

KIC 006859801

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})
006859801-01	OBS	3321.01	10.882420	132.677097	17589.7	5.373	914.7	517.8	0.71	4946	14.61	37.89
006859801-02	OBS	No	10.882454	136.489531	596.4	4.562	30.8	32.3	0.71	4946	2.98	37.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006859801-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
006859801-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 006859801-01

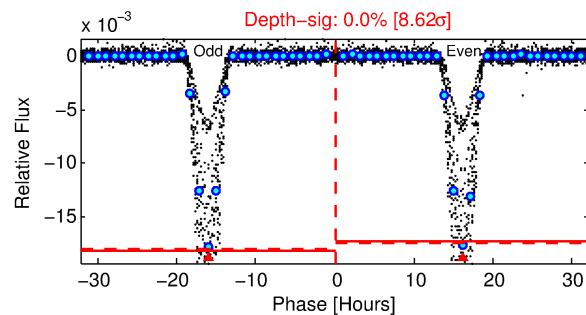
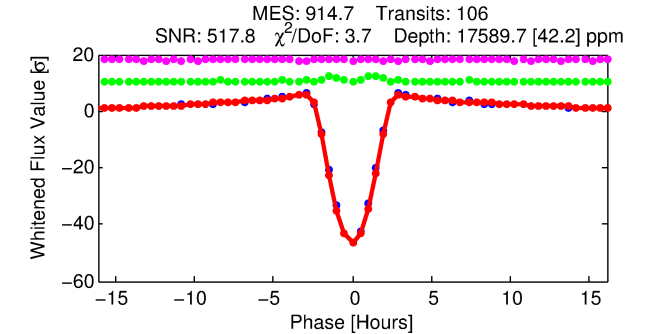
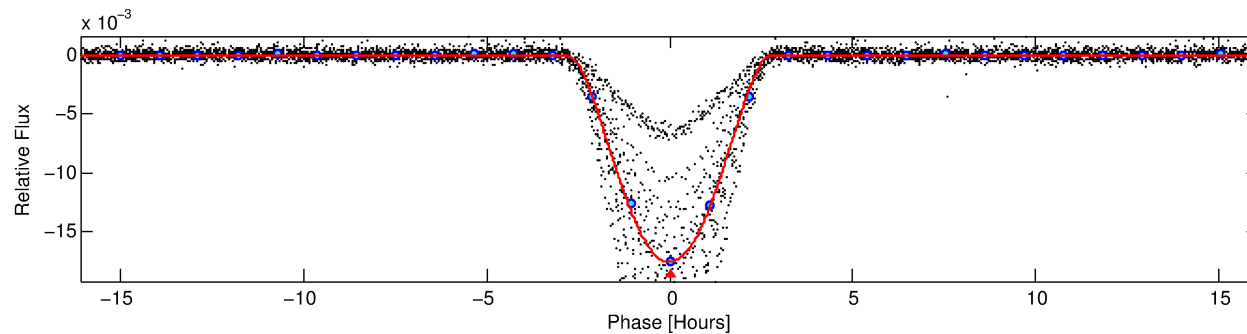
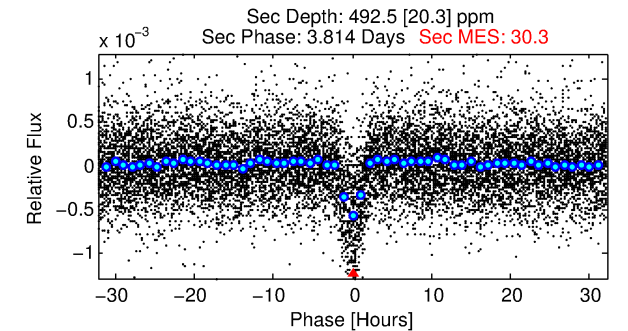
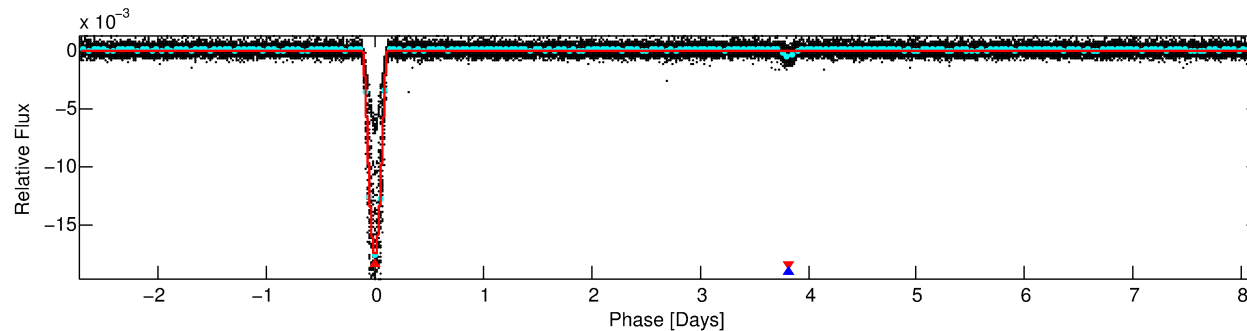
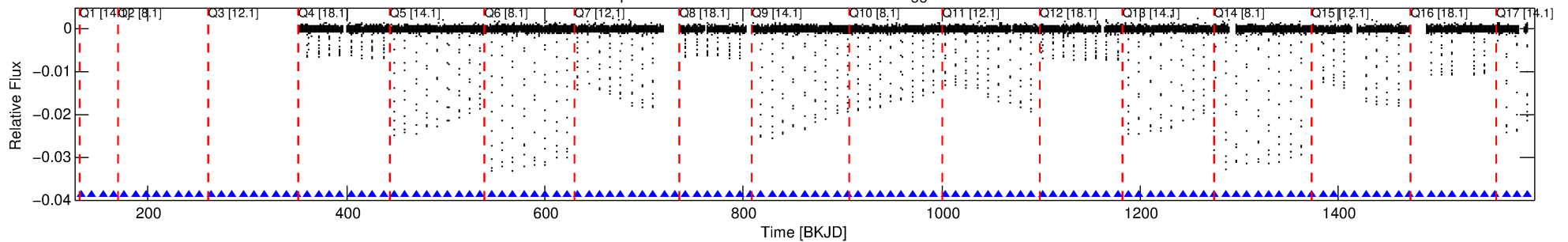
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006859801-01	6859801	6778.01	6859813	1:1	10.0	-2	-2	12.07	14.88	11.81	Direct-PRF	0	0.01	0.01

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 6859801 Candidate: 1 of 2 Period: 10.882 d
KOI: K03321.01 Corr: 0.996

Kp: 14.87 R*: 0.71 Rs Teff: 4946.0 K Logg: 4.57 Fe/H: -0.280



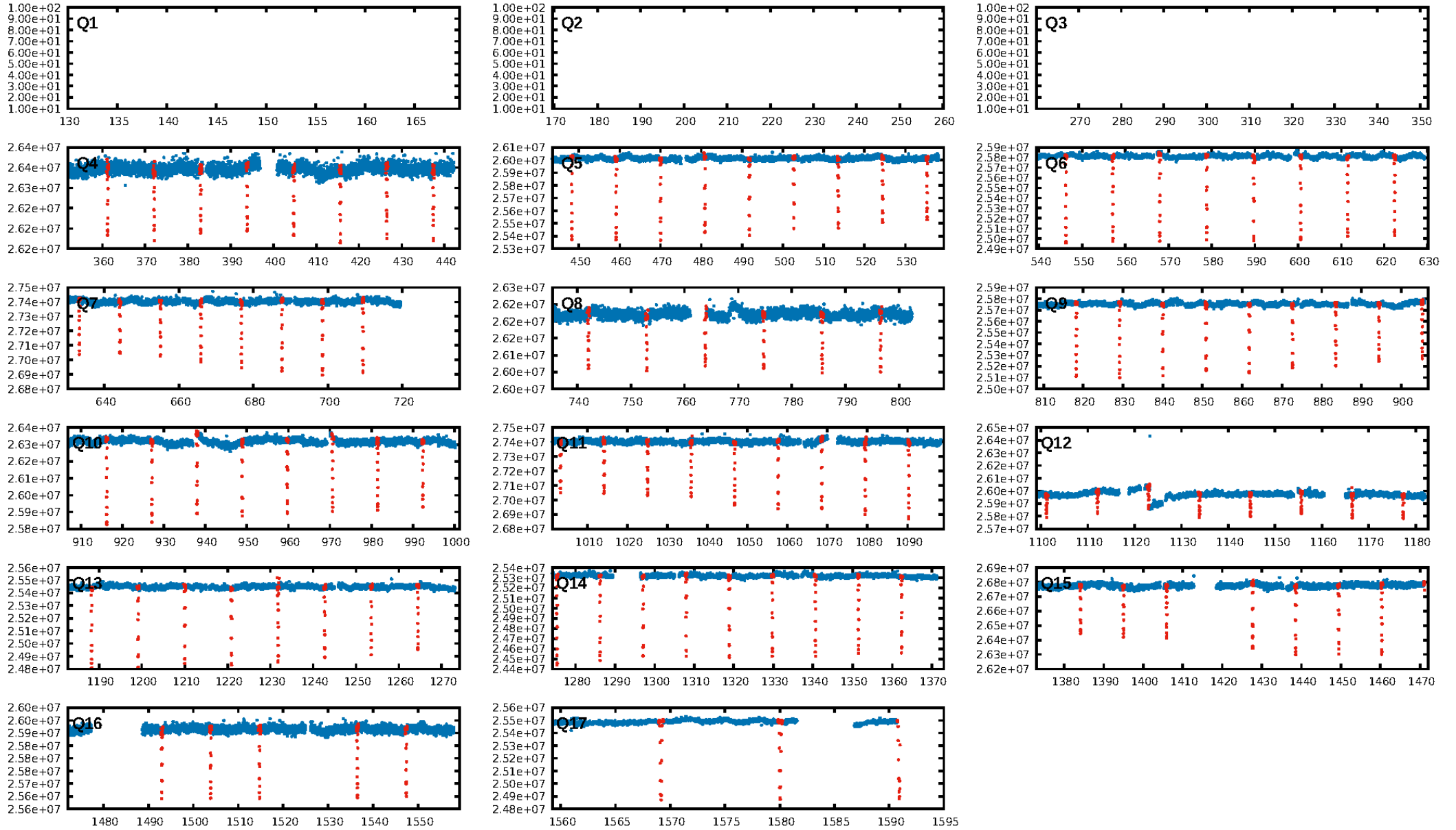
DV Fit Results:

Period = 10.88242 [0.00000] d
Epoch = 132.6771 [0.0003] BKJD
Rp/R* = 0.1872 [0.0127]
a/R* = 11.06 [0.12]
b = 0.95 [0.02]
Seff = 37.89 [7.09]
Teq = 633 [30] K
Rp = 14.61 [1.77] Re
a = 0.0851 [0.0072] AU
Ag = 9.19 [1.71] [4.78σ]
Teffp = 1703 [85] K [11.84σ]

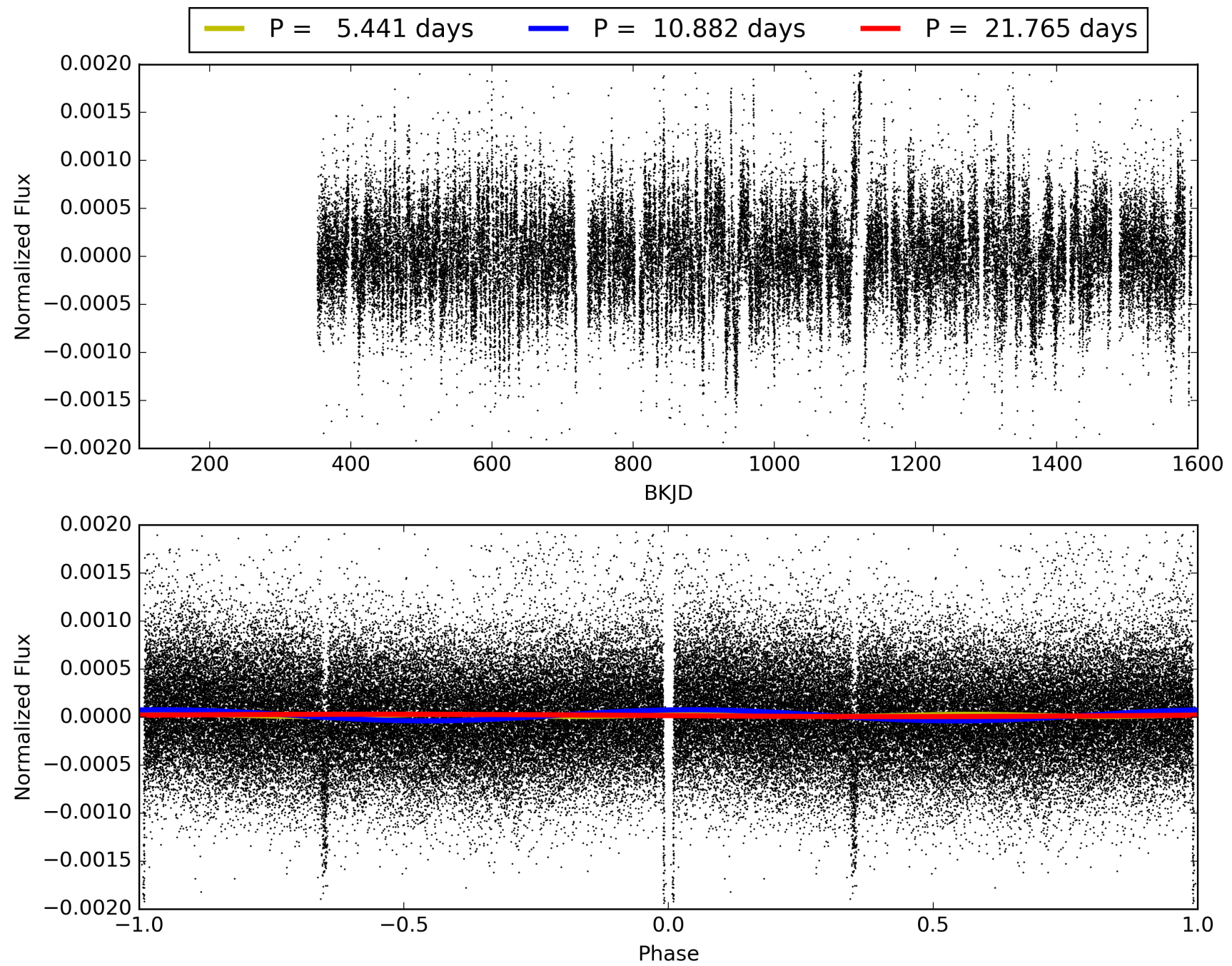
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [103/103]
GhostDiagnostic-chr: -0.4042
Centroid-sig: N/A
Centroid-so: 20.460 arcsec [2714.75σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [14/14]

