

KIC 010336951

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})
010336951-01	OBS	2401.01	38.229462	166.003791	619.0	4.925	17.3	18.1	0.60	4544	2.09	3.93
010336951-02	OBS	No	372.916898	267.859586	875.7	14.958	7.8	7.7	0.60	4544	1.93	0.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010336951-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
010336951-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

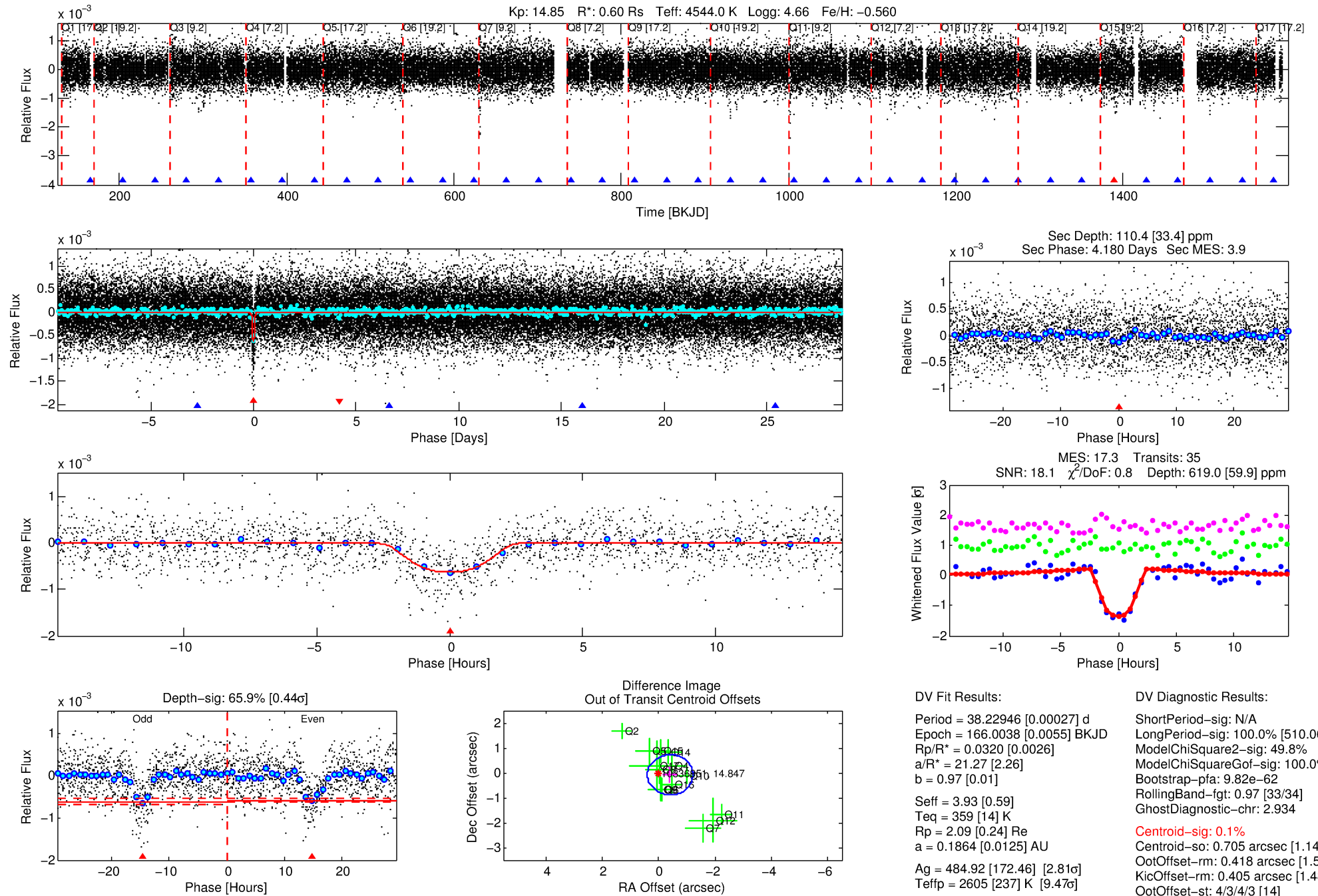
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010336951-01

No Significant Match Found

DV One-Page Summary

KIC: 10336951 Candidate: 1 of 2 Period: 38.229 d
KOI: K02401.01 Corr: 0.898



DV Fit Results:

Period = 38.22946 [0.00027] d
Epoch = 166.0038 [0.0055] BKJD
Rp/R* = 0.0320 [0.0026]
a/R* = 21.27 [2.26]
b = 0.97 [0.01]
Seff = 3.93 [0.59]
Teff = 359 [14] K
Rp = 2.09 [0.24] Re
a = 0.1864 [0.0125] AU
Ag = 484.92 [172.46] [2.81 σ]
Teffp = 2605 [237] K [9.47 σ]

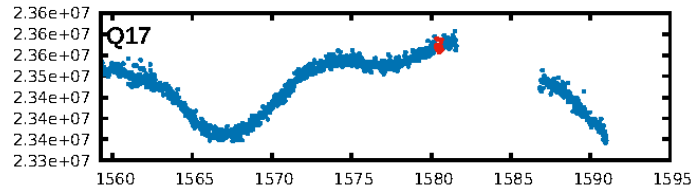
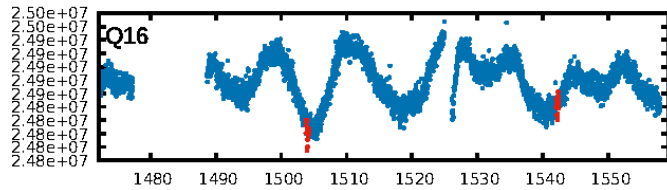
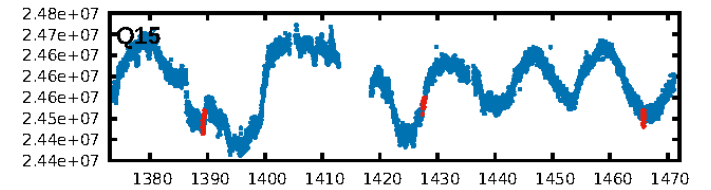
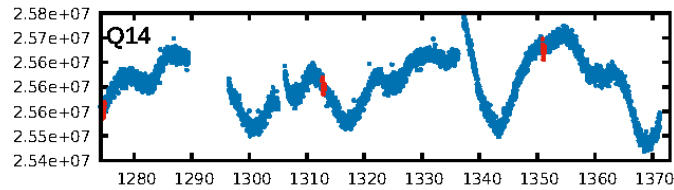
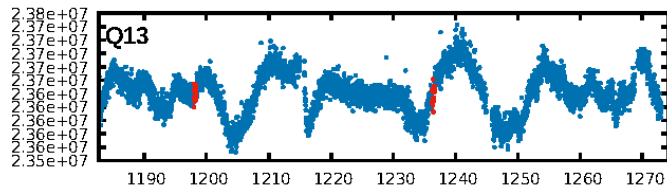
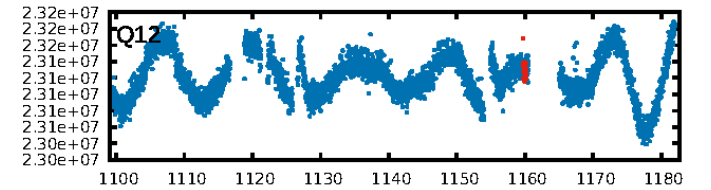
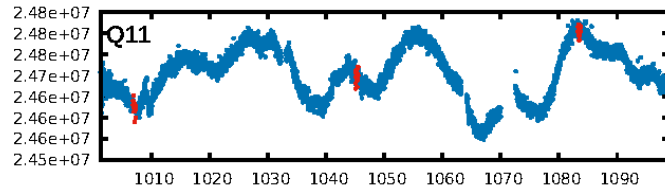
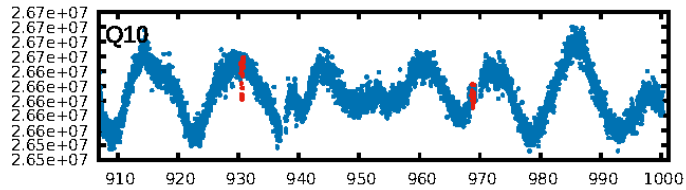
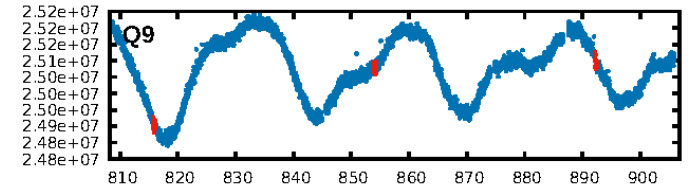
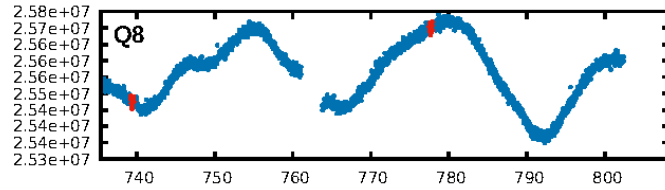
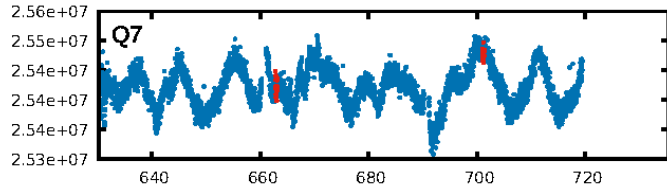
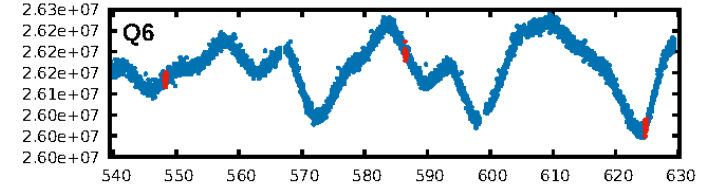
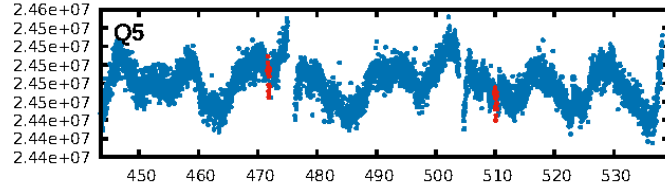
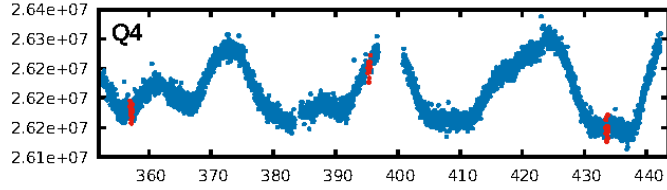
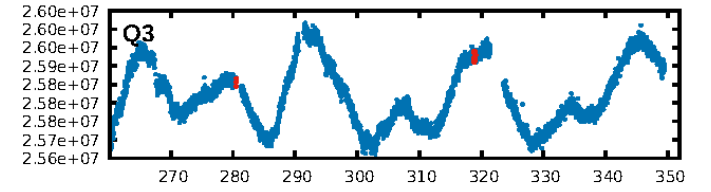
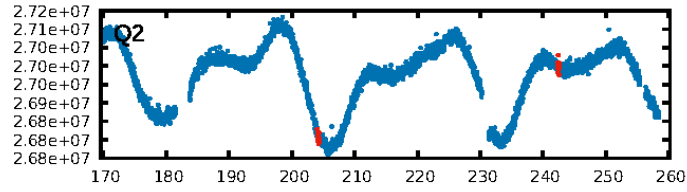
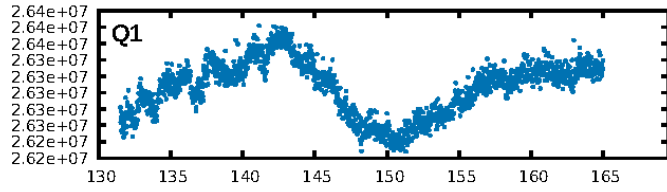
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [510.06 σ]
ModelChiSquare2-sig: 49.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.82e-62
RollingBand-fgt: 0.97 [33/34]
GhostDiagnostic-chr: 2.934
Centroid-sig: 0.1%
Centroid-so: 0.705 arcsec [1.14 σ]
OotOffset-rm: 0.418 arcsec [1.56 σ]
KicOffset-rm: 0.405 arcsec [1.48 σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [16/16]

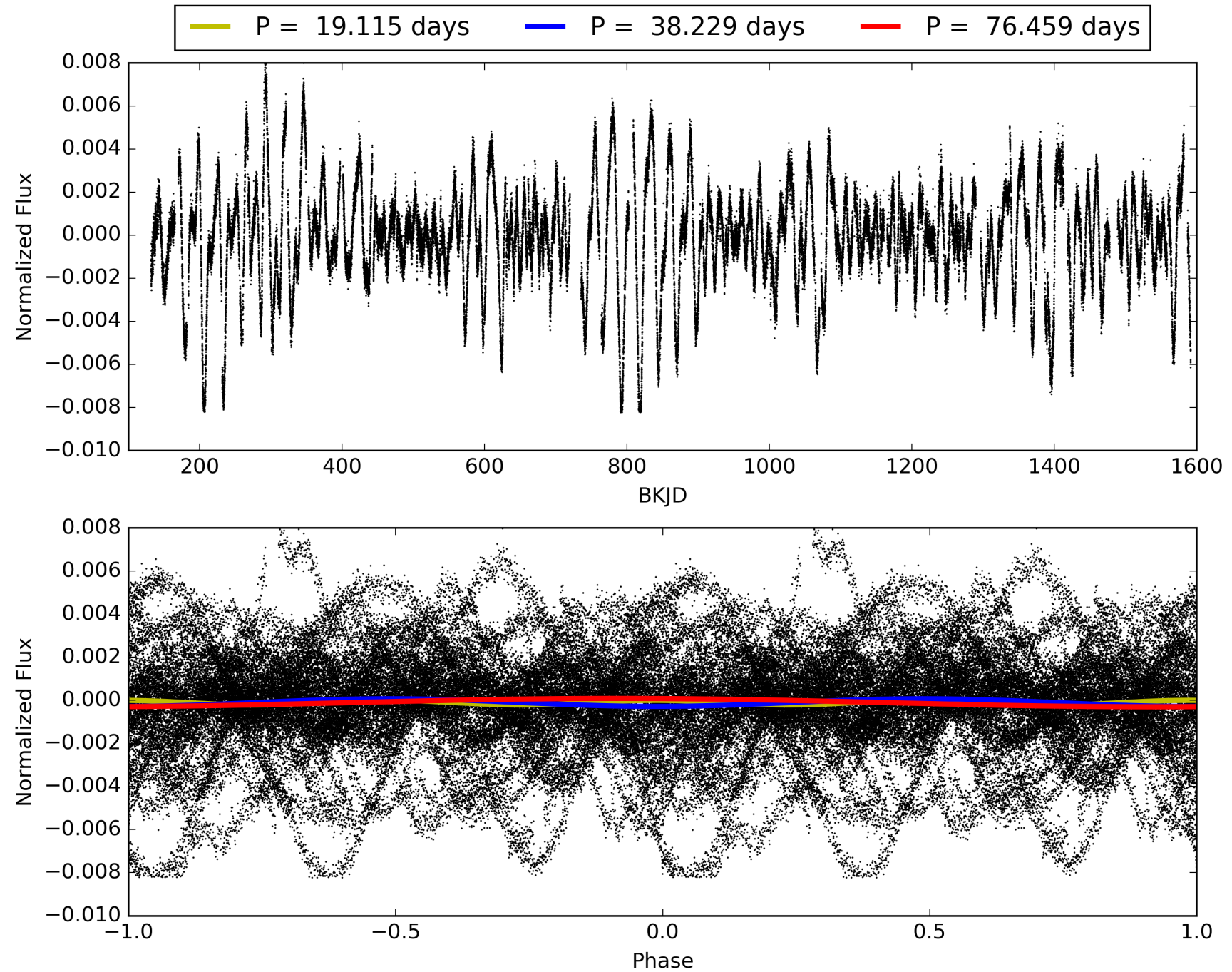
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:57:54 Z

