

KIC 010811078

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})
010811078-01	OBS	No	420.381499	152.776135	3797.3	7.302	11.3	6.3	0.80	5771	5.94	0.58
010811078-02	OBS	No	0.806868	132.380494	37.0	1.238	10.5	3.4	0.80	5771	0.61	2450.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010811078-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010811078-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT

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

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

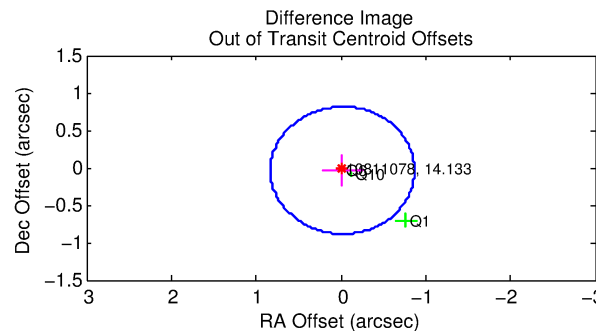
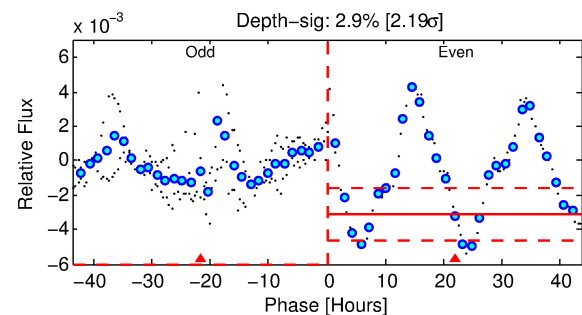
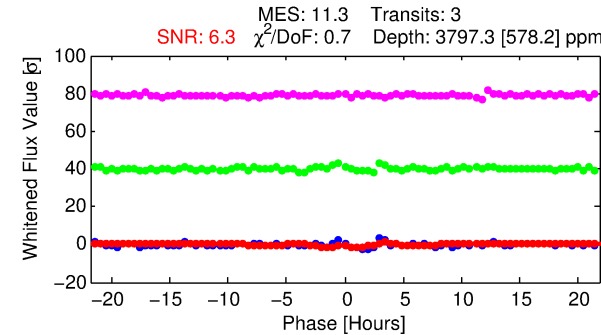
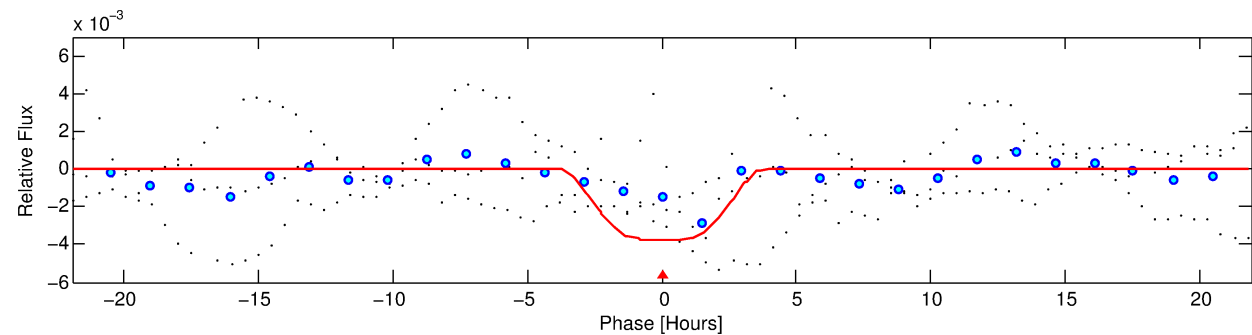
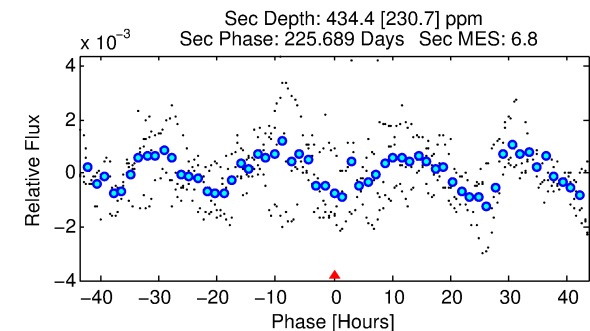
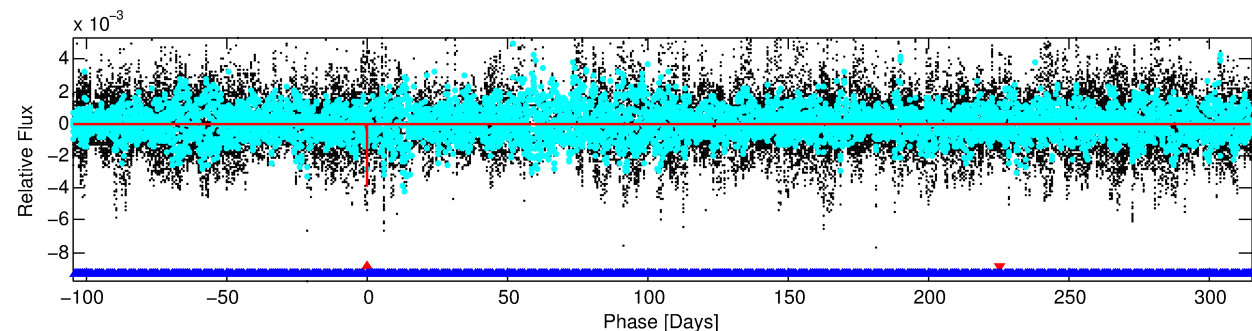
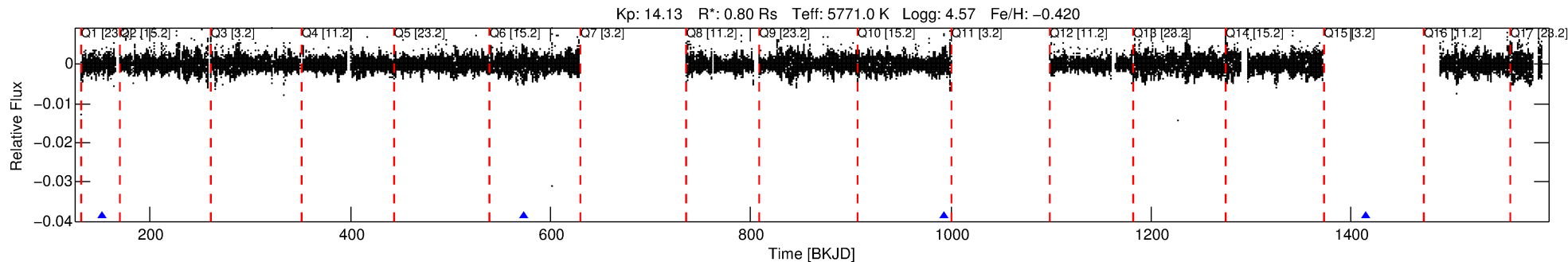
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010811078-01

No Significant Match Found

DV One-Page Summary

KIC: 10811078 Candidate: 1 of 2 Period: 420.381 d



DV Fit Results:

Period = 420.38150 [0.00635] d
Epoch = 152.7761 [0.0090] BKJD
Rp/R* = 0.0680 [0.0056]
a/R* = 243.98 [17.78]
b = 0.91 [0.02]
Seff = 0.58 [0.19]
Teq = 223 [19] K
Rp = 5.94 [1.68] Re
a = 1.0444 [0.2318] AU
Ag = 7379.06 [4714.95] [1.56σ]
Teffp = 3195 [452] K [6.57σ]

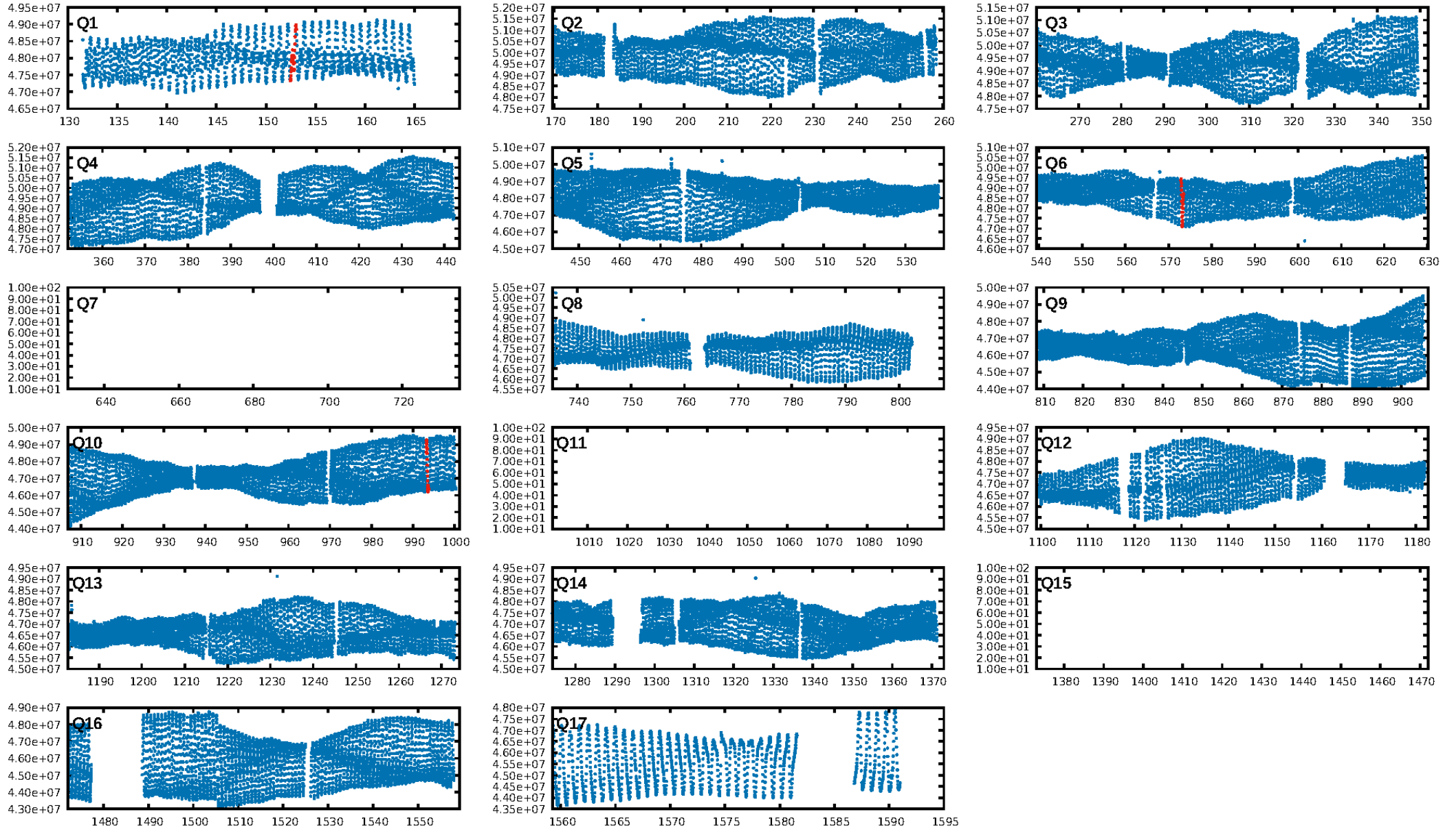
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1359.67σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.6%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 6.49e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.9683
Centroid-sig: 29.4%
Centroid-so: 0.127 arcsec [0.56σ]
OotOffset-rm: 0.041 arcsec [0.14σ]
KicOffset-rm: 0.142 arcsec [1.08σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

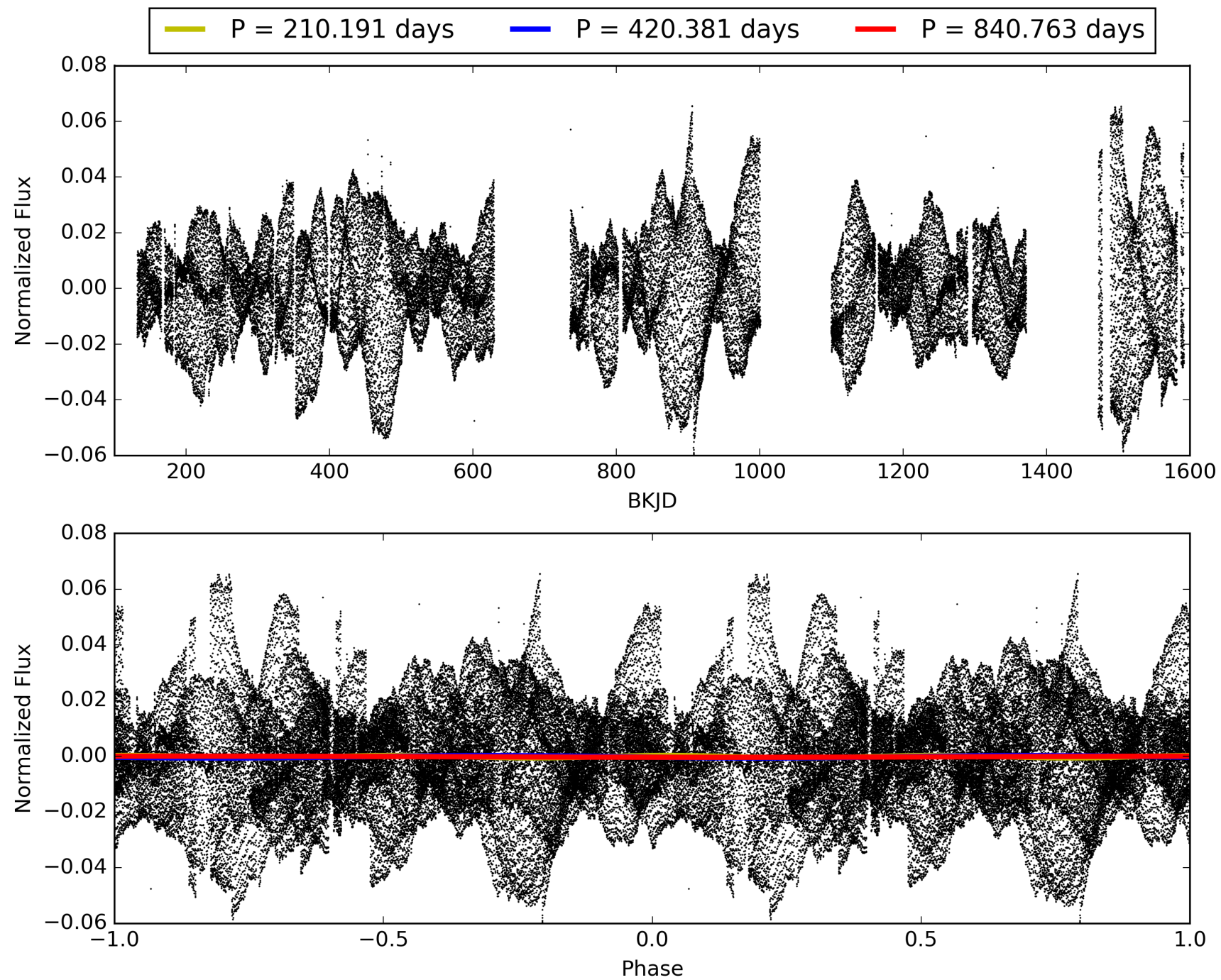
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:18:56 Z

