

KIC 008161718

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})
008161718-01	OBS	No	378.682470	253.590928	409.2	17.591	8.6	5.8	0.80	5441	1.69	0.52
008161718-02	OBS	No	378.212198	258.354018	495.0	22.454	7.3	7.3	0.80	5441	1.77	0.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161718-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008161718-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

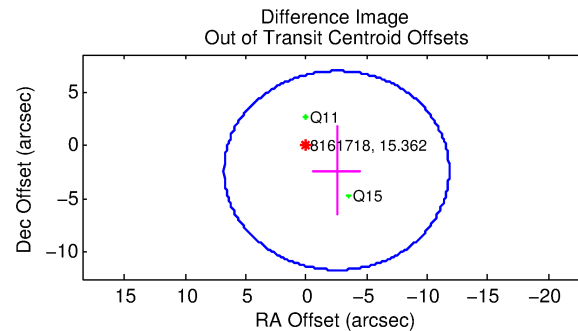
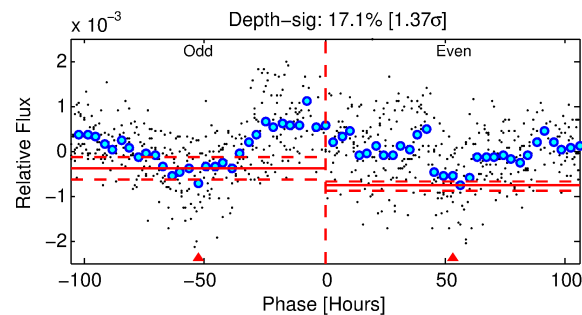
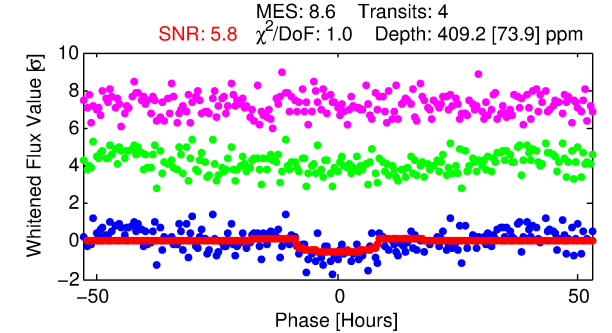
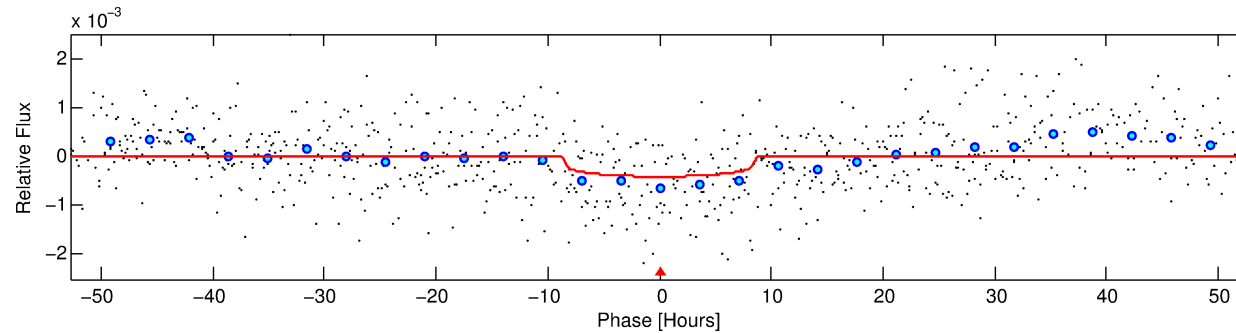
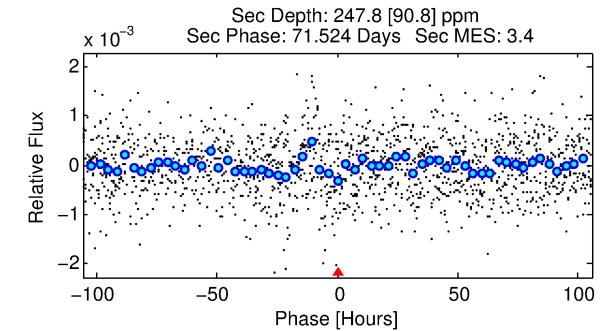
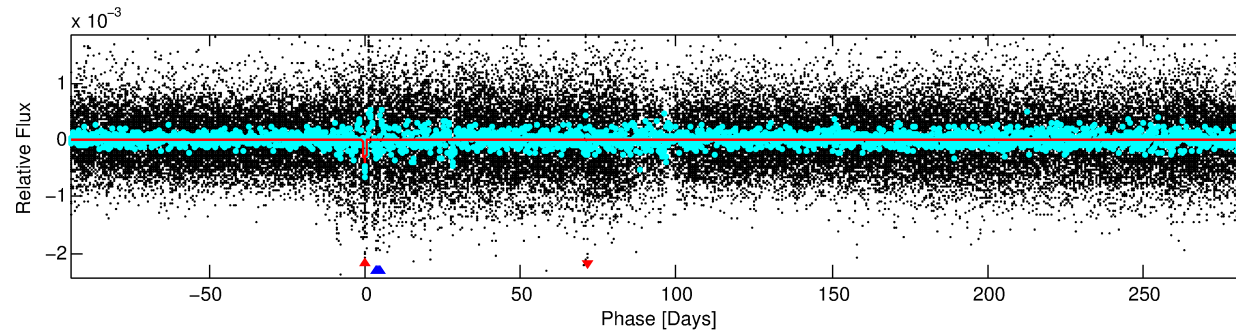
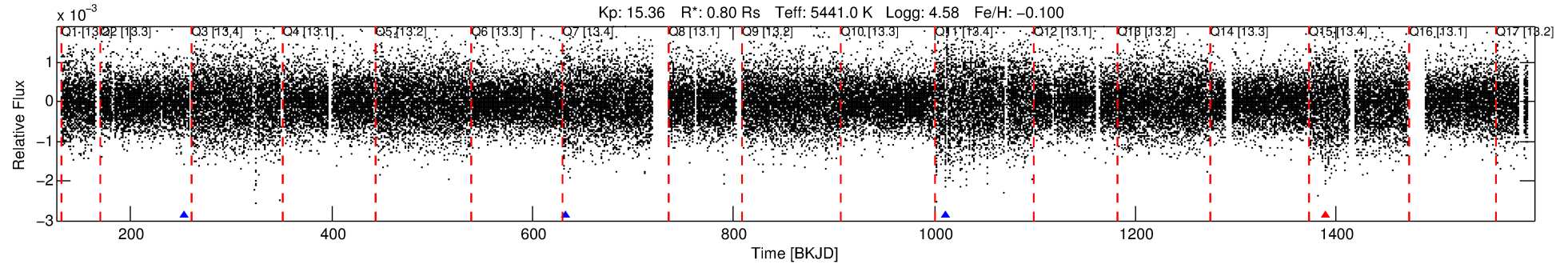
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161718-01

No Significant Match Found

DV One-Page Summary

KIC: 8161718 Candidate: 1 of 2 Period: 378.682 d



DV Fit Results:

Period = 378.68247 [0.01689] d
Epoch = 253.5909 [0.0289] BKJD
Rp/R* = 0.0193 [0.0151]
a/R* = 132.63 [412.89]
b = 0.62 [3.08]
Seff = 0.52 [0.14]
Teq = 216 [14] K
Rp = 1.69 [1.35] Re
a = 0.9853 [0.1581] AU
Ag = 46586.97 [75363.05] [0.62σ]
Teffp = 4910 [1970] K [2.38σ]

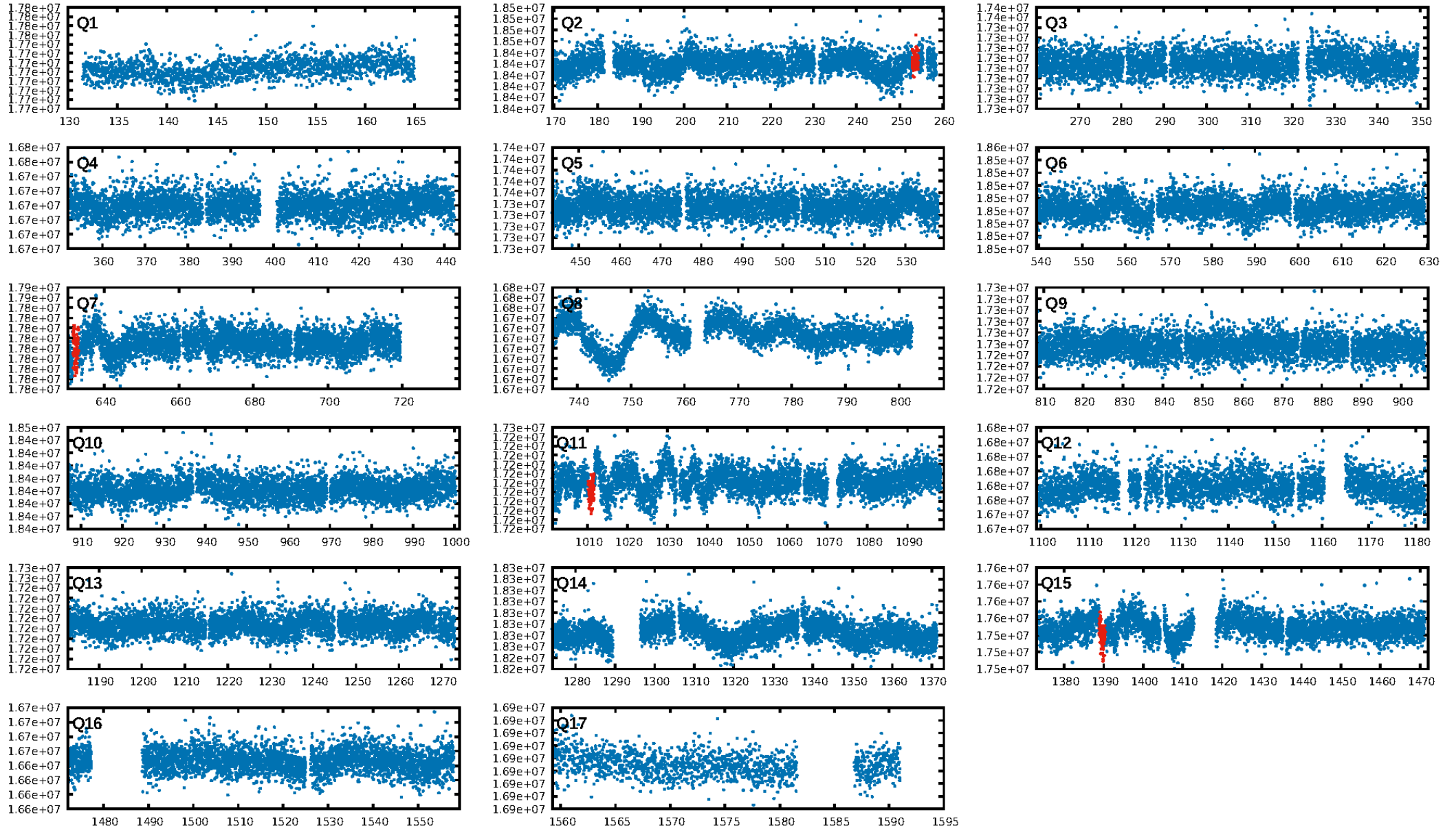
DV Diagnostic Results:

ShortPeriod-sig: 30.8% [0.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.9%
Bootstrap-pfa: 5.49e-12
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: 1.344
Centroid-sig: 24.8%
Centroid-so: 2.210 arcsec [0.90σ]
OotOffset-rm: 3.446 arcsec [1.11σ]
KicOffset-rm: 3.505 arcsec [1.15σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

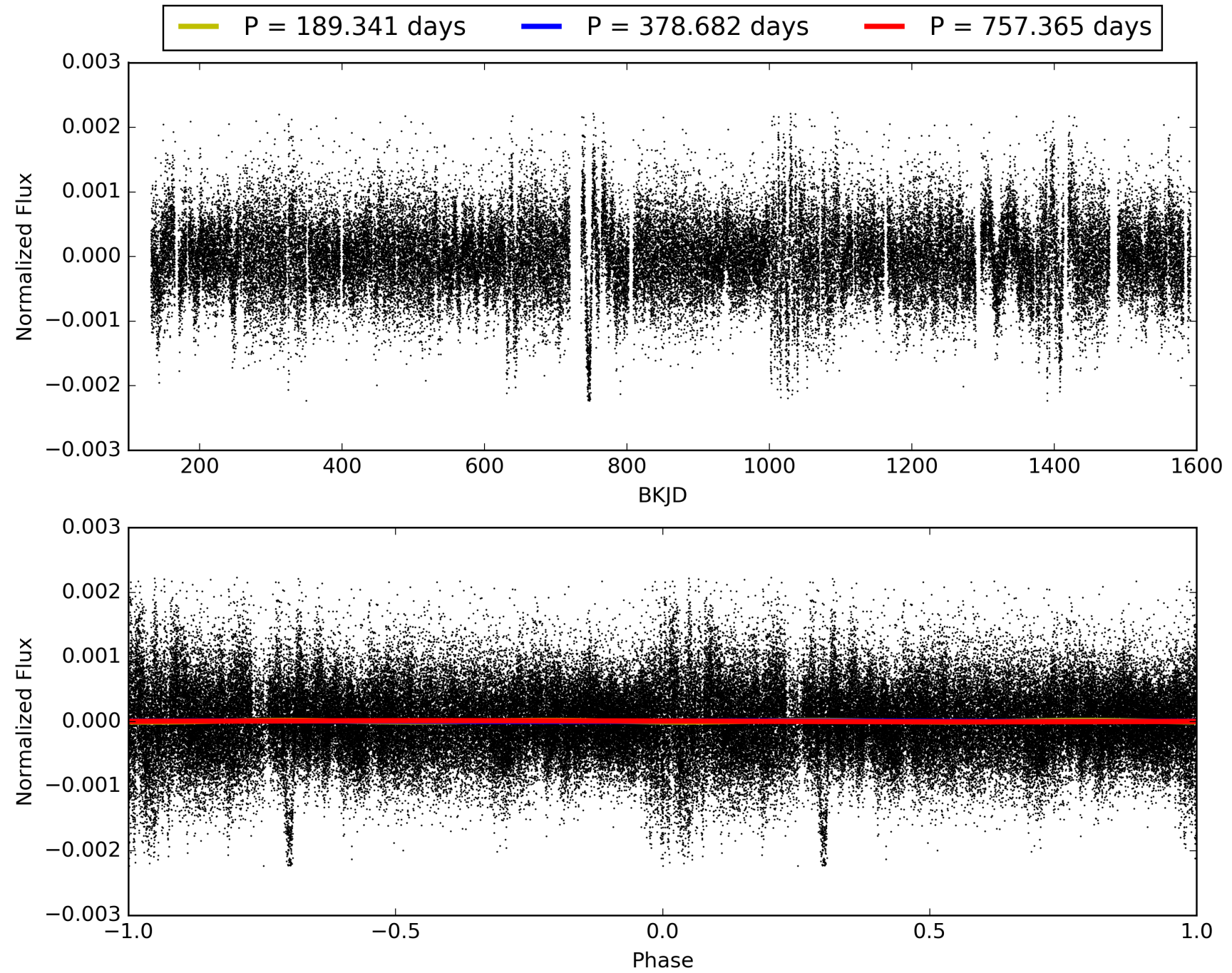
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:05:10 Z

