

KIC 005446285

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})
005446285-02	OBS	No	416.652699	449.817474	1575.8	3.342	53.0	49.5	0.96	5486	3.93	0.65
005446285-03	OBS	No	339.421427	154.851322	1353.2	3.928	44.9	49.3	0.96	5486	4.12	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005446285-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—CENT_FEW_DIFFS
005446285-03	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT

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

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

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

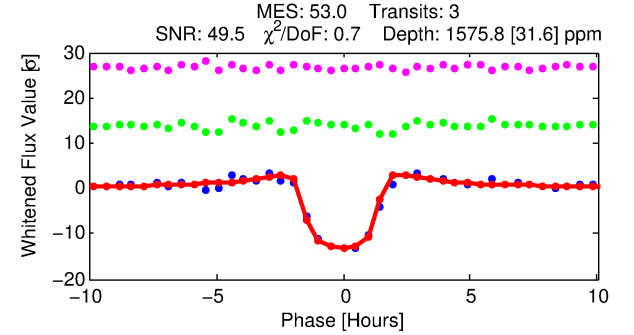
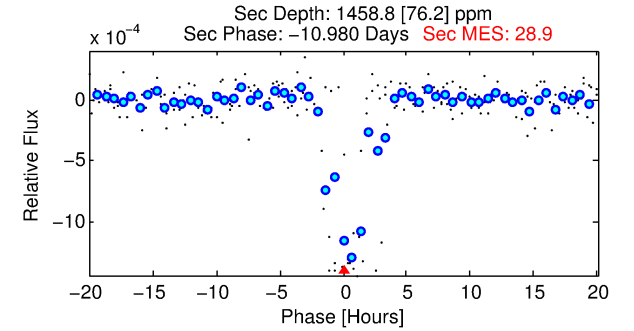
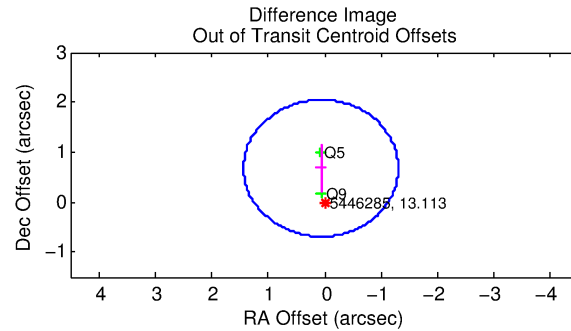
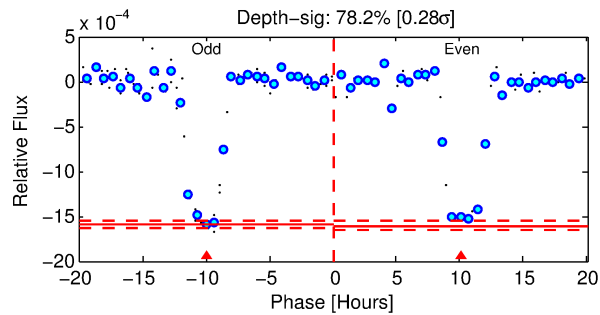
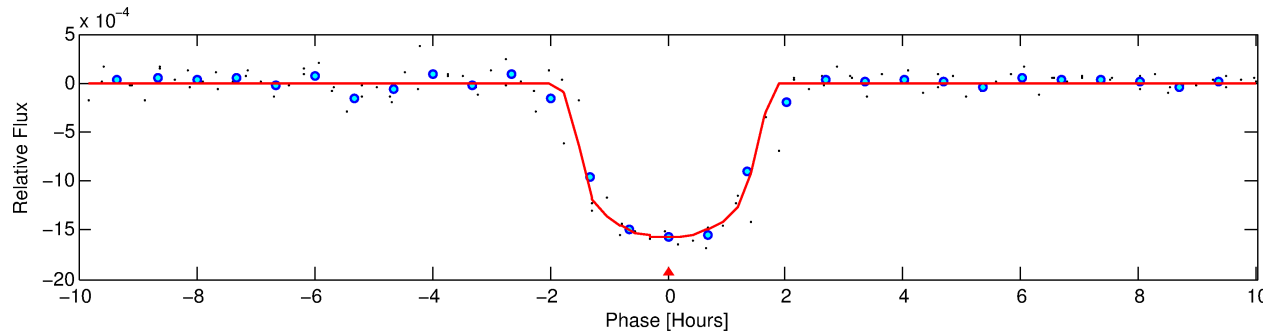
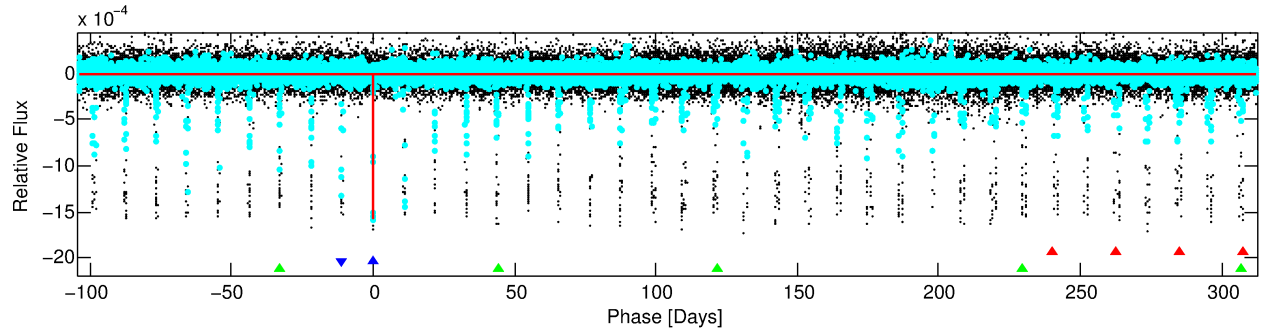
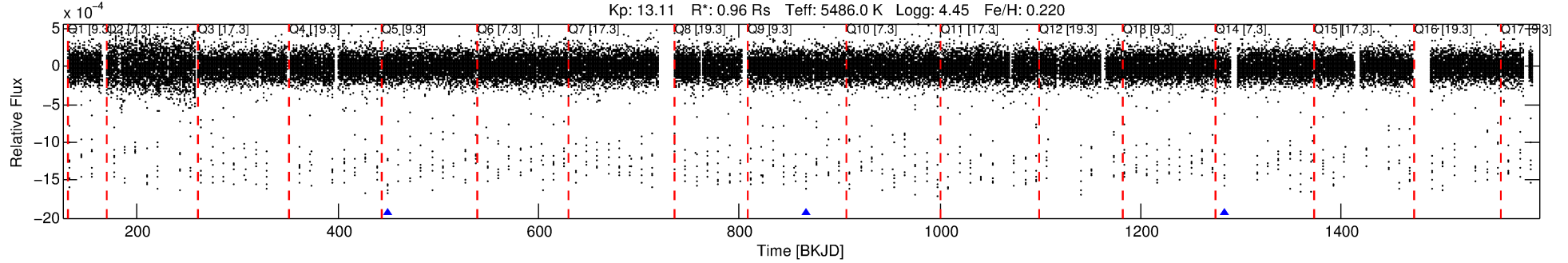
Ephemeris Match Information For 005446285-02

No Significant Match Found

DV One-Page Summary

KIC: 5446285 Candidate: 2 of 3 Period: 416.653 d
KOI: K00142 Name: Kepler-88 Corr: No Ephemeris Match

Kp: 13.11 R*: 0.96 Rs Teff: 5486.0 K Logg: 4.45 Fe/H: 0.220



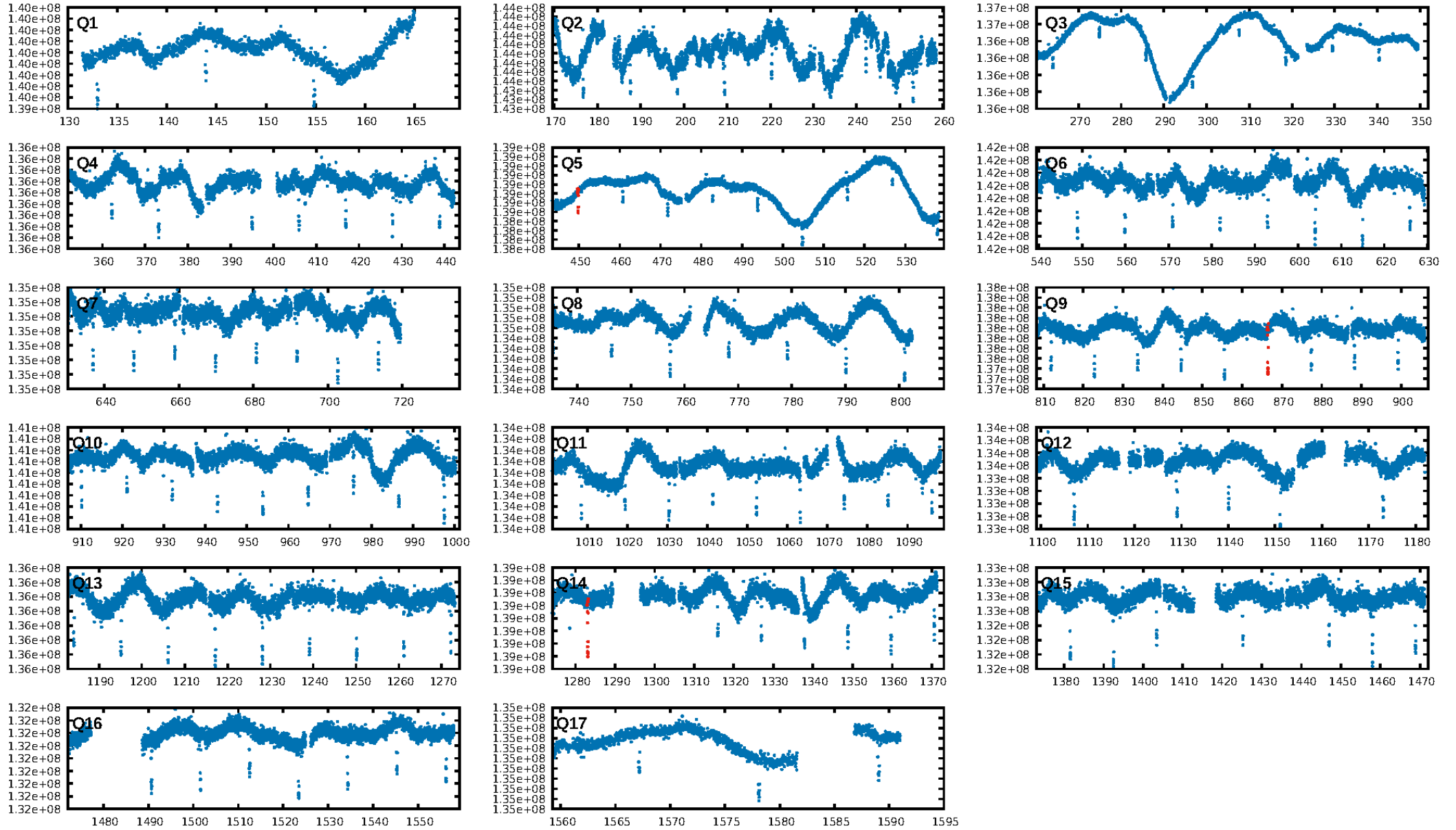
DV Fit Results:

Period = 416.65270 [0.00093] d
Epoch = 449.8175 [0.0012] BKJD
Rp/R* = 0.0374 [0.0142]
a/R* = 829.31 [1194.79]
b = 0.56 [1.78]
Seff = 0.65 [0.13]
Teq = 229 [11] K
Rp = 3.93 [1.58] Re
a = 1.0732 [0.1270] AU
Ag = 59884.96 [46754.52] [1.28σ]
Teffp = 5542 [1058] K [5.02σ]

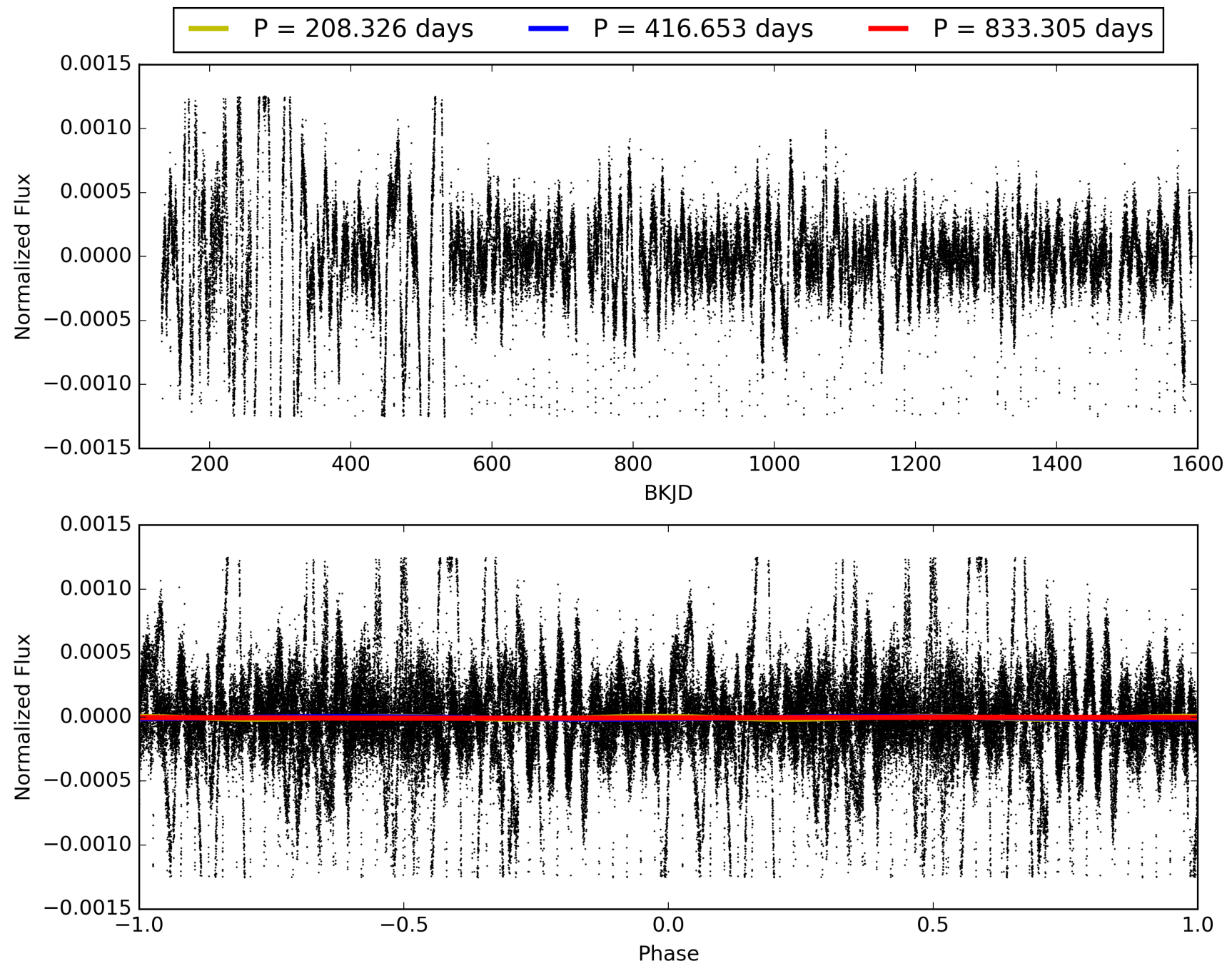
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.72σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 60.7%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 8.597
Centroid-sig: 97.9%
Centroid-so: 0.086 arcsec [0.36σ]
OotOffset-rm: 0.681 arcsec [1.49σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 0.734 arcsec [1.66σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 005446285-02, PDC Light Curves

