

KIC 008374116

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})
008374116-01	OBS	No	338.122326	264.063103	279.3	19.221	9.2	6.3	1.07	5806	1.86	1.28
008374116-02	OBS	No	577.256692	374.022551	325.7	28.570	8.1	9.3	1.07	5806	1.92	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374116-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008374116-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_TER_DV—MOD_NONUNIQ_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.

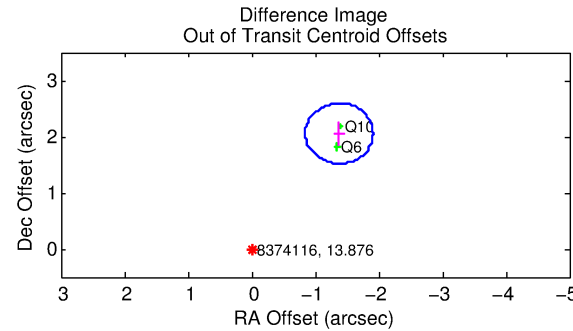
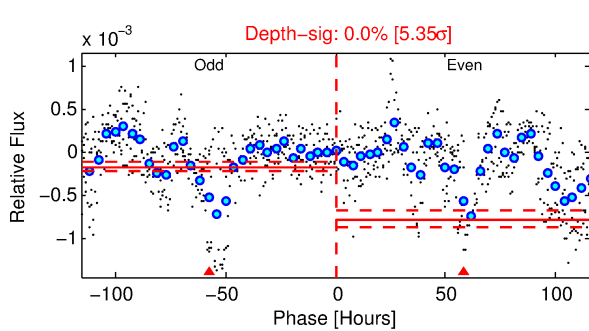
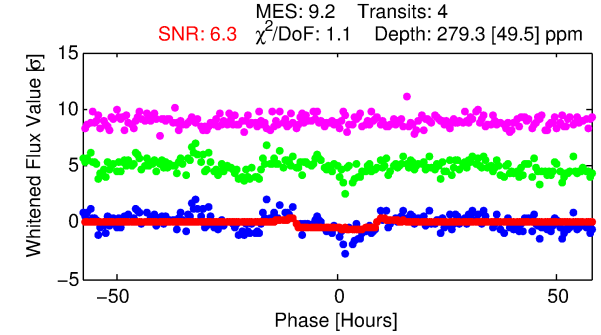
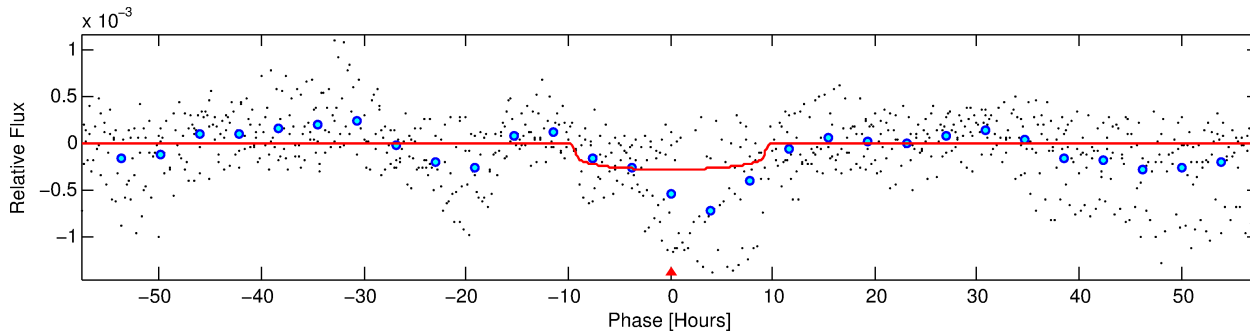
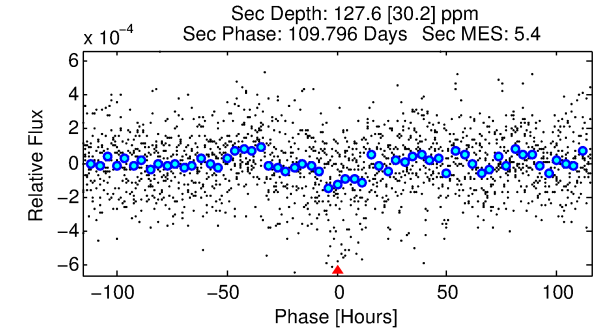
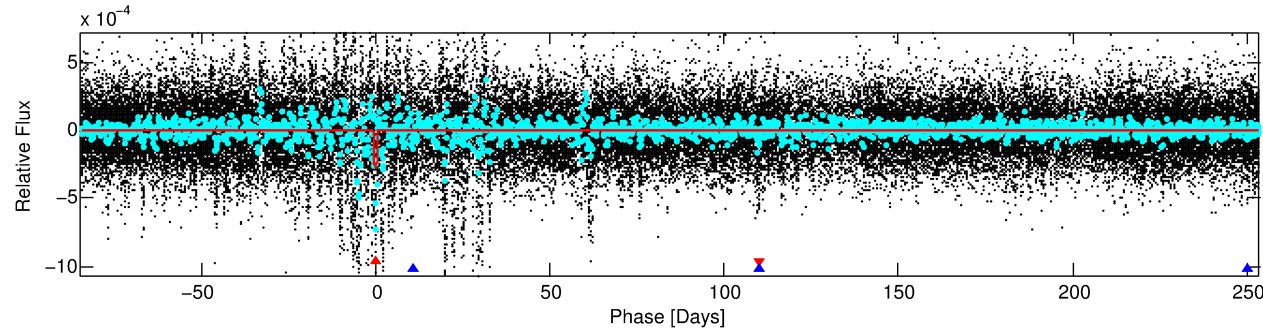
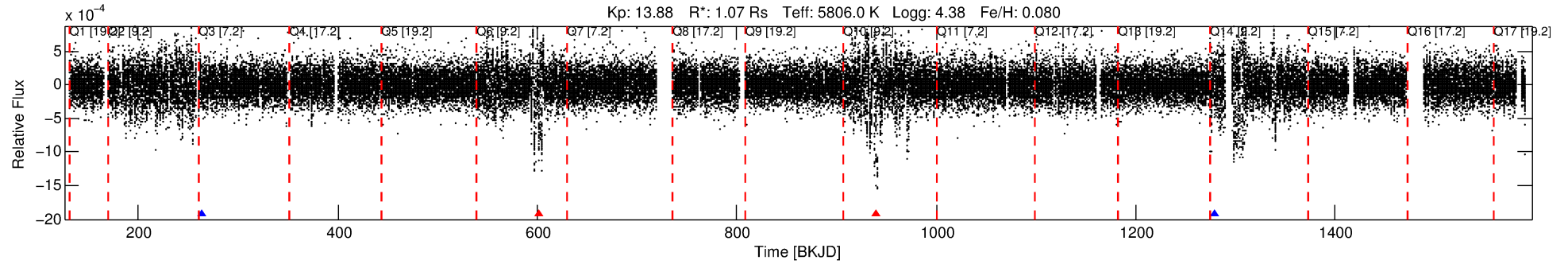
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008374116-01

No Significant Match Found

DV One-Page Summary

KIC: 8374116 Candidate: 1 of 2 Period: 338.122 d



DV Fit Results:

Period = 338.12233 [0.01076] d
Epoch = 264.0631 [0.0222] BKJD
Rp/R* = 0.0160 [0.0065]
a/R* = 109.52 [191.53]
b = 0.61 [1.83]
Seff = 1.28 [0.48]
Teq = 271 [26] K
Rp = 1.86 [0.94] Re
a = 0.9512 [0.2353] AU
Ag = 18446.30 [17030.95] [1.08σ]
Teffp = 4886 [1050] K [4.40σ]

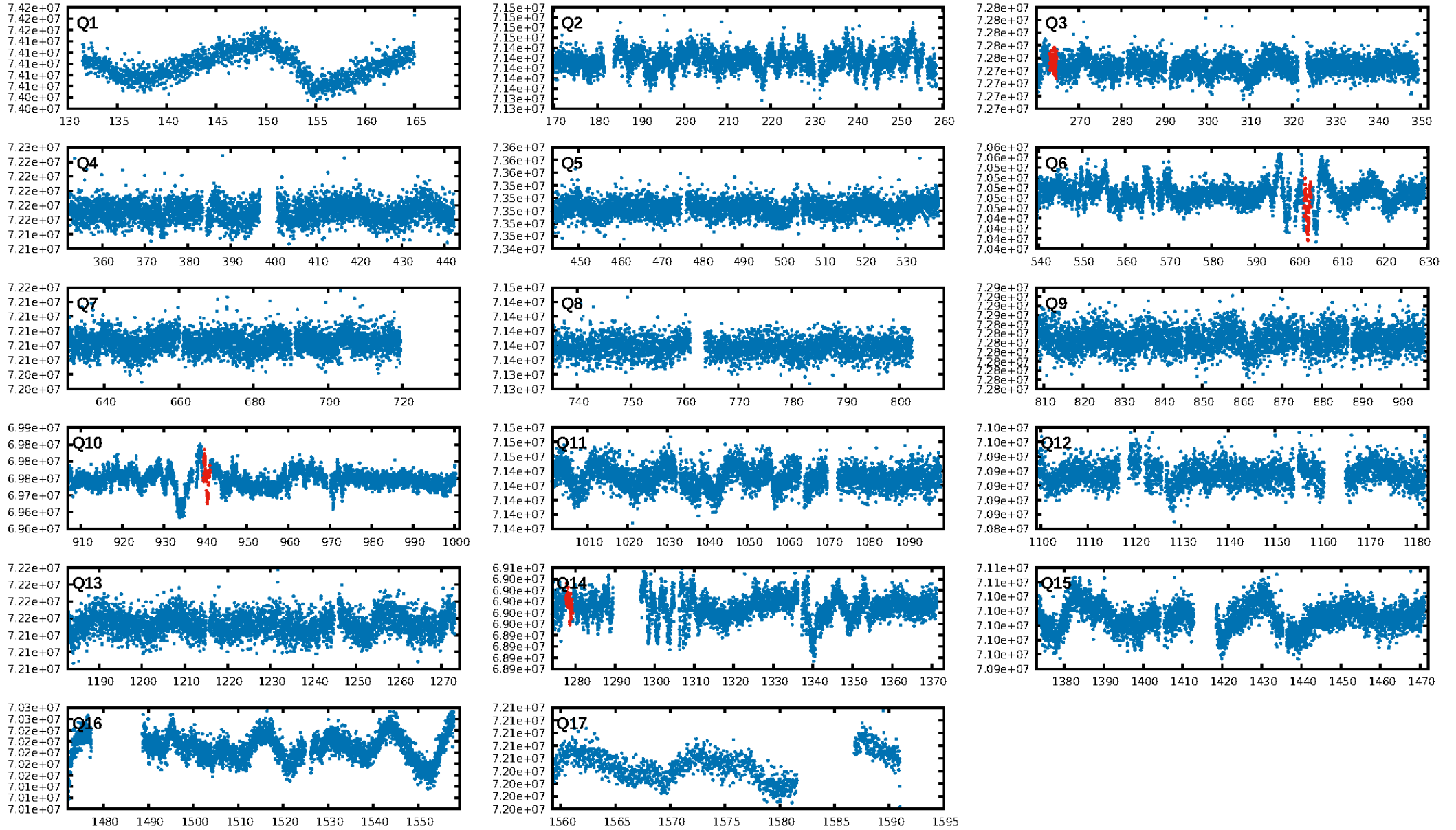
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [166.67σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 96.4%
Bootstrap-pfa: 1.66e-10
RollingBand-fgt: 0.50 [2/4]
GhostDiagnostic-chr: -0.6101
Centroid-sig: 1.6%
Centroid-so: 2.589 arcsec [1.59σ]
OotOffset-rm: 2.475 arcsec [13.88σ]
KicOffset-rm: 2.410 arcsec [15.13σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

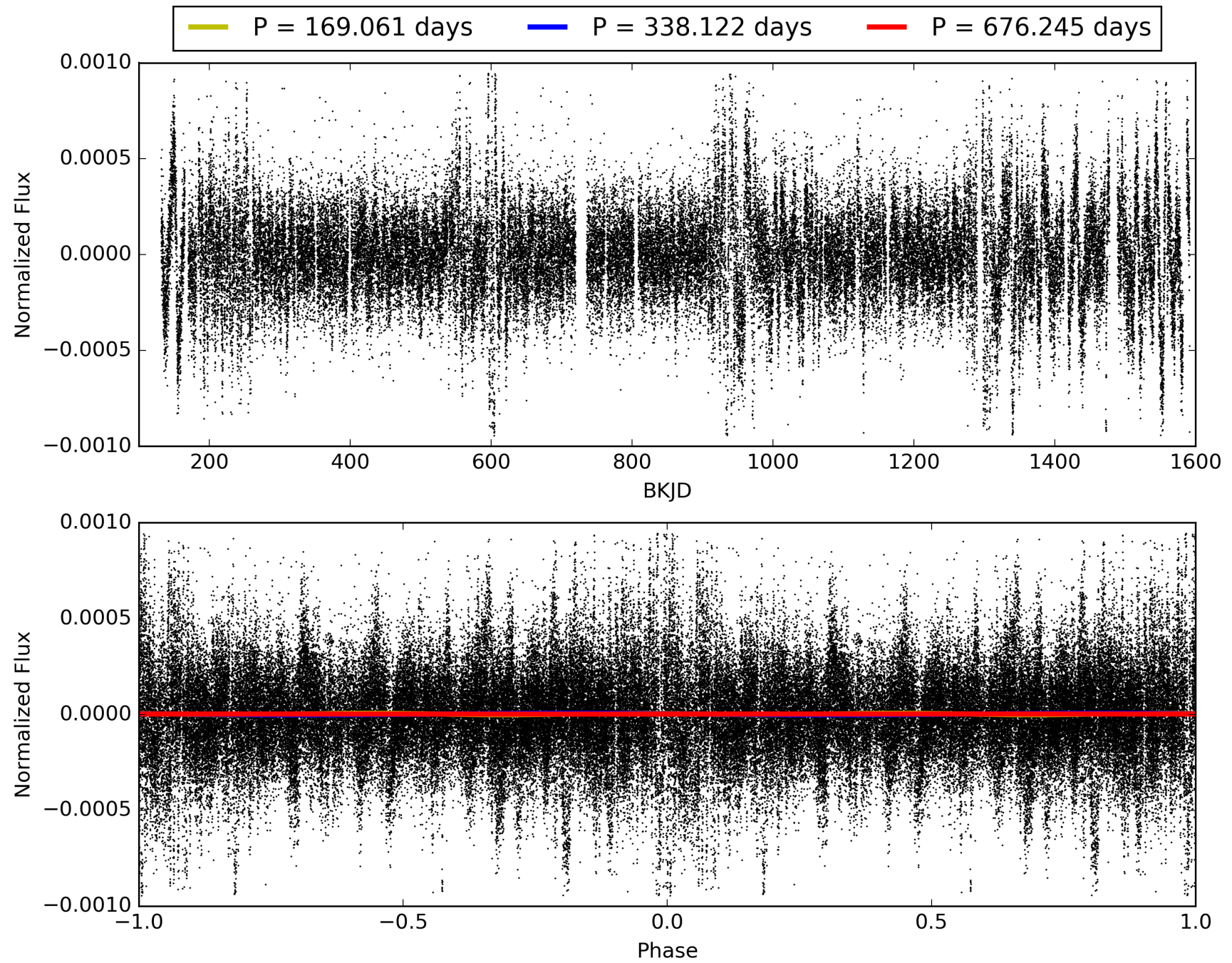
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:14:48 Z

