

KIC 005252423

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})
005252423-01	OBS	0825.01	8.103645	136.429117	900.2	3.284	33.6	36.3	0.73	4861	2.43	52.87
005252423-02	OBS	0825.02	4.715102	134.961009	391.1	2.650	16.5	18.2	0.73	4861	1.78	108.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005252423-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005252423-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

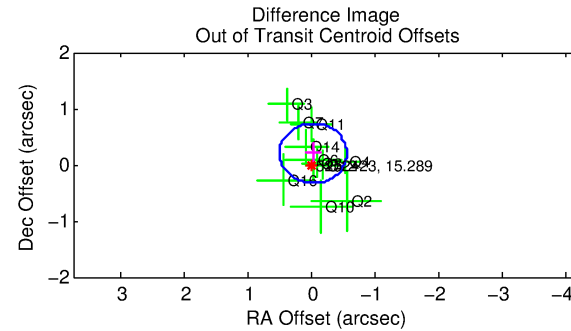
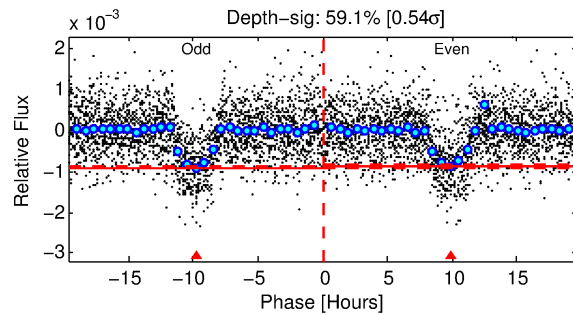
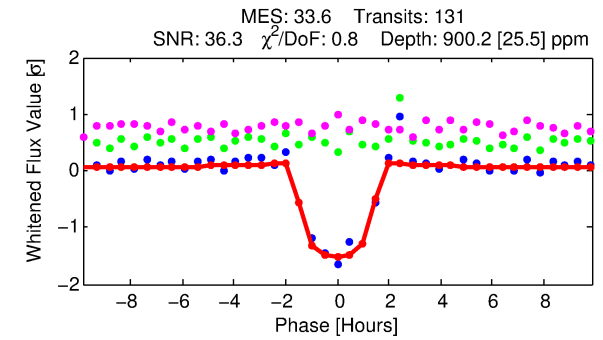
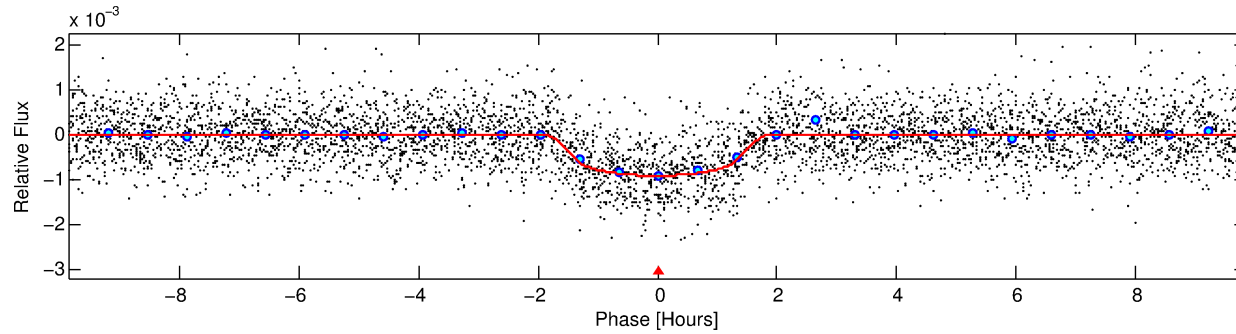
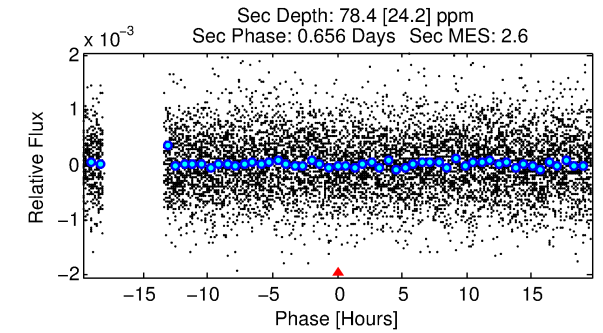
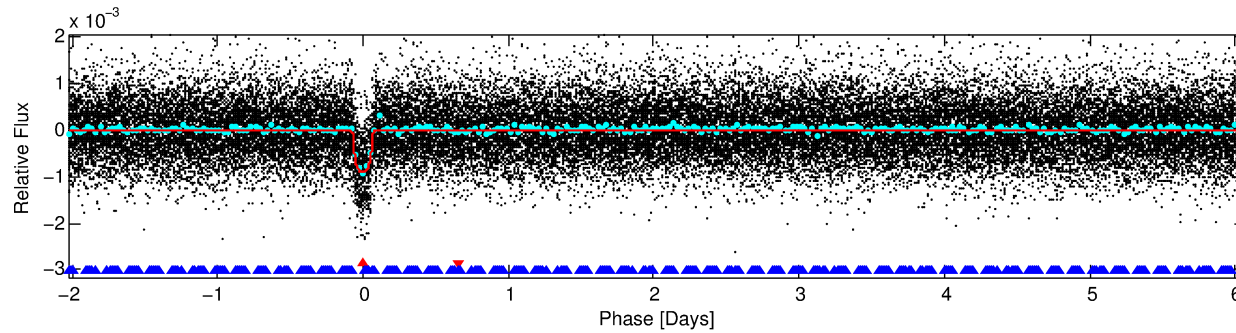
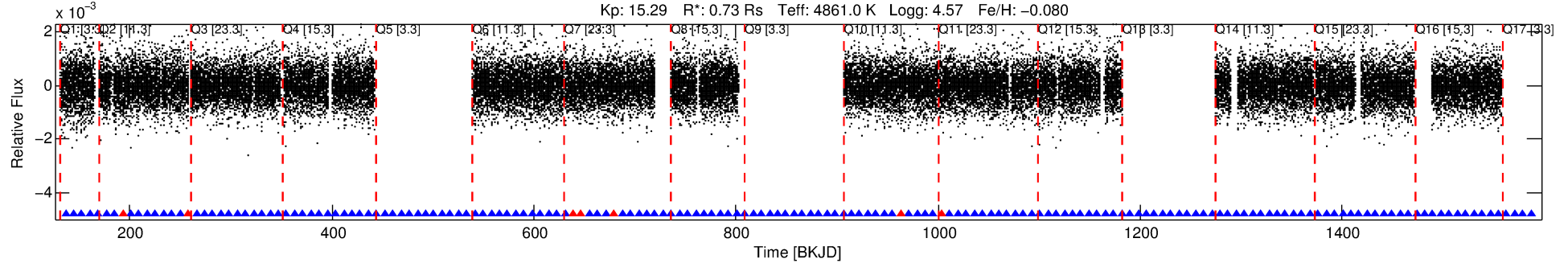
Ephemeris Match Information For 005252423-01

No Significant Match Found

DV One-Page Summary

KIC: 5252423 Candidate: 1 of 2 Period: 8.104 d
KOI: K00825.01 Name: Kepler-237c Corr: 0.985

Kp: 15.29 R*: 0.73 Rs Teff: 4861.0 K Logg: 4.57 Fe/H: -0.080



DV Fit Results:

Period = 8.10364 [0.00002] d
Epoch = 136.4291 [0.0018] BKJD
Rp/R* = 0.0304 [0.0079]
a/R* = 12.85 [11.38]
b = 0.77 [0.48]
Seff = 52.87 [8.38]
Teq = 688 [27] K
Rp = 2.43 [0.67] Re
a = 0.0712 [0.0053] AU
Ag = 37.11 [22.71] [1.59σ]
Teffp = 2624 [403] K [4.79σ]

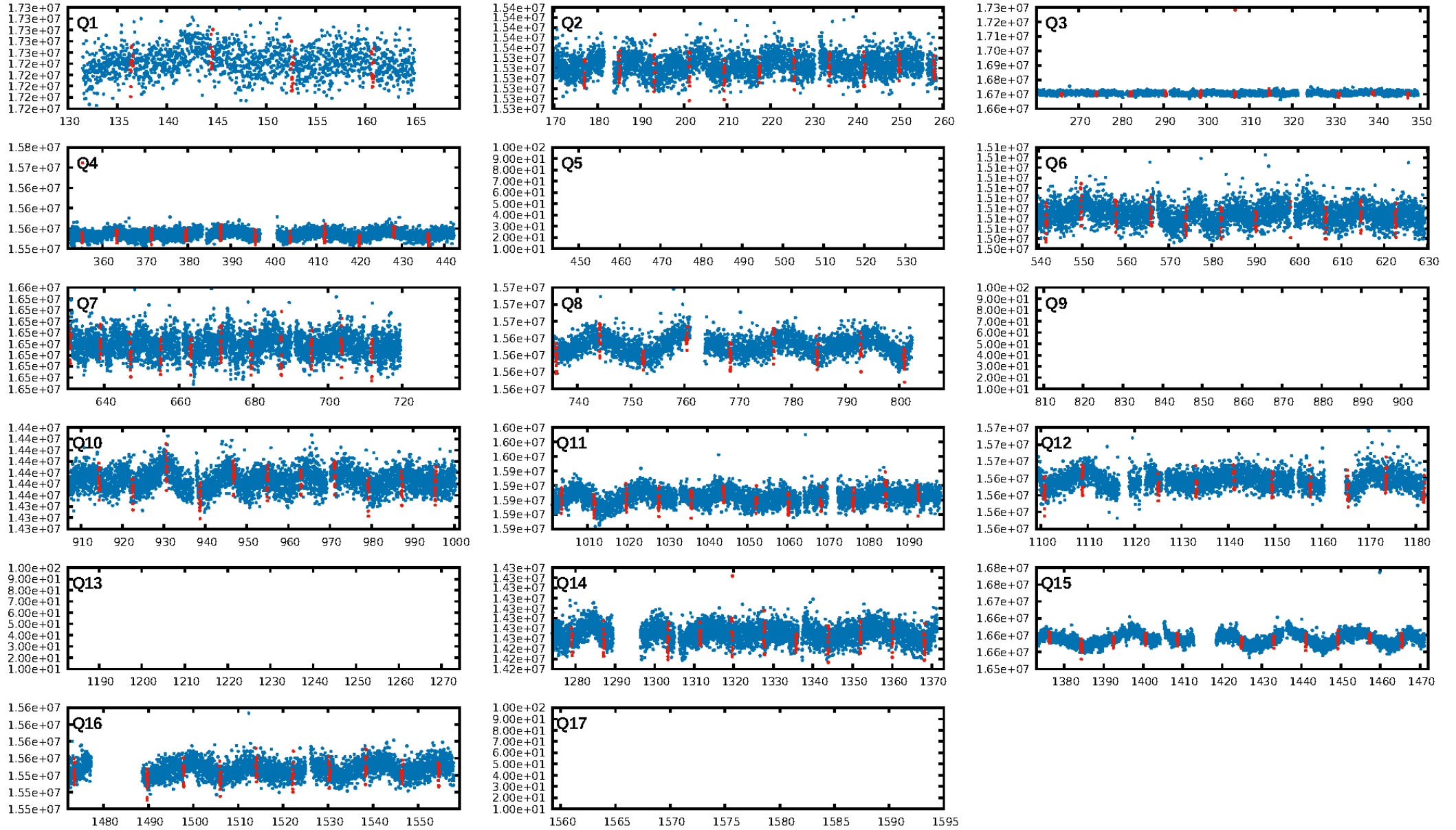
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.27σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 90.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.08e-241
RollingBand-fgt: 0.94 [120/127]
GhostDiagnostic-chr: 2.957
Centroid-sig: 0.0%
Centroid-so: 0.996 arcsec [2.79σ]
OotOffset-rm: 0.203 arcsec [1.15σ]
KicOffset-rm: 0.264 arcsec [1.73σ]
OotOffset-st: 4/3/4/0 [11]
KicOffset-st: 4/3/4/0 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [13/13]

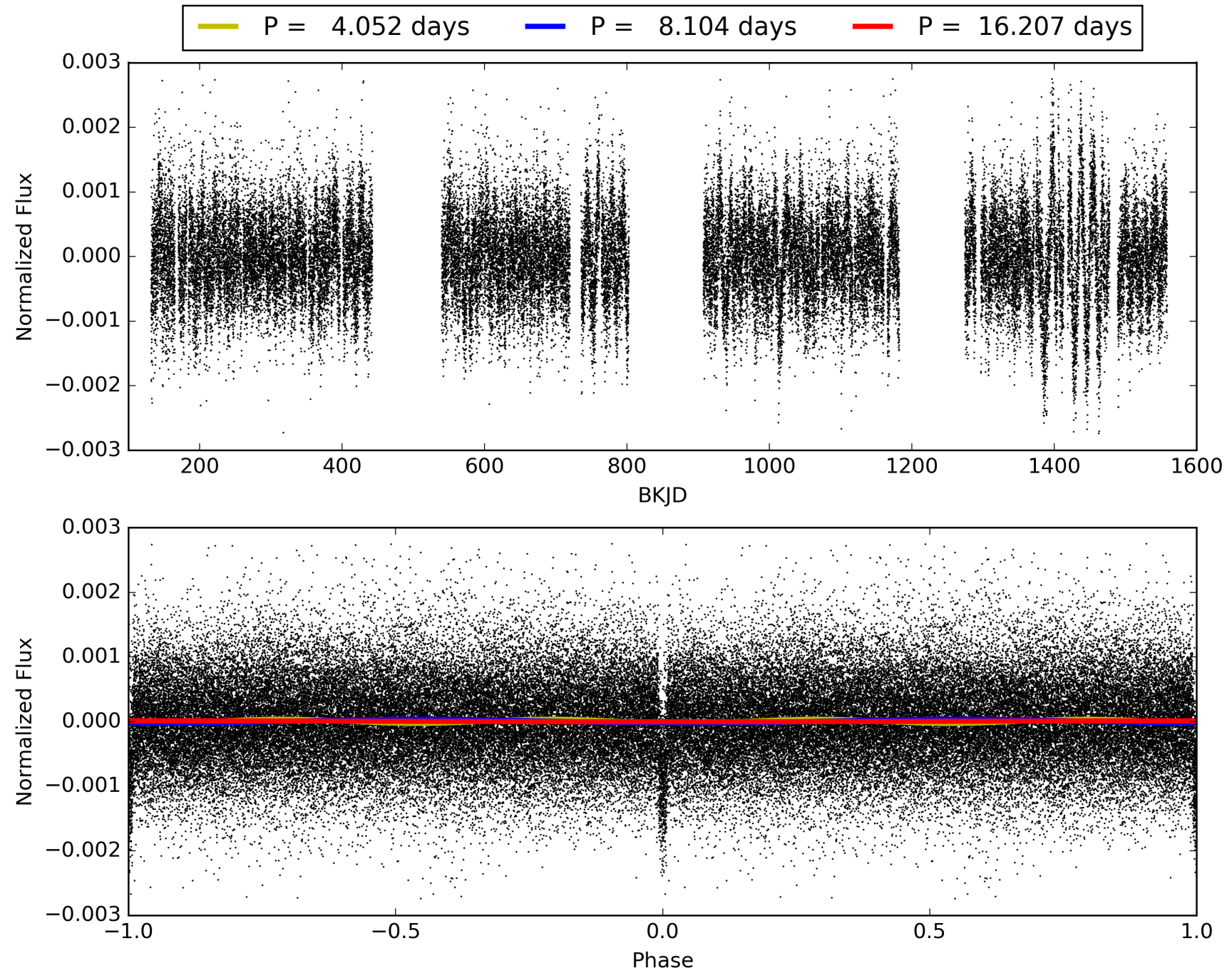
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:50:50 Z

