

KIC 007830321

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})
007830321-01	OBS	6044.01	2.027378	131.687631	2764.2	1.142	81.0	144.9	0.88	5544	5.55	791.19
007830321-02	OBS	No	2.027427	132.691863	839.5	0.972	26.3	43.3	0.88	5544	3.06	791.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007830321-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007830321-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

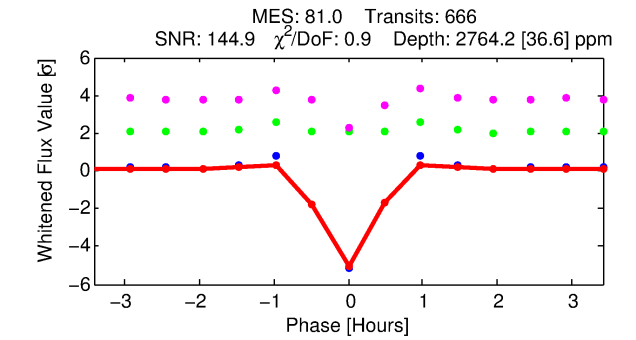
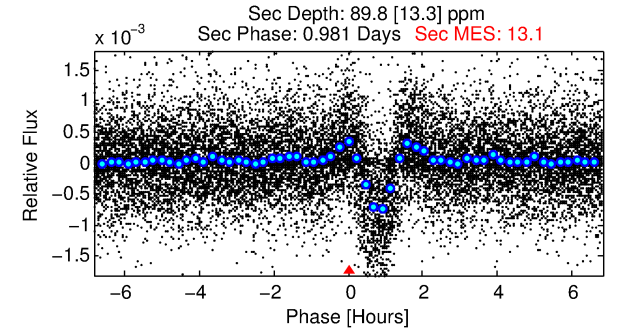
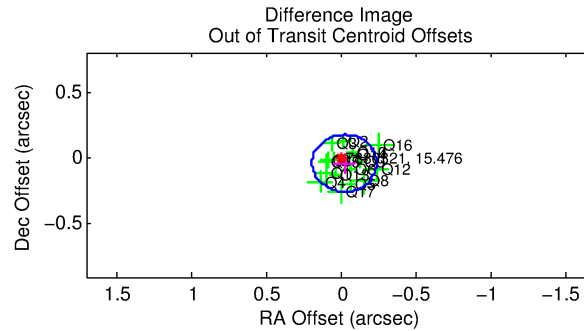
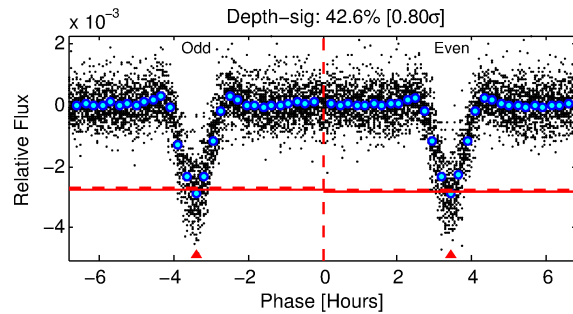
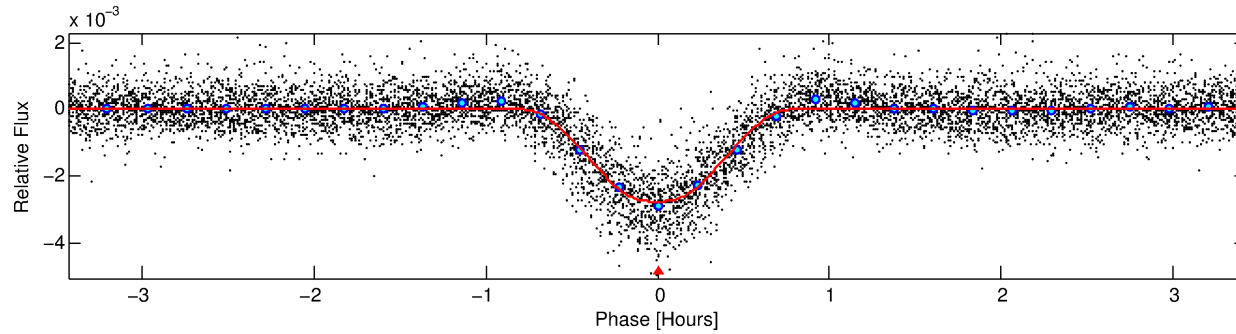
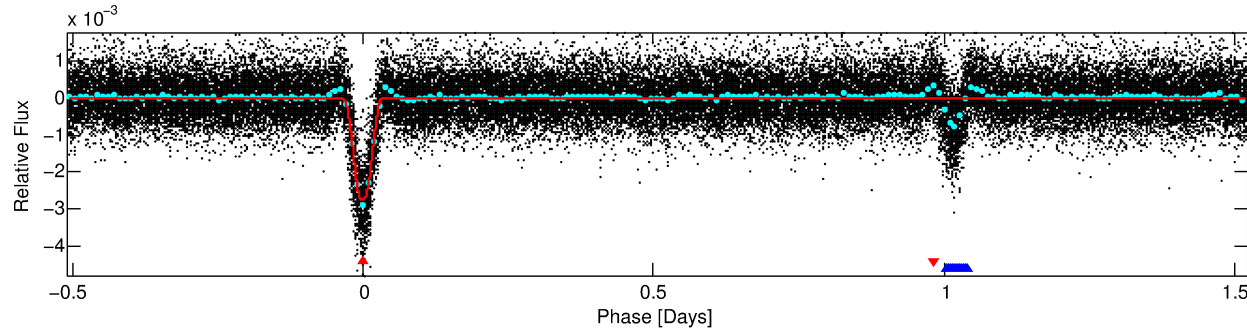
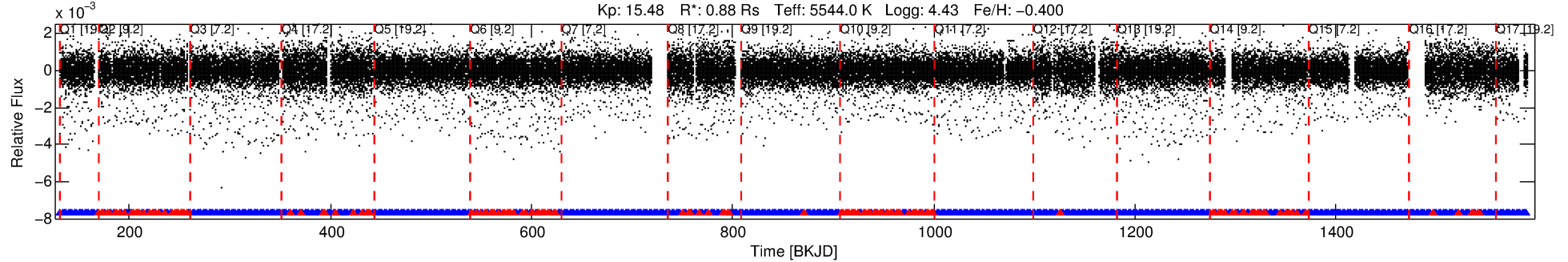
Ephemeris Match Information For 007830321-01

No Significant Match Found

DV One-Page Summary

KIC: 7830321 Candidate: 1 of 2 Period: 2.027 d
KOI: K06044.01 Corr: 0.841

Kp: 15.48 R*: 0.88 Rs Teff: 5544.0 K Logg: 4.43 Fe/H: -0.400



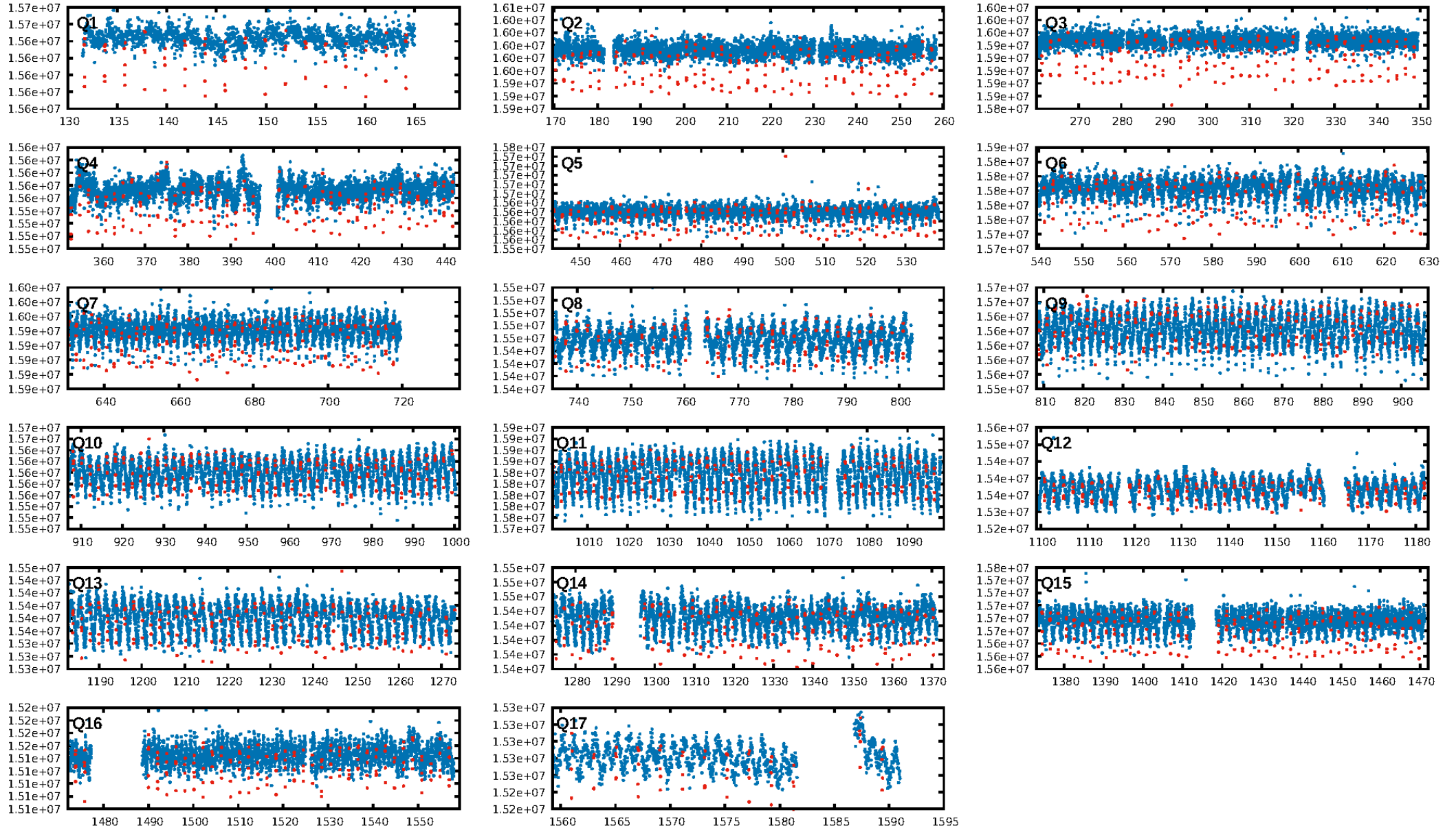
DV Fit Results:

Period = 2.02738 [0.00000] d
Epoch = 131.6876 [0.0001] BKJD
Rp/R* = 0.0582 [0.0014]
a/R* = 7.61 [0.64]
b = 0.90 [0.02]
Seff = 791.19 [327.60]
Teff = 1352 [140] K
Rp = 5.55 [1.49] Re
a = 0.0286 [0.0071] AU
Ag = 1.31 [0.55] [0.56σ]
Teffp = 2238 [114] K [4.90σ]

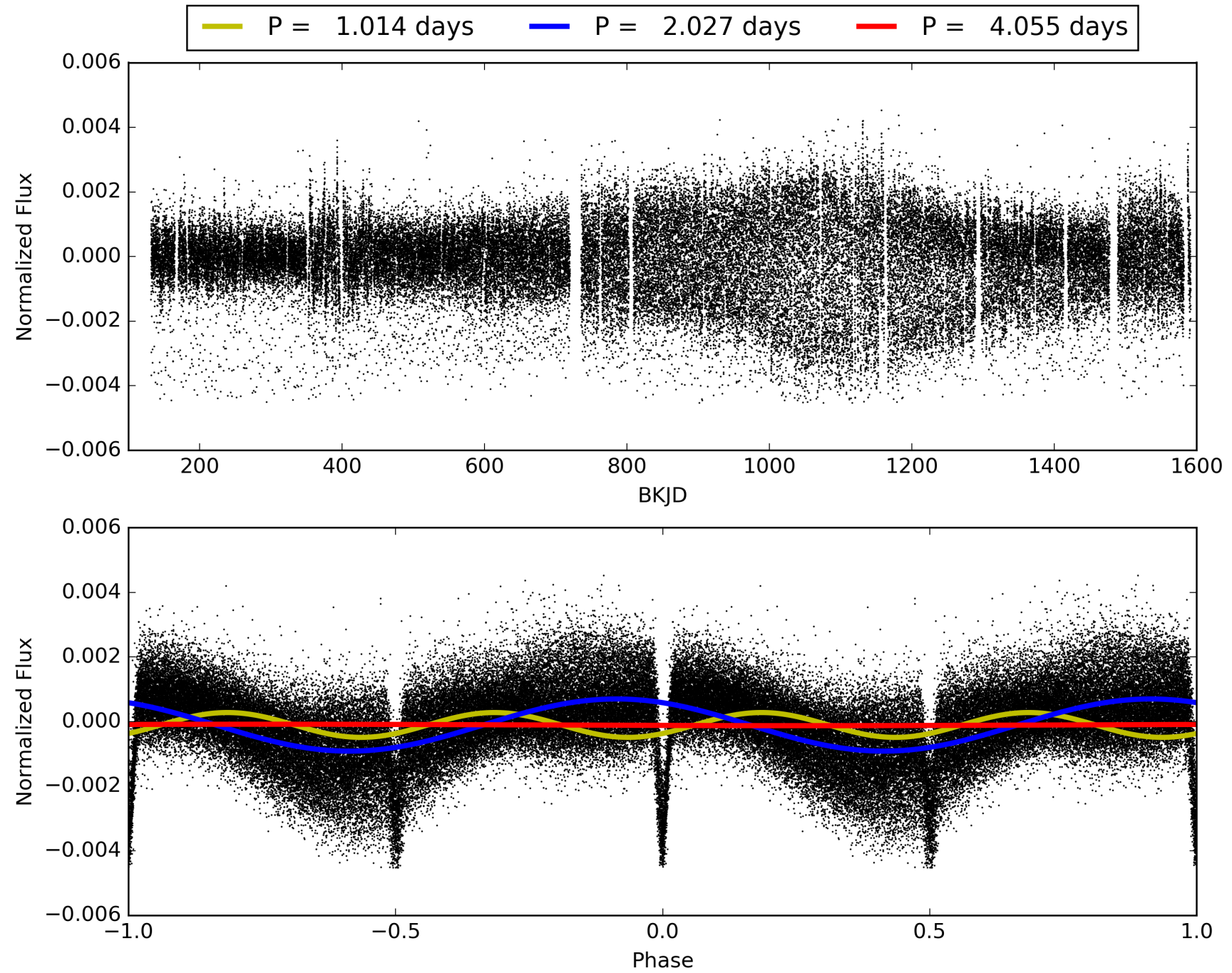
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.78 [497/636]
GhostDiagnostic-chr: 2.334
Centroid-sig: 0.1%
Centroid-so: 0.220 arcsec [2.52σ]
OotOffset-rm: 0.047 arcsec [0.65σ]
KicOffset-rm: 0.135 arcsec [1.84σ]
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 007830321-01, PDC Light Curves