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

TCE 008374116-01, PDC Light Curves

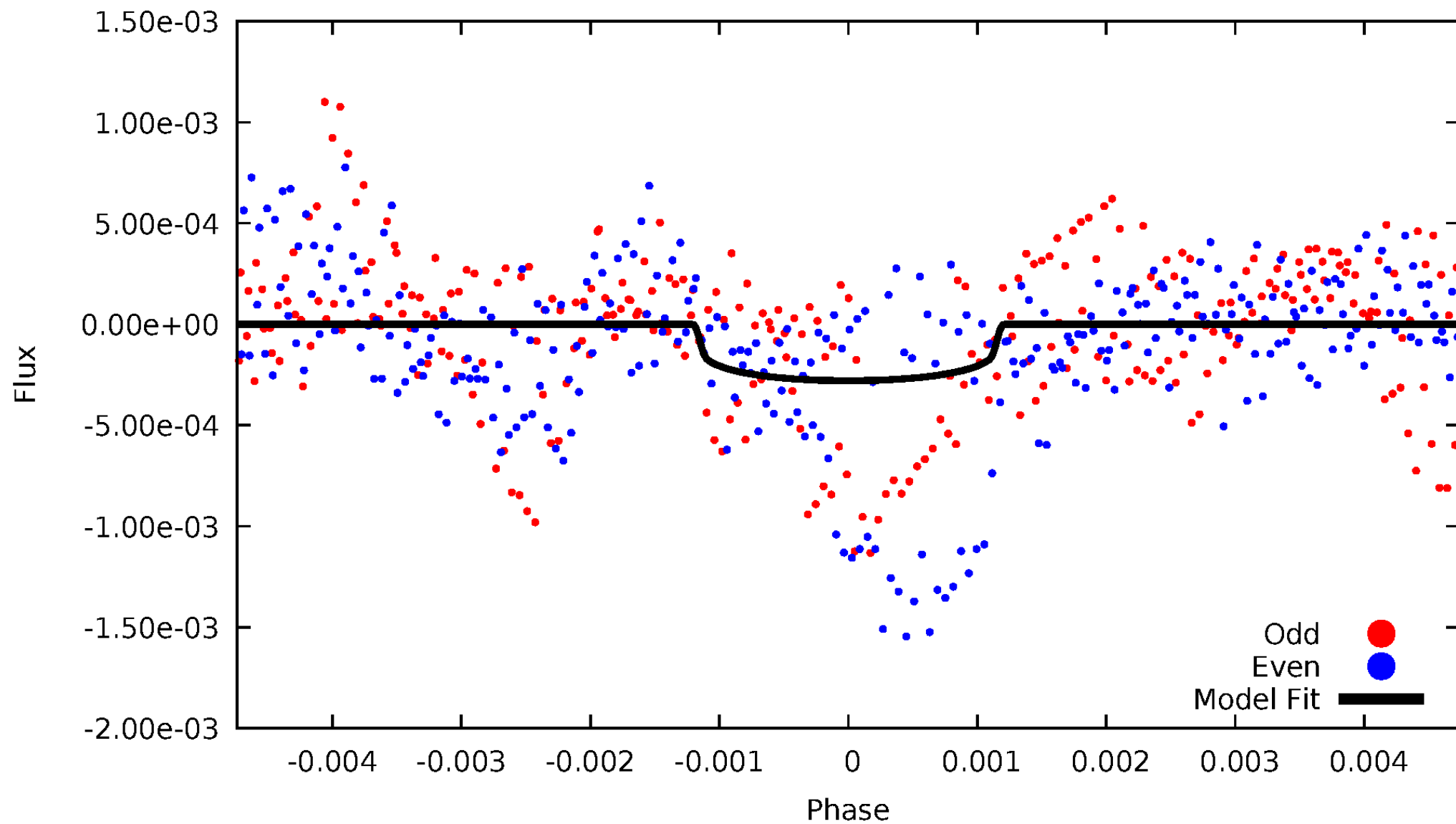


TCE 008374116-01



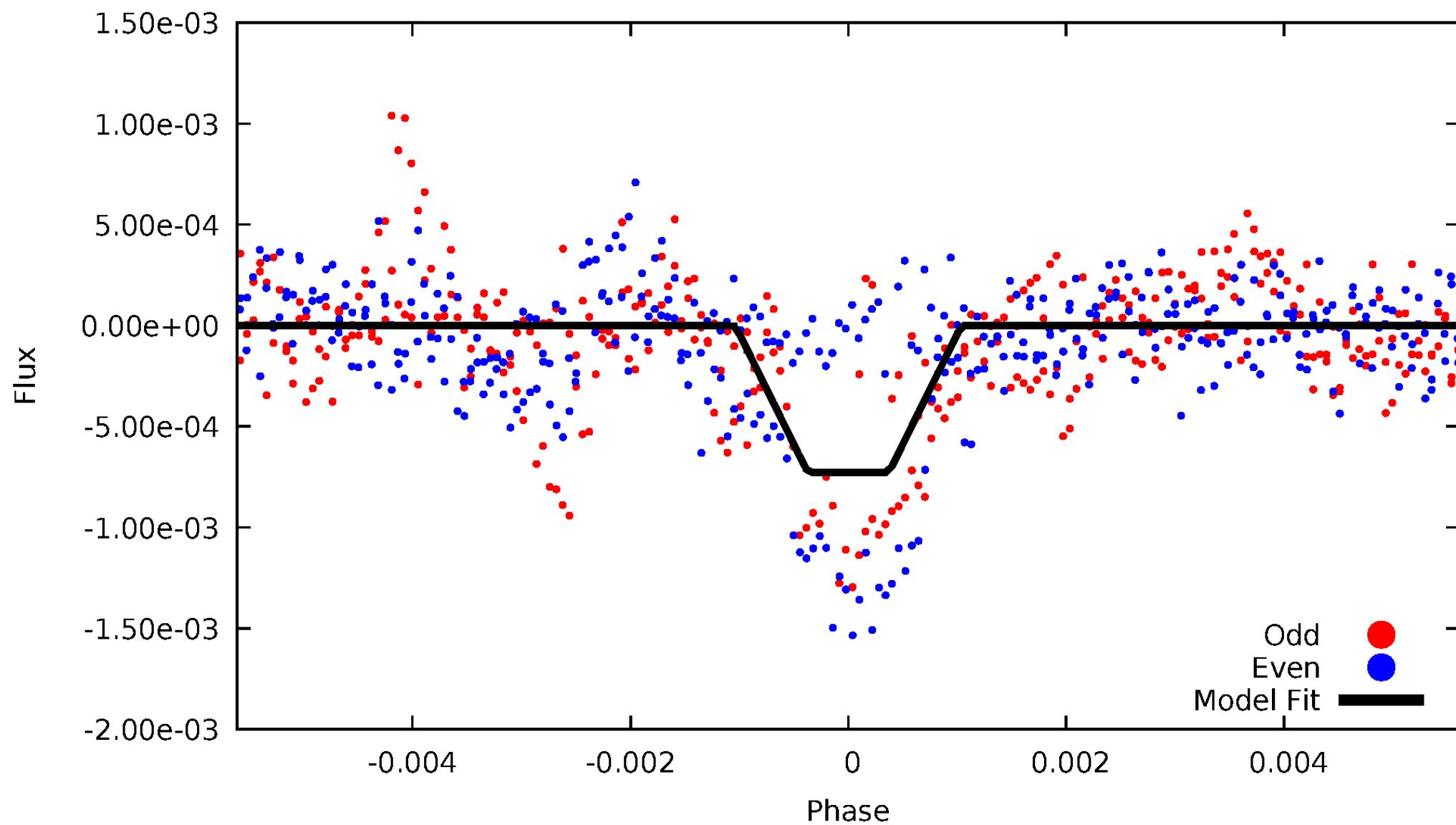
DV Odd/Even

TCE 008374116-01



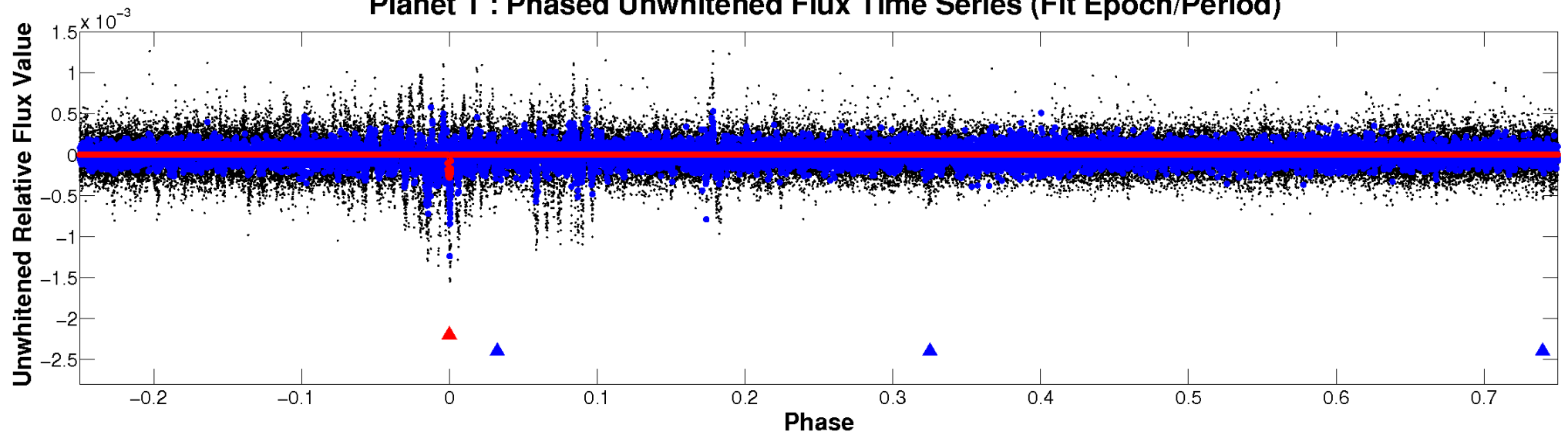
ALT Odd/Even

TCE 008374116-01

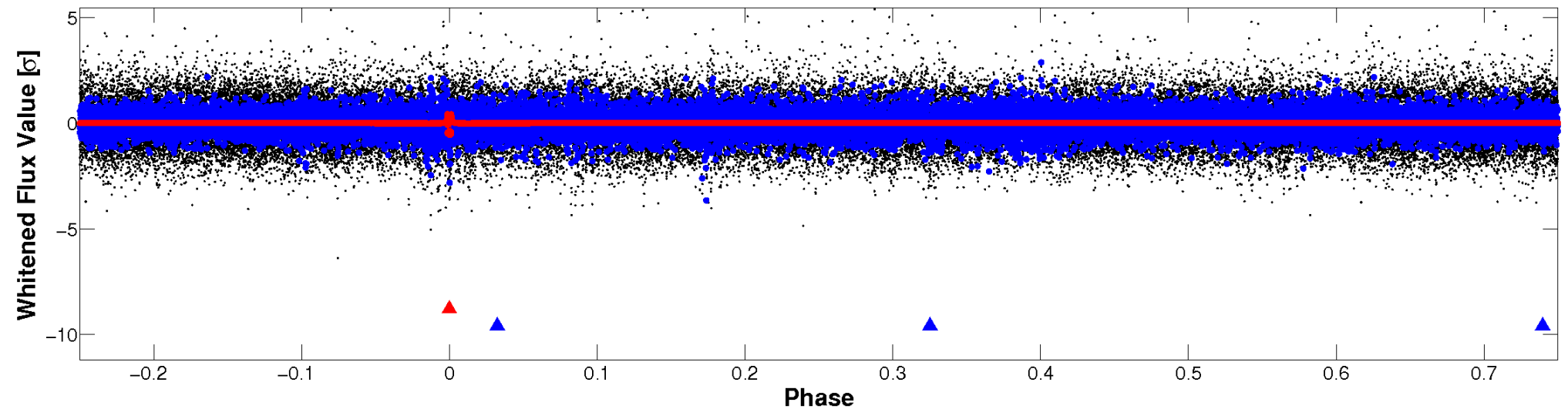


Non-Whitened Vs. Whitened Light Curve

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

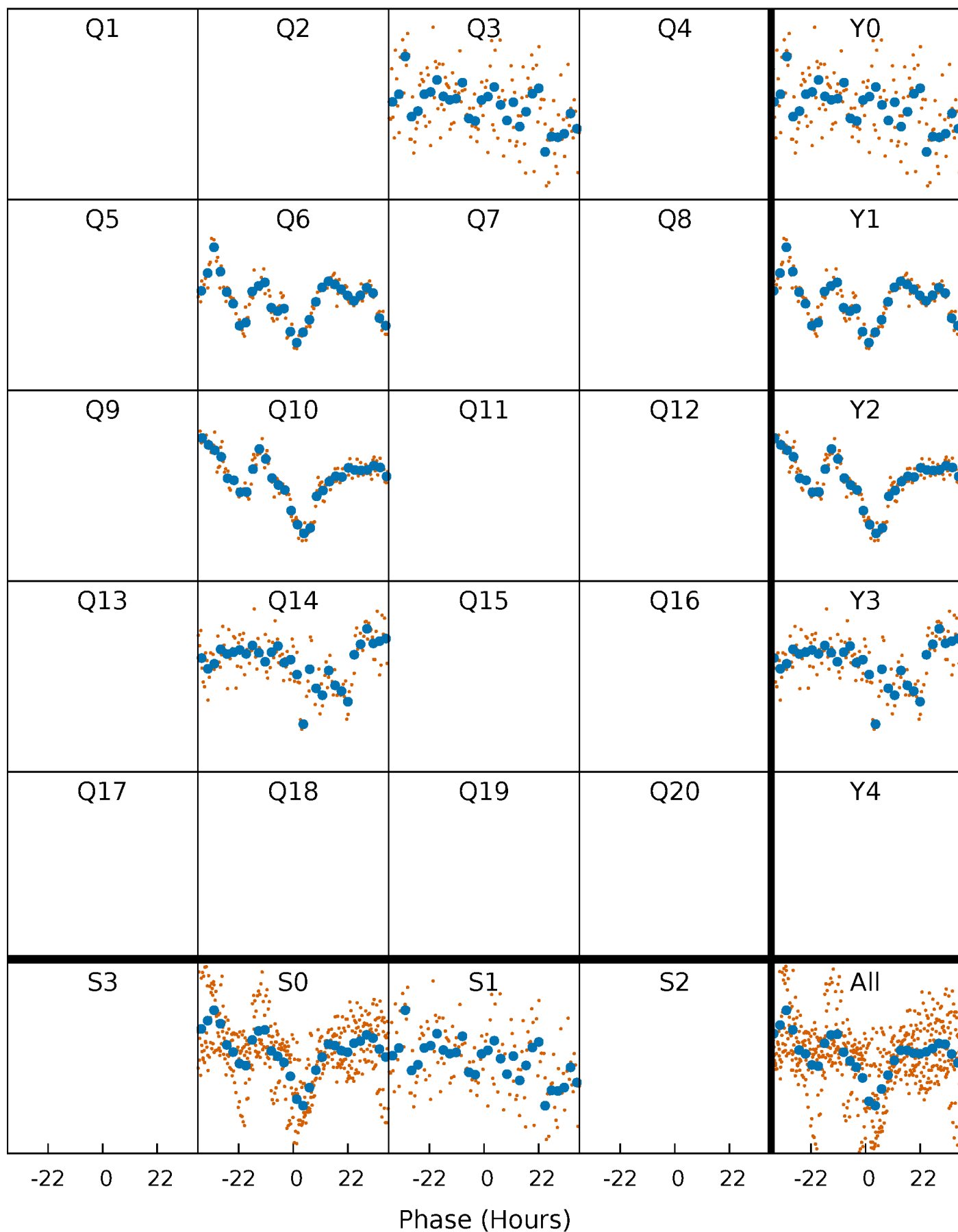


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



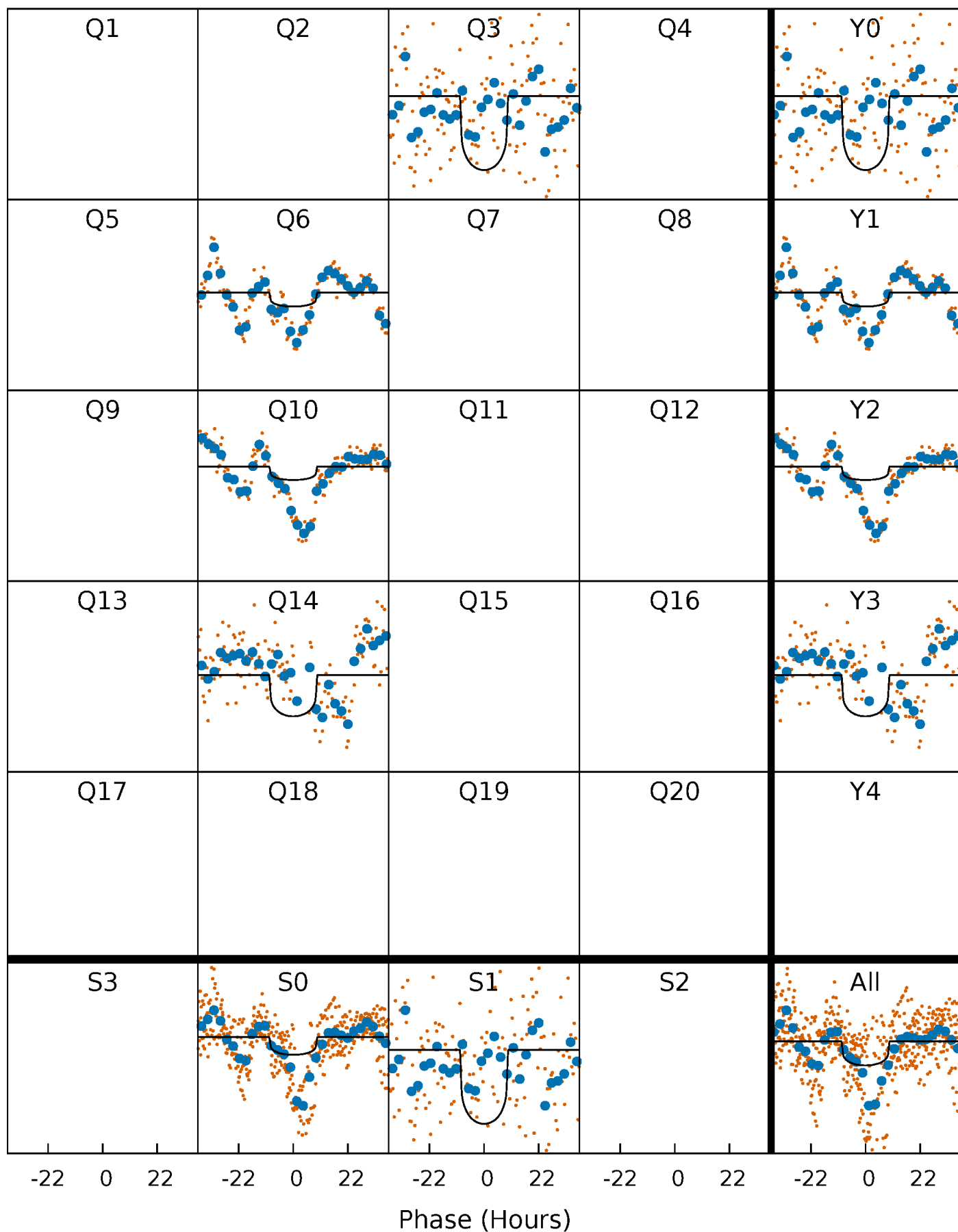
PDC Quarter-Phased Transit Curves

TCE 008374116-01 P=338.122326 Days $T_0=264.063103$ (BKJD)



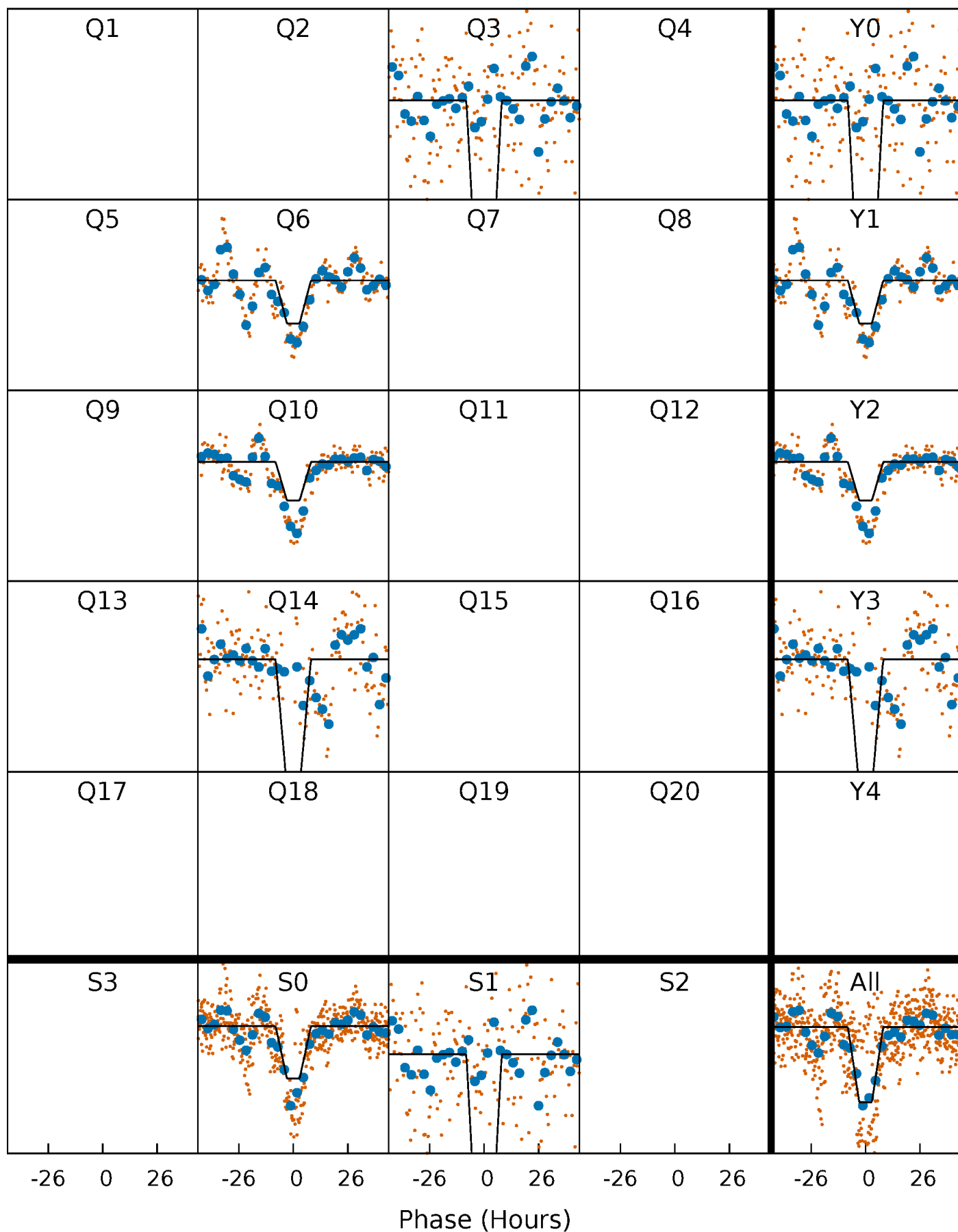
