

KIC 008042789

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})
008042789-01	OBS	3838.01	4.618304	135.850938	1104.7	3.442	54.2	61.1	0.81	5452	4.72	190.80
008042789-02	OBS	No	4.618304	133.550506	288.0	3.031	18.3	18.9	0.81	5452	1.66	190.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008042789-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
008042789-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

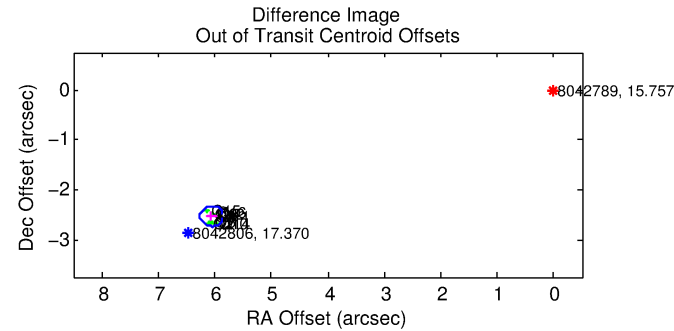
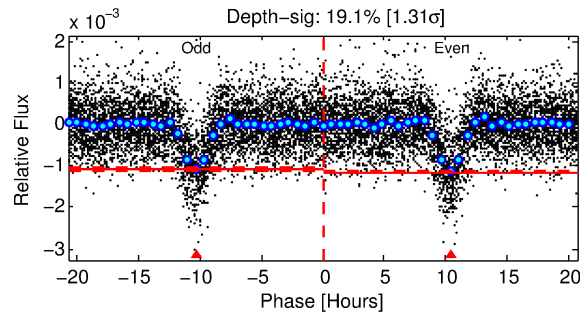
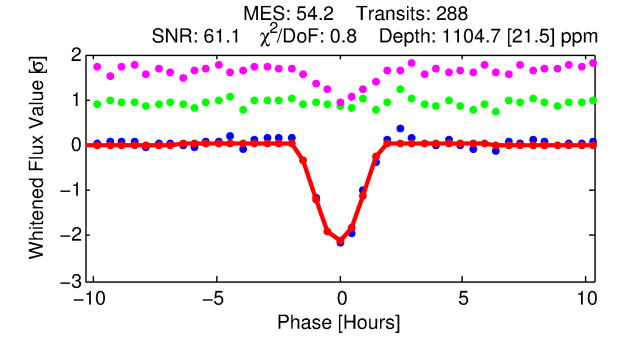
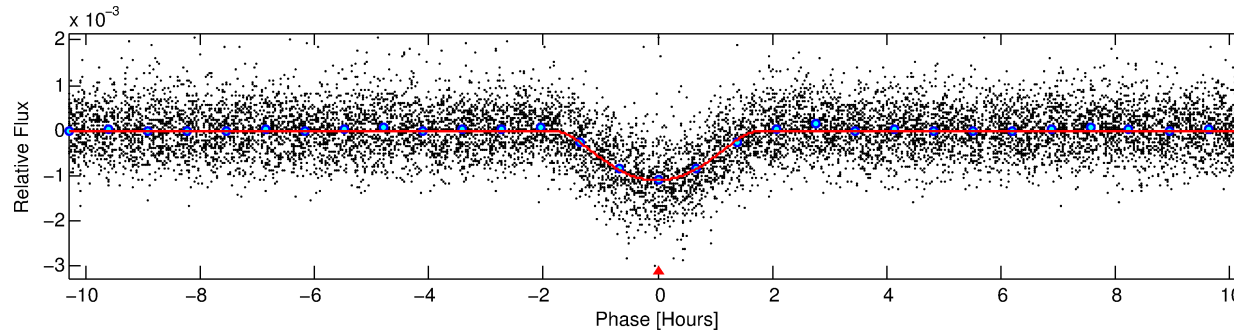
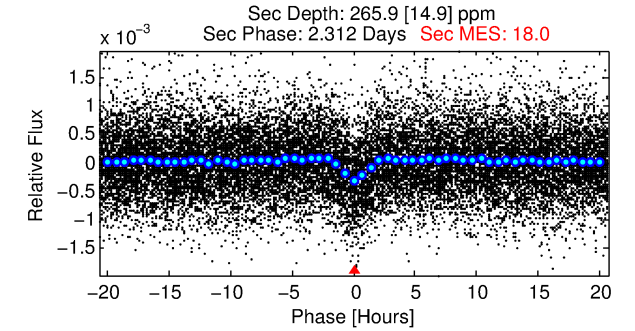
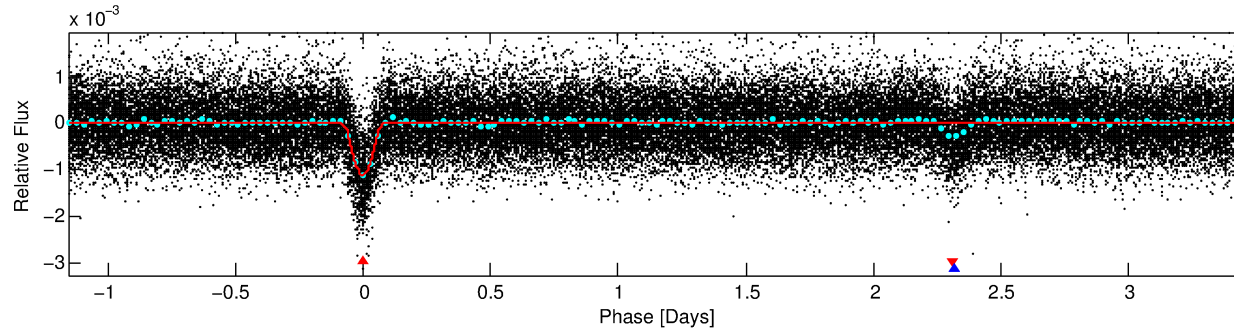
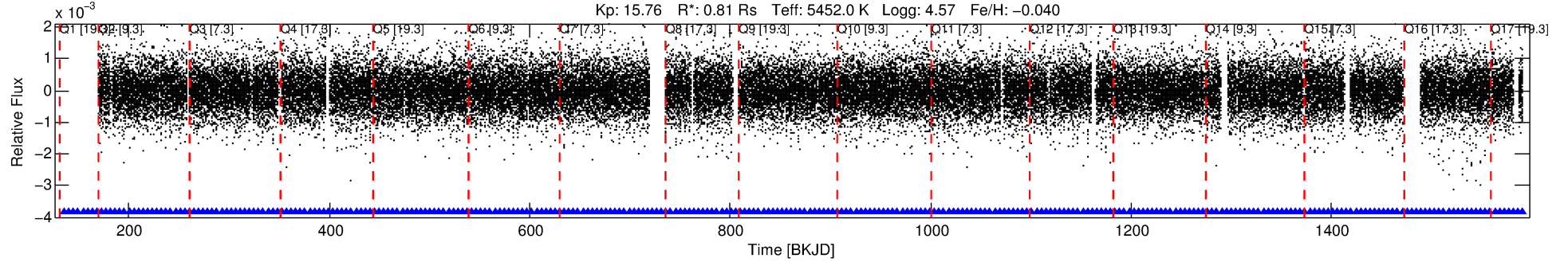
Ephemeris Match Information For 008042789-01

No Significant Match Found

DV One-Page Summary

KIC: 8042789 Candidate: 1 of 2 Period: 4.618 d
KOI: K03838.01 Corr: 0.976

Kp: 15.76 R*: 0.81 Rs Teff: 5452.0 K Logg: 4.57 Fe/H: -0.040



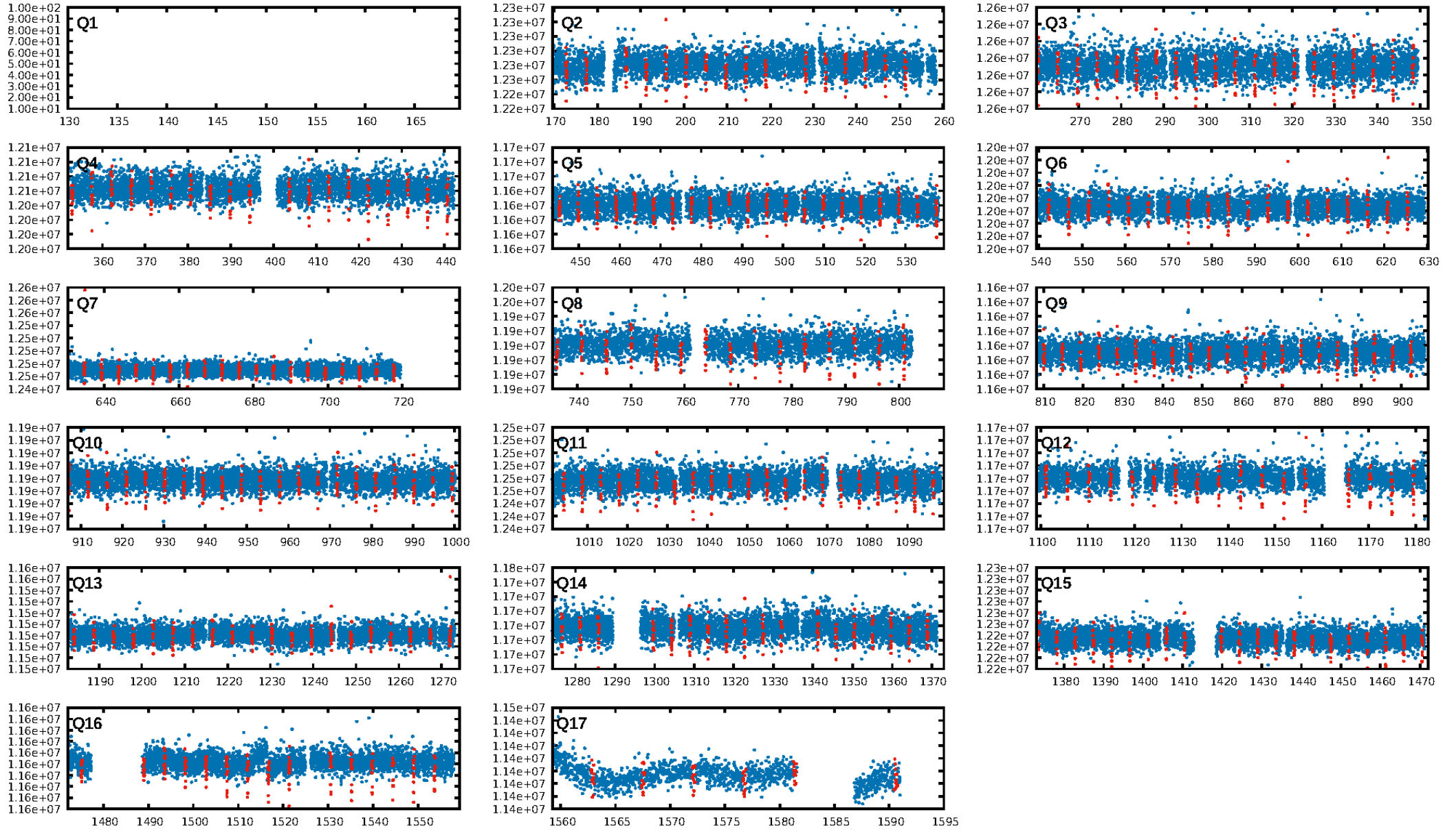
DV Fit Results:

Period = 4.61830 [0.00001] d
Epoch = 135.8509 [0.0013] BKJD
Rp/R* = 0.0531 [0.0258]
a/R* = 3.85 [0.50]
b = 0.99 [0.04]
Seff = 190.80 [52.54]
Teq = 948 [65] K
Rp = 4.72 [2.48] Re
a = 0.0525 [0.0089] AU
Ag = 18.06 [18.16] [0.94σ]
Teff = 3021 [741] K [2.79σ]

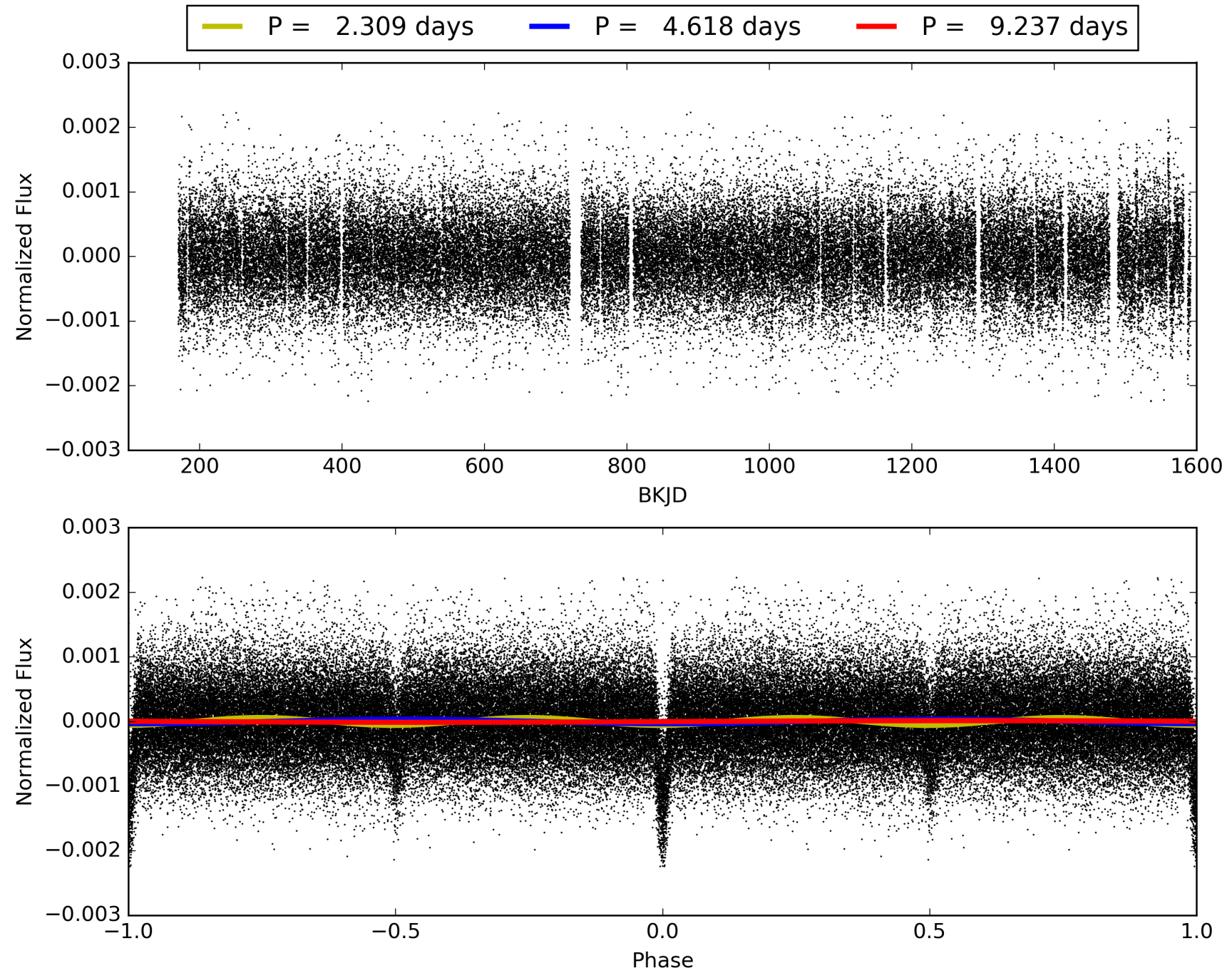
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [282/282]
GhostDiagnostic-chr: -0.2861
Centroid-sig: 0.0%
Centroid-so: 38.859 arcsec [148.68σ]
OotOffset-rm: 6.562 arcsec [96.21σ]
KicOffset-rm: 6.761 arcsec [97.96σ]
OotOffset-st: 4/4/4/0 [12]
KicOffset-st: 4/4/4/0 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 008042789-01, PDC Light Curves

