

KIC 009171234

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})
009171234-01	OBS	No	365.446890	179.567090	433.8	25.635	10.3	10.6	0.84	5600	2.14	0.76
009171234-02	OBS	No	365.544376	183.511135	429.2	31.714	9.9	9.3	0.84	5600	2.32	0.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009171234-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
009171234-02	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS—EPHEM_MATCH

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

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

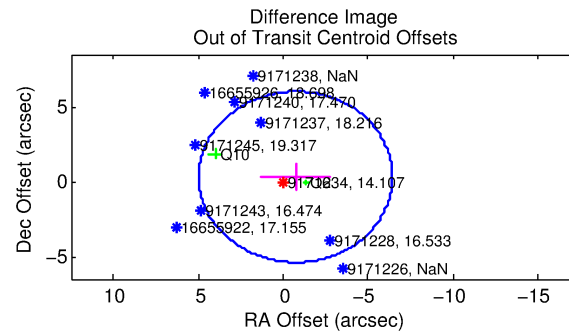
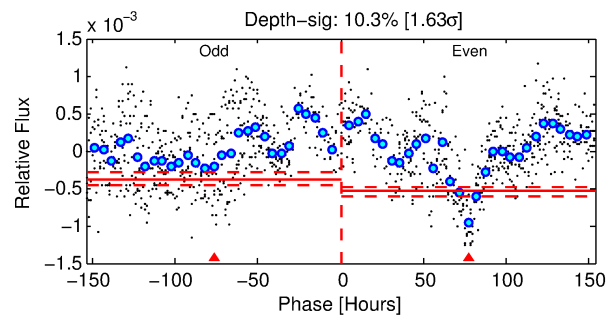
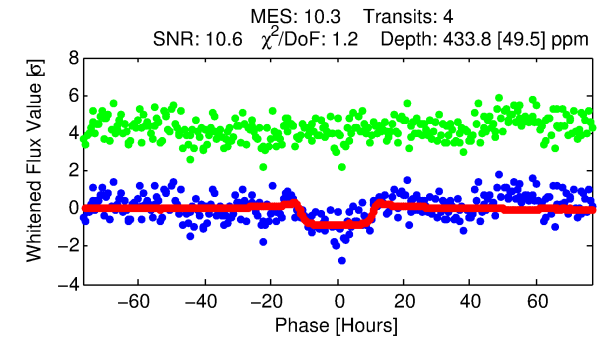
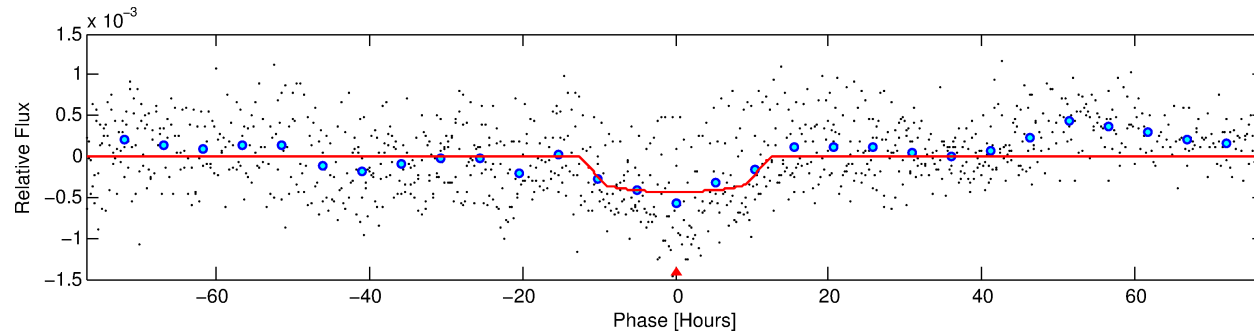
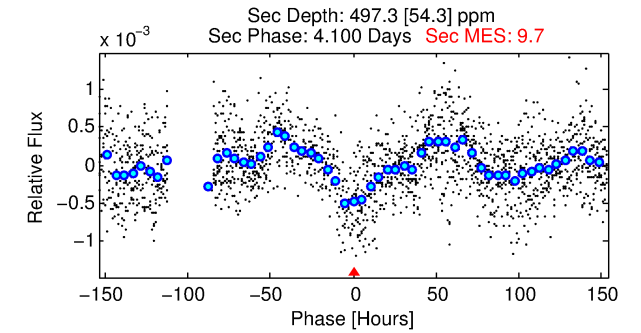
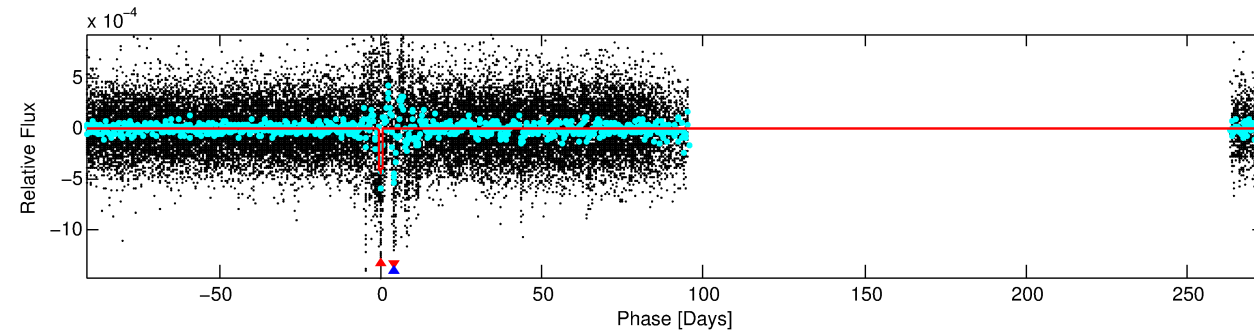
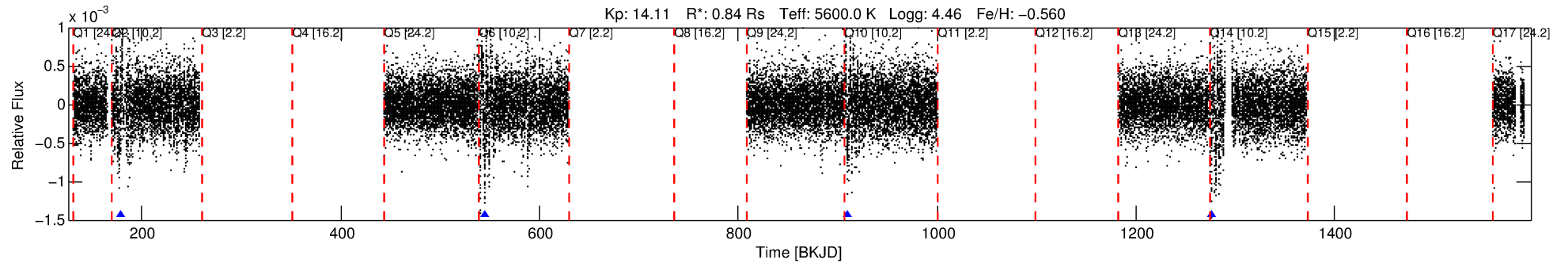
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009171234-01

No Significant Match Found

DV One-Page Summary

KIC: 9171234 Candidate: 1 of 2 Period: 365.447 d



DV Fit Results:

Period = 365.44689 [0.02089] d
Epoch = 179.5671 [0.0381] BKJD
Rp/R* = 0.0234 [0.0020]
a/R* = 46.08 [12.75]
b = 0.93 [0.04]
Seff = 0.76 [0.23]
Teff = 5462 [335] K [15.55 σ]
Teq = 238 [18] K
Rp = 2.14 [0.48] Re
a = 0.9024 [0.1654] AU
Ag = 48584.36 [16602.21] [2.93 σ]

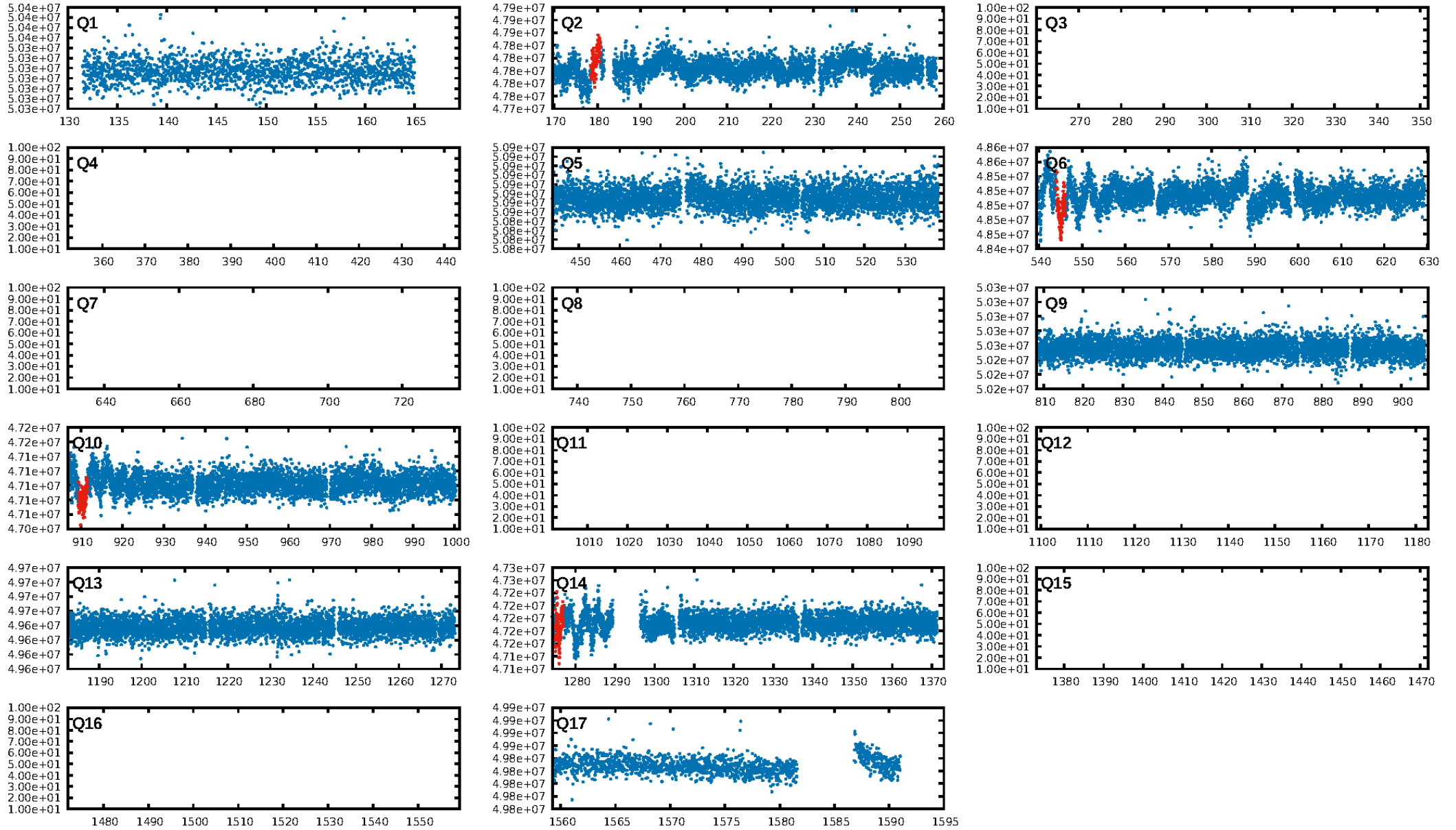
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 4.6% [0.06 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.8%
Bootstrap-pfa: 2.20e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.4775
Centroid-sig: 0.0%
Centroid-so: 3.350 arcsec [2.65 σ]
OotOffset-rm: 0.800 arcsec [0.42 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-rm: 0.845 arcsec [0.43 σ]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

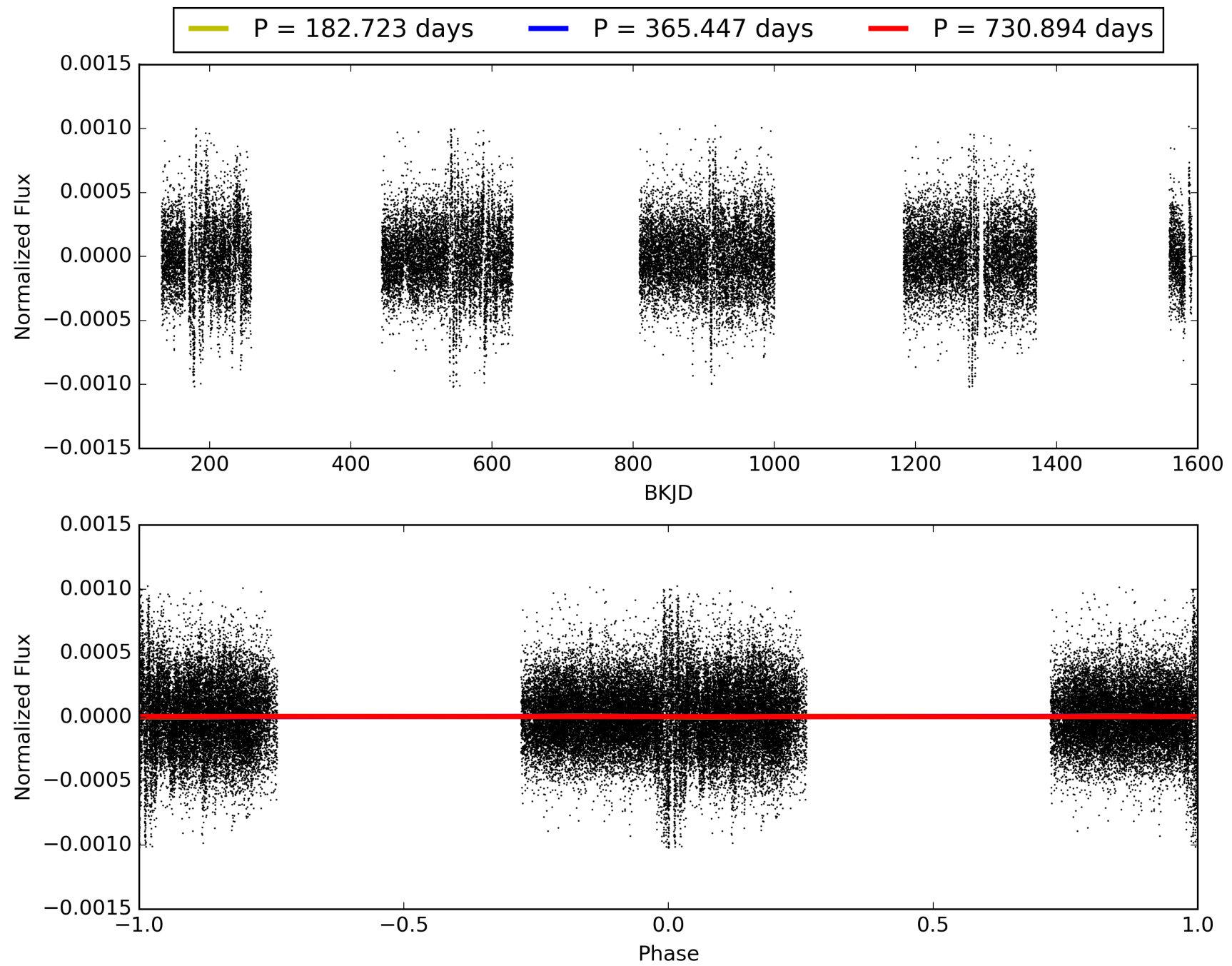
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:16:25 Z