DV Quarter-Phased Transit Curves

TCE 008374116-01 P=338.122326 Days $T_0=264.063103$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

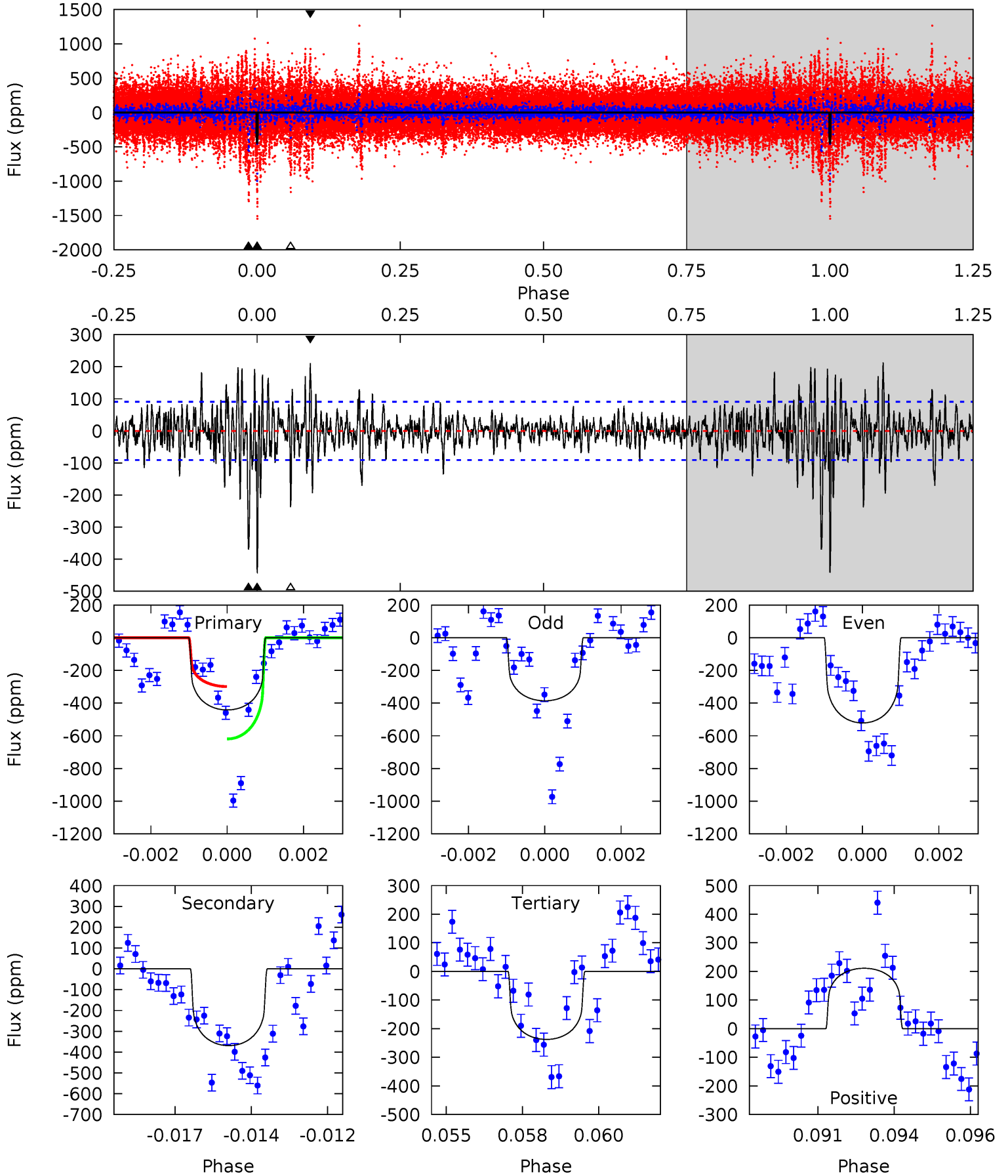
TCE 008374116-01 P=338.216285 Days $T_0=264.013919$ (BKJD)



DV Model-Shift Uniqueness Test

008374116-01, P = 338.122326 Days, E = 264.063103 Days

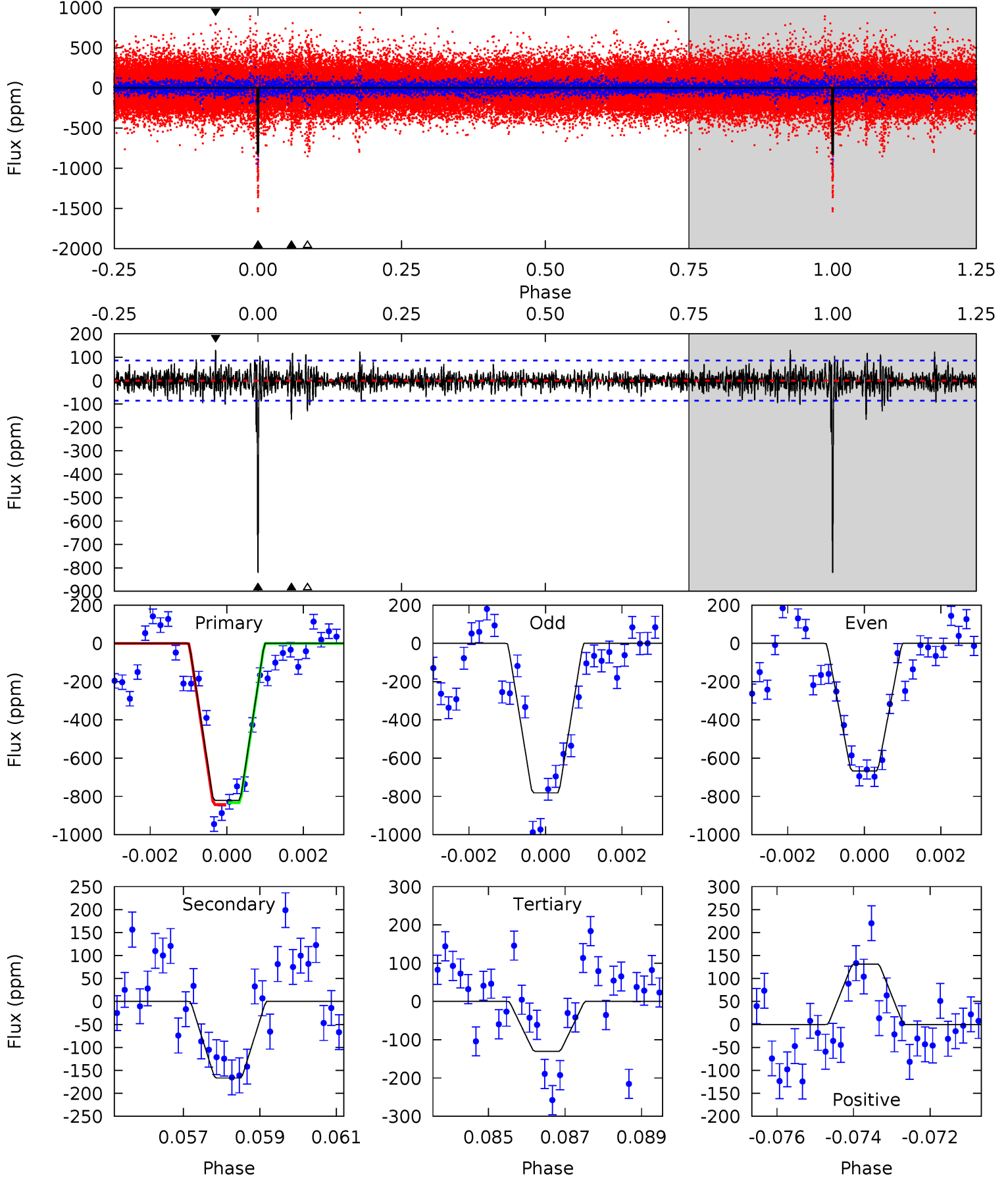
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.8	21.5	13.9	12.3	5.29	3.04	2.69	11.9	13.5	7.67	9.21	4.02	1.18	0.32	9.09



Alt Model-Shift Uniqueness Test

008374116-01, P = 338.216285 Days, E = 264.013919 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.8	10.3	8.06	8.13	5.32	3.07	1.63	42.8	42.7	2.27	2.19	3.67	1.06	0.14	0.31



