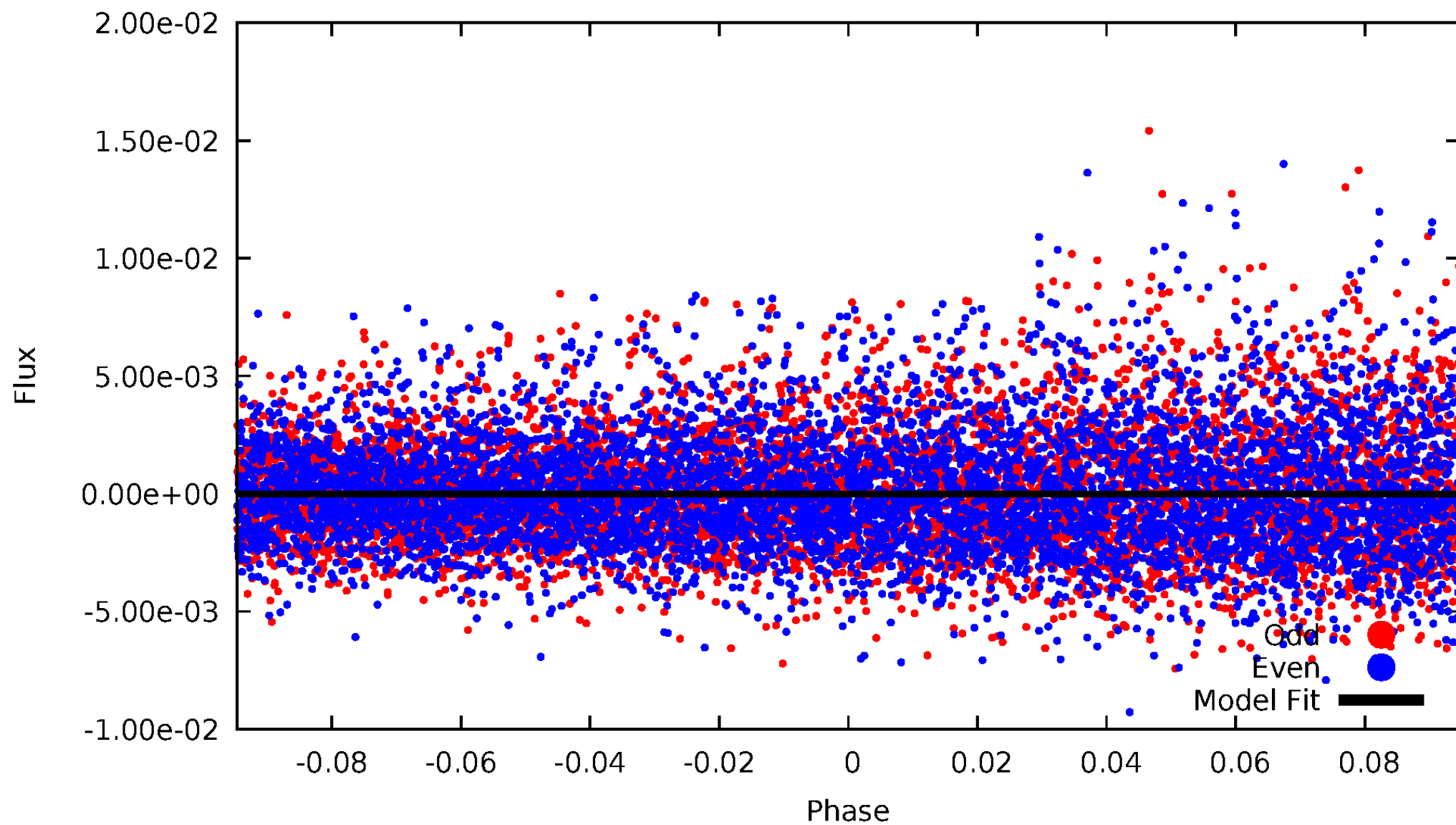
DV Odd/Even

TCE 008390631-01



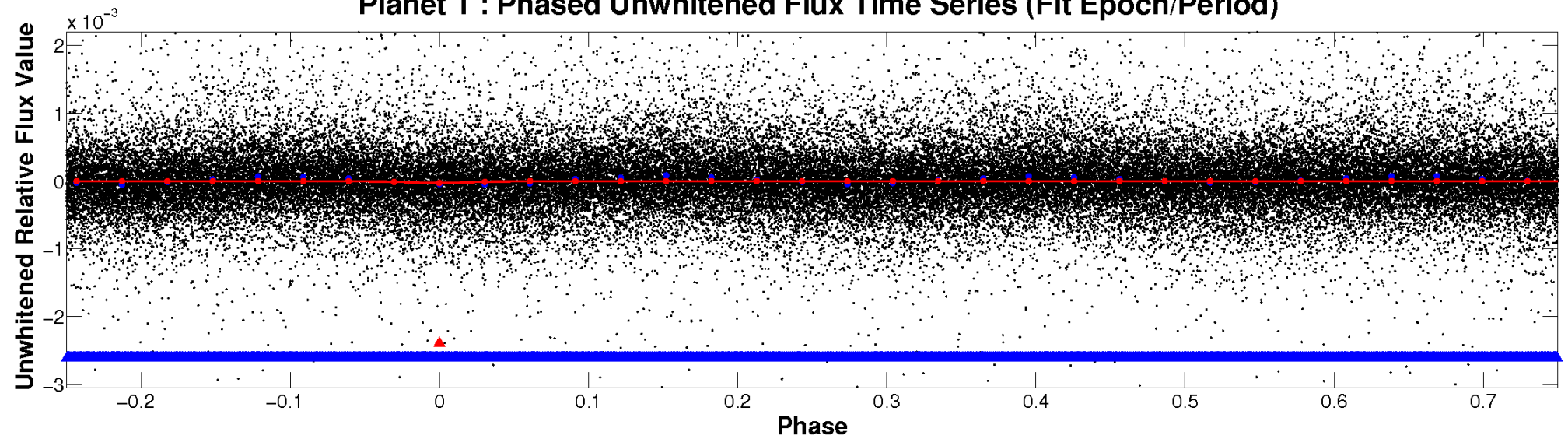
ALT Odd/Even

TCE 008390631-01

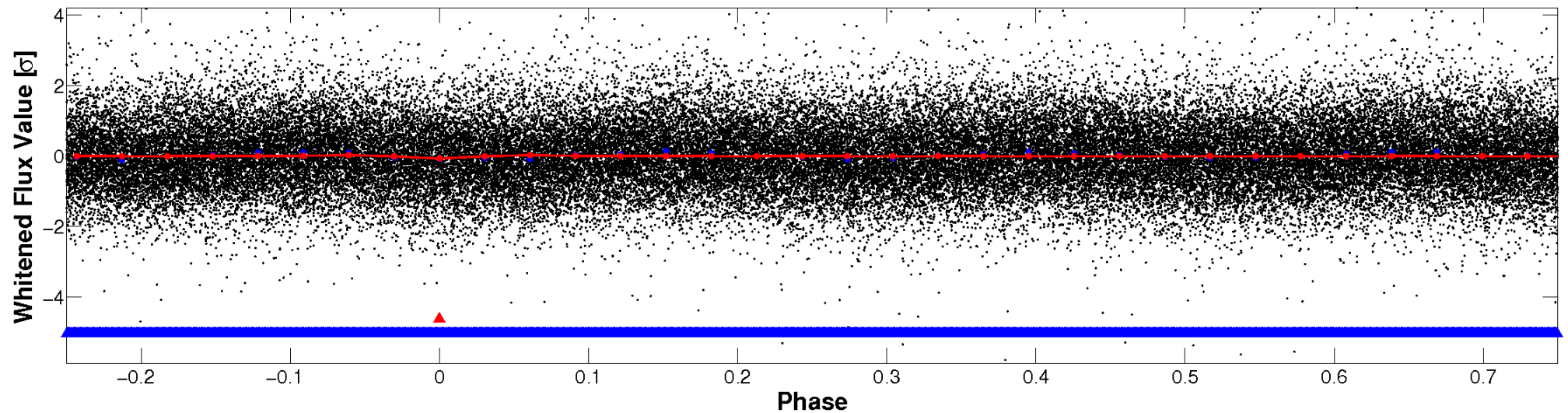


Non-Whitened Vs. Whitened Light Curve

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

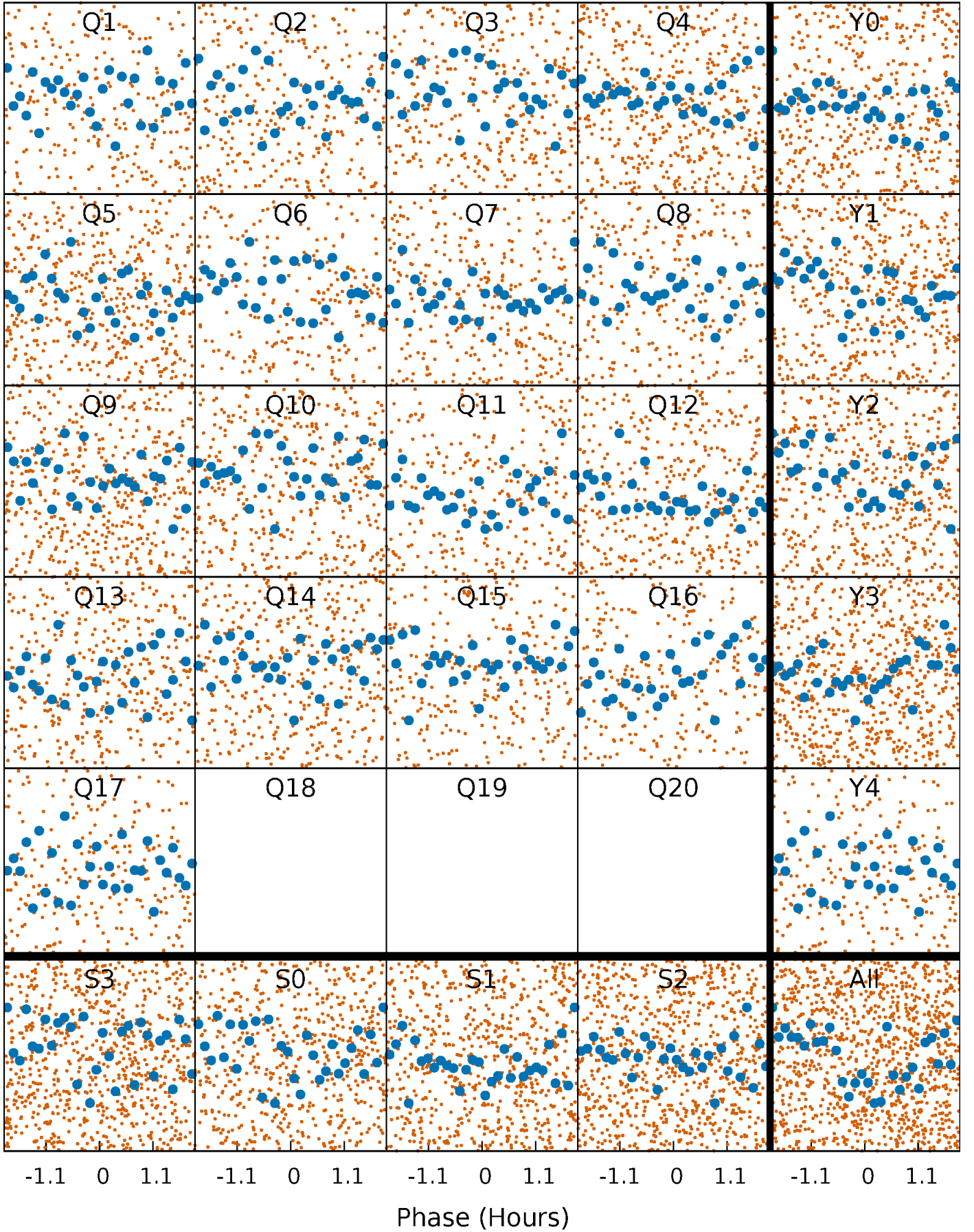


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



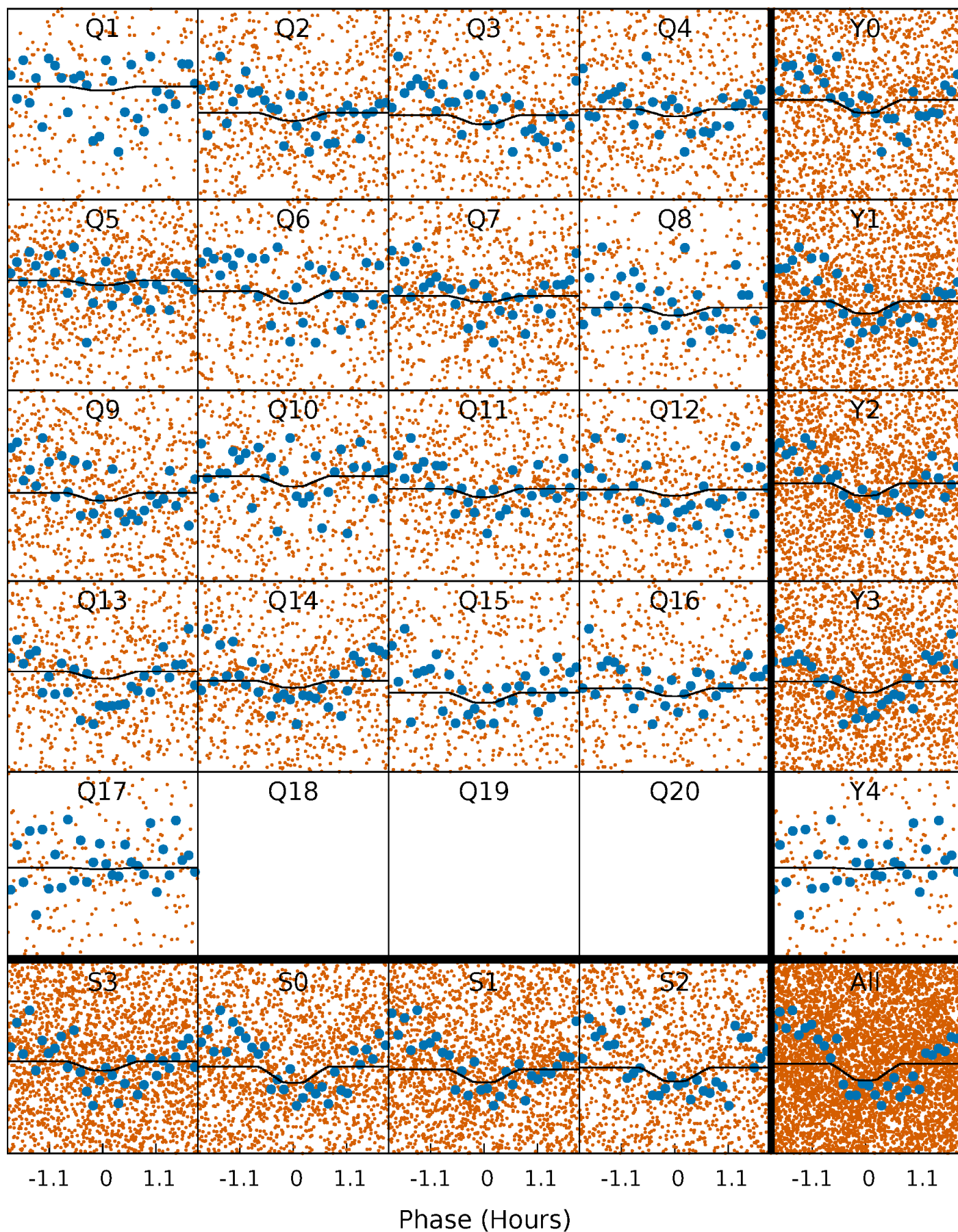
PDC Quarter-Phased Transit Curves

TCE 008390631-01 P= 0.672109 Days $T_0=131.899405$ (BKJD)