TCE 006859801-01, PDC Light Curves

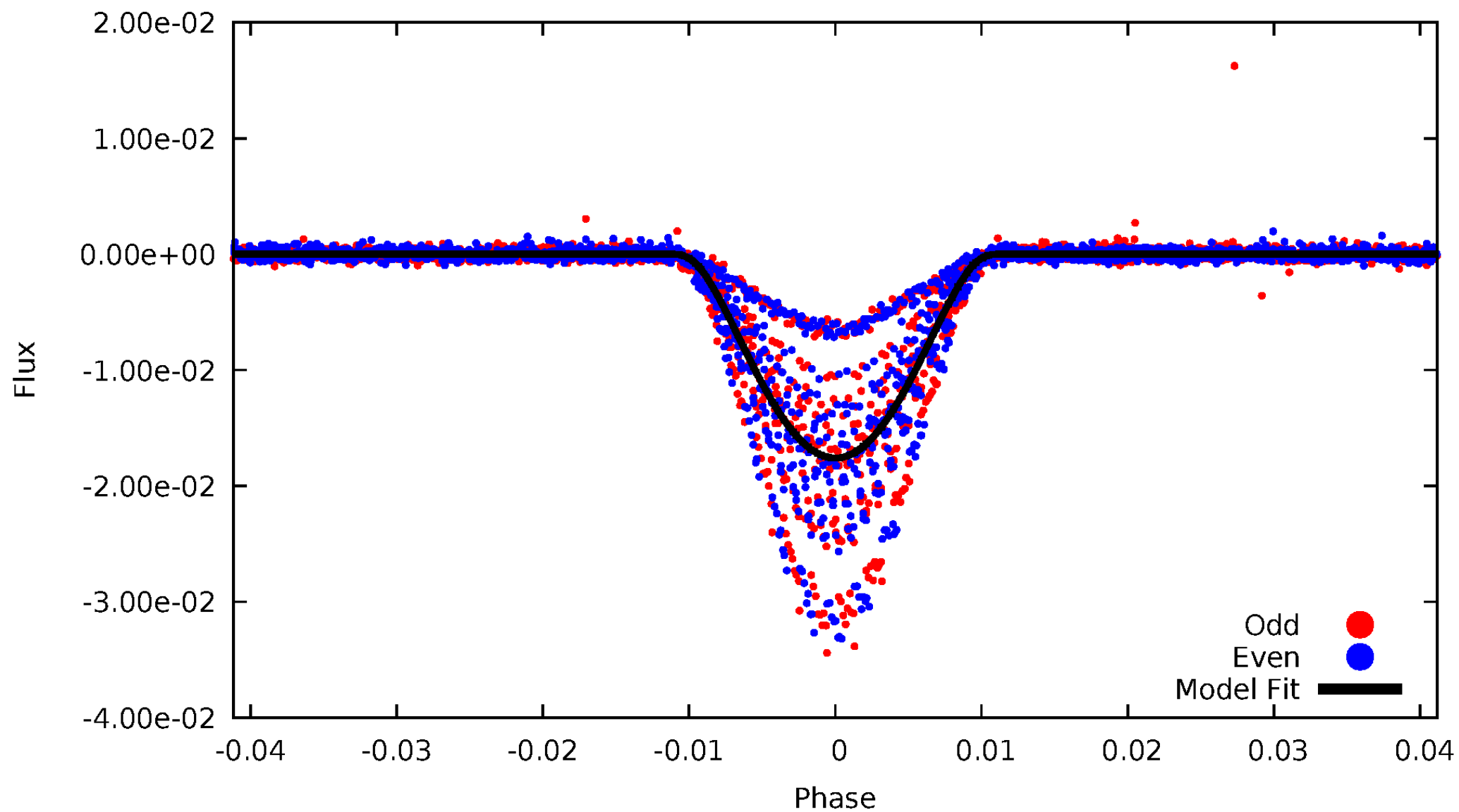


TCE 006859801-01



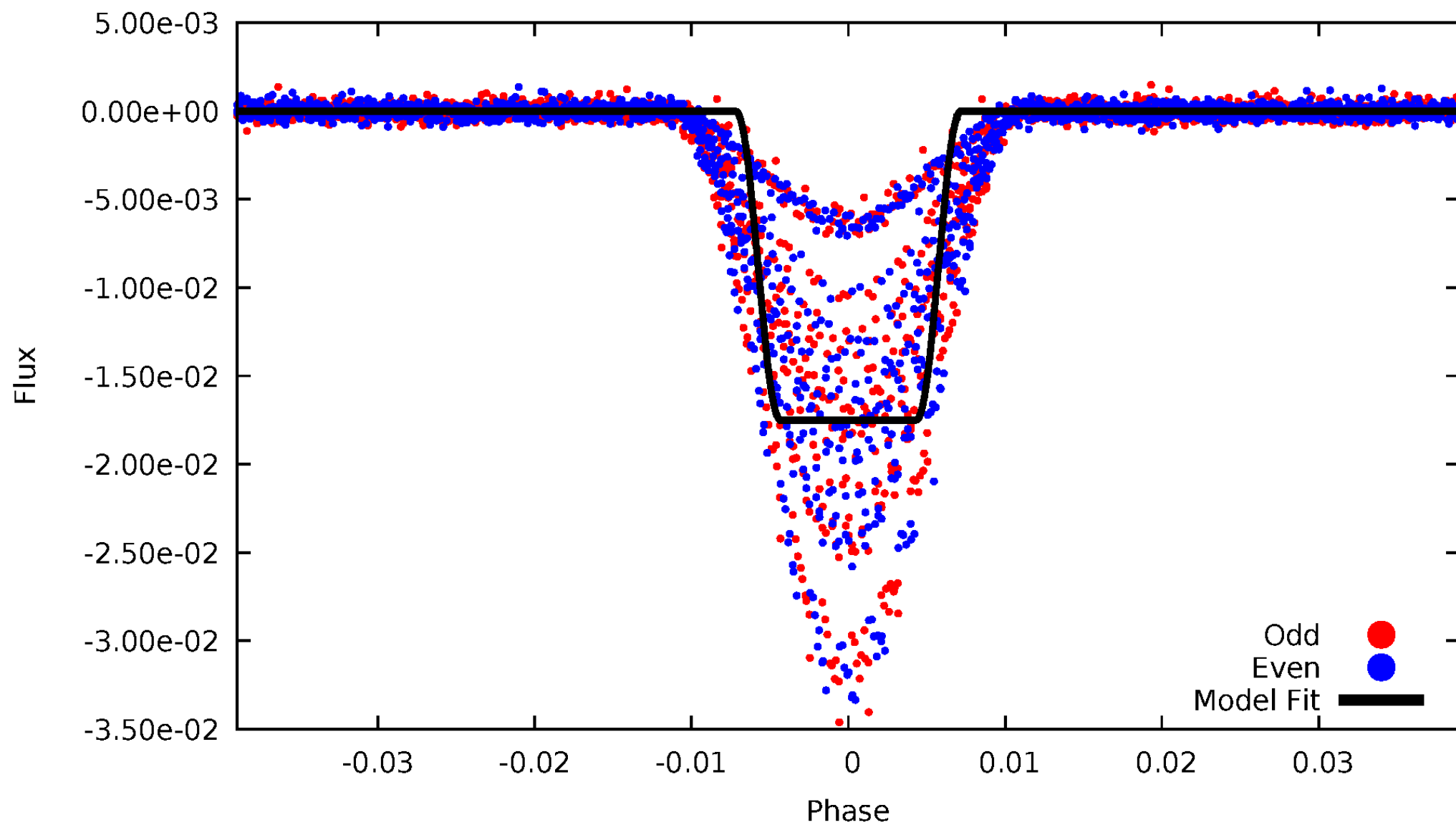
DV Odd/Even

TCE 006859801-01



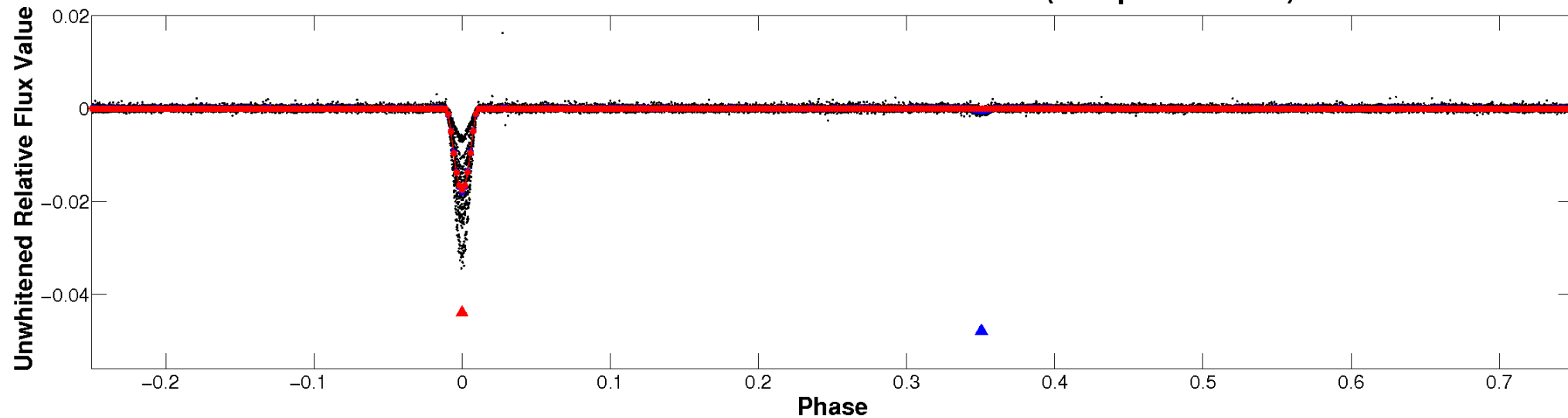
ALT Odd/Even

TCE 006859801-01

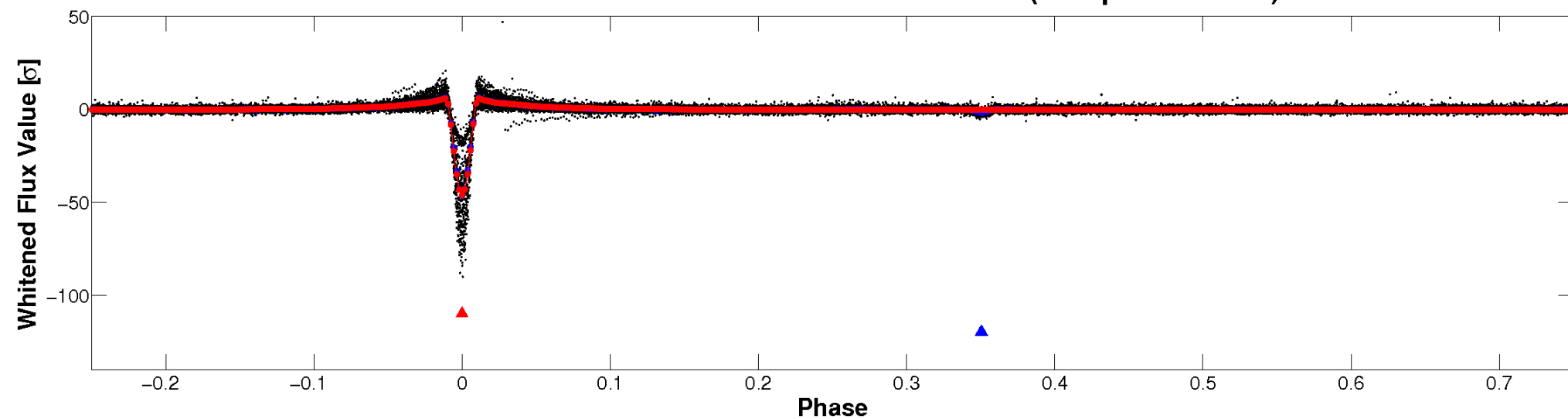


Non-Whitened Vs. Whitened Light Curve

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

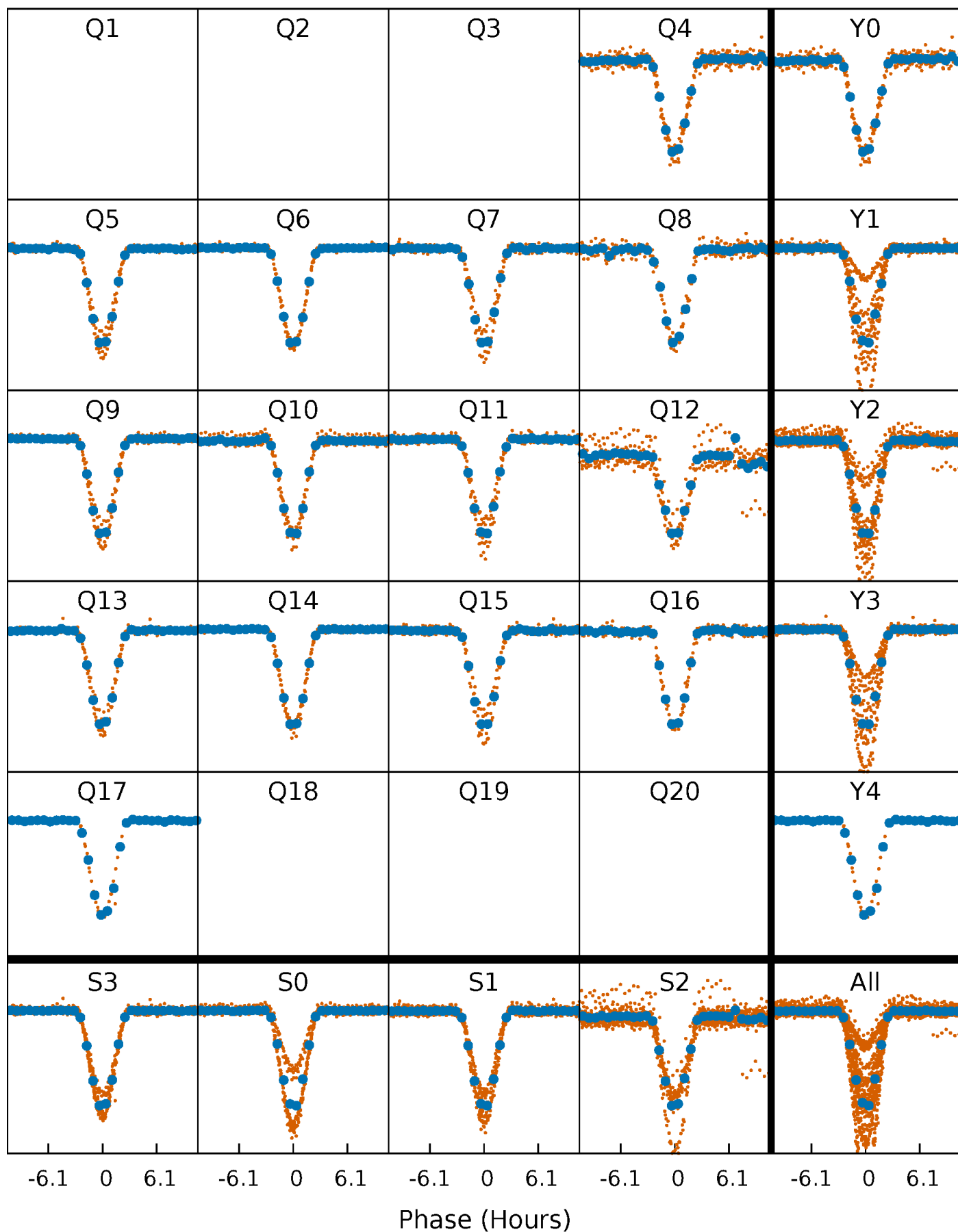


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



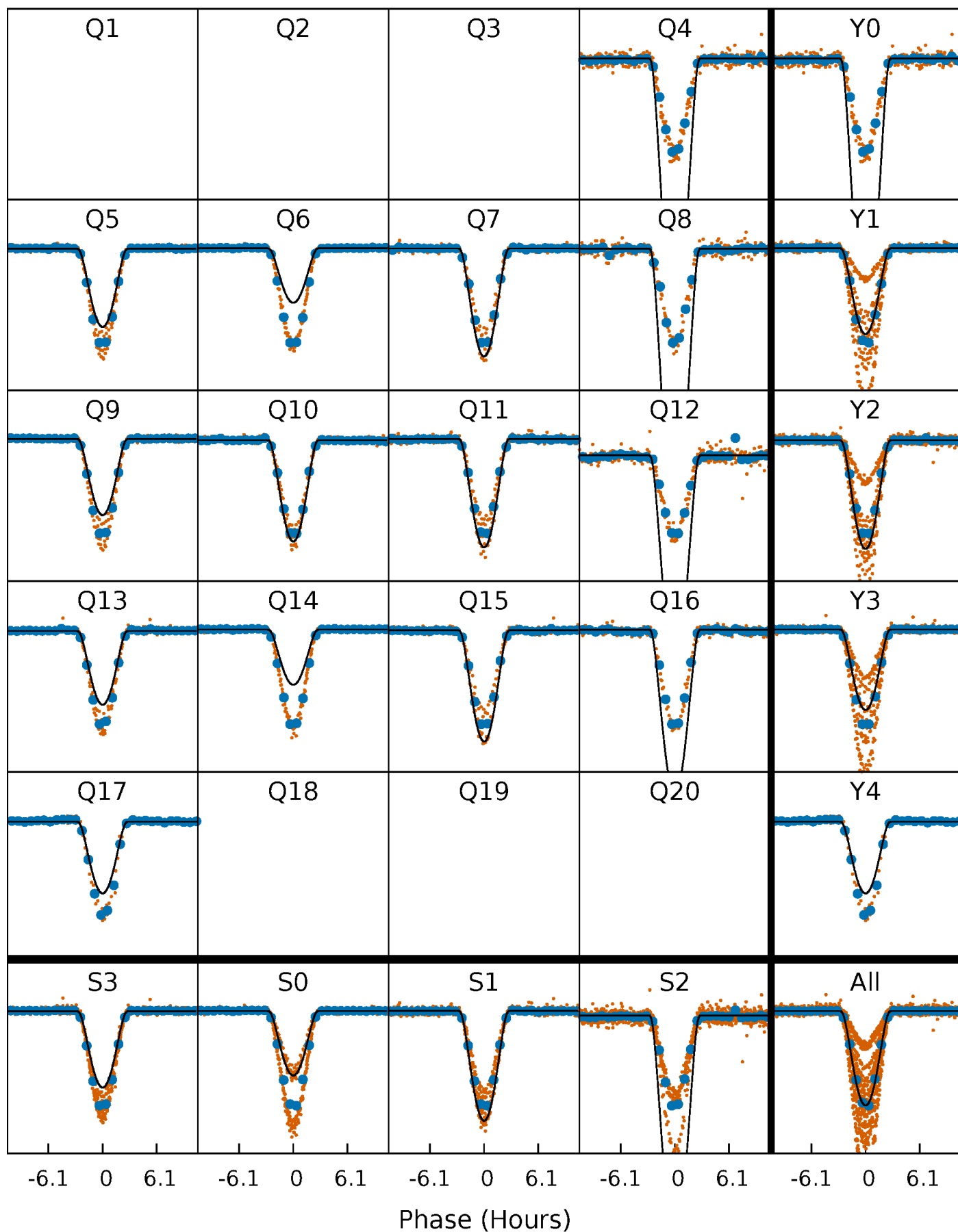
PDC Quarter-Phased Transit Curves

TCE 006859801-01 P= 10.882420 Days $T_0=132.677097$ (BKJD)



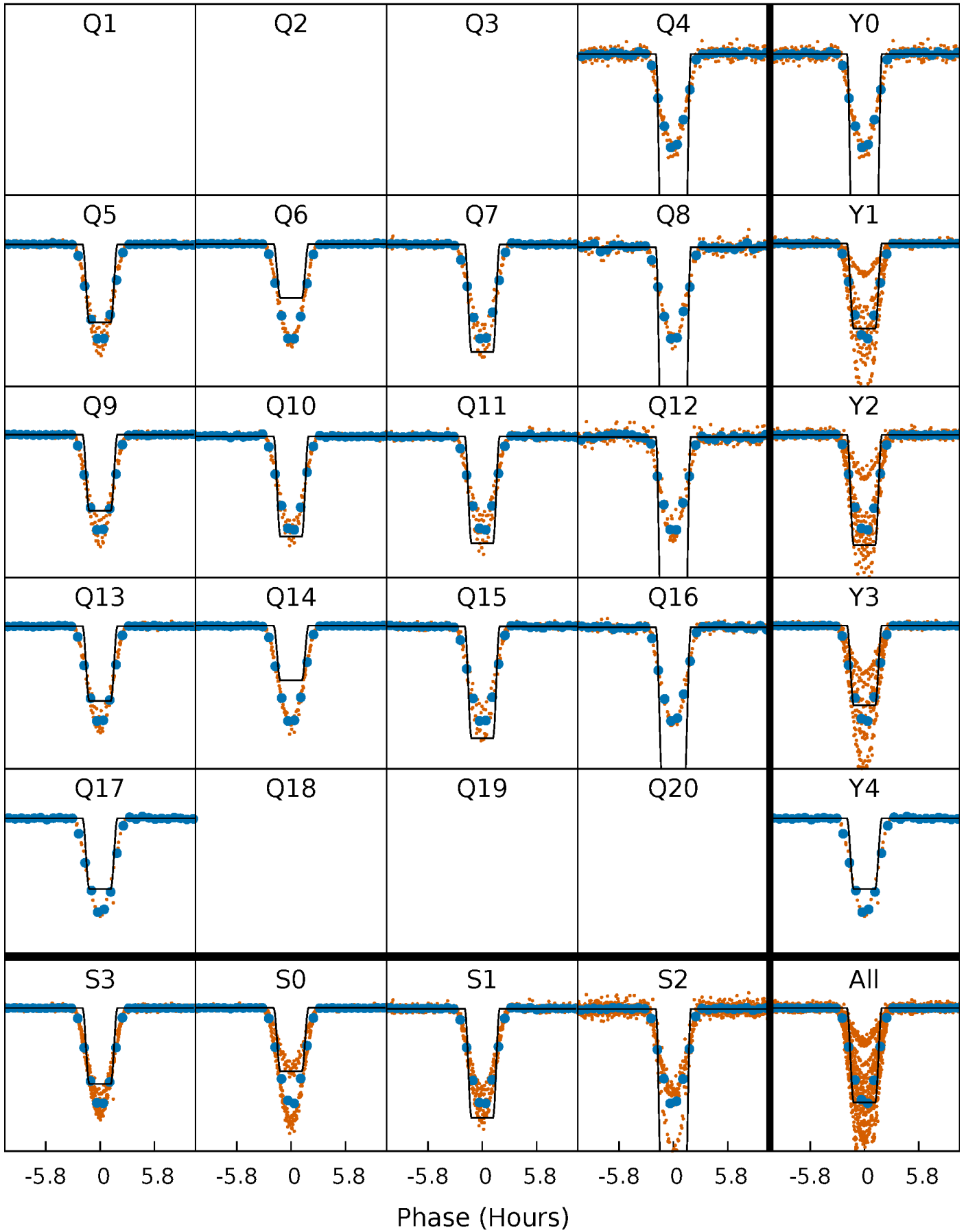
DV Quarter-Phased Transit Curves

TCE 006859801-01 P= 10.882420 Days $T_0=132.677097$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