Stellar Parameters For KIC 008374116

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5806^{+156}_{-174}	$4.384^{+0.105}_{-0.195}$	$0.080^{+0.250}_{-0.300}$	$1.066^{+0.315}_{-0.158}$	$1.005^{+0.125}_{-0.112}$	$1.167^{+0.551}_{-0.597}$
	+3%/-3%	+2%/-4%	+312%/-375%	+30%/-15%	+12%/-11%	+47%/-51%
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 008374116-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-369 ± 17	$1.92^{+0.81}_{-0.78}$	384^{+29}_{-20}	6316^{+2296}_{-899}	50575^{+85325}_{-26427}
Alt.	-167 ± 16	$3.21^{+0.96}_{-0.82}$	381^{+28}_{-21}	4251^{+506}_{-320}	8077^{+6707}_{-3195}

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

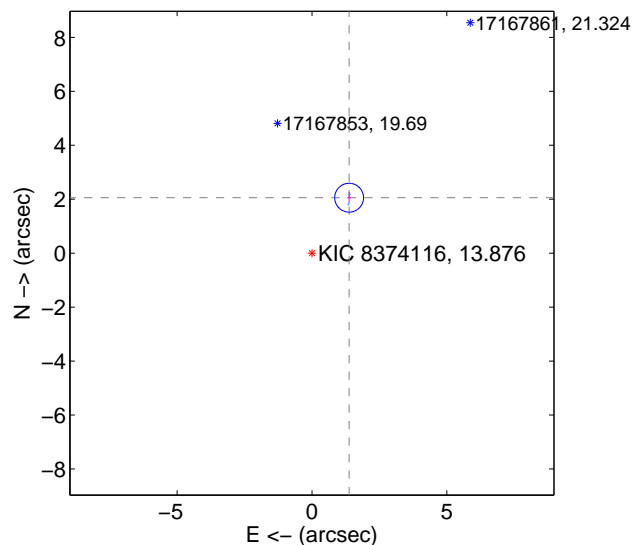
Supplemental centroid analysis for 008374116-01. Kepler magnitude: 13.88. Transit SNR 6.32

There are 2 quarters with good PRF difference image offsets

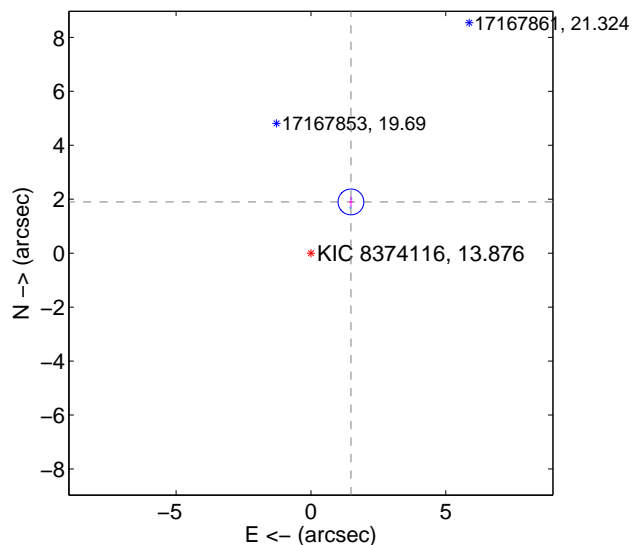
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.475 ± 0.178	13.88	-1.377 ± 0.072	2.056 ± 0.209
PRF-fit source offset from KIC position	2.410 ± 0.159	15.13	-1.483 ± 0.071	1.900 ± 0.194
photometric centroid source offset	2.59 ± 1.63	1.59	-1.58 ± 1.34	2.05 ± 1.78

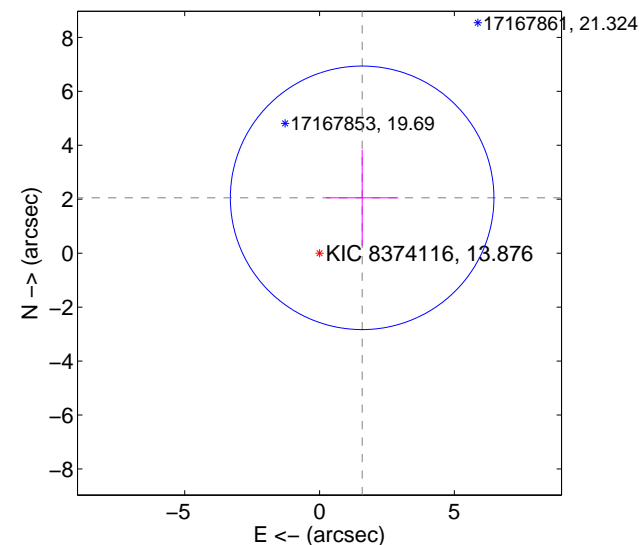
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