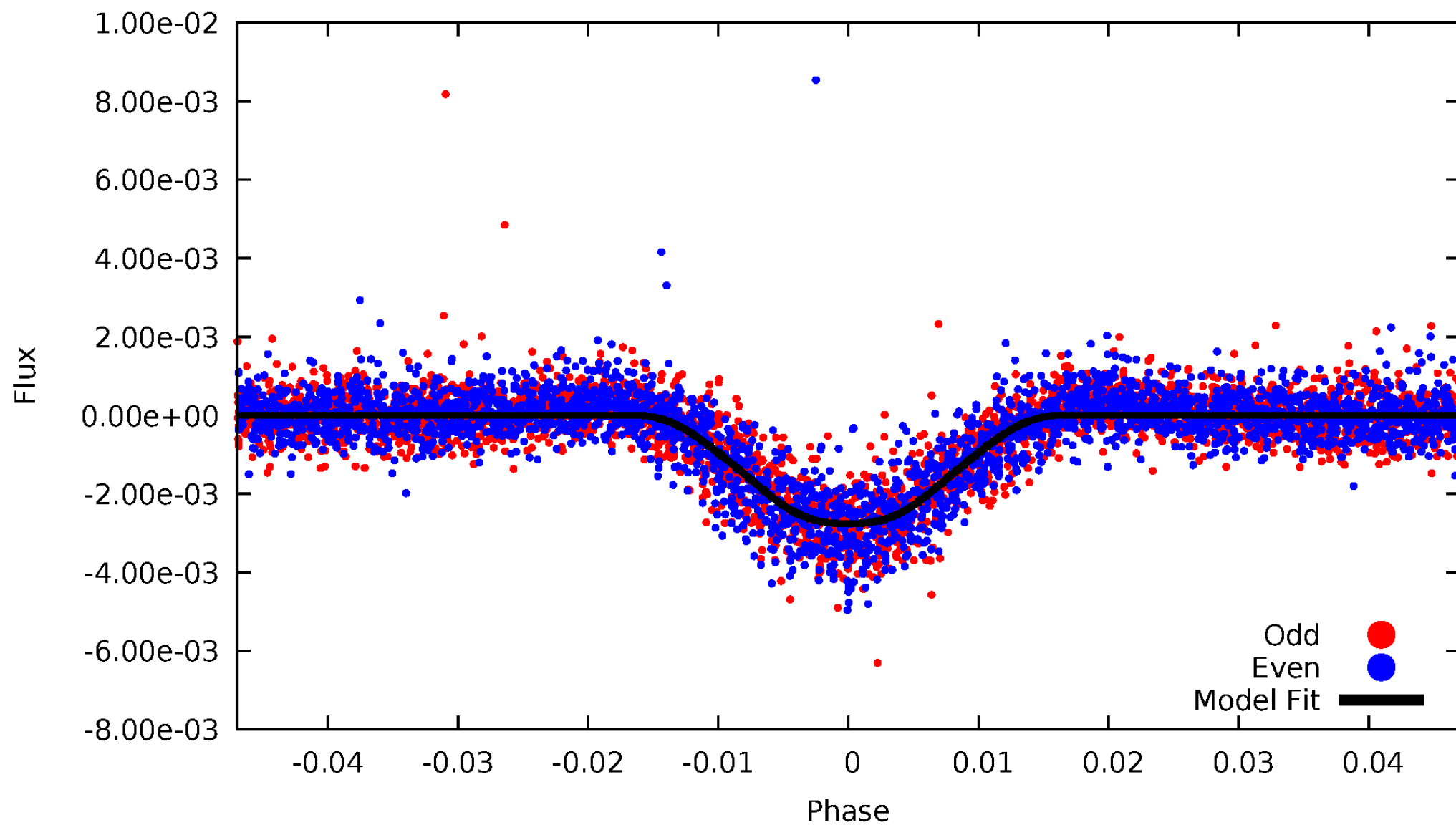


TCE 007830321-01



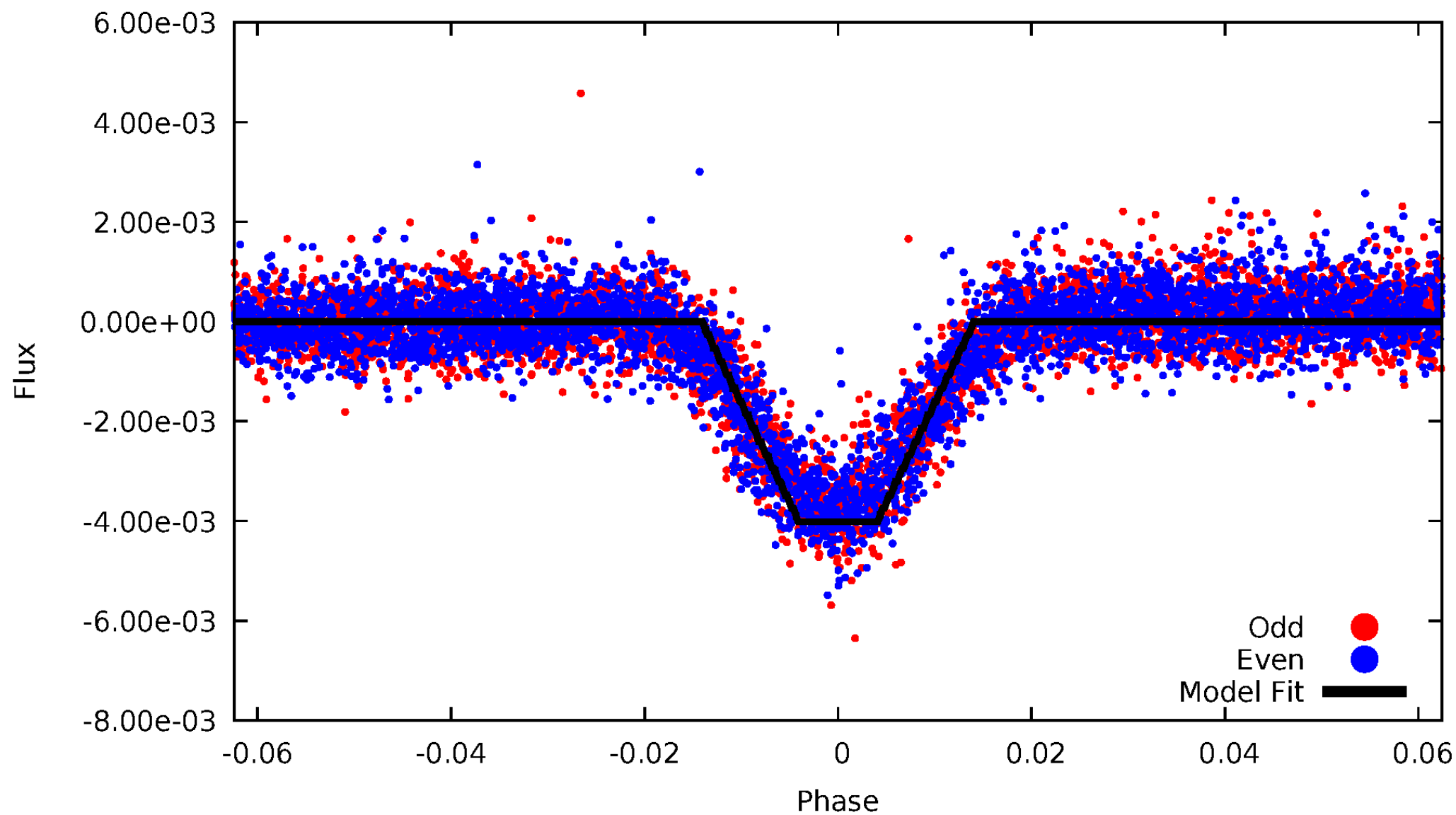
DV Odd/Even

TCE 007830321-01



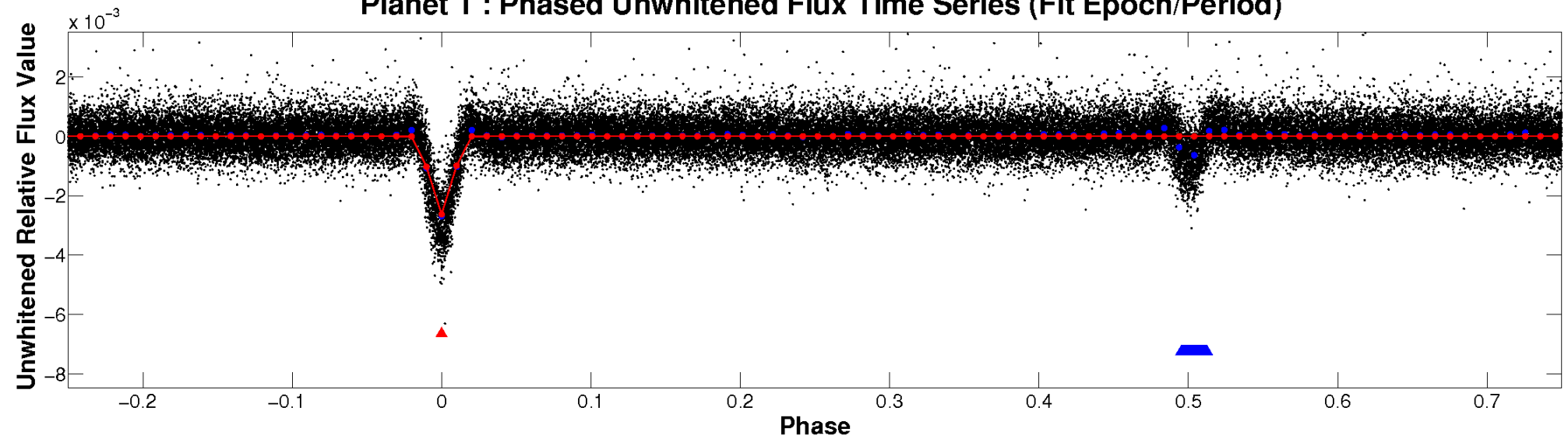
ALT Odd/Even

TCE 007830321-01

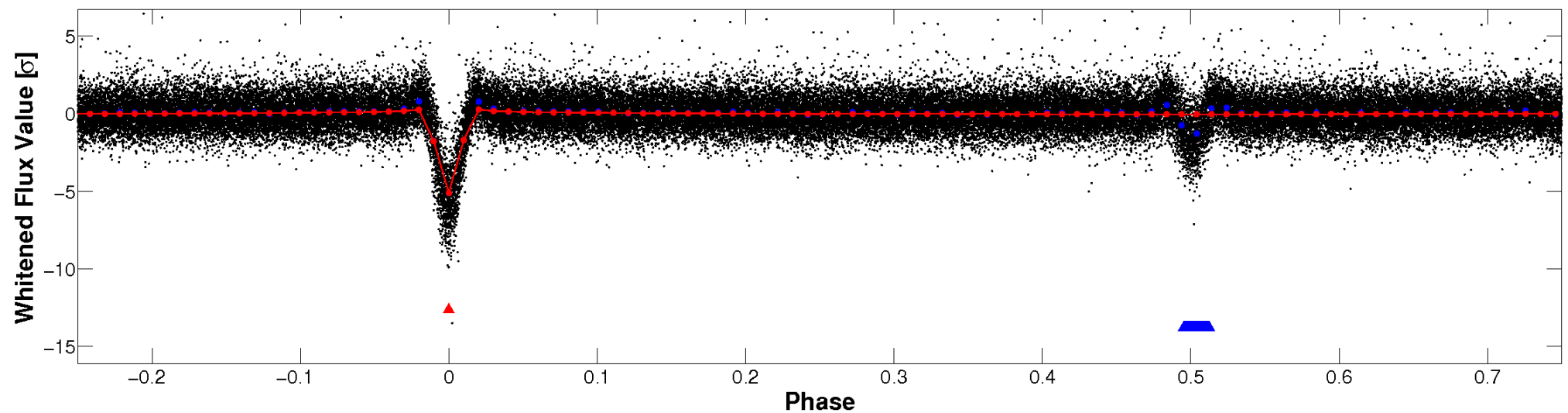


Non-Whitened Vs. Whitened Light Curve

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

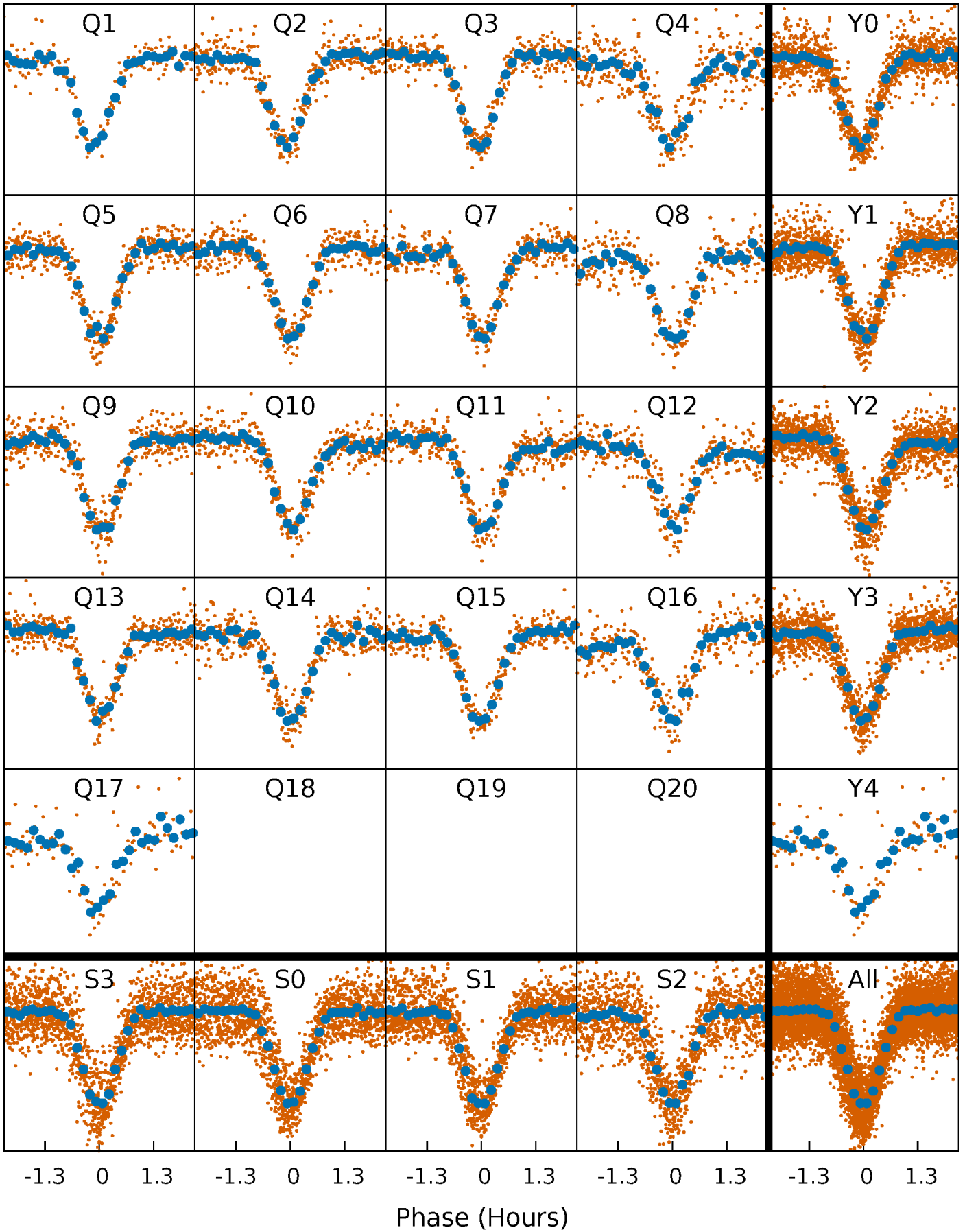


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



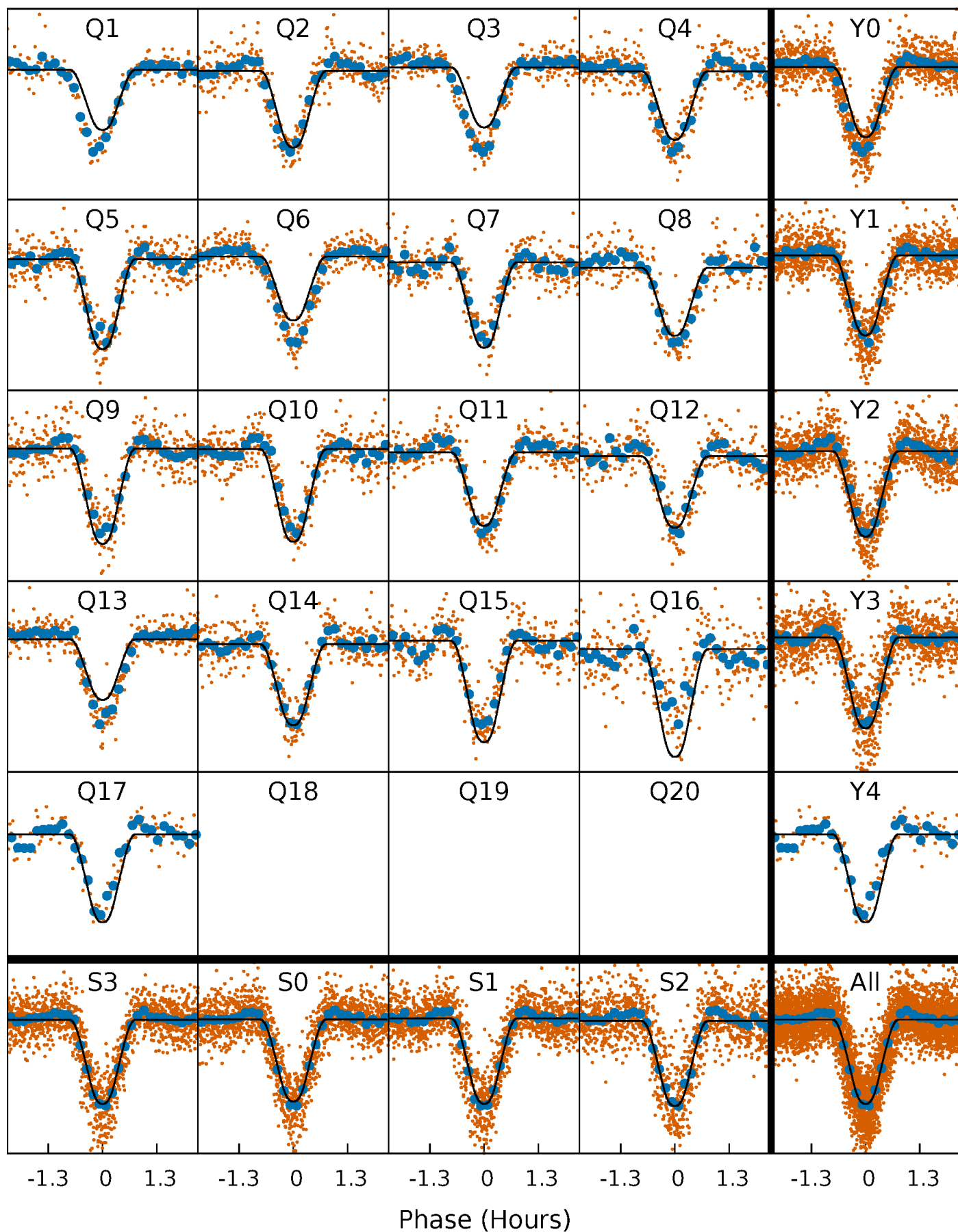
PDC Quarter-Phased Transit Curves

TCE 007830321-01 P= 2.027378 Days $T_0=131.687631$ (BKJD)



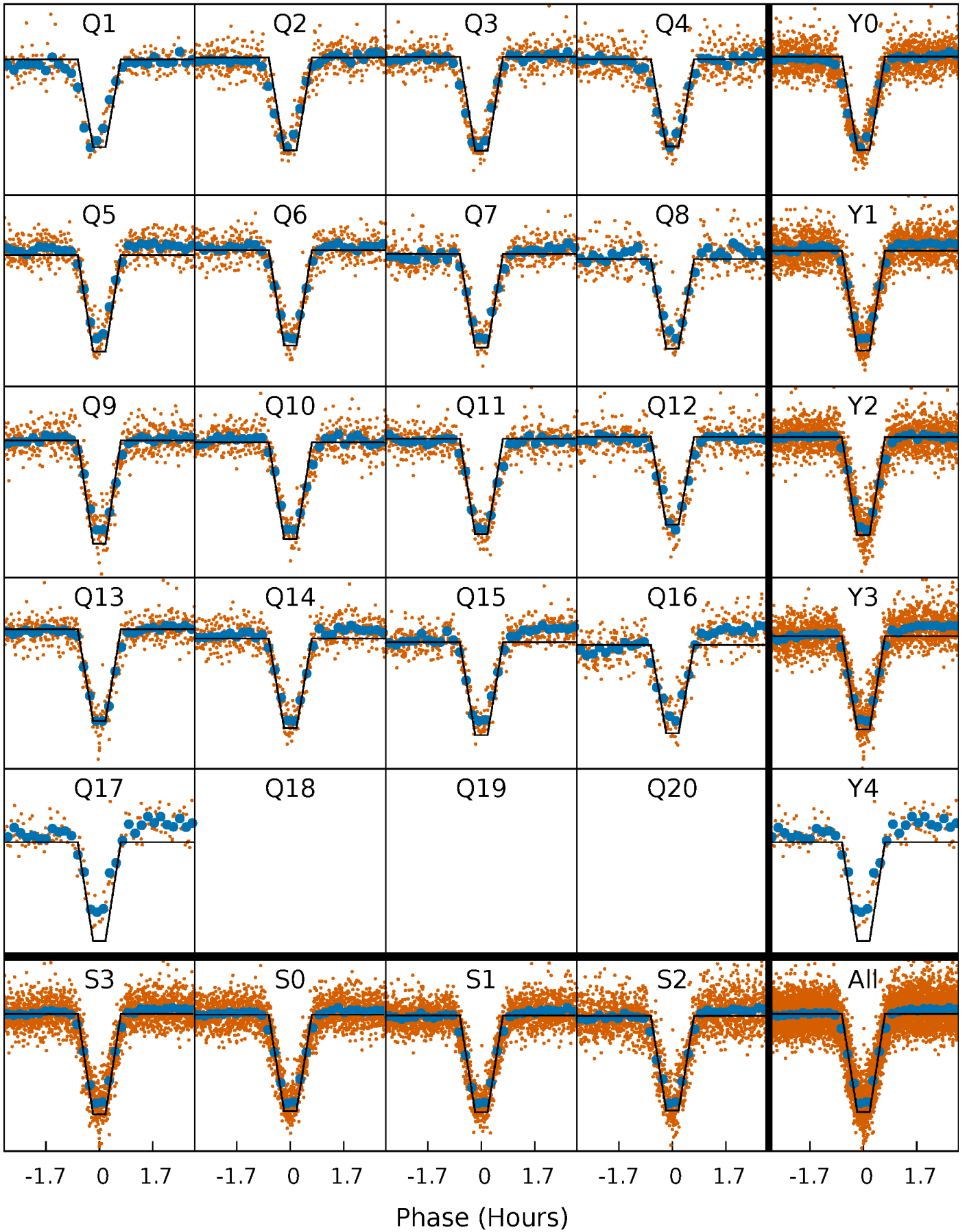
DV Quarter-Phased Transit Curves

TCE 007830321-01 P= 2.027378 Days $T_0=131.687631$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

