

KIC 010010452

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})
010010452-01	OBS	8287.01	358.756634	150.486290	594.6	19.073	7.7	6.1	0.83	5482	2.04	0.60
010010452-02	OBS	No	366.431375	137.583714	925.8	21.723	7.1	7.4	0.83	5482	3.27	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010010452-01	OBS	FP	0.27	1	0	0	0	INCONSISTENT_TRANS—CENT_FEW_DIFFS
010010452-02	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.

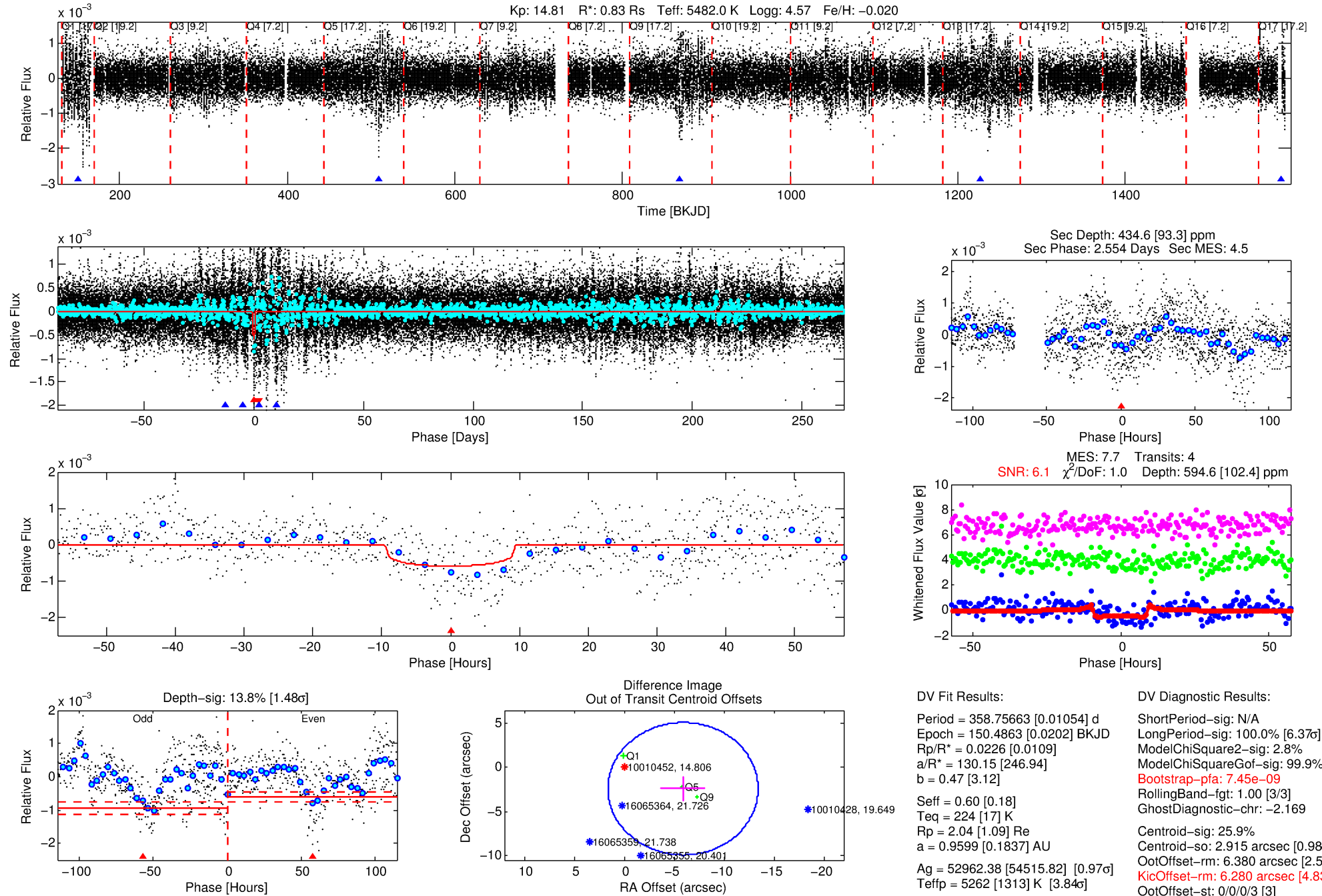
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010010452-01

No Significant Match Found

DV One-Page Summary

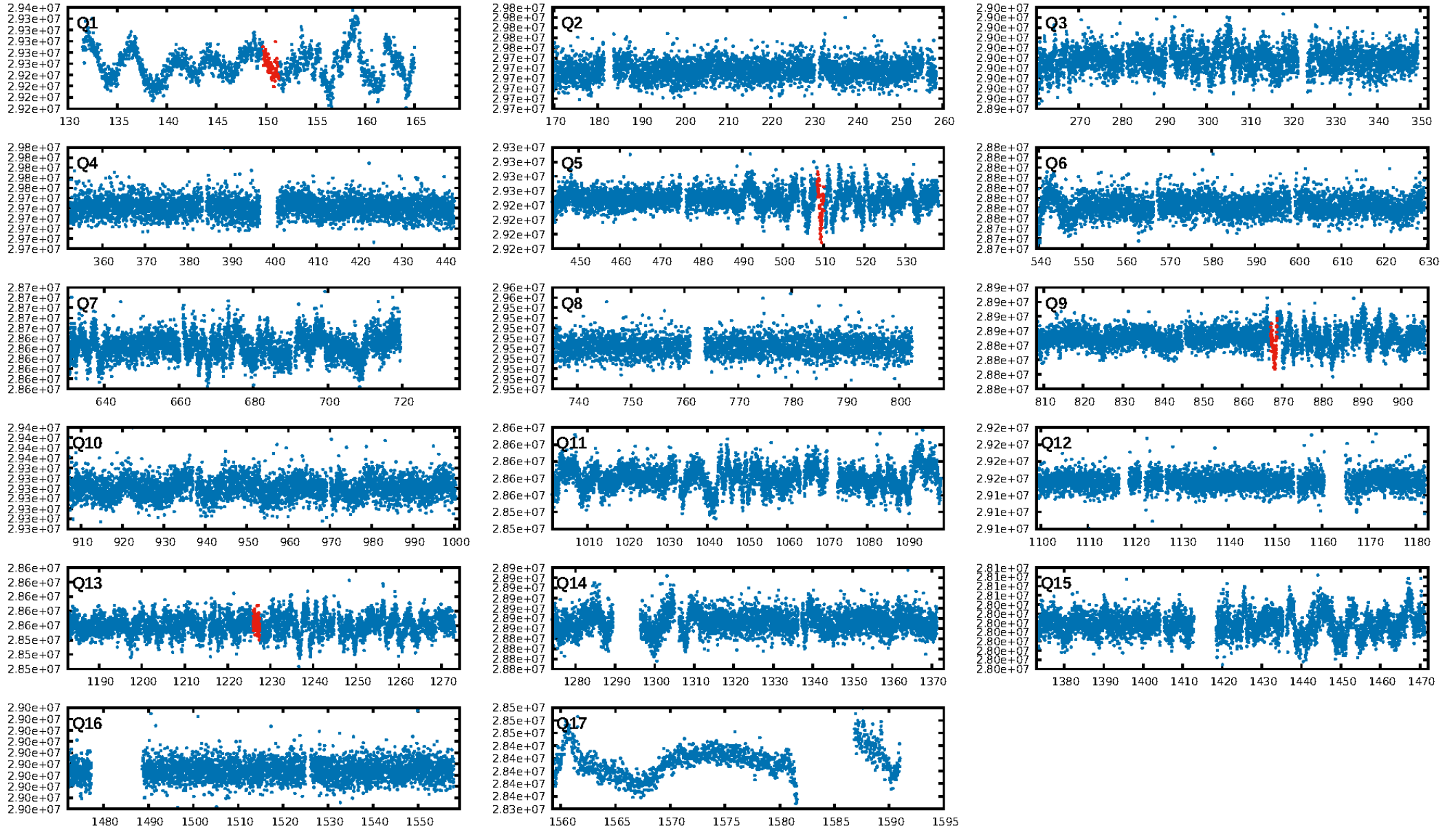
KIC: 10010452 Candidate: 1 of 2 Period: 358.757 d



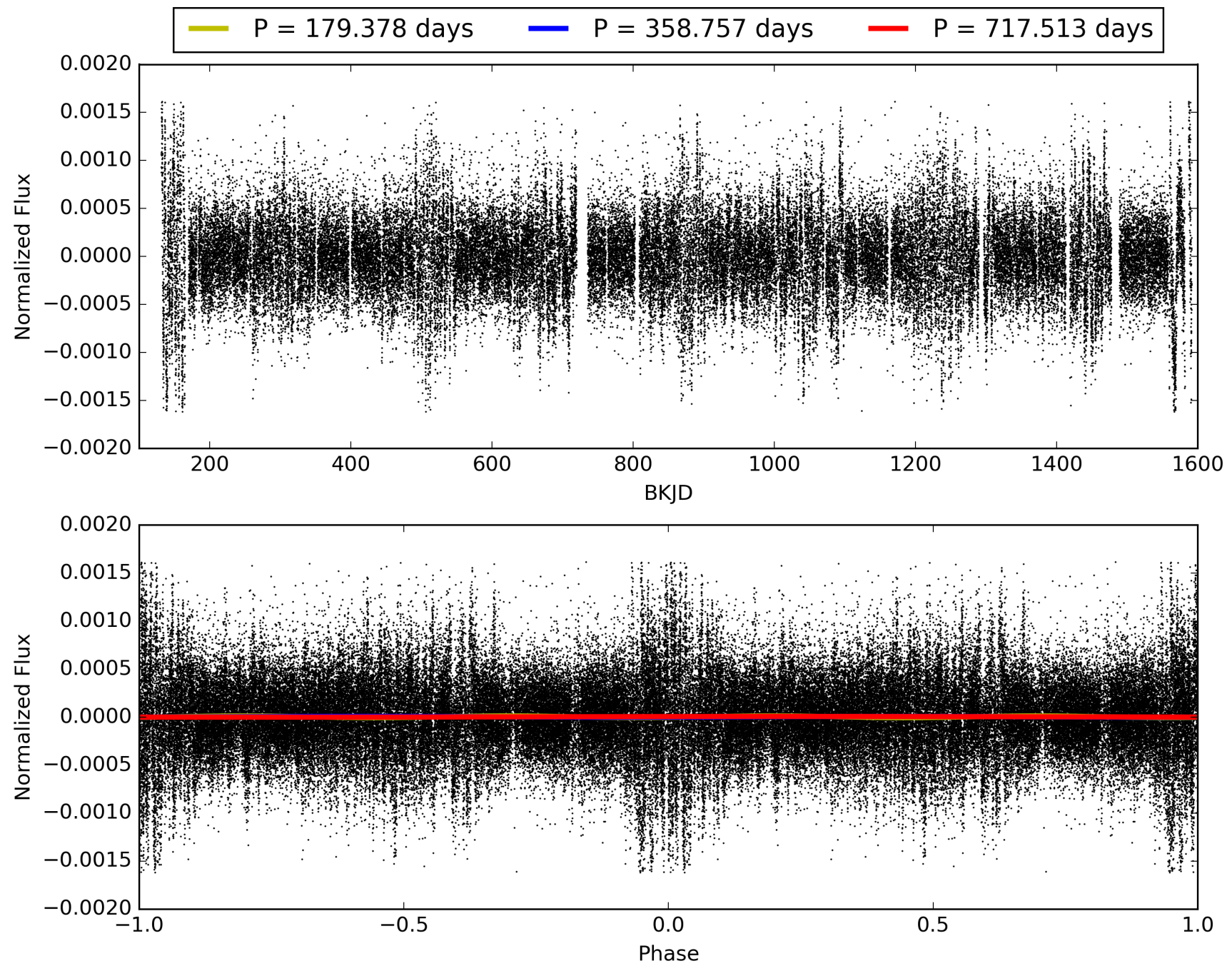
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:31:09 Z

