

KIC 005866104

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})
005866104-01	OBS	3651.01	36.977207	133.623437	183648.2	5.576	586.0	286.8	1.00	5780	64.36	21.18
005866104-02	OBS	No	36.977055	160.684333	48141.6	11.784	178.1	137.7	1.00	5780	24.66	21.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005866104-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005866104-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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.

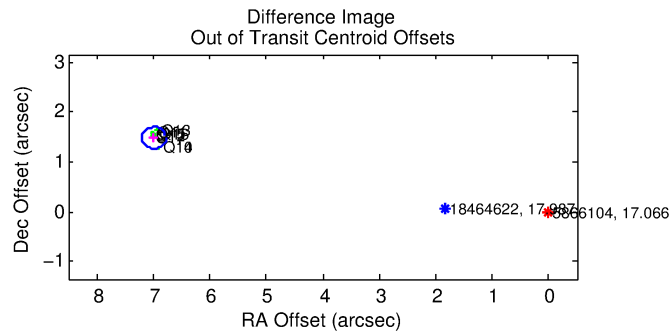
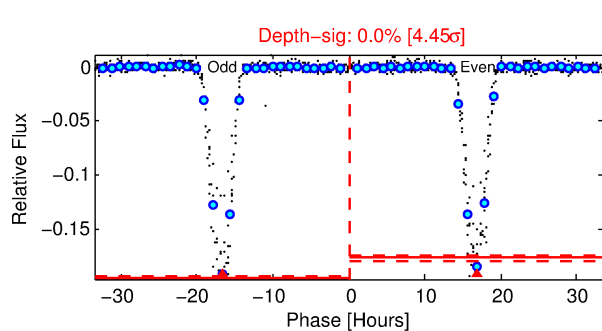
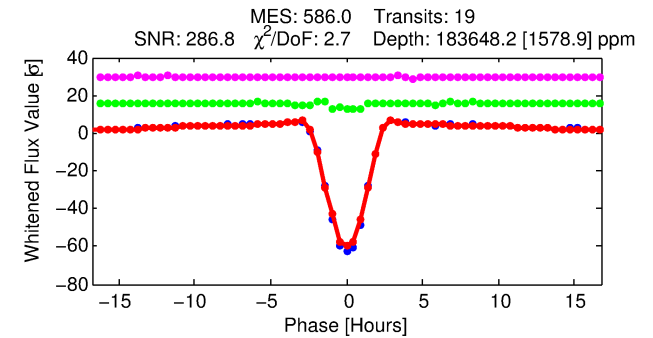
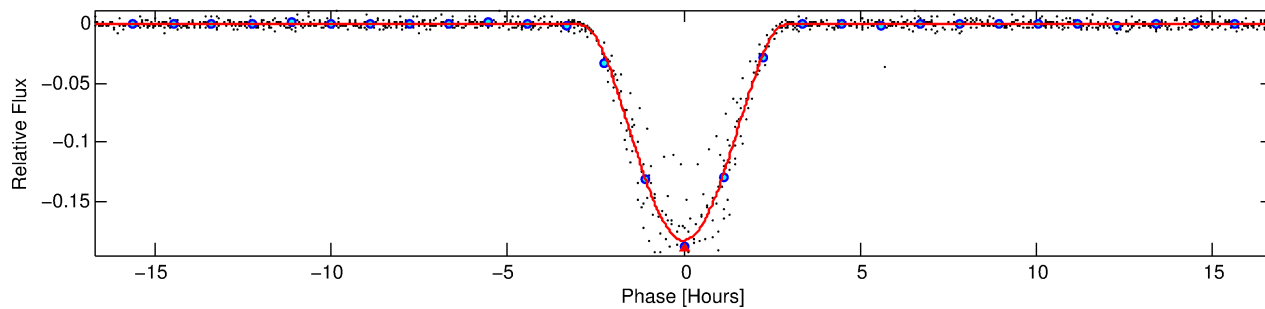
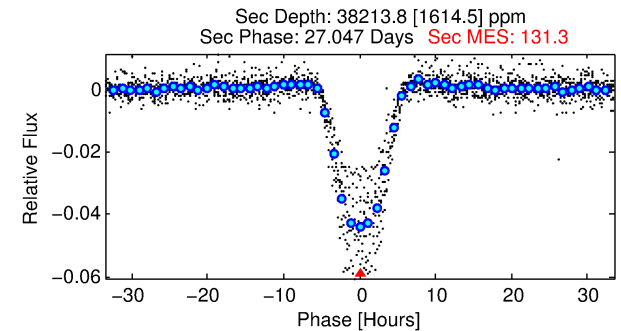
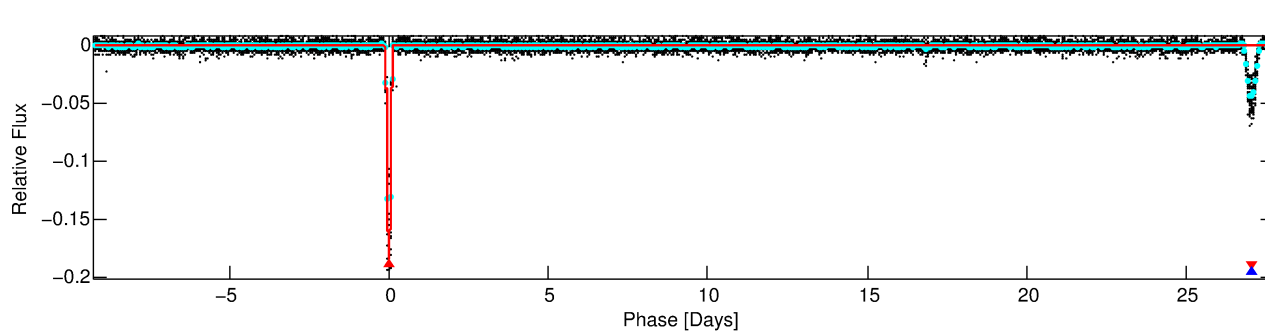
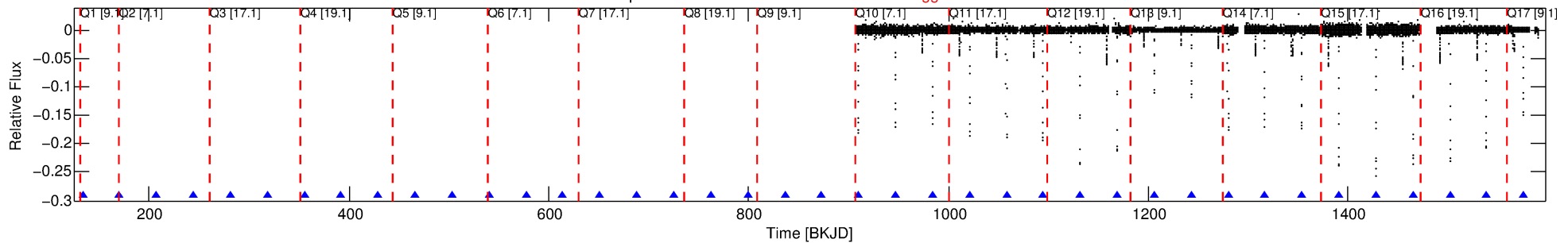
Ephemeris Match Information For 005866104-01

No Significant Match Found

DV One-Page Summary

KIC: 5866104 Candidate: 1 of 2 Period: 36.977 d
KOI: K03651.01 Corr: 0.980

Kp: 17.07 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



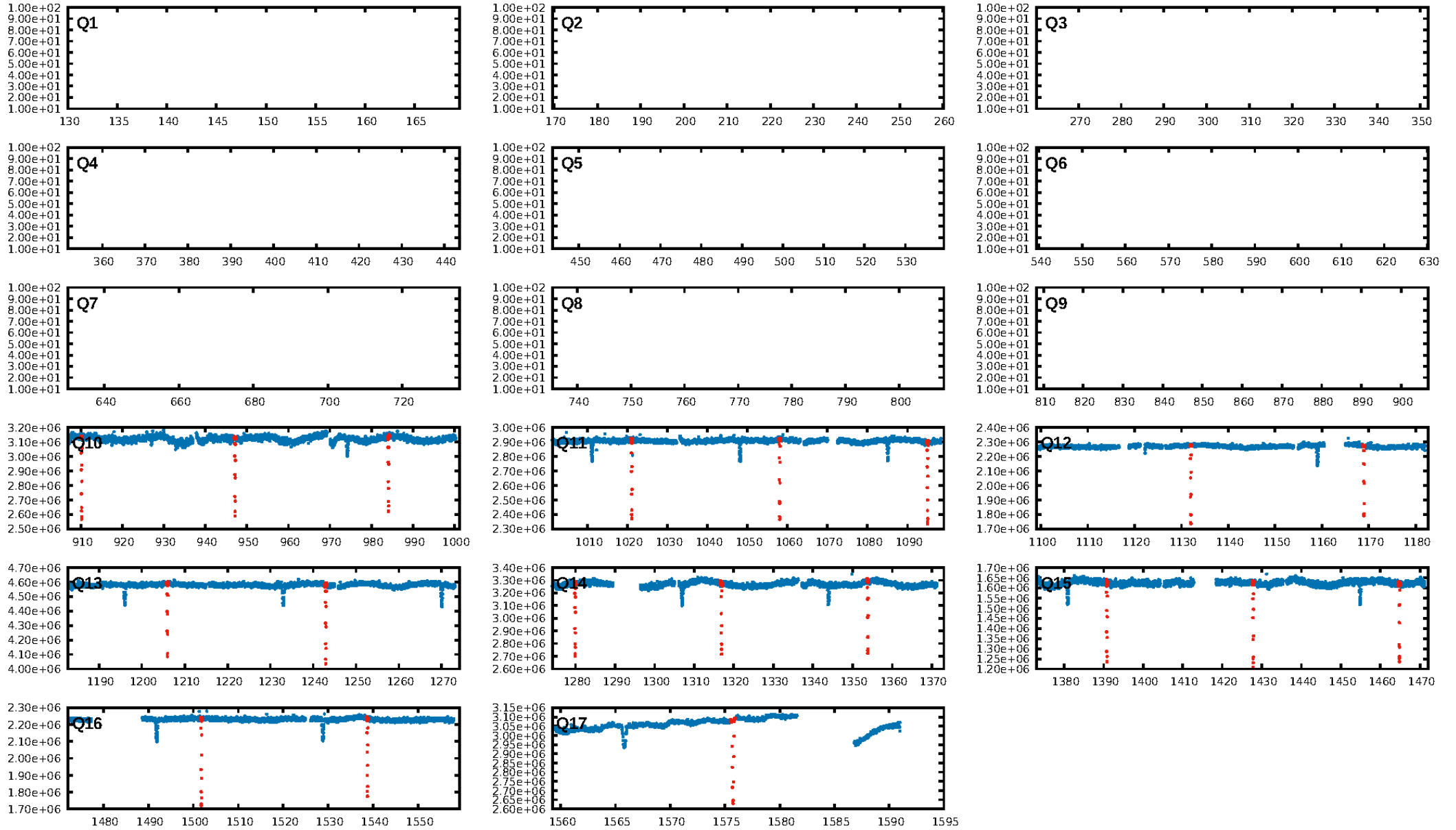
DV Fit Results:

Period = 36.97721 [0.00004] d
Epoch = 133.6234 [0.0013] BKJD
Rp/R* = 0.5898 [0.2539]
a/R* = 66.48 [4.09]
b = 0.90 [0.35]
Seff = 21.18 [0.00]
Teq = 547 [0] K
Rp = 64.36 [27.71] Re
a = 0.2173 [0.0000] AU
Ag = 239.59 [206.56] [1.16σ]
Teffp = 3328 [717] K [3.88σ]

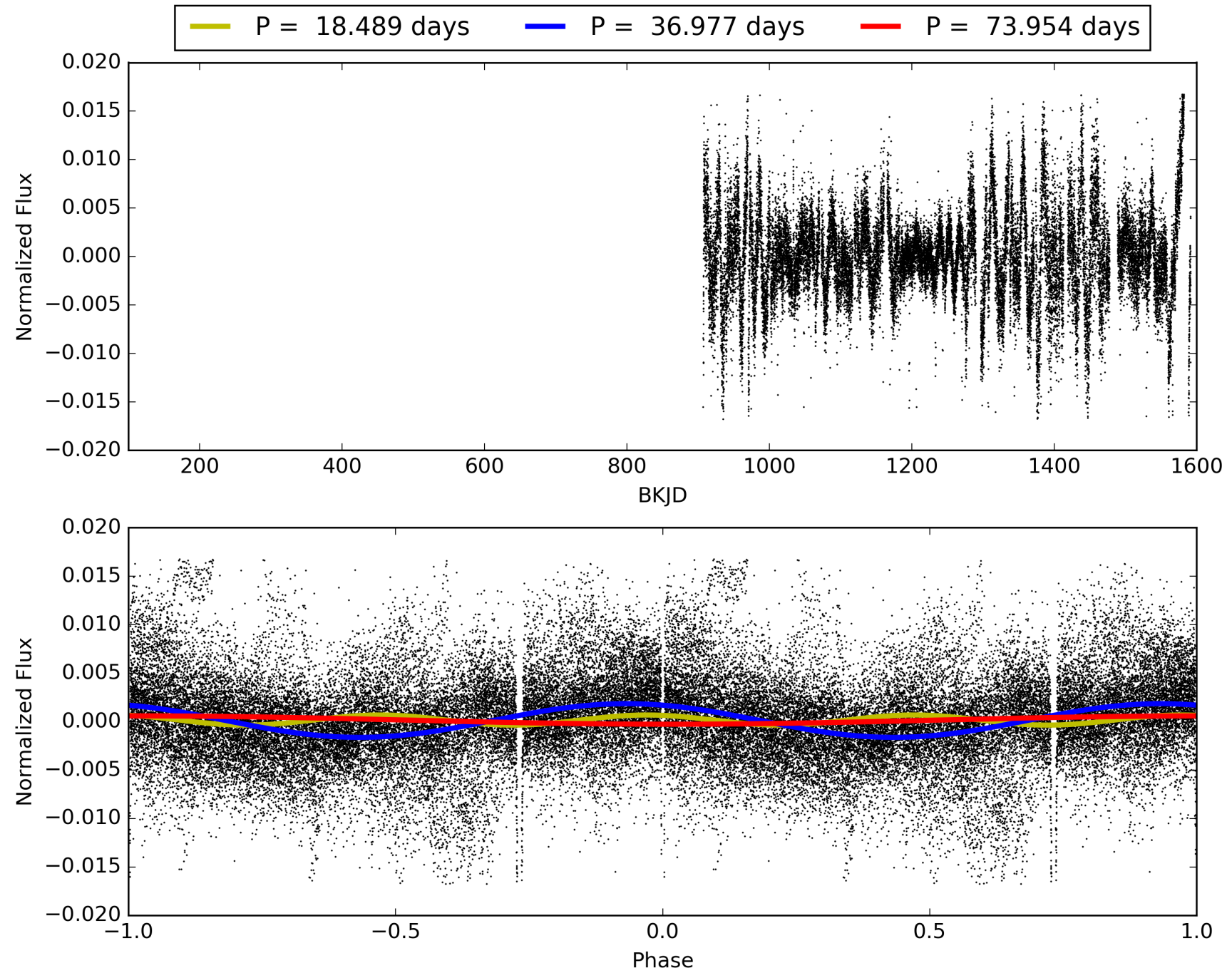
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-igt: 1.00 [18/18]
GhostDiagnostic-chr: 1.54
Centroid-sig: 0.0%
Centroid-so: 3.742 arcsec [2764.47σ]
OotOffset-rm: 7.140 arcsec [100.27σ]
KicOffset-rm: 1.844 arcsec [24.74σ]
OotOffset-st: 2/2/2/2 [8]
KicOffset-st: 2/2/2/2 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 005866104-01, PDC Light Curves

