

KIC 005078939

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})
005078939-01	OBS	2438.01	1.958574	132.262783	450.0	3.099	19.4	22.6	0.82	5402	2.38	581.19
005078939-02	OBS	No	0.979270	132.280746	179.0	2.071	8.2	9.0	0.82	5402	1.14	1464.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005078939-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
005078939-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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 005078939-01

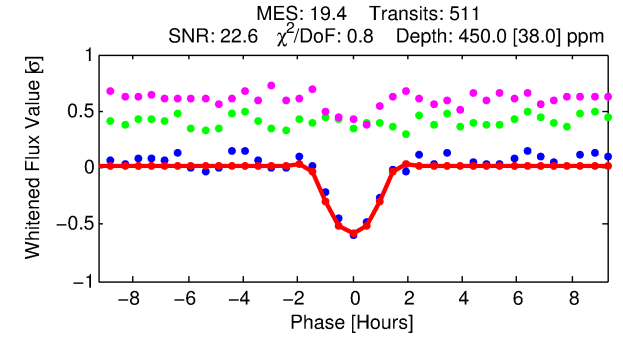
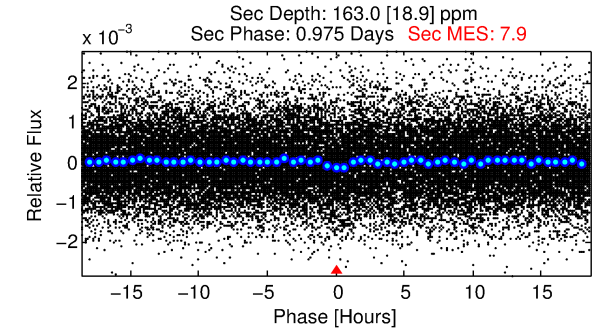
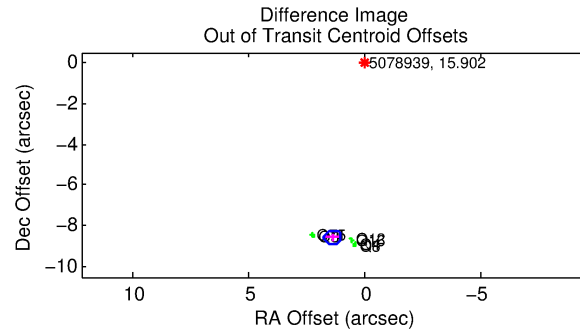
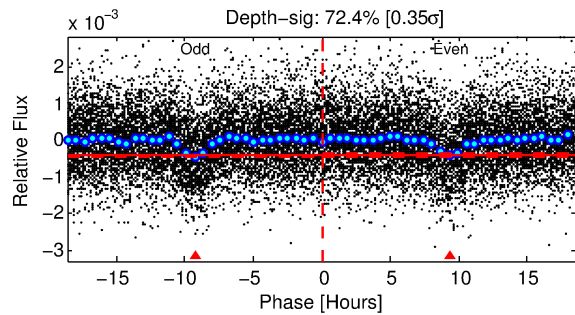
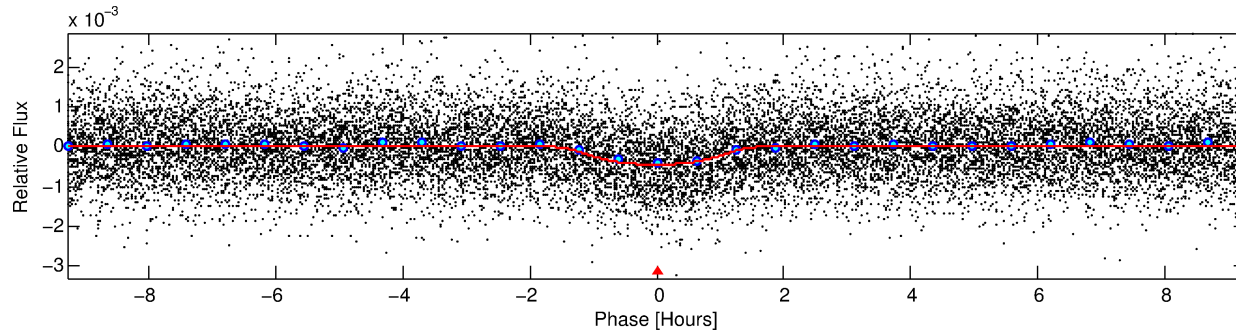
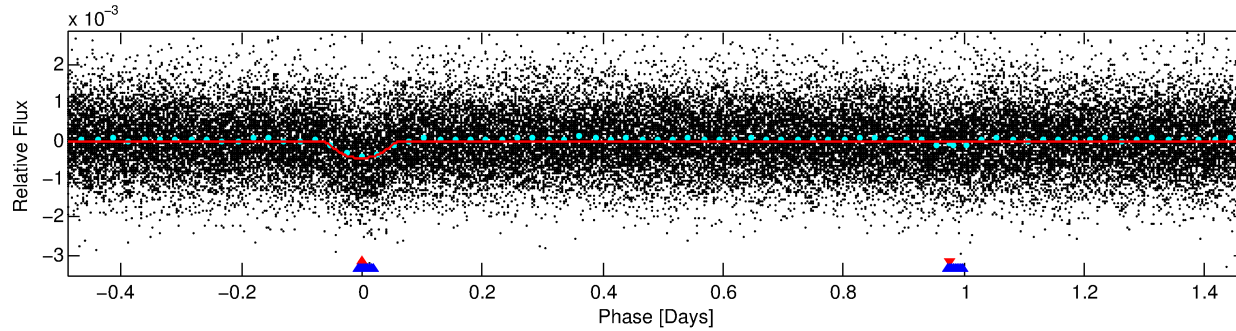
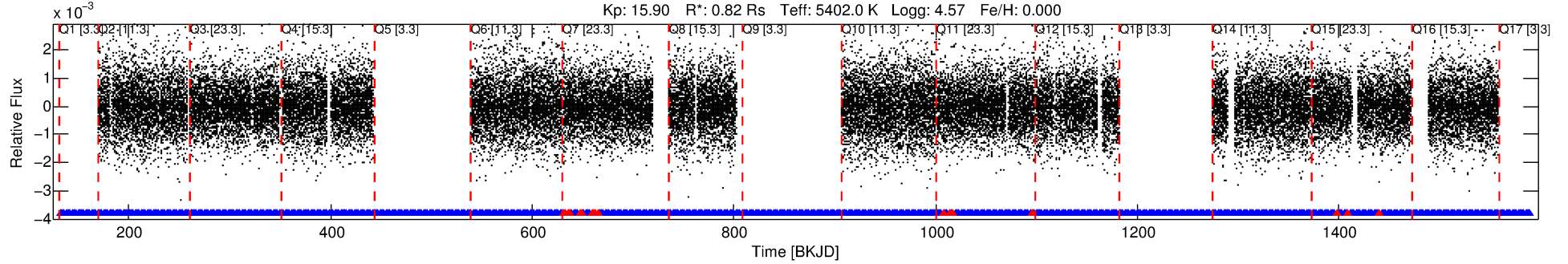
No Significant Match Found

DV One-Page Summary

KIC: 5078939 Candidate: 1 of 2 Period: 1.959 d

KOI: K02438.01 Corr: 0.888

Kp: 15.90 R*: 0.82 Rs Teff: 5402.0 K Logg: 4.57 Fe/H: 0.000



DV Fit Results:

Period = 1.95857 [0.00001] d
Epoch = 132.2628 [0.0022] BKJD
Rp/R* = 0.0267 [0.0017]
a/R* = 1.88 [0.15]
b = 0.97 [0.01]
Seff = 581.19 [164.21]
Teq = 1252 [88] K
Rp = 2.38 [0.52] Re
a = 0.0296 [0.0051] AU
Ag = 13.85 [4.23] [3.04σ]
Teff = 3734 [204] K [11.16σ]

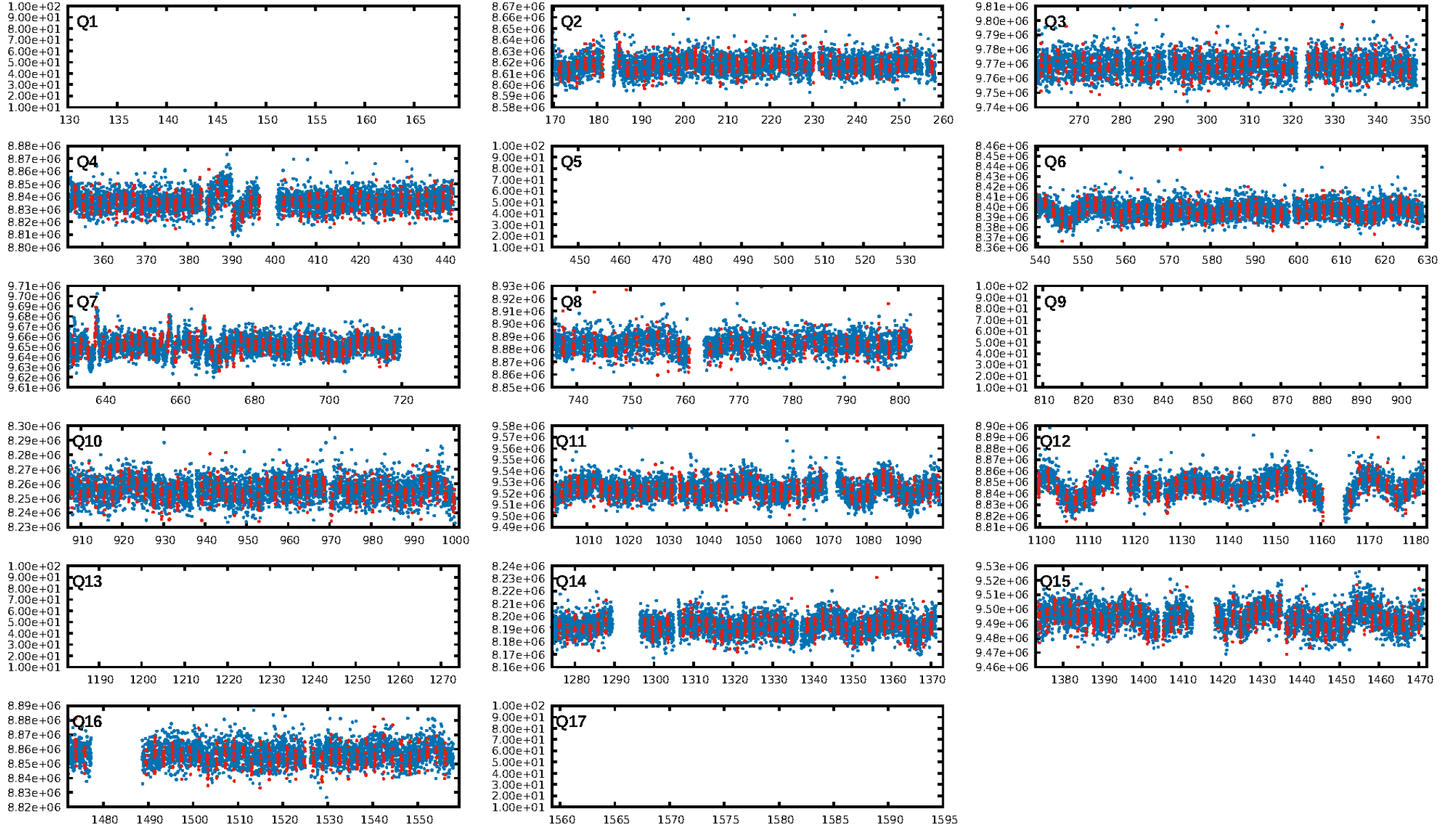
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.31σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 8.22e-78
RollingBand-fgt: 0.97 [494/511]
GhostDiagnostic-chr: -0.3881
Centroid-sig: 0.0%
Centroid-so: 22.997 arcsec [21.04σ]
OotOffset-rm: 8.680 arcsec [74.33σ]
KicOffset-rm: 8.707 arcsec [76.43σ]
OotOffset-st: 0/4/4/0 [8]
KicOffset-st: 0/4/4/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 0.00 [0/12]

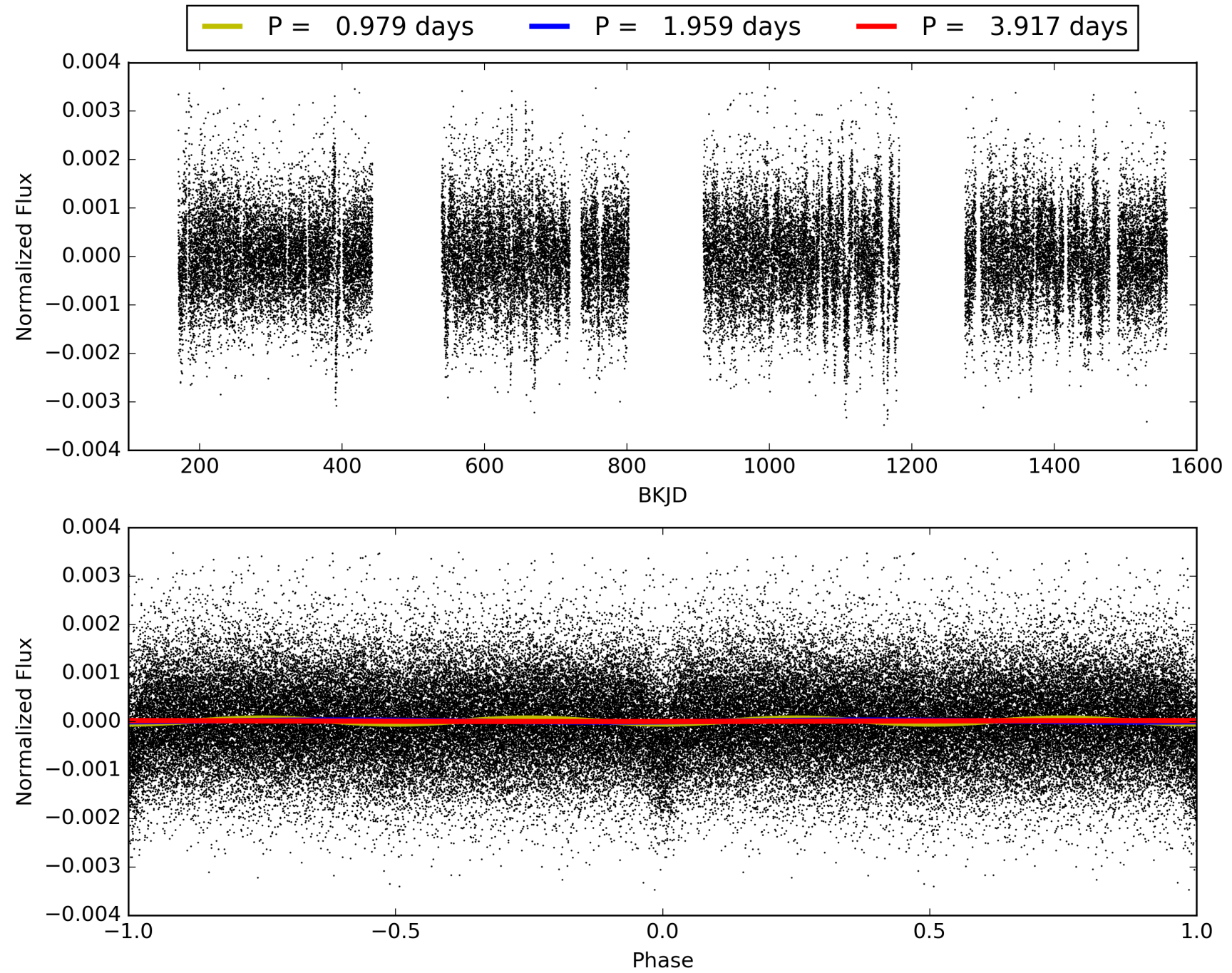
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:09:59 Z

