

KIC 009718191

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})
009718191-01	OBS	No	436.177904	363.251902	106.6	14.254	8.5	8.5	1.27	5877	1.49	1.25
009718191-02	OBS	No	665.258967	216.672419	88.1	7.919	7.2	7.1	1.27	5877	1.44	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009718191-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_MEAS
009718191-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

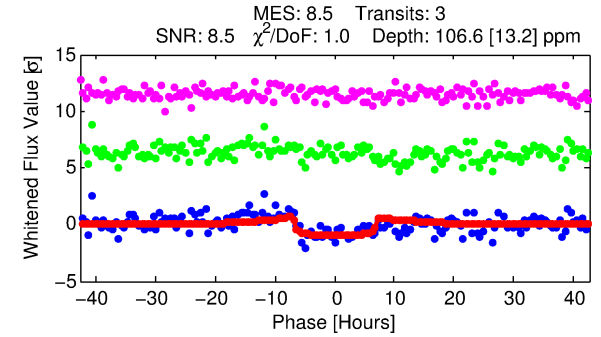
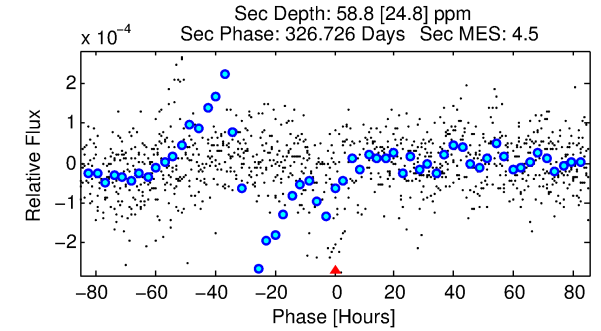
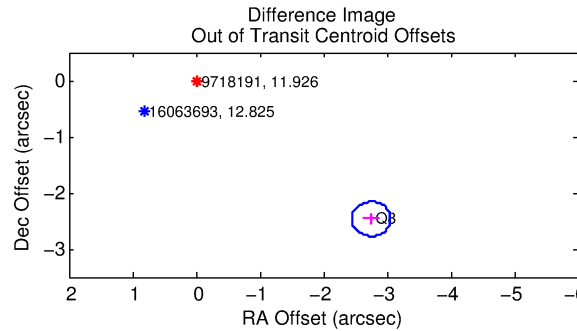
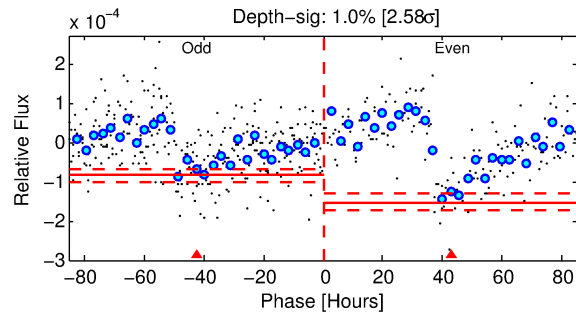
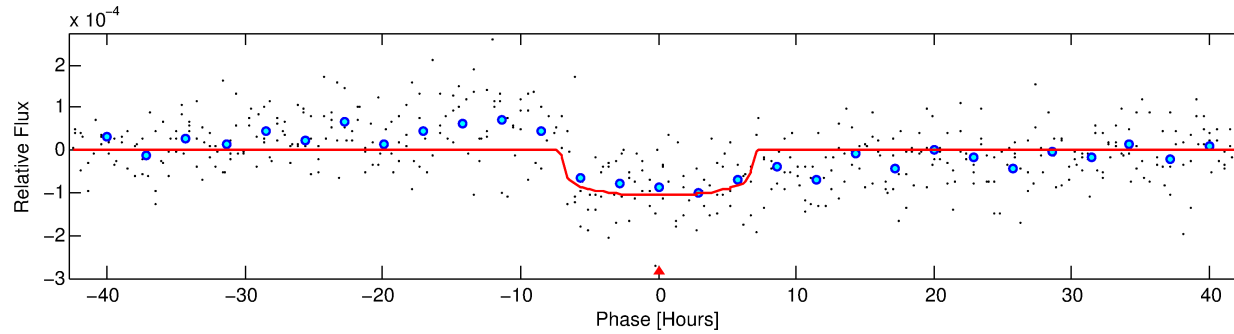
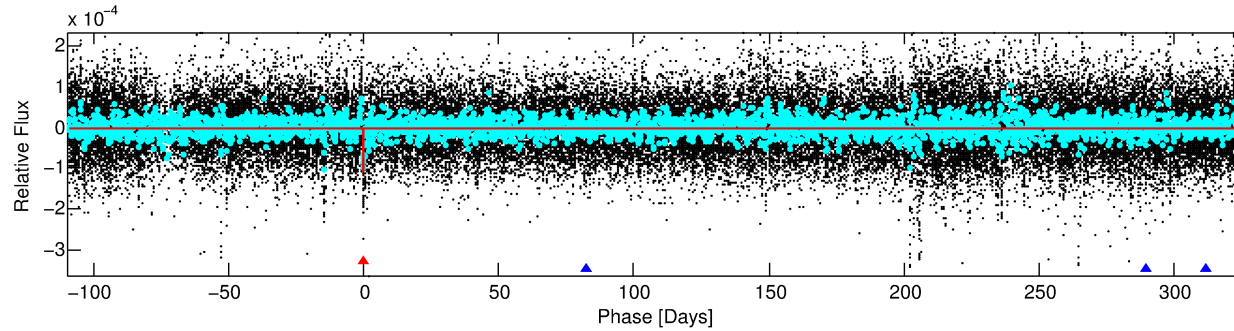
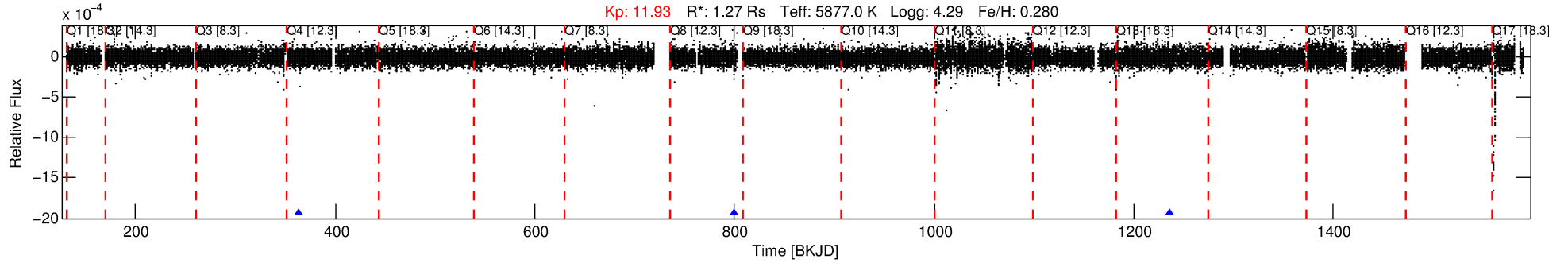
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009718191-01

No Significant Match Found

DV One-Page Summary

KIC: 9718191 Candidate: 1 of 2 Period: 436.178 d



DV Fit Results:

Period = 436.17790 [0.01320] d
Epoch = 363.2519 [0.0143] BKJD
 R_p/R^* = 0.0107 [0.0025]
 a/R^* = 130.81 [132.86]
 b = 0.84 [0.35]
 Seff = 1.25 [0.27]
 T_{eq} = 270 [15] K
 R_p = 1.49 [0.43] R_e
 a = 1.1743 [0.1703] AU
 A_g = 20141.68 [13337.80] [1.51 σ]
 T_{eff} = 4964 [782] K [6.00 σ]

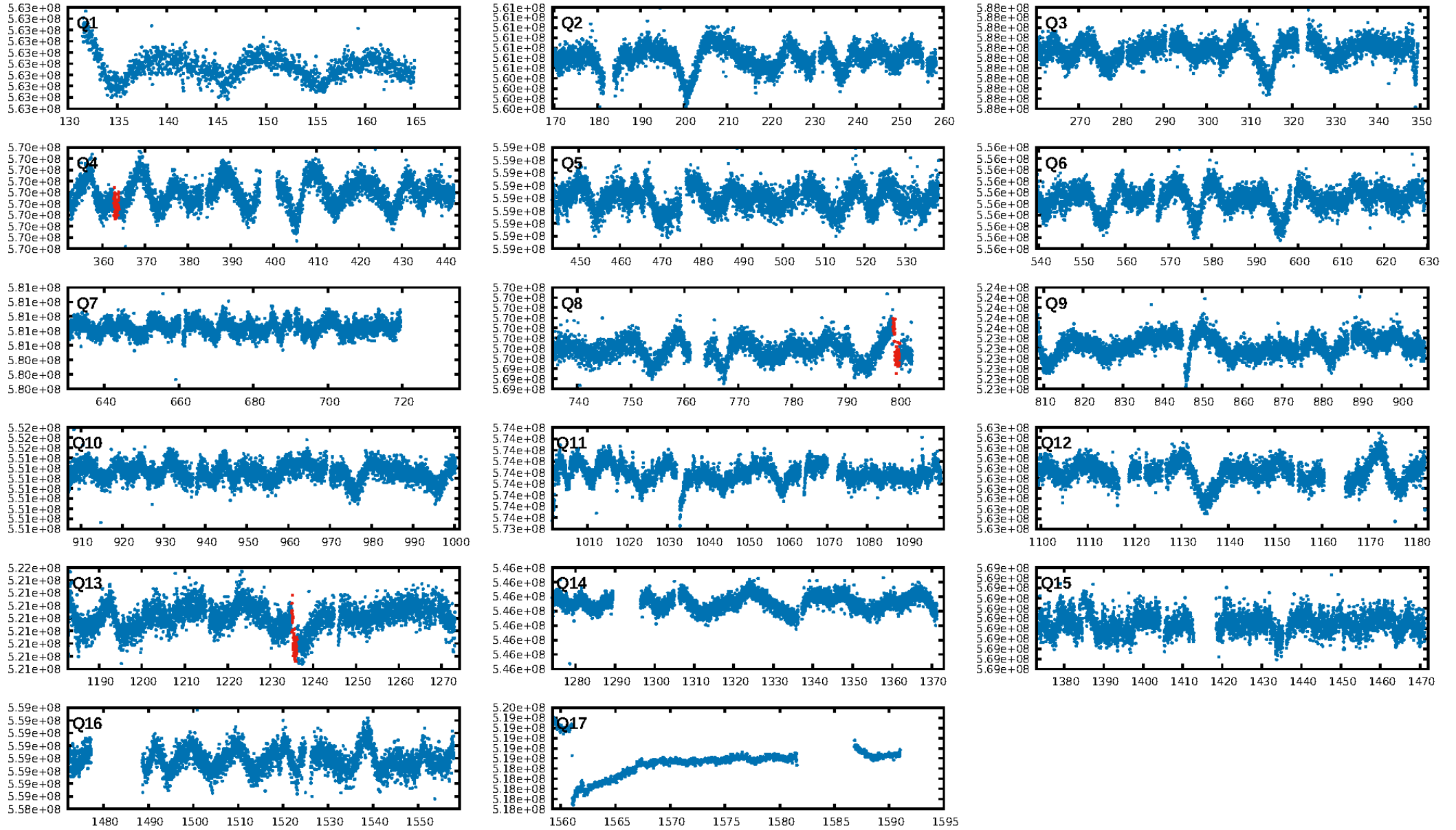
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [337.16 σ]
ModelChiSquare2-sig: 2.9%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 1.50e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.304
Centroid-sig: 0.4%
Centroid-so: 2.582 arcsec [2.09 σ]
OotOffset-rm: 3.692 arcsec [36.37 σ]
KicOffset-rm: 3.948 arcsec [39.57 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

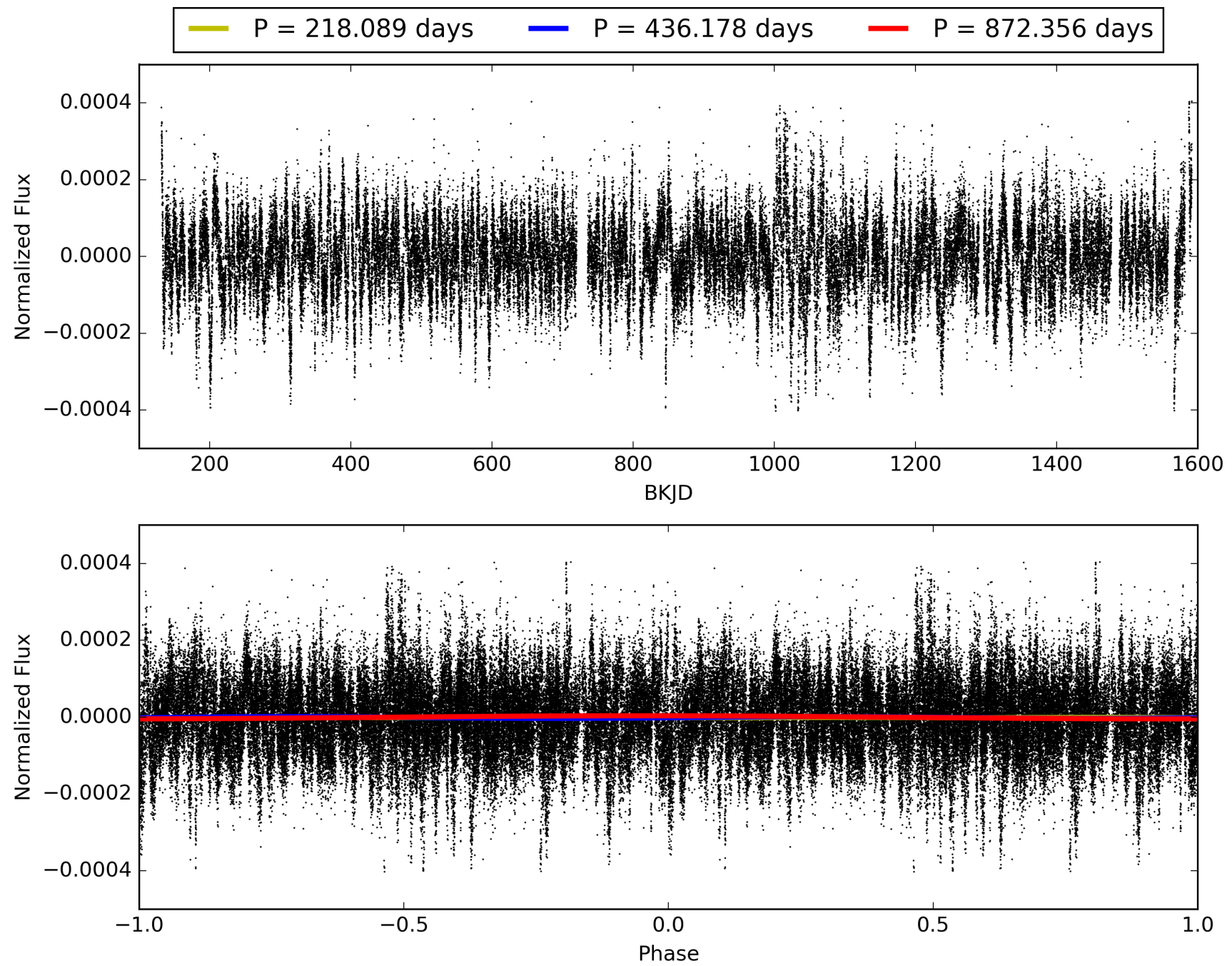
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:08:31 Z

