

KIC 004756243

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})
004756243-01	OBS	No	1.180394	132.337472	18.8	5.541	8.4	6.8	4.02	6360	1.82	32471.65
004756243-02	OBS	No	219.360743	214.397846	279.7	6.586	7.3	6.9	4.02	6360	7.58	30.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004756243-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004756243-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

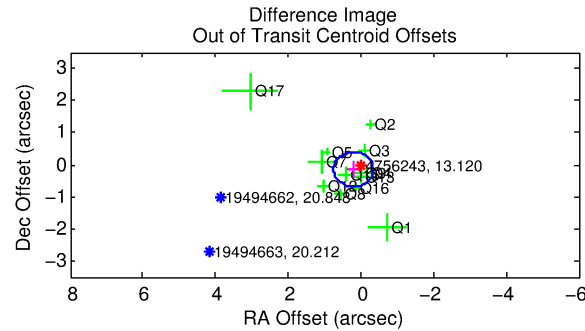
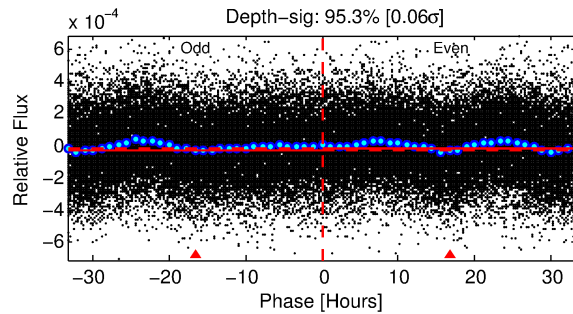
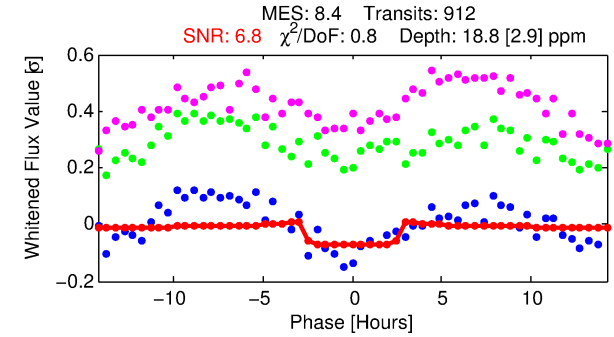
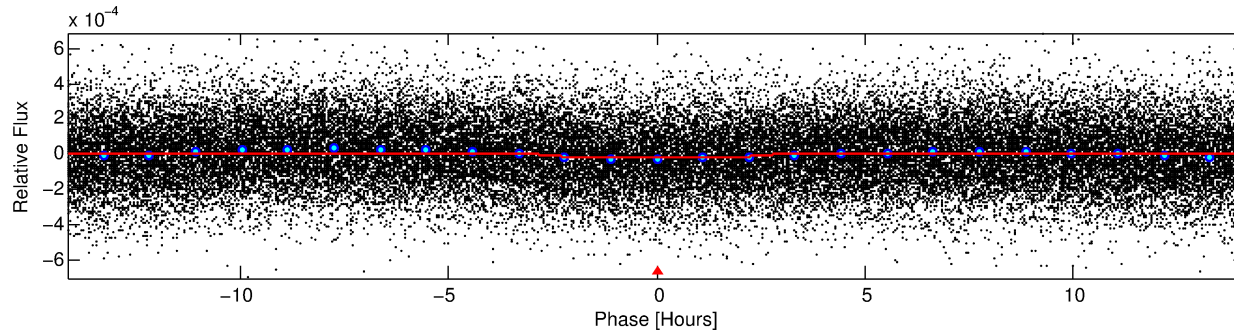
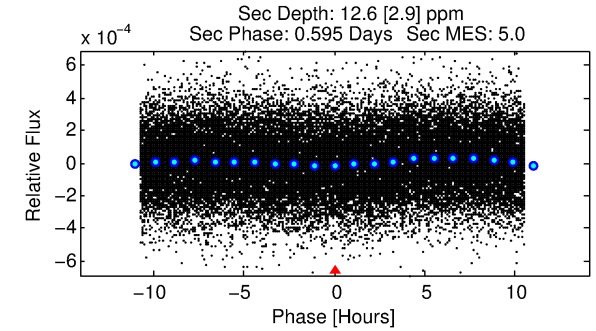
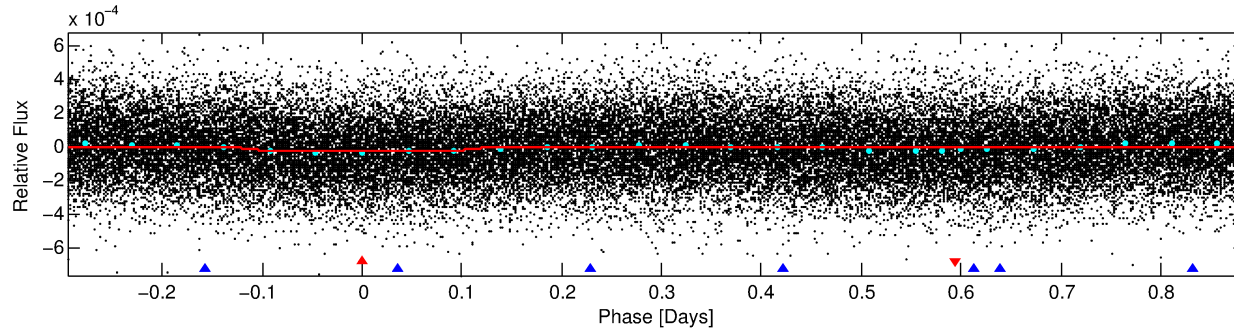
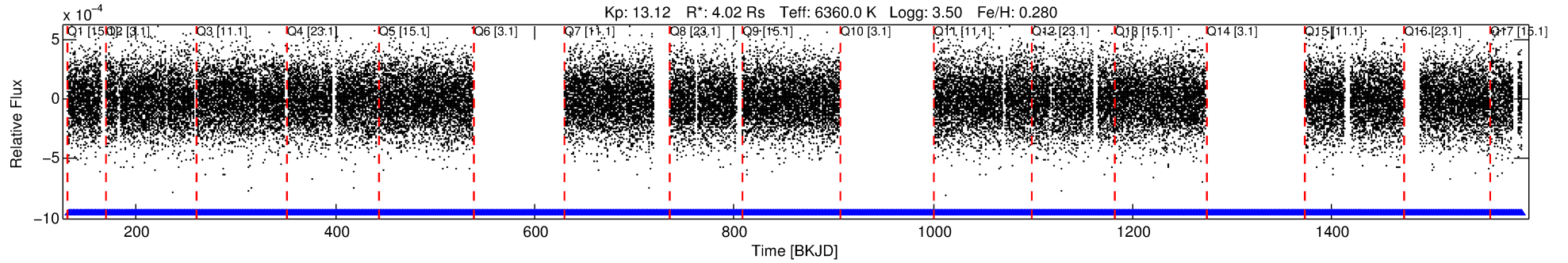
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756243-01

No Significant Match Found

DV One-Page Summary

KIC: 4756243 Candidate: 1 of 2 Period: 1.180 d



DV Fit Results:

Period = 1.18039 [0.00002] d
Epoch = 132.3375 [0.0066] BKJD
Rp/R* = 0.0041 [0.0018]
a/R* = 1.54 [1.92]
b = 0.58 [2.53]
Seff = 32471.65 [18685.51]
Teq = 3423 [492] K
Rp = 1.82 [1.02] Re
a = 0.0270 [0.0095] AU
Ag = 1.53 [1.60] [0.33σ]
Teffp = 5885 [1312] K [1.76σ]

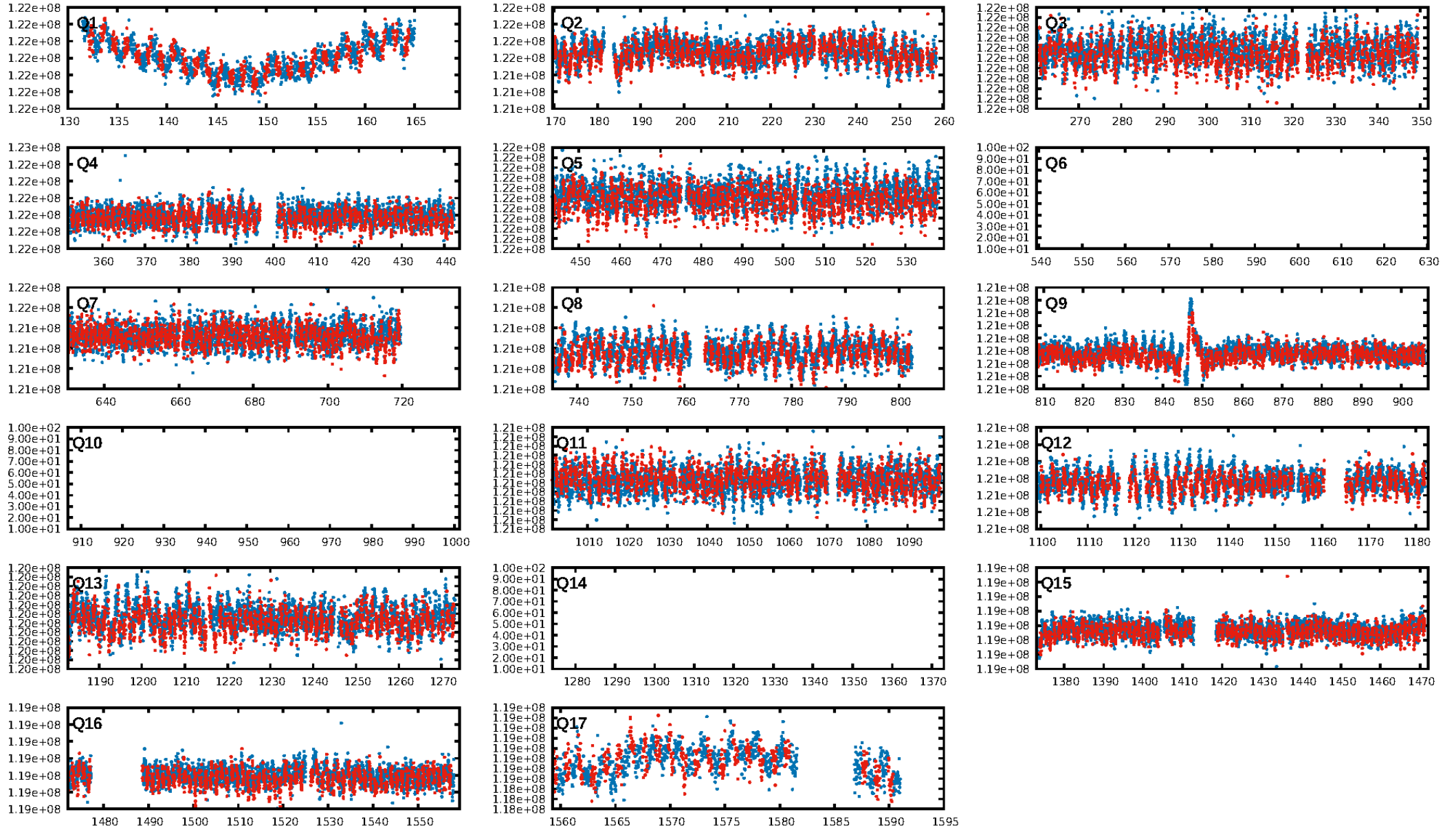
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [608.39σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.85e-09
RollingBand-fgt: 1.00 [862/862]
GhostDiagnostic-chr: 0.6863
Centroid-sig: 0.0%
Centroid-so: 2.034 arcsec [2.28σ]
OotOffset-rm: 0.258 arcsec [1.43σ]
KicOffset-rm: 0.341 arcsec [1.86σ]
OotOffset-st: 1/3/4/5 [13]
KicOffset-st: 1/3/4/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

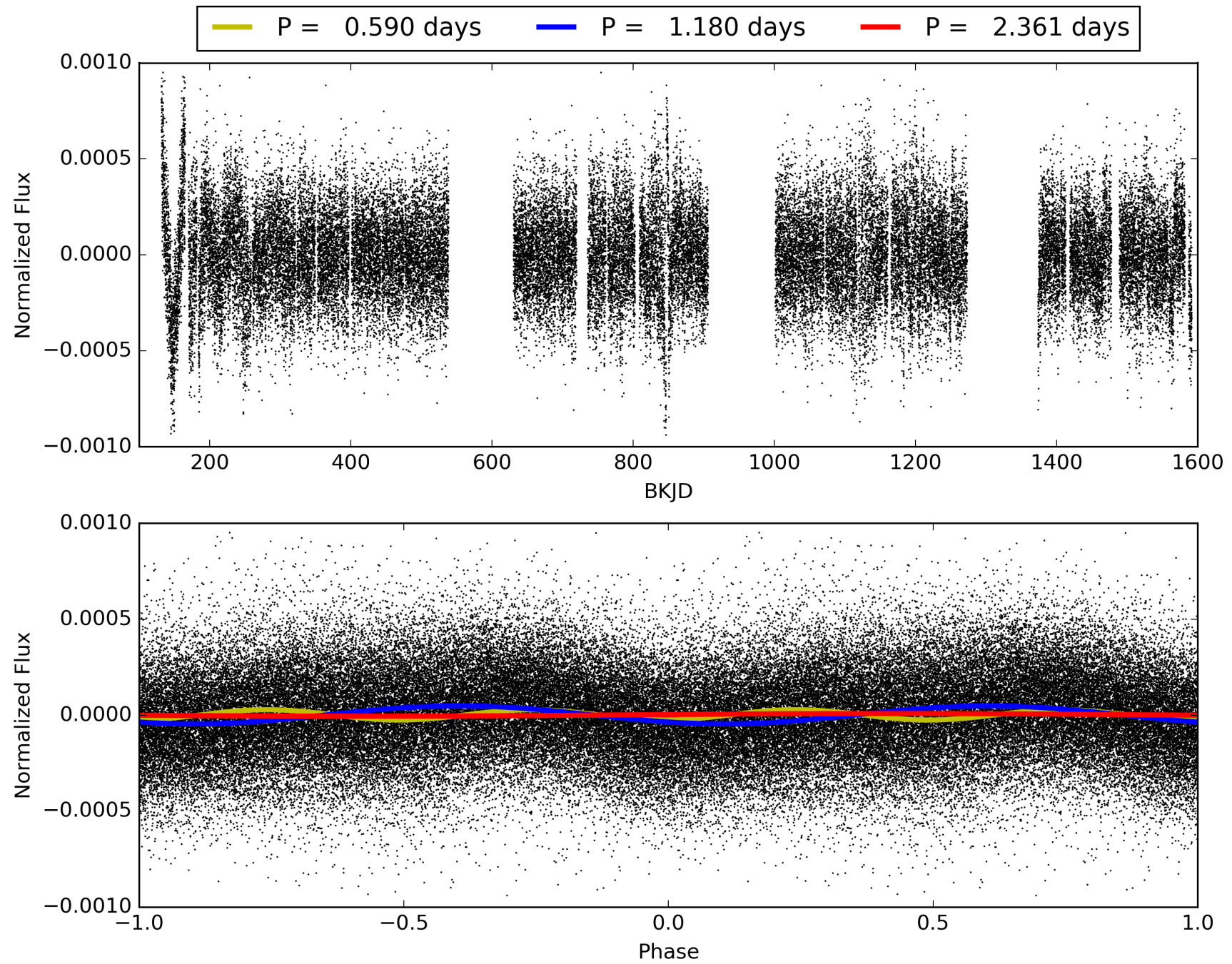
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:47:26 Z

