

KIC 008240797

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})
008240797-01	OBS	1809.01	13.093904	144.525255	393.7	2.321	54.0	57.2	0.96	5772	2.25	75.70
008240797-02	OBS	1809.02	4.915375	132.696218	221.7	2.884	52.8	58.1	0.96	5772	1.69	279.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008240797-01	OBS	PC	0.37	0	0	0	0	CENT_KIC_POS
008240797-02	OBS	PC	0.40	0	0	0	0	CENT_KIC_POS

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

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

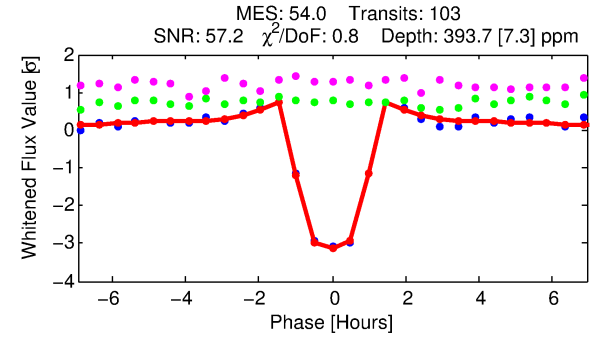
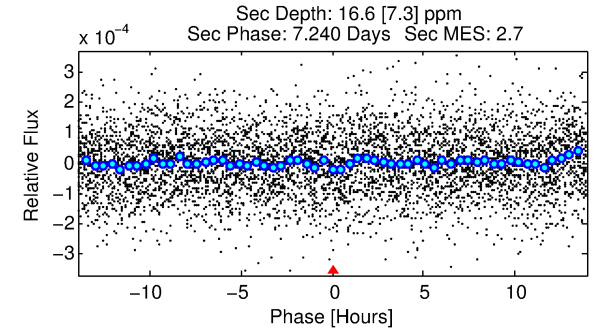
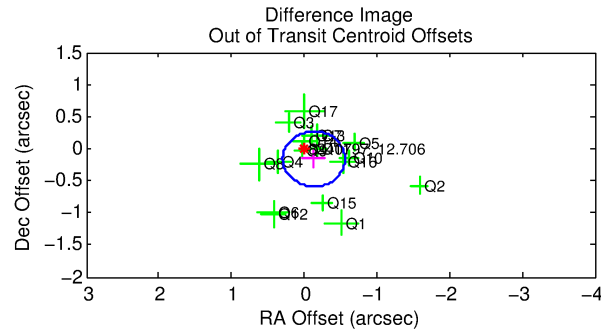
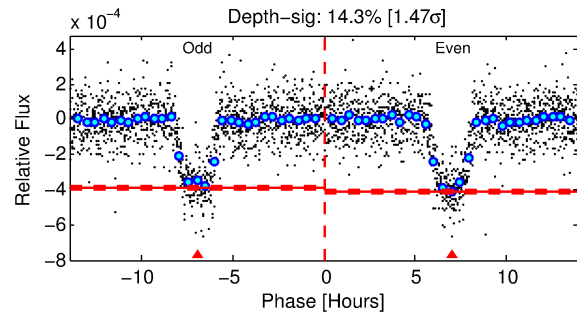
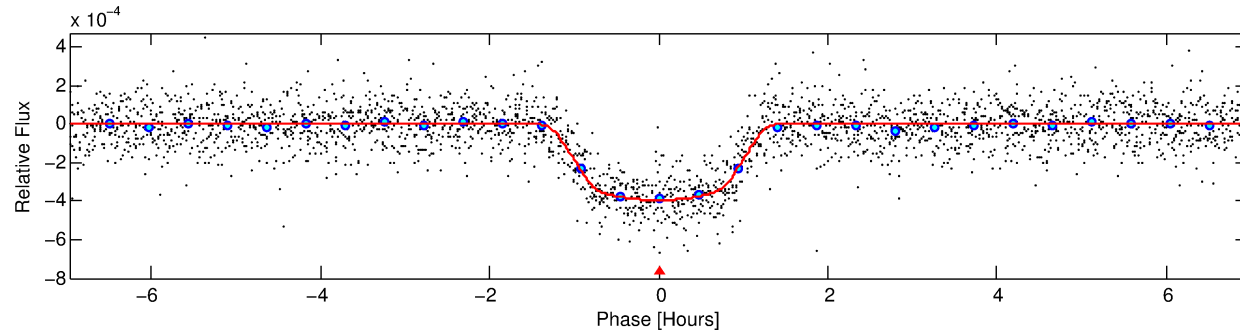
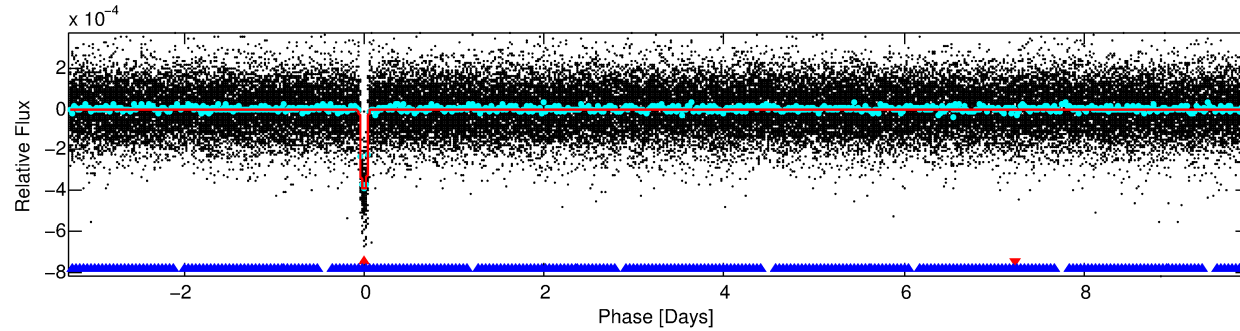
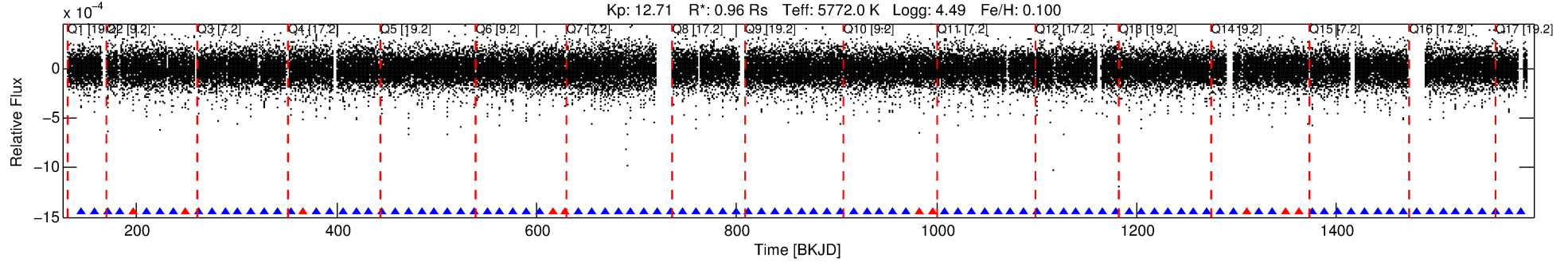
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008240797-01

No Significant Match Found

DV One-Page Summary

KIC: 8240797 Candidate: 1 of 2 Period: 13.094 d
KOI: K01809.01 Name: Kepler-321c Corr: 0.970



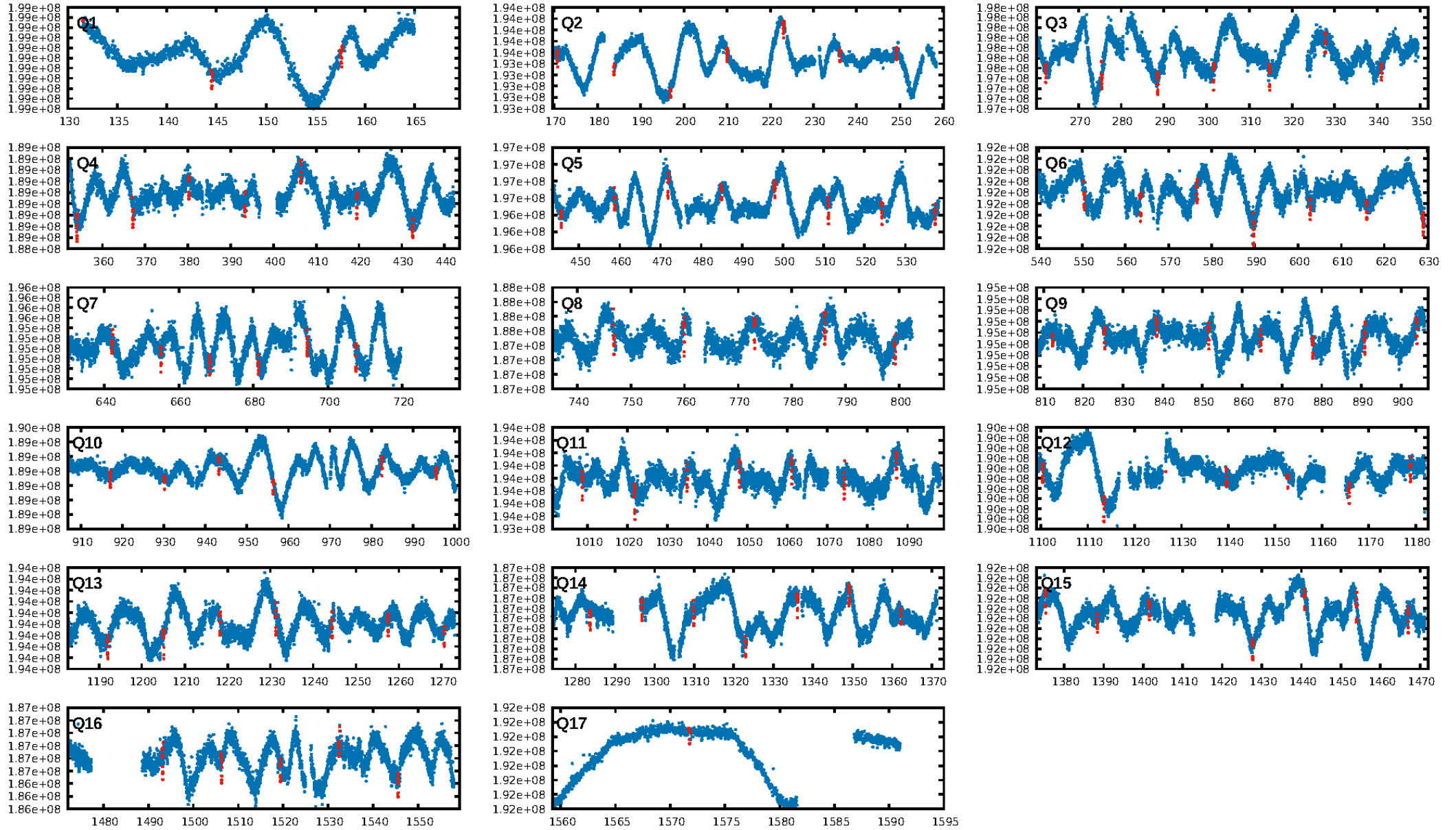
DV Fit Results:

Period = 13.09390 [0.00001] d
Epoch = 144.5253 [0.0008] BKJD
Rp/R* = 0.0216 [0.0017]
a/R* = 21.30 [7.43]
b = 0.89 [0.08]
Seff = 75.70 [17.29]
Teff = 752 [43] K
Rp = 2.25 [0.39] Re
a = 0.1096 [0.0151] AU
Ag = 21.70 [11.08] [1.87 σ]
Teffp = 2510 [297] K [5.86 σ]

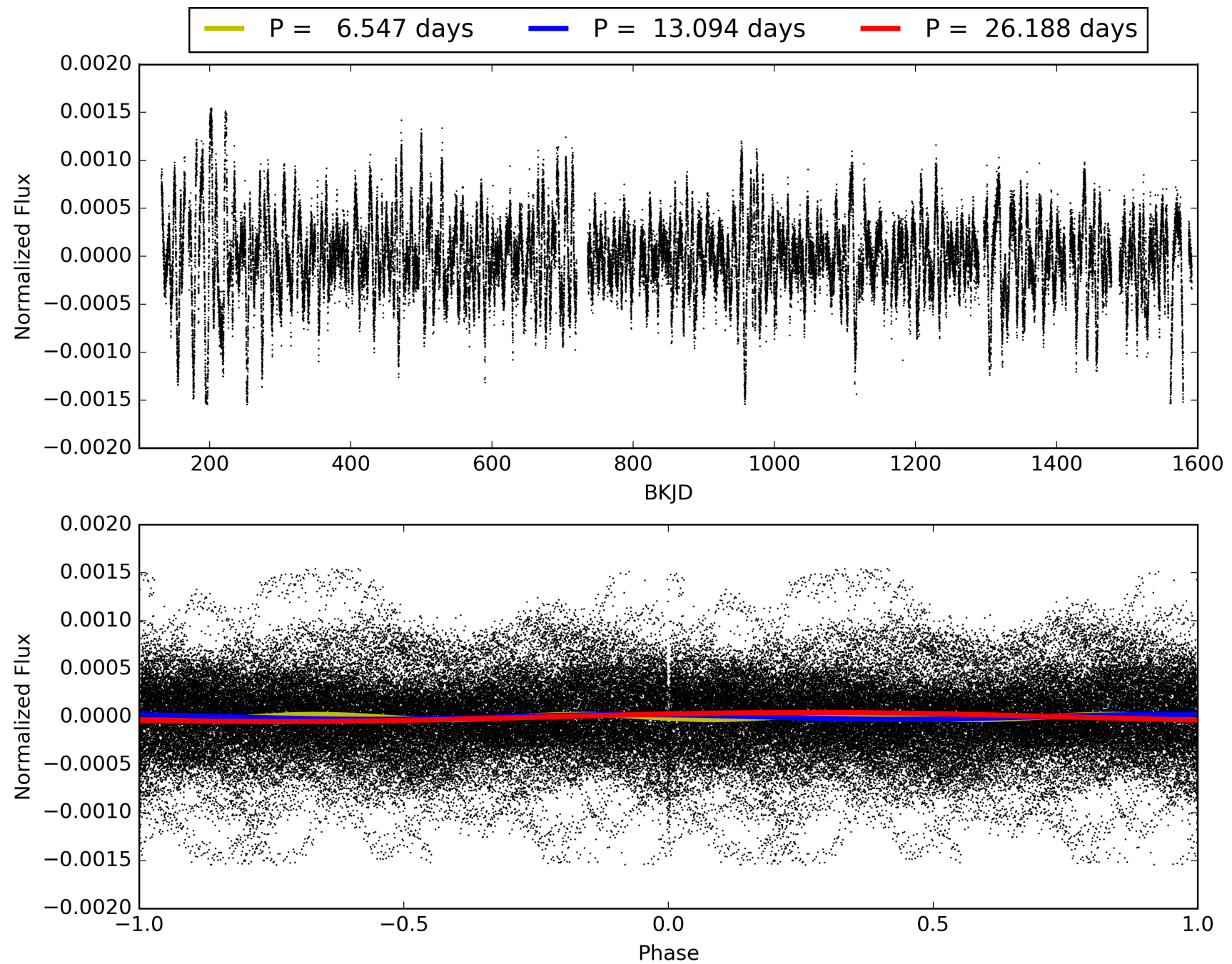
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.02 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.90 [90/100]
GhostDiagnostic-chr: 6.296
Centroid-sig: 2.5%
Centroid-so: 0.873 arcsec [4.82 σ]
OotOffset-rm: 0.208 arcsec [1.45 σ]
KicOffset-rm: 0.997 arcsec [6.83 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]