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

TCE 005252423-01, PDC Light Curves

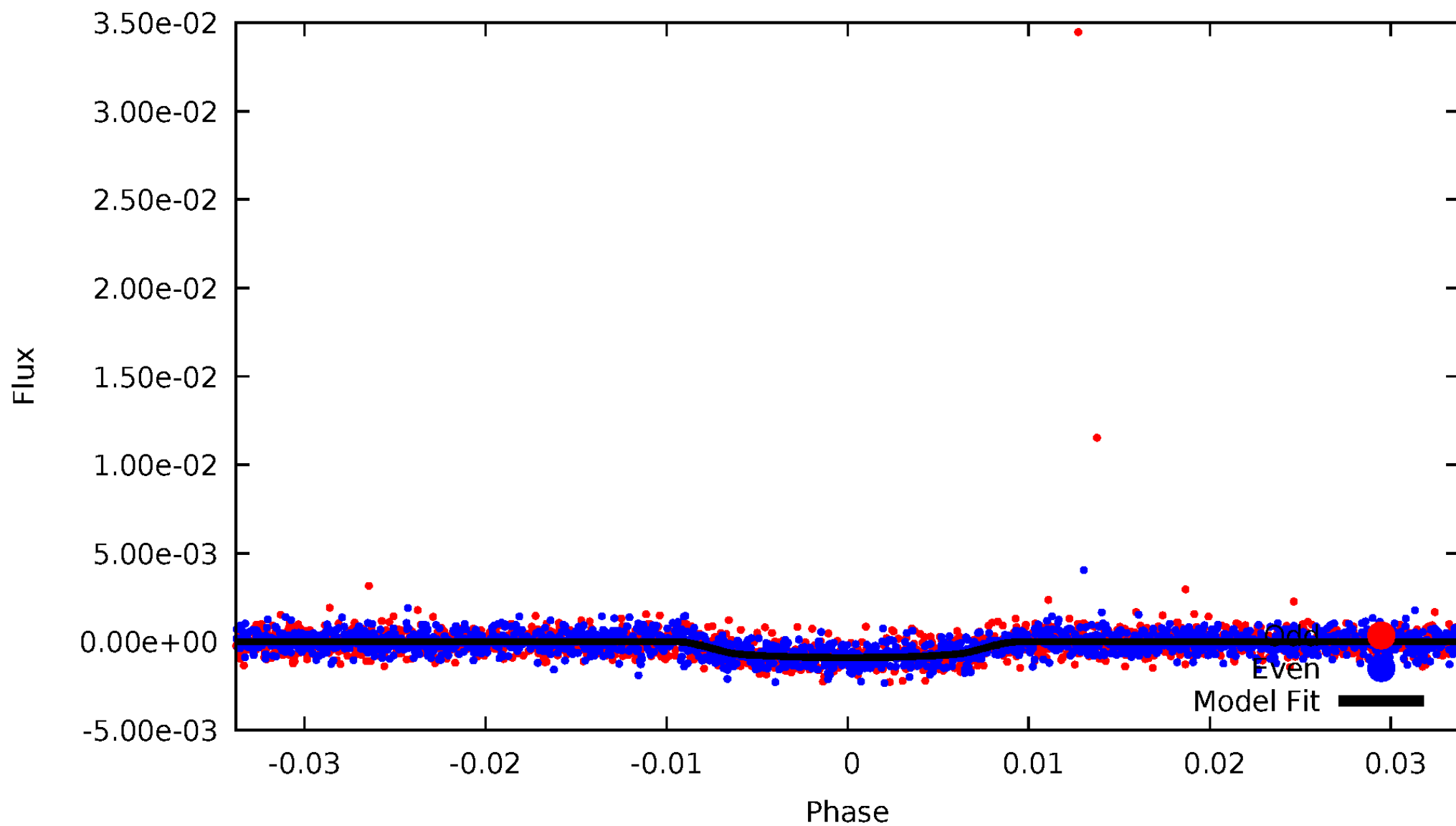


TCE 005252423-01



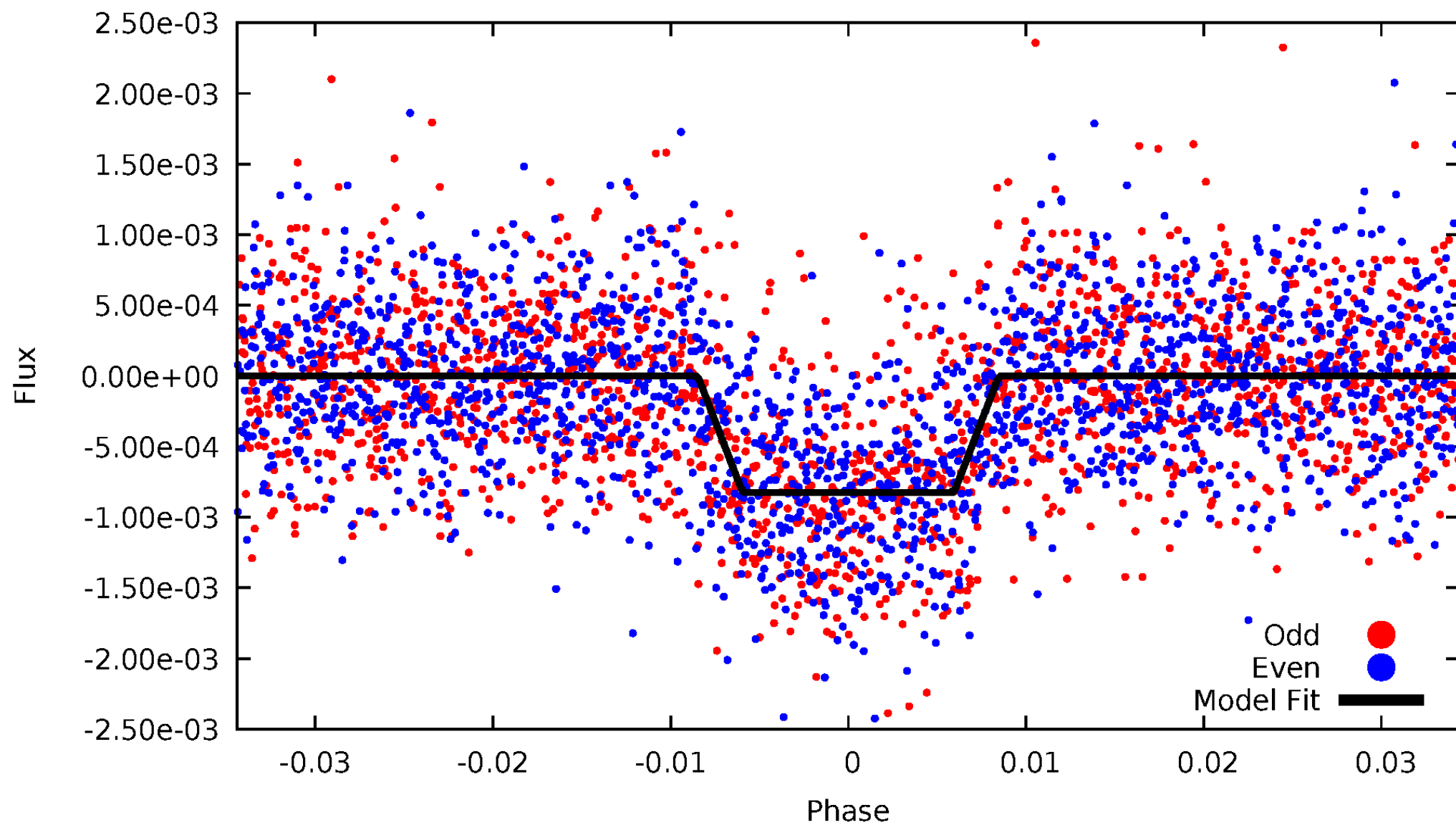
DV Odd/Even

TCE 005252423-01



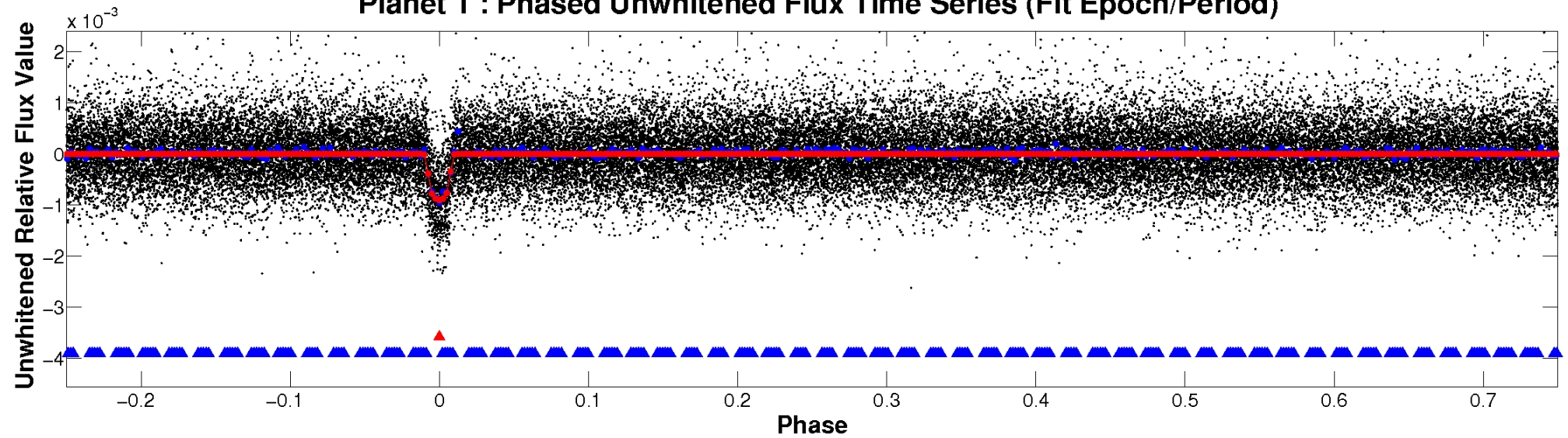
ALT Odd/Even

TCE 005252423-01

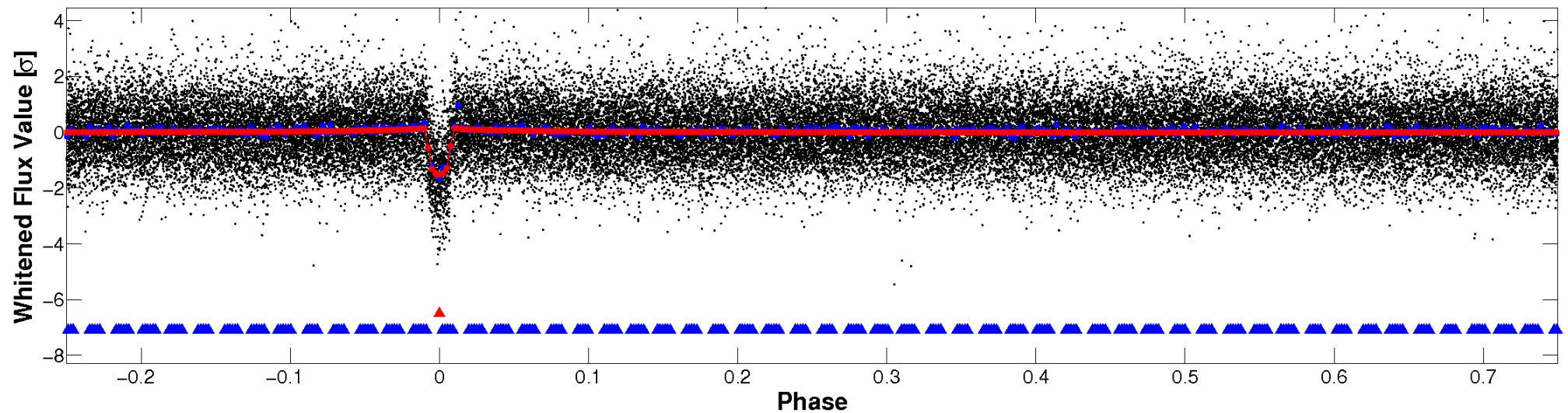


Non-Whitened Vs. Whitened Light Curve

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

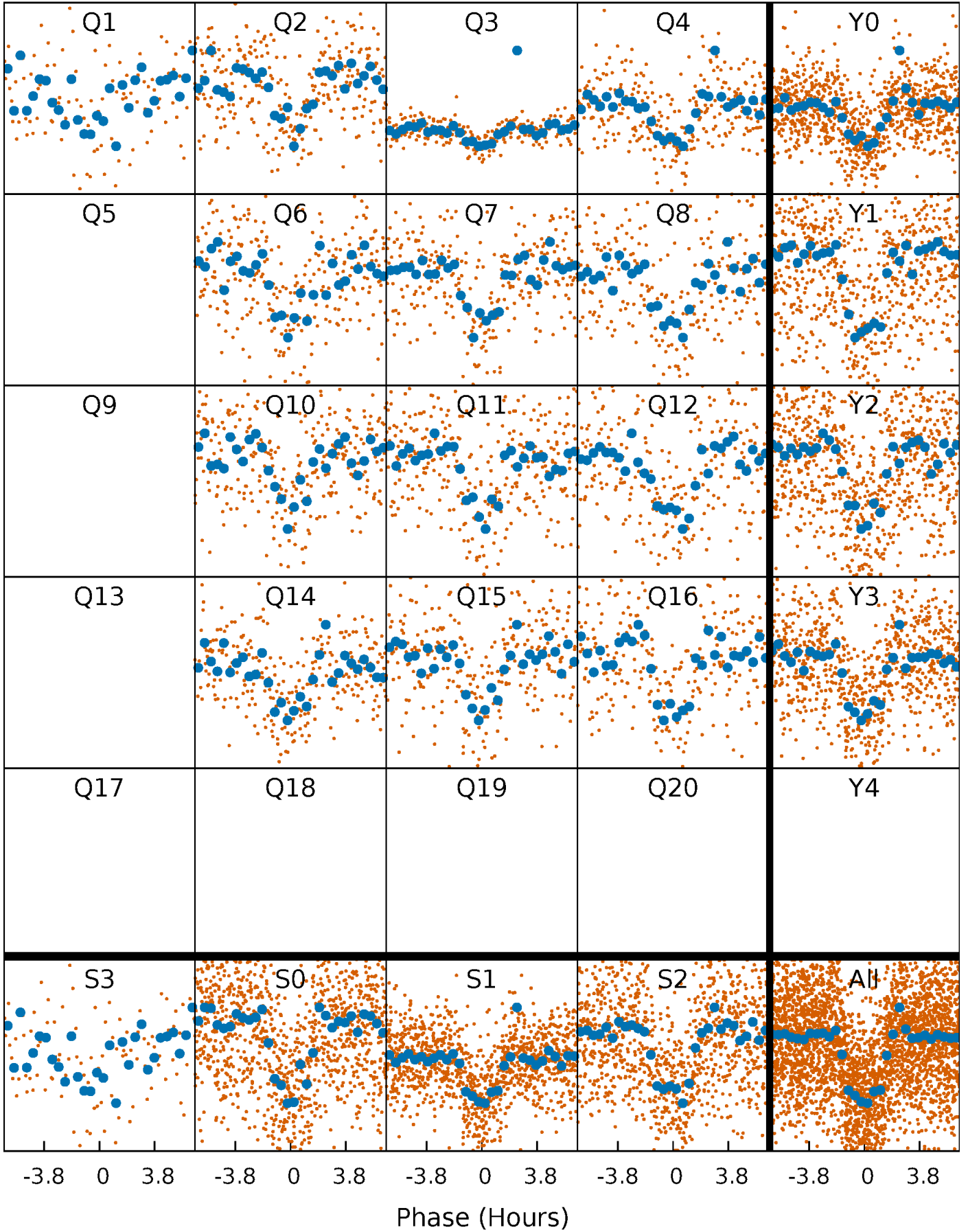


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



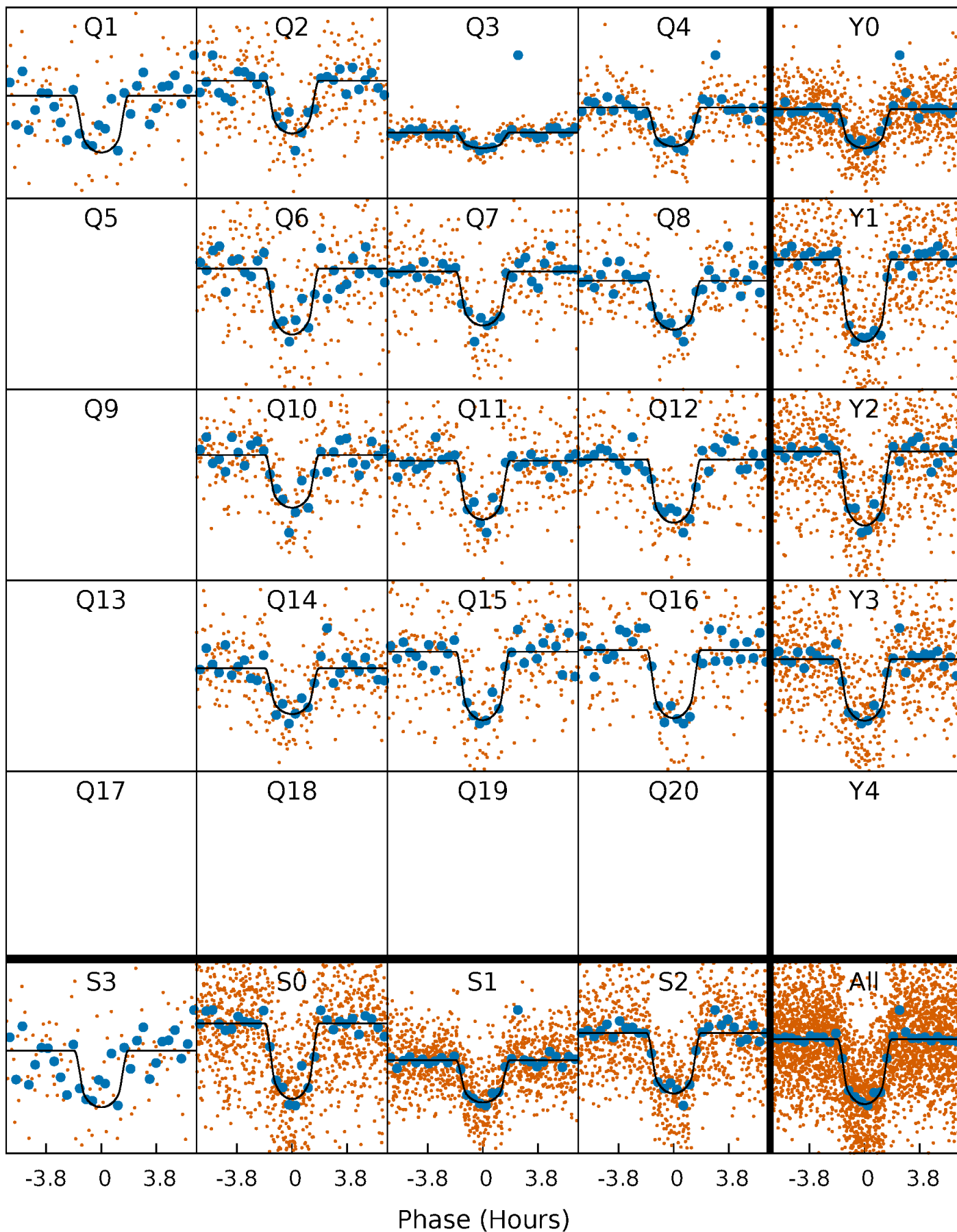
PDC Quarter-Phased Transit Curves

TCE 005252423-01 P= 8.103645 Days $T_0=136.429117$ (BKJD)



