

KIC 012106934

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})
012106934-01	OBS	3895.01	5.937178	135.956694	22079.8	5.012	46.5	51.8	1.00	5780	17.27	242.75
012106934-02	OBS	No	5.937174	132.984194	3006.1	4.742	7.3	7.1	1.00	5780	8.65	242.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012106934-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST
012106934-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST

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.

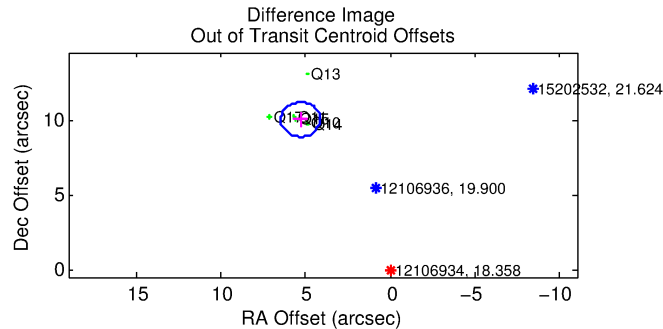
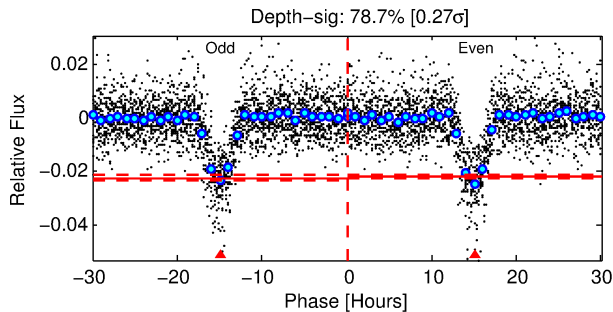
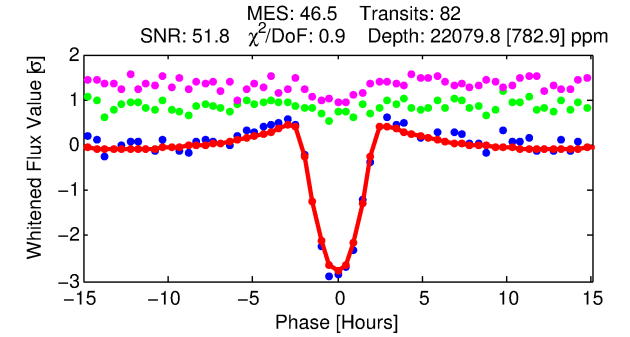
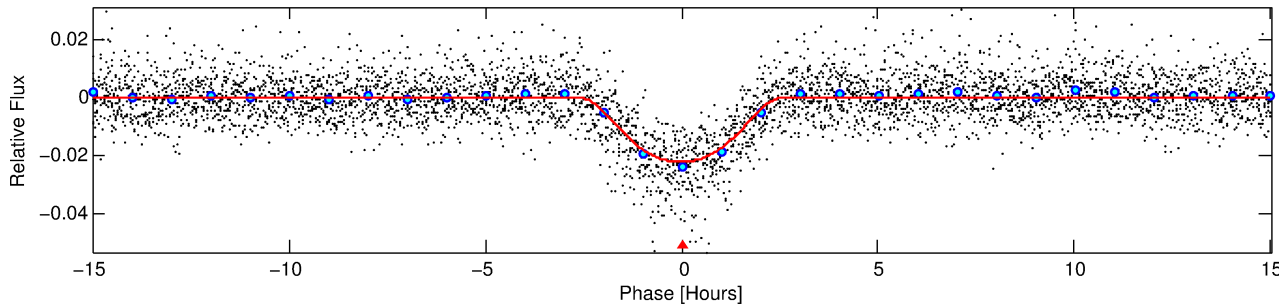
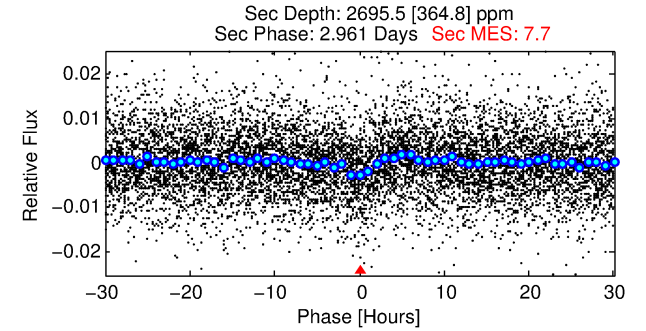
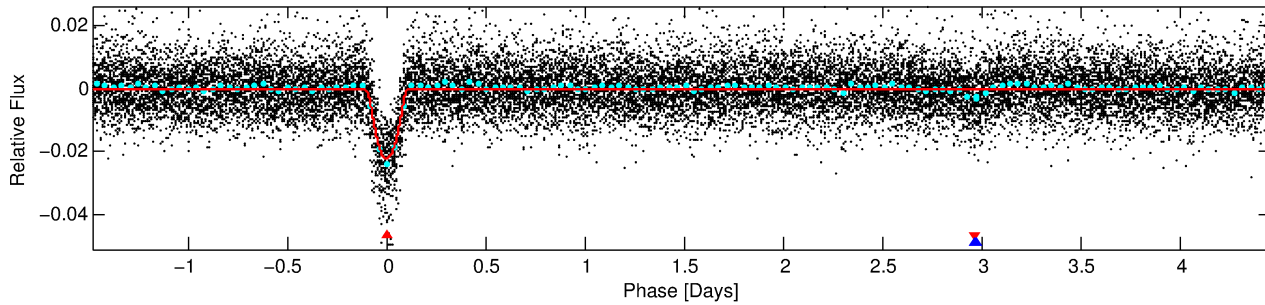
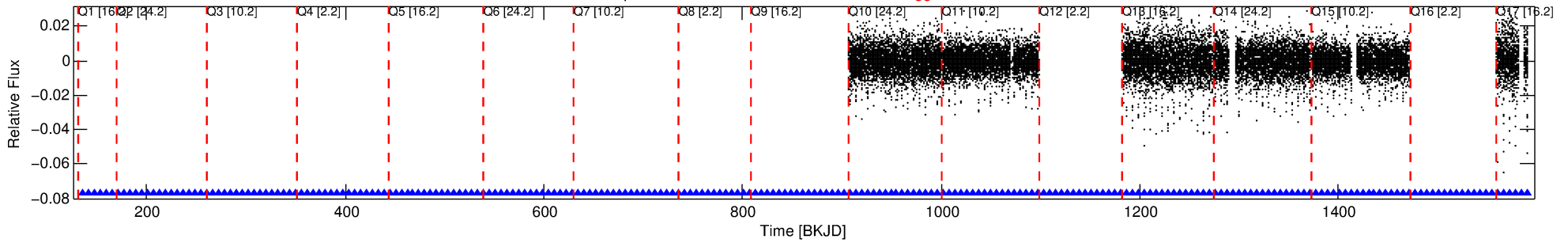
Ephemeris Match Information For 012106934-01

No Significant Match Found

DV One-Page Summary

KIC: 12106934 Candidate: 1 of 2 Period: 5.937 d
KOI: K03895.01 Corr: 0.982

Kp: 18.36 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 5.93718 [0.00003] d
Epoch = 135.9567 [0.0046] BKJD
Rp/R* = 0.1583 [0.0080]
a/R* = 7.21 [0.35]
b = 0.85 [0.03]
Seff = 242.75 [0.00]
Teq = 1007 [0] K
Rp = 17.28 [0.88] Re
a = 0.0642 [0.0000] AU
Ag = 20.47 [3.46] [5.62σ]
Teffp = 3310 [140] K [16.46σ]

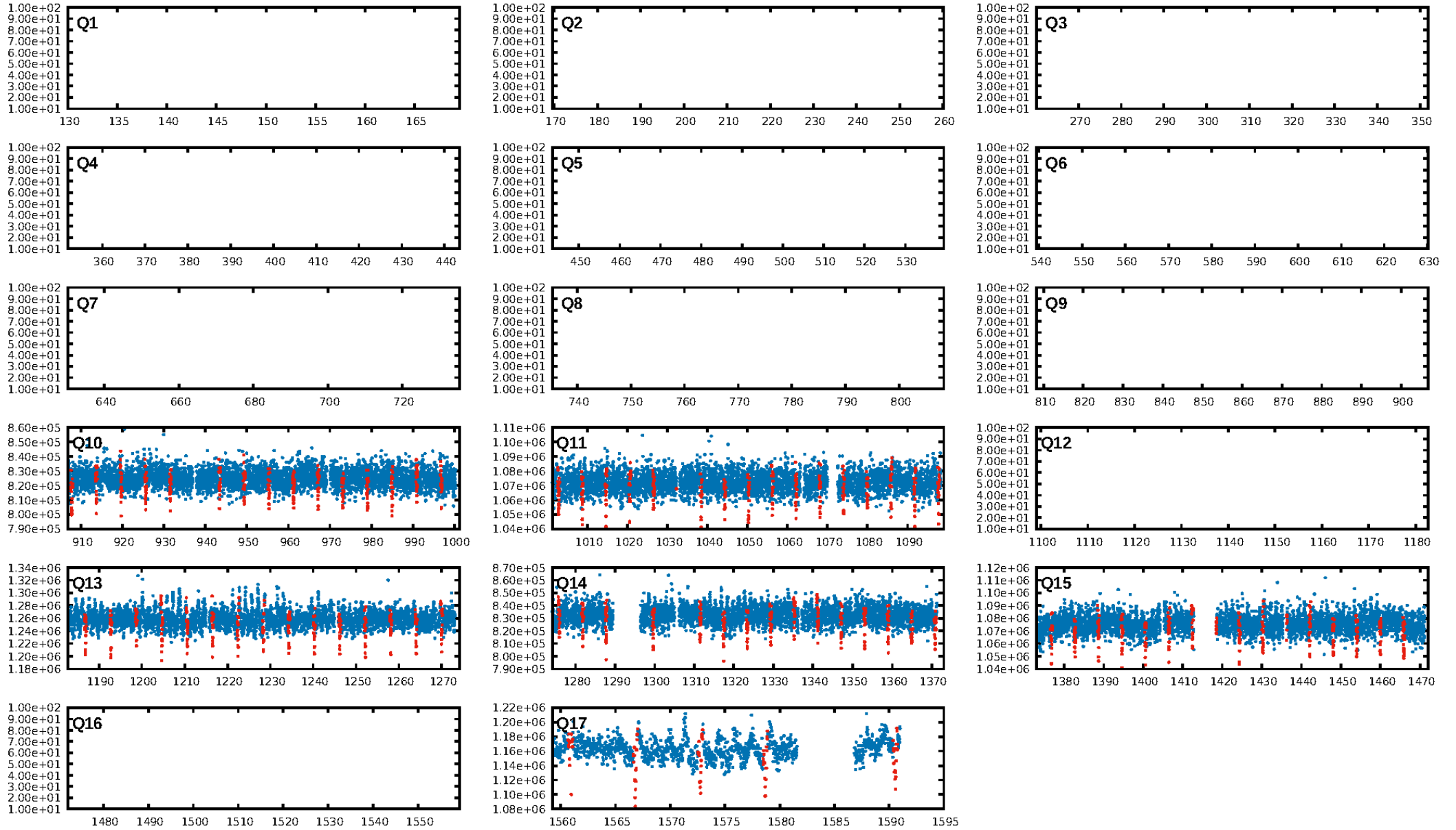
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [77/77]
GhostDiagnostic-chr: 0.09488
Centroid-sig: 0.0%
Centroid-so: 3.872 arcsec [60.54σ]
OotOffset-rm: 11.340 arcsec [29.37σ]
KicOffset-rm: 0.306 arcsec [0.79σ]
OotOffset-st: 2/2/0/2 [6]
KicOffset-st: 2/2/0/2 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 1.00 [6/6]

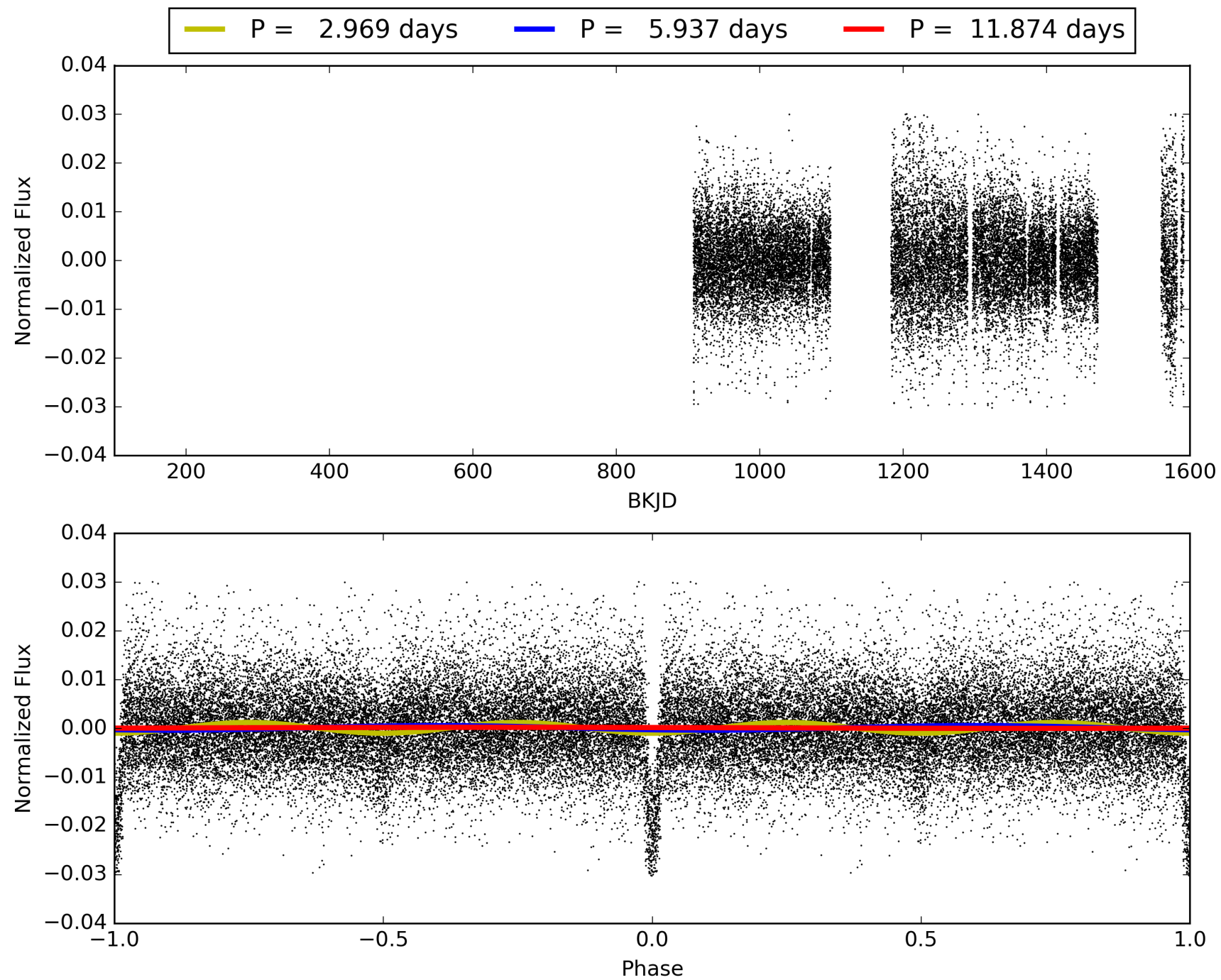
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:37:45 Z

