

KIC 007436177

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})
007436177-01	OBS	6038.01	19.933669	143.939057	173313.5	8.616	3243.4	2787.4	1.29	6505	80.31	122.51
007436177-02	OBS	No	19.933675	133.083683	97754.9	9.445	2005.3	1736.9	1.29	6505	58.76	122.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007436177-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_FEW_DIFFS
007436177-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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.

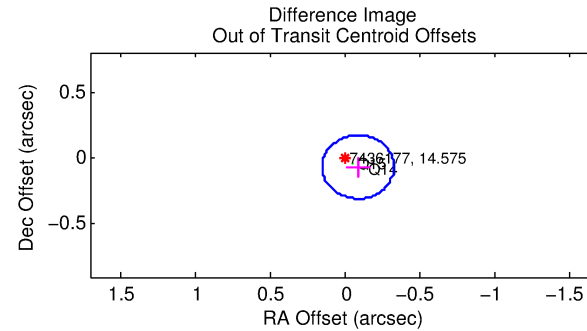
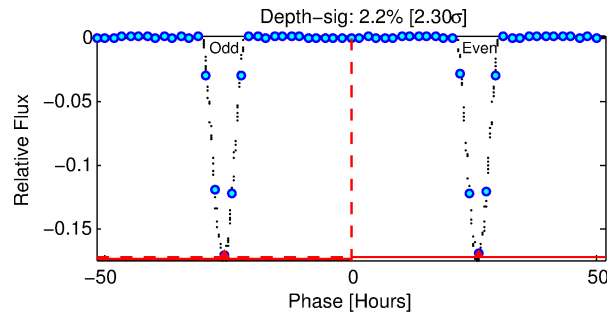
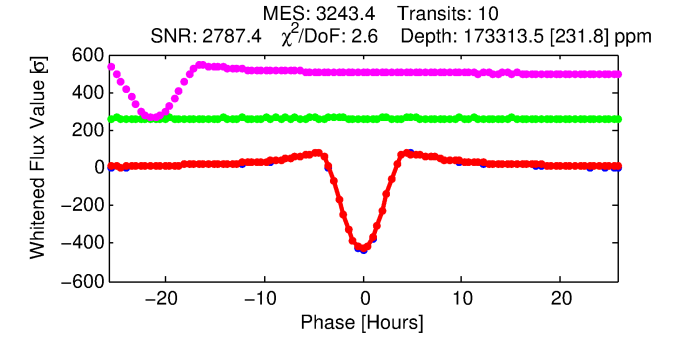
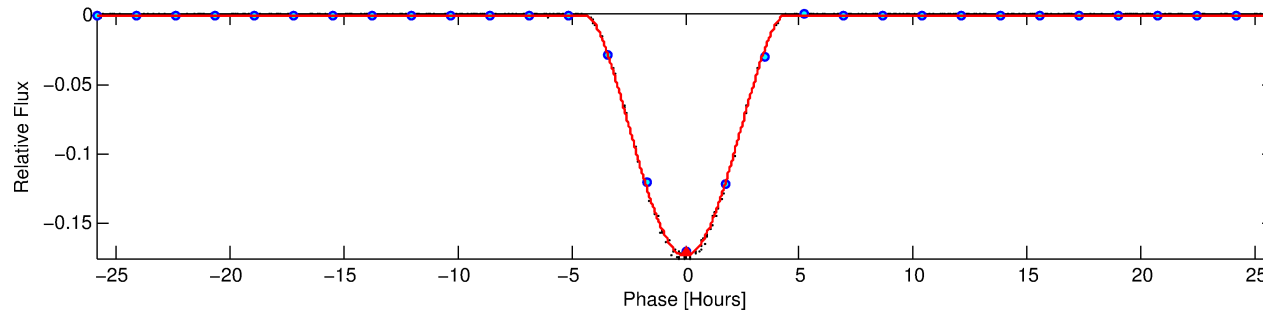
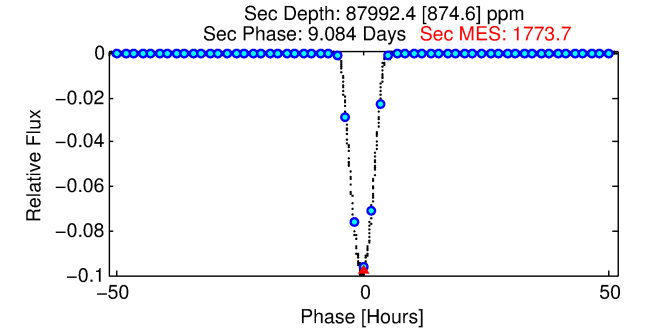
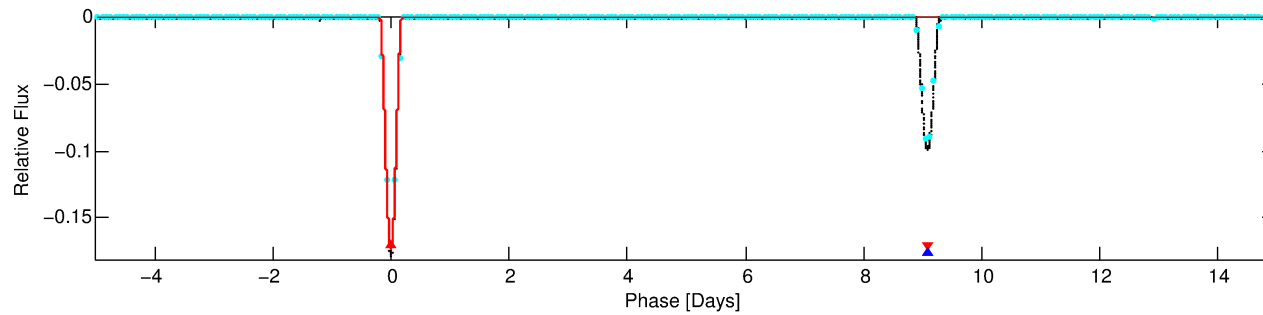
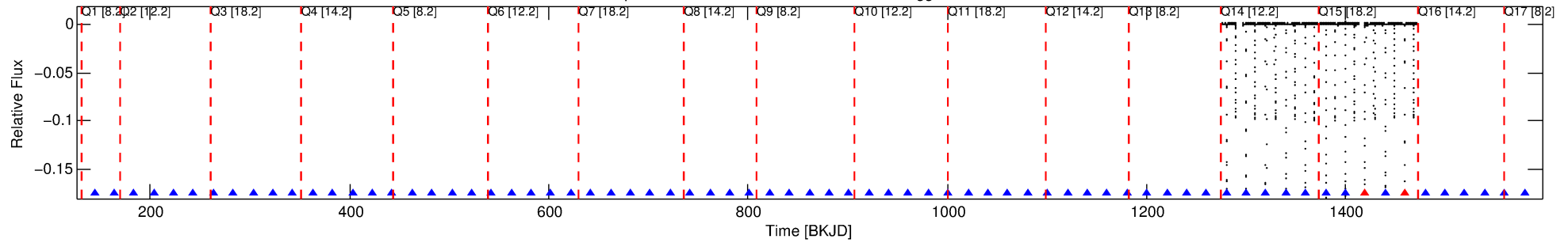
Ephemeris Match Information For 007436177-01

No Significant Match Found

DV One-Page Summary

KIC: 7436177 Candidate: 1 of 2 Period: 19.934 d
KOI: K06038.01 Corr: 0.997

Kp: 14.57 R*: 1.29 Rs Teff: 6505.0 K Logg: 4.25 Fe/H: -0.340



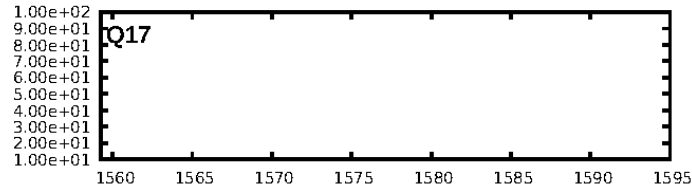
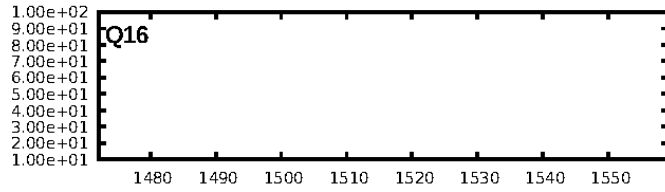
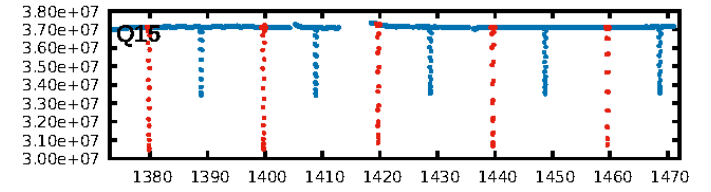
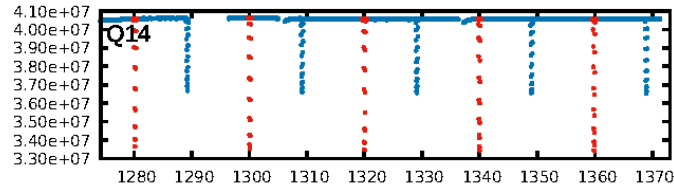
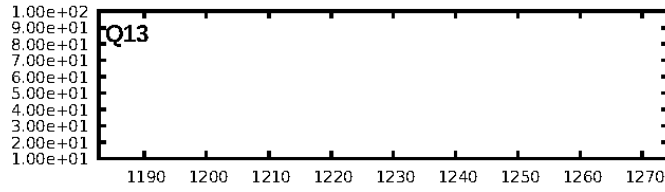
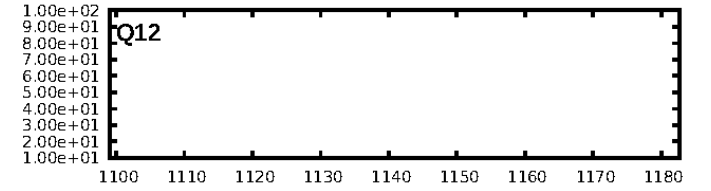
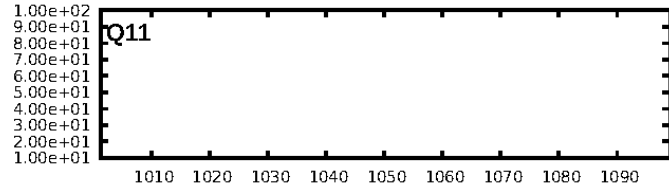
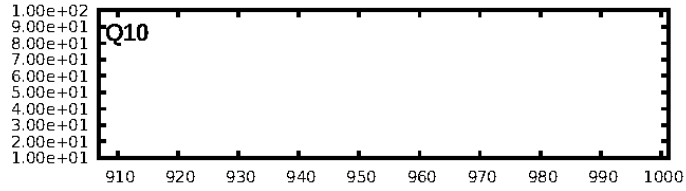
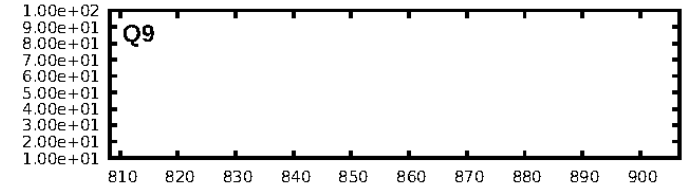
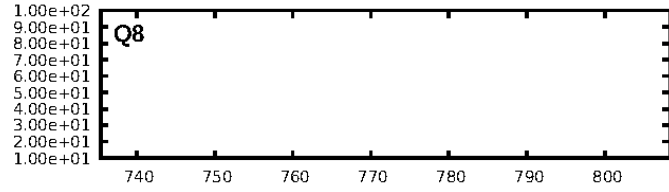
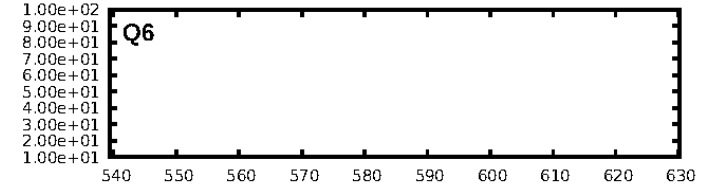
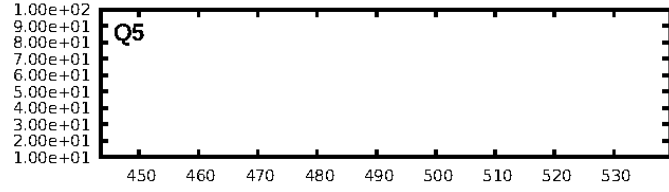
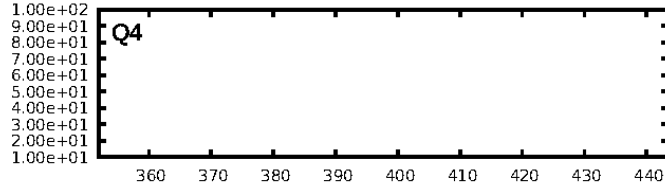
DV Fit Results:

Period = 19.93367 [0.00001] d
Epoch = 143.9391 [0.0009] BKJD
Rp/R* = 0.5705 [0.0447]
a/R* = 22.77 [0.22]
b = 0.90 [0.06]
Seff = 122.51 [46.36]
Teff = 848 [80] K
Rp = 80.31 [24.06] Re
a = 0.1476 [0.0355] AU
Ag = 163.54 [62.11] [2.62σ]
Teffp = 4690 [258] K [14.23σ]

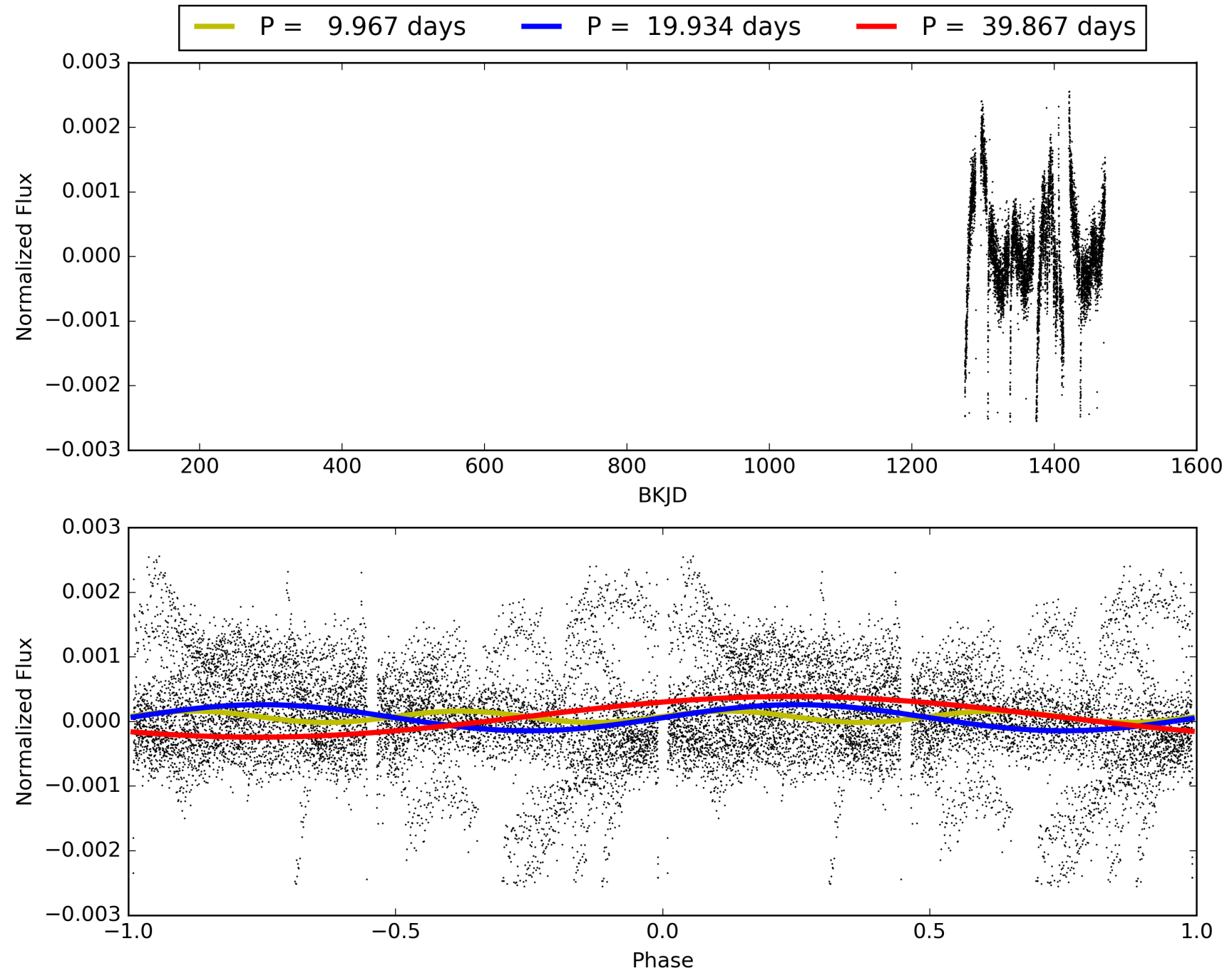
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.80 [8/10]
GhostDiagnostic-chr: 6.254
Centroid-sig: 0.0%
Centroid-so: 0.441 arcsec [160.52σ]
OotOffset-rm: 0.113 arcsec [1.41σ]
KicOffset-rm: 0.059 arcsec [0.87σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 007436177-01, PDC Light Curves