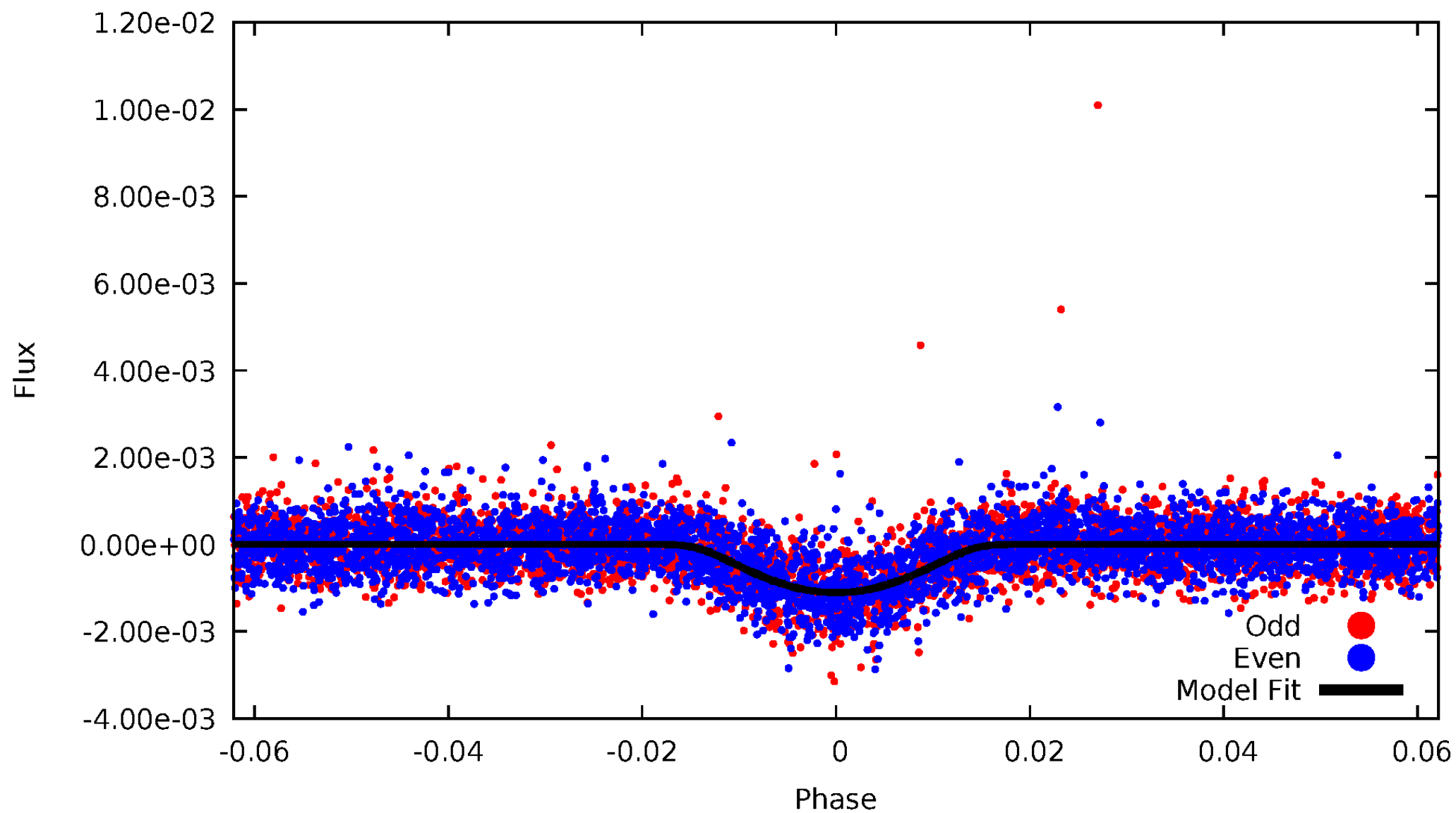


TCE 008042789-01



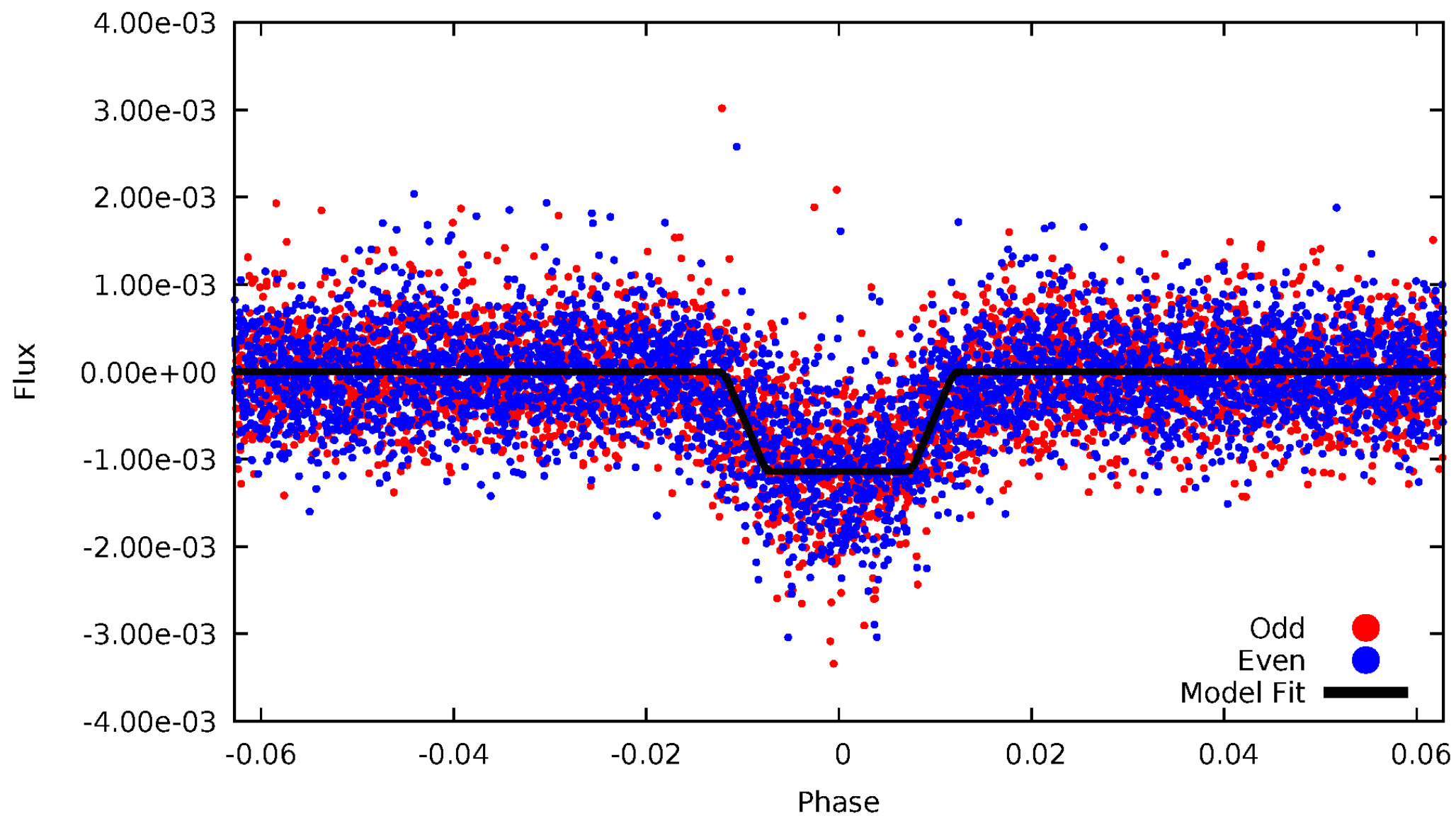
DV Odd/Even

TCE 008042789-01



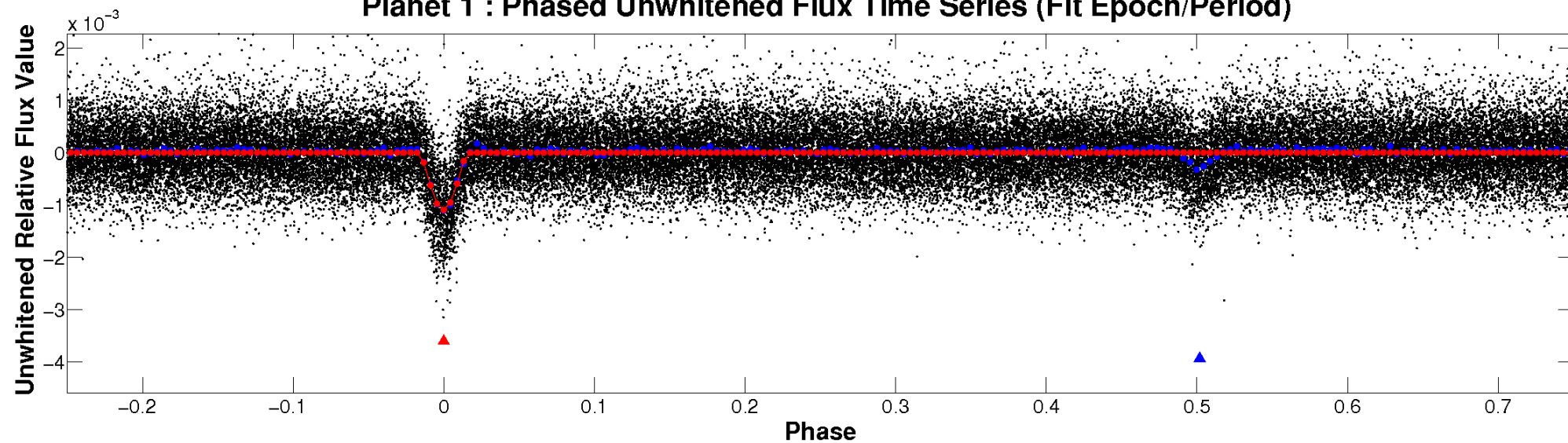
ALT Odd/Even

TCE 008042789-01

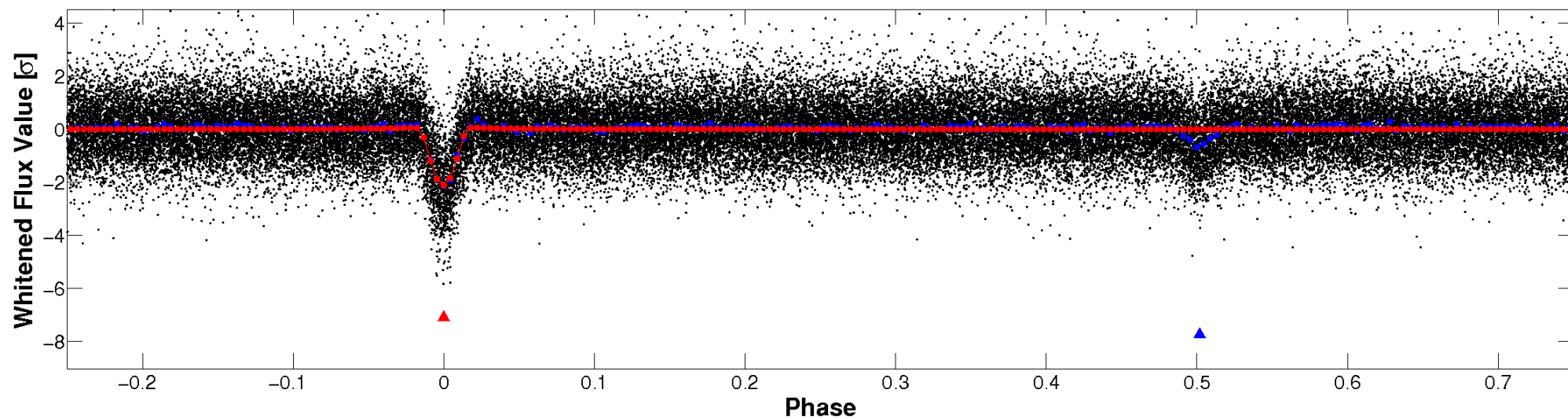


Non-Whitened Vs. Whitened Light Curve

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

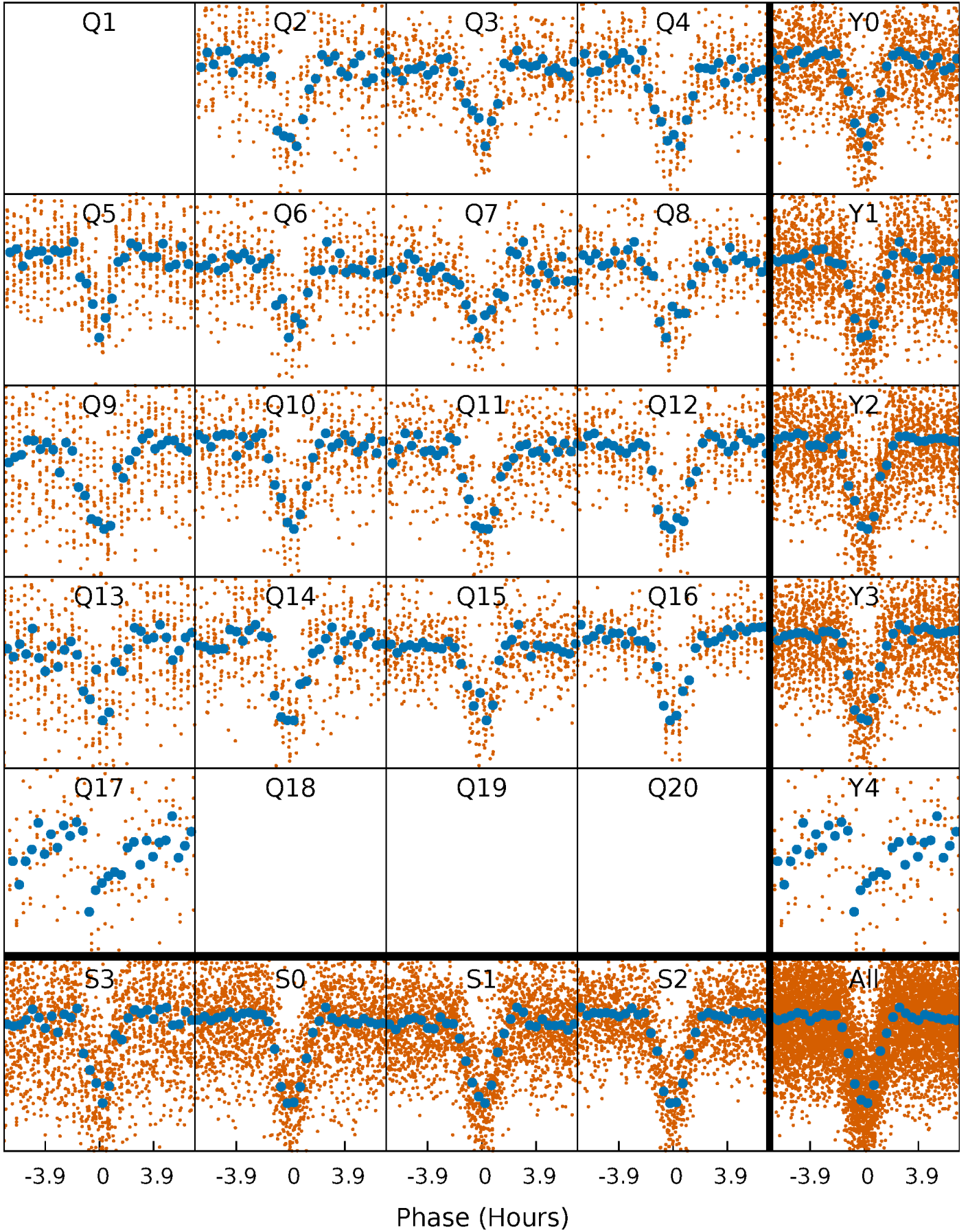


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



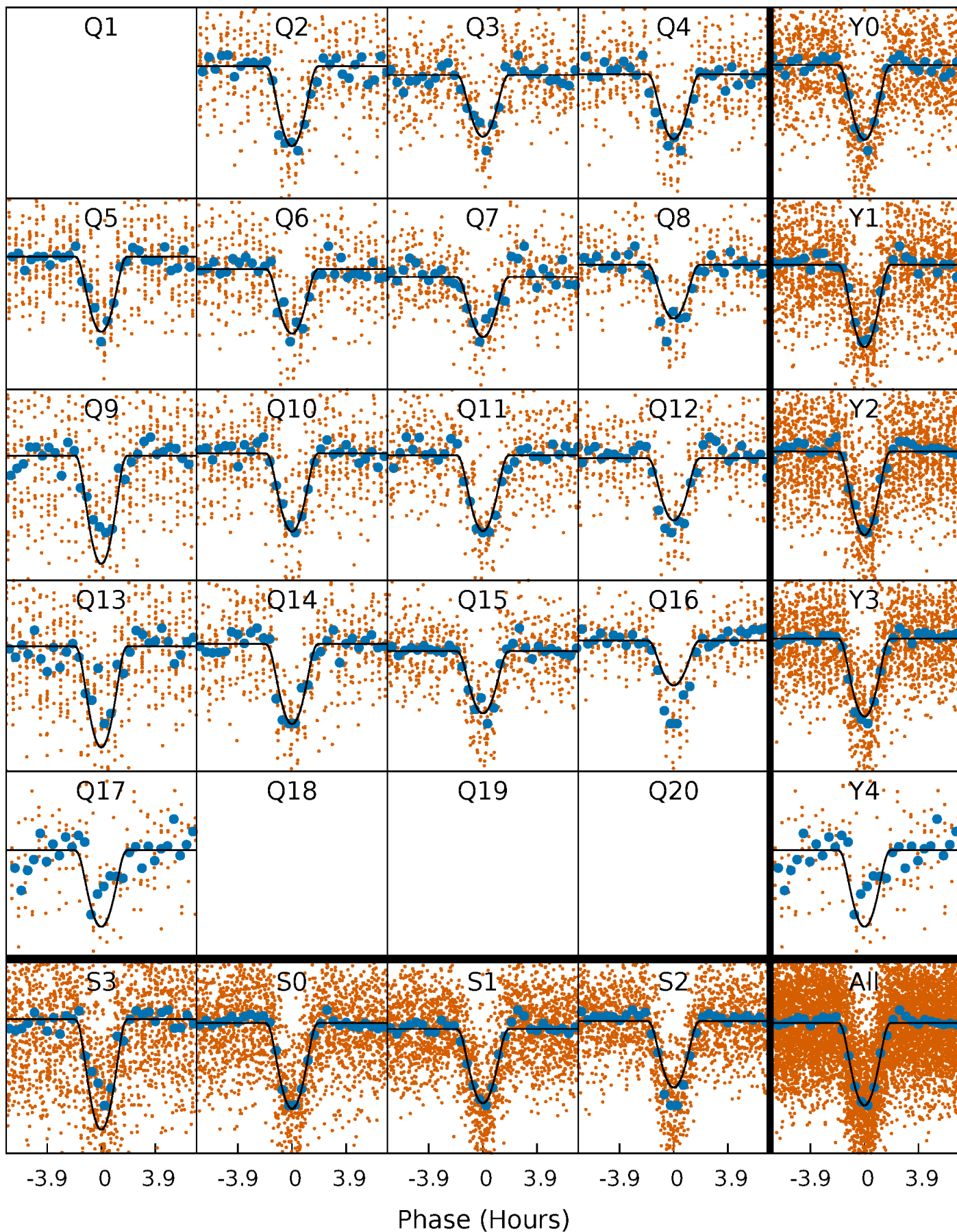
PDC Quarter-Phased Transit Curves

TCE 008042789-01 P= 4.618304 Days $T_0=135.850938$ (BKJD)



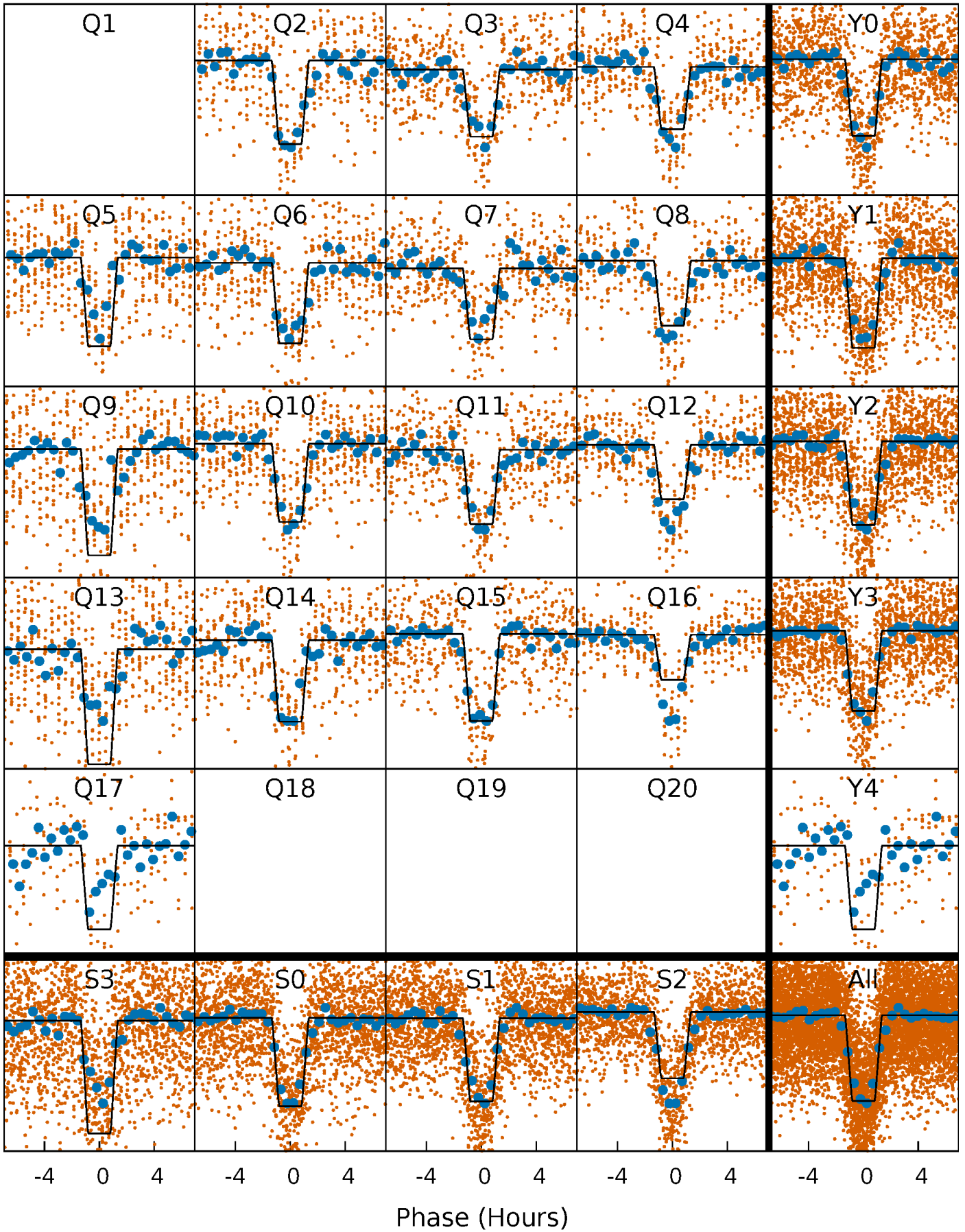
DV Quarter-Phased Transit Curves

TCE 008042789-01 P= 4.618304 Days $T_0=135.850938$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

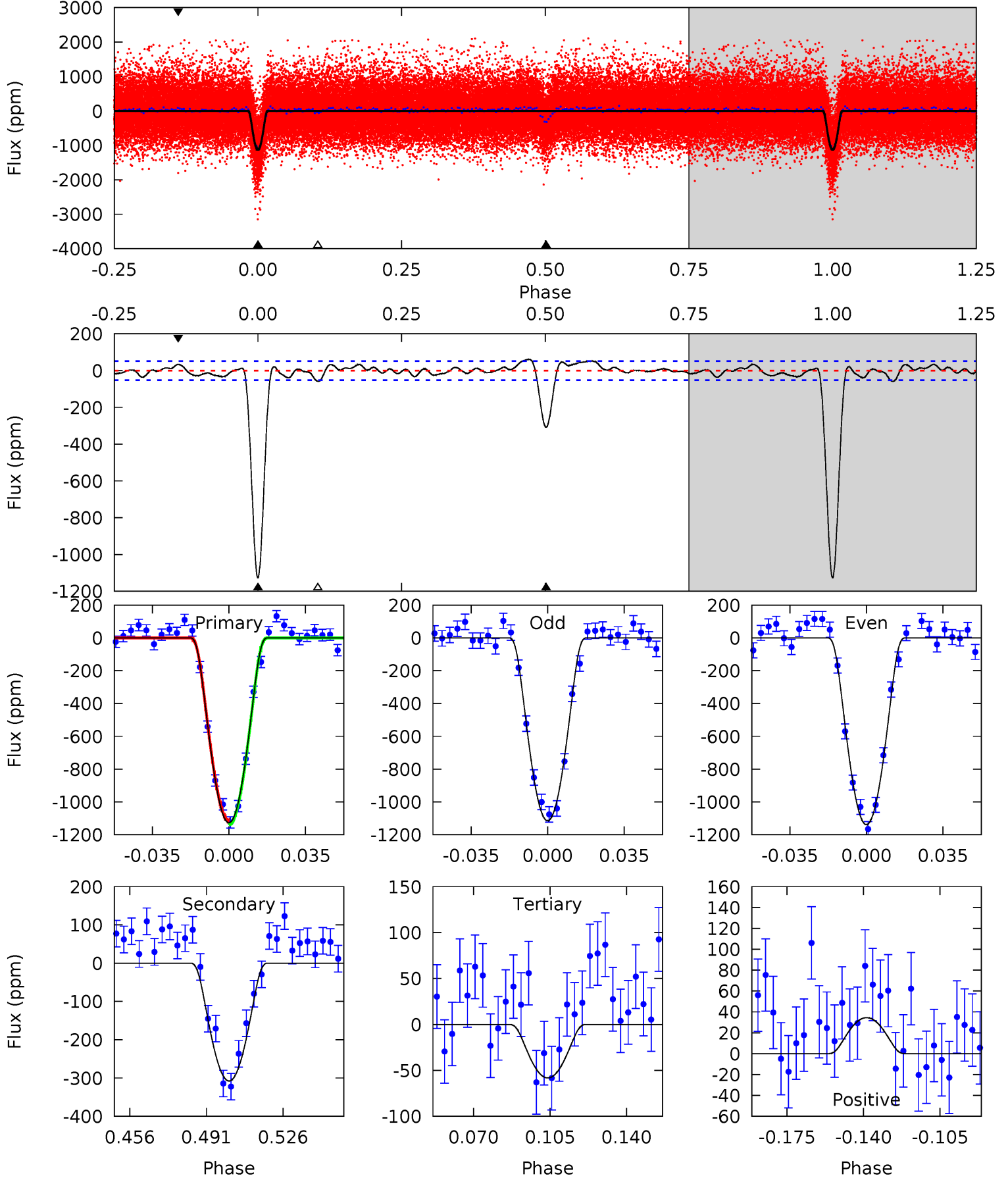
TCE 008042789-01 P= 4.618312 Days $T_0=135.850105$ (BKJD)