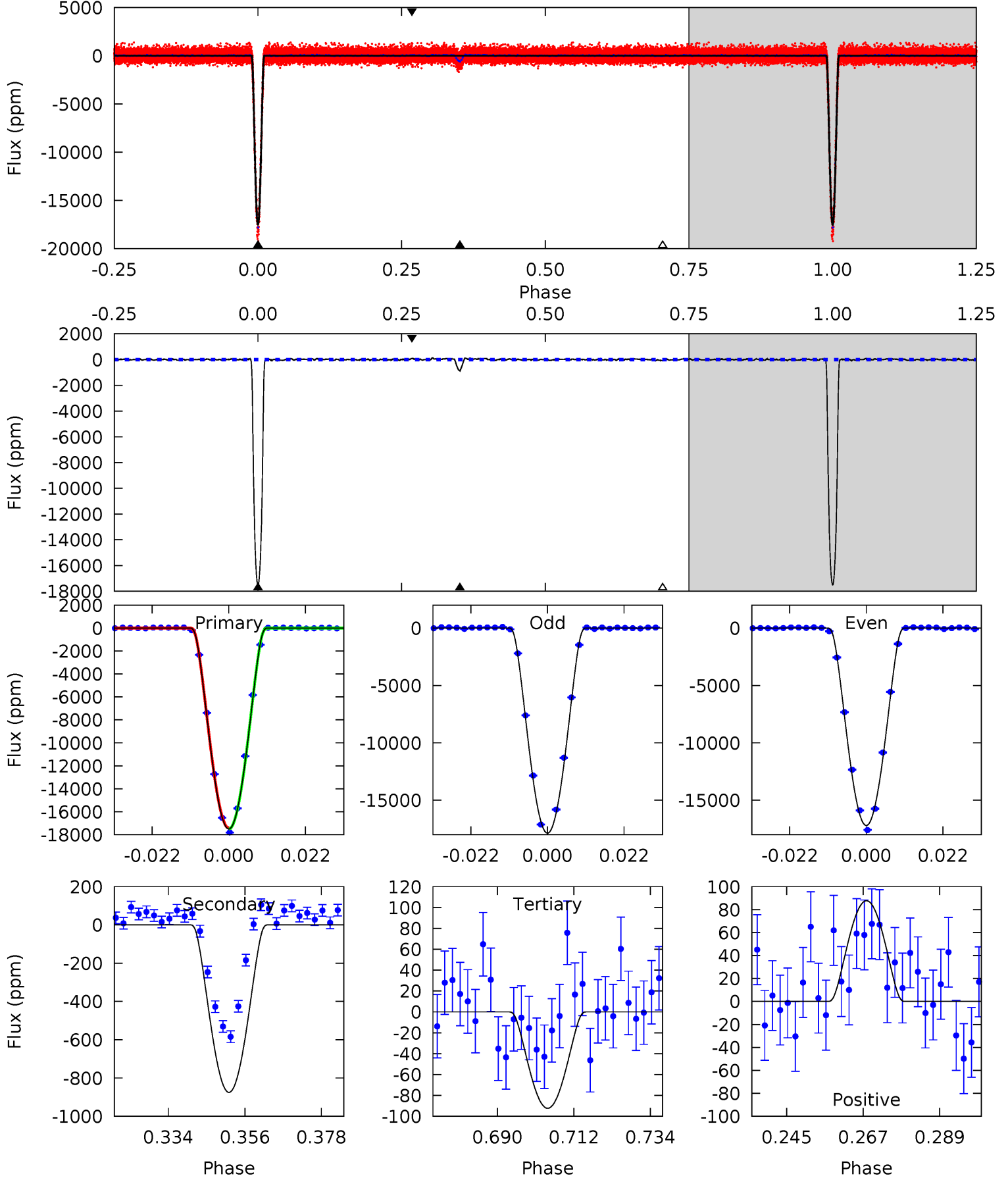
TCE 006859801-01 P= 10.882425 Days $T_0=132.676703$ (BKJD)



DV Model-Shift Uniqueness Test

006859801-01, P = 10.882420 Days, E = 132.677097 Days

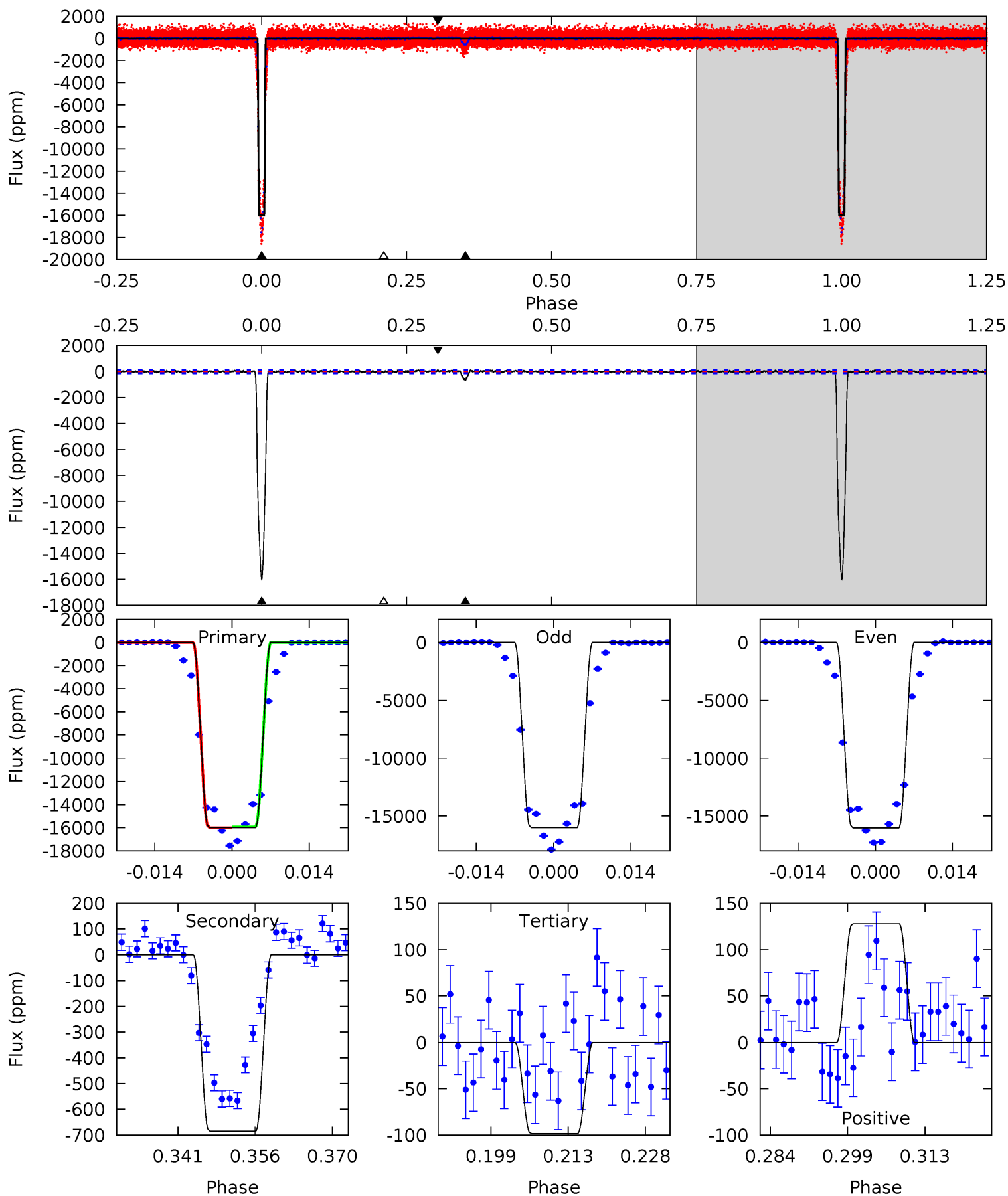
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1228	61.4	6.48	6.15	4.87	2.29	2.47	1222	1222	54.9	55.3	23.1	1.01	0.01	0



Alt Model-Shift Uniqueness Test

006859801-01, P = 10.882425 Days, E = 132.676703 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
598.7	25.6	3.68	4.78	4.96	2.45	1.25	595.0	593.9	21.9	20.8	0.42	1.01	0.01	1.37



Stellar Parameters For KIC 006859801

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4946^{+176}_{-176}	$4.570^{+0.066}_{-0.044}$	$-0.280^{+0.300}_{-0.300}$	$0.715^{+0.065}_{-0.072}$	$0.694^{+0.093}_{-0.050}$	$2.671^{+0.804}_{-0.430}$
	+4%/-4%	+1%/-1%	+107%/-107%	+9%/-10%	+13%/-7%	+30%/-16%
Source	KIC0	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 006859801-01 / KOI 3321.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-875 ± 14	$14.57^{+1.20}_{-1.16}$	881^{+34}_{-36}	2703^{+79}_{-76}	17^{+3}_{-2}
Alt.	-685 ± 27	$10.33^{+1.13}_{-1.10}$	879^{+37}_{-37}	2866^{+107}_{-94}	26^{+7}_{-5}

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

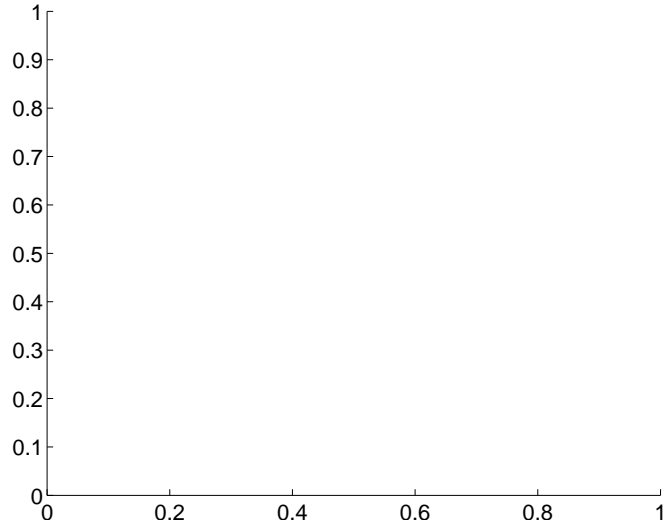
Supplemental centroid analysis for 006859801-01. Kepler magnitude: 14.87. Transit SNR 517.76

There are 0 quarters with good PRF difference image offsets

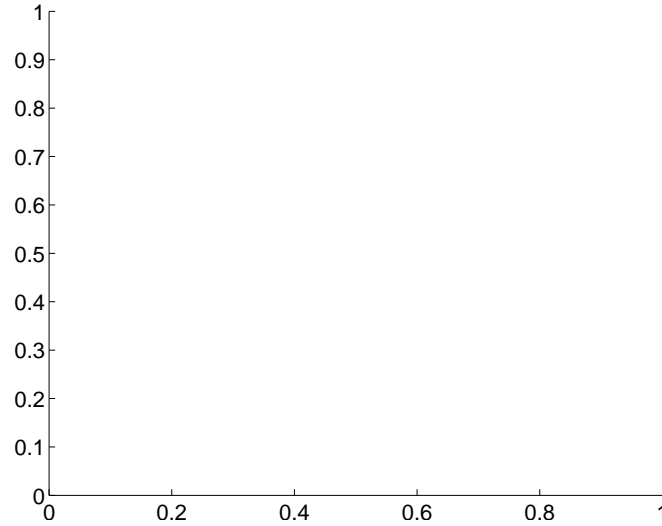
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	20.46 ± 0.01	2714.75	20.26 ± 0.01	-2.89 ± 0.00

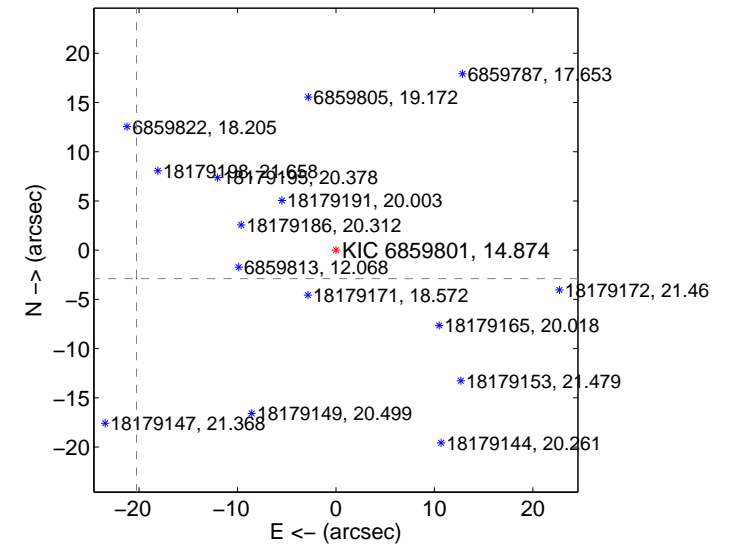
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