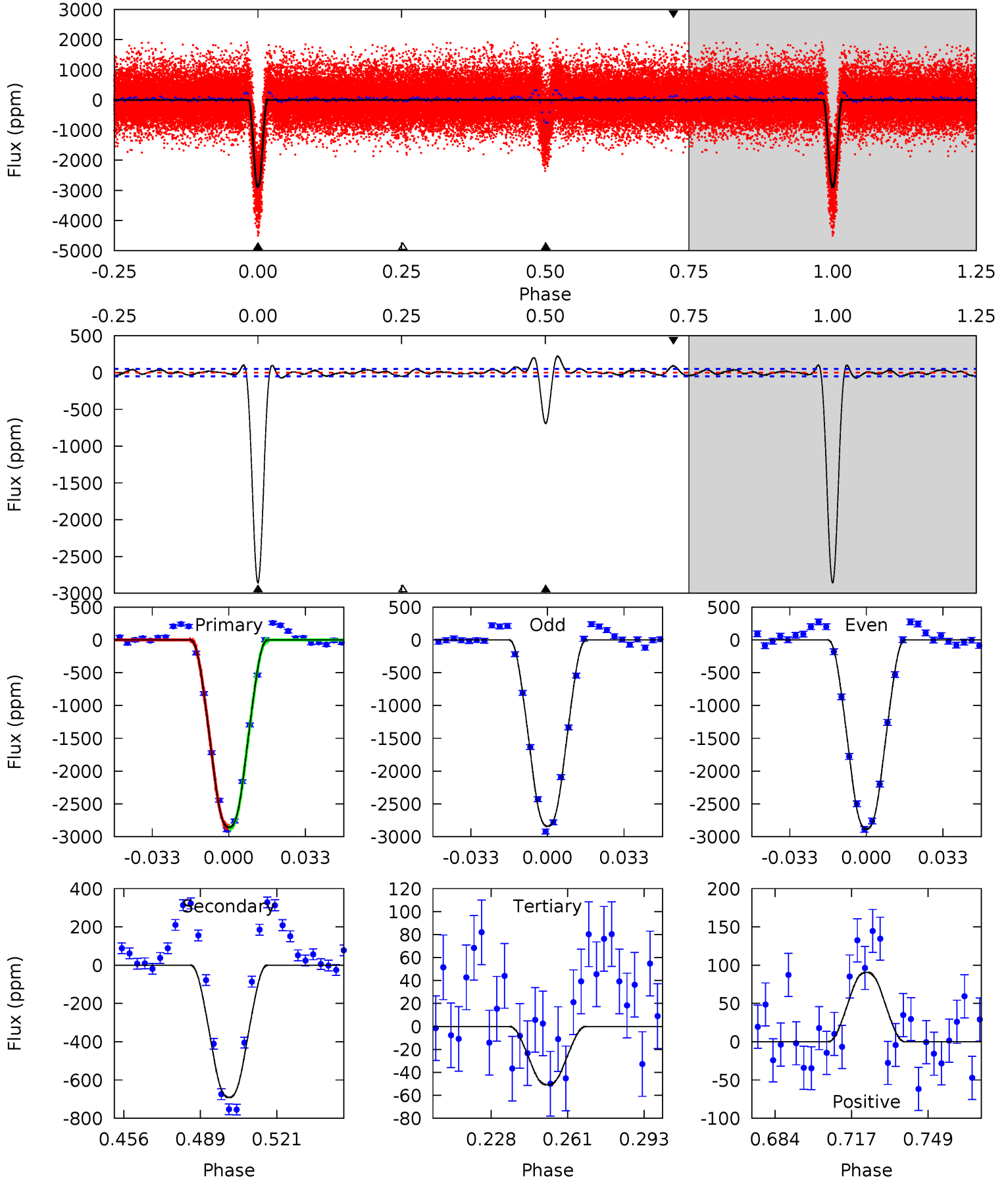
TCE 007830321-01 P= 2.027376 Days $T_0=131.688863$ (BKJD)



DV Model-Shift Uniqueness Test

007830321-01, P = 2.027378 Days, E = 129.660253 Days

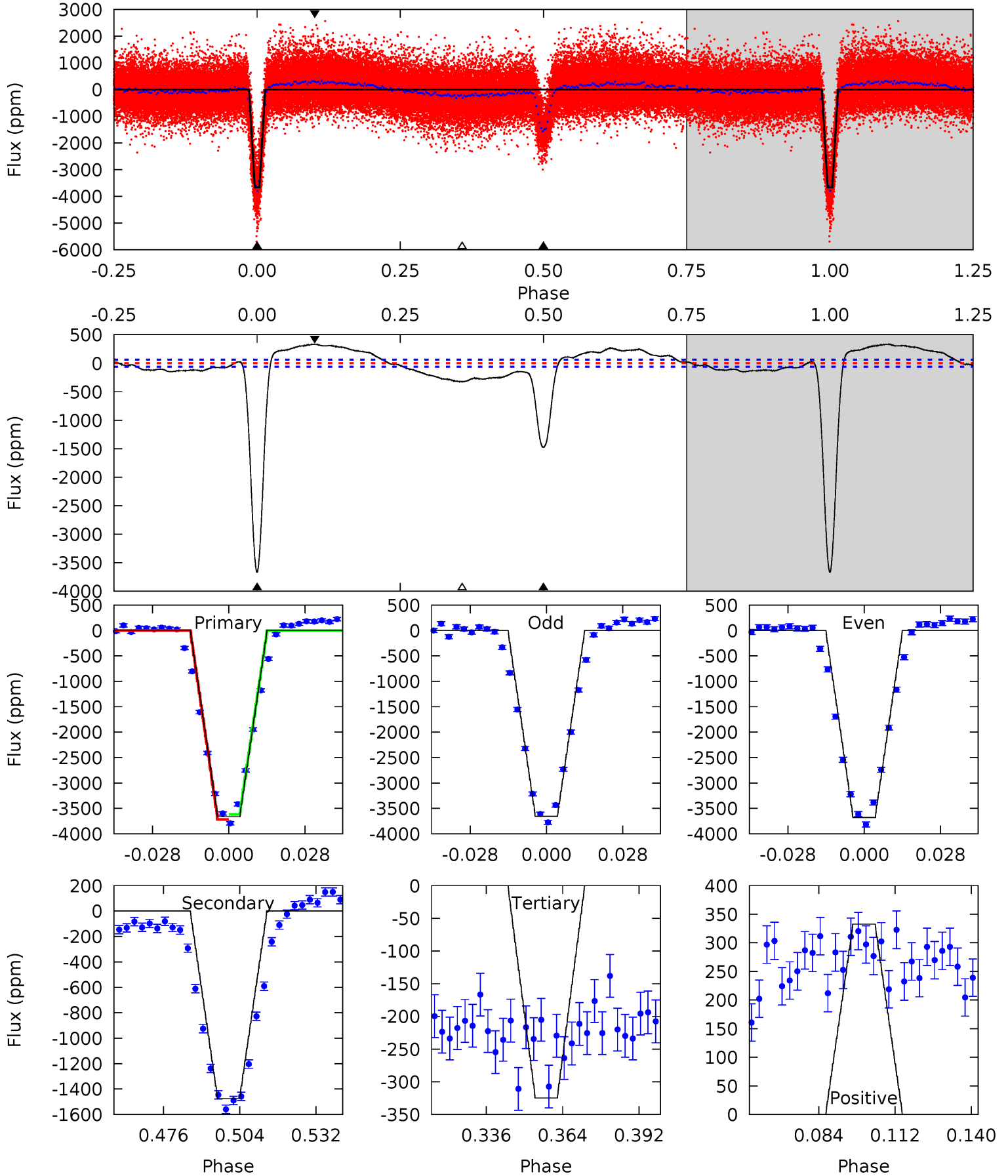
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
271.2	65.6	4.83	8.60	4.79	2.14	2.49	266.4	262.6	60.8	57.0	1.85	1.03	0.07	0.66



Alt Model-Shift Uniqueness Test

007830321-01, P = 2.027376 Days, E = 129.661487 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
278.5	112.1	24.7	25.3	4.83	2.20	14.8	253.9	253.3	87.4	86.8	0.93	1.00	0.08	3.74



Stellar Parameters For KIC 007830321

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5544^{+183}_{-166}	$4.435^{+0.158}_{-0.228}$	$-0.400^{+0.350}_{-0.300}$	$0.875^{+0.233}_{-0.136}$	$0.761^{+0.129}_{-0.049}$	$1.599^{+1.018}_{-0.831}$
	+3%/-3%	+4%/-5%	+87%/-75%	+27%/-16%	+17%/-6%	+64%/-52%
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 007830321-01 / KOI 6044.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-691 ± 11	$5.65^{+0.98}_{-0.63}$	1904^{+156}_{-123}	4009^{+108}_{-103}	$9.931^{+2.498}_{-2.503}$
Alt.	-1475 ± 13	$6.12^{+0.95}_{-0.58}$	1898^{+147}_{-113}	4480^{+125}_{-120}	18^{+4}_{-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 $A_{\text{obs}} \gg 1.0$

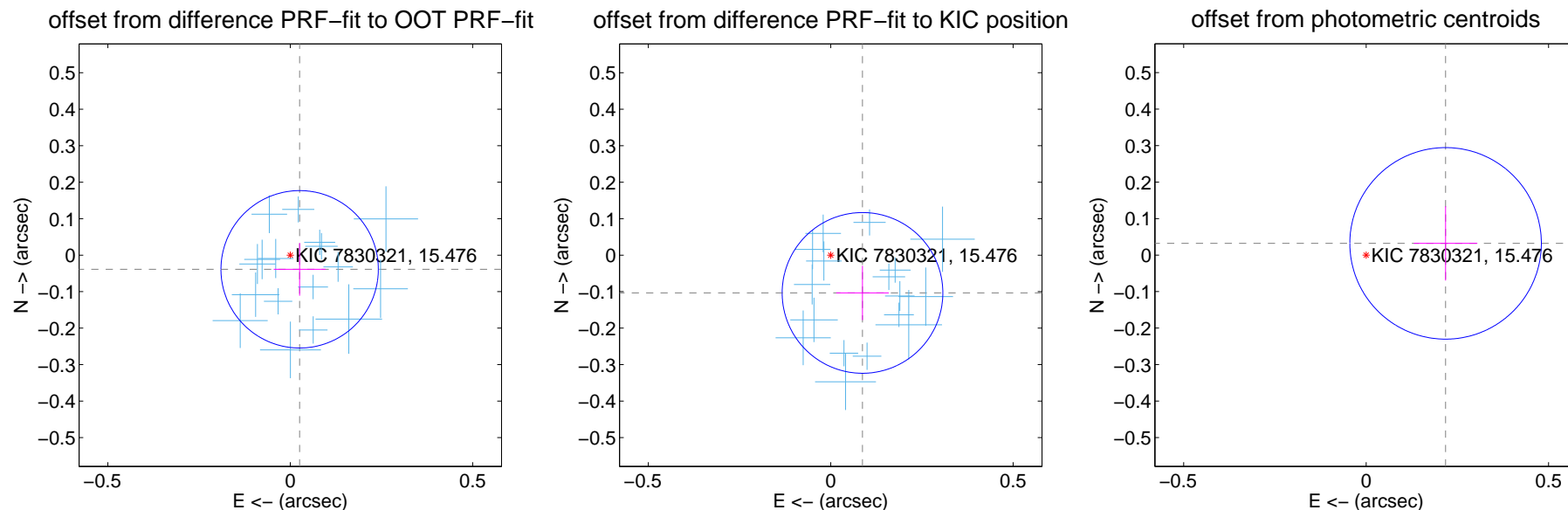
DV Centroid Data

Supplemental centroid analysis for 007830321-01. Kepler magnitude: 15.48. Transit SNR 144.85

There are 17 quarters with good PRF difference image offsets

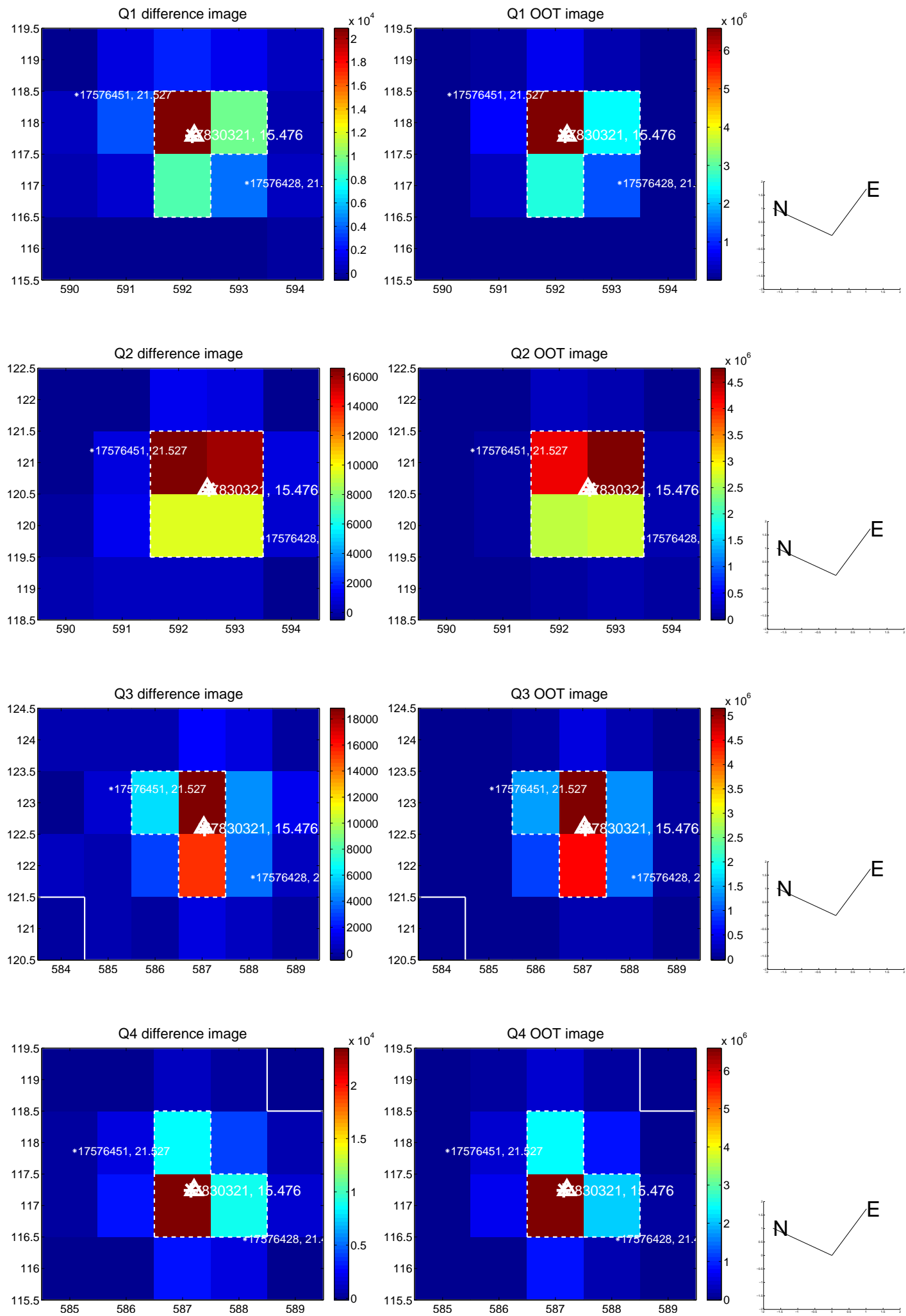
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.047 ± 0.072	0.65	-0.026 ± 0.071	-0.039 ± 0.072
PRF-fit source offset from KIC position	0.135 ± 0.073	1.84	-0.087 ± 0.072	-0.104 ± 0.074
photometric centroid source offset	0.22 ± 0.09	2.52	-0.22 ± 0.09	0.03 ± 0.10