DV Model-Shift Uniqueness Test

008042789-01, P = 4.618304 Days, E = 135.850938 Days

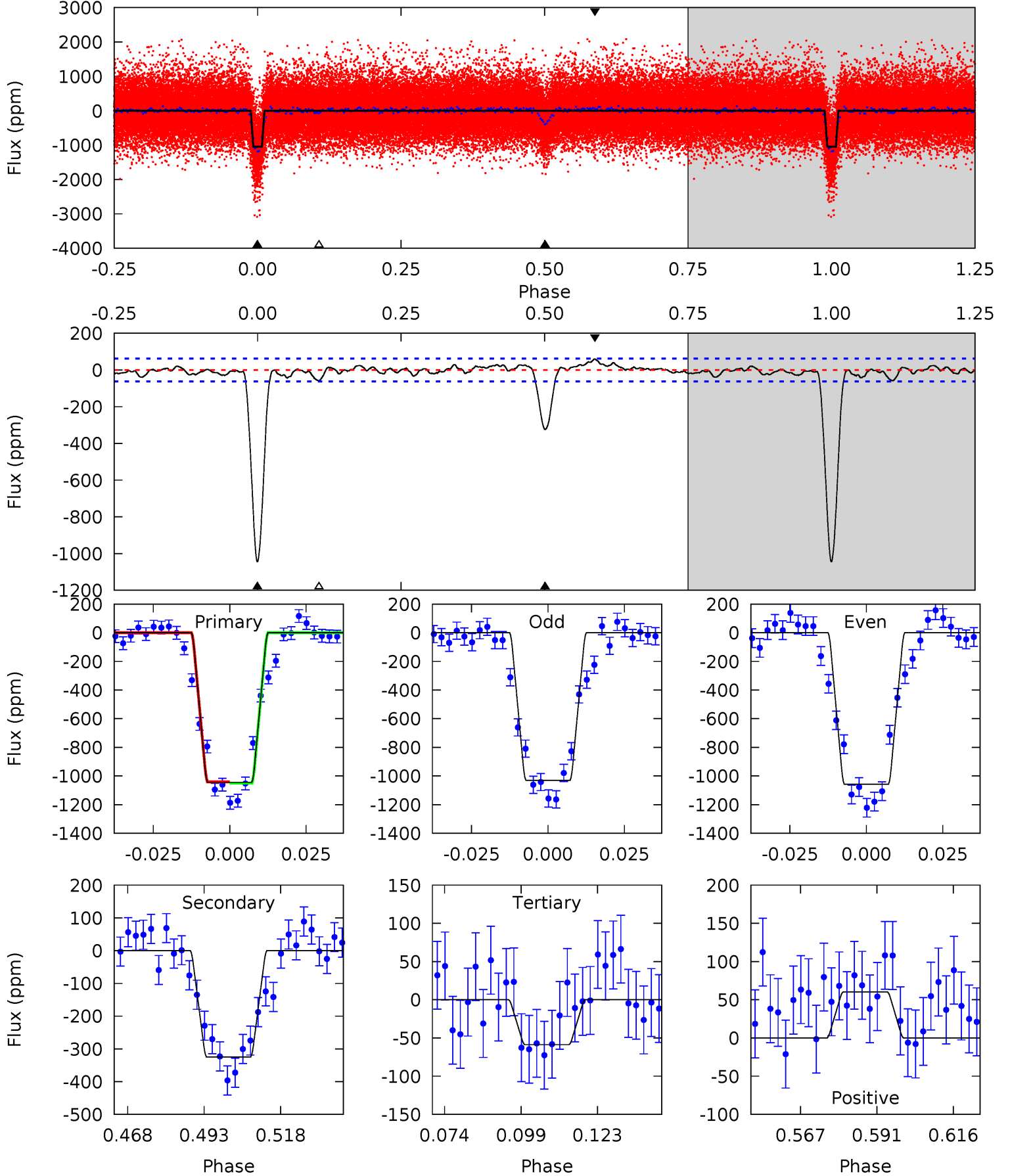
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
104.4	28.5	5.40	3.19	4.78	2.11	1.92	99.1	101.3	23.1	25.3	1.10	1.01	0.05	1.15



Alt Model-Shift Uniqueness Test

008042789-01, P = 4.618312 Days, E = 135.850105 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
81.6	25.4	4.59	4.70	4.85	2.25	1.48	77.0	76.9	20.8	20.7	1.05	1.04	0.05	0.35



Stellar Parameters For KIC 008042789

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5452^{+164}_{-164}	$4.572^{+0.034}_{-0.136}$	$-0.040^{+0.300}_{-0.300}$	$0.815^{+0.163}_{-0.070}$	$0.910^{+0.073}_{-0.101}$	$2.366^{+0.432}_{-0.937}$
	+3%/-3%	+1%/-3%	+750%/-750%	+20%/-9%	+8%/-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 008042789-01 / KOI 3838.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-308 ± 11	$4.94^{+2.33}_{-2.31}$	1343^{+72}_{-57}	3536^{+934}_{-394}	19^{+49}_{-10}
Alt.	-324 ± 13	$3.40^{+2.10}_{-2.08}$	1348^{+72}_{-51}	4078^{+1869}_{-614}	41^{+228}_{-25}

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

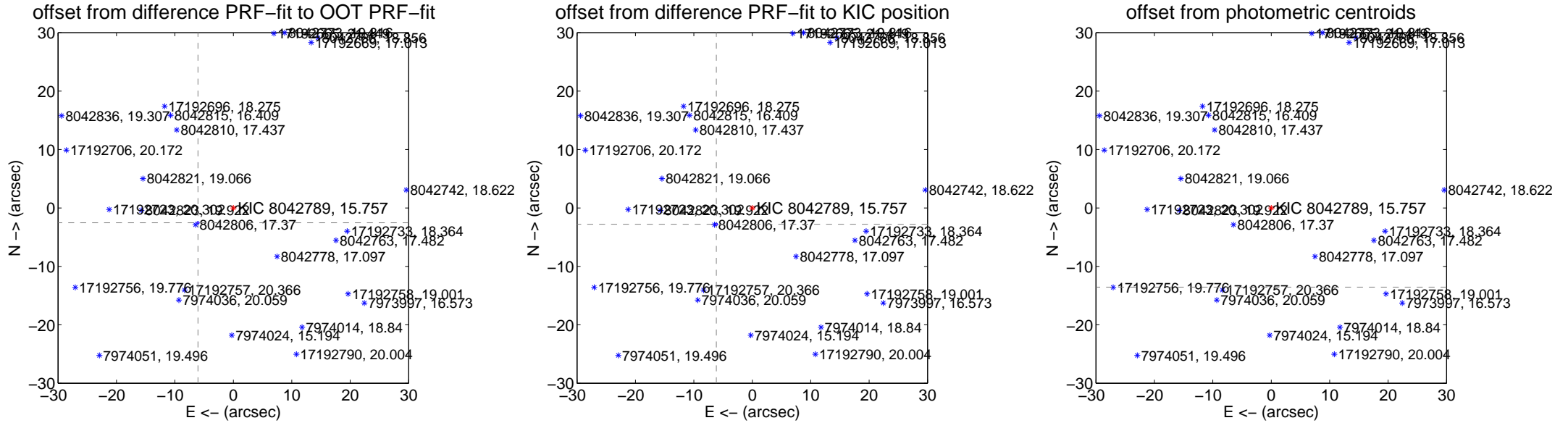
DV Centroid Data

Supplemental centroid analysis for 008042789-01. Kepler magnitude: 15.76. Transit SNR 61.05

There are 12 quarters with good PRF difference image offsets

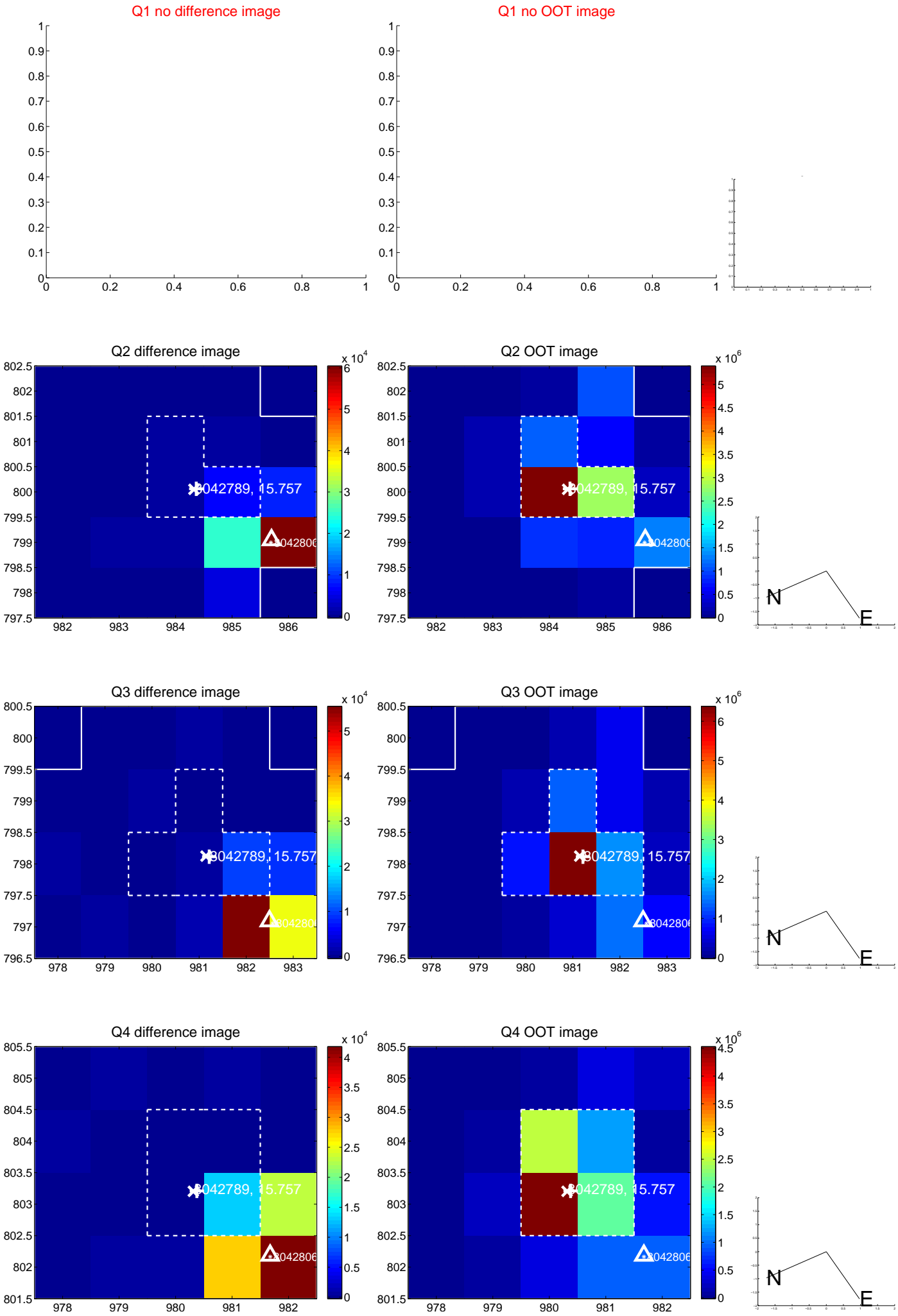
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.562 \pm 0.068	96.21	6.053 \pm 0.068	-2.535 \pm 0.071
PRF-fit source offset from KIC position	6.761 \pm 0.069	97.96	6.158 \pm 0.069	-2.792 \pm 0.070
photometric centroid source offset	38.86 \pm 0.26	148.68	36.42 \pm 0.27	-13.56 \pm 0.22

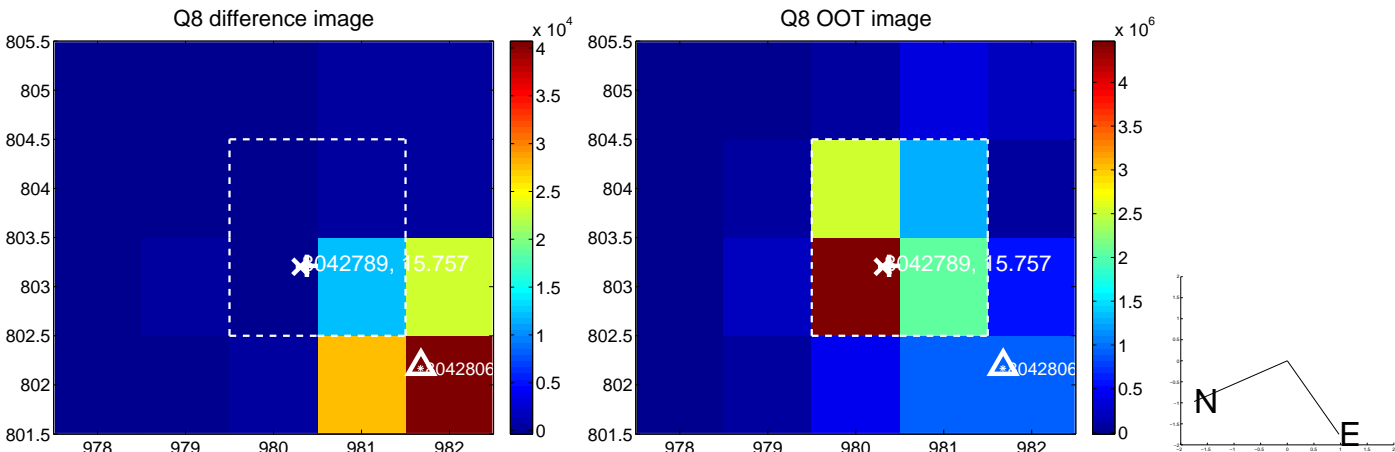
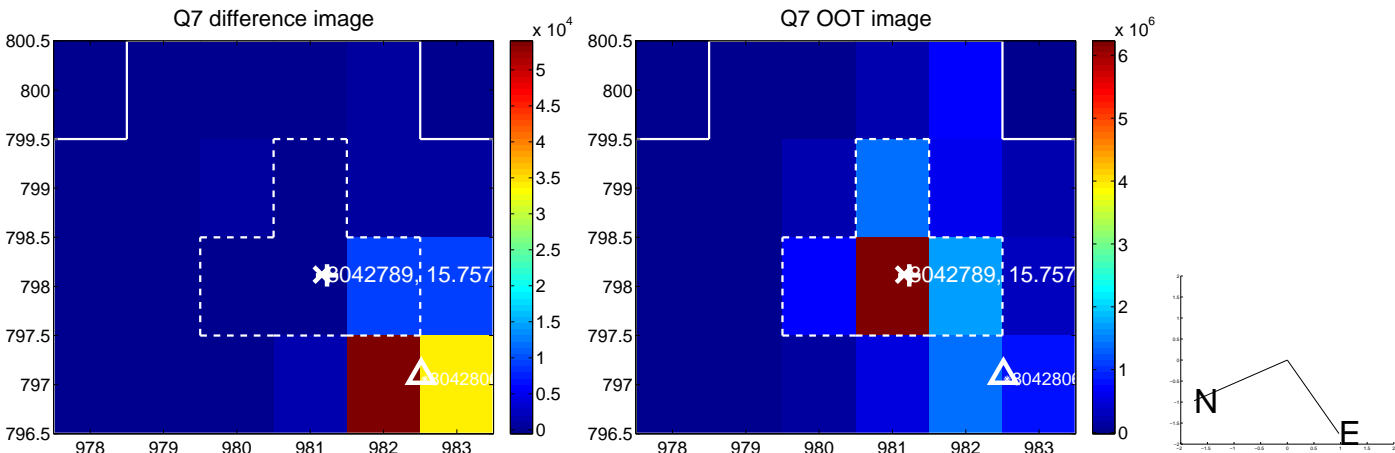
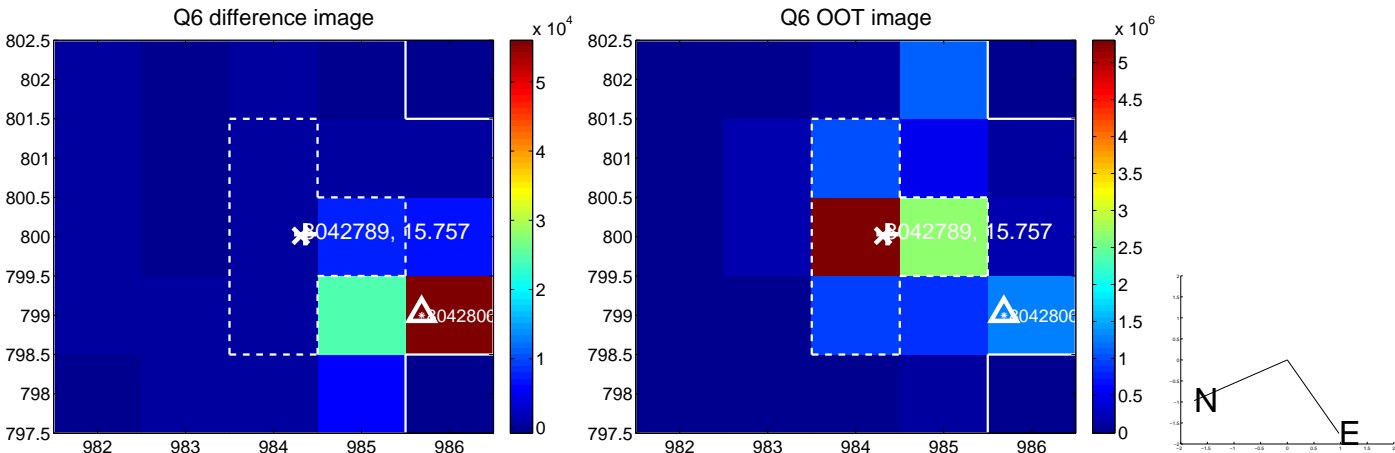
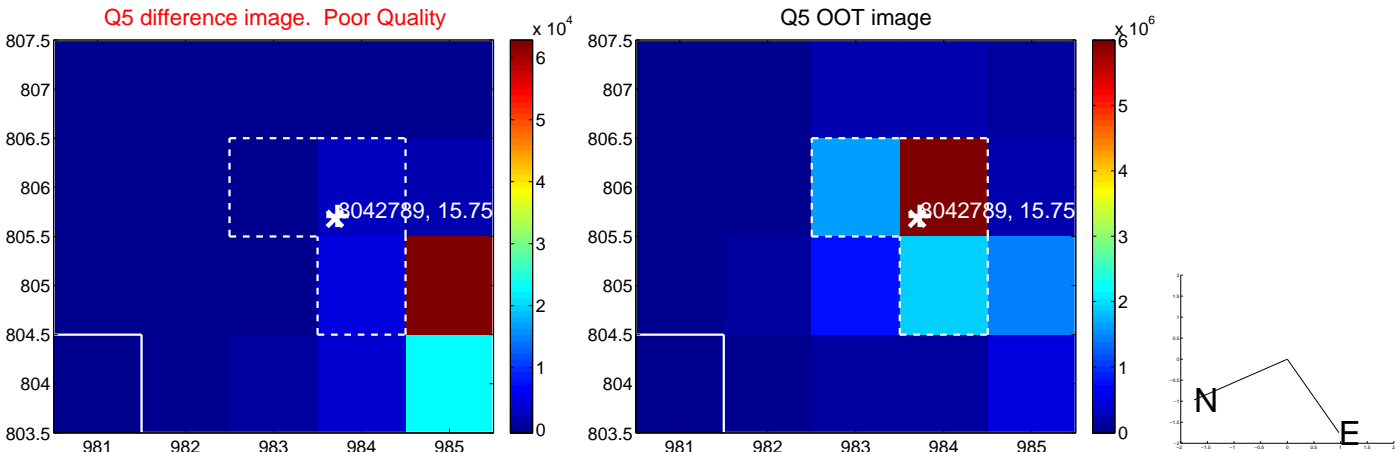