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

TCE 005078939-01, PDC Light Curves

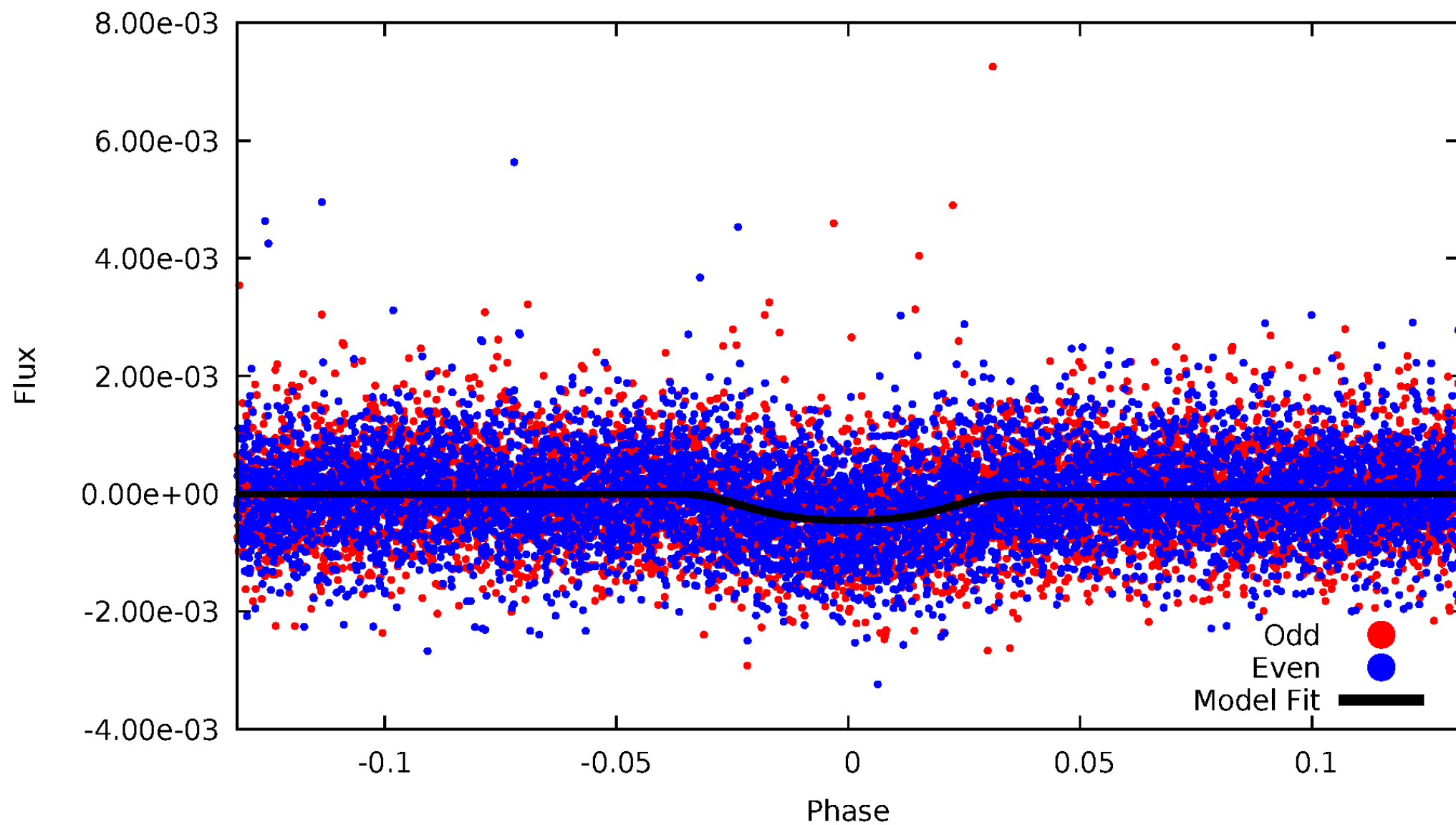


TCE 005078939-01



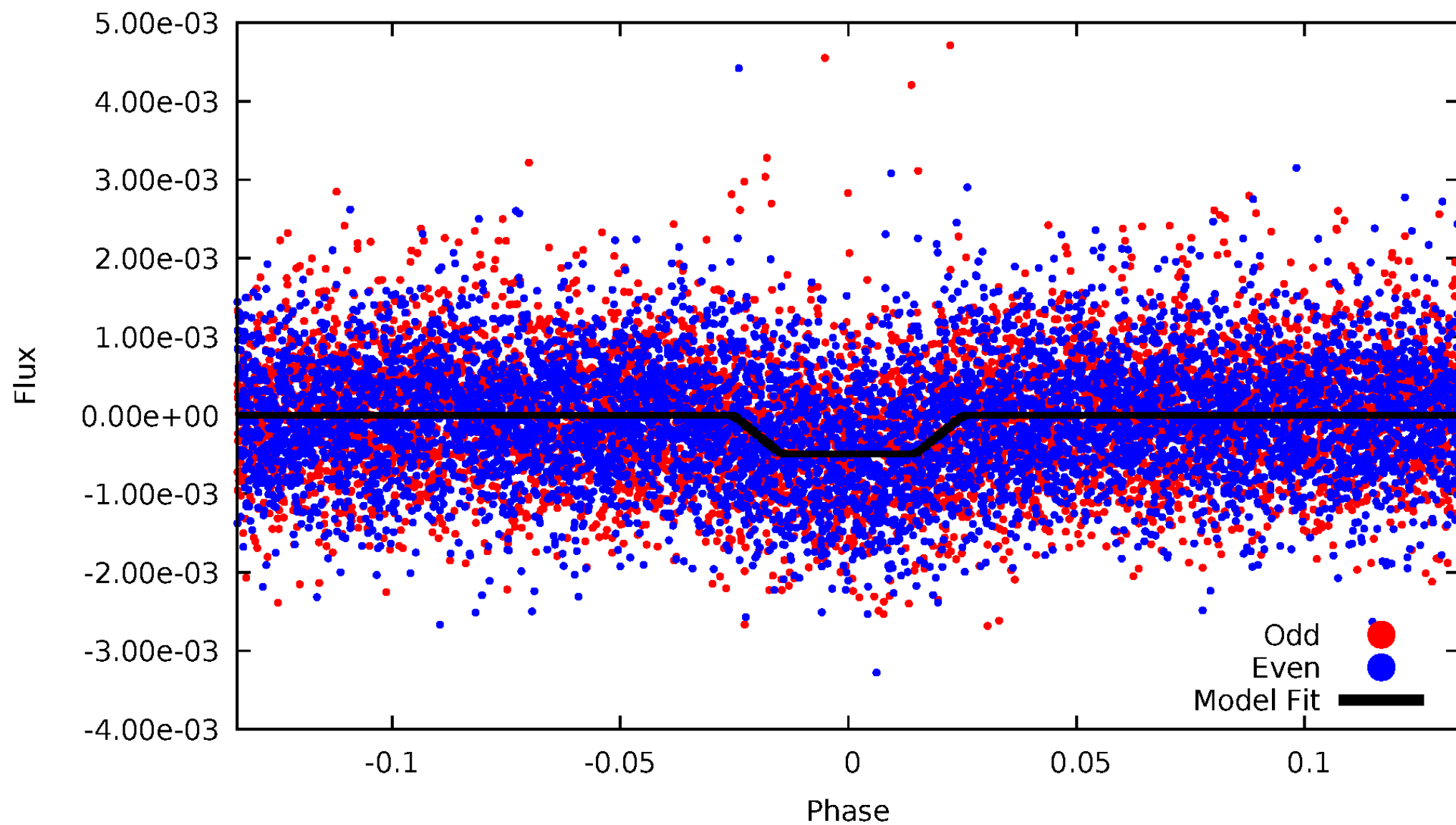
DV Odd/Even

TCE 005078939-01



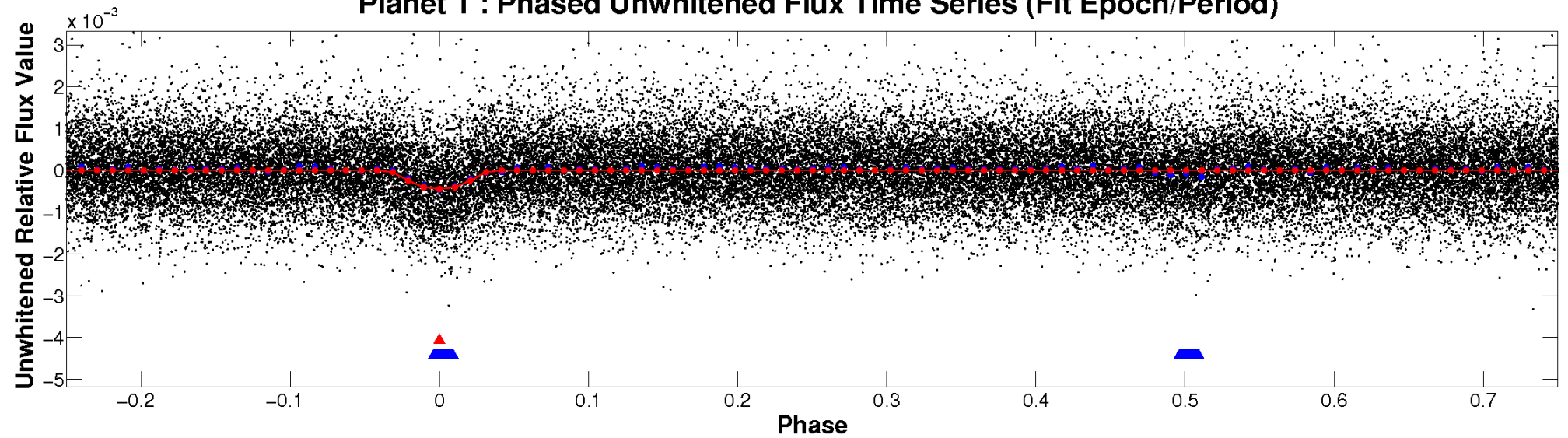
ALT Odd/Even

TCE 005078939-01

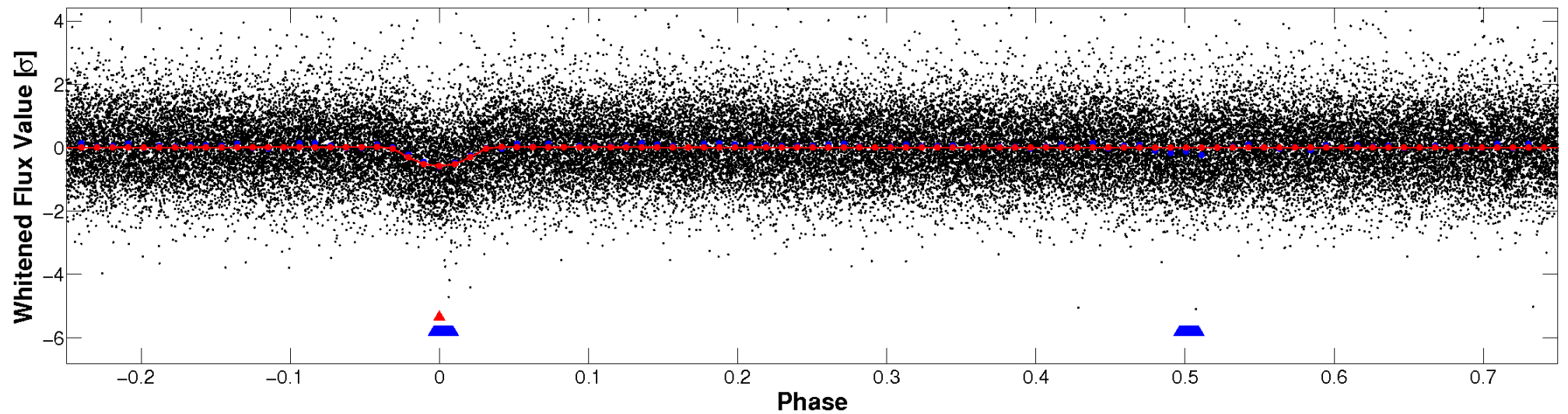


Non-Whitened Vs. Whitened Light Curve

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

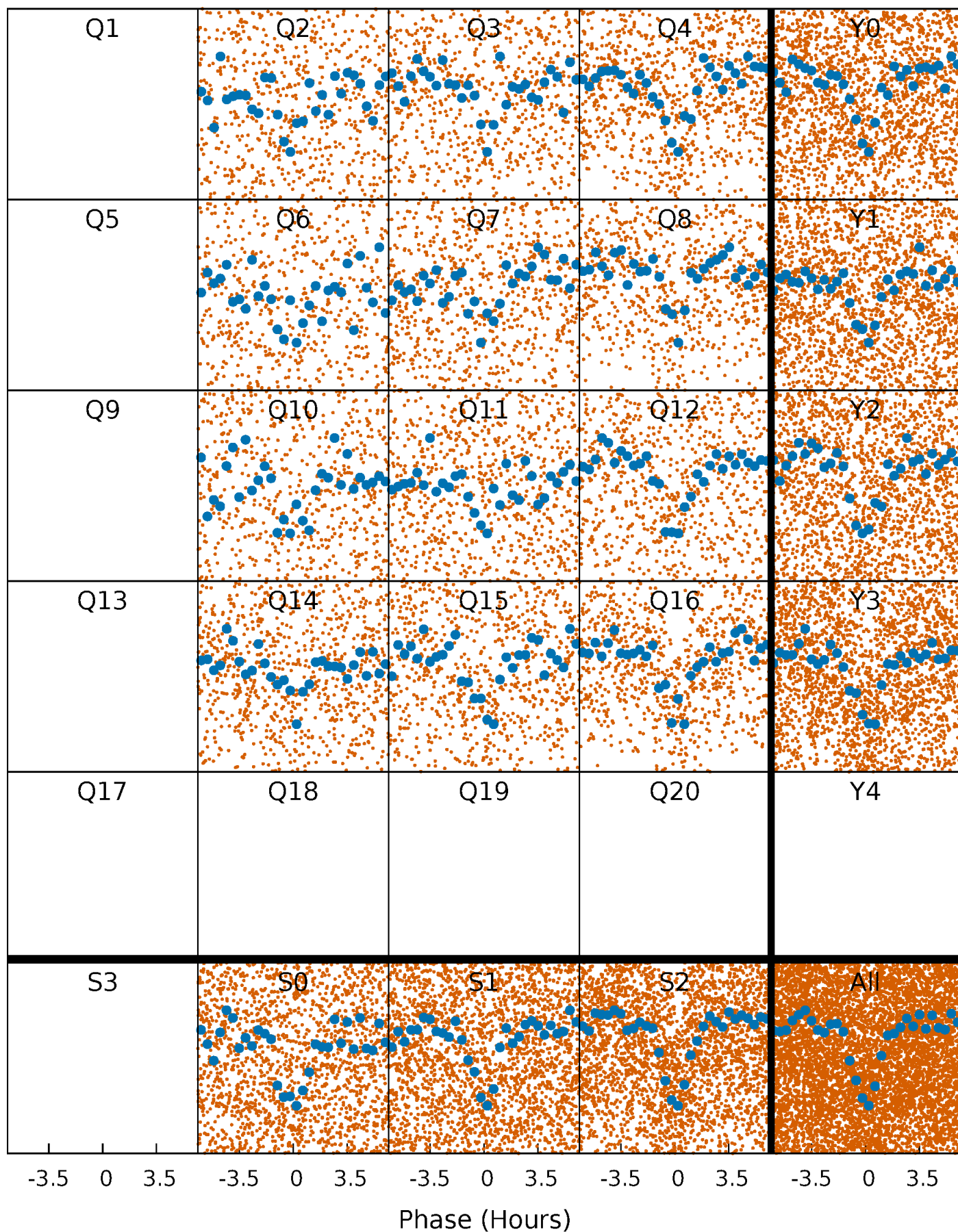


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



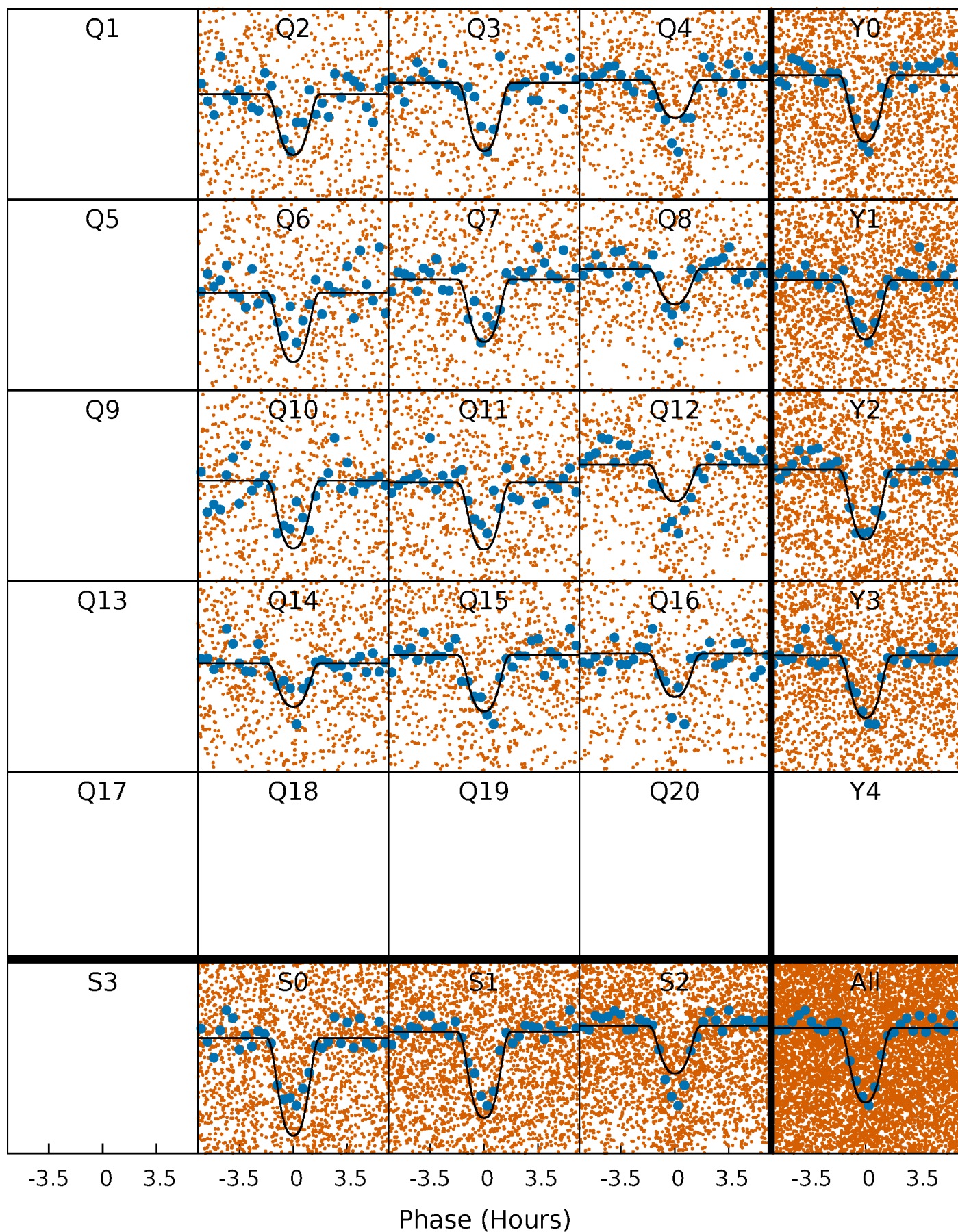
PDC Quarter-Phased Transit Curves

TCE 005078939-01 P= 1.958574 Days $T_0=132.262783$ (BKJD)