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

TCE 010336951-01, PDC Light Curves

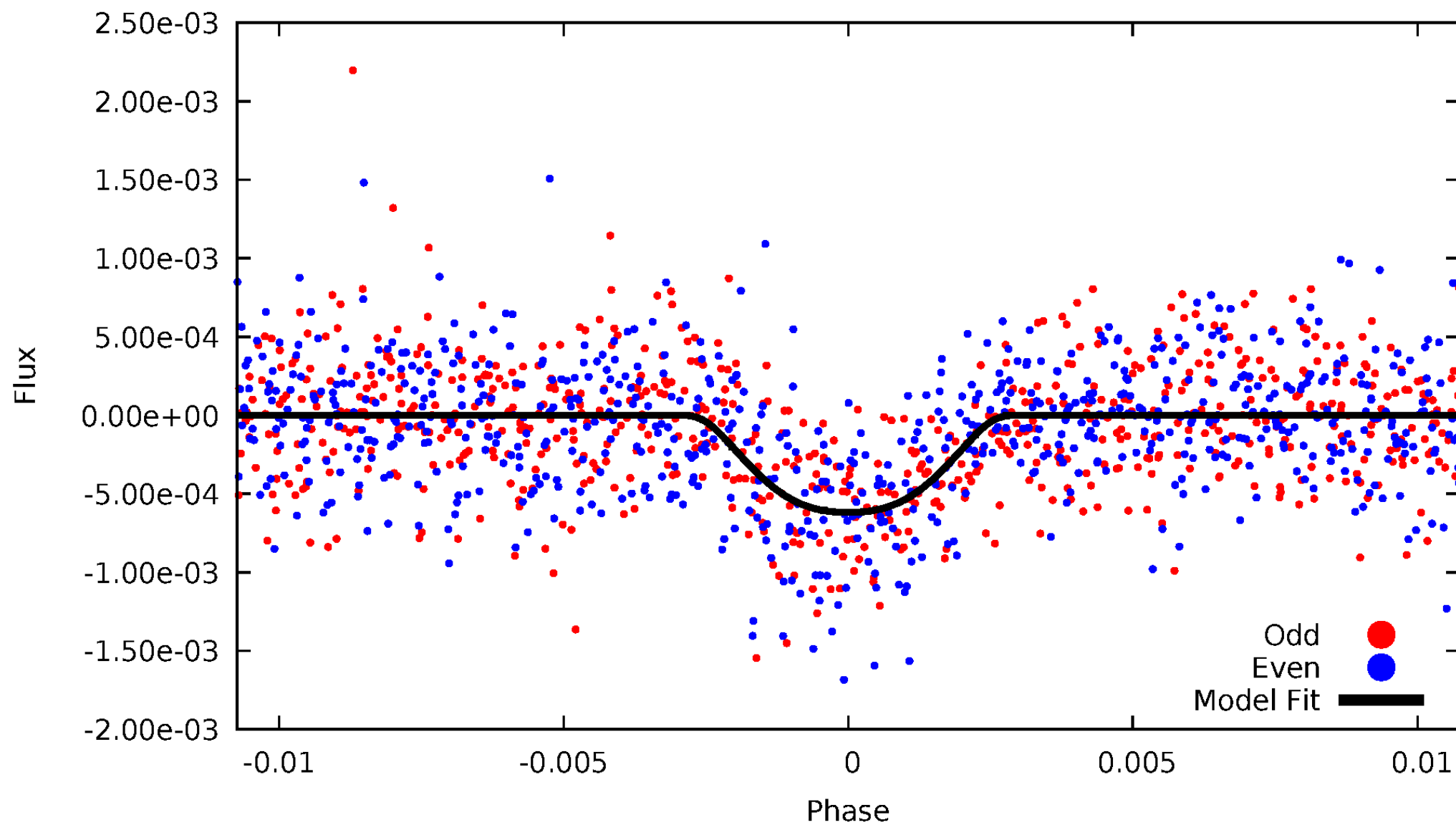


TCE 010336951-01



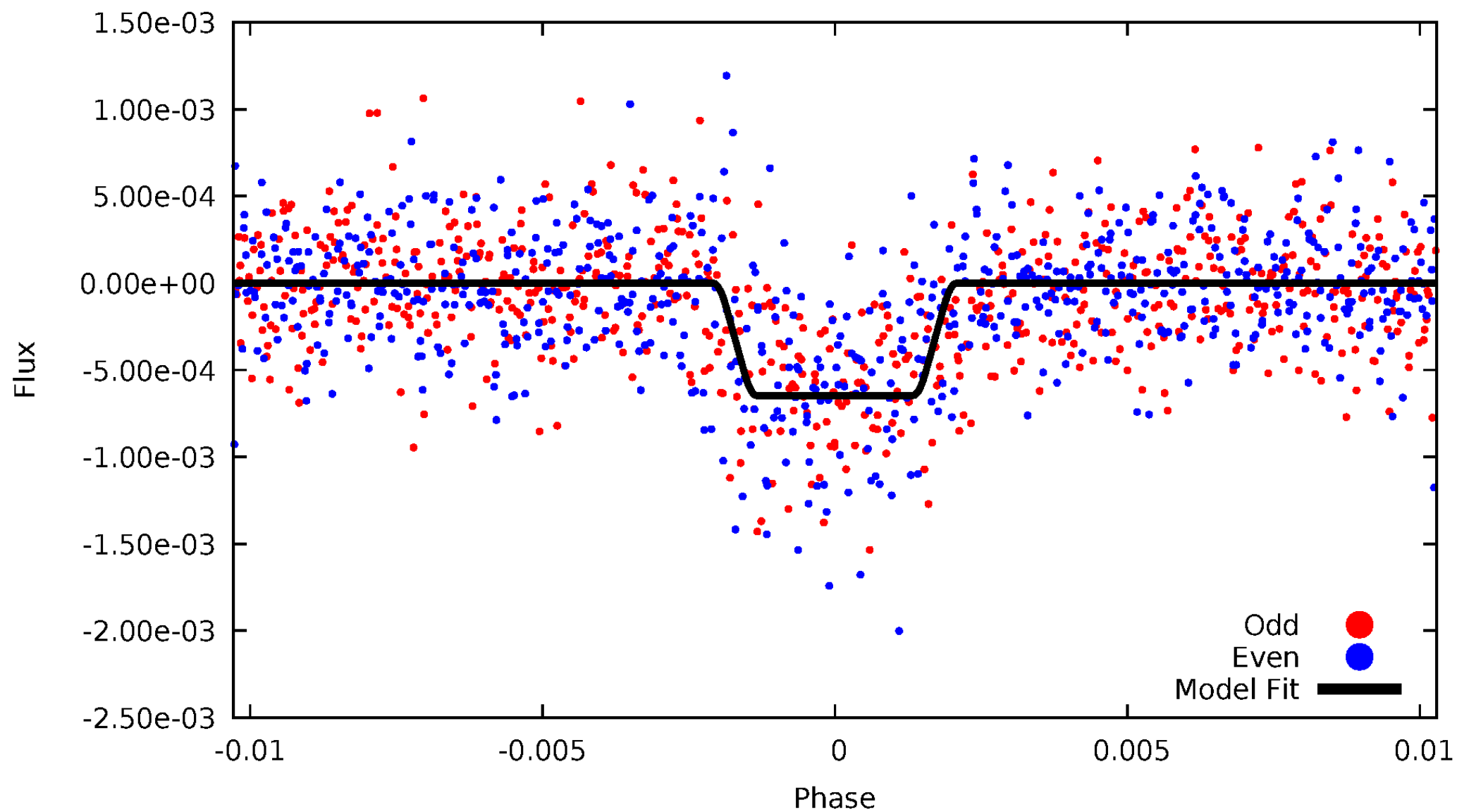
DV Odd/Even

TCE 010336951-01



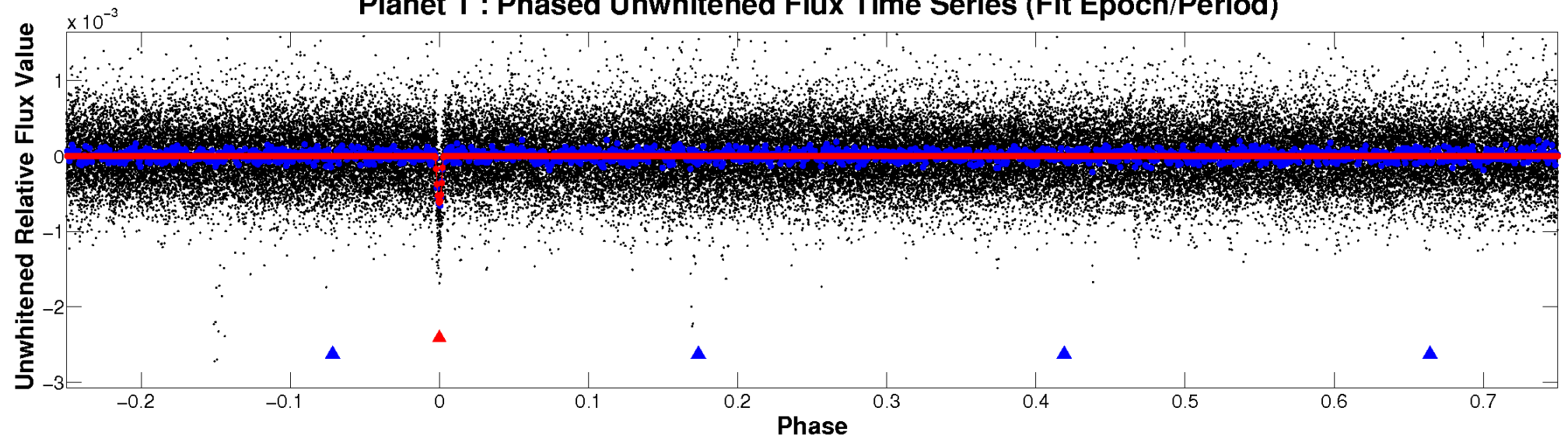
ALT Odd/Even

TCE 010336951-01

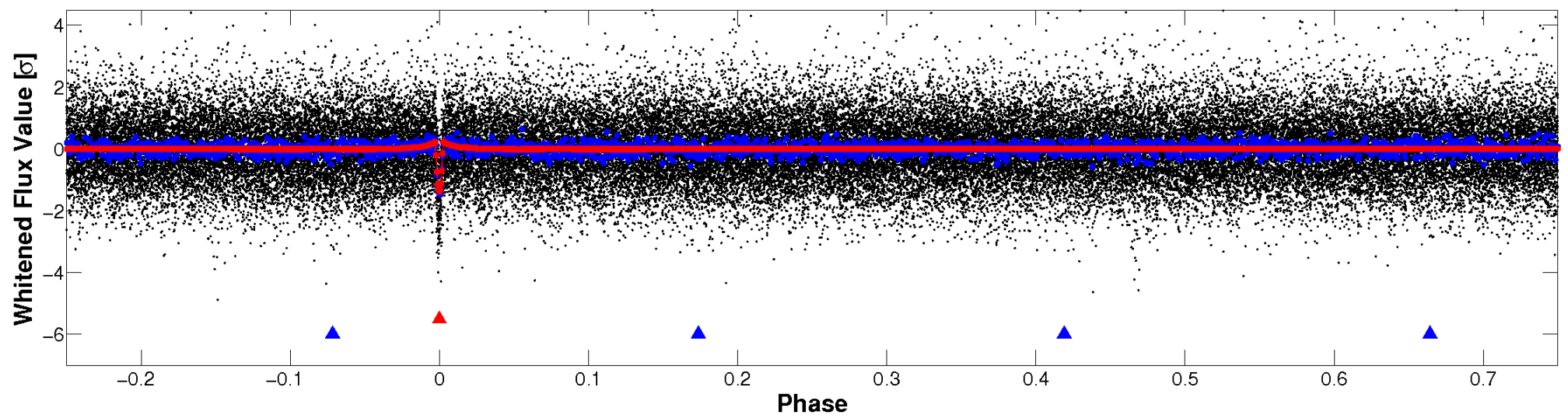


Non-Whitened Vs. Whitened Light Curve

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

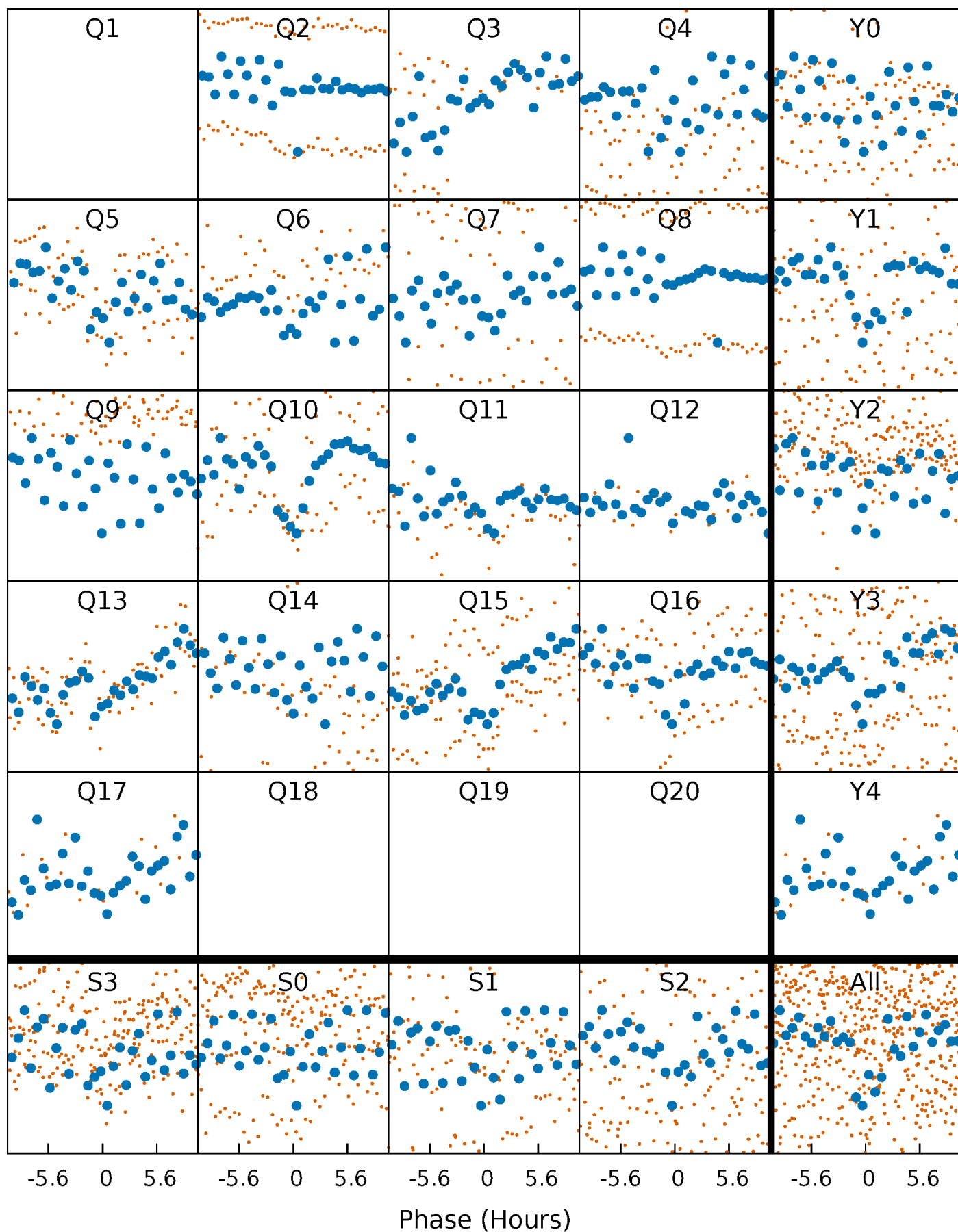


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



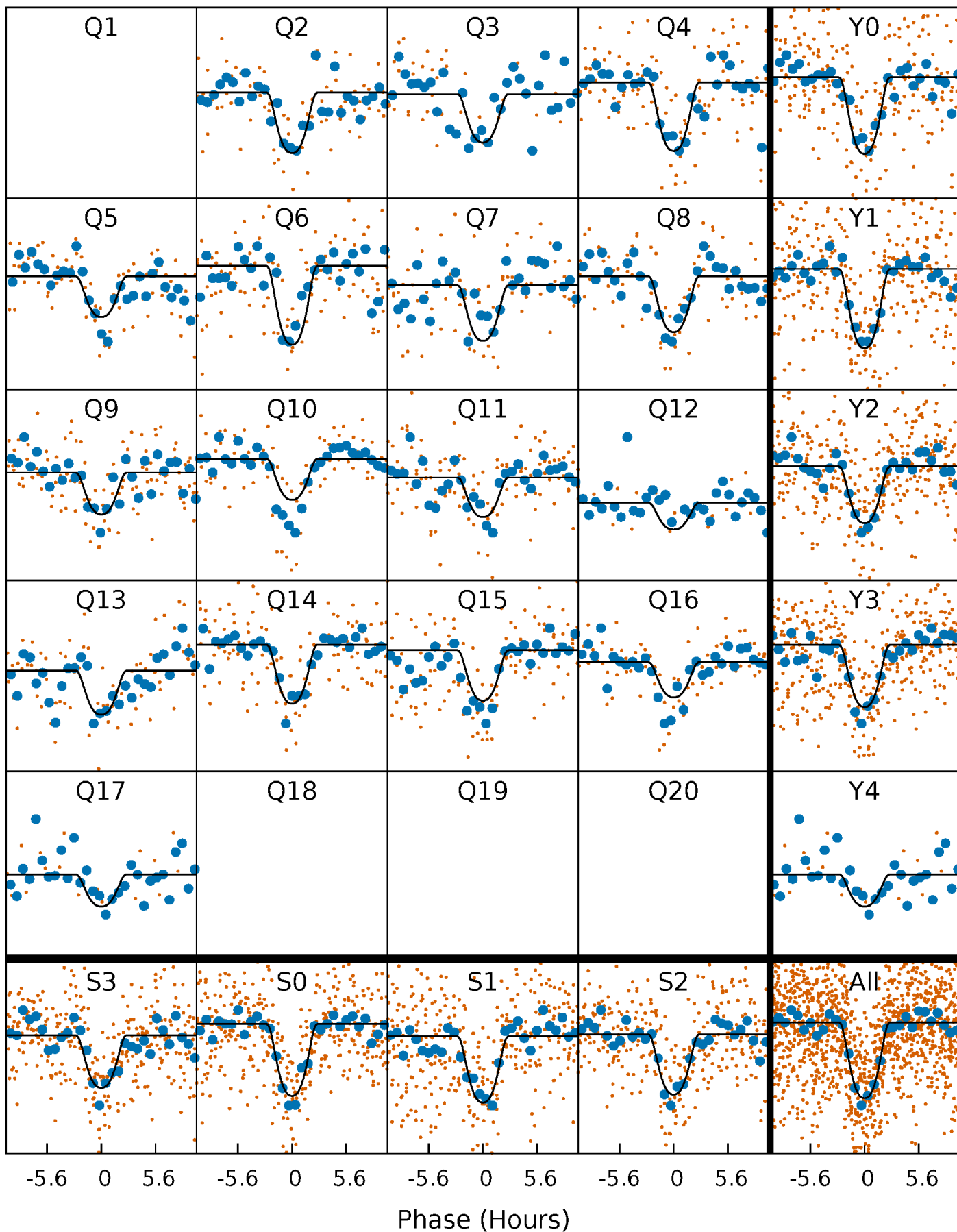
PDC Quarter-Phased Transit Curves

TCE 010336951-01 P= 38.229462 Days $T_0=166.003791$ (BKJD)