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

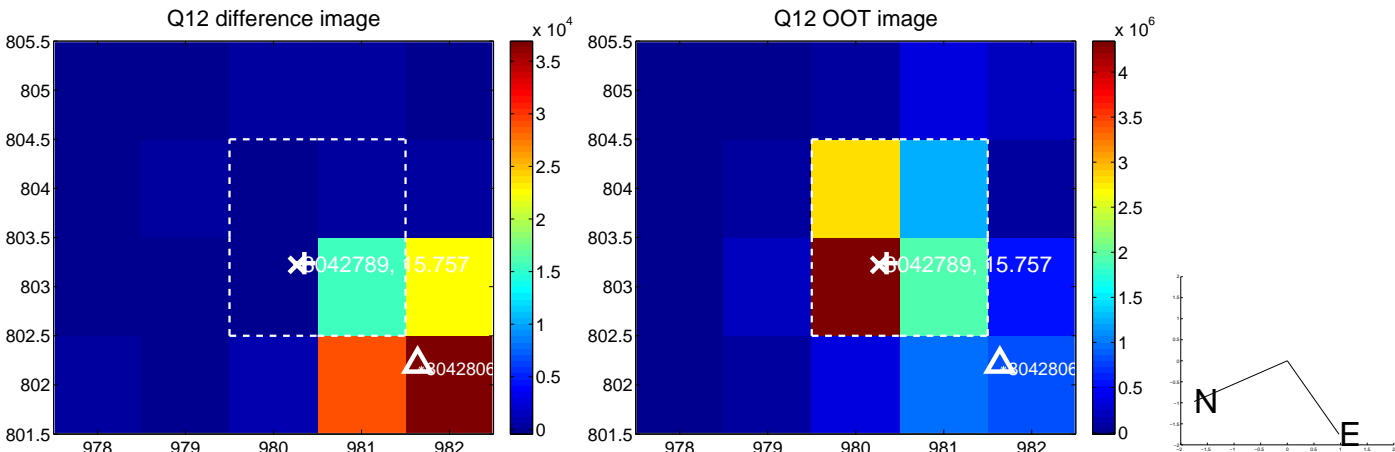
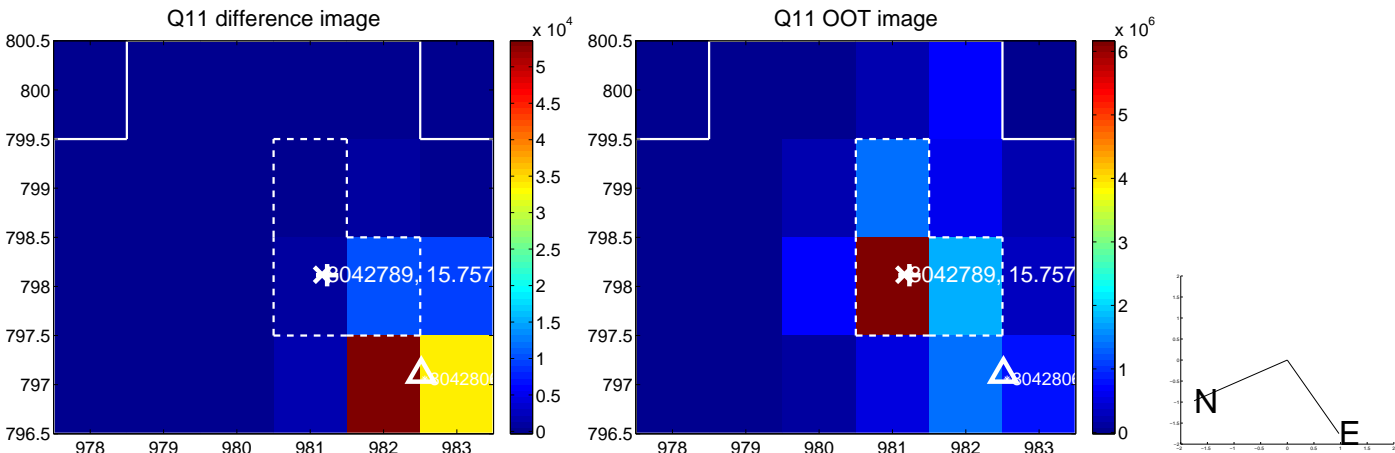
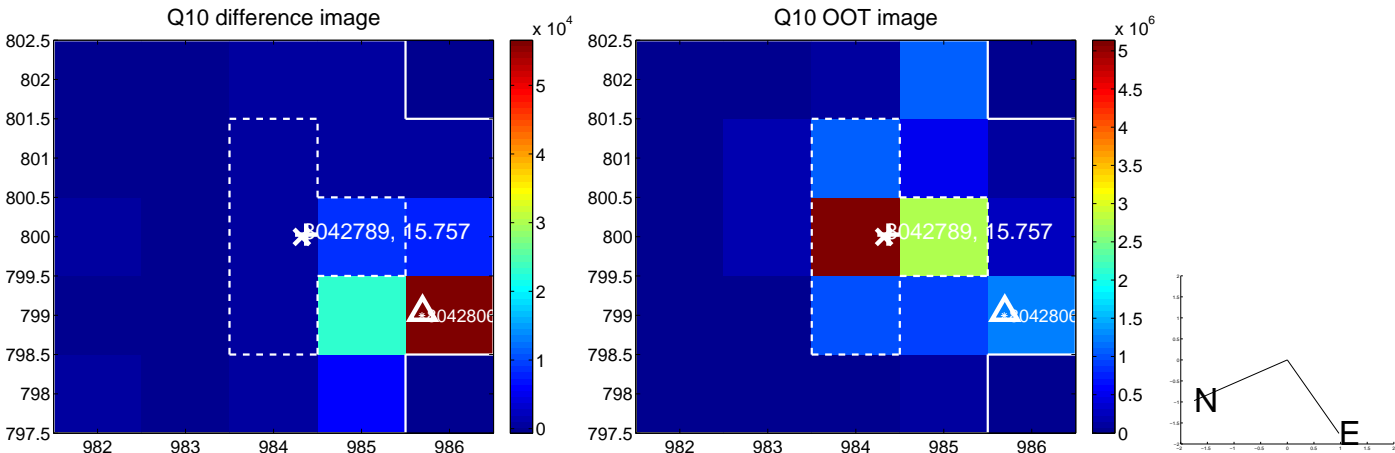
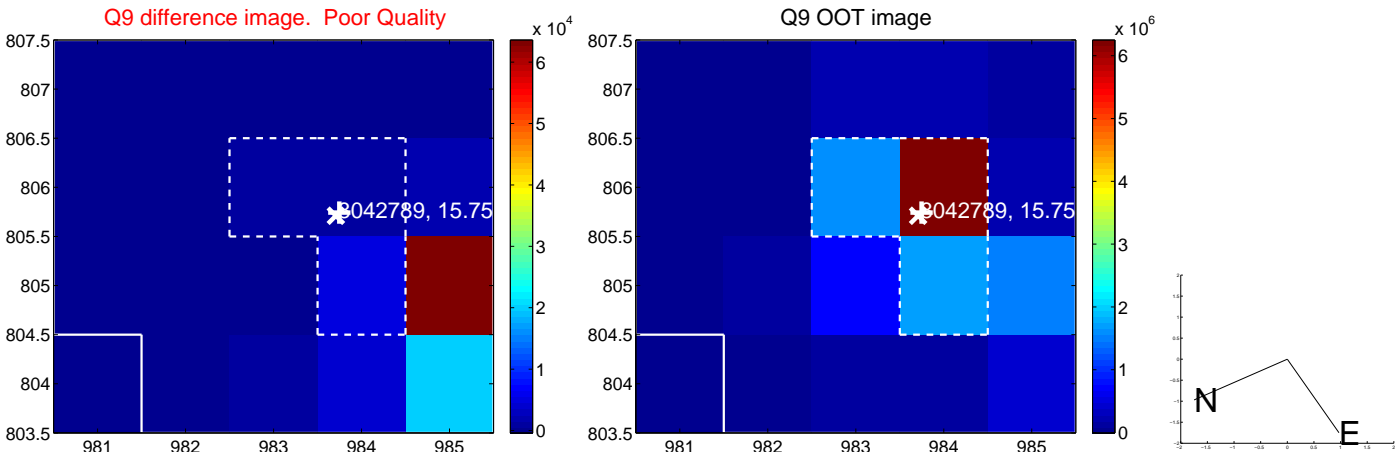
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



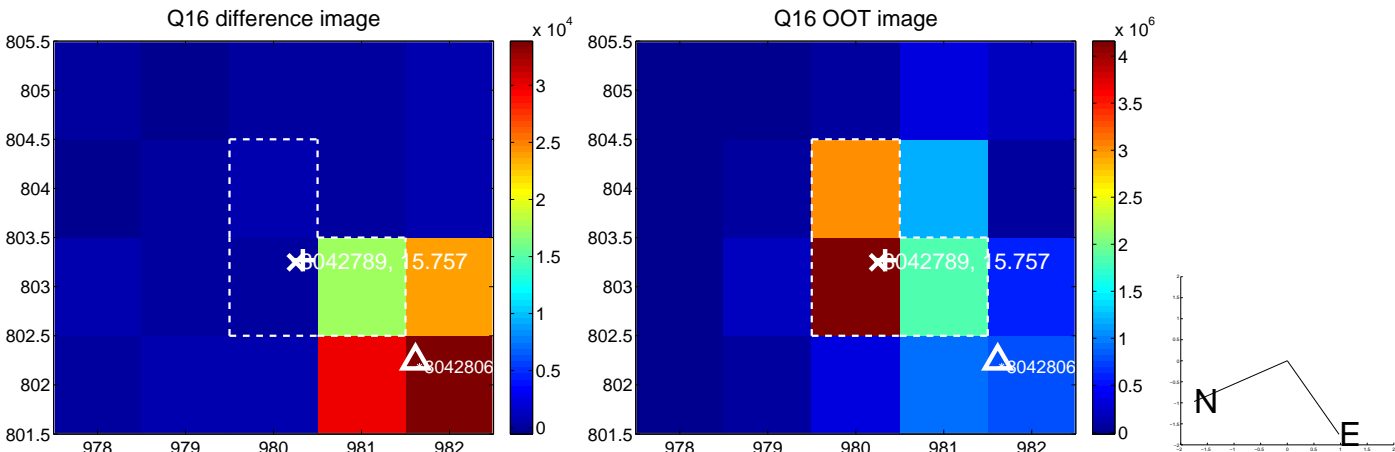
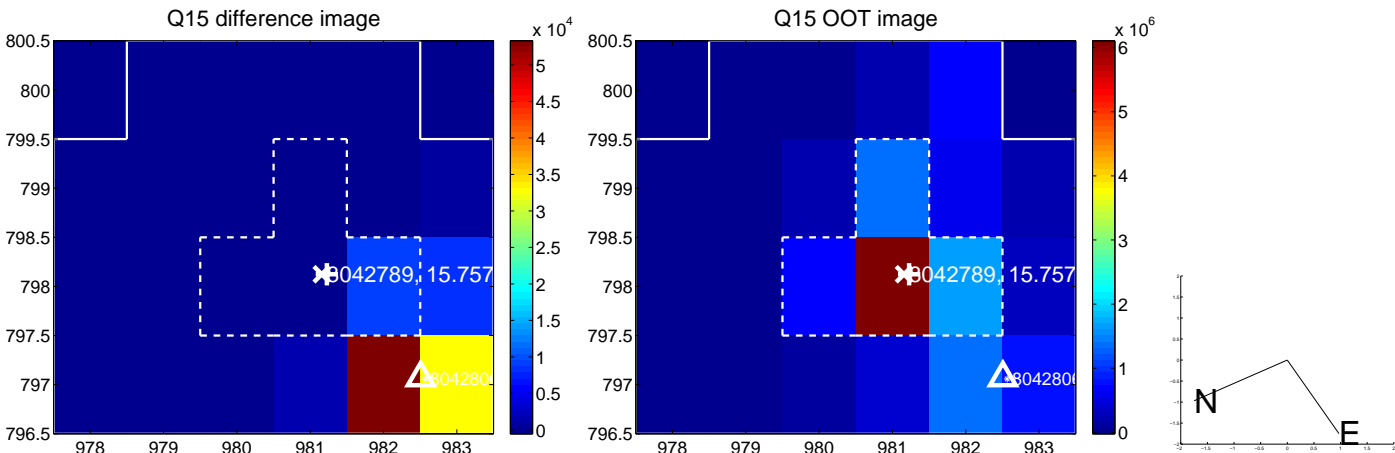
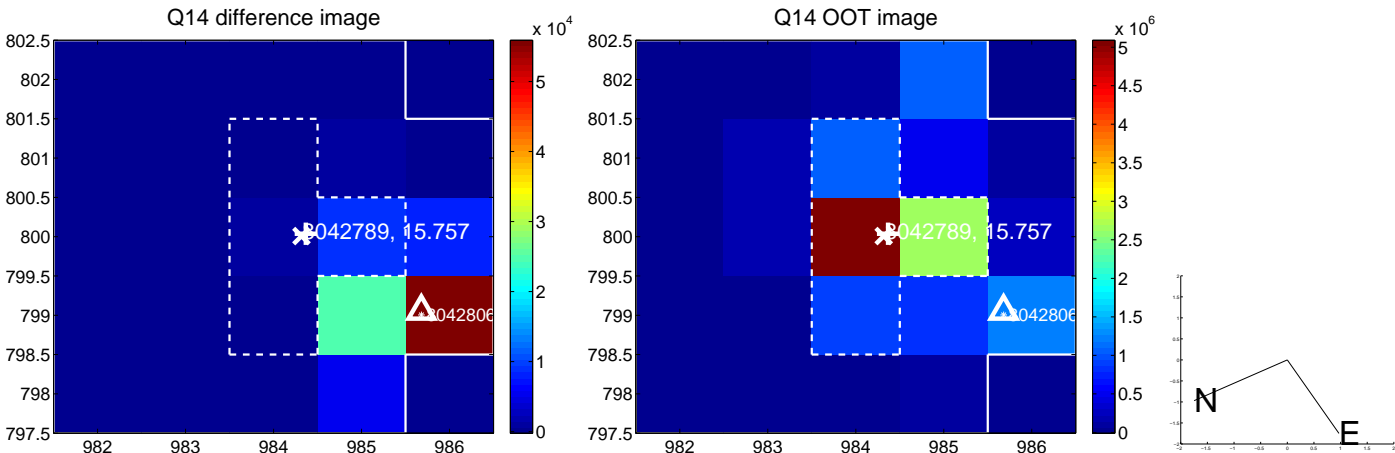
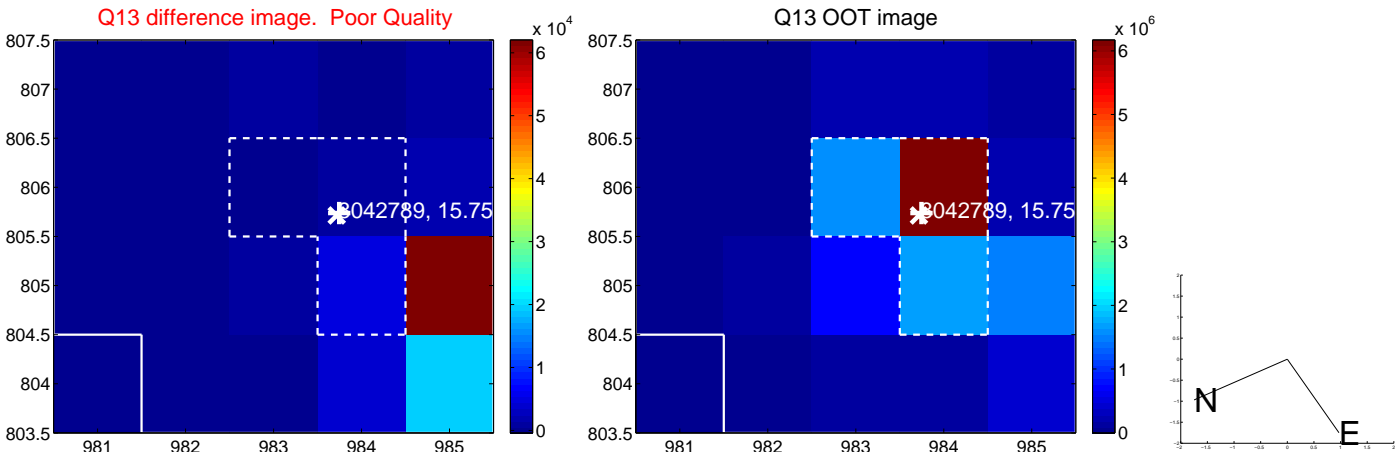
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



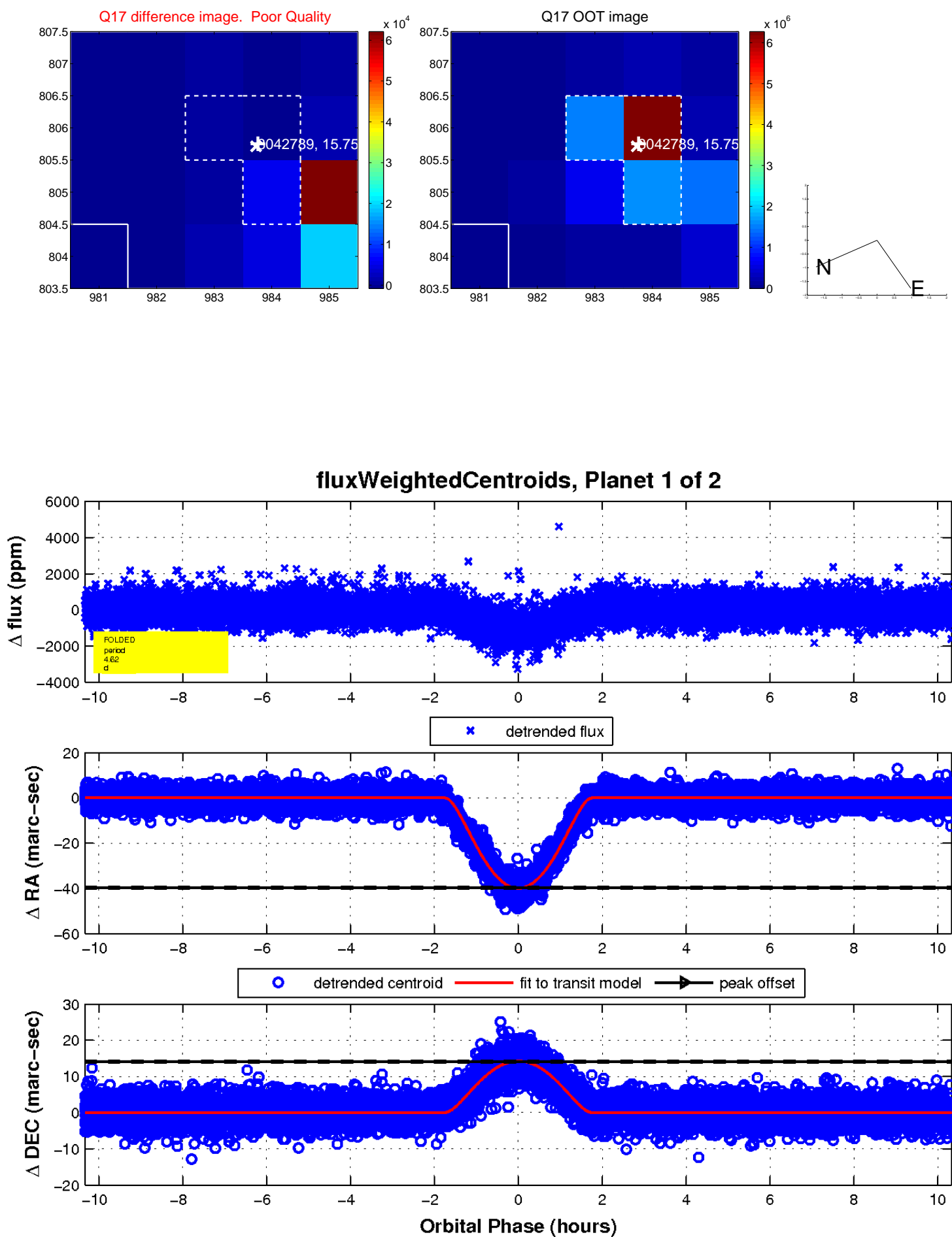
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

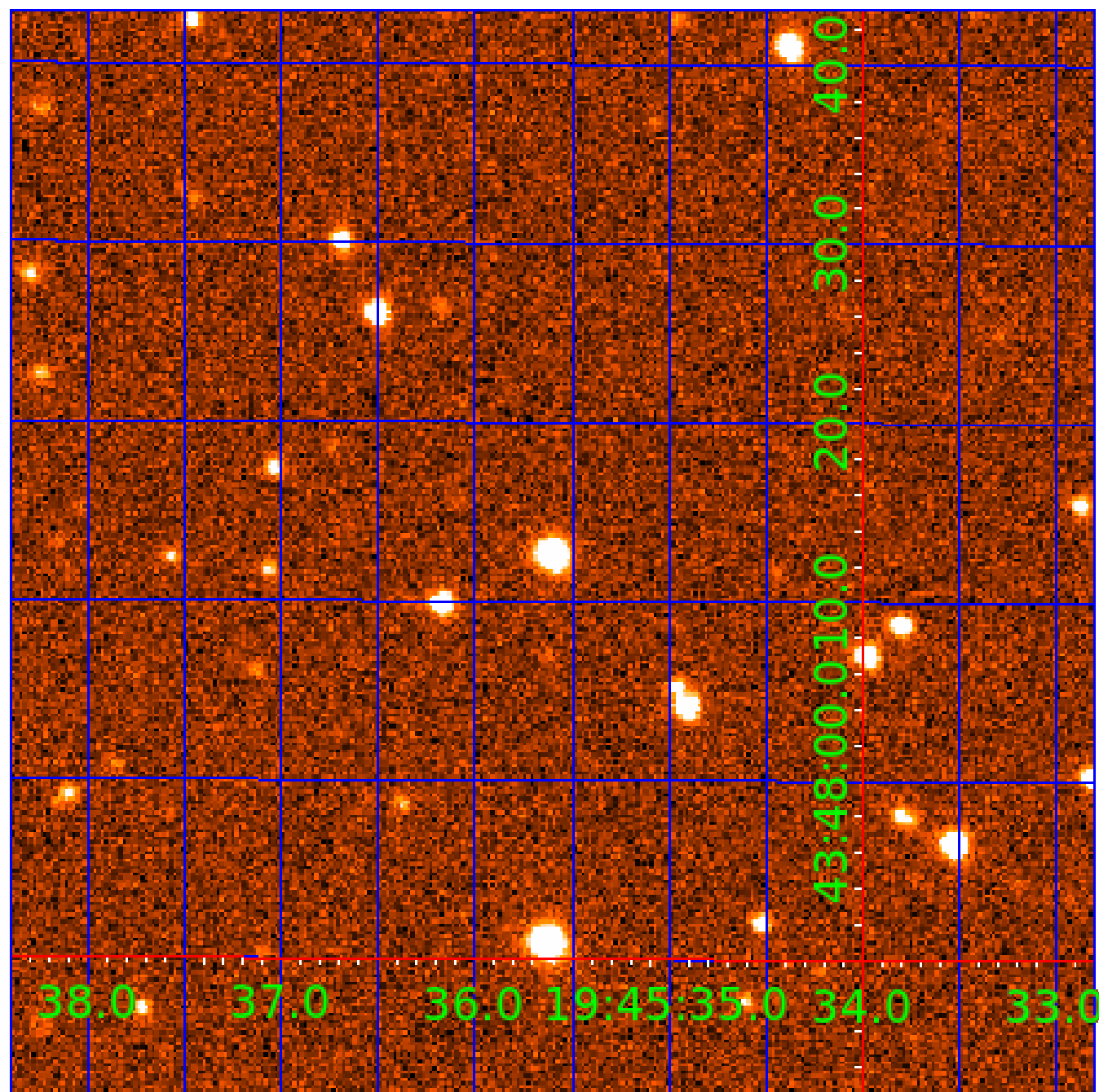


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008042789

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})
008042789-01	OBS	3838.01	4.618304	135.850938	1104.7	3.442	54.2	61.1	0.81	5452	4.72	190.80
008042789-02	OBS	No	4.618304	133.550506	288.0	3.031	18.3	18.9	0.81	5452	1.66	190.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008042789-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET
008042789-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