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

TCE 009718191-01, PDC Light Curves

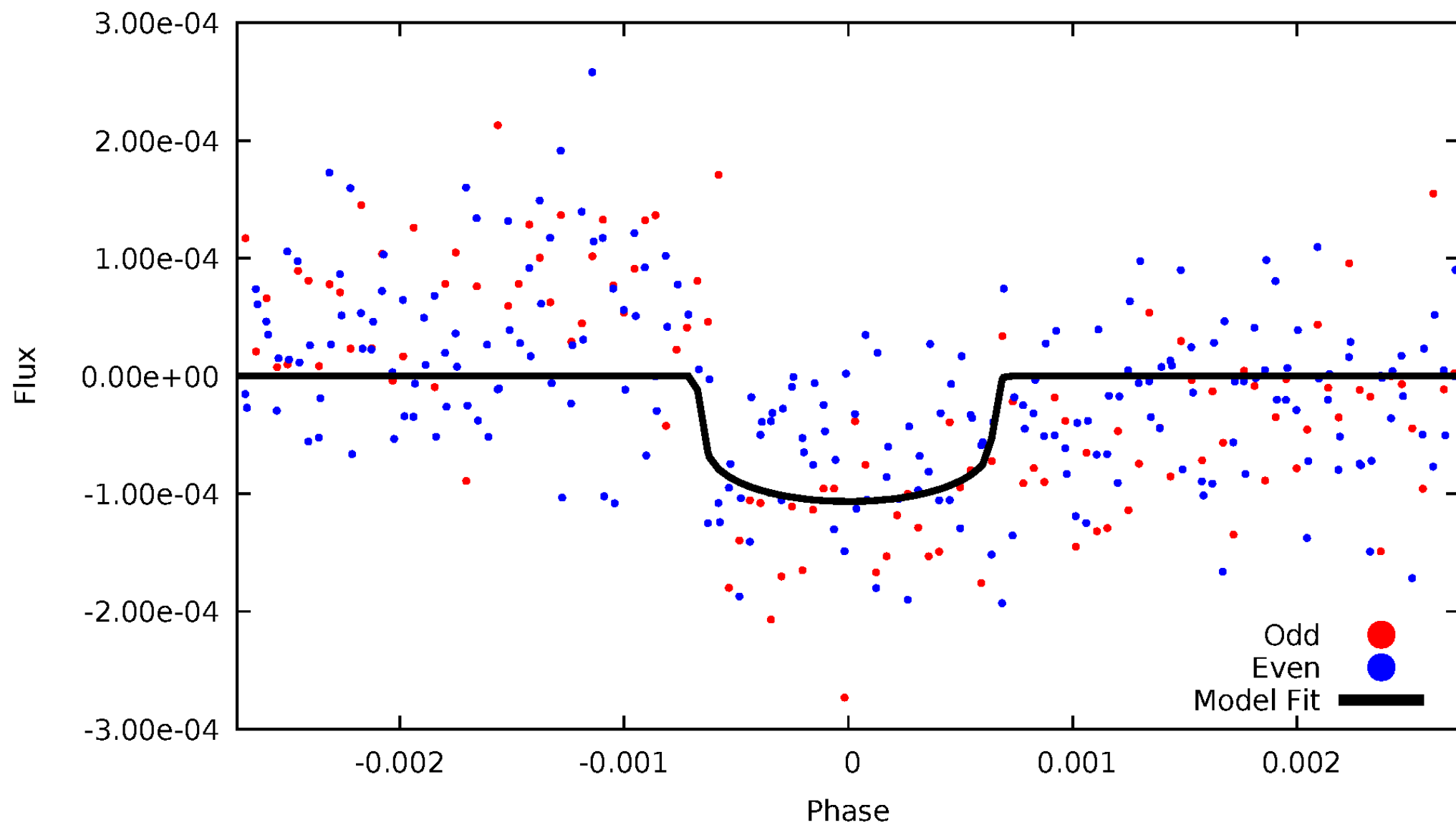


TCE 009718191-01



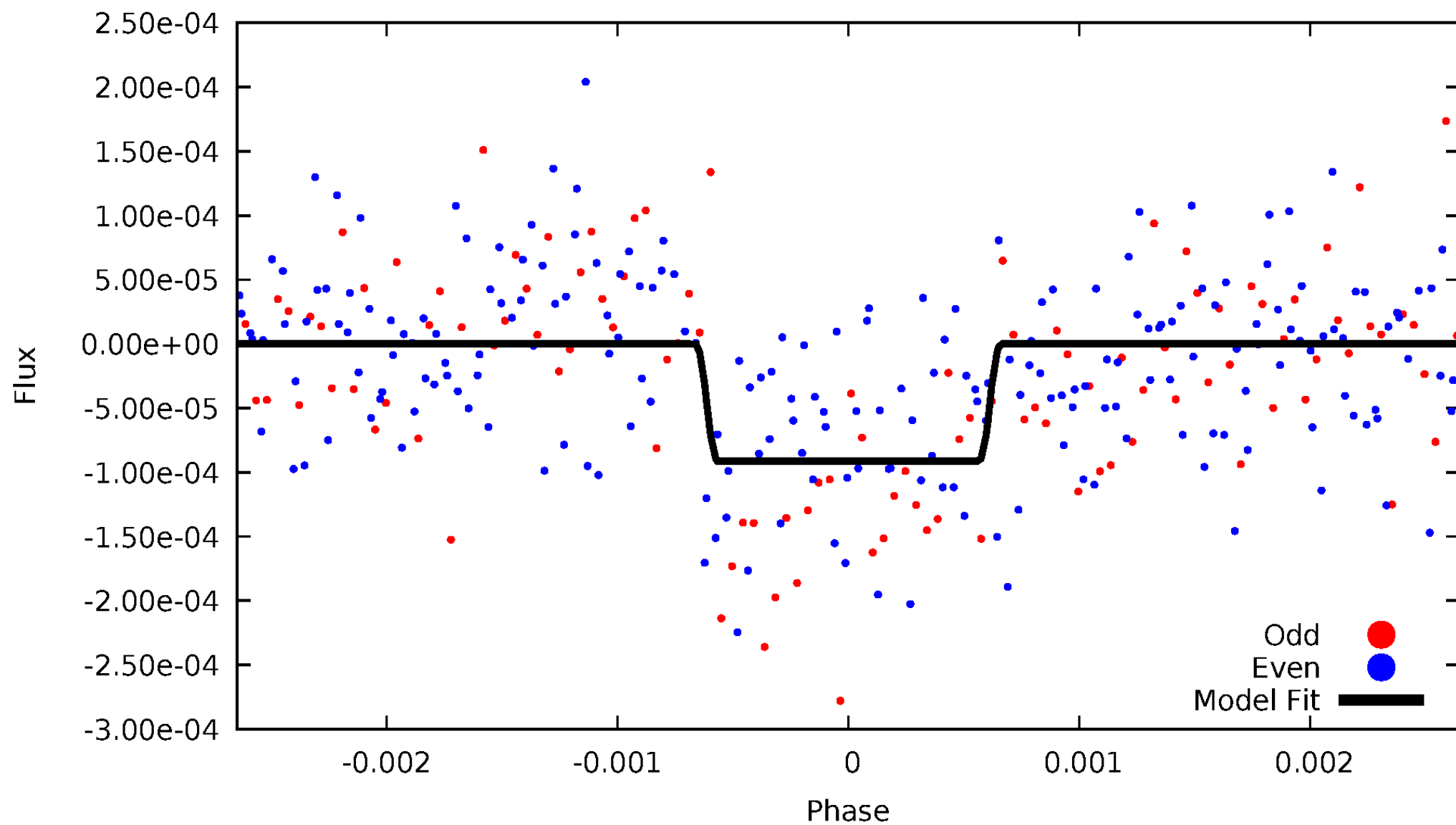
DV Odd/Even

TCE 009718191-01



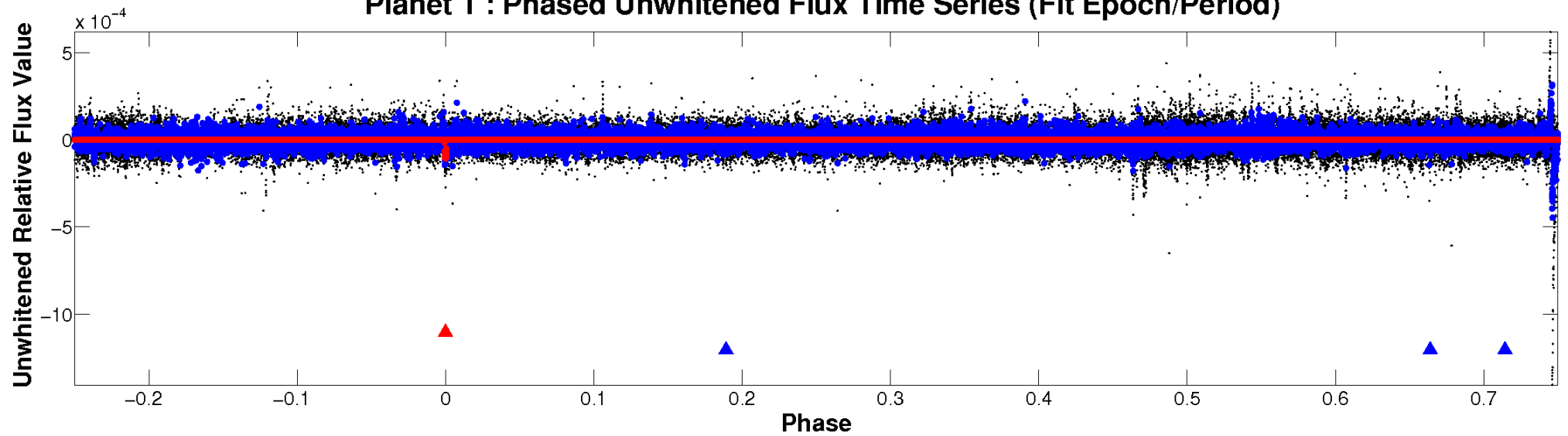
ALT Odd/Even

TCE 009718191-01

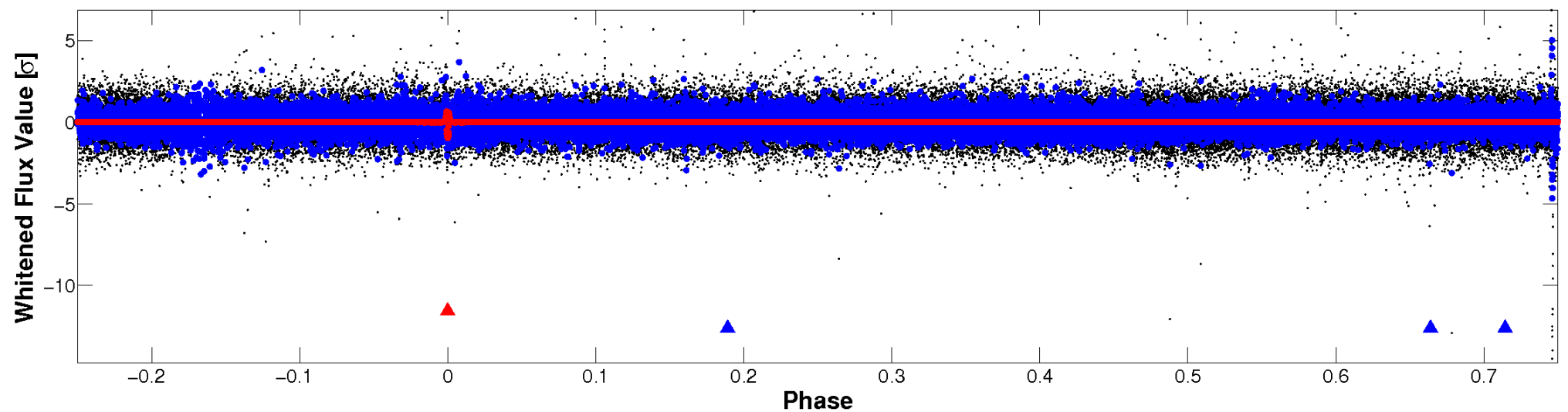


Non-Whitened Vs. Whitened Light Curve

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 009718191-01 P=436.177904 Days $T_0=363.251902$ (BKJD)



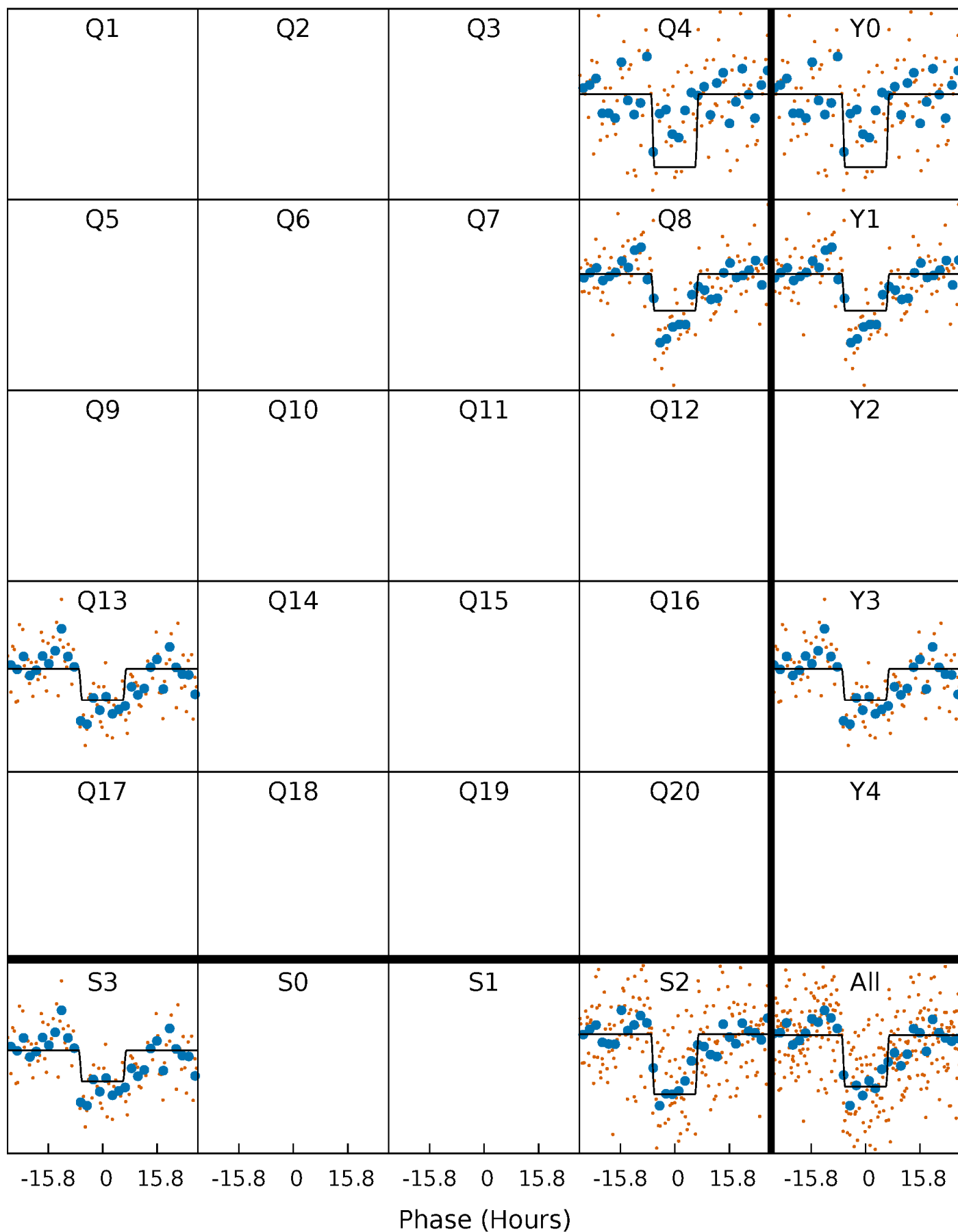
DV Quarter-Phased Transit Curves

TCE 009718191-01 P=436.177904 Days $T_0=363.251902$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