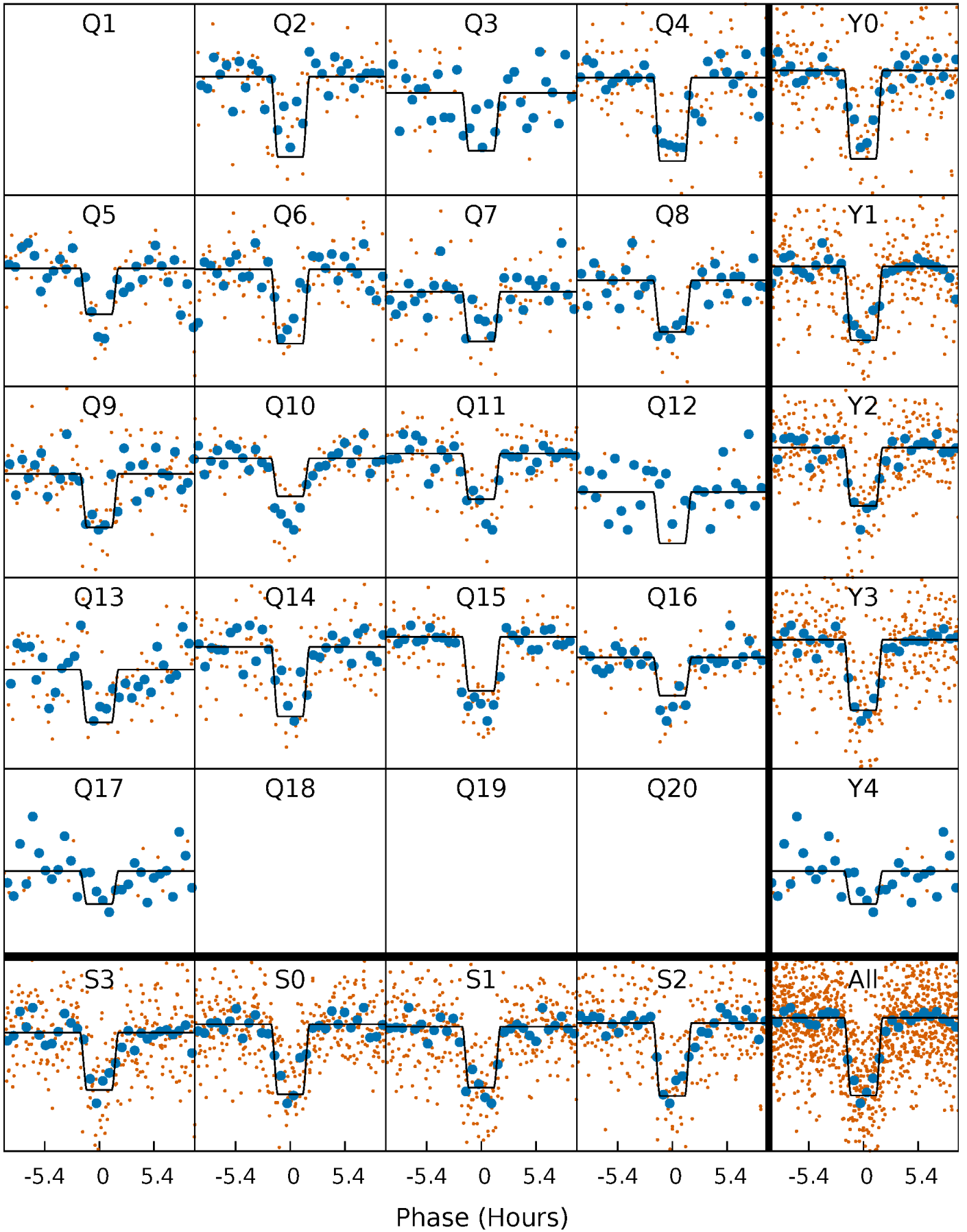
DV Quarter-Phased Transit Curves

TCE 010336951-01 P= 38.229462 Days $T_0=166.003791$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

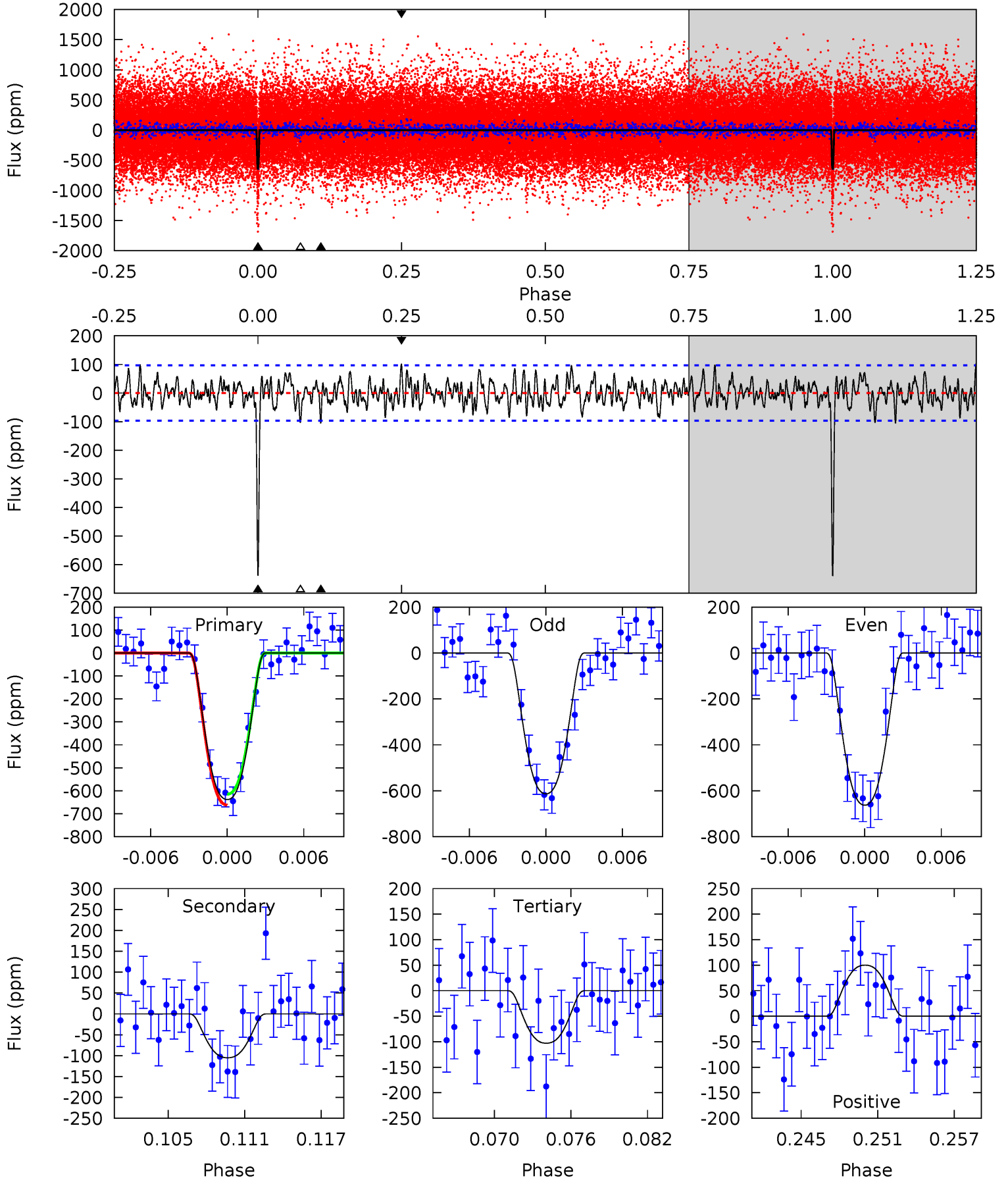
TCE 010336951-01 P= 38.228667 Days $T_0=166.020480$ (BKJD)



DV Model-Shift Uniqueness Test

010336951-01, $P = 38.229462$ Days, $E = 127.774329$ Days

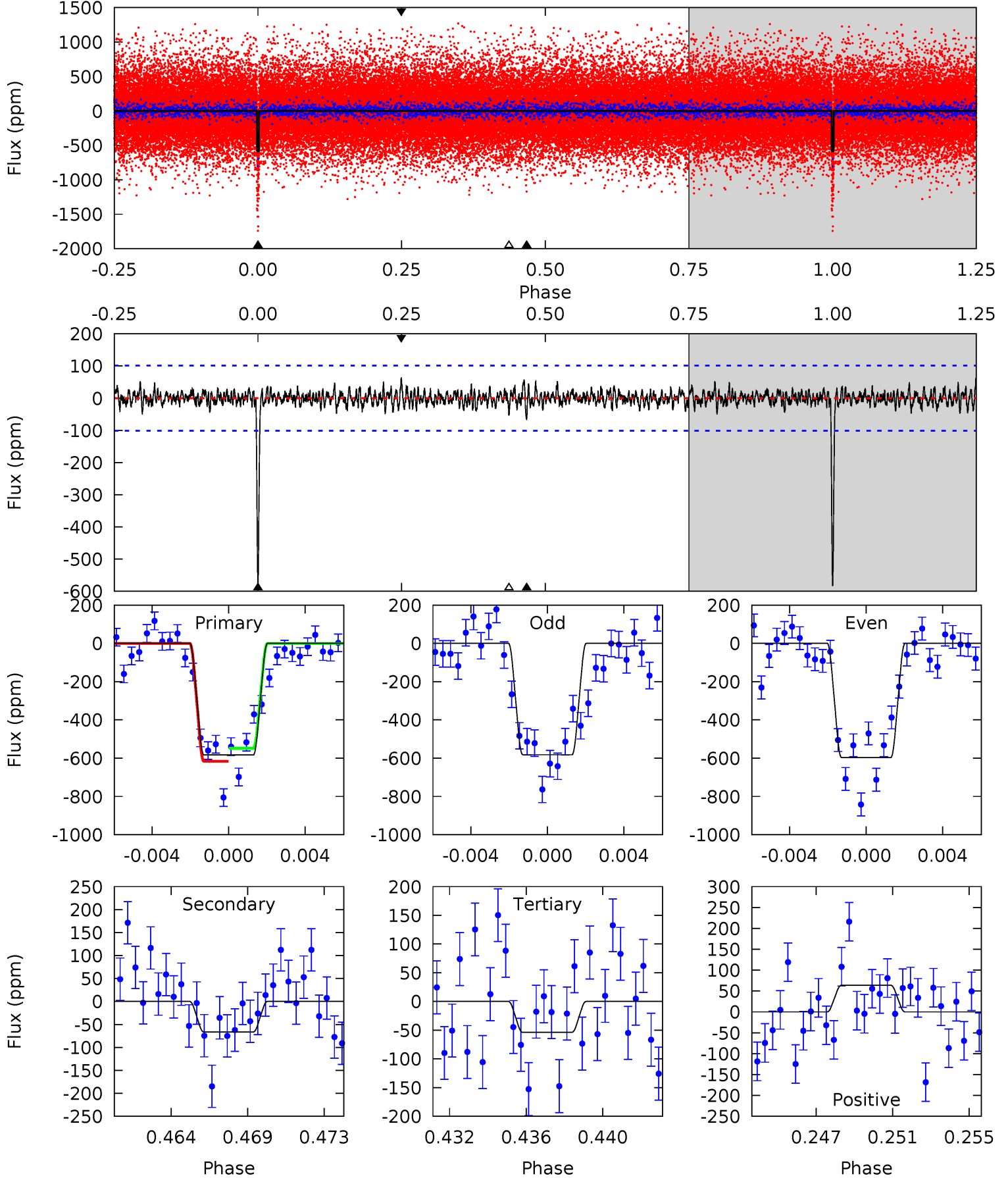
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.8	5.57	5.45	5.31	5.13	2.76	1.80	28.4	28.5	0.12	0.26	1.31	1.06	0.14	1.26



Alt Model-Shift Uniqueness Test

010336951-01, $P = 38.228667$ Days, $E = 127.791813$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	3.41	2.75	3.26	5.19	2.87	0.86	27.1	26.6	0.66	0.14	0.37	1.06	0.10	1.76



Stellar Parameters For KIC 010336951

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4544^{+121}_{-135}	$4.656^{+0.048}_{-0.032}$	$-0.560^{+0.300}_{-0.300}$	$0.598^{+0.050}_{-0.050}$	$0.592^{+0.067}_{-0.038}$	$3.892^{+0.890}_{-0.499}$
	+3%/-3%	+1%/-1%	+54%/-54%	+8%/-8%	+11%/-6%	+23%/-13%
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 010336951-01 / KOI 2401.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-105 ± 19	$2.09^{+0.20}_{-0.20}$	500^{+15}_{-16}	3099^{+127}_{-121}	467^{+124}_{-105}
Alt.	-66 ± 20	$1.67^{+0.20}_{-0.18}$	501^{+16}_{-17}	3081^{+169}_{-179}	446^{+173}_{-155}

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

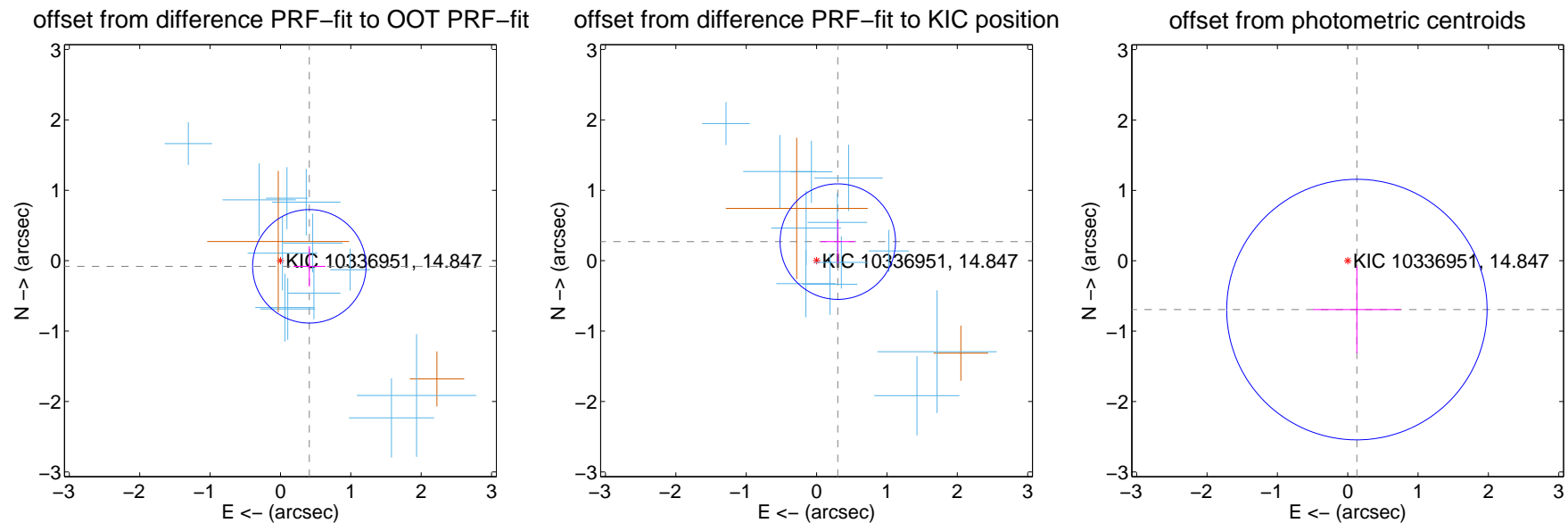
DV Centroid Data

Supplemental centroid analysis for 010336951-01. Kepler magnitude: 14.85. Transit SNR 18.06