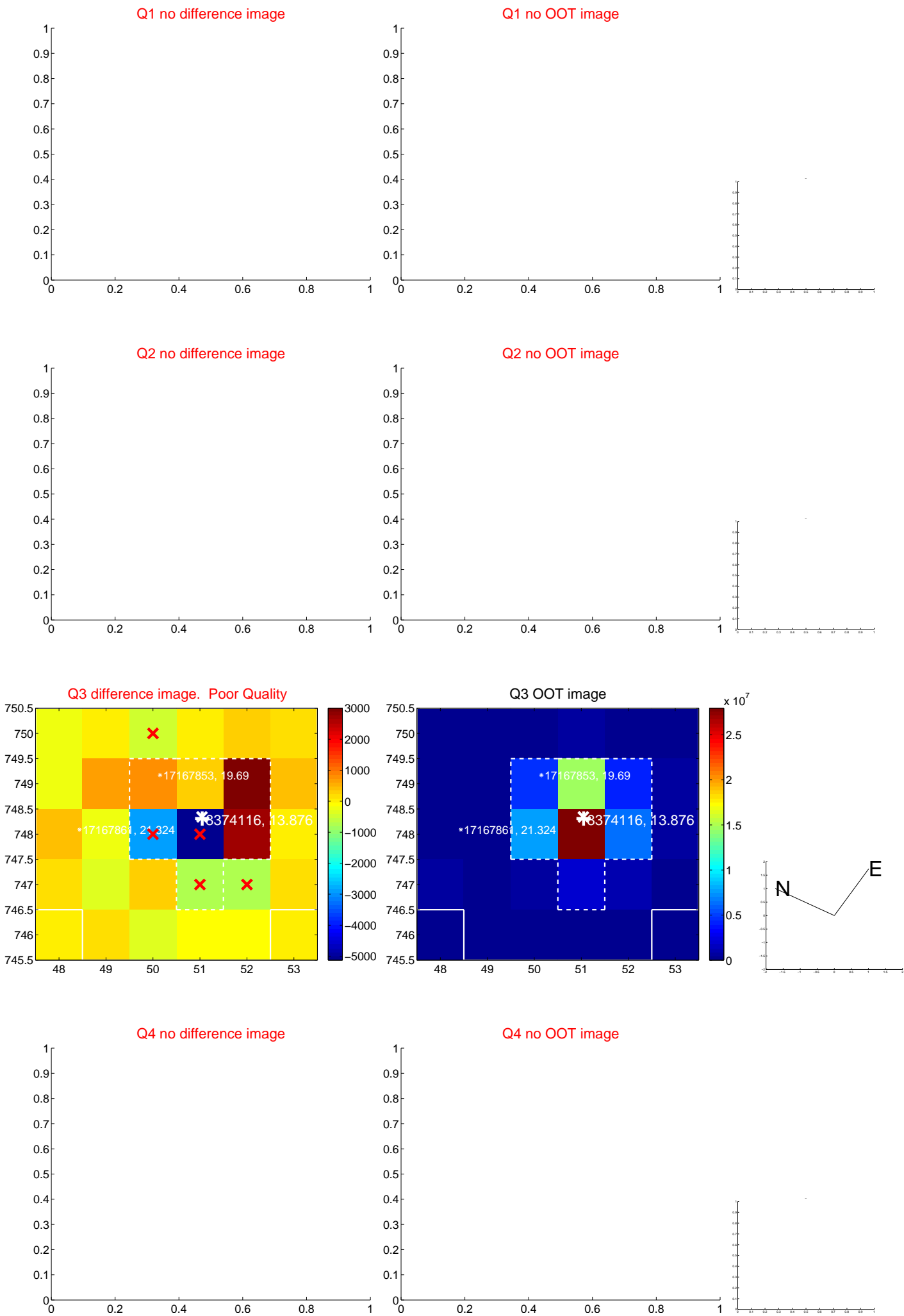


offset from photometric centroids

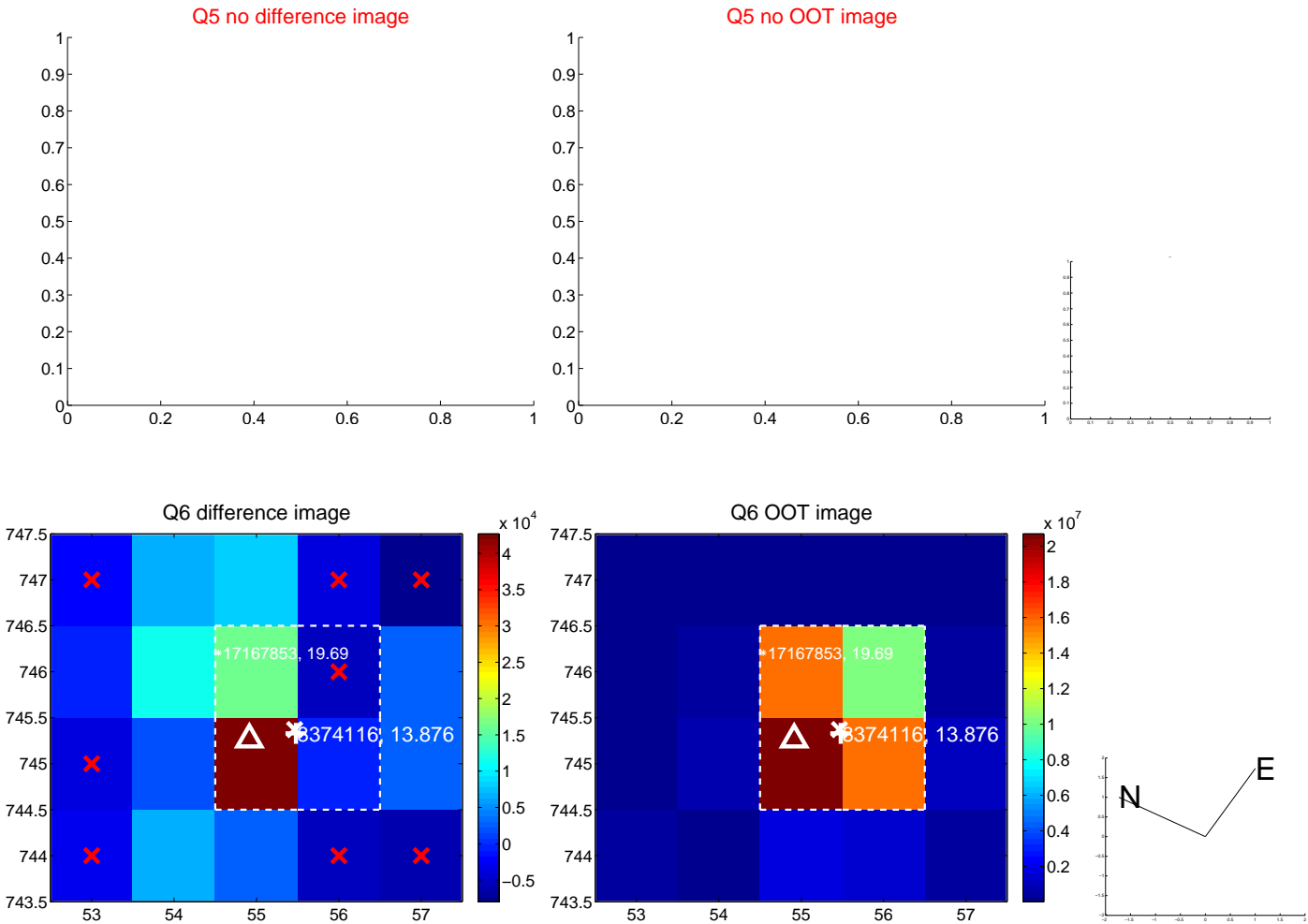


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

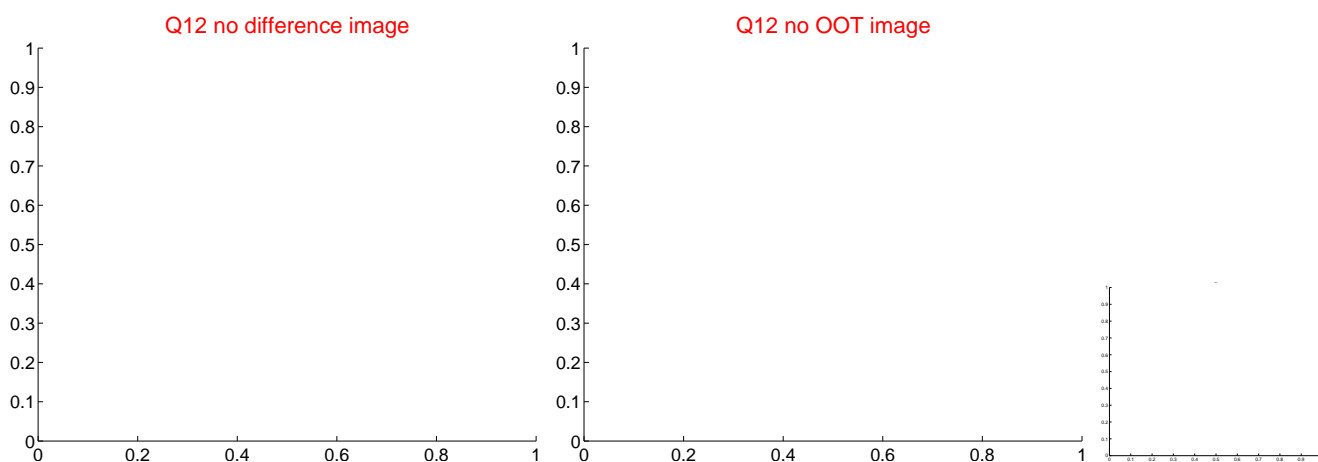
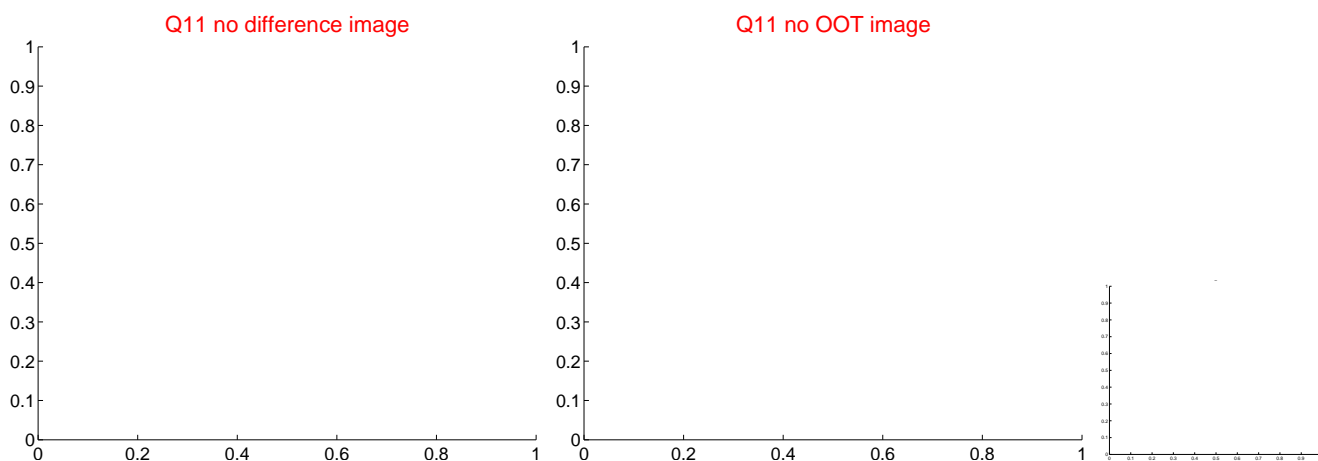
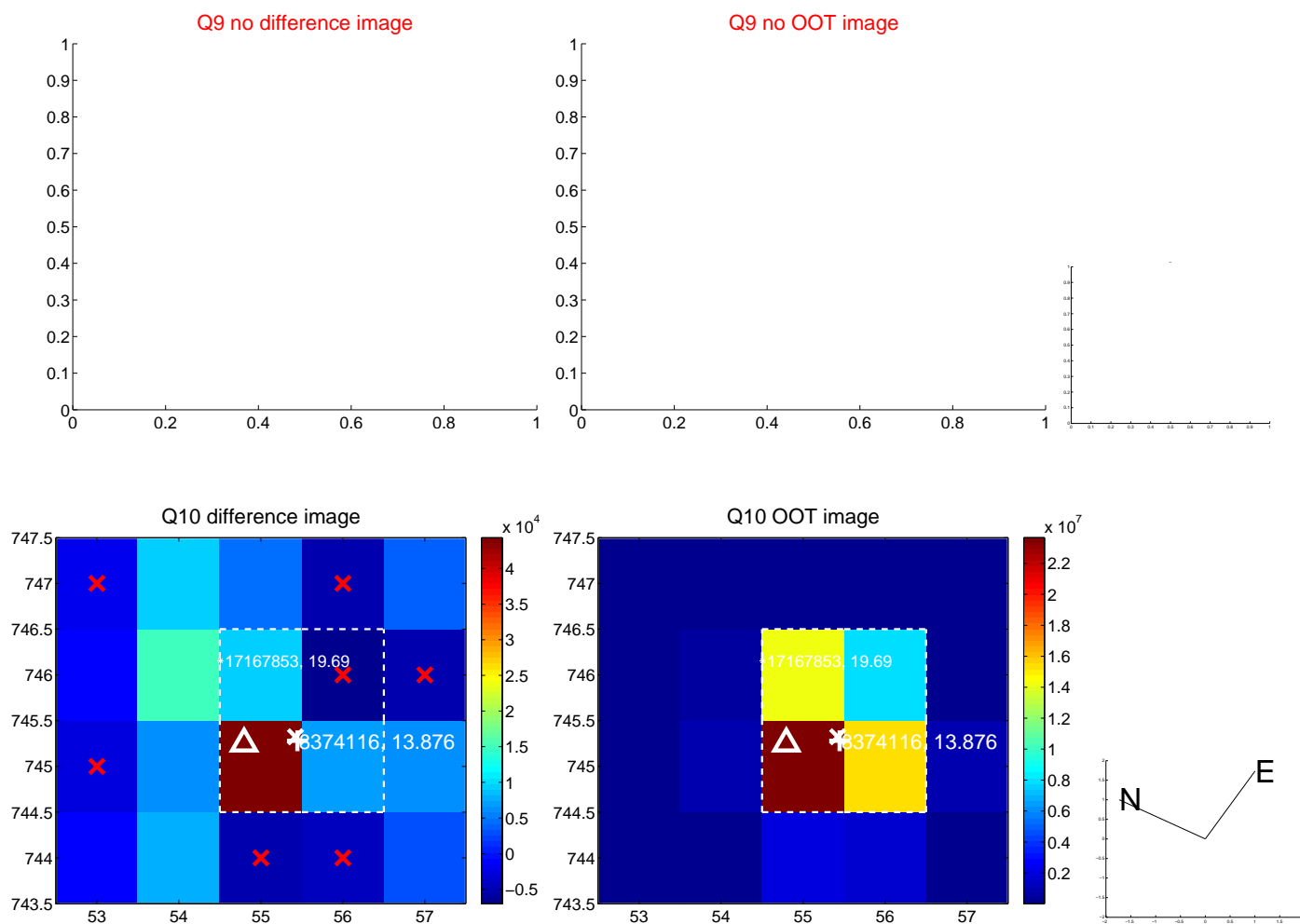
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



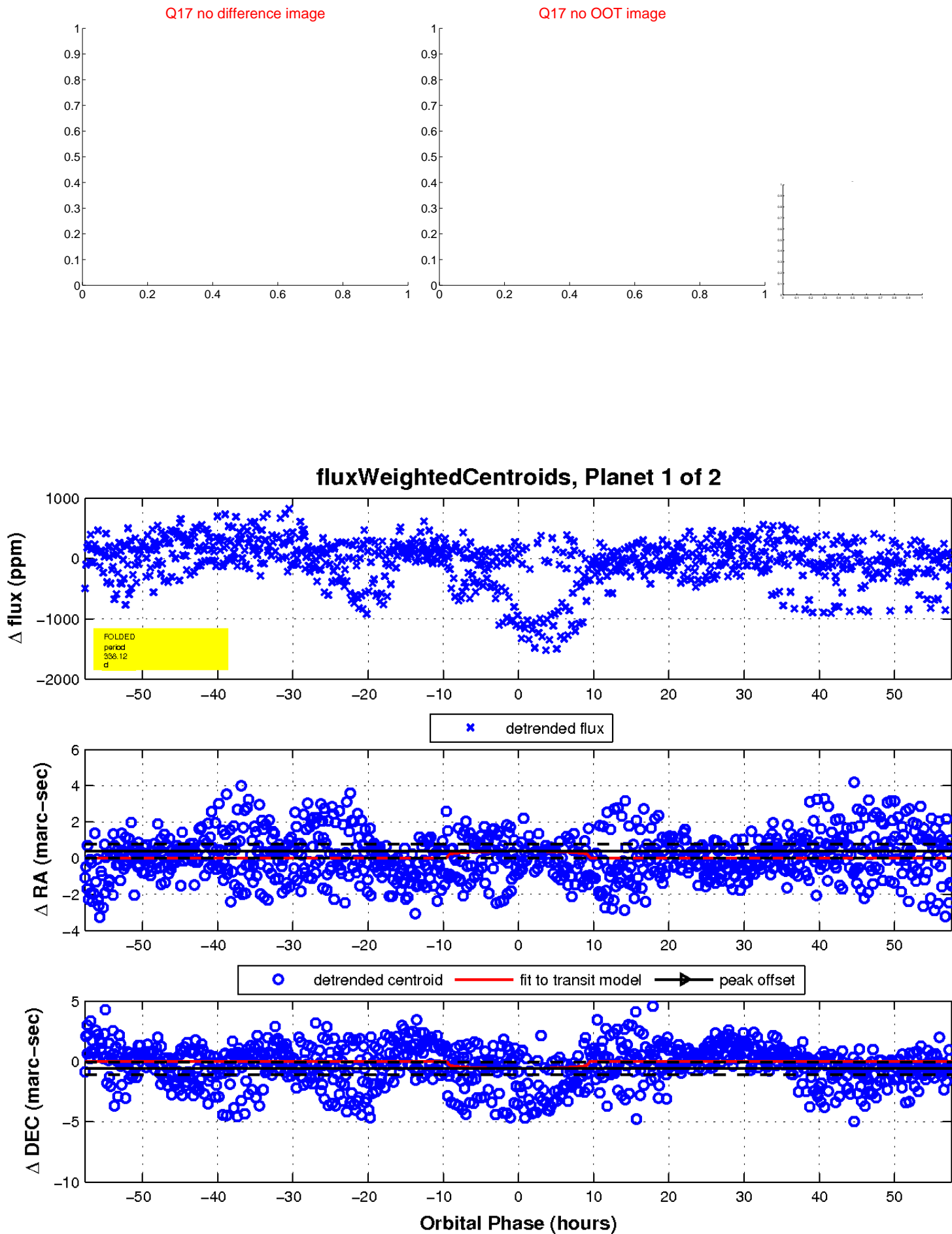
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

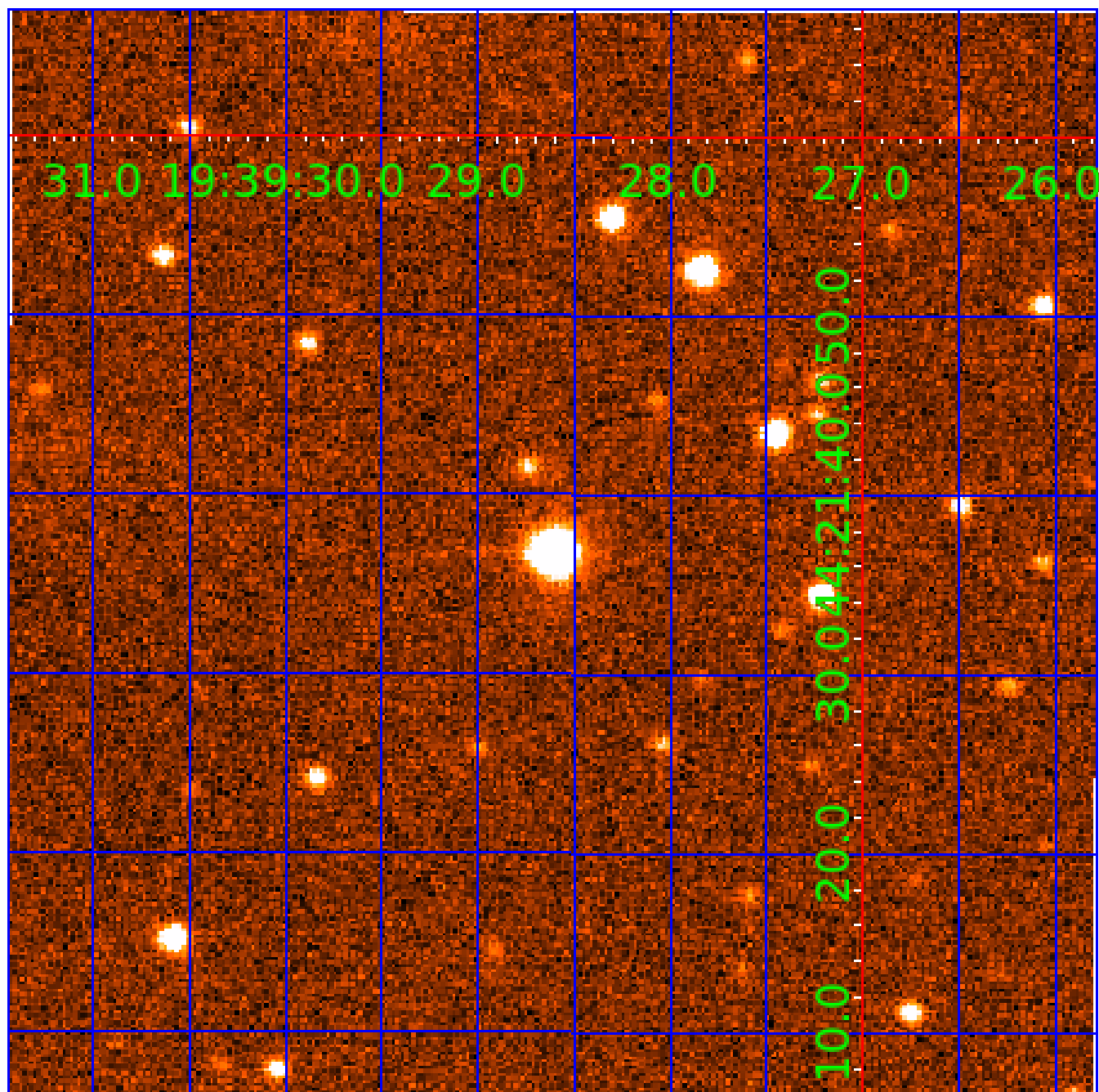


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008374116

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})
008374116-01	OBS	No	338.122326	264.063103	279.3	19.221	9.2	6.3	1.07	5806	1.86	1.28
008374116-02	OBS	No	577.256692	374.022551	325.7	28.570	8.1	9.3	1.07	5806	1.92	0.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008374116-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008374116-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_TER_DV—MOD_NONUNIQ_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.

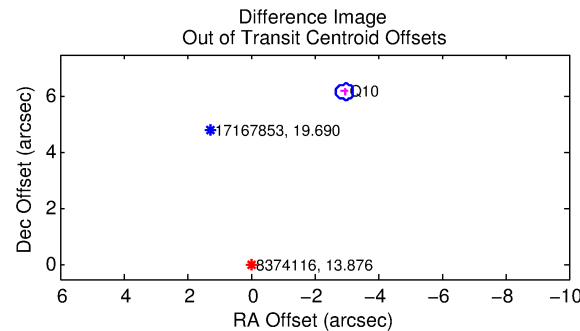
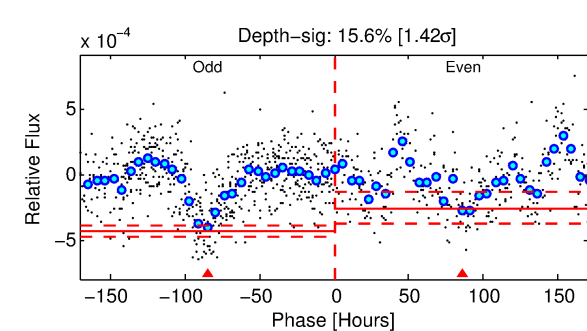
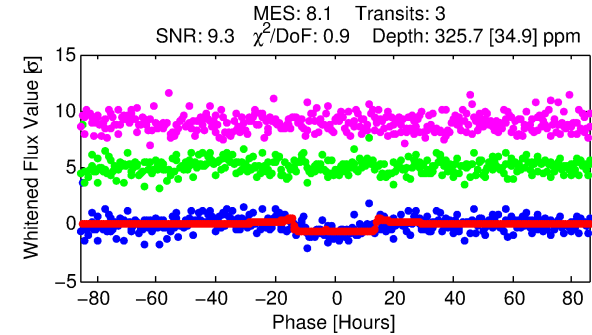
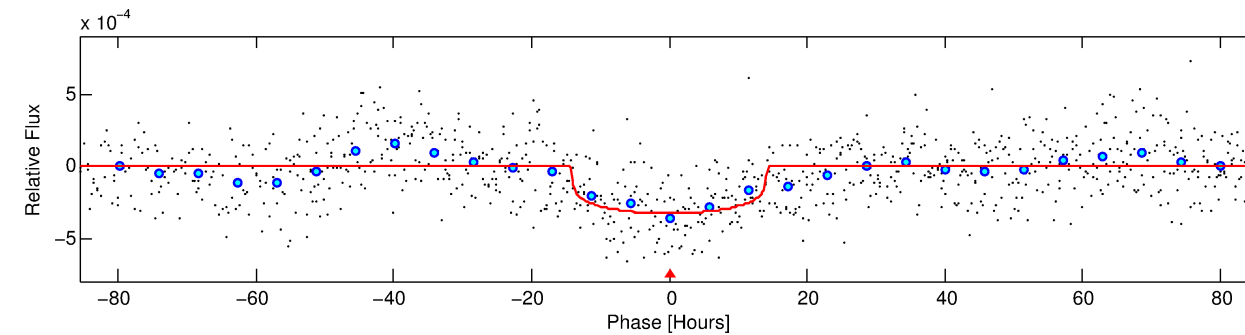
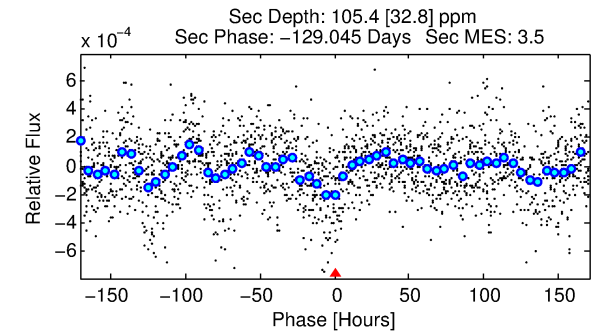
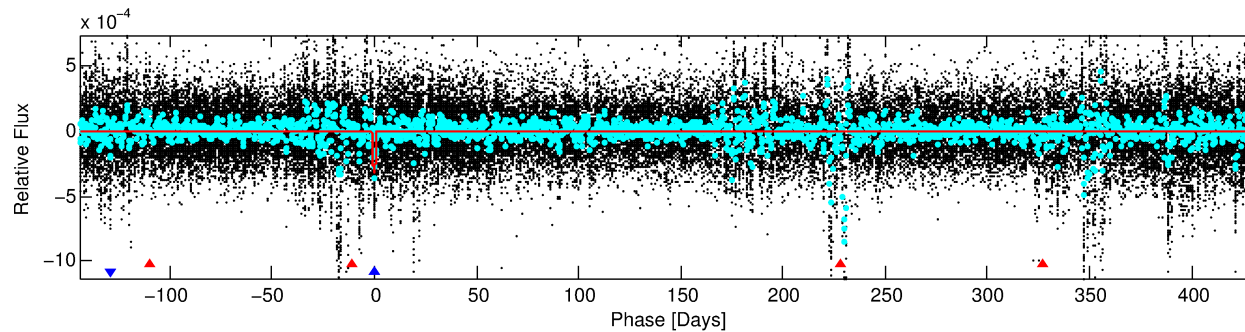
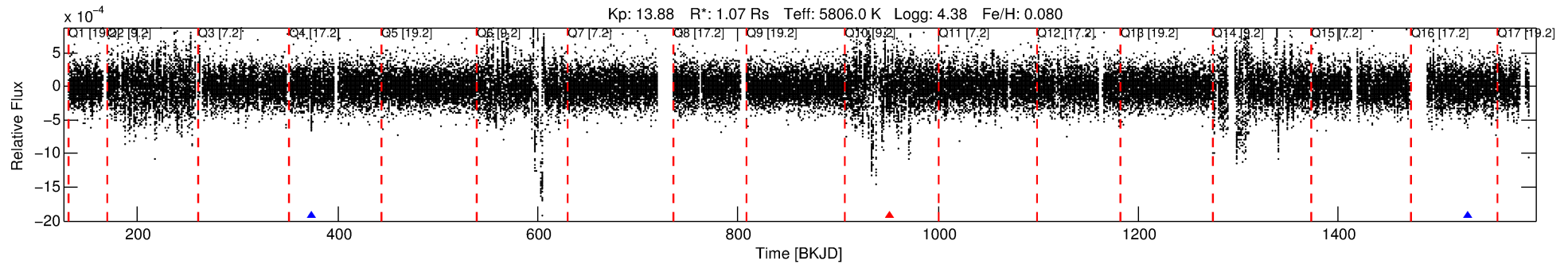
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008374116-02

