

KIC 007107567

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})
007107567-01	OBS	5353.01	0.812584	131.571849	4543.7	1.466	282.0	280.5	1.64	7117	14.40	17040.70
007107567-02	OBS	No	0.812612	131.932809	371.7	0.634	11.4	21.0	1.64	7117	3.76	17039.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007107567-01	OBS	PC	0.57	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—HAS_SEC_TCE—CENT_FEW_DIFFS
007107567-02	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.

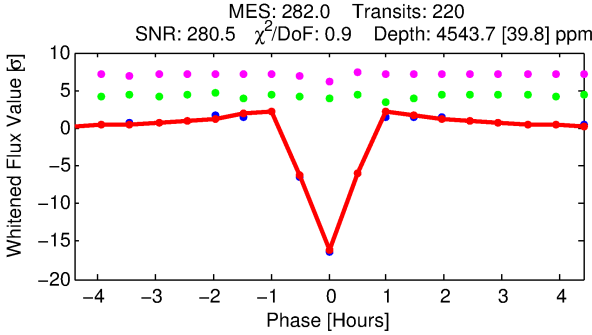
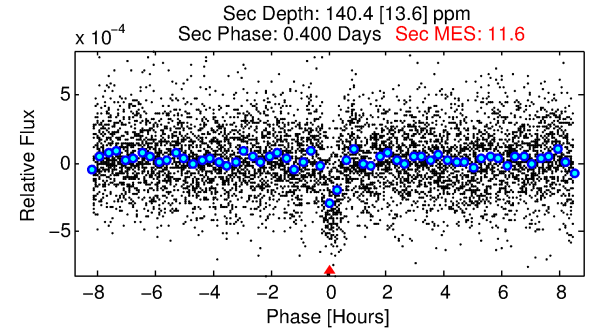
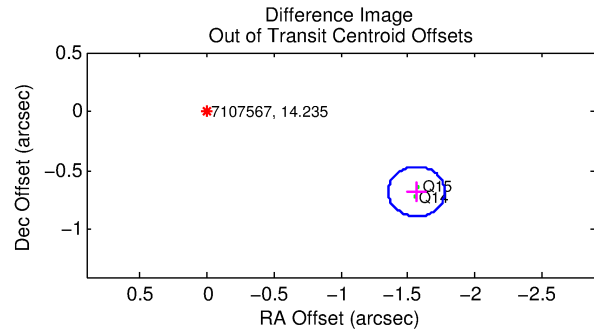
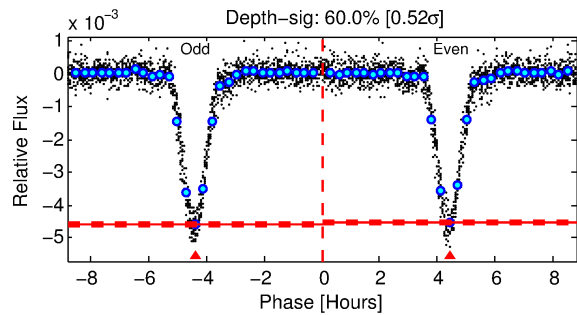
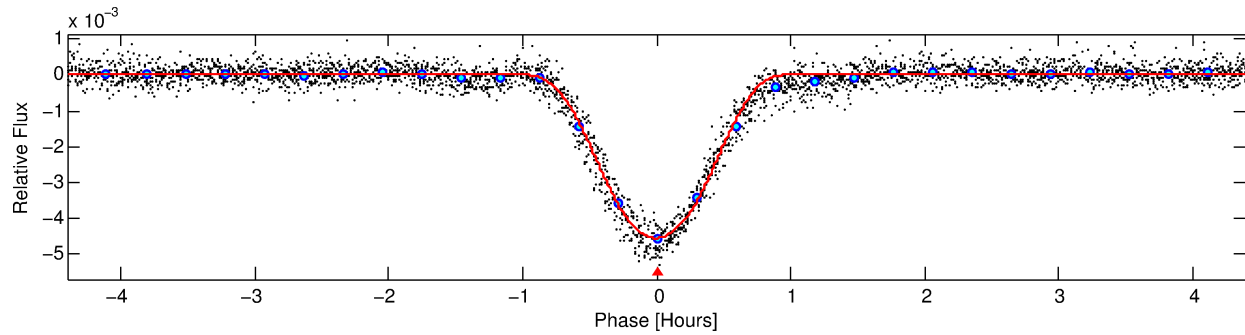
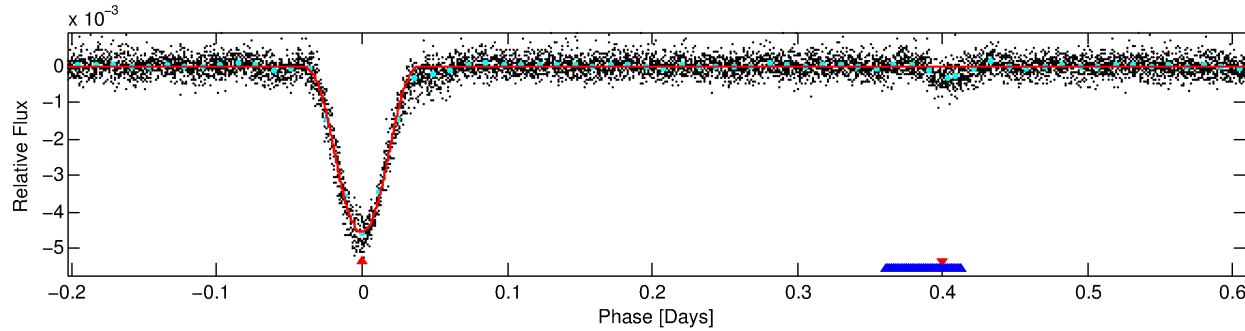
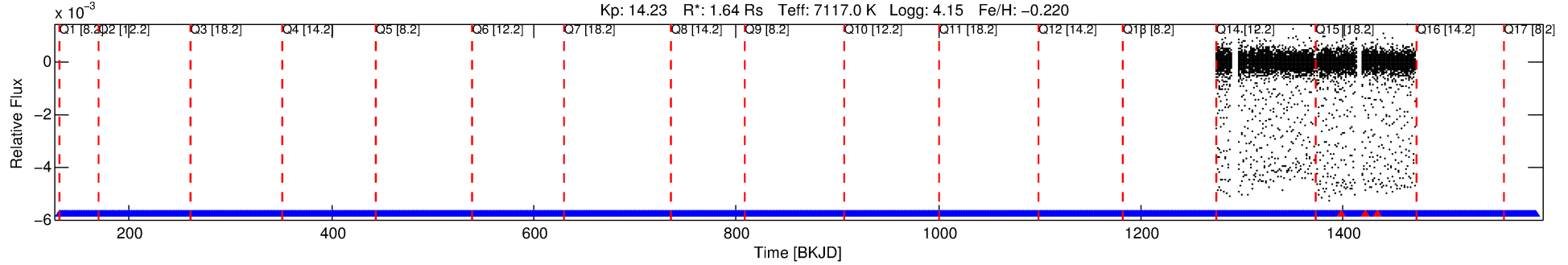
Ephemeris Match Information For 007107567-01

No Significant Match Found

DV One-Page Summary

KIC: 7107567 Candidate: 1 of 2 Period: 0.813 d
KOI: K05353.01 Corr: 0.876

Kp: 14.23 R*: 1.64 Rs Teff: 7117.0 K Logg: 4.15 Fe/H: -0.220



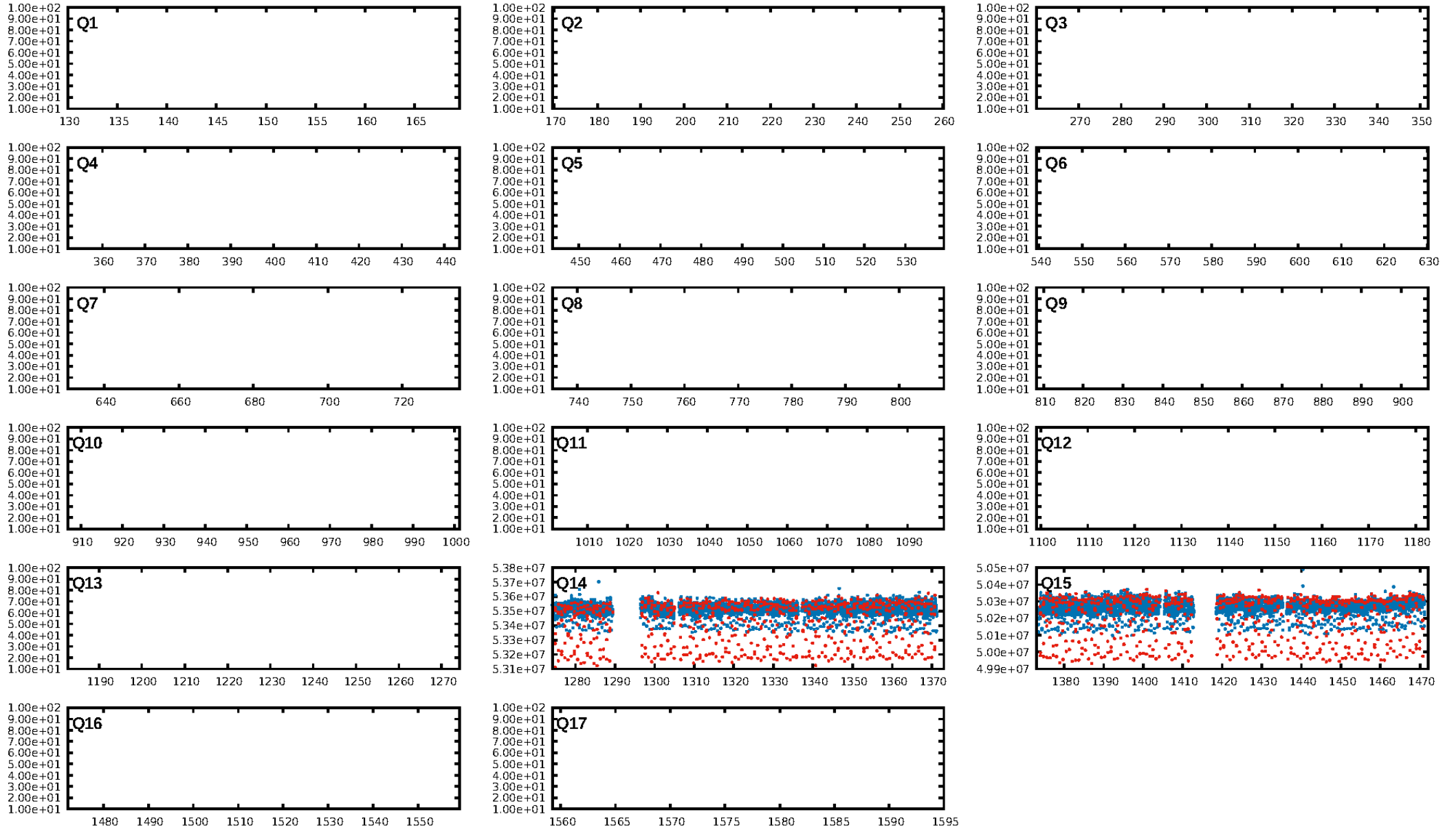
DV Fit Results:

Period = 0.81258 [0.00000] d
Epoch = 131.5718 [0.0001] BKJD
Rp/R* = 0.0805 [0.0042]
a/R* = 2.45 [0.06]
b = 0.94 [0.01]
Seff = 17040.70 [6523.17]
Teq = 2913 [279] K
Rp = 14.40 [4.30] Re
a = 0.0190 [0.0046] AU
Ag = 0.14 [0.05] [-17.36σ]
Teffp = 2731 [155] K [-0.57σ]

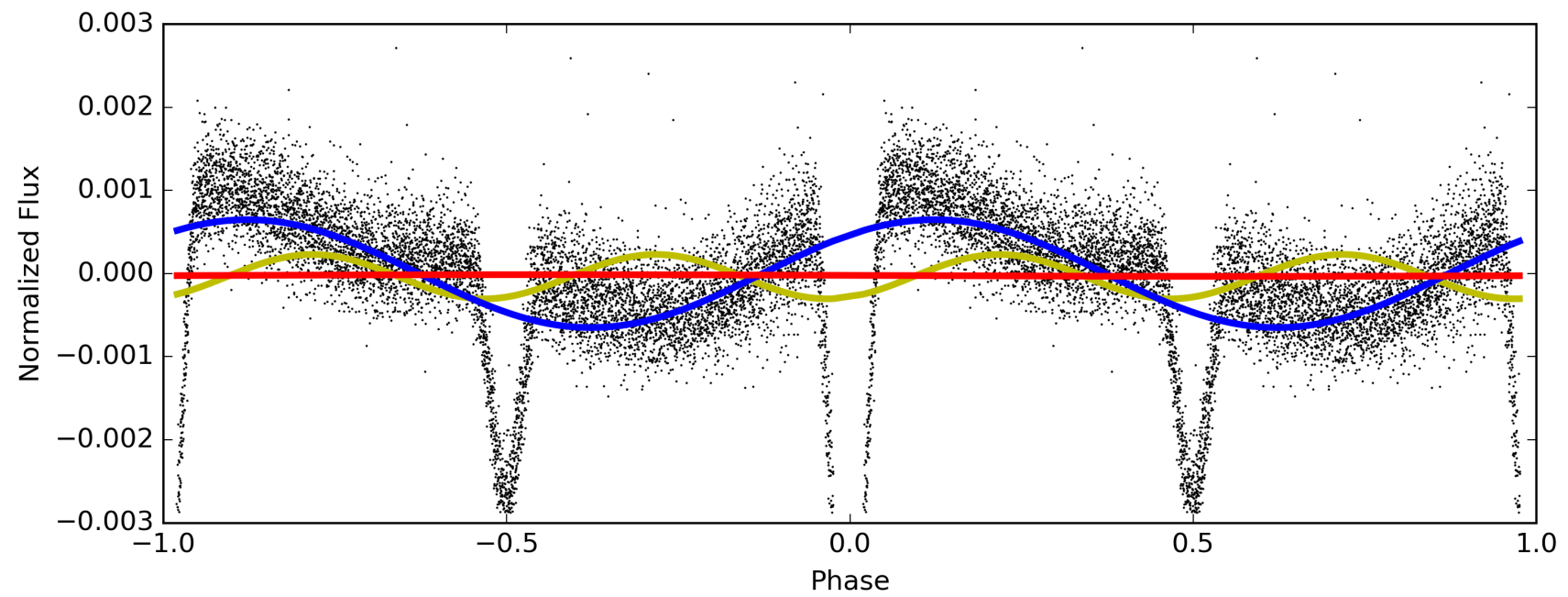
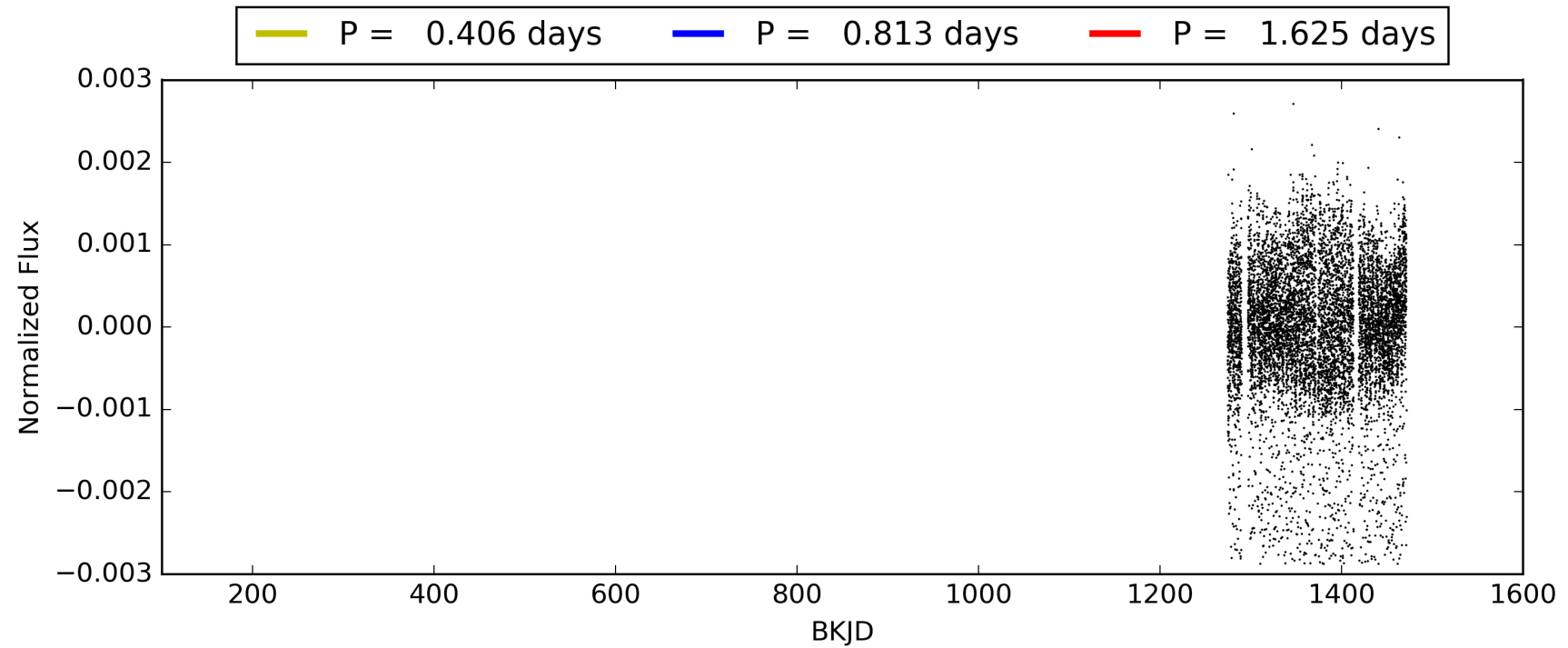
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [217/220]
GhostDiagnostic-chr: 10.65
Centroid-sig: 0.0%
Centroid-so: 1.532 arcsec [38.04σ]
OotOffset-rm: 1.705 arcsec [24.19σ]
KicOffset-rm: 1.659 arcsec [21.66σ]
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 007107567-01, PDC Light Curves

