

KIC 006182019

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})
006182019-01	OBS	6023.01	3.664964	134.153016	91961.3	3.924	2717.9	2036.1	0.99	5726	31.28	465.32
006182019-02	OBS	No	3.664996	132.313277	4282.9	3.000	151.1	-1.0	0.99	5726	6.41	465.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006182019-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
006182019-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

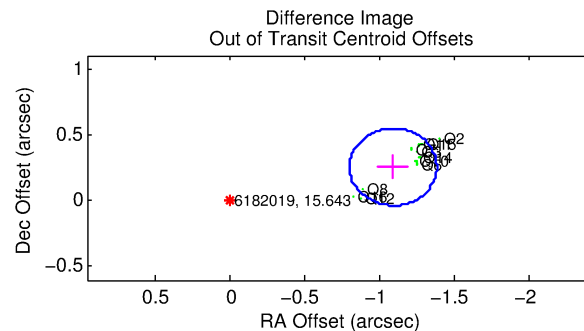
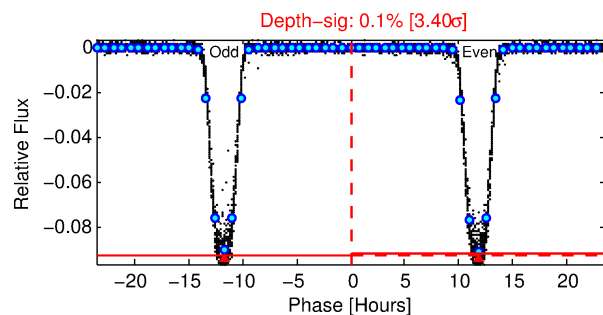
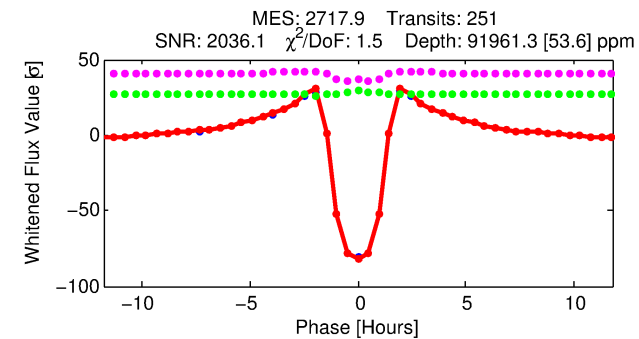
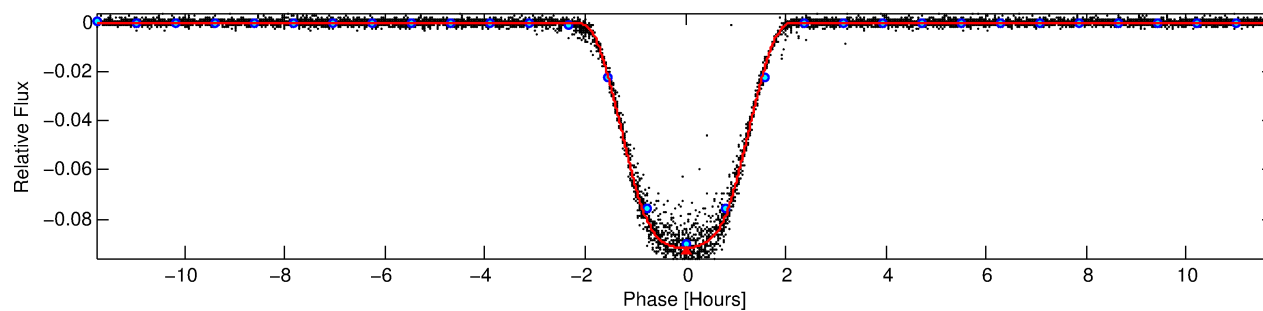
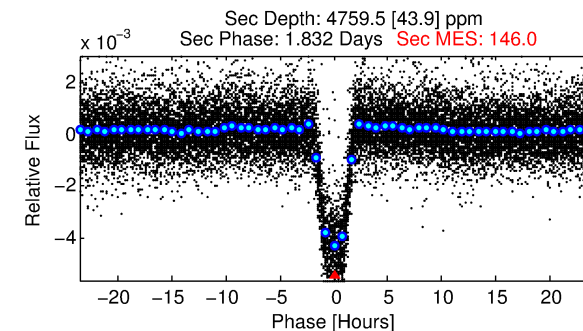
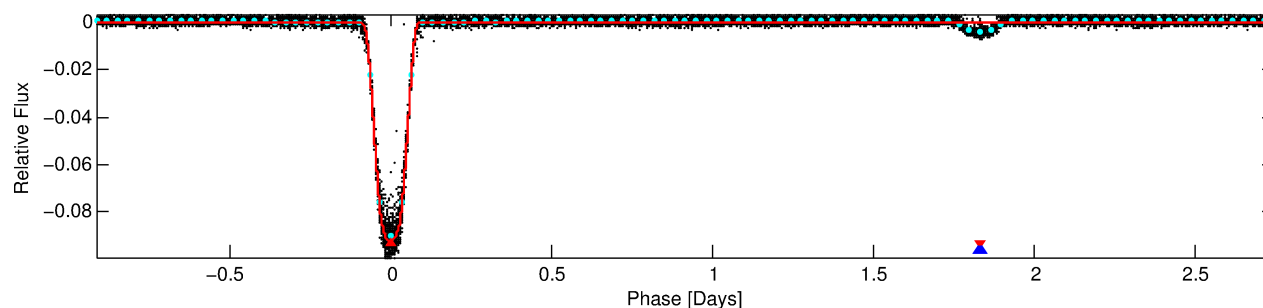
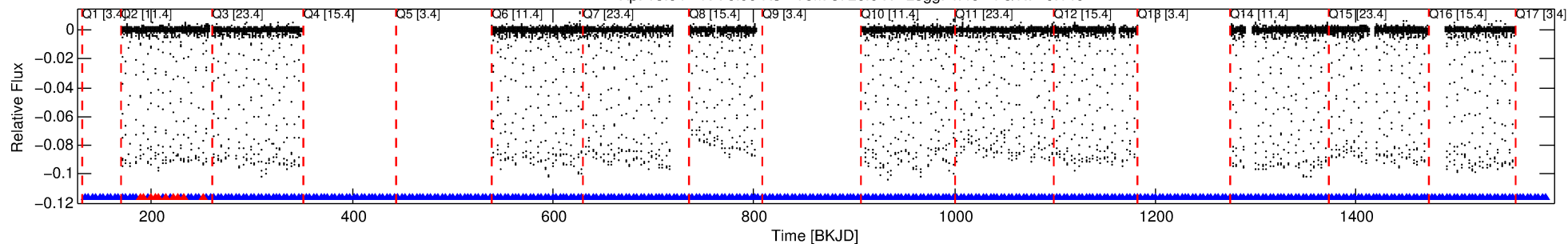
Ephemeris Match Information For 006182019-01

No Significant Match Found

DV One-Page Summary

KIC: 6182019 Candidate: 1 of 2 Period: 3.665 d
KOI: K06023.01 Corr: 0.998

Kp: 15.64 R*: 0.99 Rs Teff: 5726.0 K Logg: 4.40 Fe/H: -0.140



DV Fit Results:

Period = 3.66496 [0.00000] d
Epoch = 134.1530 [0.0000] BKJD
Rp/R* = 0.2904 [0.0001]
a/R* = 8.33 [0.01]
b = 0.56 [0.00]
Seff = 465.32 [175.08]
Teff = 1184 [111] K
Rp = 31.28 [8.87] Re
a = 0.0449 [0.0108] AU
Ag = 5.40 [1.89] [2.33σ]
Teffp = 2791 [96] K [10.91σ]

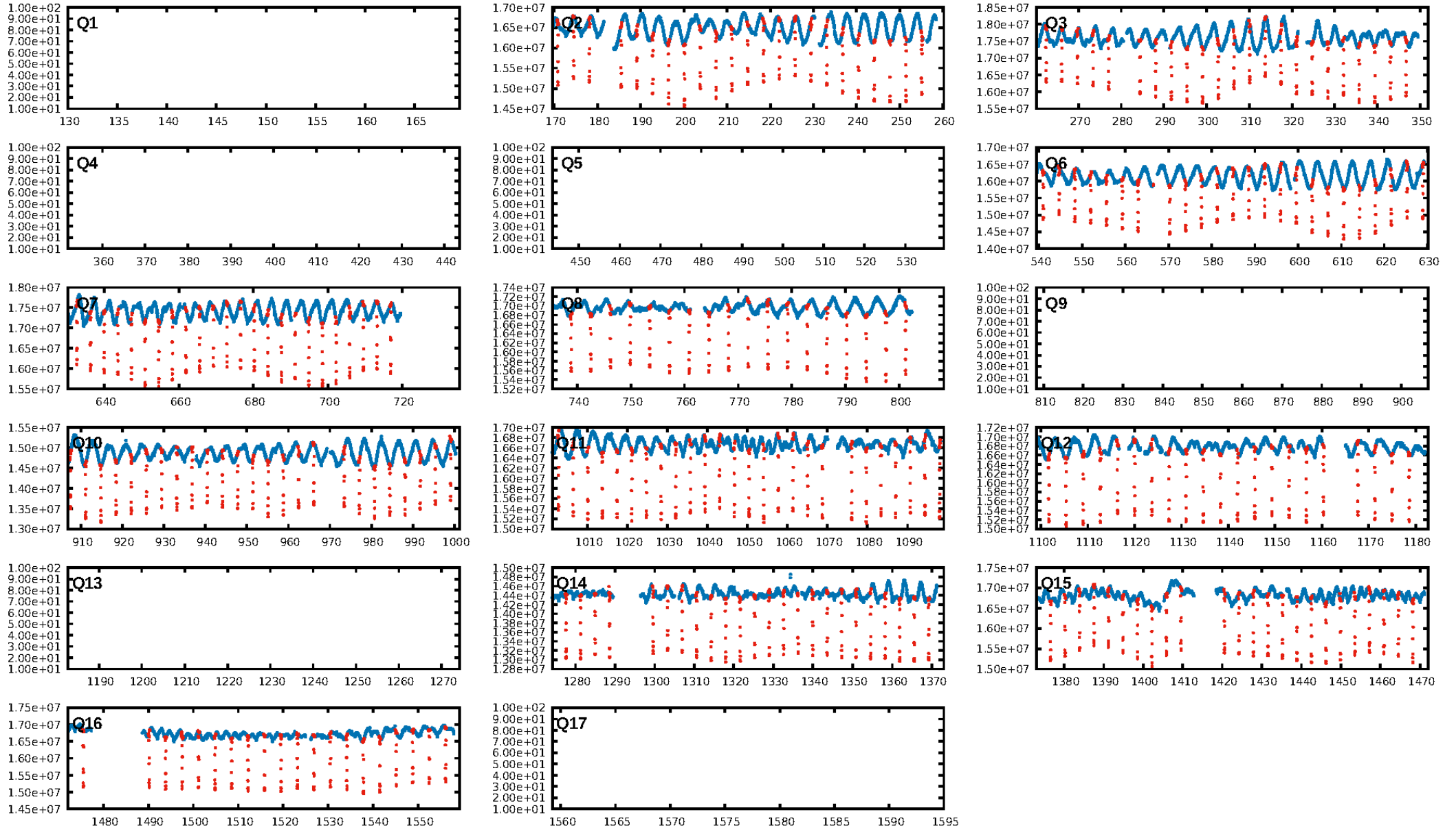
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [241/251]
GhostDiagnostic-chr: 1.844
Centroid-sig: 0.0%
Centroid-so: 0.257 arcsec [68.19σ]
OotOffset-rm: 1.126 arcsec [11.57σ]
KicOffset-rm: 0.144 arcsec [2.10σ]
OotOffset-st: 4/4/3/0 [11]
KicOffset-st: 4/4/3/0 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [11/11]

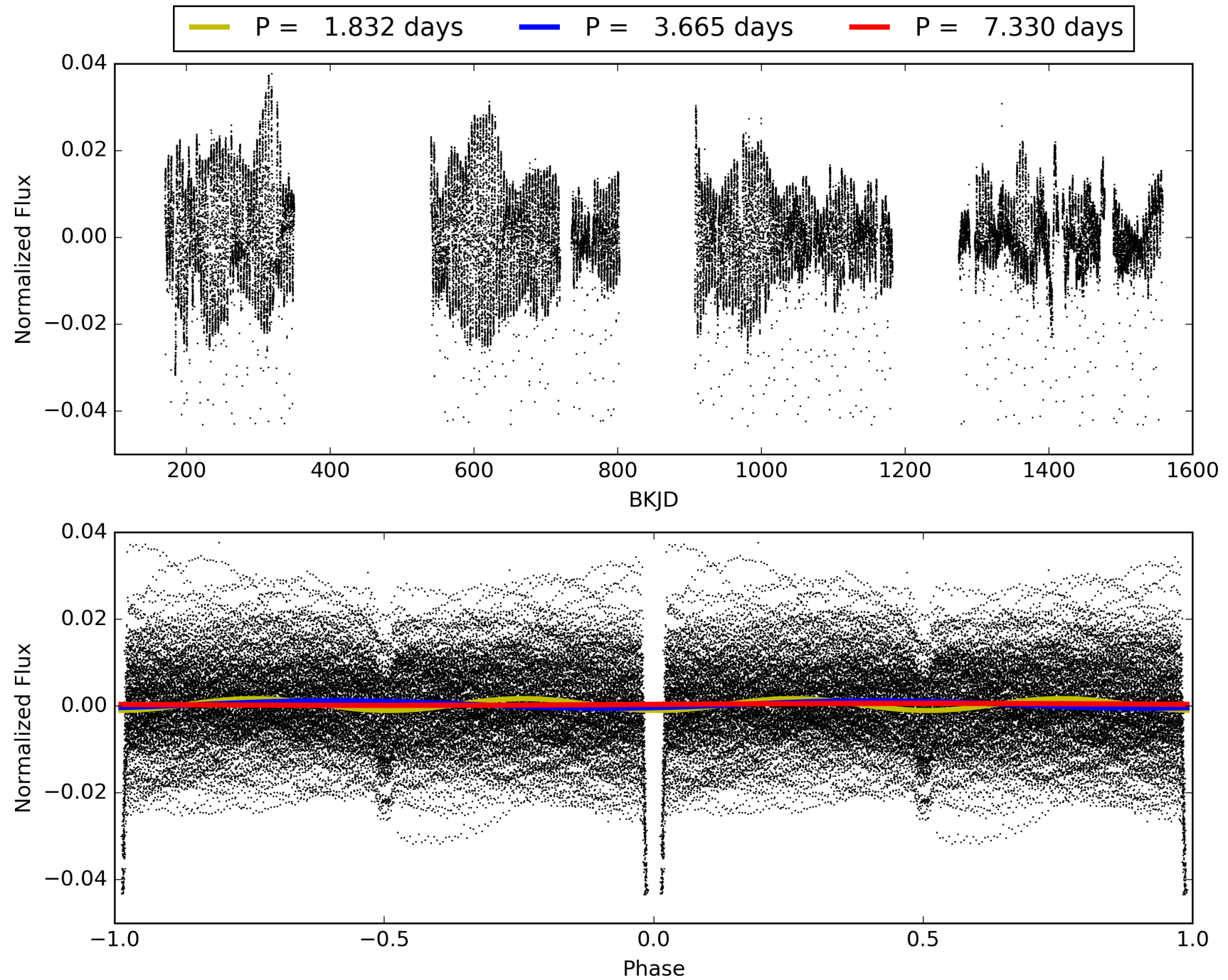
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:03:32 Z