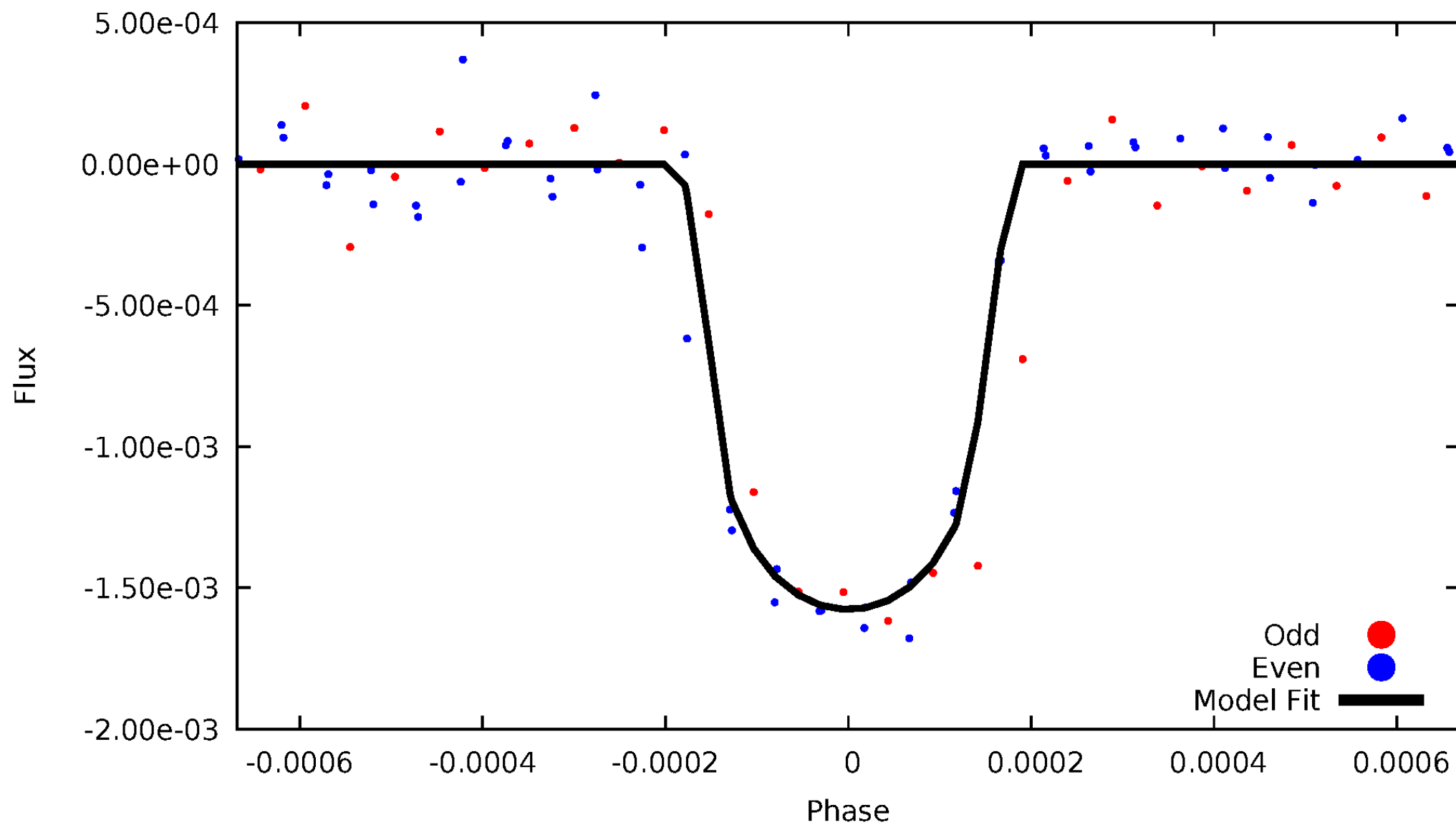


TCE 005446285-02



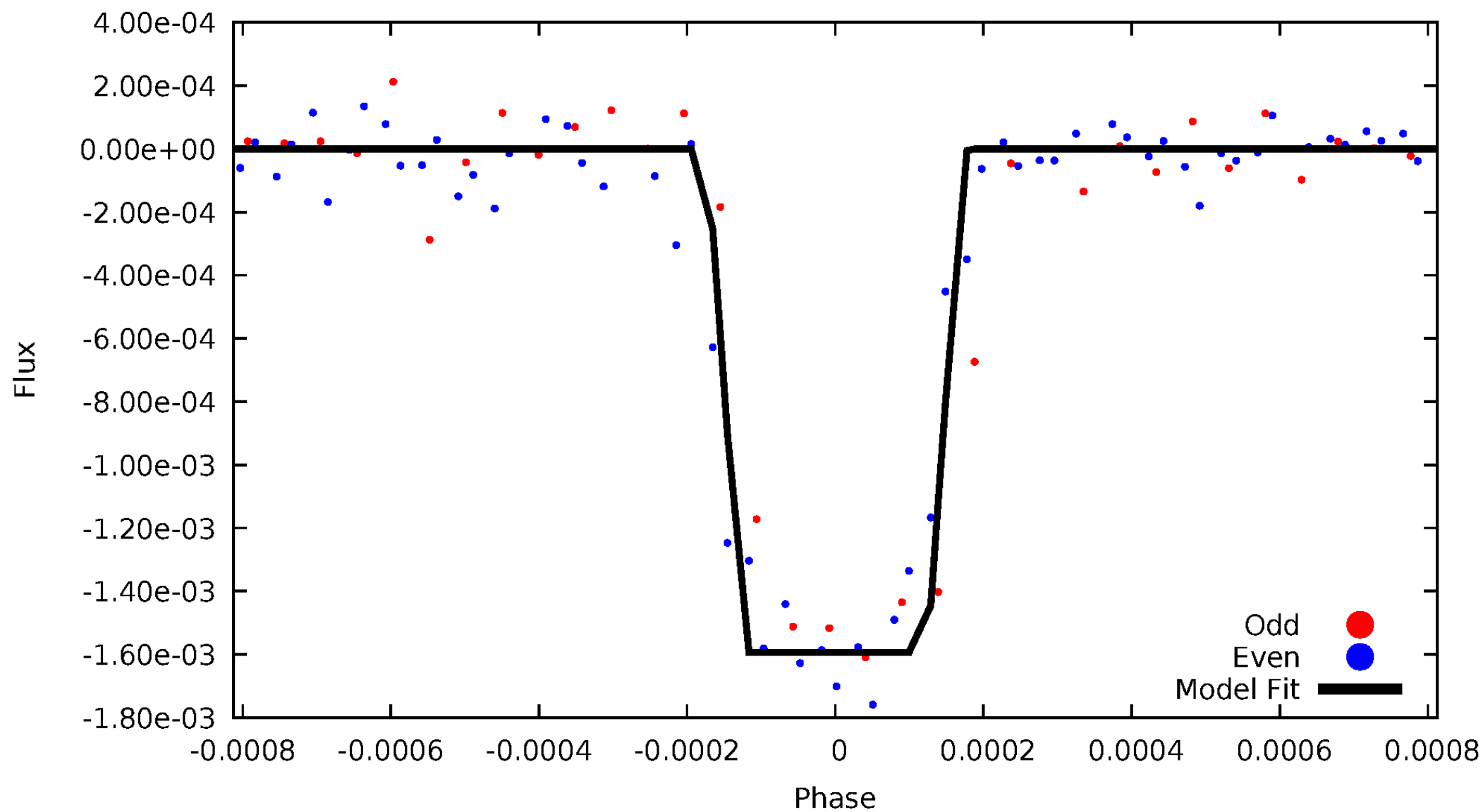
DV Odd/Even

TCE 005446285-02



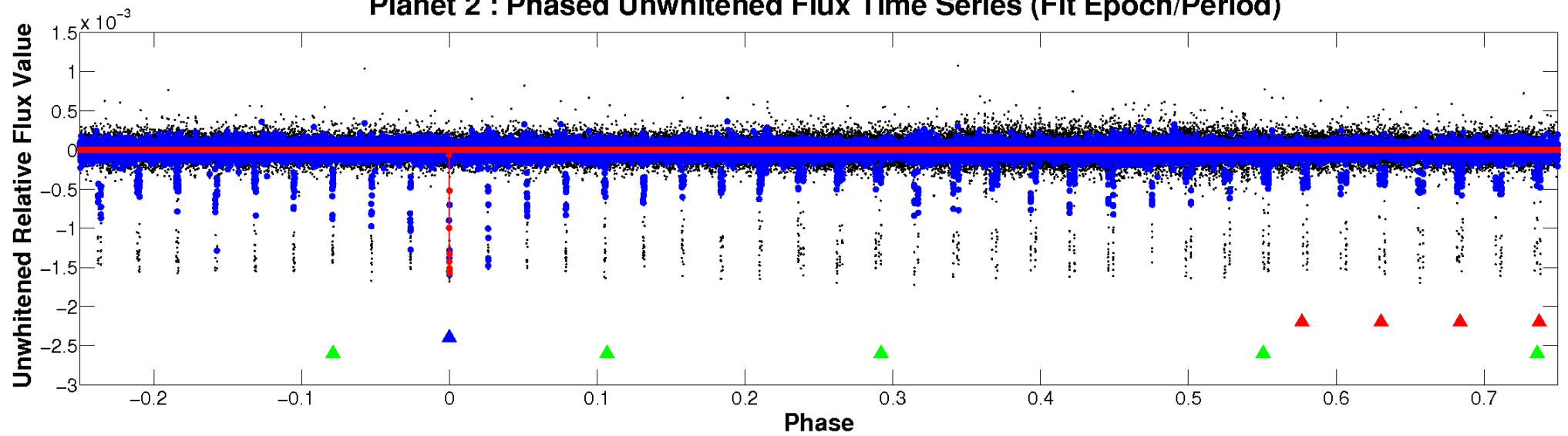
ALT Odd/Even

TCE 005446285-02

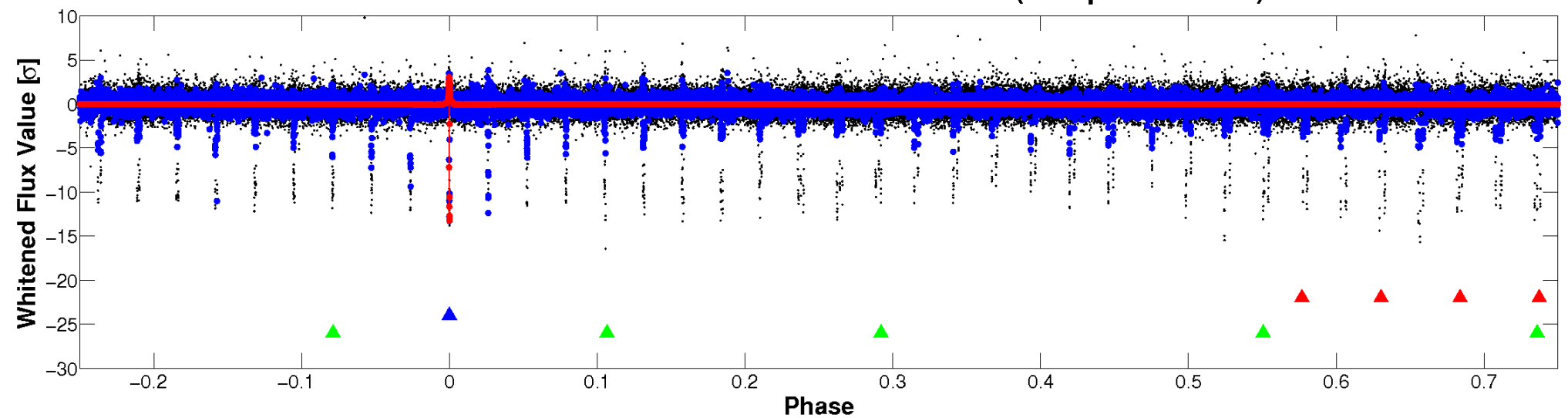


Non-Whitened Vs. Whitened Light Curve

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

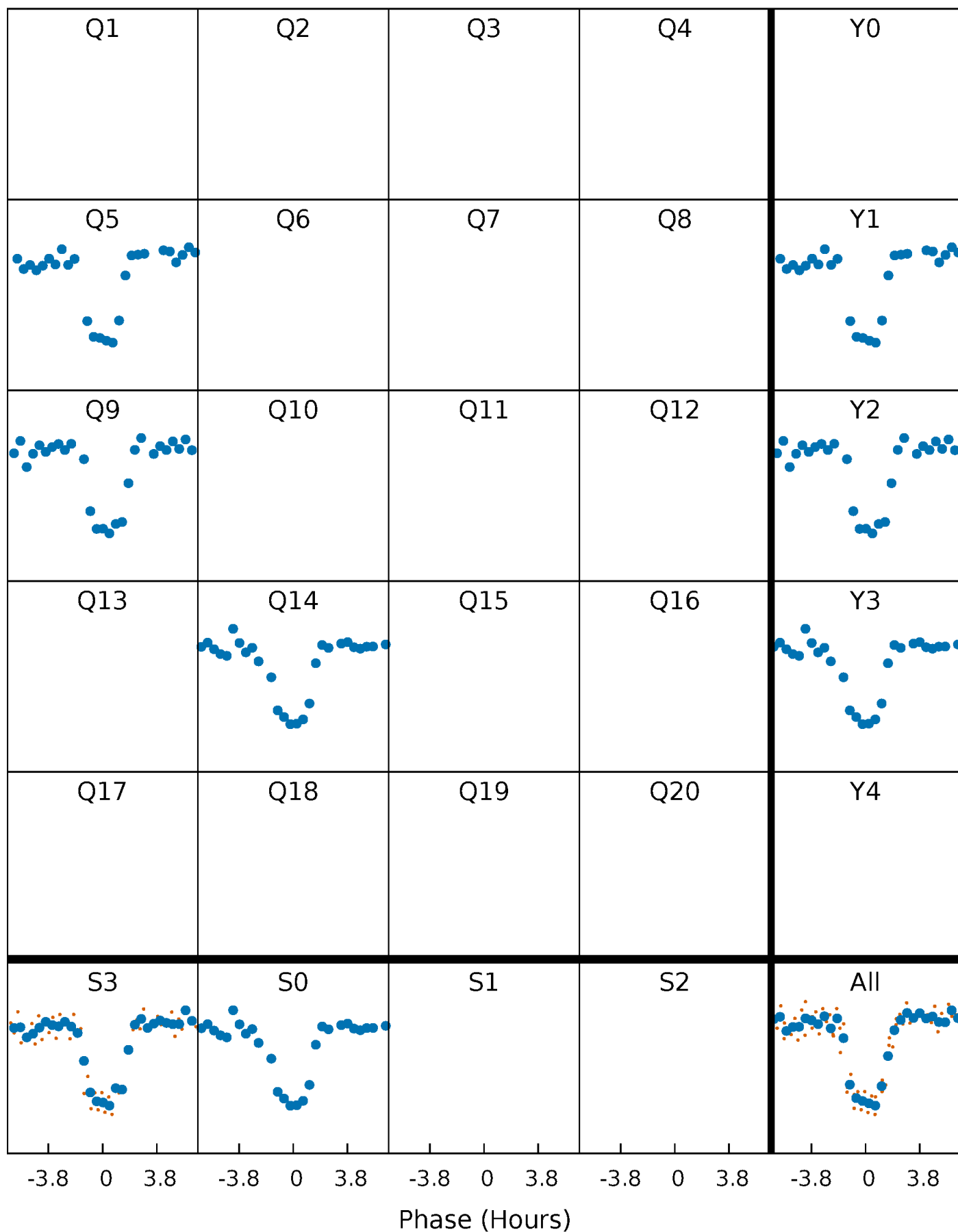


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