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

TCE 009171234-01, PDC Light Curves

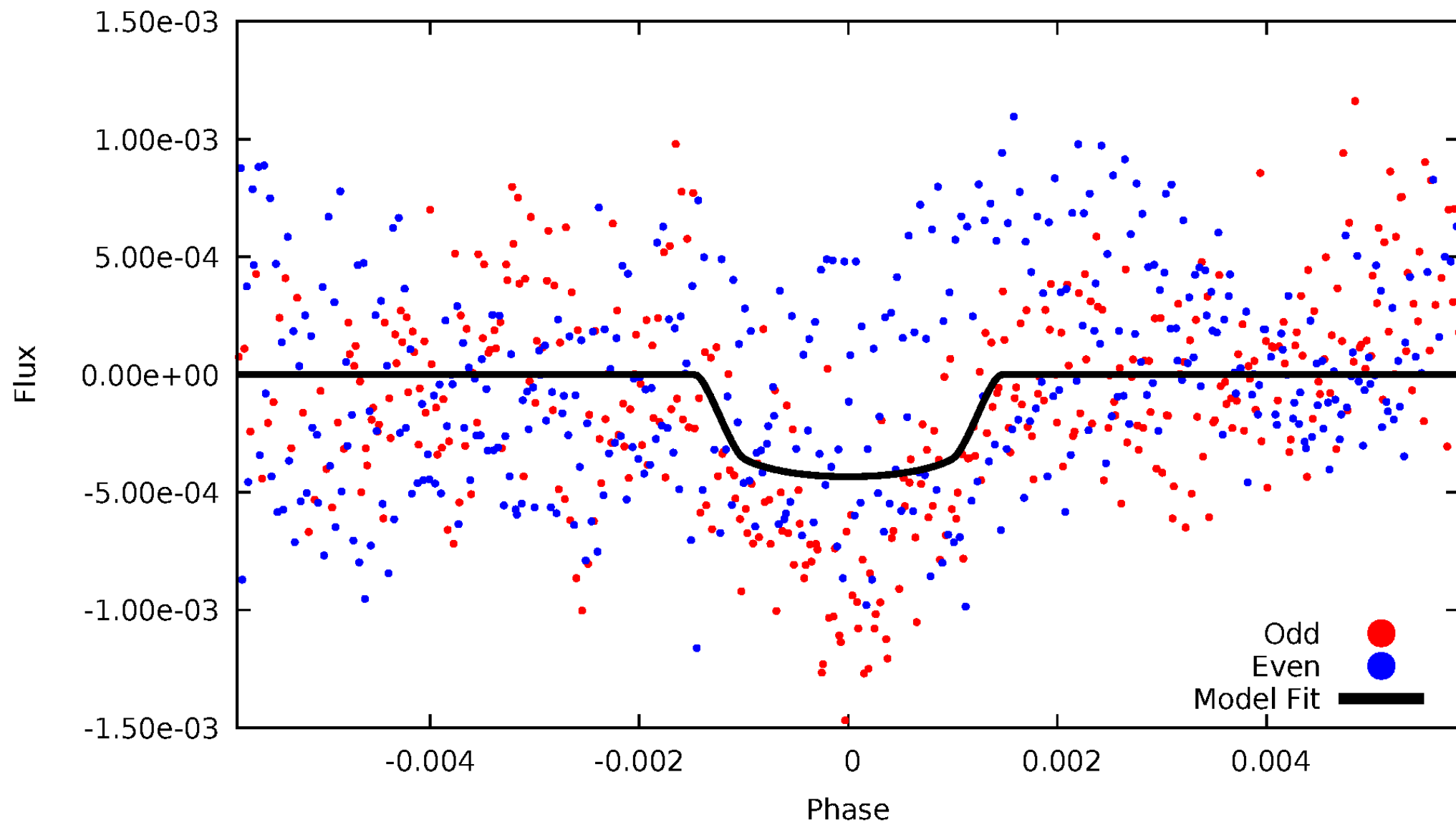


TCE 009171234-01



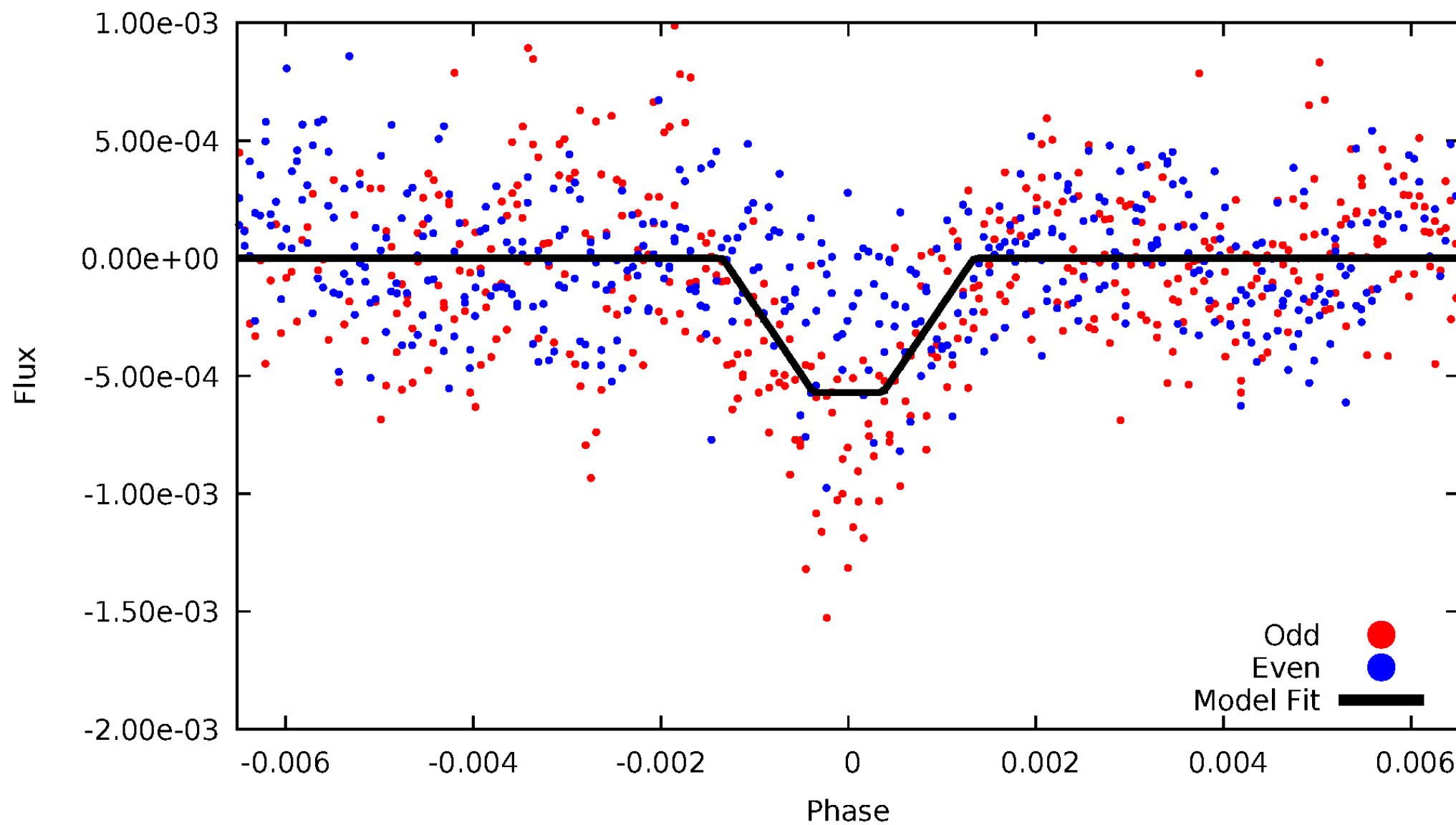
DV Odd/Even

TCE 009171234-01



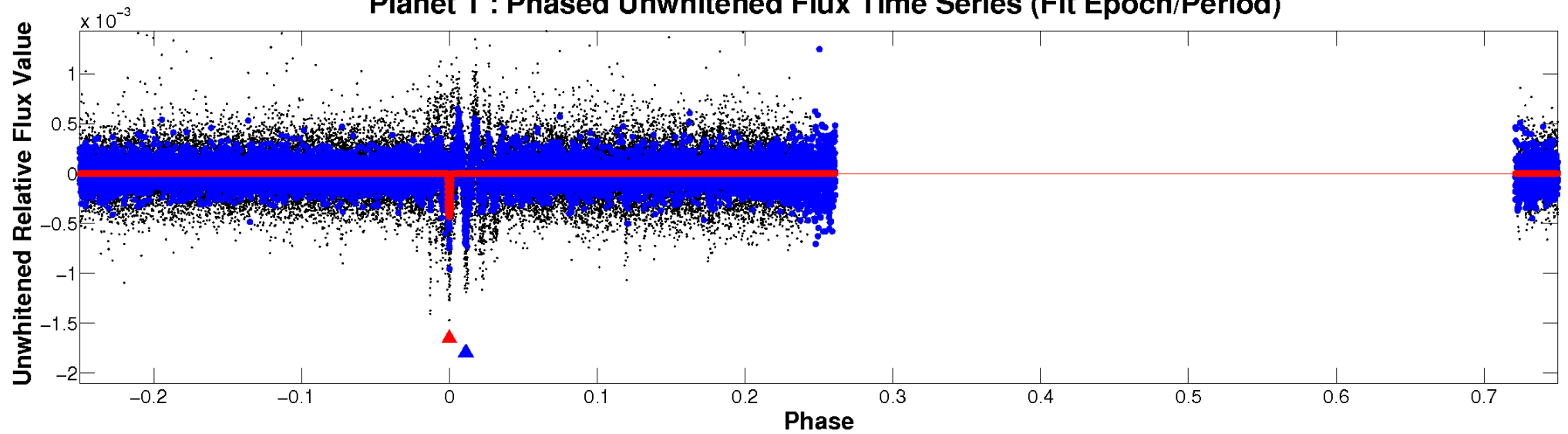
ALT Odd/Even

TCE 009171234-01

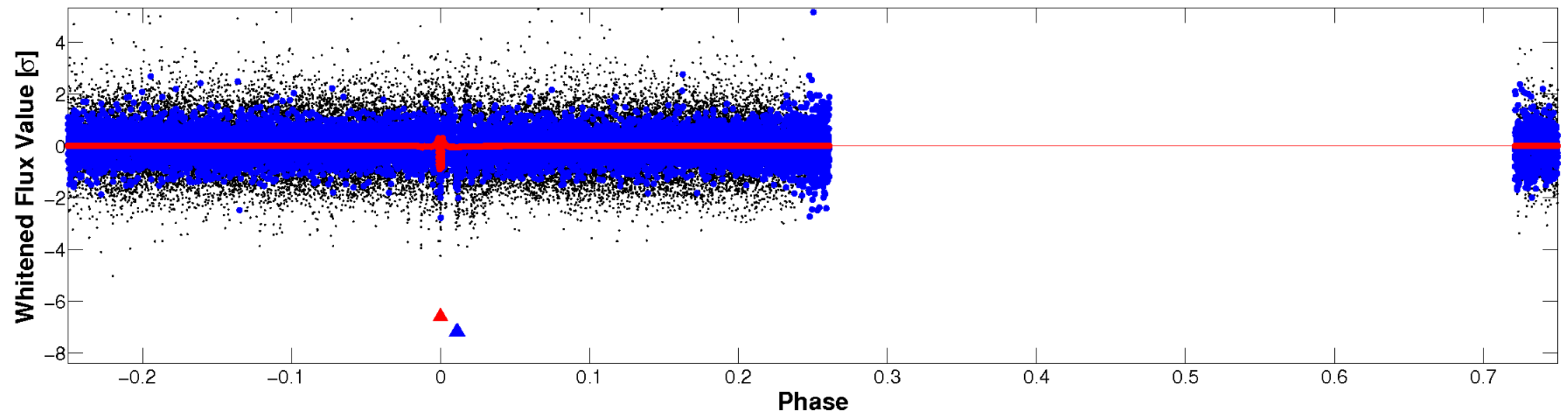


Non-Whitened Vs. Whitened Light Curve

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

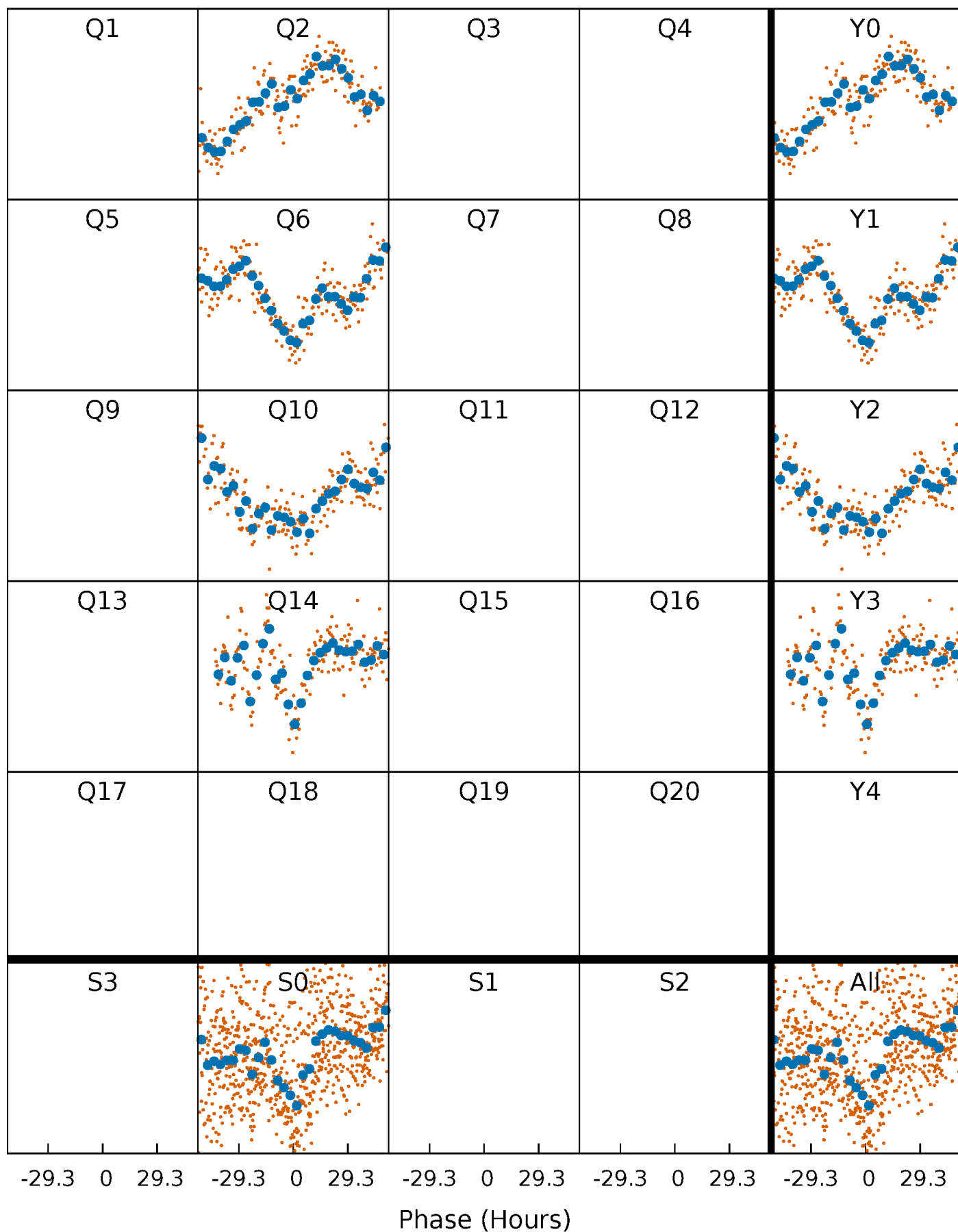


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



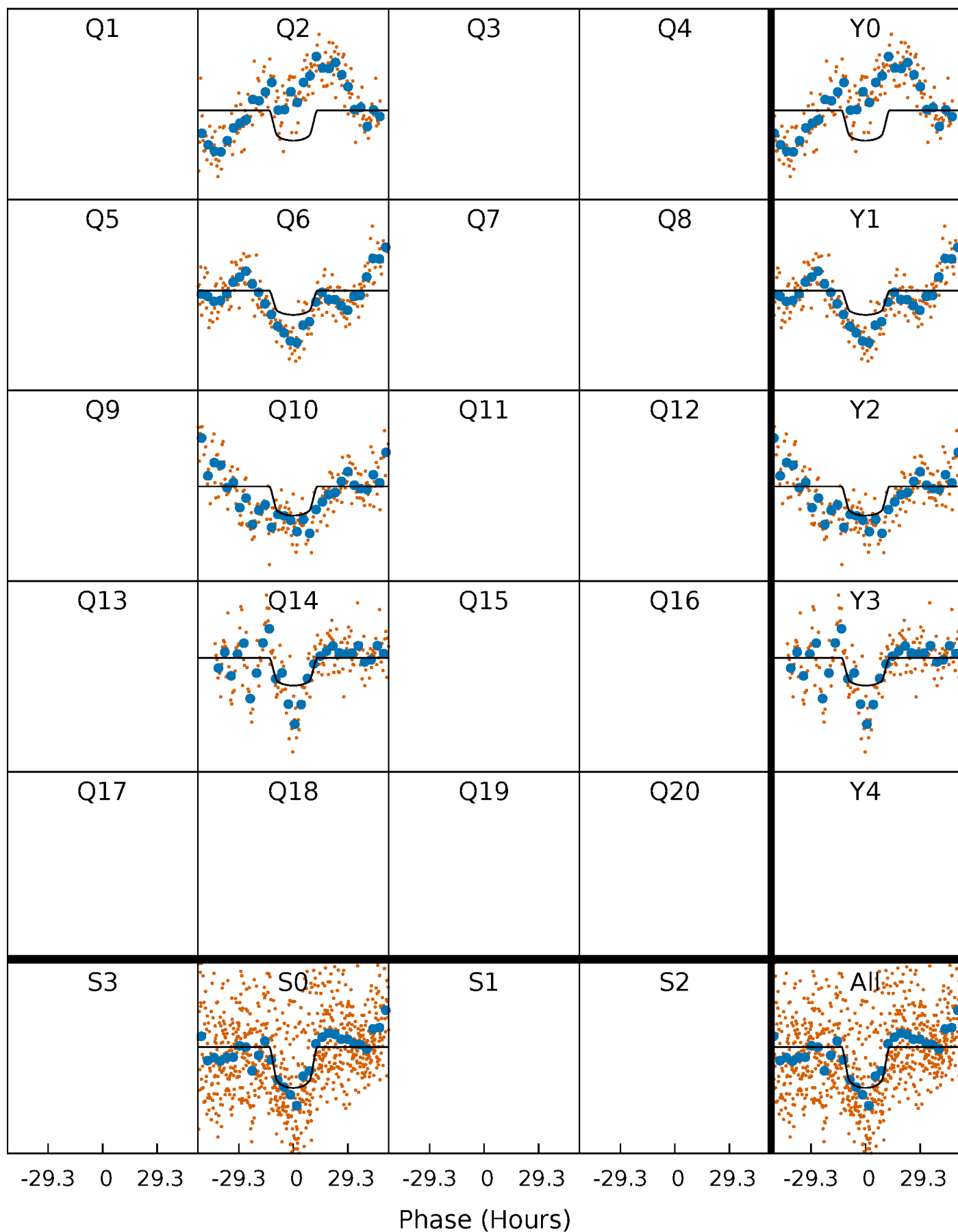
PDC Quarter-Phased Transit Curves

TCE 009171234-01 P=365.446890 Days $T_0=179.567090$ (BKJD)



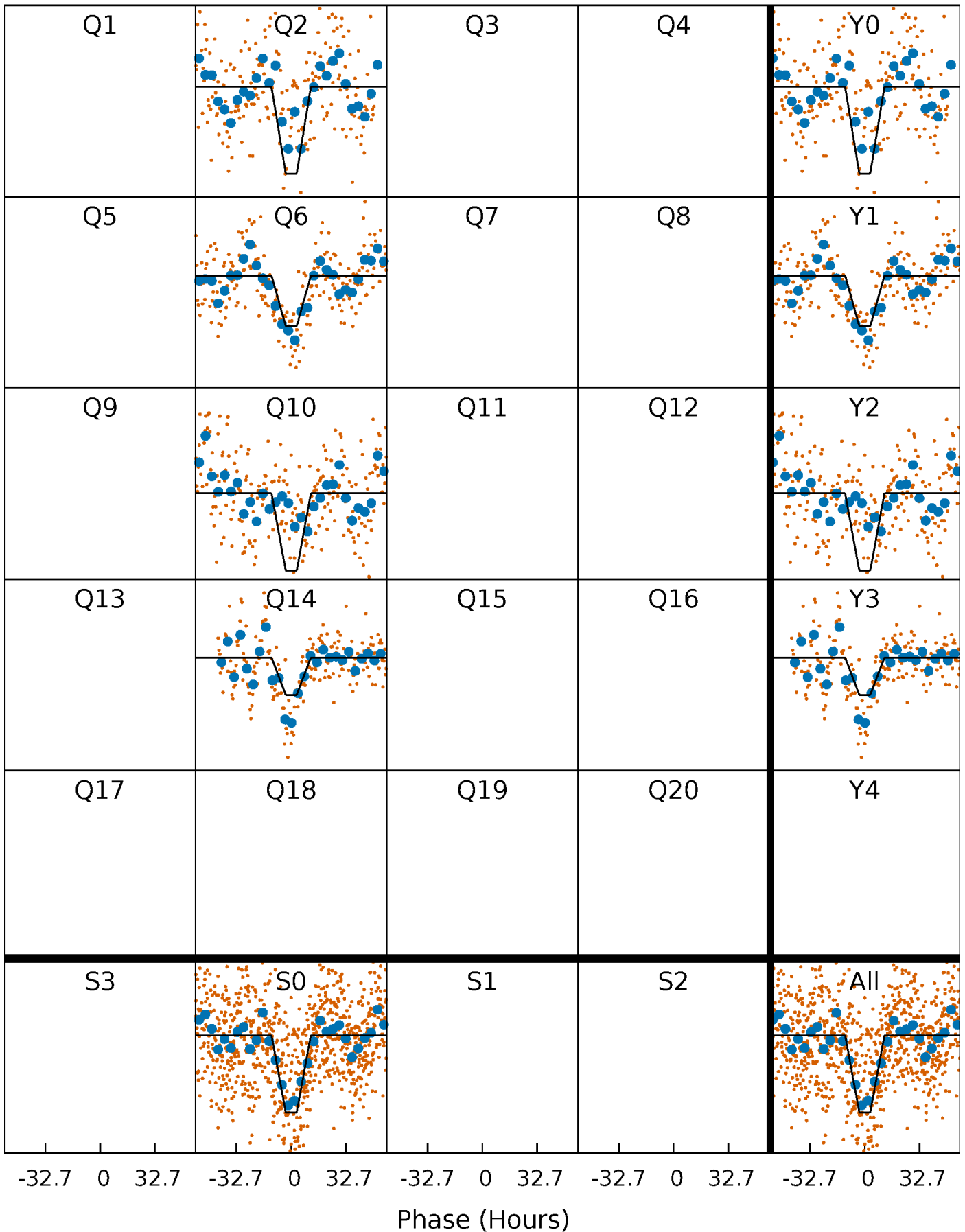
DV Quarter-Phased Transit Curves

TCE 009171234-01 P=365.446890 Days $T_0=179.567090$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

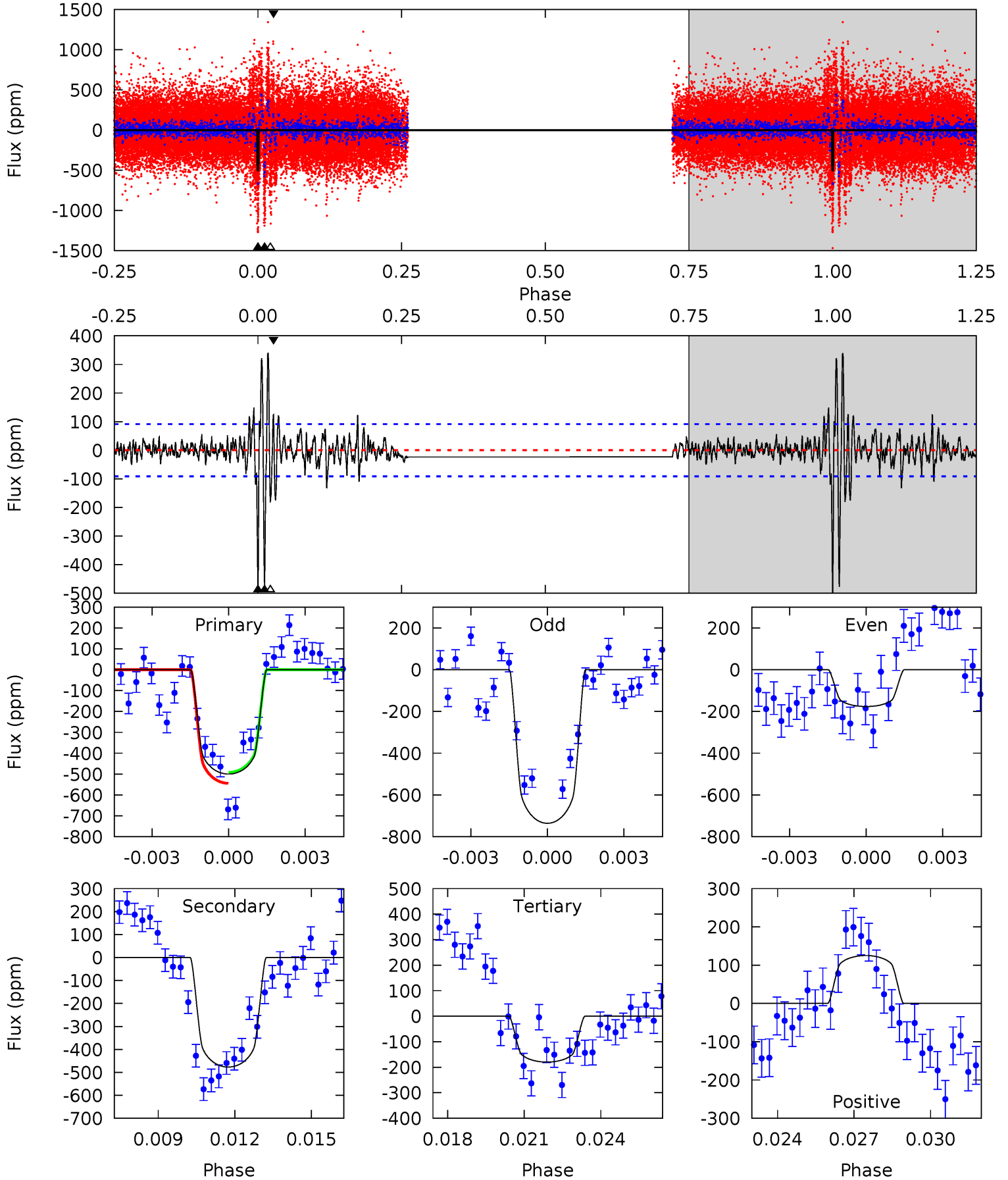
TCE 009171234-01 P=365.515521 Days $T_0=179.433703$ (BKJD)