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

TCE 010010452-01, PDC Light Curves

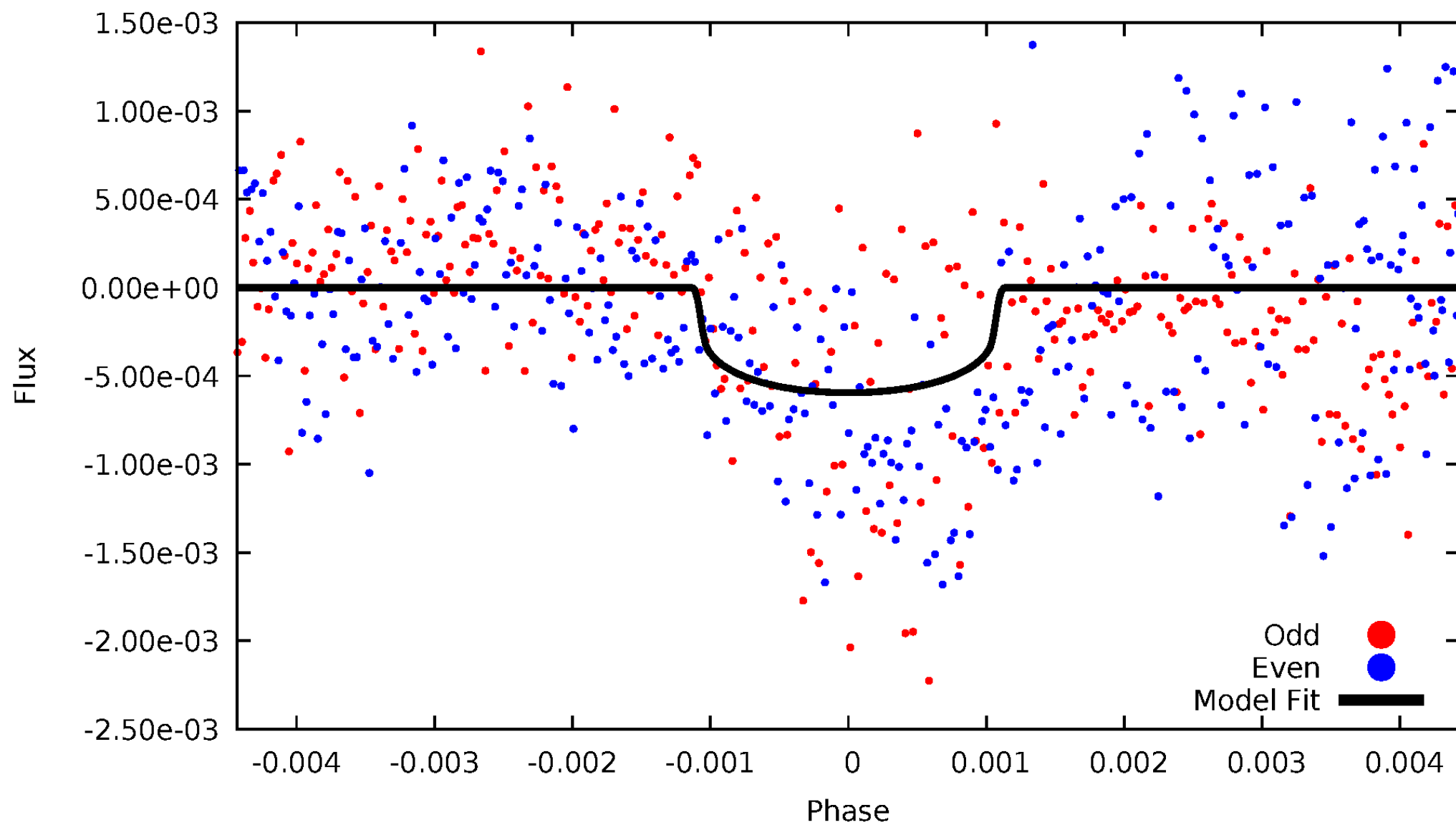


TCE 010010452-01



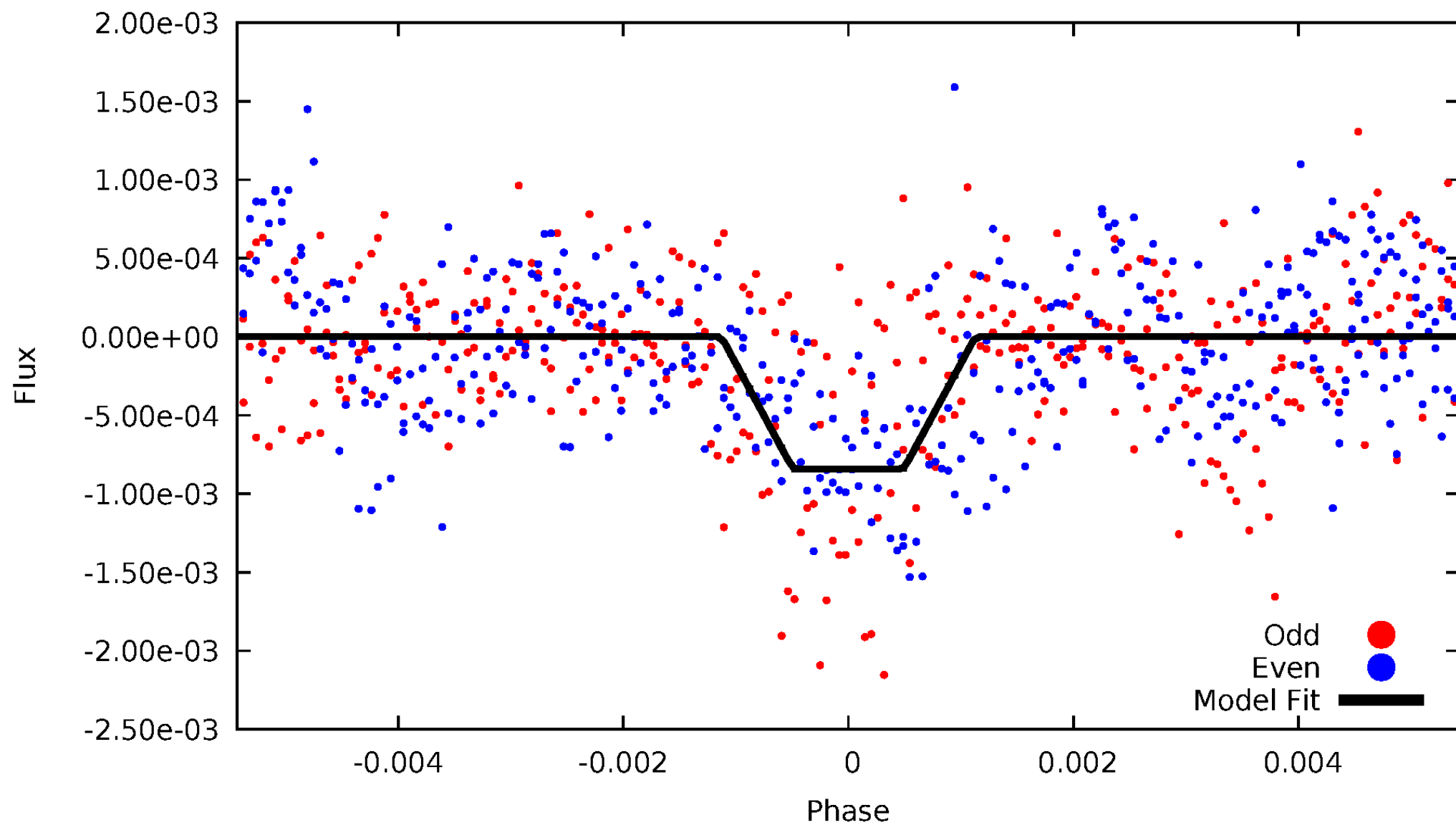
DV Odd/Even

TCE 010010452-01



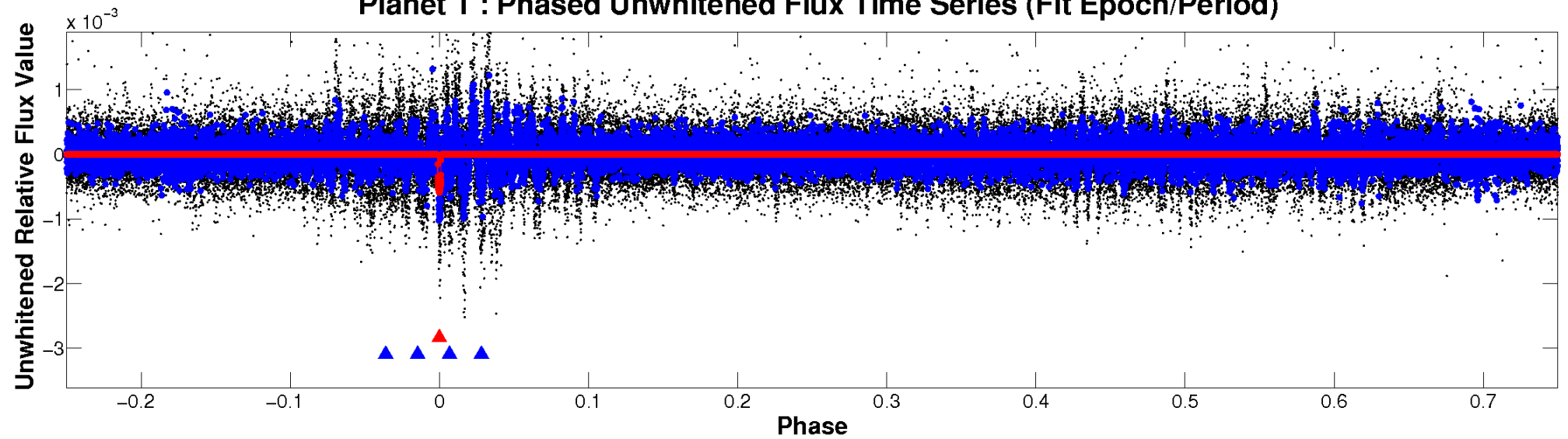
ALT Odd/Even

TCE 010010452-01

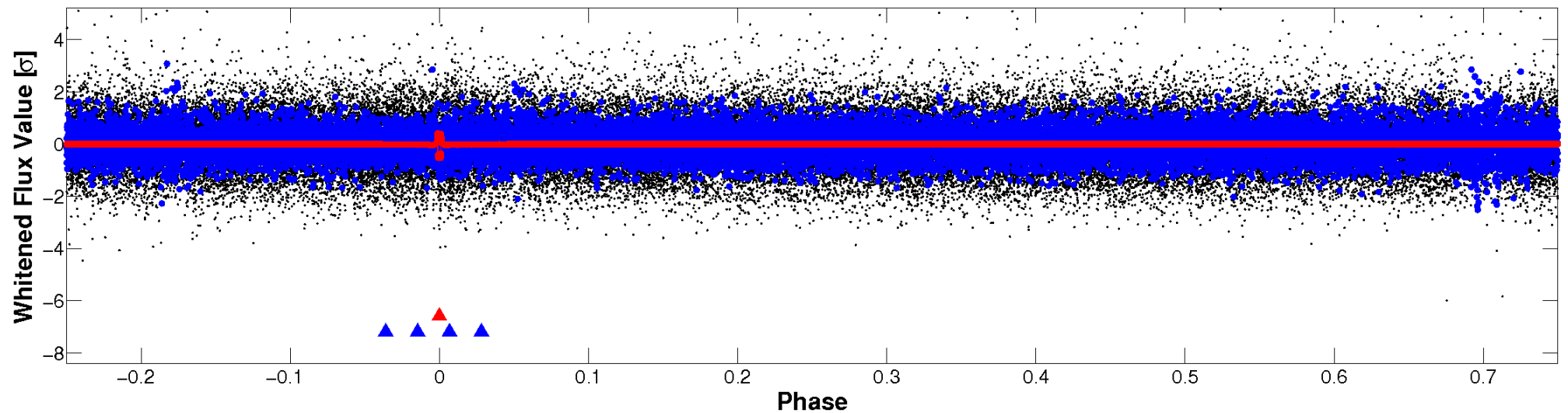


Non-Whitened Vs. Whitened Light Curve

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



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



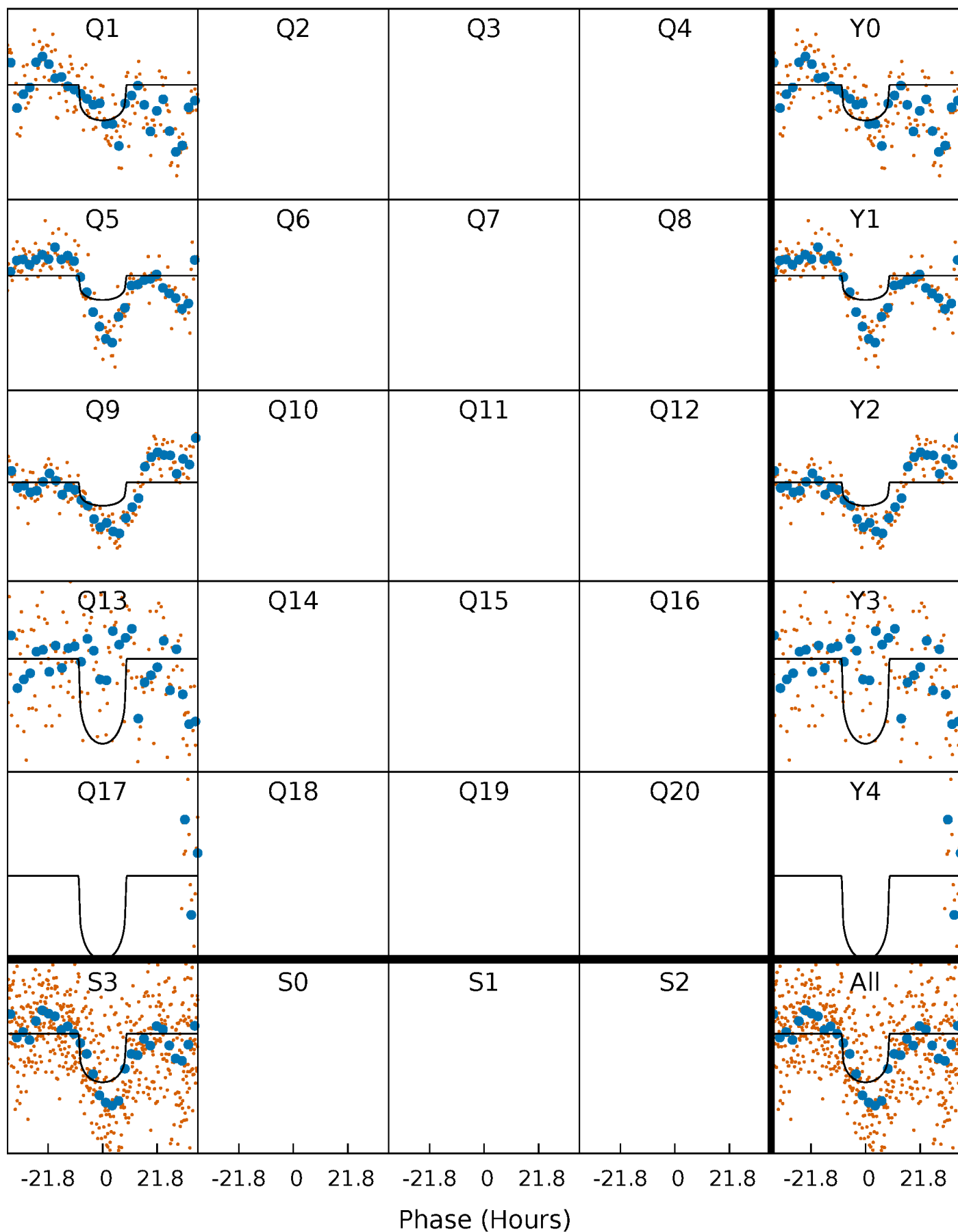
PDC Quarter-Phased Transit Curves

TCE 010010452-01 $P=358.756634$ Days $T_0=150.486290$ (BKJD)