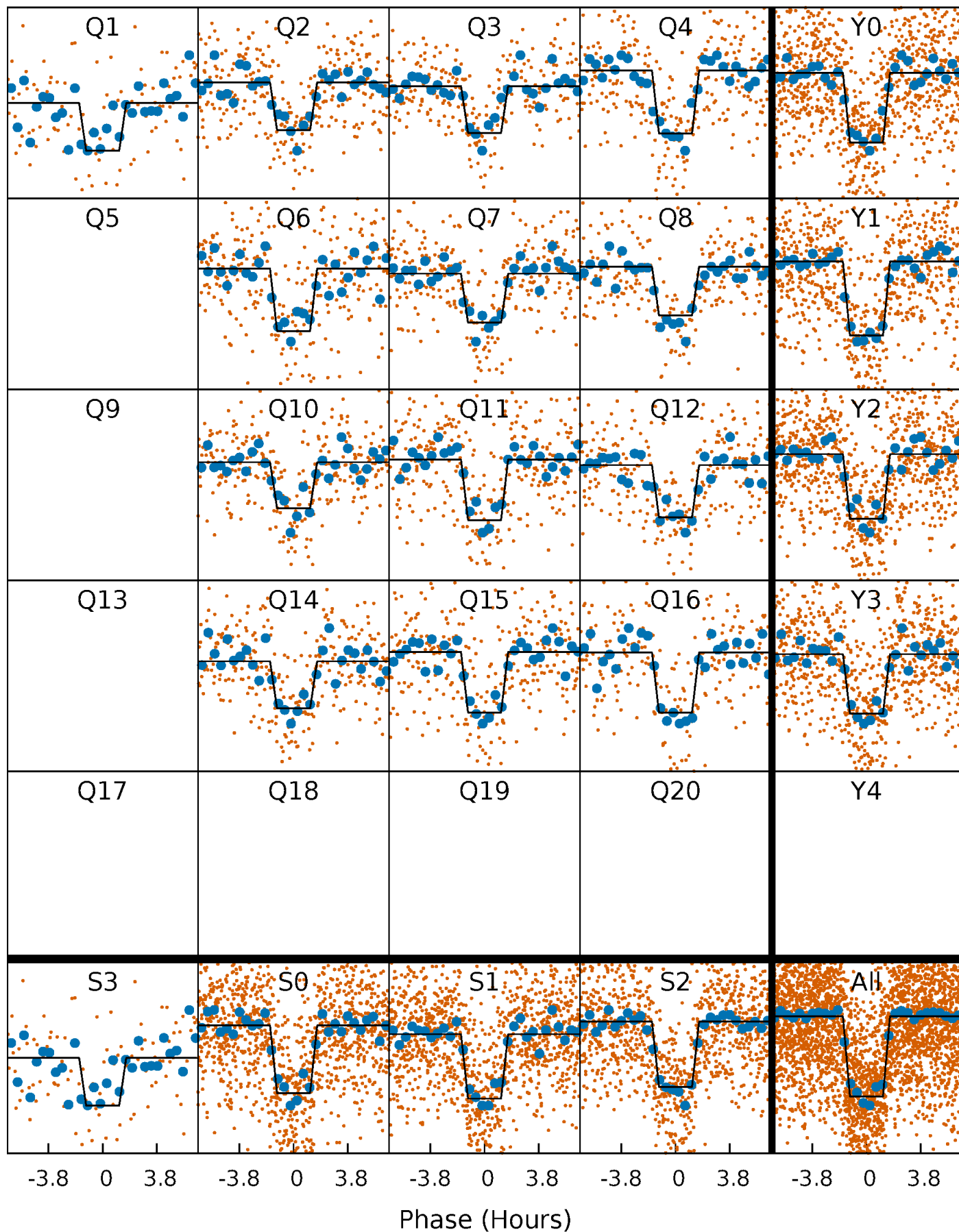
DV Quarter-Phased Transit Curves

TCE 005252423-01 P= 8.103645 Days $T_0=136.429117$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

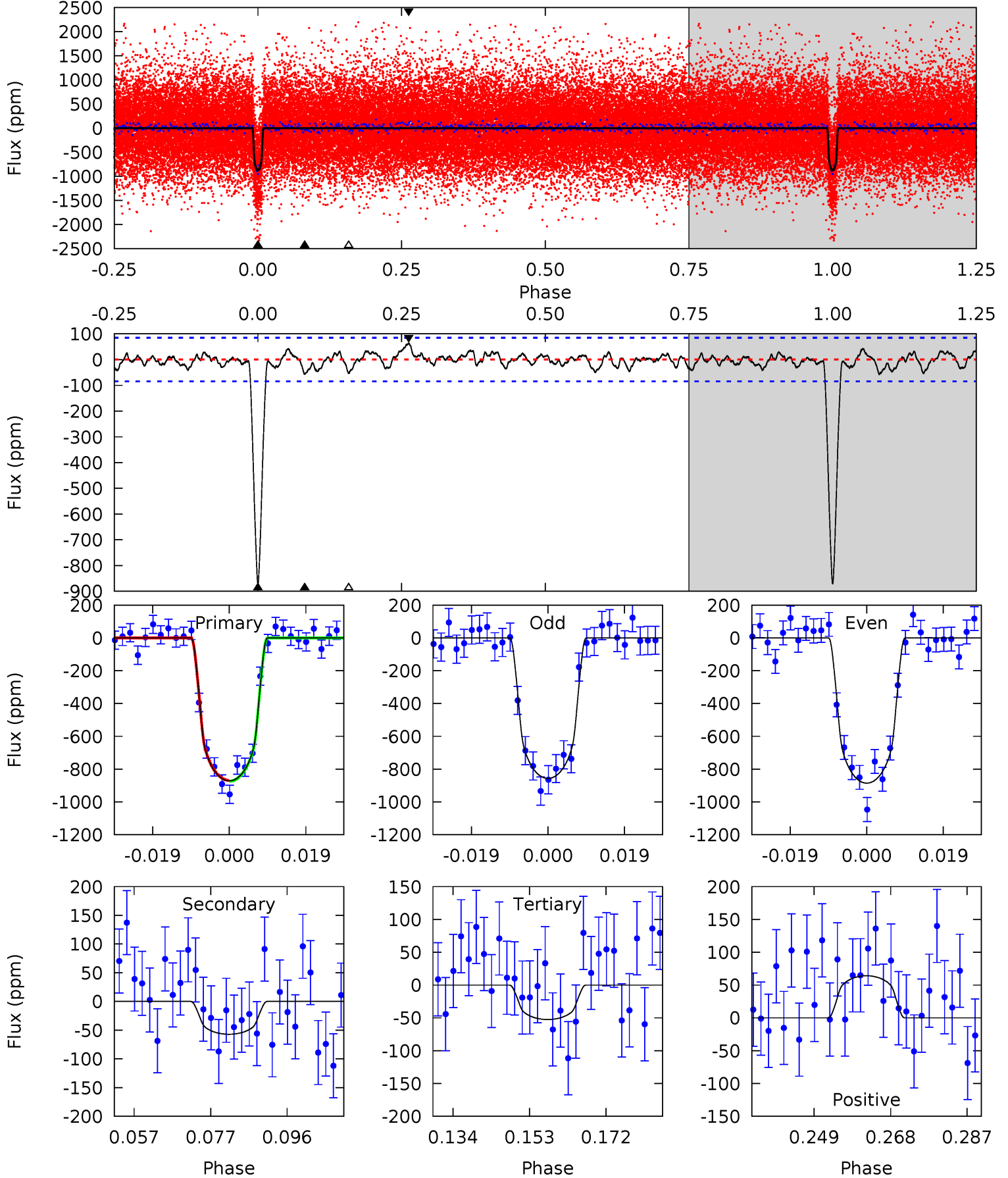
TCE 005252423-01 P= 8.103596 Days $T_0=136.433898$ (BKJD)



DV Model-Shift Uniqueness Test

005252423-01, P = 8.103645 Days, E = 128.325472 Days

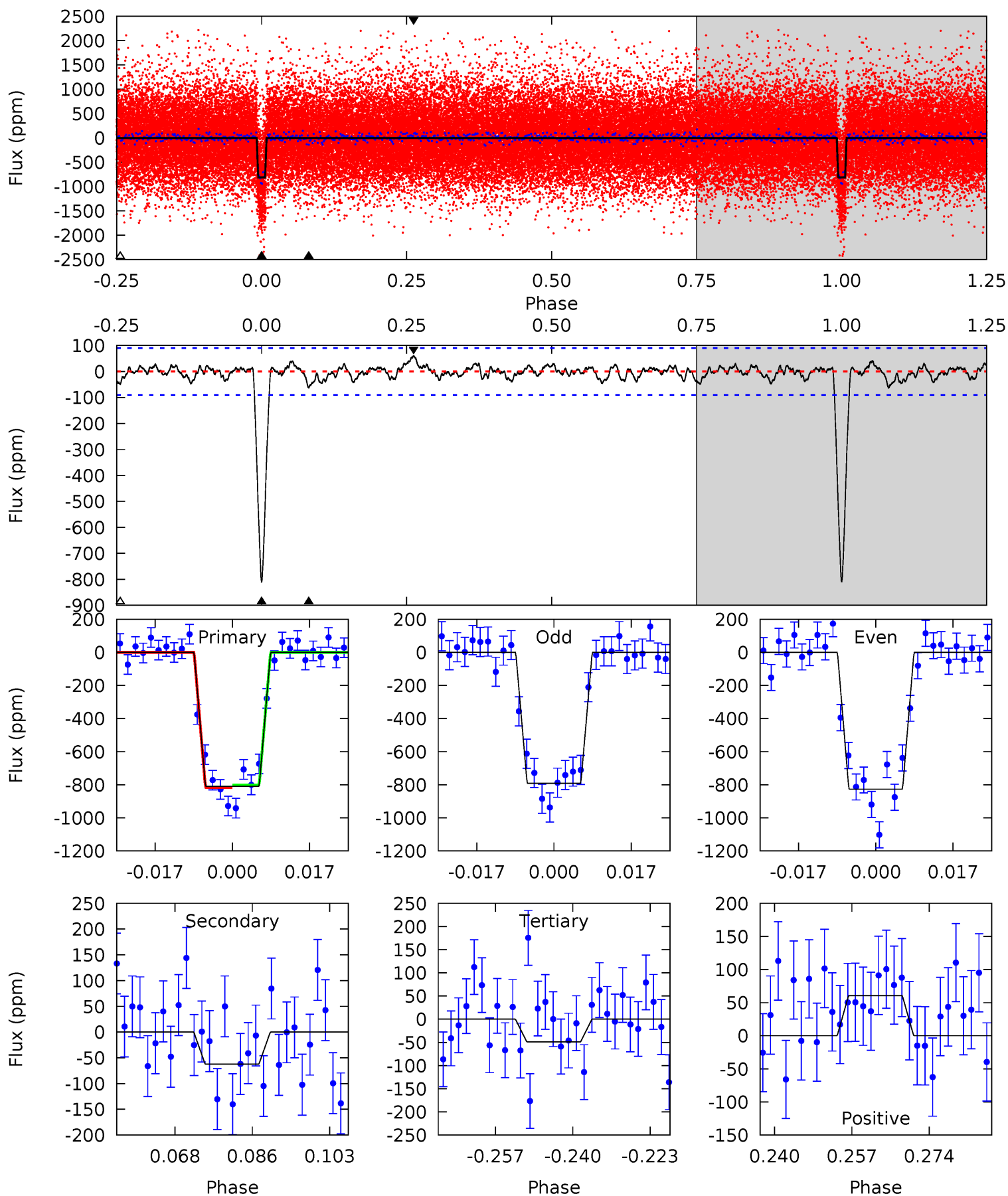
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.5	3.31	3.05	3.72	4.90	2.34	1.15	47.5	46.8	0.27	-0.41	0.84	0.98	0.07	0.15



Alt Model-Shift Uniqueness Test

005252423-01, P = 8.103596 Days, E = 128.330302 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.2	3.41	2.68	3.31	4.92	2.38	1.03	41.5	40.9	0.73	0.10	0.97	1.02	0.07	0.40



Stellar Parameters For KIC 005252423

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4861^{+131}_{-146}	$4.574^{+0.054}_{-0.041}$	$-0.080^{+0.300}_{-0.300}$	$0.732^{+0.062}_{-0.068}$	$0.733^{+0.075}_{-0.061}$	$2.636^{+0.647}_{-0.400}$
	+3%/-3%	+1%/-1%	+375%/-375%	+8%/-9%	+10%/-8%	+25%/-15%
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 005252423-01 / KOI 0825.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-57 ± 17	$2.44^{+0.60}_{-0.68}$	957^{+34}_{-33}	3007^{+315}_{-229}	26^{+26}_{-11}
Alt.	-62 ± 18	$2.27^{+0.65}_{-0.68}$	959^{+32}_{-33}	3103^{+418}_{-247}	33^{+39}_{-15}

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

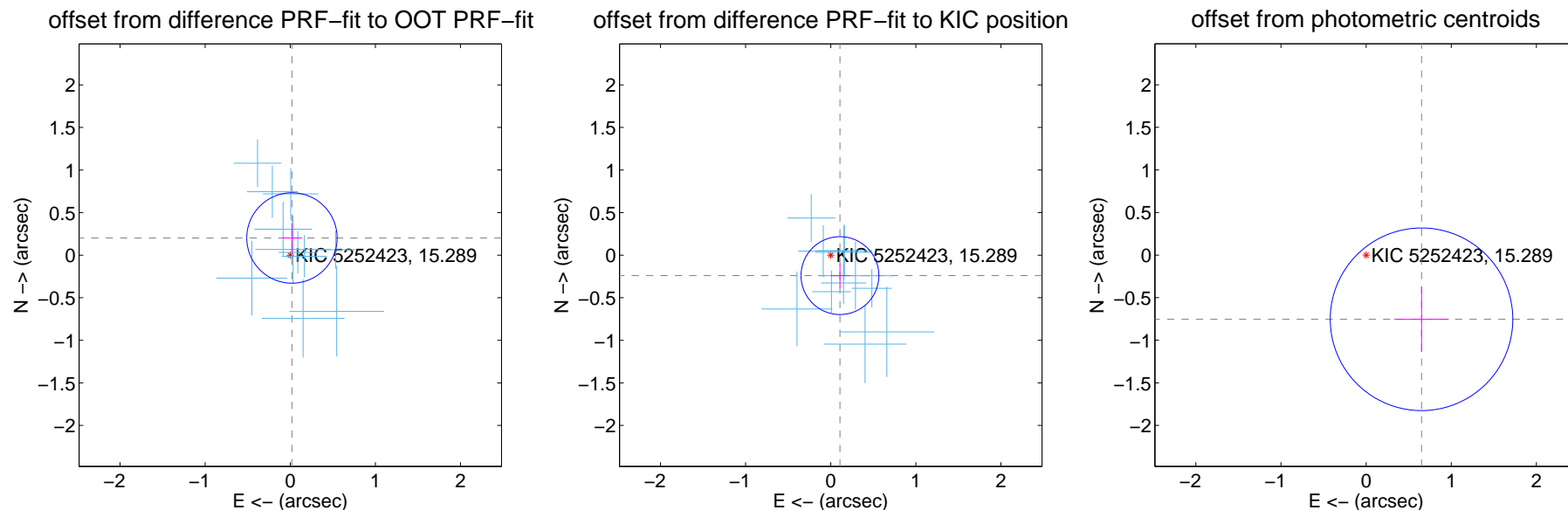
DV Centroid Data

Supplemental centroid analysis for 005252423-01. Kepler magnitude: 15.29. Transit SNR 36.30