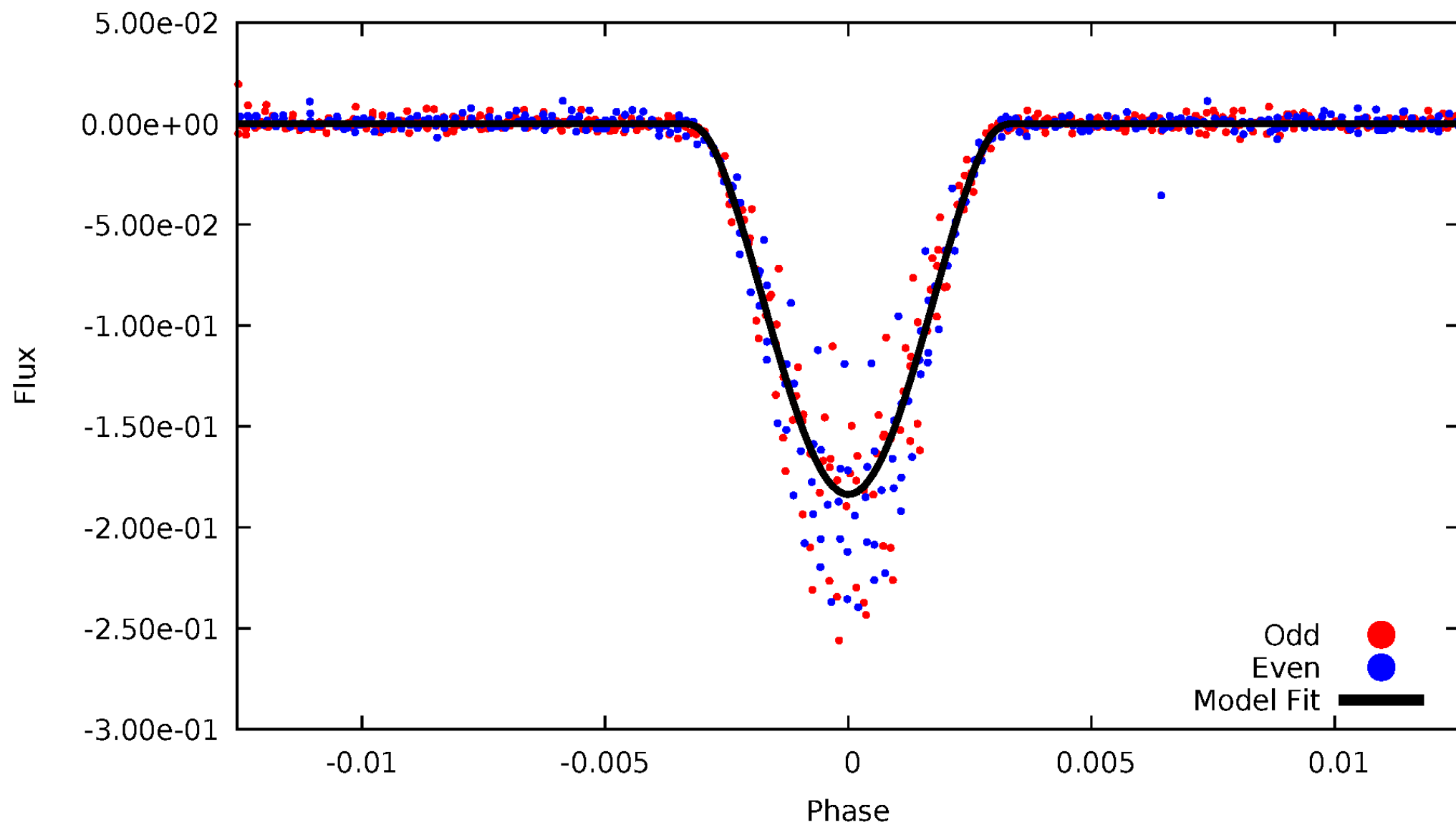


TCE 005866104-01



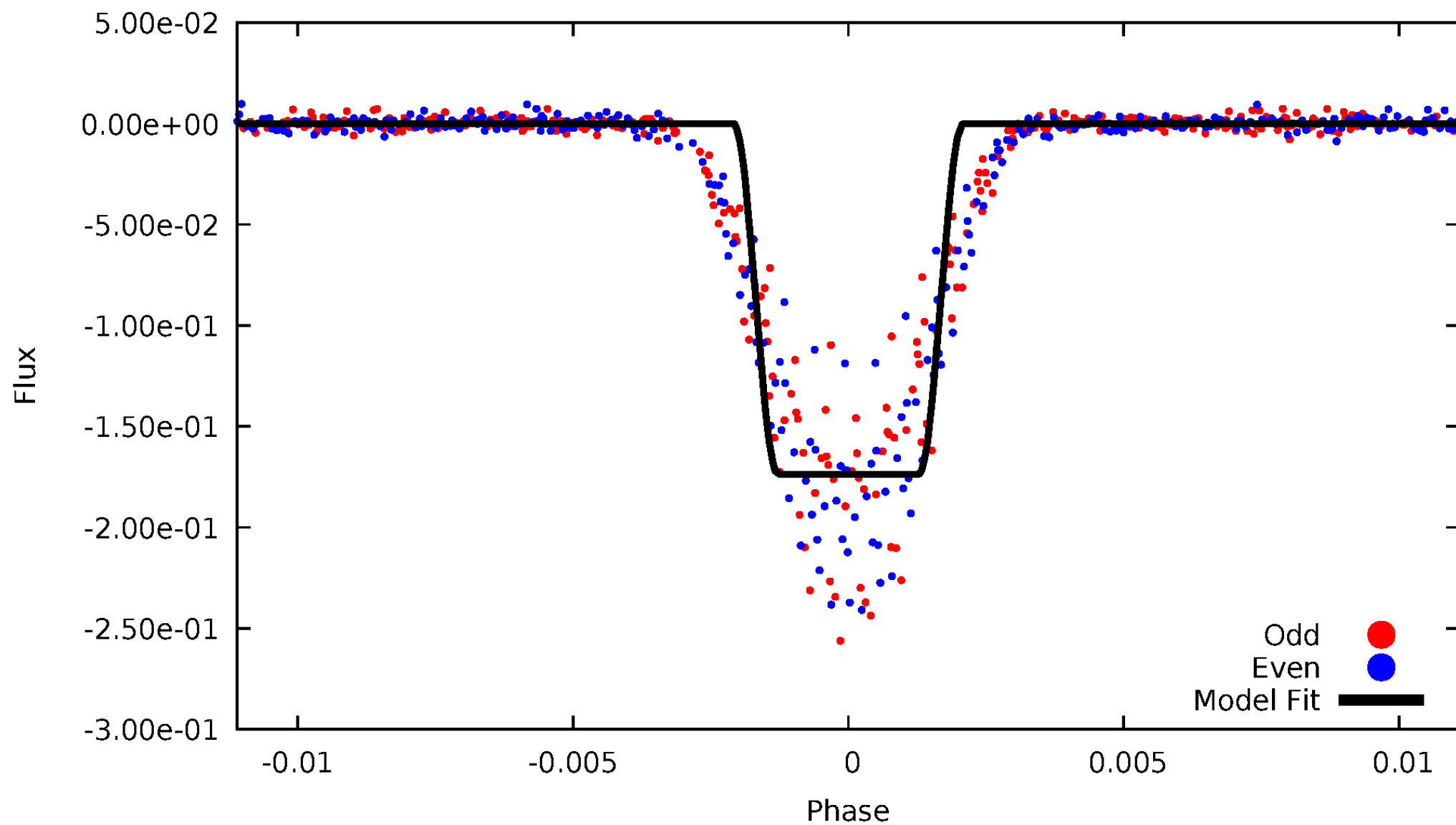
DV Odd/Even

TCE 005866104-01



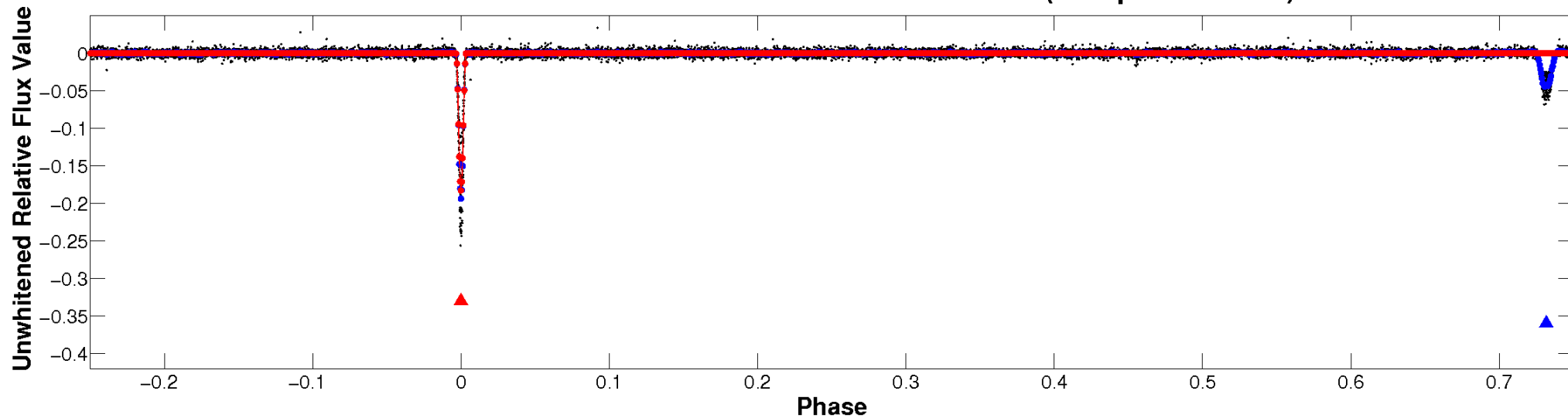
ALT Odd/Even

TCE 005866104-01

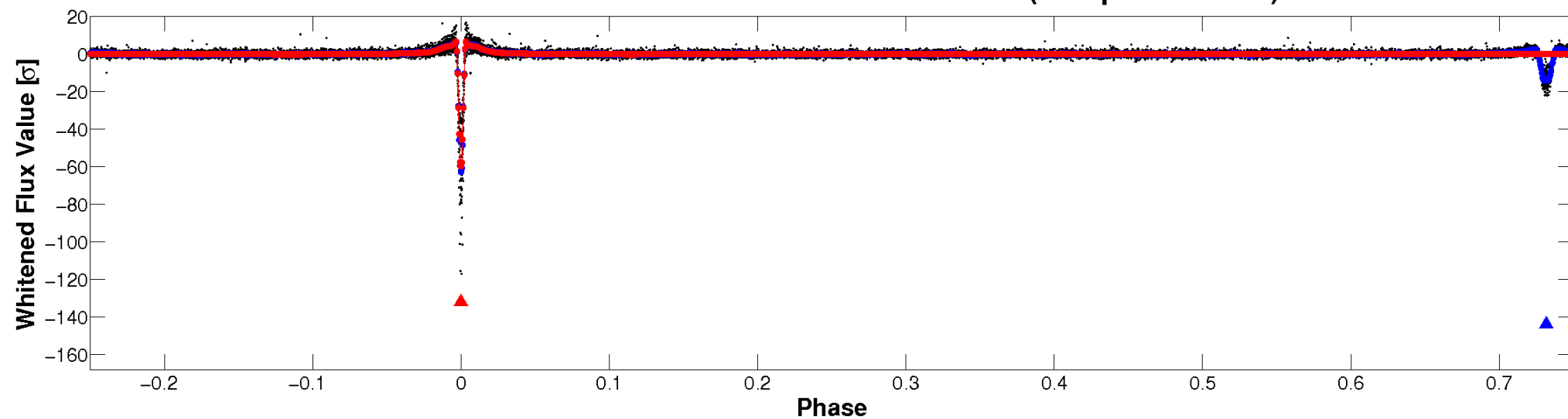


Non-Whitened Vs. Whitened Light Curve

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

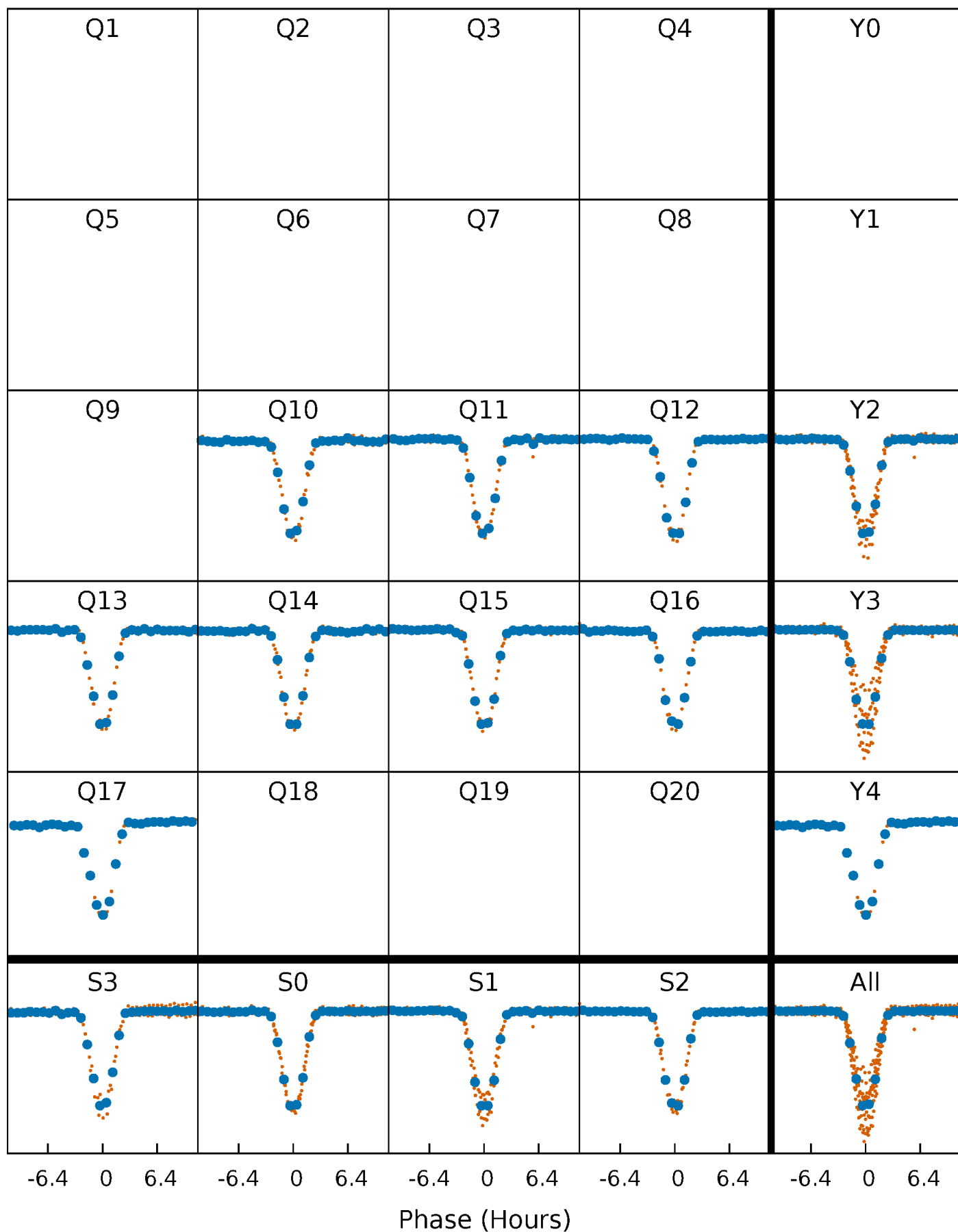


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



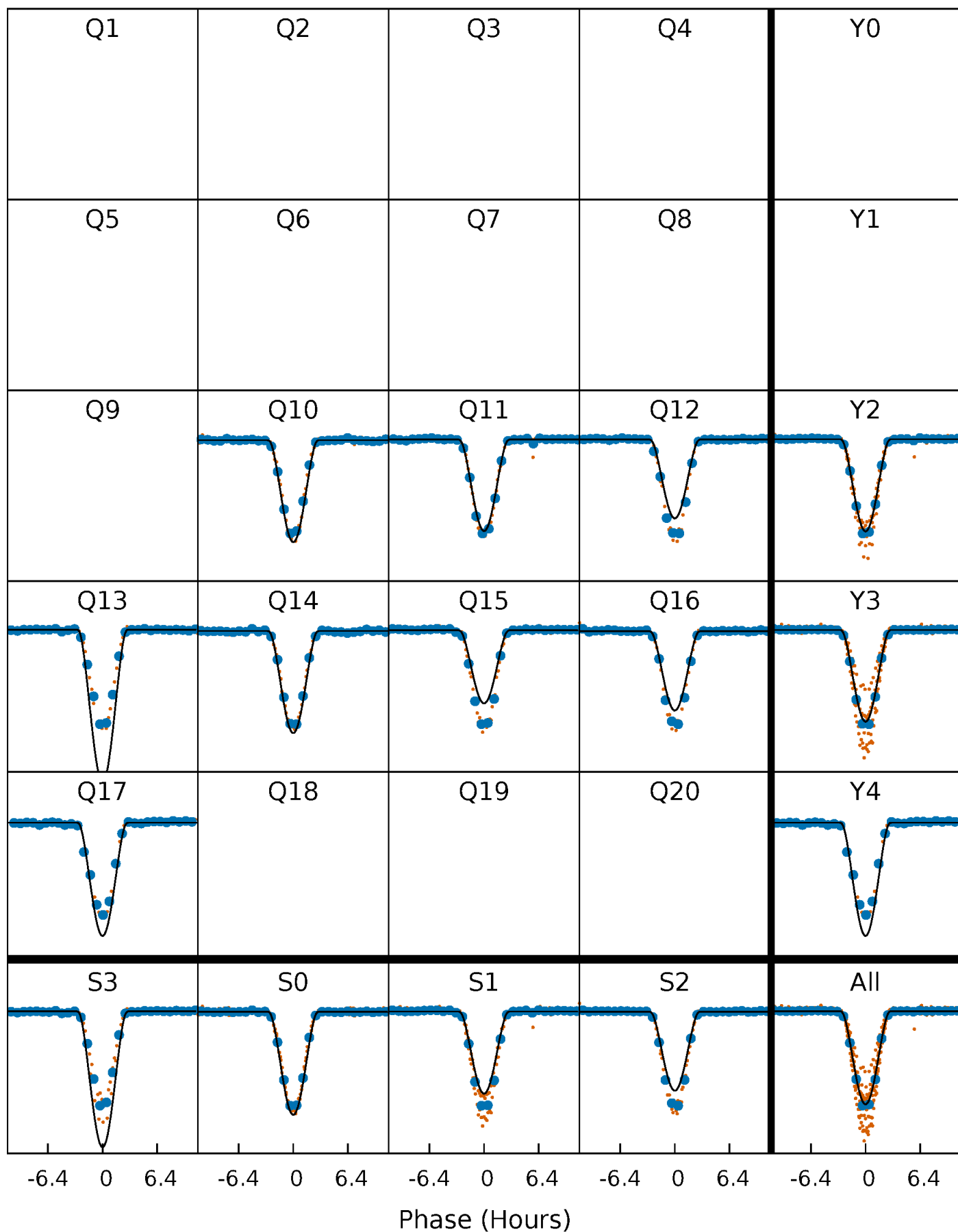
PDC Quarter-Phased Transit Curves

TCE 005866104-01 P= 36.977207 Days $T_0=133.623437$ (BKJD)



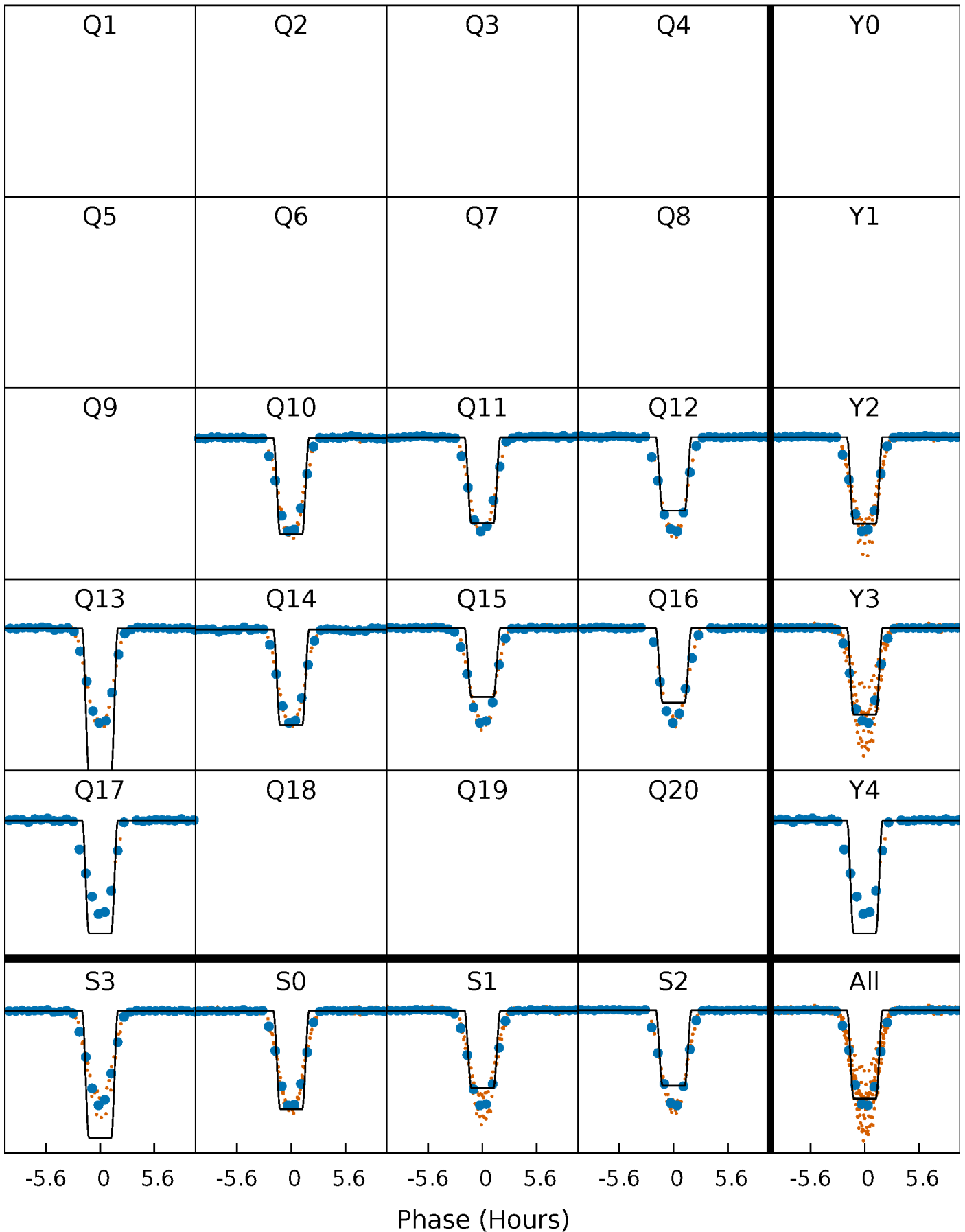
DV Quarter-Phased Transit Curves

TCE 005866104-01 P= 36.977207 Days $T_0=133.623437$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

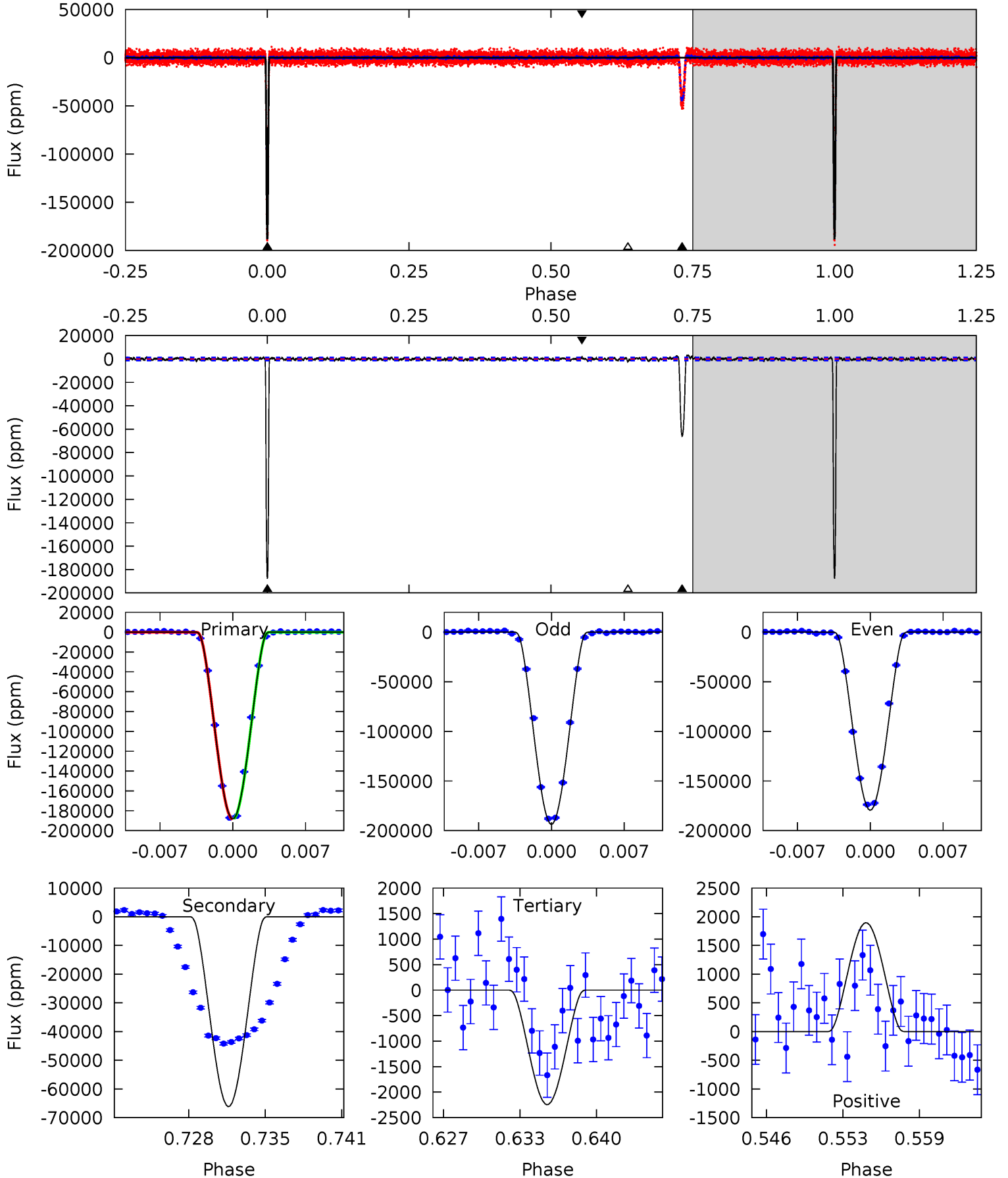
TCE 005866104-01 P= 36.976986 Days $T_0=133.629532$ (BKJD)



