

KIC 003228945

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})
003228945-01	OBS	2917.01	0.730896	132.270369	83.7	3.474	17.7	15.4	1.07	6143	0.98	5445.68
003228945-02	OBS	No	219.404580	346.280538	1270.1	5.262	17.8	7.3	1.07	6143	4.06	2.71
003228945-03	OBS	No	165.361779	244.624360	756.9	13.896	8.5	6.0	1.07	6143	2.98	3.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003228945-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
003228945-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003228945-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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 003228945-01

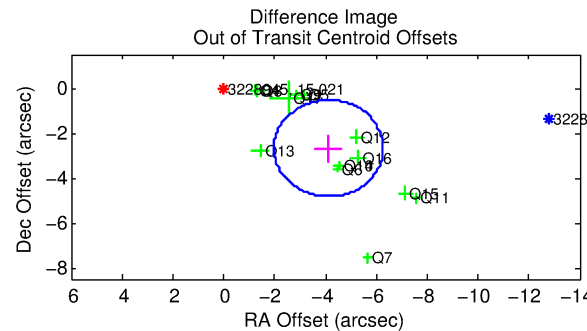
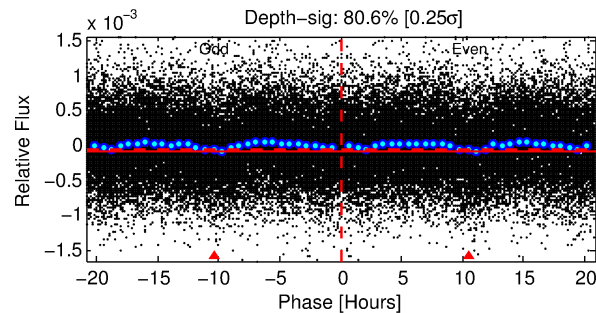
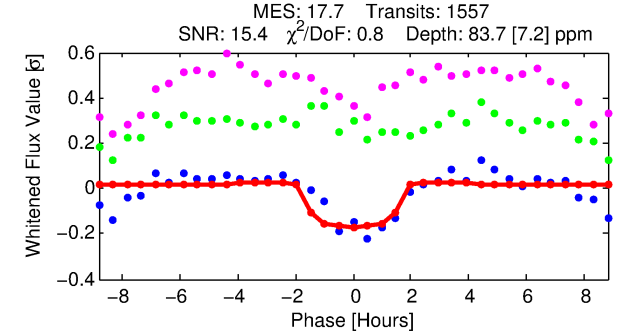
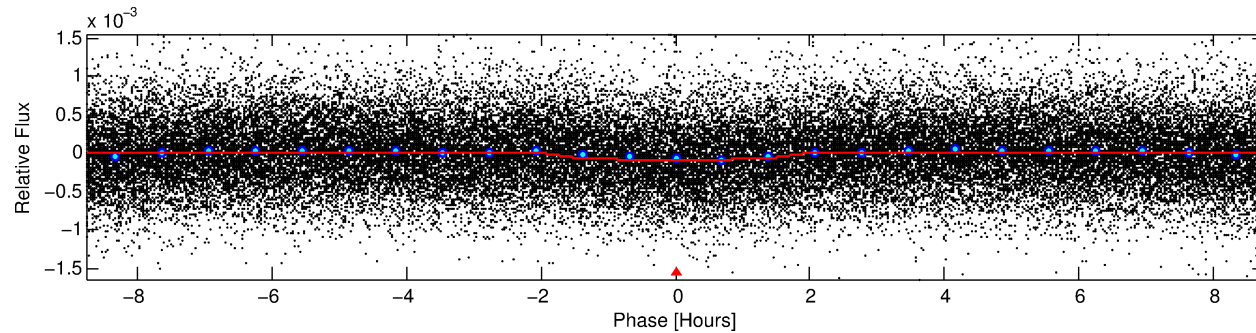
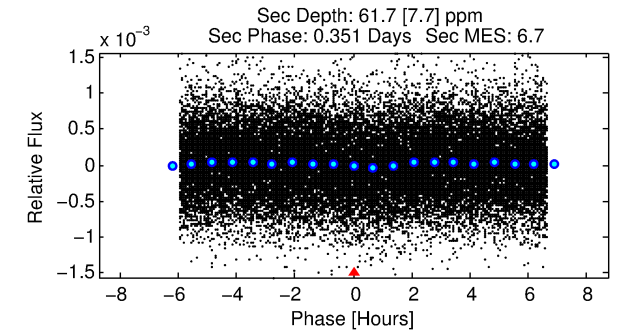
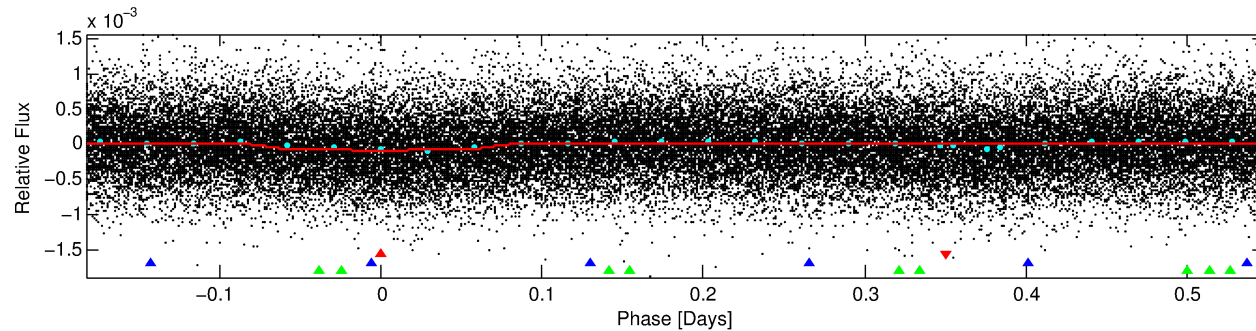
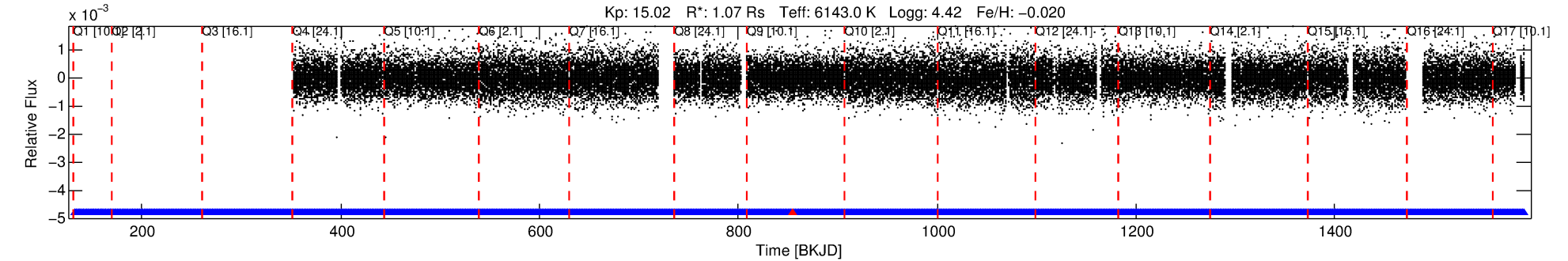
TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
003228945-01	3228945	003228988-01	3228988	1:1	60.1	-15	1	15.31	15.02	0.73	Direct-PRF	1	1.63	1.60

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 3228945 Candidate: 1 of 3 Period: 0.731 d

KOI: K02917.01 Corr: 0.812



DV Fit Results:

Period = 0.73090 [0.00001] d
Epoch = 132.2704 [0.0024] BKJD
Rp/R* = 0.0084 [0.0079]
a/R* = 1.72 [5.23]
b = 0.13 [34.46]
Seff = 5445.68 [2353.56]
Teff = 2190 [237] K
Rp = 0.98 [0.98] Re
a = 0.0163 [0.0045] AU
Ag = 9.50 [18.43] [0.46σ]
Teffp = 5945 [2833] K [1.32σ]

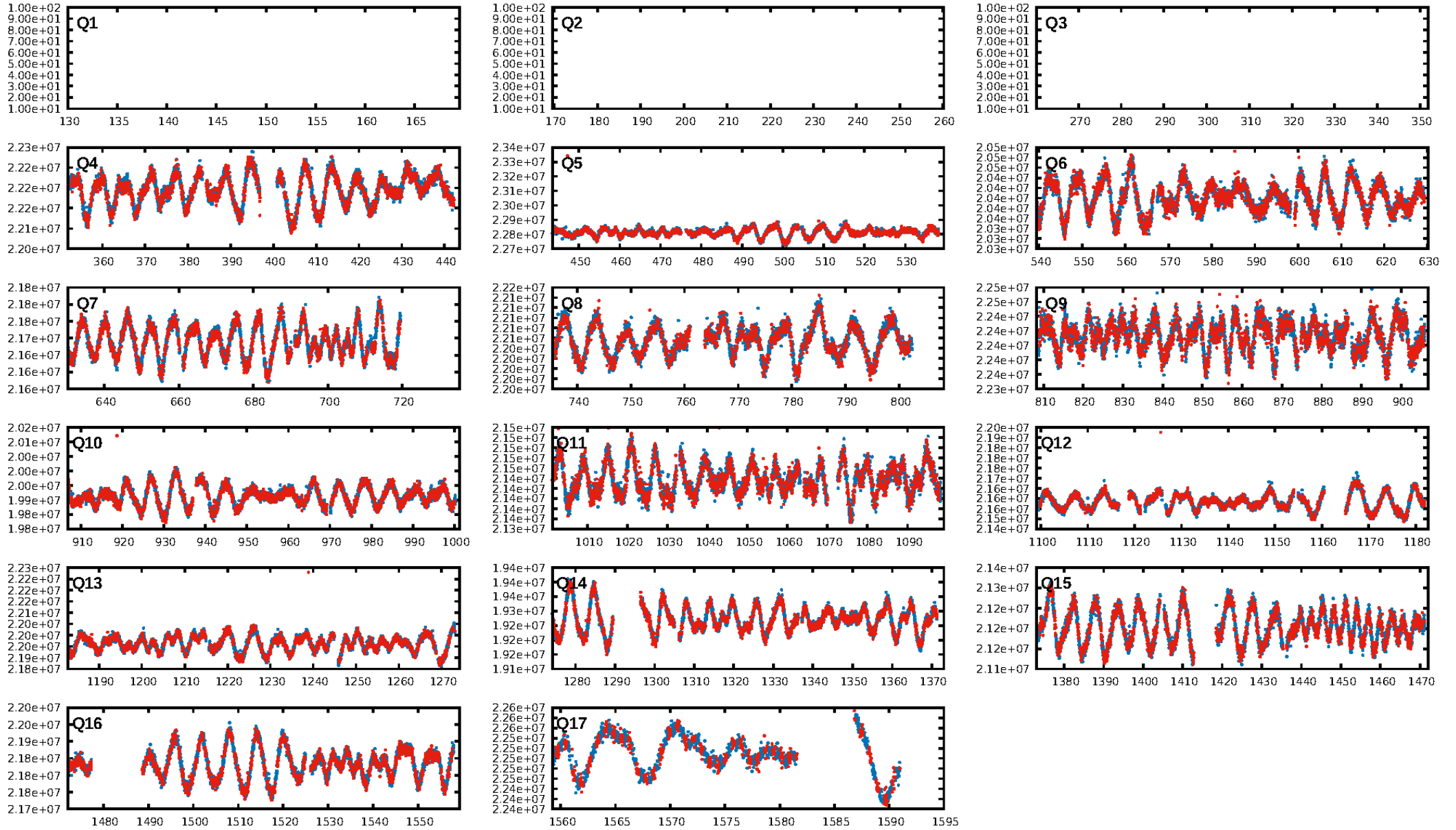
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [275.84σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.25e-54
RollingBand-fgt: 1.00 [1519/1520]
GhostDiagnostic-chr: -0.04407
Centroid-sig: 0.0%
Centroid-so: 1.879 arcsec [2.32σ]
OotOffset-rm: 4.915 arcsec [6.86σ]
KicOffset-rm: 4.873 arcsec [7.66σ]
OotOffset-st: 3/3/4/4 [14]
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DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 1.00 [14/14]

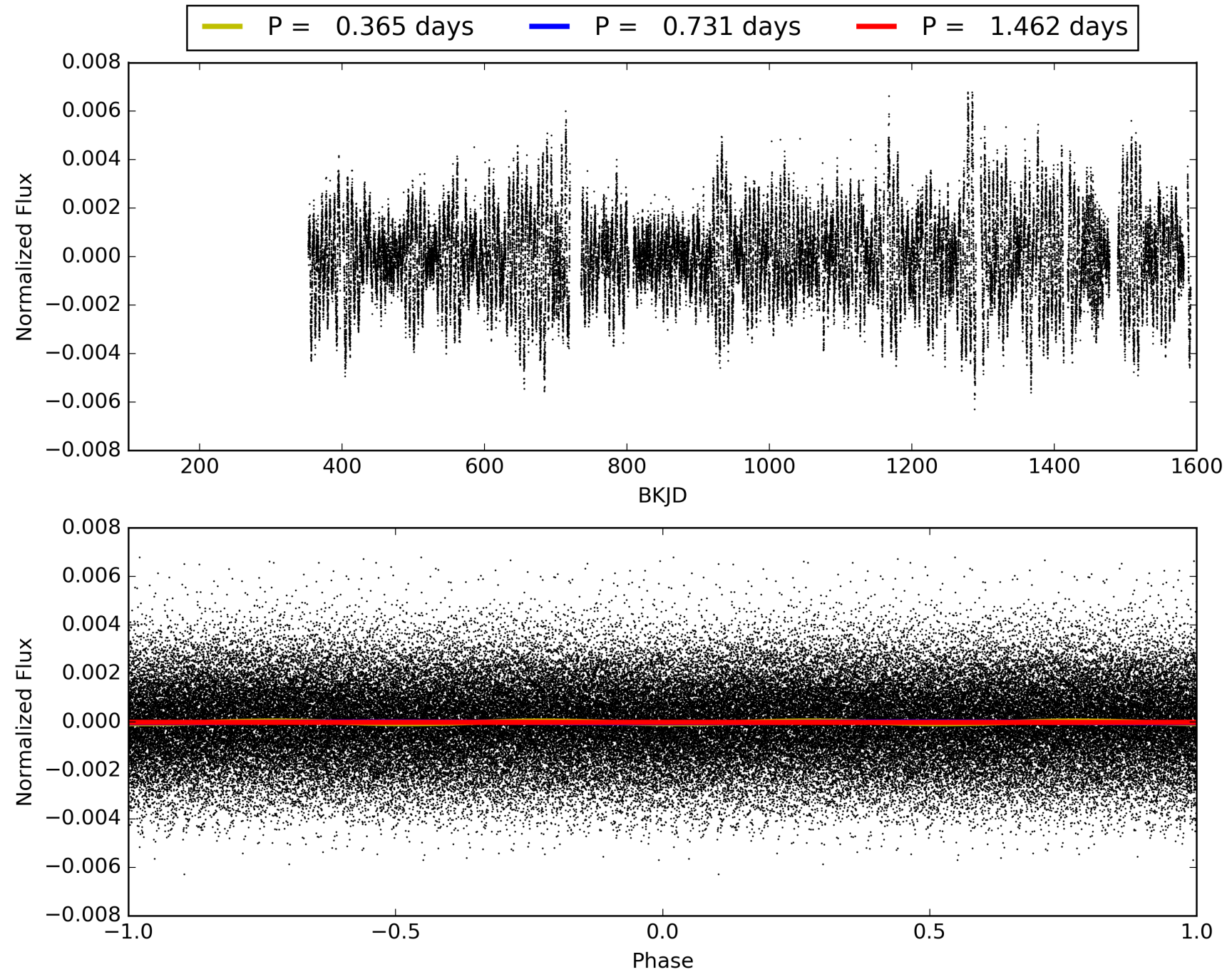
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003228945-01, PDC Light Curves

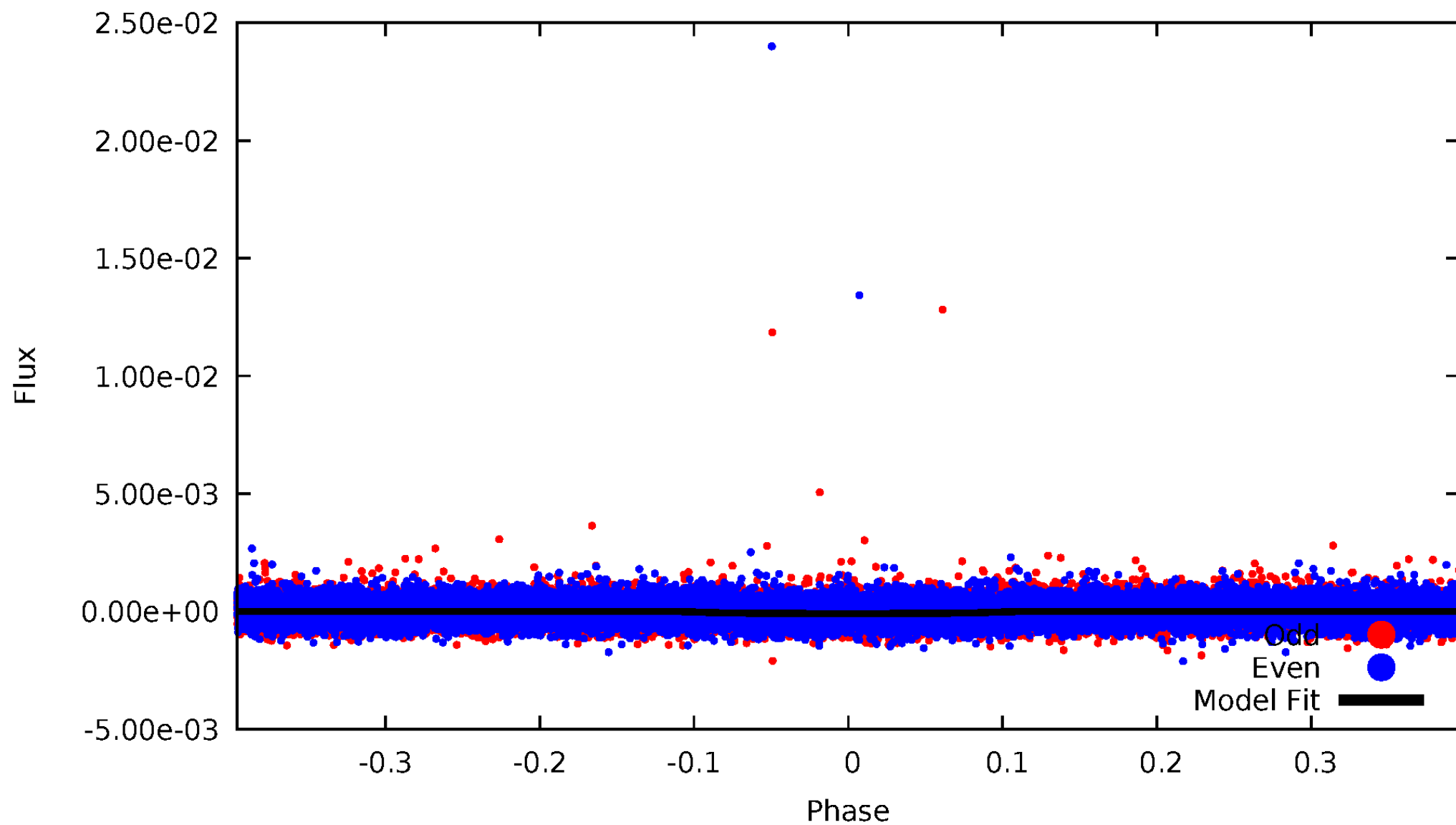


TCE 003228945-01



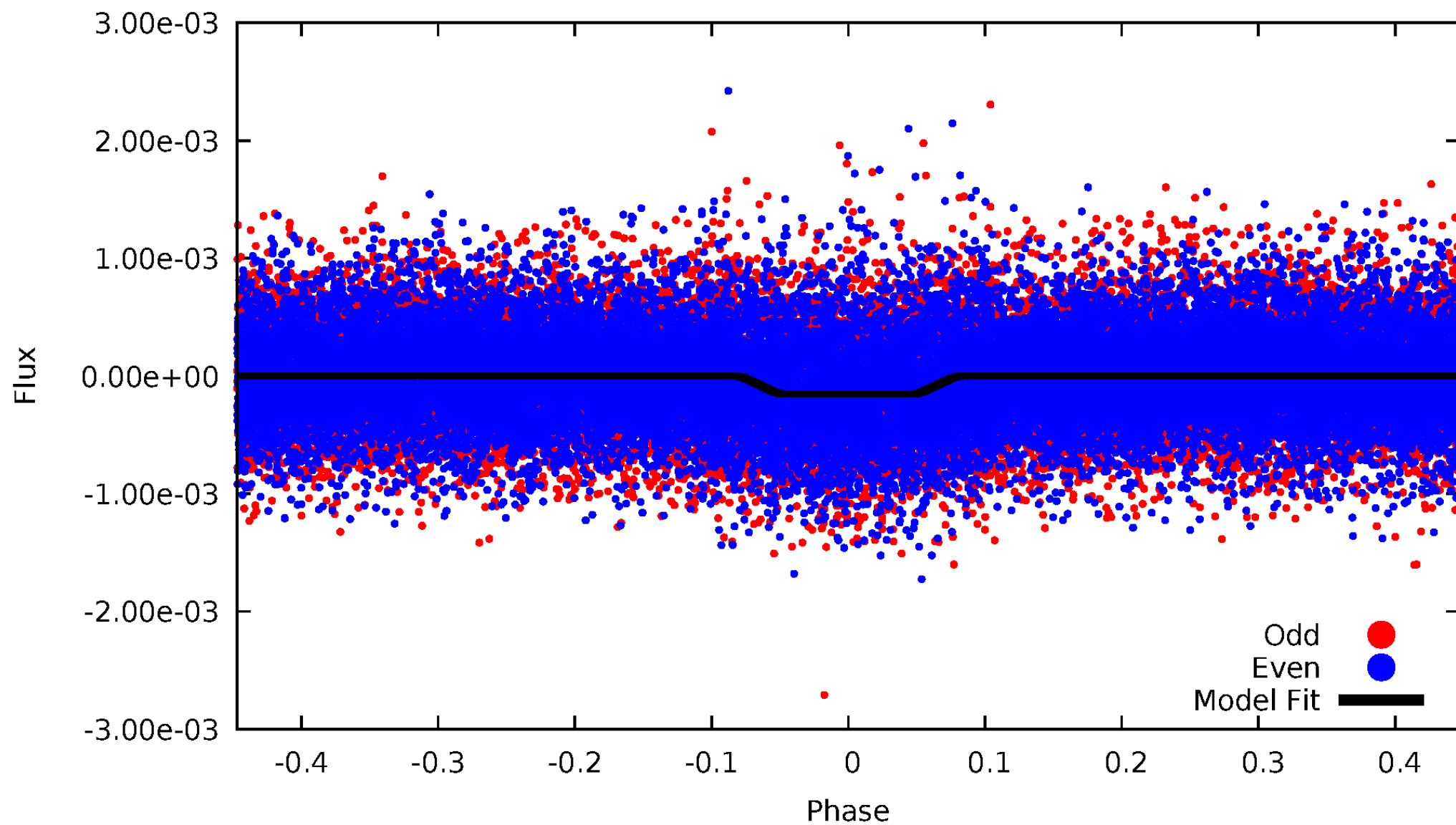
DV Odd/Even

TCE 003228945-01

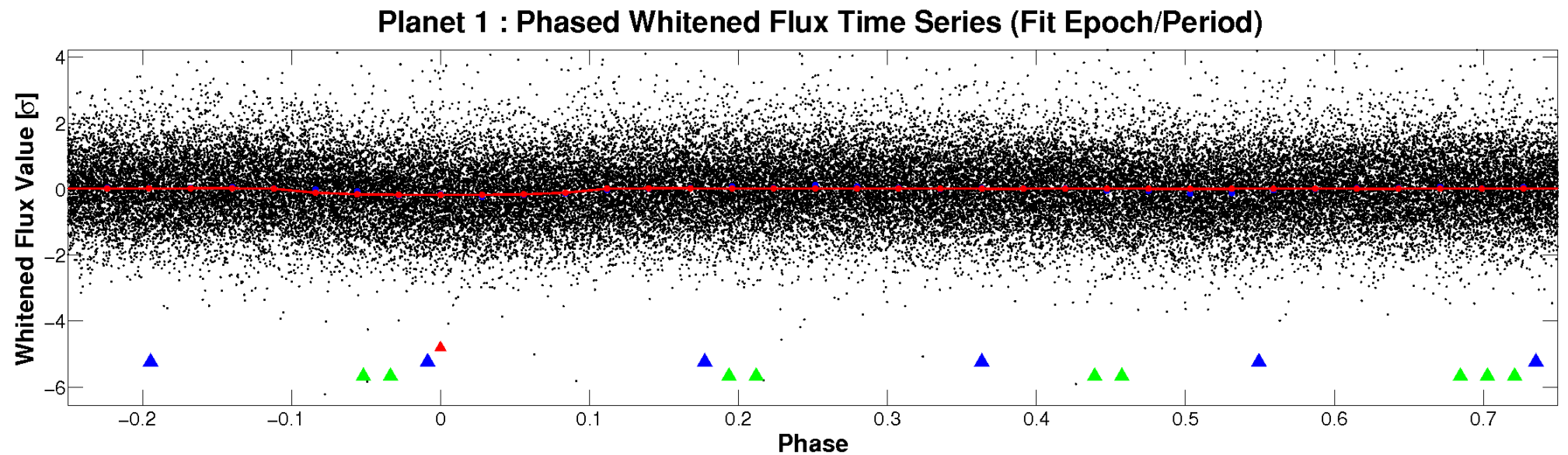
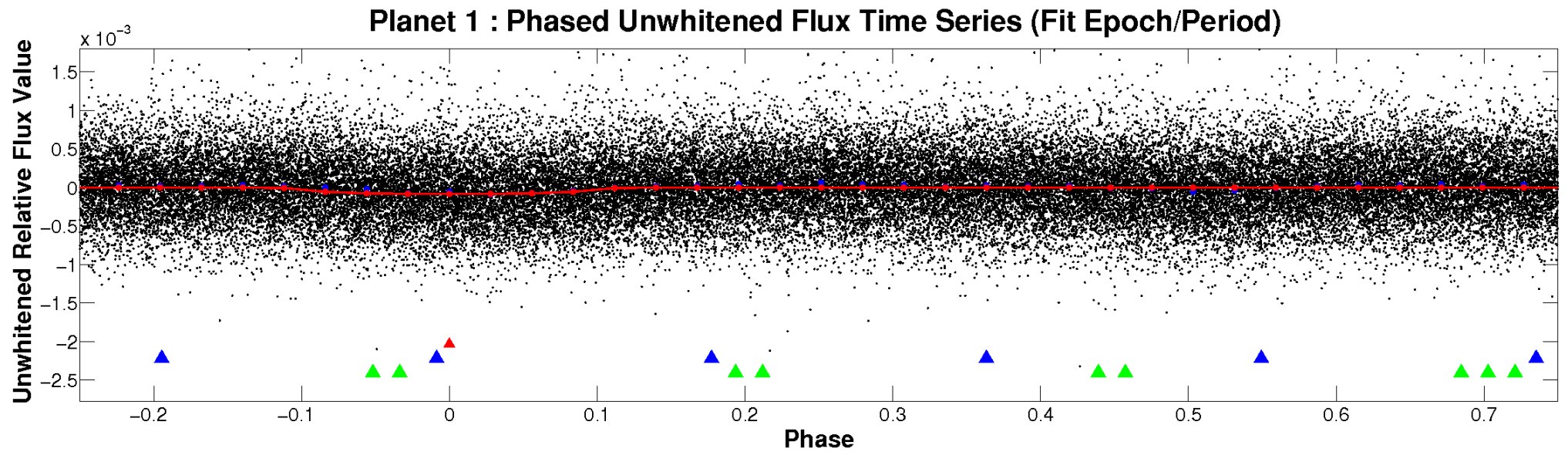