There are 11 quarters with good PRF difference image offsets

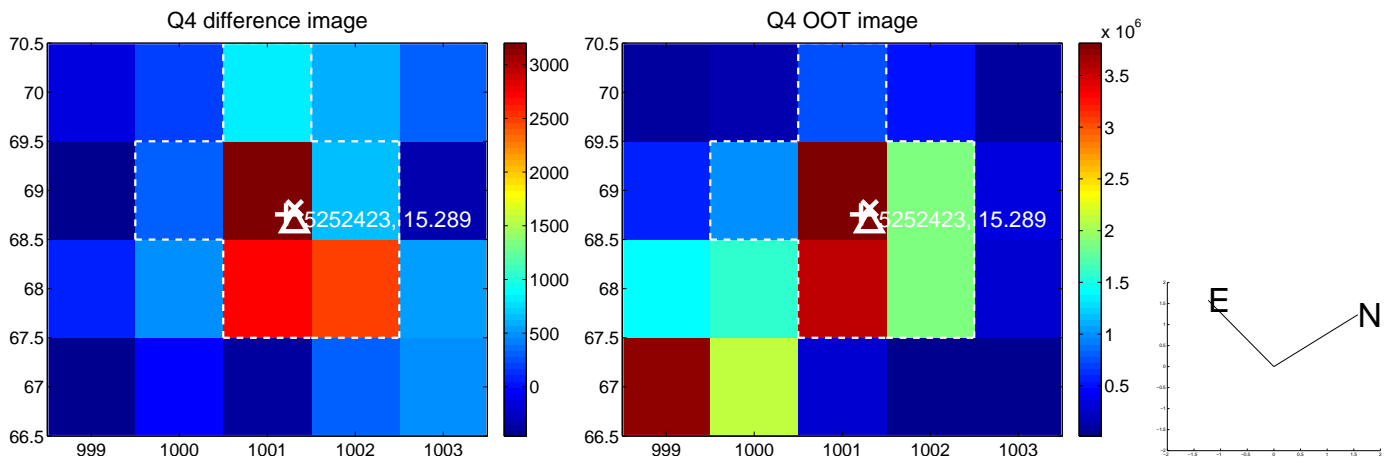
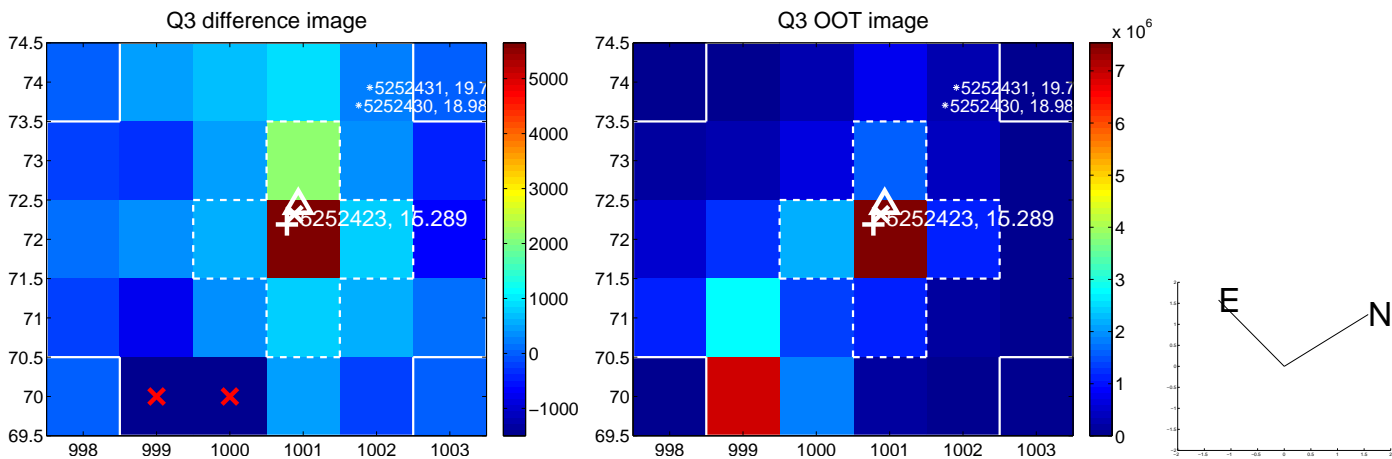
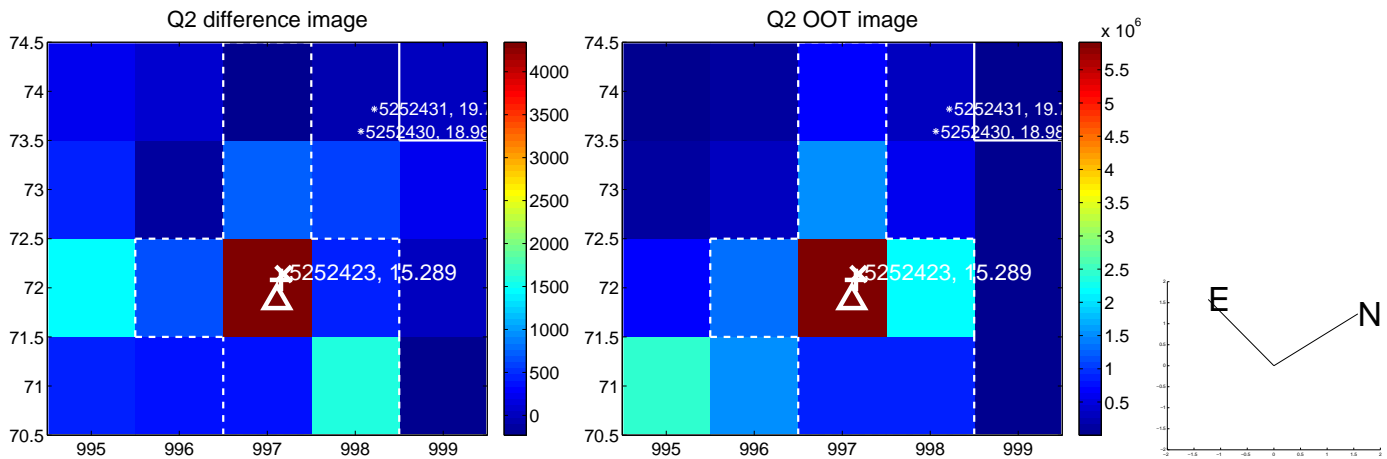
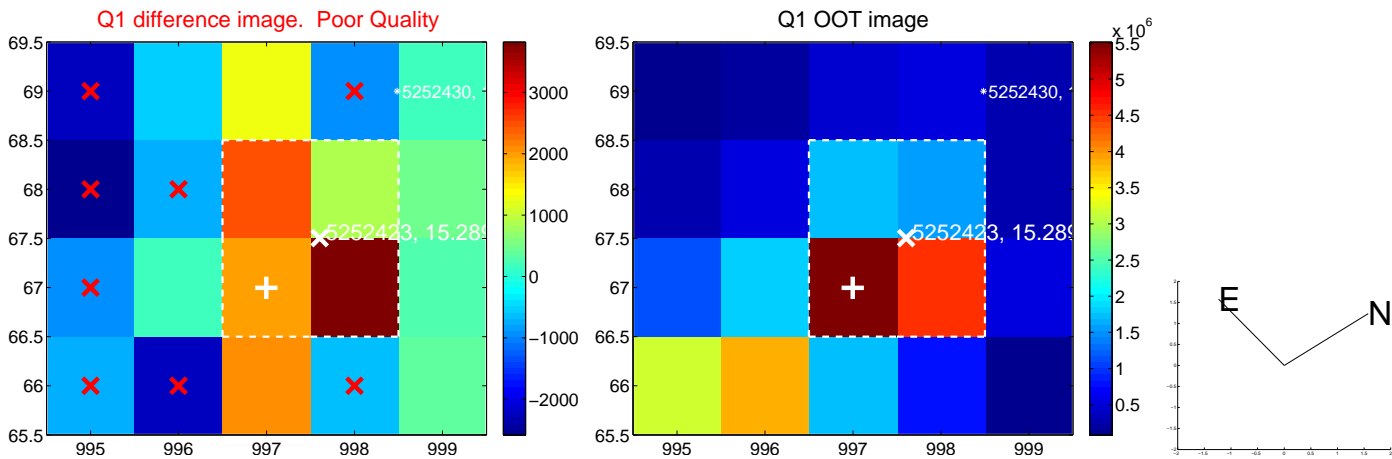
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.203 ± 0.177	1.15	-0.020 ± 0.118	0.202 ± 0.177
PRF-fit source offset from KIC position	0.264 ± 0.152	1.73	-0.108 ± 0.112	-0.240 ± 0.142
photometric centroid source offset	1.00 ± 0.36	2.79	-0.65 ± 0.32	-0.75 ± 0.38

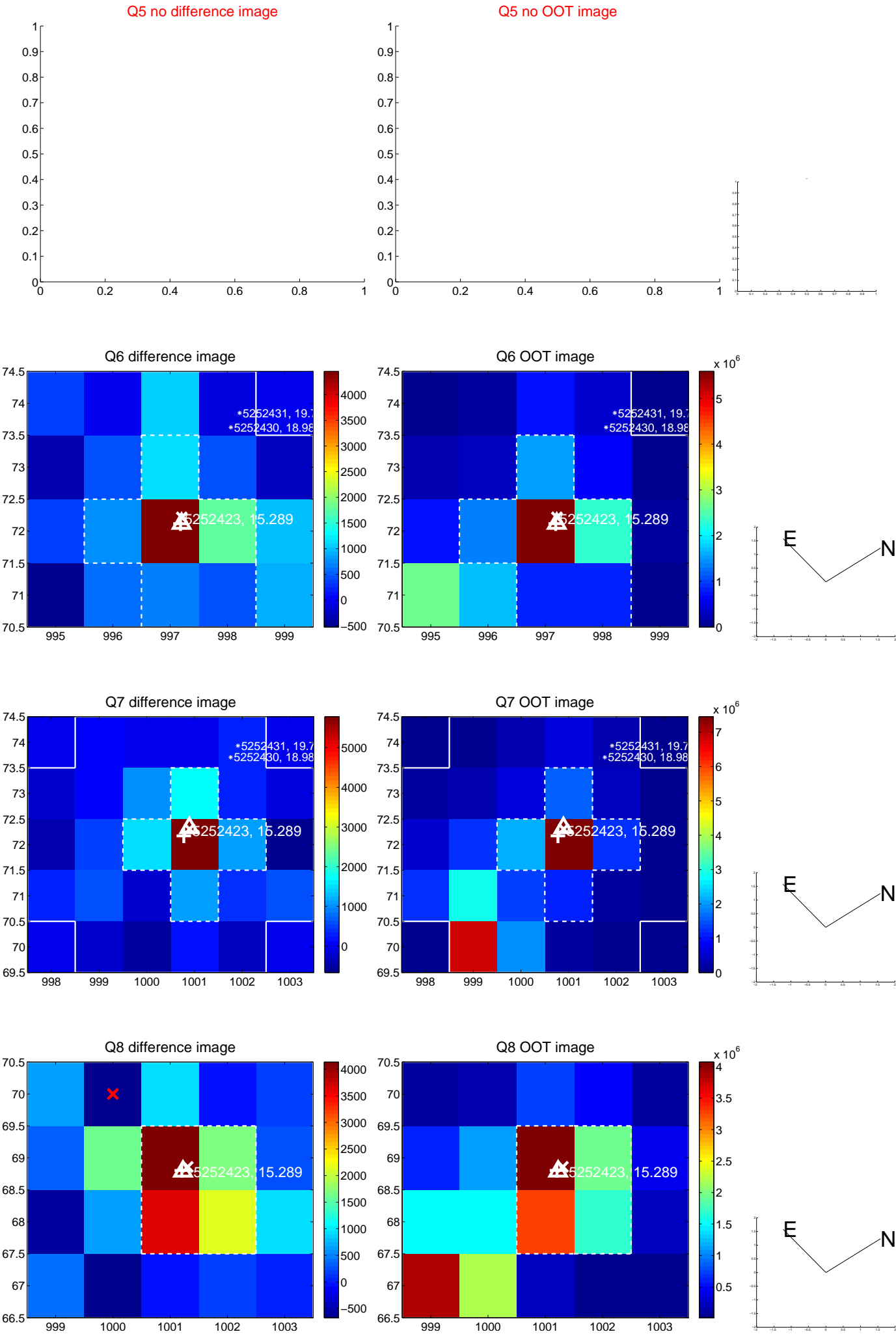


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

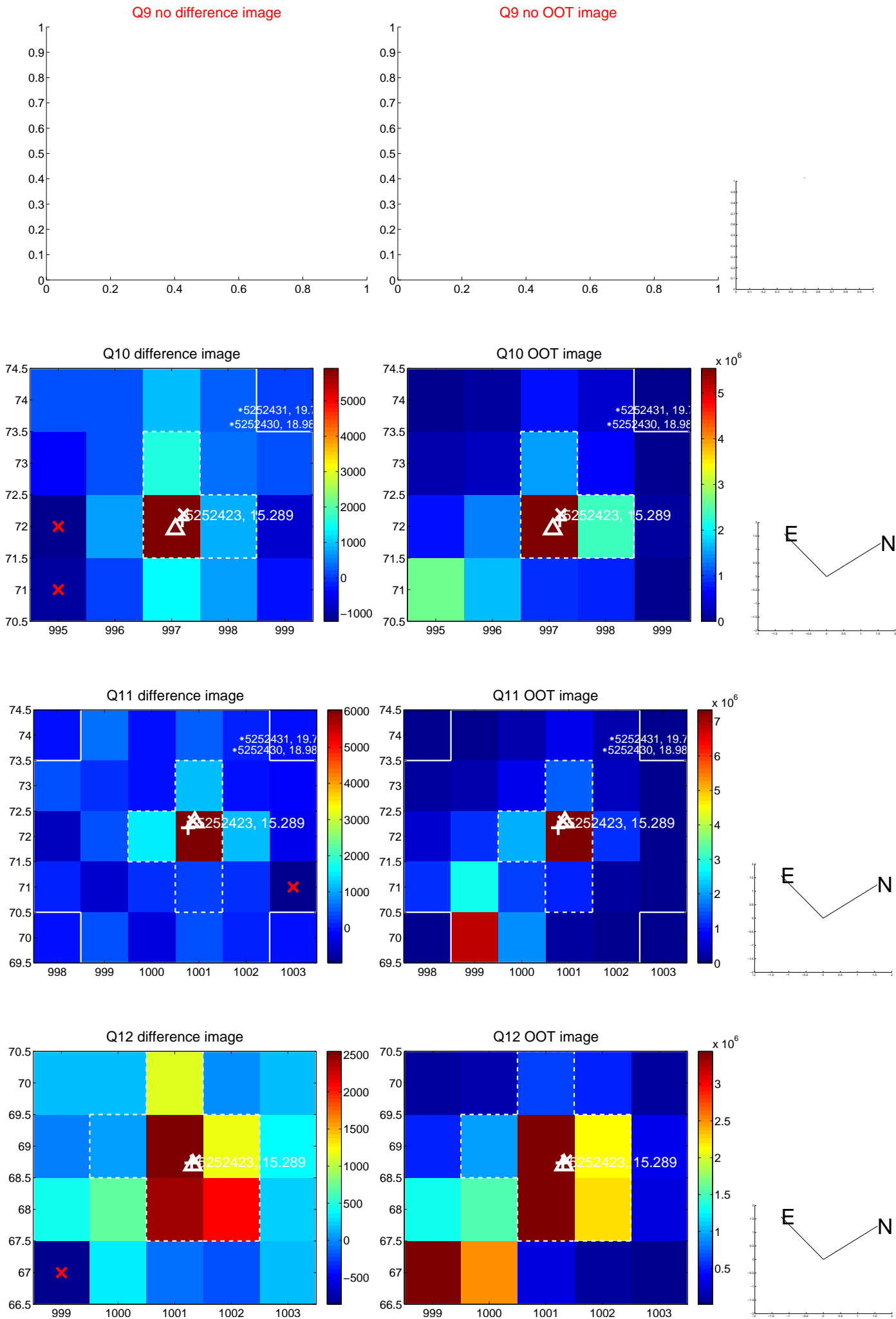
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



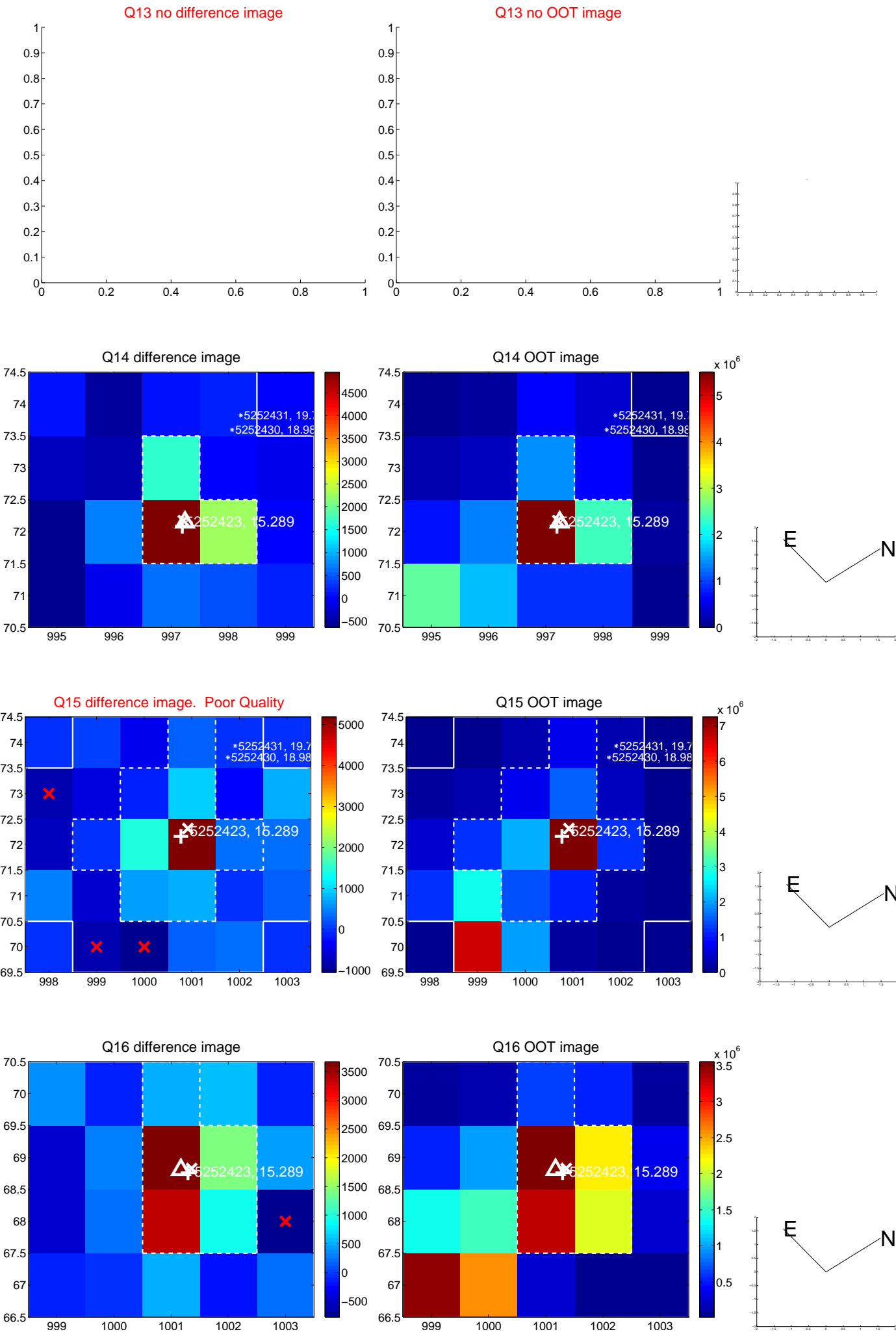
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



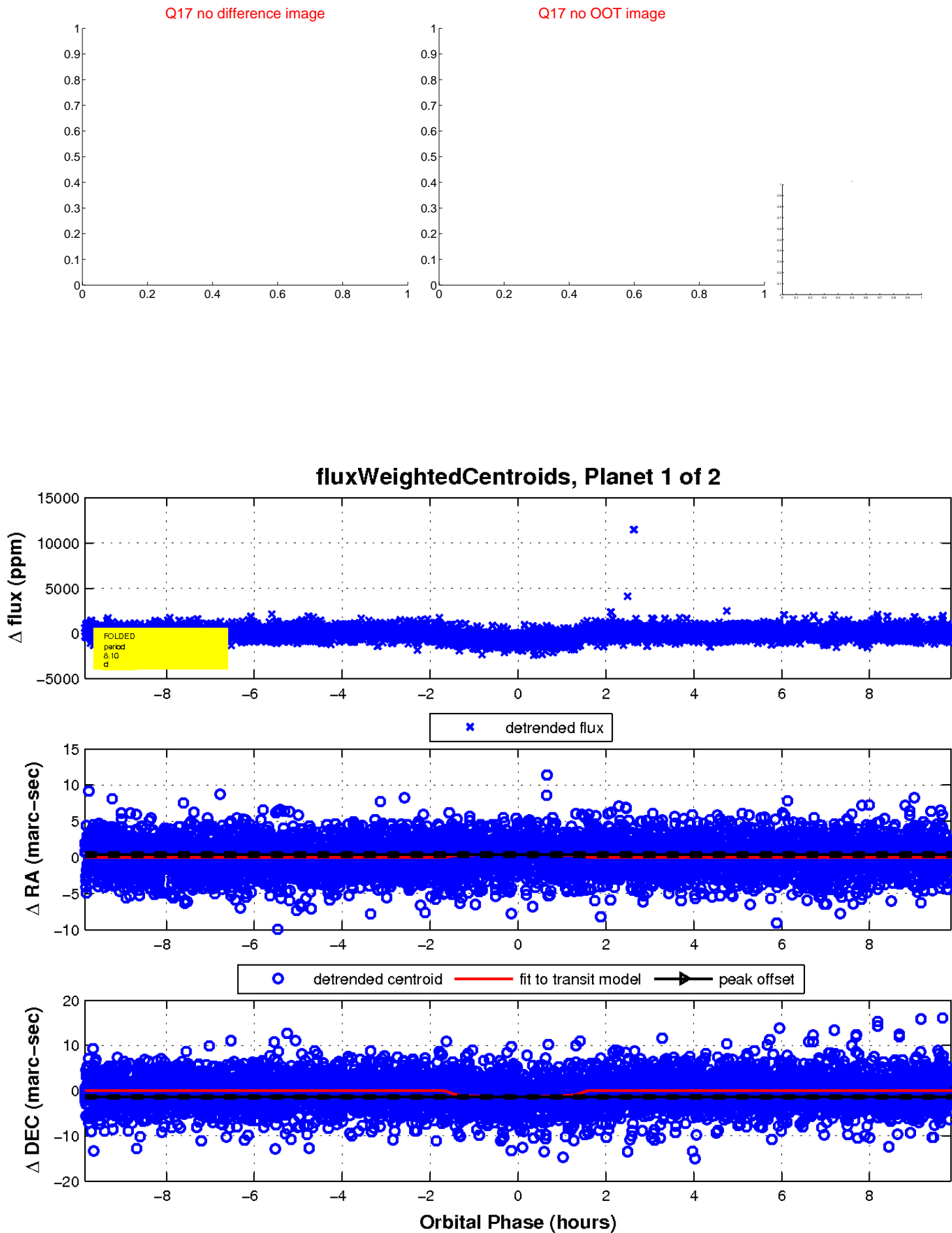
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