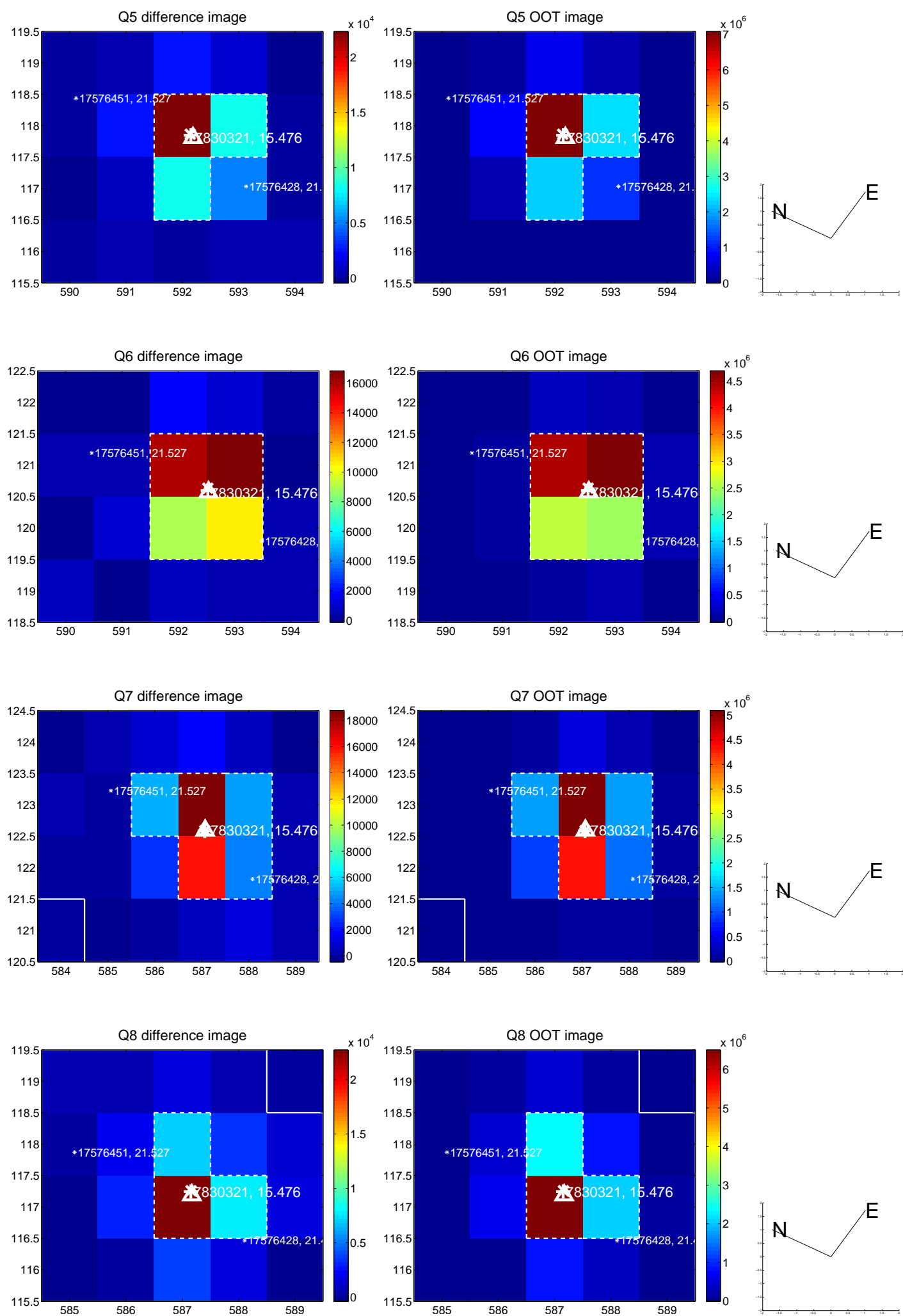


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

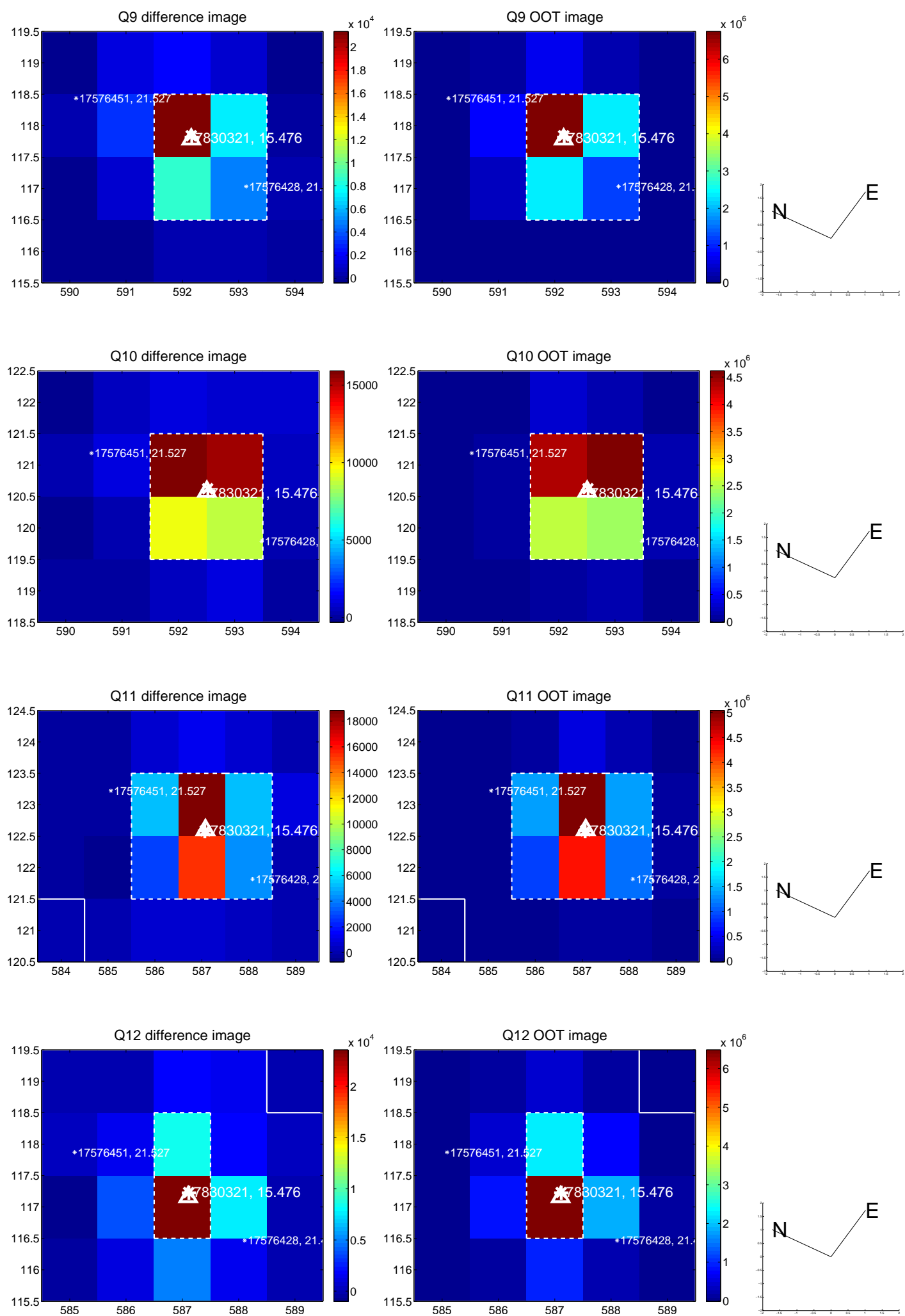
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



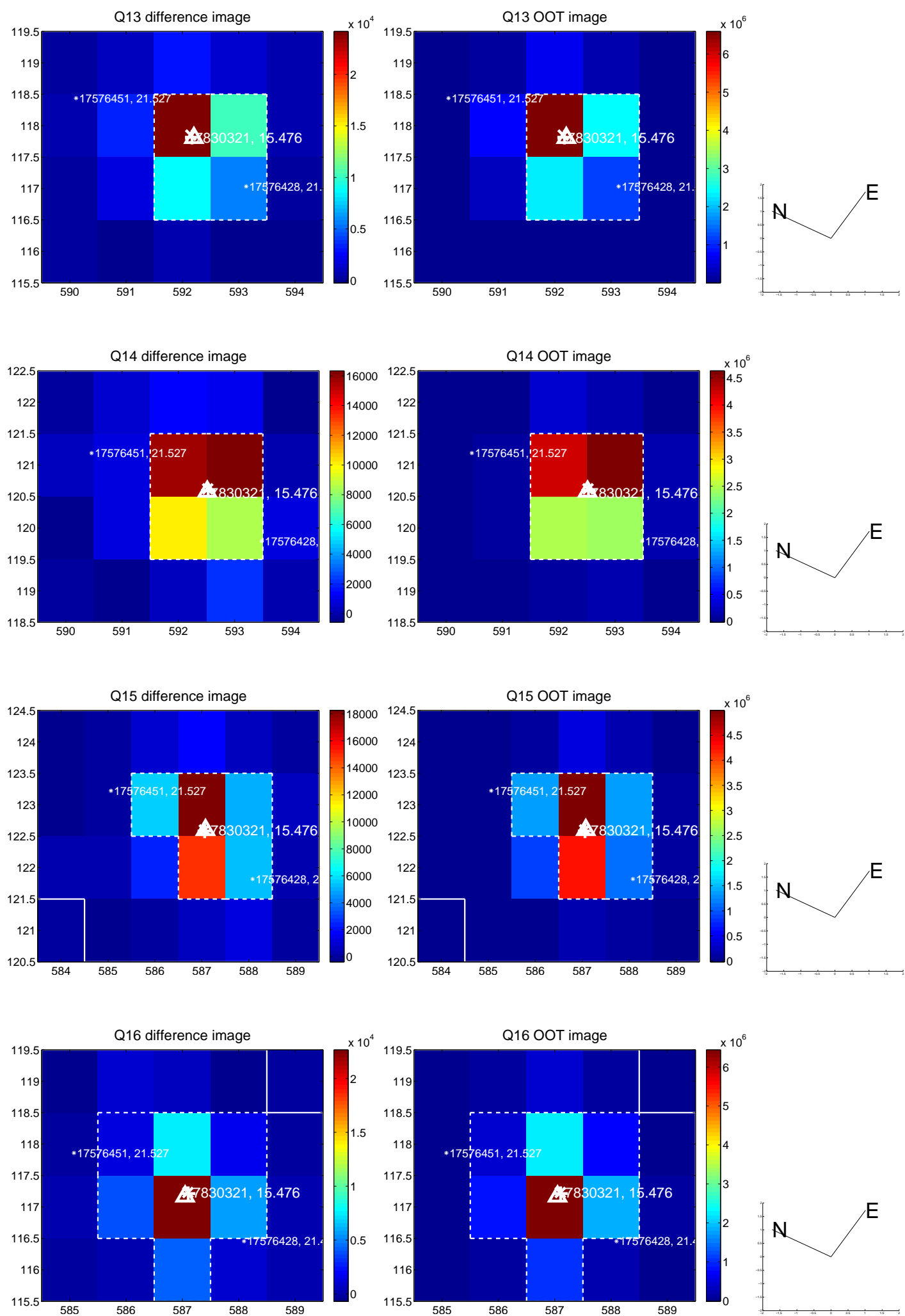
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

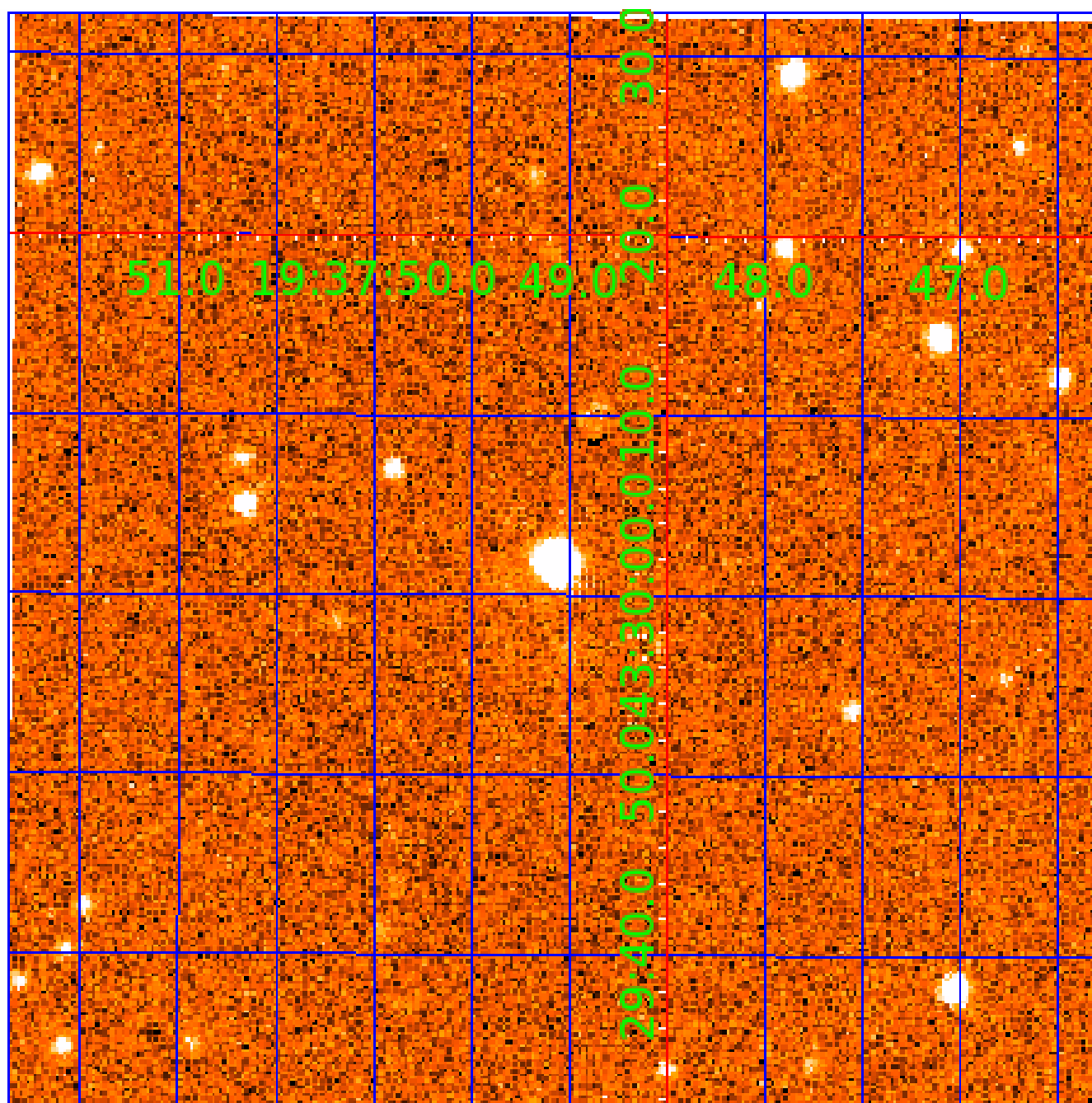


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007830321

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})
007830321-01	OBS	6044.01	2.027378	131.687631	2764.2	1.142	81.0	144.9	0.88	5544	5.55	791.19
007830321-02	OBS	No	2.027427	132.691863	839.5	0.972	26.3	43.3	0.88	5544	3.06	791.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007830321-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007830321-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

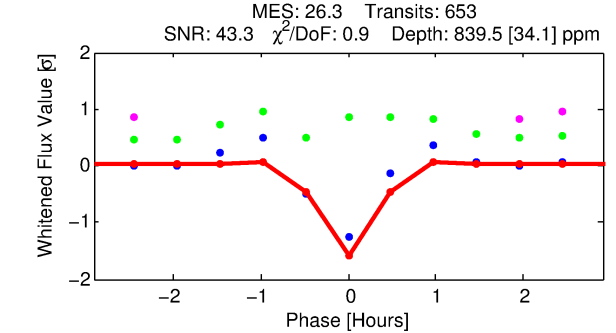
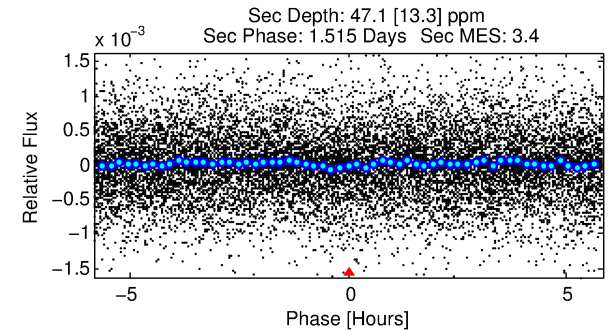
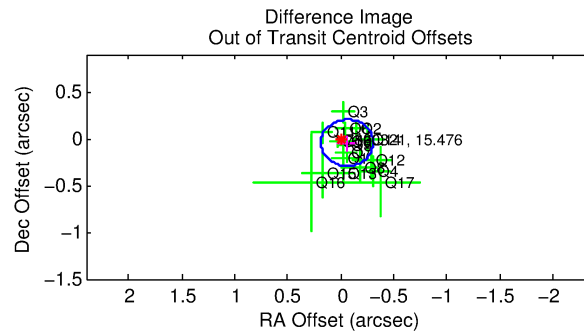
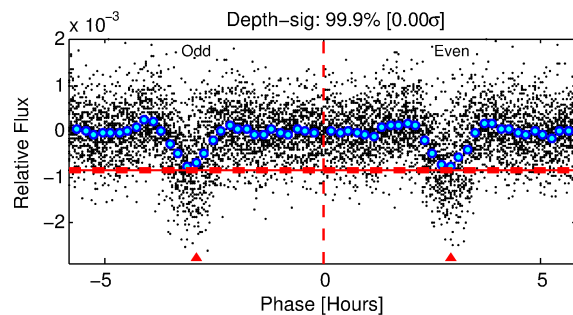
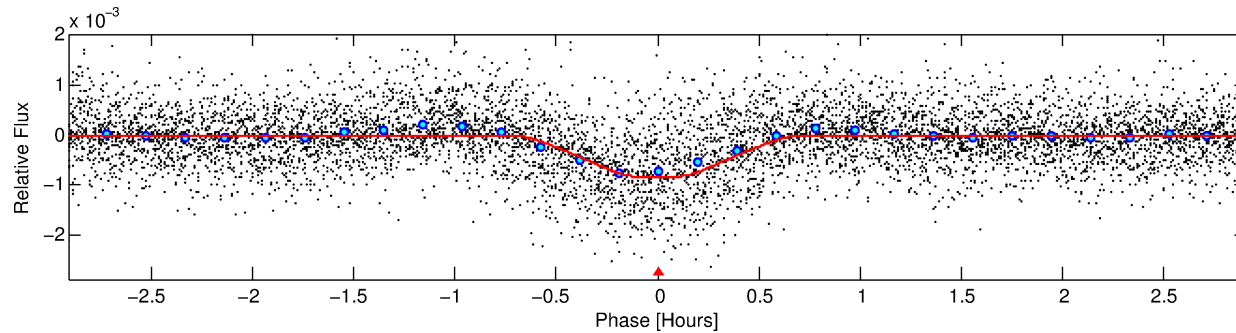
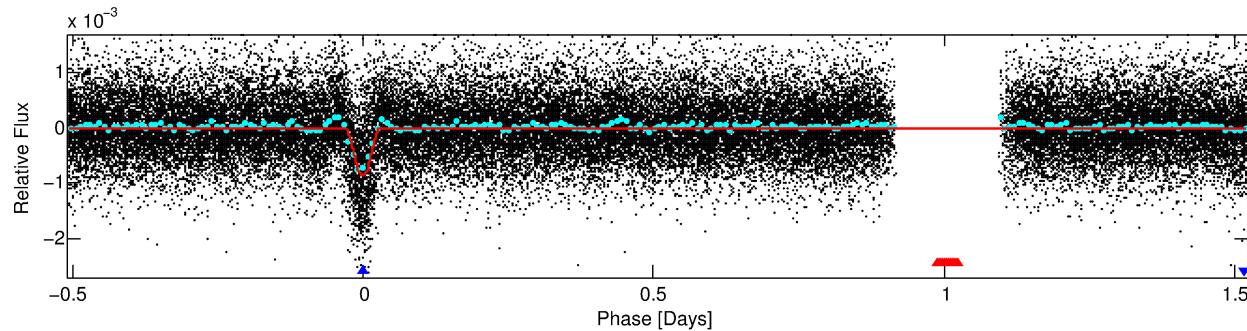
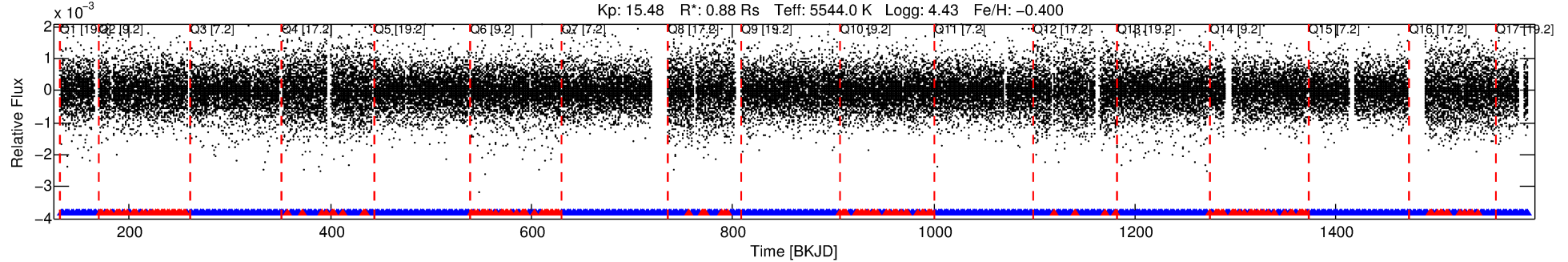
Ephemeris Match Information For 007830321-02

