

KIC 008176634

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})
008176634-01	OBS	No	3.633366	134.602477	20.0	13.333	7.9	5.4	2.07	6214	1.07	2351.91
008176634-02	OBS	No	476.849095	575.109178	410.6	15.717	12.4	8.5	2.07	6214	5.48	3.53
008176634-03	OBS	No	228.463315	156.146177	214.5	16.220	7.8	6.6	2.07	6214	3.32	9.41
008176634-04	OBS	No	44.089485	165.170492	118.6	3.486	7.5	7.0	2.07	6214	2.48	84.34
008176634-05	OBS	No	178.797154	282.997768	254.4	11.184	7.4	7.0	2.07	6214	4.39	13.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176634-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008176634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—MOD_NONUNIQ_ALT
008176634-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

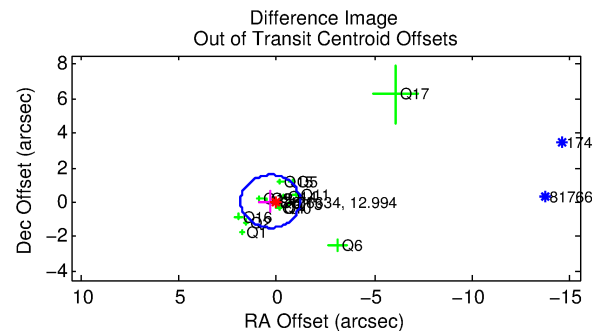
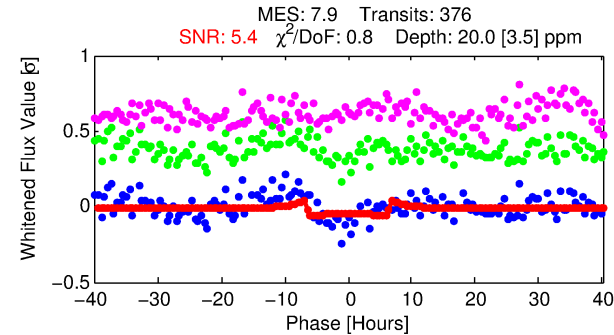
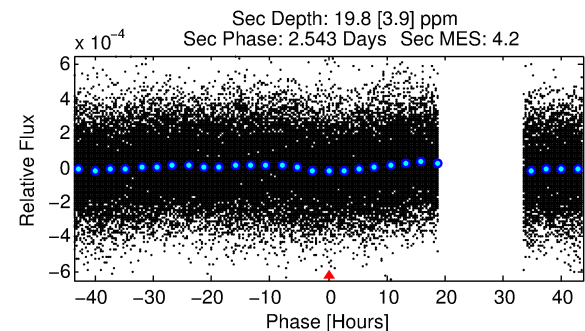
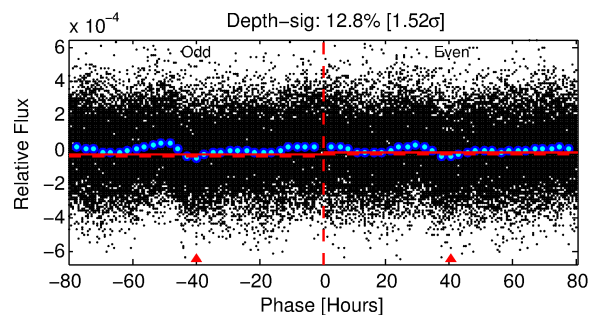
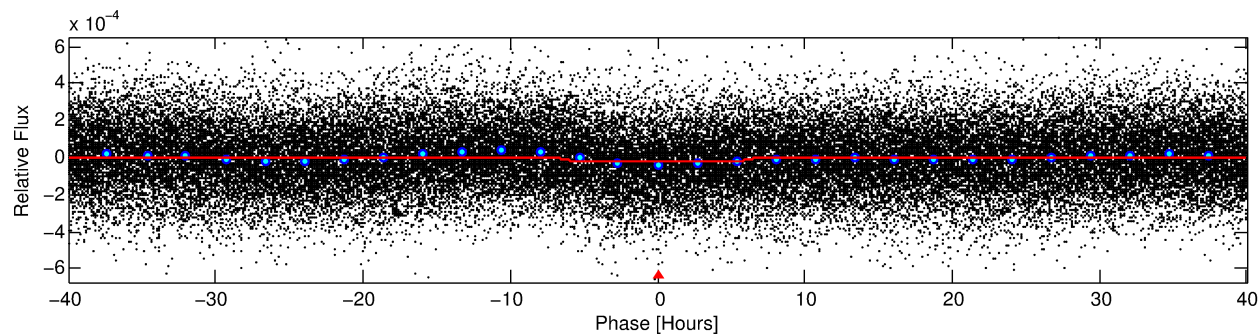
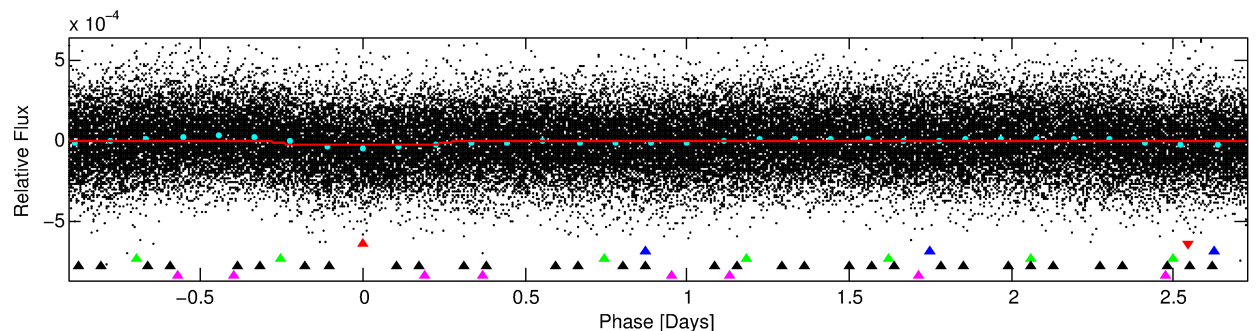
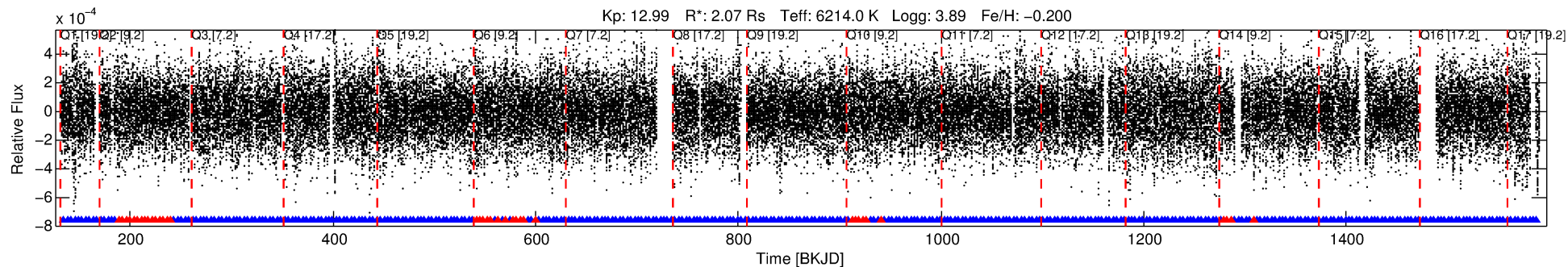
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176634-01

No Significant Match Found

DV One-Page Summary

KIC: 8176634 Candidate: 1 of 5 Period: 3.633 d



DV Fit Results:

Period = 3.63337 [0.00006] d
Epoch = 134.6025 [0.0099] BKJD
Rp/R* = 0.0047 [0.0010]
a/R* = 1.35 [0.65]
b = 0.89 [0.26]
Seff = 2351.91 [1162.26]
Teff = 1776 [219] K
Rp = 1.07 [0.42] Re
a = 0.0494 [0.0151] AU
Ag = 23.01 [15.42] [1.43σ]
Teffp = 6013 [719] K [5.63σ]

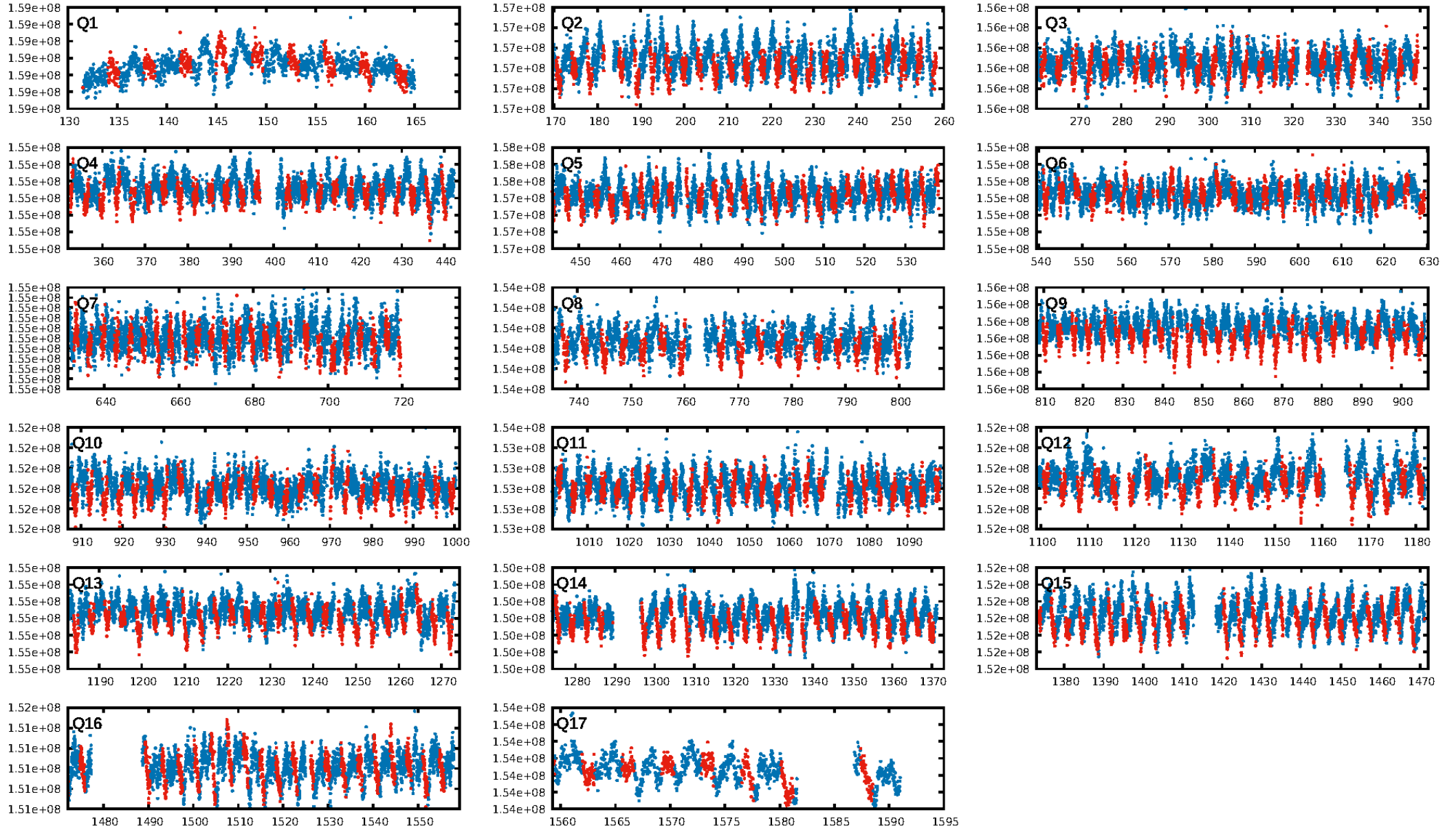
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [70.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.17e-09
RollingBand-fgt: 0.90 [323/360]
GhostDiagnostic-chr: 0.8661
Centroid-sig: 0.8%
Centroid-so: 2.431 arcsec [2.49σ]
OotOffset-rm: 0.330 arcsec [0.65σ]
KicOffset-rm: 0.242 arcsec [0.43σ]
OotOffset-st: 4/2/4/5 [15]
KicOffset-st: 4/2/4/5 [15]
DiffImageQuality-fgm: 0.67 [10/15]
DiffImageOverlap-fno: 1.00 [17/17]

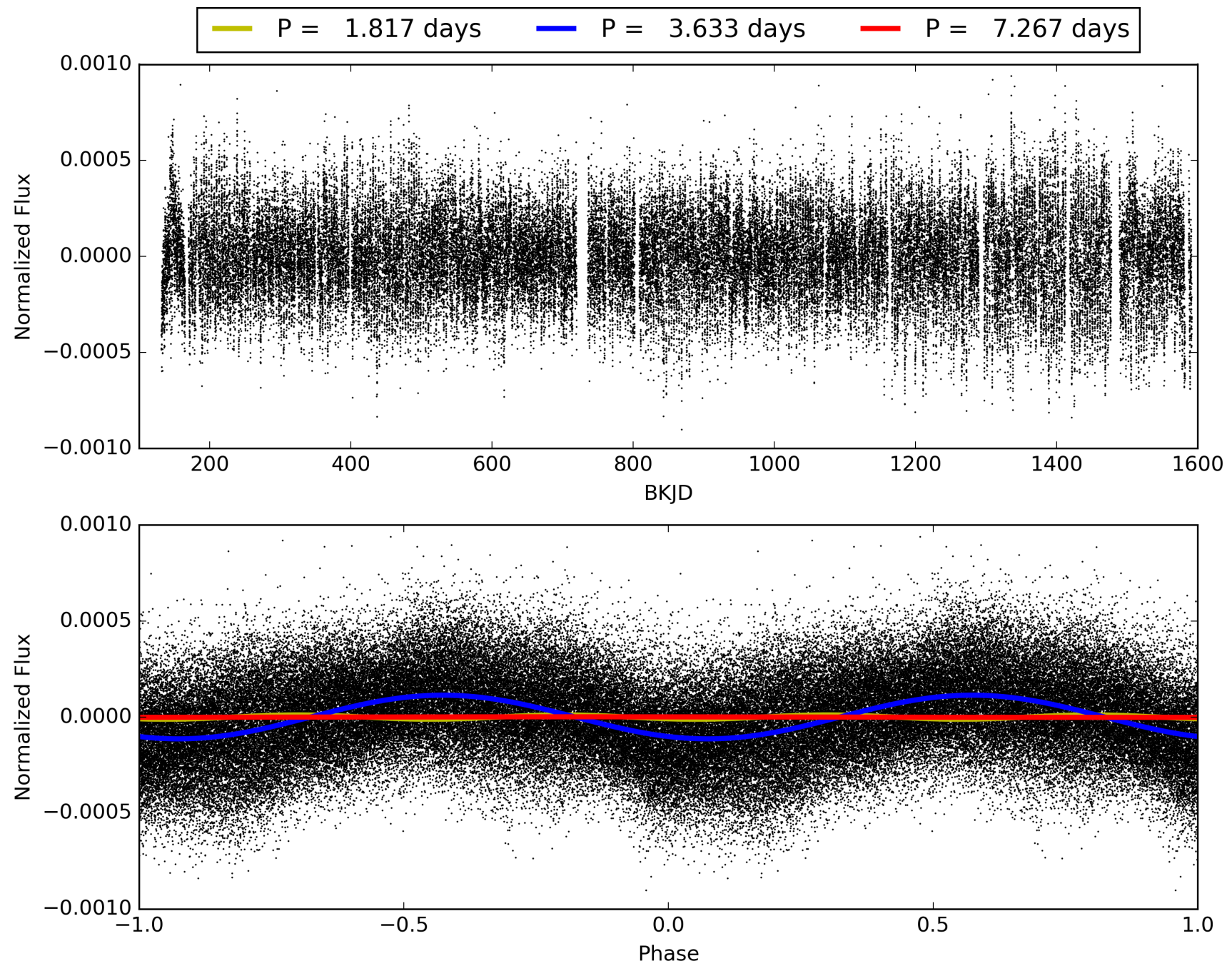
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008176634-01, PDC Light Curves

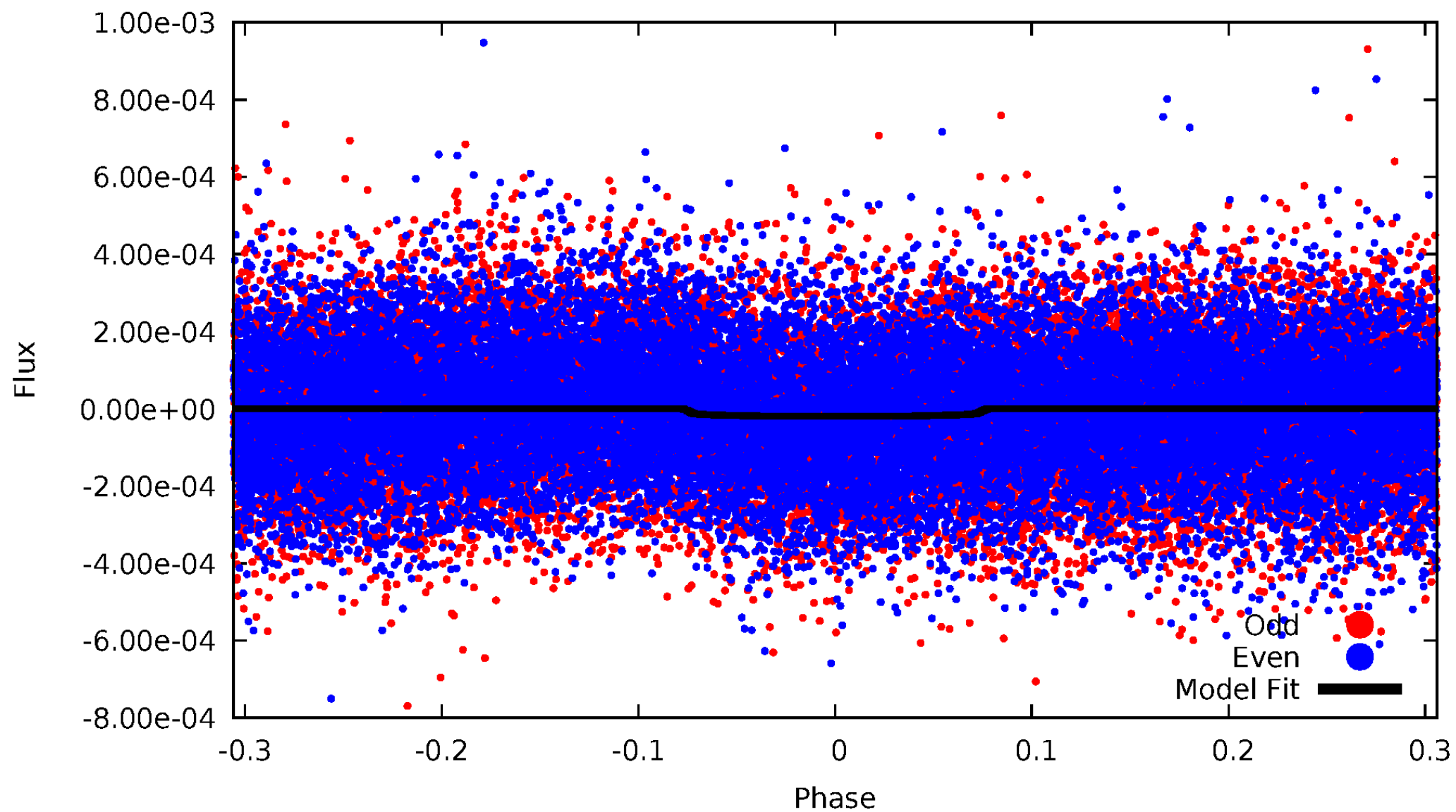


TCE 008176634-01



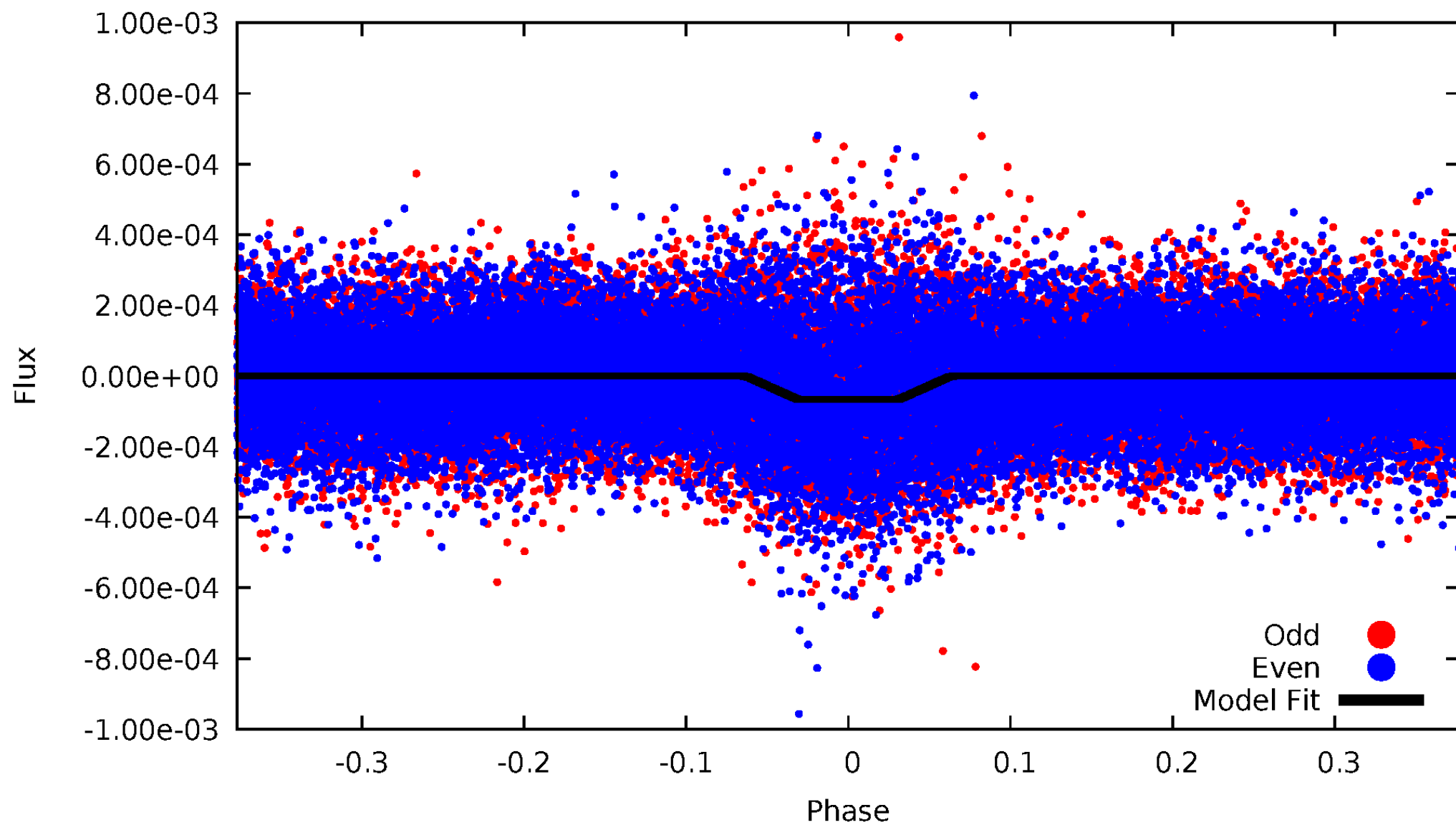
DV Odd/Even

TCE 008176634-01

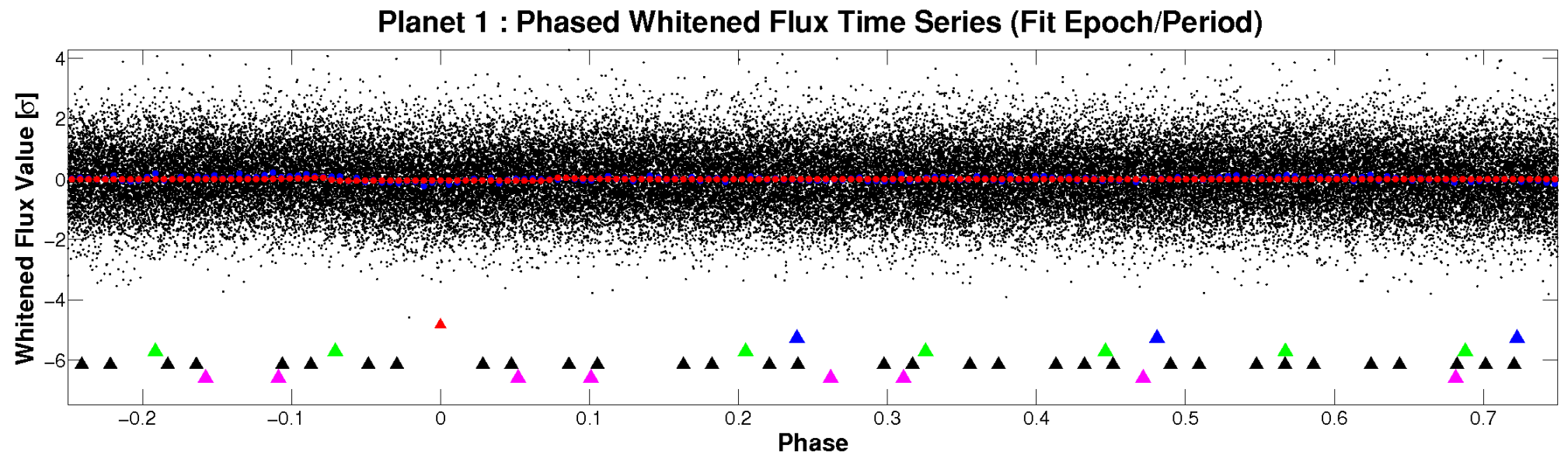
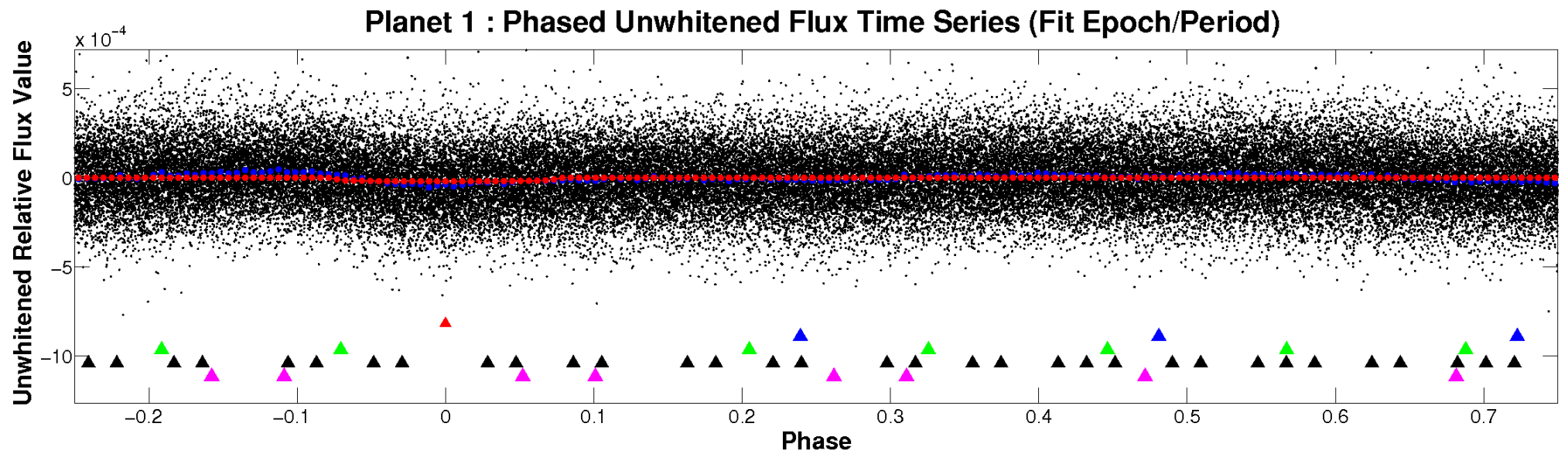


ALT Odd/Even

TCE 008176634-01

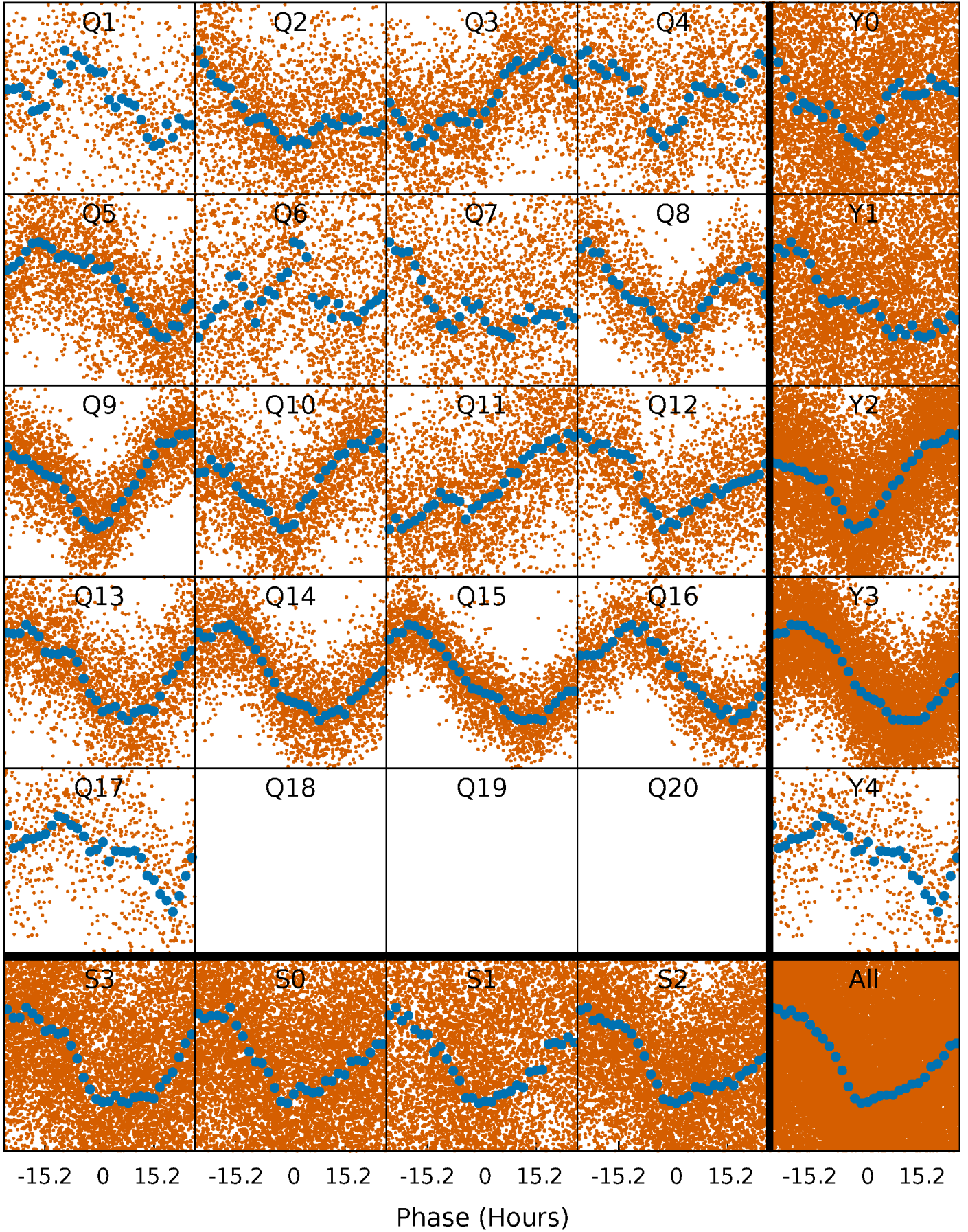


Non-Whitened Vs. Whitened Light Curve



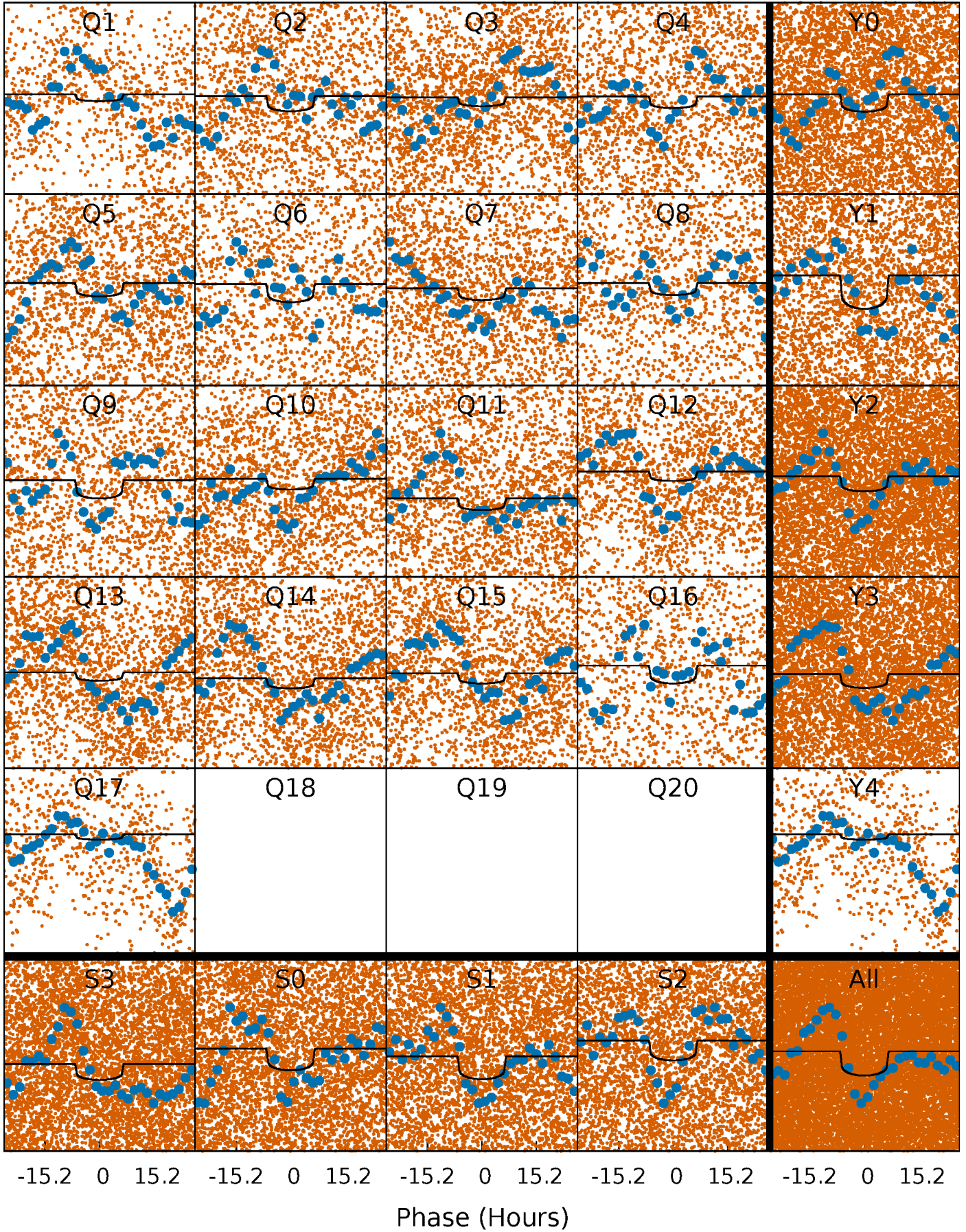
PDC Quarter-Phased Transit Curves

TCE 008176634-01 P= 3.633366 Days $T_0=134.602477$ (BKJD)



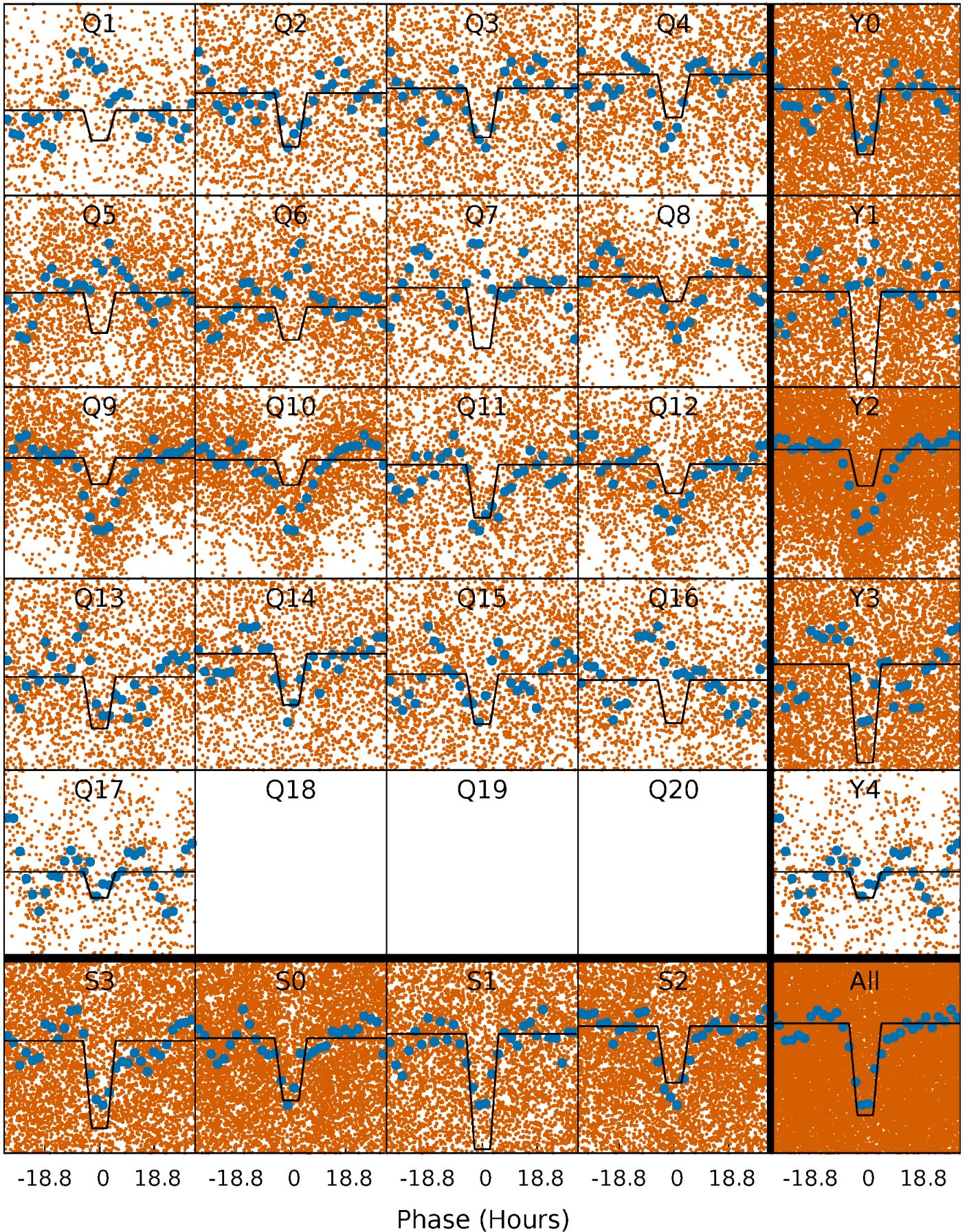
DV Quarter-Phased Transit Curves

TCE 008176634-01 P= 3.633366 Days $T_0=134.602477$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

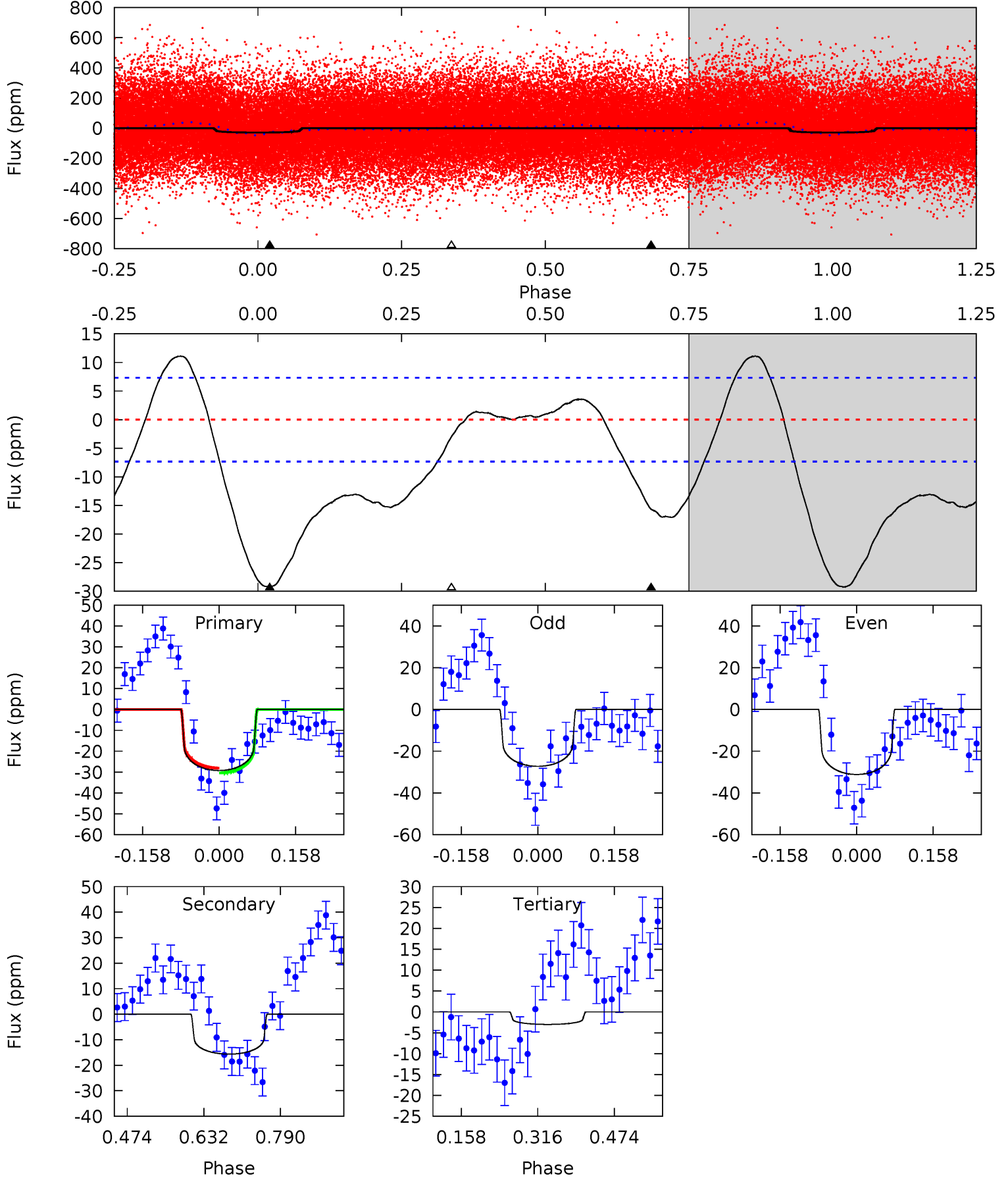
TCE 008176634-01 P= 3.633129 Days $T_0=134.600222$ (BKJD)



DV Model-Shift Uniqueness Test

008176634-01, P = 3.633366 Days, E = 130.969111 Days

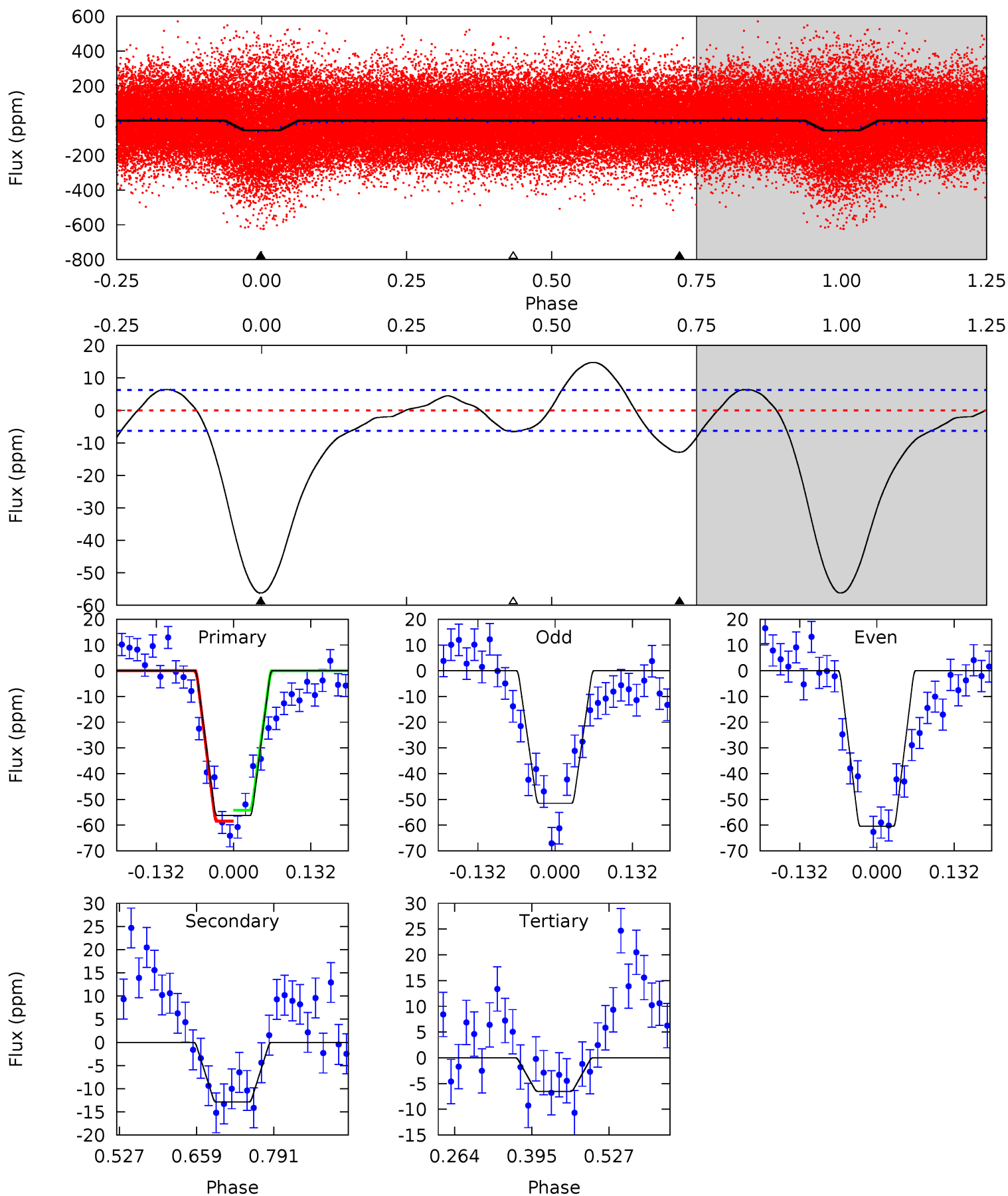
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	9.54	1.83	0	4.47	1.41	4.48	16.0	17.8	7.71	9.54	1.20	1.10	0.27	0.70



Alt Model-Shift Uniqueness Test

008176634-01, P = 3.633129 Days, E = 130.967093 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.3	9.24	4.67	0	4.51	1.51	4.39	35.7	40.3	4.57	9.24	3.21	0.86	0.21	1.52



Stellar Parameters For KIC 008176634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+171}_{-171}	$3.890^{+0.280}_{-0.100}$	$-0.200^{+0.300}_{-0.250}$	$2.071^{+0.451}_{-0.676}$	$1.215^{+0.225}_{-0.225}$	$0.193^{+0.353}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+22%/-33%	+19%/-19%	+183%/-36%
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 008176634-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-16 ± 2	$1.02^{+0.29}_{-0.25}$	2437^{+155}_{-204}	5673^{+693}_{-559}	20^{+16}_{-8}
Alt.	-13 ± 1	$1.79^{+0.33}_{-0.37}$	2424^{+161}_{-192}	4289^{+255}_{-235}	$5.495^{+3.041}_{-1.572}$

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

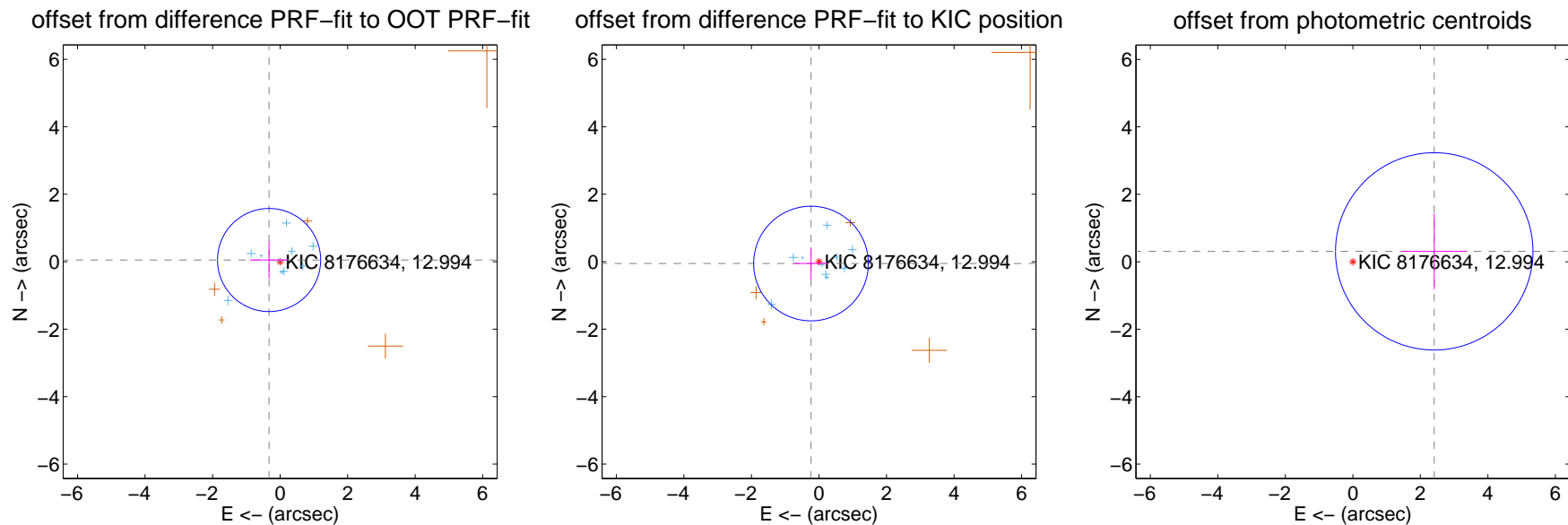
DV Centroid Data

Supplemental centroid analysis for 008176634-01. Kepler magnitude: 12.99. Transit SNR 5.41