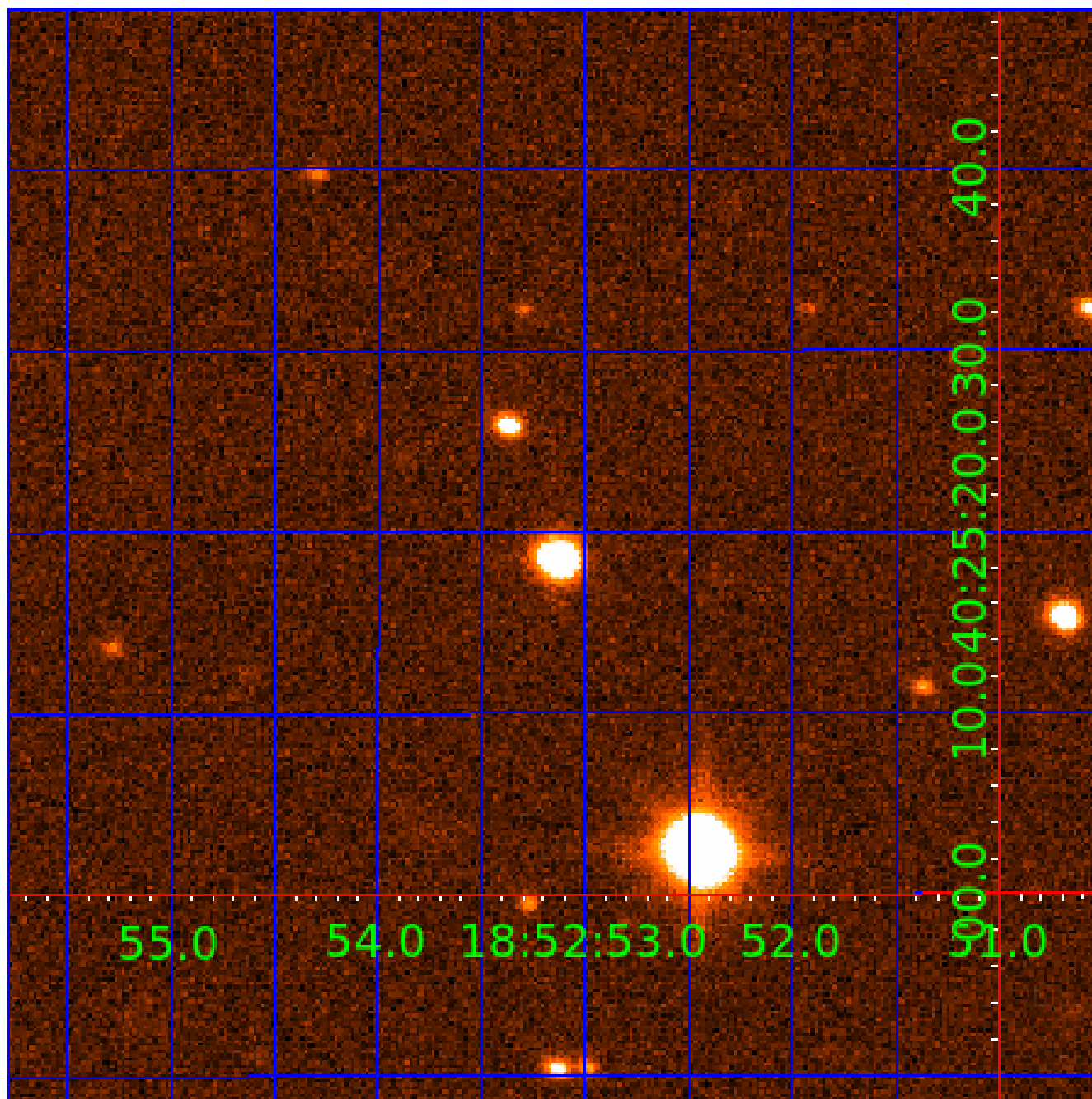


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005252423

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})
005252423-01	OBS	0825.01	8.103645	136.429117	900.2	3.284	33.6	36.3	0.73	4861	2.43	52.87
005252423-02	OBS	0825.02	4.715102	134.961009	391.1	2.650	16.5	18.2	0.73	4861	1.78	108.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005252423-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
005252423-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

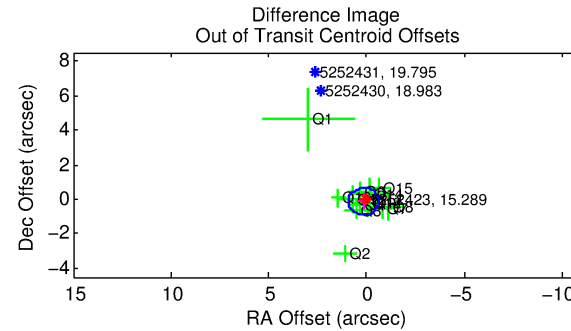
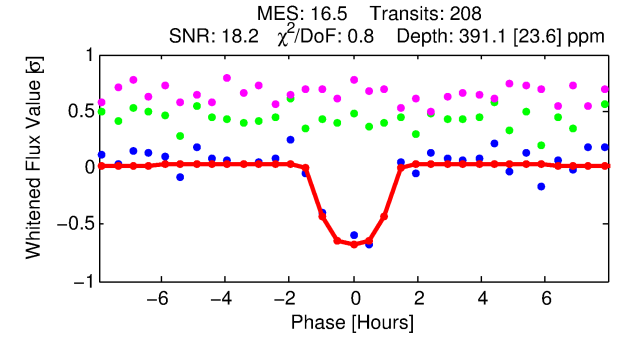
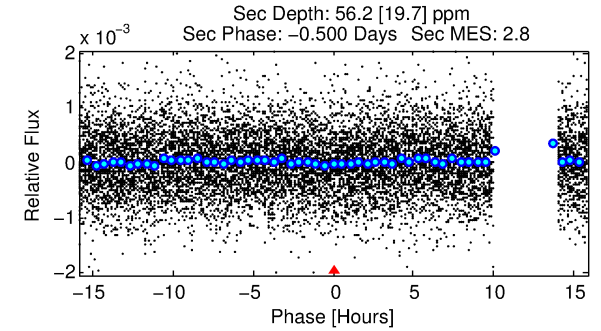
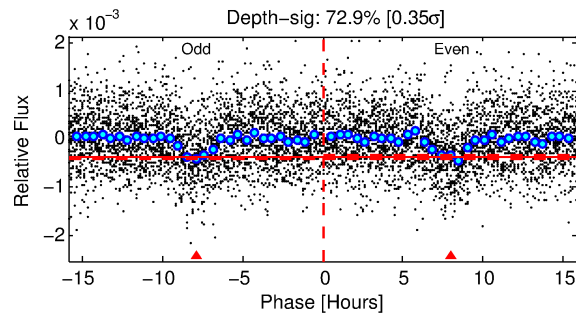
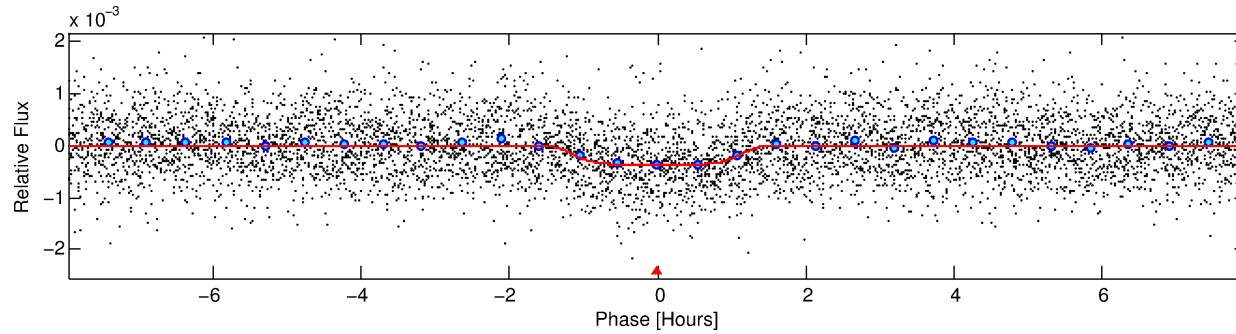
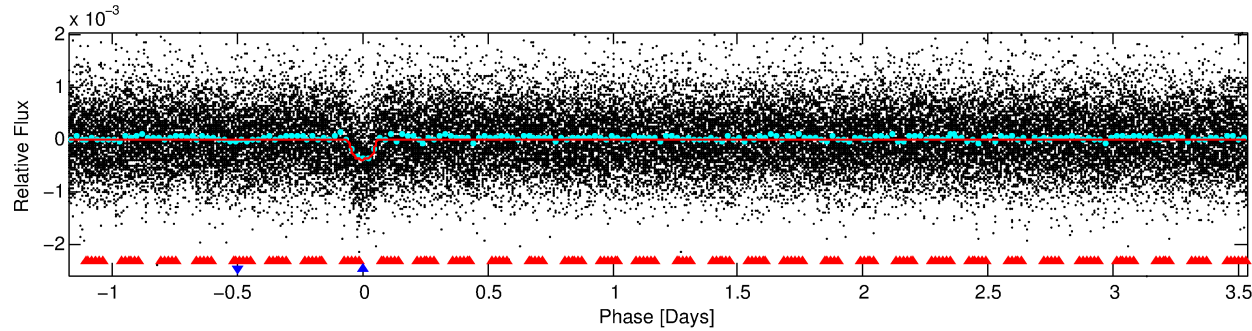
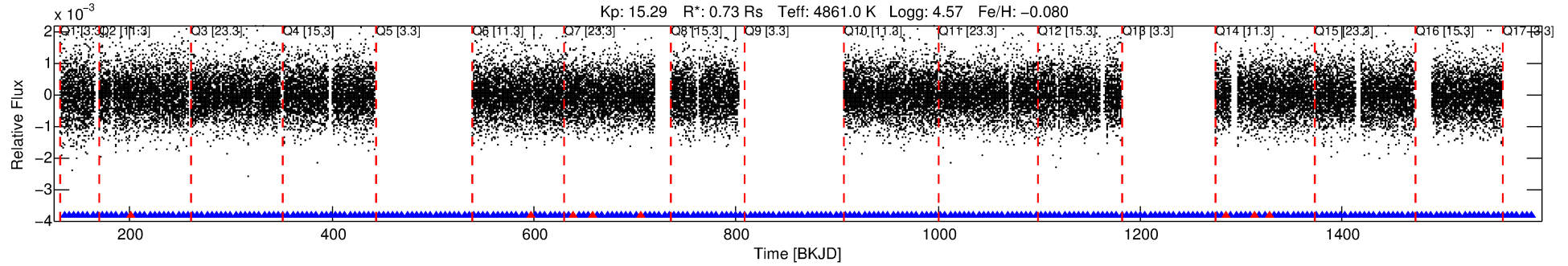
Ephemeris Match Information For 005252423-02

No Significant Match Found

DV One-Page Summary

KIC: 5252423 Candidate: 2 of 2 Period: 4.715 d
KOI: K00825.02 Name: Kepler-237b Corr: 0.950

Kp: 15.29 R*: 0.73 Rs Teff: 4861.0 K Logg: 4.57 Fe/H: -0.080



DV Fit Results:

Period = 4.71510 [0.00002] d
Epoch = 134.9610 [0.0027] BKJD
Rp/R* = 0.0222 [0.0072]
a/R* = 6.59 [8.00]
b = 0.90 [0.26]
Seff = 108.85 [17.26]
Teq = 824 [33] K
Rp = 1.78 [0.60] Re
a = 0.0496 [0.0037] AU
Ag = 24.12 [17.89] [1.29σ]
Teffp = 2822 [525] K [3.80σ]

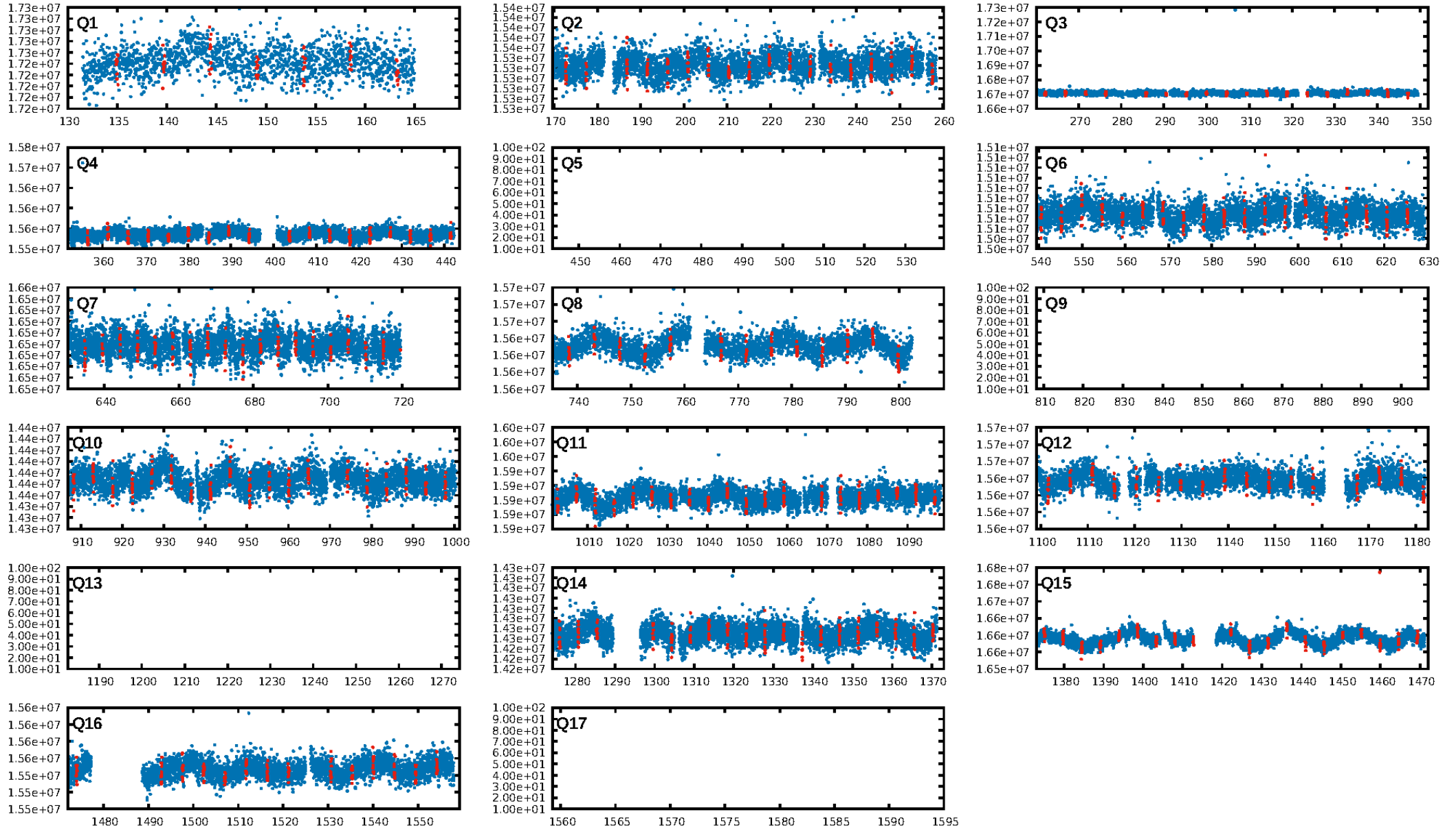
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [19.27σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.25e-59
RollingBand-fgt: 0.96 [194/202]
GhostDiagnostic-chr: -27.65
Centroid-sig: 2.0%
Centroid-so: 1.433 arcsec [1.96σ]
OotOffset-rm: 0.207 arcsec [0.80σ]
KicOffset-rm: 0.596 arcsec [1.90σ]
OotOffset-st: 4/4/4/1 [13]
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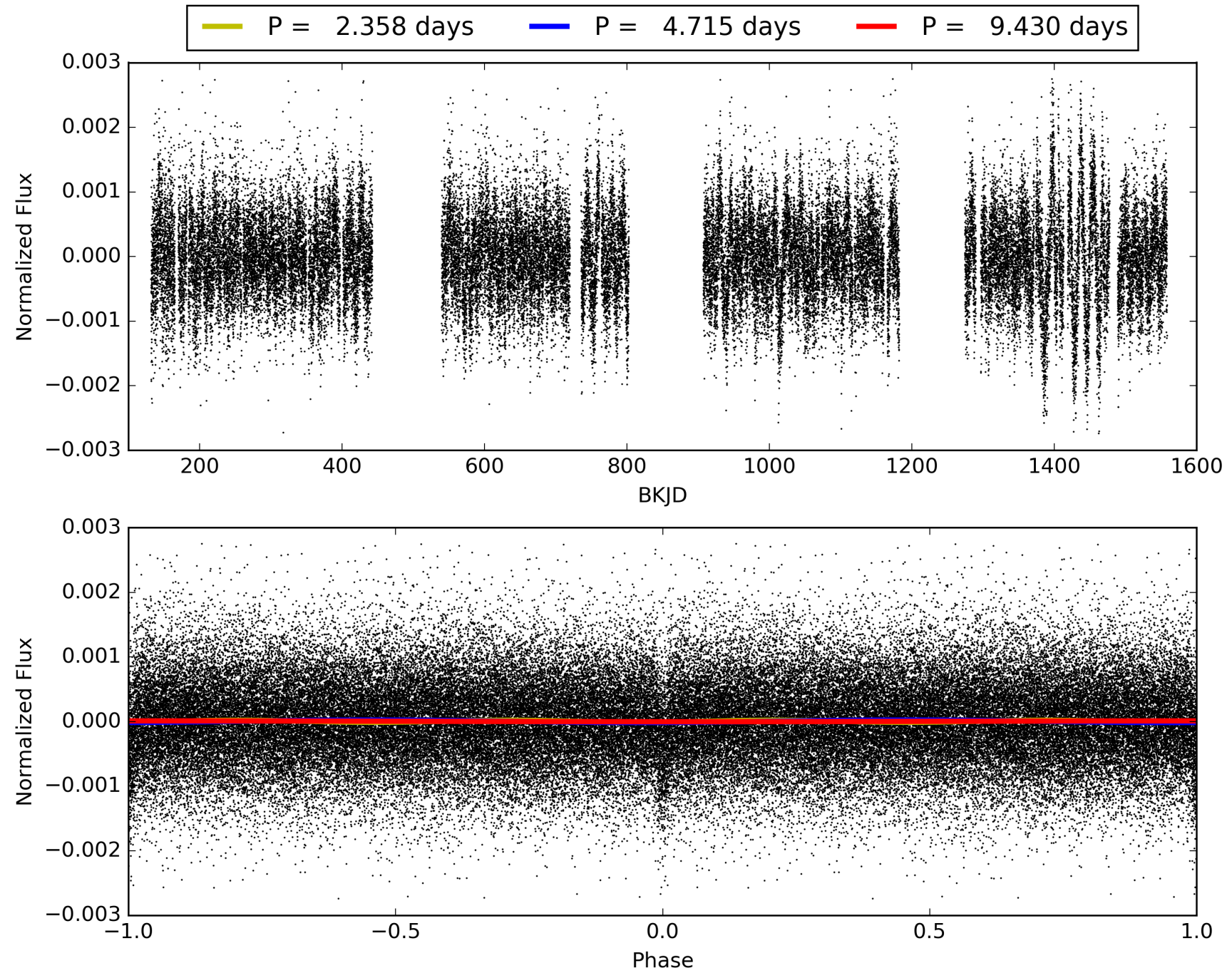
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005252423-02, PDC Light Curves