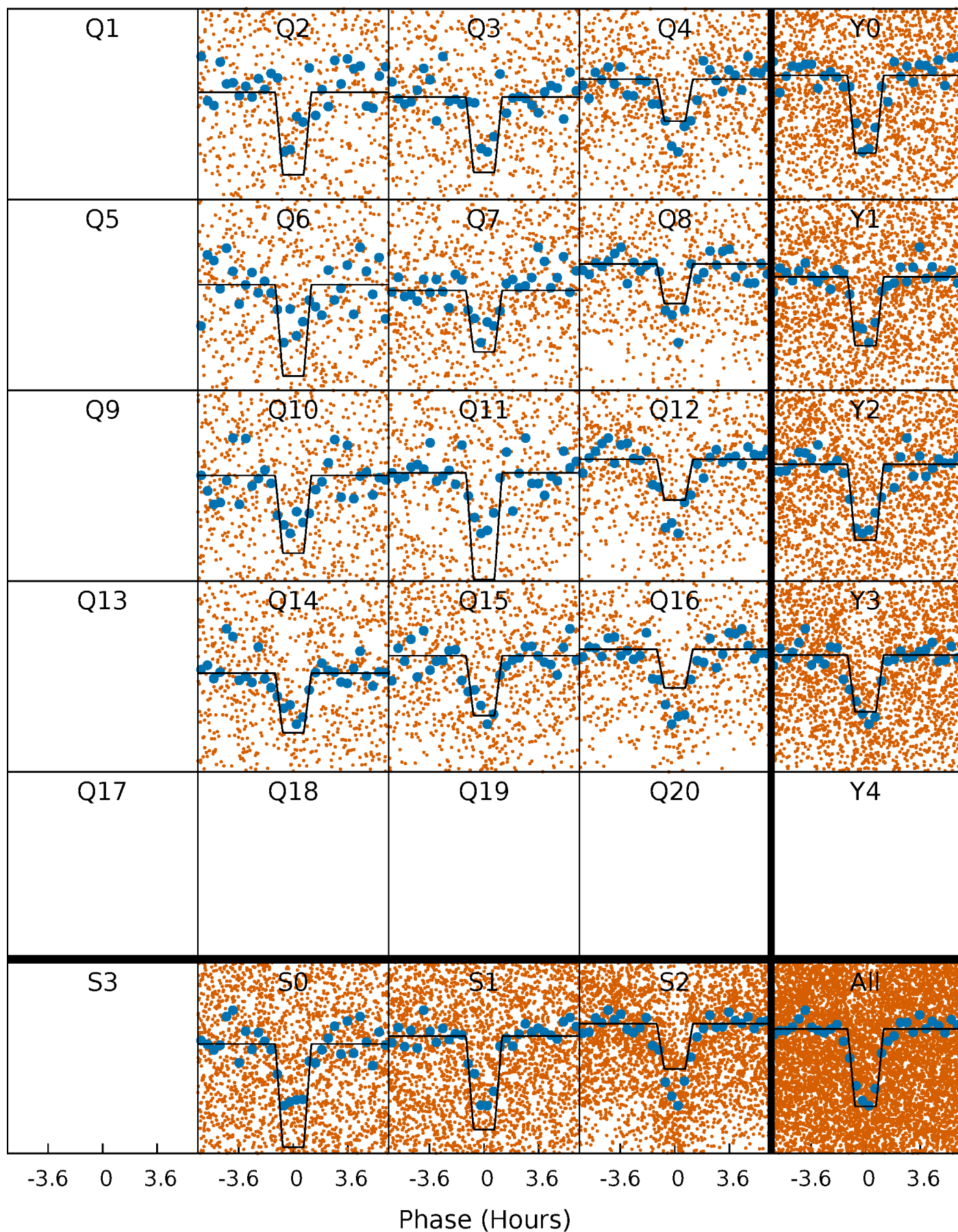
DV Quarter-Phased Transit Curves

TCE 005078939-01 P= 1.958574 Days $T_0=132.262783$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

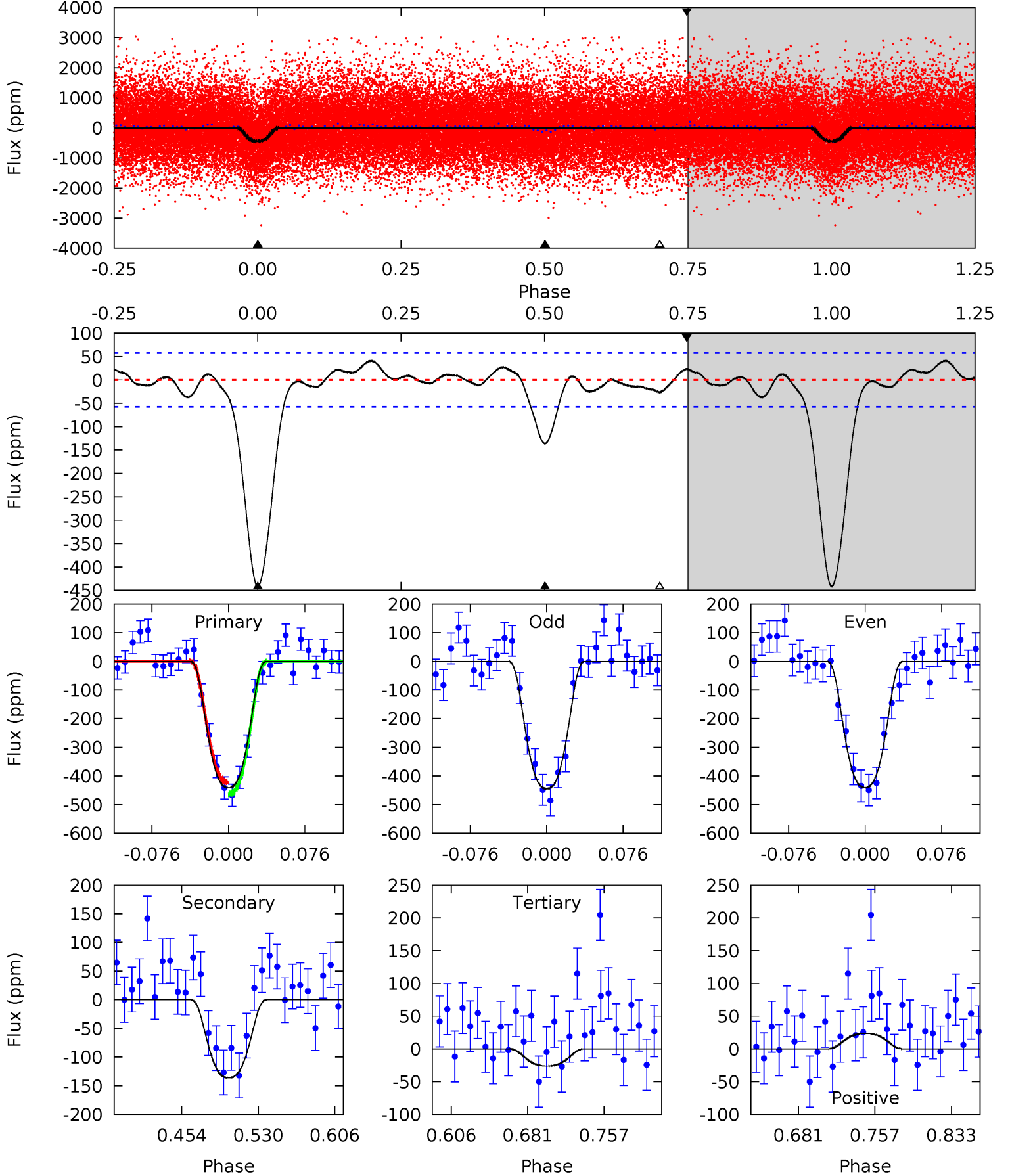
TCE 005078939-01 P= 1.958585 Days $T_0=132.259609$ (BKJD)



DV Model-Shift Uniqueness Test

005078939-01, P = 1.958574 Days, E = 132.262783 Days

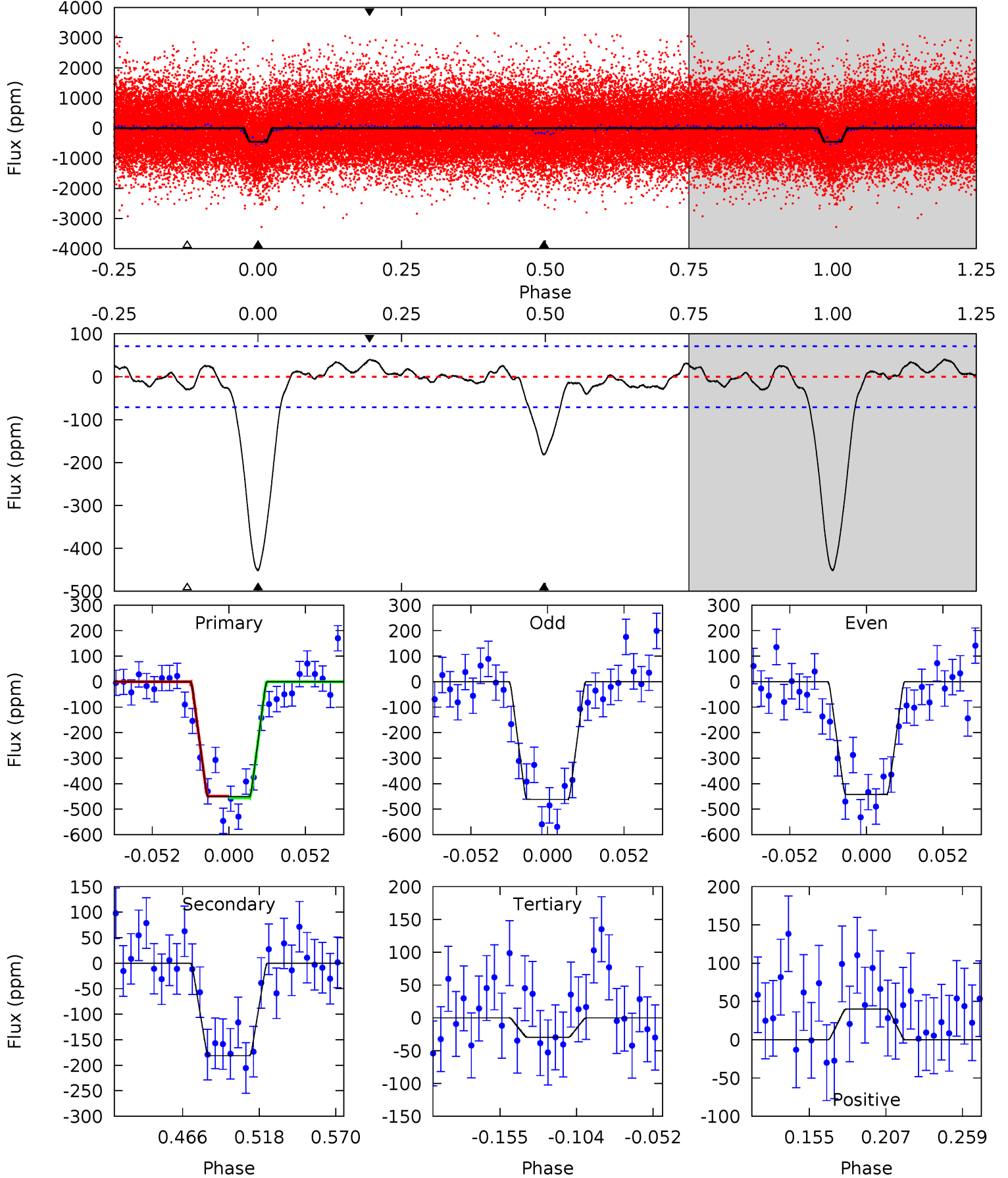
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.5	10.9	2.10	1.89	4.62	1.78	1.28	33.4	33.6	8.84	9.05	0.17	0.96	0.08	1.59



Alt Model-Shift Uniqueness Test

005078939-01, P = 1.958585 Days, E = 132.259609 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.8	12.0	1.95	2.64	4.70	1.94	1.16	27.9	27.2	10.0	9.35	0.63	0.94	0.08	0.22



Stellar Parameters For KIC 005078939

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5402^{+177}_{-160}	$4.568^{+0.034}_{-0.136}$	$0.000^{+0.250}_{-0.300}$	$0.816^{+0.169}_{-0.060}$	$0.901^{+0.081}_{-0.099}$	$2.334^{+0.426}_{-0.925}$
	+3%/-3%	+1%/-3%	+inf%/-inf%	+21%/-7%	+9%/-11%	+18%/-40%
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 005078939-01 / KOI 2438.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-136 ± 12	$2.42^{+0.30}_{-0.20}$	1776^{+88}_{-70}	3882^{+153}_{-138}	11^{+2}_{-2}
Alt.	-181 ± 15	$2.04^{+0.25}_{-0.21}$	1781^{+95}_{-71}	4373^{+213}_{-172}	21^{+5}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

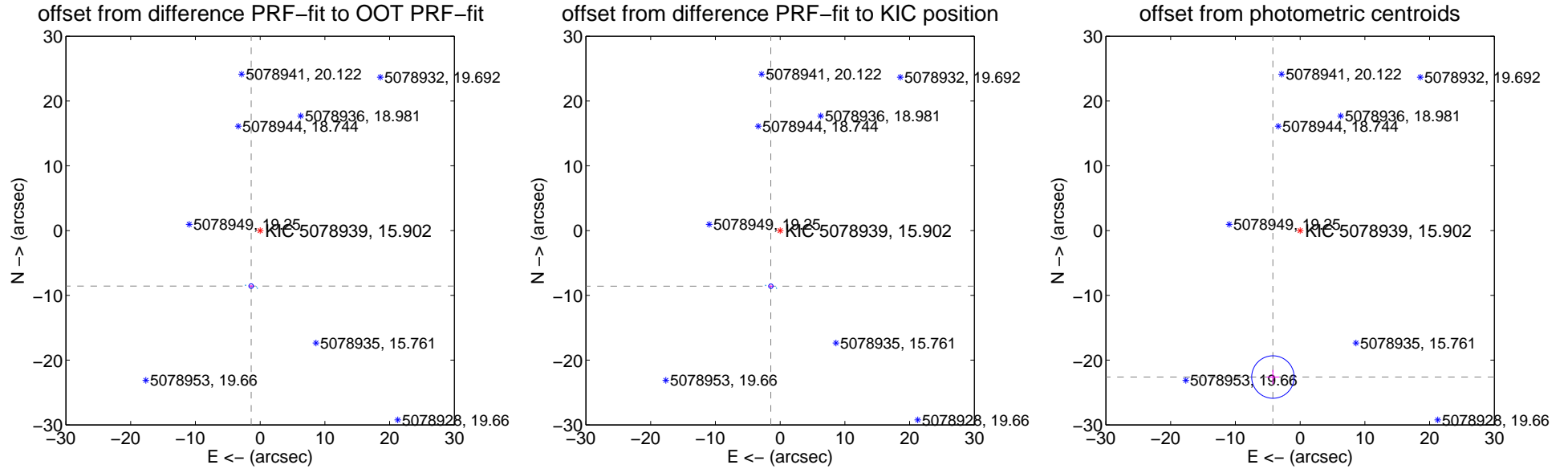
DV Centroid Data

Supplemental centroid analysis for 005078939-01. Kepler magnitude: 15.90. Transit SNR 22.56

There are 8 quarters with good PRF difference image offsets

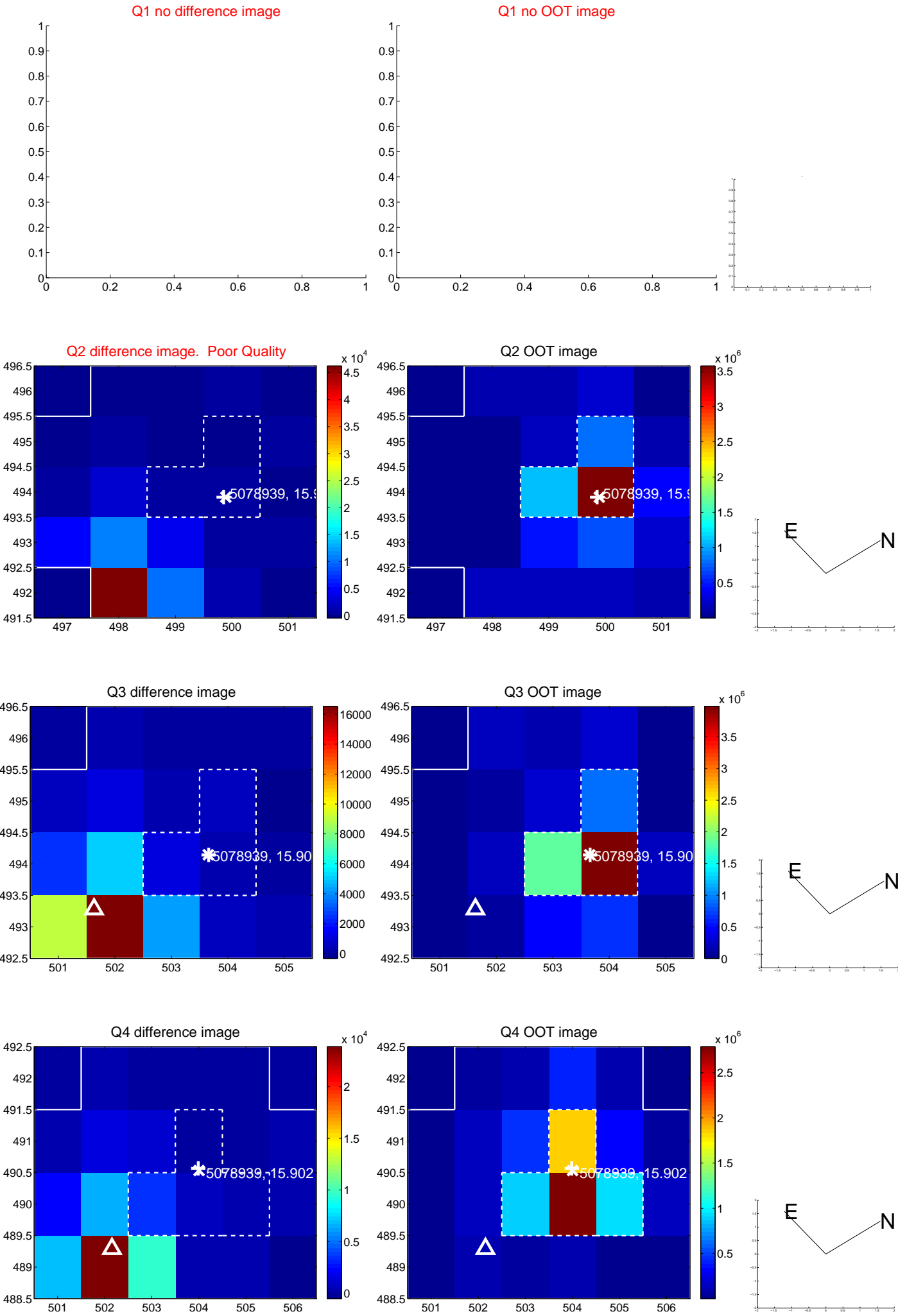
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.680 \pm 0.117	74.33	1.390 \pm 0.375	-8.568 \pm 0.101
PRF-fit source offset from KIC position	8.707 \pm 0.114	76.43	1.435 \pm 0.350	-8.588 \pm 0.100
photometric centroid source offset	23.00 \pm 1.09	21.04	4.20 \pm 0.96	-22.61 \pm 1.10