There are 10 quarters with good PRF difference image offsets

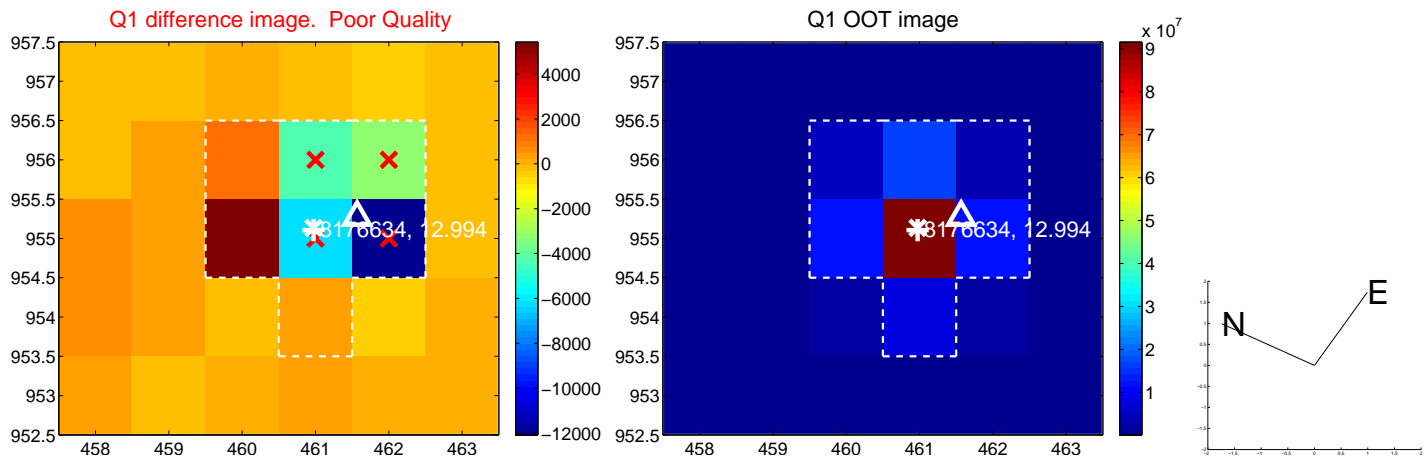
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.330 ± 0.509	0.65	0.326 ± 0.568	0.050 ± 0.546
PRF-fit source offset from KIC position	0.242 ± 0.566	0.43	0.236 ± 0.500	-0.054 ± 0.478
photometric centroid source offset	2.43 ± 0.98	2.49	-2.41 ± 0.97	0.31 ± 1.12

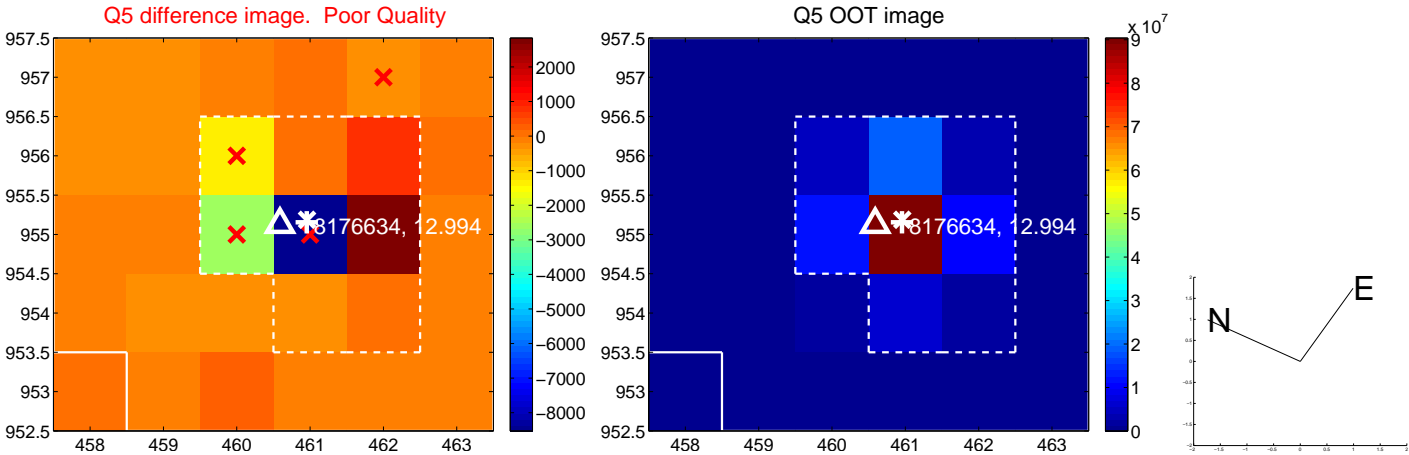


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

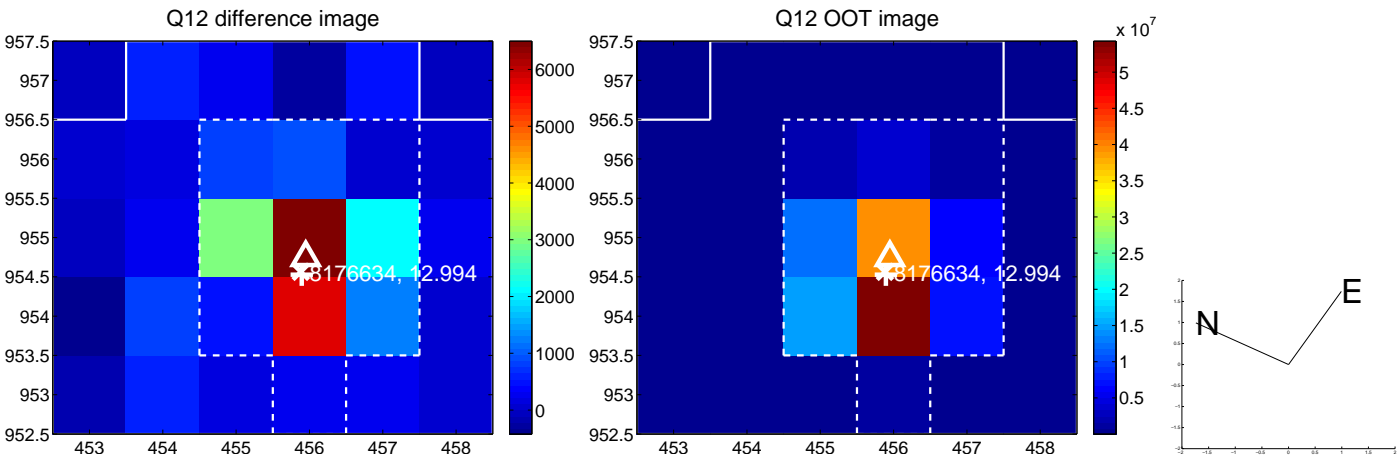
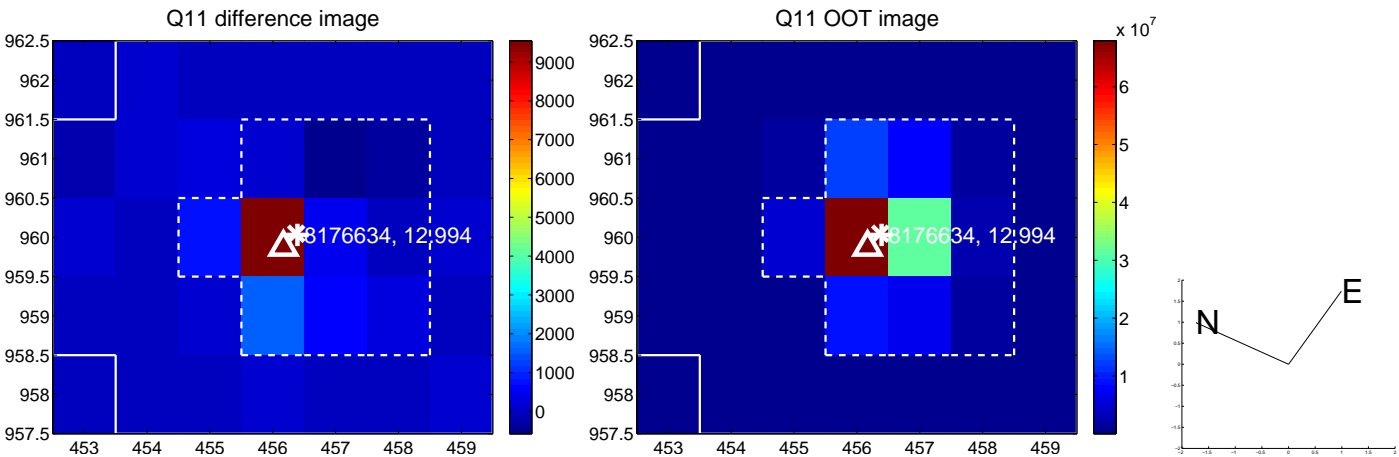
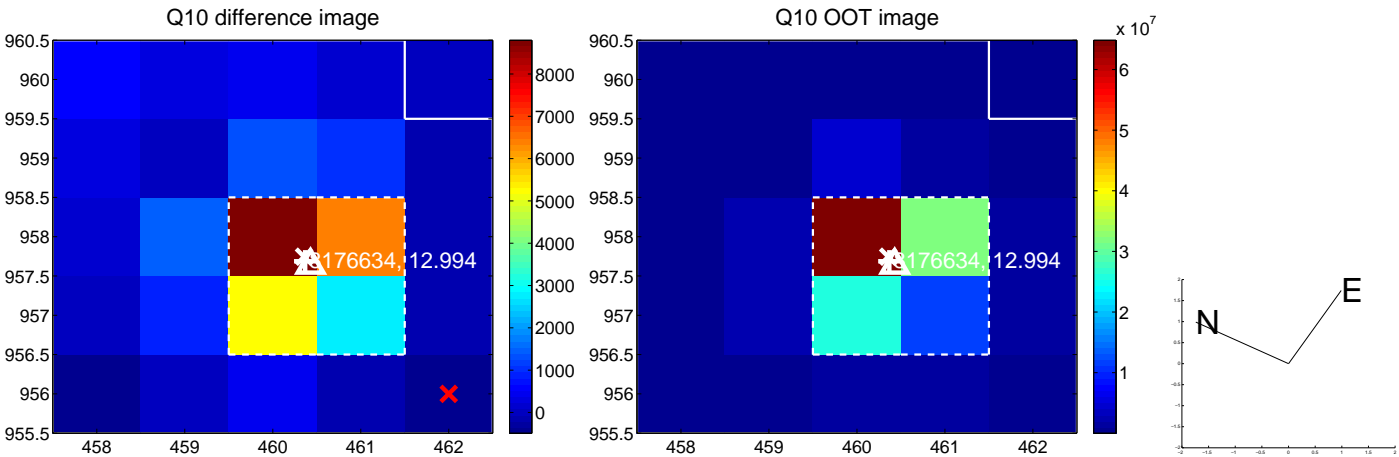
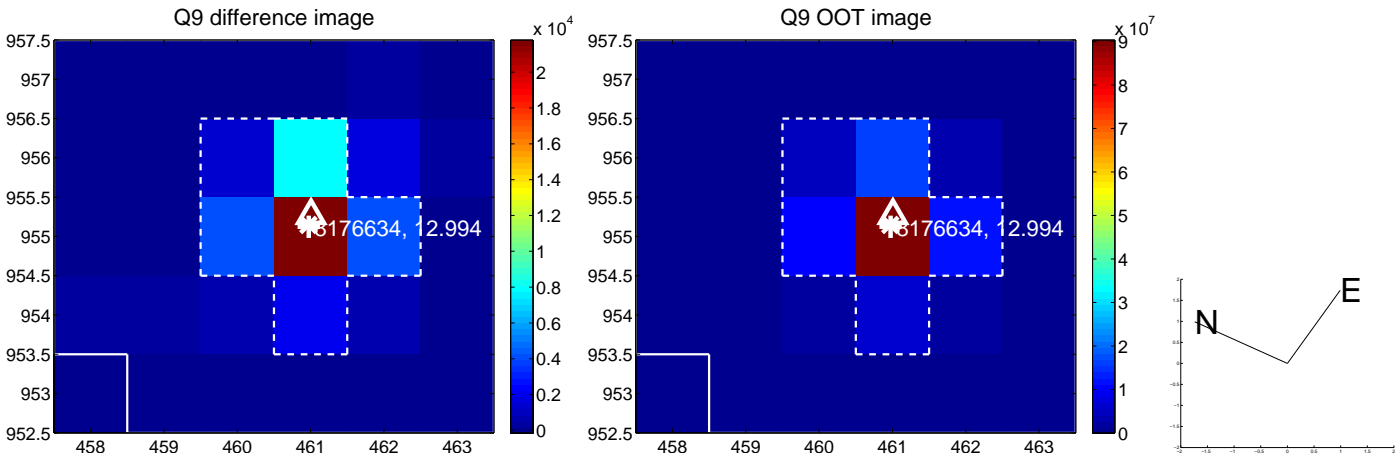
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



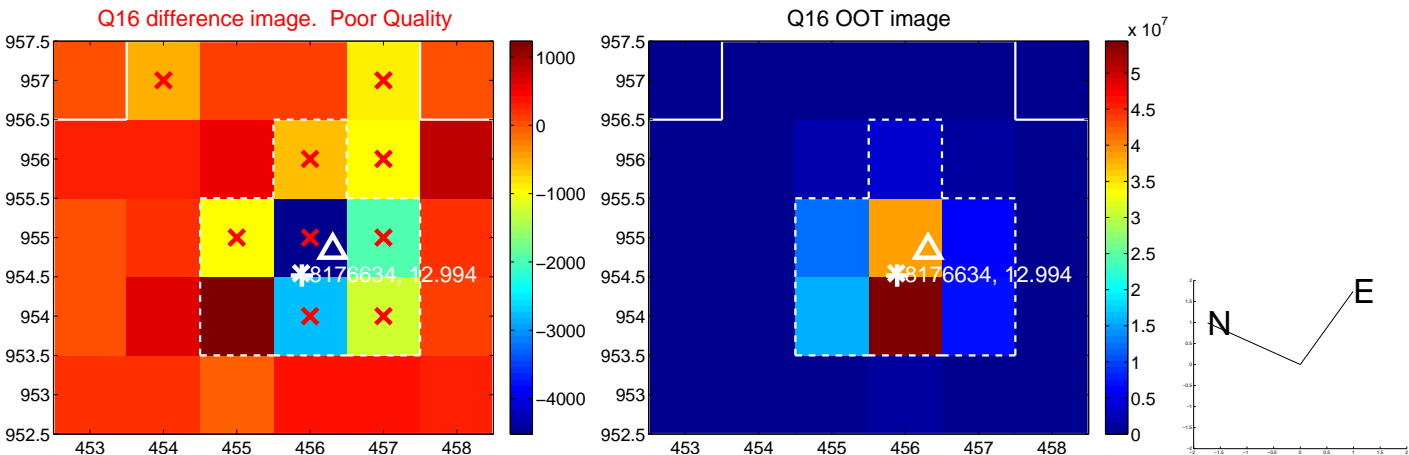
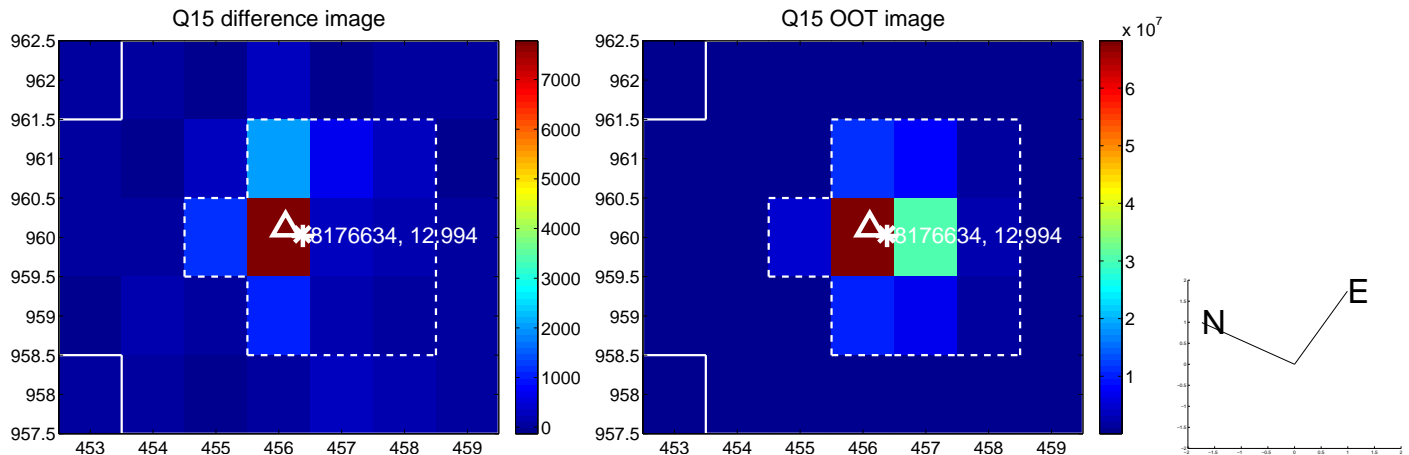
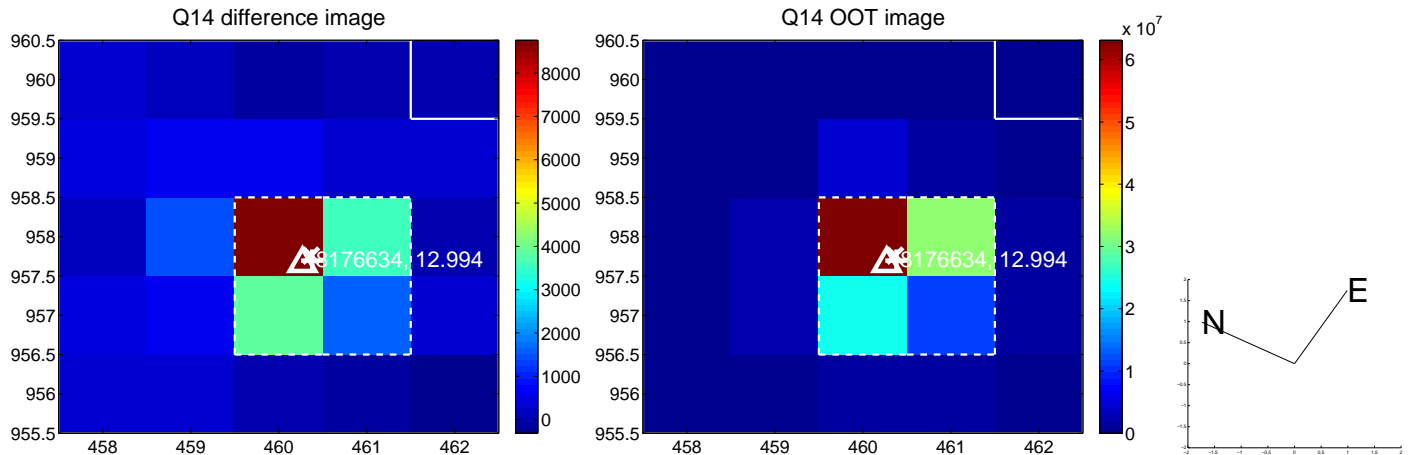
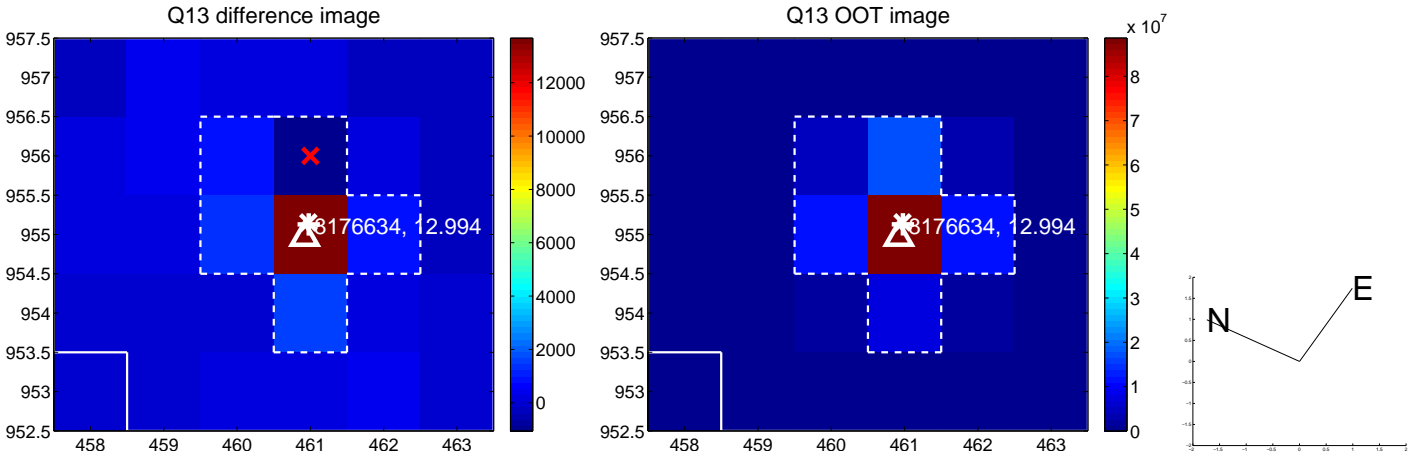
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



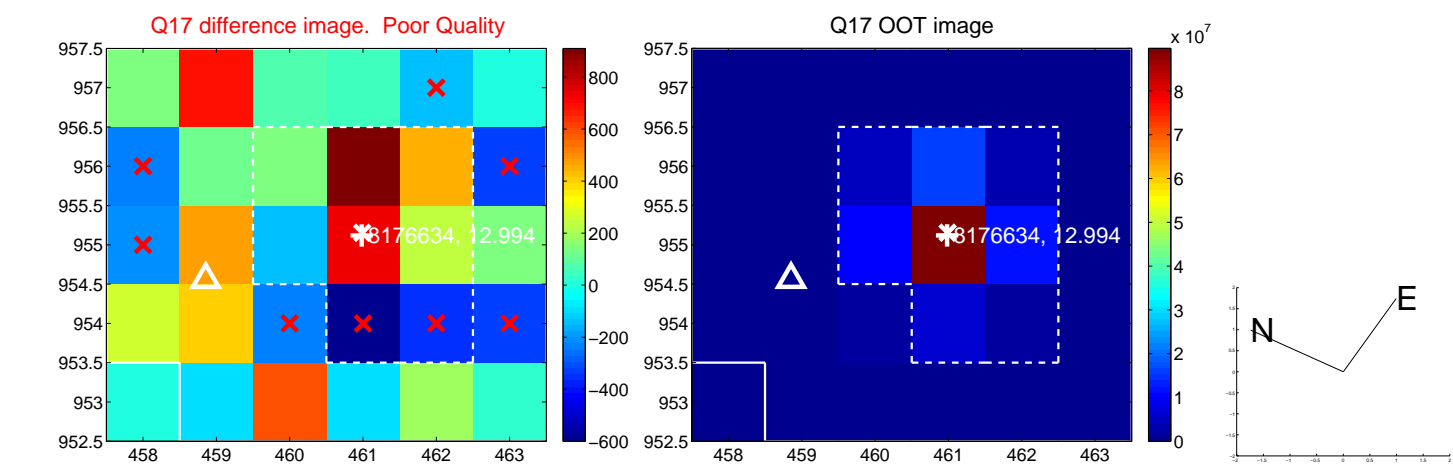
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



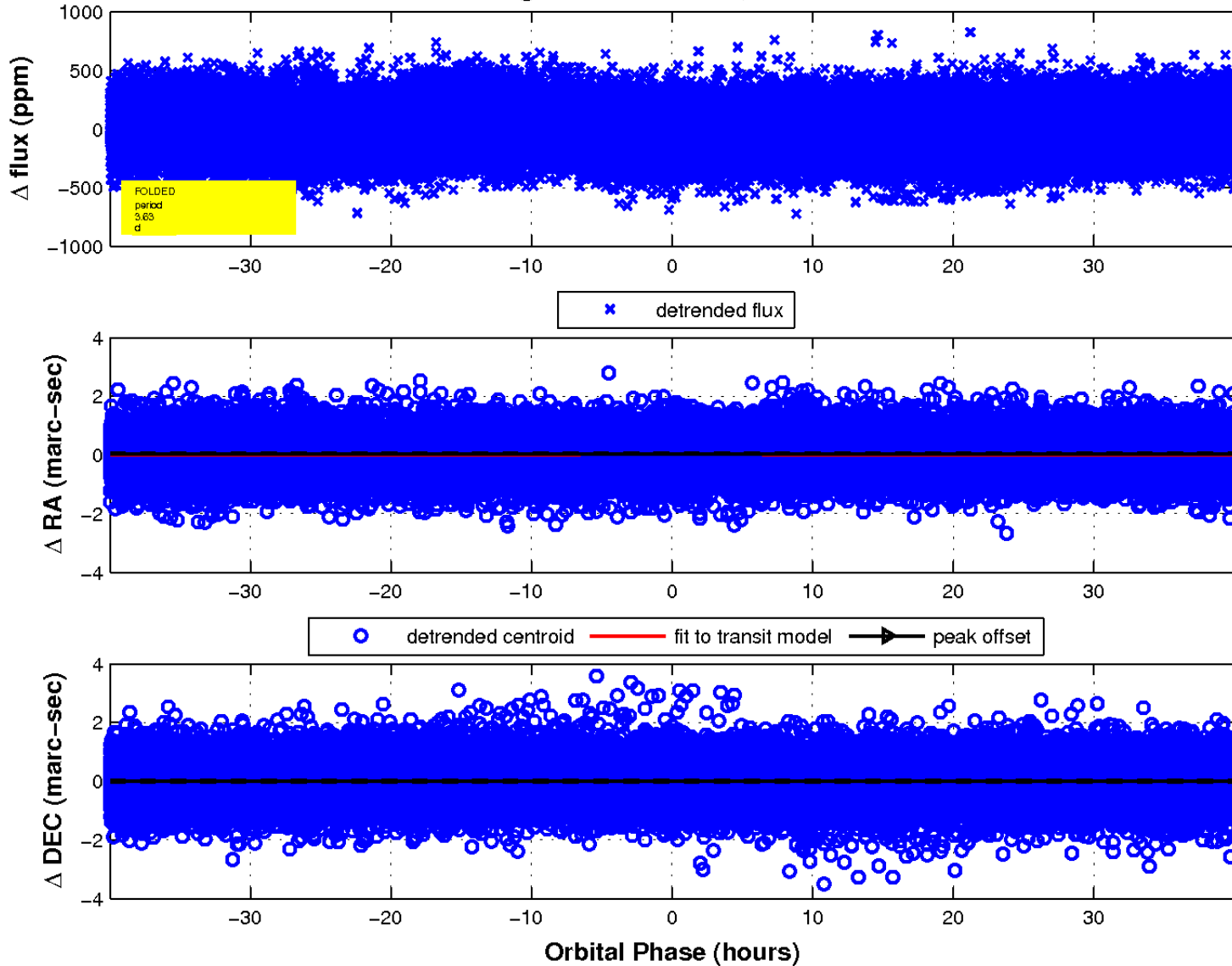
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



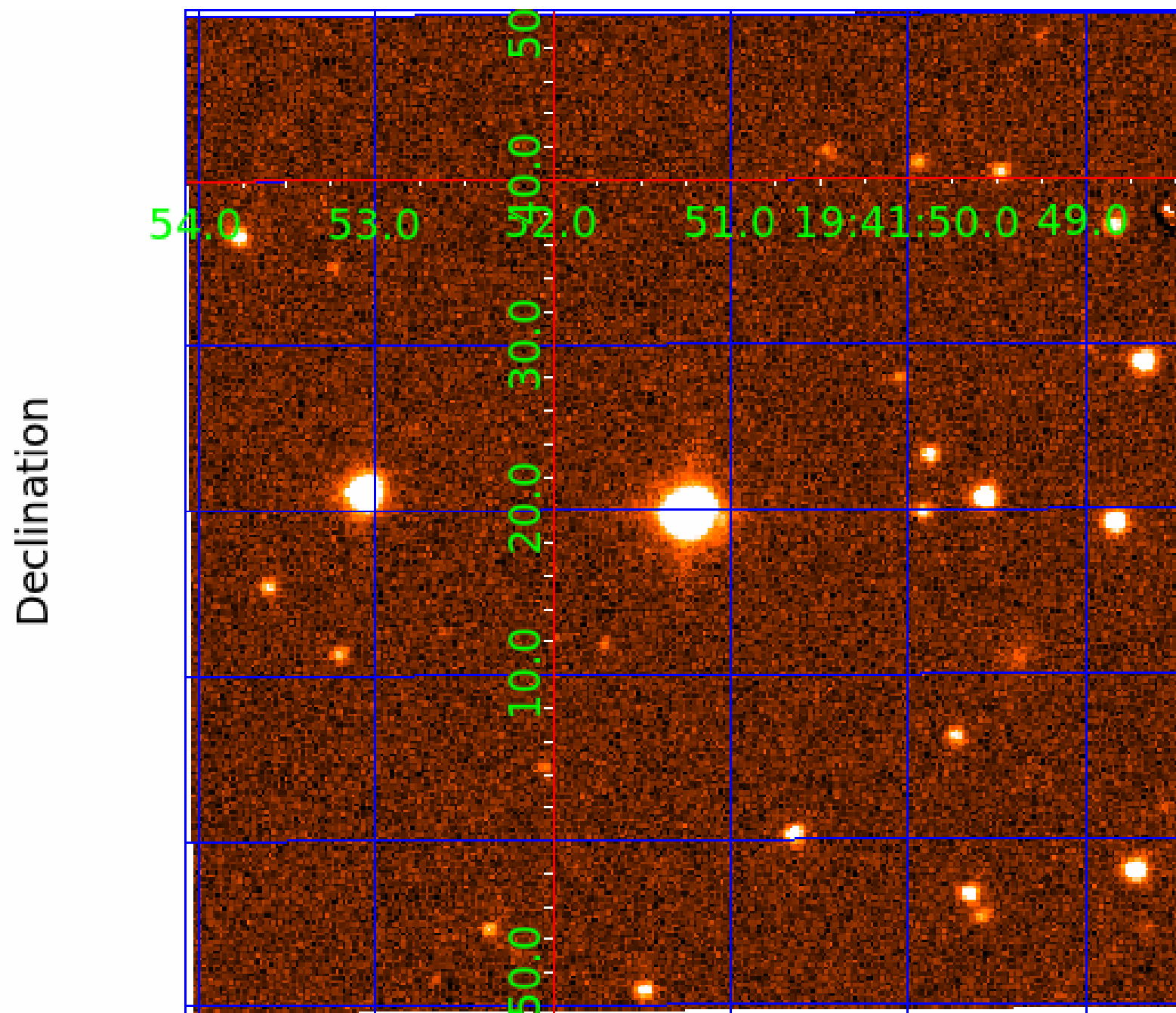
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 5



UKIRT Image



KIC 008176634

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})
008176634-01	OBS	No	3.633366	134.602477	20.0	13.333	7.9	5.4	2.07	6214	1.07	2351.91
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008176634-04	OBS	No	44.089485	165.170492	118.6	3.486	7.5	7.0	2.07	6214	2.48	84.34
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176634-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008176634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—MOD_NONUNIQ_ALT
008176634-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

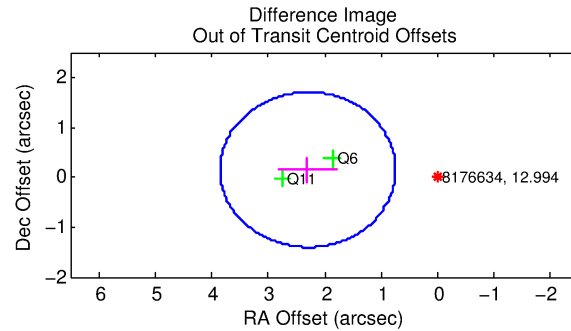
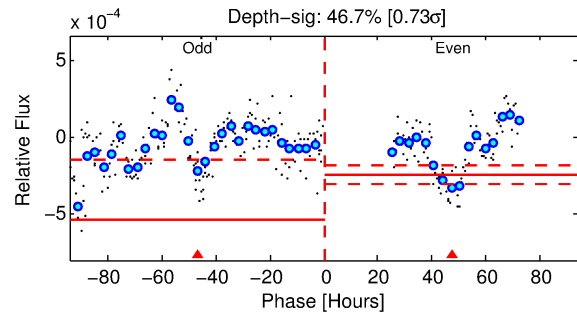
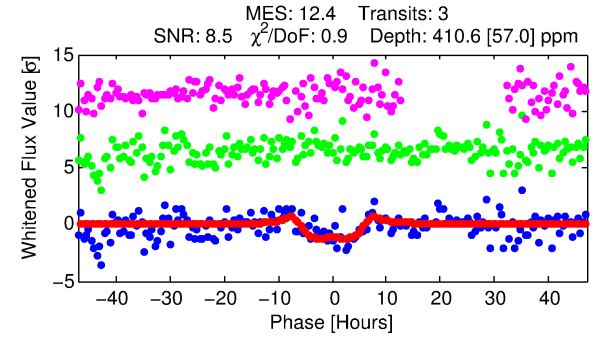
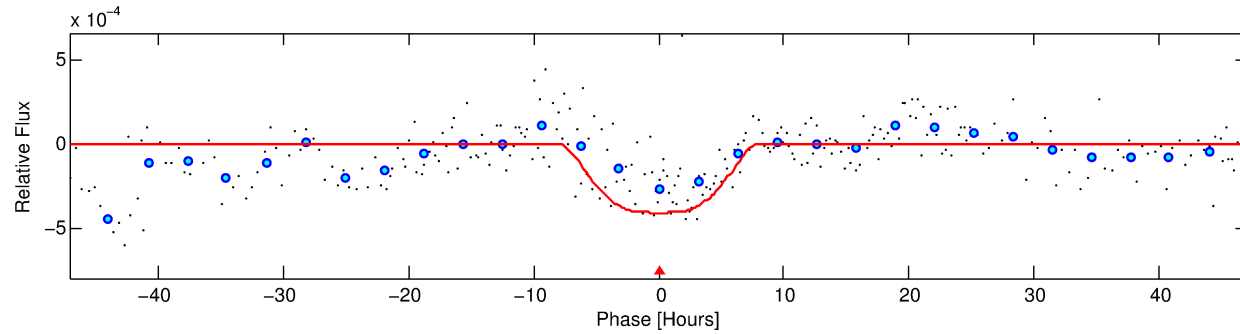
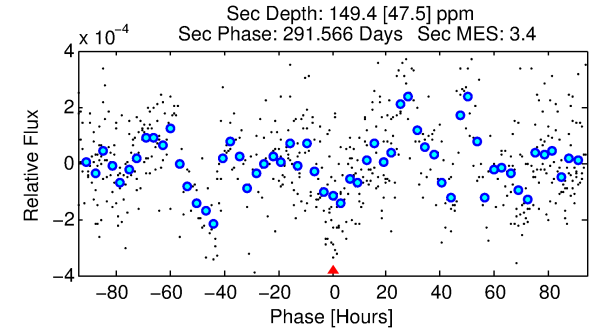
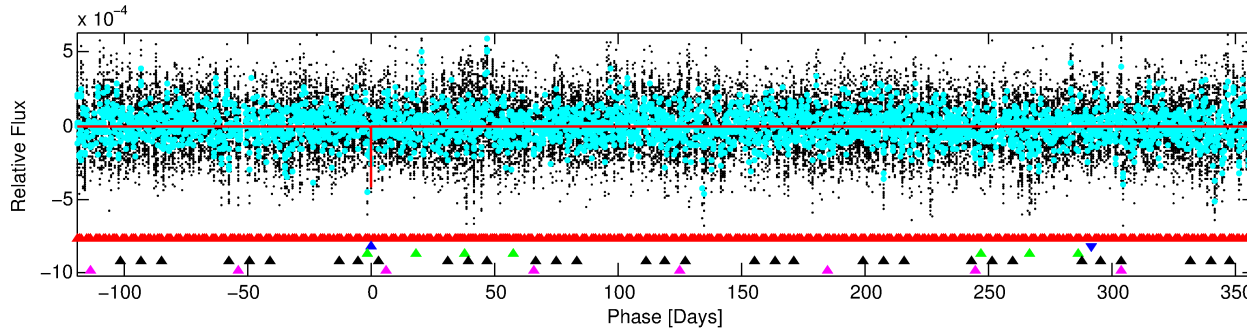
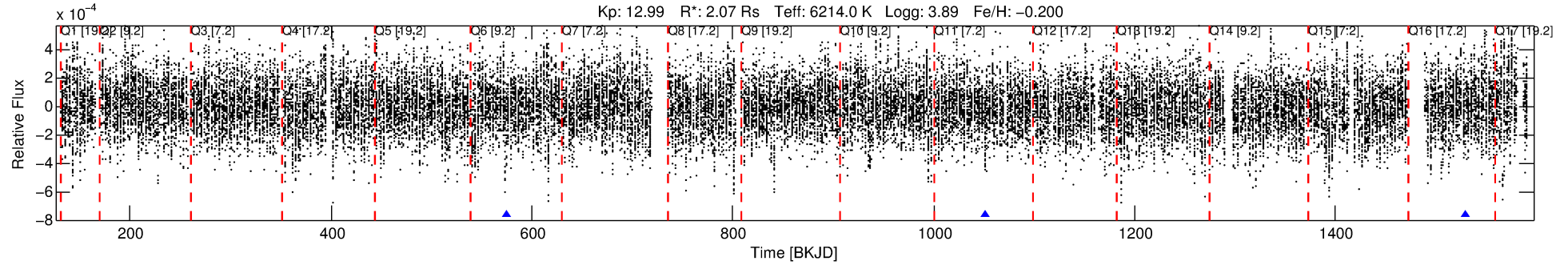
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176634-02

No Significant Match Found

DV One-Page Summary

KIC: 8176634 Candidate: 2 of 5 Period: 476.849 d



DV Fit Results:

Period = 476.84910 [0.03040] d
Epoch = 575.1092 [0.0335] BKJD
Rp/R* = 0.0242 [0.0019]
a/R* = 75.33 [9.05]
b = 0.97 [0.01]
Seff = 3.53 [1.74]
Teq = 349 [43] K
Rp = 5.48 [1.84] Re
a = 1.2747 [0.3899] AU
Ag = 4447.48 [2661.71] [1.67σ]
Teffp = 4412 [410] K [9.85σ]

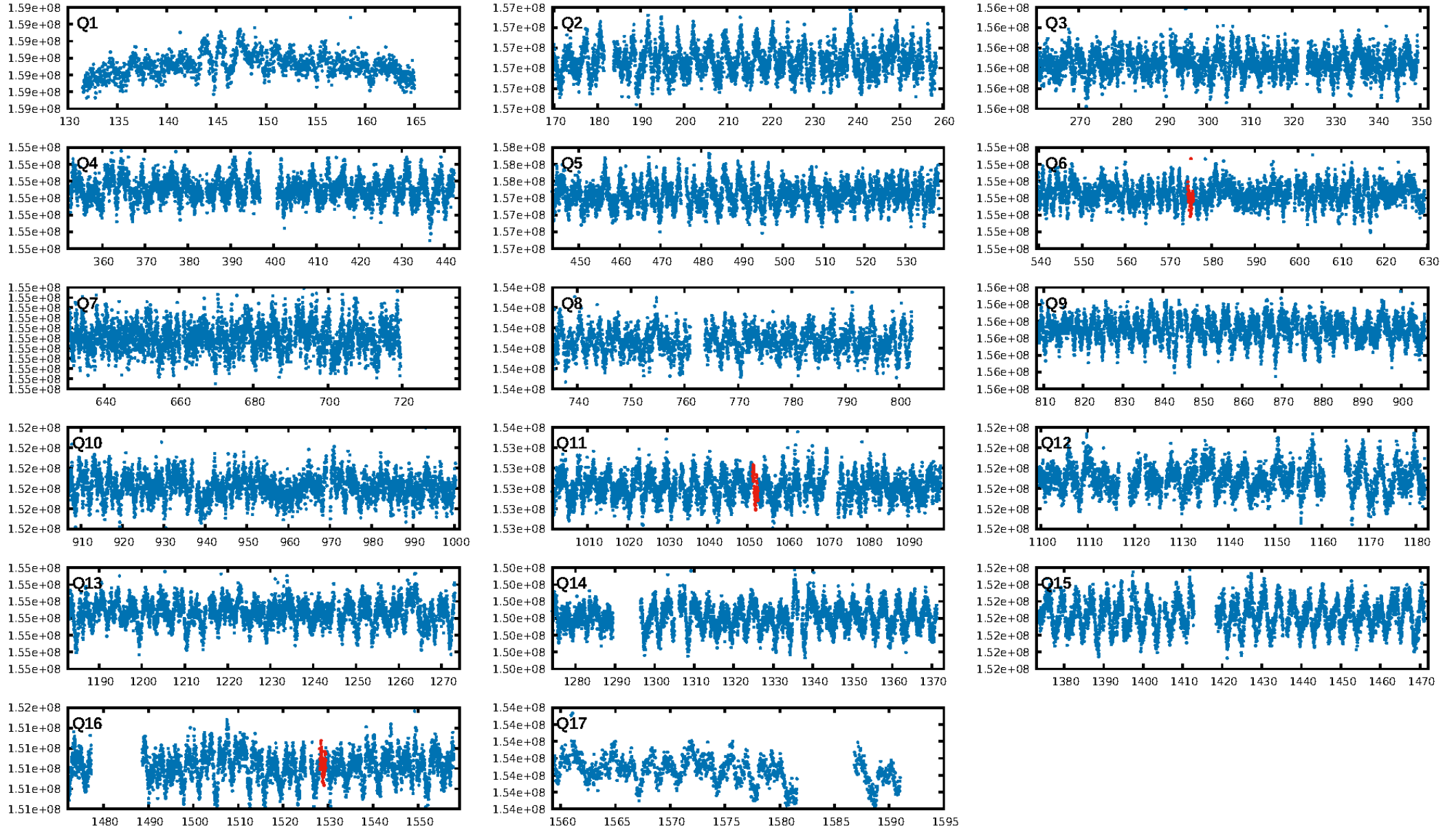
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [263.94σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.01e-23
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.837
Centroid-sig: 73.7%
Centroid-so: 0.289 arcsec [0.39σ]
OotOffset-rm: 2.303 arcsec [4.45σ]
KicOffset-rm: 2.218 arcsec [3.78σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.33 [1/3]

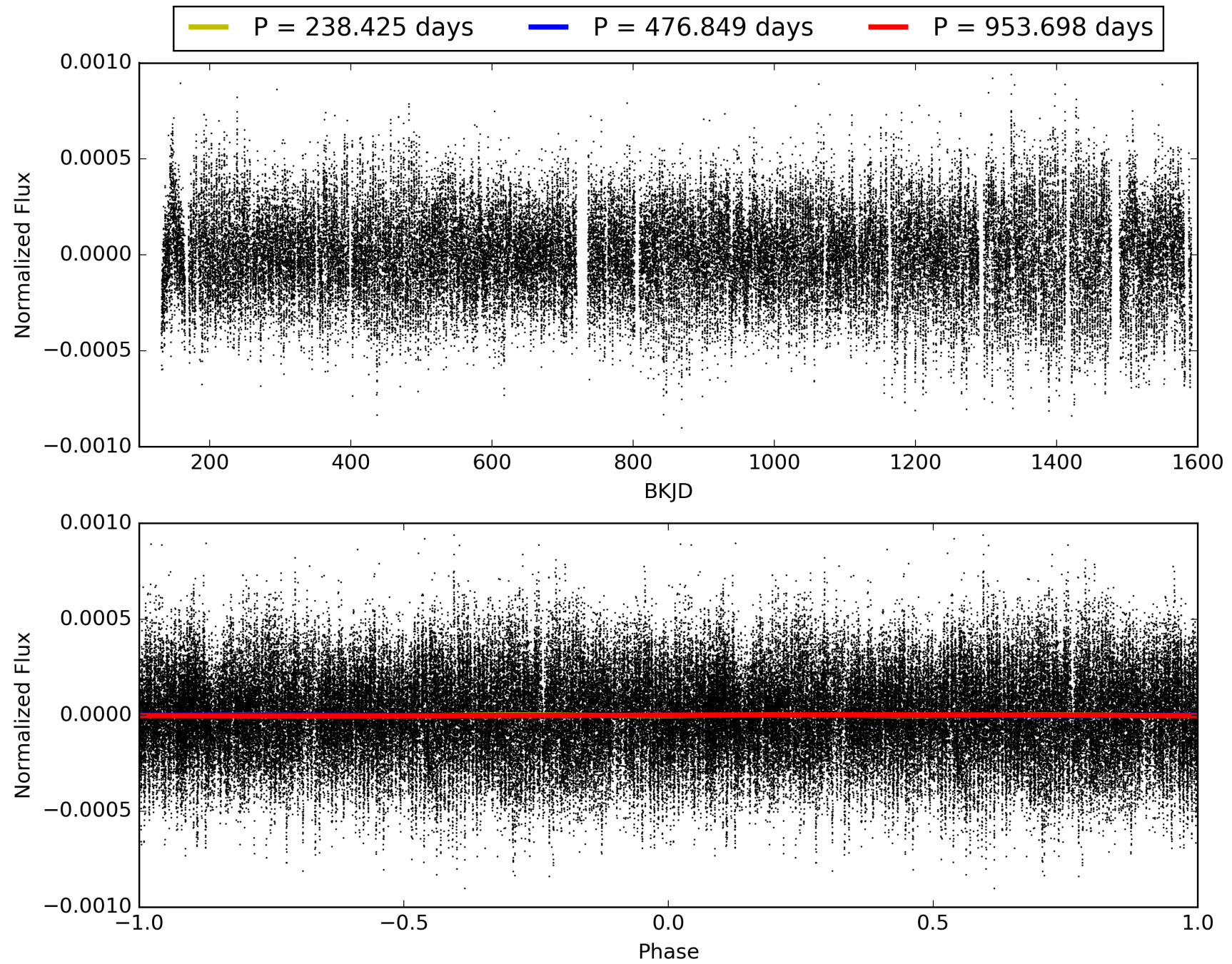
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008176634-02, PDC Light Curves