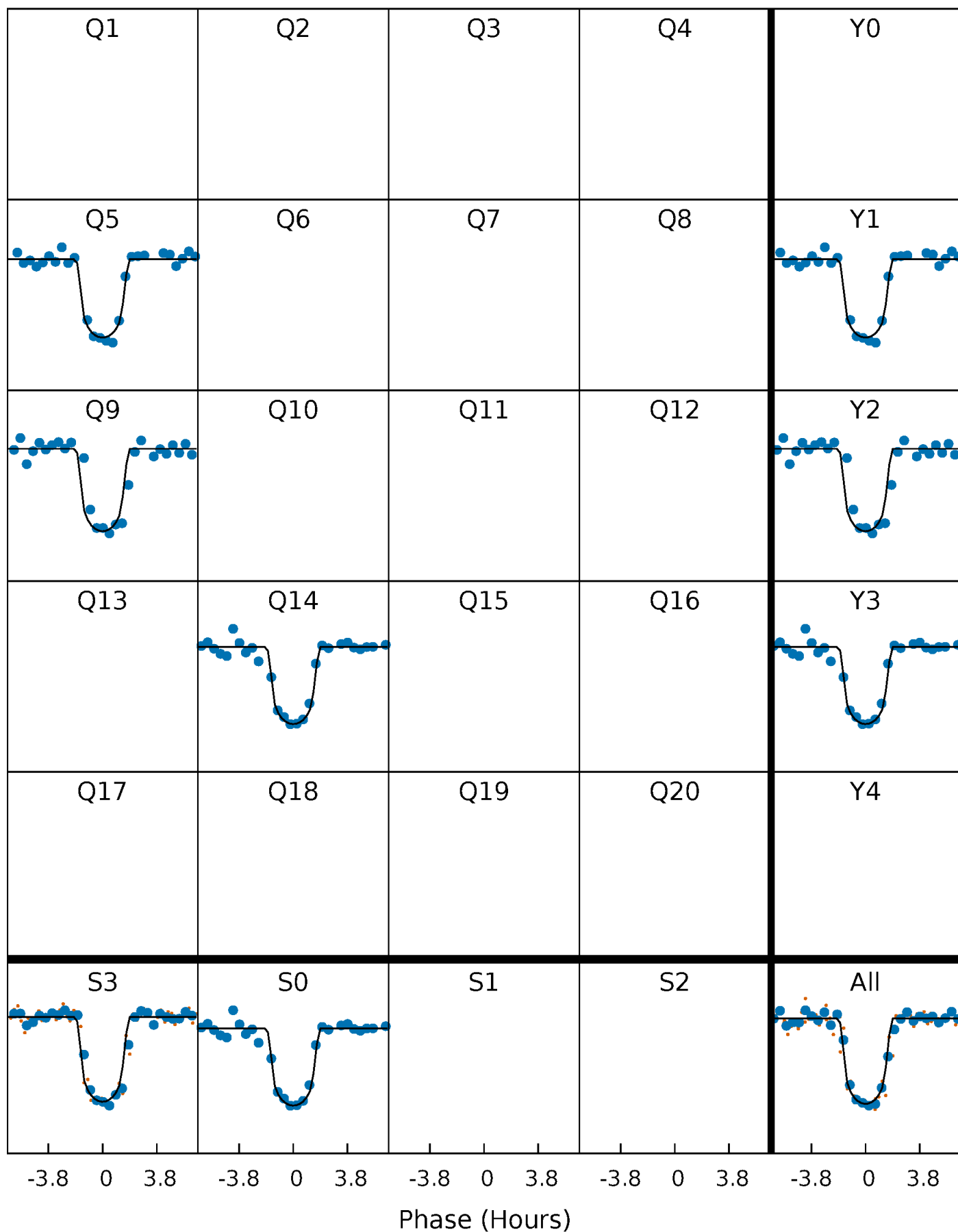
PDC Quarter-Phased Transit Curves

TCE 005446285-02 $P=416.652699$ Days $T_0=449.817474$ (BKJD)



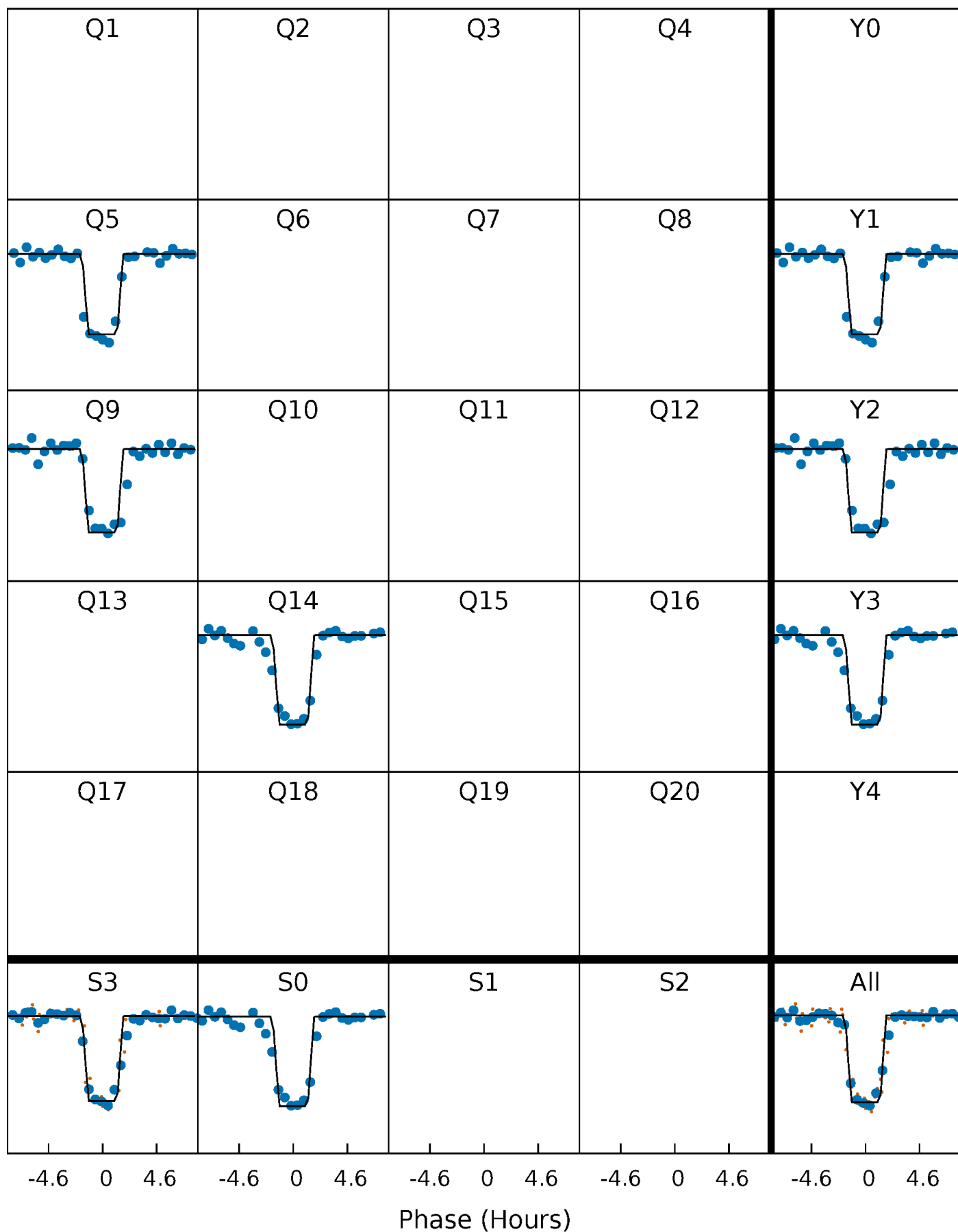
DV Quarter-Phased Transit Curves

TCE 005446285-02 $P=416.652699$ Days $T_0=449.817474$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

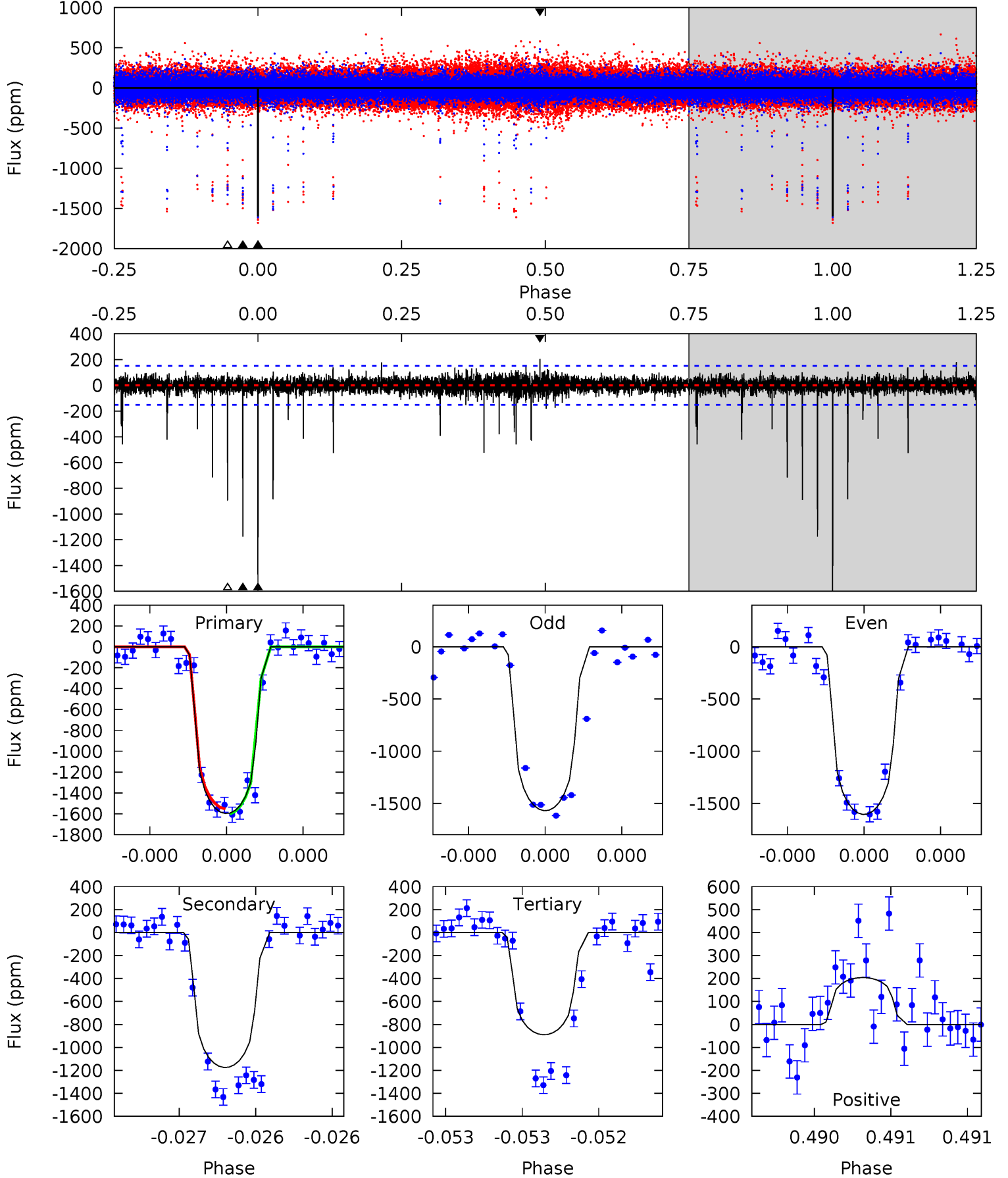
TCE 005446285-02 $P=416.647100$ Days $T_0=449.824157$ (BKJD)