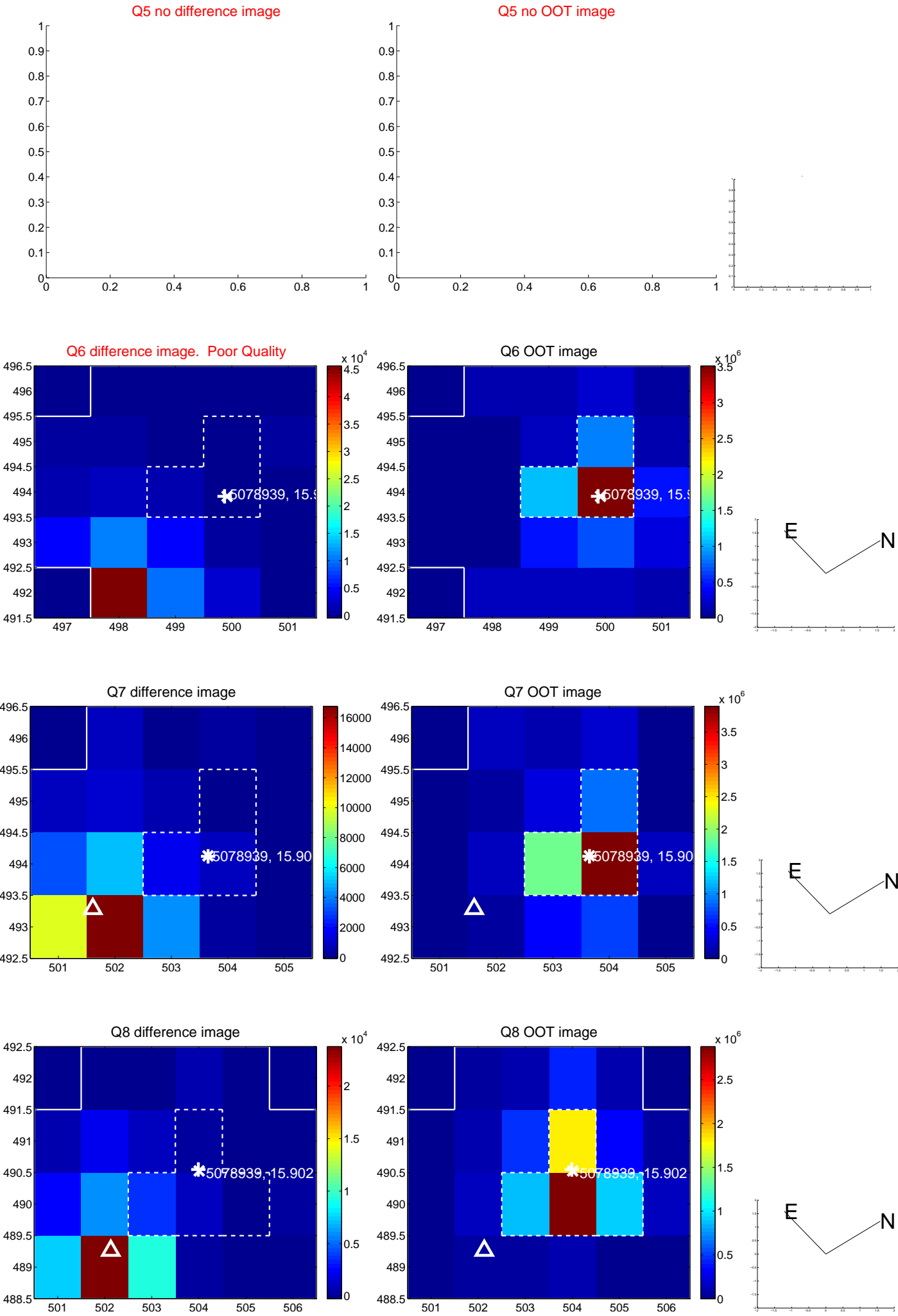


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

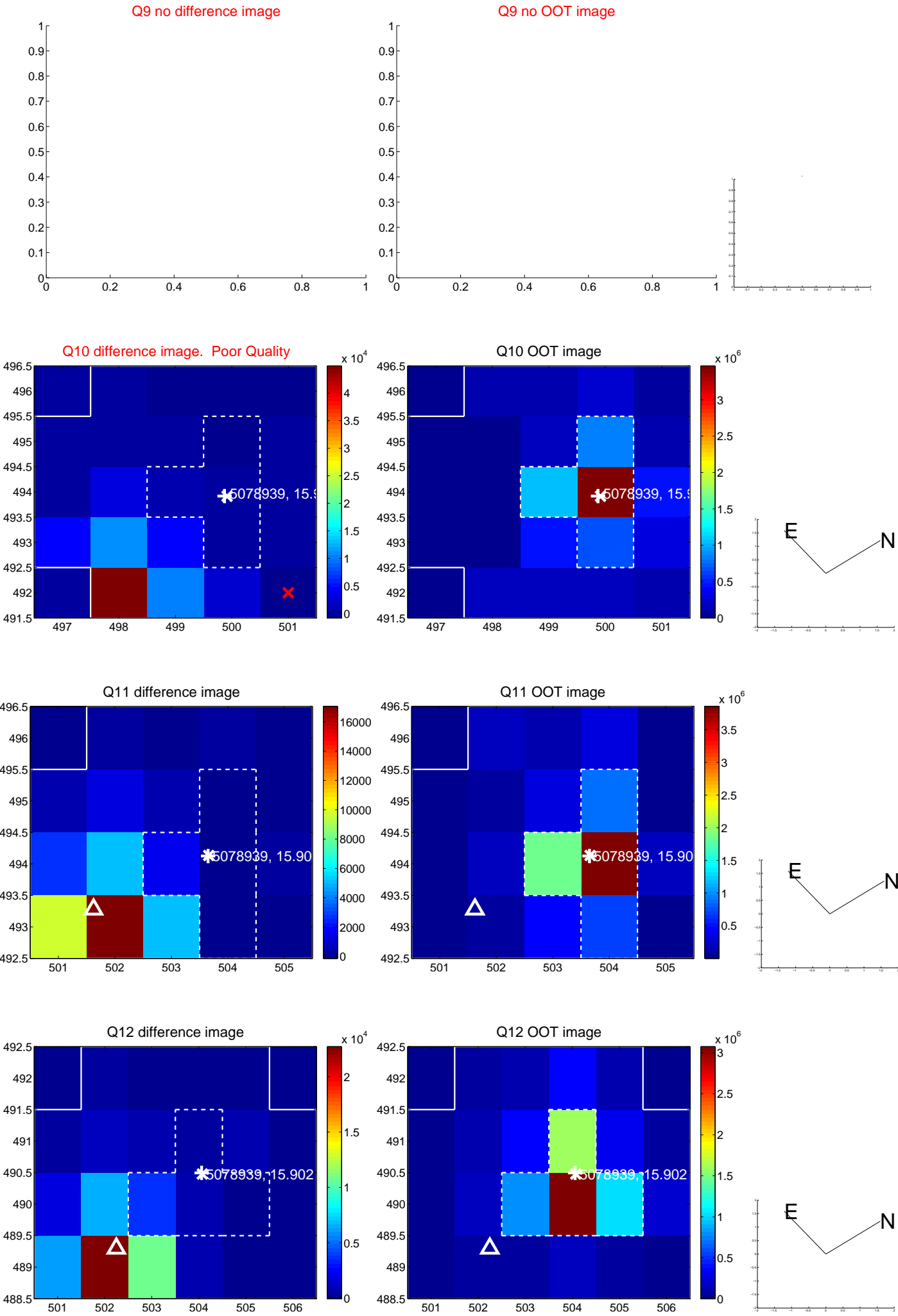
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



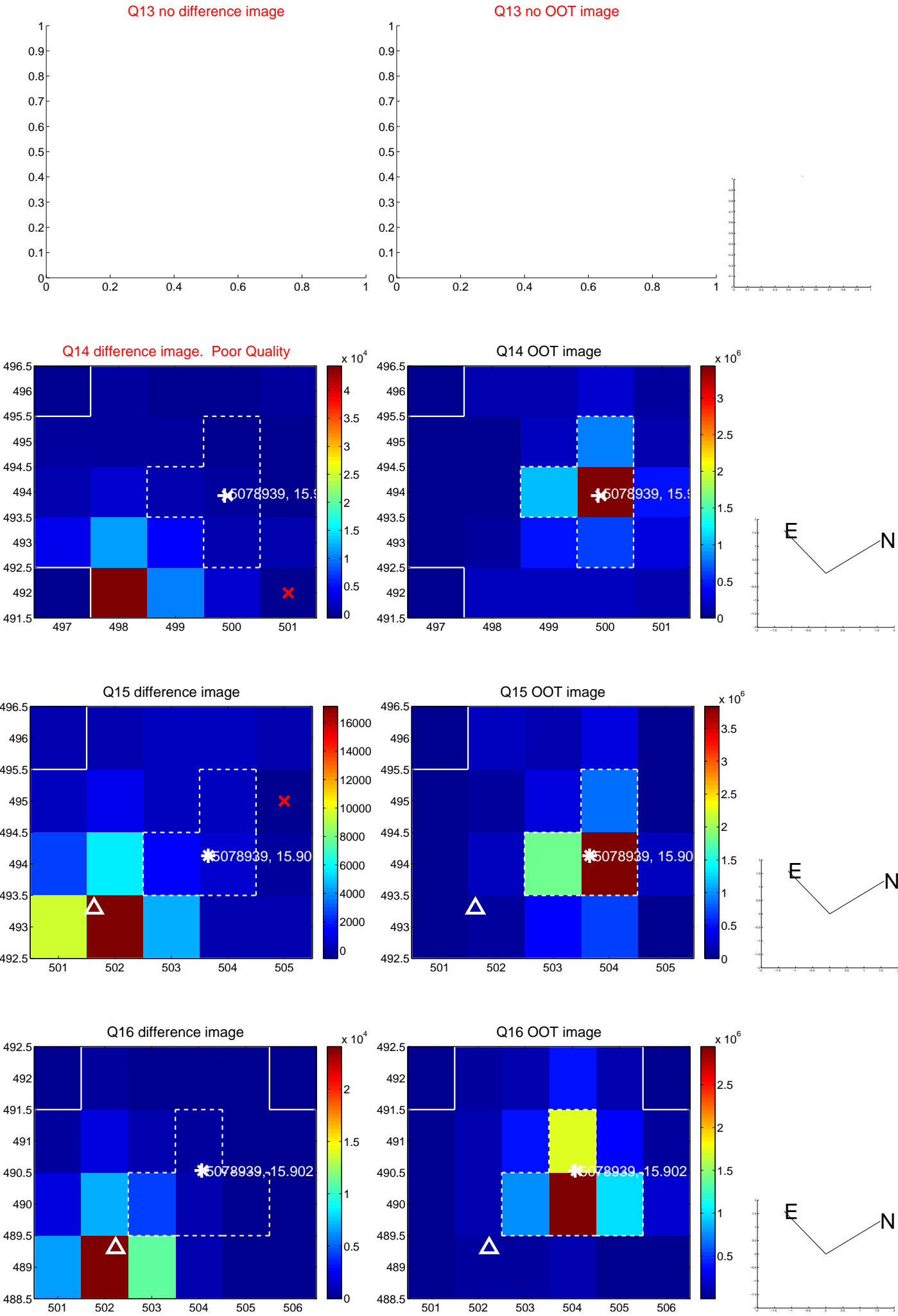
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



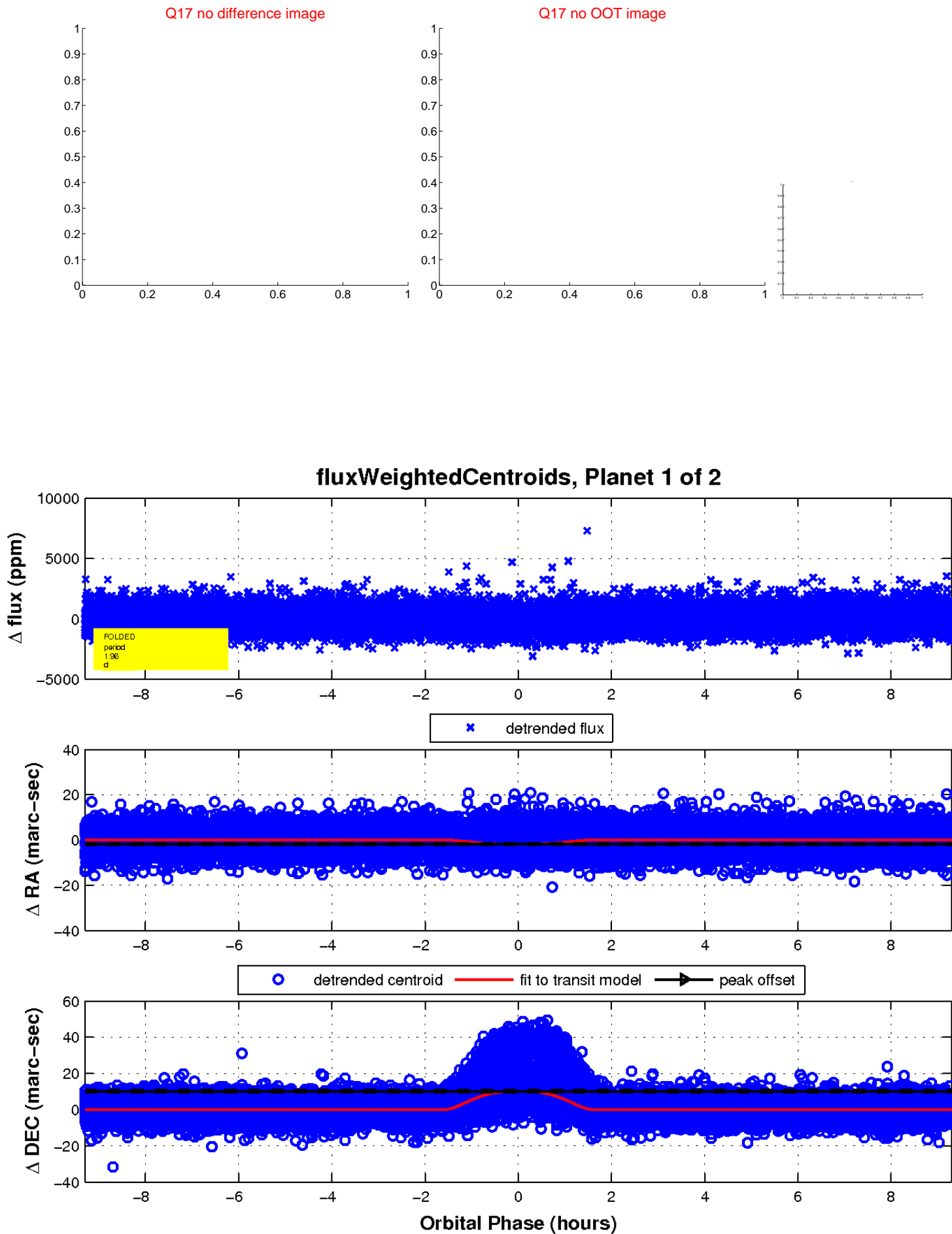
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



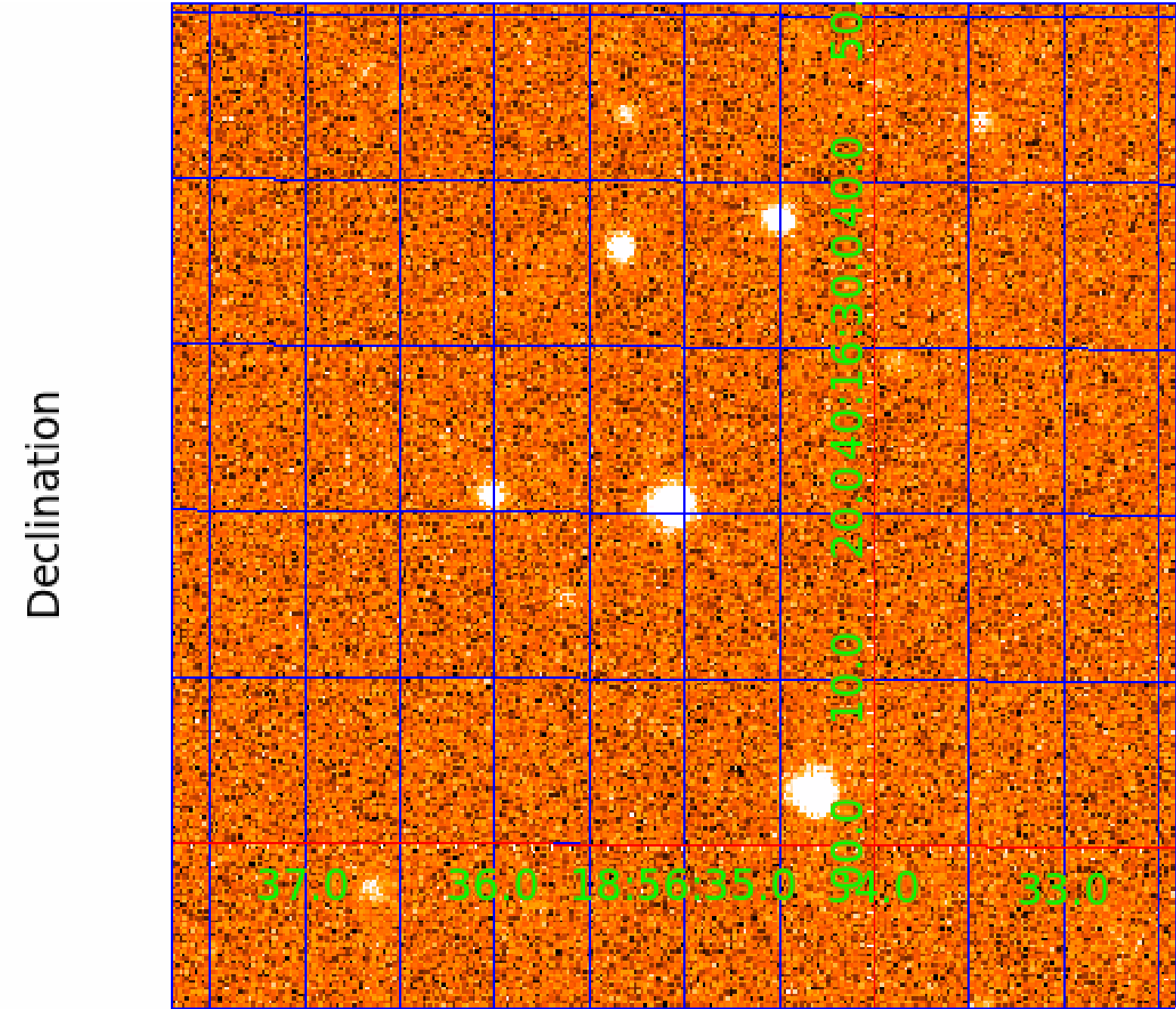
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005078939

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})
005078939-01	OBS	2438.01	1.958574	132.262783	450.0	3.099	19.4	22.6	0.82	5402	2.38	581.19
005078939-02	OBS	No	0.979270	132.280746	179.0	2.071	8.2	9.0	0.82	5402	1.14	1464.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005078939-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
005078939-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET

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.