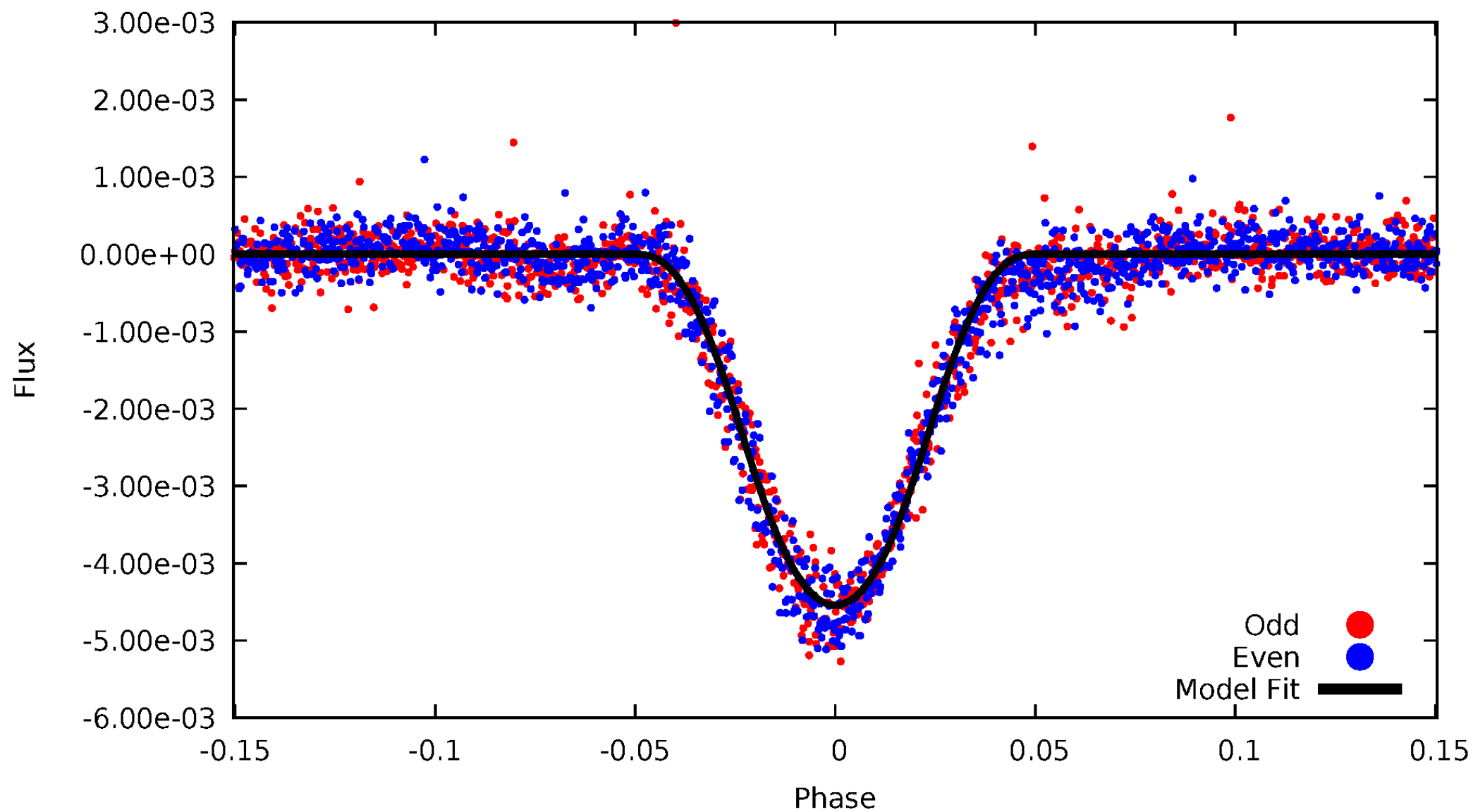


TCE 007107567-01



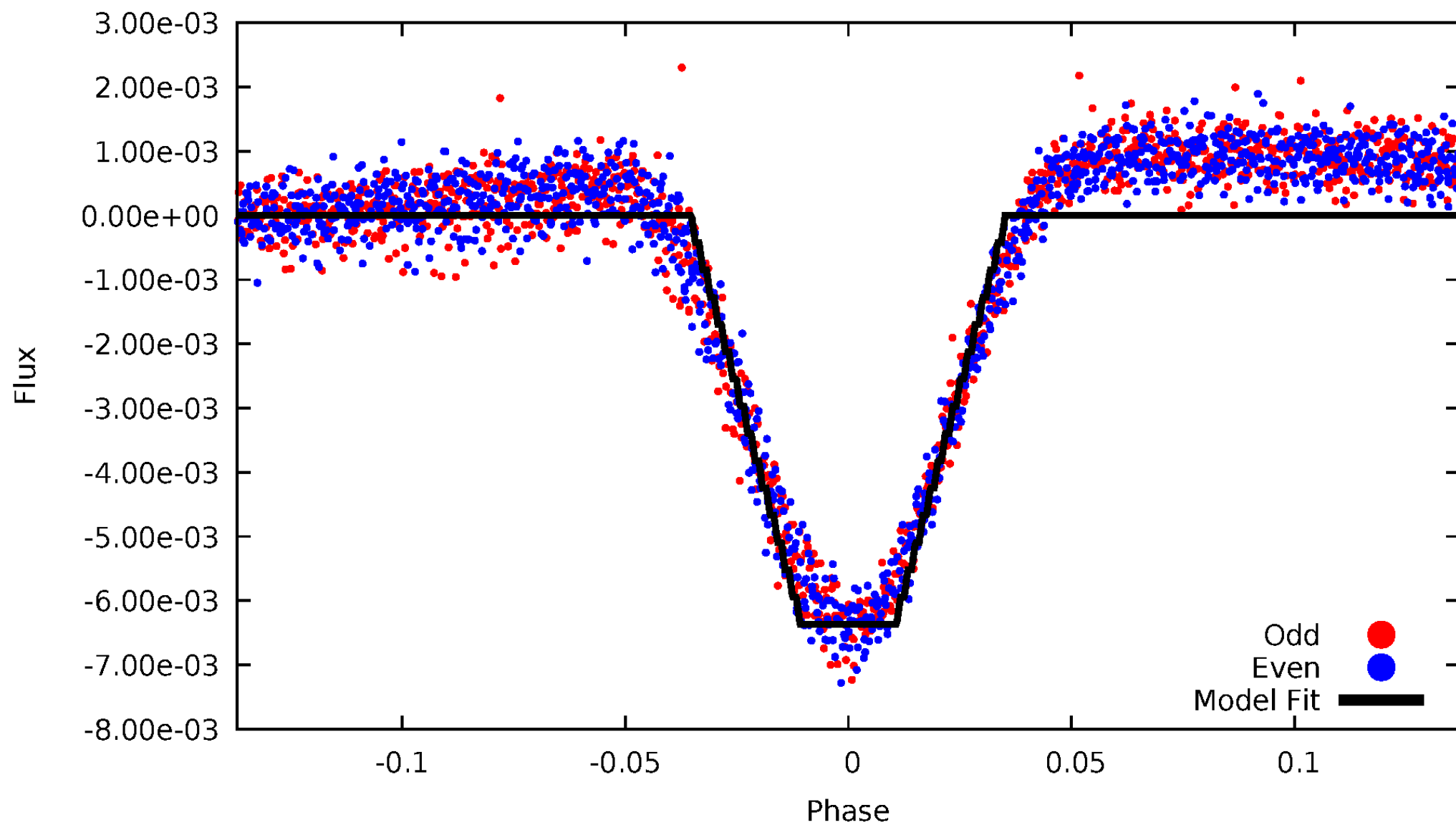
DV Odd/Even

TCE 007107567-01



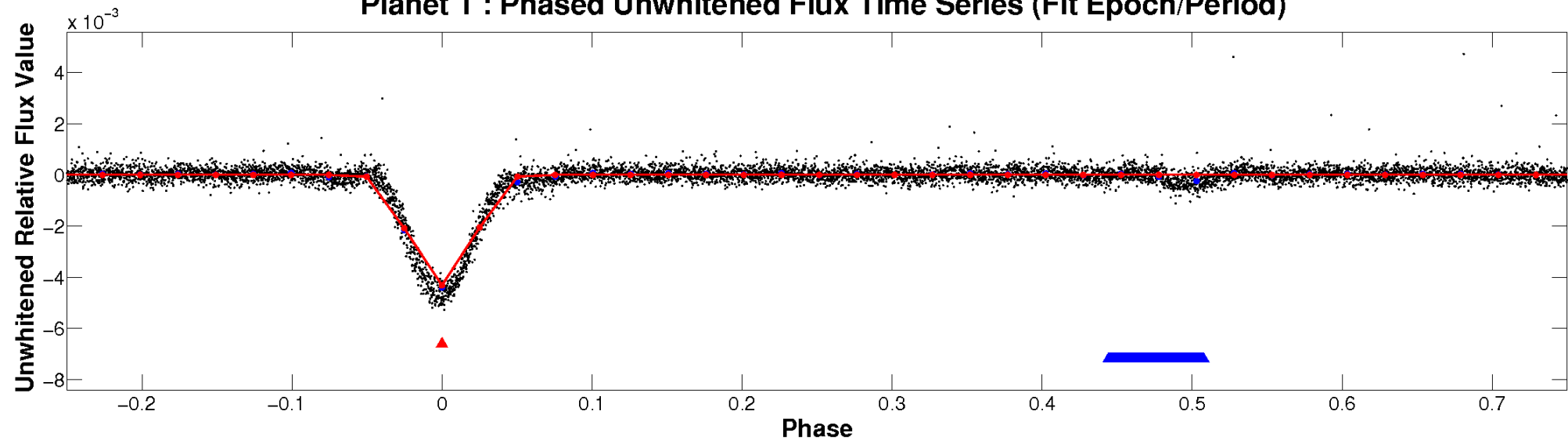
ALT Odd/Even

TCE 007107567-01

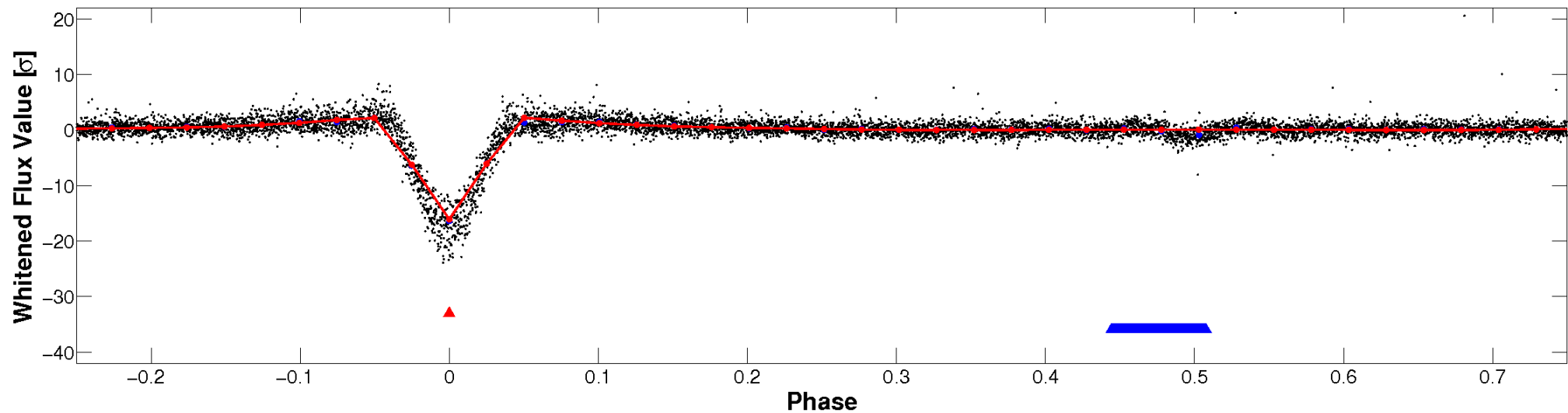


Non-Whitened Vs. Whitened Light Curve

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

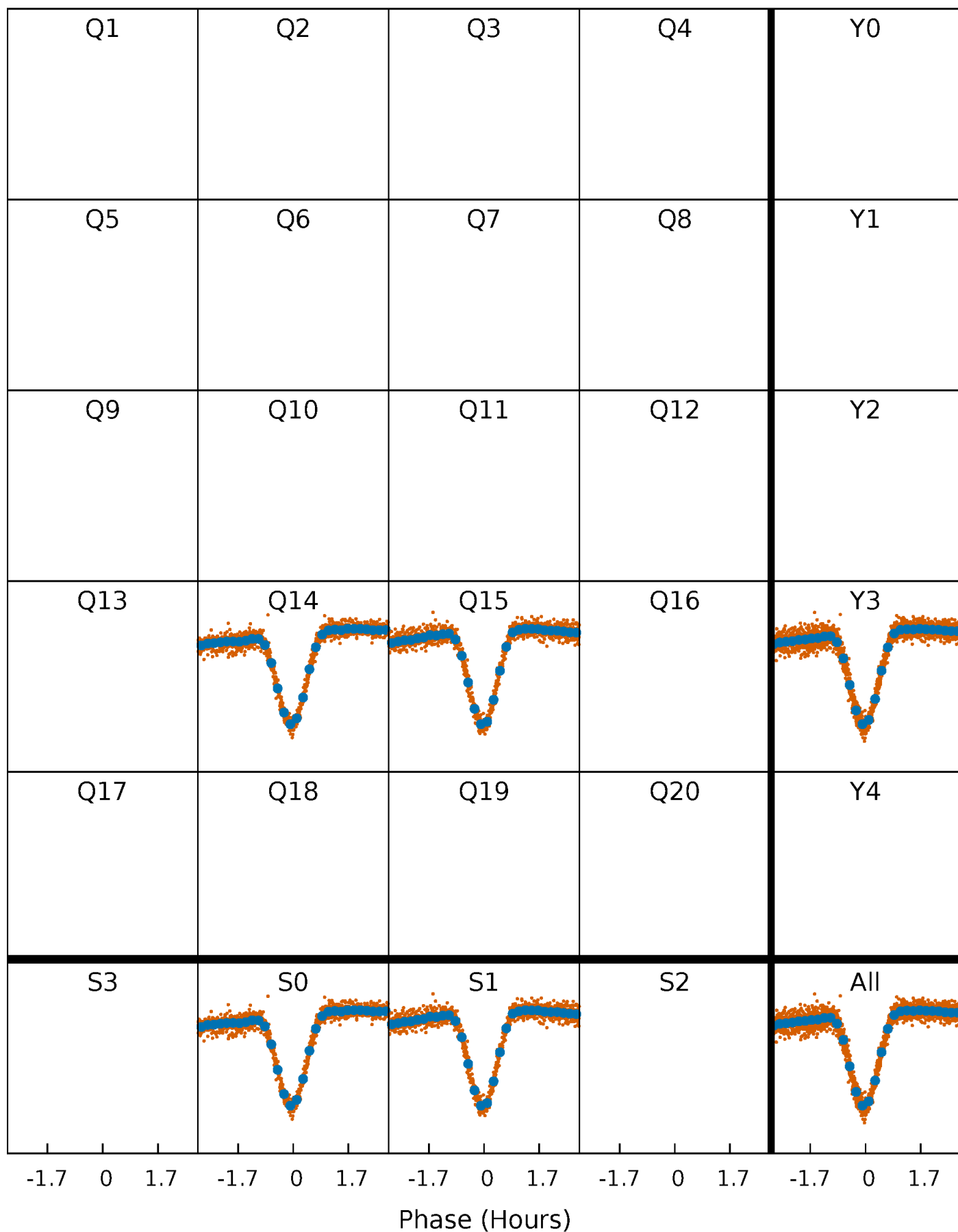


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



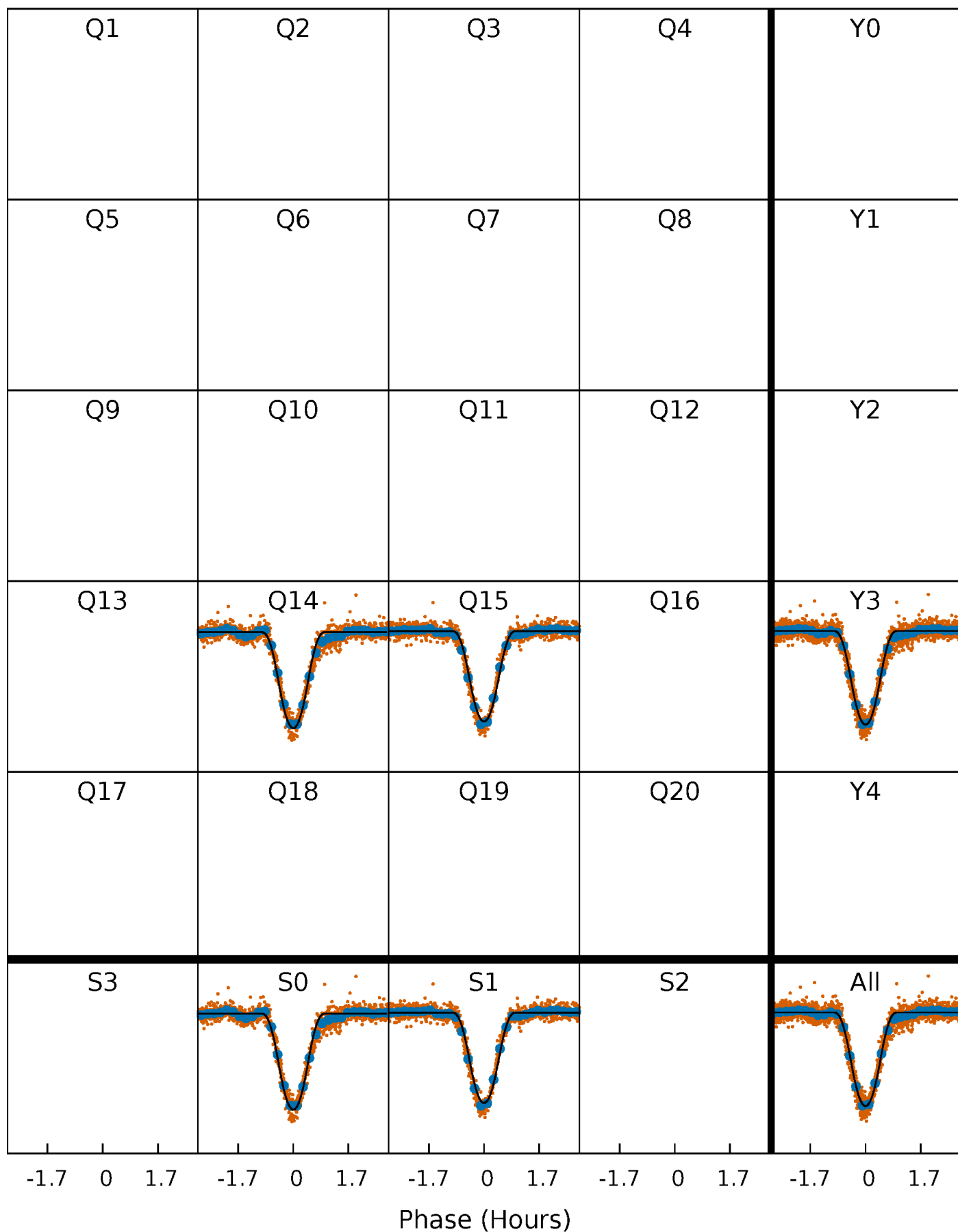
PDC Quarter-Phased Transit Curves

TCE 007107567-01 P= 0.812584 Days $T_0=131.571849$ (BKJD)



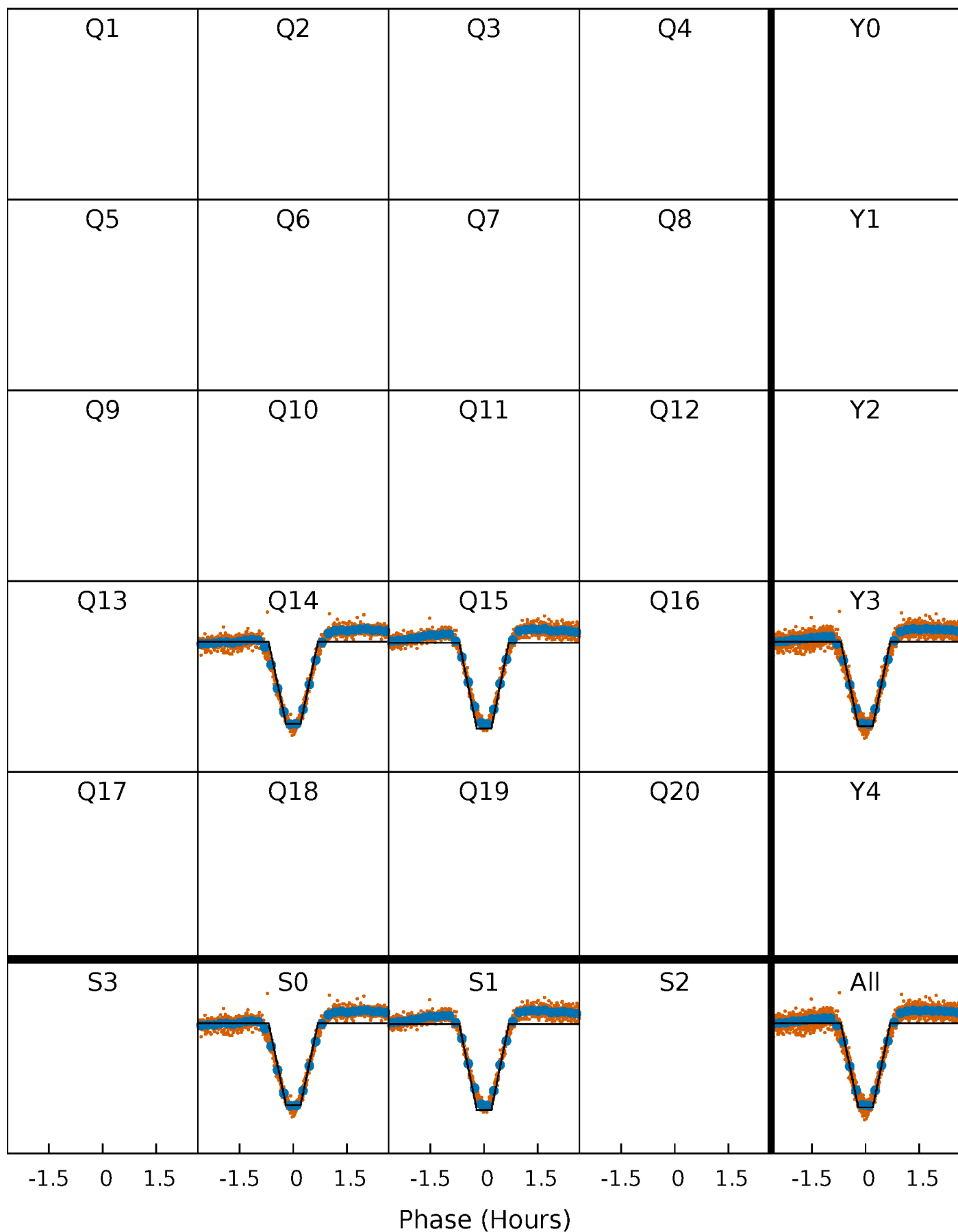
DV Quarter-Phased Transit Curves

TCE 007107567-01 P= 0.812584 Days $T_0=131.571849$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

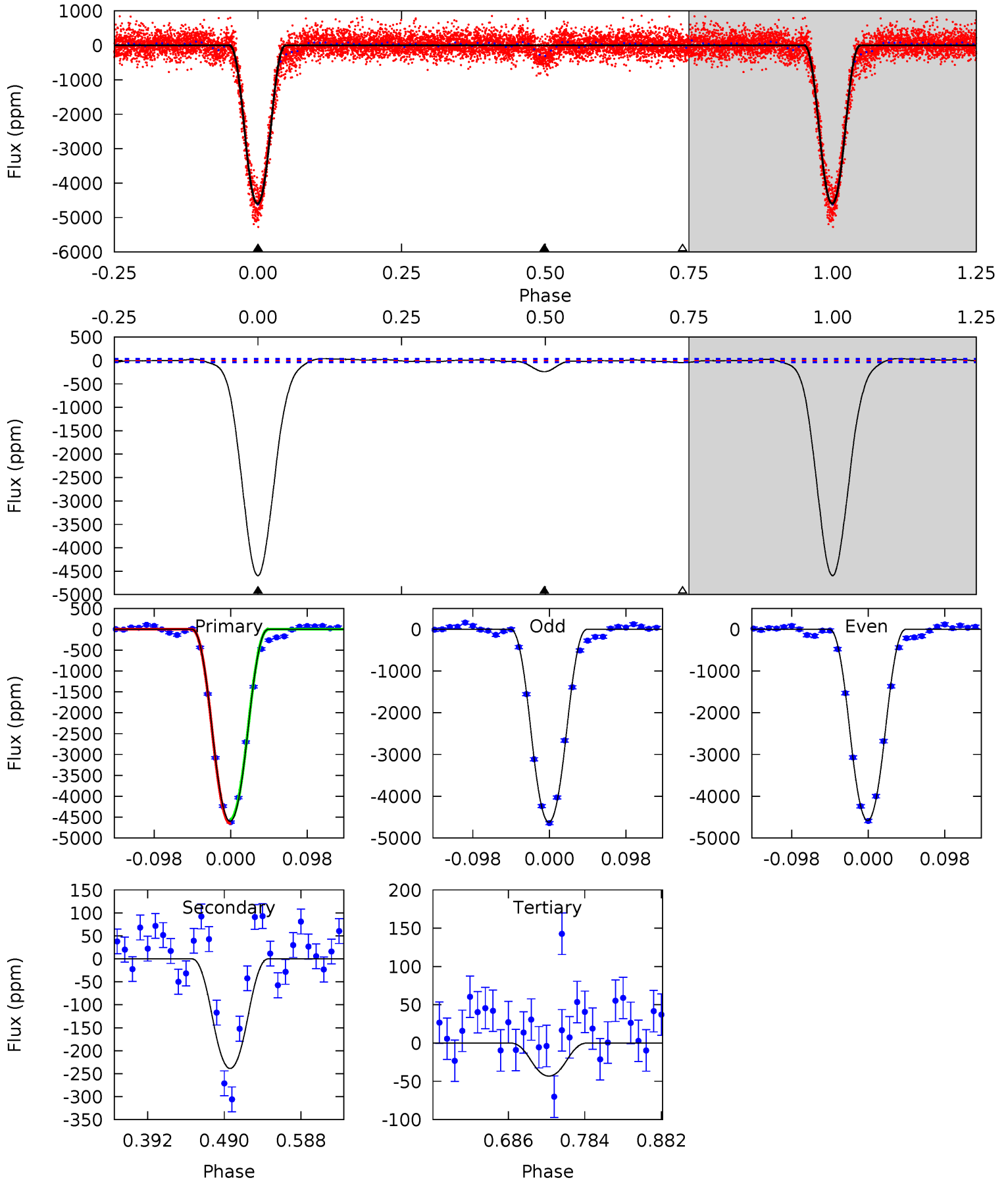
TCE 007107567-01 P= 0.812584 Days $T_0=131.569211$ (BKJD)