TCE 008240797-01, PDC Light Curves

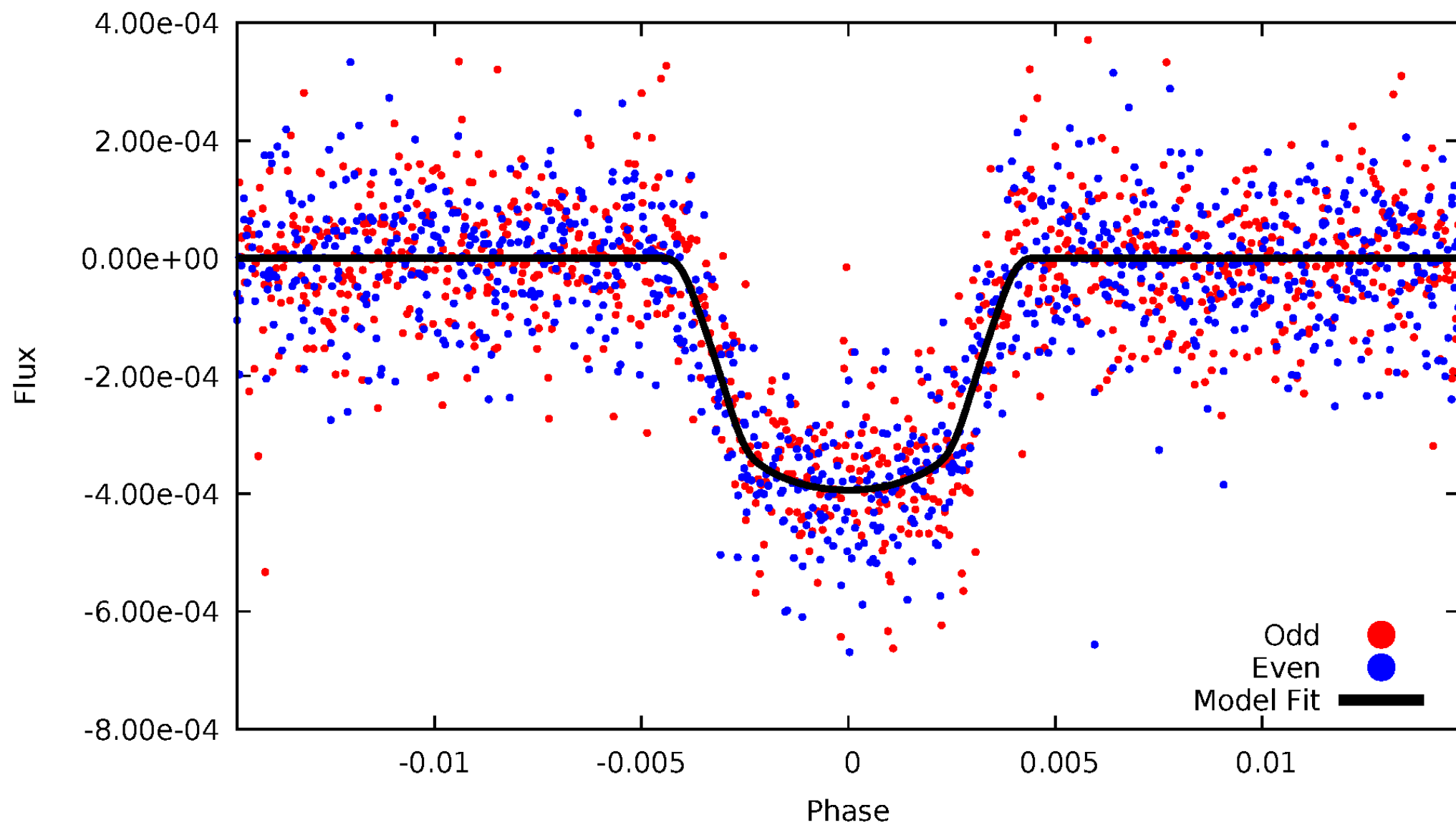


TCE 008240797-01



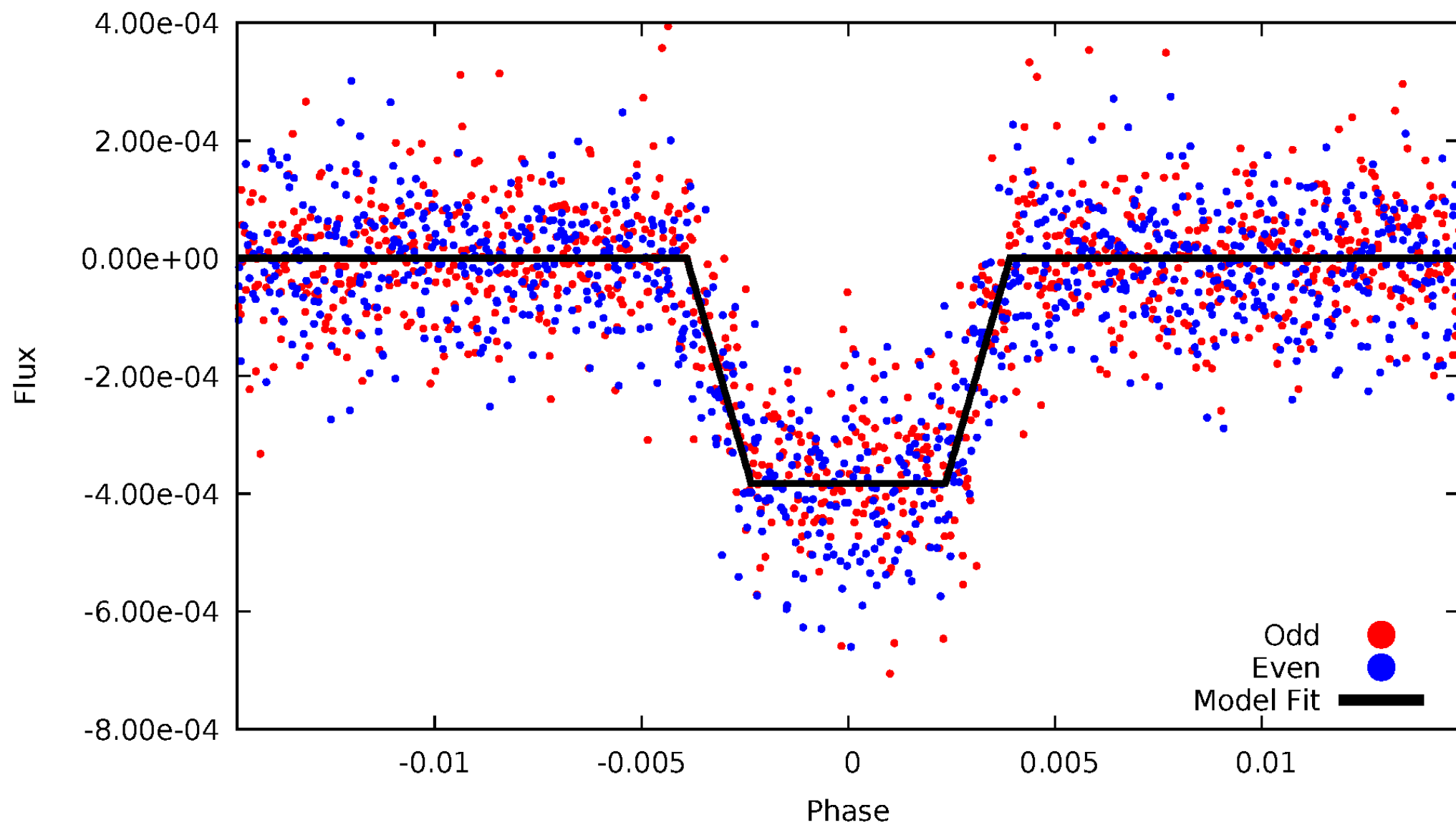
DV Odd/Even

TCE 008240797-01



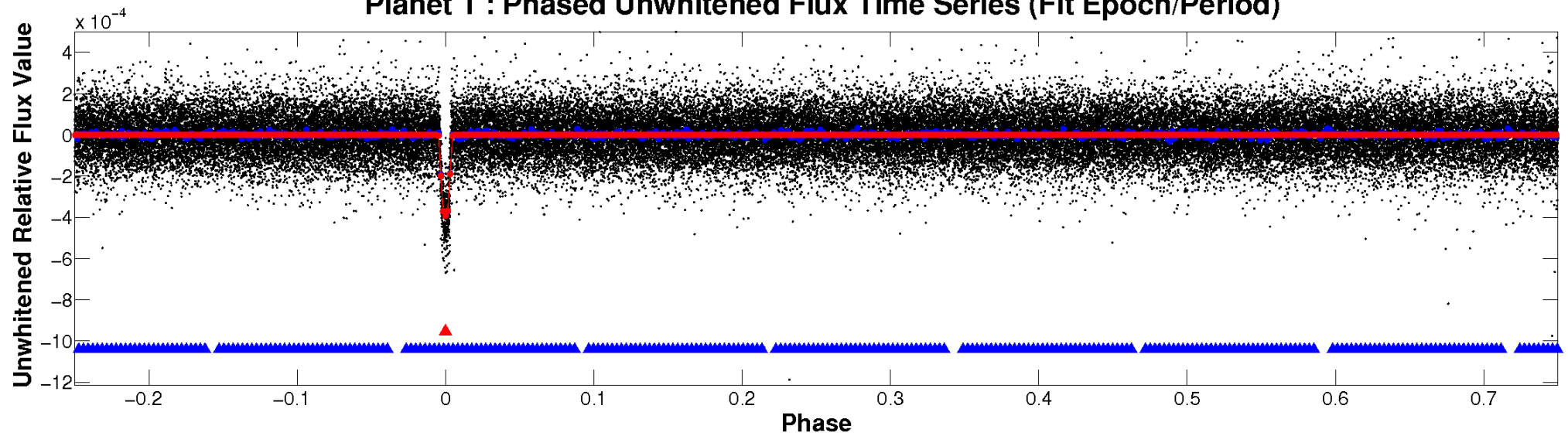
ALT Odd/Even

TCE 008240797-01

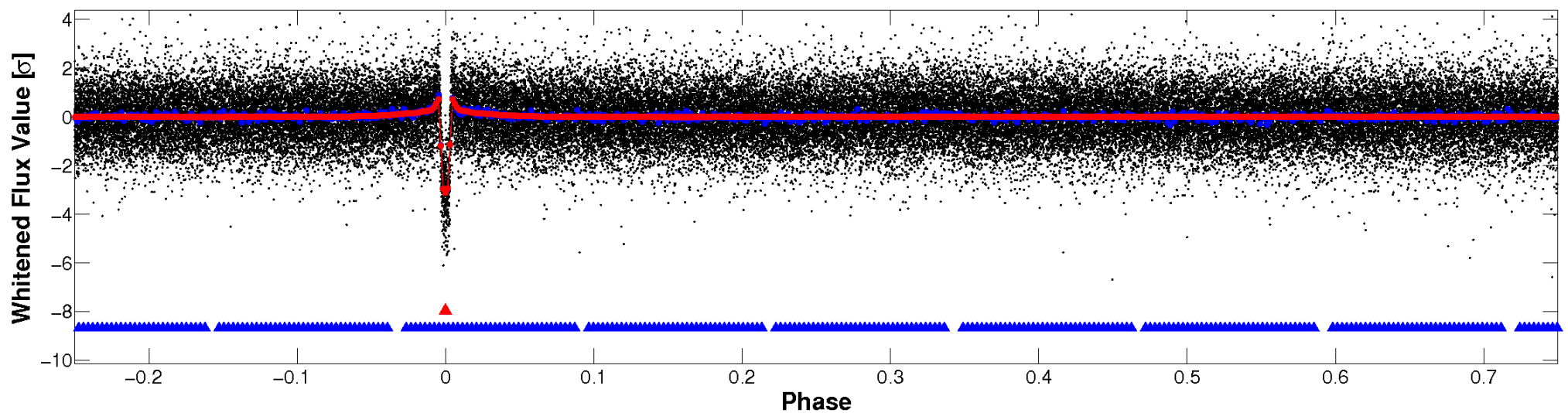


Non-Whitened Vs. Whitened Light Curve

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

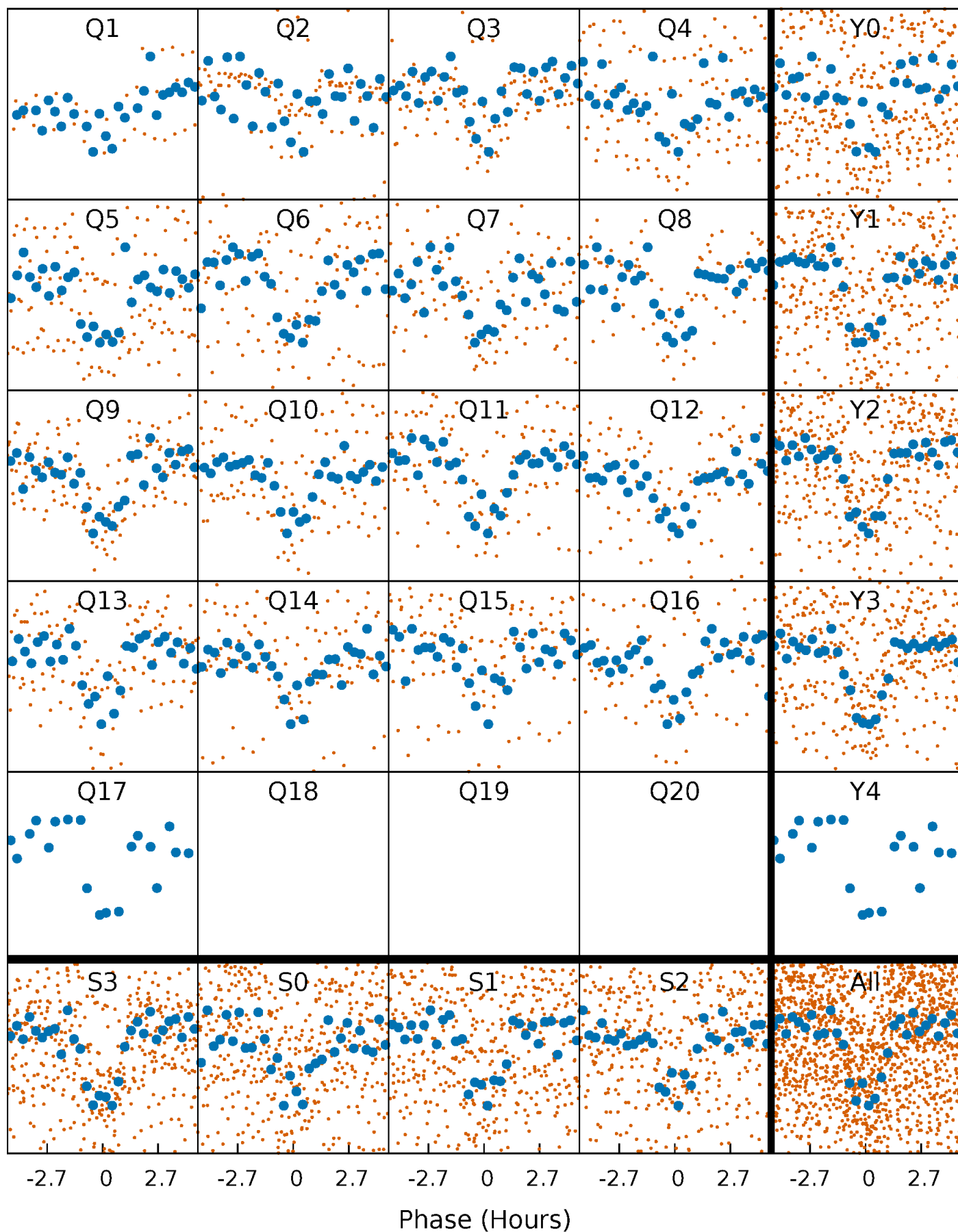


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



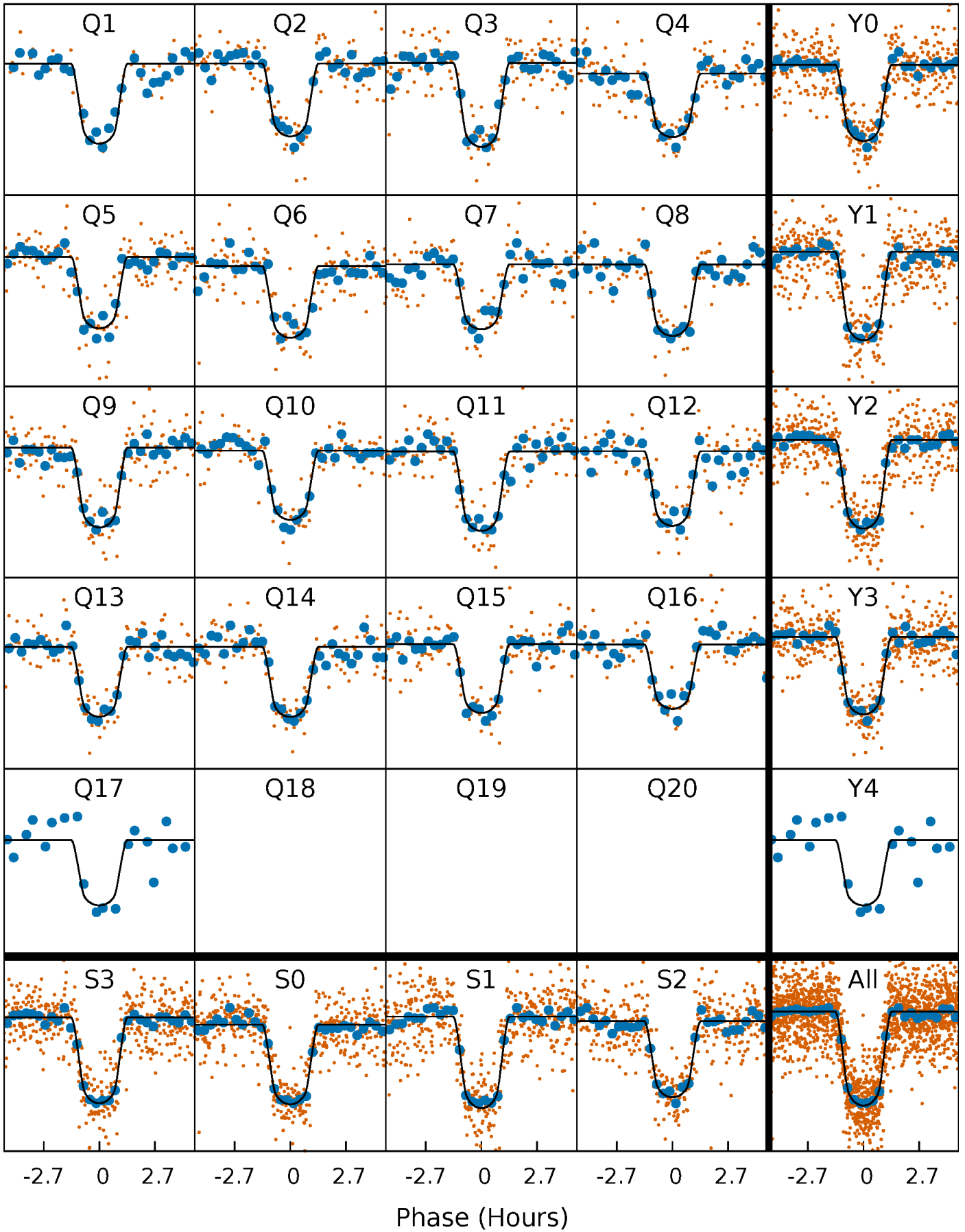
PDC Quarter-Phased Transit Curves

TCE 008240797-01 P= 13.093904 Days $T_0=144.525255$ (BKJD)



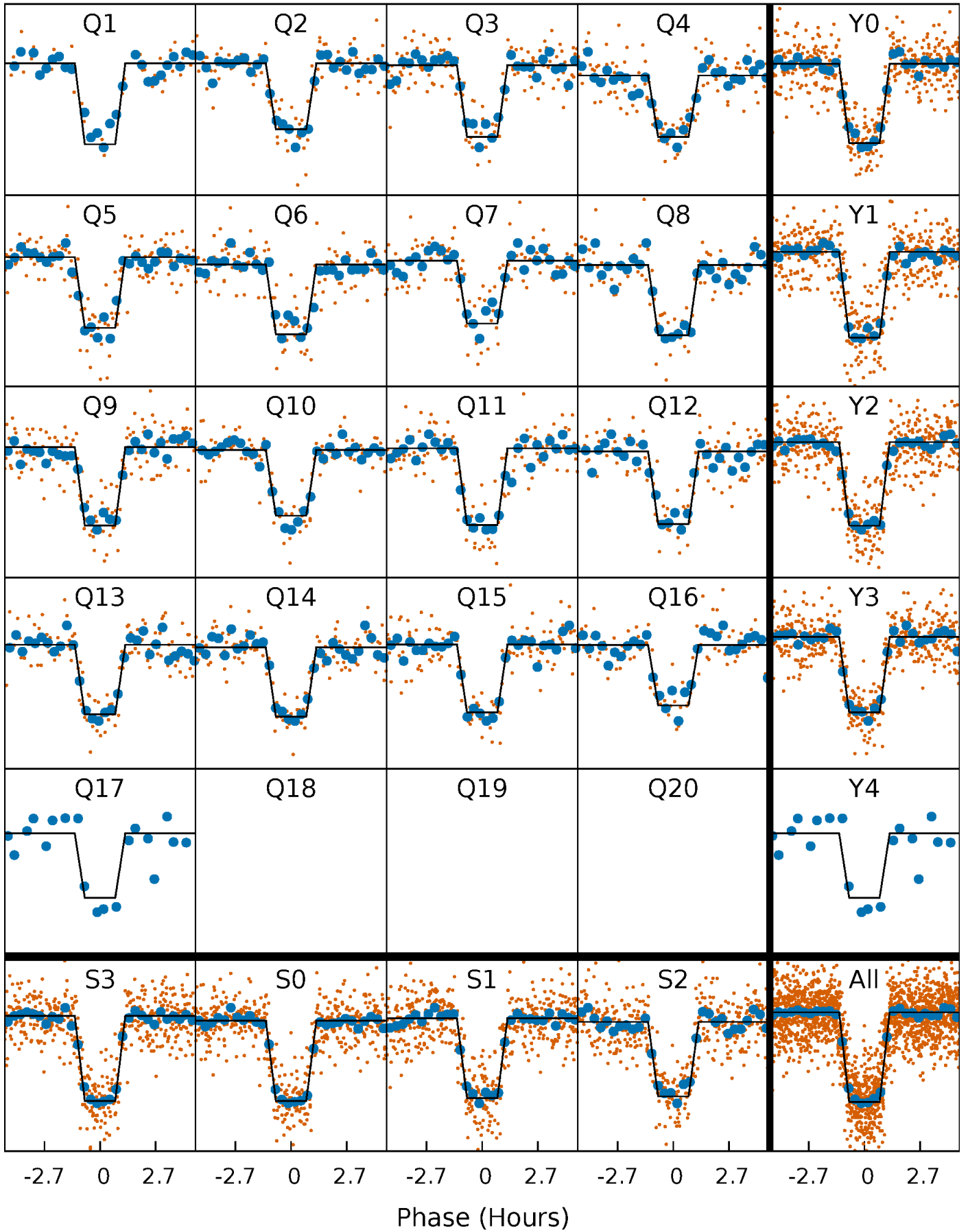
DV Quarter-Phased Transit Curves

TCE 008240797-01 P= 13.093904 Days $T_0=144.525255$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

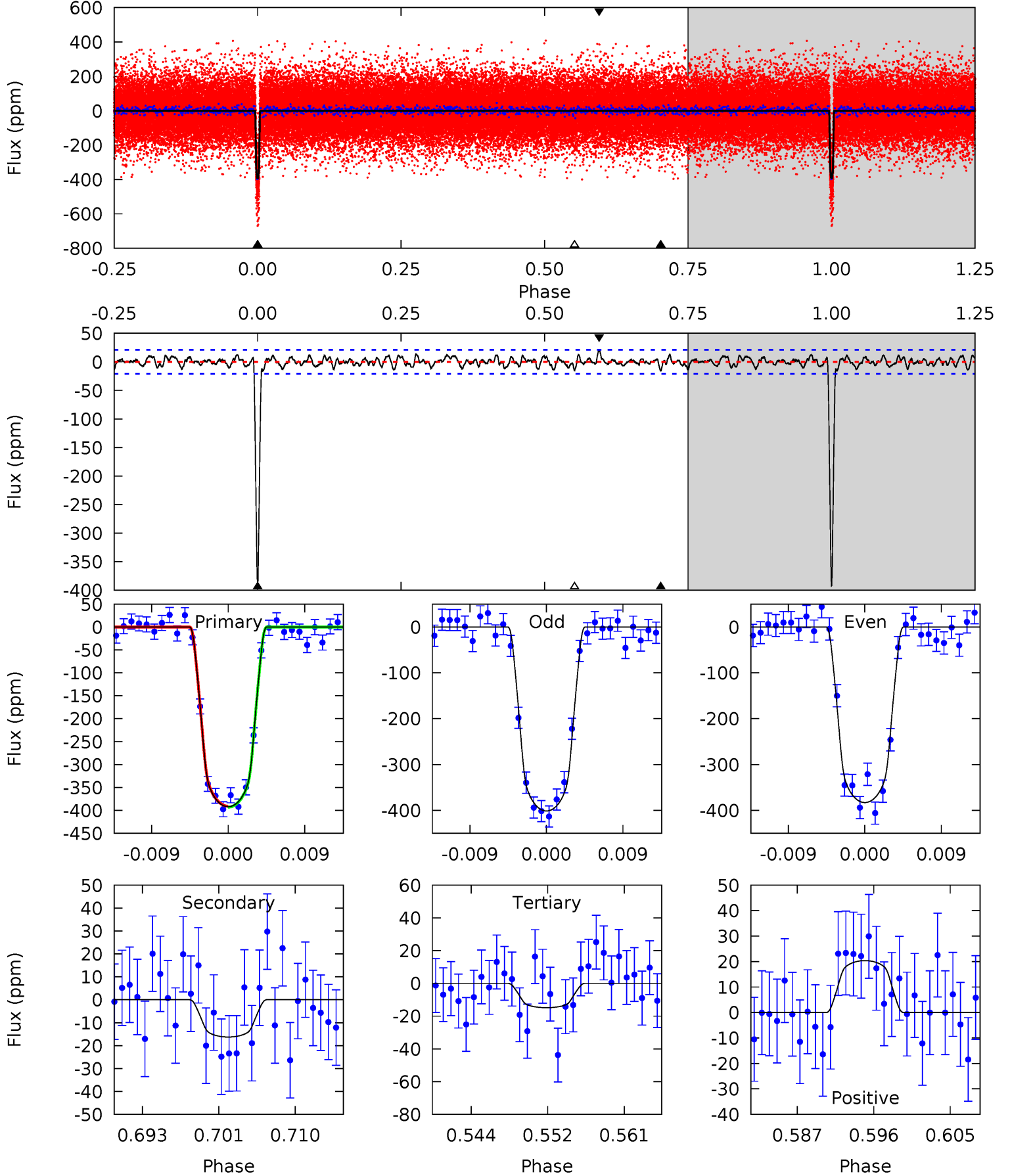
TCE 008240797-01 P= 13.093912 Days $T_0=144.524620$ (BKJD)