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

TCE 012106934-01, PDC Light Curves

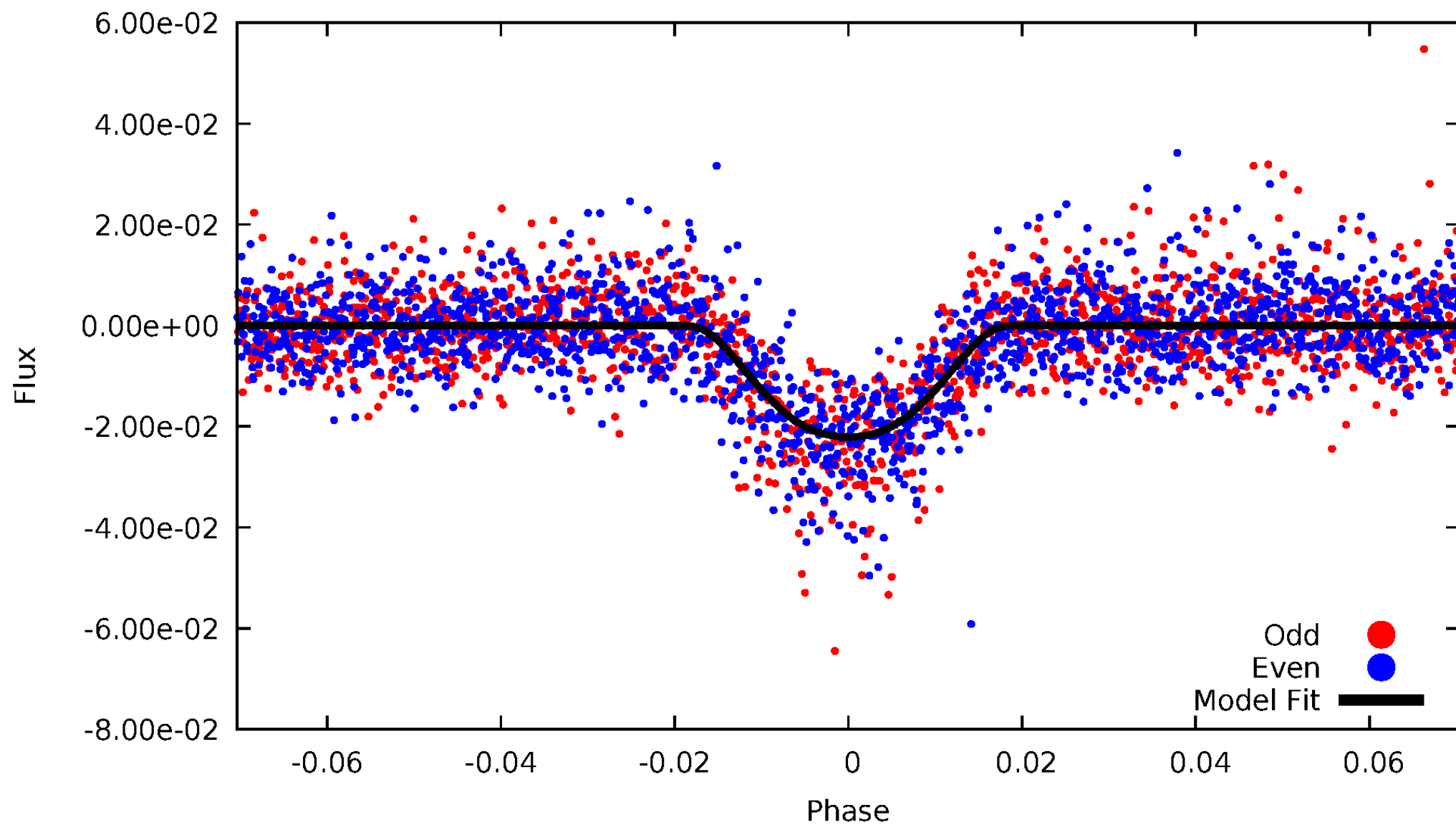


TCE 012106934-01



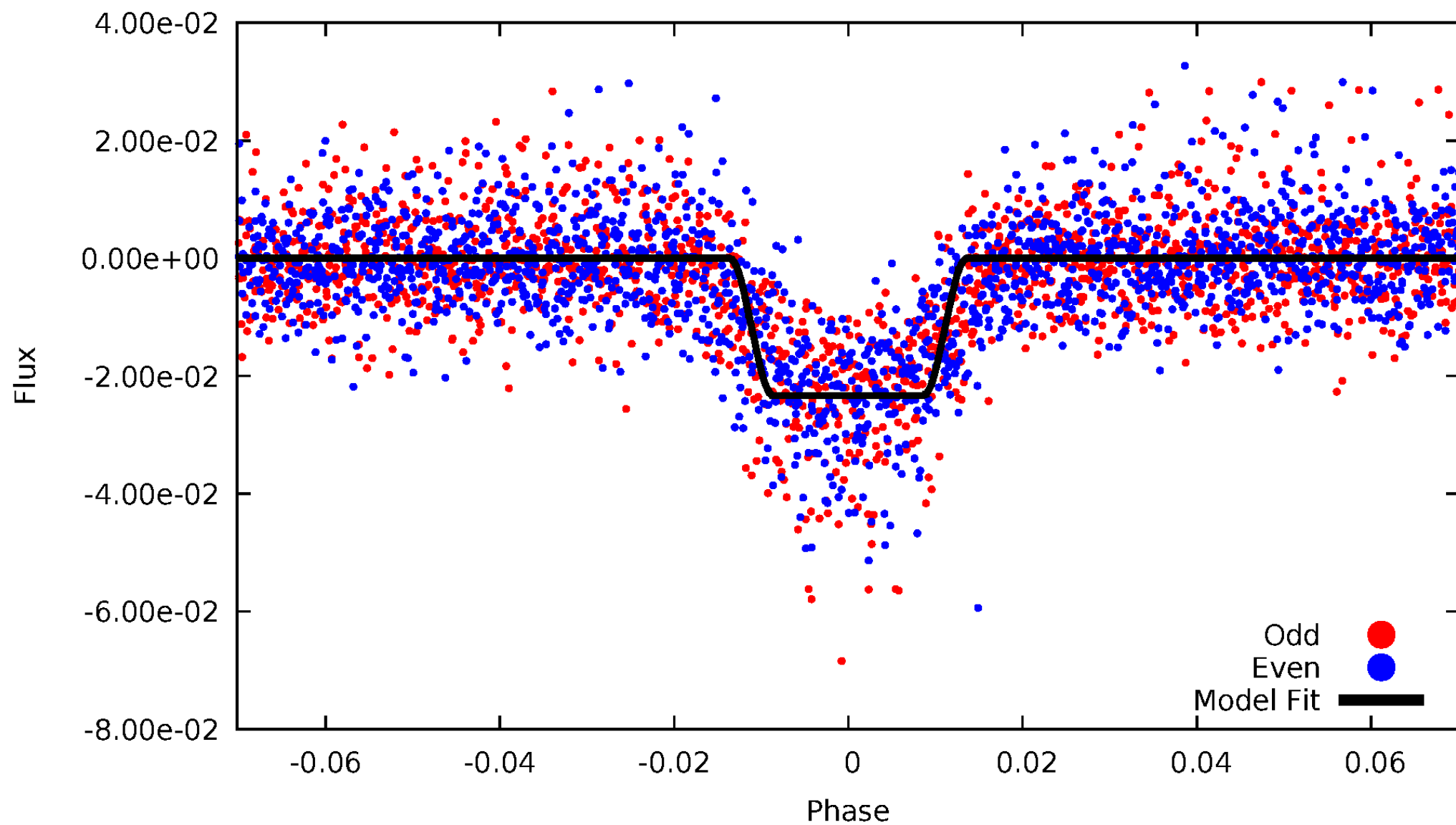
DV Odd/Even

TCE 012106934-01



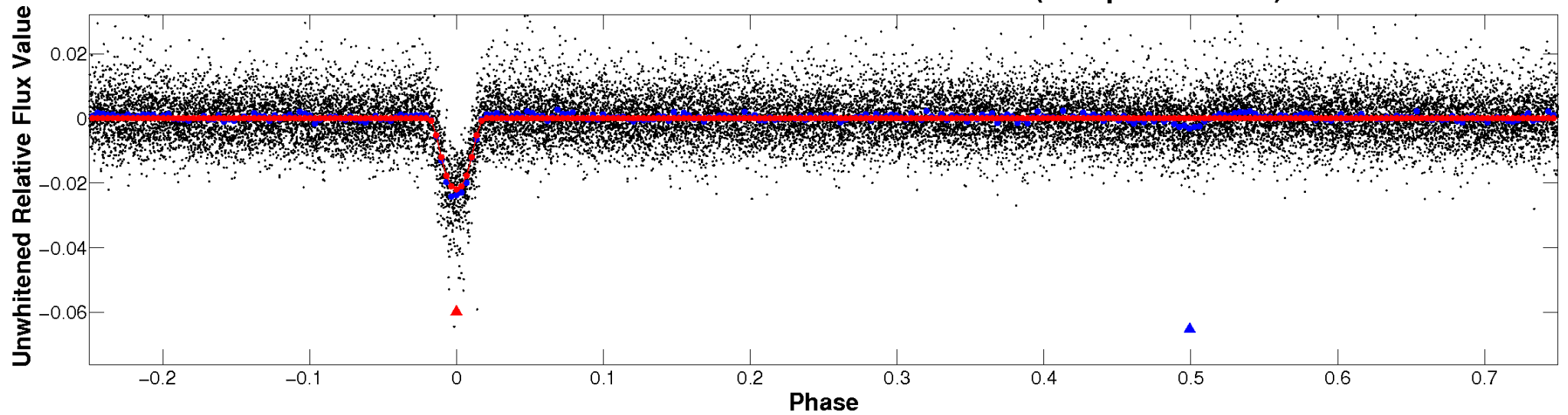
ALT Odd/Even

TCE 012106934-01

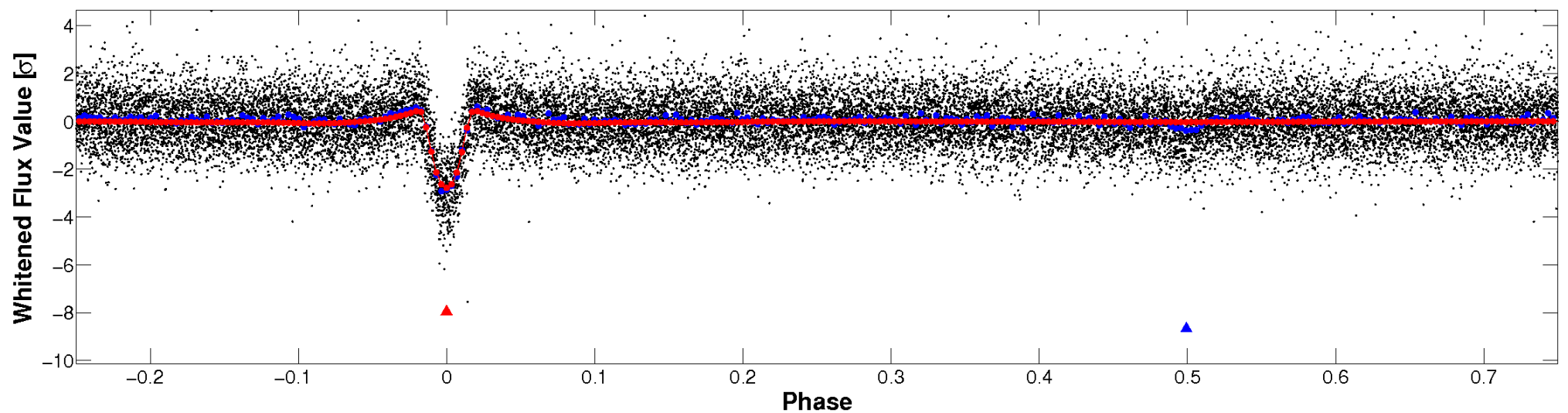


Non-Whitened Vs. Whitened Light Curve

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

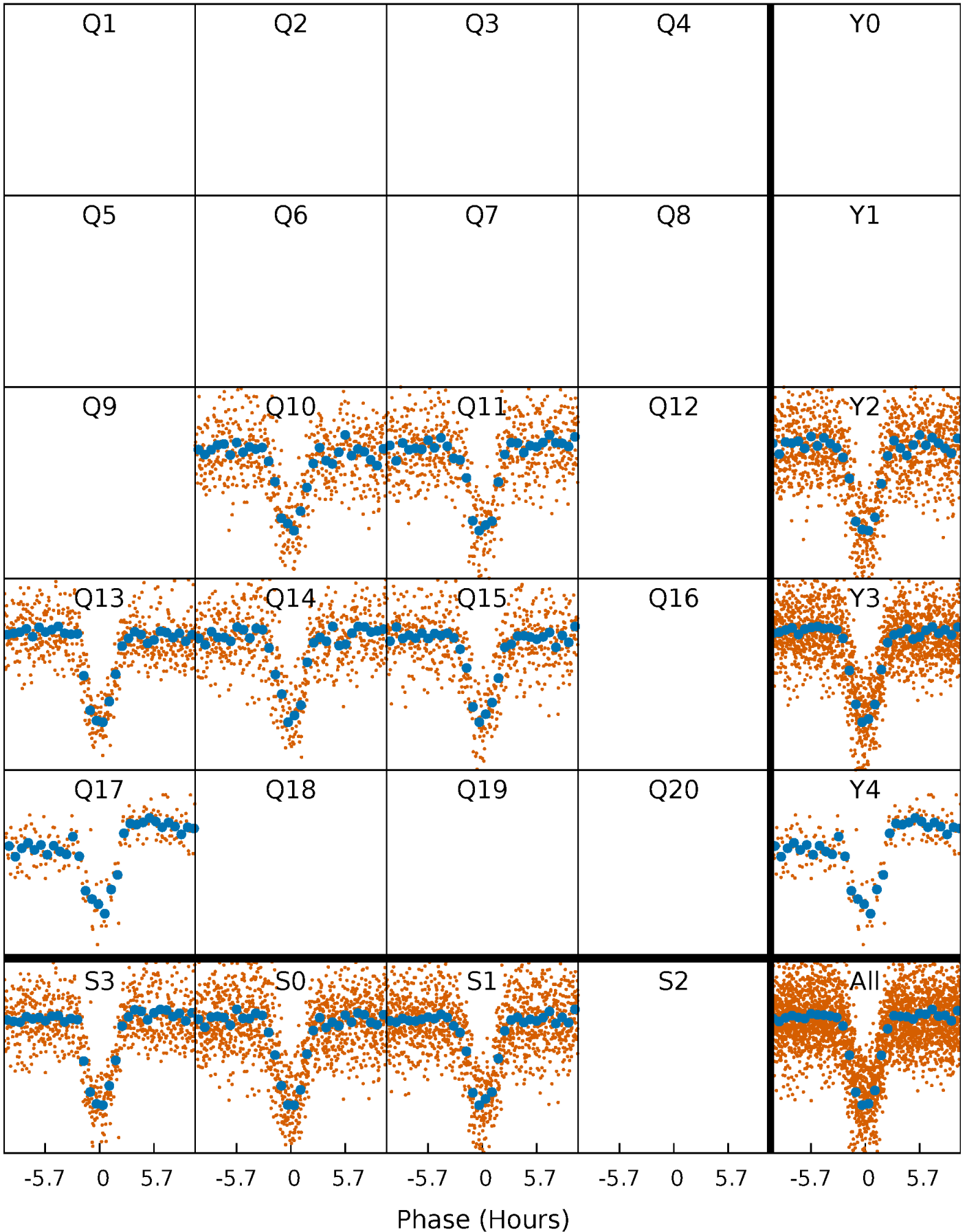


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



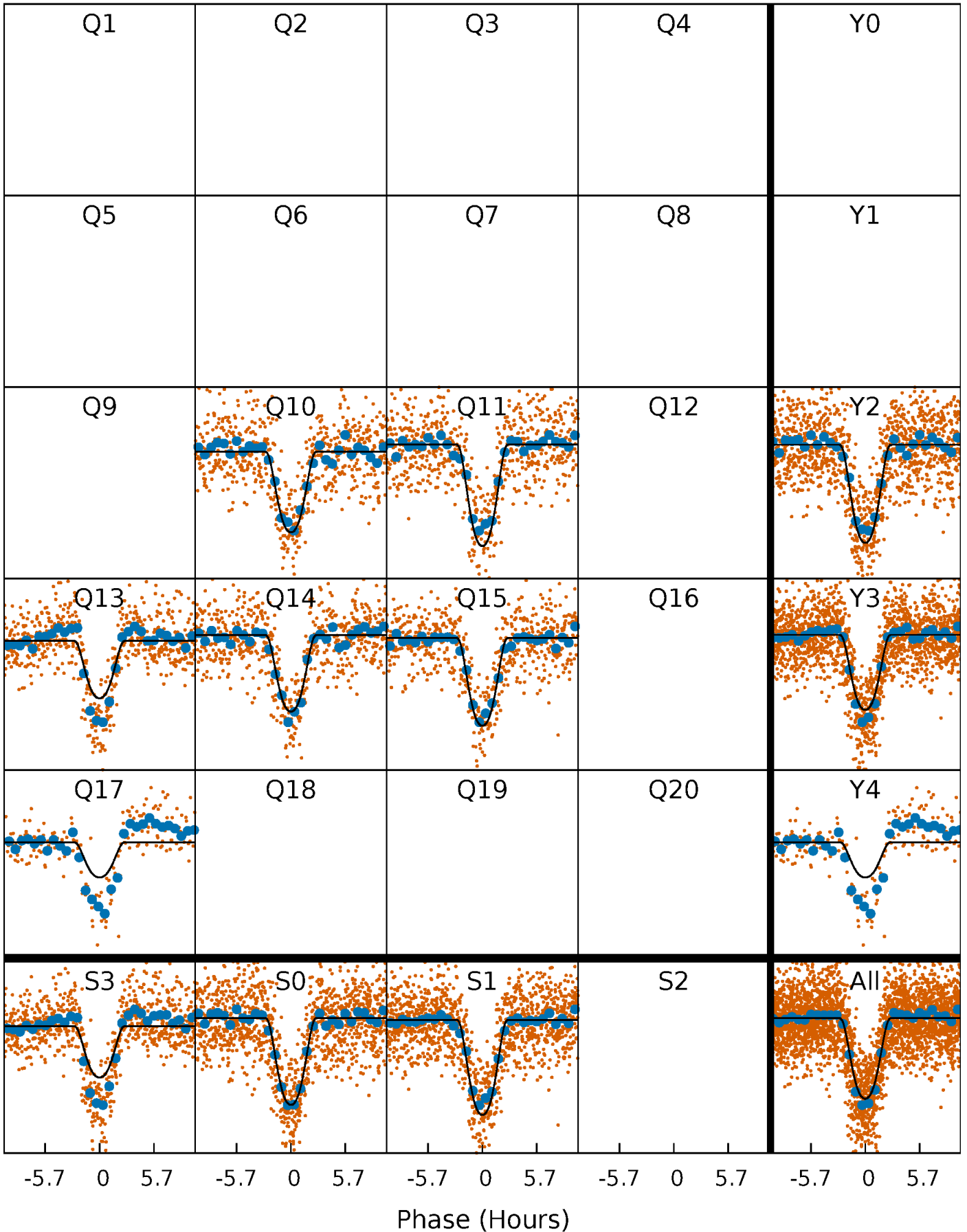
PDC Quarter-Phased Transit Curves

TCE 012106934-01 P= 5.937178 Days $T_0=135.956694$ (BKJD)