No Significant Match Found

DV One-Page Summary

KIC: 7830321 Candidate: 2 of 2 Period: 2.027 d
KOI: K06044 Corr: No Ephemeris Match

Kp: 15.48 R*: 0.88 Rs Teff: 5544.0 K Logg: 4.43 Fe/H: -0.400



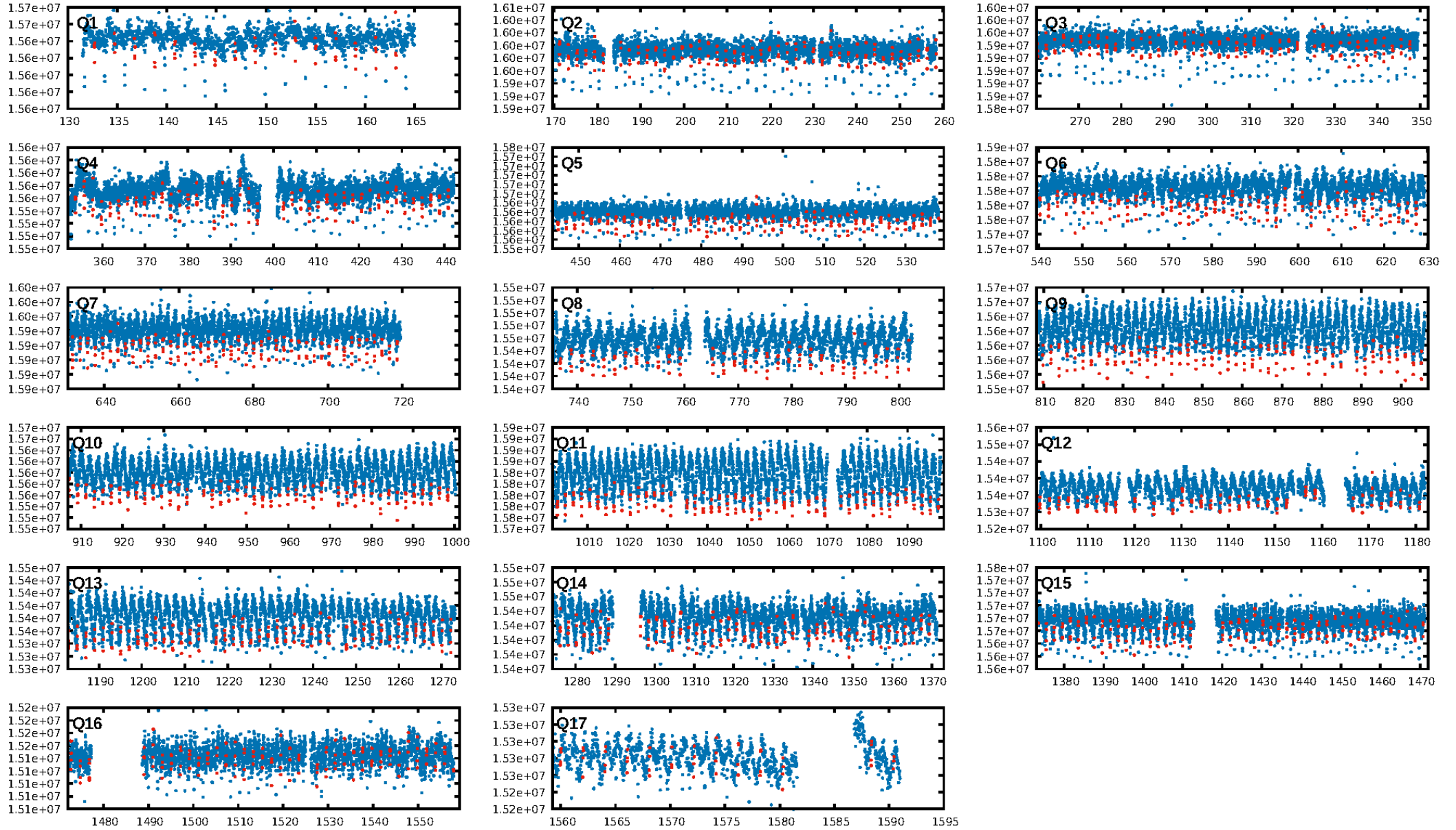
DV Fit Results:

Period = 2.02743 [0.00000] d
Epoch = 132.6919 [0.0004] BKJD
Rp/R* = 0.0320 [0.0046]
a/R* = 8.10 [4.92]
b = 0.90 [0.13]
Seff = 791.16 [327.59]
Teff = 1352 [140] K
Rp = 3.06 [0.92] Re
a = 0.0286 [0.0071] AU
Ag = 2.27 [1.27] [1.00σ]
Teffp = 2567 [271] K [3.99σ]

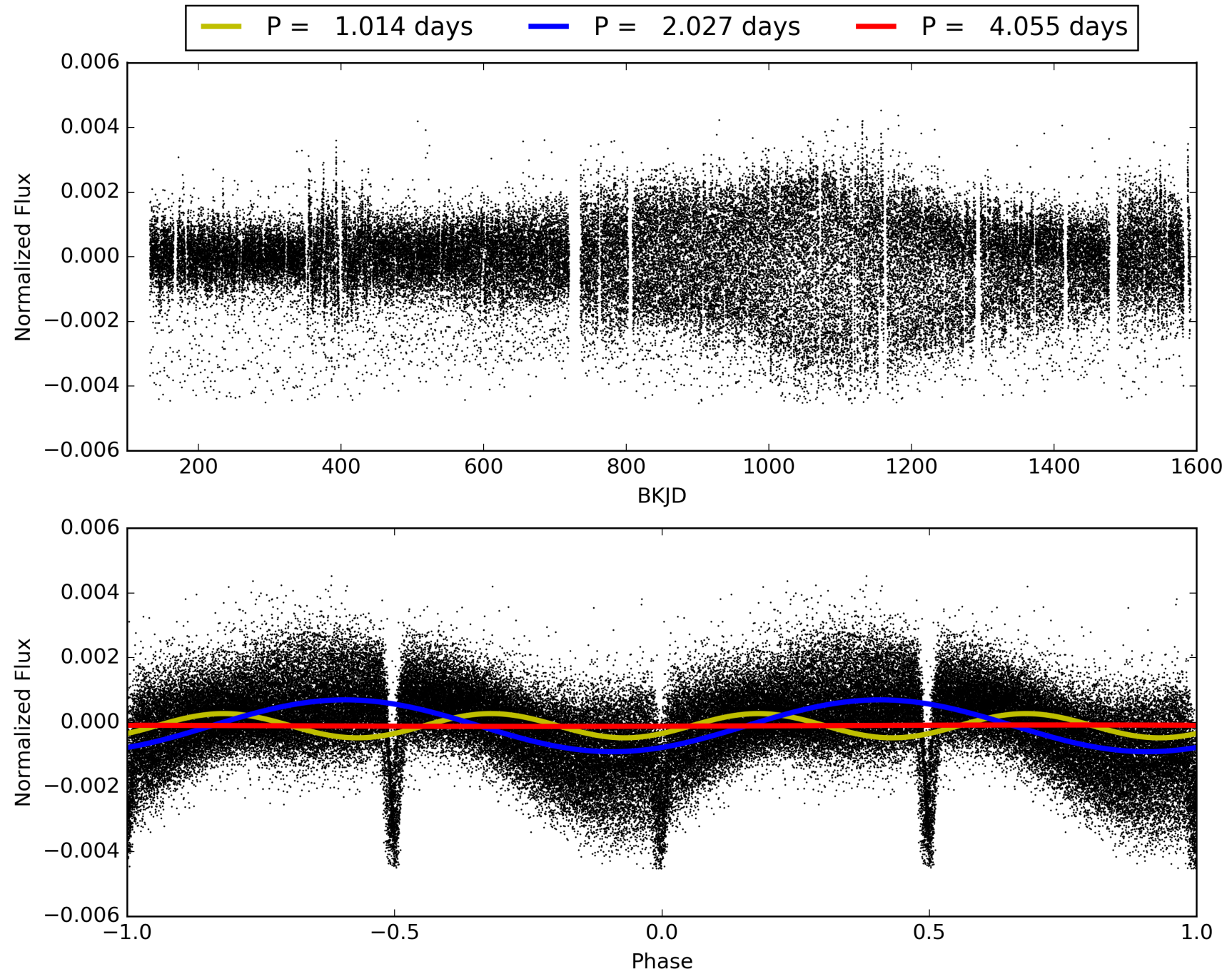
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.48e-145
RollingBand-fgt: 0.77 [478/624]
GhostDiagnostic-chr: 0.7274
Centroid-sig: 41.8%
Centroid-so: 0.290 arcsec [0.87σ]
OotOffset-rm: 0.074 arcsec [0.90σ]
KicOffset-rm: 0.161 arcsec [1.91σ]
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 007830321-02, PDC Light Curves