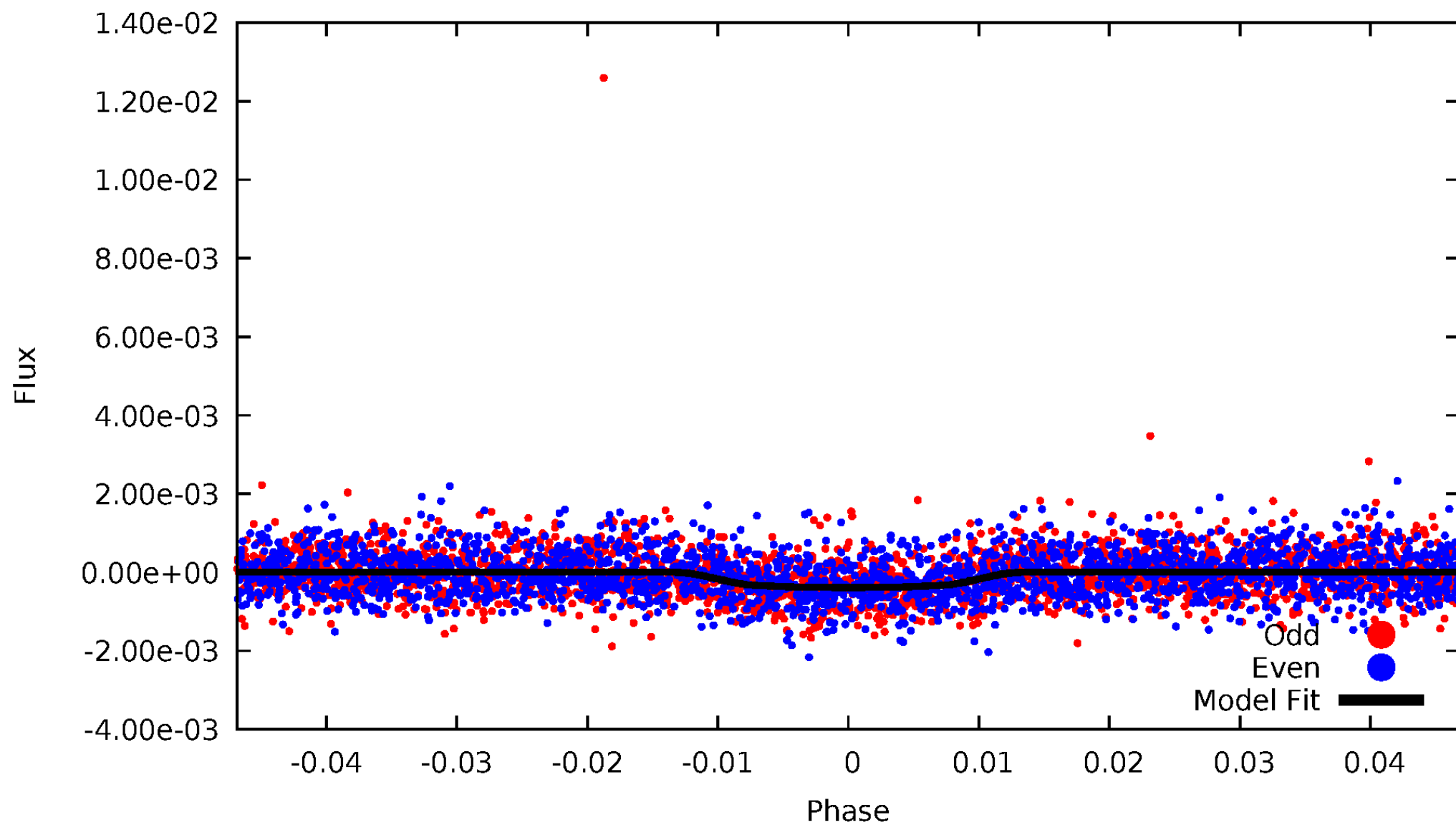


TCE 005252423-02



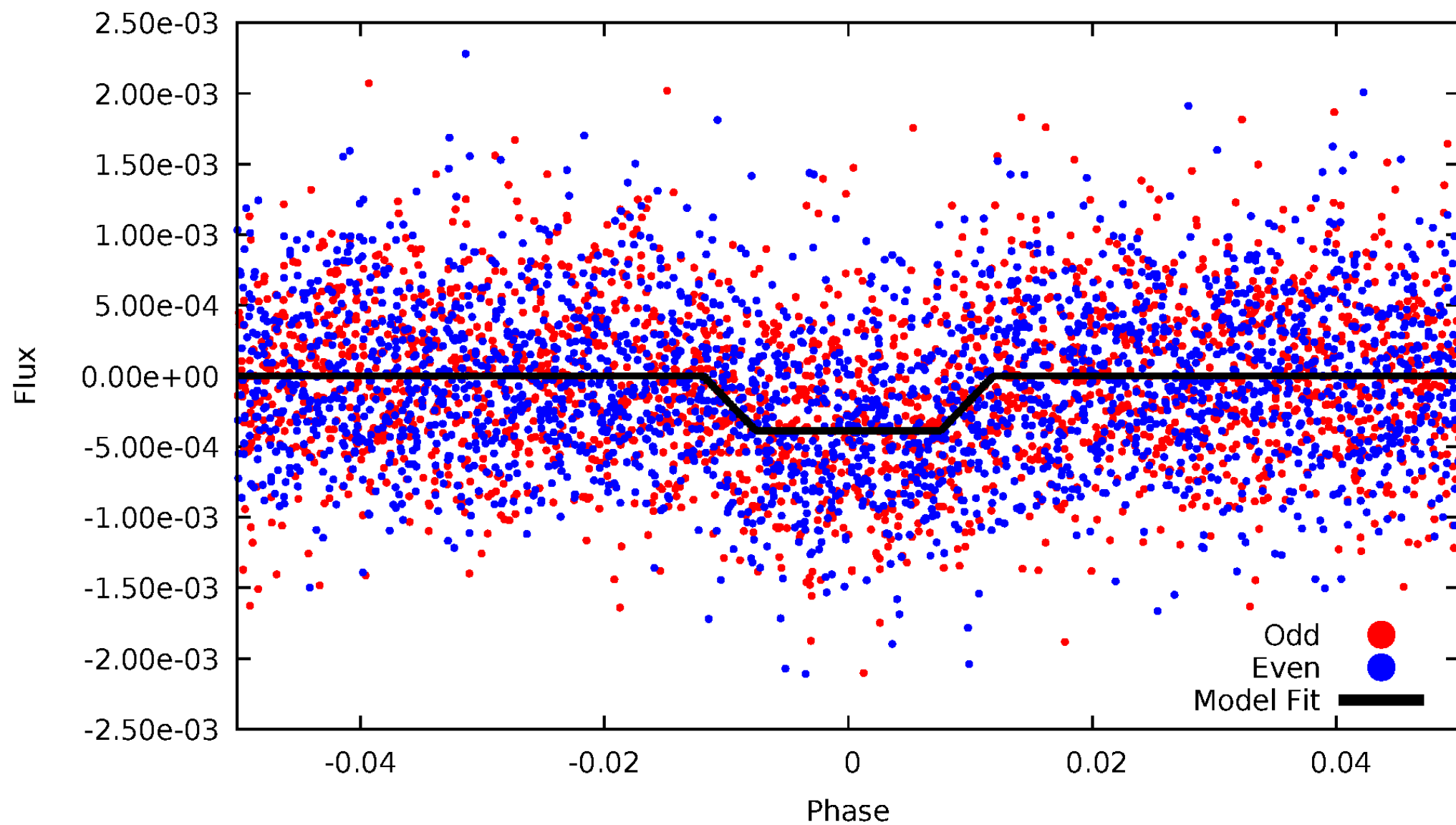
DV Odd/Even

TCE 005252423-02



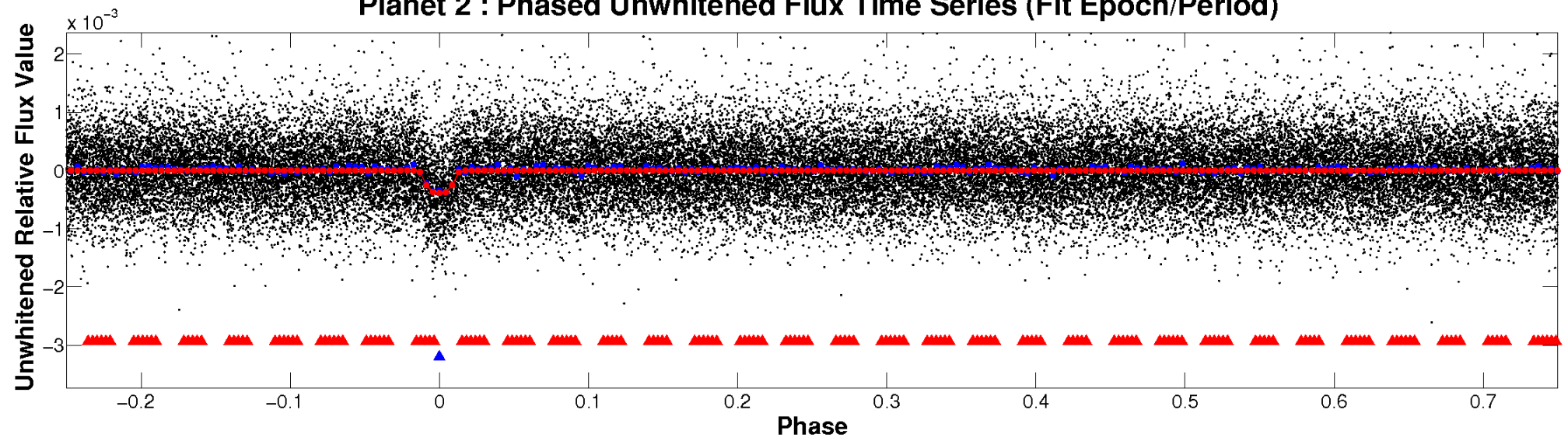
ALT Odd/Even

TCE 005252423-02

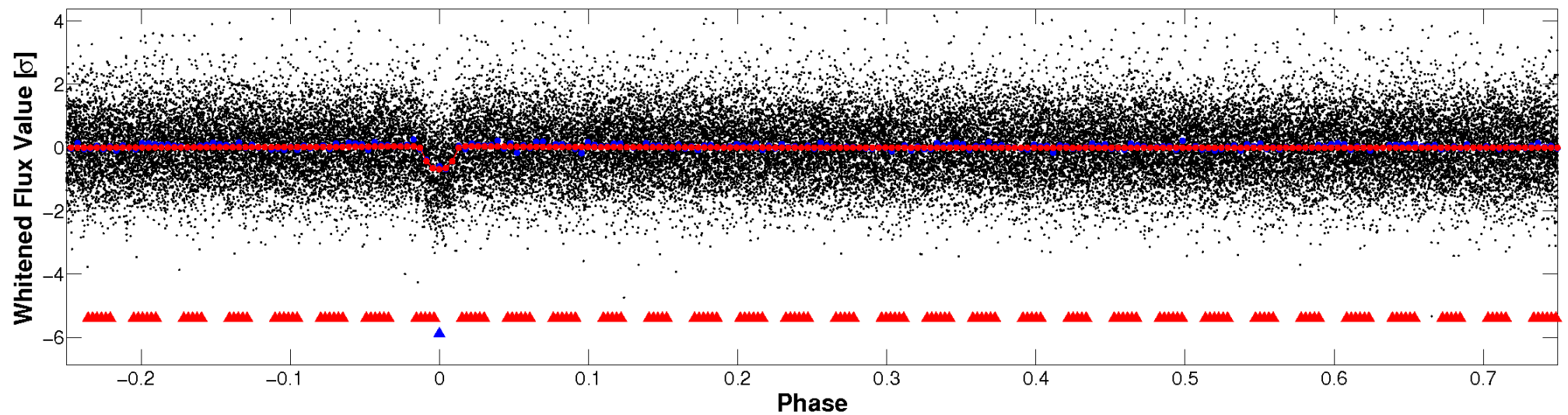


Non-Whitened Vs. Whitened Light Curve

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

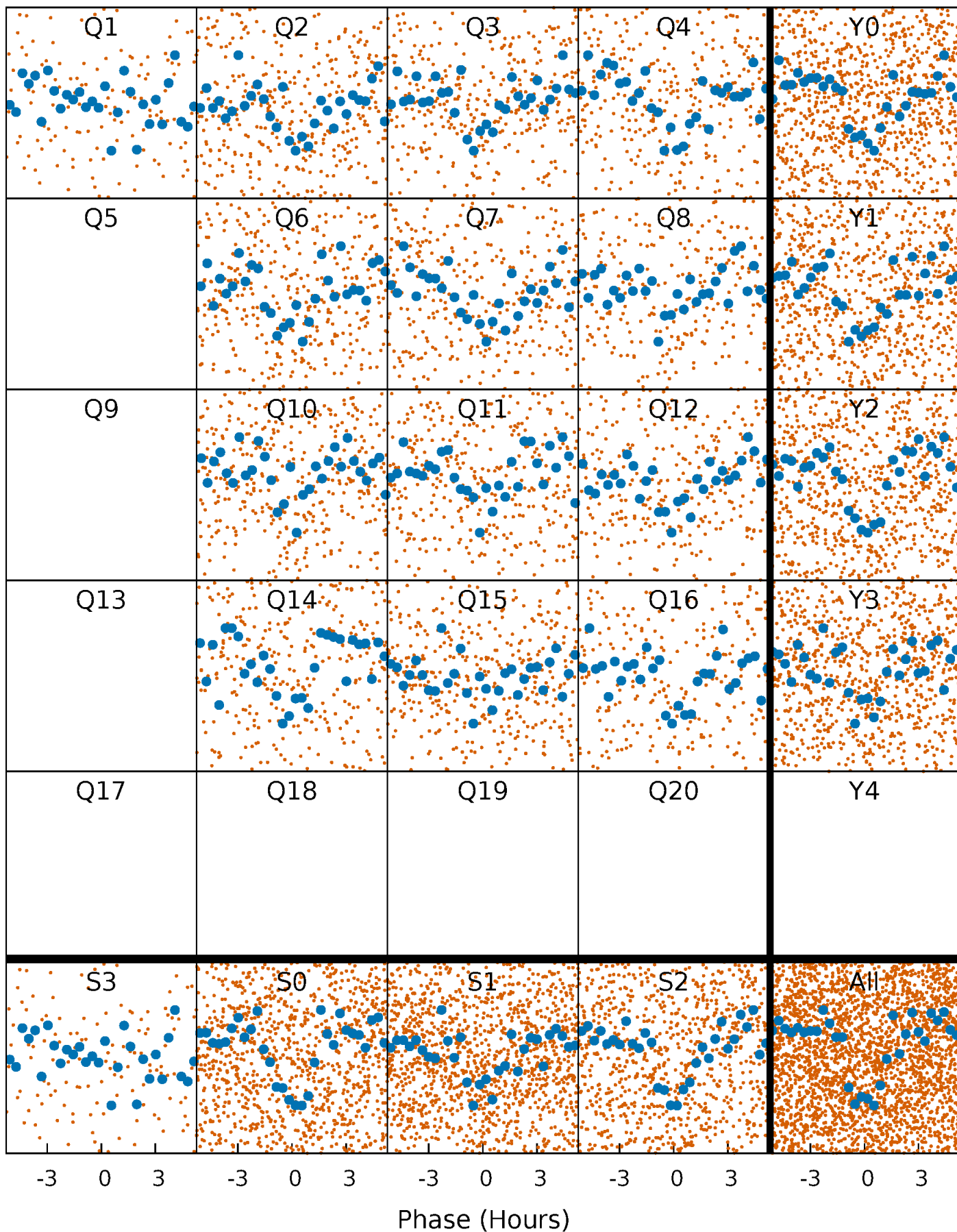


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



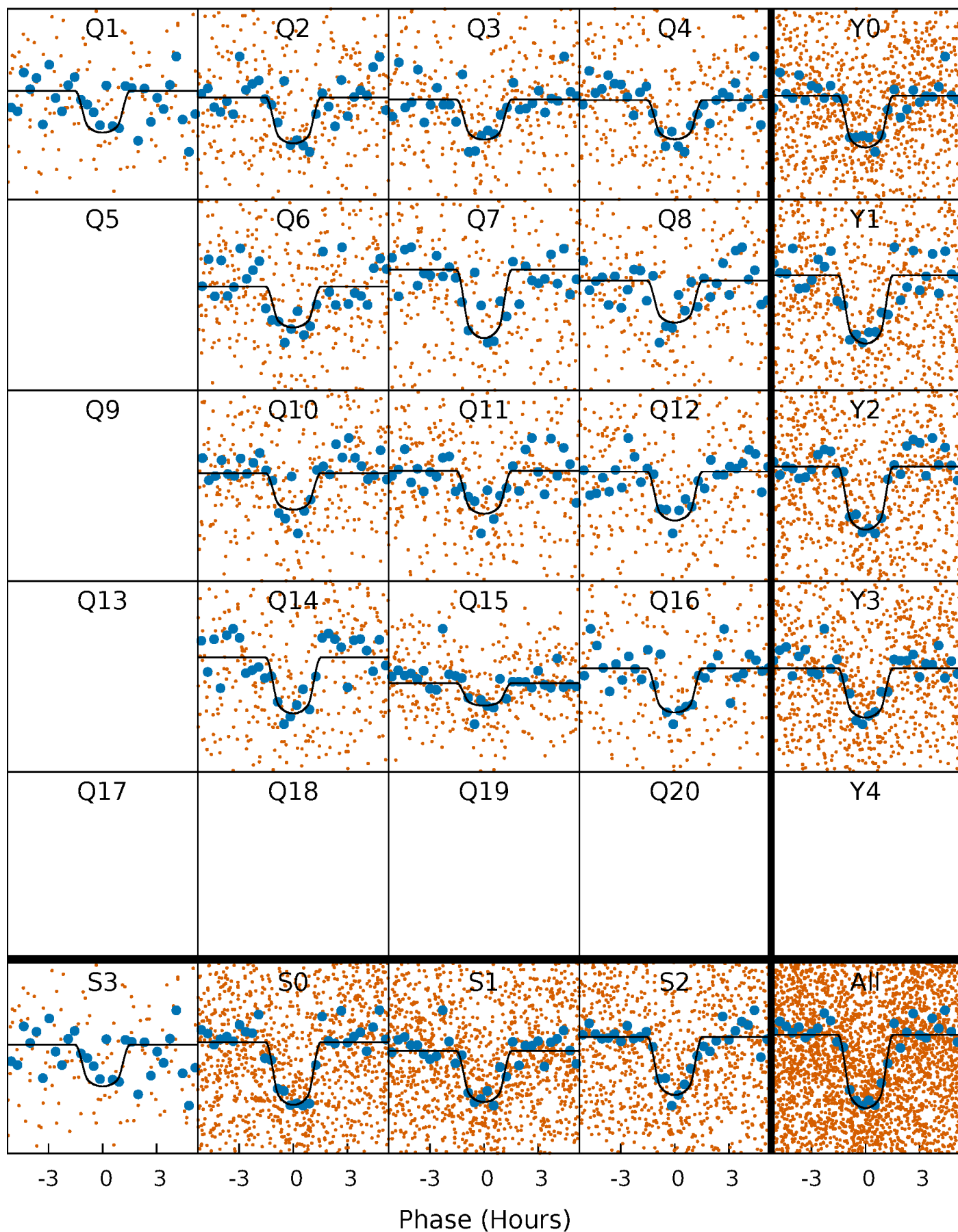
PDC Quarter-Phased Transit Curves

TCE 005252423-02 P= 4.715102 Days $T_0=134.961009$ (BKJD)



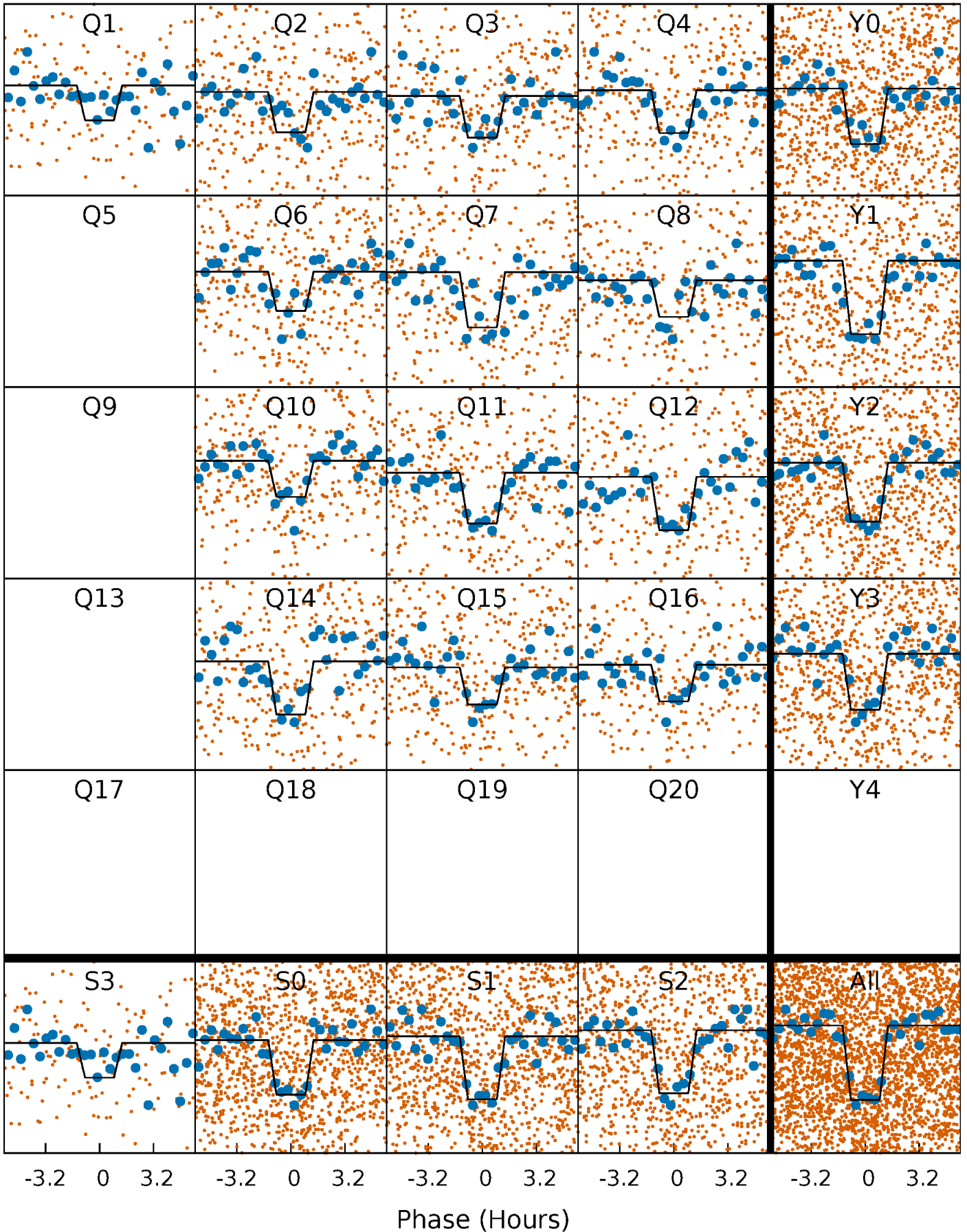
DV Quarter-Phased Transit Curves

TCE 005252423-02 P= 4.715102 Days $T_0=134.961009$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

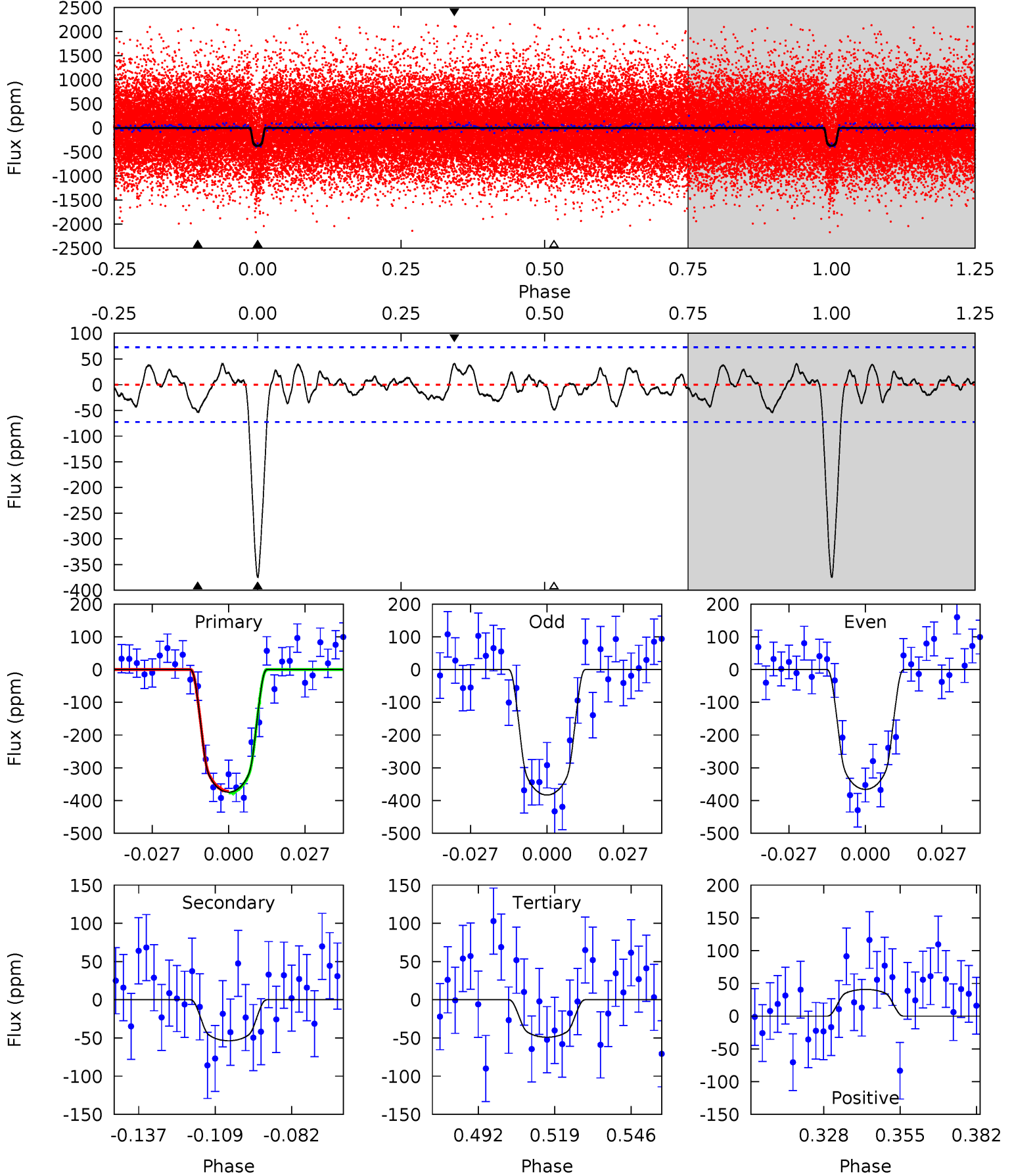
TCE 005252423-02 P= 4.715120 Days $T_0=134.959912$ (BKJD)



DV Model-Shift Uniqueness Test

005252423-02, P = 4.715102 Days, E = 130.245907 Days

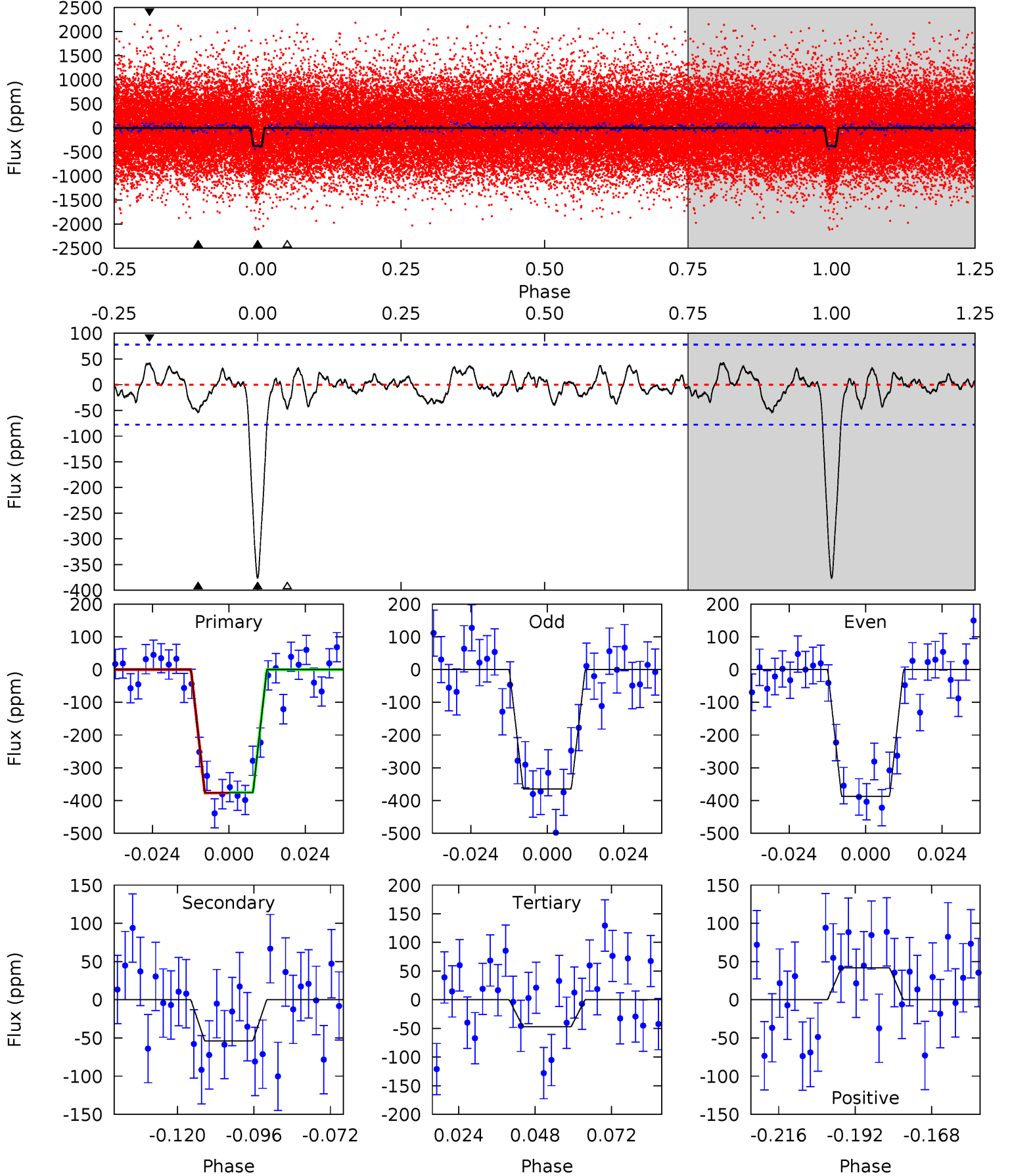
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	3.56	3.25	2.71	4.83	2.21	1.29	21.6	22.1	0.31	0.85	0.57	1.07	0.10	0.18