DV Model-Shift Uniqueness Test

005866104-01, P = 36.977207 Days, E = 133.623437 Days

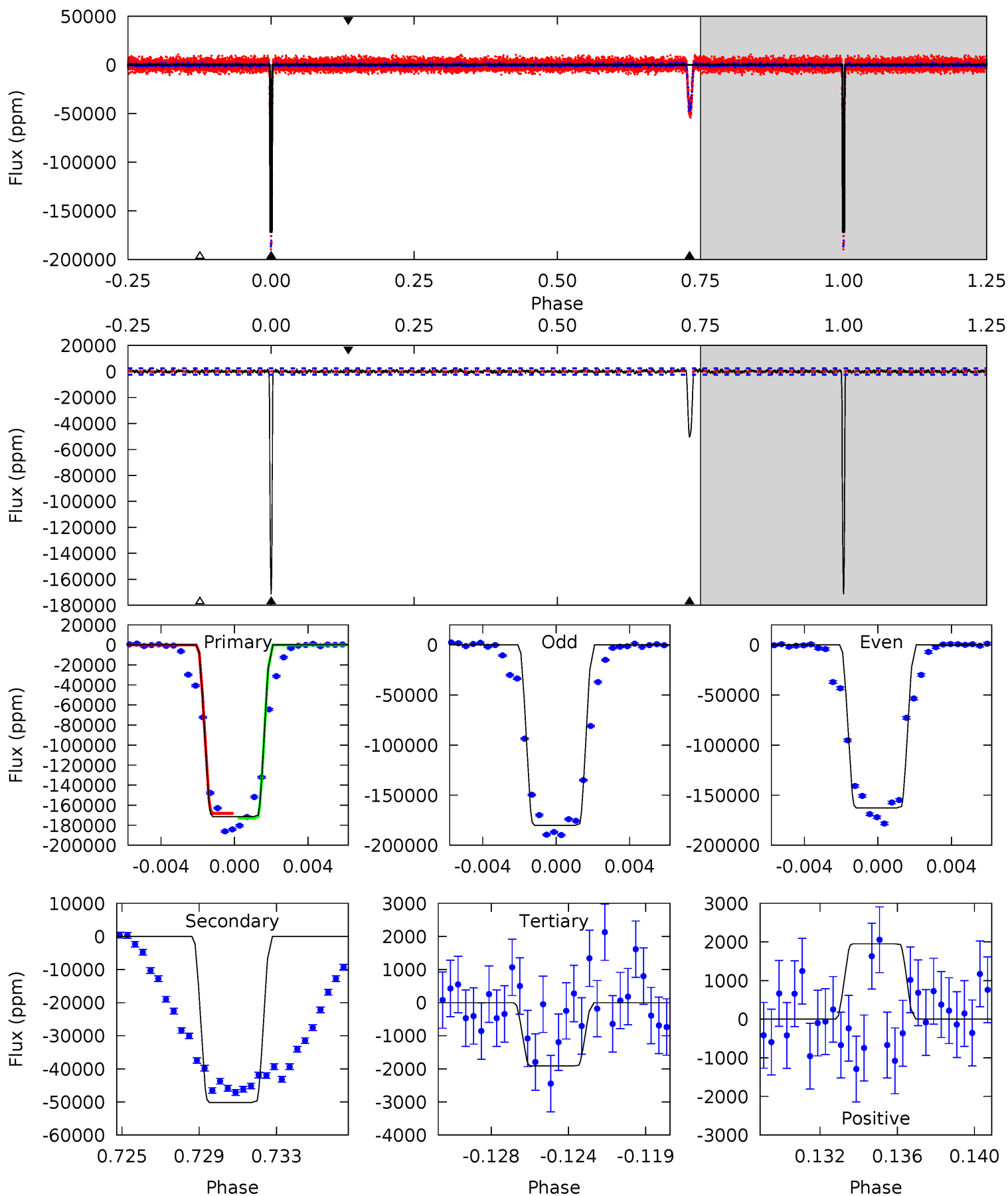
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
759.0	266.7	9.05	7.64	5.10	2.71	2.77	750.0	751.4	257.6	259.0	29.5	1.00	0.02	0



Alt Model-Shift Uniqueness Test

005866104-01, P = 36.976986 Days, E = 133.629532 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
369.8	108.1	4.12	4.21	5.19	2.87	2.21	365.6	365.5	104.0	103.9	19.9	1.02	0.01	0



Stellar Parameters For KIC 005866104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 005866104-01 / KOI 3651.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-65967 ± 247	$65.87^{+26.70}_{-27.31}$	766^{+36}_{-35}	4105^{+981}_{-455}	423^{+817}_{-211}
Alt.	-50138 ± 464	$46.79^{+28.11}_{-25.03}$	765^{+37}_{-35}	4452^{+1717}_{-695}	634^{+2186}_{-388}