ALT Odd/Even

TCE 003228945-01

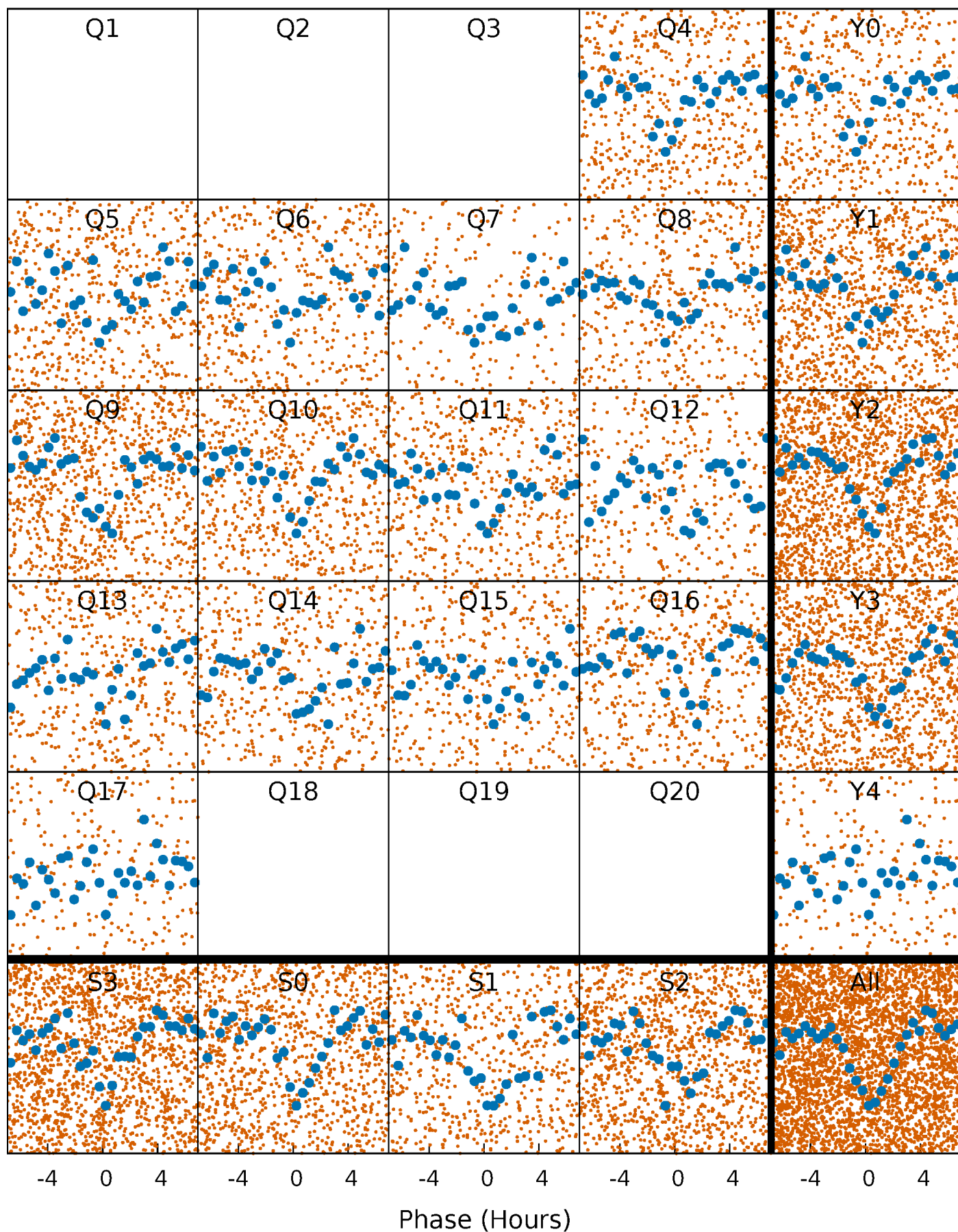


Non-Whitened Vs. Whitened Light Curve



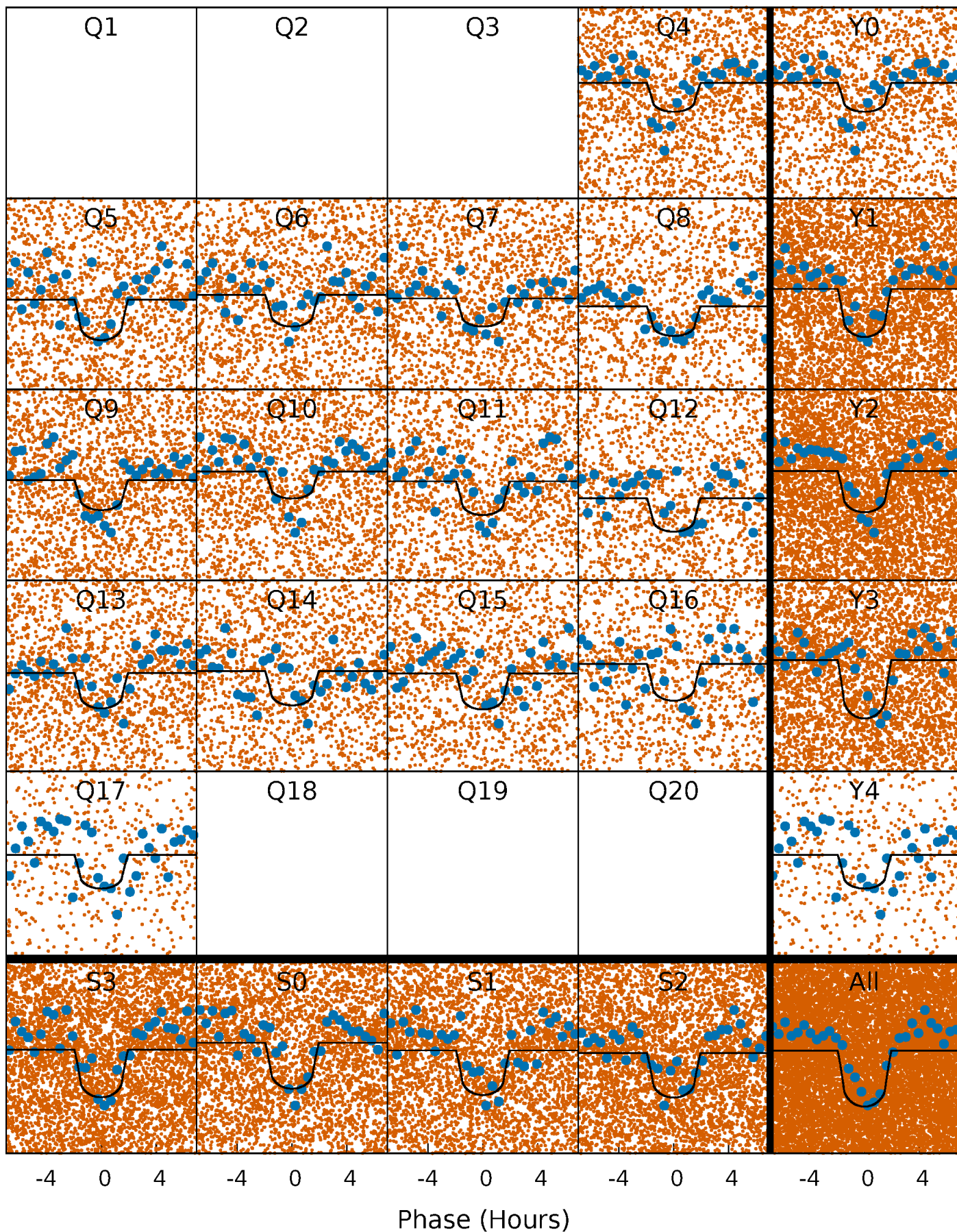
PDC Quarter-Phased Transit Curves

TCE 003228945-01 P= 0.730895 Days $T_0=132.270369$ (BKJD)



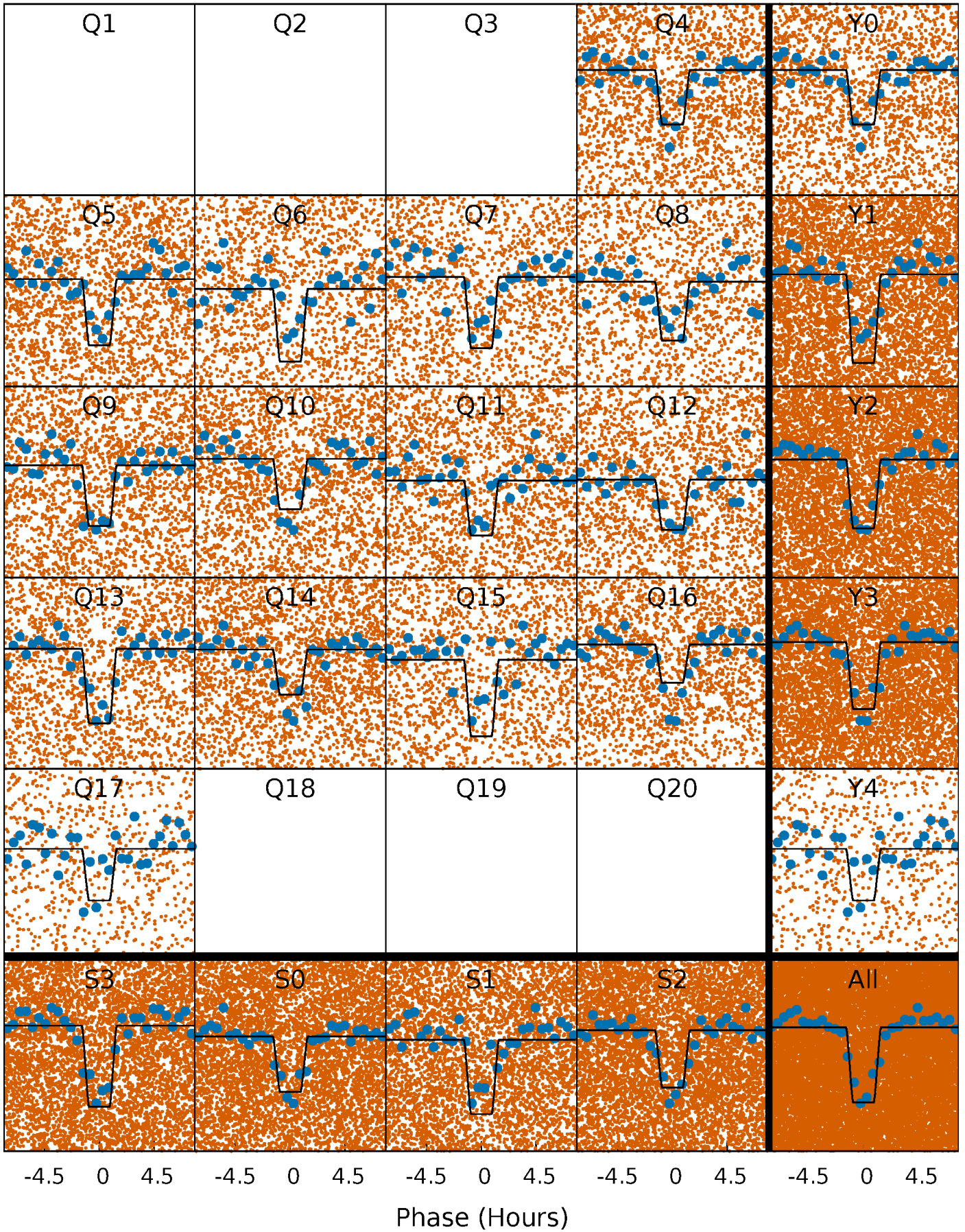
DV Quarter-Phased Transit Curves

TCE 003228945-01 P= 0.730895 Days $T_0=132.270369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

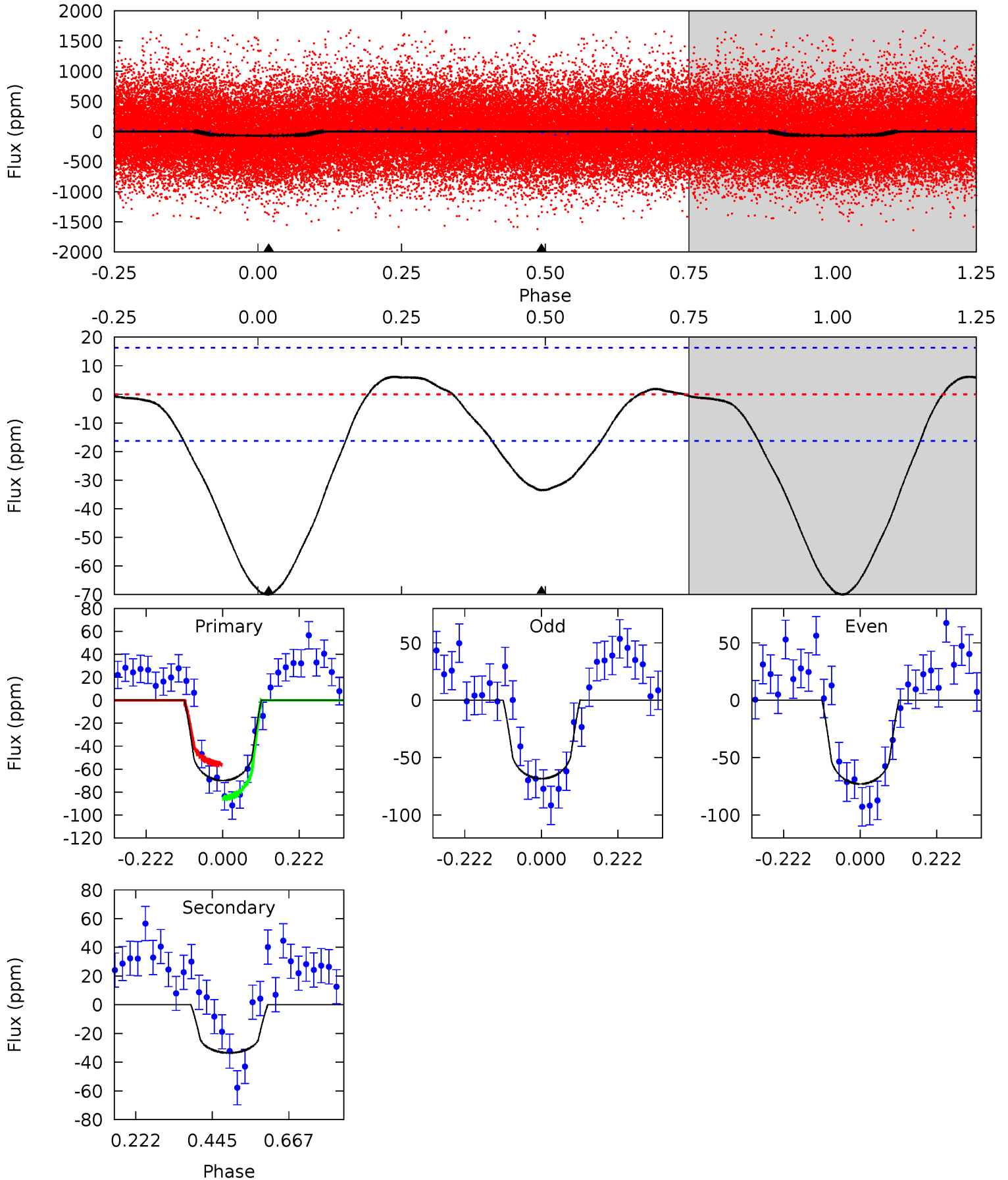
TCE 003228945-01 P= 0.730945 Days $T_0=132.229499$ (BKJD)



DV Model-Shift Uniqueness Test

003228945-01, P = 0.730895 Days, E = 132.270369 Days

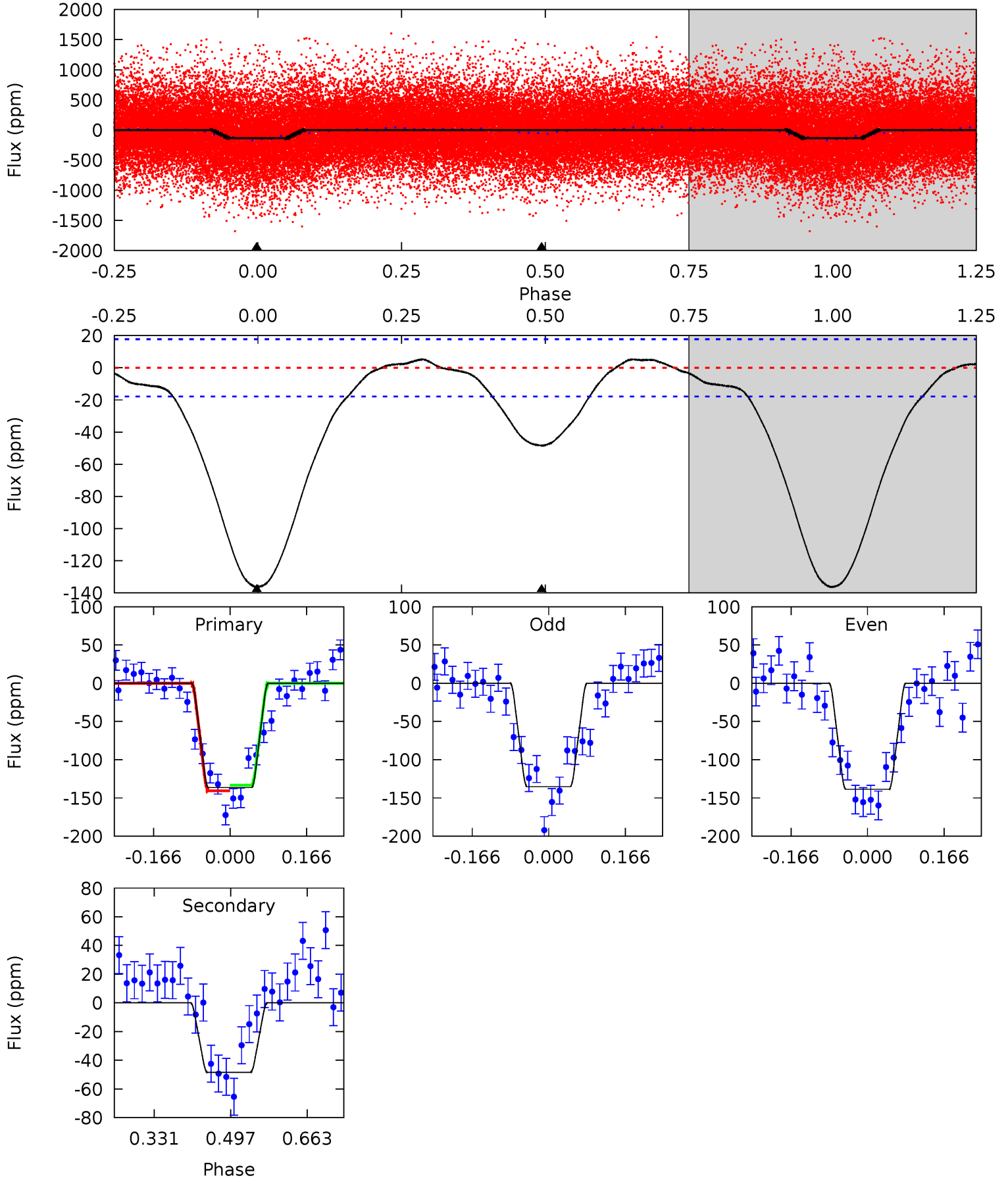
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	9.04	0	0	4.39	1.22	0.80	18.9	18.9	9.04	9.04	0.63	0.86	0.08	3.92



Alt Model-Shift Uniqueness Test

003228945-01, P = 0.730945 Days, E = 132.229499 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.1	12.1	0	0	4.46	1.39	1.45	34.1	34.1	12.1	12.1	0.45	0.99	0.04	0.93



Stellar Parameters For KIC 003228945

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6143^{+193}_{-257}	$4.418^{+0.072}_{-0.217}$	$-0.020^{+0.250}_{-0.300}$	$1.067^{+0.350}_{-0.150}$	$1.085^{+0.166}_{-0.135}$	$1.259^{+0.470}_{-0.689}$
	+3%/-4%	+2%/-5%	+1250%/-1500%	+33%/-14%	+15%/-12%	+37%/-55%
Source	KIC0	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 003228945-01 / KOI 2917.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-34 ± 4	$1.19^{+0.88}_{-0.75}$	3116^{+251}_{-190}	4787^{+2786}_{-1057}	$3.450^{+20.422}_{-2.287}$
Alt.	-48 ± 4	$1.64^{+0.92}_{-0.91}$	3124^{+226}_{-186}	4469^{+2078}_{-758}	$2.630^{+10.300}_{-1.534}$

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 $A_{obs} \gg 1.0$

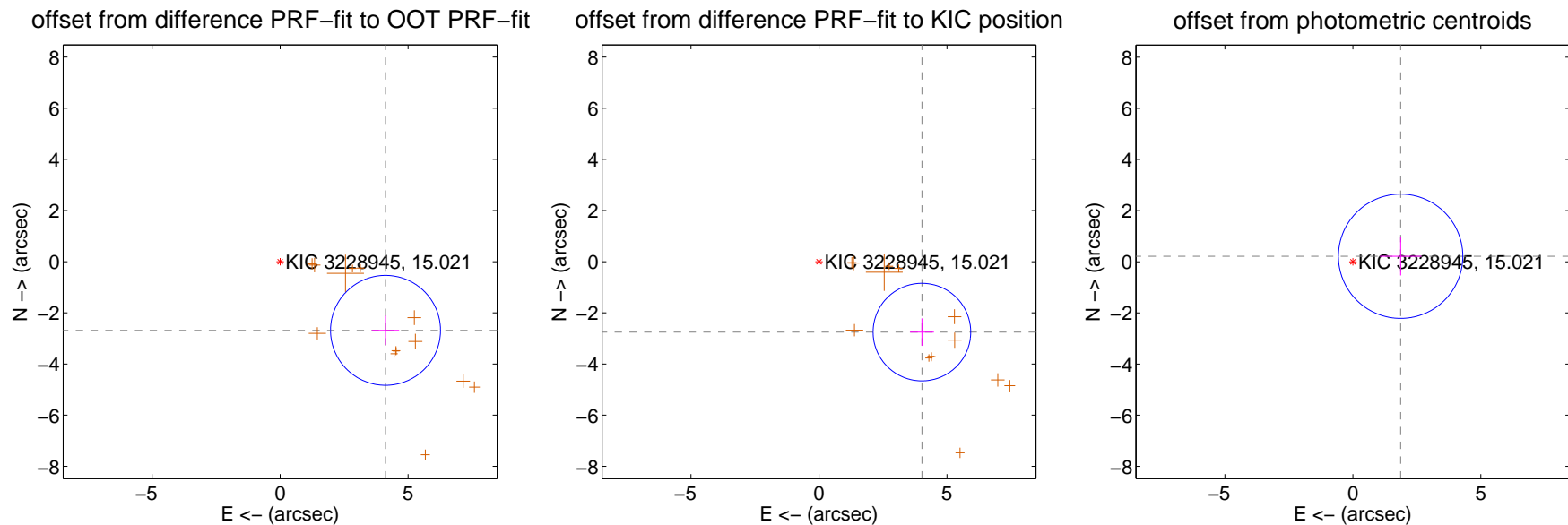
DV Centroid Data

Supplemental centroid analysis for 003228945-01. Kepler magnitude: 15.02. Transit SNR 15.45

There are 0 quarters with good PRF difference image offsets

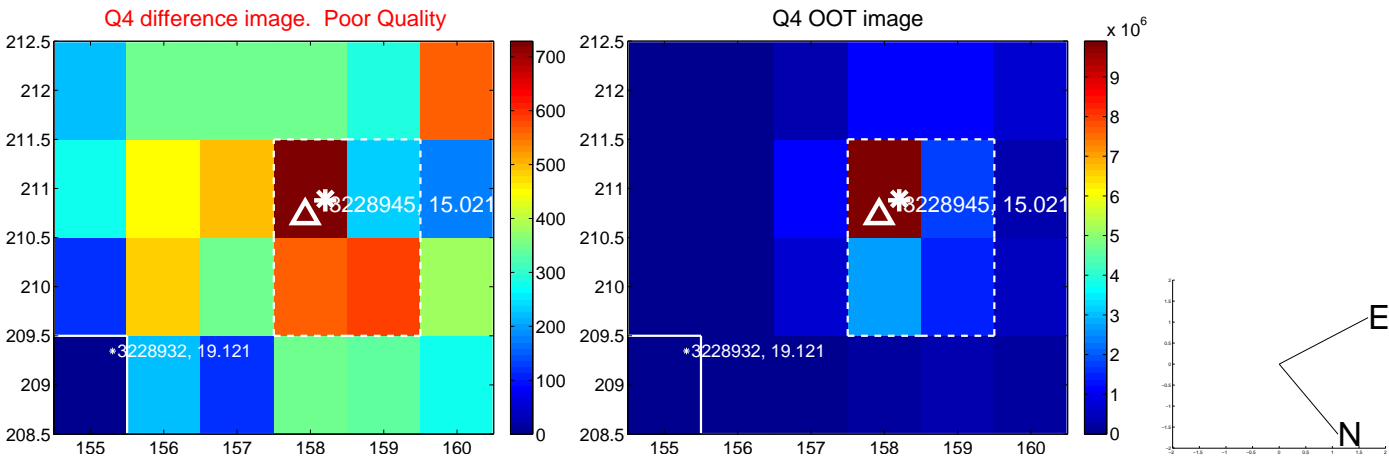
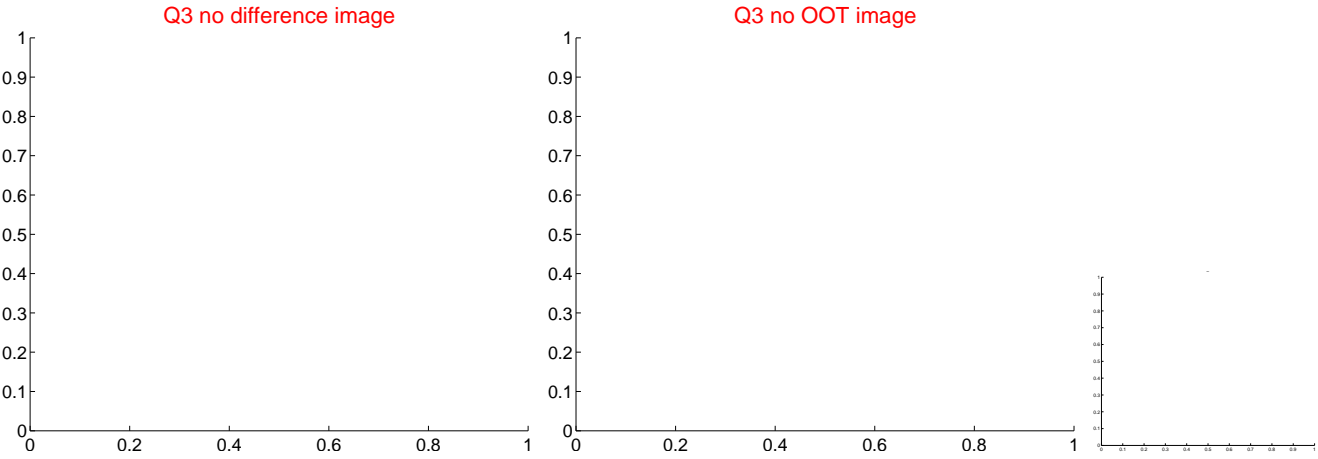
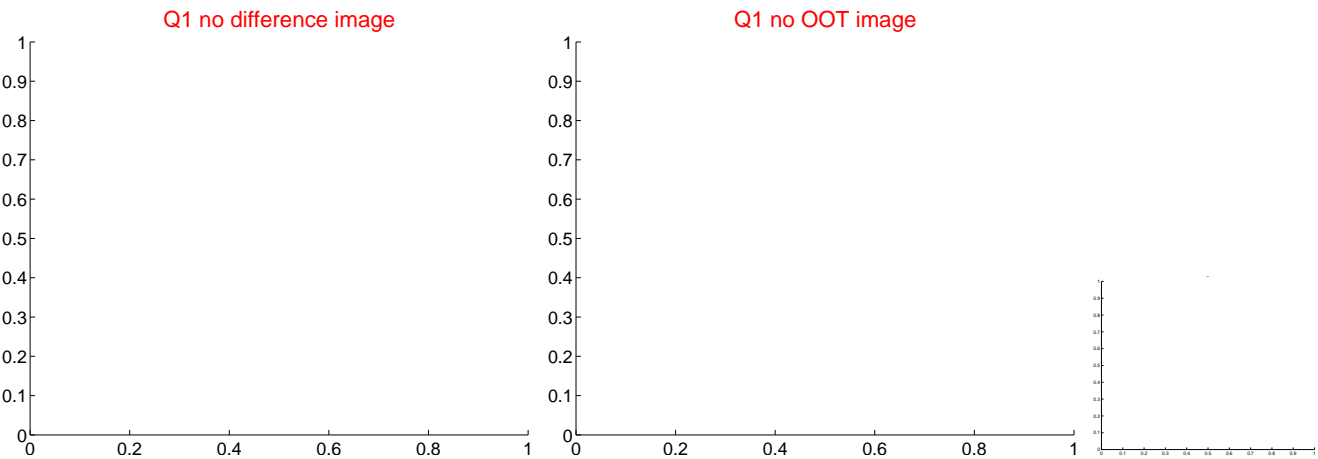
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.915 ± 0.716	6.86	-4.118 ± 0.533	-2.684 ± 0.576
PRF-fit source offset from KIC position	4.873 ± 0.636	7.66	-4.021 ± 0.470	-2.753 ± 0.538
photometric centroid source offset	1.88 ± 0.81	2.32	-1.87 ± 0.81	0.22 ± 0.75