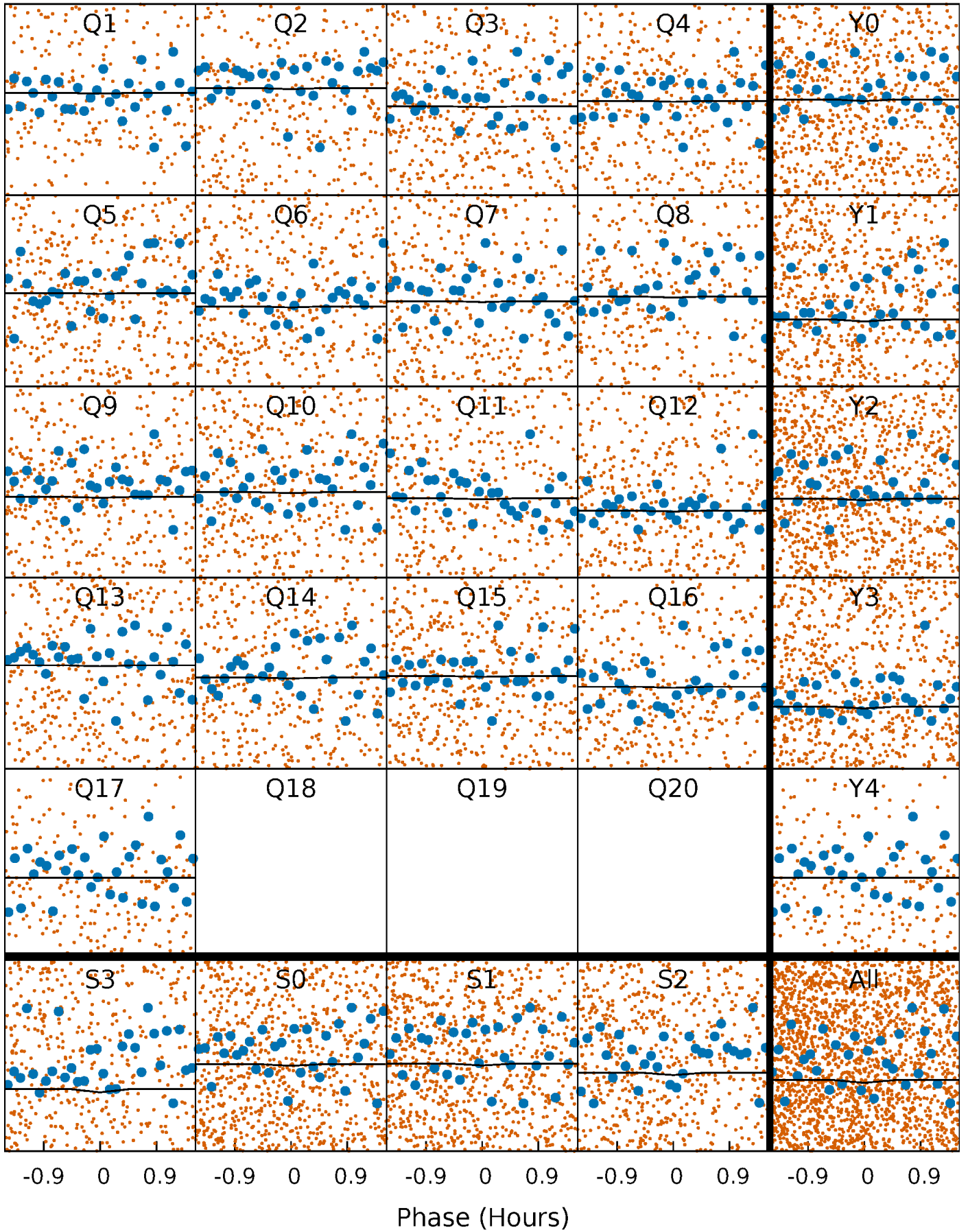
DV Quarter-Phased Transit Curves

TCE 008390631-01 P= 0.672109 Days $T_0=131.899405$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

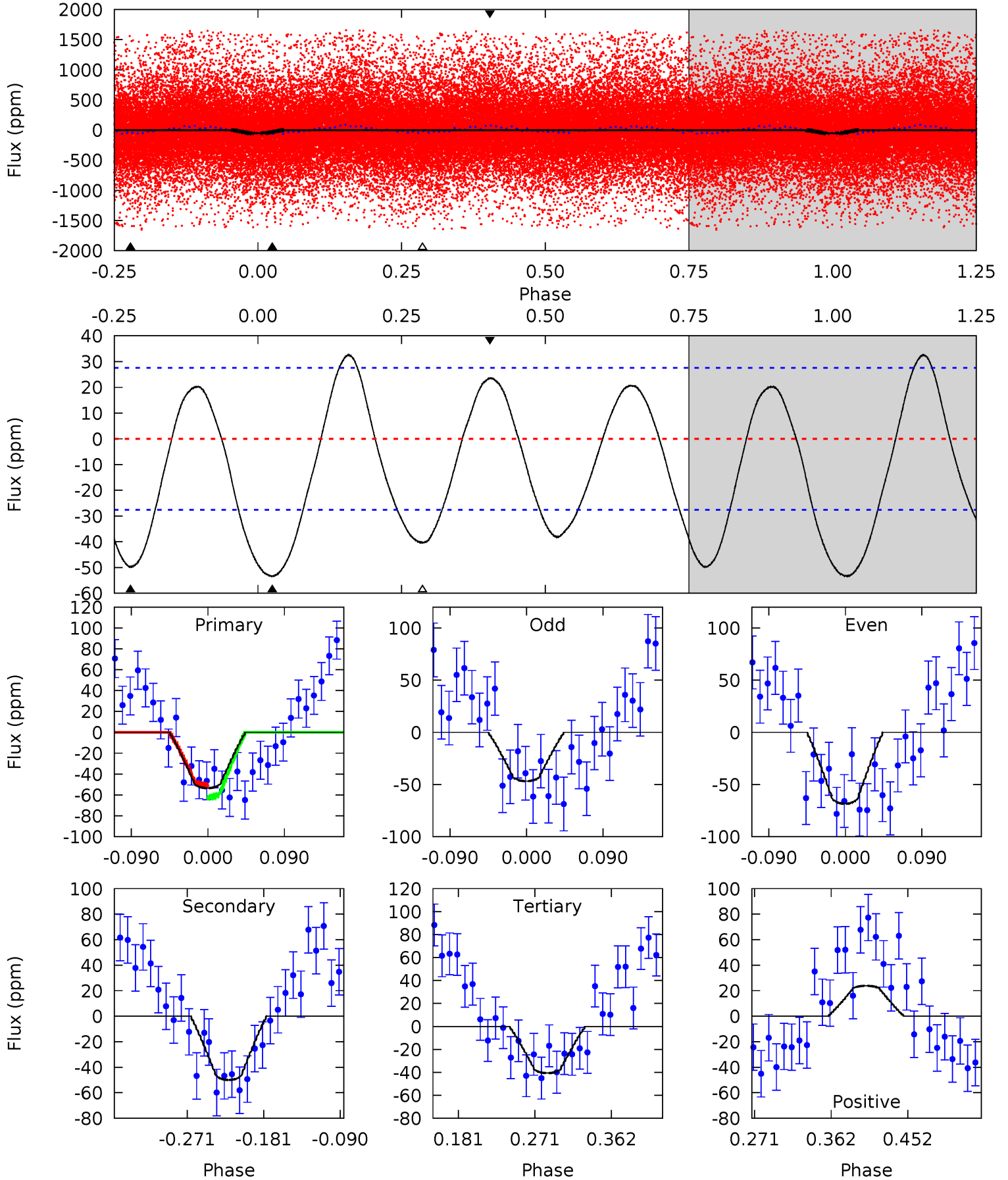
TCE 008390631-01 P= 0.672084 Days $T_0=131.858893$ (BKJD)



DV Model-Shift Uniqueness Test

008390631-01, P = 0.672109 Days, E = 131.227296 Days

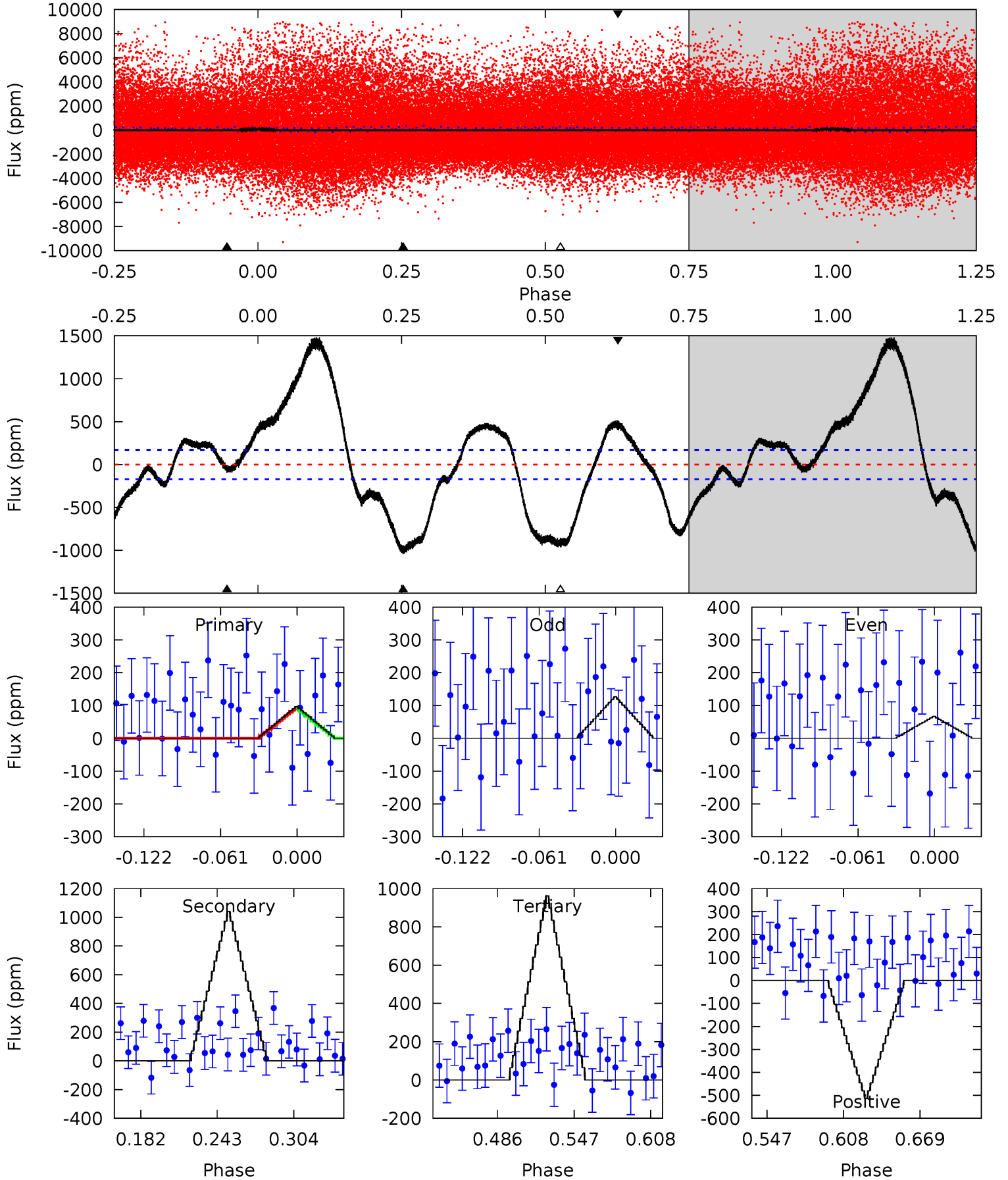
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.89	8.31	6.76	3.96	4.59	1.69	3.74	2.14	4.94	1.55	4.35	1.82	1.00	0.38	0.98



Alt Model-Shift Uniqueness Test

008390631-01, P = 0.672084 Days, E = 131.186809 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.66	28.6	26.4	14.1	4.67	1.87	16.1	-23.7	-11.4	2.19	14.5	0.81	-0.22	0.59	0.01



Stellar Parameters For KIC 008390631

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6896^{+193}_{-289}	$4.291^{+0.070}_{-0.210}$	$-0.020^{+0.250}_{-0.350}$	$1.377^{+0.500}_{-0.167}$	$1.357^{+0.199}_{-0.199}$	$0.731^{+0.284}_{-0.389}$
	+3%/-4%	+2%/-5%	+1250%/-1750%	+36%/-12%	+15%/-15%	+39%/-53%
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 008390631-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-50 ± 6	$0.82^{+0.33}_{-0.30}$	3940^{+340}_{-230}	8109^{+3196}_{-1399}	11^{+19}_{-5}
Alt.	-1042 ± 36	$0.57^{+0.32}_{-0.29}$	3919^{+304}_{-225}	$60496^{+154510}_{-27426}$	472^{+1493}_{-273}

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 $A_{obs} \gg 1.0$

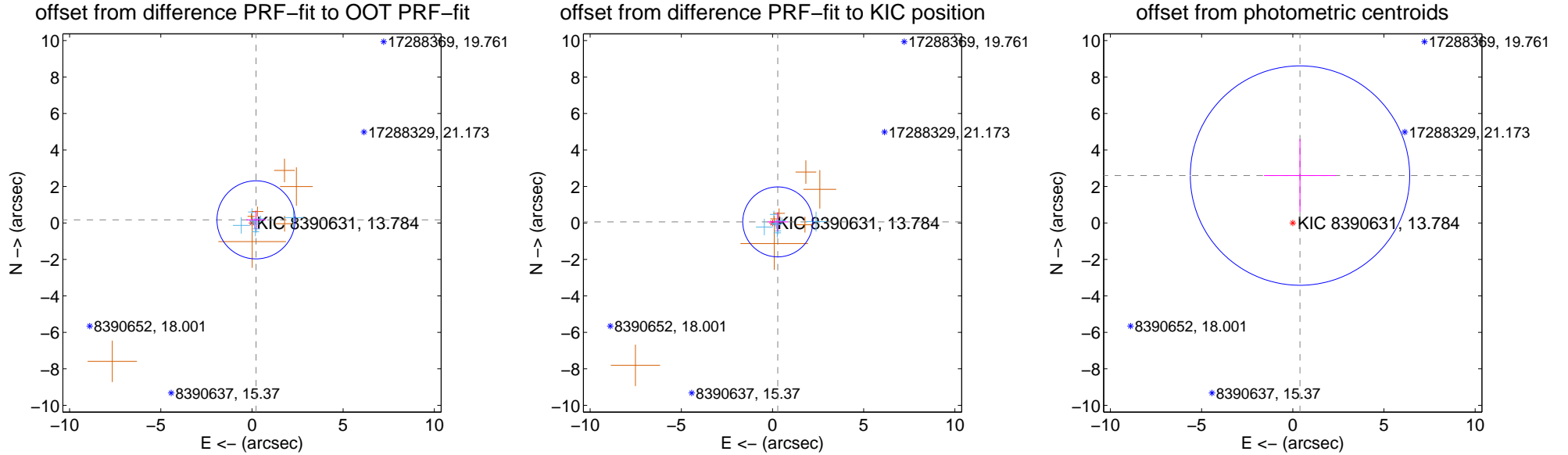
DV Centroid Data

Supplemental centroid analysis for 008390631-01. Kepler magnitude: 13.78. Transit SNR 4.06