DV Model-Shift Uniqueness Test

008240797-01, $P = 13.093904$ Days, $E = 131.431351$ Days

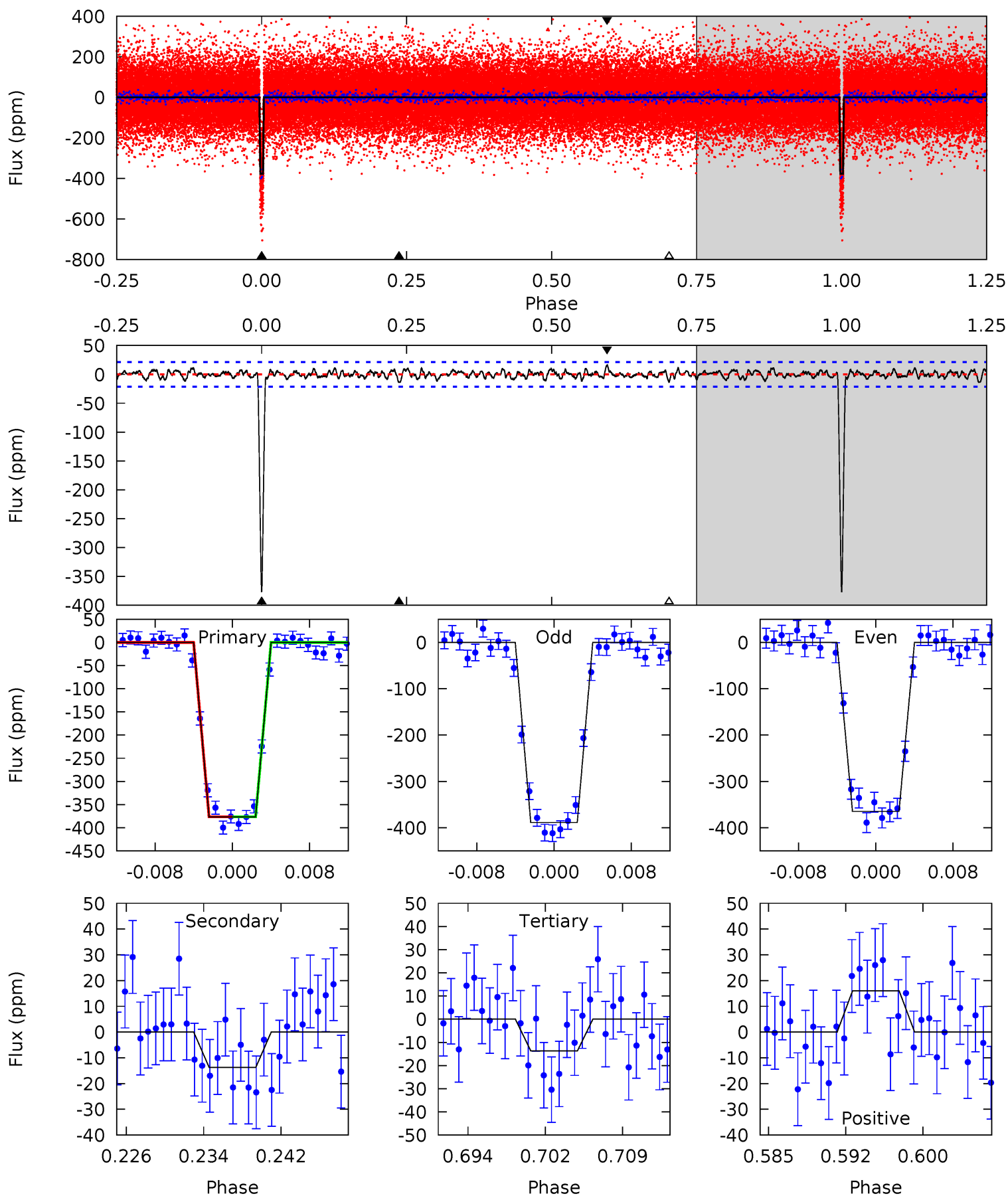
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.5	3.88	3.54	4.86	5.05	2.62	1.40	90.0	88.7	0.34	-0.98	2.19	1.02	0.05	0.25



Alt Model-Shift Uniqueness Test

008240797-01, $P = 13.093912$ Days, $E = 131.430708$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.5	3.28	3.26	3.81	5.07	2.66	1.10	86.3	85.7	0.01	-0.54	2.85	1.01	0.04	0.02



Stellar Parameters For KIC 008240797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5772^{+104}_{-127}	$4.487^{+0.030}_{-0.120}$	$0.100^{+0.150}_{-0.150}$	$0.956^{+0.147}_{-0.053}$	$1.022^{+0.058}_{-0.080}$	$1.648^{+0.245}_{-0.561}$
	+2%/-2%	+1%/-3%	+150%/-150%	+15%/-6%	+6%/-8%	+15%/-34%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 008240797-01 / KOI 1809.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 4	$2.30^{+0.25}_{-0.22}$	1063^{+40}_{-30}	3102^{+143}_{-138}	20^{+8}_{-6}
Alt.	-14 ± 4	$2.08^{+0.25}_{-0.22}$	1063^{+42}_{-31}	3125^{+164}_{-184}	20^{+8}_{-7}

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 $A_{obs} \gg 1.0$

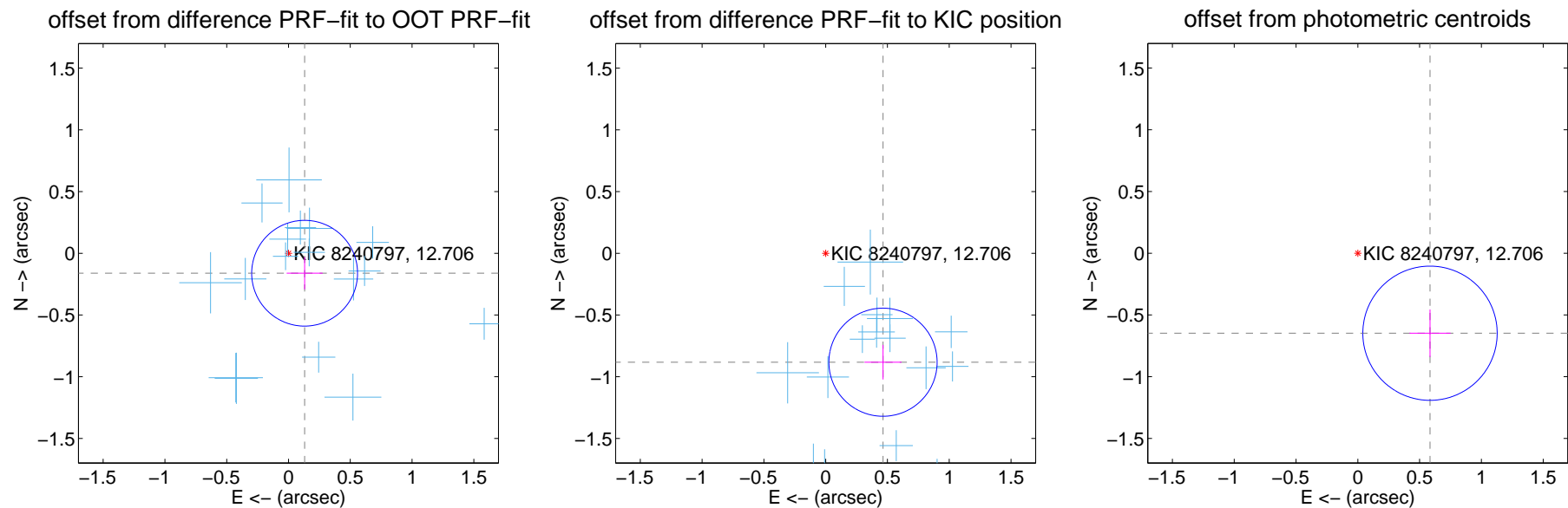
DV Centroid Data

Supplemental centroid analysis for 008240797-01. Kepler magnitude: 12.71. Transit SNR 57.19

There are 17 quarters with good PRF difference image offsets

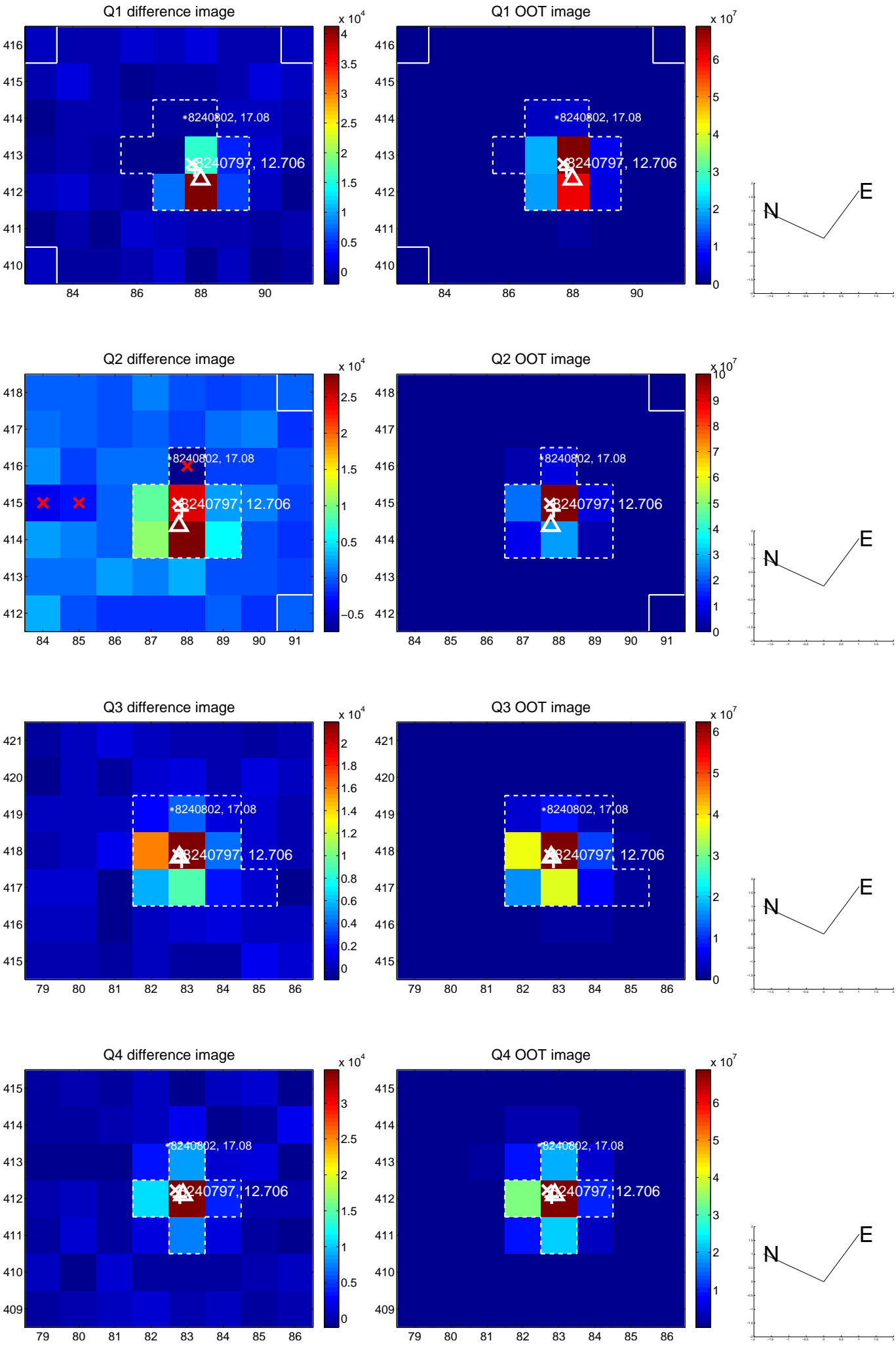
The direct PRF centroid is offset from the target star catalog position by about 0.76 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.208 ± 0.143	1.45	-0.130 ± 0.146	-0.162 ± 0.131
PRF-fit source offset from KIC position	0.997 ± 0.146	6.83	-0.464 ± 0.150	-0.883 ± 0.140
photometric centroid source offset	0.87 ± 0.18	4.82	-0.58 ± 0.17	-0.65 ± 0.19

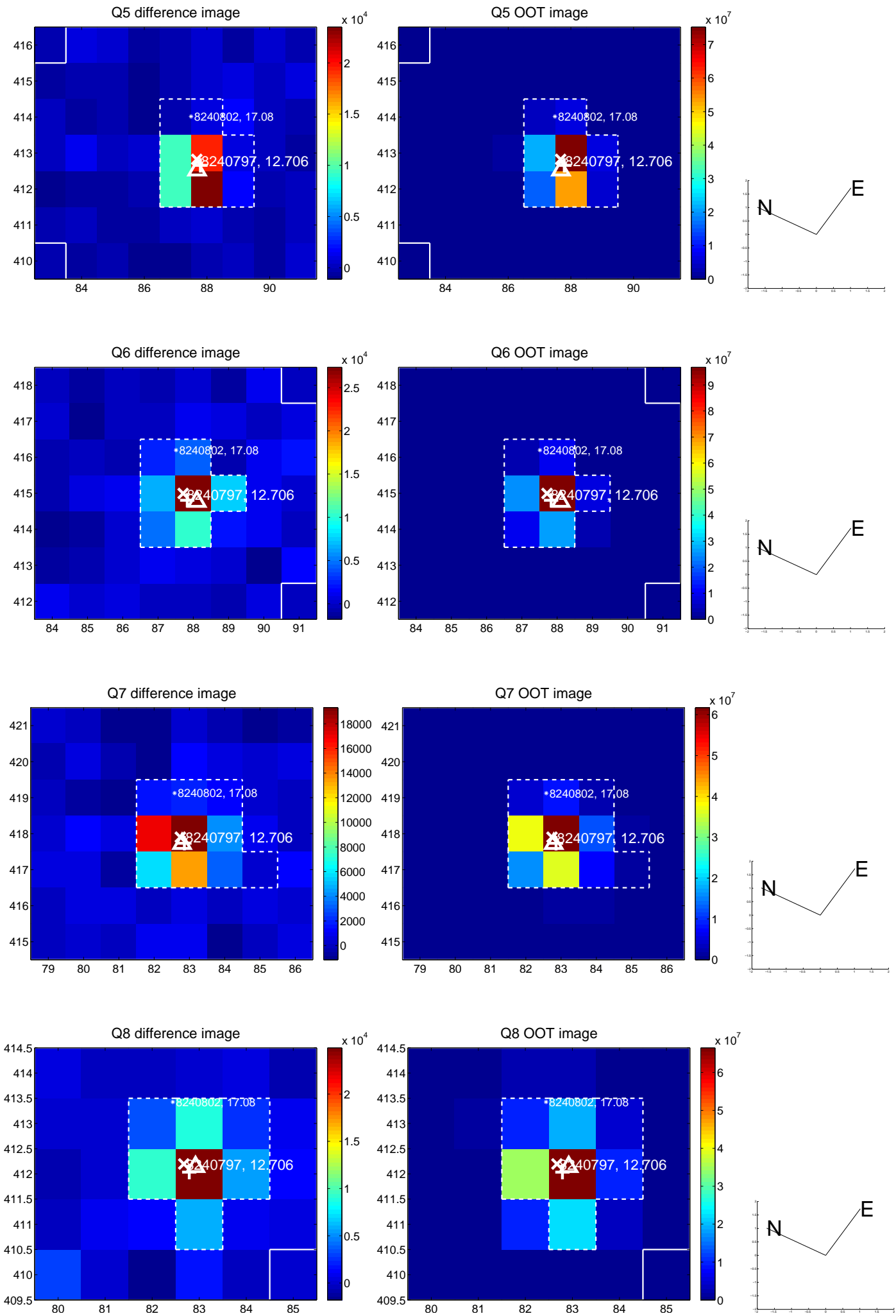


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

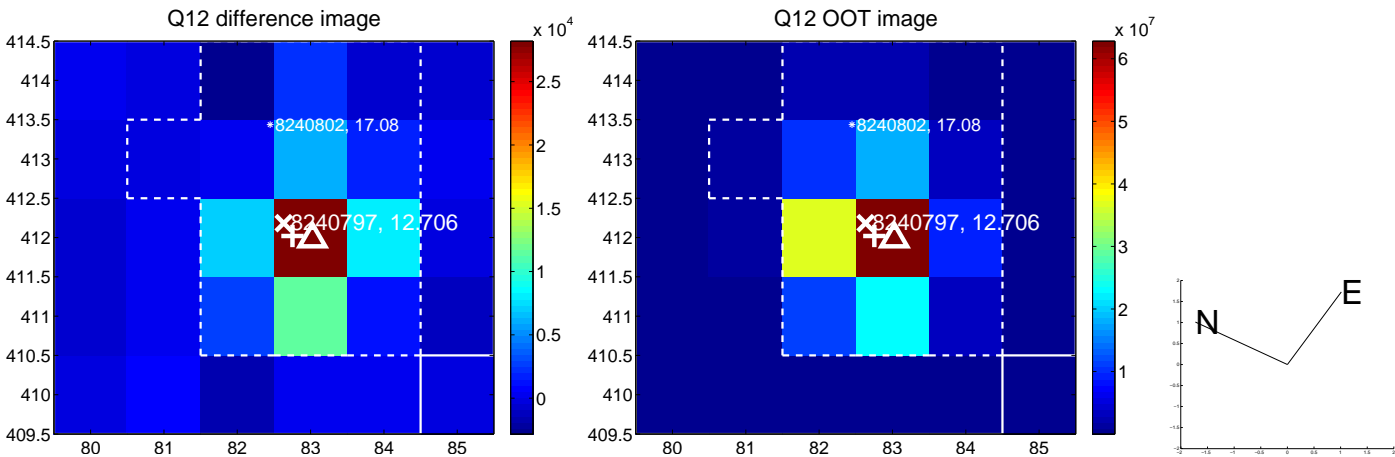
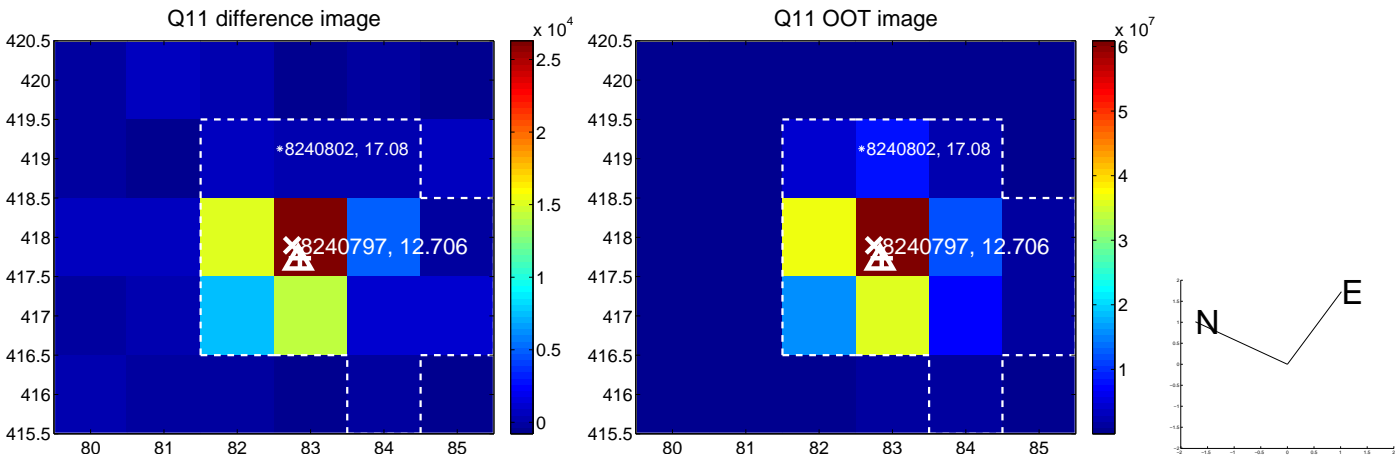
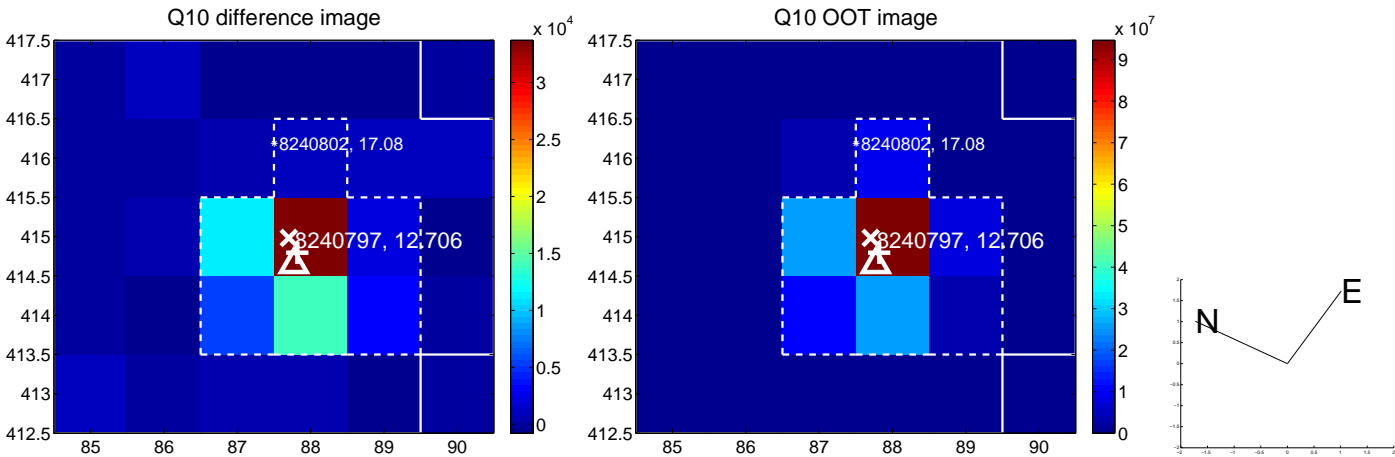
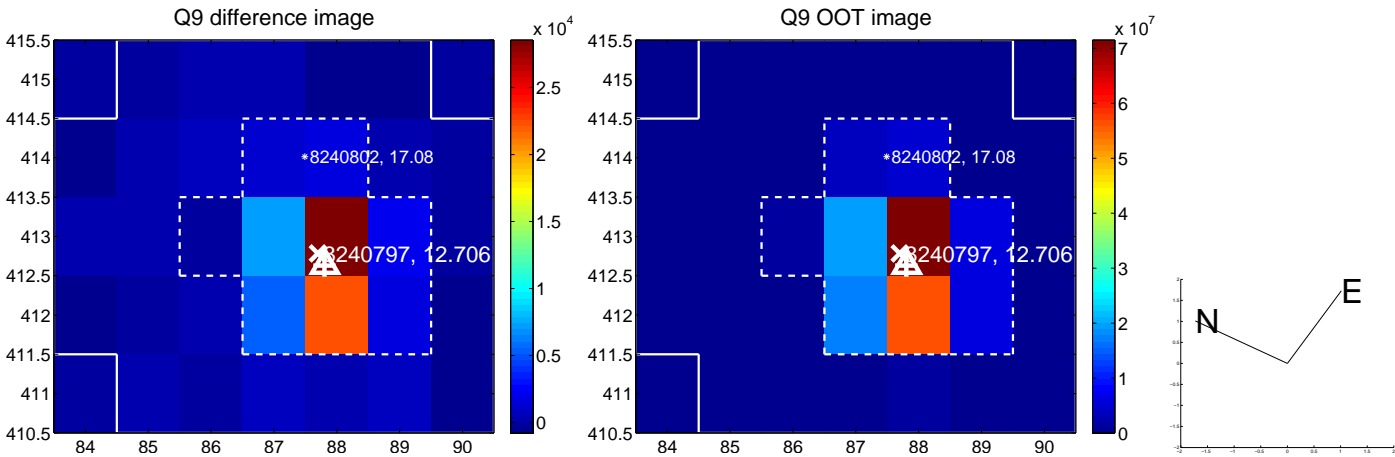
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