No Significant Match Found

DV One-Page Summary

KIC: 8374116 Candidate: 2 of 2 Period: 577.257 d



DV Fit Results:

Period = 577.25669 [0.01308] d
Epoch = 374.0226 [0.0147] BKJD
Rp/R* = 0.0165 [0.0108]
a/R* = 151.71 [438.55]
b = 0.26 [10.43]
Seff = 0.63 [0.24]
Teq = 227 [21] K
Rp = 1.92 [1.38] Re
a = 1.3587 [0.3361] AU
Ag = 29138.75 [40639.87] [0.72σ]
Teffp = 4583 [1550] K [2.81σ]

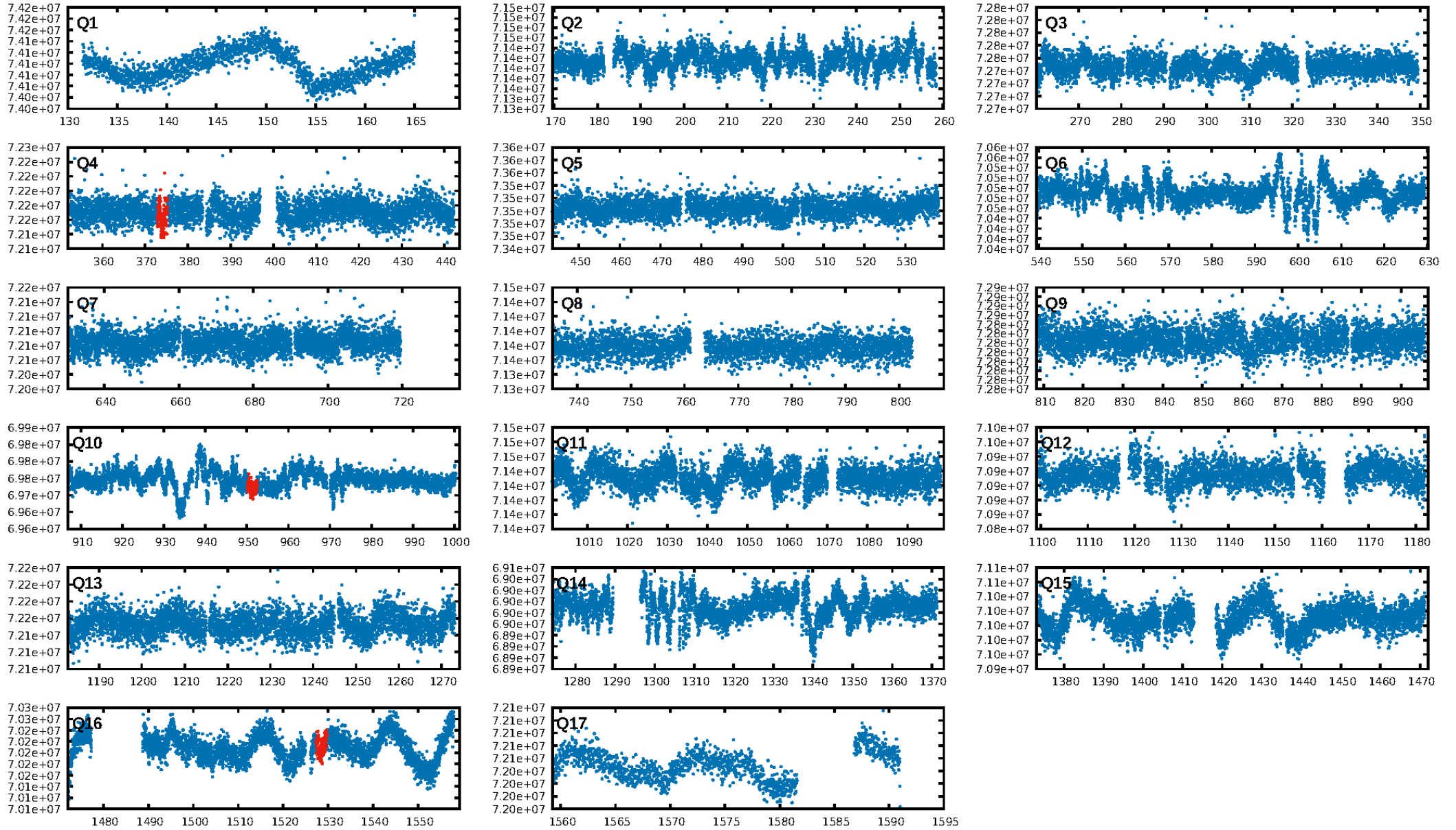
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [166.67σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.97e-08
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: -9.279
Centroid-sig: 69.7%
Centroid-so: 0.656 arcsec [0.54σ]
OotOffset-rm: 6.836 arcsec [74.95σ]
KicOffset-rm: 6.729 arcsec [73.78σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [1/1]

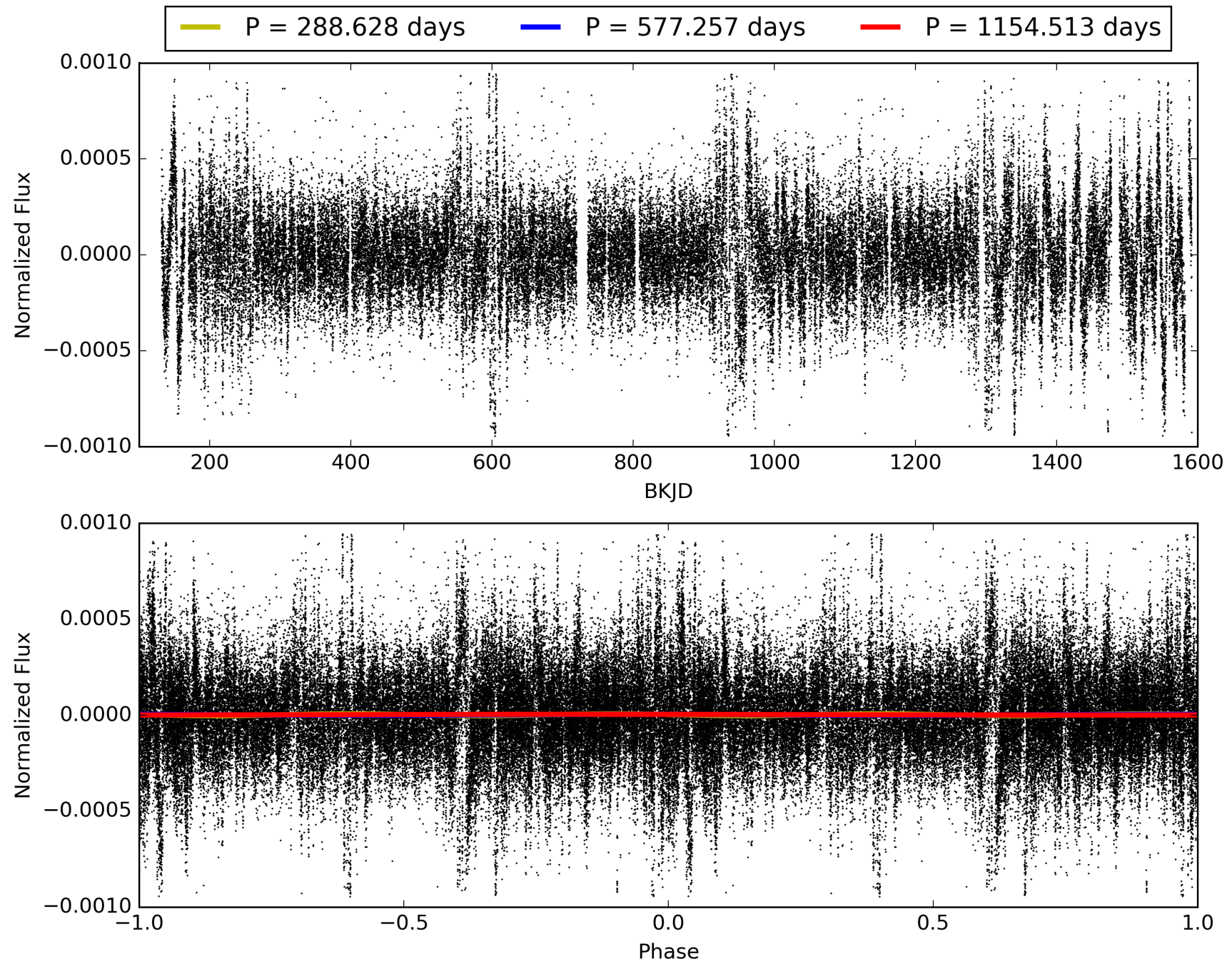
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:14:56 Z