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

TCE 004756243-01, PDC Light Curves

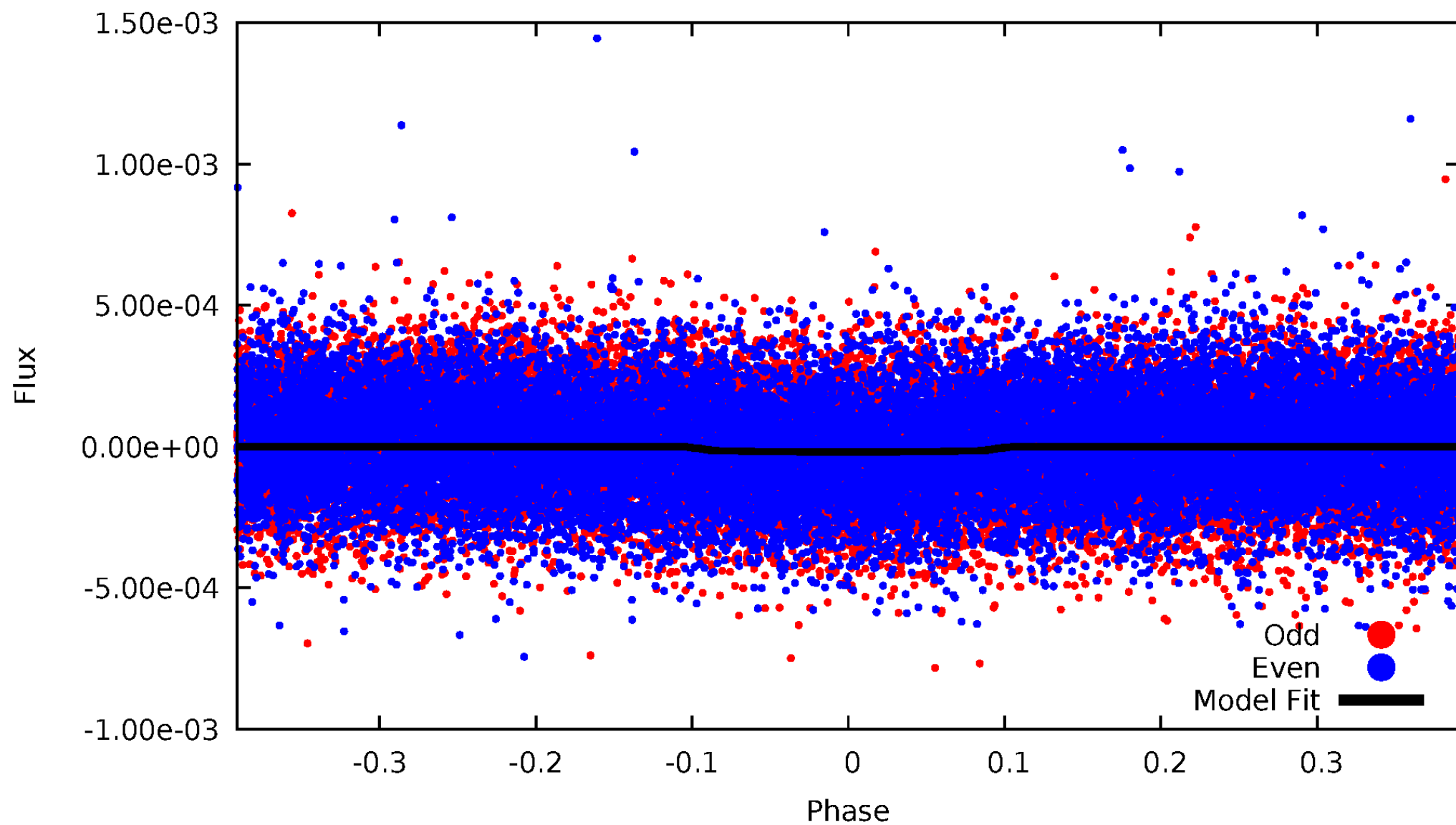


TCE 004756243-01



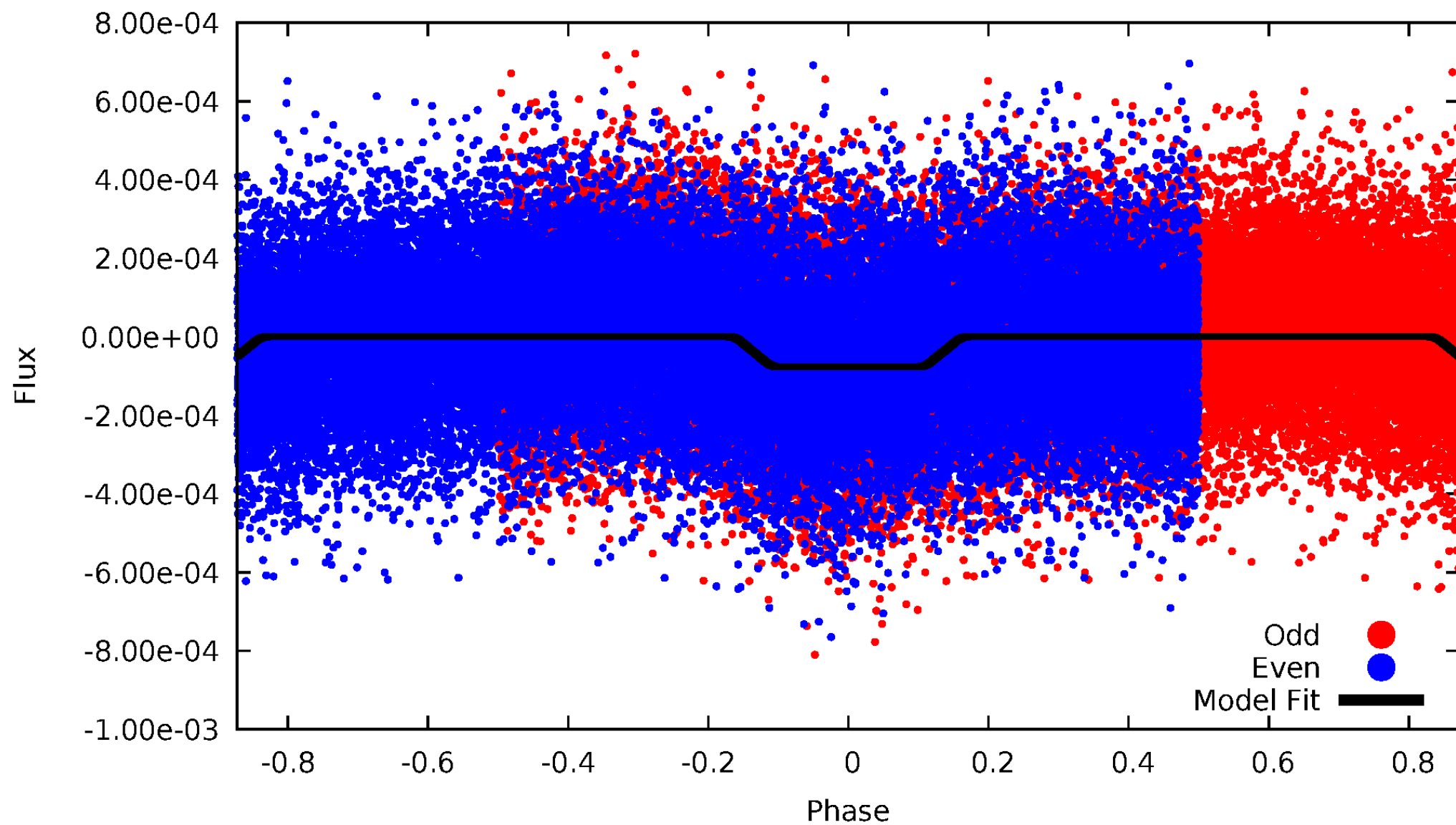
DV Odd/Even

TCE 004756243-01

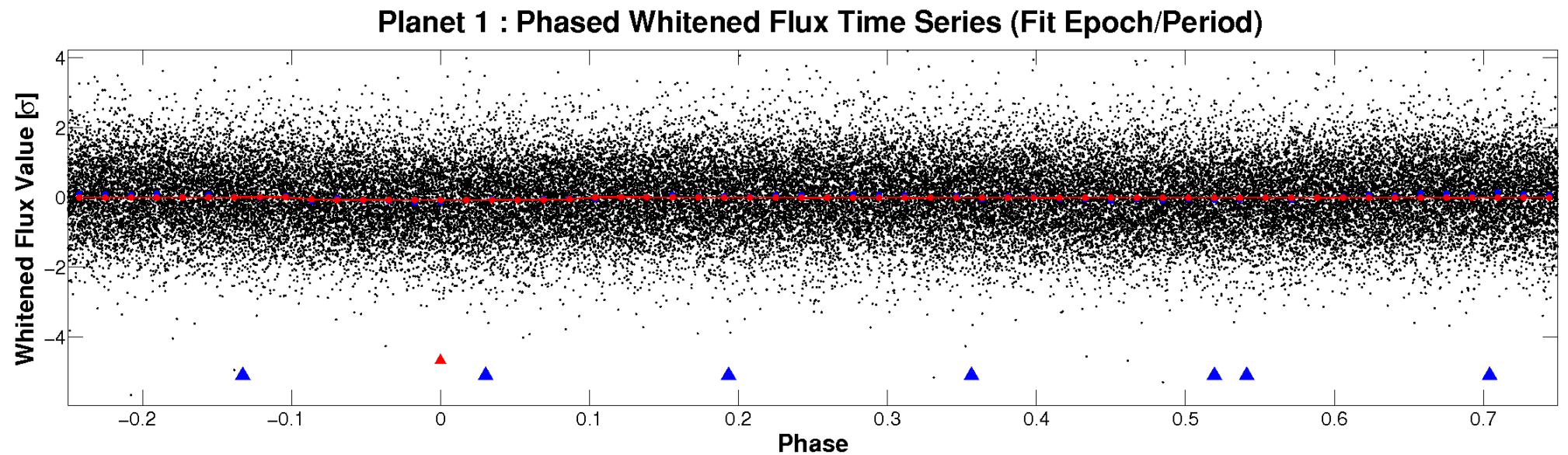
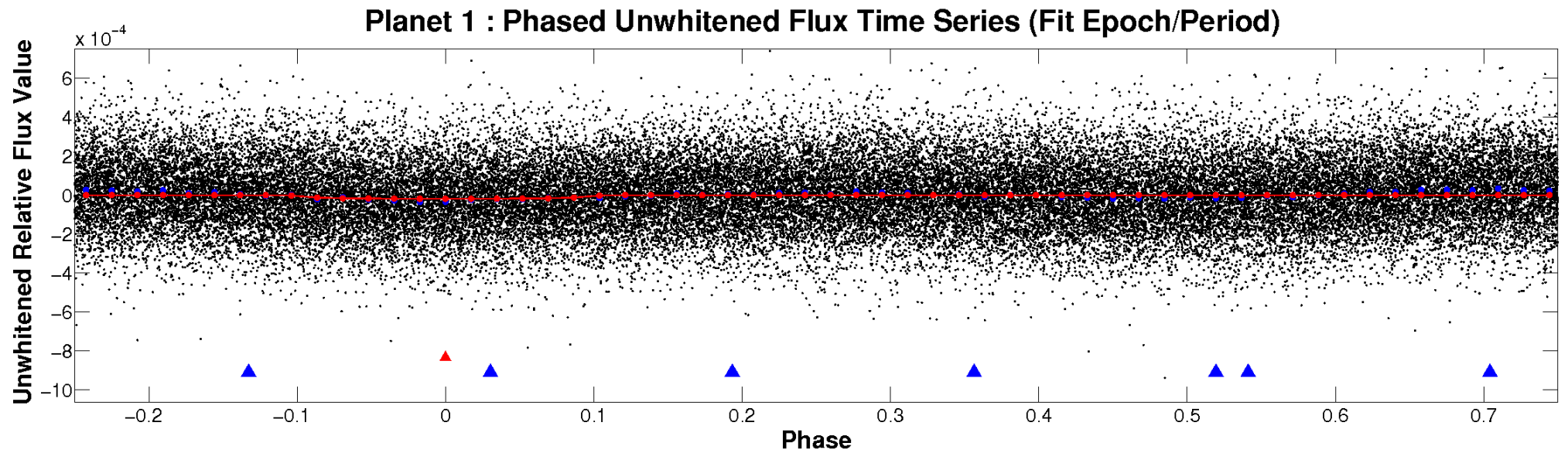


ALT Odd/Even

TCE 004756243-01

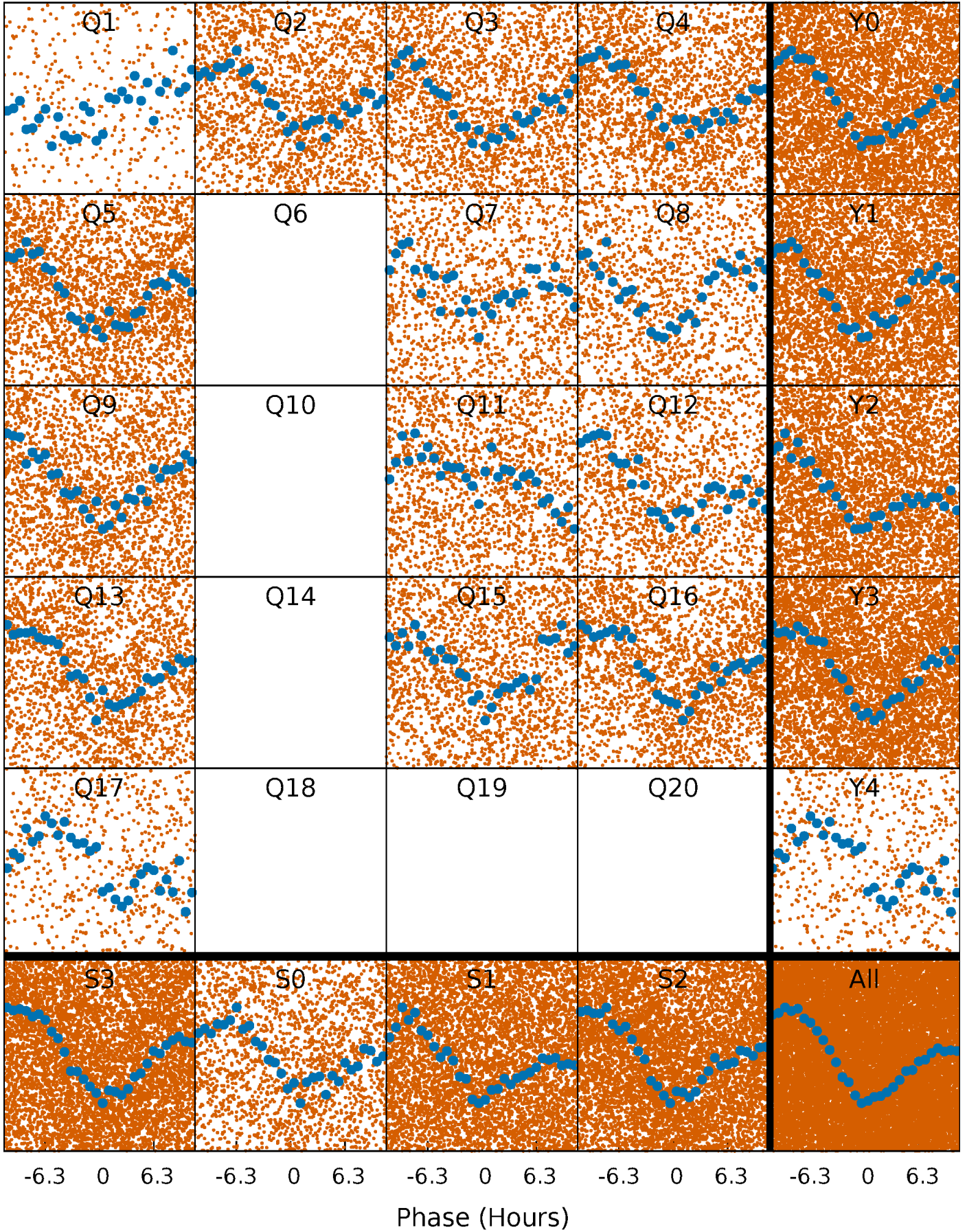


Non-Whitened Vs. Whitened Light Curve



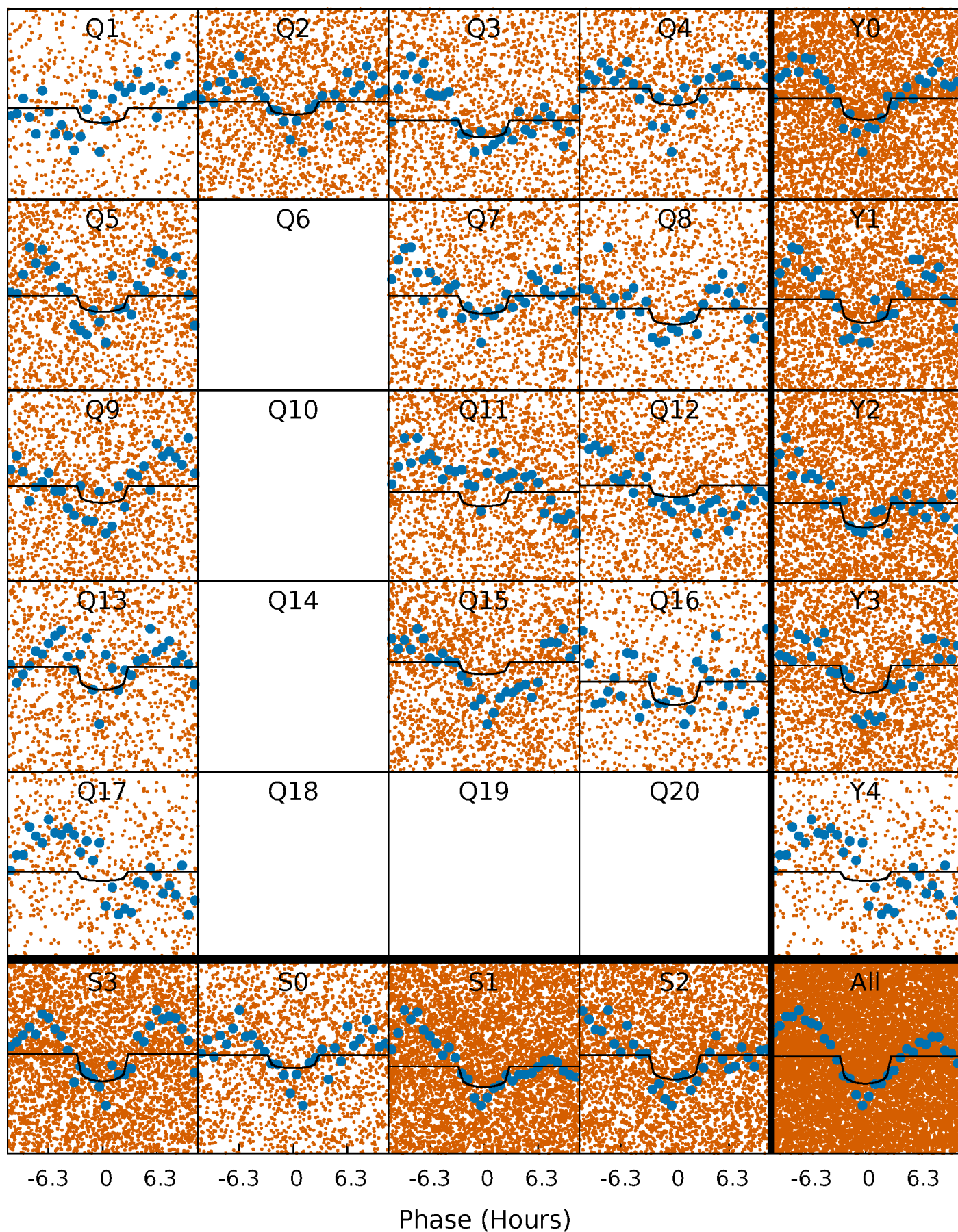
PDC Quarter-Phased Transit Curves

TCE 004756243-01 P= 1.180394 Days $T_0=132.337472$ (BKJD)