DV Model-Shift Uniqueness Test

005446285-02, P = 416.652699 Days, E = 33.164775 Days

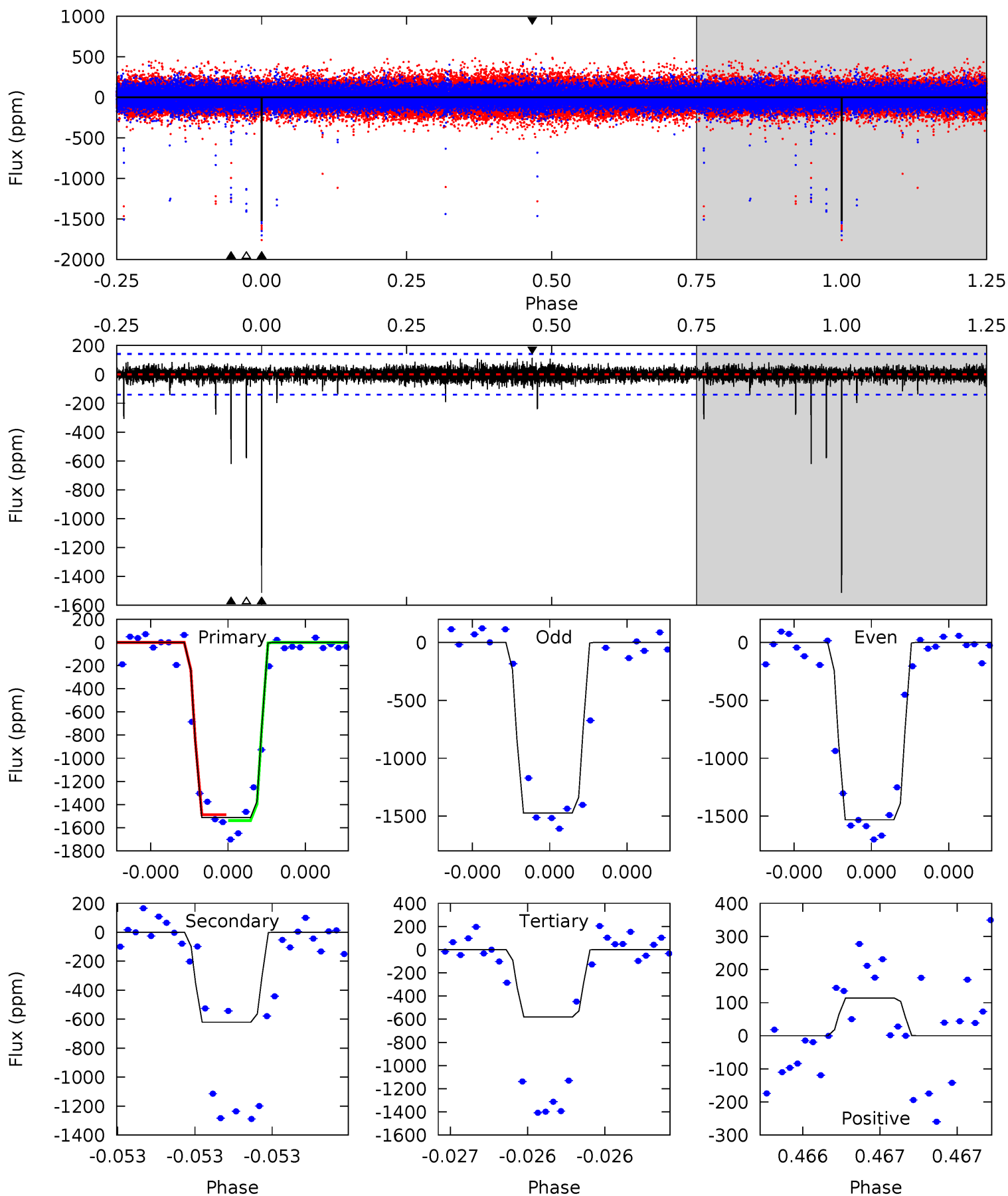
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
59.2	43.6	33.0	7.56	5.63	3.56	1.71	26.2	51.7	10.6	36.0	0.46	1.01	0.11	0.87



Alt Model-Shift Uniqueness Test

005446285-02, P = 416.647100 Days, E = 33.177057 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.5	24.8	23.2	4.56	5.64	3.58	1.16	37.3	55.9	1.59	20.3	0.95	1.03	0.07	1.02



Stellar Parameters For KIC 005446285

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5486^{+109}_{-109}	$4.449^{+0.068}_{-0.102}$	$0.220^{+0.150}_{-0.150}$	$0.962^{+0.128}_{-0.079}$	$0.950^{+0.053}_{-0.053}$	$1.502^{+0.385}_{-0.434}$
	+2%/-2%	+2%/-2%	+68%/-68%	+13%/-8%	+6%/-6%	+26%/-29%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 005446285-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1175 ± 27	$3.96^{+1.50}_{-1.51}$	321^{+13}_{-11}	5276^{+1443}_{-647}	47752^{+77094}_{-22811}
Alt.	-621 ± 25	$4.35^{+1.48}_{-1.58}$	321^{+12}_{-11}	4456^{+933}_{-456}	20814^{+30045}_{-9253}

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

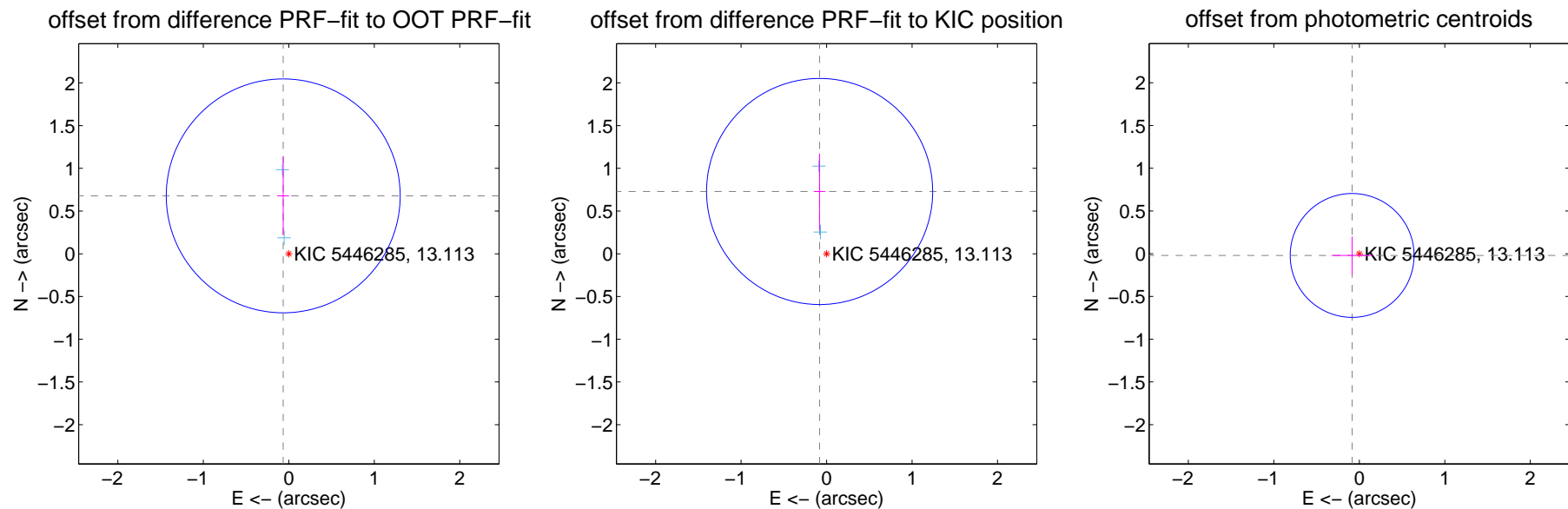
DV Centroid Data

Supplemental centroid analysis for 005446285-02. Kepler magnitude: 13.11. Transit SNR 49.51

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.681 ± 0.456	1.49	0.065 ± 0.068	0.678 ± 0.458
PRF-fit source offset from KIC position	0.734 ± 0.441	1.66	0.081 ± 0.068	0.729 ± 0.444
photometric centroid source offset	0.09 ± 0.24	0.36	0.08 ± 0.24	-0.02 ± 0.22

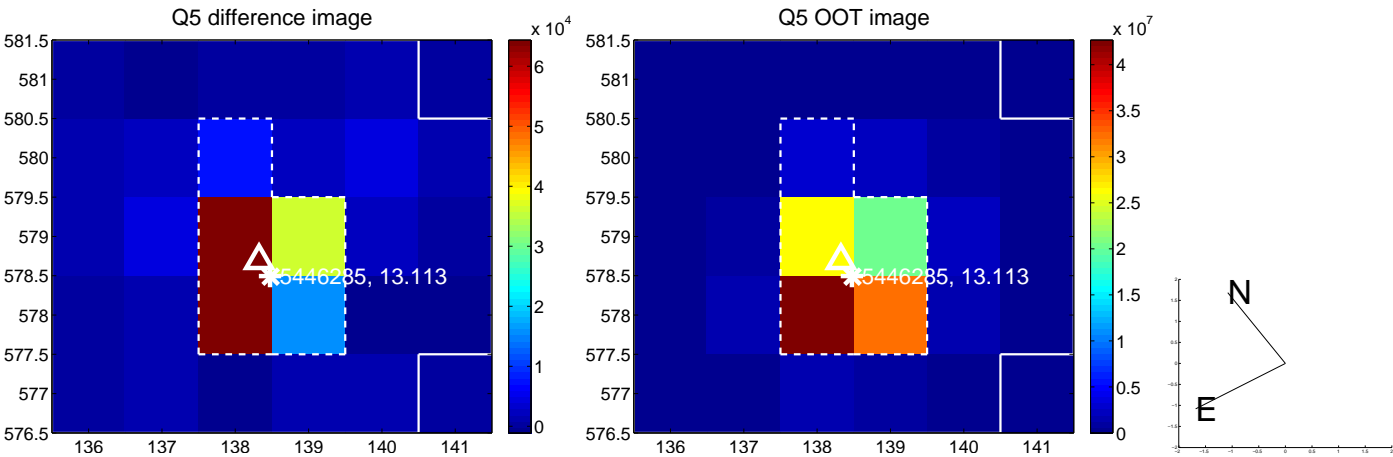


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

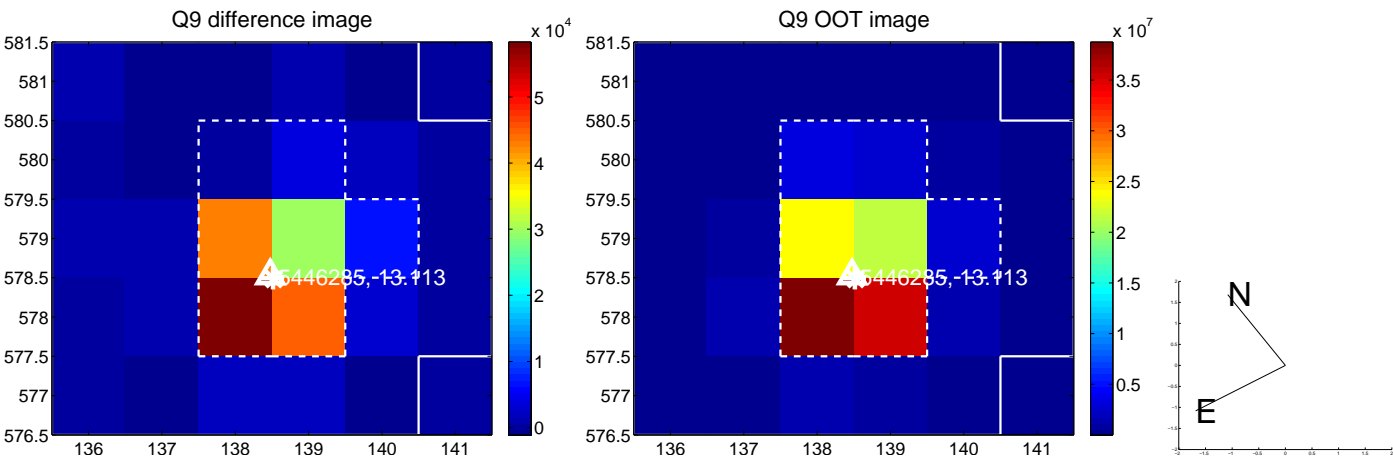
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