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

TCE 006182019-01, PDC Light Curves

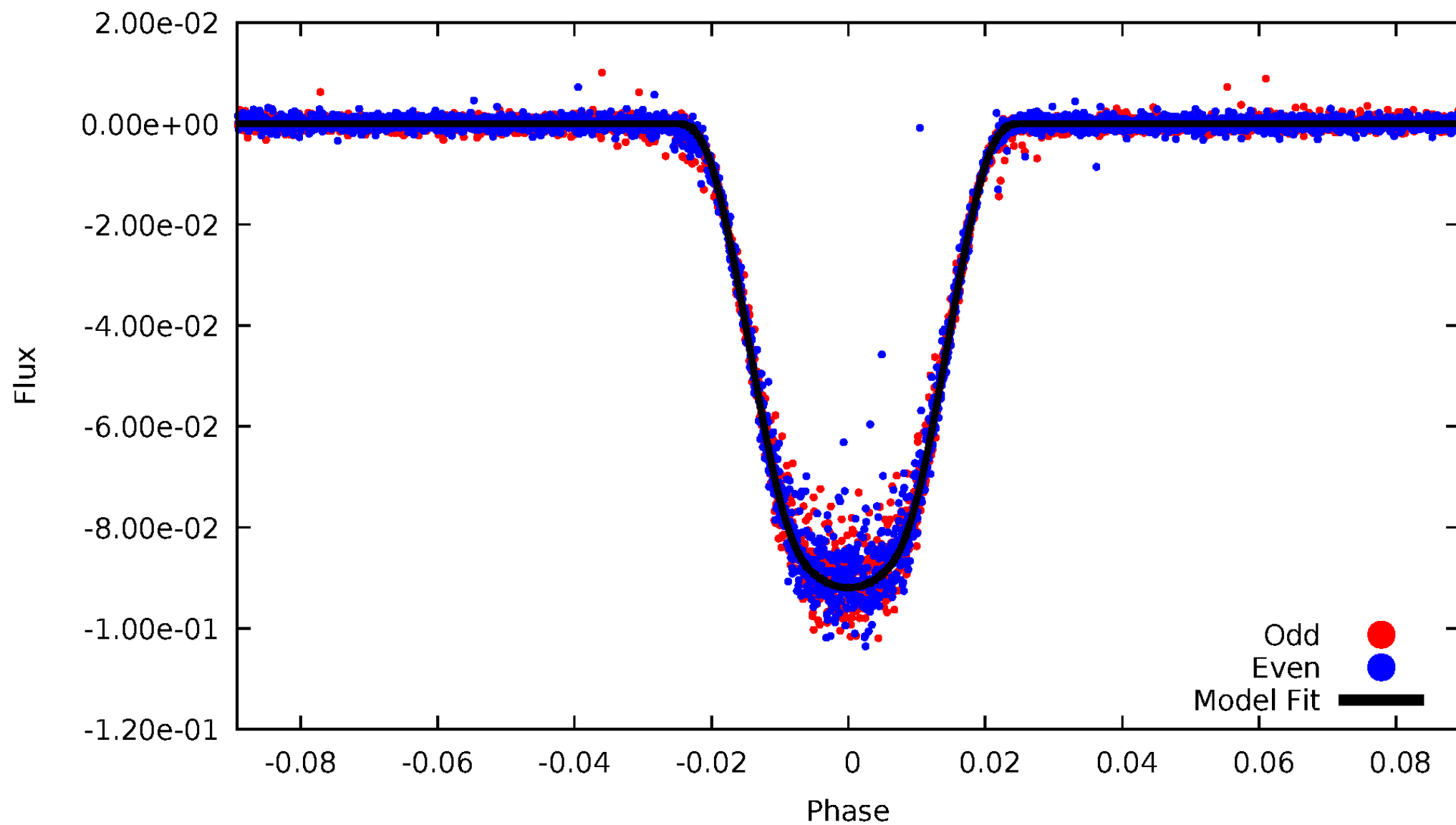


TCE 006182019-01



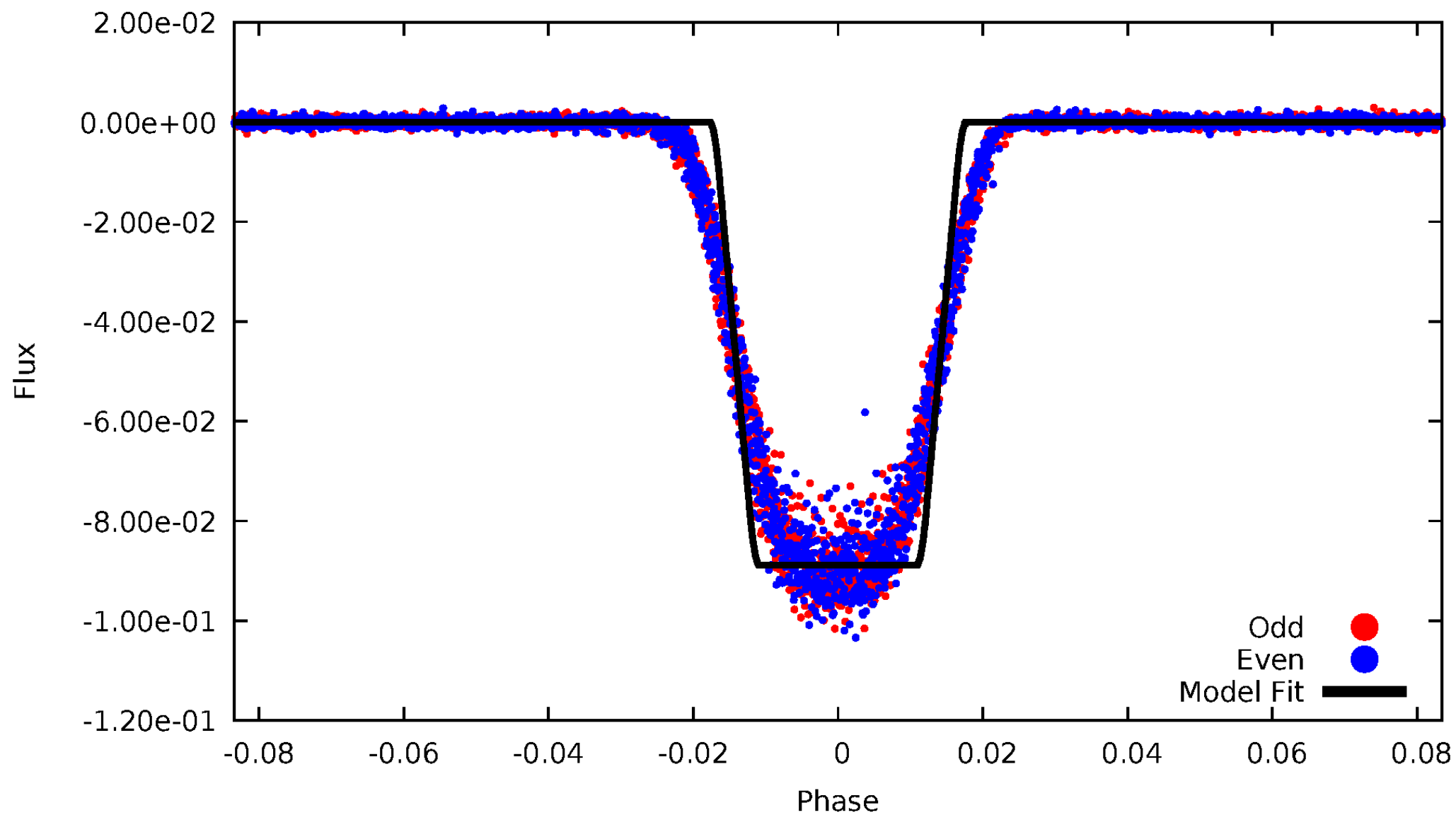
DV Odd/Even

TCE 006182019-01



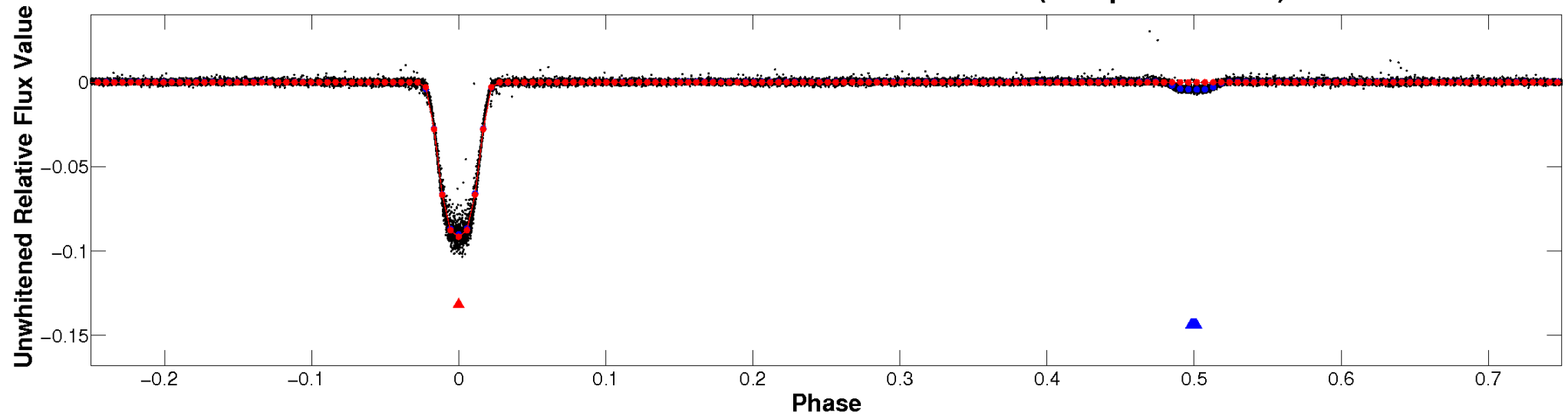
ALT Odd/Even

TCE 006182019-01

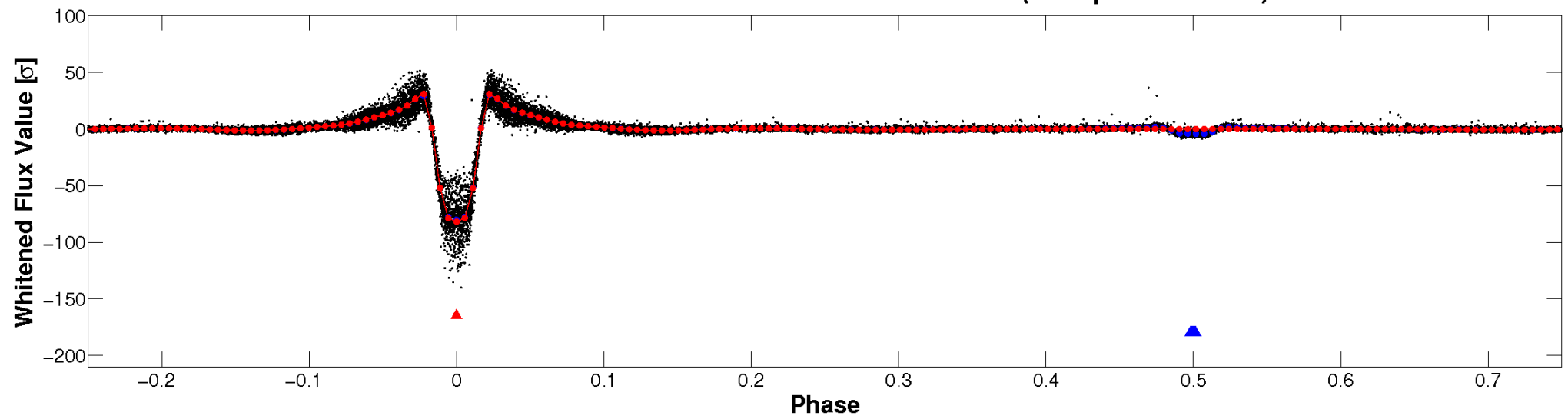


Non-Whitened Vs. Whitened Light Curve

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

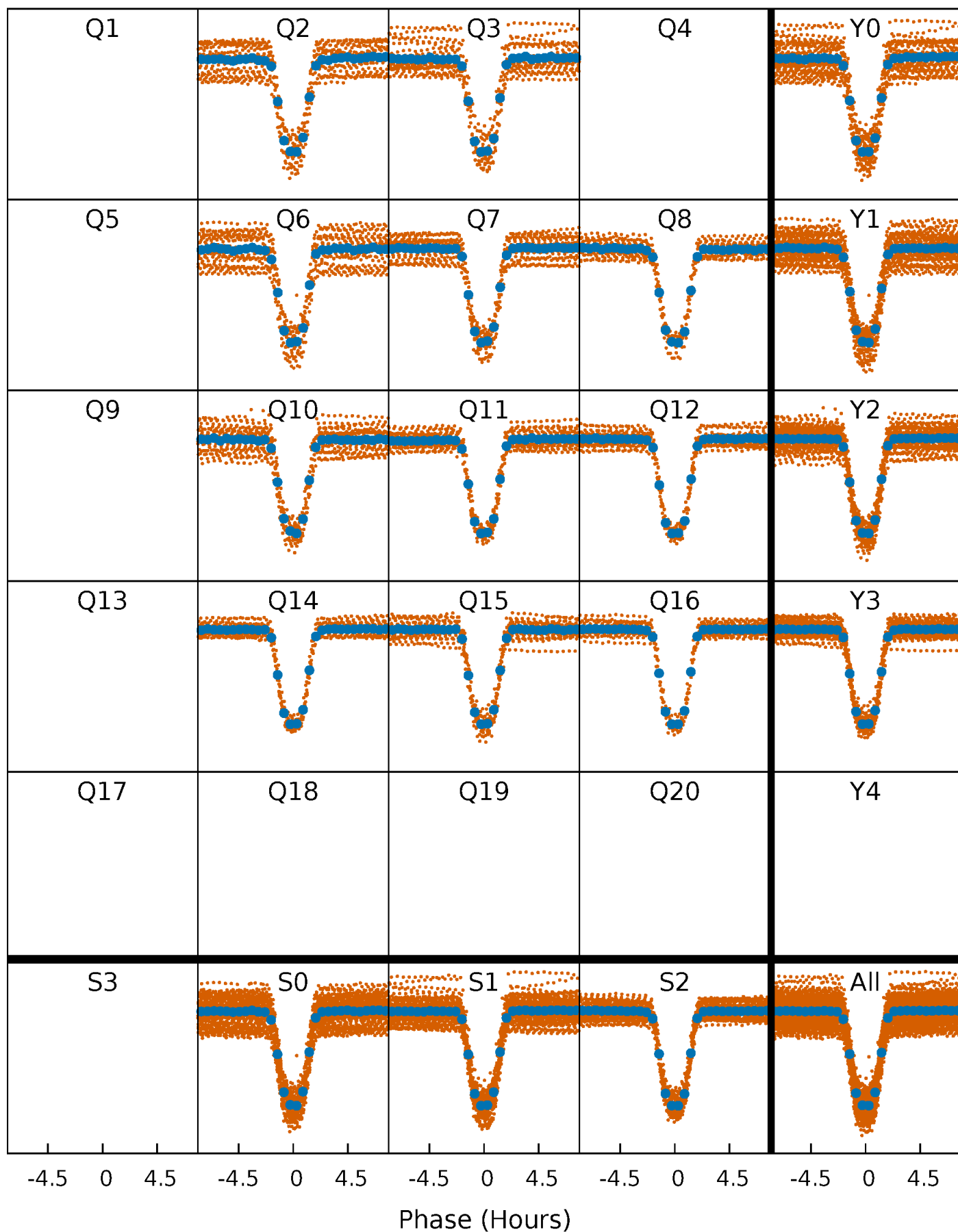


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



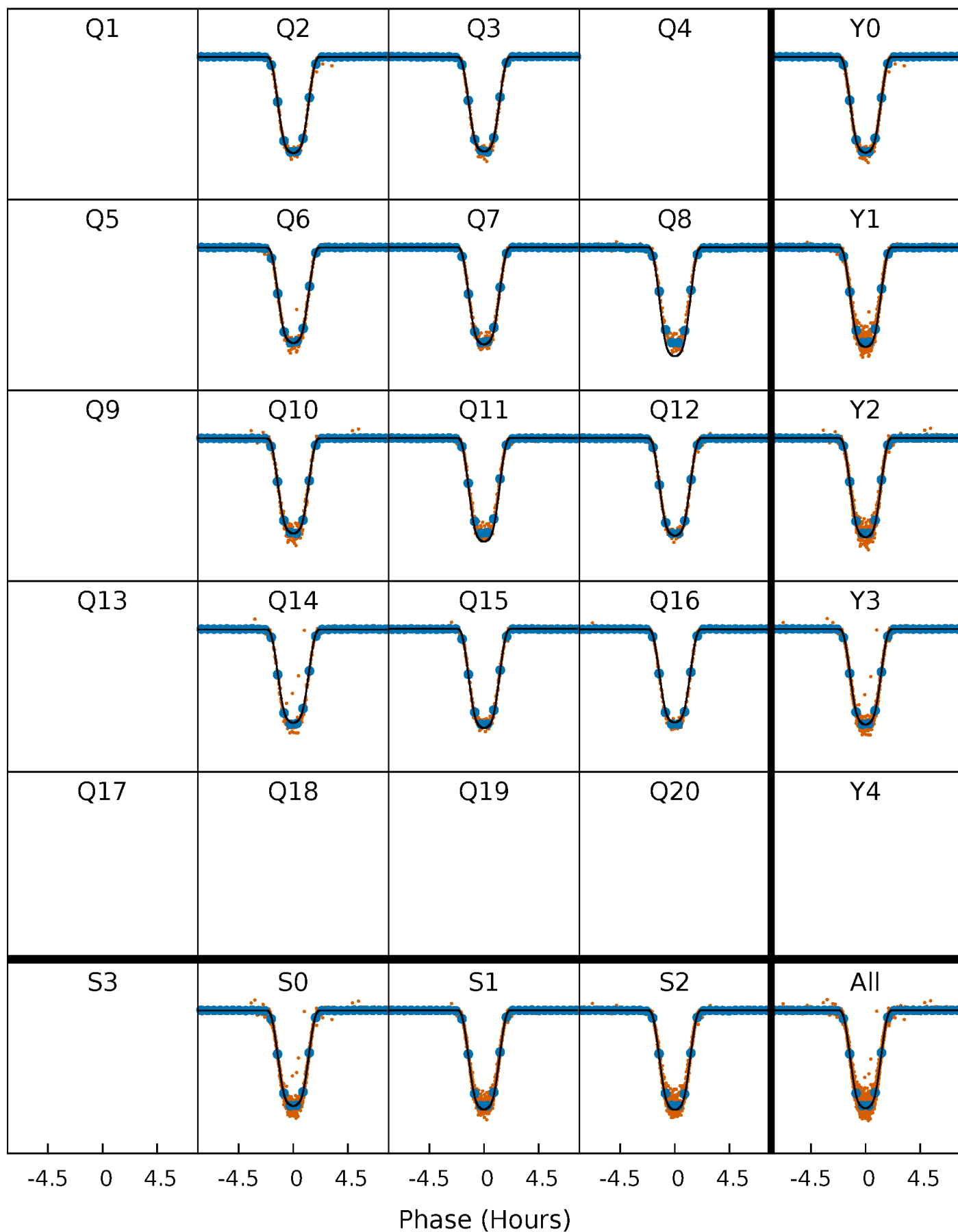
PDC Quarter-Phased Transit Curves

TCE 006182019-01 P= 3.664964 Days $T_0=134.153016$ (BKJD)