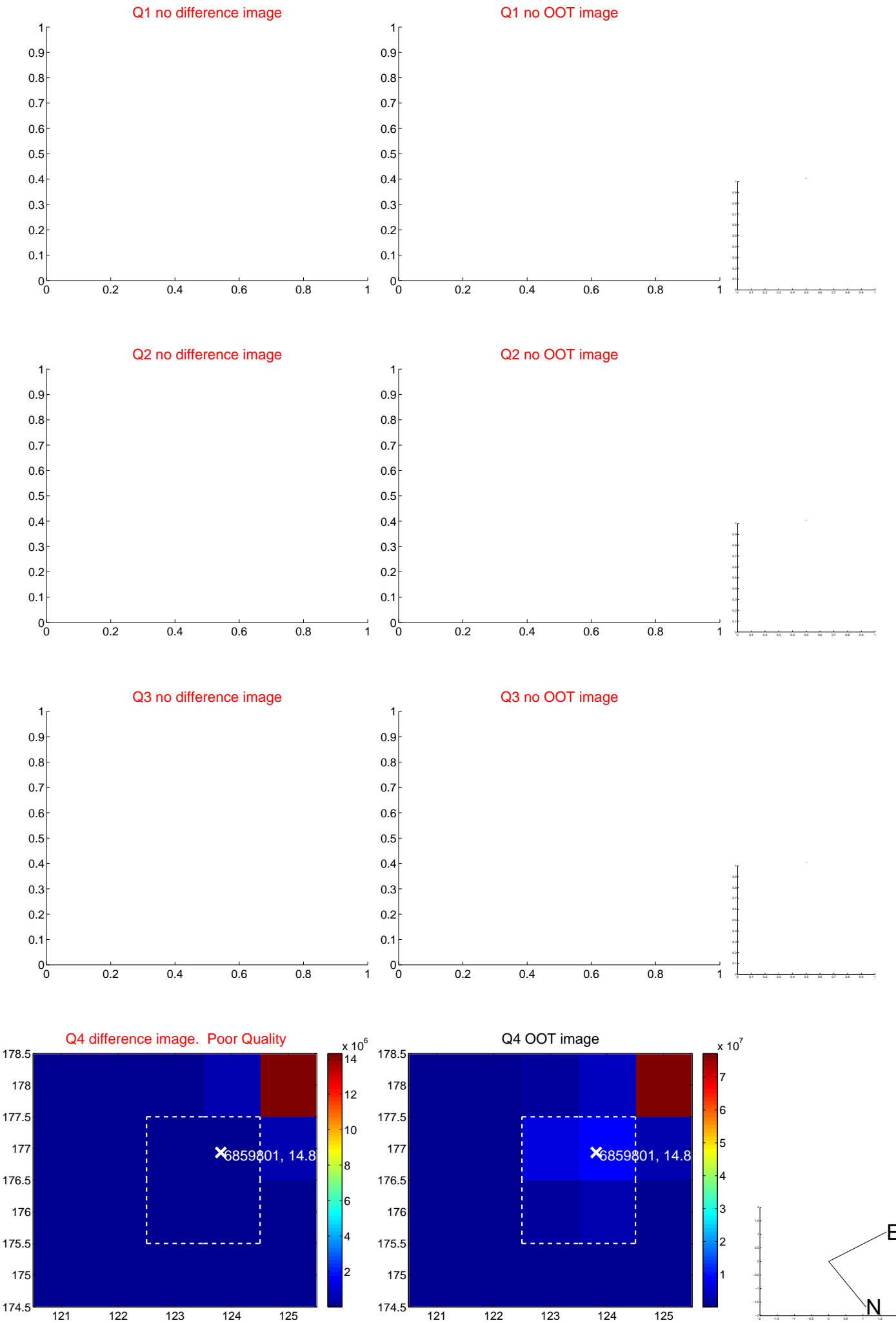


offset from photometric centroids

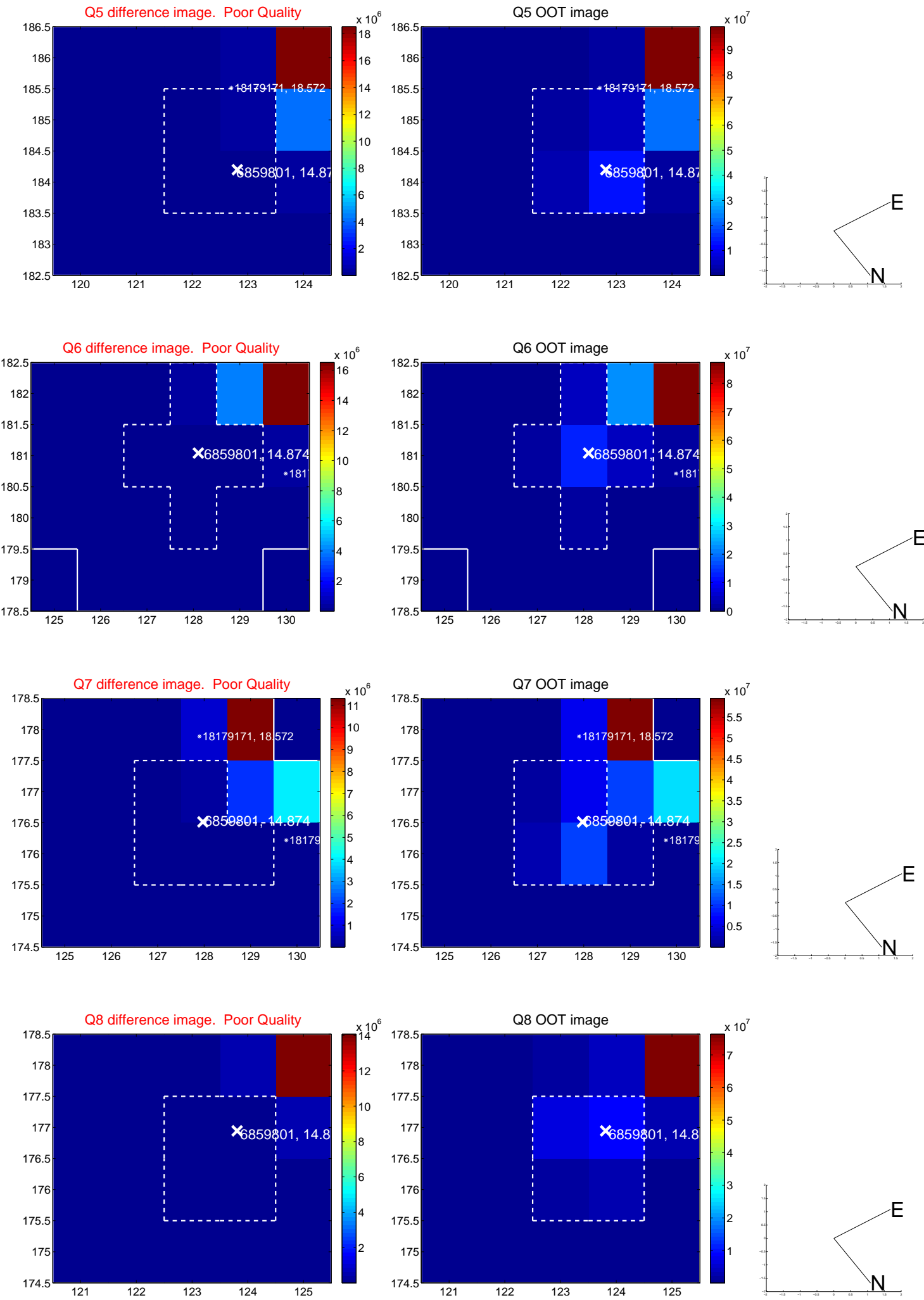


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

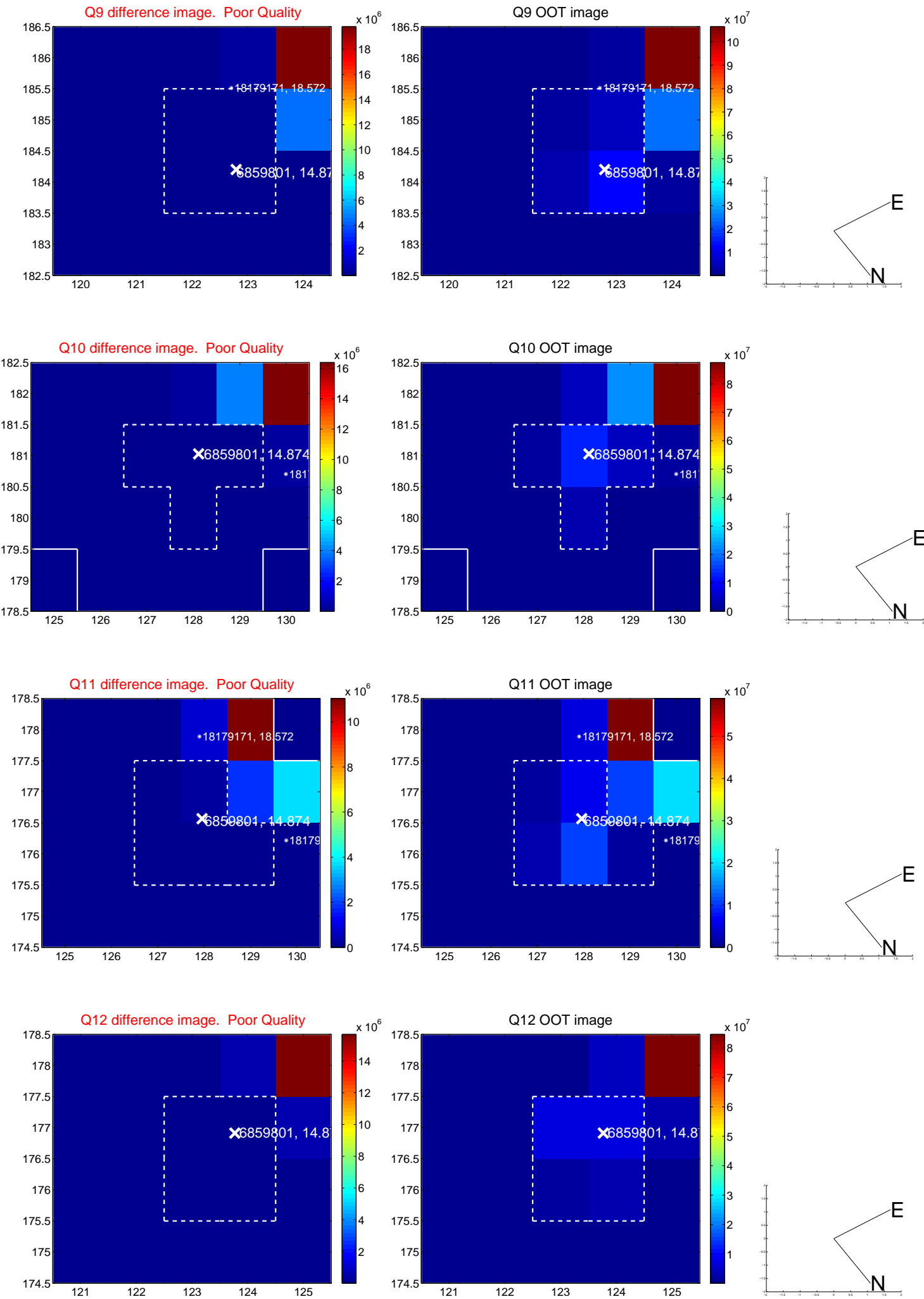
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



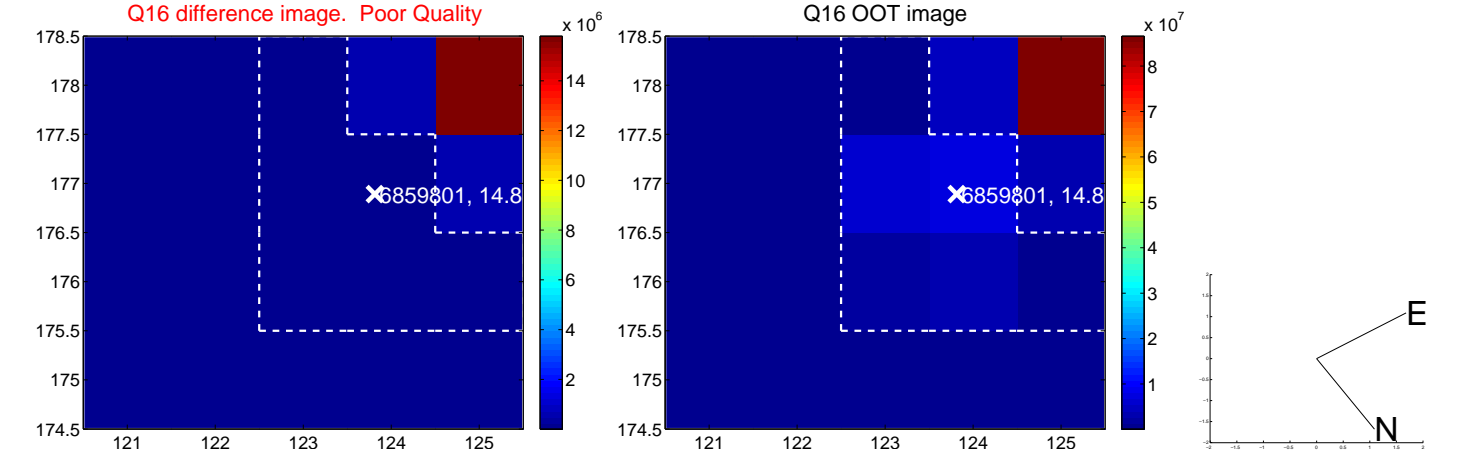
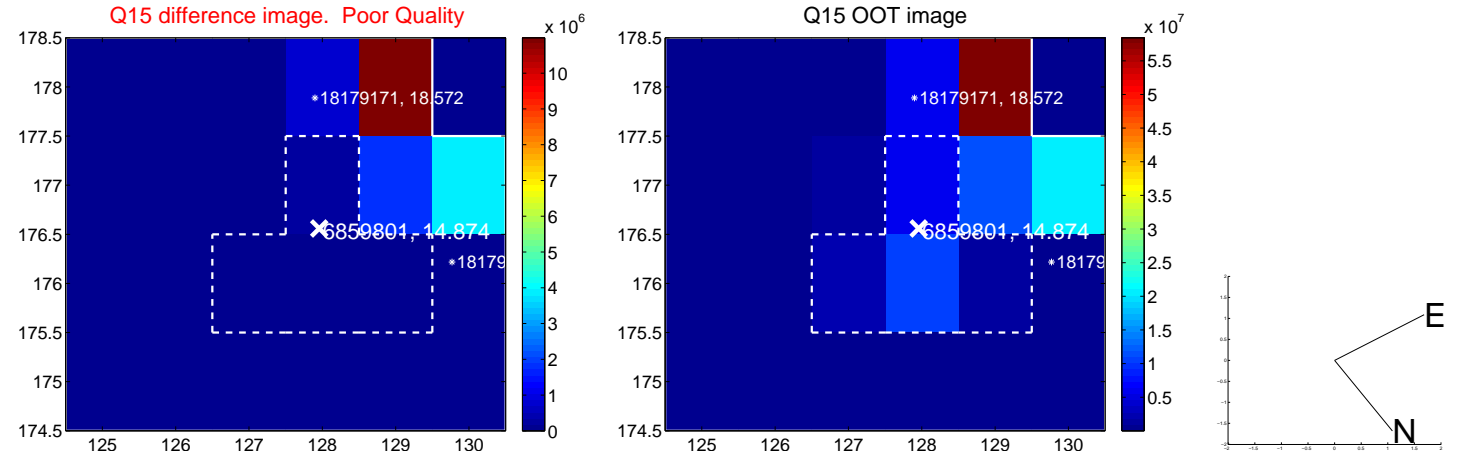
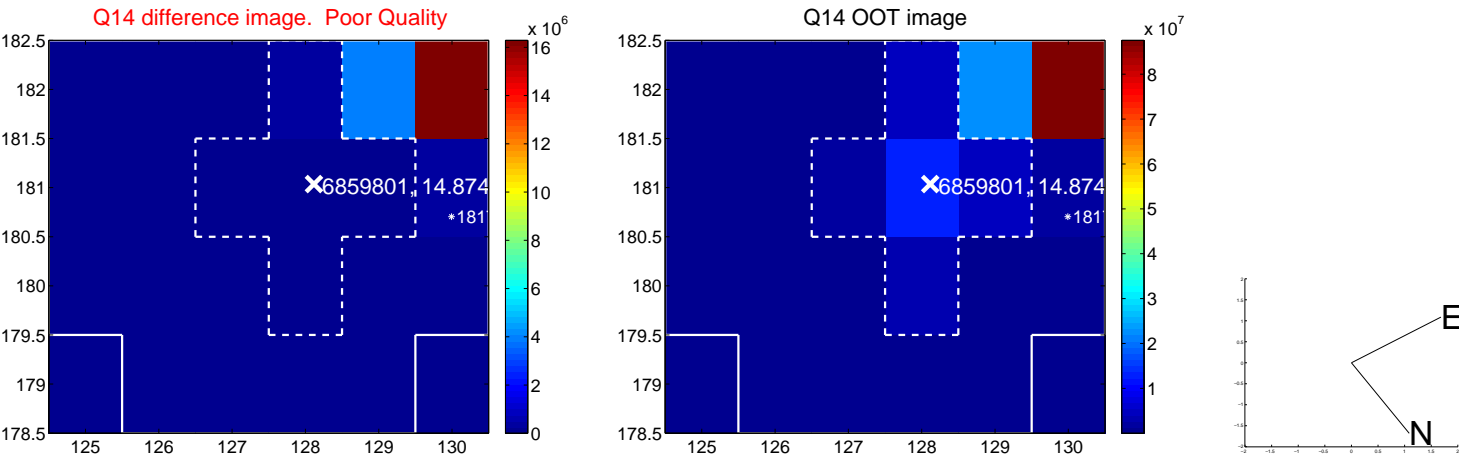
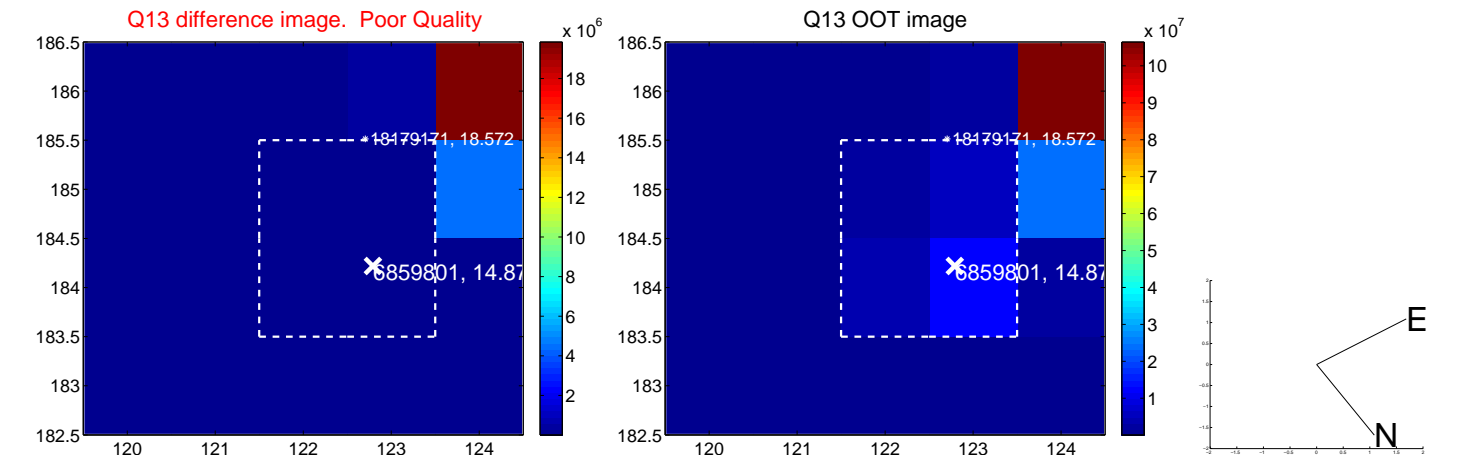
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



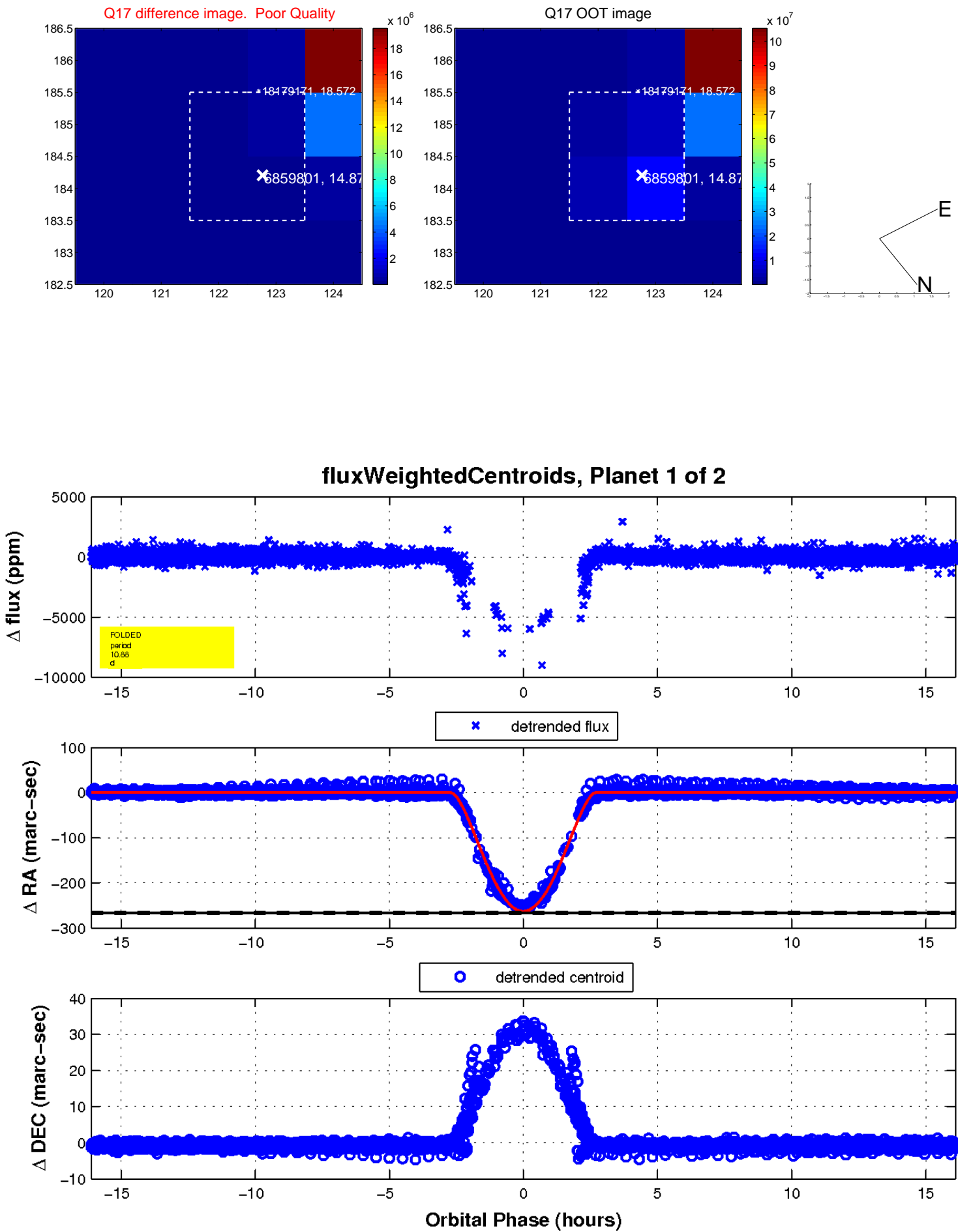
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

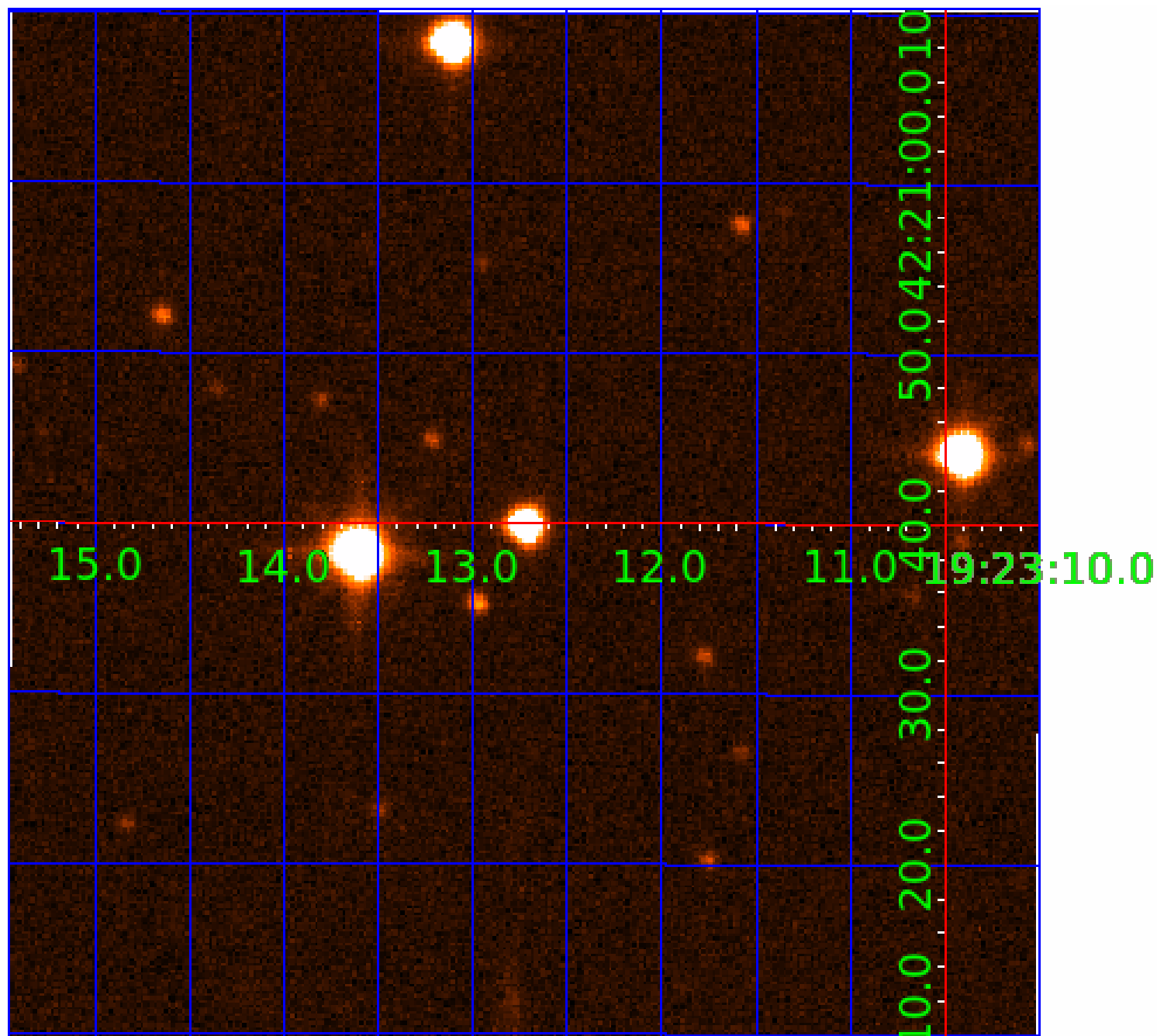


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006859801

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})
006859801-01	OBS	3321.01	10.882420	132.677097	17589.7	5.373	914.7	517.8	0.71	4946	14.61	37.89
006859801-02	OBS	No	10.882454	136.489531	596.4	4.562	30.8	32.3	0.71	4946	2.98	37.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006859801-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
006859801-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 006859801-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
006859801-02	6859801	006859813-02	6859813	1:1	10.0	-2	-2	12.07	14.88	12.08	Direct-PRF	0	0.15	0.10