DV Model-Shift Uniqueness Test

009171234-01, P = 365.446890 Days, E = 179.567090 Days

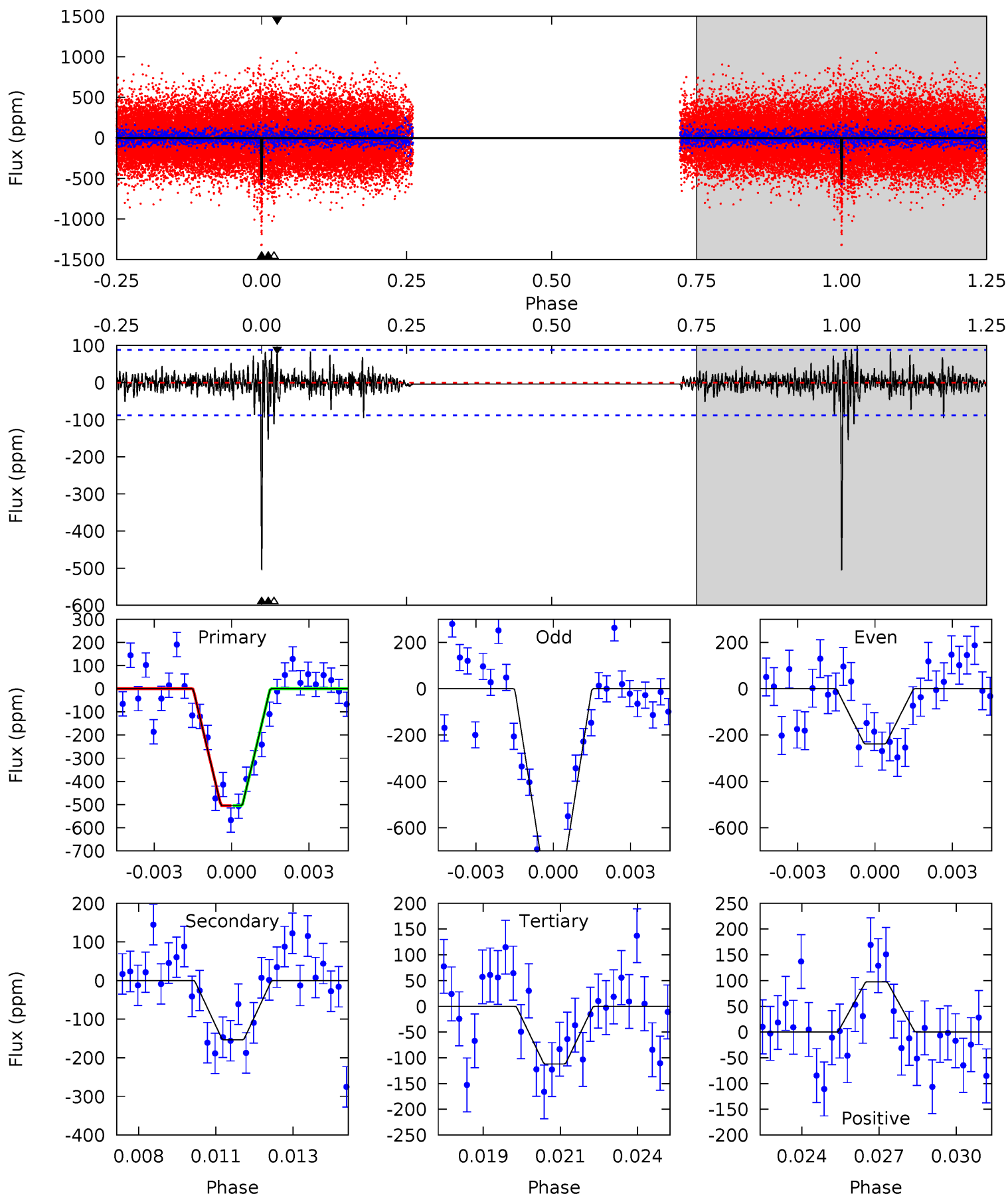
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.7	27.4	10.3	7.19	5.25	2.97	2.85	18.4	21.5	17.1	20.2	16.3	0.73	0.40	1.50



Alt Model-Shift Uniqueness Test

009171234-01, P = 365.515521 Days, E = 179.433703 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.1	9.15	6.69	5.83	5.27	3.00	1.28	23.4	24.3	2.46	3.32	16.0	1.00	0.16	0.00



Stellar Parameters For KIC 009171234

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5600^{+196}_{-196}	$4.458^{+0.140}_{-0.155}$	$-0.560^{+0.350}_{-0.300}$	$0.837^{+0.175}_{-0.127}$	$0.735^{+0.110}_{-0.047}$	$1.763^{+1.057}_{-0.765}$
	+4%/-4%	+3%/-3%	+62%/-54%	+21%/-15%	+15%/-6%	+60%/-43%
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 009171234-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-477 ± 17	$2.16^{+0.32}_{-0.28}$	333^{+21}_{-19}	5448^{+265}_{-276}	46348^{+13988}_{-10818}
Alt.	-153 ± 17	$2.23^{+0.31}_{-0.29}$	334^{+21}_{-22}	4264^{+206}_{-193}	14116^{+4483}_{-3498}

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

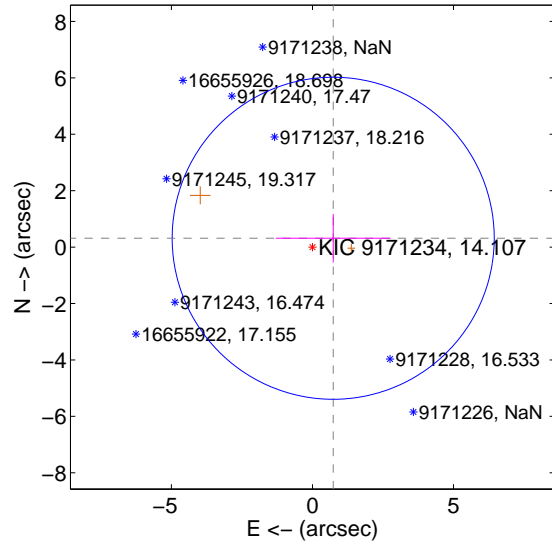
Supplemental centroid analysis for 009171234-01. Kepler magnitude: 14.11. Transit SNR 10.58

There are 0 quarters with good PRF difference image offsets

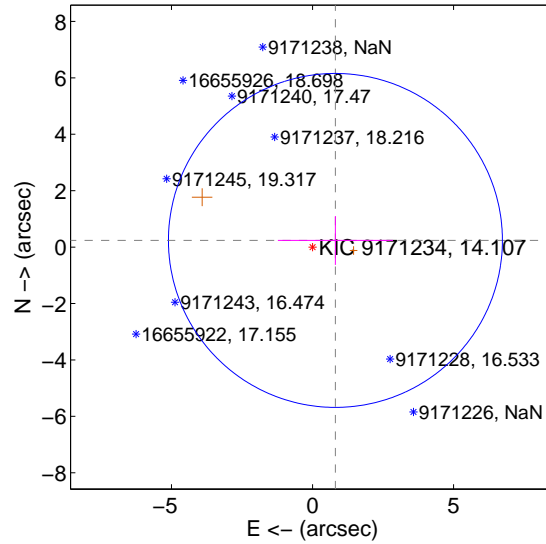
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.800 ± 1.903	0.42	-0.736 ± 2.035	0.313 ± 0.859
PRF-fit source offset from KIC position	0.845 ± 1.973	0.43	-0.812 ± 2.039	0.236 ± 0.866
photometric centroid source offset	3.35 ± 1.27	2.65	2.11 ± 1.36	-2.60 ± 1.20

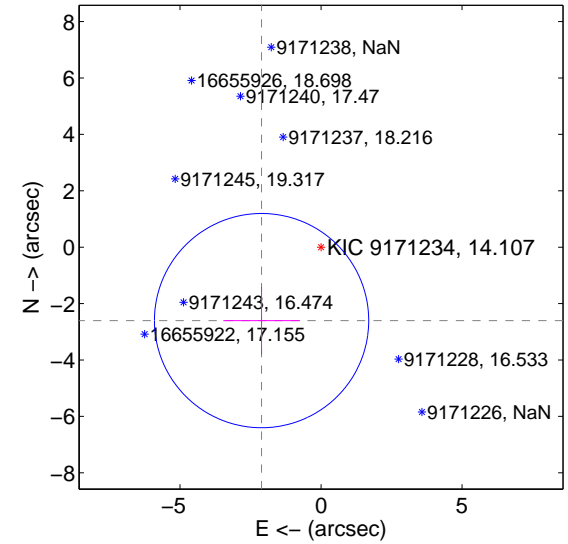
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



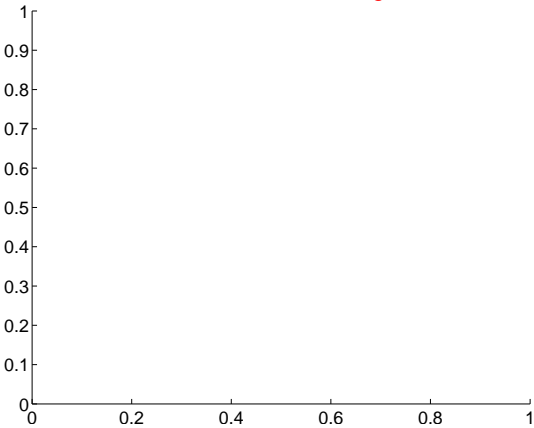
offset from photometric centroids



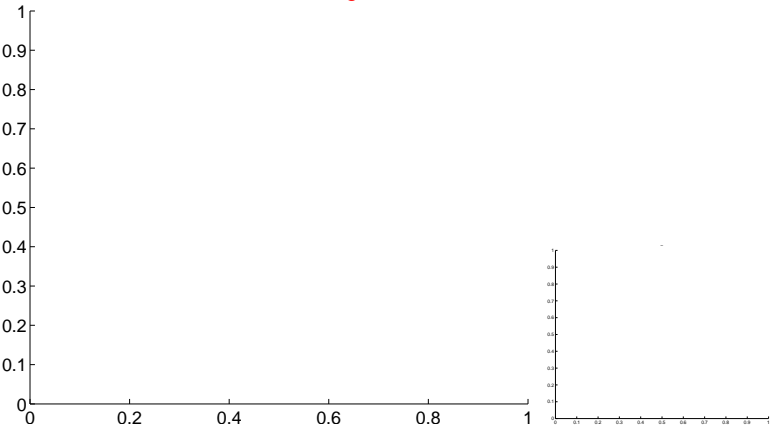
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

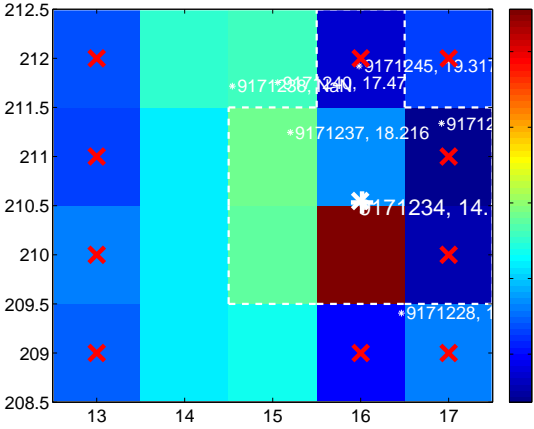
Q1 no difference image



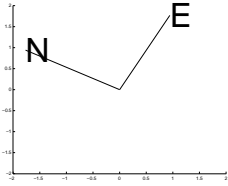
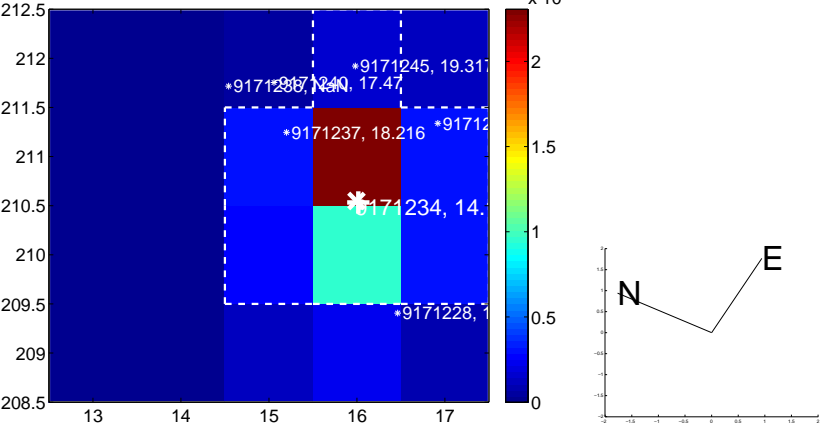
Q1 no OOT image



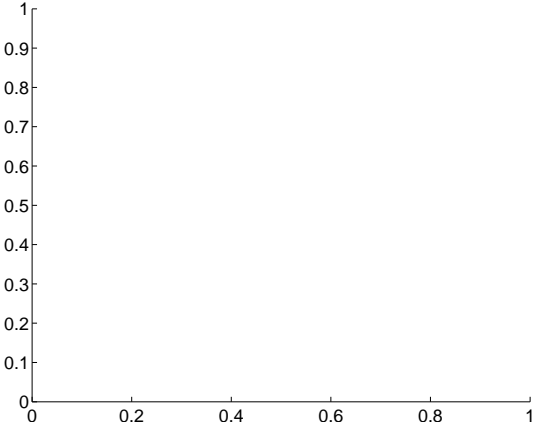
Q2 difference image. Poor Quality



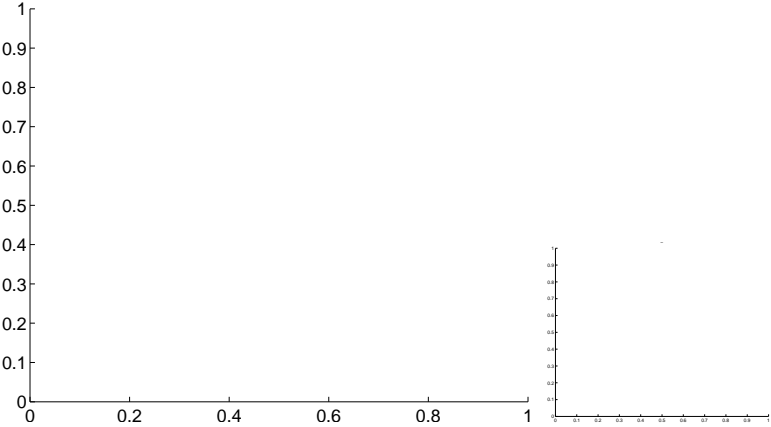
Q2 OOT image



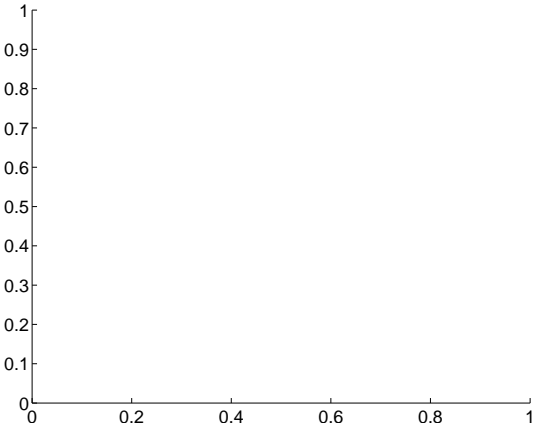
Q3 no difference image



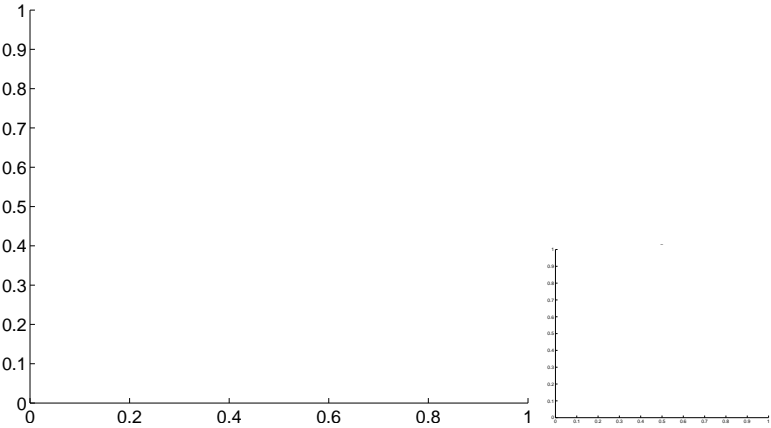
Q3 no OOT image



Q4 no difference image

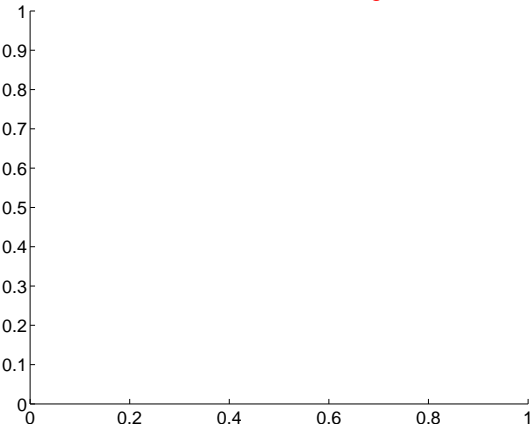


Q4 no OOT image

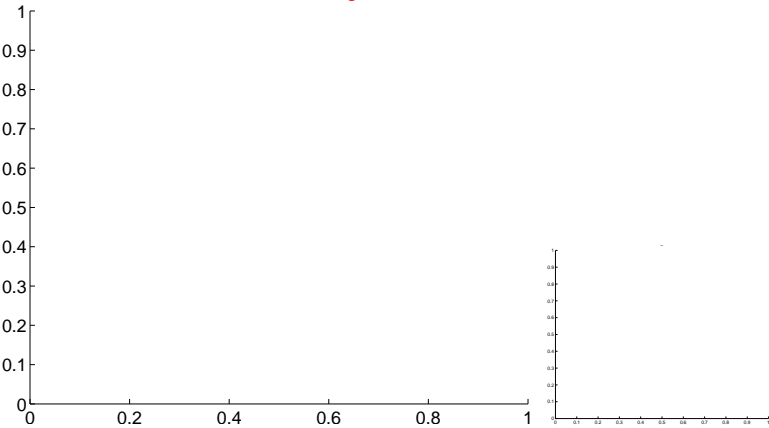


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

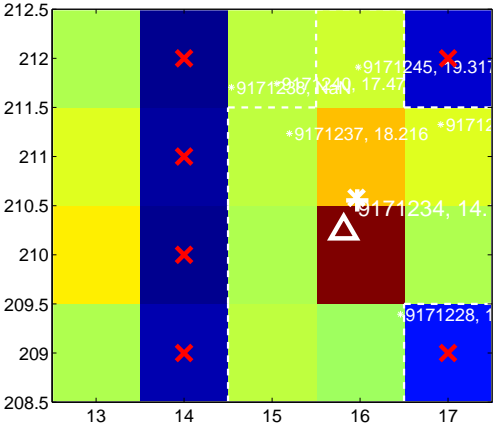
Q5 no difference image



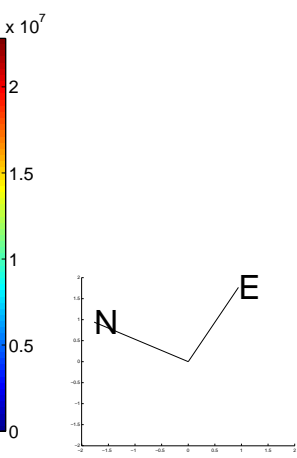
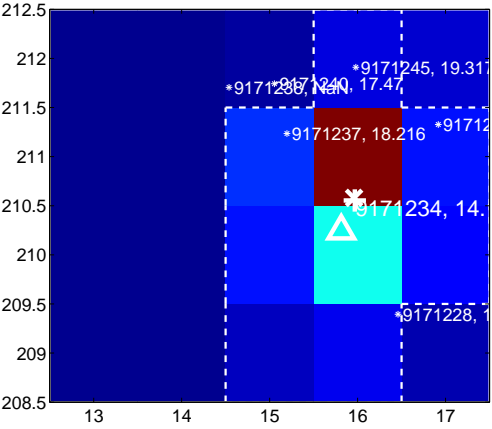
Q5 no OOT image