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

TCE 008161718-01, PDC Light Curves

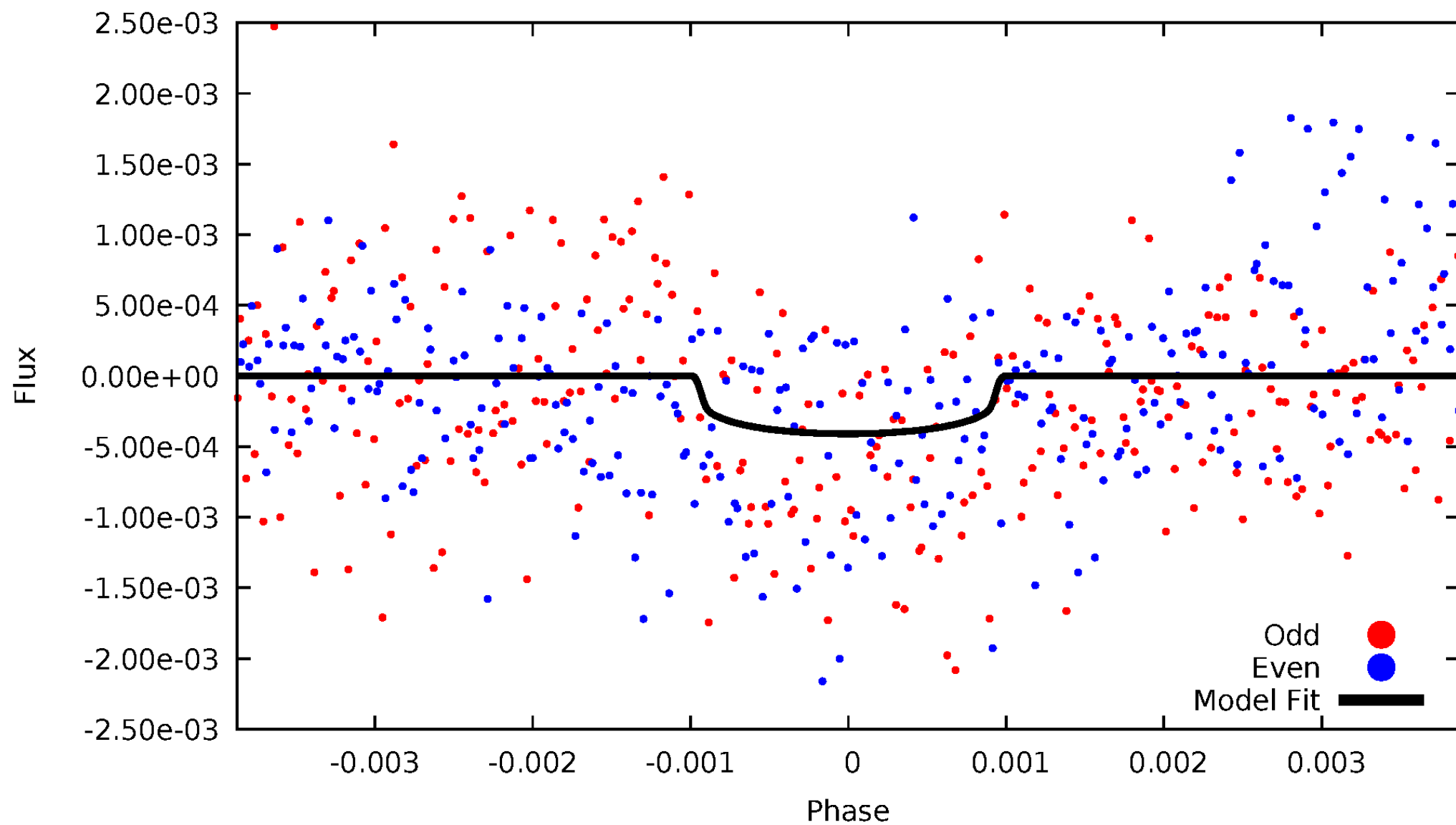


TCE 008161718-01



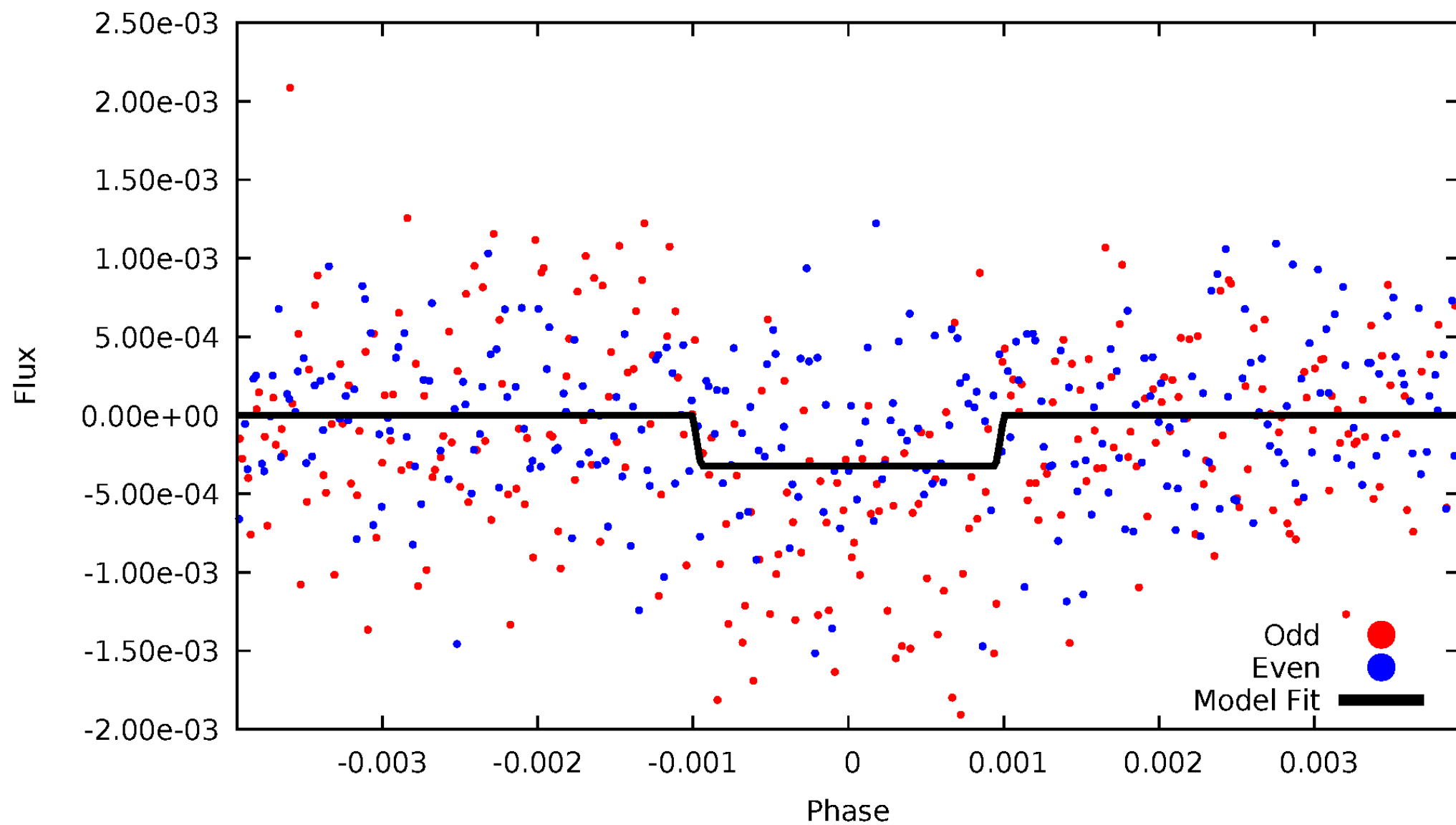
DV Odd/Even

TCE 008161718-01



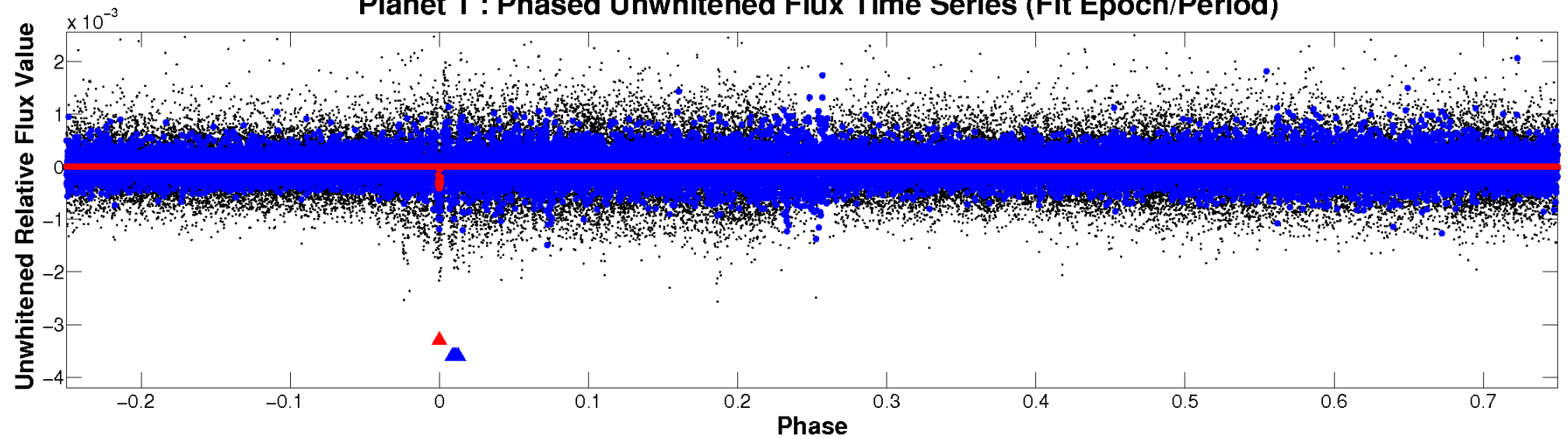
ALT Odd/Even

TCE 008161718-01

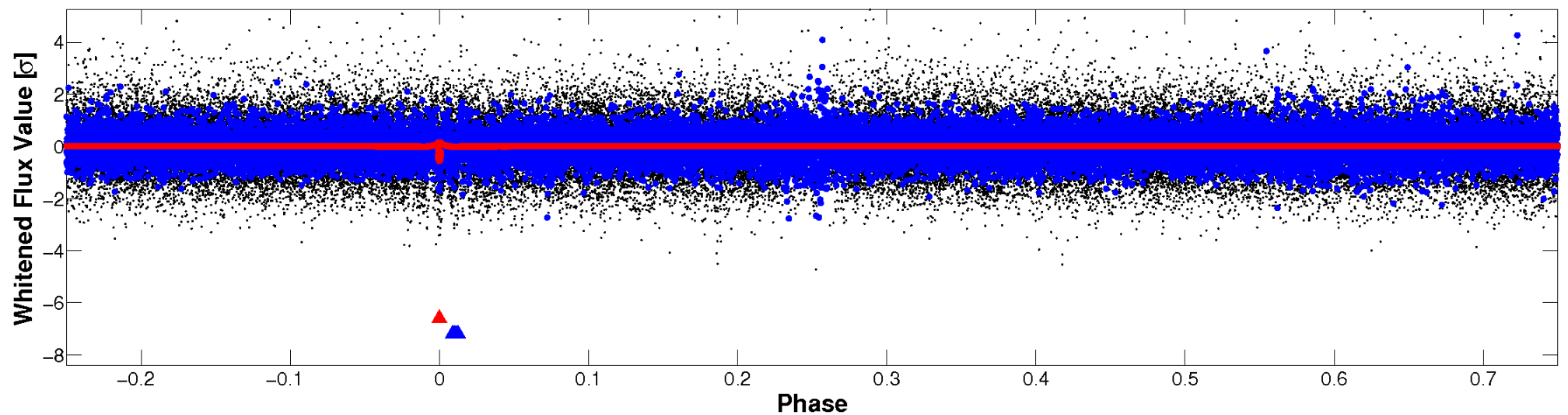


Non-Whitened Vs. Whitened Light Curve

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

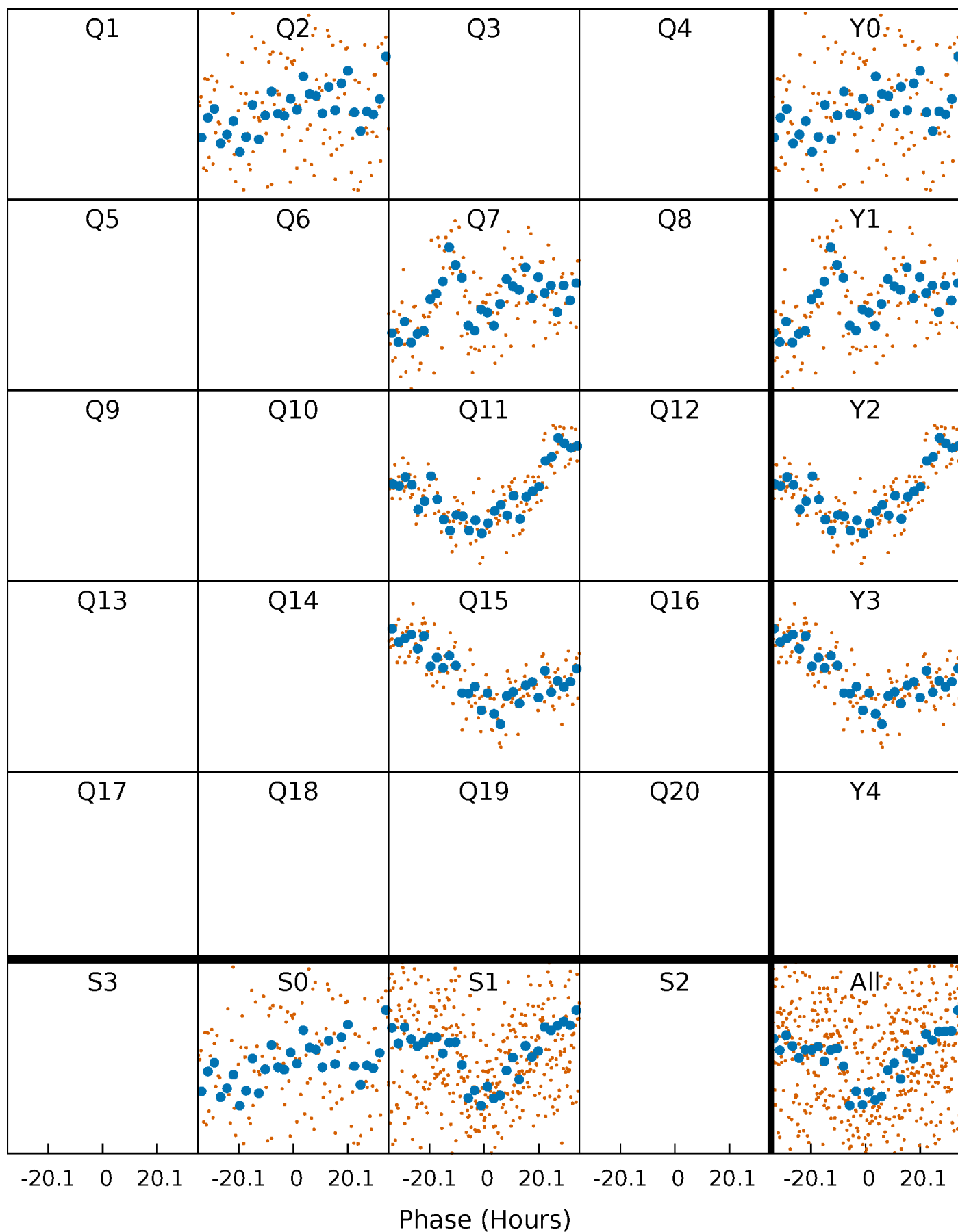


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



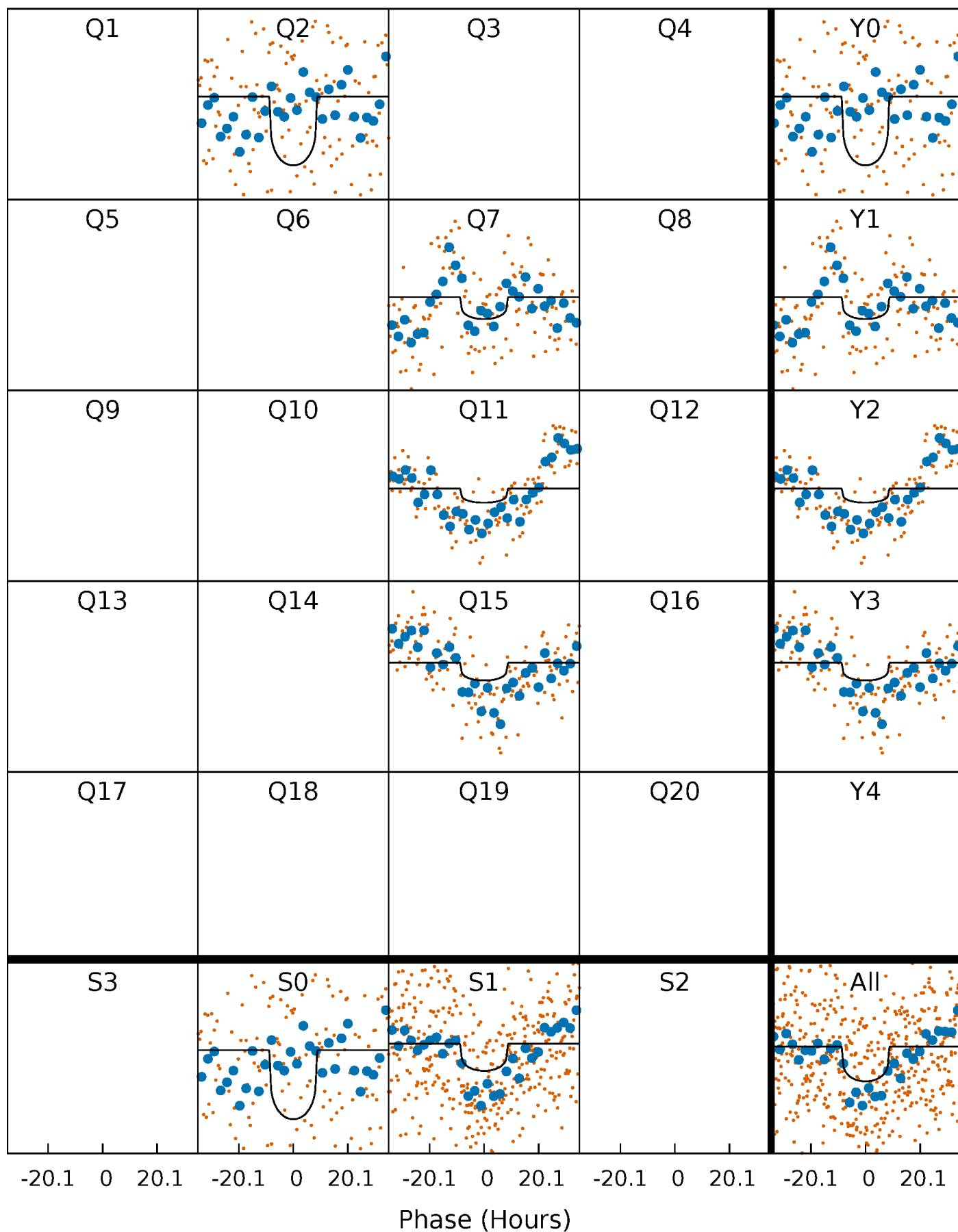
PDC Quarter-Phased Transit Curves

TCE 008161718-01 P=378.682470 Days $T_0=253.590928$ (BKJD)



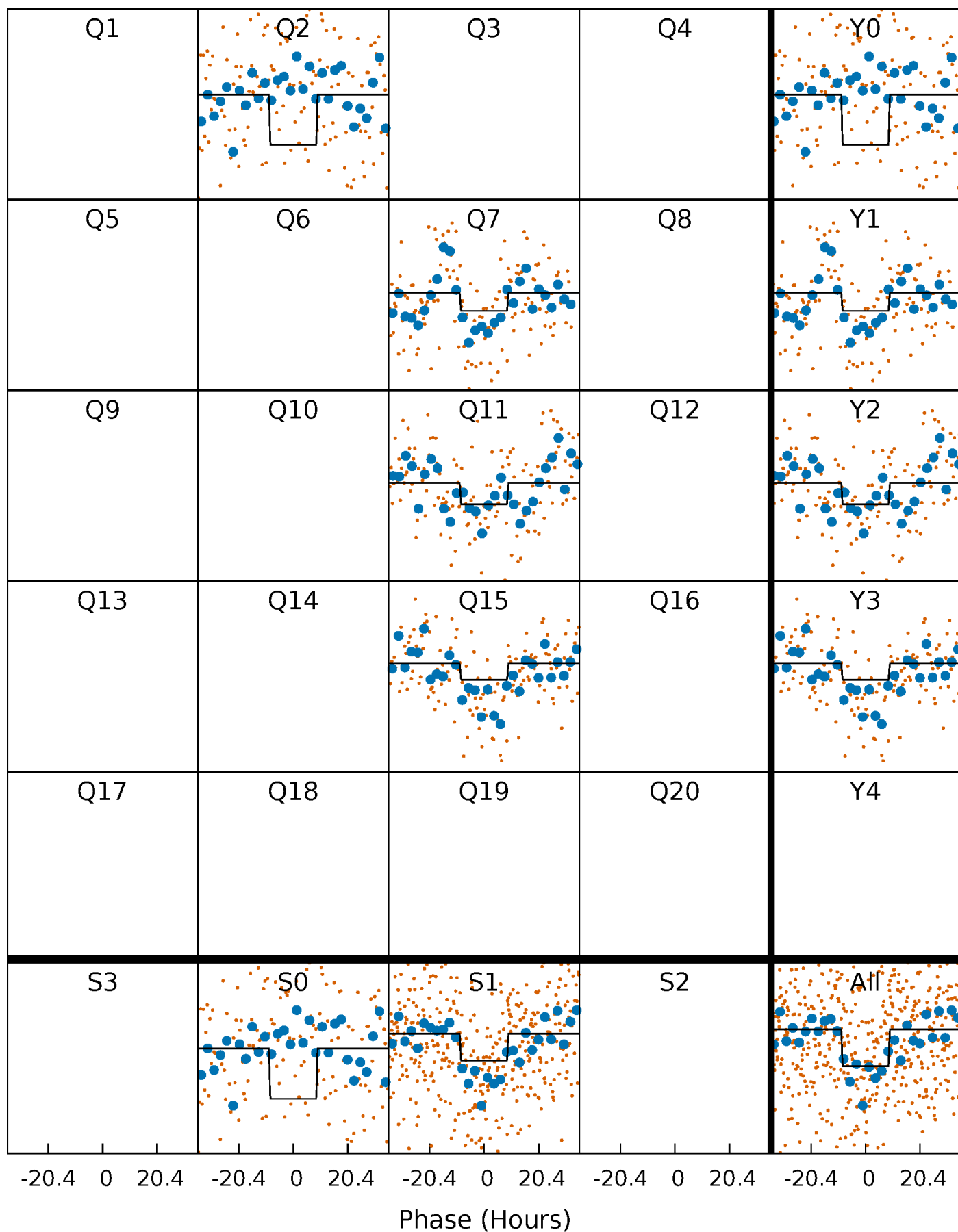
DV Quarter-Phased Transit Curves

TCE 008161718-01 P=378.682470 Days $T_0=253.590928$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

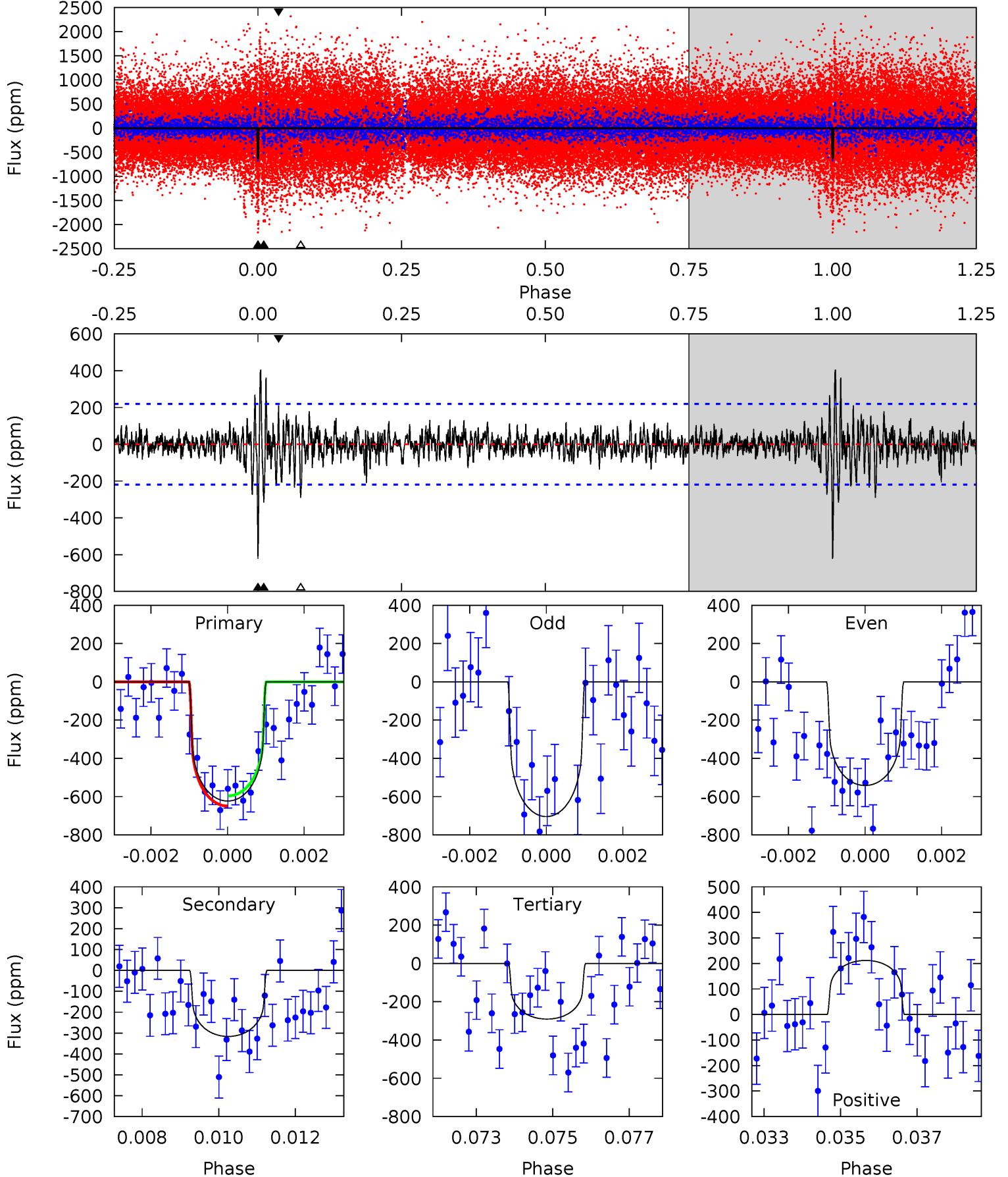
TCE 008161718-01 P=378.647489 Days $T_0=253.679735$ (BKJD)



DV Model-Shift Uniqueness Test

008161718-01, P = 378.682470 Days, E = 253.590928 Days