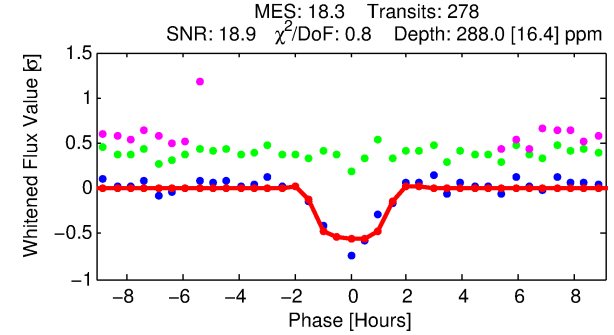
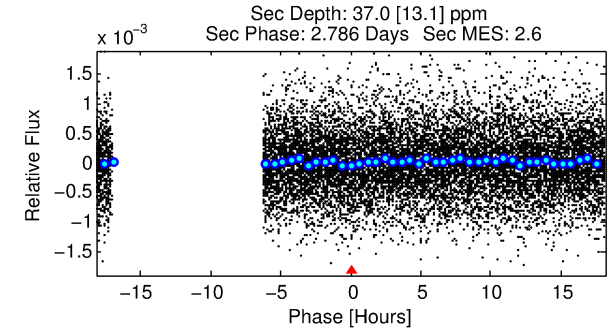
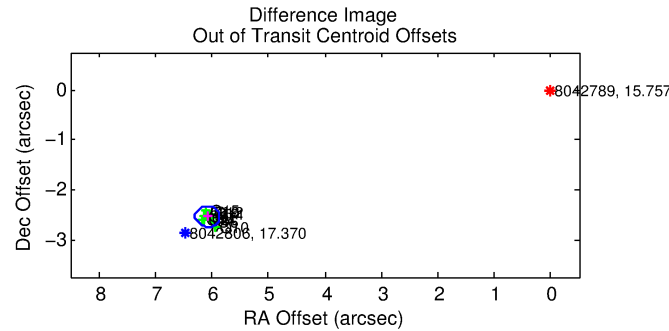
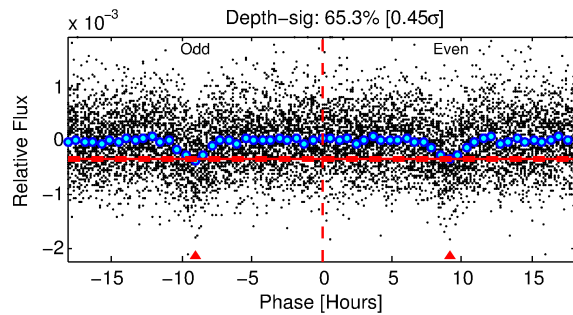
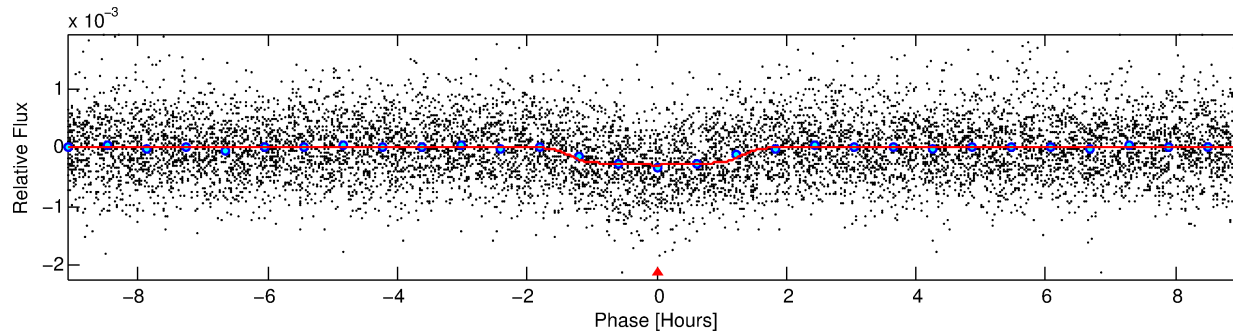
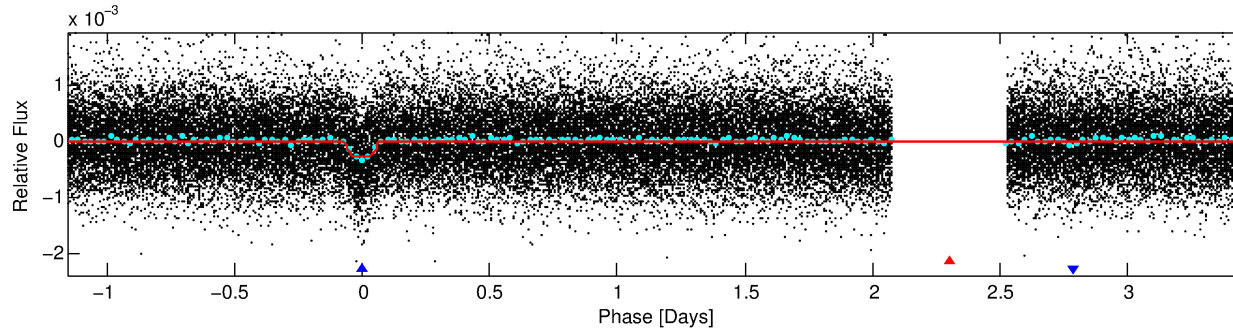
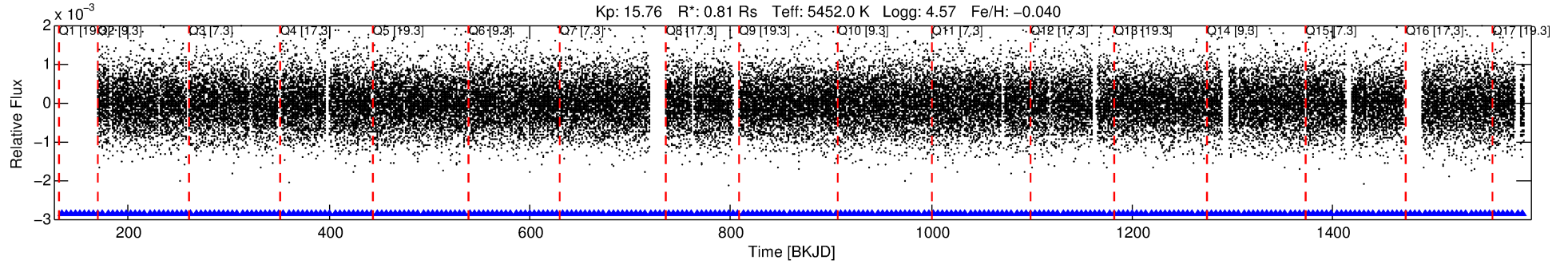
Ephemeris Match Information For 008042789-02

No Significant Match Found

DV One-Page Summary

KIC: 8042789 Candidate: 2 of 2 Period: 4.618 d
KOI: K03838 Corr: No Ephemeris Match

Kp: 15.76 R*: 0.81 Rs Teff: 5452.0 K Logg: 4.57 Fe/H: -0.040



DV Fit Results:

Period = 4.61830 [0.00002] d
Epoch = 133.5505 [0.0029] BKJD
Rp/R* = 0.0187 [0.0053]
a/R* = 5.60 [6.81]
b = 0.90 [0.27]
Seff = 190.80 [52.54]
Teff = 948 [65] K
Rp = 1.66 [0.58] Re
a = 0.0525 [0.0089] AU
Ag = 20.29 [14.50] [1.33σ]
Teffp = 3110 [529] K [4.05σ]

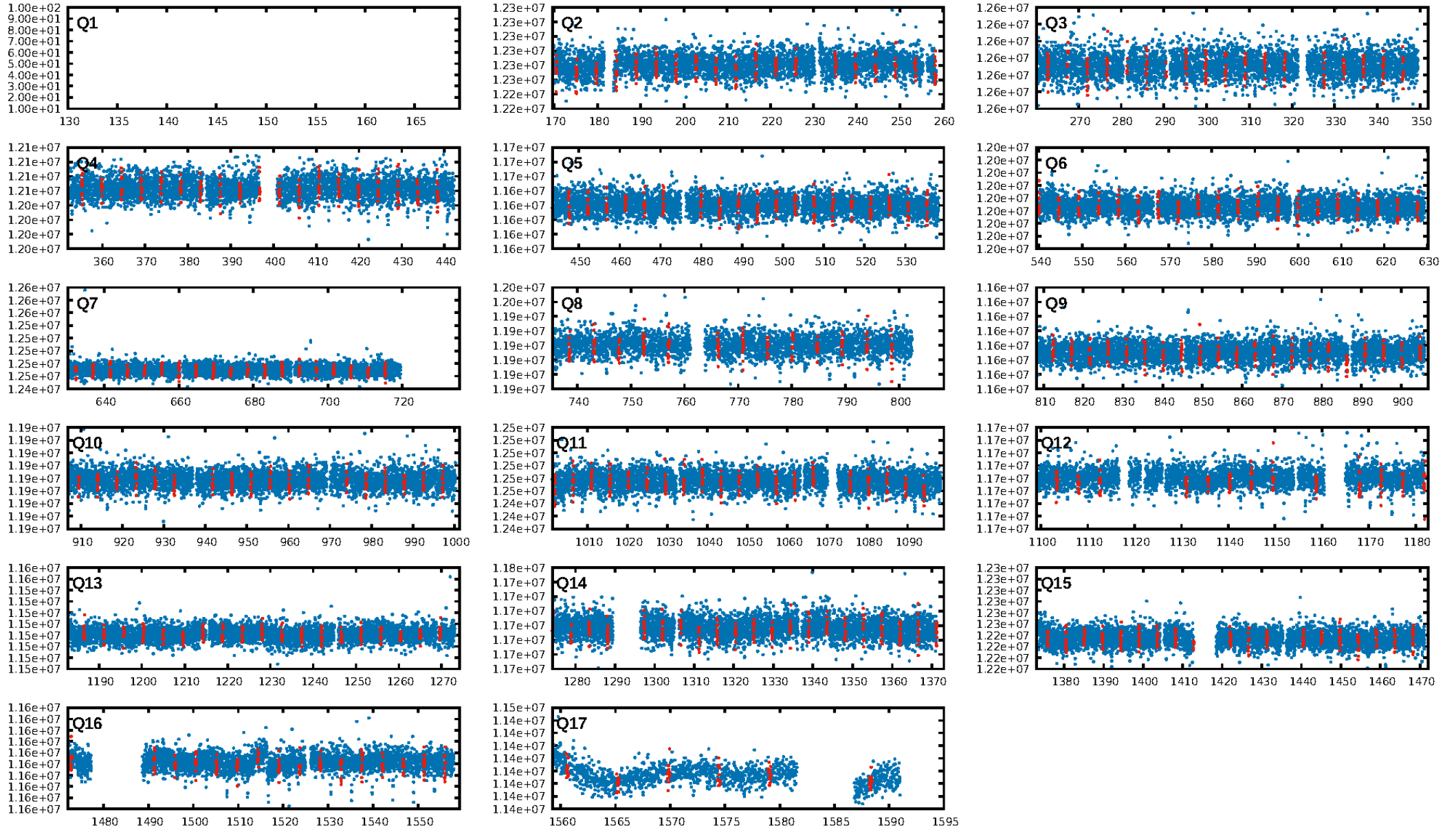
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 5.13e-75
RollingBand-fgt: 1.00 [272/272]
GhostDiagnostic-chr: -0.244
Centroid-sig: 0.0%
Centroid-so: 44.274 arcsec [50.51σ]
OotOffset-rm: 6.586 arcsec [94.29σ]
KicOffset-rm: 6.771 arcsec [95.57σ]
OotOffset-st: 4/4/4/0 [12]
KicOffset-st: 4/4/4/0 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [16/16]

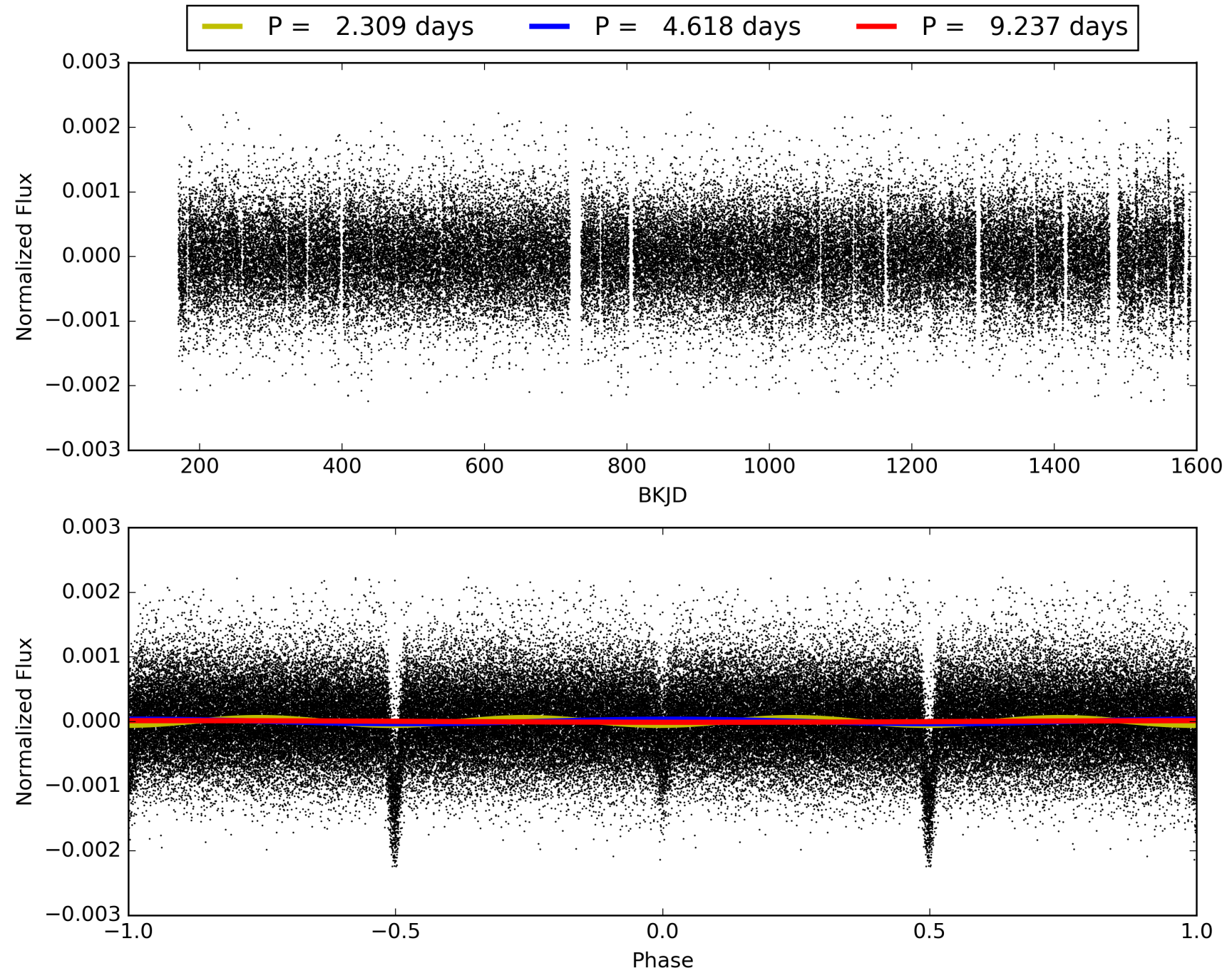
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:27:04 Z