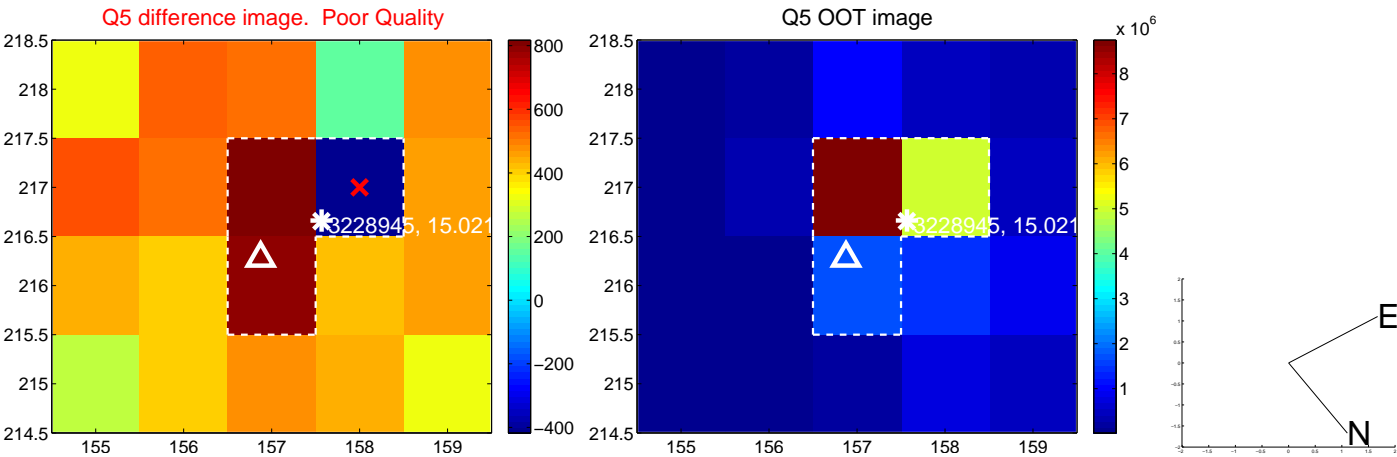


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

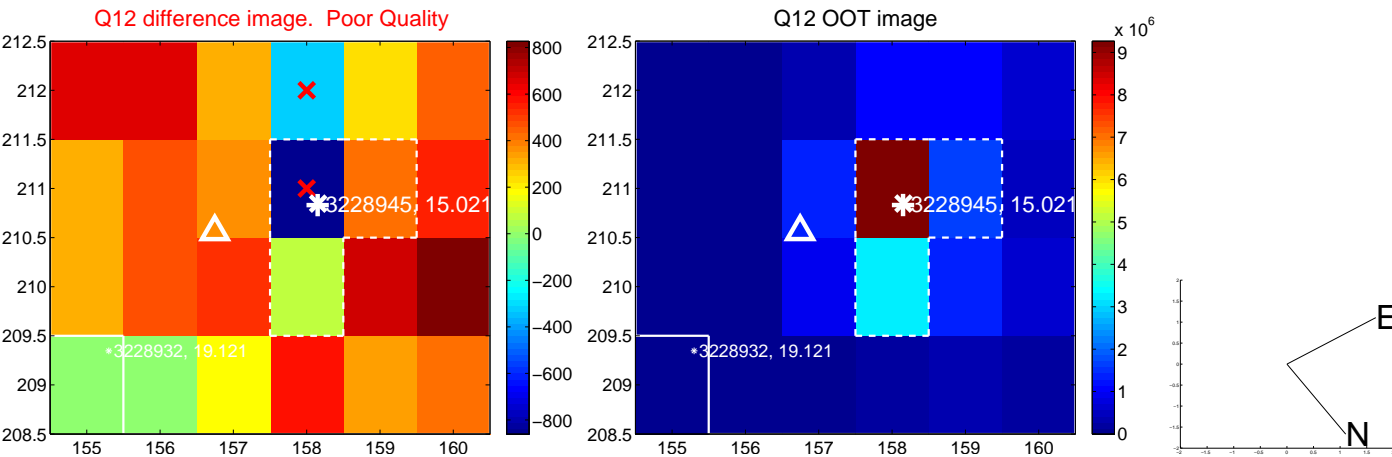
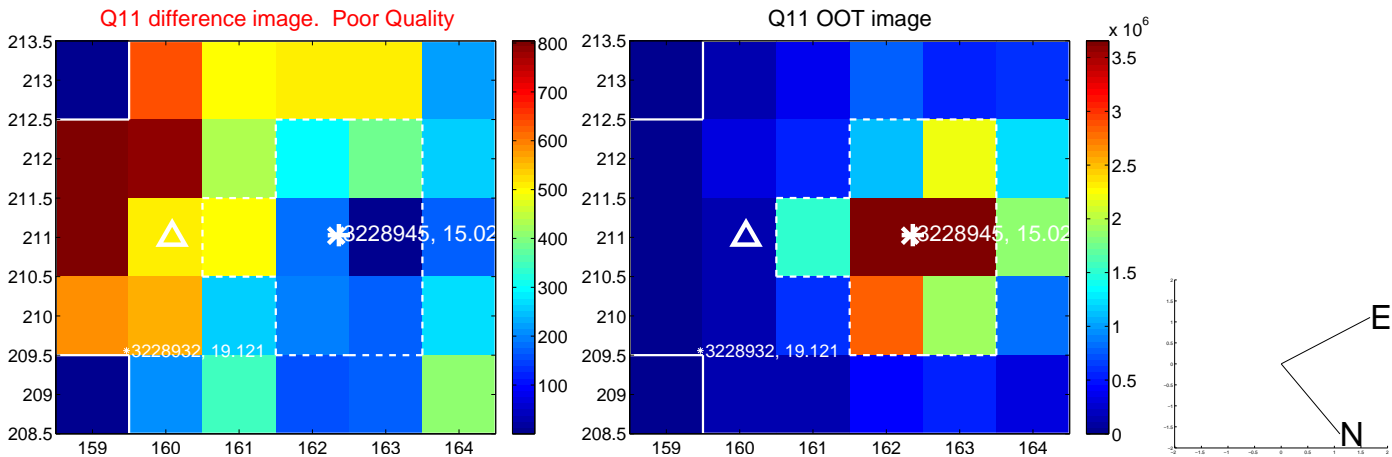
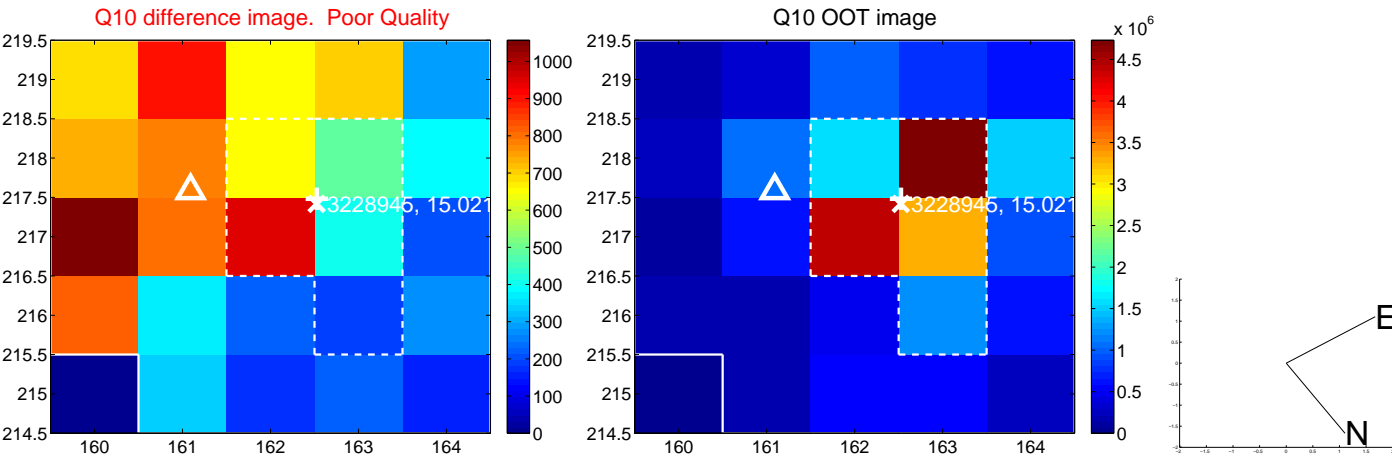
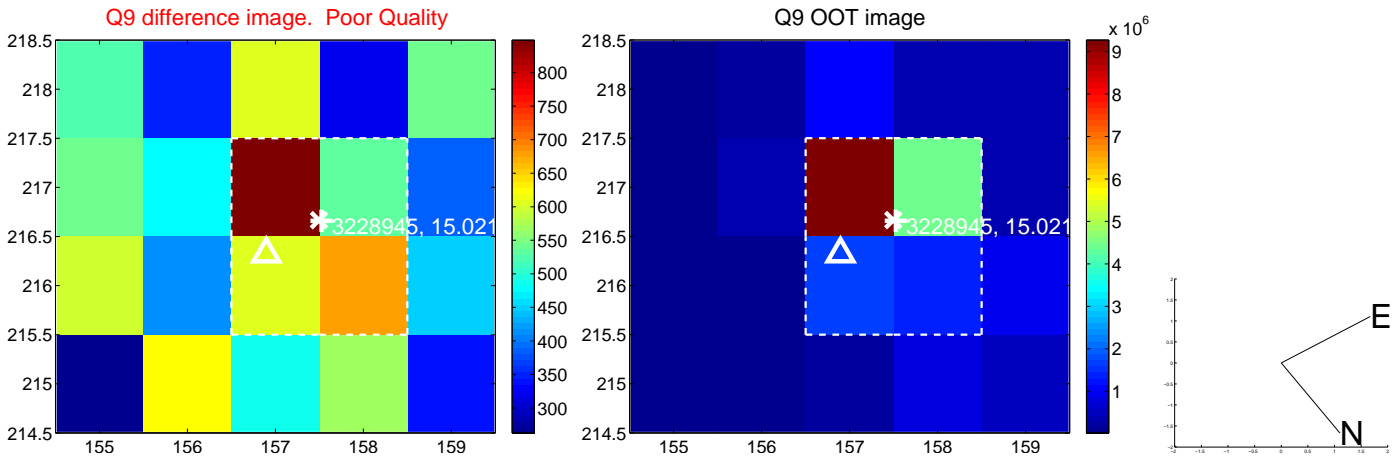
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



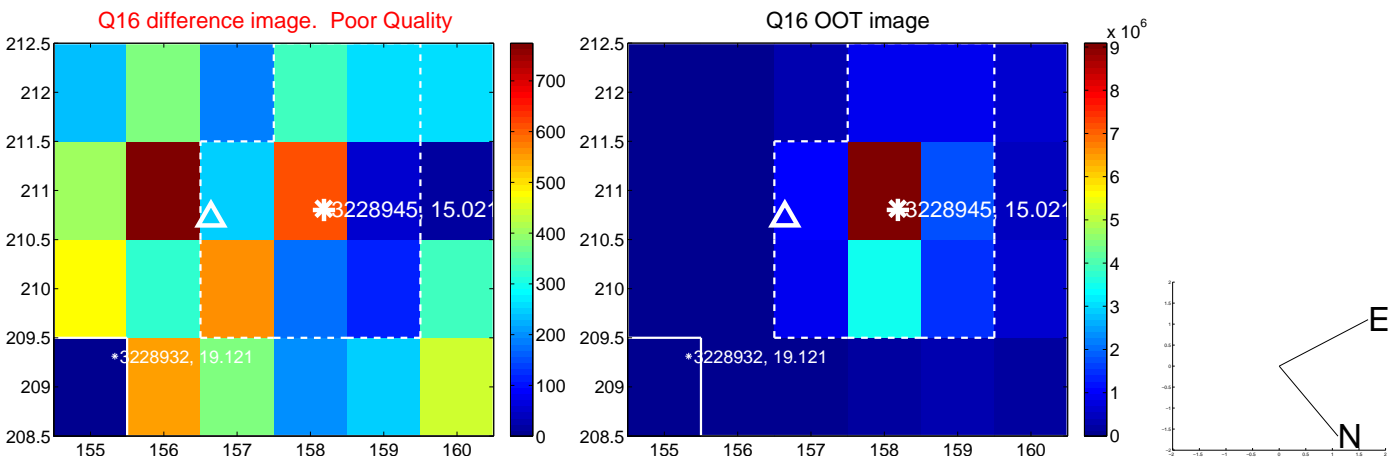
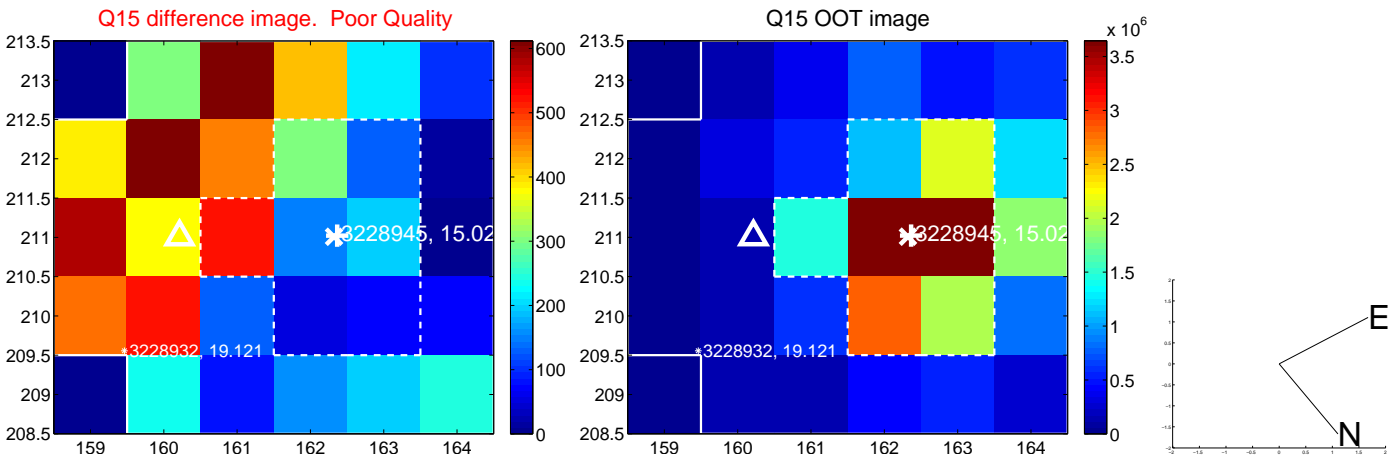
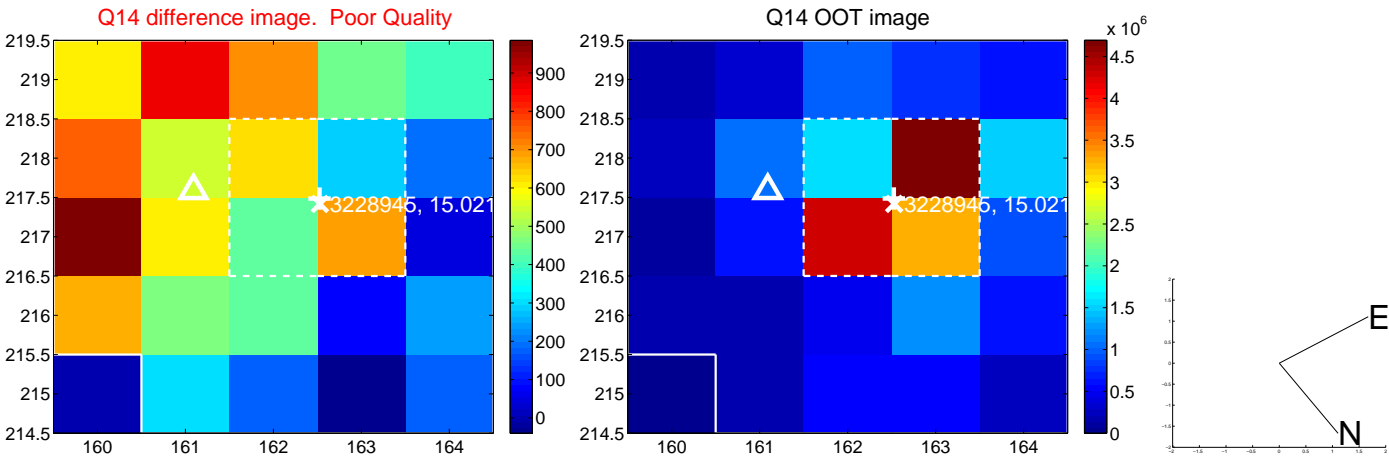
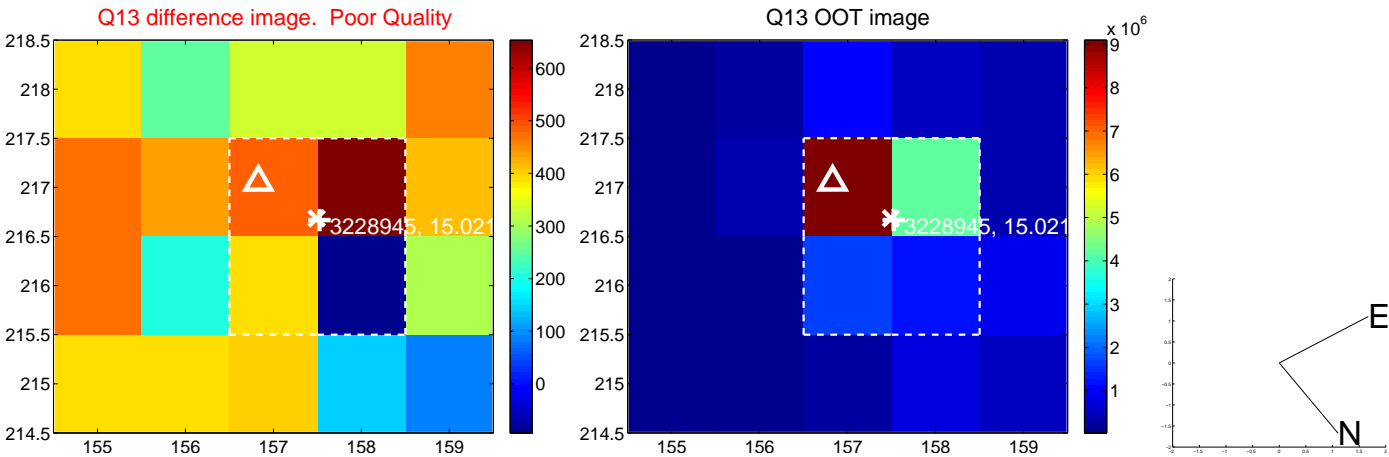
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



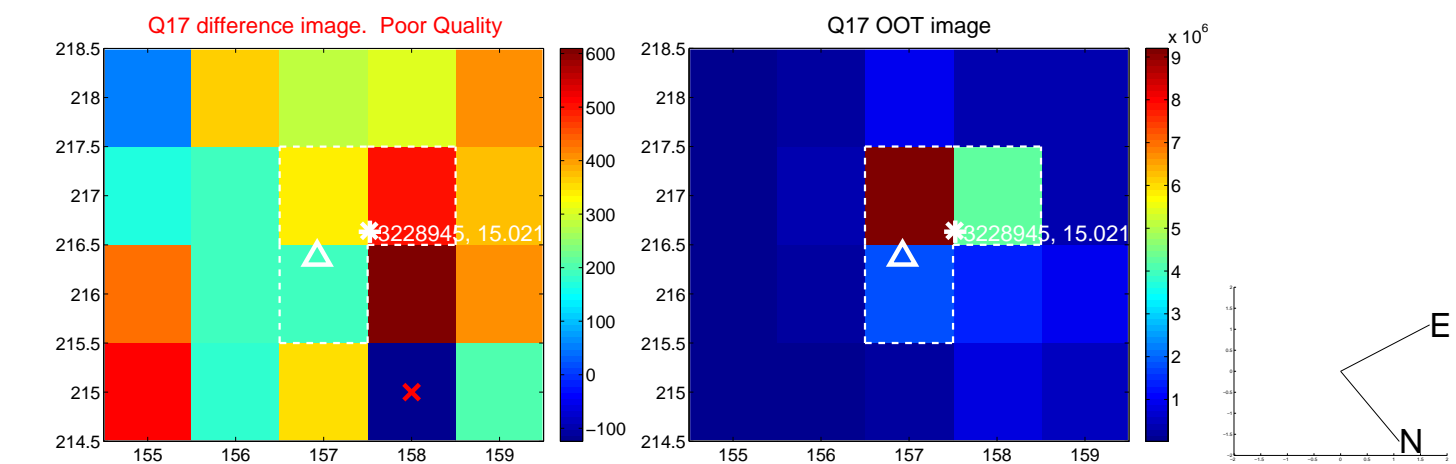
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



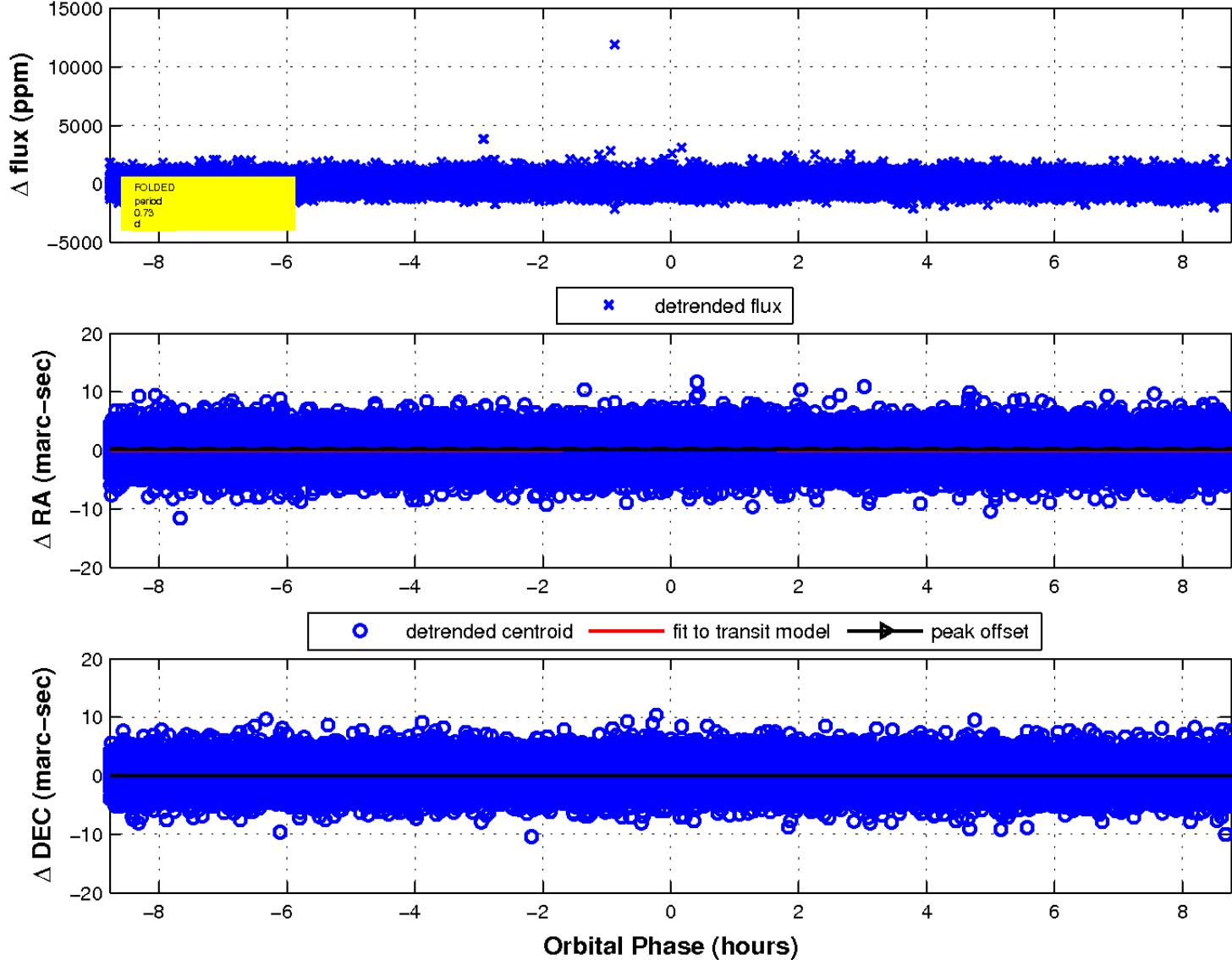
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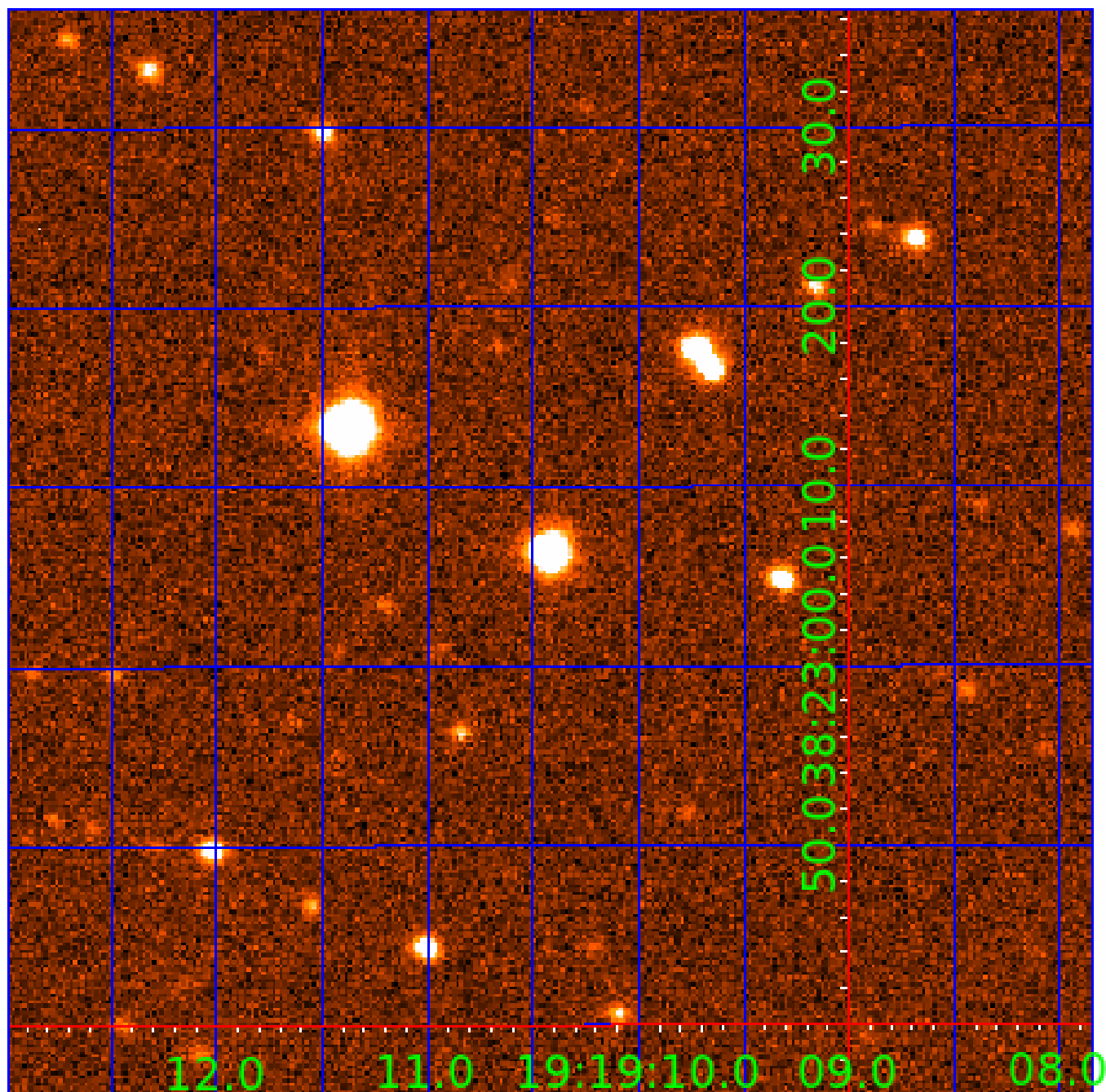


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 003228945

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

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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003228945-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003228945-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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 003228945-02