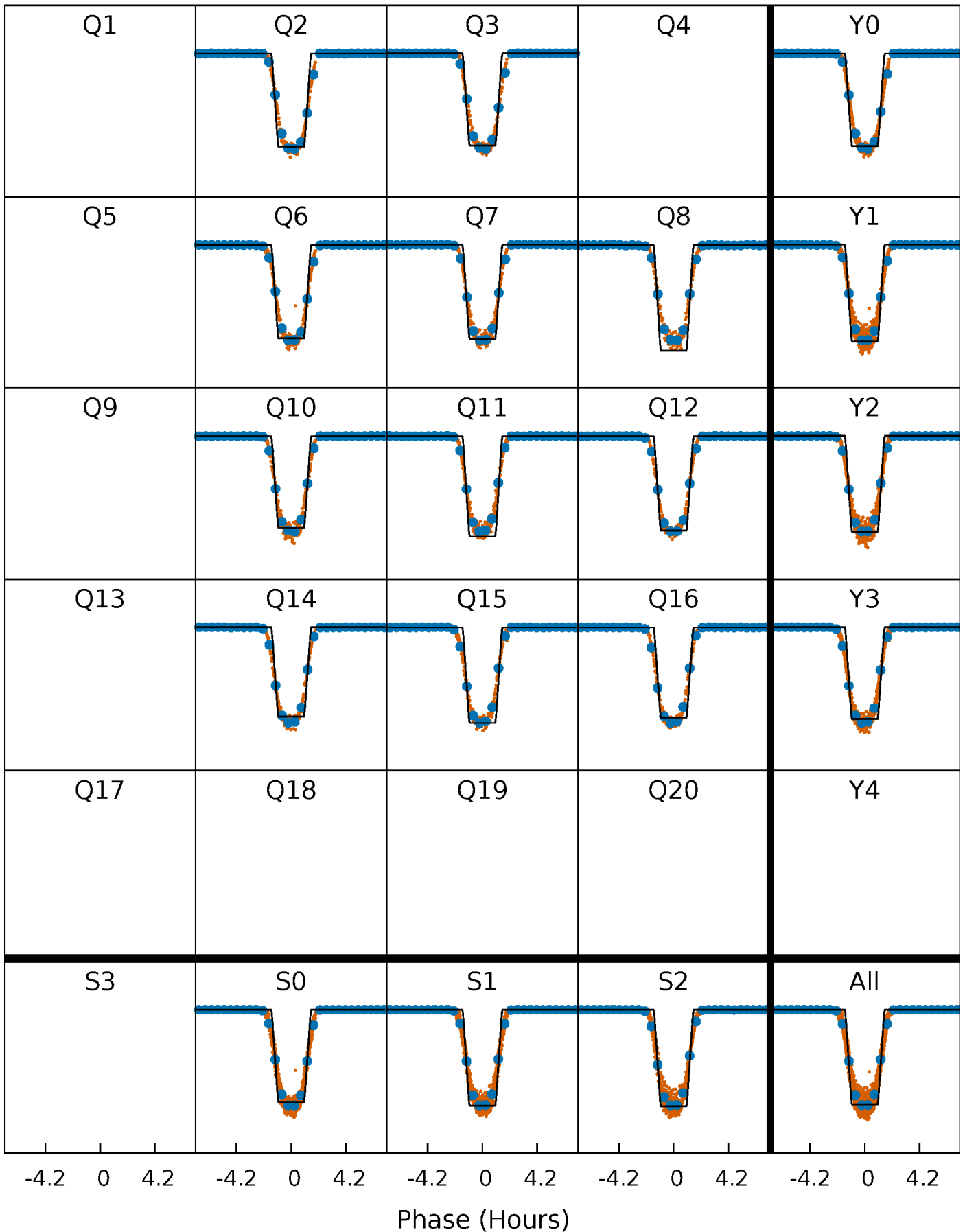
DV Quarter-Phased Transit Curves

TCE 006182019-01 P= 3.664964 Days $T_0=134.153016$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

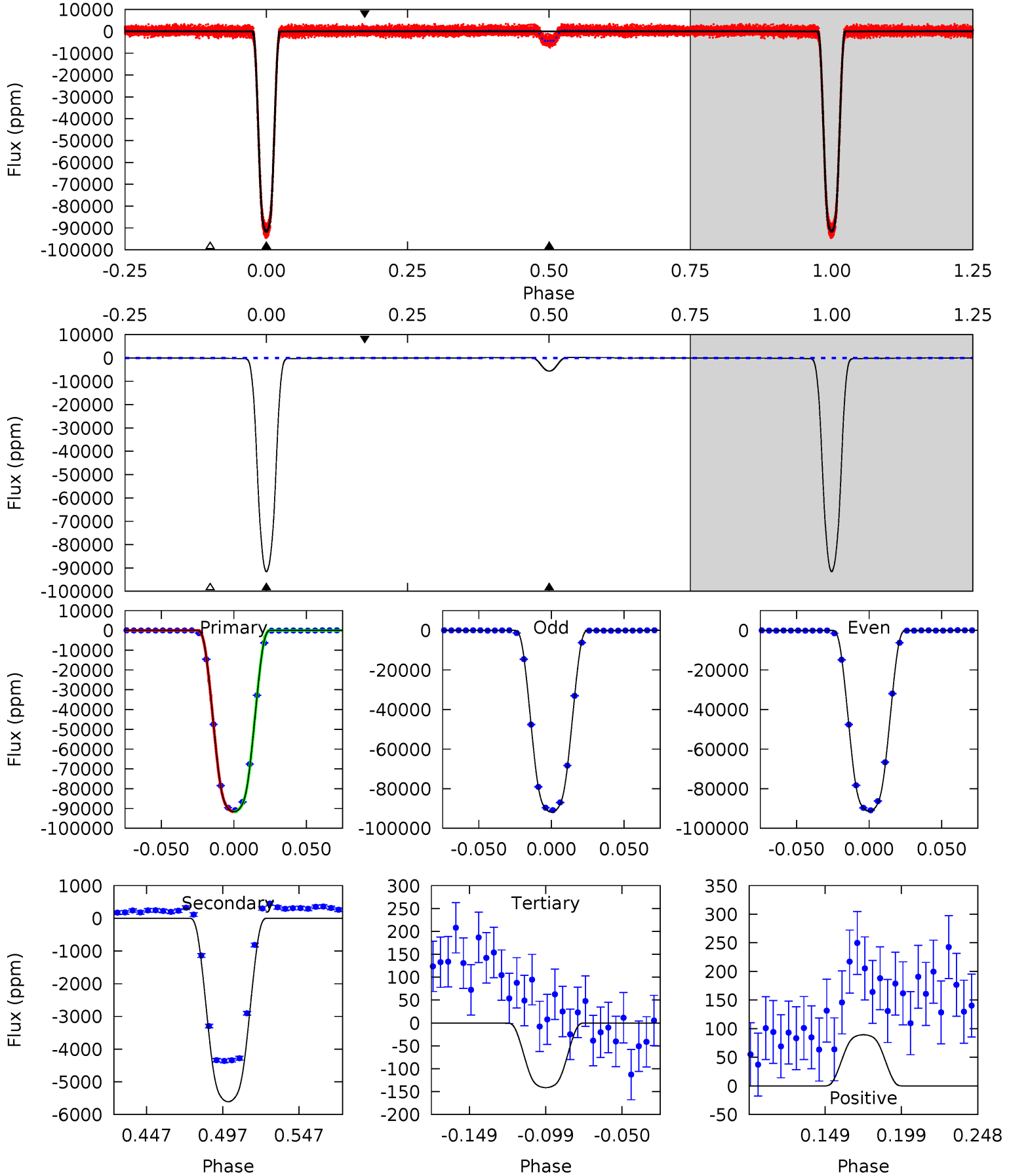
TCE 006182019-01 P= 3.664986 Days $T_0=134.148588$ (BKJD)



DV Model-Shift Uniqueness Test

006182019-01, P = 3.664964 Days, E = 134.153016 Days

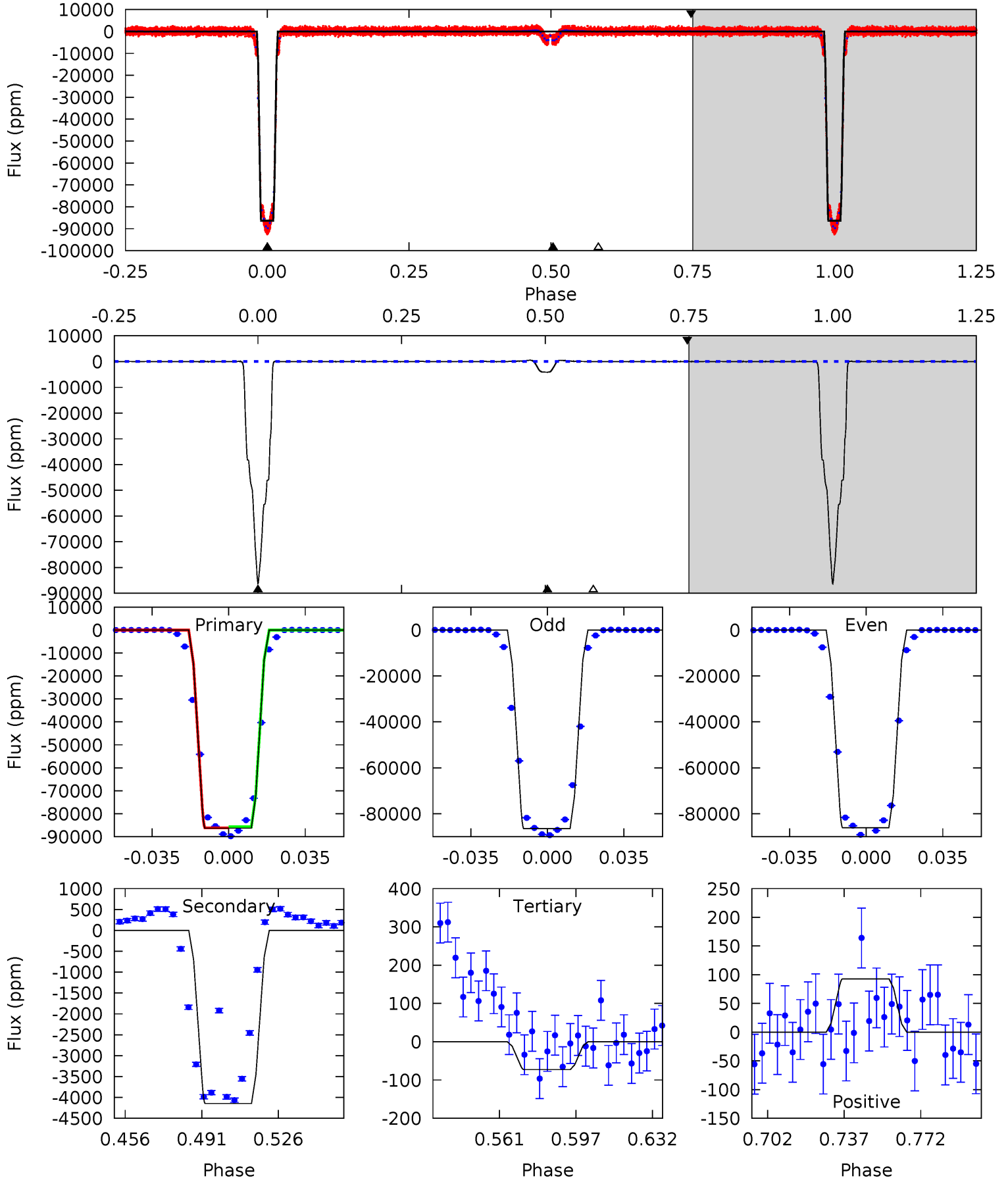
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4624	283.0	7.13	4.51	4.71	1.96	4.81	4617	4619	275.9	278.5	11.1	0.99	0.00	1.28



Alt Model-Shift Uniqueness Test

006182019-01, P = 3.664986 Days, E = 134.148588 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2981	143.3	2.51	3.21	4.78	2.11	1.93	2979	2978	140.7	140.0	6.80	1.00	0.01	0



Stellar Parameters For KIC 006182019

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5726^{+177}_{-197}	$4.403^{+0.128}_{-0.192}$	$-0.140^{+0.300}_{-0.300}$	$0.987^{+0.280}_{-0.151}$	$0.899^{+0.125}_{-0.083}$	$1.317^{+0.744}_{-0.641}$
	+3%/-3%	+3%/-4%	+214%/-214%	+28%/-15%	+14%/-9%	+56%/-49%
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 006182019-01 / KOI 6023.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5609 ± 20	$31.64^{+5.11}_{-3.04}$	1663^{+127}_{-98}	3394^{+66}_{-79}	$6.233^{+1.378}_{-1.480}$
Alt.	-4146 ± 29	$32.26^{+5.44}_{-2.88}$	1666^{+125}_{-98}	3204^{+62}_{-72}	$4.373^{+0.917}_{-1.102}$

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 $A_{obs} \gg 1.0$

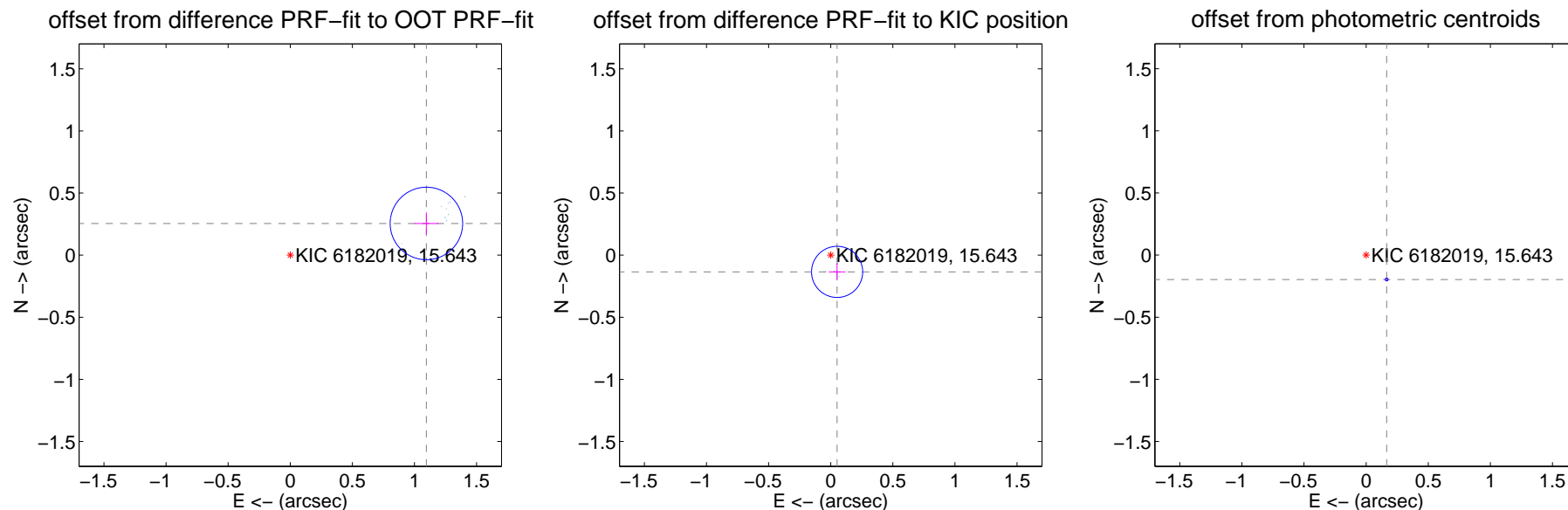
DV Centroid Data

Supplemental centroid analysis for 006182019-01. Kepler magnitude: 15.64. Transit SNR 2036.15

There are 11 quarters with good PRF difference image offsets

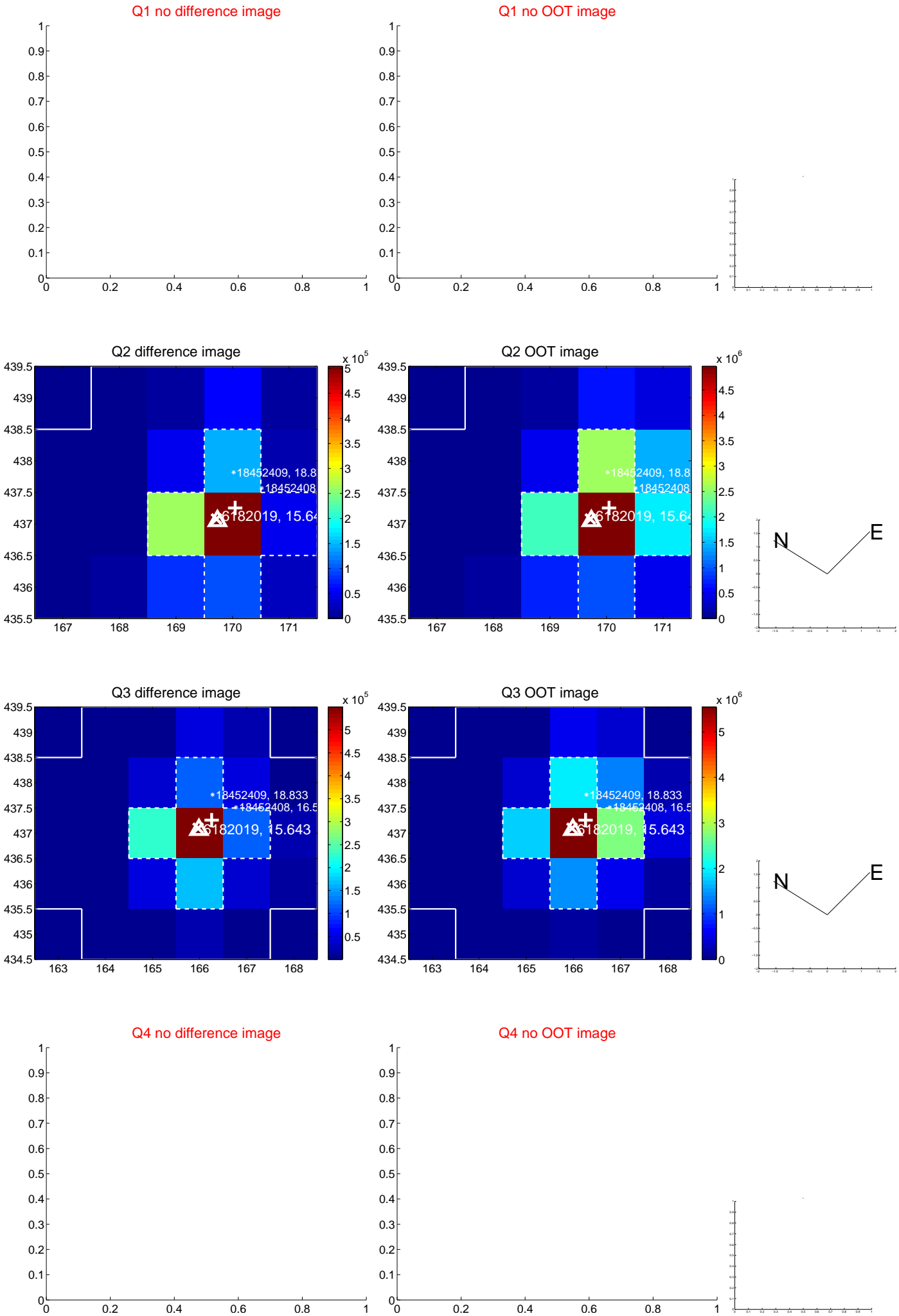
The direct PRF centroid is offset from the target star catalog position by about 0.80 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.126 ± 0.097	11.57	-1.097 ± 0.098	0.255 ± 0.089
PRF-fit source offset from KIC position	0.144 ± 0.069	2.10	-0.051 ± 0.067	-0.135 ± 0.069
photometric centroid source offset	0.26 ± 0.00	68.19	-0.17 ± 0.00	-0.20 ± 0.00