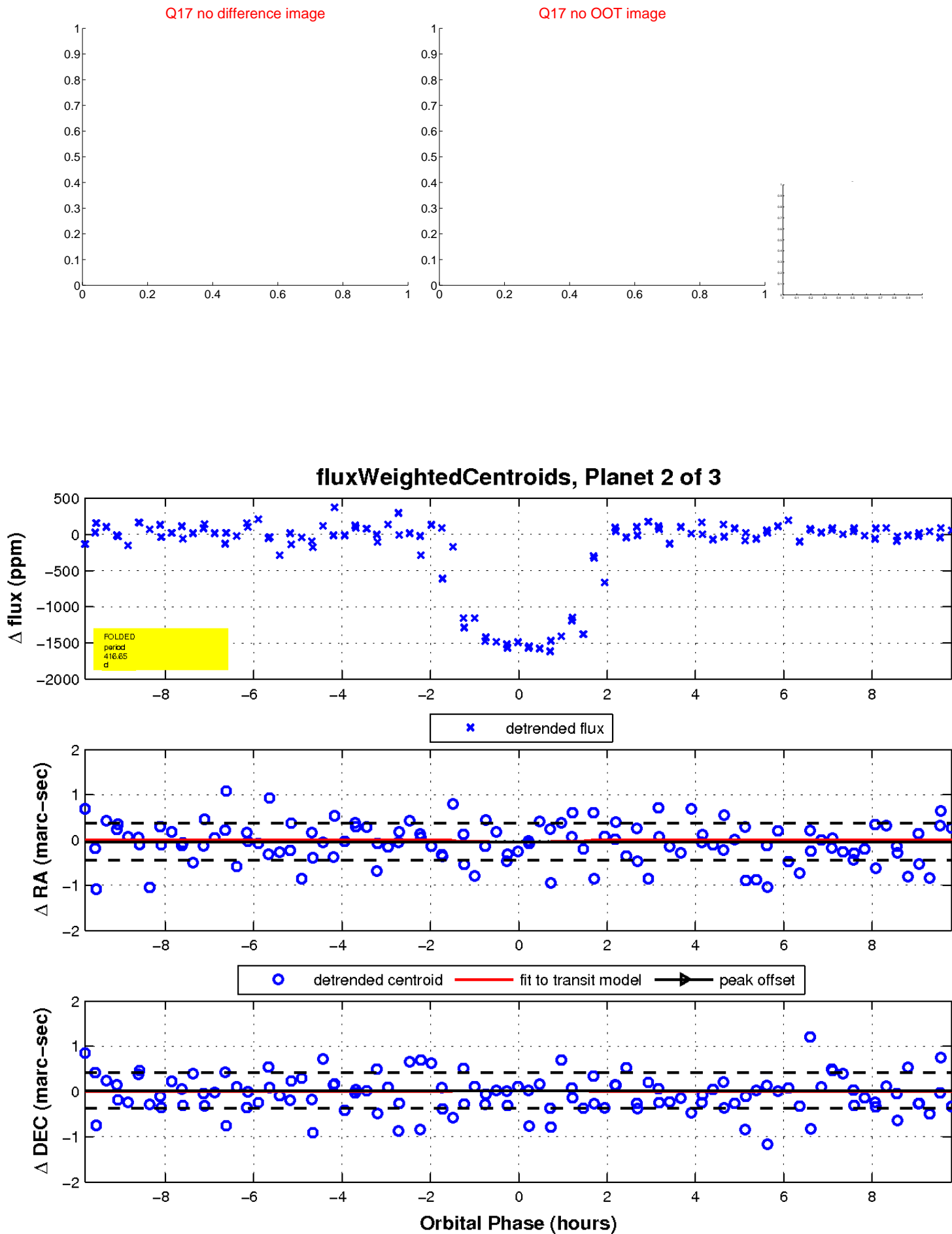
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



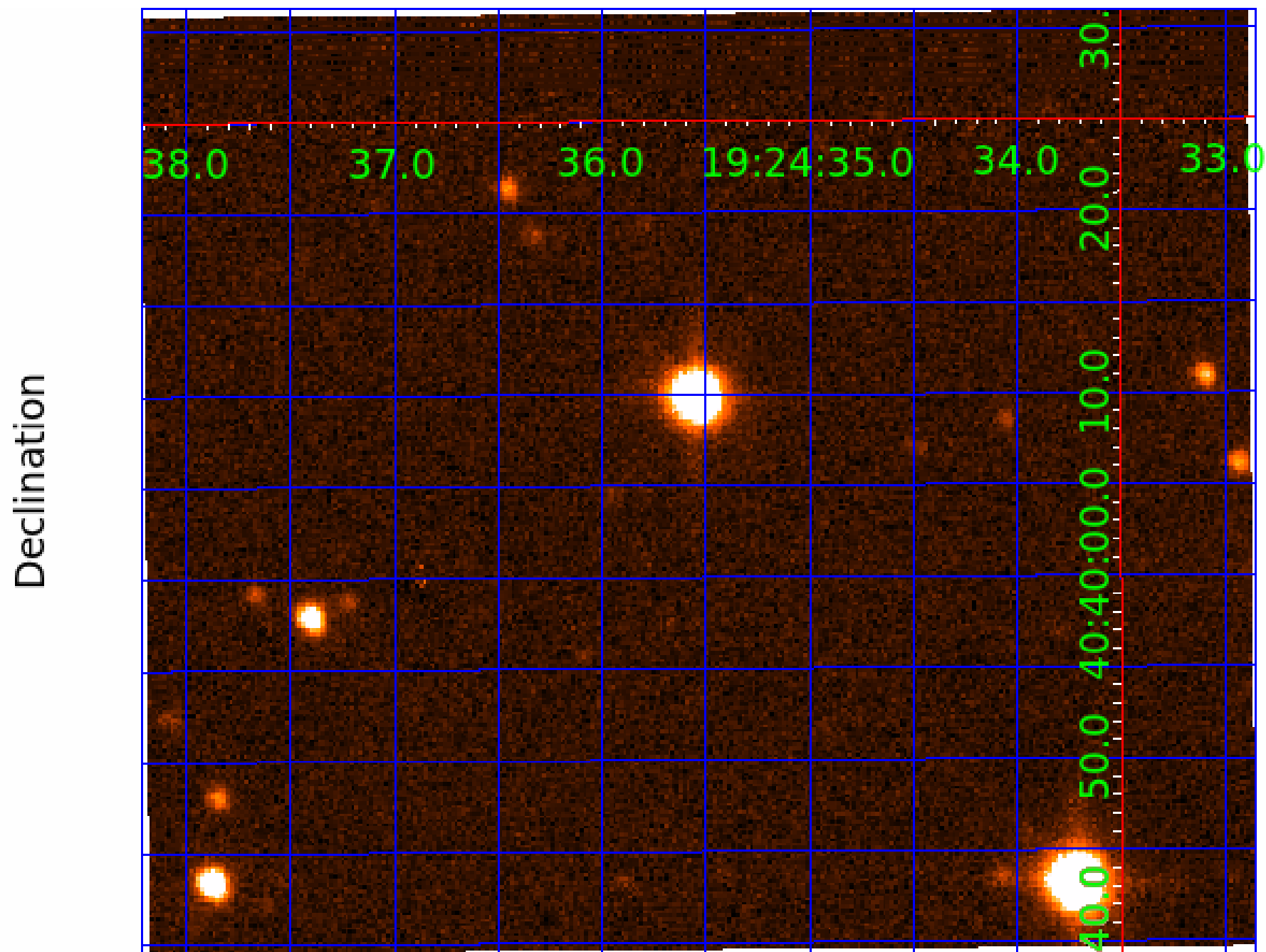
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005446285

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})
005446285-02	OBS	No	416.652699	449.817474	1575.8	3.342	53.0	49.5	0.96	5486	3.93	0.65
005446285-03	OBS	No	339.421427	154.851322	1353.2	3.928	44.9	49.3	0.96	5486	4.12	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005446285-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—CENT_FEW_DIFFS
005446285-03	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT

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

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

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

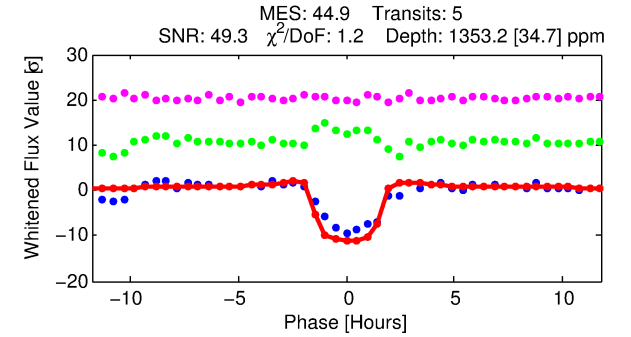
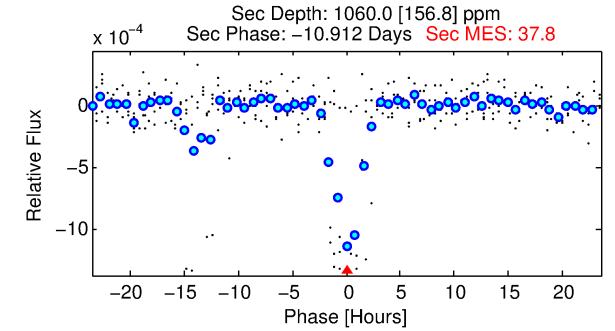
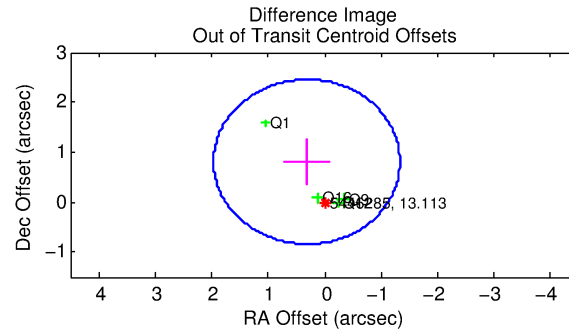
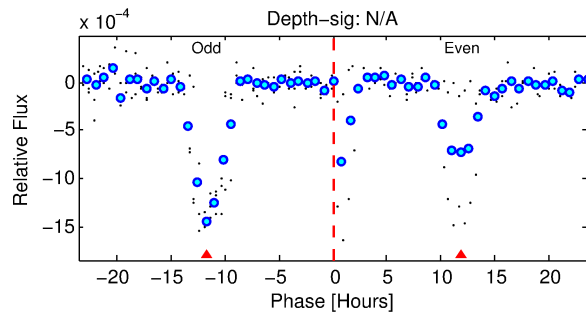
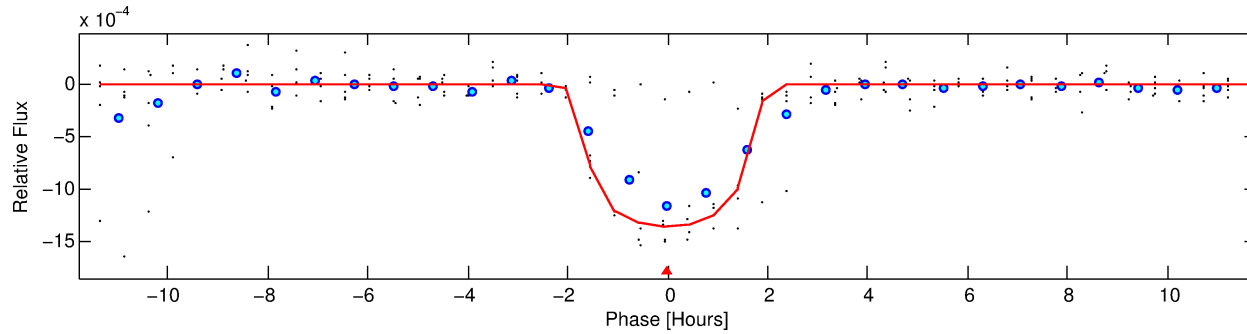
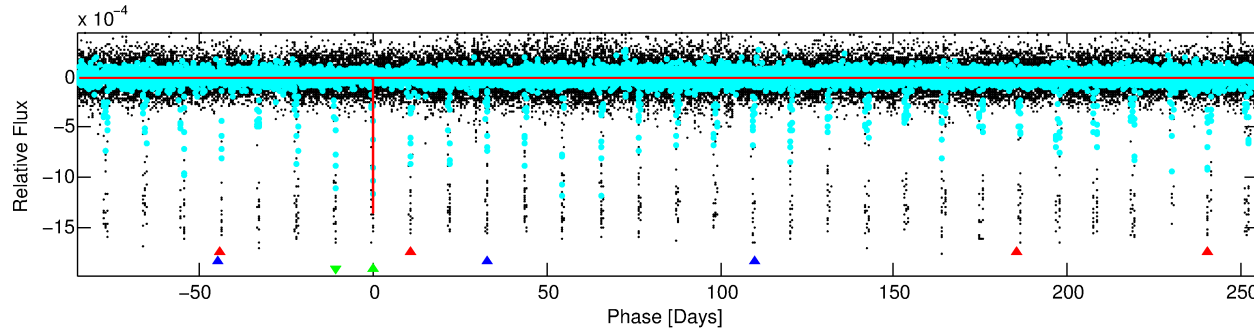
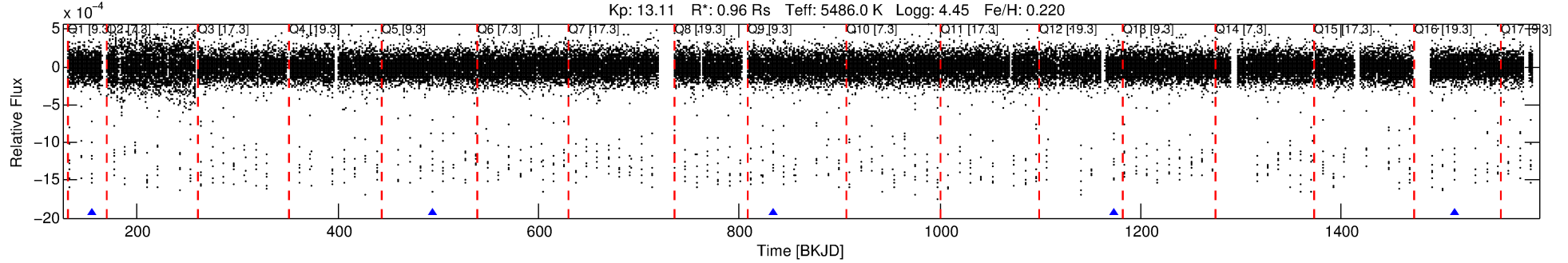
Ephemeris Match Information For 005446285-03

No Significant Match Found

DV One-Page Summary

KIC: 5446285 Candidate: 3 of 3 Period: 339.421 d
KOI: K00142 Name: Kepler-88 Corr: No Ephemeris Match

Kp: 13.11 R*: 0.96 Rs Teff: 5486.0 K Logg: 4.45 Fe/H: 0.220



DV Fit Results:

Period = 339.42143 [0.00077] d
Epoch = 154.8513 [0.0020] BKJD
Rp/R* = 0.0393 [0.0020]
a/R* = 379.90 [73.61]
b = 0.87 [0.06]
Seff = 0.86 [0.17]
Teq = 245 [12] K
Rp = 4.13 [0.59] Re
a = 0.9361 [0.1107] AU
Ag = 30024.22 [7644.81] [3.93σ]
Teffp = 4993 [246] K [19.29σ]

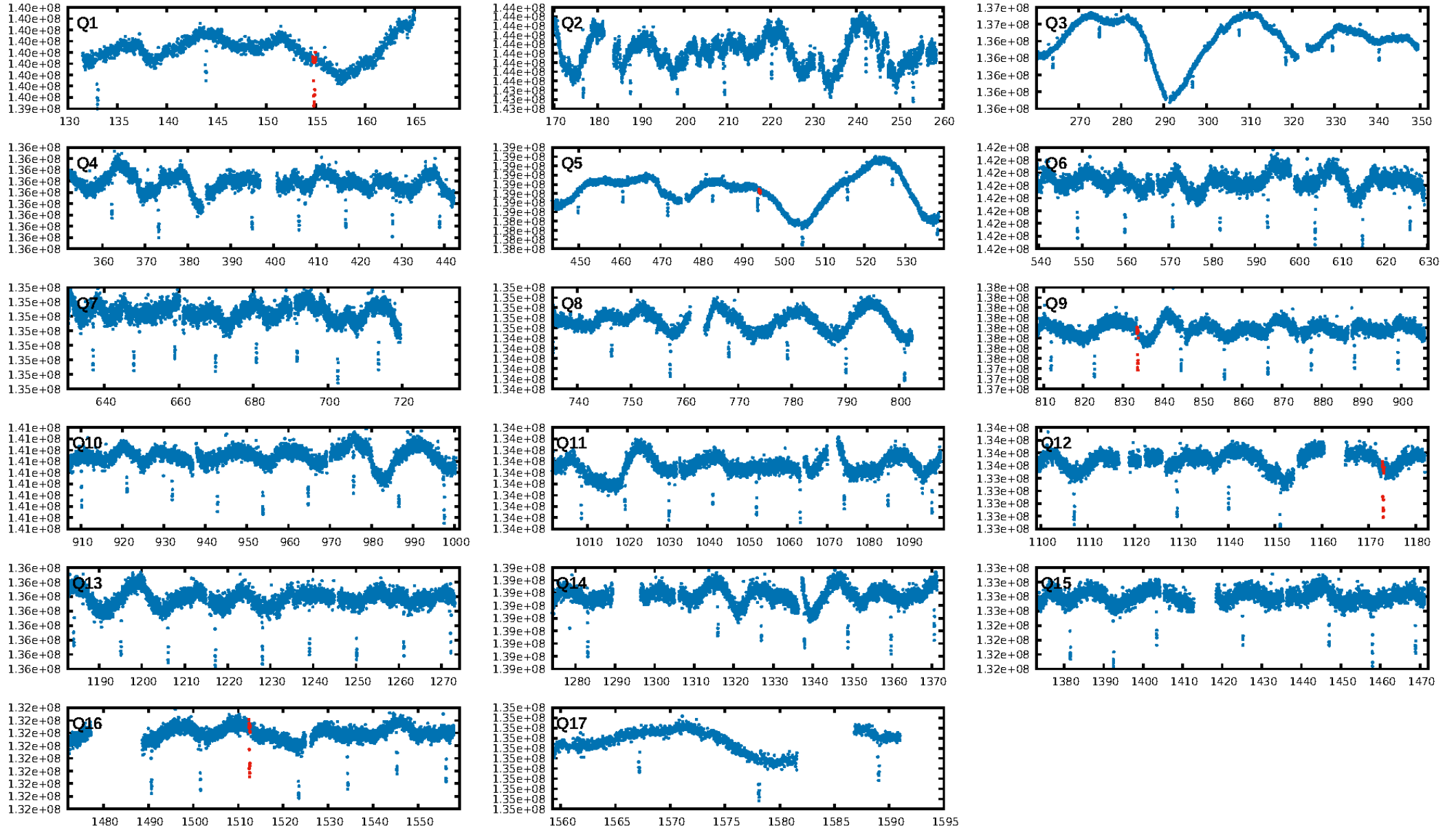
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [243.16σ]
ModelChiSquare2-sig: 12.7%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 7.858
Centroid-sig: 17.3%
Centroid-so: 0.167 arcsec [0.82σ]
OotOffset-rm: 0.866 arcsec [1.58σ]
KicOffset-rm: 0.925 arcsec [1.69σ]
OotOffset-st: 0/0/2/2 [4]
KicOffset-st: 0/0/2/2 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [5/5]

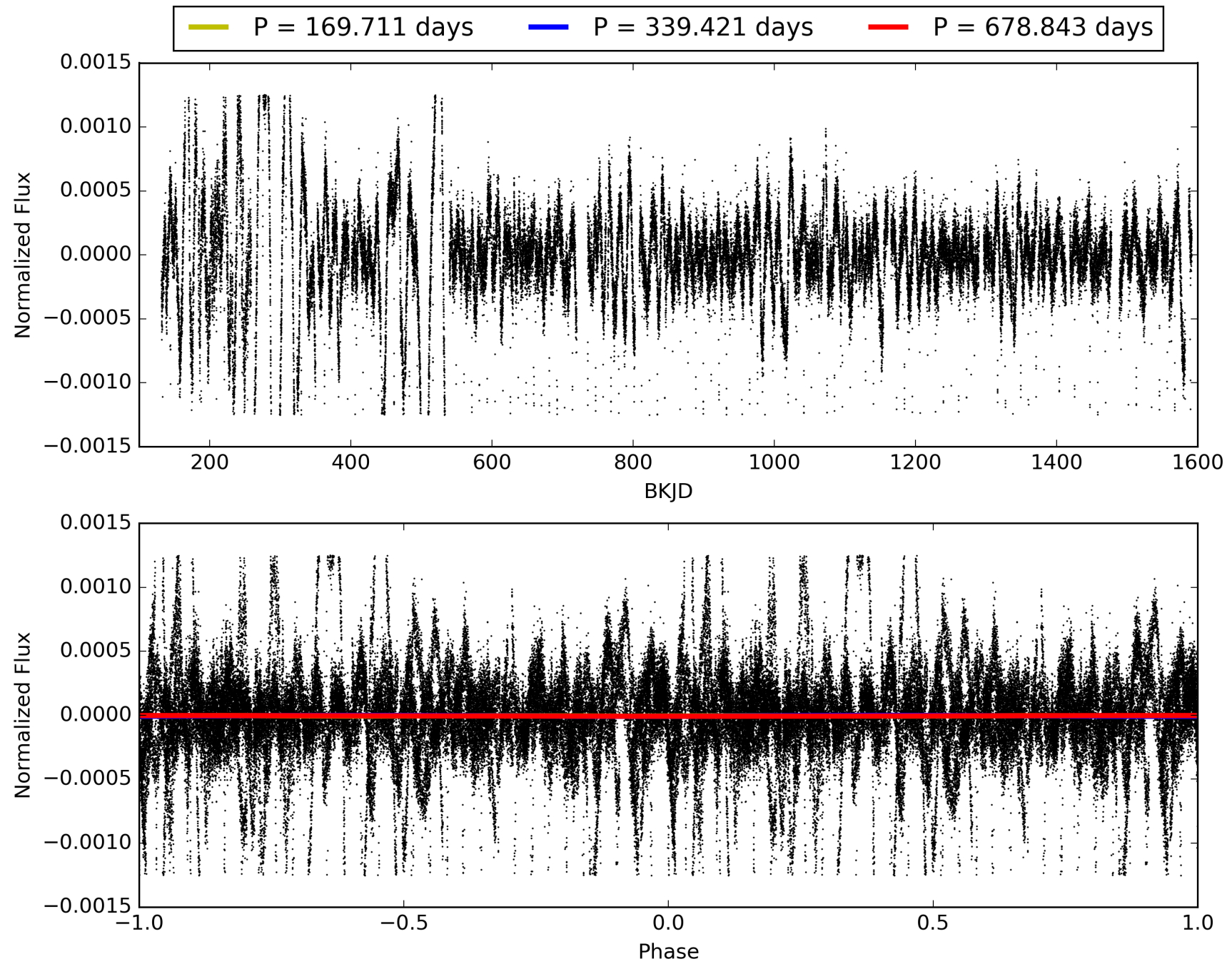
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:44:23 Z