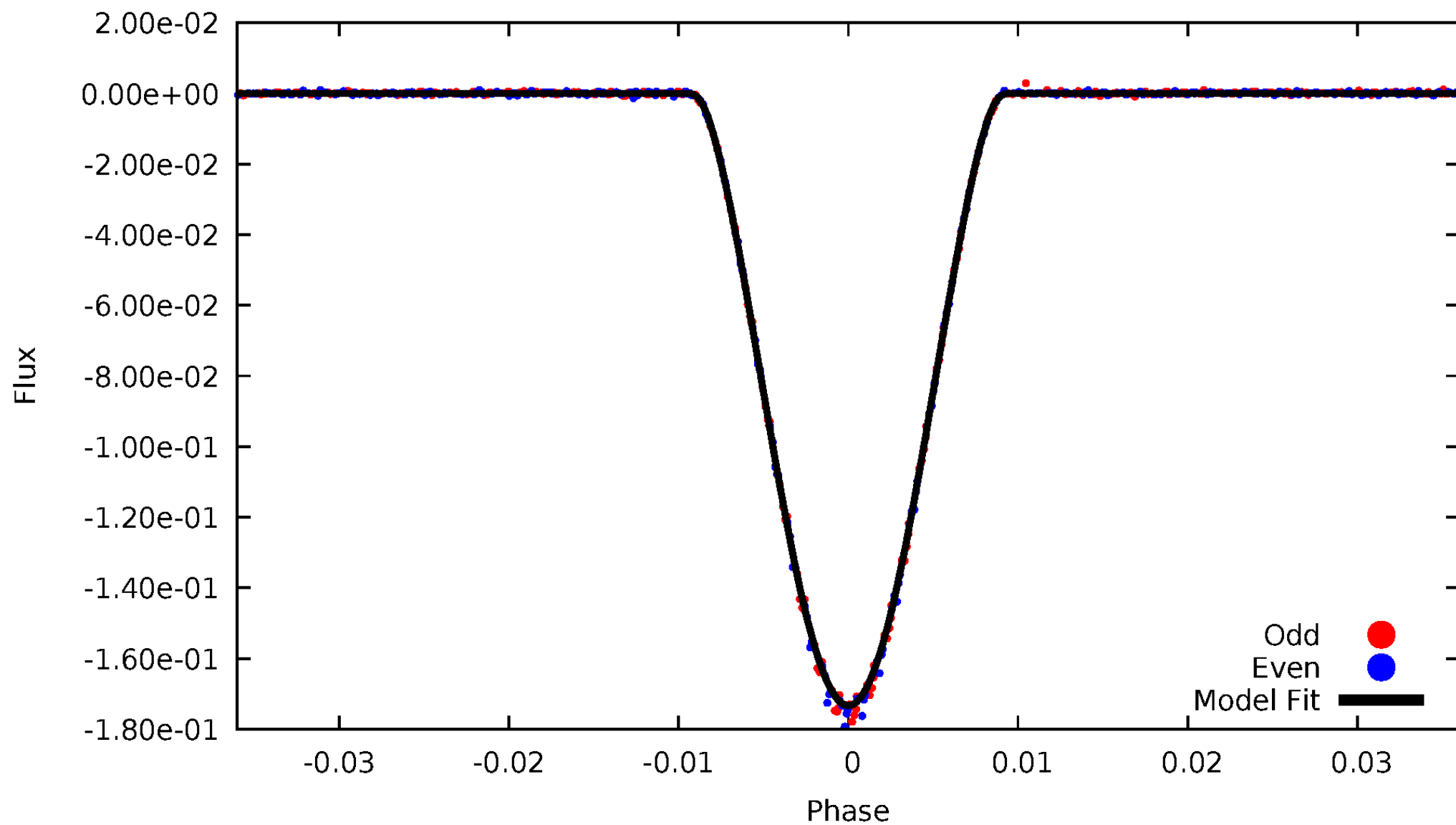


TCE 007436177-01



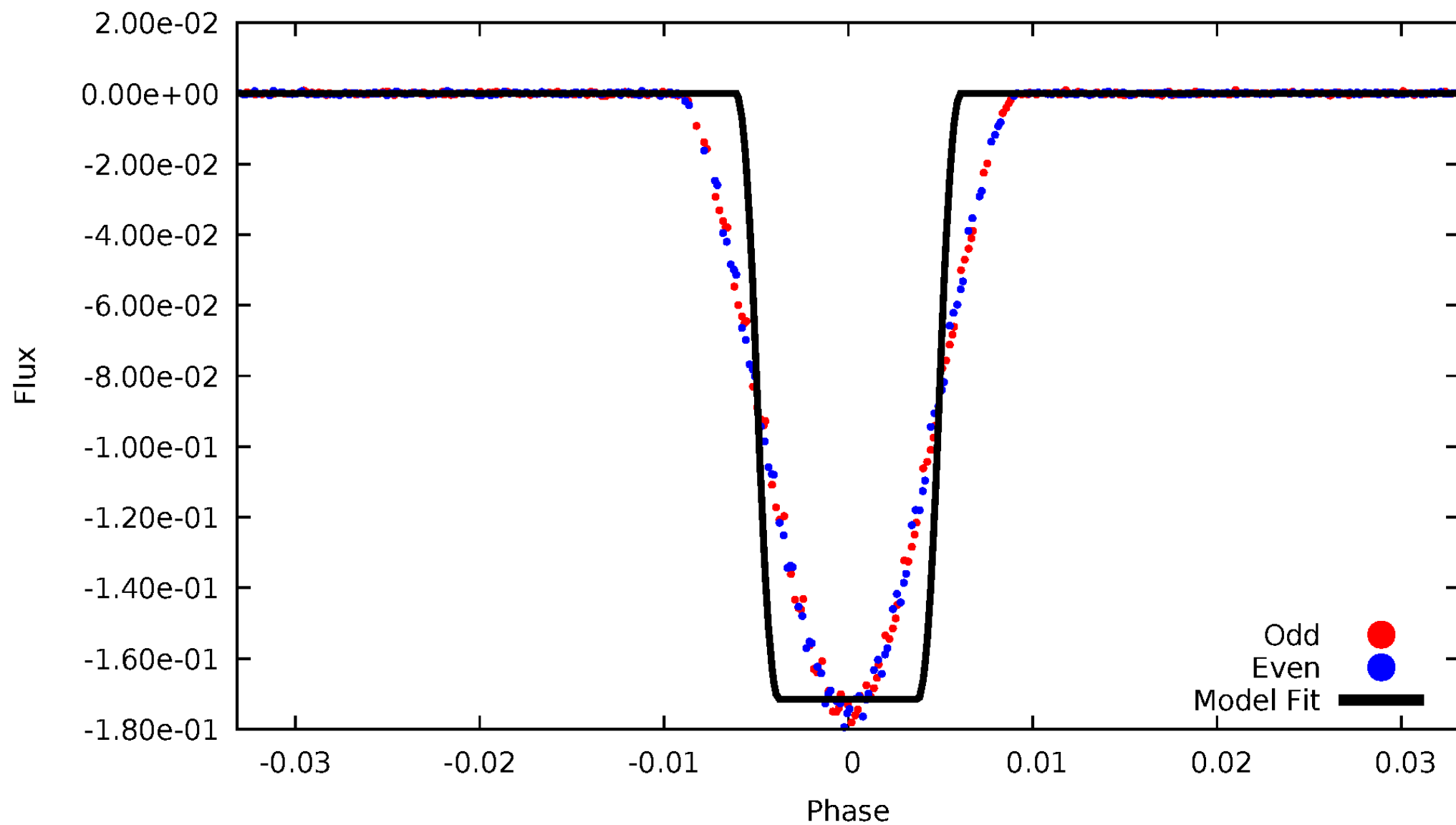
DV Odd/Even

TCE 007436177-01



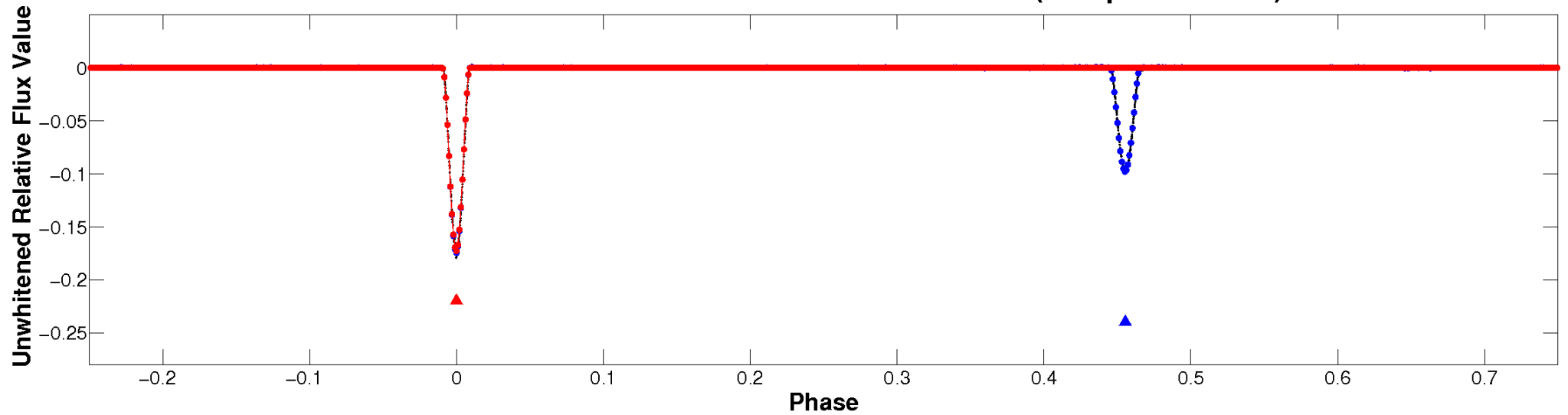
ALT Odd/Even

TCE 007436177-01

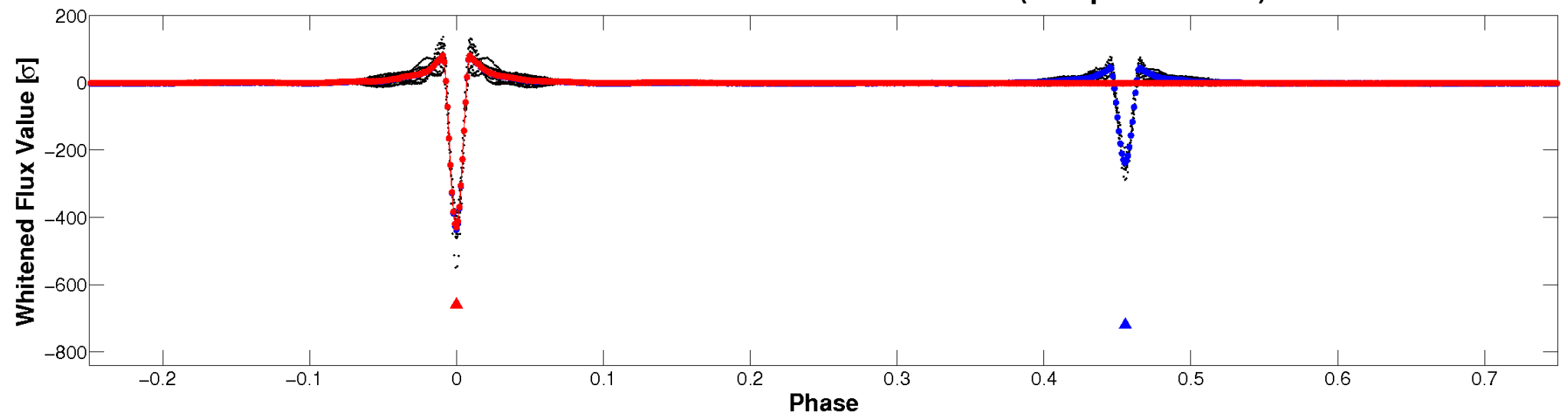


Non-Whitened Vs. Whitened Light Curve

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

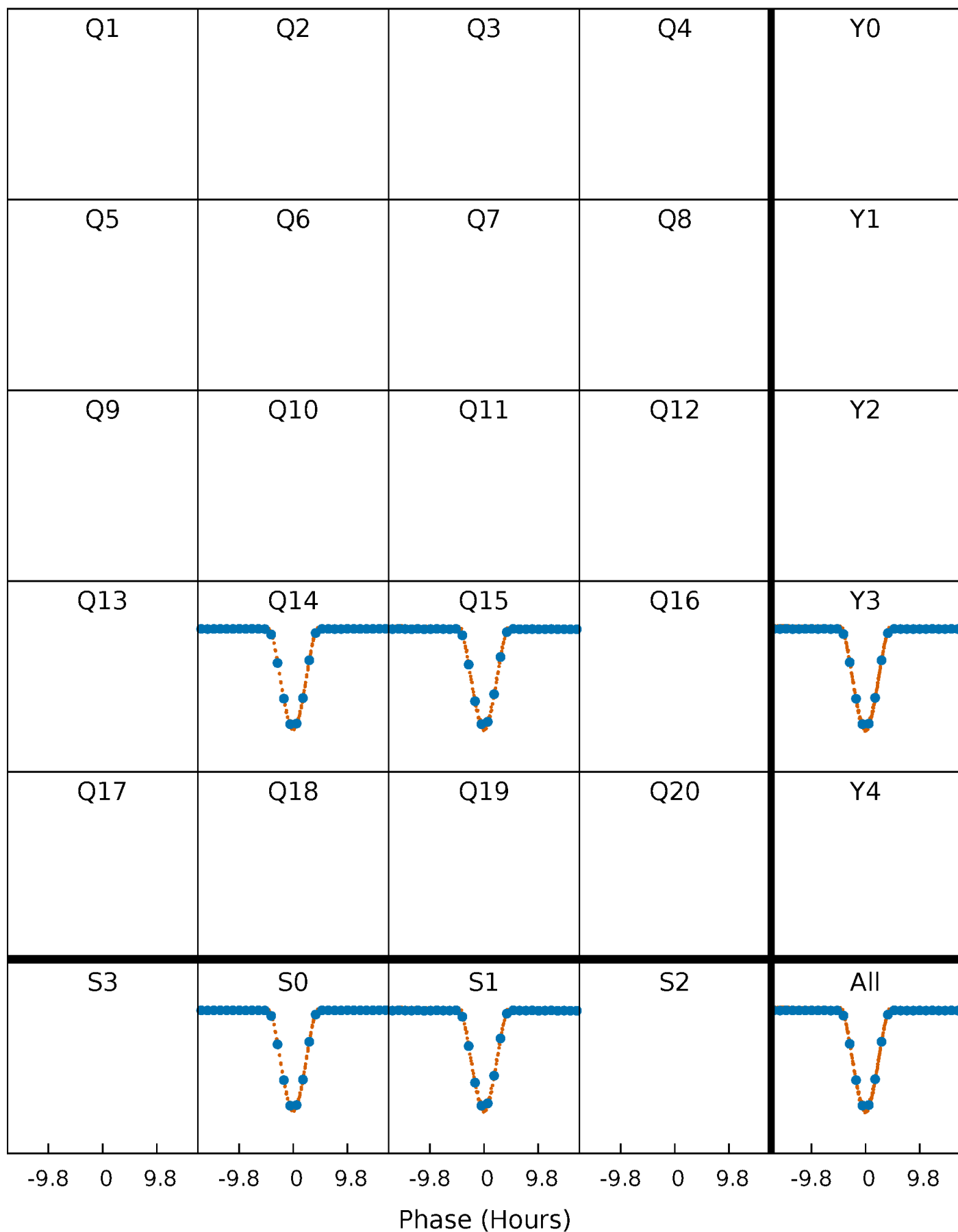


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



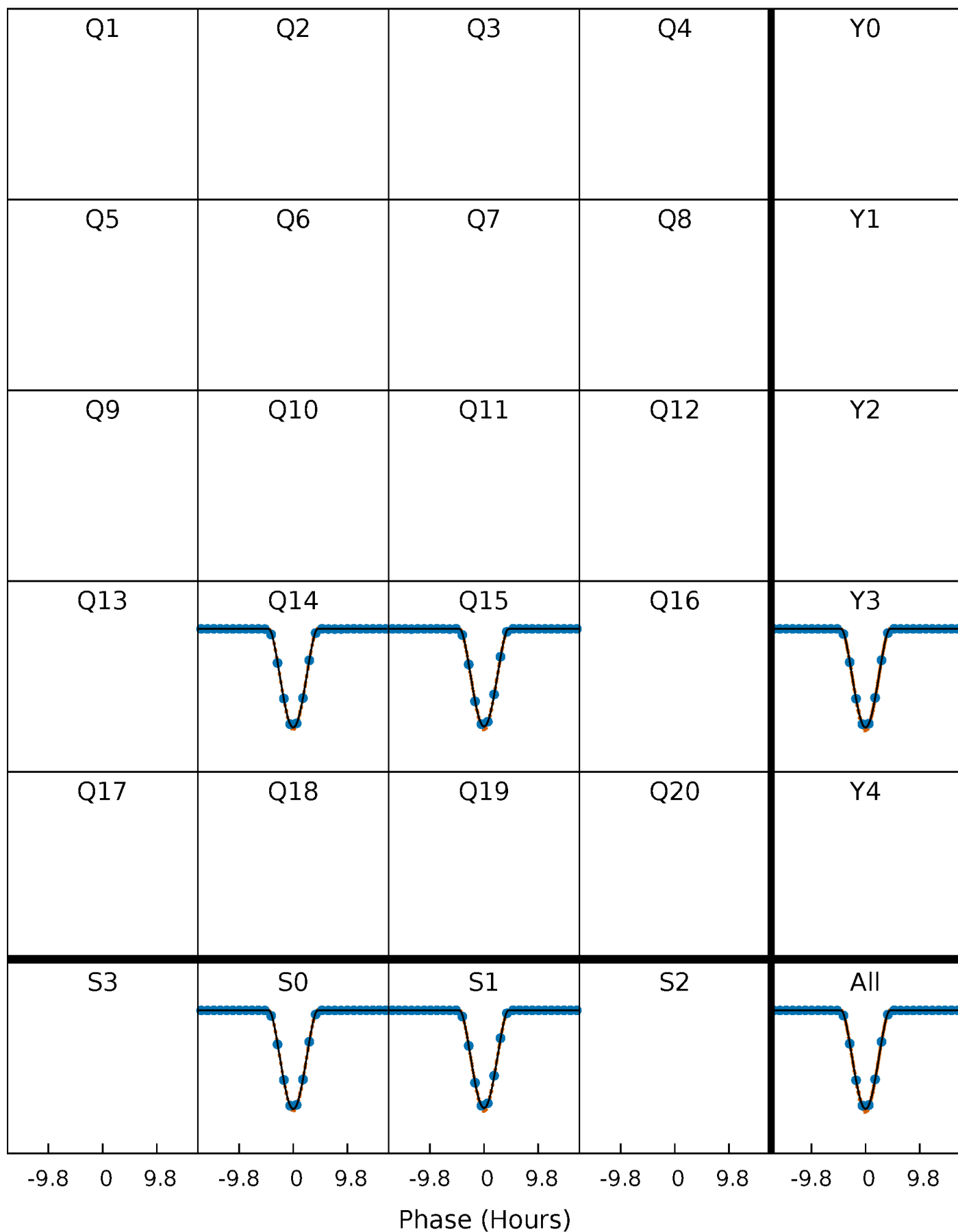
PDC Quarter-Phased Transit Curves

TCE 007436177-01 P= 19.933669 Days $T_0=143.939057$ (BKJD)