There are 12 quarters with good PRF difference image offsets

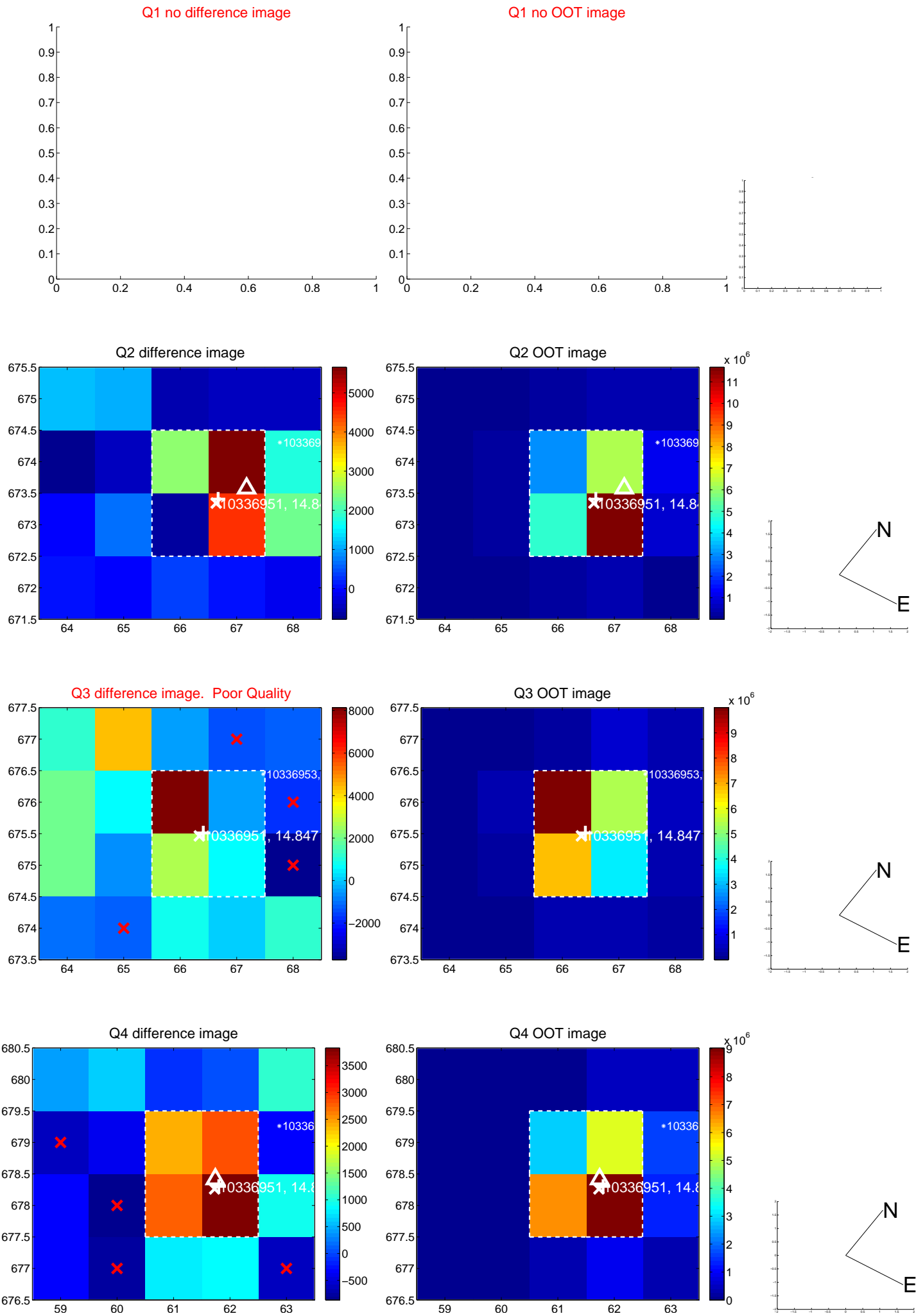
The direct PRF centroid is offset from the target star catalog position by about 0.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.418 ± 0.269	1.56	-0.410 ± 0.227	-0.080 ± 0.287
PRF-fit source offset from KIC position	0.405 ± 0.273	1.48	-0.302 ± 0.241	0.271 ± 0.308
photometric centroid source offset	0.71 ± 0.62	1.14	-0.13 ± 0.62	-0.69 ± 0.62

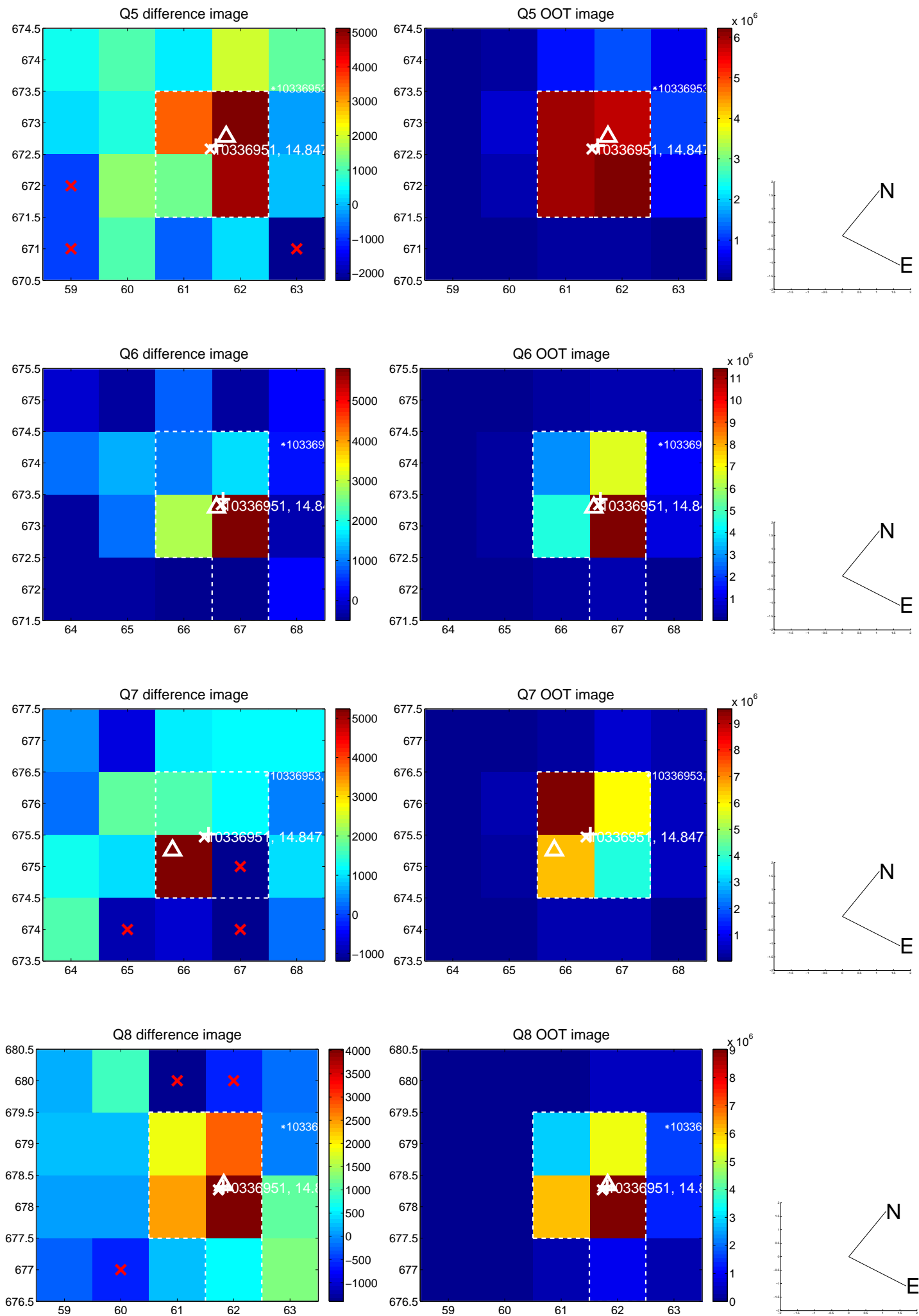


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

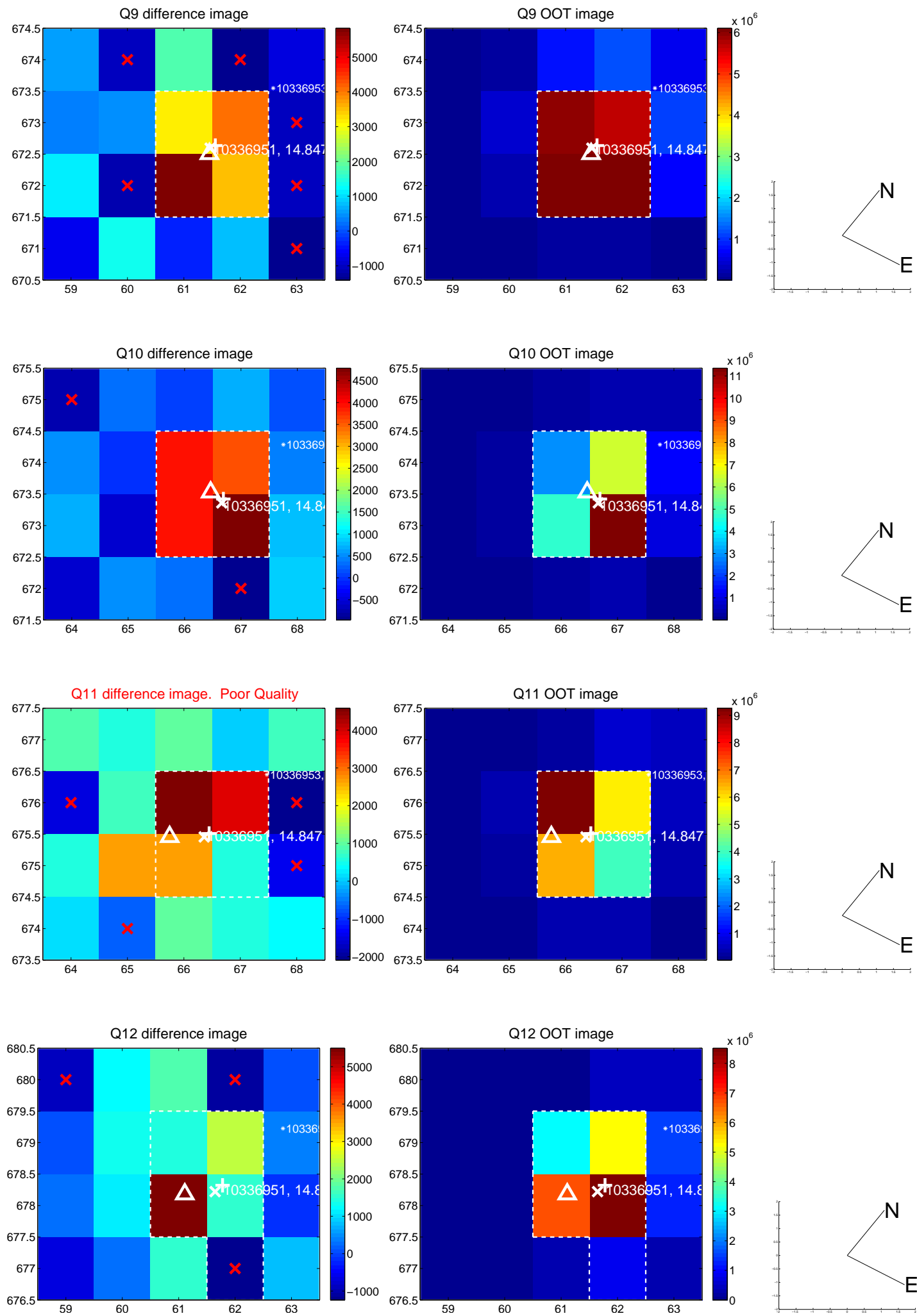
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



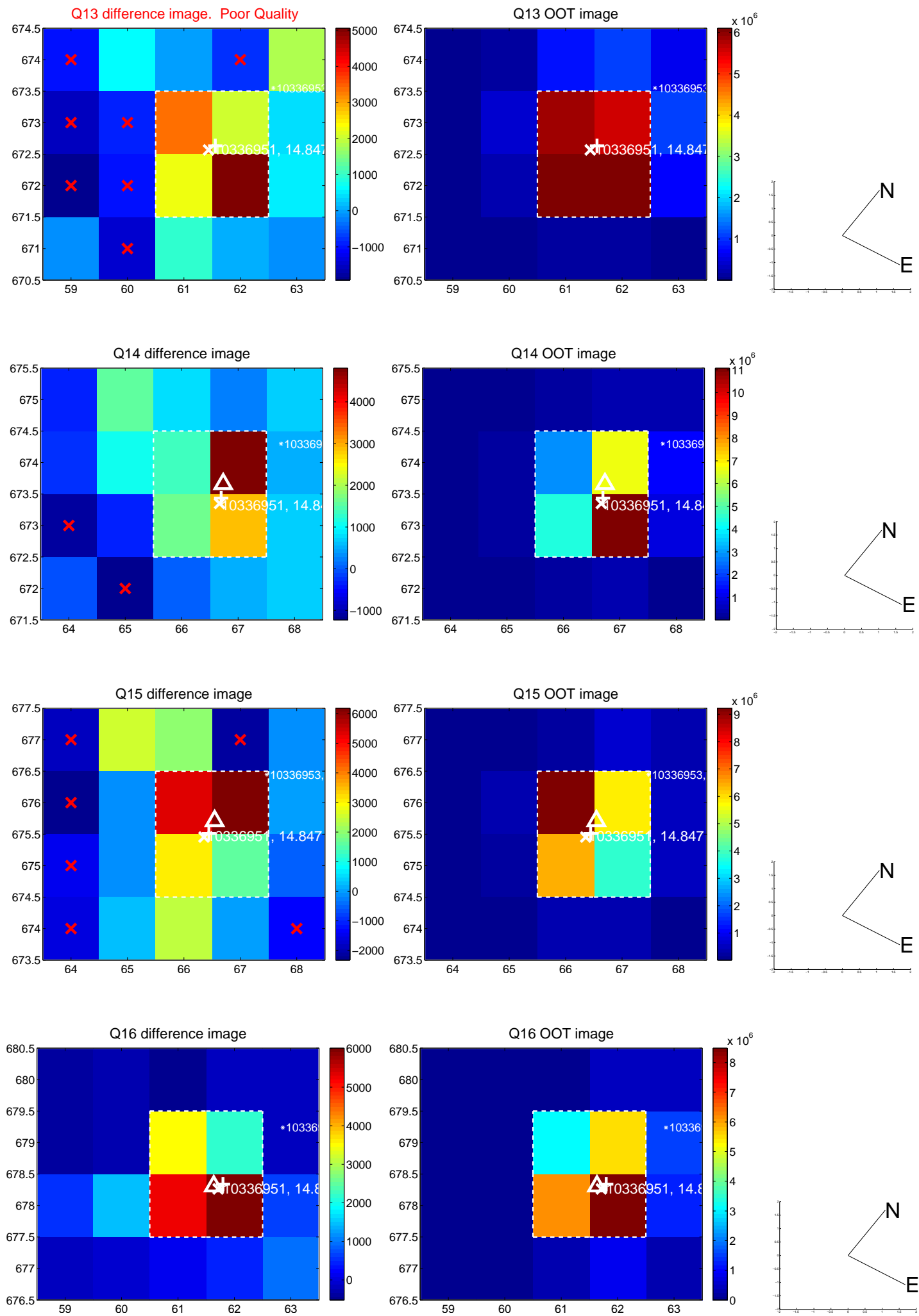
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



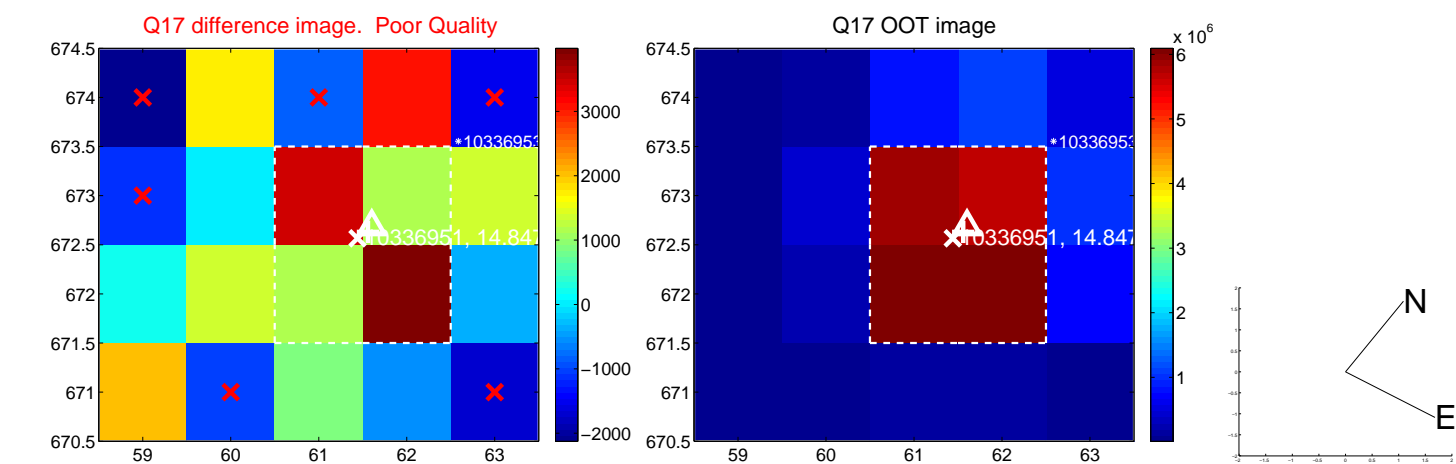
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



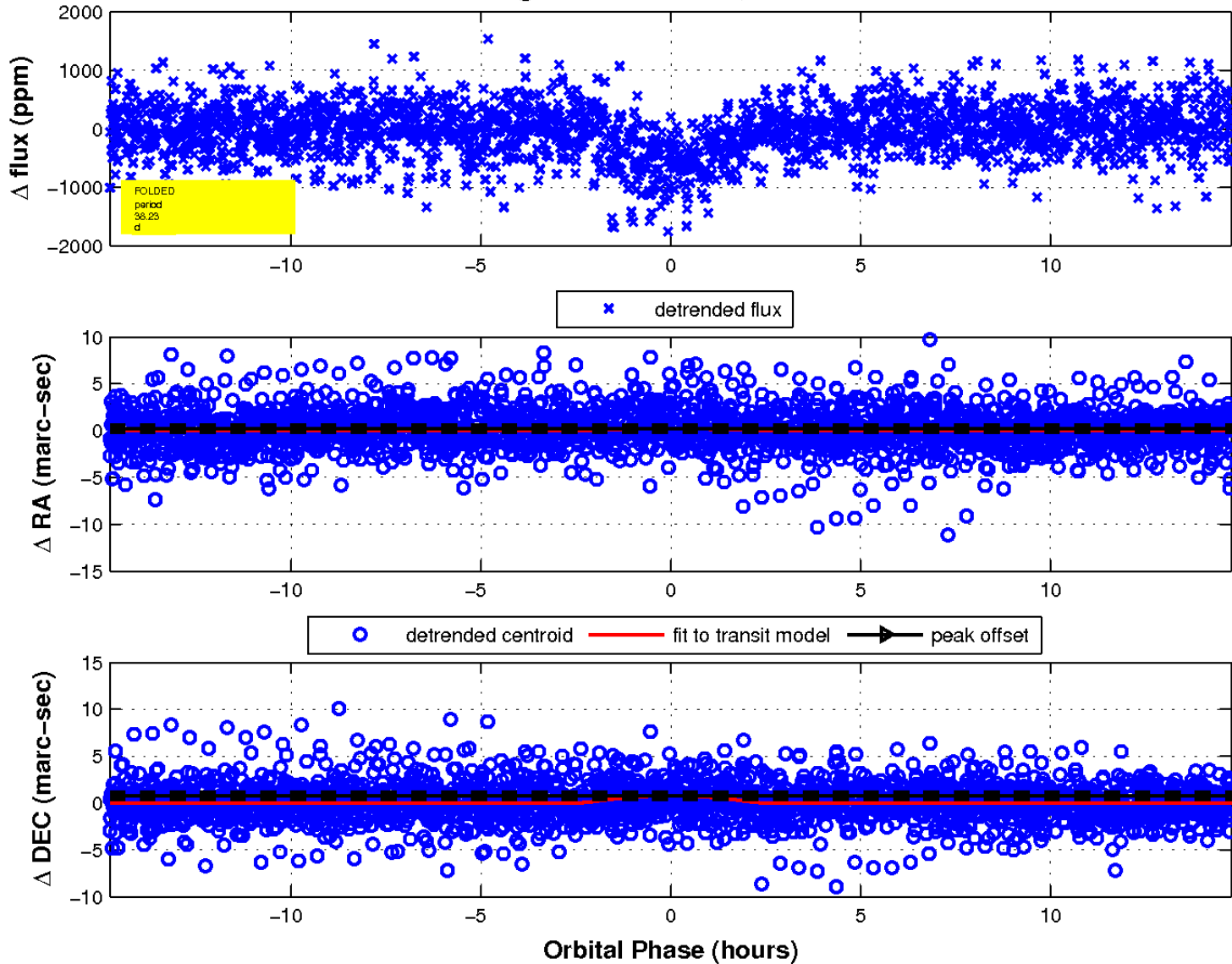
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