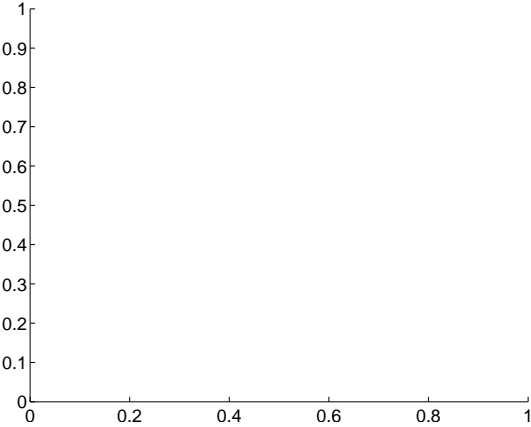
Q6 difference image. Poor Quality



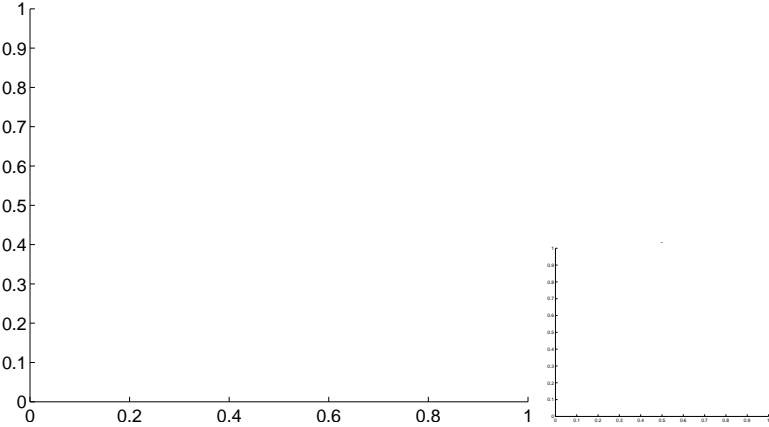
Q6 OOT image



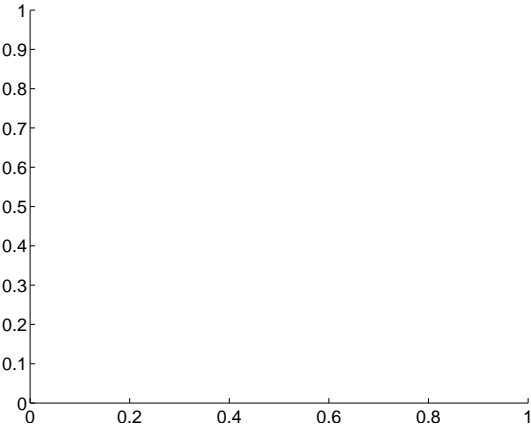
Q7 no difference image



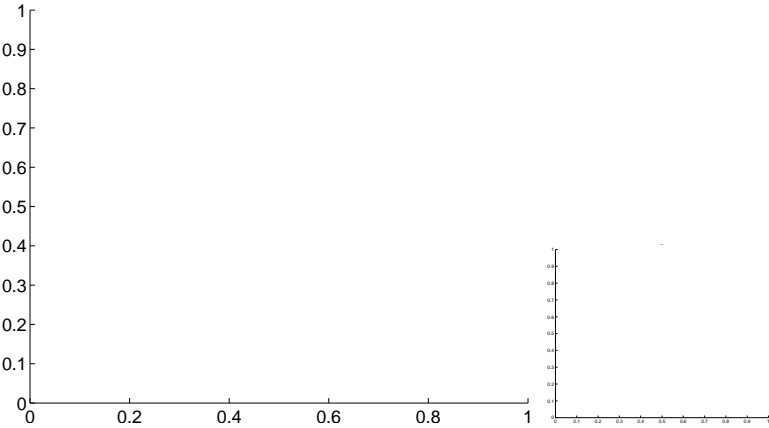
Q7 no OOT image



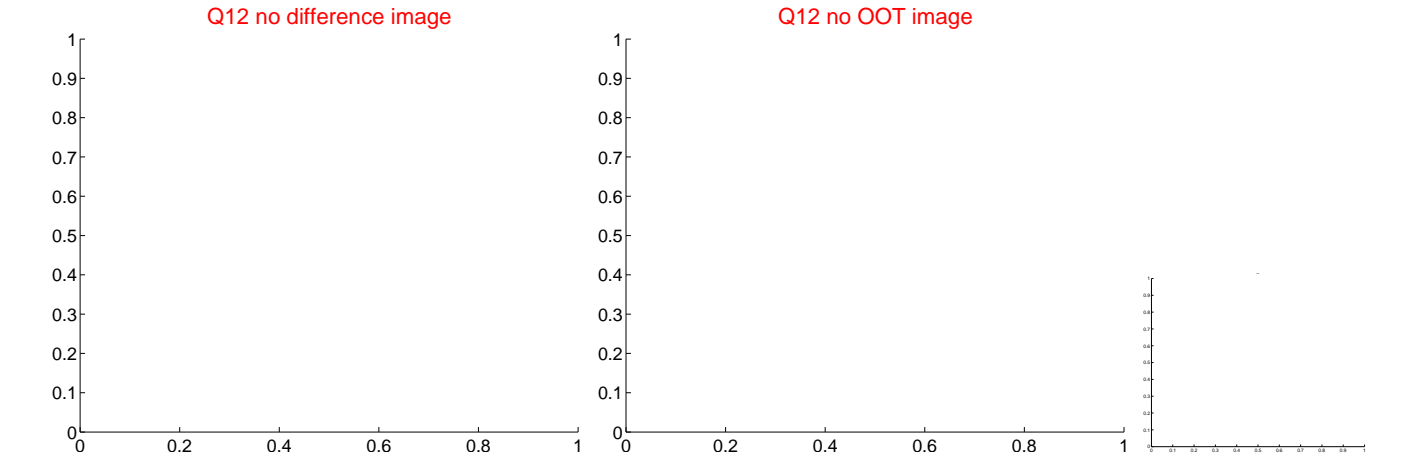
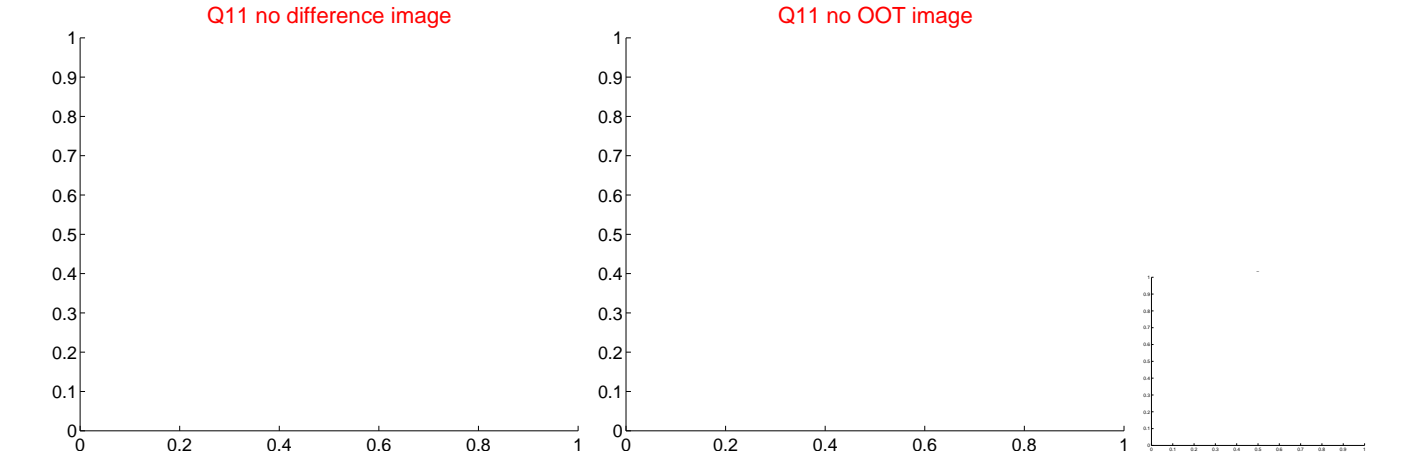
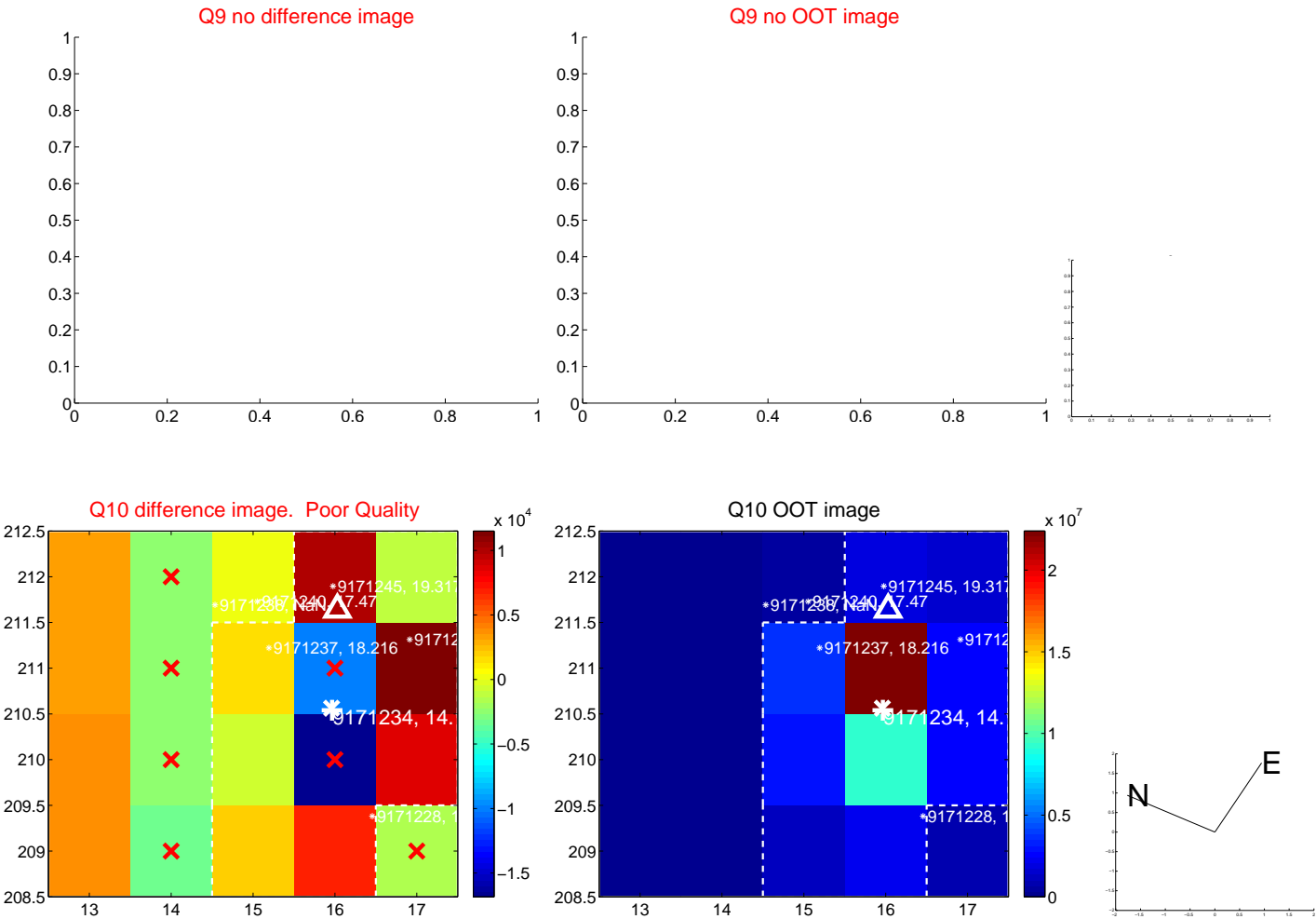
Q8 no difference image



Q8 no OOT image



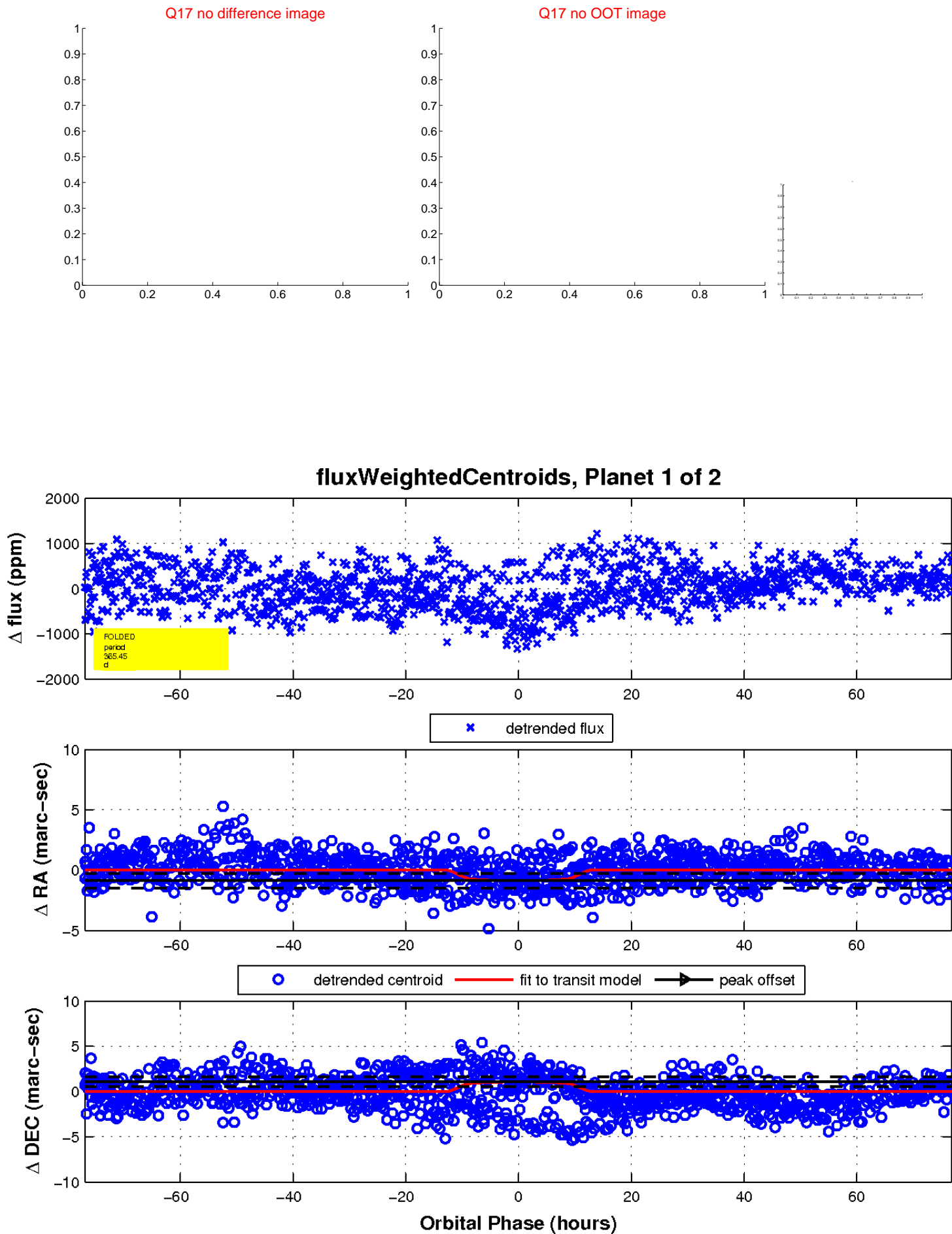
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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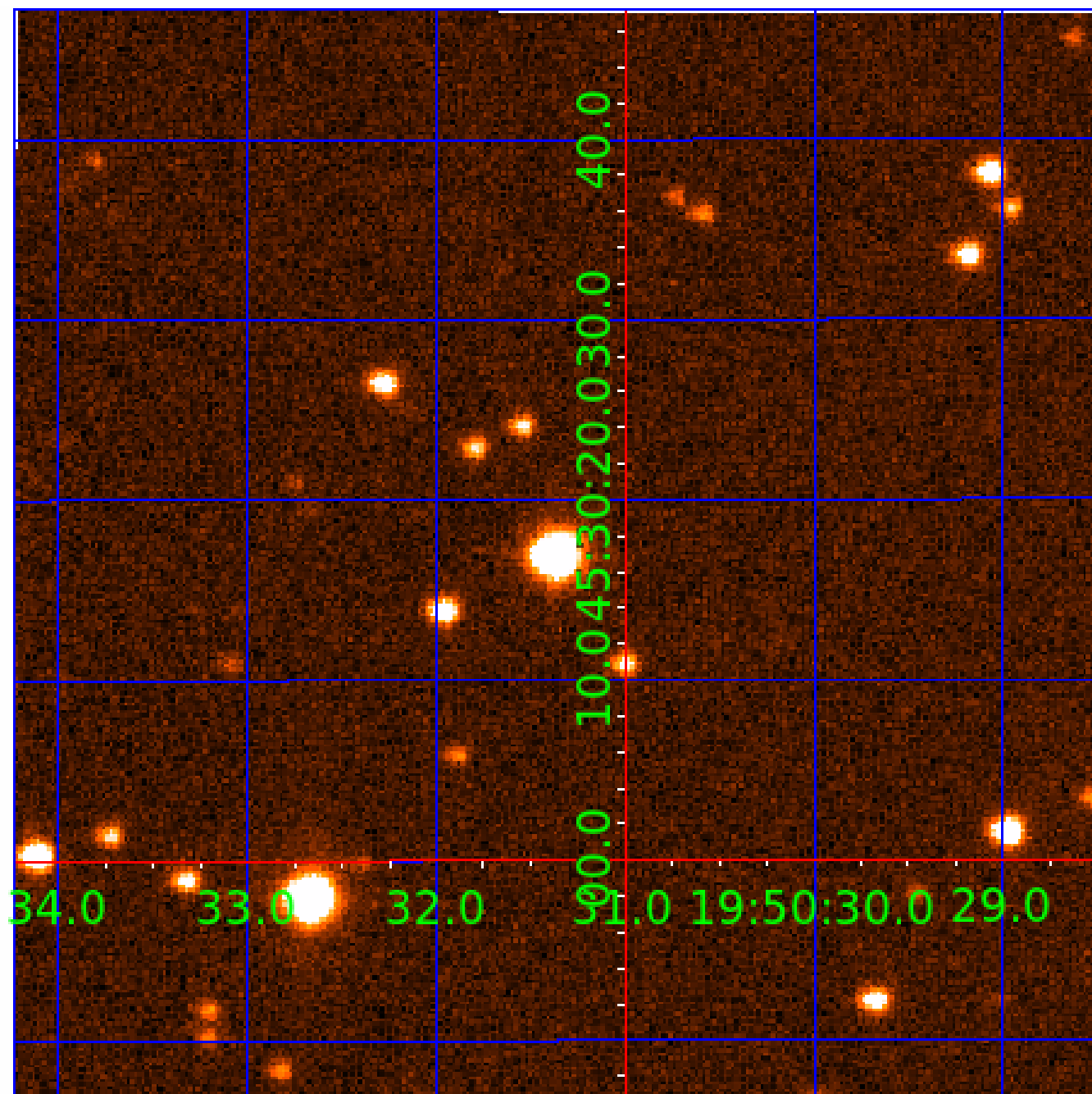


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009171234

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})
009171234-01	OBS	No	365.446890	179.567090	433.8	25.635	10.3	10.6	0.84	5600	2.14	0.76
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009171234-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS
009171234-02	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—SAME_NTL_PERIOD—CENT_FEW_DIFFS—EPHEM_MATCH

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.