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

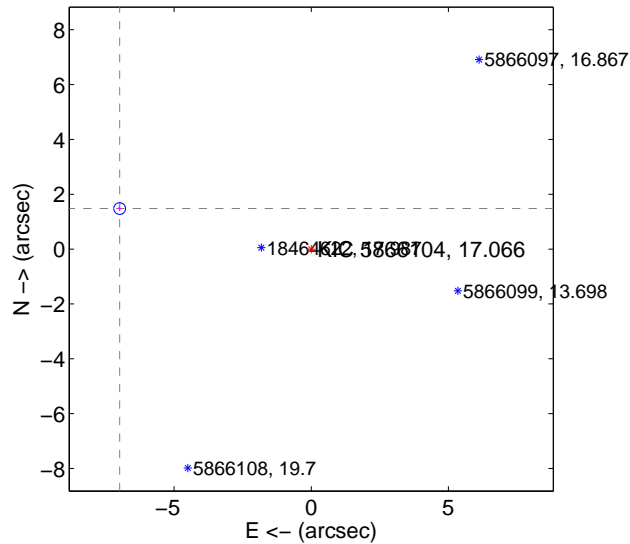
Supplemental centroid analysis for 005866104-01. Kepler magnitude: 17.07. Transit SNR 286.75

There are 8 quarters with good PRF difference image offsets

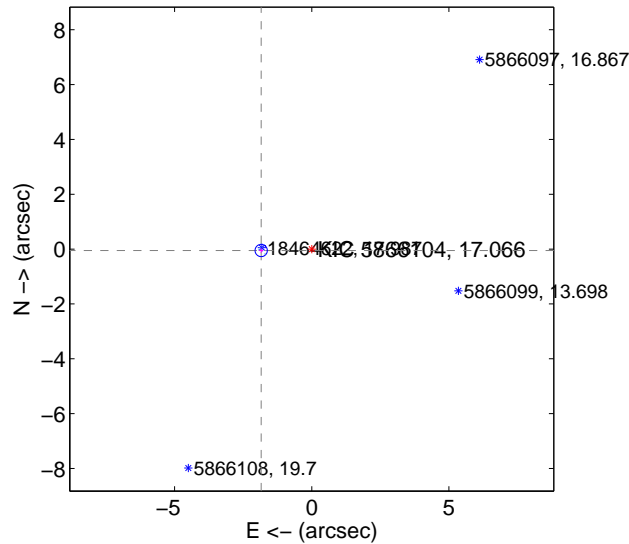
The OOT PRF centroid is offset from the target star catalog position by about 5.33 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.140 ± 0.071	100.27	6.985 ± 0.069	1.478 ± 0.078
PRF-fit source offset from KIC position	1.844 ± 0.075	24.74	1.844 ± 0.075	-0.051 ± 0.078
photometric centroid source offset	3.74 ± 0.00	2764.47	-3.68 ± 0.00	-0.66 ± 0.00

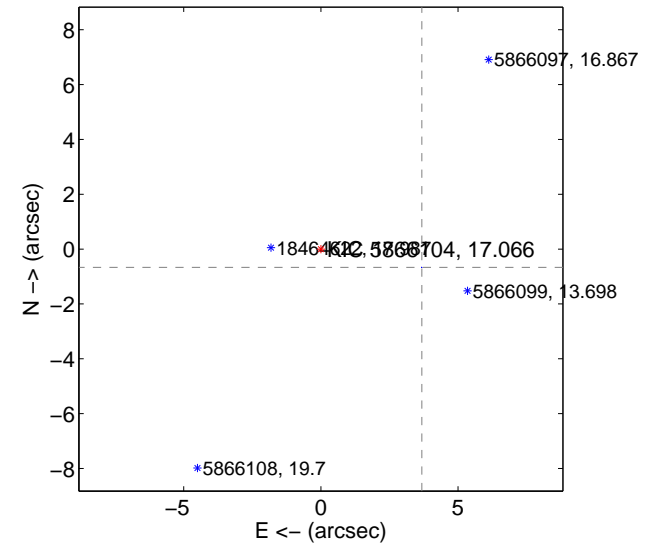
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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.

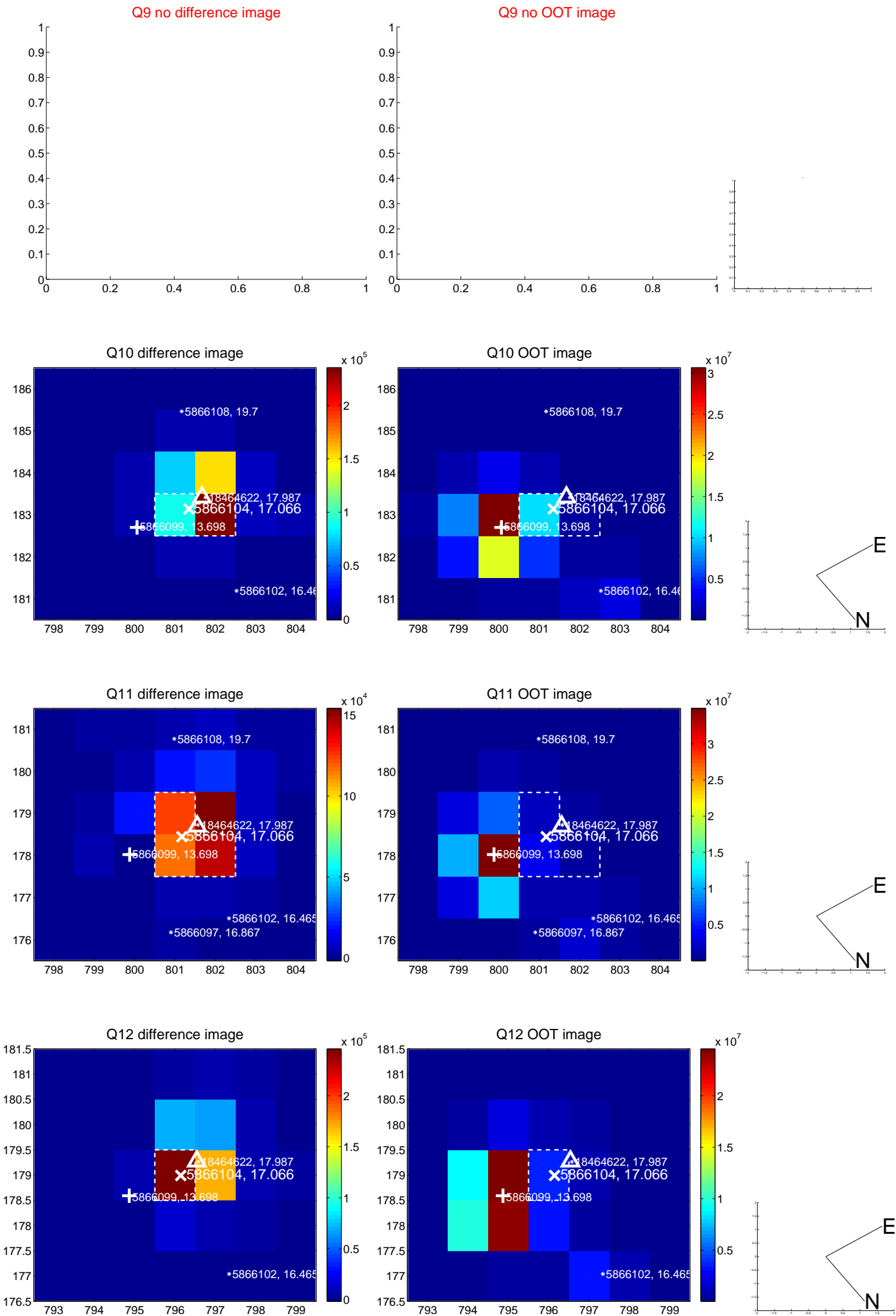
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



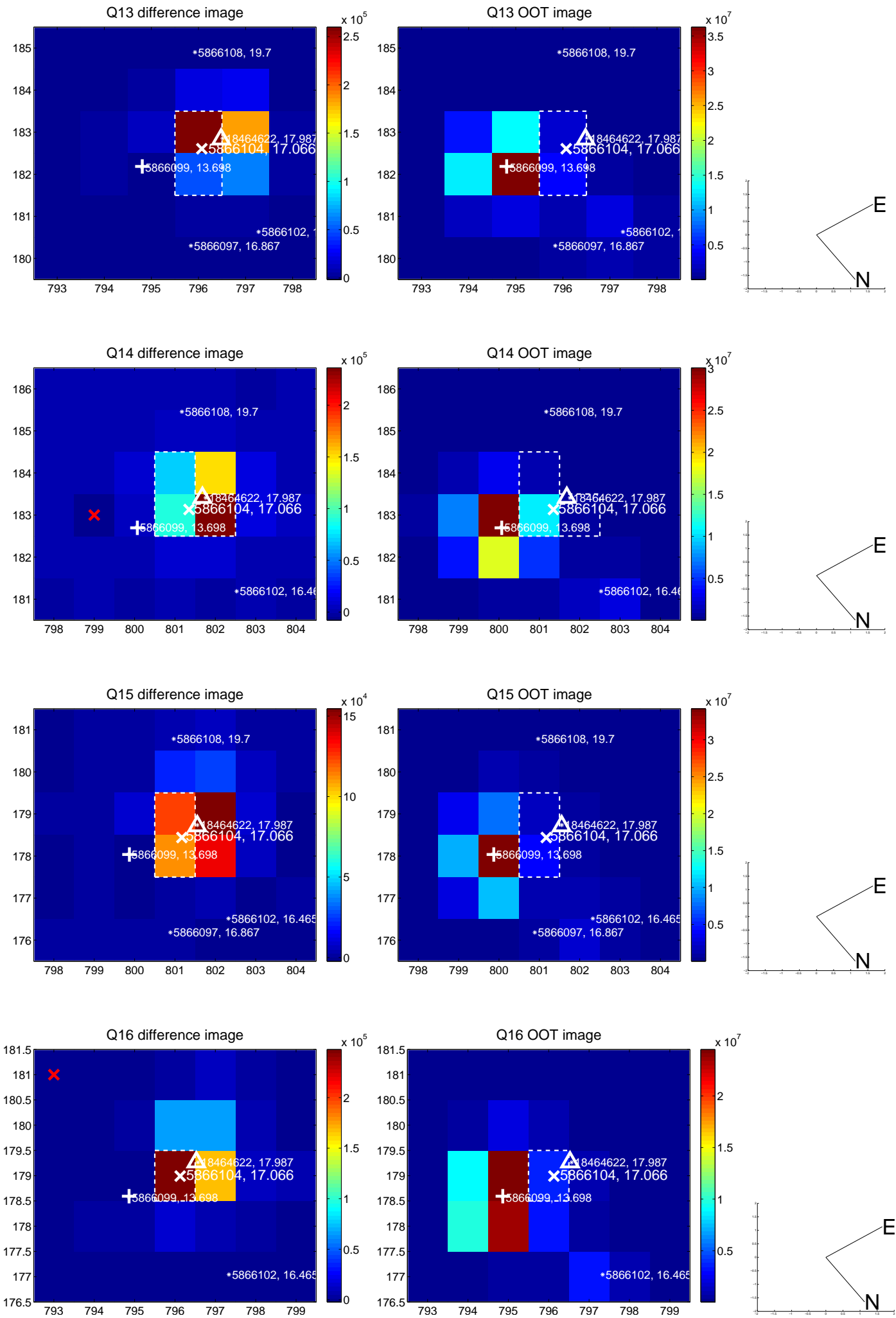
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



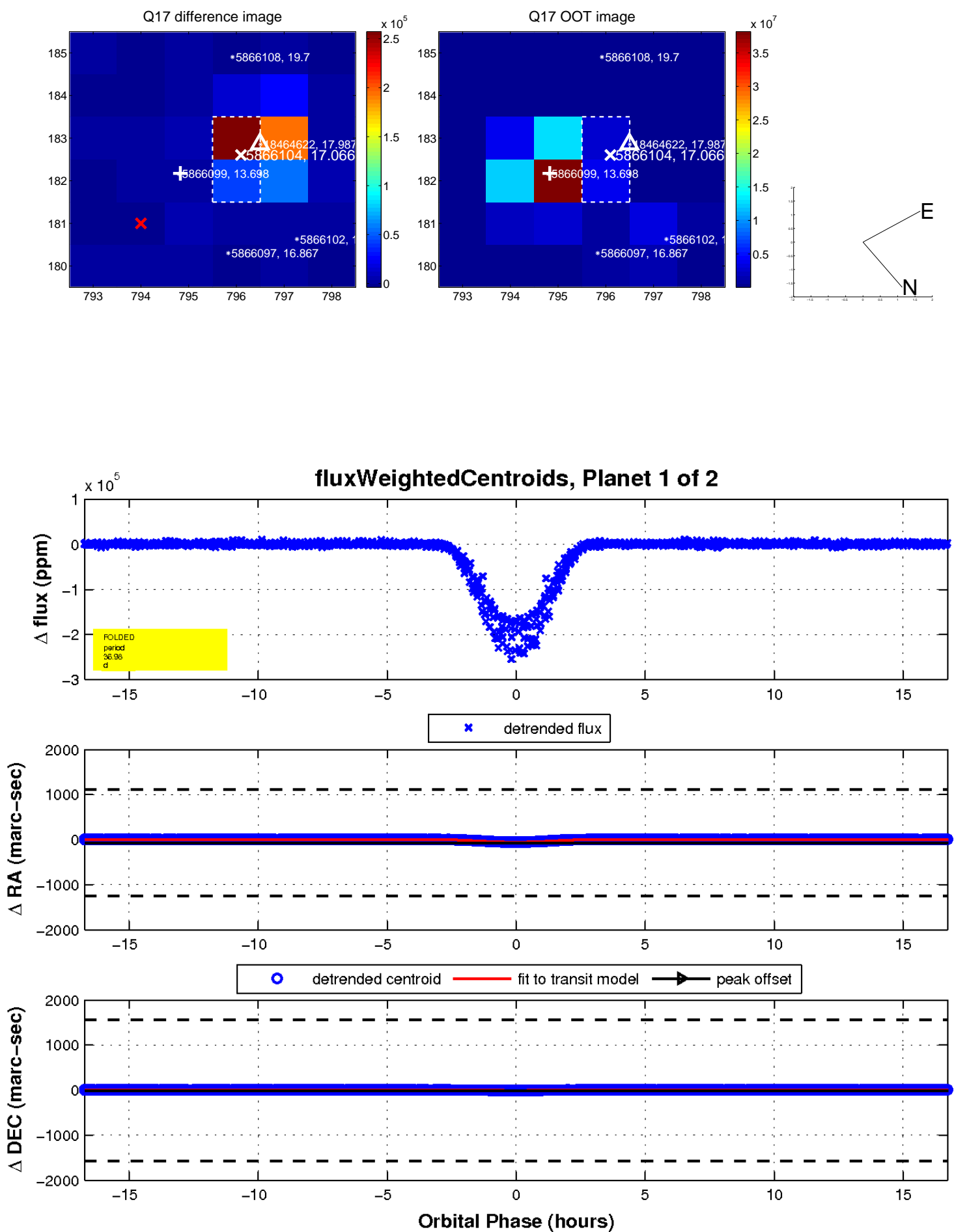
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