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

TCE 010811078-01, PDC Light Curves

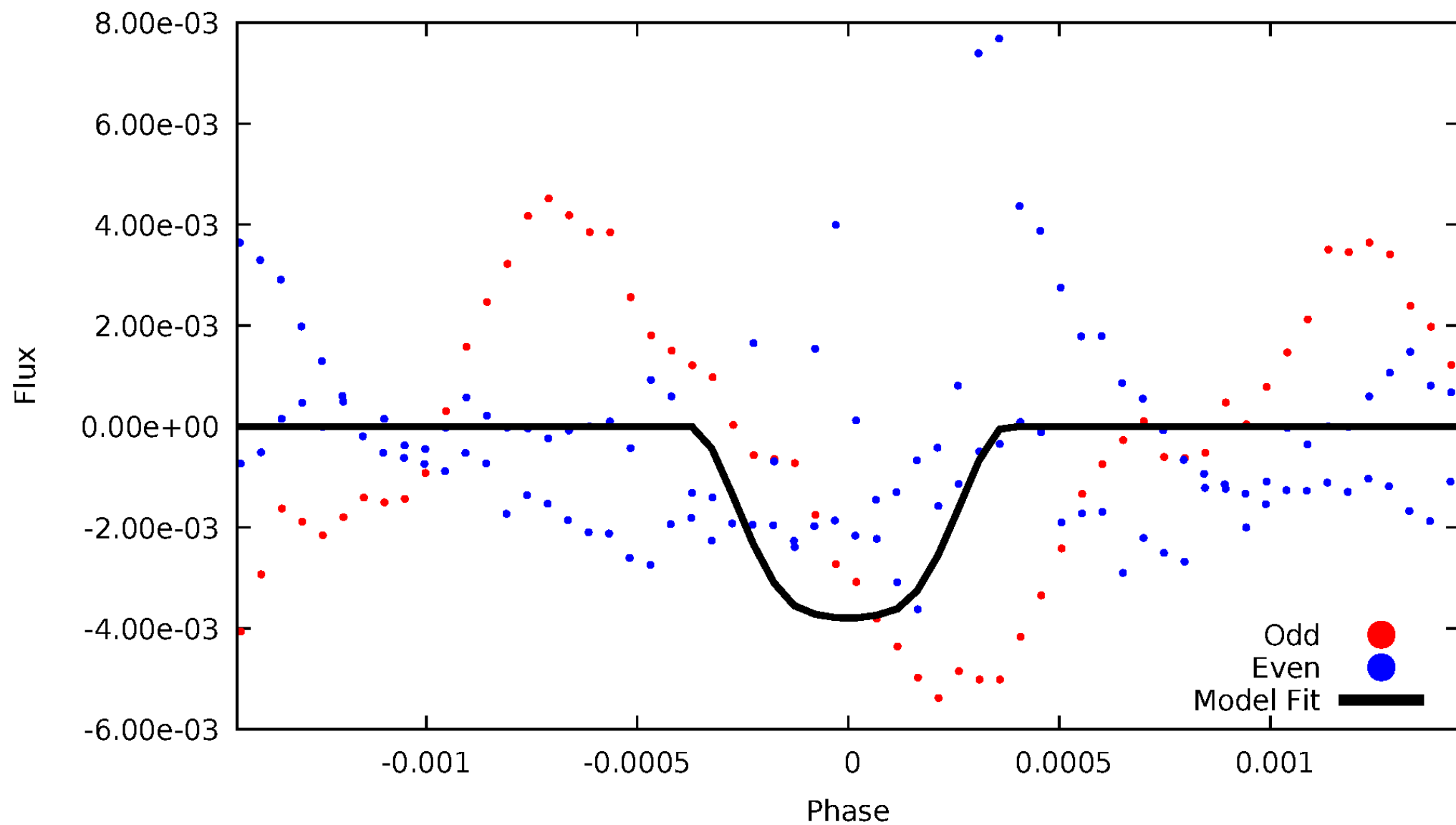


TCE 010811078-01



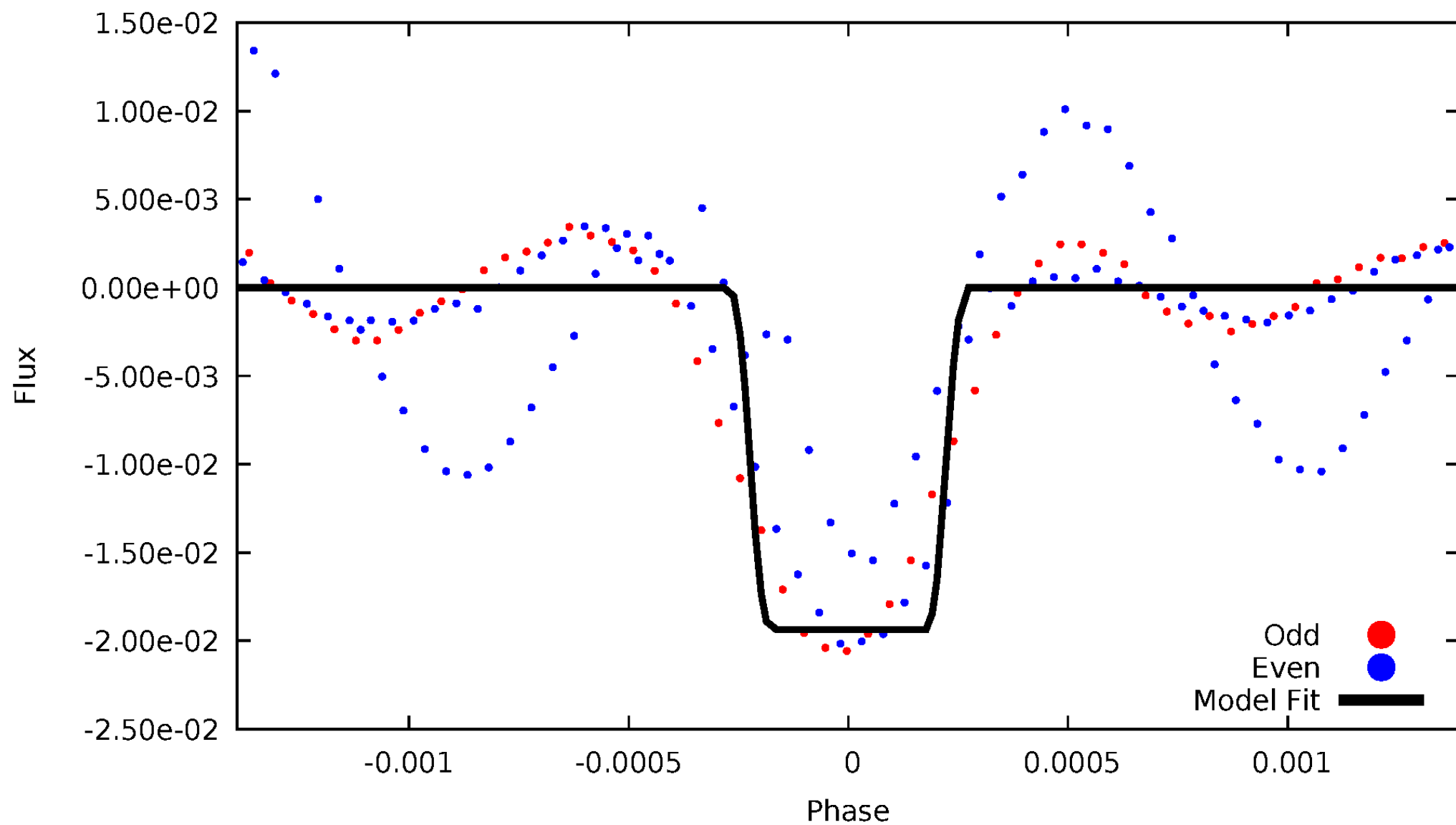
DV Odd/Even

TCE 010811078-01



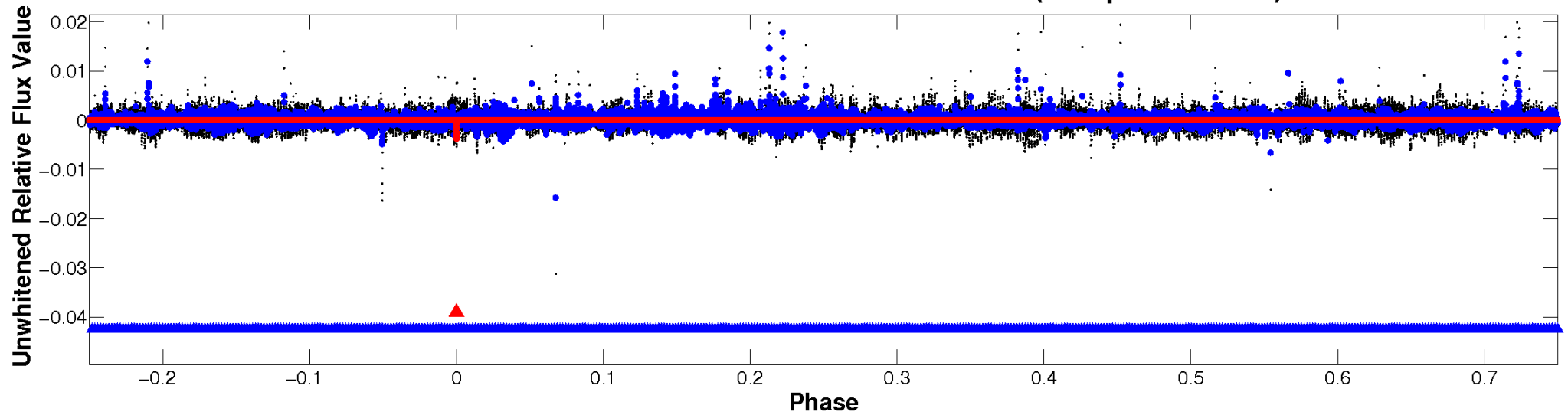
ALT Odd/Even

TCE 010811078-01

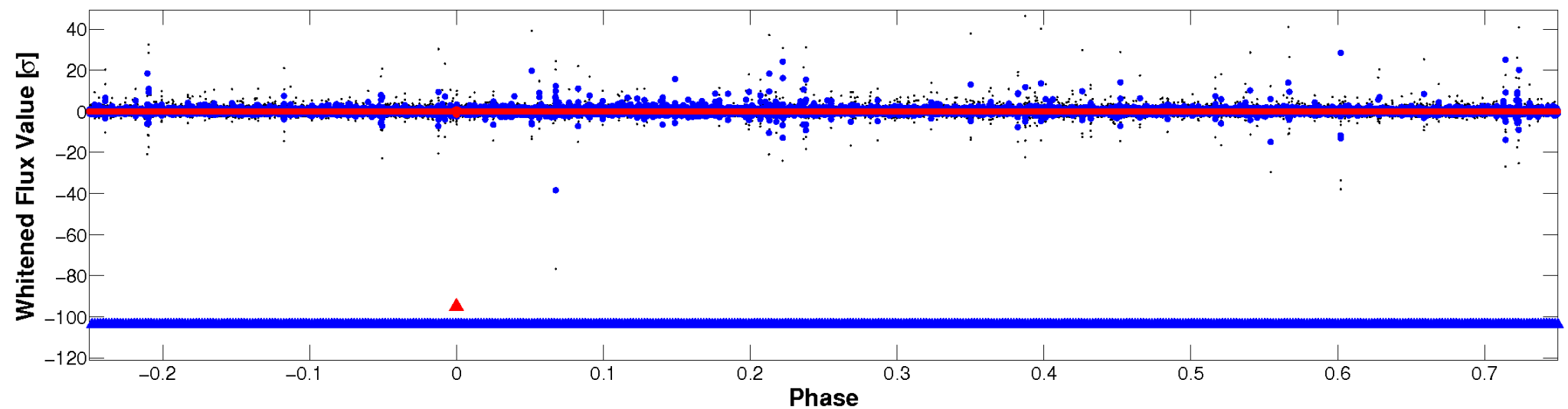


Non-Whitened Vs. Whitened Light Curve

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

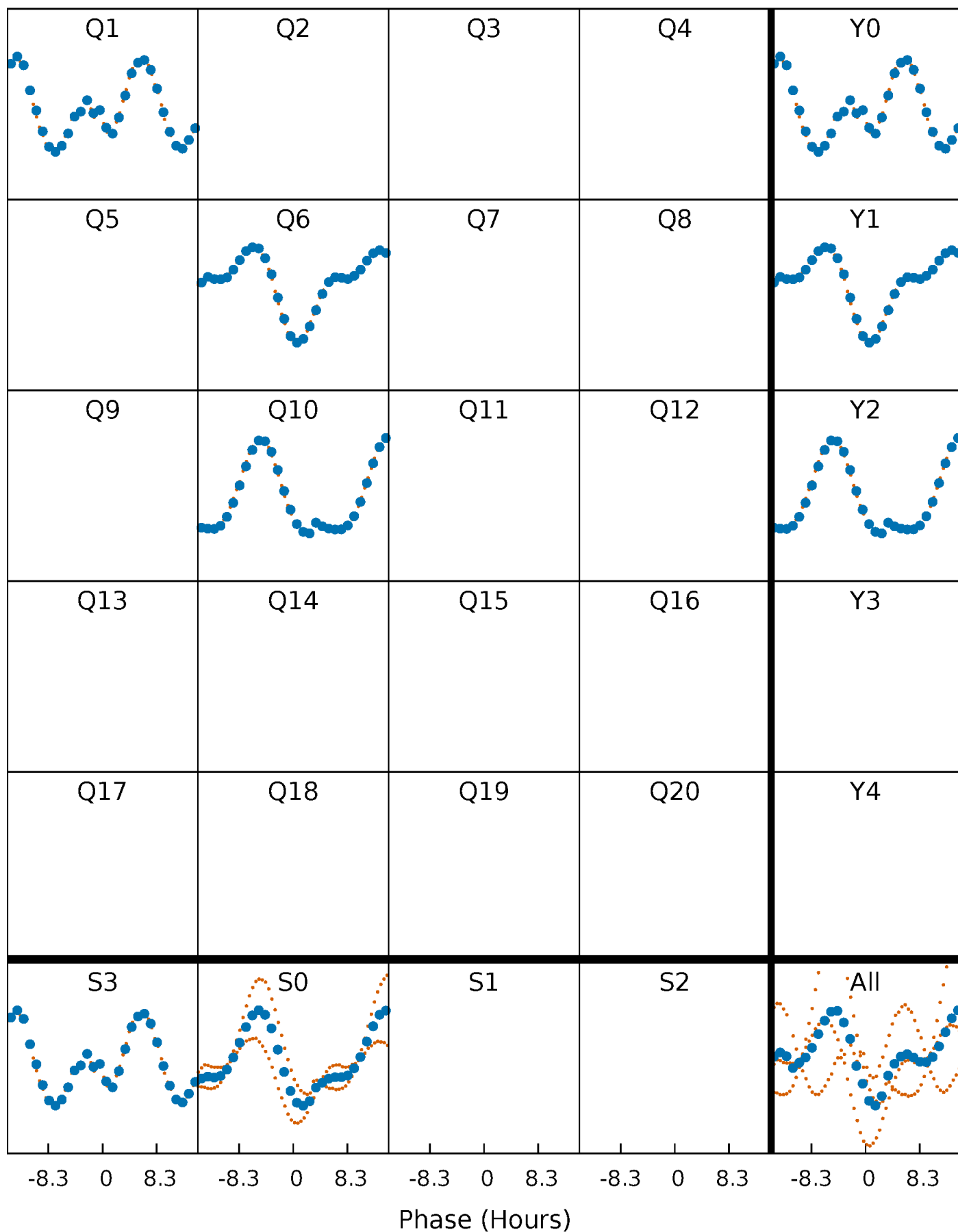


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



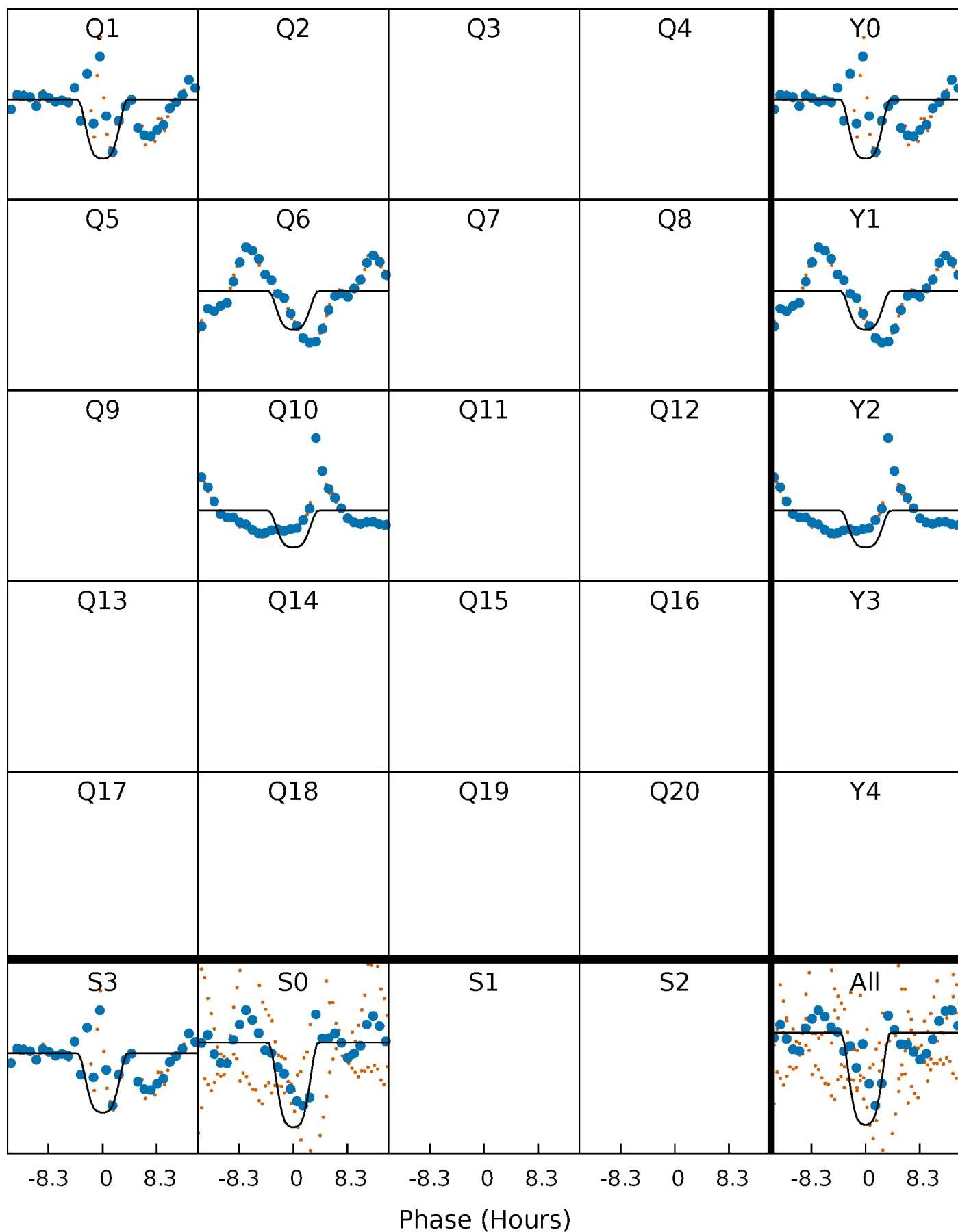
PDC Quarter-Phased Transit Curves

TCE 010811078-01 P=420.381499 Days $T_0=152.776135$ (BKJD)



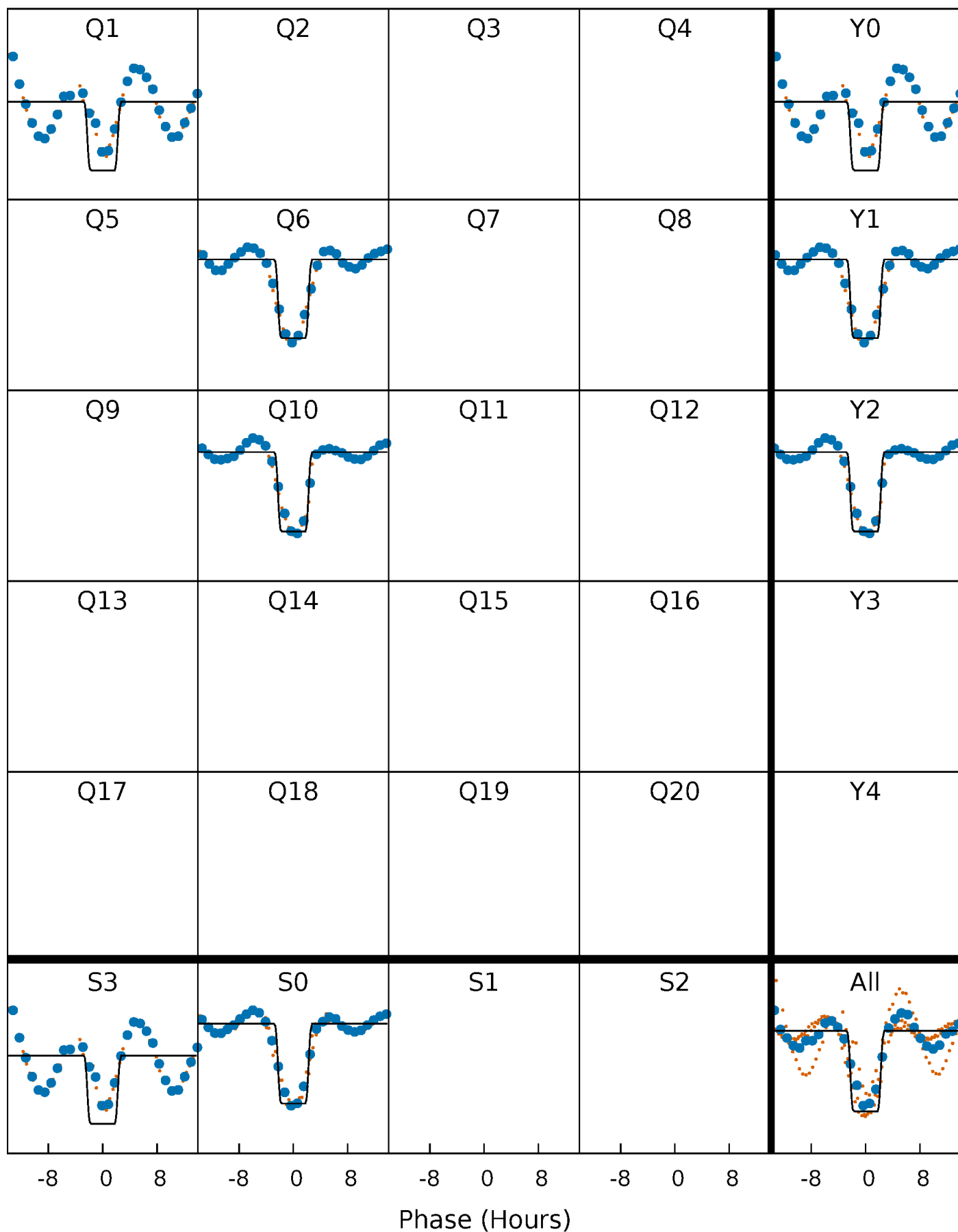
DV Quarter-Phased Transit Curves

TCE 010811078-01 P=420.381499 Days $T_0=152.776135$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