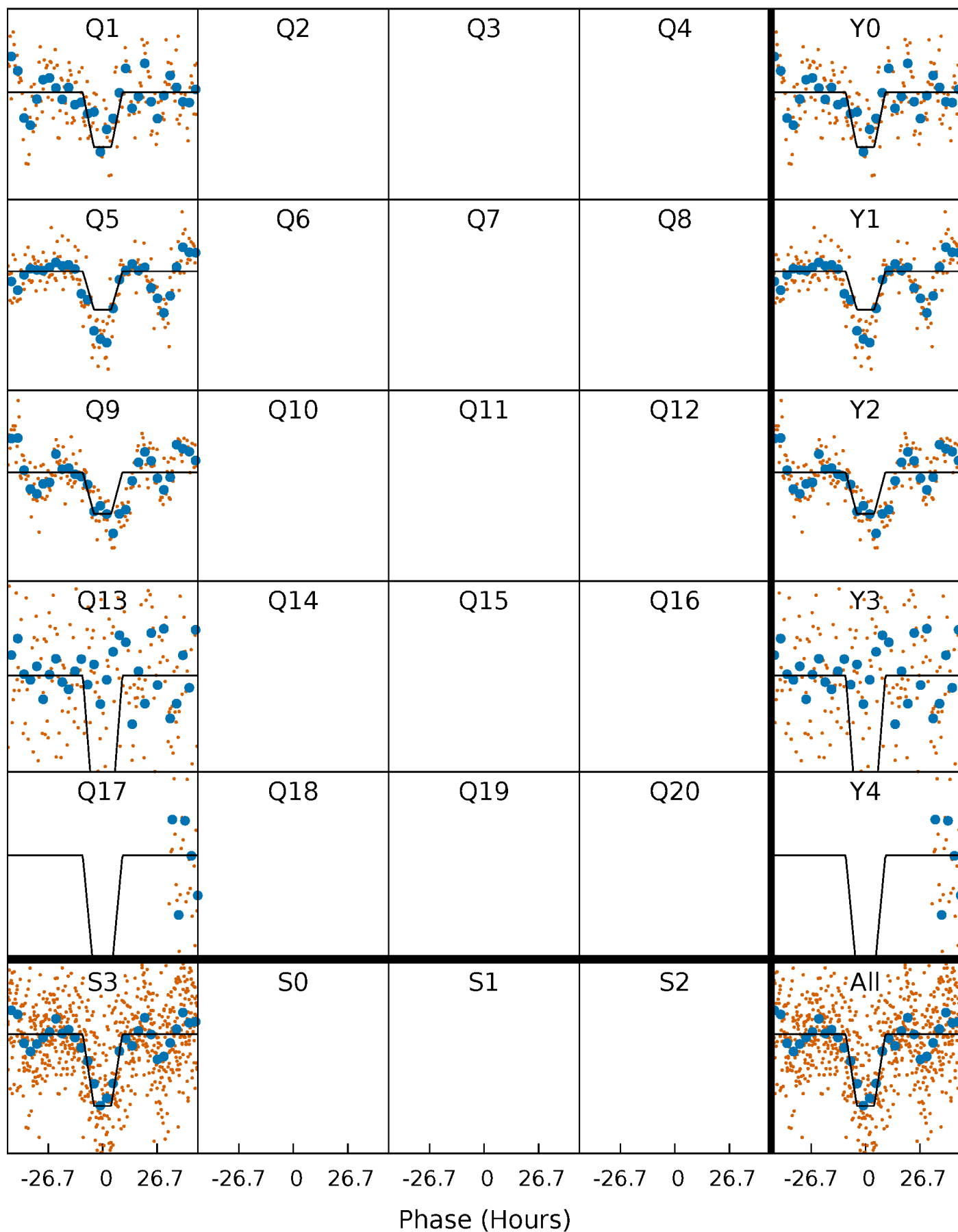
DV Quarter-Phased Transit Curves

TCE 010010452-01 P=358.756634 Days $T_0=150.486290$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

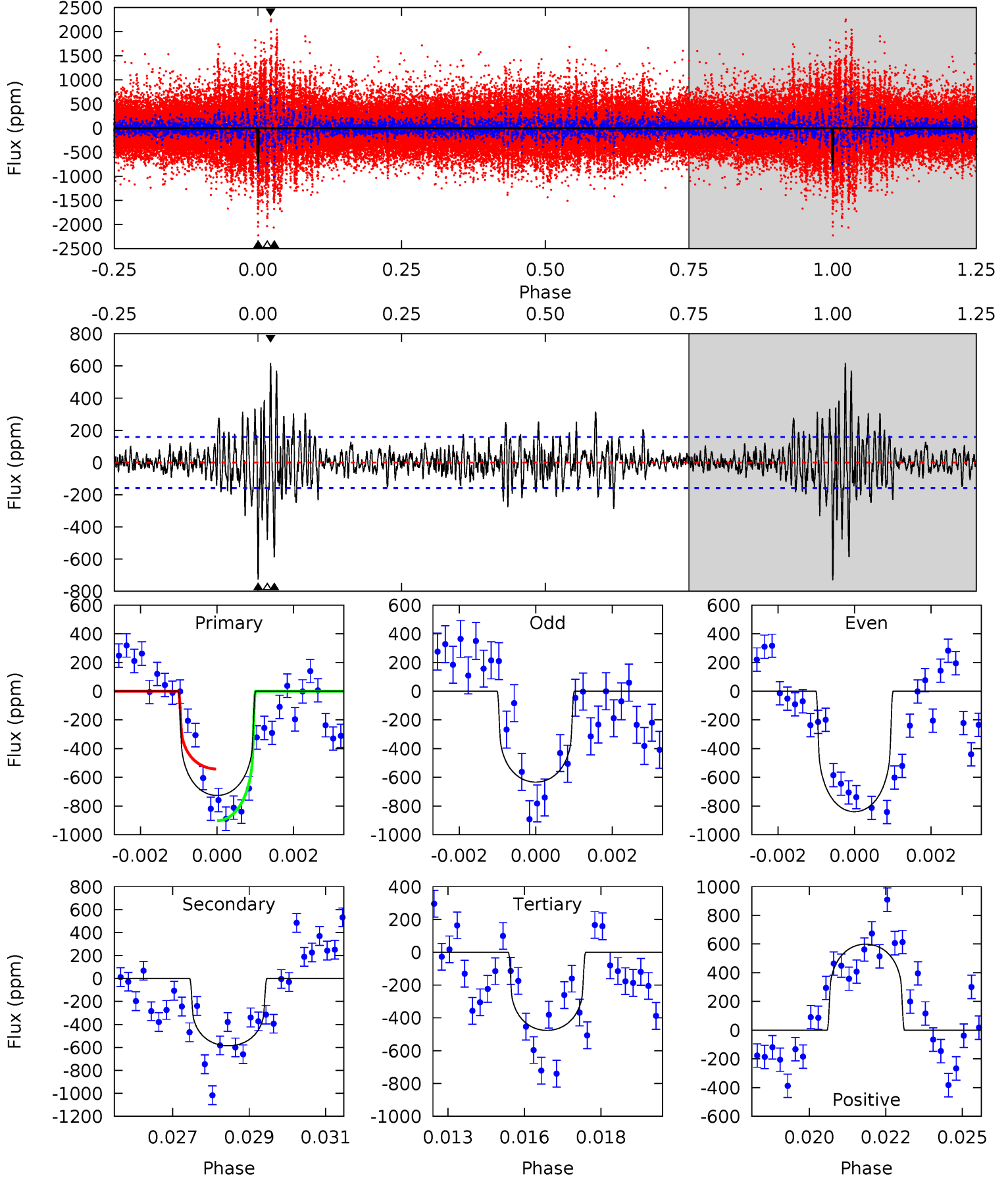
TCE 010010452-01 P=358.711146 Days $T_0=150.626952$ (BKJD)



DV Model-Shift Uniqueness Test

010010452-01, P = 358.756634 Days, E = 150.486290 Days

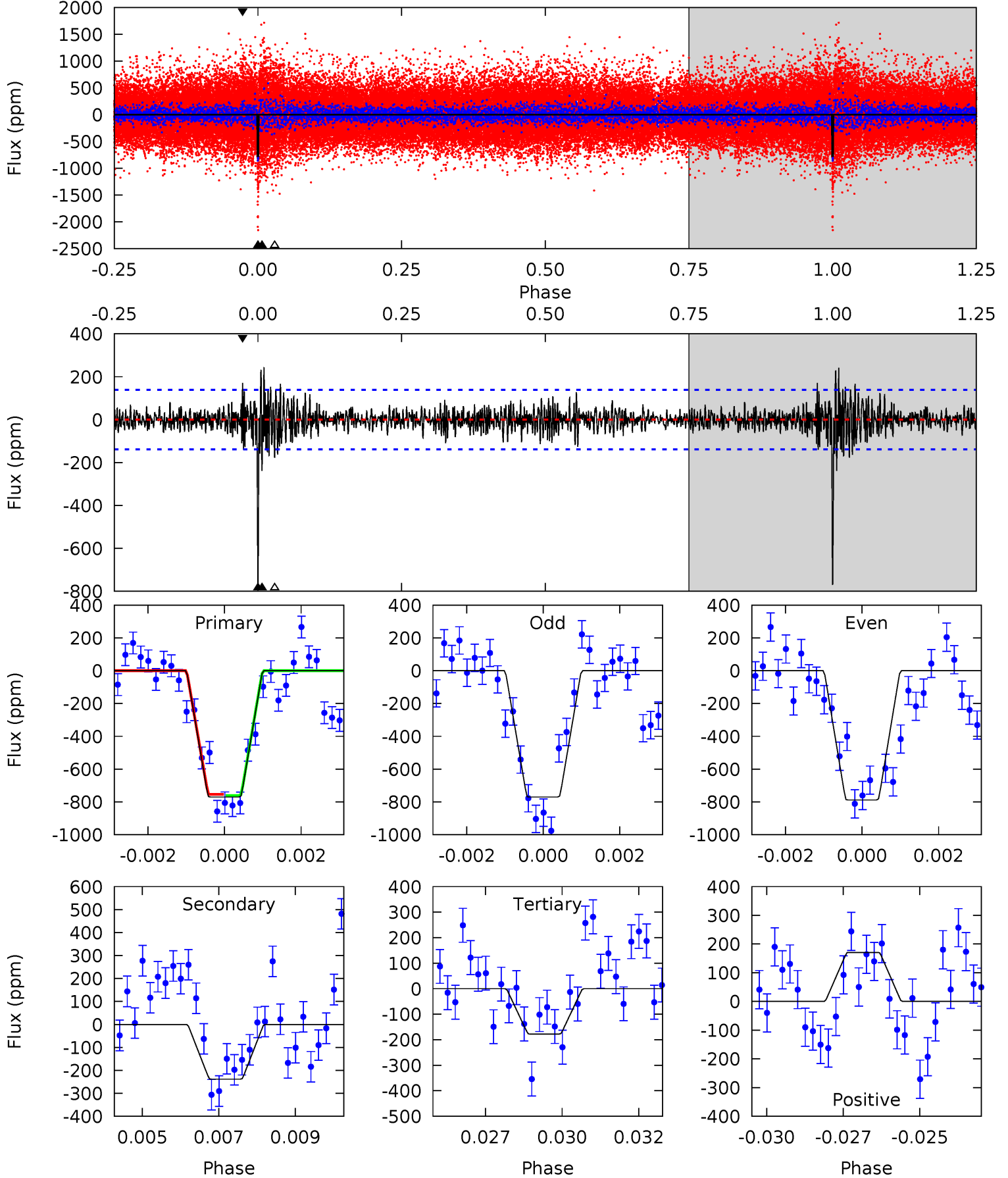
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	19.6	15.9	20.0	5.31	3.06	3.24	8.36	4.25	3.66	-0.44	3.40	0.85	0.46	5.99



Alt Model-Shift Uniqueness Test

010010452-01, P = 358.711146 Days, E = 150.626952 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.4	9.10	6.78	6.53	5.30	3.05	1.53	22.6	22.9	2.32	2.58	0.34	0.94	0.24	0.12



Stellar Parameters For KIC 010010452

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5482^{+164}_{-147}	$4.566^{+0.038}_{-0.152}$	$-0.020^{+0.250}_{-0.300}$	$0.826^{+0.188}_{-0.063}$	$0.918^{+0.082}_{-0.101}$	$2.294^{+0.442}_{-0.985}$
	+3%/-3%	+1%/-3%	+1250%/-1500%	+23%/-8%	+9%/-11%	+19%/-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 010010452-01 / KOI 8287.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-586 ± 30	$2.16^{+1.05}_{-1.12}$	320^{+16}_{-13}	5629^{+2533}_{-904}	$64039^{+199520}_{-36069}$
Alt.	-238 ± 26	$2.71^{+1.09}_{-0.99}$	319^{+19}_{-13}	4248^{+820}_{-487}	15773^{+24182}_{-7569}

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

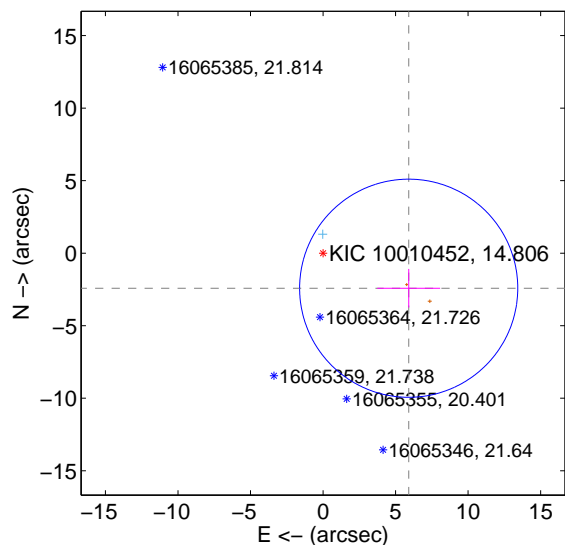
Supplemental centroid analysis for 010010452-01. Kepler magnitude: 14.81. Transit SNR 6.13

There are 1 quarters with good PRF difference image offsets

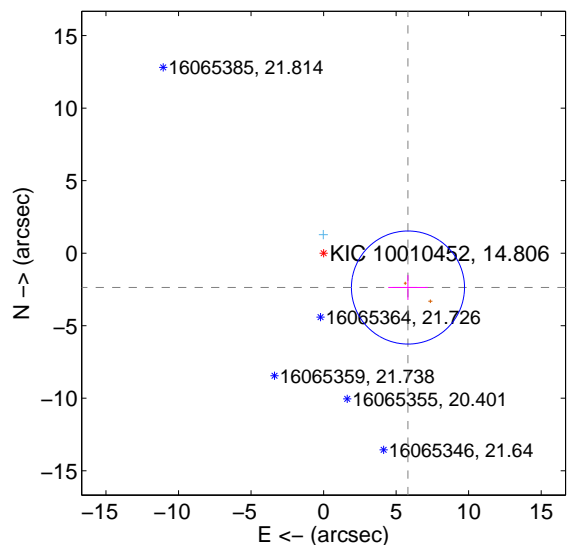
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.380 ± 2.506	2.55	-5.905 ± 2.165	-2.417 ± 1.329
PRF-fit source offset from KIC position	6.280 ± 1.299	4.83	-5.817 ± 1.359	-2.368 ± 0.855
photometric centroid source offset	2.92 ± 2.97	0.98	2.70 ± 3.12	1.09 ± 1.79

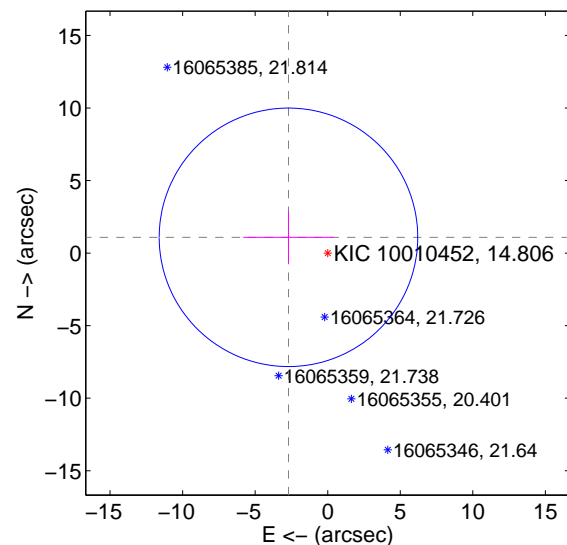
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