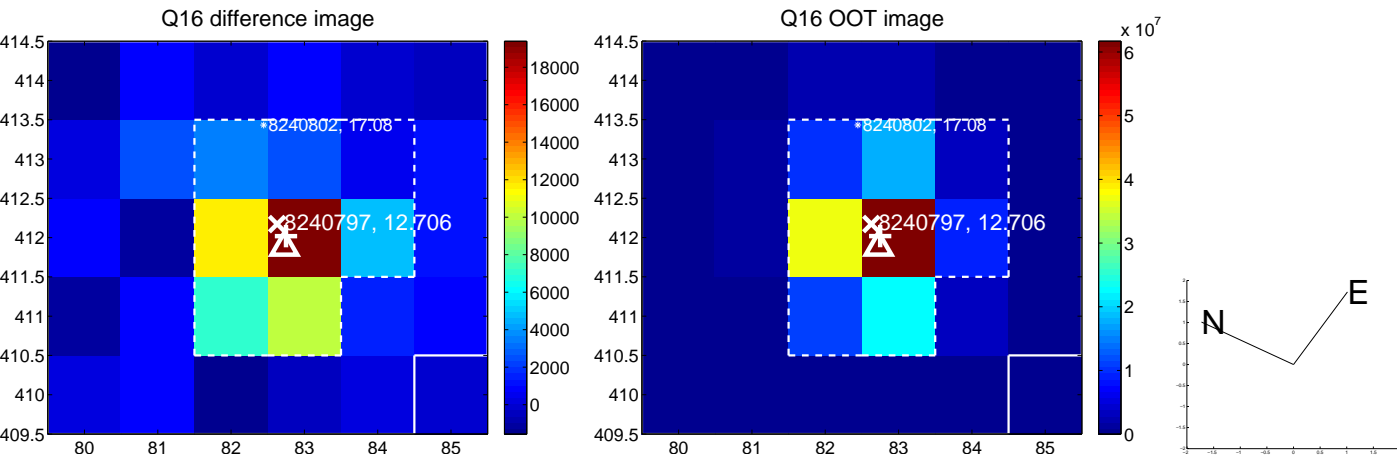
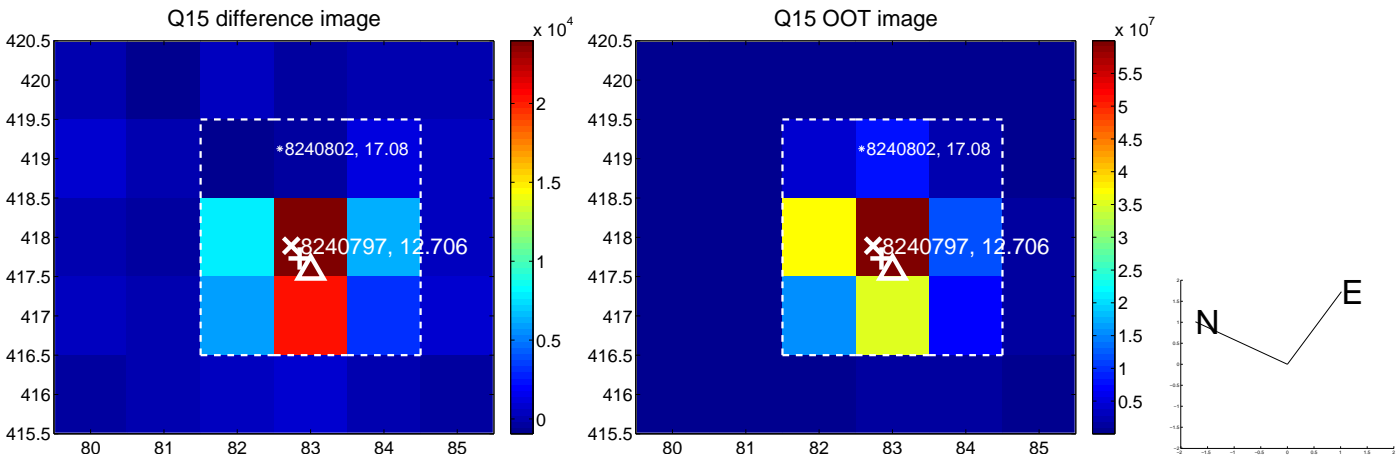
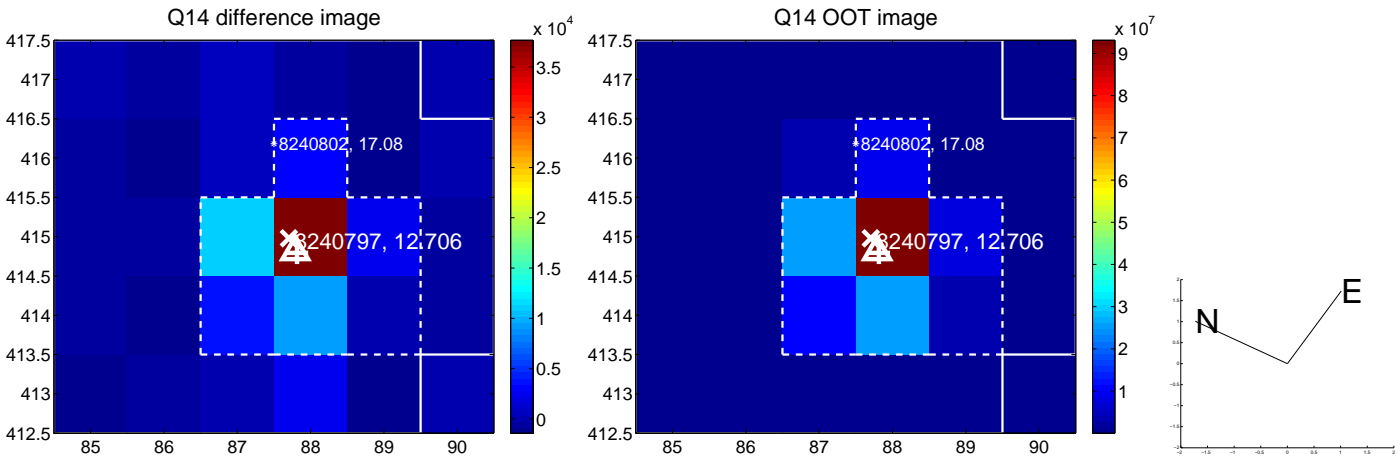
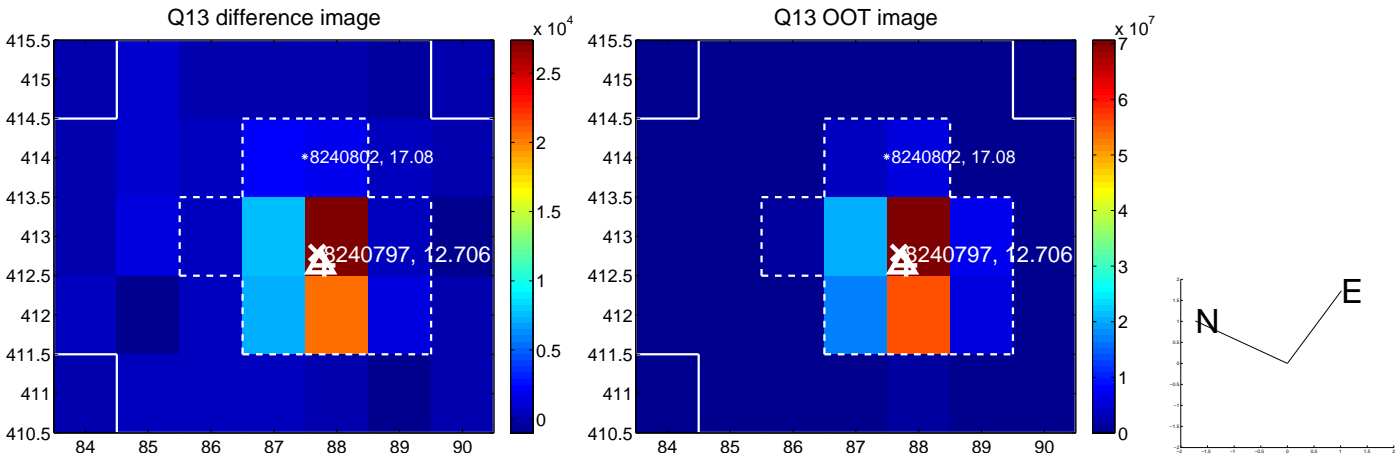
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



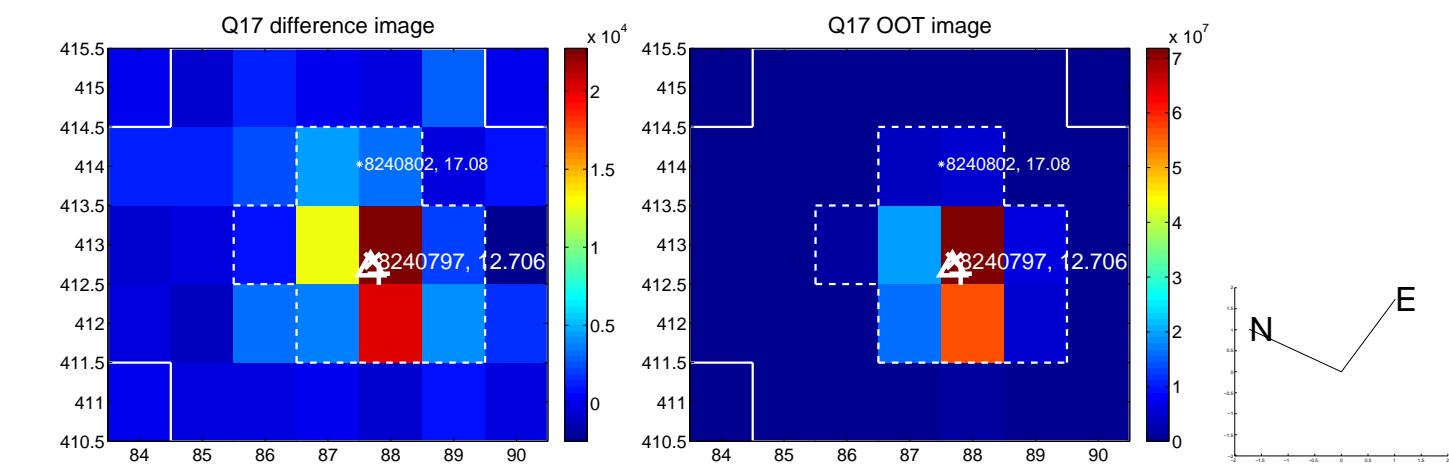
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



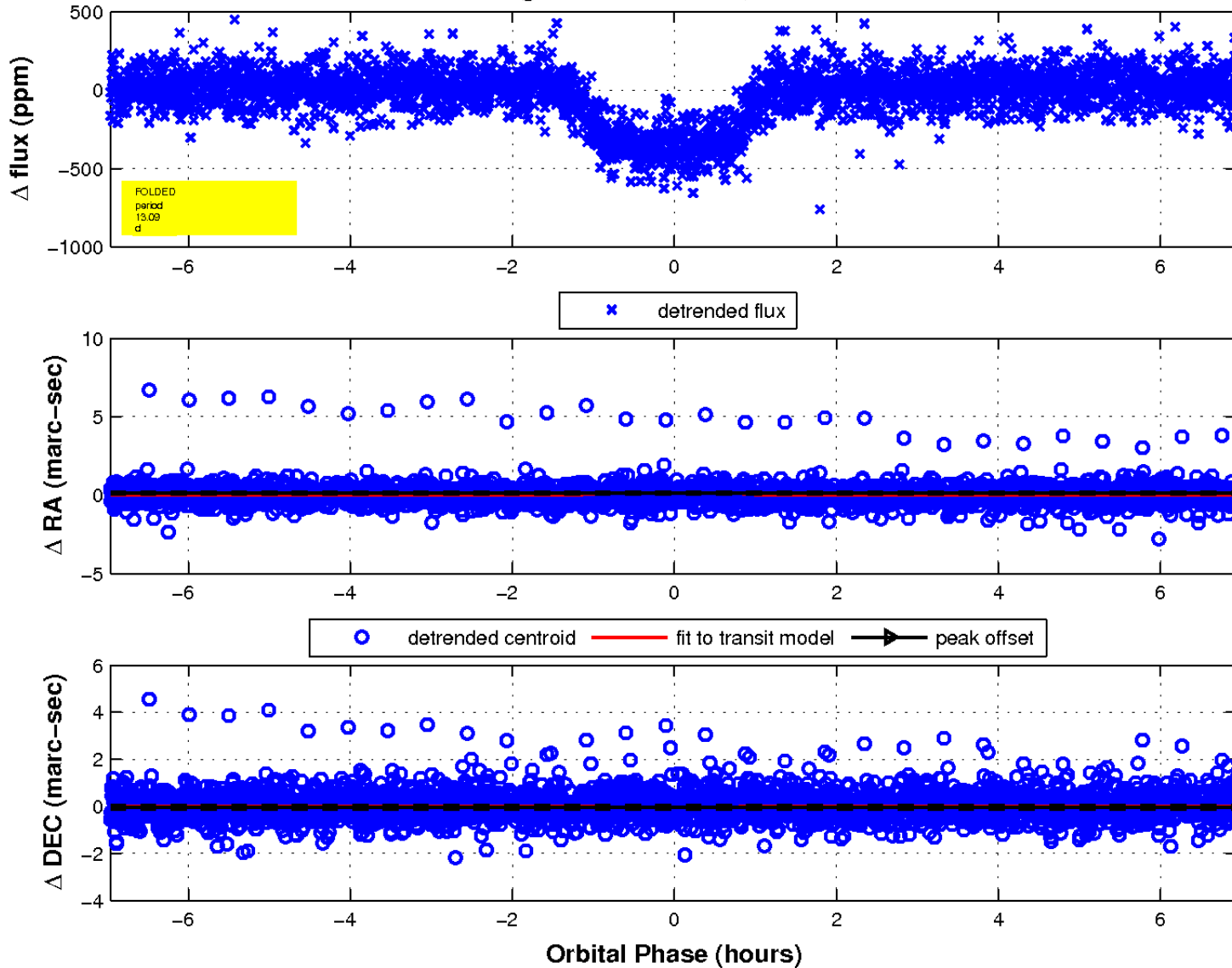
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

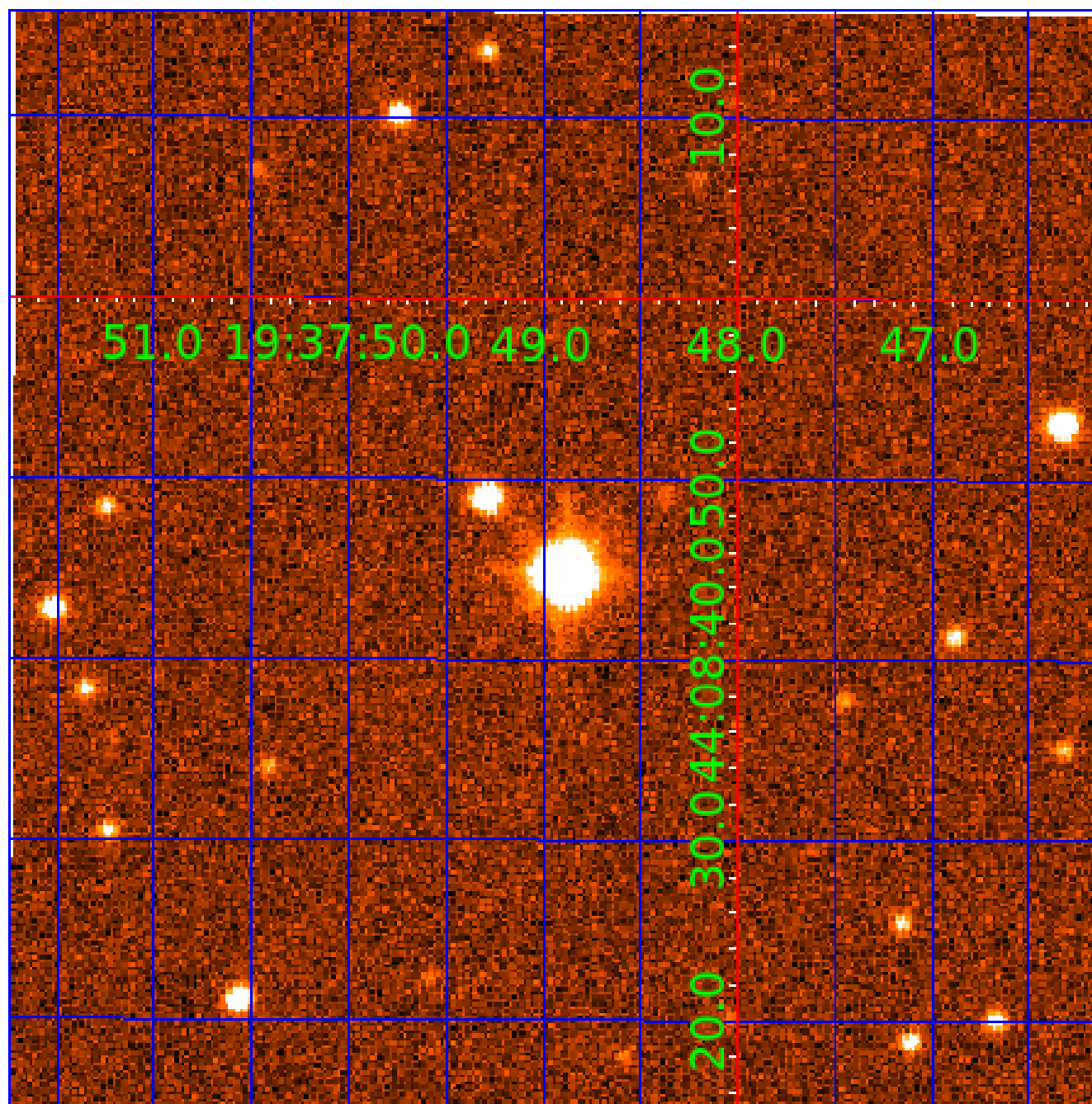


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008240797

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})
008240797-01	OBS	1809.01	13.093904	144.525255	393.7	2.321	54.0	57.2	0.96	5772	2.25	75.70
008240797-02	OBS	1809.02	4.915375	132.696218	221.7	2.884	52.8	58.1	0.96	5772	1.69	279.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008240797-01	OBS	PC	0.37	0	0	0	0	CENT_KIC_POS
008240797-02	OBS	PC	0.40	0	0	0	0	CENT_KIC_POS