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

TCE 008042789-02, PDC Light Curves

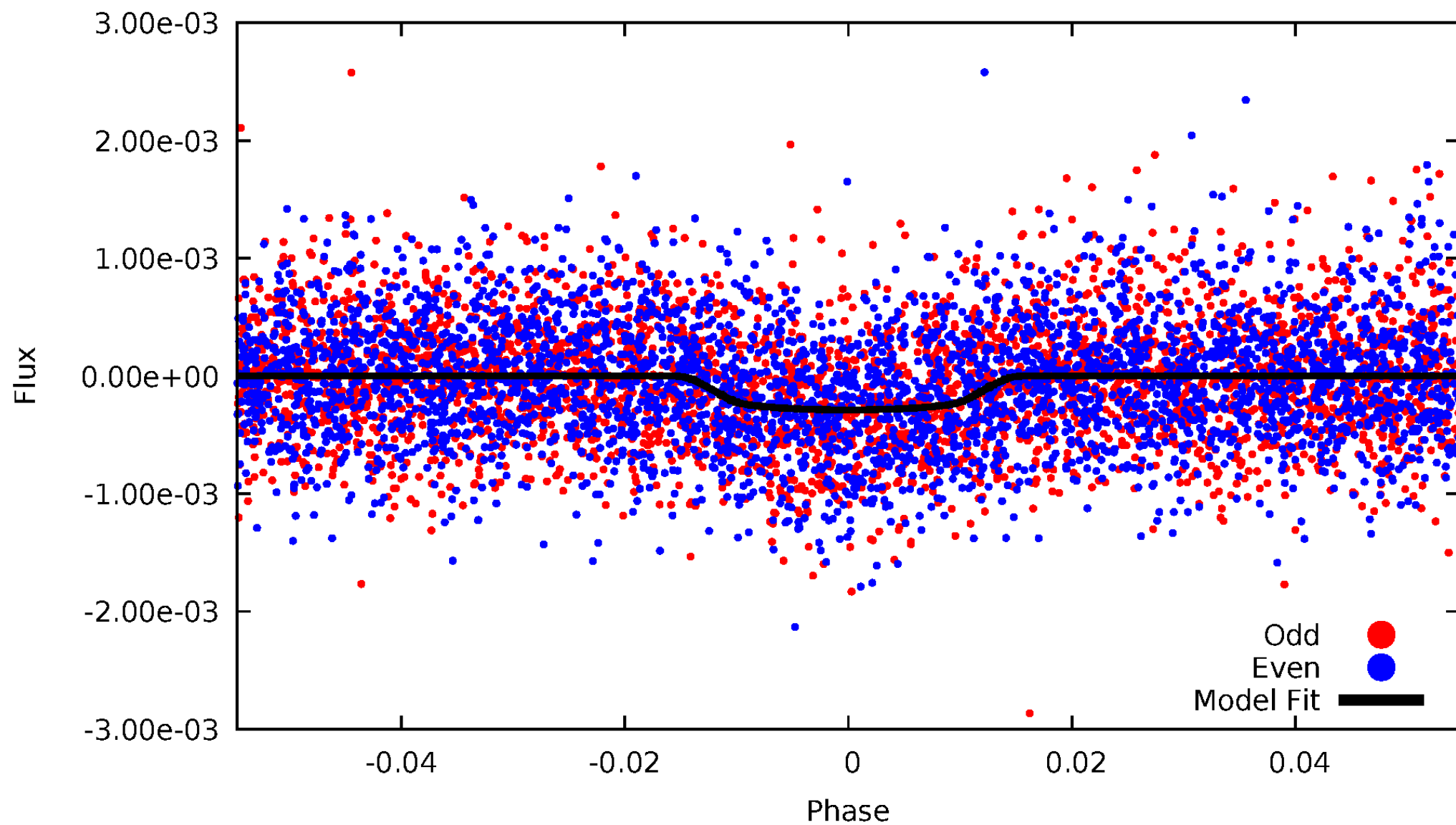


TCE 008042789-02



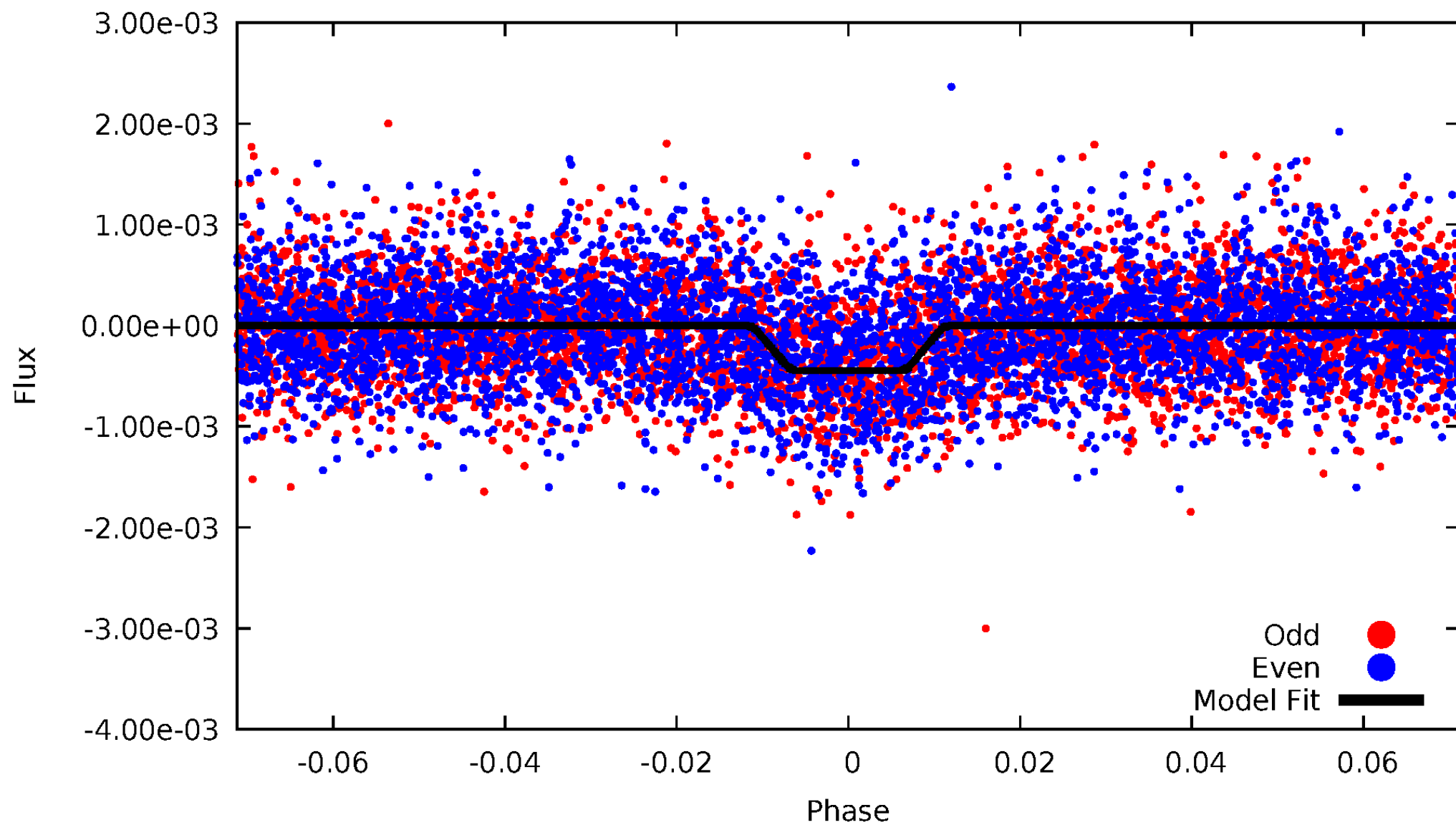
DV Odd/Even

TCE 008042789-02



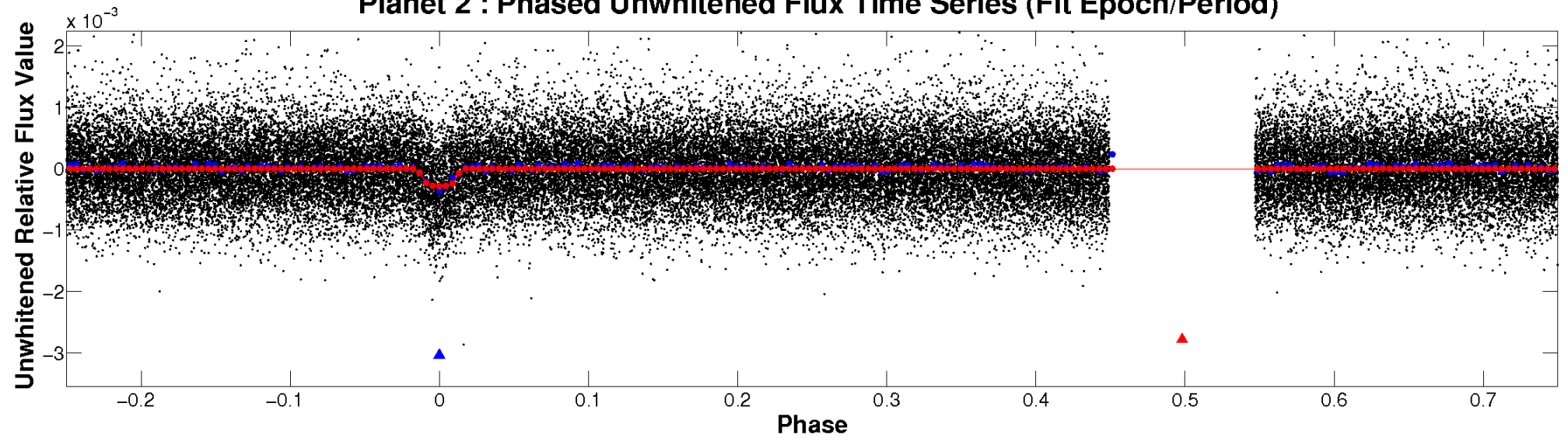
ALT Odd/Even

TCE 008042789-02

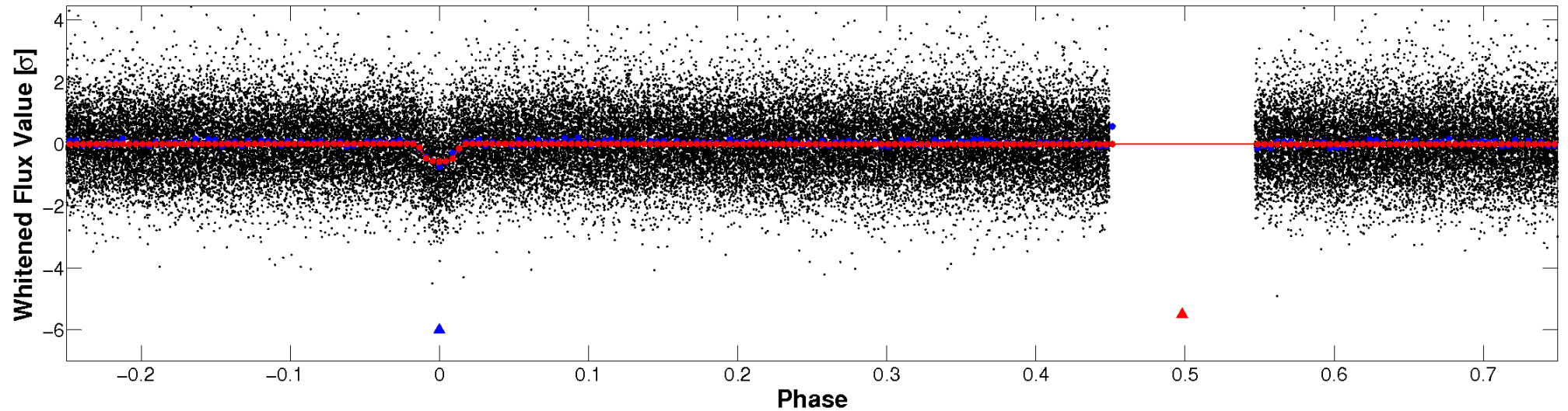


Non-Whitened Vs. Whitened Light Curve

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

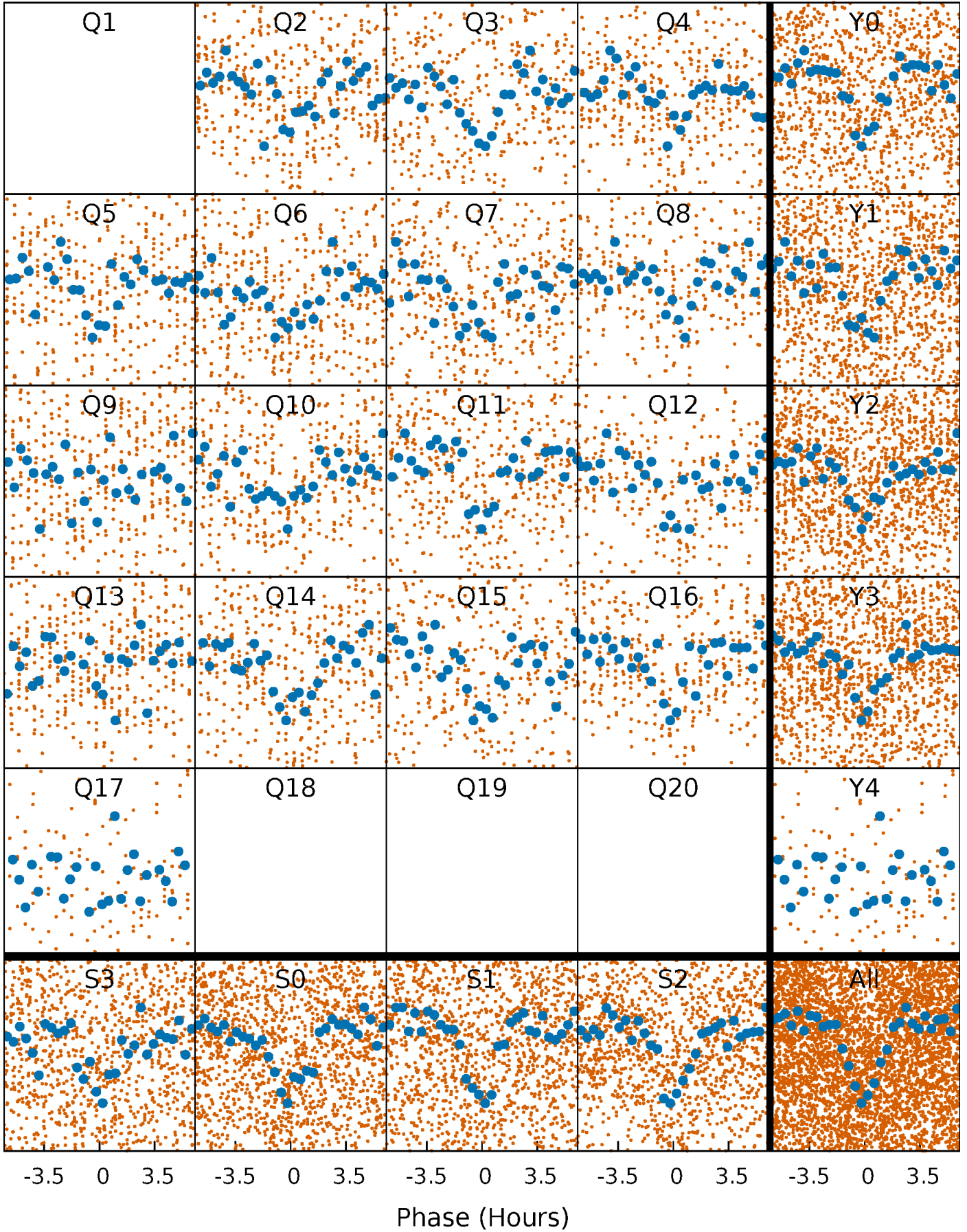


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



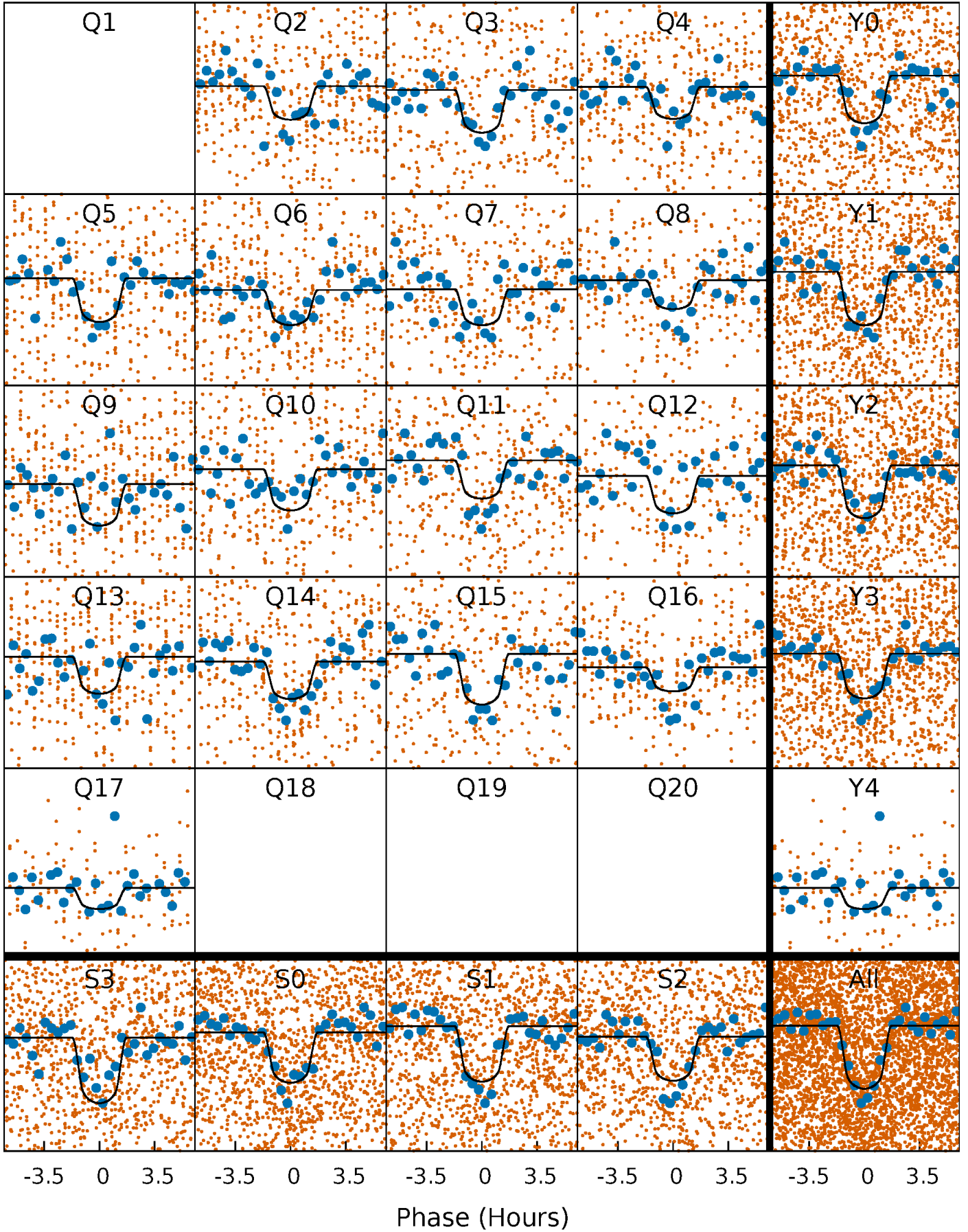
PDC Quarter-Phased Transit Curves

TCE 008042789-02 P= 4.618304 Days $T_0=133.550506$ (BKJD)



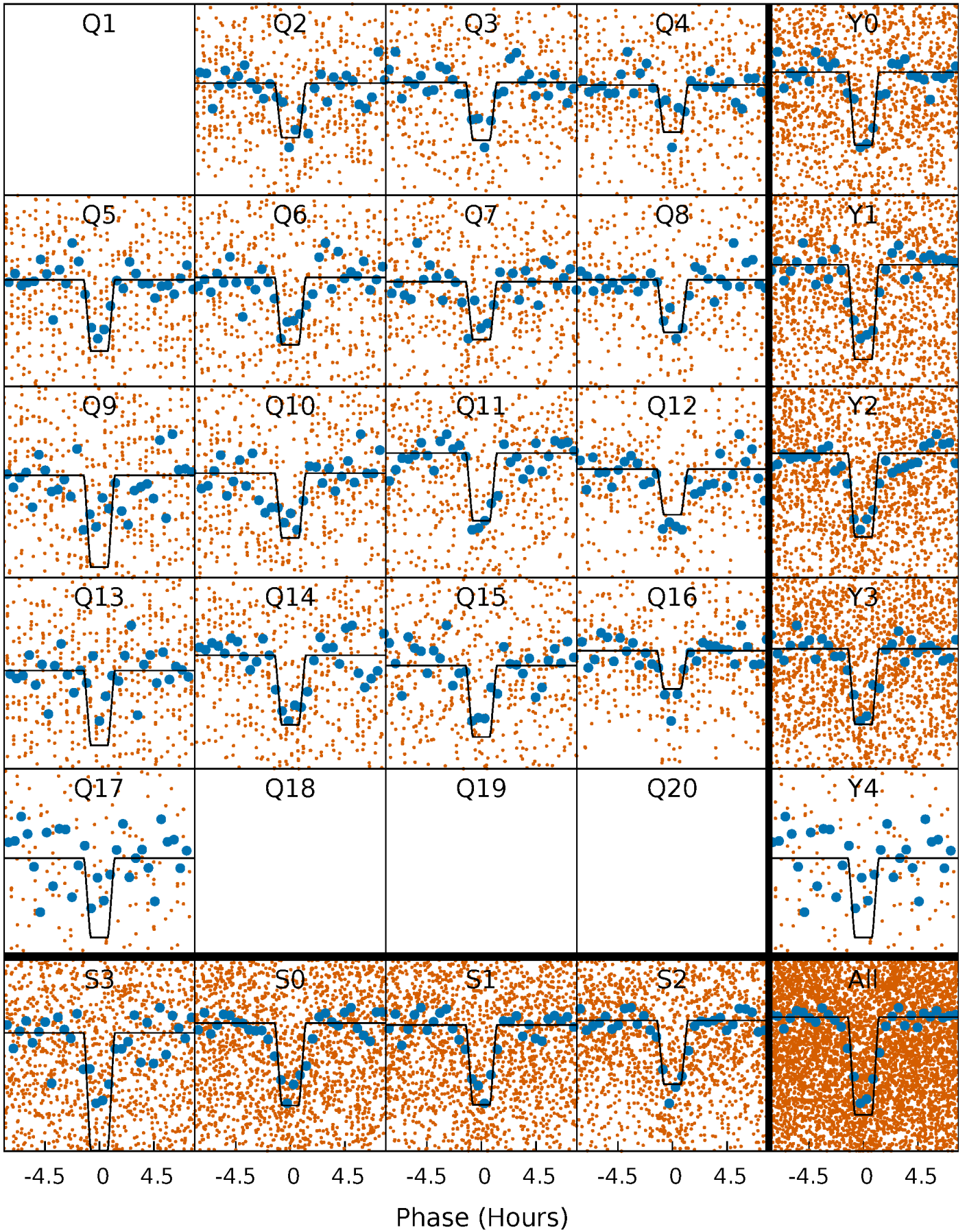
DV Quarter-Phased Transit Curves

TCE 008042789-02 P= 4.618304 Days $T_0=133.550506$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

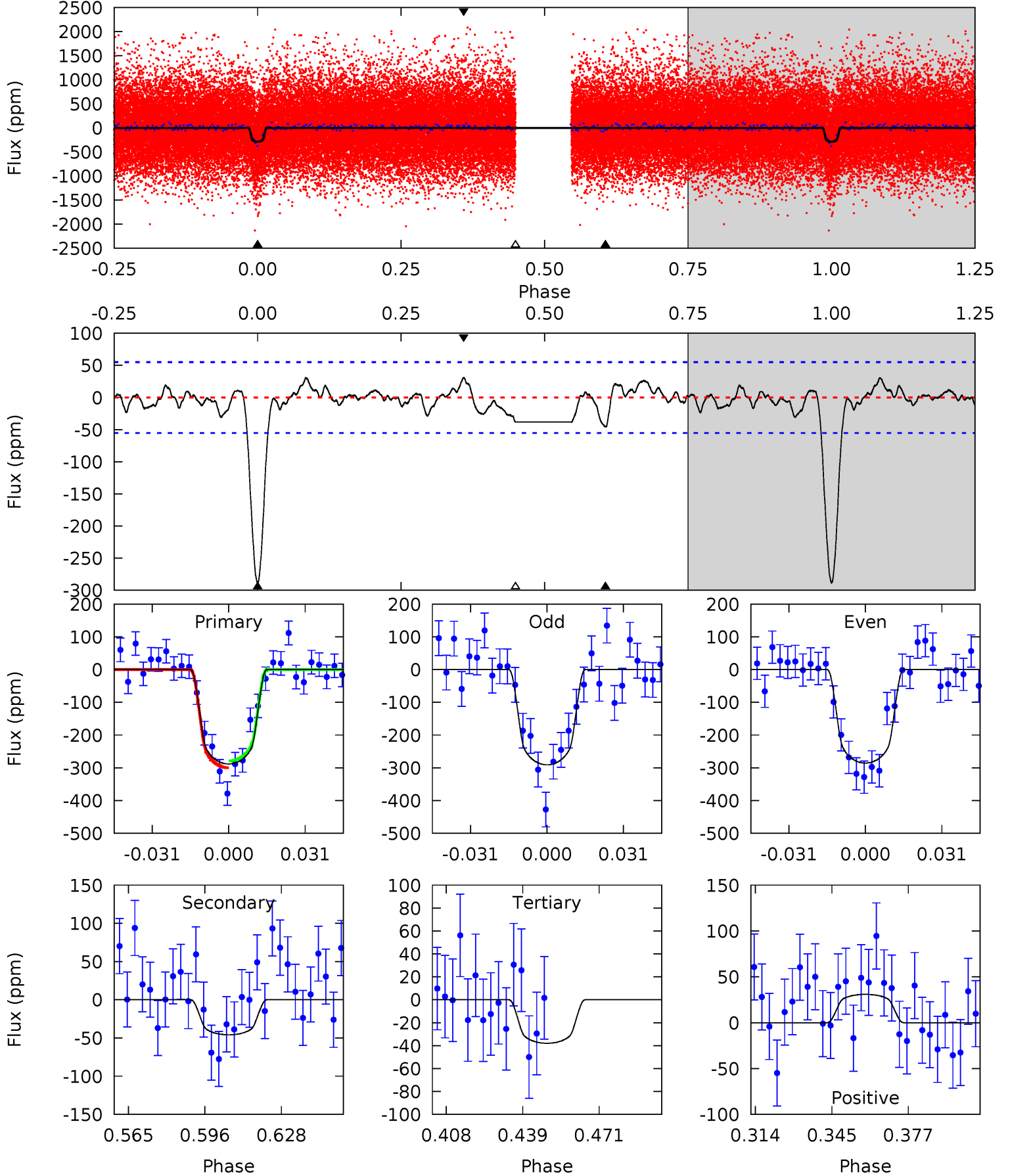
TCE 008042789-02 P= 4.618344 Days $T_0=133.542529$ (BKJD)