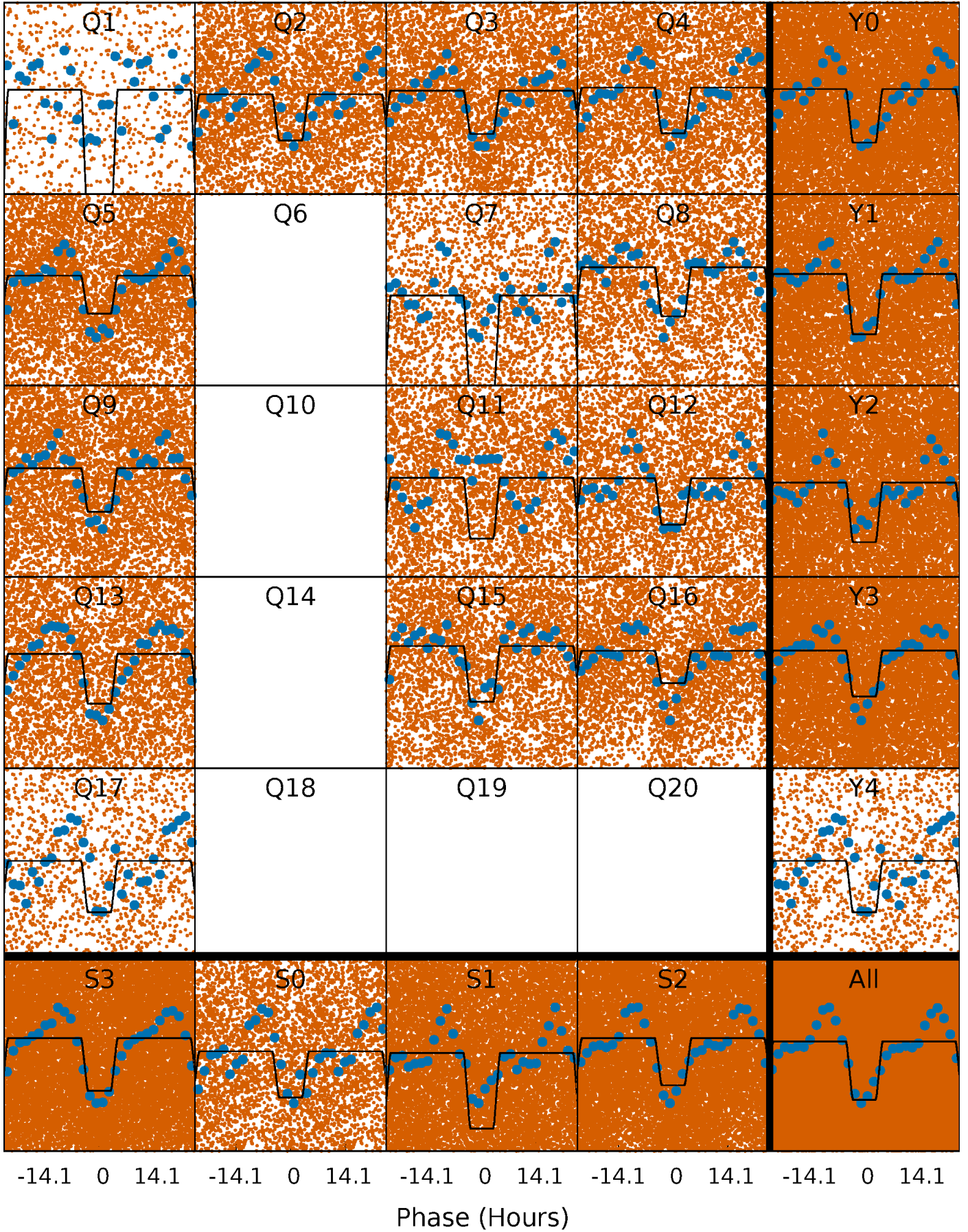
DV Quarter-Phased Transit Curves

TCE 004756243-01 P= 1.180394 Days $T_0=132.337472$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

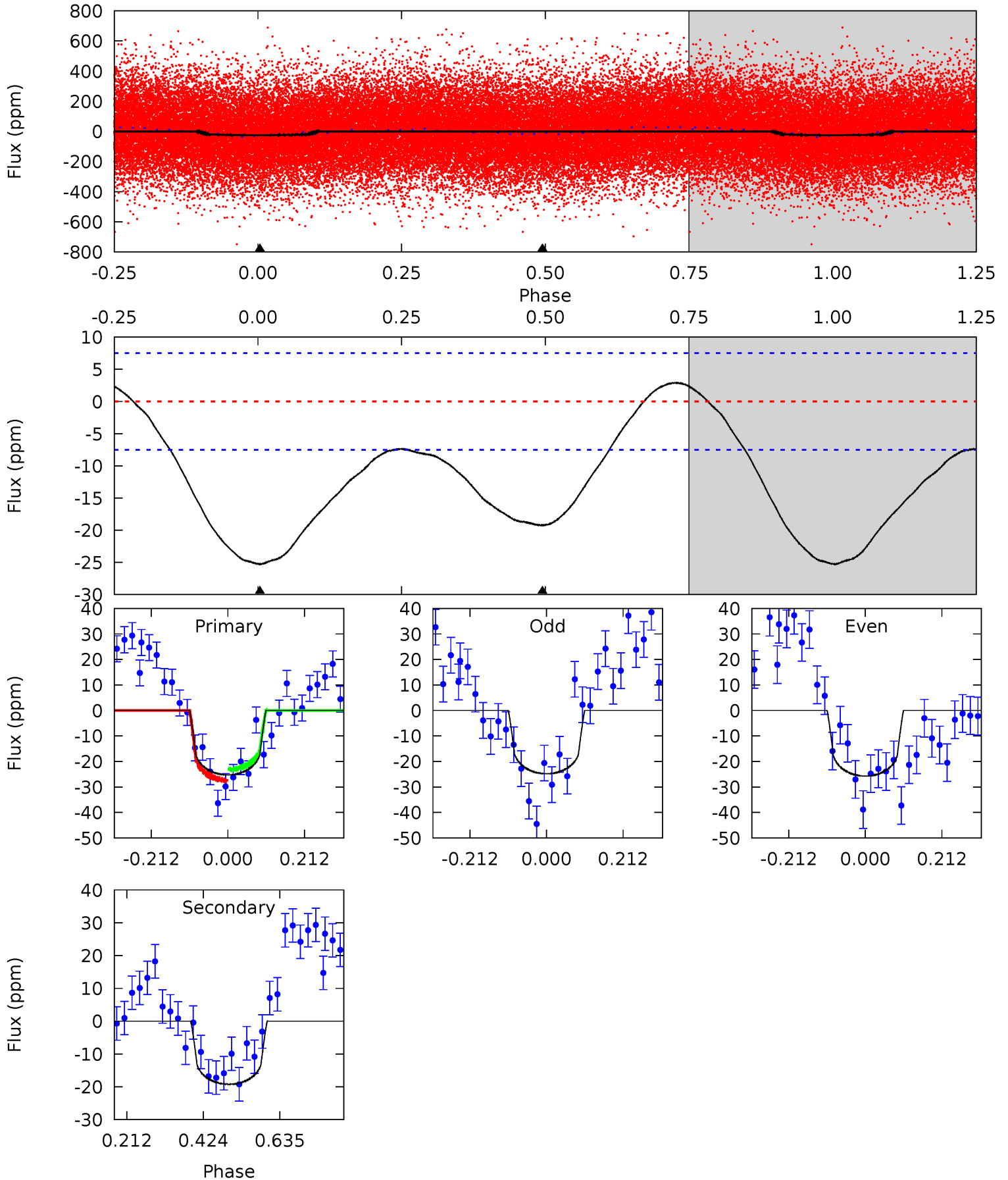
TCE 004756243-01 P= 1.180454 Days $T_0=132.340996$ (BKJD)



DV Model-Shift Uniqueness Test

004756243-01, P = 1.180394 Days, E = 131.157078 Days

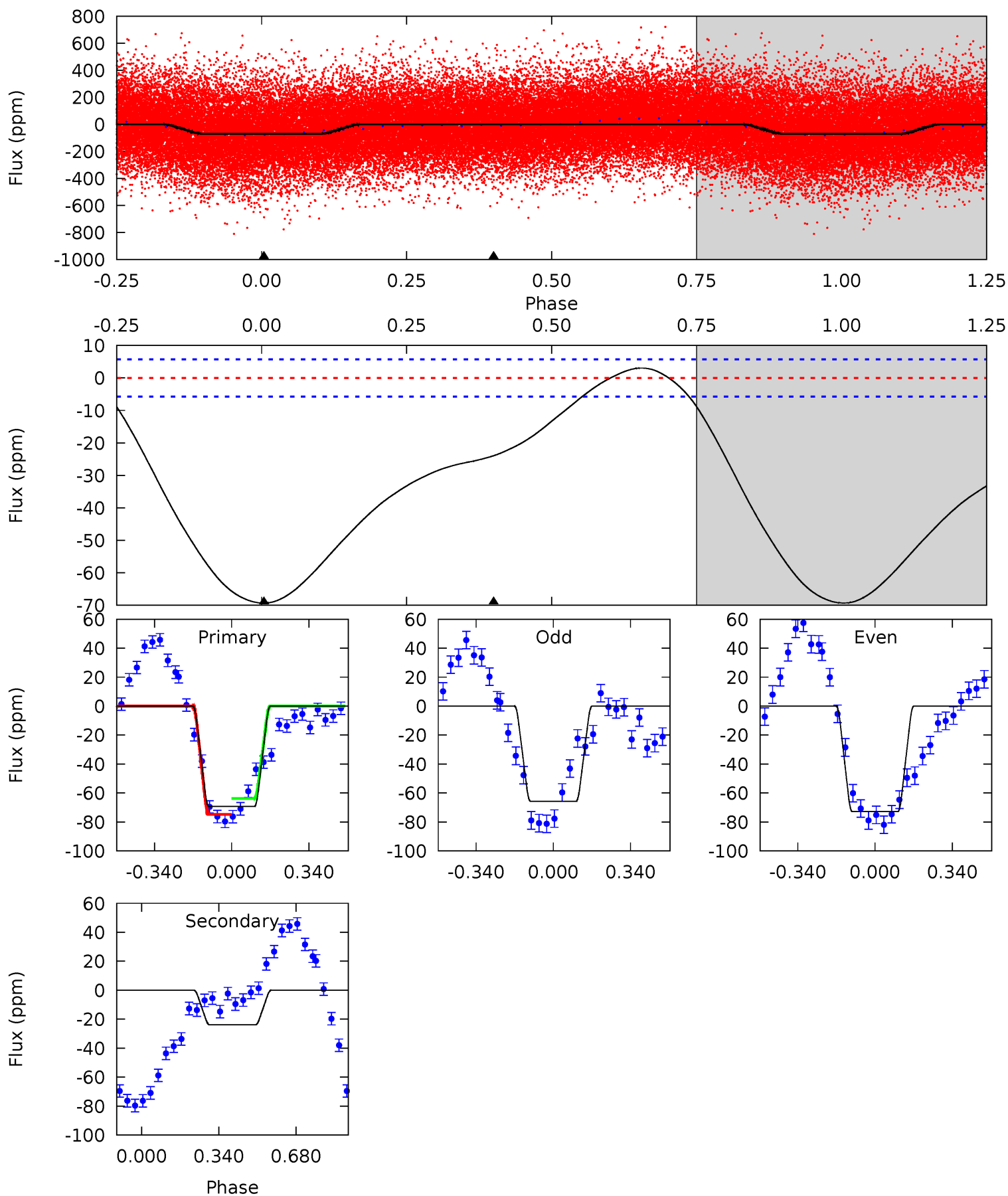
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	11.3	0	0	4.40	1.25	2.81	14.8	14.8	11.3	11.3	0.27	1.00	0.10	1.25



Alt Model-Shift Uniqueness Test

004756243-01, P = 1.180454 Days, E = 131.160542 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.9	17.9	0	0	4.30	0.95	2.79	51.9	51.9	17.9	17.9	2.70	0.98	0.04	4.17



Stellar Parameters For KIC 004756243

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6360^{+190}_{-171}	$3.505^{+0.330}_{-0.110}$	$0.280^{+0.200}_{-0.250}$	$4.020^{+0.348}_{-1.480}$	$1.884^{+0.108}_{-0.324}$	$0.041^{+0.098}_{-0.014}$
	+3%/-3%	+9%/-3%	+71%/-89%	+9%/-37%	+6%/-17%	+240%/-34%
Source	PHO1	FLK73	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 004756243-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-19 ± 2	$1.69^{+0.86}_{-0.71}$	4734^{+276}_{-463}	6292^{+2454}_{-1220}	$2.602^{+5.214}_{-1.449}$
Alt.	-24 ± 1	$3.66^{+0.97}_{-0.87}$	4761^{+239}_{-430}	4338^{+693}_{-622}	$0.704^{+0.535}_{-0.259}$

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 $A_{obs} \gg 1.0$

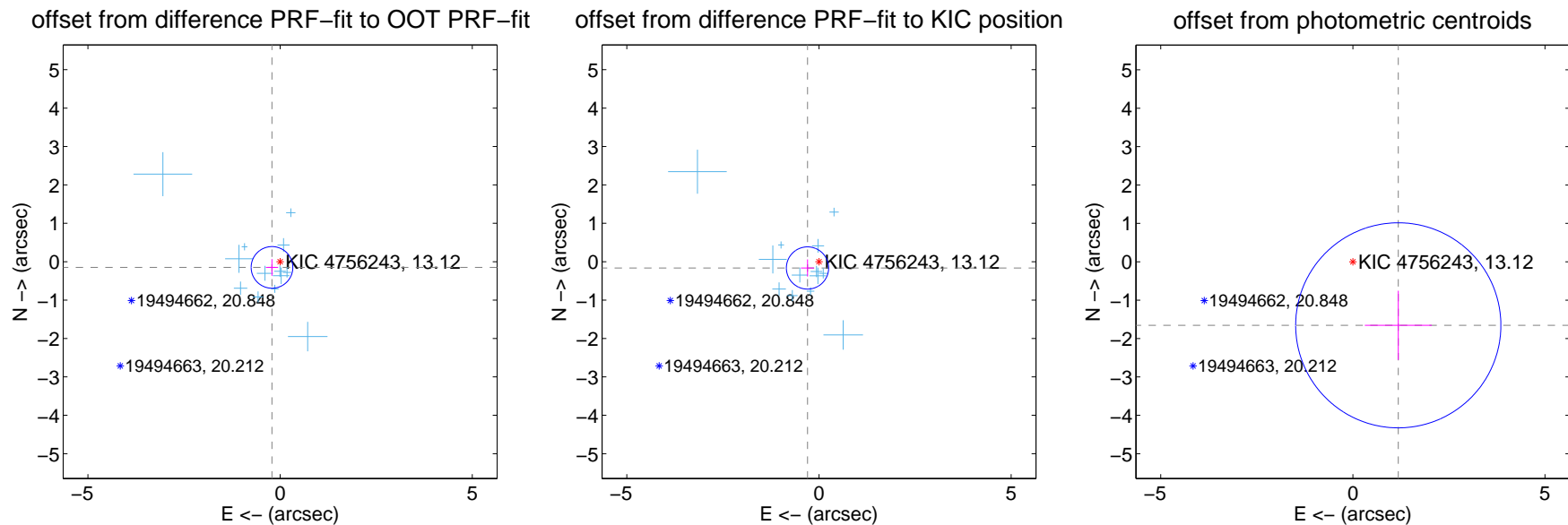
DV Centroid Data

Supplemental centroid analysis for 004756243-01. Kepler magnitude: 13.12. Transit SNR 6.81

There are 13 quarters with good PRF difference image offsets

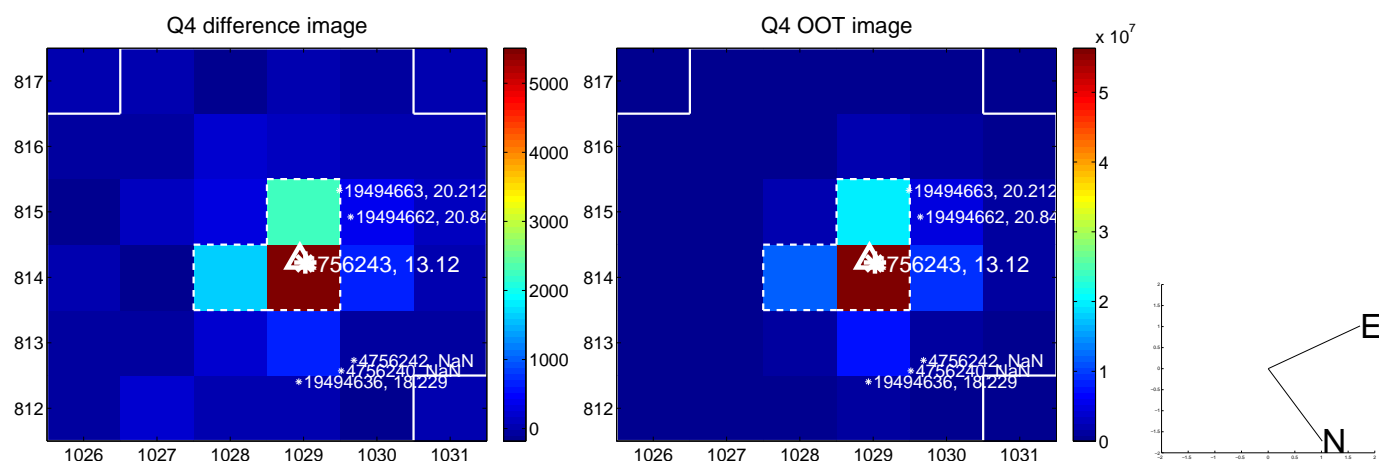
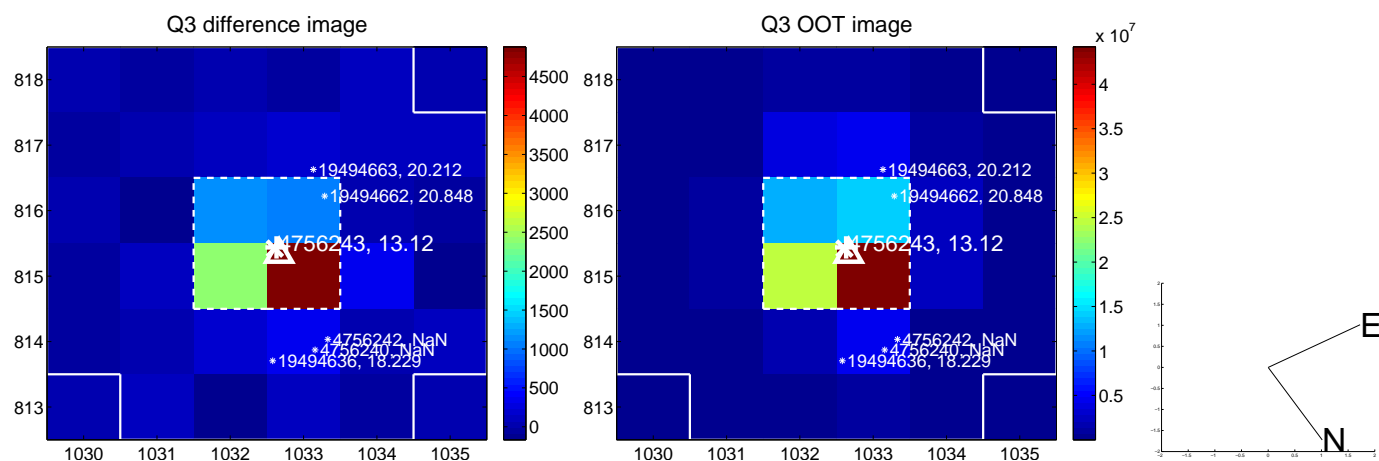
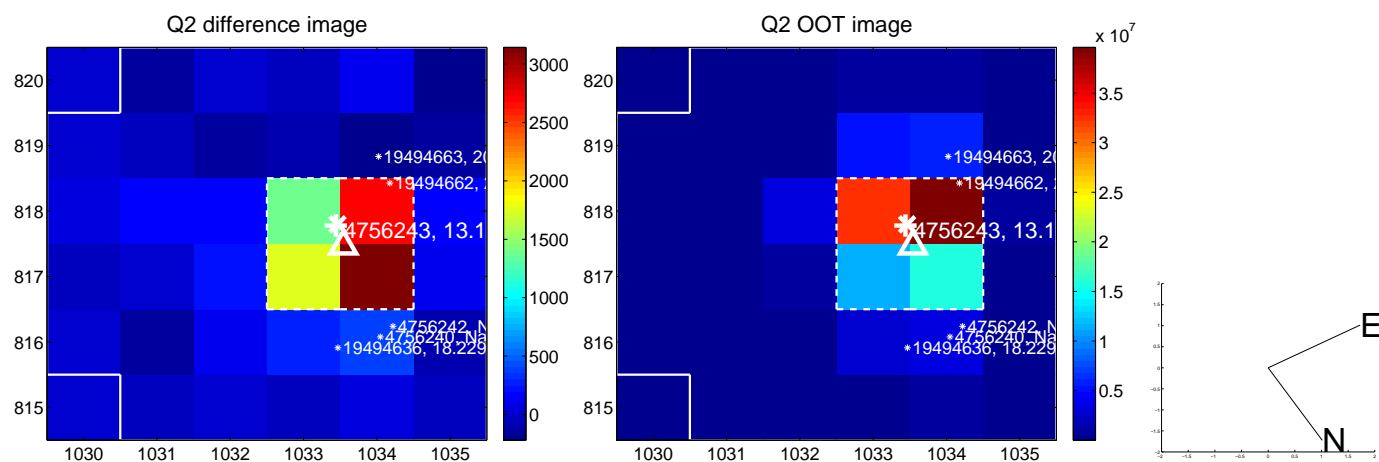
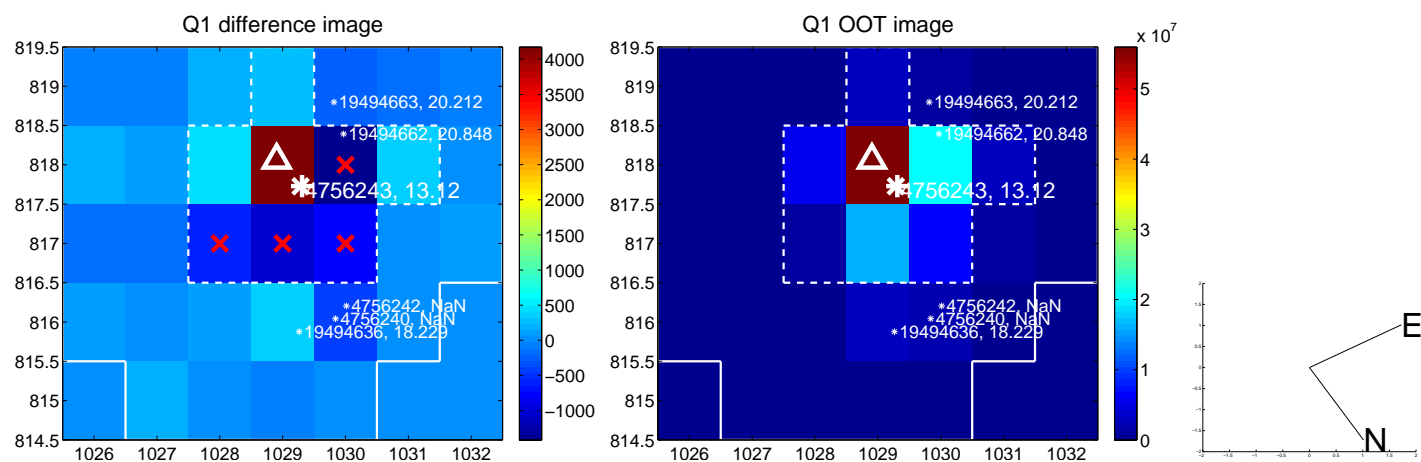
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.258 ± 0.181	1.43	0.211 ± 0.159	-0.149 ± 0.218
PRF-fit source offset from KIC position	0.341 ± 0.183	1.86	0.299 ± 0.169	-0.164 ± 0.223
photometric centroid source offset	2.03 ± 0.89	2.28	-1.18 ± 0.87	-1.66 ± 0.90