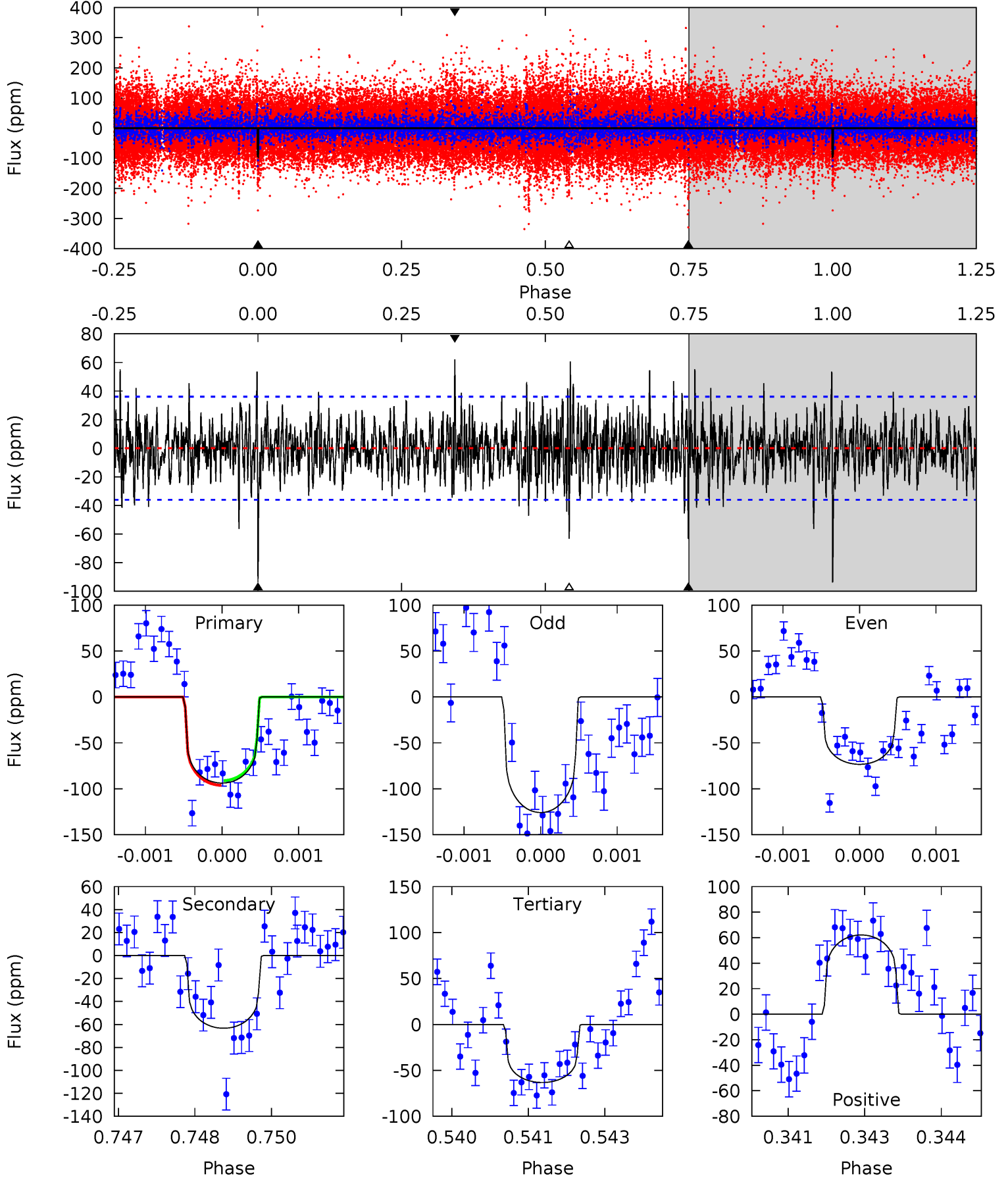
TCE 009718191-01 P=436.167961 Days $T_0=363.269749$ (BKJD)



DV Model-Shift Uniqueness Test

009718191-01, P = 436.177904 Days, E = 363.251902 Days

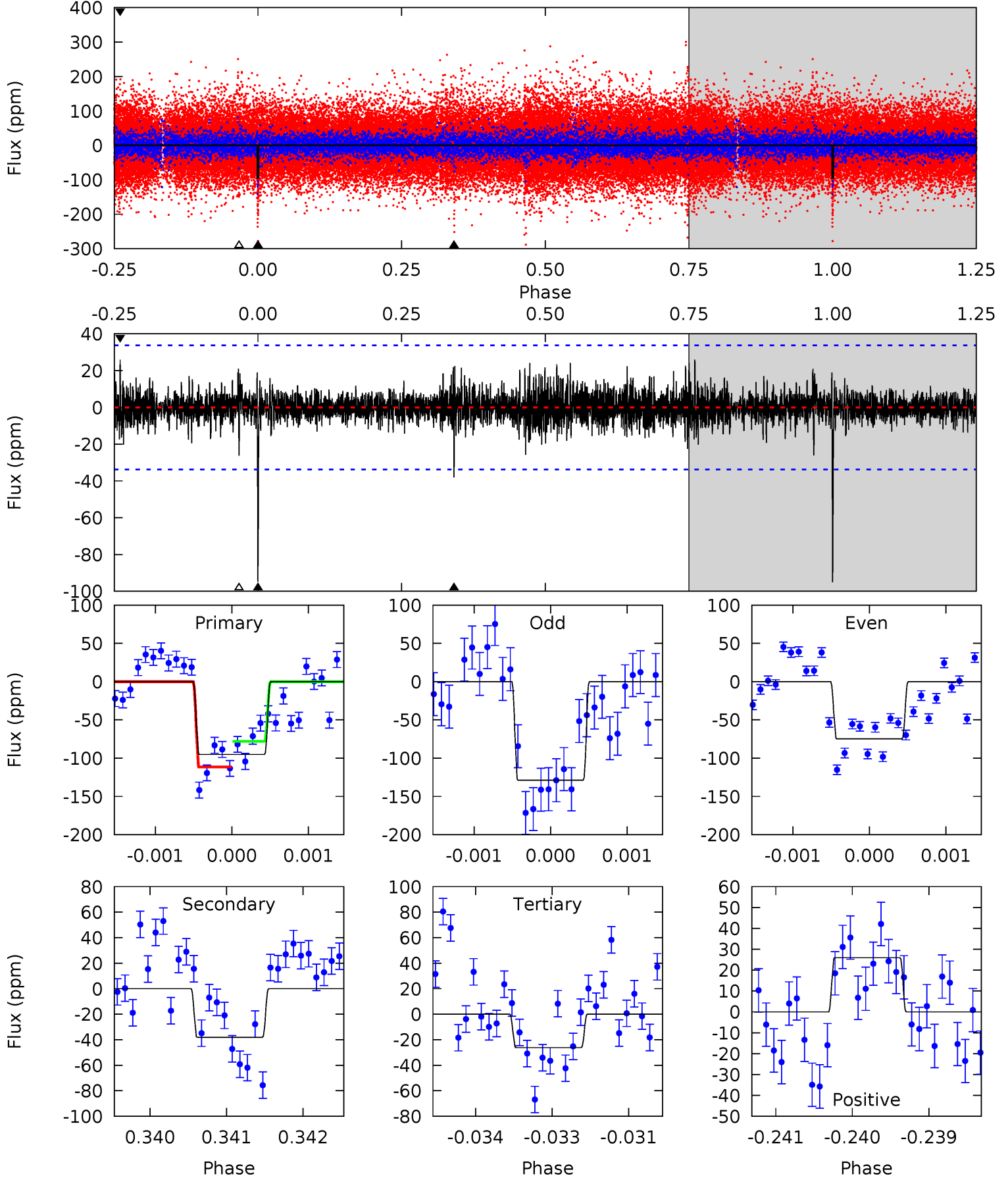
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	9.49	9.47	9.31	5.39	3.19	2.20	4.58	4.74	0.01	0.18	3.66	0.91	0.40	0.38



Alt Model-Shift Uniqueness Test

009718191-01, P = 436.167961 Days, E = 363.269749 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	6.09	4.18	4.15	5.40	3.21	0.96	11.0	11.1	1.91	1.94	4.05	0.81	0.21	2.68



Stellar Parameters For KIC 009718191

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5877^{+71}_{-79}	$4.286^{+0.115}_{-0.115}$	$0.280^{+0.150}_{-0.150}$	$1.269^{+0.219}_{-0.179}$	$1.134^{+0.073}_{-0.073}$	$0.782^{+0.410}_{-0.268}$
	+1%/-1%	+3%/-3%	+54%/-54%	+17%/-14%	+6%/-6%	+52%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 009718191-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-63 ± 7	$1.49^{+0.39}_{-0.35}$	377^{+18}_{-16}	5105^{+646}_{-426}	21273^{+15996}_{-7720}
Alt.	-38 ± 6	$1.34^{+0.35}_{-0.37}$	377^{+16}_{-16}	4798^{+686}_{-436}	15756^{+14974}_{-5916}

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

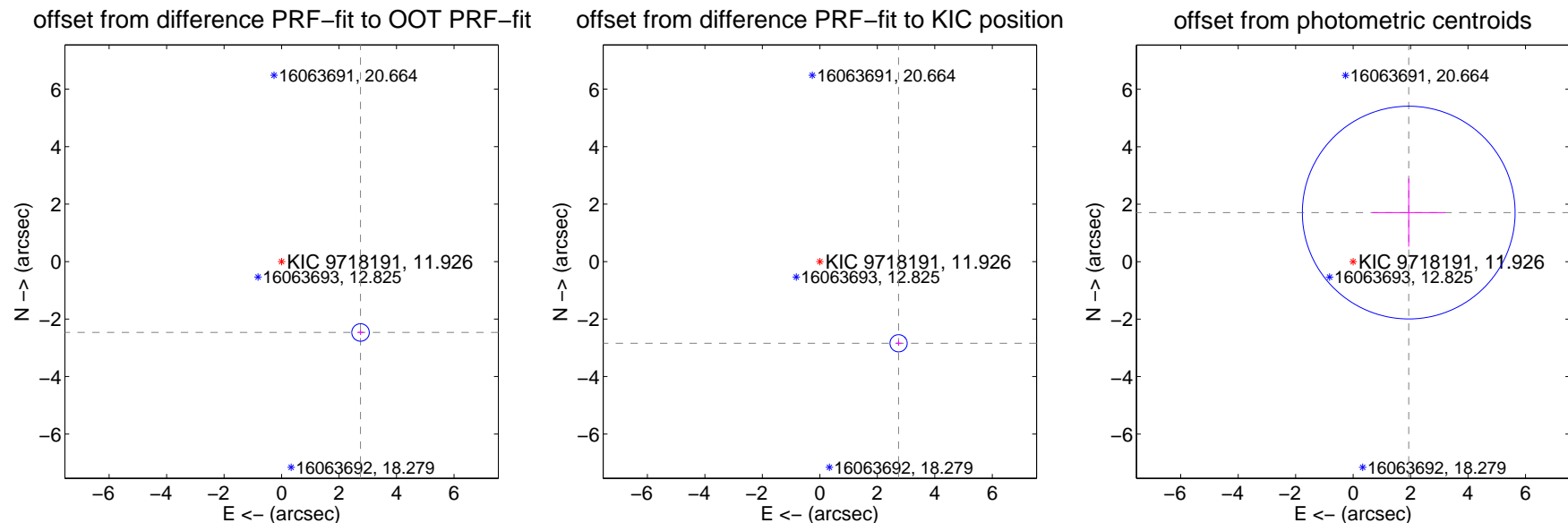
DV Centroid Data

Supplemental centroid analysis for 009718191-01. **Kepler magnitude: 11.93.** Transit SNR 8.52

There are 1 quarters with good PRF difference image offsets

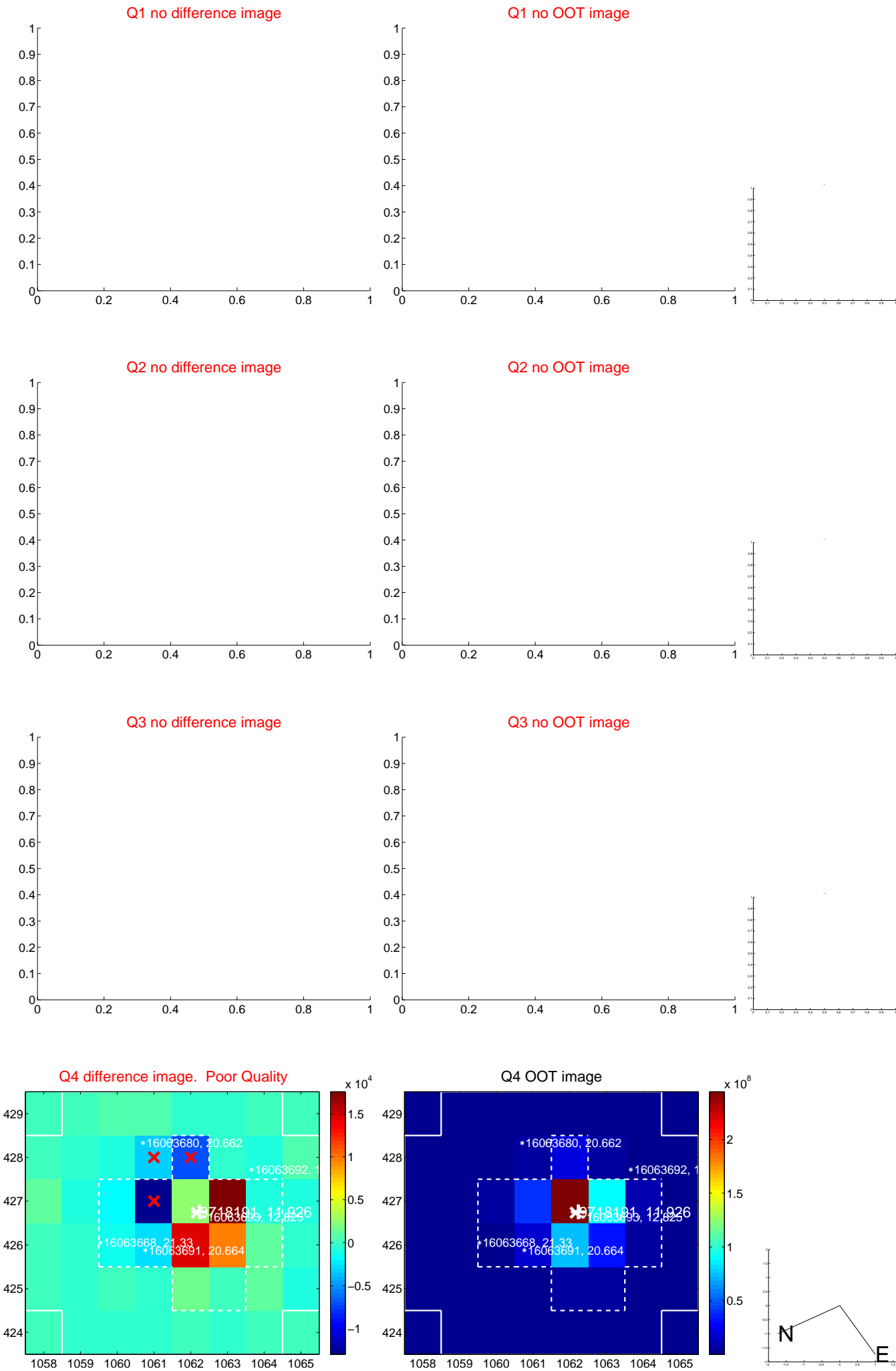
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.692 ± 0.102	36.37	-2.748 ± 0.112	-2.466 ± 0.087
PRF-fit source offset from KIC position	3.948 ± 0.100	39.57	-2.740 ± 0.112	-2.842 ± 0.087
photometric centroid source offset	2.58 ± 1.23	2.09	-1.94 ± 1.27	1.71 ± 1.19