There are 9 quarters with good PRF difference image offsets

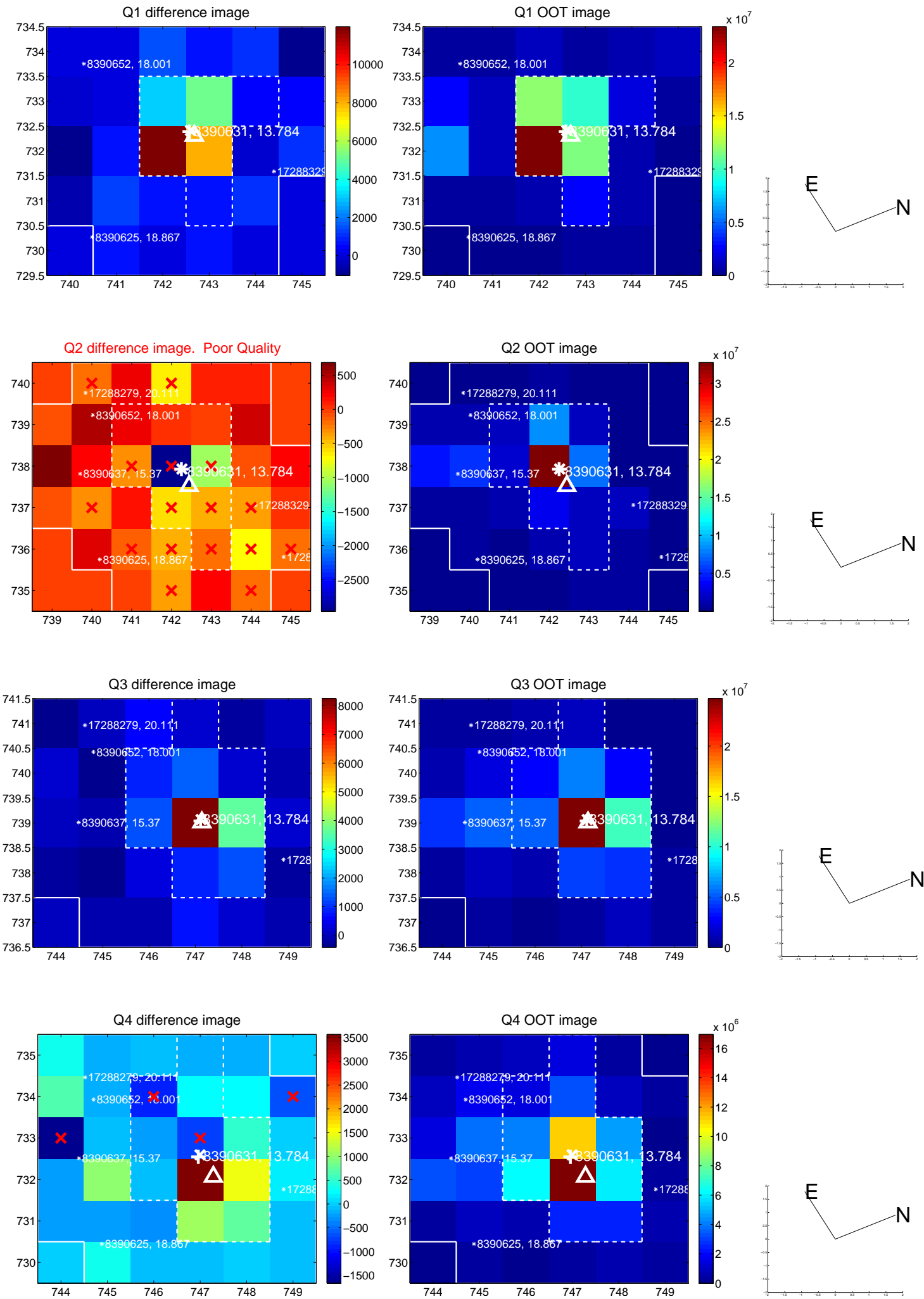
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.278 ± 0.714	0.39	-0.221 ± 0.529	0.169 ± 0.511
PRF-fit source offset from KIC position	0.293 ± 0.639	0.46	-0.287 ± 0.554	0.058 ± 0.524
photometric centroid source offset	2.63 ± 2.01	1.31	-0.40 ± 1.97	2.60 ± 2.01

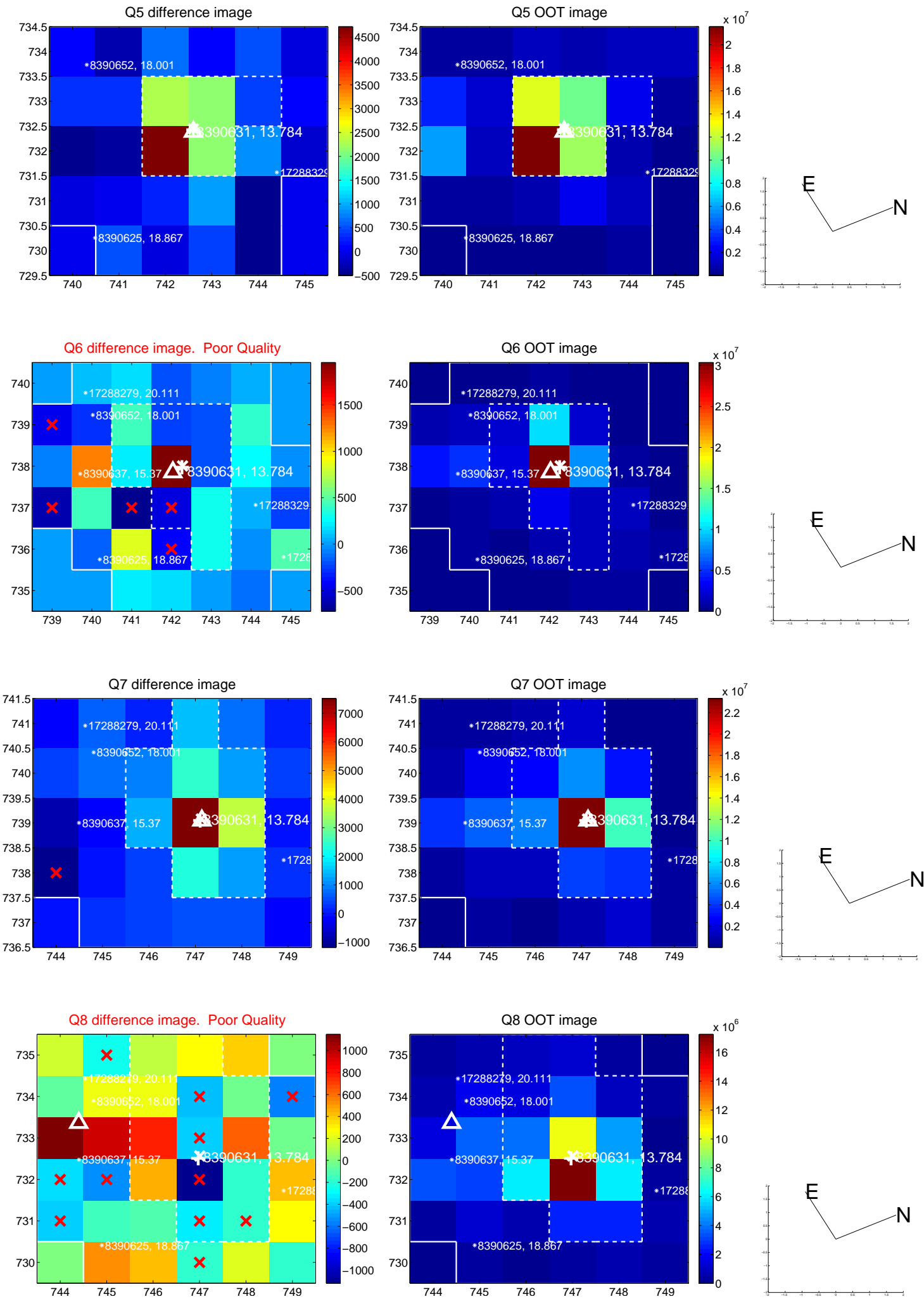


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

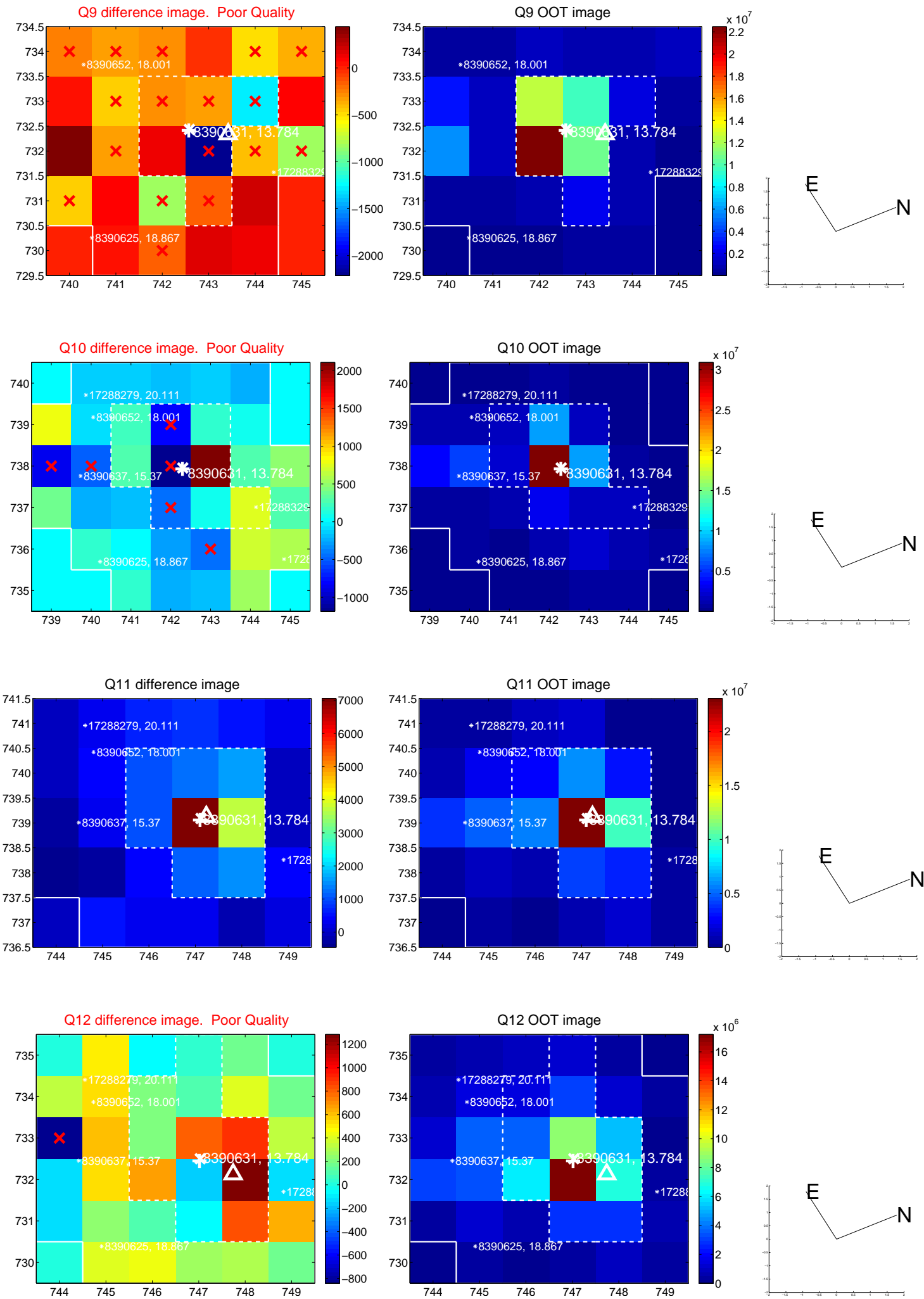
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



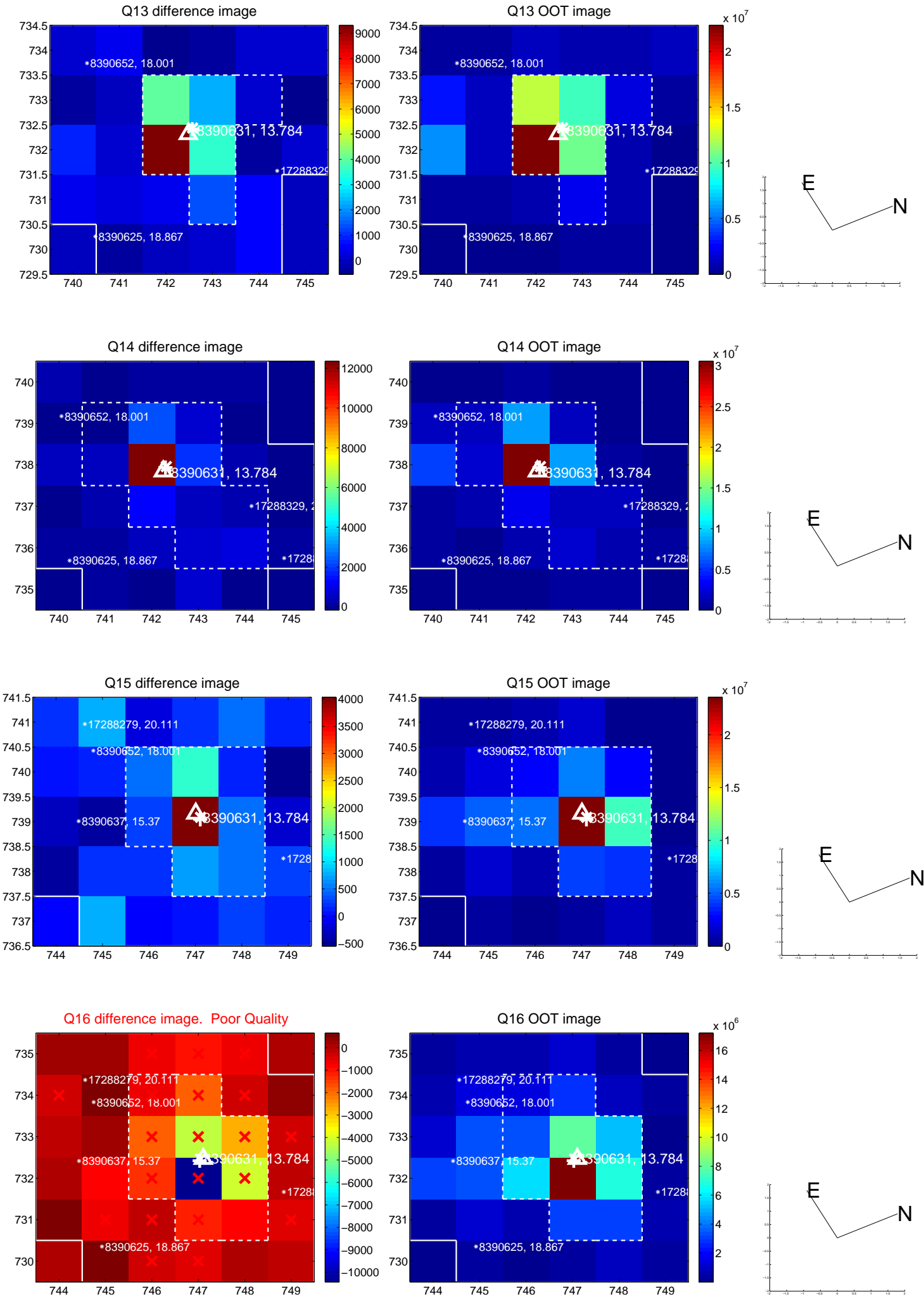
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