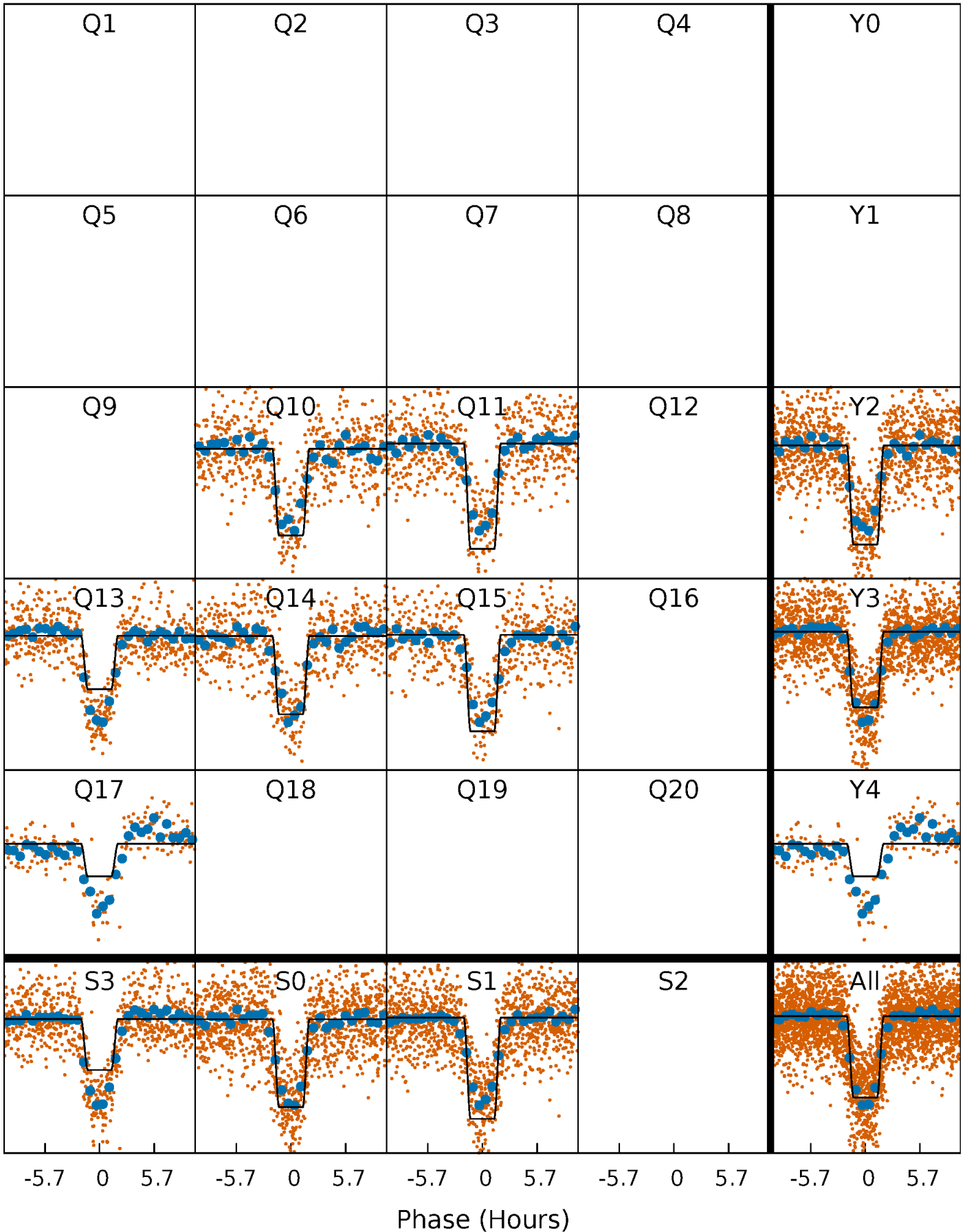
DV Quarter-Phased Transit Curves

TCE 012106934-01 P= 5.937178 Days $T_0=135.956694$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

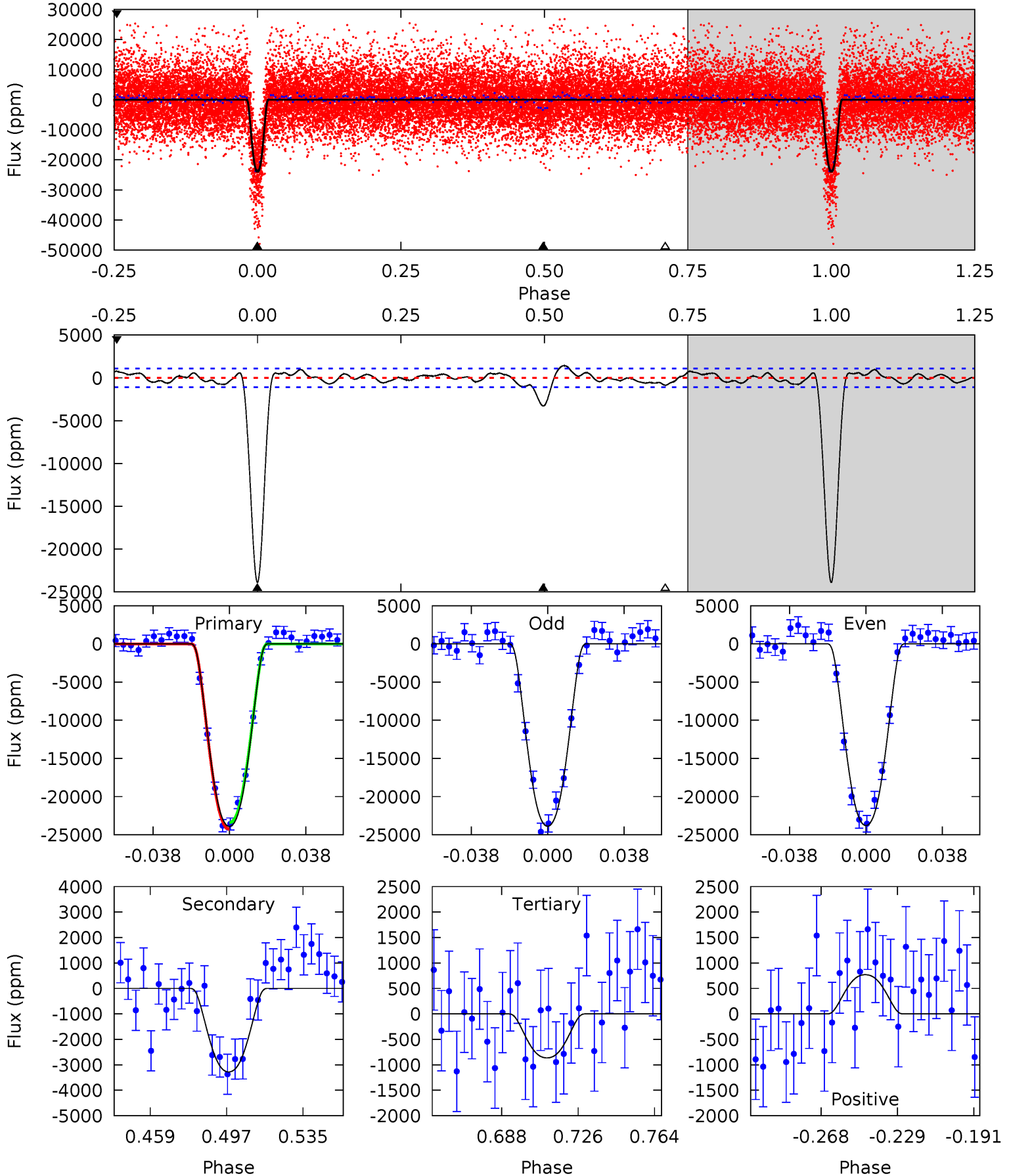
TCE 012106934-01 P= 5.937095 Days $T_0=135.972061$ (BKJD)



DV Model-Shift Uniqueness Test

012106934-01, P = 5.937178 Days, E = 135.956694 Days

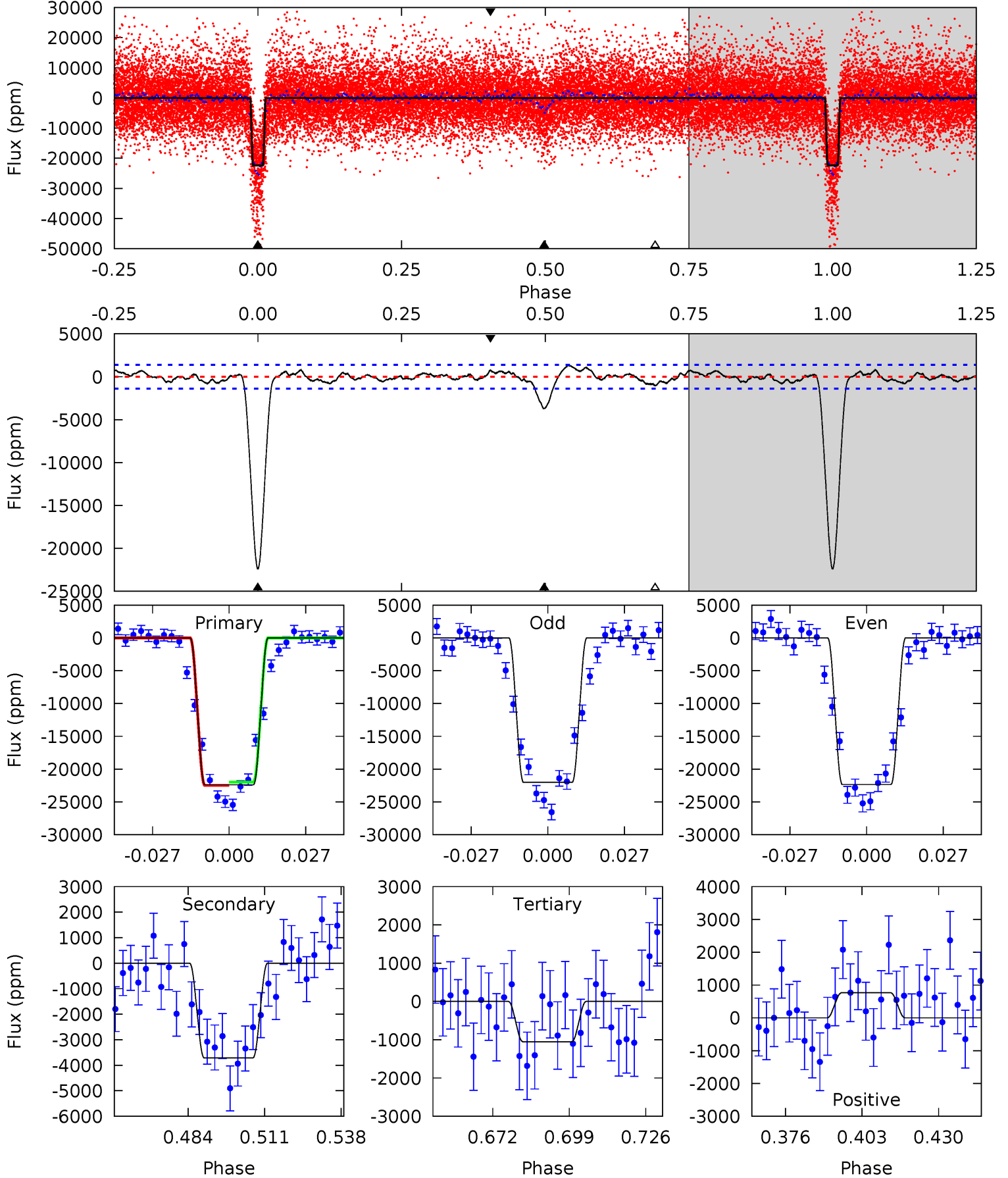
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.7	14.2	3.75	3.34	4.76	2.07	1.88	100.0	100.4	10.5	10.9	0.19	1.08	0.06	1.86



Alt Model-Shift Uniqueness Test

012106934-01, P = 5.937095 Days, E = 135.972061 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.0	12.9	3.66	2.67	4.83	2.21	1.54	74.3	75.3	9.27	10.3	0.58	1.14	0.06	0.84



Stellar Parameters For KIC 012106934

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 012106934-01 / KOI 3895.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3279 ± 230	$17.29^{+1.48}_{-1.50}$	1404^{+70}_{-68}	3828^{+138}_{-125}	25^{+5}_{-4}
Alt.	-3713 ± 287	$16.61^{+1.64}_{-1.34}$	1406^{+64}_{-64}	3970^{+146}_{-136}	31^{+6}_{-6}

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

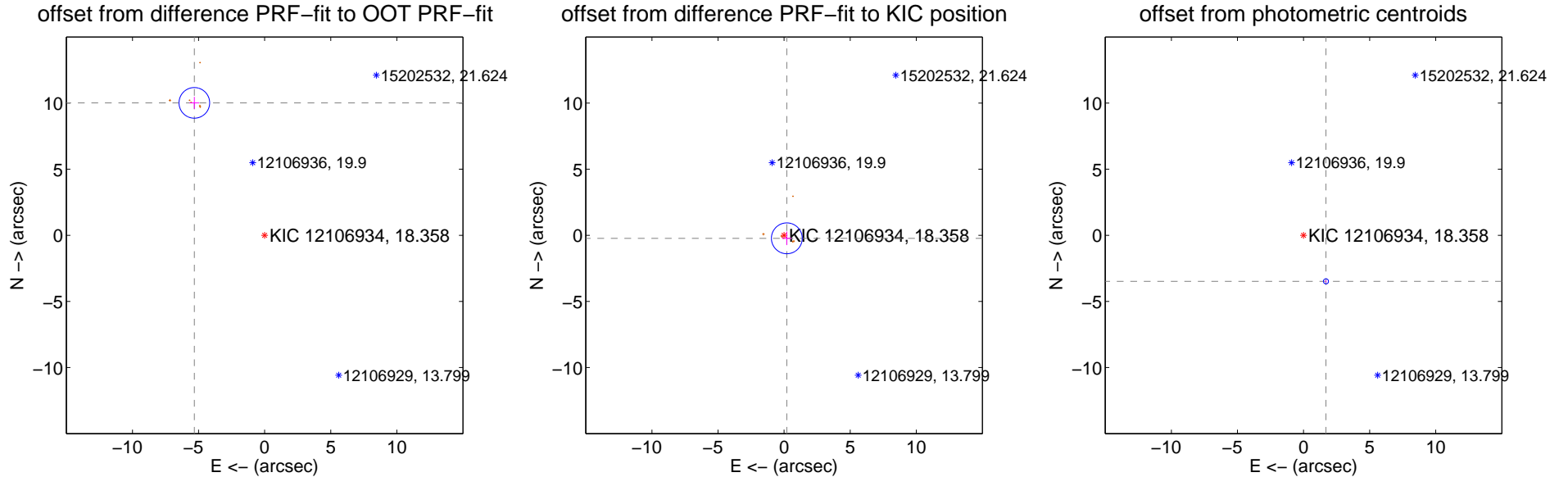
DV Centroid Data

Supplemental centroid analysis for 012106934-01. Kepler magnitude: 18.36. Transit SNR 51.79

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 11.57 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.340 ± 0.386	29.37	5.321 ± 0.360	10.014 ± 0.454
PRF-fit source offset from KIC position	0.306 ± 0.389	0.79	-0.205 ± 0.348	-0.228 ± 0.516
photometric centroid source offset	3.87 ± 0.06	60.54	-1.69 ± 0.04	-3.48 ± 0.07