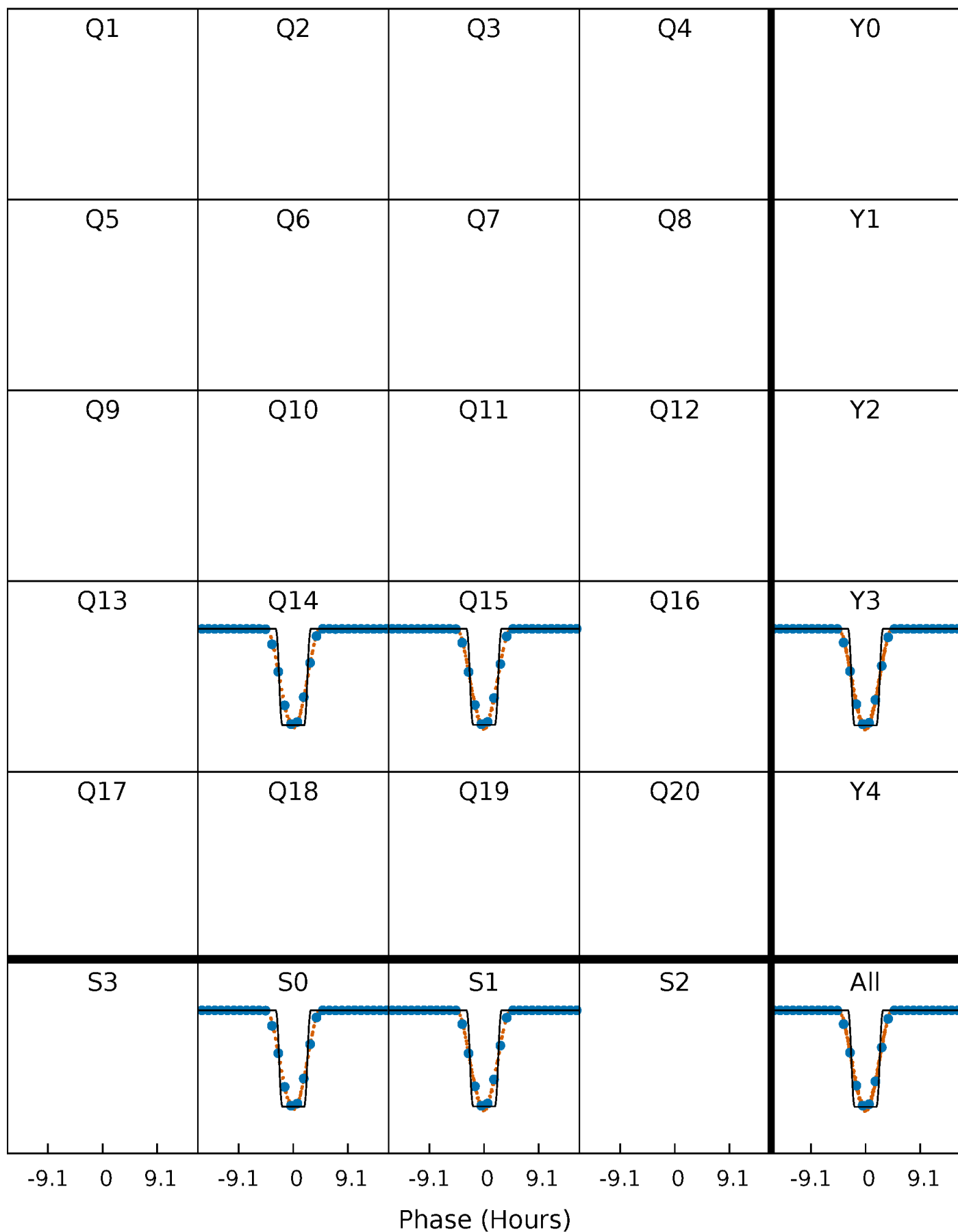
DV Quarter-Phased Transit Curves

TCE 007436177-01 P= 19.933669 Days $T_0=143.939057$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

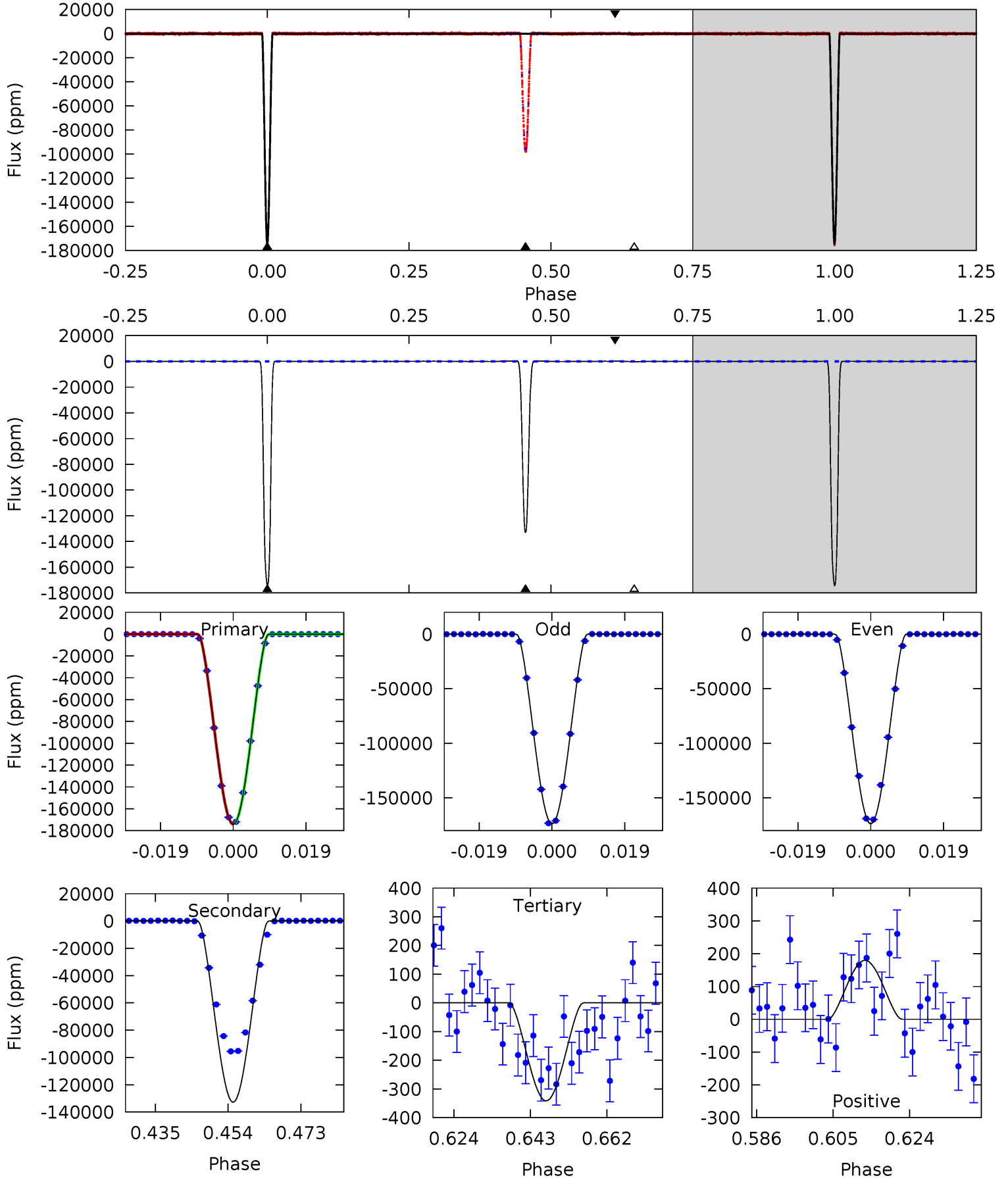
TCE 007436177-01 P= 19.934262 Days $T_0=143.902759$ (BKJD)



DV Model-Shift Uniqueness Test

007436177-01, P = 19.933669 Days, E = 143.939057 Days

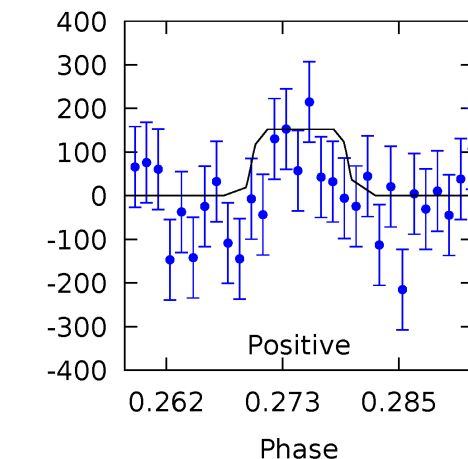
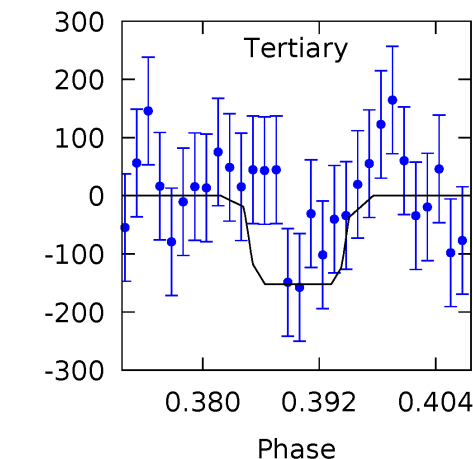
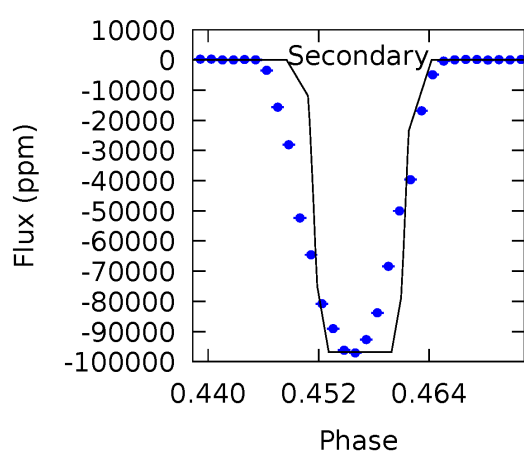
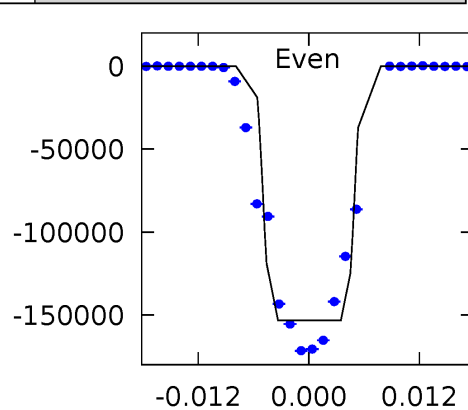
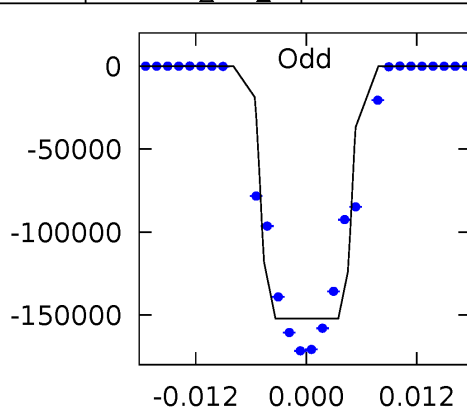
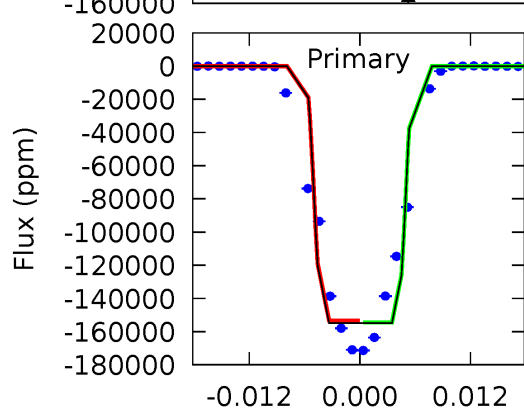
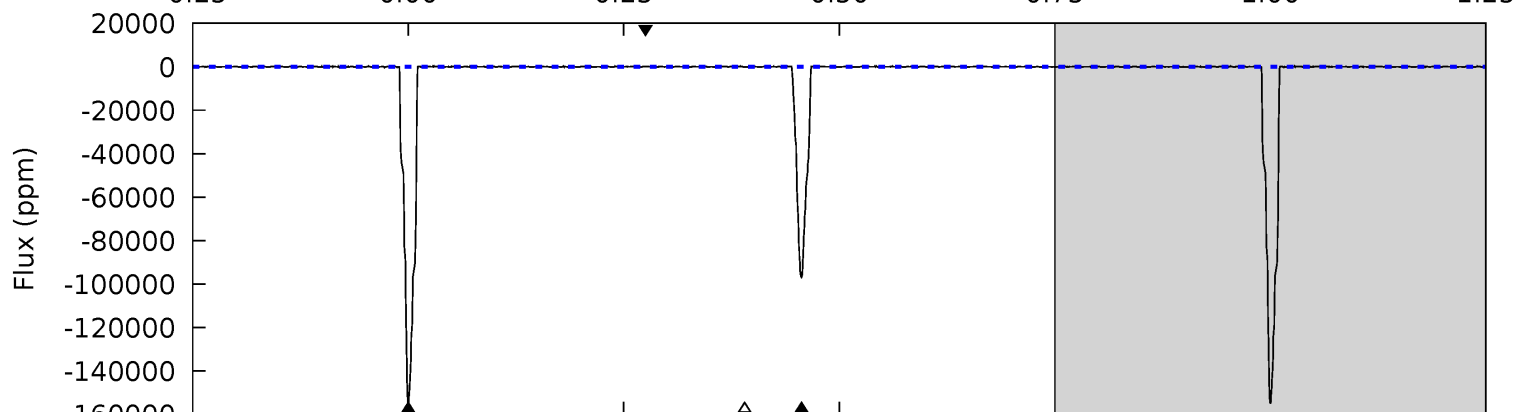
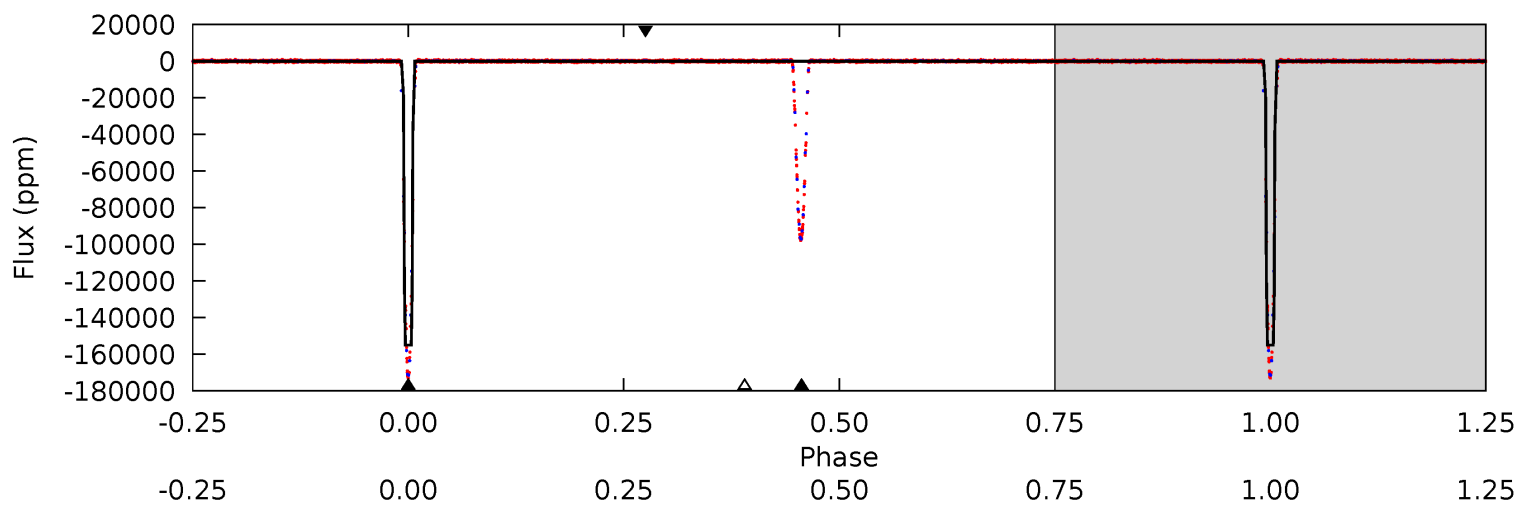
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6745	5140	13.2	6.96	4.90	2.35	3.70	6731	6738	5127	5133	2.25	1.00	0.00	0.57



Alt Model-Shift Uniqueness Test

007436177-01, P = 19.934262 Days, E = 143.902759 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3765	2351	3.70	3.70	4.99	2.52	1.22	3761	3761	2348	2348	16.0	1.00	0.00	0.50