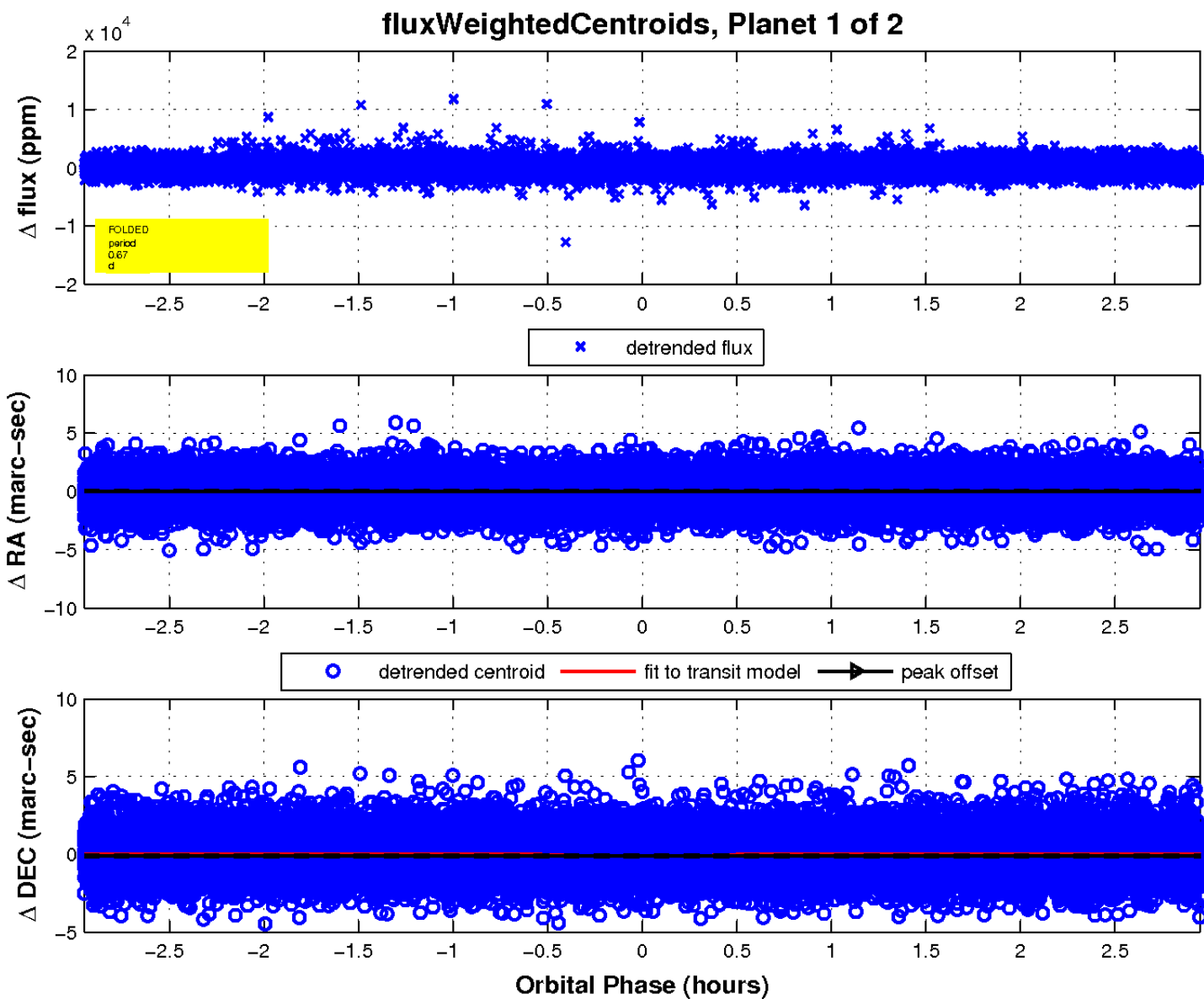
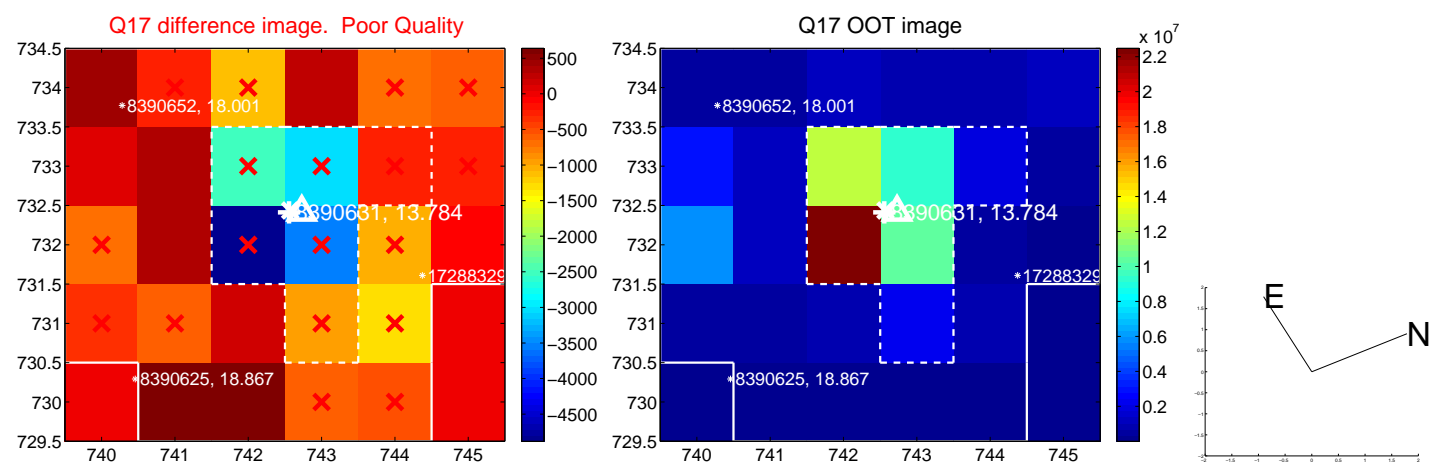
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

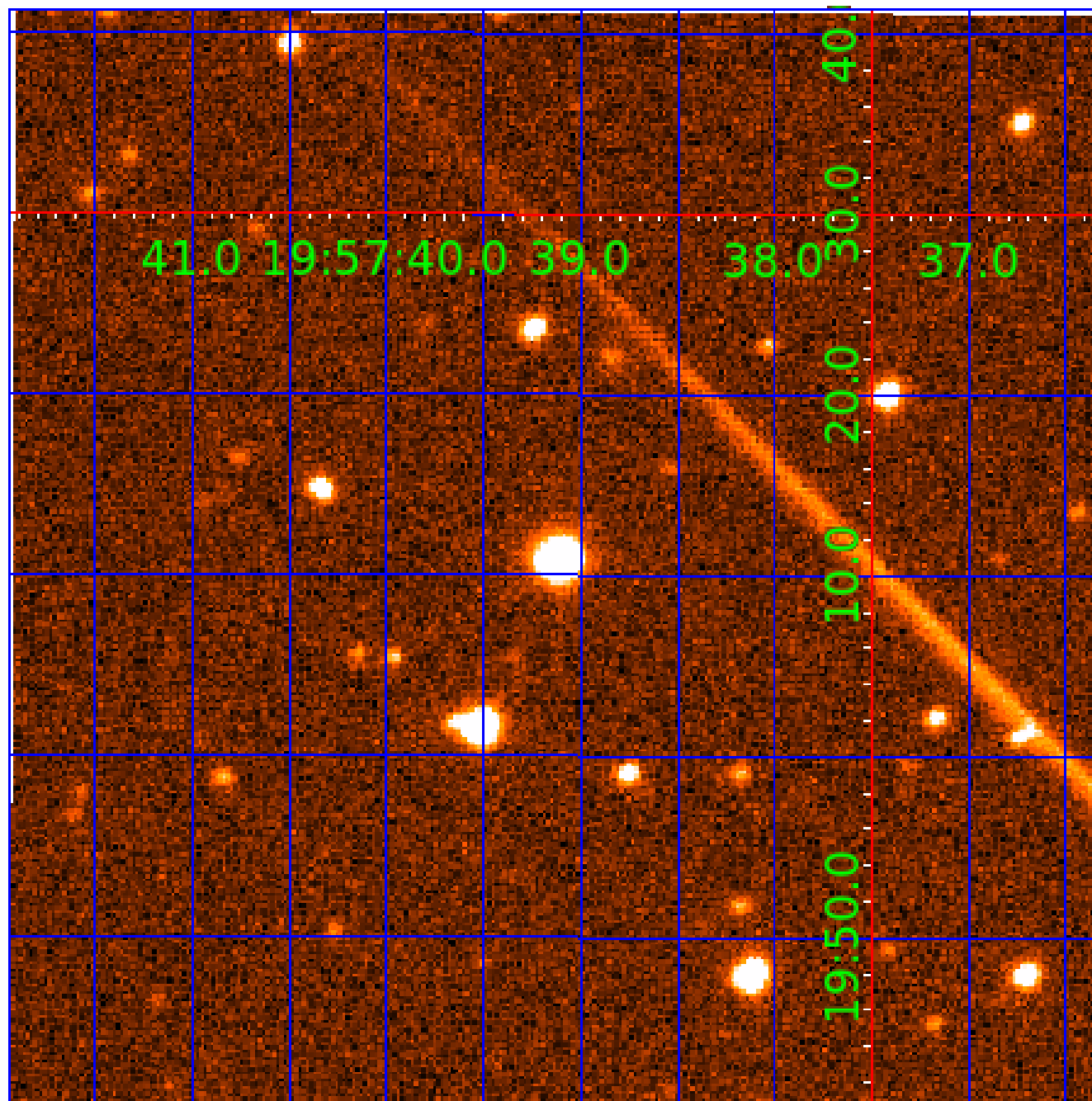


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008390631

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})
008390631-01	OBS	No	0.672109	131.899405	28.0	0.983	9.2	4.1	1.38	6896	0.79	13931.14
008390631-02	OBS	No	1.010720	131.635595	69.9	2.666	9.9	4.9	1.38	6896	1.34	8085.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008390631-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
008390631-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—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.

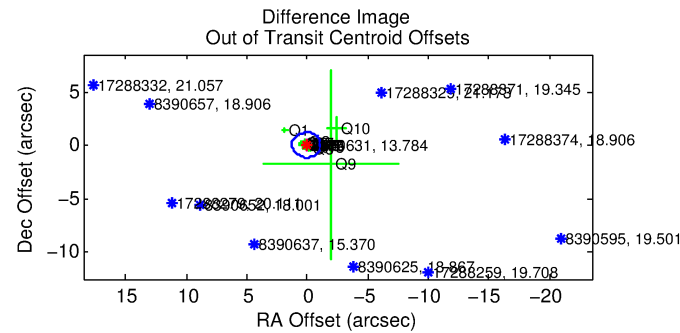
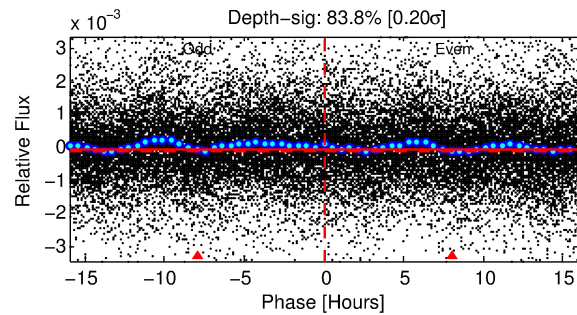
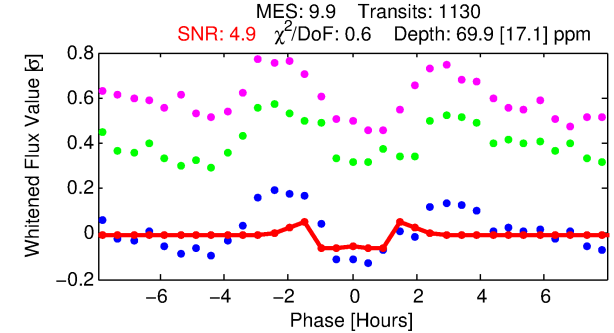
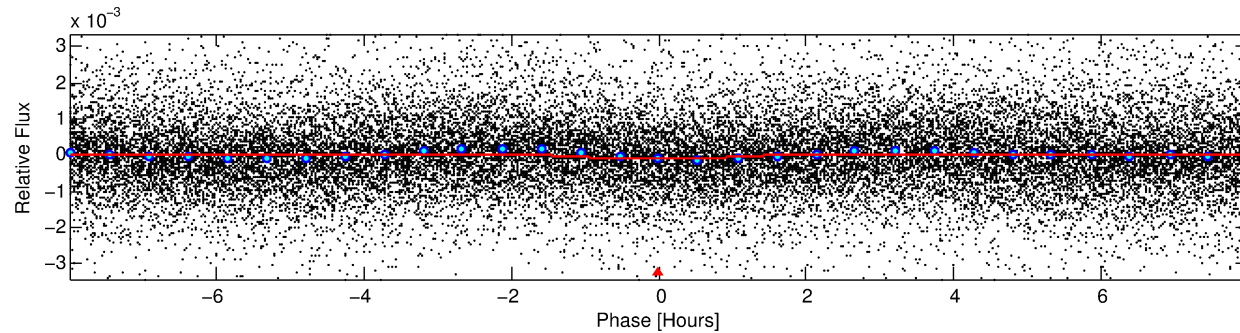
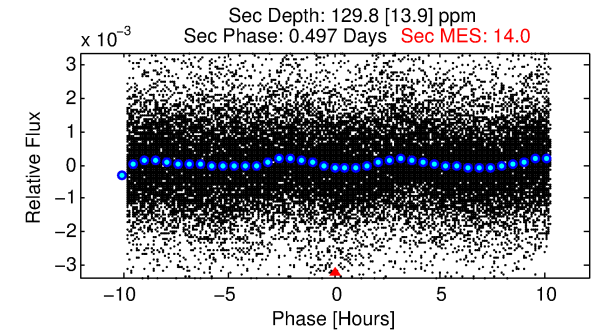
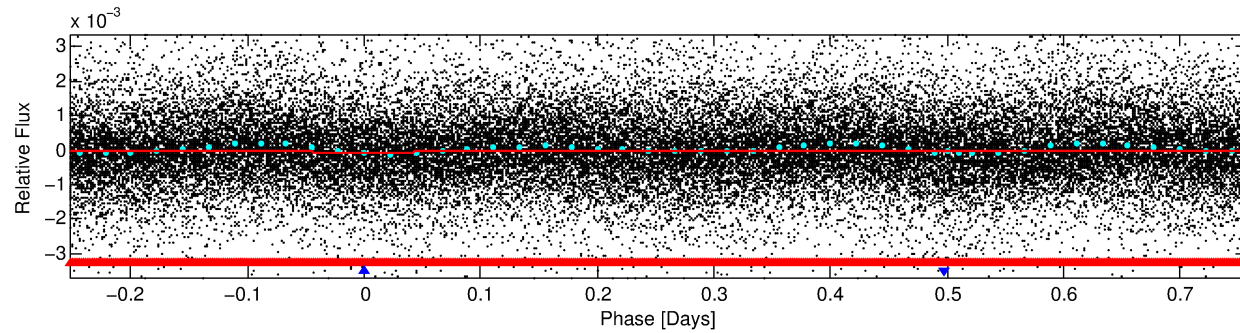
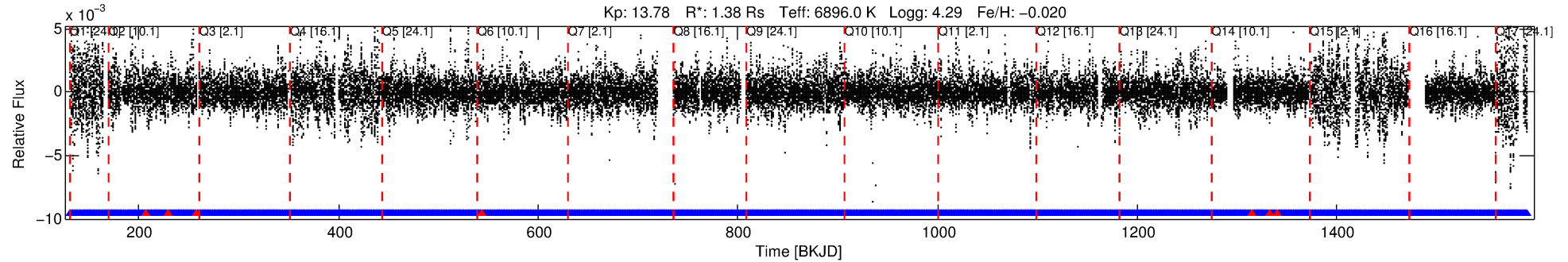
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008390631-02

No Significant Match Found

DV One-Page Summary

KIC: 8390631 Candidate: 2 of 2 Period: 1.011 d



DV Fit Results:

Period = 1.01072 [0.00002] d
Epoch = 131.6356 [0.0026] BKJD
Rp/R* = 0.0089 [0.0034]
a/R* = 1.62 [2.17]
b = 0.90 [0.46]
Seff = 8085.96 [3530.31]
Teq = 2418 [264] K
Rp = 1.34 [0.71] Re
a = 0.0218 [0.0063] AU
Ag = 18.87 [16.56] [1.08σ]
Teffp = 7792 [1553] K [3.41σ]