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

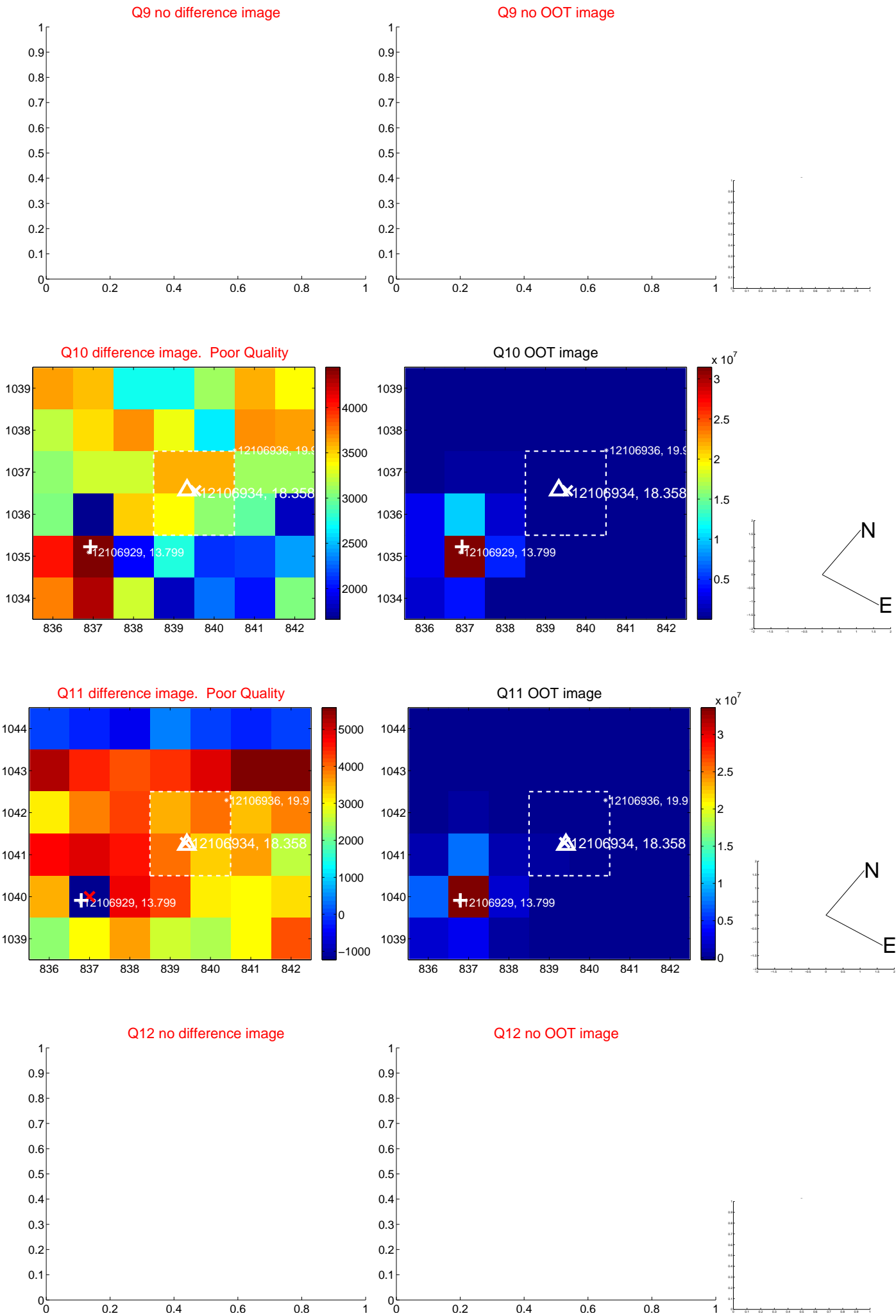
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



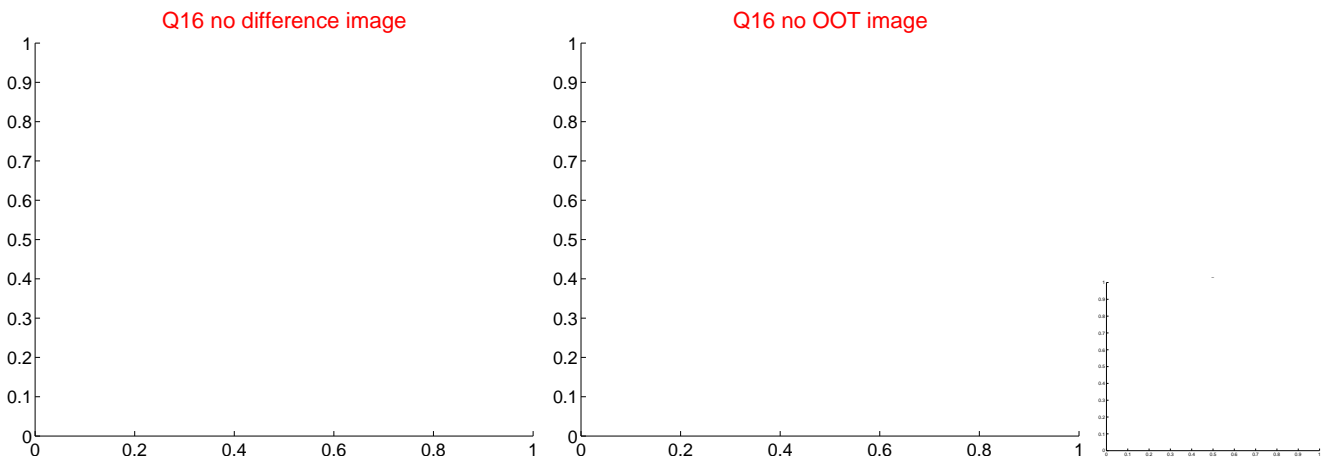
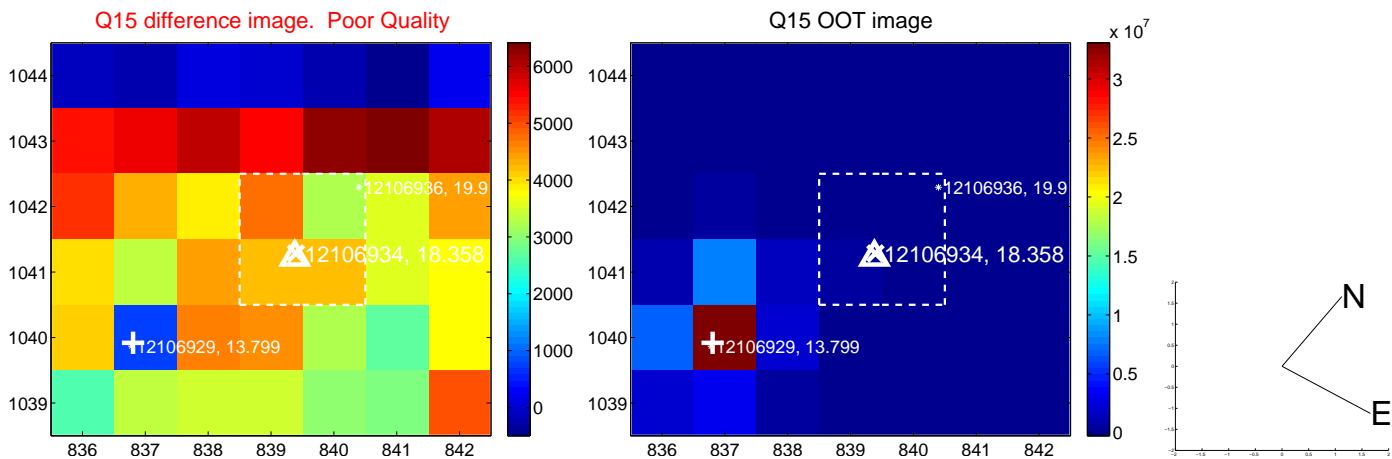
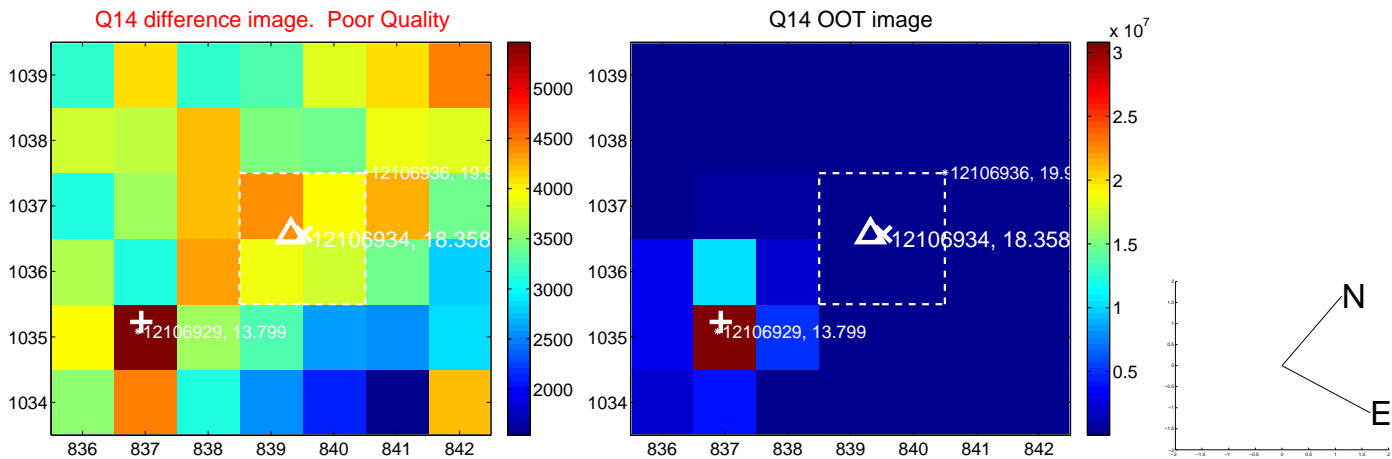
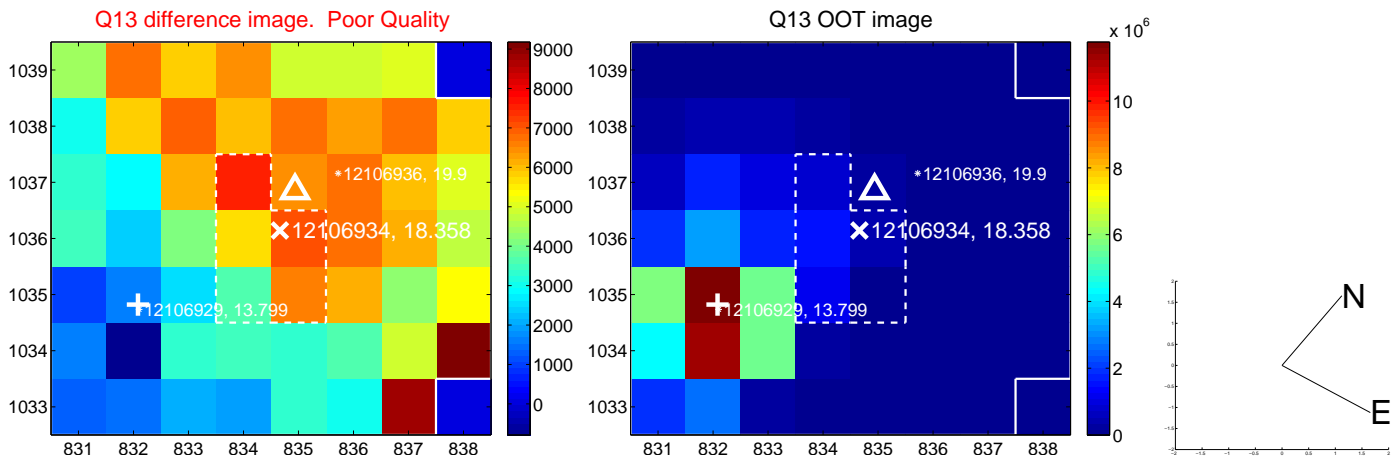
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



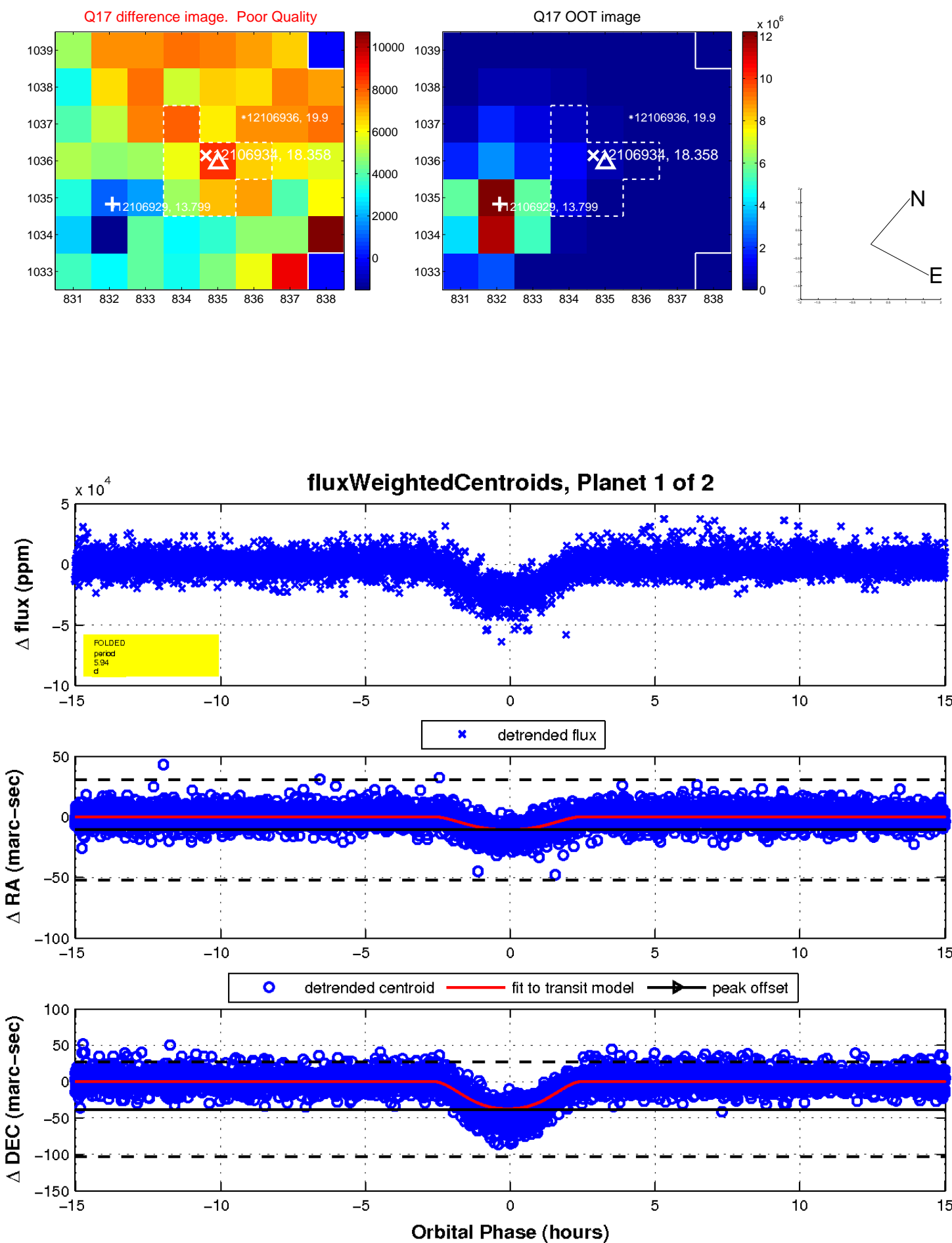
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