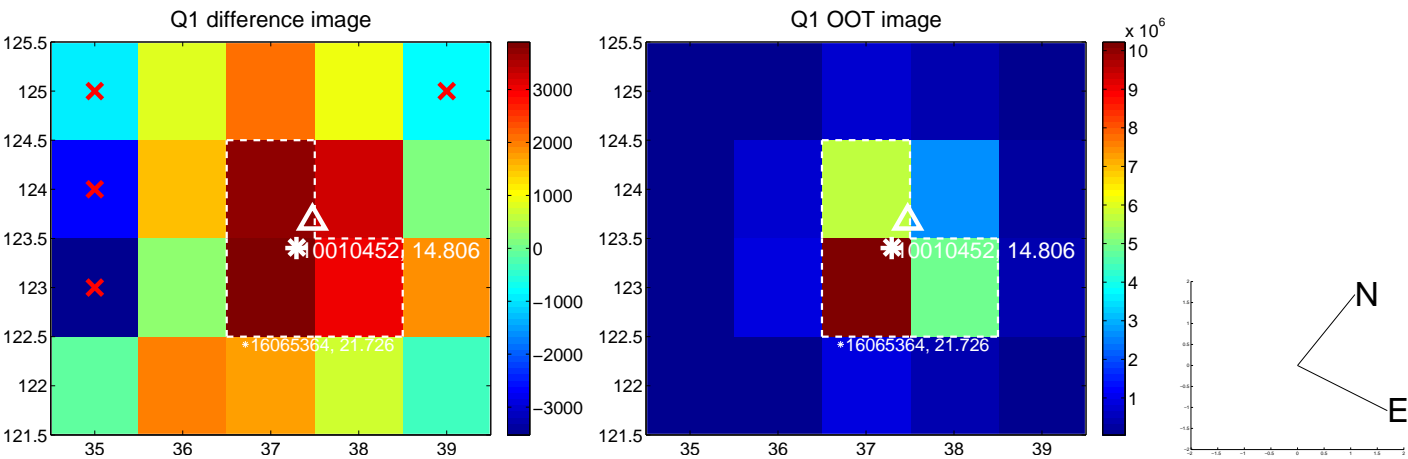


offset from photometric centroids

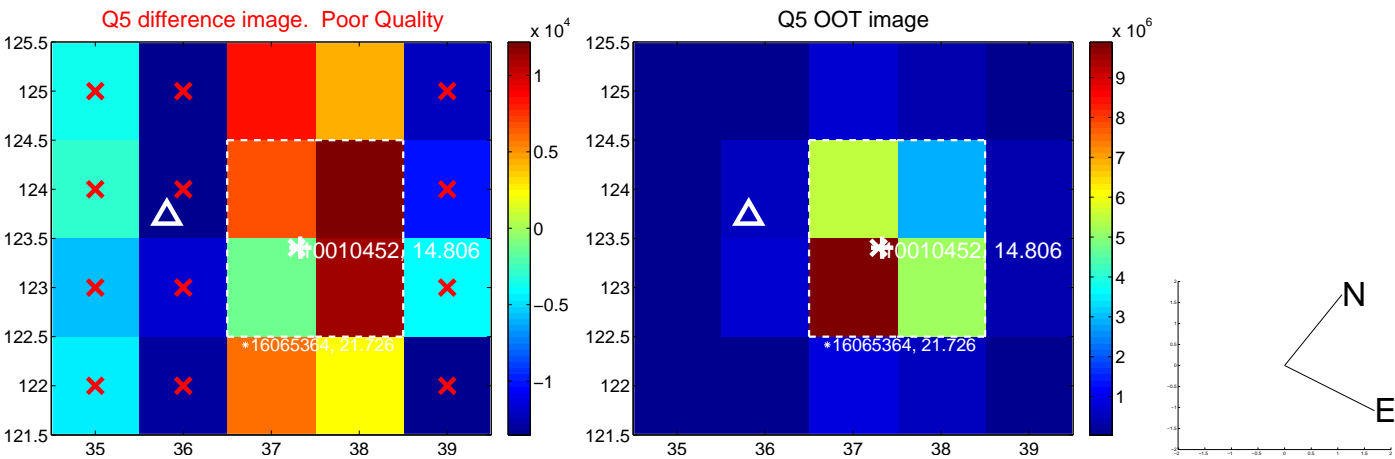


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

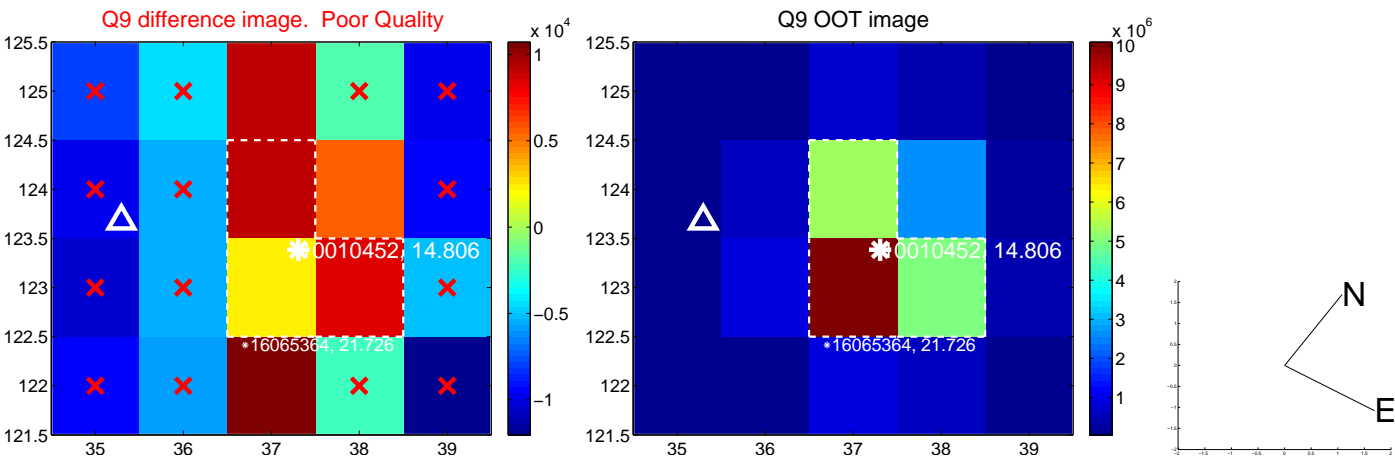
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



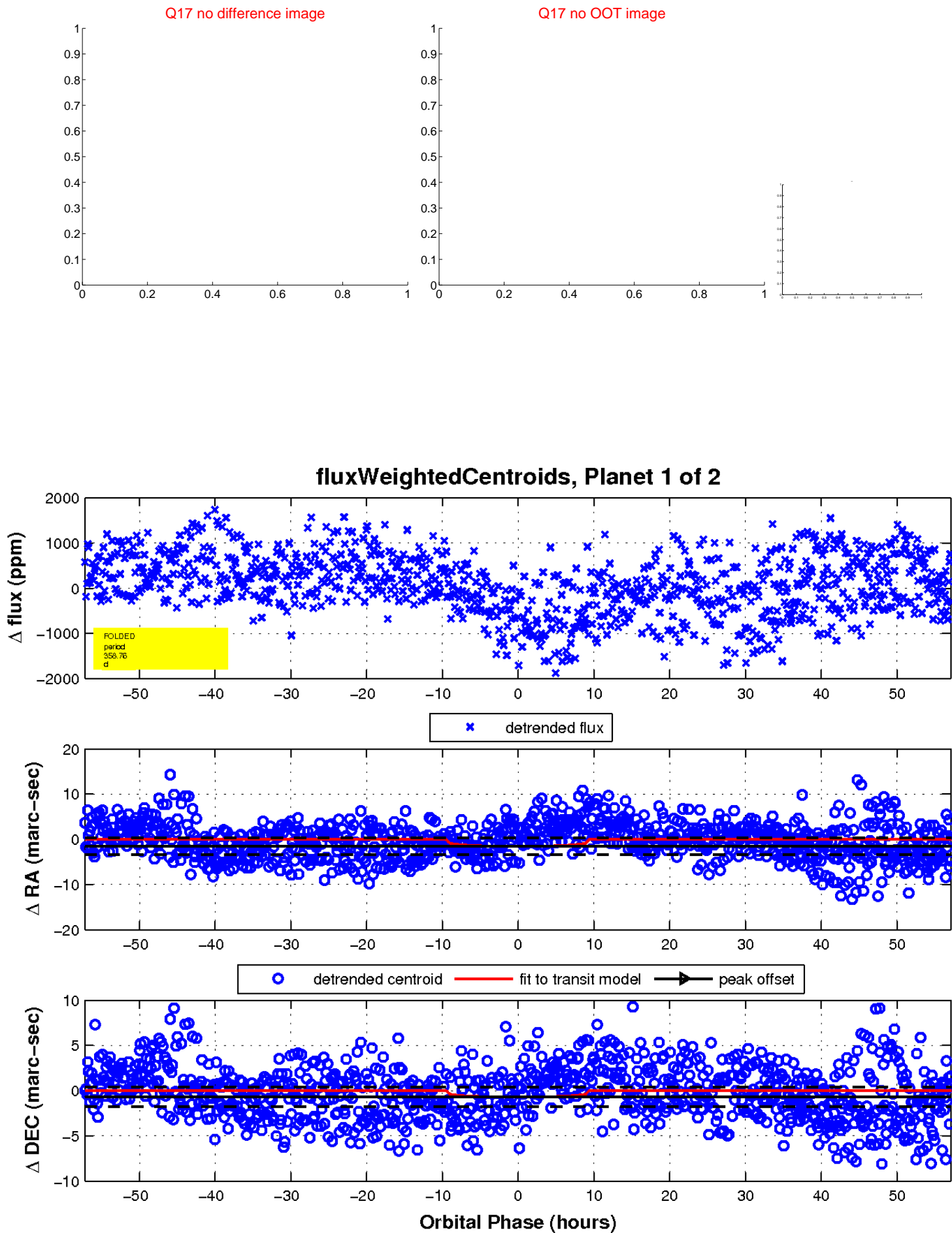
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

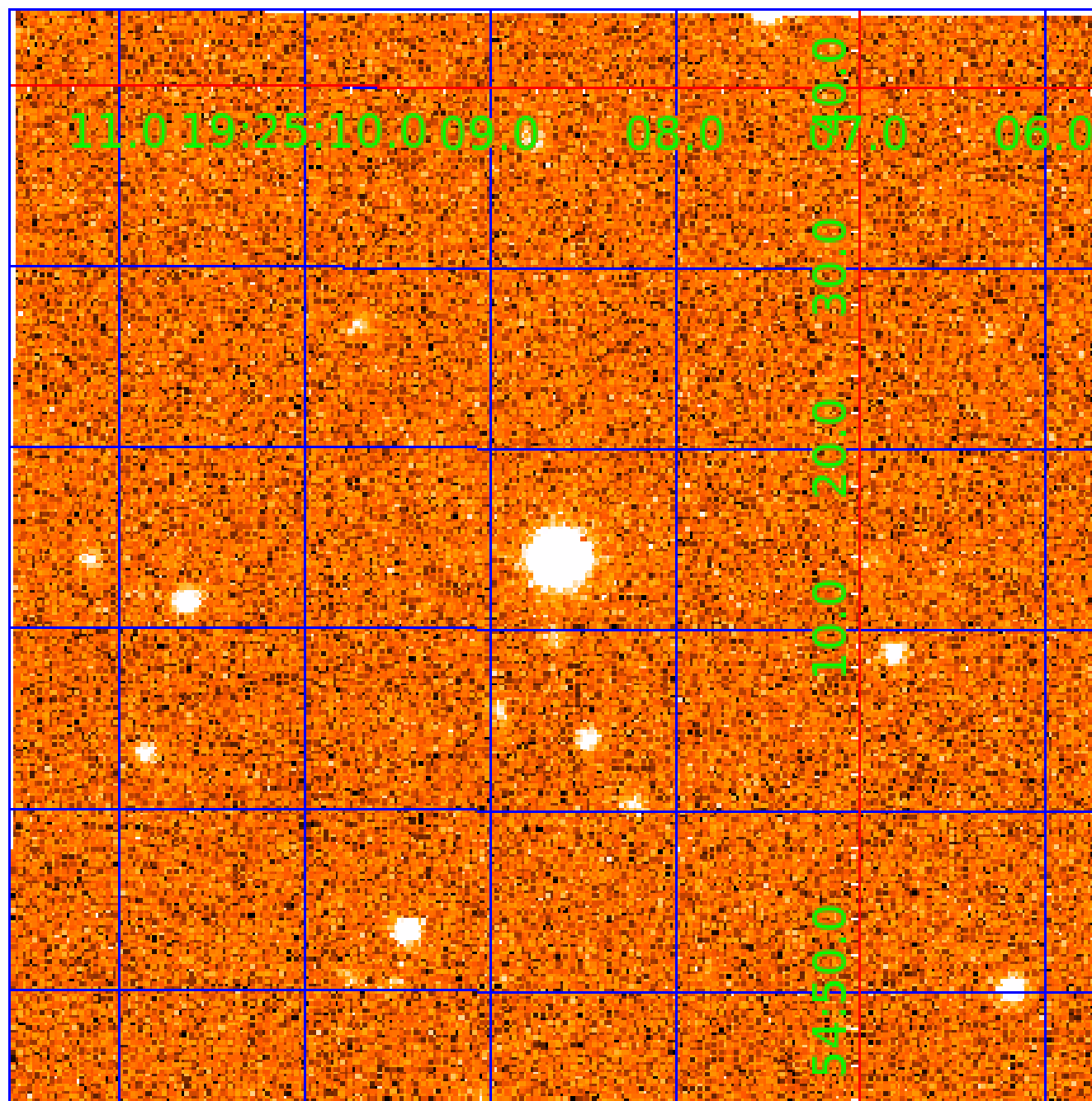


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010010452

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})
010010452-01	OBS	8287.01	358.756634	150.486290	594.6	19.073	7.7	6.1	0.83	5482	2.04	0.60
010010452-02	OBS	No	366.431375	137.583714	925.8	21.723	7.1	7.4	0.83	5482	3.27	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010010452-01	OBS	FP	0.27	1	0	0	0	INCONSISTENT_TRANS—CENT_FEW_DIFFS
010010452-02	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.