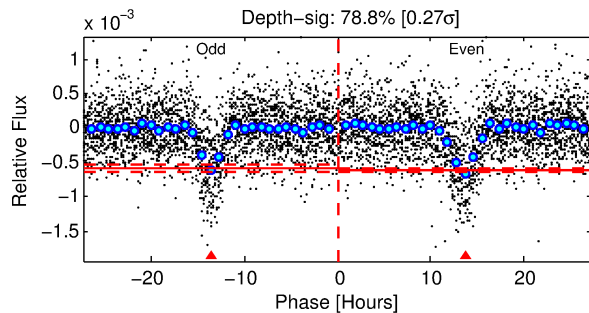
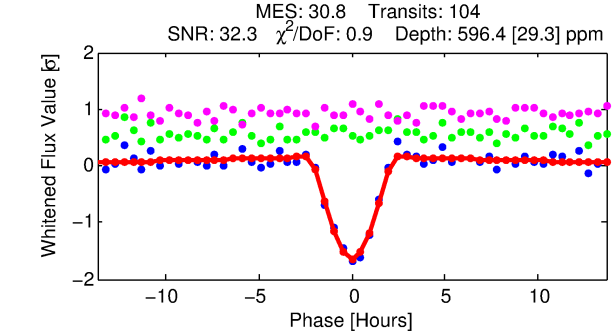
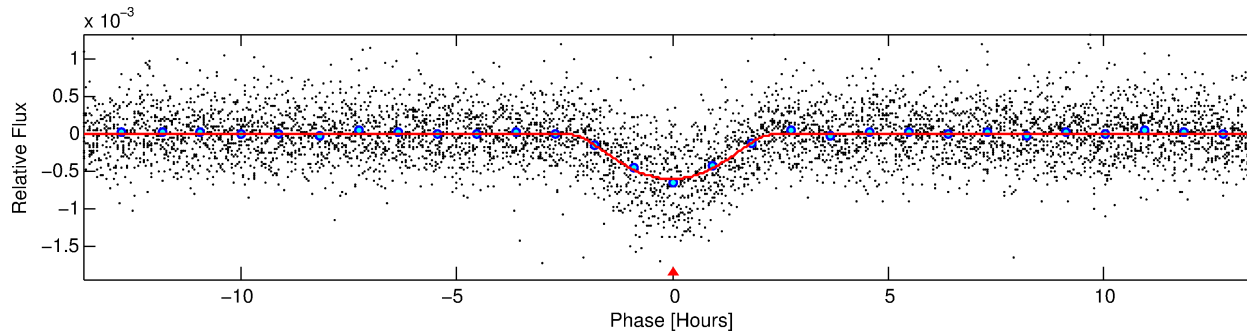
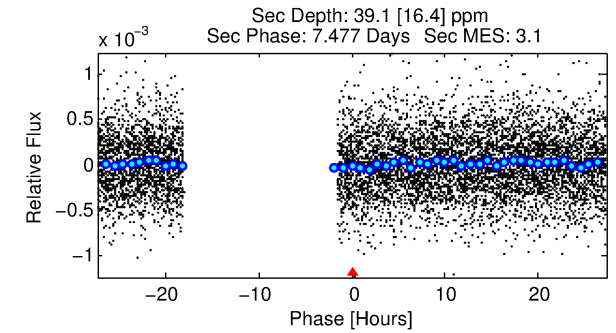
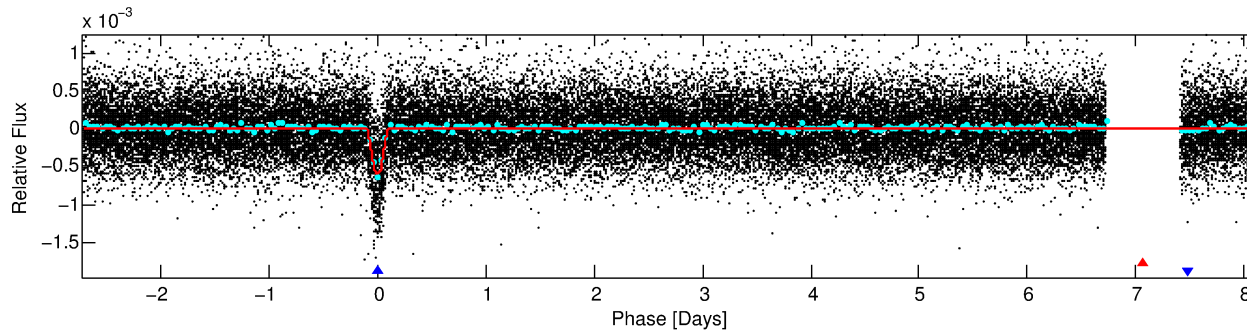
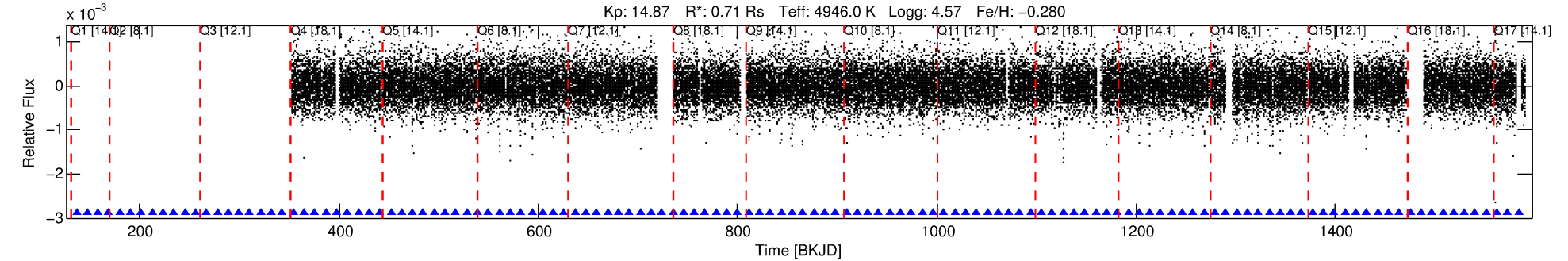
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 6859801 Candidate: 2 of 2 Period: 10.882 d

KOI: K03321 Corr: No Ephemeris Match

Kp: 14.87 R*: 0.71 Rs Teff: 4946.0 K Logg: 4.57 Fe/H: -0.280



DV Fit Results:

Period = 10.88245 [0.00005] d
Epoch = 136.4895 [0.0040] BKJD
Rp/R* = 0.0382 [0.0211]
a/R* = 5.96 [1.10]
b = 0.99 [0.04]
Seff = 37.89 [7.09]
Teq = 633 [30] K
Rp = 2.98 [1.67] Re
a = 0.0851 [0.0072] AU
Ag = 17.52 [20.80] [0.79σ]
Teffp = 2001 [595] K [2.30σ]

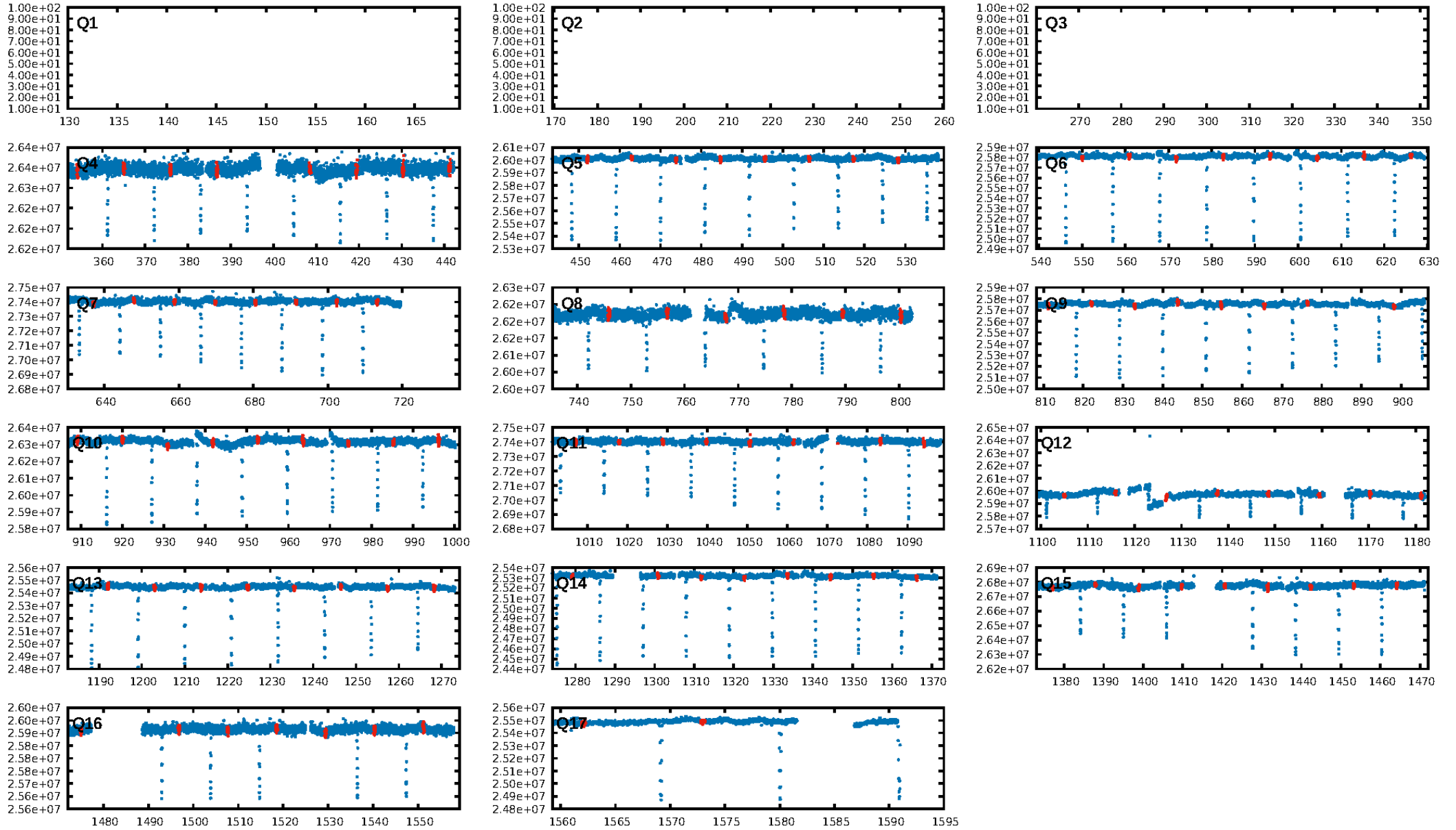
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.77e-200
RollingBand-fgt: 1.00 [102/102]
GhostDiagnostic-chr: -0.6704
Centroid-sig: N/A
Centroid-so: 19.321 arcsec [85.74σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [14/14]

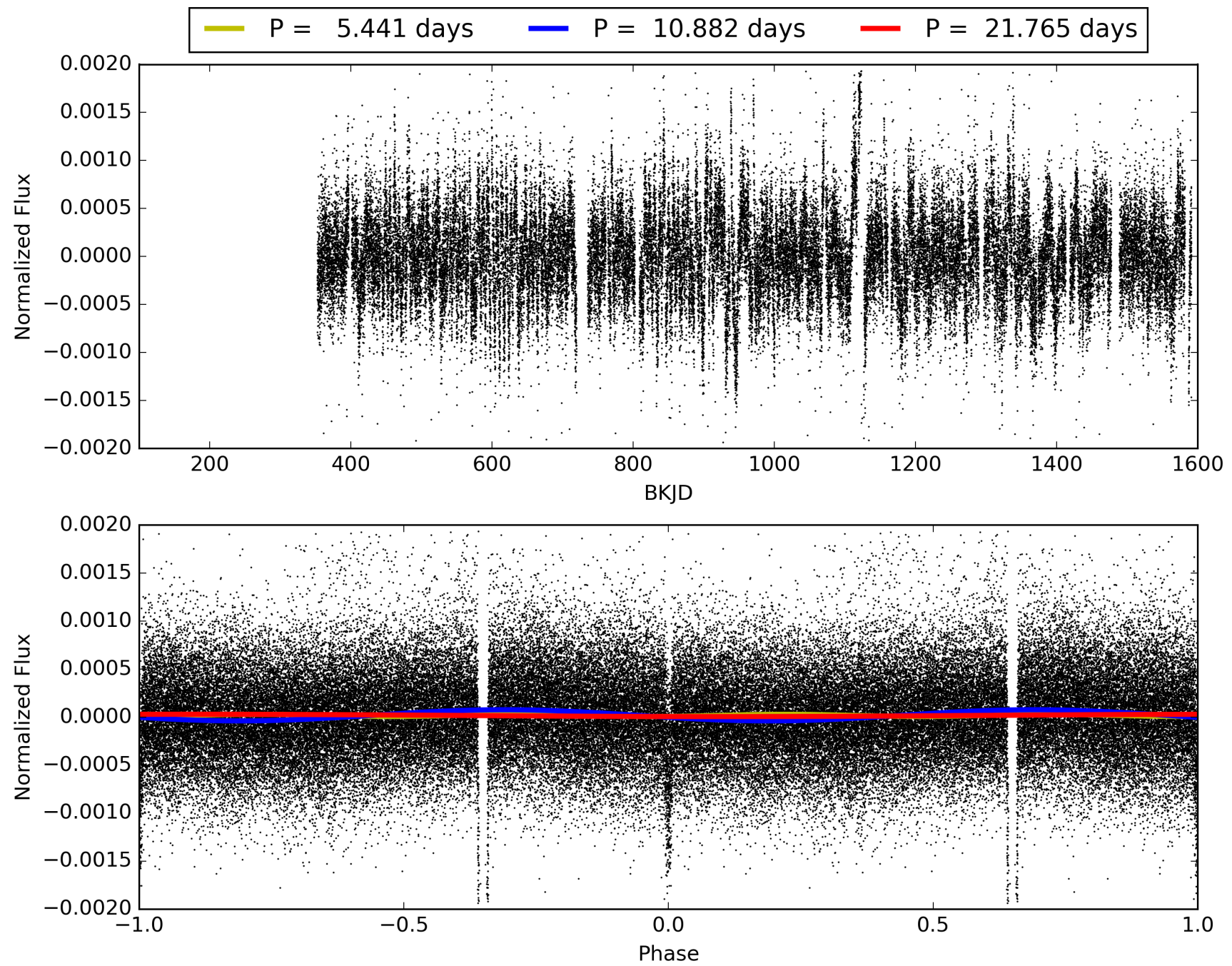
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:58:32 Z