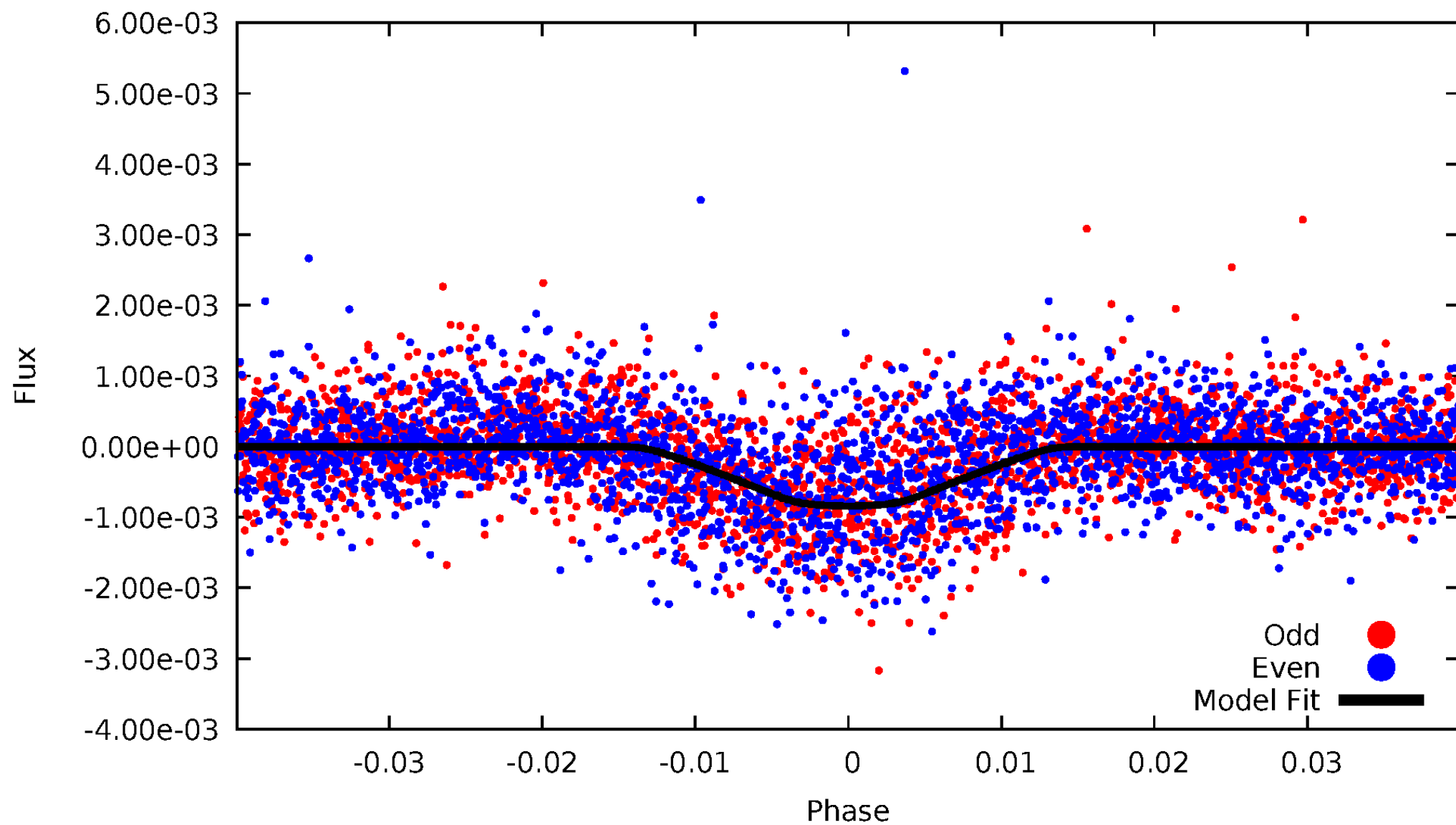


TCE 007830321-02



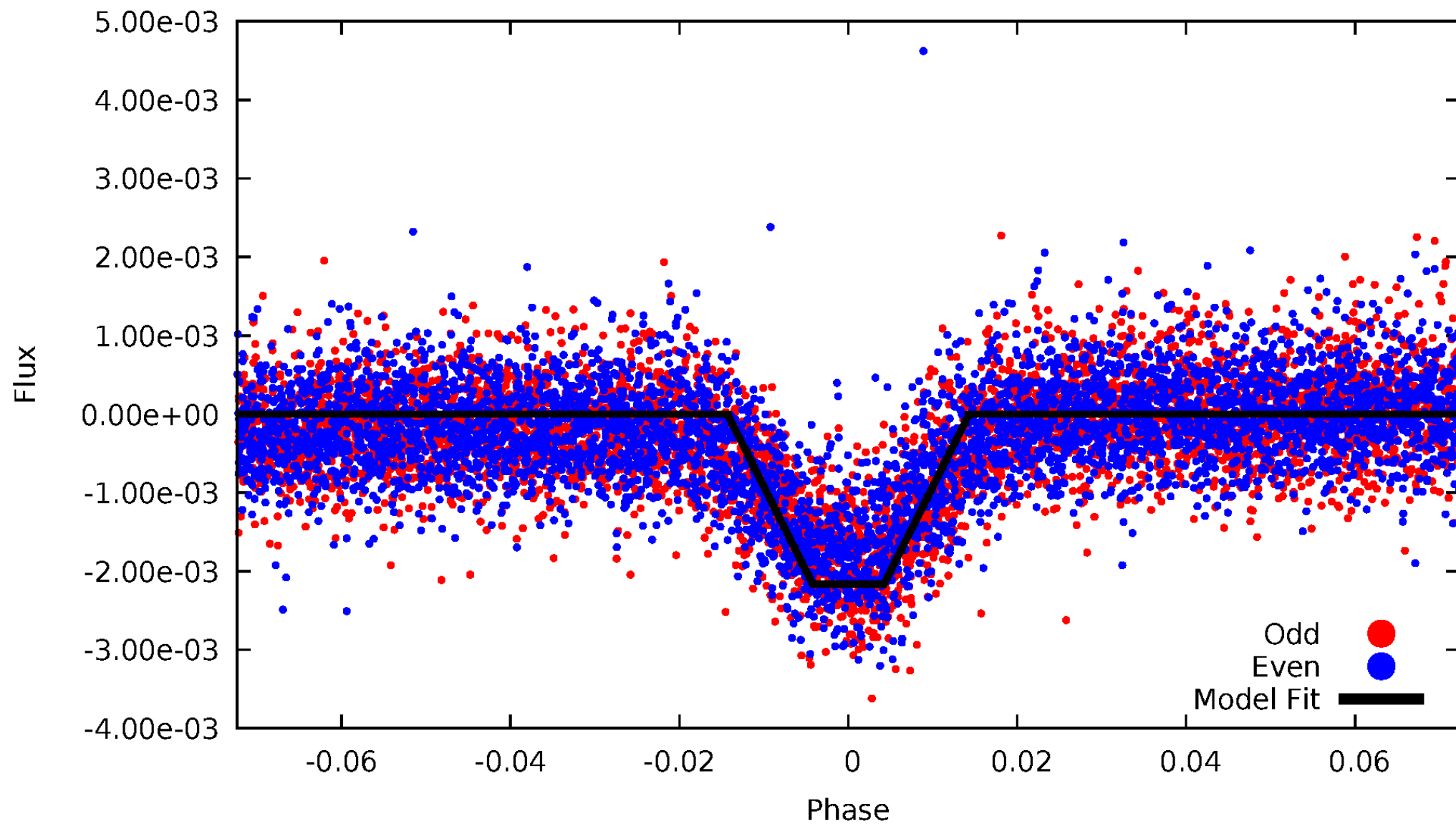
DV Odd/Even

TCE 007830321-02



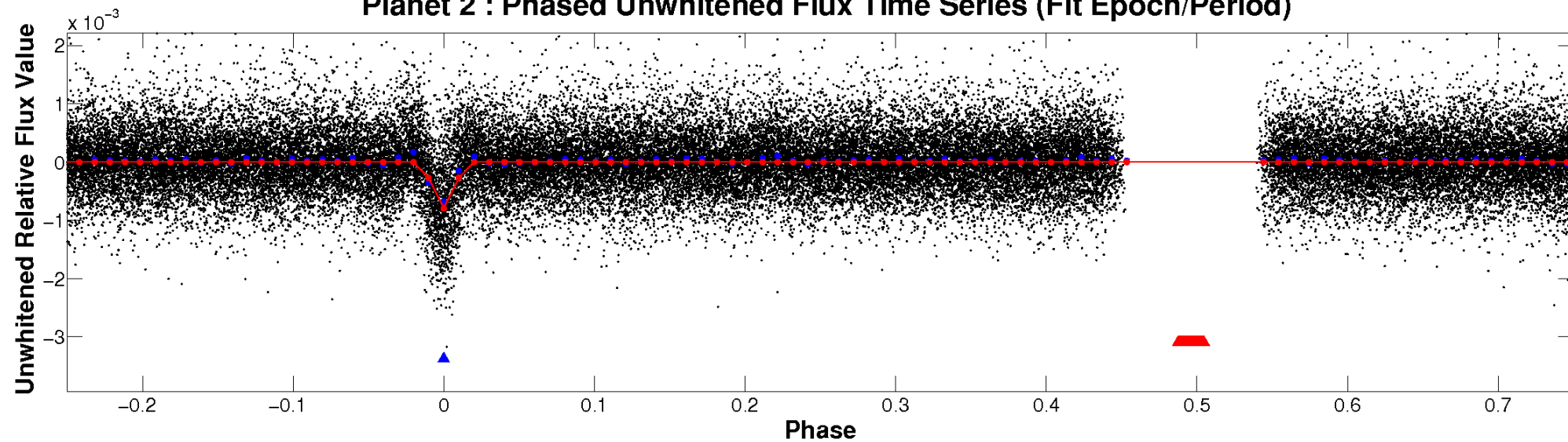
ALT Odd/Even

TCE 007830321-02

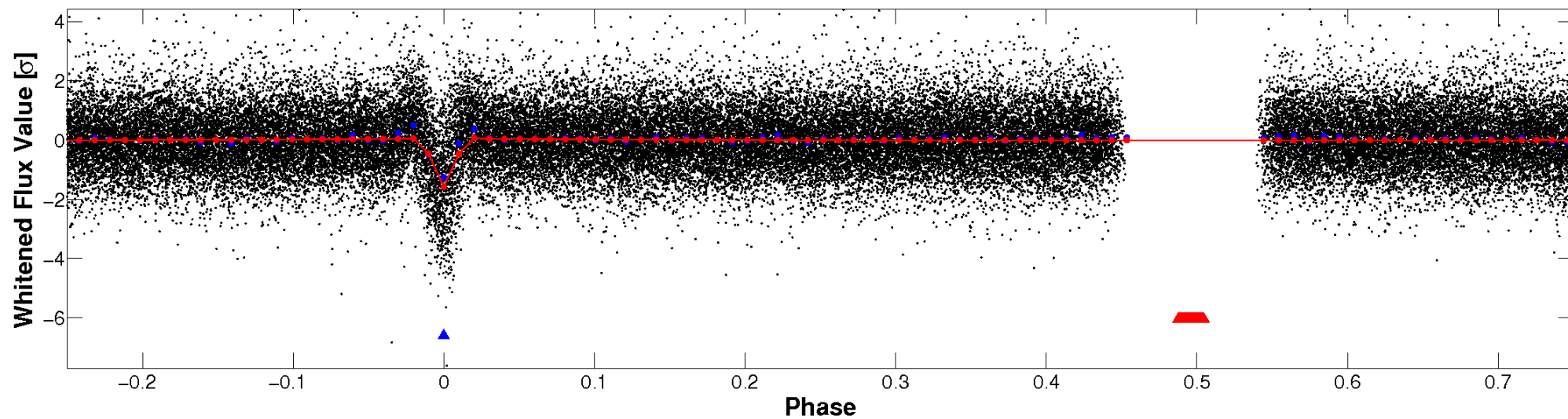


Non-Whitened Vs. Whitened Light Curve

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

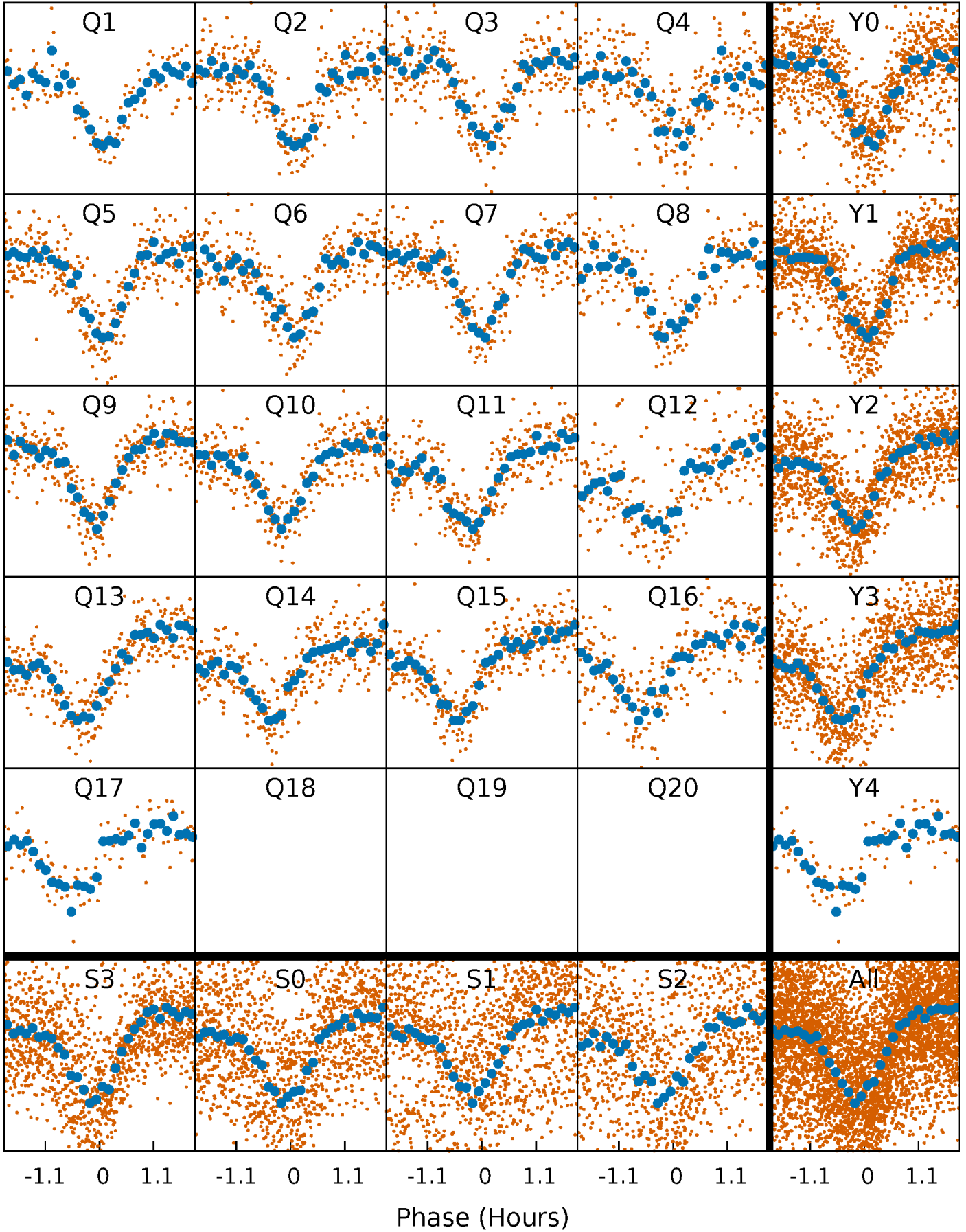


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



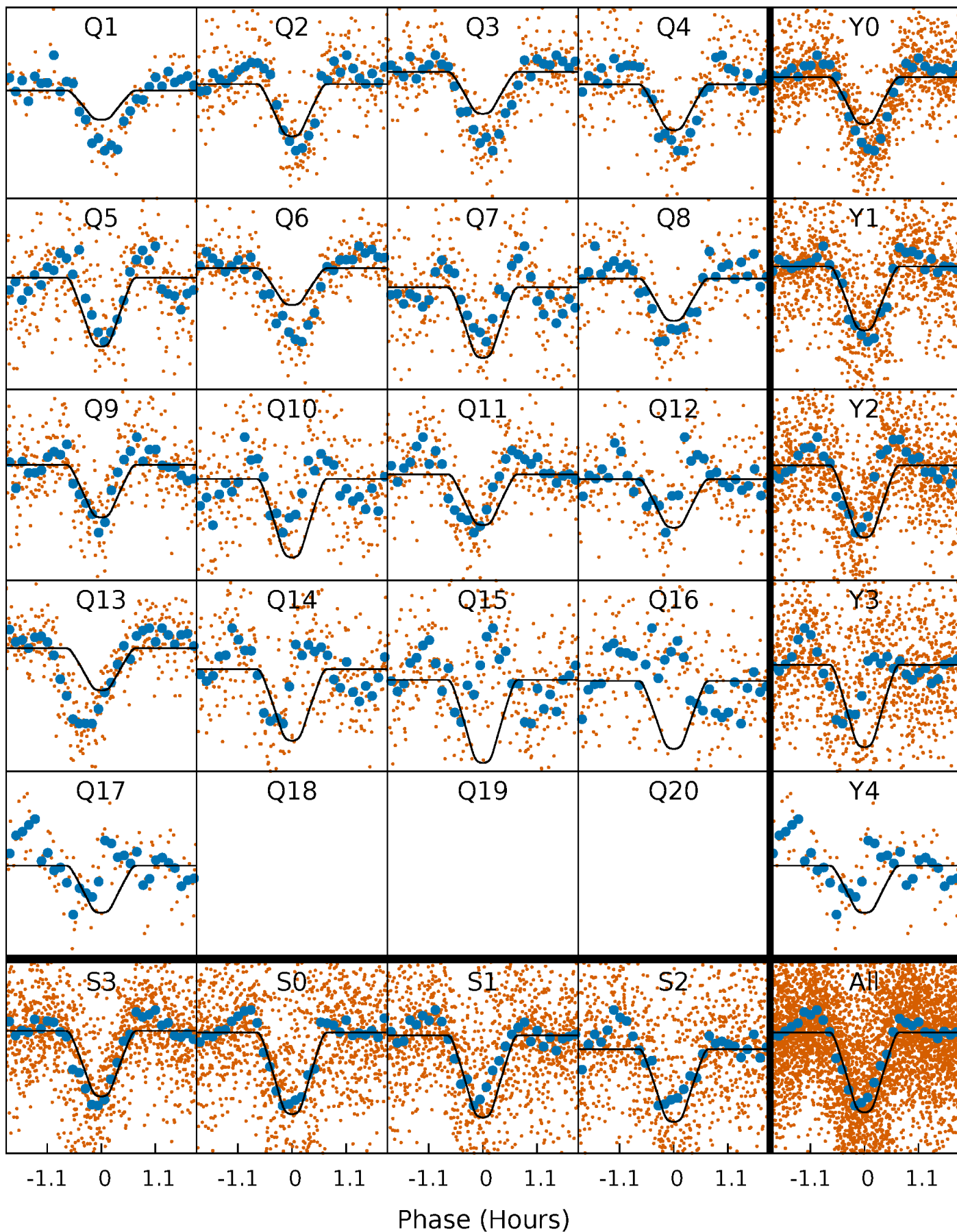
PDC Quarter-Phased Transit Curves

TCE 007830321-02 P= 2.027427 Days $T_0=132.691863$ (BKJD)



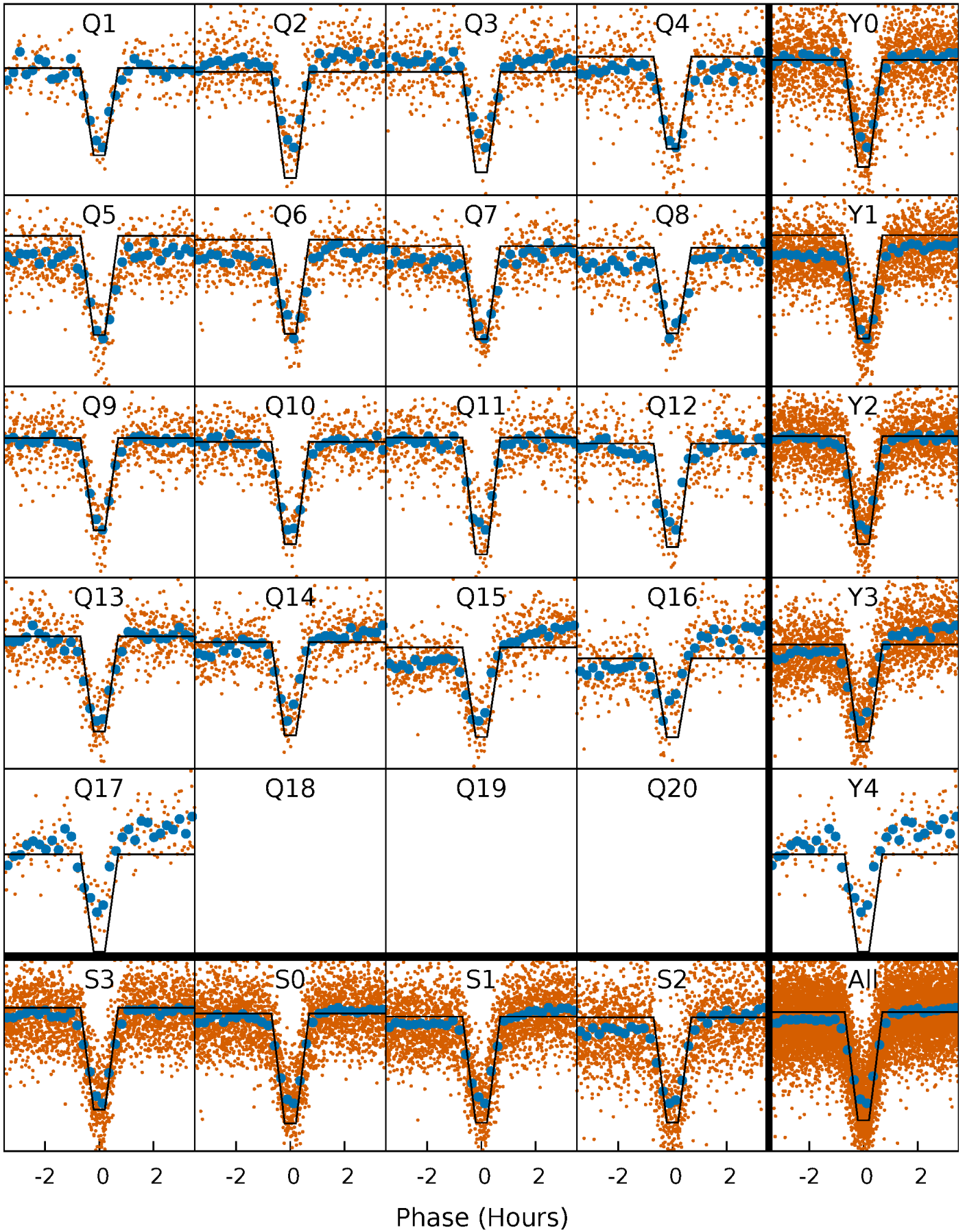
DV Quarter-Phased Transit Curves

TCE 007830321-02 P= 2.027427 Days $T_0=132.691863$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

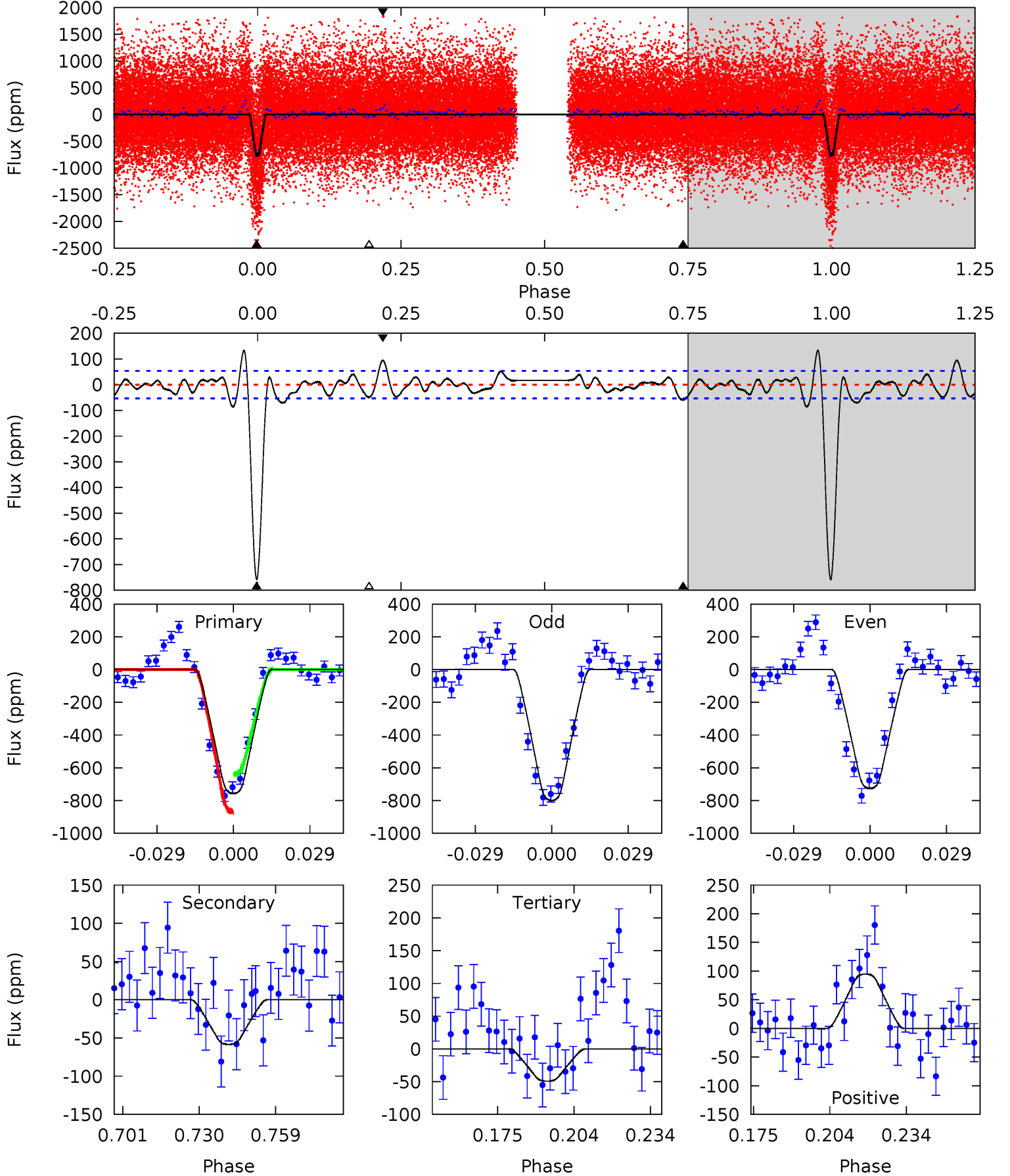
TCE 007830321-02 P= 2.027398 Days $T_0=132.696179$ (BKJD)