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

TCE 008374116-02, PDC Light Curves

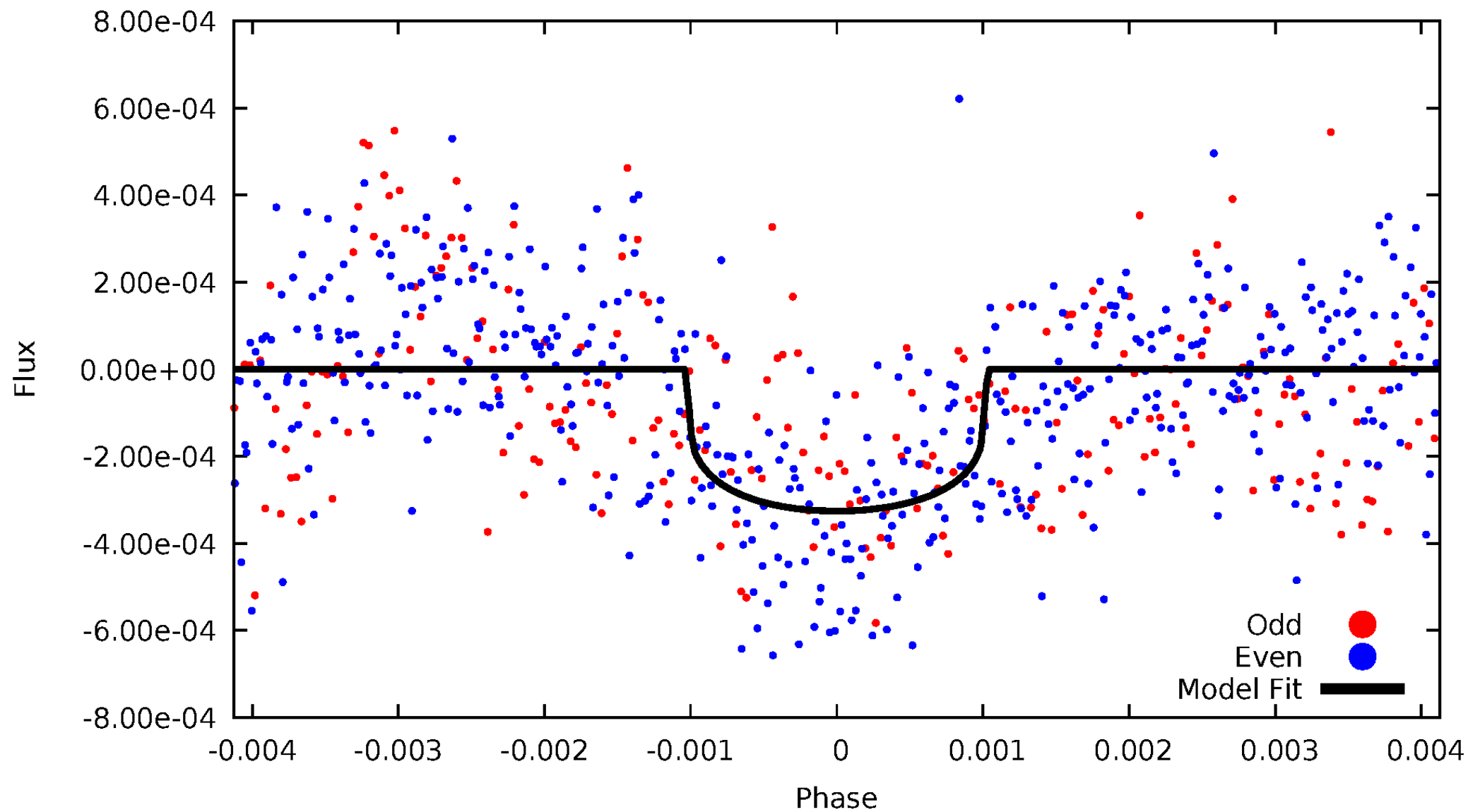


TCE 008374116-02



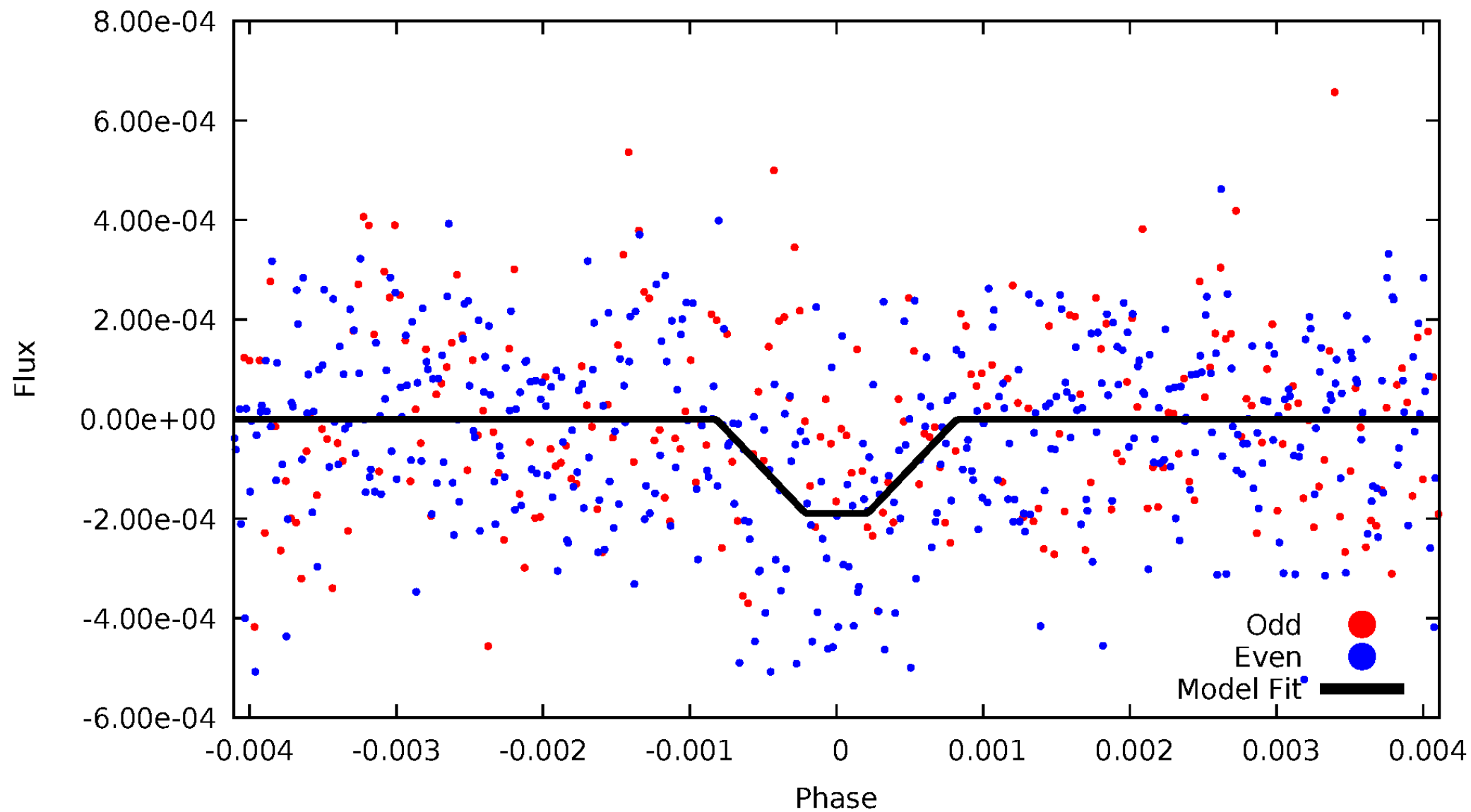
DV Odd/Even

TCE 008374116-02



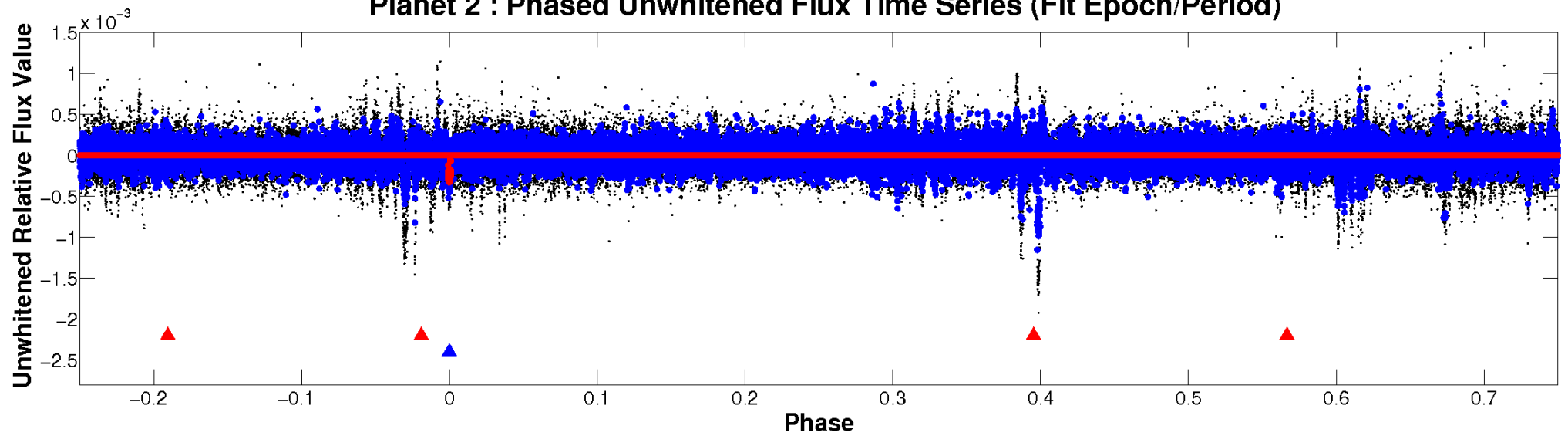
ALT Odd/Even

TCE 008374116-02

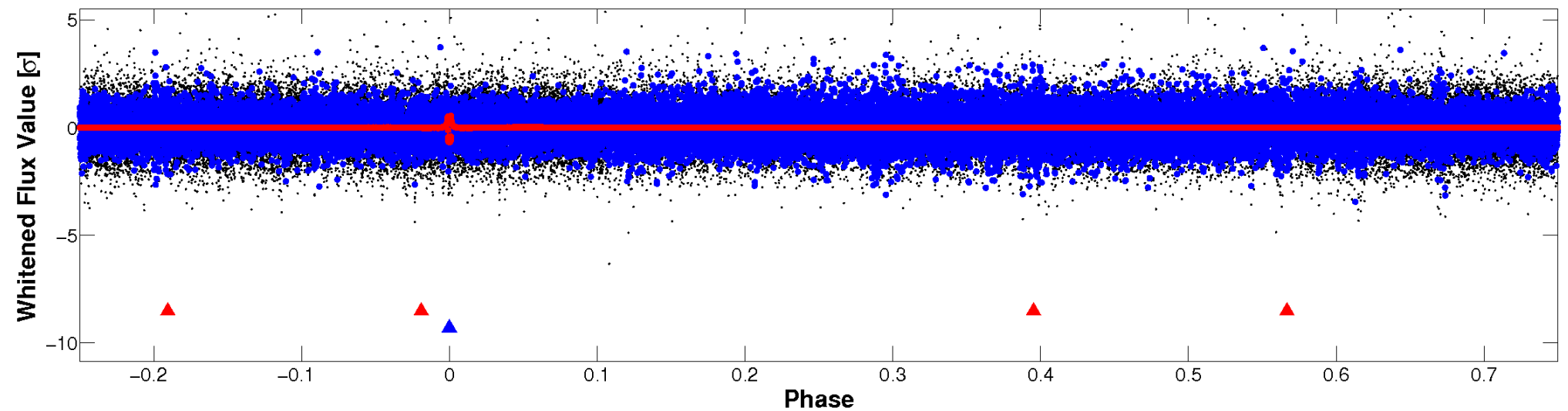


Non-Whitened Vs. Whitened Light Curve

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



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



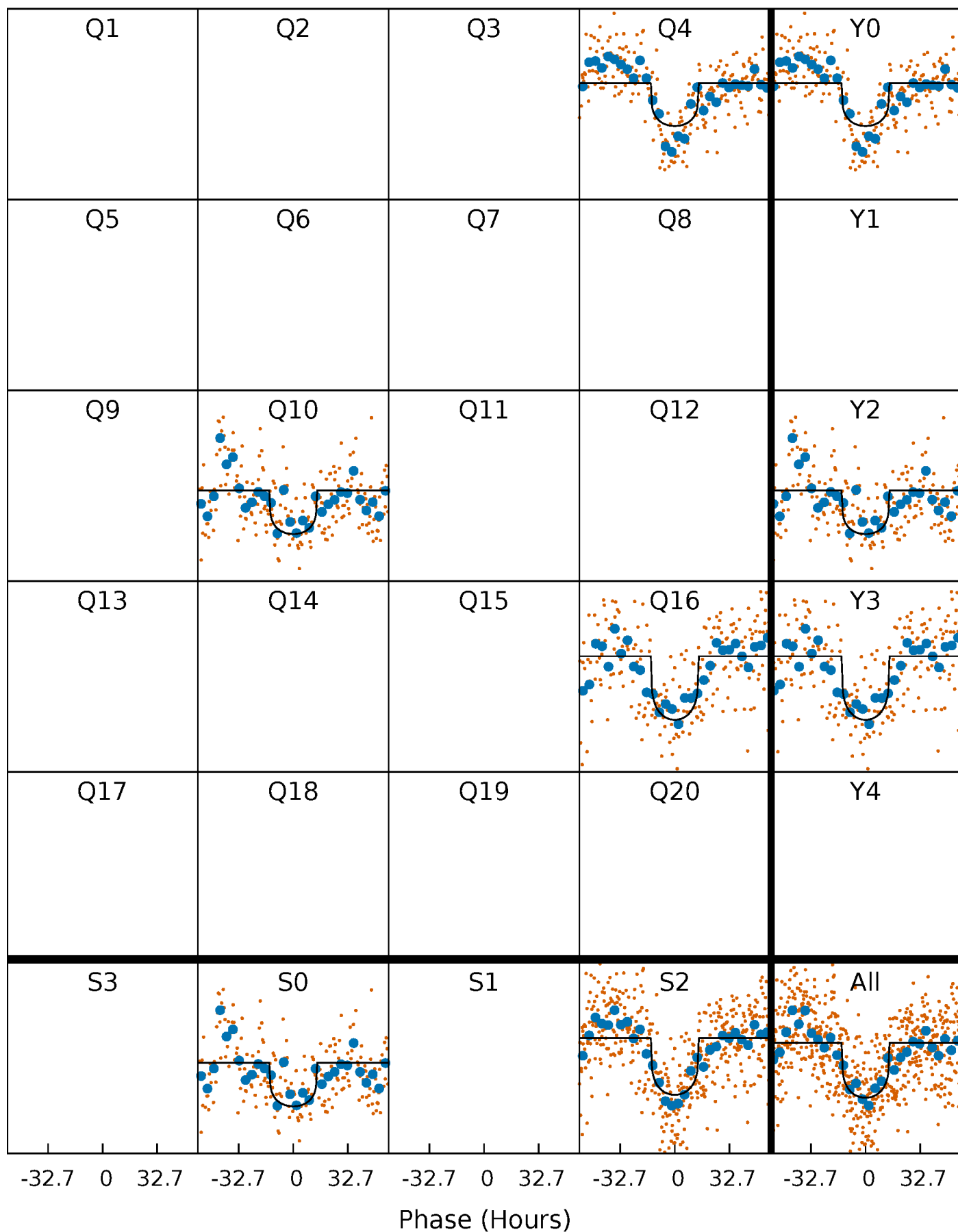
PDC Quarter-Phased Transit Curves

TCE 008374116-02 P=577.256691 Days $T_0=374.022551$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008374116-02 P=577.256691 Days $T_0=374.022551$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

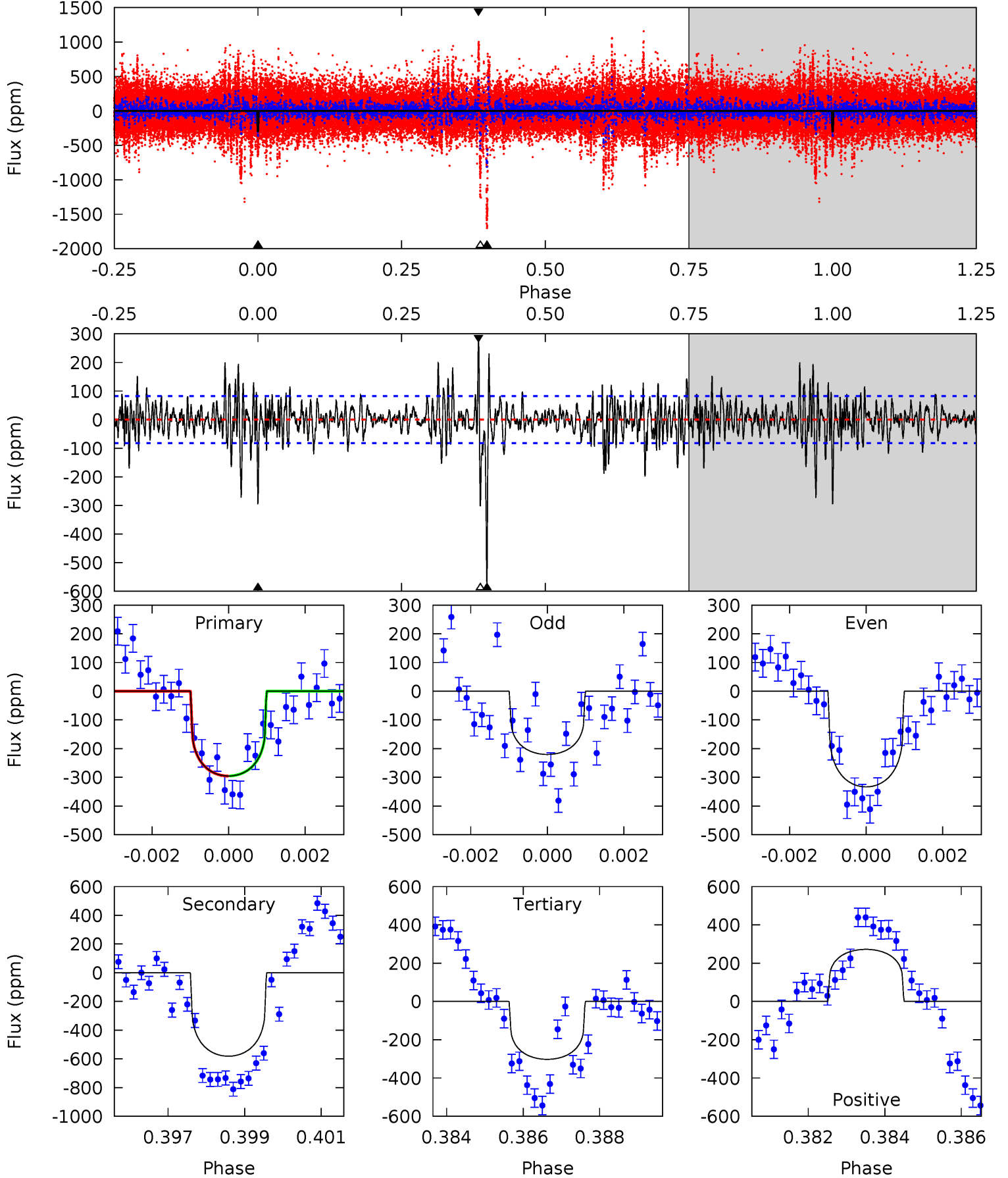
TCE 008374116-02 P=577.241259 Days $T_0=374.029521$ (BKJD)