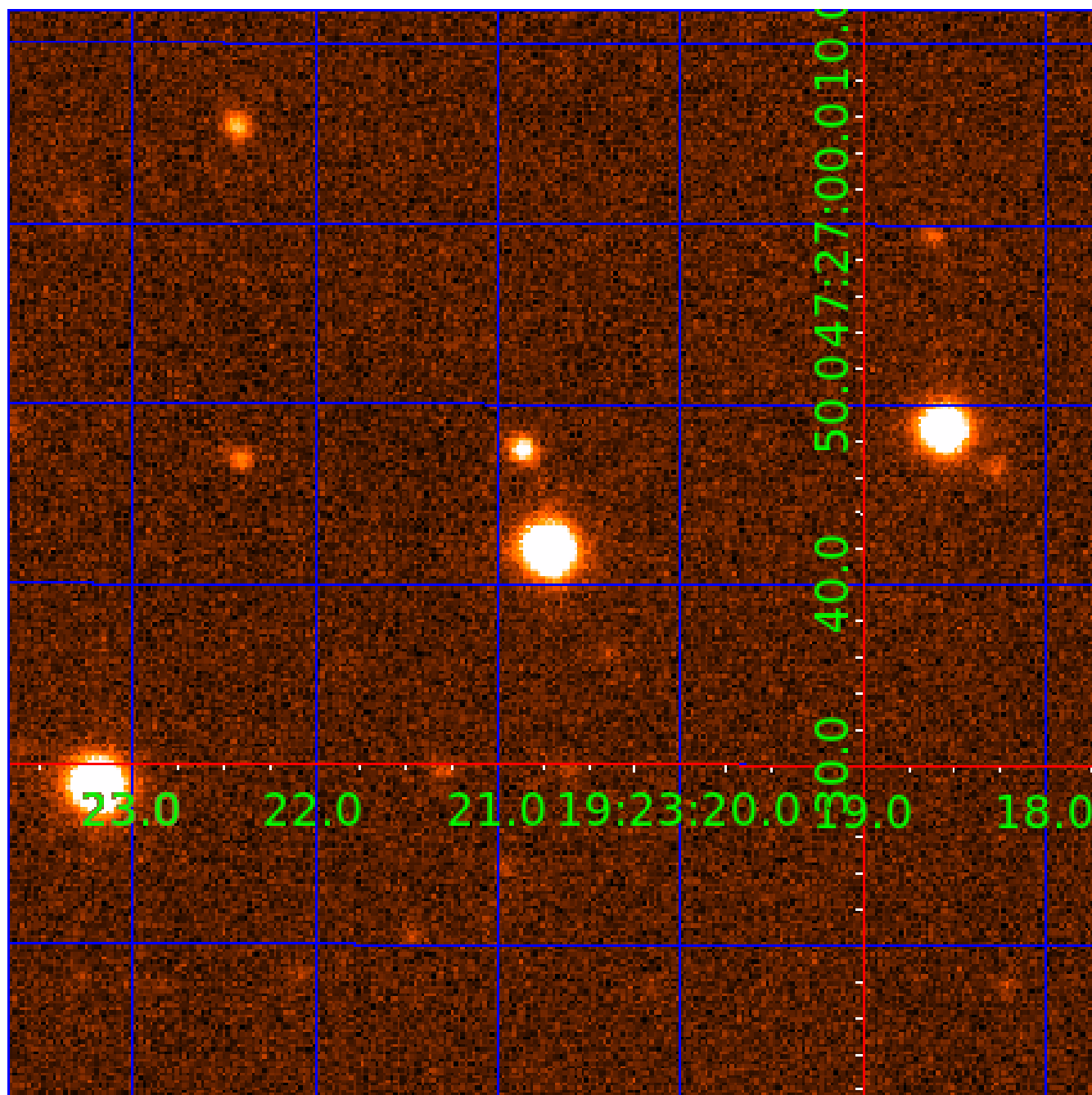


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010336951

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})
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Robovetter Results

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010336951-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

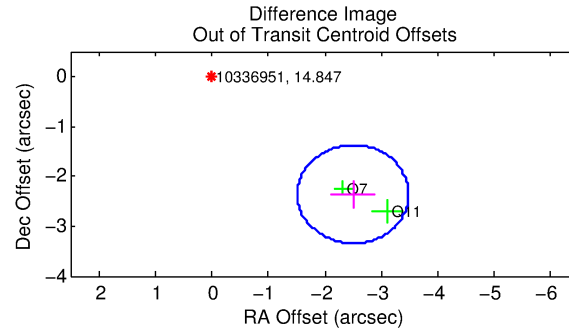
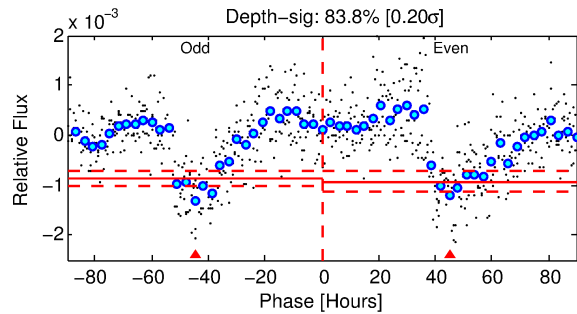
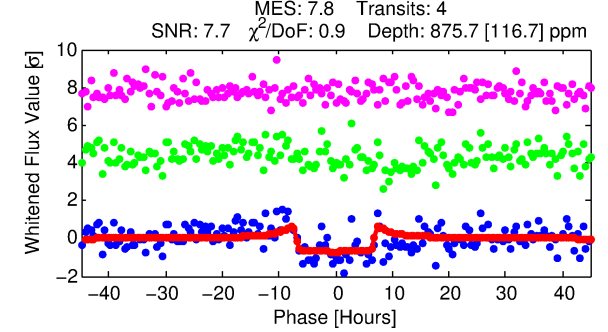
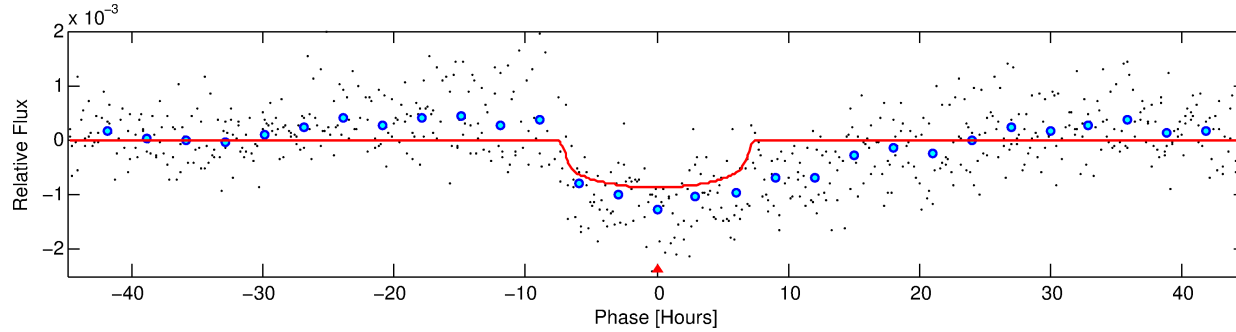
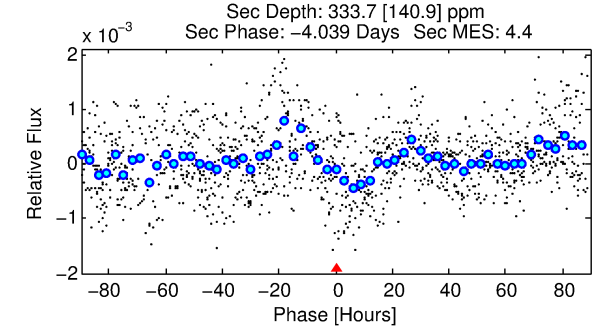
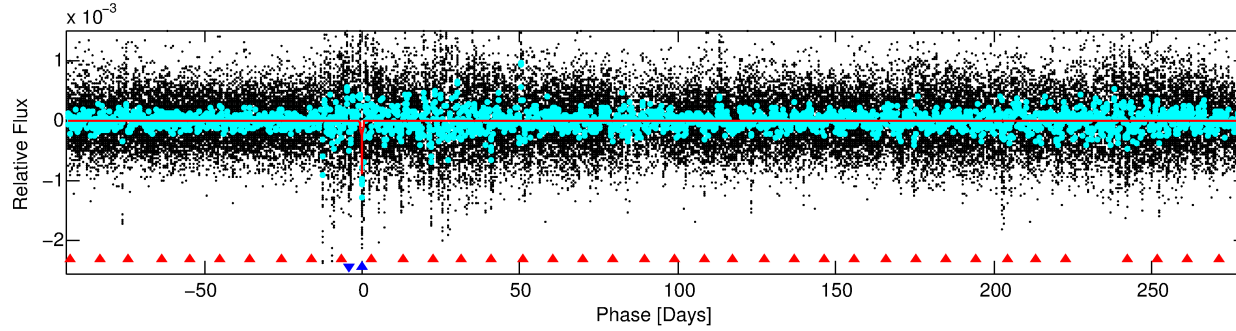
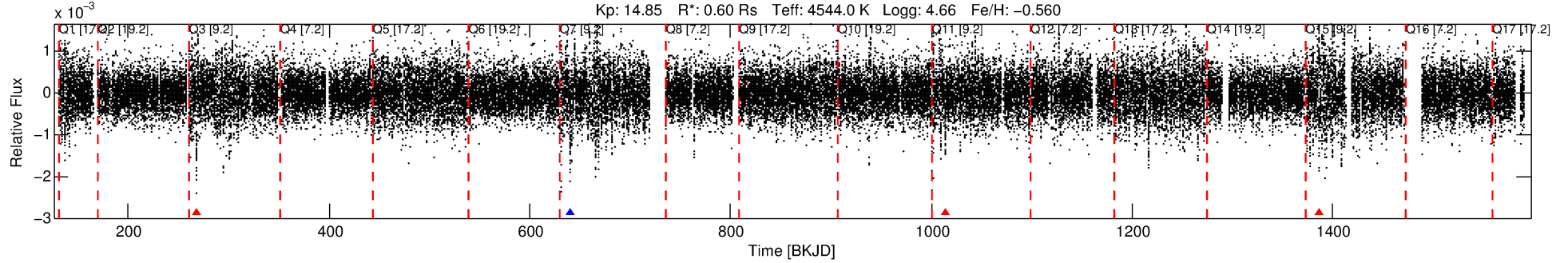
Ephemeris Match Information For 010336951-02

No Significant Match Found

DV One-Page Summary

KIC: 10336951 Candidate: 2 of 2 Period: 372.917 d
KOI: K02401 Corr: No Ephemeris Match

Kp: 14.85 R*: 0.60 Rs Teff: 4544.0 K Logg: 4.66 Fe/H: -0.560



DV Fit Results:

Period = 372.91690 [0.00850] d
Epoch = 267.8596 [0.0154] BKJD
Rp/R* = 0.0295 [0.0054]
a/R* = 135.16 [76.51]
b = 0.75 [0.34]
Seff = 0.19 [0.03]
Teq = 168 [6] K
Rp = 1.93 [0.39] Re
a = 0.8510 [0.0569] AU
Ag = 35835.88 [20374.77] [1.76sigma]
Teff = 3575 [512] K [6.65sigma]

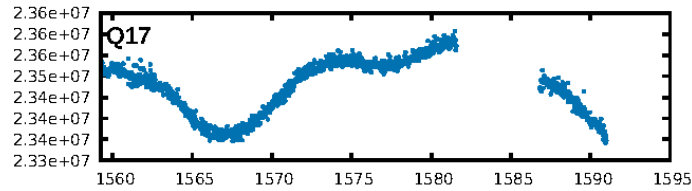
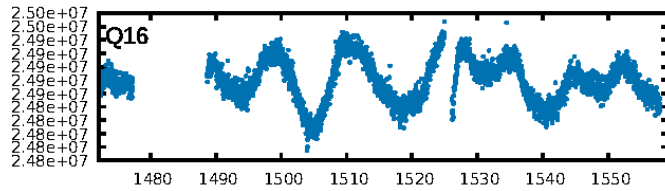
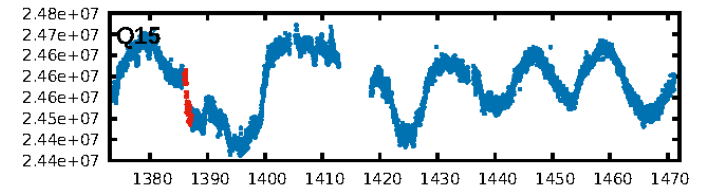
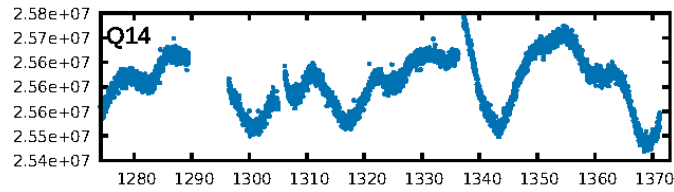
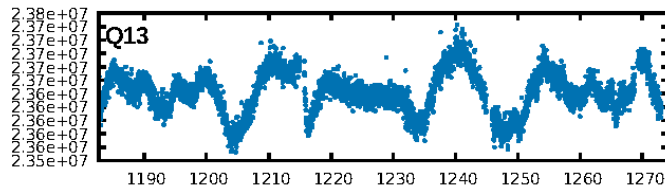
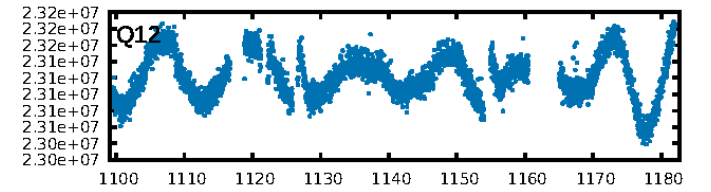
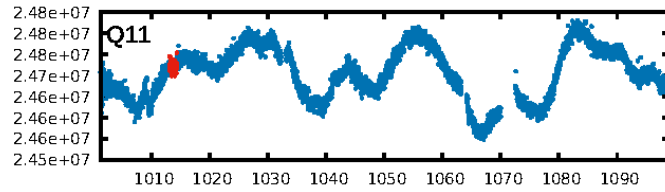
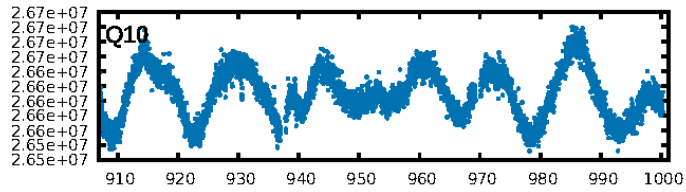
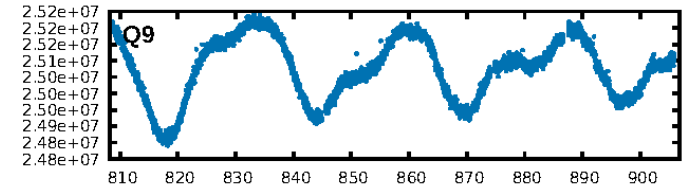
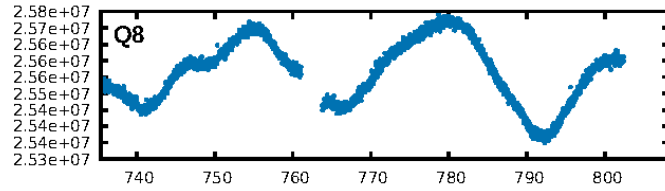
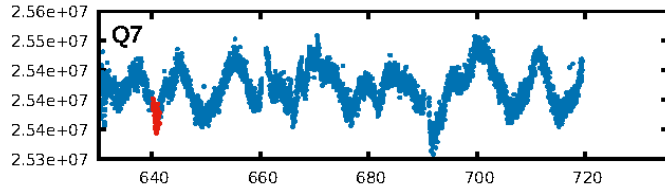
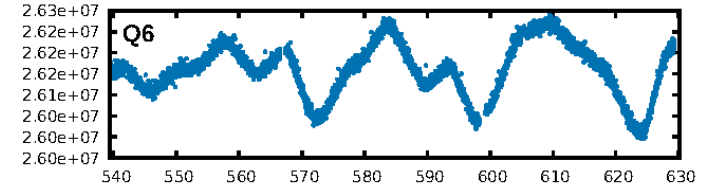
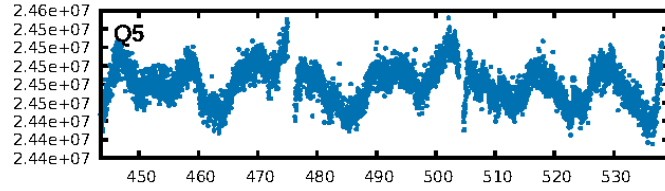
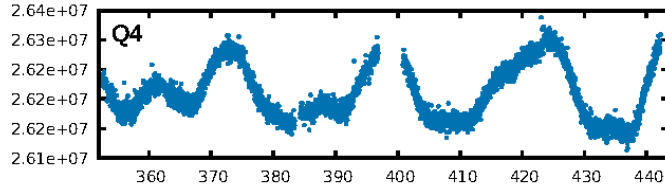
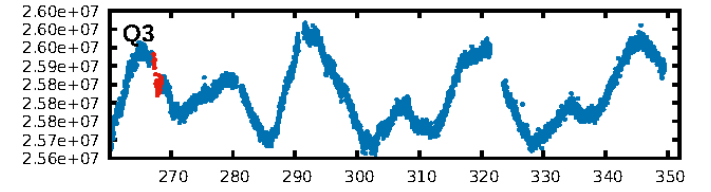
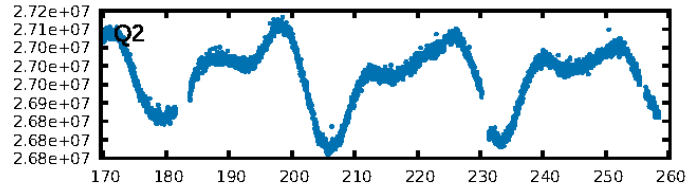
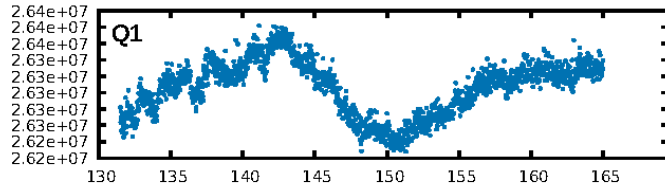
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [510.06sigma]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 25.9%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 1.27e-08
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: 0.2564
Centroid-sig: 0.3%
Centroid-so: 2.960 arcsec [1.61sigma]
OotOffset-rm: 3.439 arcsec [10.48sigma]
KicOffset-rm: 3.094 arcsec [9.76sigma]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