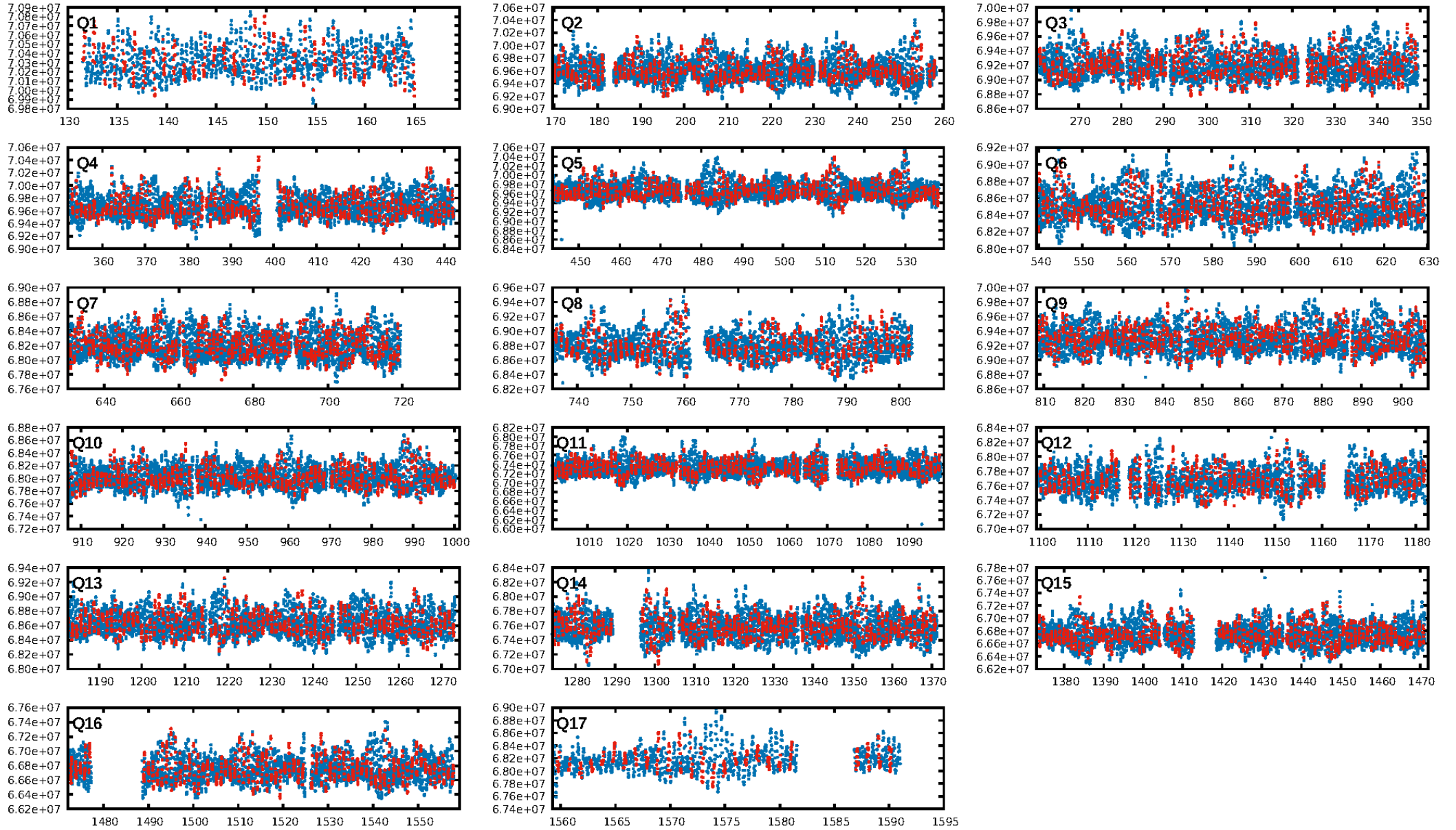
DV Diagnostic Results:

ShortPeriod-sig: 99.6% [2.86σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 3.09e-17
RollingBand-fgt: 0.99 [1074/1081]
GhostDiagnostic-chr: 3.992
Centroid-sig: 2.4%
Centroid-so: 0.894 arcsec [1.38σ]
OotOffset-rm: 0.070 arcsec [0.18σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.068 arcsec [0.12σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.59 [10/17]

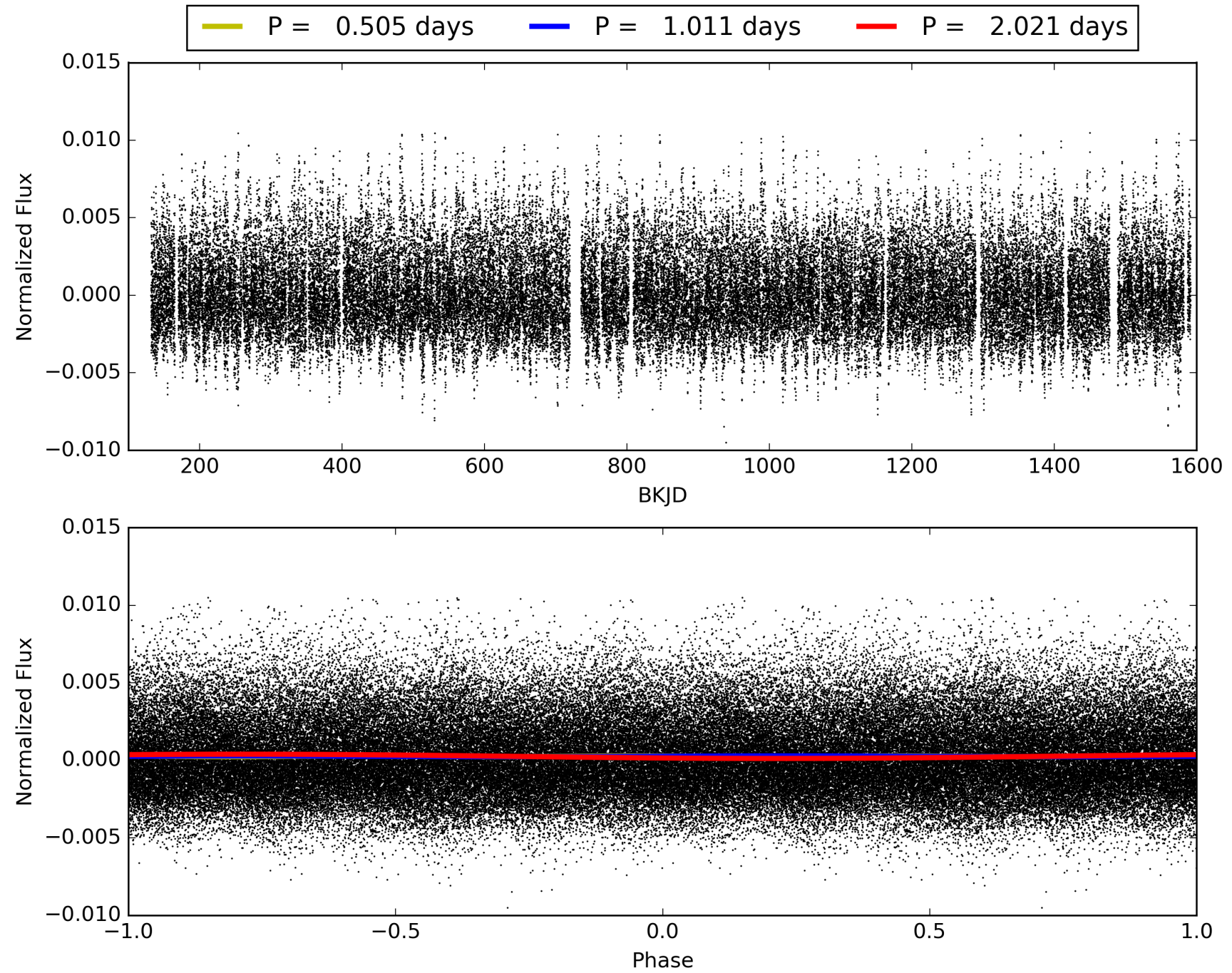
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:48:27 Z