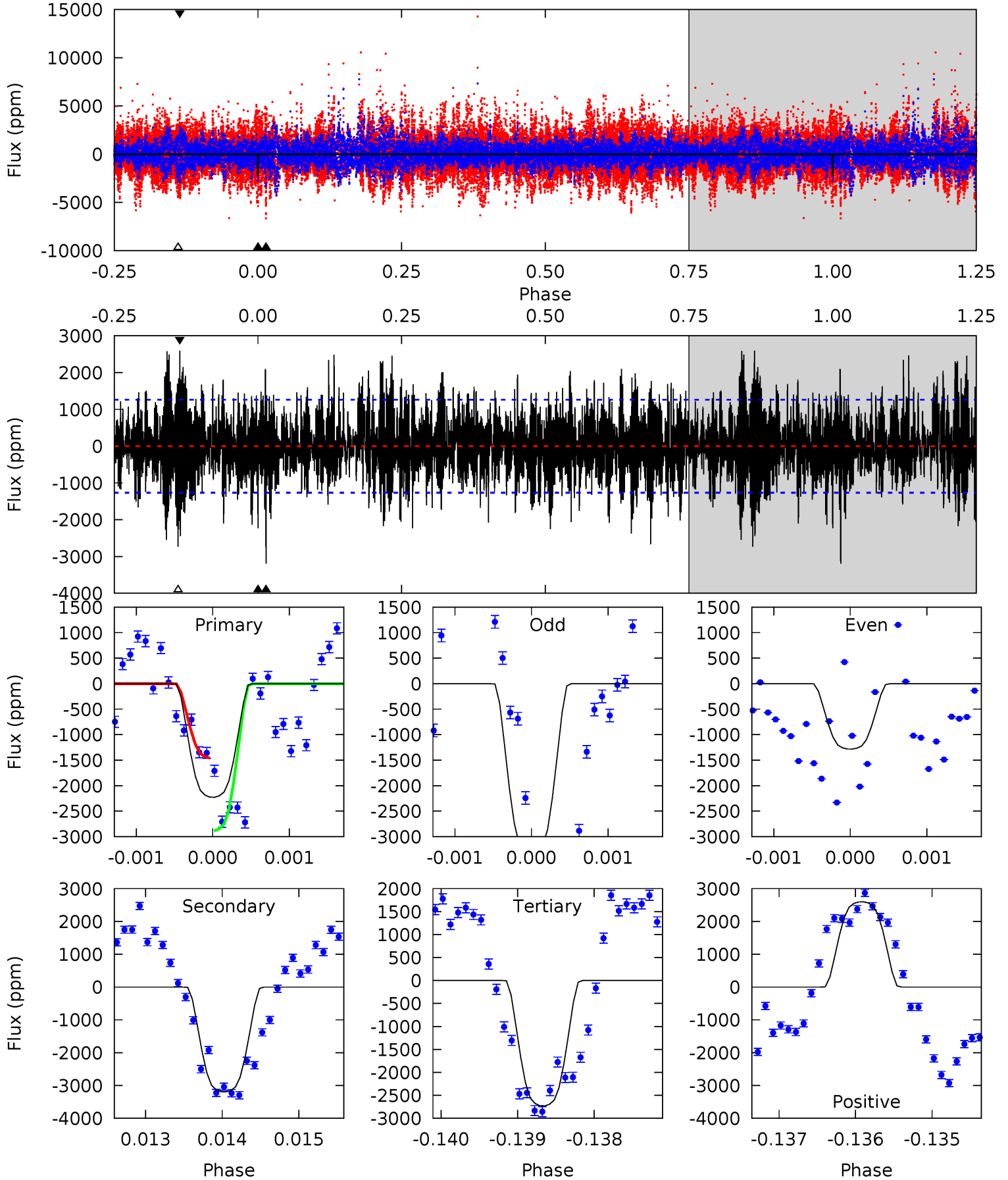
TCE 010811078-01 P=420.366008 Days $T_0=152.821582$ (BKJD)



DV Model-Shift Uniqueness Test

010811078-01, P = 420.381499 Days, E = 152.776135 Days

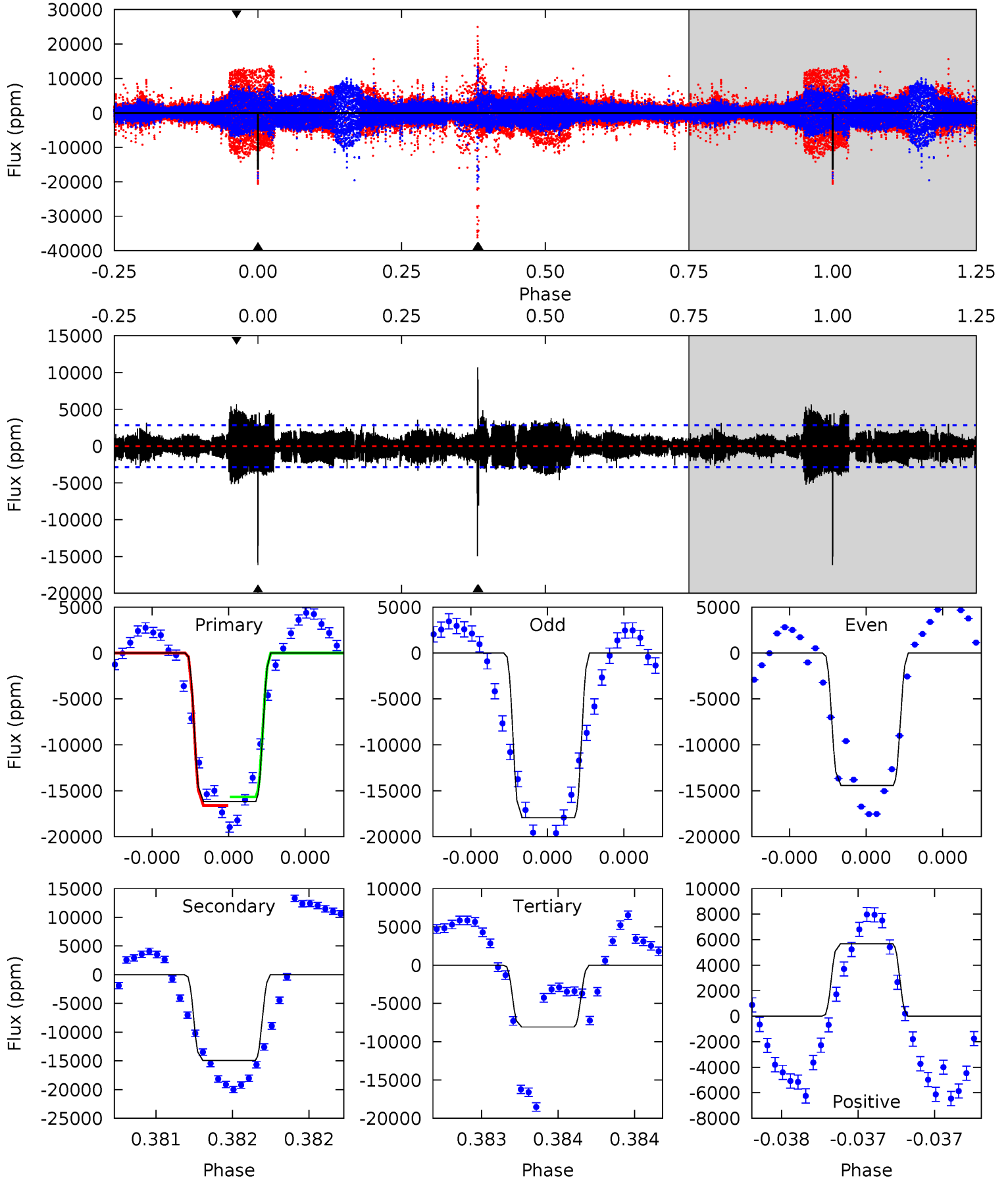
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.69	13.9	11.9	11.3	5.50	3.36	3.21	-2.18	-1.61	2.02	2.59	4.24	1.17	0.45	3.11



Alt Model-Shift Uniqueness Test

010811078-01, P = 420.366008 Days, E = 152.821582 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.6	29.2	15.8	11.1	5.57	3.48	2.85	15.8	20.5	13.4	18.1	1.94	0.86	0.40	0.91



Stellar Parameters For KIC 010811078

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5771^{+155}_{-155}	$4.565^{+0.042}_{-0.168}$	$-0.420^{+0.300}_{-0.300}$	$0.801^{+0.217}_{-0.072}$	$0.859^{+0.096}_{-0.087}$	$2.352^{+0.526}_{-1.069}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-9%	+11%/-10%	+22%/-45%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 010811078-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3195 ± 230	$6.15^{+0.87}_{-0.72}$	317^{+20}_{-12}	5290^{+275}_{-240}	50064^{+13141}_{-12063}
Alt.	-14955 ± 512	$12.43^{+1.77}_{-0.96}$	317^{+20}_{-13}	5455^{+171}_{-163}	57733^{+9235}_{-12442}

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

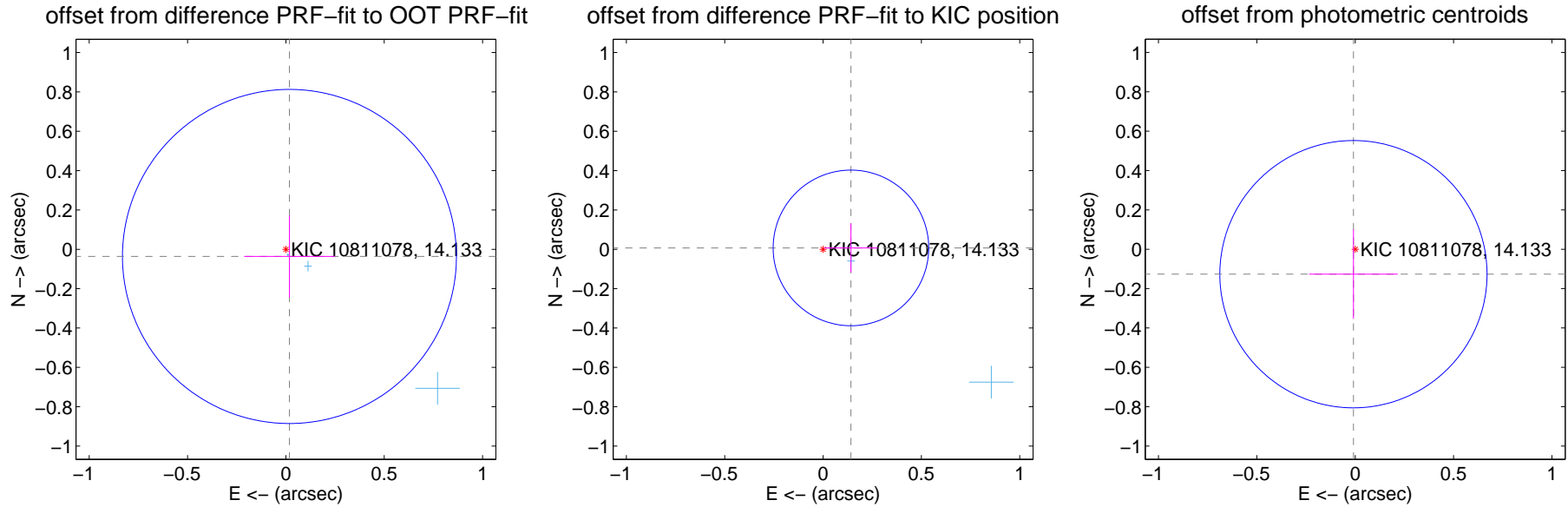
DV Centroid Data

Supplemental centroid analysis for 010811078-01. Kepler magnitude: 14.13. Transit SNR 6.30

There are 3 quarters with good PRF difference image offsets

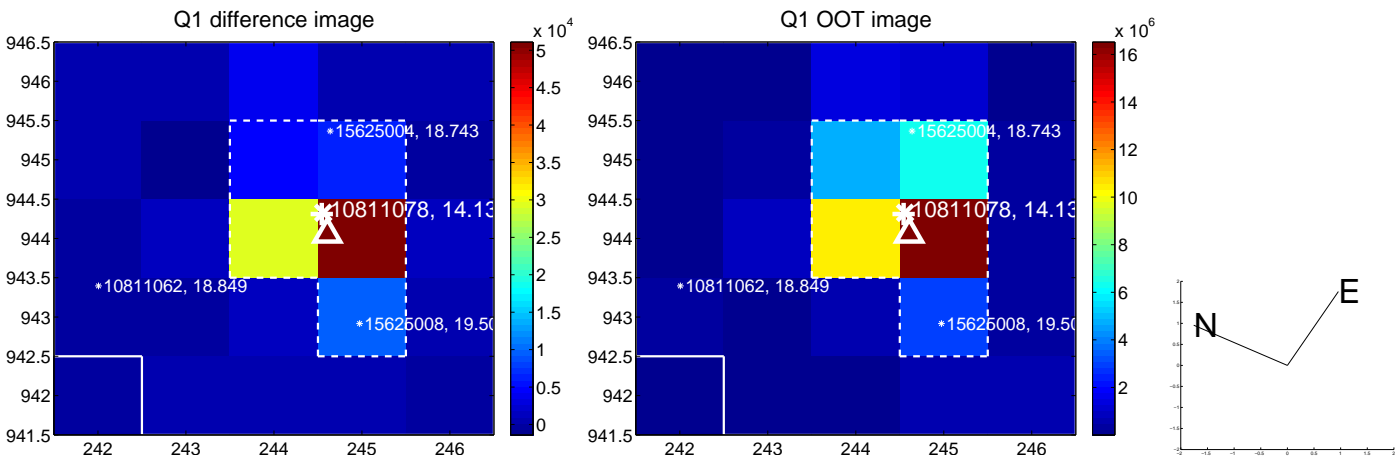
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.041 ± 0.283	0.14	-0.018 ± 0.231	-0.036 ± 0.208
PRF-fit source offset from KIC position	0.142 ± 0.132	1.08	-0.142 ± 0.136	0.007 ± 0.125
photometric centroid source offset	0.13 ± 0.23	0.56	0.01 ± 0.23	-0.13 ± 0.23



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

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



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

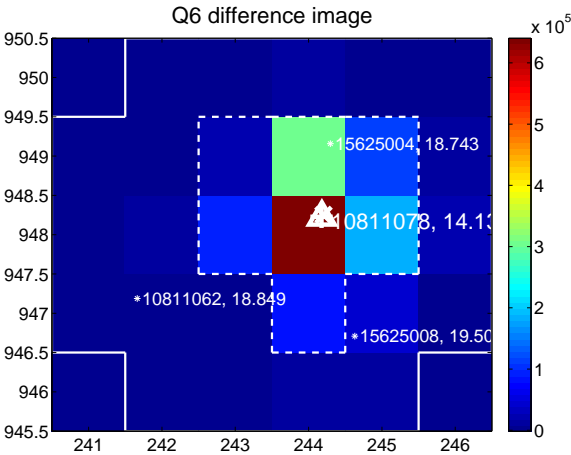
Q5 no difference image



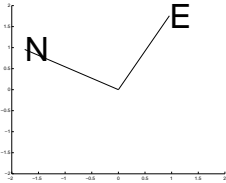
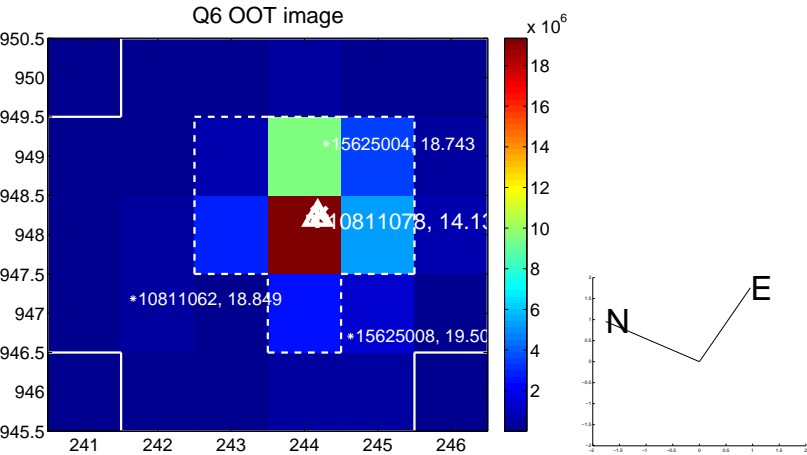
Q5 no OOT image