Stellar Parameters For KIC 007436177

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6505^{+181}_{-250}	$4.250^{+0.153}_{-0.187}$	$-0.340^{+0.250}_{-0.300}$	$1.290^{+0.373}_{-0.280}$	$1.078^{+0.177}_{-0.129}$	$0.706^{+0.531}_{-0.350}$
	+3%/-4%	+4%/-4%	+74%/-88%	+29%/-22%	+16%/-12%	+75%/-50%
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 007436177-01 / KOI 6038.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132836 ± 26	$82.06^{+14.25}_{-12.00}$	1189^{+89}_{-78}	5402^{+248}_{-247}	278^{+90}_{-75}
Alt.	-96793 ± 41	$59.63^{+10.77}_{-9.38}$	1189^{+90}_{-77}	5767^{+375}_{-313}	370^{+146}_{-104}

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

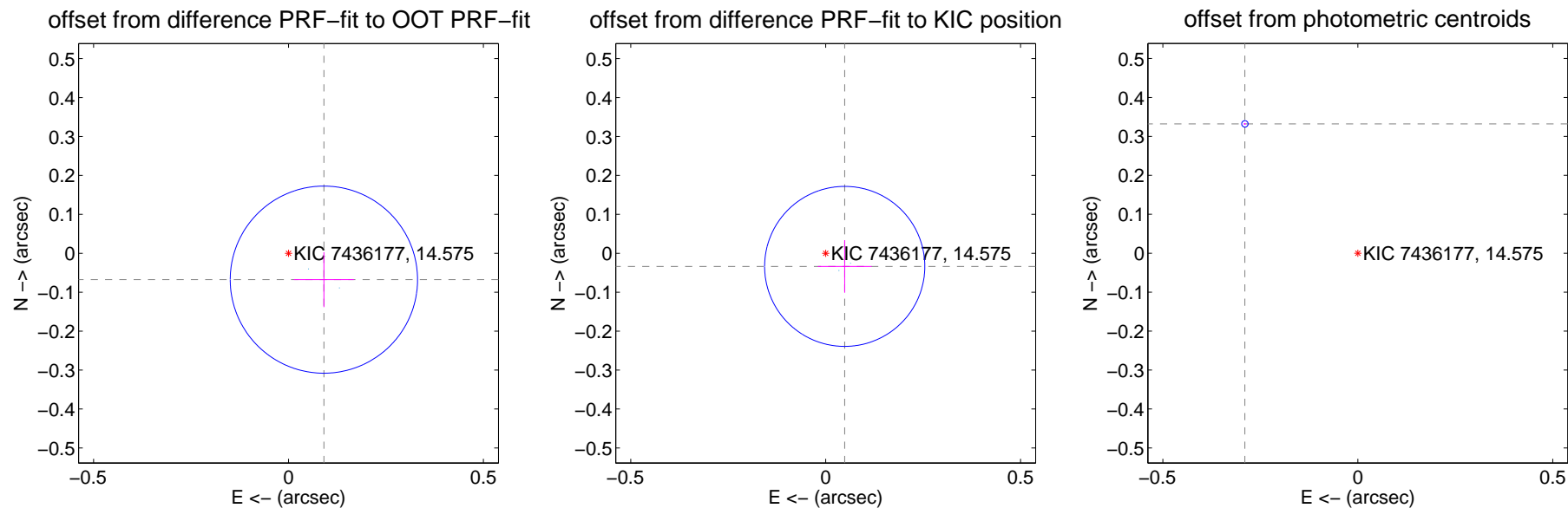
DV Centroid Data

Supplemental centroid analysis for 007436177-01. Kepler magnitude: 14.57. Transit SNR 2787.44

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.113 ± 0.080	1.41	-0.091 ± 0.077	-0.068 ± 0.071
PRF-fit source offset from KIC position	0.059 ± 0.069	0.87	-0.049 ± 0.069	-0.034 ± 0.068
photometric centroid source offset	0.44 ± 0.00	160.52	0.29 ± 0.00	0.33 ± 0.00



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.



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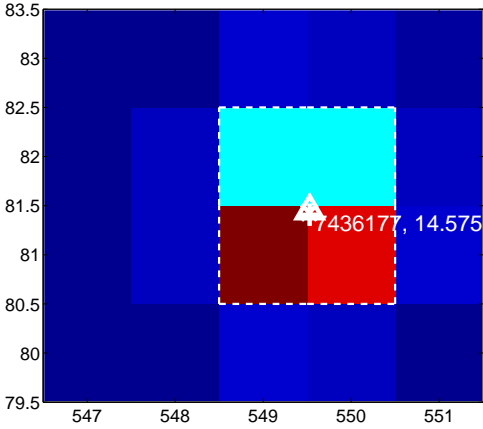
Q13 no difference image



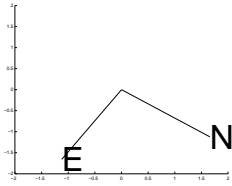
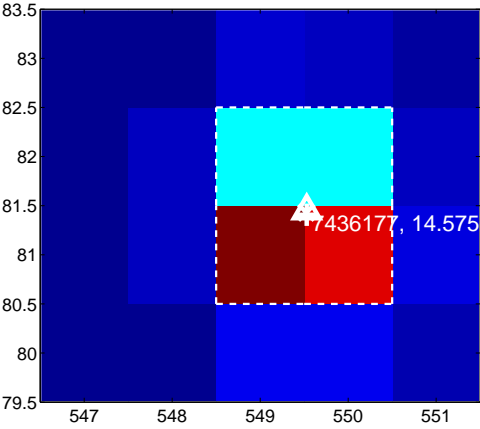
Q13 no OOT image



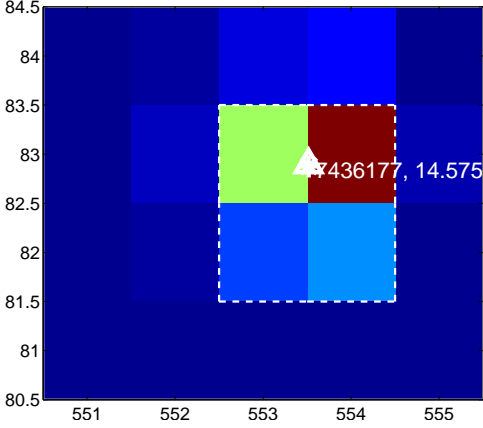
Q14 difference image



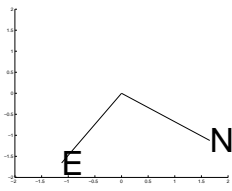
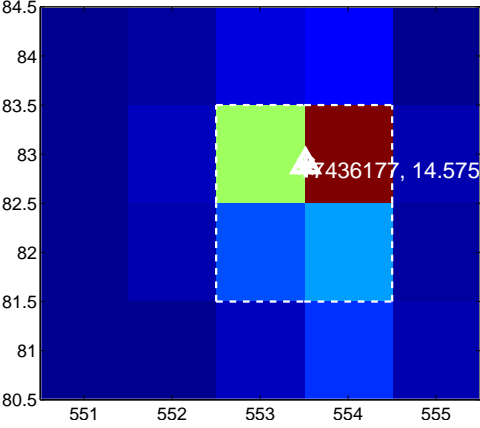
Q14 OOT image



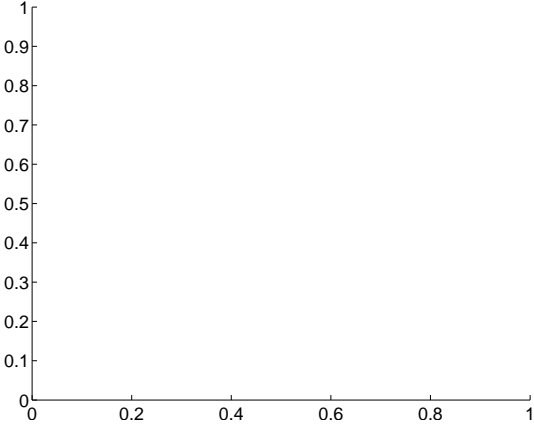
Q15 difference image



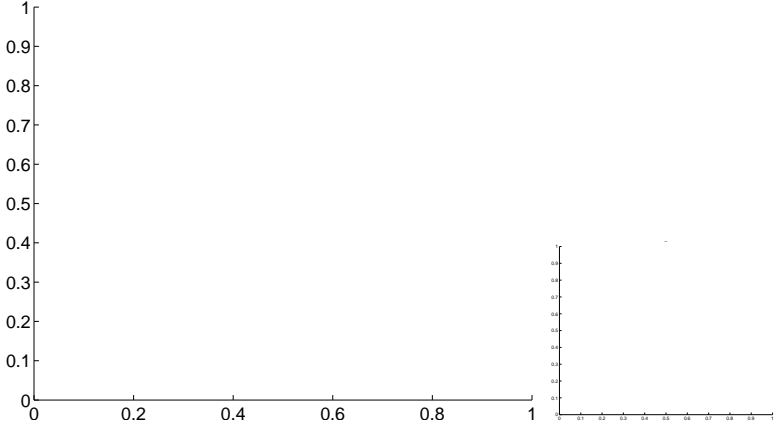
Q15 OOT image



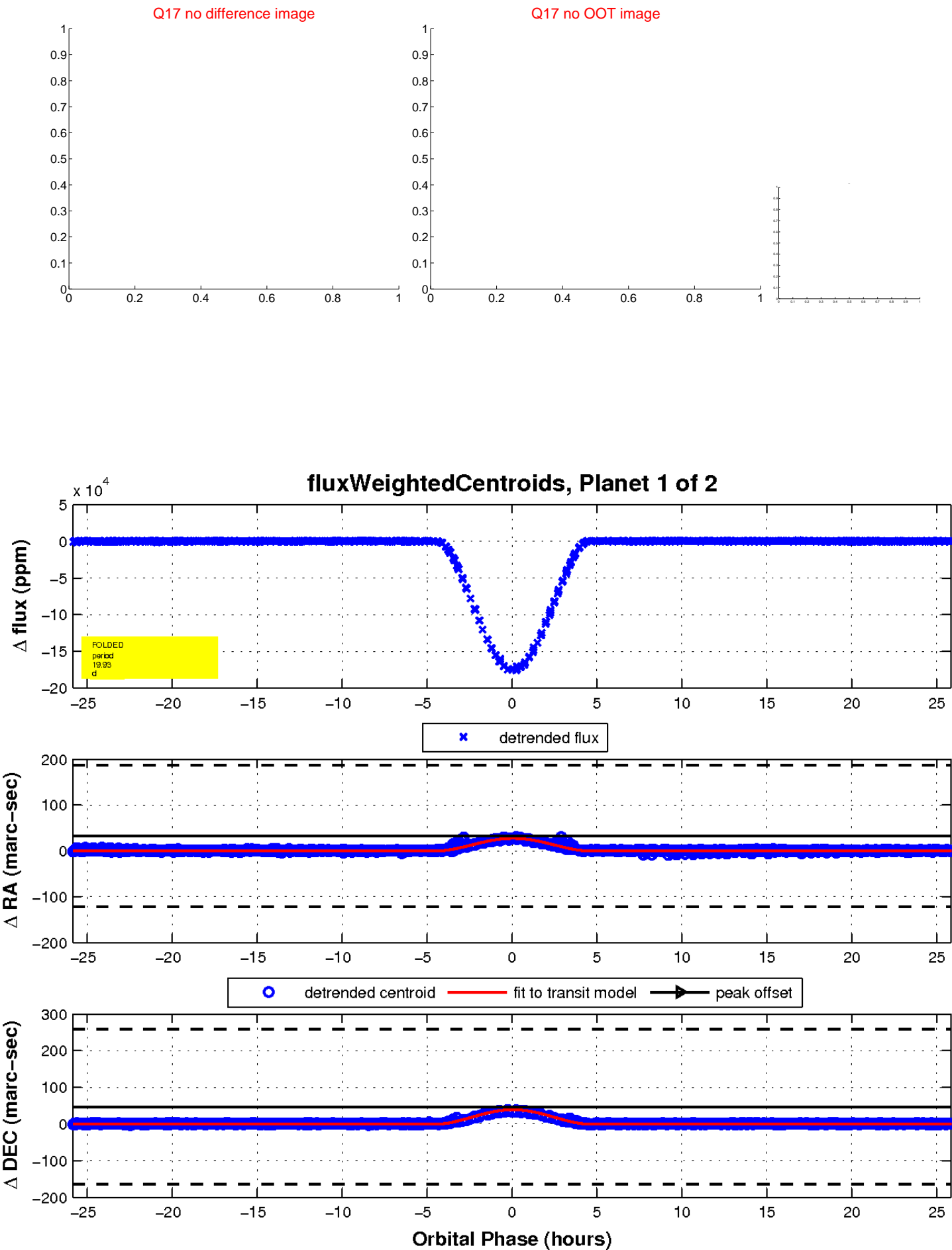
Q16 no difference image



Q16 no OOT image

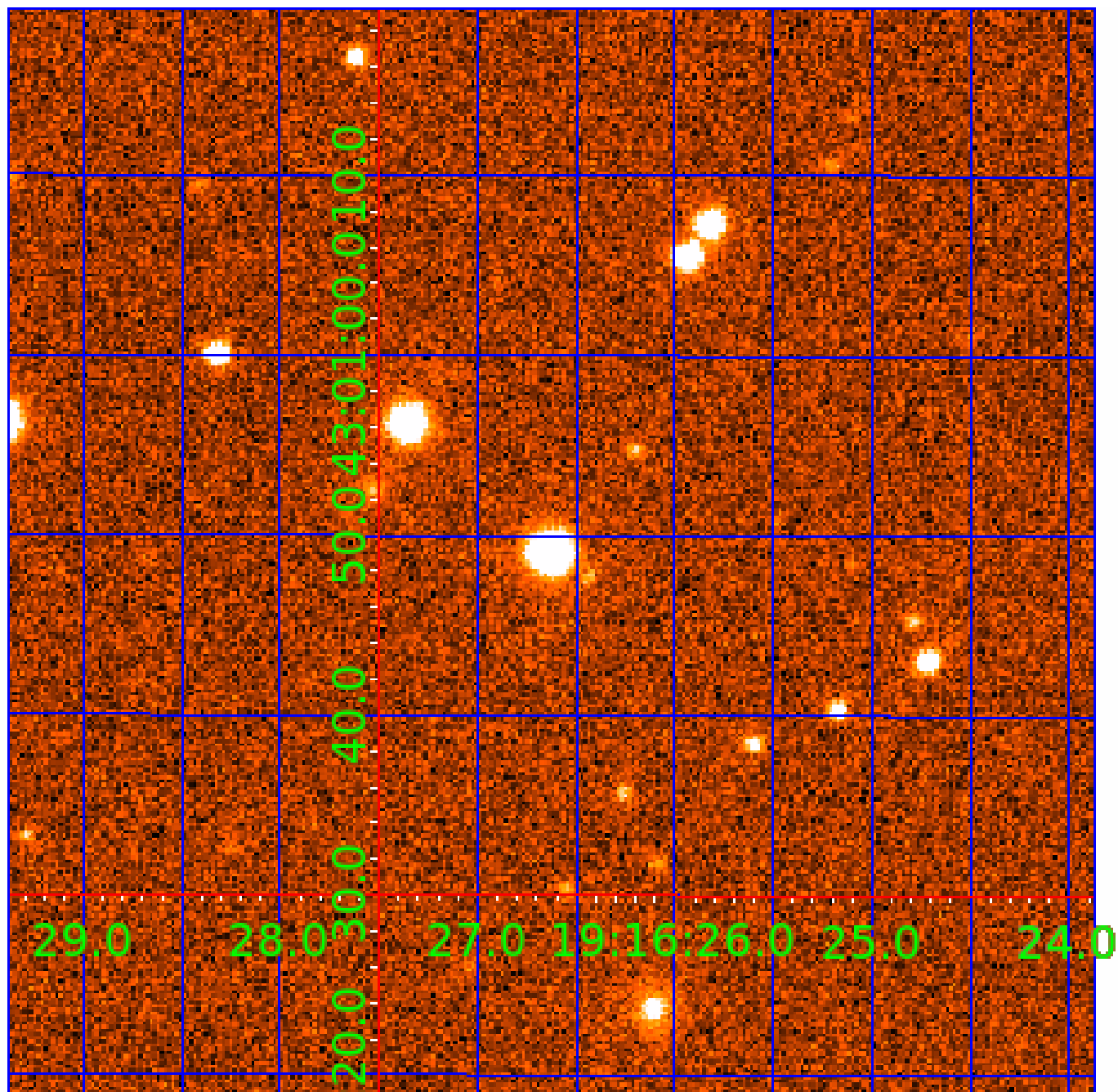


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007436177

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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007436177-02	OBS	No	19.933675	133.083683	97754.9	9.445	2005.3	1736.9	1.29	6505	58.76	122.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007436177-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_FEW_DIFFS
007436177-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—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.