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

TCE 006859801-02, PDC Light Curves

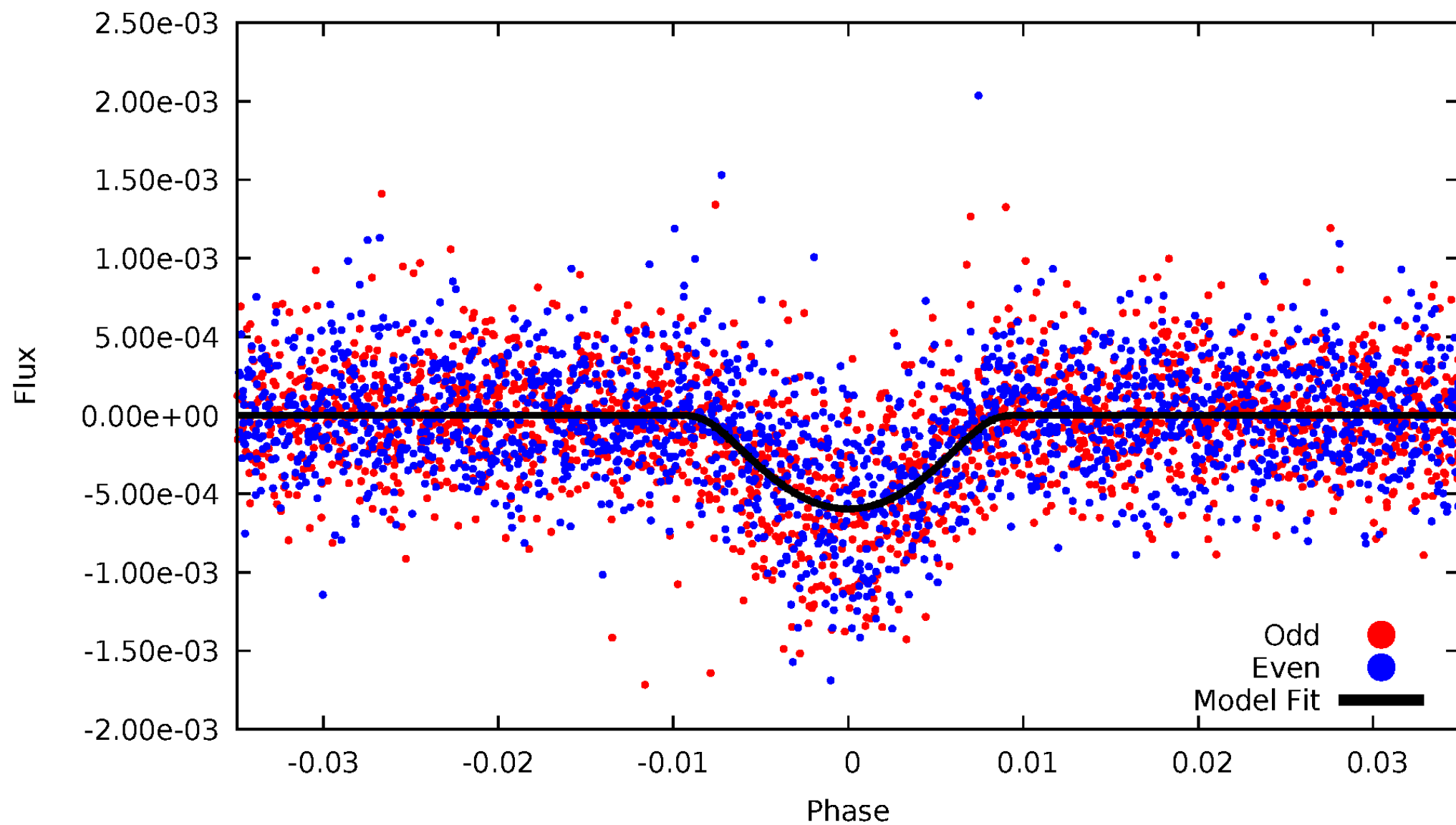


TCE 006859801-02



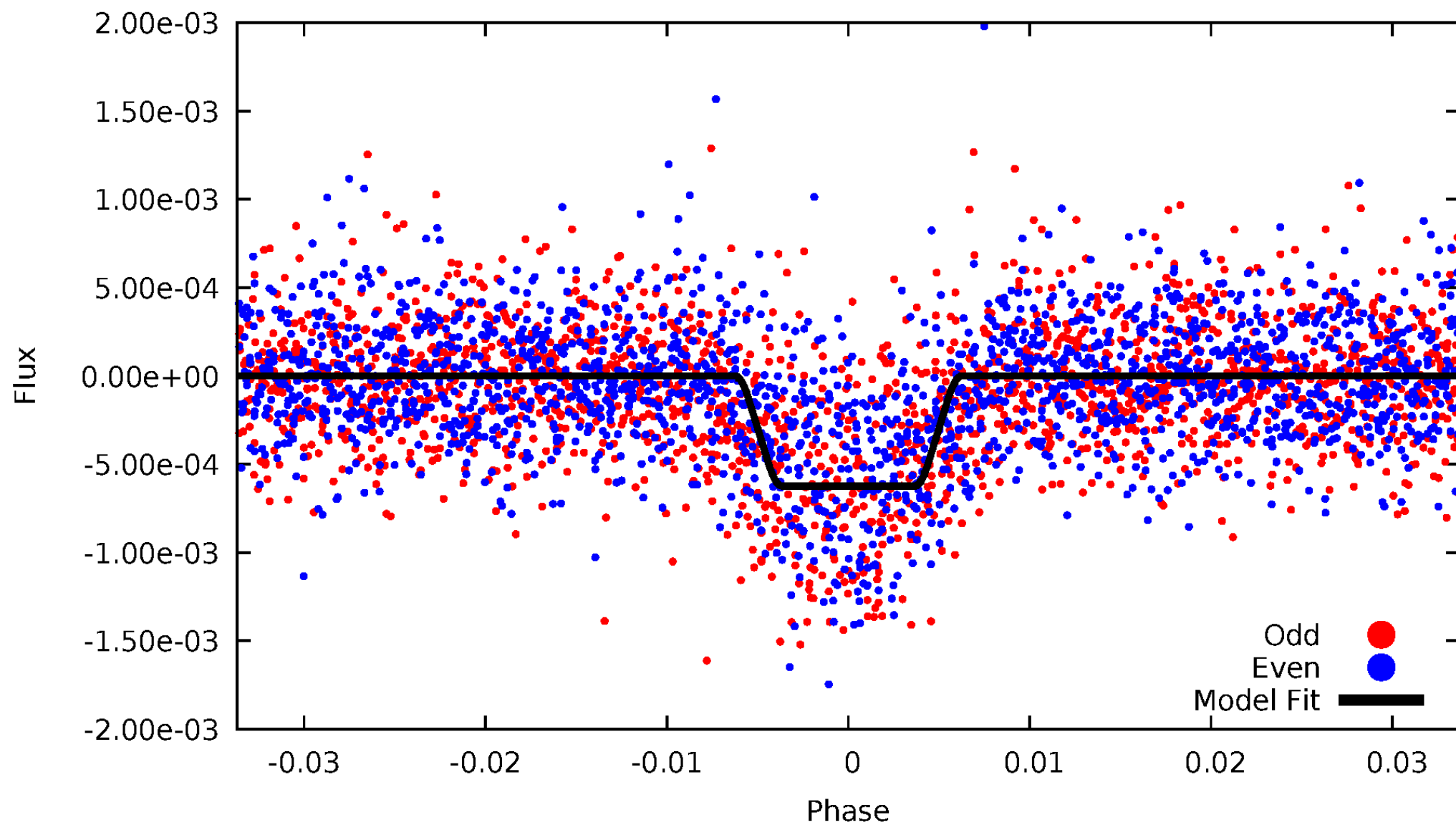
DV Odd/Even

TCE 006859801-02



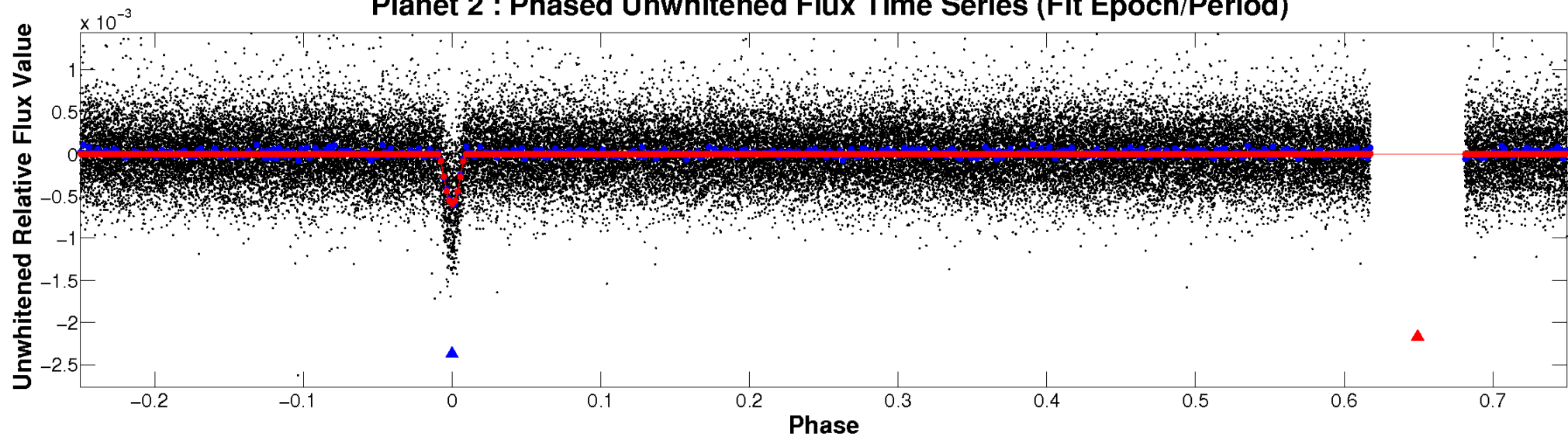
ALT Odd/Even

TCE 006859801-02

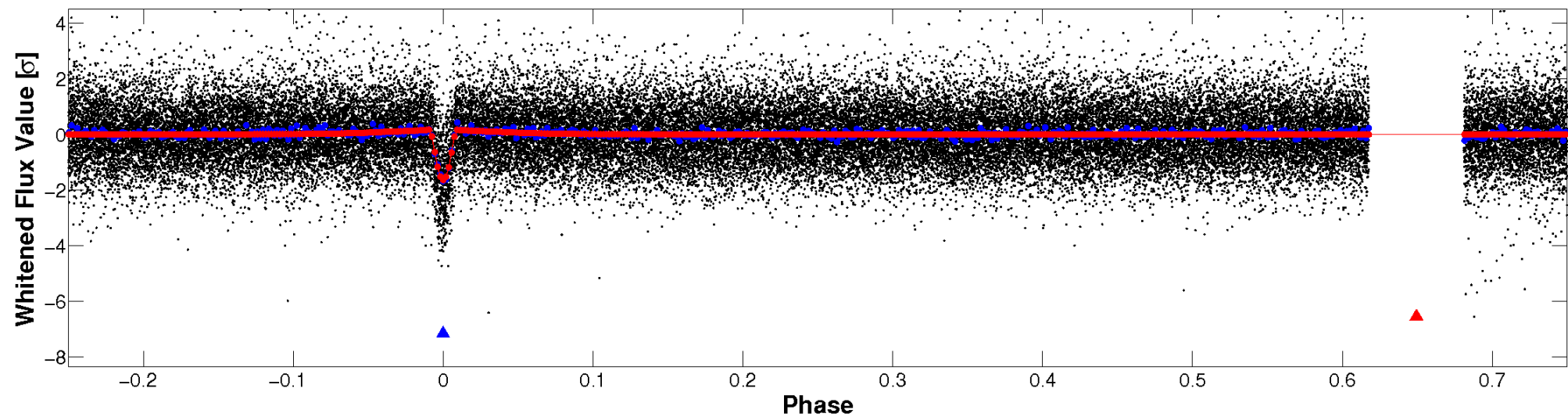


Non-Whitened Vs. Whitened Light Curve

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

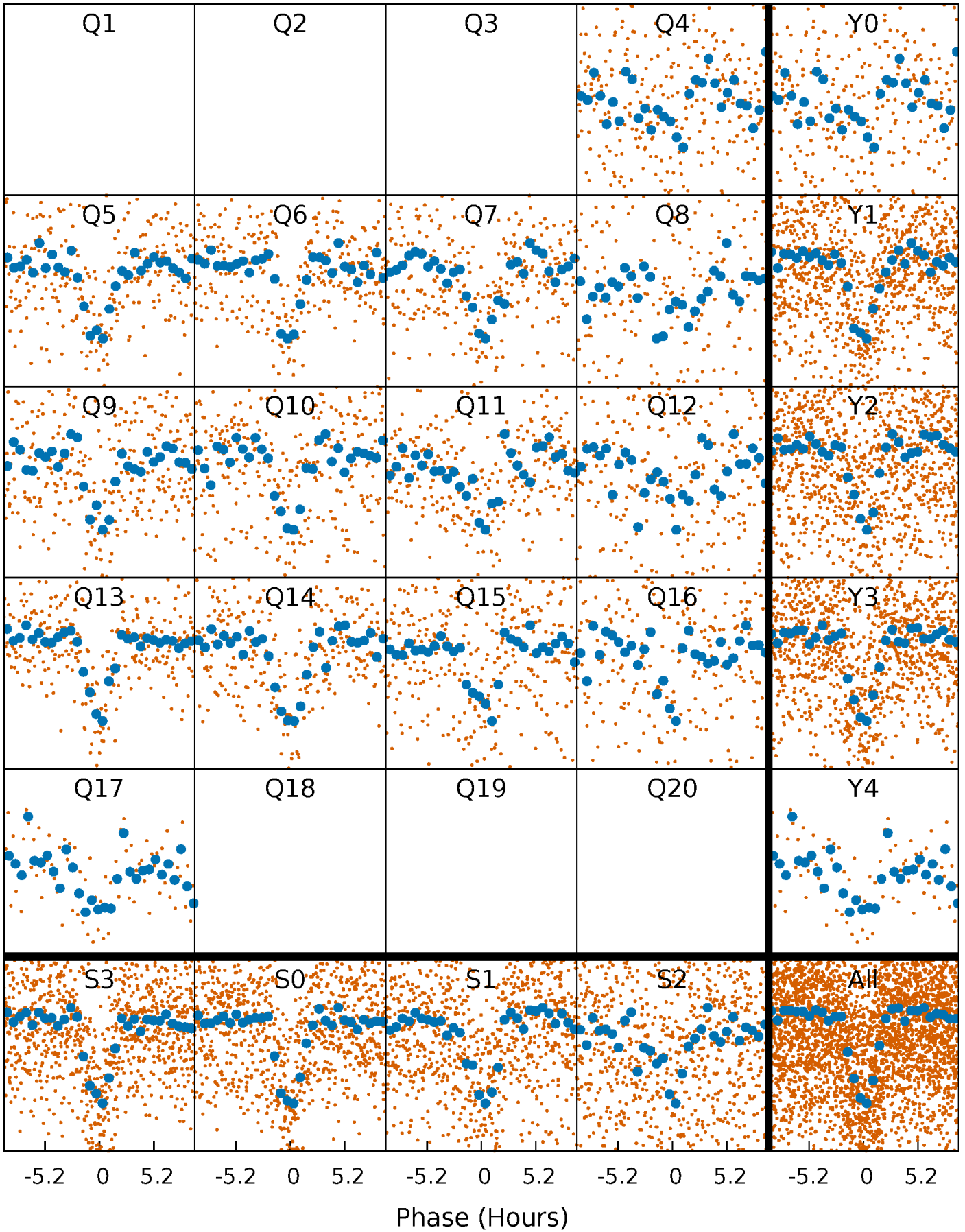


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



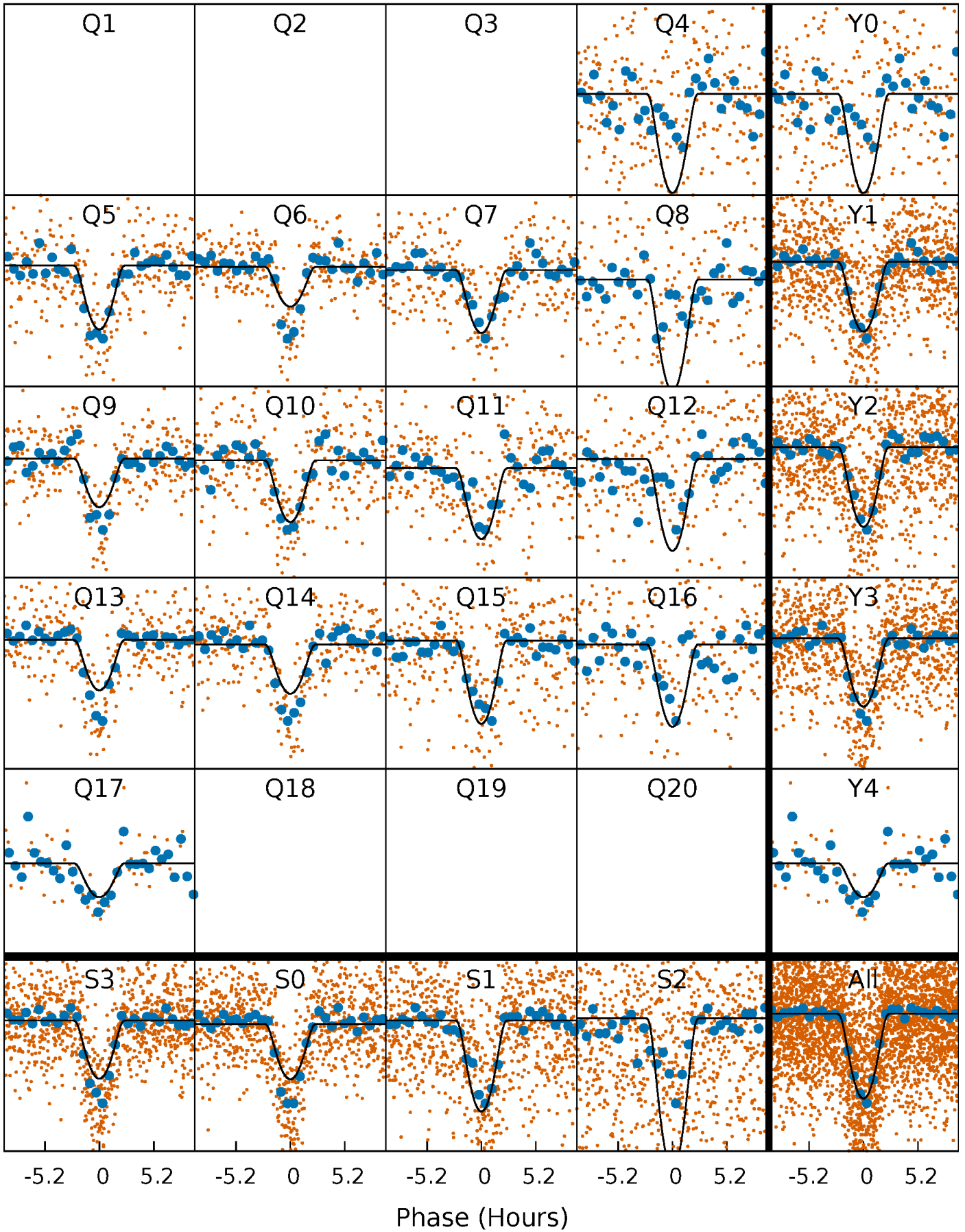
PDC Quarter-Phased Transit Curves

TCE 006859801-02 $P = 10.882454$ Days $T_0 = 136.489531$ (BKJD)



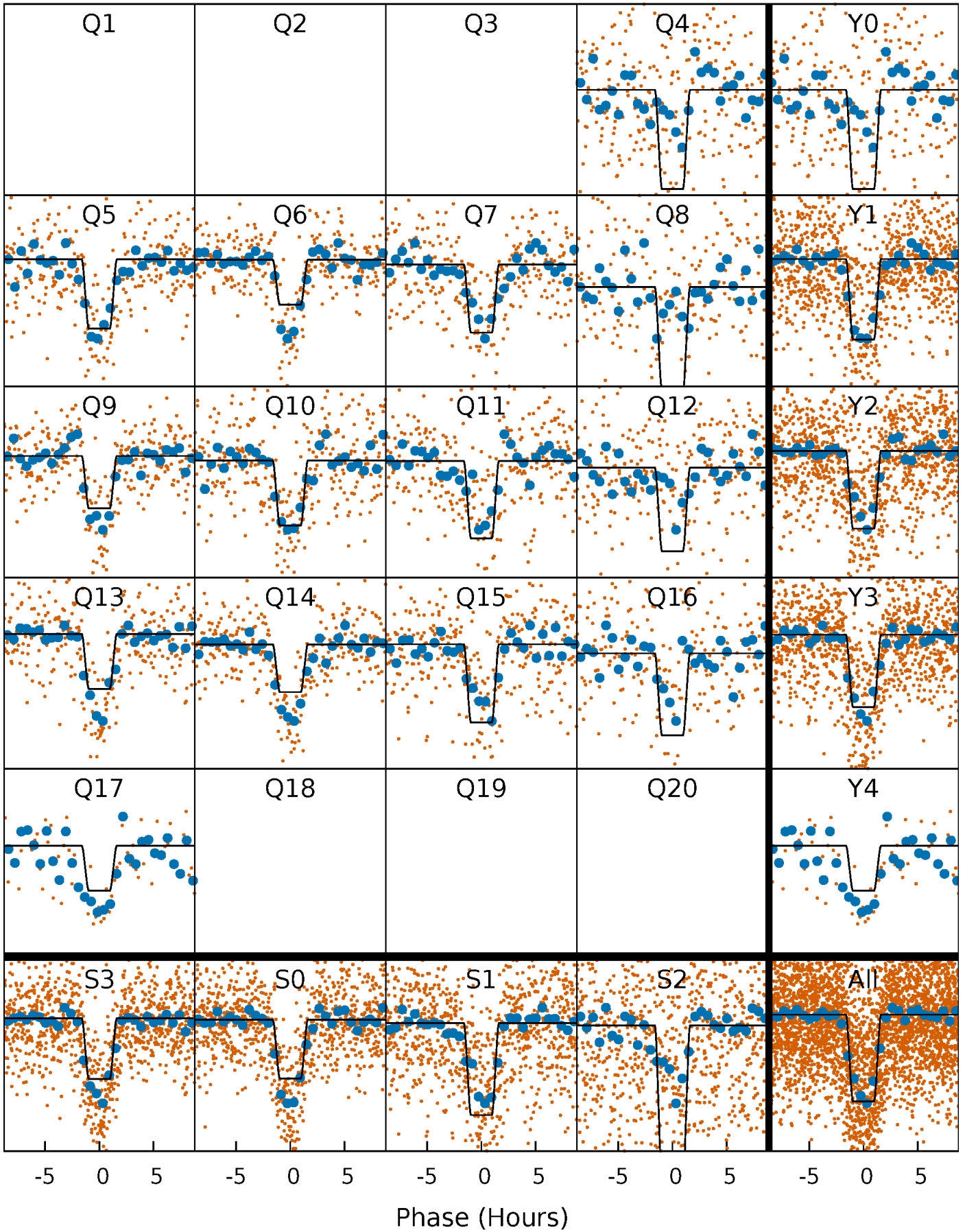
DV Quarter-Phased Transit Curves

TCE 006859801-02 P= 10.882454 Days $T_0=136.489531$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