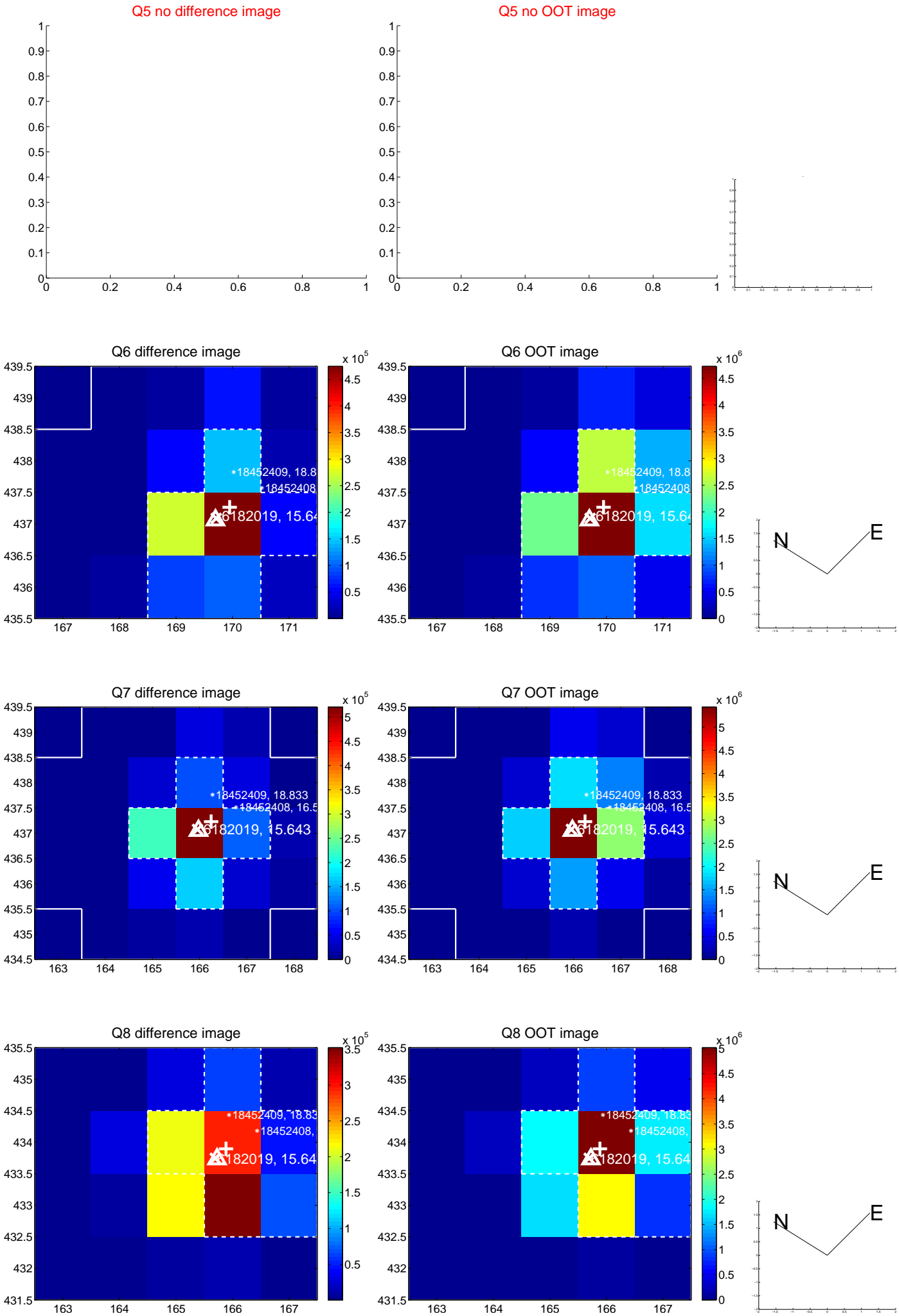


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

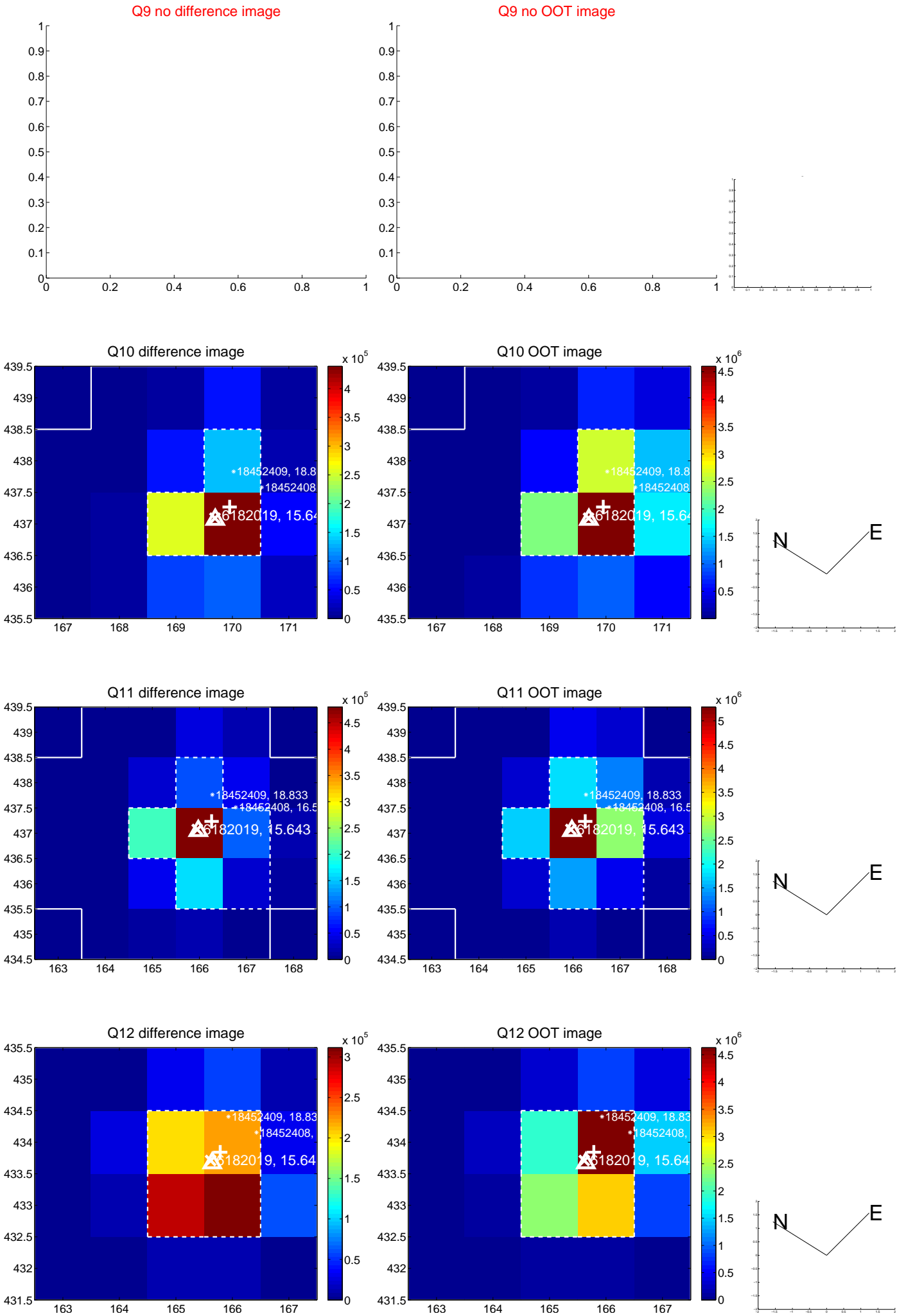
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



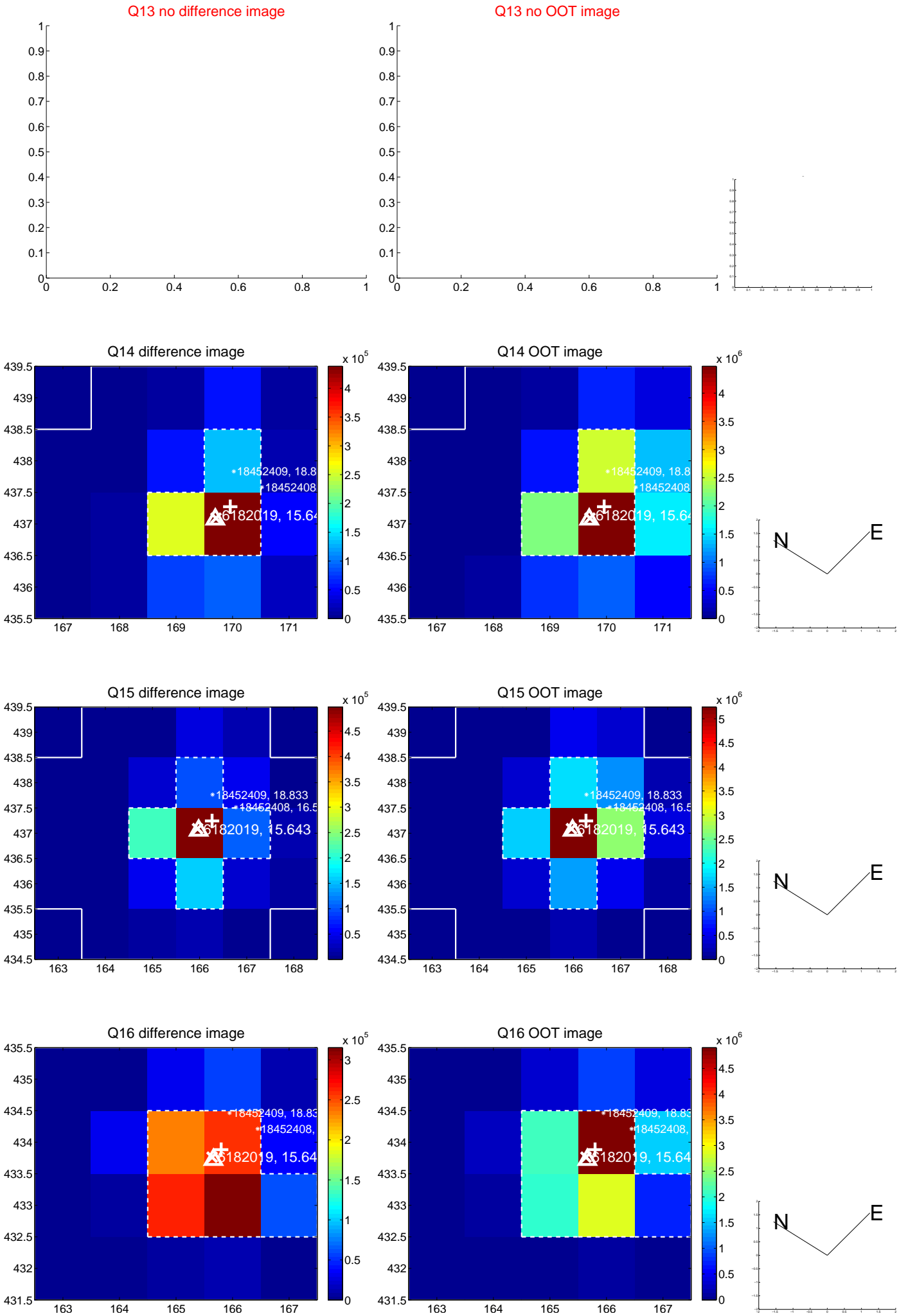
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



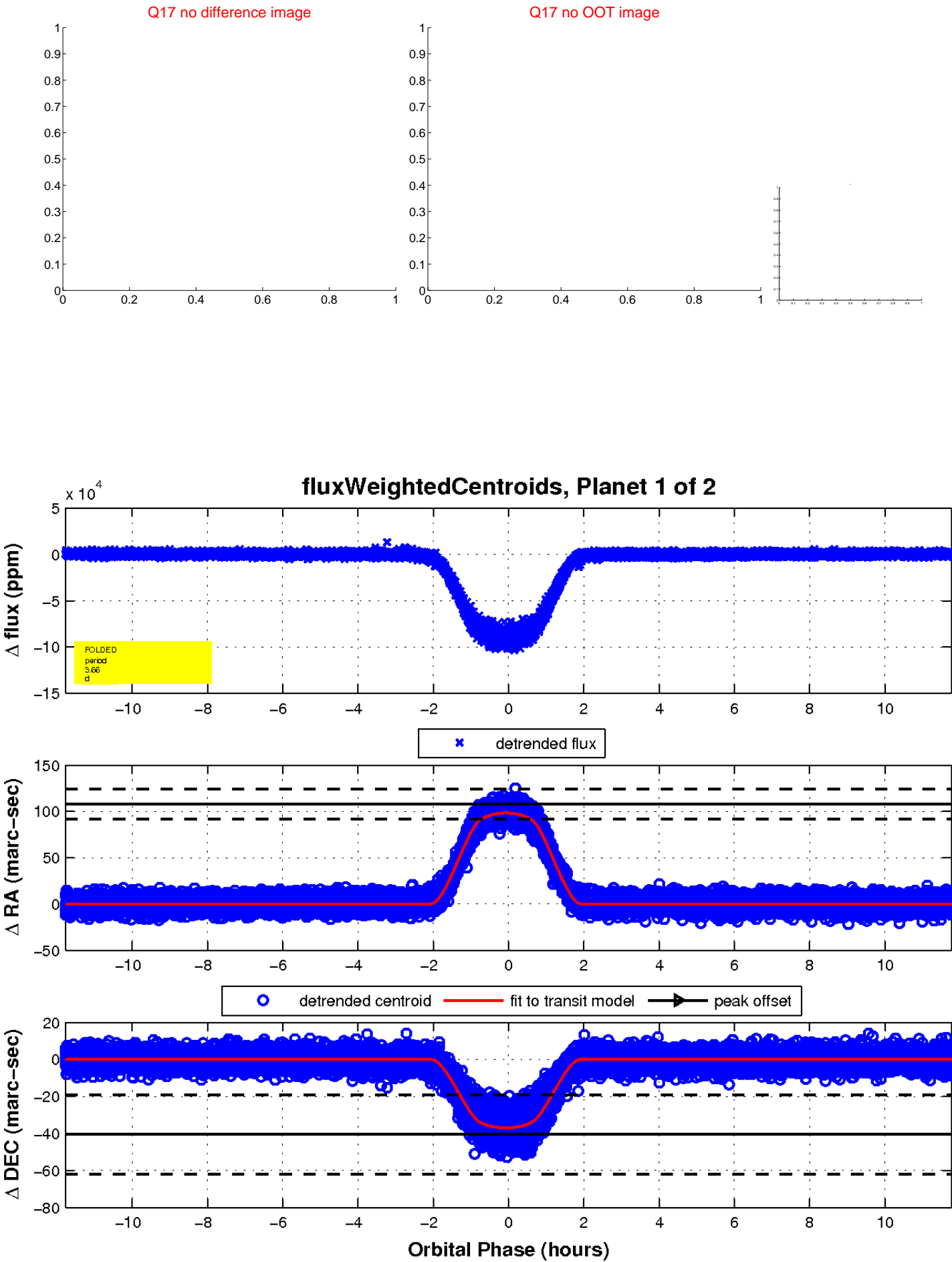
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

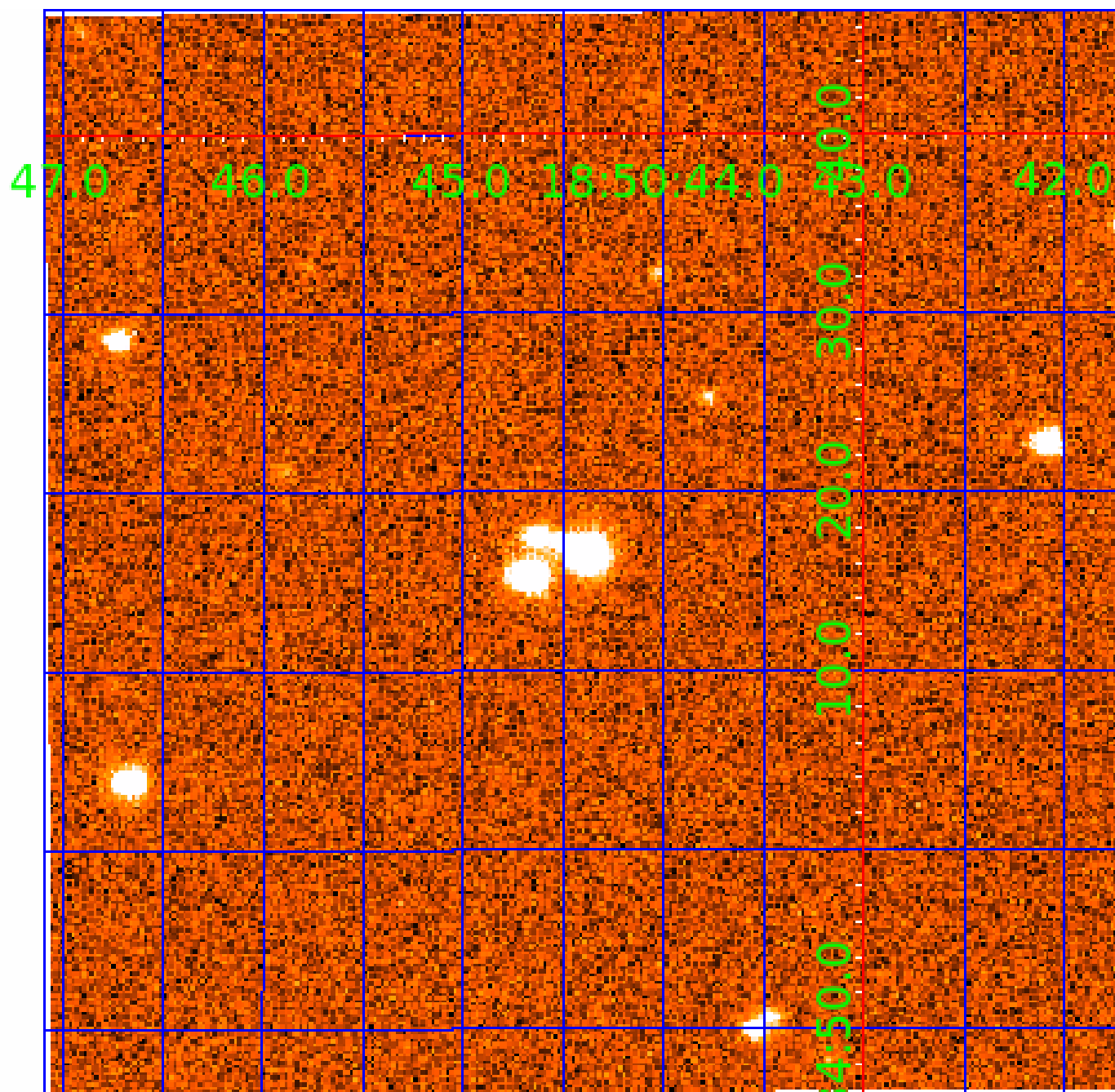


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006182019

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})
006182019-01	OBS	6023.01	3.664964	134.153016	91961.3	3.924	2717.9	2036.1	0.99	5726	31.28	465.32
006182019-02	OBS	No	3.664996	132.313277	4282.9	3.000	151.1	-1.0	0.99	5726	6.41	465.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006182019-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_KIC_POS
006182019-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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.