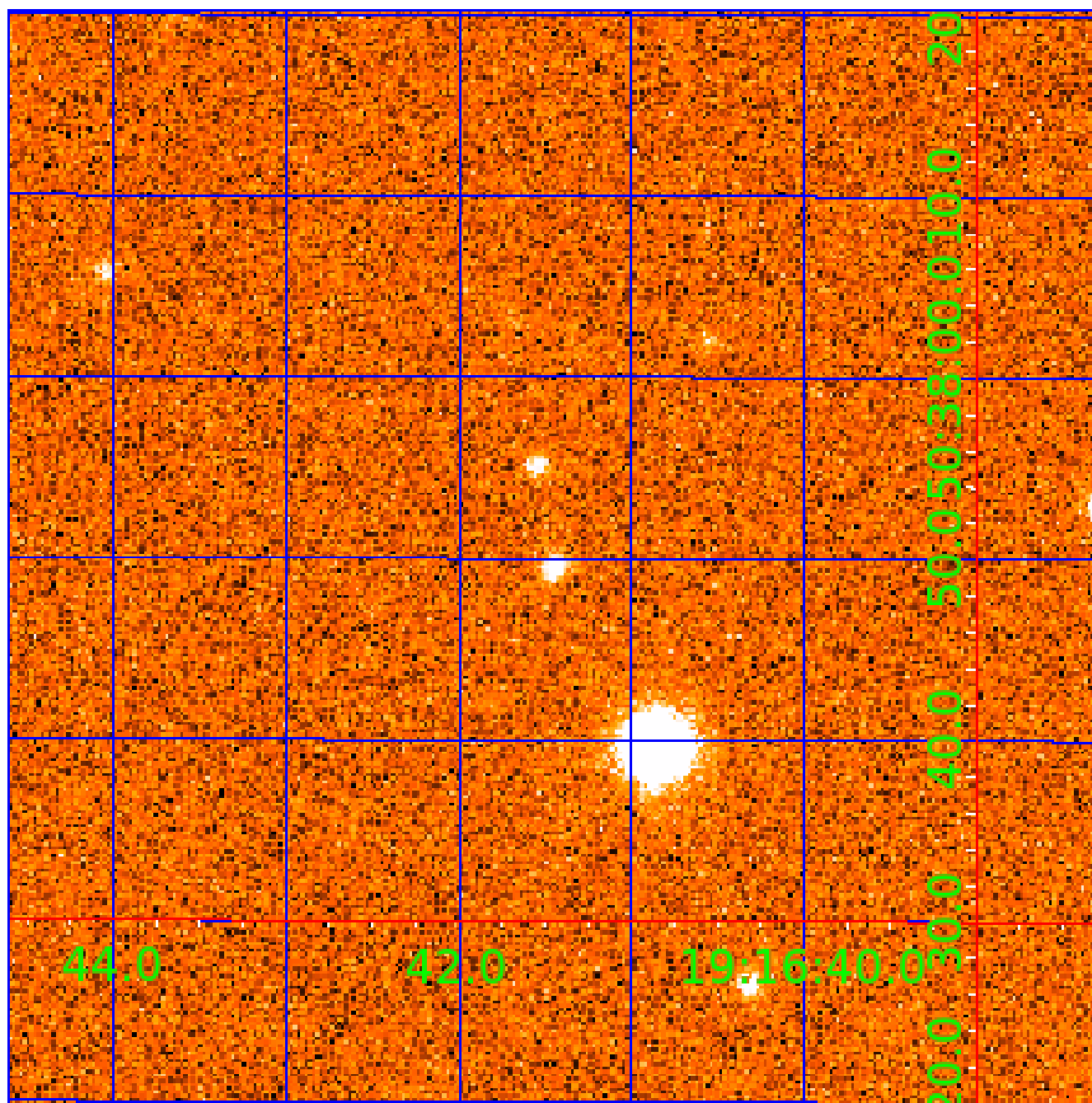


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012106934

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})
012106934-01	OBS	3895.01	5.937178	135.956694	22079.8	5.012	46.5	51.8	1.00	5780	17.27	242.75
012106934-02	OBS	No	5.937174	132.984194	3006.1	4.742	7.3	7.1	1.00	5780	8.65	242.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012106934-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST
012106934-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_FEW_DIFFS—HALO_GHOST

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 012106934-02

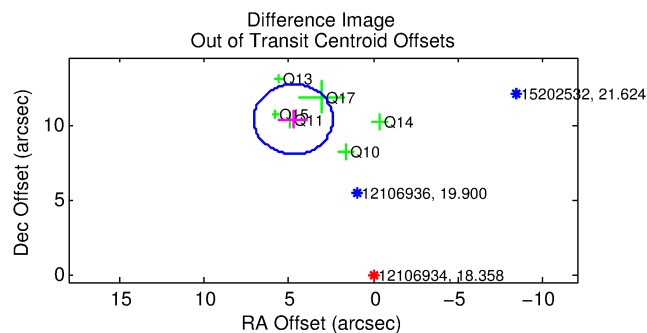
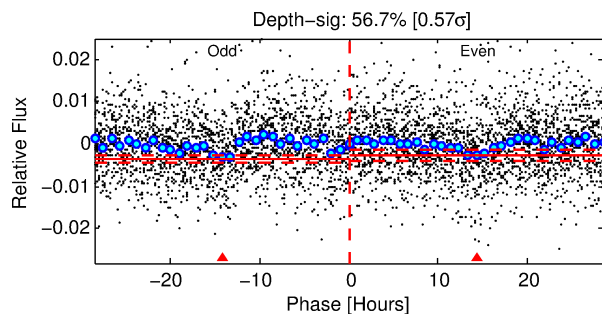
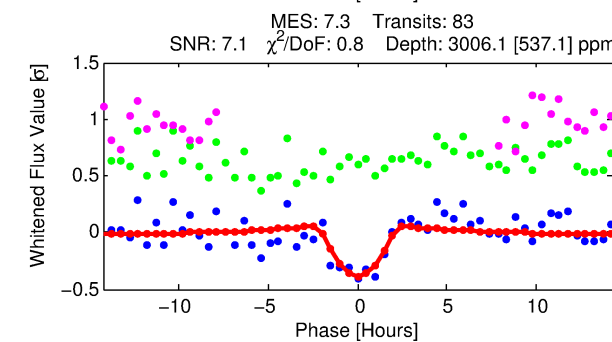
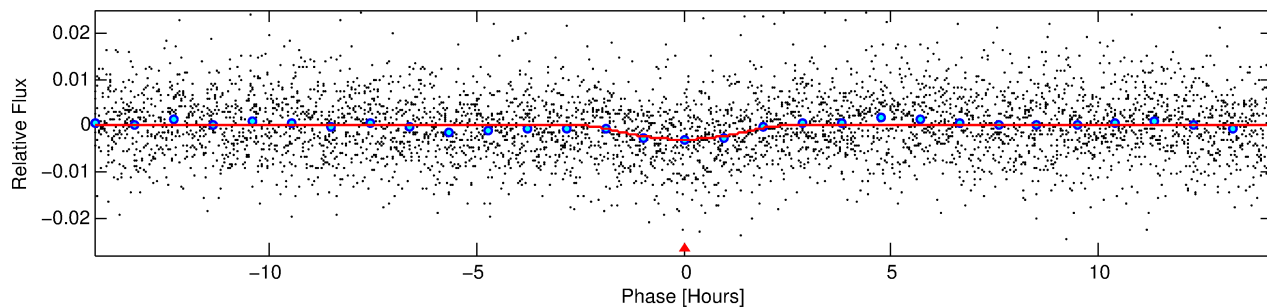
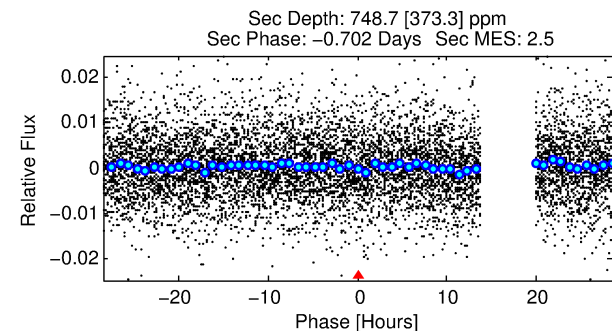
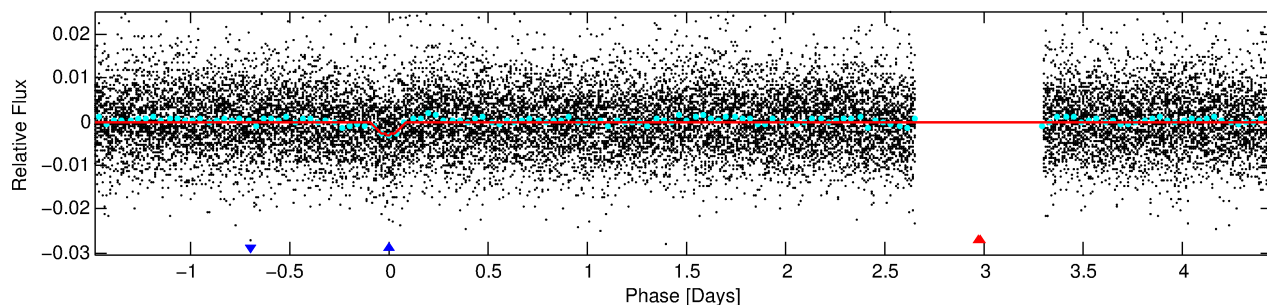
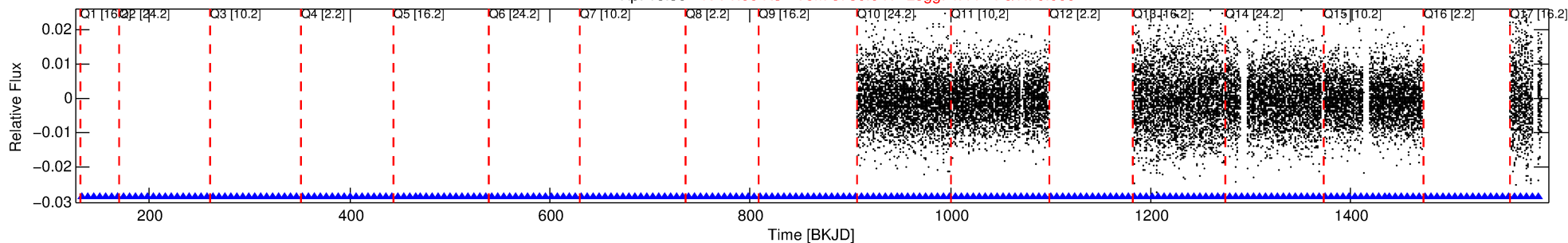
No Significant Match Found

DV One-Page Summary

KIC: 12106934 Candidate: 2 of 2 Period: 5.937 d

KOI: K03895 Corr: No Ephemeris Match

Kp: 18.36 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 5.93717 [0.00018] d
Epoch = 132.9842 [0.0322] BKJD
Rp/R* = 0.0792 [0.2299]
a/R* = 4.53 [3.76]
b = 0.98 [0.40]
Seff = 242.75 [0.01]
Teq = 1007 [0] K
Rp = 8.65 [25.08] Re
a = 0.0642 [0.0000] AU
Ag = 22.69 [132.14] [0.16σ]
Teffp = 3396 [4944] K [0.48σ]

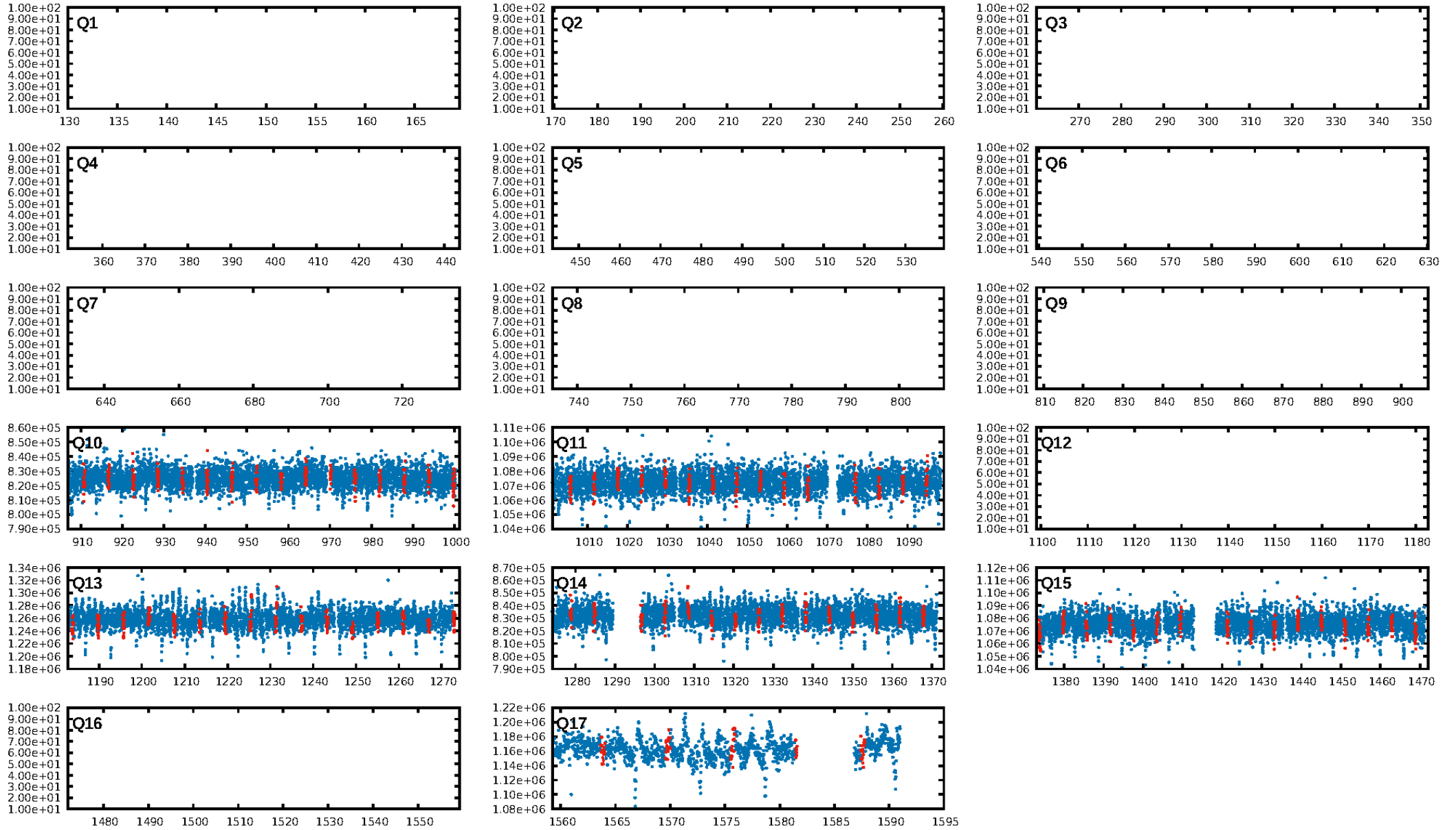
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 97.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.76e-13
RollingBand-fgt: 1.00 [78/78]
GhostDiagnostic-chr: 0.01333
Centroid-sig: 0.0%
Centroid-so: 3.219 arcsec [7.11σ]
OotOffset-rm: 11.398 arcsec [14.63σ]
KicOffset-rm: 0.793 arcsec [0.83σ]
OotOffset-st: 2/2/0/2 [6]
KicOffset-st: 2/2/0/2 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 1.00 [6/6]

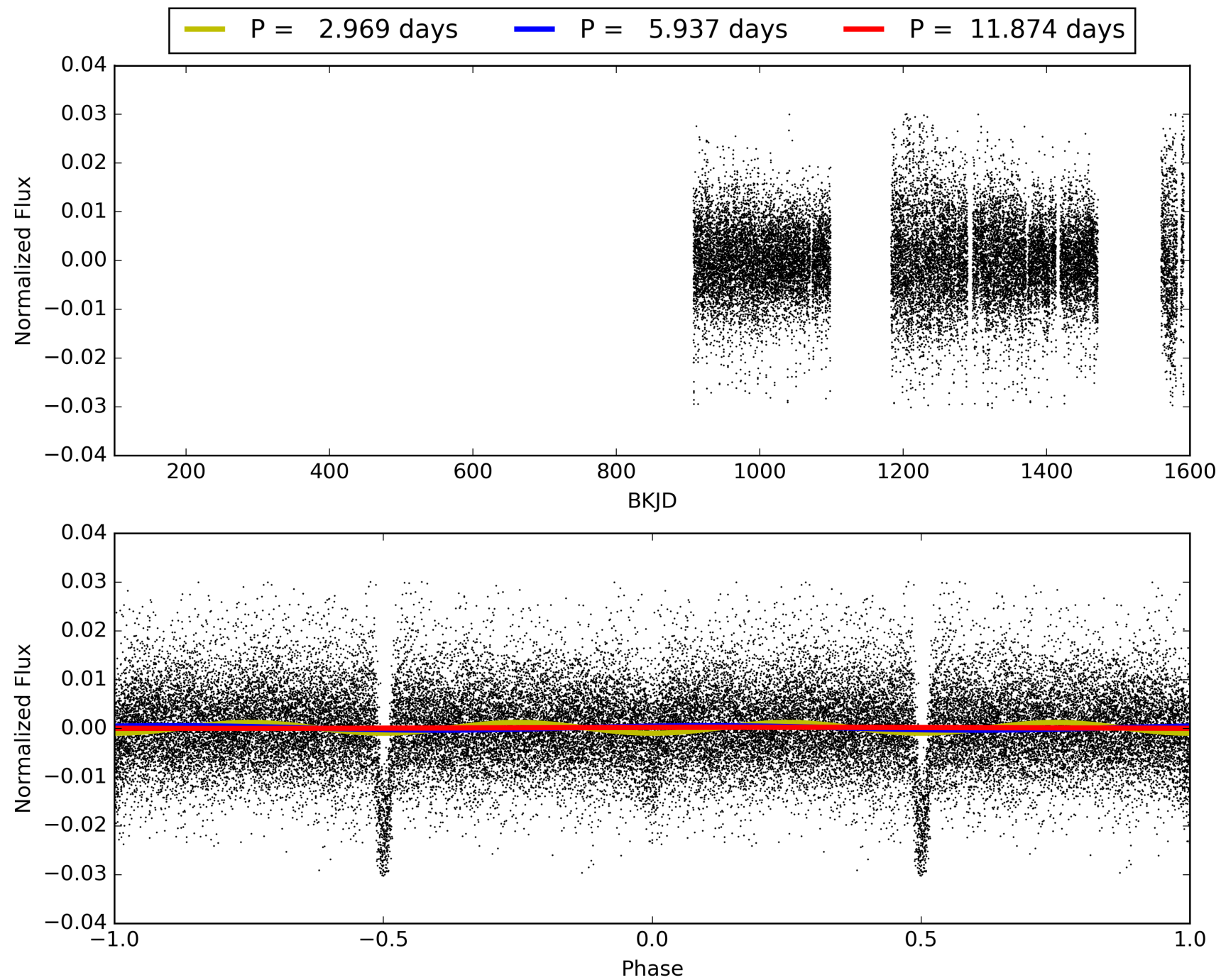
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:37:50 Z