DV Model-Shift Uniqueness Test

008374116-02, P = 577.256691 Days, E = 374.022551 Days

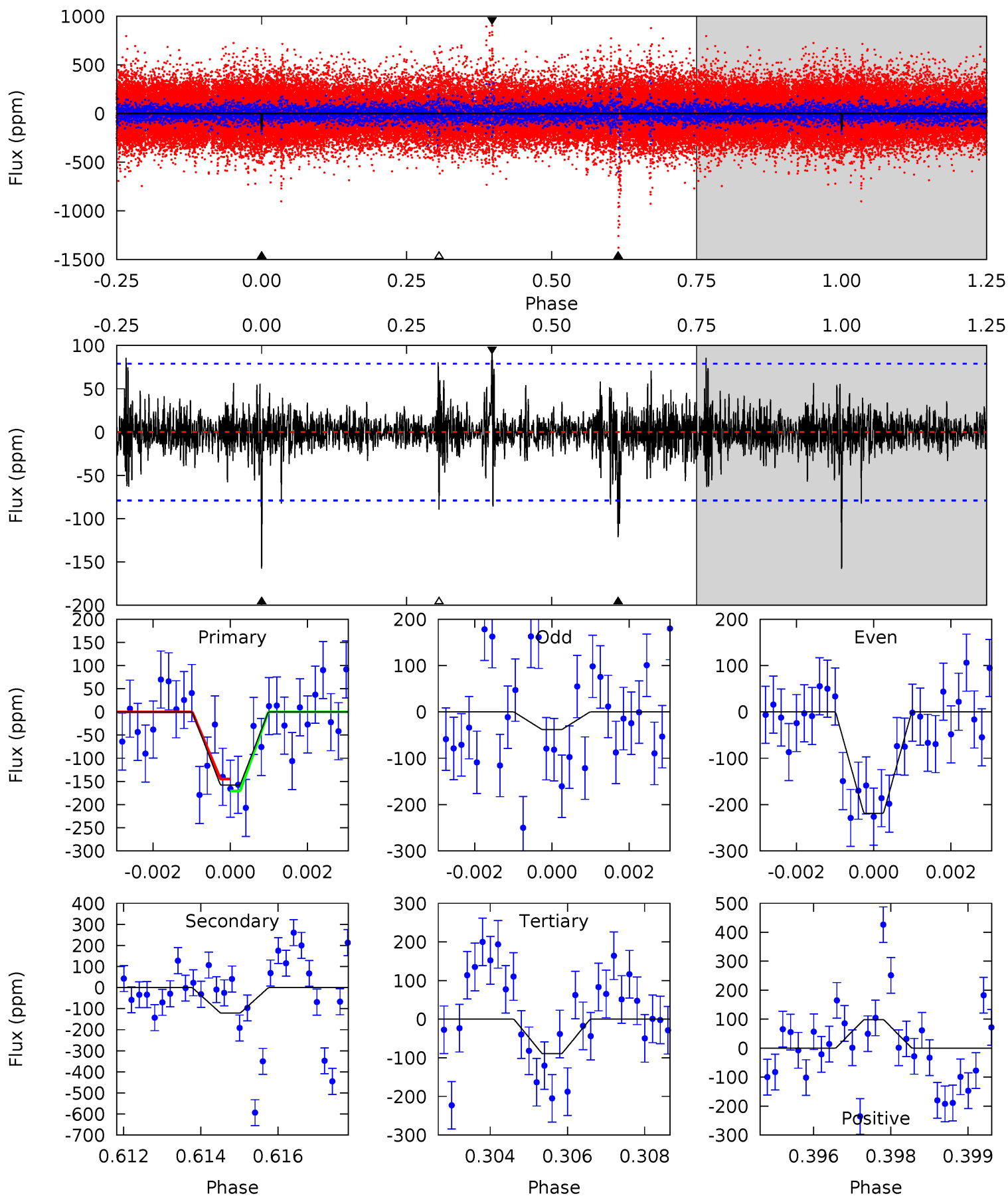
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	37.6	19.6	17.6	5.32	3.08	3.55	-0.45	1.50	18.1	20.0	3.56	1.02	0.32	0.02



Alt Model-Shift Uniqueness Test

008374116-02, P = 577.241259 Days, E = 374.029521 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	8.22	6.07	6.69	5.36	3.14	1.20	4.64	4.02	2.15	1.53	5.84	2.02	0.38	0.88



Stellar Parameters For KIC 008374116

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5806^{+156}_{-174}	$4.384^{+0.105}_{-0.195}$	$0.080^{+0.250}_{-0.300}$	$1.066^{+0.315}_{-0.158}$	$1.005^{+0.125}_{-0.112}$	$1.167^{+0.551}_{-0.597}$
	+3%/-3%	+2%/-4%	+312%/-375%	+30%/-15%	+12%/-11%	+47%/-51%
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 008374116-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-581 ± 15	$2.11^{+1.36}_{-1.20}$	319^{+27}_{-18}	6806^{+5220}_{-1401}	$132053^{+557096}_{-82528}$
Alt.	-121 ± 15	$1.80^{+1.31}_{-1.09}$	319^{+23}_{-16}	5015^{+2894}_{-950}	$38051^{+191454}_{-25214}$

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

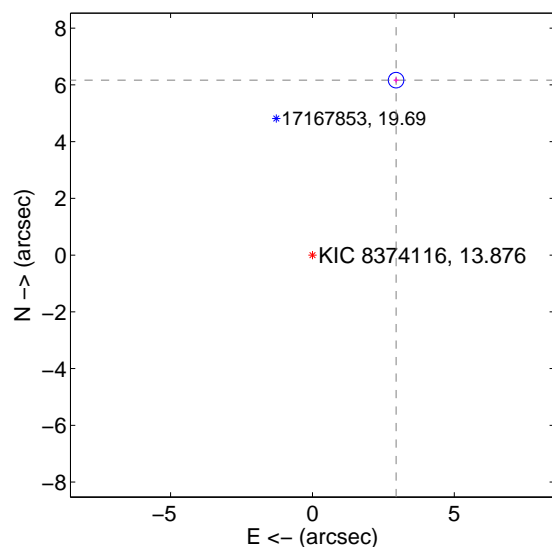
Supplemental centroid analysis for 008374116-02. Kepler magnitude: 13.88. Transit SNR 9.35

There are 0 quarters with good PRF difference image offsets

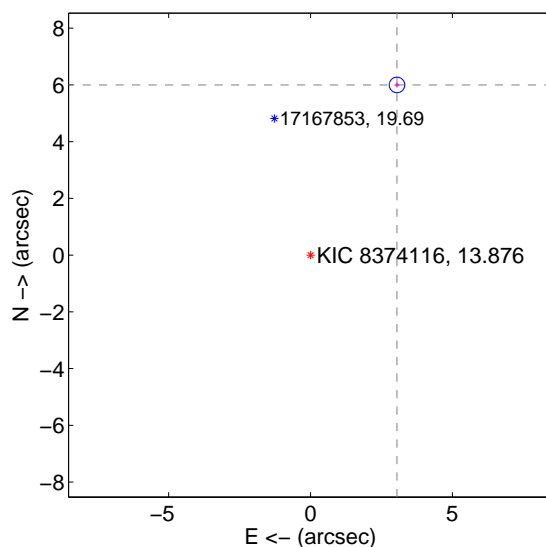
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.836 ± 0.091	74.95	-2.948 ± 0.091	6.167 ± 0.091
PRF-fit source offset from KIC position	6.729 ± 0.091	73.78	-3.048 ± 0.091	5.999 ± 0.091
photometric centroid source offset	0.66 ± 1.22	0.54	-0.45 ± 1.05	0.48 ± 1.36

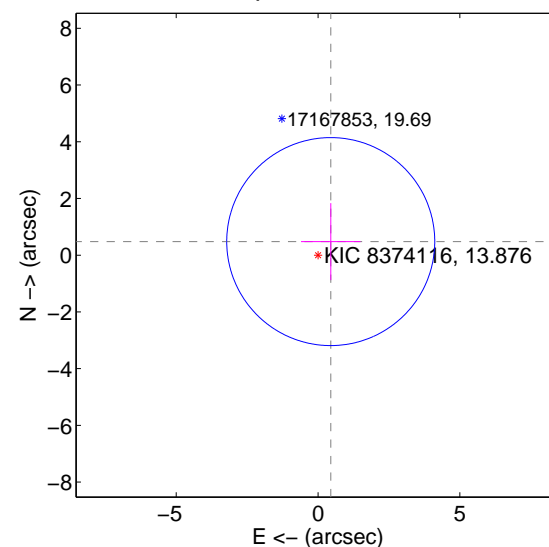
offset from difference PRF-fit to OOT PRF-fit



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.

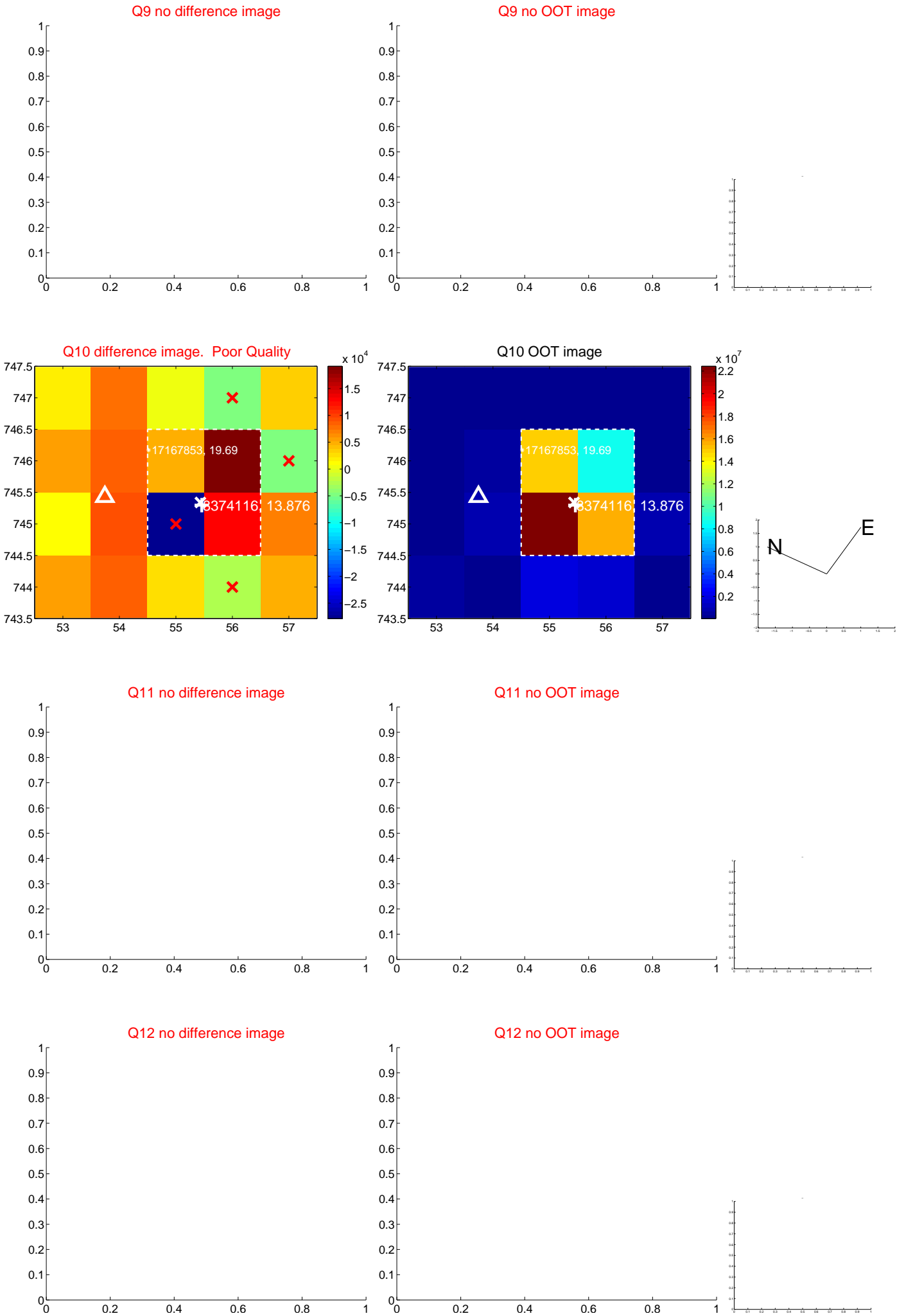
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



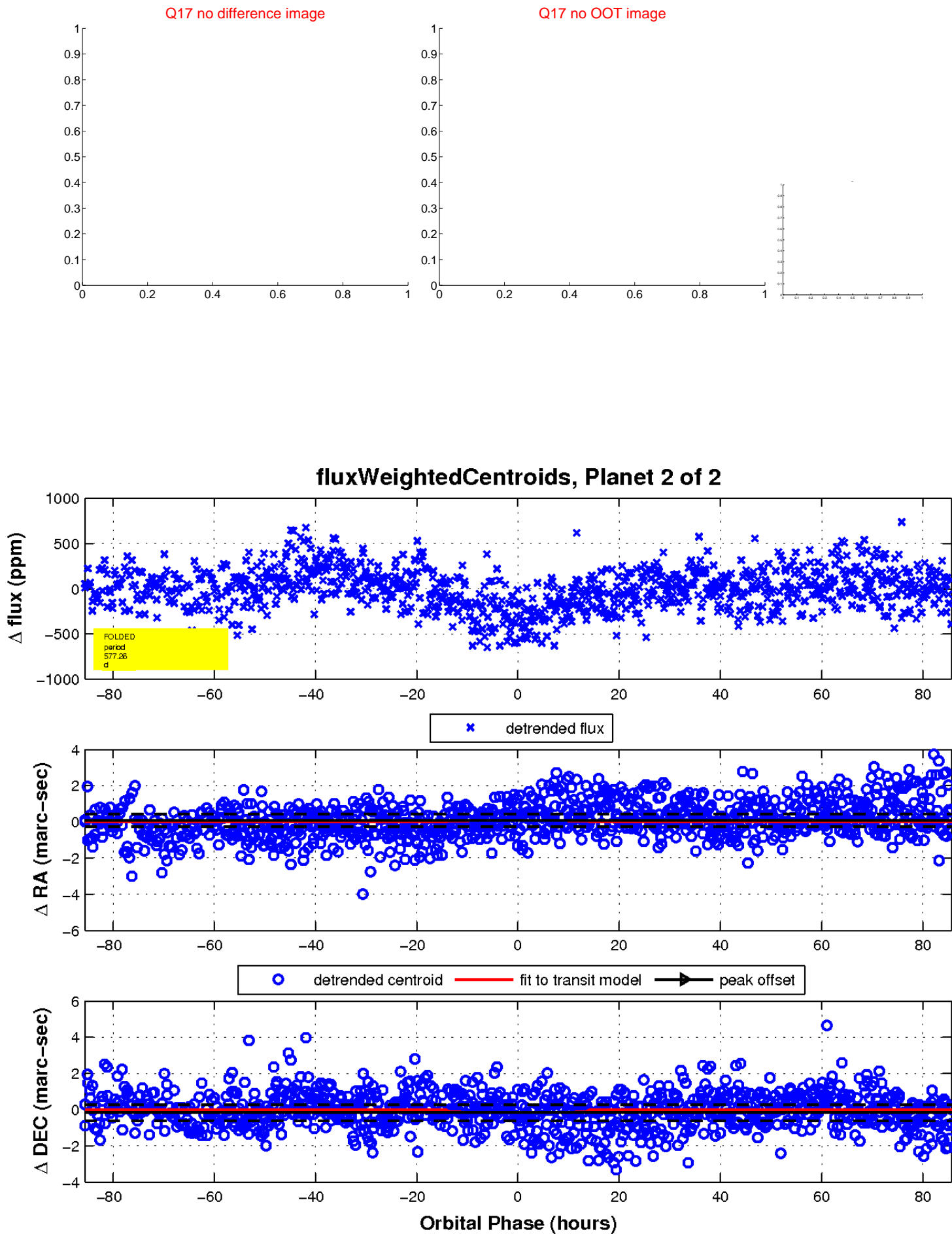
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