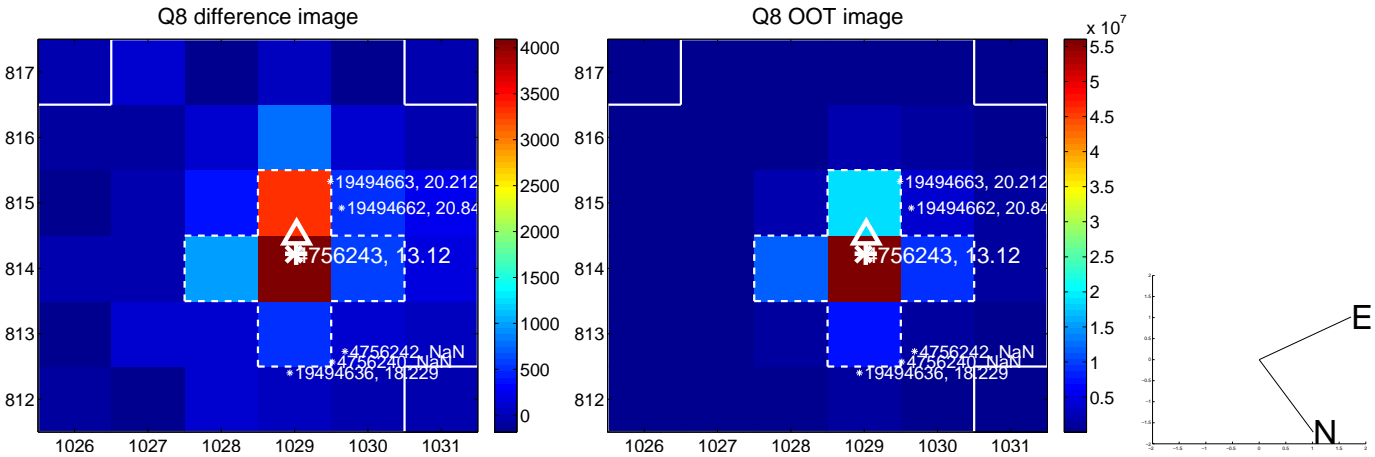
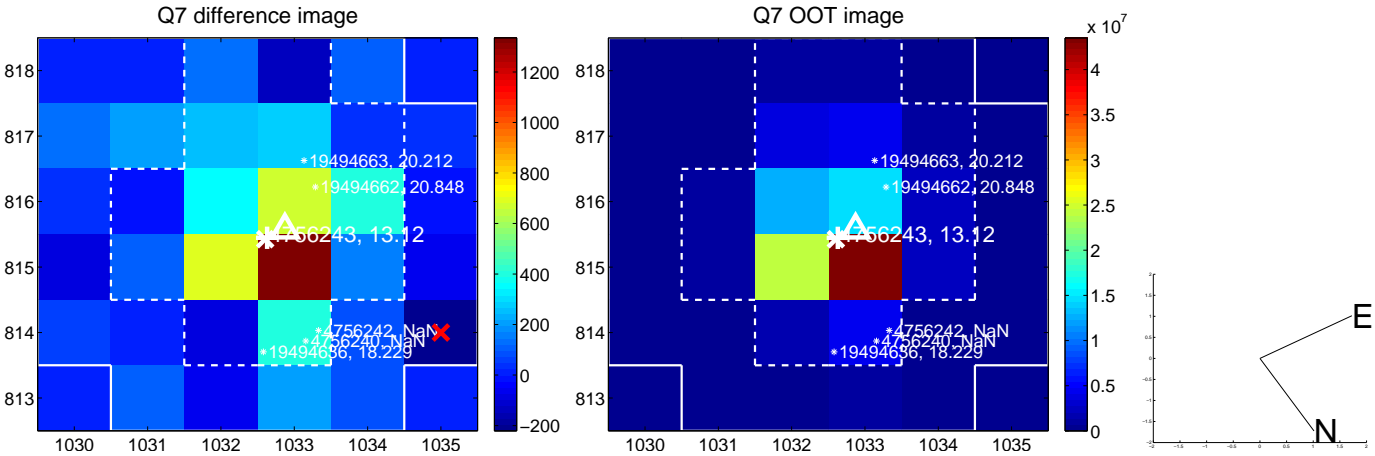
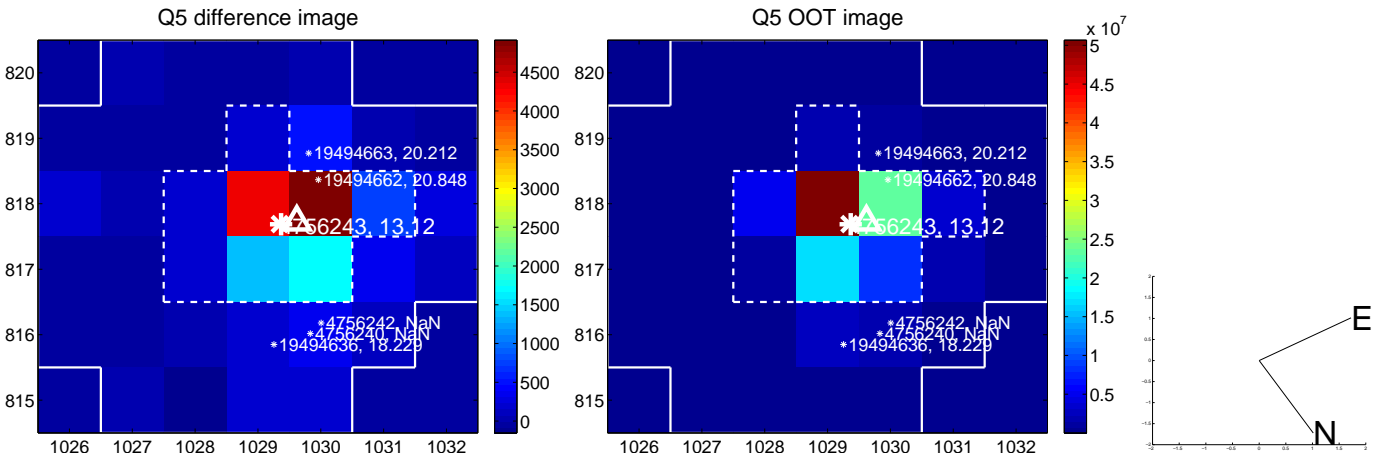


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

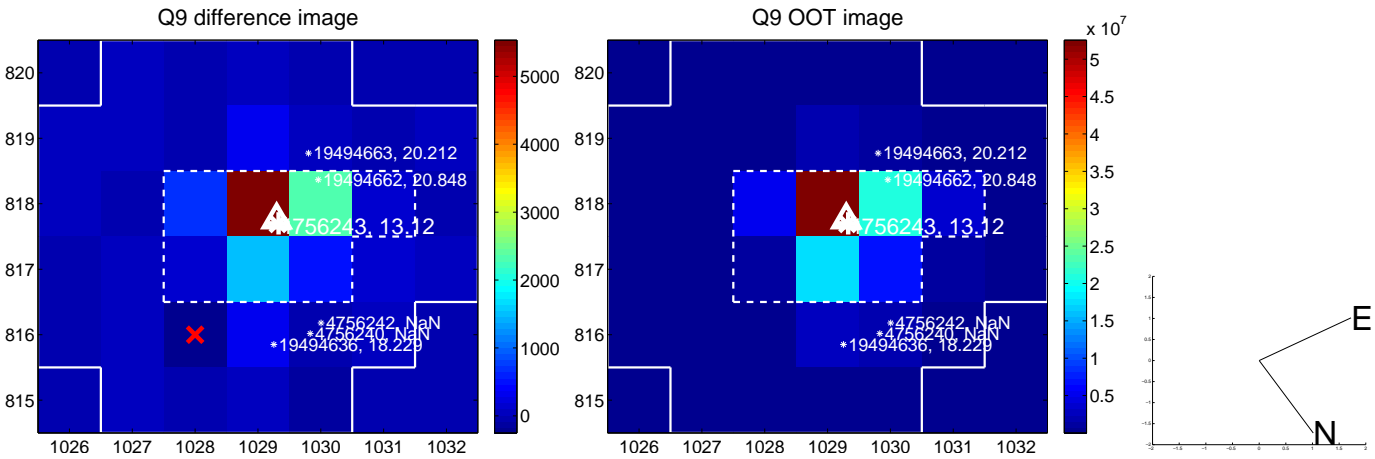
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



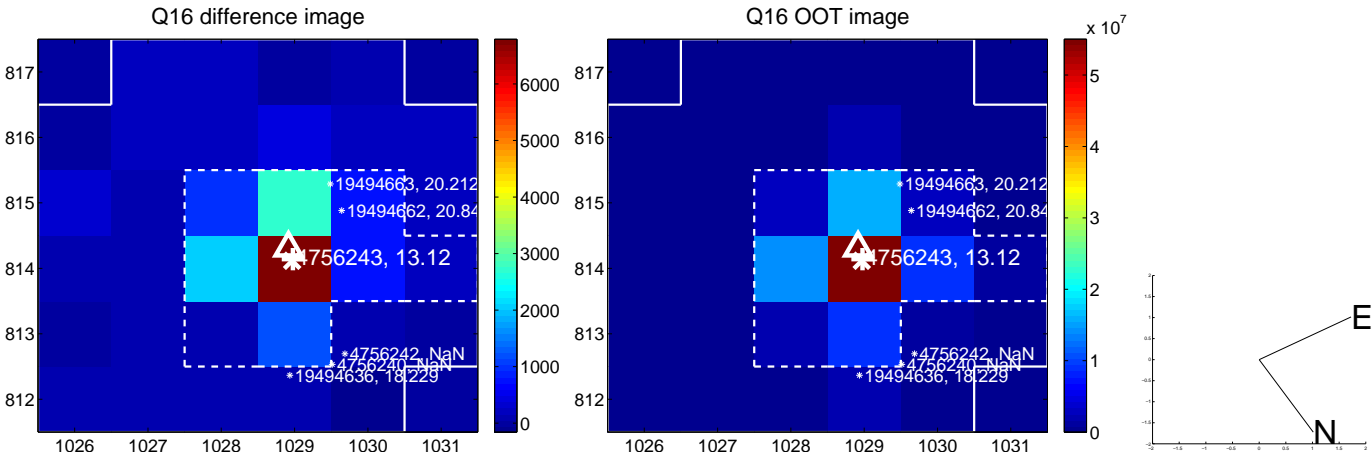
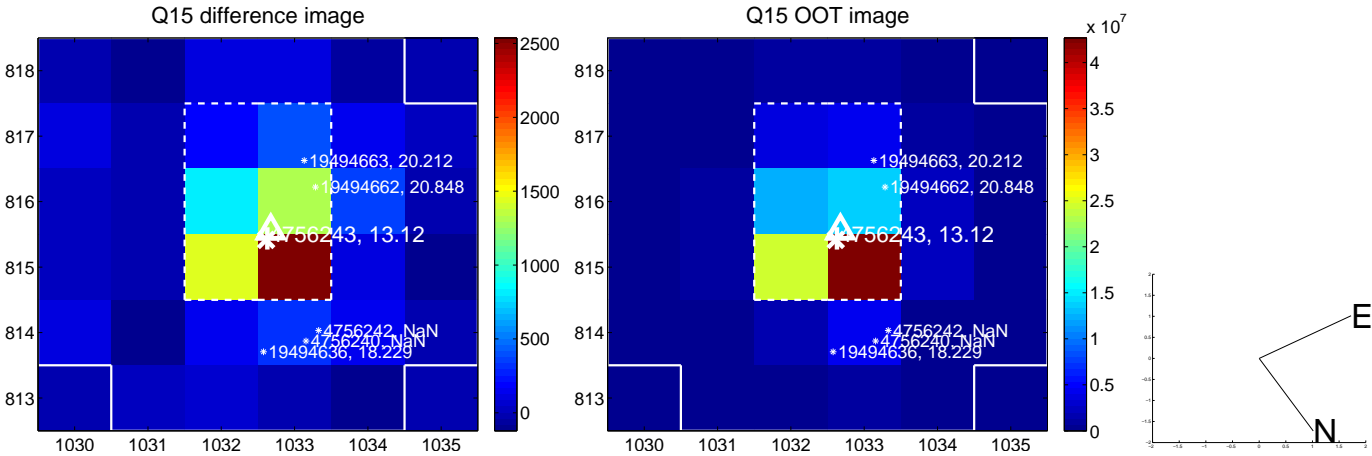
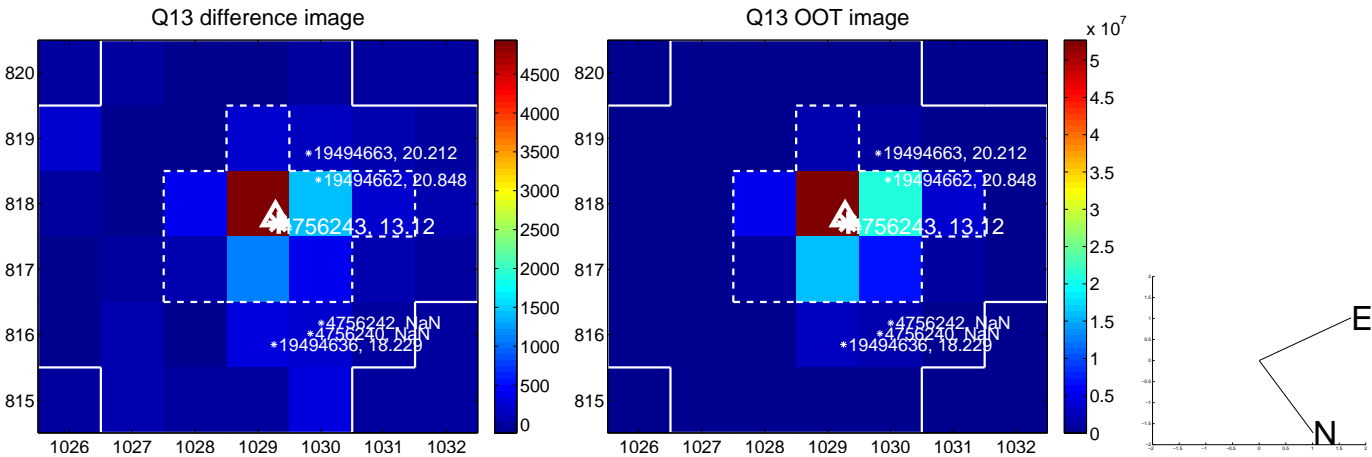
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