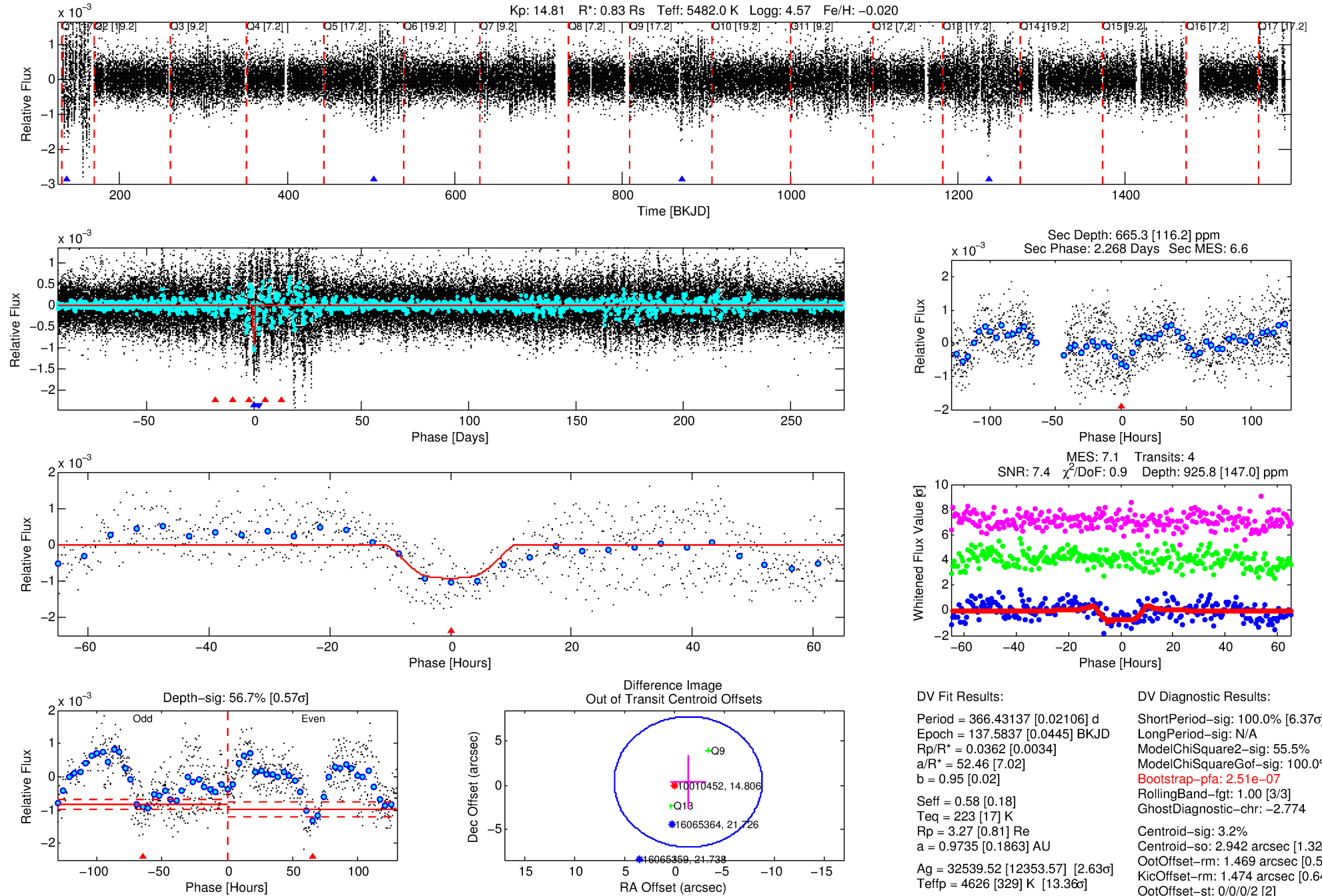
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010010452-02

No Significant Match Found

DV One-Page Summary

KIC: 10010452 Candidate: 2 of 2 Period: 366.431 d



DV Fit Results:

Period = 366.43137 [0.02106] d
Epoch = 137.5837 [0.0445] BKJD
Rp/R* = 0.0362 [0.0034]
a/R* = 52.46 [7.02]
b = 0.95 [0.02]
Seff = 0.58 [0.18]
Teq = 223 [17] K
Rp = 3.27 [0.81] Re
a = 0.9735 [0.1863] AU
Ag = 32539.52 [12353.57] [2.63 σ]
Teffp = 4626 [329] K [13.36 σ]

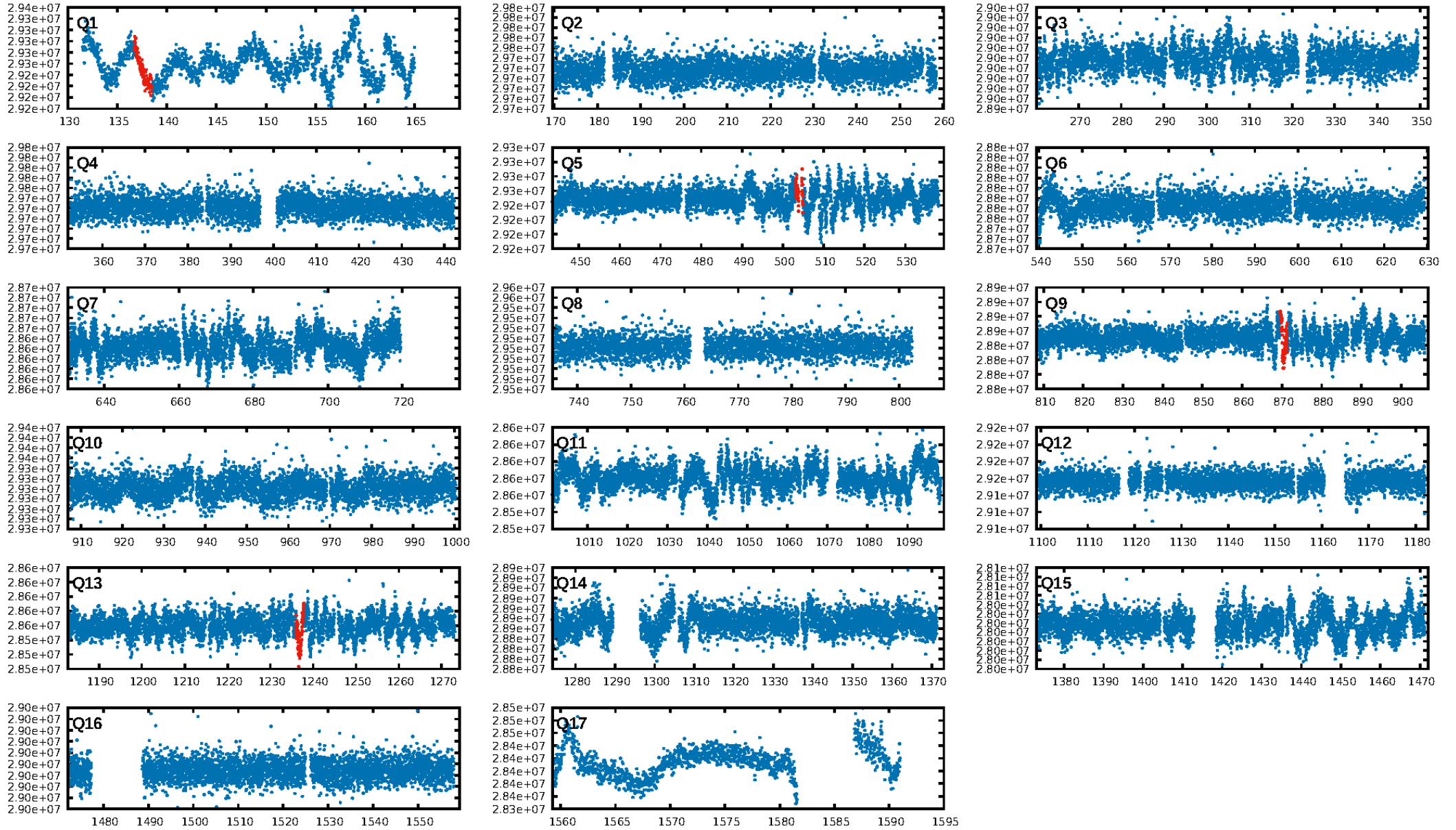
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.37 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 55.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.51e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.774
Centroid-sig: 3.2%
Centroid-so: 2.942 arcsec [1.32 σ]
OotOffset-rm: 1.469 arcsec [0.59 σ]
KicOffset-rm: 1.474 arcsec [0.64 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

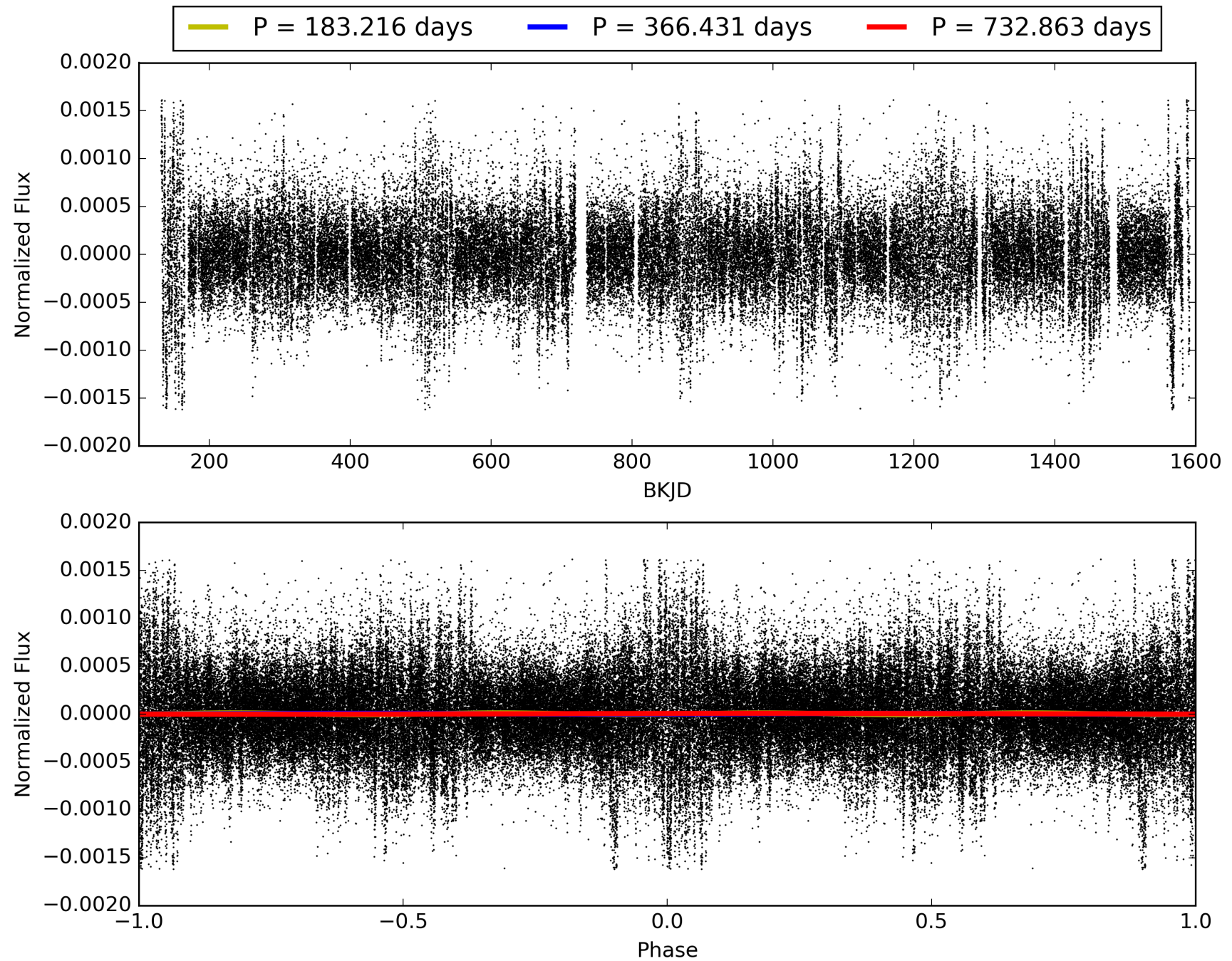
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:31:18 Z