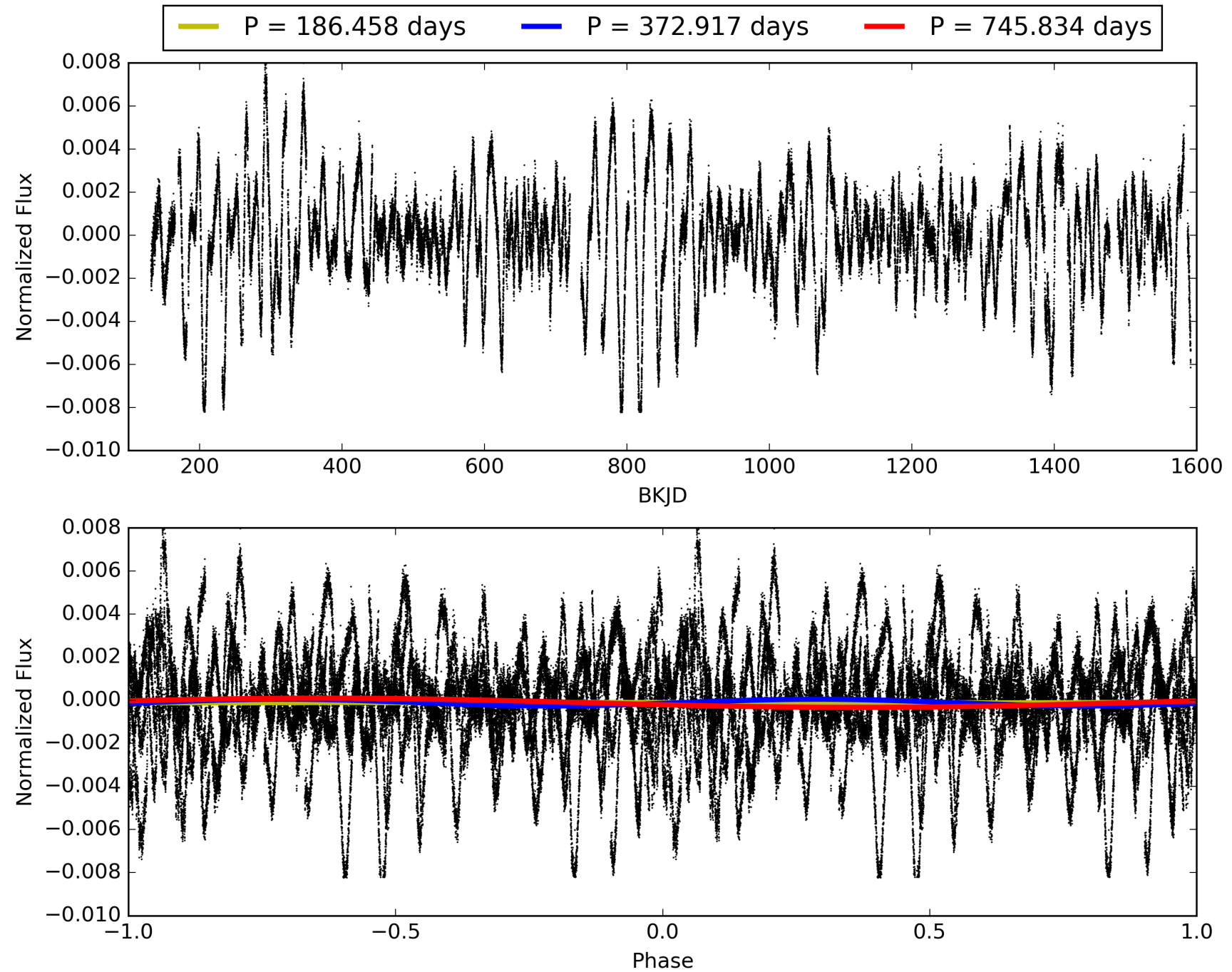
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:58:03 Z