DV Model-Shift Uniqueness Test

008042789-02, P = 4.618304 Days, E = 133.550506 Days

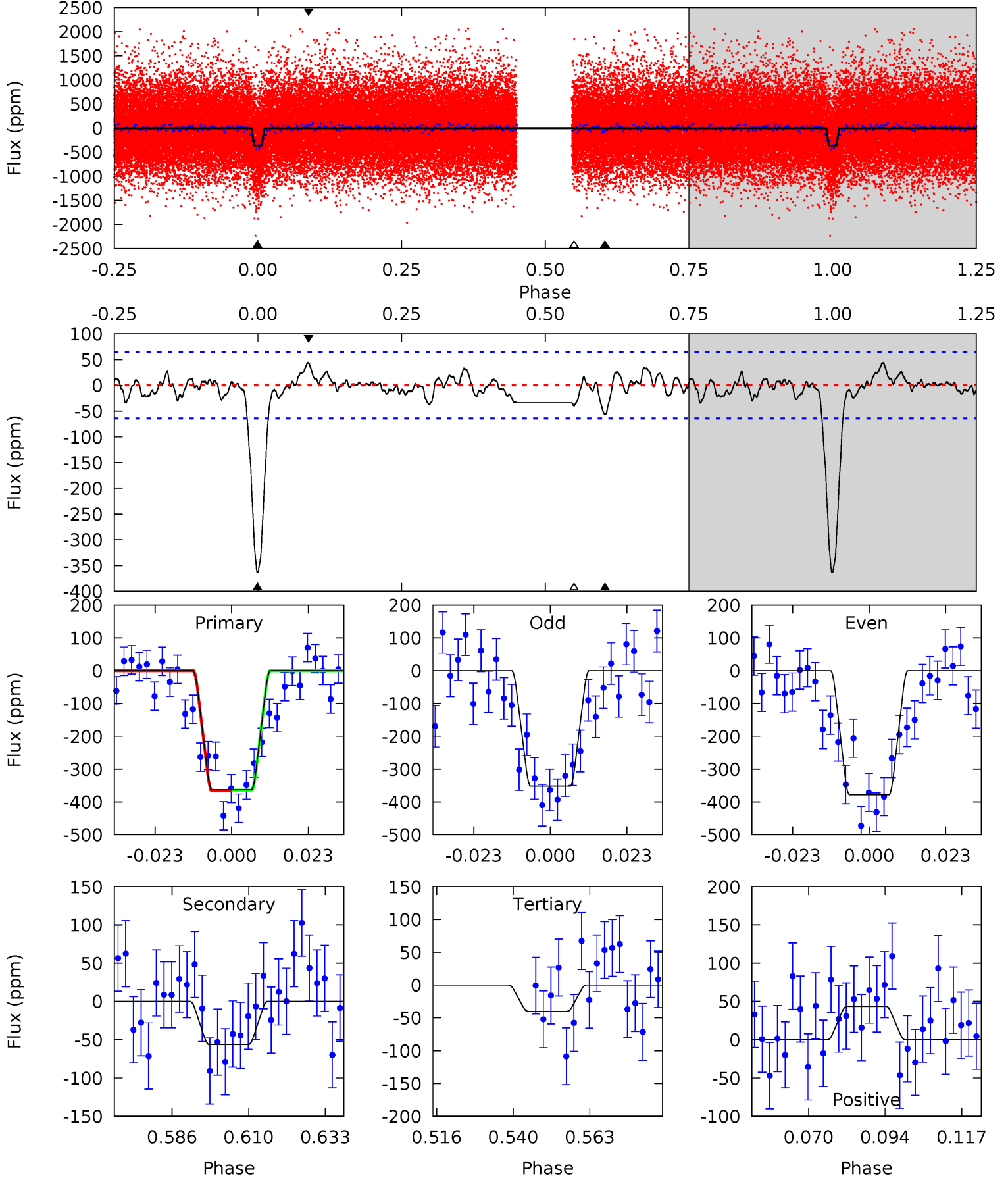
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	3.99	3.30	2.69	4.80	2.15	1.14	21.8	22.4	0.69	1.30	0.23	0.99	0.10	0.91



Alt Model-Shift Uniqueness Test

008042789-02, P = 4.618344 Days, E = 133.542529 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.5	4.27	3.03	3.31	4.86	2.27	1.15	24.5	24.2	1.23	0.96	0.99	1.01	0.11	0.09



Stellar Parameters For KIC 008042789

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5452^{+164}_{-164}	$4.572^{+0.034}_{-0.136}$	$-0.040^{+0.300}_{-0.300}$	$0.815^{+0.163}_{-0.070}$	$0.910^{+0.073}_{-0.101}$	$2.366^{+0.432}_{-0.937}$
	+3%/-3%	+1%/-3%	+750%/-750%	+20%/-9%	+8%/-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 008042789-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-46 ± 11	$1.74^{+0.55}_{-0.54}$	1351^{+67}_{-55}	3642^{+520}_{-325}	22^{+23}_{-9}
Alt.	-56 ± 13	$1.94^{+0.55}_{-0.50}$	1347^{+69}_{-54}	3645^{+427}_{-321}	22^{+20}_{-10}

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

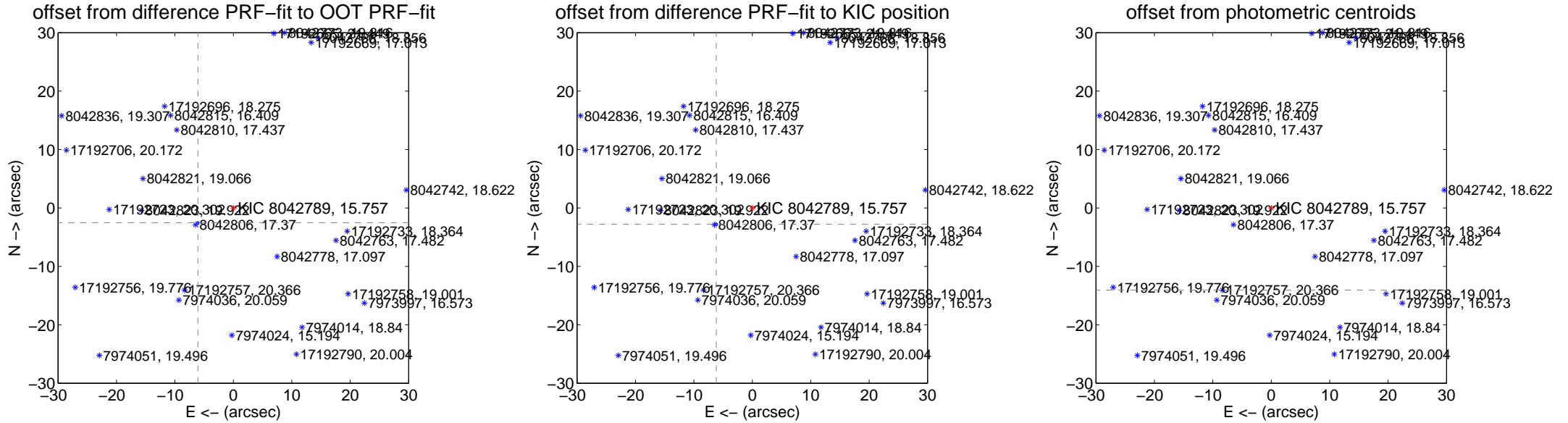
DV Centroid Data

Supplemental centroid analysis for 008042789-02. Kepler magnitude: 15.76. Transit SNR 18.91

There are 12 quarters with good PRF difference image offsets

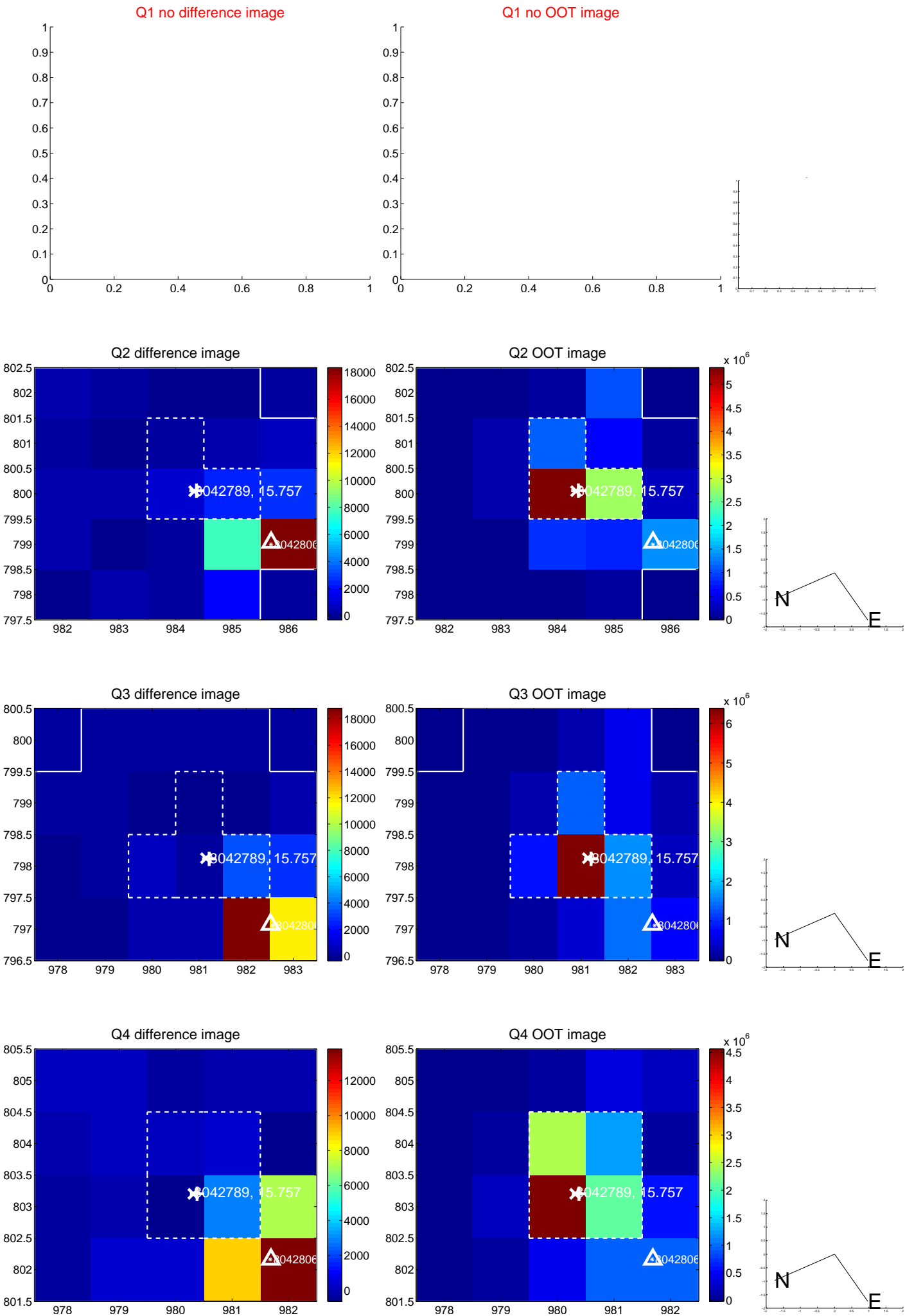
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.586 ± 0.070	94.29	6.076 ± 0.070	-2.539 ± 0.071
PRF-fit source offset from KIC position	6.771 ± 0.071	95.57	6.168 ± 0.071	-2.792 ± 0.069
photometric centroid source offset	44.28 ± 0.88	50.51	41.99 ± 0.89	-14.04 ± 0.72

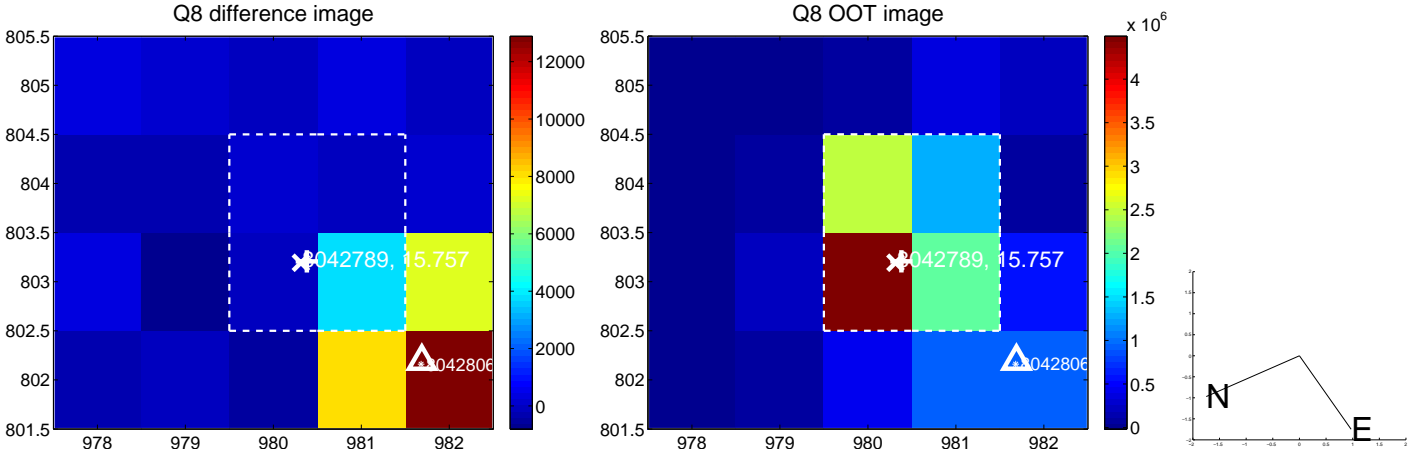
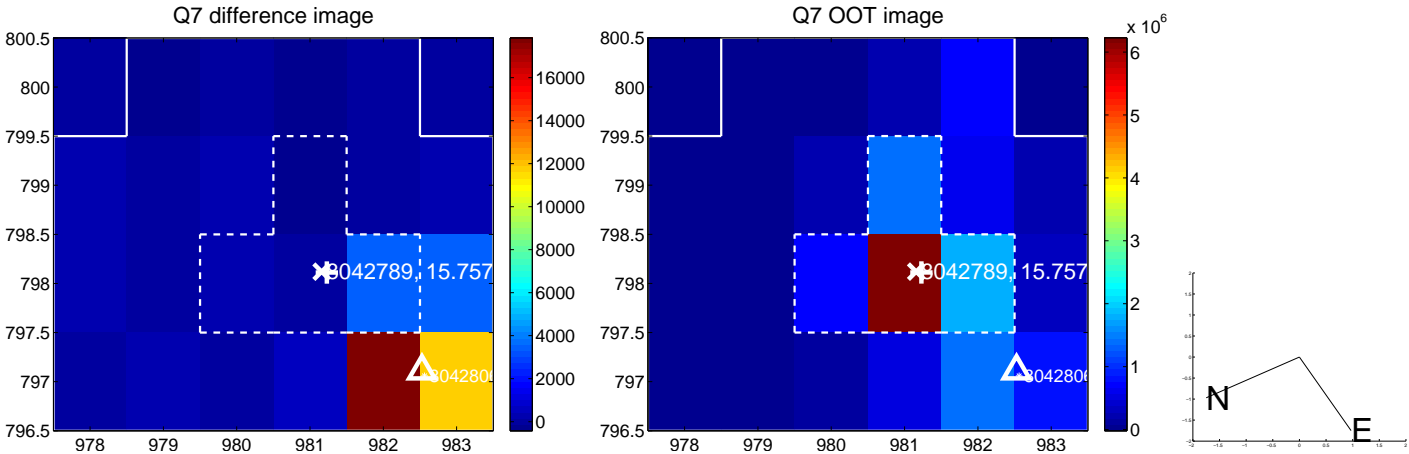
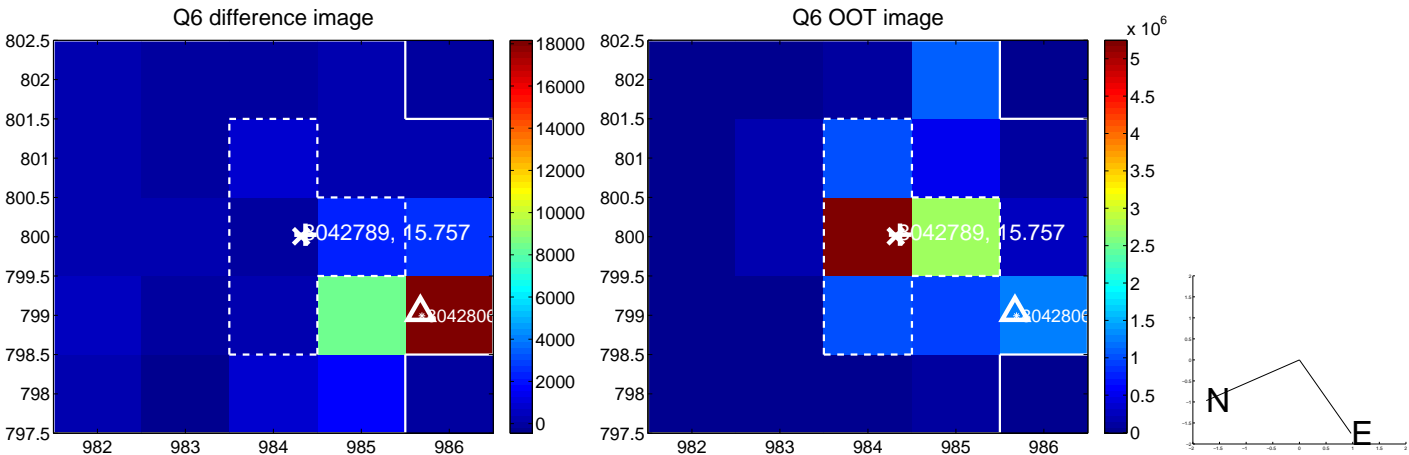
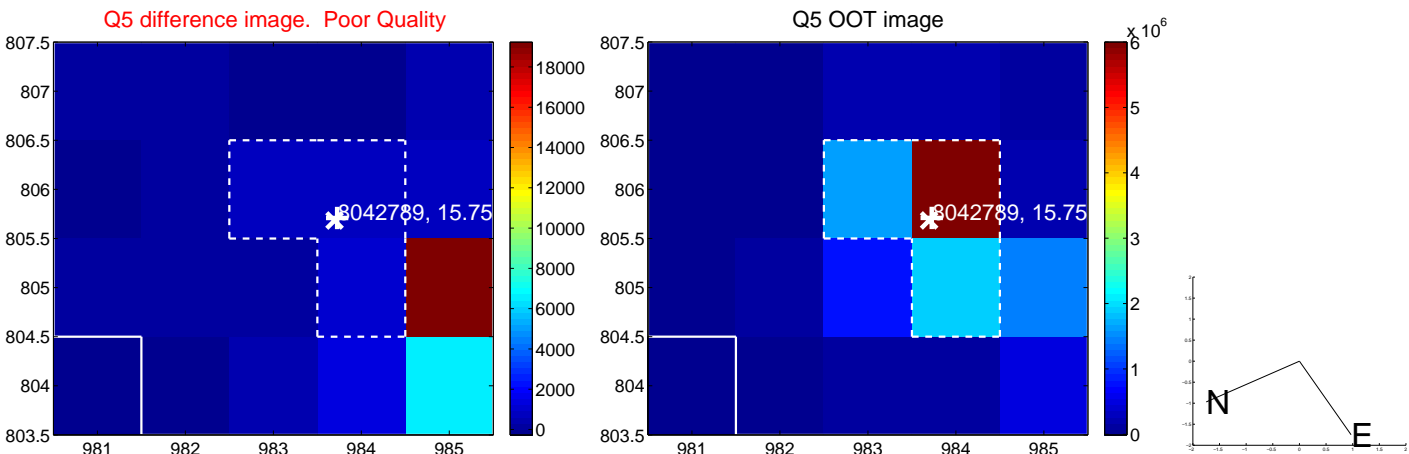