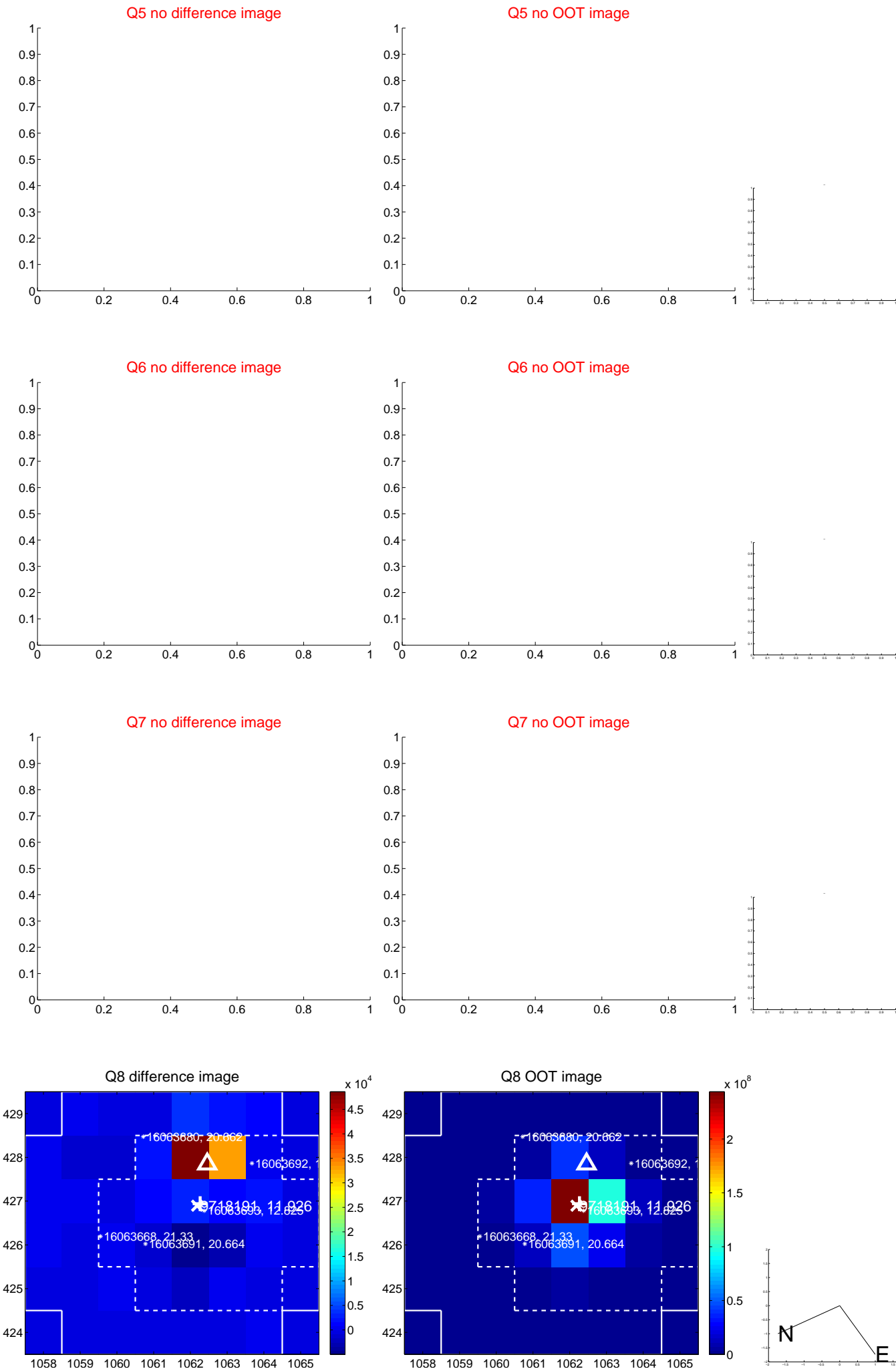


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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



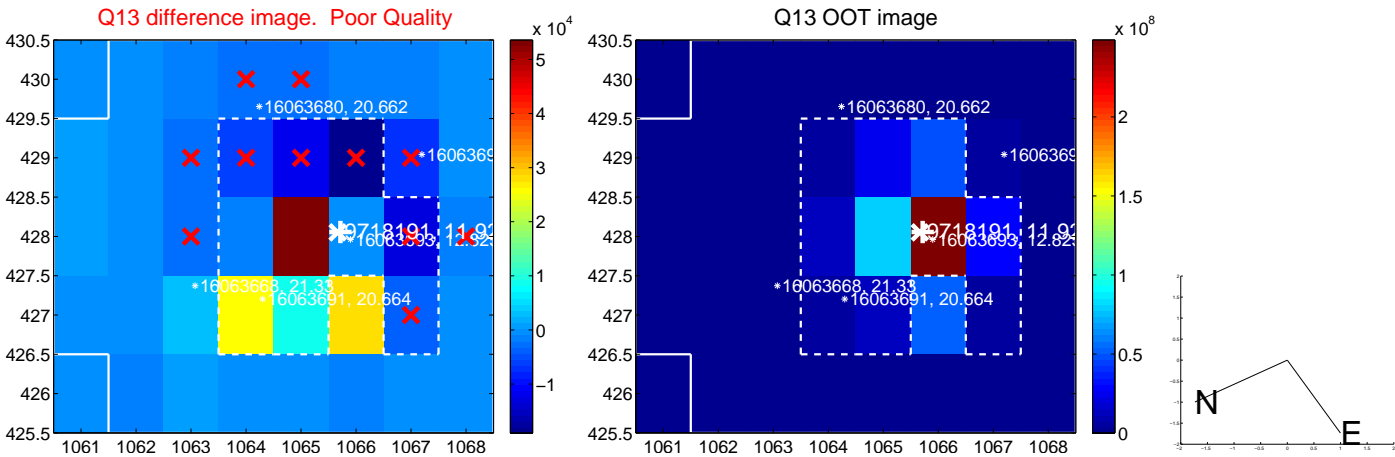
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



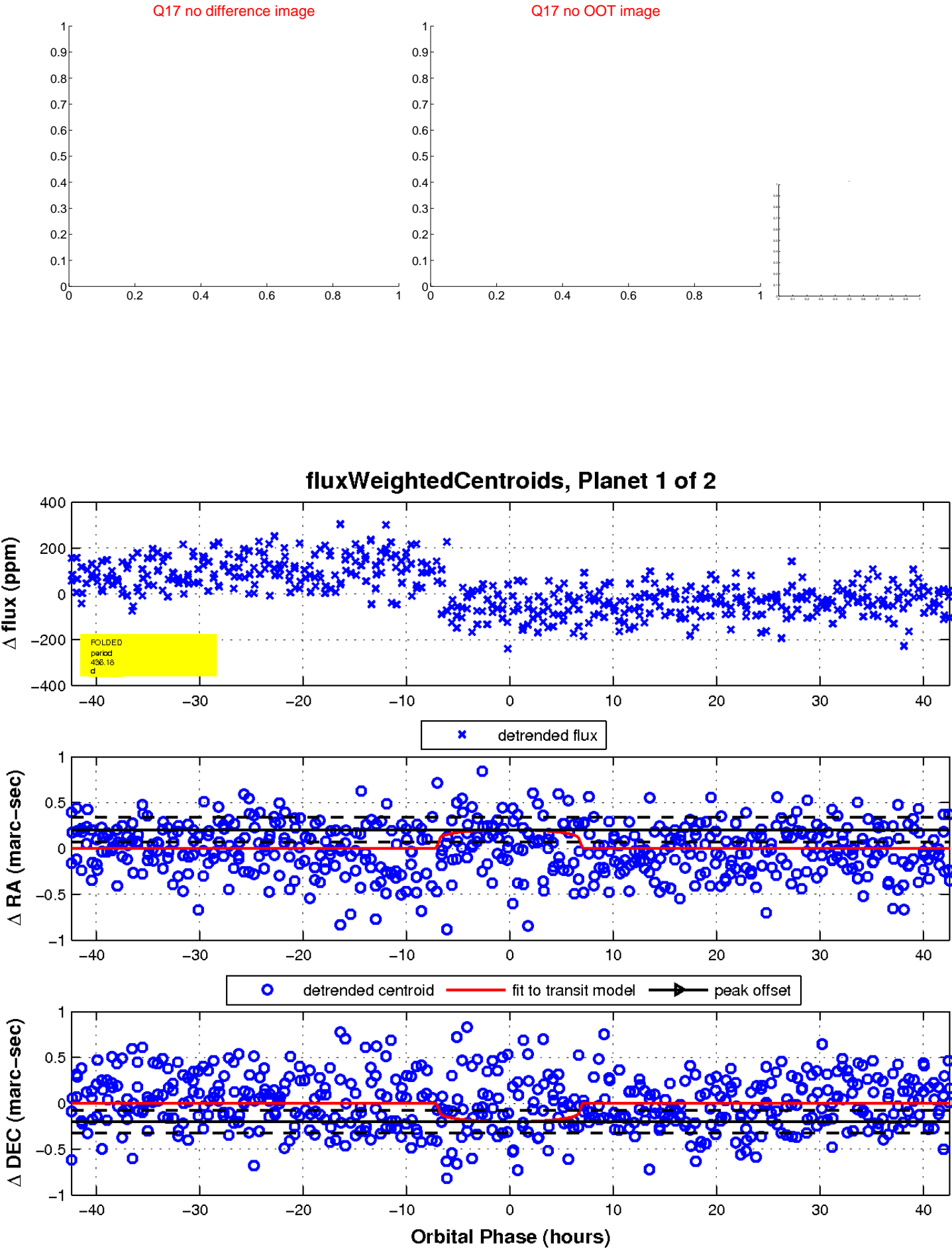
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

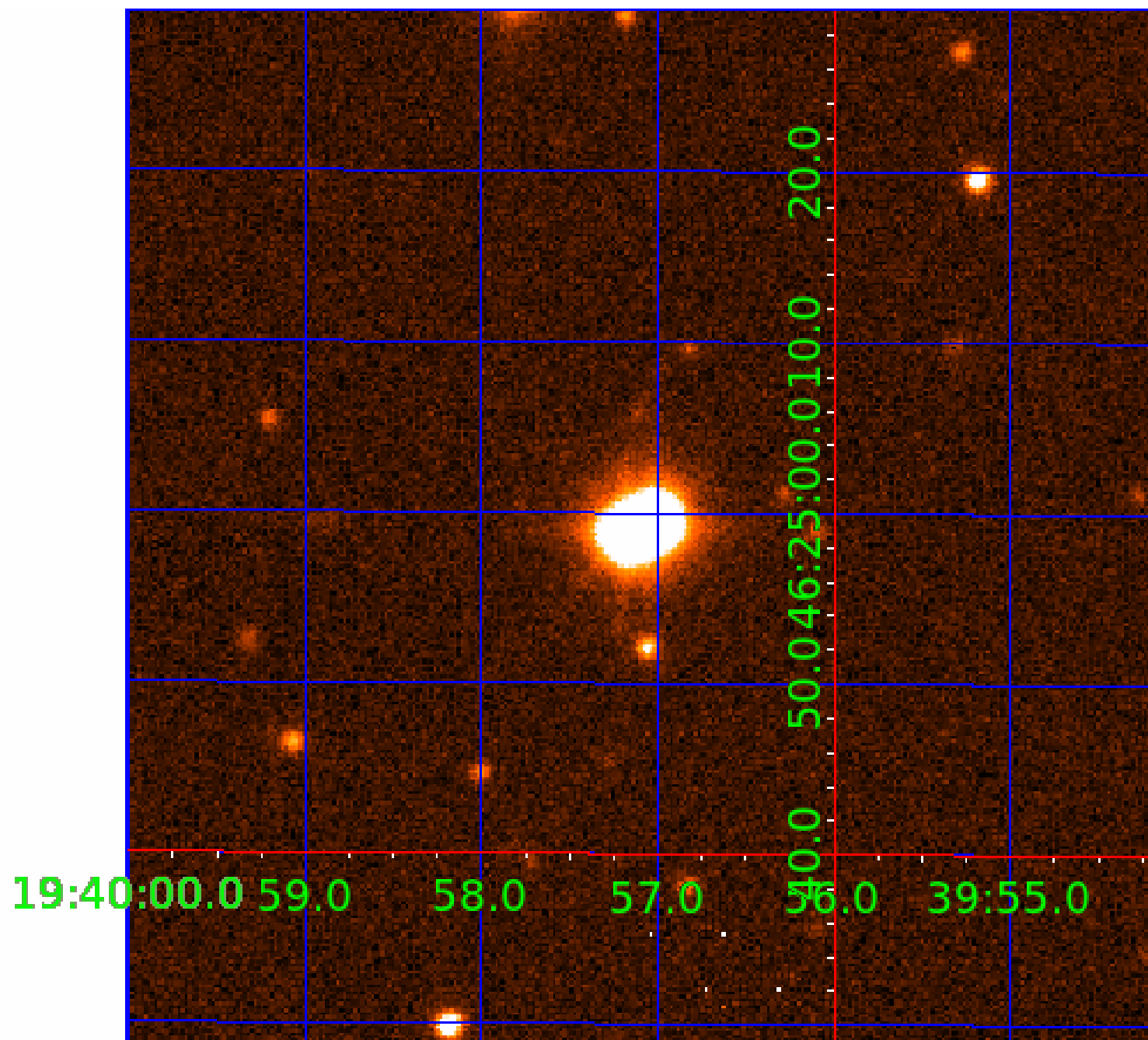


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009718191

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})
009718191-01	OBS	No	436.177904	363.251902	106.6	14.254	8.5	8.5	1.27	5877	1.49	1.25
009718191-02	OBS	No	665.258967	216.672419	88.1	7.919	7.2	7.1	1.27	5877	1.44	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009718191-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_MEAS
009718191-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