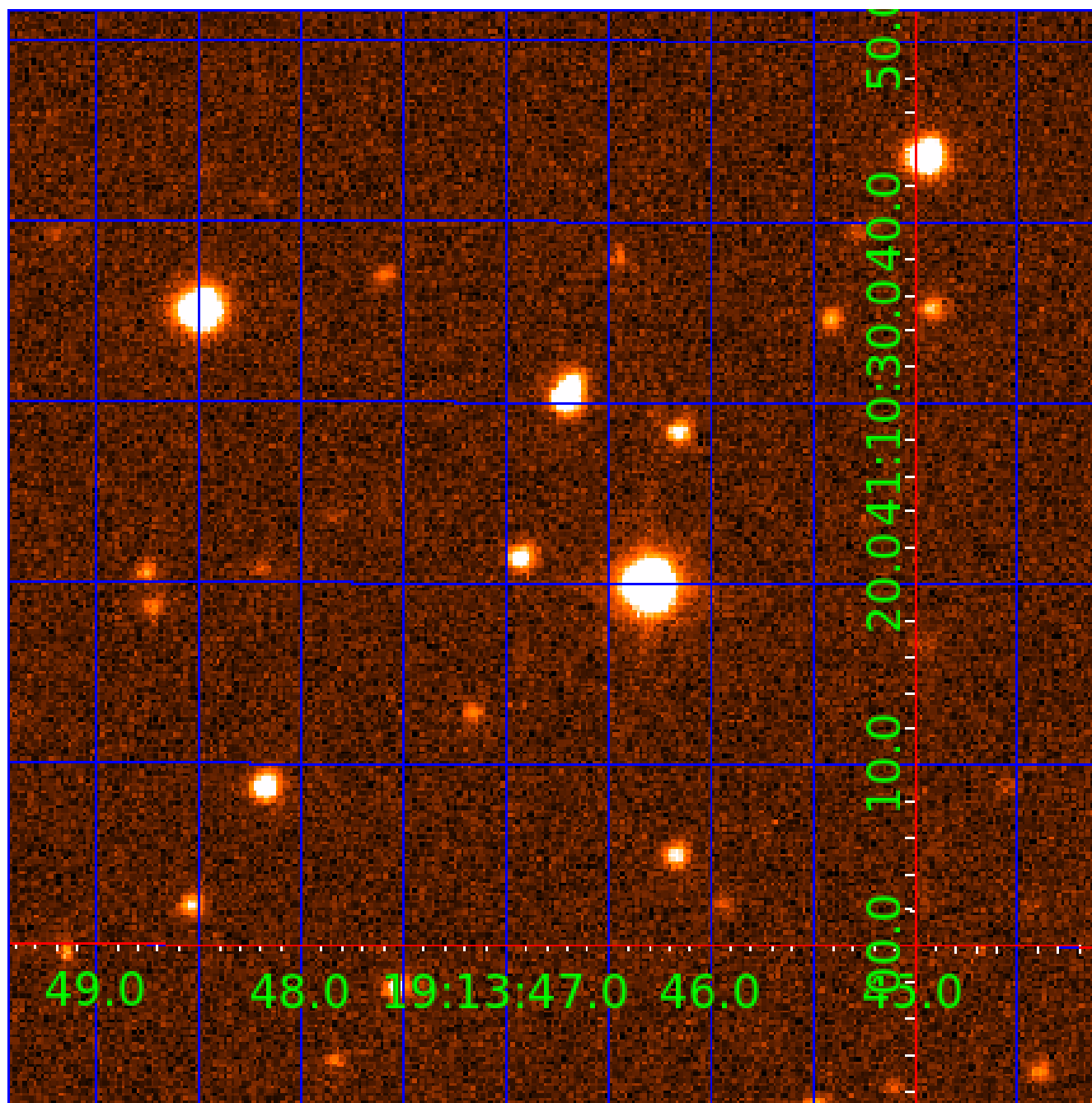


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005866104

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})
005866104-01	OBS	3651.01	36.977207	133.623437	183648.2	5.576	586.0	286.8	1.00	5780	64.36	21.18
005866104-02	OBS	No	36.977055	160.684333	48141.6	11.784	178.1	137.7	1.00	5780	24.66	21.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005866104-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
005866104-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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 005866104-02

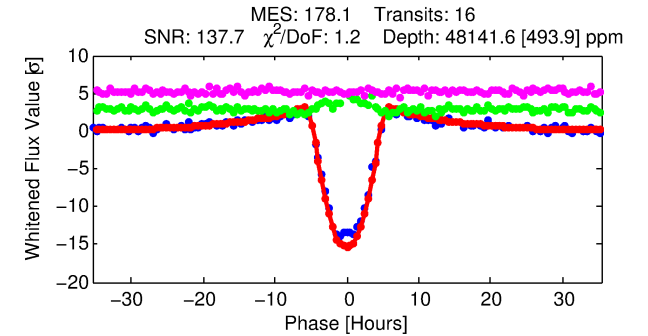
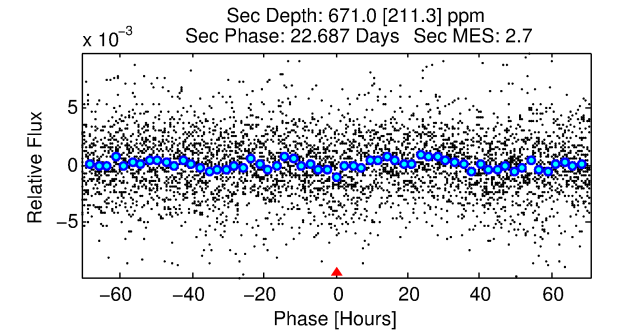
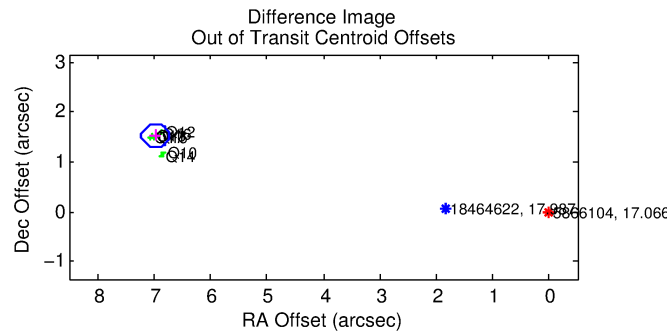
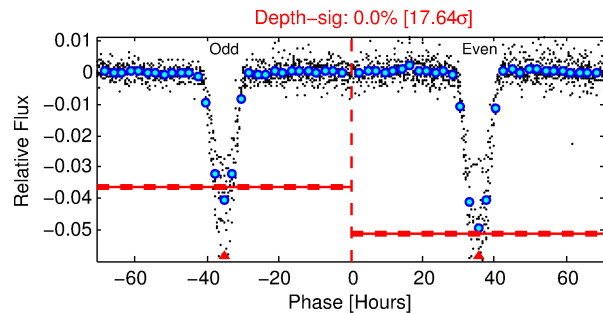
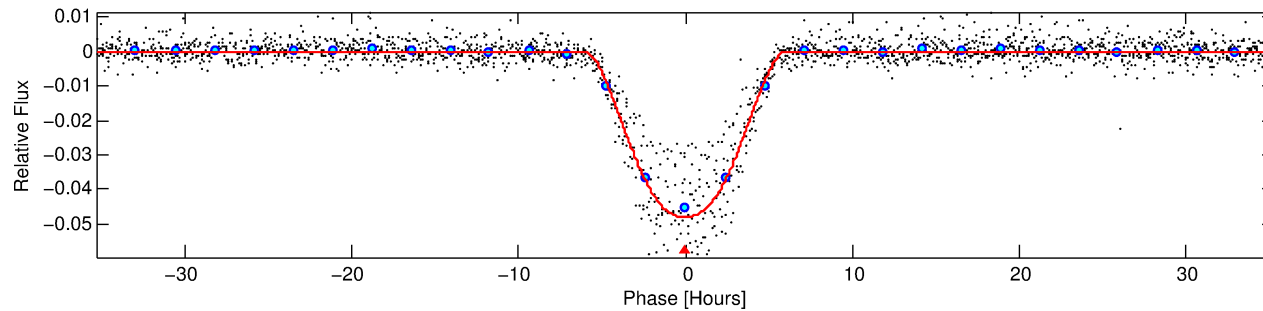
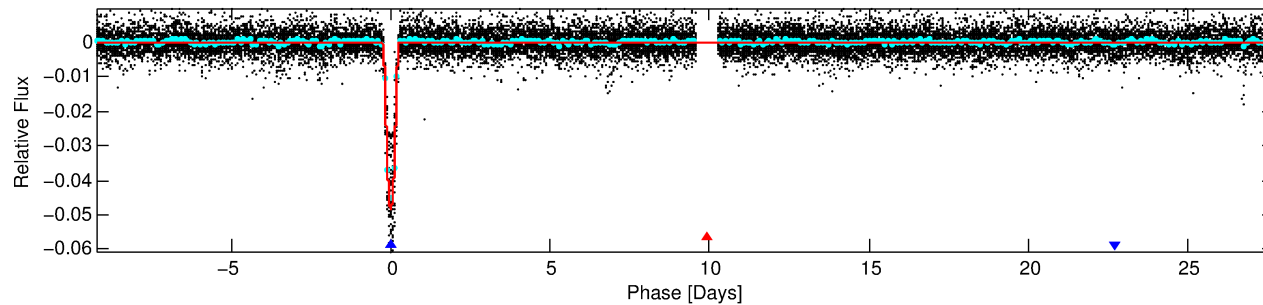
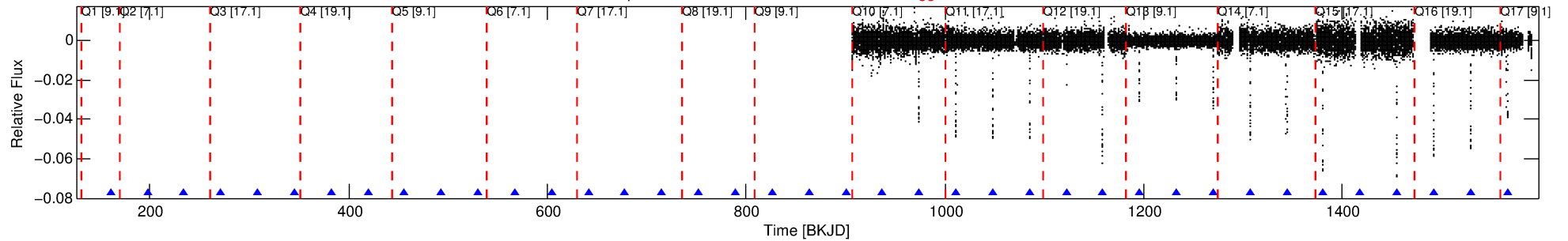
No Significant Match Found

DV One-Page Summary

KIC: 5866104 Candidate: 2 of 2 Period: 36.977 d

KOI: K03651 Corr: No Ephemeris Match

Kp: 17.07 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



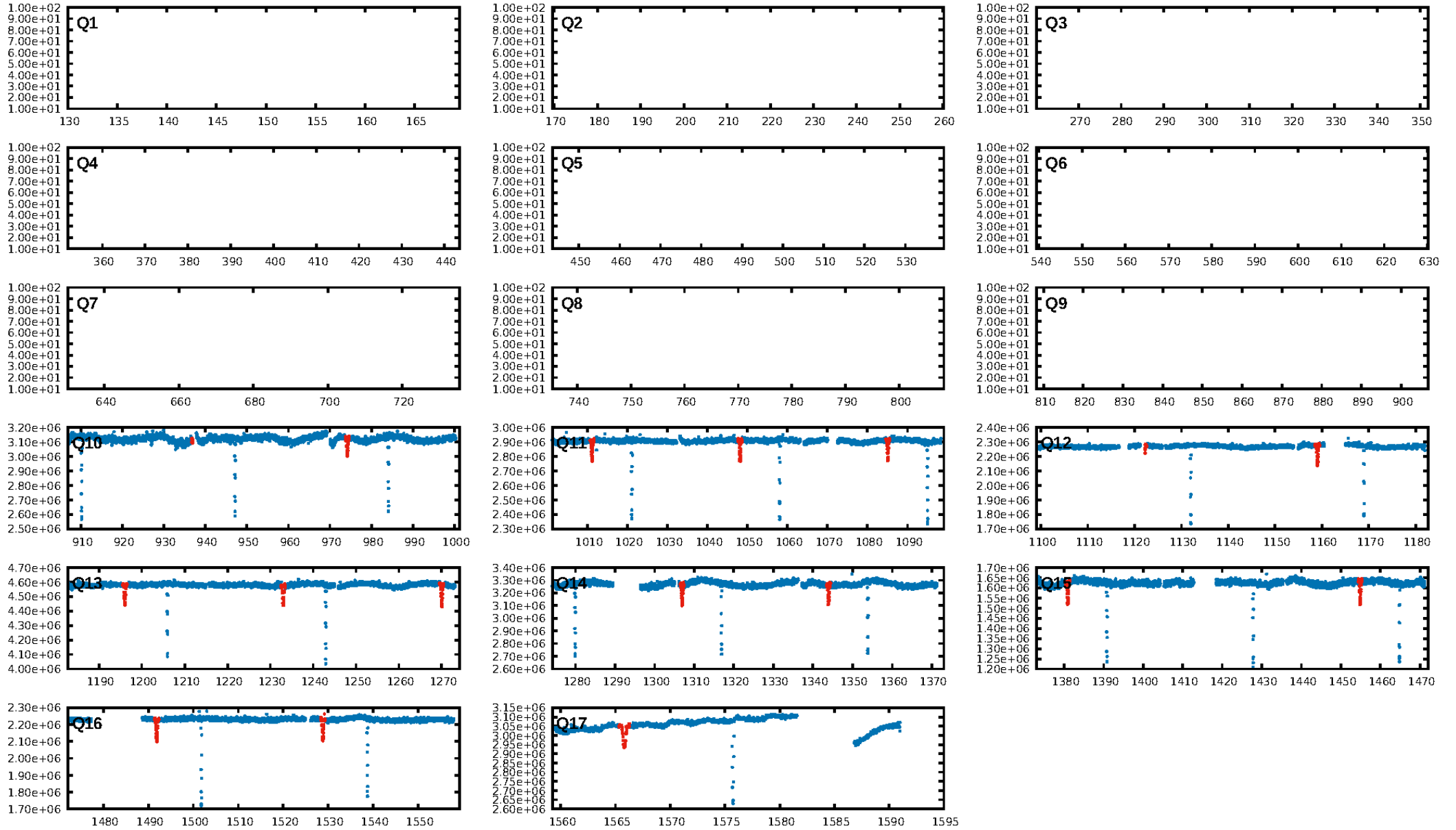
DV Fit Results:

Period = 36.97706 [0.00017] d
Epoch = 160.6843 [0.0050] BKJD
Rp/R* = 0.2260 [0.0032]
a/R* = 22.67 [0.24]
b = 0.78 [0.01]
Seff = 21.19 [0.00]
Teff = 547 [0] K
Rp = 24.66 [0.35] Re
a = 0.2173 [0.0000] AU
Ag = 28.66 [9.06] [3.05σ]
Teffp = 1957 [155] K [9.11σ]

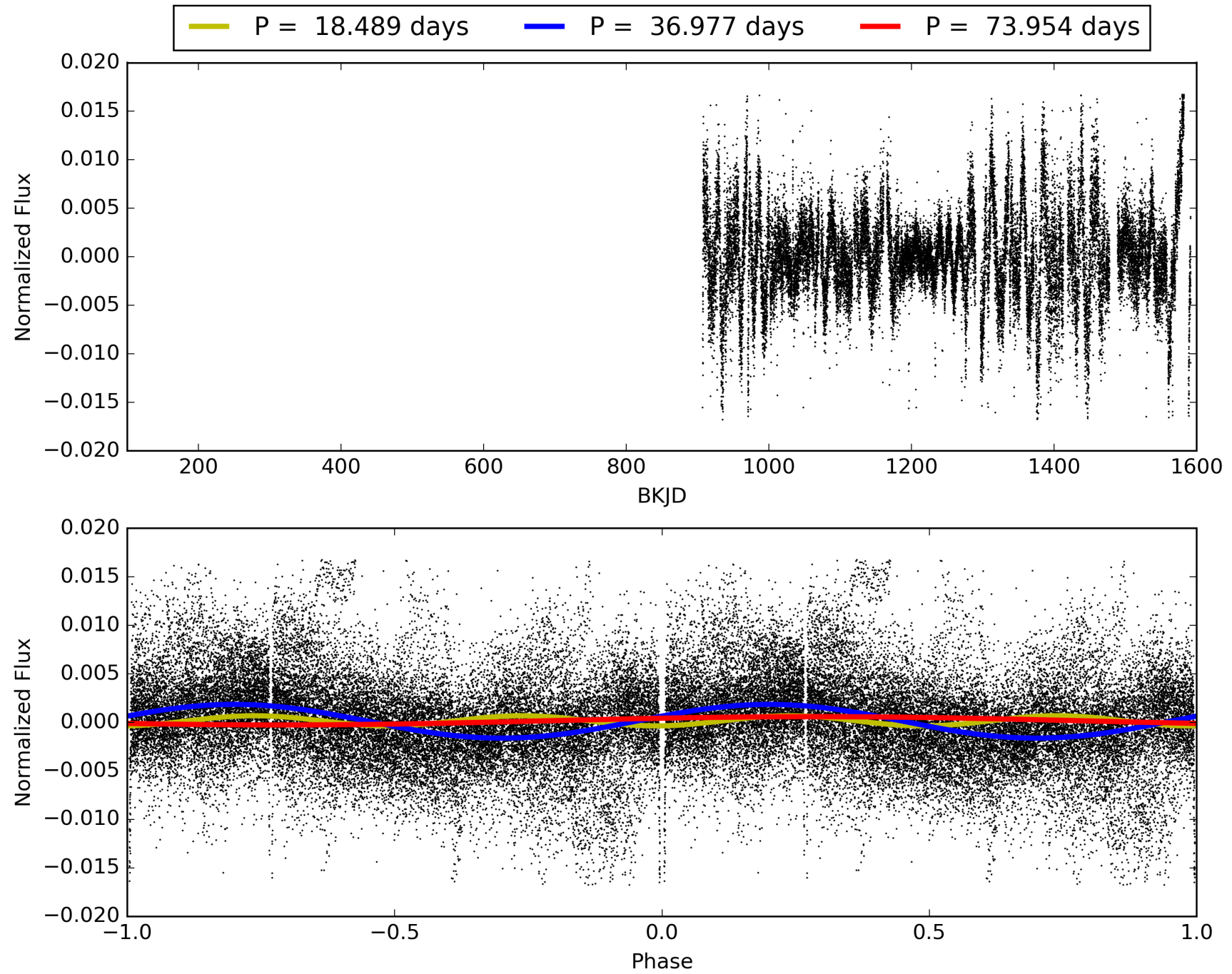
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 1.997
Centroid-sig: 0.0%
Centroid-so: 3.771 arcsec [884.77σ]
OotOffset-rm: 7.139 arcsec [90.42σ]
KicOffset-rm: 1.826 arcsec [23.39σ]
OotOffset-st: 2/2/2/2 [8]
KicOffset-st: 2/2/2/2 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