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

TCE 010336951-02, PDC Light Curves

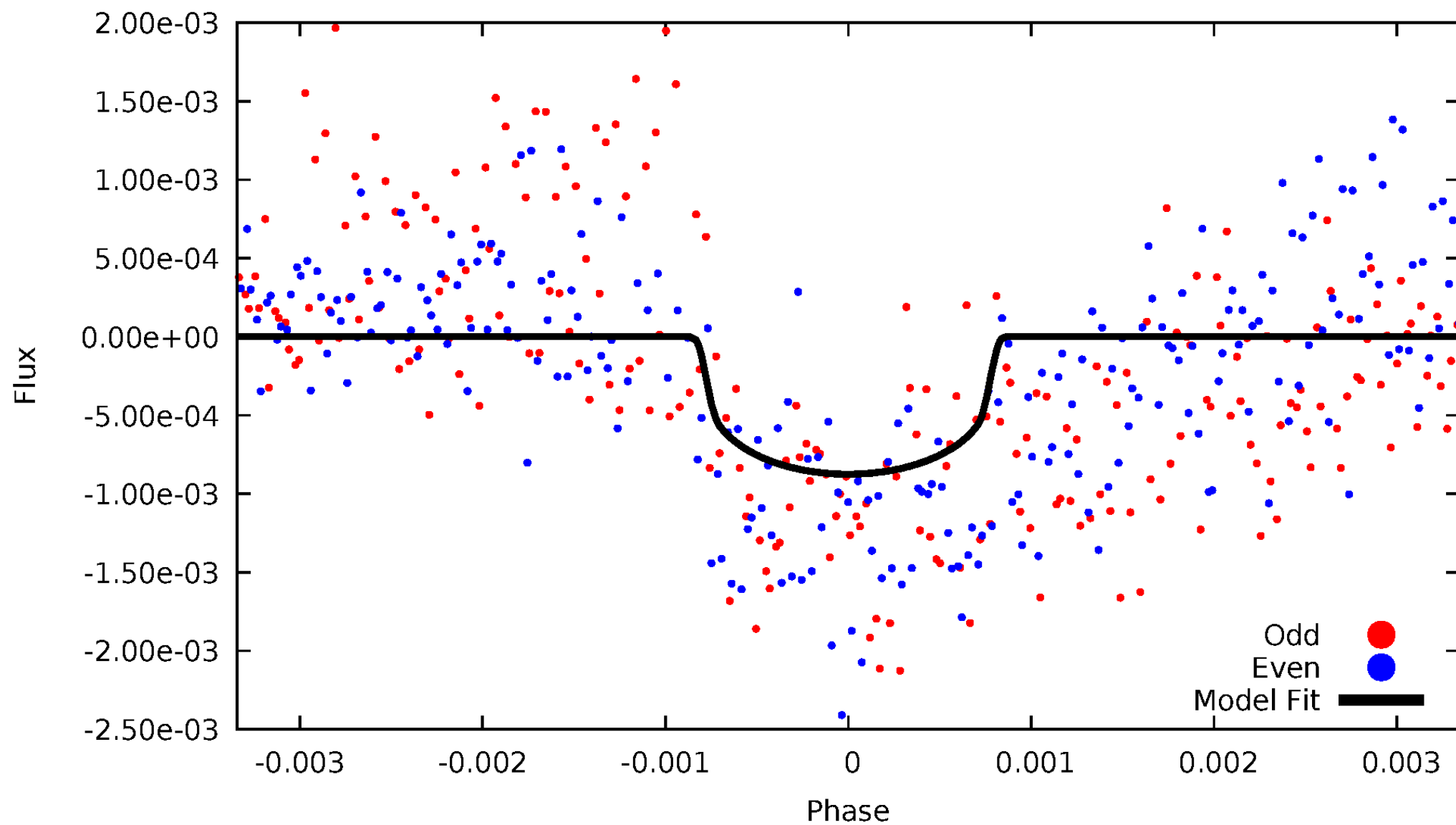


TCE 010336951-02



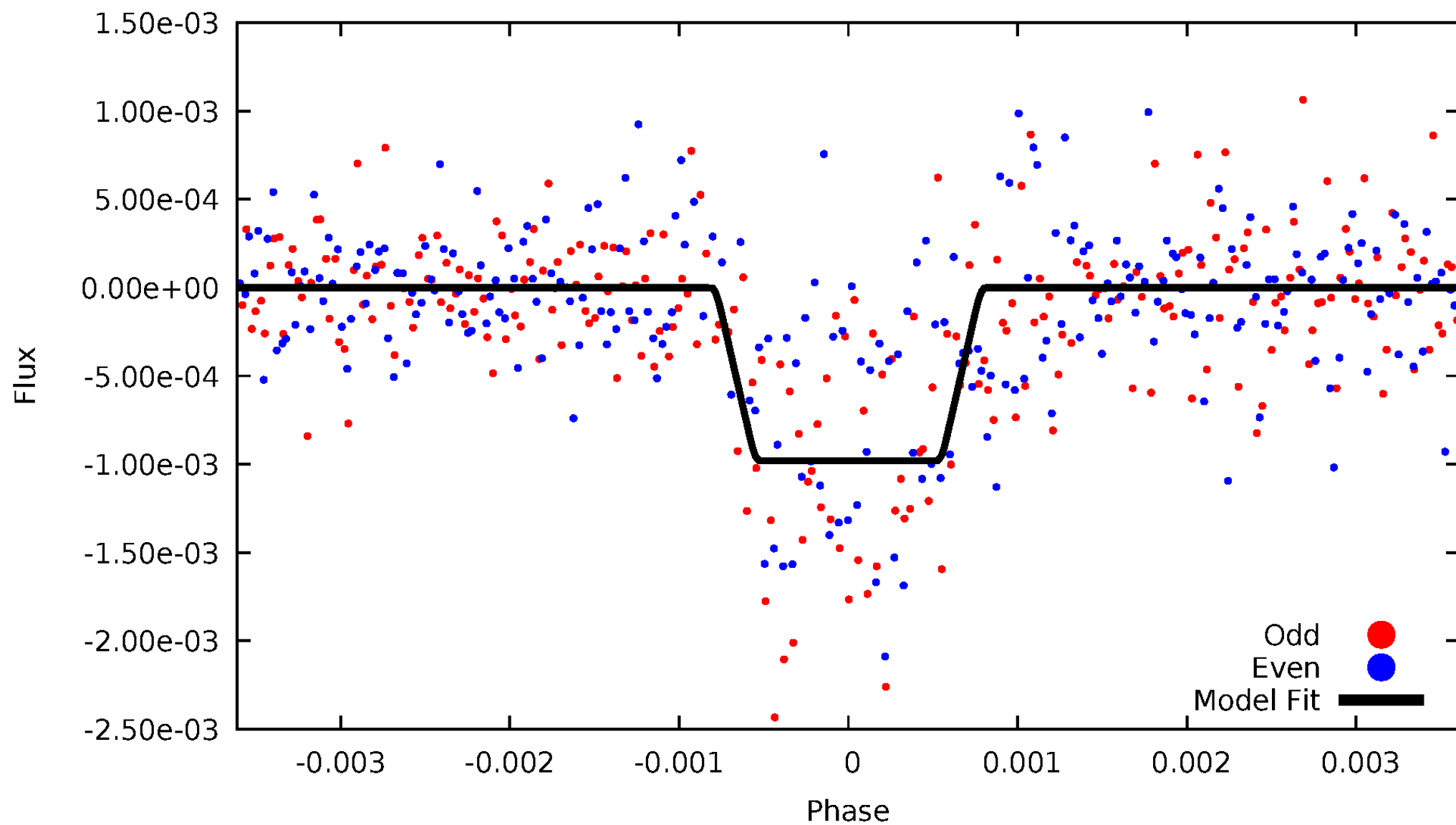
DV Odd/Even

TCE 010336951-02



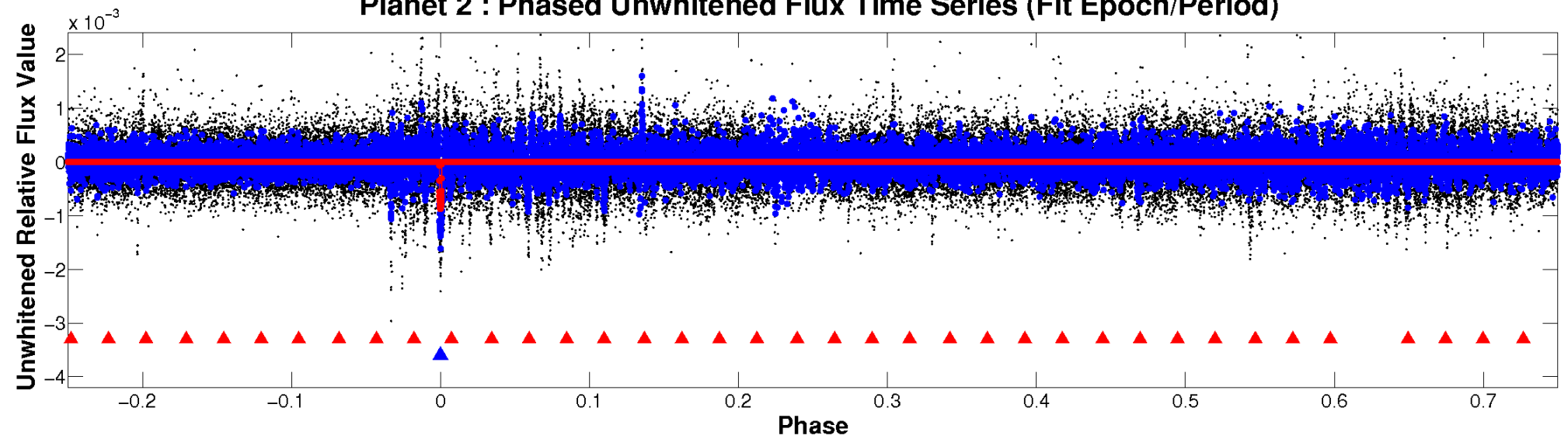
ALT Odd/Even

TCE 010336951-02

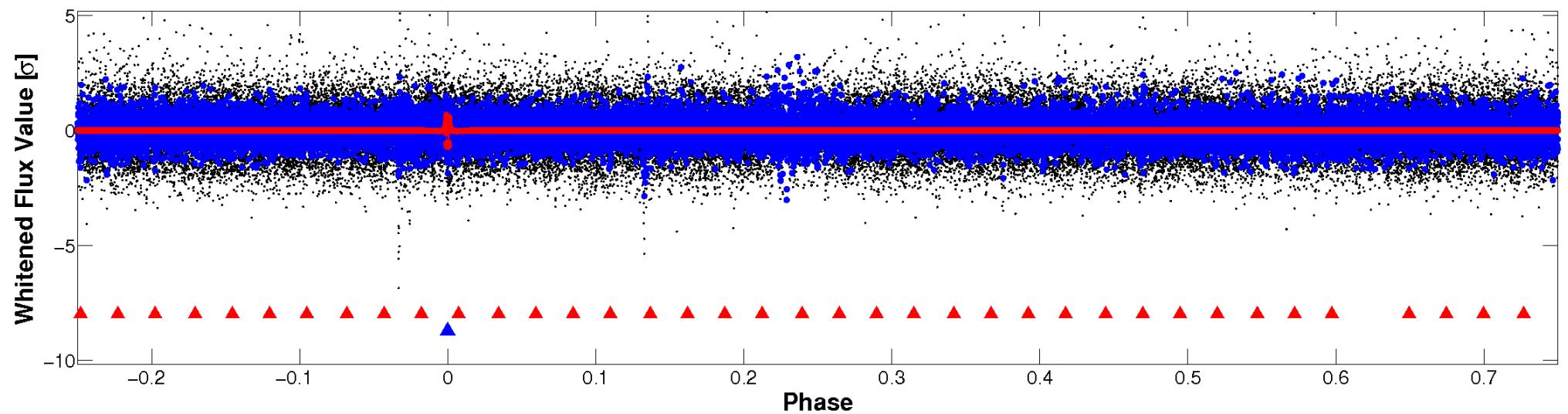


Non-Whitened Vs. Whitened Light Curve

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

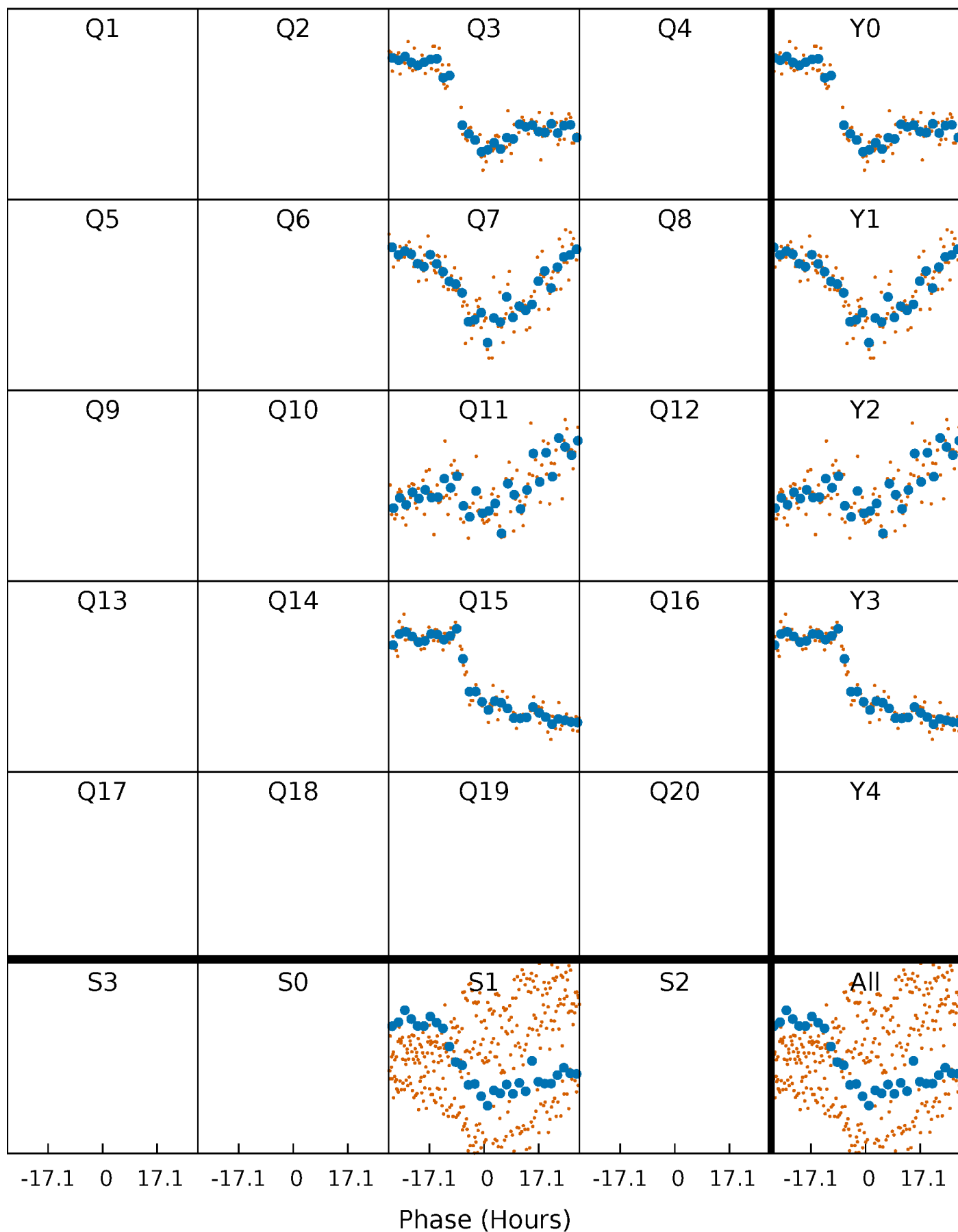


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



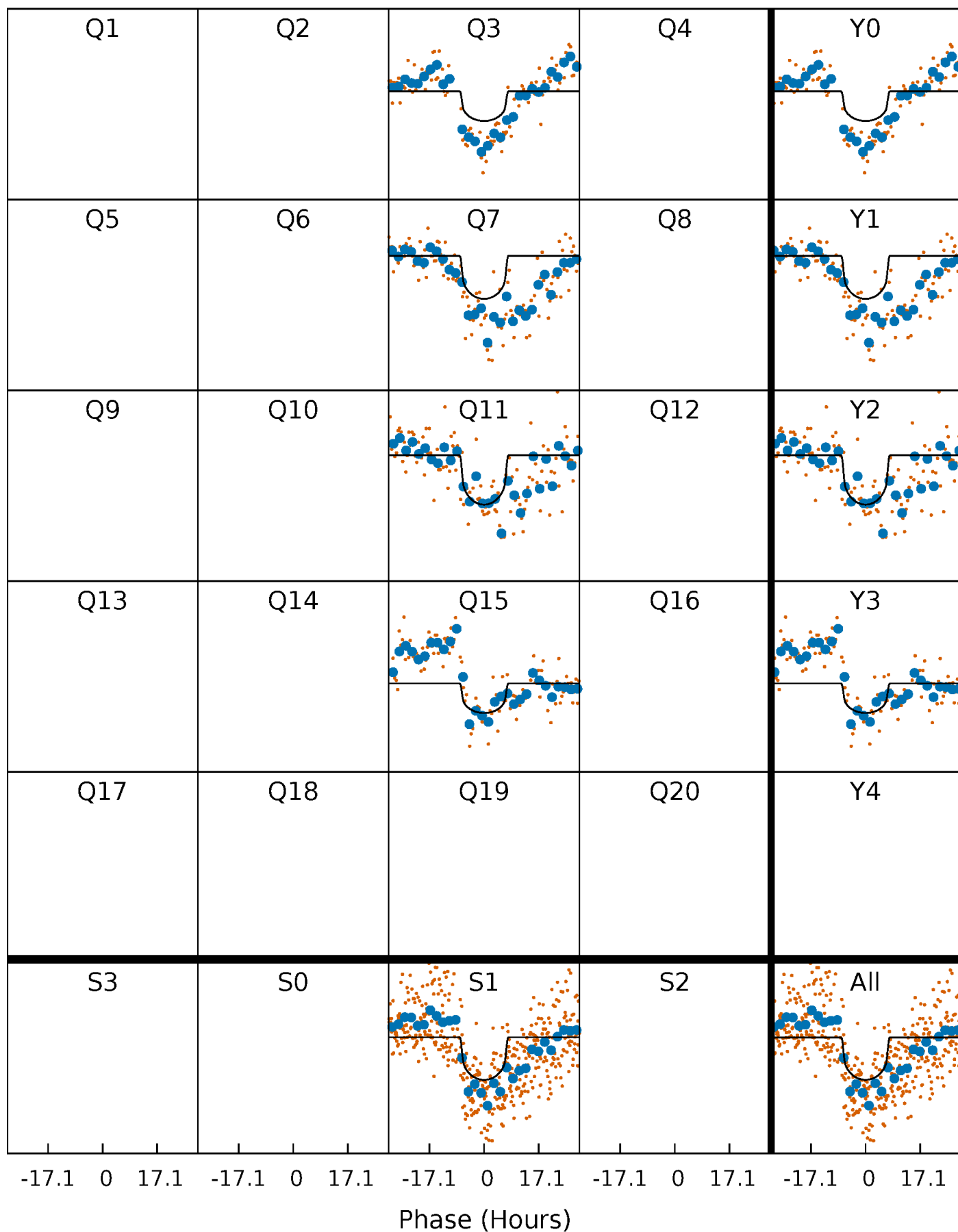
PDC Quarter-Phased Transit Curves

TCE 010336951-02 $P=372.916898$ Days $T_0=267.859586$ (BKJD)



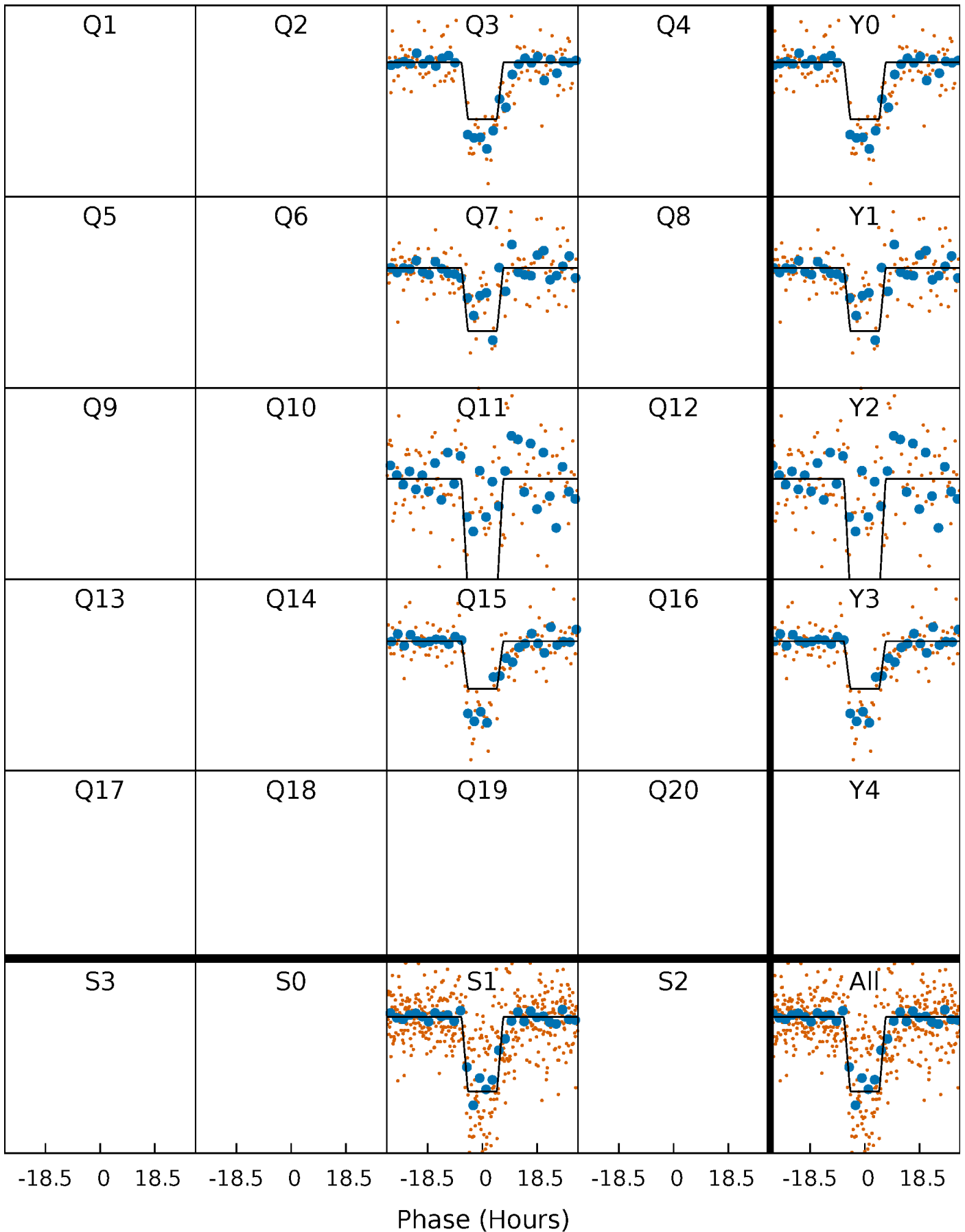
DV Quarter-Phased Transit Curves

TCE 010336951-02 $P=372.916898$ Days $T_0=267.859586$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

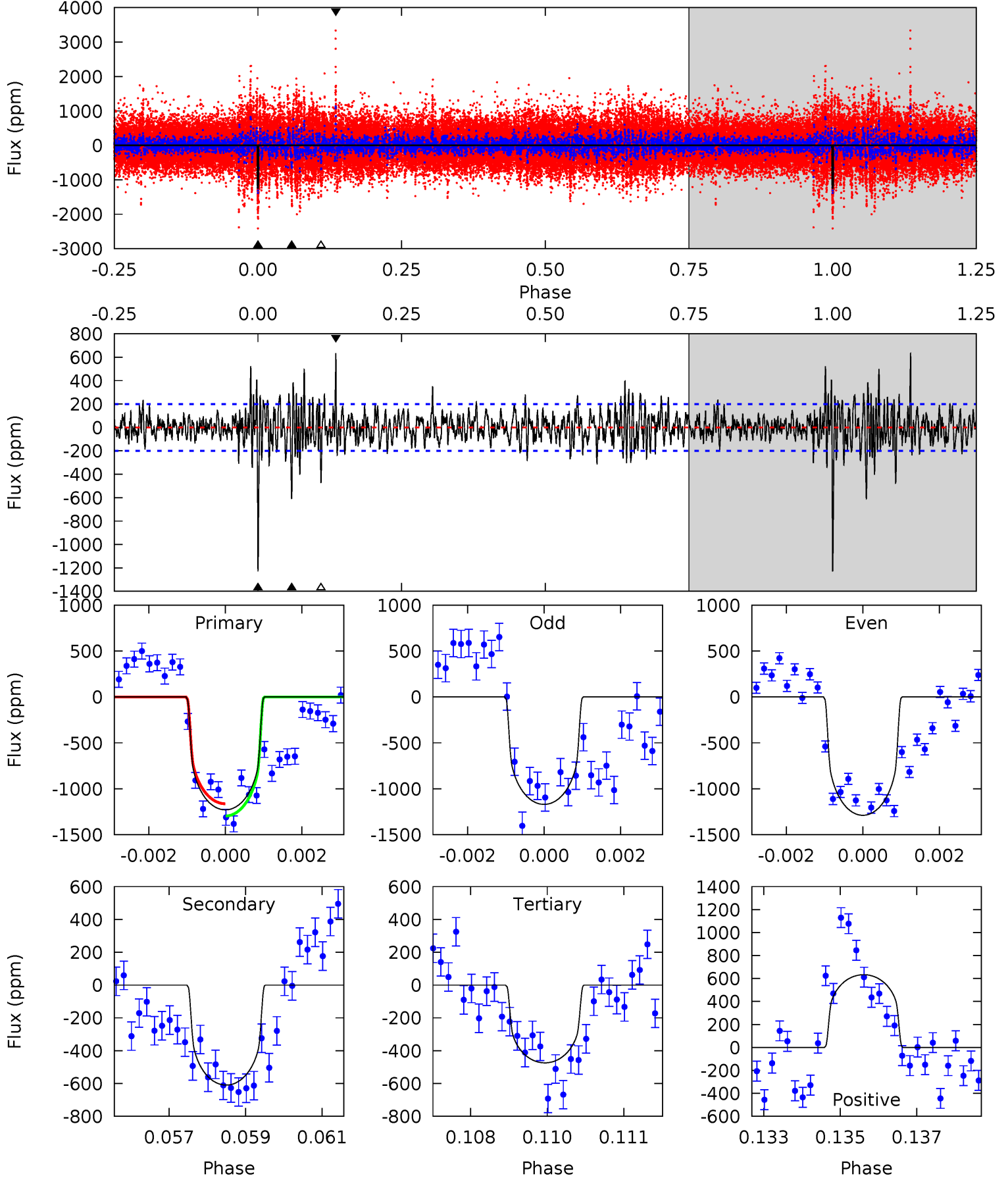
TCE 010336951-02 $P=372.939715$ Days $T_0=267.765197$ (BKJD)