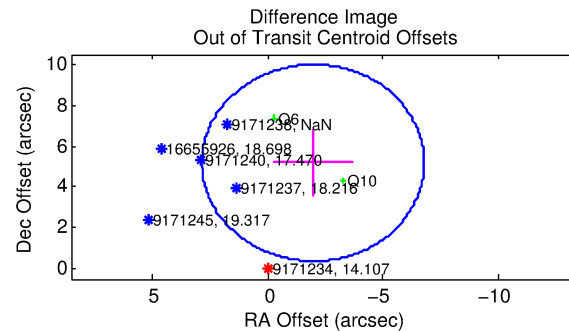
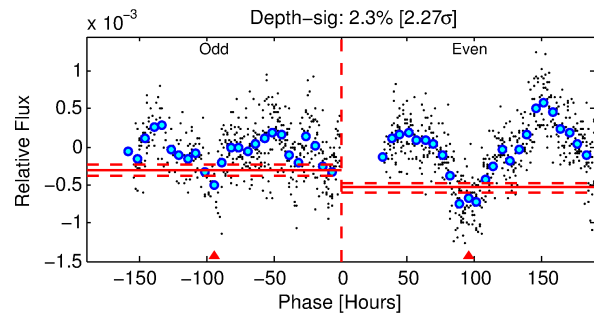
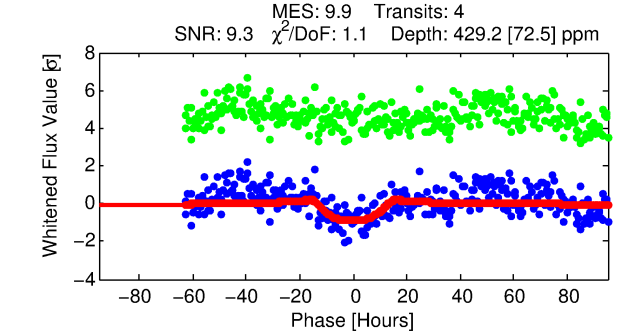
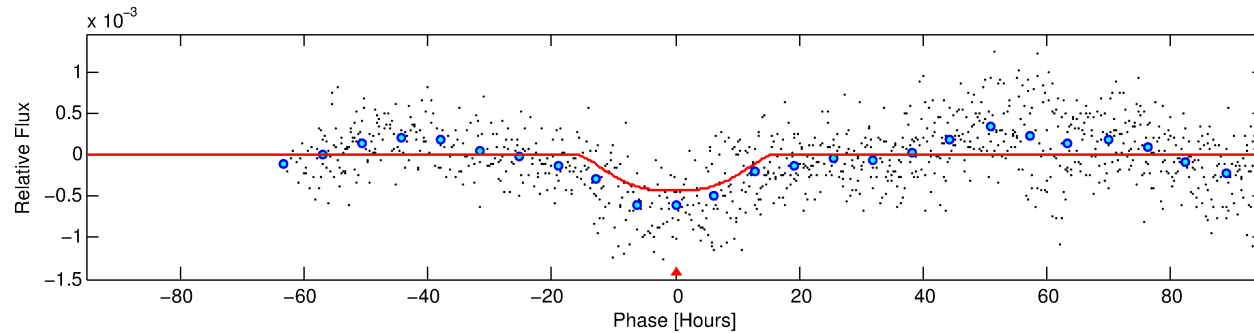
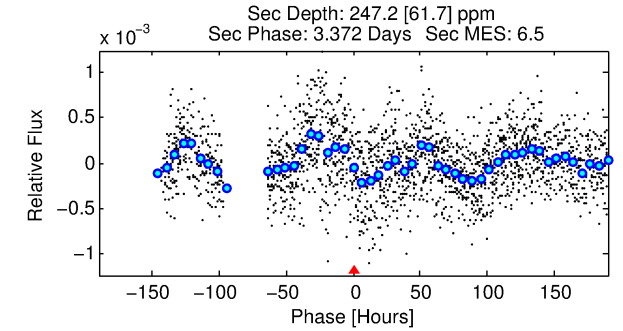
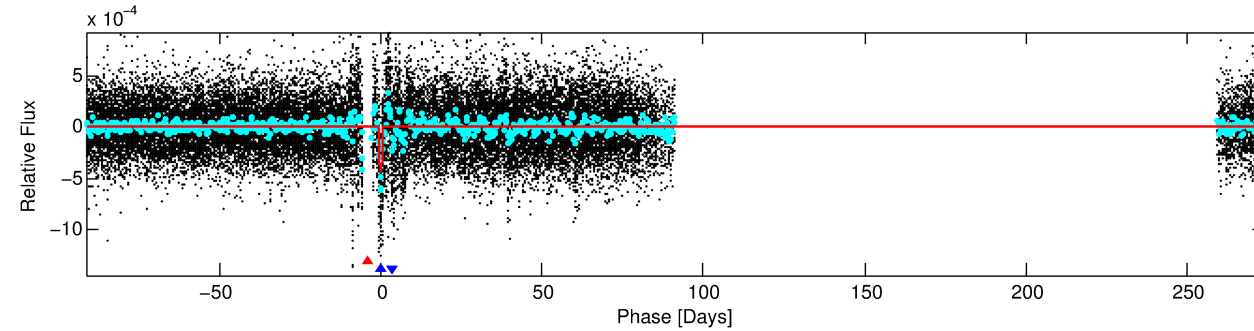
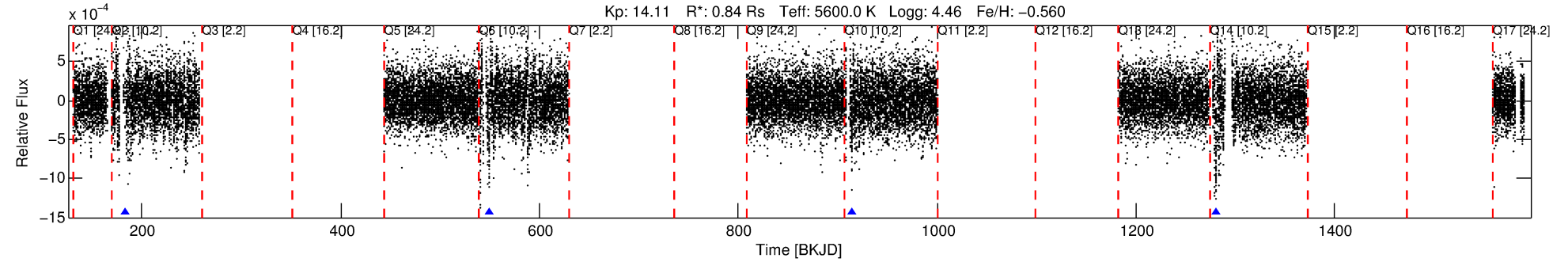
Ephemeris Match Information For 009171234-02

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
009171234-02	9171234	009107457-01	9107457	1:1	48.2	-5	-11	15.76	14.10	2.35	Direct-PRF	1	4.52	3.67

Notes: $P_1:P_2$ 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. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 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: 9171234 Candidate: 2 of 2 Period: 365.544 d



DV Fit Results:

Period = 365.54438 [0.04038] d
Epoch = 183.5111 [0.0811] BKJD
Rp/R* = 0.0254 [0.0029]
a/R* = 28.67 [5.00]
b = 0.97 [0.01]
Seff = 0.76 [0.23]
Teq = 238 [18] K
Rp = 2.32 [0.55] Re
a = 0.9026 [0.1654] AU
Ag = 20583.11 [9005.87] [2.29 σ]
Teffp = 4406 [405] K [10.29 σ]

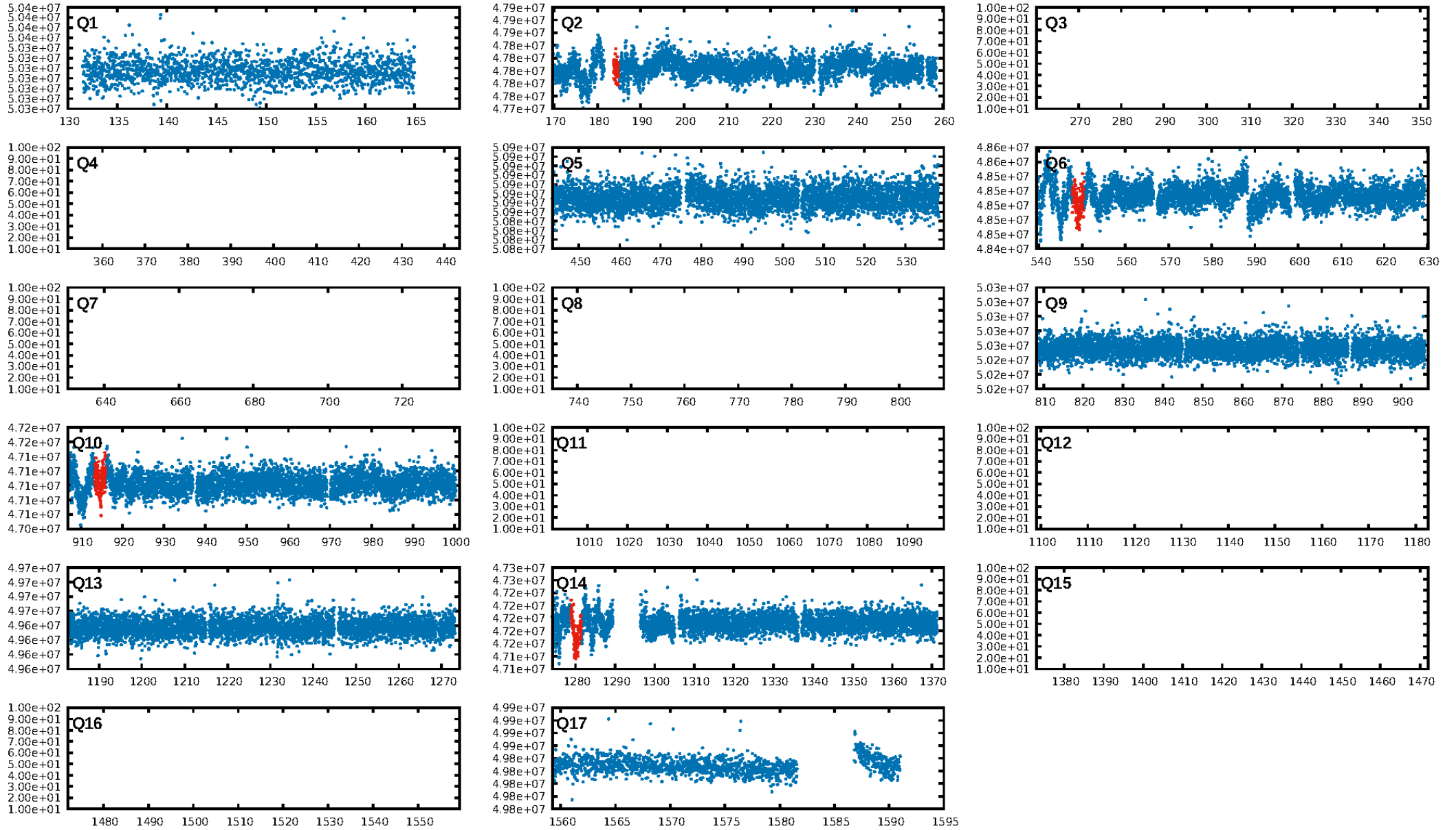
DV Diagnostic Results:

ShortPeriod-sig: 4.6% [0.06 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.66e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -5.56
Centroid-sig: 0.0%
Centroid-so: 5.170 arcsec [3.43 σ]
OotOffset-rm: 5.546 arcsec [3.46 σ]
KicOffset-rm: 5.506 arcsec [3.45 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

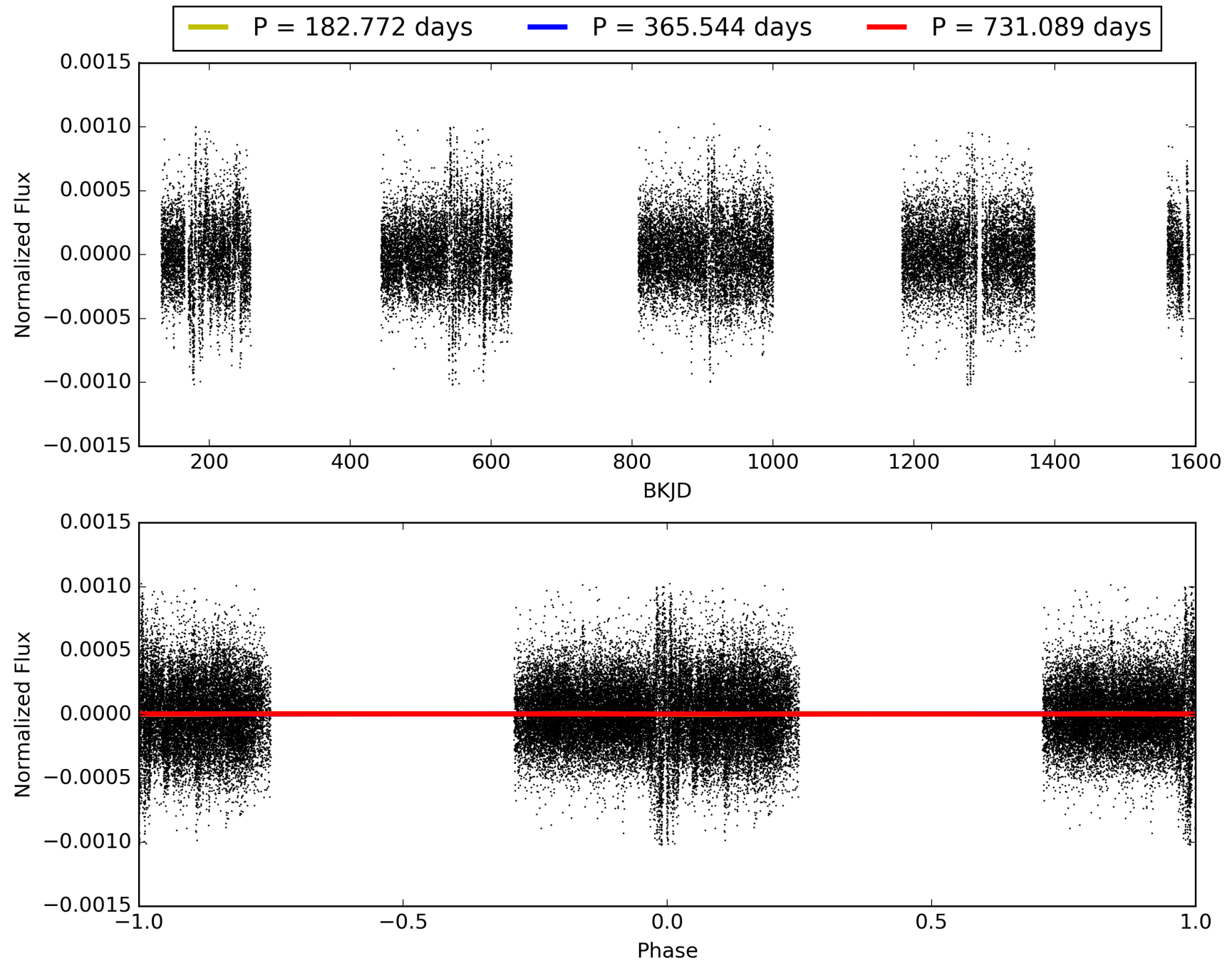
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:16:36 Z