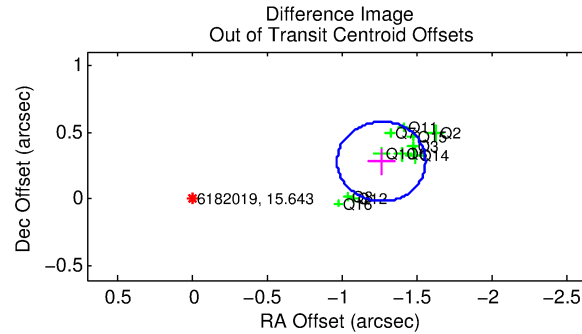
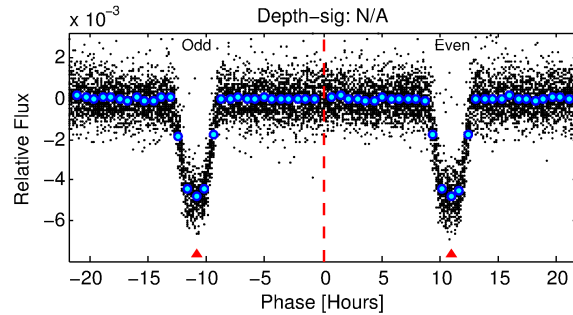
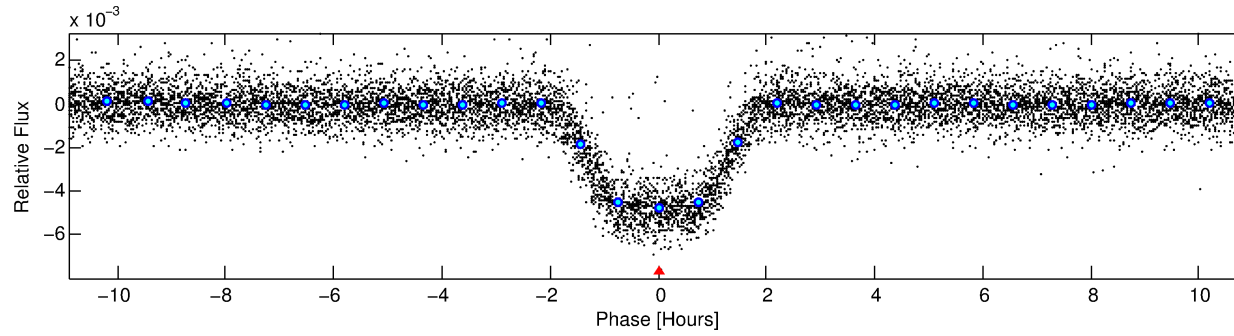
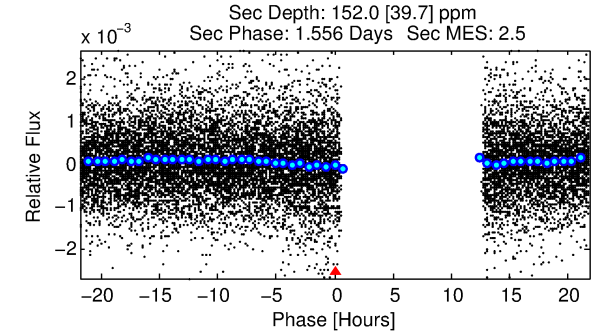
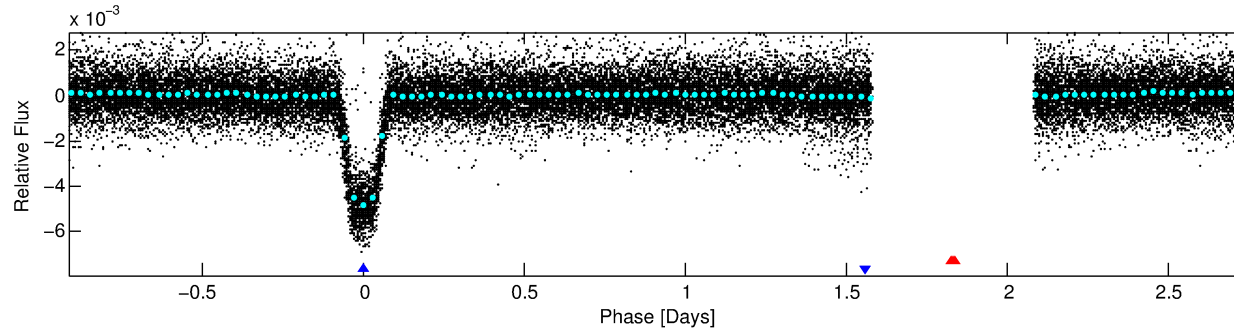
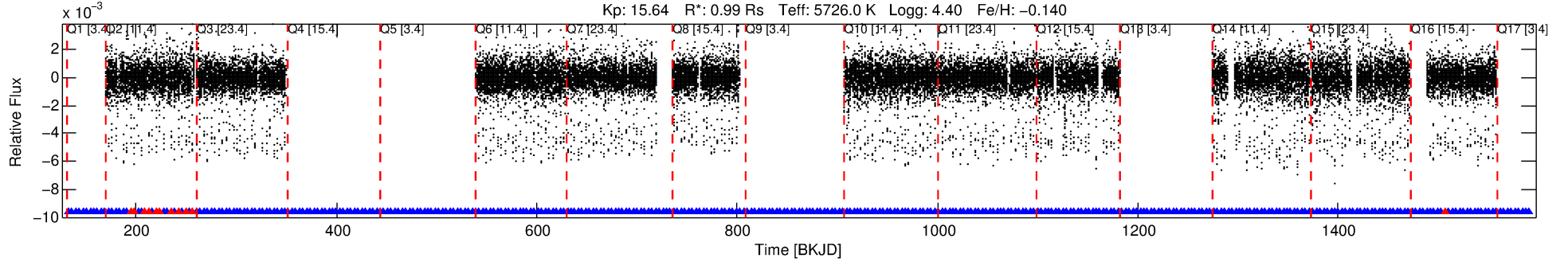
Ephemeris Match Information For 006182019-02

No Significant Match Found

DV One-Page Summary

KIC: 6182019 Candidate: 2 of 2 Period: 3.665 d
KOI: K06023 Corr: No Ephemeris Match

Kp: 15.64 R*: 0.99 Rs Teff: 5726.0 K Logg: 4.40 Fe/H: -0.140



TPS TCE Results:

Period = 3.66500 d
Epoch = 132.3133 BKJD

DV fit results are unavailable

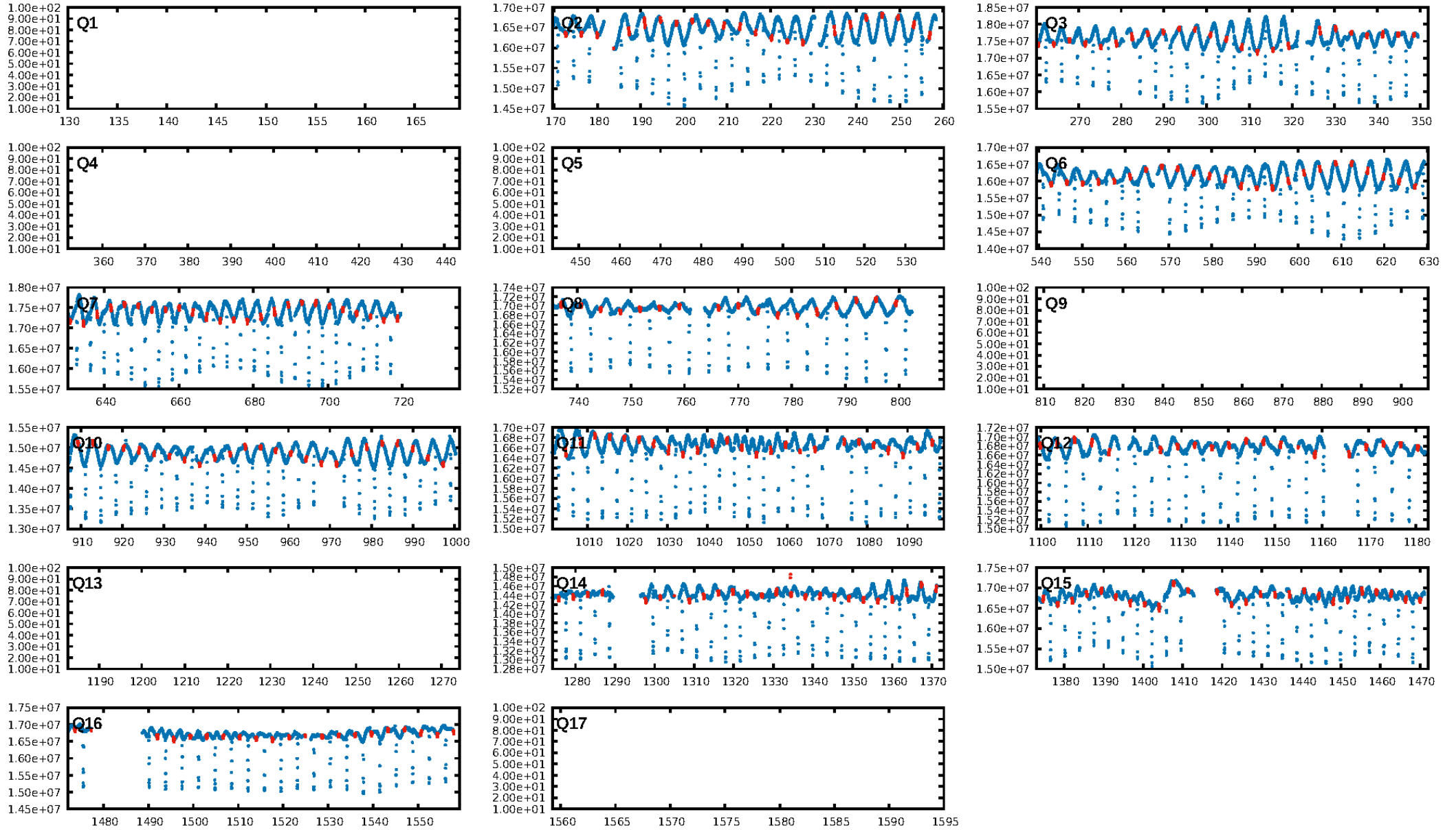
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [240/251]
GhostDiagnostic-chr: 1.926
Centroid-sig: 0.0%
Centroid-so: 0.329 arcsec [5.20 σ]
OotOffset-rm: 1.298 arcsec [13.15 σ]
KicOffset-rm: 0.234 arcsec [3.30 σ]
OotOffset-st: 4/4/3/0 [11]
KicOffset-st: 4/4/3/0 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [11/11]

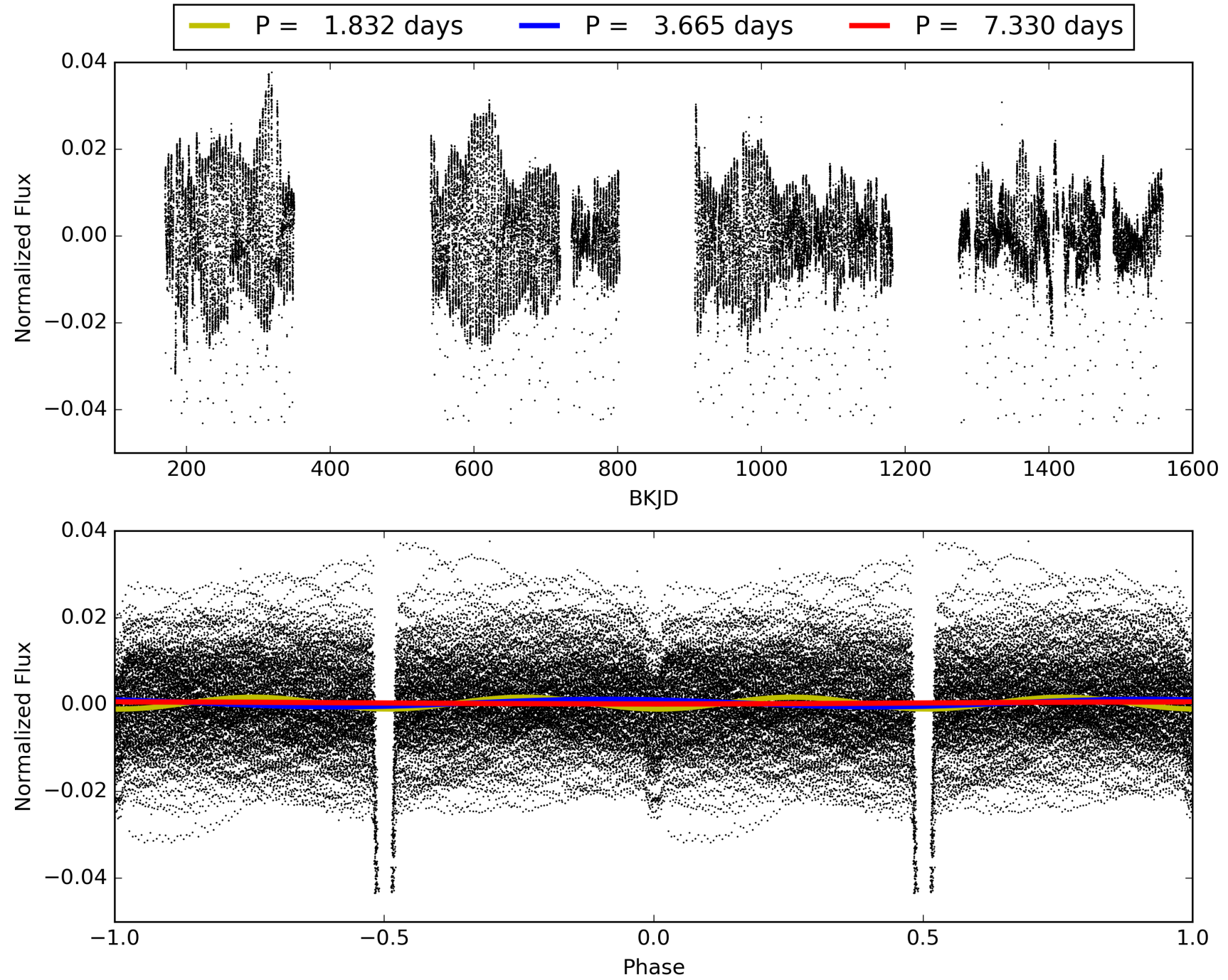
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:03:37 Z