DV Model-Shift Uniqueness Test

010336951-02, P = 372.916898 Days, E = 267.859586 Days

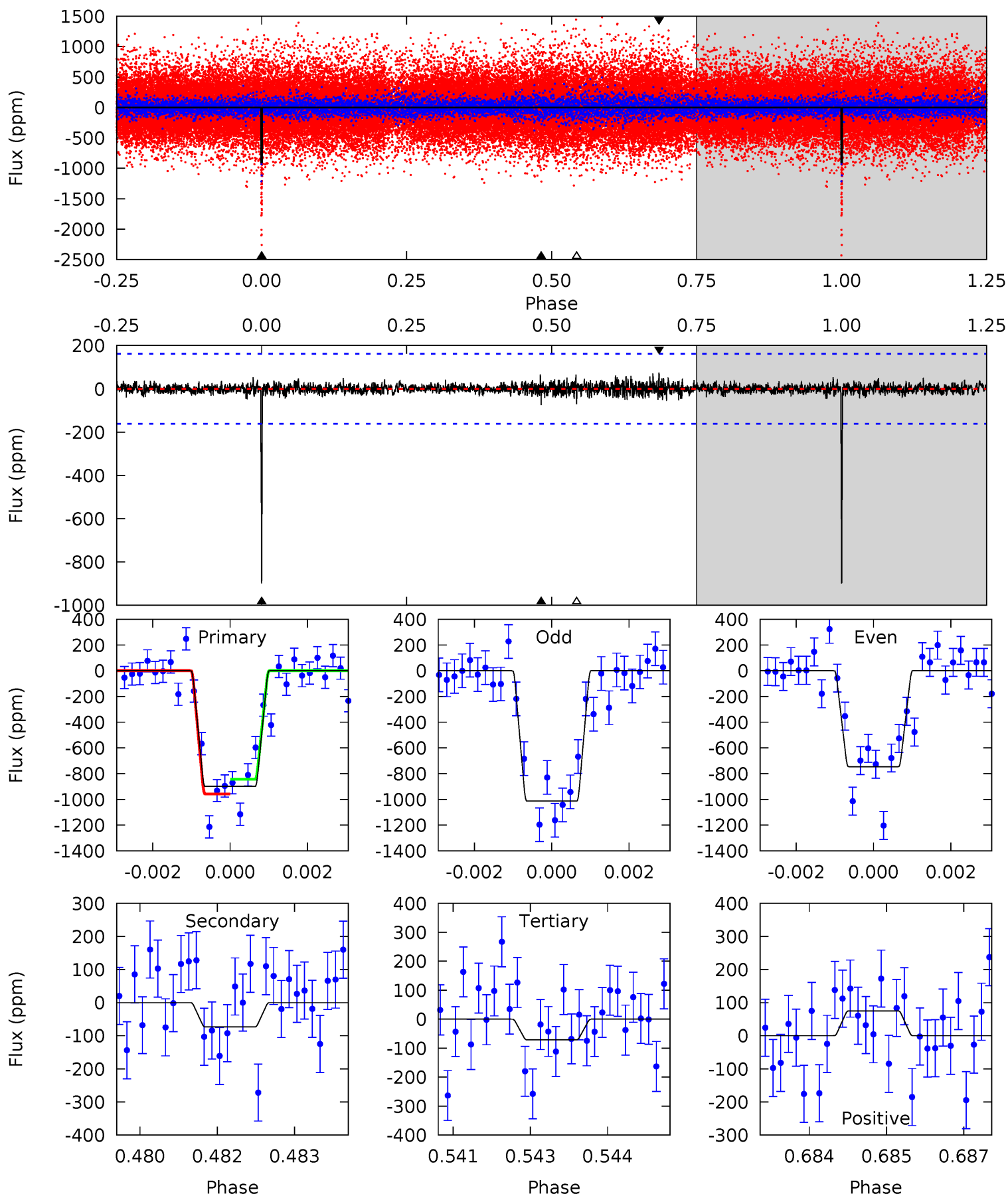
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.0	16.4	12.7	17.0	5.36	3.14	3.00	20.3	16.0	3.63	-0.62	1.59	1.05	0.34	1.79



Alt Model-Shift Uniqueness Test

010336951-02, $P = 372.939715$ Days, $E = 267.765197$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.8	2.43	2.36	2.49	5.37	3.15	0.49	27.5	27.4	0.08	-0.05	4.48	0.94	0.08	1.89



Stellar Parameters For KIC 010336951

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4544^{+121}_{-135}	$4.656^{+0.048}_{-0.032}$	$-0.560^{+0.300}_{-0.300}$	$0.598^{+0.050}_{-0.050}$	$0.592^{+0.067}_{-0.038}$	$3.892^{+0.890}_{-0.499}$
	+3%/-3%	+1%/-1%	+54%/-54%	+8%/-8%	+11%/-6%	+23%/-13%
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 010336951-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-610 ± 37	$1.91^{+0.38}_{-0.34}$	234^{+8}_{-8}	4249^{+370}_{-273}	67514^{+31782}_{-20368}
Alt.	-73 ± 30	$2.05^{+0.36}_{-0.39}$	234^{+8}_{-8}	2956^{+234}_{-244}	6967^{+4617}_{-3207}

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 $A_{obs} \gg 1.0$

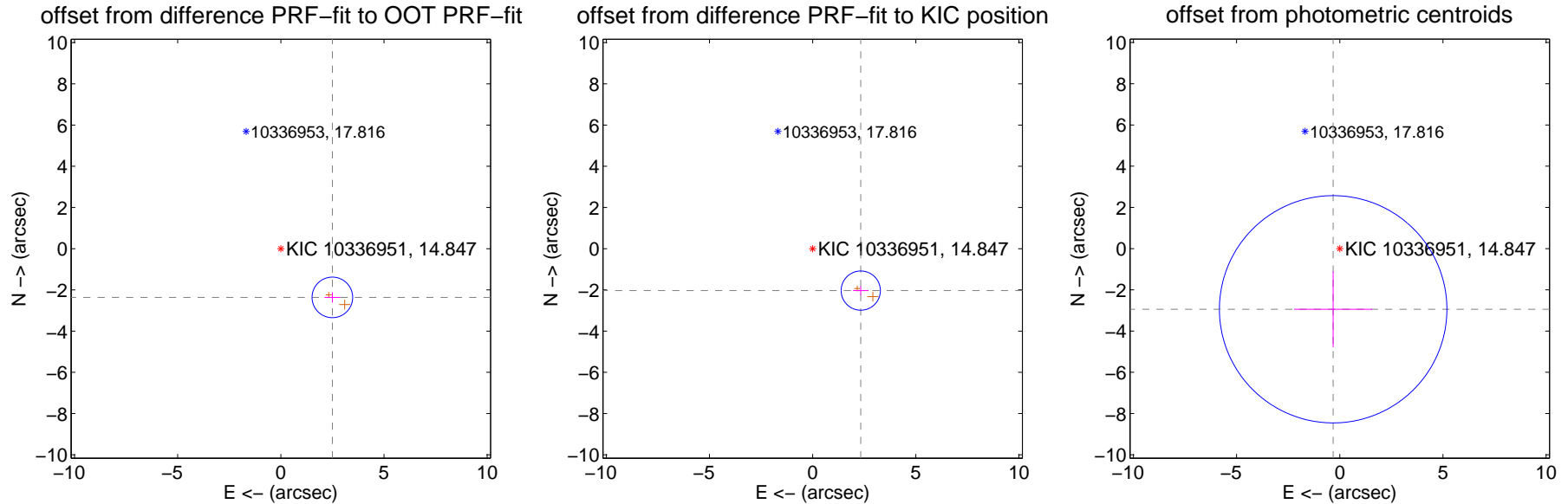
DV Centroid Data

Supplemental centroid analysis for 010336951-02. Kepler magnitude: 14.85. Transit SNR 7.74

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.439 ± 0.328	10.48	-2.498 ± 0.385	-2.364 ± 0.250
PRF-fit source offset from KIC position	3.094 ± 0.317	9.76	-2.333 ± 0.377	-2.033 ± 0.214
photometric centroid source offset	2.96 ± 1.84	1.61	0.32 ± 1.90	-2.94 ± 1.84

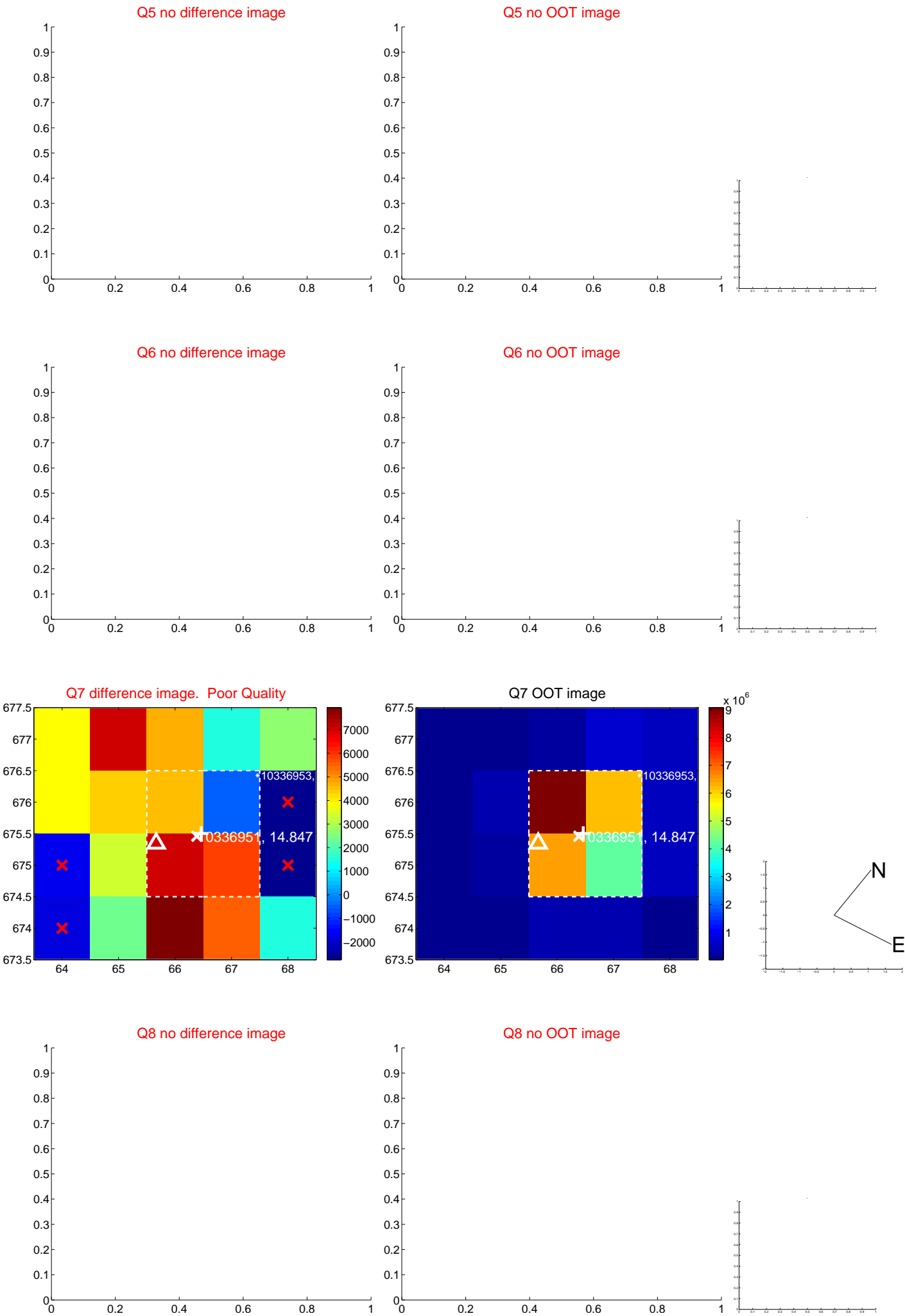


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

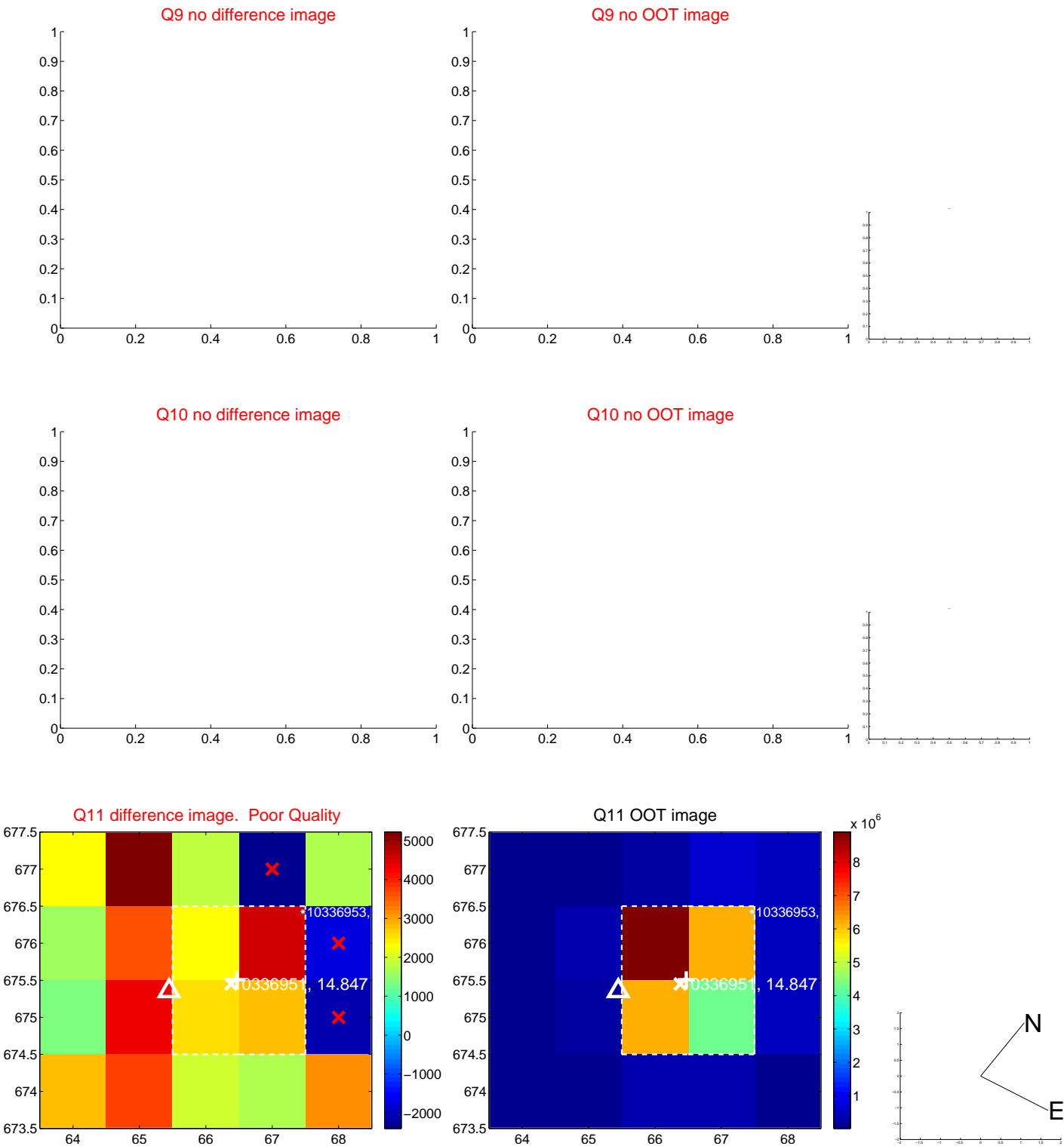
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



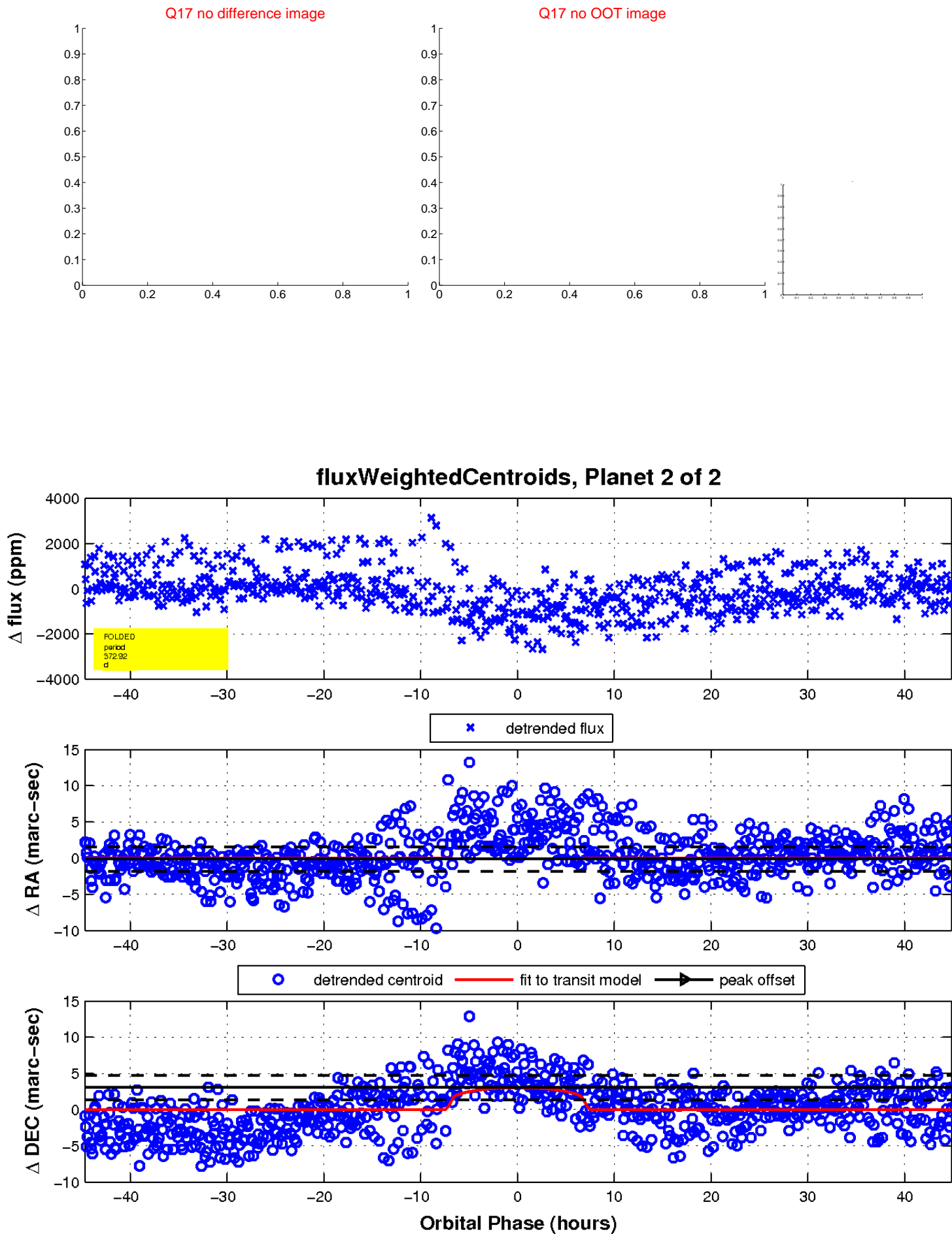
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