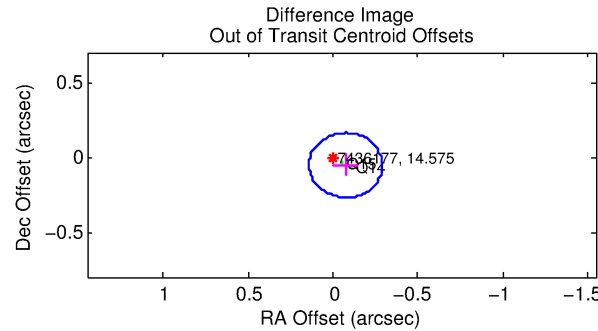
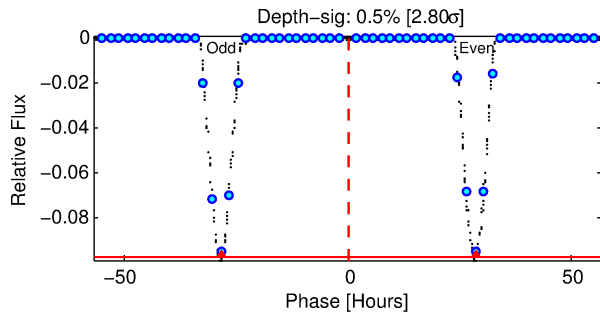
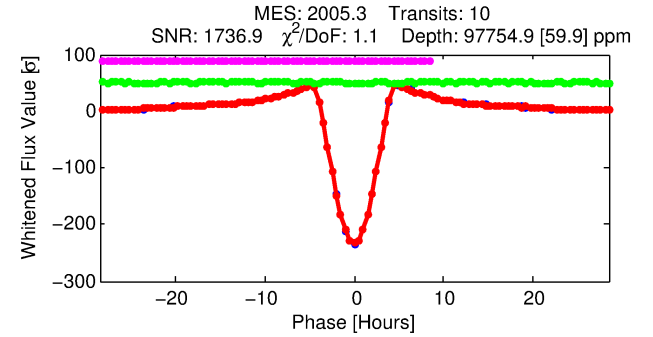
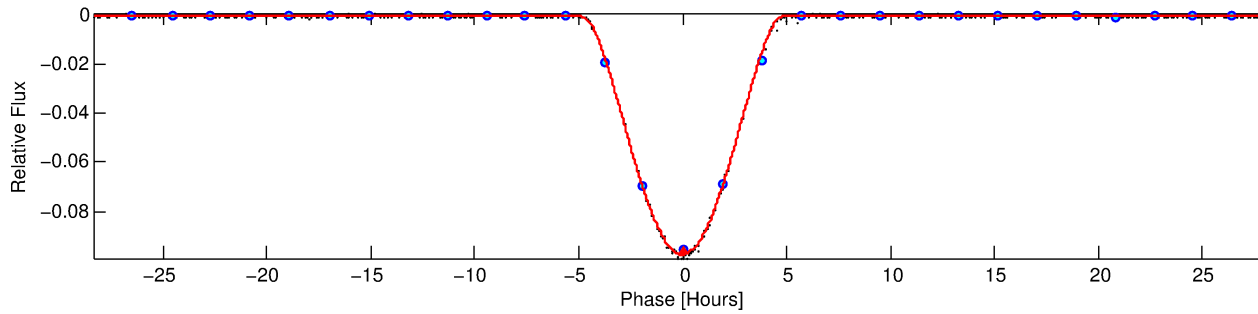
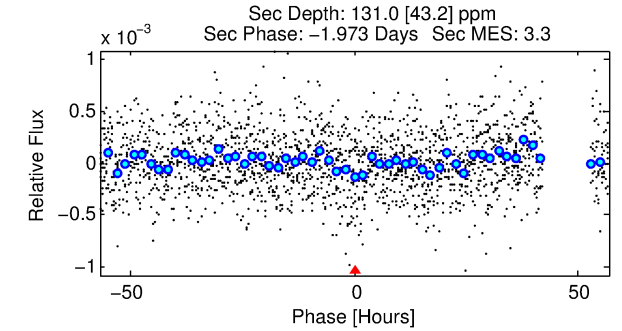
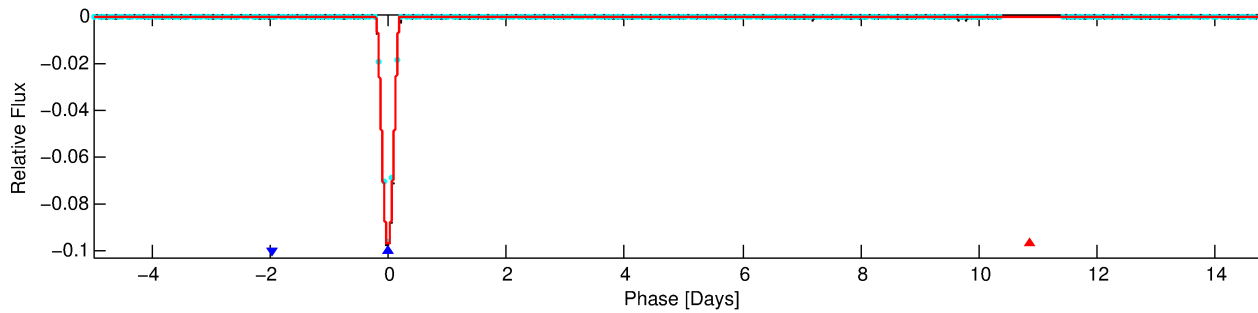
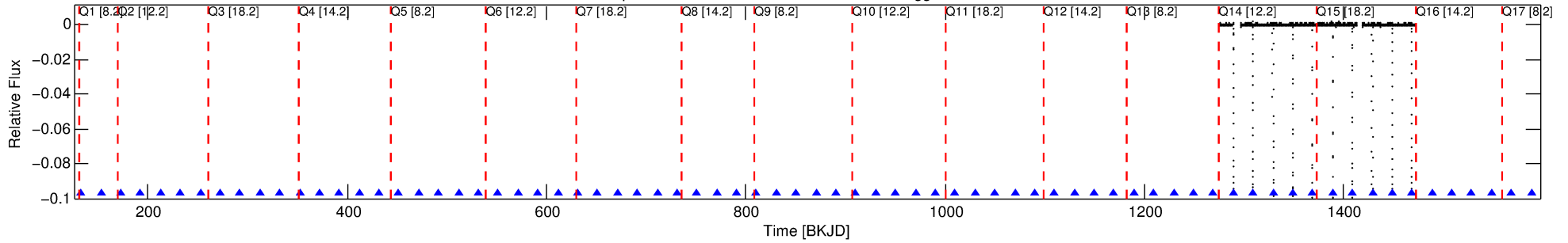
Ephemeris Match Information For 007436177-02

No Significant Match Found

DV One-Page Summary

KIC: 7436177 Candidate: 2 of 2 Period: 19.934 d
KOI: K06038 Corr: No Ephemeris Match

Kp: 14.57 R*: 1.29 Rs Teff: 6505.0 K Logg: 4.25 Fe/H: -0.340



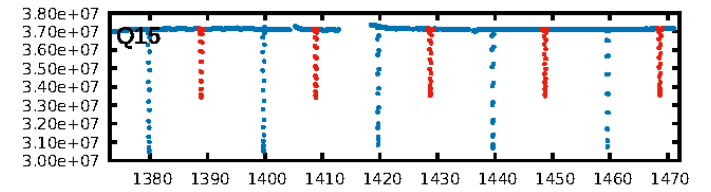
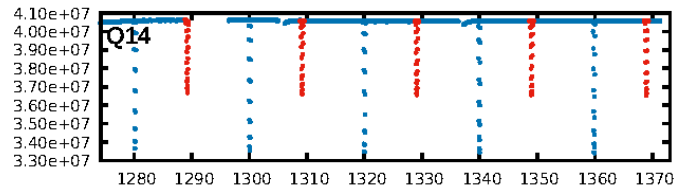
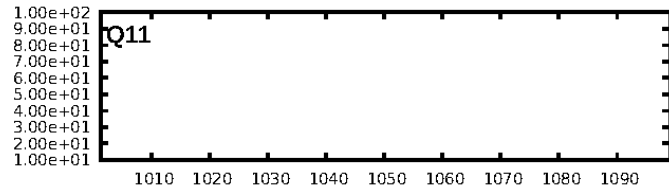
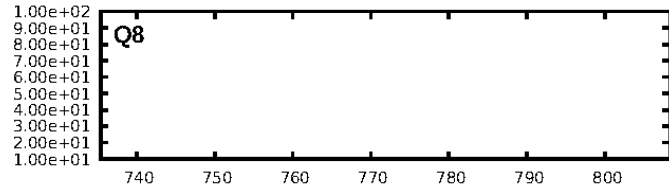
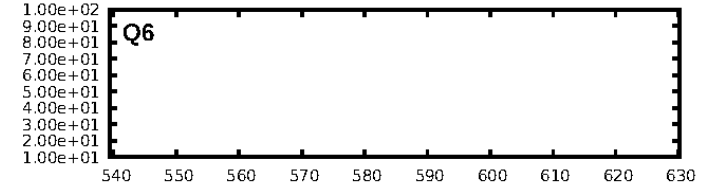
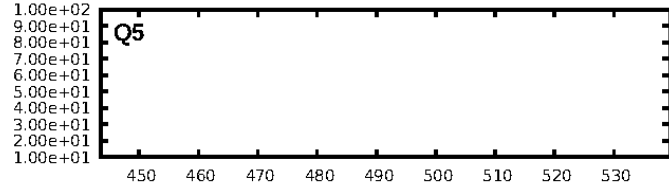
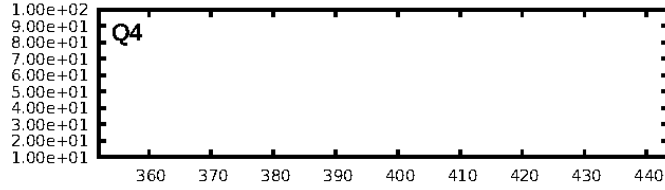
DV Fit Results:

Period = 19.93368 [0.00002] d
Epoch = 133.0837 [0.0011] BKJD
Rp/R* = 0.4174 [0.0152]
a/R* = 17.59 [0.01]
b = 0.91 [0.02]
Seff = 122.51 [46.36]
Teff = 848 [80] K
Rp = 58.76 [17.12] Re
a = 0.1476 [0.0355] AU
Ag = 0.45 [0.22] [-2.48σ]
Teffp = 1077 [100] K [1.78σ]

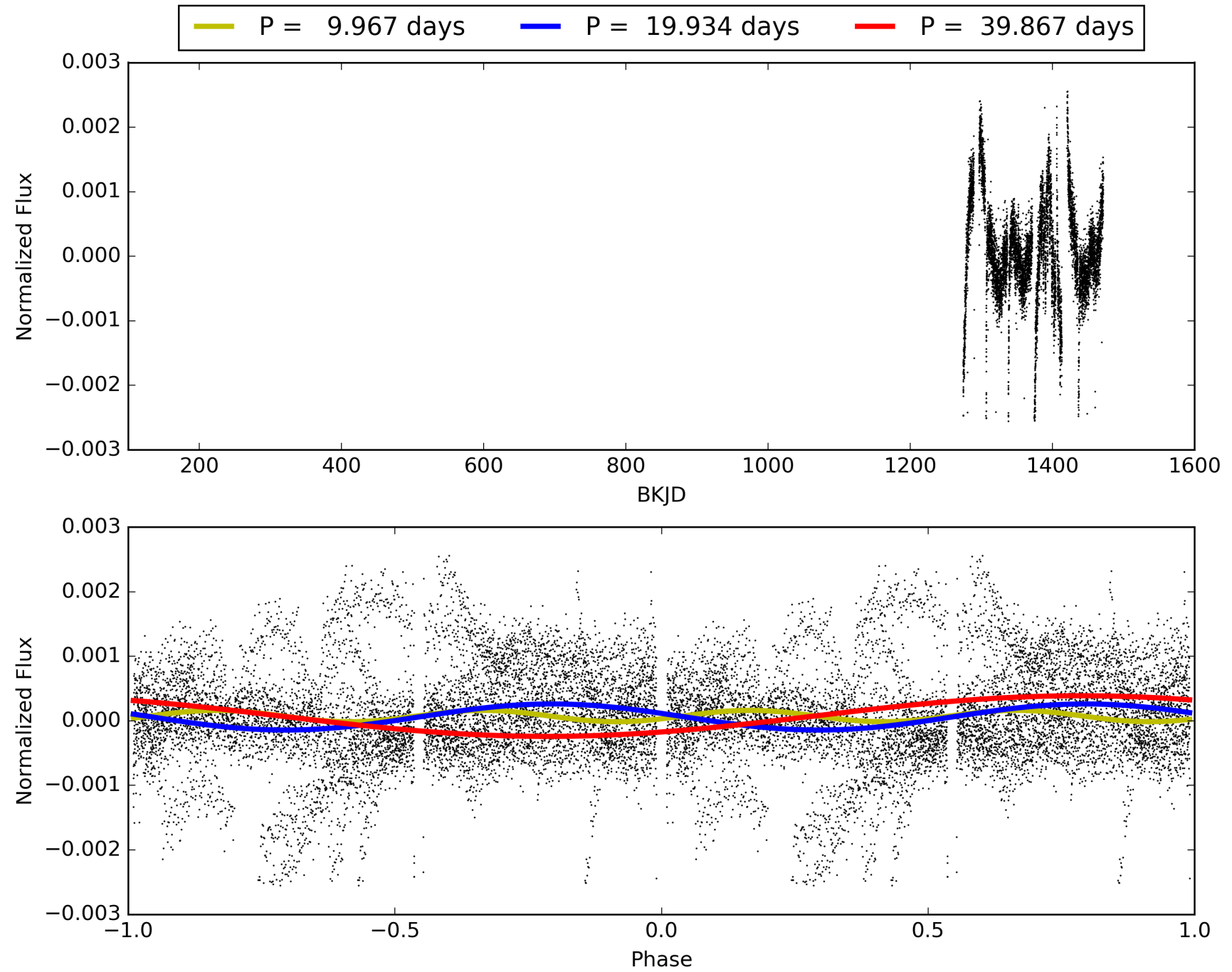
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 88.9%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 5.846
Centroid-sig: 0.0%
Centroid-so: 0.390 arcsec [86.19σ]
OotOffset-rm: 0.091 arcsec [1.27σ]
KicOffset-rm: 0.054 arcsec [0.80σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 007436177-02, PDC Light Curves