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

TCE 009171234-02, PDC Light Curves

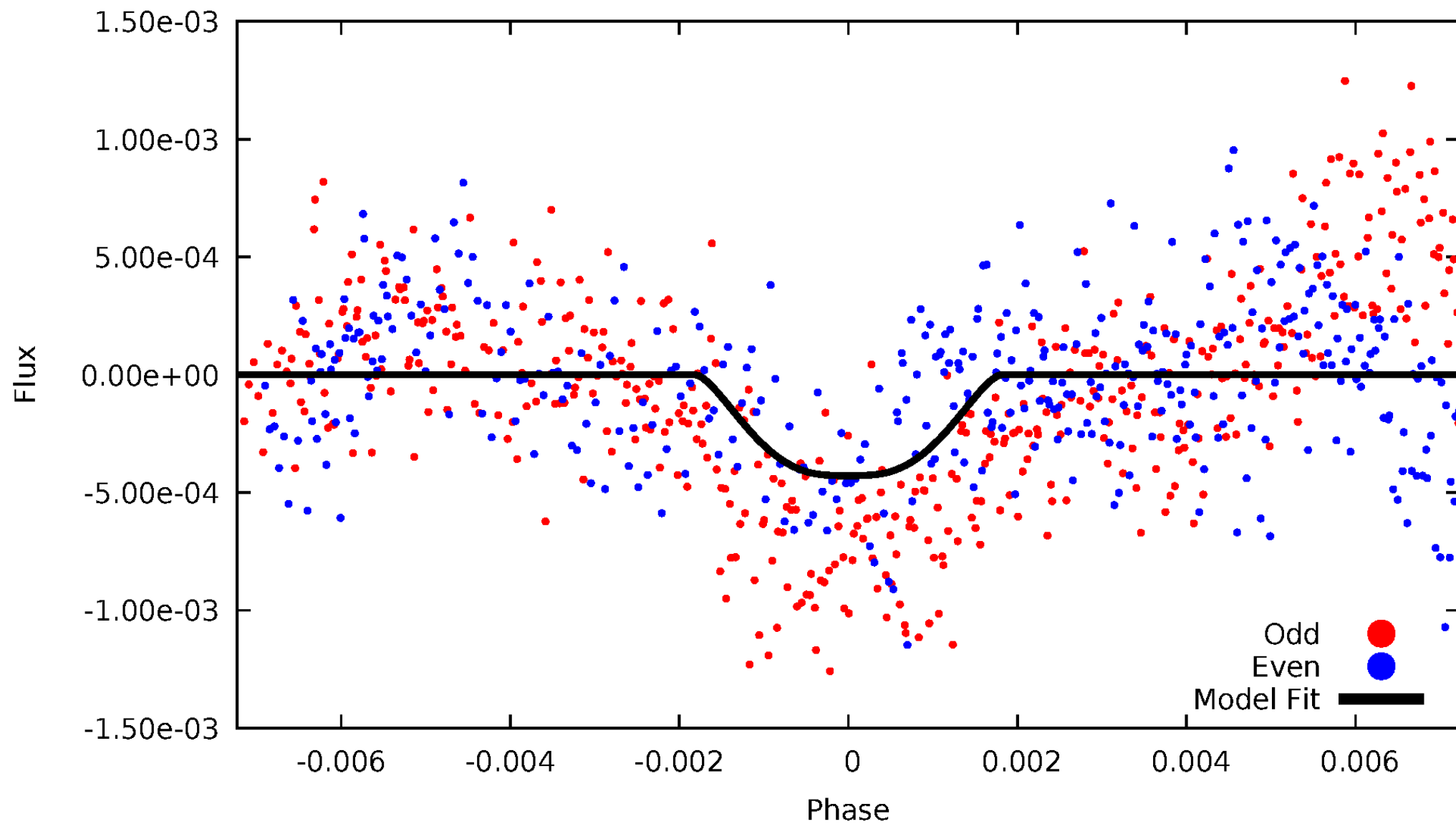


TCE 009171234-02



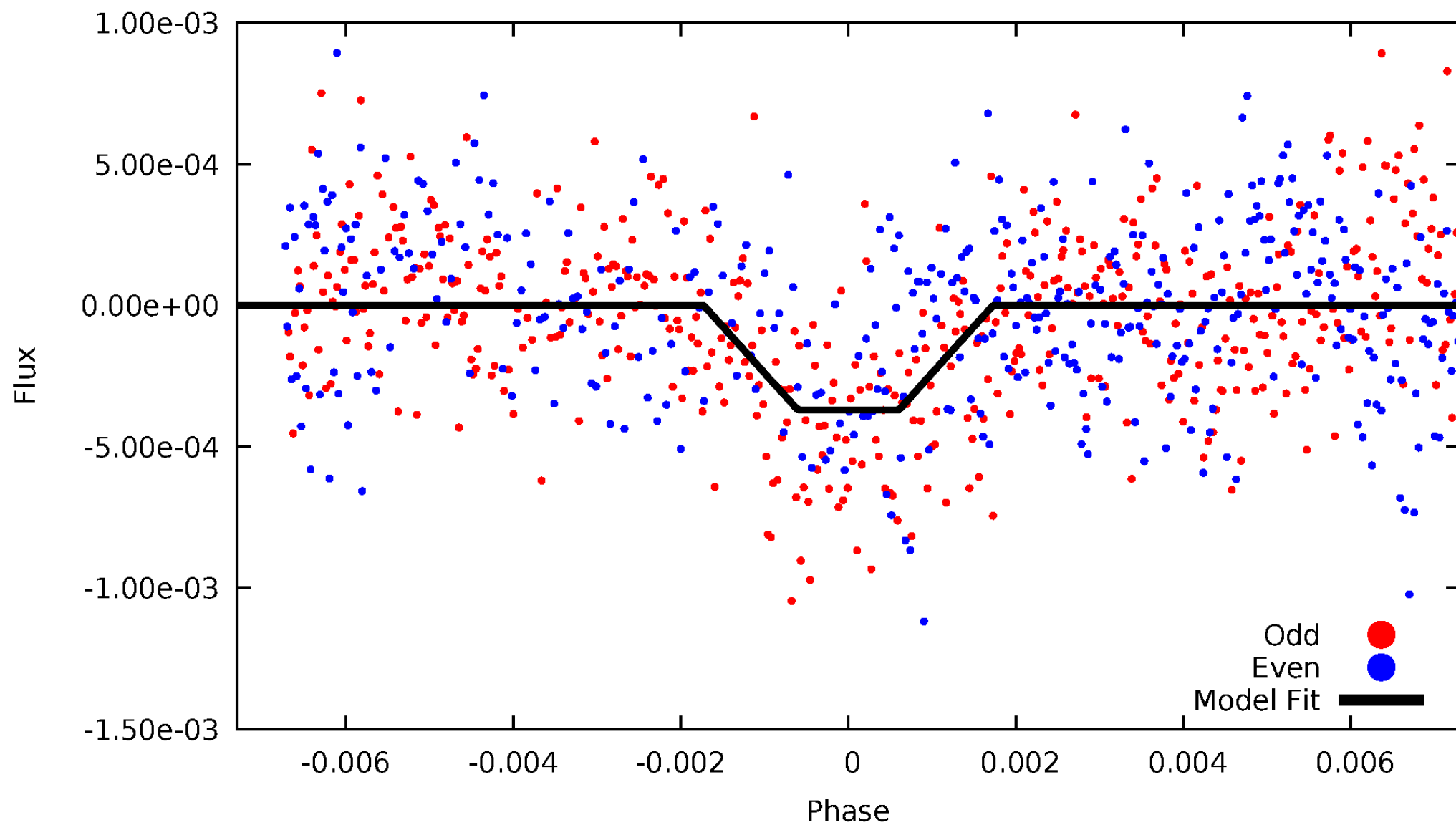
DV Odd/Even

TCE 009171234-02



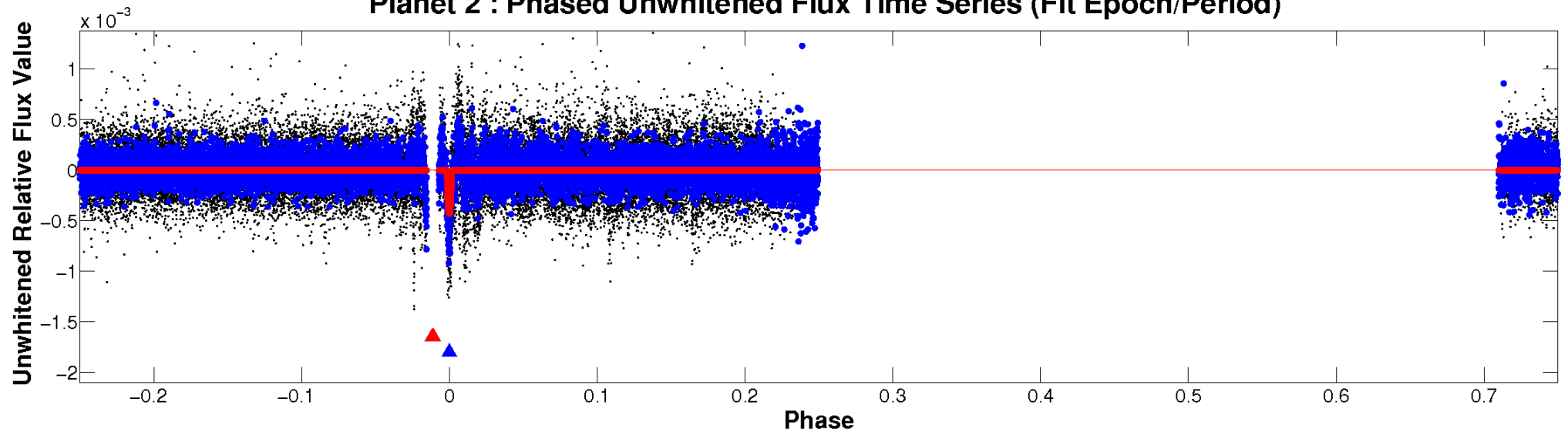
ALT Odd/Even

TCE 009171234-02

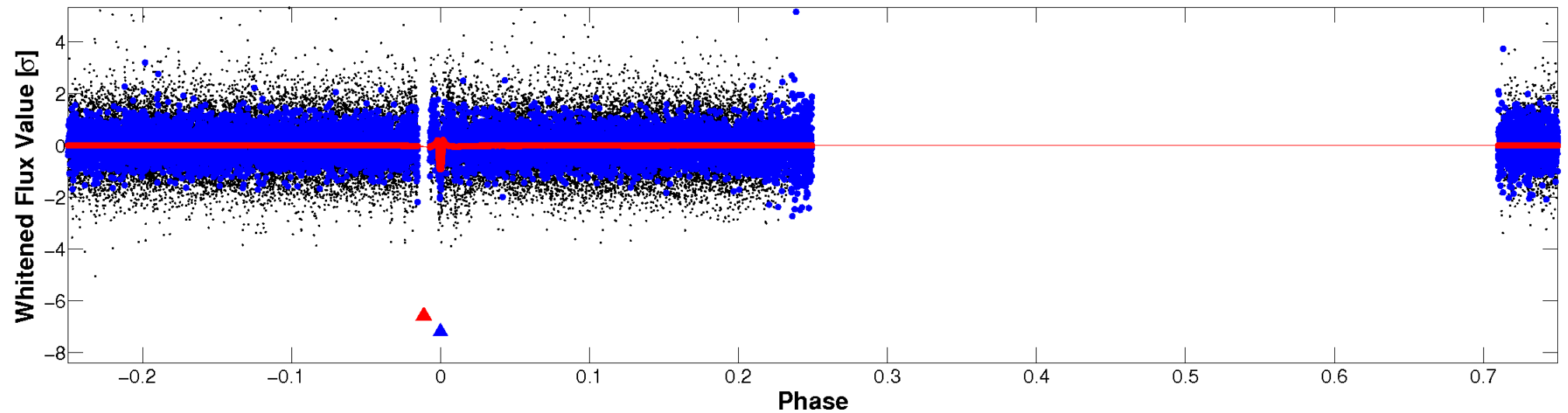


Non-Whitened Vs. Whitened Light Curve

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

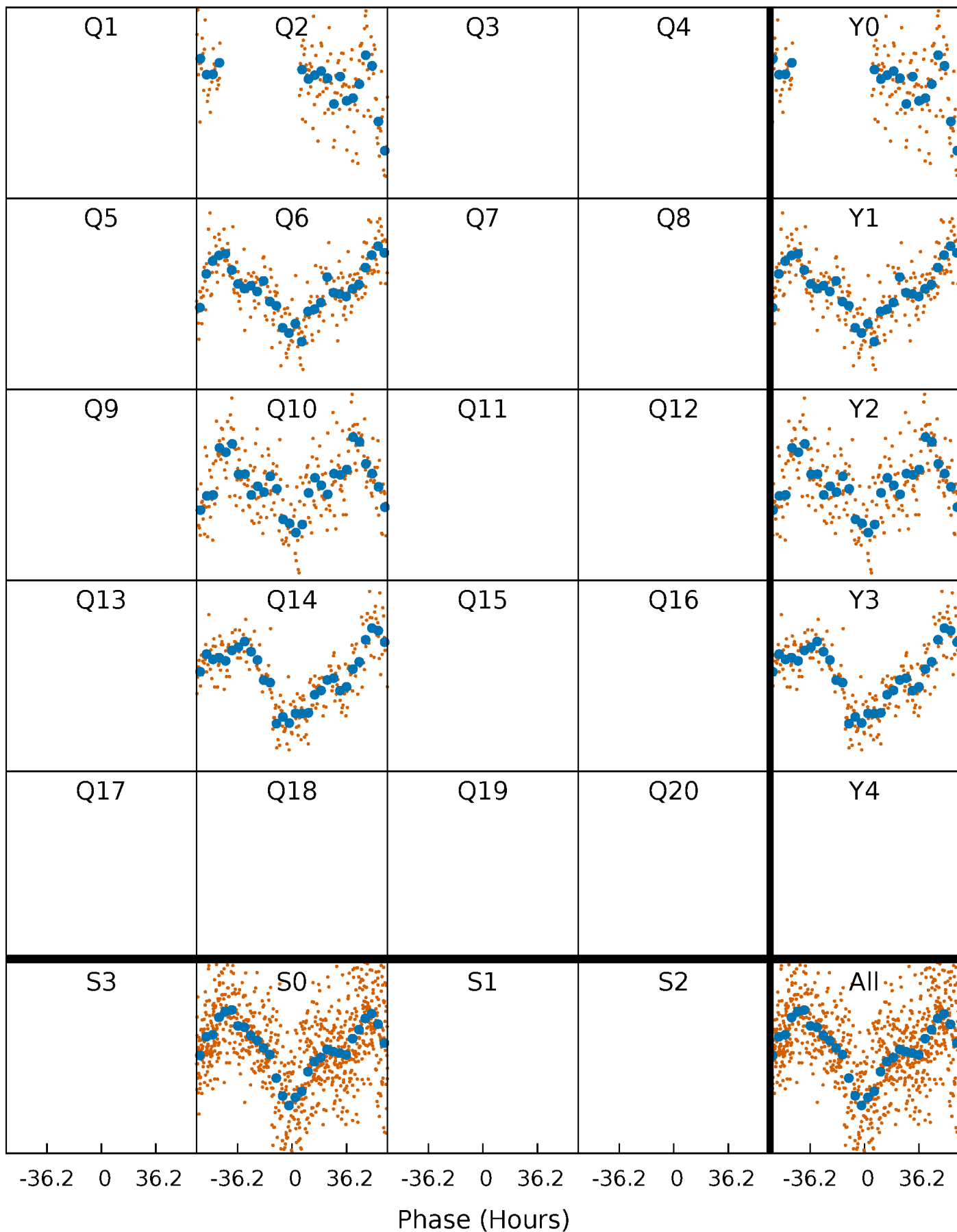


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



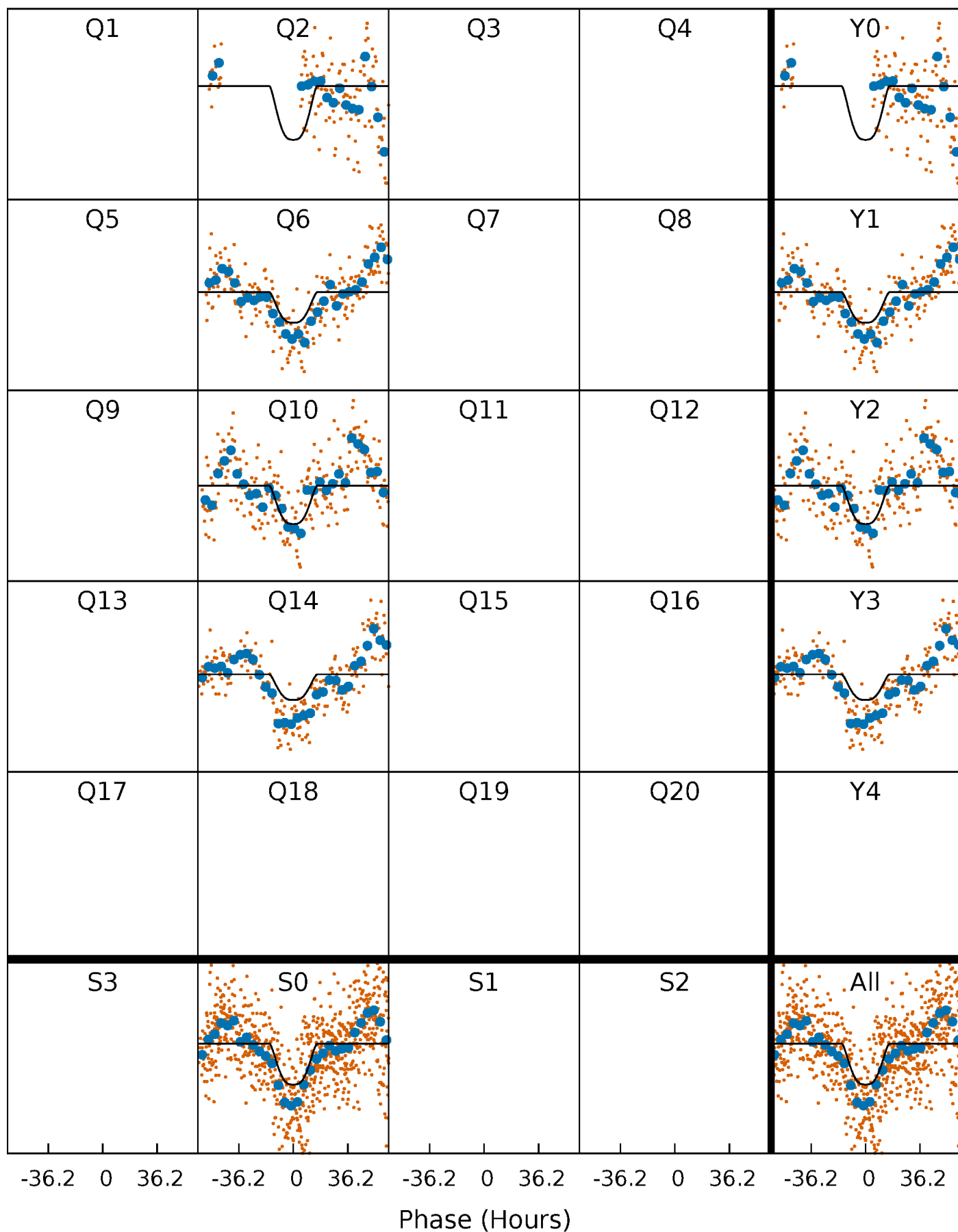
PDC Quarter-Phased Transit Curves

TCE 009171234-02 P=365.544376 Days $T_0=183.511135$ (BKJD)



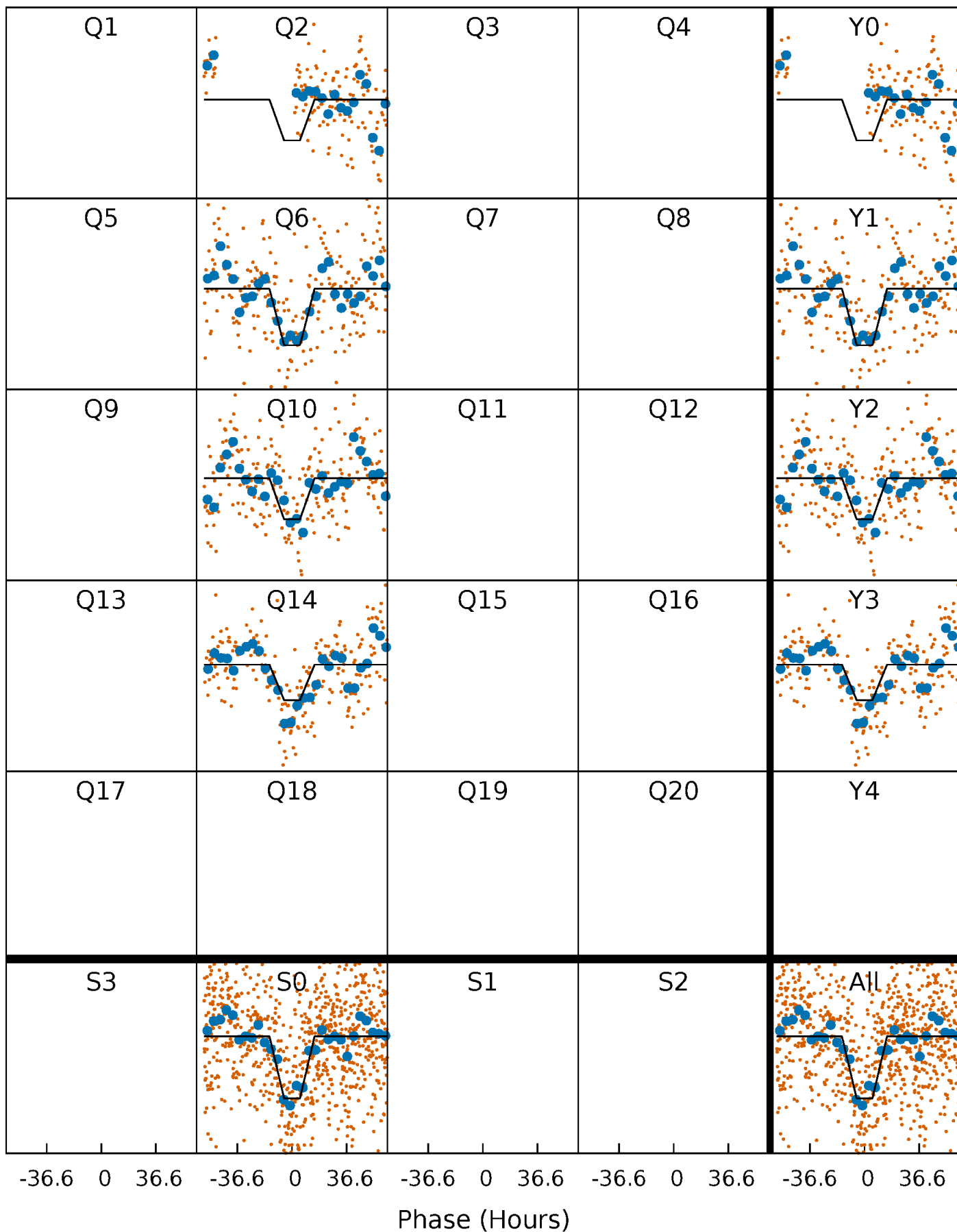
DV Quarter-Phased Transit Curves

TCE 009171234-02 P=365.544376 Days $T_0=183.511135$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

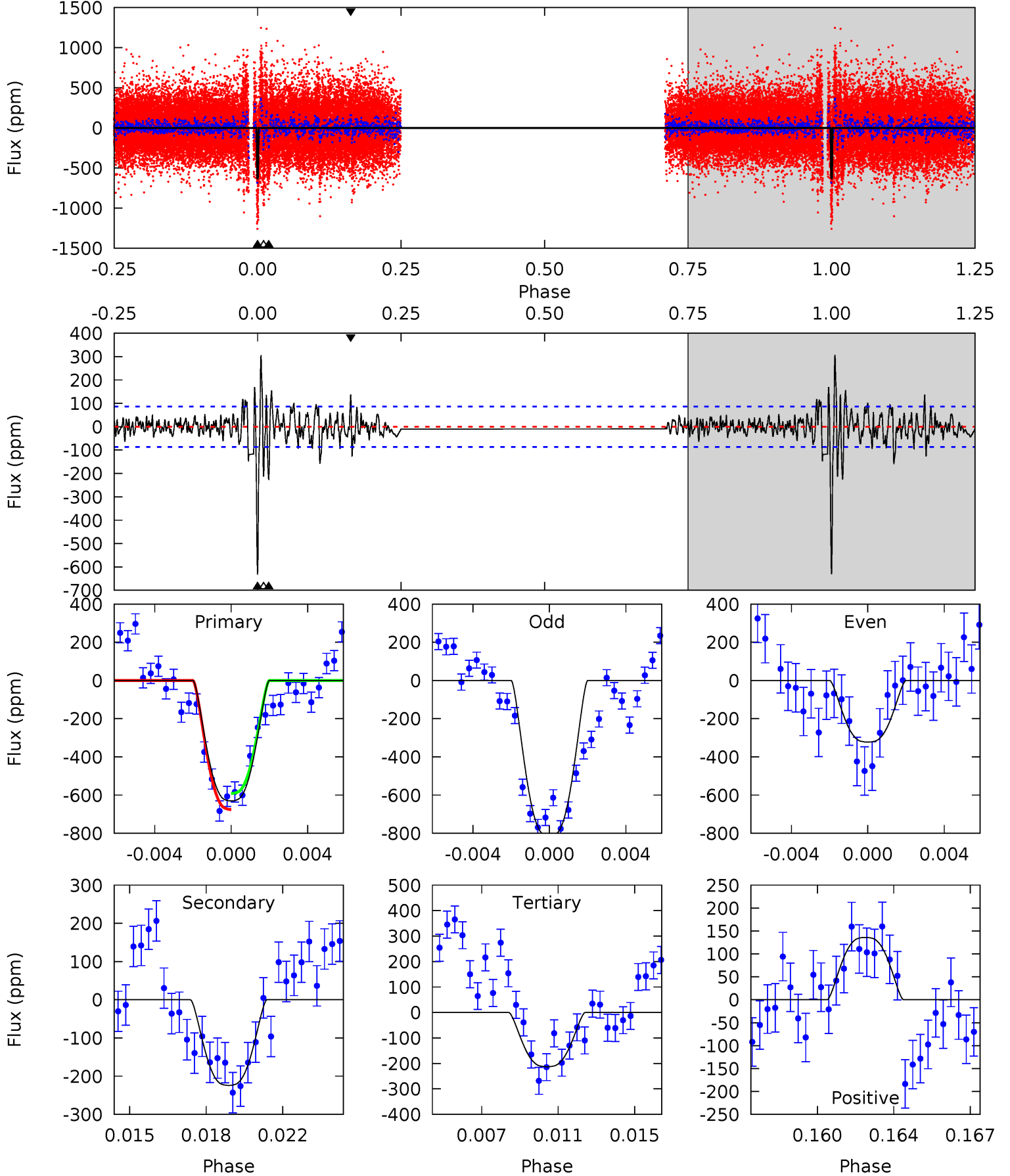
TCE 009171234-02 P=365.440598 Days $T_0=183.643945$ (BKJD)