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

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

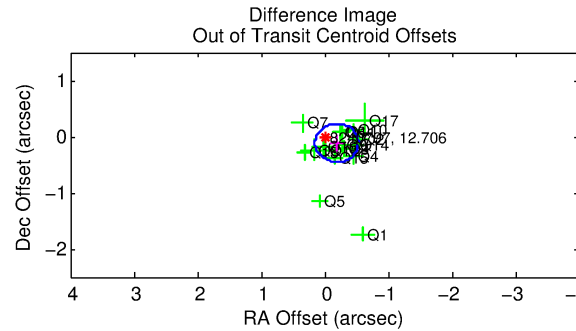
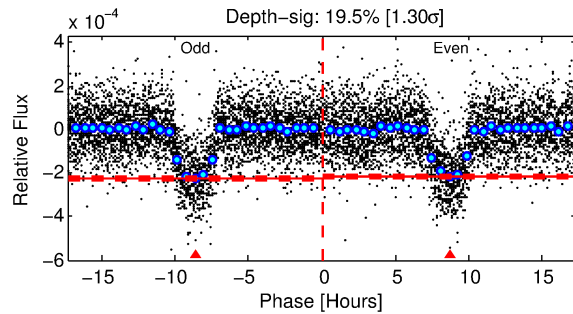
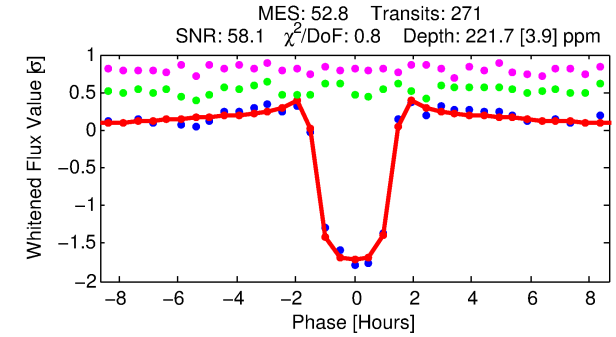
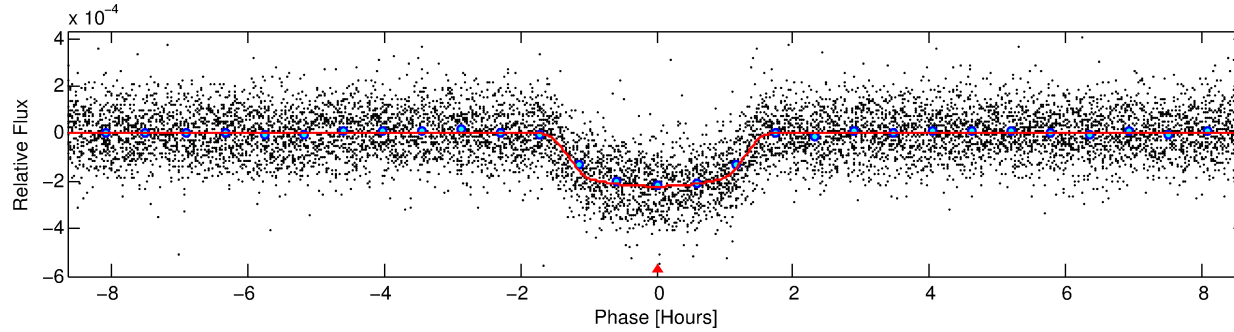
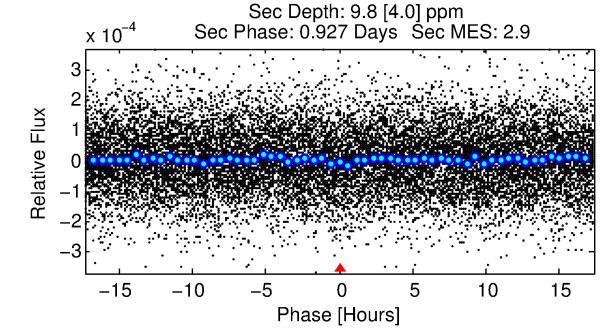
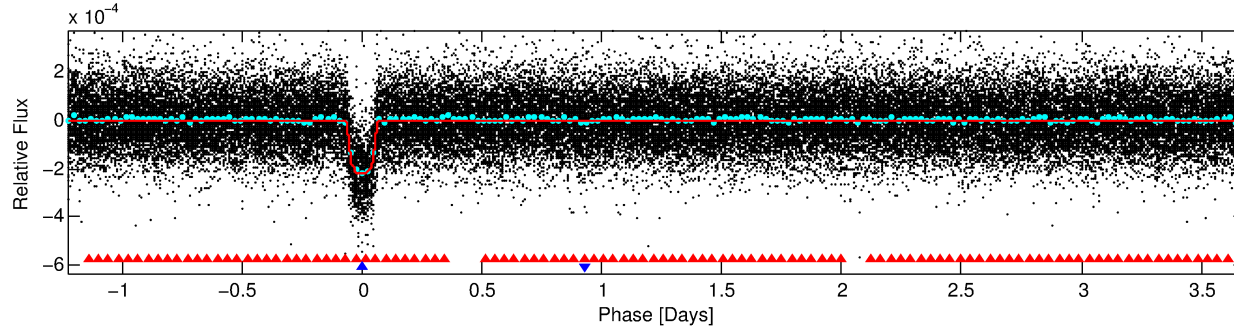
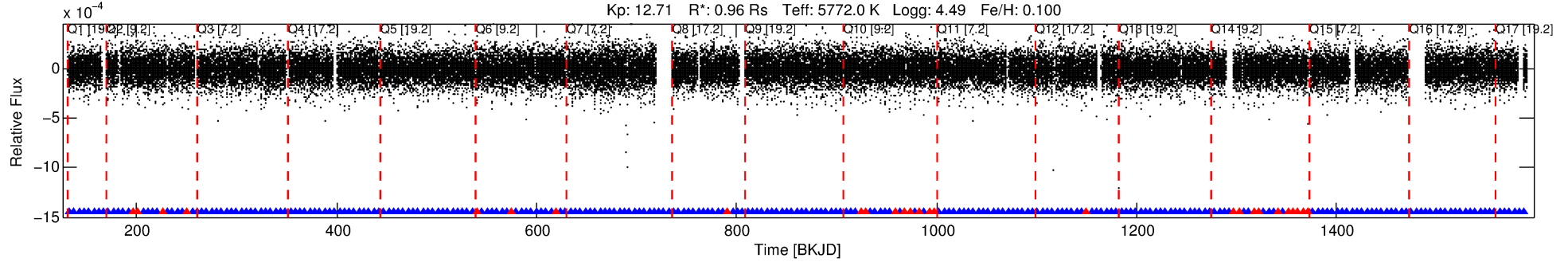
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008240797-02

No Significant Match Found

DV One-Page Summary

KIC: 8240797 Candidate: 2 of 2 Period: 4.915 d
KOI: K01809.02 Name: Kepler-321b Corr: 0.985



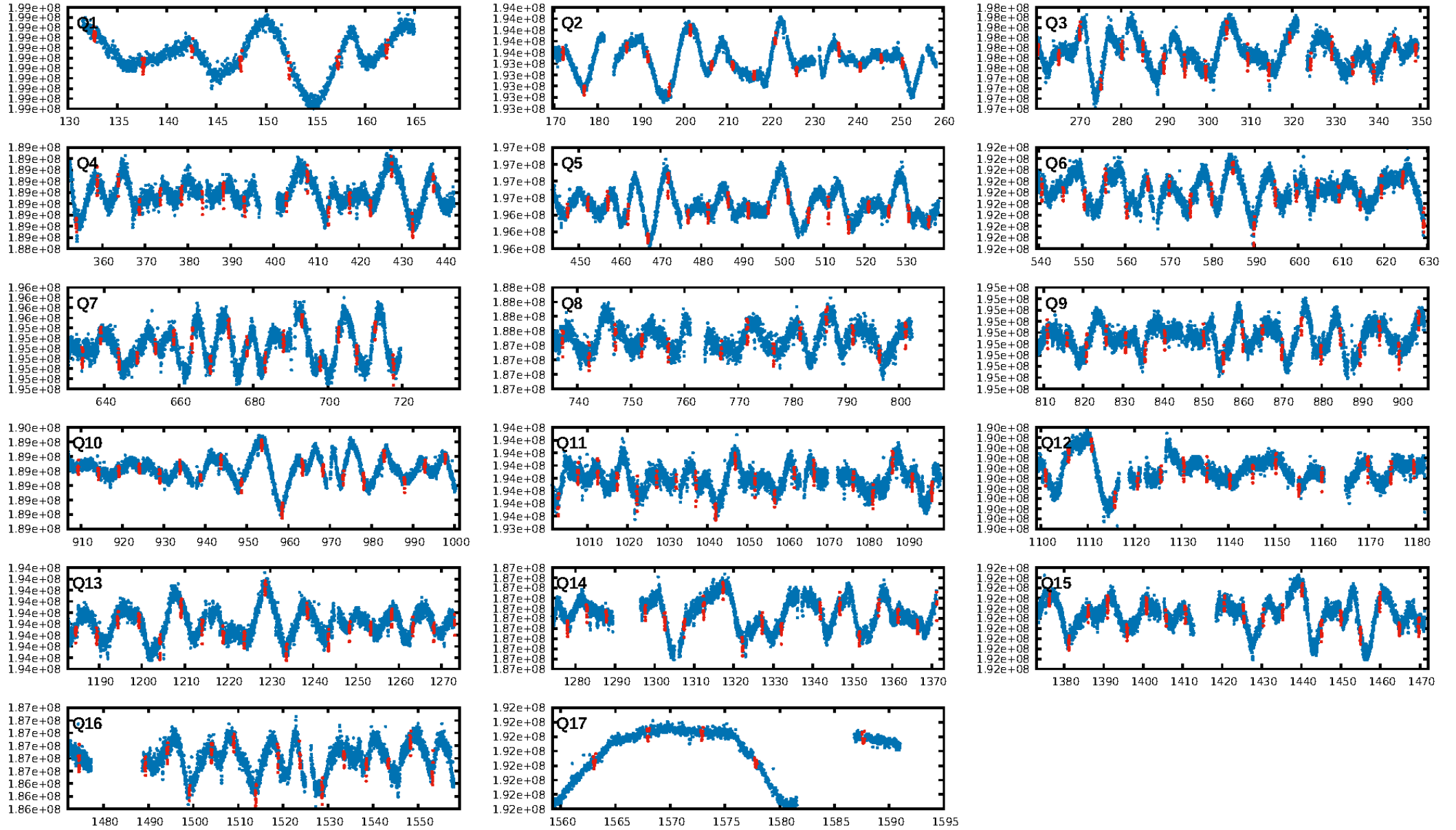
DV Fit Results:

Period = 4.91538 [0.00000] d
Epoch = 132.6962 [0.0007] BKJD
Rp/R* = 0.0162 [0.0013]
a/R* = 6.37 [2.33]
b = 0.89 [0.09]
Seff = 279.53 [63.86]
Teq = 1043 [60] K
Rp = 1.69 [0.29] Re
a = 0.0570 [0.0079] AU
Ag = 6.15 [3.01] [1.71σ]
Teffp = 2539 [286] K [5.11σ]

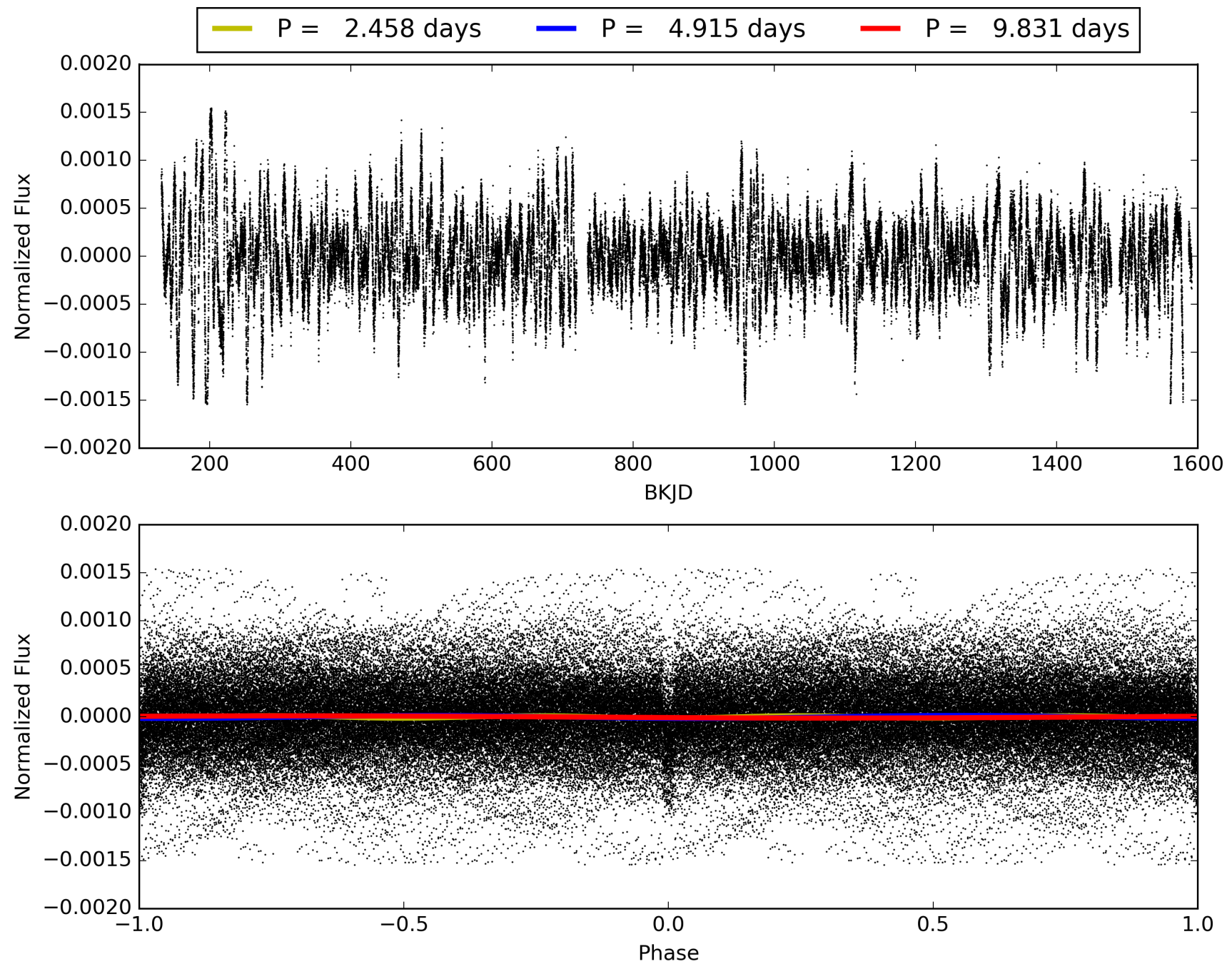
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [53.02σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.90 [232/259]
GhostDiagnostic-chr: 6.192
Centroid-sig: 0.0%
Centroid-so: 1.376 arcsec [7.42σ]
OotOffset-rm: 0.223 arcsec [1.96σ]
KicOffset-rm: 1.004 arcsec [8.56σ]
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]