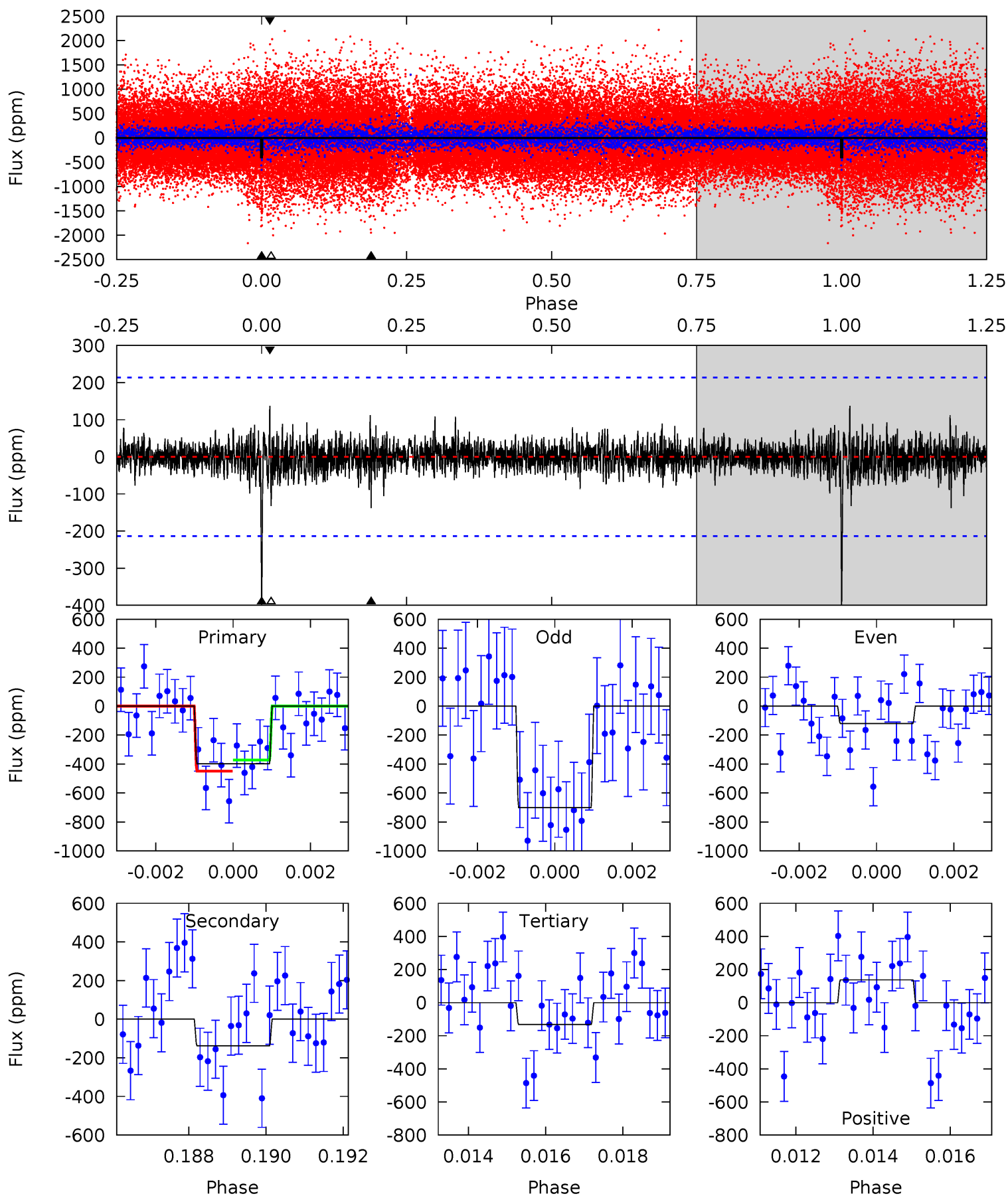
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	7.68	7.05	5.14	5.33	3.10	1.42	8.07	9.98	0.62	2.54	1.98	0.88	0.39	0.64



Alt Model-Shift Uniqueness Test

008161718-01, P = 378.647489 Days, E = 253.679735 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.95	3.45	3.30	3.43	5.33	3.09	0.67	6.65	6.52	0.14	0.02	7.28	0.89	0.26	0.95



Stellar Parameters For KIC 008161718

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5441^{+164}_{-164}	$4.582^{+0.032}_{-0.128}$	$-0.100^{+0.300}_{-0.300}$	$0.799^{+0.152}_{-0.065}$	$0.896^{+0.073}_{-0.101}$	$2.475^{+0.429}_{-0.942}$
	+3%/-3%	+1%/-3%	+300%/-300%	+19%/-8%	+8%/-11%	+17%/-38%
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 008161718-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-316 ± 41	$1.92^{+1.39}_{-1.09}$	307^{+14}_{-12}	5014^{+2630}_{-959}	$45872^{+207772}_{-30833}$
Alt.	-138 ± 40	$1.89^{+1.28}_{-1.16}$	307^{+15}_{-12}	4297^{+2241}_{-732}	$20073^{+116859}_{-13139}$