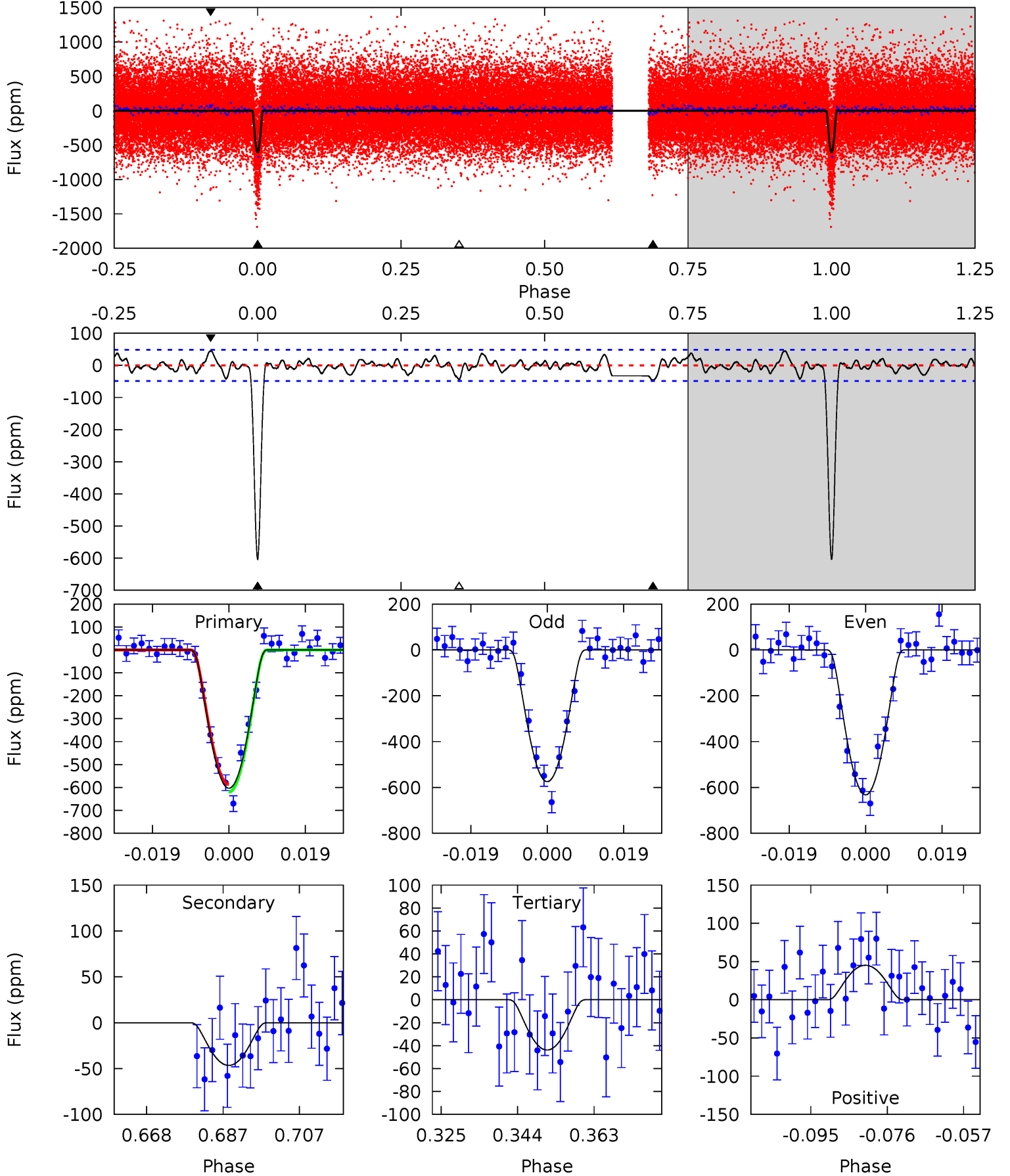
TCE 006859801-02 $P = 10.882425$ Days $T_0 = 136.491381$ (BKJD)



DV Model-Shift Uniqueness Test

006859801-02, P = 10.882454 Days, E = 136.489531 Days

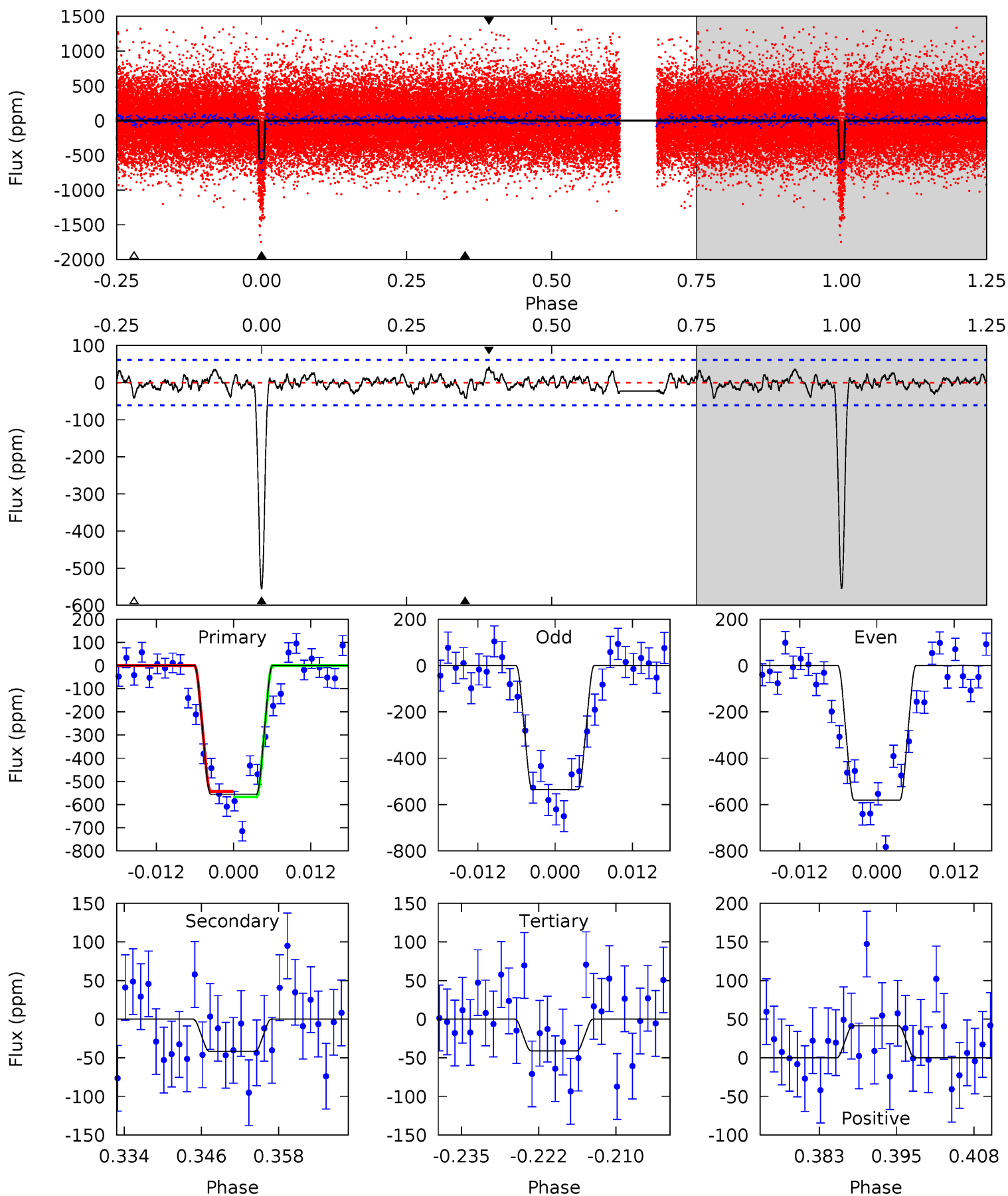
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.8	4.69	4.42	4.55	4.90	2.34	1.50	56.4	56.3	0.27	0.15	2.90	1.02	0.07	1.69



Alt Model-Shift Uniqueness Test

006859801-02, P = 10.882425 Days, E = 136.491381 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.3	3.40	3.34	3.37	4.99	2.50	1.11	42.0	41.9	0.06	0.02	1.83	1.00	0.07	0.98



Stellar Parameters For KIC 006859801

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4946^{+176}_{-176}	$4.570^{+0.066}_{-0.044}$	$-0.280^{+0.300}_{-0.300}$	$0.715^{+0.065}_{-0.072}$	$0.694^{+0.093}_{-0.050}$	$2.671^{+0.804}_{-0.430}$
	+4%/-4%	+1%/-1%	+107%/-107%	+9%/-10%	+13%/-7%	+30%/-16%
Source	KIC0	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 006859801-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-47 ± 10	$3.03^{+1.71}_{-1.42}$	881^{+36}_{-35}	2765^{+585}_{-310}	20^{+50}_{-12}
Alt.	-42 ± 12	$2.17^{+1.61}_{-1.28}$	879^{+40}_{-37}	2976^{+1065}_{-418}	34^{+186}_{-23}

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 006859801-02. Kepler magnitude: 14.87. Transit SNR 32.33

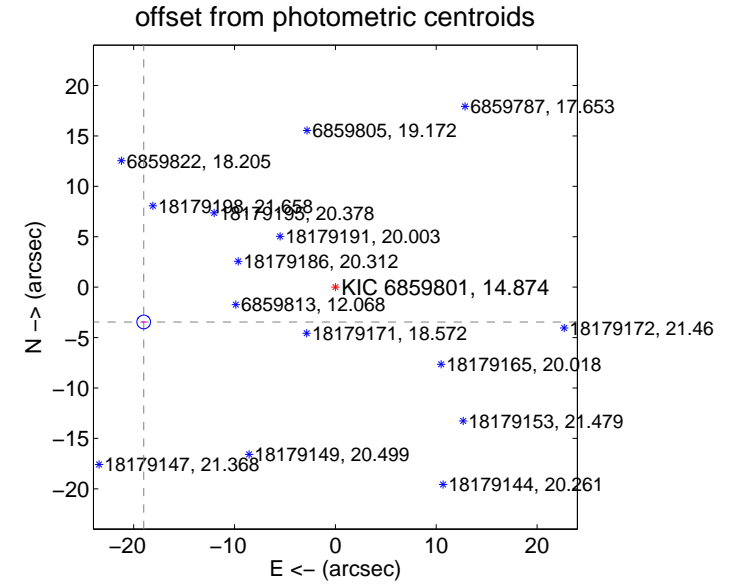
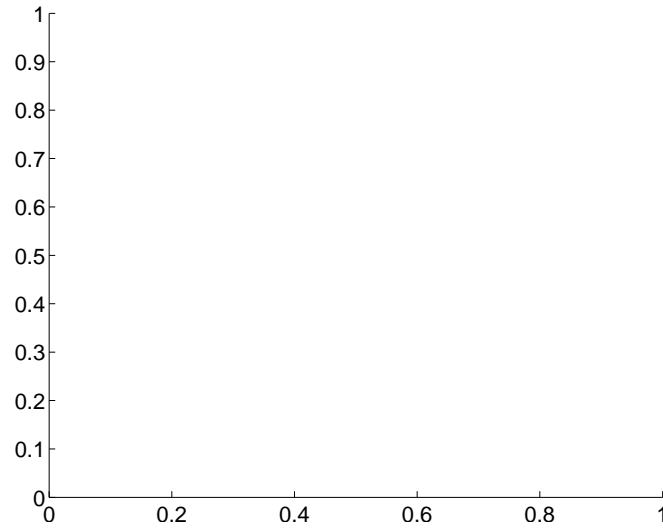
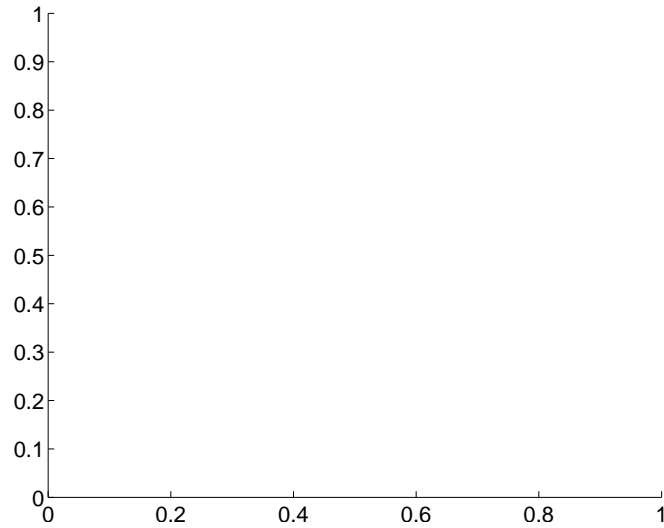
There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	19.32 ± 0.23	85.74	19.01 ± 0.23	-3.45 ± 0.11

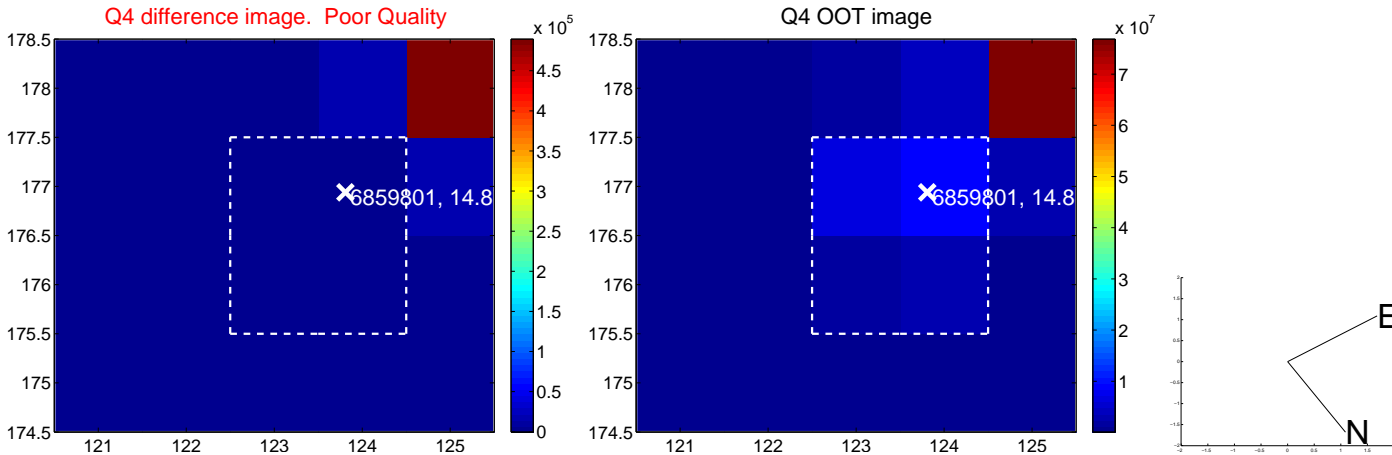
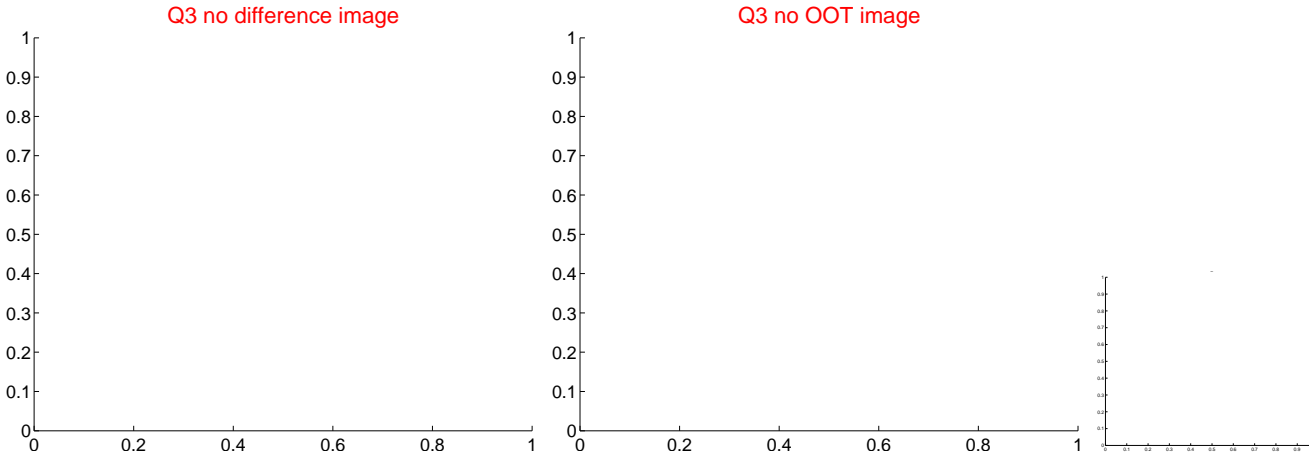
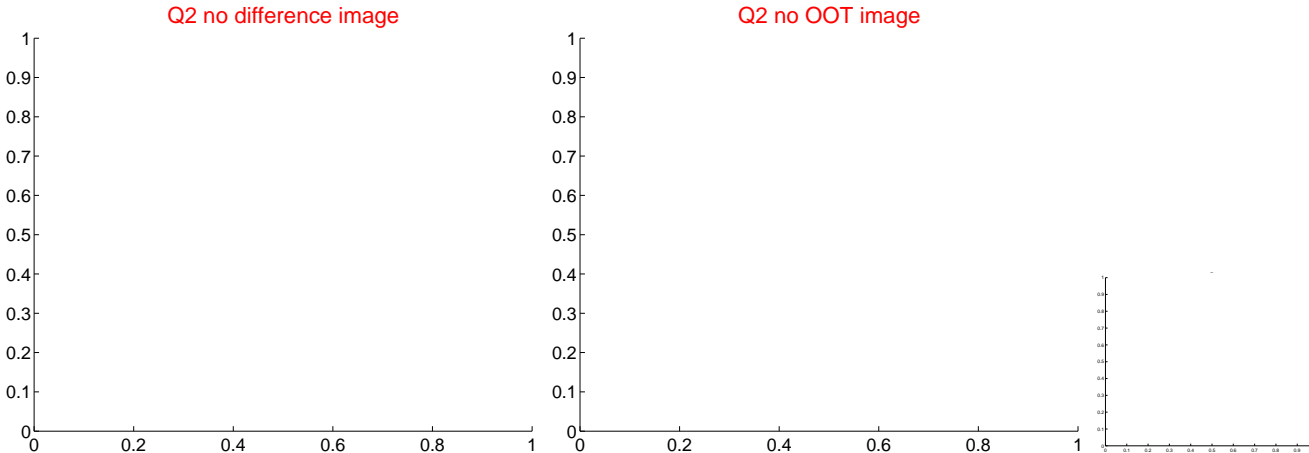
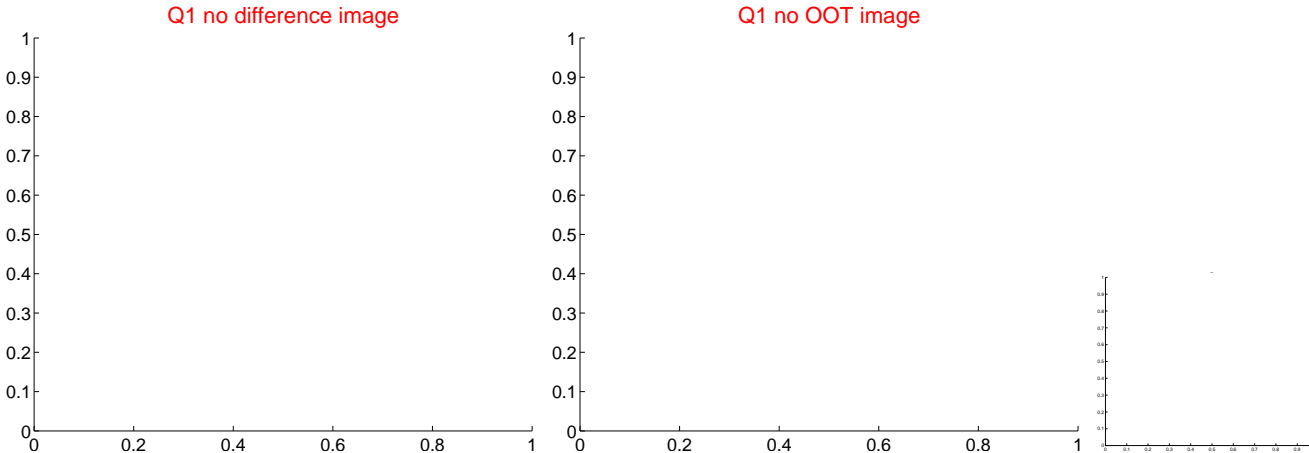
There is no PRF-fit offset from OOT-fit