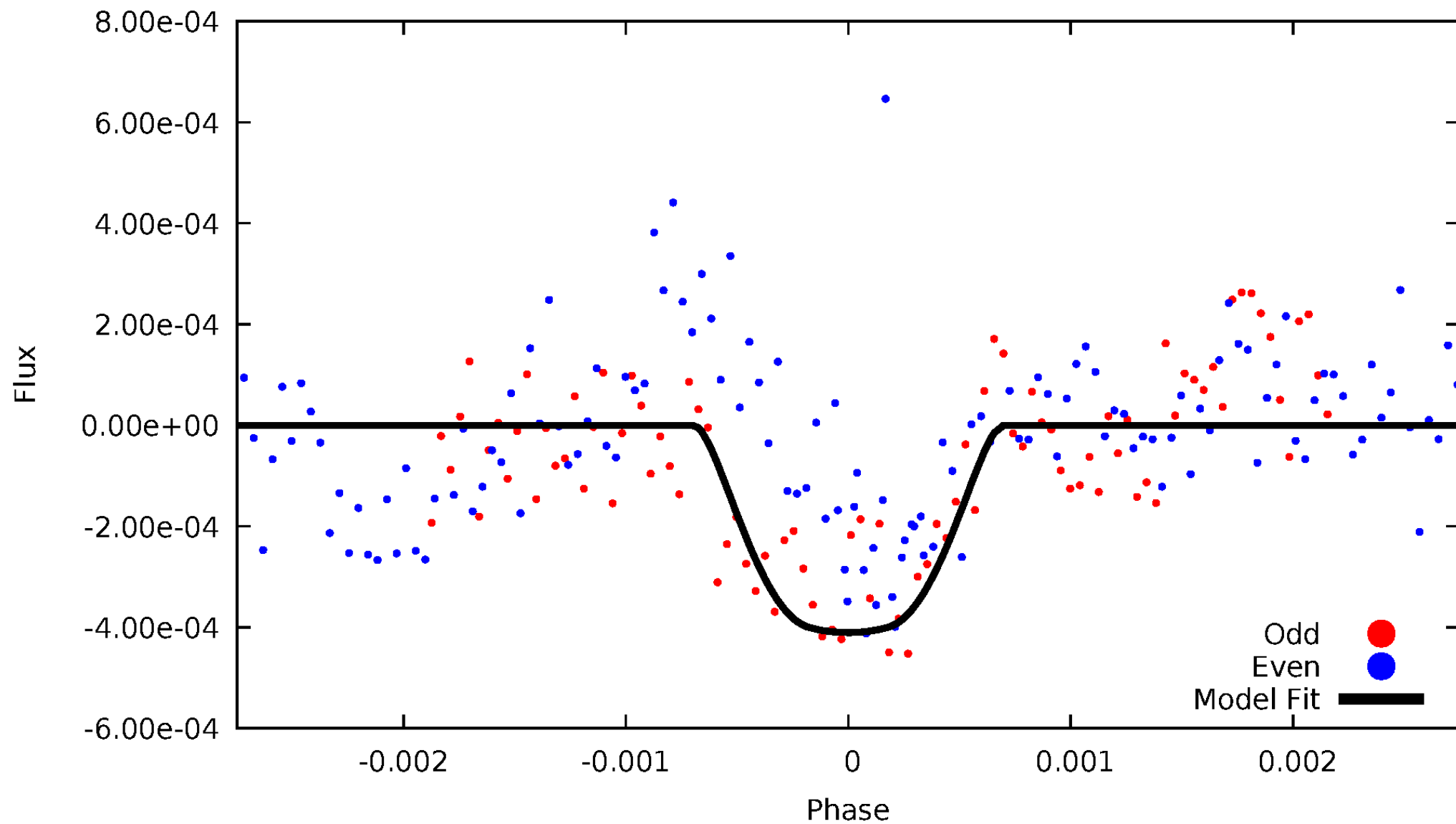


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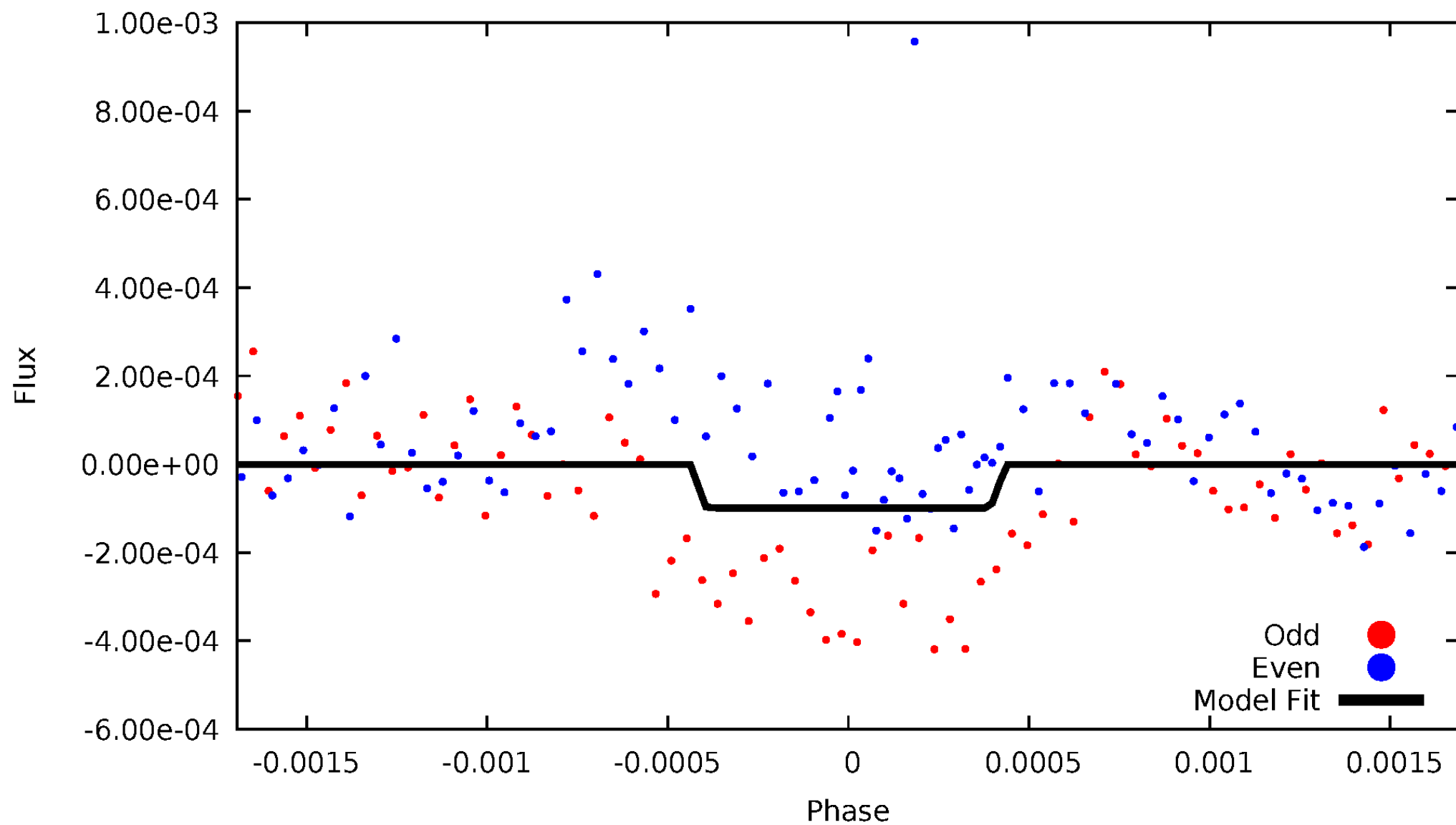
DV Odd/Even

TCE 008176634-02



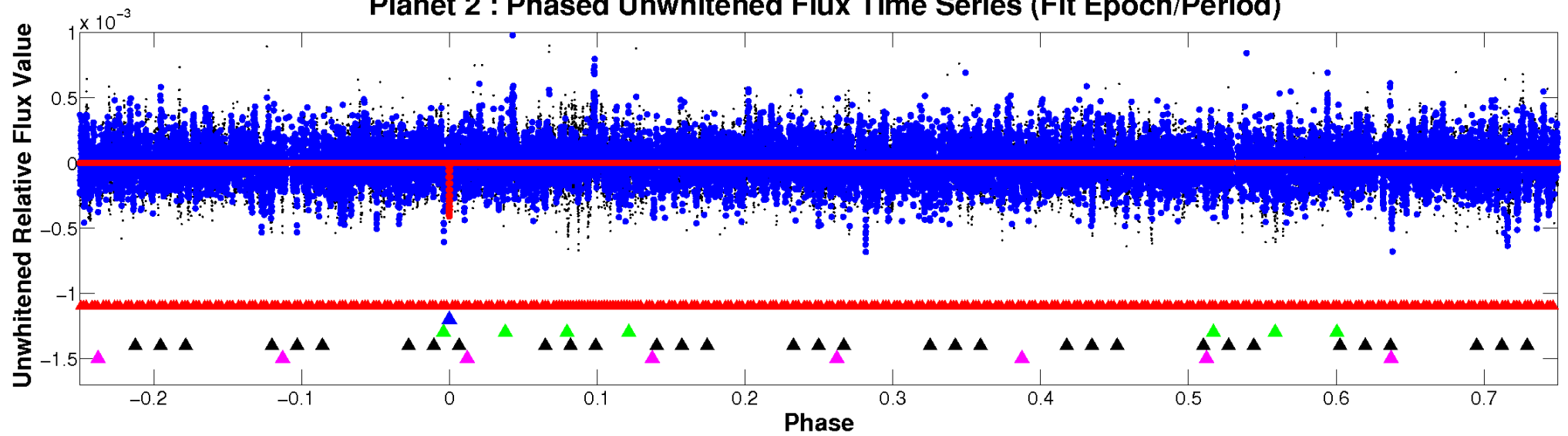
ALT Odd/Even

TCE 008176634-02

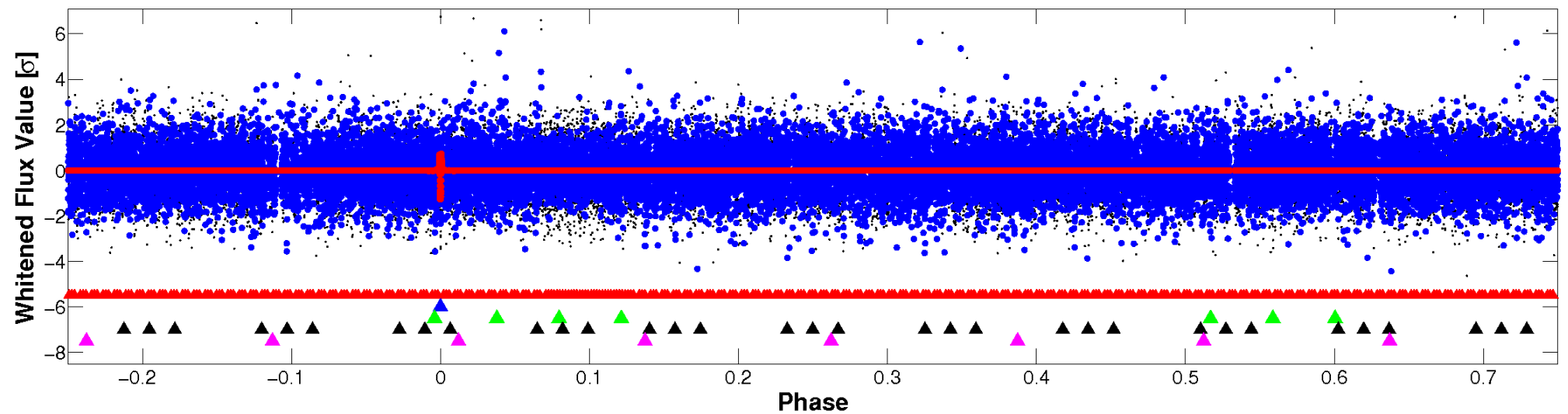


Non-Whitened Vs. Whitened Light Curve

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

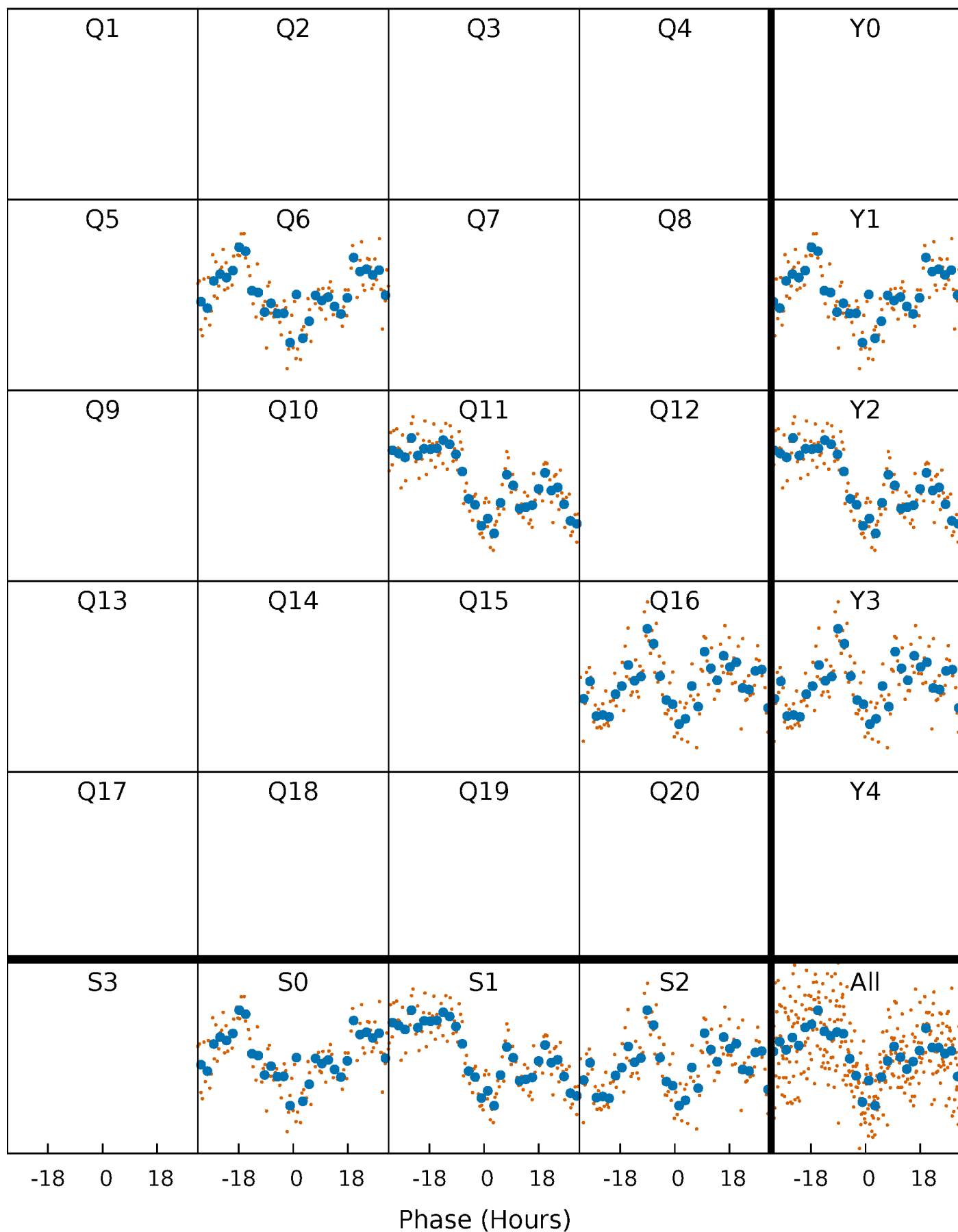


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



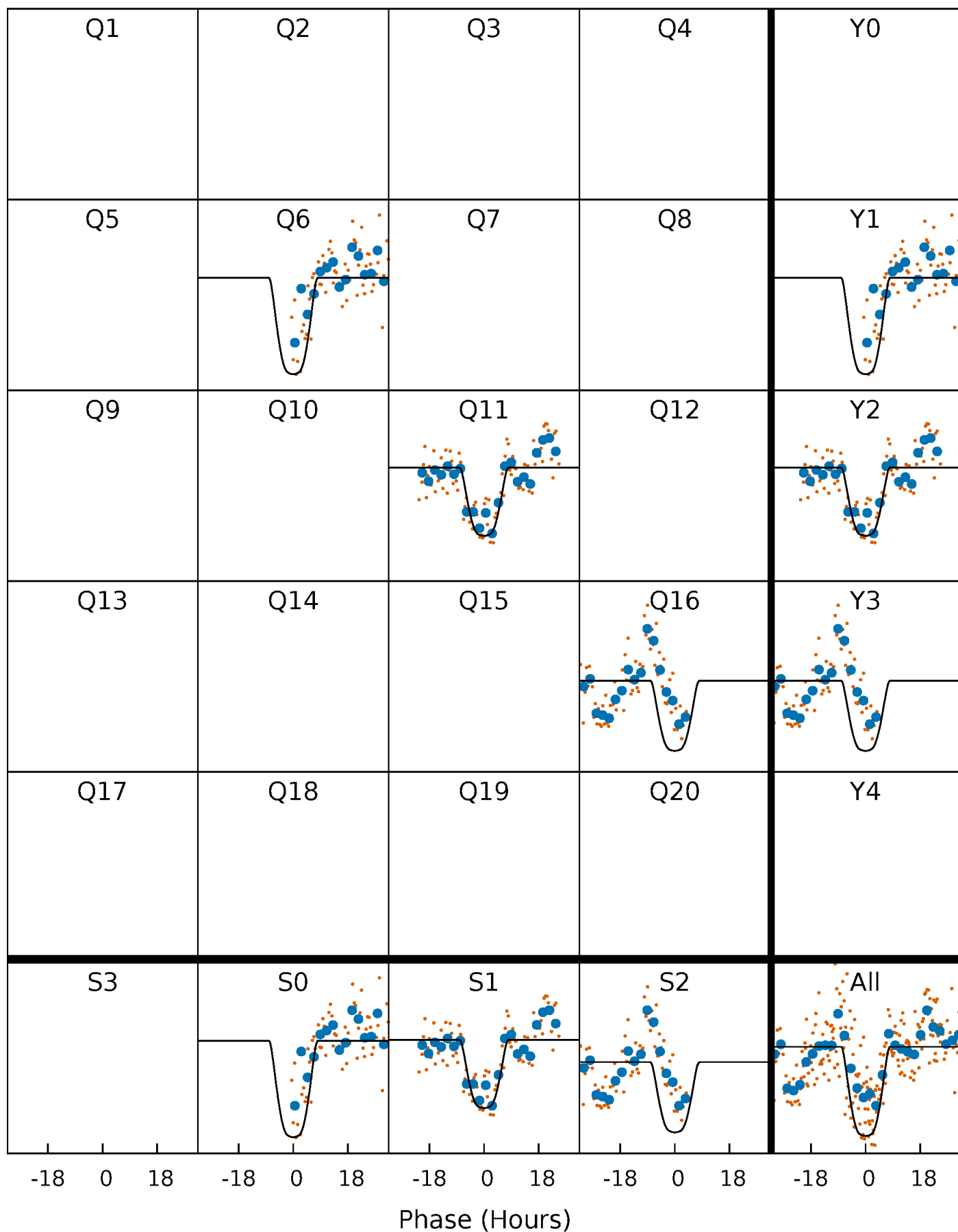
PDC Quarter-Phased Transit Curves

TCE 008176634-02 P=476.849095 Days $T_0=575.109178$ (BKJD)



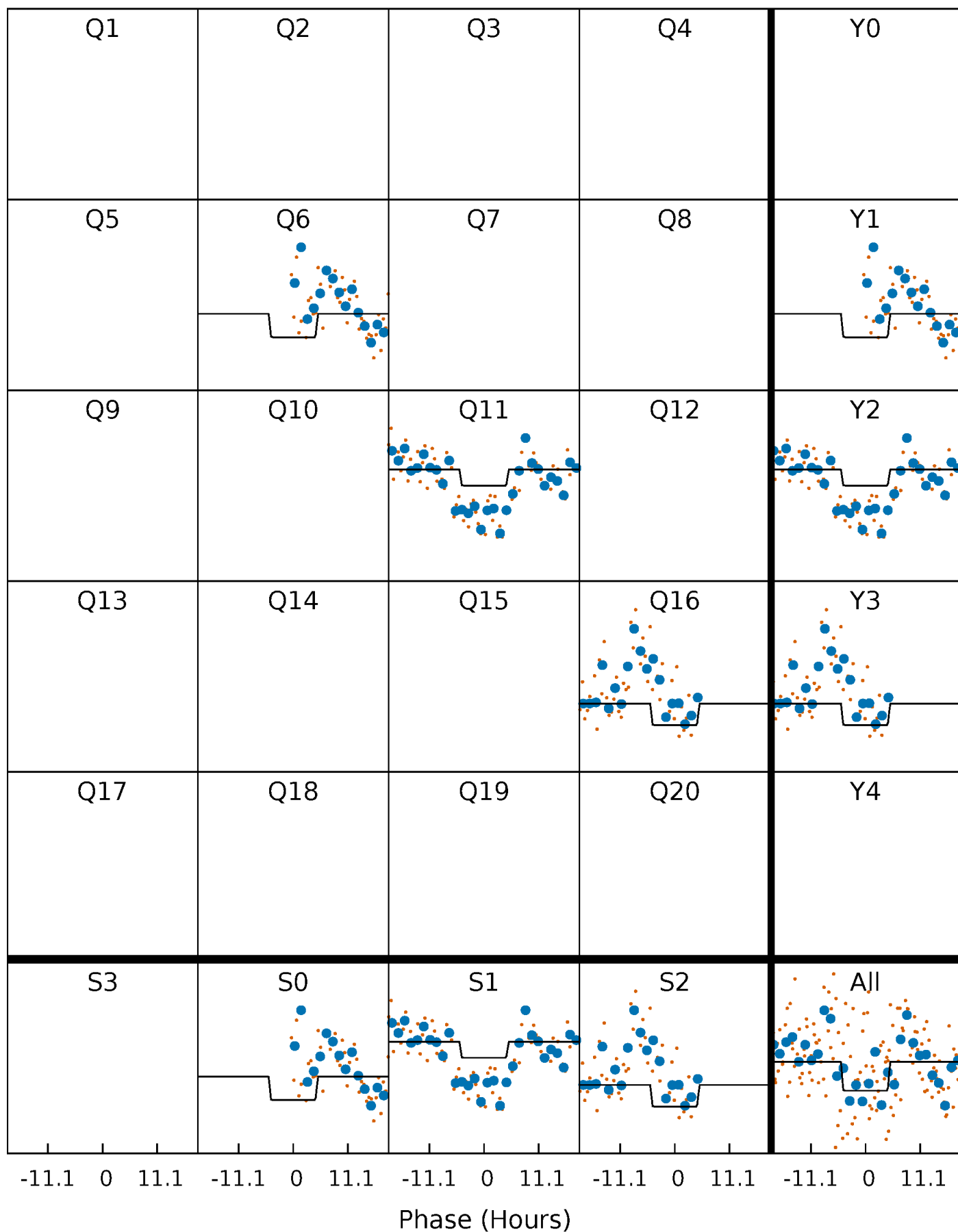
DV Quarter-Phased Transit Curves

TCE 008176634-02 P=476.849095 Days $T_0=575.109178$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

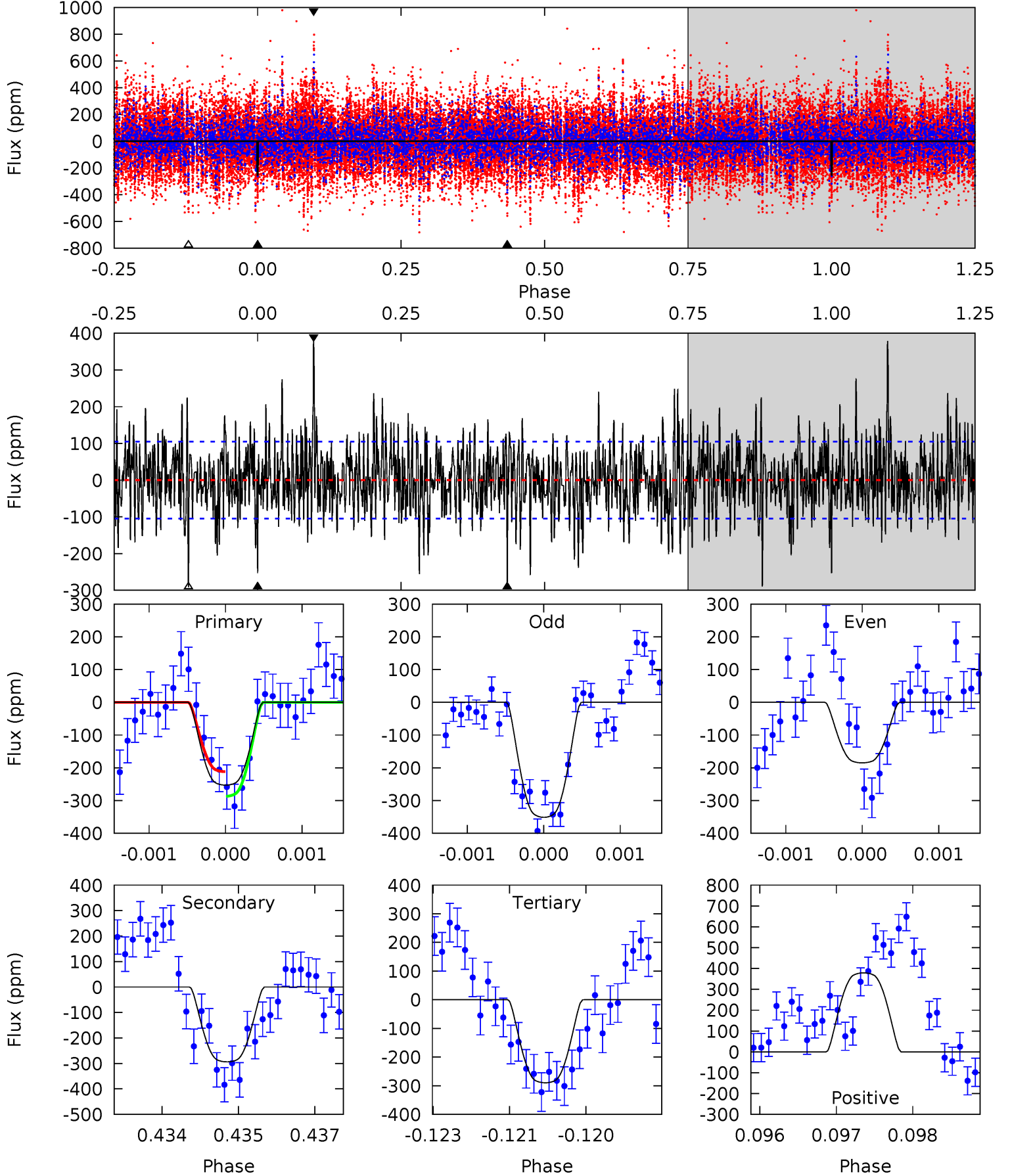
TCE 008176634-02 P=476.830745 Days $T_0=575.101272$ (BKJD)



DV Model-Shift Uniqueness Test

008176634-02, P = 476.849095 Days, E = 98.260083 Days

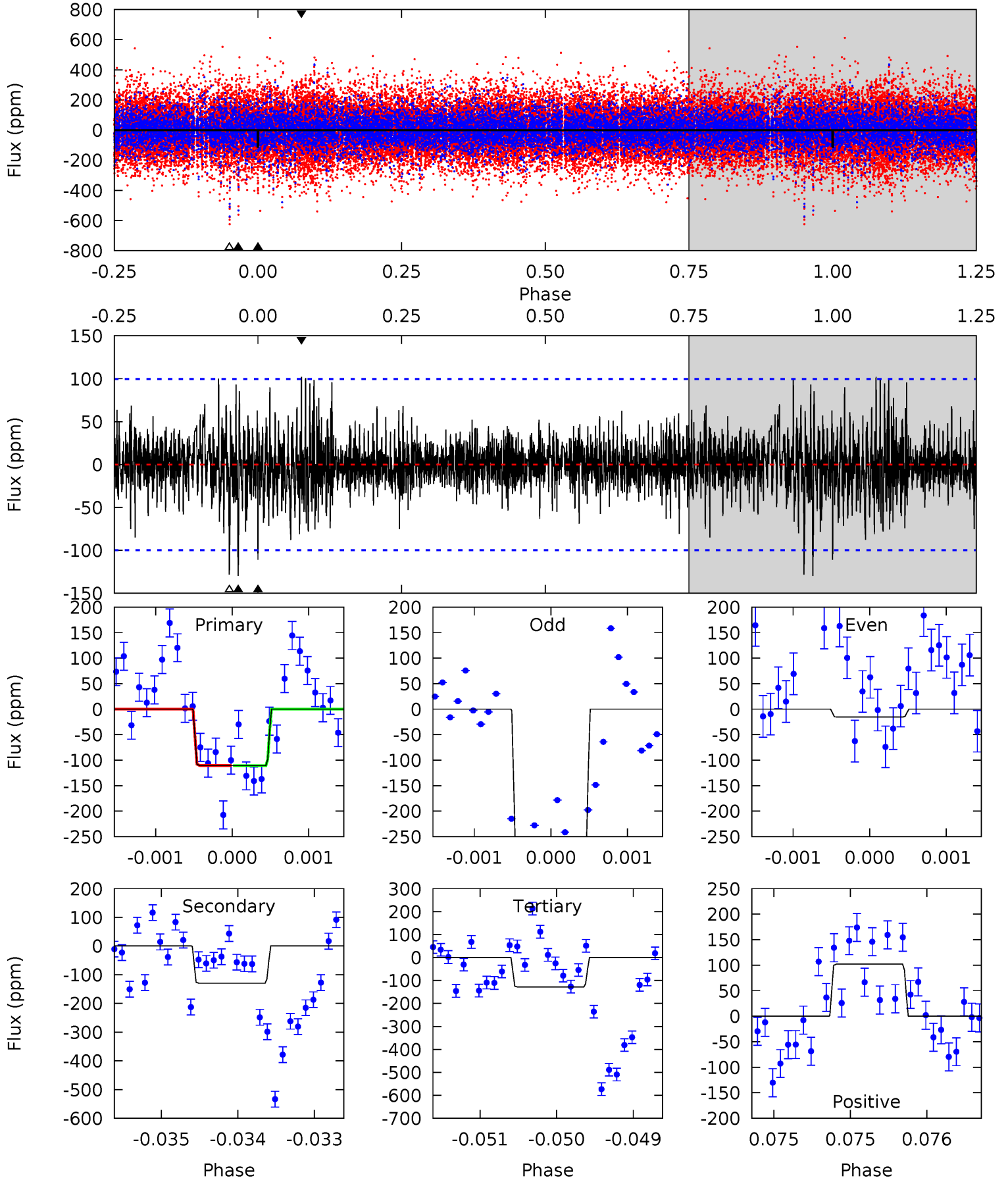
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	15.1	14.9	19.5	5.39	3.19	4.02	-1.89	-6.49	0.21	-4.39	4.29	1.15	0.56	1.94



Alt Model-Shift Uniqueness Test

008176634-02, P = 476.830745 Days, E = 98.270527 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.09	7.12	7.05	5.61	5.48	3.33	1.30	-0.97	0.48	0.07	1.51	7.90	-8.06	0.44	0.01



Stellar Parameters For KIC 008176634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+171}_{-171}	$3.890^{+0.280}_{-0.100}$	$-0.200^{+0.300}_{-0.250}$	$2.071^{+0.451}_{-0.676}$	$1.215^{+0.225}_{-0.225}$	$0.193^{+0.353}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+22%/-33%	+19%/-19%	+183%/-36%
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 008176634-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-294 ± 19	$5.29^{+0.88}_{-0.93}$	479^{+33}_{-40}	5266^{+257}_{-210}	9446^{+4267}_{-2247}
Alt.	-130 ± 18	$2.13^{+0.56}_{-0.52}$	477^{+32}_{-39}	6618^{+939}_{-638}	25523^{+19470}_{-9283}

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 $A_{obs} \gg 1.0$

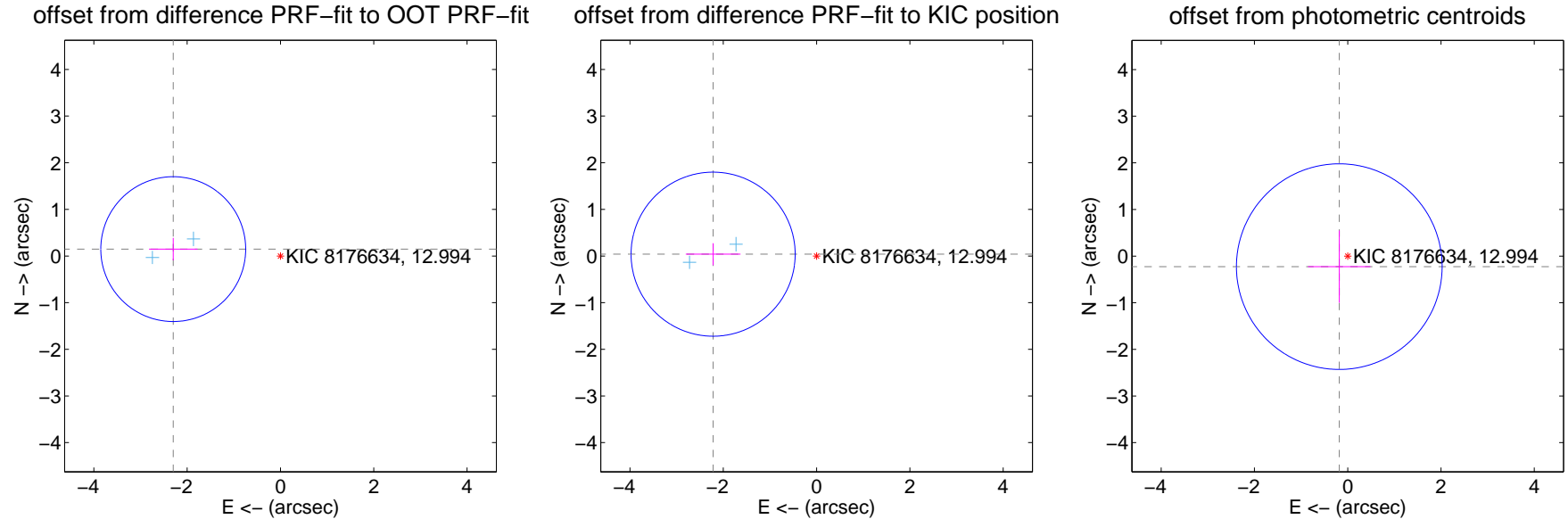
DV Centroid Data

Supplemental centroid analysis for 008176634-02. Kepler magnitude: 12.99. Transit SNR 8.46

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.303 ± 0.518	4.45	2.298 ± 0.518	0.148 ± 0.241
PRF-fit source offset from KIC position	2.218 ± 0.586	3.78	2.217 ± 0.586	0.039 ± 0.235
photometric centroid source offset	0.29 ± 0.73	0.39	0.18 ± 0.67	-0.23 ± 0.77

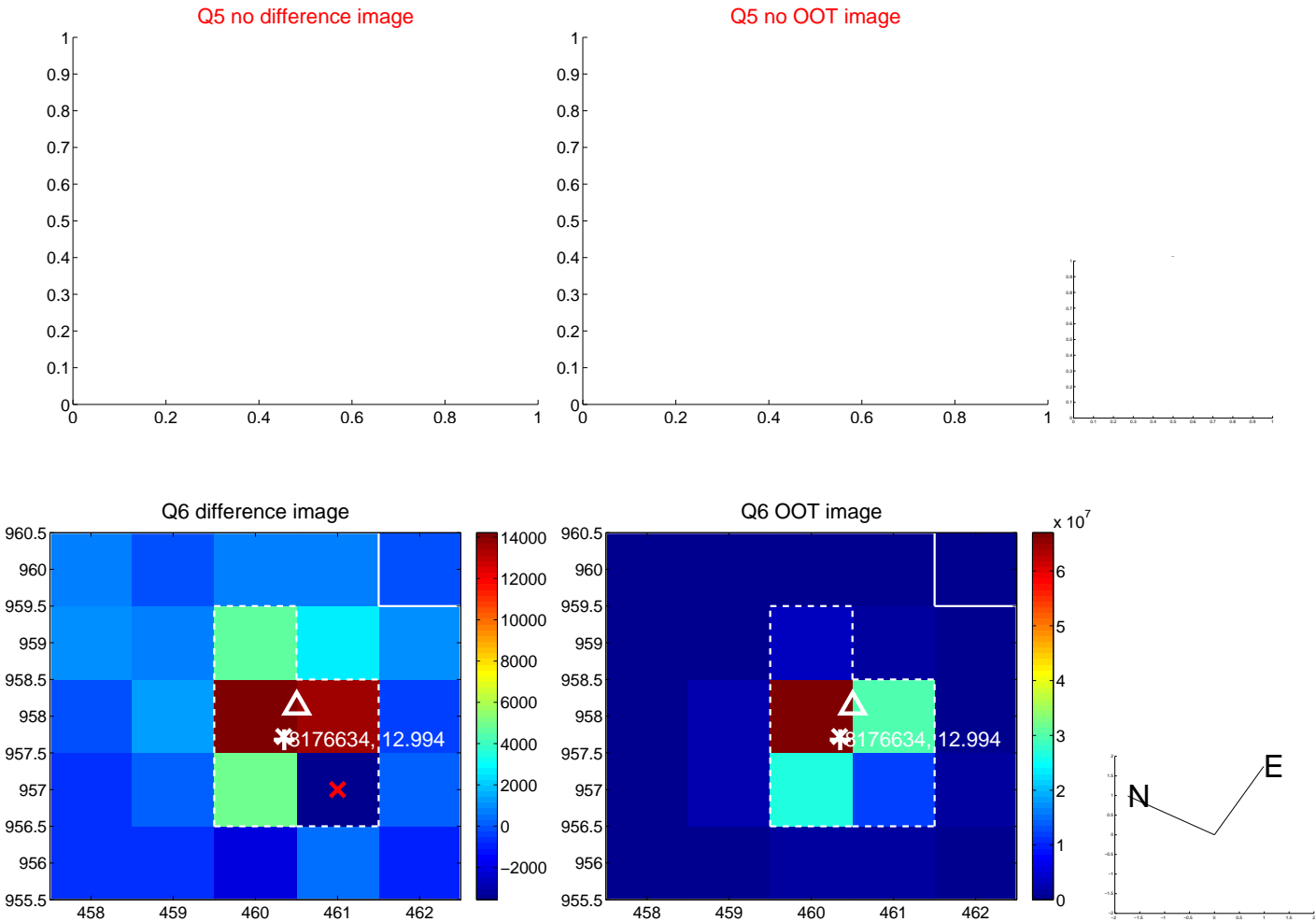


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

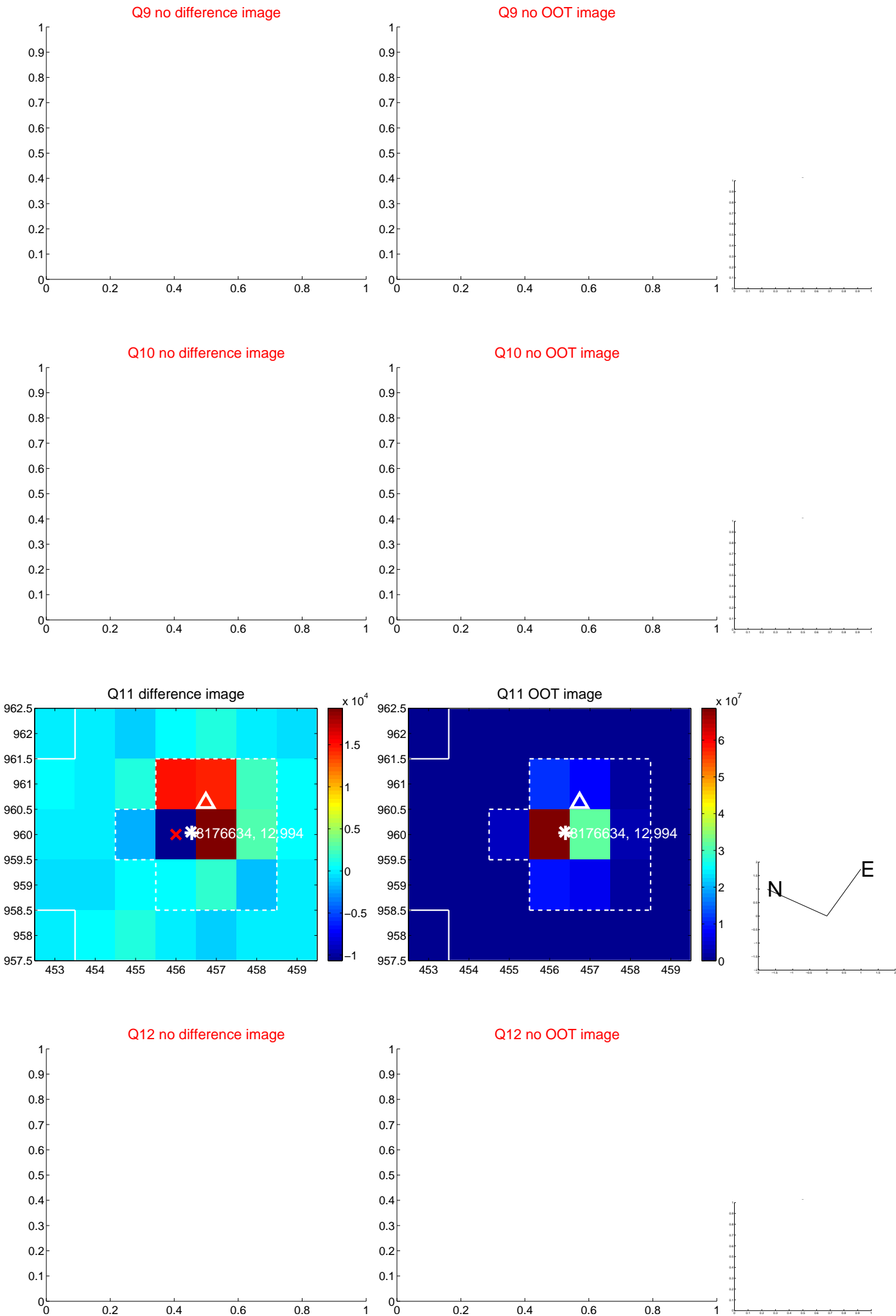
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



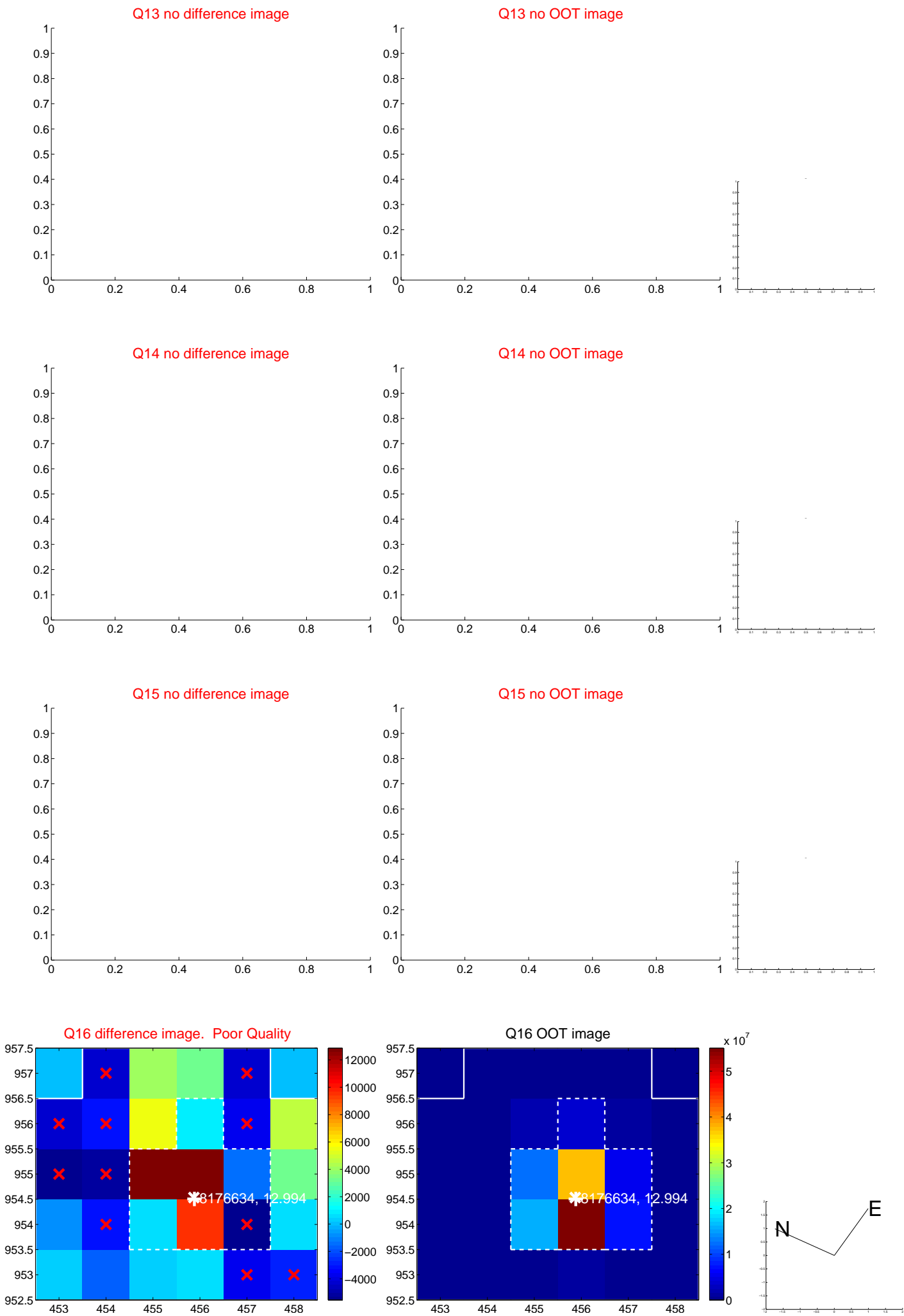
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



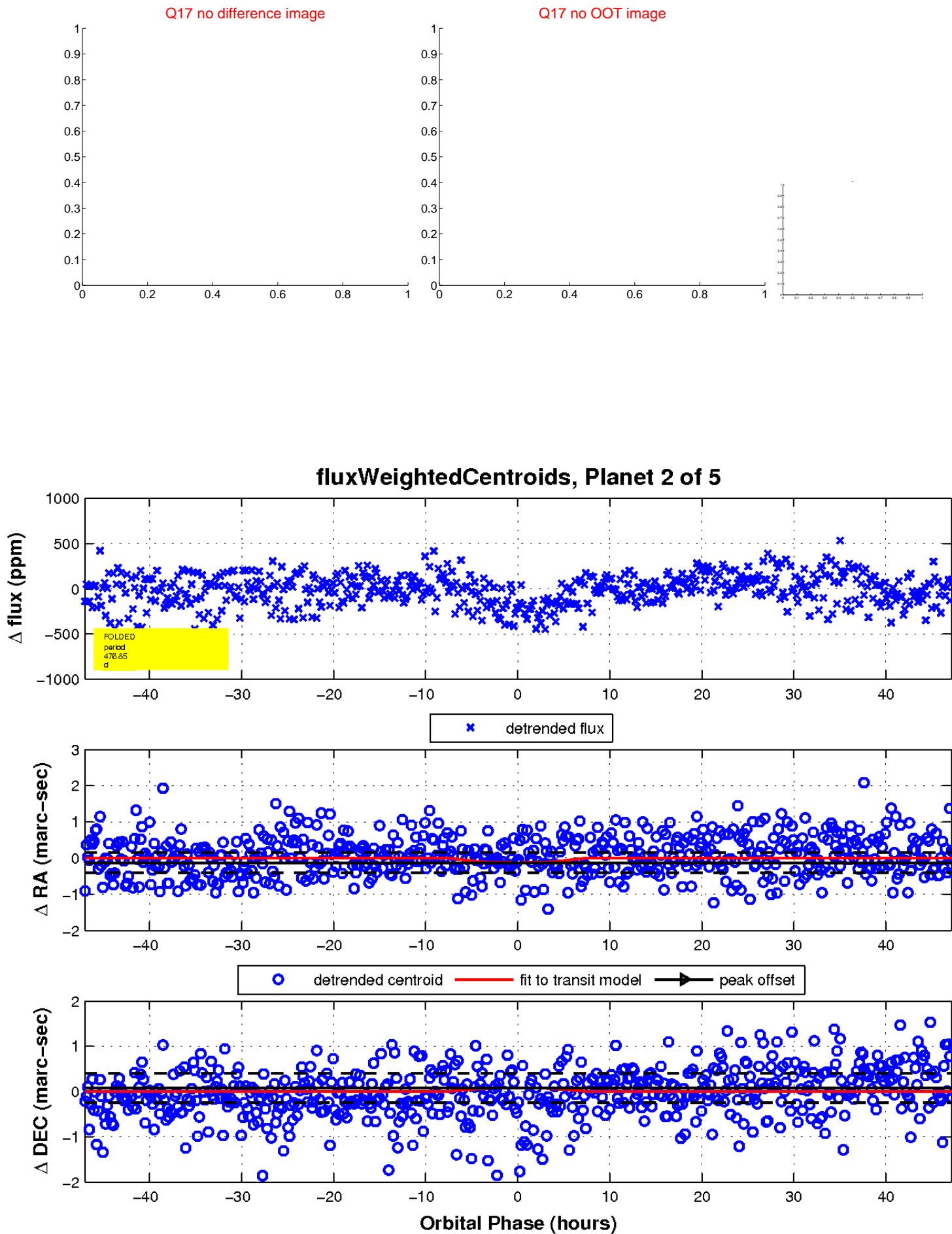
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



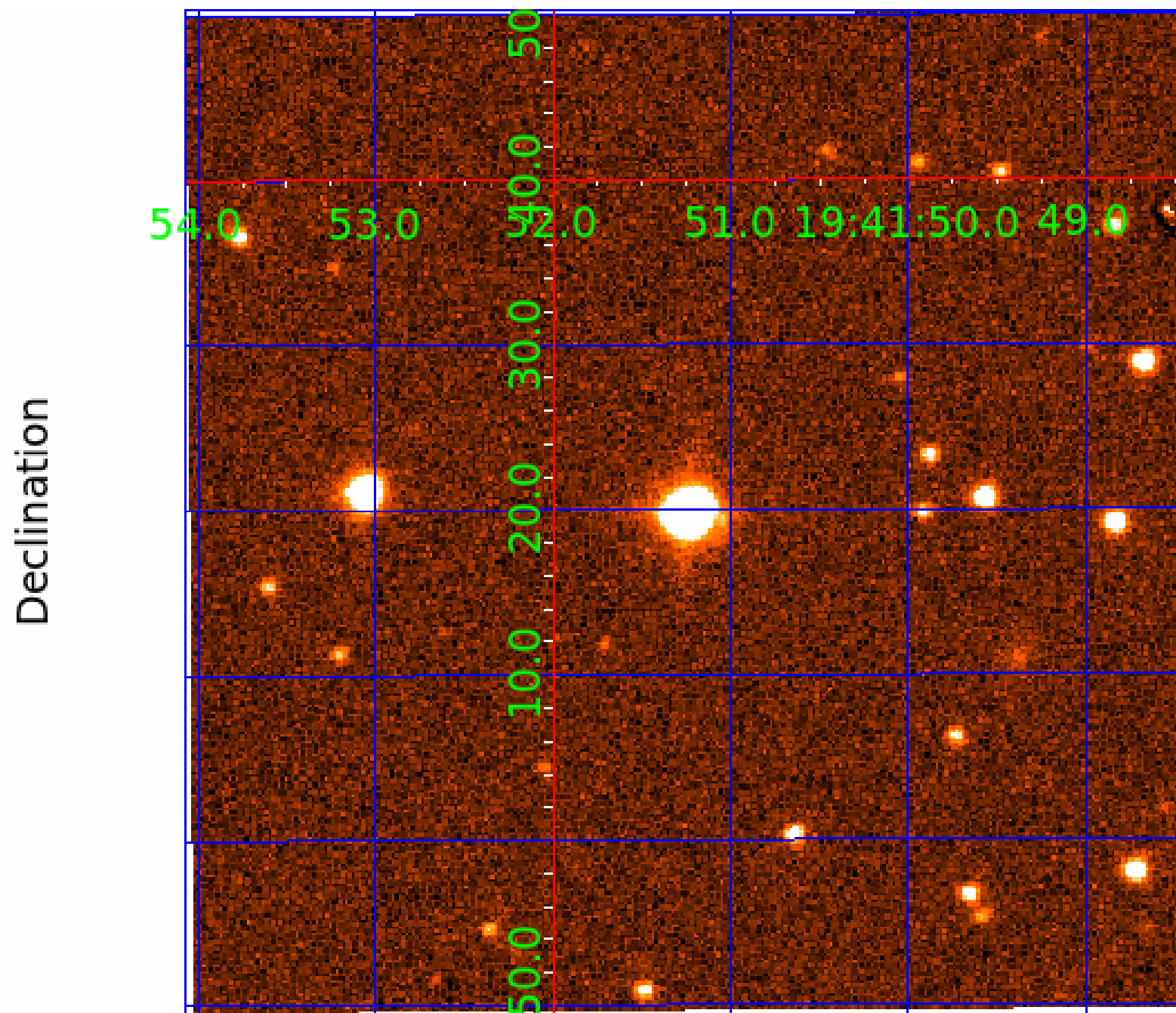
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008176634