DV Model-Shift Uniqueness Test

007107567-01, P = 0.812584 Days, E = 131.571849 Days

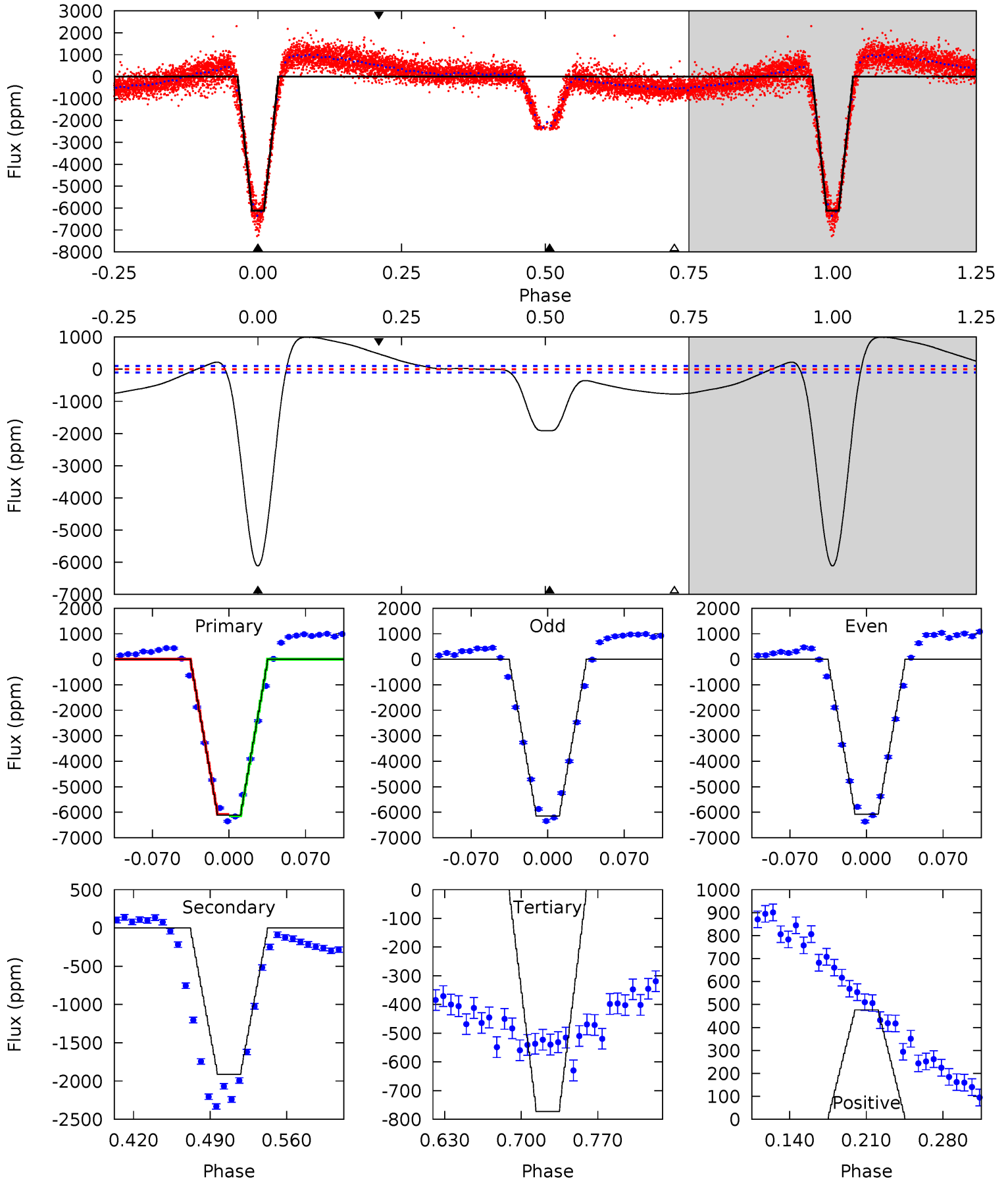
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
604.5	31.4	5.67	0	4.57	1.65	2.53	598.9	604.5	25.7	31.4	2.49	0.99	0.01	5.76



Alt Model-Shift Uniqueness Test

007107567-01, P = 0.812584 Days, E = 131.569211 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
271.6	85.0	34.3	21.2	4.64	1.81	24.0	237.3	250.4	50.6	63.8	1.51	1.00	0.14	1.43



Stellar Parameters For KIC 007107567

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7117^{+199}_{-313}	$4.153^{+0.148}_{-0.181}$	$-0.220^{+0.250}_{-0.350}$	$1.640^{+0.482}_{-0.351}$	$1.398^{+0.214}_{-0.235}$	$0.446^{+0.353}_{-0.228}$
	+3%/-4%	+4%/-4%	+114%/-159%	+29%/-21%	+15%/-17%	+79%/-51%
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 007107567-01 / KOI 5353.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-239 ± 8	$14.57^{+2.27}_{-1.95}$	4080^{+318}_{-292}	-3015^{+724}_{-385}	$0.222^{+0.066}_{-0.052}$
Alt.	-1912 ± 23	$14.48^{+2.46}_{-1.90}$	4072^{+309}_{-274}	5040^{+194}_{-208}	$1.821^{+0.492}_{-0.441}$

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

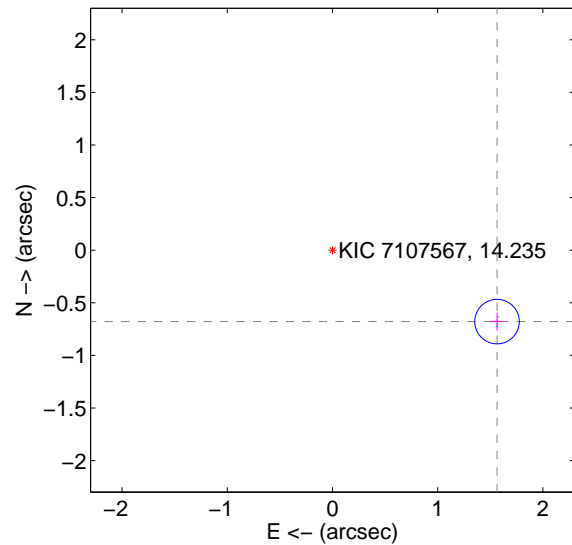
Supplemental centroid analysis for 007107567-01. Kepler magnitude: 14.23. Transit SNR 280.53

There are 2 quarters with good PRF difference image offsets

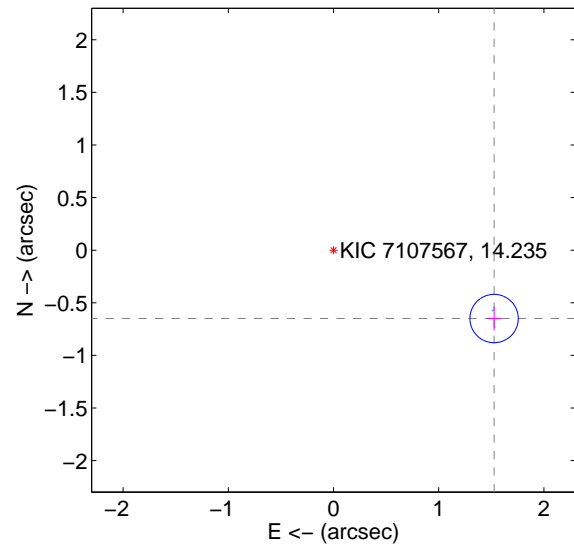
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.705 ± 0.070	24.19	-1.564 ± 0.067	-0.679 ± 0.085
PRF-fit source offset from KIC position	1.659 ± 0.077	21.66	-1.526 ± 0.068	-0.650 ± 0.114
photometric centroid source offset	1.53 ± 0.04	38.04	-0.96 ± 0.03	-1.19 ± 0.04

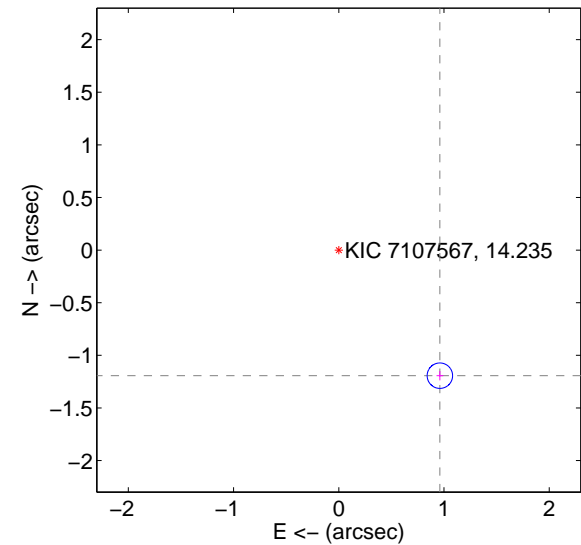
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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



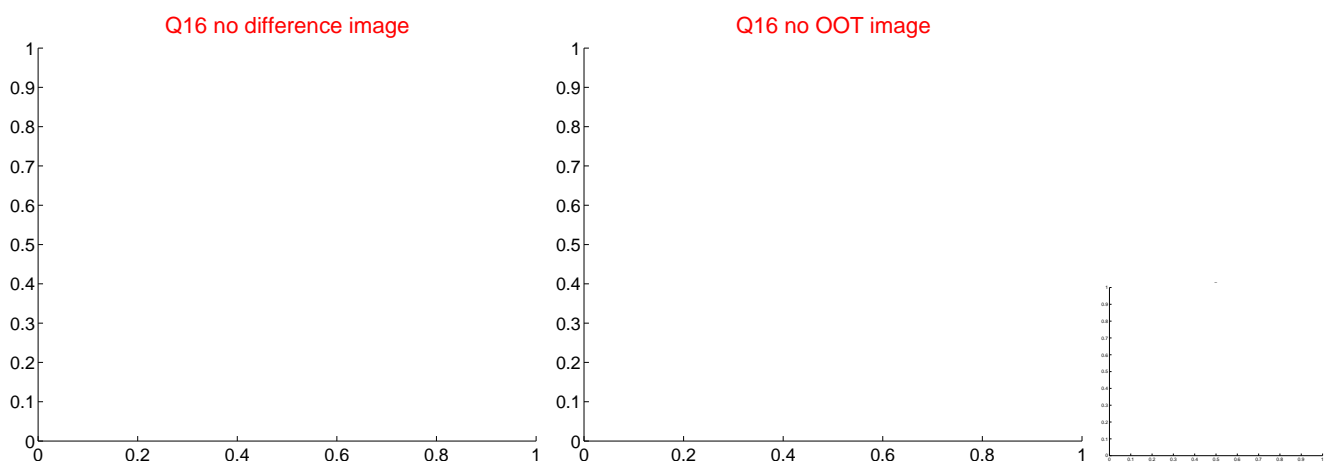
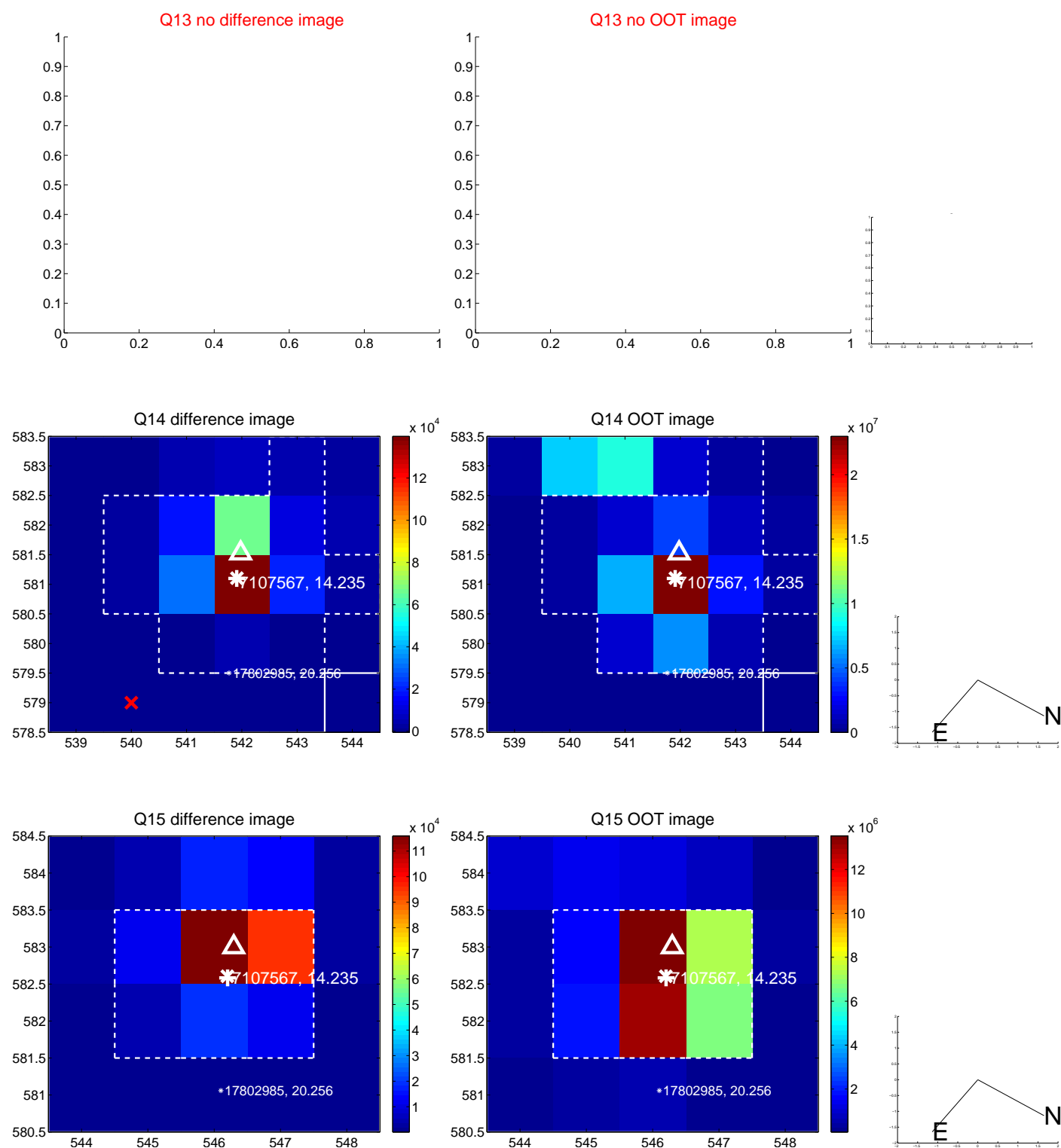
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



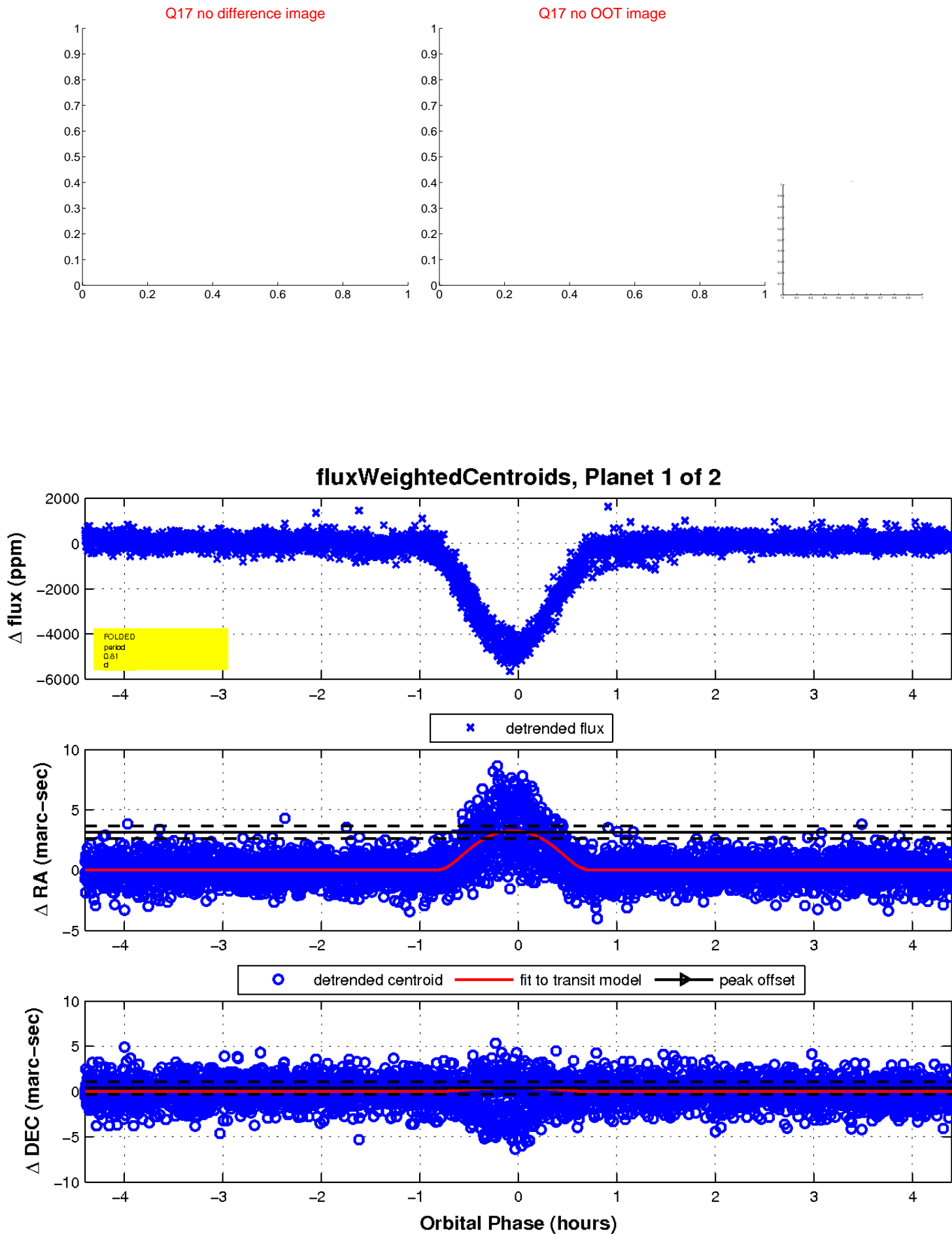
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