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

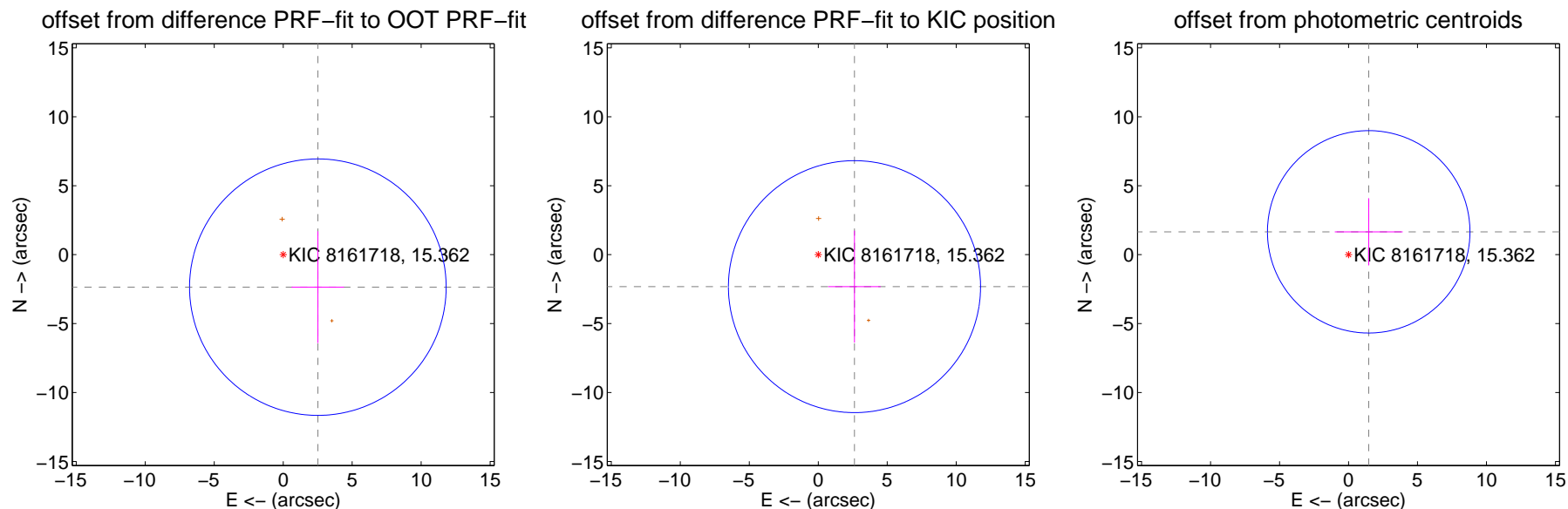
DV Centroid Data

Supplemental centroid analysis for 008161718-01. Kepler magnitude: 15.36. Transit SNR 5.85

There are 0 quarters with good PRF difference image offsets

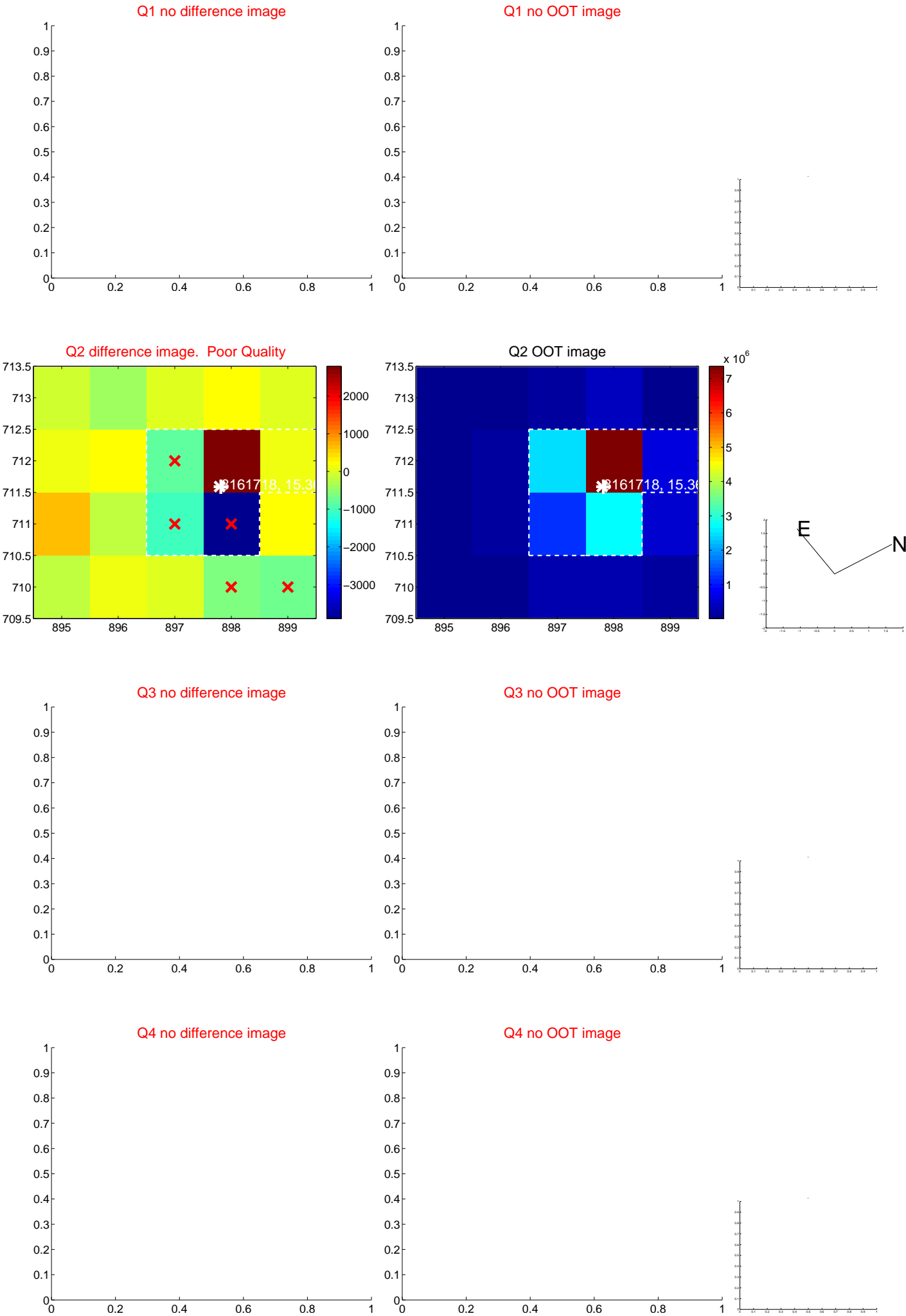
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.446 ± 3.100	1.11	-2.513 ± 1.898	-2.358 ± 4.055
PRF-fit source offset from KIC position	3.505 ± 3.046	1.15	-2.626 ± 1.905	-2.320 ± 4.064
photometric centroid source offset	2.21 ± 2.45	0.90	-1.46 ± 2.46	1.66 ± 2.44



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.

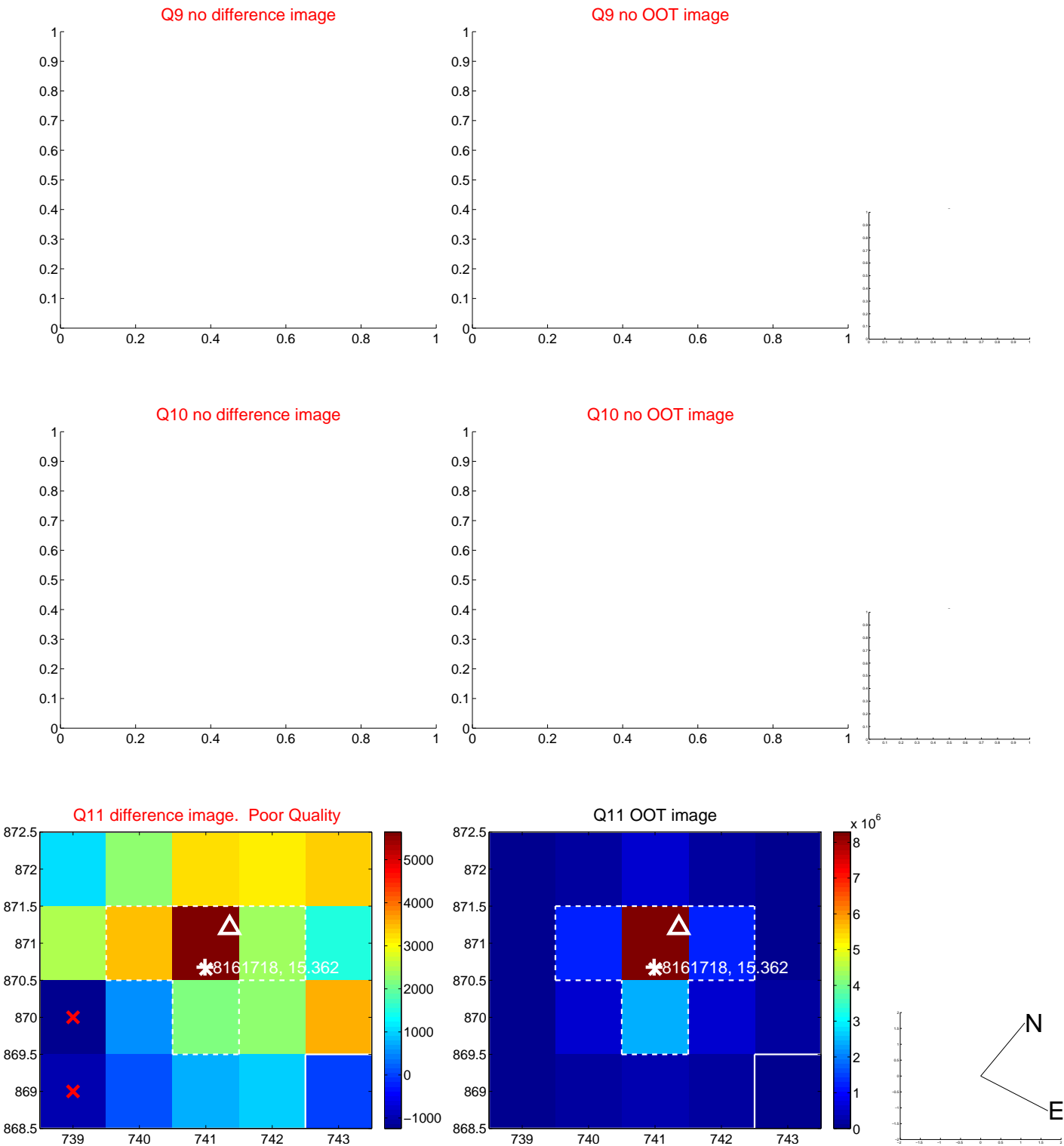
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



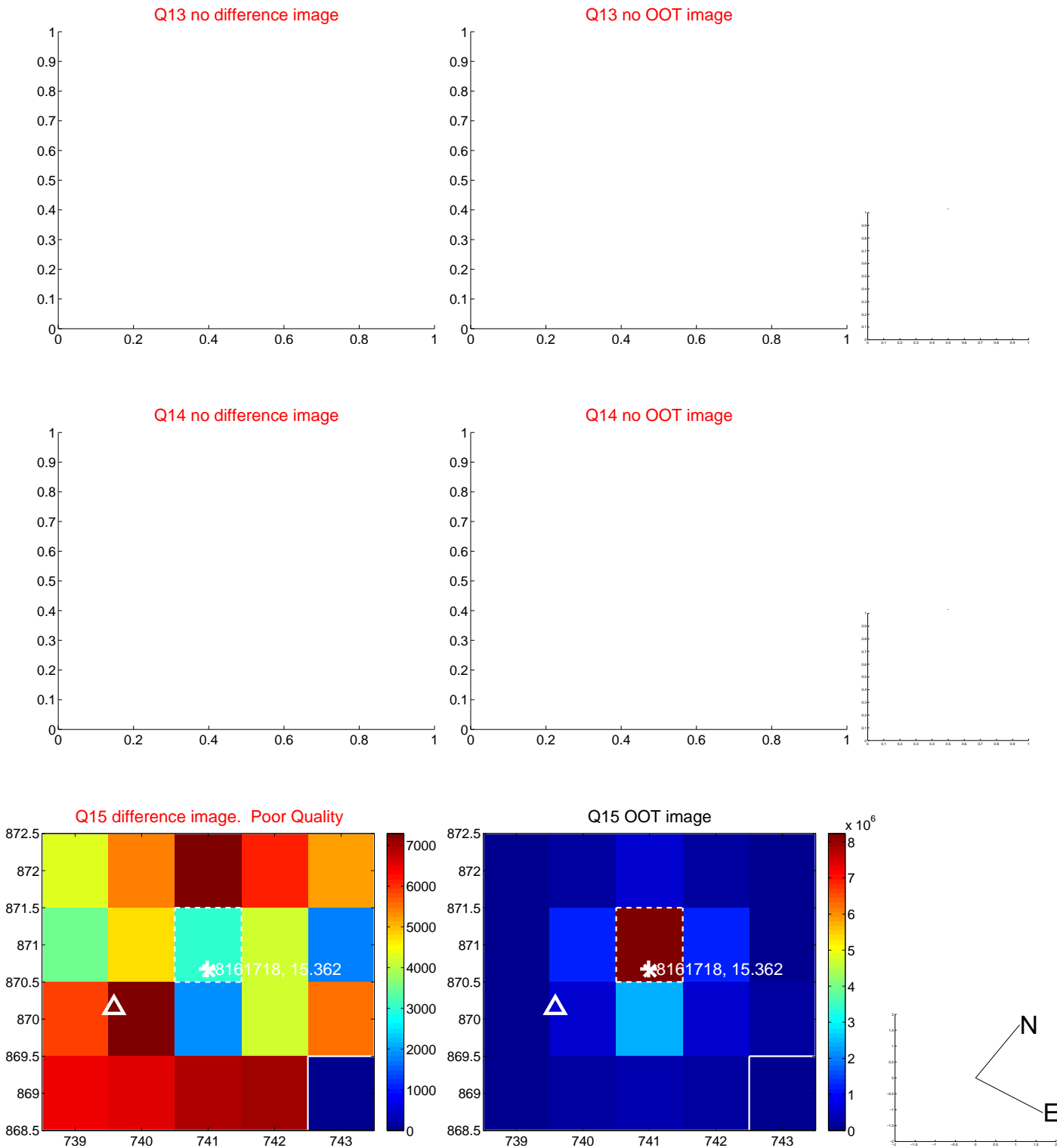
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



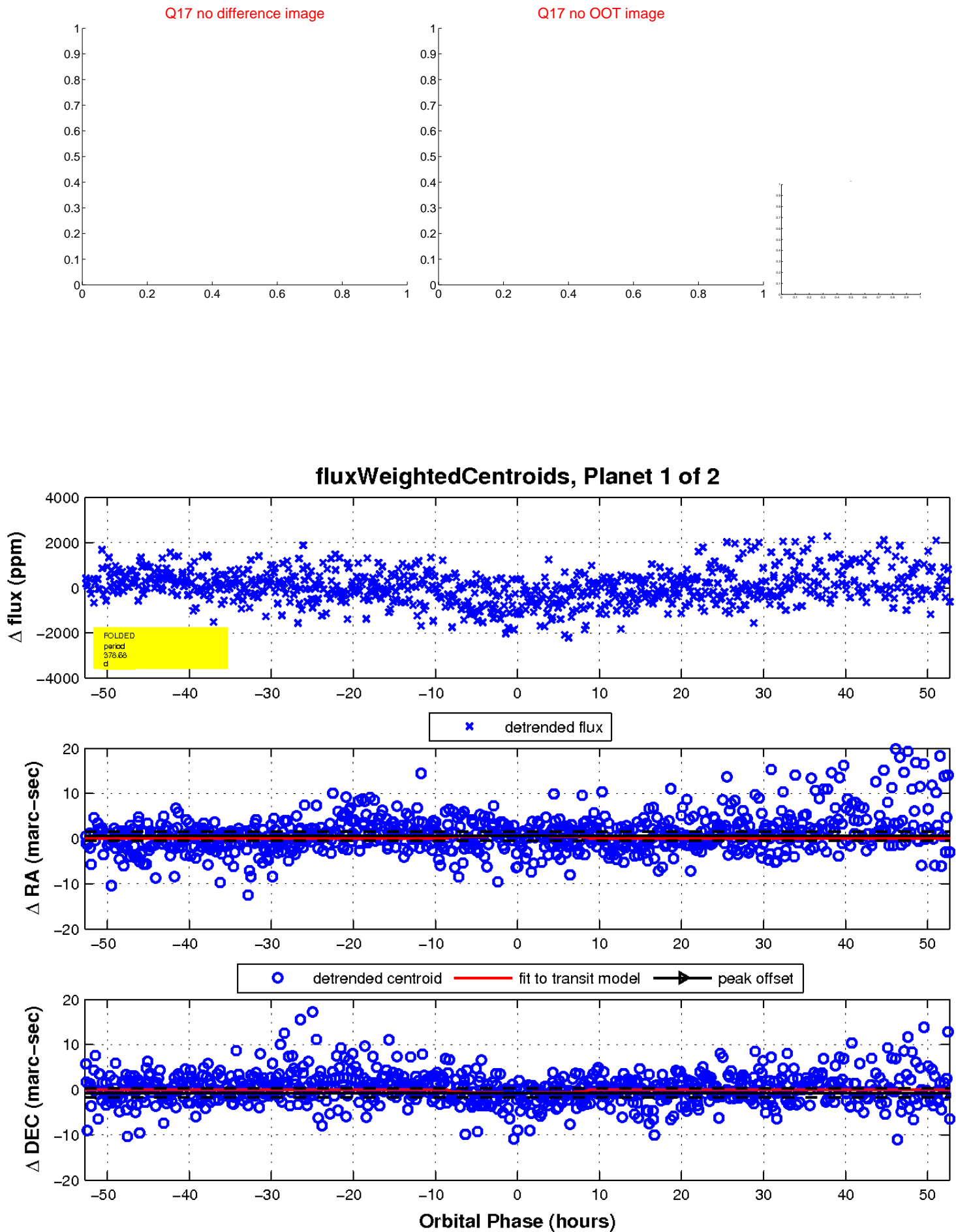
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