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})
008176634-01	OBS	No	3.633366	134.602477	20.0	13.333	7.9	5.4	2.07	6214	1.07	2351.91
008176634-02	OBS	No	476.849095	575.109178	410.6	15.717	12.4	8.5	2.07	6214	5.48	3.53
008176634-03	OBS	No	228.463315	156.146177	214.5	16.220	7.8	6.6	2.07	6214	3.32	9.41
008176634-04	OBS	No	44.089485	165.170492	118.6	3.486	7.5	7.0	2.07	6214	2.48	84.34
008176634-05	OBS	No	178.797154	282.997768	254.4	11.184	7.4	7.0	2.07	6214	4.39	13.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176634-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008176634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—MOD_NONUNIQ_ALT
008176634-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

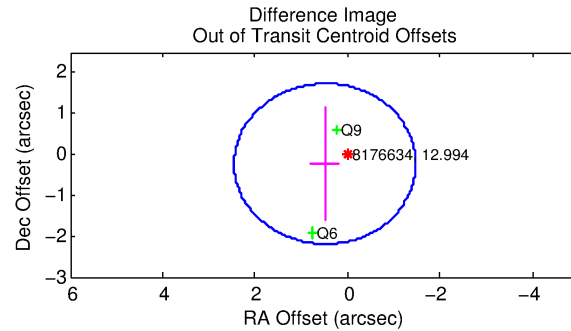
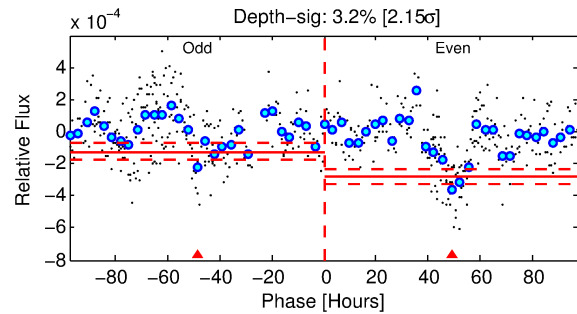
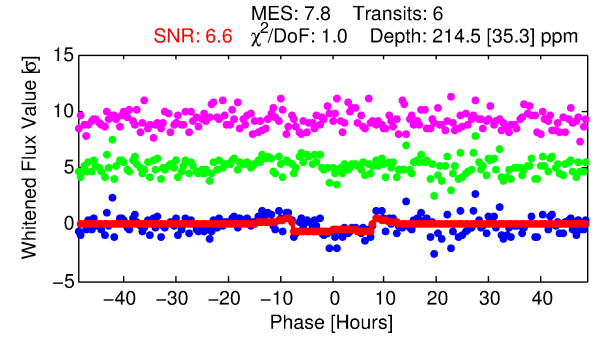
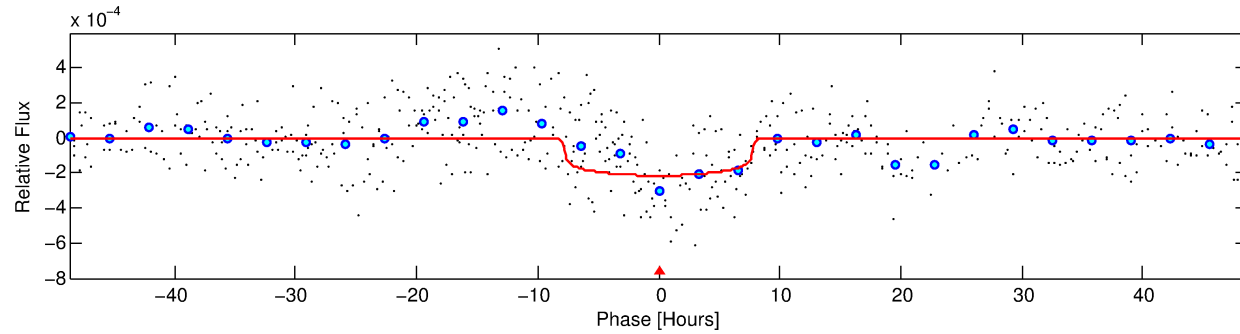
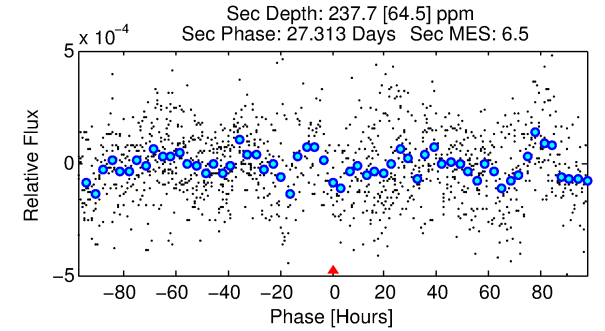
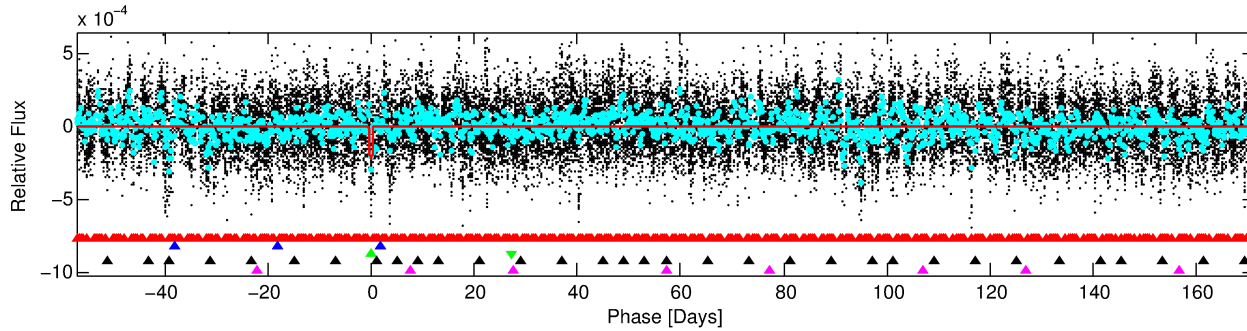
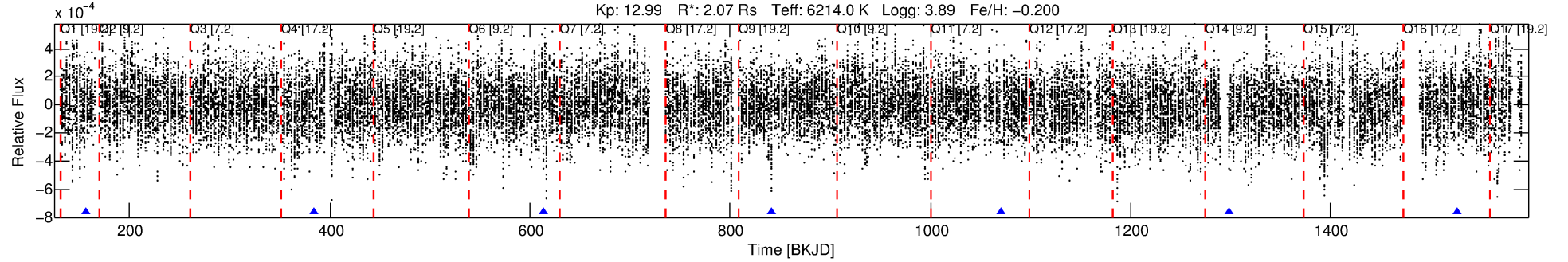
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176634-03

No Significant Match Found

DV One-Page Summary

KIC: 8176634 Candidate: 3 of 5 Period: 228.463 d



DV Fit Results:

Period = 228.46332 [0.00768] d
Epoch = 156.1462 [0.0324] BKJD
Rp/R* = 0.0147 [0.0034]
a/R* = 70.43 [77.37]
b = 0.78 [0.57]
Seff = 9.41 [4.65]
Teq = 447 [55] K
Rp = 3.32 [1.33] Re
a = 0.7805 [0.2387] AU
Ag = 7222.22 [5193.74] [1.39σ]
Teffp = 6365 [867] K [6.81σ]

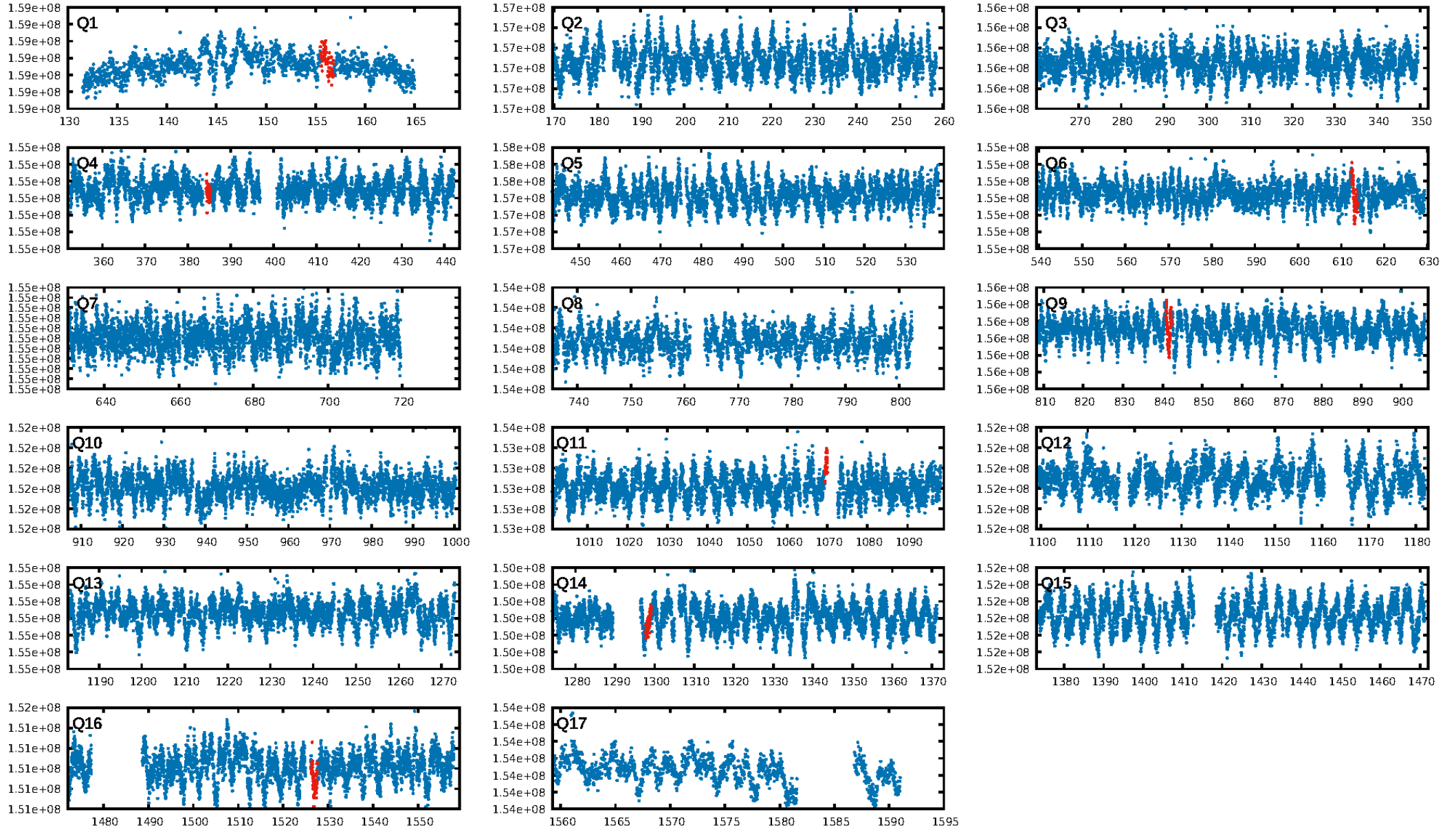
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.50σ]
LongPeriod-sig: 100.0% [263.94σ]
ModelChiSquare2-sig: 17.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.22e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 2.885
Centroid-sig: 96.7%
Centroid-so: 0.173 arcsec [0.26σ]
OotOffset-rm: 0.542 arcsec [0.83σ]
KicOffset-rm: 0.475 arcsec [0.50σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.25 [1/4]

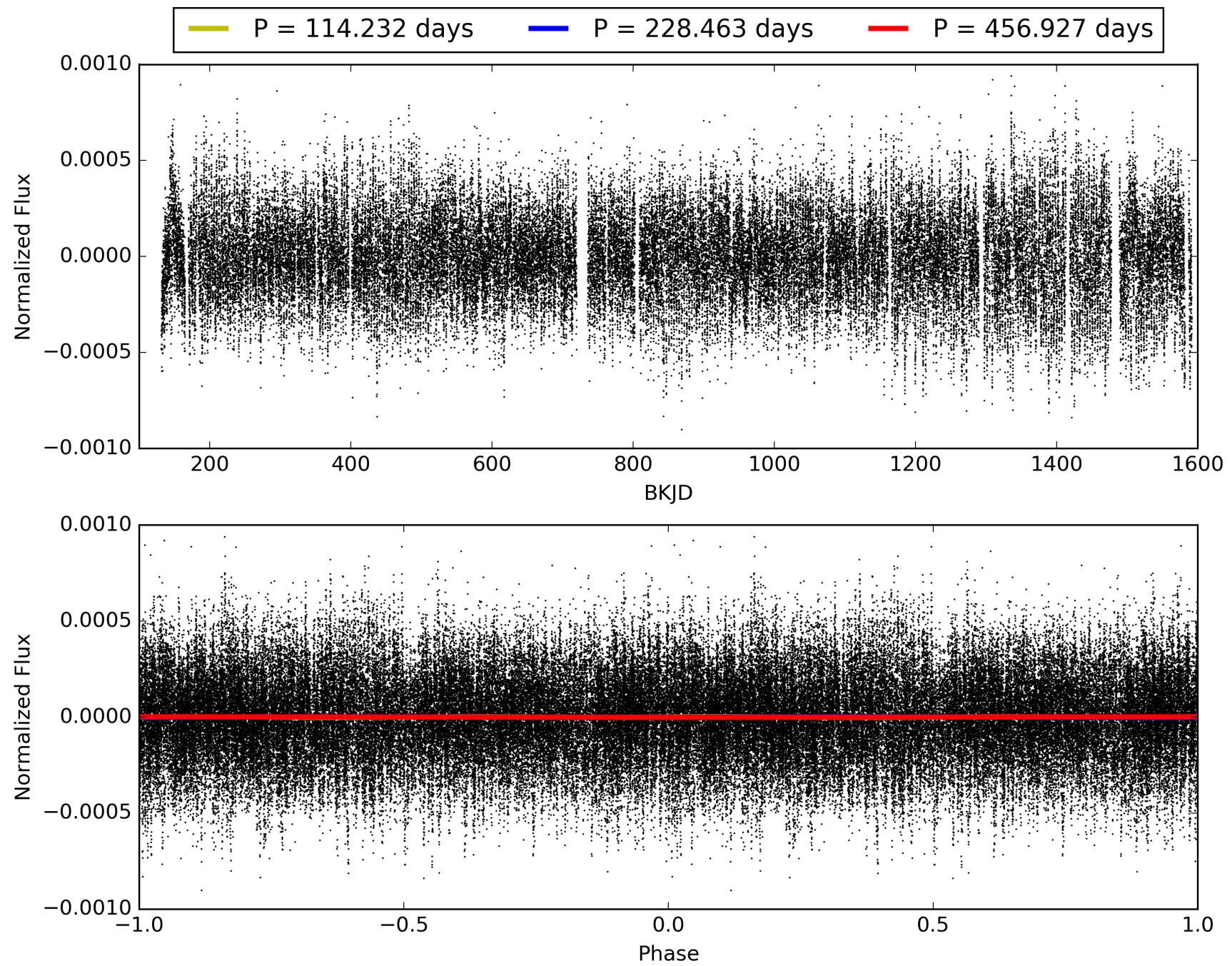
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:35:52 Z

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

TCE 008176634-03, PDC Light Curves

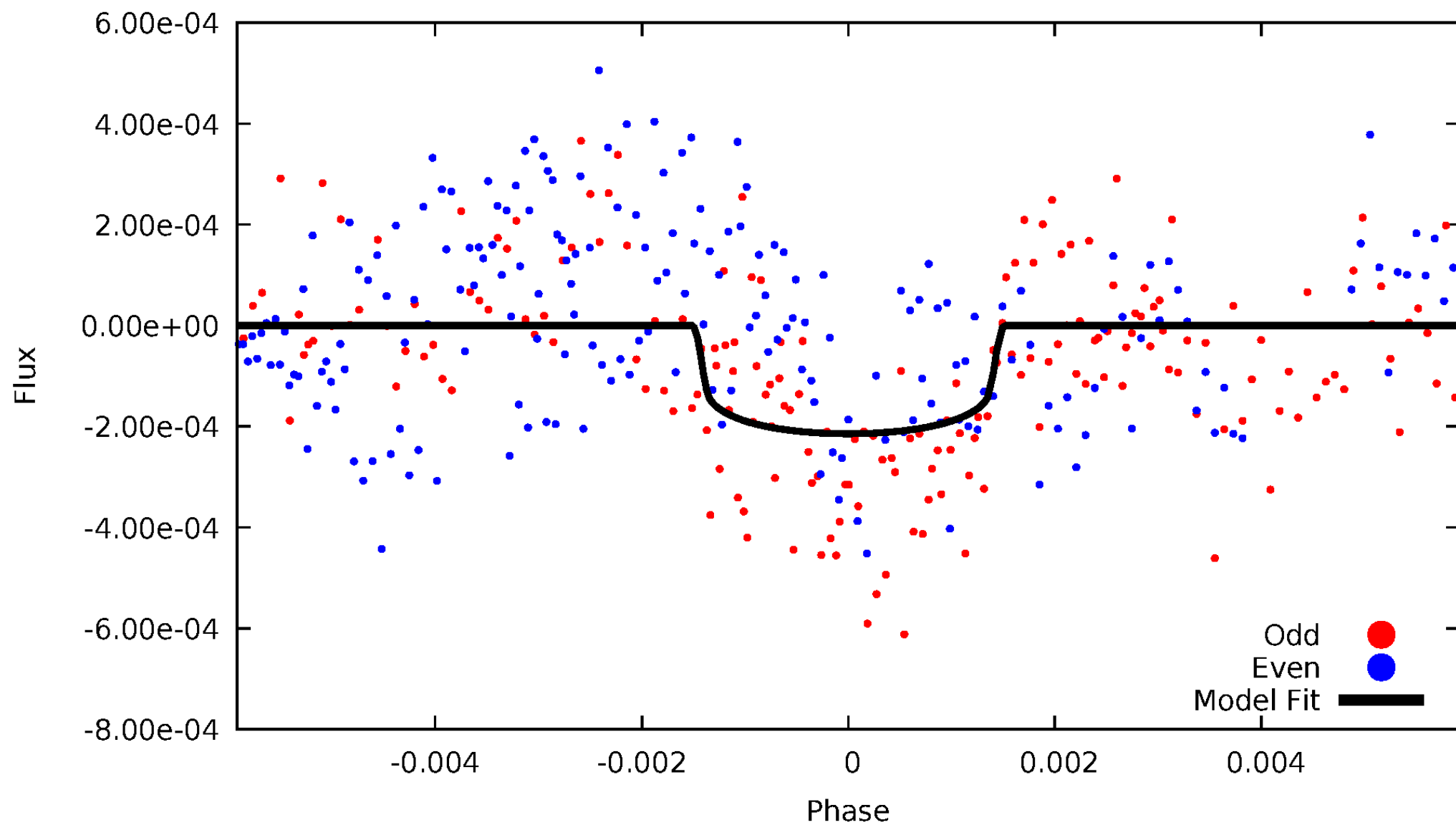


TCE 008176634-03



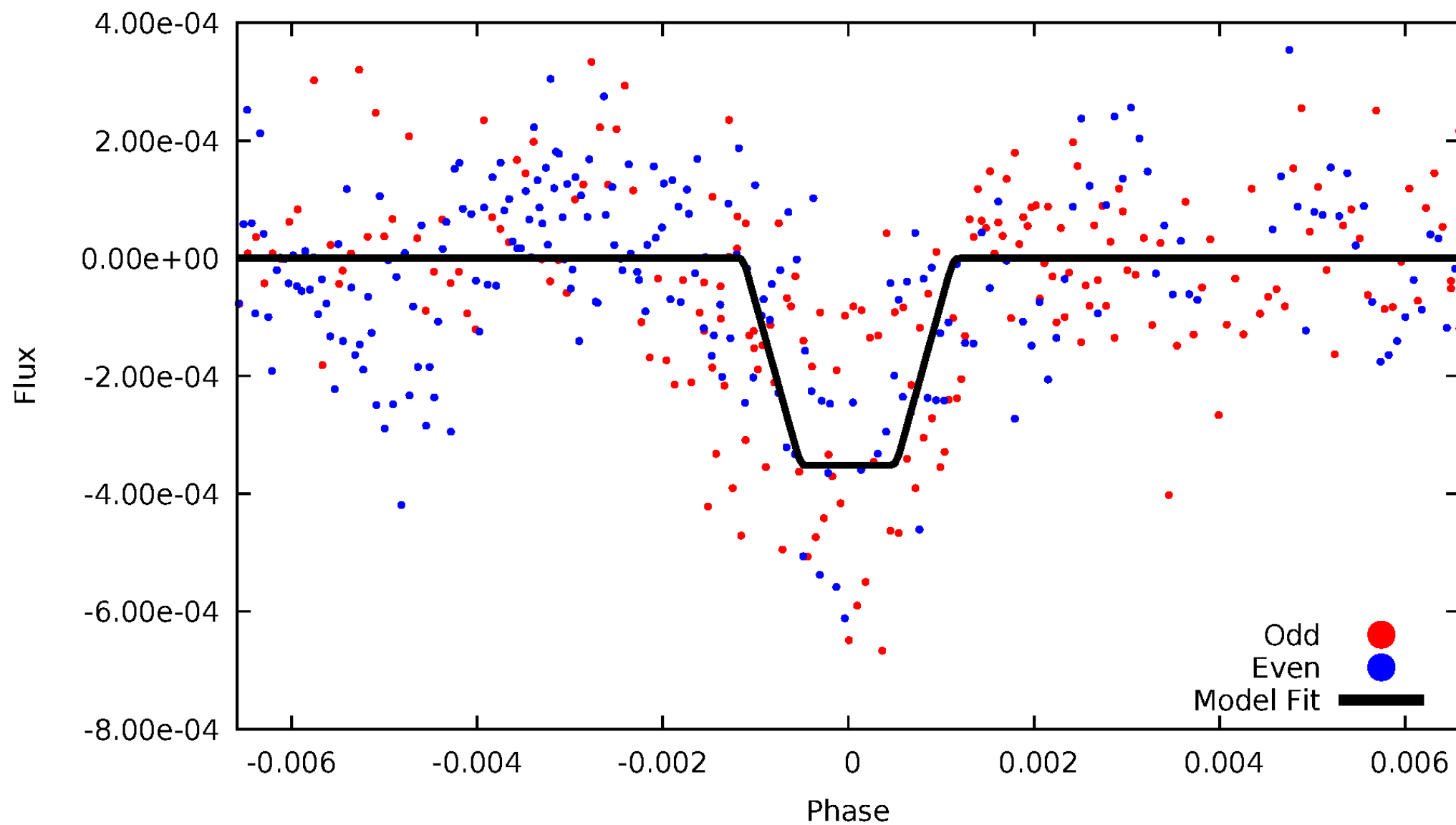
DV Odd/Even

TCE 008176634-03



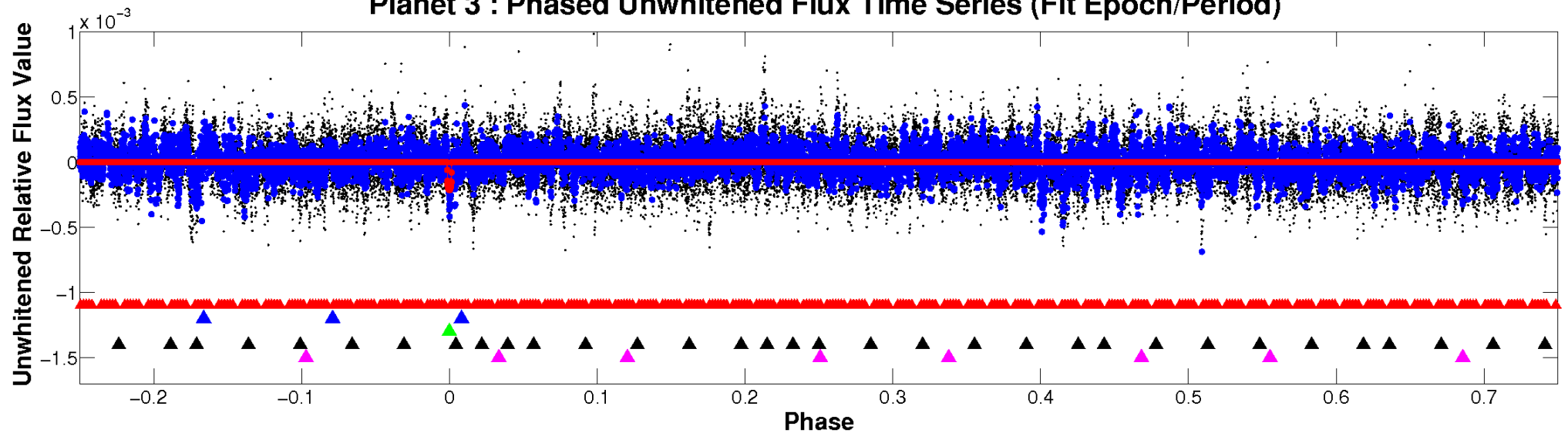
ALT Odd/Even

TCE 008176634-03

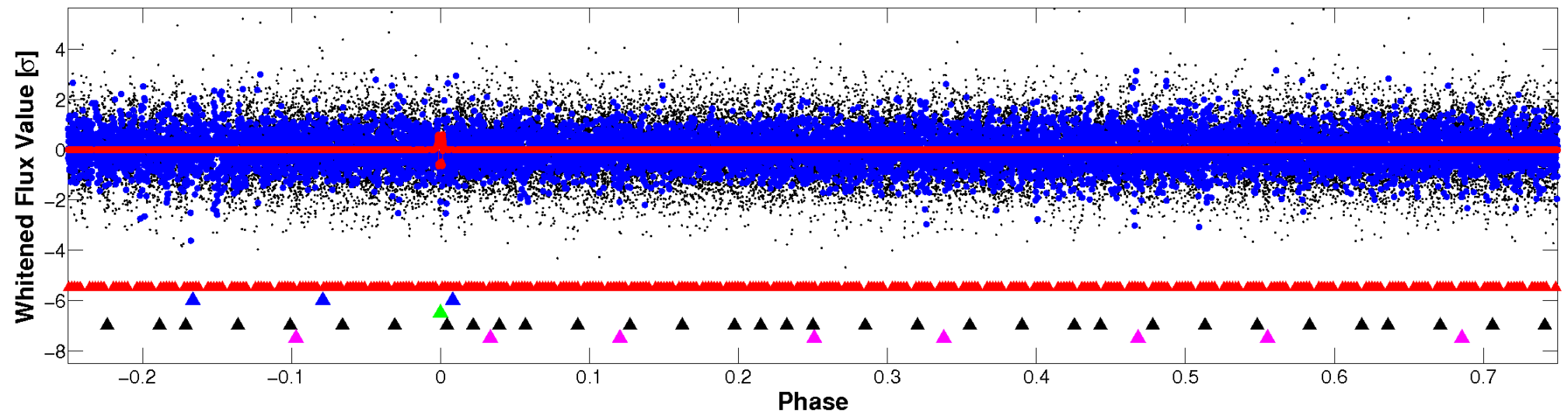


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

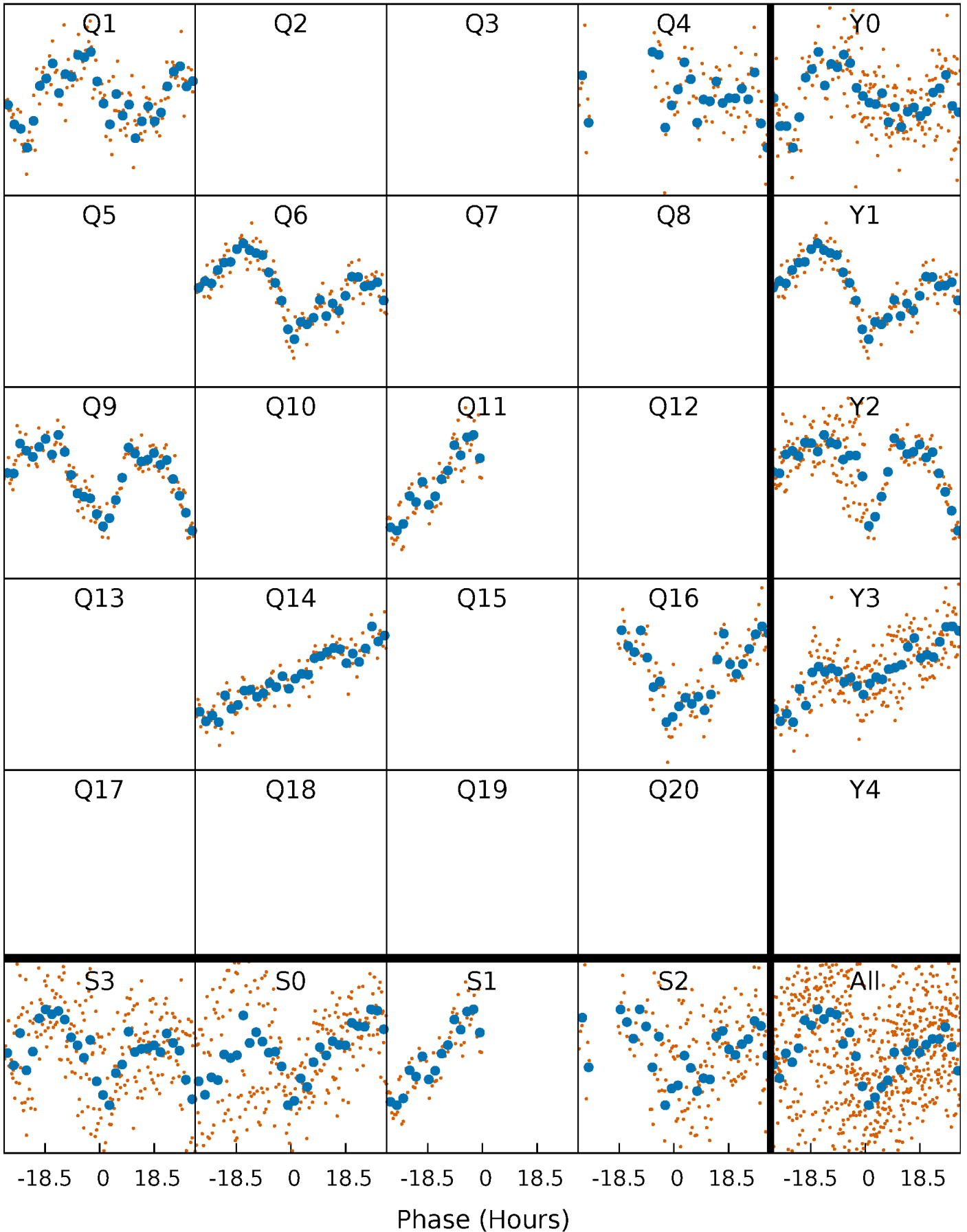


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



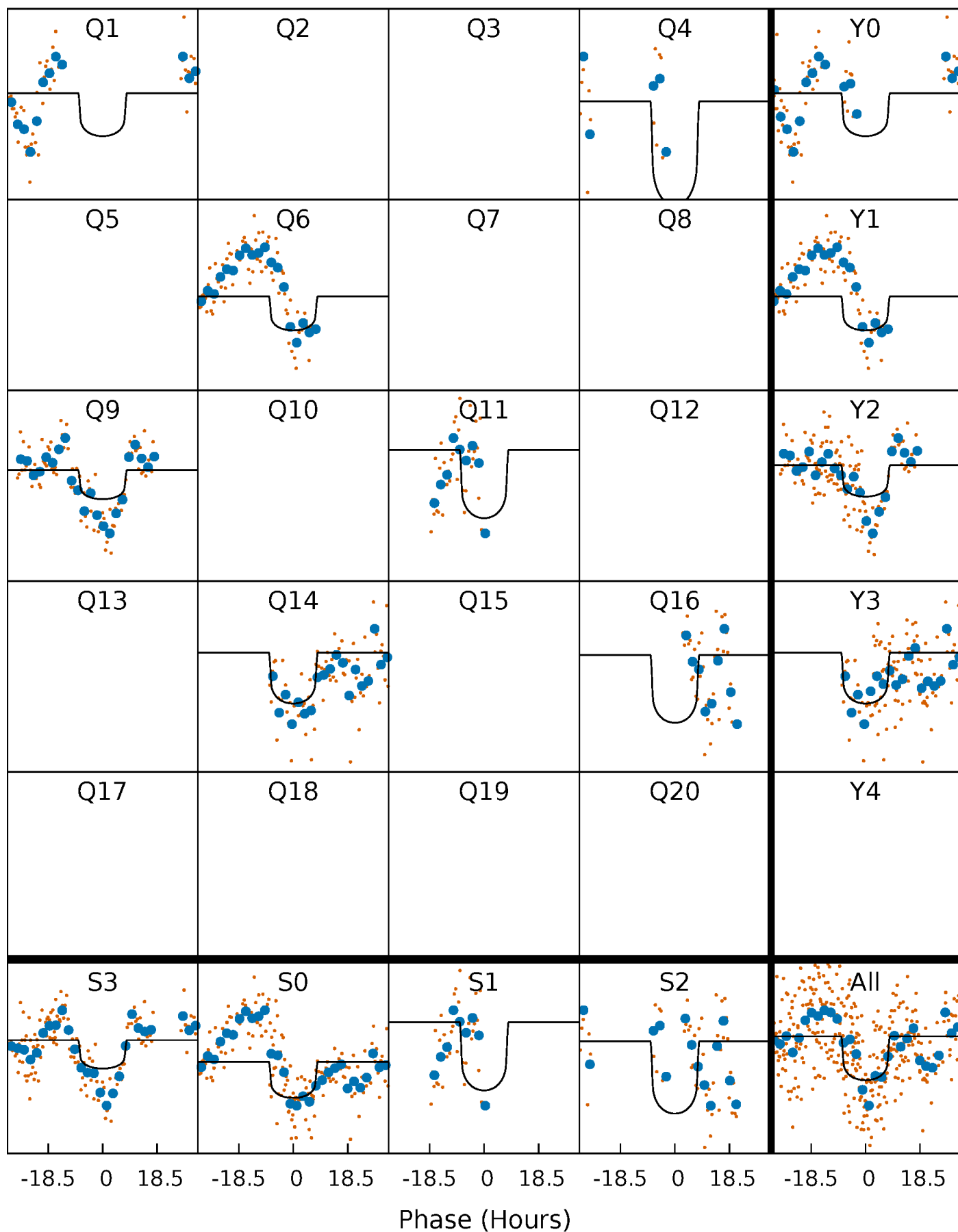
PDC Quarter-Phased Transit Curves

TCE 008176634-03 $P=228.463315$ Days $T_0=156.146177$ (BKJD)



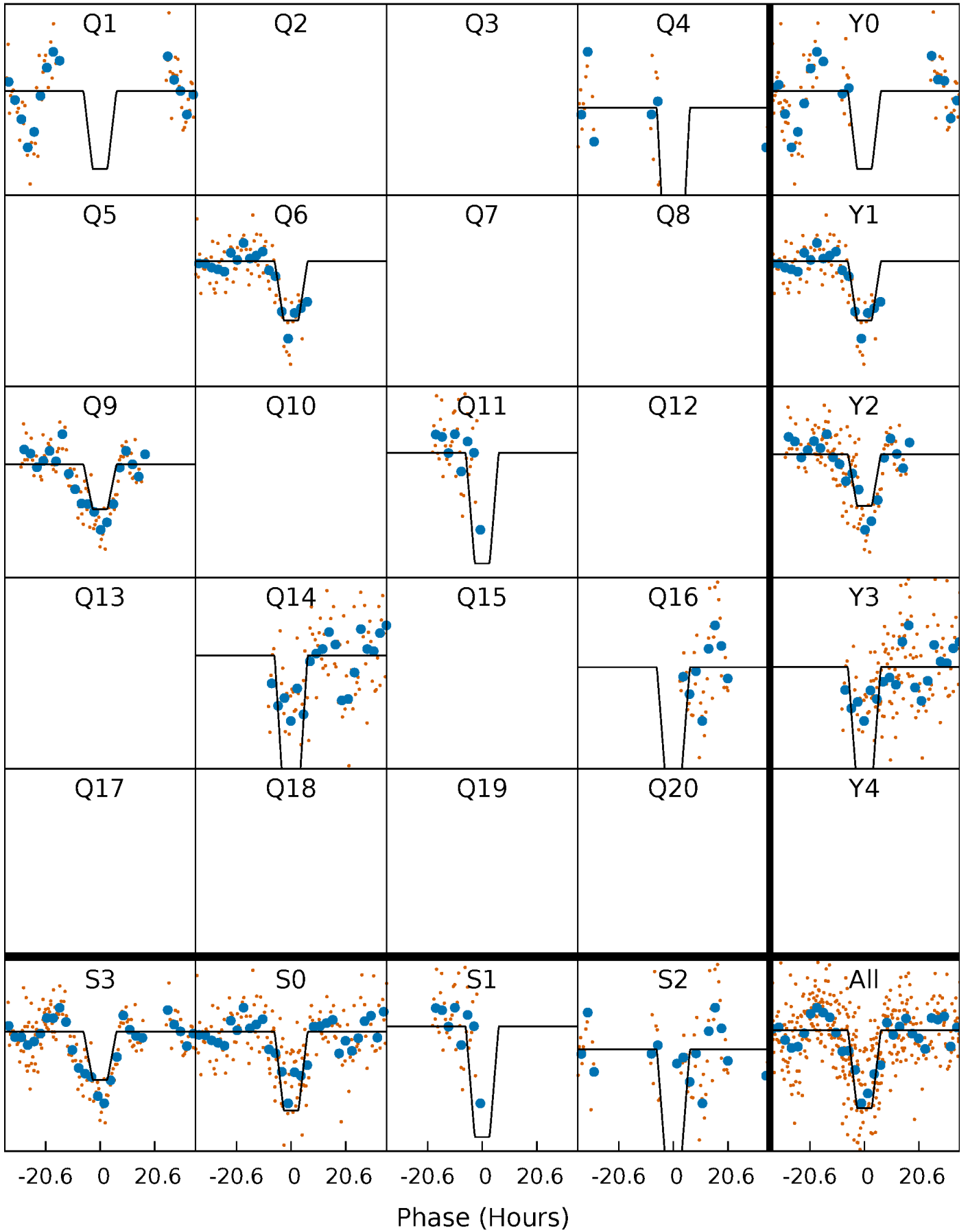
DV Quarter-Phased Transit Curves

TCE 008176634-03 P=228.463315 Days $T_0=156.146177$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

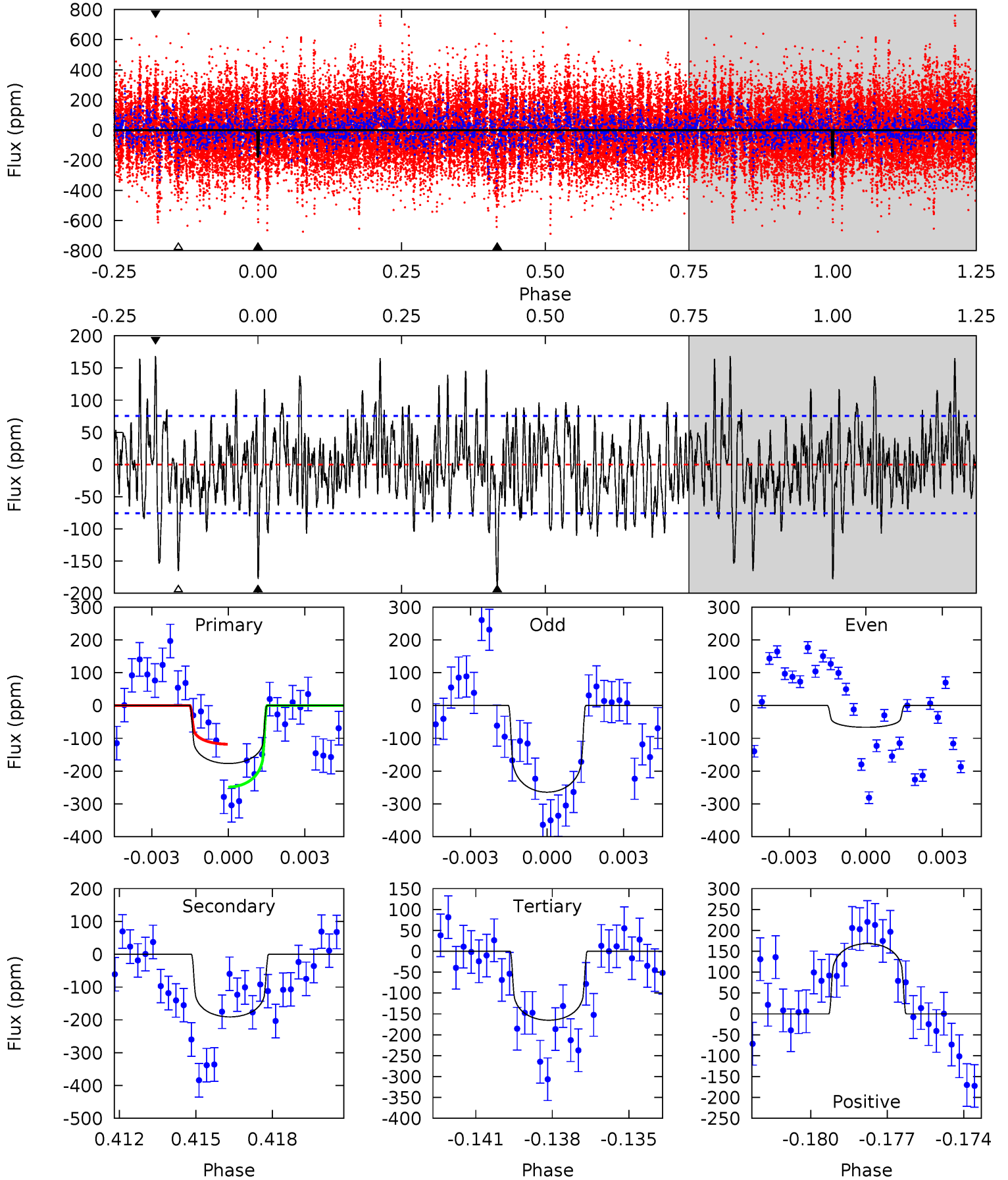
TCE 008176634-03 P=228.454012 Days $T_0=156.214708$ (BKJD)



DV Model-Shift Uniqueness Test

008176634-03, P = 228.463315 Days, E = 156.146177 Days

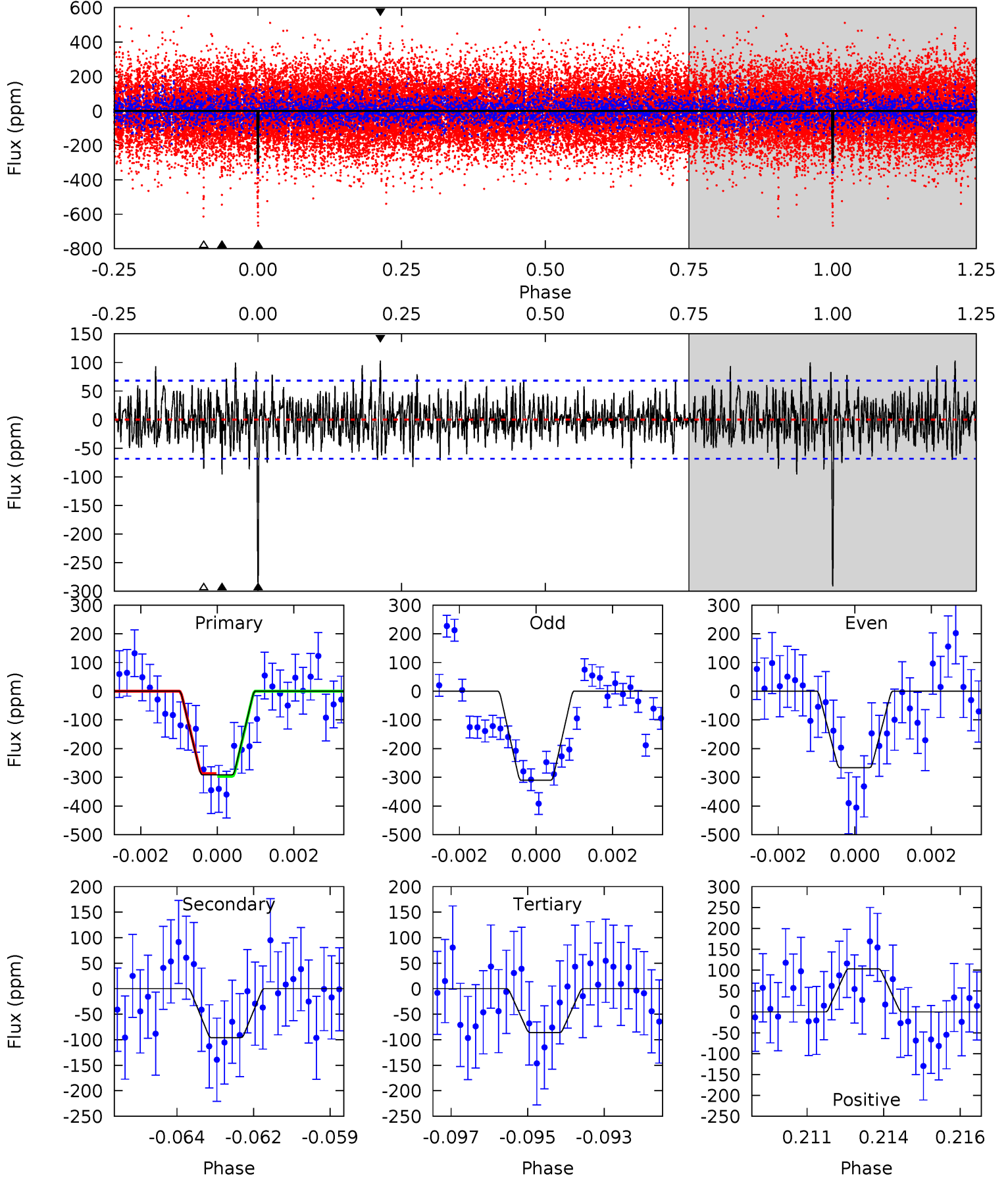
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	13.3	11.5	11.7	5.25	2.97	3.46	0.81	0.59	1.79	1.57	6.81	1.60	0.47	4.51



Alt Model-Shift Uniqueness Test

008176634-03, P = 228.454012 Days, E = 156.214708 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	7.42	6.66	7.99	5.30	3.04	2.07	15.9	14.6	0.75	-0.57	1.70	1.06	0.26	0.39



Stellar Parameters For KIC 008176634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+171}_{-171}	$3.890^{+0.280}_{-0.100}$	$-0.200^{+0.300}_{-0.250}$	$2.071^{+0.451}_{-0.676}$	$1.215^{+0.225}_{-0.225}$	$0.193^{+0.353}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+22%/-33%	+19%/-19%	+183%/-36%
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 008176634-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-191 ± 14	$3.08^{+0.88}_{-0.78}$	610^{+38}_{-49}	6098^{+926}_{-650}	6816^{+5390}_{-2645}
Alt.	-96 ± 13	$3.98^{+1.09}_{-0.93}$	611^{+41}_{-53}	4639^{+438}_{-342}	2021^{+1415}_{-763}