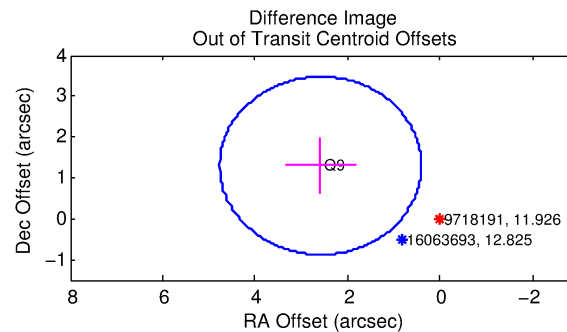
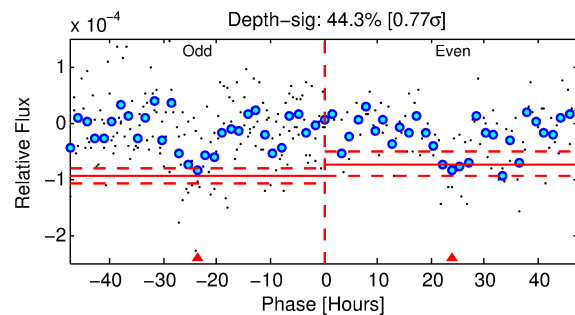
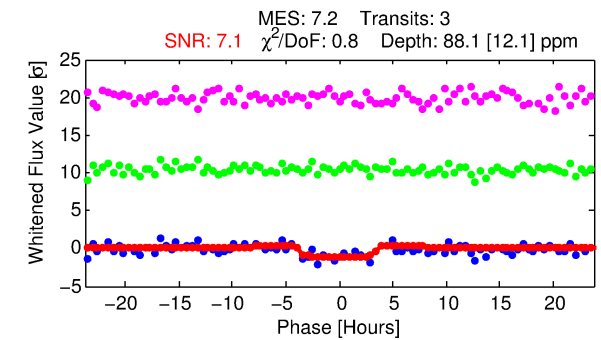
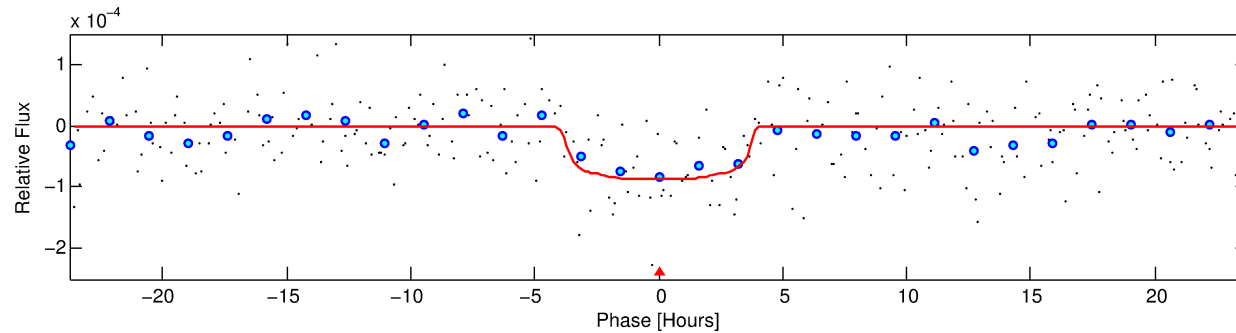
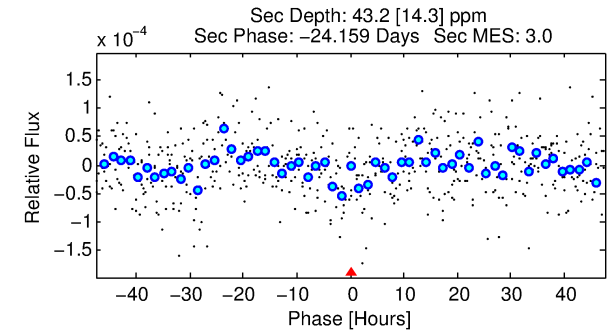
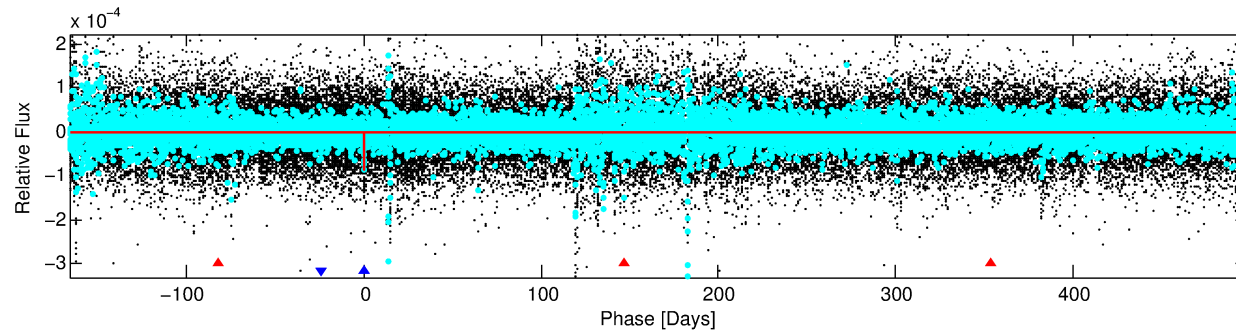
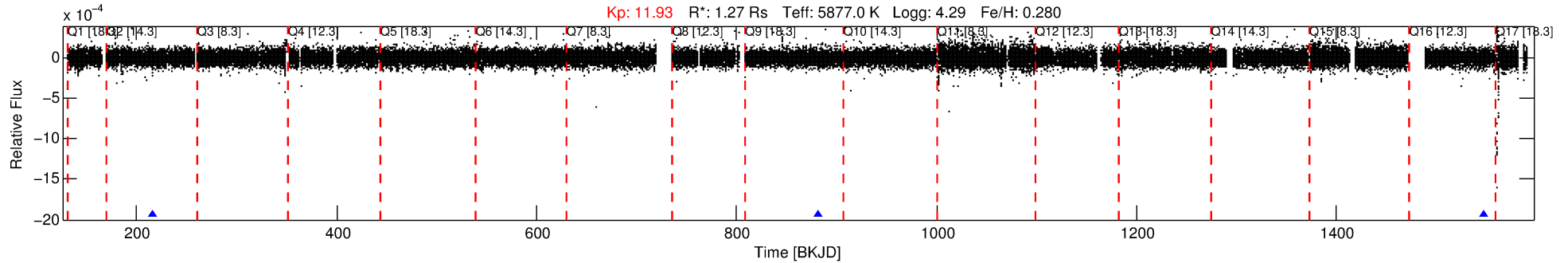
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009718191-02

No Significant Match Found

DV One-Page Summary

KIC: 9718191 Candidate: 2 of 2 Period: 665.259 d



DV Fit Results:

Period = 665.25897 [0.01056] d
Epoch = 216.6724 [0.0124] BKJD
Rp/R* = 0.0104 [0.0034]
a/R* = 276.83 [425.04]
b = 0.91 [0.28]
Seff = 0.71 [0.15]
Teq = 234 [13] K
Rp = 1.44 [0.53] Re
a = 1.5560 [0.2256] AU
Ag = 27843.77 [21114.76] [1.32σ]
Teffp = 4676 [854] K [5.20σ]

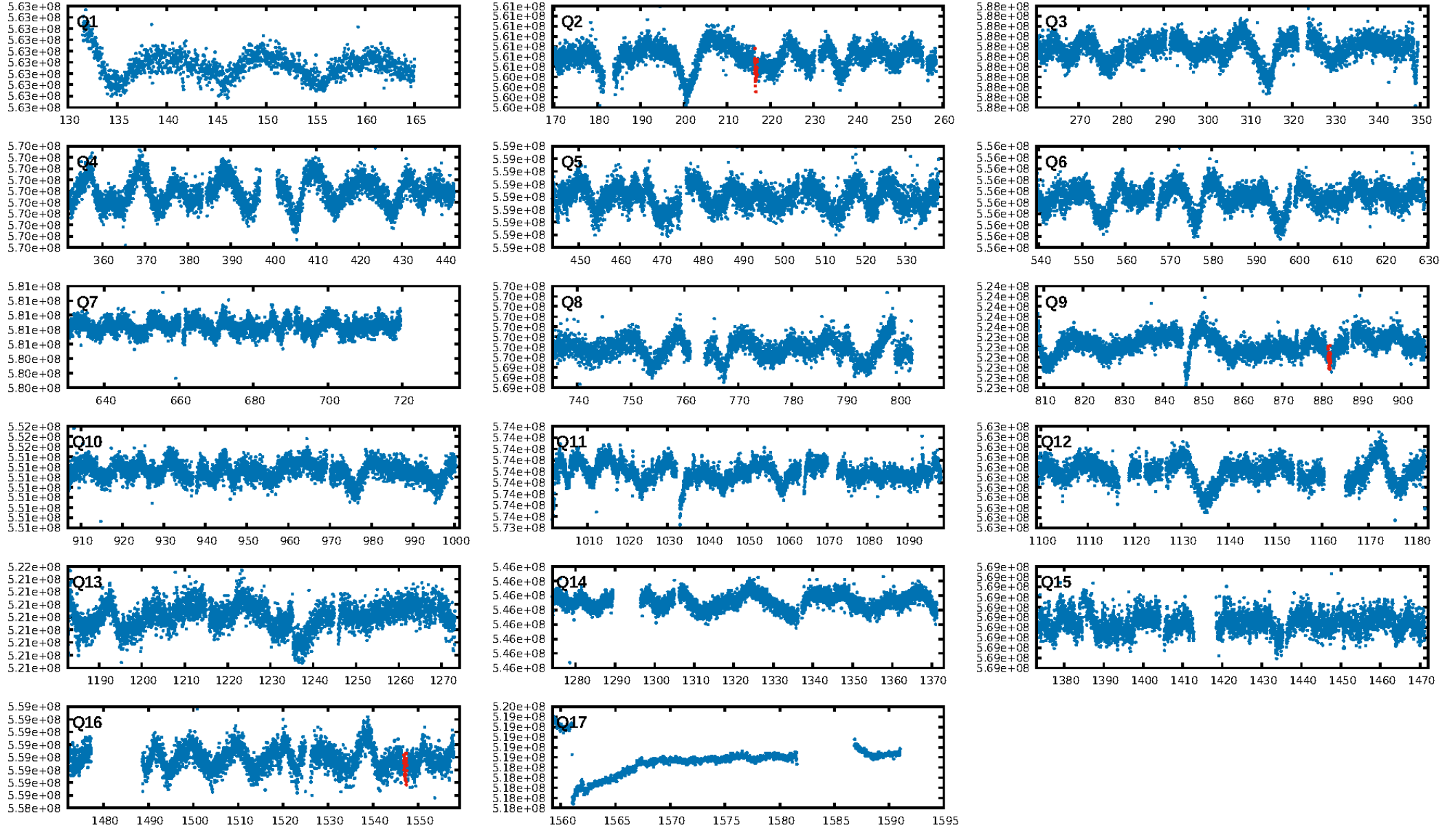
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [337.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 49.6%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 9.41e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -15.12
Centroid-sig: 60.2%
Centroid-so: 1.216 arcsec [0.71σ]
OotOffset-rm: 2.898 arcsec [3.99σ]
KicOffset-rm: 2.921 arcsec [4.00σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

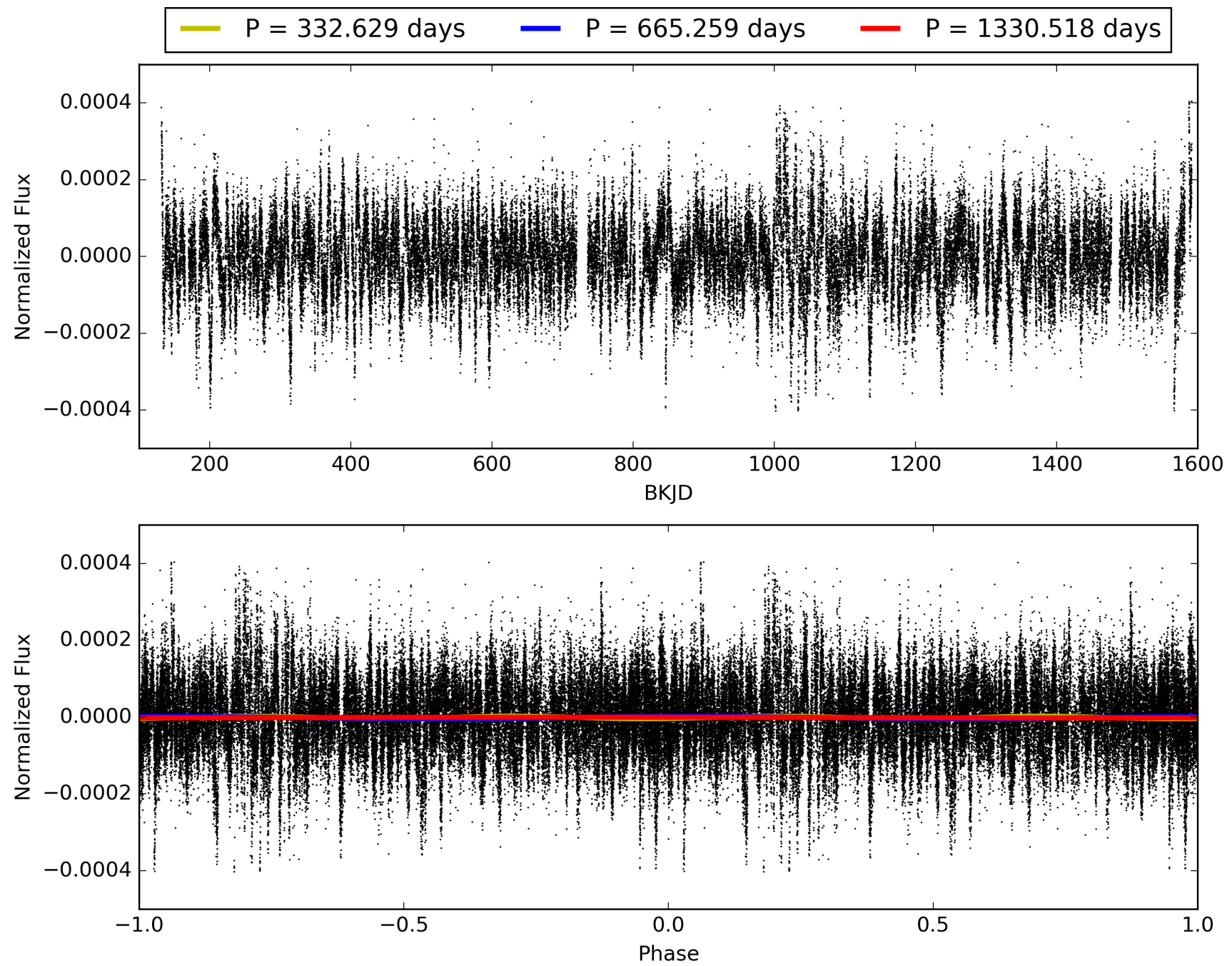
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:08:48 Z