Alt Model-Shift Uniqueness Test

005252423-02, P = 4.715120 Days, E = 130.244792 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.4	3.36	2.94	2.60	4.86	2.26	1.14	20.5	20.8	0.42	0.75	0.70	1.10	0.10	0.05



Stellar Parameters For KIC 005252423

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4861^{+131}_{-146}	$4.574^{+0.054}_{-0.041}$	$-0.080^{+0.300}_{-0.300}$	$0.732^{+0.062}_{-0.068}$	$0.733^{+0.075}_{-0.061}$	$2.636^{+0.647}_{-0.400}$
	+3%/-3%	+1%/-1%	+375%/-375%	+8%/-9%	+10%/-8%	+25%/-15%
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 005252423-02 / KOI 0825.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-54 ± 15	$1.76^{+0.60}_{-0.59}$	1147^{+40}_{-41}	3277^{+449}_{-293}	23^{+31}_{-11}
Alt.	-54 ± 16	$1.59^{+0.61}_{-0.59}$	1148^{+40}_{-40}	3382^{+521}_{-357}	28^{+42}_{-15}

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 $A_{obs} \gg 1.0$

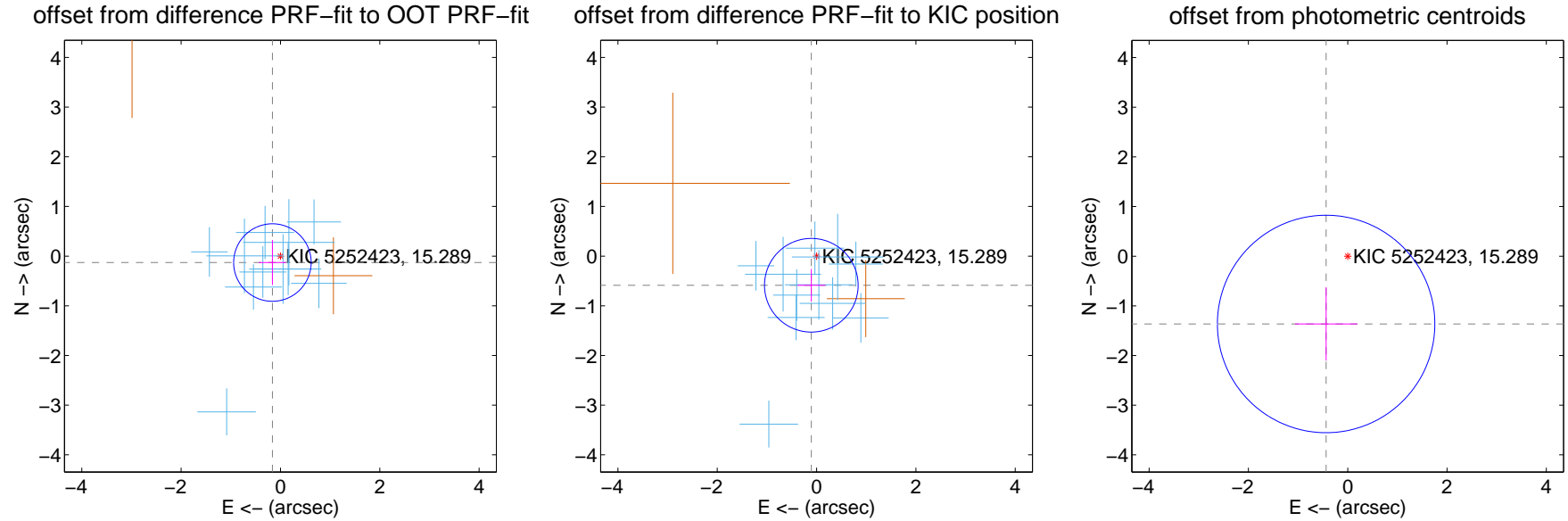
DV Centroid Data

Supplemental centroid analysis for 005252423-02. Kepler magnitude: 15.29. Transit SNR 18.21