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

TCE 006182019-02, PDC Light Curves

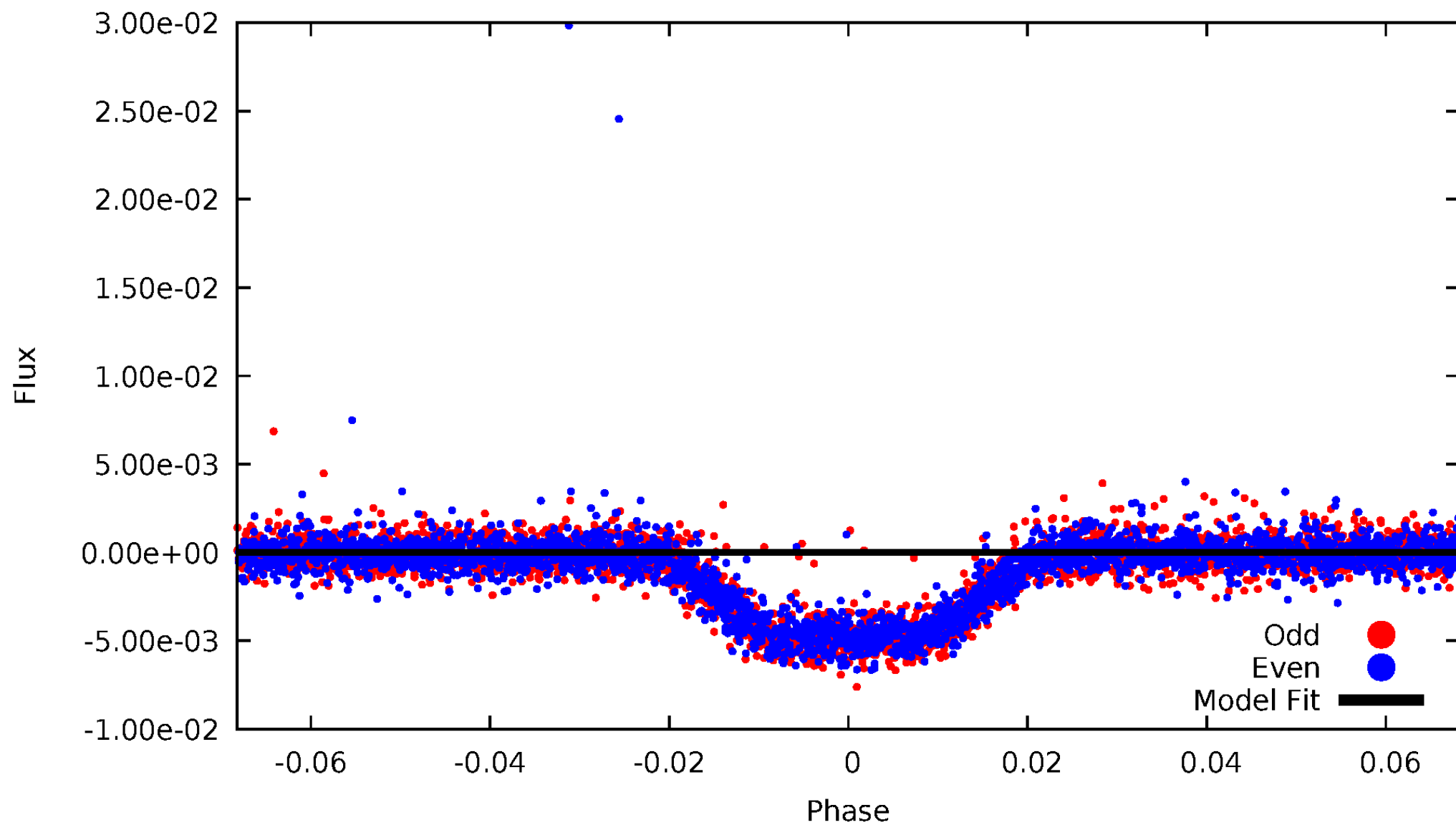


TCE 006182019-02



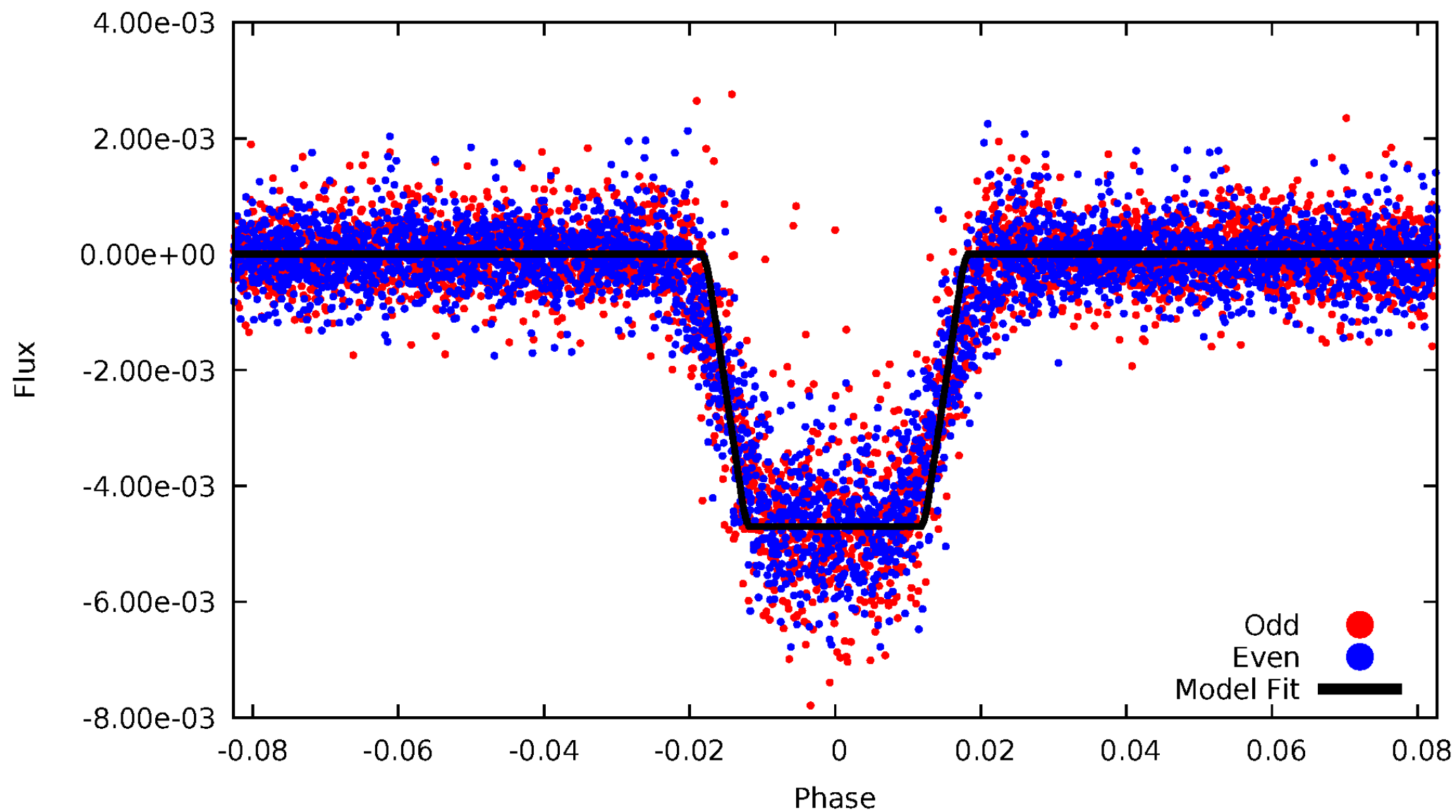
DV Odd/Even

TCE 006182019-02



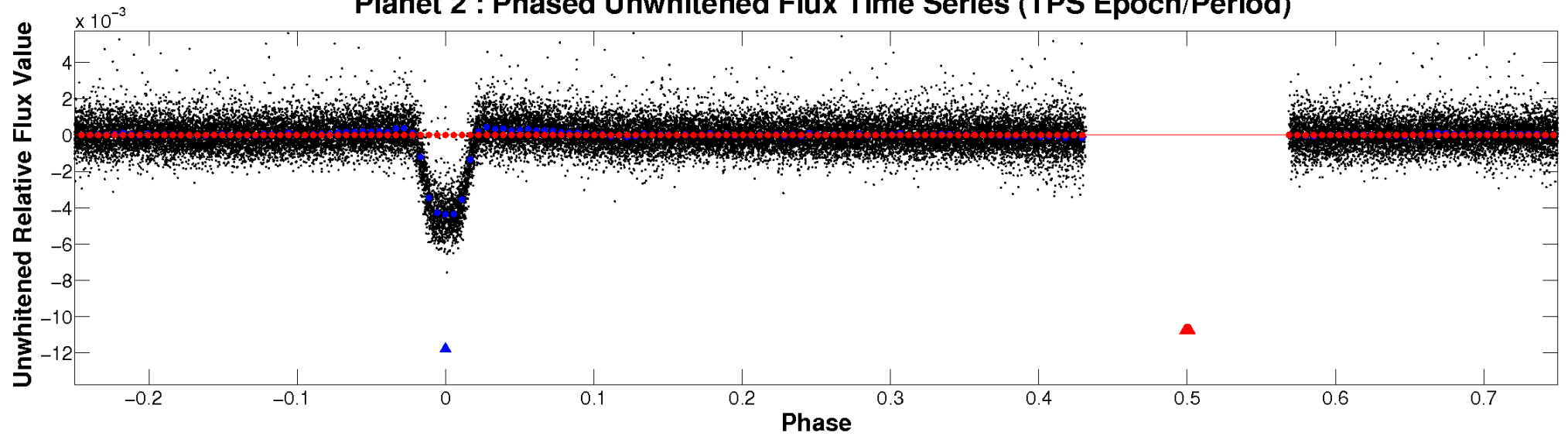
ALT Odd/Even

TCE 006182019-02



Non-Whitened Vs. Whitened Light Curve

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

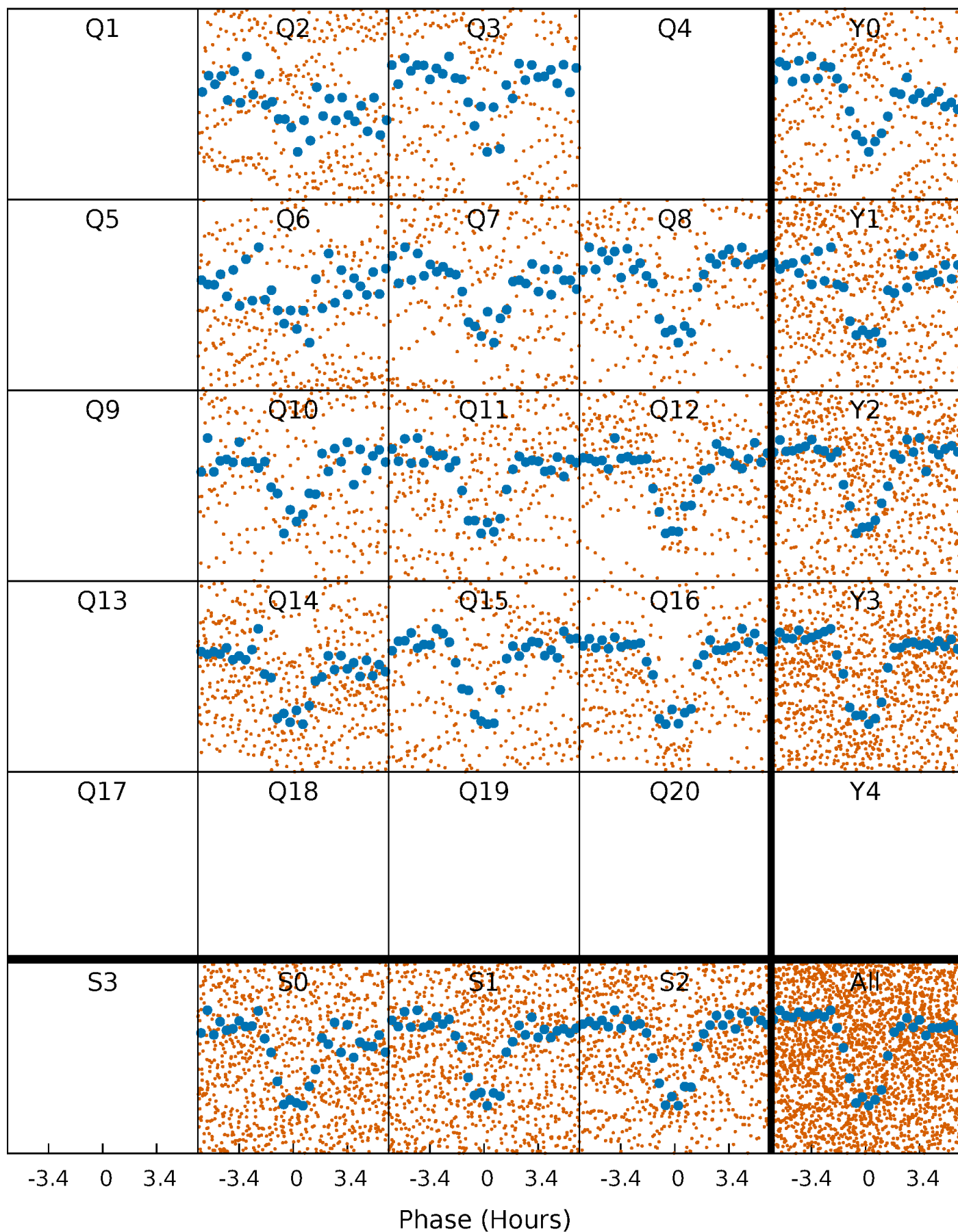


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



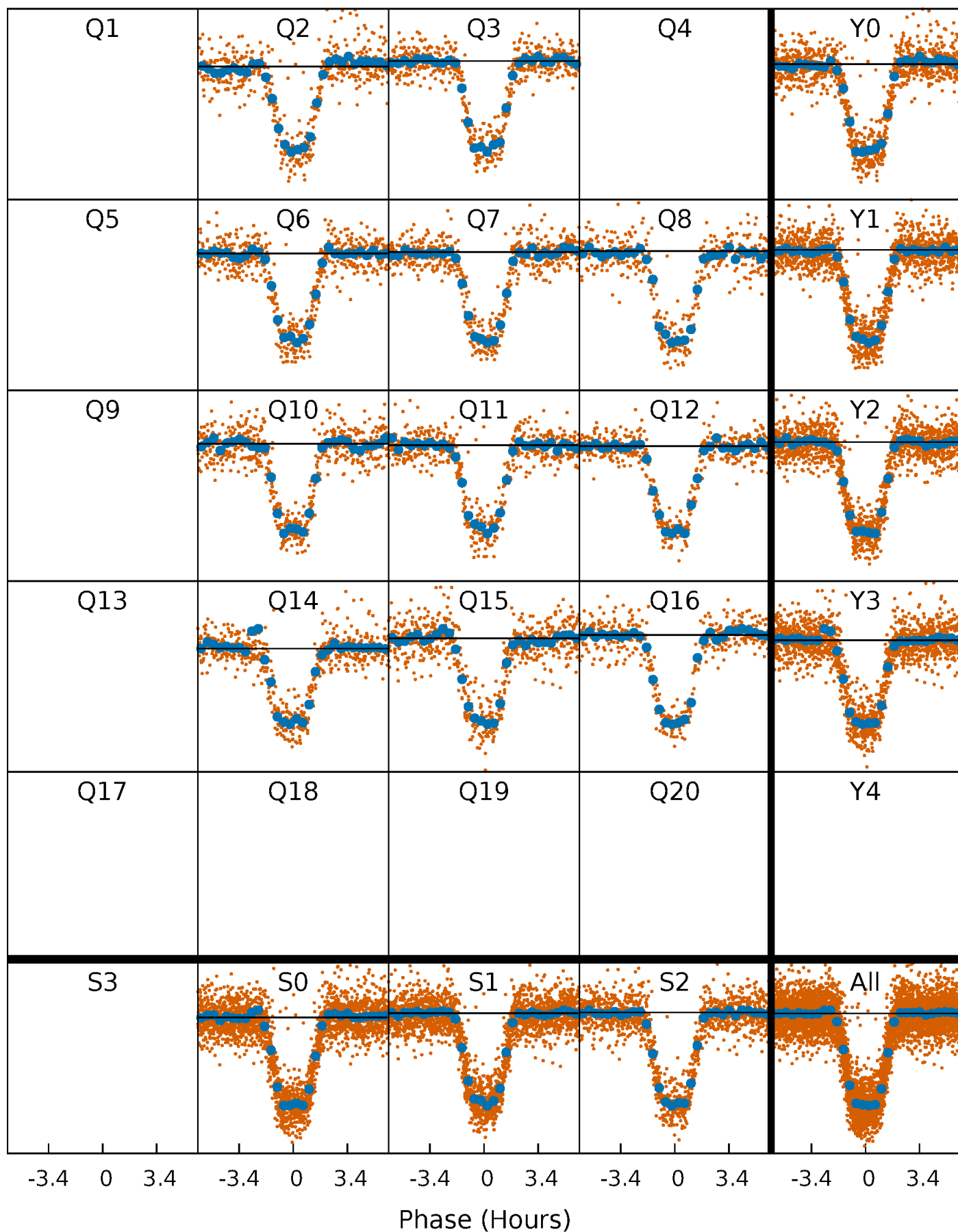
PDC Quarter-Phased Transit Curves

TCE 006182019-02 P= 3.664996 Days $T_0=132.313277$ (BKJD)