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

TCE 009718191-02, PDC Light Curves

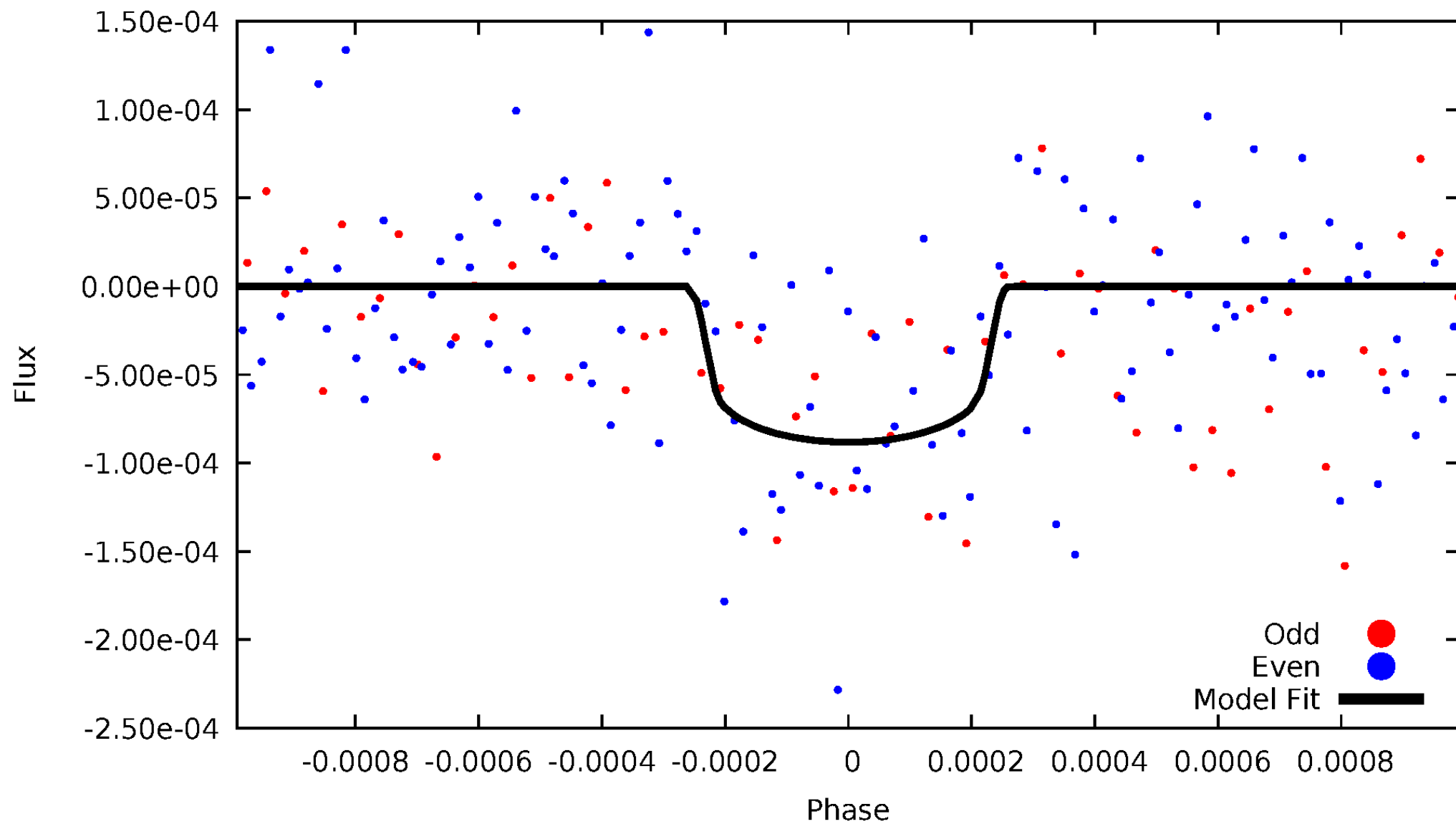


TCE 009718191-02



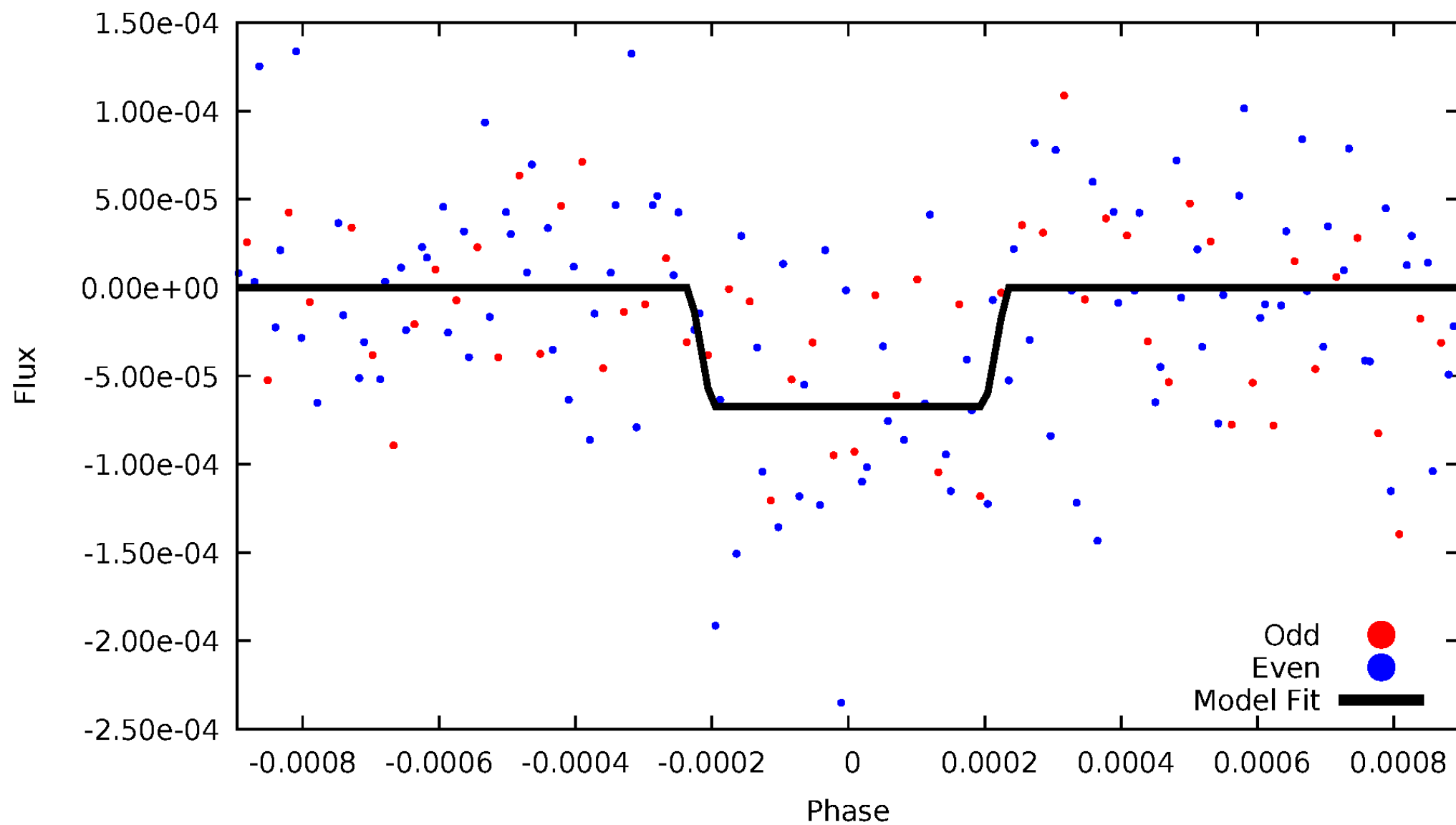
DV Odd/Even

TCE 009718191-02



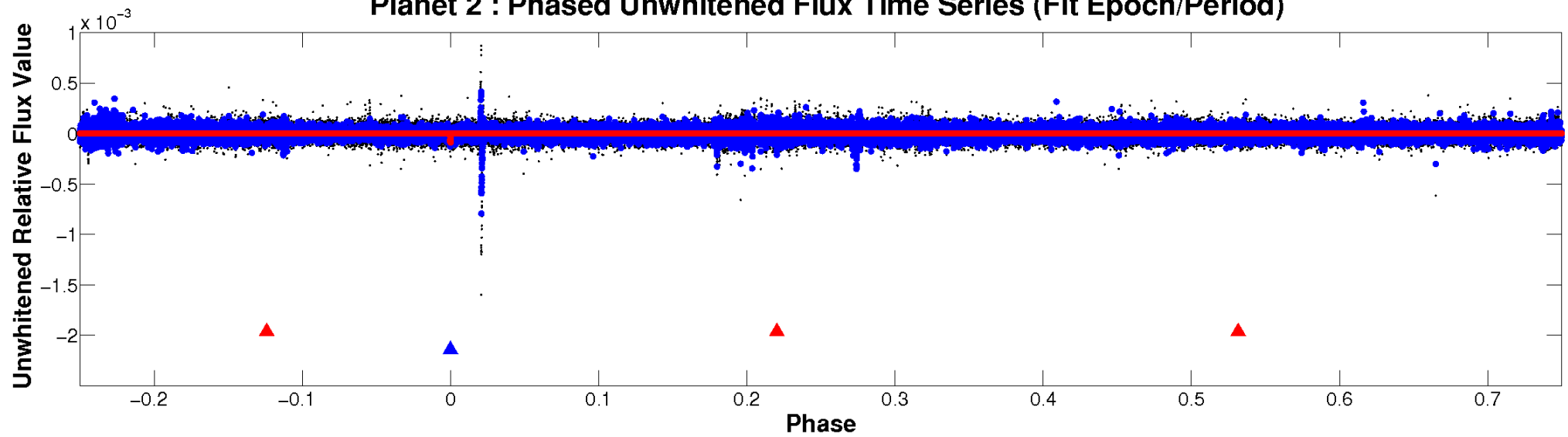
ALT Odd/Even

TCE 009718191-02

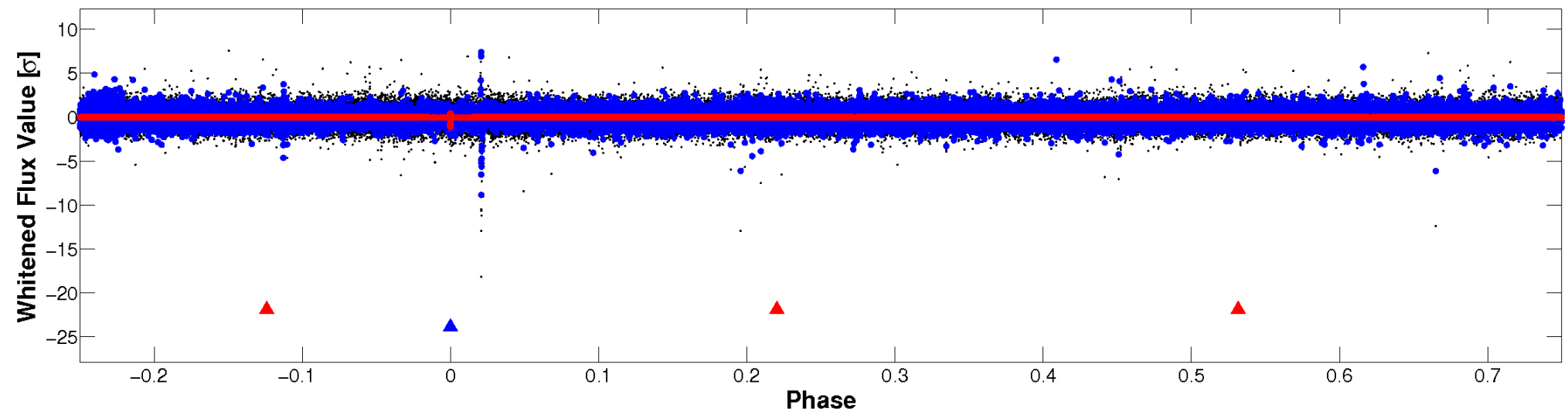


Non-Whitened Vs. Whitened Light Curve

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



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



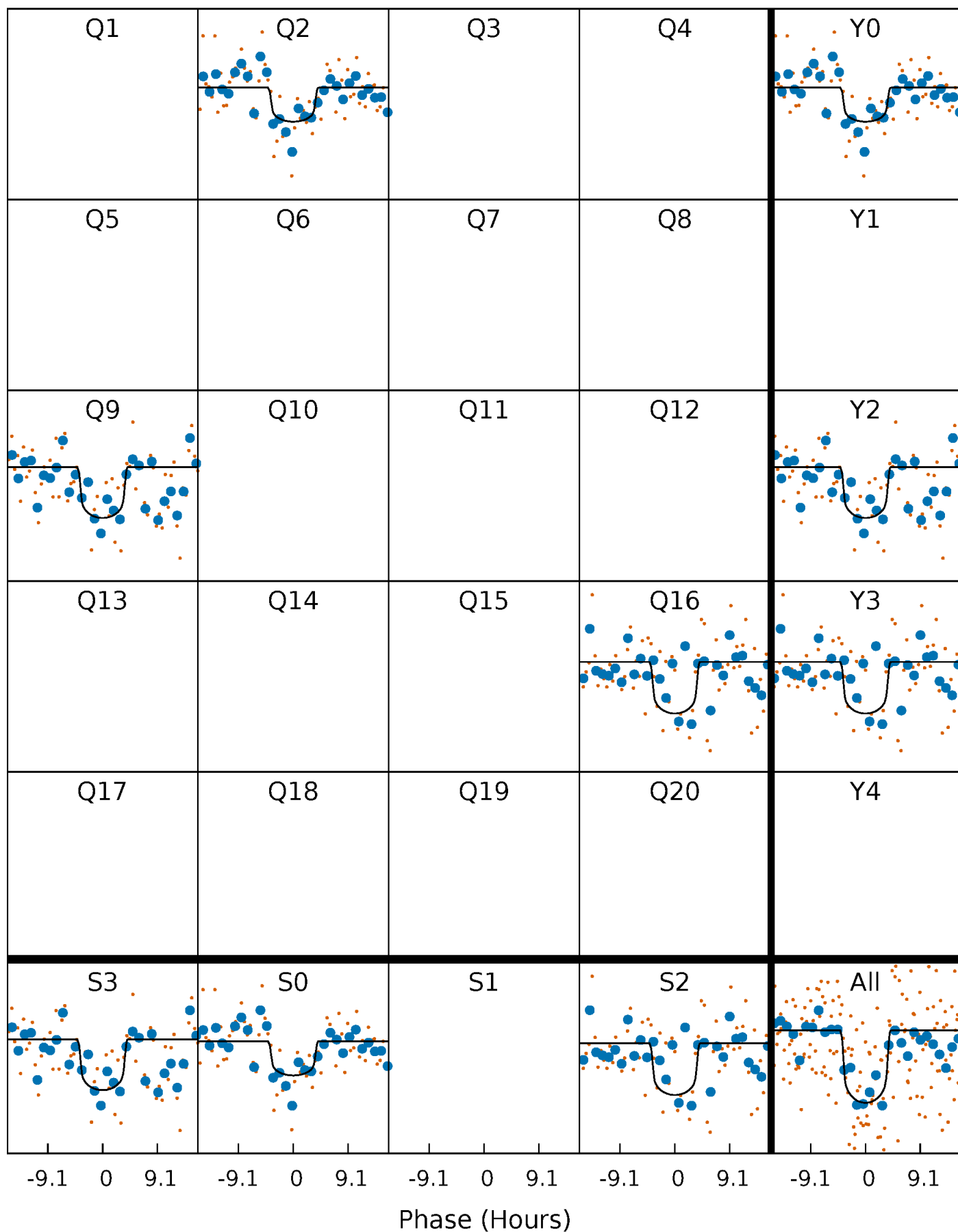
PDC Quarter-Phased Transit Curves

TCE 009718191-02 P=665.258967 Days $T_0=216.672419$ (BKJD)



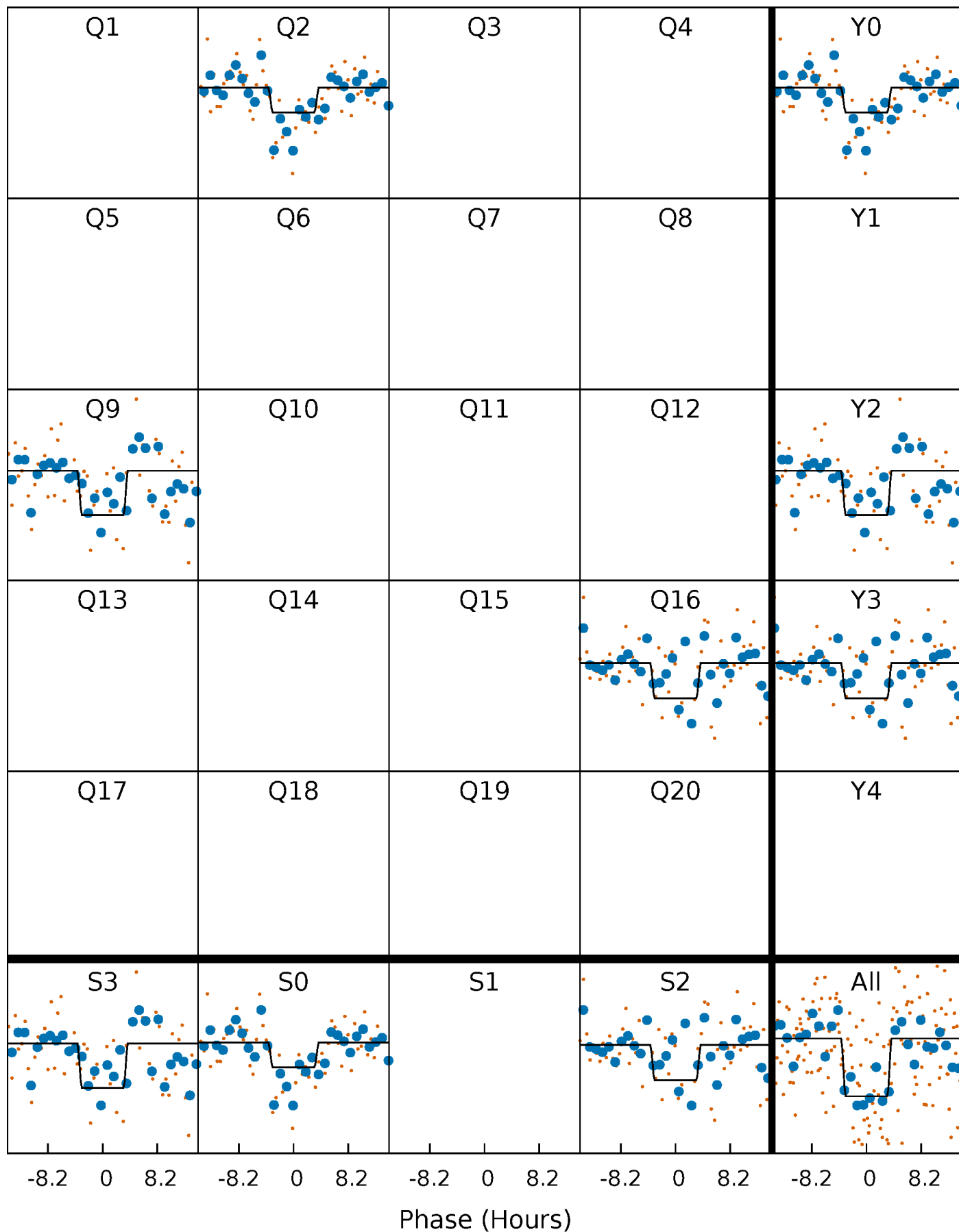
DV Quarter-Phased Transit Curves

TCE 009718191-02 P=665.258967 Days $T_0=216.672419$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