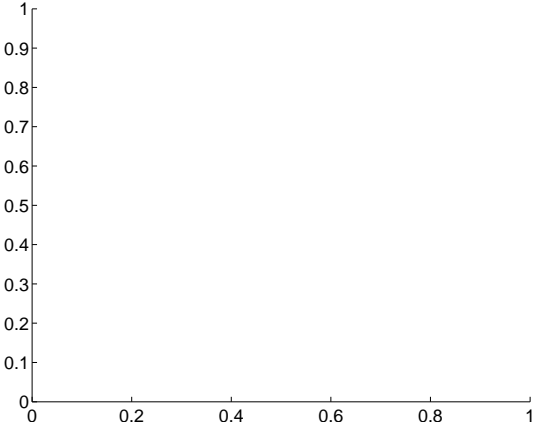
Q6 difference image



Q6 OOT image



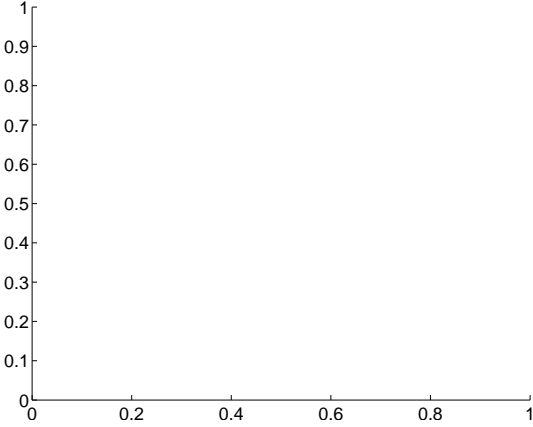
Q7 no difference image



Q7 no OOT image



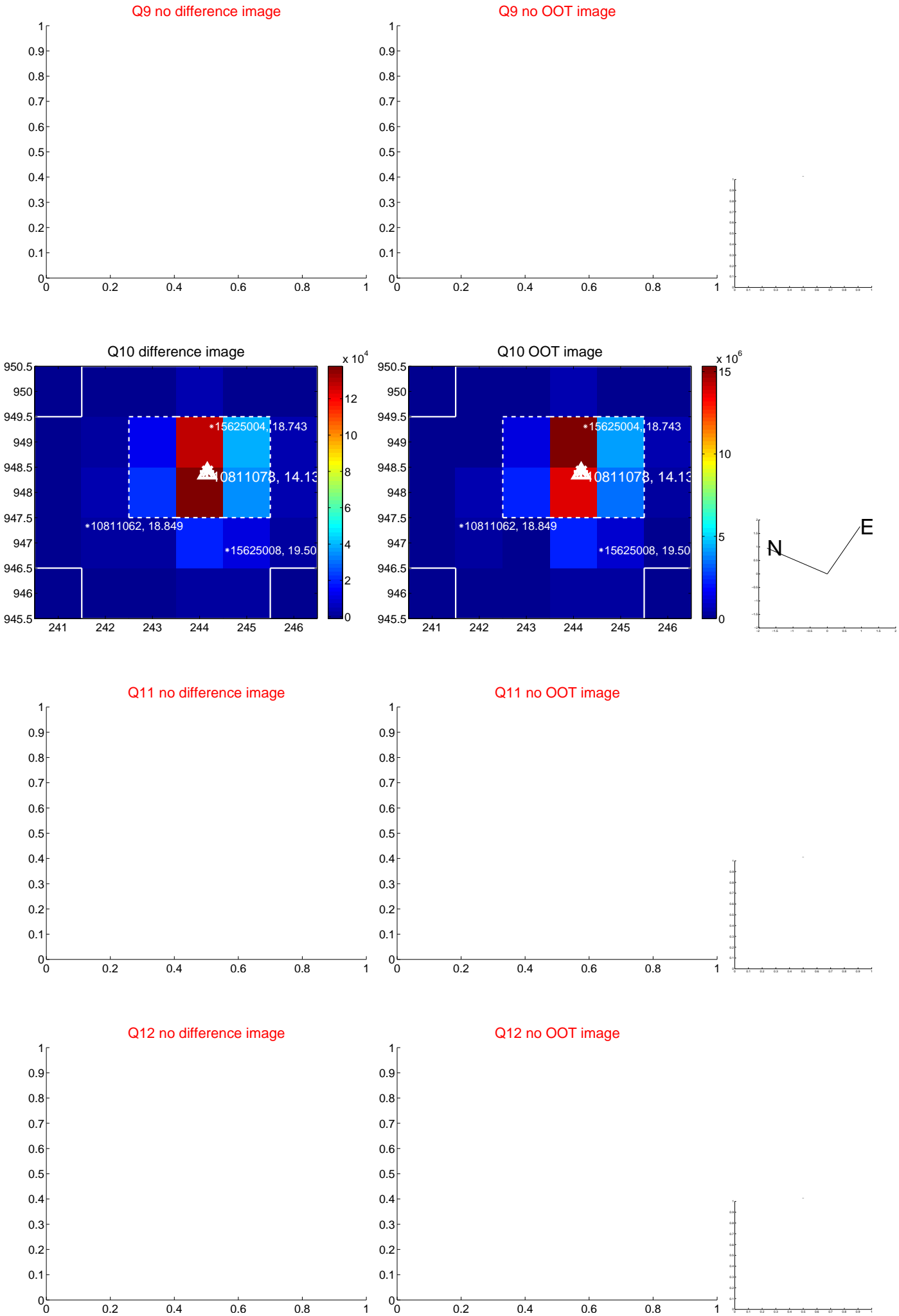
Q8 no difference image



Q8 no OOT image



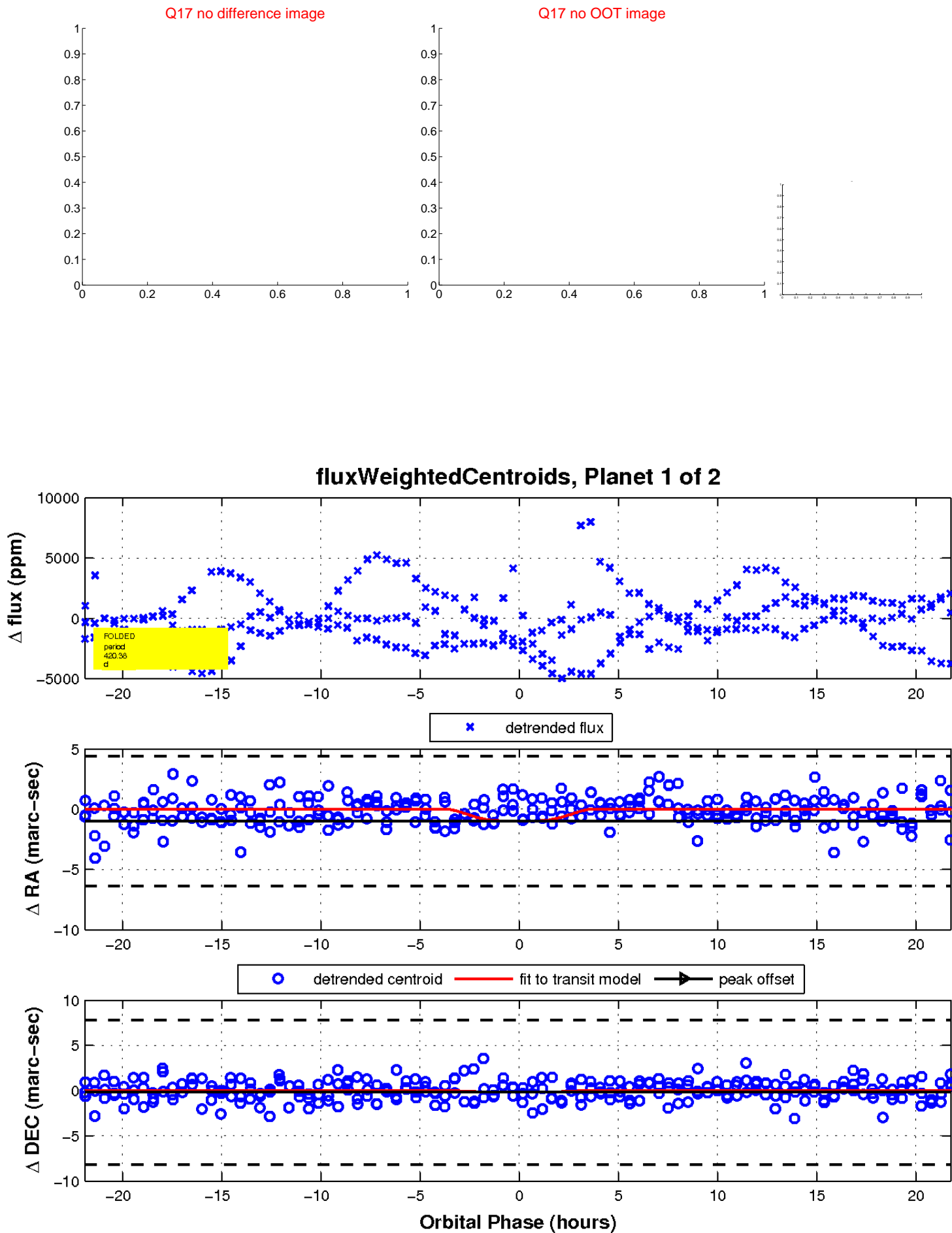
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

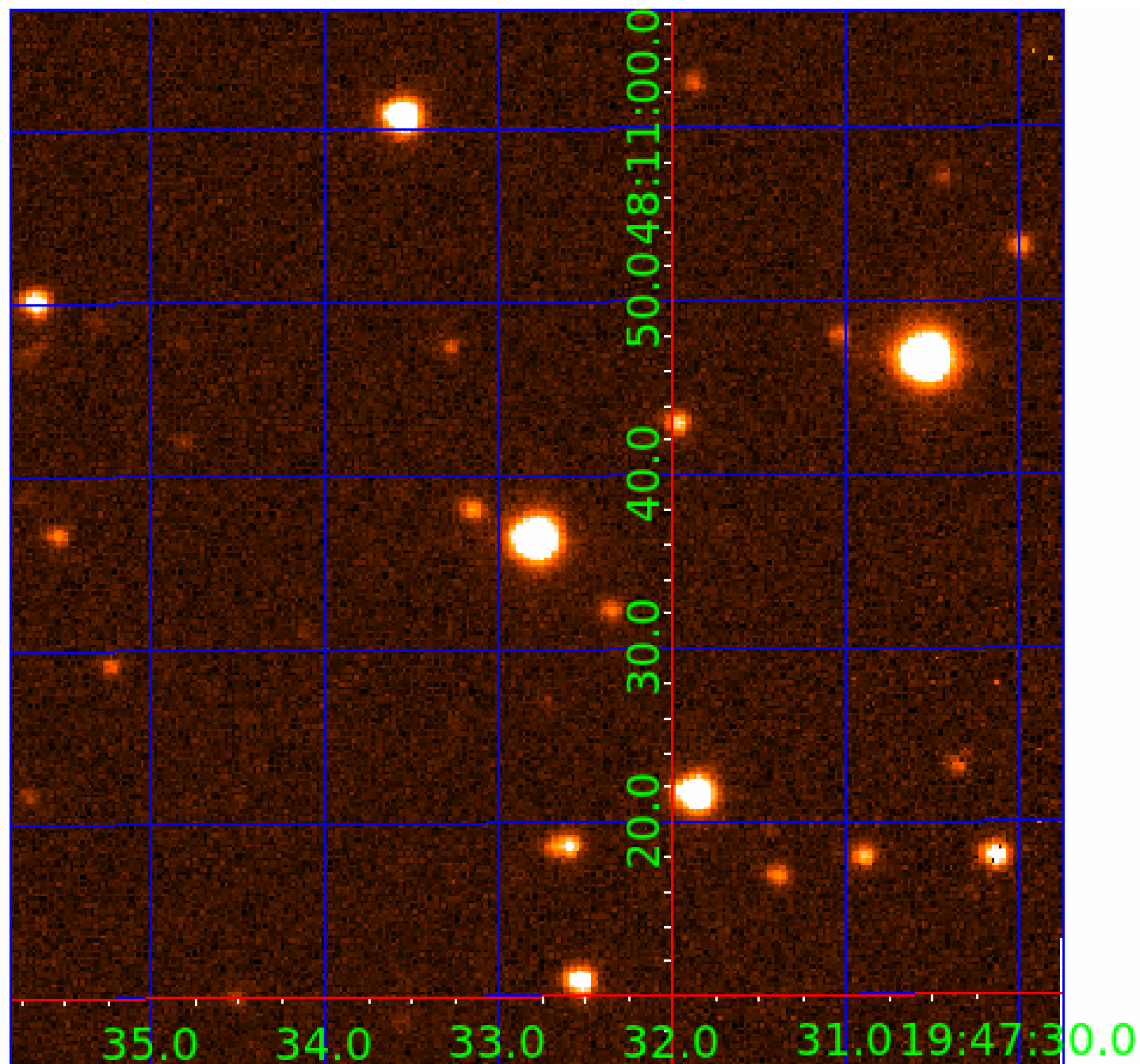


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010811078

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})
010811078-01	OBS	No	420.381499	152.776135	3797.3	7.302	11.3	6.3	0.80	5771	5.94	0.58
010811078-02	OBS	No	0.806868	132.380494	37.0	1.238	10.5	3.4	0.80	5771	0.61	2450.48

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010811078-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010811078-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT

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

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

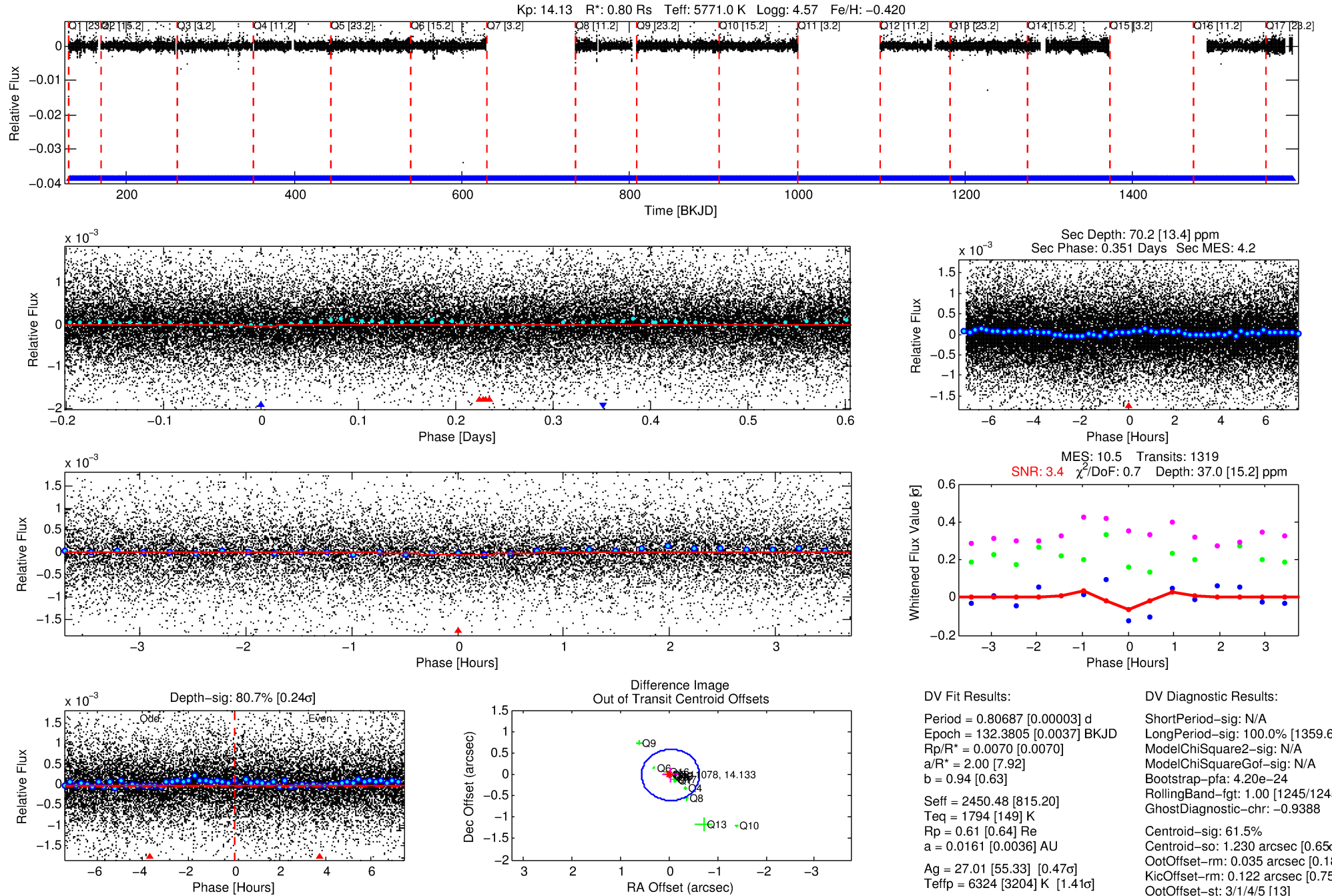
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010811078-02

No Significant Match Found

DV One-Page Summary

KIC: 10811078 Candidate: 2 of 2 Period: 0.807 d



DV Fit Results:

Period = 0.80687 [0.00003] d
Epoch = 132.3805 [0.0037] BKJD
Rp/R* = 0.0070 [0.0070]
a/R* = 2.00 [7.92]
b = 0.94 [0.63]
Seff = 2450.48 [815.20]
Teq = 1794 [149] K
Rp = 0.61 [0.64] Re
a = 0.0161 [0.0036] AU
Ag = 27.01 [55.33] [0.47σ]
Teffp = 6324 [3204] K [1.41σ]

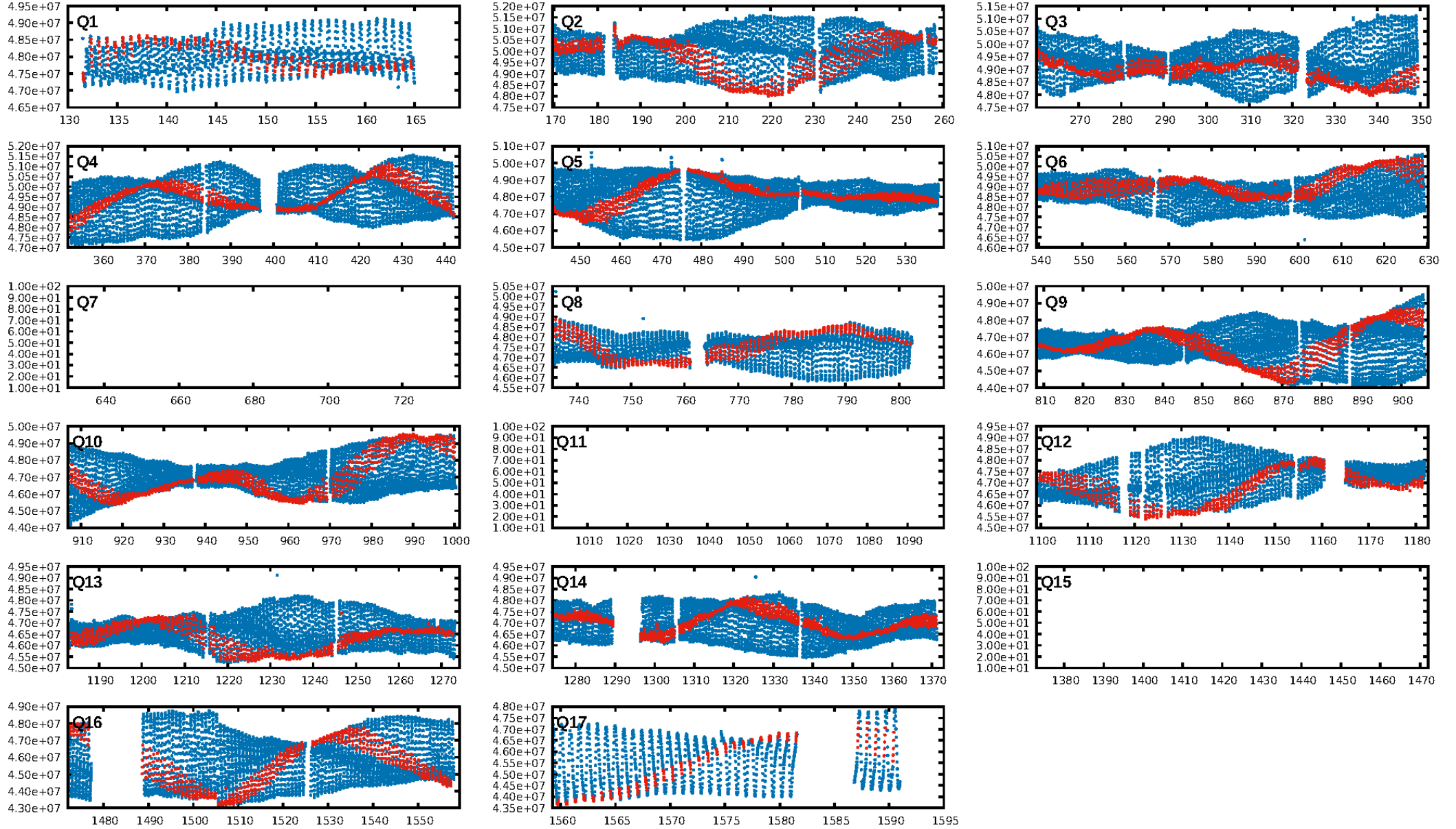
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1359.67σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.20e-24
RollingBand-fgt: 1.00 [1245/1245]
GhostDiagnostic-chr: -0.9388
Centroid-sig: 61.5%
Centroid-so: 1.230 arcsec [0.65σ]
OotOffset-rm: 0.035 arcsec [0.18σ]
KicOffset-rm: 0.122 arcsec [0.75σ]
OotOffset-st: 3/1/4/5 [13]
KicOffset-st: 3/1/4/5 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 1.00 [14/14]