DV Model-Shift Uniqueness Test

009171234-02, P = 365.544376 Days, E = 183.511135 Days

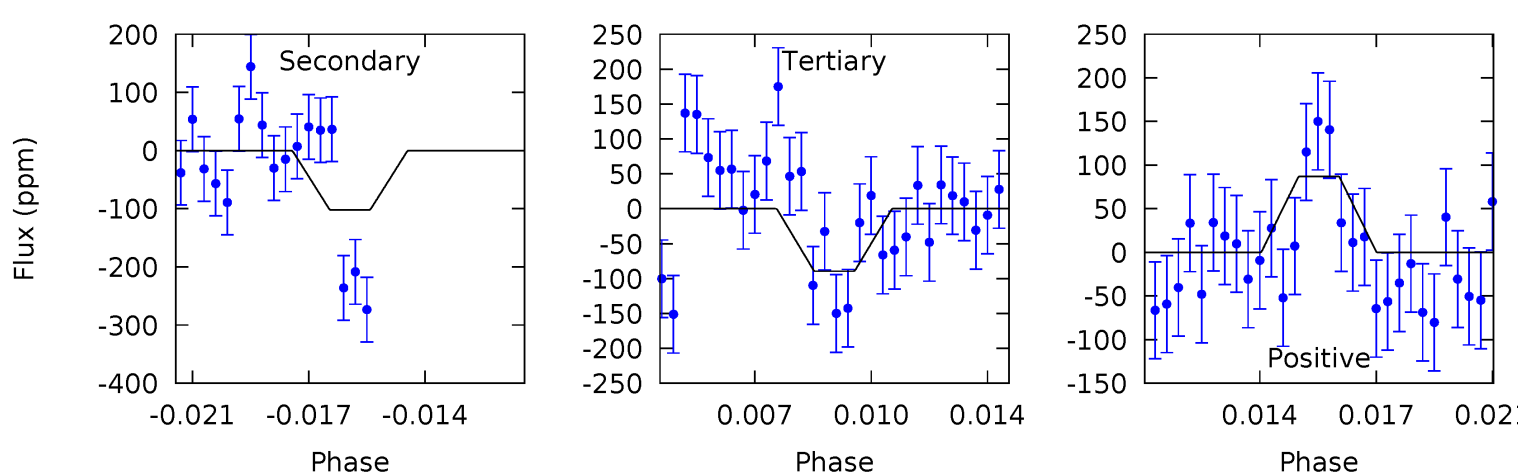
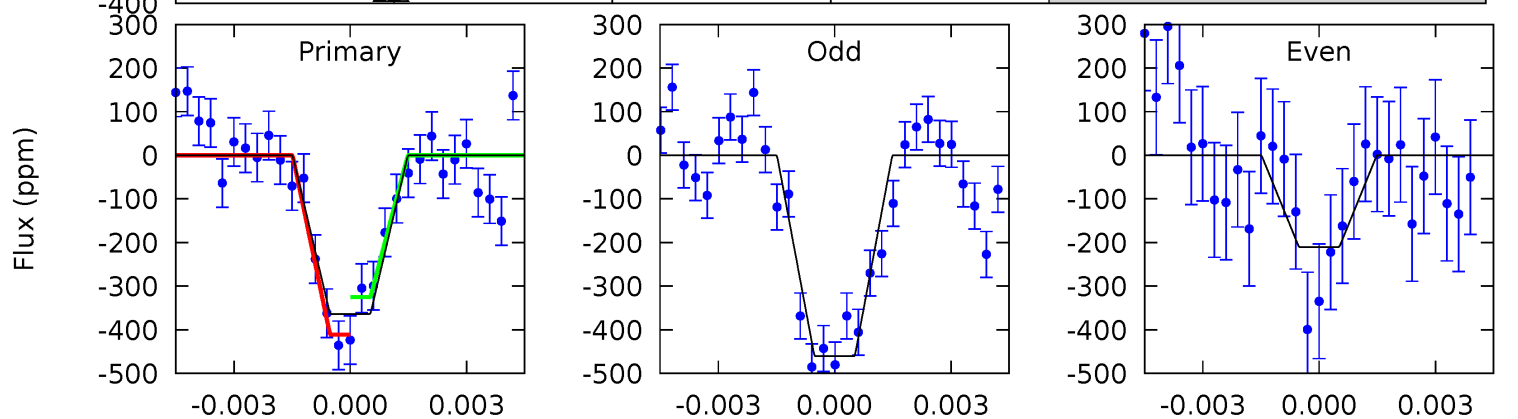
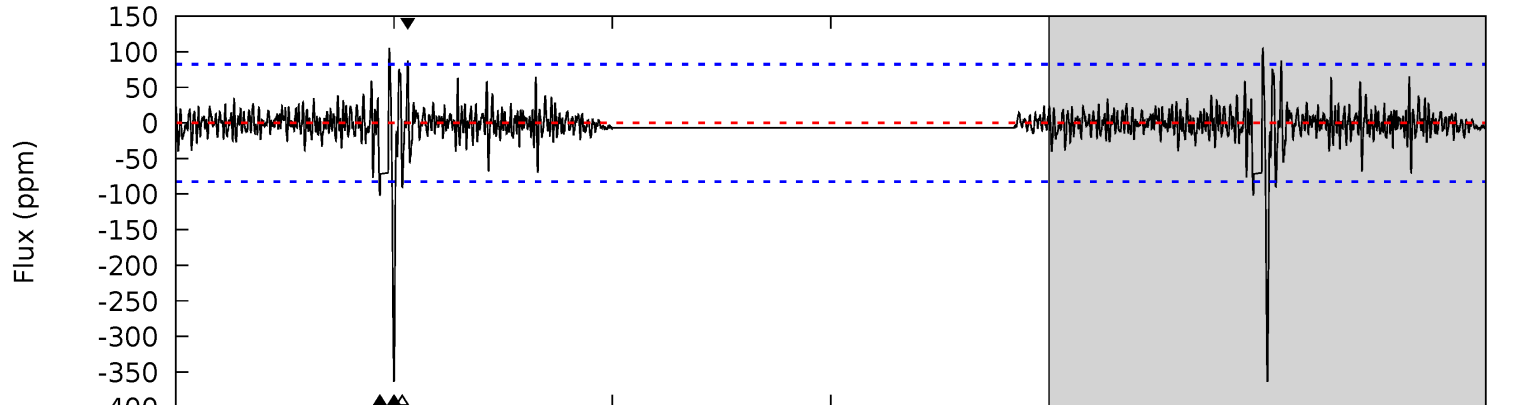
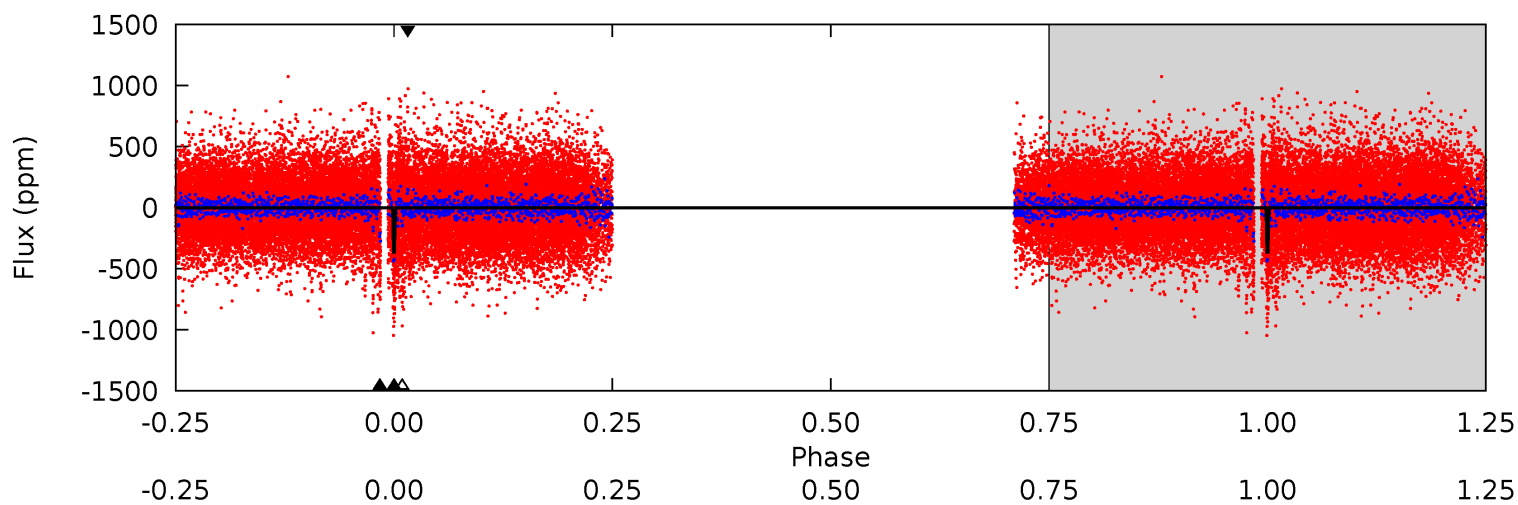
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.2	13.6	12.9	8.22	5.22	2.91	2.85	25.3	29.9	0.68	5.33	14.6	0.90	0.33	2.53



Alt Model-Shift Uniqueness Test

009171234-02, P = 365.440598 Days, E = 183.643945 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	6.45	5.66	5.52	5.22	2.92	1.19	17.4	17.5	0.79	0.93	7.83	0.85	0.22	2.70



Stellar Parameters For KIC 009171234

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5600^{+196}_{-196}	$4.458^{+0.140}_{-0.155}$	$-0.560^{+0.350}_{-0.300}$	$0.837^{+0.175}_{-0.127}$	$0.735^{+0.110}_{-0.047}$	$1.763^{+1.057}_{-0.765}$
	+4%/-4%	+3%/-3%	+62%/-54%	+21%/-15%	+15%/-6%	+60%/-43%
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 009171234-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-224 ± 17	$2.35^{+0.37}_{-0.35}$	334^{+23}_{-19}	4497^{+263}_{-245}	18468^{+7162}_{-4832}
Alt.	-102 ± 16	$1.79^{+0.34}_{-0.31}$	332^{+24}_{-20}	4274^{+314}_{-272}	14536^{+7291}_{-4756}

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

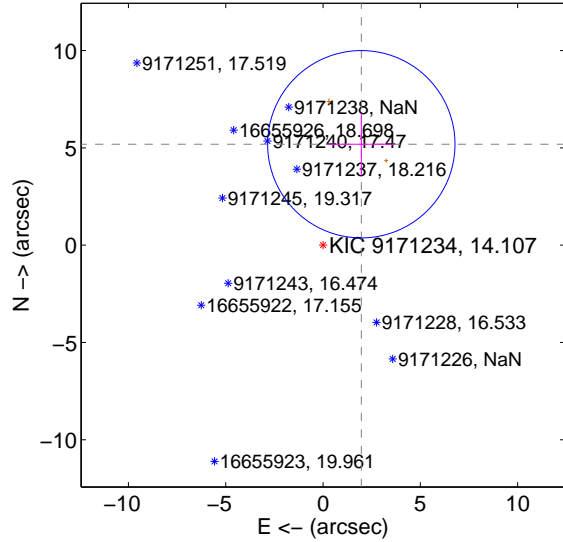
Supplemental centroid analysis for 009171234-02. Kepler magnitude: 14.11. Transit SNR 9.30

There are 0 quarters with good PRF difference image offsets

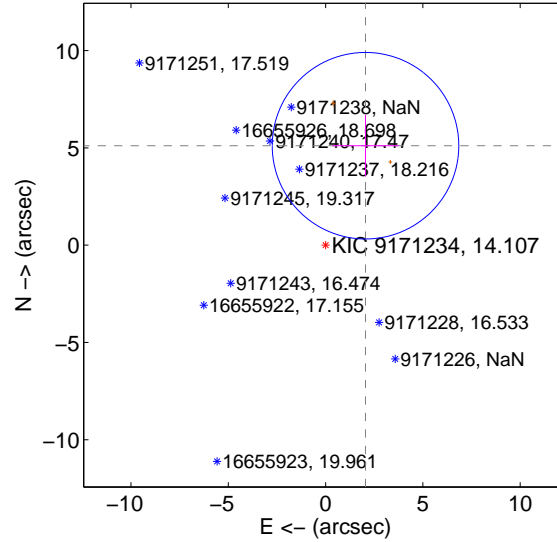
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.546 ± 1.604	3.46	-1.967 ± 1.706	5.186 ± 1.589
PRF-fit source offset from KIC position	5.506 ± 1.597	3.45	-2.051 ± 1.701	5.110 ± 1.580
photometric centroid source offset	5.17 ± 1.51	3.43	2.99 ± 1.68	-4.22 ± 1.41

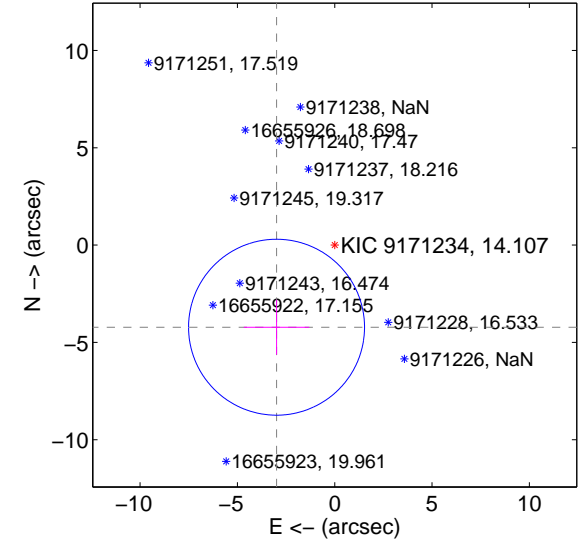
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

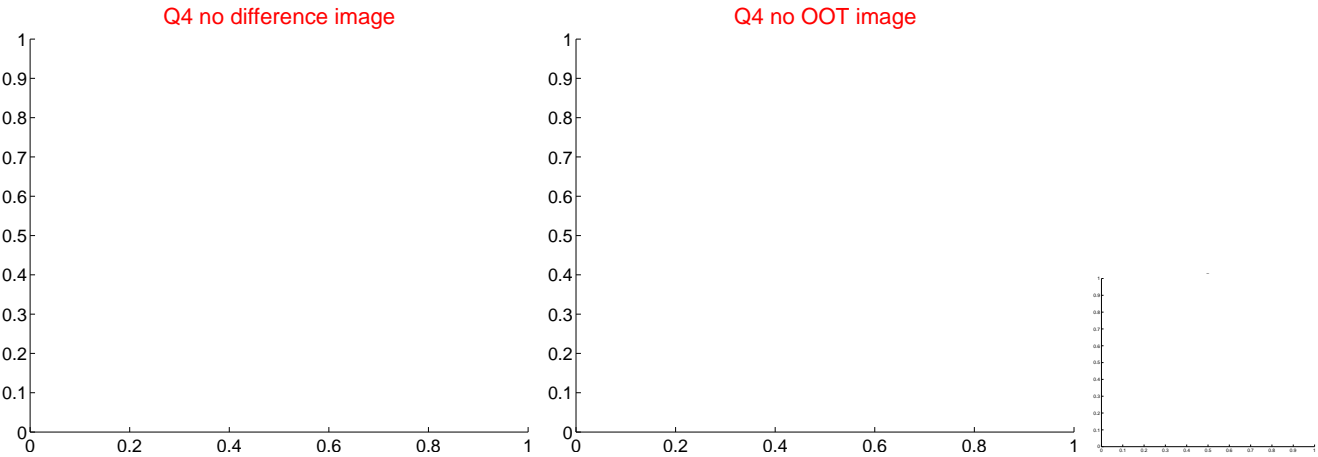
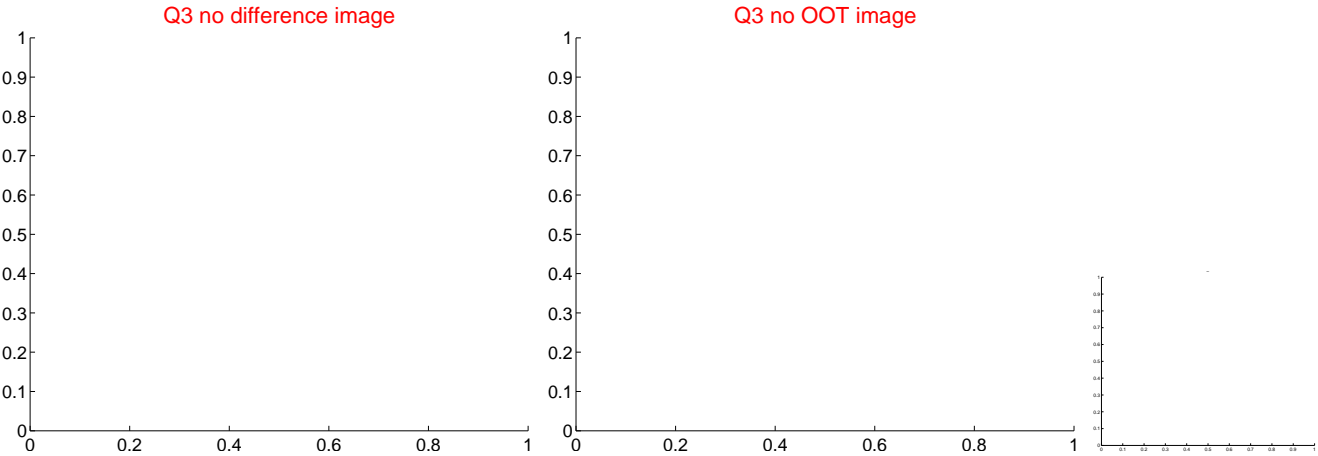
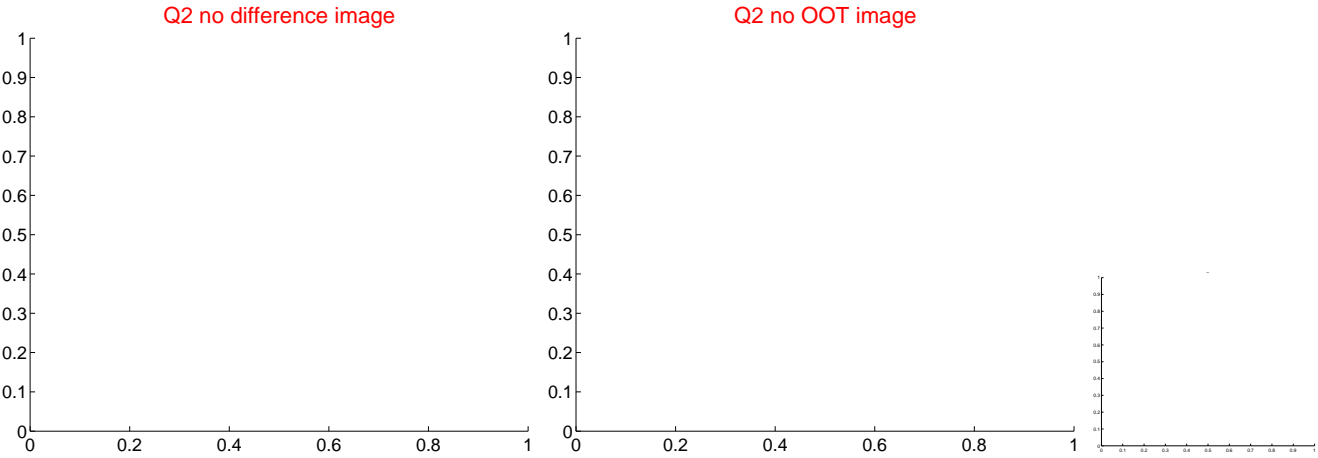
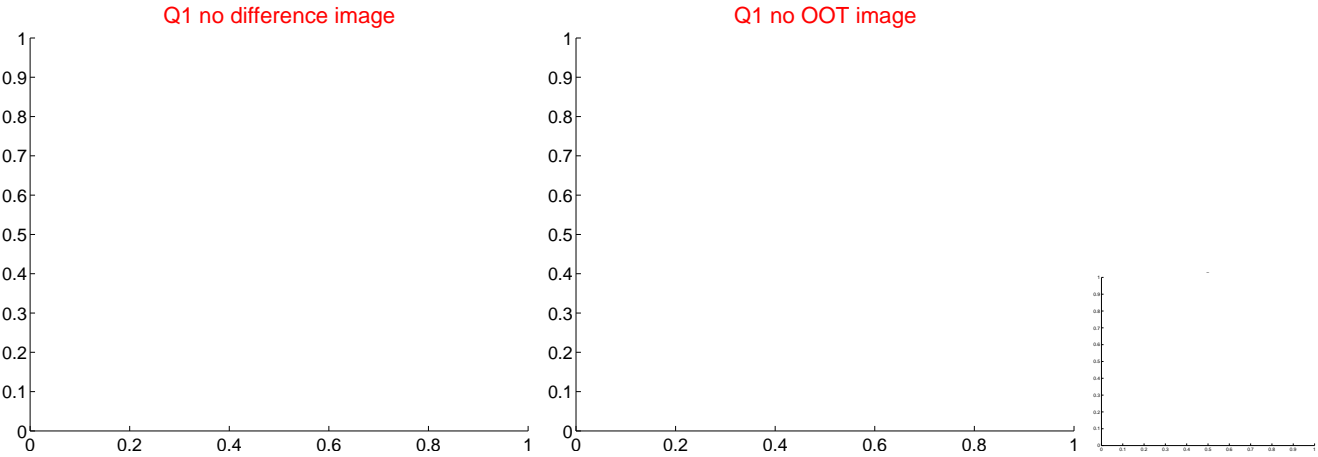


offset from photometric centroids



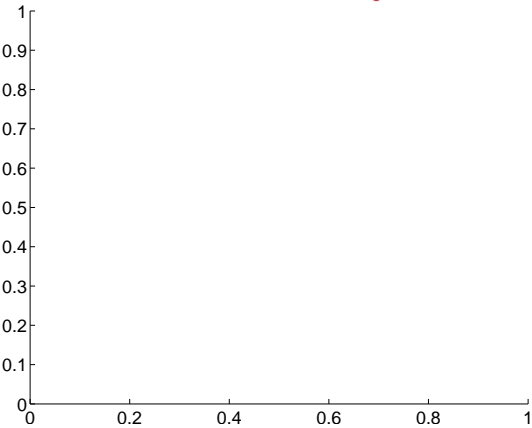
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