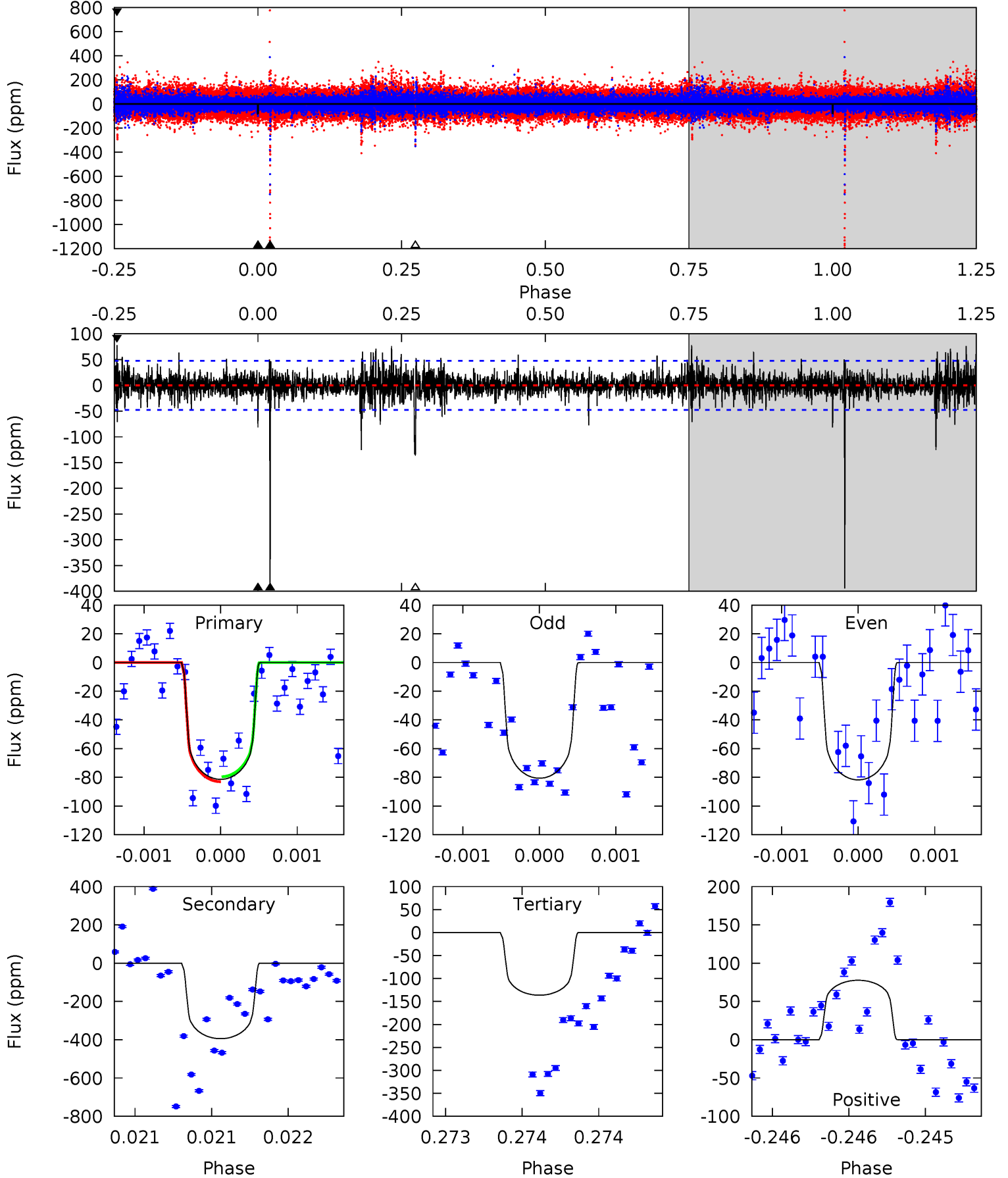
TCE 009718191-02 P=665.262224 Days $T_0=216.667970$ (BKJD)



DV Model-Shift Uniqueness Test

009718191-02, P = 665.258967 Days, E = 216.672419 Days

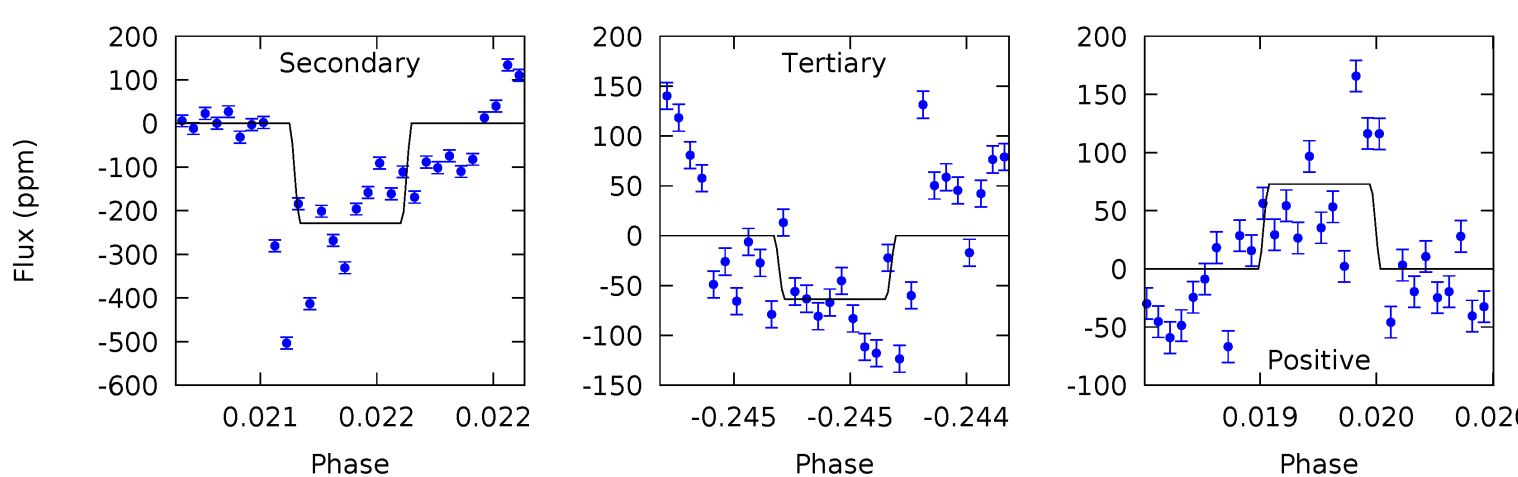
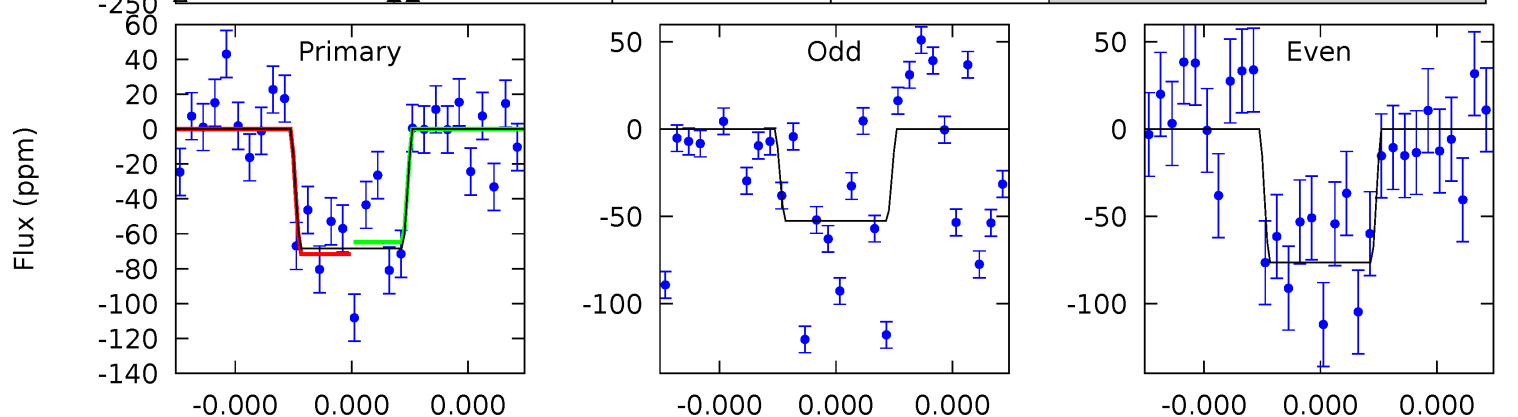
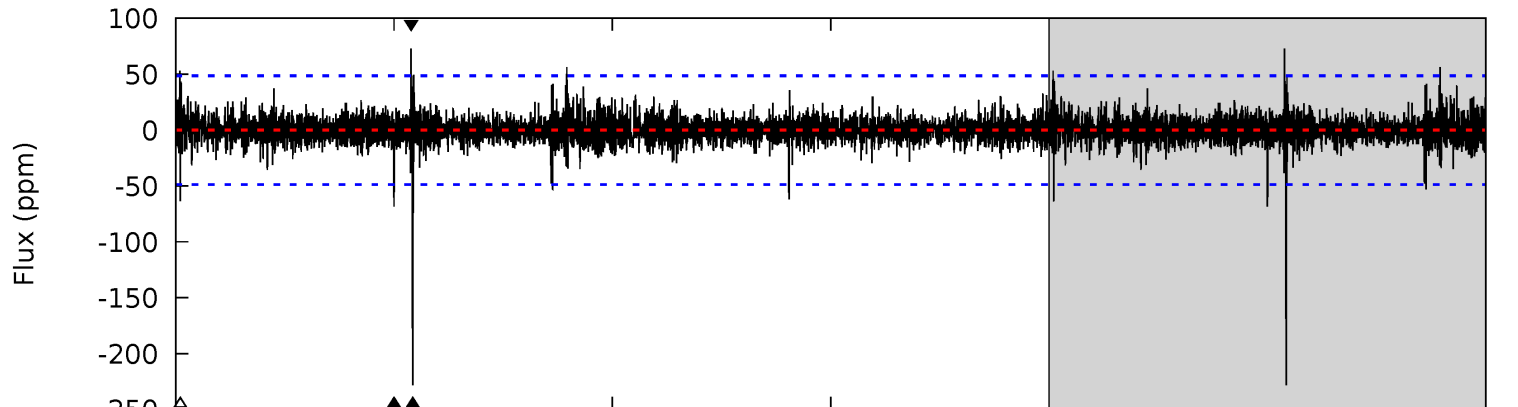
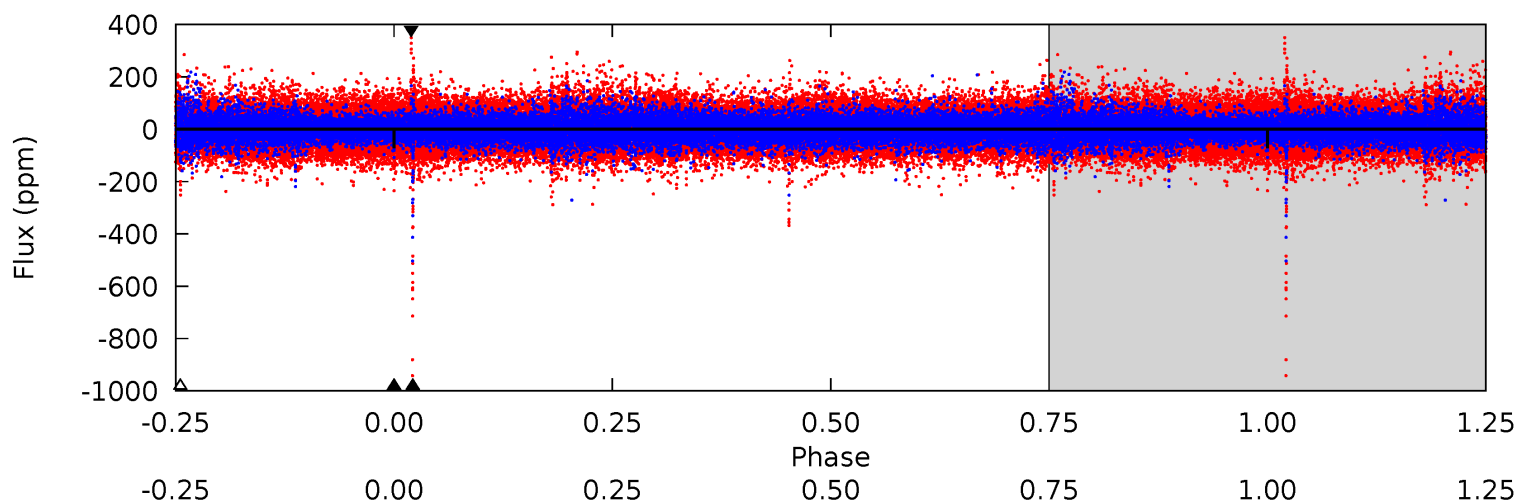
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.51	46.1	15.9	9.08	5.57	3.47	1.77	-6.42	0.43	30.2	37.0	0.06	1.00	0.16	0.20



Alt Model-Shift Uniqueness Test

009718191-02, P = 665.262224 Days, E = 216.667970 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.85	26.2	7.32	8.37	5.59	3.51	1.06	0.53	-0.52	18.9	17.9	1.27	1.28	0.24	0.39



Stellar Parameters For KIC 009718191

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5877^{+71}_{-79}	$4.286^{+0.115}_{-0.115}$	$0.280^{+0.150}_{-0.150}$	$1.269^{+0.219}_{-0.179}$	$1.134^{+0.073}_{-0.073}$	$0.782^{+0.410}_{-0.268}$
	+1%/-1%	+3%/-3%	+54%/-54%	+17%/-14%	+6%/-6%	+52%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 009718191-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-395 ± 9	$1.46^{+0.52}_{-0.49}$	327^{+15}_{-13}	8303^{+2691}_{-1229}	$245583^{+304048}_{-109949}$
Alt.	-228 ± 9	$1.14^{+0.48}_{-0.48}$	327^{+15}_{-14}	8217^{+3650}_{-1440}	$232371^{+448253}_{-114058}$

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

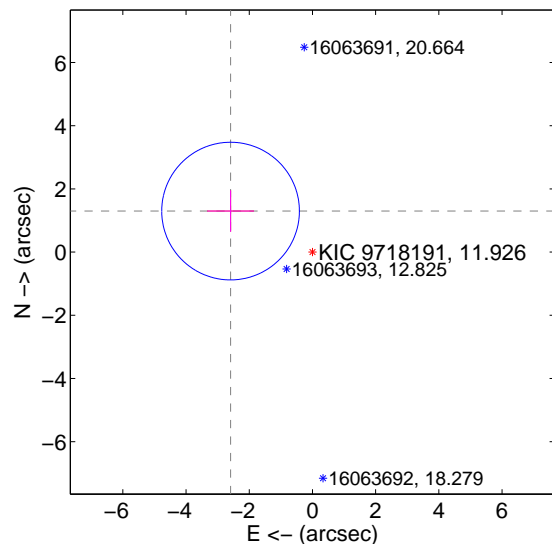
Supplemental centroid analysis for 009718191-02. **Kepler magnitude: 11.93.** Transit SNR 7.06