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 $A_{obs} \gg 1.0$

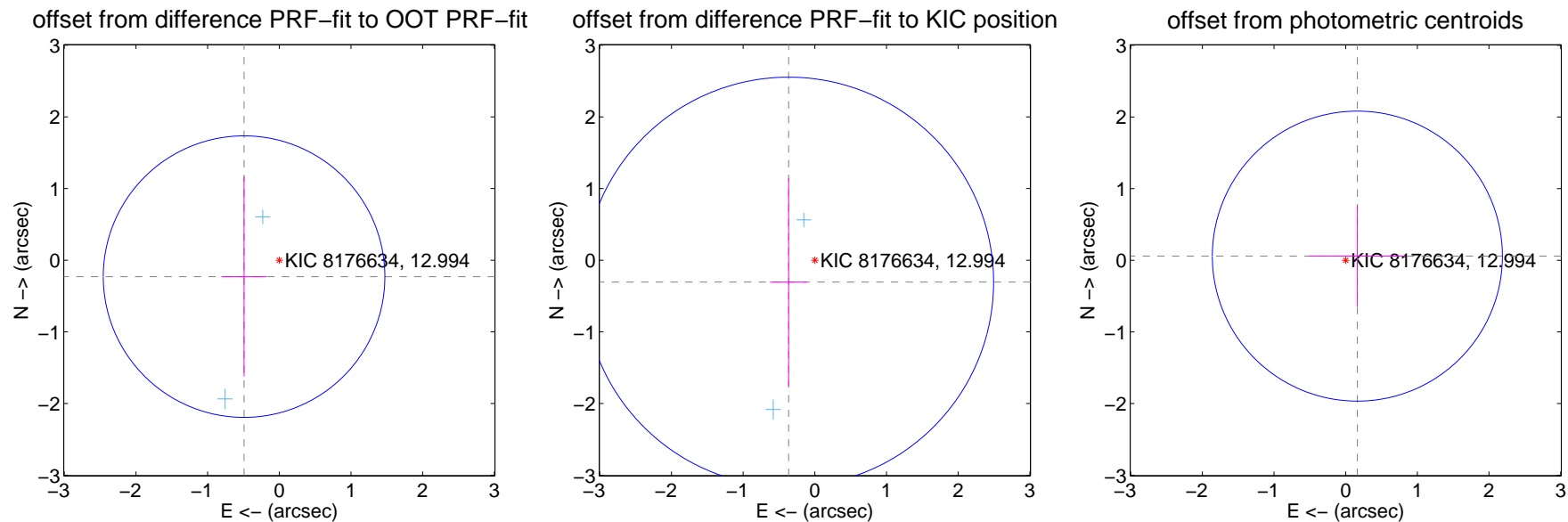
DV Centroid Data

Supplemental centroid analysis for 008176634-03. Kepler magnitude: 12.99. Transit SNR 6.65

There are 2 quarters with good PRF difference image offsets

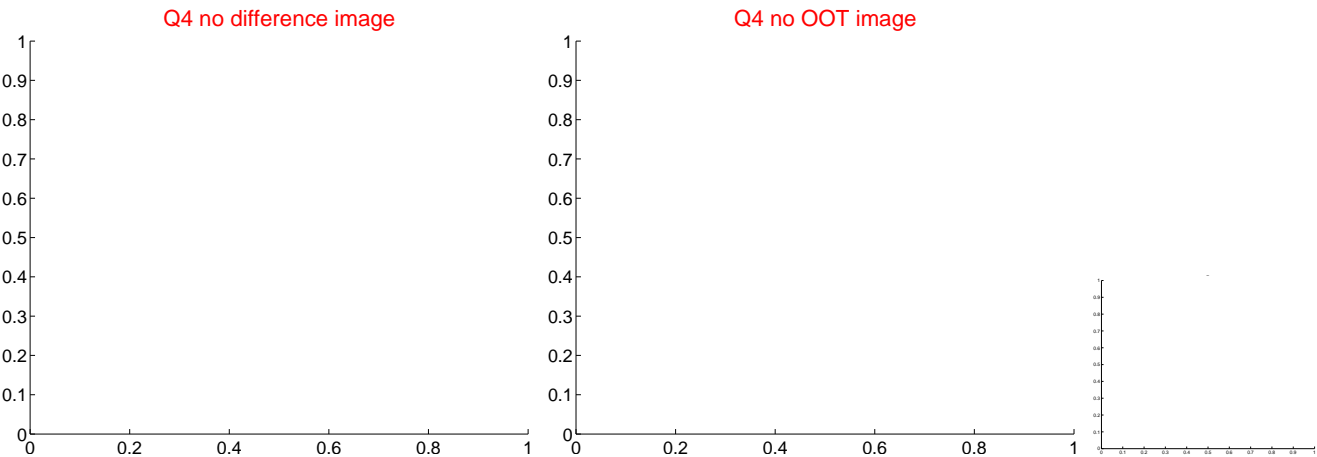
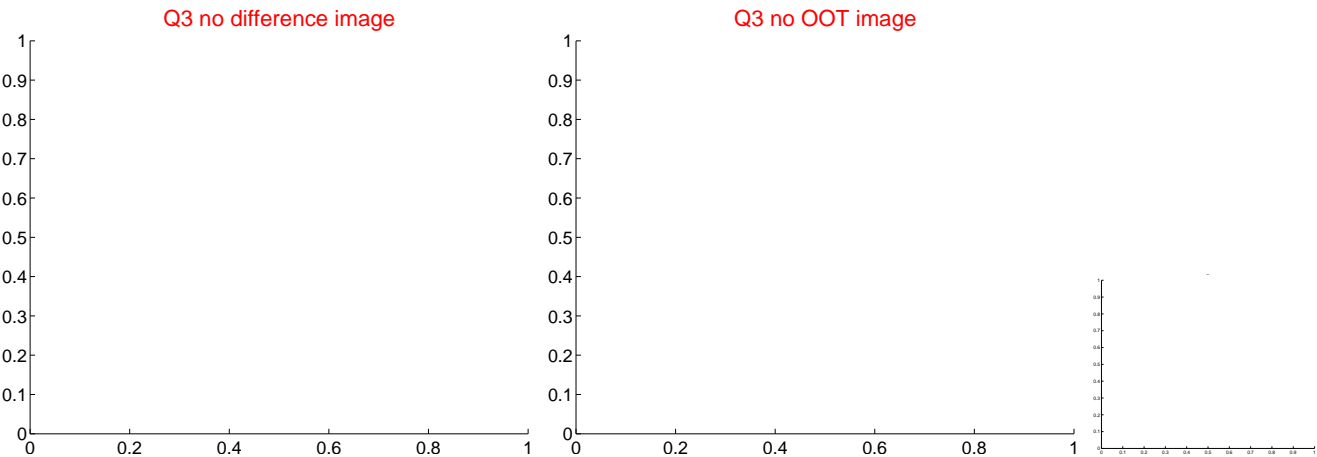
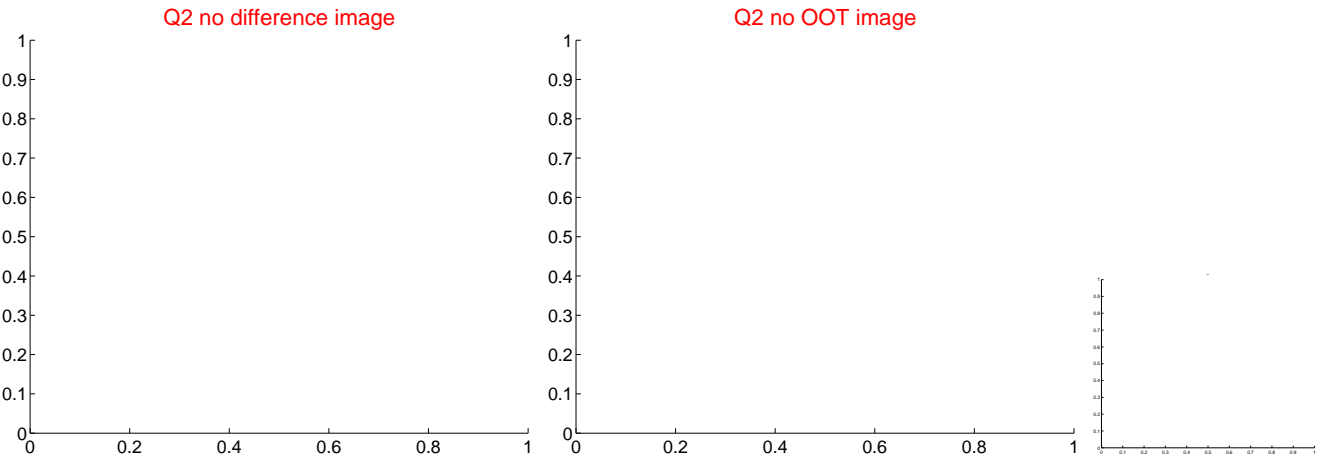
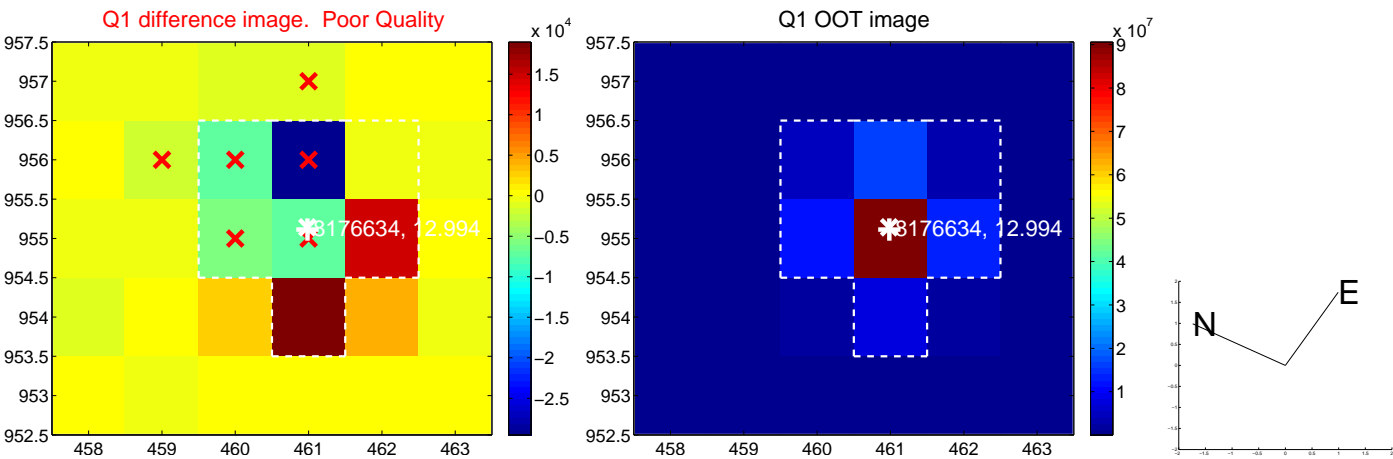
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.542 ± 0.655	0.83	0.492 ± 0.315	-0.229 ± 1.394
PRF-fit source offset from KIC position	0.475 ± 0.953	0.50	0.365 ± 0.258	-0.305 ± 1.454
photometric centroid source offset	0.17 ± 0.67	0.26	-0.16 ± 0.67	0.06 ± 0.71

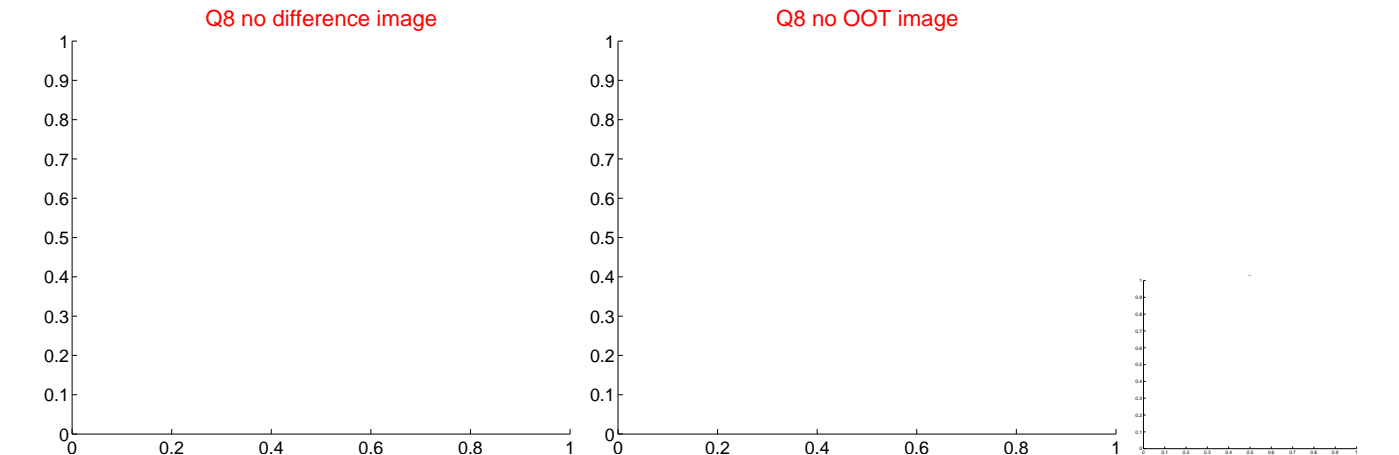
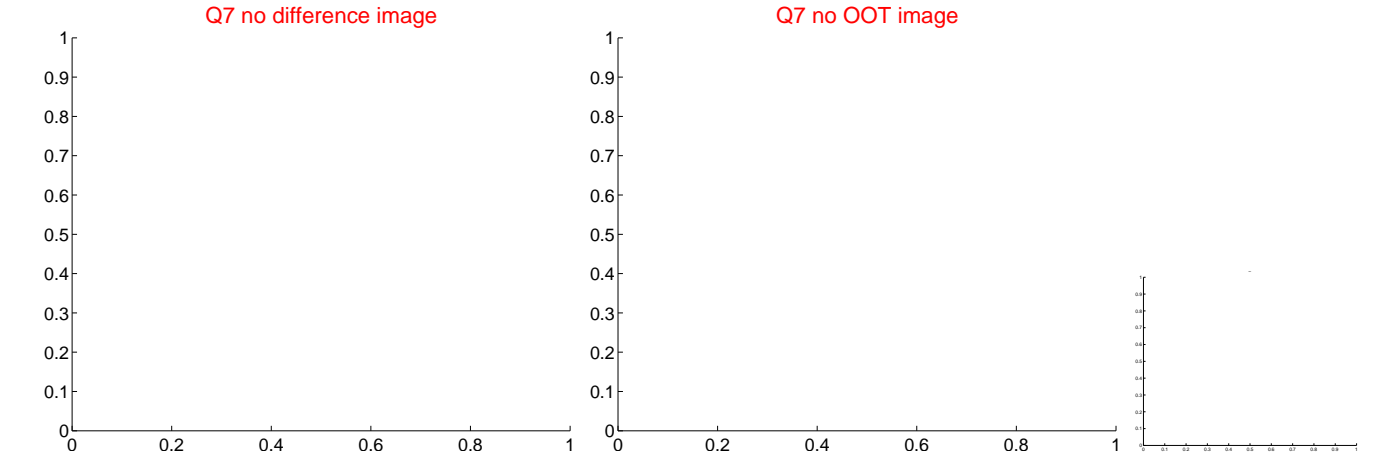
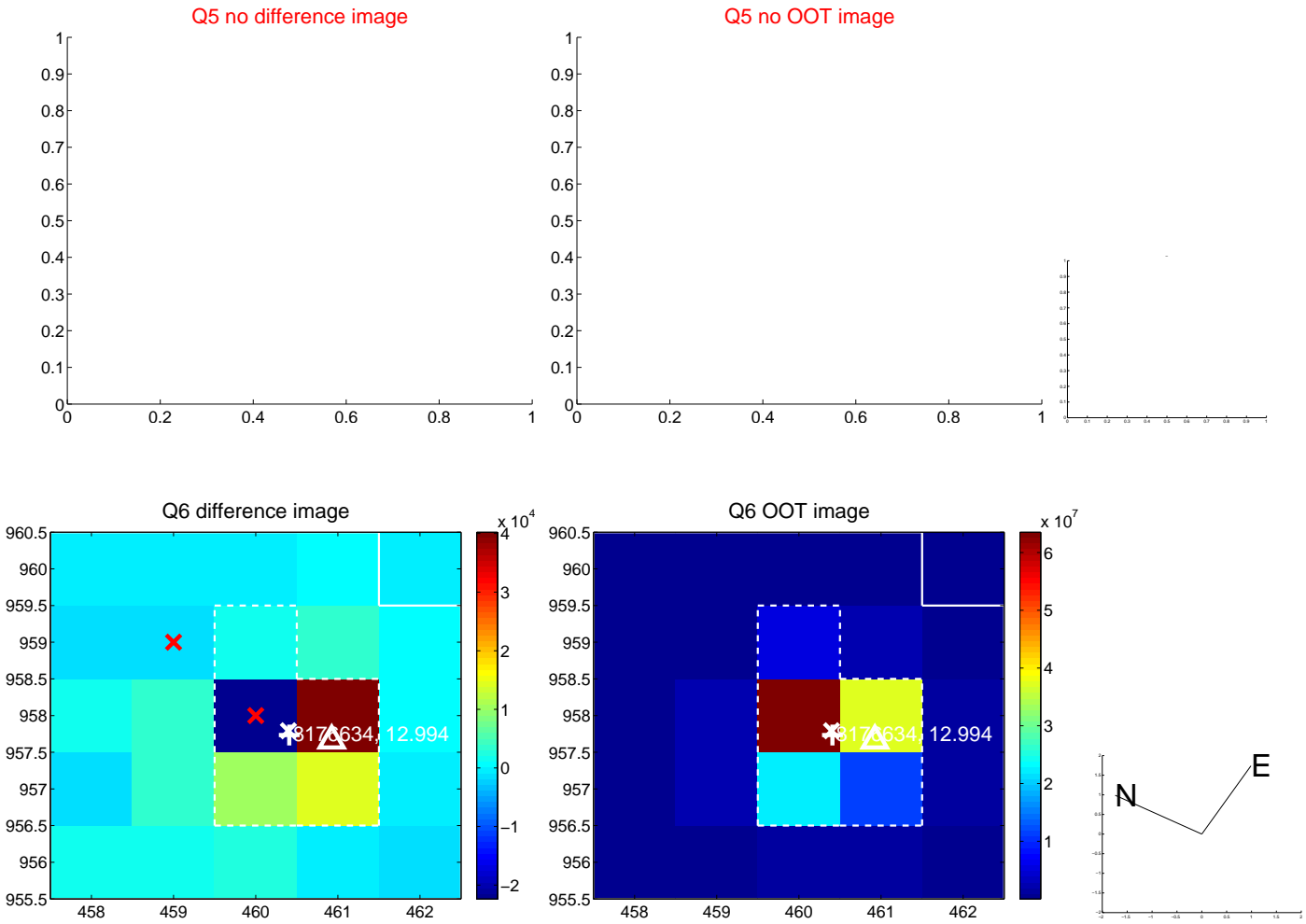


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

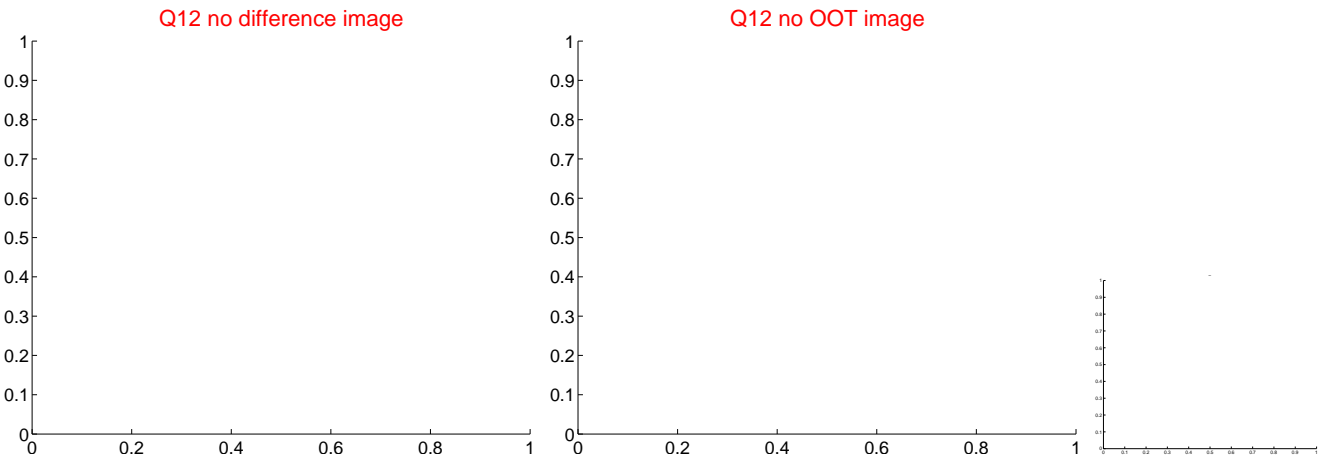
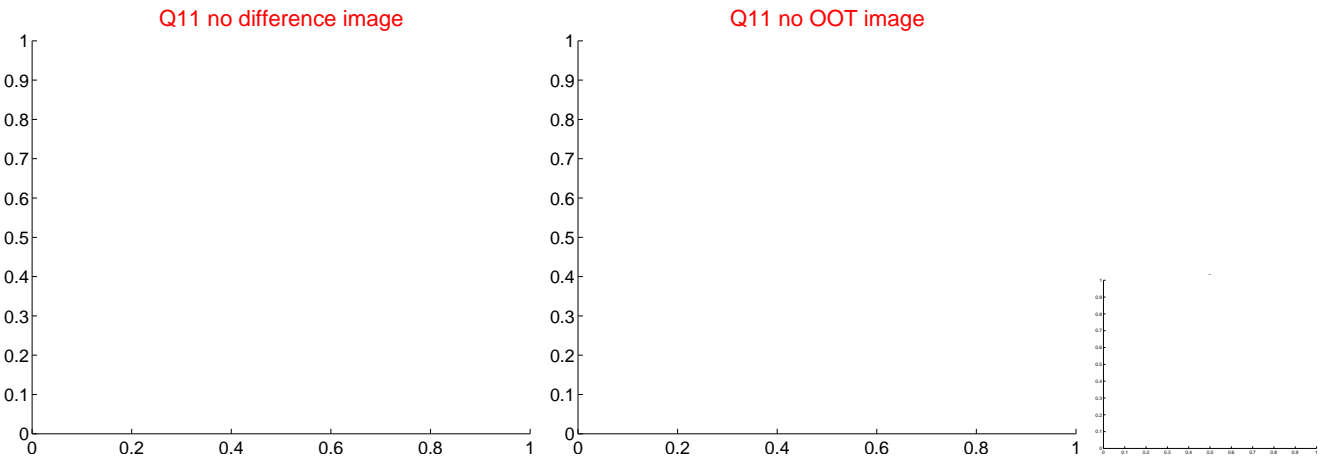
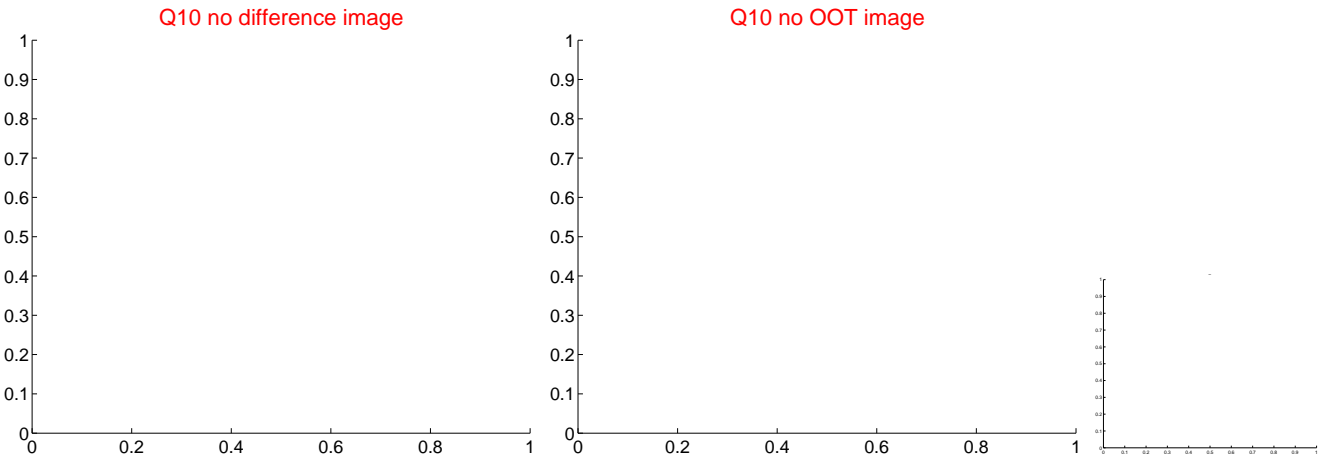
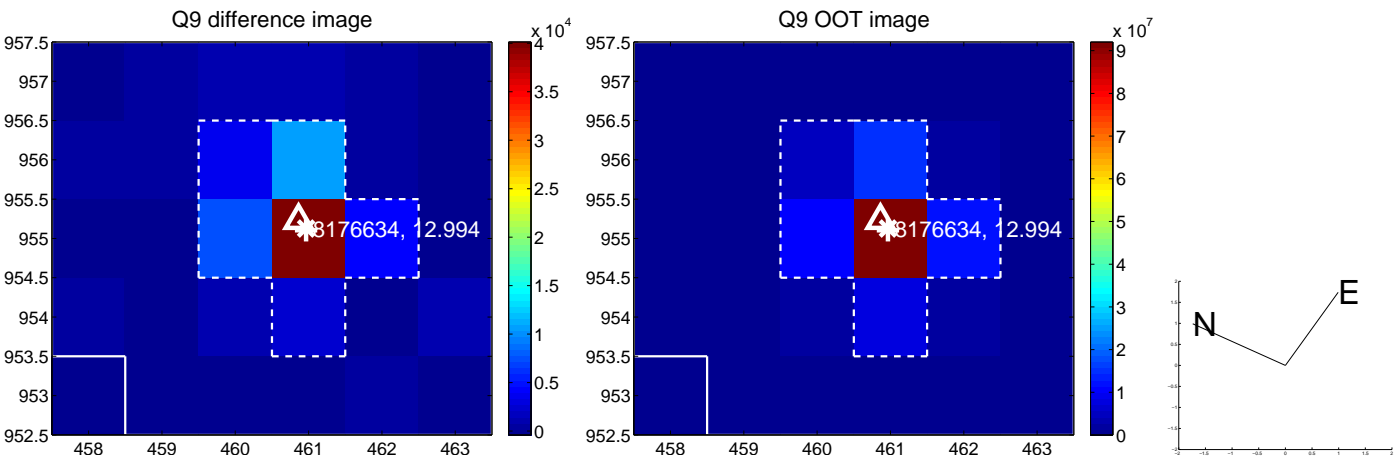
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



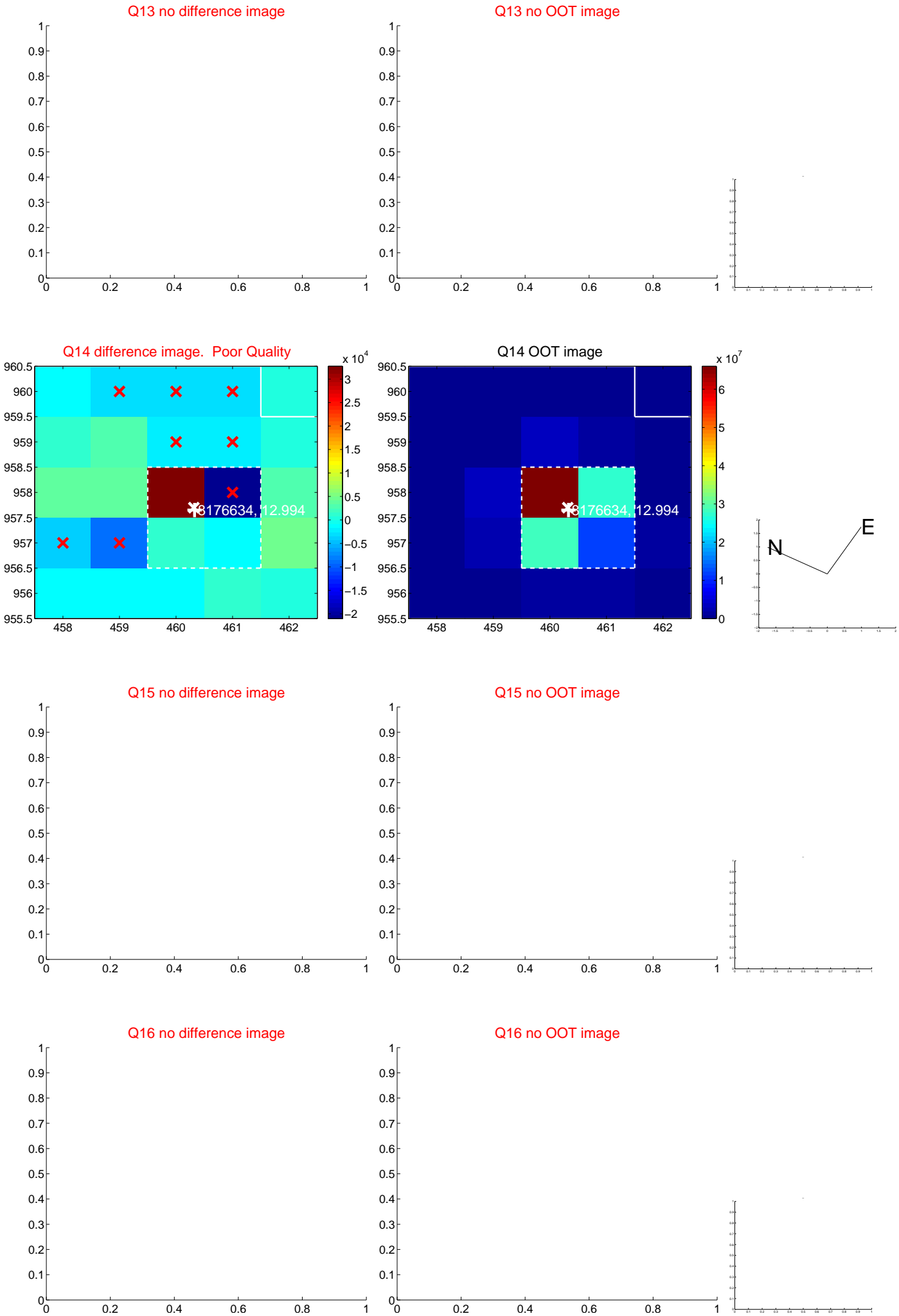
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



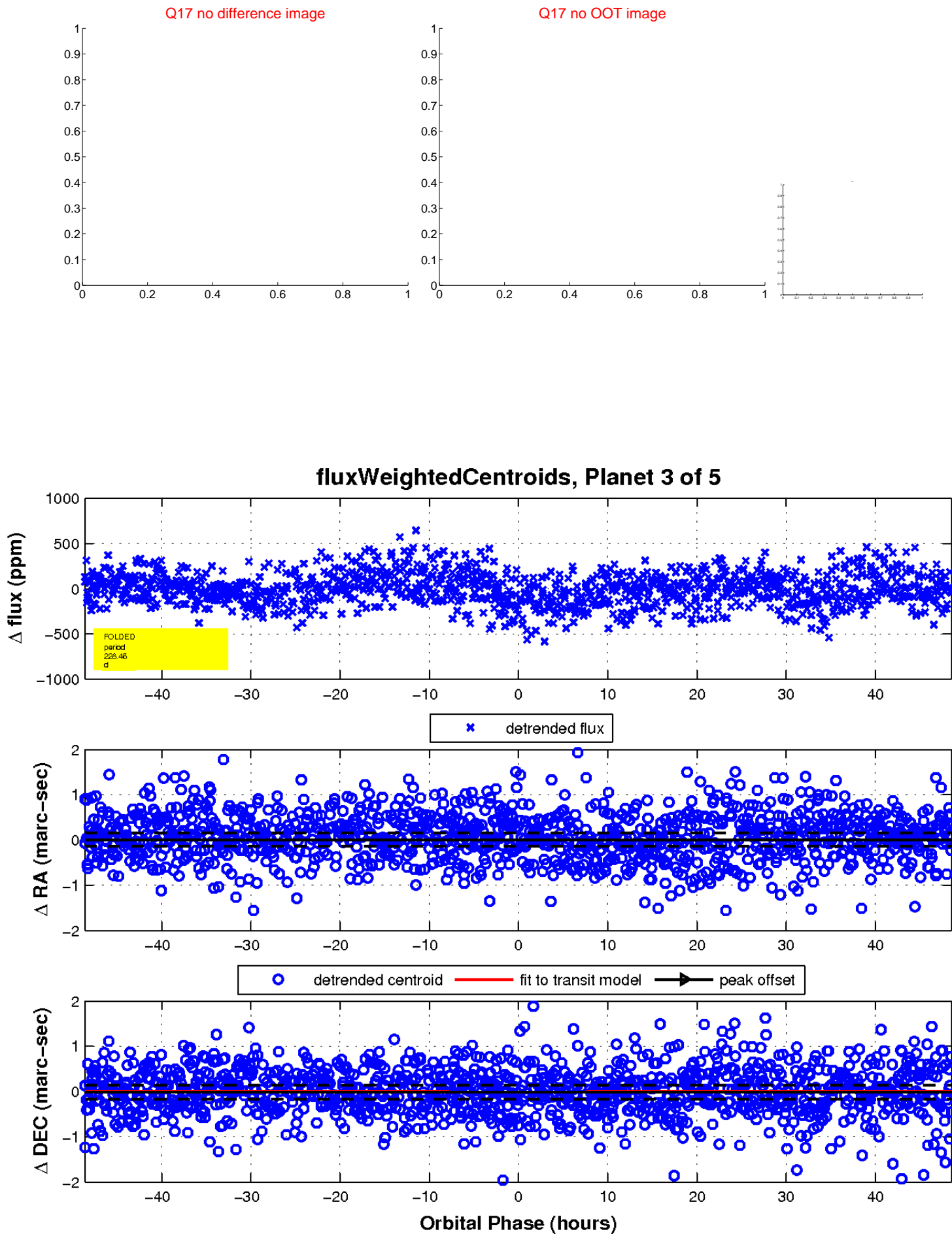
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



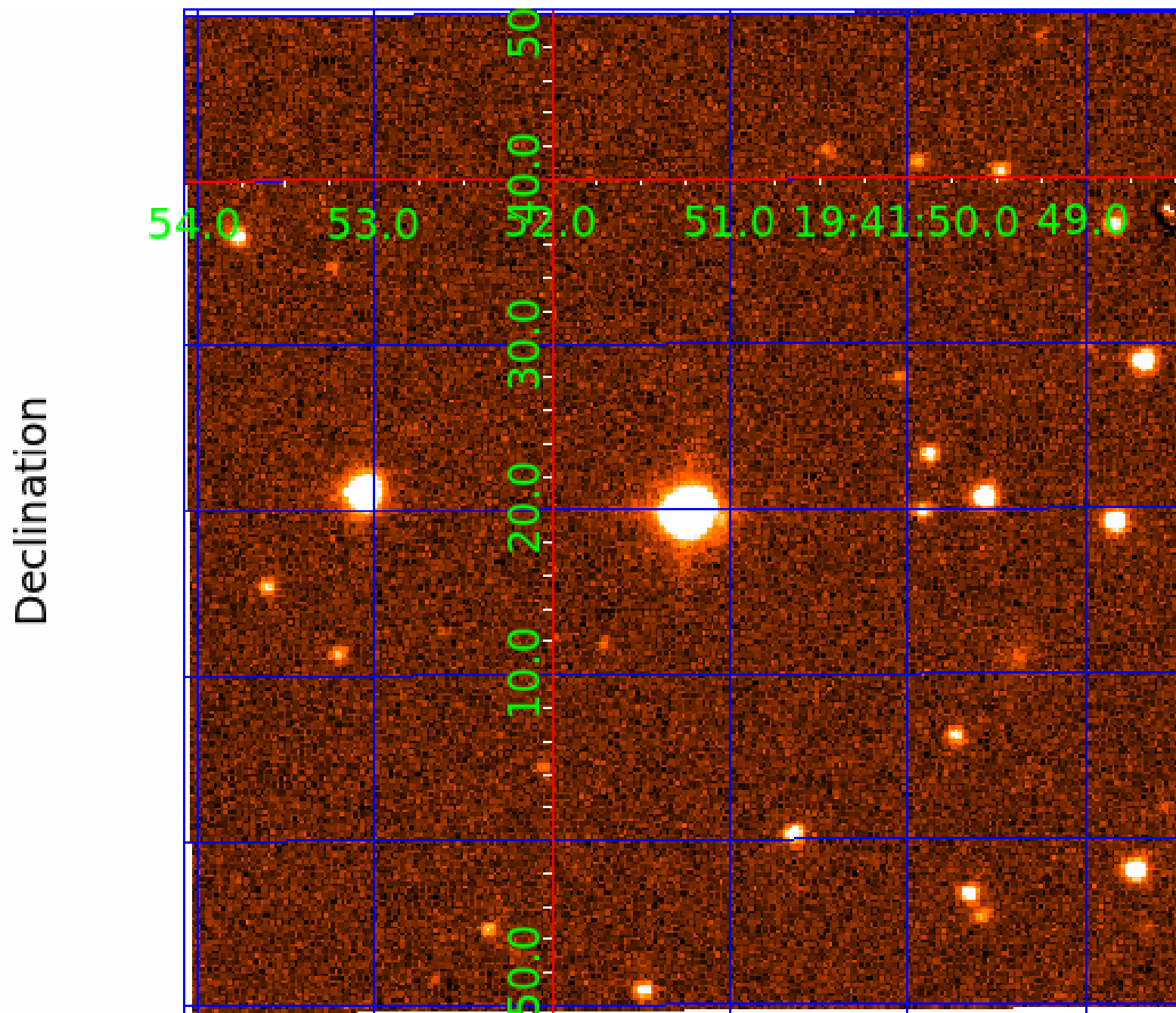
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008176634

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})
008176634-01	OBS	No	3.633366	134.602477	20.0	13.333	7.9	5.4	2.07	6214	1.07	2351.91
008176634-02	OBS	No	476.849095	575.109178	410.6	15.717	12.4	8.5	2.07	6214	5.48	3.53
008176634-03	OBS	No	228.463315	156.146177	214.5	16.220	7.8	6.6	2.07	6214	3.32	9.41
008176634-04	OBS	No	44.089485	165.170492	118.6	3.486	7.5	7.0	2.07	6214	2.48	84.34
008176634-05	OBS	No	178.797154	282.997768	254.4	11.184	7.4	7.0	2.07	6214	4.39	13.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176634-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008176634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—MOD_NONUNIQ_ALT
008176634-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

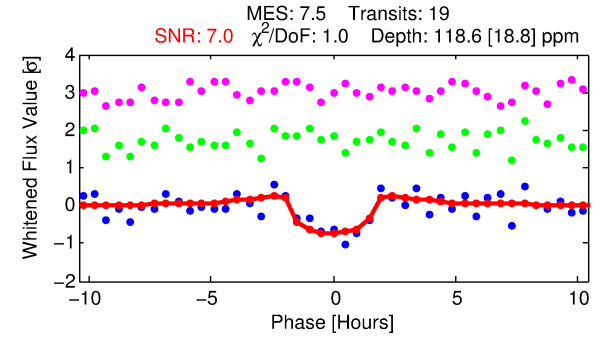
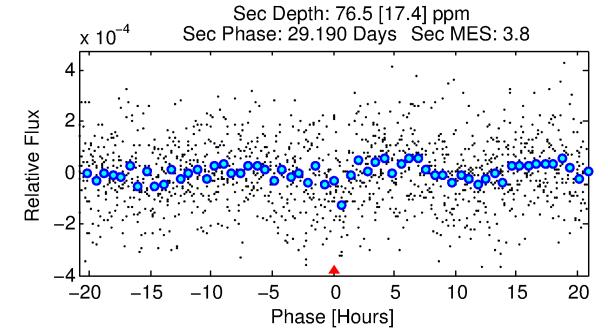
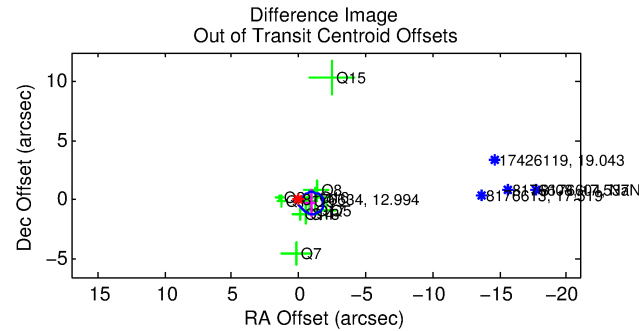
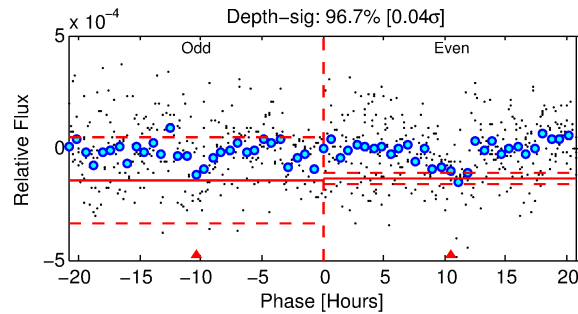
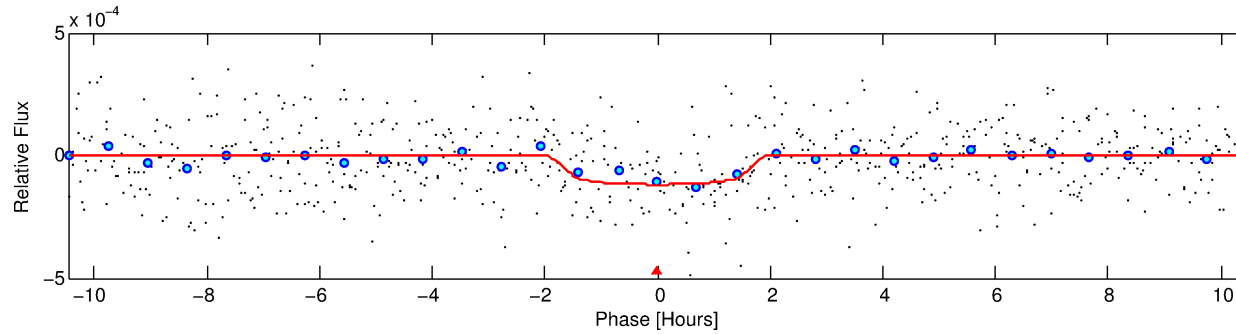
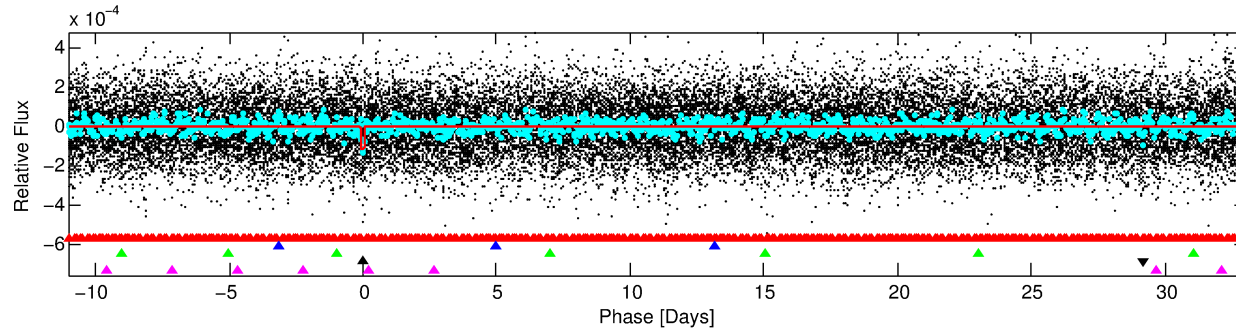
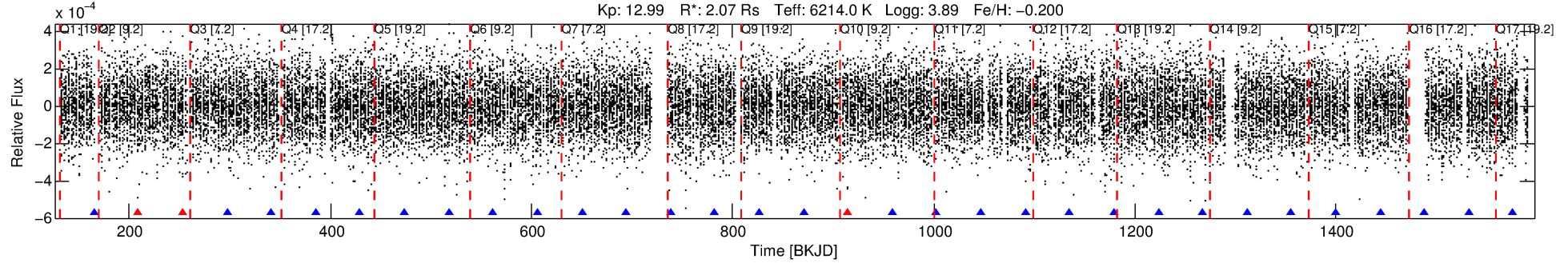
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176634-04

No Significant Match Found

DV One-Page Summary

KIC: 8176634 Candidate: 4 of 5 Period: 44.089 d



DV Fit Results:

Period = 44.08949 [0.00052] d
Epoch = 165.1705 [0.0098] BKJD
Rp/R* = 0.0110 [0.0091]
a/R* = 61.86 [269.76]
b = 0.78 [2.19]
Seff = 84.34 [41.68]
Teq = 773 [95] K
Rp = 2.48 [2.22] Re
a = 0.2606 [0.0797] AU
Ag = 465.69 [814.58] [0.57 σ]
Teffp = 5550 [2338] K [2.04 σ]

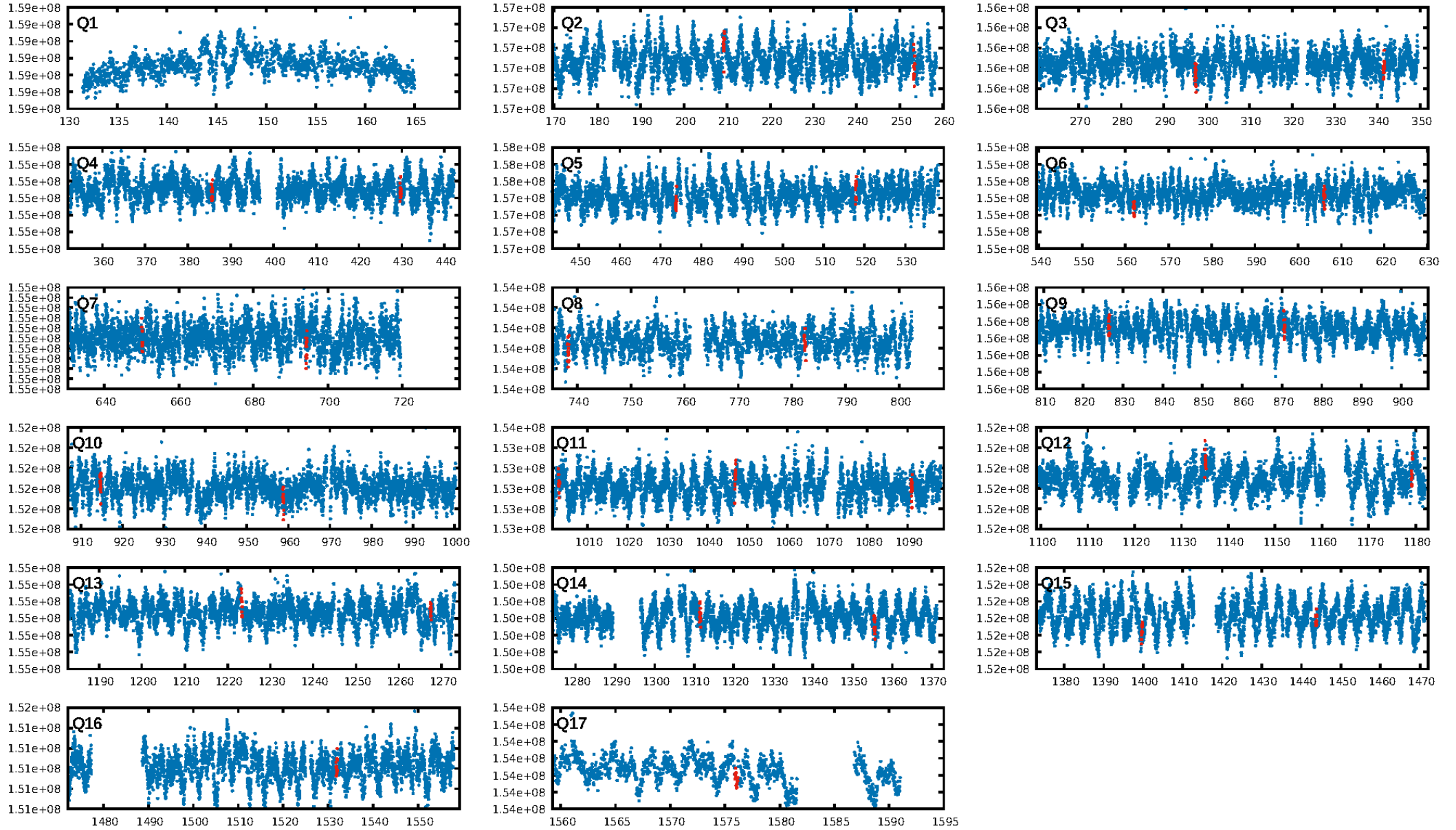
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [70.45 σ]
LongPeriod-sig: 100.0% [275.97 σ]
ModelChiSquare2-sig: 20.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.51e-10
RollingBand-fgt: 0.83 [15/18]
GhostDiagnostic-chr: -0.4085
Centroid-sig: 43.9%
Centroid-so: 0.644 arcsec [0.63 σ]
OotOffset-rm: 0.959 arcsec [3.15 σ]
KicOffset-rm: 1.101 arcsec [3.38 σ]
OotOffset-st: 2/3/2/4 [11]
KicOffset-st: 2/3/2/4 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 0.88 [14/16]