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

TCE 008390631-02, PDC Light Curves

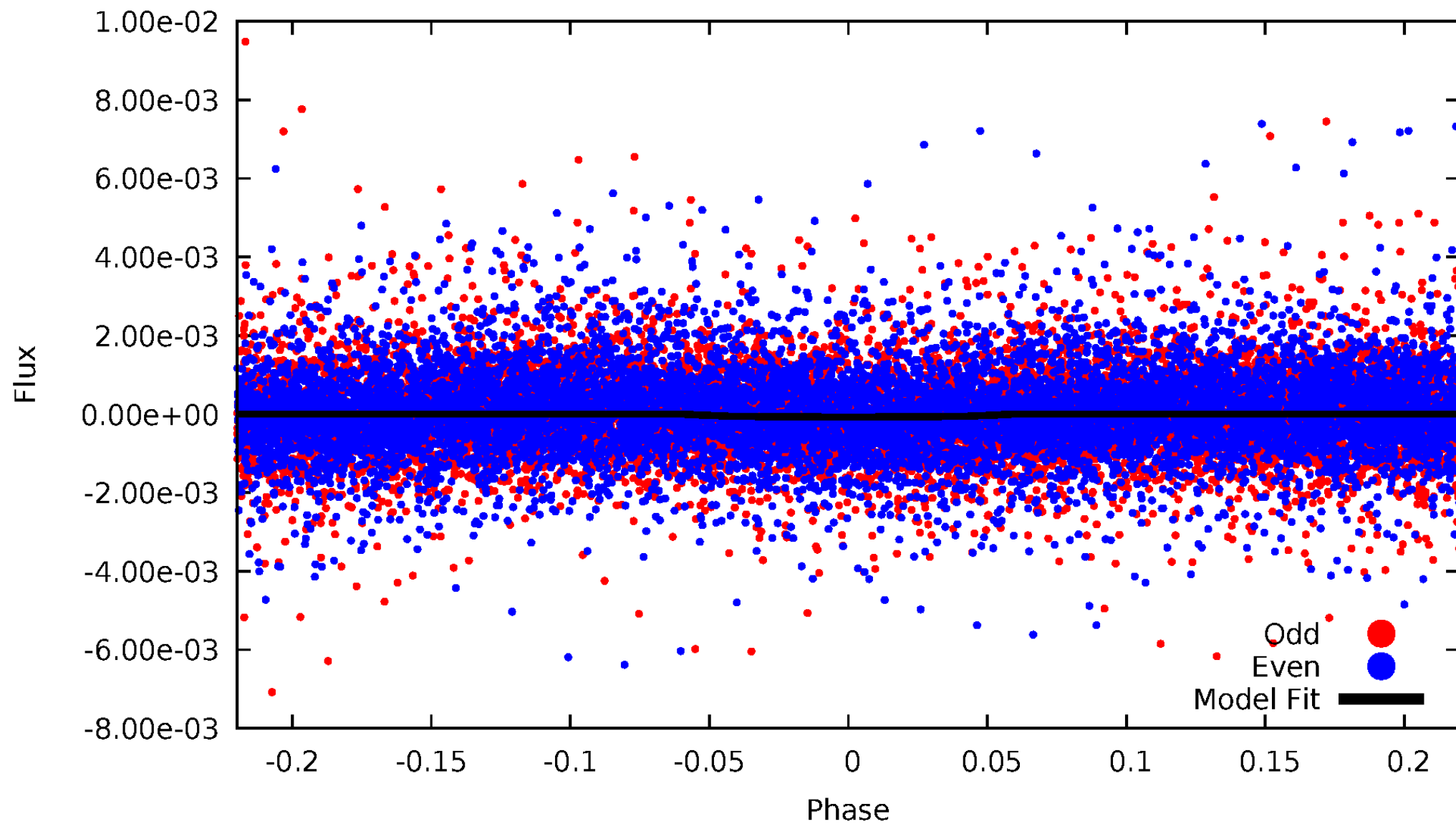


TCE 008390631-02



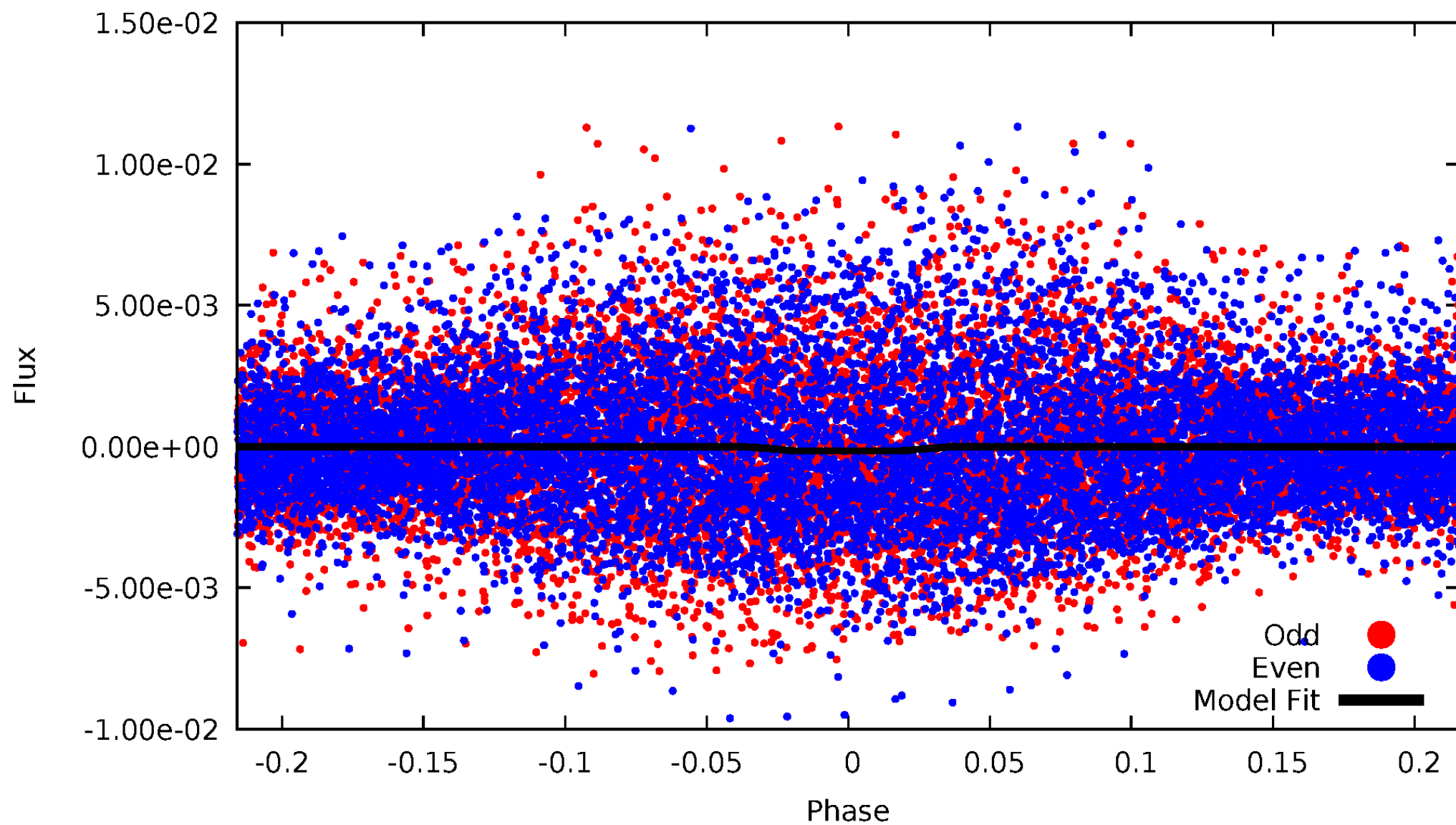
DV Odd/Even

TCE 008390631-02



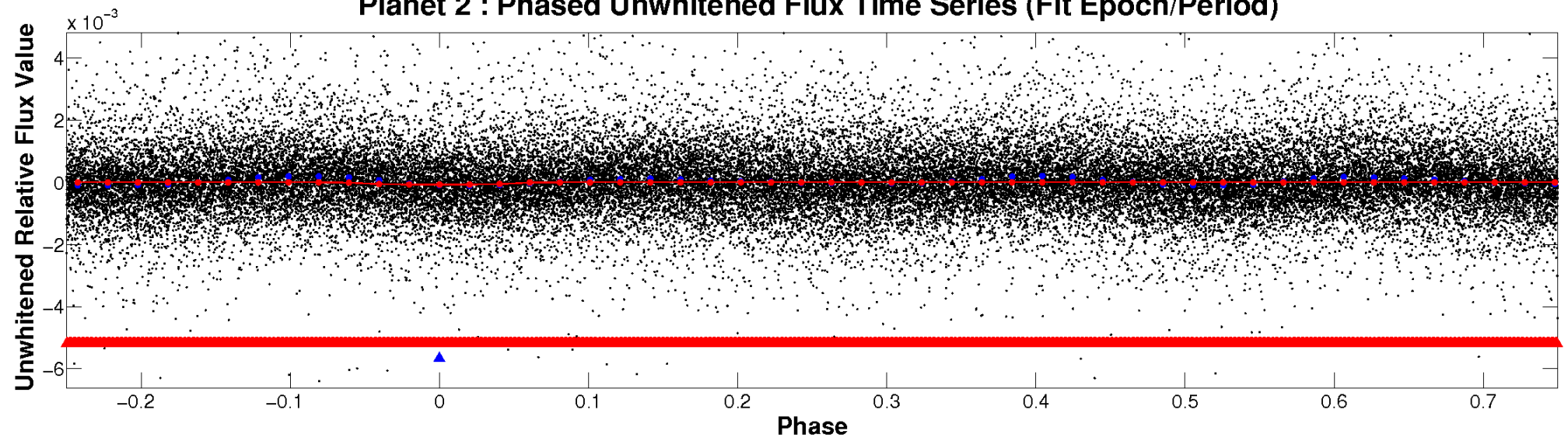
ALT Odd/Even

TCE 008390631-02

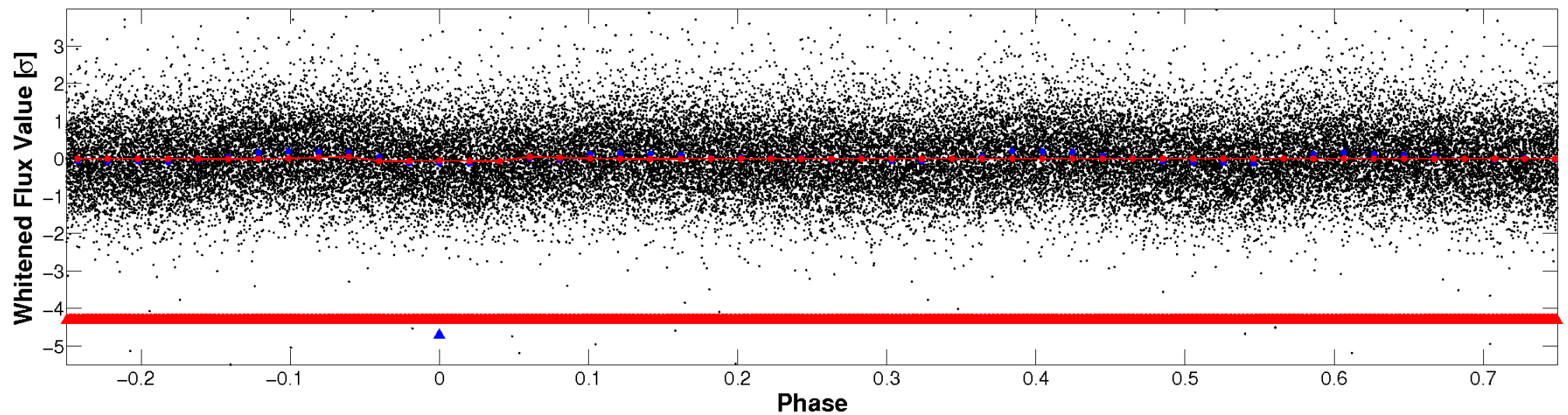


Non-Whitened Vs. Whitened Light Curve

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

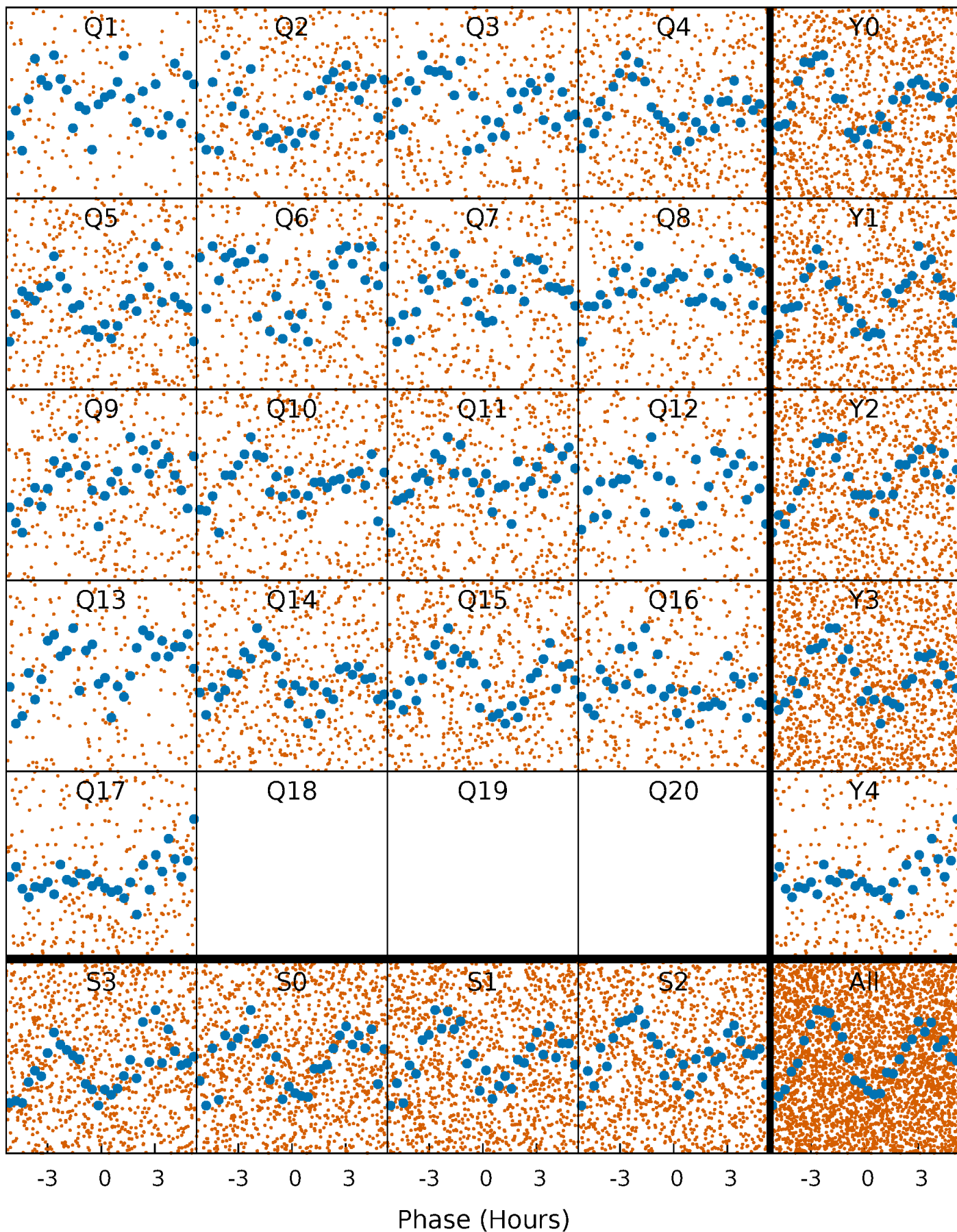


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



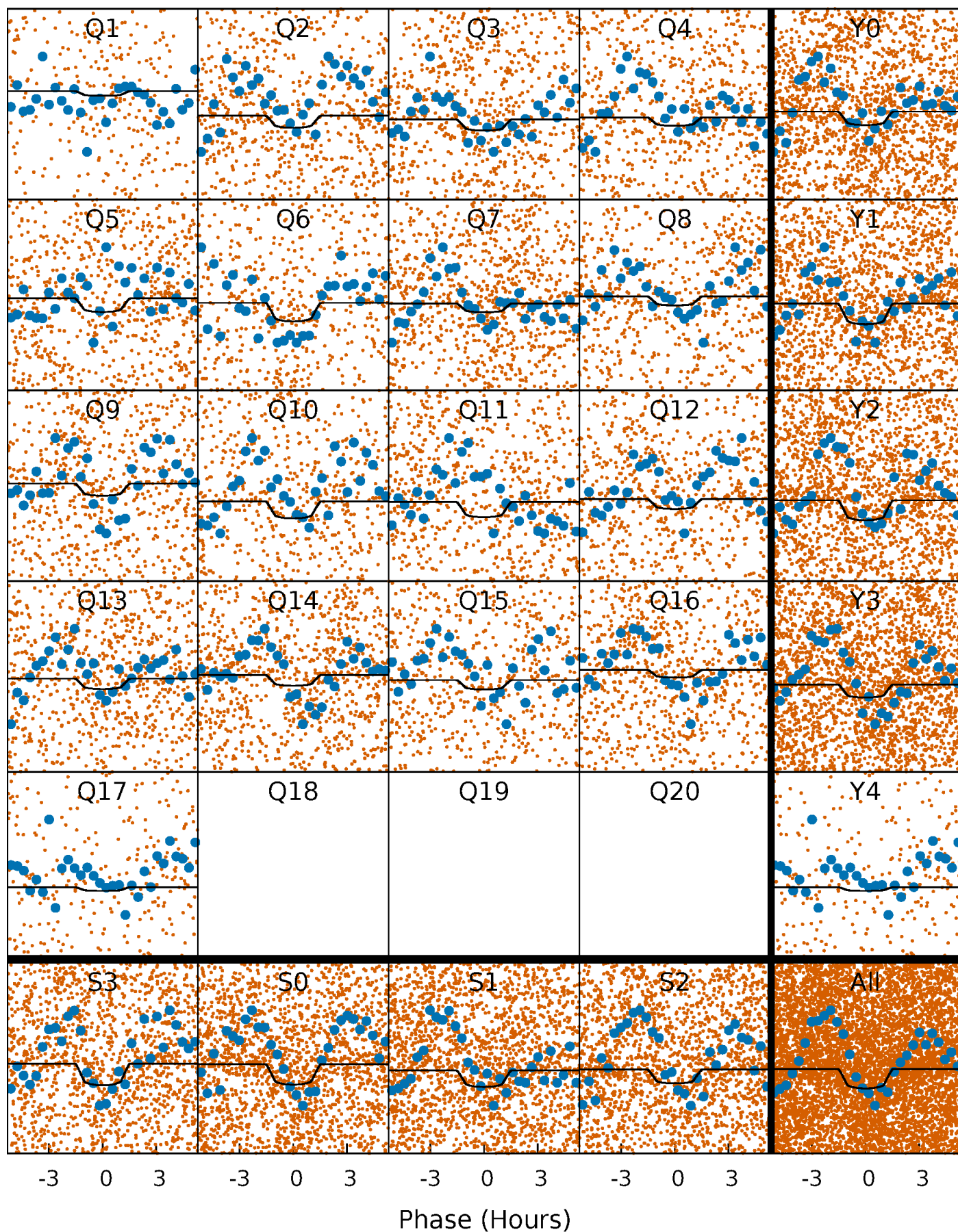
PDC Quarter-Phased Transit Curves

TCE 008390631-02 P= 1.010720 Days $T_0=131.635595$ (BKJD)



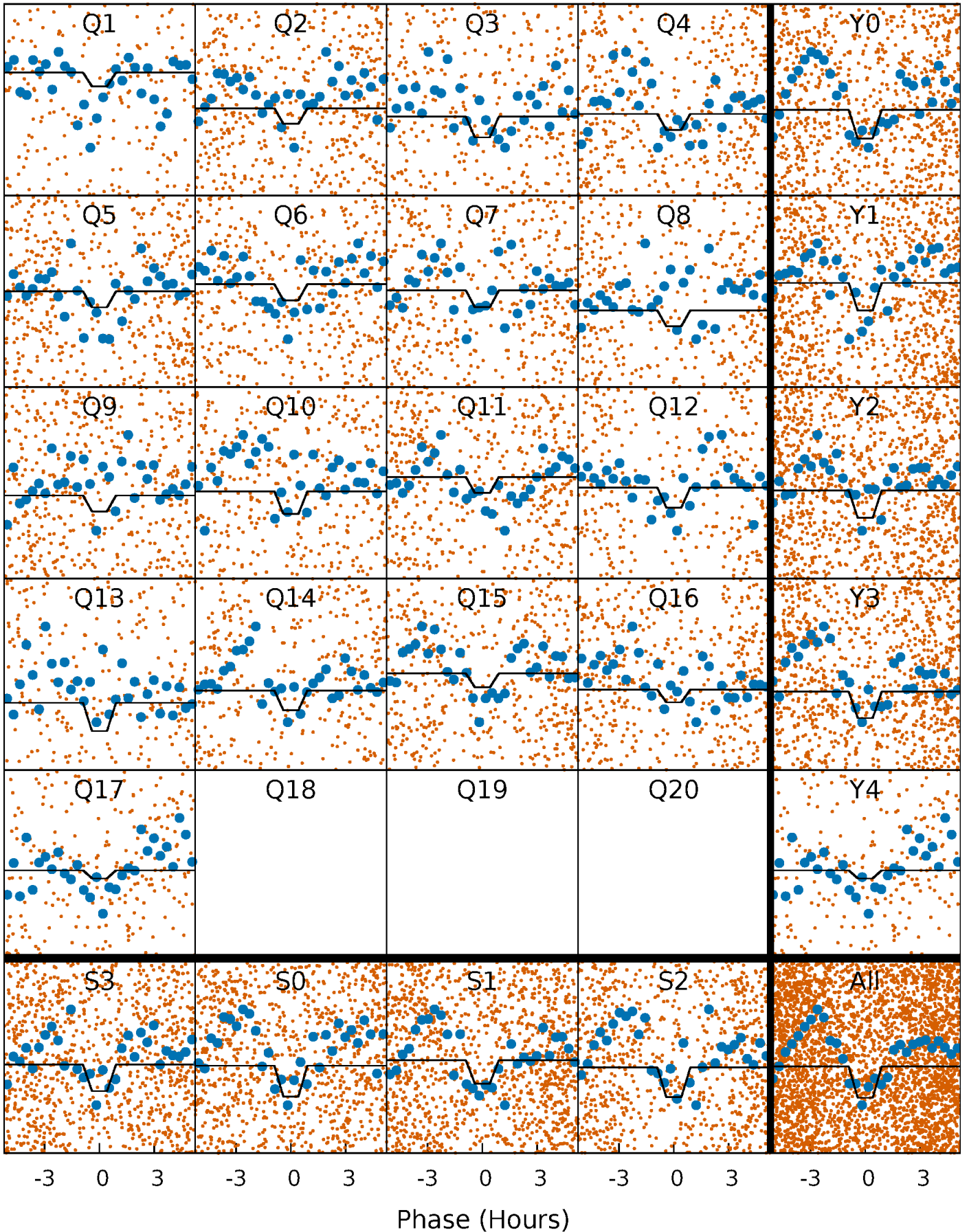
DV Quarter-Phased Transit Curves

TCE 008390631-02 P= 1.010720 Days $T_0=131.635595$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