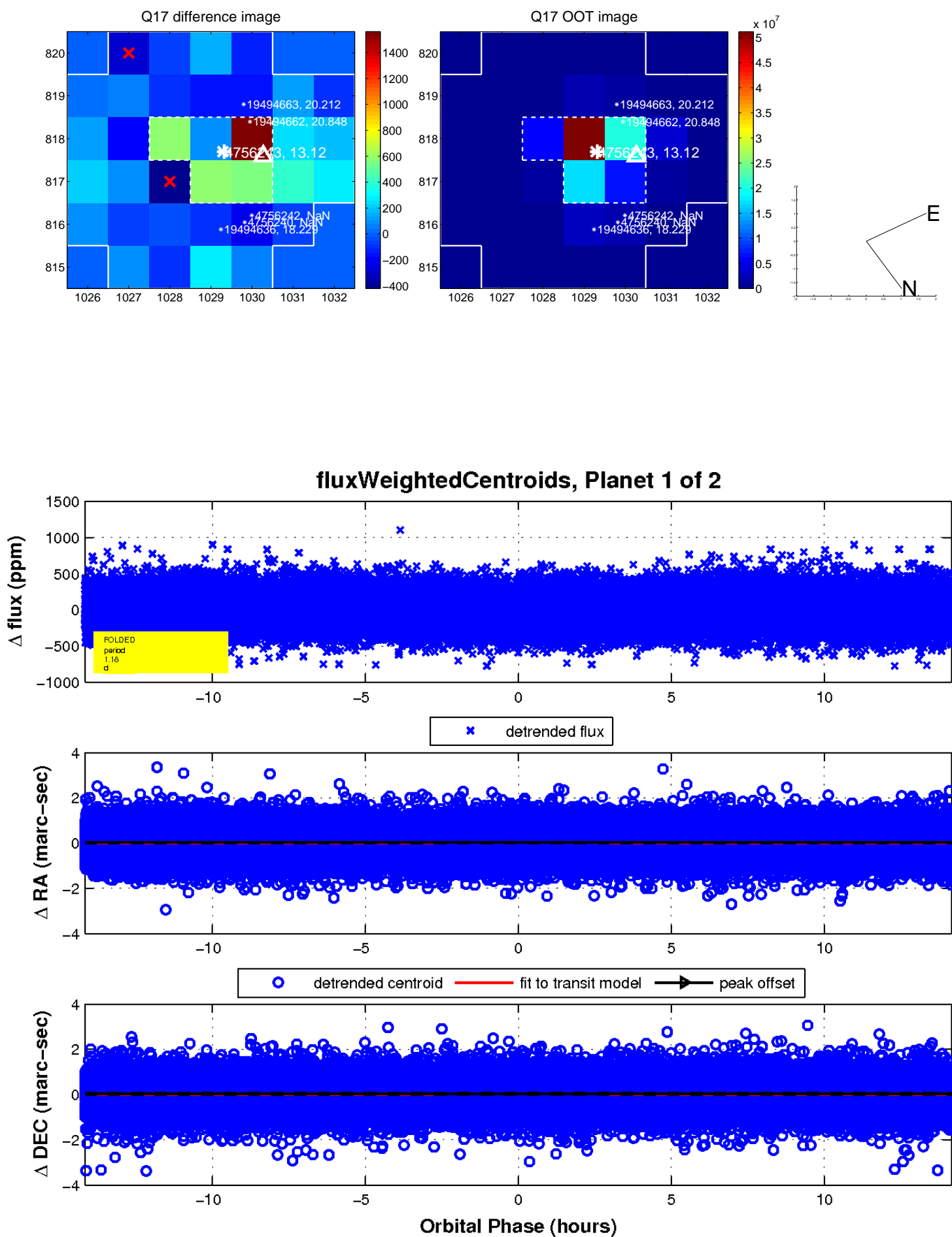
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

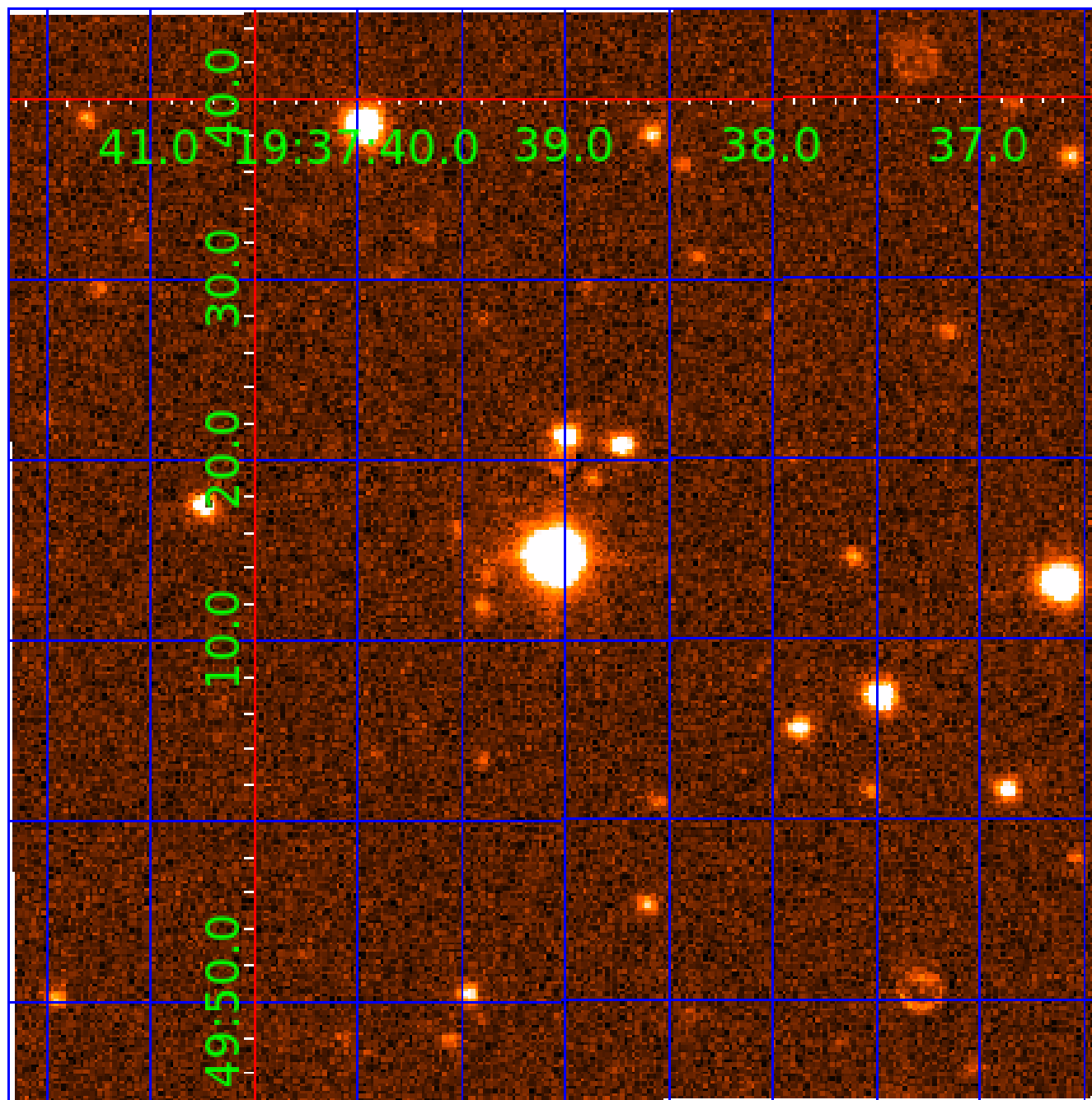


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004756243

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})
004756243-01	OBS	No	1.180394	132.337472	18.8	5.541	8.4	6.8	4.02	6360	1.82	32471.65
004756243-02	OBS	No	219.360743	214.397846	279.7	6.586	7.3	6.9	4.02	6360	7.58	30.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004756243-01	OBS	FP	0.00	1	0	0	0	LPP_DV
004756243-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—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.

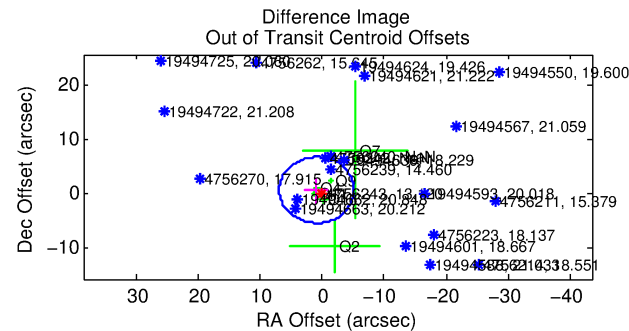
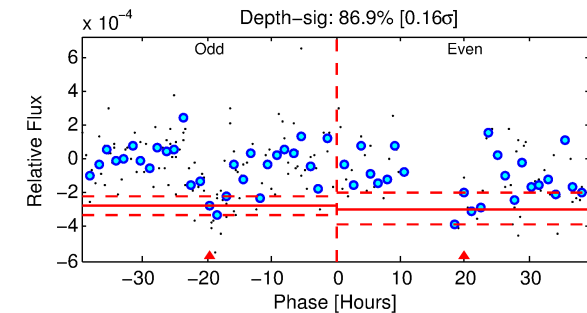
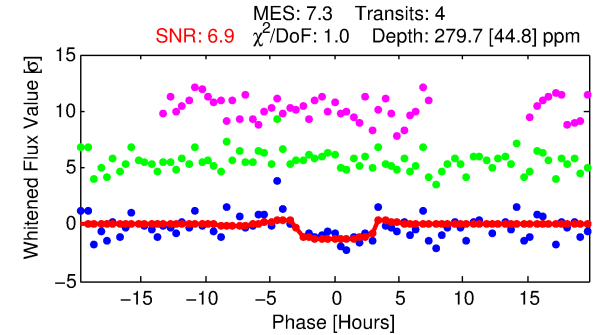
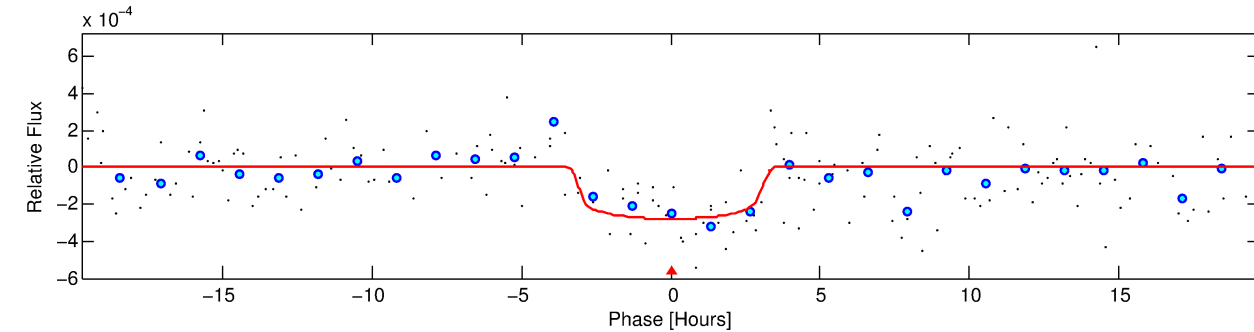
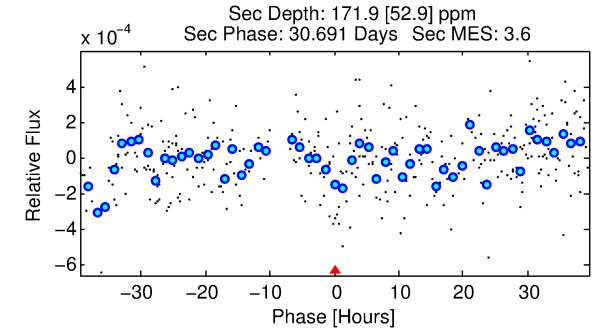
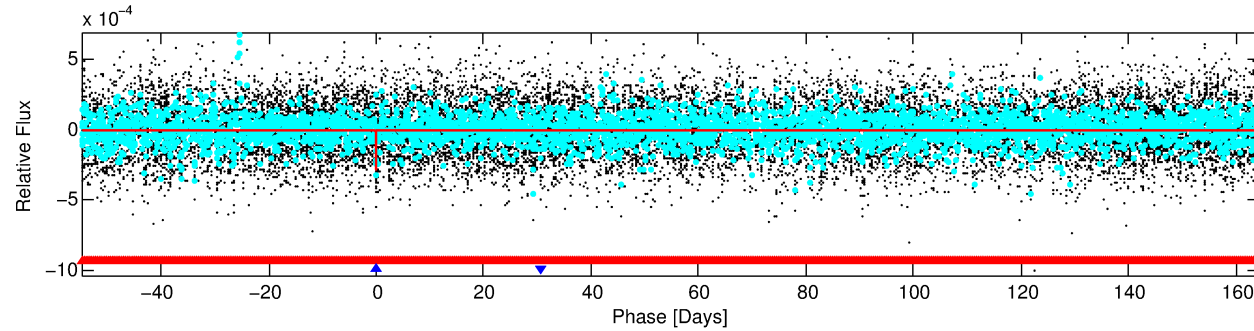
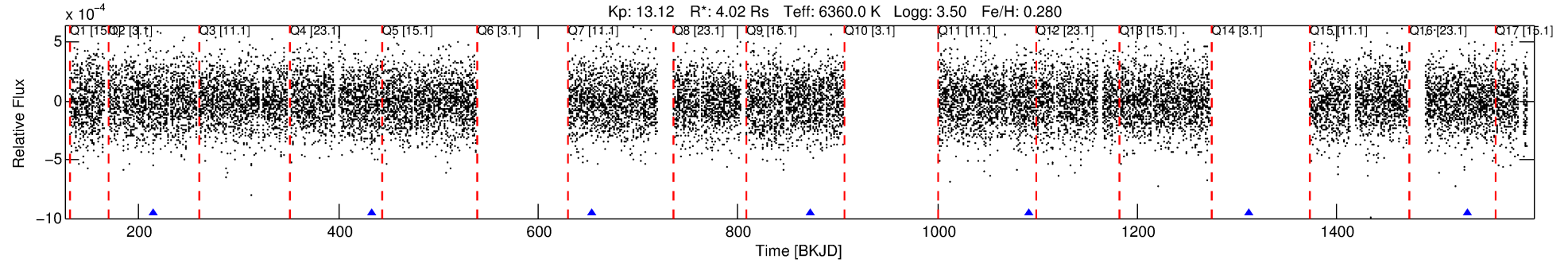
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004756243-02

No Significant Match Found

DV One-Page Summary

KIC: 4756243 Candidate: 2 of 2 Period: 219.361 d



DV Fit Results:

Period = 219.36074 [0.00267] d
Epoch = 214.3978 [0.0112] BKJD
Rp/R* = 0.0173 [0.0065]
a/R* = 145.98 [279.03]
b = 0.84 [0.68]
Seff = 30.62 [17.62]
Teff = 600 [86] K
Rp = 7.58 [3.99] Re
a = 0.8796 [0.3102] AU
Ag = 1274.54 [1260.56] [1.01σ]
Teffp = 5541 [1139] K [4.33σ]

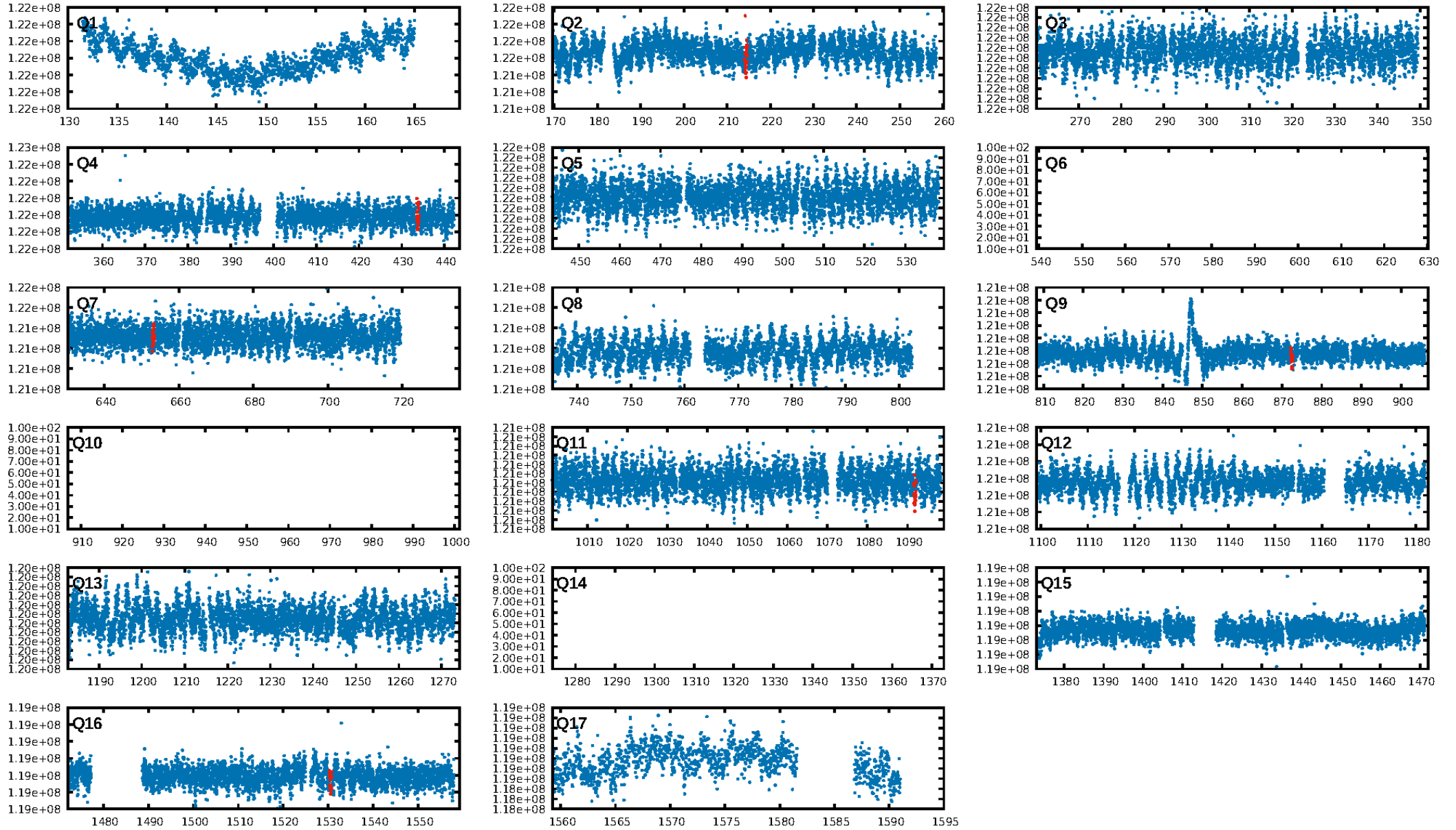
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [608.39σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 69.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.37e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 4.108
Centroid-sig: 42.2%
Centroid-so: 0.602 arcsec [0.82σ]
OotOffset-rm: 1.164 arcsec [0.58σ]
OotOffset-st: 1/2/2/1 [6]
KicOffset-rm: 1.180 arcsec [0.59σ]
KicOffset-st: 1/2/2/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.00 [0/6]