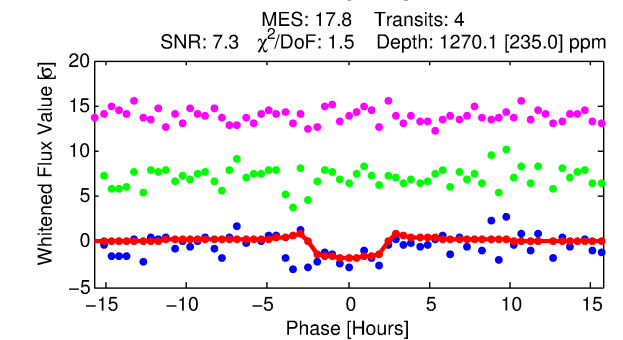
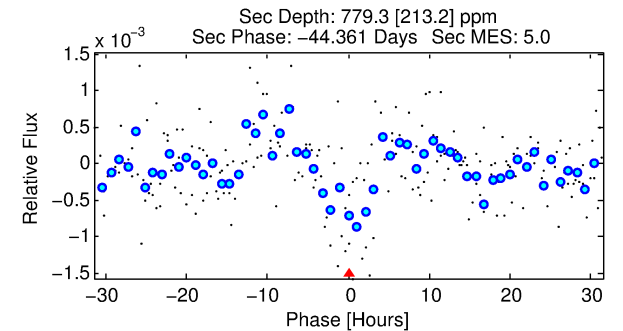
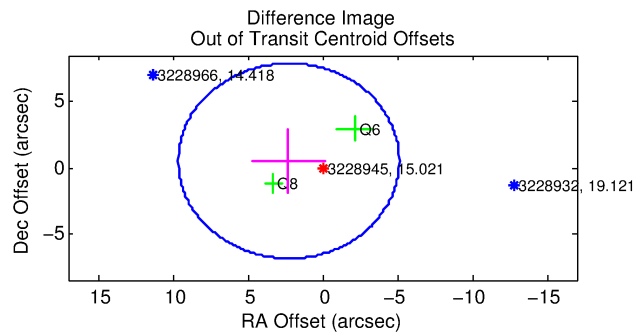
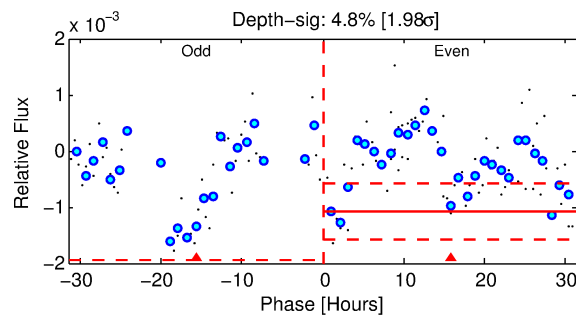
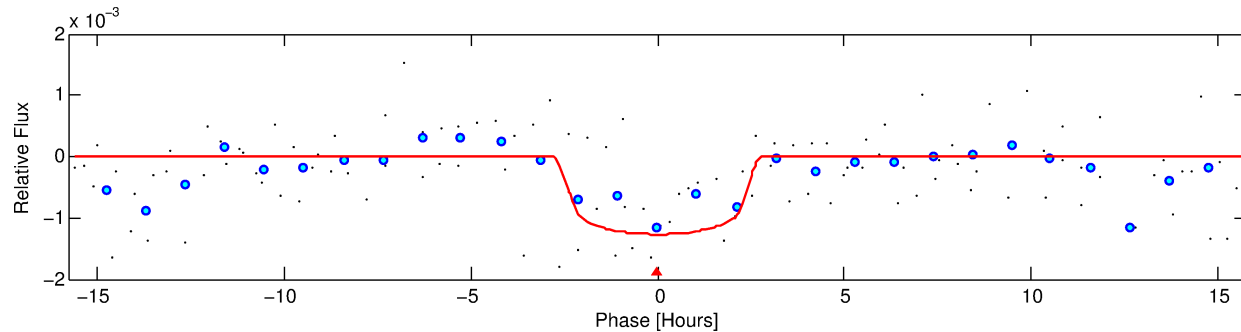
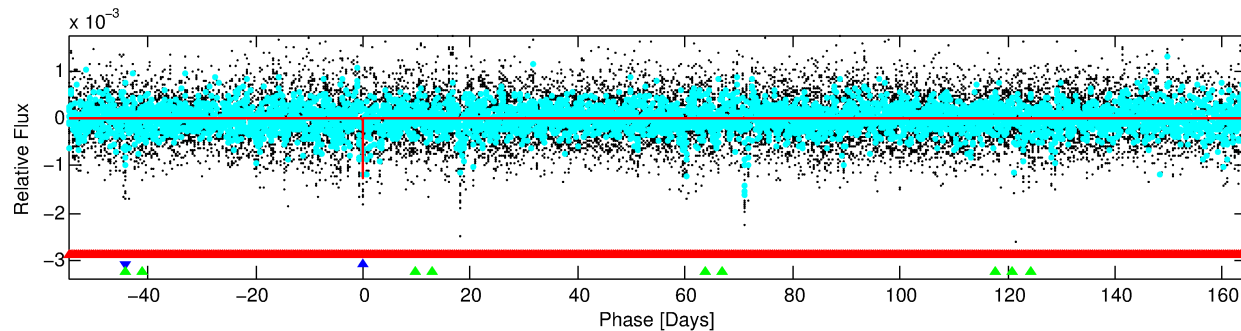
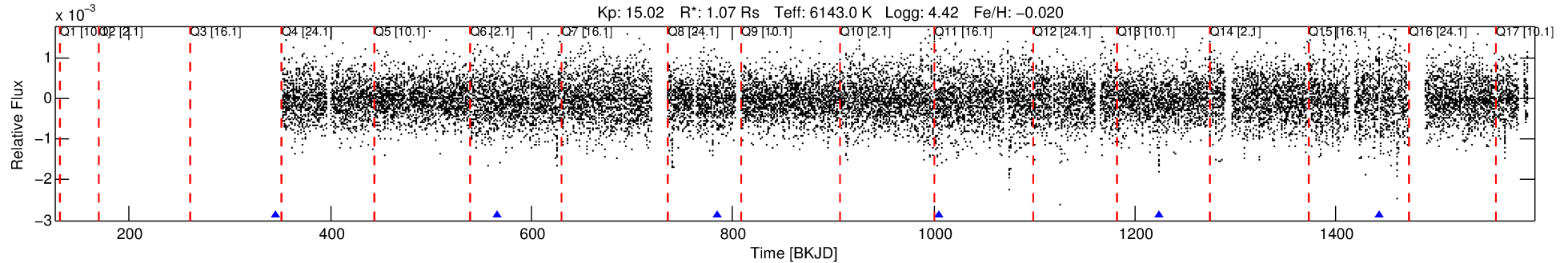
No Significant Match Found

DV One-Page Summary

KIC: 3228945 Candidate: 2 of 3 Period: 219.405 d

KOI: K02917 Corr: No Ephemeris Match

Kp: 15.02 R*: 1.07 Rs Teff: 6143.0 K Logg: 4.42 Fe/H: -0.020



DV Fit Results:

Period = 219.40458 [0.01151] d
Epoch = 346.2805 [0.0453] BKJD
Rp/R* = 0.0349 [0.0390]
a/R* = 243.62 [1327.96]
b = 0.70 [4.02]
Seff = 2.71 [1.17]
Teq = 327 [35] K
Rp = 4.06 [4.74] Re
a = 0.7322 [0.2013] AU
Ag = 13928.61 [31892.80] [0.44σ]
Teffp = 5495 [3106] K [1.66σ]

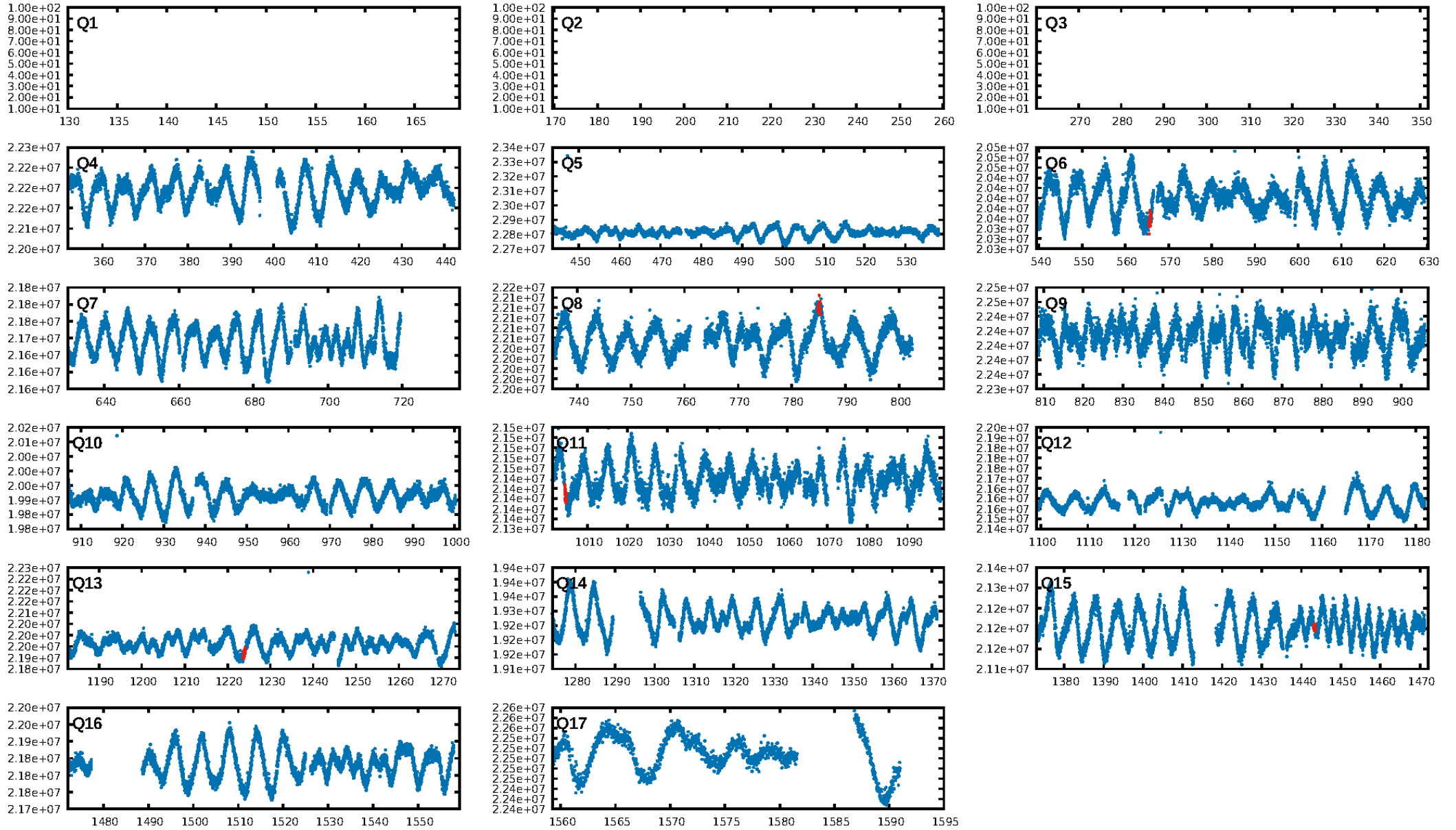
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [87.29σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 4.29e-32
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.7349
Centroid-sig: 31.1%
Centroid-so: 0.732 arcsec [0.91σ]
OotOffset-rm: 2.314 arcsec [0.94σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 2.383 arcsec [0.98σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/4]

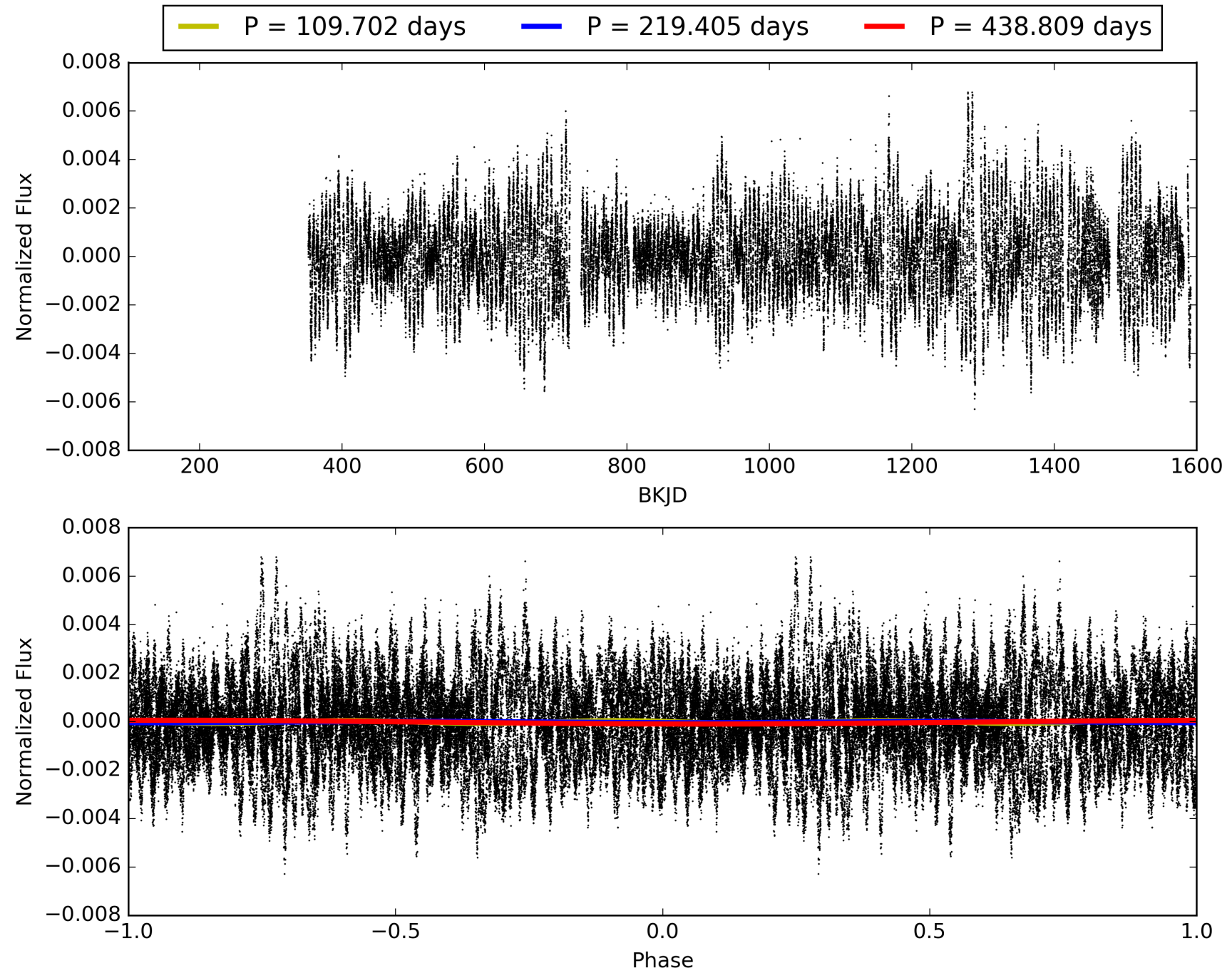
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:55:29 Z