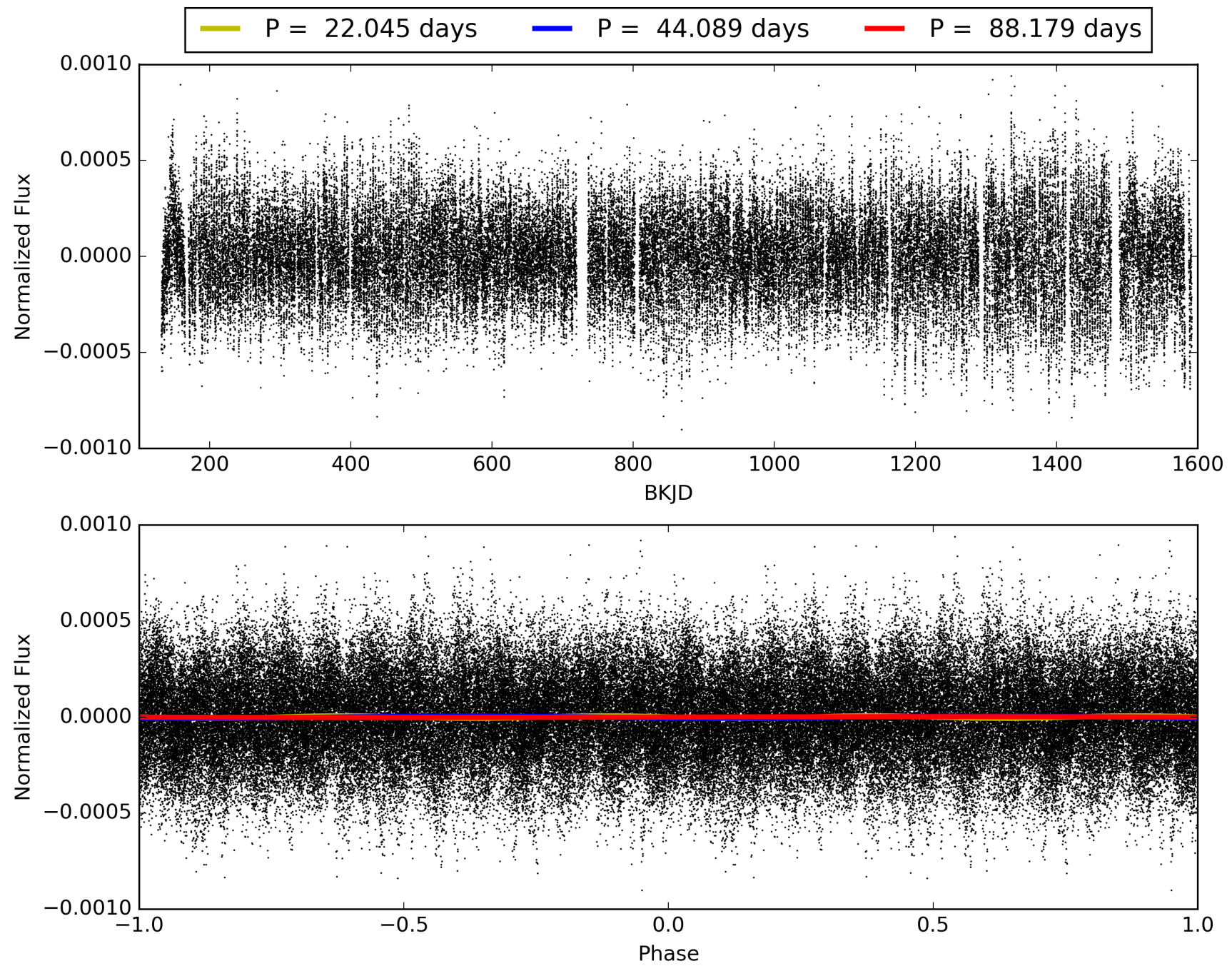
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:35:57 Z

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

TCE 008176634-04, PDC Light Curves

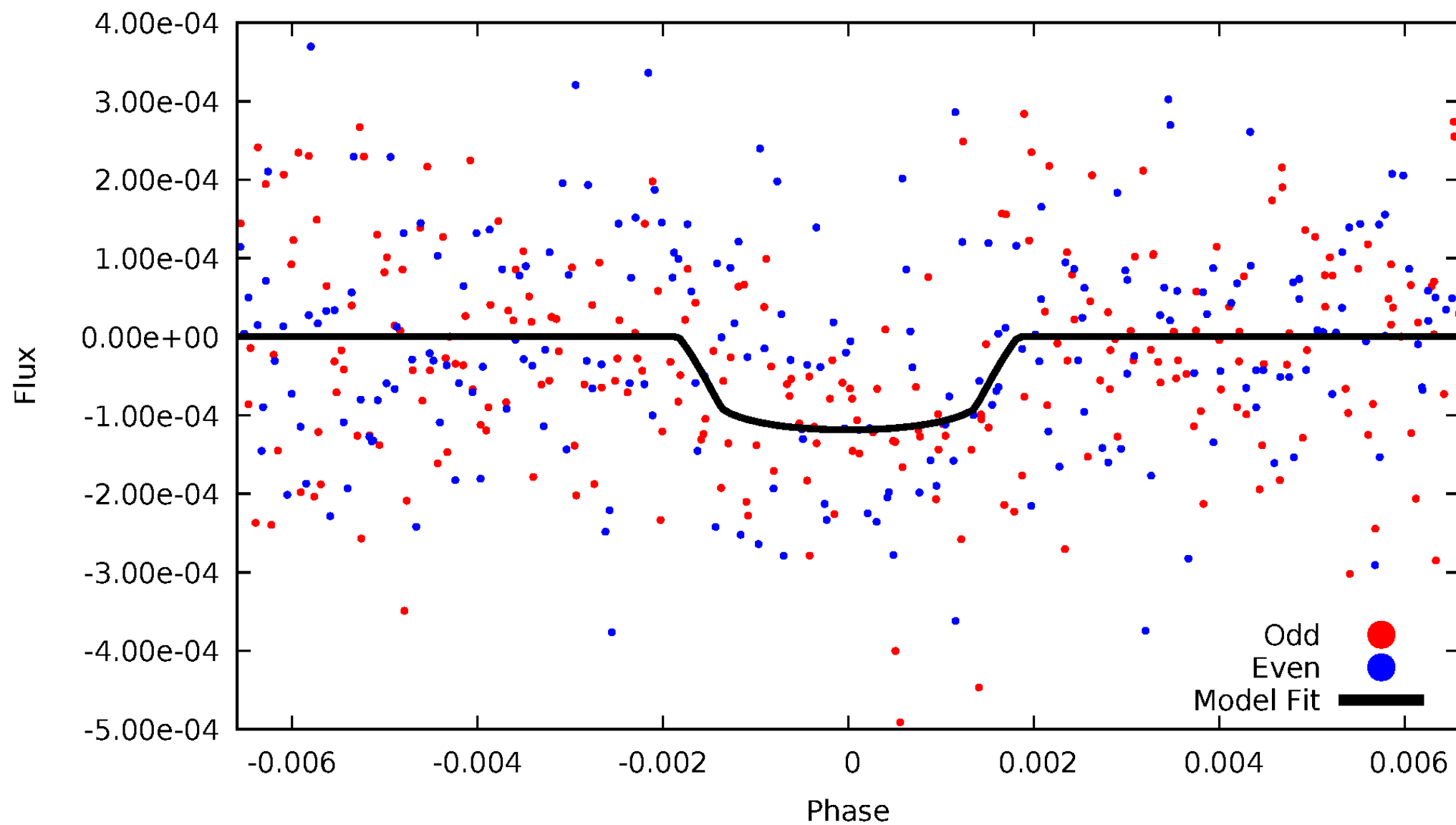


TCE 008176634-04



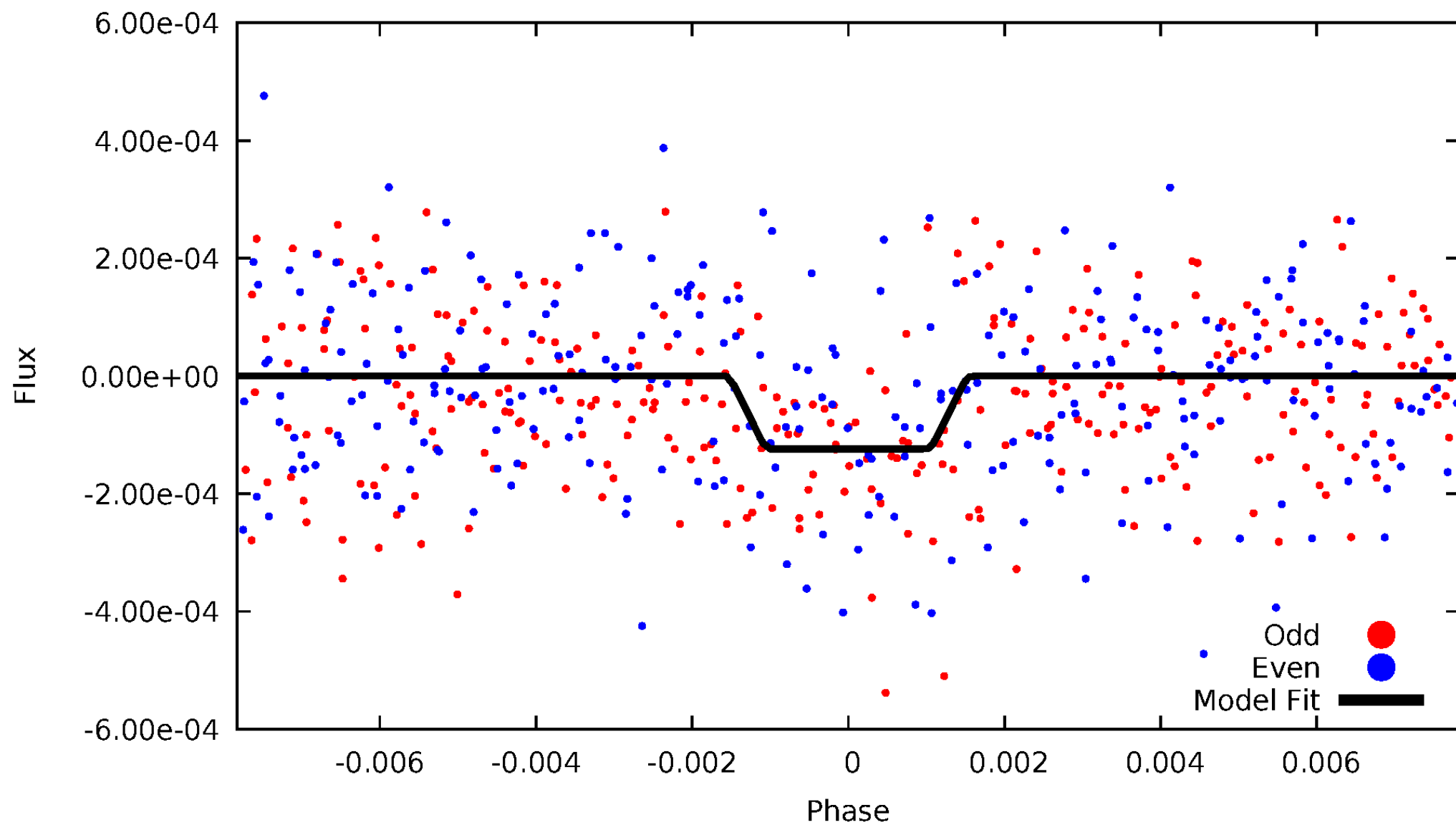
DV Odd/Even

TCE 008176634-04



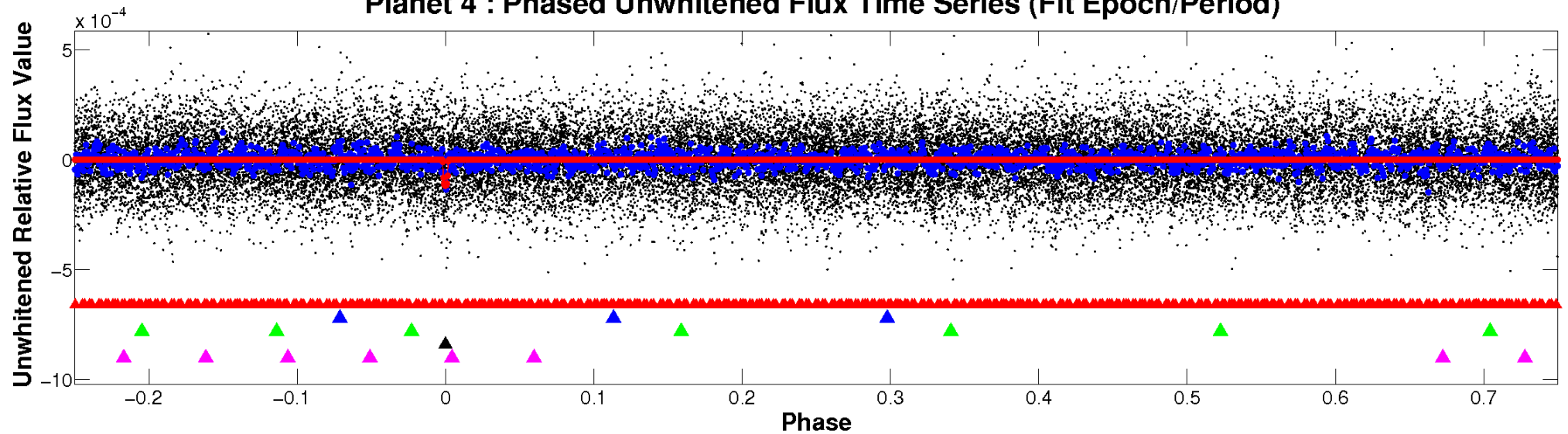
ALT Odd/Even

TCE 008176634-04

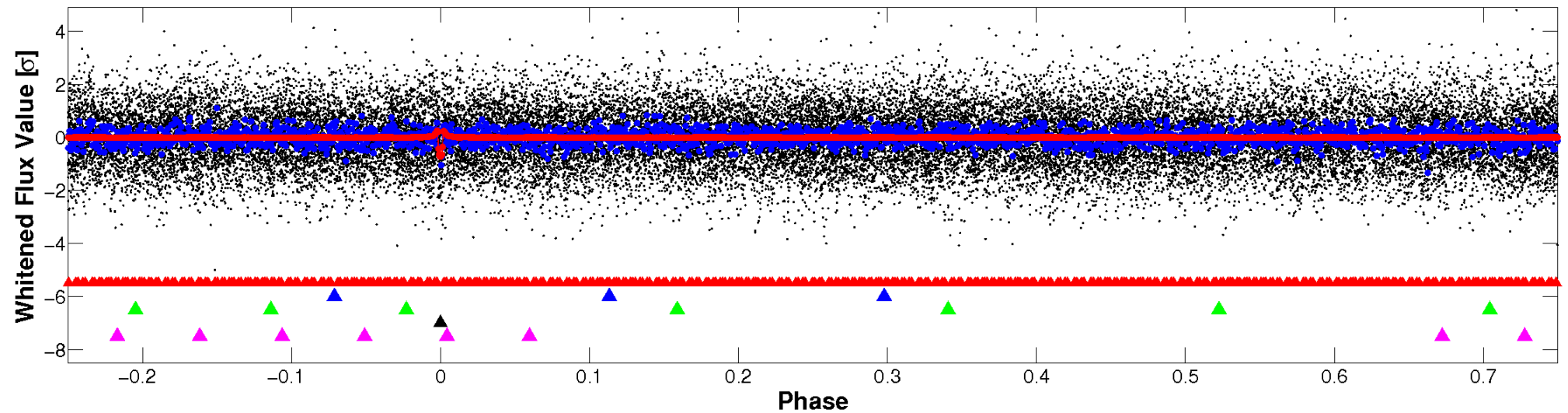


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

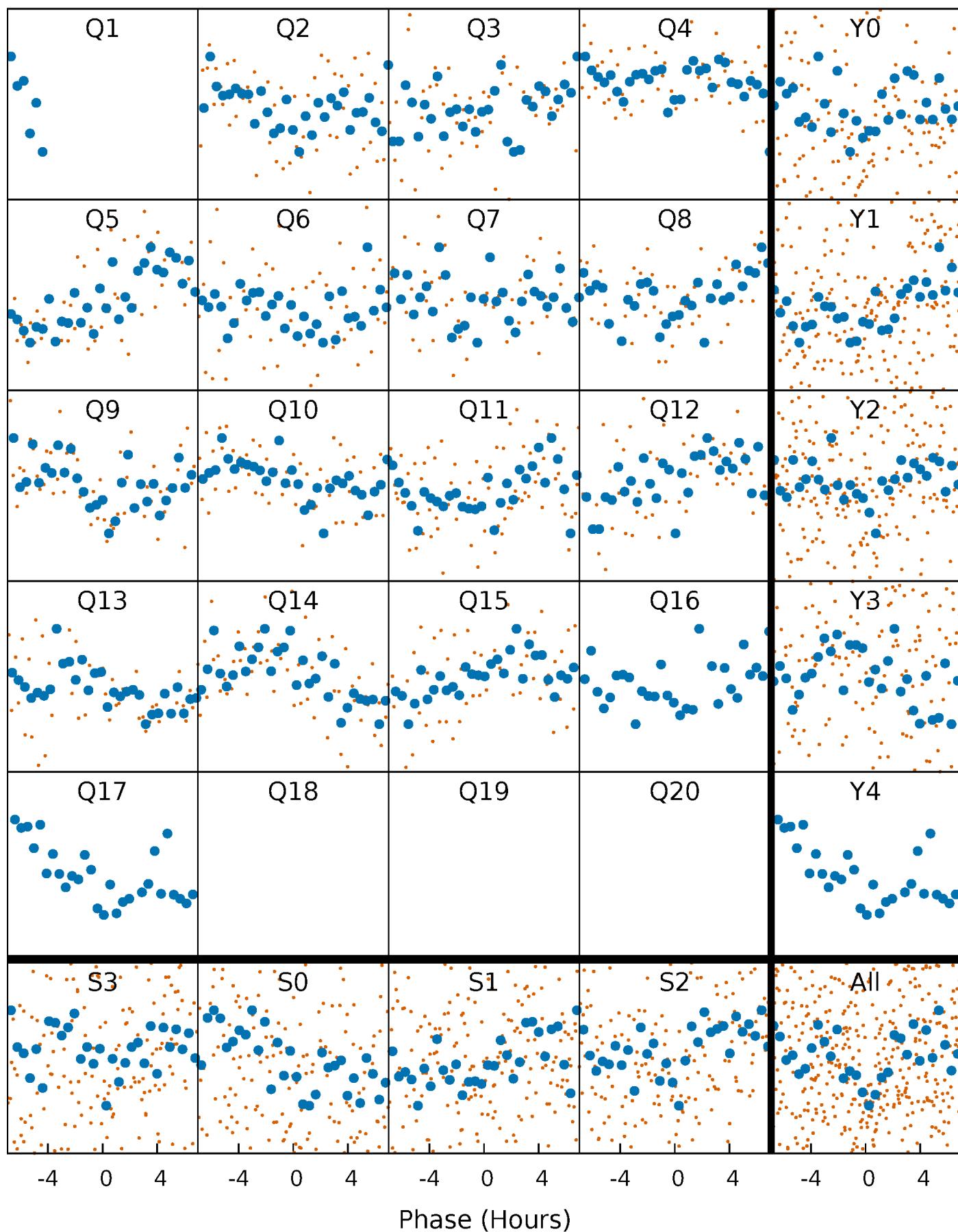


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



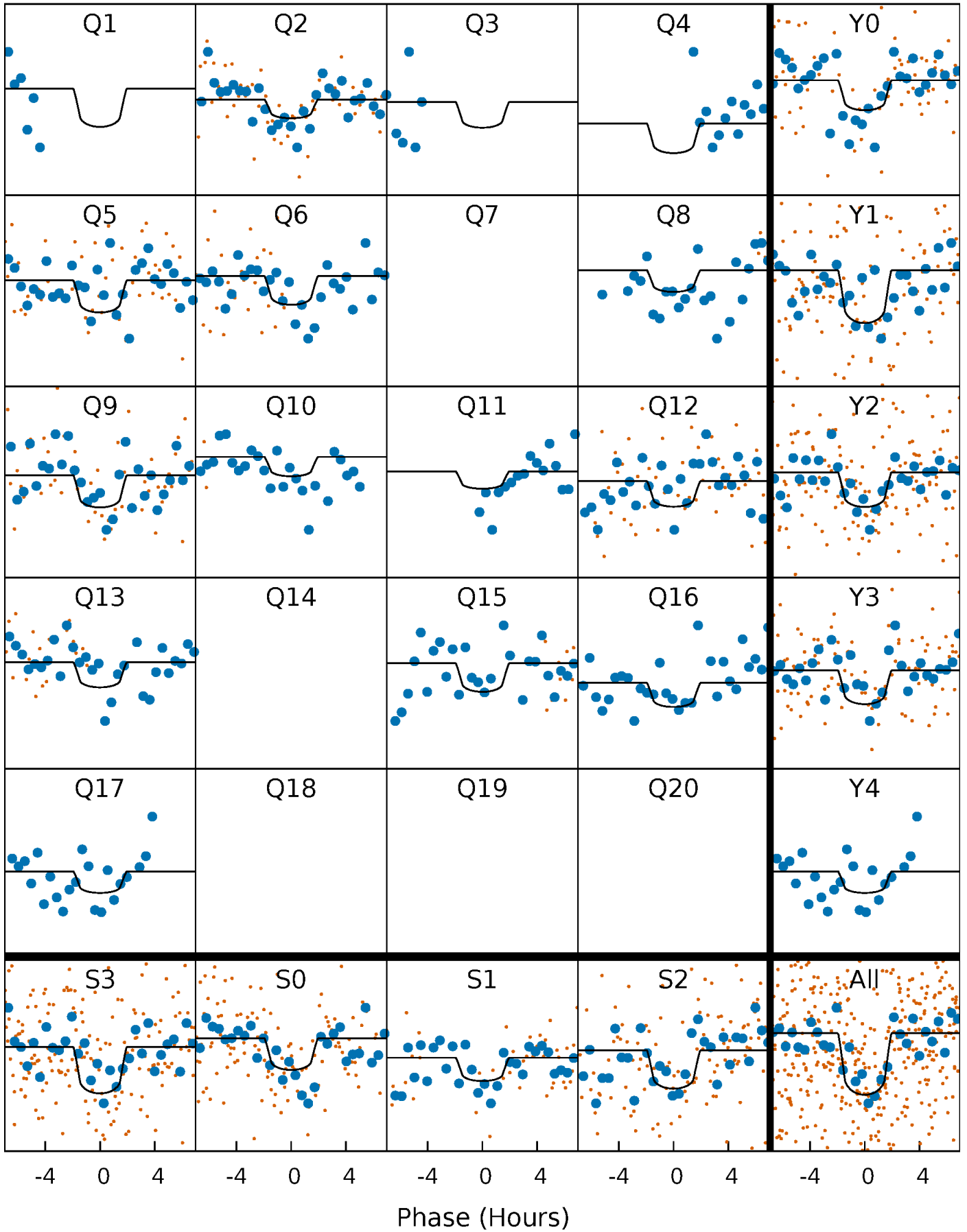
PDC Quarter-Phased Transit Curves

TCE 008176634-04 P= 44.089485 Days $T_0=165.170492$ (BKJD)



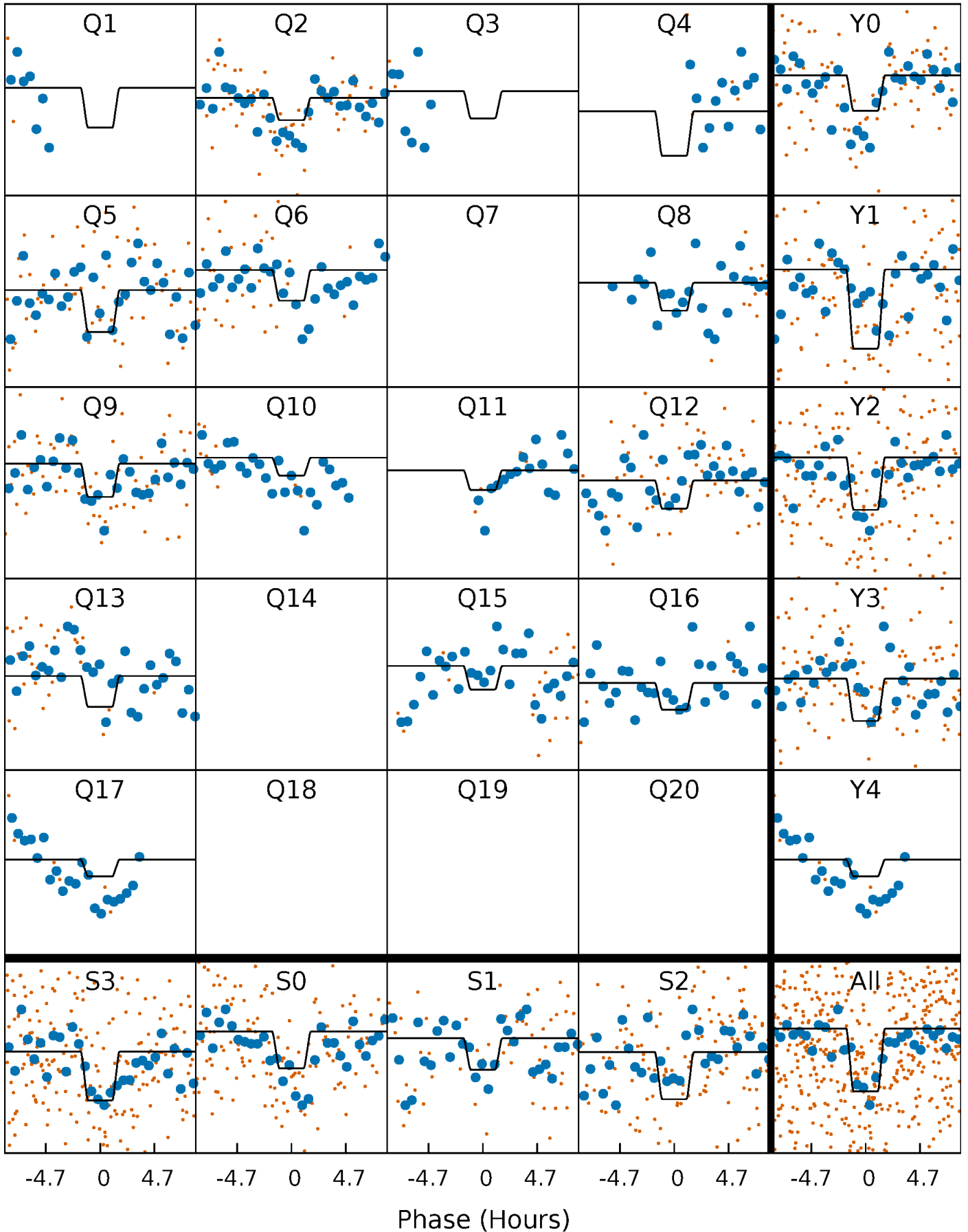
DV Quarter-Phased Transit Curves

TCE 008176634-04 P= 44.089485 Days $T_0=165.170492$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

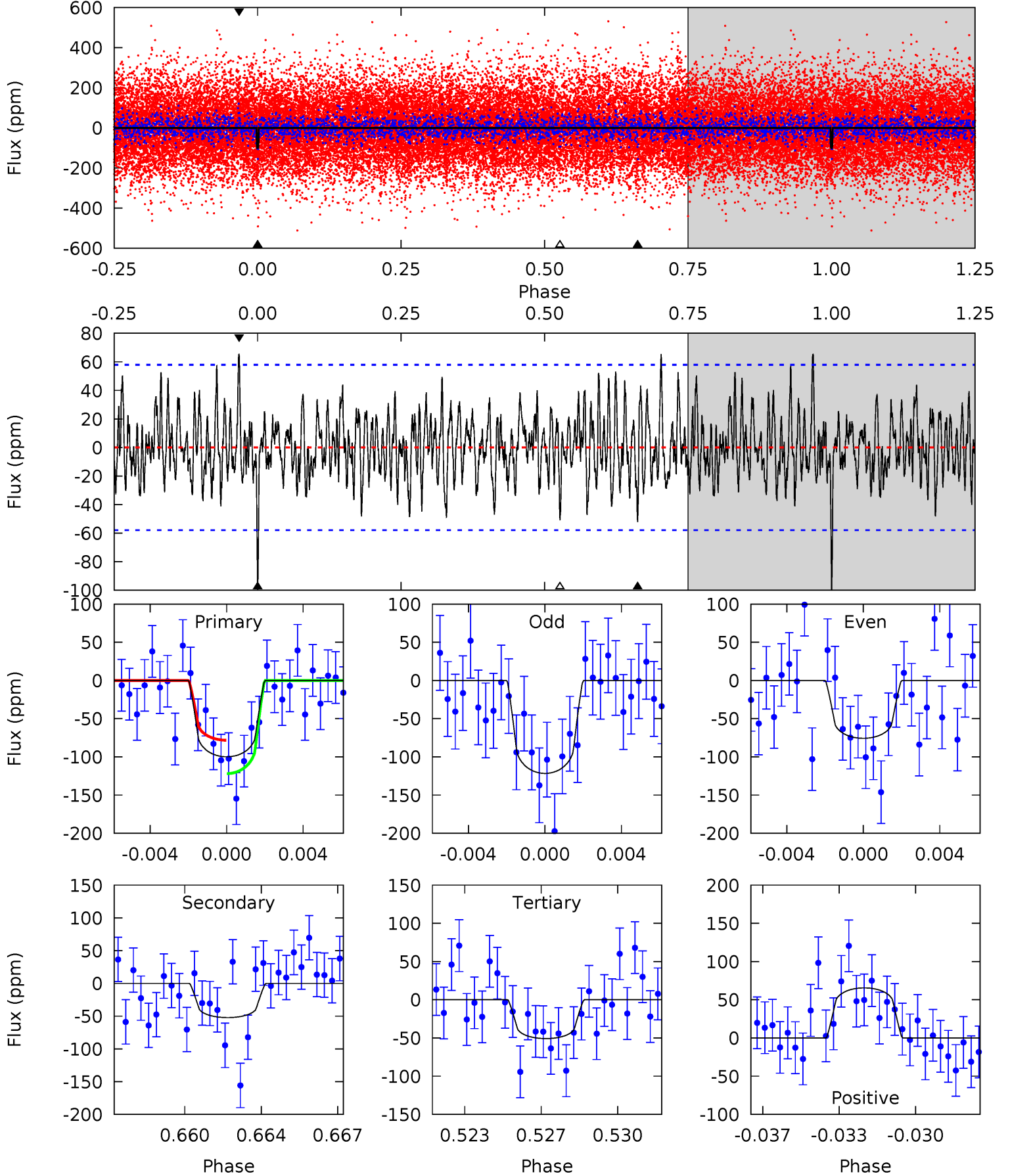
TCE 008176634-04 P= 44.089757 Days $T_0=165.173885$ (BKJD)



DV Model-Shift Uniqueness Test

008176634-04, P = 44.089485 Days, E = 121.081007 Days

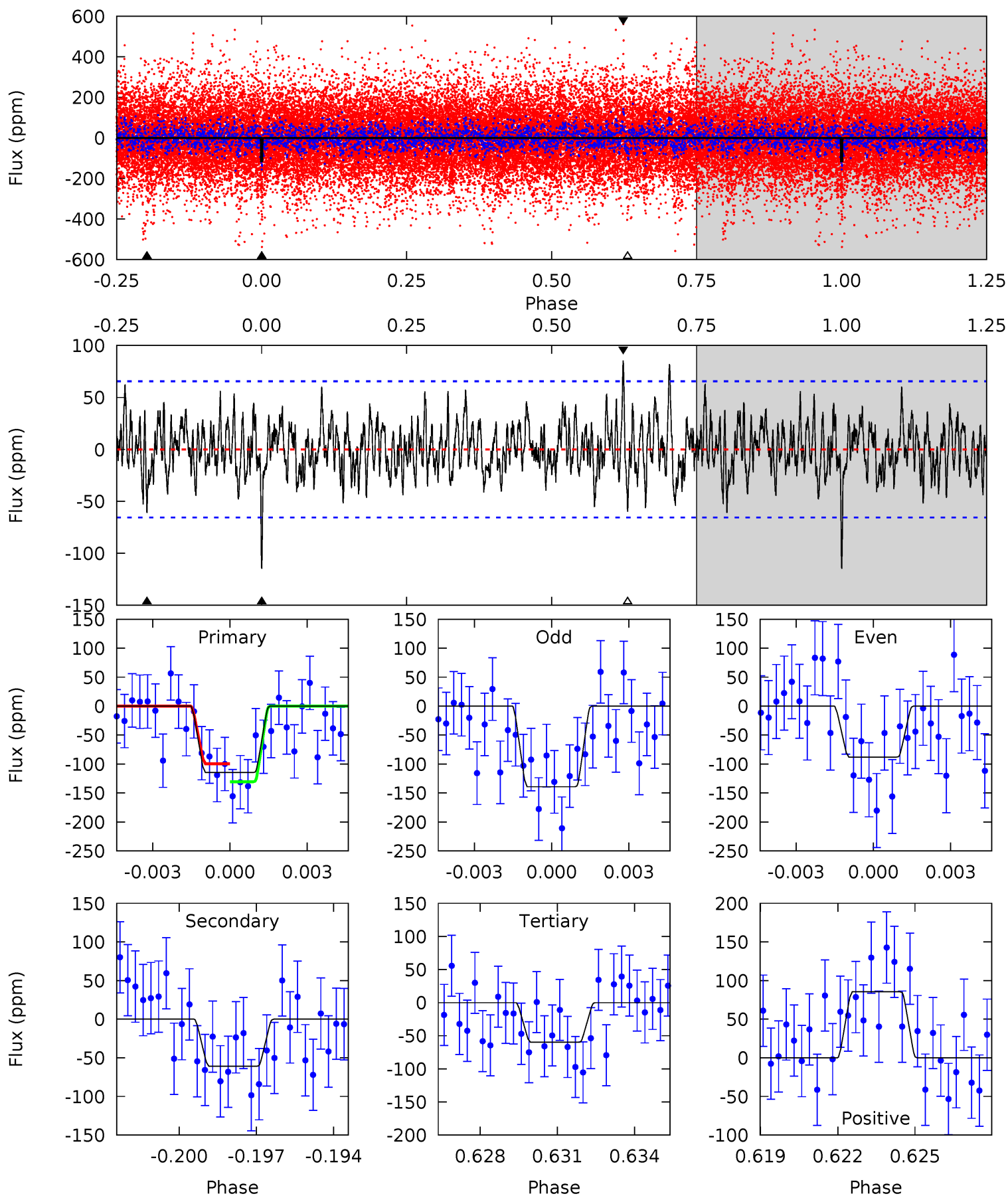
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.00	4.71	4.58	5.91	5.21	2.90	1.76	4.42	3.09	0.13	-1.20	2.07	0.86	0.40	1.97



Alt Model-Shift Uniqueness Test

008176634-04, P = 44.089757 Days, E = 121.084128 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.19	4.88	4.80	6.84	5.25	2.96	1.71	4.39	2.35	0.08	-1.96	2.05	1.09	0.43	1.25



Stellar Parameters For KIC 008176634

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+171}_{-171}	$3.890^{+0.280}_{-0.100}$	$-0.200^{+0.300}_{-0.250}$	$2.071^{+0.451}_{-0.676}$	$1.215^{+0.225}_{-0.225}$	$0.193^{+0.353}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+22%/-33%	+19%/-19%	+183%/-36%
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 008176634-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-52 ± 11	$2.67^{+1.91}_{-1.57}$	1062^{+69}_{-87}	4793^{+2547}_{-819}	268^{+1268}_{-178}
Alt.	-61 ± 12	$2.70^{+1.74}_{-1.63}$	1052^{+69}_{-87}	4951^{+2991}_{-891}	325^{+1786}_{-217}

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

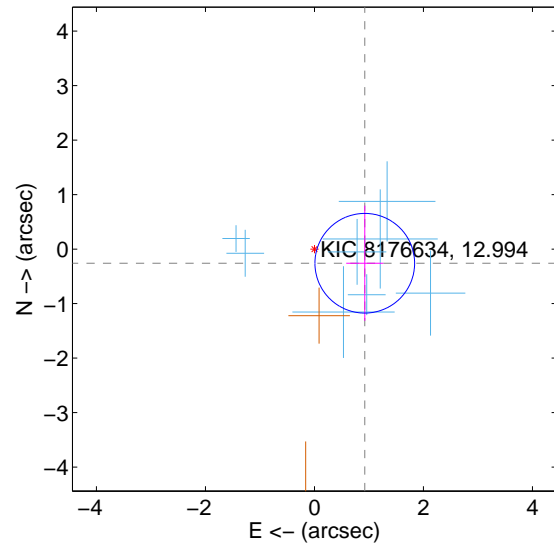
Supplemental centroid analysis for 008176634-04. Kepler magnitude: 12.99. Transit SNR 6.99

There are 8 quarters with good PRF difference image offsets

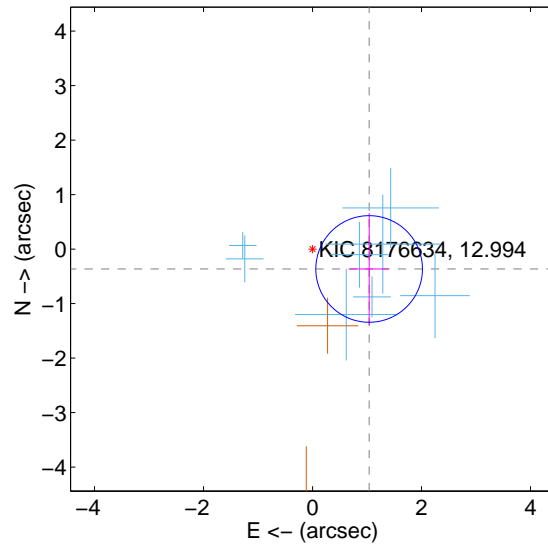
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.959 ± 0.305	3.15	-0.923 ± 0.341	-0.260 ± 1.056
PRF-fit source offset from KIC position	1.101 ± 0.326	3.38	-1.039 ± 0.357	-0.364 ± 1.029
photometric centroid source offset	0.64 ± 1.02	0.63	0.32 ± 0.91	0.56 ± 1.05

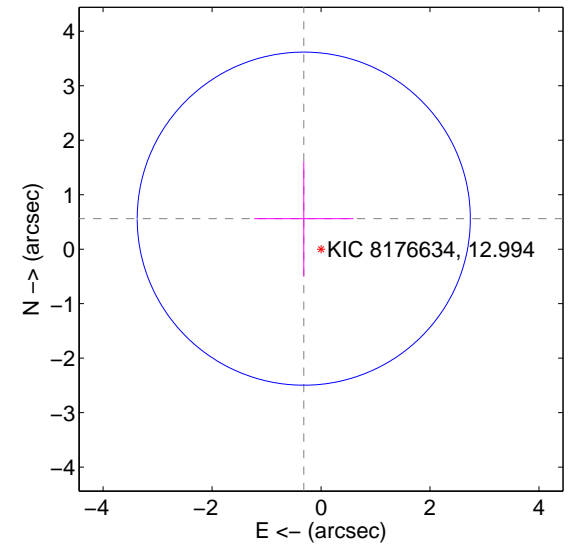
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

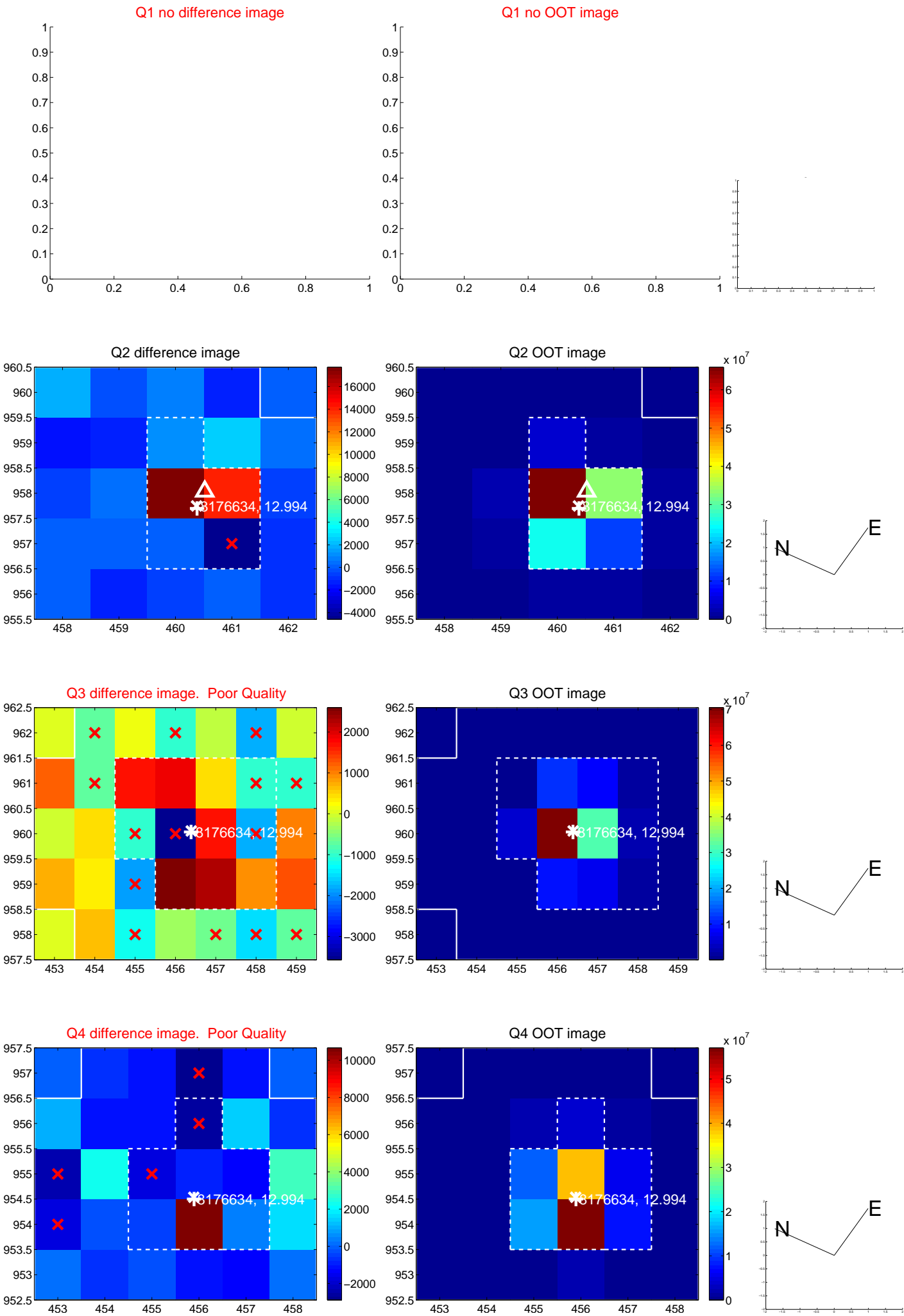


offset from photometric centroids

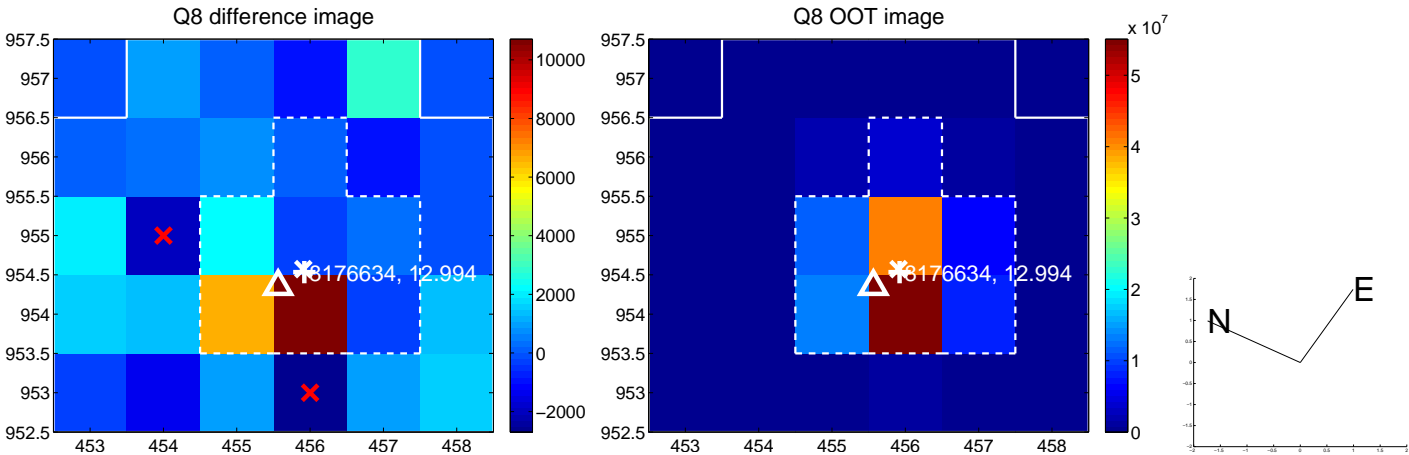
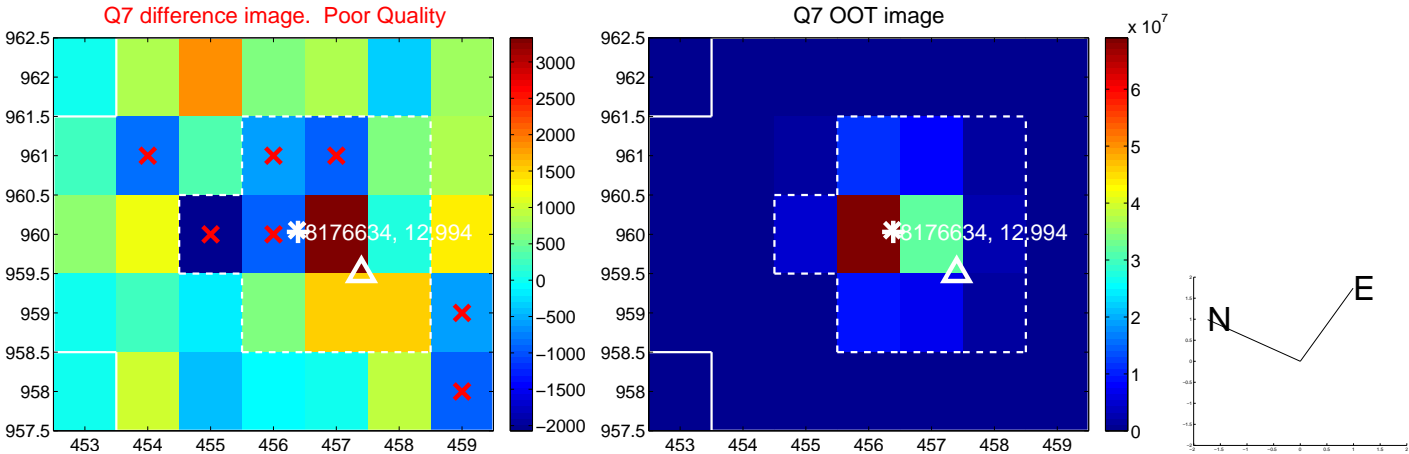
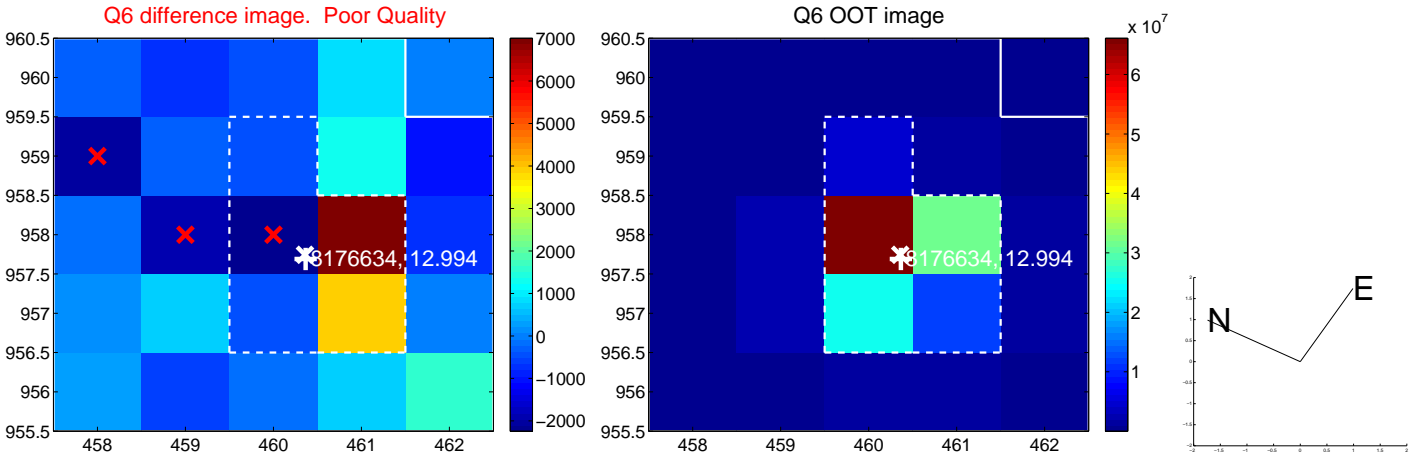
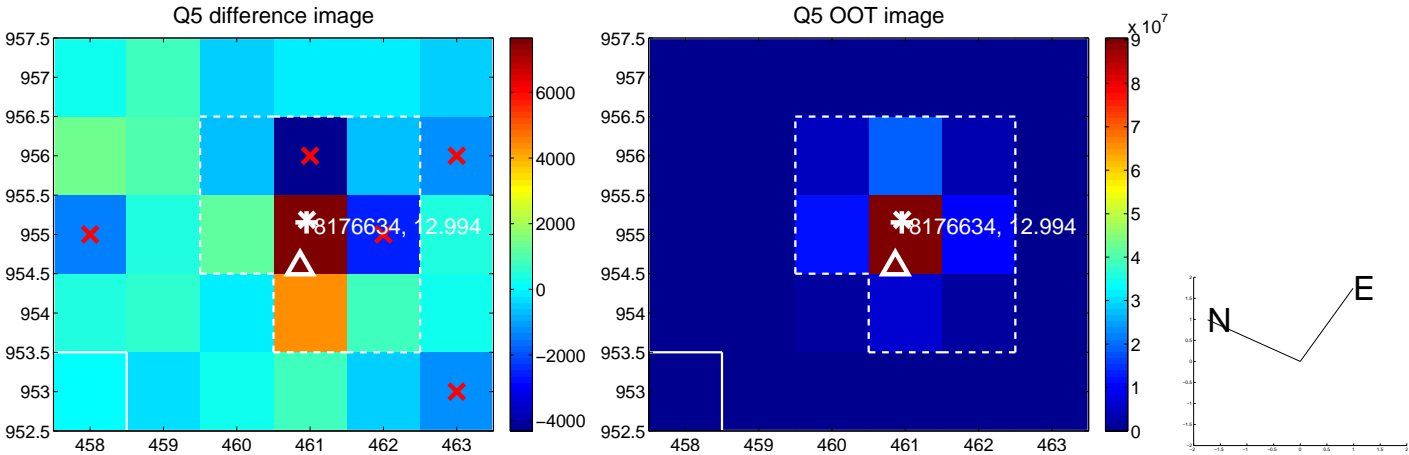