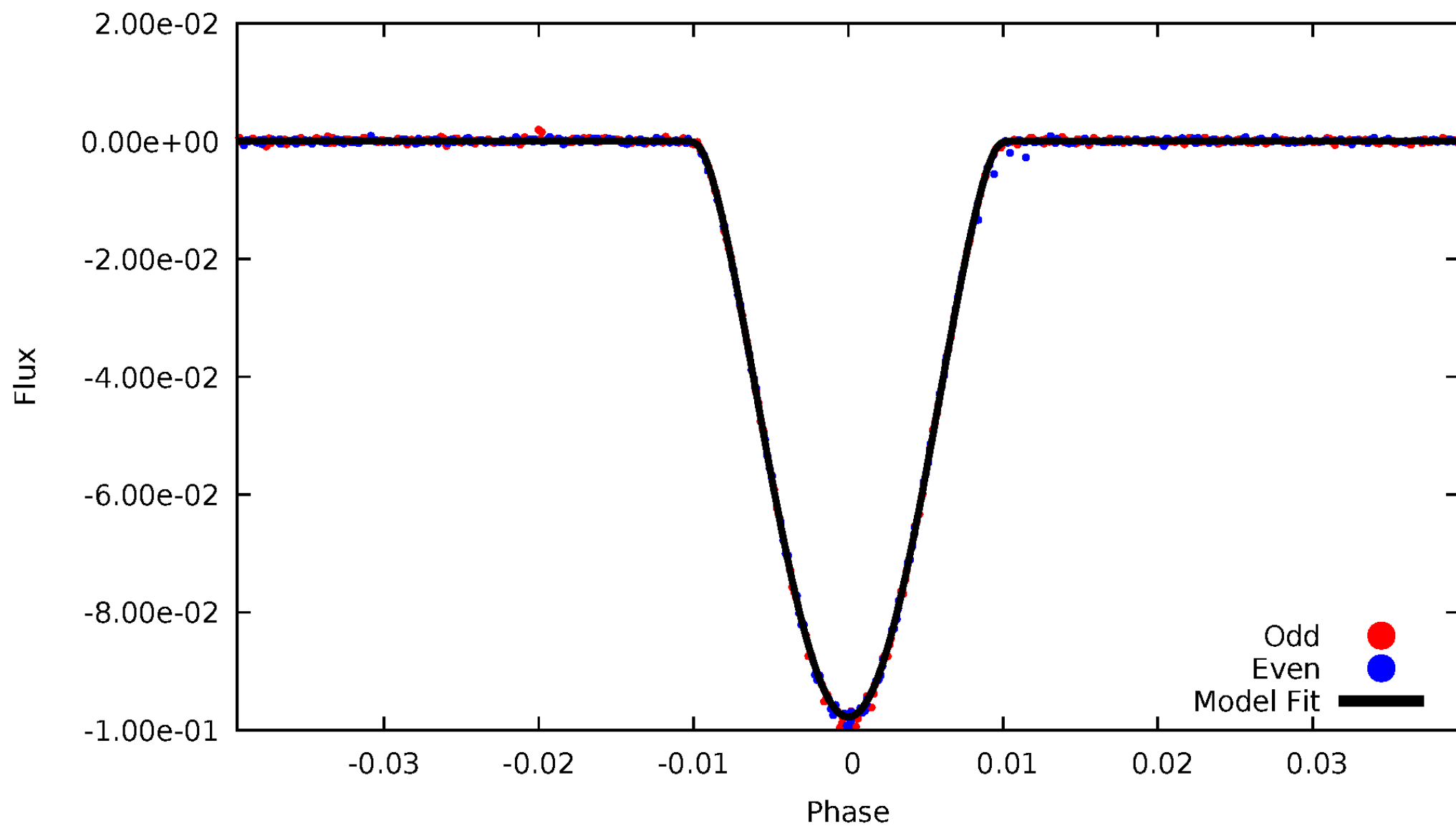


TCE 007436177-02



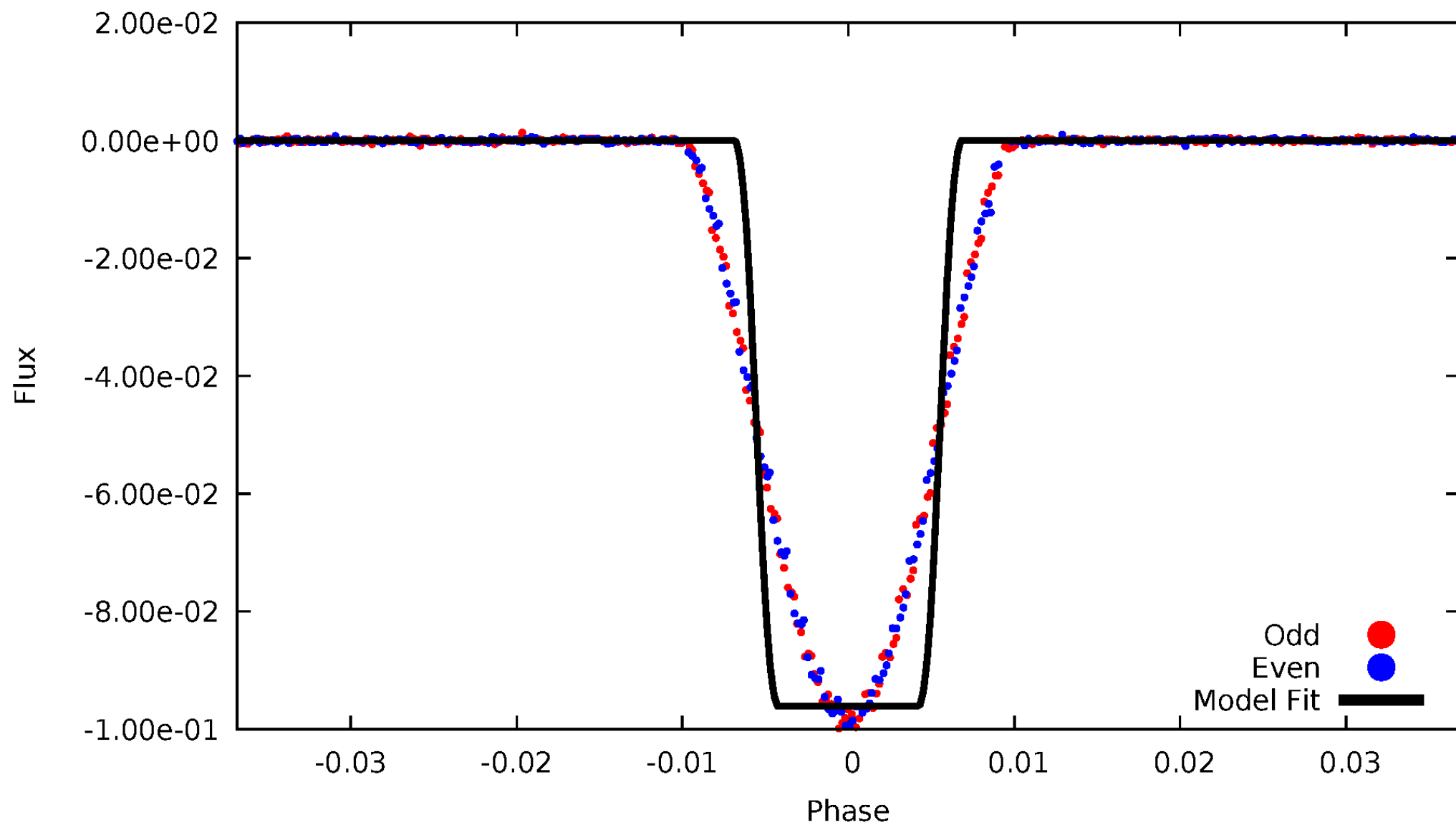
DV Odd/Even

TCE 007436177-02



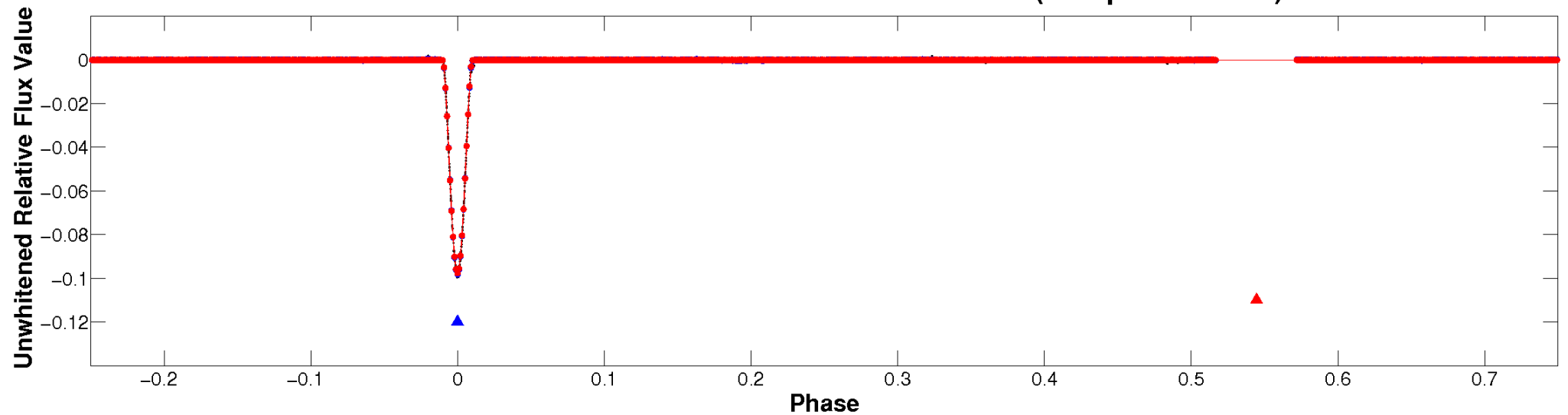
ALT Odd/Even

TCE 007436177-02

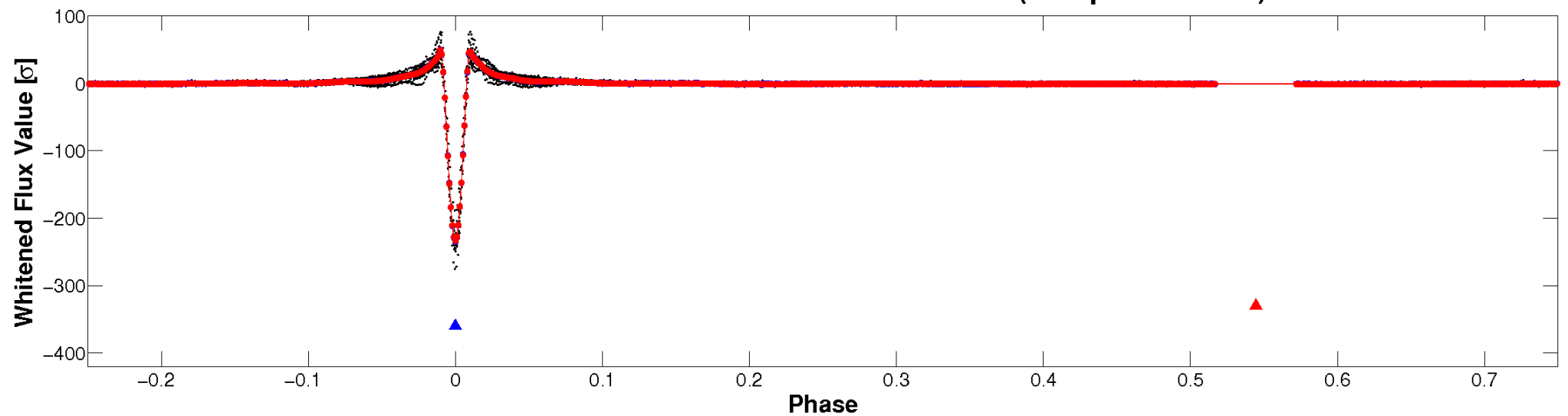


Non-Whitened Vs. Whitened Light Curve

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

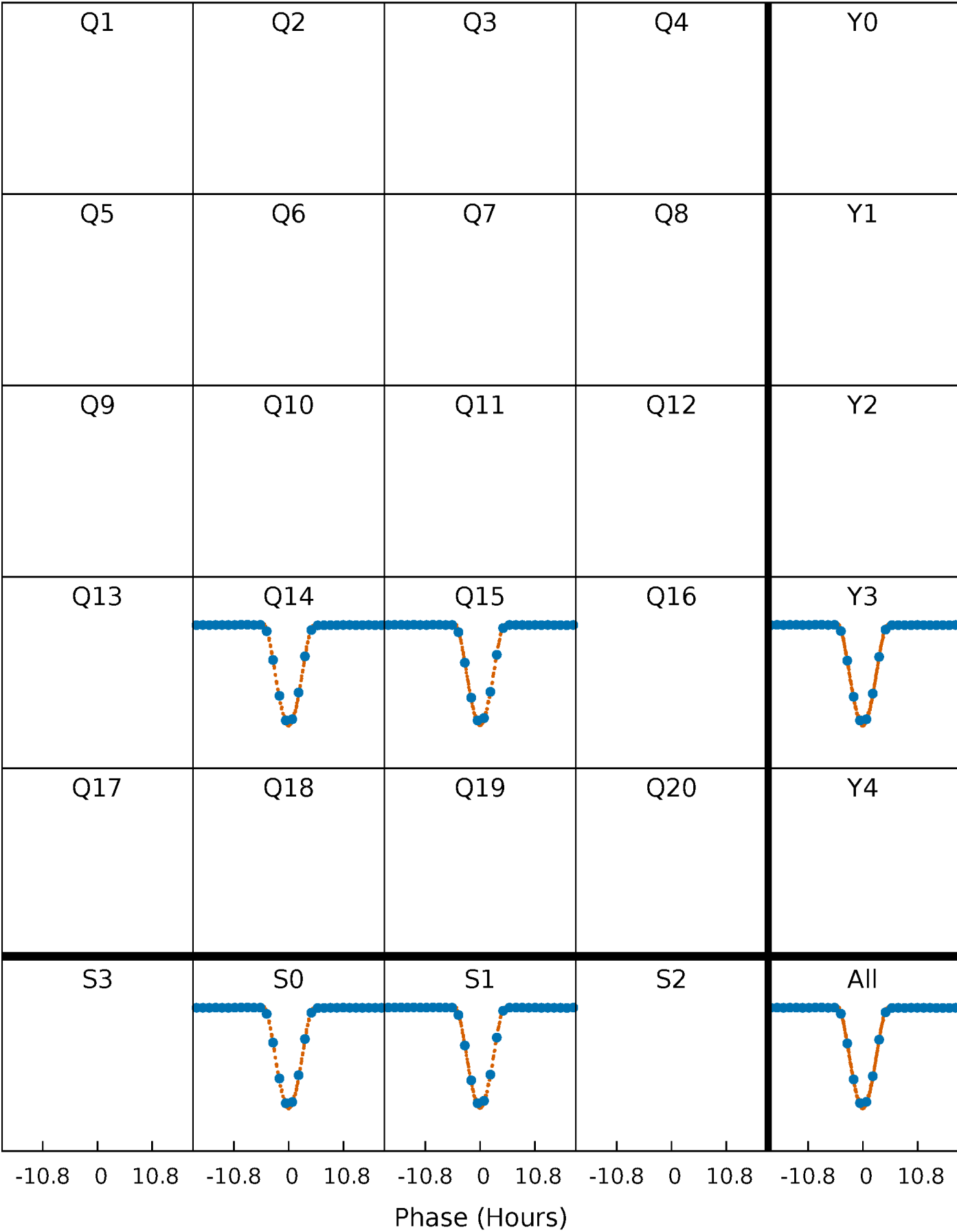


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



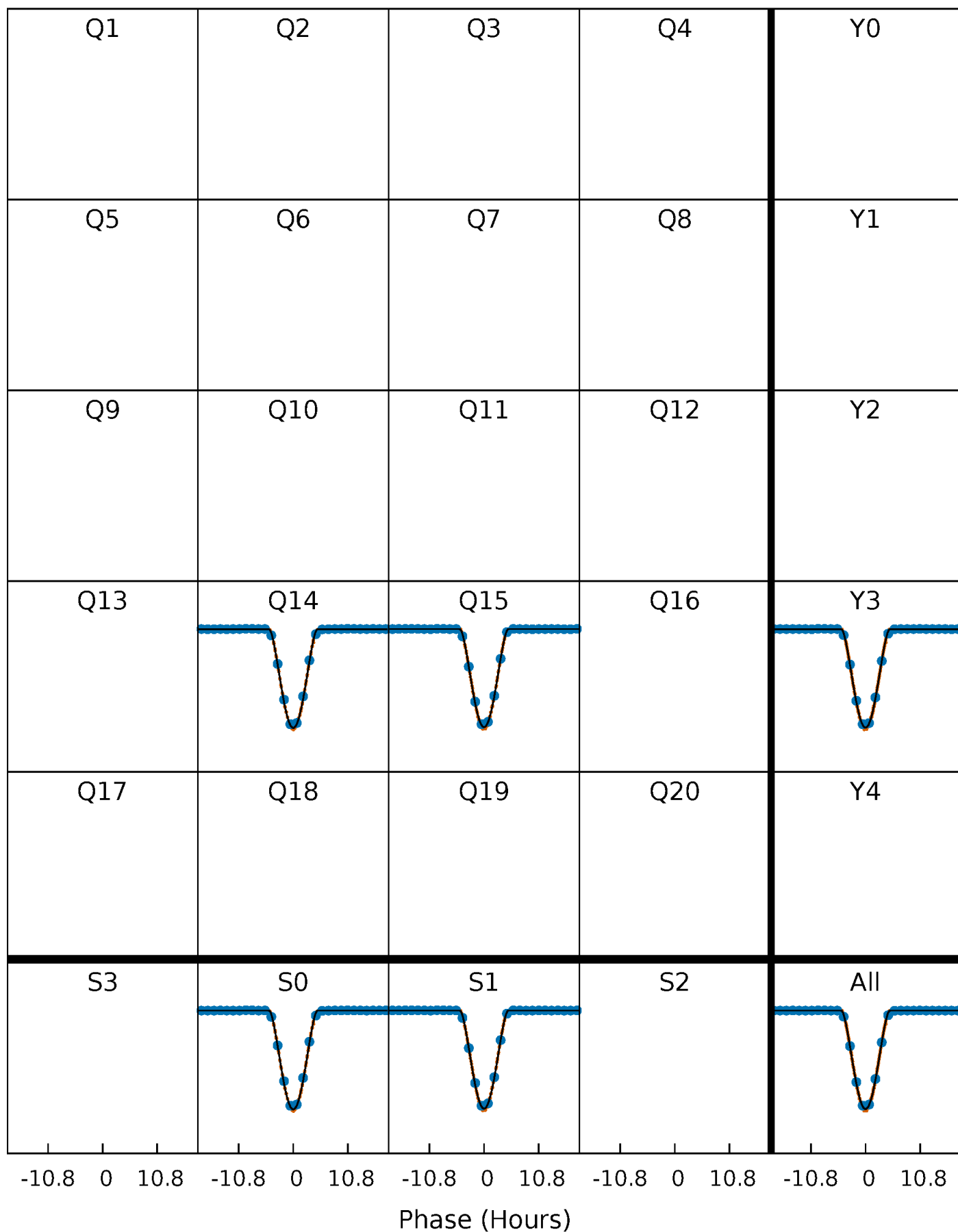
PDC Quarter-Phased Transit Curves

TCE 007436177-02 P= 19.933675 Days $T_0=133.083683$ (BKJD)



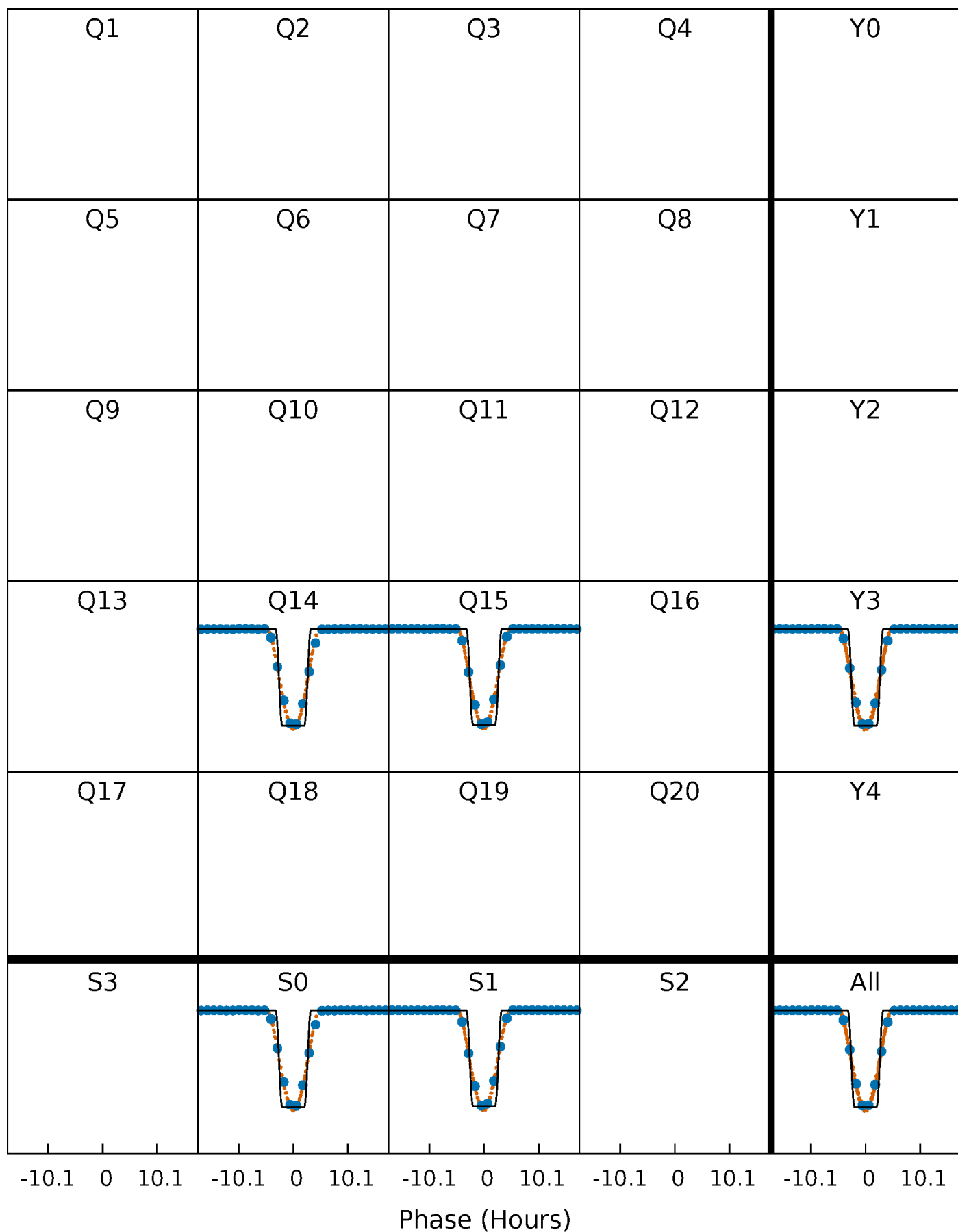
DV Quarter-Phased Transit Curves

TCE 007436177-02 P= 19.933675 Days $T_0=133.083683$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