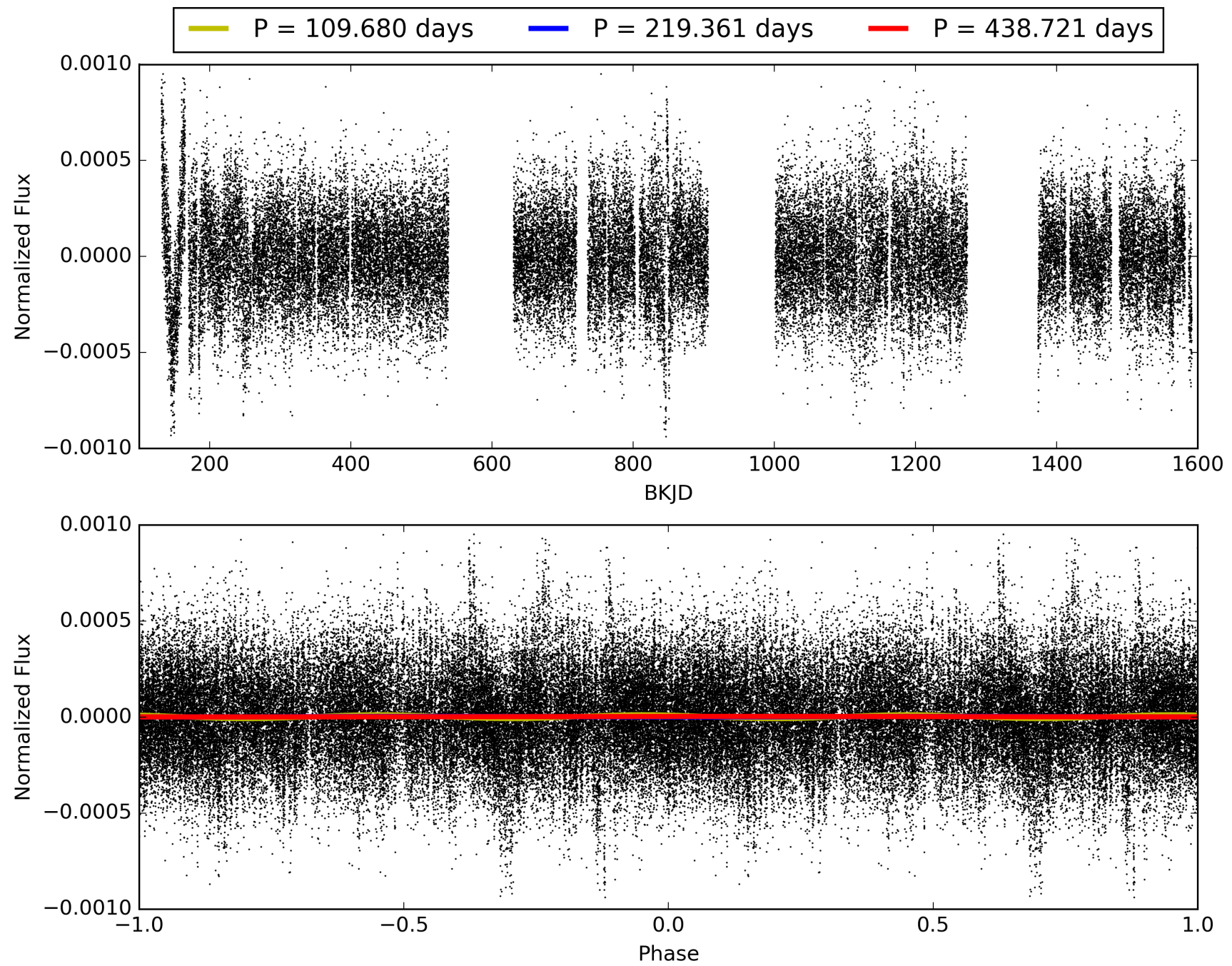
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:47:36 Z

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

TCE 004756243-02, PDC Light Curves

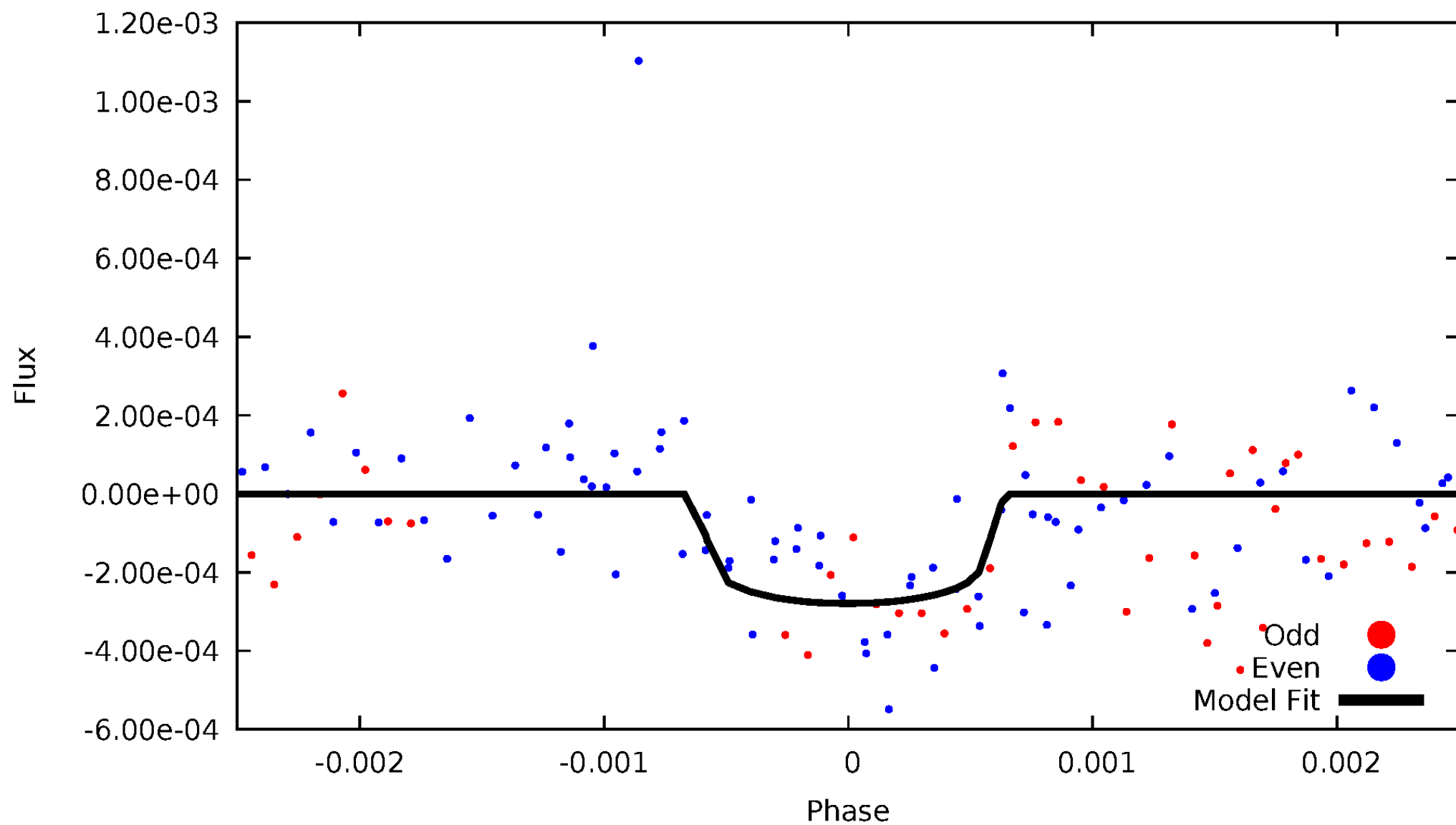


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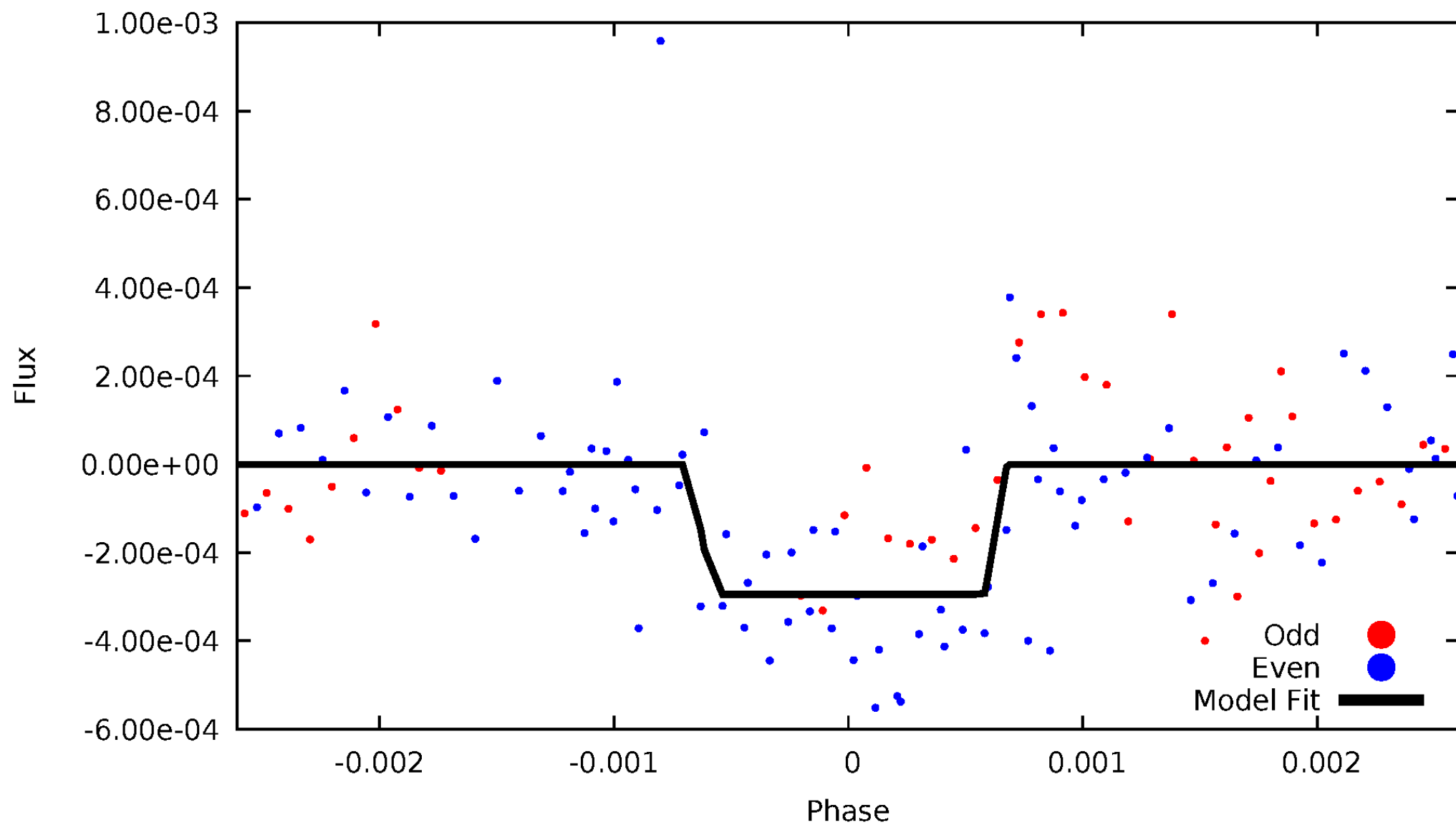
DV Odd/Even