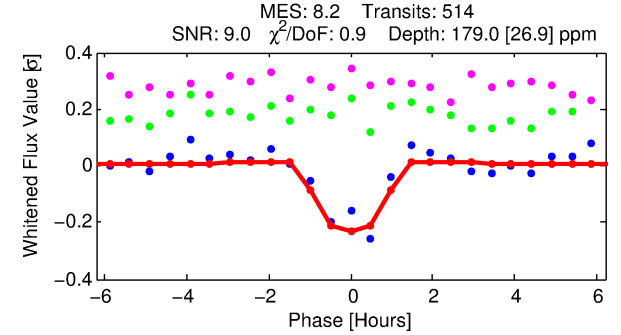
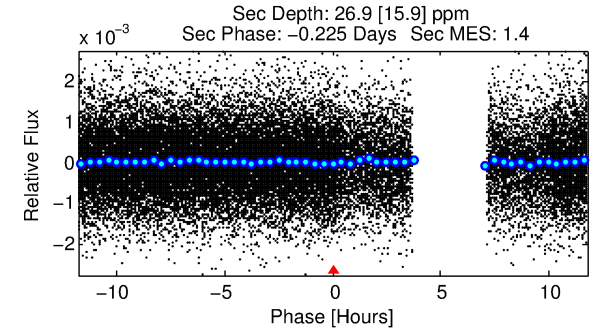
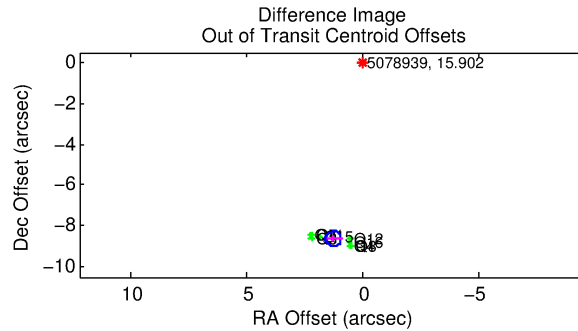
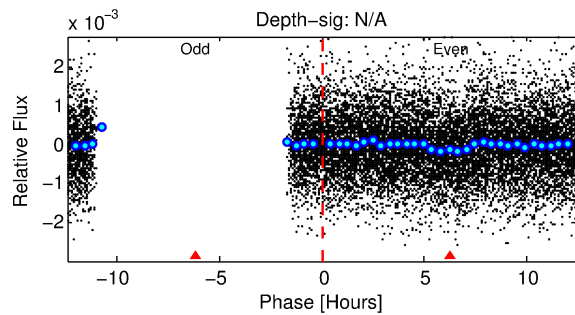
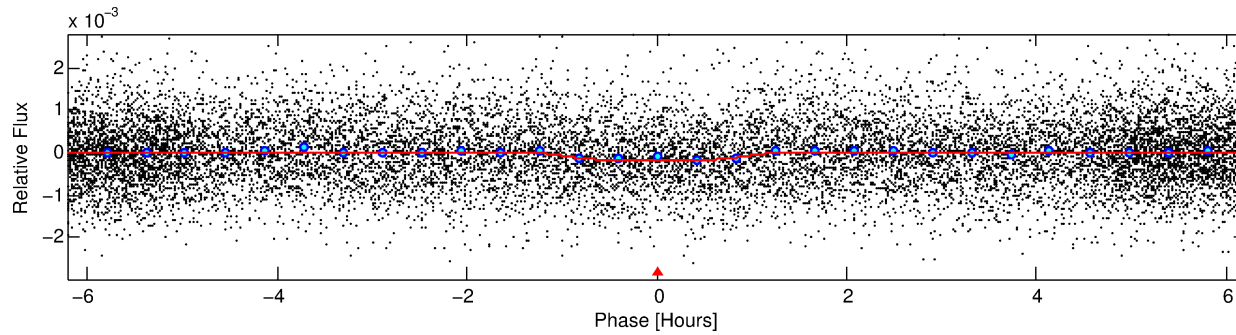
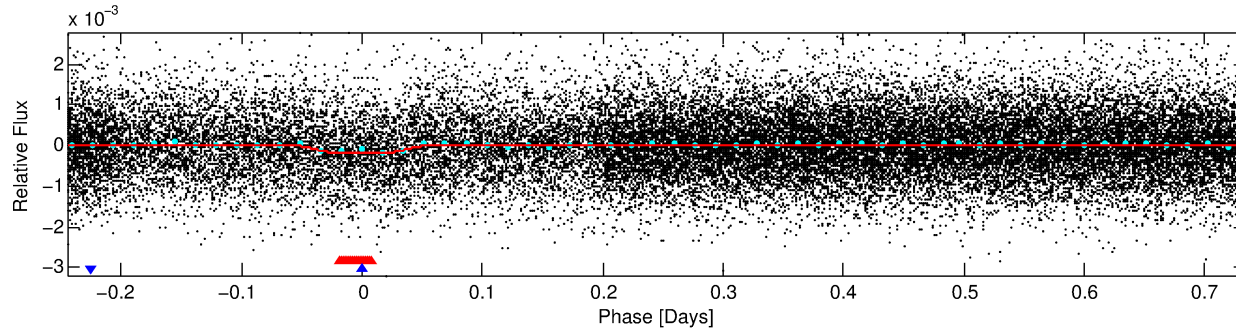
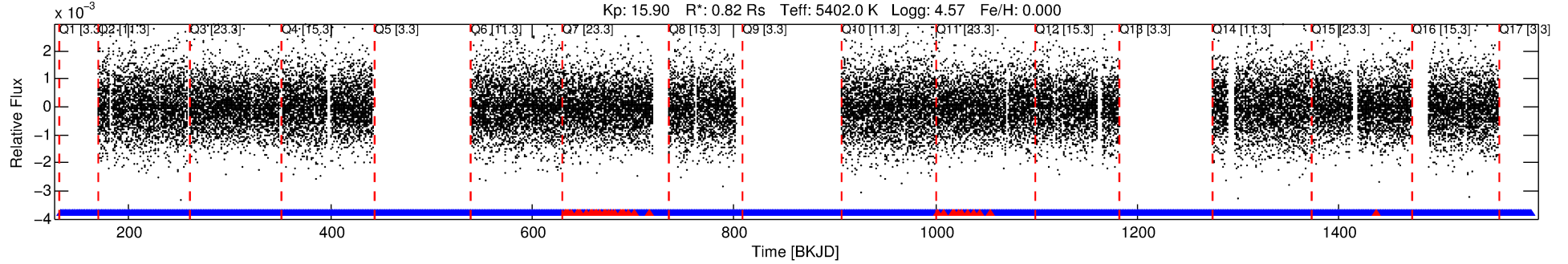
Ephemeris Match Information For 005078939-02

No Significant Match Found

DV One-Page Summary

KIC: 5078939 Candidate: 2 of 2 Period: 0.979 d
KOI: K02438 Corr: No Ephemeris Match

Kp: 15.90 R*: 0.82 Rs Teff: 5402.0 K Logg: 4.57 Fe/H: 0.000



DV Fit Results:

Period = 0.97927 [0.00001] d
Epoch = 132.2807 [0.0033] BKJD
Rp/R* = 0.0128 [0.0120]
a/R* = 2.99 [9.60]
b = 0.62 [3.62]
Seff = 1464.55 [413.78]
Teq = 1577 [111] K
Rp = 1.14 [1.10] Re
a = 0.0186 [0.0032] AU
Ag = 3.95 [7.84] [0.38σ]
Teffp = 3438 [1695] K [1.10σ]

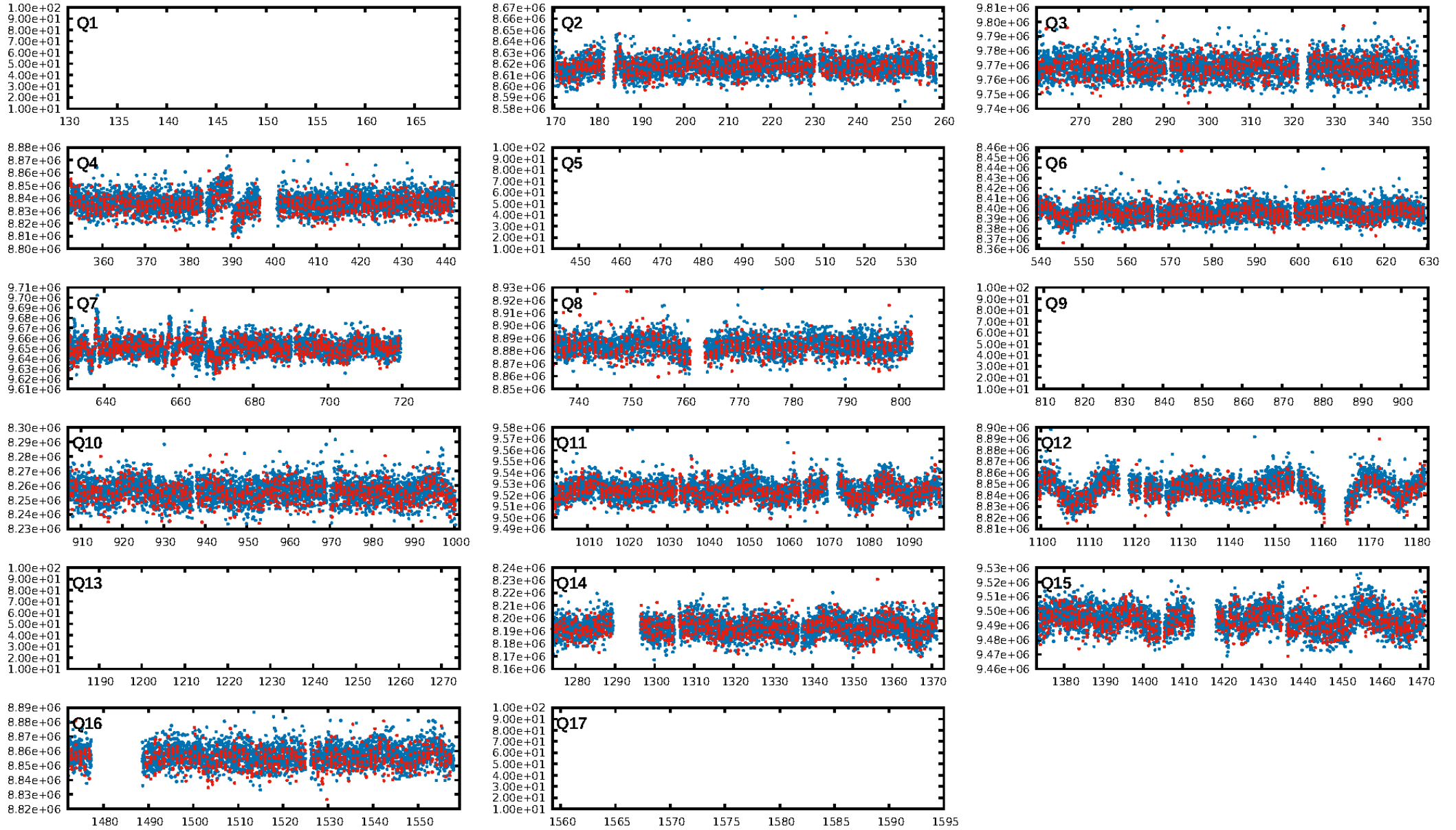
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.31σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.09e-16
RollingBand-fgt: 0.93 [479/514]
GhostDiagnostic-chr: 61.72
Centroid-sig: 0.0%
Centroid-so: 12.116 arcsec [6.28σ]
OotOffset-rm: 8.726 arcsec [74.68σ]
KicOffset-rm: 8.754 arcsec [77.06σ]
OotOffset-st: 0/4/4/0 [8]
KicOffset-st: 0/4/4/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [12/12]

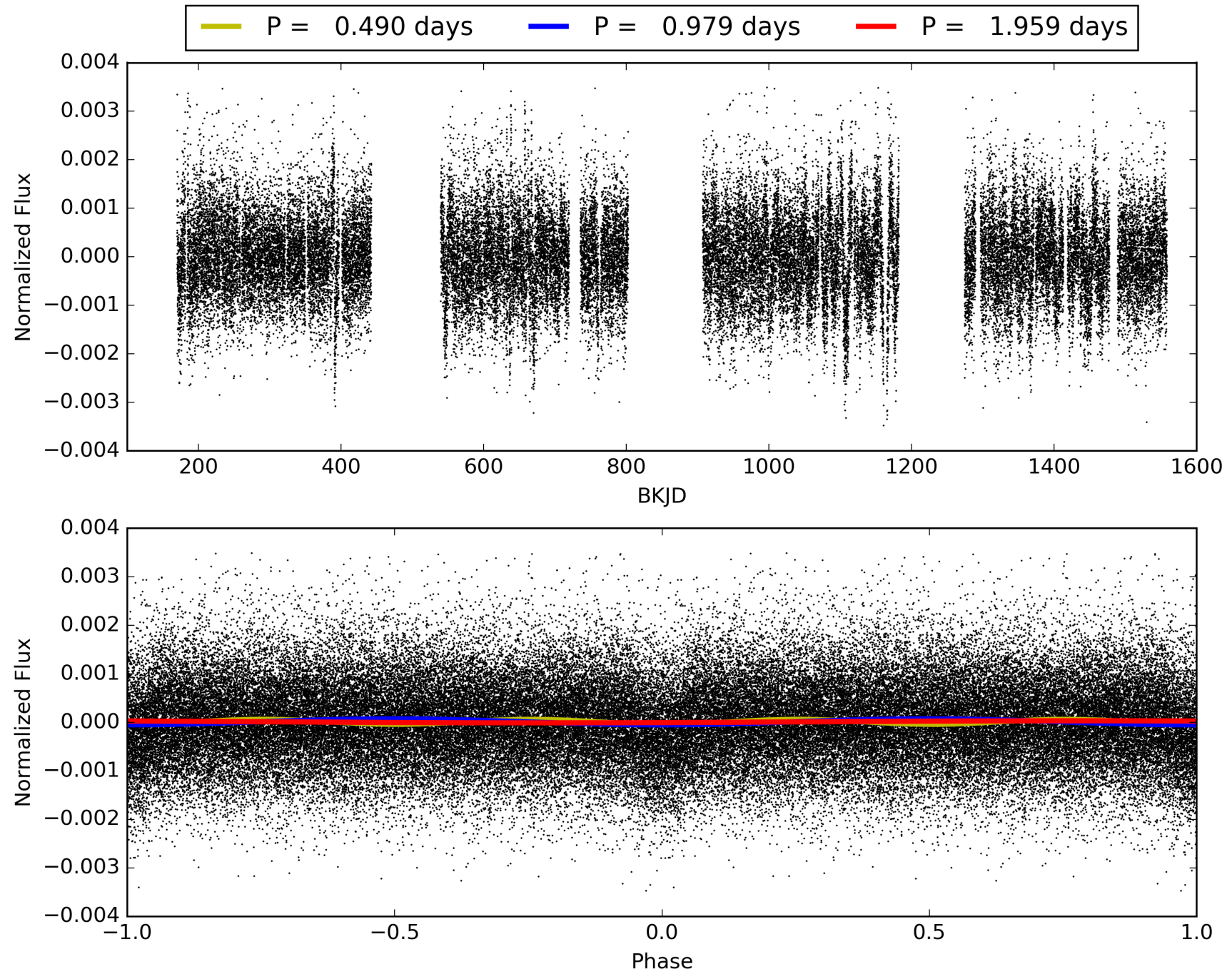
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:10:08 Z