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

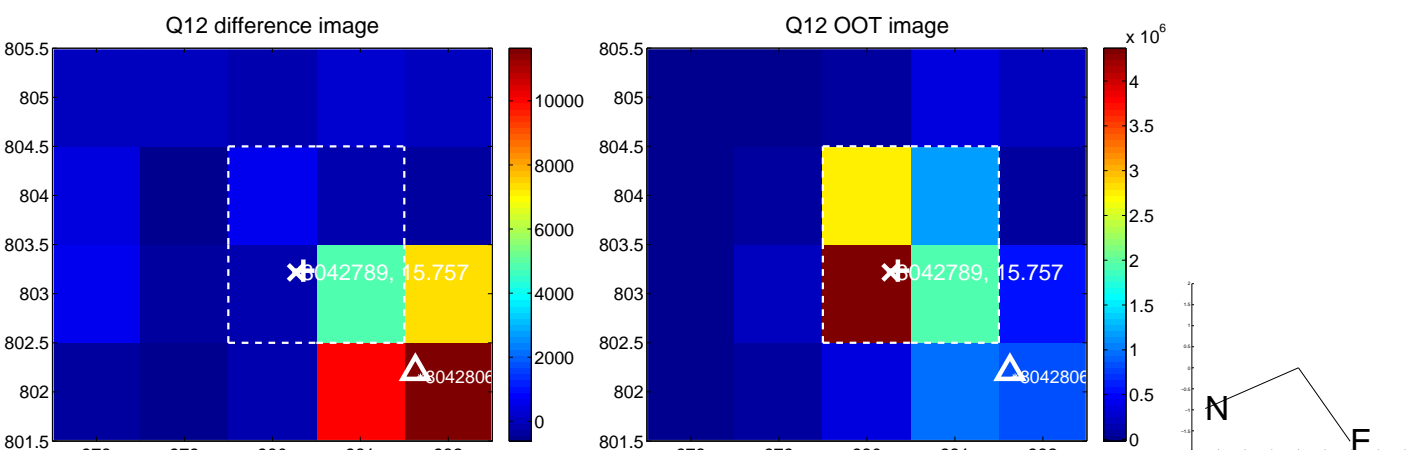
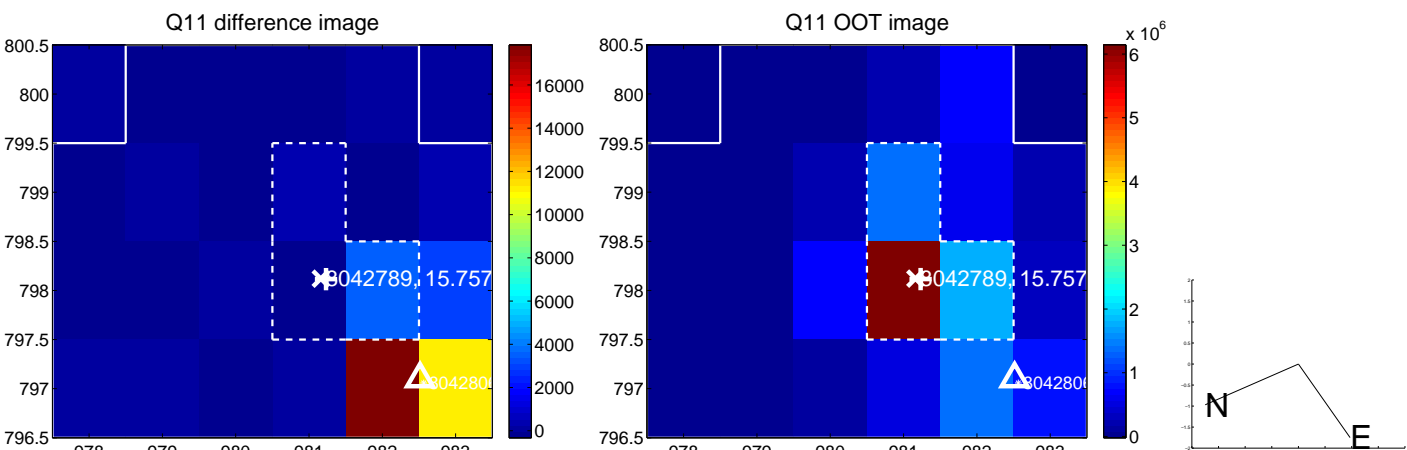
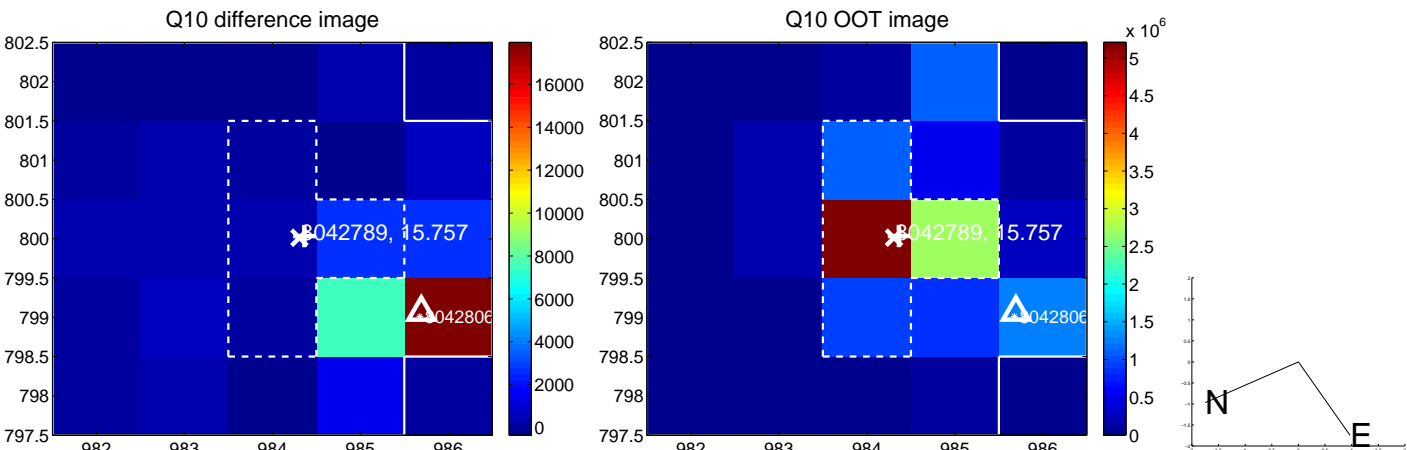
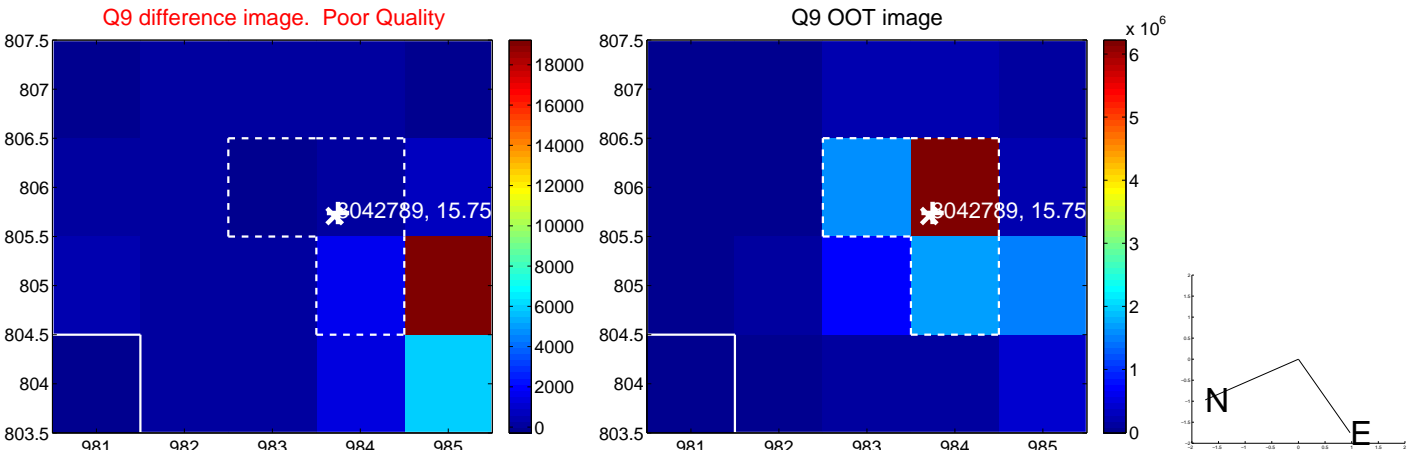
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



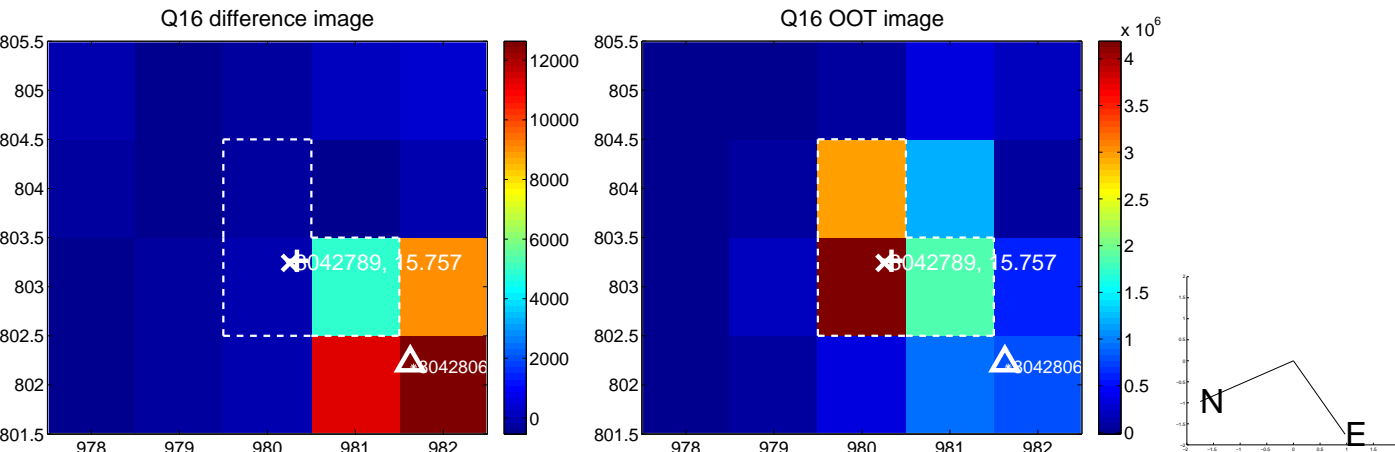
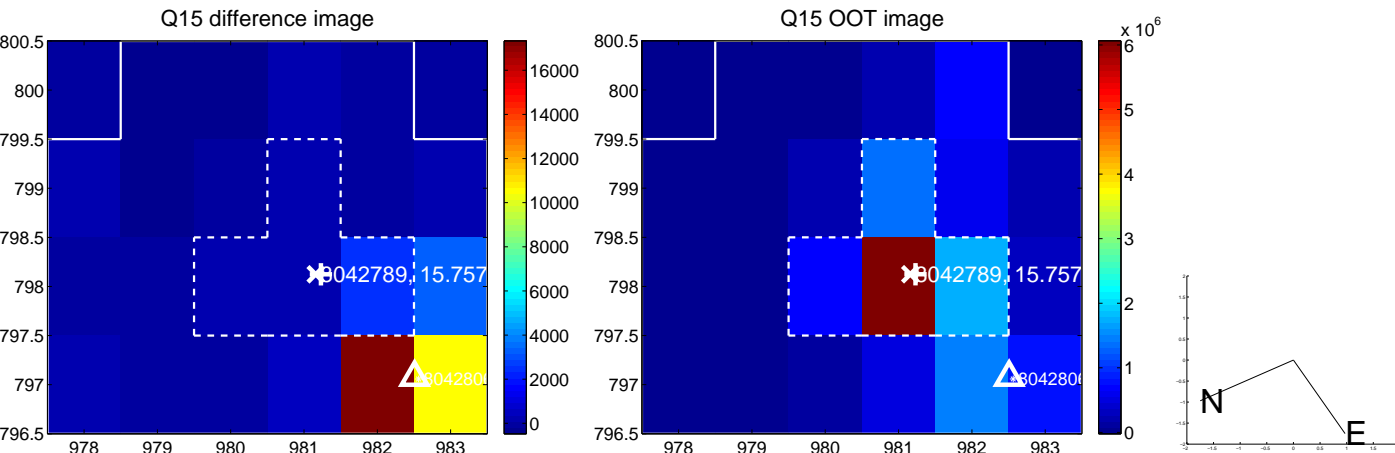
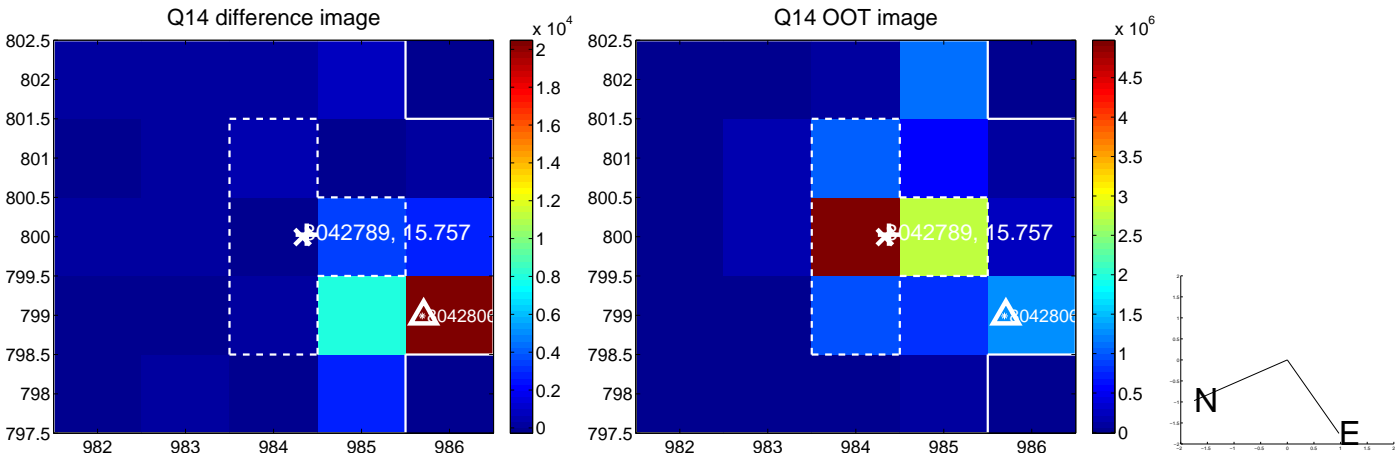
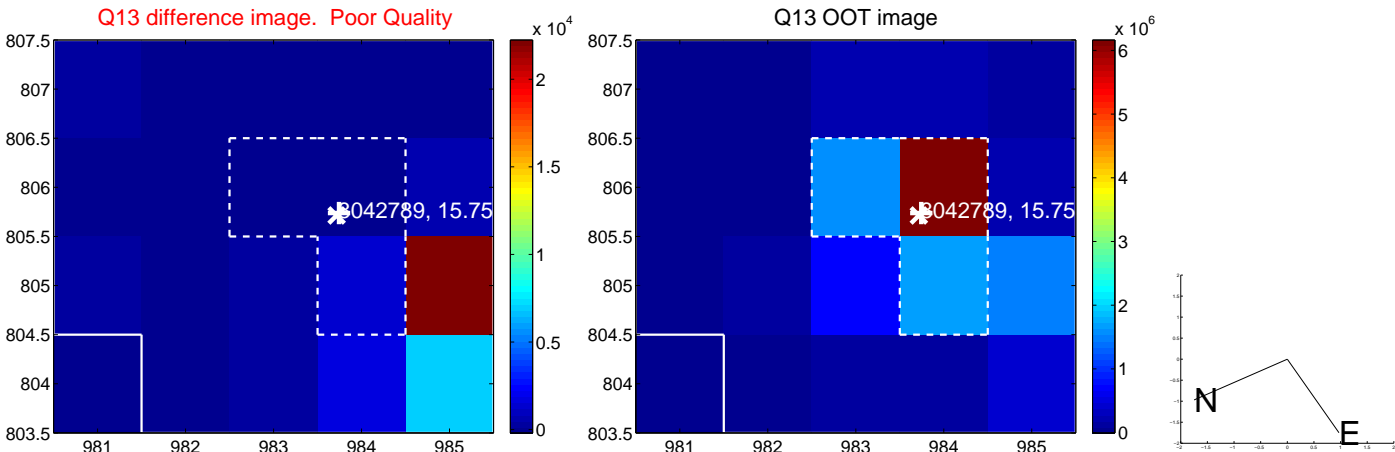
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



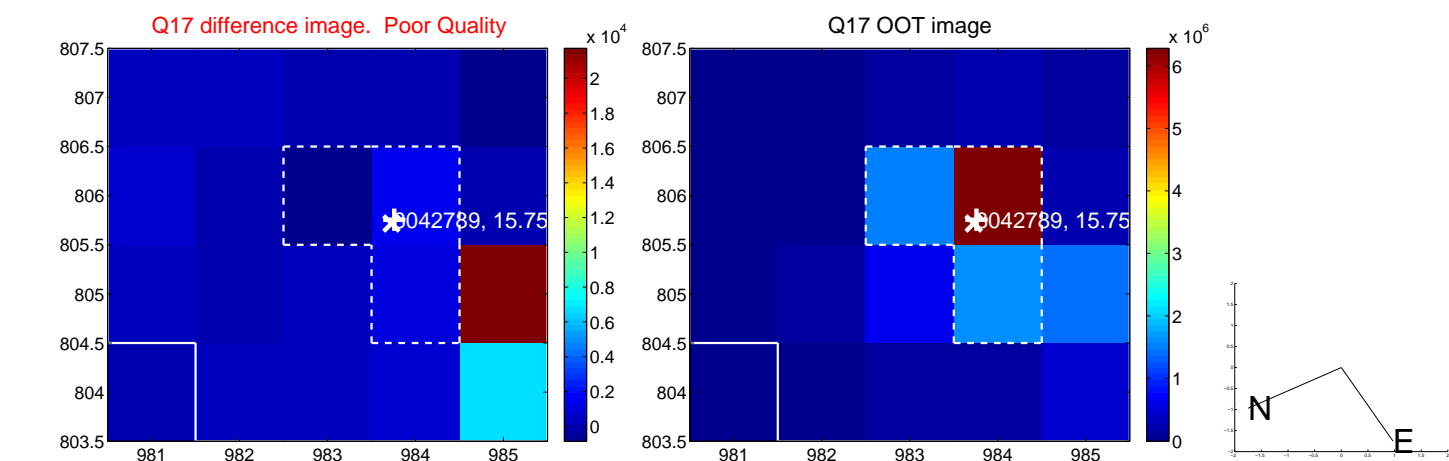
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



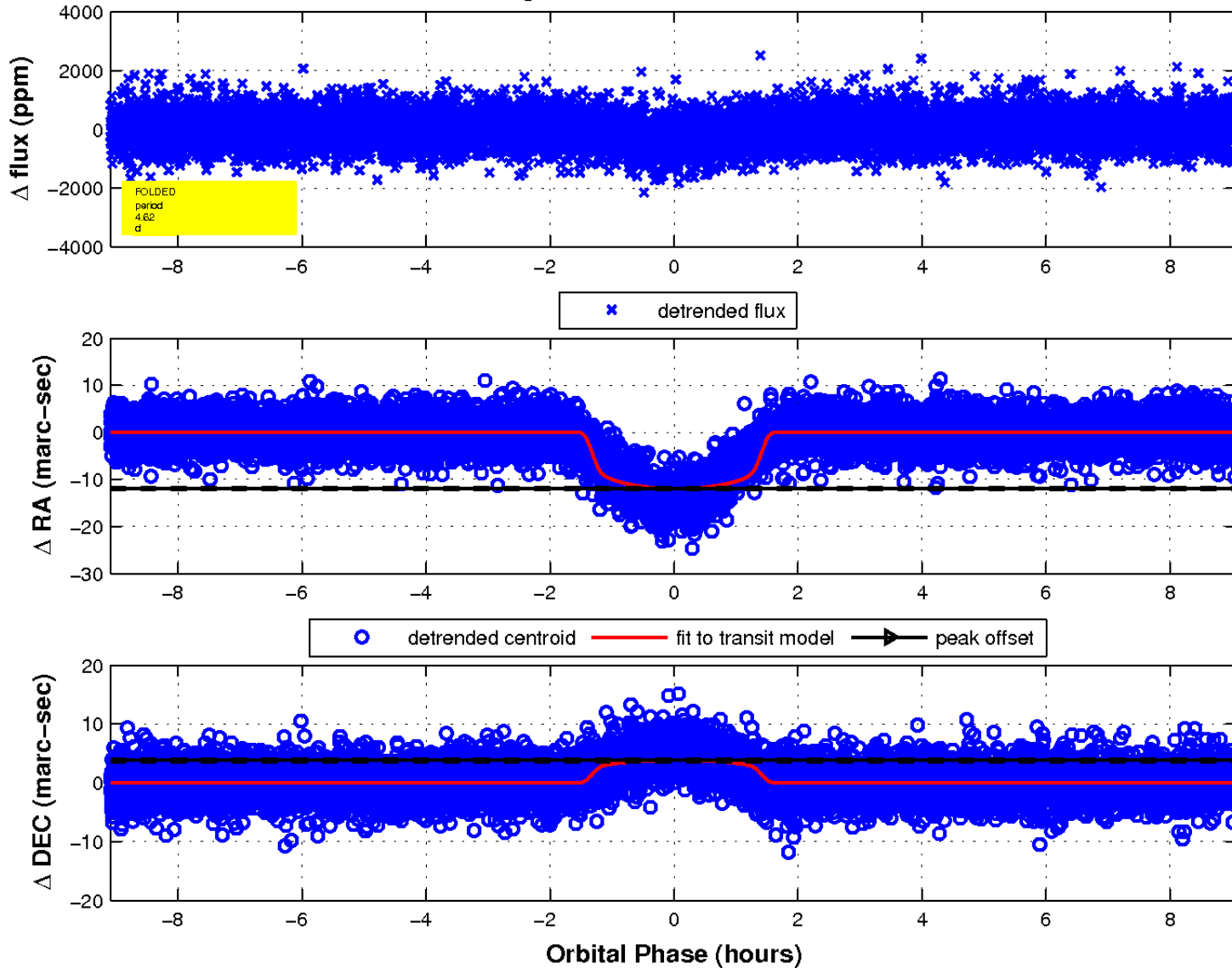
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