TCE 005866104-02, PDC Light Curves

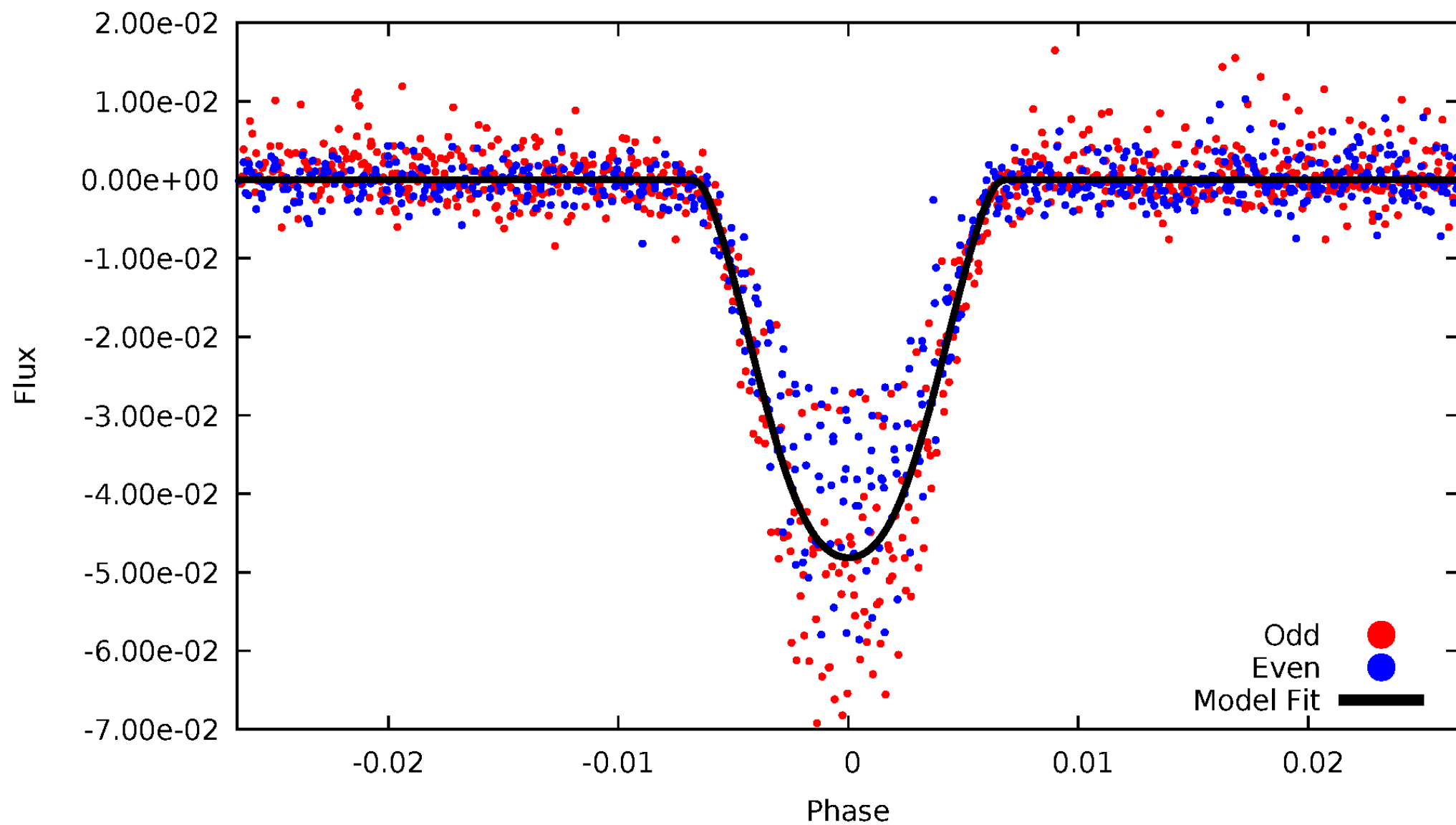


TCE 005866104-02



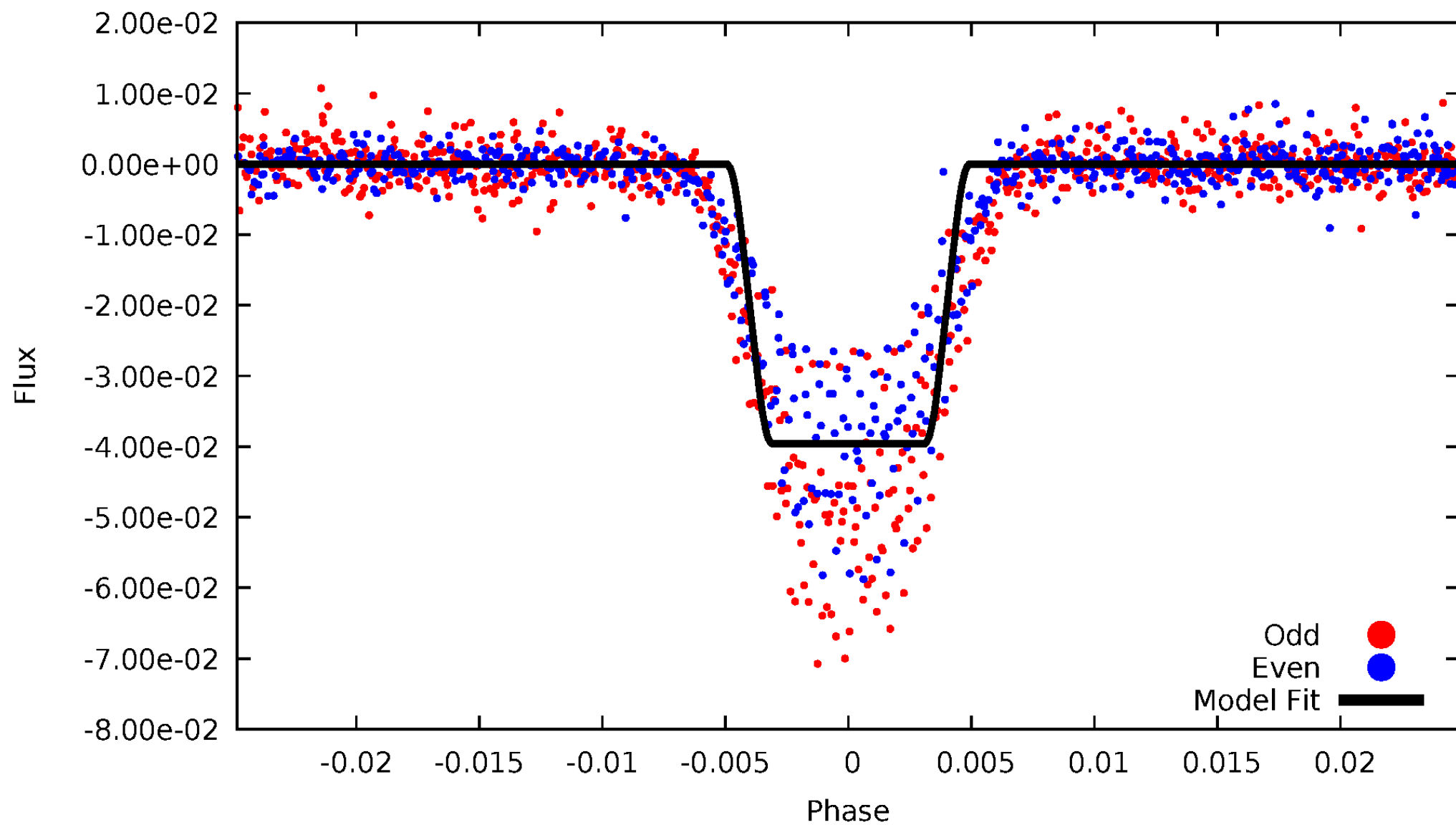
DV Odd/Even

TCE 005866104-02



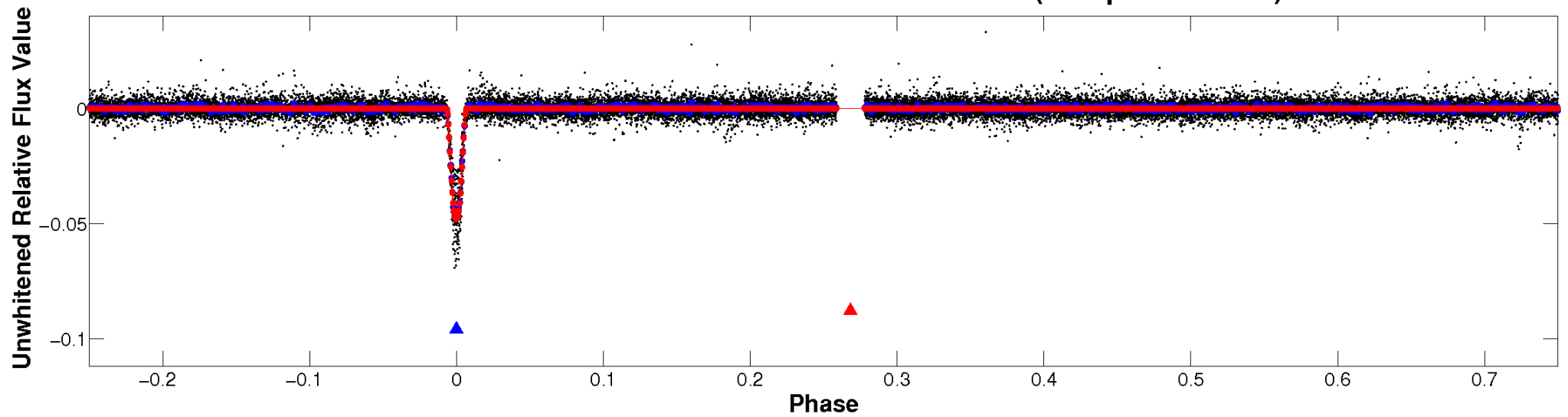
ALT Odd/Even

TCE 005866104-02

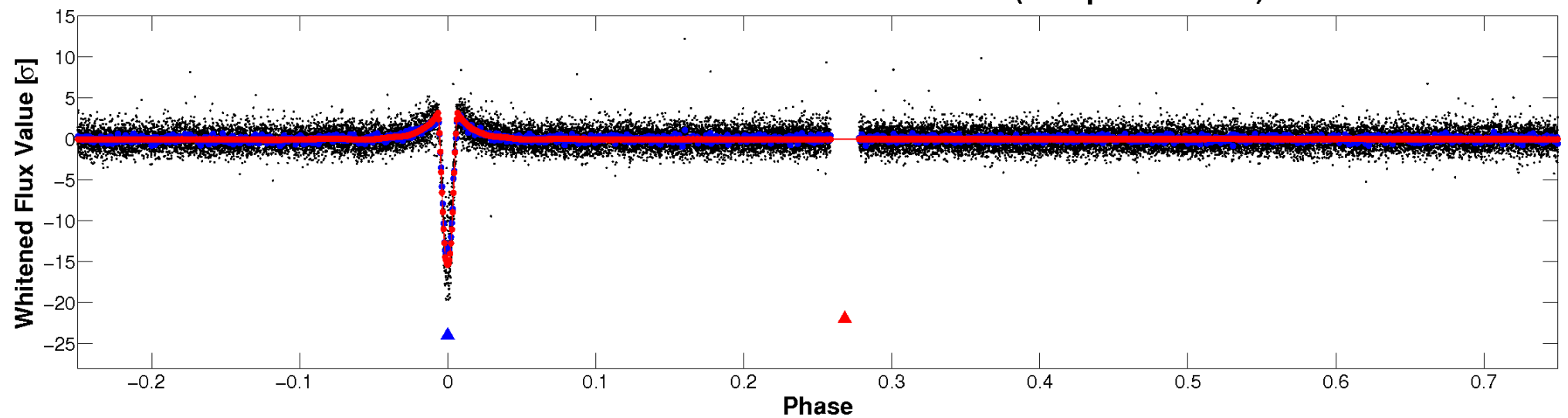


Non-Whitened Vs. Whitened Light Curve

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

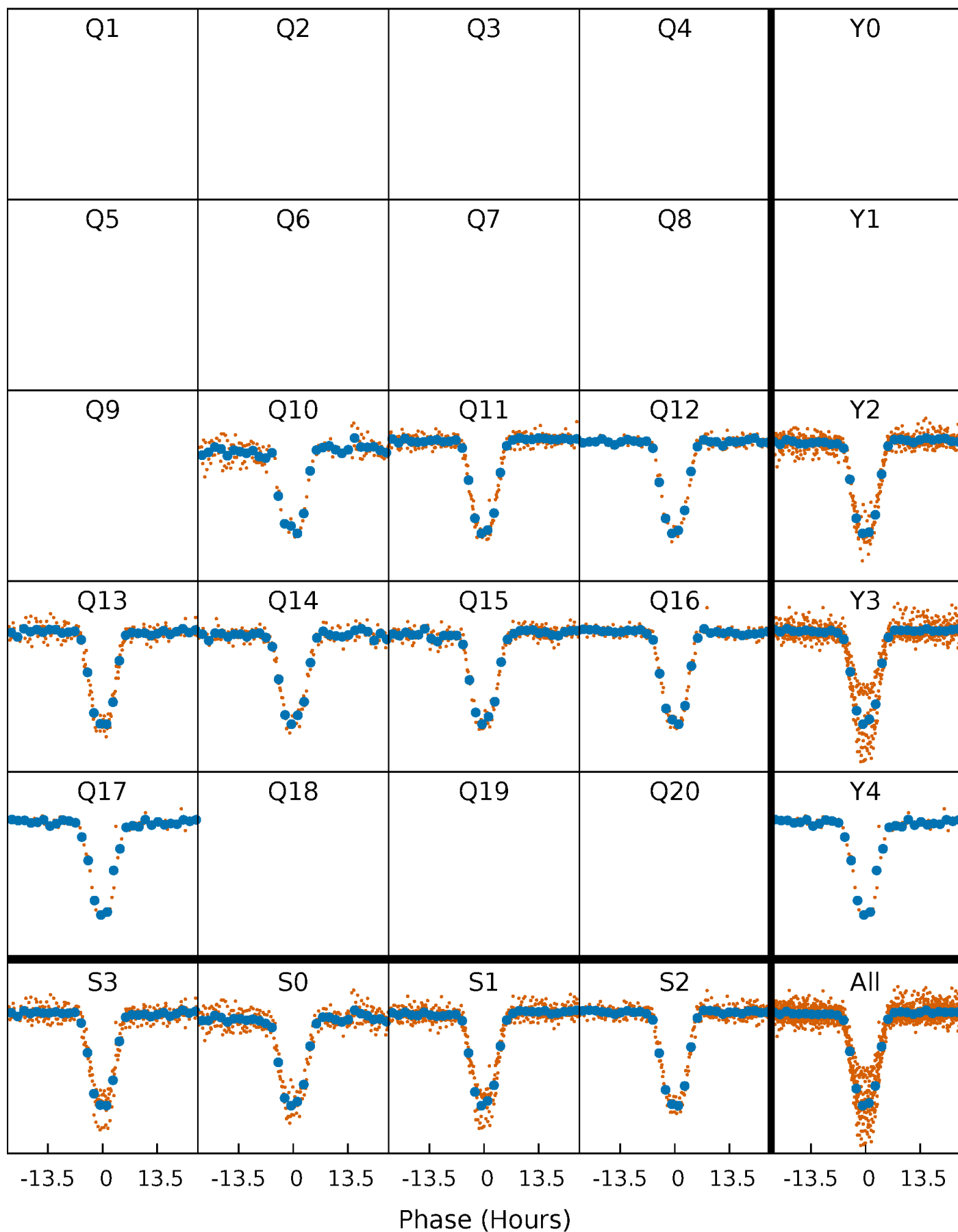


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



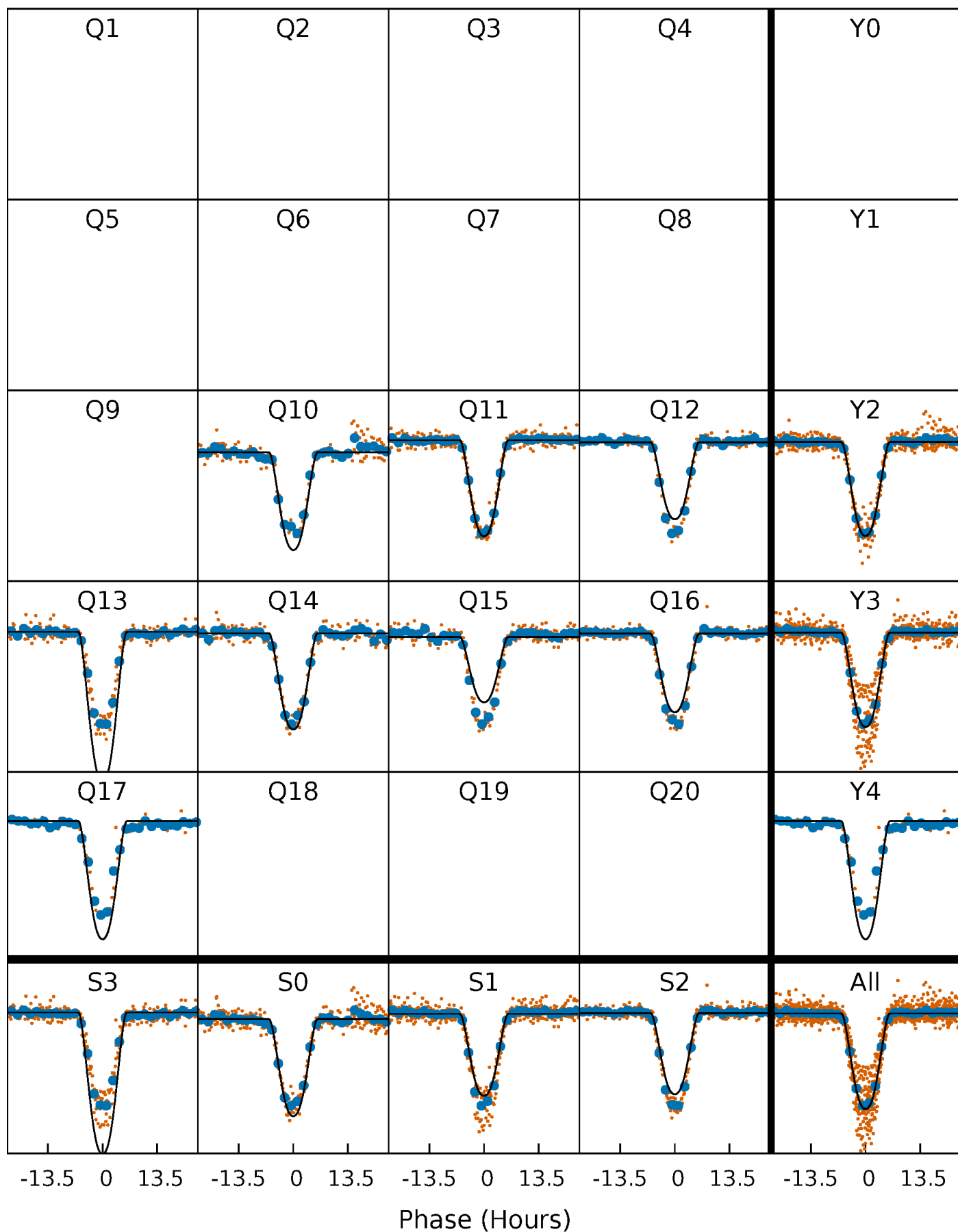
PDC Quarter-Phased Transit Curves

