

KIC 008038731

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})
008038731-01	OBS	No	367.174011	173.554589	1800.2	15.228	10.2	11.0	0.80	5755	6.39	0.71
008038731-02	OBS	No	367.229491	233.169943	1091.5	22.613	7.9	8.0	0.80	5755	2.62	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008038731-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008038731-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQU_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

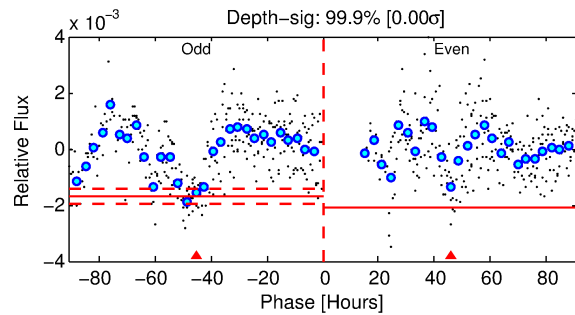
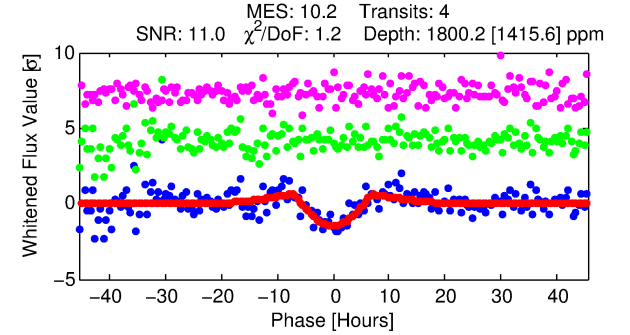
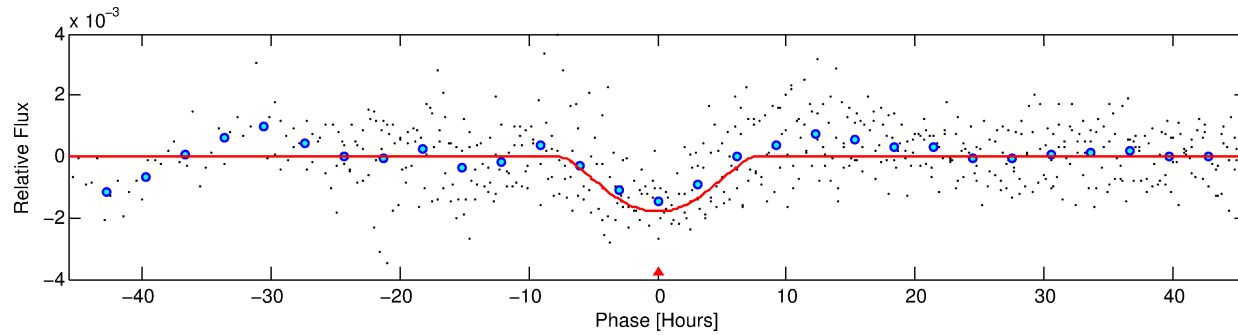
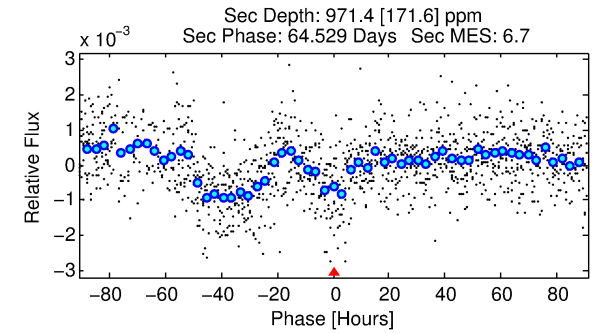
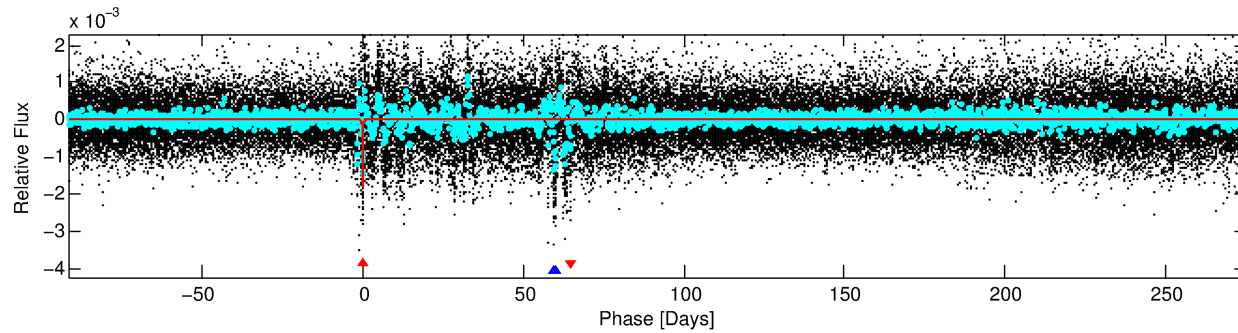
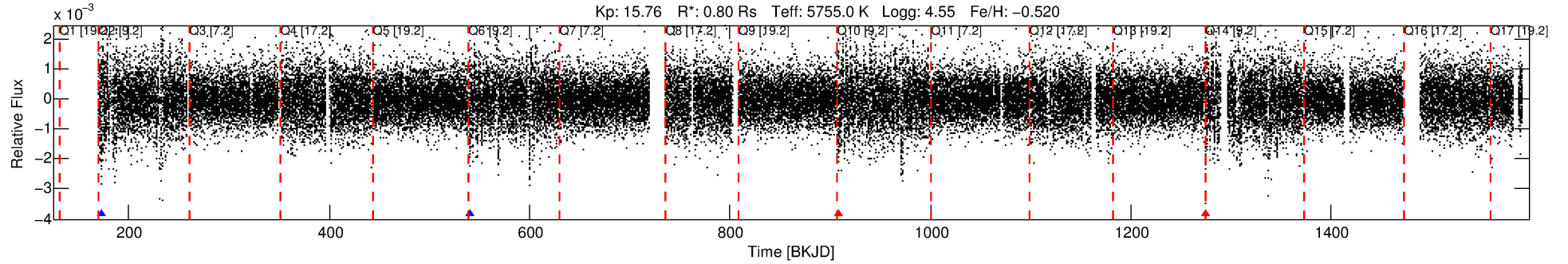
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008038731-01

No Significant Match Found

DV One-Page Summary

KIC: 8038731 Candidate: 1 of 2 Period: 367.174 d



DV Fit Results:

Period = 367.17401 [0.01428] d
Epoch = 173.5546 [0.0272] BKJD
Rp/R* = 0.0735 [0.2120]
a/R* = 71.95 [45.75]
b = 1.00 [0.34]
Seff = 0.71 [0.21]
Teq = 234 [18] K
Rp = 6.39 [18.47] Re
a = 0.9380 [0.1836] AU
Ag = 11528.39 [66574.78] [0.17σ]
Teffp = 3747 [5404] K [0.65σ]

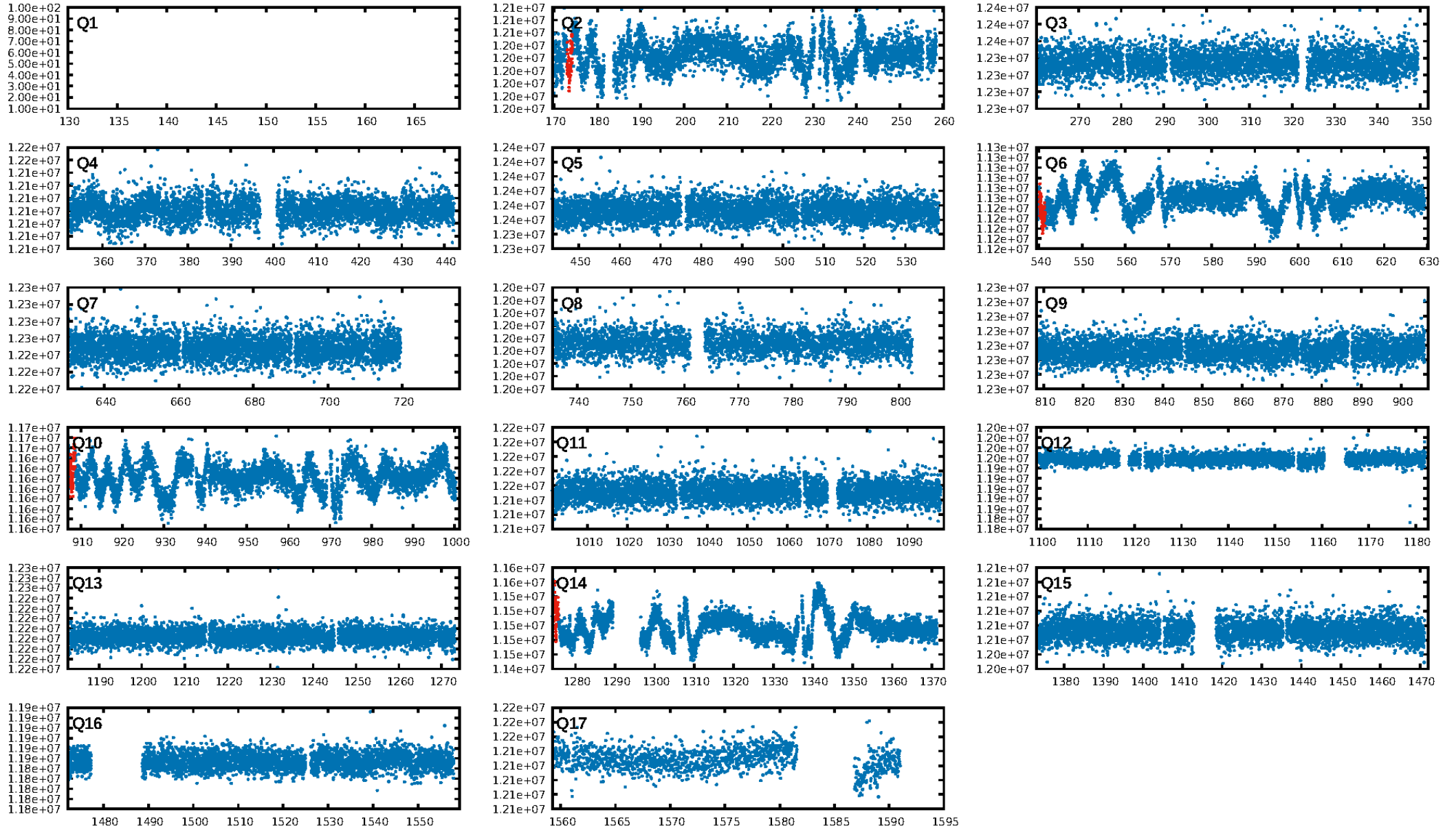
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 3.9% [0.05σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 95.2%
Bootstrap-pfa: 9.90e-15
RollingBand-fgt: 0.50 [2/4]
GhostDiagnostic-chr: -2.445
Centroid-sig: 1.4%
Centroid-so: 1.939 arcsec [1.66σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [1/1]

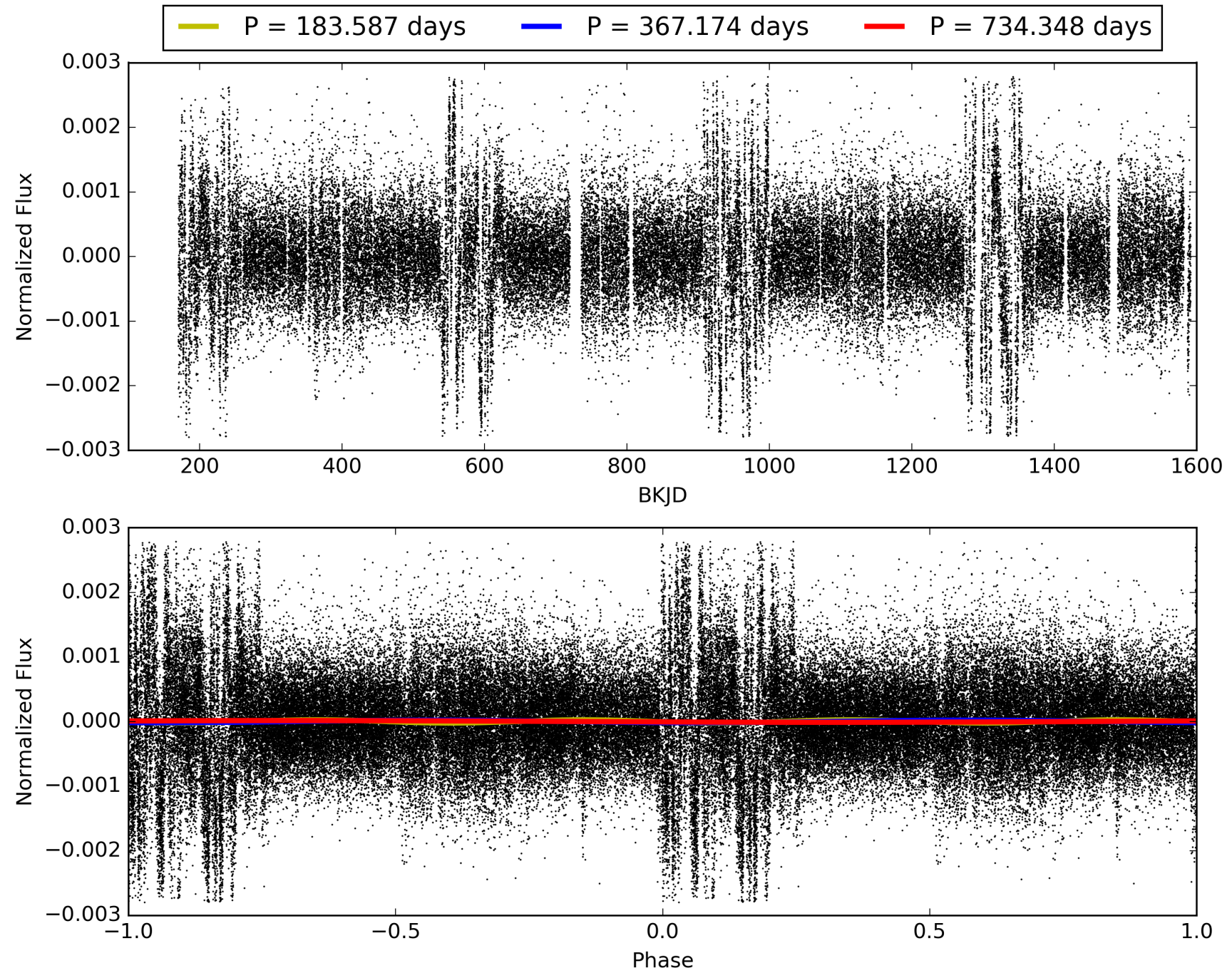
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:37:20 Z