DV Model-Shift Uniqueness Test

007830321-02, P = 2.027427 Days, E = 130.664436 Days

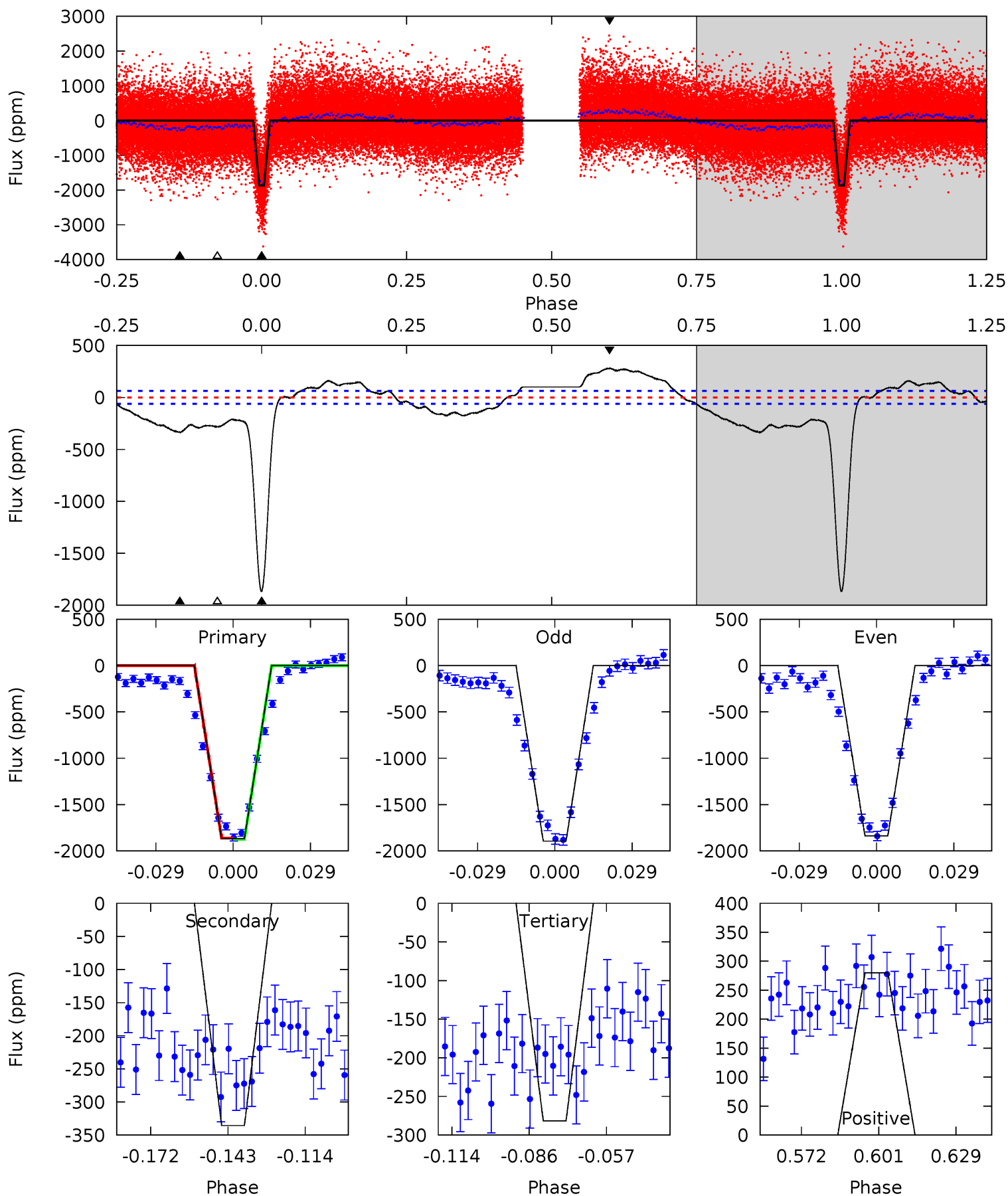
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.2	5.27	4.44	8.53	4.82	2.18	2.43	63.8	59.7	0.83	-3.26	3.30	0.99	0.15	10.2



Alt Model-Shift Uniqueness Test

007830321-02, P = 2.027398 Days, E = 130.668781 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
144.5	26.0	21.8	21.7	4.82	2.19	12.8	122.7	122.8	4.17	4.29	2.18	0.98	0.13	0.50



Stellar Parameters For KIC 007830321

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5544^{+183}_{-166}	$4.435^{+0.158}_{-0.228}$	$-0.400^{+0.350}_{-0.300}$	$0.875^{+0.233}_{-0.136}$	$0.761^{+0.129}_{-0.049}$	$1.599^{+1.018}_{-0.831}$
	+3%/-3%	+4%/-5%	+87%/-75%	+27%/-16%	+17%/-6%	+64%/-52%
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 007830321-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-59 ± 11	$3.10^{+0.70}_{-0.54}$	1898^{+151}_{-113}	3210^{+213}_{-178}	$2.699^{+1.533}_{-0.920}$
Alt.	-336 ± 13	$4.54^{+0.89}_{-0.63}$	1902^{+154}_{-115}	3819^{+158}_{-165}	$7.480^{+2.628}_{-2.155}$

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

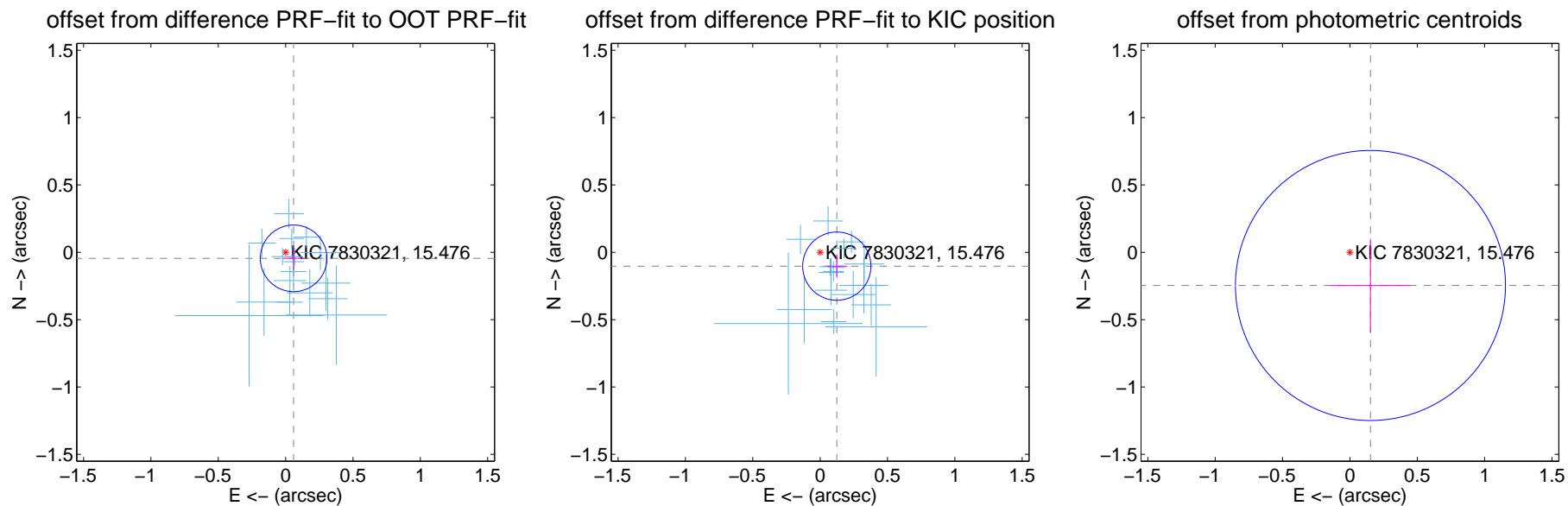
DV Centroid Data

Supplemental centroid analysis for 007830321-02. Kepler magnitude: 15.48. Transit SNR 43.26

There are 17 quarters with good PRF difference image offsets

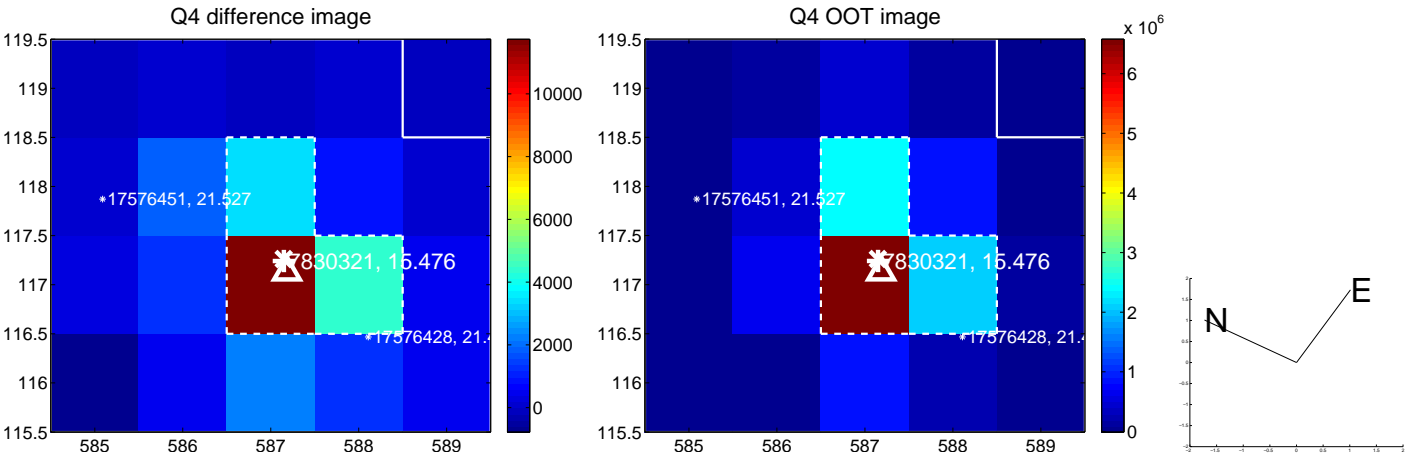
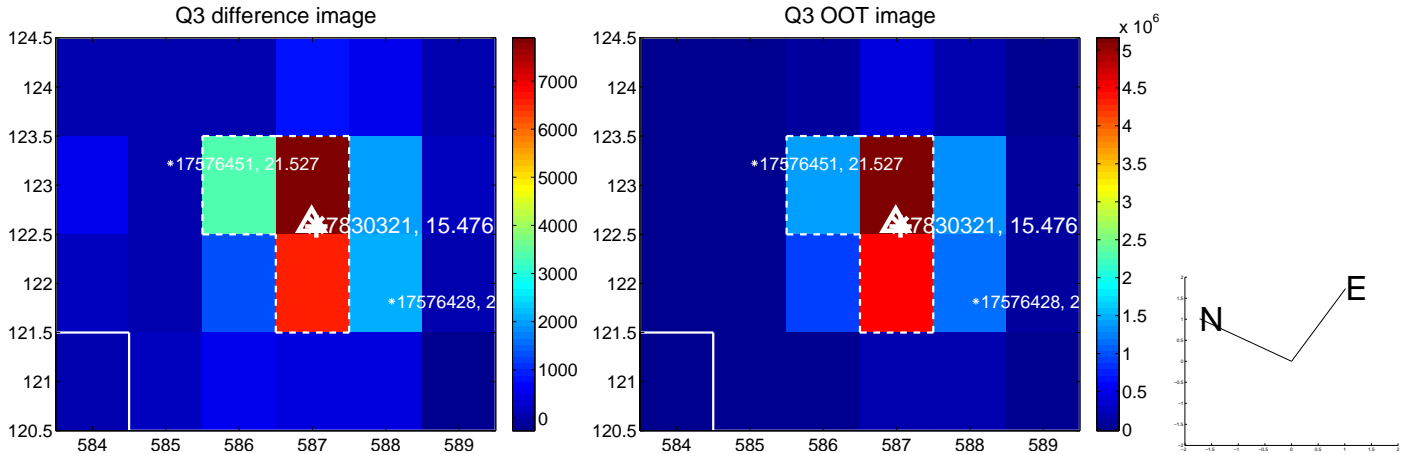
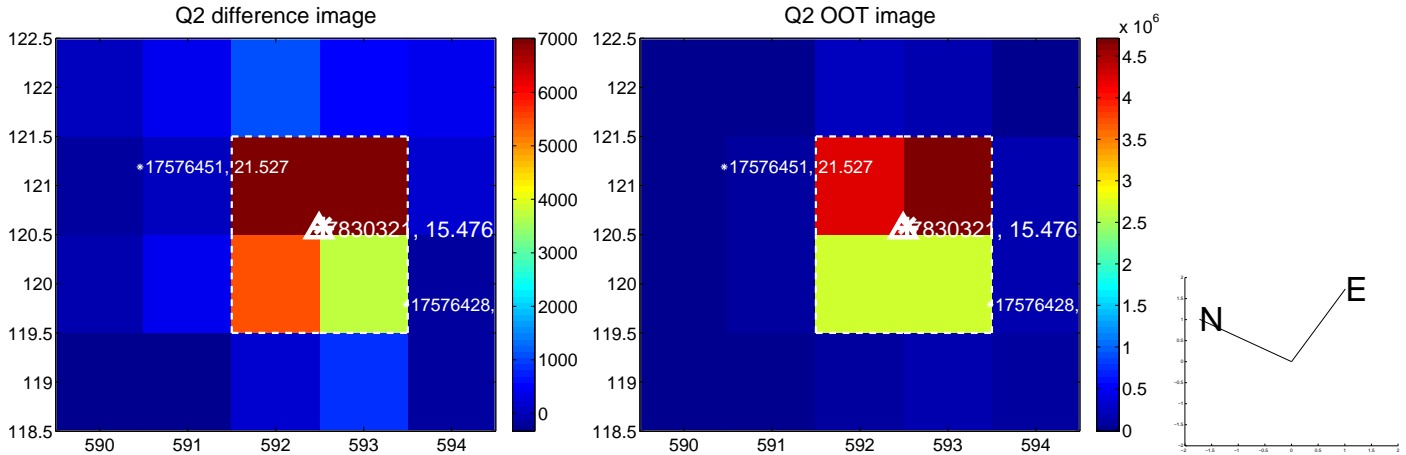
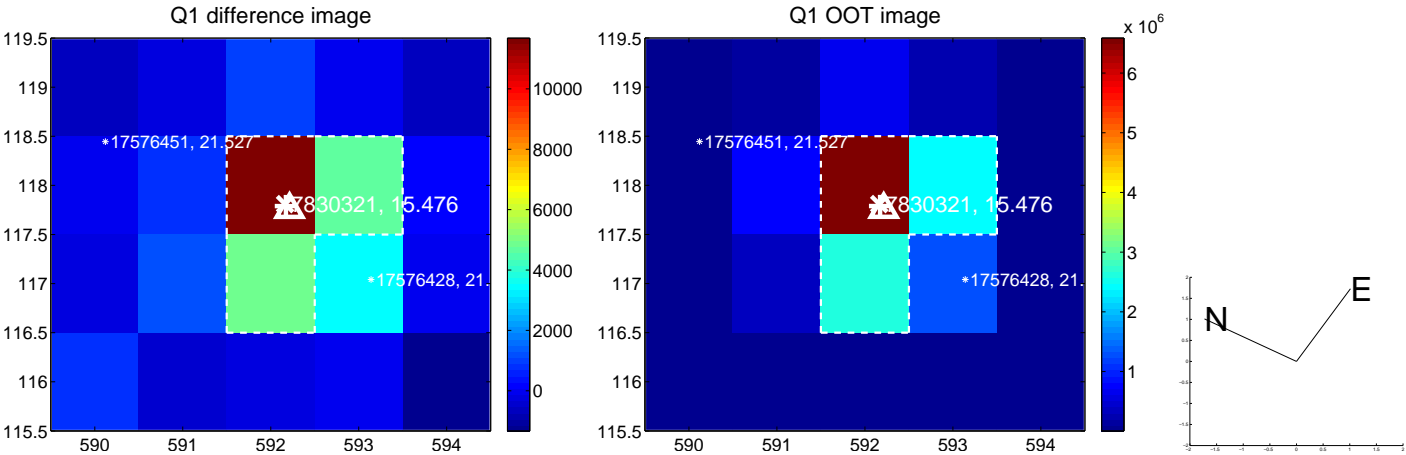
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.074 ± 0.082	0.90	-0.059 ± 0.083	-0.045 ± 0.082
PRF-fit source offset from KIC position	0.161 ± 0.084	1.91	-0.124 ± 0.080	-0.103 ± 0.087
photometric centroid source offset	0.29 ± 0.33	0.87	-0.15 ± 0.30	-0.25 ± 0.35