TCE 008240797-02, PDC Light Curves

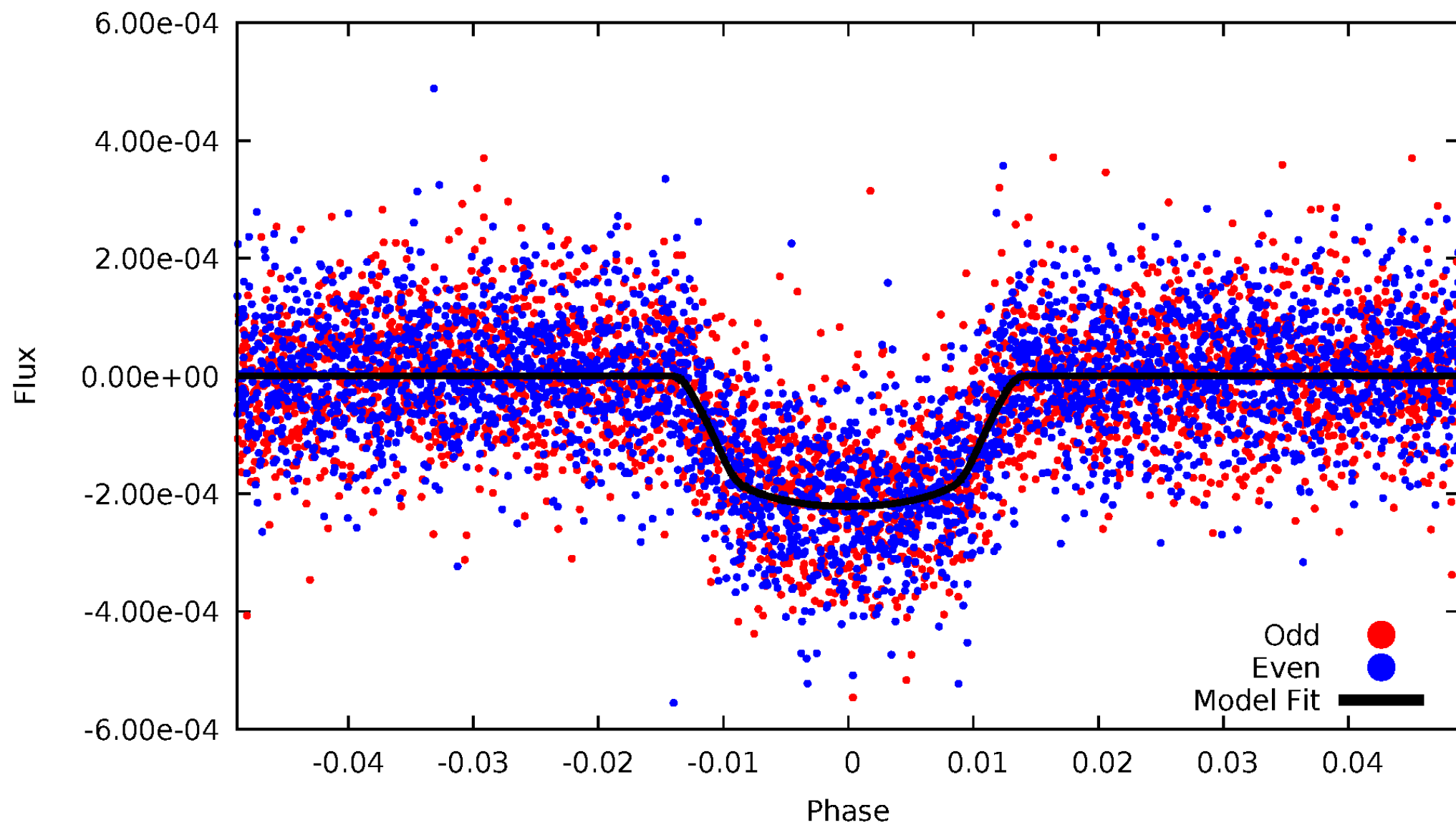


TCE 008240797-02



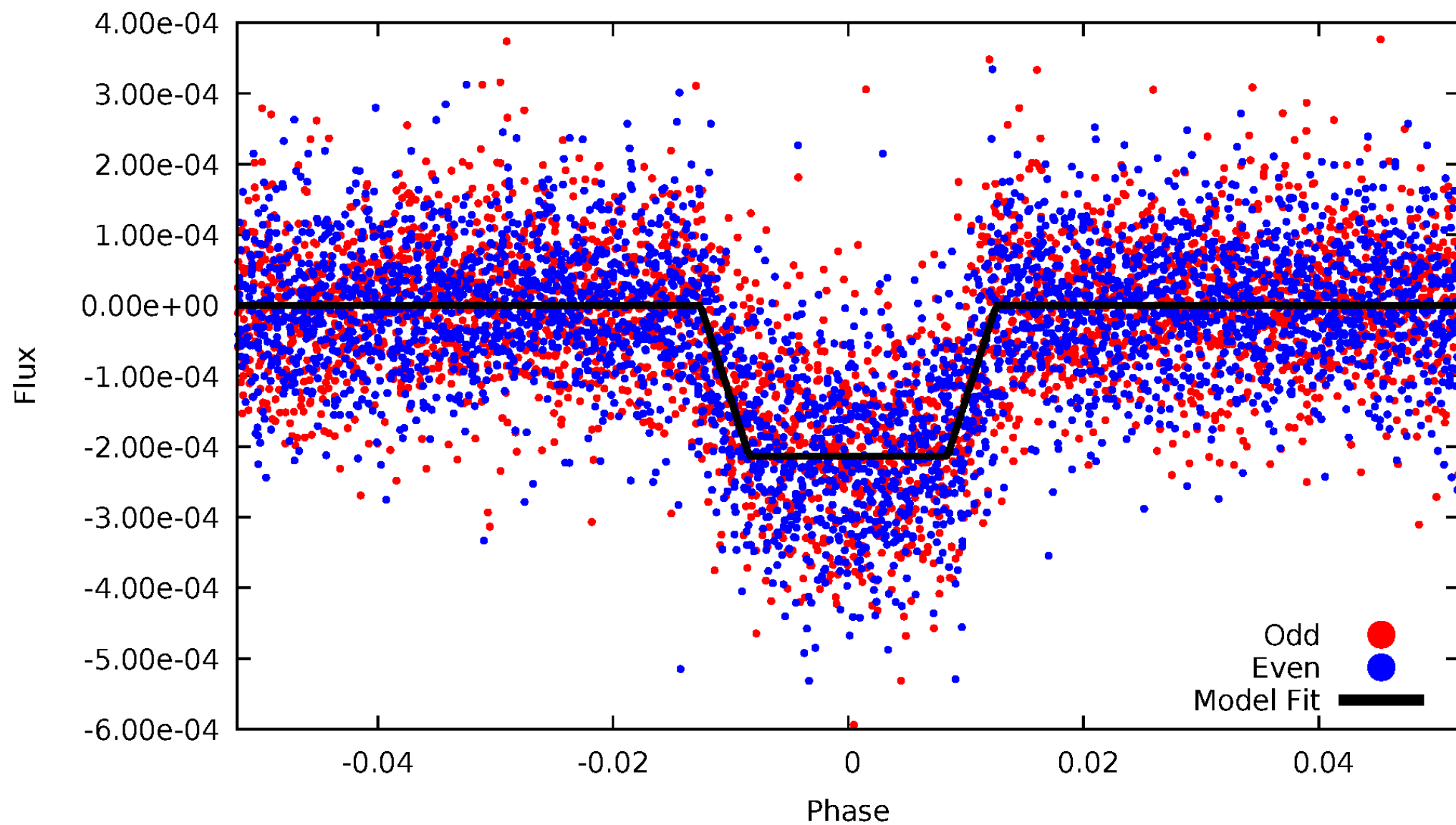
DV Odd/Even

TCE 008240797-02



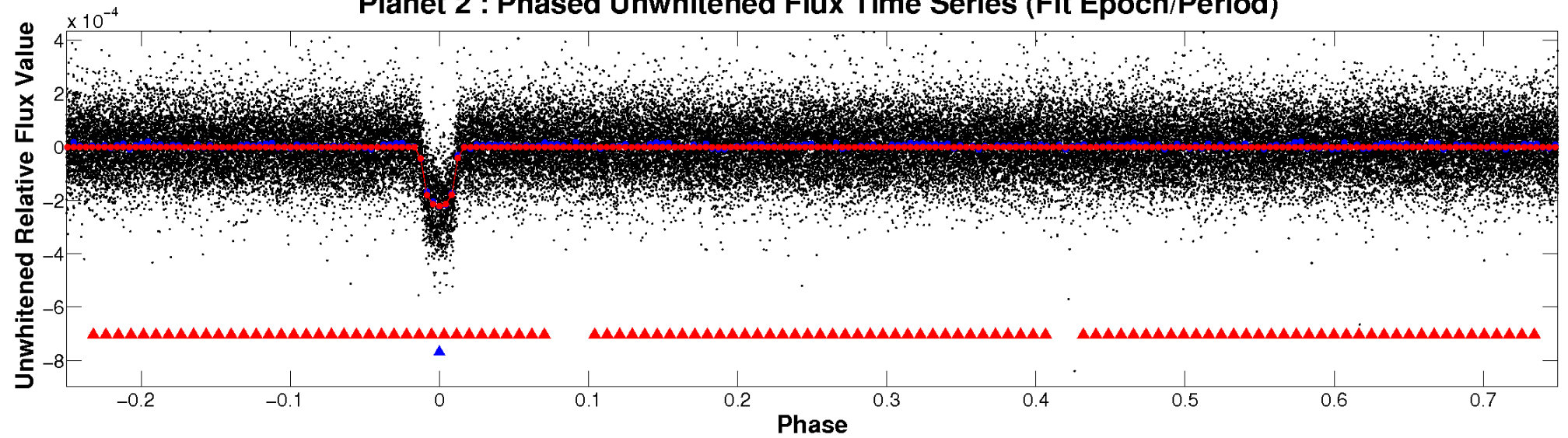
ALT Odd/Even

TCE 008240797-02

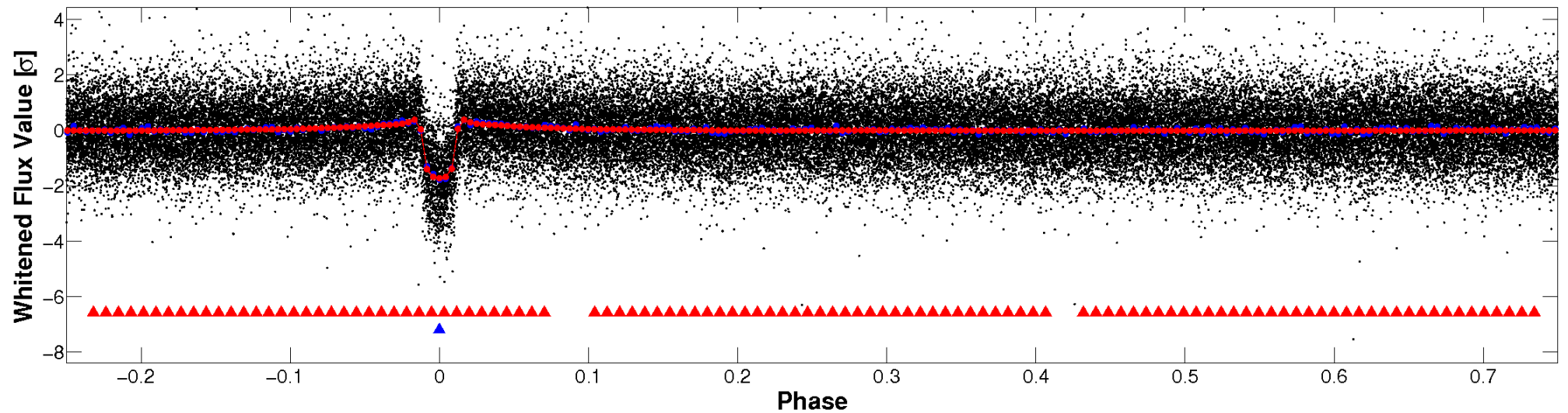


Non-Whitened Vs. Whitened Light Curve

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

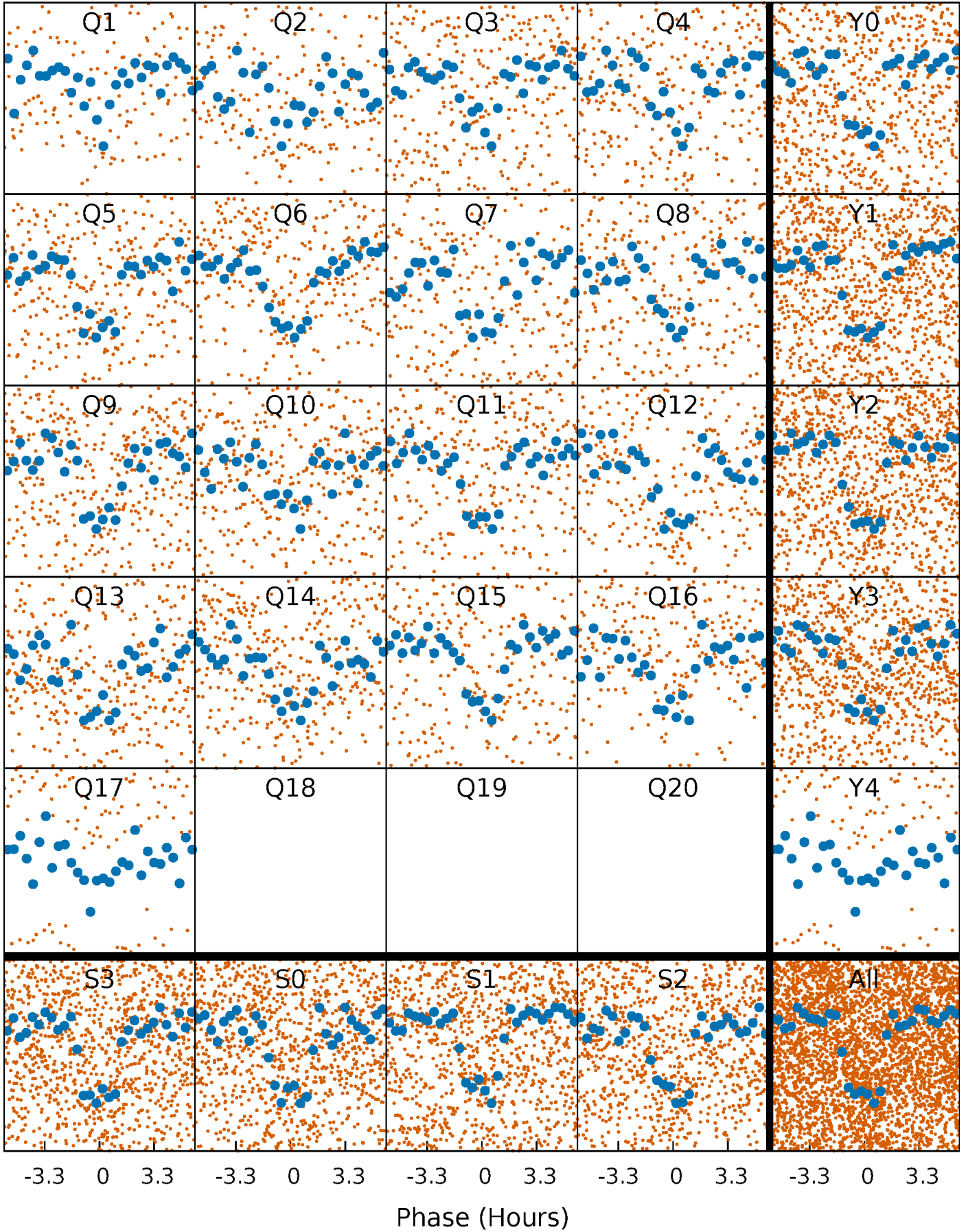


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



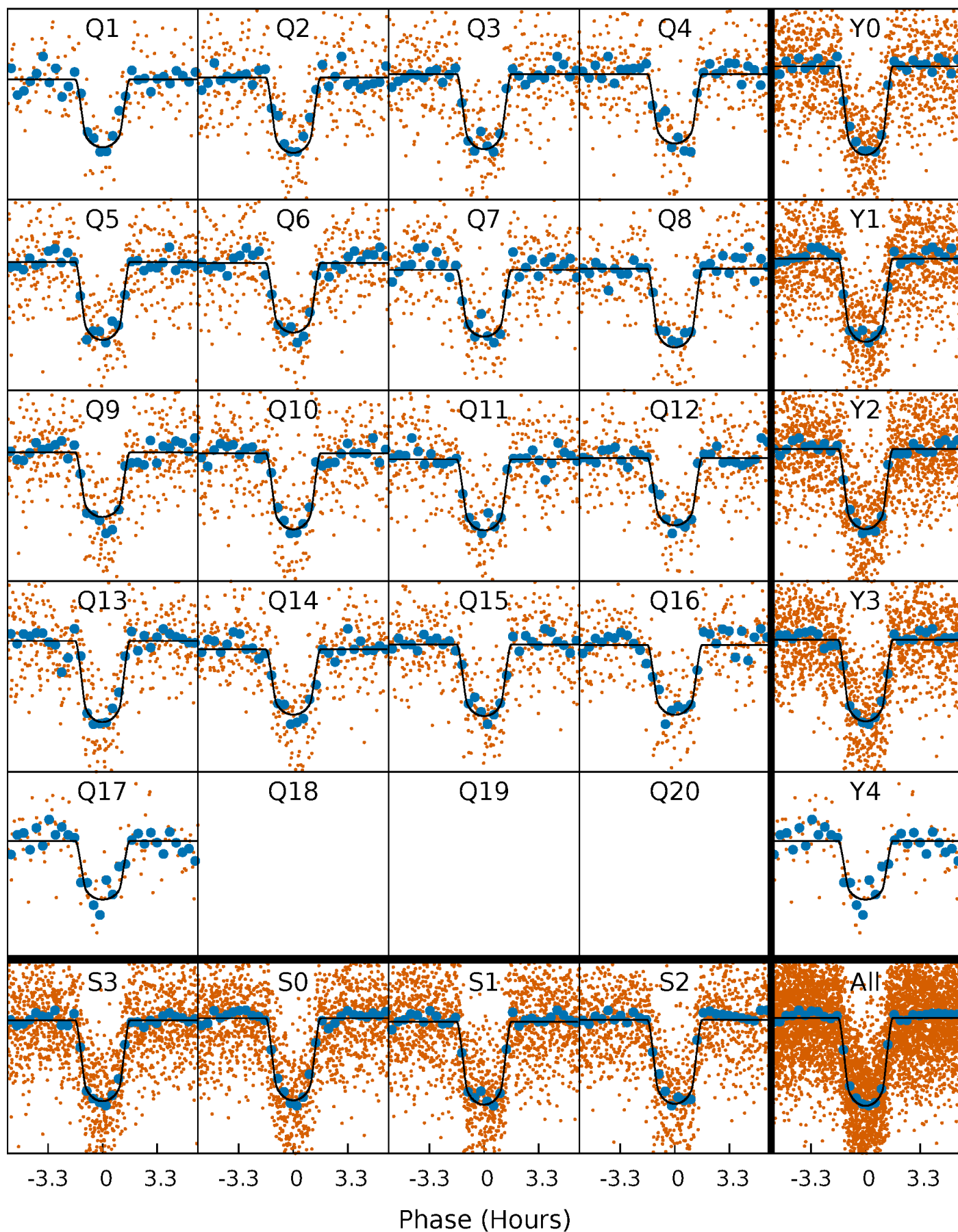
PDC Quarter-Phased Transit Curves

TCE 008240797-02 P= 4.915375 Days $T_0=132.696218$ (BKJD)



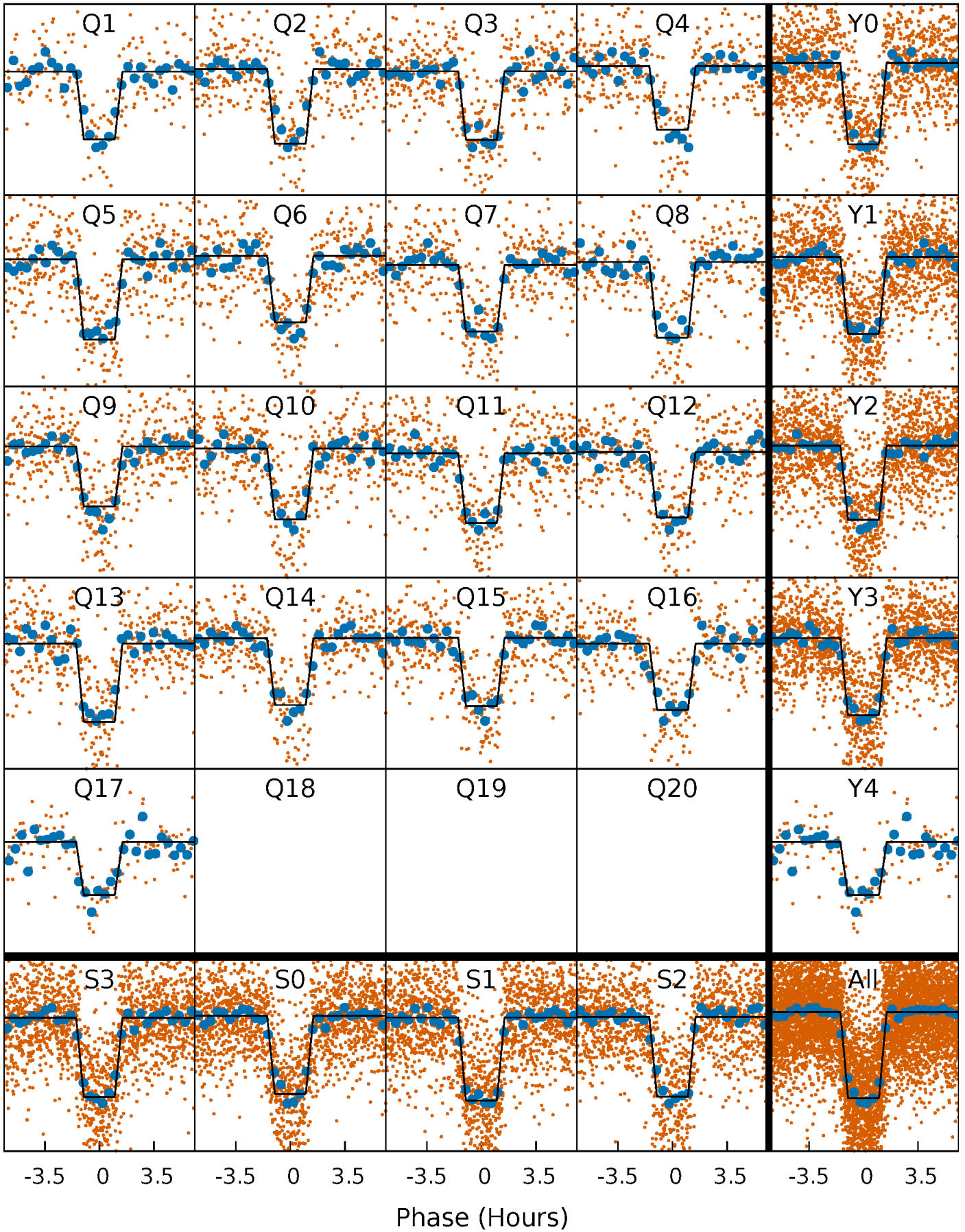
DV Quarter-Phased Transit Curves

TCE 008240797-02 P= 4.915375 Days $T_0=132.696218$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

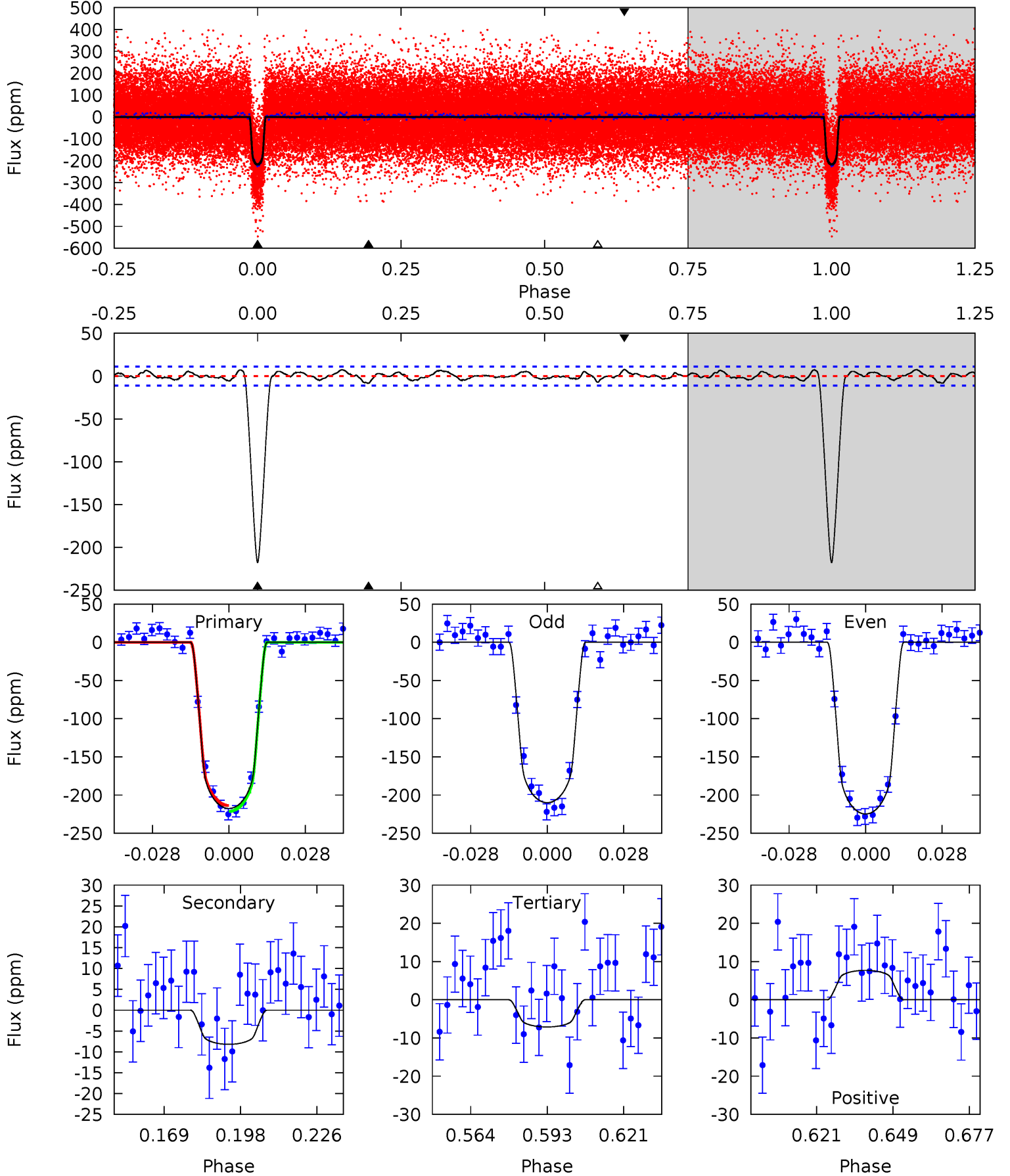
TCE 008240797-02 P= 4.915389 Days $T_0=132.694139$ (BKJD)