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

TCE 005078939-02, PDC Light Curves

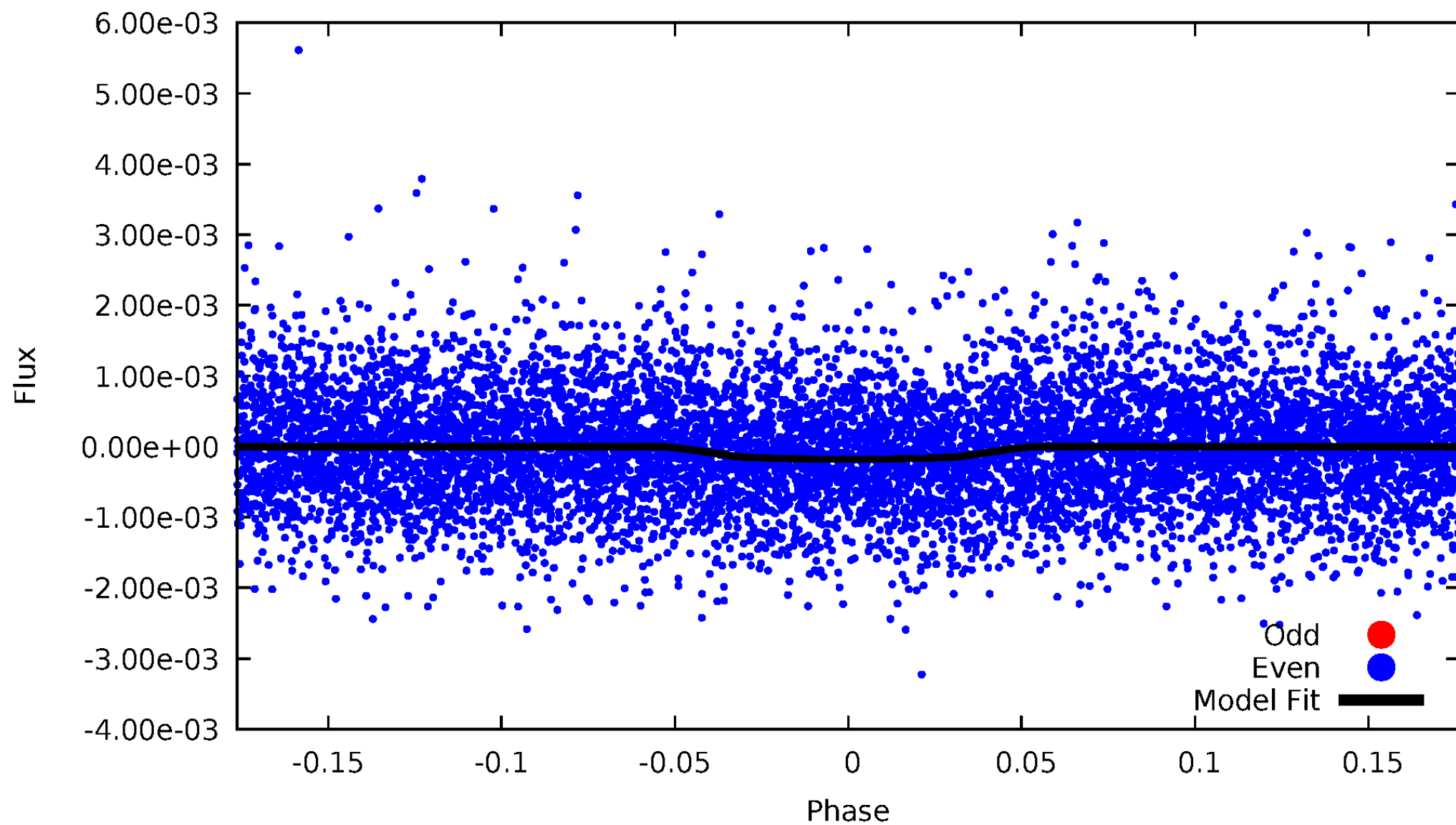


TCE 005078939-02



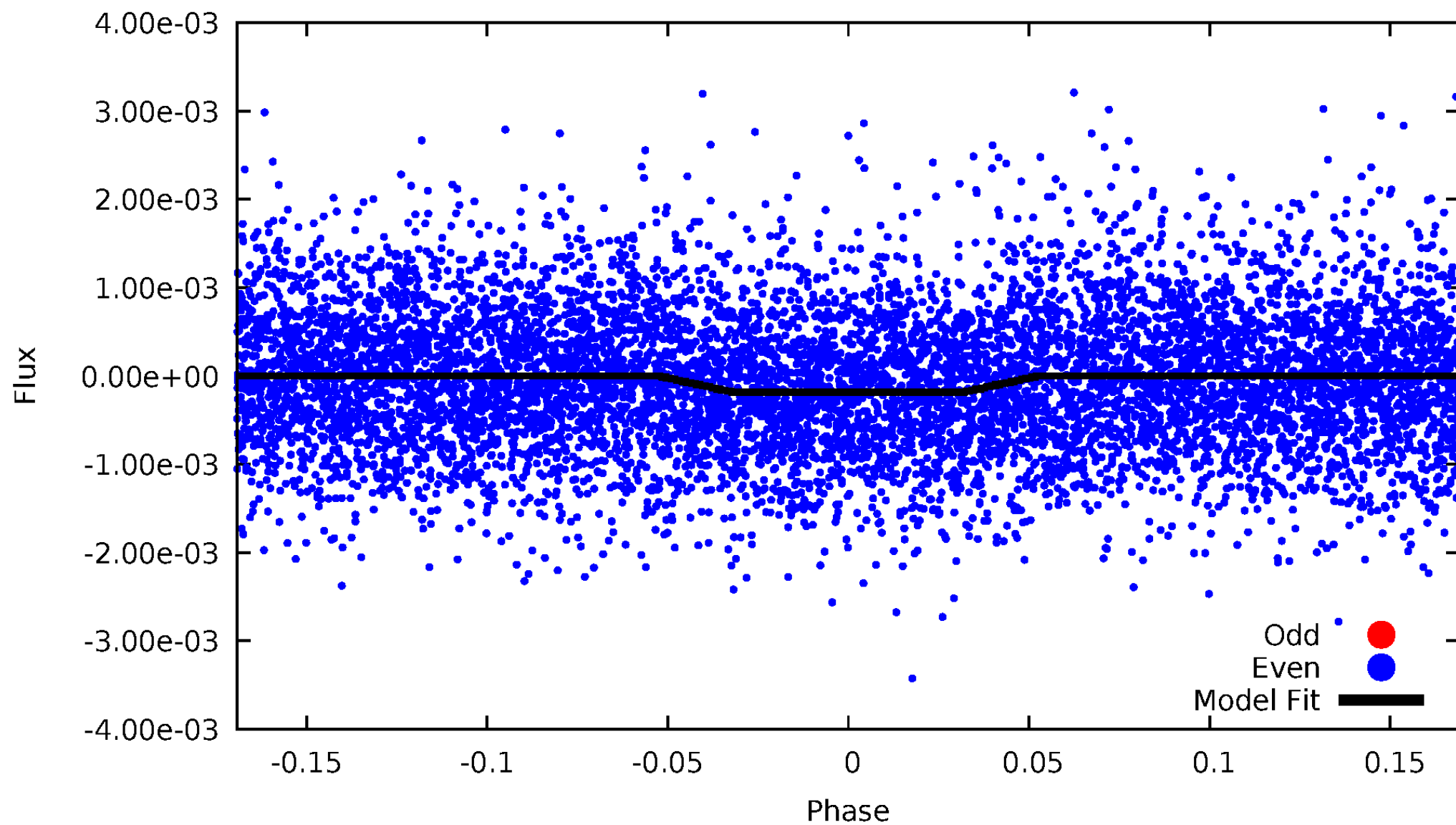
DV Odd/Even

TCE 005078939-02



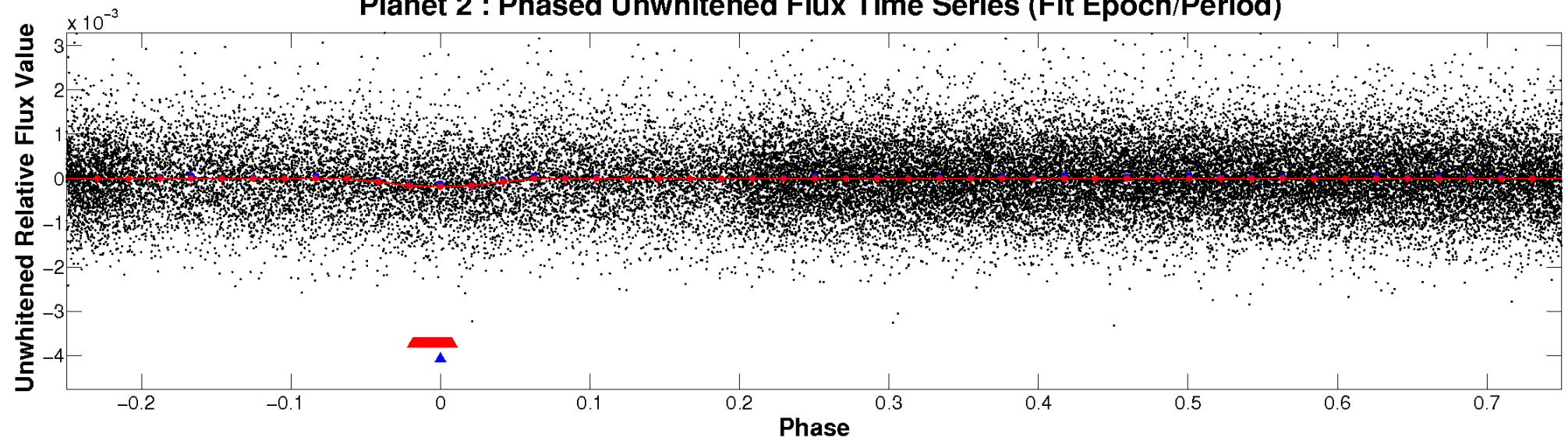
ALT Odd/Even

TCE 005078939-02

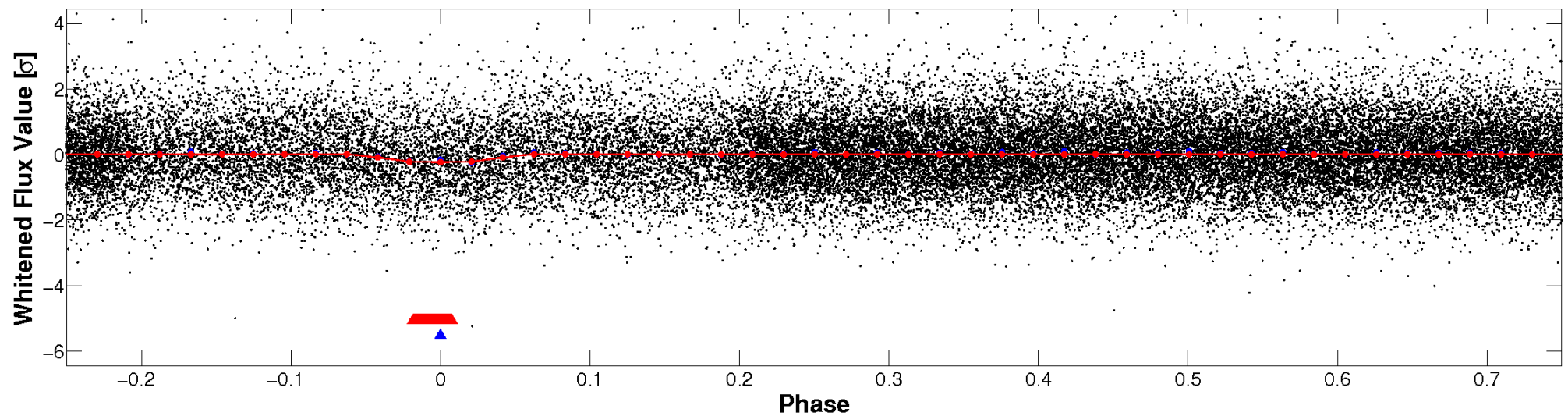


Non-Whitened Vs. Whitened Light Curve

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

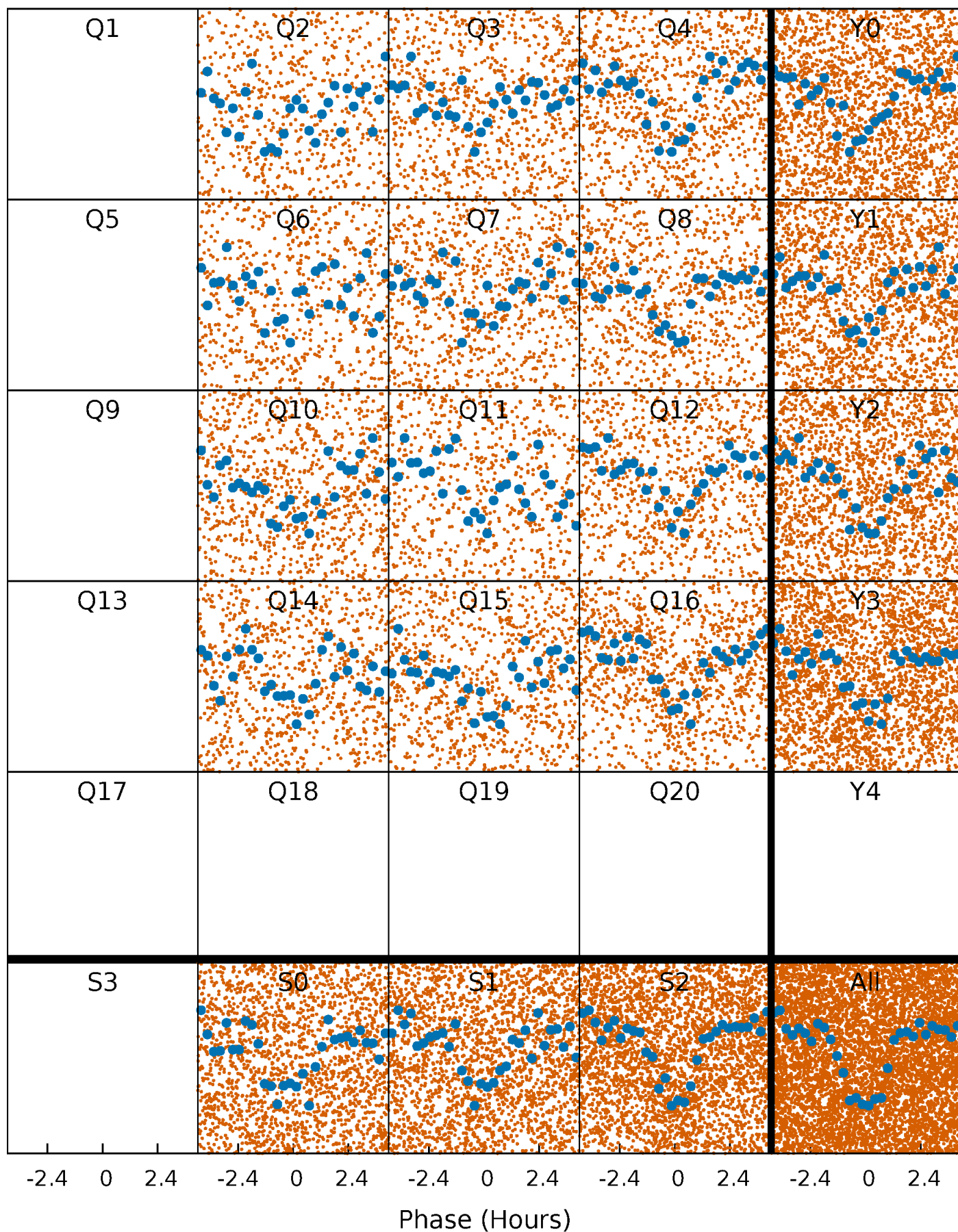


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



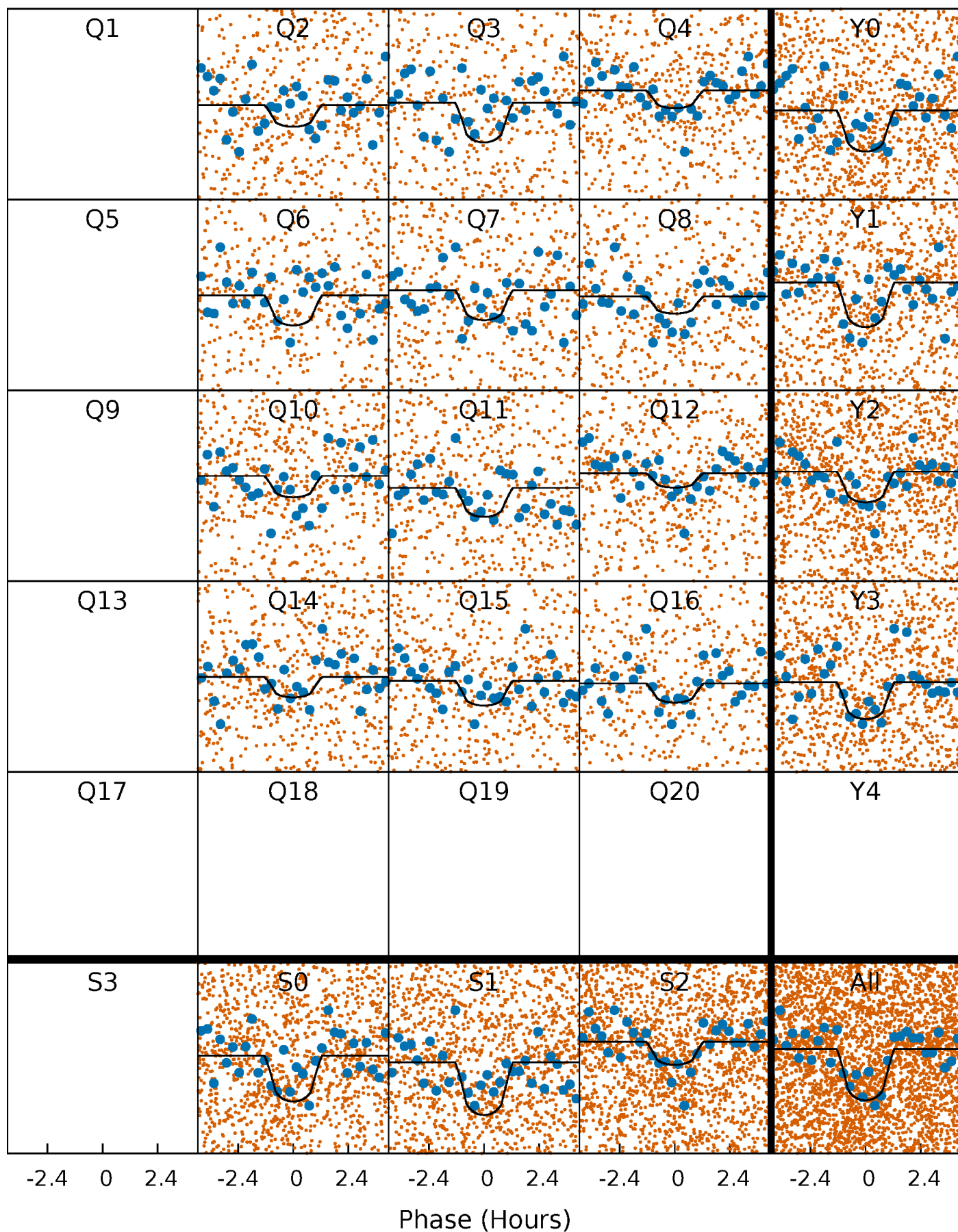
PDC Quarter-Phased Transit Curves

TCE 005078939-02 P= 0.979270 Days $T_0=132.280746$ (BKJD)