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

TCE 008038731-01, PDC Light Curves

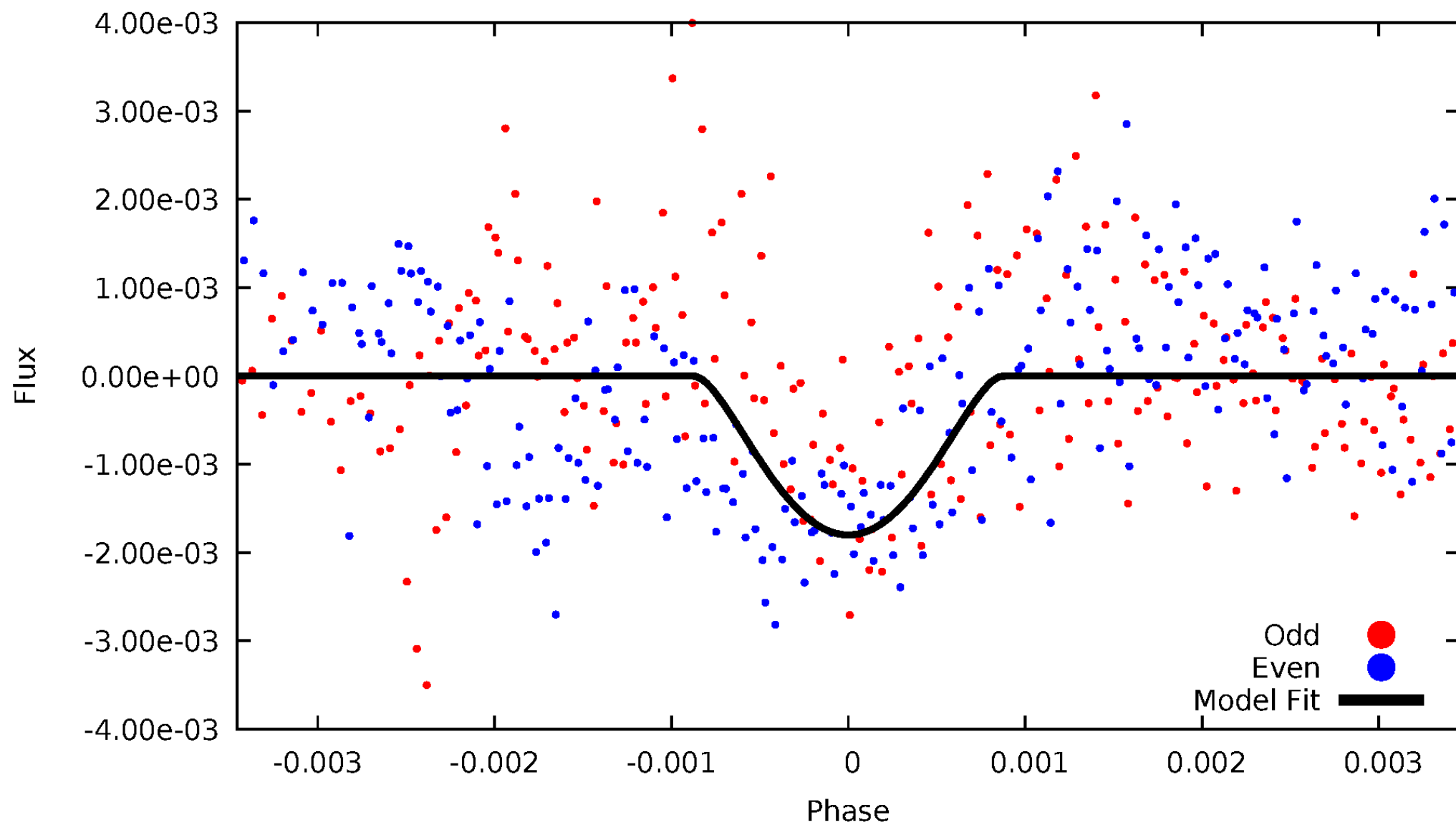


TCE 008038731-01



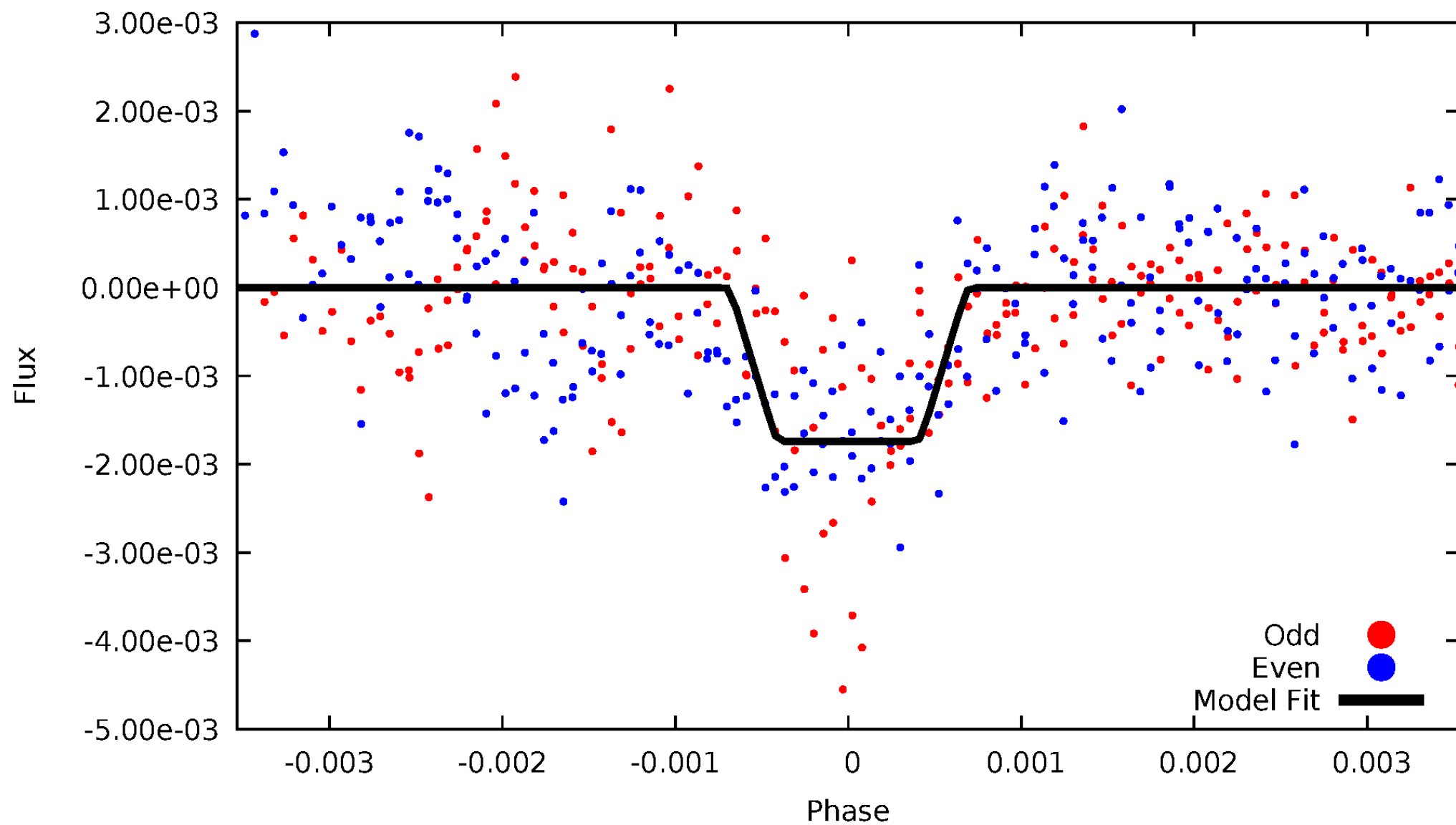
DV Odd/Even

TCE 008038731-01



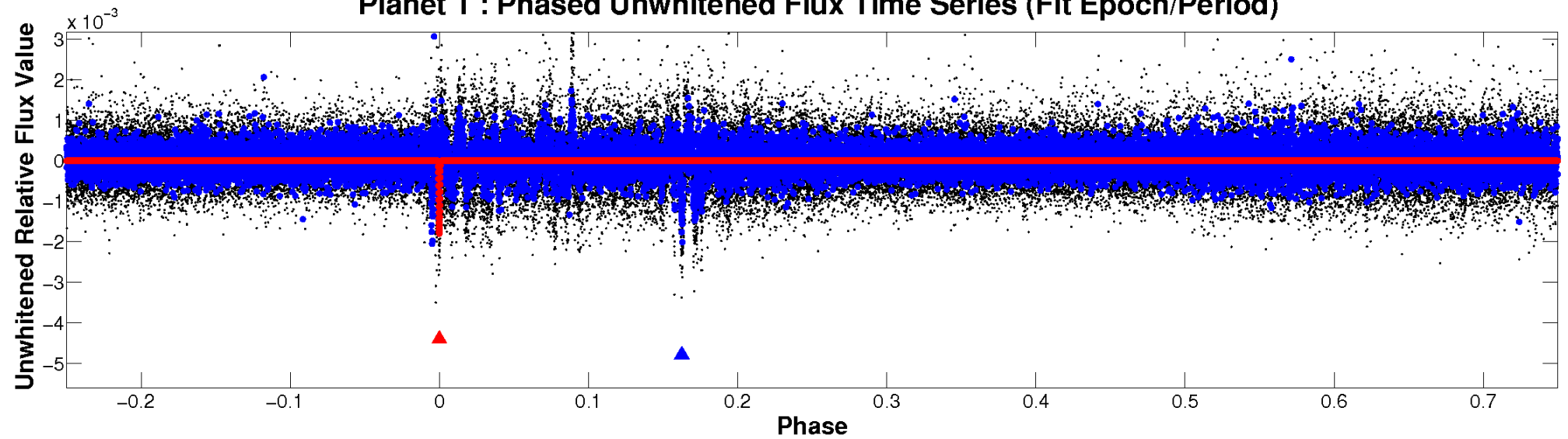
ALT Odd/Even

TCE 008038731-01

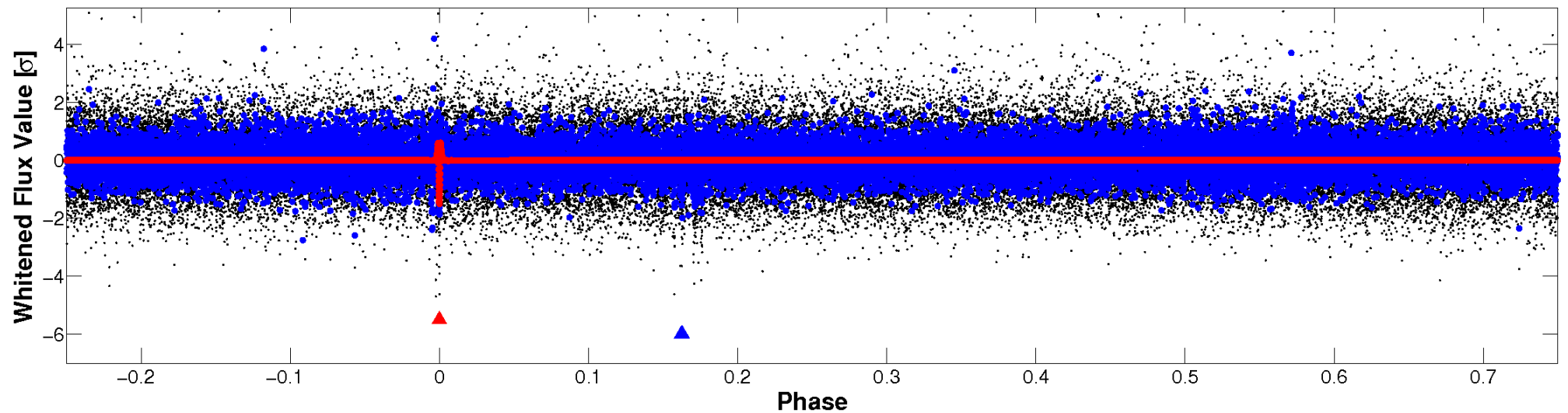


Non-Whitened Vs. Whitened Light Curve

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

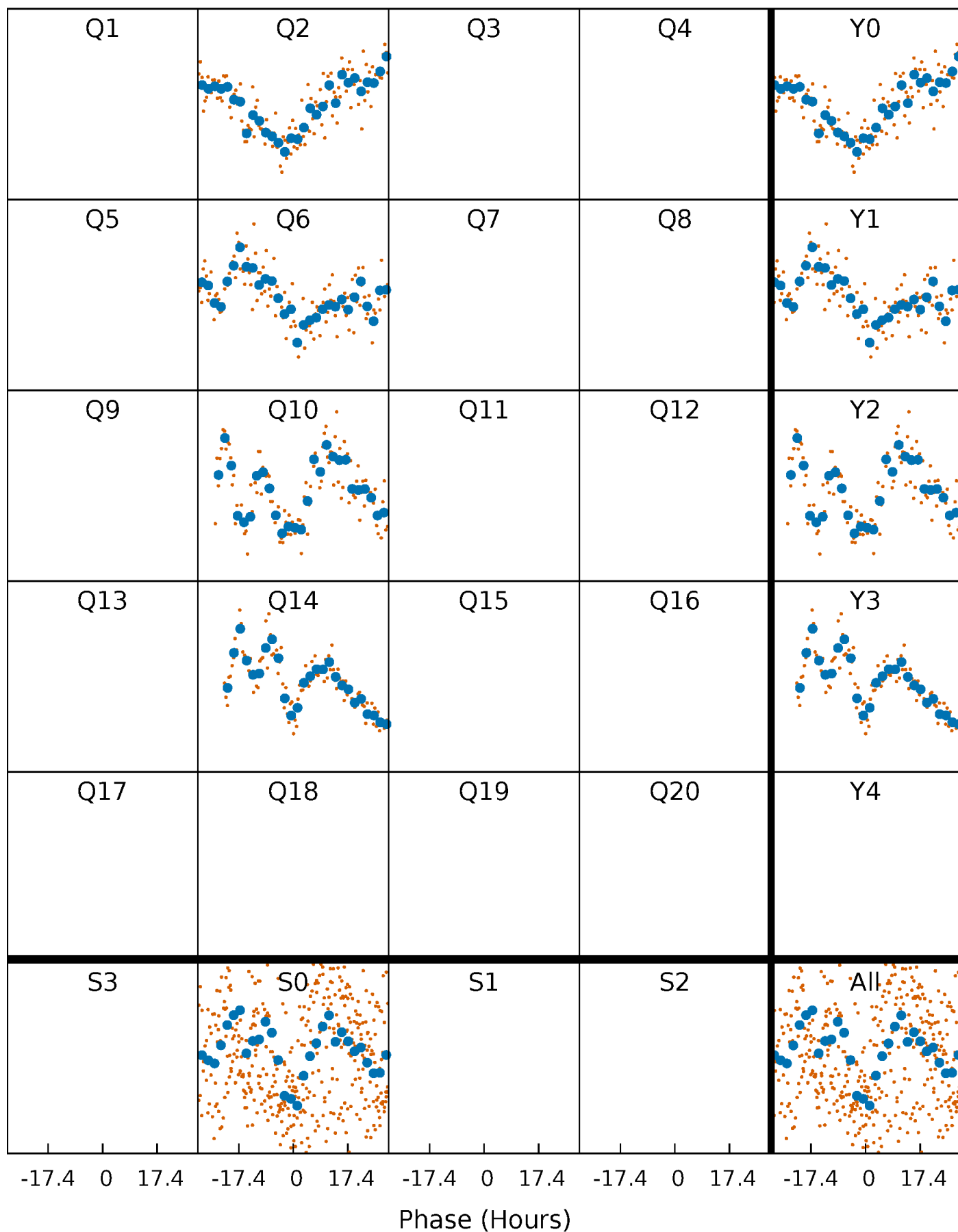


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



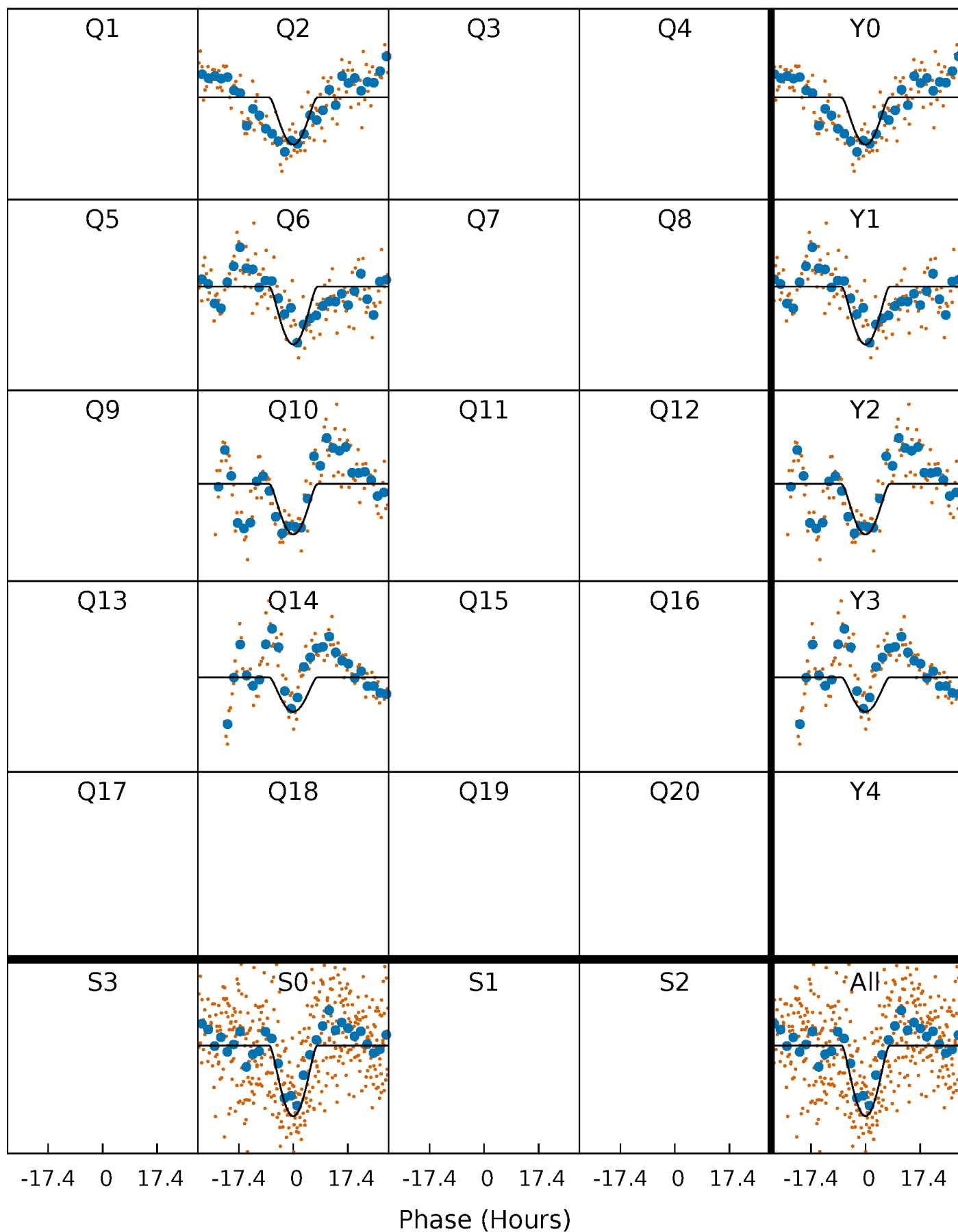
PDC Quarter-Phased Transit Curves

TCE 008038731-01 P=367.174011 Days $T_0=173.554589$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008038731-01 P=367.174011 Days $T_0=173.554589$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