TCE 005866104-02 P= 36.977055 Days $T_0=160.684333$ (BKJD)



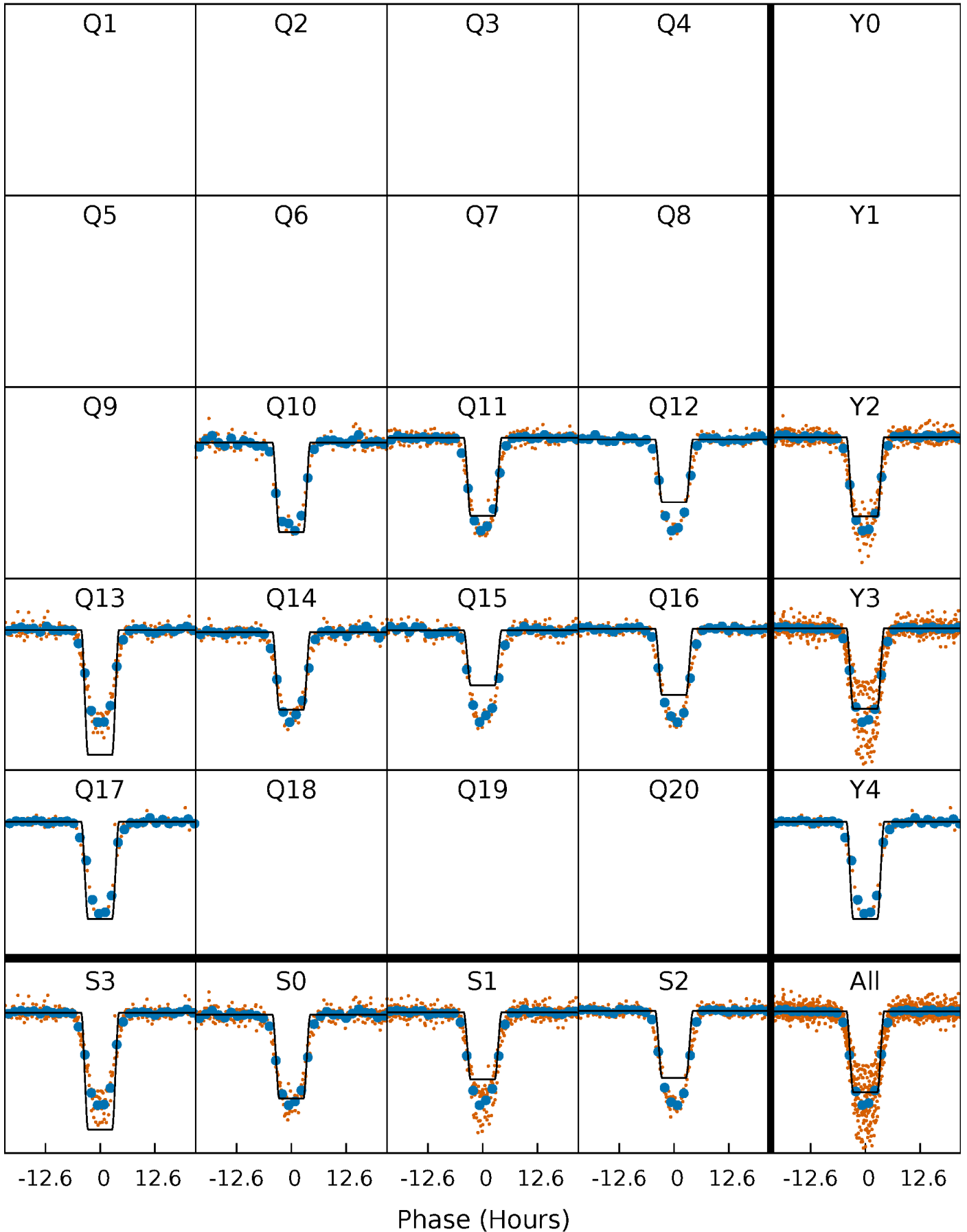
DV Quarter-Phased Transit Curves

TCE 005866104-02 P= 36.977055 Days $T_0=160.684333$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

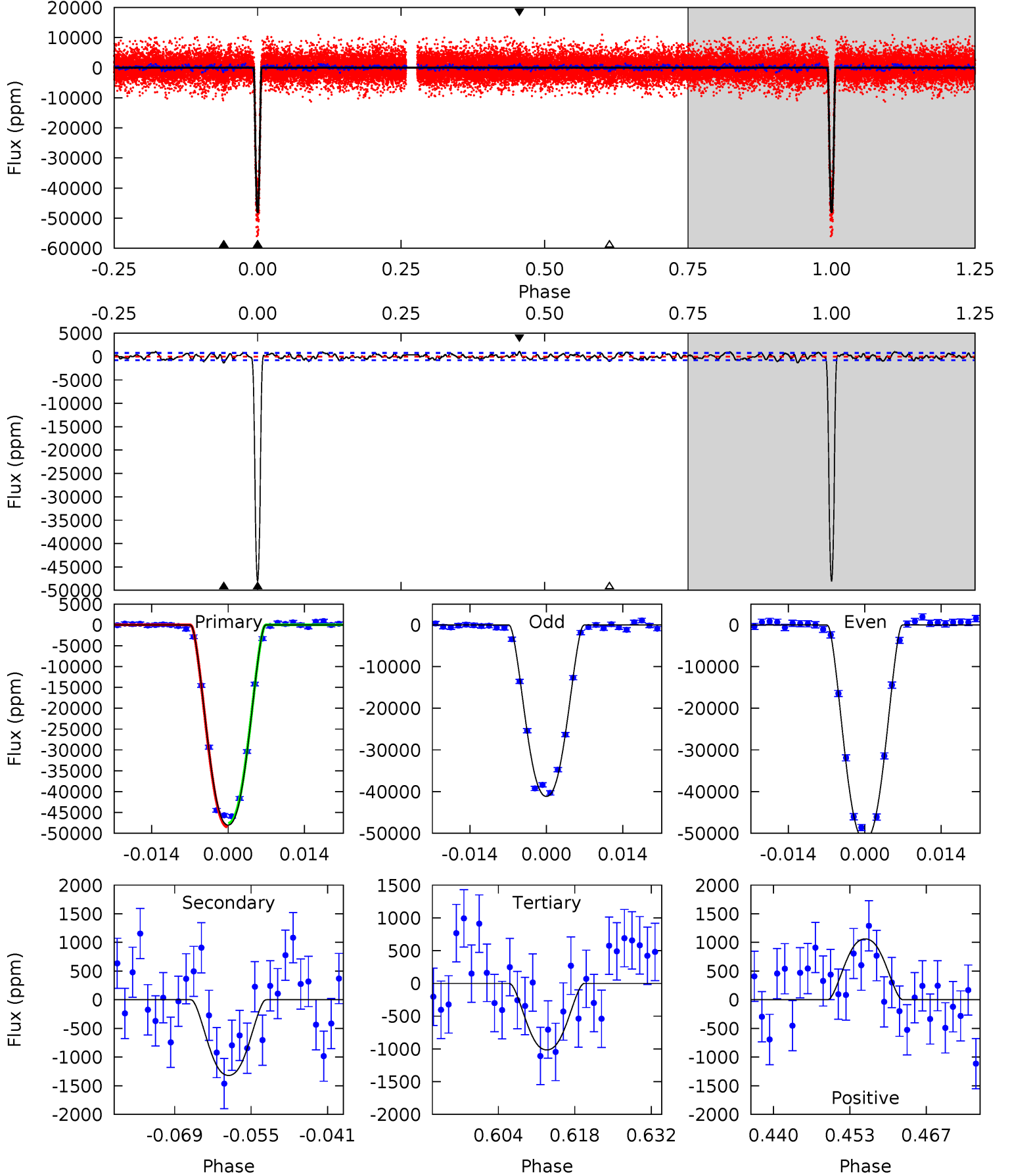
TCE 005866104-02 $P = 36.976434$ Days $T_0 = 160.701659$ (BKJD)



DV Model-Shift Uniqueness Test

005866104-02, P = 36.977055 Days, E = 160.684333 Days

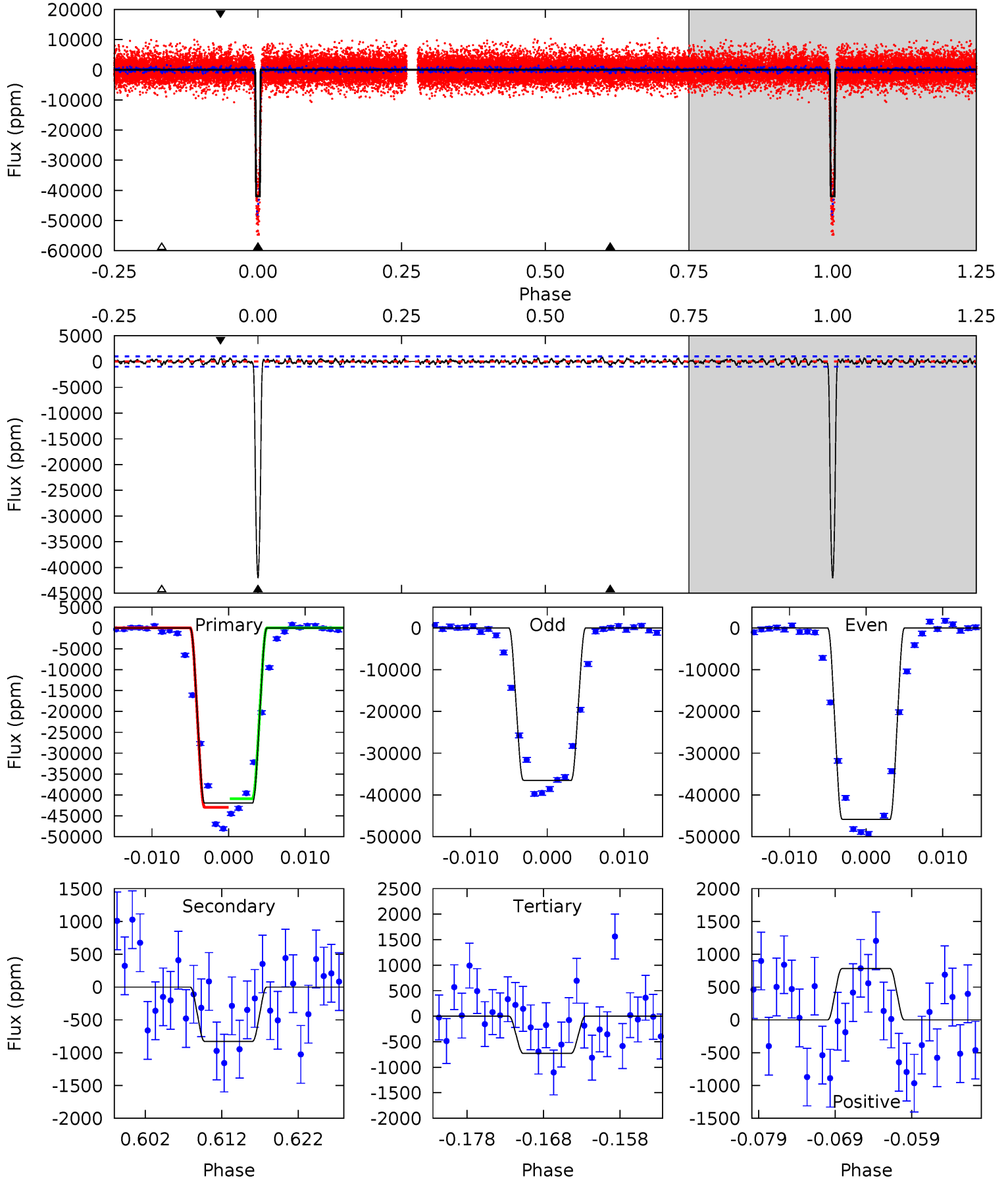
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
305.5	8.39	6.46	6.75	4.97	2.46	2.58	299.0	298.7	1.94	1.64	34.6	1.01	0.02	0