There is no PRF-fit offset from KIC

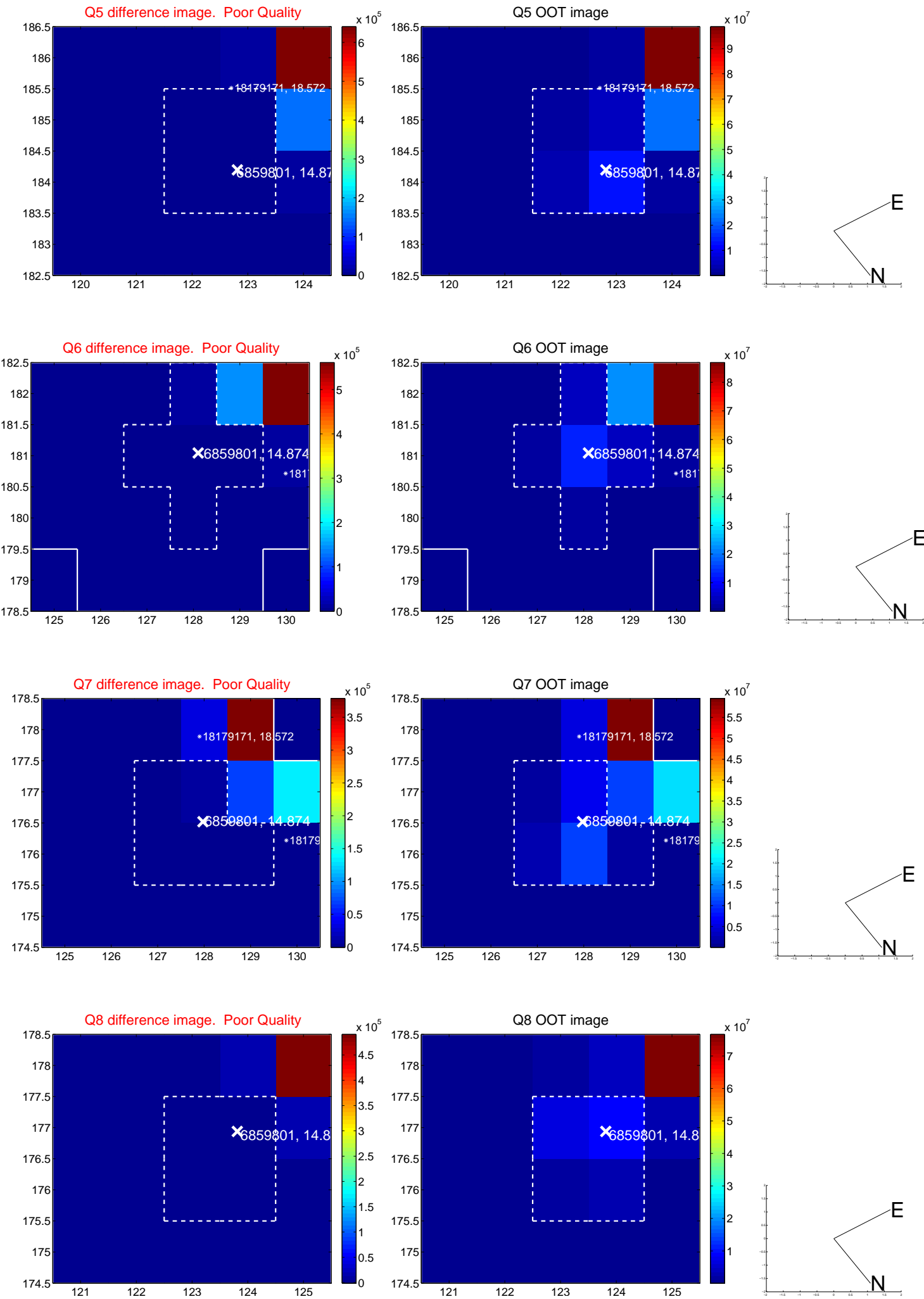


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

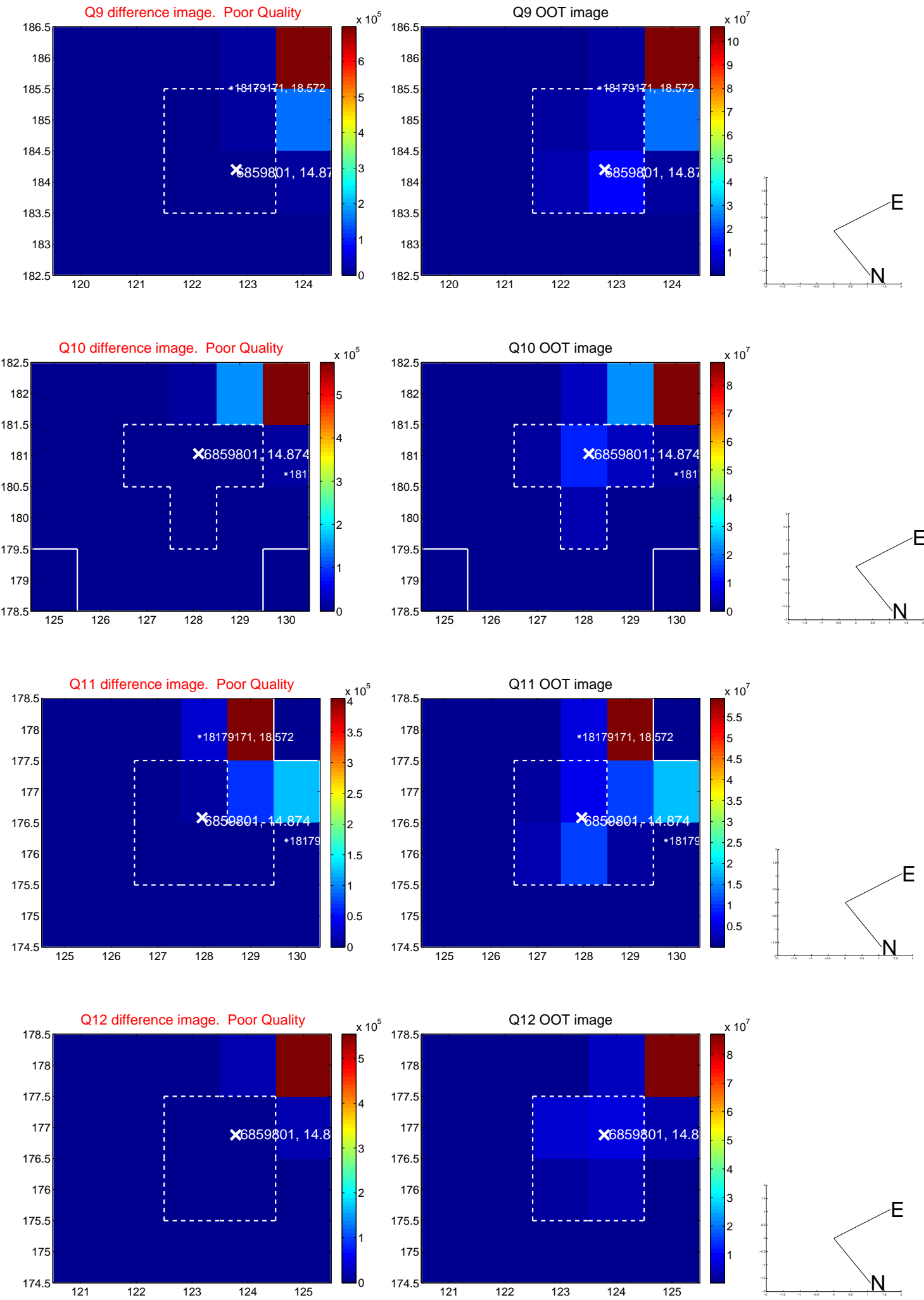
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



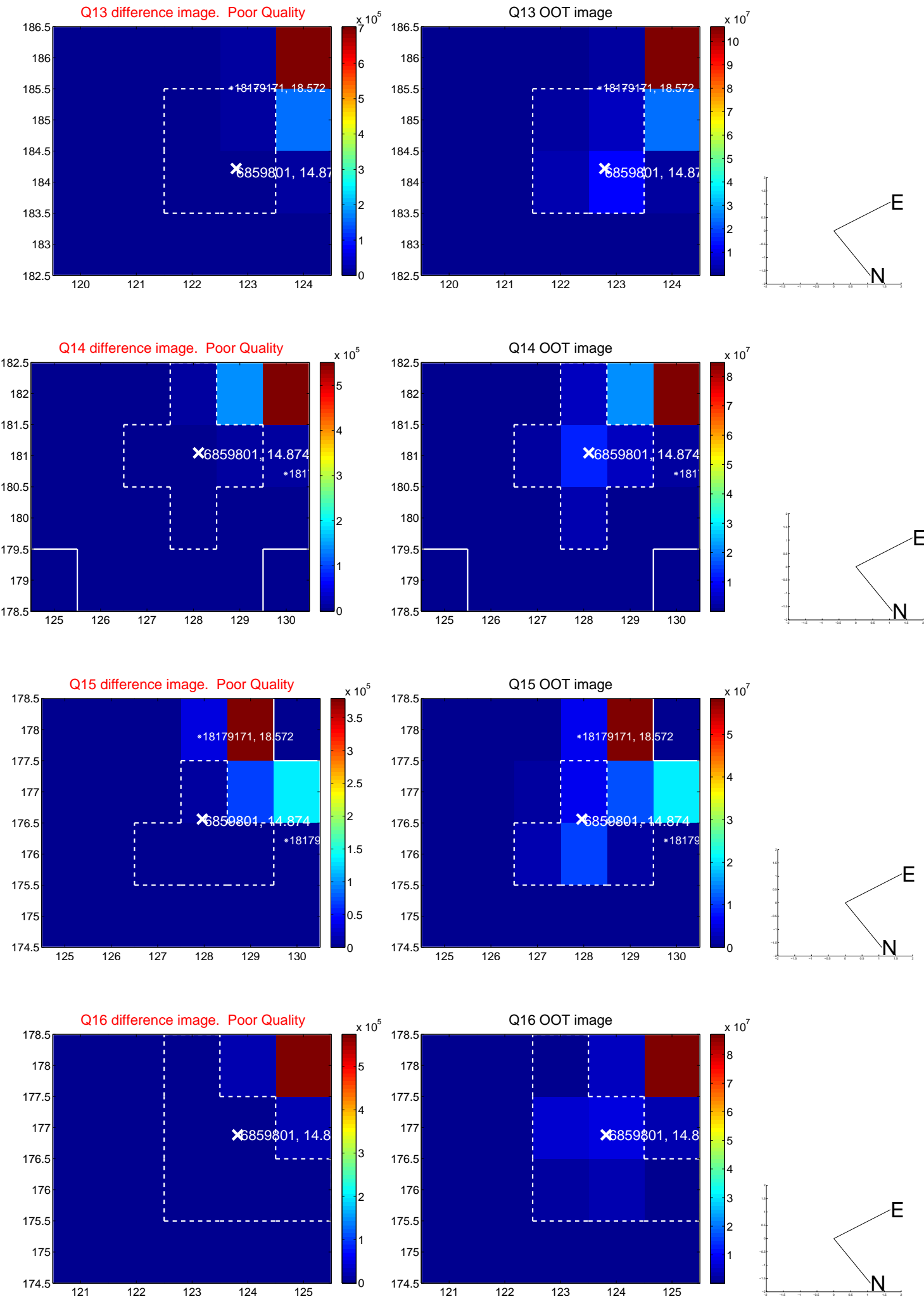
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



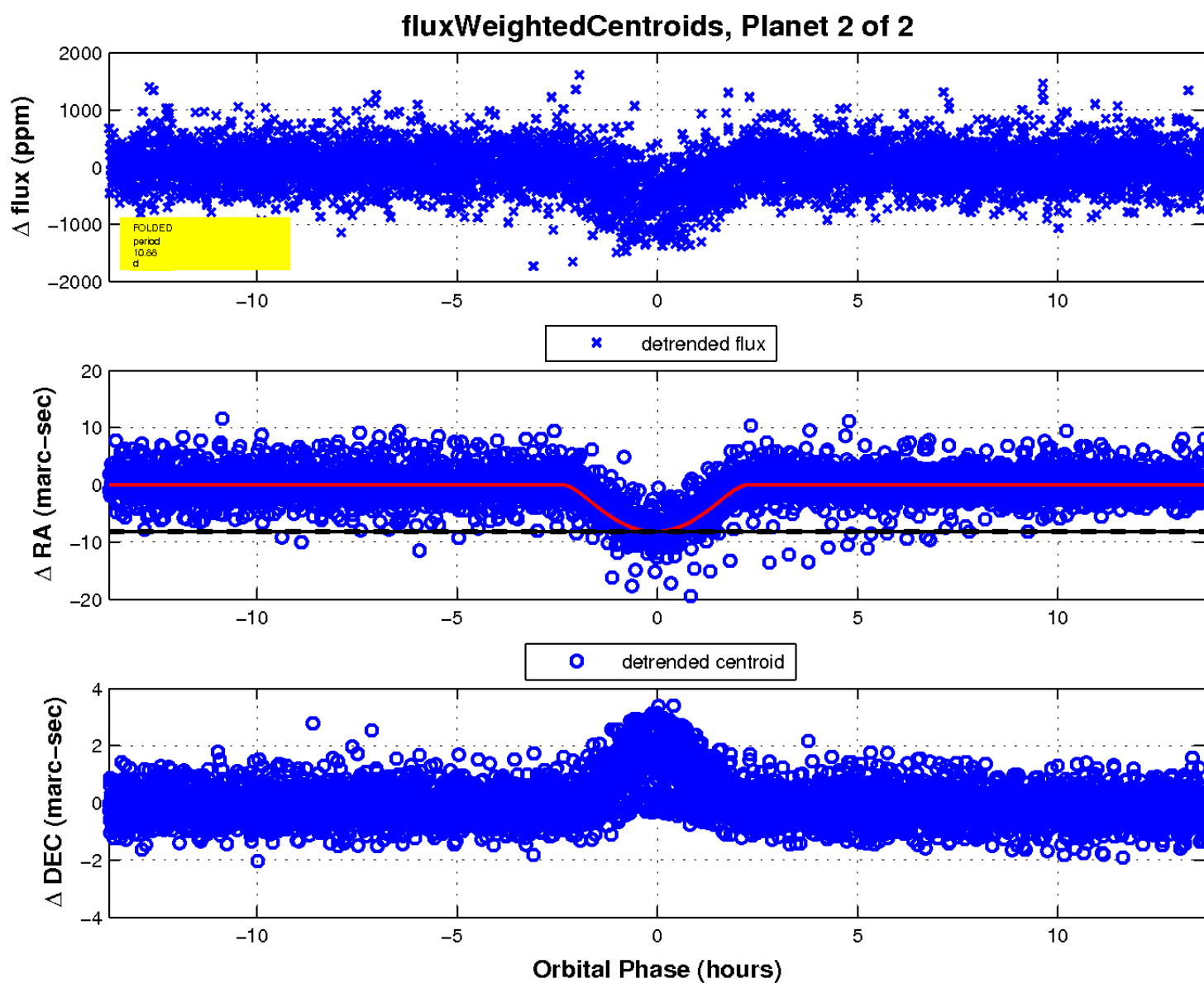
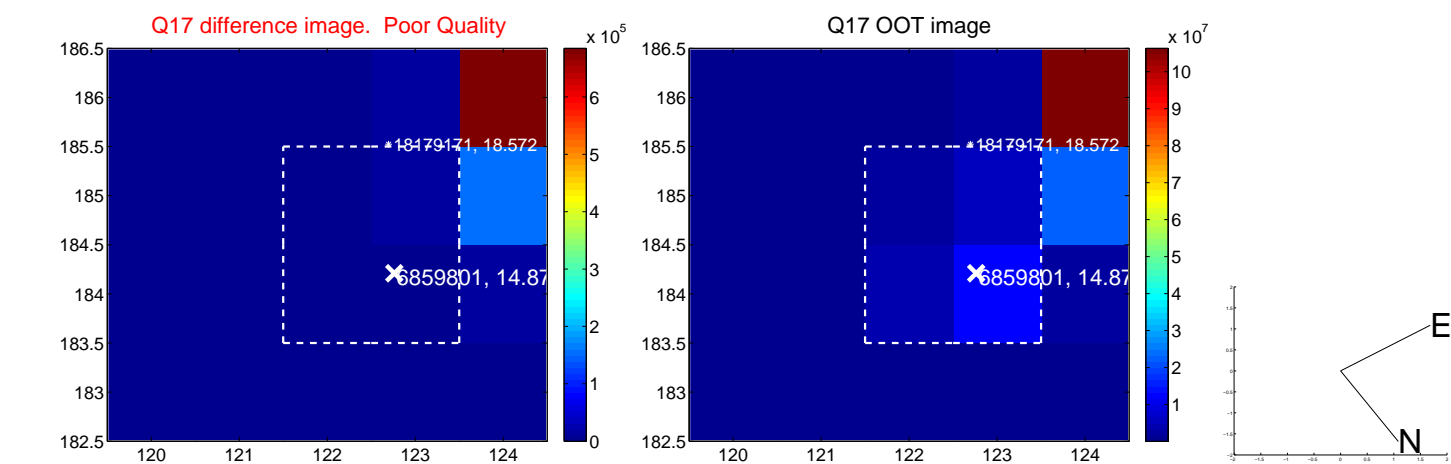
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