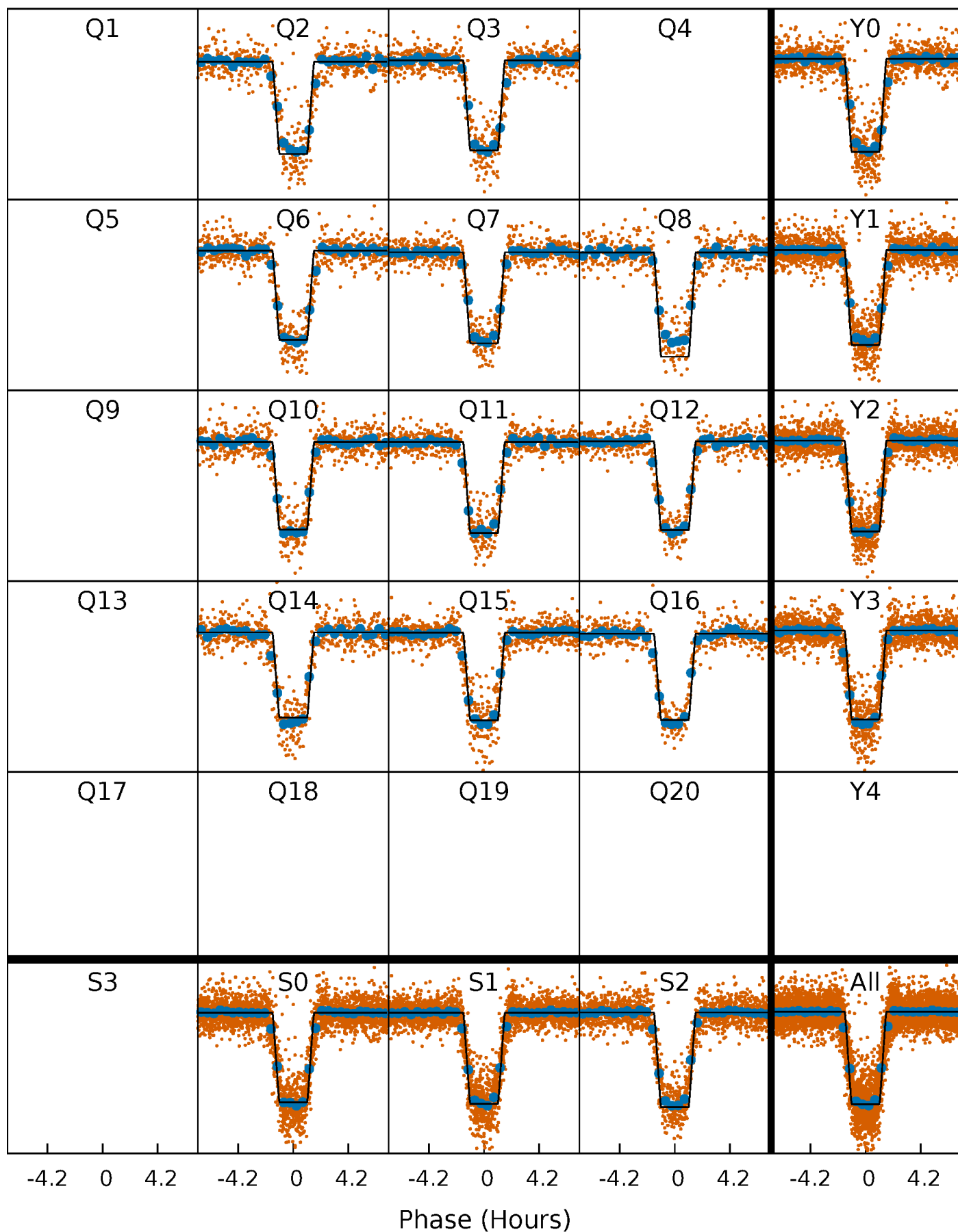
DV Quarter-Phased Transit Curves

TCE 006182019-02 P= 3.664996 Days $T_0=132.313277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

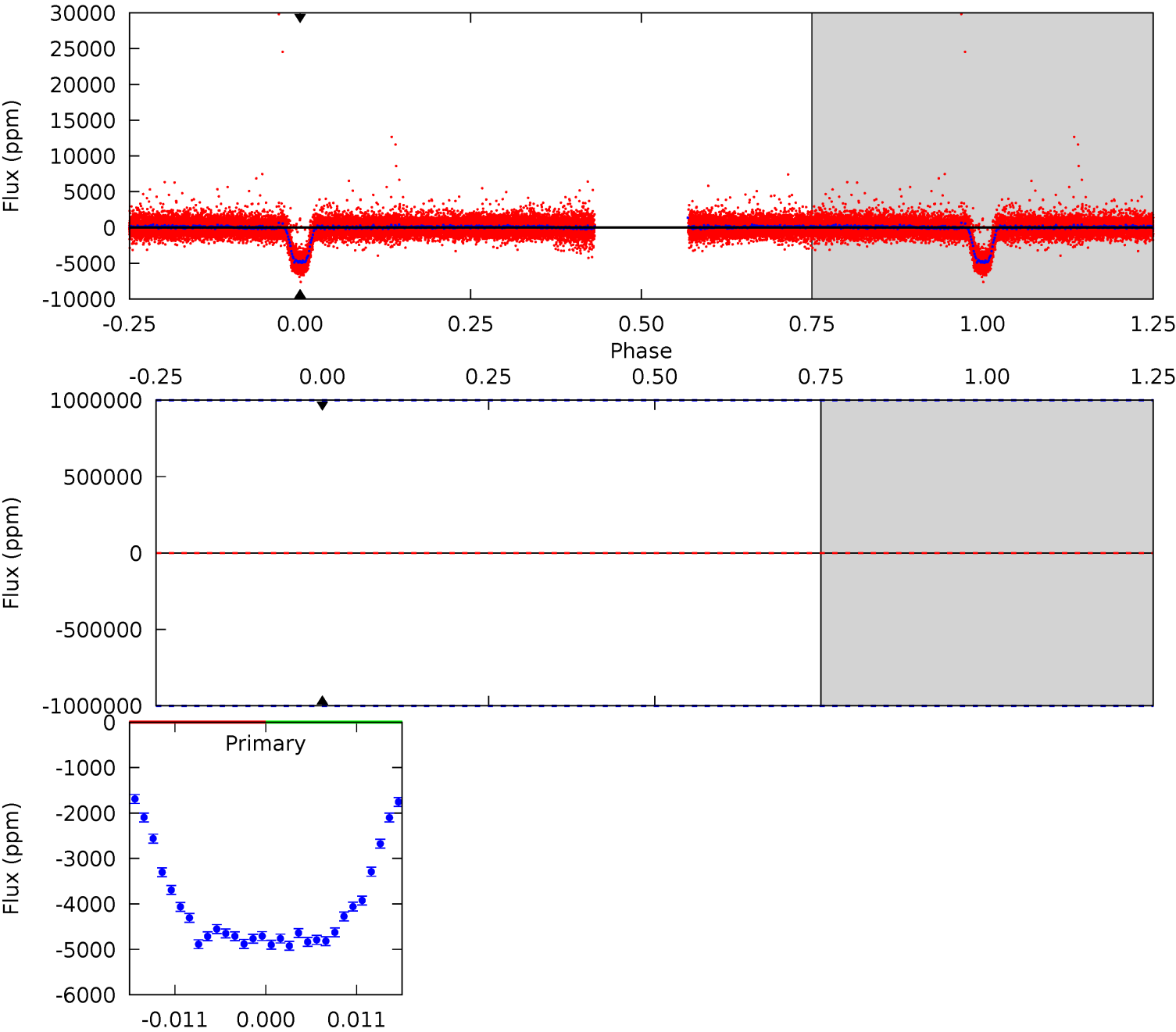
TCE 006182019-02 $P = 3.664996$ Days $T_0 = 132.314087$ (BKJD)



DV Model-Shift Uniqueness Test

006182019-02, P = 3.664996 Days, E = 132.313277 Days

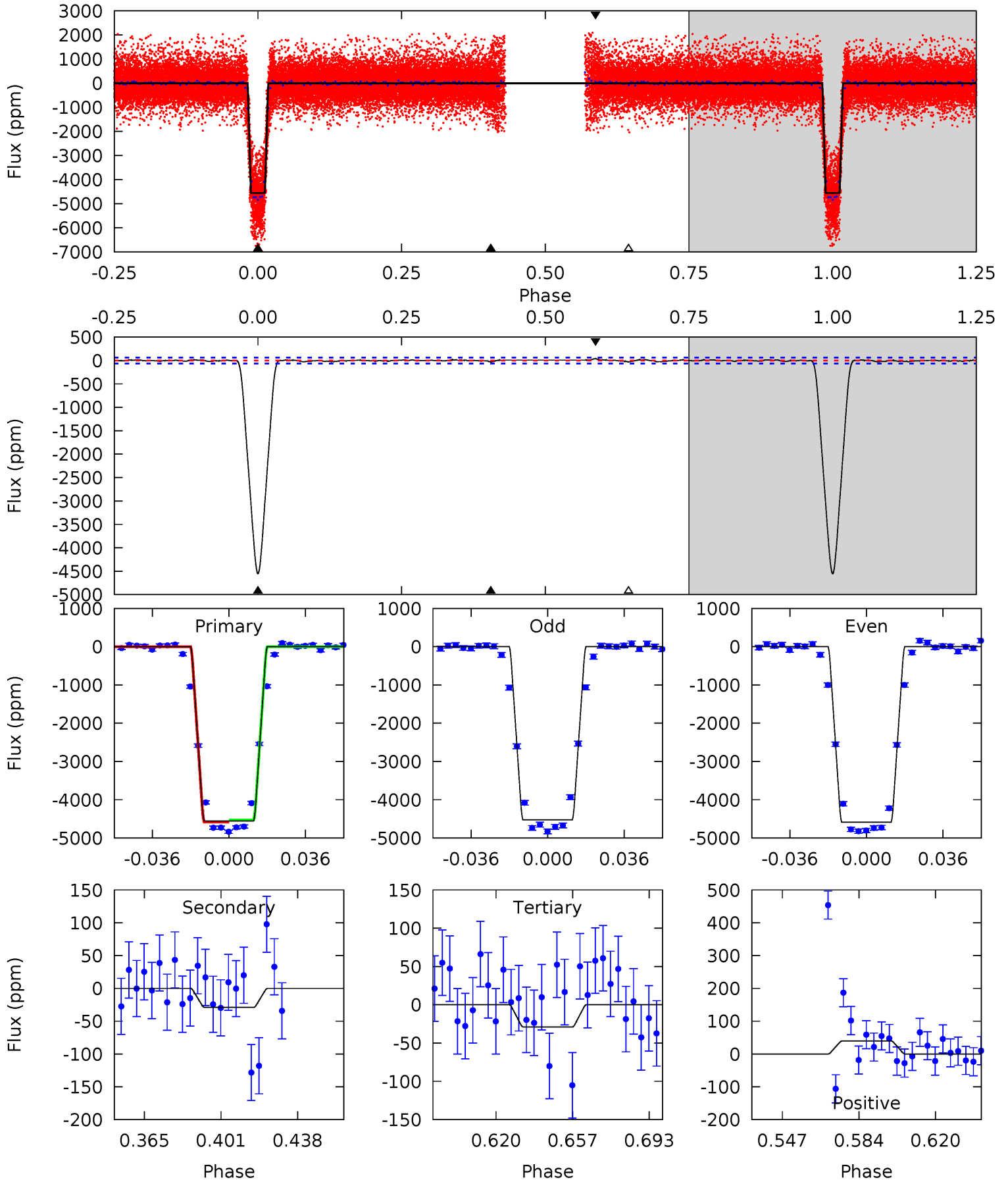
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006182019-02, P = 3.664996 Days, E = 132.314087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
339.7	2.17	2.17	2.94	4.77	2.09	0.81	337.5	336.8	0.00	-0.77	2.39	1.01	0.01	0



Stellar Parameters For KIC 006182019

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5726^{+177}_{-197}	$4.403^{+0.128}_{-0.192}$	$-0.140^{+0.300}_{-0.300}$	$0.987^{+0.280}_{-0.151}$	$0.899^{+0.125}_{-0.083}$	$1.317^{+0.744}_{-0.641}$
	+3%/-3%	+3%/-4%	+214%/-214%	+28%/-15%	+14%/-9%	+56%/-49%
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 006182019-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$10.27^{+10.05}_{-7.07}$	1660^{+117}_{-100}	4207^{+12953}_{-20146}	19^{+2084}_{-1726}
Alt.	-29 ± 13	$11.82^{+9.44}_{-7.40}$	1657^{+126}_{-94}	-2000^{+4734}_{-248}	$0.208^{+1.378}_{-0.151}$

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

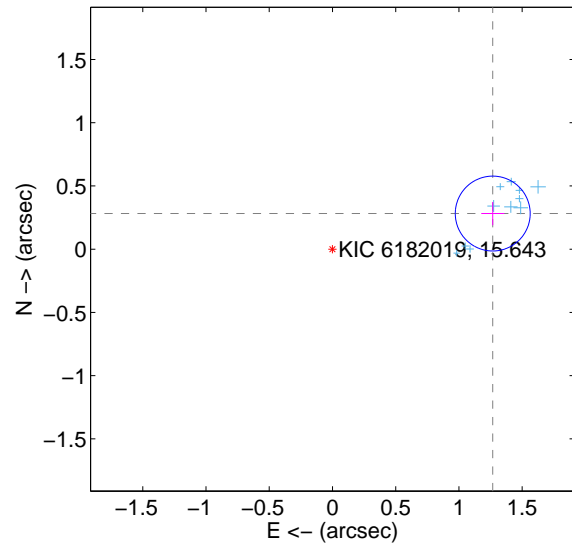
Supplemental centroid analysis for 006182019-02. Kepler magnitude: 15.64. Transit SNR -1.00

There are 11 quarters with good PRF difference image offsets

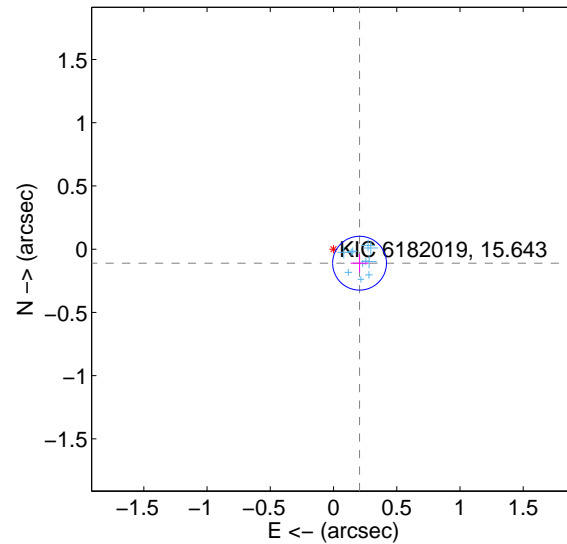
The direct PRF centroid is offset from the target star catalog position by about 0.79 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.298 ± 0.099	13.15	-1.267 ± 0.091	0.282 ± 0.092
PRF-fit source offset from KIC position	0.234 ± 0.071	3.30	-0.206 ± 0.070	-0.111 ± 0.073
photometric centroid source offset	0.33 ± 0.06	5.20	-0.15 ± 0.07	-0.29 ± 0.06

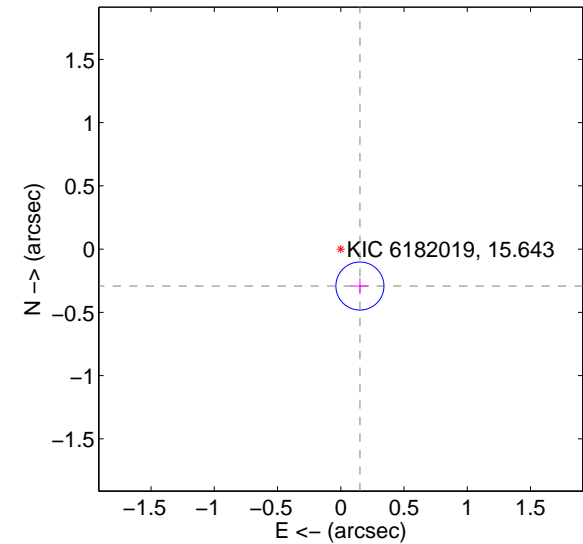
offset from difference PRF-fit to OOT PRF-fit



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.