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

TCE 003228945-02, PDC Light Curves

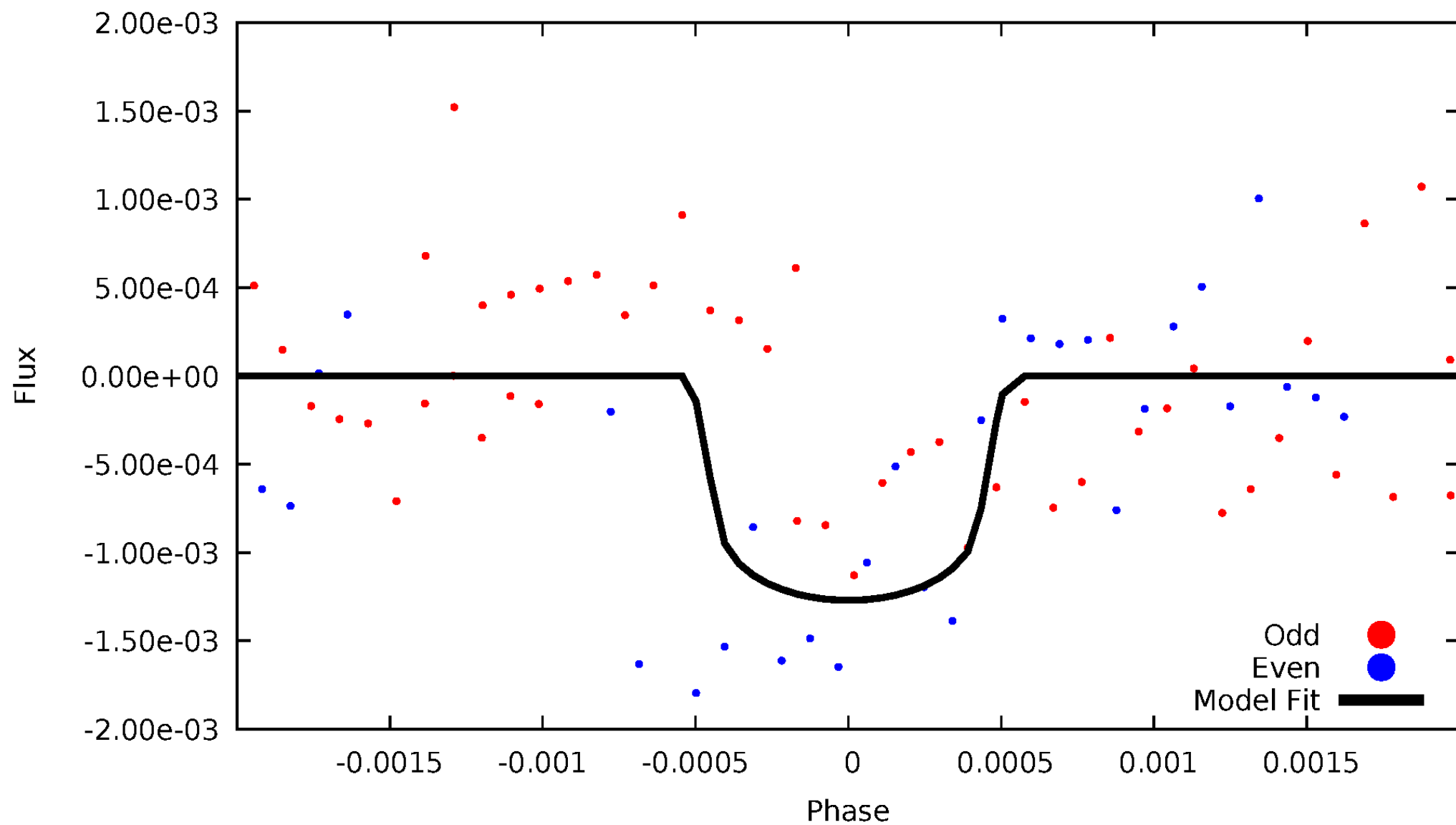


TCE 003228945-02



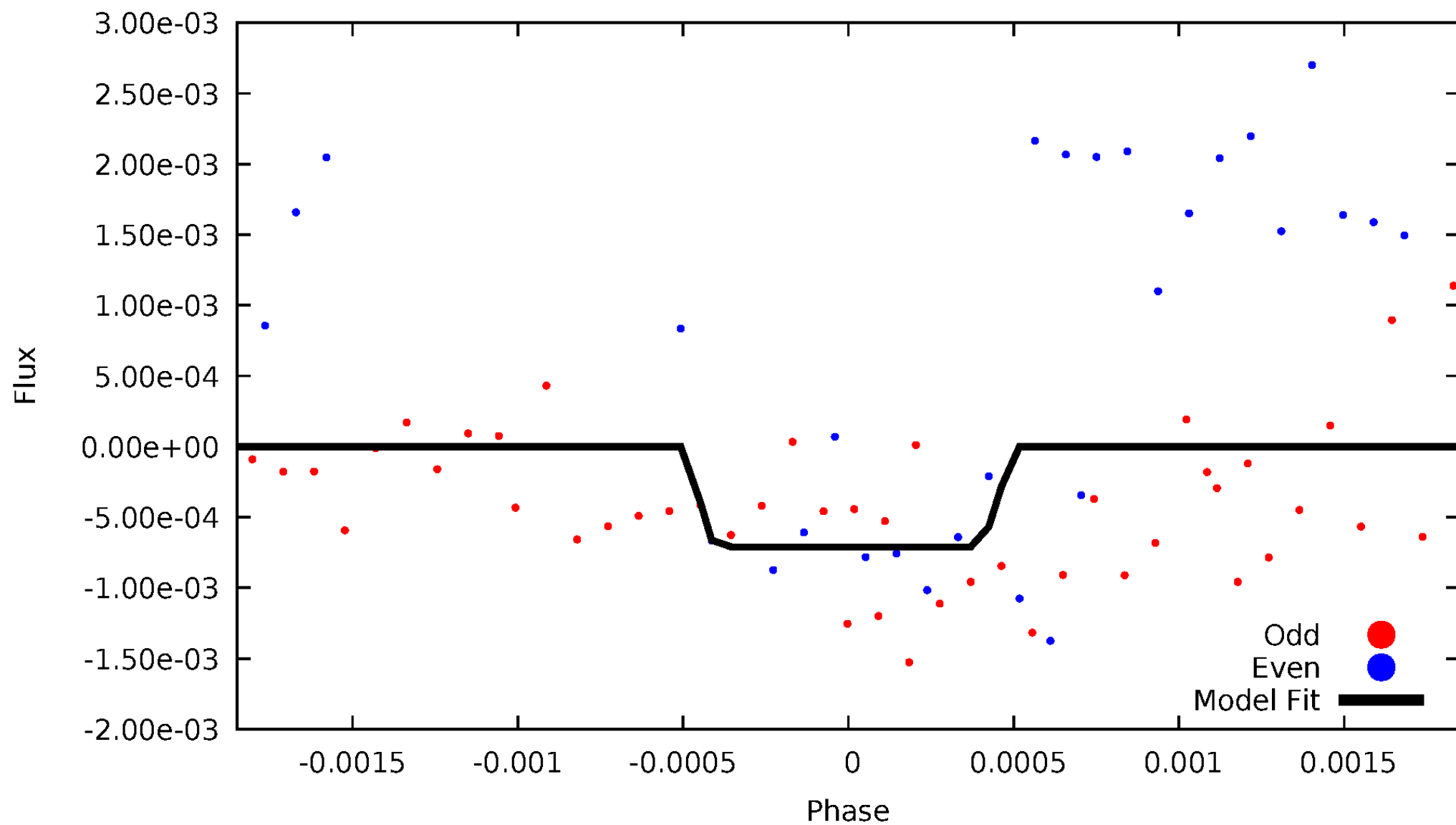
DV Odd/Even

TCE 003228945-02



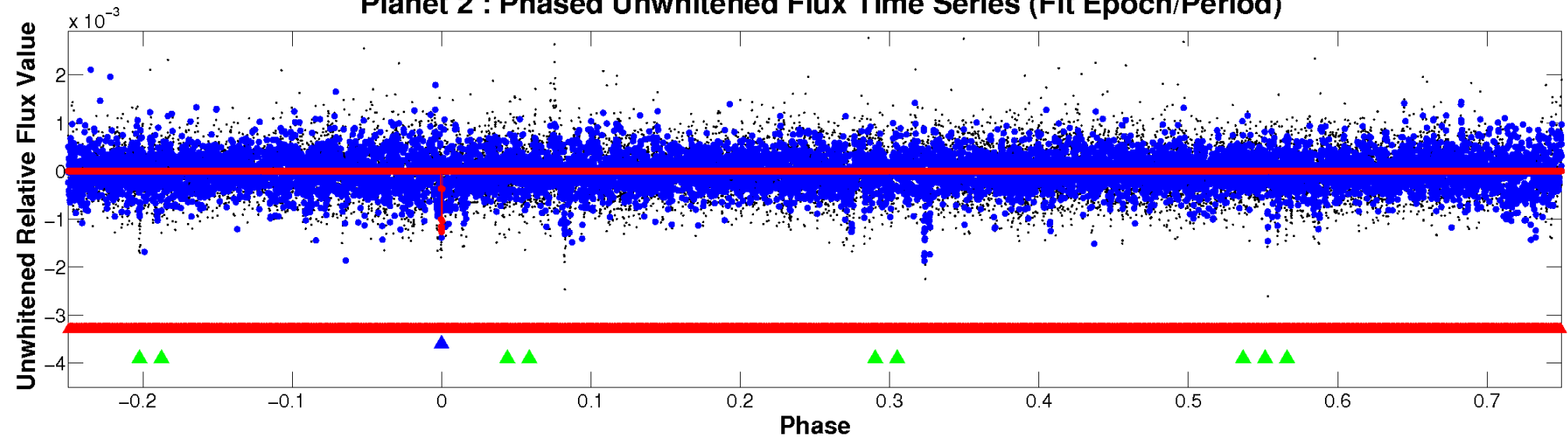
ALT Odd/Even

TCE 003228945-02

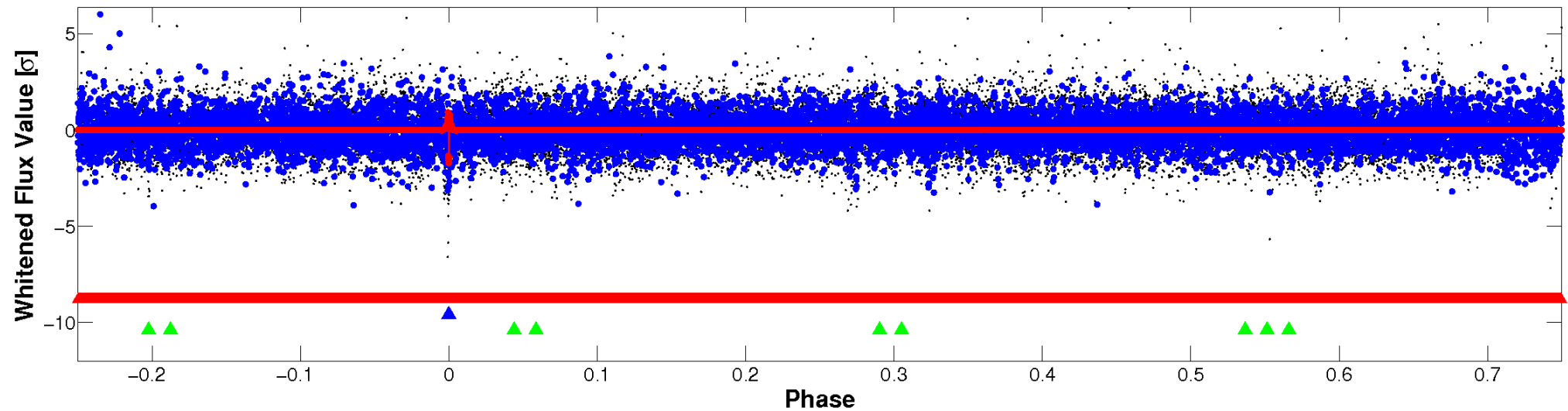


Non-Whitened Vs. Whitened Light Curve

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

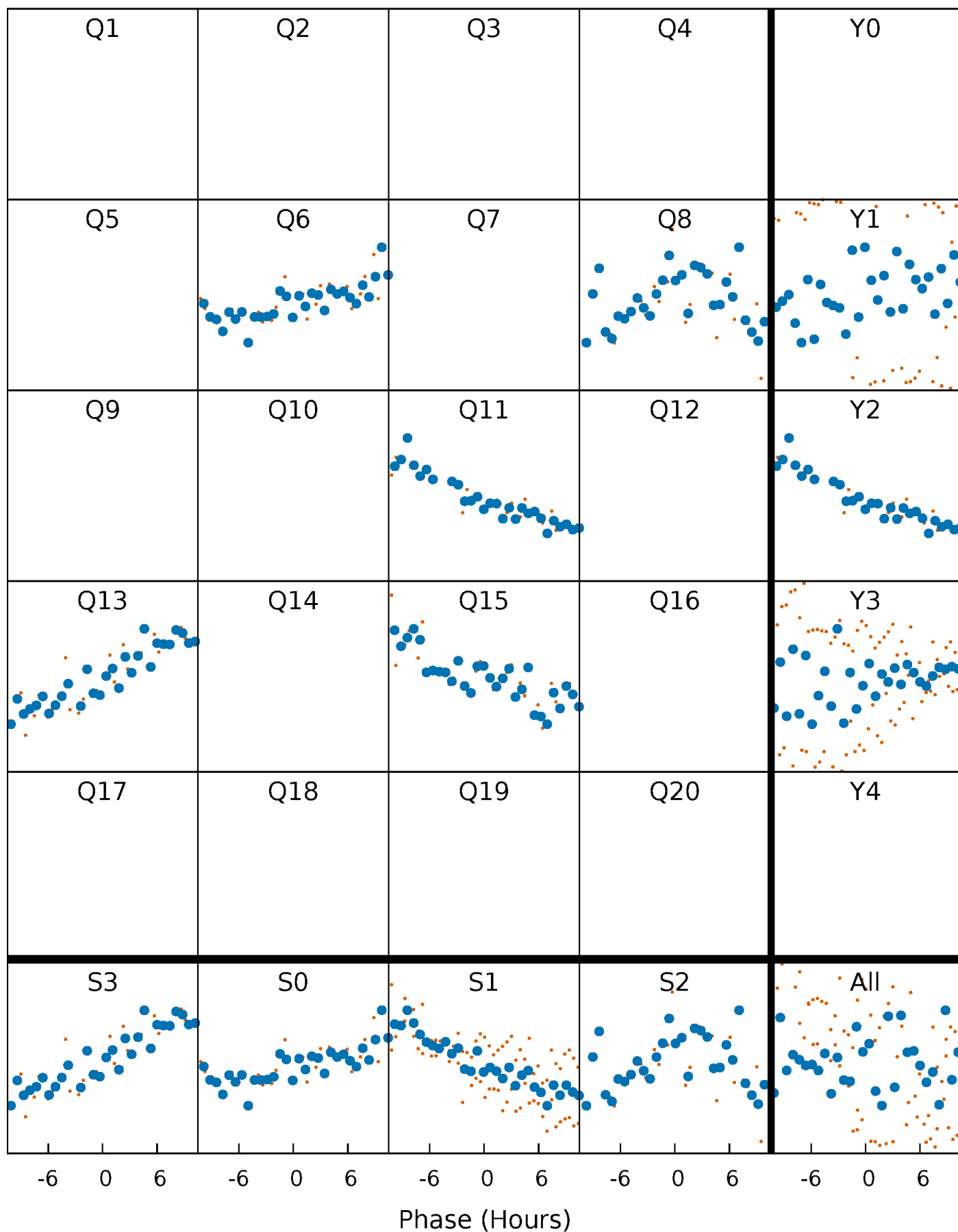


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



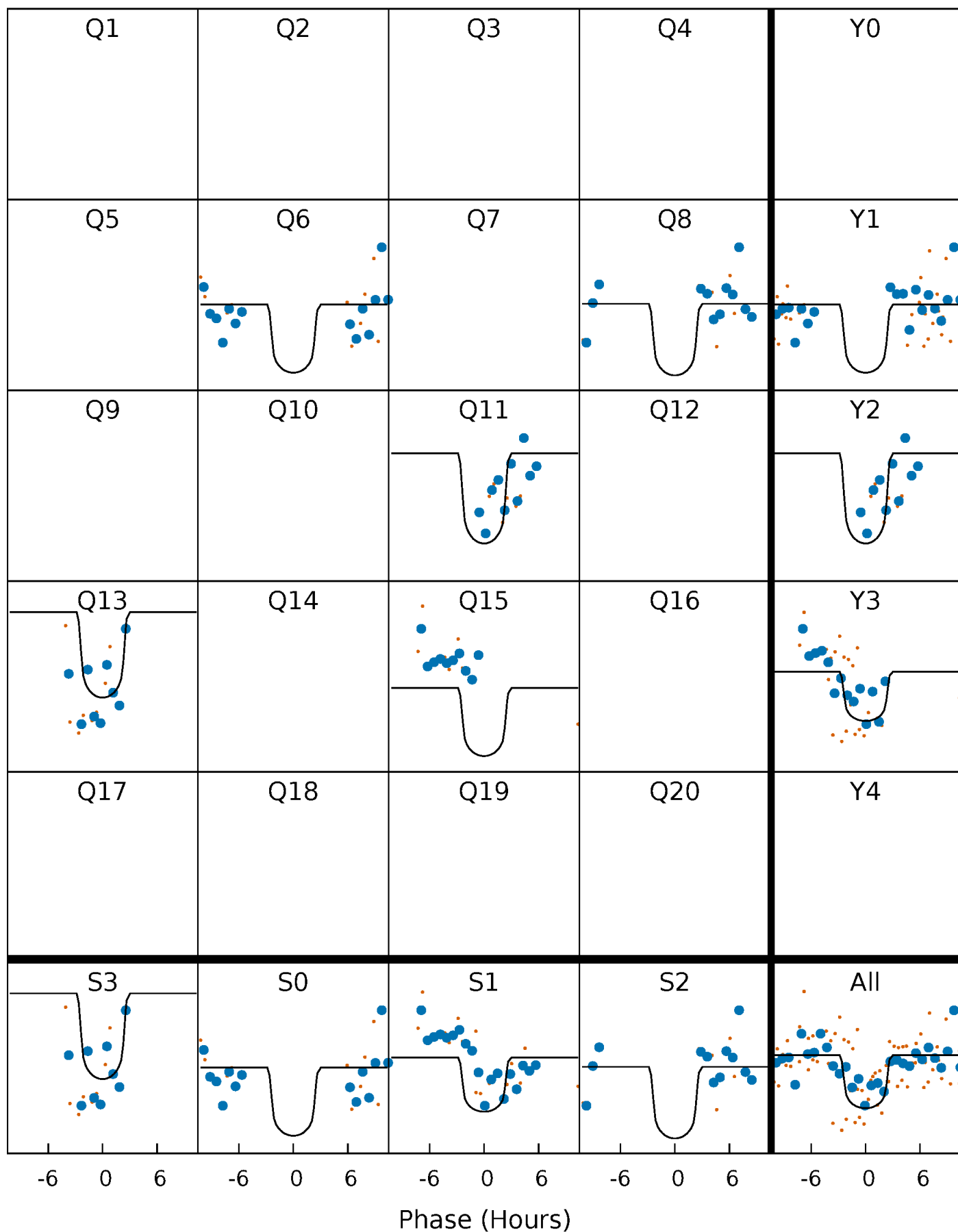
PDC Quarter-Phased Transit Curves

TCE 003228945-02 $P=219.404580$ Days $T_0=346.280538$ (BKJD)



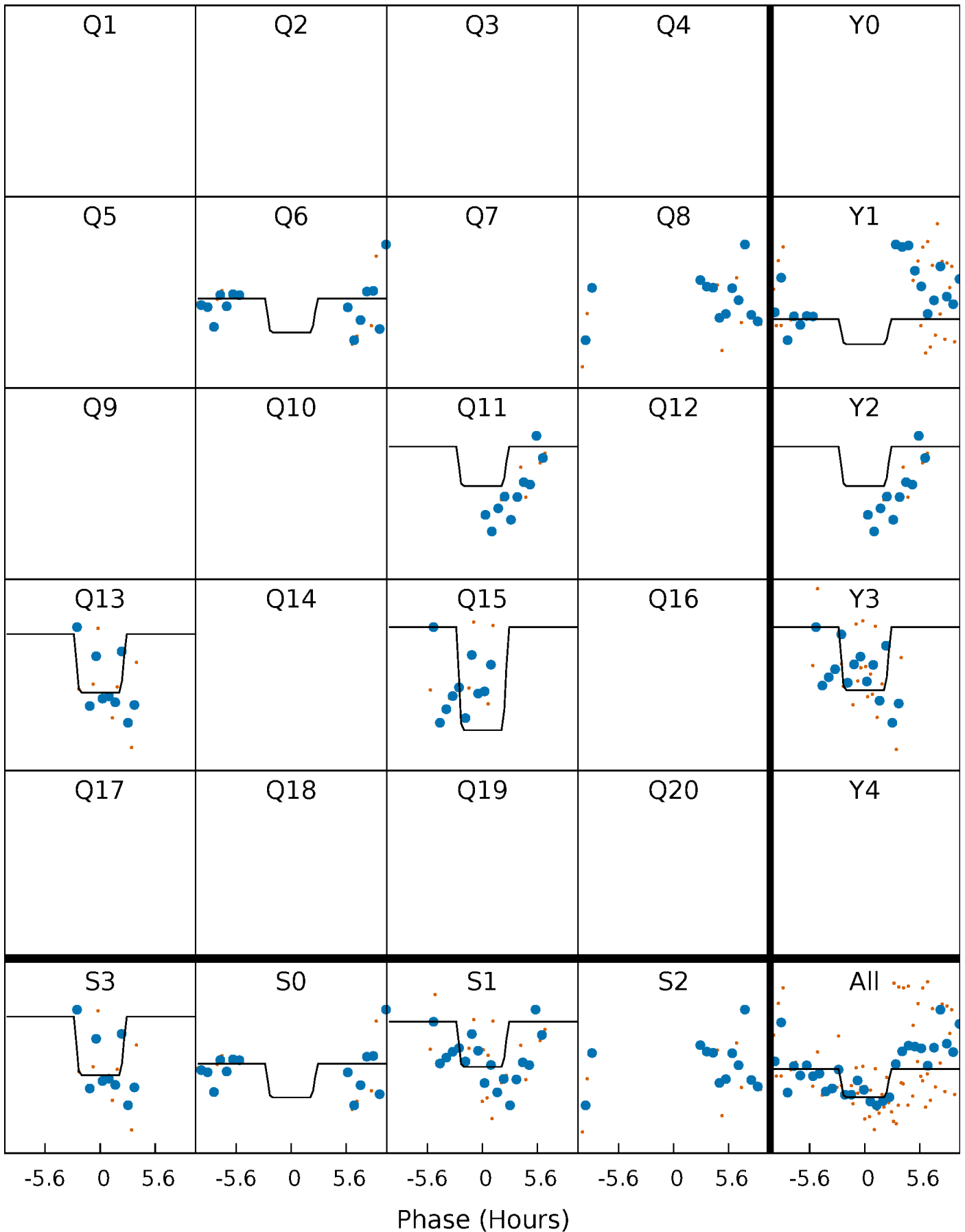
DV Quarter-Phased Transit Curves

TCE 003228945-02 $P=219.404580$ Days $T_0=346.280538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

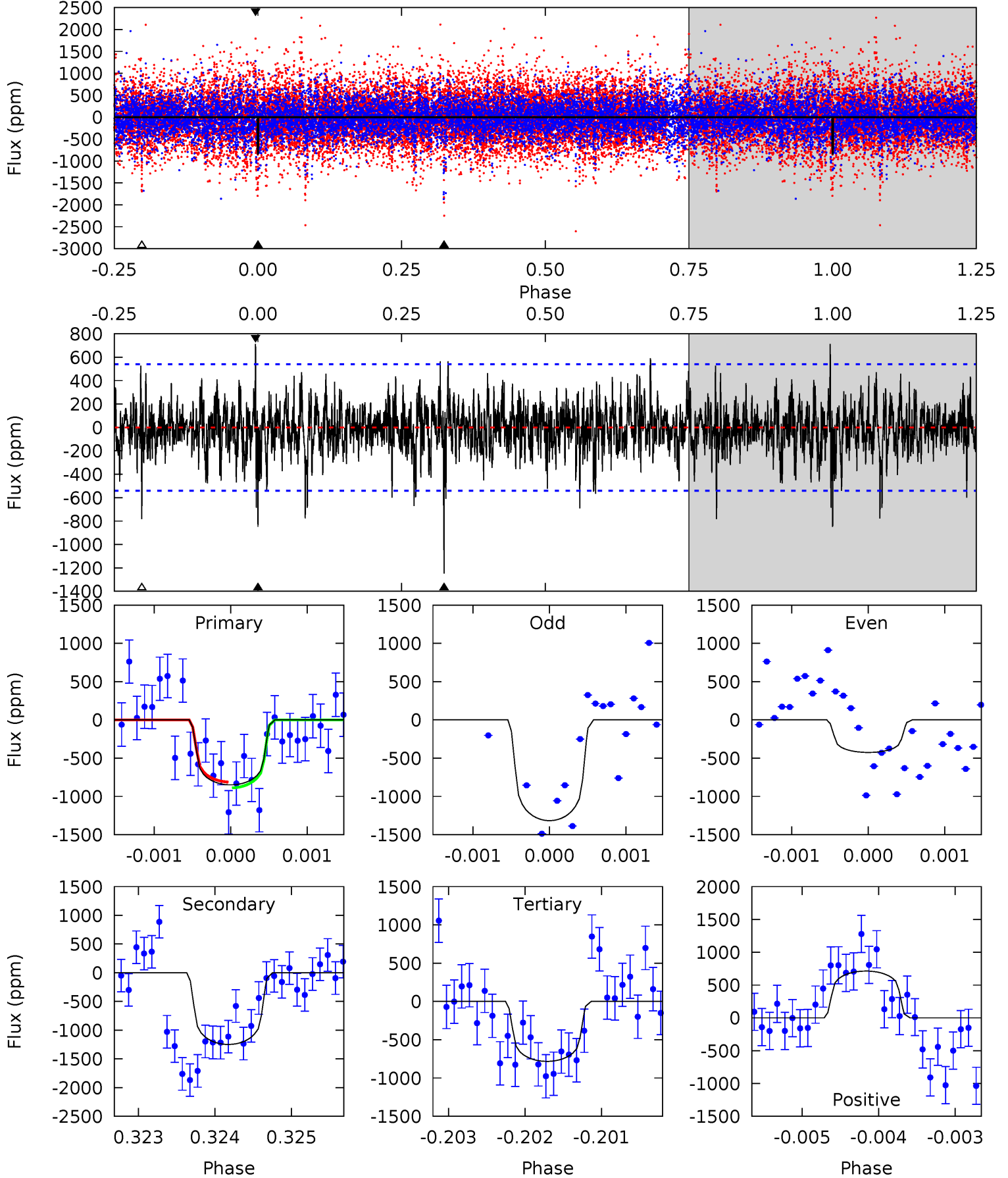
TCE 003228945-02 P=219.381511 Days $T_0=346.313451$ (BKJD)



DV Model-Shift Uniqueness Test

003228945-02, P = 219.404580 Days, E = 346.280538 Days

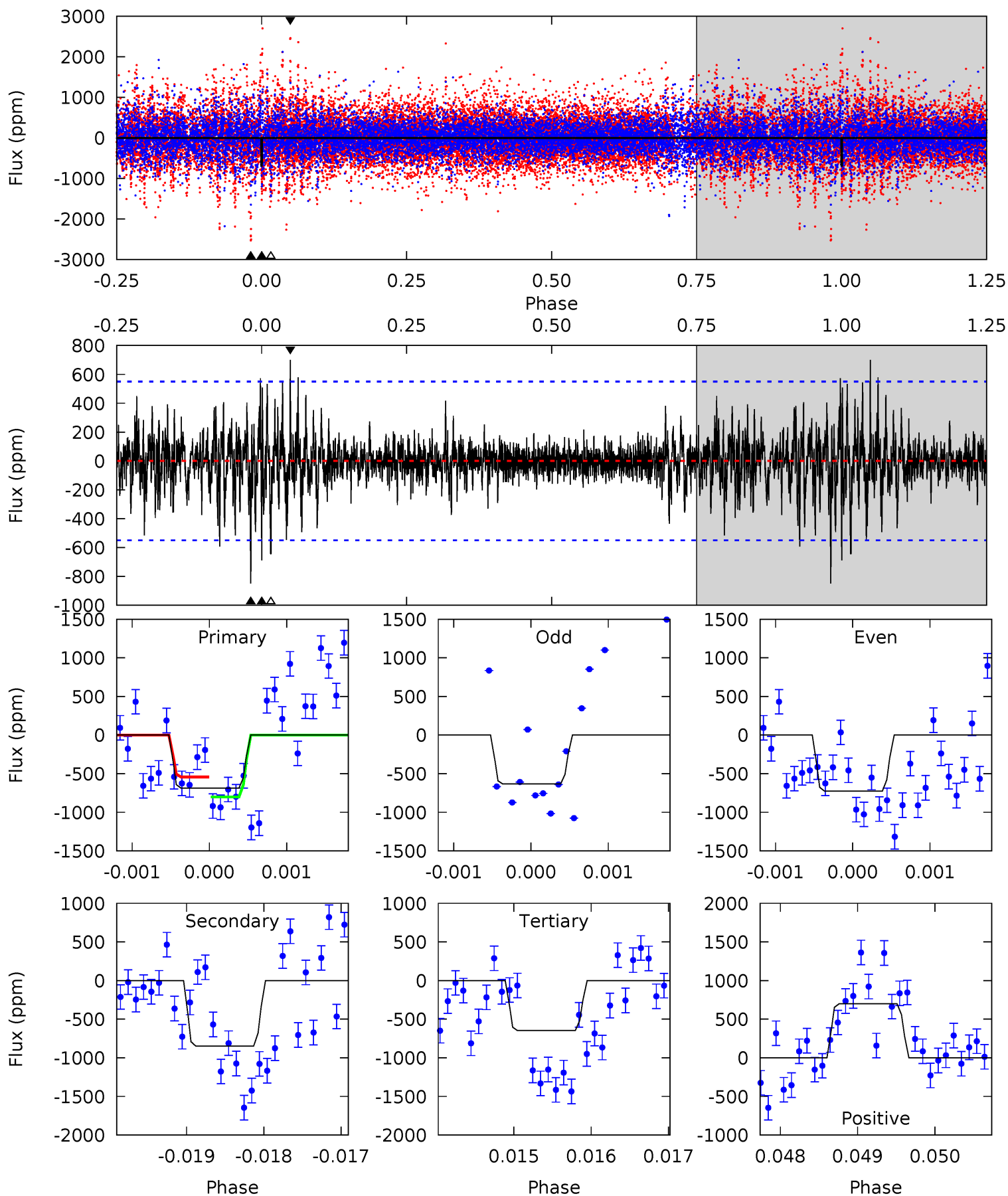
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.56	12.6	7.89	7.19	5.45	3.29	1.74	0.67	1.37	4.70	5.40	4.53	0.71	0.36	0.38



Alt Model-Shift Uniqueness Test

003228945-02, P = 219.381511 Days, E = 346.313451 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.83	8.42	6.41	6.94	5.46	3.30	1.26	0.41	-0.12	2.00	1.47	0.45	1.18	0.45	1.26



Stellar Parameters For KIC 003228945

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6143^{+193}_{-257}	$4.418^{+0.072}_{-0.217}$	$-0.020^{+0.250}_{-0.300}$	$1.067^{+0.350}_{-0.150}$	$1.085^{+0.166}_{-0.135}$	$1.259^{+0.470}_{-0.689}$
	+3%/-4%	+2%/-5%	+1250%/-1500%	+33%/-14%	+15%/-12%	+37%/-55%
Source	KIC0	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 003228945-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1249 ± 99	$5.43^{+4.29}_{-3.61}$	465^{+36}_{-25}	5460^{+4842}_{-1138}	12283^{+96088}_{-8492}
Alt.	-848 ± 101	$4.72^{+4.20}_{-2.87}$	465^{+36}_{-27}	5352^{+3953}_{-1242}	11078^{+62691}_{-7968}

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 $A_{obs} \gg 1.0$

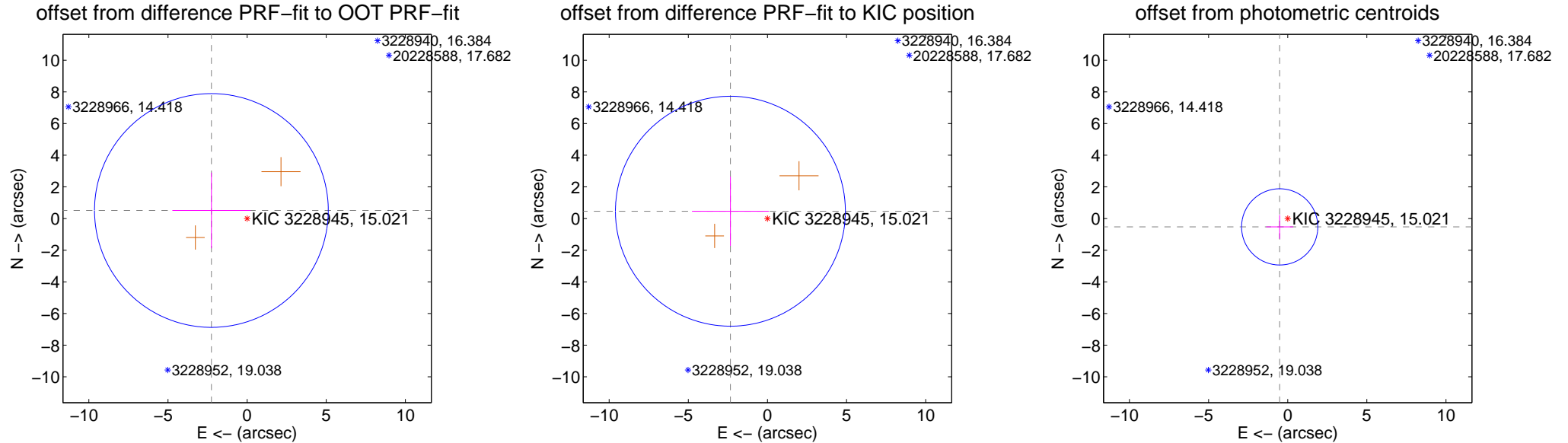
DV Centroid Data

Supplemental centroid analysis for 003228945-02. Kepler magnitude: 15.02. Transit SNR 7.25

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.314 ± 2.461	0.94	2.257 ± 2.464	0.509 ± 2.391
PRF-fit source offset from KIC position	2.383 ± 2.421	0.98	2.338 ± 2.429	0.462 ± 2.187
photometric centroid source offset	0.73 ± 0.80	0.91	0.51 ± 0.86	-0.53 ± 0.75

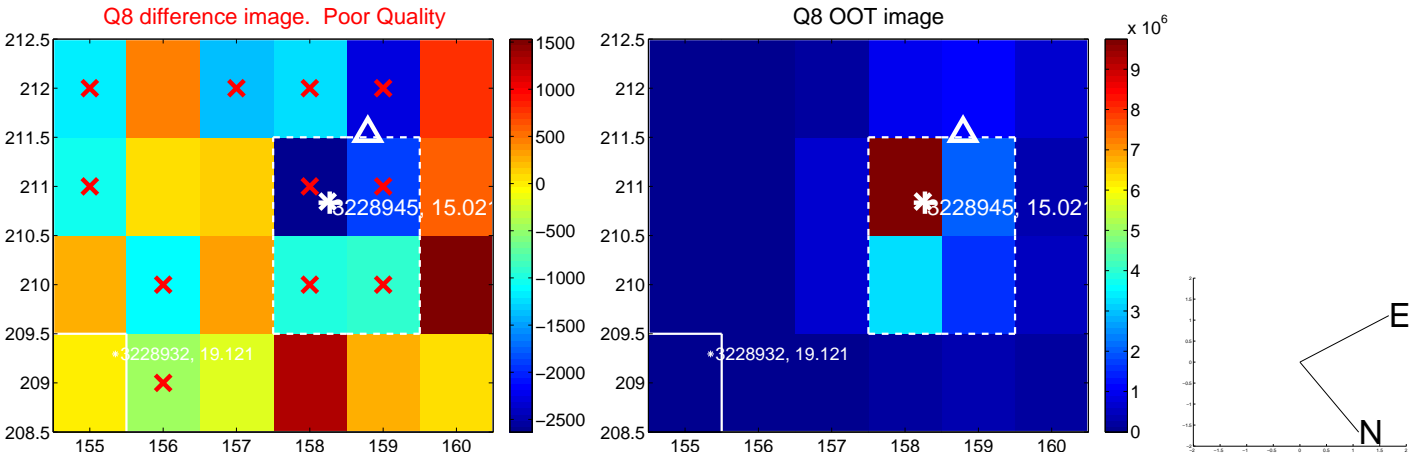
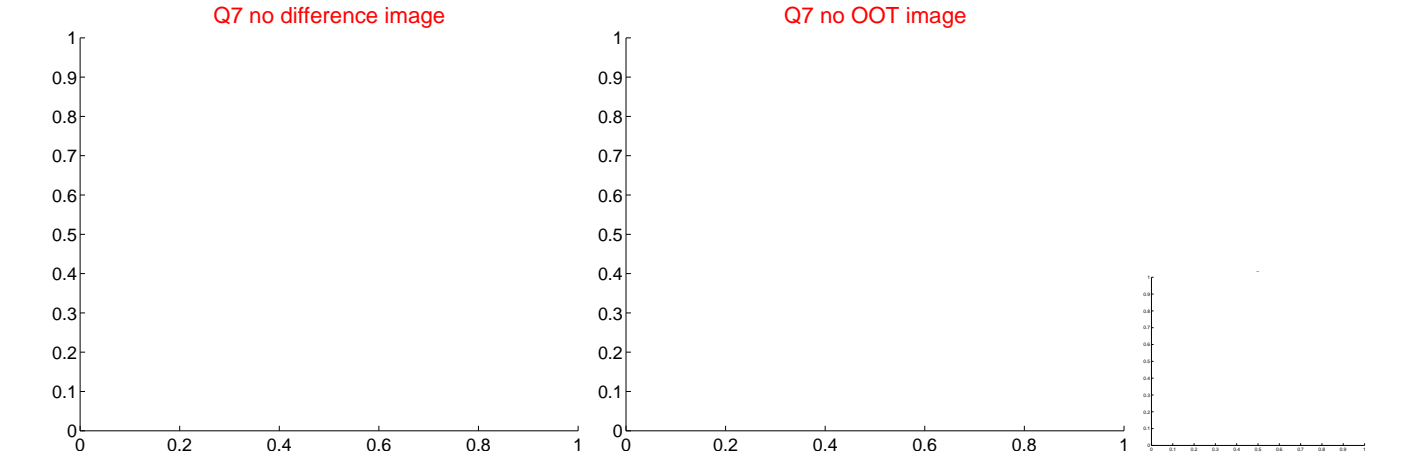
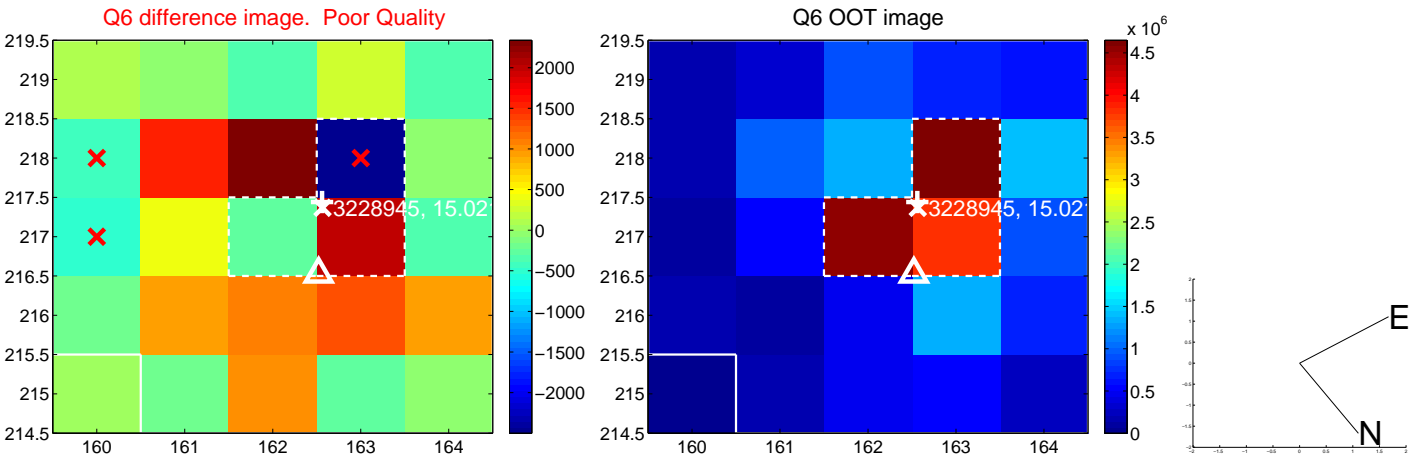
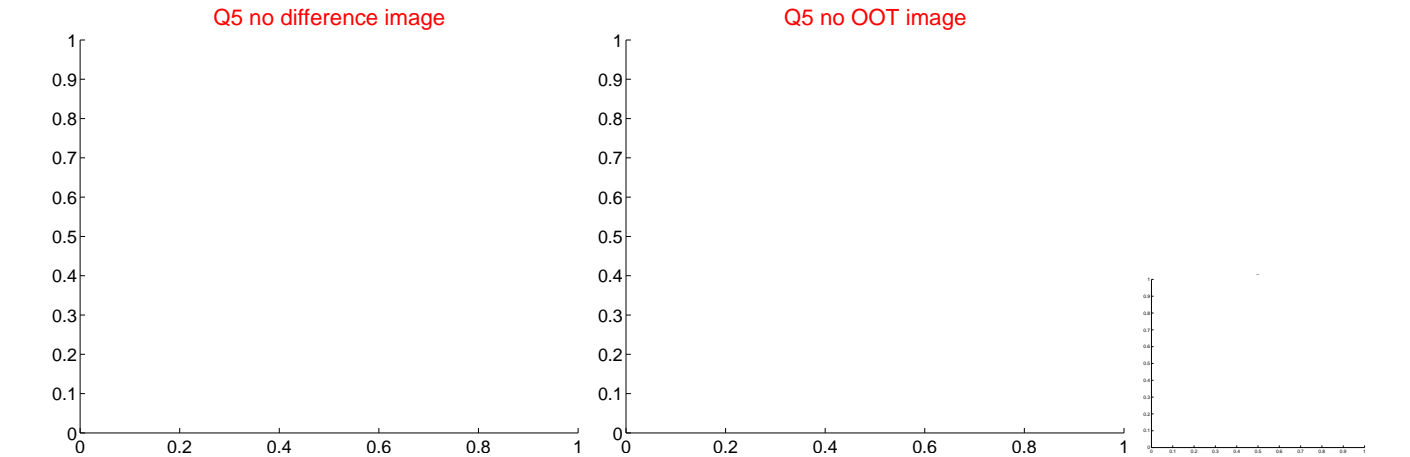