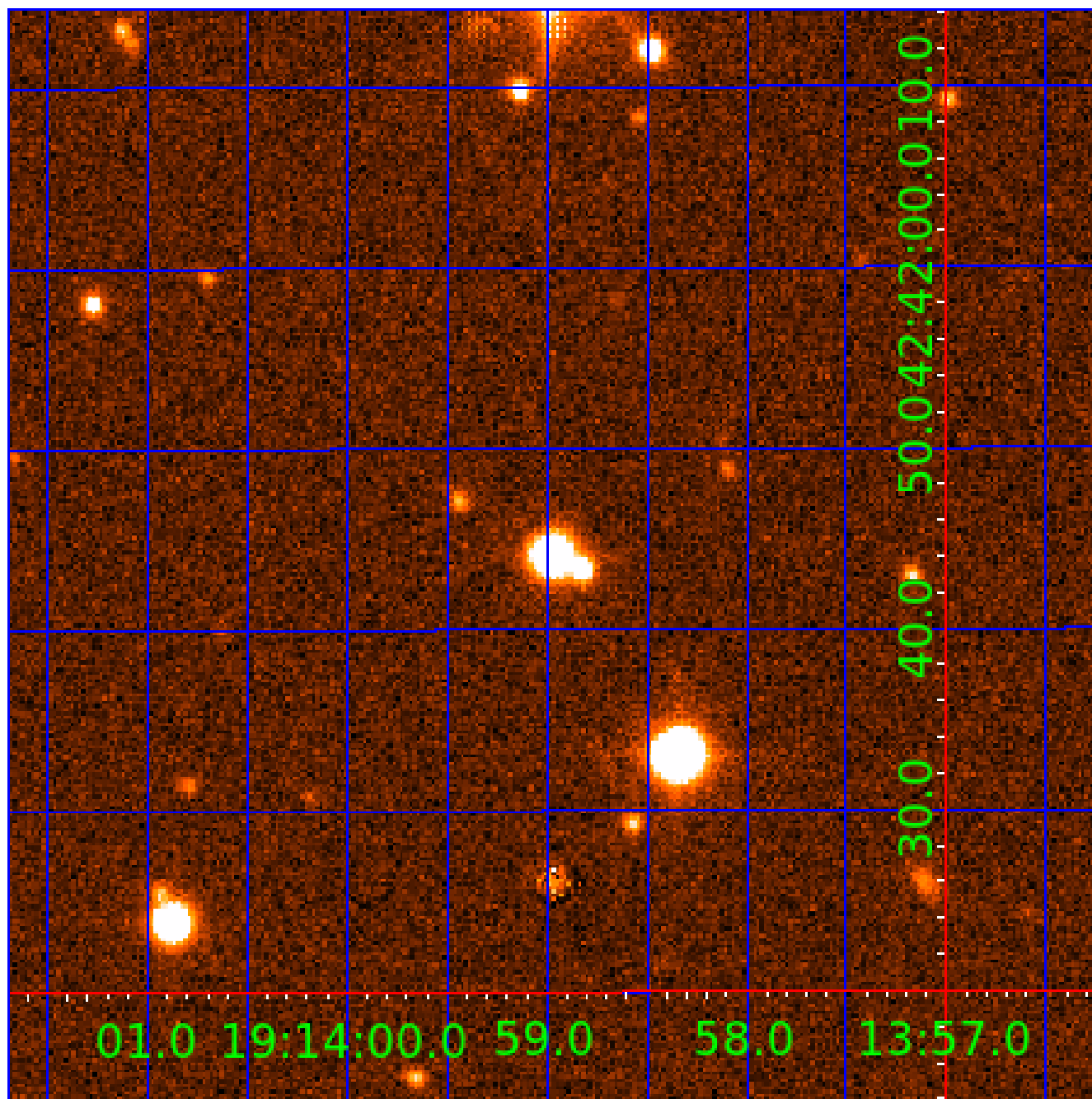


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007107567

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})
007107567-01	OBS	5353.01	0.812584	131.571849	4543.7	1.466	282.0	280.5	1.64	7117	14.40	17040.70
007107567-02	OBS	No	0.812612	131.932809	371.7	0.634	11.4	21.0	1.64	7117	3.76	17039.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007107567-01	OBS	PC	0.57	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—HAS_SEC_TCE—CENT_FEW_DIFFS
007107567-02	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.

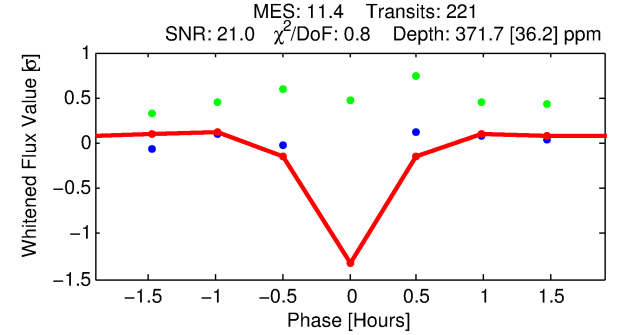
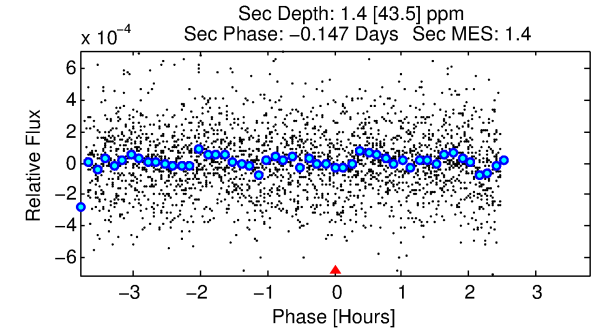
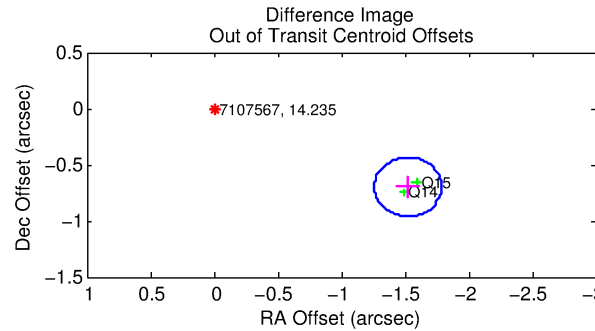
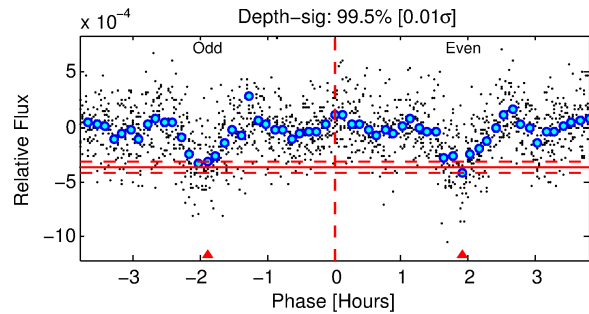
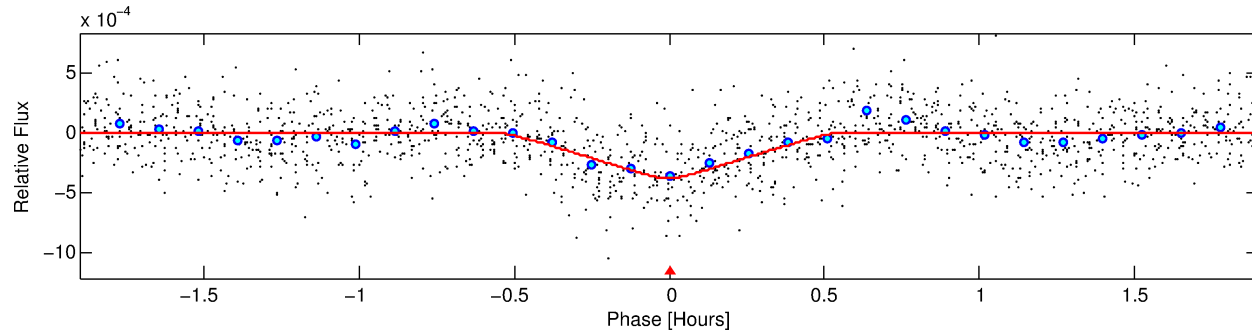
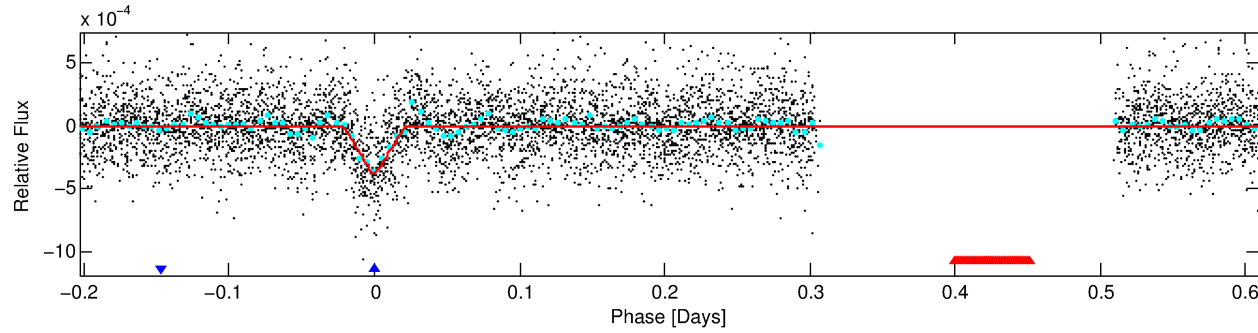
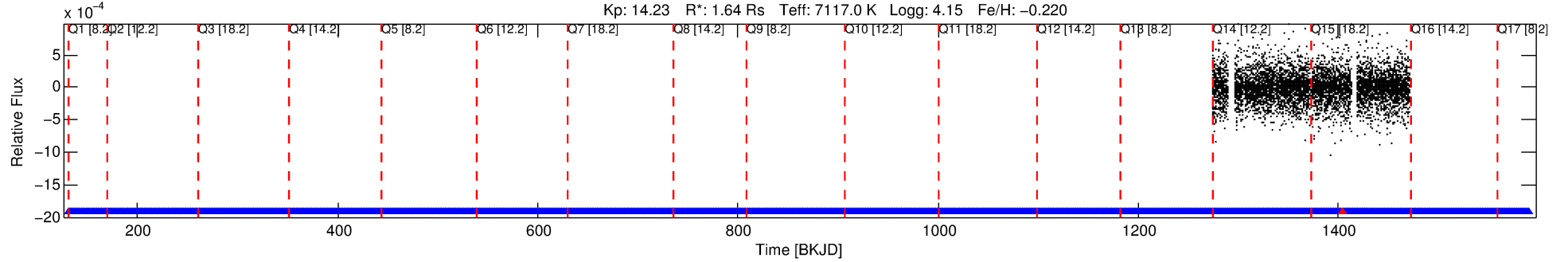
Ephemeris Match Information For 007107567-02

No Significant Match Found

DV One-Page Summary

KIC: 7107567 Candidate: 2 of 2 Period: 0.813 d
KOI: K05353 Corr: No Ephemeris Match

Kp: 14.23 R*: 1.64 Rs Teff: 7117.0 K Logg: 4.15 Fe/H: -0.220



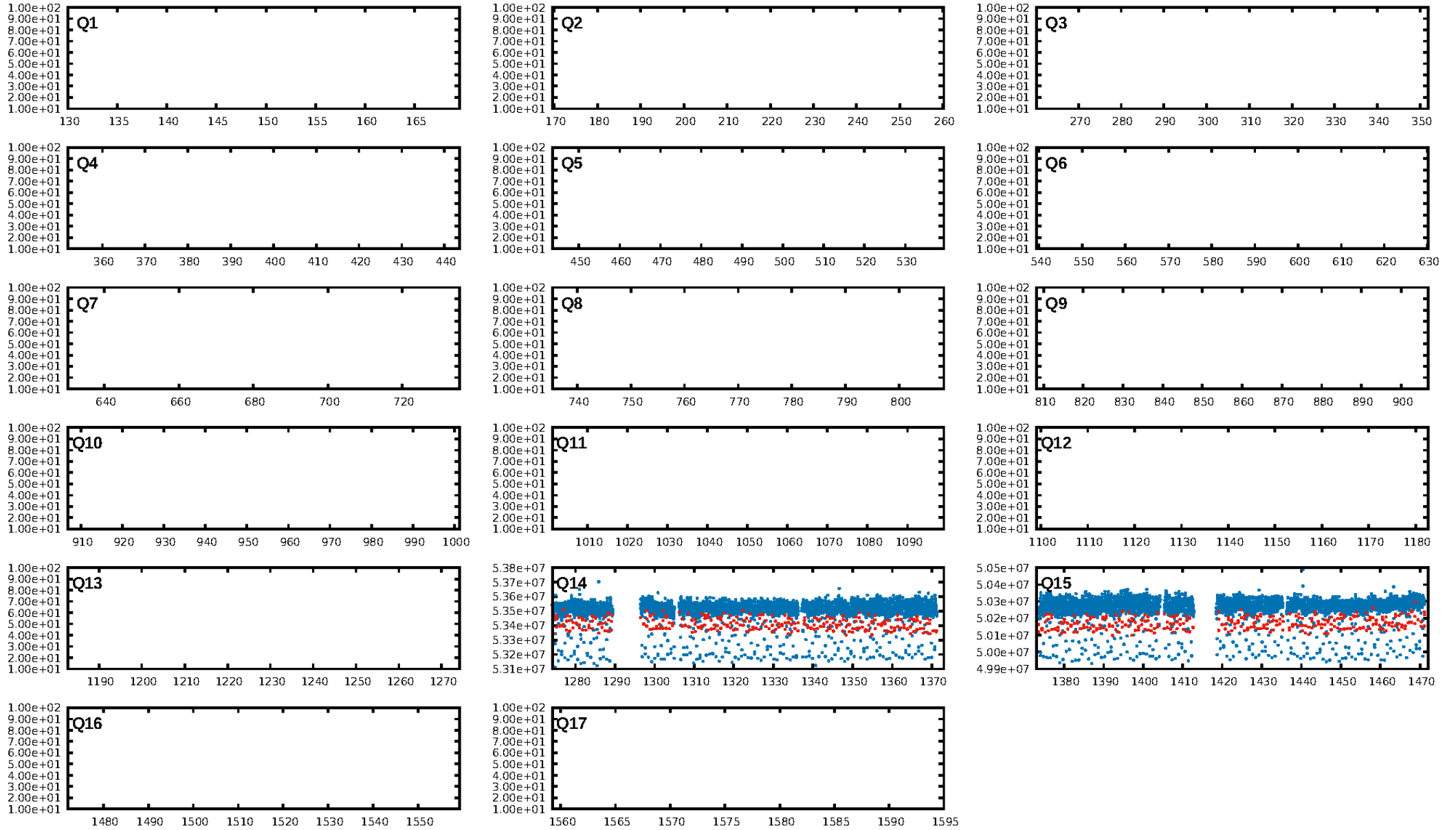
DV Fit Results:

Period = 0.81261 [0.00000] d
Epoch = 131.9328 [0.0006] BKJD
Rp/R* = 0.0210 [0.0050]
a/R* = 4.81 [6.42]
b = 0.90 [0.30]
Seff = 17039.89 [6522.86]
Teq = 2913 [279] K
Rp = 3.76 [1.43] Re
a = 0.0190 [0.0046] AU
Ag = 0.02 [0.61] [-1.60σ]
Teffp = 1685 [13217] K [-0.09σ]

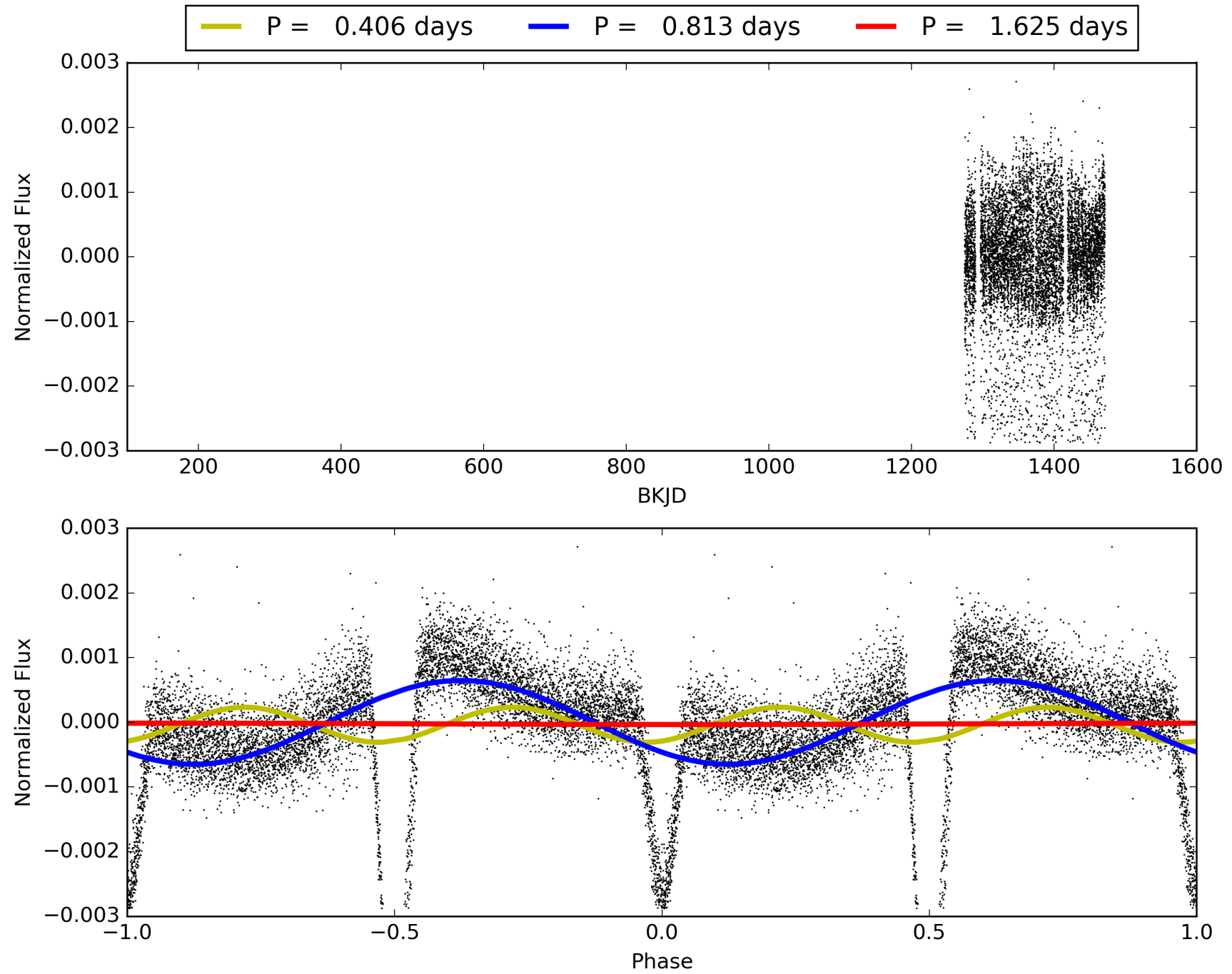
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.99e-30
RollingBand-fgt: 1.00 [220/221]
GhostDiagnostic-chr: -3.197
Centroid-sig: 23.5%
Centroid-so: 1.797 arcsec [2.71σ]
OotOffset-rm: 1.674 arcsec [19.05σ]
KicOffset-rm: 1.627 arcsec [19.36σ]
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 007107567-02, PDC Light Curves