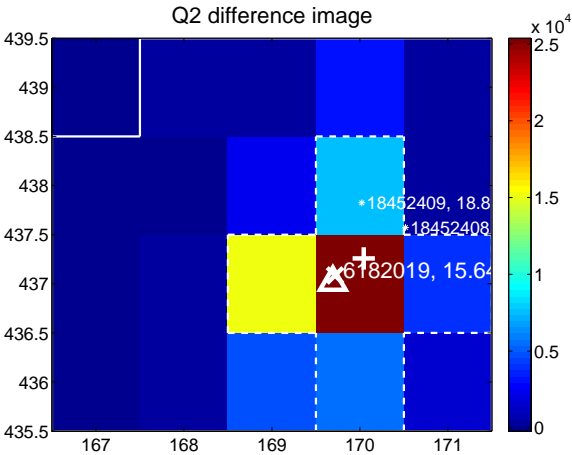
Q1 no difference image



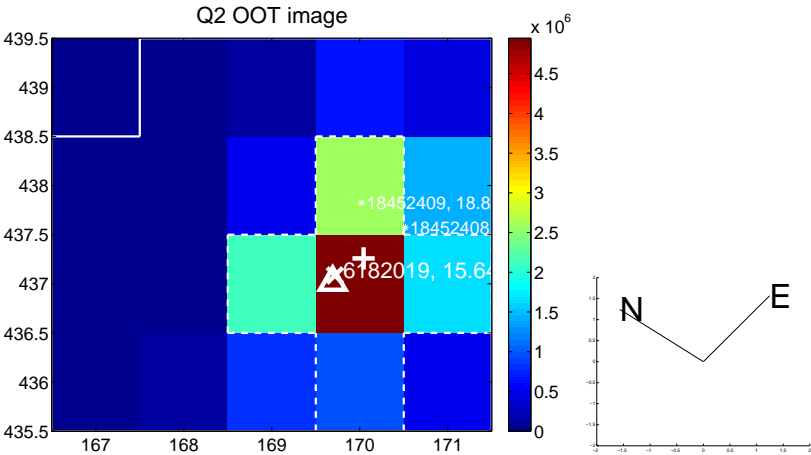
Q1 no OOT image



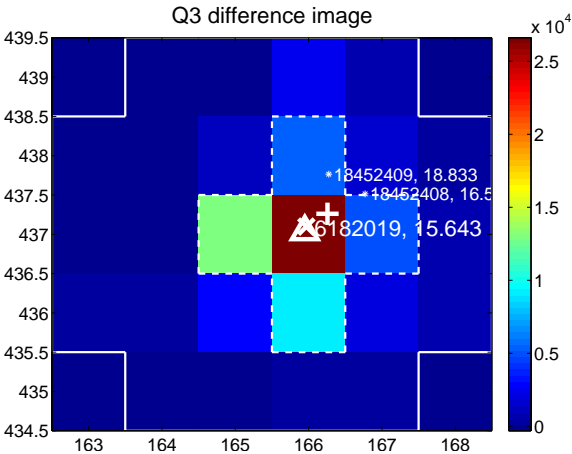
Q2 difference image



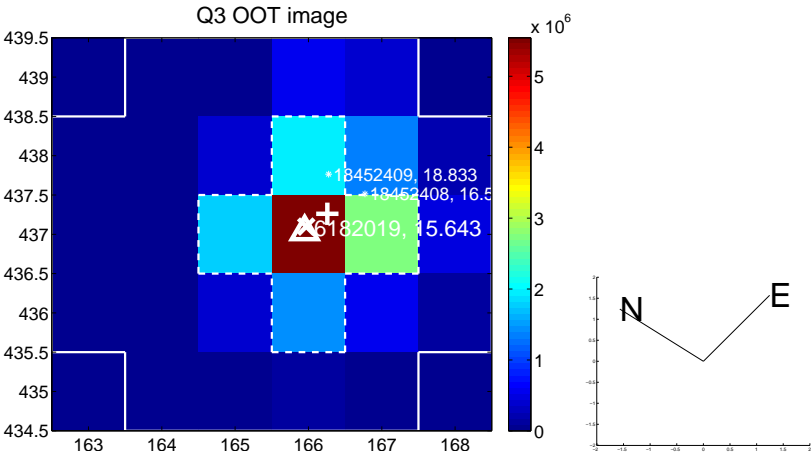
Q2 OOT image



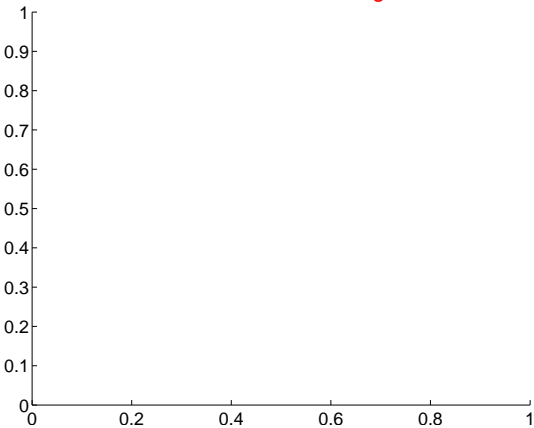
Q3 difference image



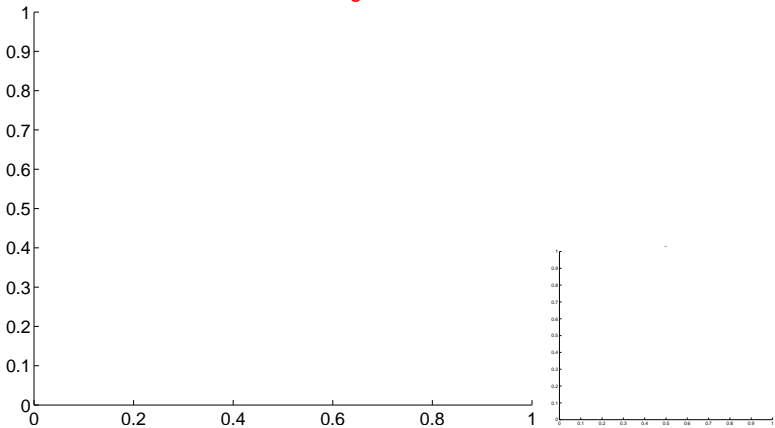
Q3 OOT image



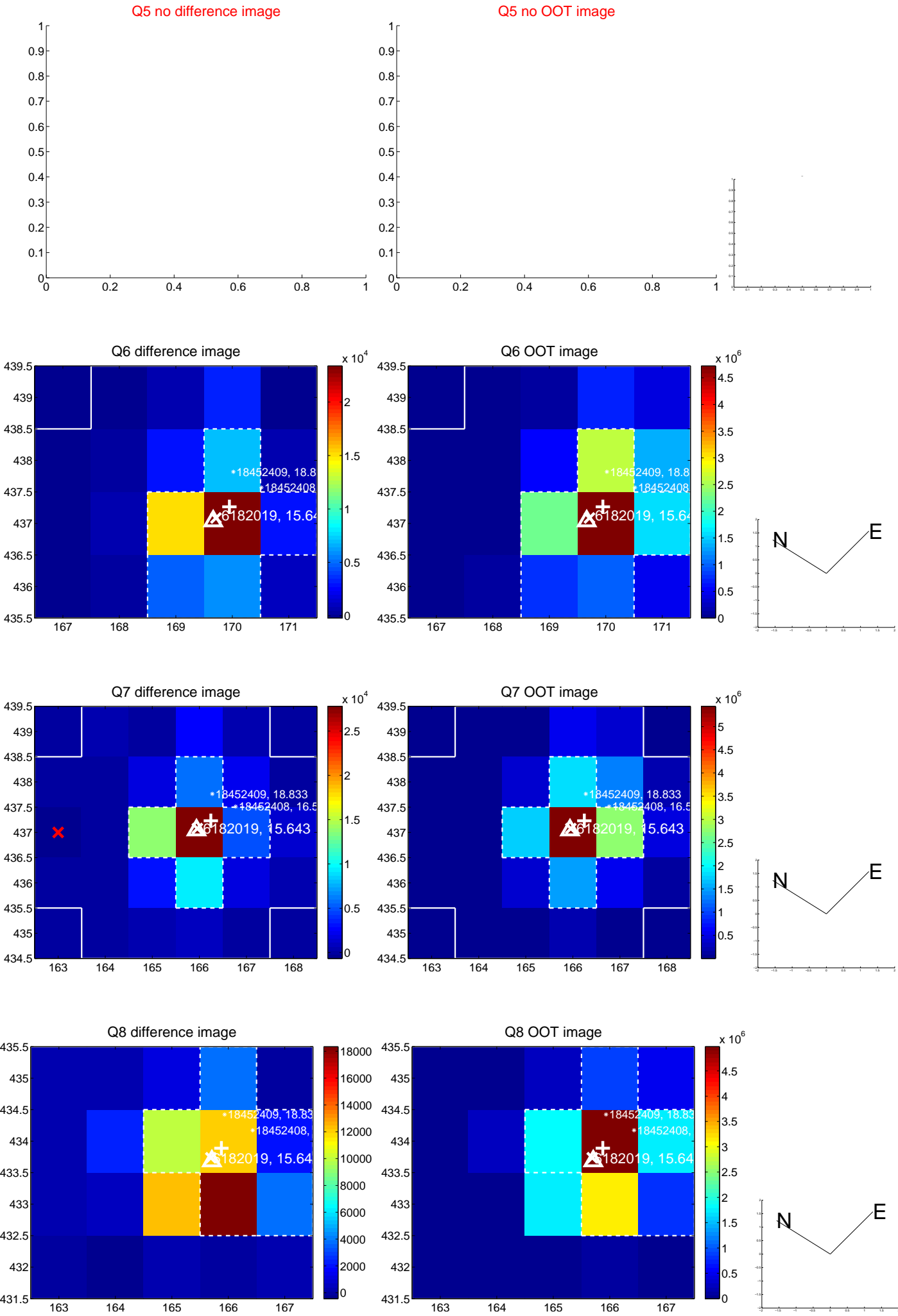
Q4 no difference image



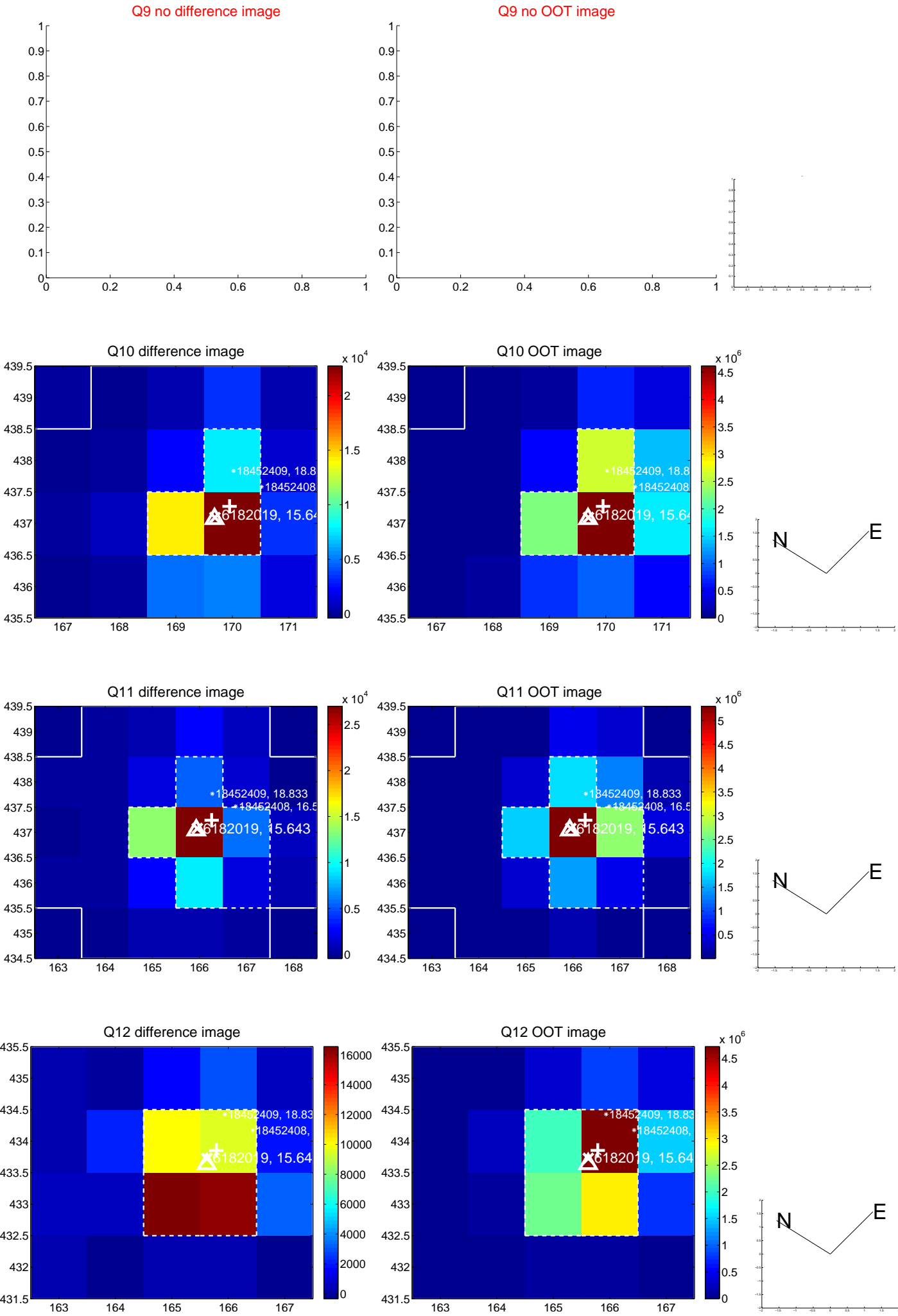
Q4 no OOT image



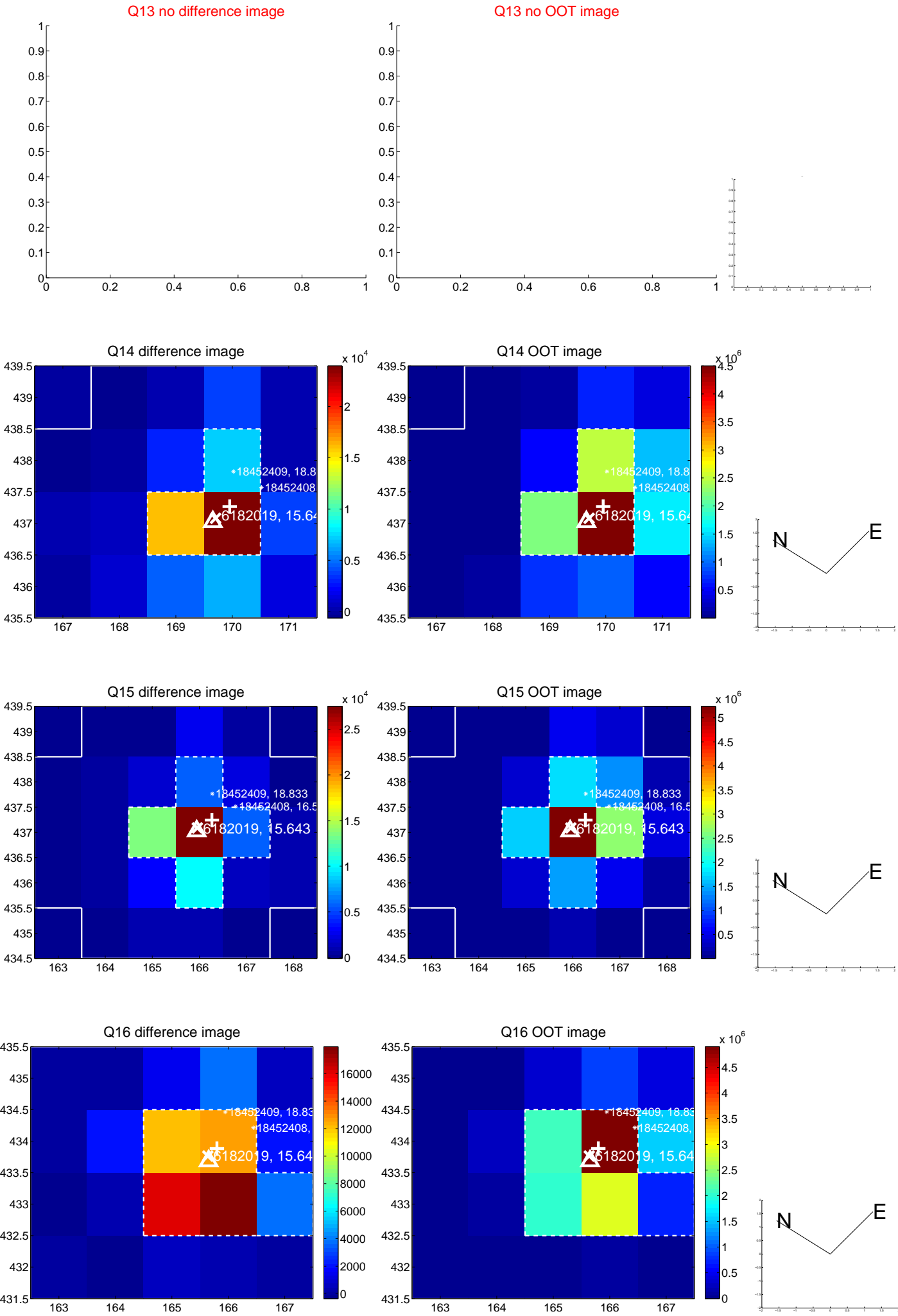
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



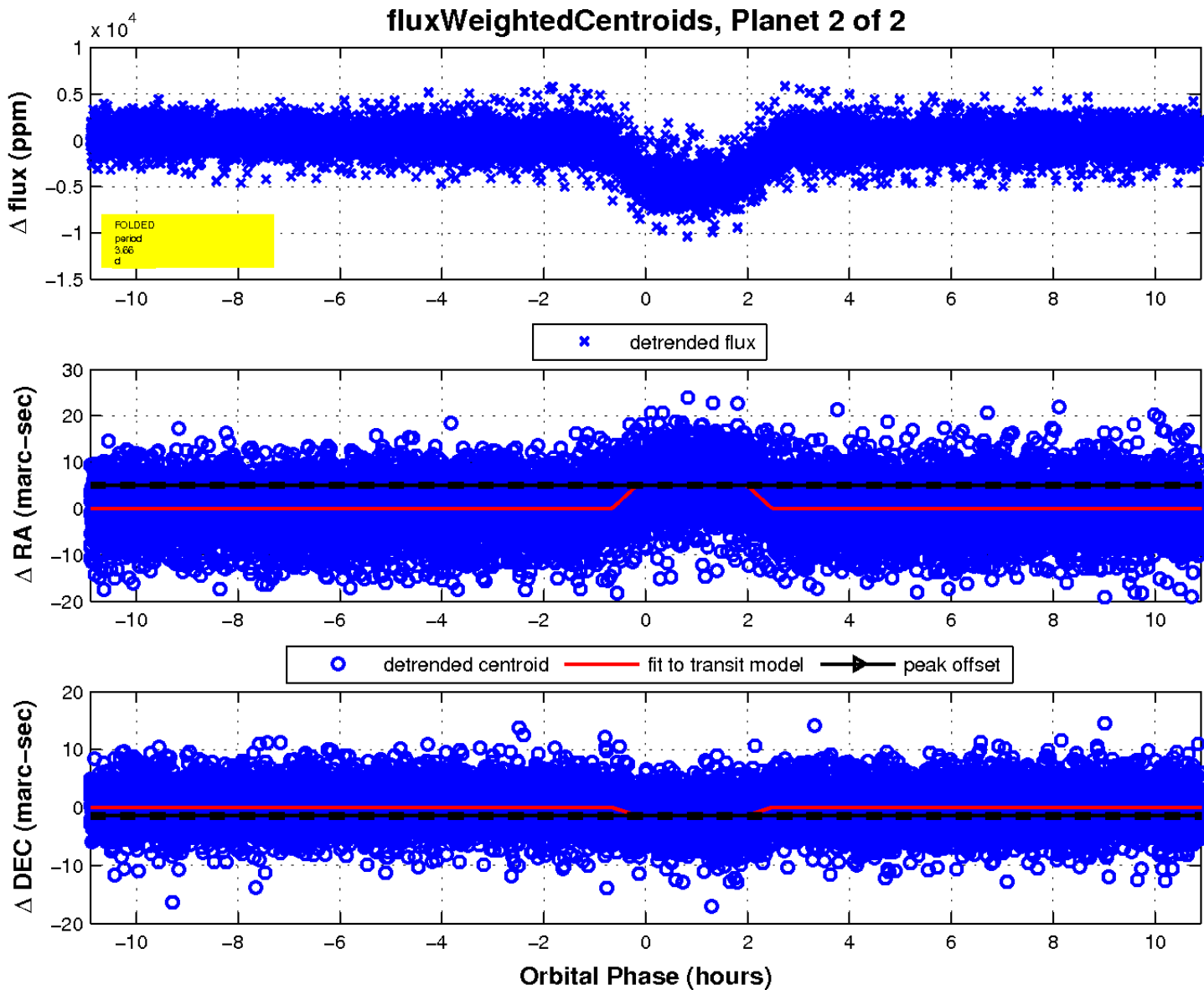
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination