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

TCE 010010452-02, PDC Light Curves

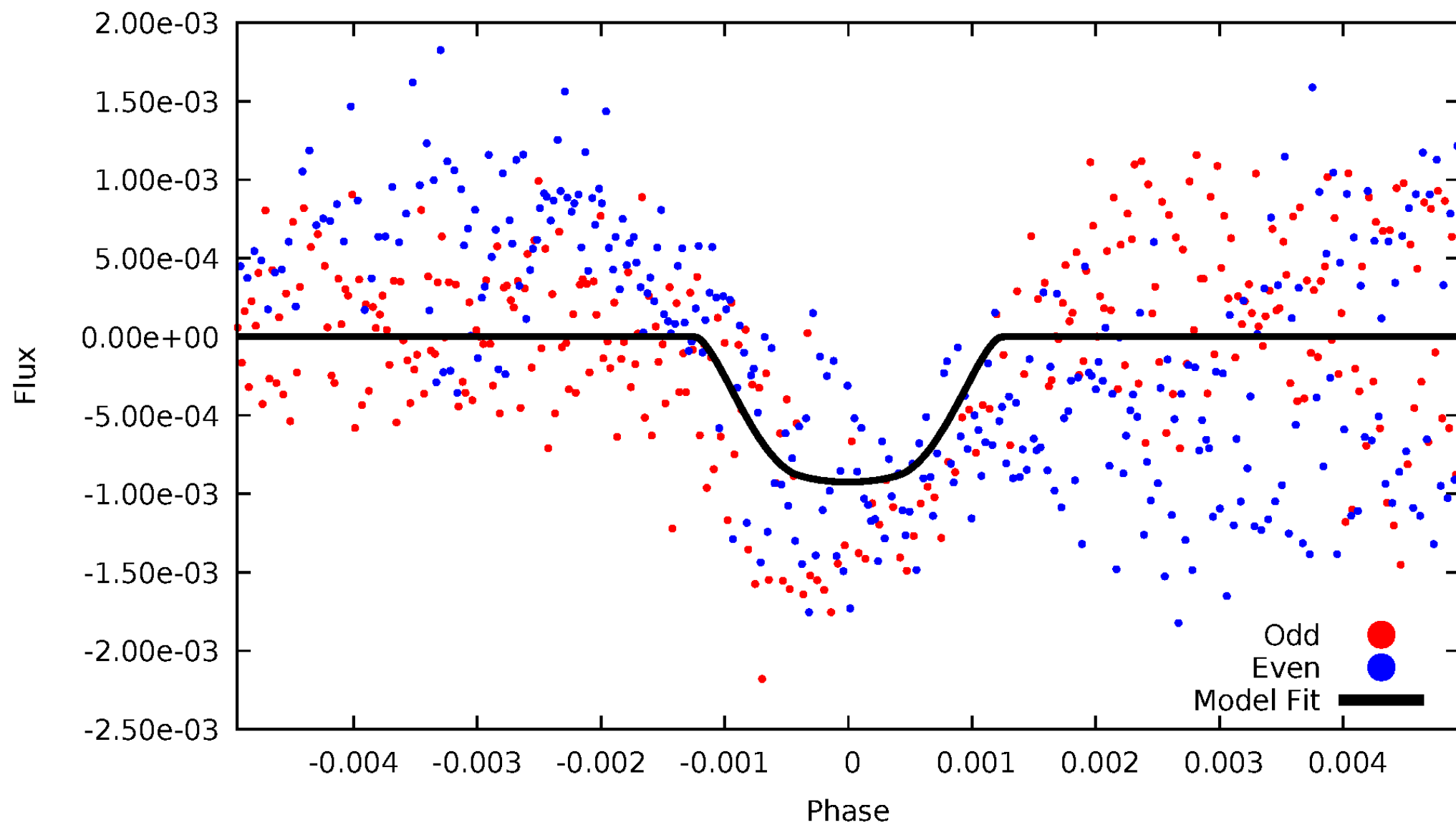


TCE 010010452-02



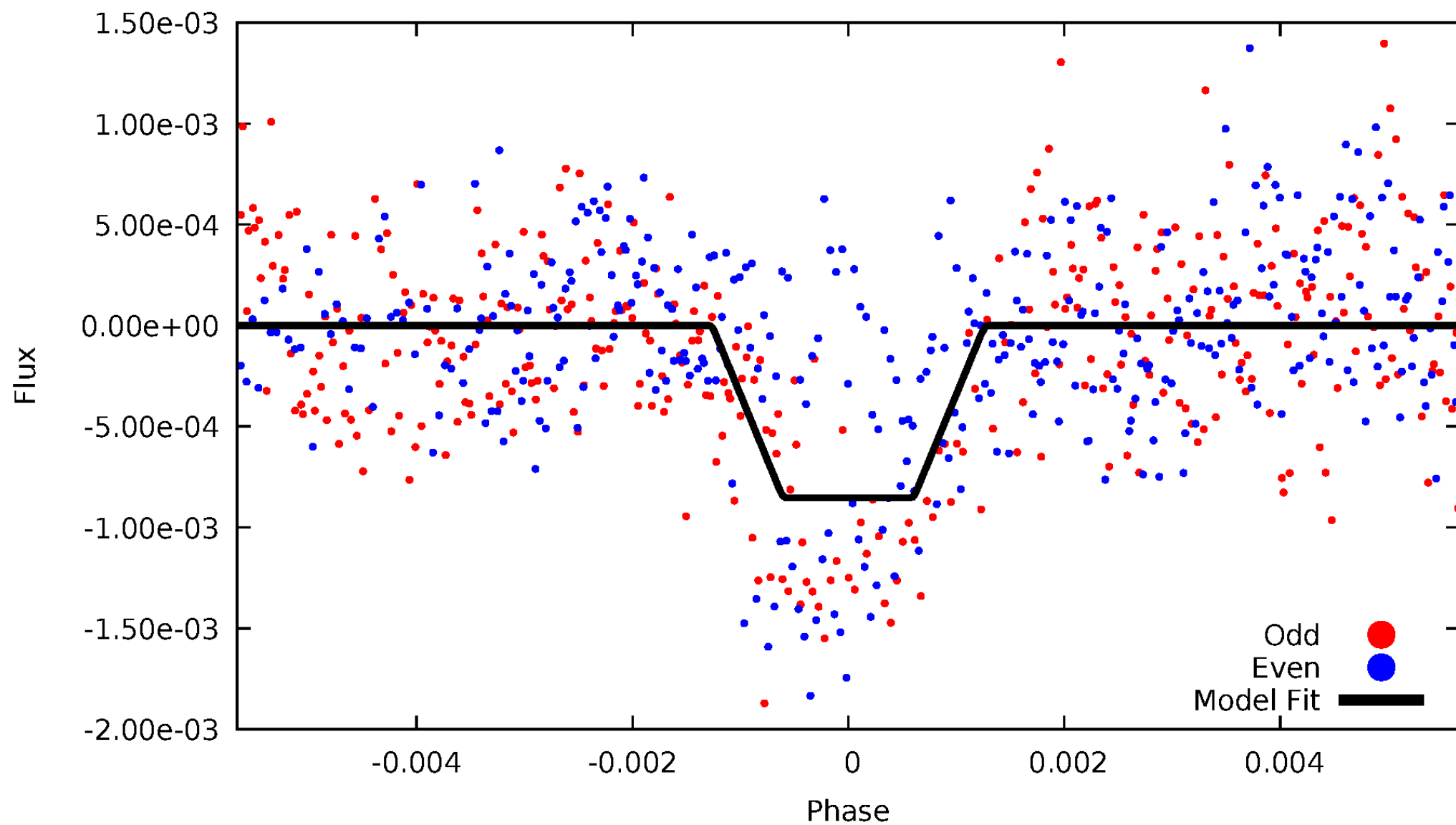
DV Odd/Even

TCE 010010452-02



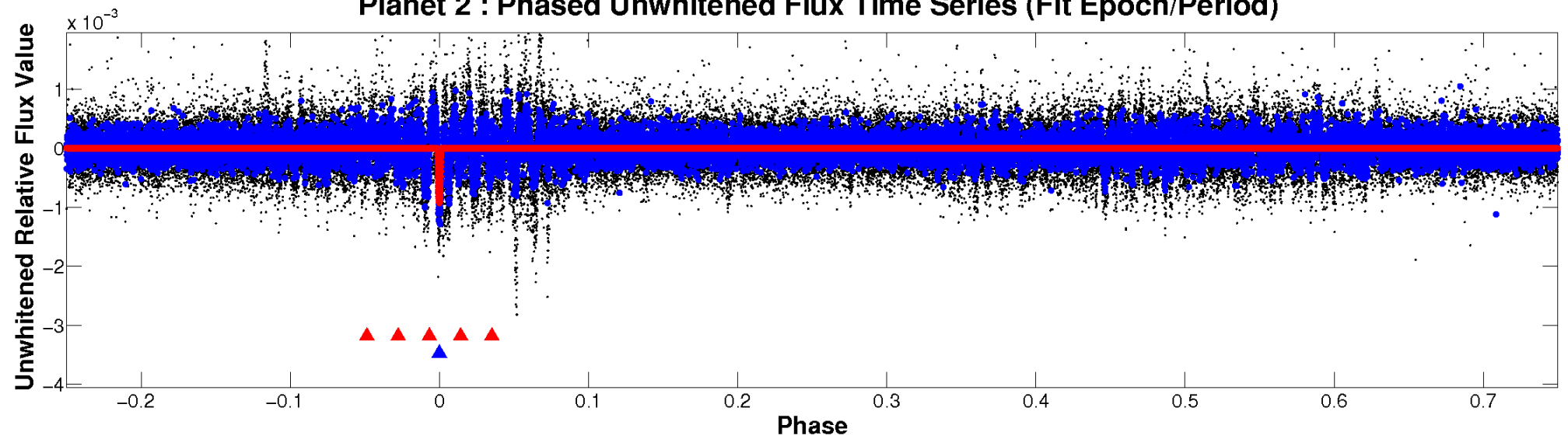
ALT Odd/Even

TCE 010010452-02

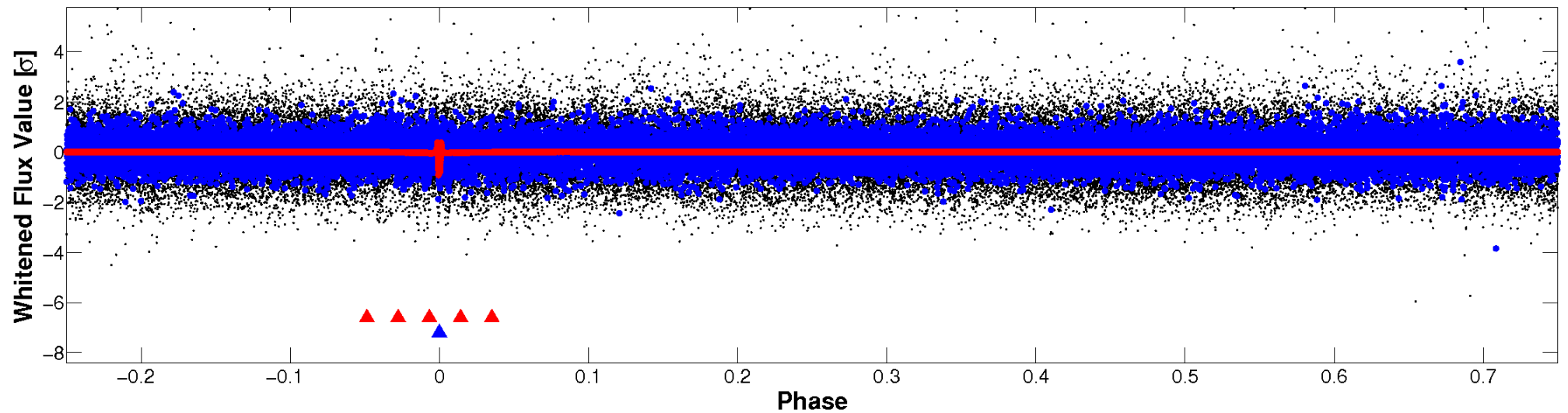


Non-Whitened Vs. Whitened Light Curve

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

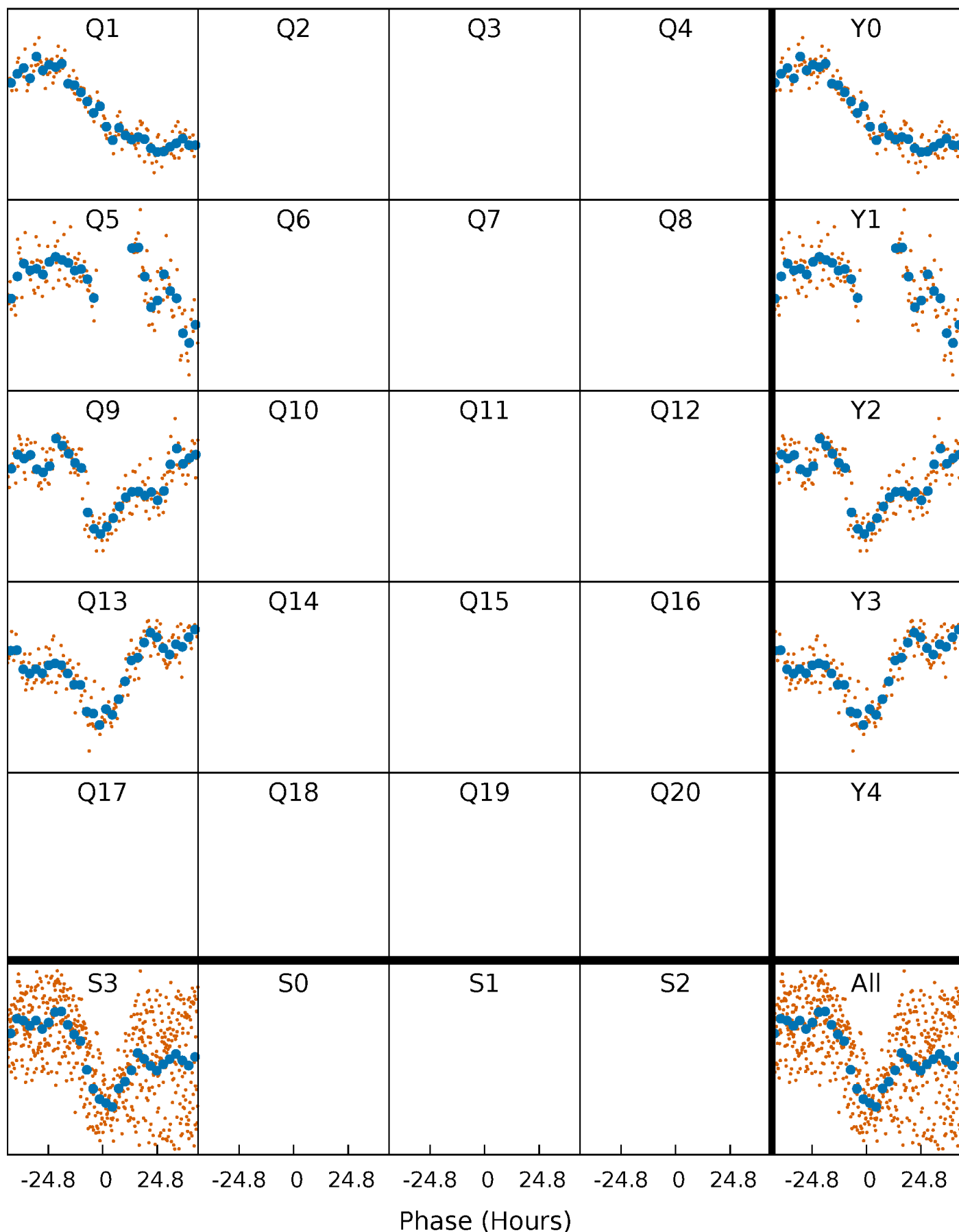


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



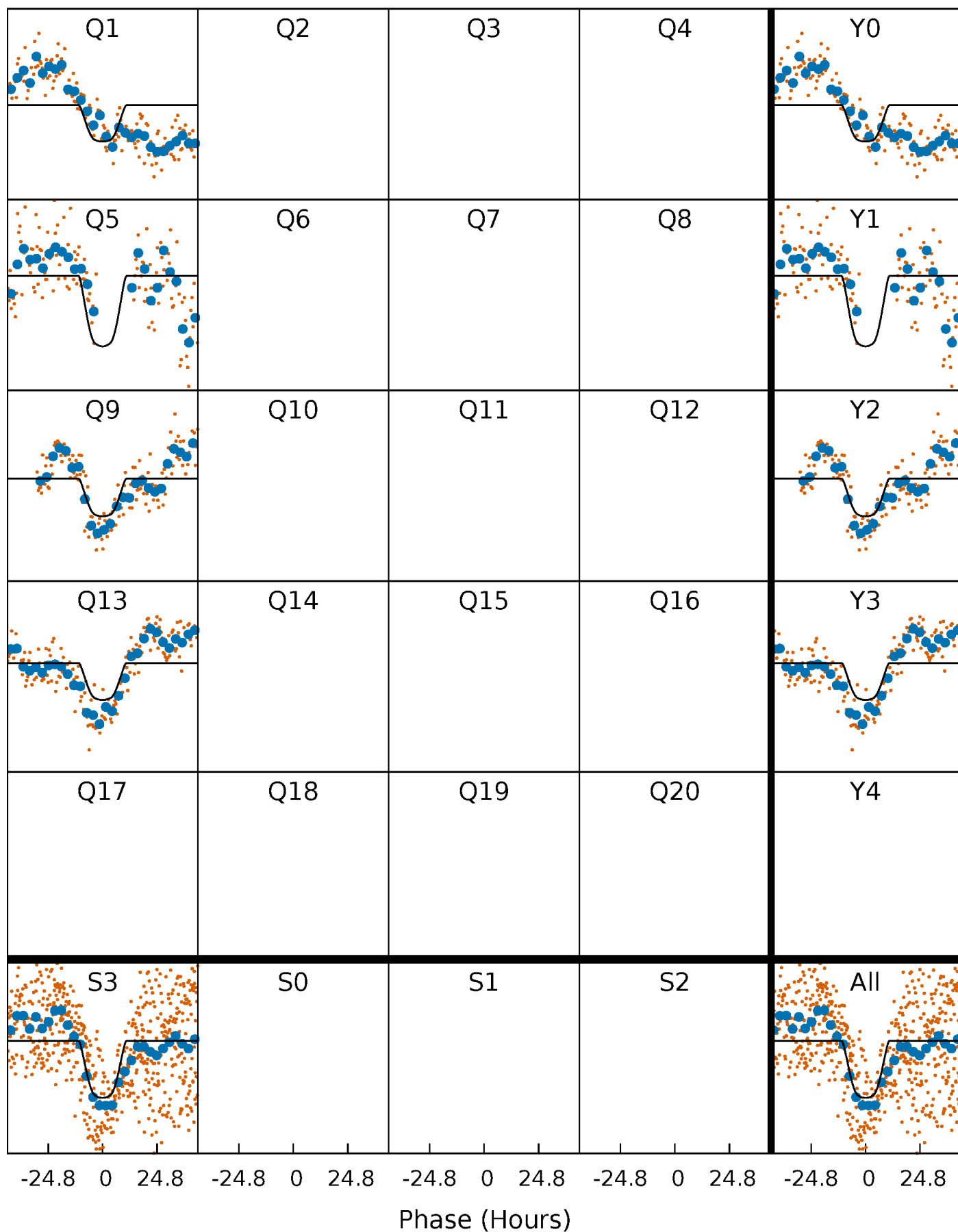
PDC Quarter-Phased Transit Curves

TCE 010010452-02 $P=366.431375$ Days $T_0=137.583714$ (BKJD)



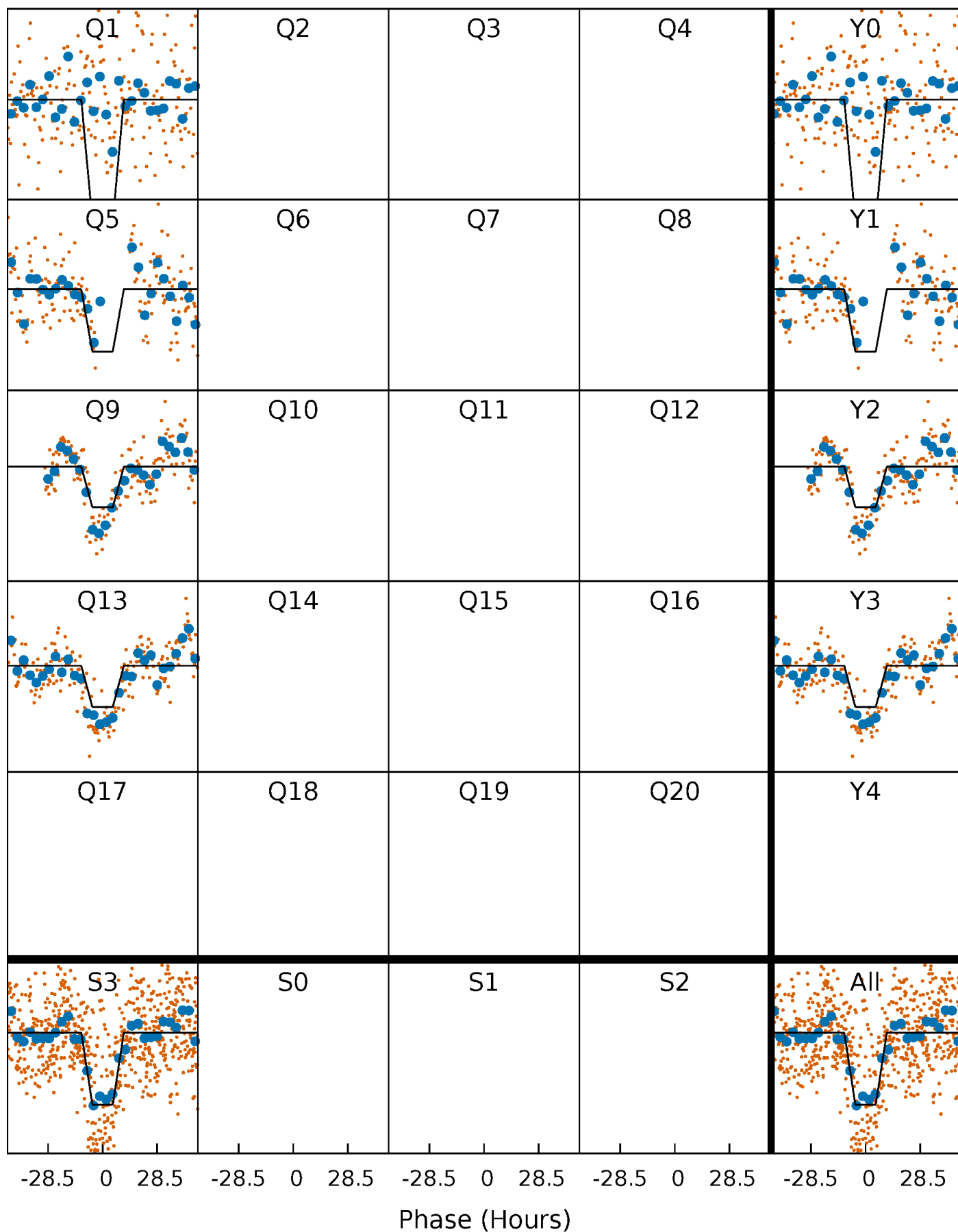
DV Quarter-Phased Transit Curves

TCE 010010452-02 $P=366.431375$ Days $T_0=137.583714$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

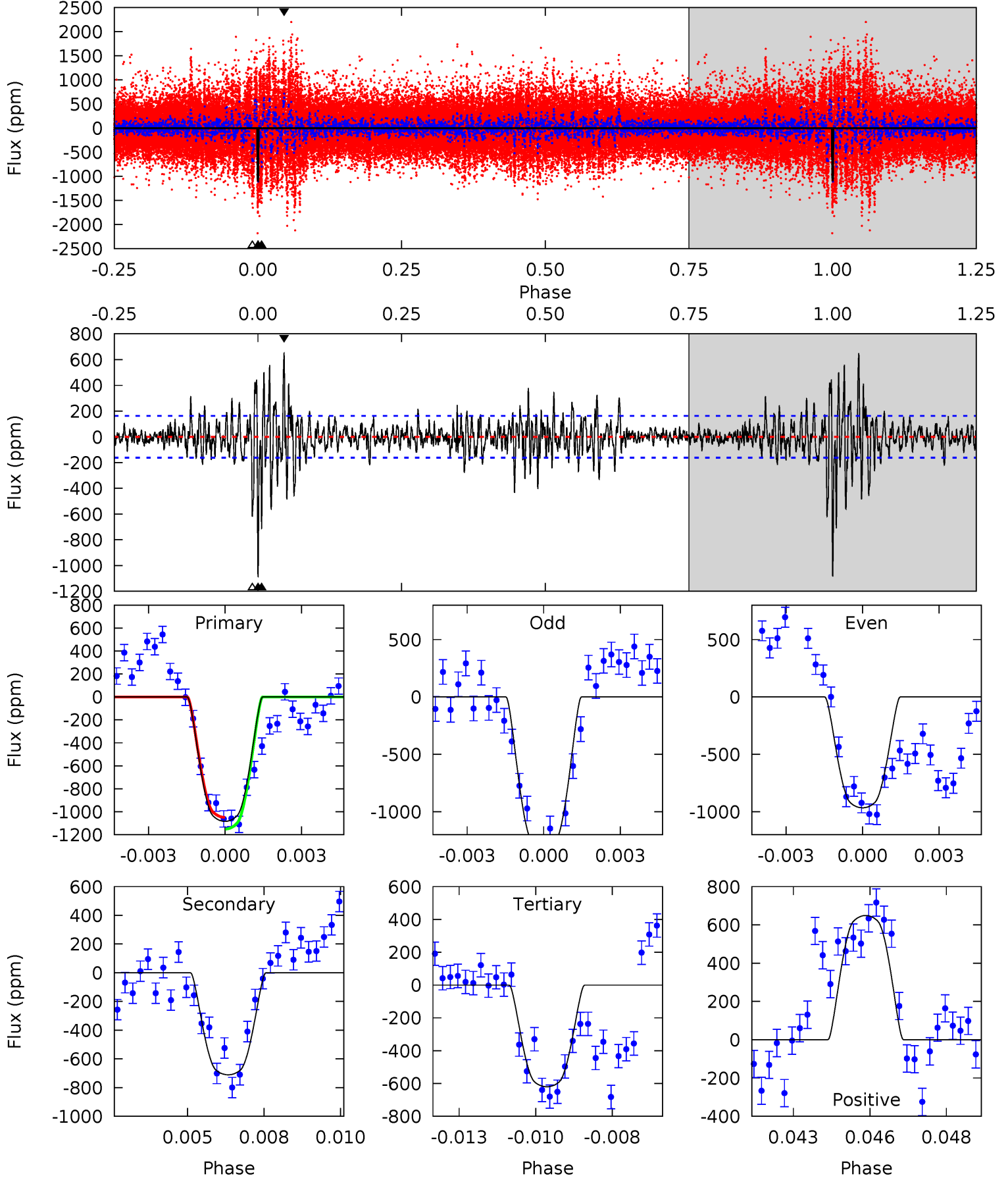
TCE 010010452-02 P=366.448654 Days $T_0=137.561094$ (BKJD)



DV Model-Shift Uniqueness Test

010010452-02, P = 366.431375 Days, E = 137.583714 Days

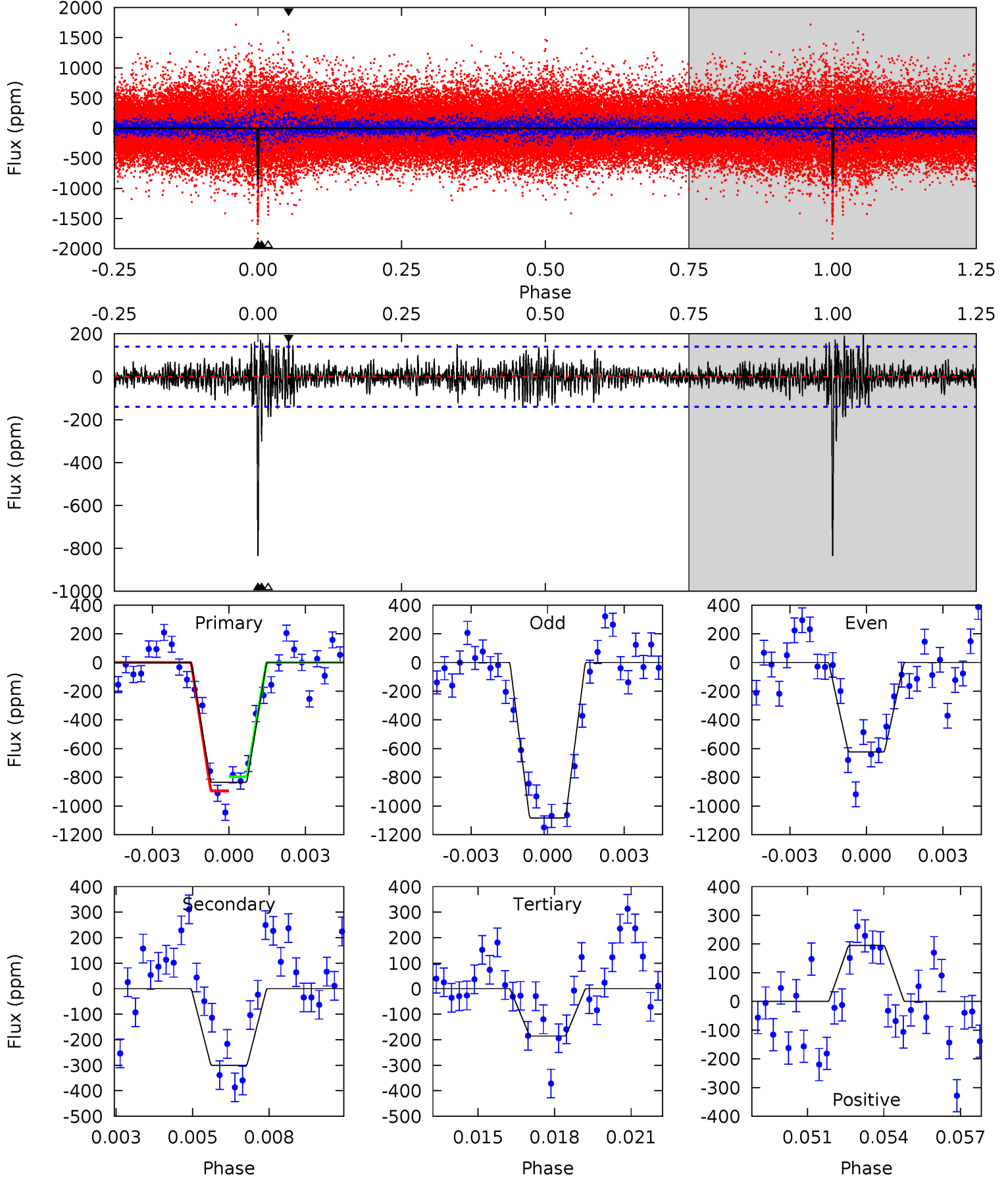
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.3	23.1	20.2	21.1	5.28	3.02	3.75	15.1	14.2	2.97	2.02	5.46	0.98	0.37	1.64



Alt Model-Shift Uniqueness Test

010010452-02, P = 366.448654 Days, E = 137.561094 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.4	11.3	6.98	7.33	5.28	3.02	1.52	24.4	24.1	4.32	3.97	8.62	0.86	0.19	1.84



Stellar Parameters For KIC 010010452

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5482^{+164}_{-147}	$4.566^{+0.038}_{-0.152}$	$-0.020^{+0.250}_{-0.300}$	$0.826^{+0.188}_{-0.063}$	$0.918^{+0.082}_{-0.101}$	$2.294^{+0.442}_{-0.985}$
	+3%/-3%	+1%/-3%	+1250%/-1500%	+23%/-8%	+9%/-11%	+19%/-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 010010452-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-711 ± 31	$3.39^{+0.51}_{-0.45}$	317^{+18}_{-14}	4805^{+242}_{-225}	32002^{+9151}_{-7513}
Alt.	-300 ± 27	$2.71^{+0.41}_{-0.39}$	318^{+16}_{-14}	4416^{+270}_{-200}	21111^{+6849}_{-5508}

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

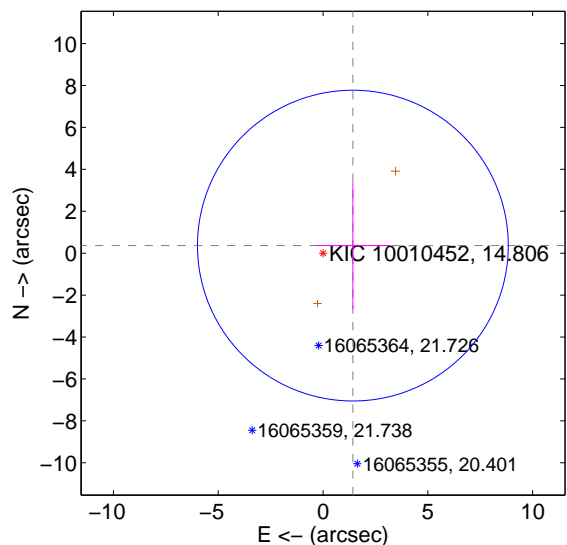
Supplemental centroid analysis for 010010452-02. Kepler magnitude: 14.81. Transit SNR 7.42

There are 0 quarters with good PRF difference image offsets

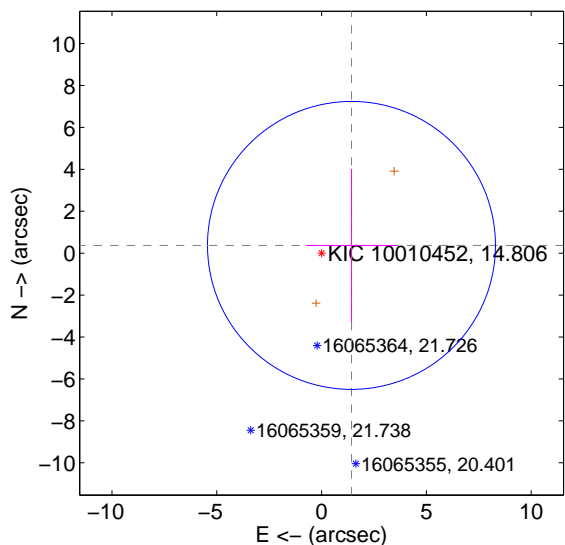
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.469 ± 2.472	0.59	-1.424 ± 1.784	0.361 ± 3.024
PRF-fit source offset from KIC position	1.474 ± 2.290	0.64	-1.427 ± 2.168	0.370 ± 3.655
photometric centroid source offset	2.94 ± 2.23	1.32	-2.27 ± 2.64	-1.87 ± 1.42

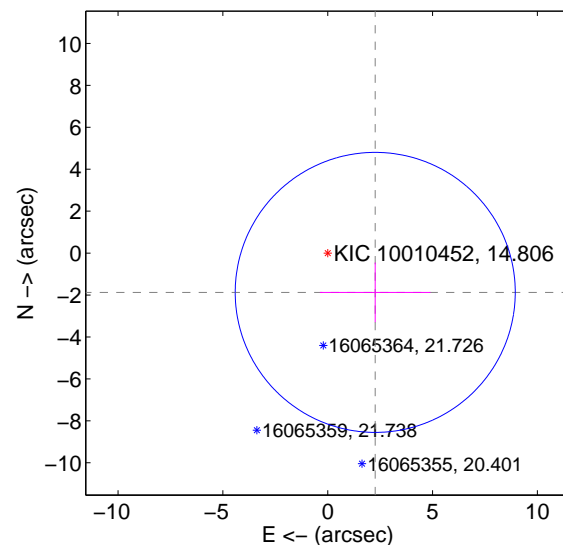
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

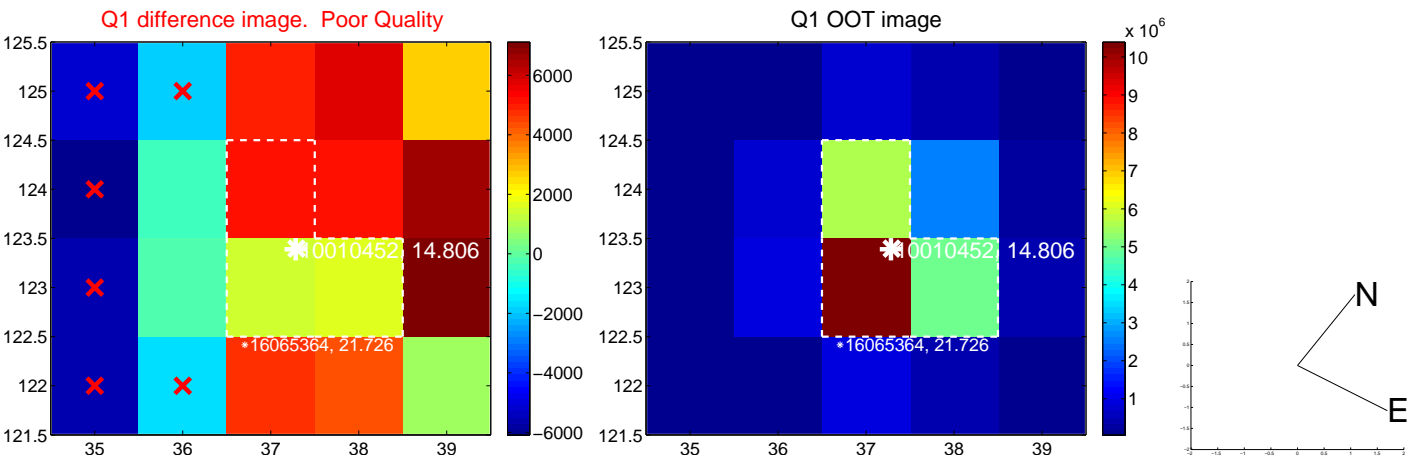


offset from photometric centroids



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.

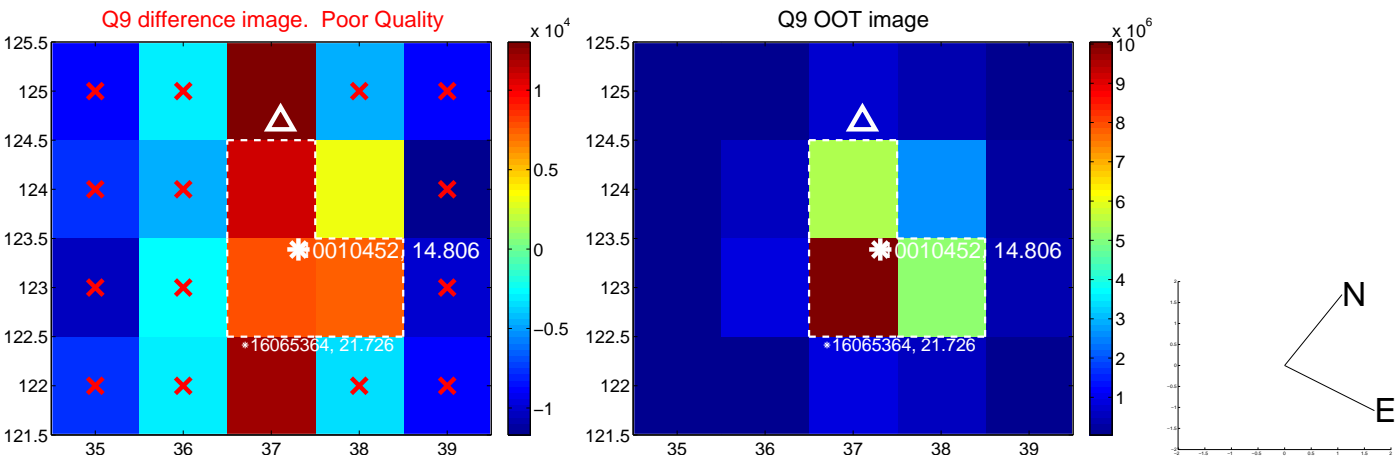
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



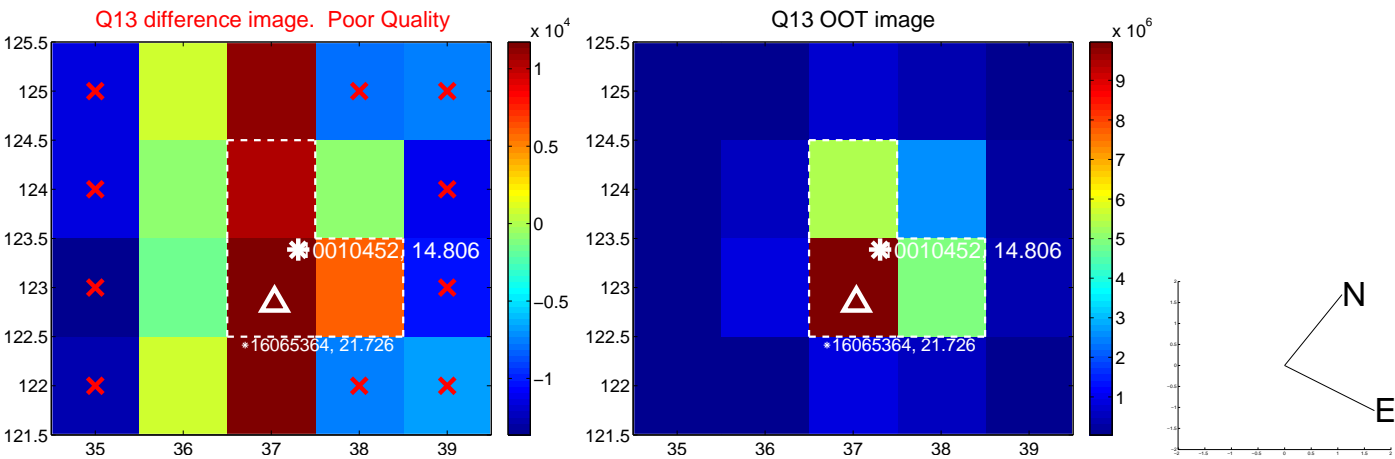
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



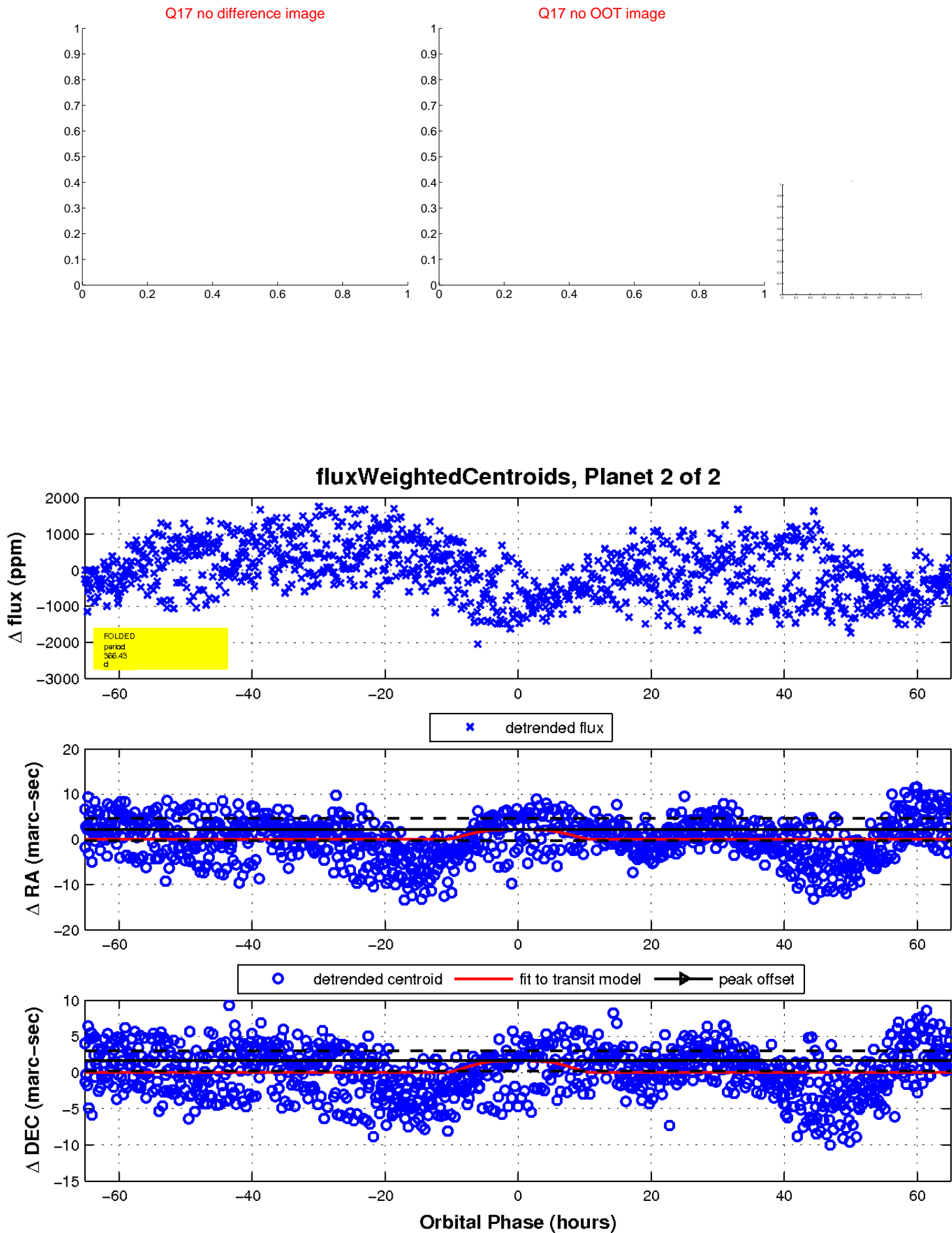
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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