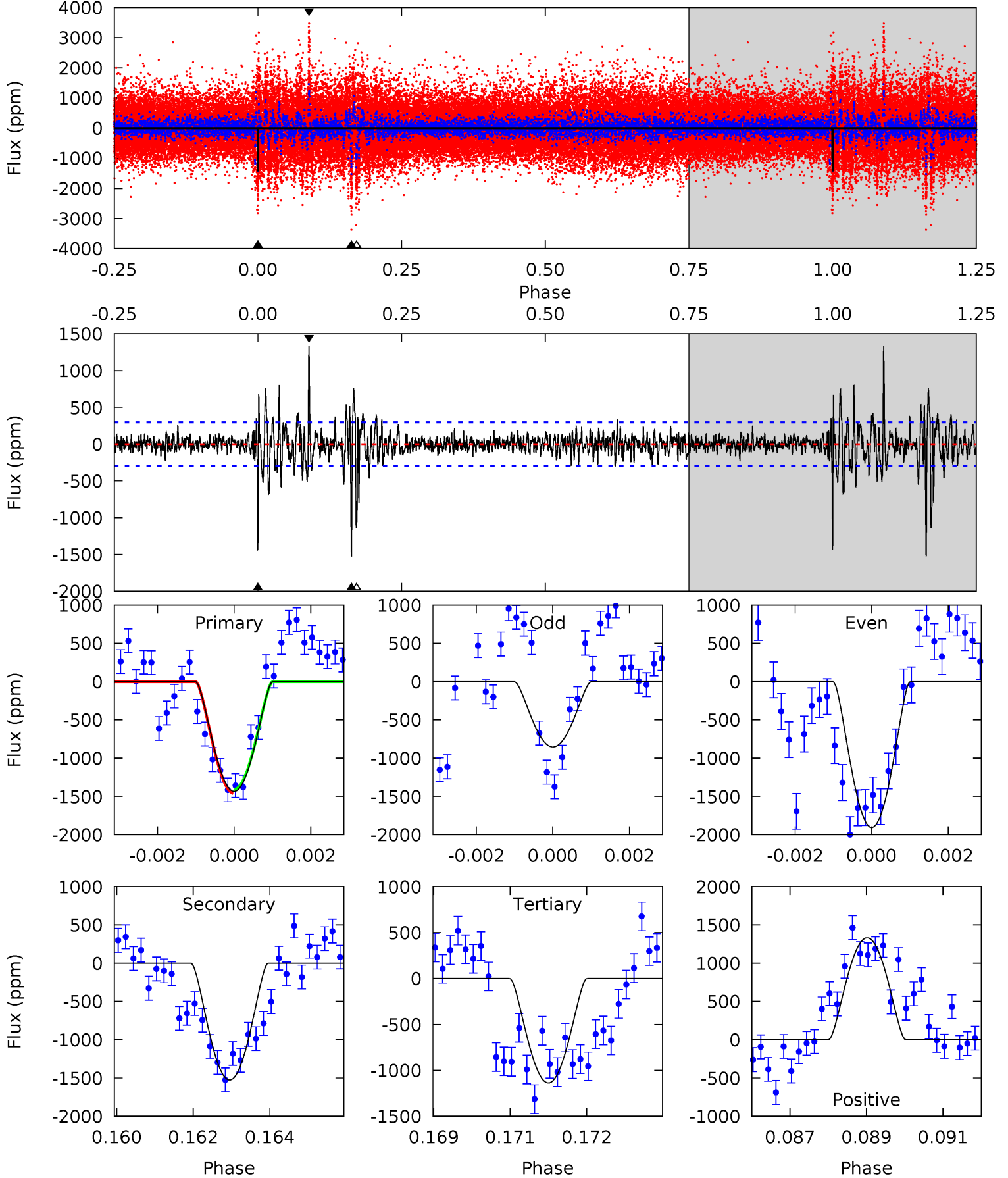
TCE 008038731-01 P=367.191073 Days $T_0=173.518092$ (BKJD)



DV Model-Shift Uniqueness Test

008038731-01, P = 367.174011 Days, E = 173.554589 Days

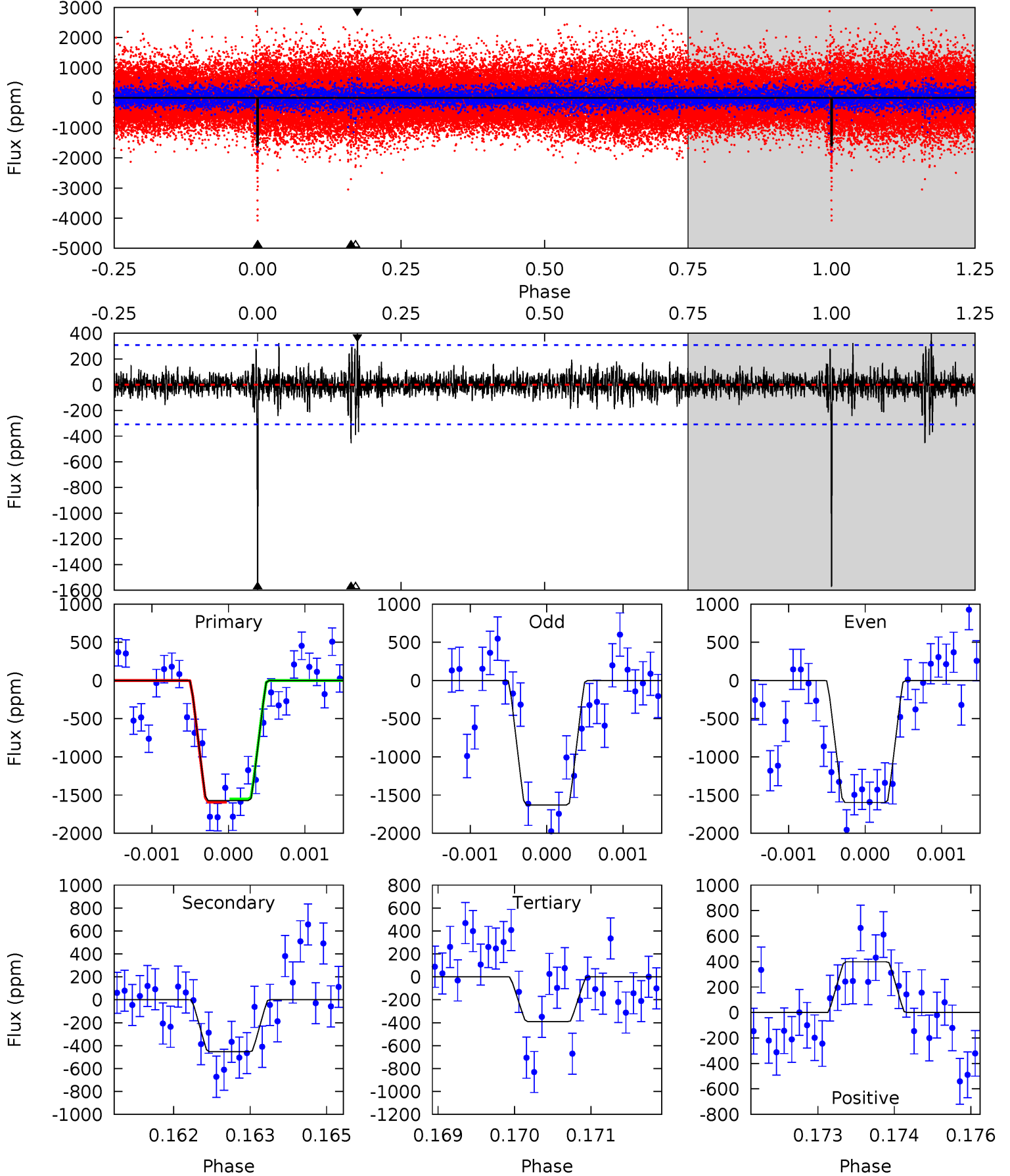
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.8	27.5	20.5	24.0	5.35	3.13	2.95	5.34	1.83	6.99	3.48	9.57	0.93	0.47	0.46



Alt Model-Shift Uniqueness Test

008038731-01, P = 367.191073 Days, E = 173.518092 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.4	7.92	6.81	6.95	5.39	3.20	1.05	20.6	20.5	1.11	0.97	0.30	1.01	0.20	0



Stellar Parameters For KIC 008038731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5755^{+173}_{-173}	$4.548^{+0.063}_{-0.147}$	$-0.520^{+0.300}_{-0.300}$	$0.796^{+0.191}_{-0.082}$	$0.815^{+0.095}_{-0.071}$	$2.279^{+0.619}_{-0.975}$
	+3%/-3%	+1%/-3%	+58%/-58%	+24%/-10%	+12%/-9%	+27%/-43%
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 008038731-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1526 ± 56	$15.78^{+14.57}_{-10.54}$	331^{+18}_{-14}	3273^{+1543}_{-547}	2997^{+23623}_{-2185}
Alt.	-454 ± 57	$13.93^{+15.93}_{-9.41}$	331^{+18}_{-15}	2873^{+1131}_{-523}	1150^{+9267}_{-907}

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

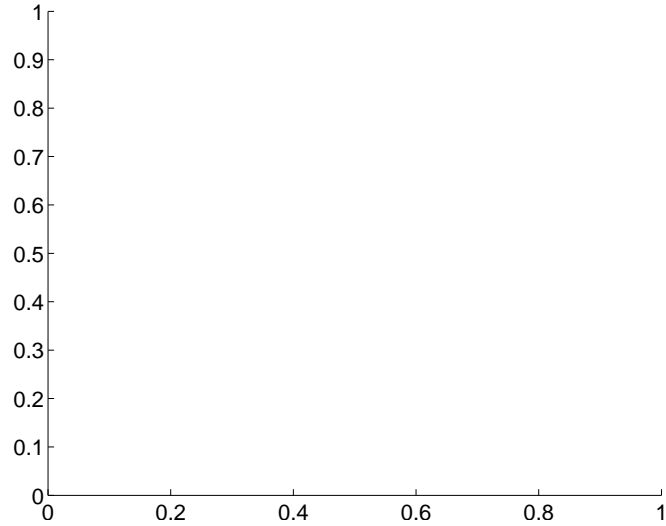
Supplemental centroid analysis for 008038731-01. Kepler magnitude: 15.76. Transit SNR 10.97

There are 0 quarters with good PRF difference image offsets

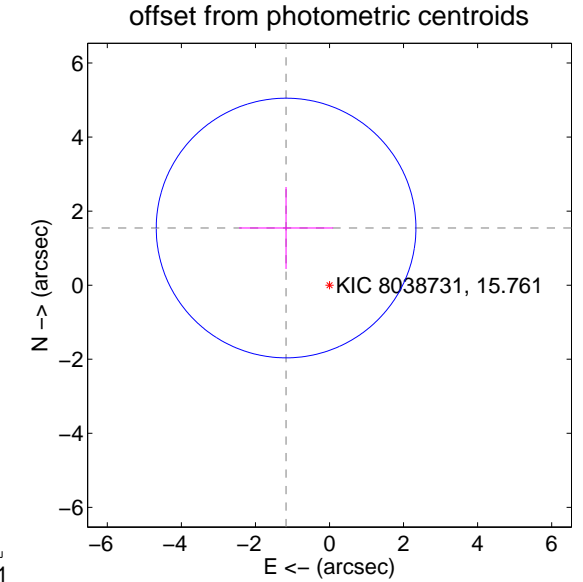
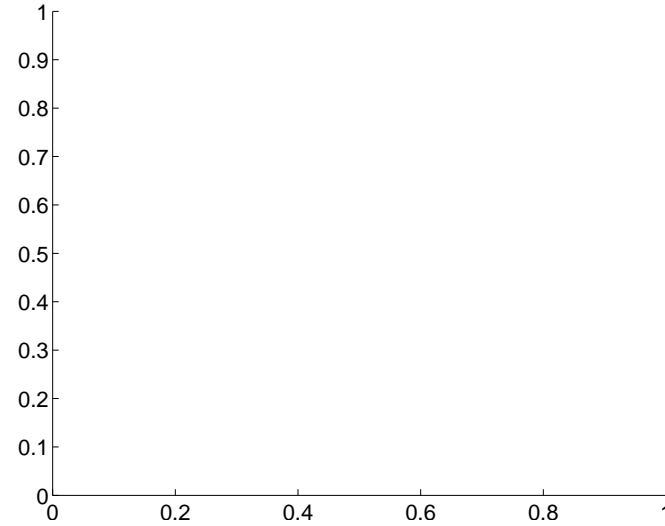
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	1.94 ± 1.17	1.66	1.17 ± 1.27	1.54 ± 1.11

There is no PRF-fit offset from OOT-fit

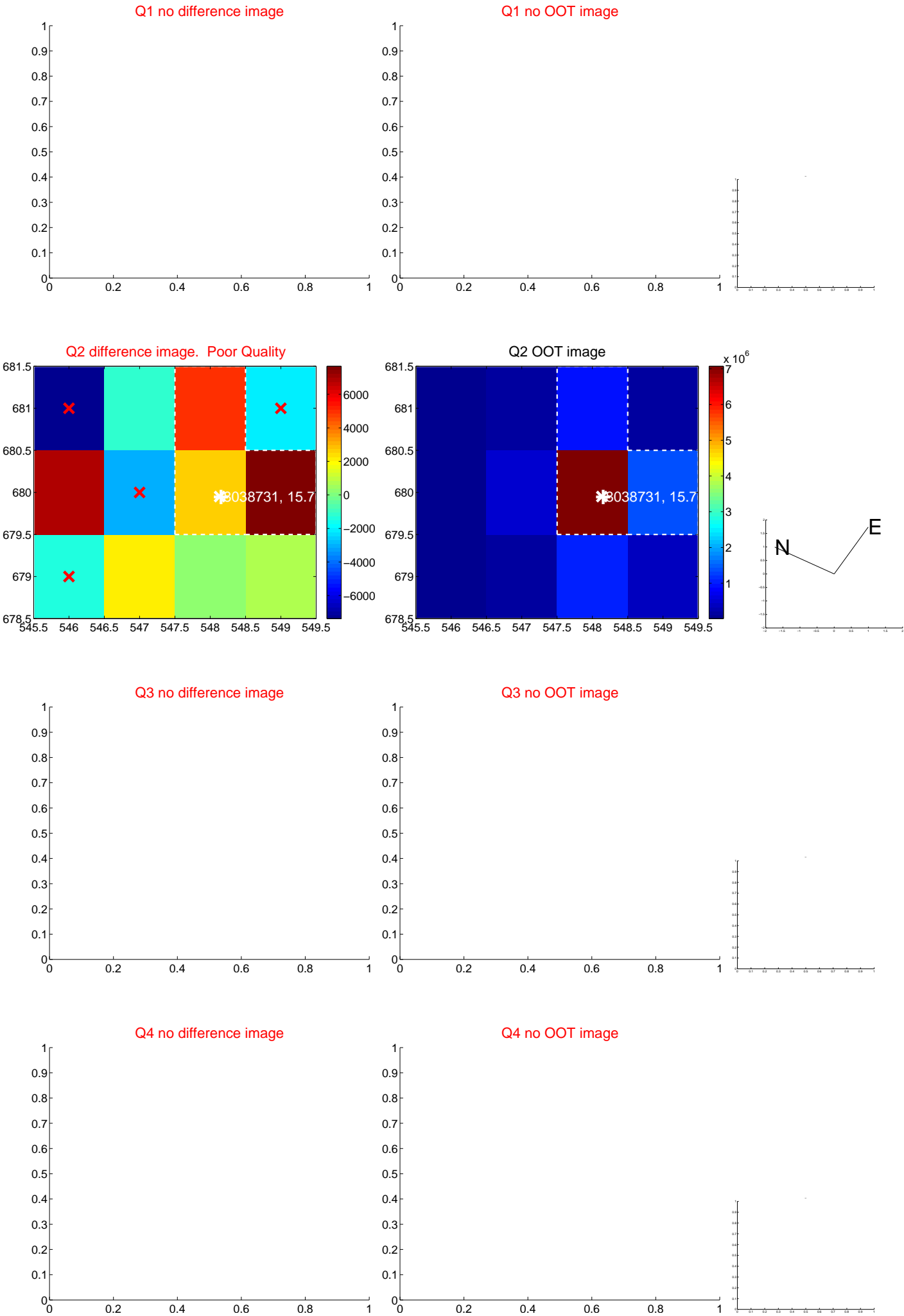


There is no PRF-fit offset from KIC

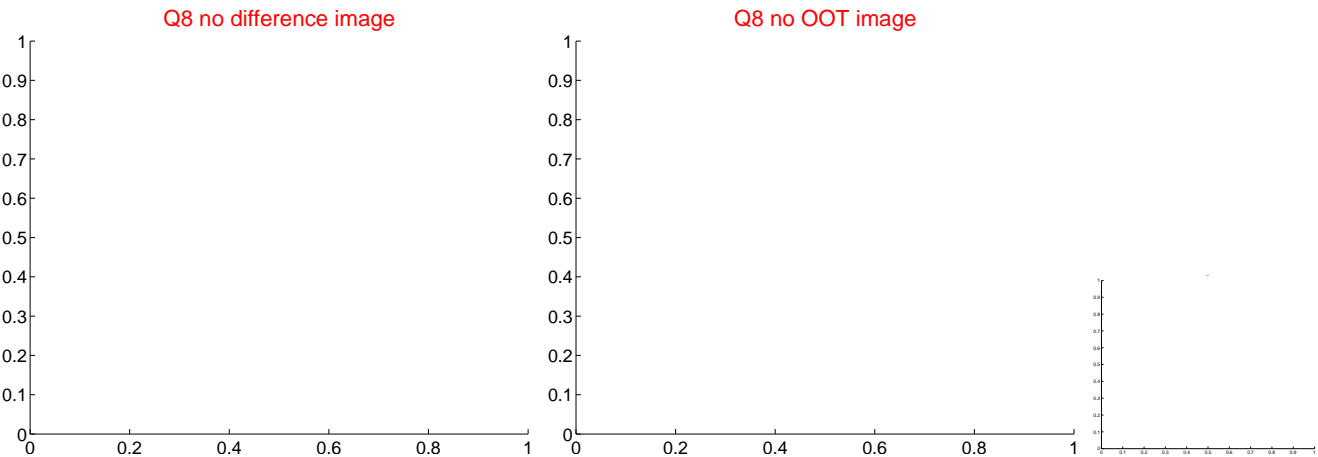
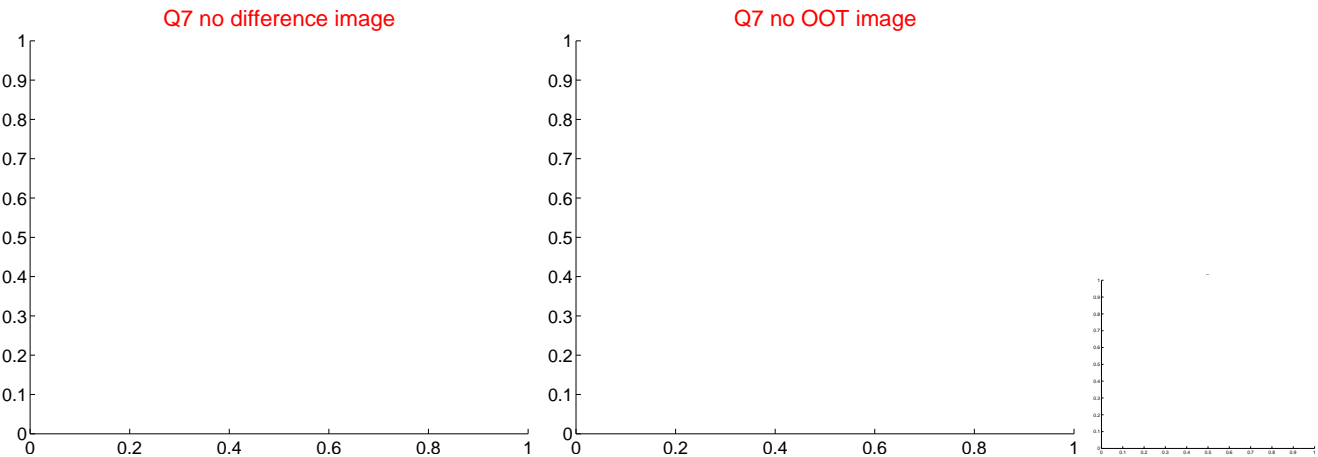
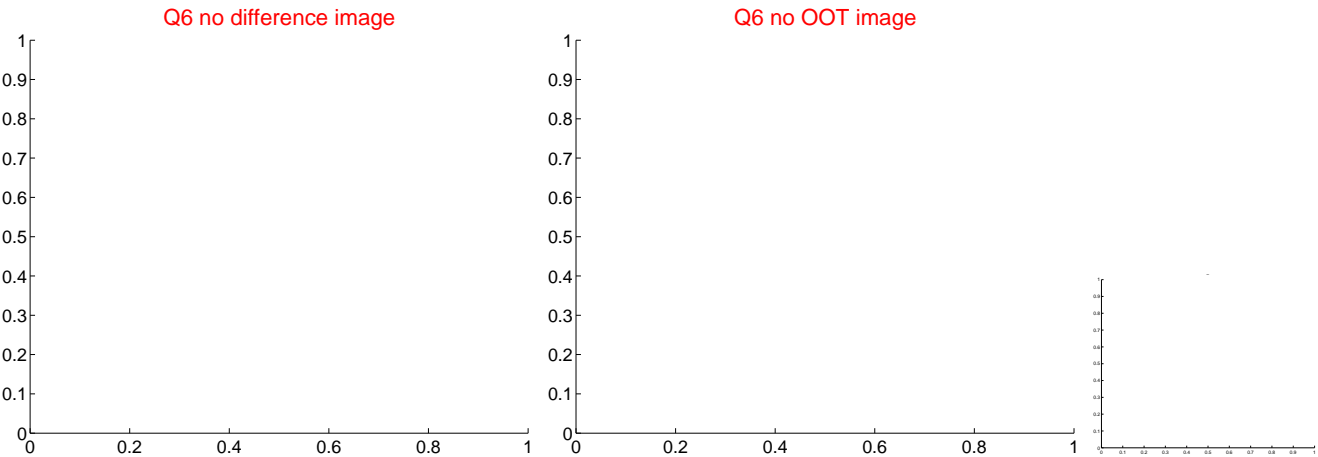
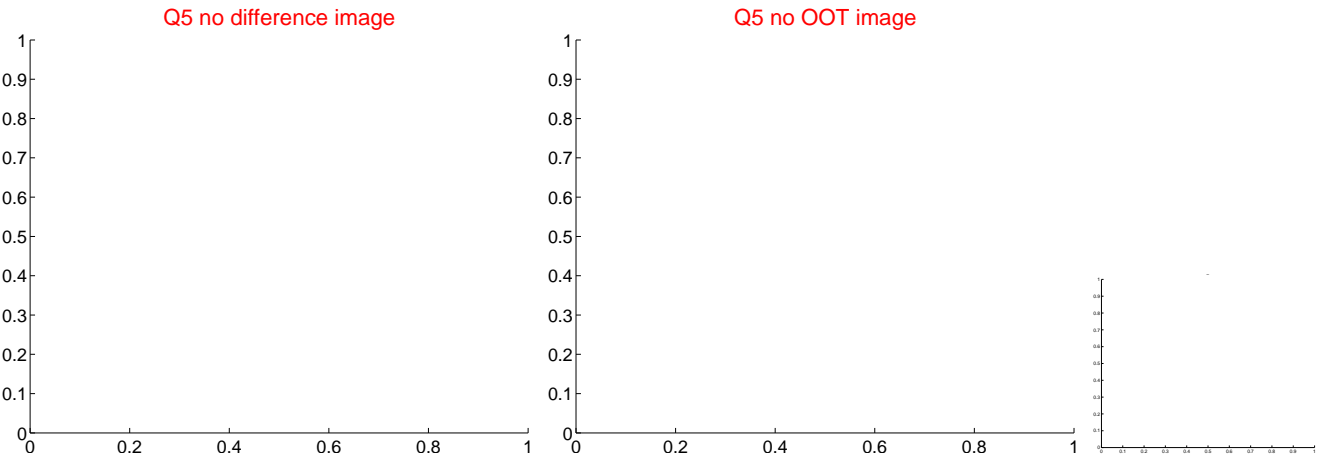


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



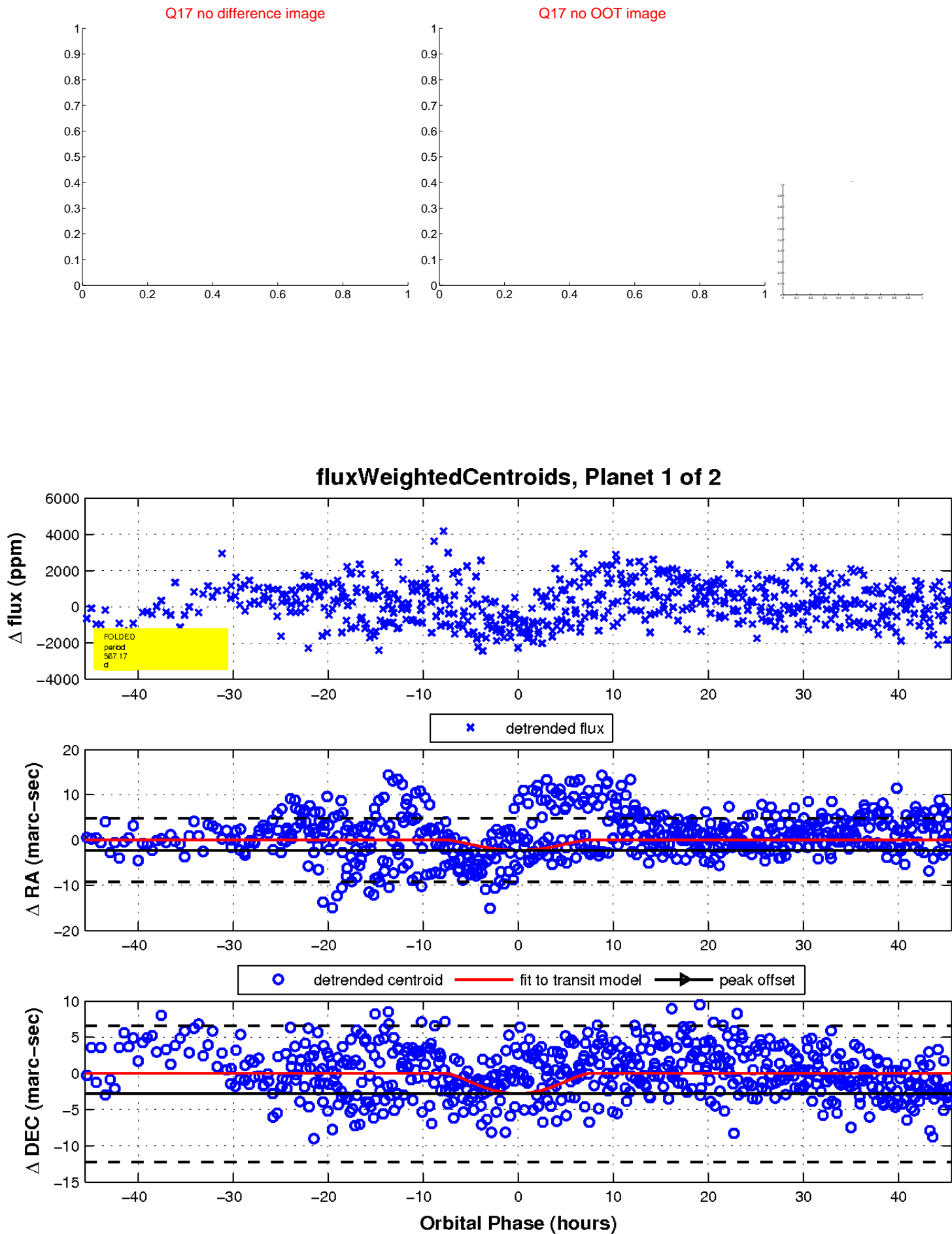
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

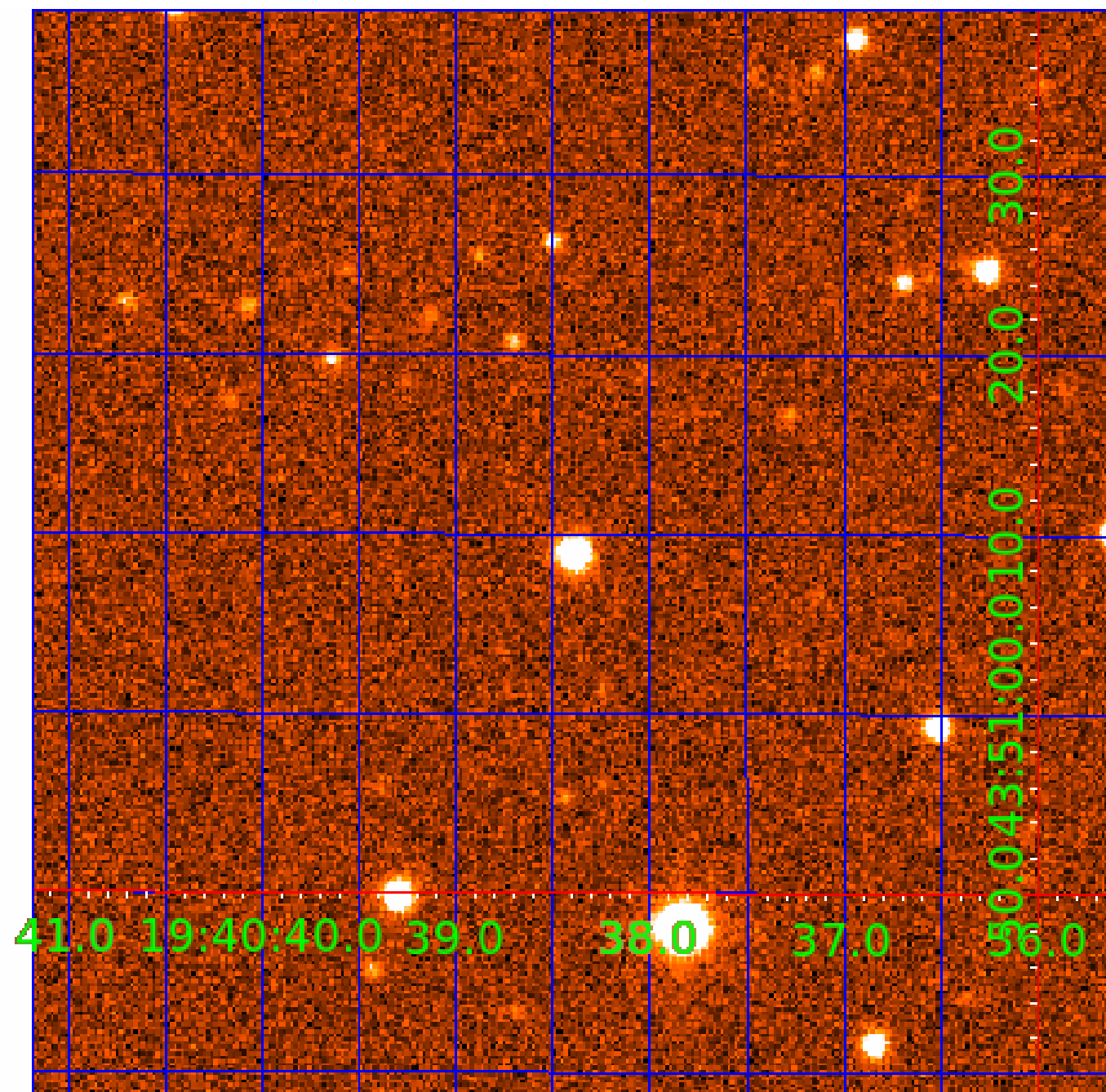


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008038731

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})
008038731-01	OBS	No	367.174011	173.554589	1800.2	15.228	10.2	11.0	0.80	5755	6.39	0.71
008038731-02	OBS	No	367.229491	233.169943	1091.5	22.613	7.9	8.0	0.80	5755	2.62	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008038731-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008038731-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—SAME_NTL_PERIOD—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.