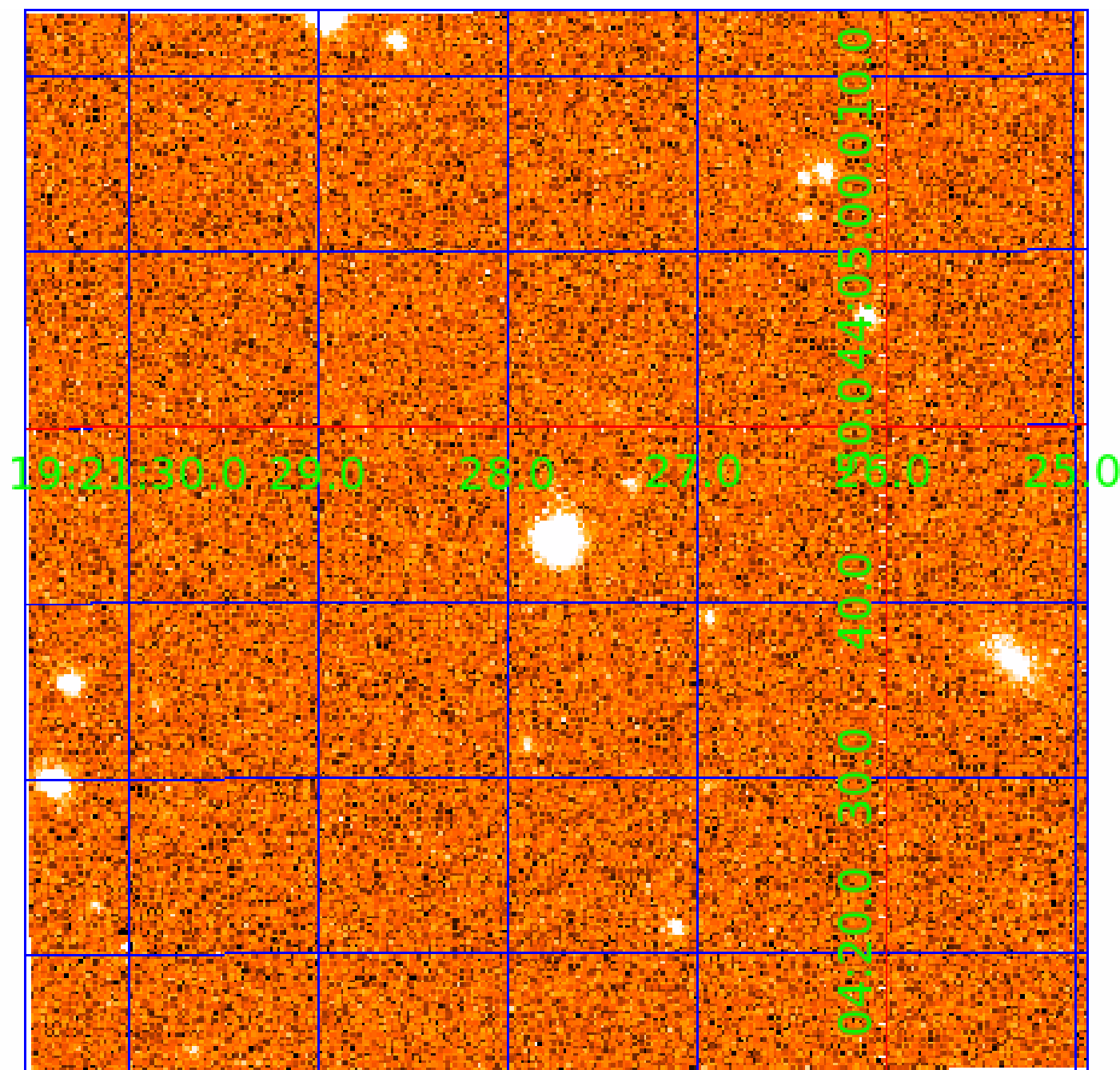


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008161718

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})
008161718-01	OBS	No	378.682470	253.590928	409.2	17.591	8.6	5.8	0.80	5441	1.69	0.52
008161718-02	OBS	No	378.212198	258.354018	495.0	22.454	7.3	7.3	0.80	5441	1.77	0.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008161718-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—CENT_FEW_DIFFS
008161718-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—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.

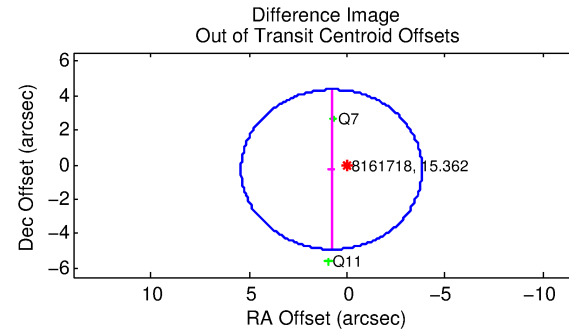
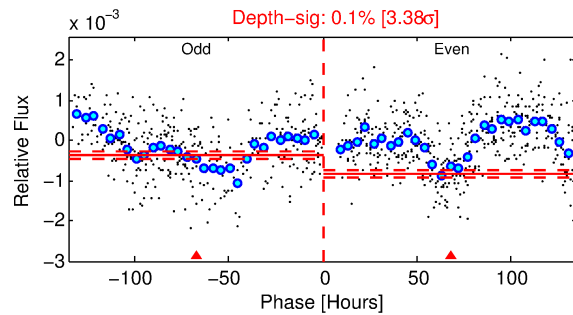
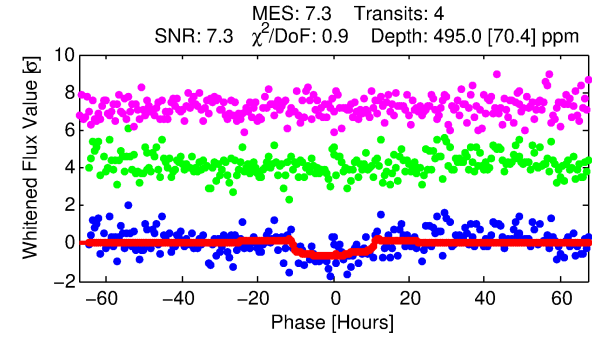
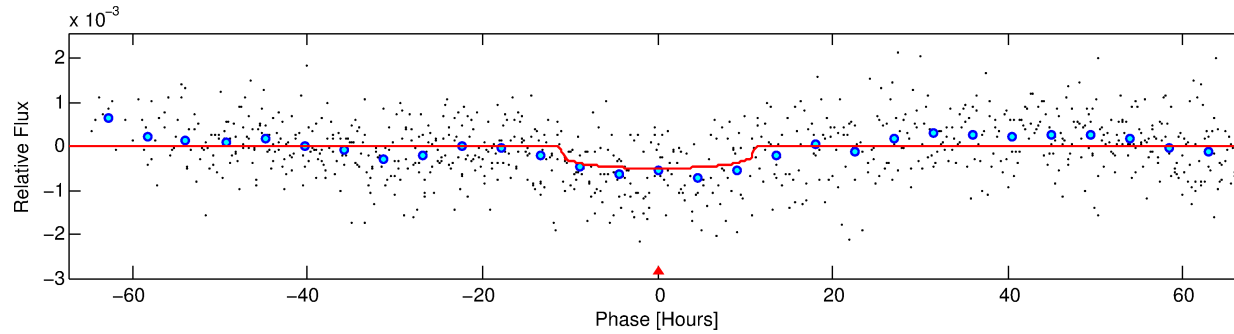
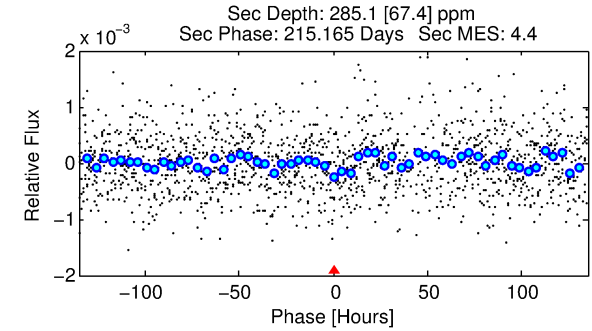
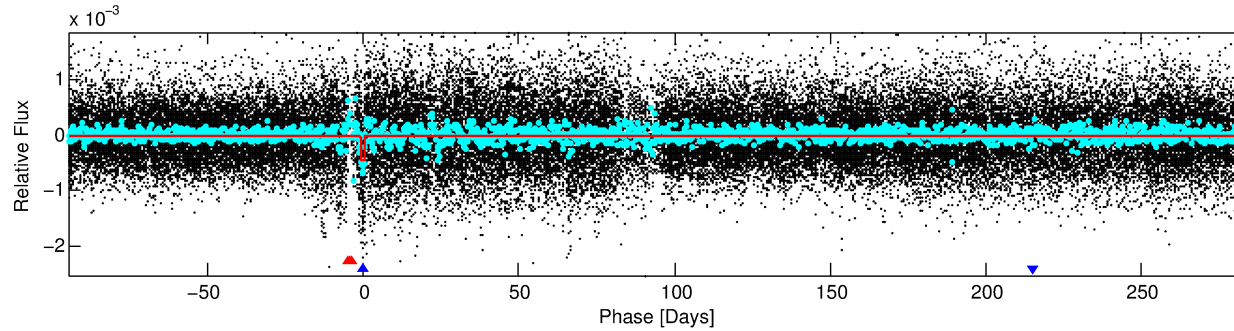
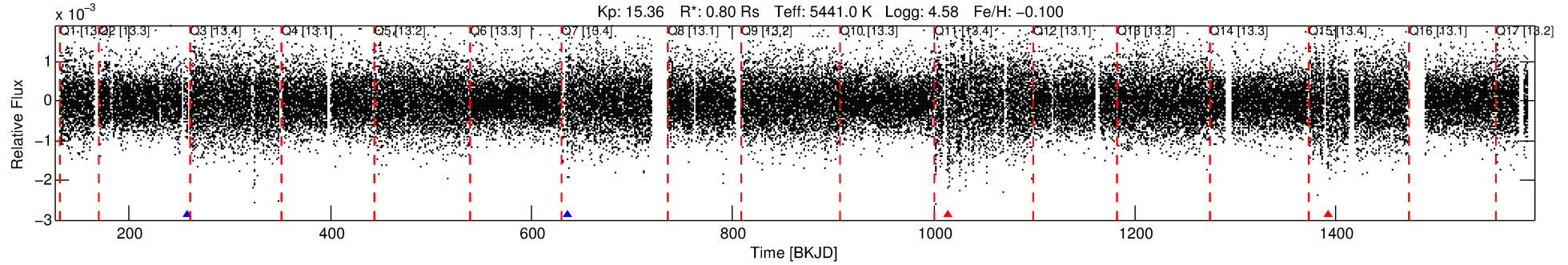
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008161718-02

No Significant Match Found

DV One-Page Summary

KIC: 8161718 Candidate: 2 of 2 Period: 378.212 d



DV Fit Results:

Period = 378.21220 [0.01808] d
Epoch = 258.3540 [0.0347] BKJD
Rp/R* = 0.0204 [0.0229]
a/R* = 122.70 [551.94]
b = 0.36 [10.83]
Seff = 0.52 [0.14]
Teq = 216 [14] K
Rp = 1.77 [2.03] Re
a = 0.9845 [0.1579] AU
Ag = 48270.13 [109862.69] [0.44σ]
Teff = 4956 [2809] K [1.69σ]

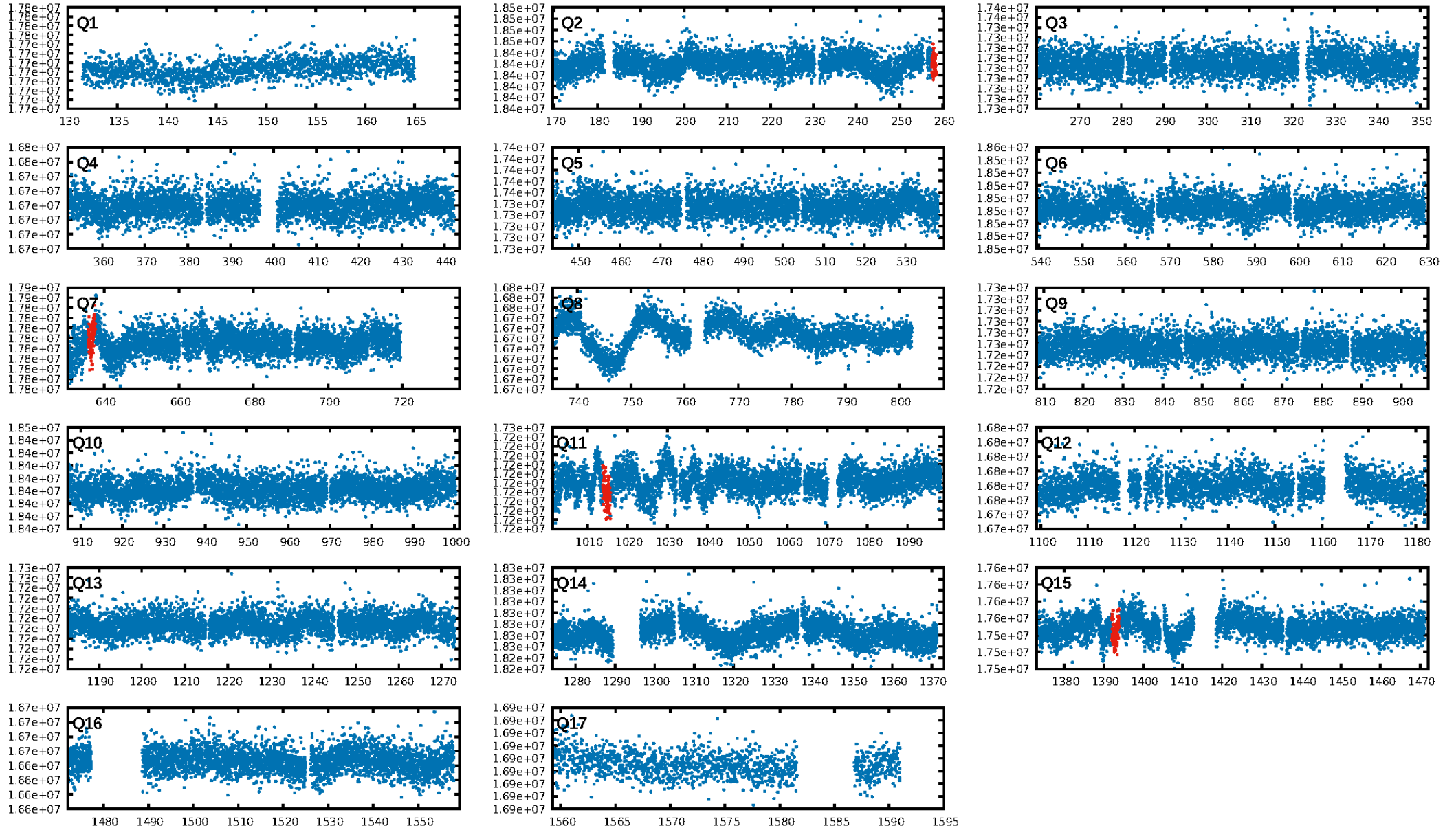
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 30.8% [0.40σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.58e-10
RollingBand-fgt: 0.50 [2/4]
GhostDiagnostic-chr: 0.8185
Centroid-sig: 52.0%
Centroid-so: 1.409 arcsec [0.68σ]
OotOffset-rm: 0.834 arcsec [0.54σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-rm: 0.734 arcsec [0.53σ]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