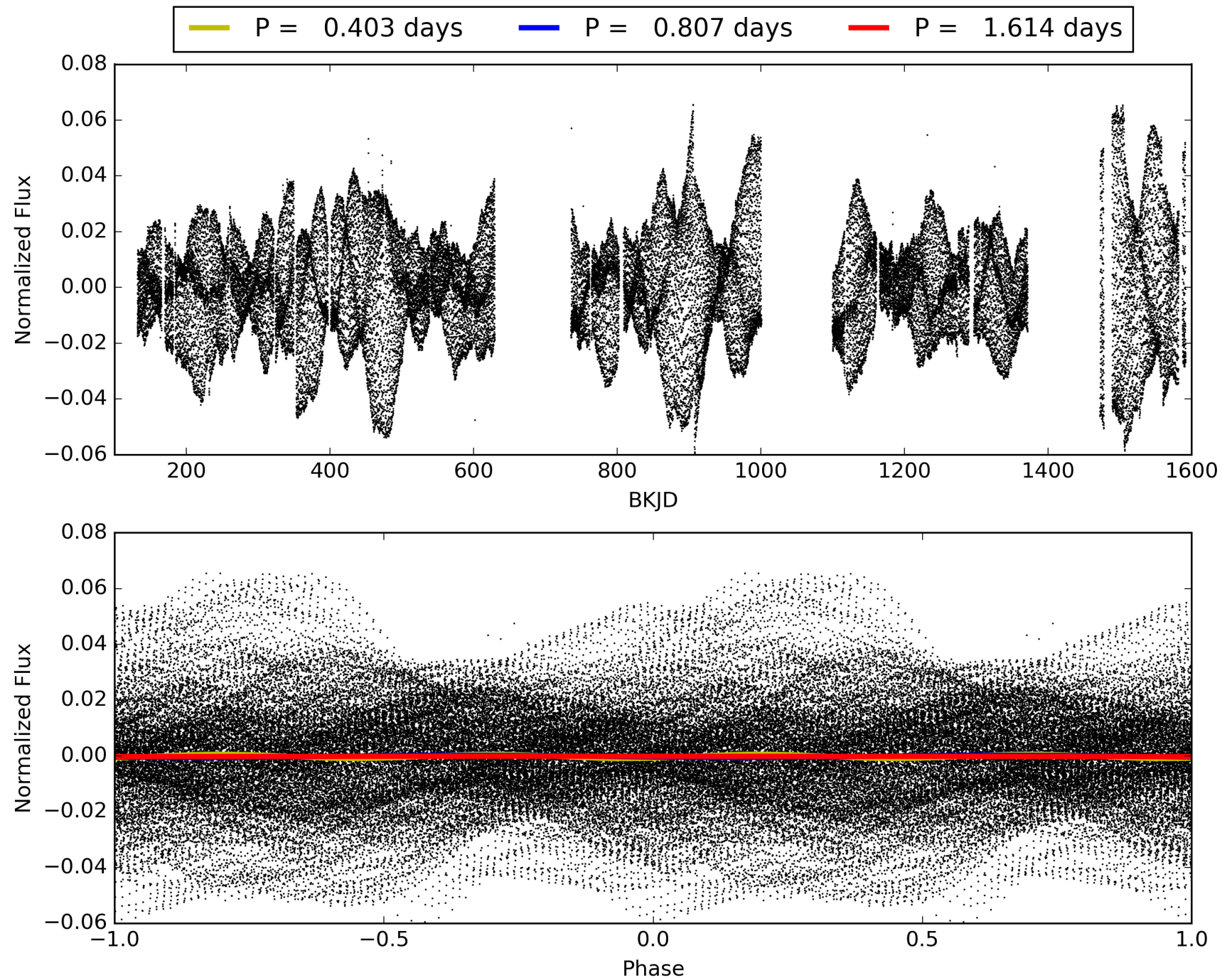
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:19:03 Z