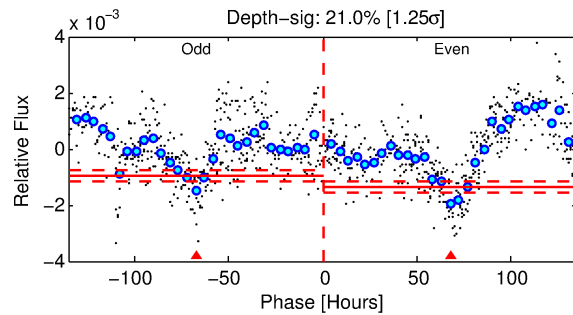
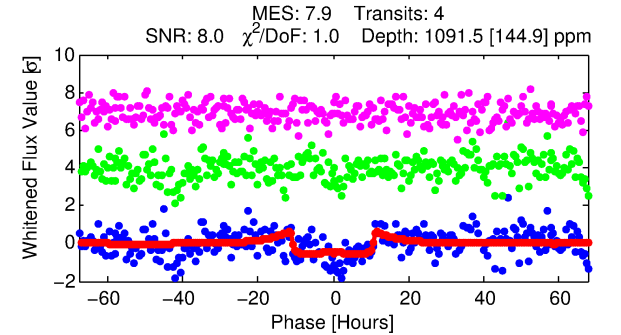
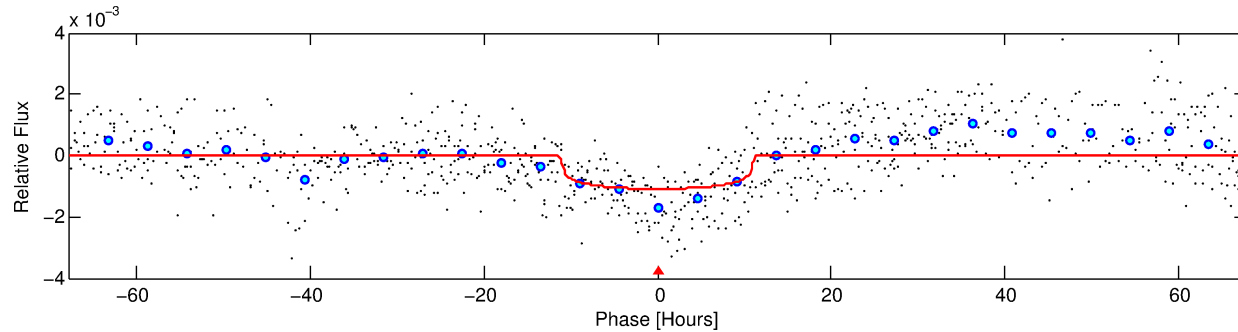
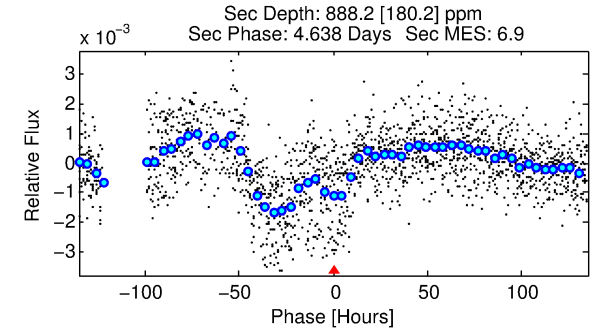
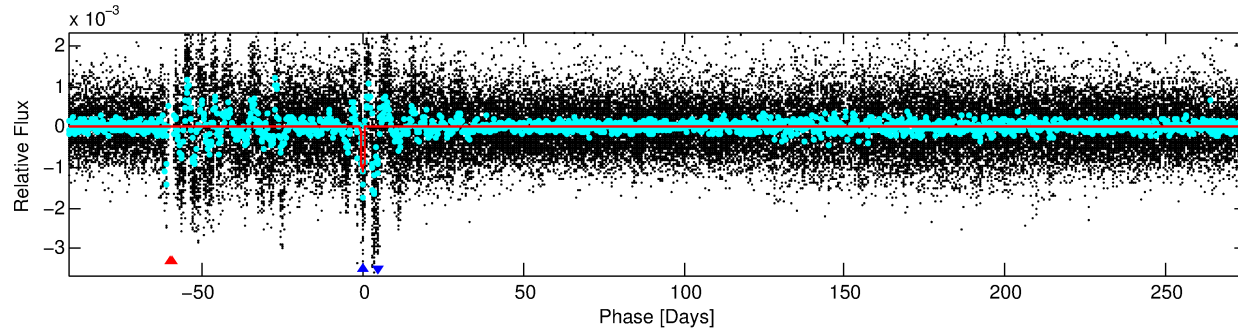
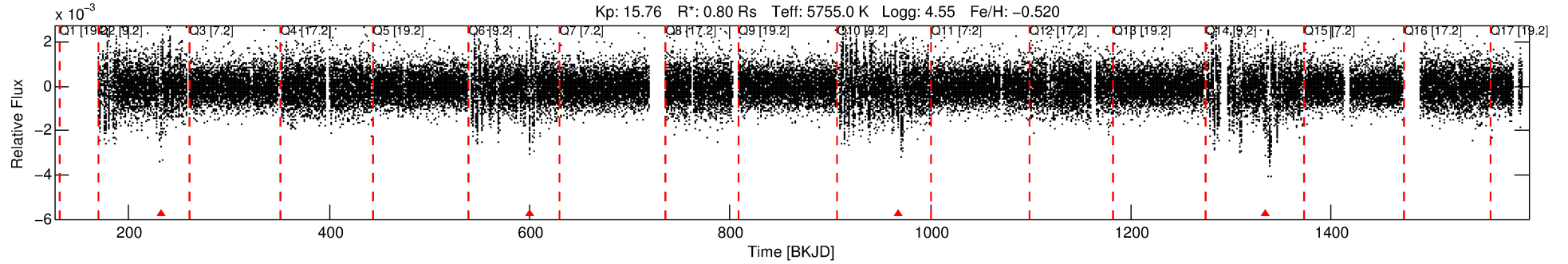
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008038731-02

No Significant Match Found

DV One-Page Summary

KIC: 8038731 Candidate: 2 of 2 Period: 367.229 d



DV Fit Results:

Period = 367.22949 [0.00923] d
Epoch = 233.1699 [0.0172] BKJD
Rp/R* = 0.0301 [0.0096]
a/R* = 127.52 [184.37]
b = 0.07 [20.90]
Seff = 0.71 [0.21]
Teq = 234 [18] K
Rp = 2.62 [1.05] Re
a = 0.9381 [0.1836] AU
Ag = 62707.09 [45466.70] [1.38σ]
Teffp = 5722 [974] K [5.63σ]

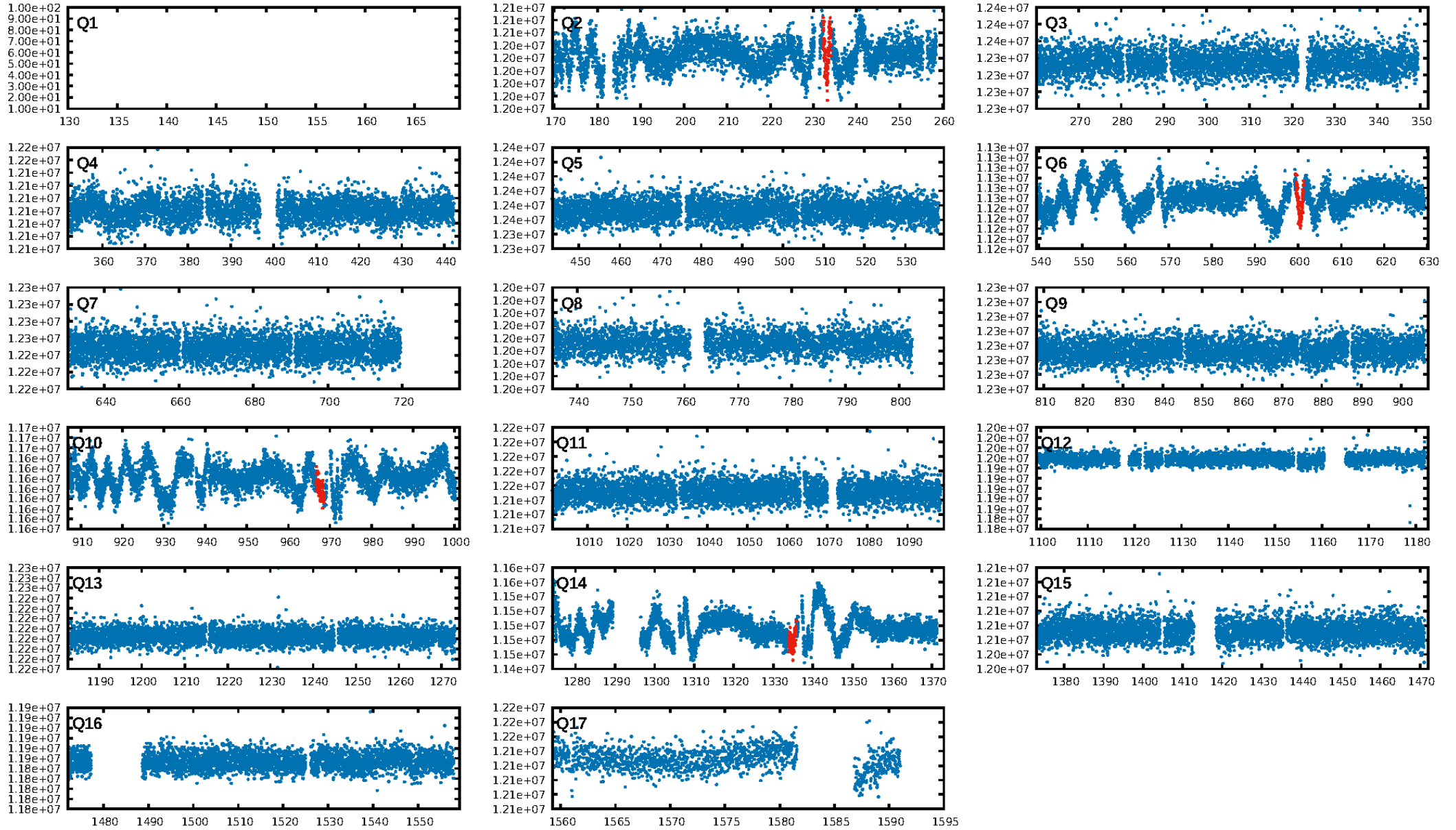
DV Diagnostic Results:

ShortPeriod-sig: 3.9% [0.05σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 12.1%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 5.01e-09
RollingBand-fgt: 0.00 [0/4]
GhostDiagnostic-chr: 7.31
Centroid-sig: 0.8%
Centroid-so: 2.236 arcsec [1.53σ]
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: N/A

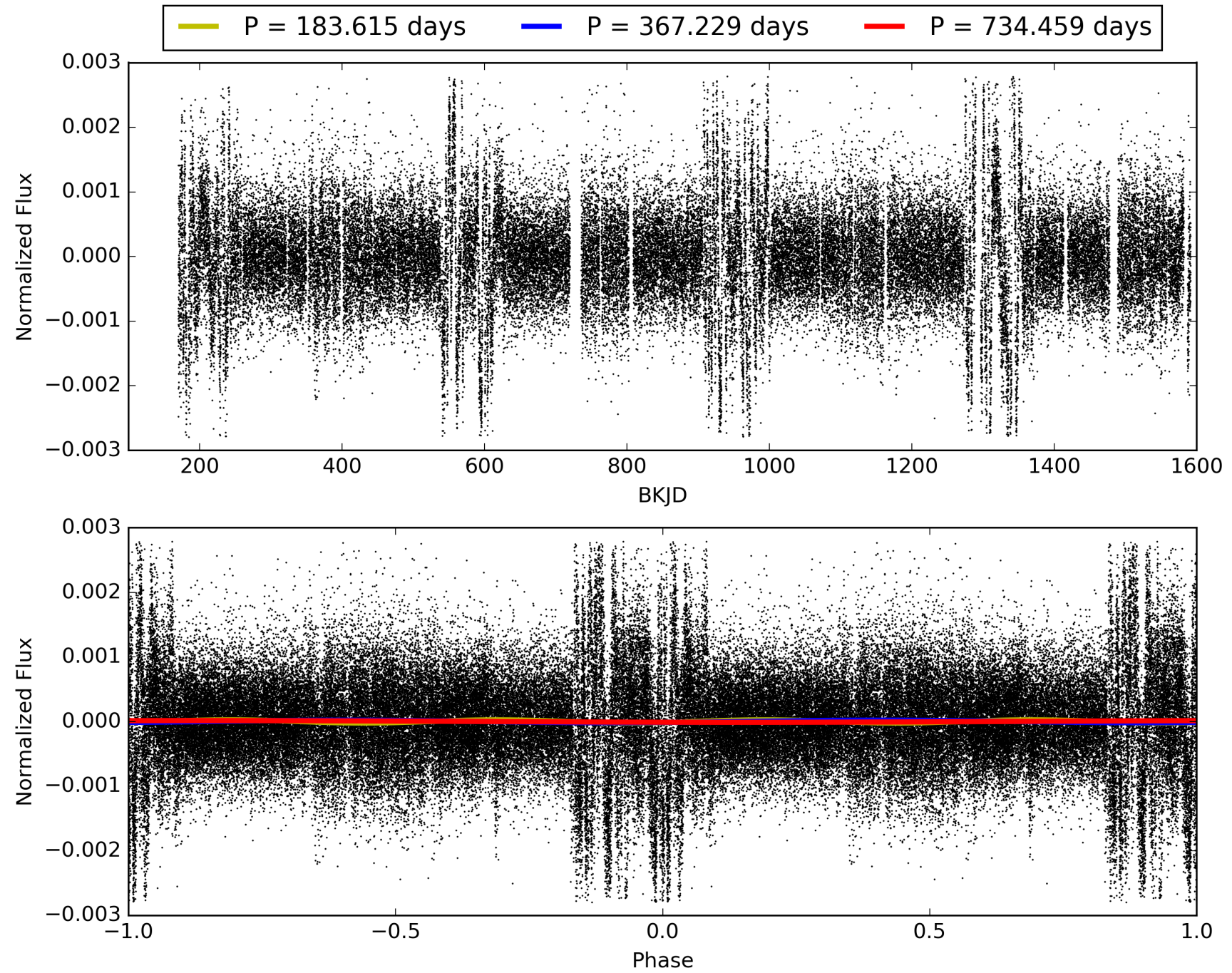
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 05:37:31 Z