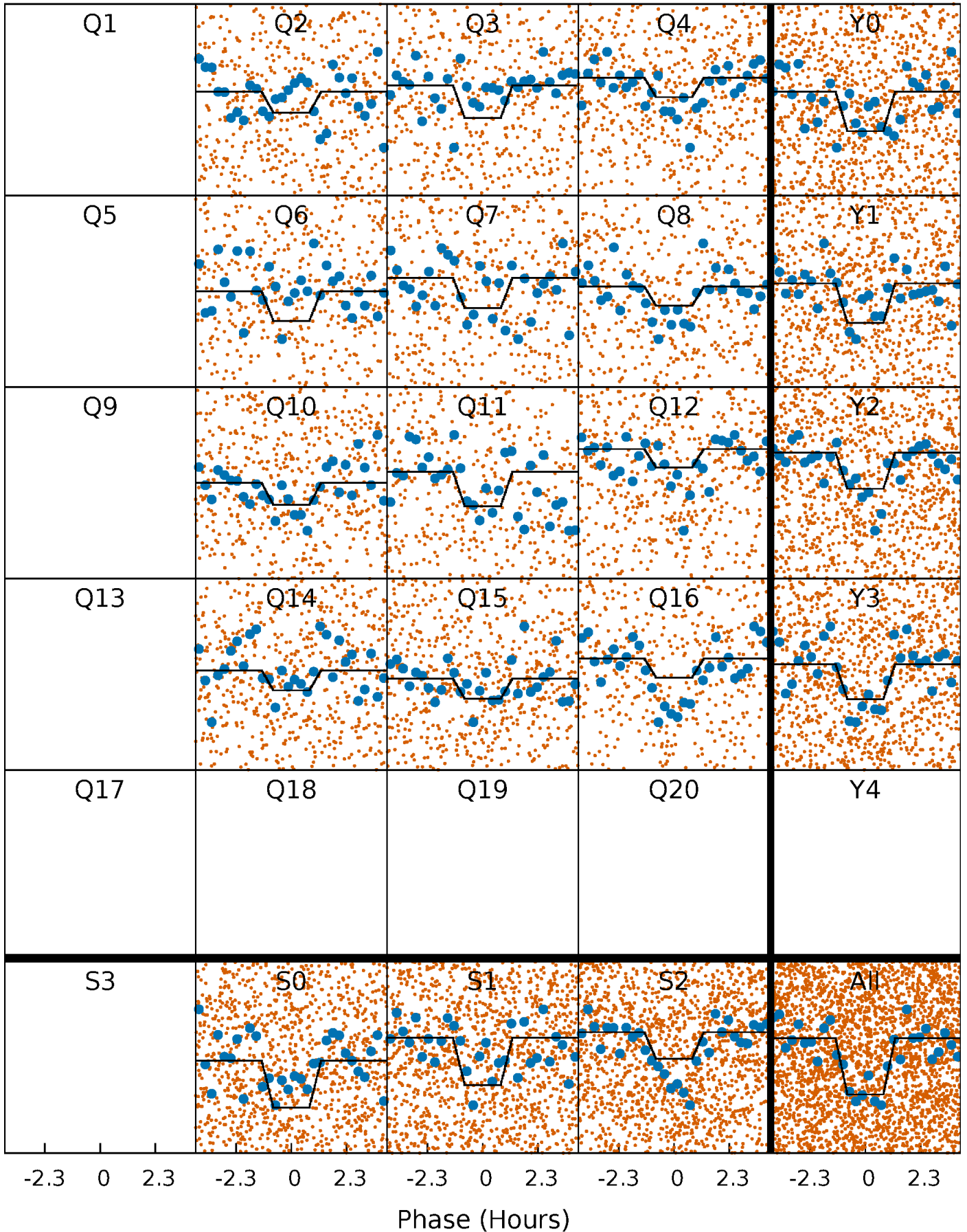
DV Quarter-Phased Transit Curves

TCE 005078939-02 P= 0.979270 Days $T_0=132.280746$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

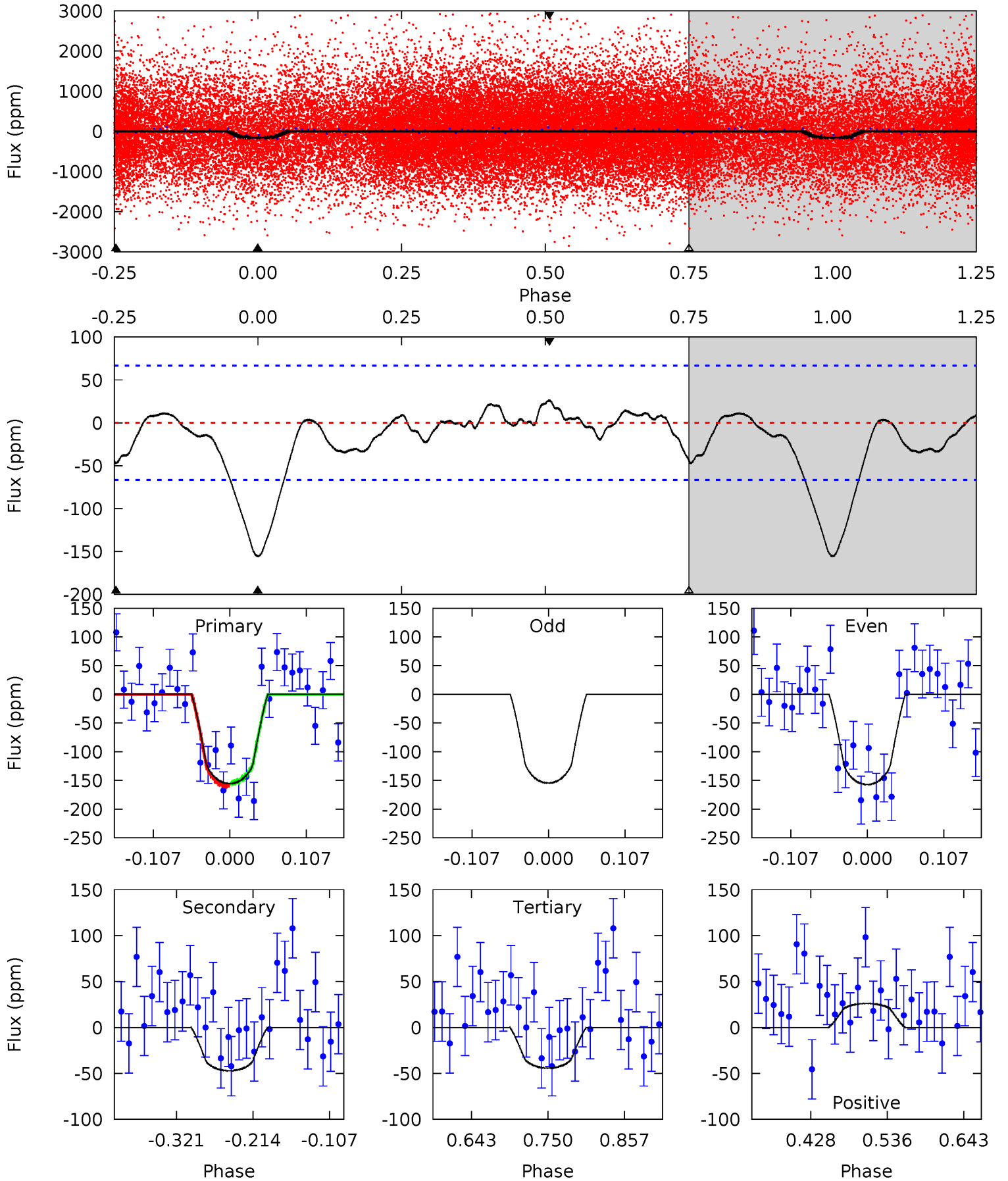
TCE 005078939-02 P= 0.979281 Days $T_0=132.268639$ (BKJD)



DV Model-Shift Uniqueness Test

005078939-02, P = 0.979270 Days, E = 132.280746 Days

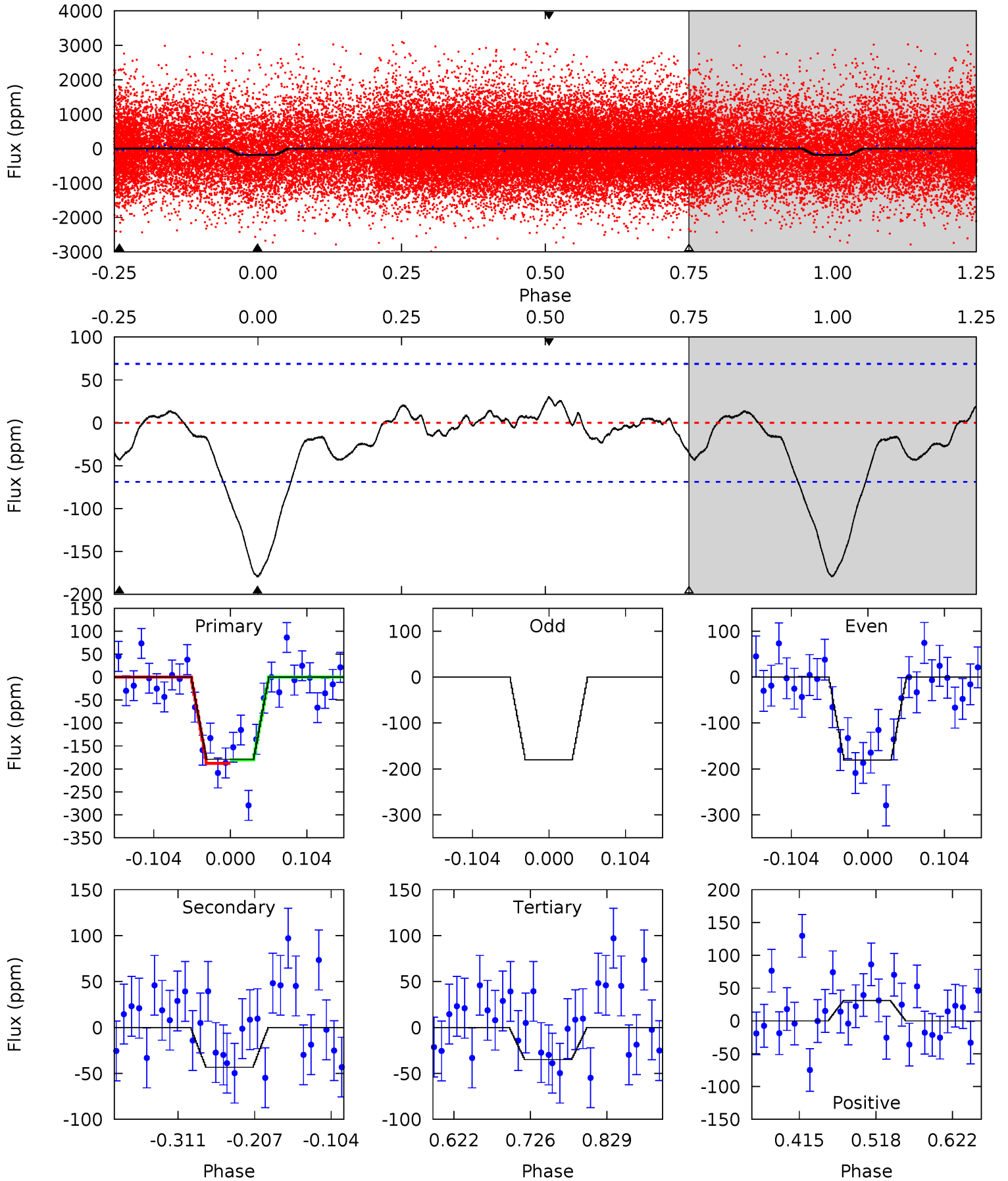
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	3.22	3.02	1.78	4.55	1.61	0.96	7.60	8.84	0.20	1.44	0.10	1.05	0.14	0.18



Alt Model-Shift Uniqueness Test

005078939-02, P = 0.979281 Days, E = 132.268639 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	2.88	2.31	2.04	4.56	1.63	0.94	9.55	9.82	0.56	0.83	0.03	1.04	0.15	0.26



Stellar Parameters For KIC 005078939

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5402^{+177}_{-160}	$4.568^{+0.034}_{-0.136}$	$0.000^{+0.250}_{-0.300}$	$0.816^{+0.169}_{-0.060}$	$0.901^{+0.081}_{-0.099}$	$2.334^{+0.426}_{-0.925}$
	+3%/-3%	+1%/-3%	+inf%/-inf%	+21%/-7%	+9%/-11%	+18%/-40%
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 005078939-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-47 ± 15	$1.44^{+0.99}_{-0.90}$	2241^{+118}_{-88}	3813^{+1964}_{-666}	$3.990^{+26.329}_{-2.623}$
Alt.	-43 ± 15	$1.38^{+1.05}_{-0.82}$	2251^{+113}_{-96}	3837^{+1763}_{-777}	$4.007^{+22.082}_{-2.787}$

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

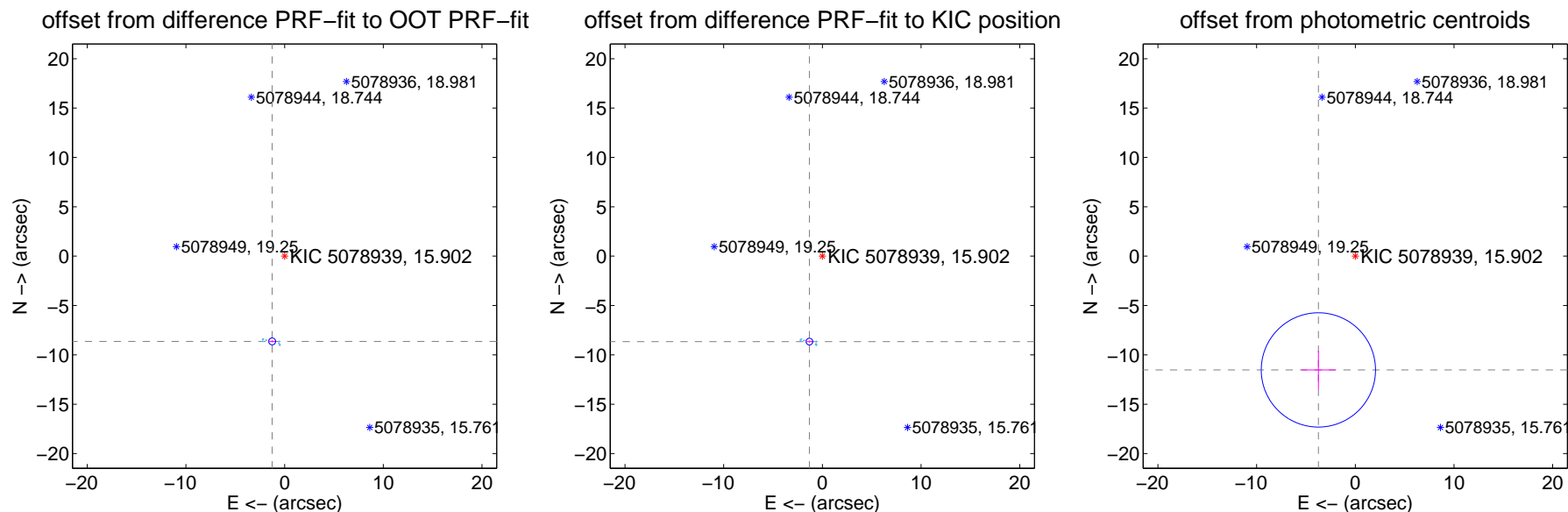
DV Centroid Data

Supplemental centroid analysis for 005078939-02. Kepler magnitude: 15.90. Transit SNR 8.98