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

TCE 010811078-02, PDC Light Curves

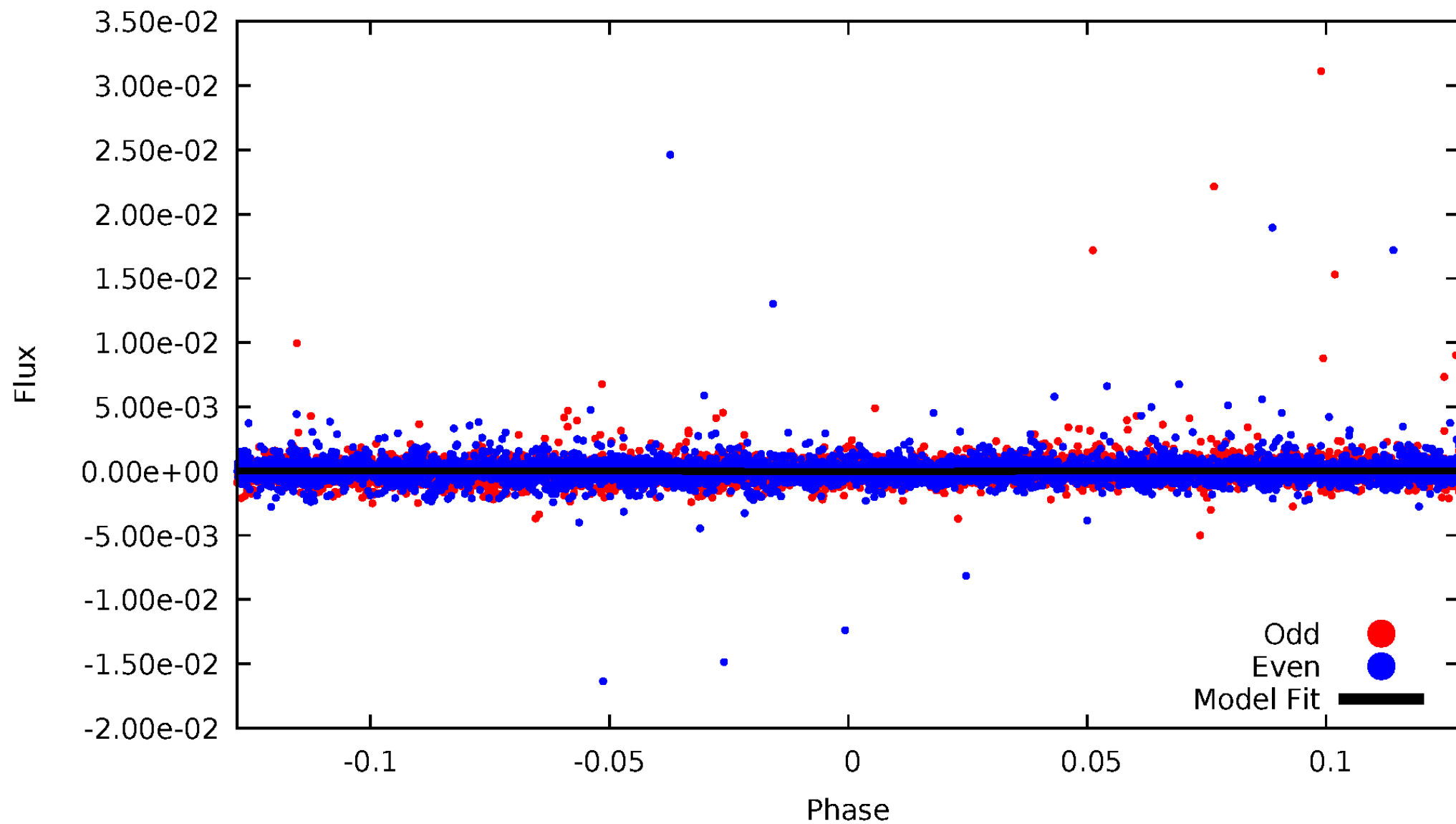


TCE 010811078-02



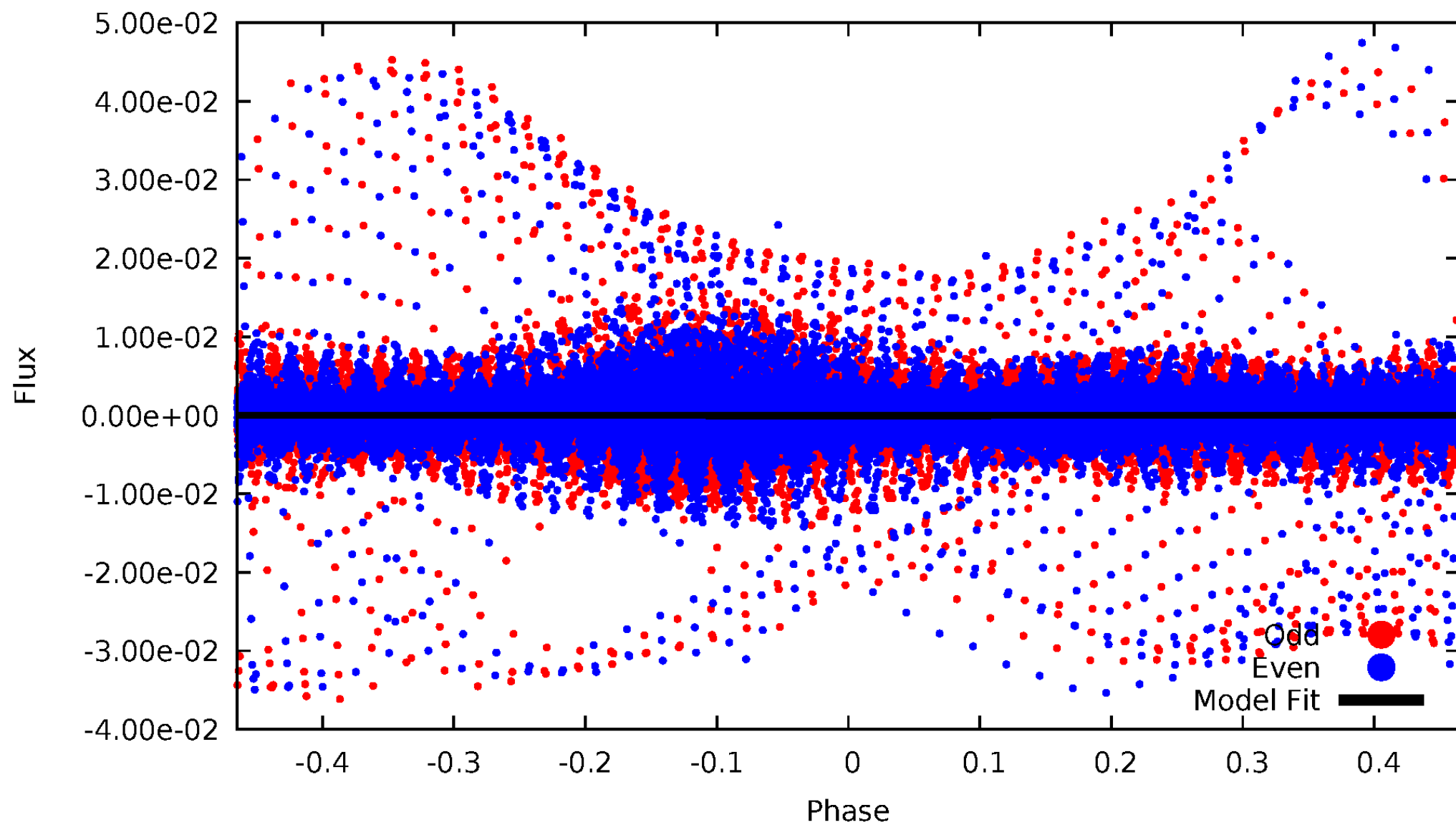
DV Odd/Even

TCE 010811078-02



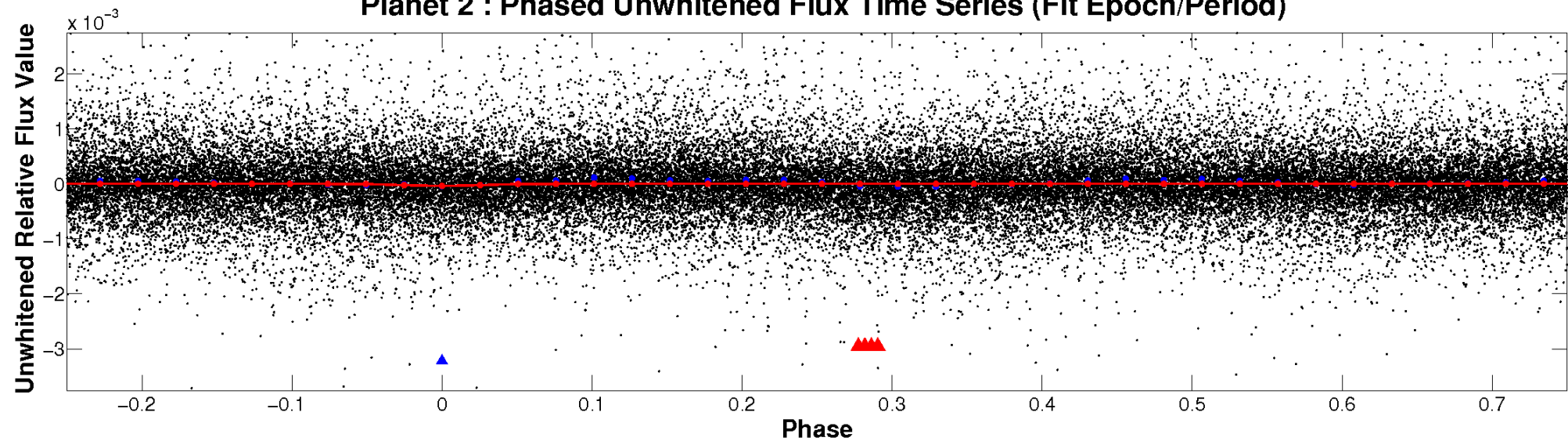
ALT Odd/Even

TCE 010811078-02

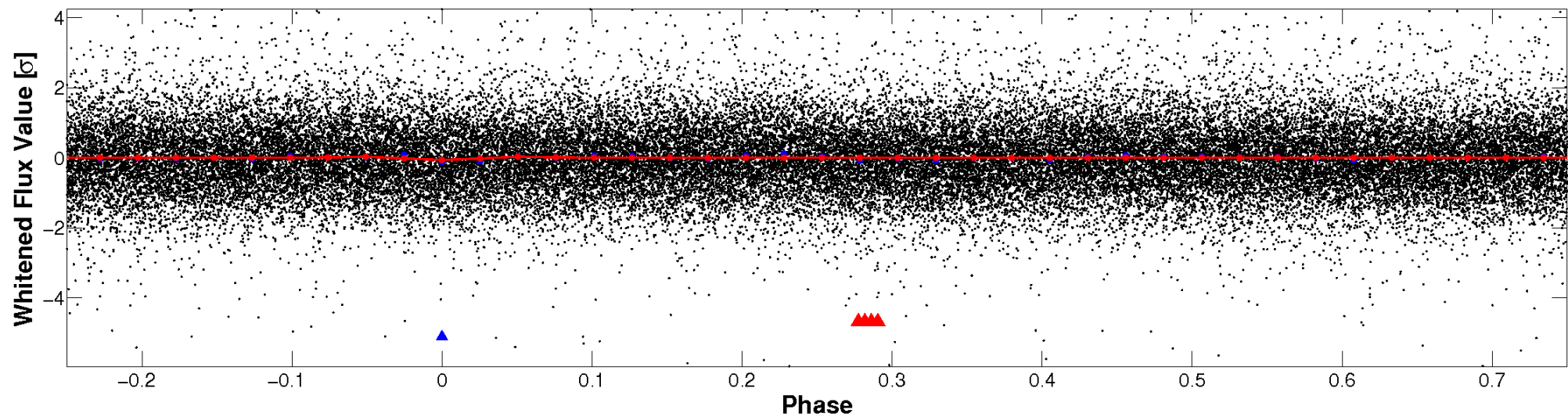


Non-Whitened Vs. Whitened Light Curve

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

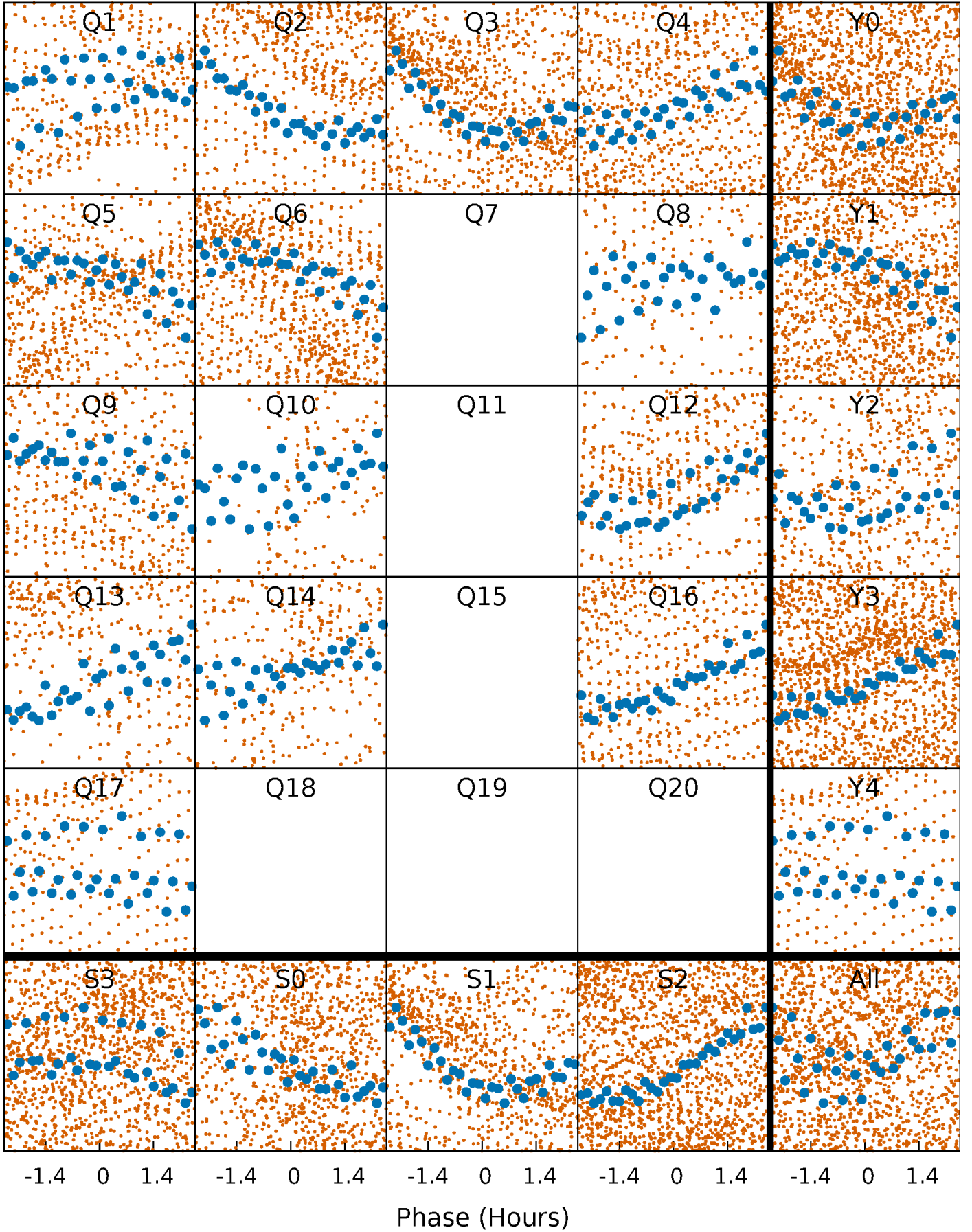


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



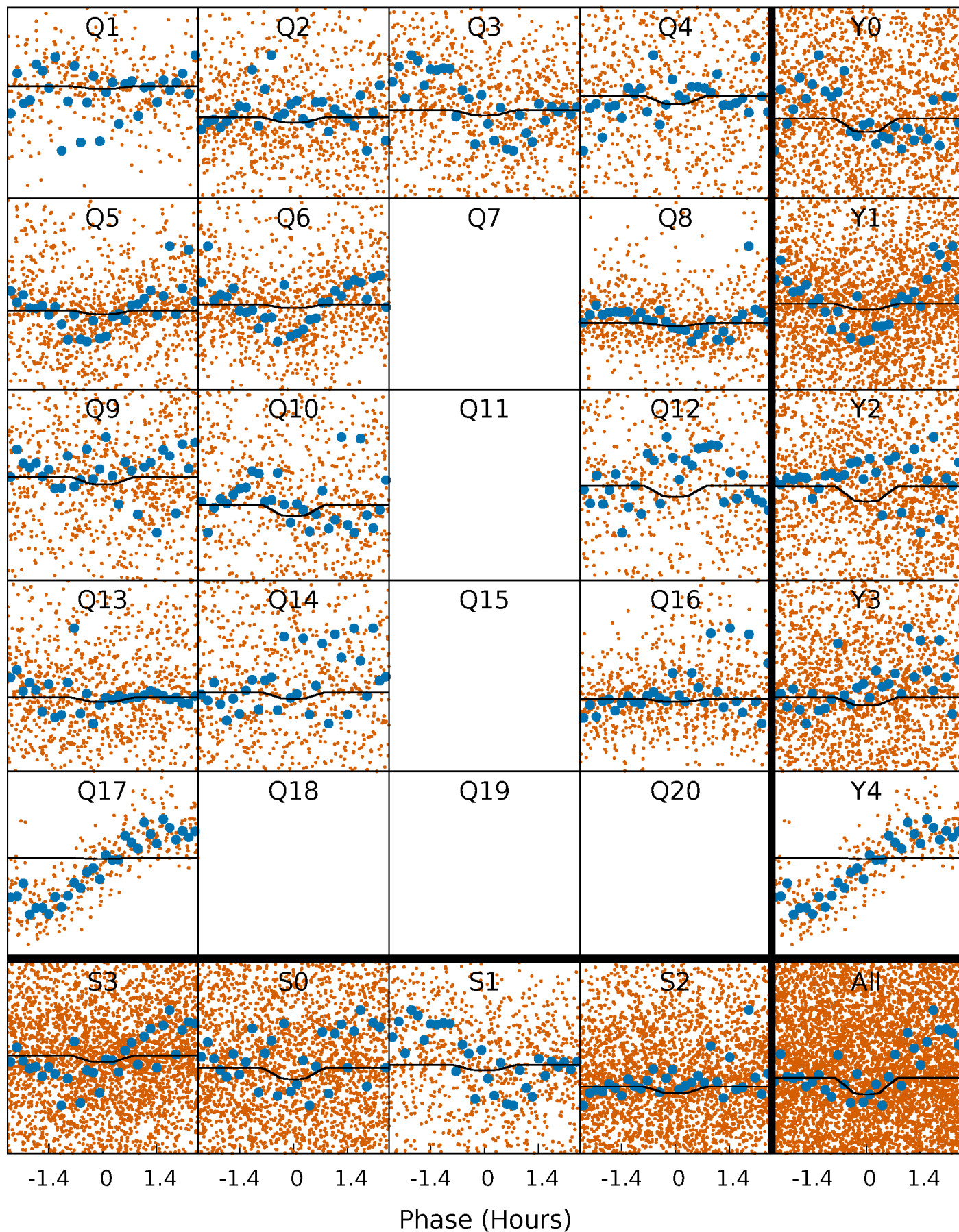
PDC Quarter-Phased Transit Curves

TCE 010811078-02 P= 0.806868 Days $T_0=132.380494$ (BKJD)



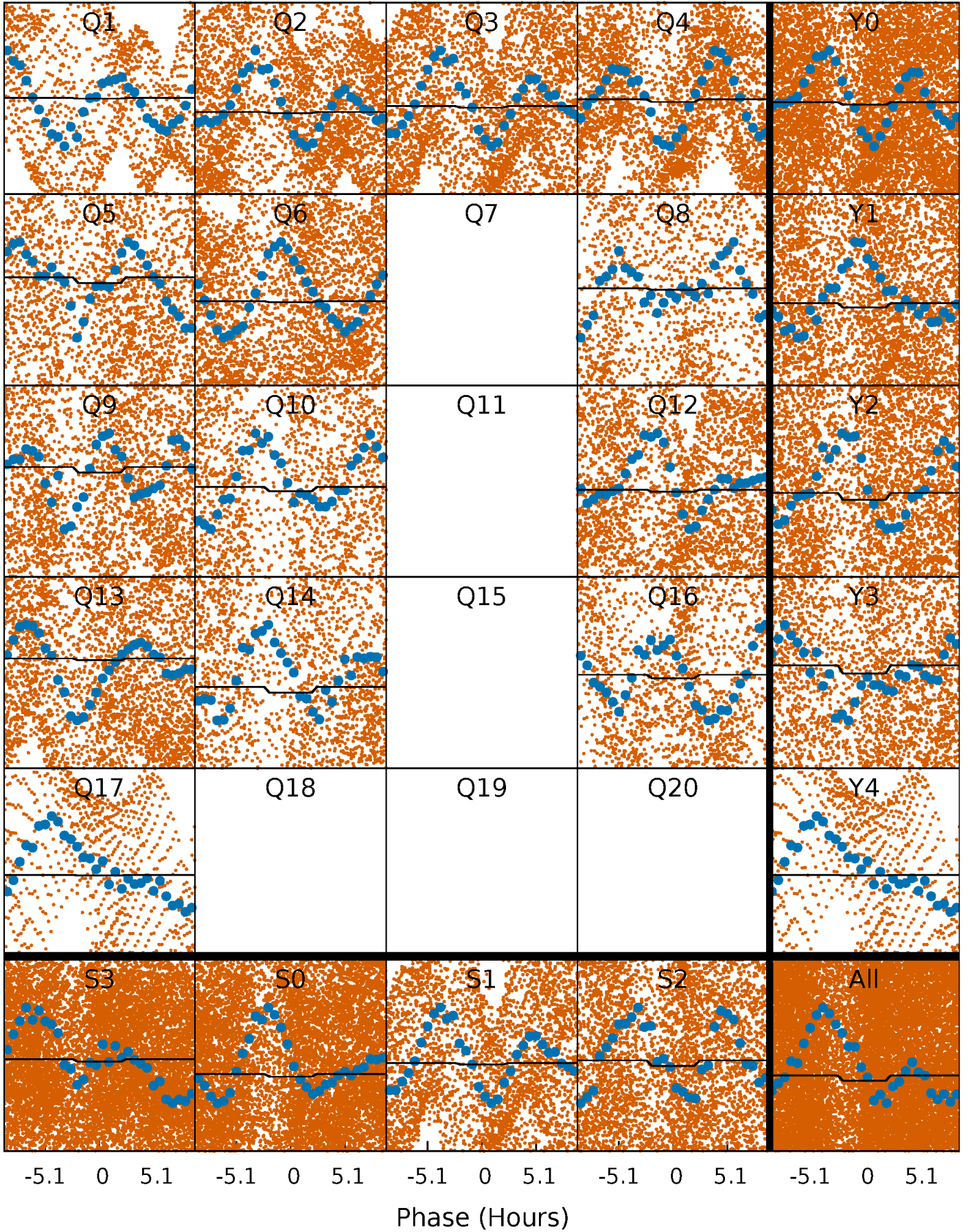
DV Quarter-Phased Transit Curves

TCE 010811078-02 P= 0.806868 Days $T_0=132.380494$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

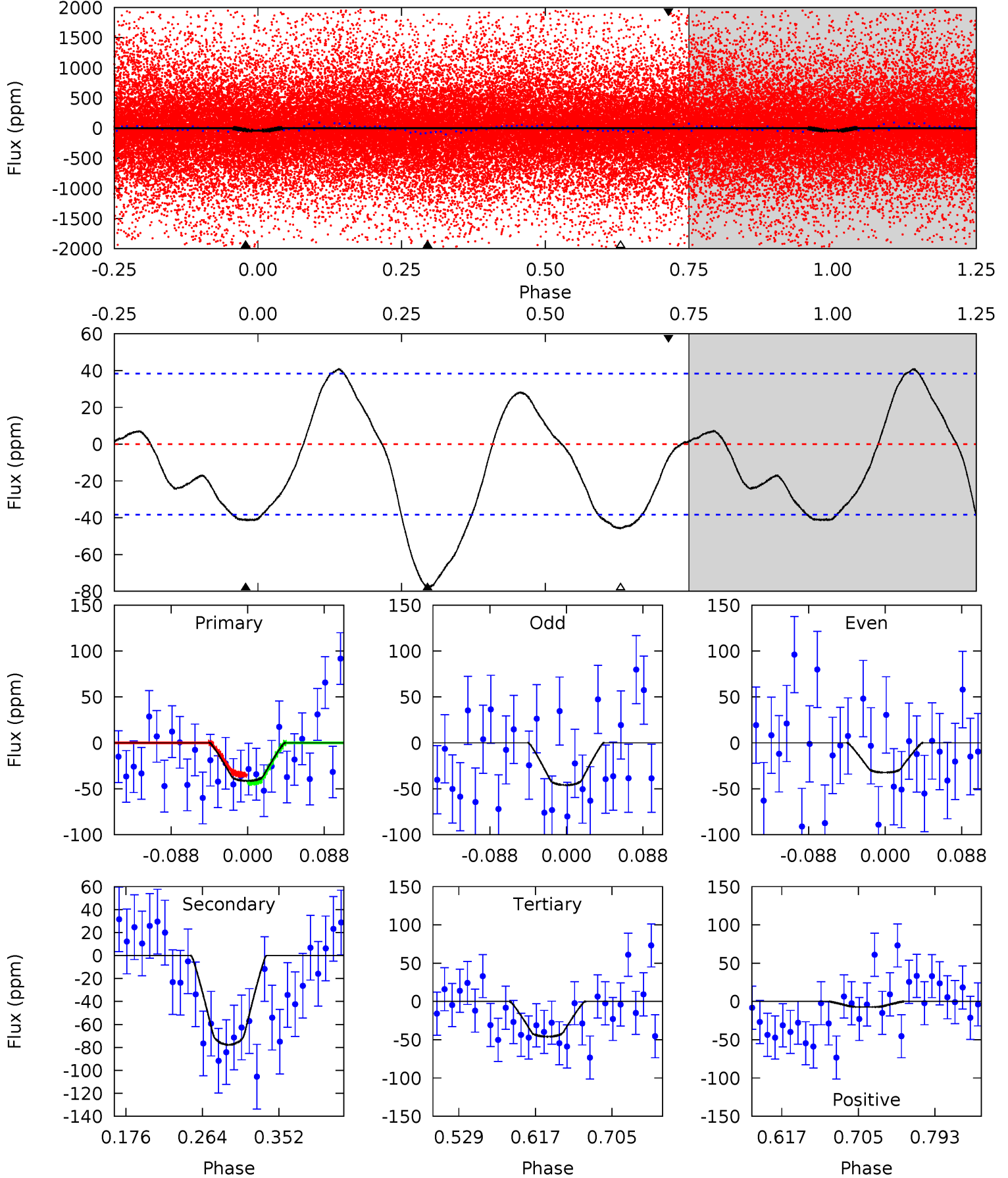
TCE 010811078-02 P= 0.806781 Days $T_0=132.361603$ (BKJD)



DV Model-Shift Uniqueness Test

010811078-02, P = 0.806868 Days, E = 130.766758 Days

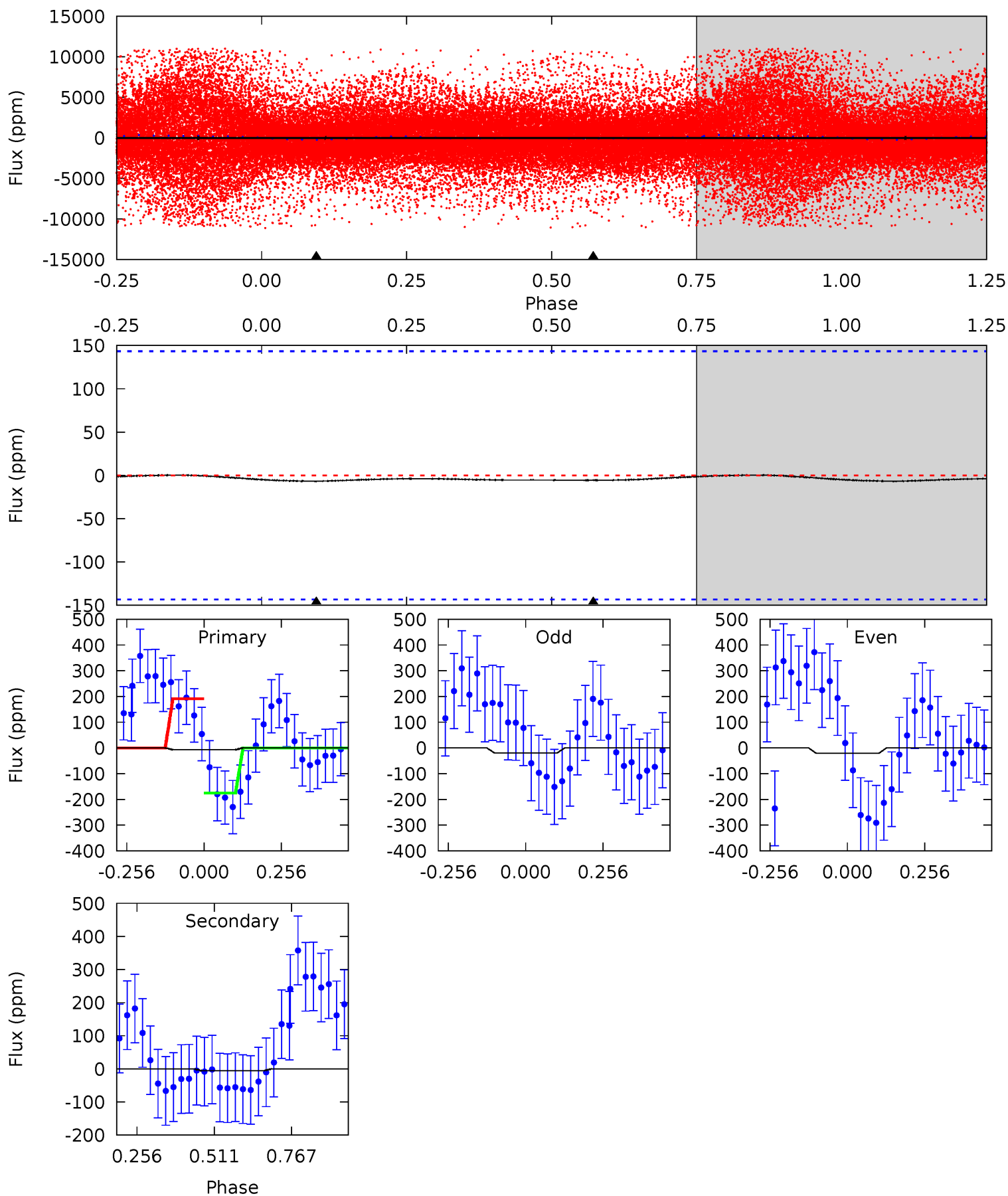
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.96	9.30	5.50	-0.88	4.59	1.71	2.87	-0.54	5.84	3.80	10.2	0.82	1.16	0.34	0.51



Alt Model-Shift Uniqueness Test

010811078-02, P = 0.806781 Days, E = 130.748041 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.20	0.17	0	0	4.36	1.14	0.06	0.20	0.20	0.17	0.17	0.03	0.41	0.04	0.34



Stellar Parameters For KIC 010811078

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5771^{+155}_{-155}	$4.565^{+0.042}_{-0.168}$	$-0.420^{+0.300}_{-0.300}$	$0.801^{+0.217}_{-0.072}$	$0.859^{+0.096}_{-0.087}$	$2.352^{+0.526}_{-1.069}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-9%	+11%/-10%	+22%/-45%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 010811078-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-78 ± 8	$0.77^{+0.58}_{-0.47}$	2562^{+155}_{-106}	5789^{+4655}_{-1191}	18^{+105}_{-12}
Alt.	-6 ± 33	$0.82^{+0.60}_{-0.49}$	2554^{+157}_{-106}	3224^{+2341}_{-8099}	$1.035^{+12.794}_{-8.479}$

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

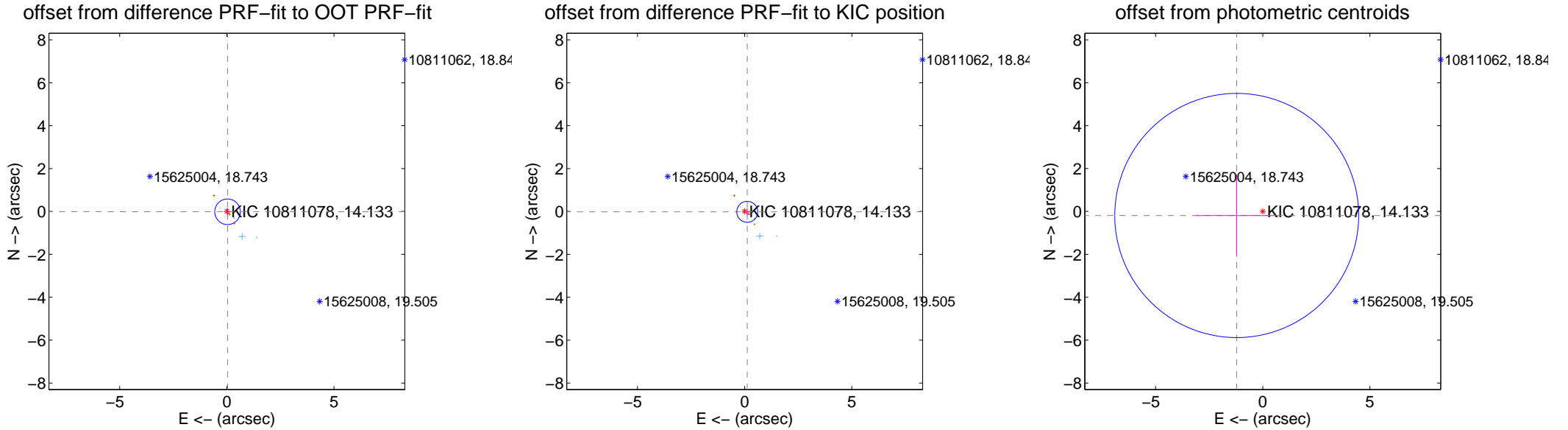
DV Centroid Data

Supplemental centroid analysis for 010811078-02. Kepler magnitude: 14.13. Transit SNR 3.37