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

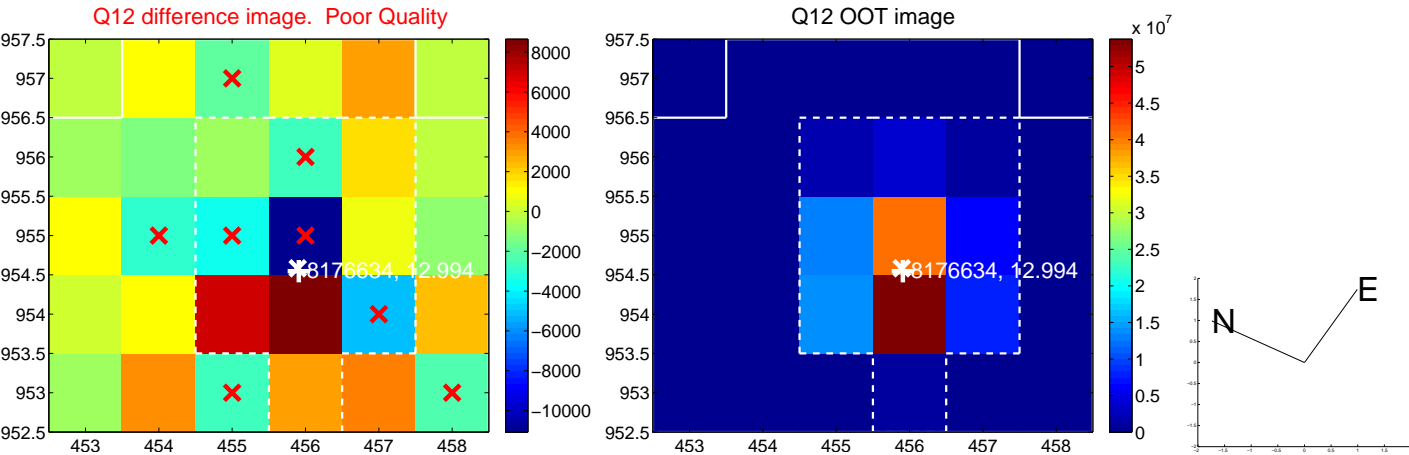
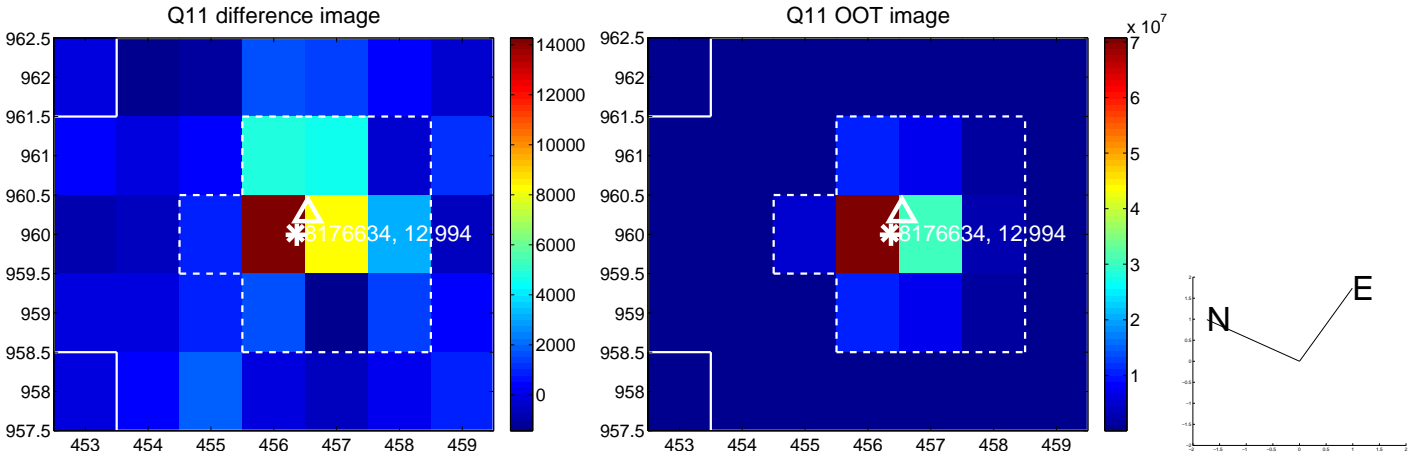
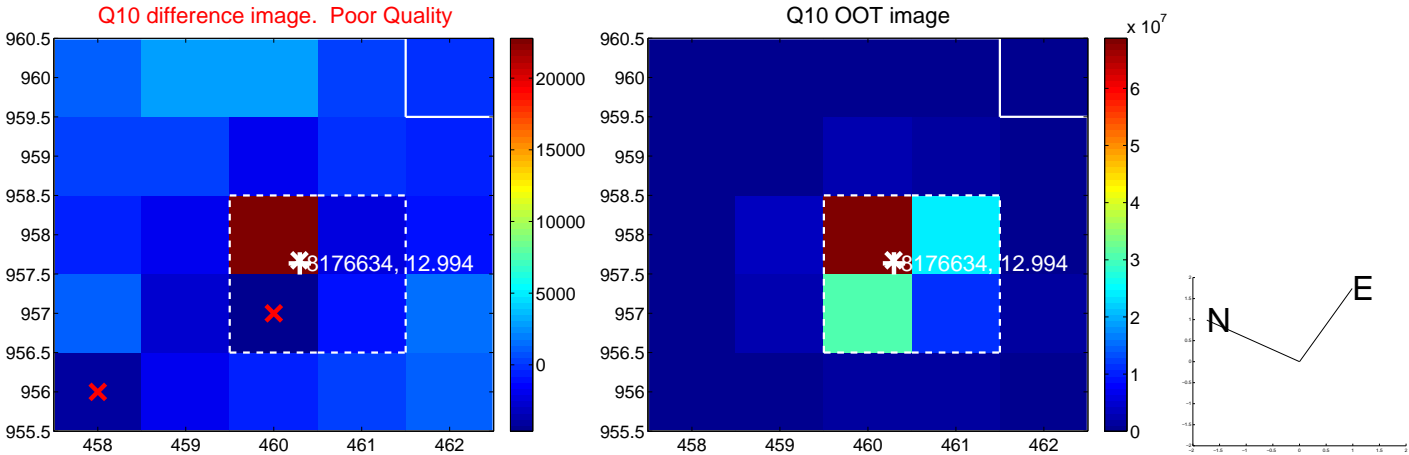
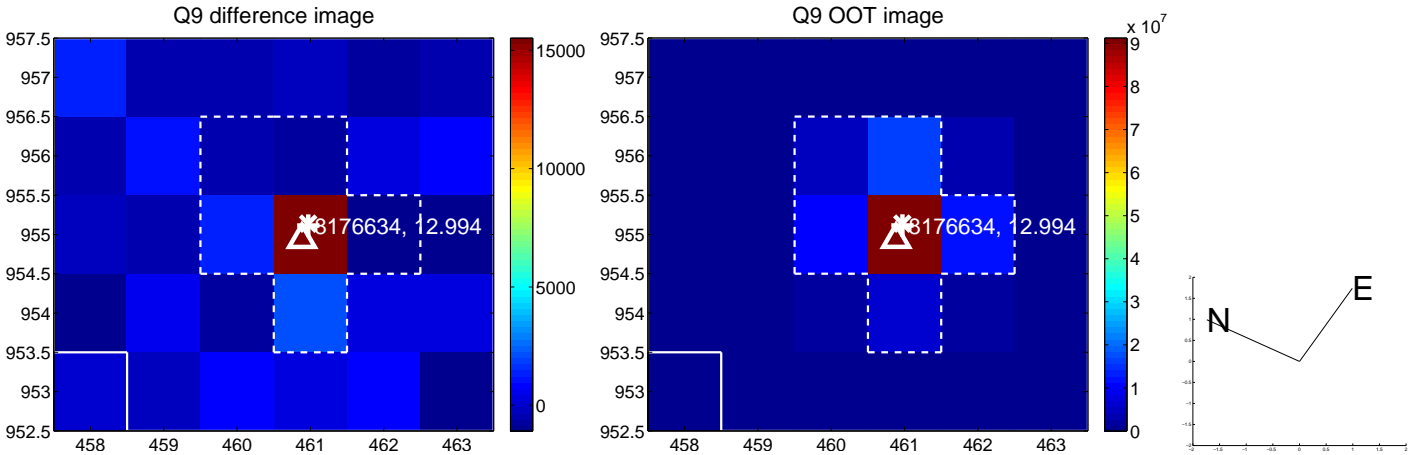
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



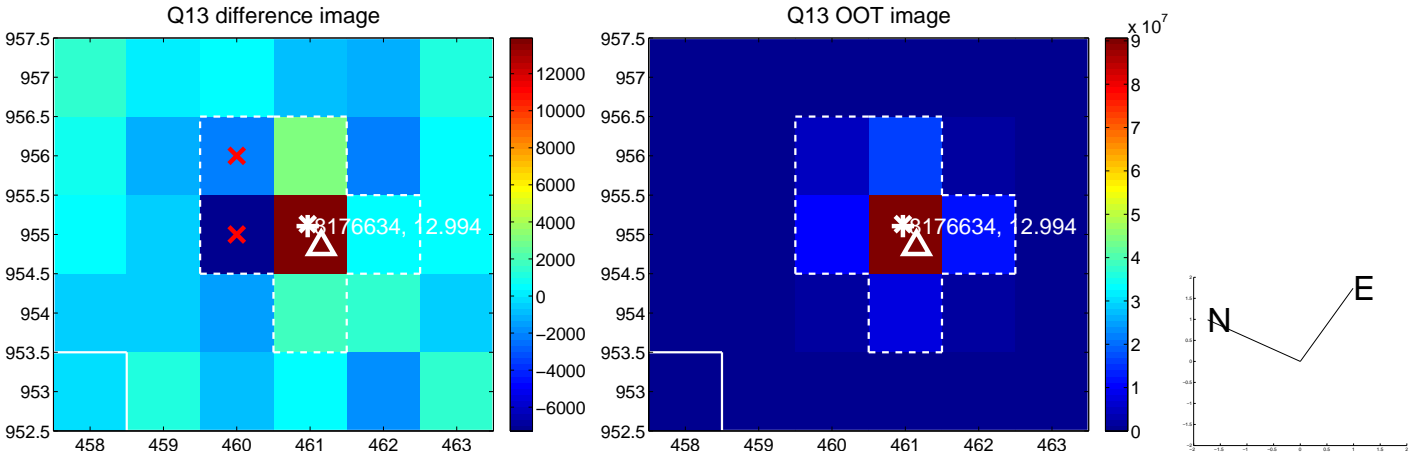
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



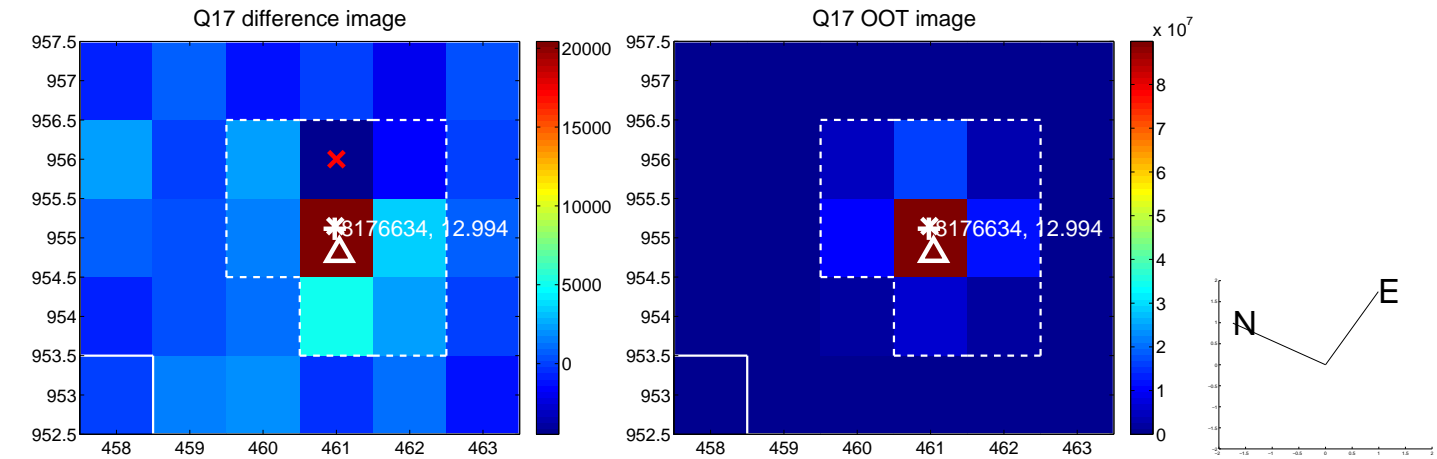
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



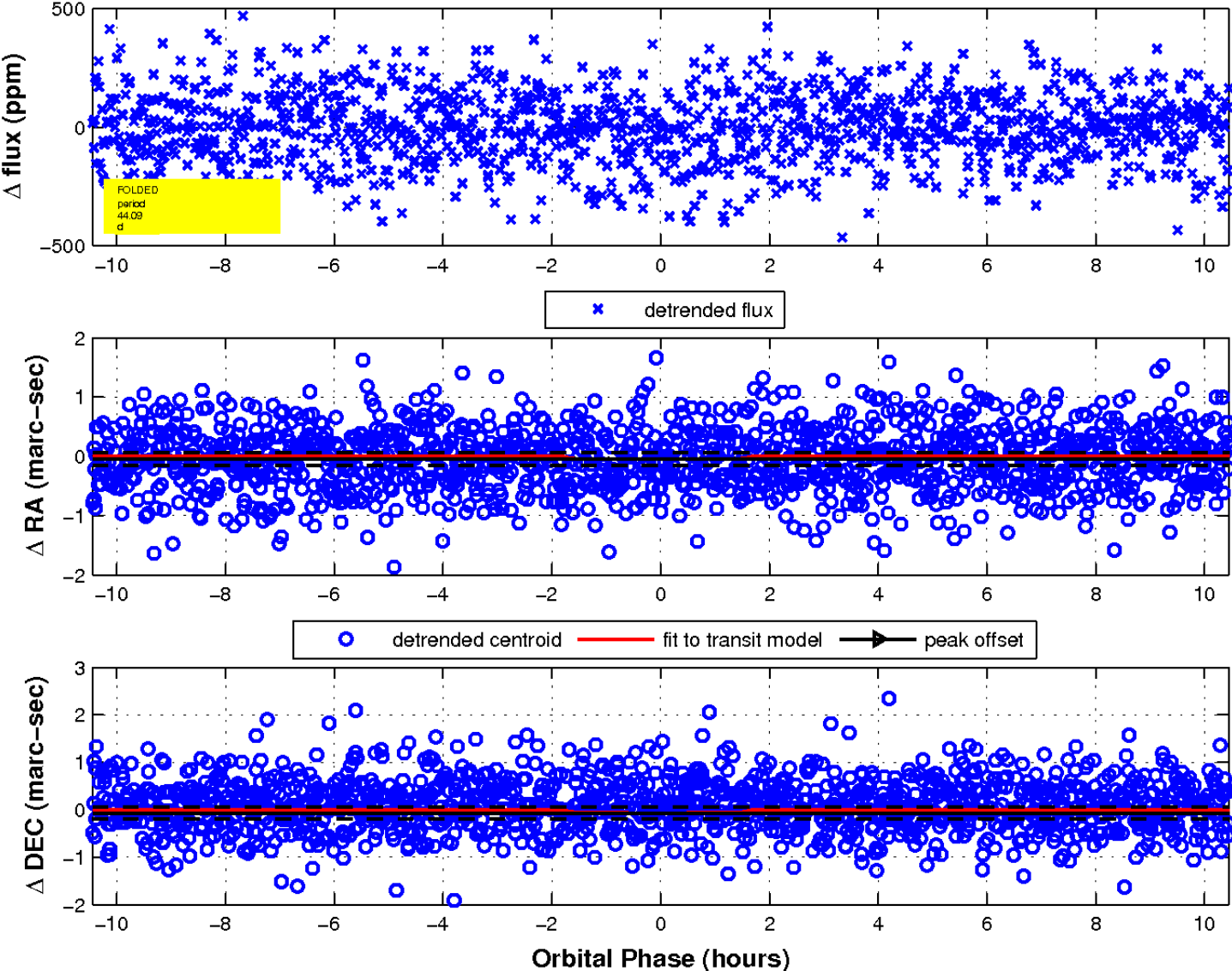
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



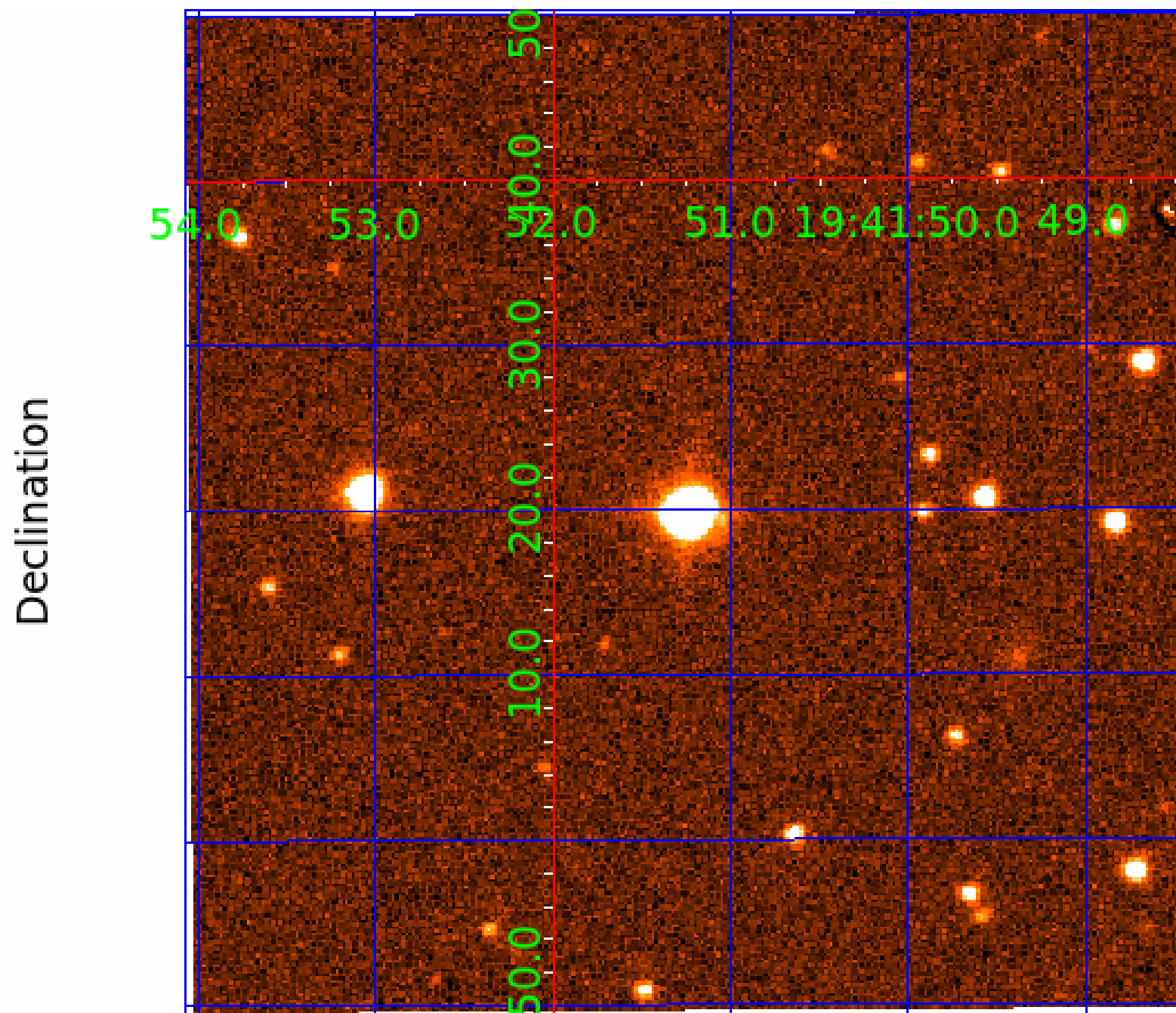
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 5



UKIRT Image



KIC 008176634

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})
008176634-01	OBS	No	3.633366	134.602477	20.0	13.333	7.9	5.4	2.07	6214	1.07	2351.91
008176634-02	OBS	No	476.849095	575.109178	410.6	15.717	12.4	8.5	2.07	6214	5.48	3.53
008176634-03	OBS	No	228.463315	156.146177	214.5	16.220	7.8	6.6	2.07	6214	3.32	9.41
008176634-04	OBS	No	44.089485	165.170492	118.6	3.486	7.5	7.0	2.07	6214	2.48	84.34
008176634-05	OBS	No	178.797154	282.997768	254.4	11.184	7.4	7.0	2.07	6214	4.39	13.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008176634-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
008176634-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008176634-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—MOD_NONUNIQ_ALT
008176634-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

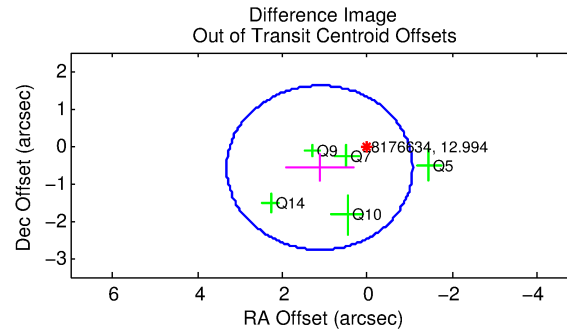
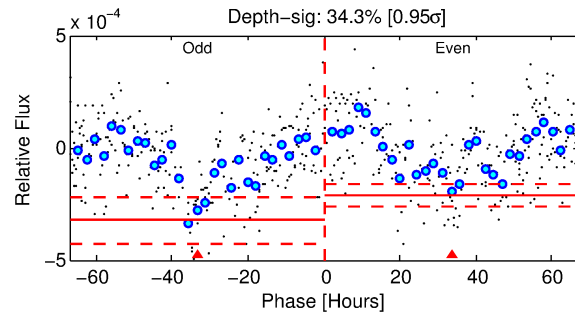
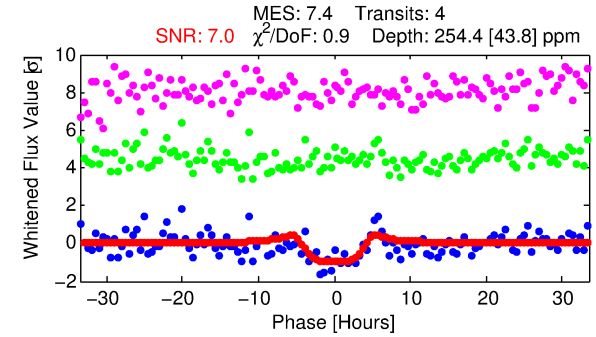
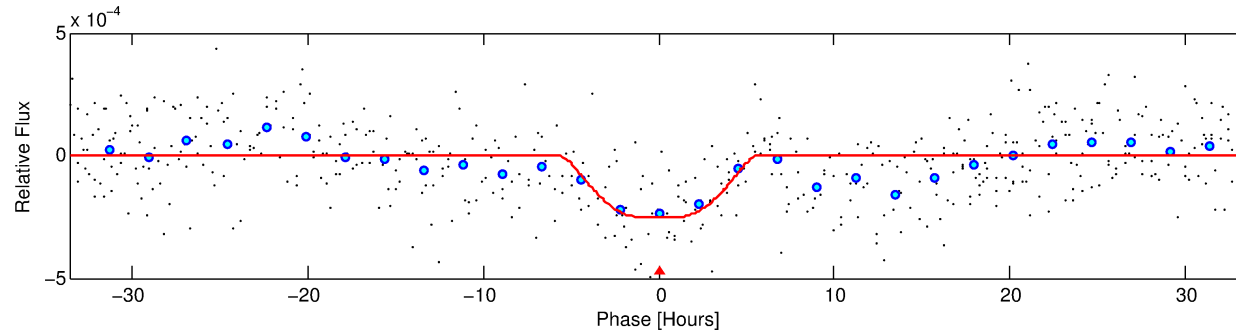
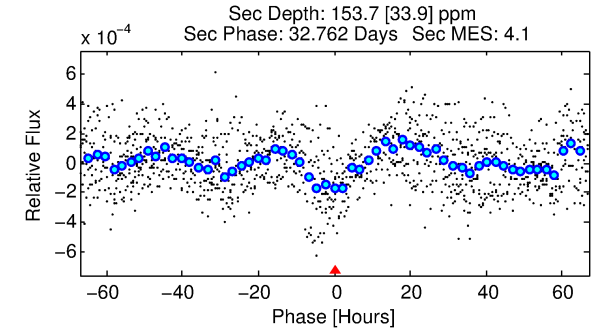
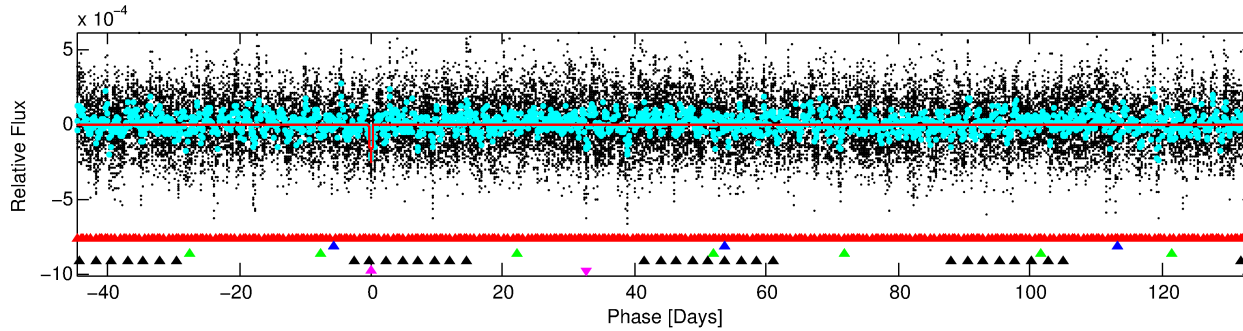
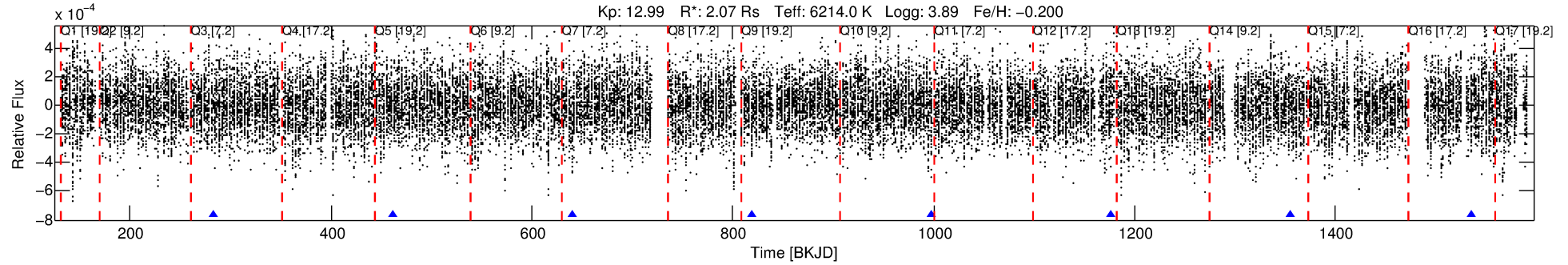
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008176634-05

No Significant Match Found

DV One-Page Summary

KIC: 8176634 Candidate: 5 of 5 Period: 178.797 d



DV Fit Results:

Period = 178.79715 [0.00829] d
Epoch = 282.9978 [0.0370] BKJD
Rp/R* = 0.0194 [0.0020]
a/R* = 35.38 [6.17]
b = 0.98 [0.01]
Seff = 13.04 [6.45]
Teq = 485 [60] K
Rp = 4.39 [1.50] Re
a = 0.6628 [0.2027] AU
Ag = 1925.20 [1094.23] [1.76σ]
Teffp = 4963 [398] K [11.12σ]

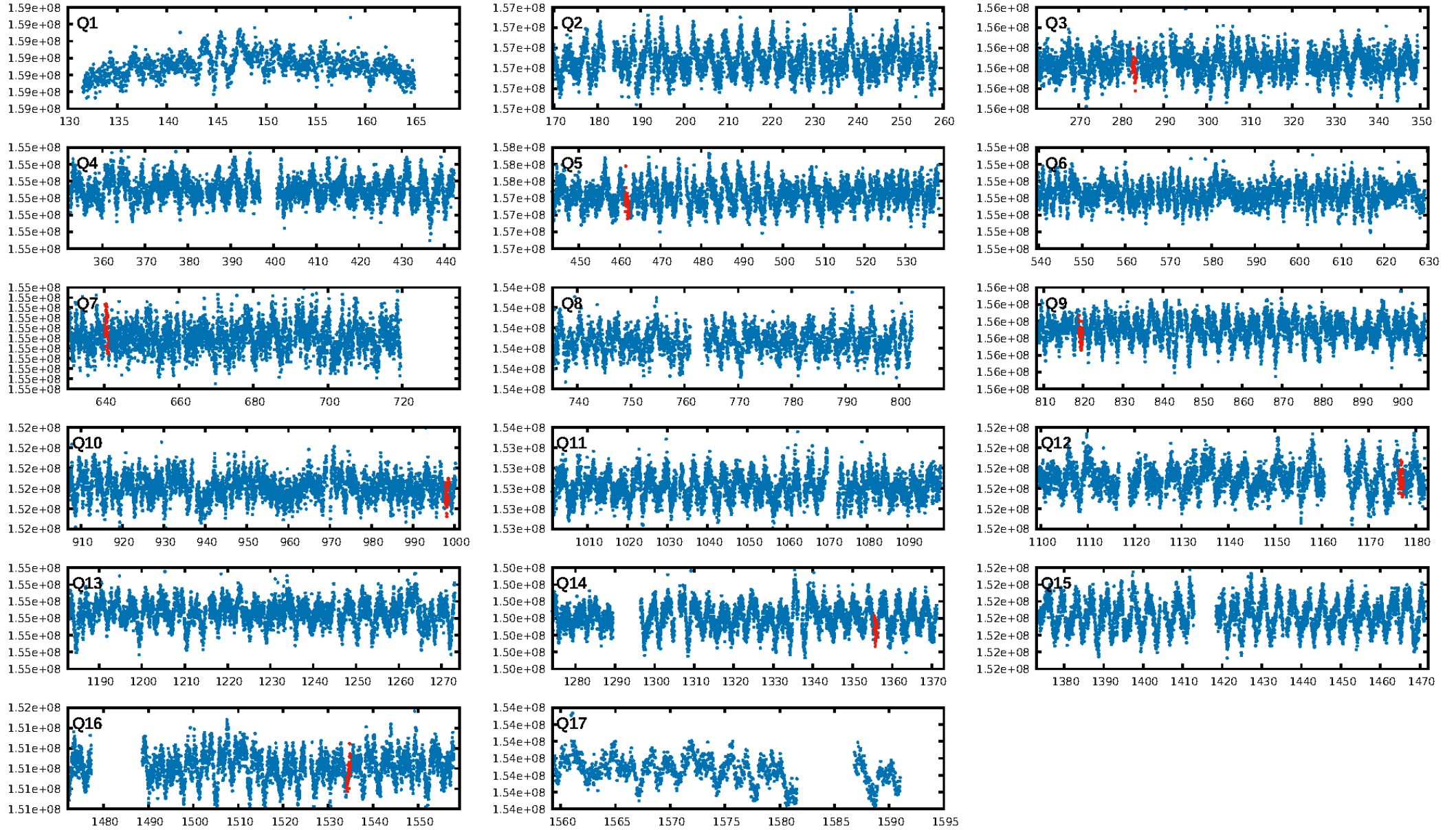
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [275.97σ]
LongPeriod-sig: 100.0% [60.50σ]
ModelChiSquare2-sig: 42.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.71e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.9394
Centroid-sig: 2.9%
Centroid-so: 1.170 arcsec [1.65σ]
OotOffset-rm: 1.258 arcsec [1.72σ]
KicOffset-rm: 1.244 arcsec [1.82σ]
OotOffset-st: 2/1/0/2 [5]
KicOffset-st: 2/1/0/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.43 [3/7]

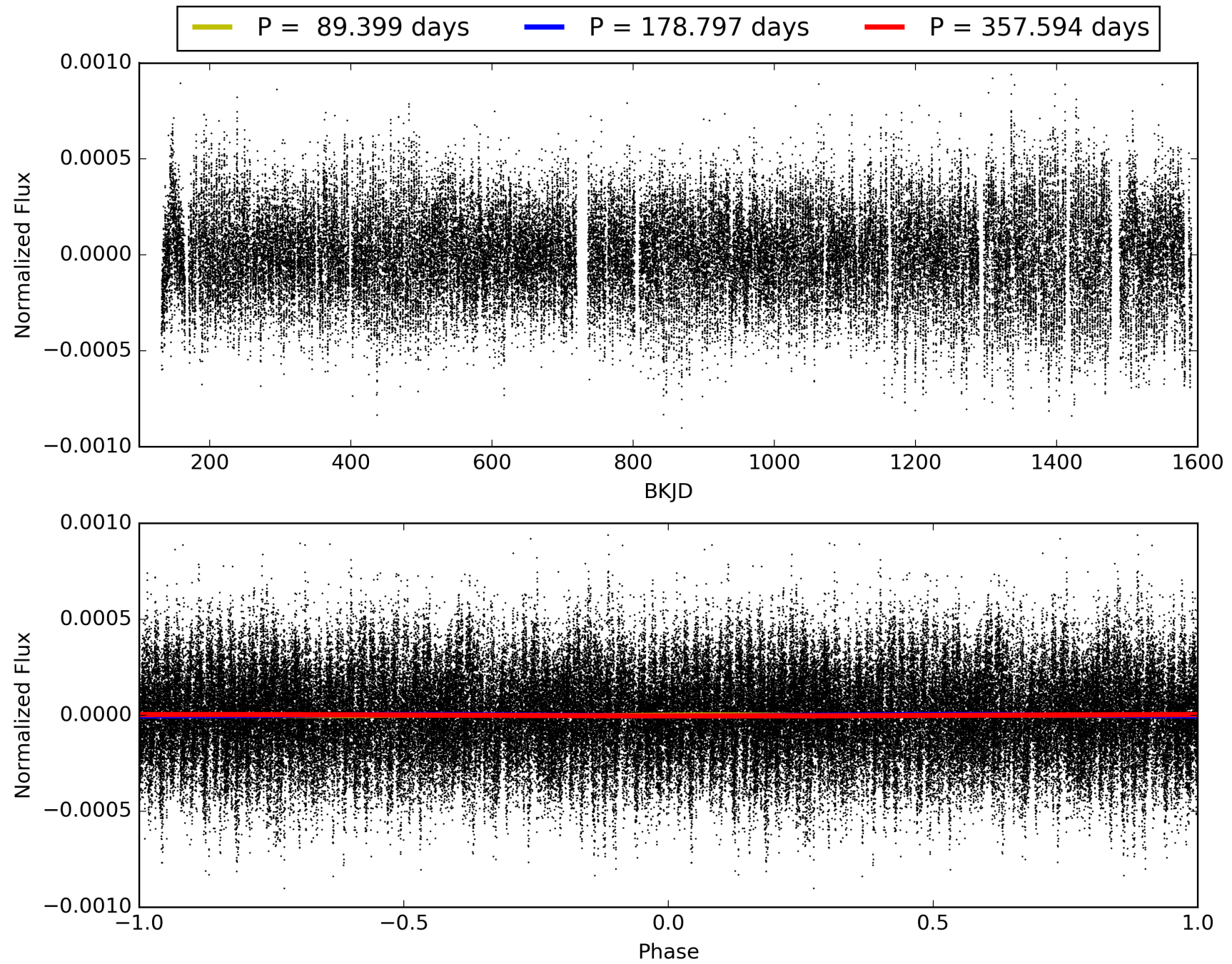
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:36:03 Z

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

TCE 008176634-05, PDC Light Curves

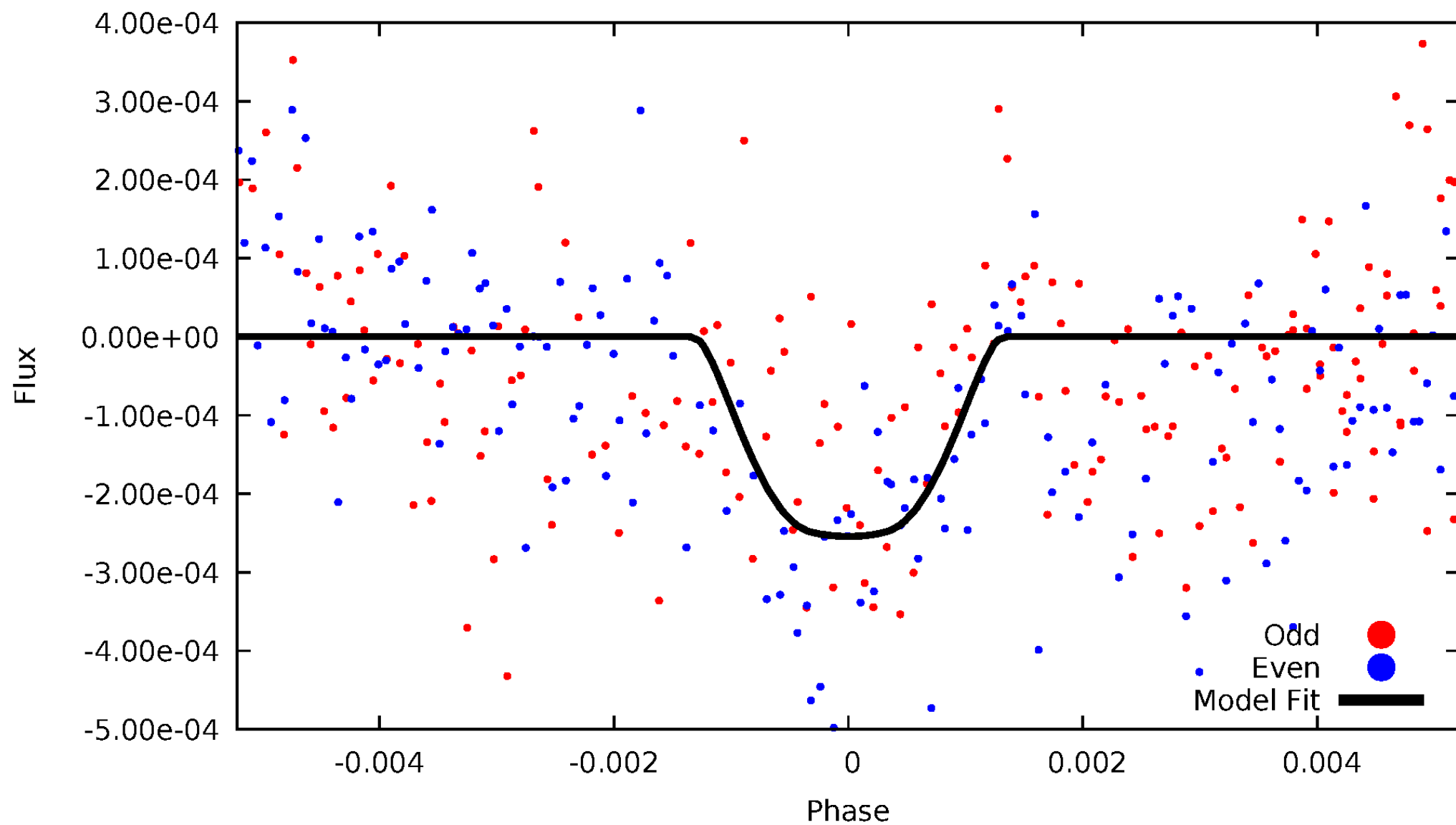


TCE 008176634-05



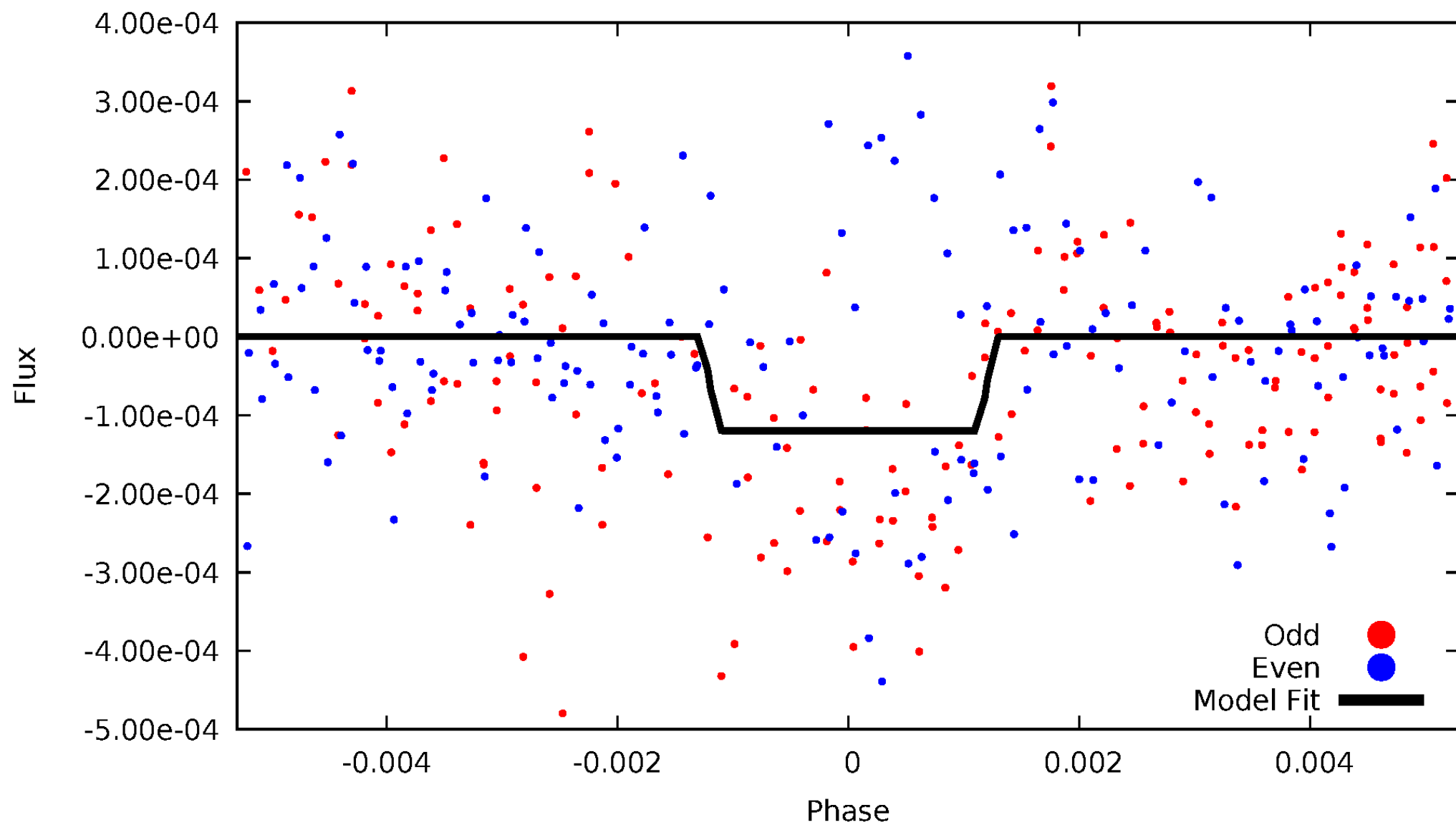
DV Odd/Even

TCE 008176634-05



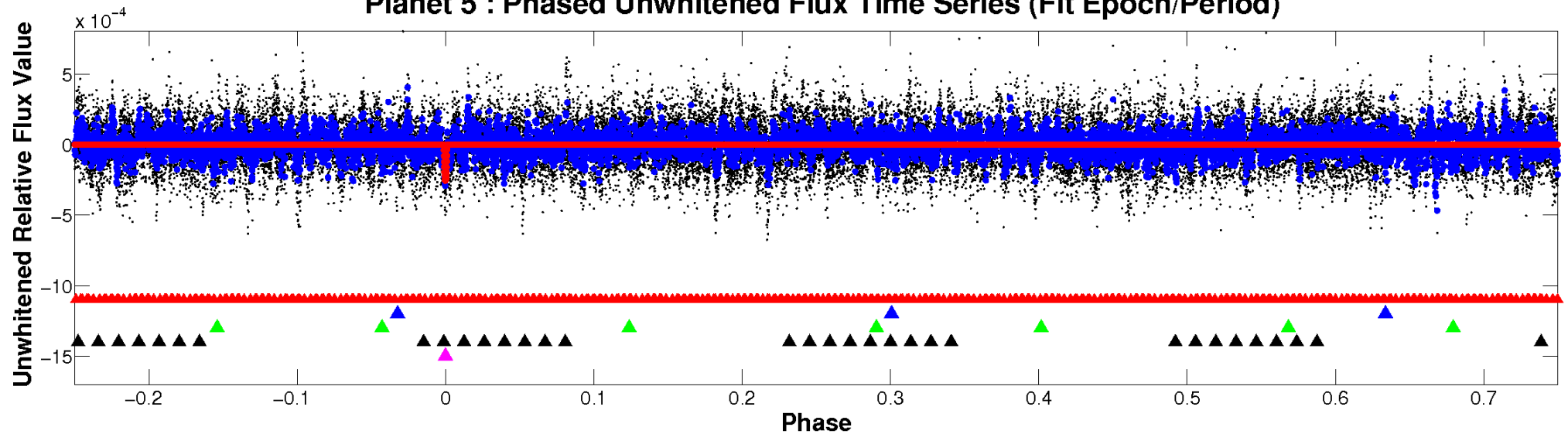
ALT Odd/Even

TCE 008176634-05

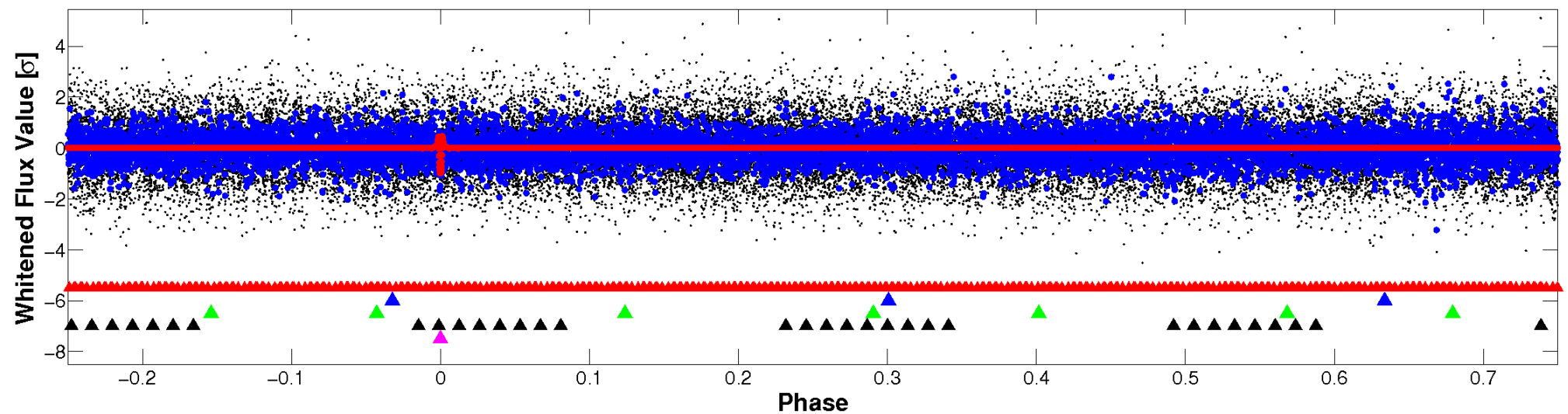


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

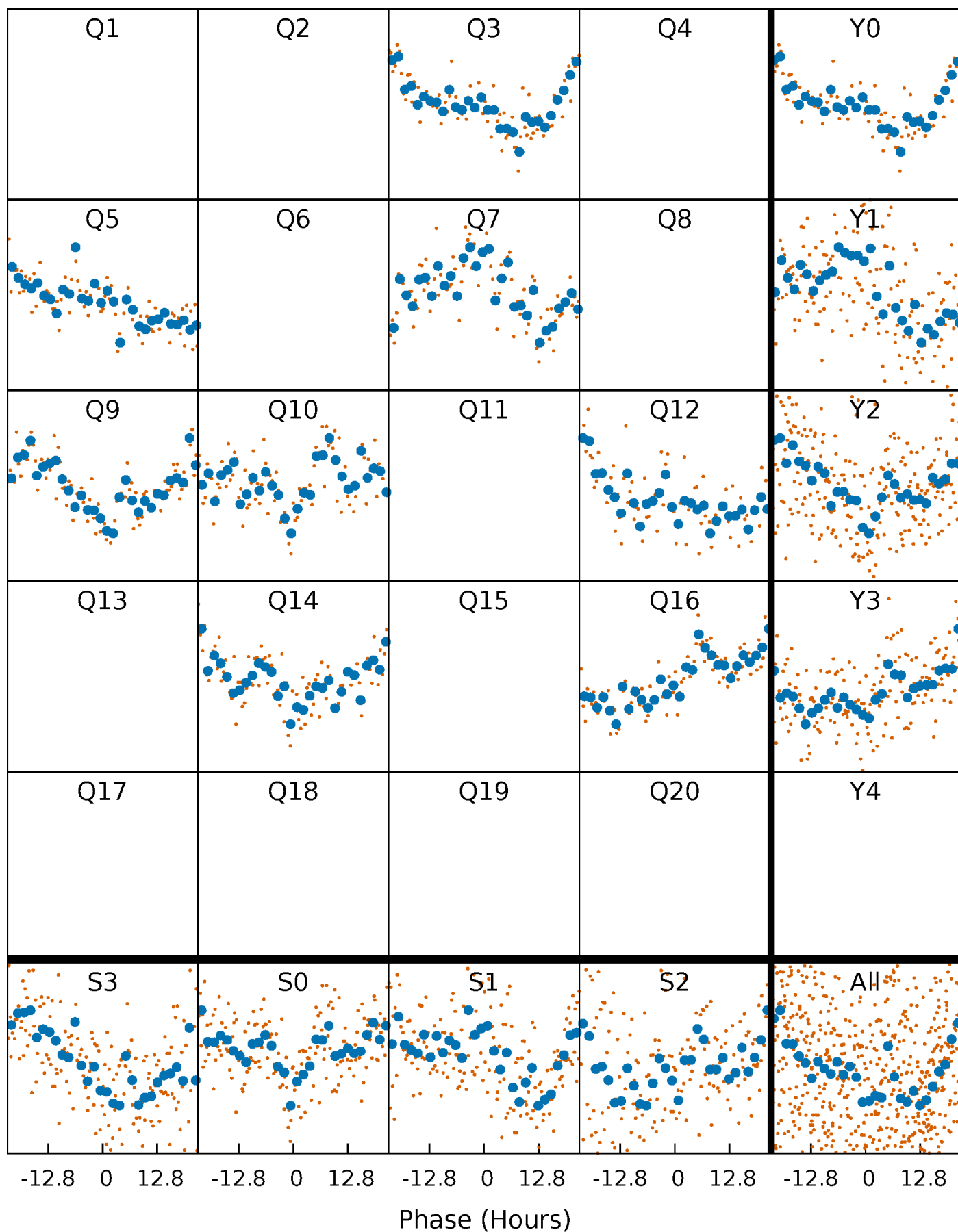


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



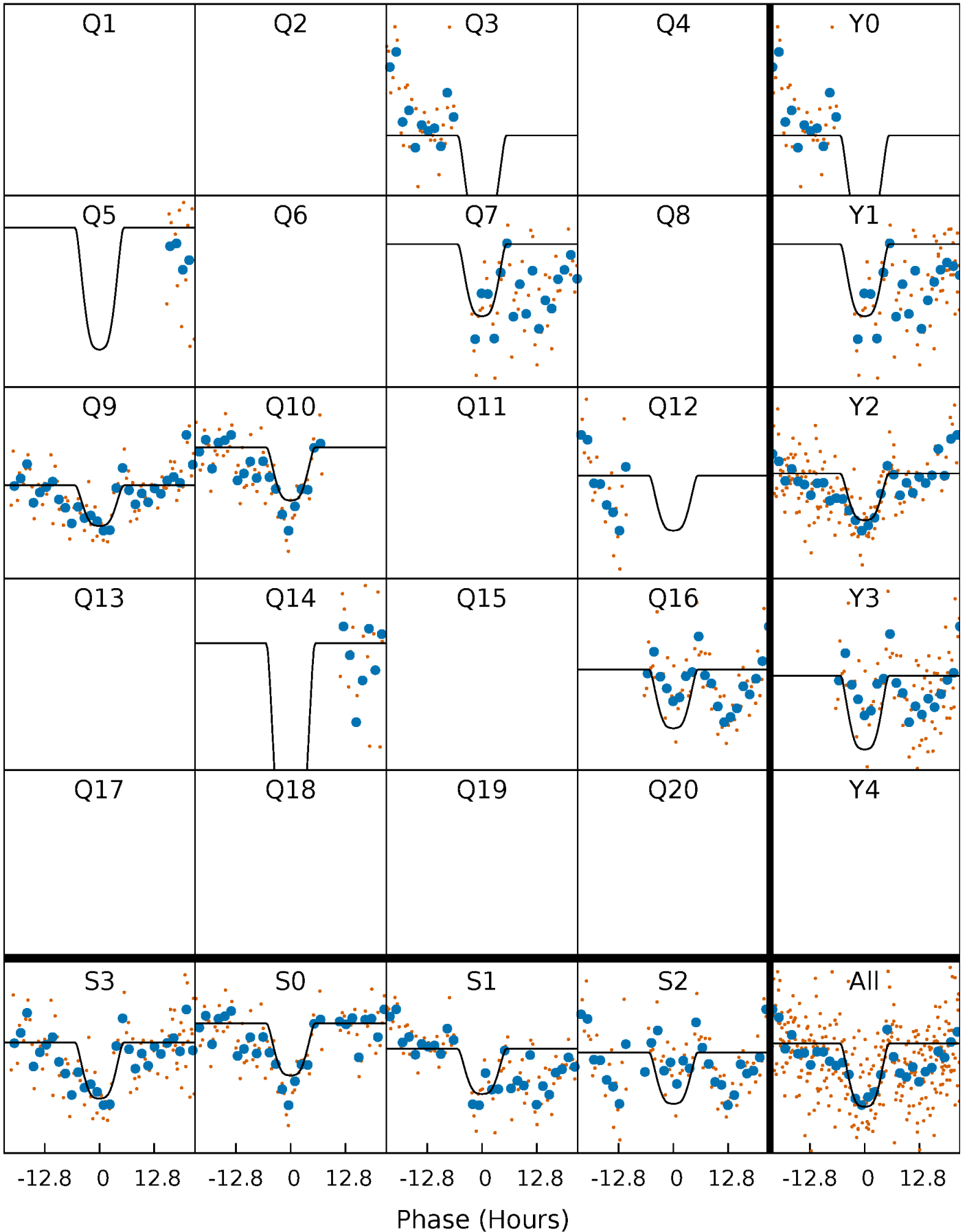
PDC Quarter-Phased Transit Curves

TCE 008176634-05 $P=178.797154$ Days $T_0=282.997768$ (BKJD)