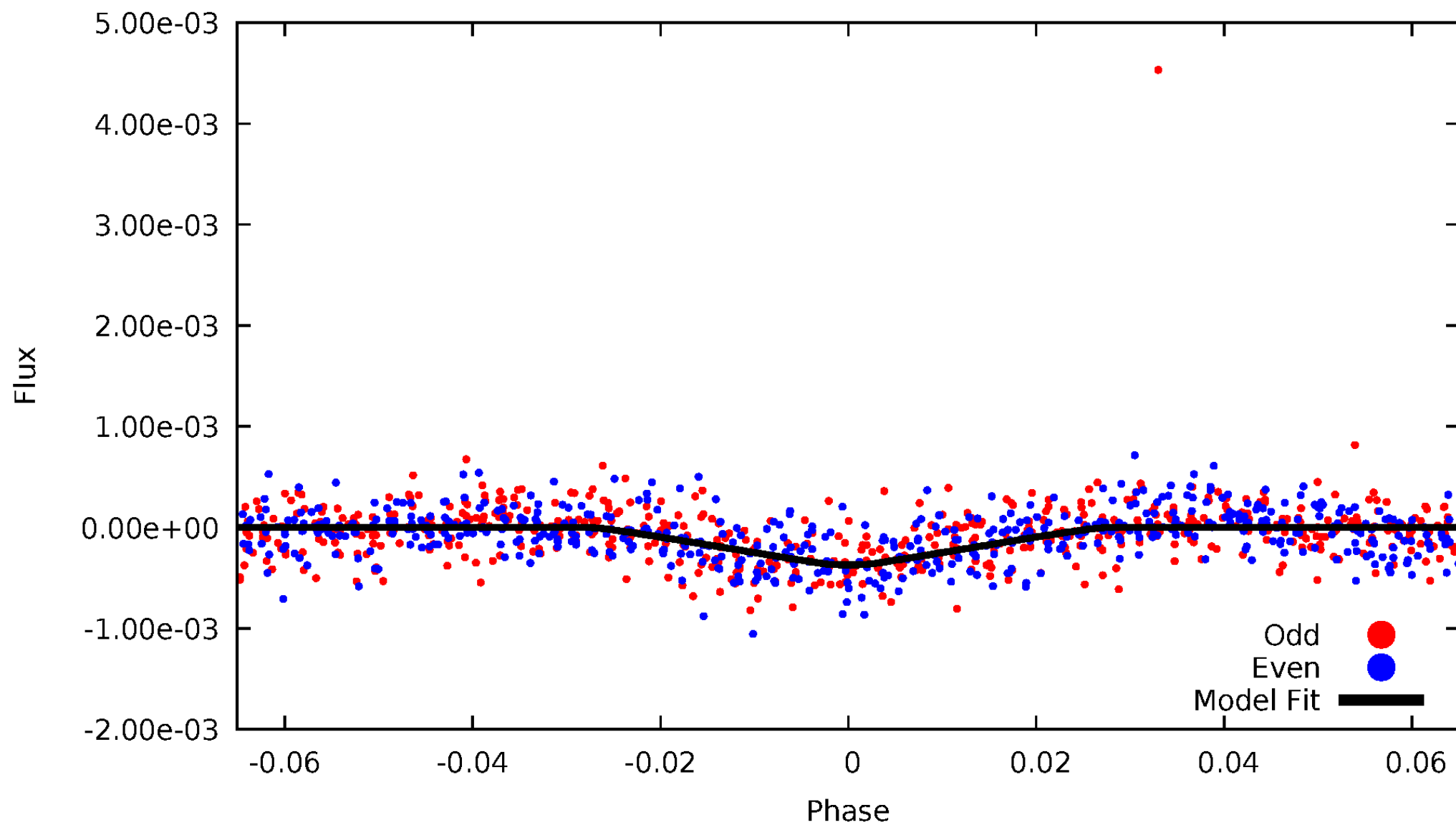


TCE 007107567-02



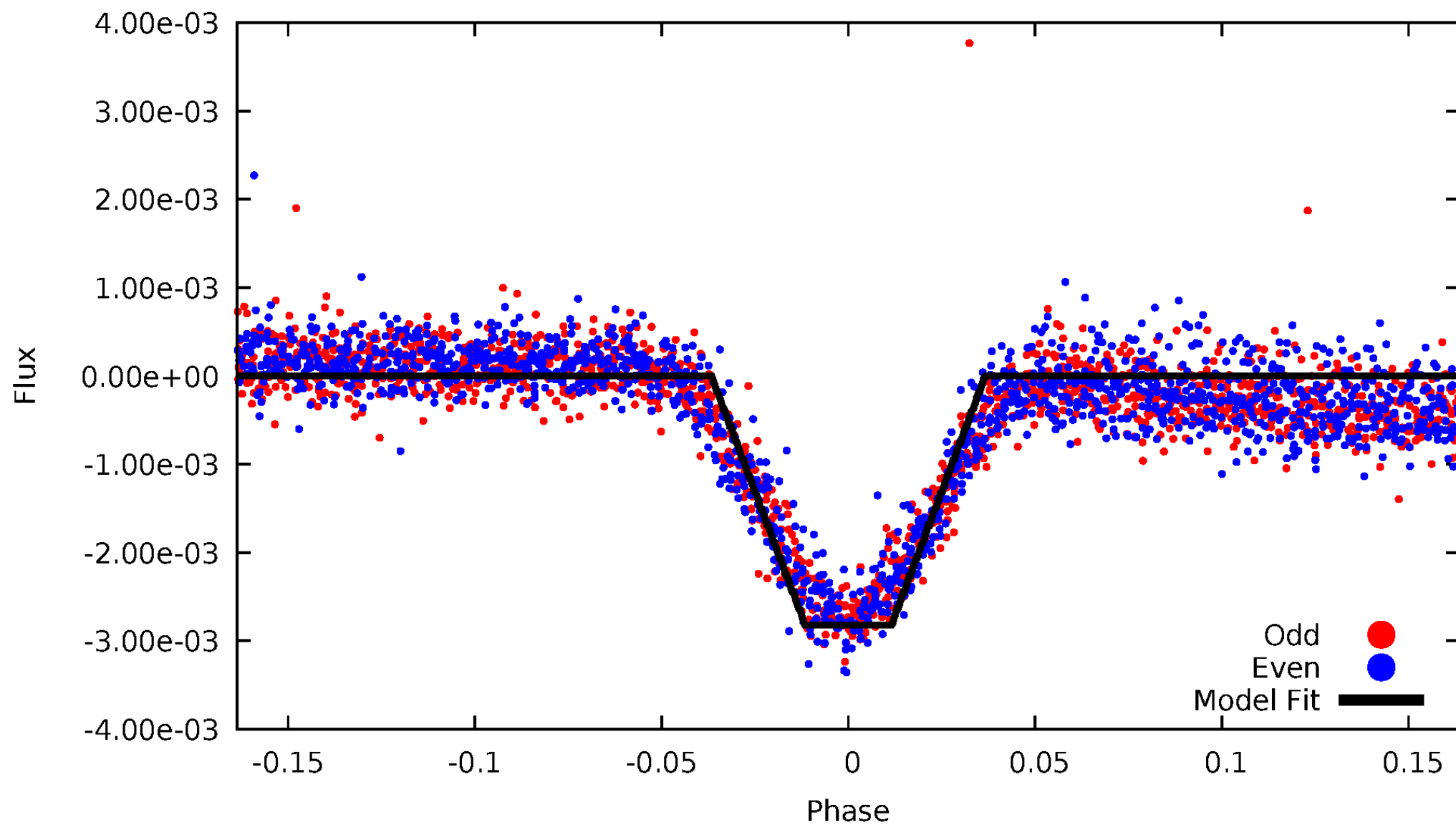
DV Odd/Even

TCE 007107567-02



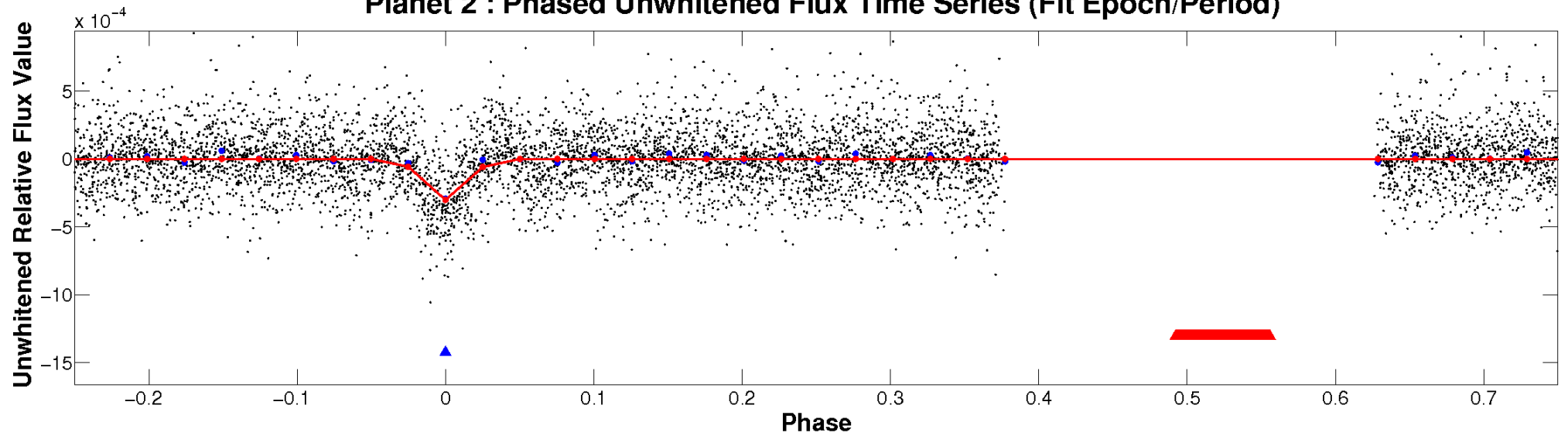
ALT Odd/Even

TCE 007107567-02

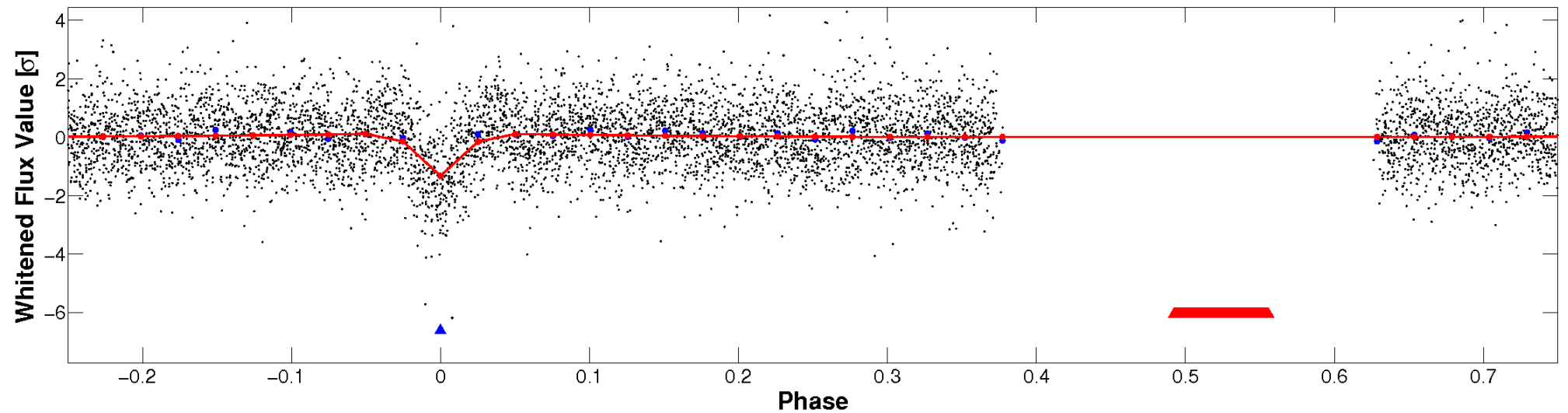


Non-Whitened Vs. Whitened Light Curve

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

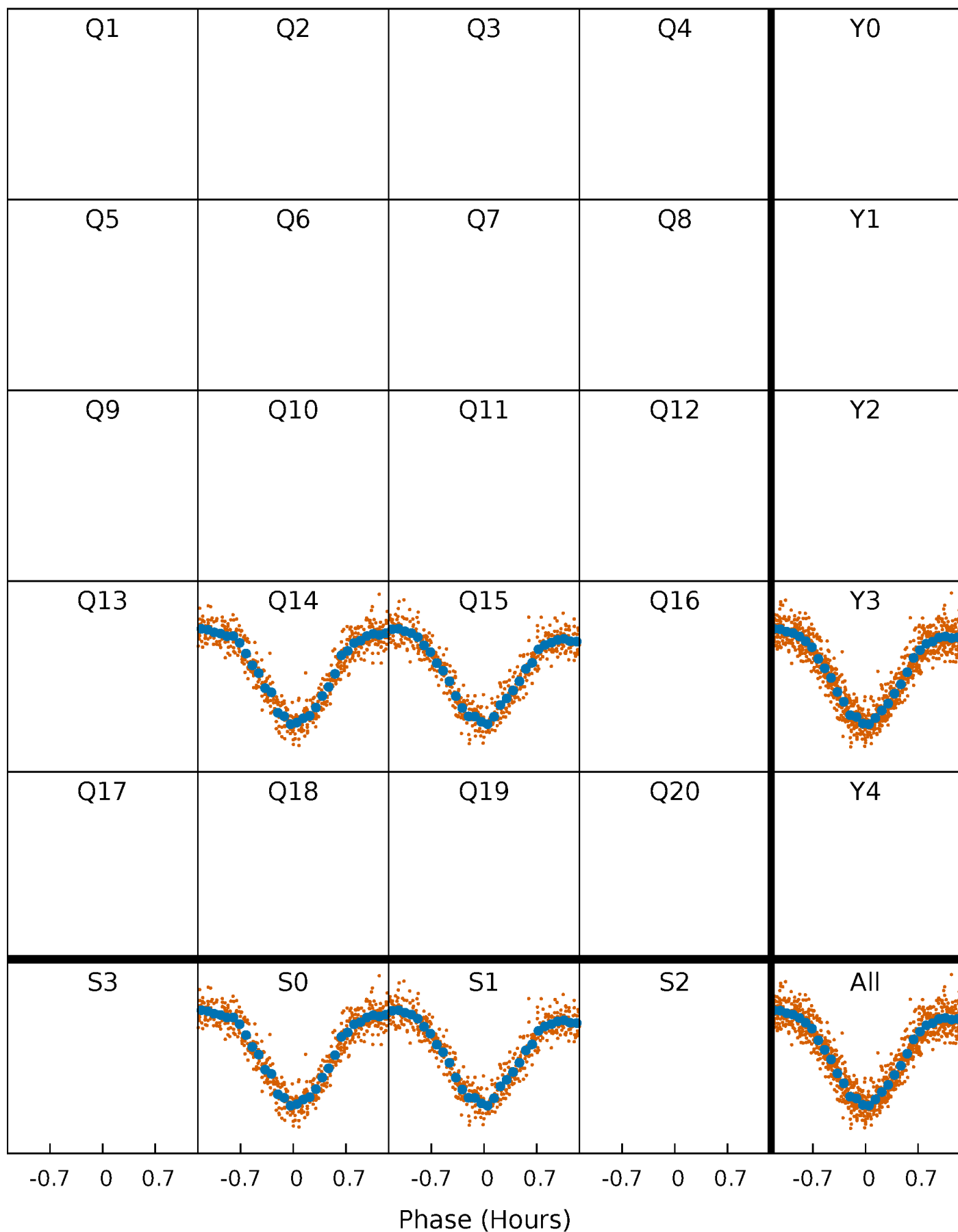


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007107567-02 P= 0.812612 Days $T_0=131.932809$ (BKJD)