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



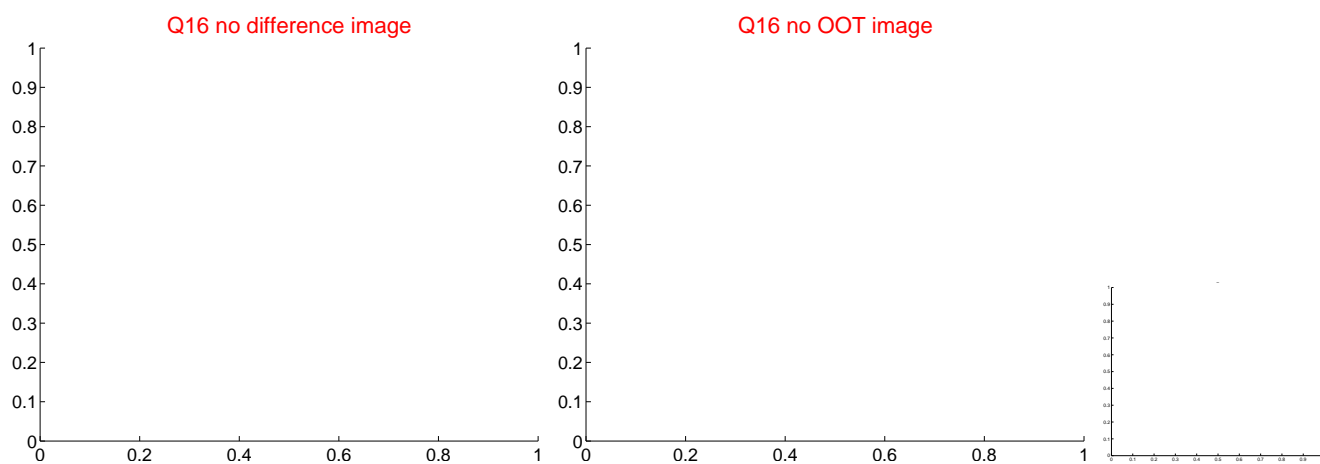
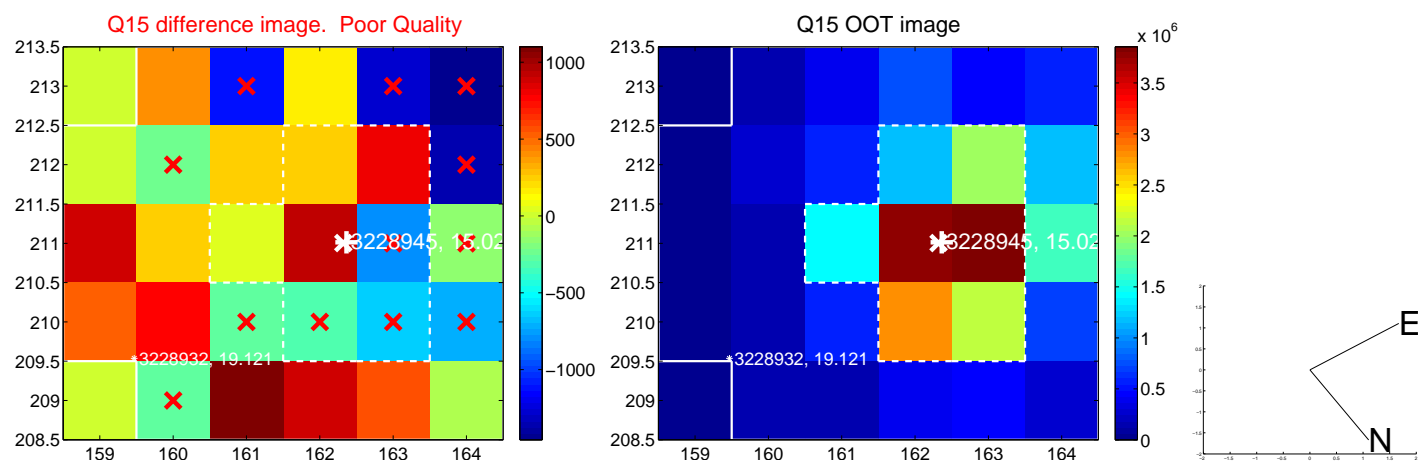
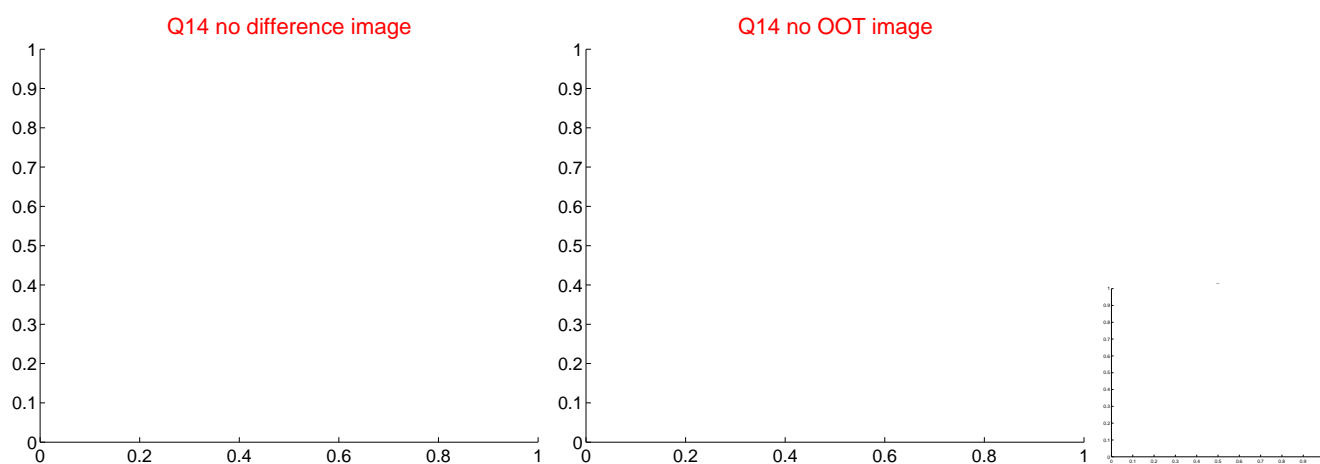
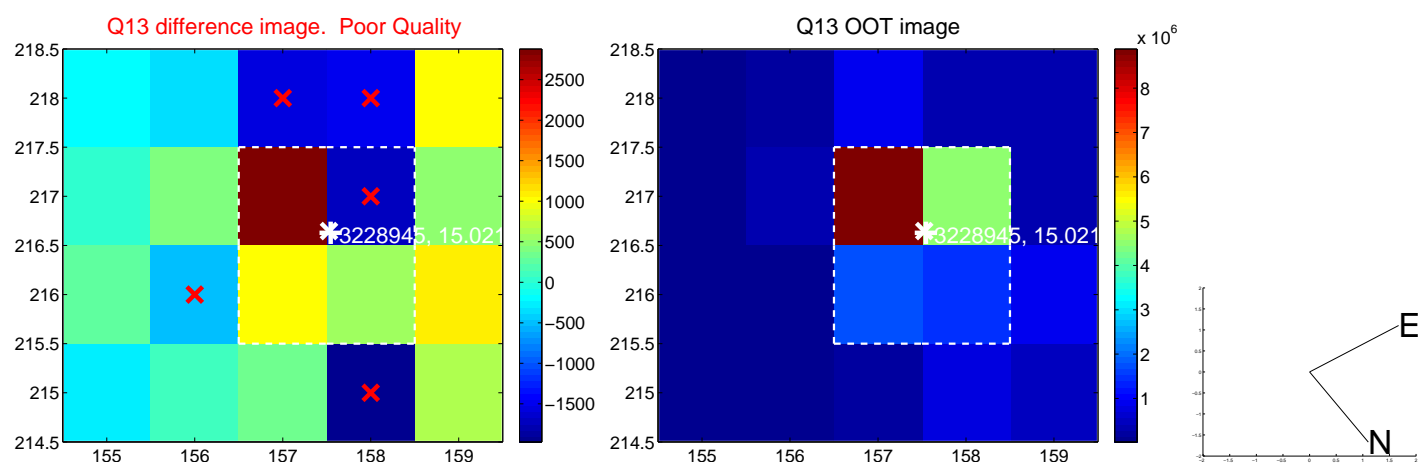
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



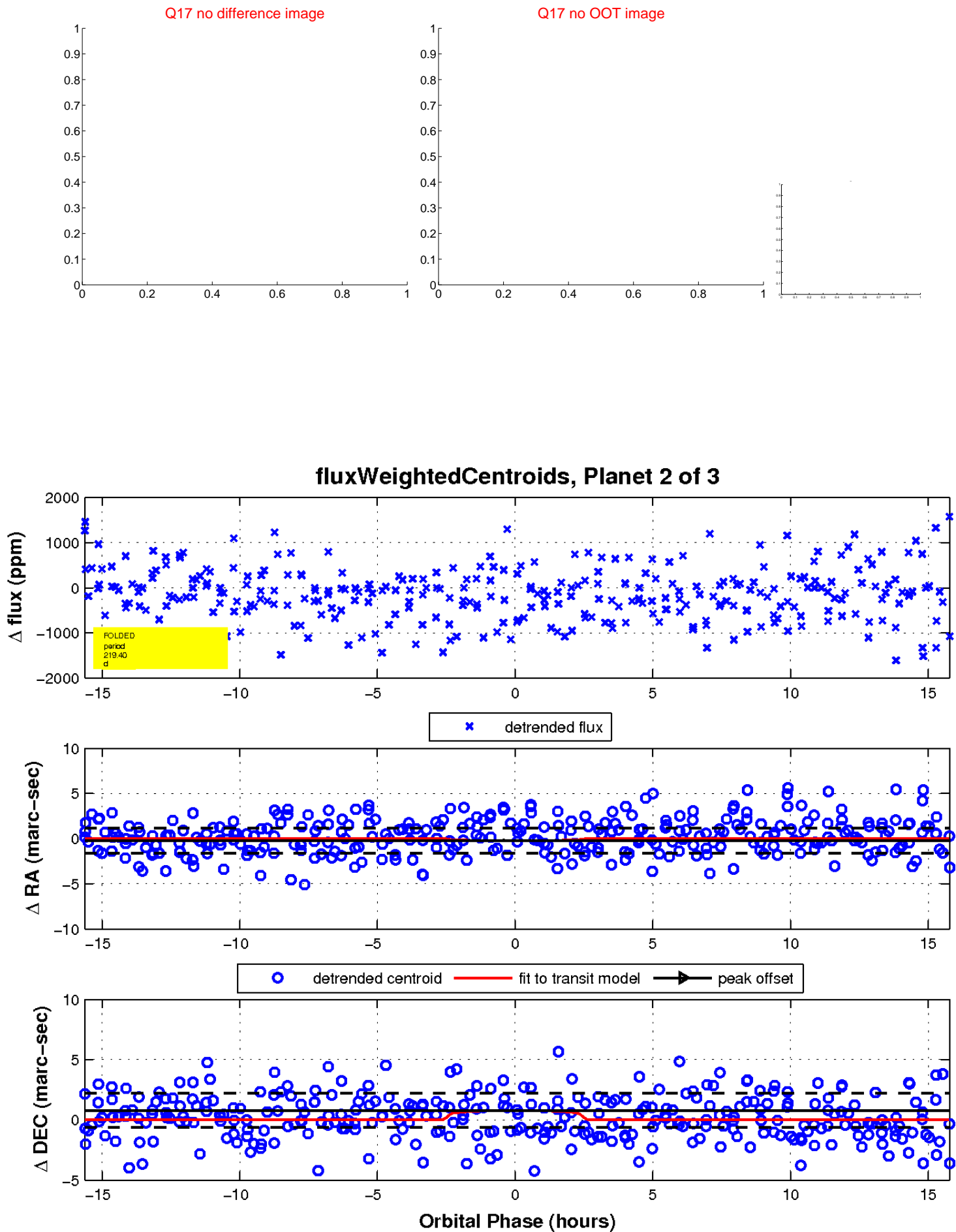
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

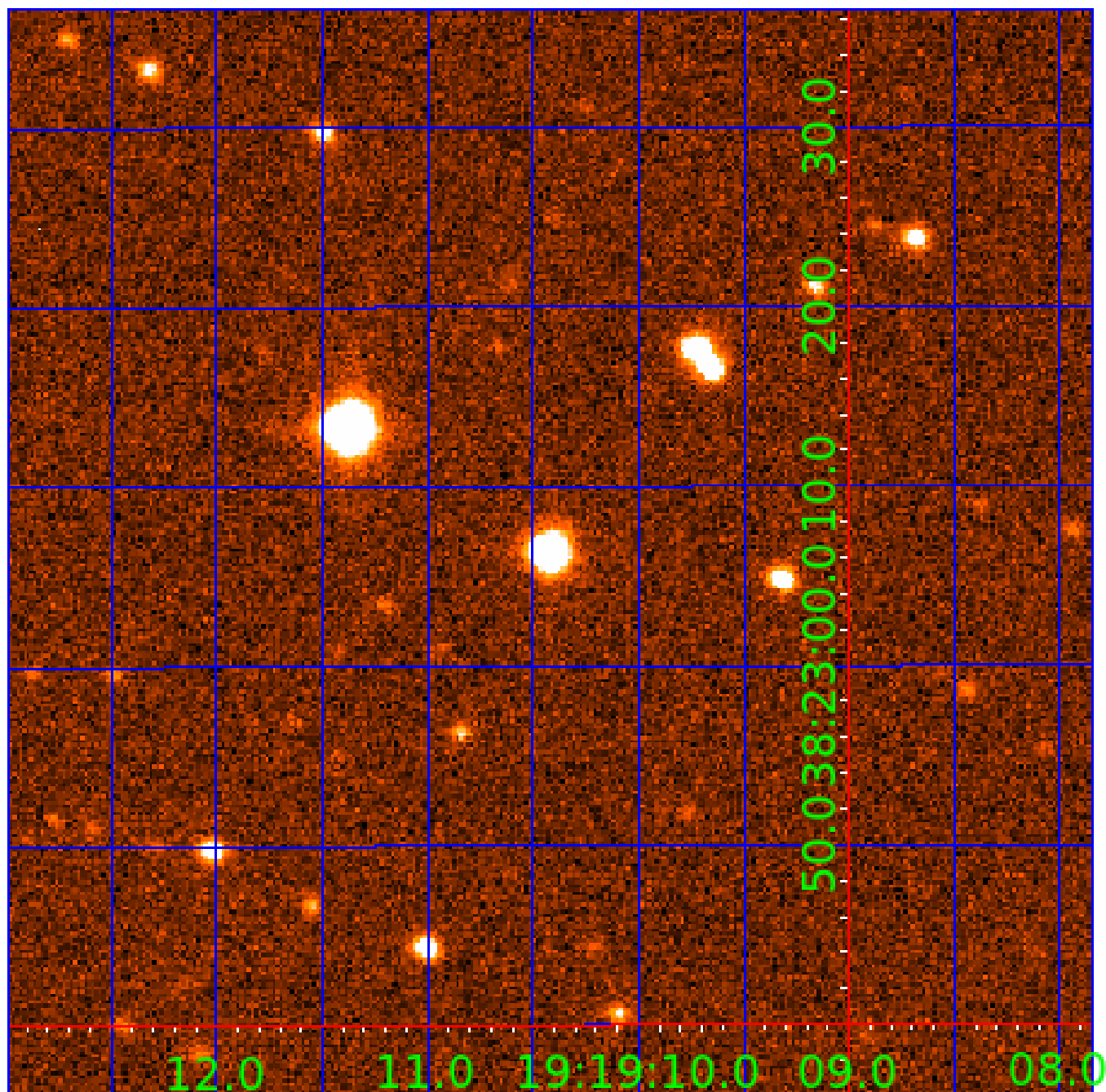


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003228945

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})
003228945-01	OBS	2917.01	0.730896	132.270369	83.7	3.474	17.7	15.4	1.07	6143	0.98	5445.68
003228945-02	OBS	No	219.404580	346.280538	1270.1	5.262	17.8	7.3	1.07	6143	4.06	2.71
003228945-03	OBS	No	165.361779	244.624360	756.9	13.896	8.5	6.0	1.07	6143	2.98	3.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003228945-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
003228945-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003228945-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

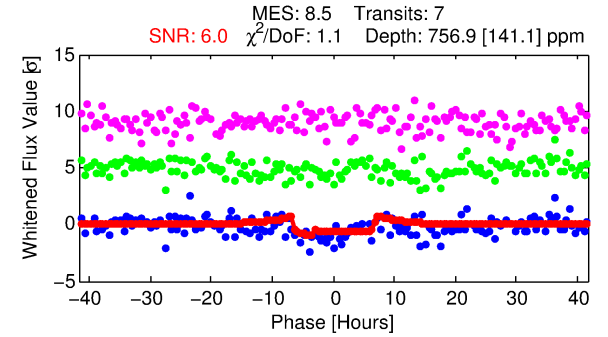
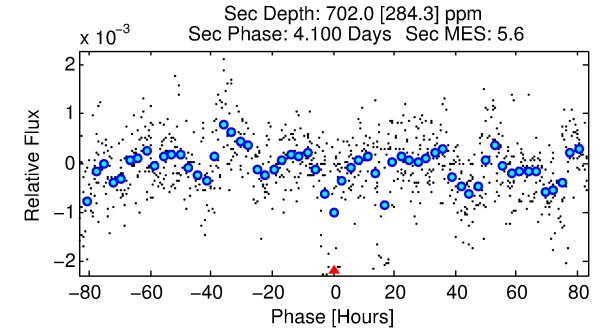
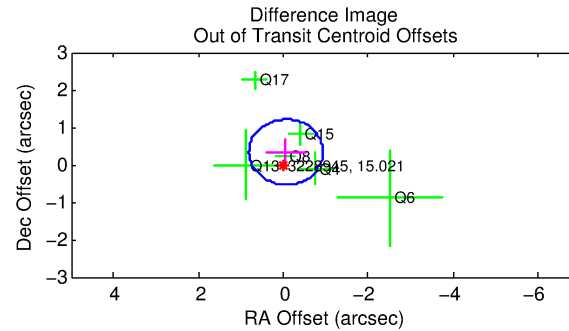
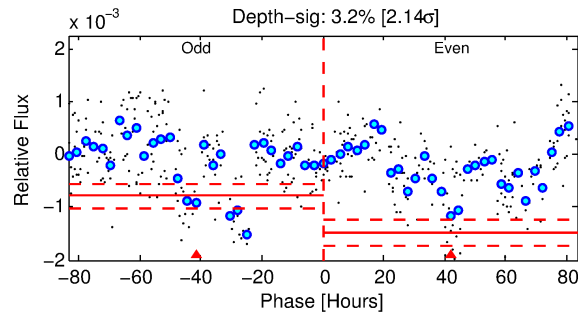
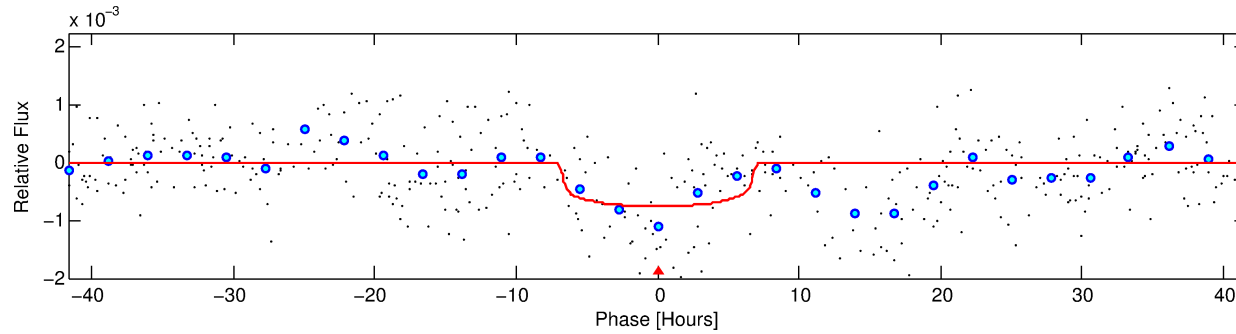
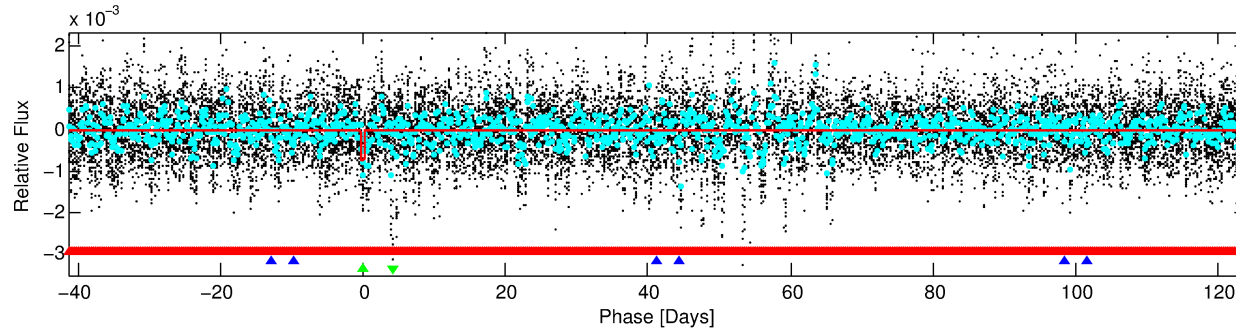
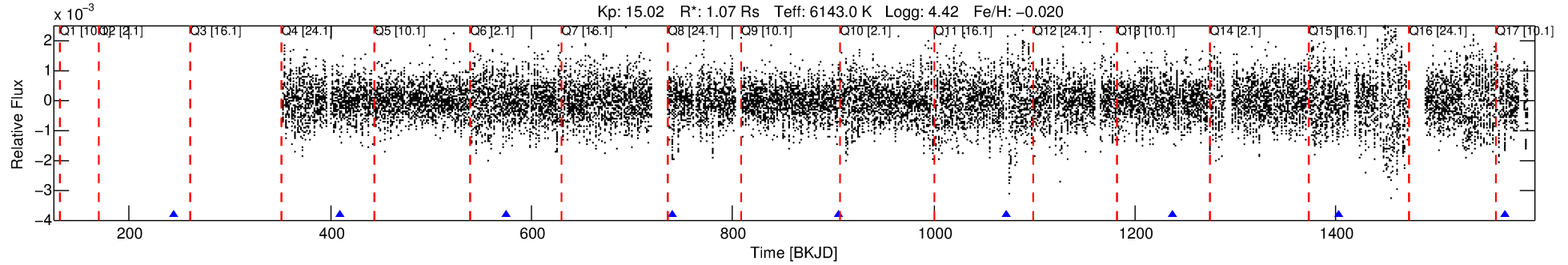
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003228945-03

No Significant Match Found

DV One-Page Summary

KIC: 3228945 Candidate: 3 of 3 Period: 165.362 d
KOI: K02917 Corr: No Ephemeris Match



DV Fit Results:

Period = 165.36178 [0.00482] d
Epoch = 244.6244 [0.0173] BKJD
Rp/R* = 0.0256 [0.0171]
a/R* = 85.70 [273.21]
b = 0.40 [6.60]
Seff = 3.95 [1.71]
Teq = 359 [39] K
Rp = 2.98 [2.22] Re
a = 0.6064 [0.1667] AU
Ag = 15968.58 [23223.35] [0.69 σ]
Teffp = 6248 [2200] K [2.68 σ]

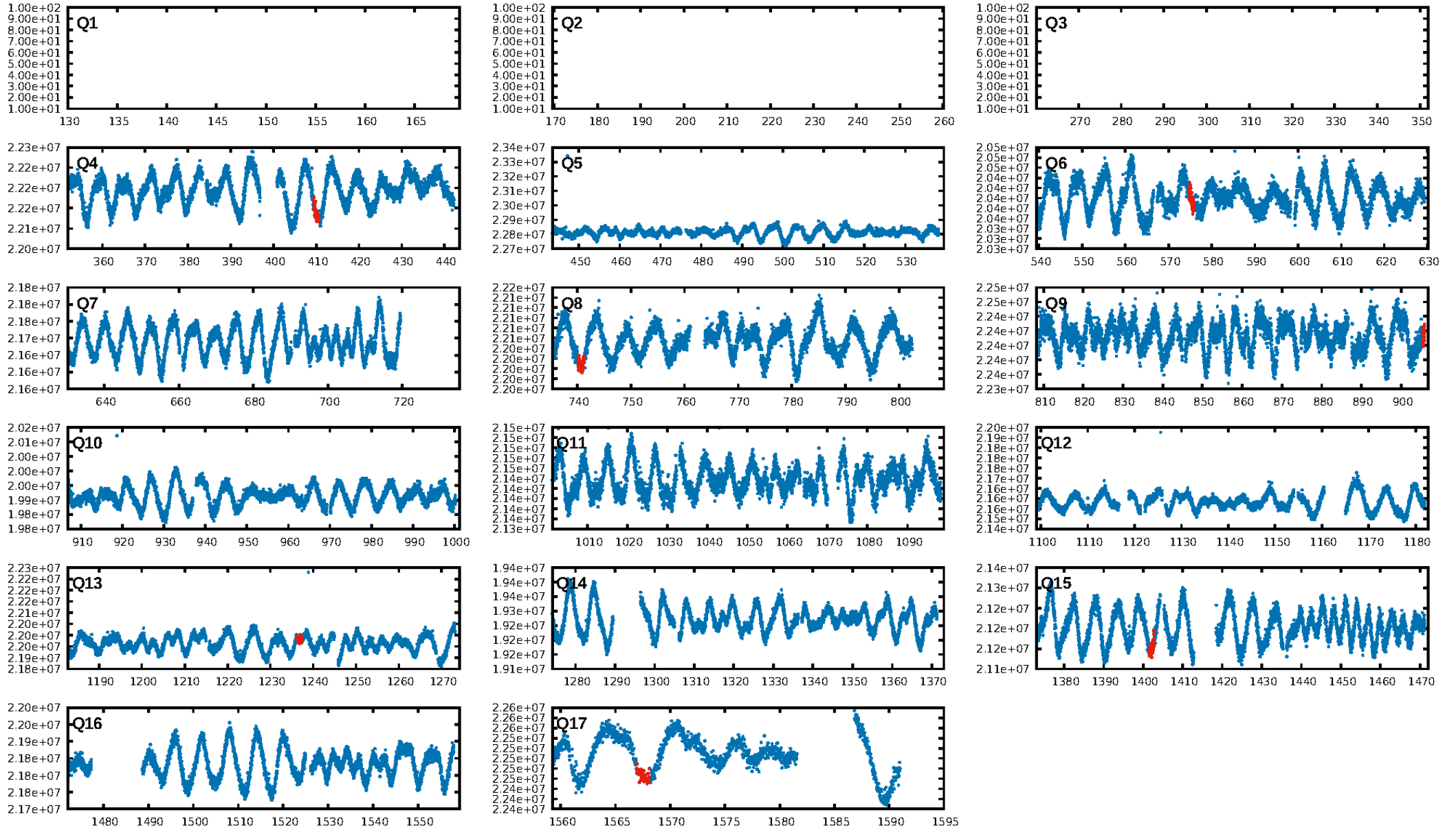
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [275.84 σ]
LongPeriod-sig: 100.0% [87.29 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.18e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 3.386
Centroid-sig: 24.1%
Centroid-so: 1.091 arcsec [1.55 σ]
OotOffset-rm: 0.339 arcsec [1.16 σ]
KicOffset-rm: 0.395 arcsec [0.94 σ]
OotOffset-st: 1/1/2/2 [6]
KicOffset-st: 1/1/2/2 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/6]