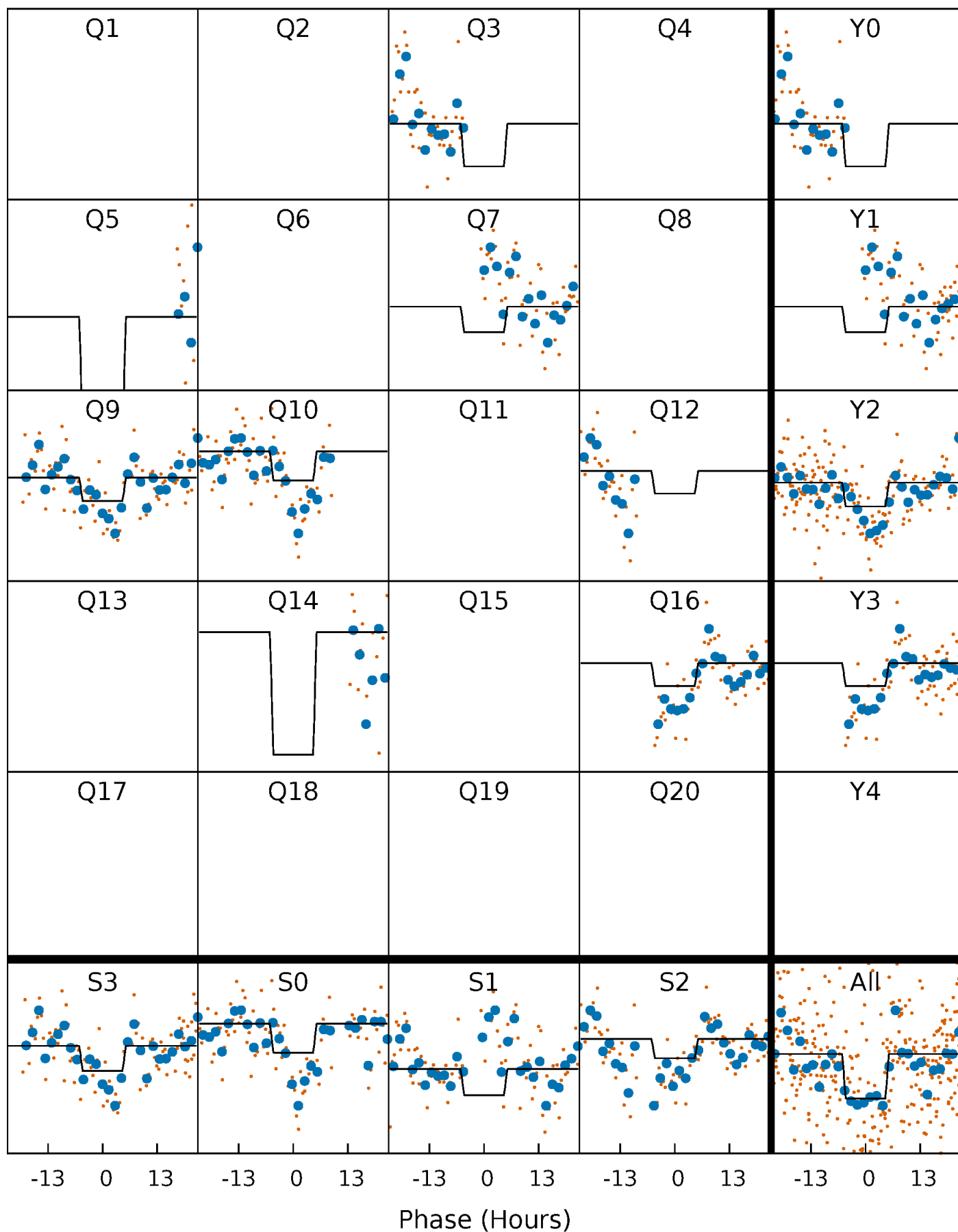
DV Quarter-Phased Transit Curves

TCE 008176634-05 $P=178.797154$ Days $T_0=282.997768$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

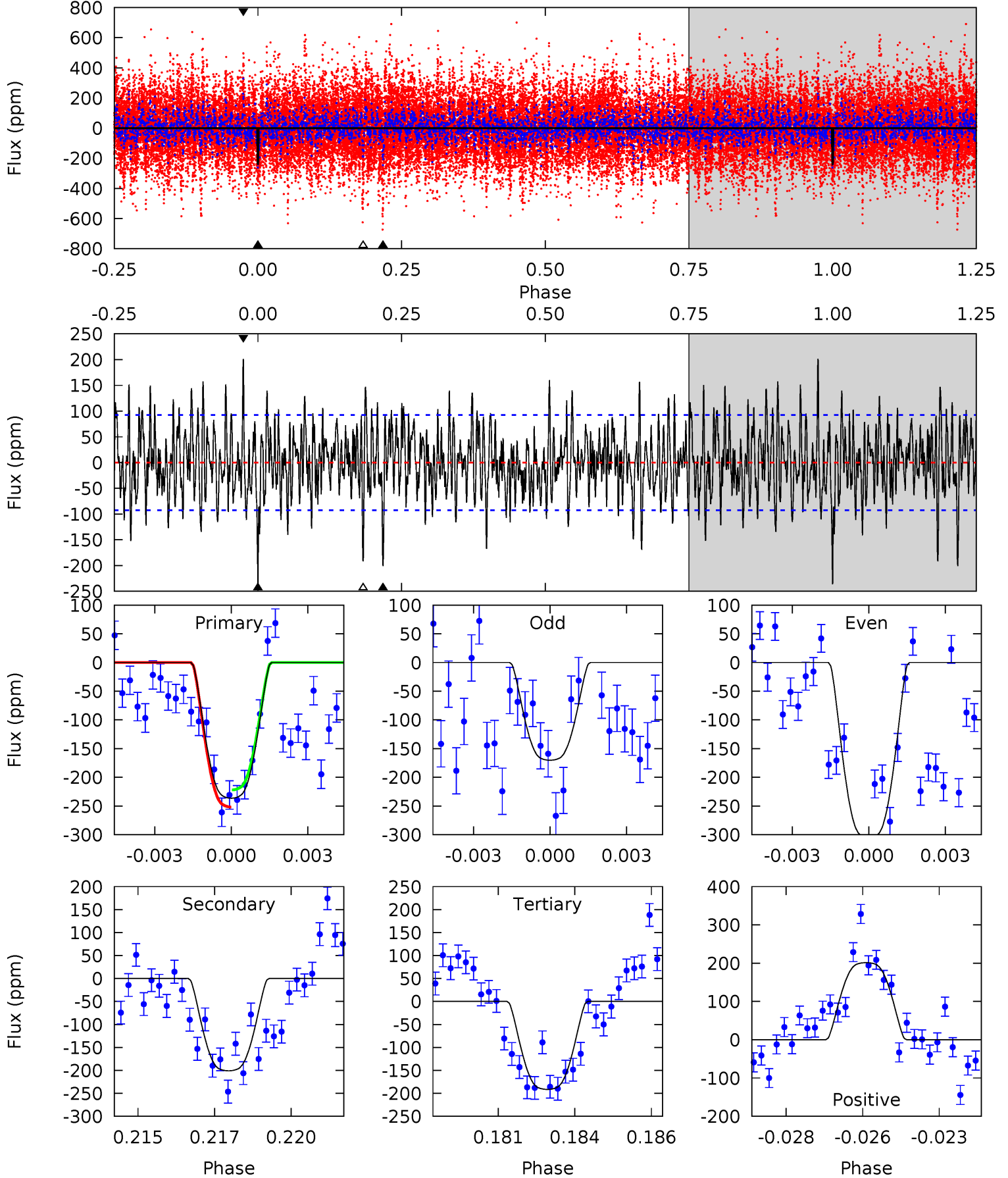
TCE 008176634-05 P=178.793650 Days $T_0=282.937316$ (BKJD)



DV Model-Shift Uniqueness Test

008176634-05, P = 178.797154 Days, E = 104.200614 Days

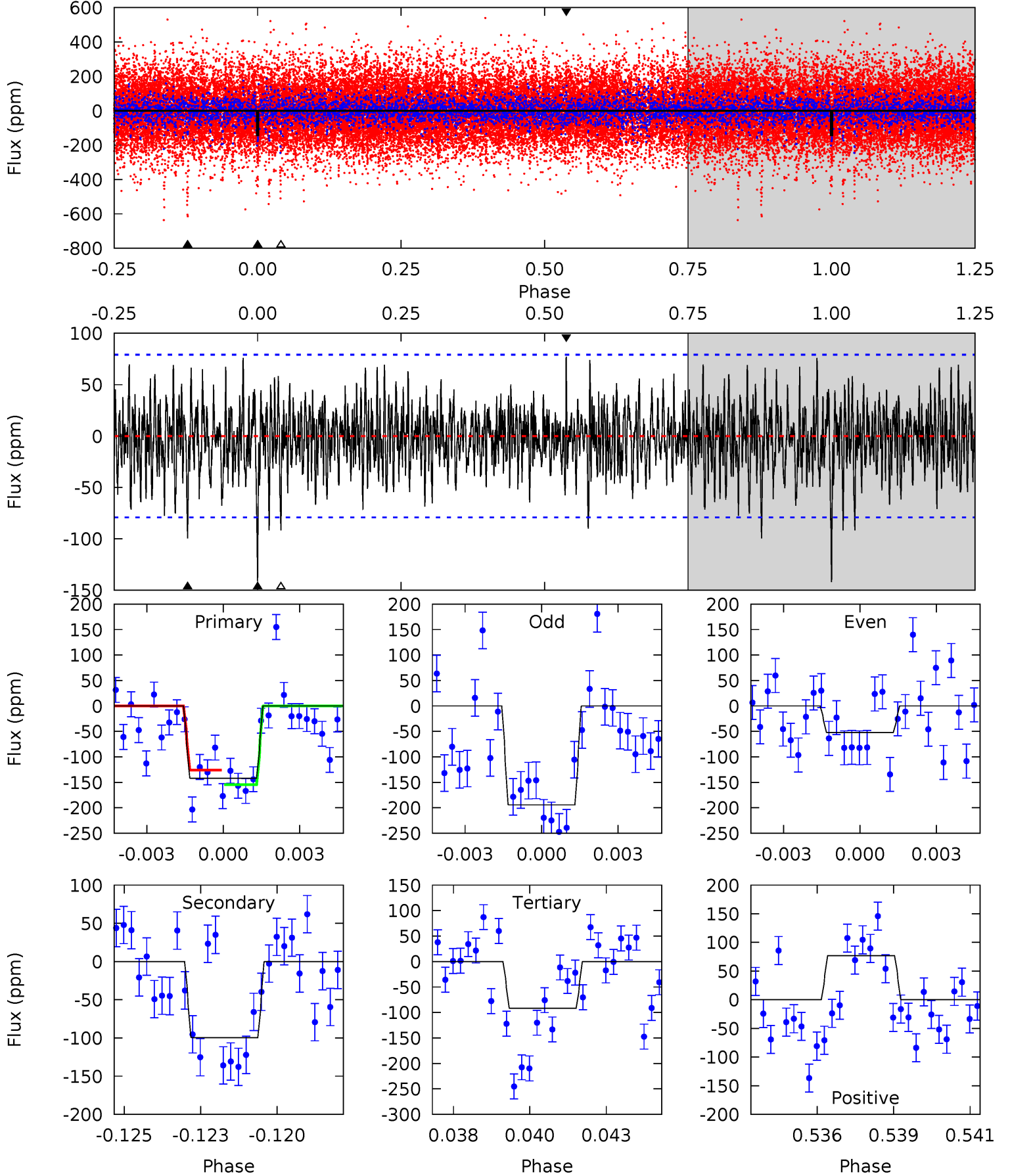
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	11.5	10.9	11.5	5.28	3.02	3.15	2.57	2.00	0.54	-0.03	3.87	0.89	0.46	0.85



Alt Model-Shift Uniqueness Test

008176634-05, P = 178.793650 Days, E = 104.143666 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.49	6.64	6.13	5.15	5.29	3.02	1.66	3.36	4.34	0.51	1.50	4.81	0.60	0.35	0.94



Stellar Parameters For KIC 008176634

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6214^{+171}_{-171}	$3.890^{+0.280}_{-0.100}$	$-0.200^{+0.300}_{-0.250}$	$2.071^{+0.451}_{-0.676}$	$1.215^{+0.225}_{-0.225}$	$0.193^{+0.353}_{-0.069}$
	+3%/-3%	+7%/-3%	+150%/-125%	+22%/-33%	+19%/-19%	+183%/-36%
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 008176634-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-201 ± 17	$4.19^{+0.83}_{-0.78}$	663^{+43}_{-57}	5356^{+311}_{-271}	2798^{+1415}_{-788}
Alt.	-99 ± 15	$2.36^{+0.60}_{-0.56}$	667^{+40}_{-56}	5925^{+663}_{-505}	4296^{+3075}_{-1546}

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

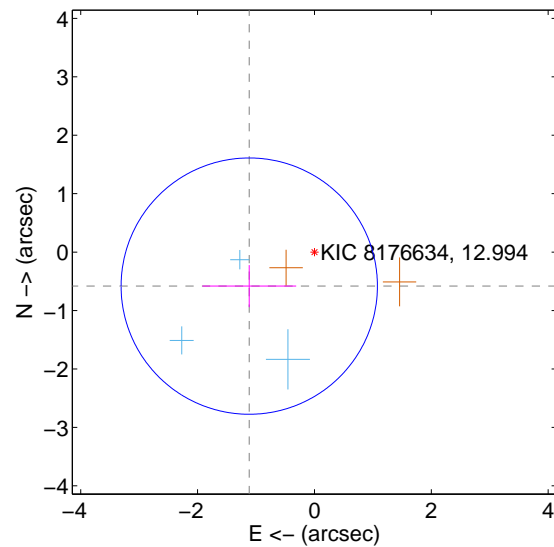
Supplemental centroid analysis for 008176634-05. Kepler magnitude: 12.99. Transit SNR 6.97

There are 3 quarters with good PRF difference image offsets

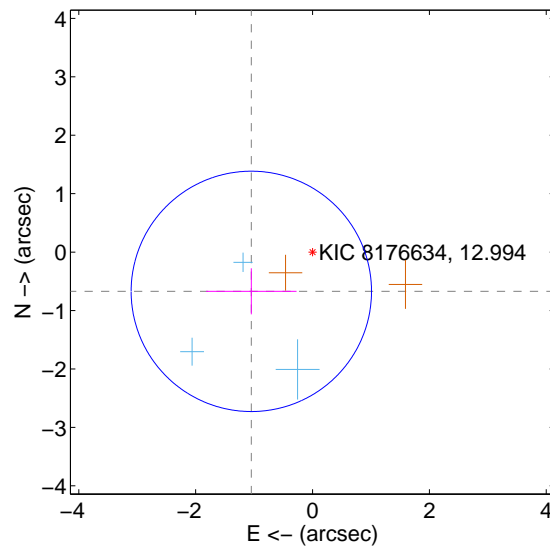
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.258 ± 0.731	1.72	1.116 ± 0.803	-0.582 ± 0.359
PRF-fit source offset from KIC position	1.244 ± 0.686	1.82	1.047 ± 0.774	-0.672 ± 0.394
photometric centroid source offset	1.17 ± 0.71	1.65	-0.77 ± 0.65	0.88 ± 0.75

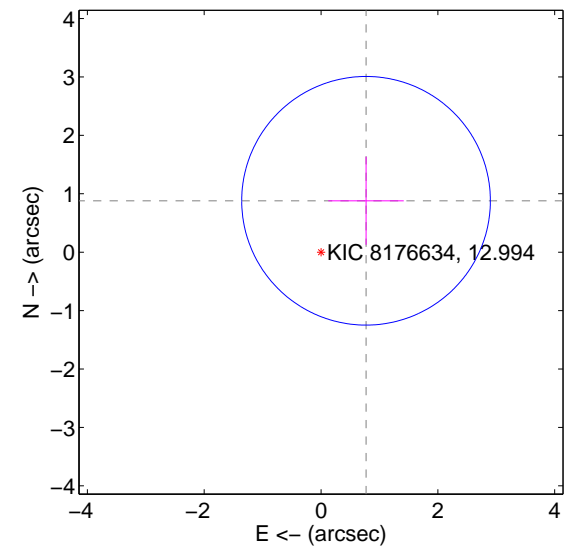
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

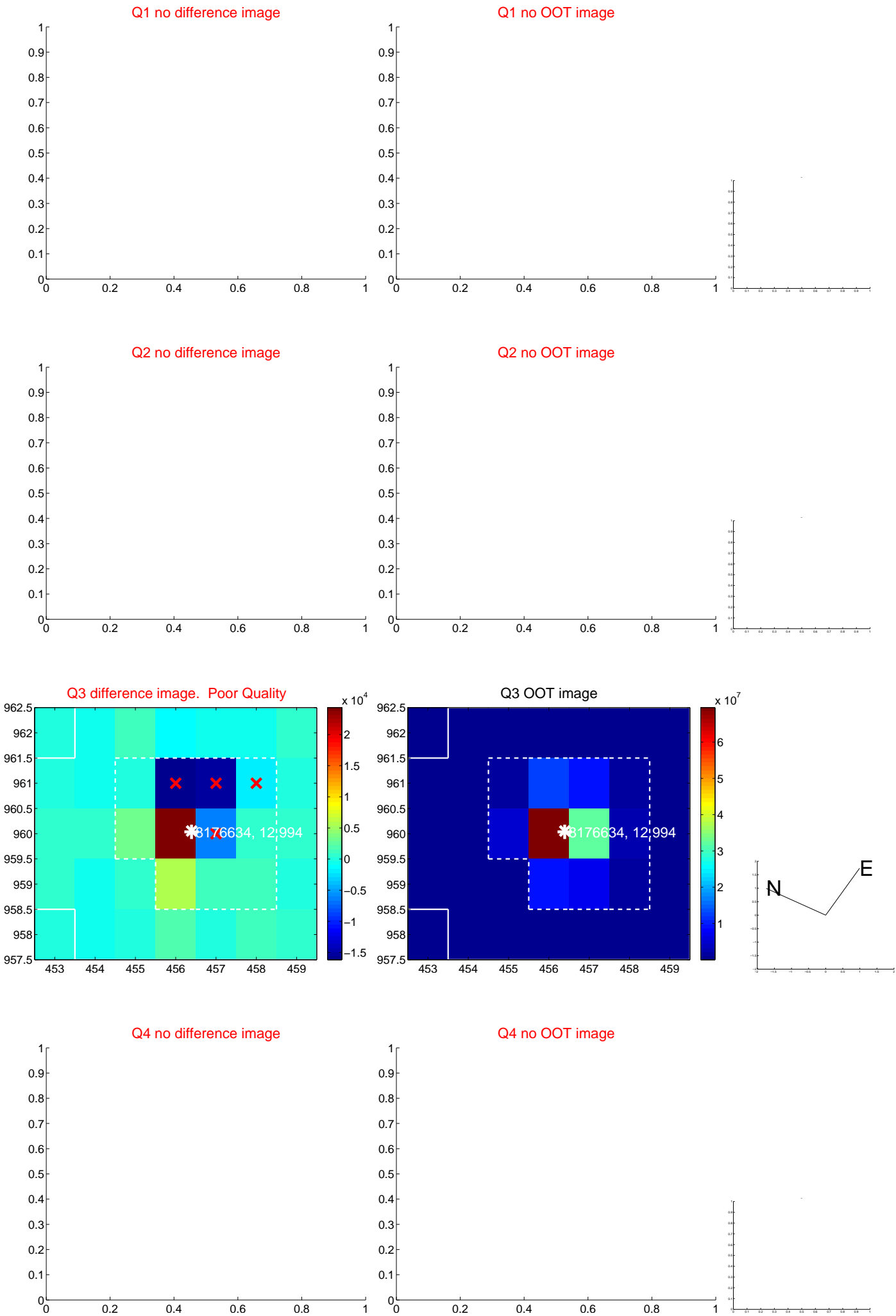


offset from photometric centroids

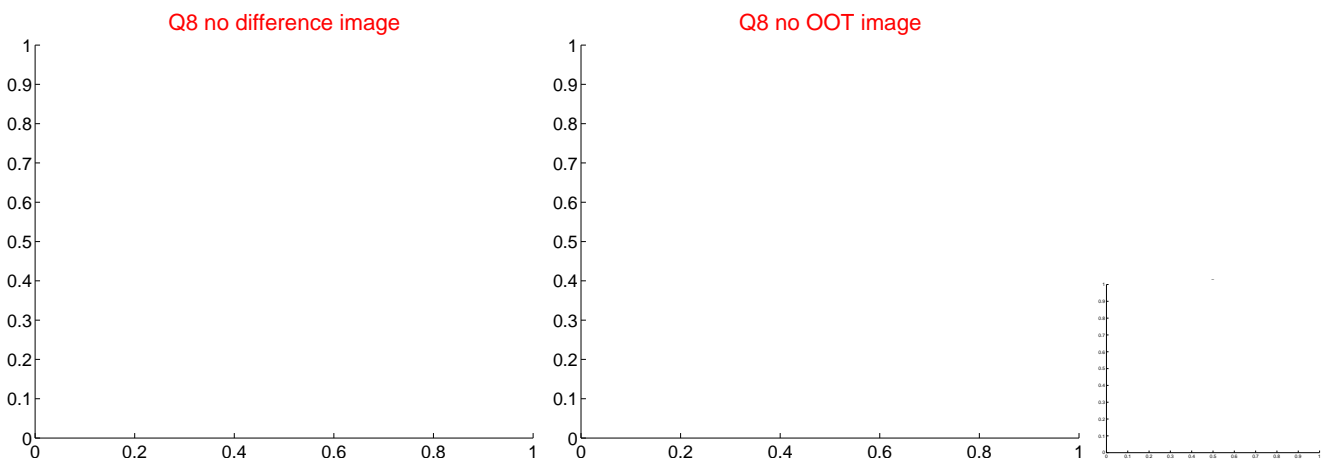
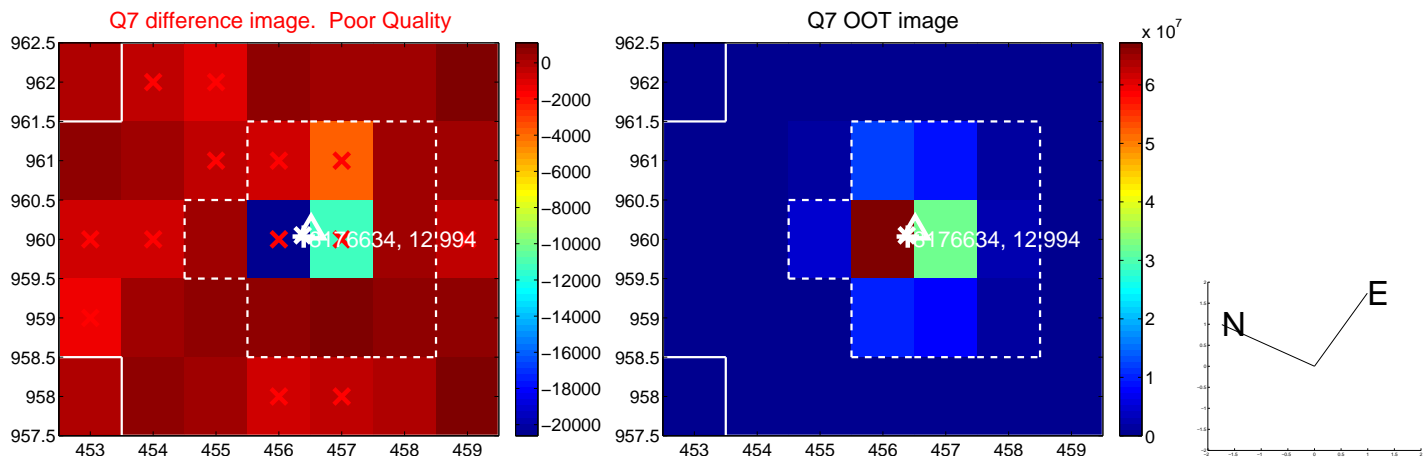
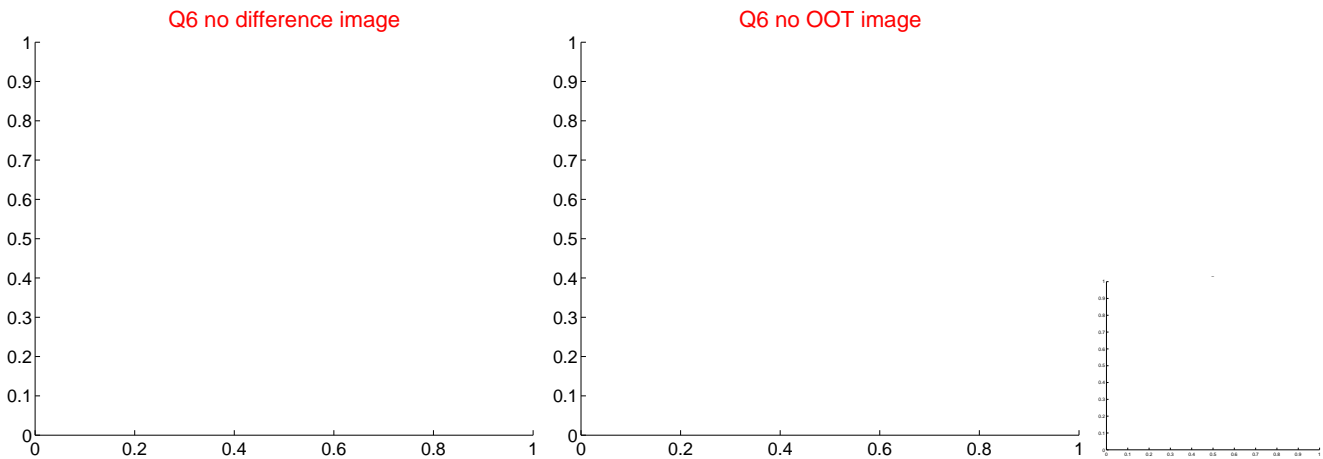
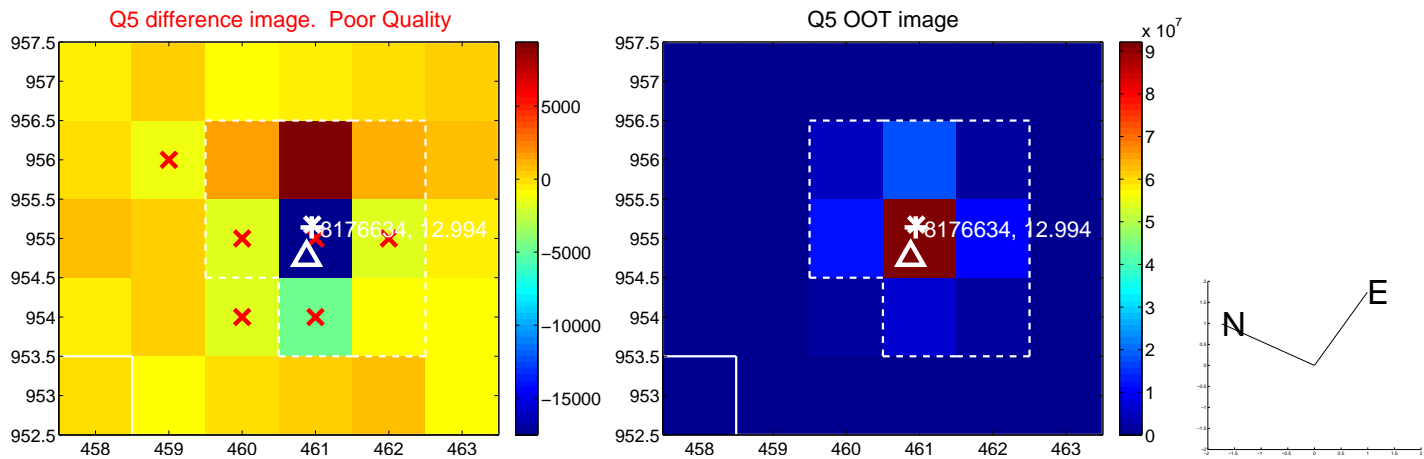


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

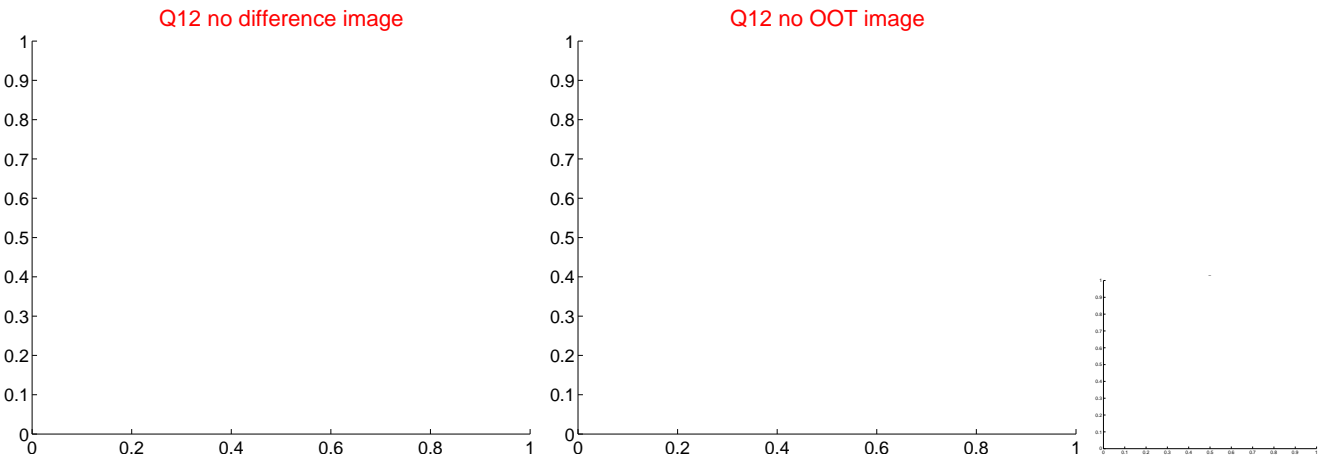
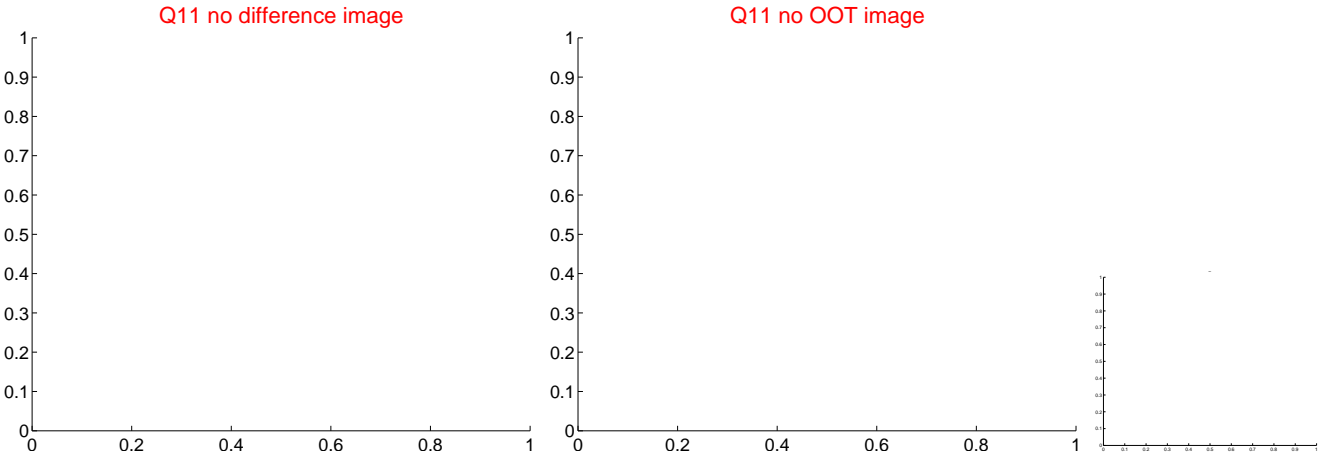
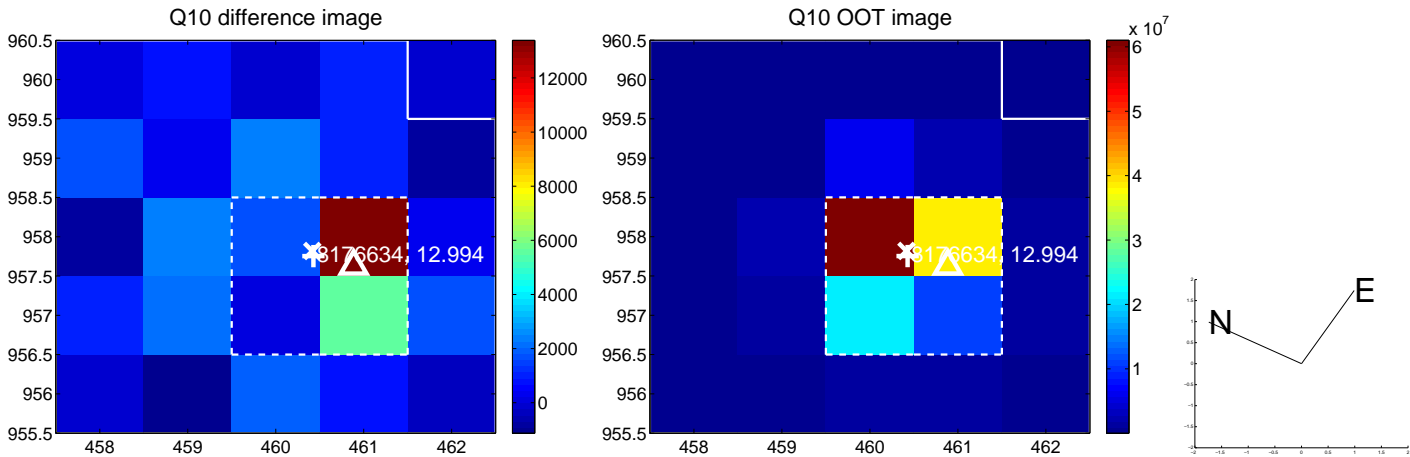
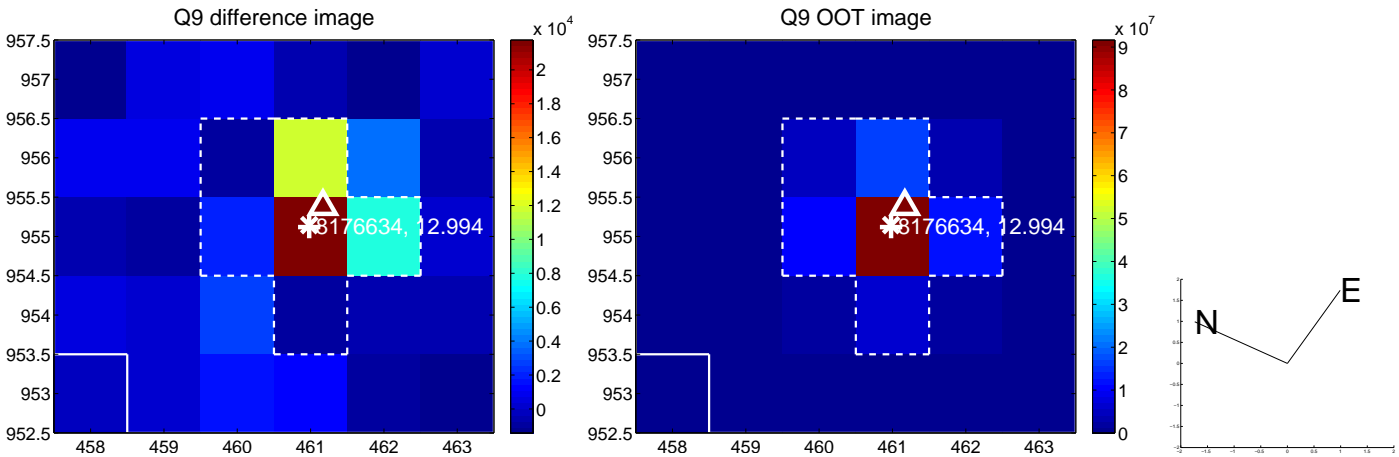
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



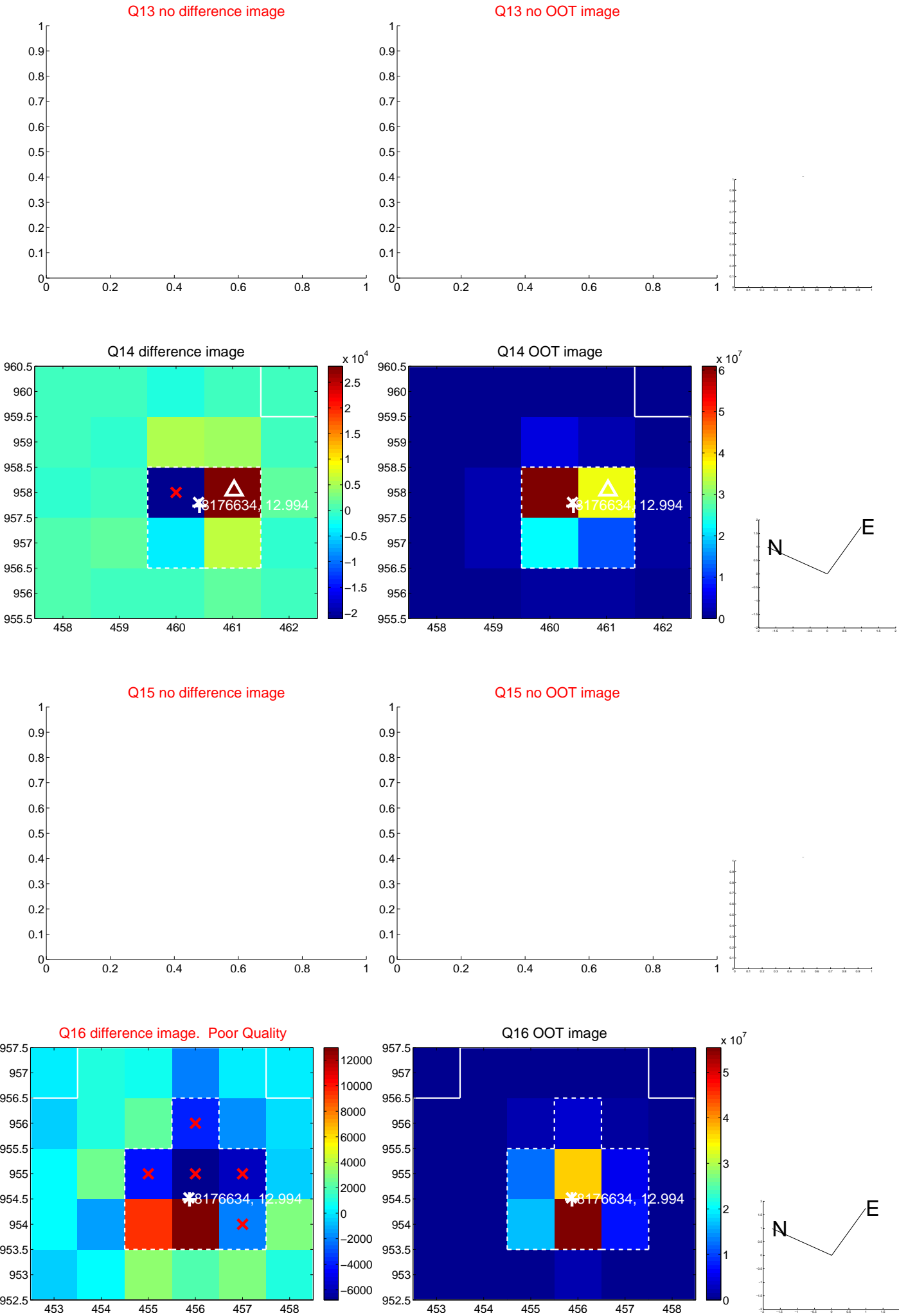
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



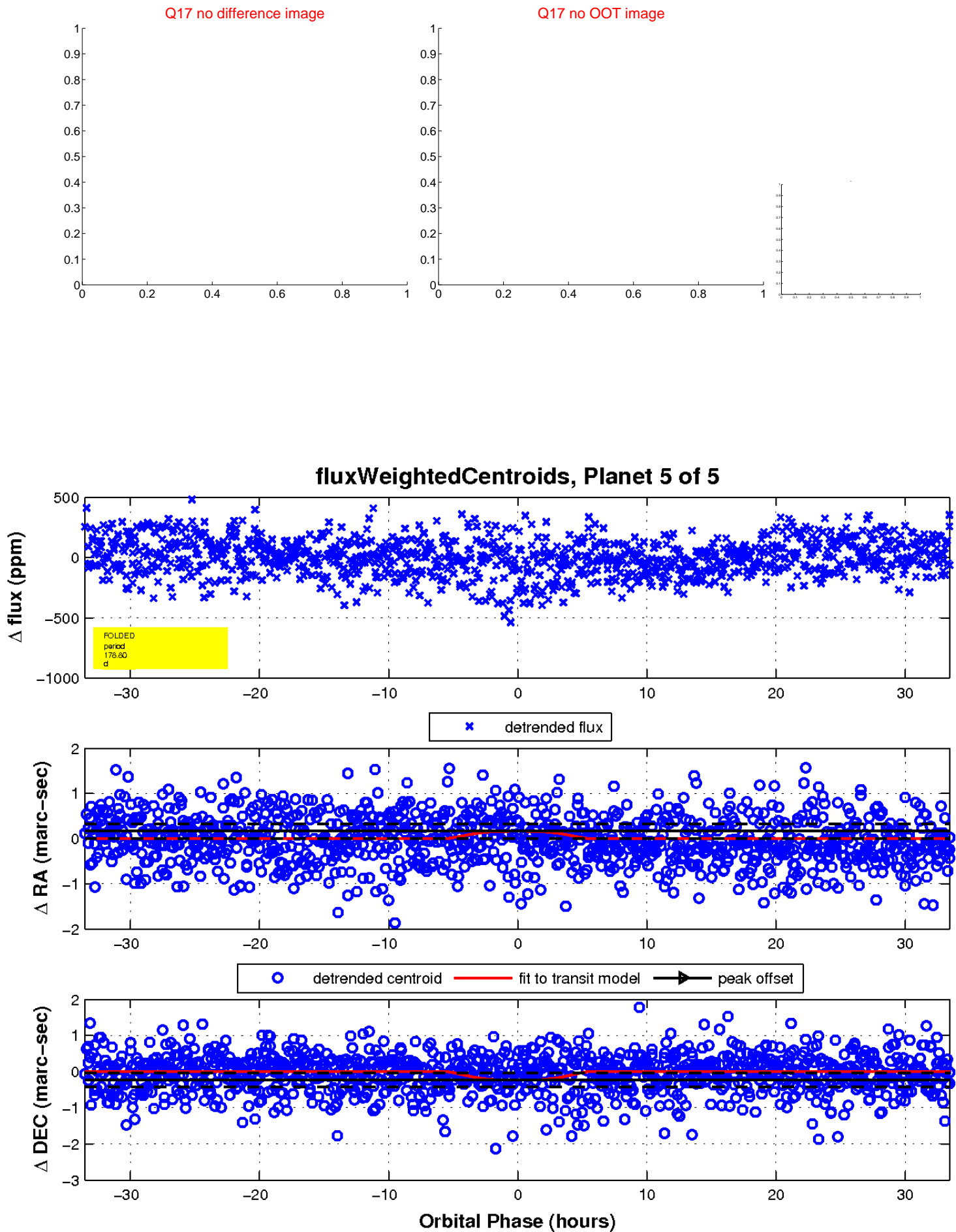
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