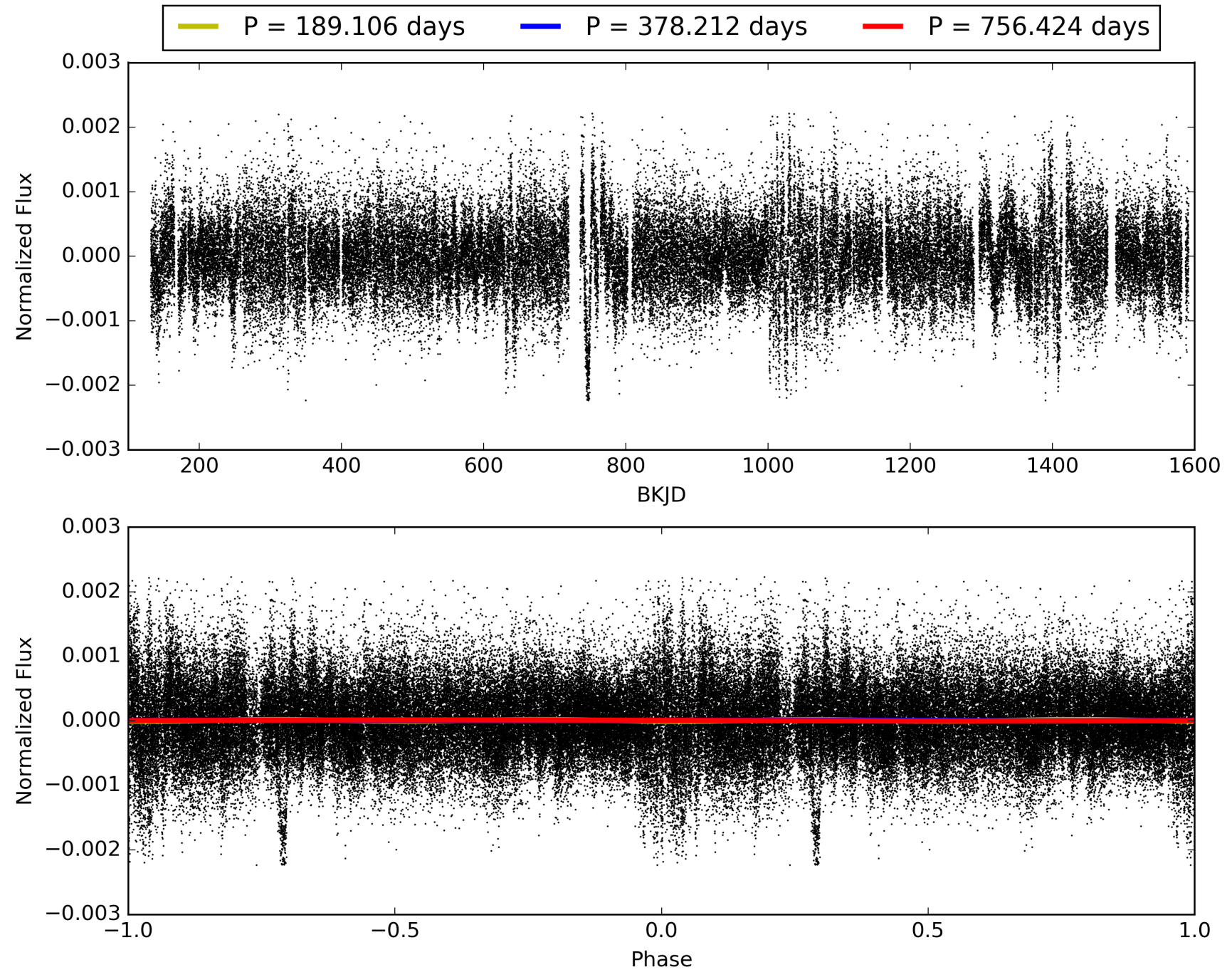
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:05:18 Z