There are 7 quarters with good PRF difference image offsets

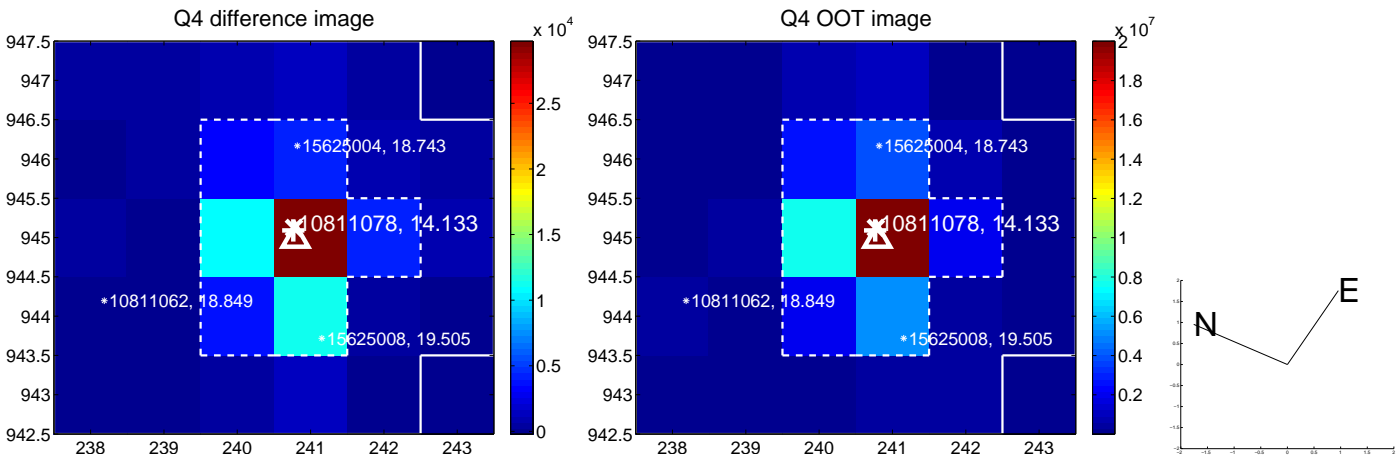
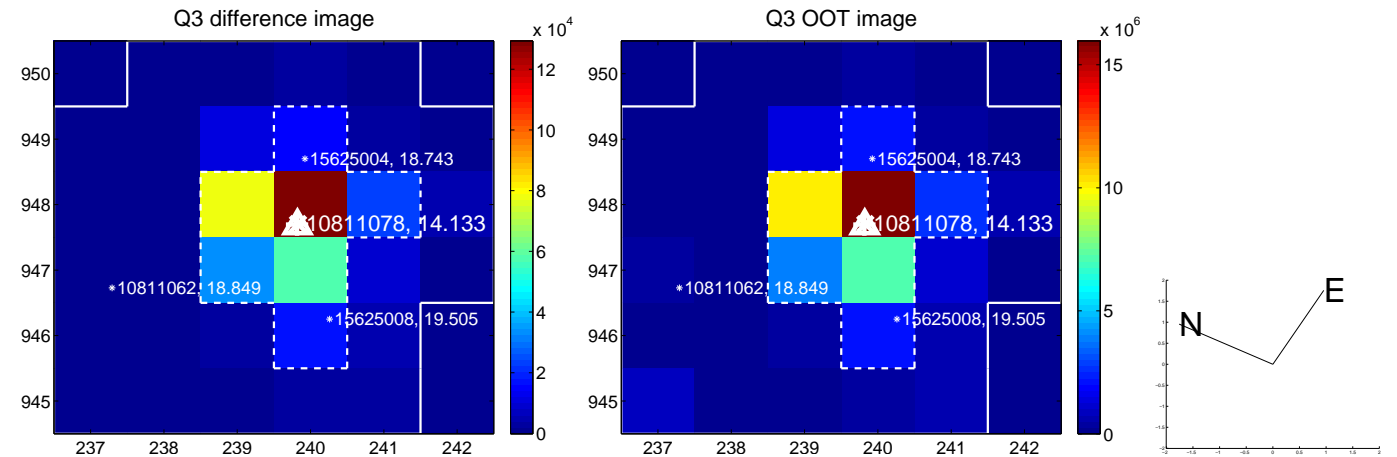
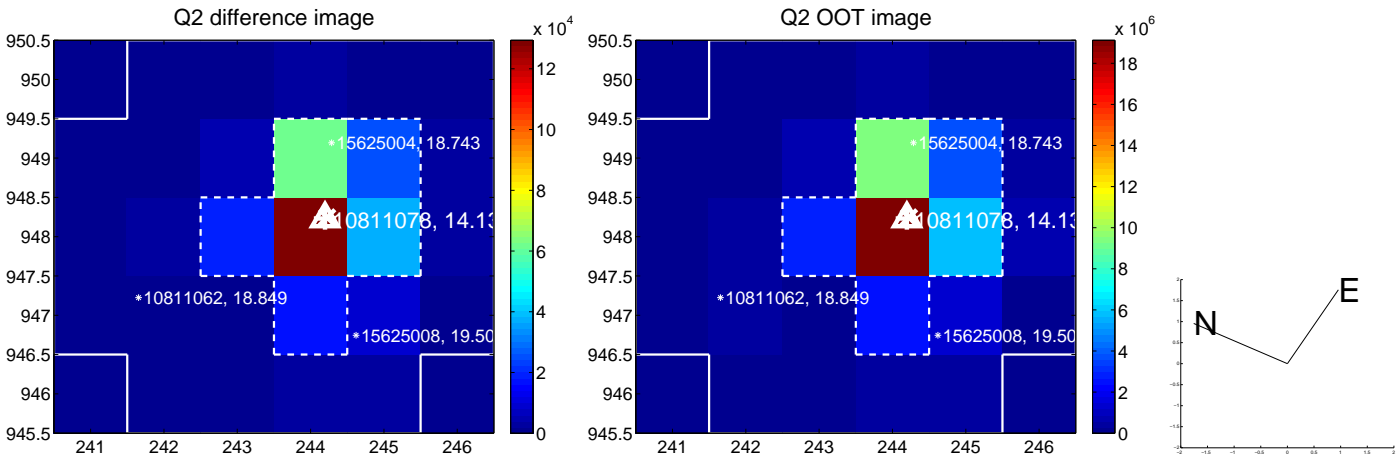
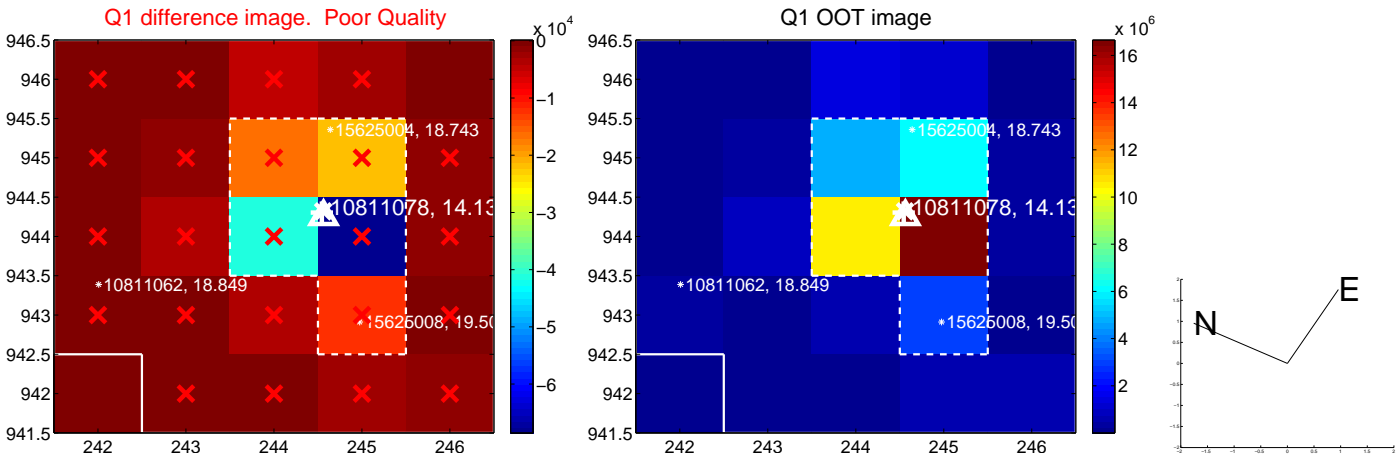
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.199	0.18	-0.032 ± 0.153	-0.016 ± 0.163
PRF-fit source offset from KIC position	0.122 ± 0.163	0.75	-0.121 ± 0.146	-0.019 ± 0.161
photometric centroid source offset	1.23 ± 1.90	0.65	1.22 ± 1.90	-0.19 ± 1.92

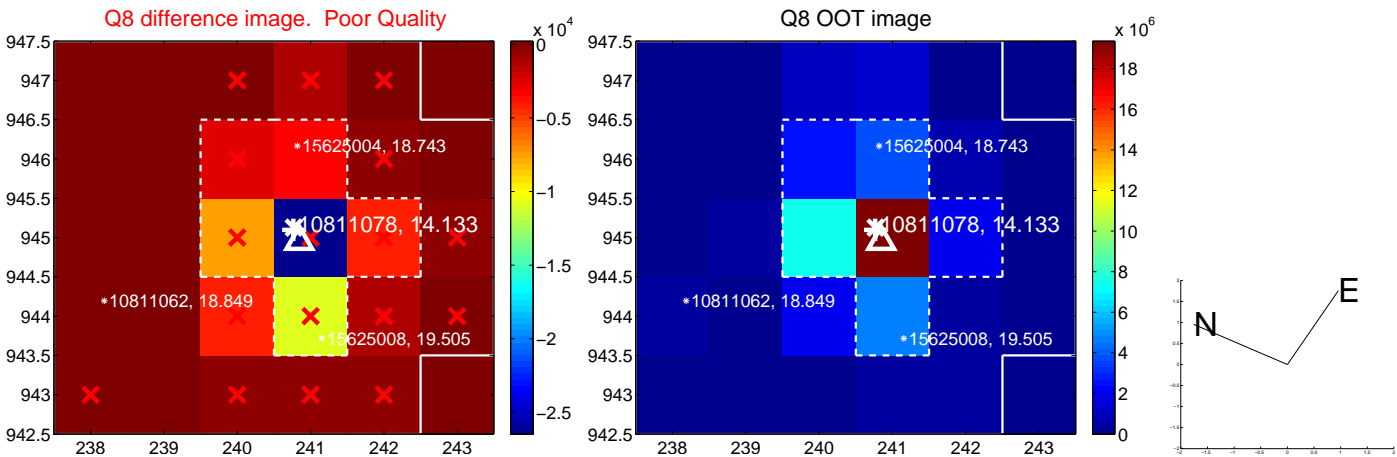
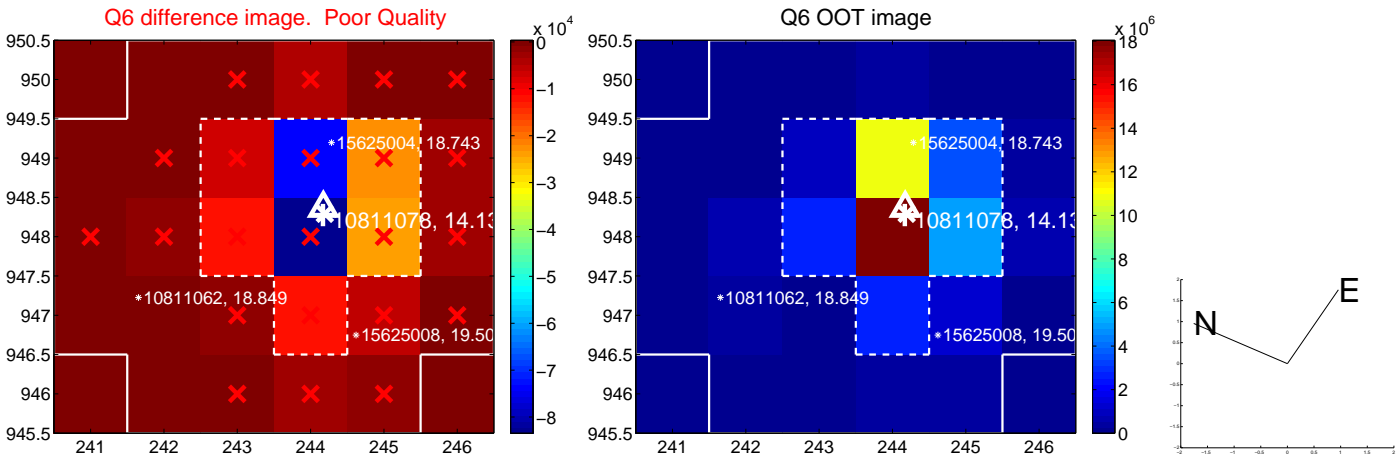
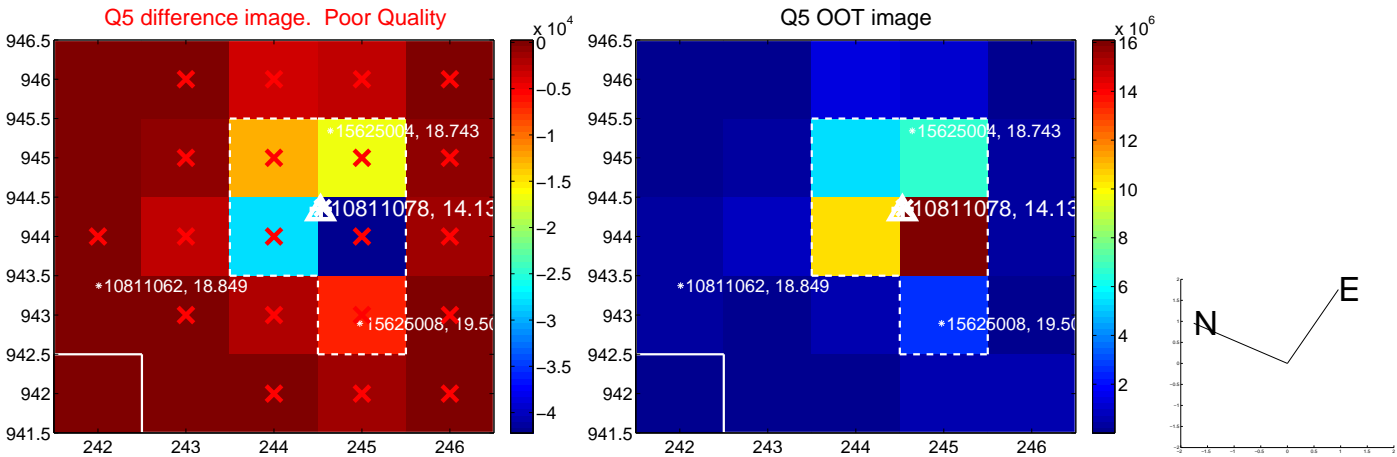