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

TCE 012106934-02, PDC Light Curves

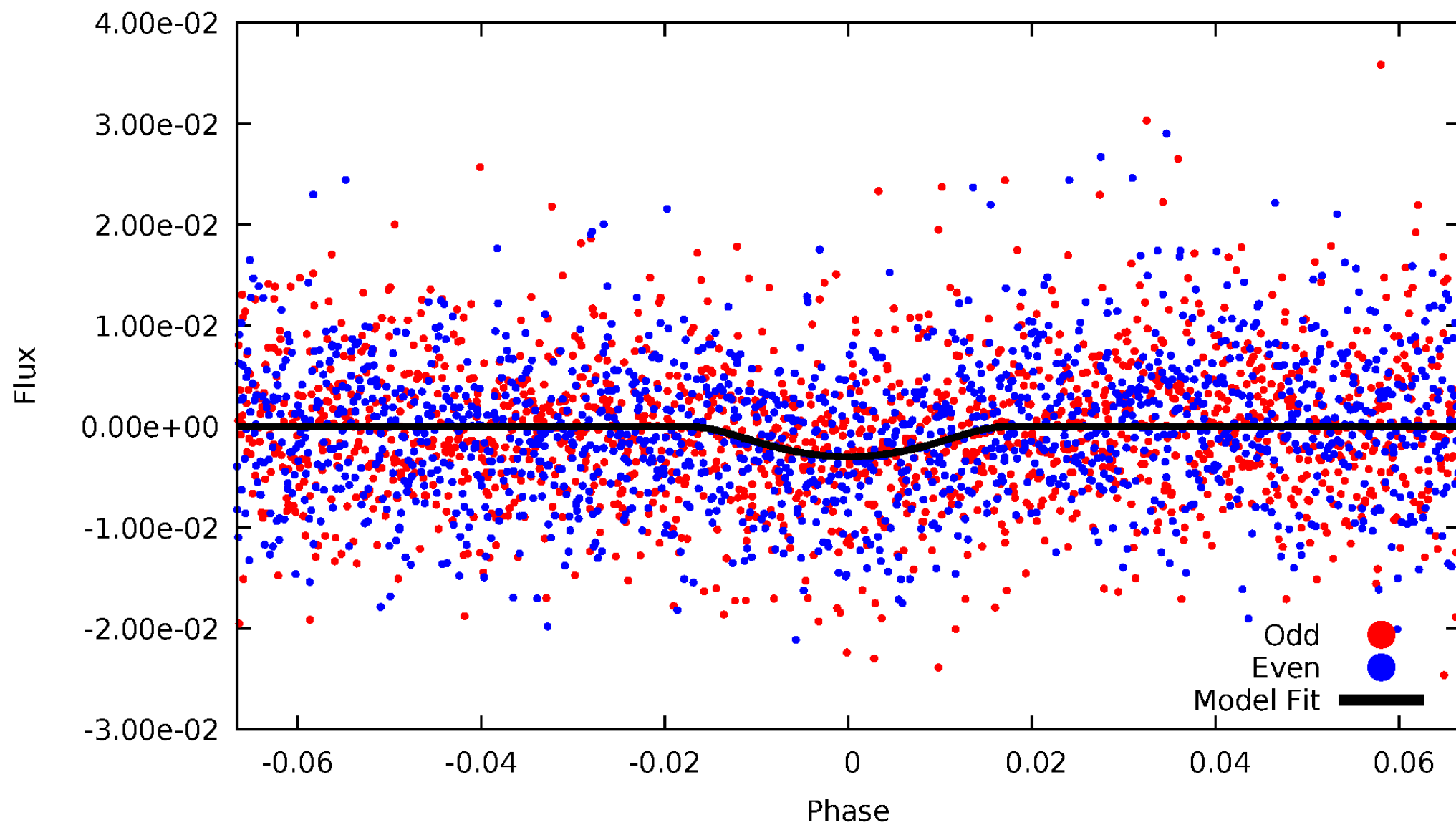


TCE 012106934-02



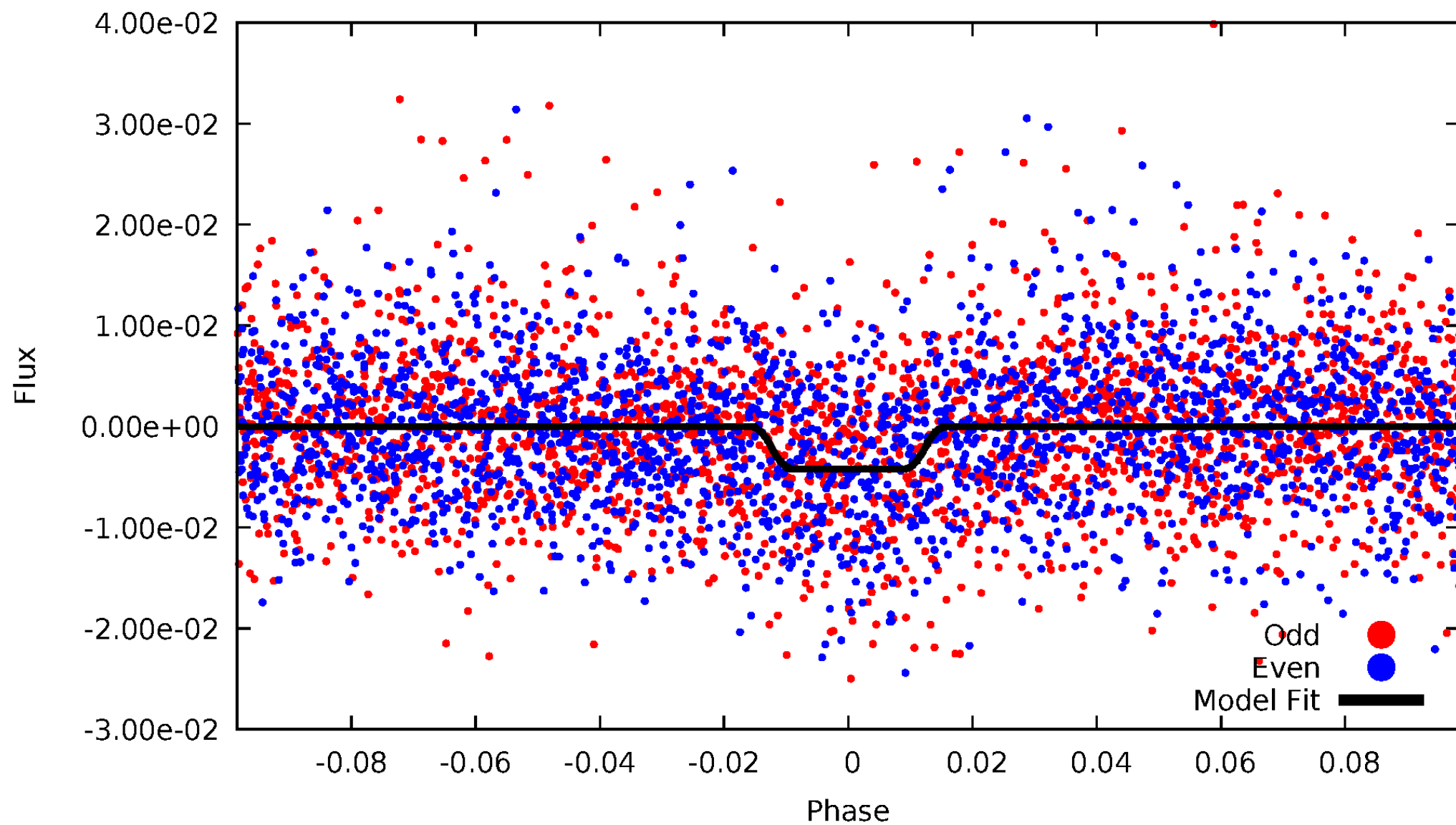
DV Odd/Even

TCE 012106934-02



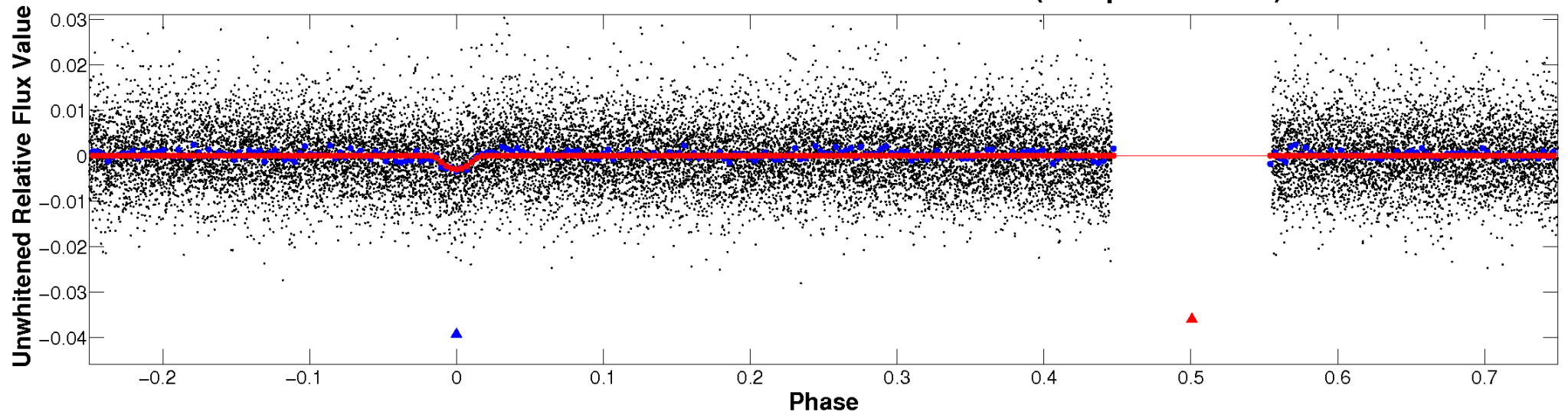
ALT Odd/Even

TCE 012106934-02

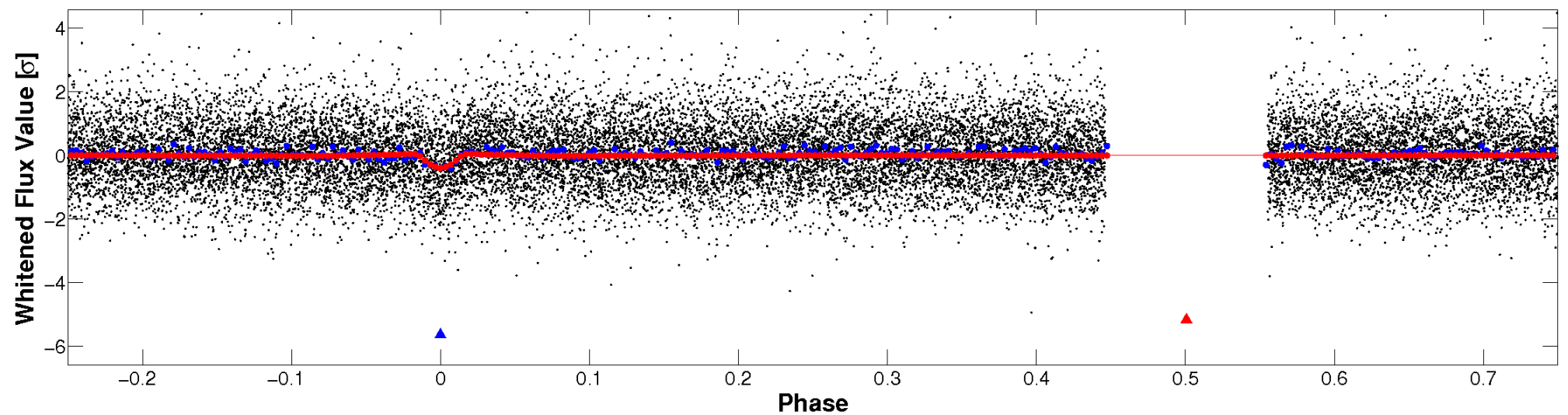


Non-Whitened Vs. Whitened Light Curve

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

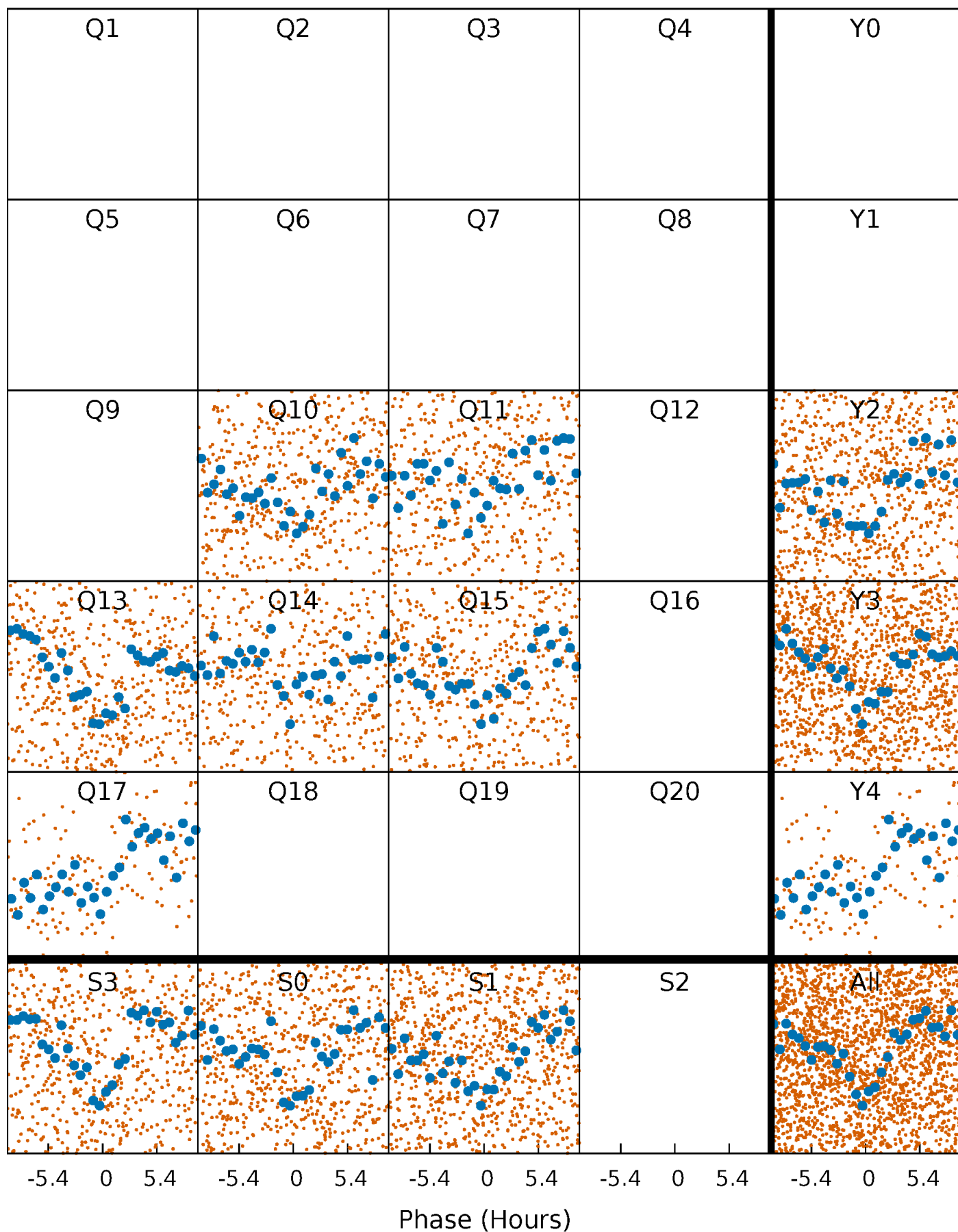


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



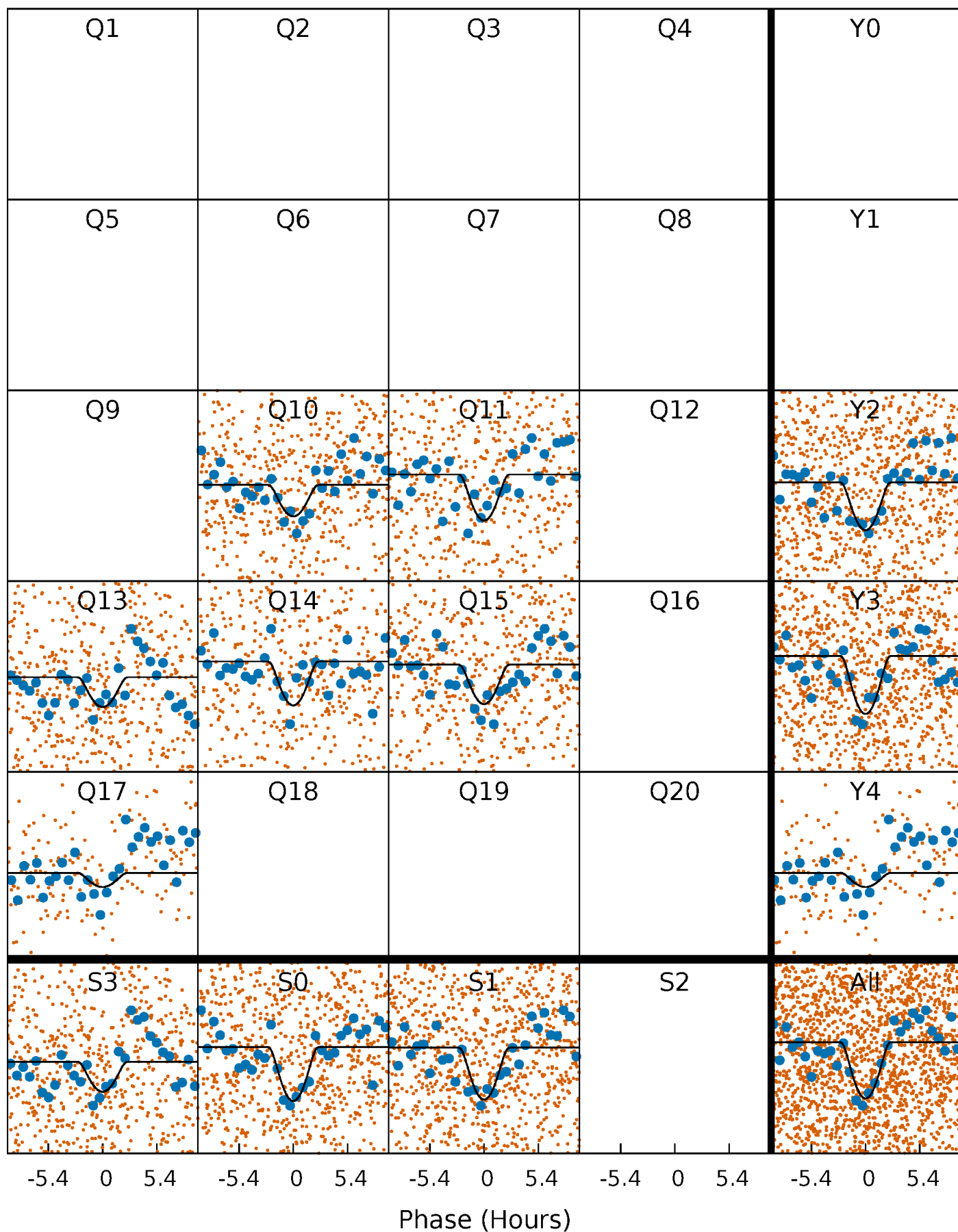
PDC Quarter-Phased Transit Curves

TCE 012106934-02 P= 5.937174 Days $T_0=132.984194$ (BKJD)



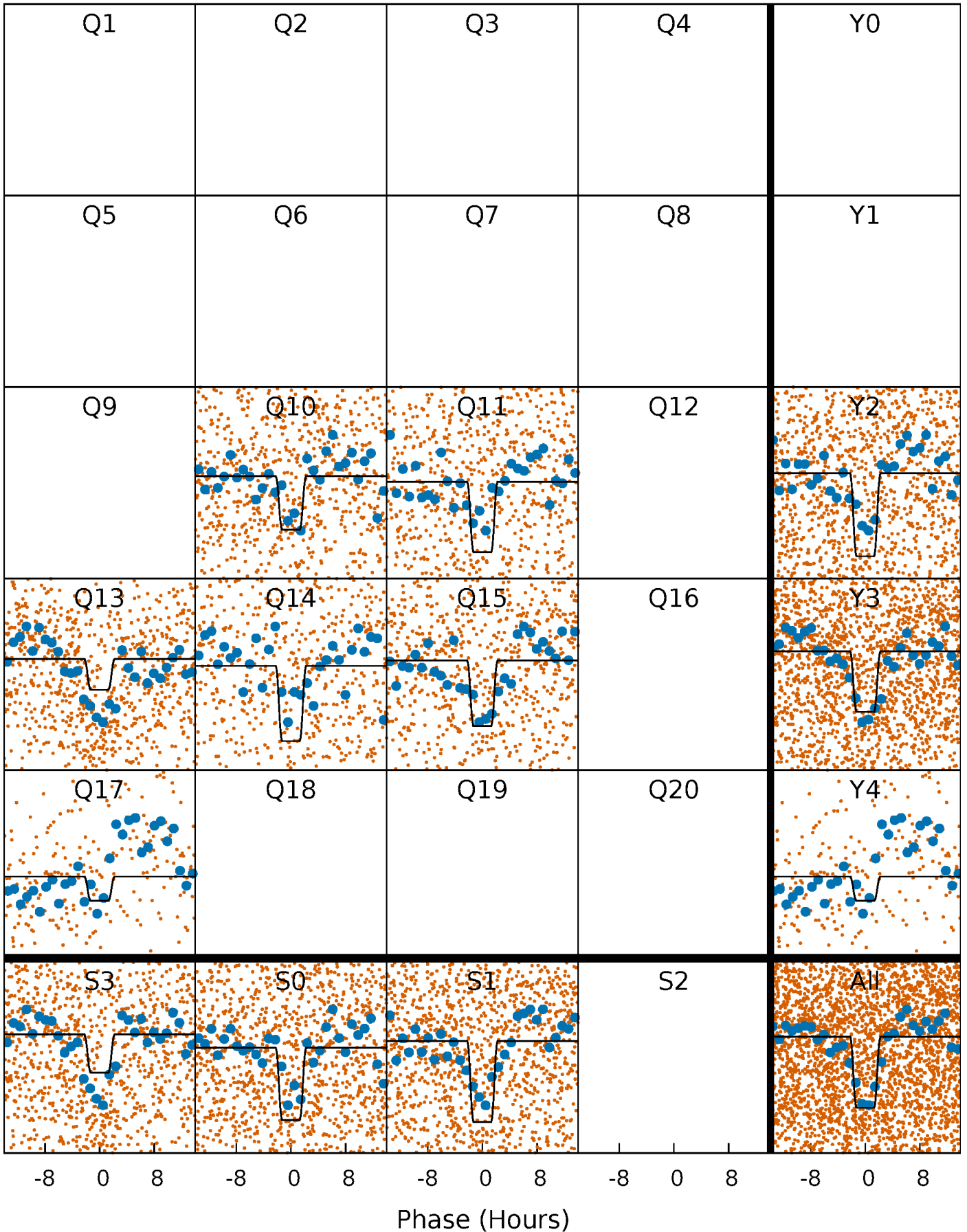
DV Quarter-Phased Transit Curves

TCE 012106934-02 P= 5.937174 Days $T_0=132.984194$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

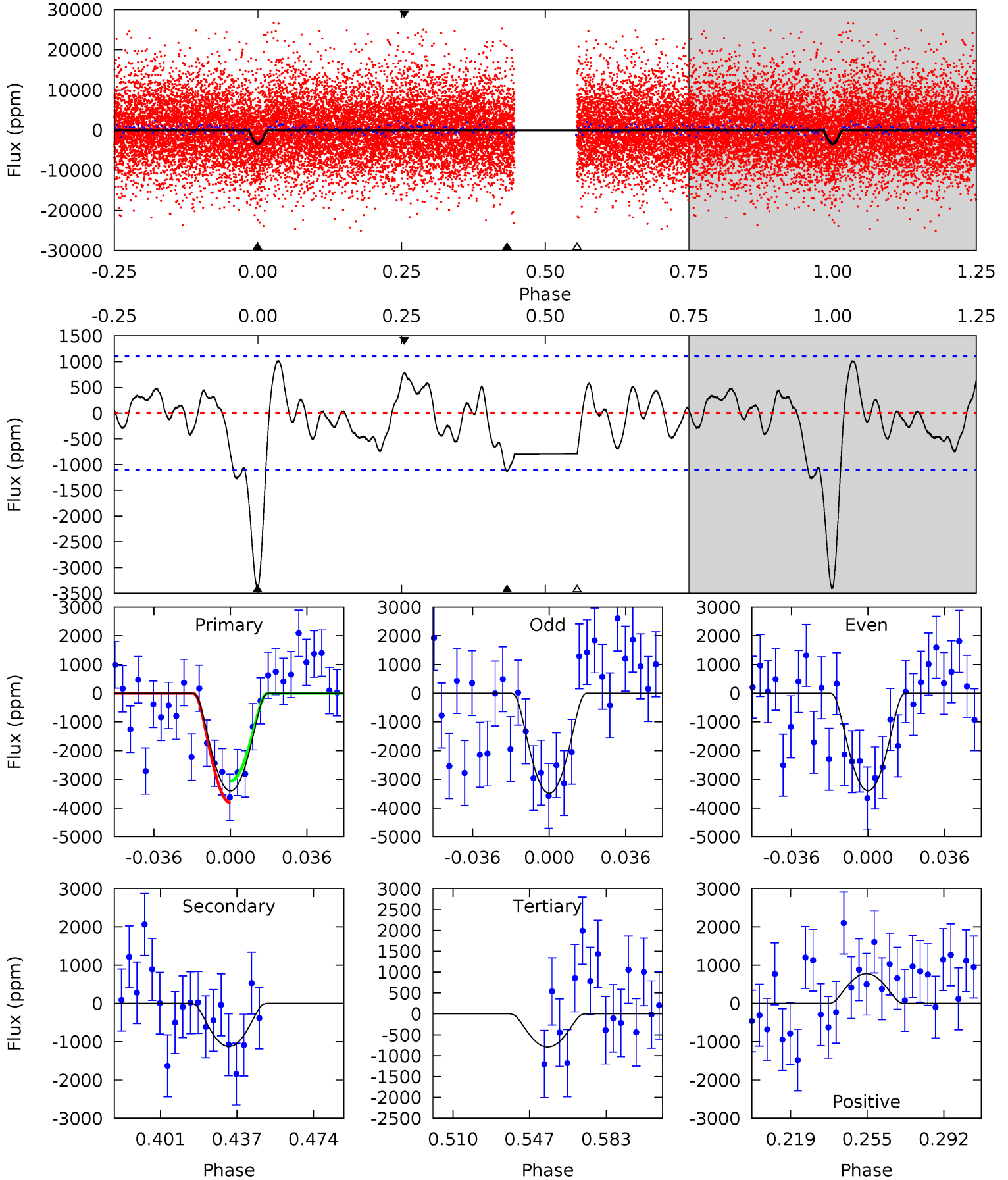
TCE 012106934-02 P= 5.937214 Days $T_0=132.969713$ (BKJD)



DV Model-Shift Uniqueness Test