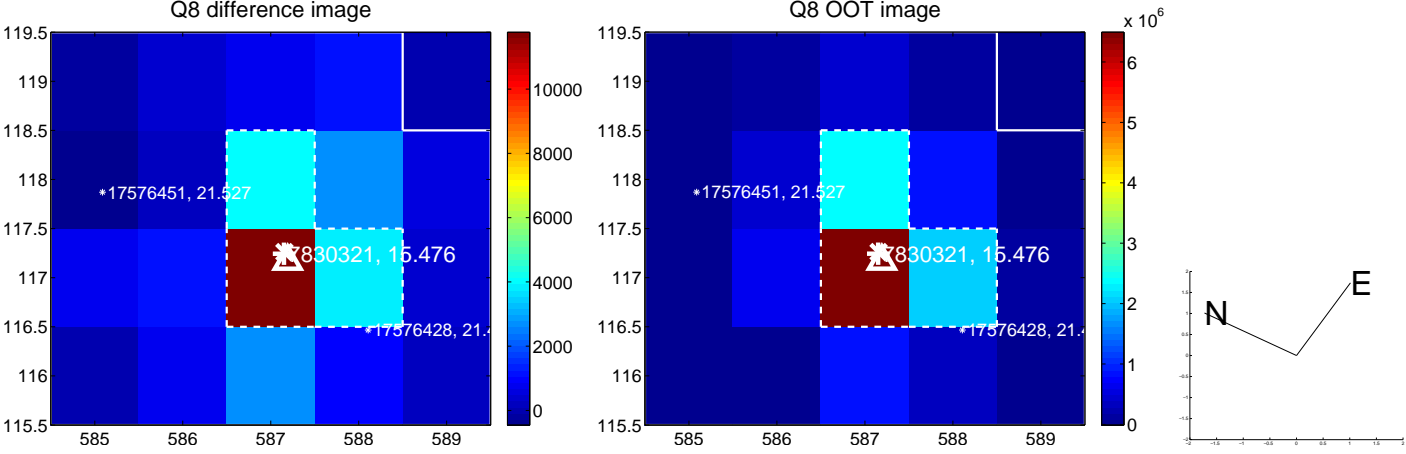
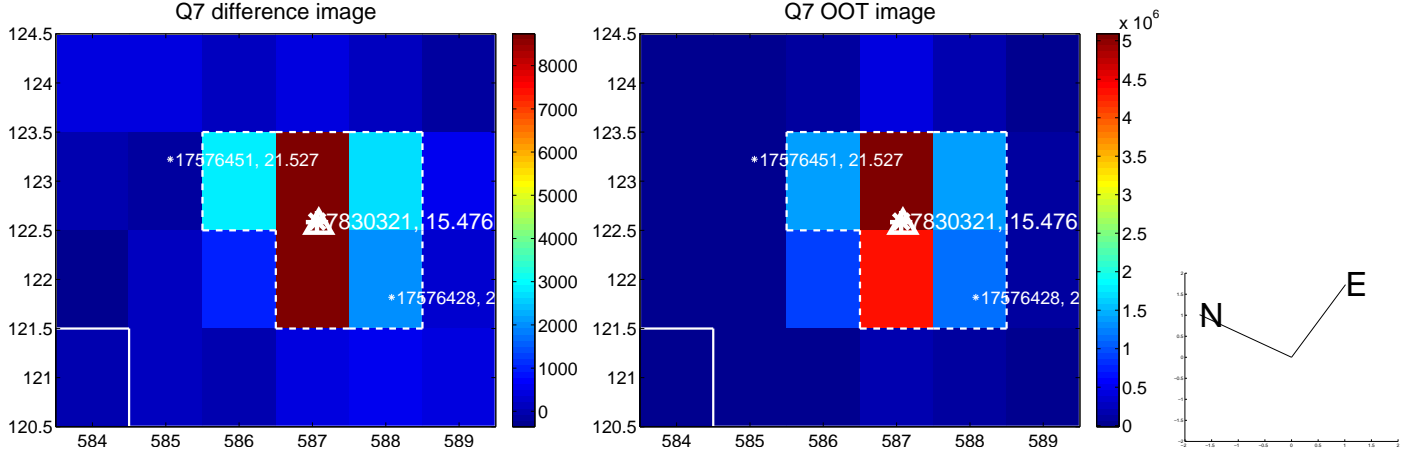
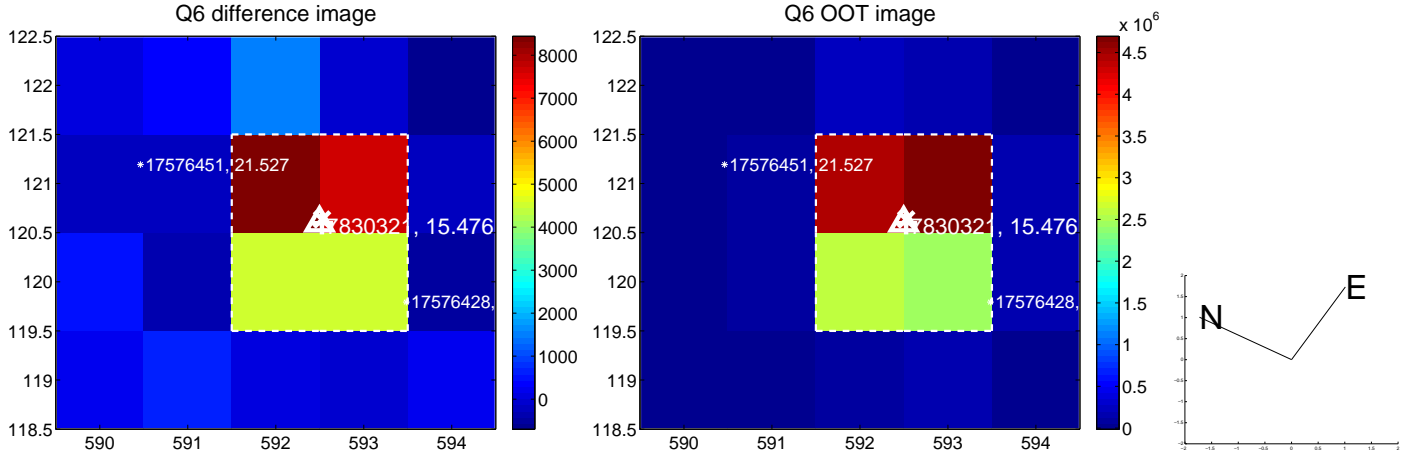
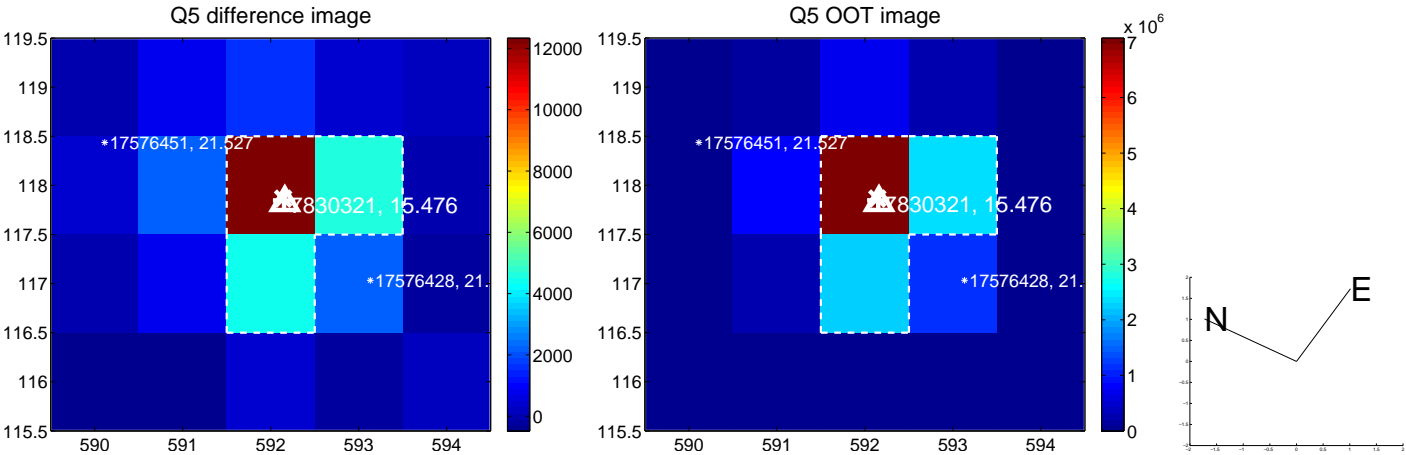


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

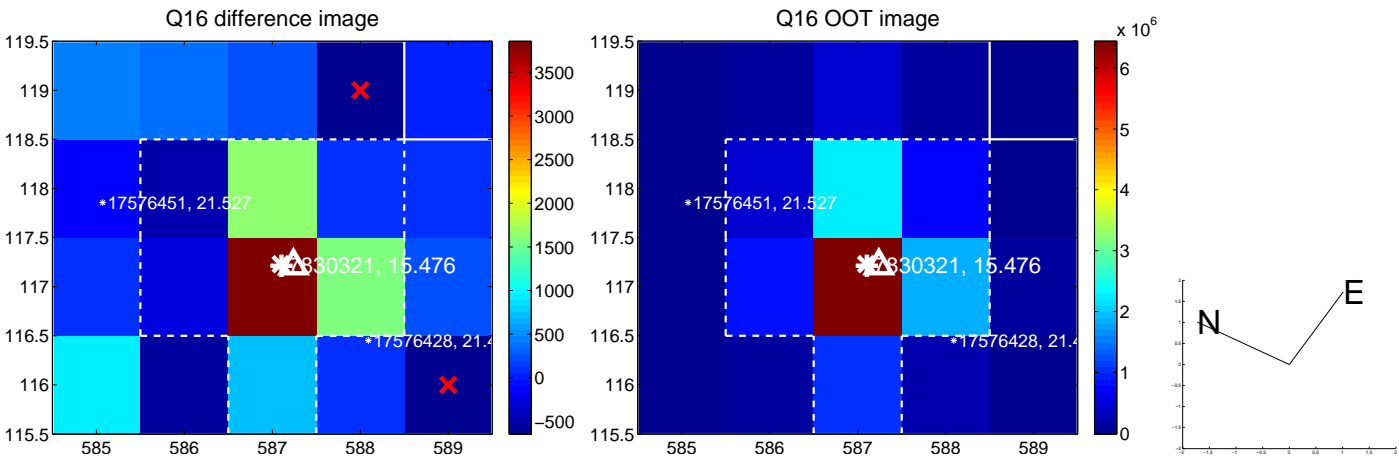
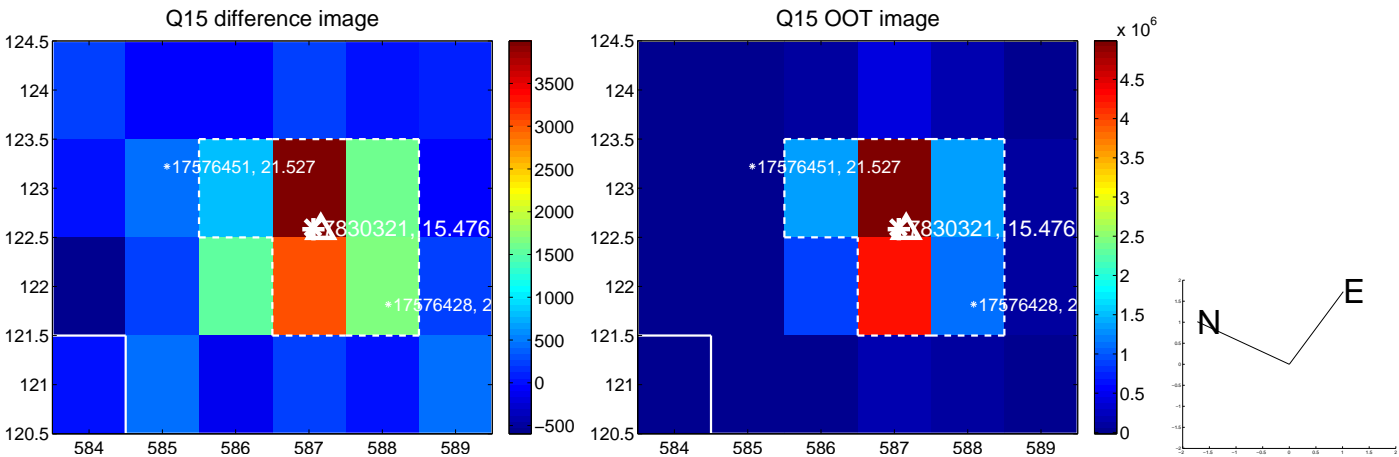
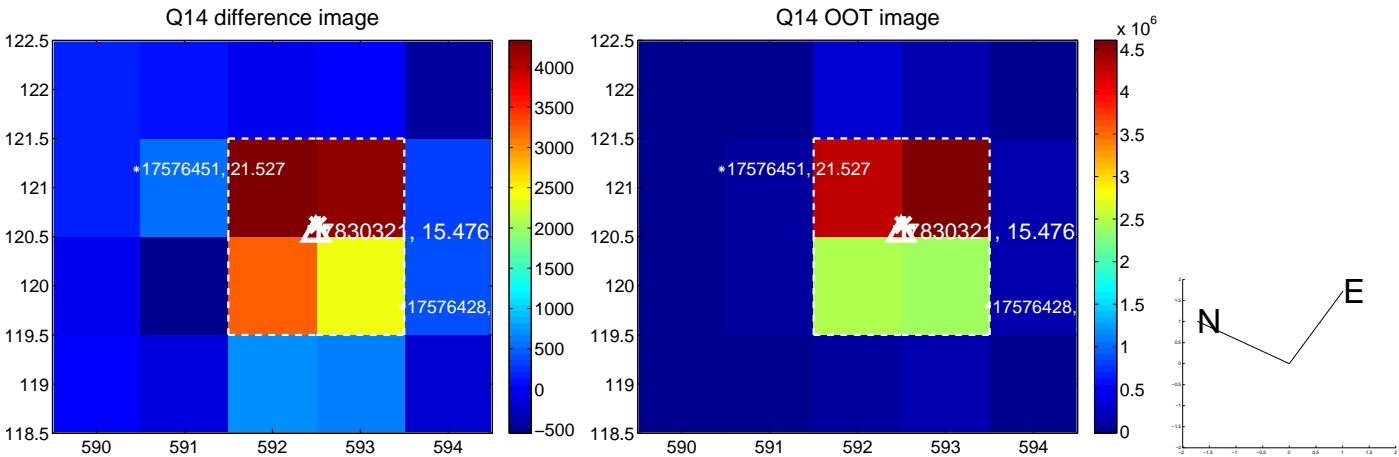
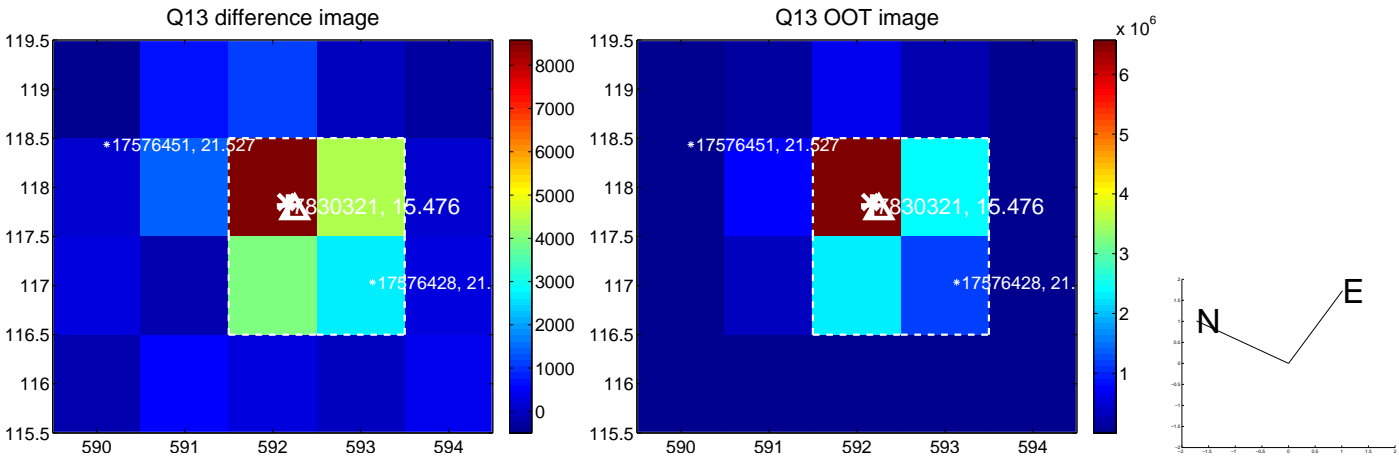
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



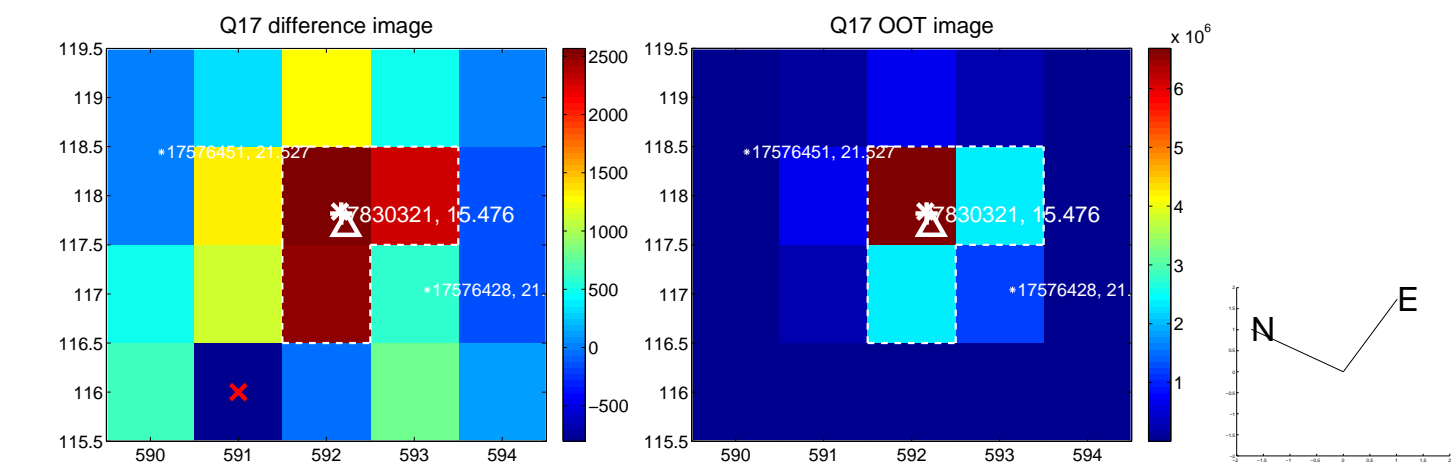
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



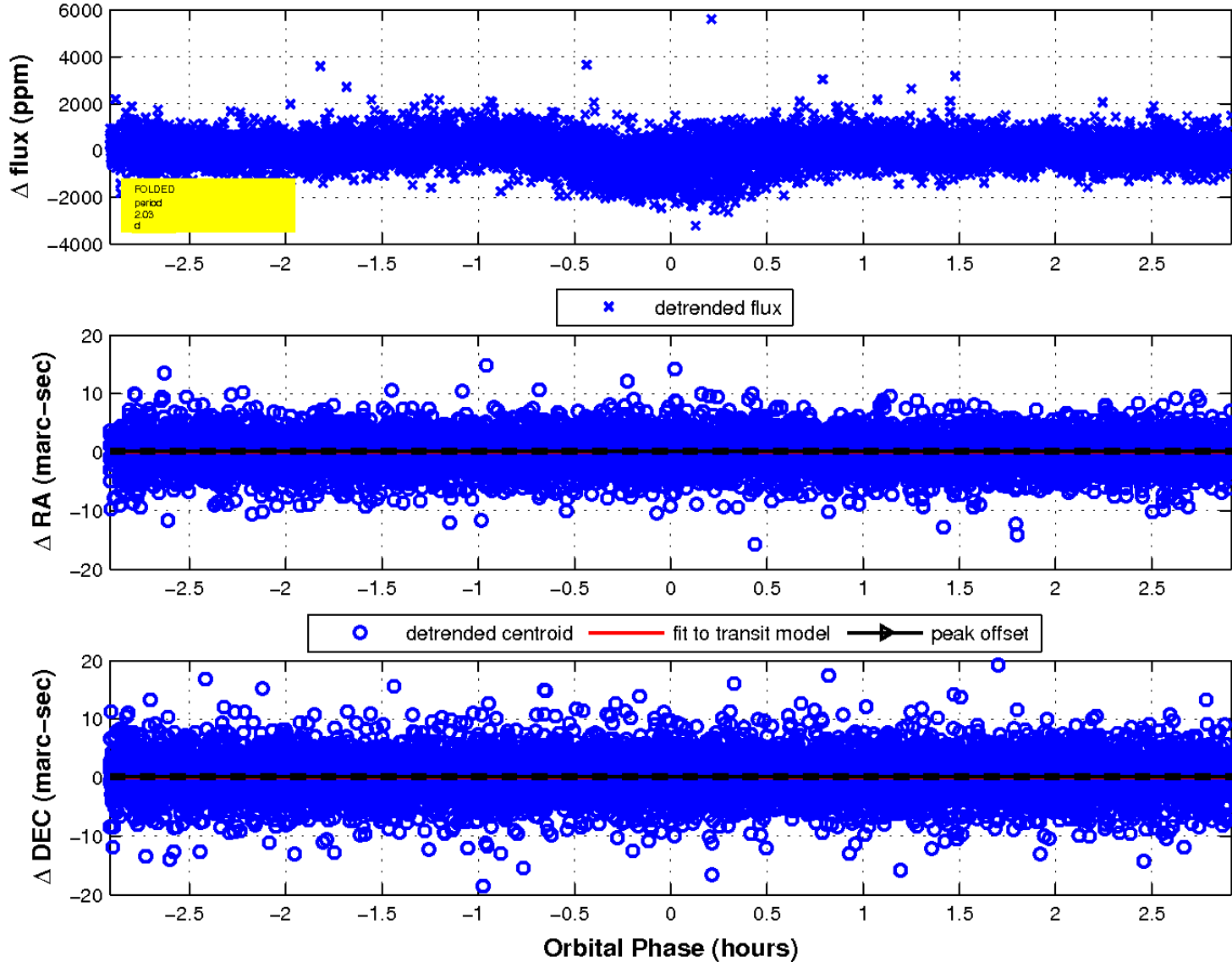
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