Alt Model-Shift Uniqueness Test

005866104-02, P = 36.976434 Days, E = 160.701659 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
213.1	4.21	3.70	3.97	5.03	2.58	1.31	209.4	209.1	0.51	0.24	25.3	1.00	0.02	5.24



Stellar Parameters For KIC 005866104

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 005866104-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1320 ± 157	$24.66^{+1.83}_{-1.61}$	766^{+36}_{-37}	2991^{+75}_{-74}	56^{+11}_{-9}
Alt.	-829 ± 197	$21.85^{+1.42}_{-1.60}$	764^{+35}_{-34}	2900^{+107}_{-118}	45^{+13}_{-11}

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

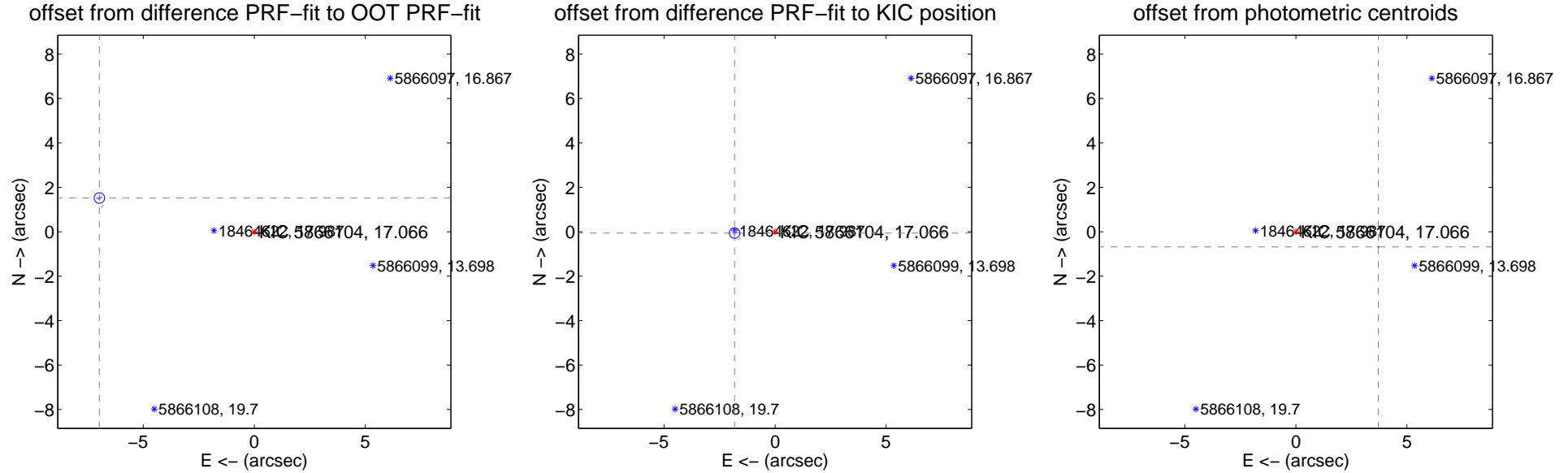
DV Centroid Data

Supplemental centroid analysis for 005866104-02. Kepler magnitude: 17.07. Transit SNR 137.74

There are 8 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 5.33 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.139 ± 0.079	90.42	6.976 ± 0.075	1.519 ± 0.093
PRF-fit source offset from KIC position	1.826 ± 0.078	23.39	1.825 ± 0.079	-0.061 ± 0.084
photometric centroid source offset	3.77 ± 0.00	884.77	-3.71 ± 0.00	-0.68 ± 0.00



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.

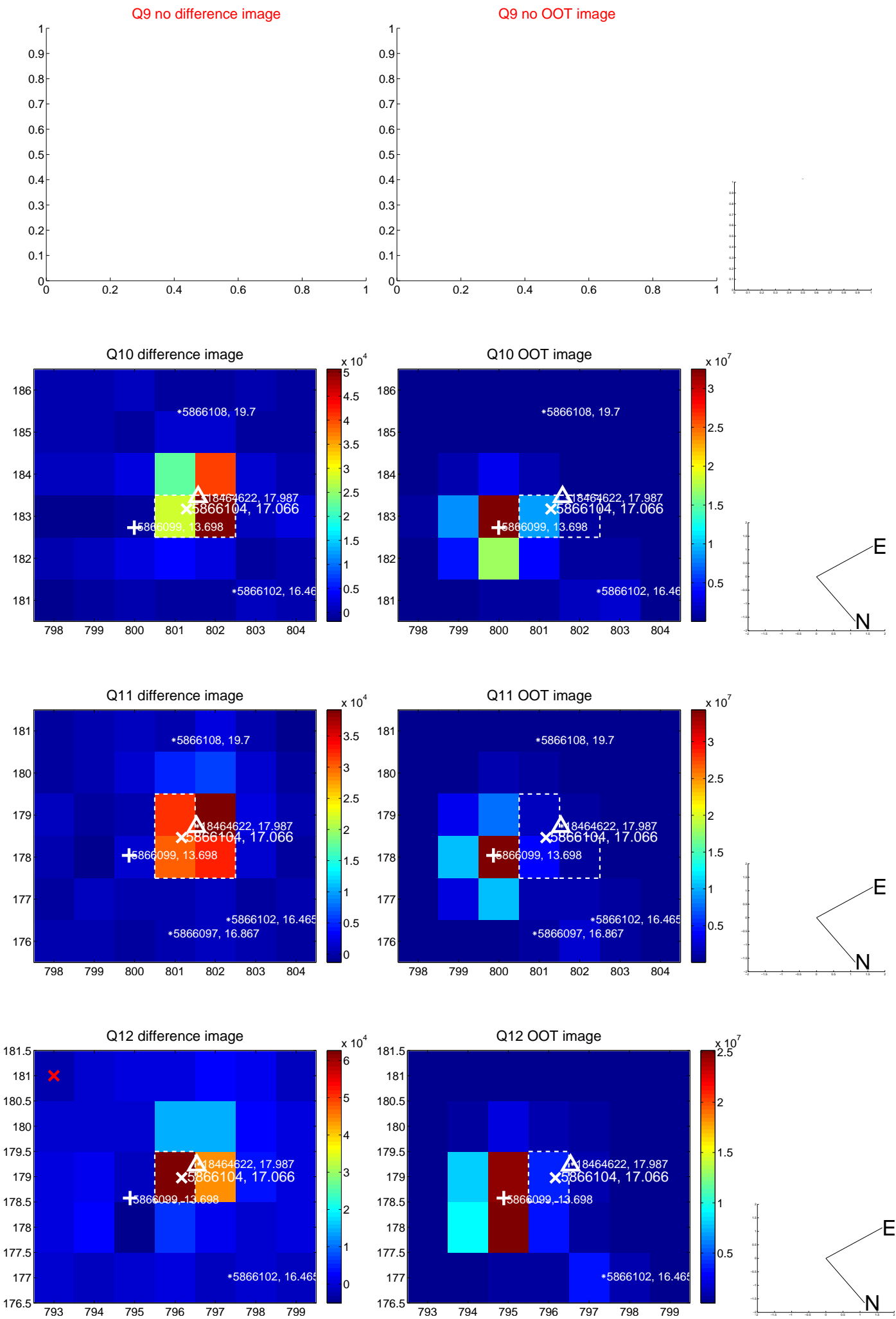
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



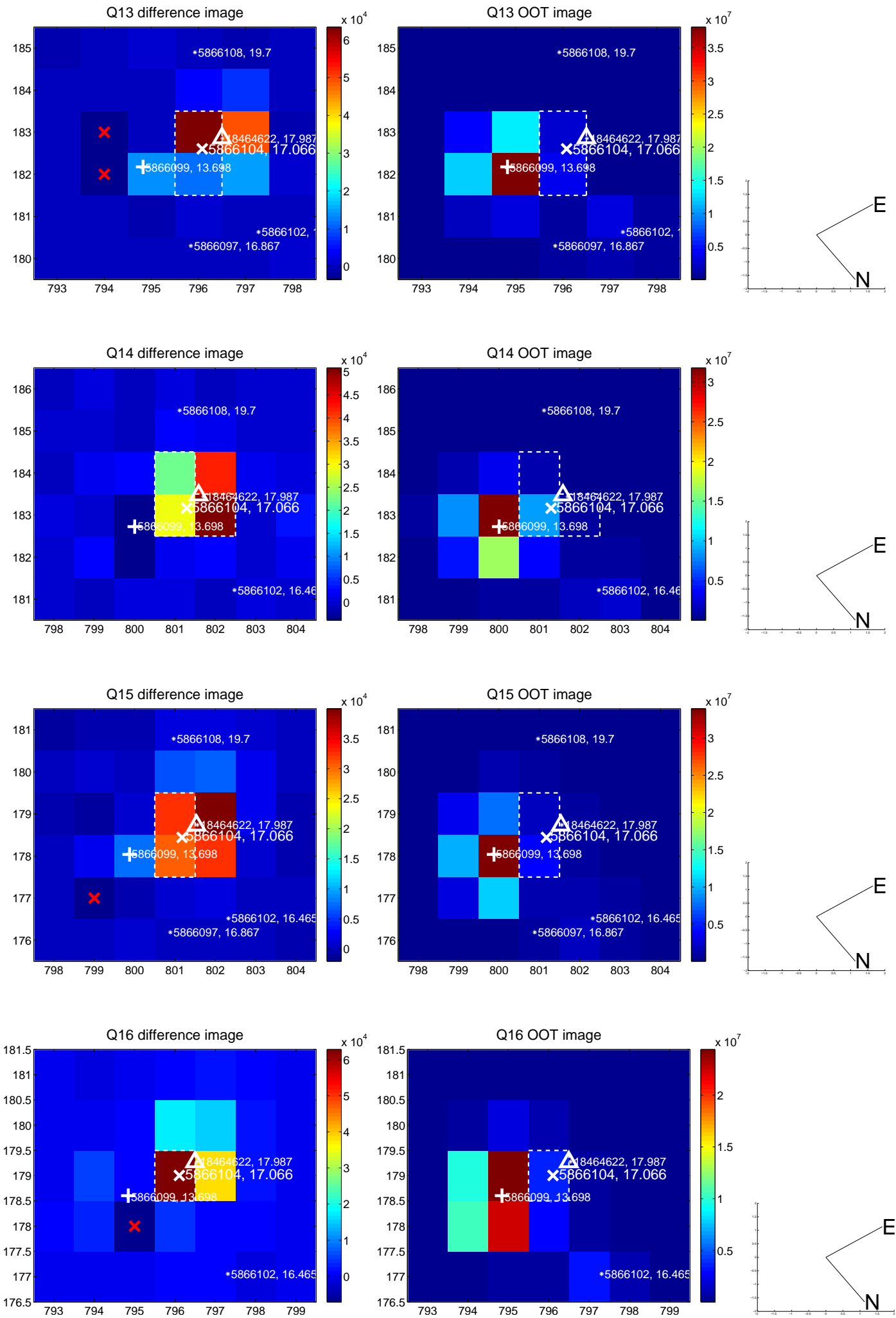
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



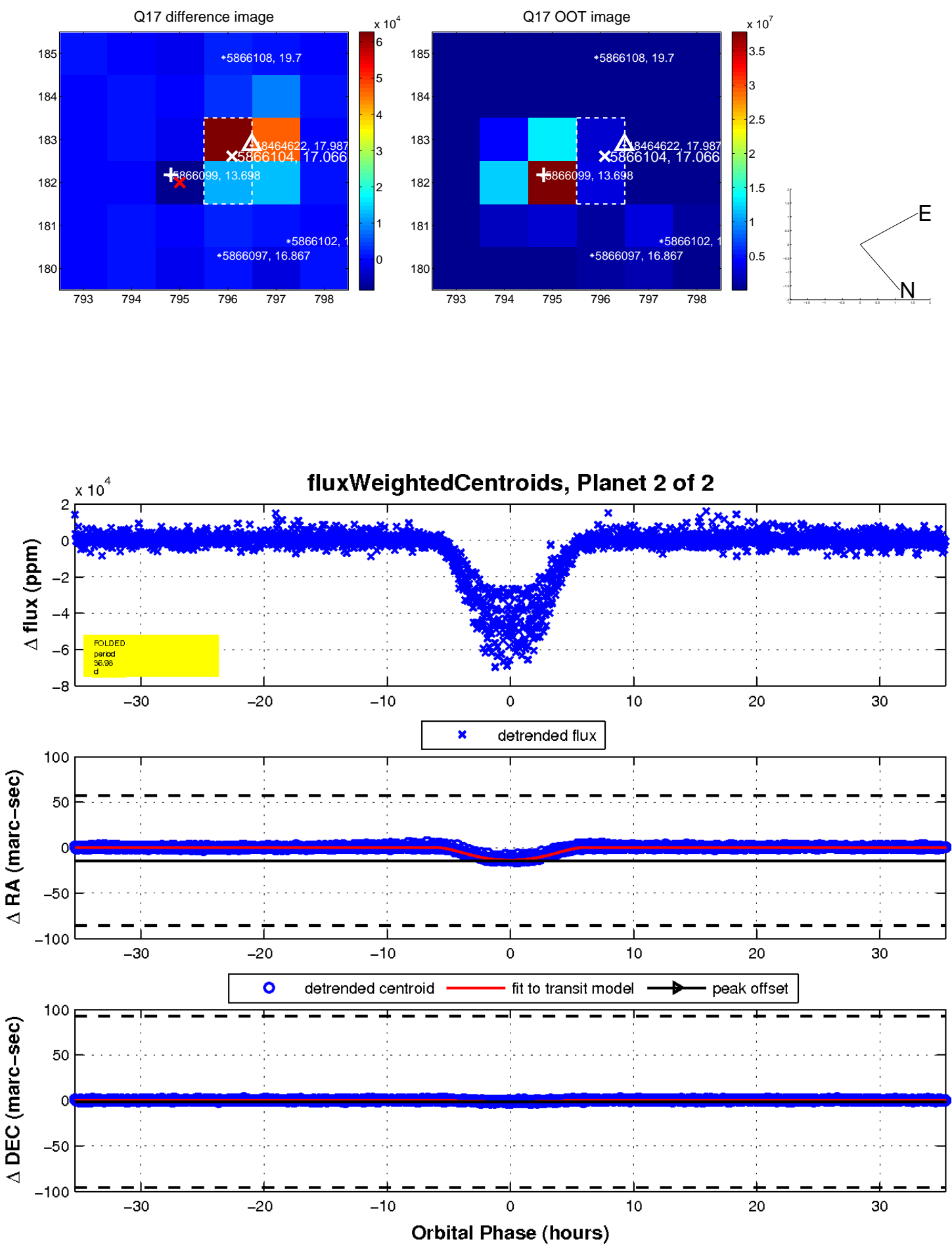
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