012106934-02, P = 5.937174 Days, E = 132.984194 Days

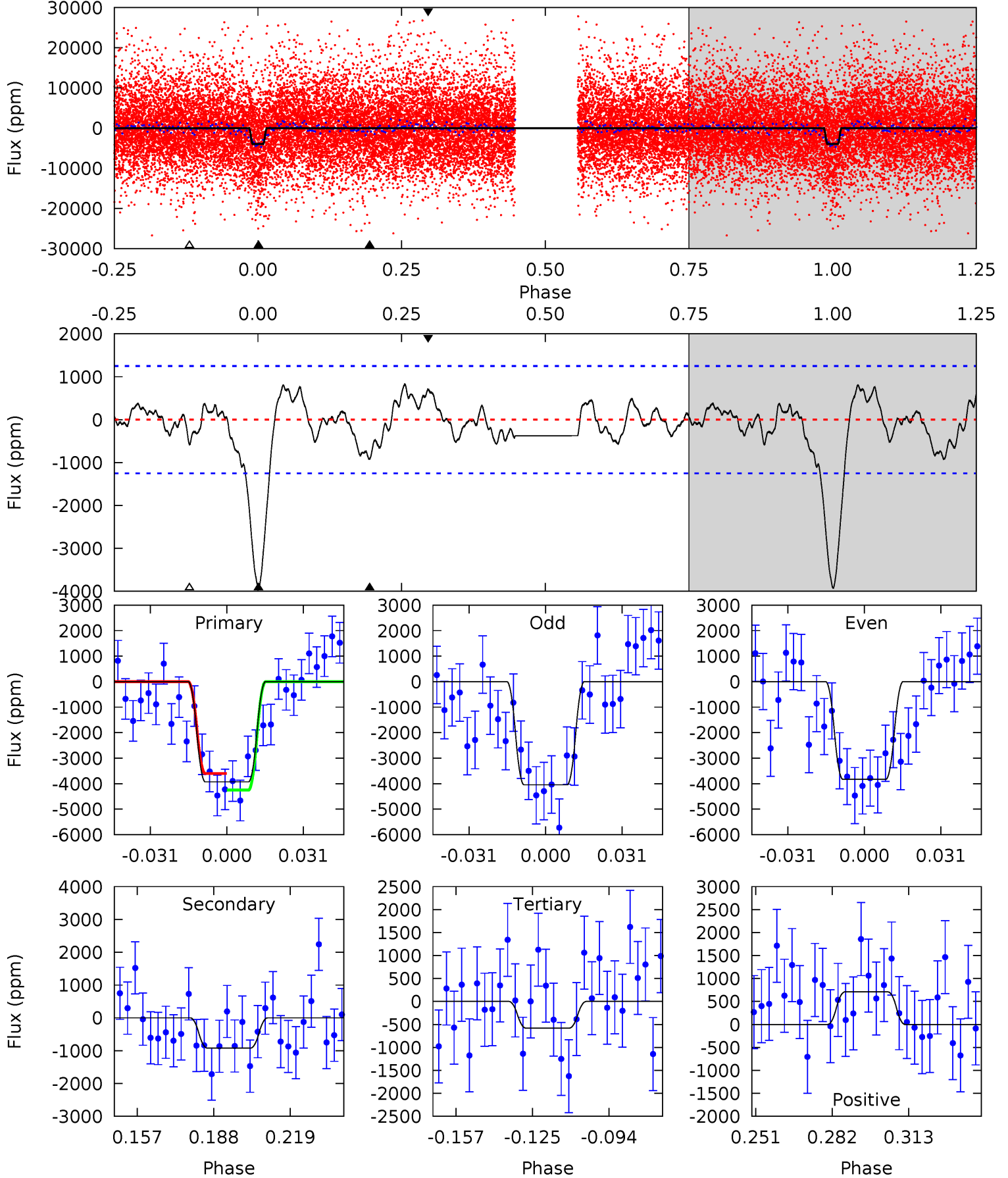
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	4.88	3.44	3.37	4.77	2.09	1.64	11.3	11.4	1.44	1.51	0.19	0.90	0.23	1.64



Alt Model-Shift Uniqueness Test

012106934-02, P = 5.937214 Days, E = 132.969713 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	3.54	2.23	2.72	4.80	2.15	1.29	12.8	12.4	1.30	0.82	0.42	0.91	0.17	1.25



Stellar Parameters For KIC 012106934

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 012106934-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1126 ± 231	$20.35^{+19.61}_{-13.84}$	1407^{+64}_{-67}	3053^{+1453}_{-557}	$6.155^{+56.051}_{-4.646}$
Alt.	-922 ± 261	$18.77^{+20.26}_{-13.39}$	1406^{+70}_{-65}	3041^{+1578}_{-613}	$5.955^{+64.987}_{-4.688}$

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

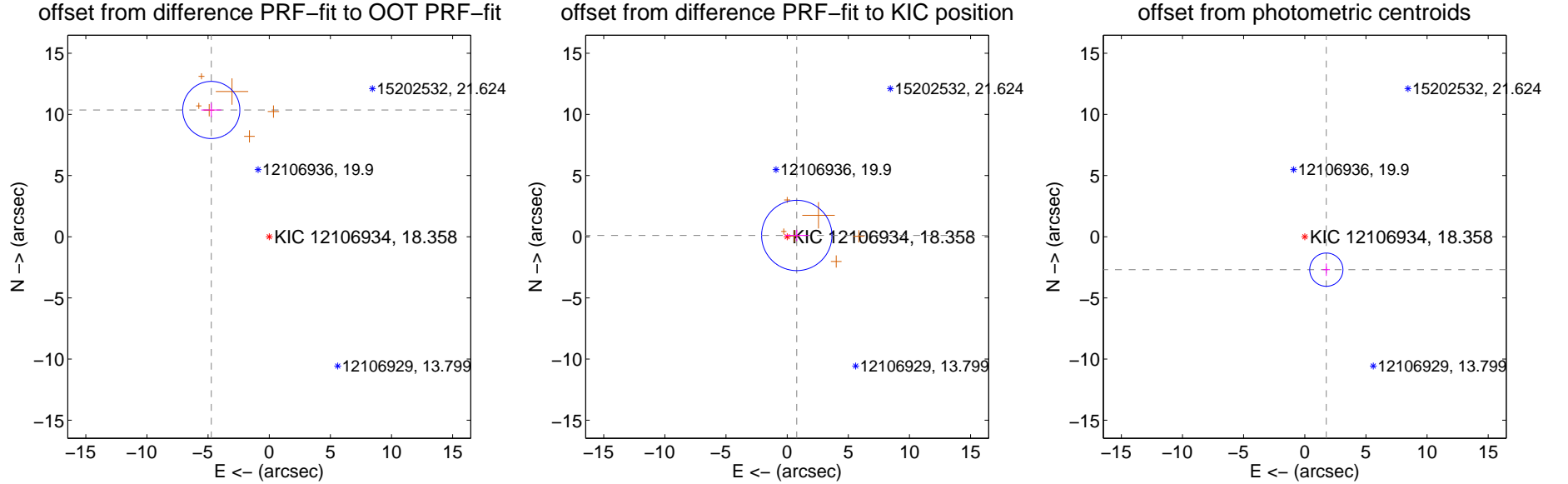
DV Centroid Data

Supplemental centroid analysis for 012106934-02. Kepler magnitude: 18.36. Transit SNR 7.15