TCE 004756243-02



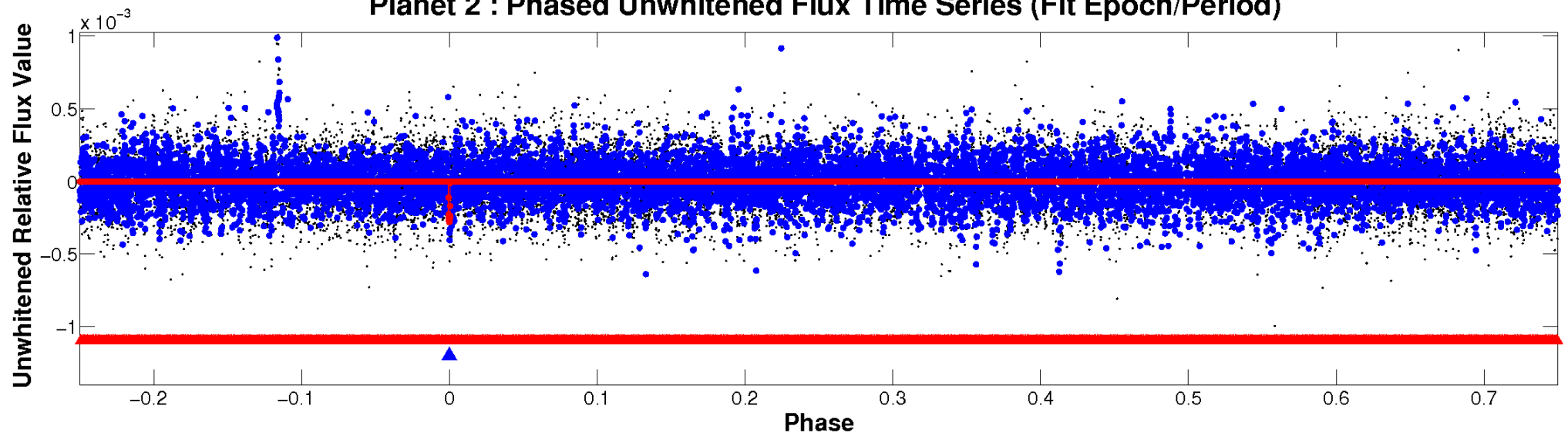
ALT Odd/Even

TCE 004756243-02

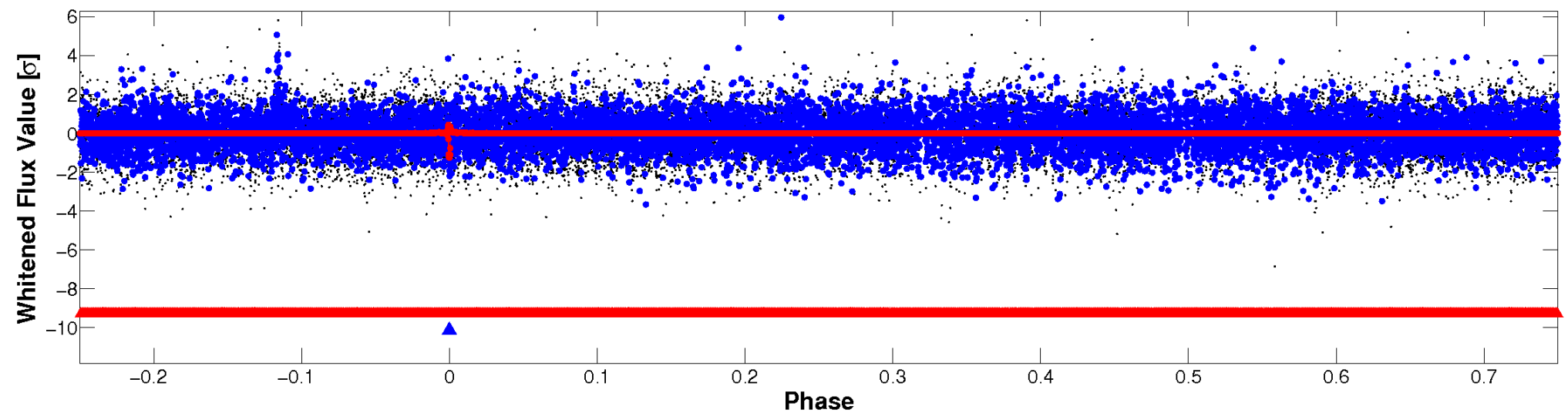


Non-Whitened Vs. Whitened Light Curve

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

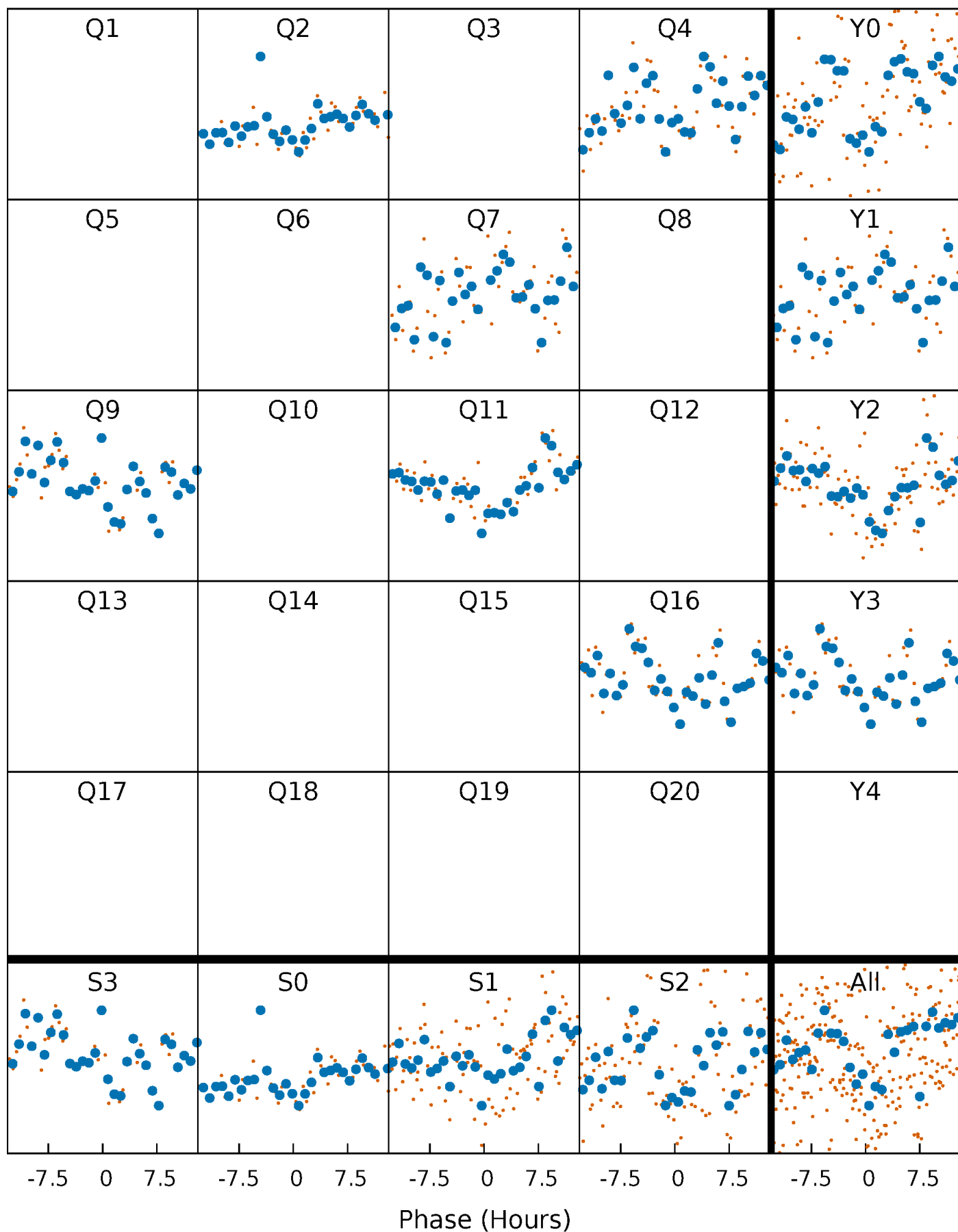


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



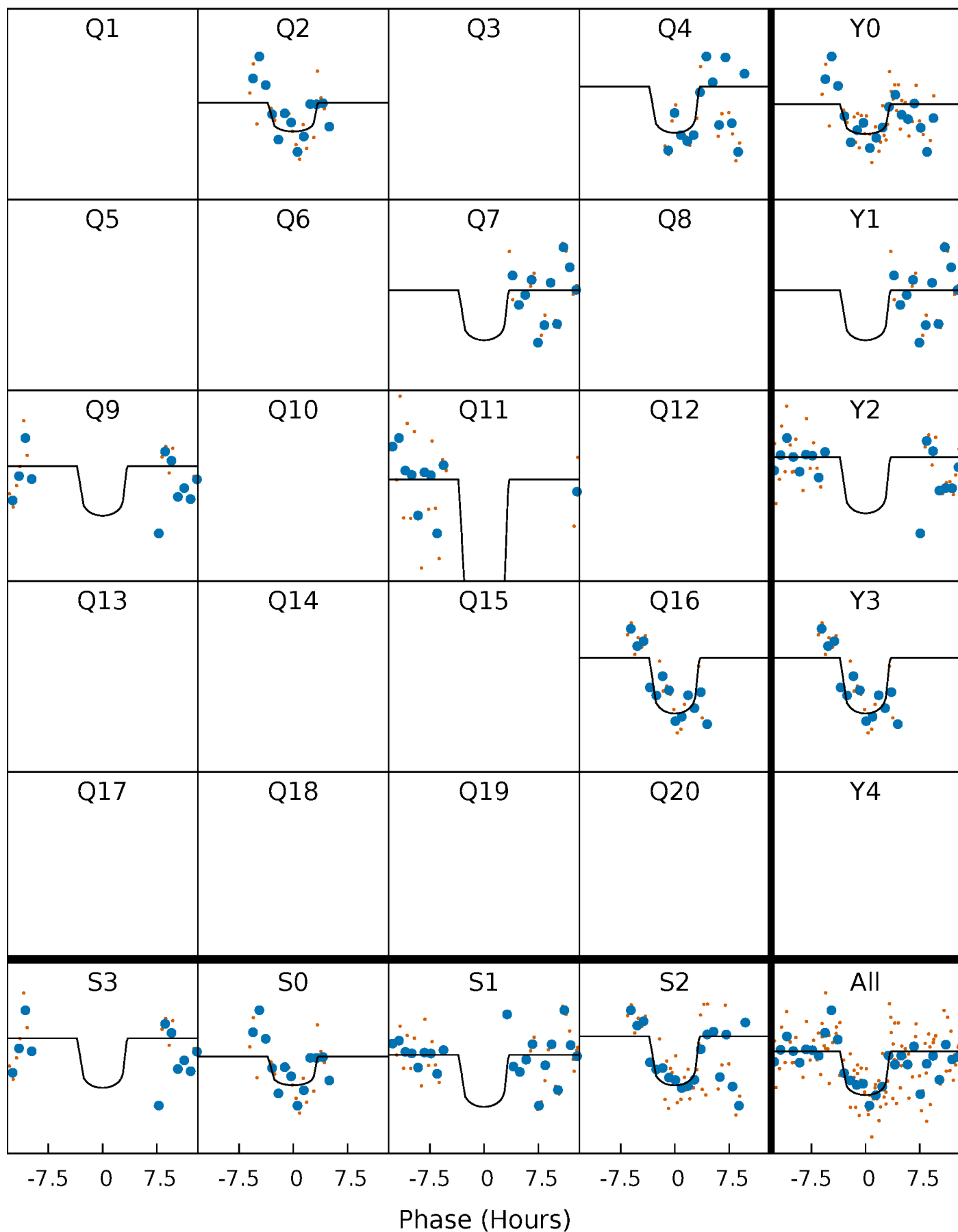
PDC Quarter-Phased Transit Curves

TCE 004756243-02 P=219.360744 Days $T_0=214.397846$ (BKJD)



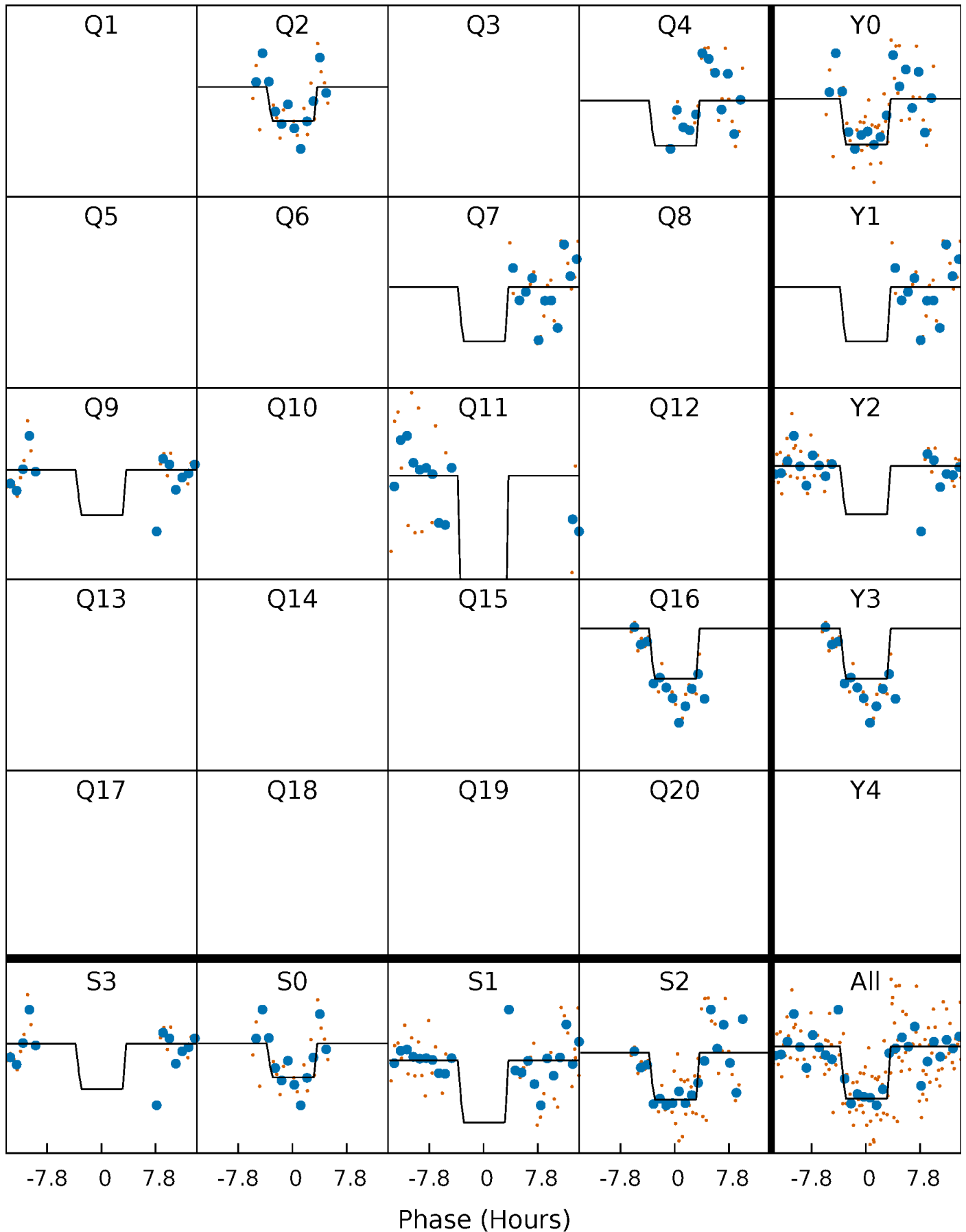
DV Quarter-Phased Transit Curves

TCE 004756243-02 P=219.360744 Days $T_0=214.397846$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

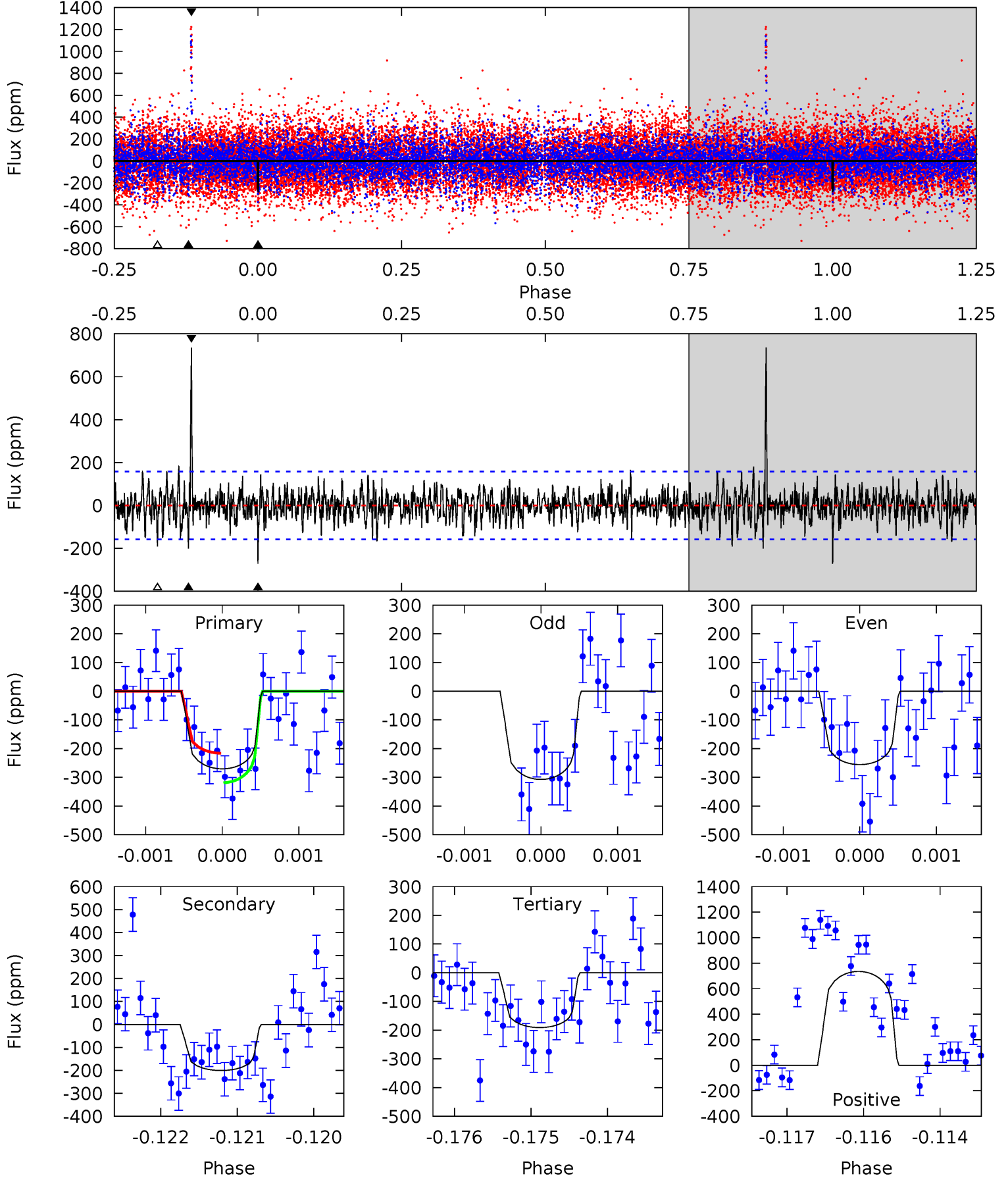
TCE 004756243-02 P=219.361078 Days $T_0=214.385223$ (BKJD)



DV Model-Shift Uniqueness Test

004756243-02, P = 219.360744 Days, E = 214.397846 Days

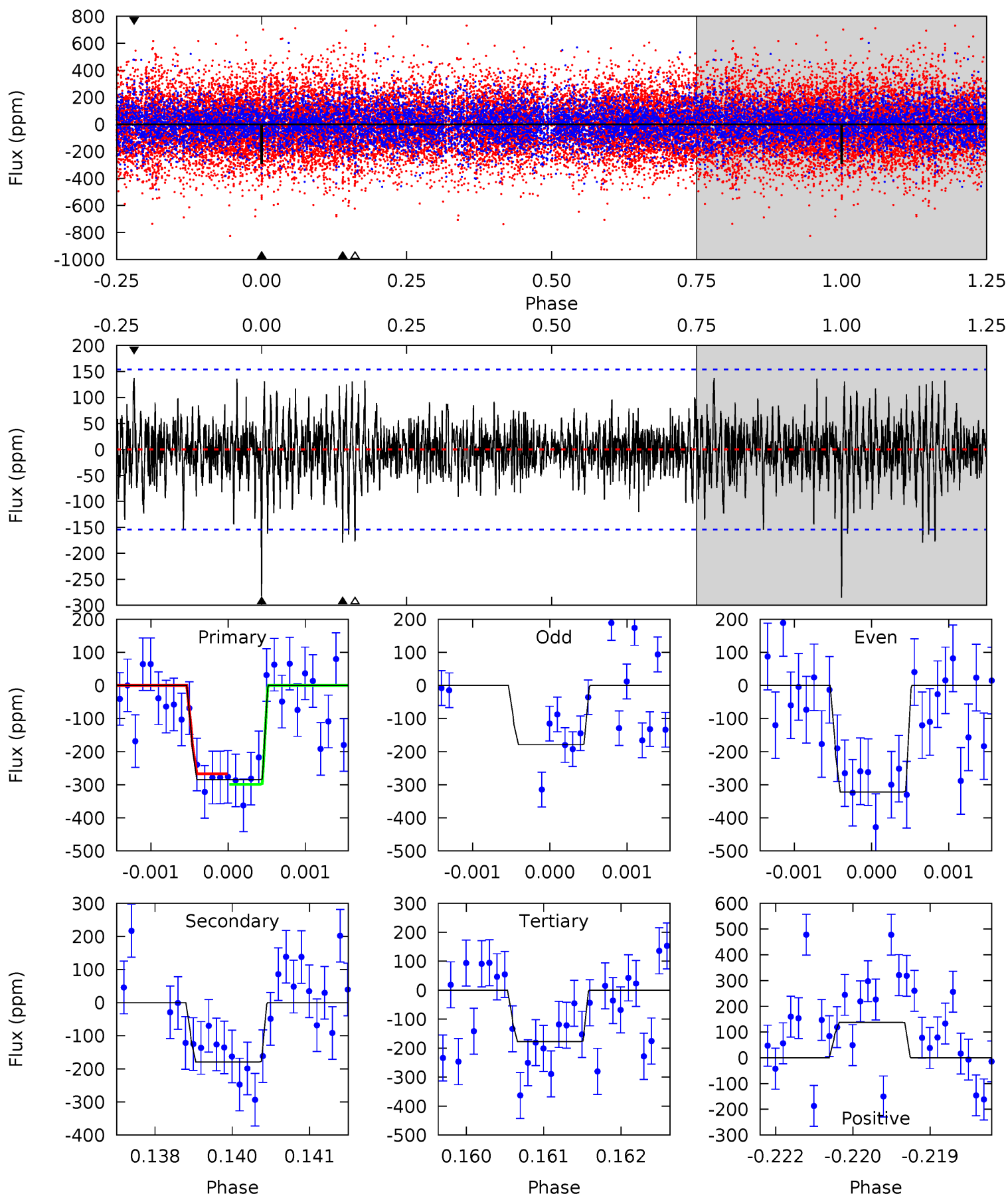
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.27	6.87	6.54	25.2	5.41	3.23	1.92	2.73	-15.9	0.34	-18.3	0.78	1.00	0.73	1.74



Alt Model-Shift Uniqueness Test

004756243-02, P = 219.361078 Days, E = 214.385223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.99	6.28	6.21	4.82	5.40	3.21	1.41	3.78	5.17	0.08	1.46	2.26	1.07	0.33	0.56



Stellar Parameters For KIC 004756243

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6360^{+190}_{-171}	$3.505^{+0.330}_{-0.110}$	$0.280^{+0.200}_{-0.250}$	$4.020^{+0.348}_{-1.480}$	$1.884^{+0.108}_{-0.324}$	$0.041^{+0.098}_{-0.014}$
	+3%/-3%	+9%/-3%	+71%/-89%	+9%/-37%	+6%/-17%	+240%/-34%
Source	PHO1	FLK73	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 004756243-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-201 ± 29	$7.25^{+2.87}_{-2.74}$	833^{+42}_{-73}	5757^{+1539}_{-792}	1608^{+2504}_{-800}
Alt.	-179 ± 29	$7.13^{+3.04}_{-2.80}$	835^{+42}_{-74}	5578^{+1584}_{-743}	1422^{+2503}_{-728}