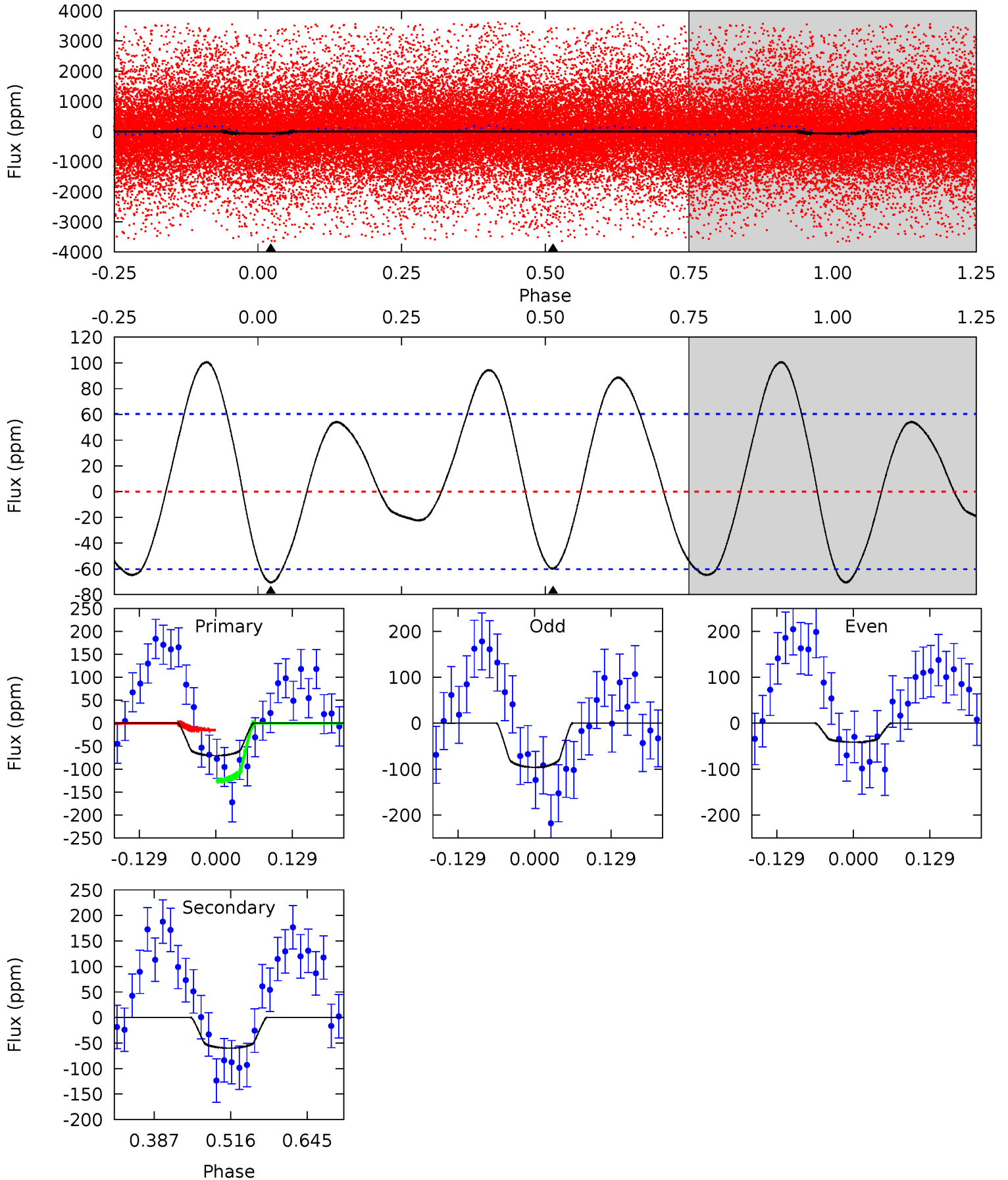
TCE 008390631-02 P= 1.010750 Days $T_0=131.635697$ (BKJD)



DV Model-Shift Uniqueness Test

008390631-02, P = 1.010720 Days, E = 130.624875 Days

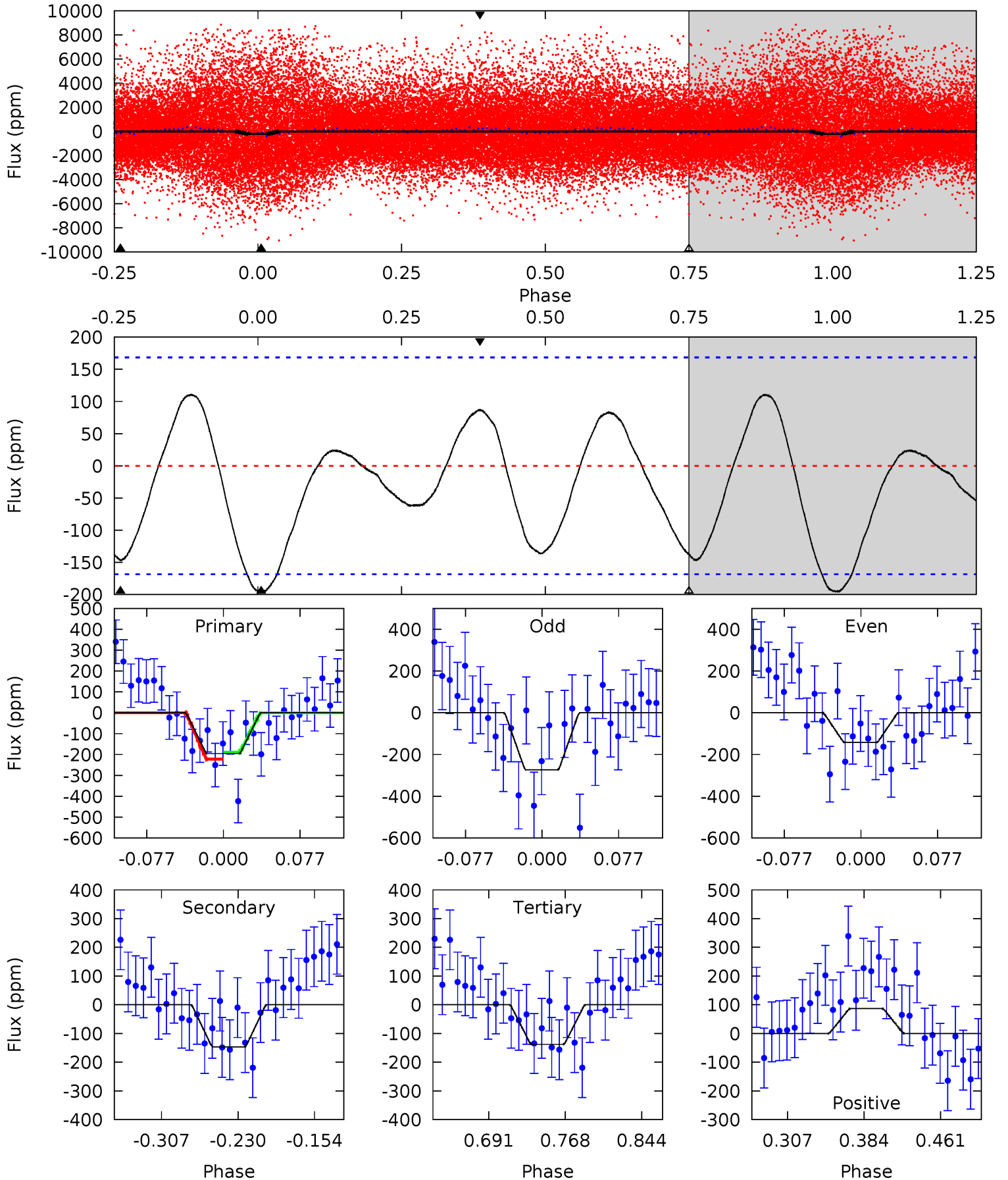
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.29	4.48	0	0	4.51	1.52	3.20	5.29	5.29	4.48	4.48	2.05	0.53	0.59	4.18



Alt Model-Shift Uniqueness Test

008390631-02, P = 1.010750 Days, E = 130.624947 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.37	4.02	3.78	2.39	4.62	1.77	1.85	1.59	2.98	0.24	1.63	1.83	0.29	0.36	0.46



Stellar Parameters For KIC 008390631

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6896^{+193}_{-289}	$4.291^{+0.070}_{-0.210}$	$-0.020^{+0.250}_{-0.350}$	$1.377^{+0.500}_{-0.167}$	$1.357^{+0.199}_{-0.199}$	$0.731^{+0.284}_{-0.389}$
	+3%/-4%	+2%/-5%	+1250%/-1750%	+36%/-12%	+15%/-15%	+39%/-53%
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 008390631-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-60 ± 13	$1.37^{+0.56}_{-0.50}$	3432^{+286}_{-190}	6356^{+1971}_{-1077}	$8.309^{+12.301}_{-4.498}$
Alt.	-147 ± 36	$1.99^{+0.64}_{-0.53}$	3434^{+283}_{-194}	6608^{+1314}_{-932}	$9.342^{+8.249}_{-4.206}$

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 $A_{obs} \gg 1.0$

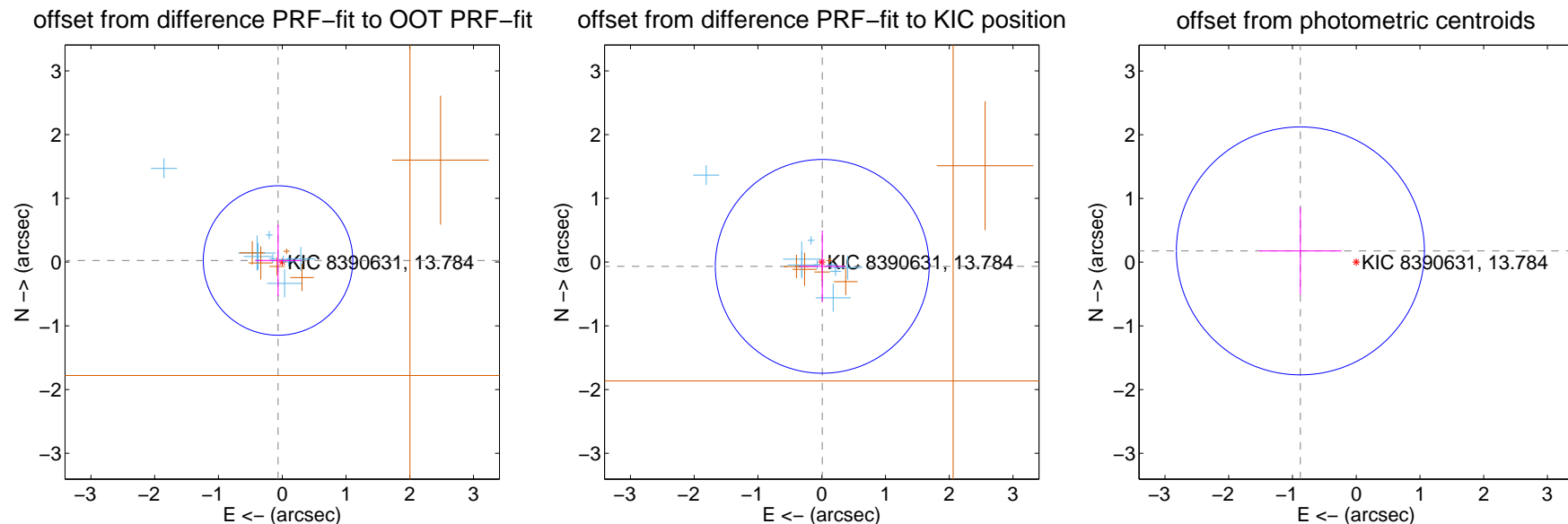
DV Centroid Data

Supplemental centroid analysis for 008390631-02. Kepler magnitude: 13.78. Transit SNR 4.92

There are 9 quarters with good PRF difference image offsets

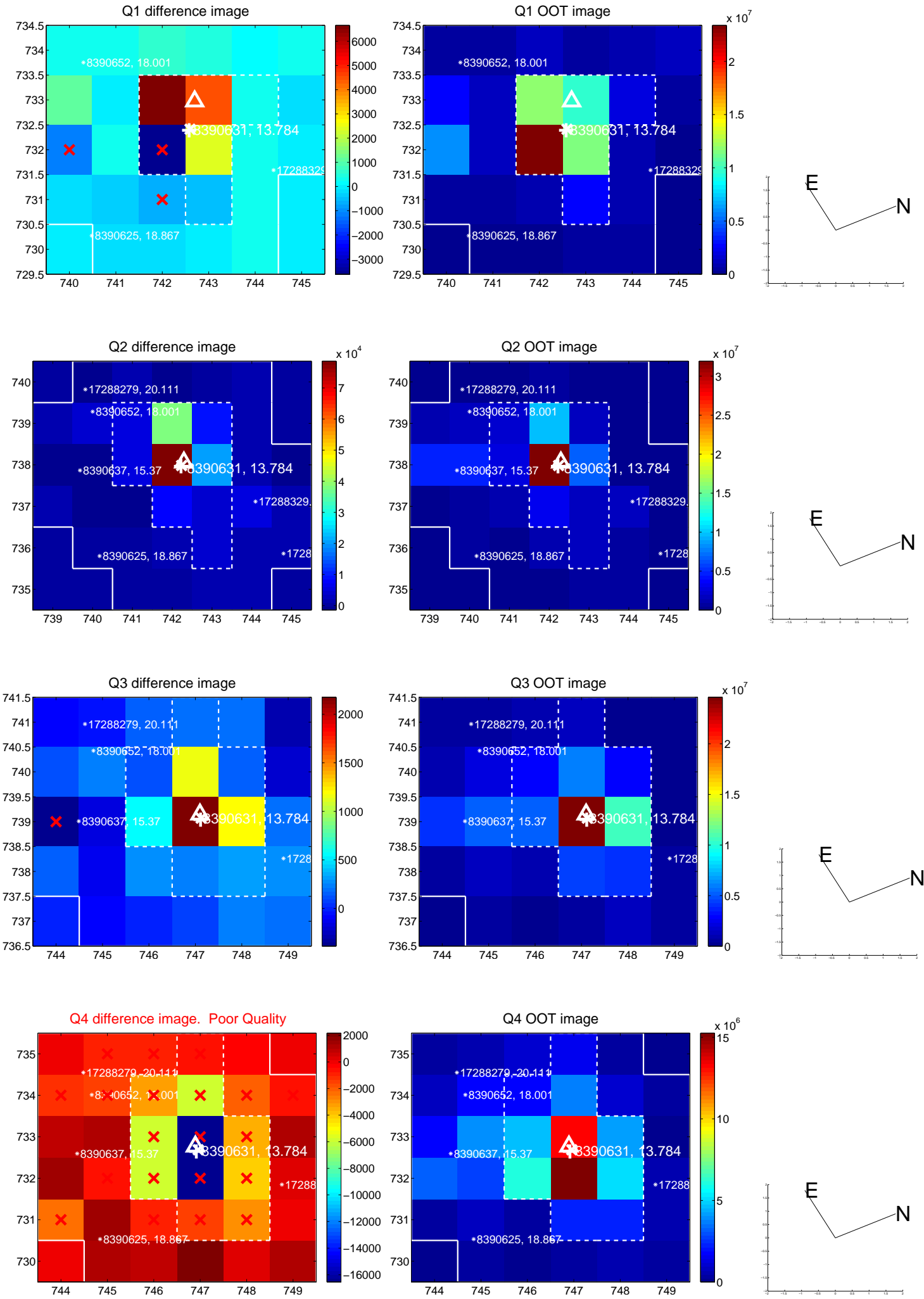
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.070 ± 0.391	0.18	0.066 ± 0.360	0.025 ± 0.562
PRF-fit source offset from KIC position	0.068 ± 0.559	0.12	-0.008 ± 0.360	-0.067 ± 0.562
photometric centroid source offset	0.89 ± 0.65	1.38	0.88 ± 0.65	0.18 ± 0.68