DV Model-Shift Uniqueness Test

008240797-02, P = 4.915375 Days, E = 127.780843 Days

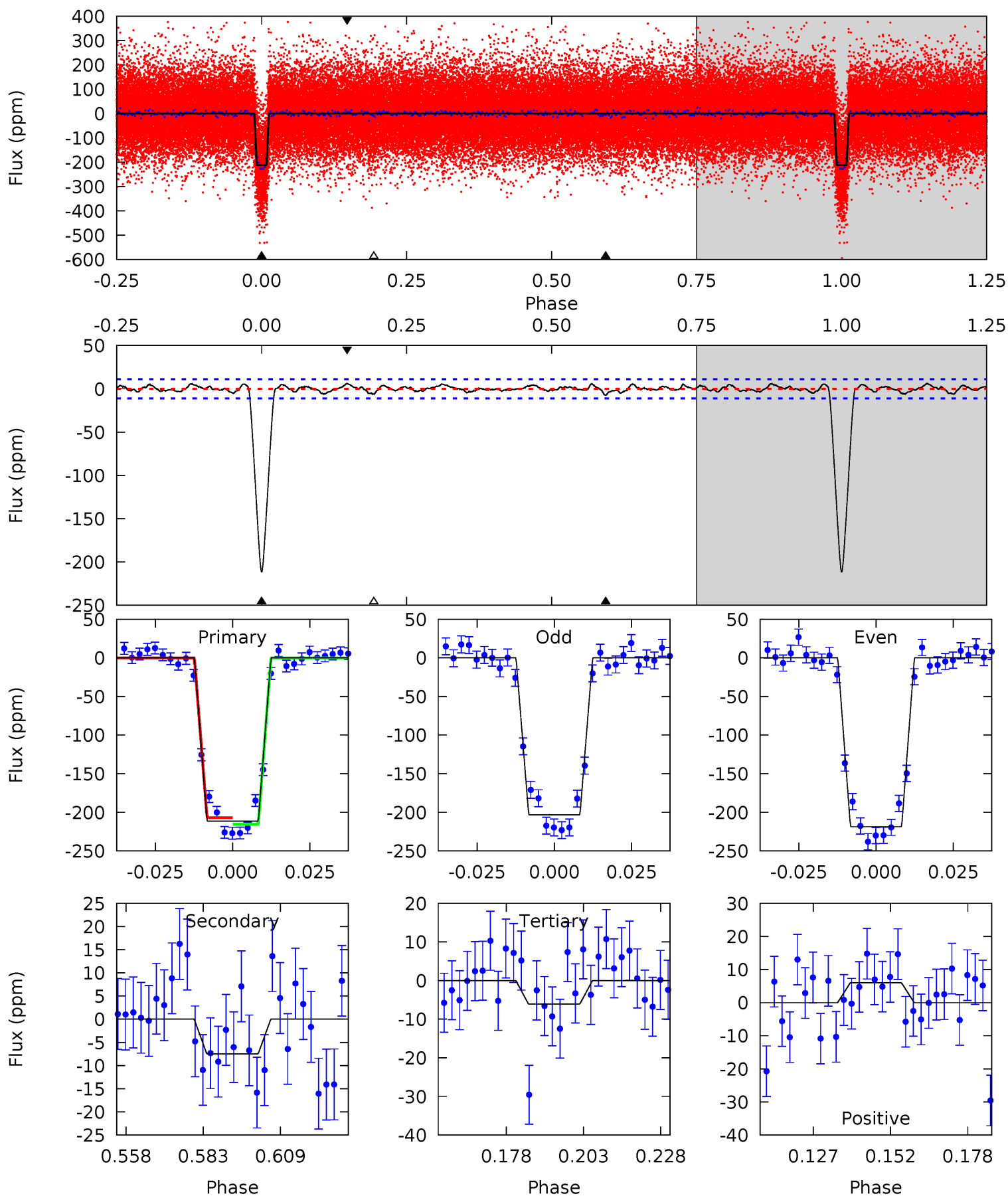
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
94.2	3.55	3.08	3.33	4.82	2.19	1.30	91.1	90.8	0.47	0.22	3.20	0.98	0.03	1.67



Alt Model-Shift Uniqueness Test

008240797-02, P = 4.915389 Days, E = 127.778750 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.4	3.28	2.67	2.61	4.84	2.24	1.09	89.8	89.8	0.62	0.67	3.35	0.99	0.03	1.80



Stellar Parameters For KIC 008240797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5772^{+104}_{-127}	$4.487^{+0.030}_{-0.120}$	$0.100^{+0.150}_{-0.150}$	$0.956^{+0.147}_{-0.053}$	$1.022^{+0.058}_{-0.080}$	$1.648^{+0.245}_{-0.561}$
	+2%/-2%	+1%/-3%	+150%/-150%	+15%/-6%	+6%/-8%	+15%/-34%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 008240797-02 / KOI 1809.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$1.73^{+0.20}_{-0.18}$	1472^{+56}_{-41}	3040^{+161}_{-165}	$4.874^{+2.046}_{-1.547}$
Alt.	-8 ± 2	$1.55^{+0.18}_{-0.15}$	1472^{+57}_{-42}	3090^{+150}_{-170}	$5.423^{+2.076}_{-1.775}$

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

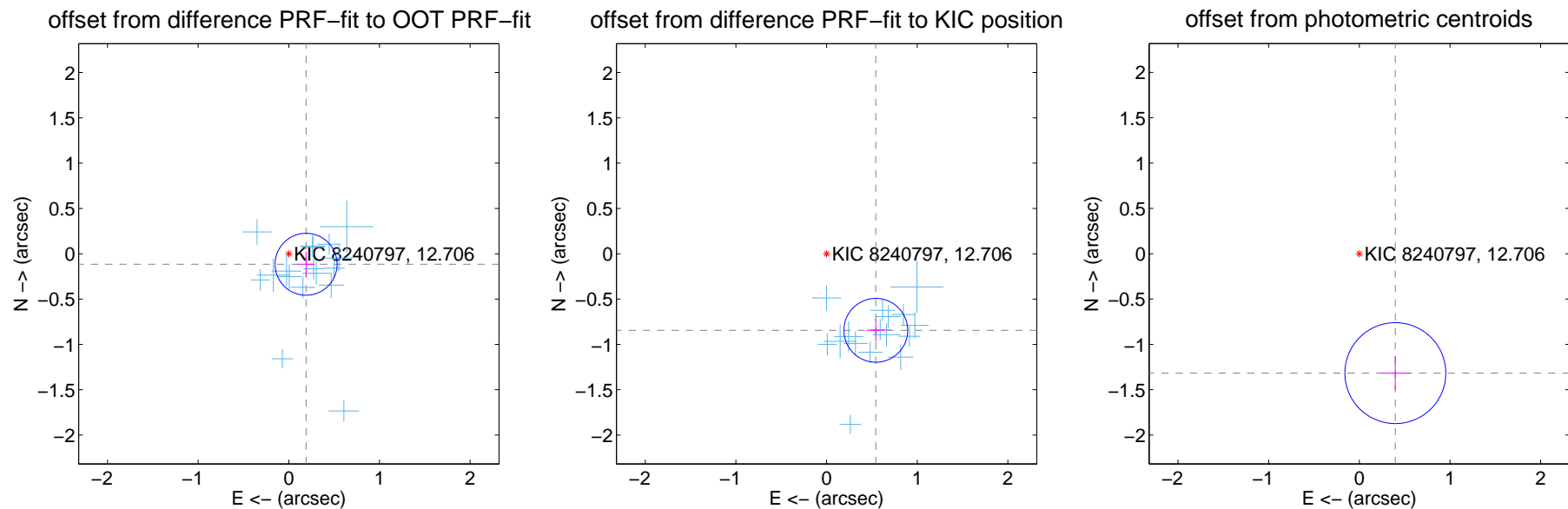
DV Centroid Data

Supplemental centroid analysis for 008240797-02. Kepler magnitude: 12.71. Transit SNR 58.08

There are 17 quarters with good PRF difference image offsets

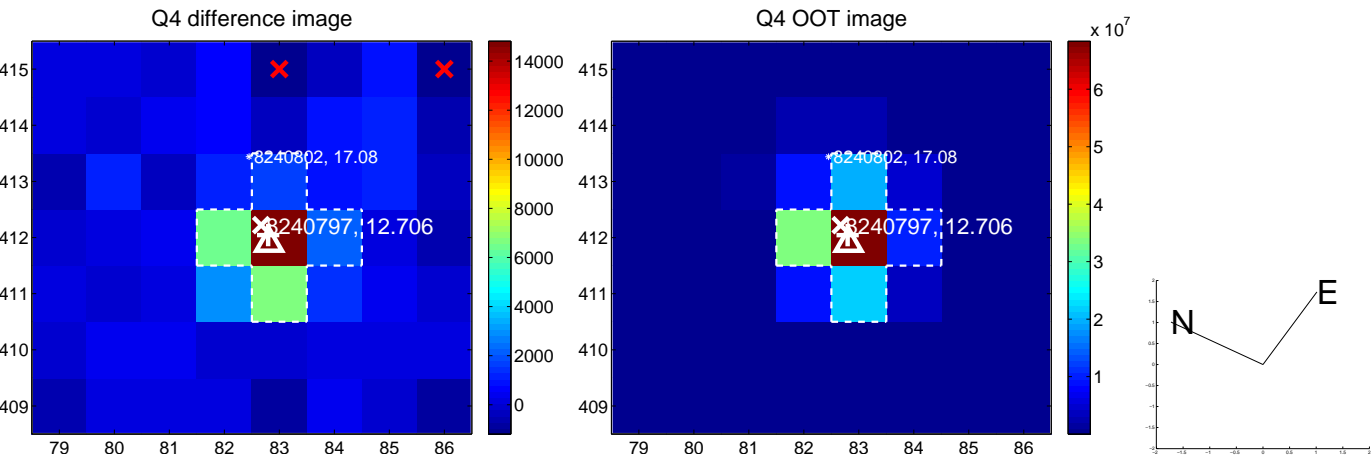
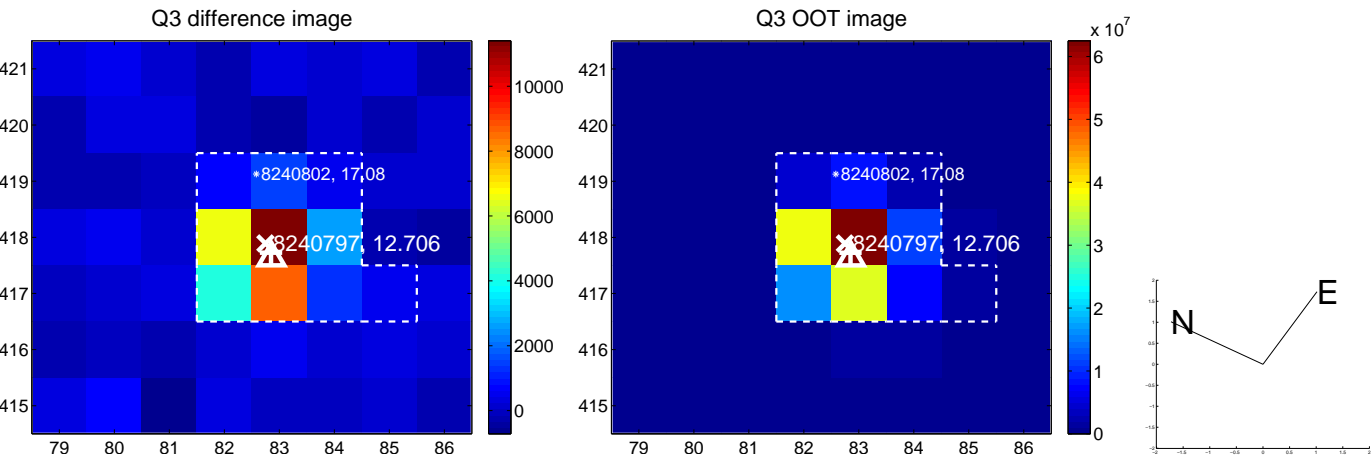
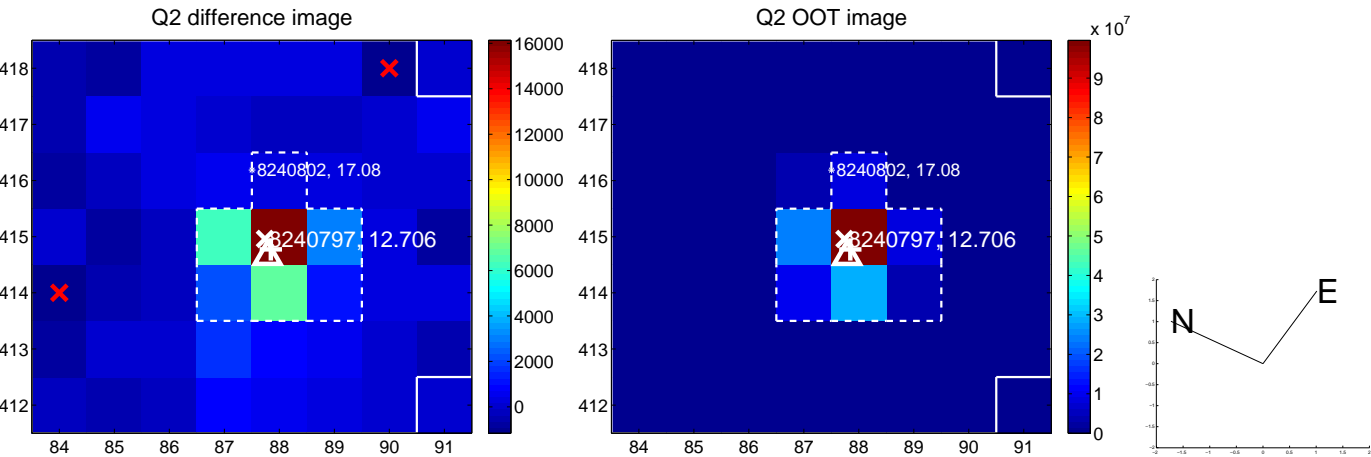
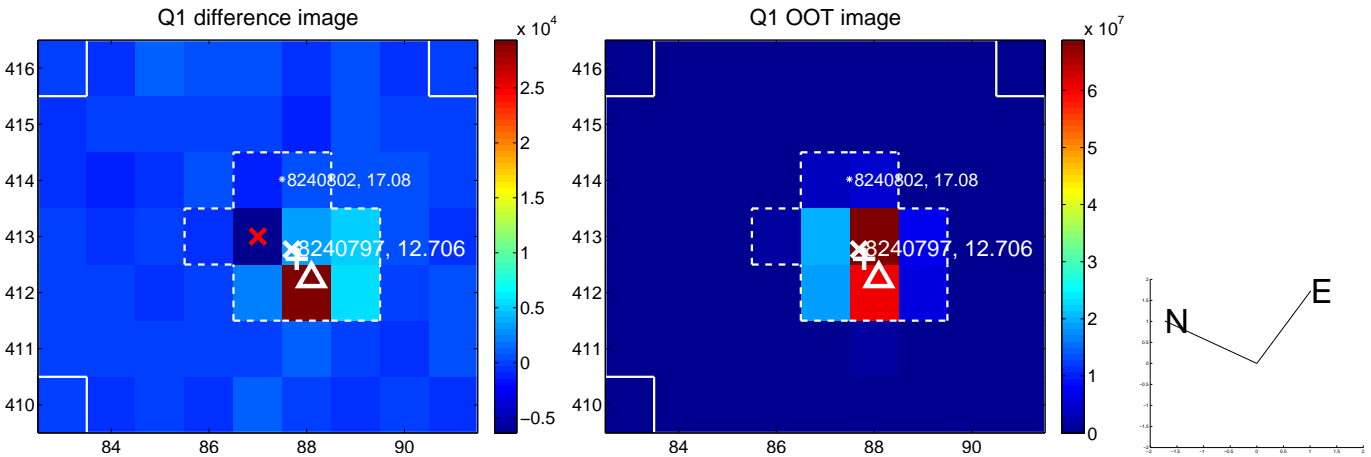
The direct PRF centroid is offset from the target star catalog position by about 0.76 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.223 ± 0.114	1.96	-0.191 ± 0.098	-0.116 ± 0.139
PRF-fit source offset from KIC position	1.004 ± 0.117	8.56	-0.543 ± 0.104	-0.845 ± 0.125
photometric centroid source offset	1.38 ± 0.19	7.42	-0.40 ± 0.16	-1.32 ± 0.19