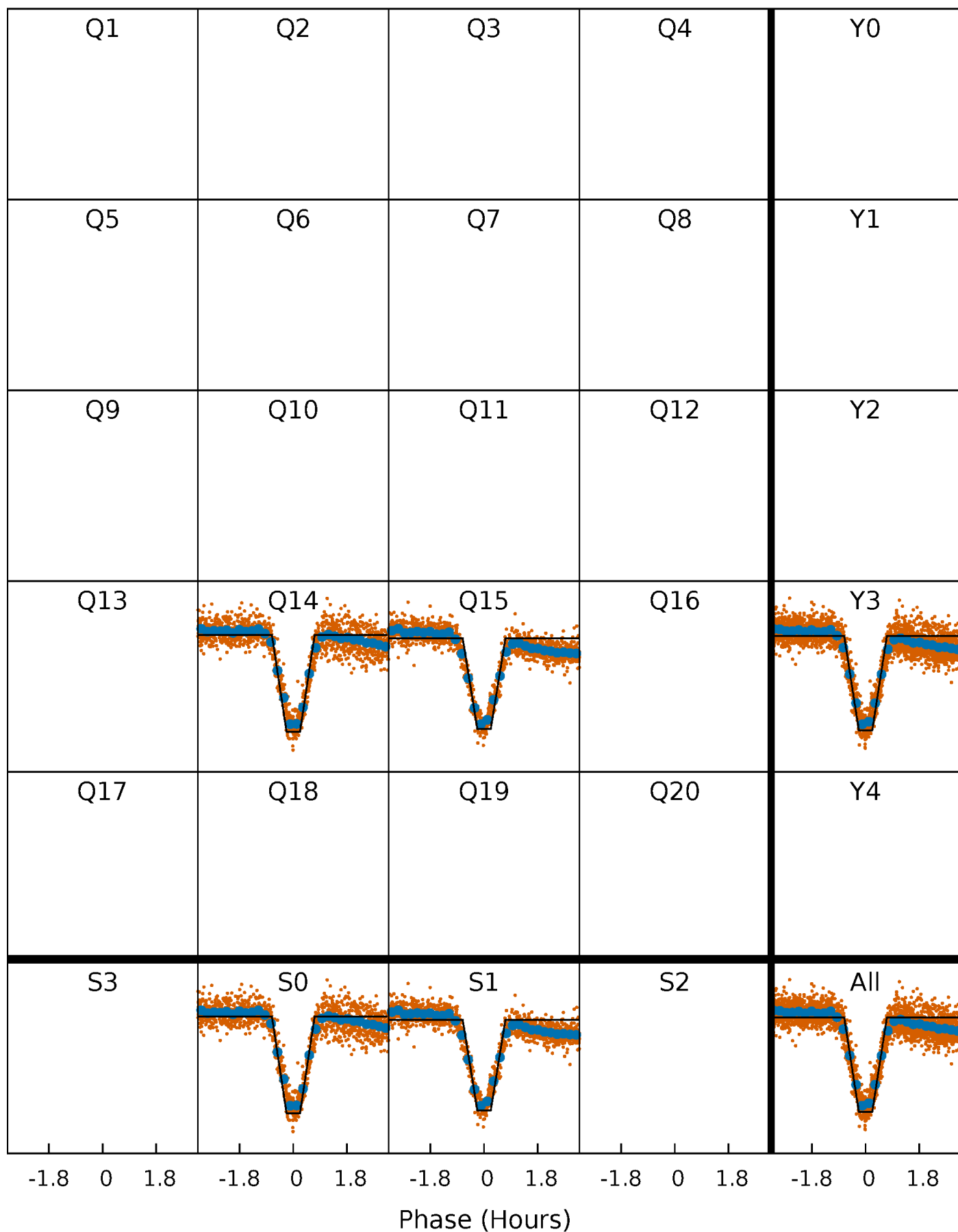
DV Quarter-Phased Transit Curves

TCE 007107567-02 P= 0.812612 Days $T_0=131.932809$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

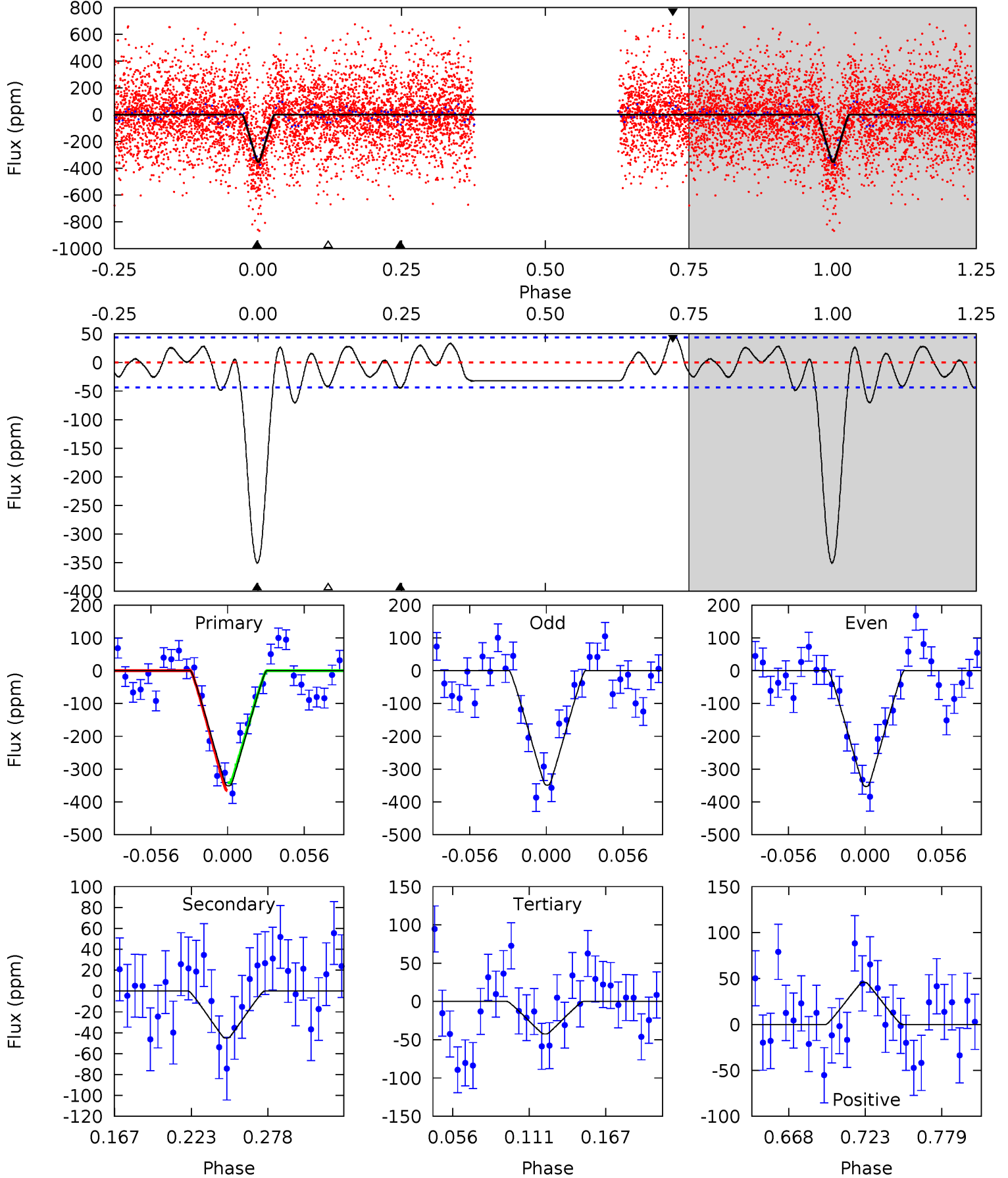
TCE 007107567-02 P= 0.812612 Days $T_0=131.934000$ (BKJD)



DV Model-Shift Uniqueness Test

007107567-02, P = 0.812612 Days, E = 131.932809 Days

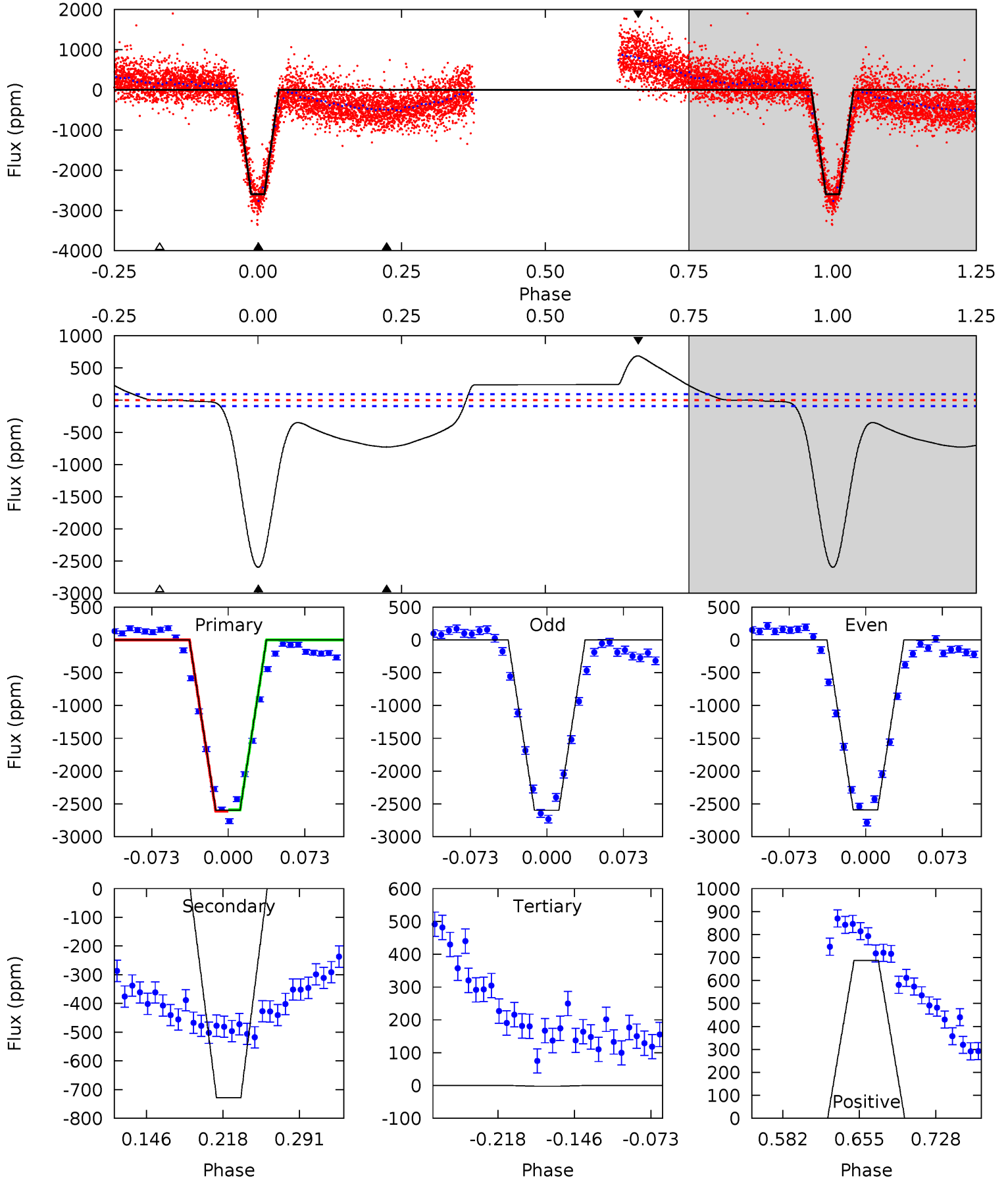
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.7	4.85	4.56	4.93	4.69	1.91	2.57	33.2	32.8	0.29	-0.08	0.21	0.96	0.12	1.33