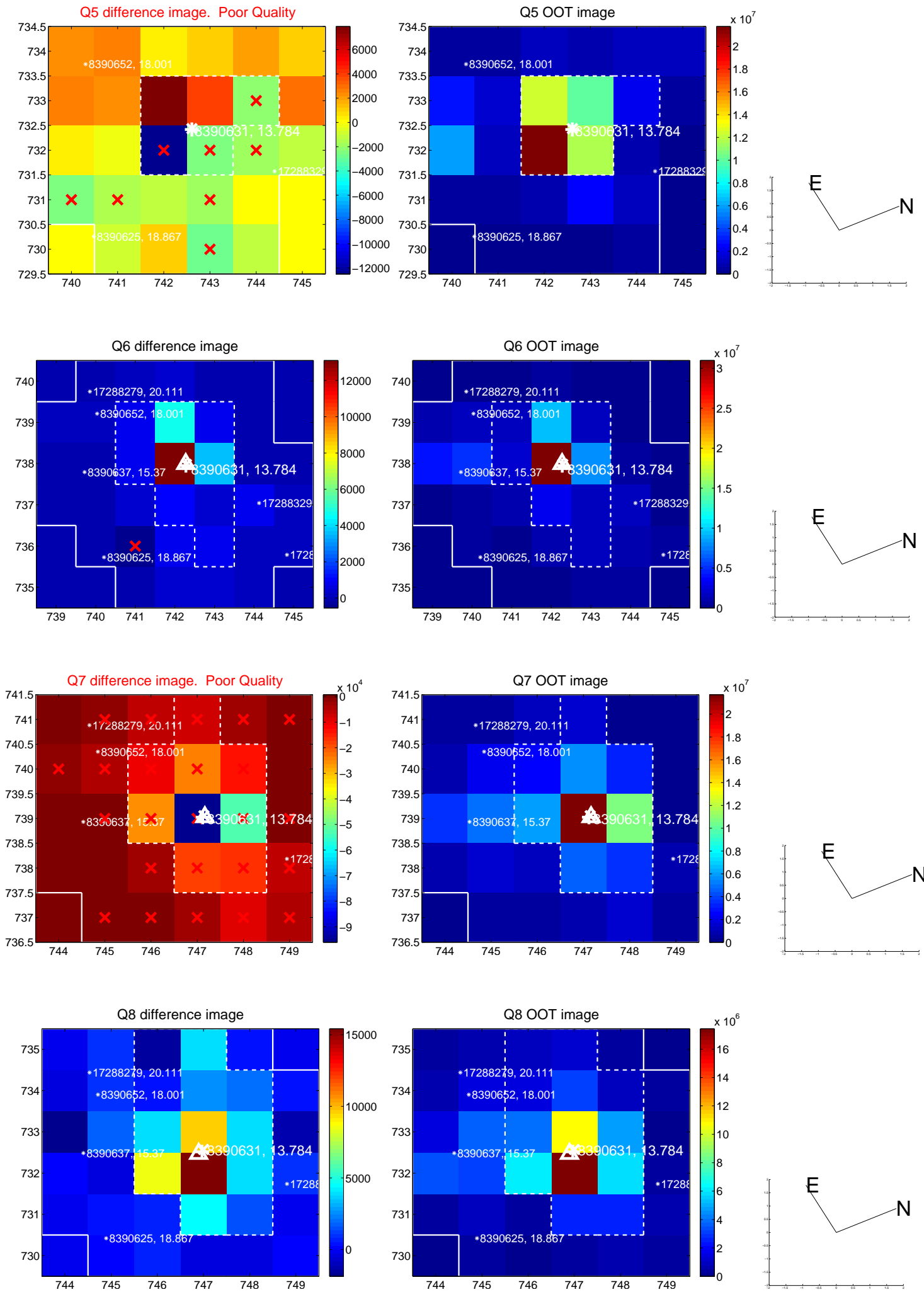


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

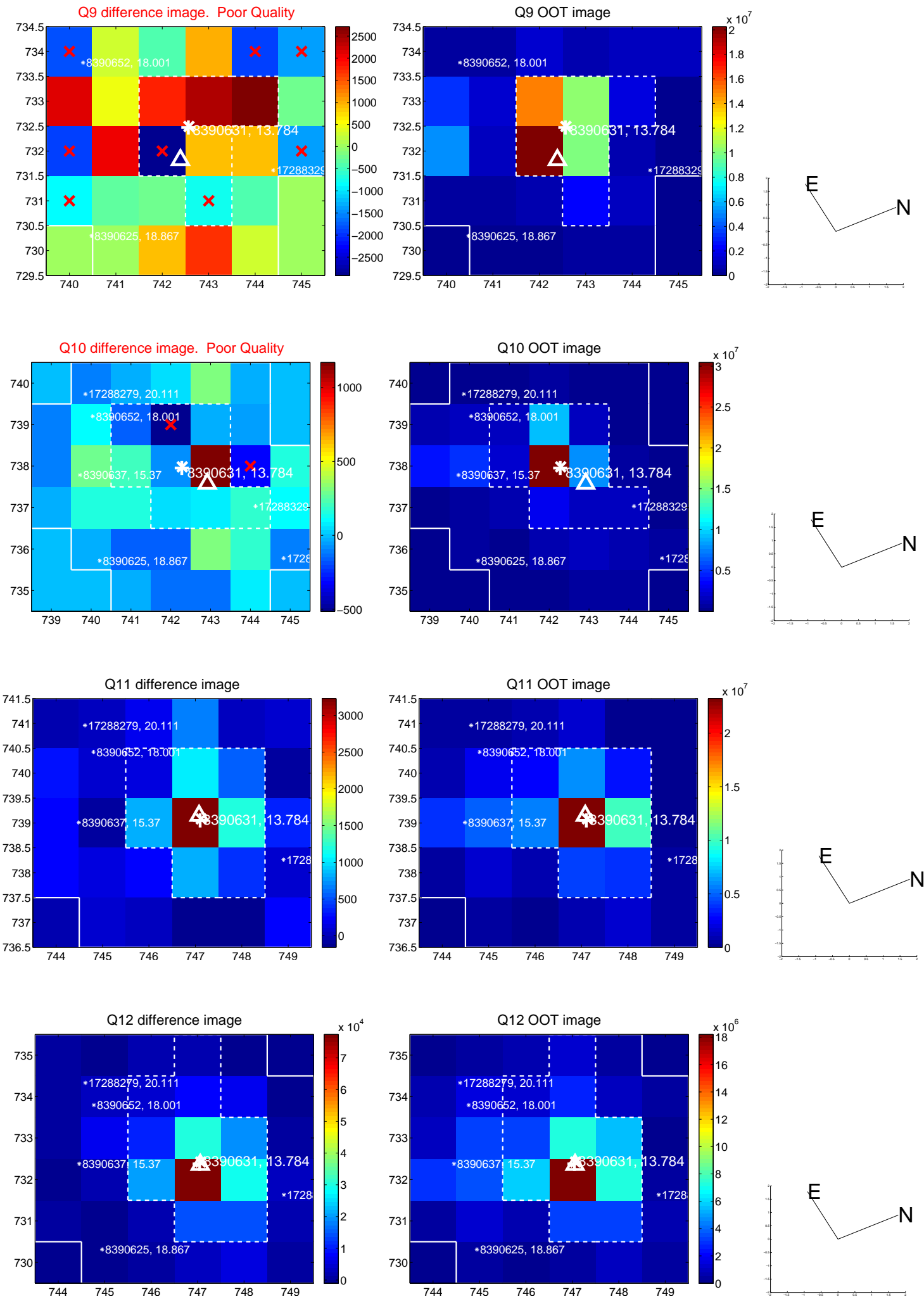
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



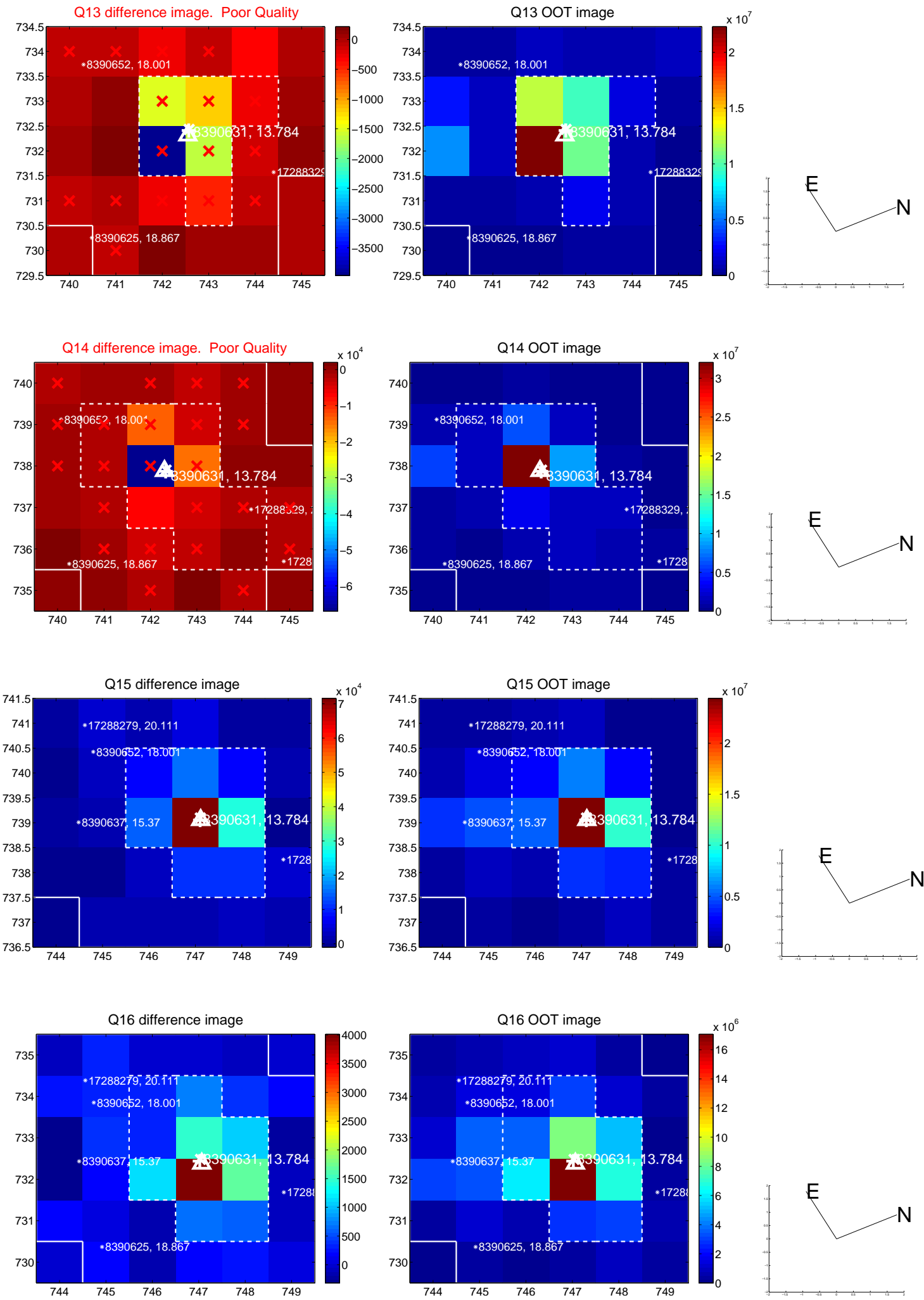
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



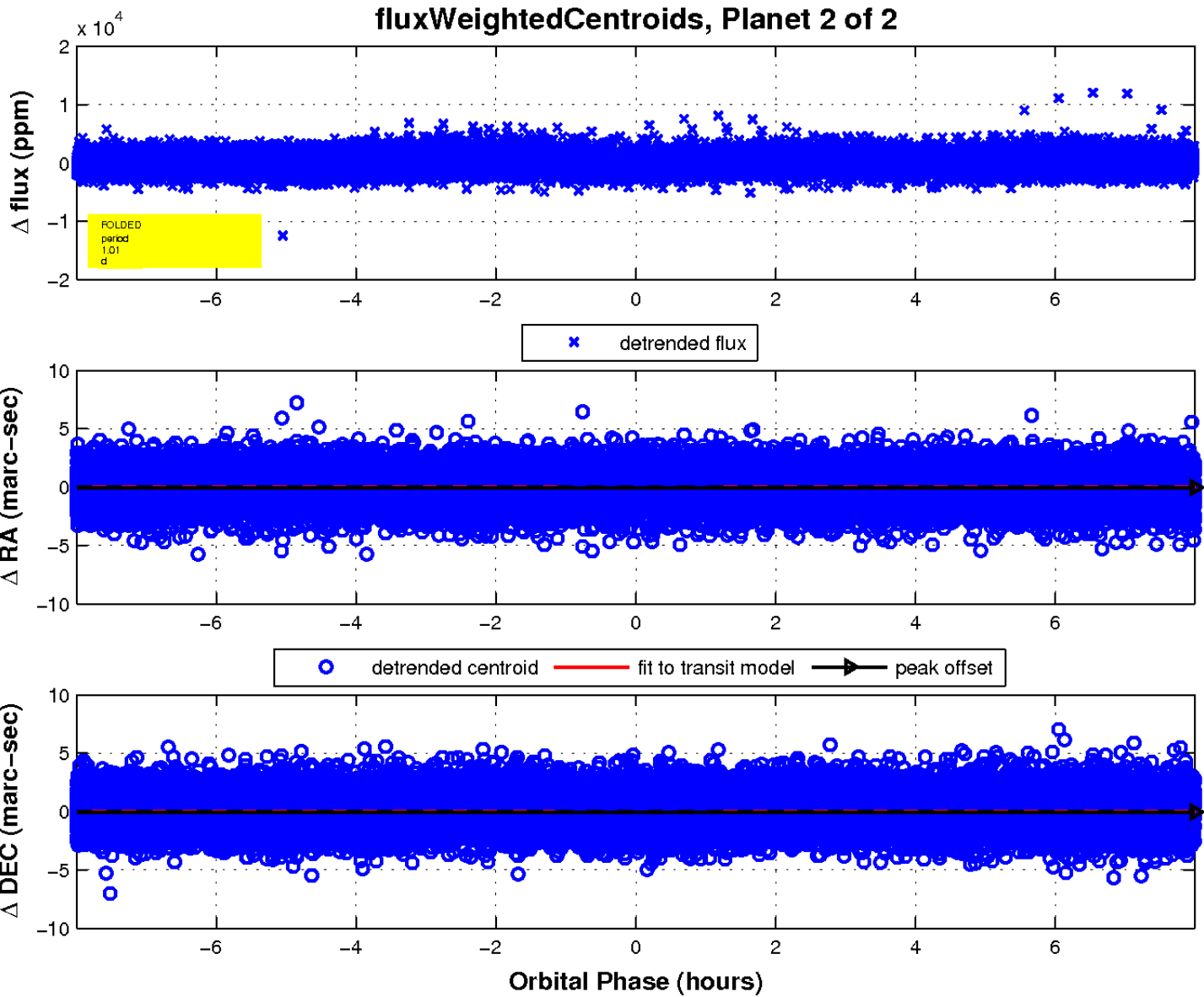
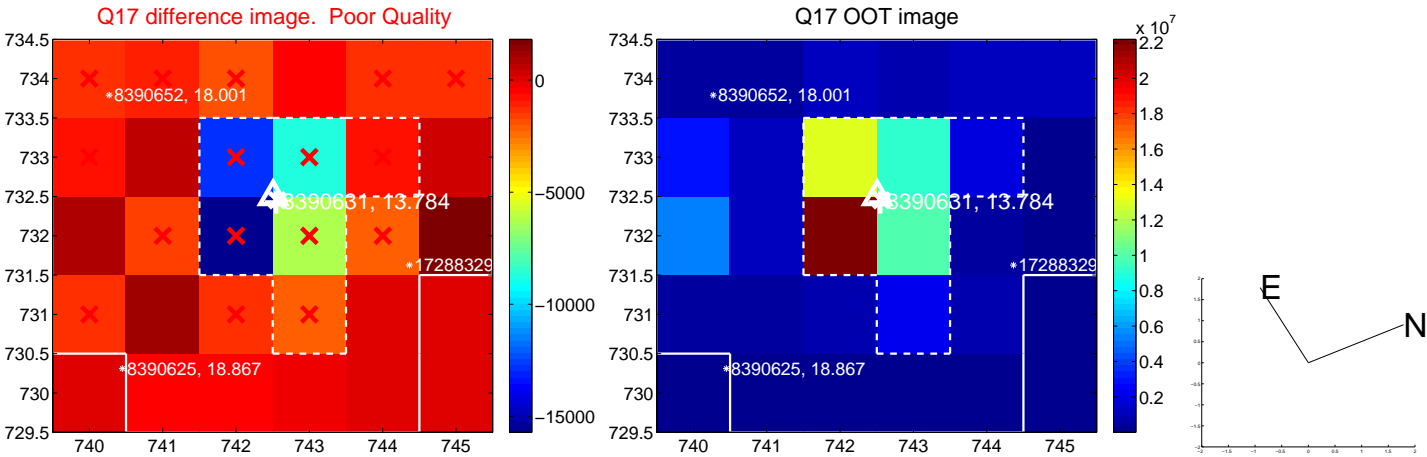
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