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

TCE 008038731-02, PDC Light Curves

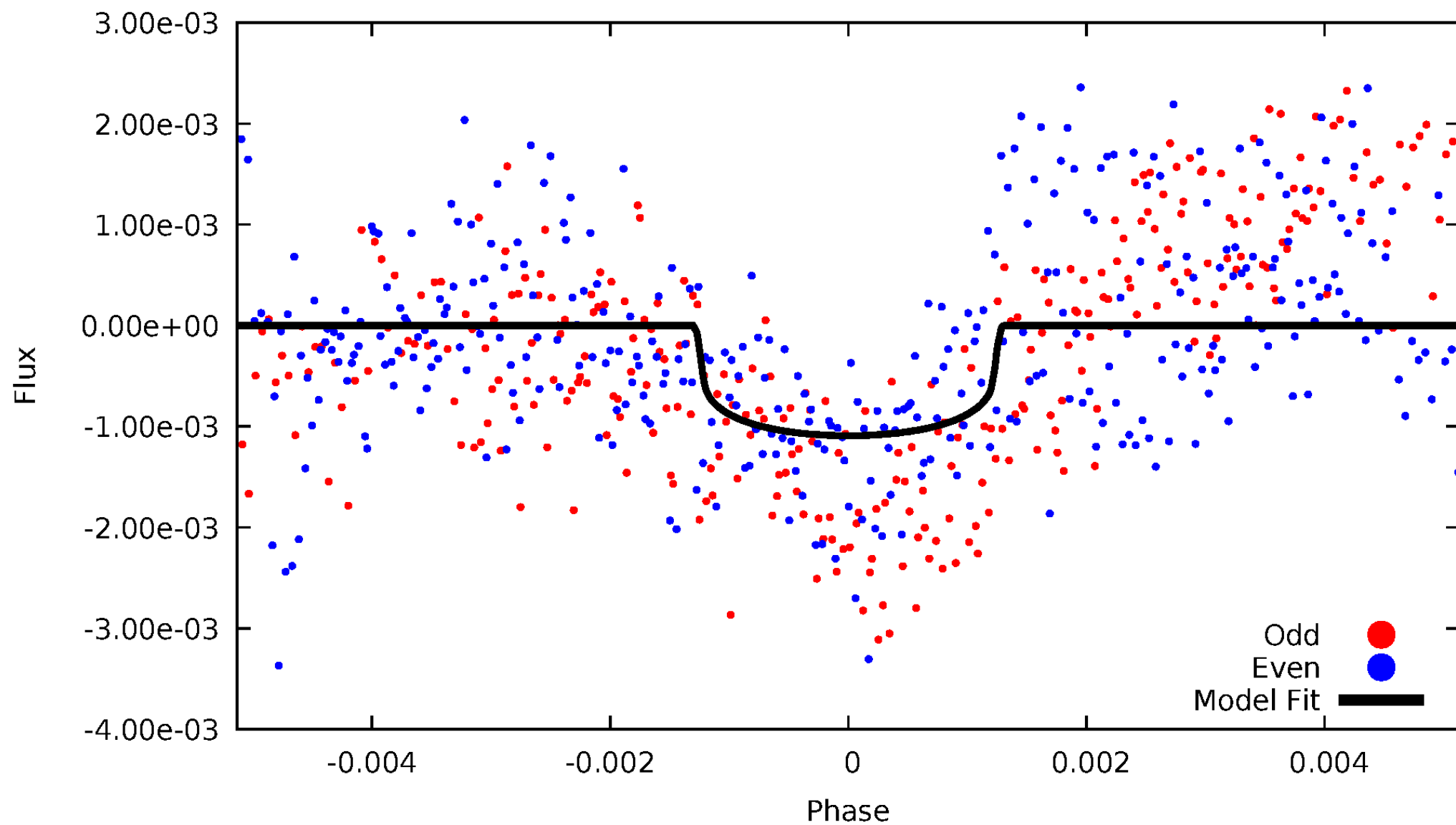


TCE 008038731-02



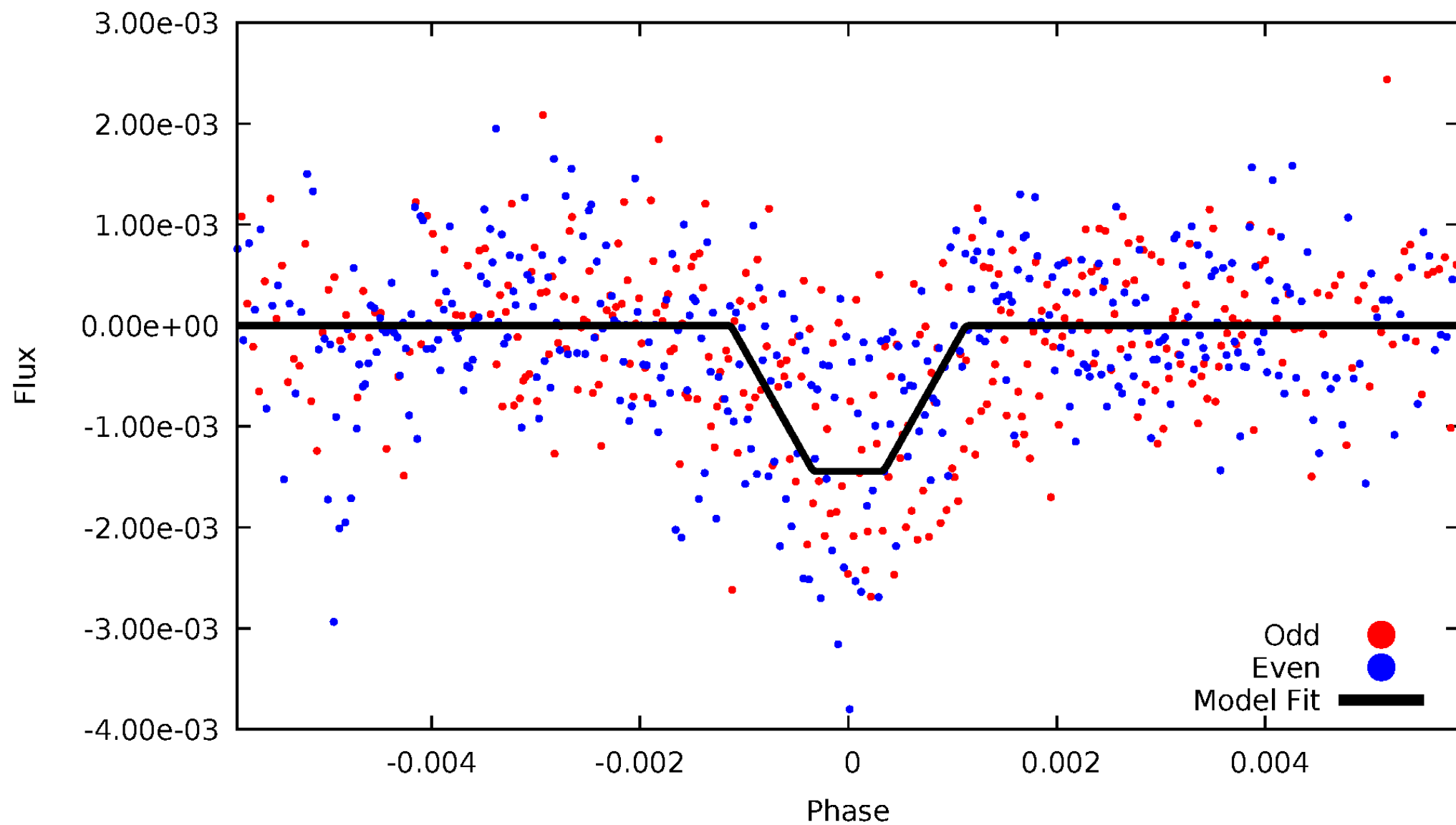
DV Odd/Even

TCE 008038731-02



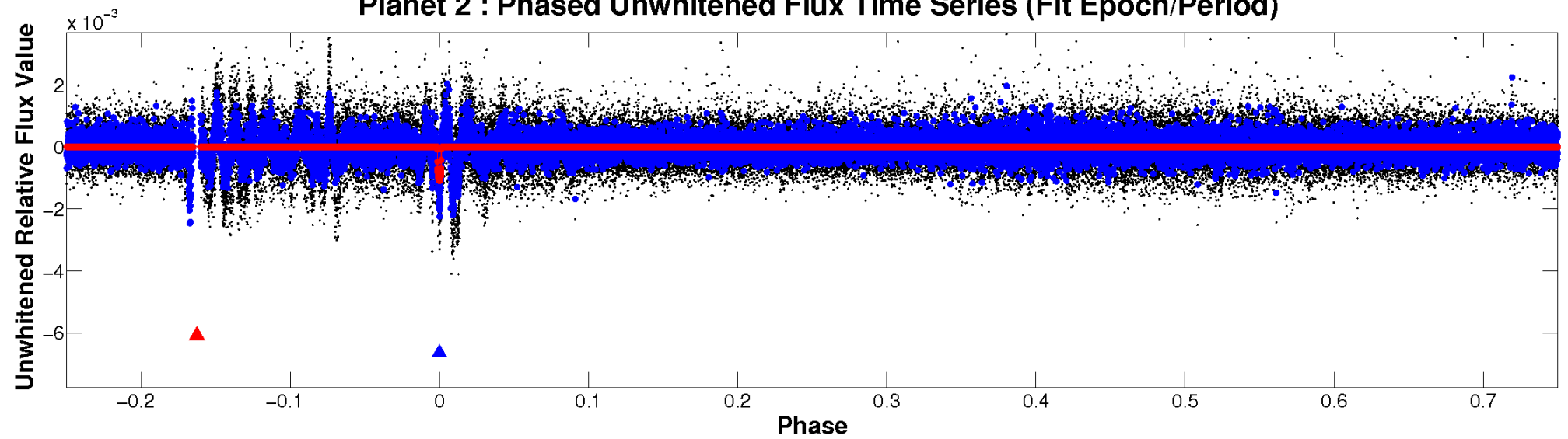
ALT Odd/Even

TCE 008038731-02

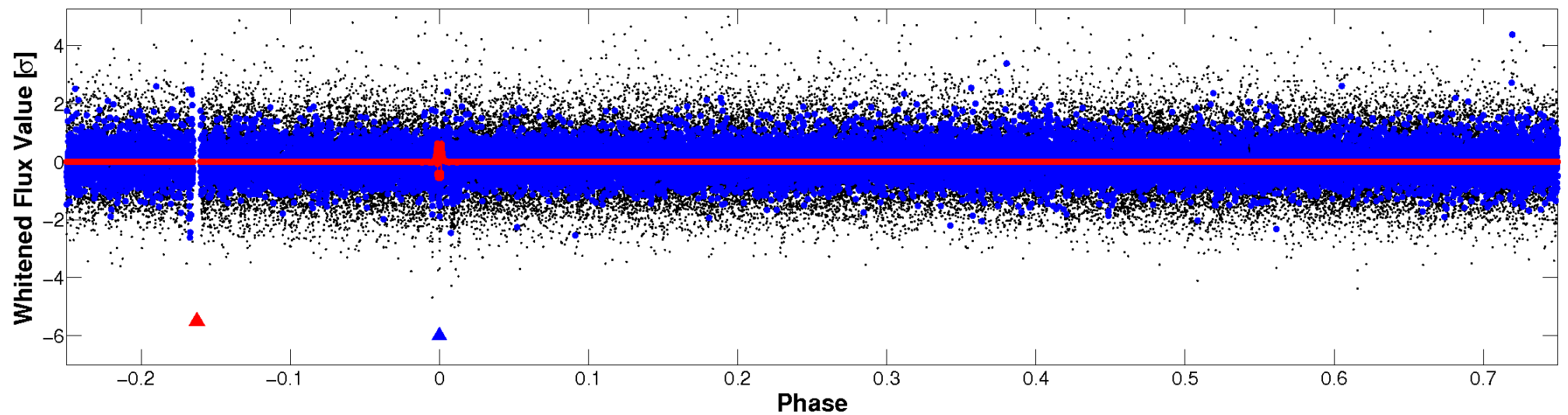


Non-Whitened Vs. Whitened Light Curve

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

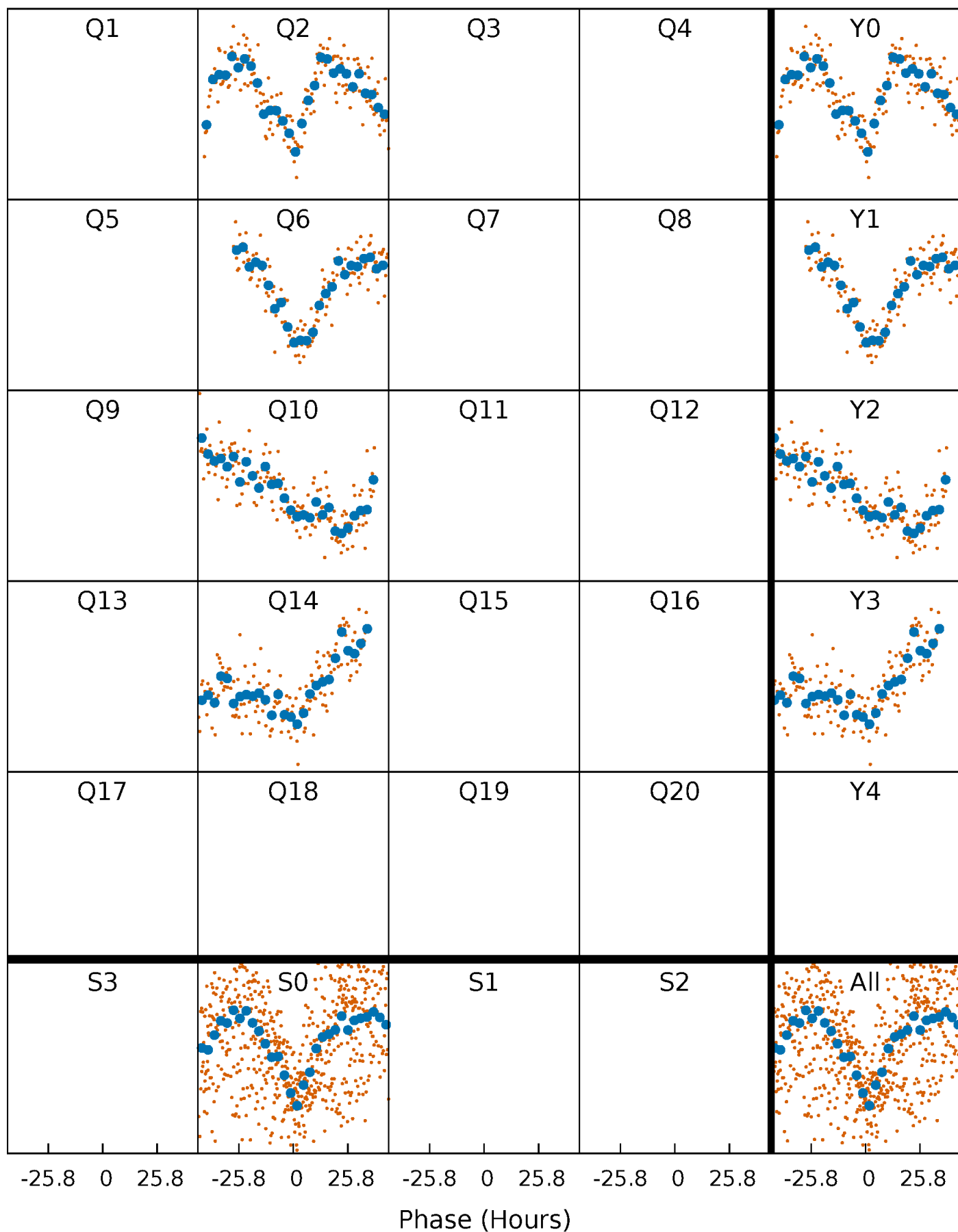


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



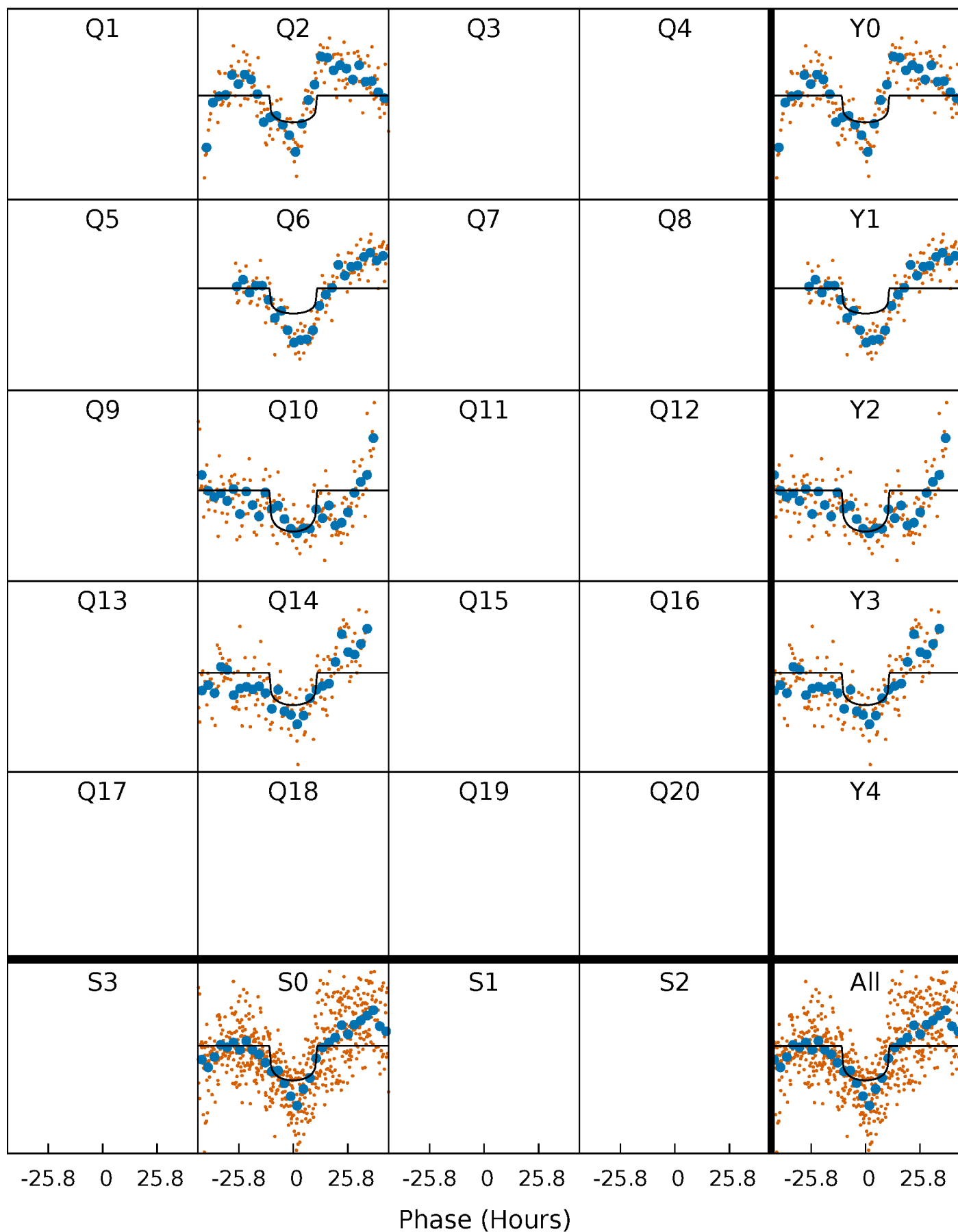
PDC Quarter-Phased Transit Curves

TCE 008038731-02 $P=367.229491$ Days $T_0=233.169943$ (BKJD)



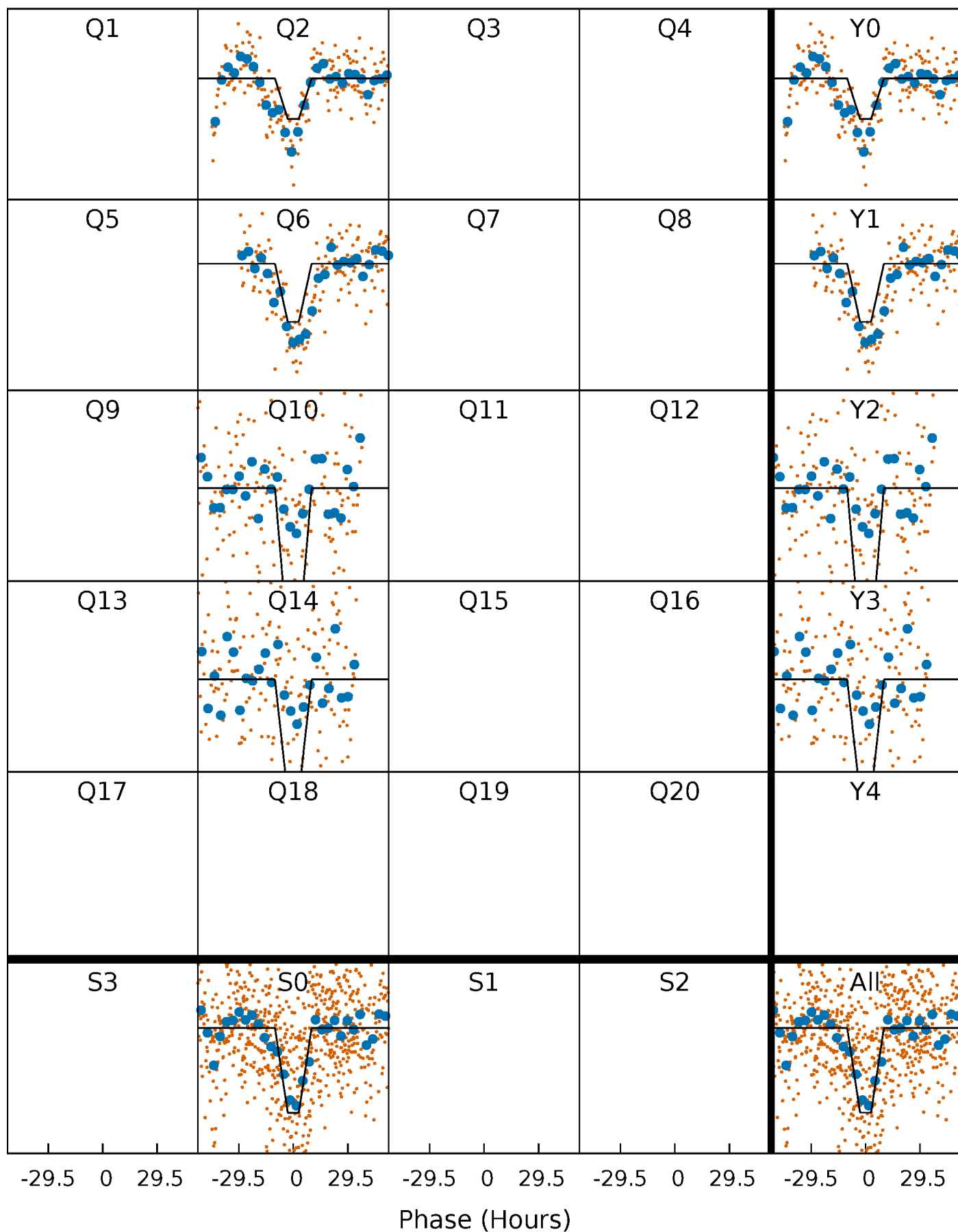
DV Quarter-Phased Transit Curves

TCE 008038731-02 P=367.229491 Days $T_0=233.169943$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

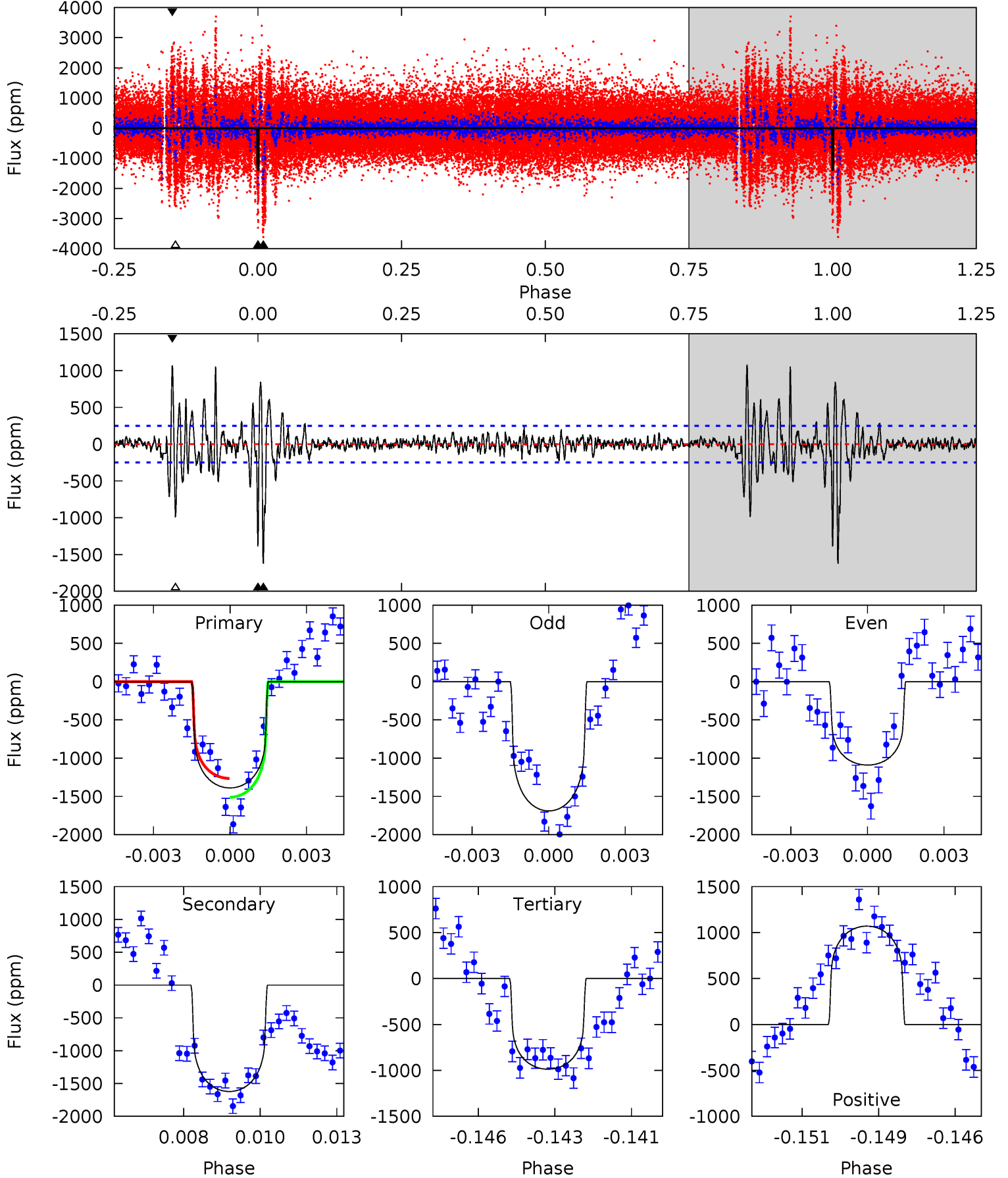
TCE 008038731-02 P=367.218318 Days $T_0=233.228264$ (BKJD)



DV Model-Shift Uniqueness Test

008038731-02, P = 367.229491 Days, E = 233.169943 Days

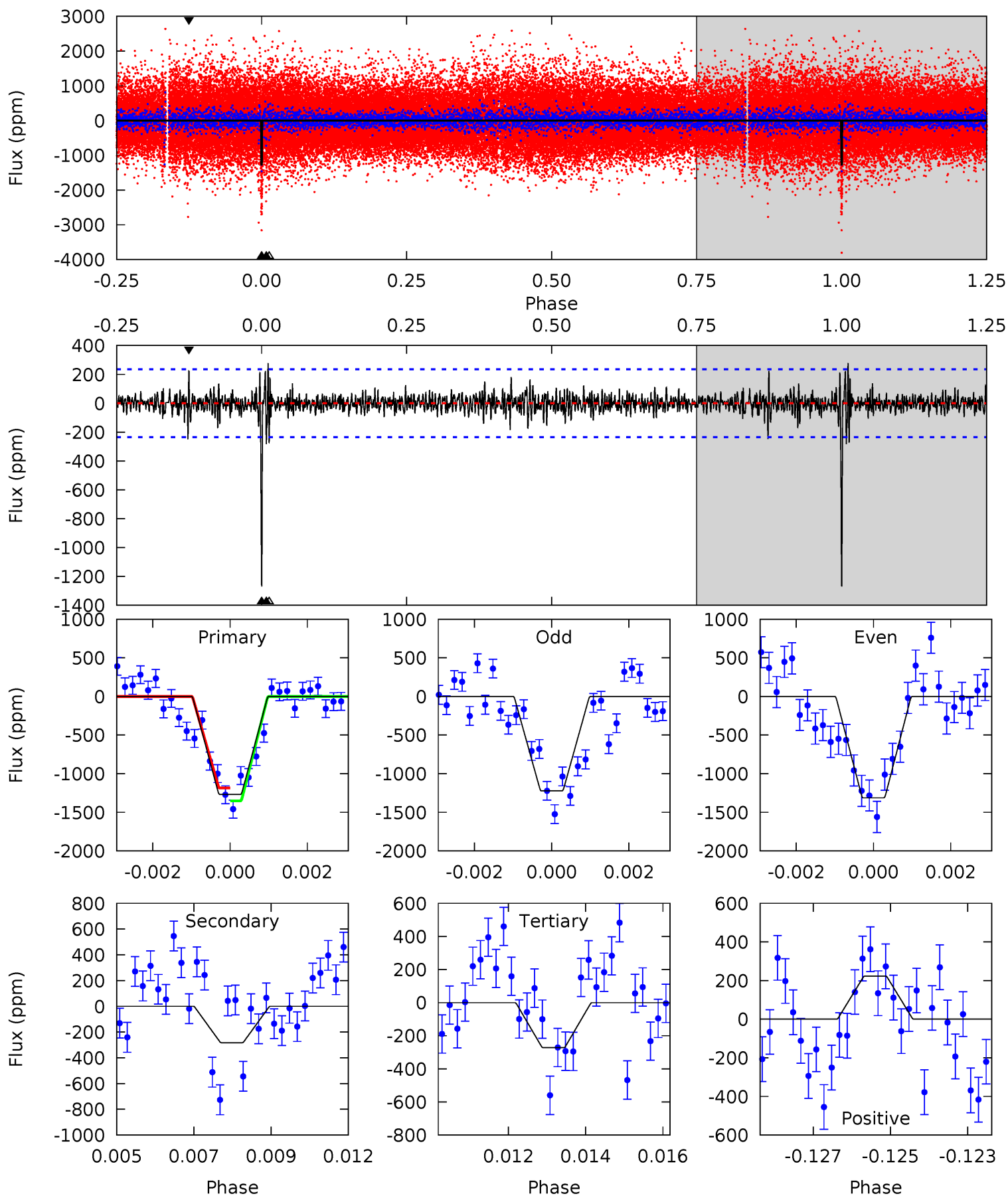