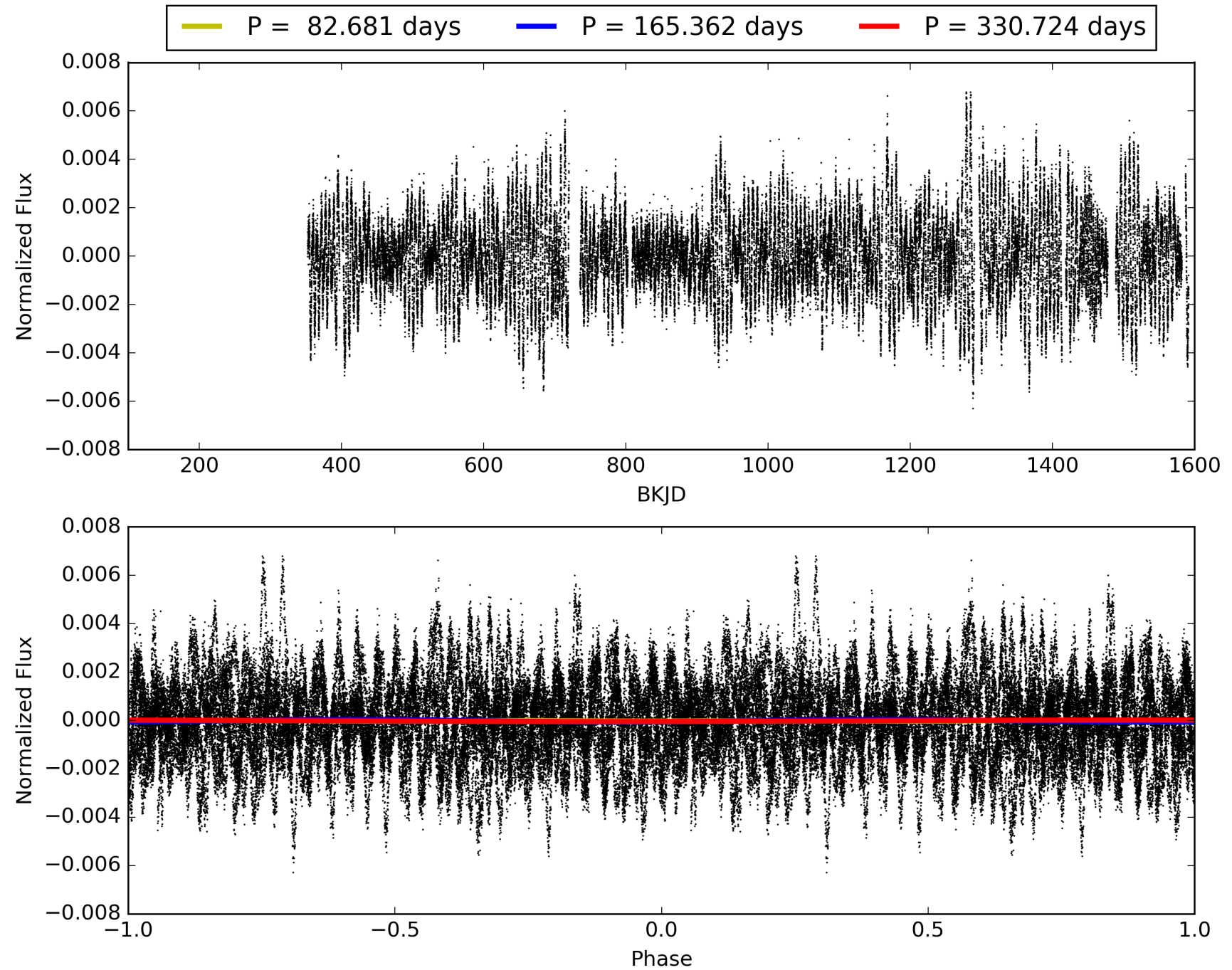
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:55:34 Z

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

TCE 003228945-03, PDC Light Curves

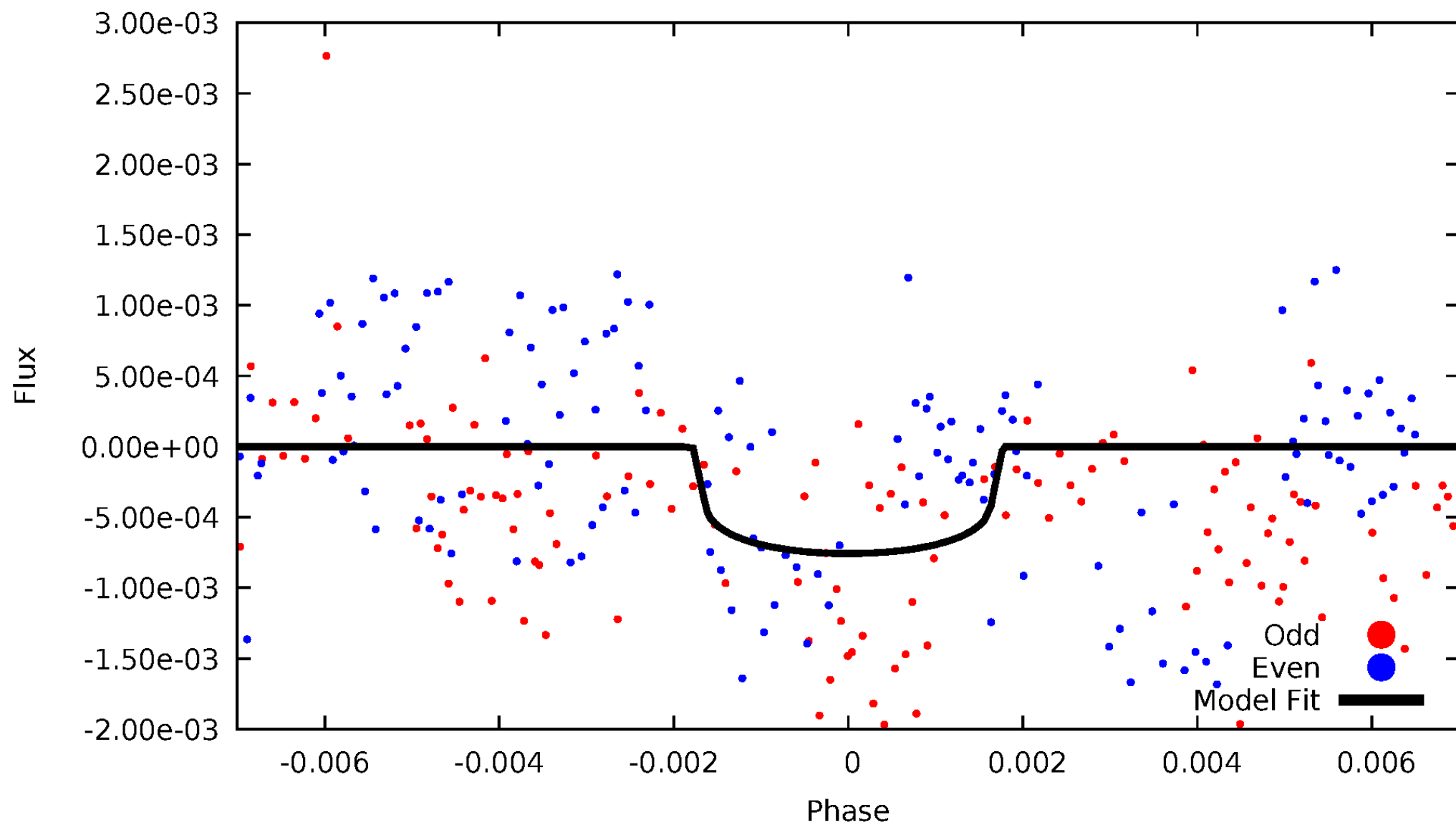


TCE 003228945-03



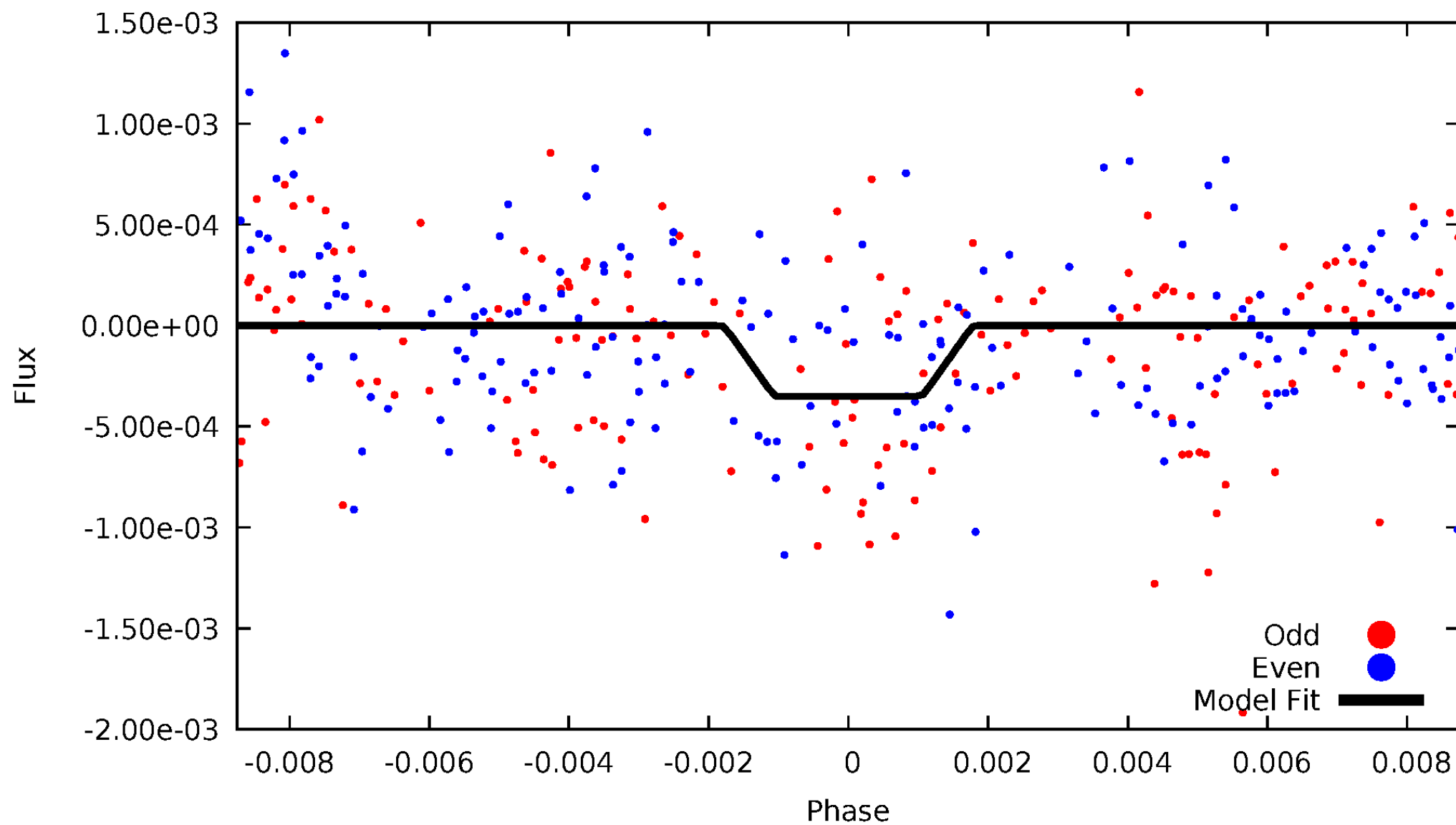
DV Odd/Even

TCE 003228945-03

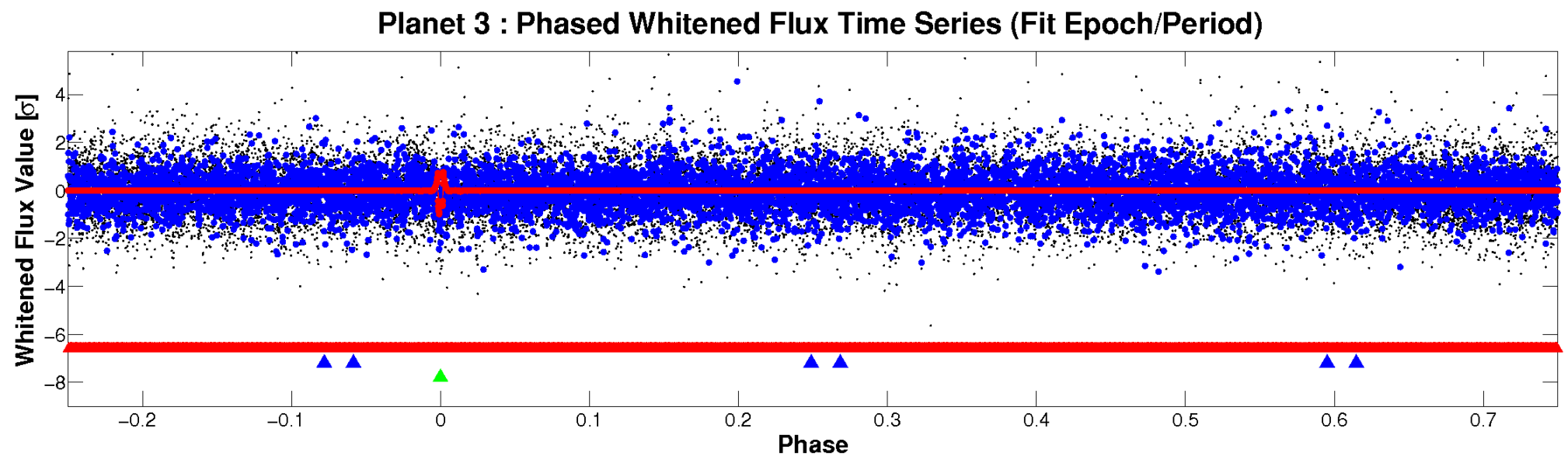
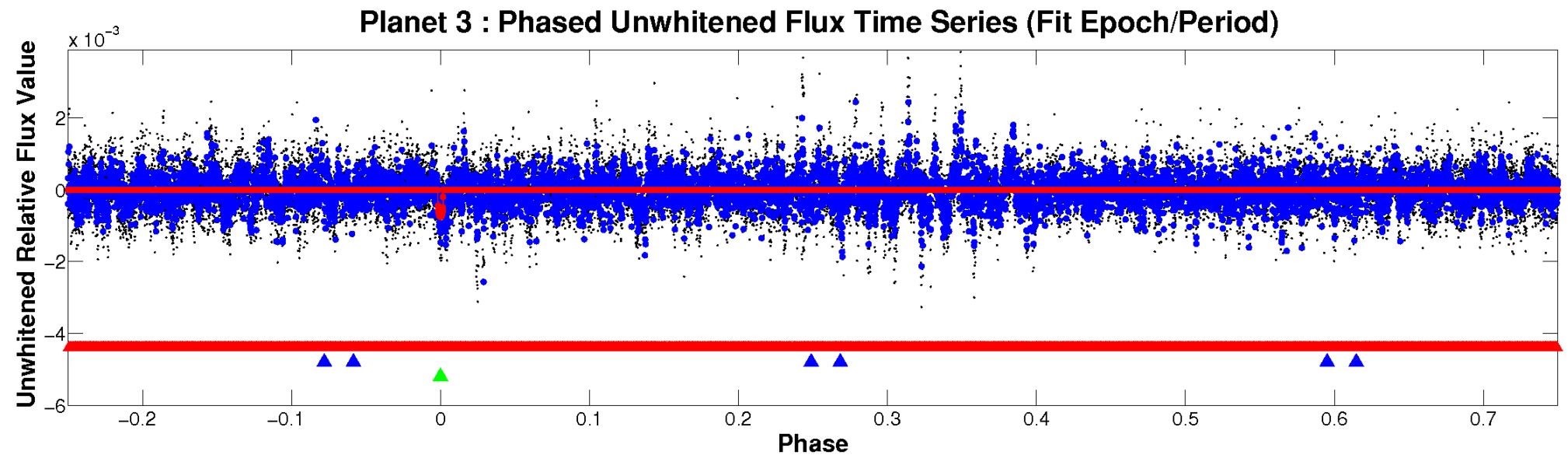


ALT Odd/Even

TCE 003228945-03

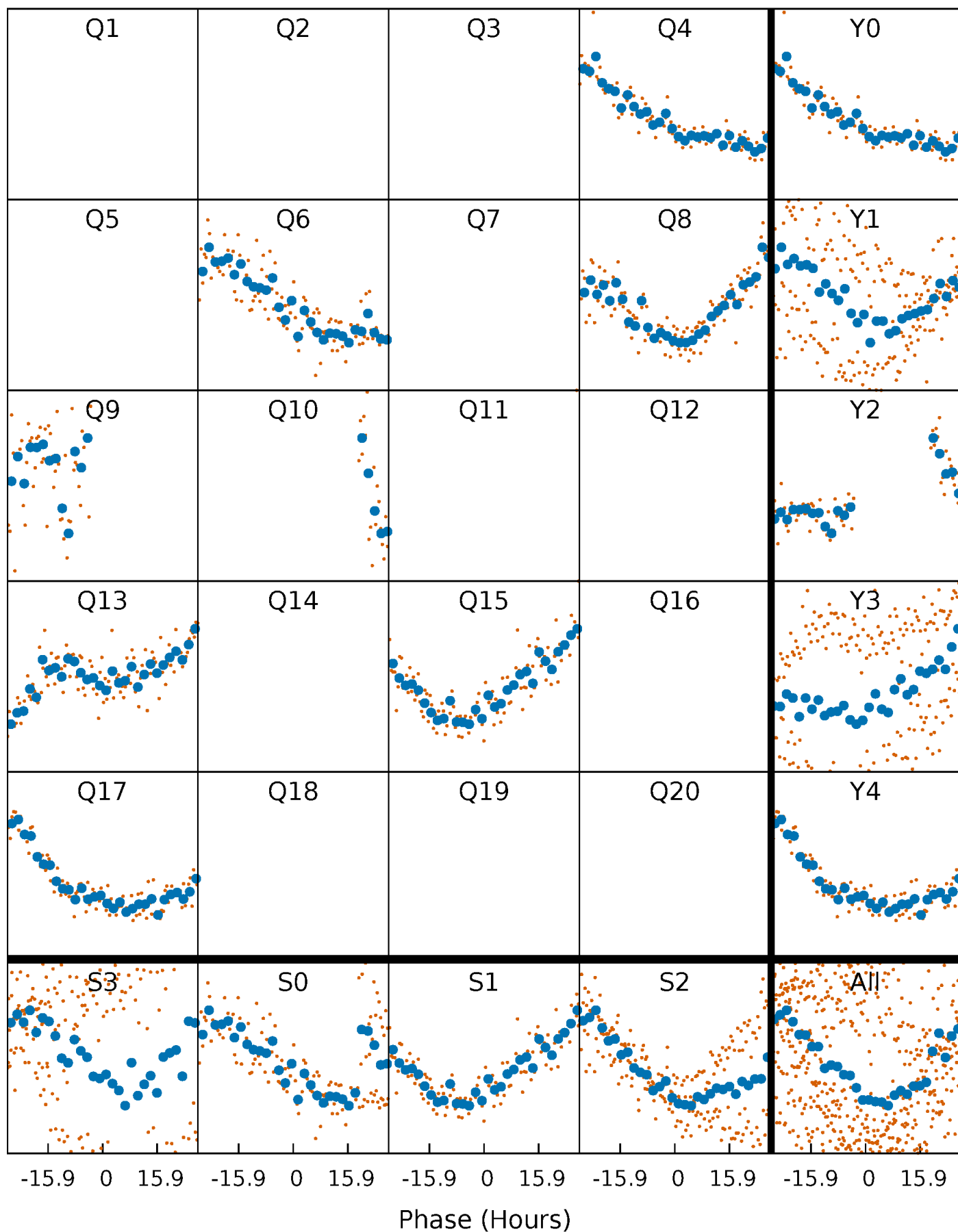


Non-Whitened Vs. Whitened Light Curve



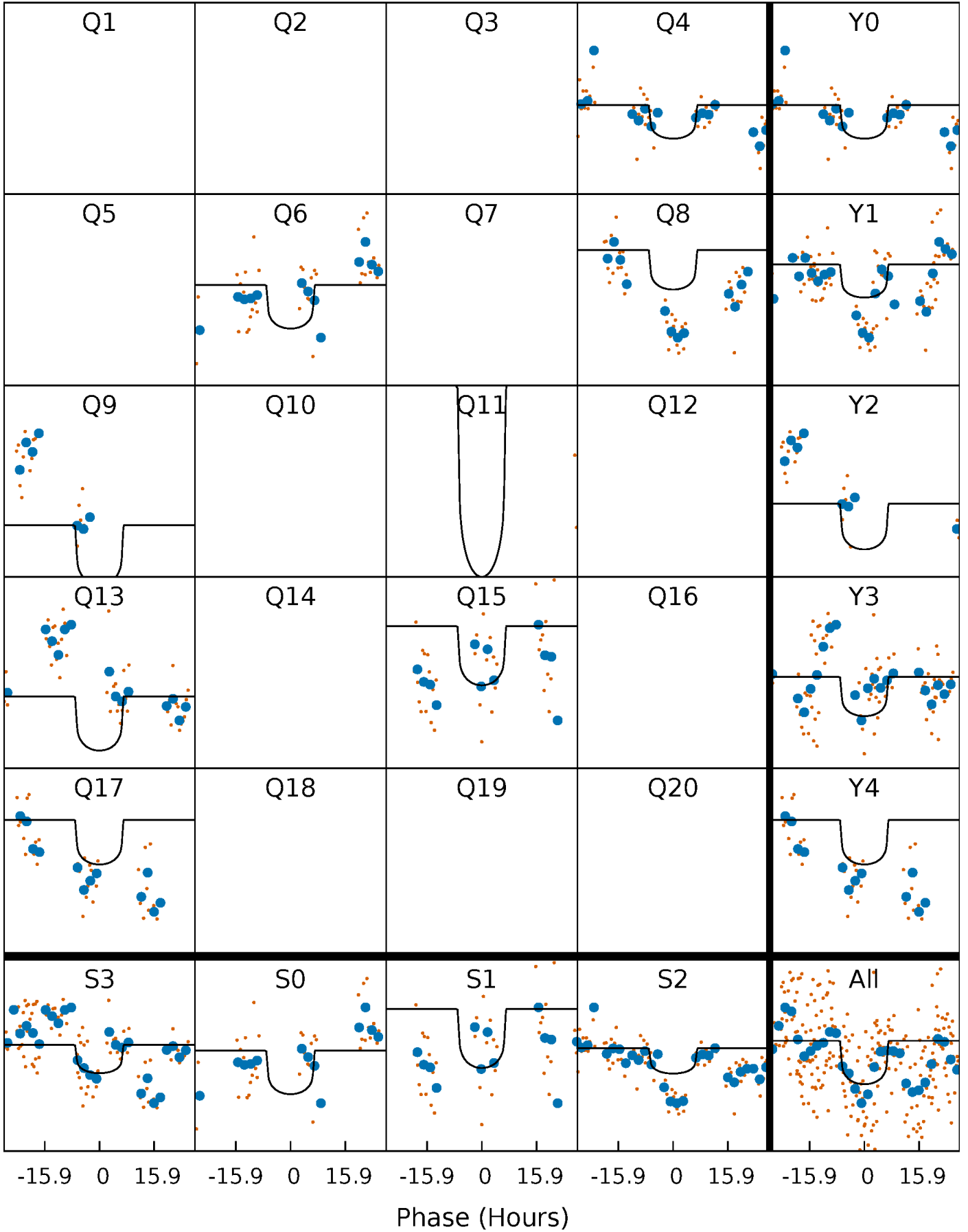
PDC Quarter-Phased Transit Curves

TCE 003228945-03 P=165.361779 Days $T_0=244.624360$ (BKJD)



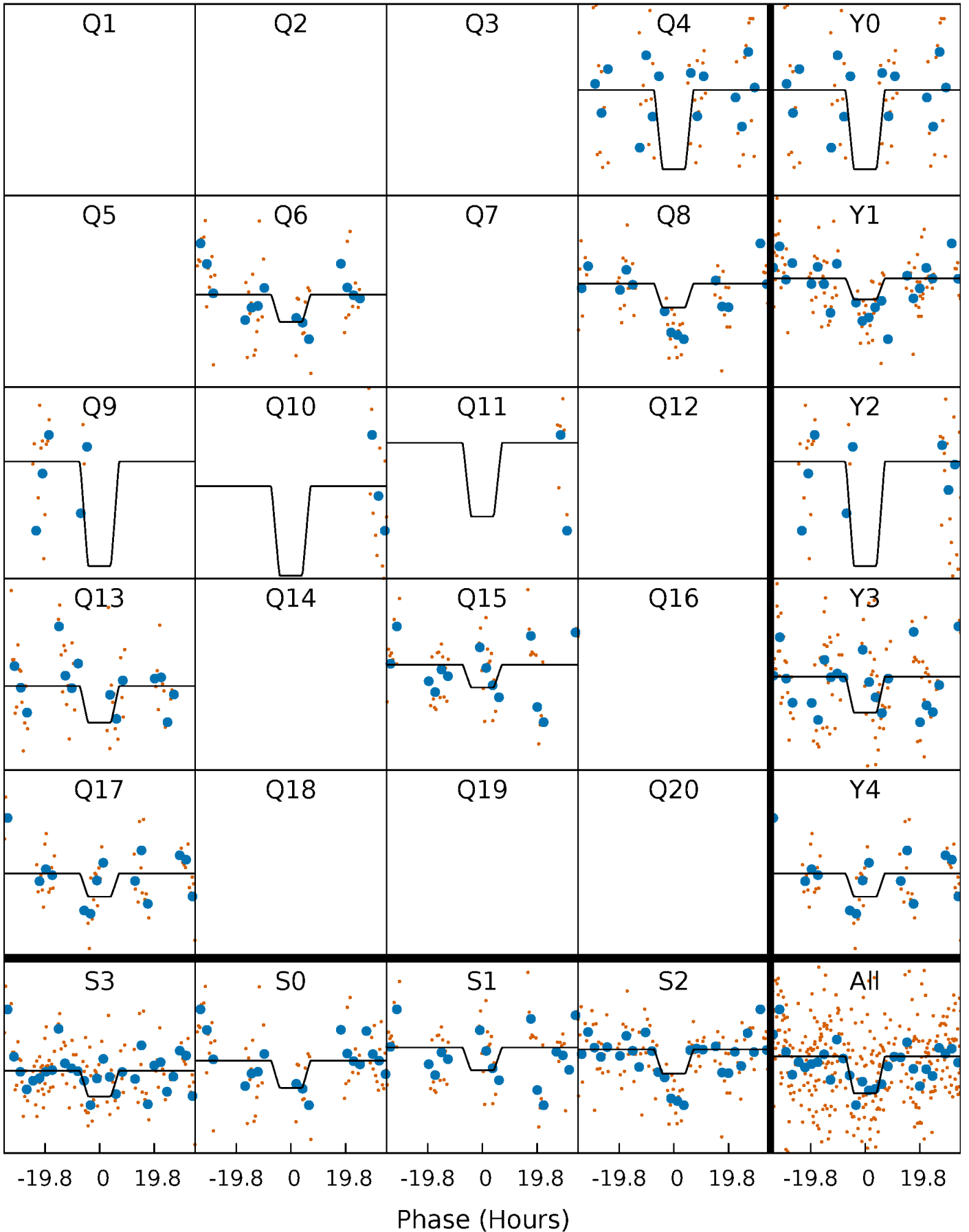
DV Quarter-Phased Transit Curves

TCE 003228945-03 $P=165.361779$ Days $T_0=244.624360$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