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

TCE 008161718-02, PDC Light Curves

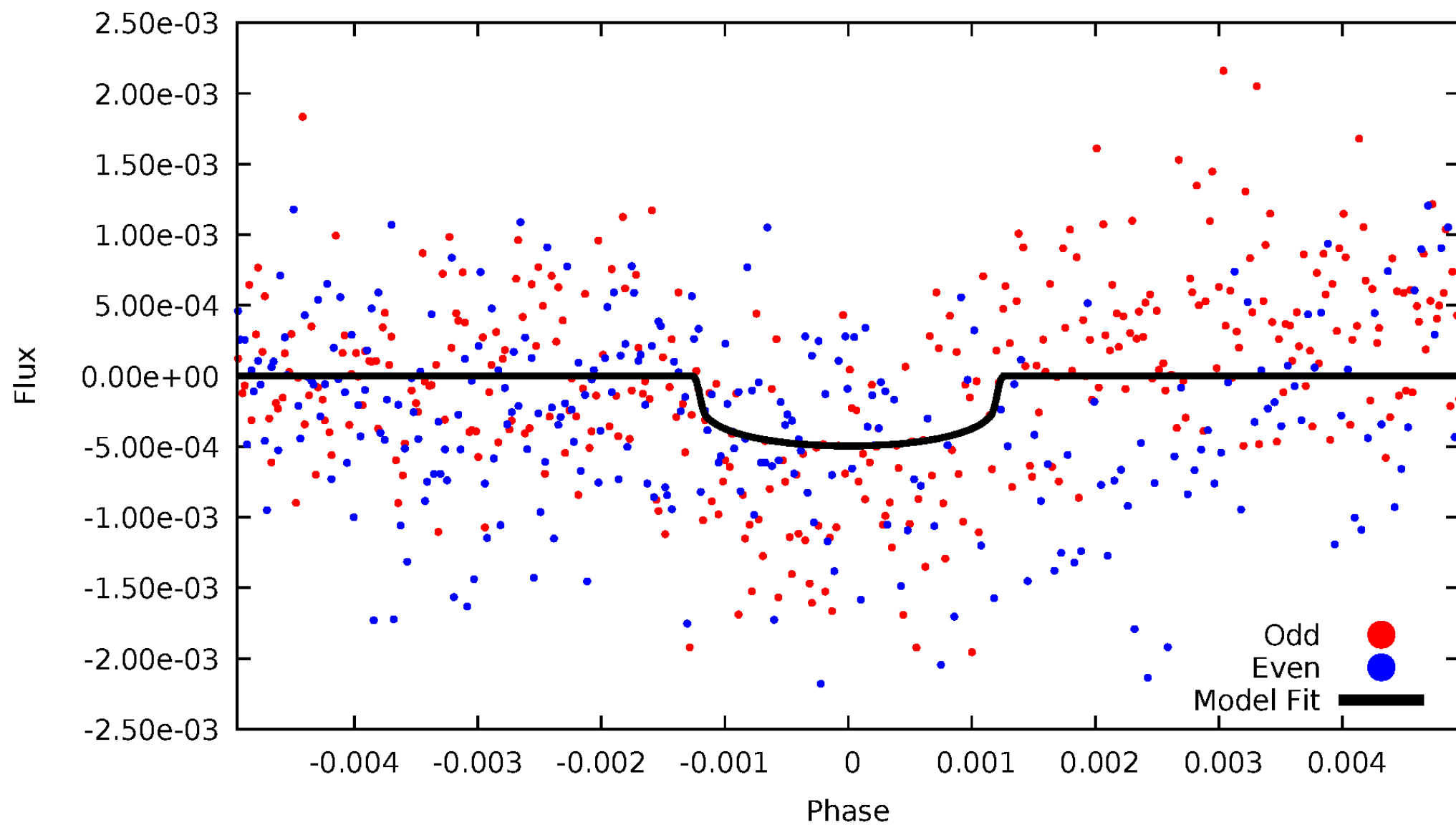


TCE 008161718-02



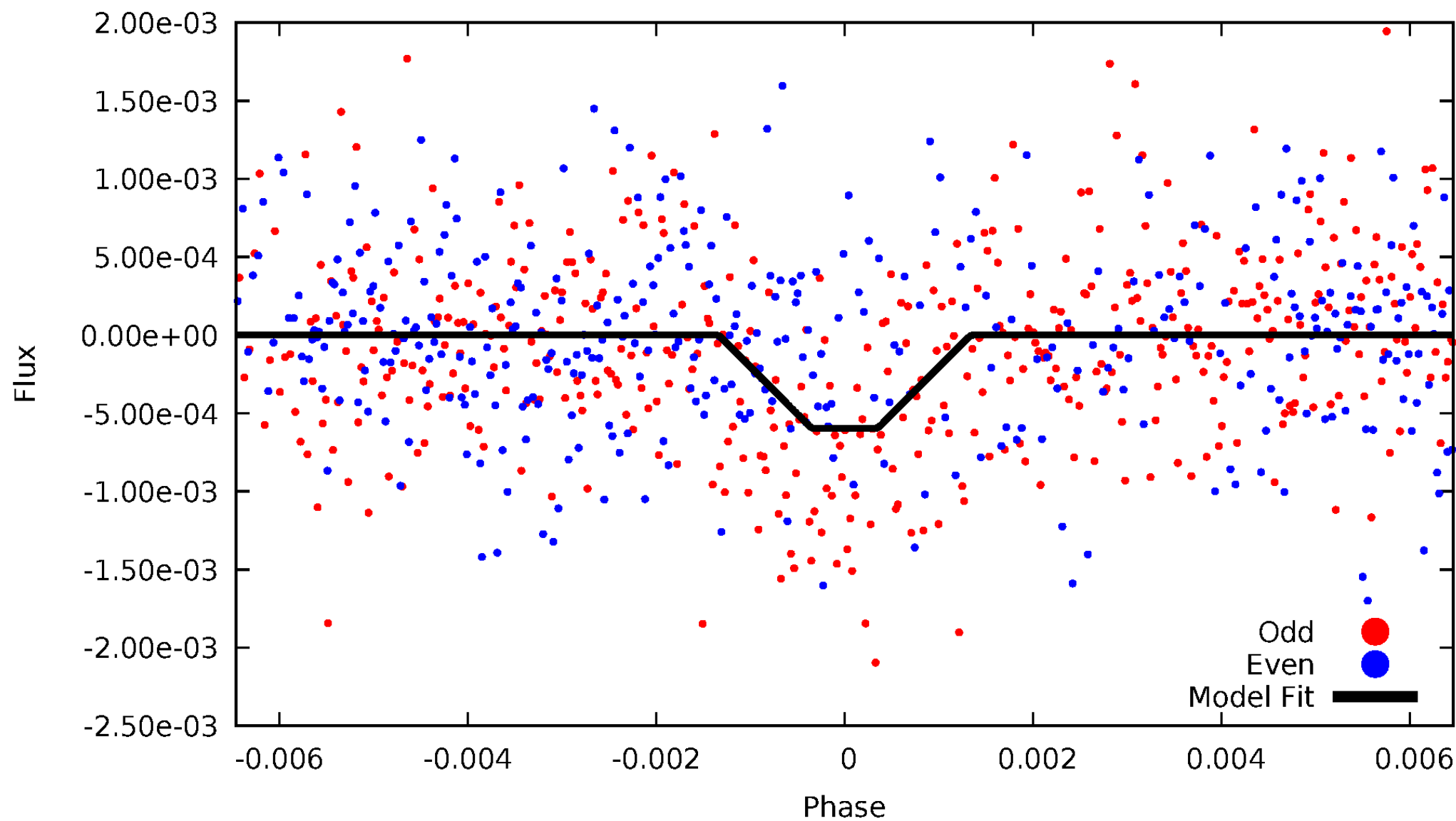
DV Odd/Even

TCE 008161718-02



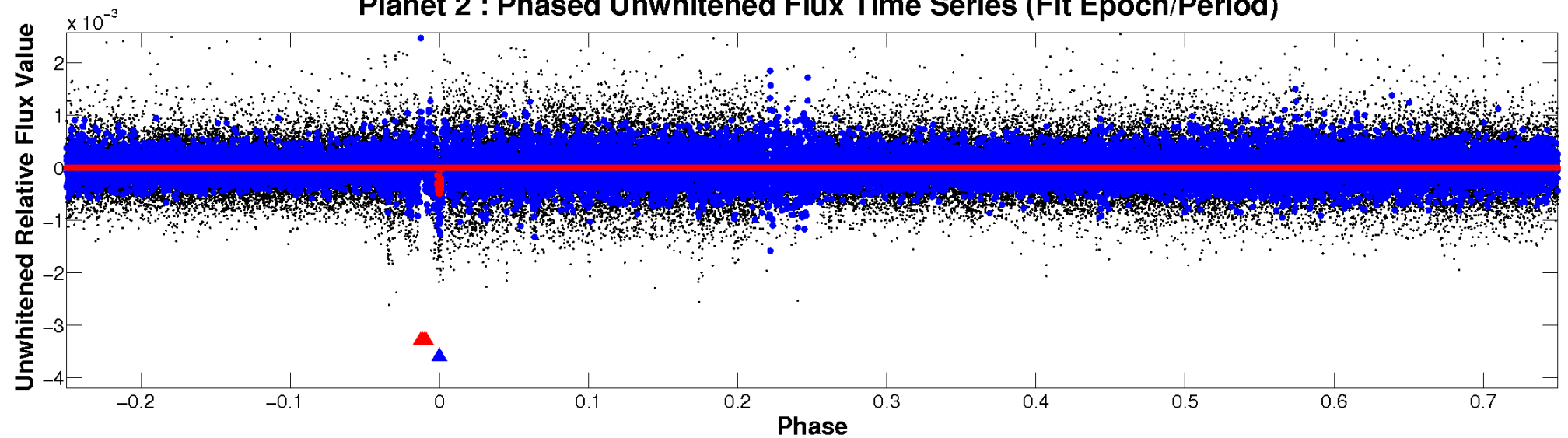
ALT Odd/Even

TCE 008161718-02

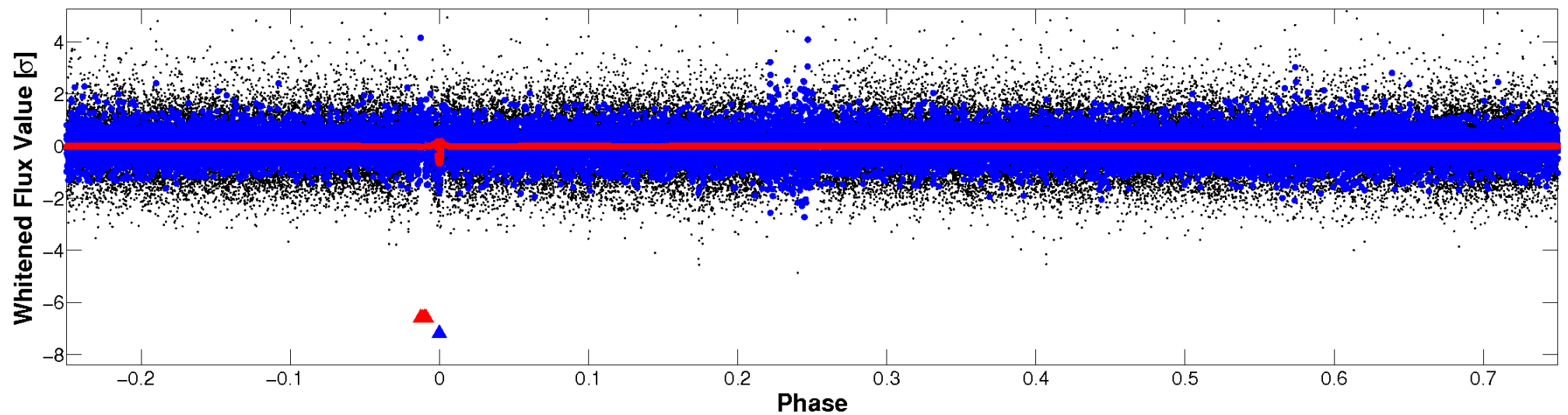


Non-Whitened Vs. Whitened Light Curve

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



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



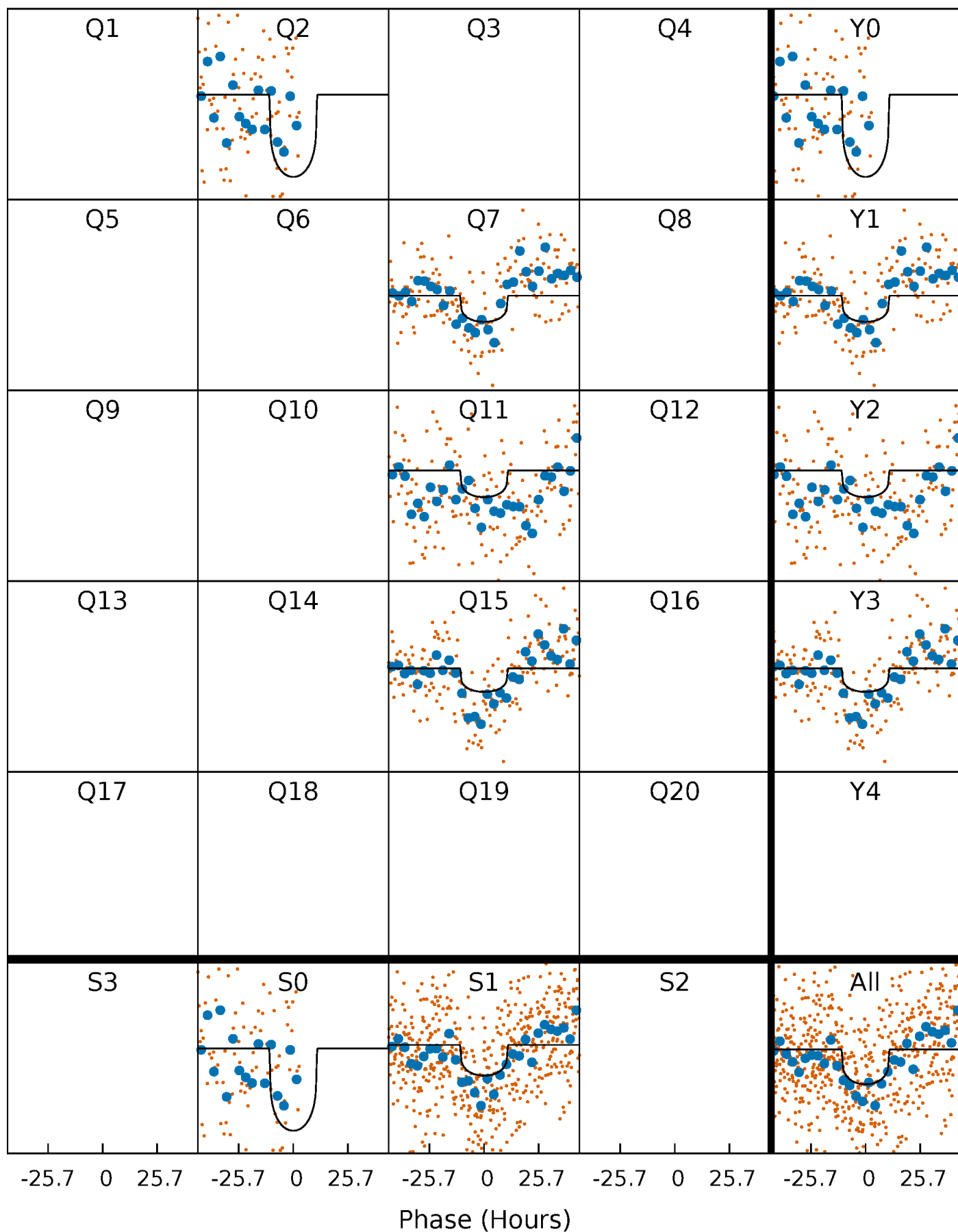
PDC Quarter-Phased Transit Curves

TCE 008161718-02 P=378.212198 Days $T_0=258.354018$ (BKJD)



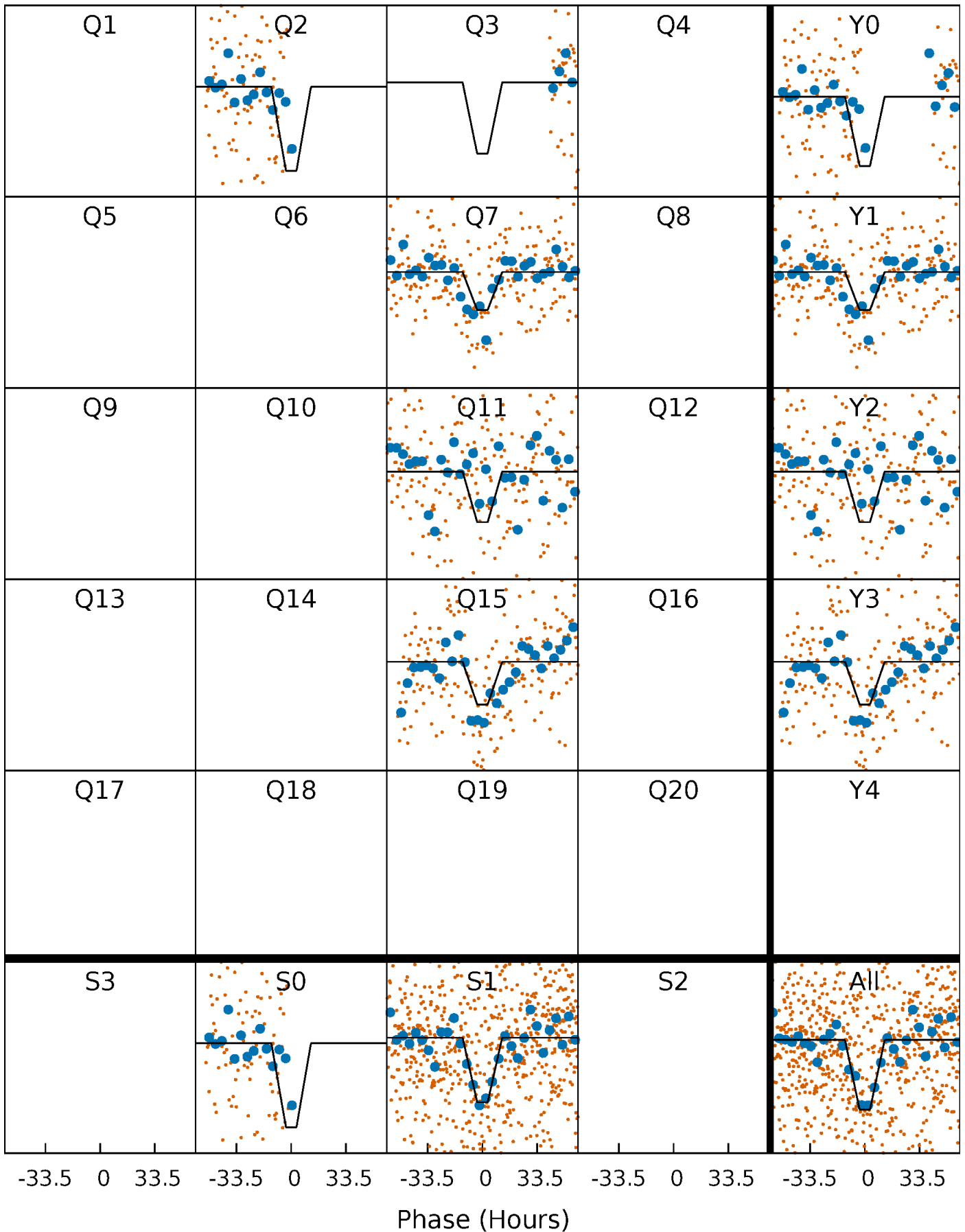
DV Quarter-Phased Transit Curves

TCE 008161718-02 P=378.212198 Days $T_0=258.354018$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

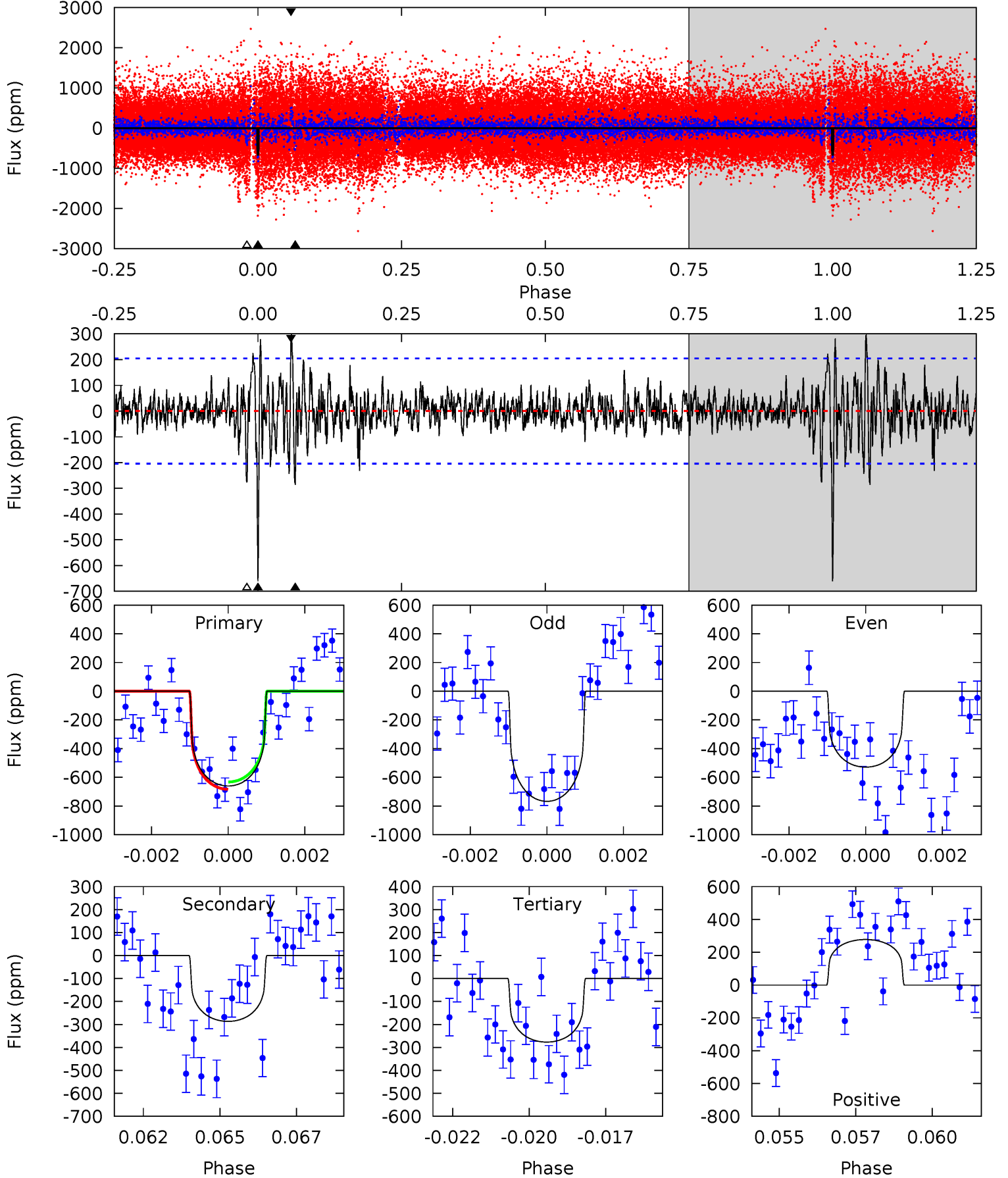
TCE 008161718-02 P=378.129839 Days $T_0=258.520541$ (BKJD)



DV Model-Shift Uniqueness Test

008161718-02, P = 378.212198 Days, E = 258.354018 Days

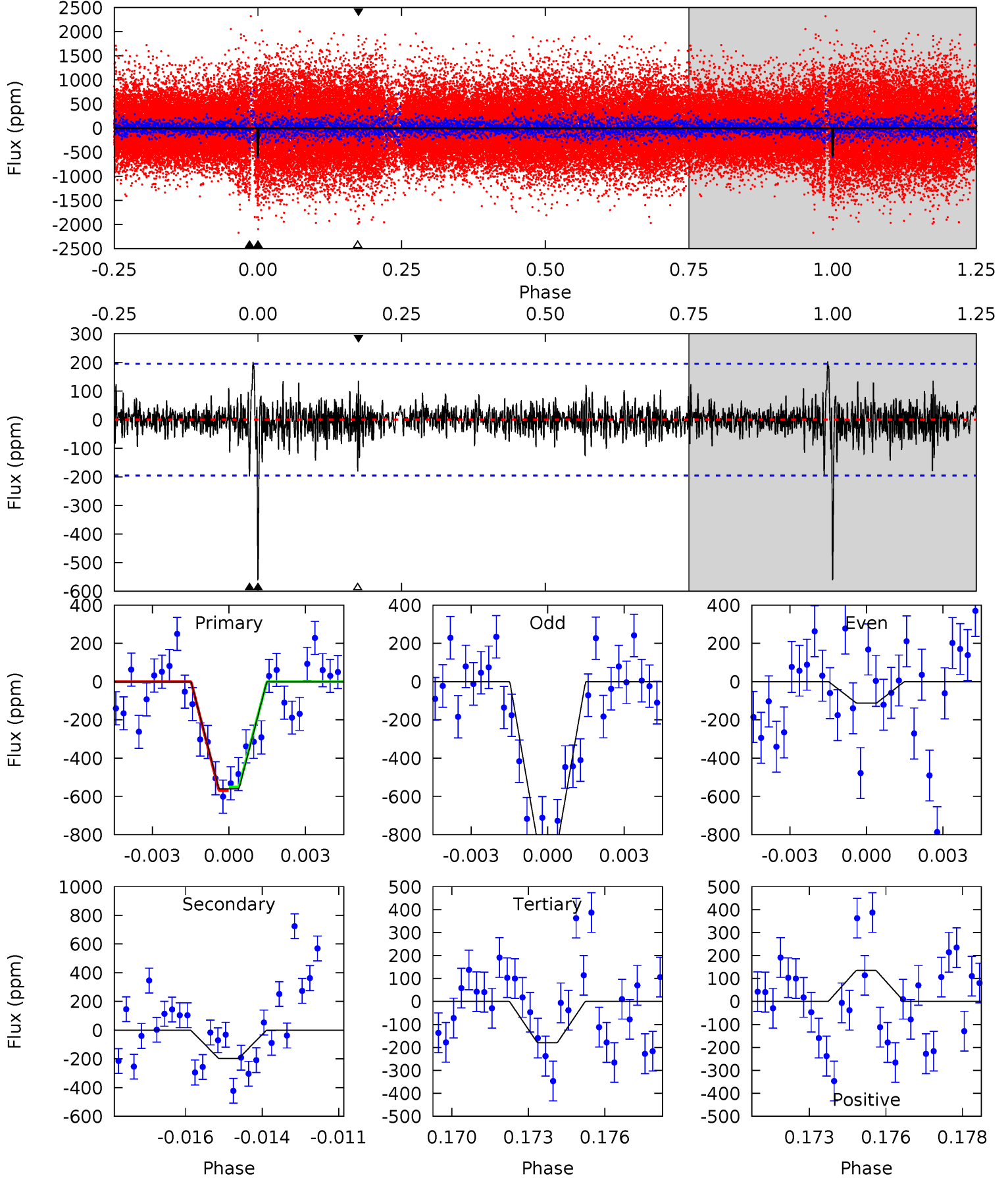
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	7.42	7.17	7.19	5.29	3.03	1.50	9.94	9.92	0.25	0.24	3.07	0.93	0.31	0.65