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.5	34.5	21.0	22.7	5.28	3.01	3.68	8.53	6.78	13.5	11.7	6.37	1.05	0.40	2.61



Alt Model-Shift Uniqueness Test

008038731-02, P = 367.218318 Days, E = 233.228264 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.6	6.37	6.12	5.03	5.30	3.05	1.07	22.5	23.6	0.24	1.34	1.01	1.05	0.18	1.86



Stellar Parameters For KIC 008038731

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5755^{+173}_{-173}	$4.548^{+0.063}_{-0.147}$	$-0.520^{+0.300}_{-0.300}$	$0.796^{+0.191}_{-0.082}$	$0.815^{+0.095}_{-0.071}$	$2.279^{+0.619}_{-0.975}$
	+3%/-3%	+1%/-3%	+58%/-58%	+24%/-10%	+12%/-9%	+27%/-43%
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 008038731-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1622 ± 47	$2.65^{+0.94}_{-0.81}$	330^{+18}_{-15}	6688^{+1605}_{-899}	$111800^{+120902}_{-50886}$
Alt.	-283 ± 44	$3.43^{+0.92}_{-0.92}$	330^{+21}_{-14}	4088^{+543}_{-316}	11566^{+10622}_{-4492}

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

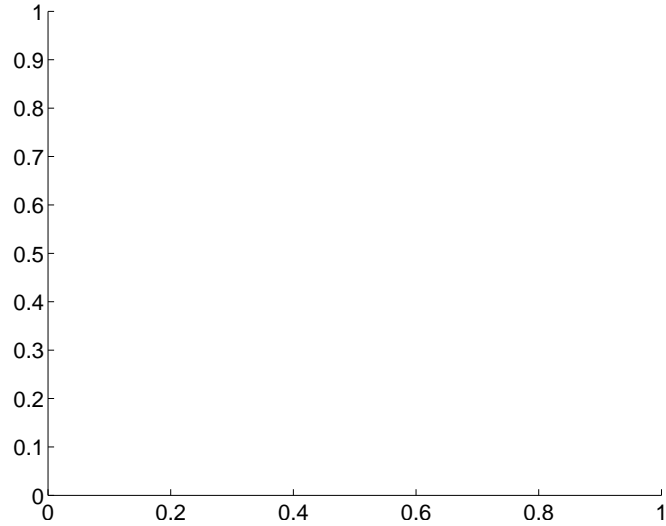
Supplemental centroid analysis for 008038731-02. Kepler magnitude: 15.76. Transit SNR 7.96