There are 0 quarters with good PRF difference image offsets

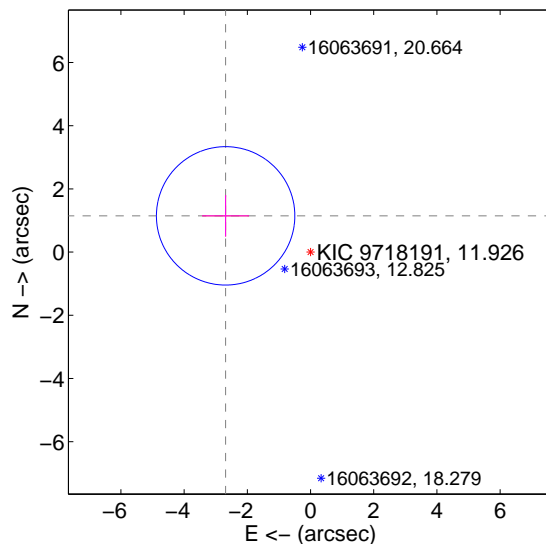
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.898 ± 0.726	3.99	2.592 ± 0.743	1.298 ± 0.656
PRF-fit source offset from KIC position	2.921 ± 0.730	4.00	2.687 ± 0.743	1.147 ± 0.656
photometric centroid source offset	1.22 ± 1.72	0.71	-0.87 ± 1.67	-0.85 ± 1.78

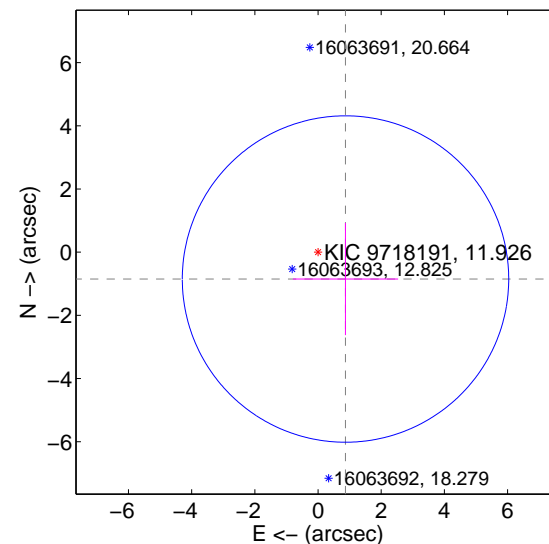
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

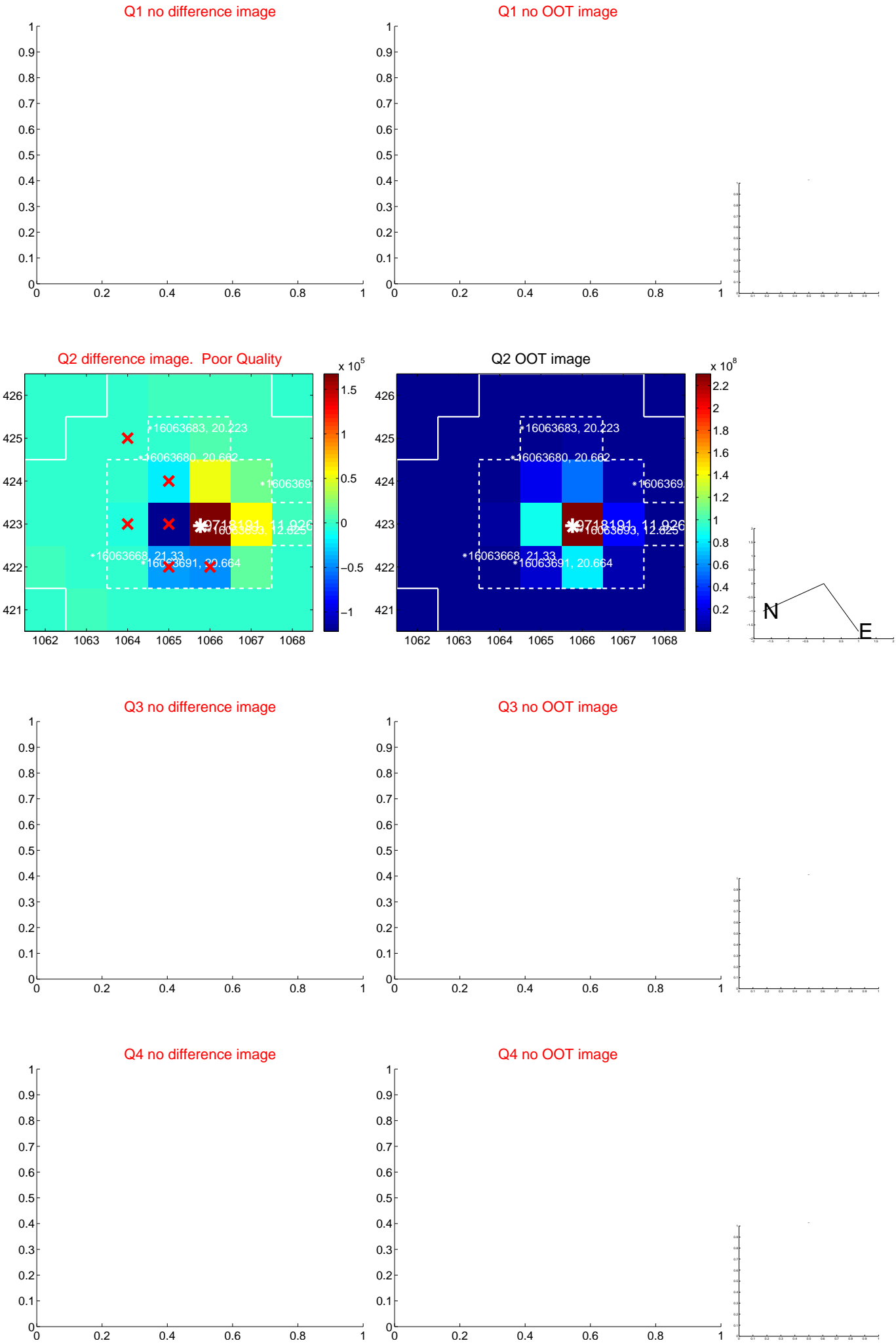


offset from photometric centroids



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.

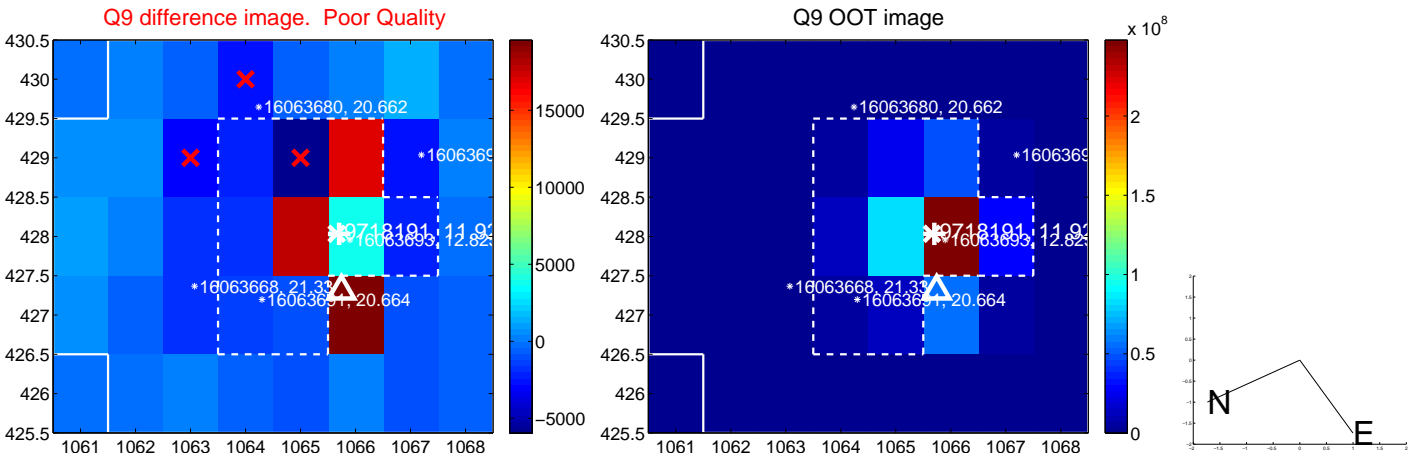
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



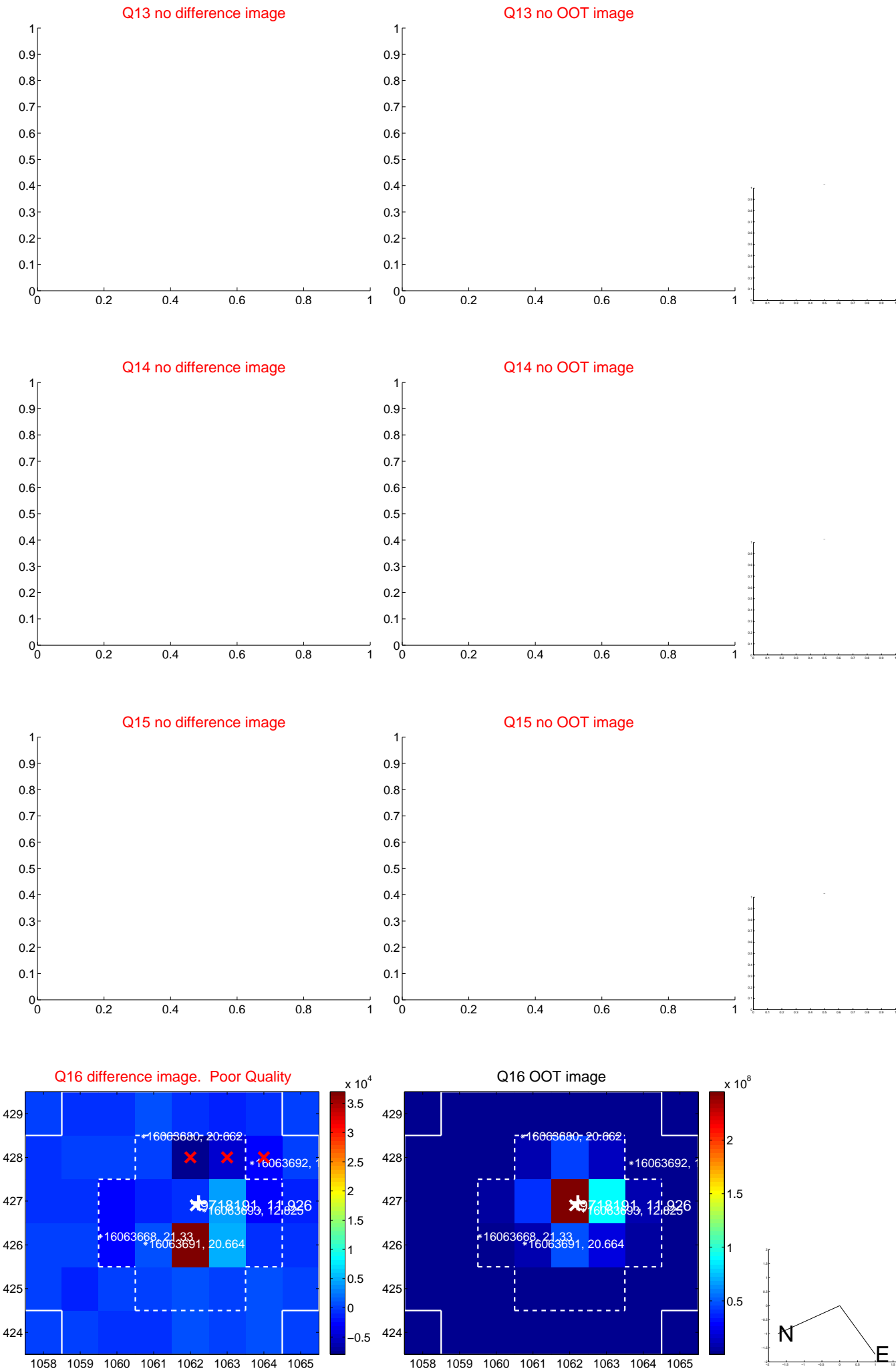
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



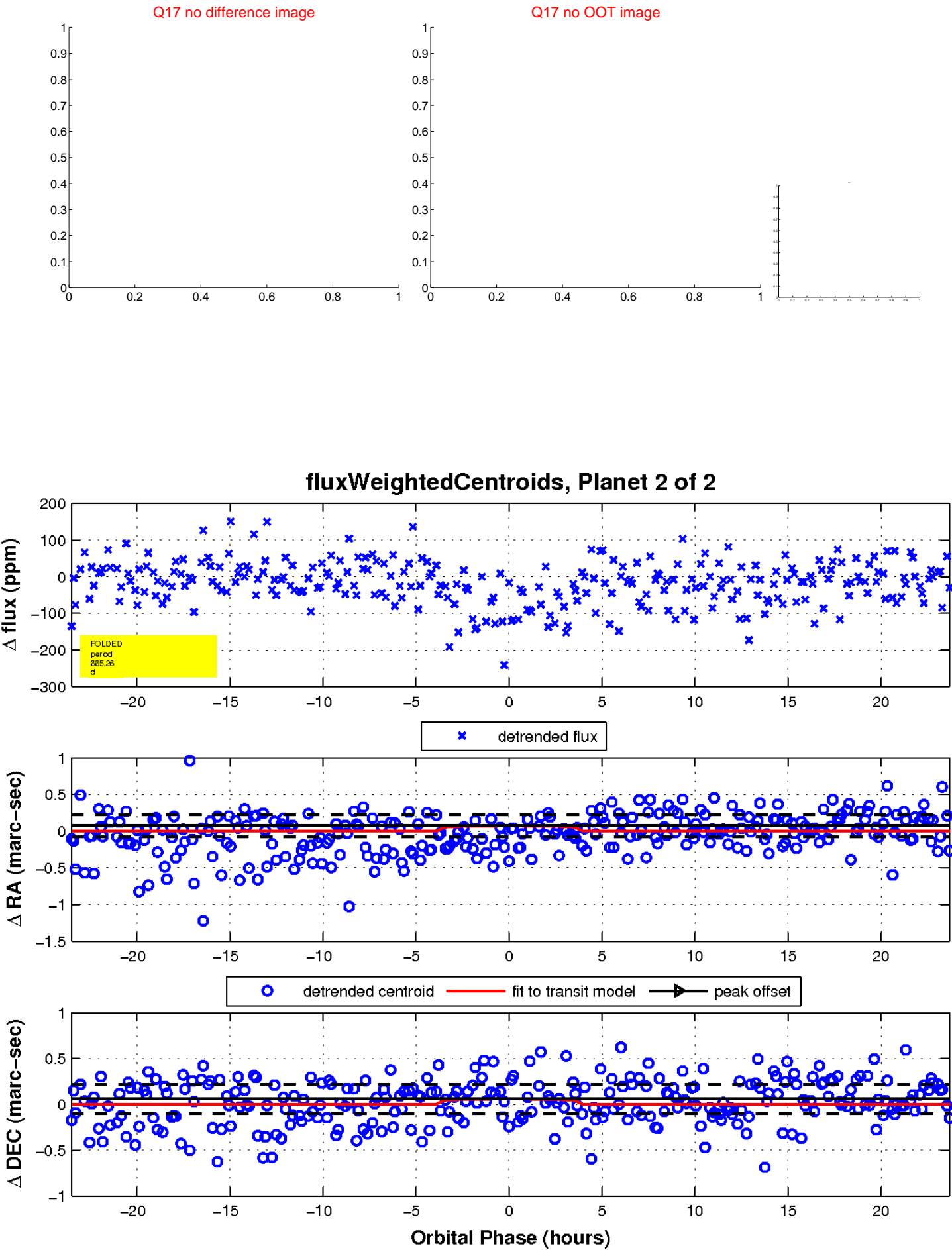
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