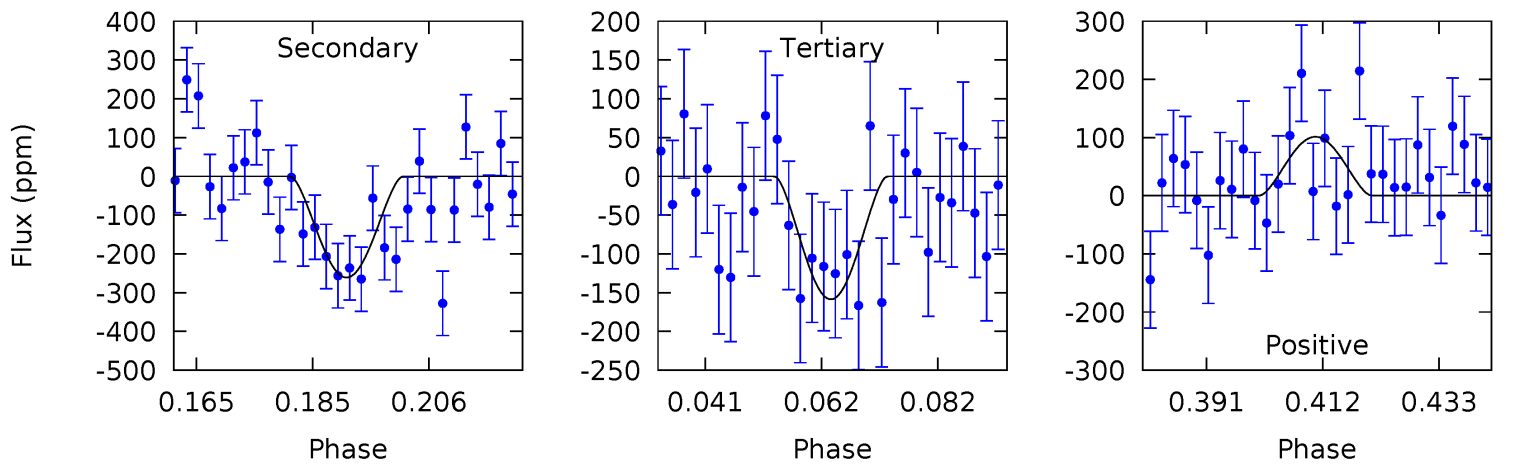
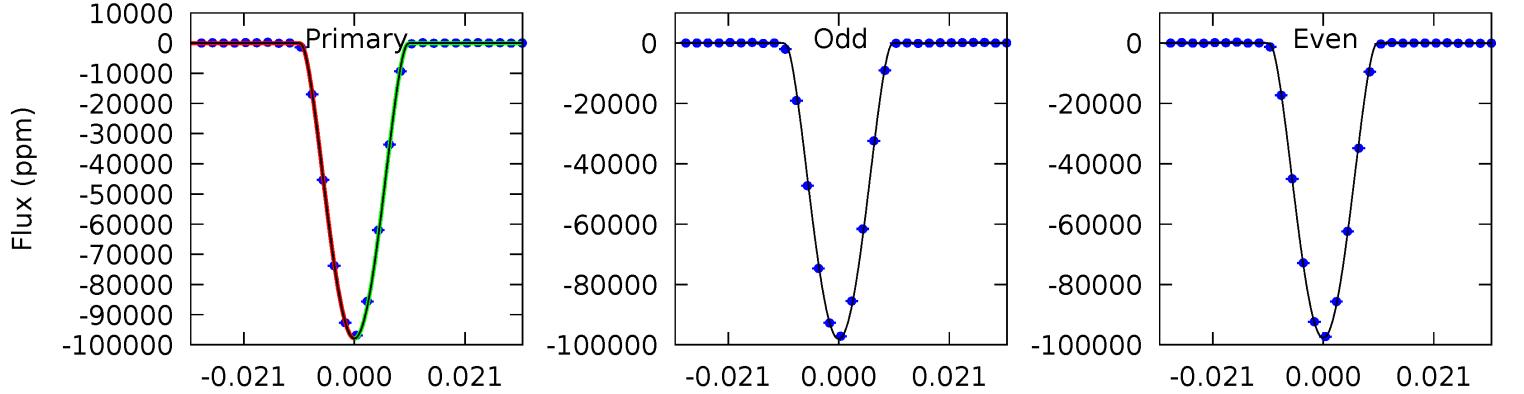
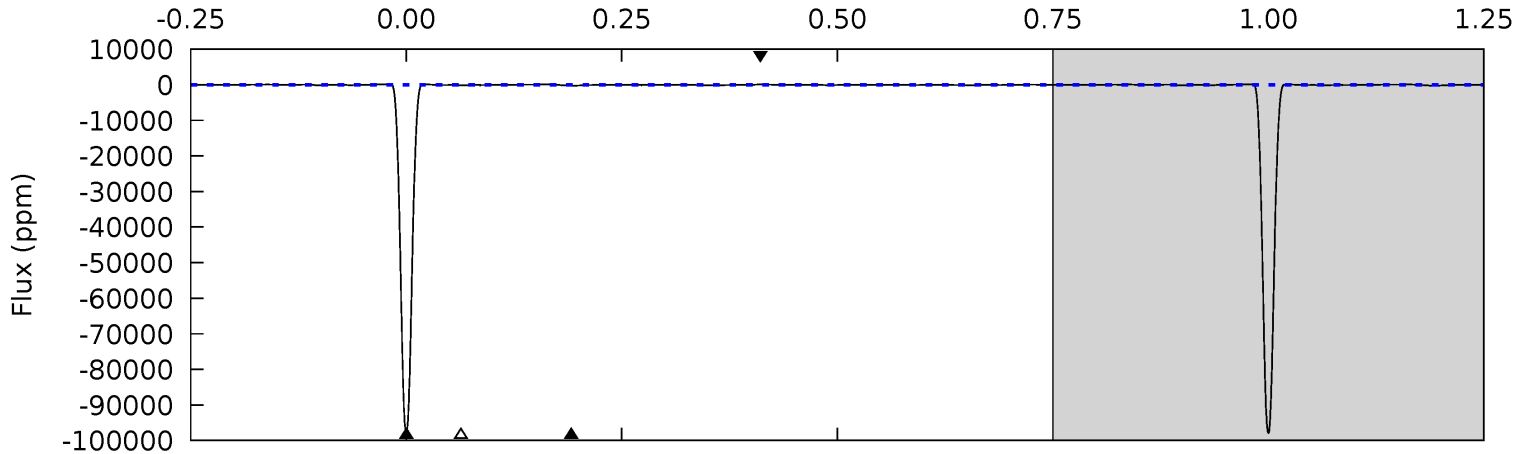
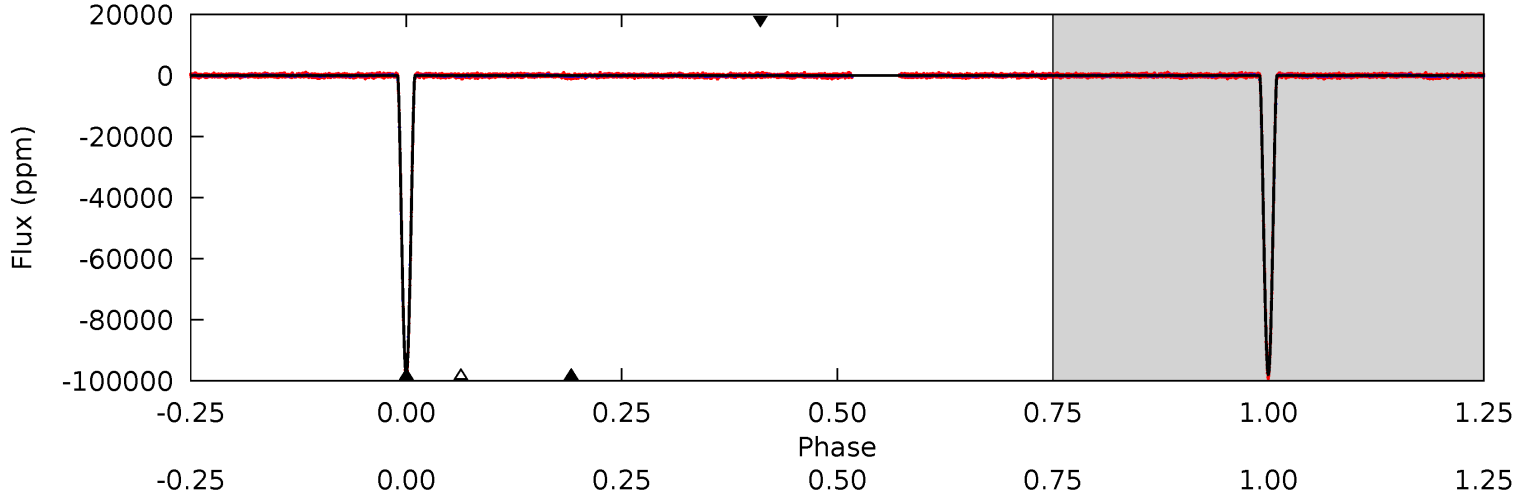
TCE 007436177-02 P= 19.934546 Days $T_0=133.029327$ (BKJD)



DV Model-Shift Uniqueness Test

007436177-02, P = 19.933675 Days, E = 133.083683 Days

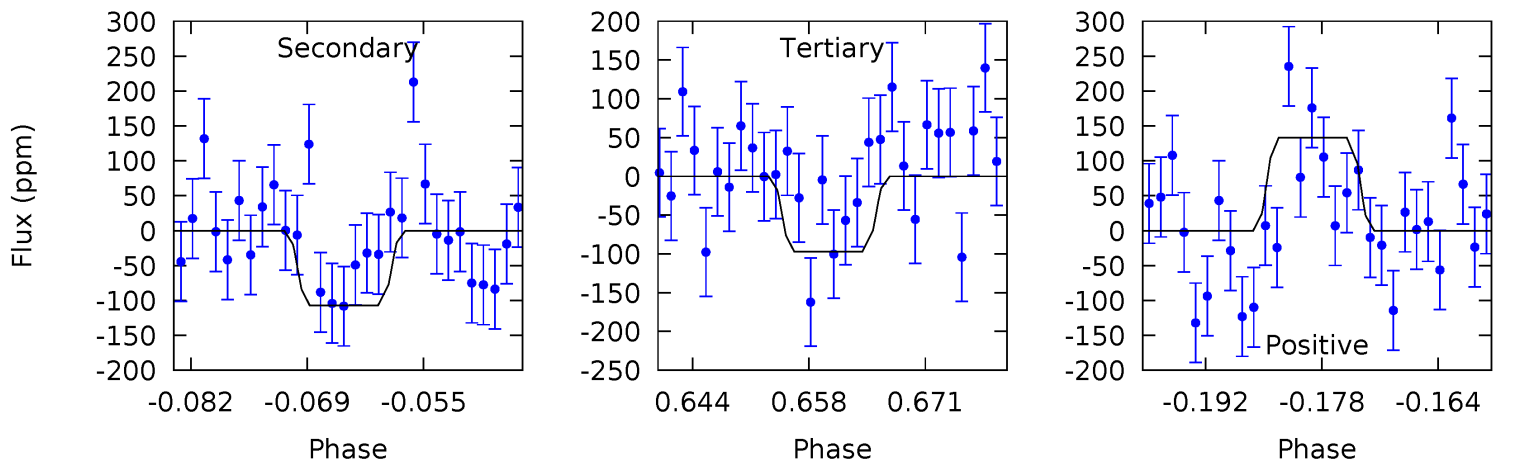
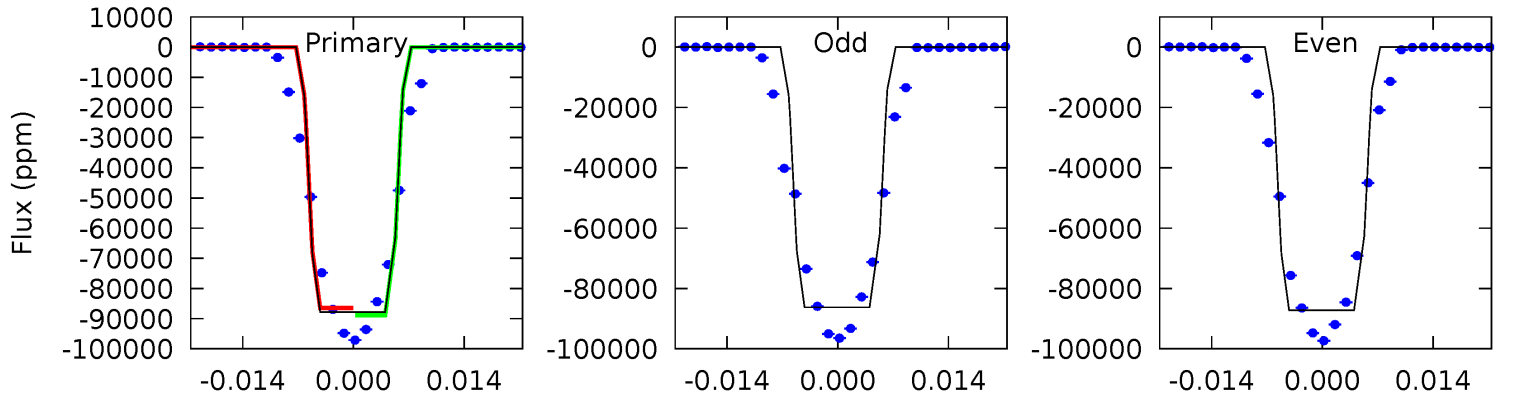
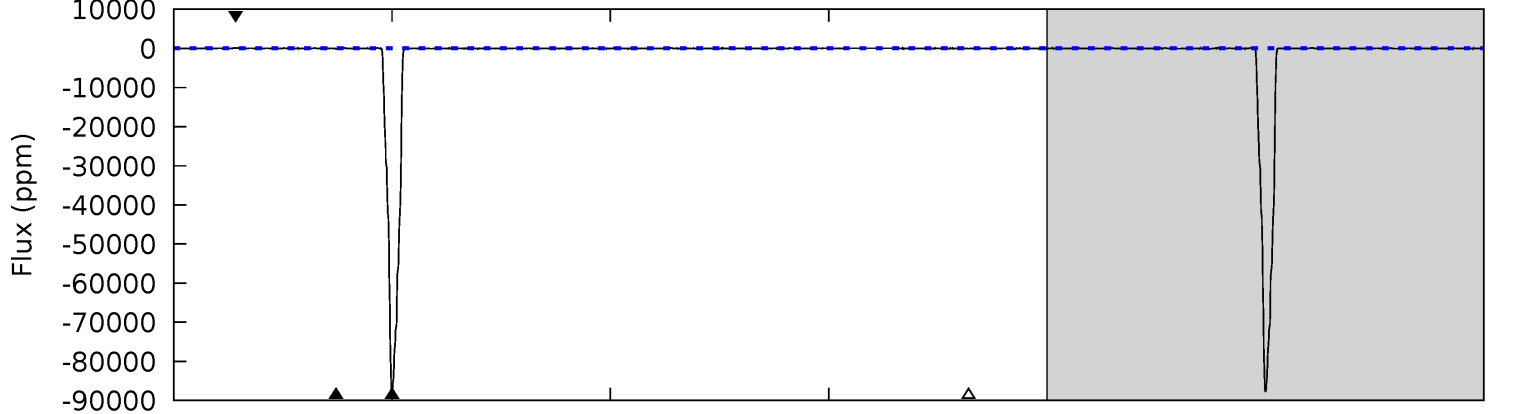
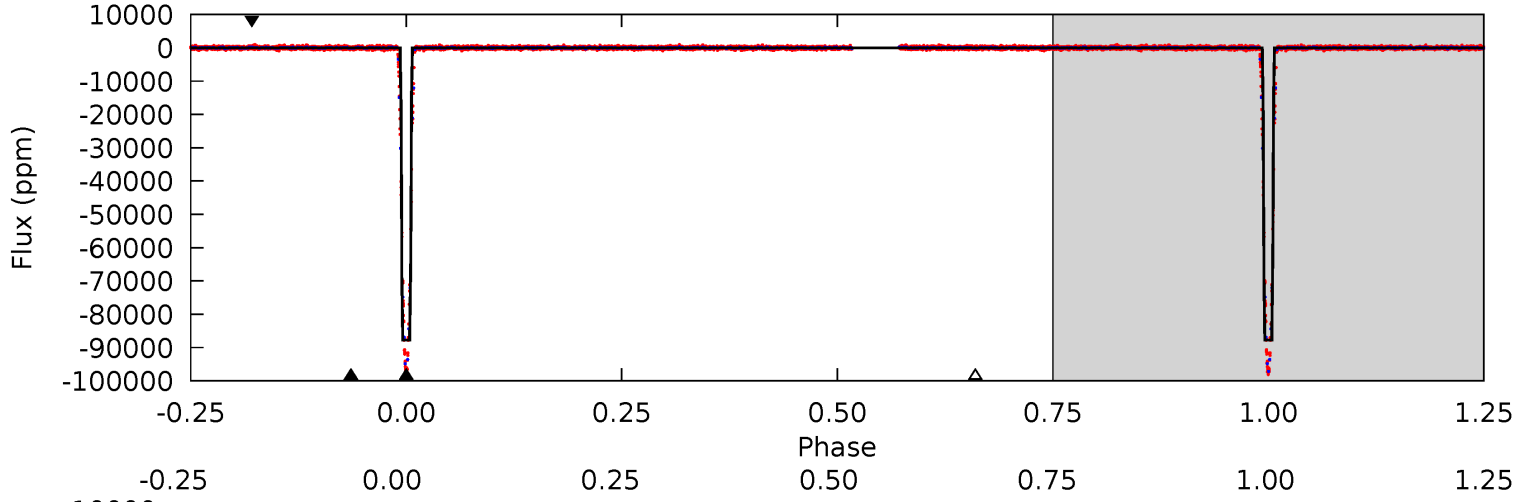
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4697	12.5	7.61	4.86	4.89	2.32	2.88	4689	4692	4.91	7.66	9.13	1.00	0.00	3.38