There are 0 quarters with good PRF difference image offsets

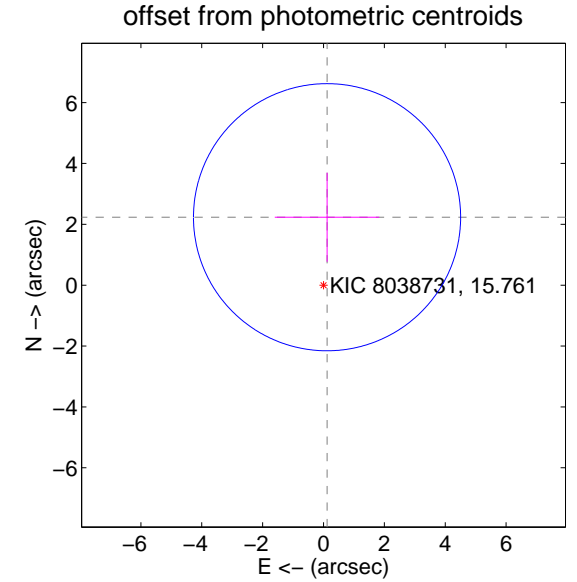
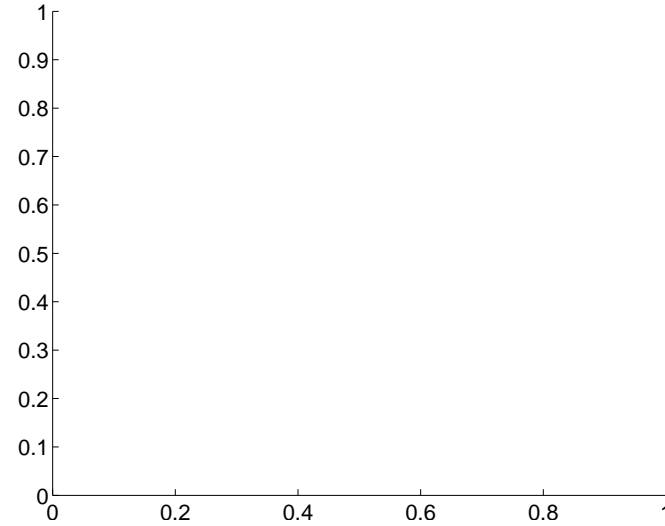
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	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	2.24 ± 1.46	1.53	-0.12 ± 1.72	2.23 ± 1.46

There is no PRF-fit offset from OOT-fit

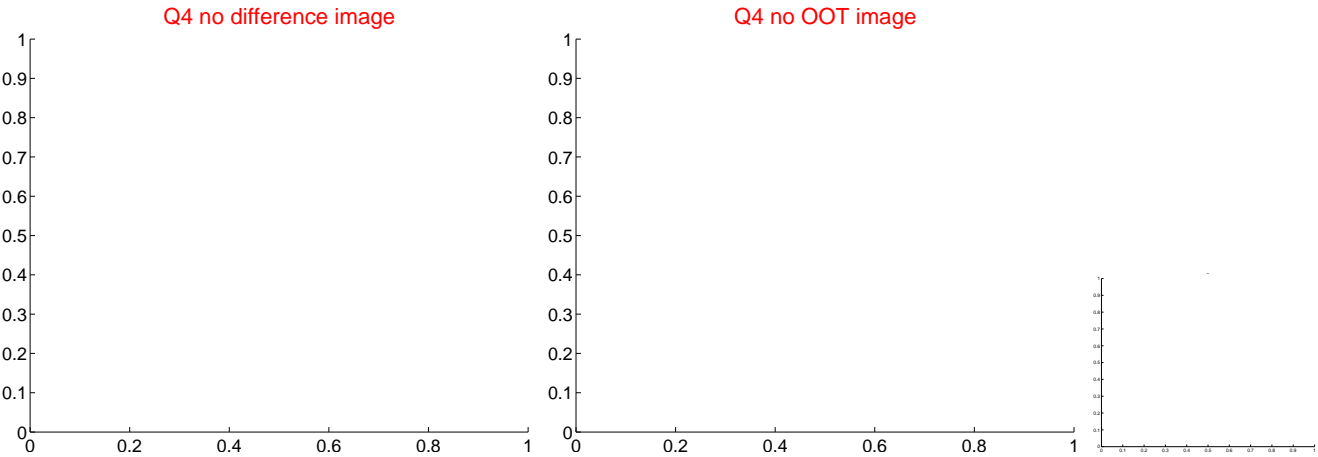
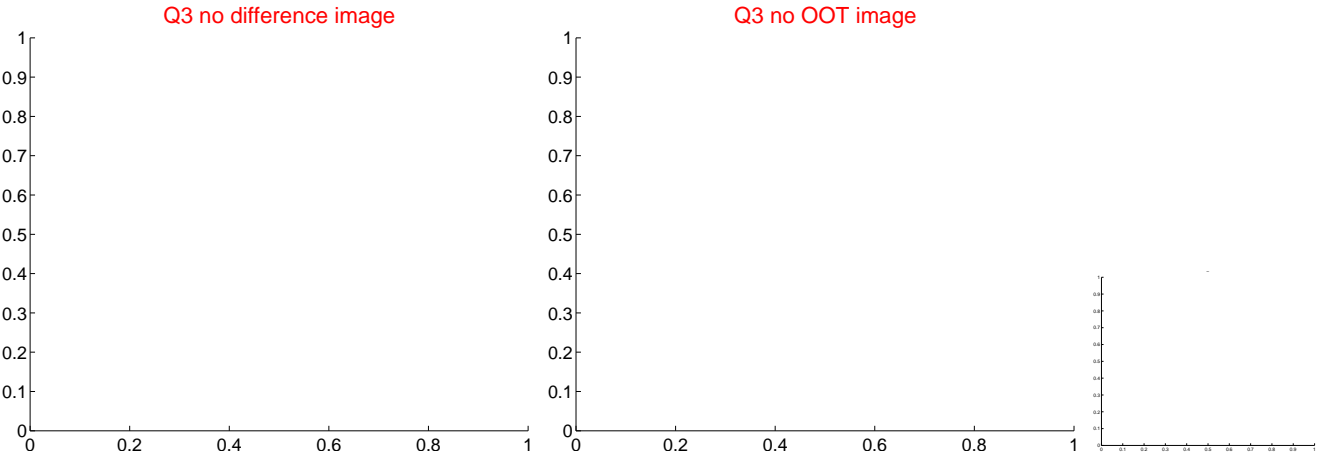
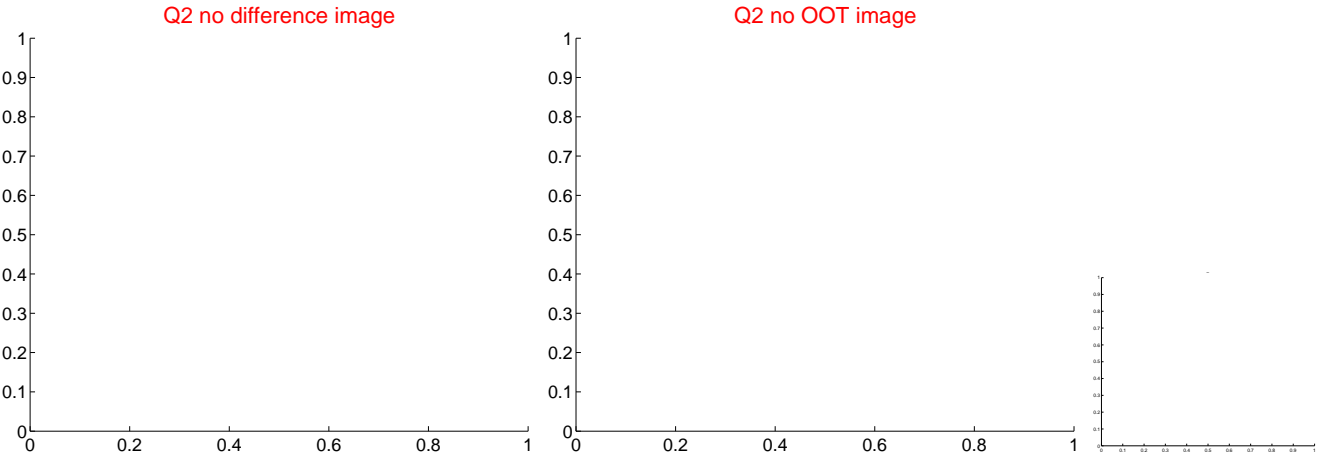
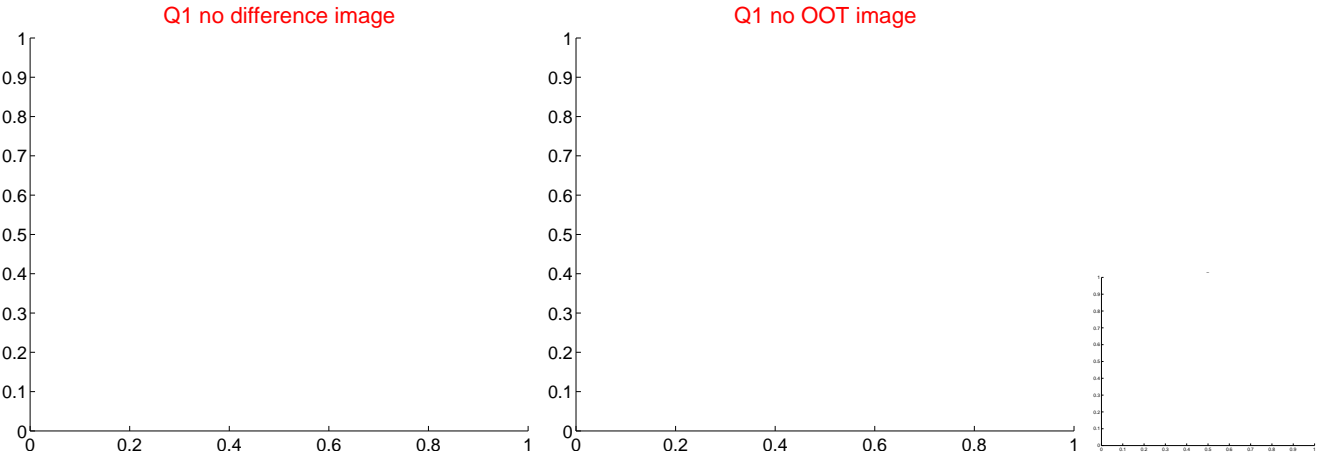


There is no PRF-fit offset from KIC



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.

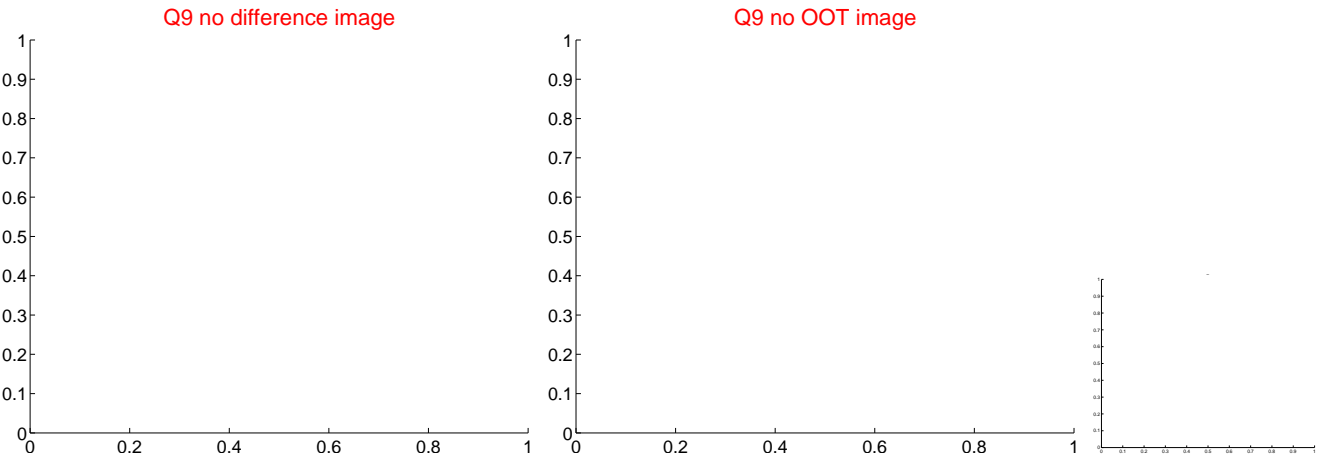
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



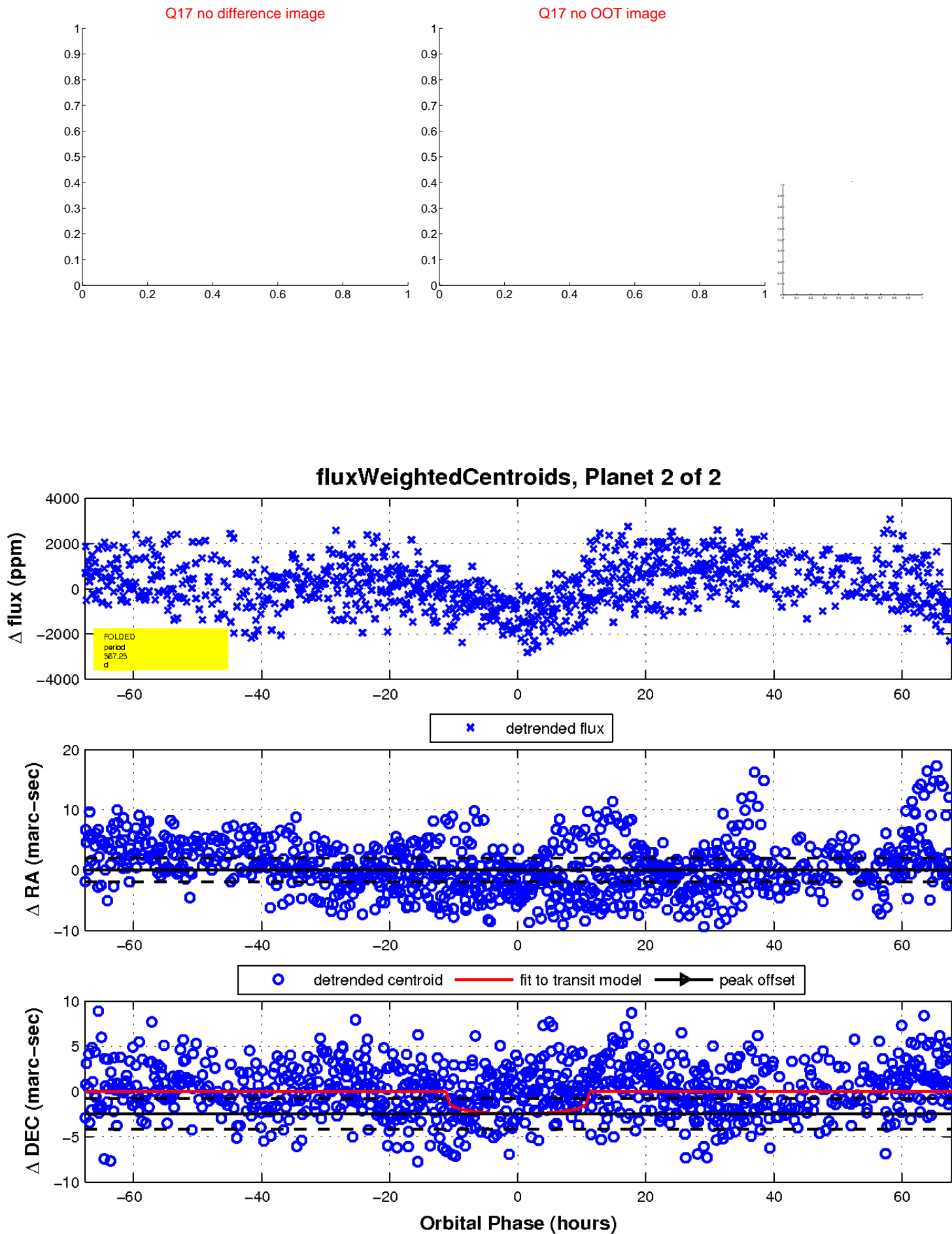
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