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

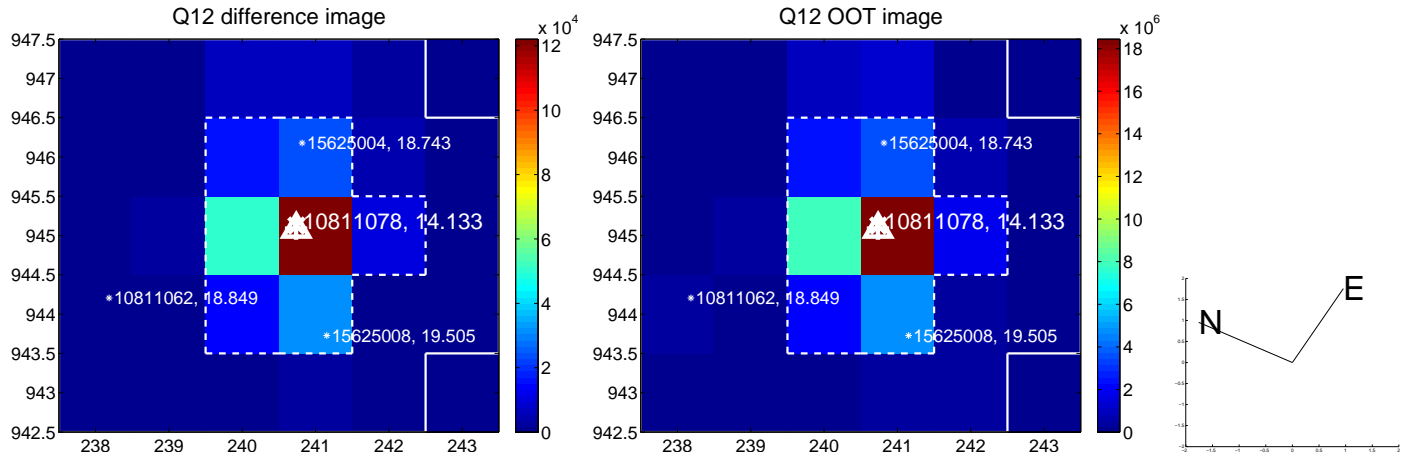
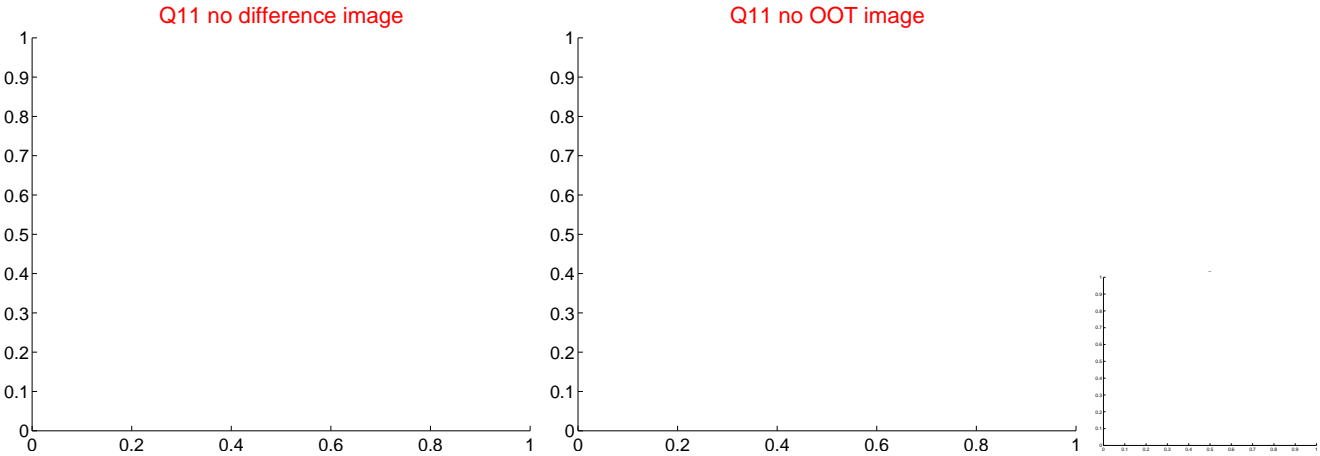
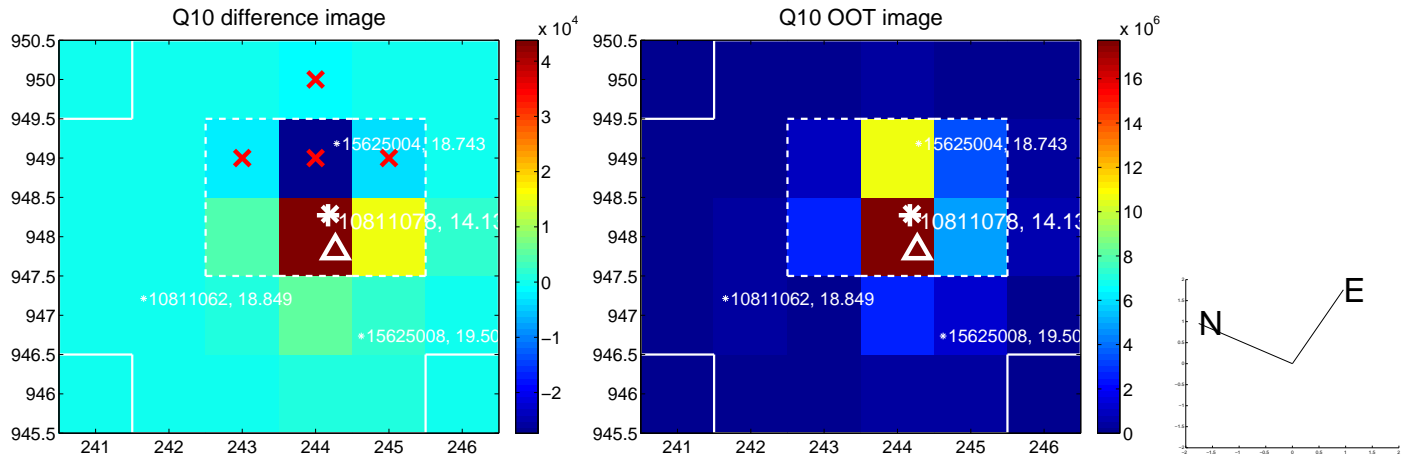
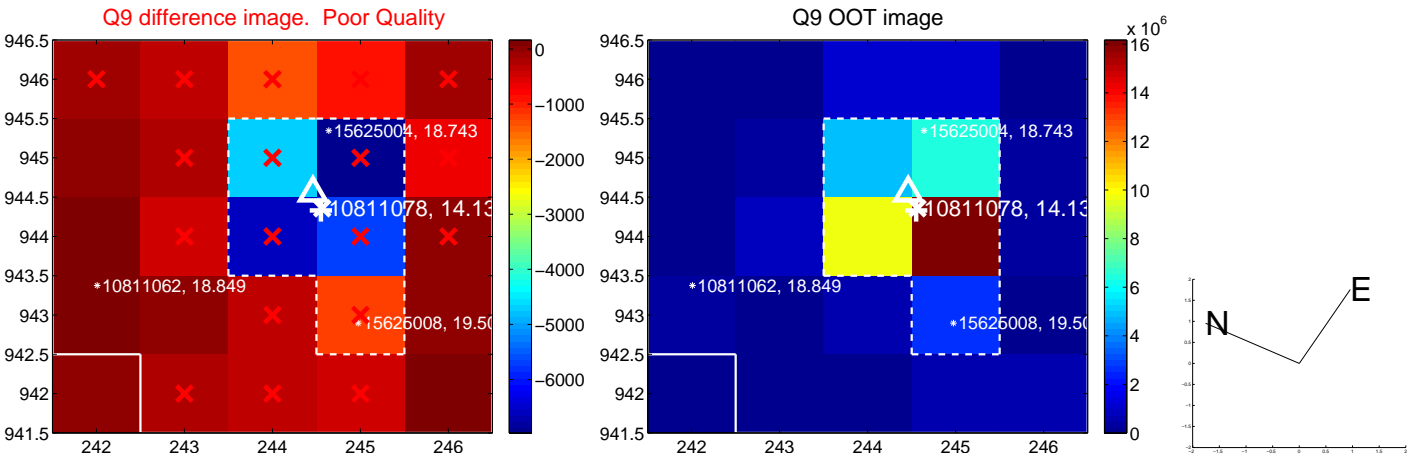
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



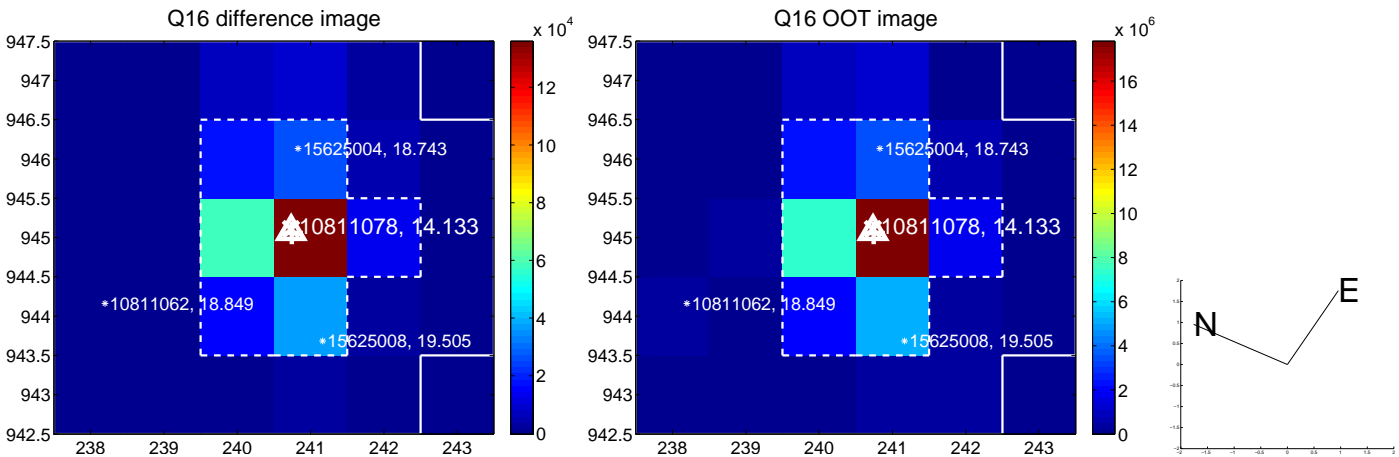
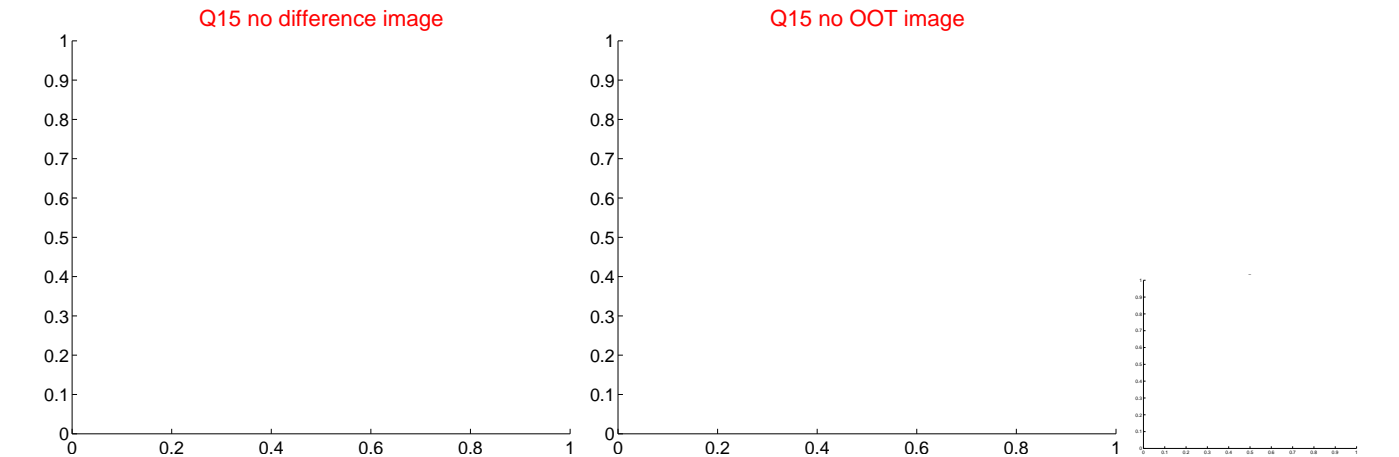
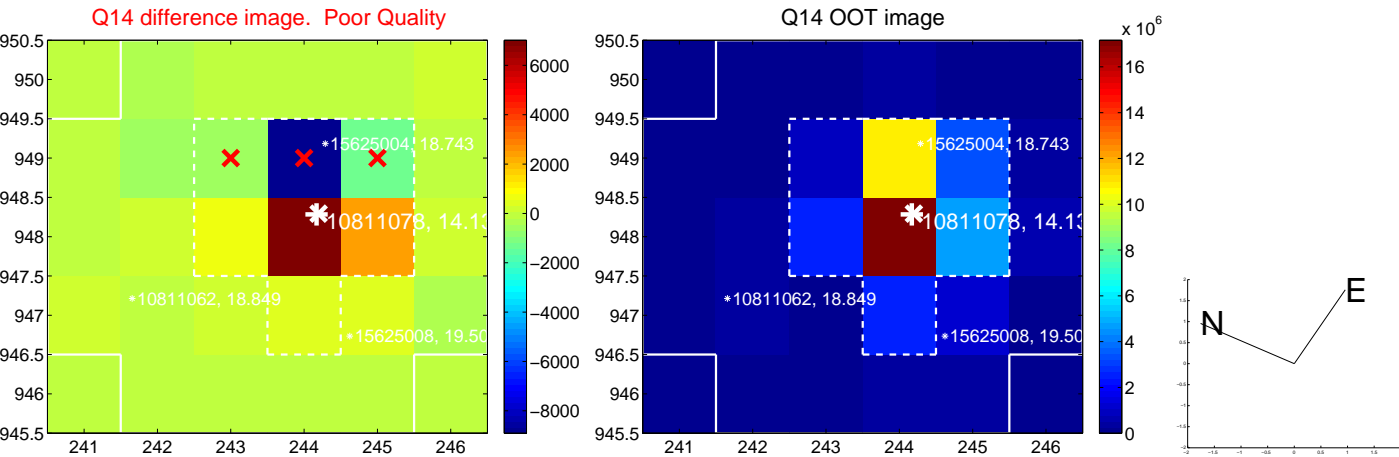
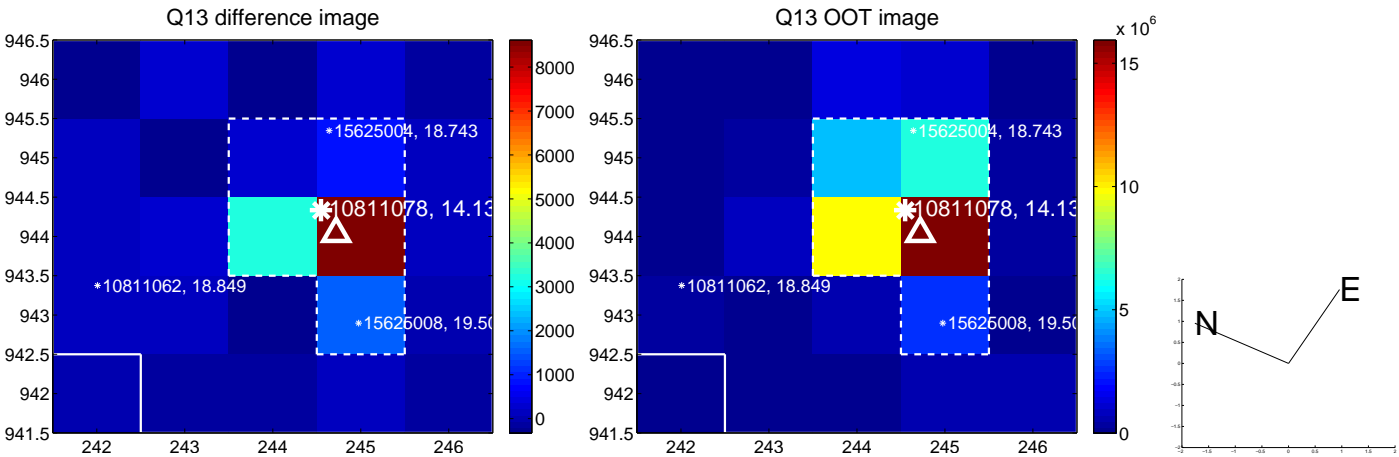
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



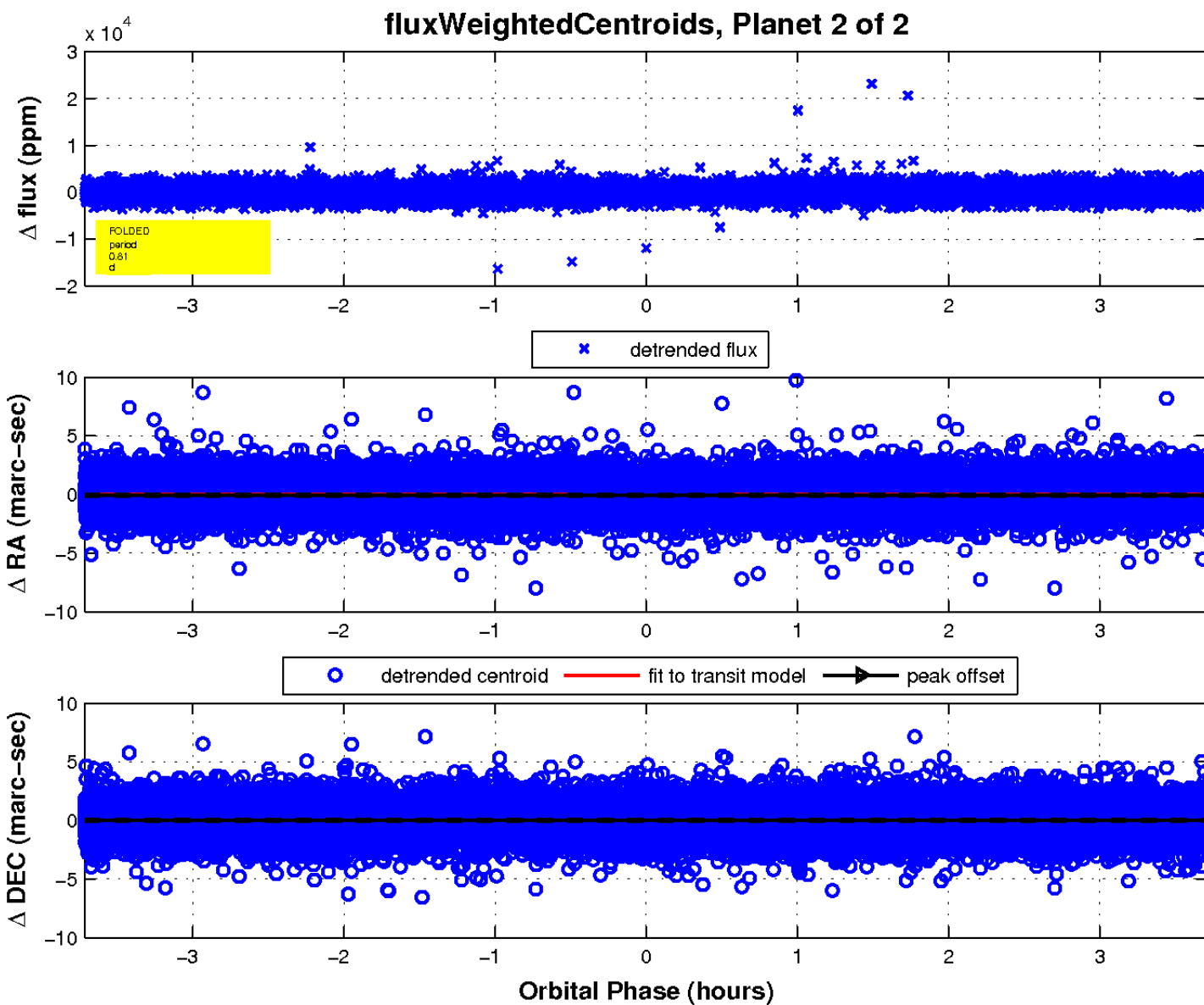
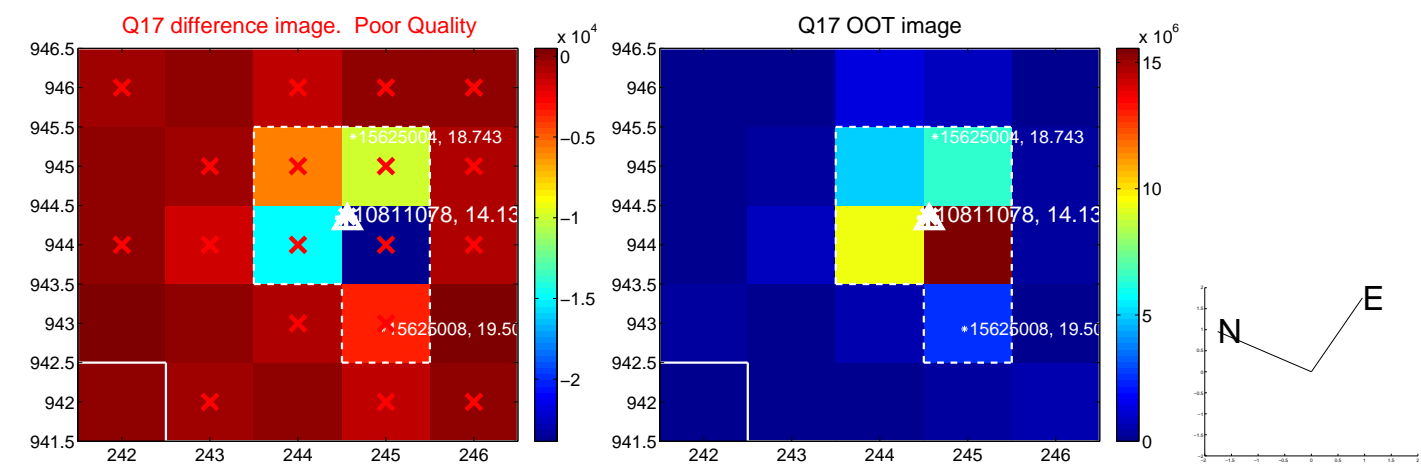
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