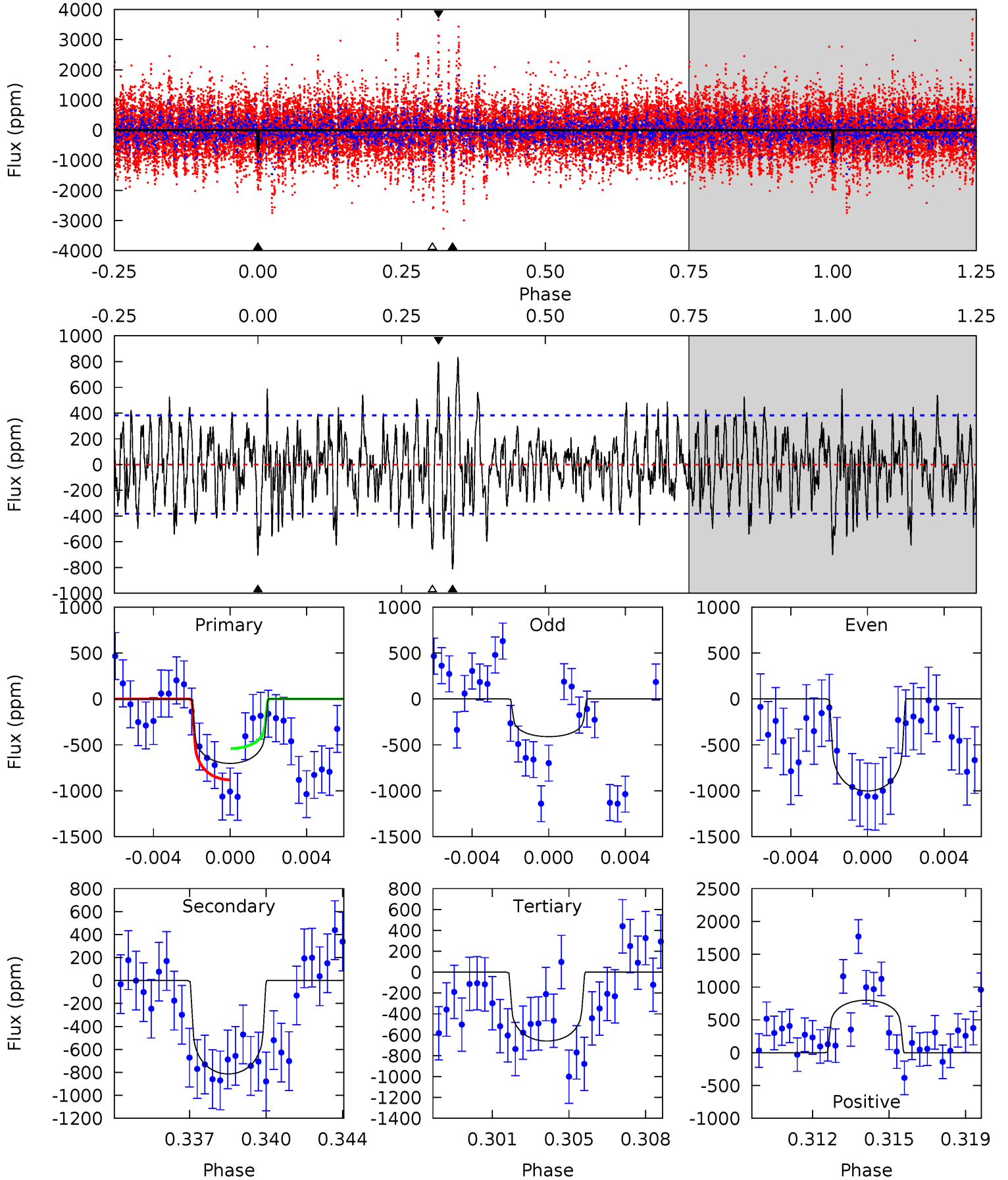
TCE 003228945-03 P=165.348367 Days $T_0=244.682150$ (BKJD)



DV Model-Shift Uniqueness Test

003228945-03, P = 165.361779 Days, E = 244.624360 Days

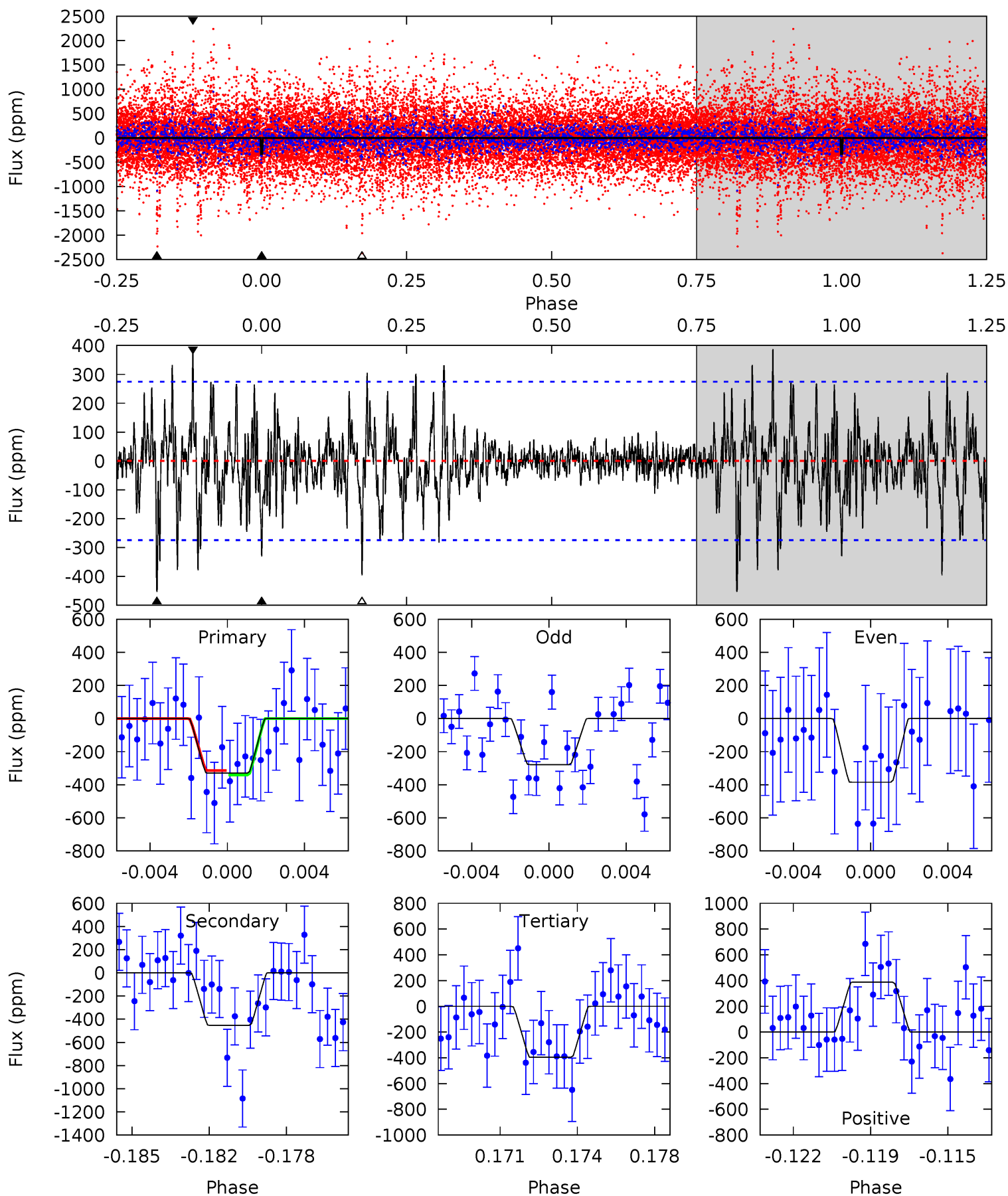
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.59	11.1	9.02	10.9	5.22	2.91	2.95	0.58	-1.31	2.10	0.22	4.00	1.00	0.51	2.33



Alt Model-Shift Uniqueness Test

003228945-03, P = 165.348367 Days, E = 244.682150 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.27	8.61	7.53	7.36	5.21	2.90	1.72	-1.26	-1.09	1.08	1.24	1.00	1.72	0.46	0.25



Stellar Parameters For KIC 003228945

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6143^{+193}_{-257}	$4.418^{+0.072}_{-0.217}$	$-0.020^{+0.250}_{-0.300}$	$1.067^{+0.350}_{-0.150}$	$1.085^{+0.166}_{-0.135}$	$1.259^{+0.470}_{-0.689}$
	+3%/-4%	+2%/-5%	+1250%/-1500%	+33%/-14%	+15%/-12%	+37%/-55%
Source	KIC0	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 003228945-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-814 ± 73	$3.31^{+2.11}_{-1.73}$	513^{+45}_{-28}	6268^{+3586}_{-1209}	14478^{+50269}_{-8938}
Alt.	-453 ± 53	$2.70^{+2.07}_{-1.71}$	513^{+44}_{-29}	6035^{+4913}_{-1375}	12264^{+79800}_{-8340}

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

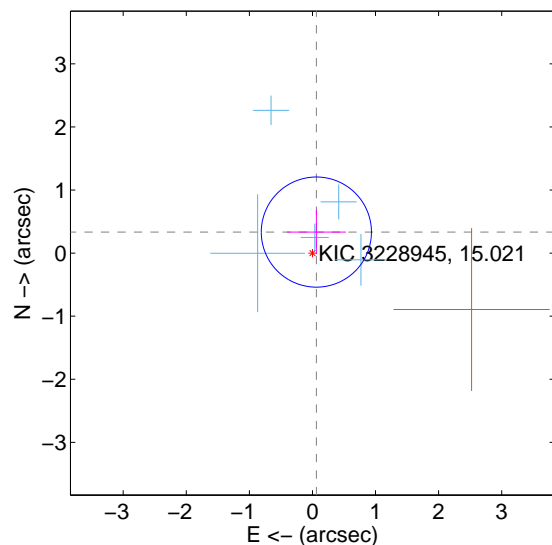
Supplemental centroid analysis for 003228945-03. Kepler magnitude: 15.02. Transit SNR 6.02

There are 5 quarters with good PRF difference image offsets

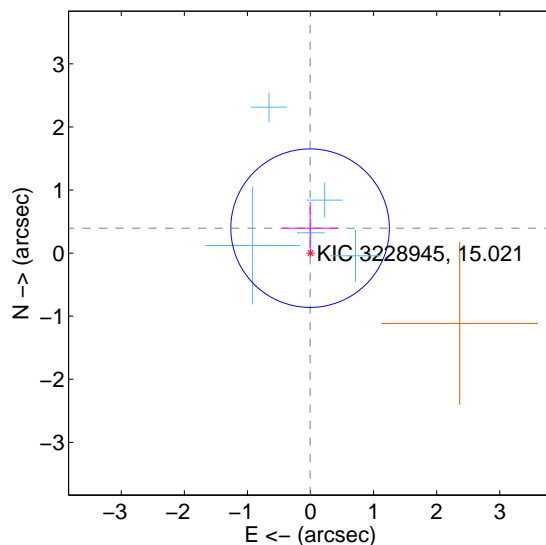
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.339 ± 0.291	1.16	-0.062 ± 0.468	0.333 ± 0.349
PRF-fit source offset from KIC position	0.395 ± 0.419	0.94	0.007 ± 0.448	0.395 ± 0.414
photometric centroid source offset	1.09 ± 0.70	1.55	1.08 ± 0.70	0.14 ± 0.66

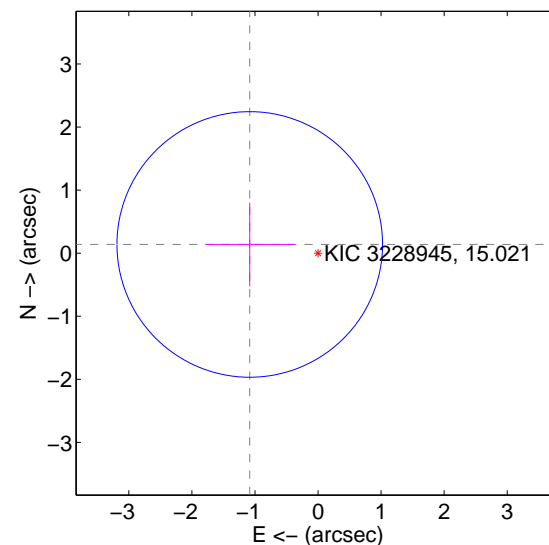
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

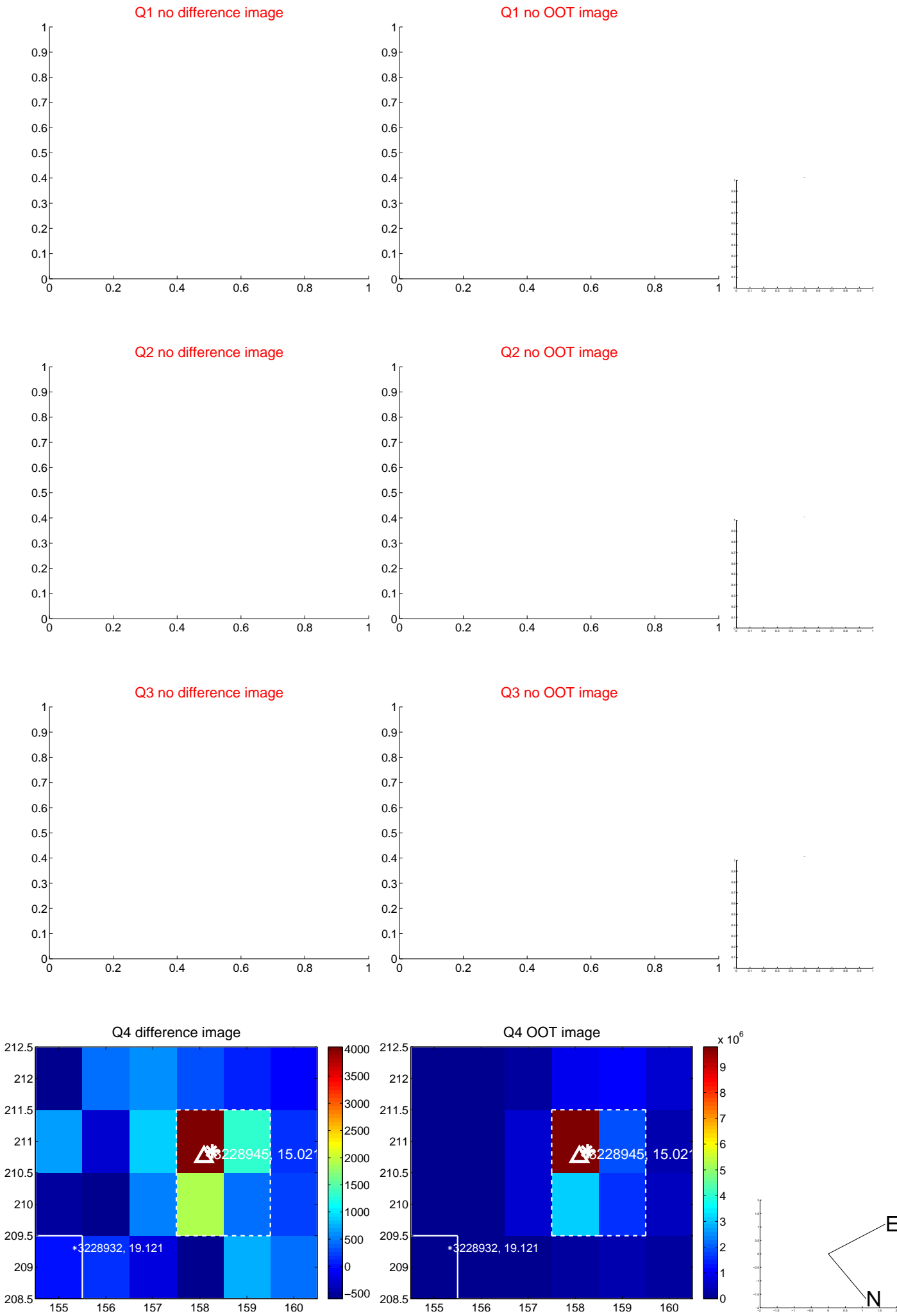


offset from photometric centroids

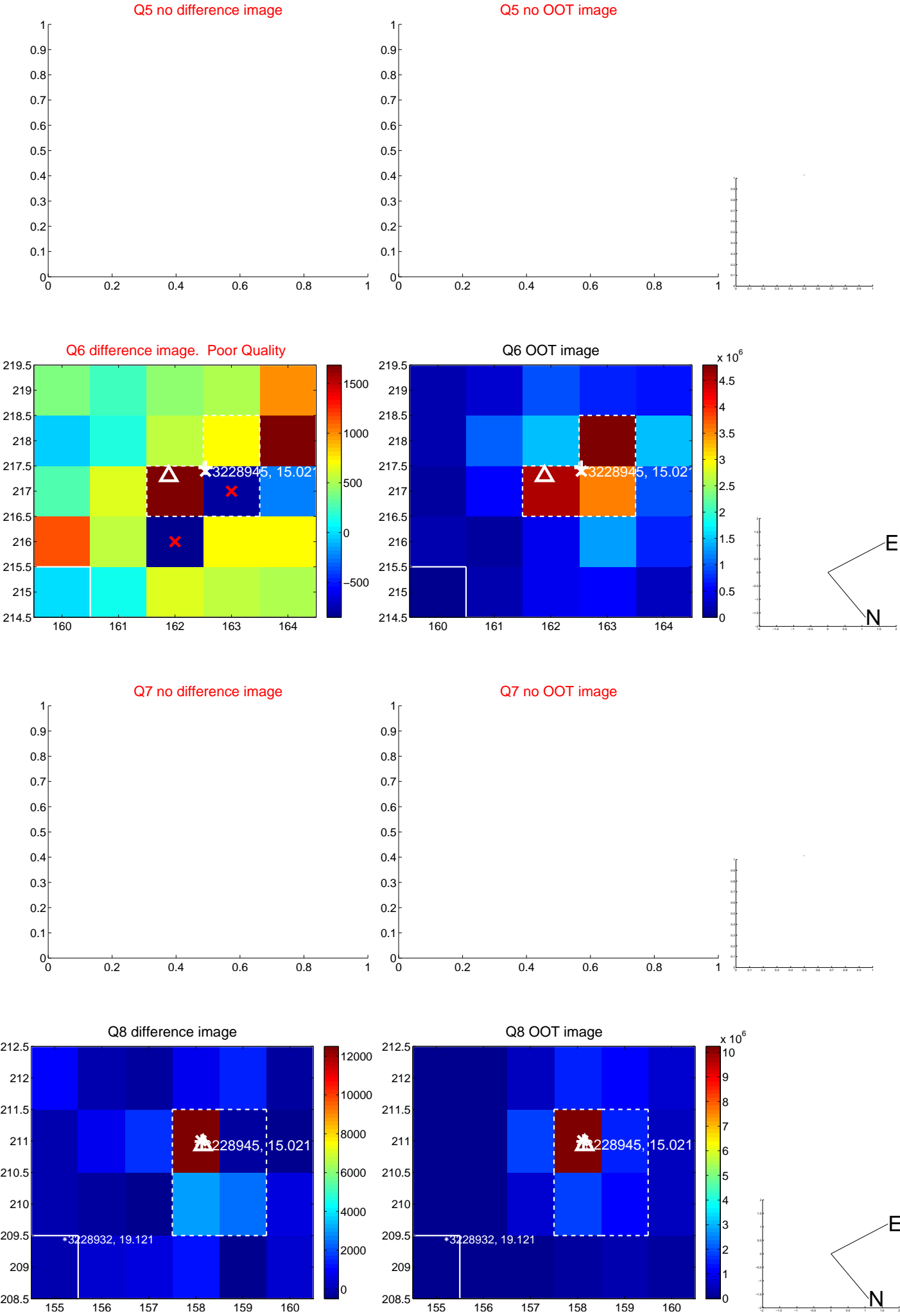


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



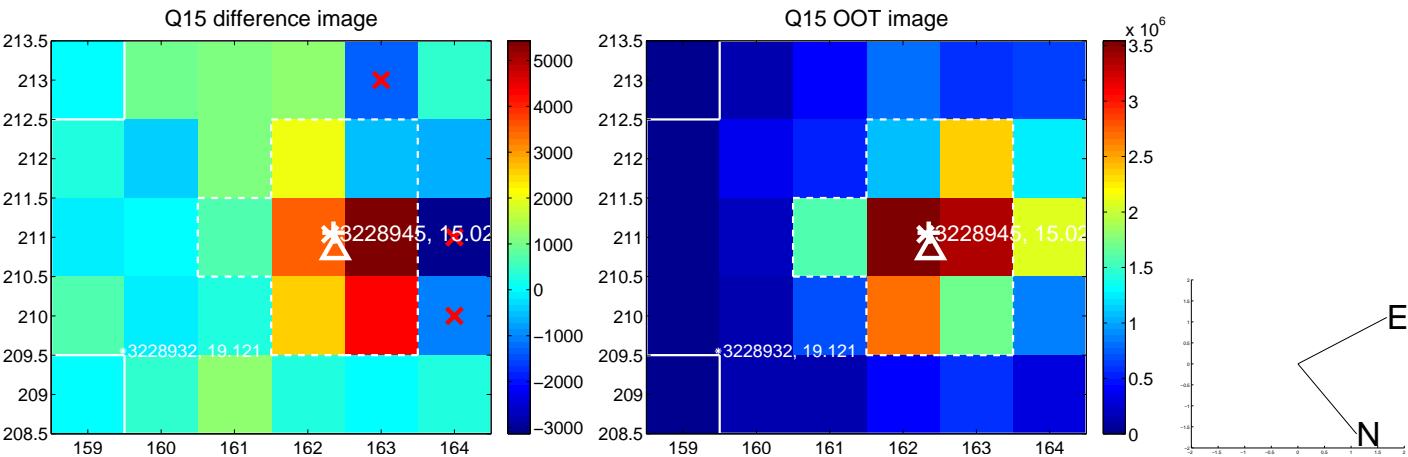
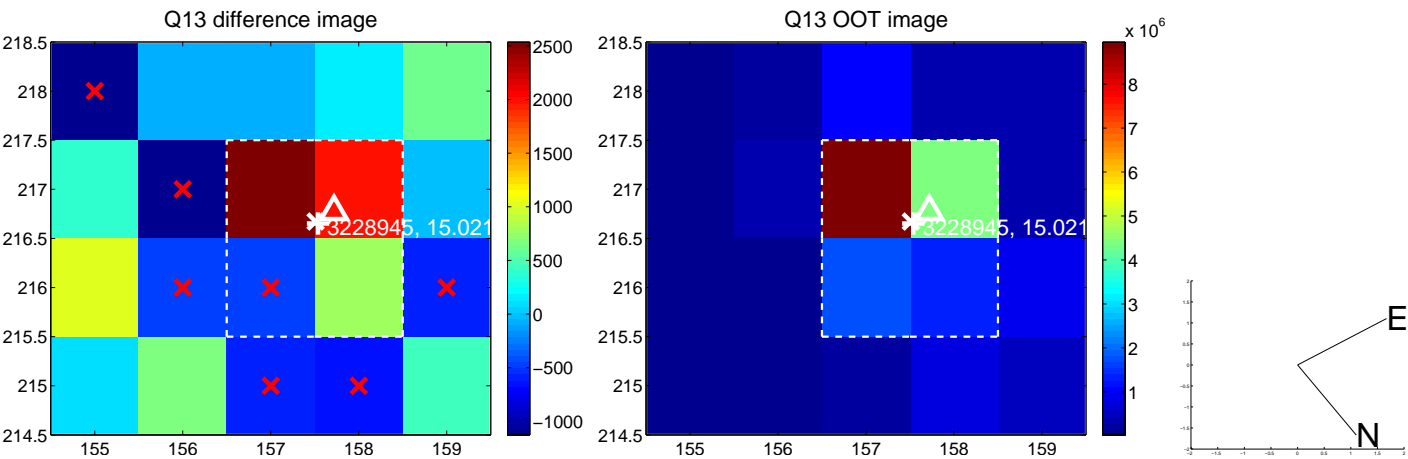
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



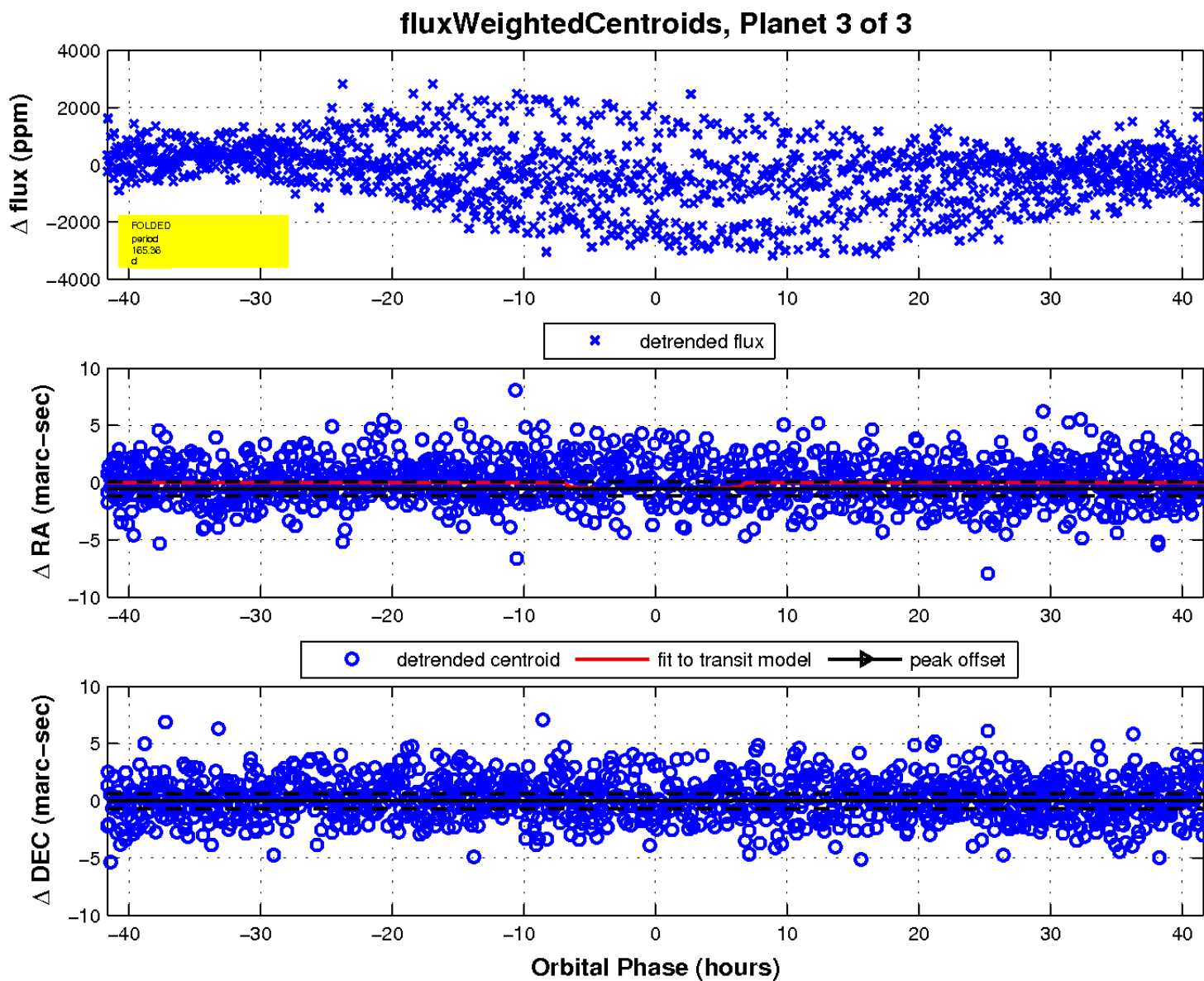
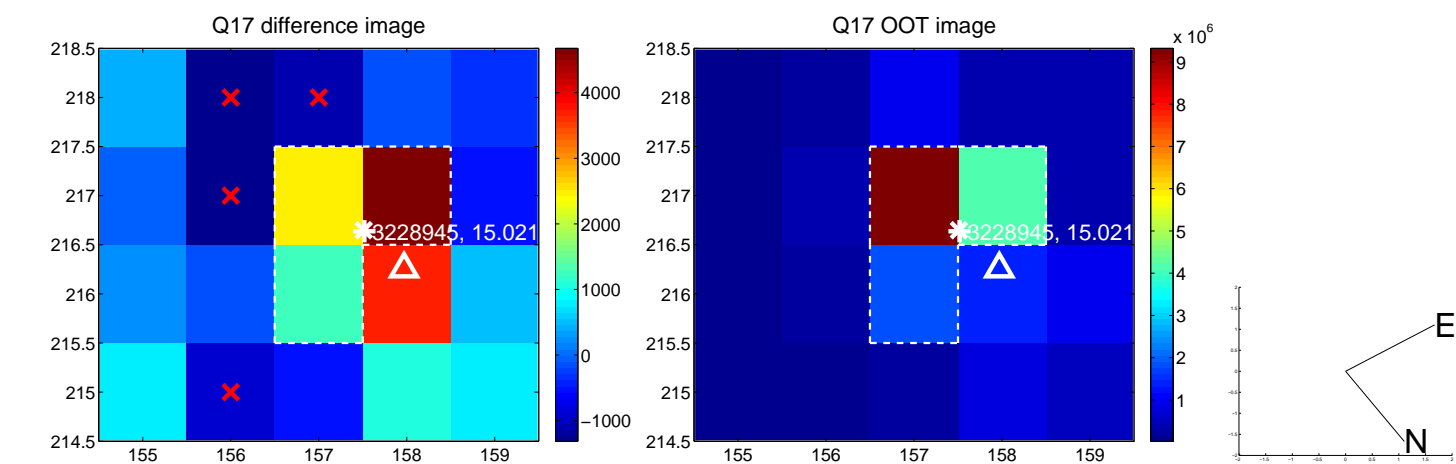
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