There are 11 quarters with good PRF difference image offsets

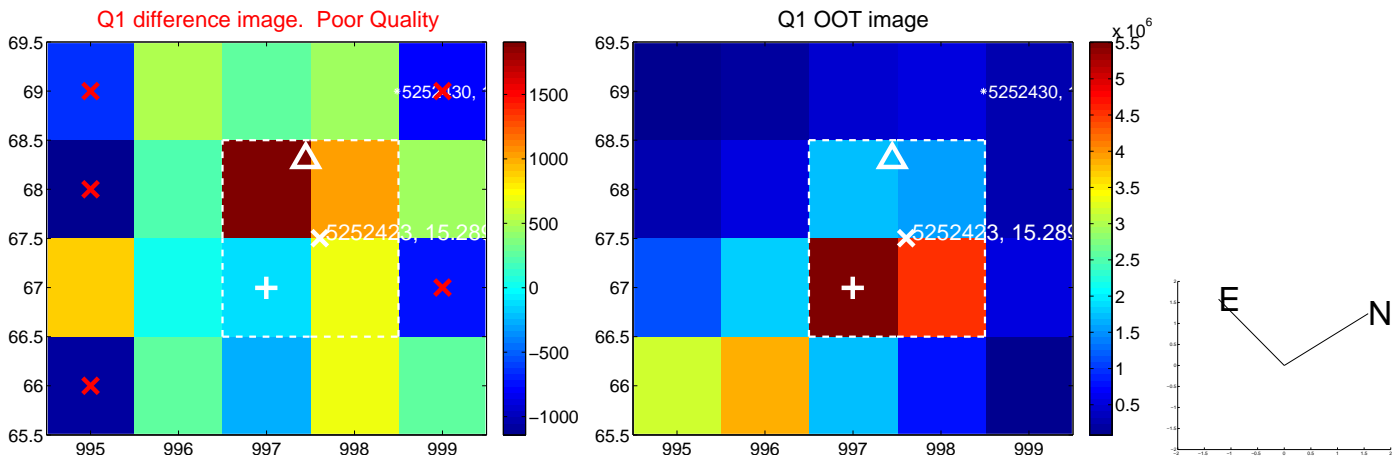
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.207 ± 0.260	0.80	0.162 ± 0.277	-0.129 ± 0.452
PRF-fit source offset from KIC position	0.596 ± 0.314	1.90	0.106 ± 0.282	-0.587 ± 0.328
photometric centroid source offset	1.43 ± 0.73	1.96	0.44 ± 0.63	-1.37 ± 0.74

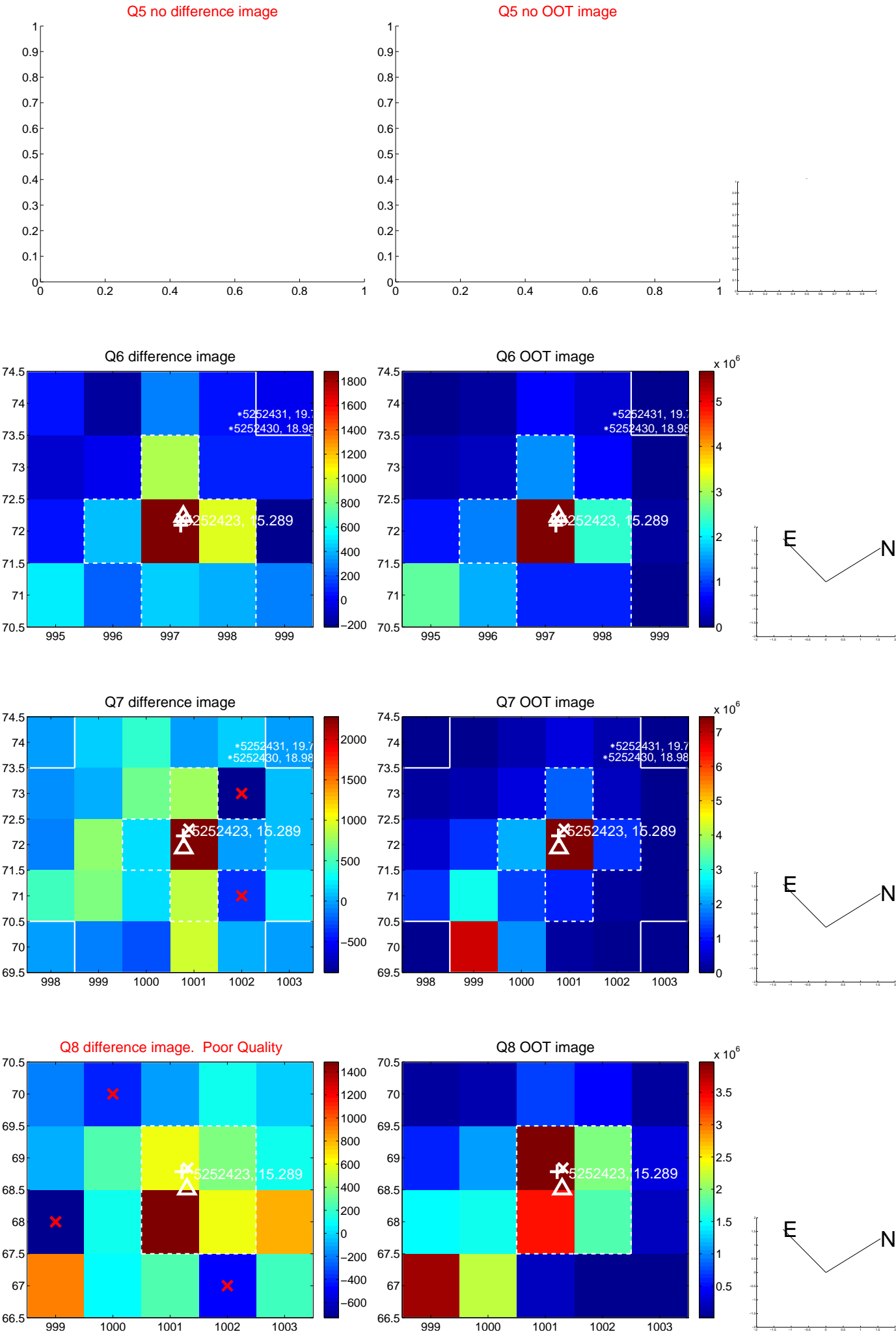


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

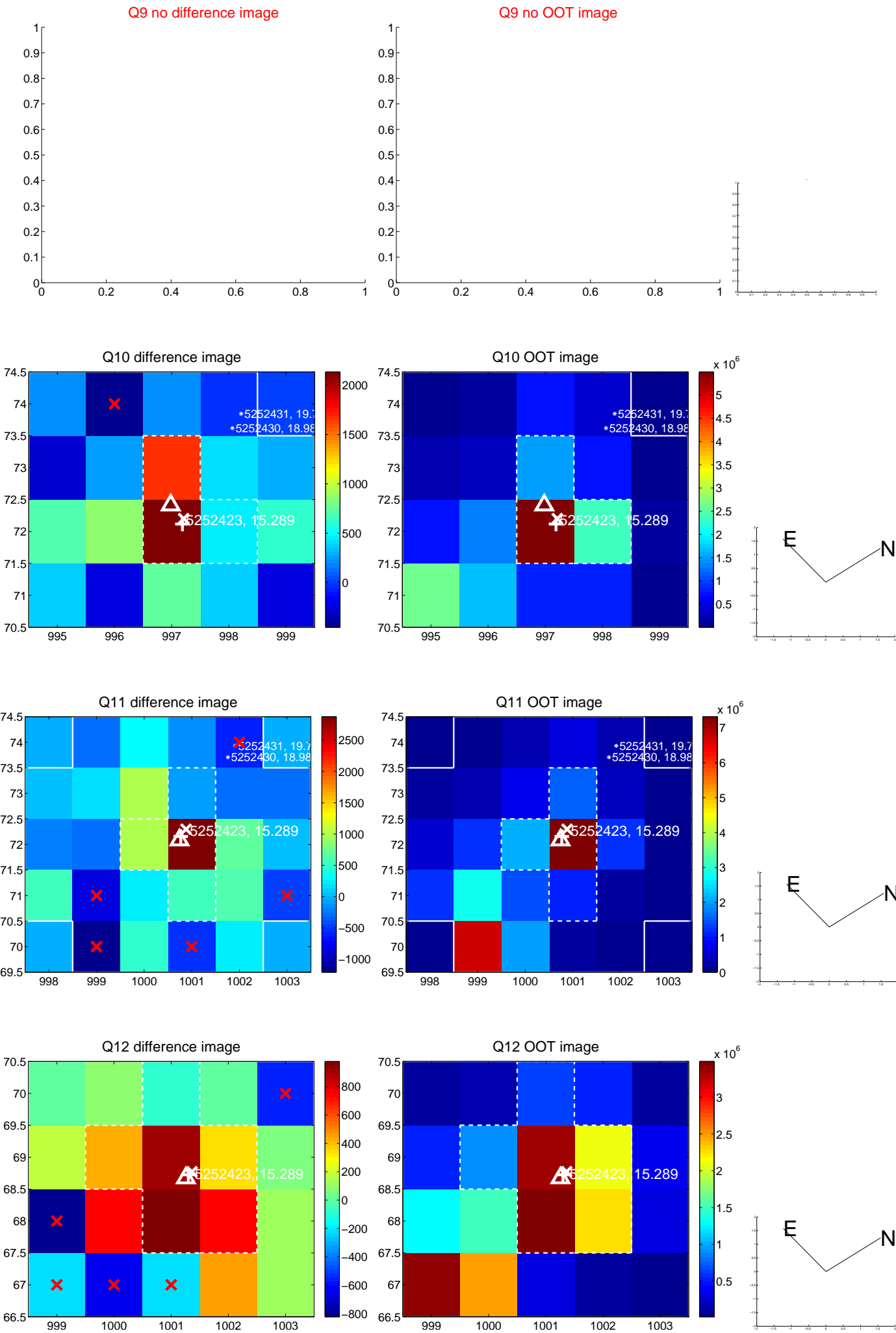
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



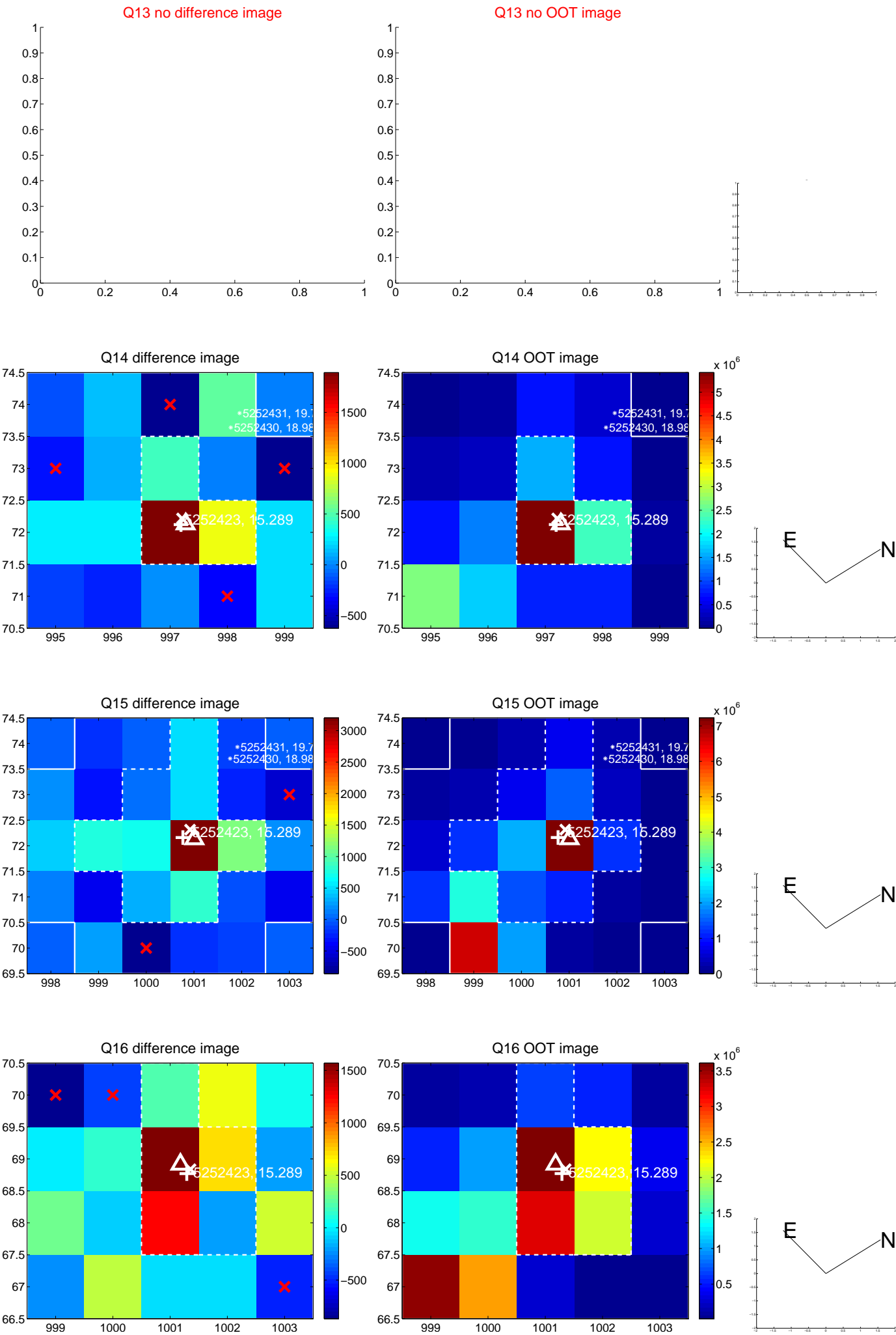
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



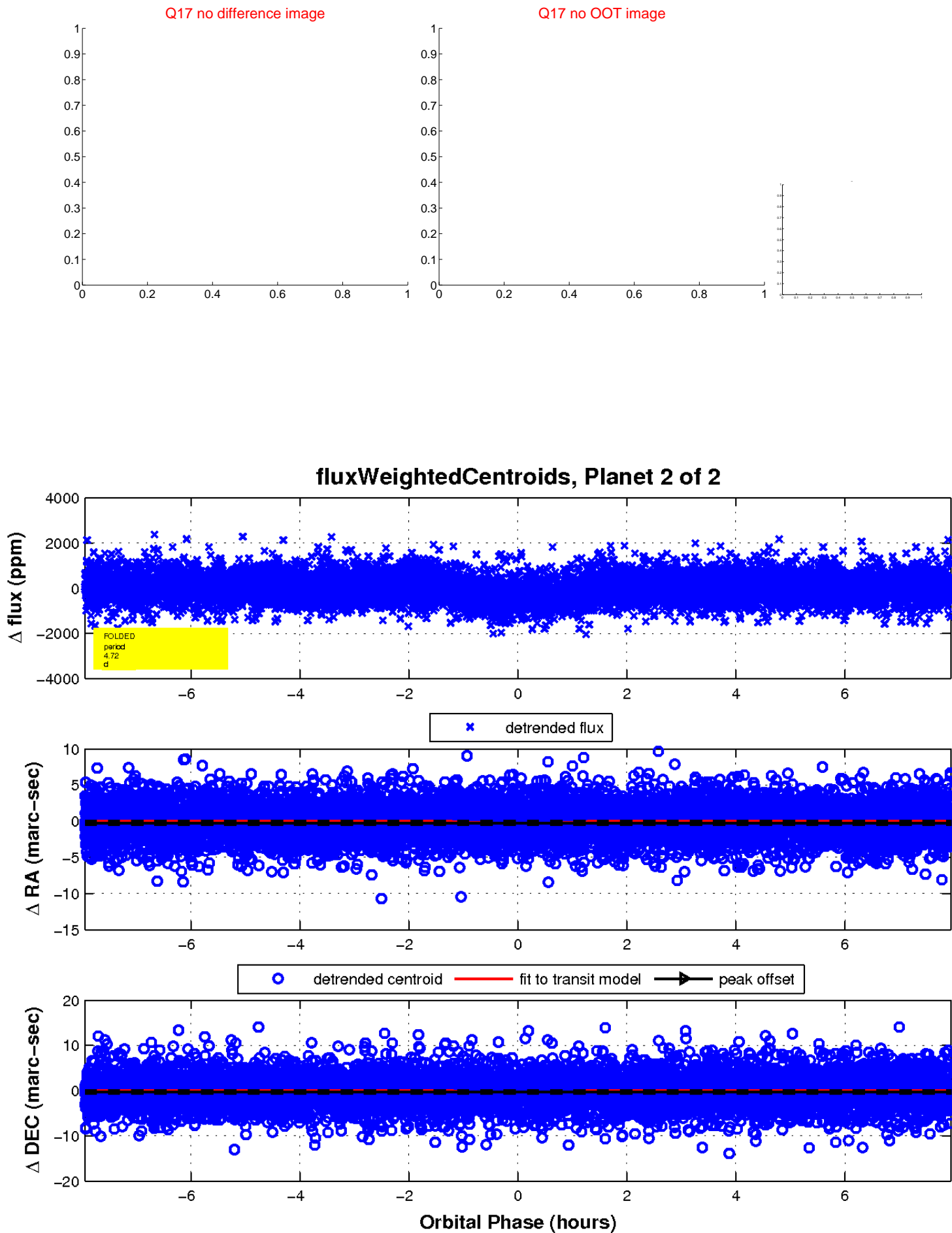
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