Alt Model-Shift Uniqueness Test

007107567-02, P = 0.812612 Days, E = 131.934000 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
130.8	36.7	0.11	34.6	4.63	1.79	18.8	130.7	96.2	36.6	2.10	0.12	0.99	0.21	0.61



Stellar Parameters For KIC 007107567

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7117^{+199}_{-313}	$4.153^{+0.148}_{-0.181}$	$-0.220^{+0.250}_{-0.350}$	$1.640^{+0.482}_{-0.351}$	$1.398^{+0.214}_{-0.235}$	$0.446^{+0.353}_{-0.228}$
	+3%/-4%	+4%/-4%	+114%/-159%	+29%/-21%	+15%/-17%	+79%/-51%
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 007107567-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-45 ± 9	$3.71^{+1.08}_{-0.92}$	4074^{+328}_{-280}	3752^{+709}_{-721}	$0.620^{+0.551}_{-0.250}$
Alt.	-729 ± 20	$9.53^{+1.90}_{-1.40}$	4069^{+330}_{-279}	4858^{+290}_{-260}	$1.583^{+0.621}_{-0.449}$

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

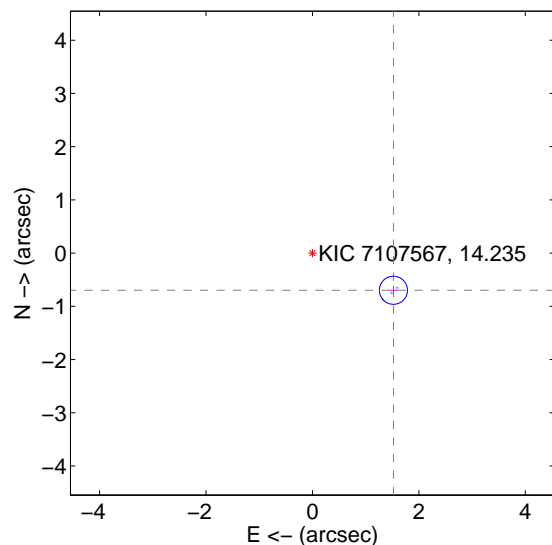
Supplemental centroid analysis for 007107567-02. Kepler magnitude: 14.23. Transit SNR 21.02

There are 2 quarters with good PRF difference image offsets

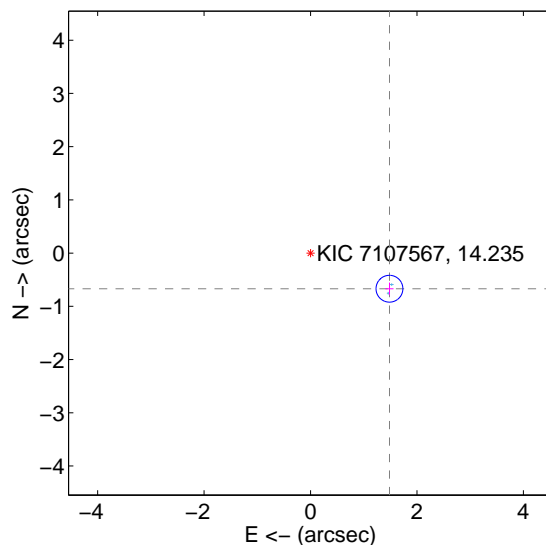
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.674 ± 0.088	19.05	-1.522 ± 0.088	-0.699 ± 0.087
PRF-fit source offset from KIC position	1.627 ± 0.084	19.36	-1.483 ± 0.076	-0.669 ± 0.116
photometric centroid source offset	1.80 ± 0.66	2.71	-0.67 ± 0.50	-1.67 ± 0.69

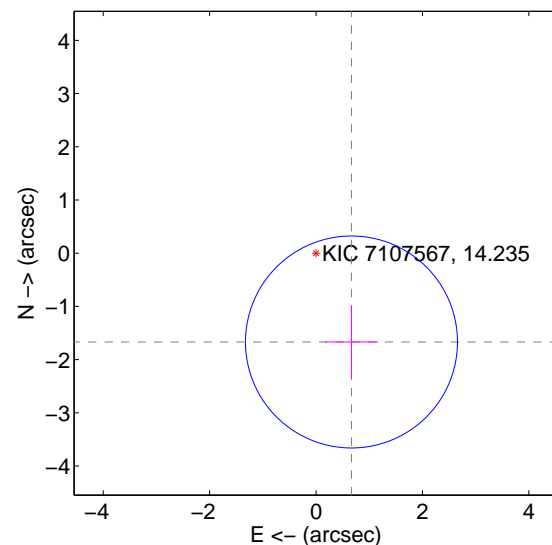
offset from difference PRF-fit to OOT PRF-fit



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.



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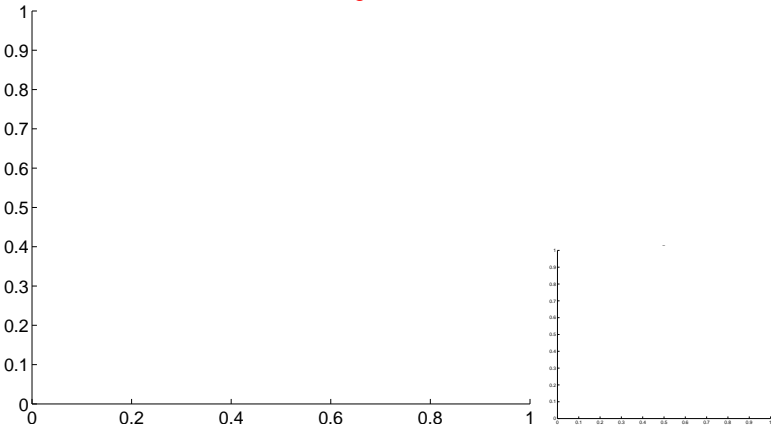


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

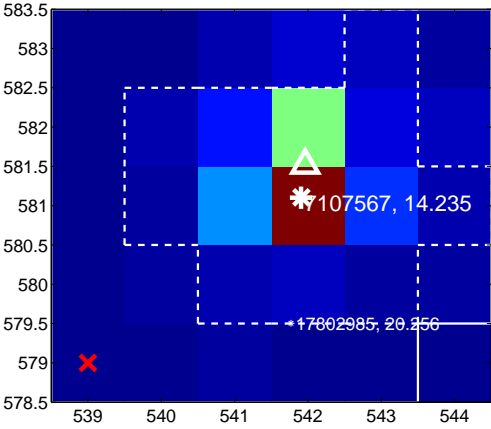
Q13 no difference image



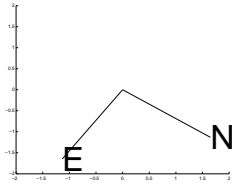
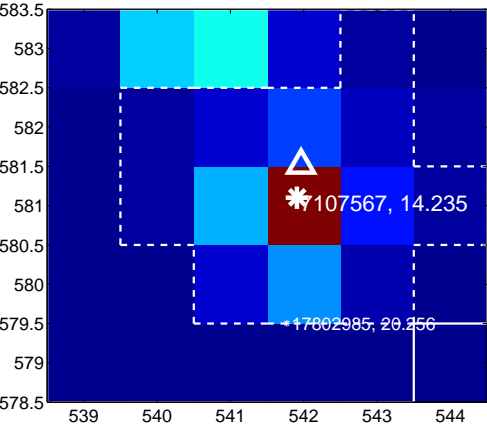
Q13 no OOT image



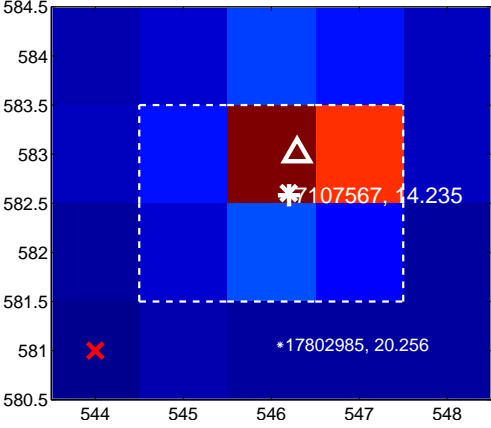
Q14 difference image



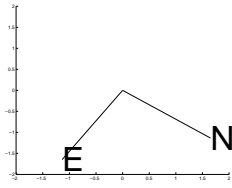
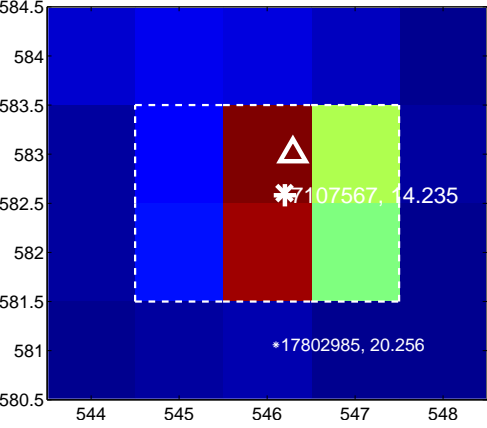
Q14 OOT image



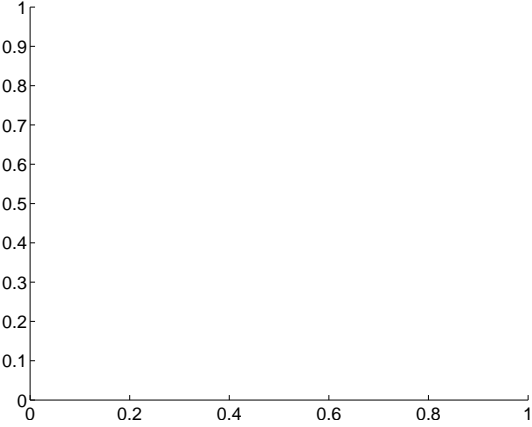
Q15 difference image



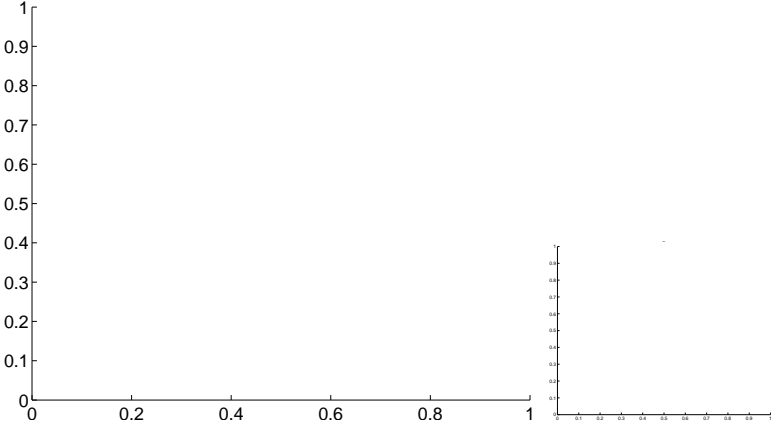
Q15 OOT image



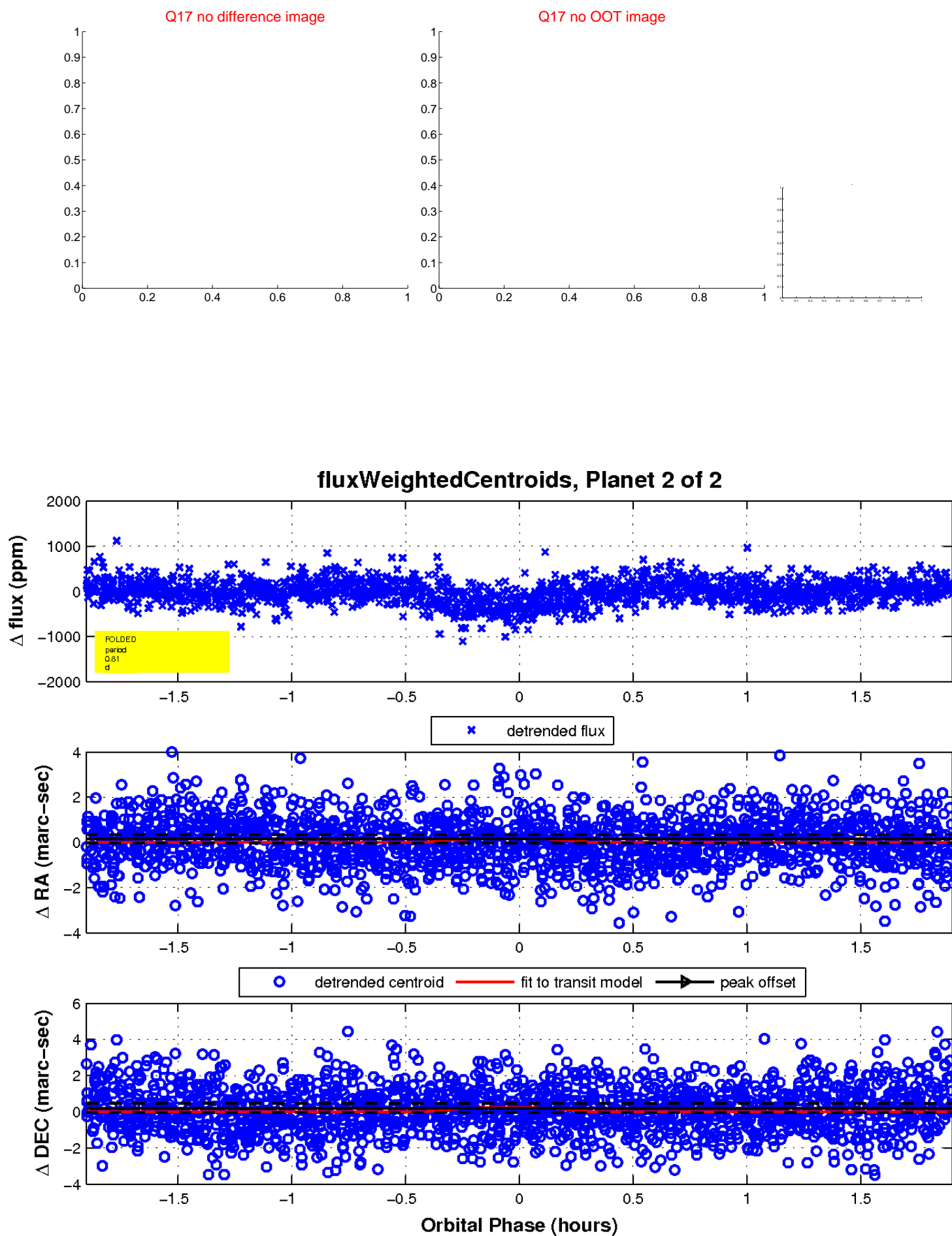
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