There are 8 quarters with good PRF difference image offsets

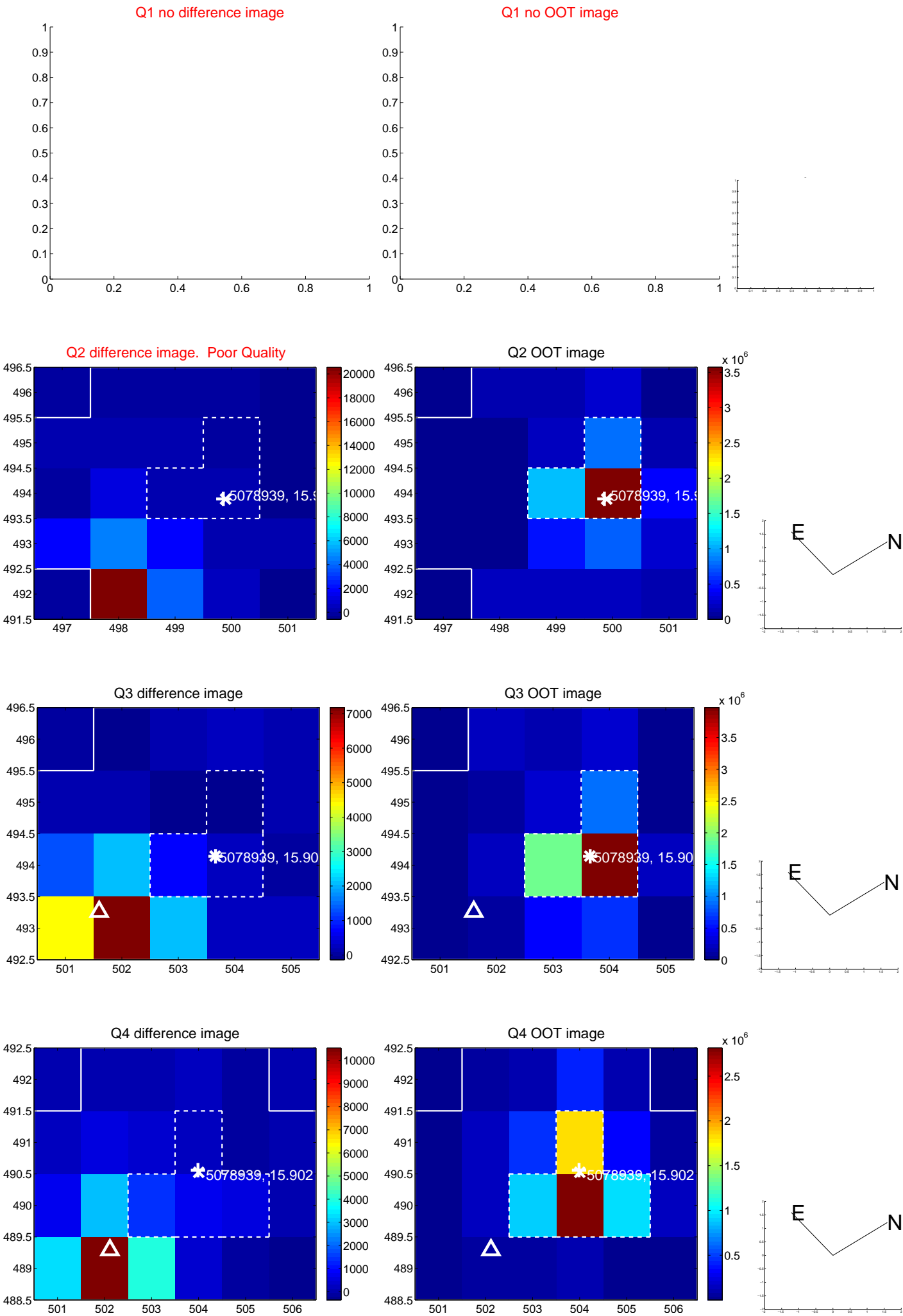
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.726 ± 0.117	74.68	1.263 ± 0.343	-8.634 ± 0.107
PRF-fit source offset from KIC position	8.754 ± 0.114	77.06	1.313 ± 0.318	-8.655 ± 0.104
photometric centroid source offset	12.12 ± 1.93	6.28	3.74 ± 1.74	-11.52 ± 1.95

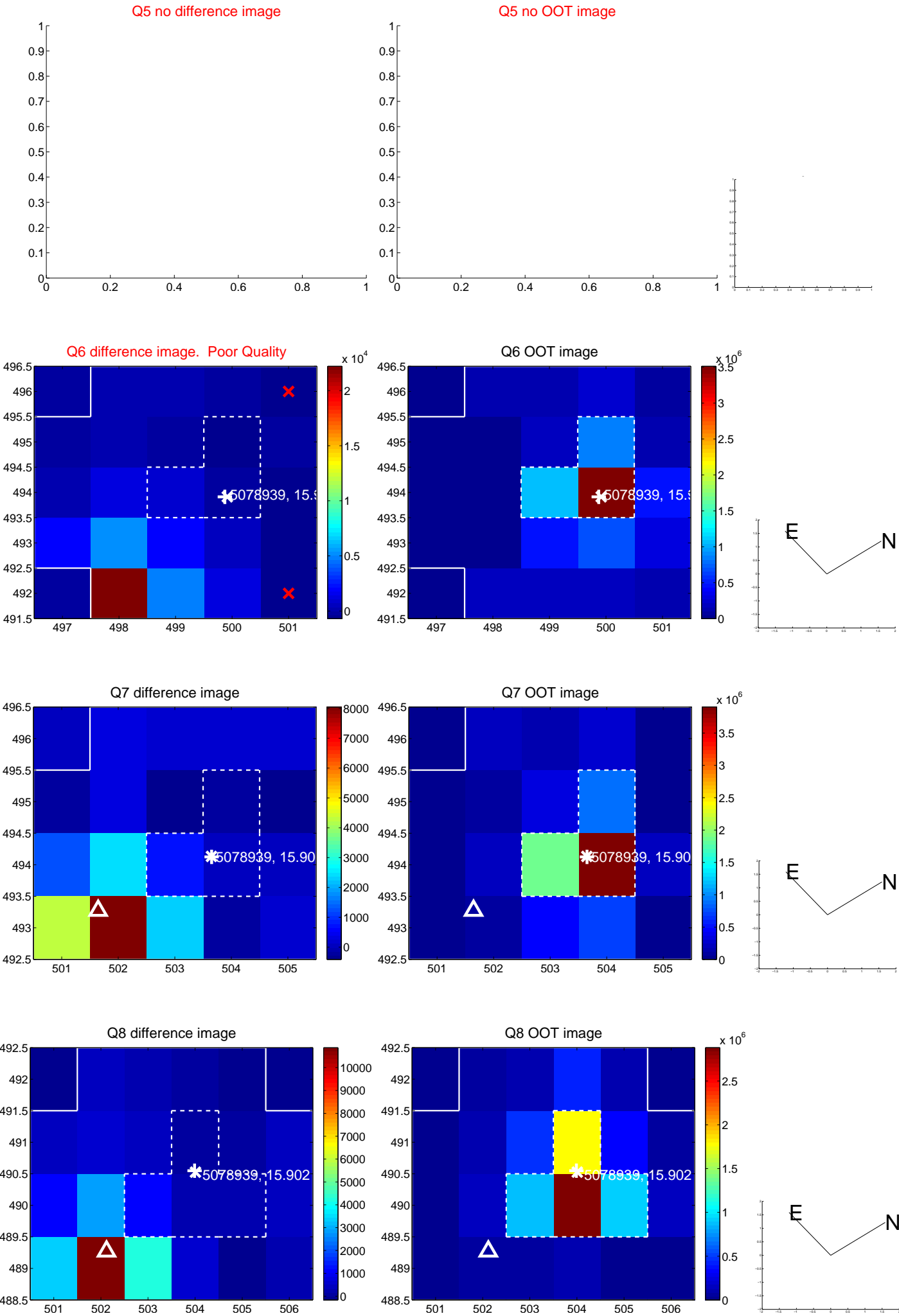


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

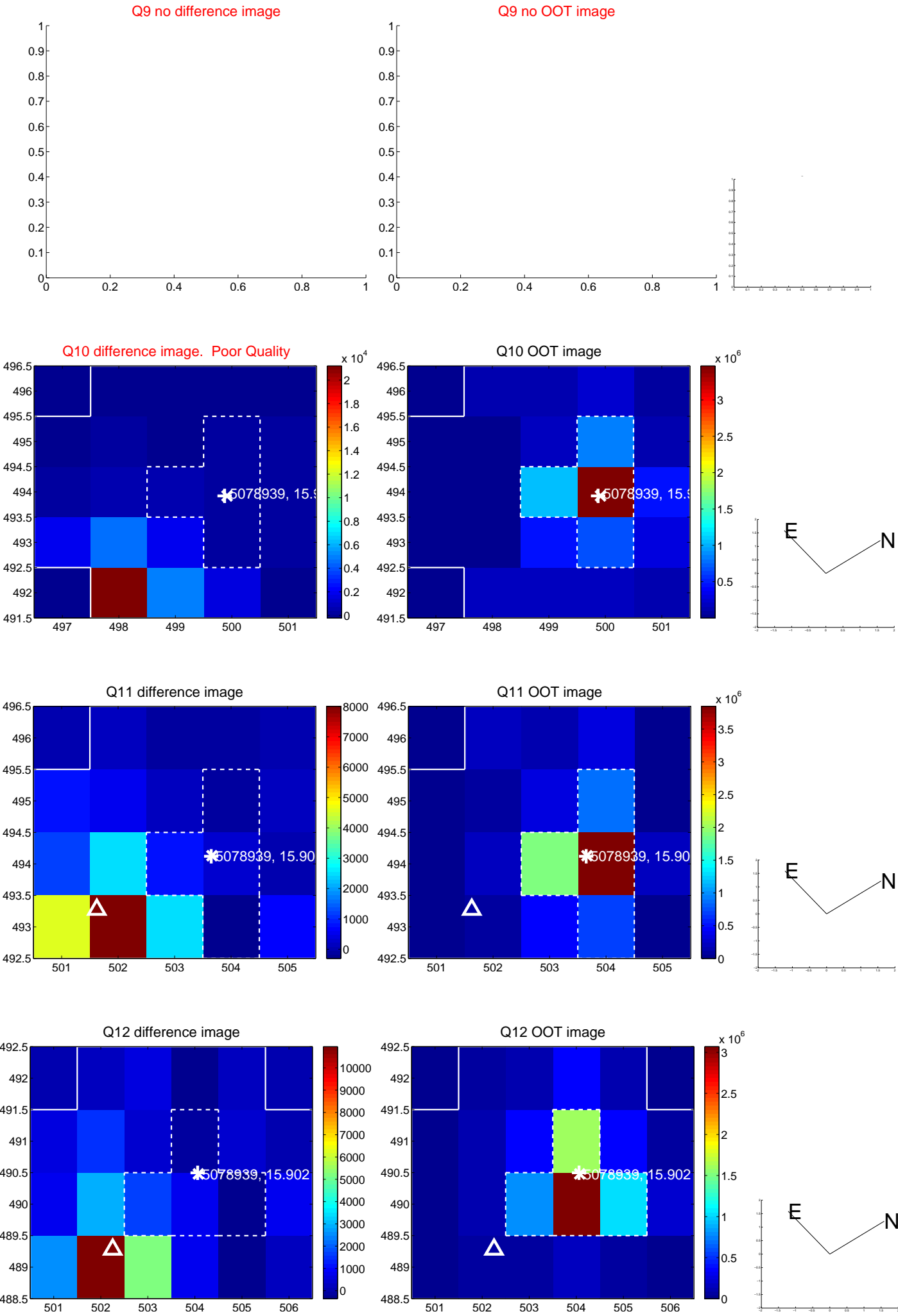
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



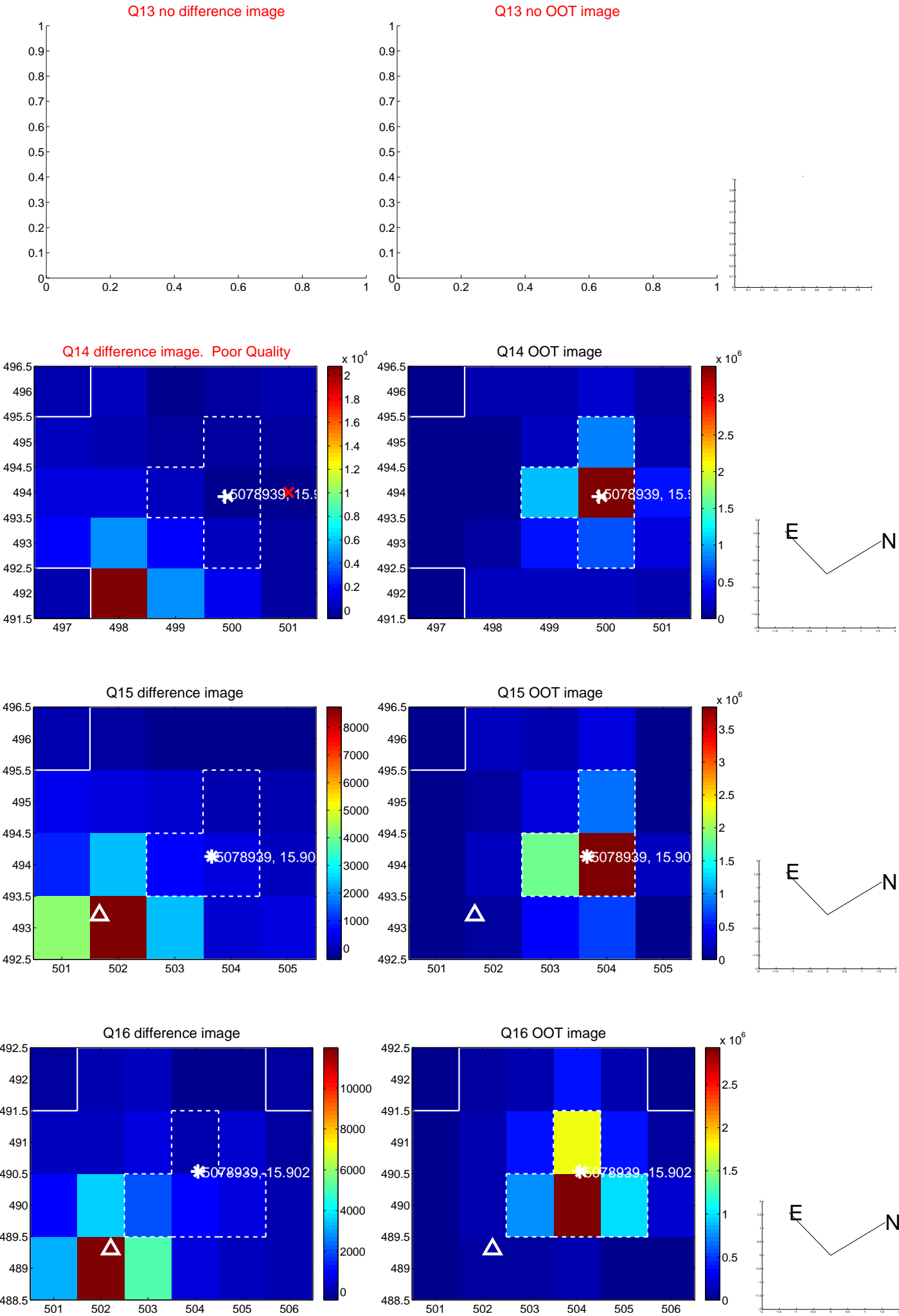
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



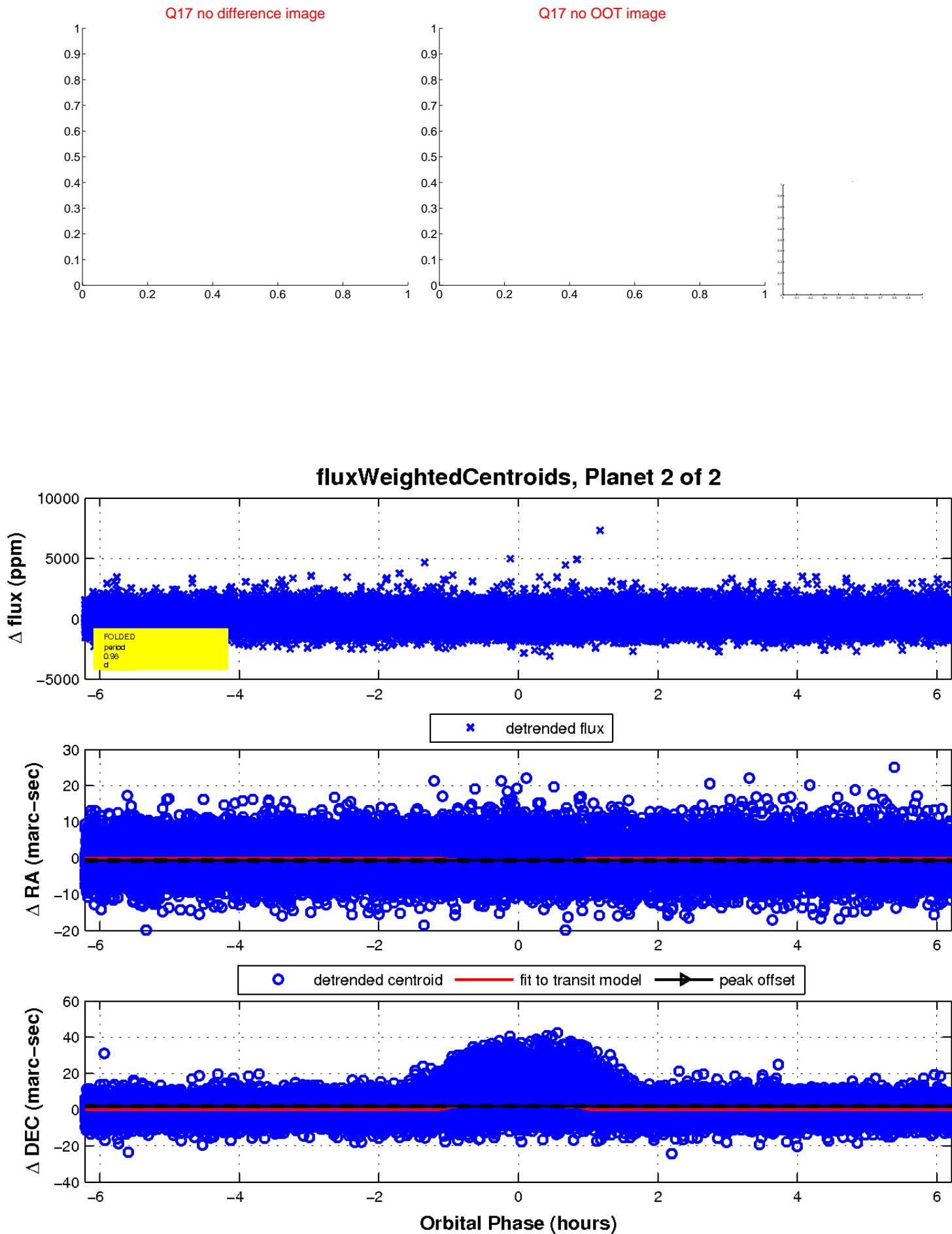
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