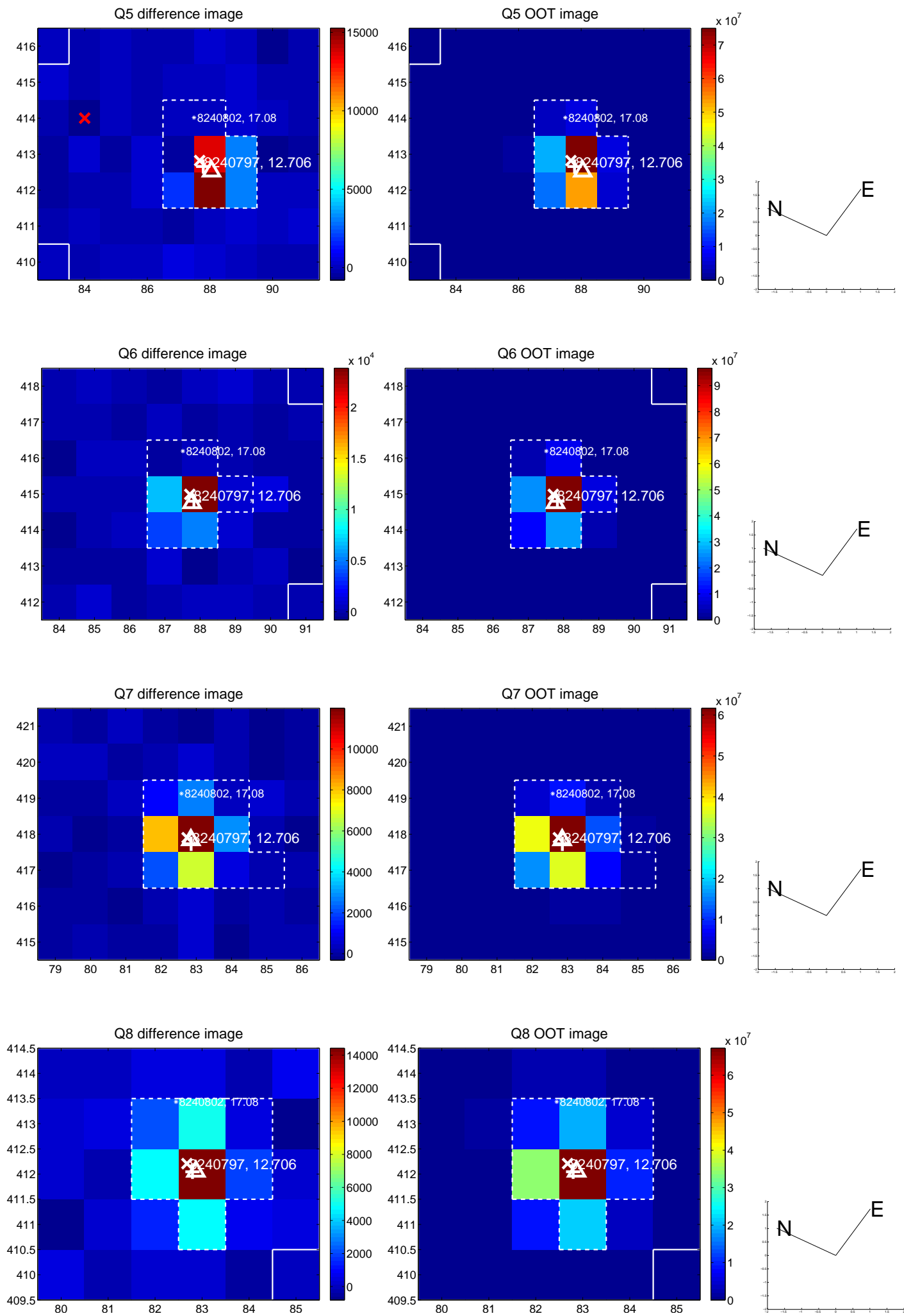


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

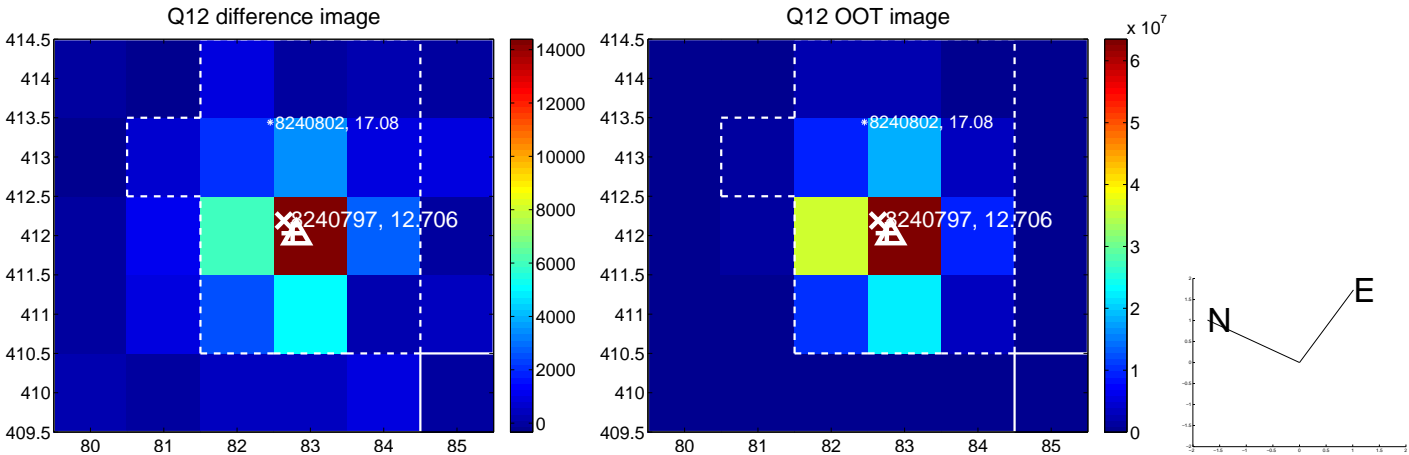
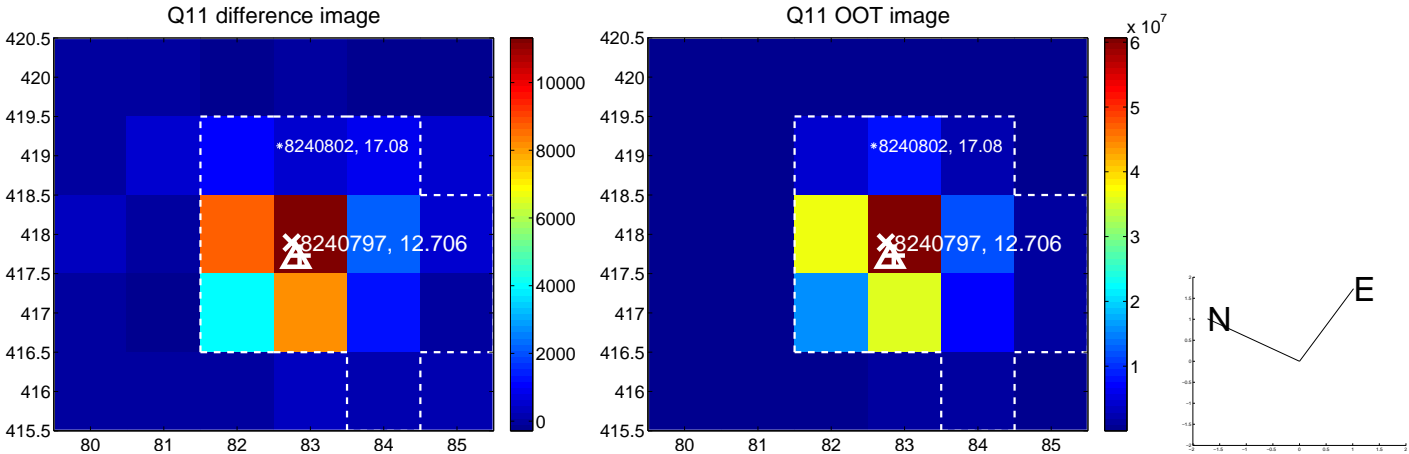
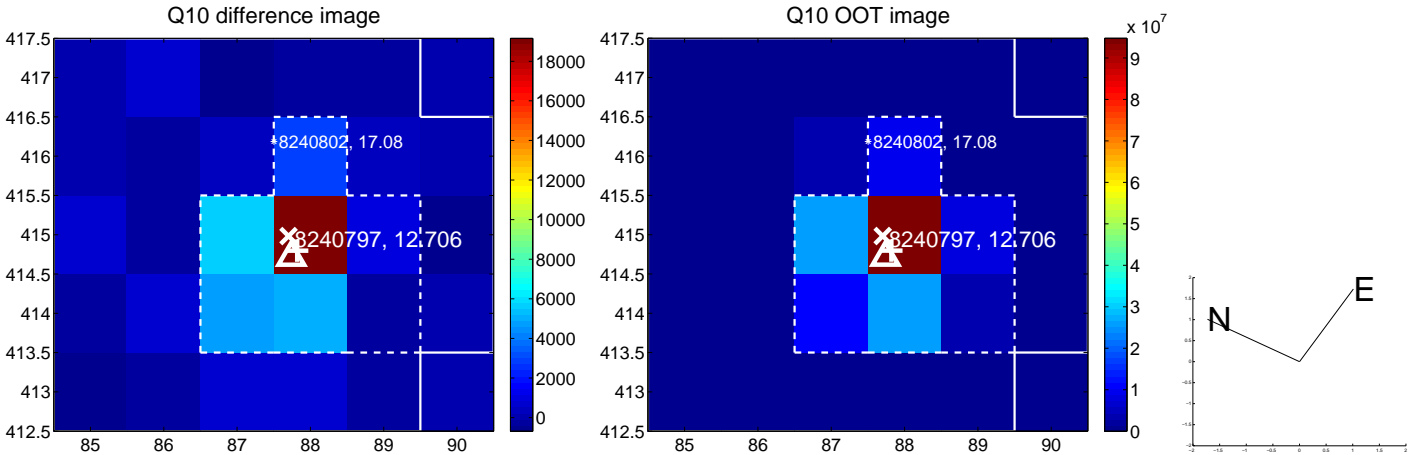
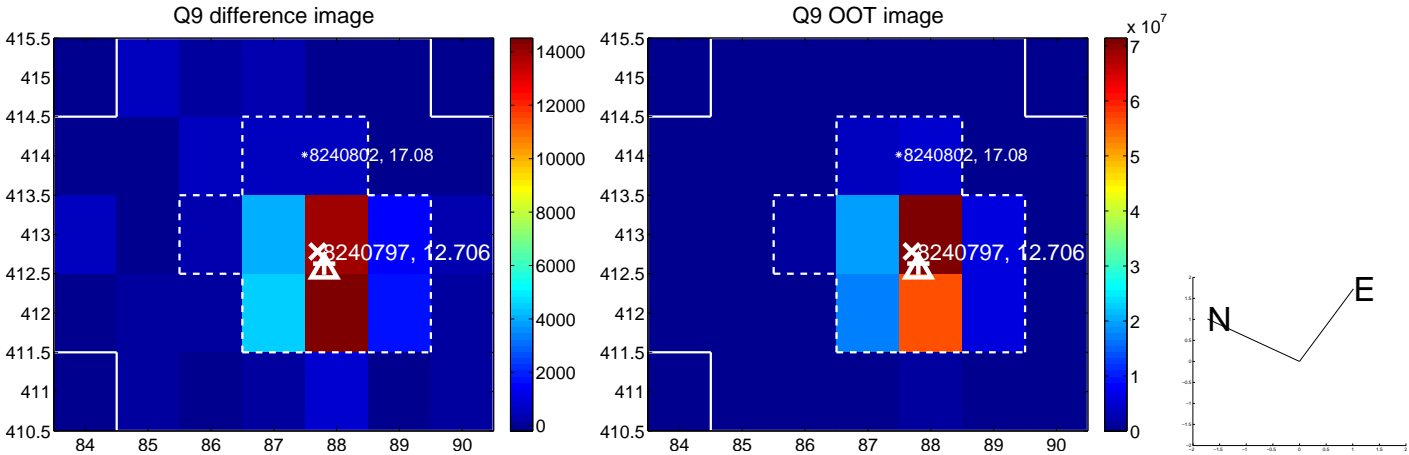
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



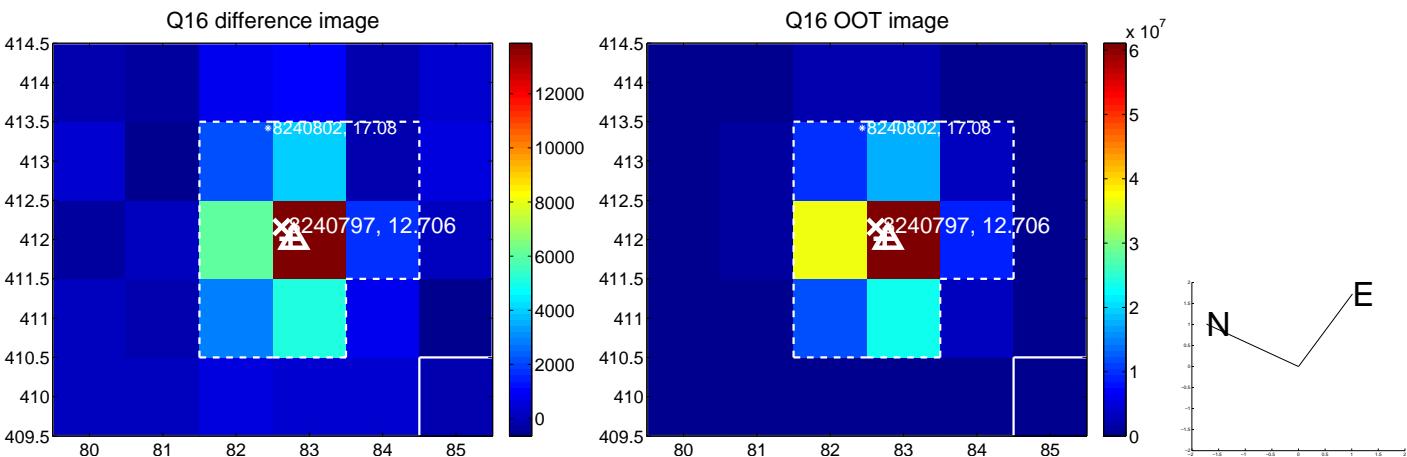
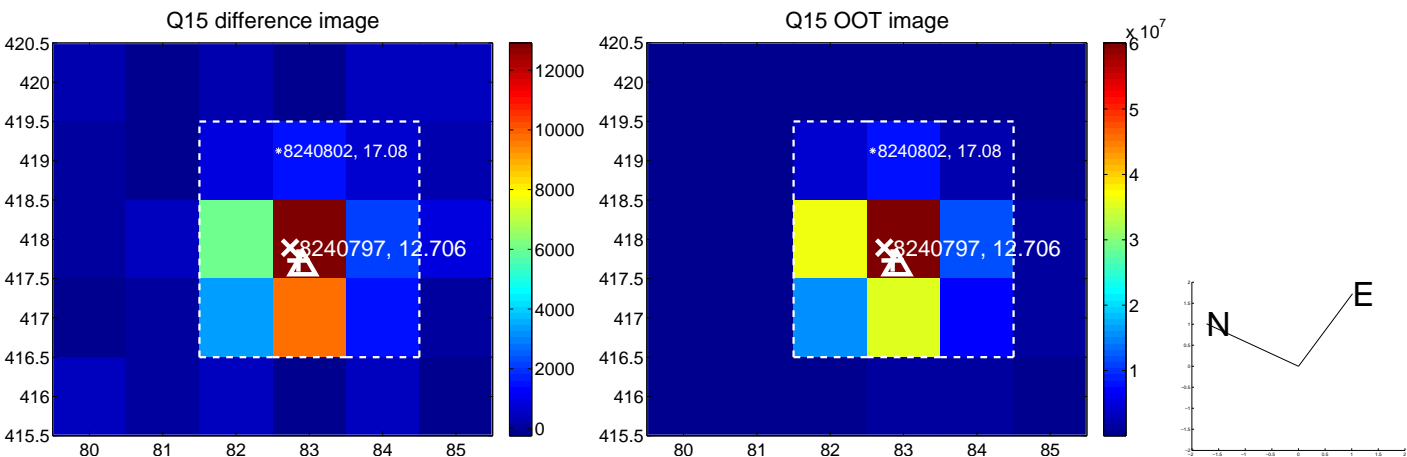
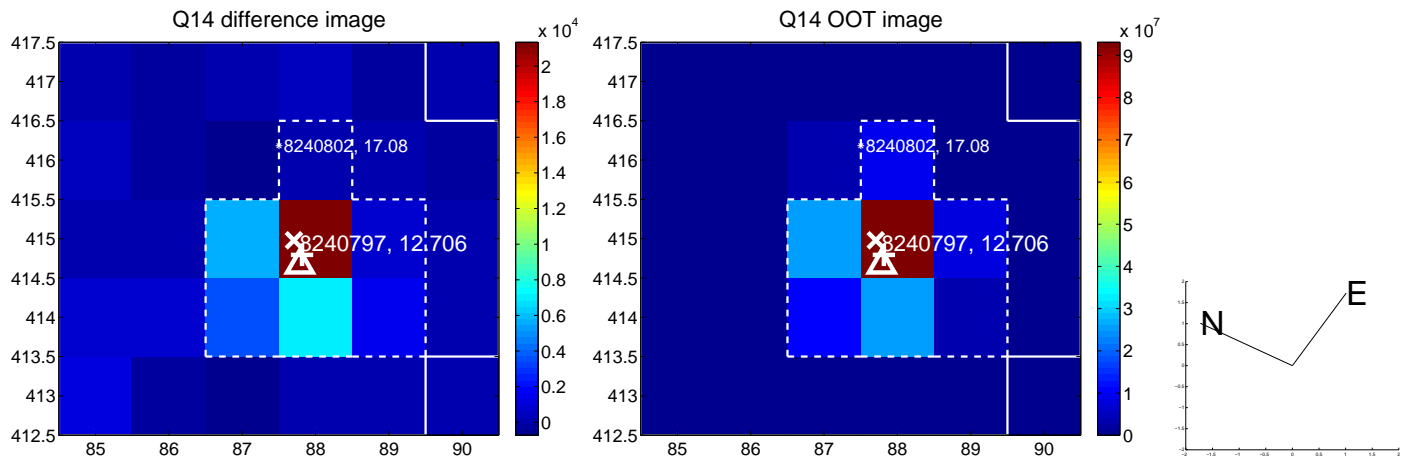
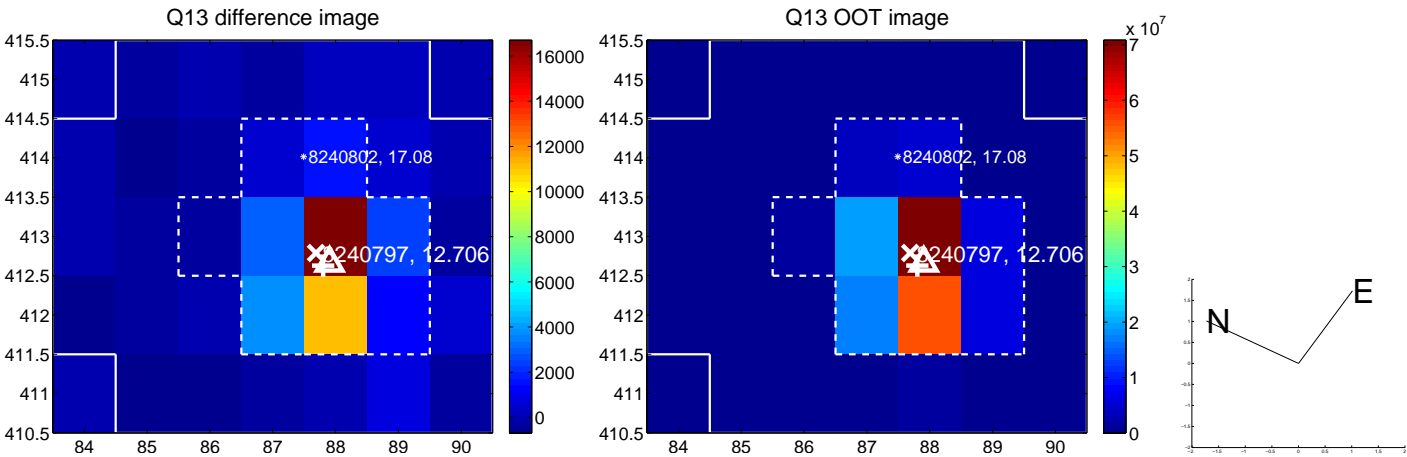
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



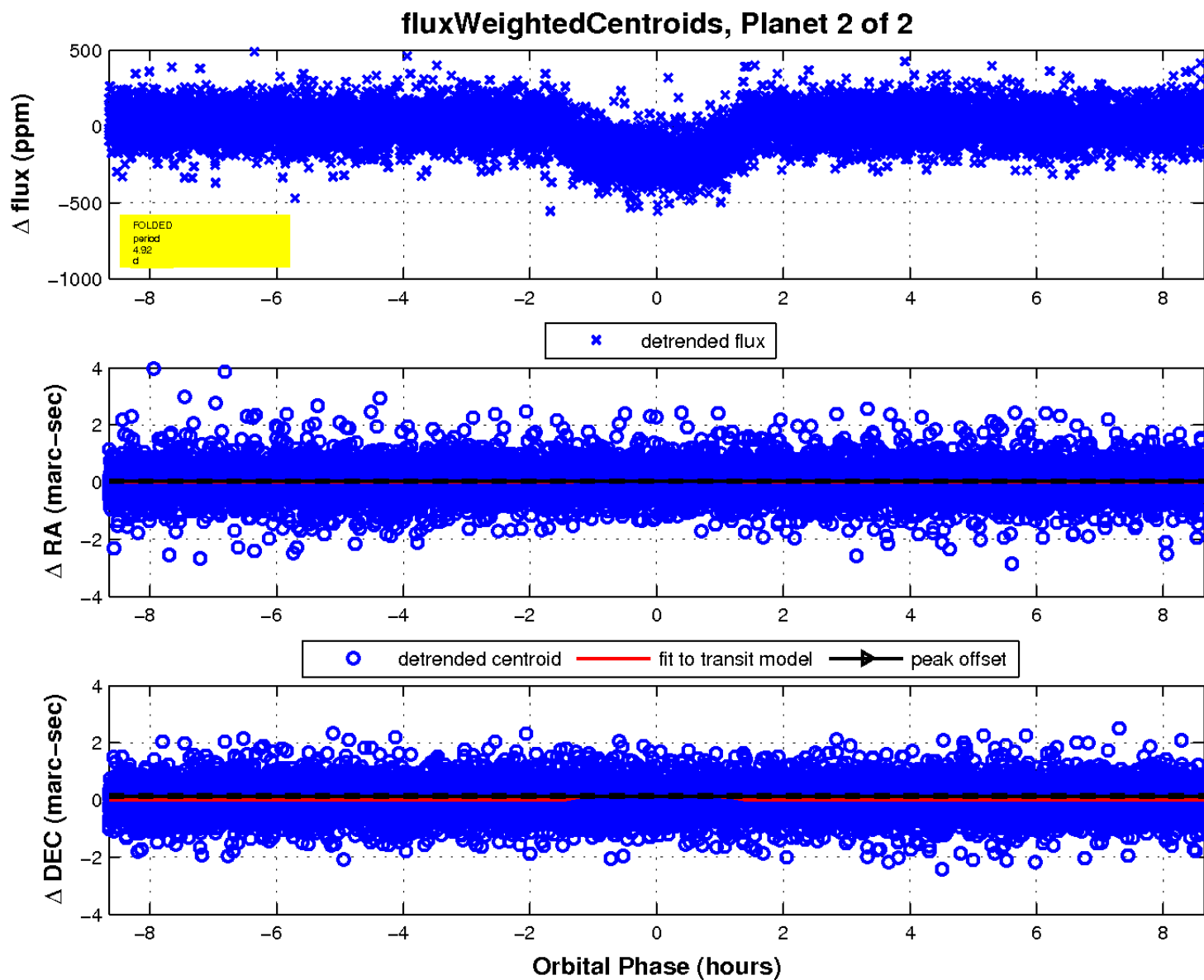
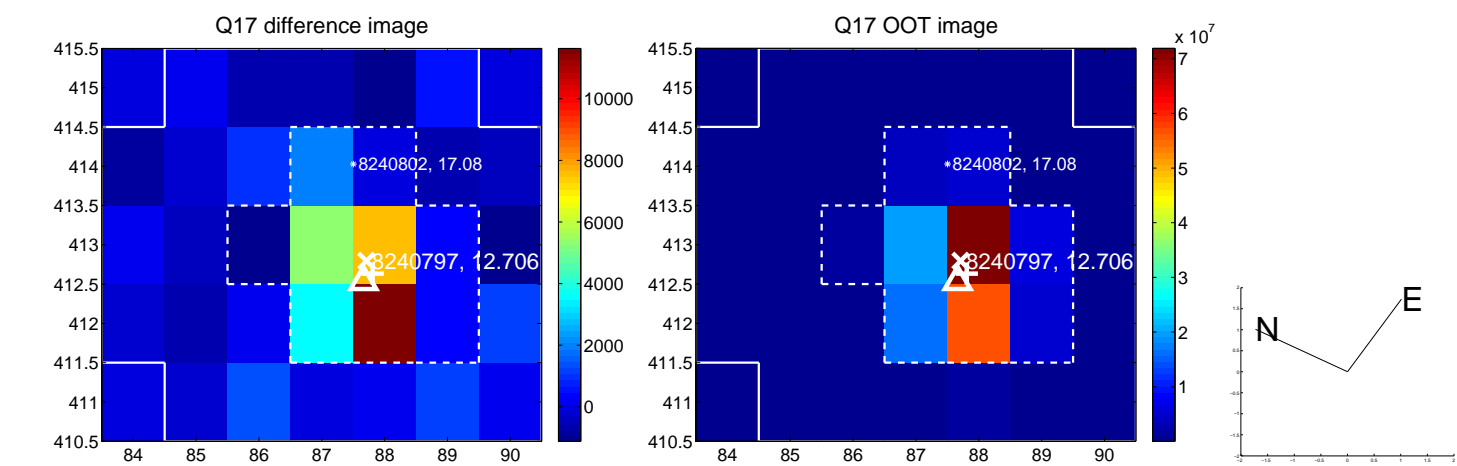
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