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 11.57 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.398 ± 0.779	14.63	4.740 ± 0.821	10.365 ± 0.586
PRF-fit source offset from KIC position	0.793 ± 0.958	0.83	-0.786 ± 0.965	0.105 ± 0.459
photometric centroid source offset	3.22 ± 0.45	7.11	-1.76 ± 0.29	-2.69 ± 0.51



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

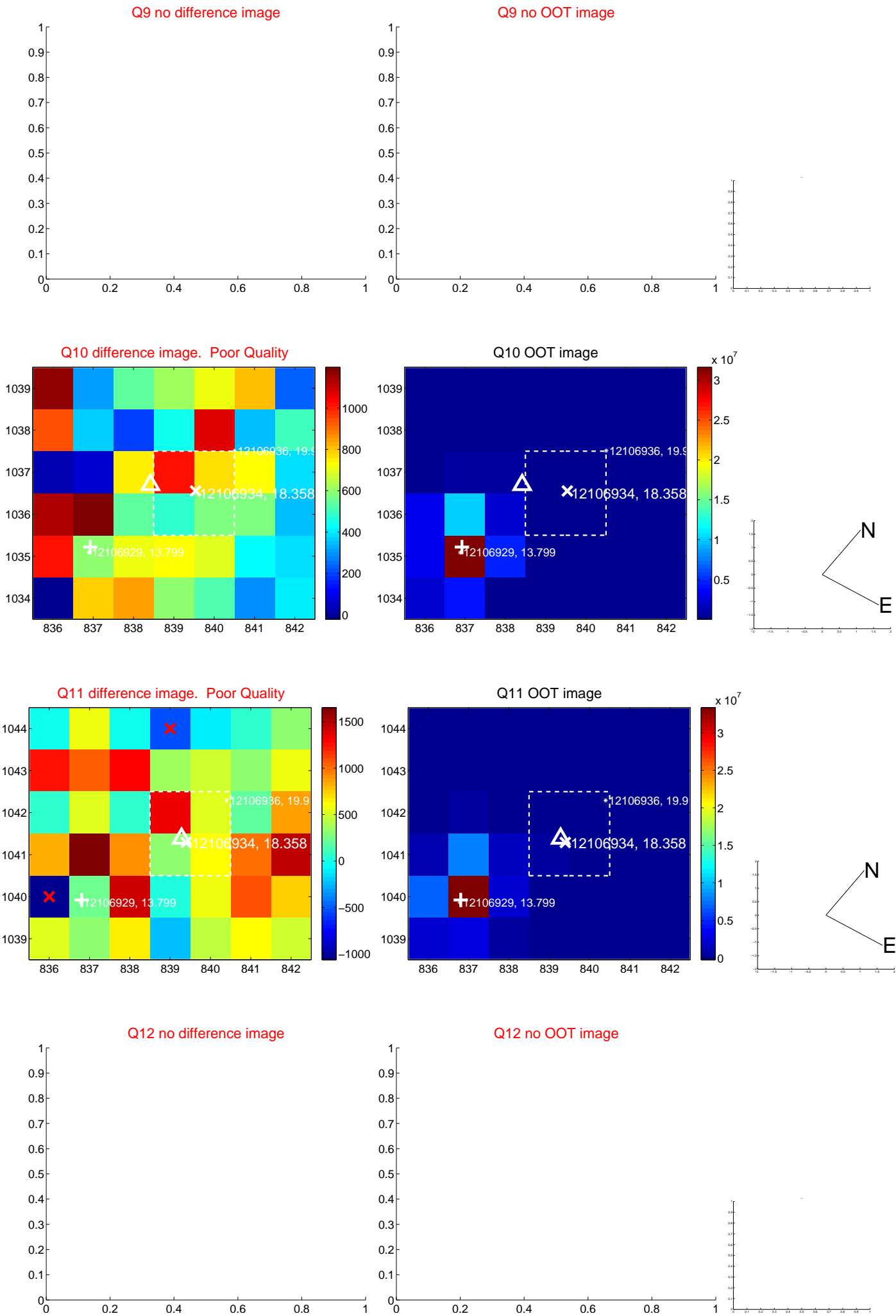
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



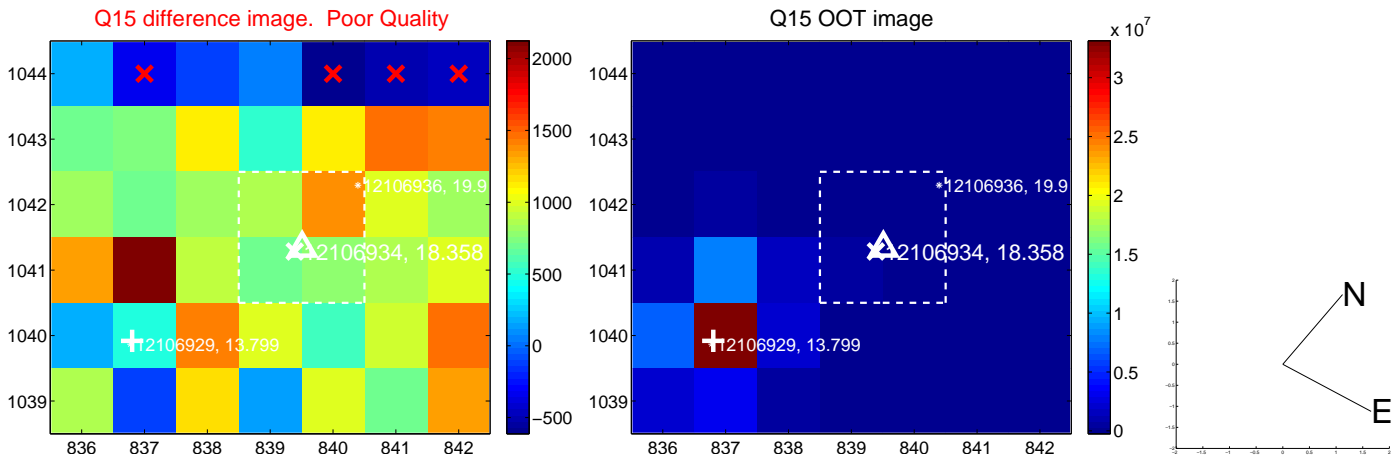
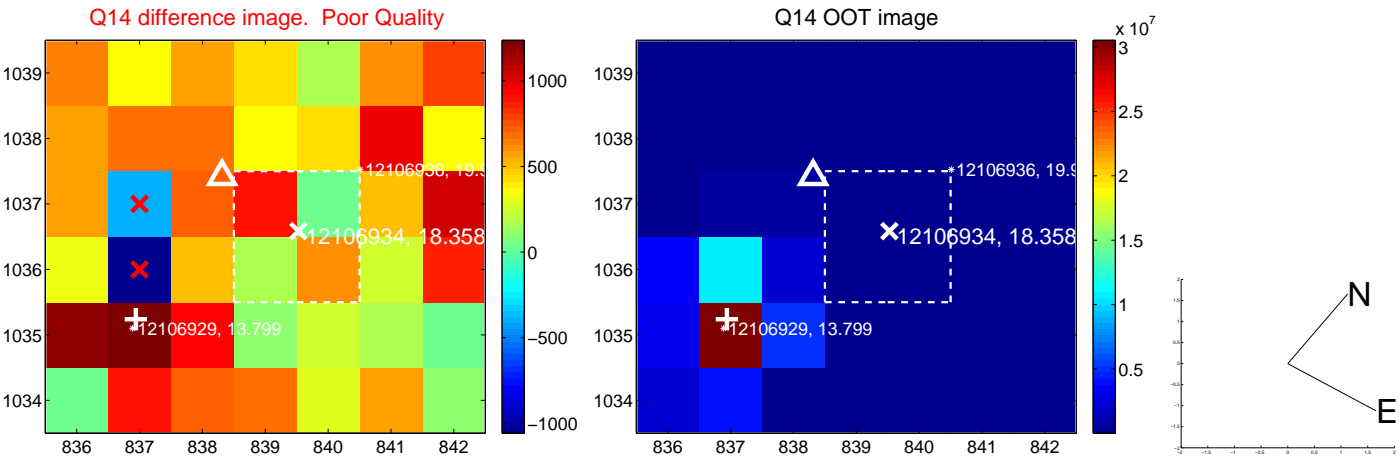
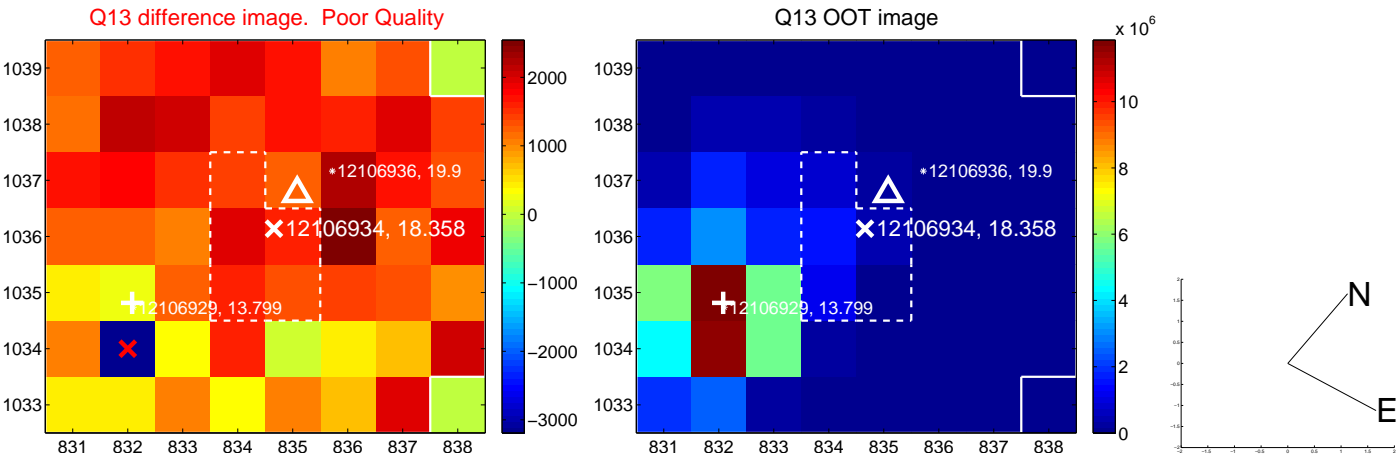
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



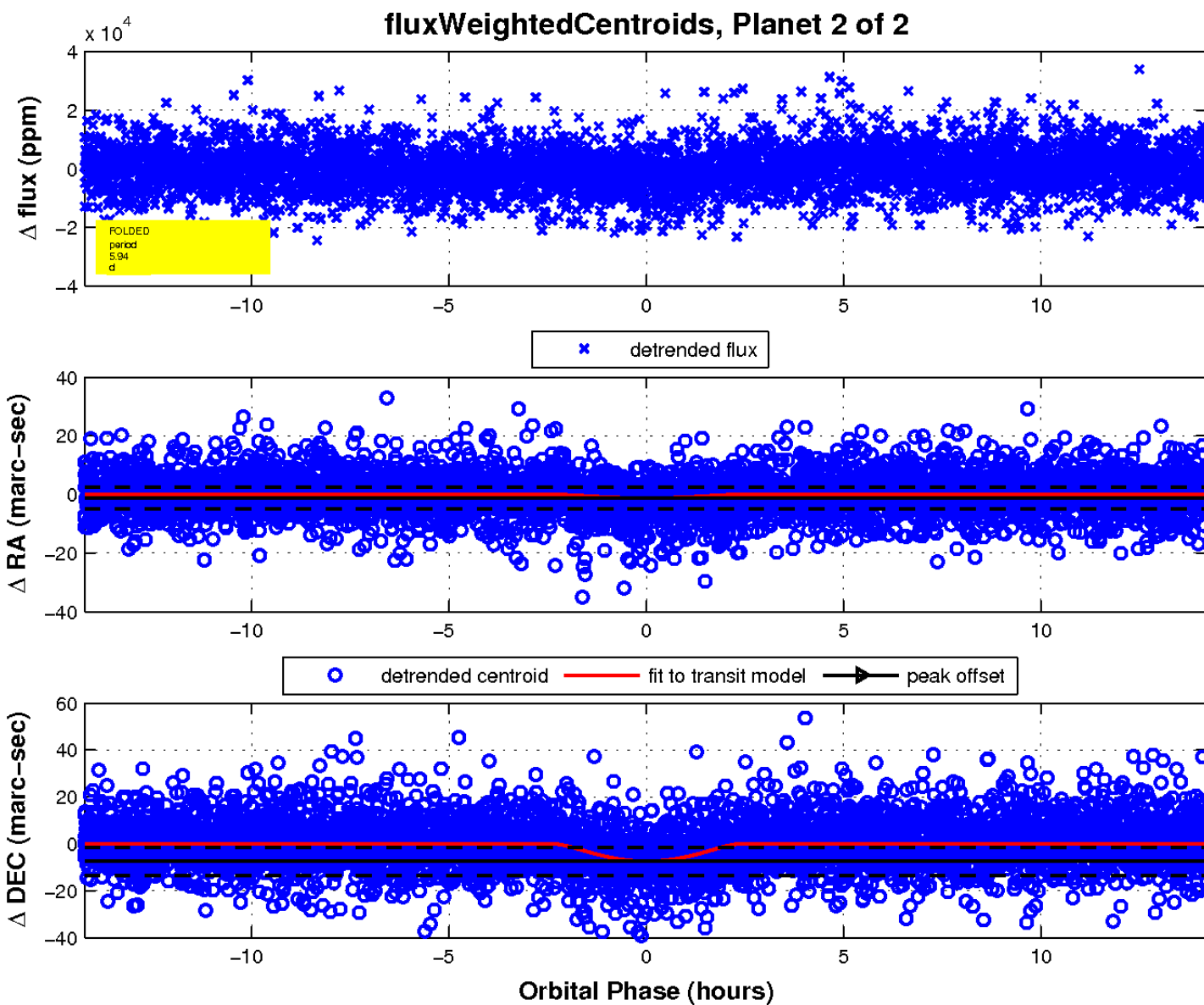
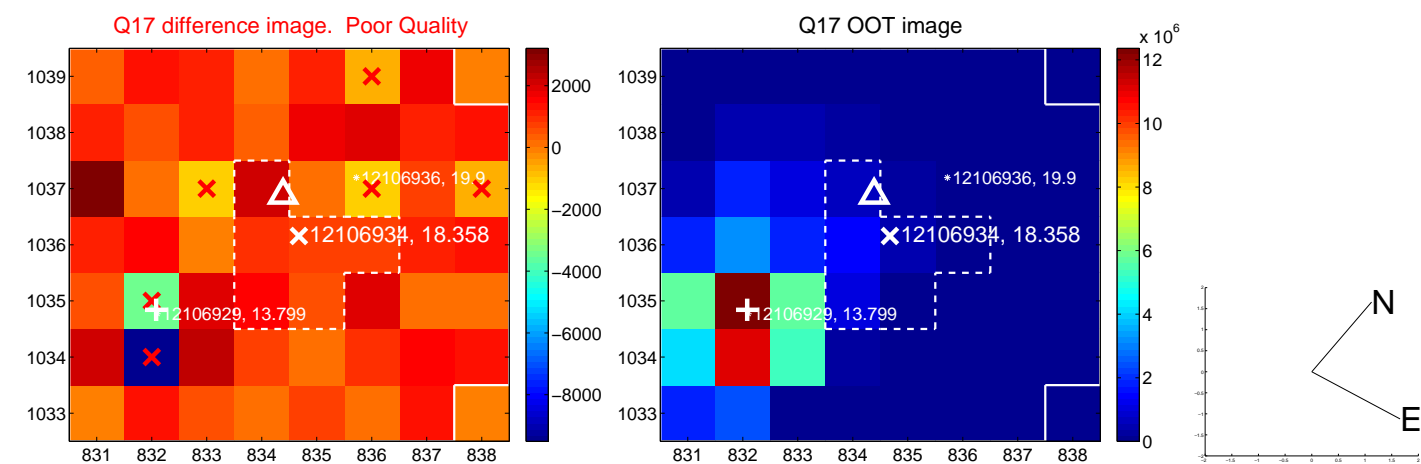
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