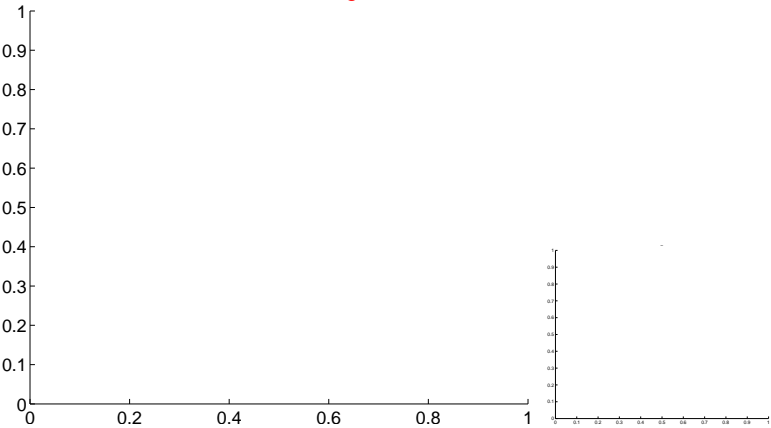


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

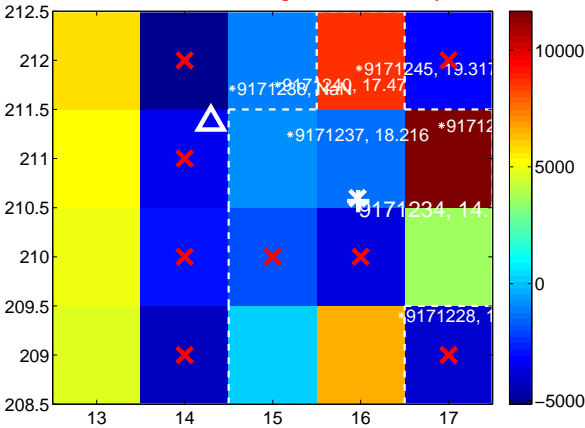
Q5 no difference image



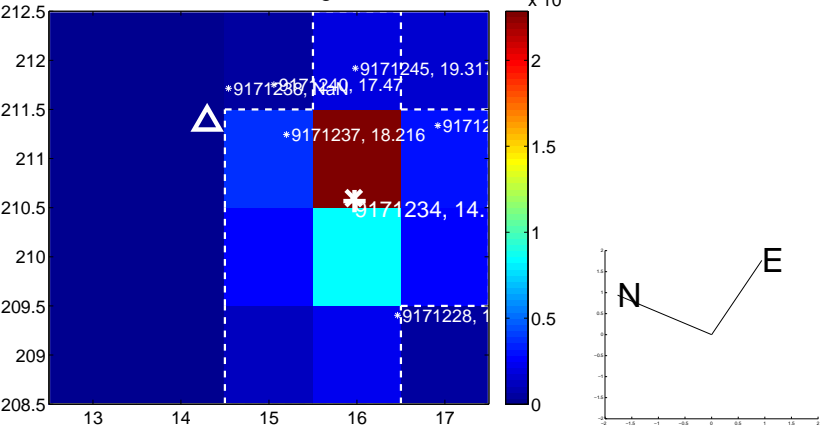
Q5 no OOT image



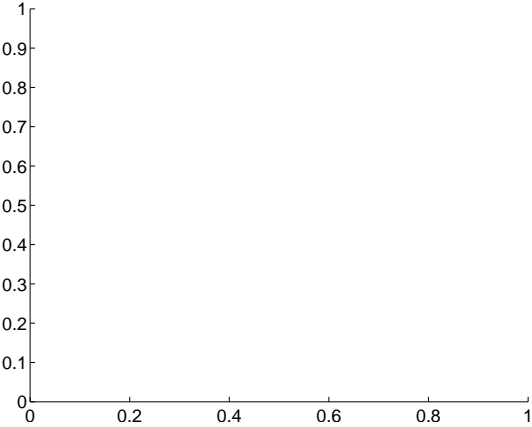
Q6 difference image. Poor Quality



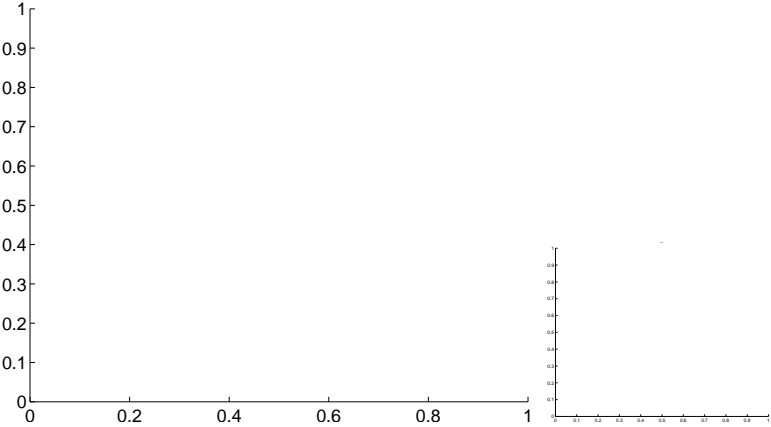
Q6 OOT image



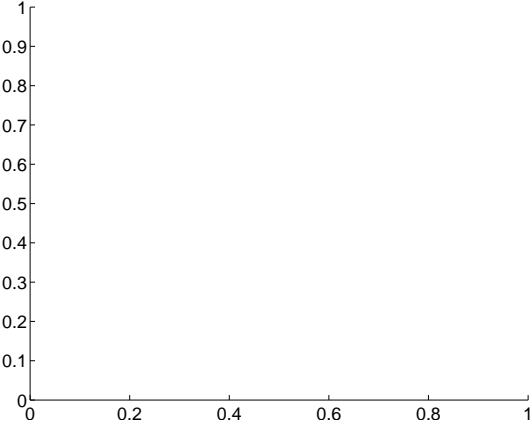
Q7 no difference image



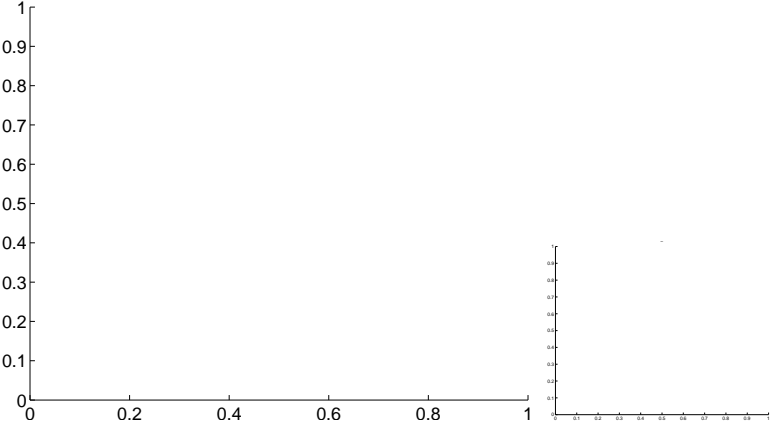
Q7 no OOT image



Q8 no difference image

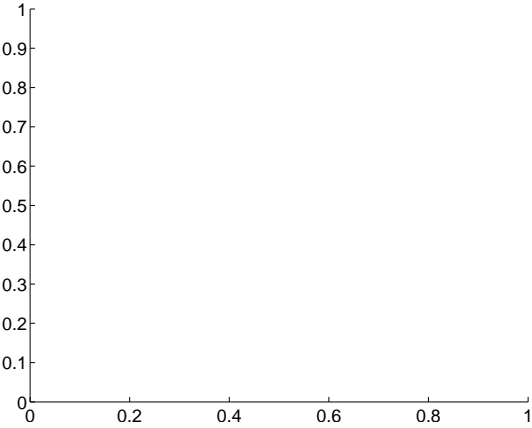


Q8 no OOT image

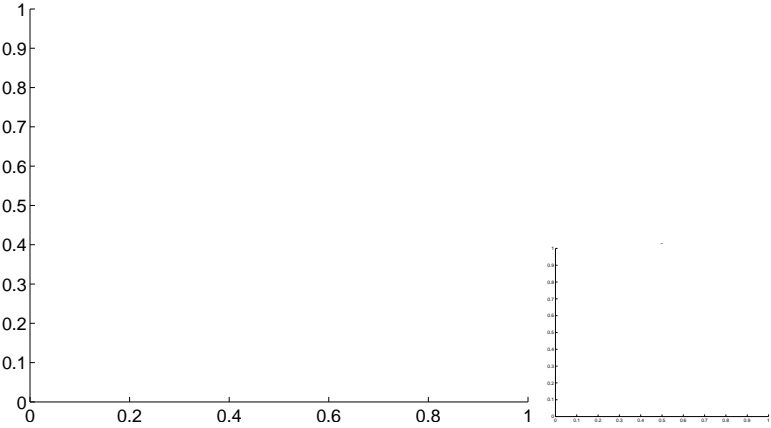


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

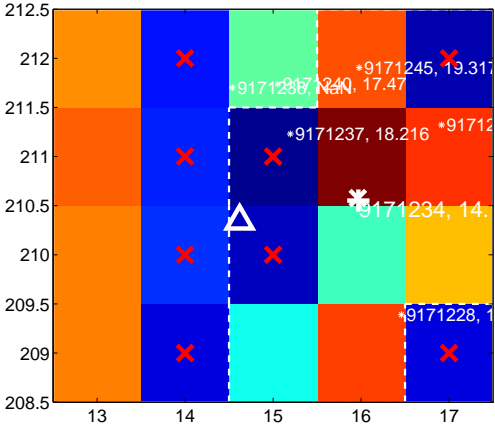
Q9 no difference image



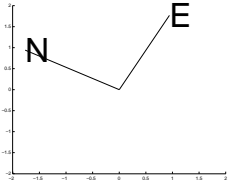
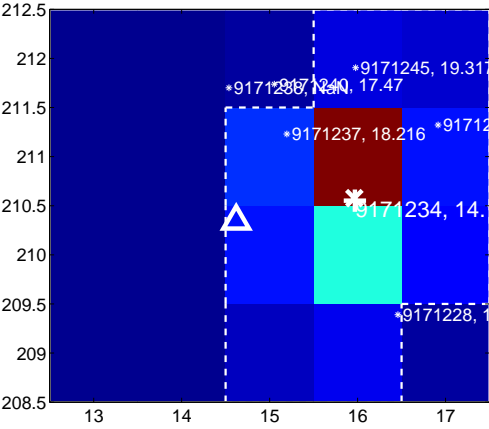
Q9 no OOT image



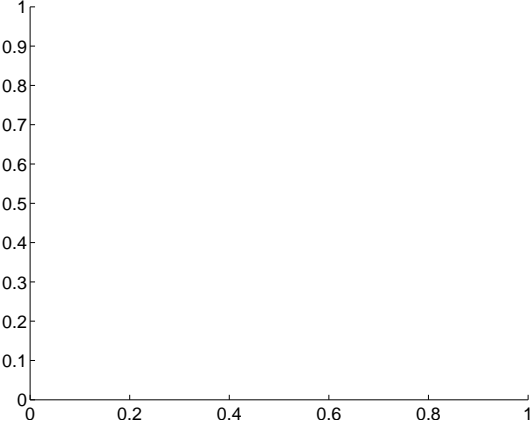
Q10 difference image. Poor Quality



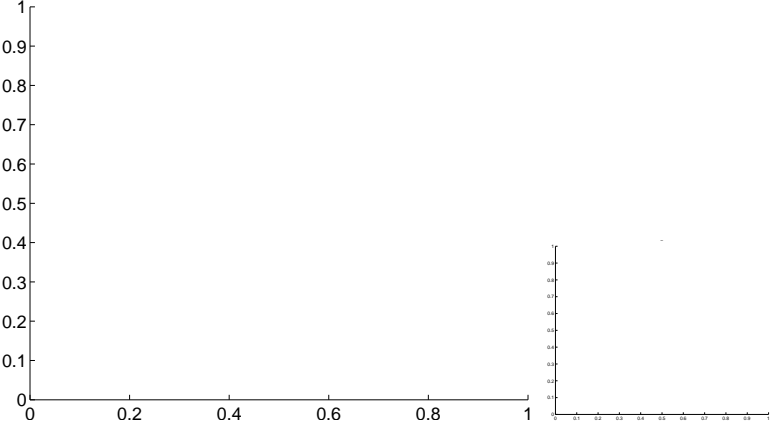
Q10 OOT image



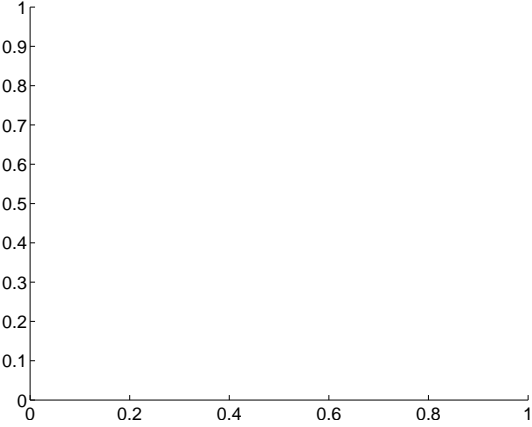
Q11 no difference image



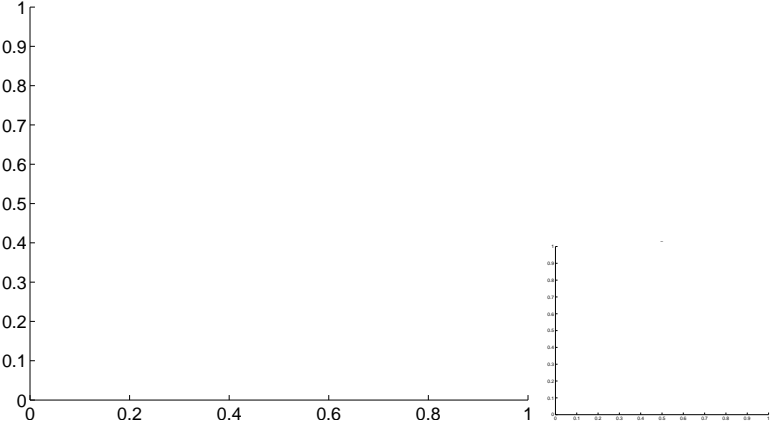
Q11 no OOT image



Q12 no difference image



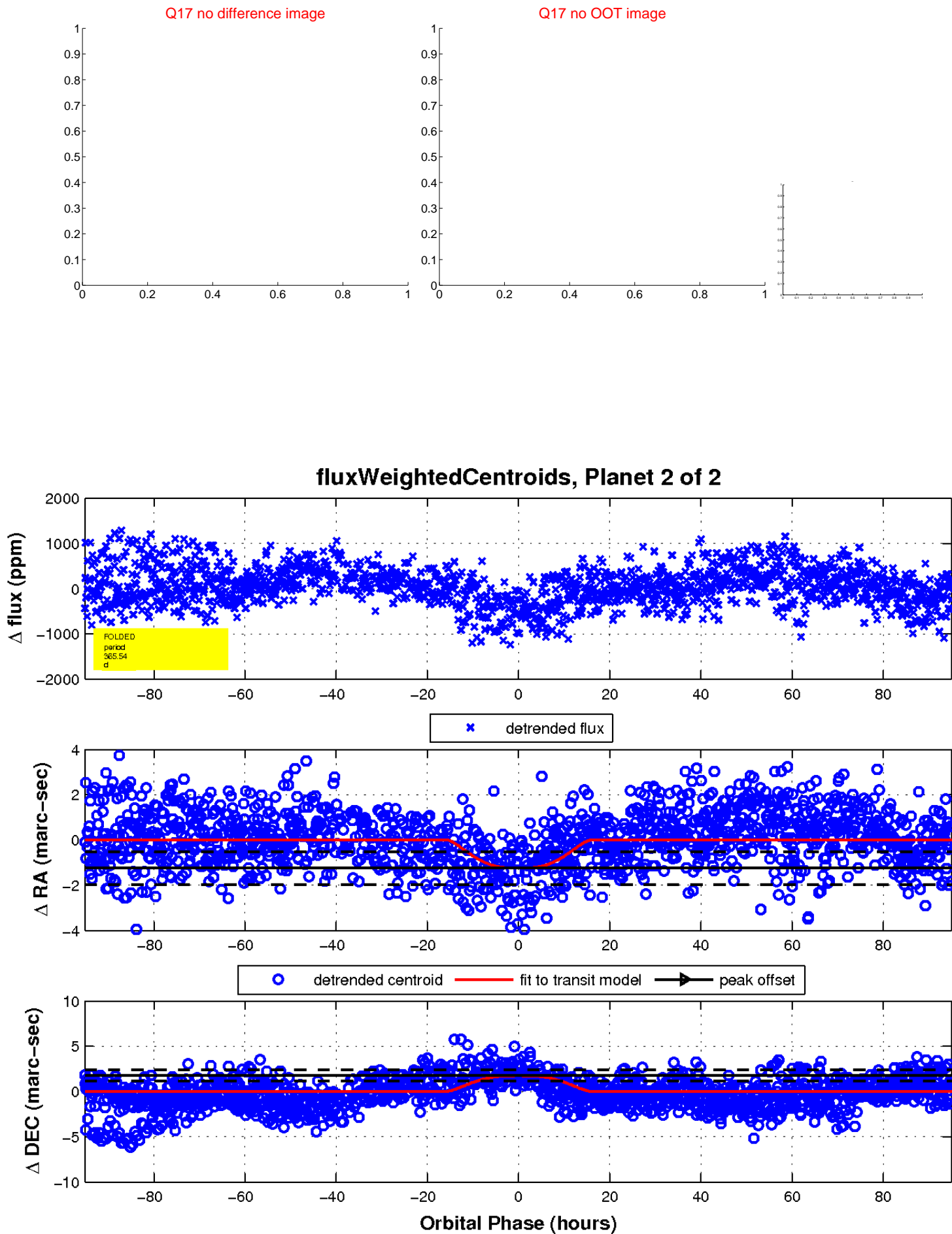
Q12 no OOT image



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.



UKIRT Image

Declination