Alt Model-Shift Uniqueness Test

008161718-02, P = 378.129839 Days, E = 258.520541 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	5.32	4.84	3.64	5.27	3.00	0.99	10.3	11.5	0.48	1.68	9.73	1.04	0.26	0.24



Stellar Parameters For KIC 008161718

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5441^{+164}_{-164}	$4.582^{+0.032}_{-0.128}$	$-0.100^{+0.300}_{-0.300}$	$0.799^{+0.152}_{-0.065}$	$0.896^{+0.073}_{-0.101}$	$2.475^{+0.429}_{-0.942}$
	+3%/-3%	+1%/-3%	+300%/-300%	+19%/-8%	+8%/-11%	+17%/-38%
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 008161718-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-287 ± 39	$2.38^{+1.99}_{-1.59}$	307^{+16}_{-12}	4566^{+3270}_{-913}	$27665^{+214643}_{-19779}$
Alt.	-197 ± 37	$2.46^{+1.94}_{-1.52}$	308^{+14}_{-13}	4173^{+2219}_{-777}	$17751^{+103481}_{-12722}$

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

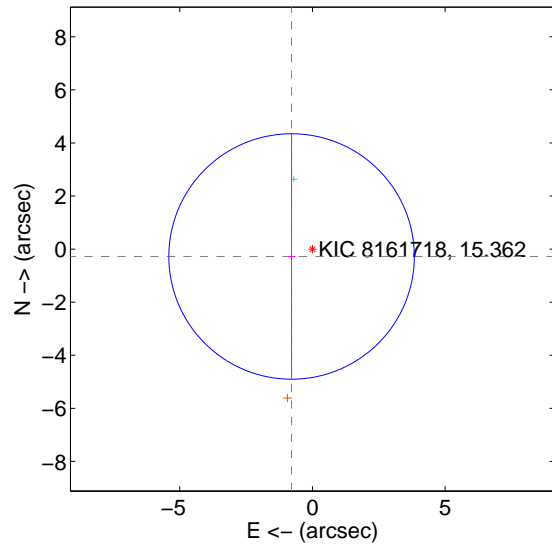
Supplemental centroid analysis for 008161718-02. Kepler magnitude: 15.36. Transit SNR 7.26

There are 1 quarters with good PRF difference image offsets

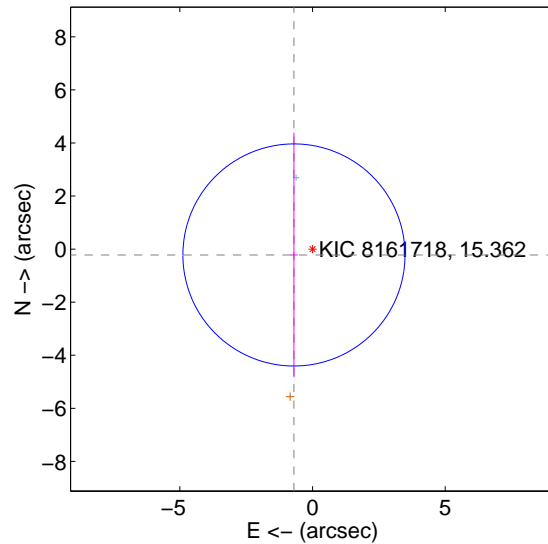
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.834 ± 1.541	0.54	0.786 ± 0.151	-0.278 ± 4.603
PRF-fit source offset from KIC position	0.734 ± 1.395	0.53	0.700 ± 0.141	-0.221 ± 4.608
photometric centroid source offset	1.41 ± 2.06	0.68	-0.78 ± 2.12	-1.17 ± 2.04

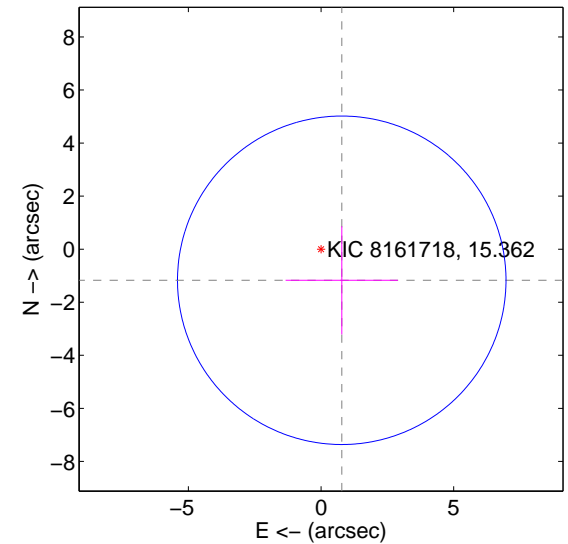
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

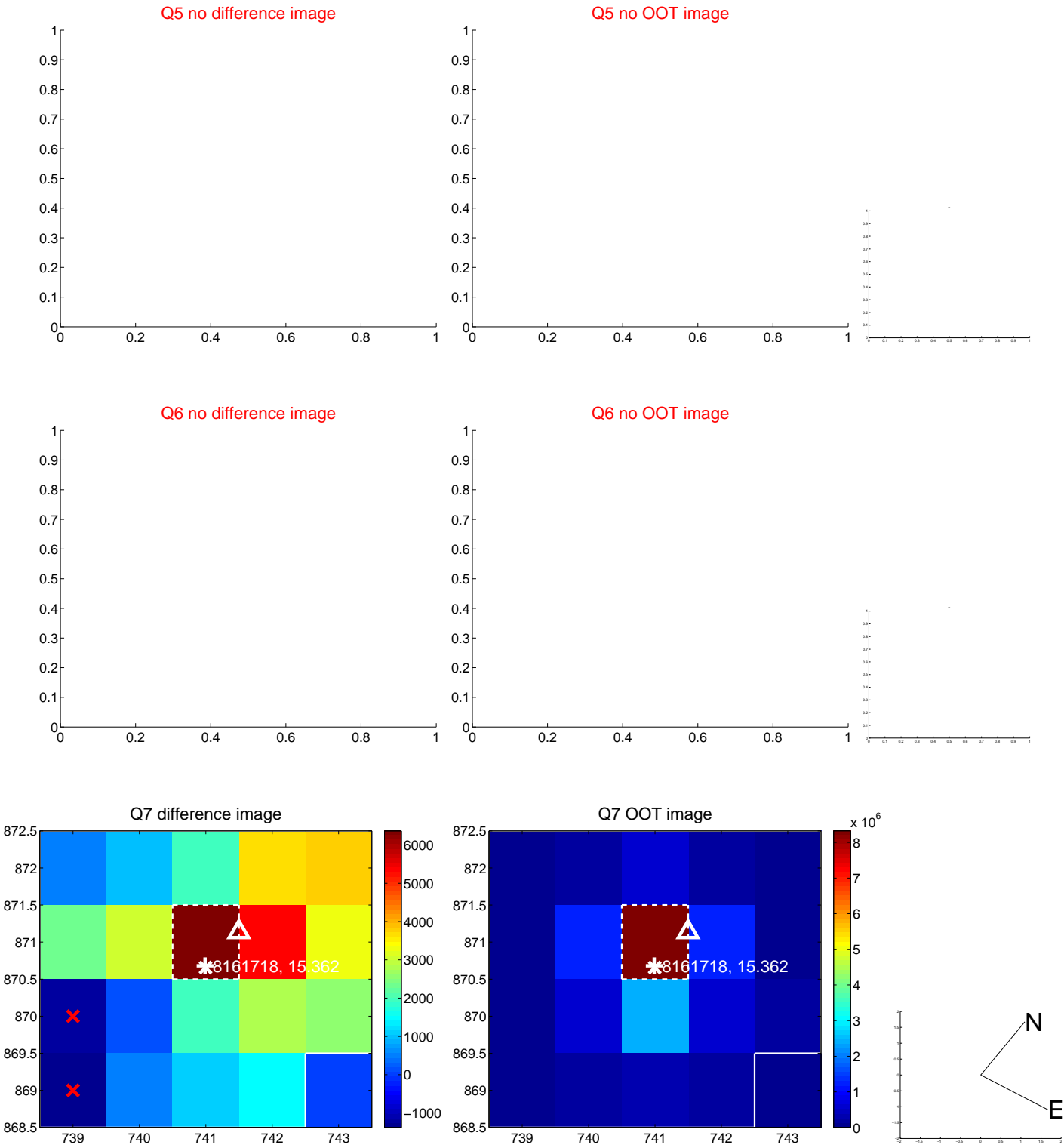


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

Q9 no difference image



Q9 no OOT image



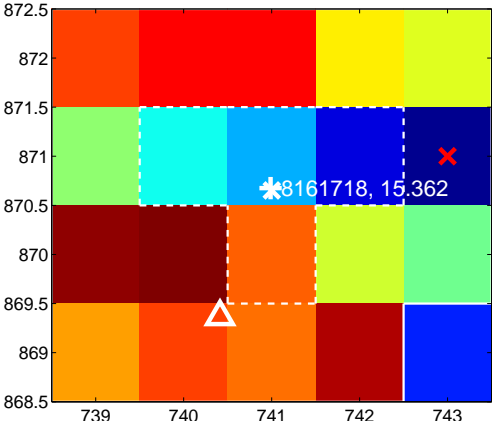
Q10 no difference image



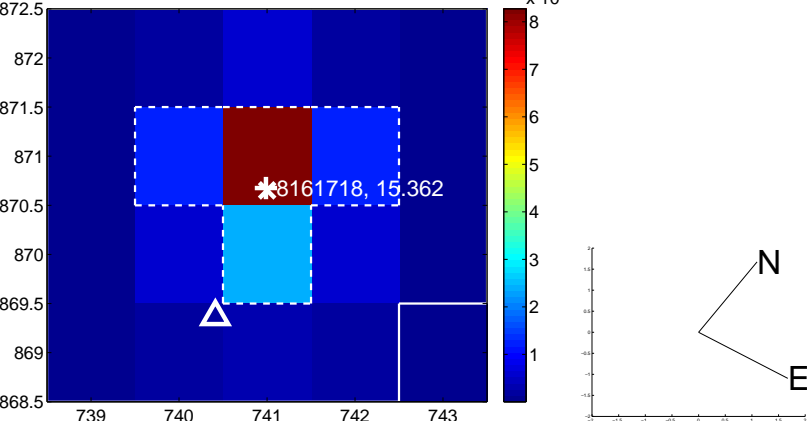
Q10 no OOT image



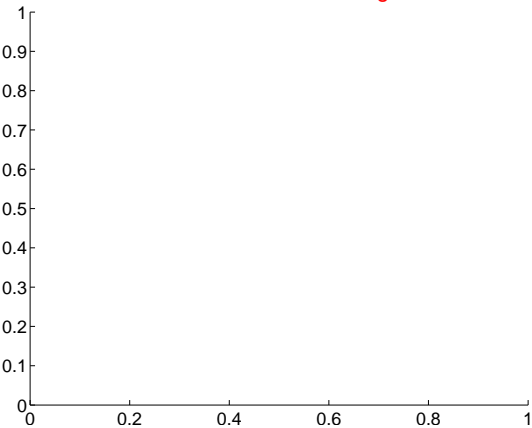
Q11 difference image. Poor Quality



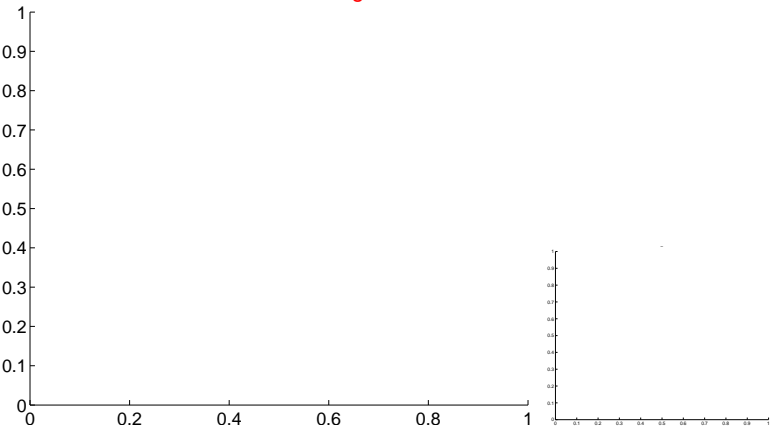
Q11 OOT image



Q12 no difference image



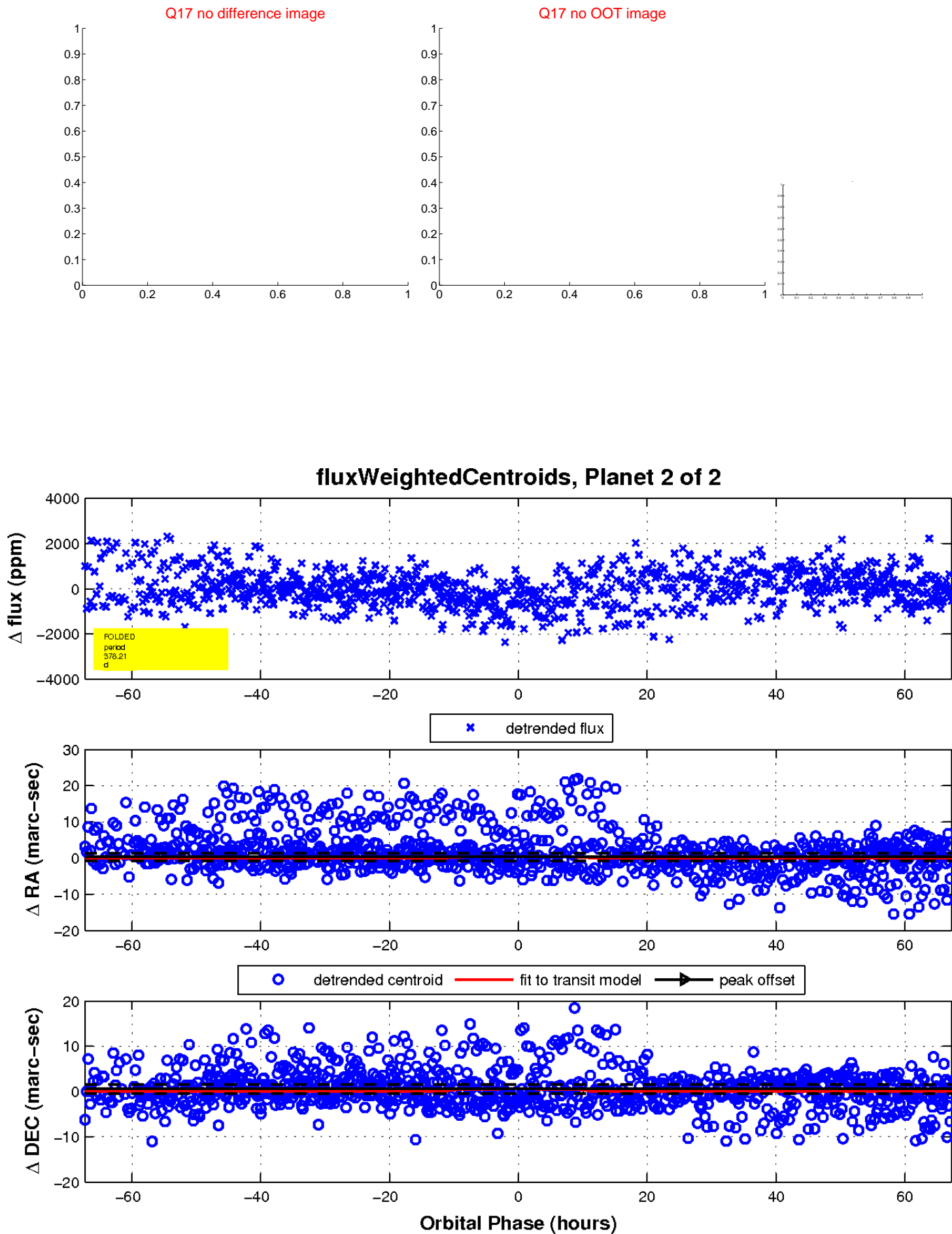
Q12 no OOT image



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.



UKIRT Image

Declination