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 $A_{obs} \gg 1.0$

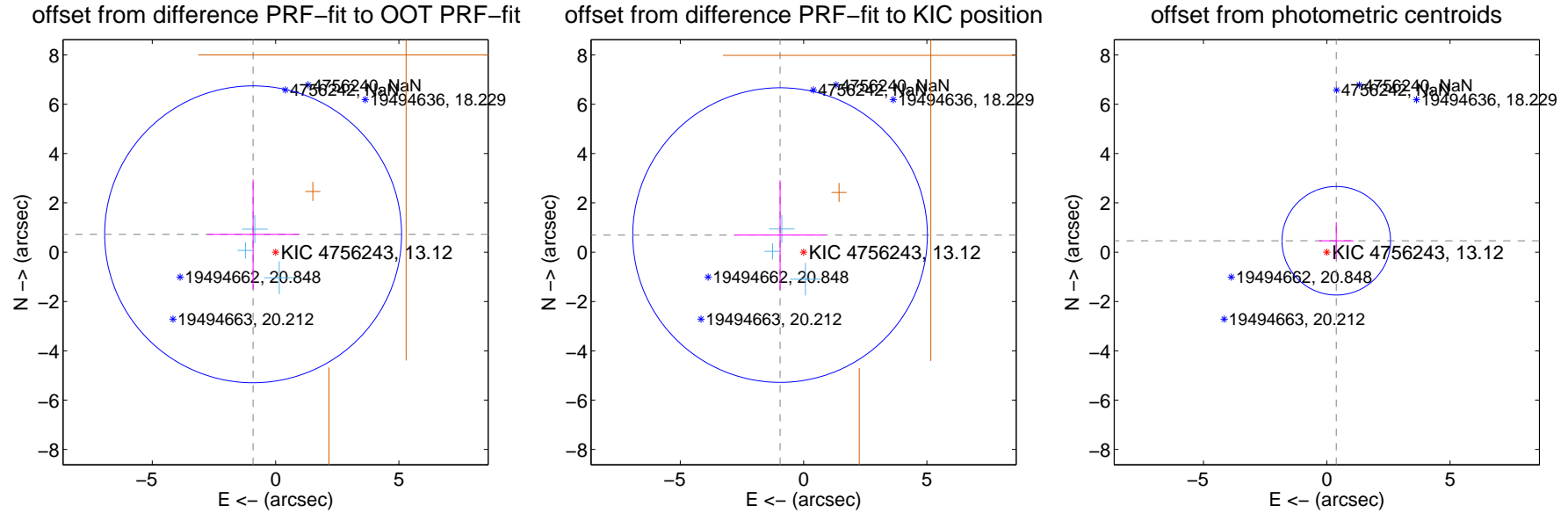
DV Centroid Data

Supplemental centroid analysis for 004756243-02. Kepler magnitude: 13.12. Transit SNR 6.87

There are 3 quarters with good PRF difference image offsets

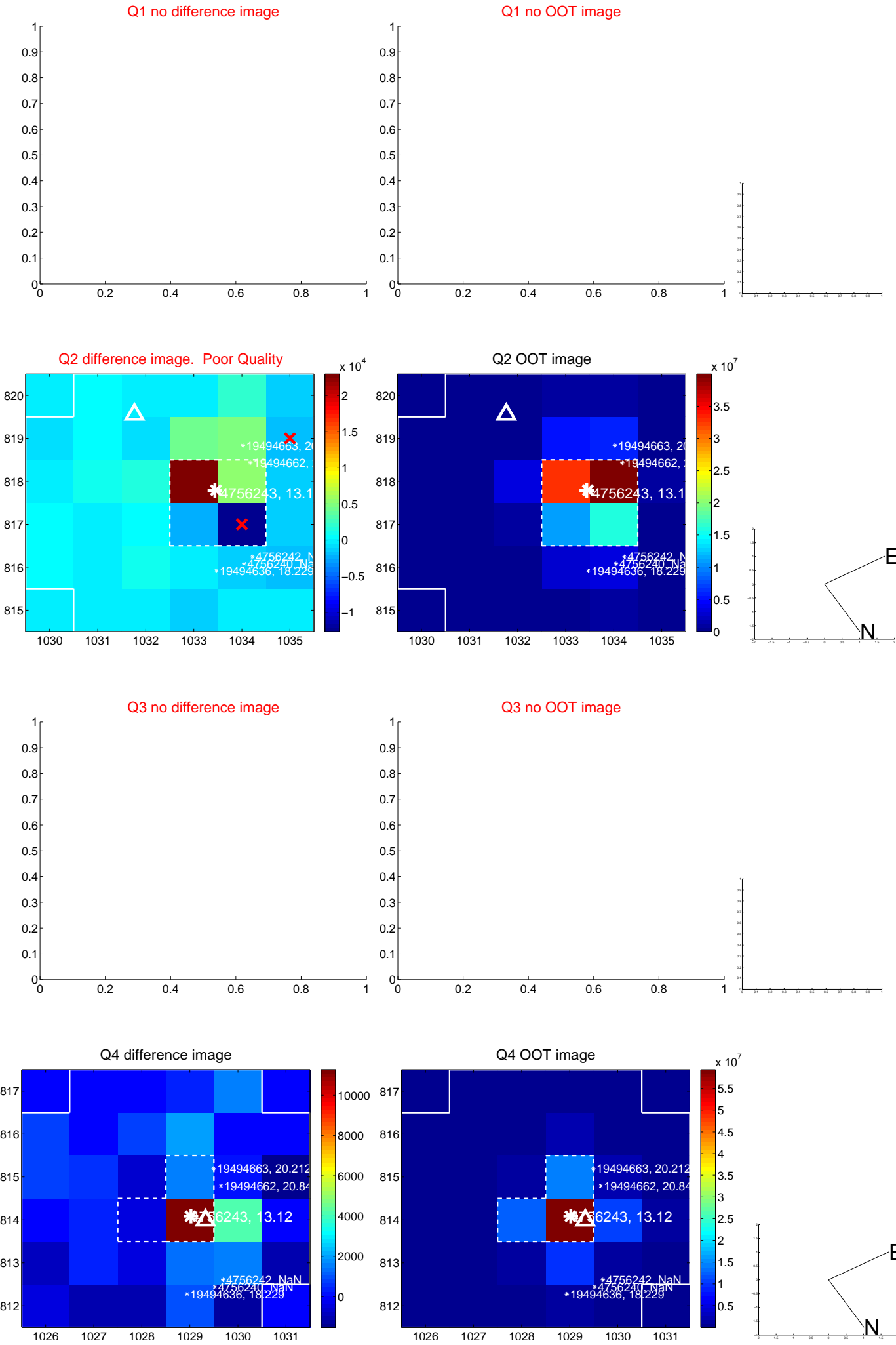
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.164 ± 2.007	0.58	0.910 ± 1.858	0.726 ± 2.222
PRF-fit source offset from KIC position	1.180 ± 1.992	0.59	0.954 ± 1.858	0.695 ± 2.222
photometric centroid source offset	0.60 ± 0.73	0.82	-0.38 ± 0.70	0.46 ± 0.76



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.

Q5 no difference image



Q5 no OOT image



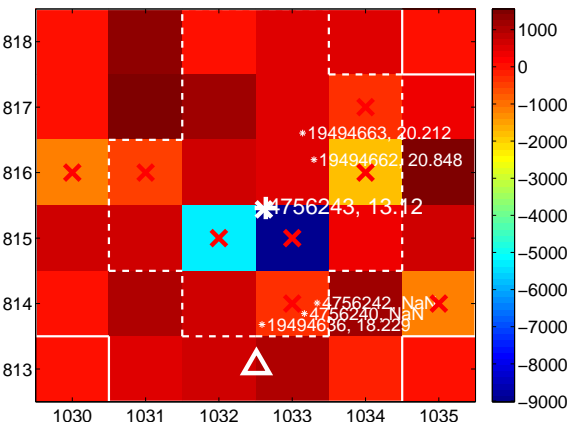
Q6 no difference image



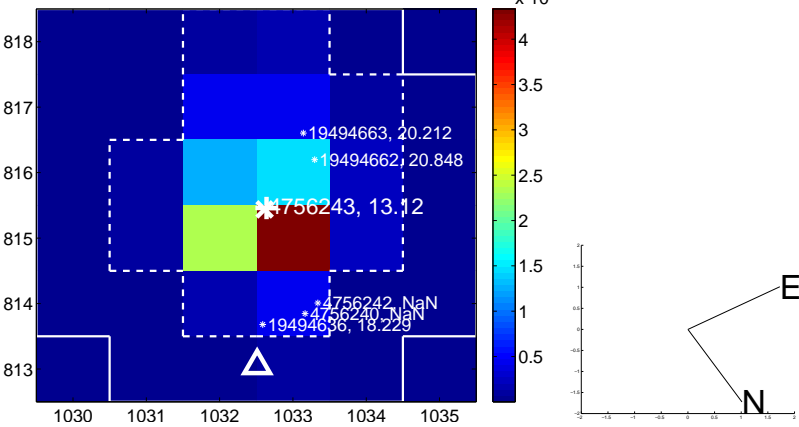
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



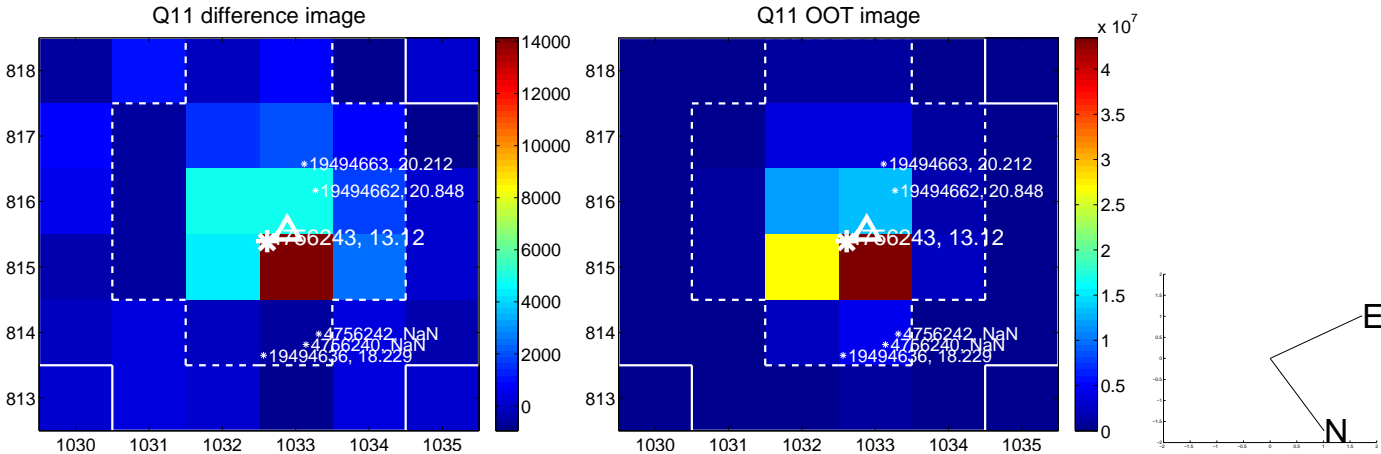
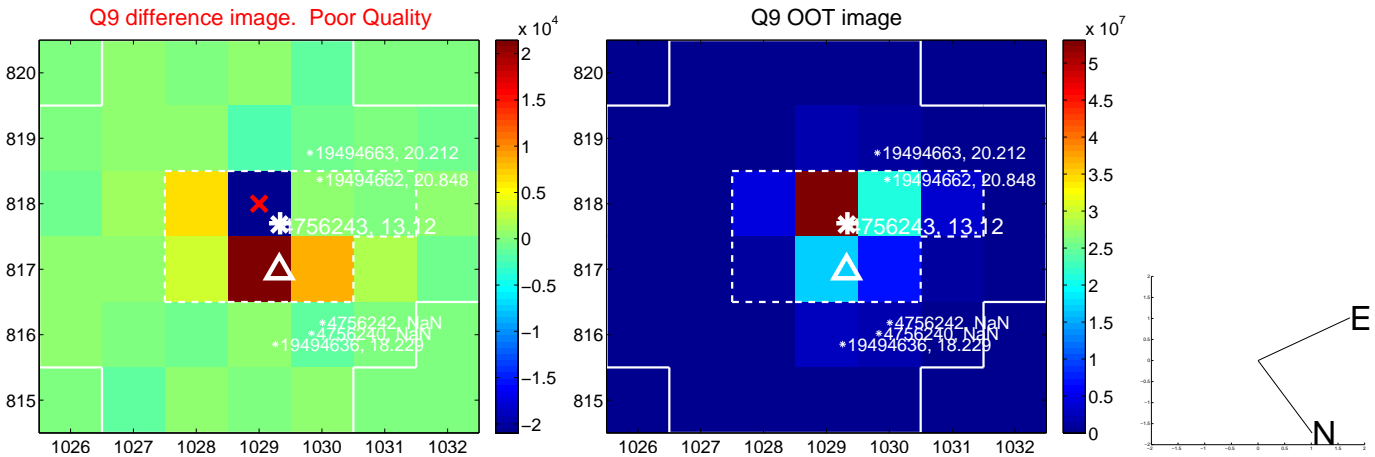
Q8 no difference image



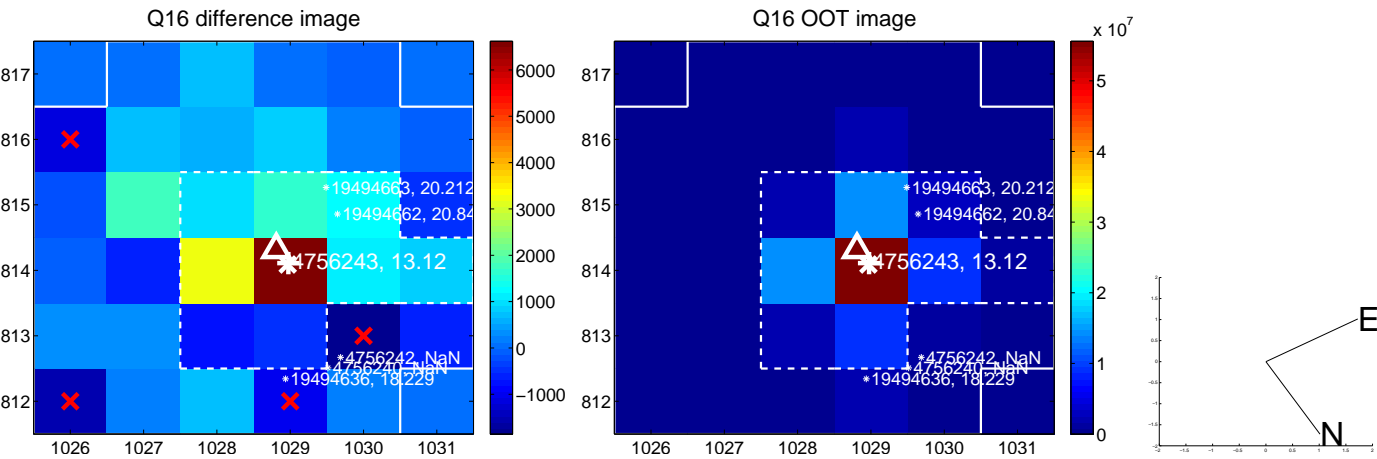
Q8 no OOT image



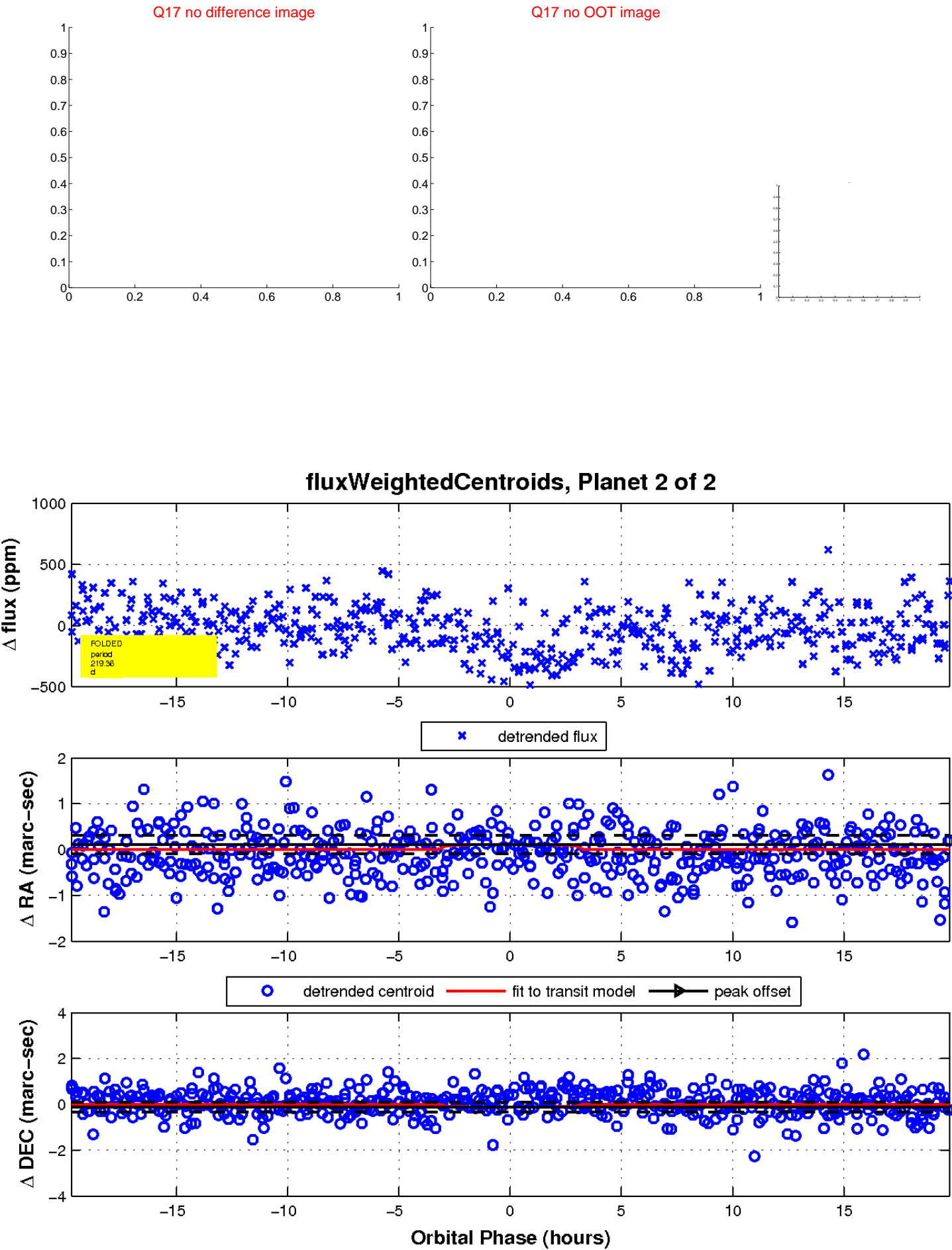
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