Alt Model-Shift Uniqueness Test

007436177-02, P = 19.934546 Days, E = 133.029327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2734	3.34	3.02	4.14	4.97	2.46	1.09	2731	2730	0.33	-0.80	17.7	1.00	0.00	36.1



Stellar Parameters For KIC 007436177

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6505^{+181}_{-250}	$4.250^{+0.153}_{-0.187}$	$-0.340^{+0.250}_{-0.300}$	$1.290^{+0.373}_{-0.280}$	$1.078^{+0.177}_{-0.129}$	$0.706^{+0.531}_{-0.350}$
	+3%/-4%	+4%/-4%	+74%/-88%	+29%/-22%	+16%/-12%	+75%/-50%
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 007436177-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-261 ± 21	$59.12^{+9.87}_{-6.95}$	1184^{+94}_{-73}	2122^{+54}_{-65}	$0.893^{+0.260}_{-0.220}$
Alt.	-107 ± 32	$44.14^{+7.76}_{-5.95}$	1187^{+95}_{-77}	2012^{+112}_{-185}	$0.645^{+0.318}_{-0.233}$

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

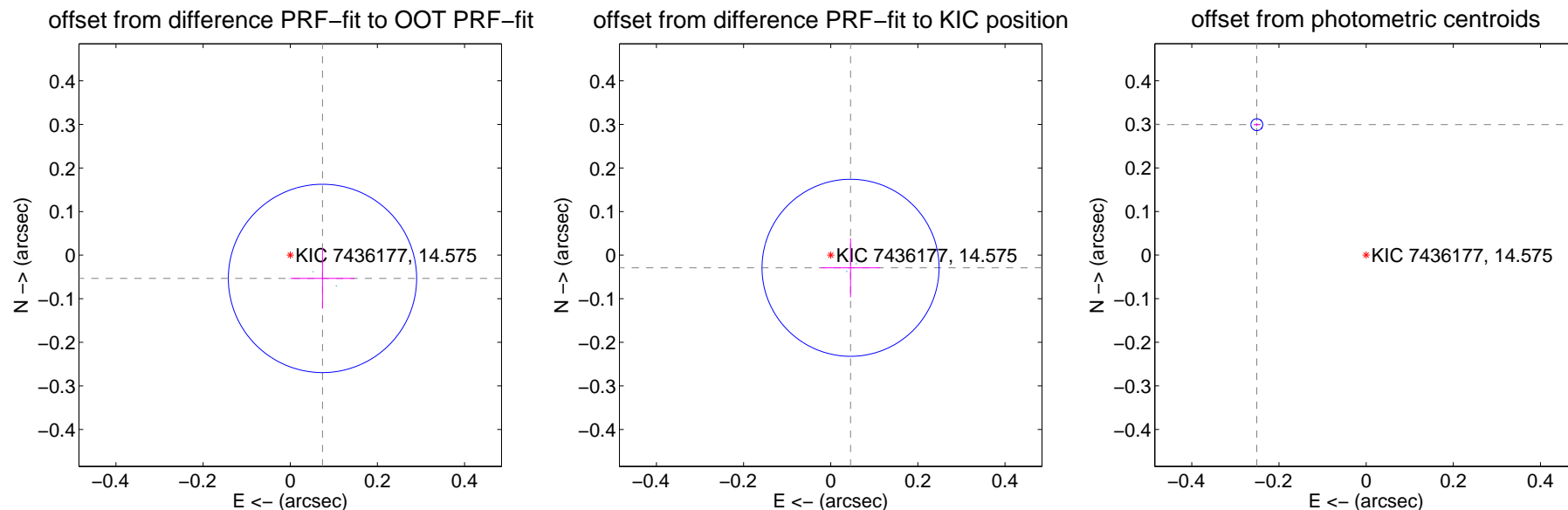
DV Centroid Data

Supplemental centroid analysis for 007436177-02. Kepler magnitude: 14.57. Transit SNR 1736.92

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.091 ± 0.072	1.27	-0.074 ± 0.073	-0.053 ± 0.069
PRF-fit source offset from KIC position	0.054 ± 0.068	0.80	-0.045 ± 0.068	-0.029 ± 0.067
photometric centroid source offset	0.39 ± 0.00	86.19	0.25 ± 0.01	0.30 ± 0.00

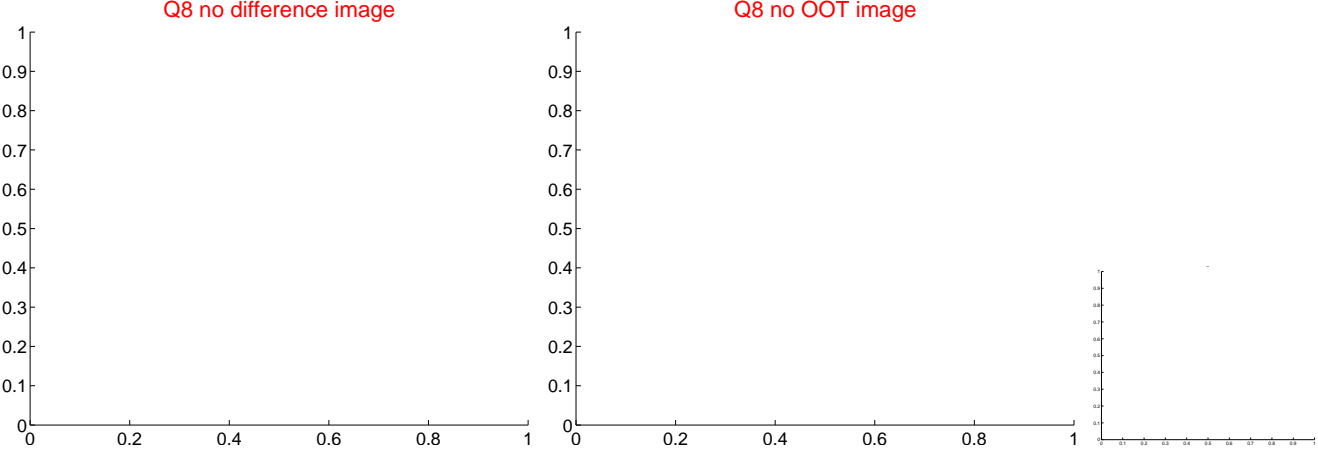
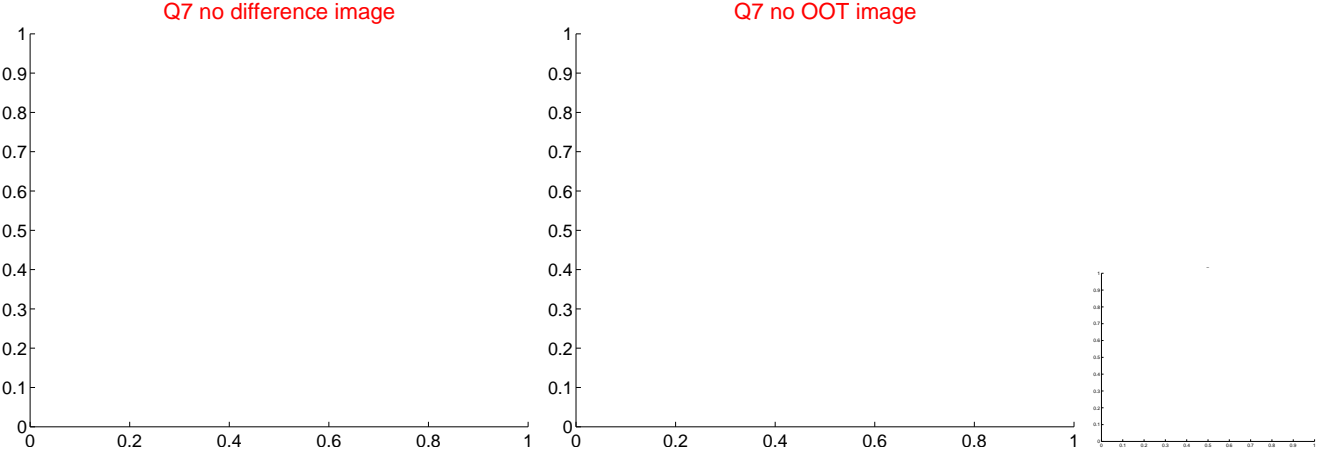


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



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

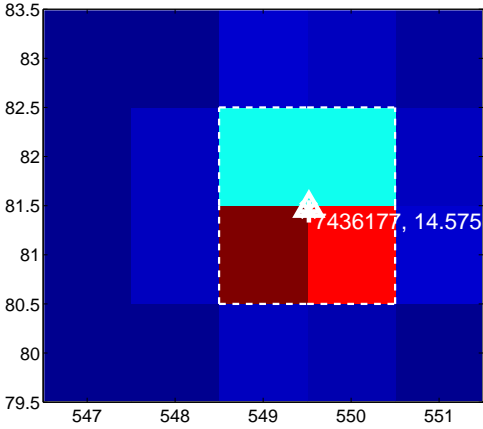
Q13 no difference image



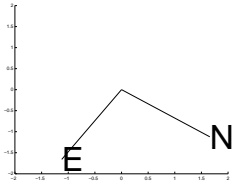
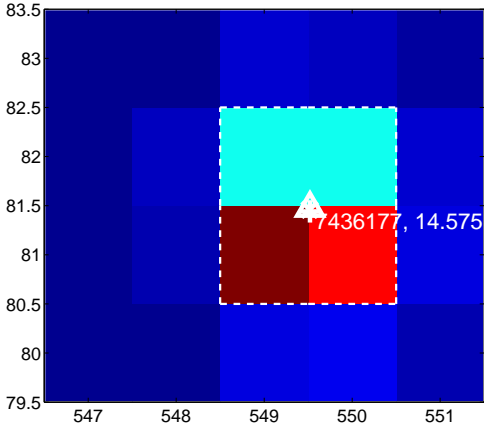
Q13 no OOT image



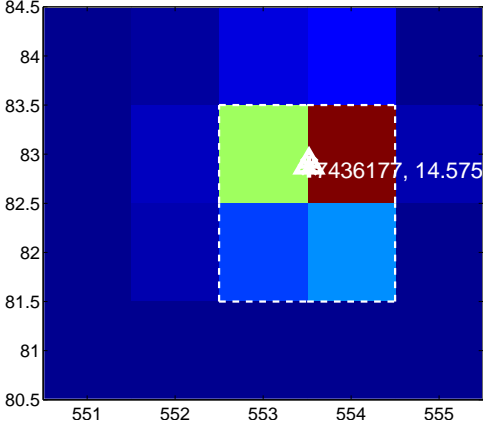
Q14 difference image



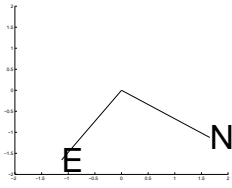
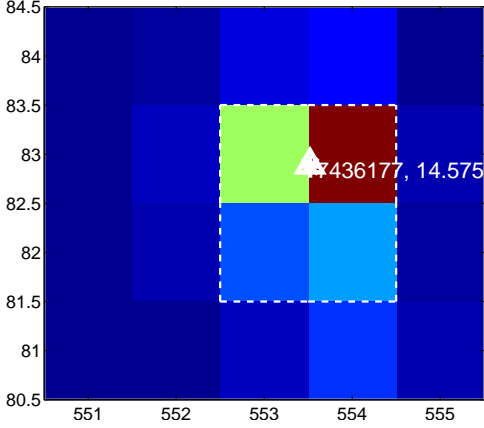
Q14 OOT image



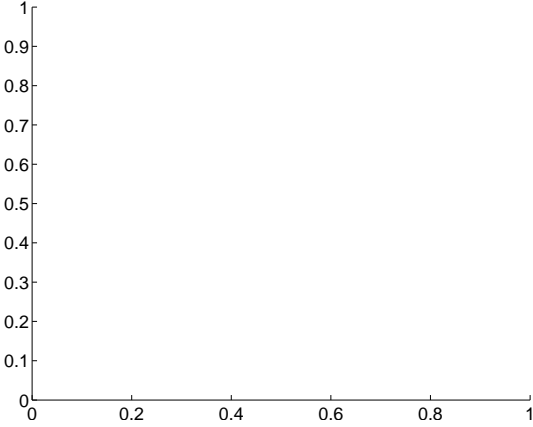
Q15 difference image



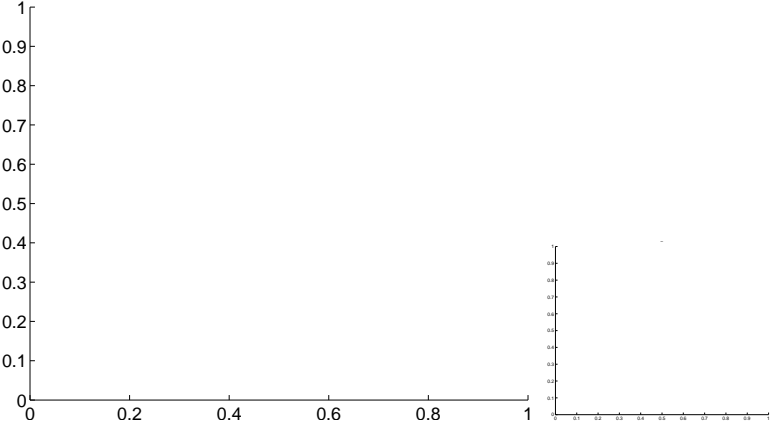
Q15 OOT image



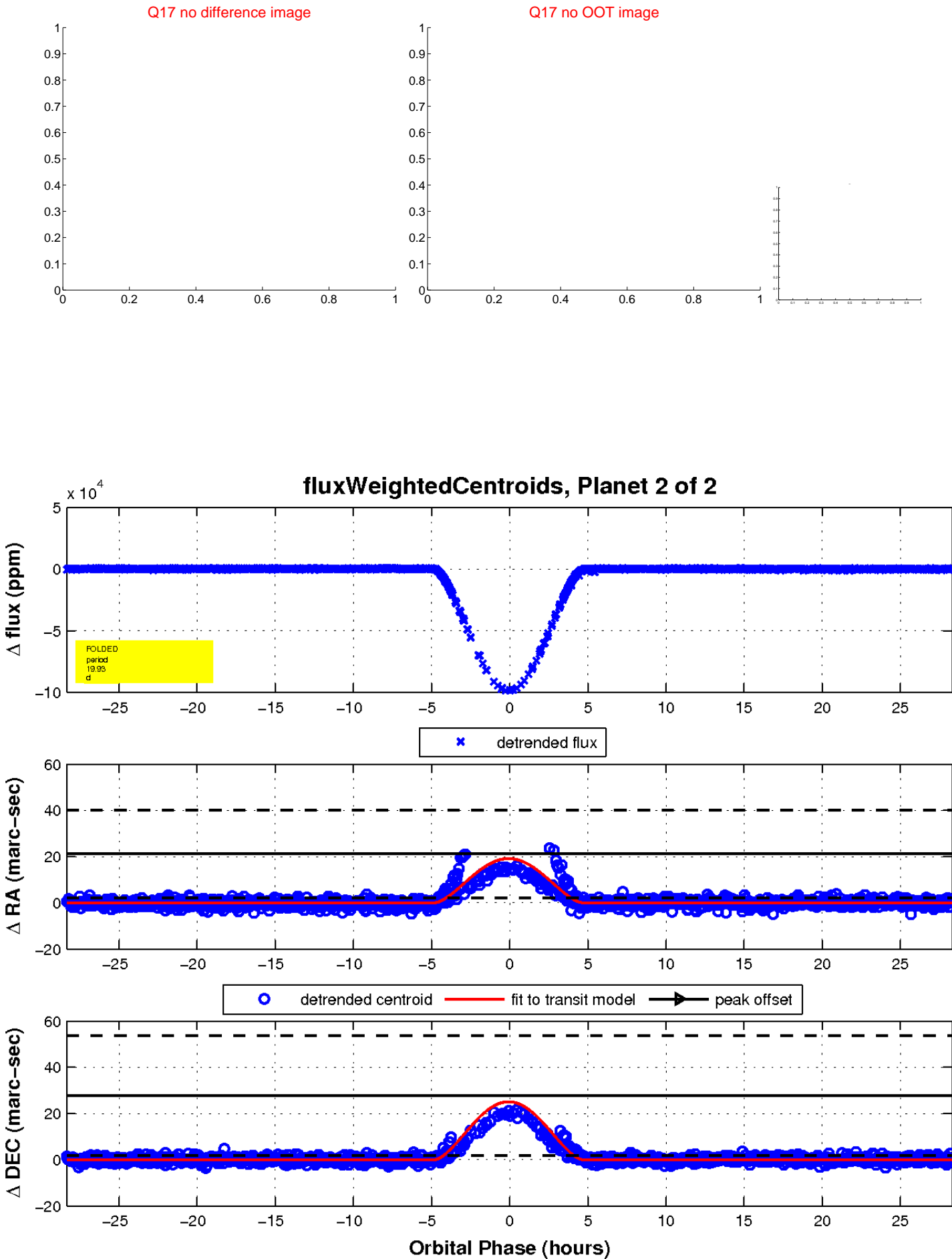
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