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

TCE 005446285-03, PDC Light Curves

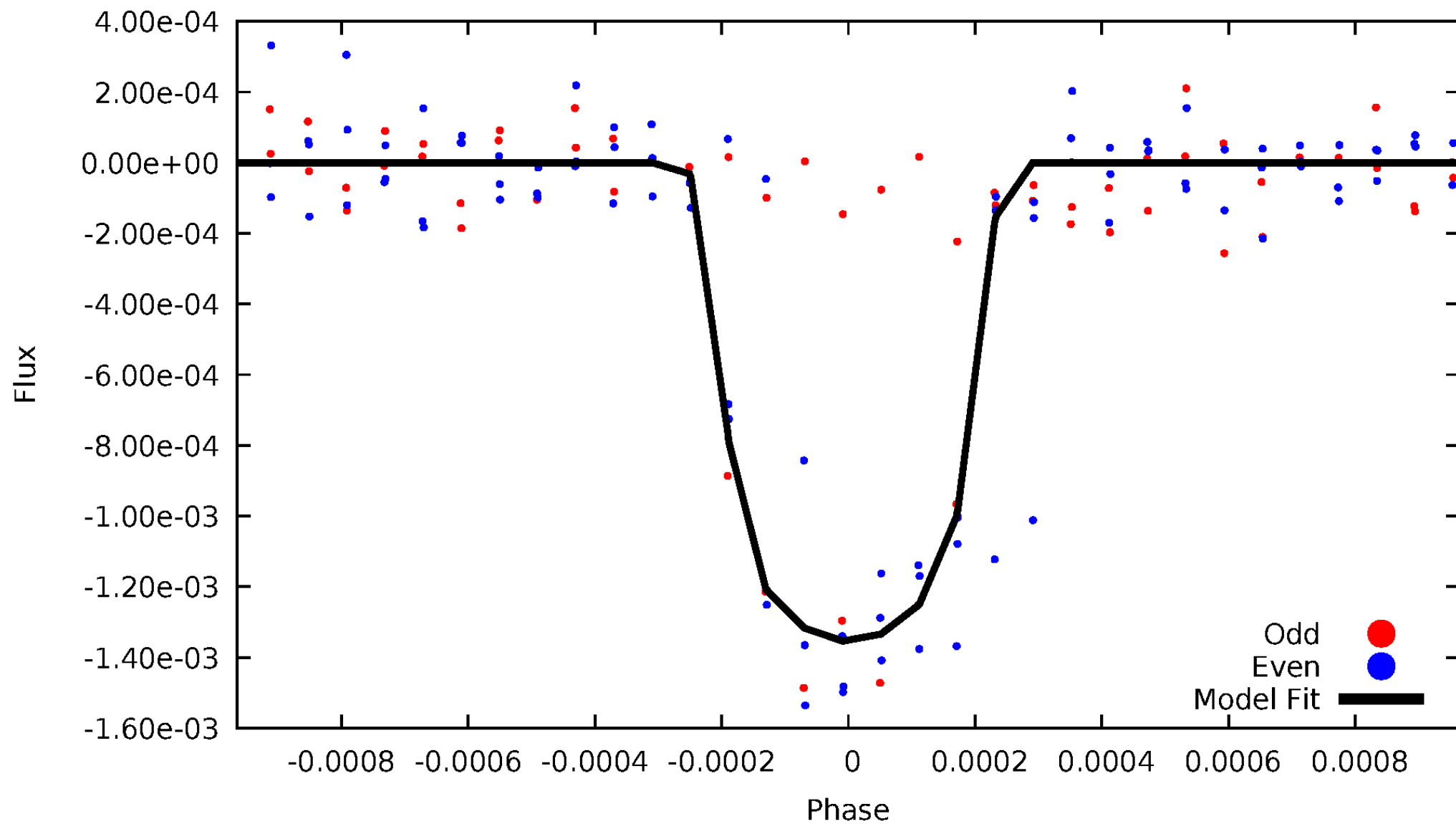


TCE 005446285-03



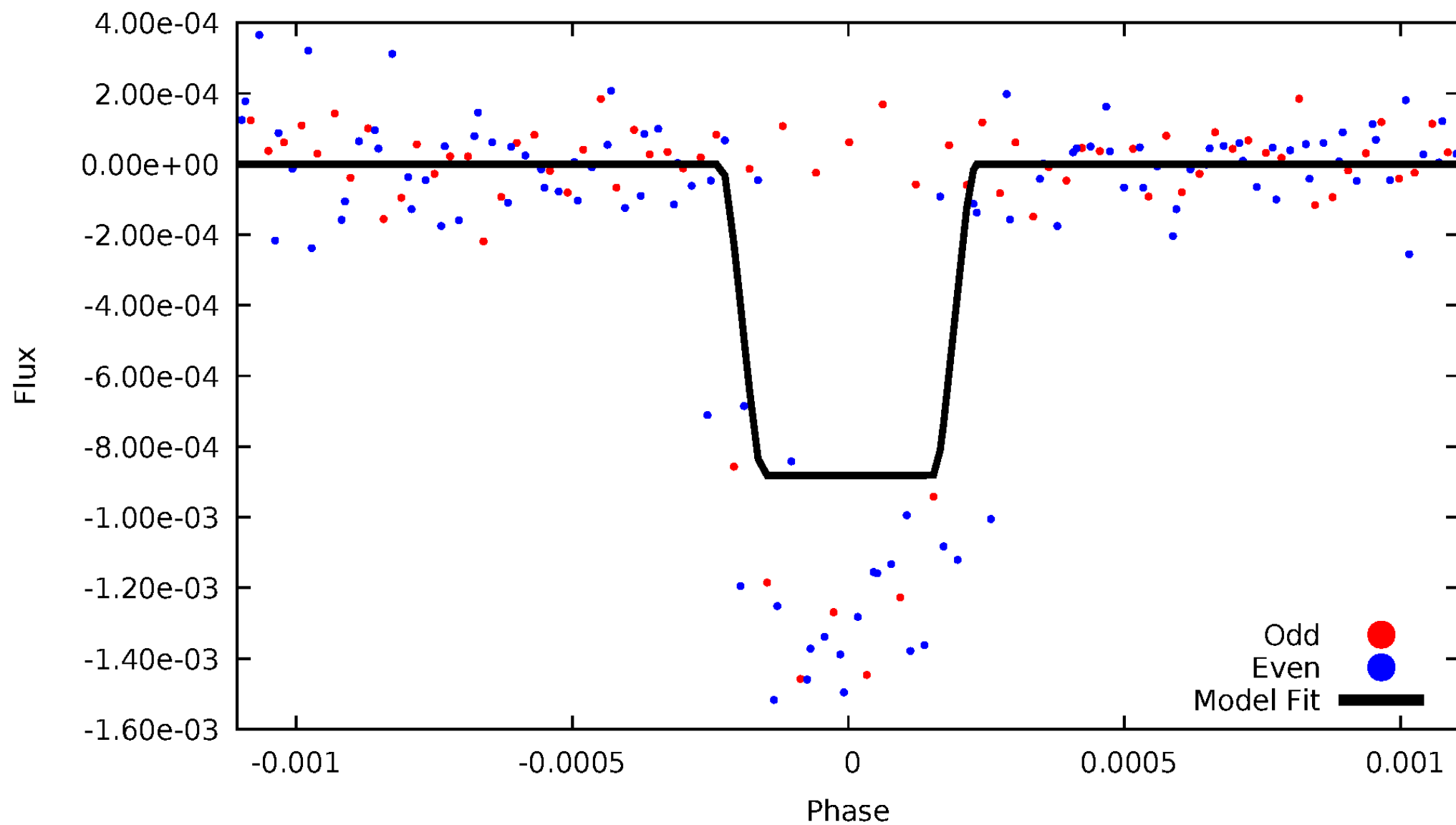
DV Odd/Even

TCE 005446285-03



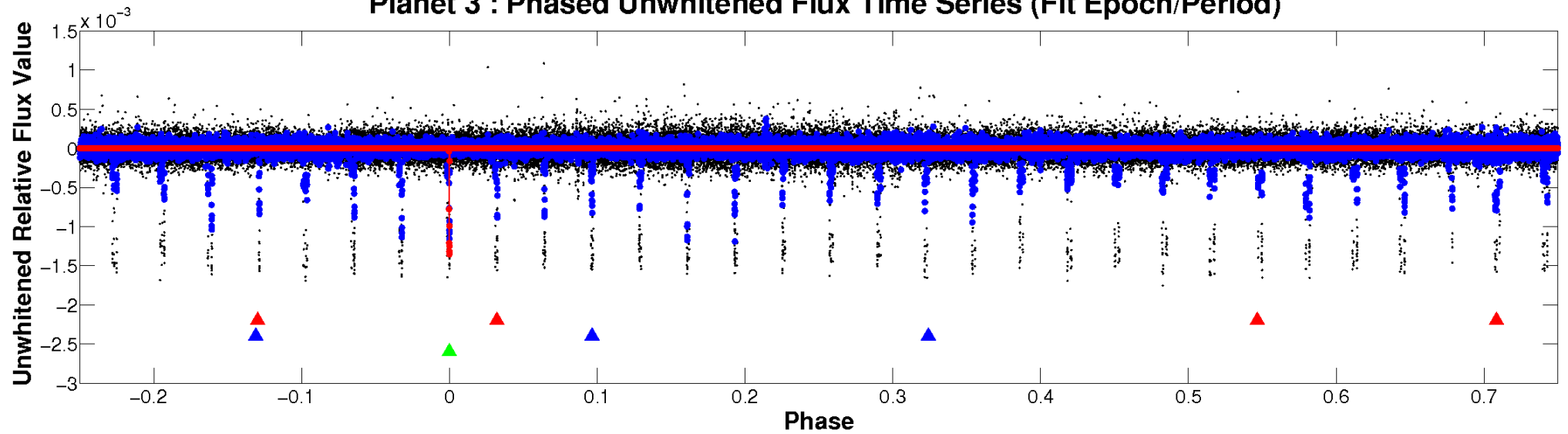
ALT Odd/Even

TCE 005446285-03

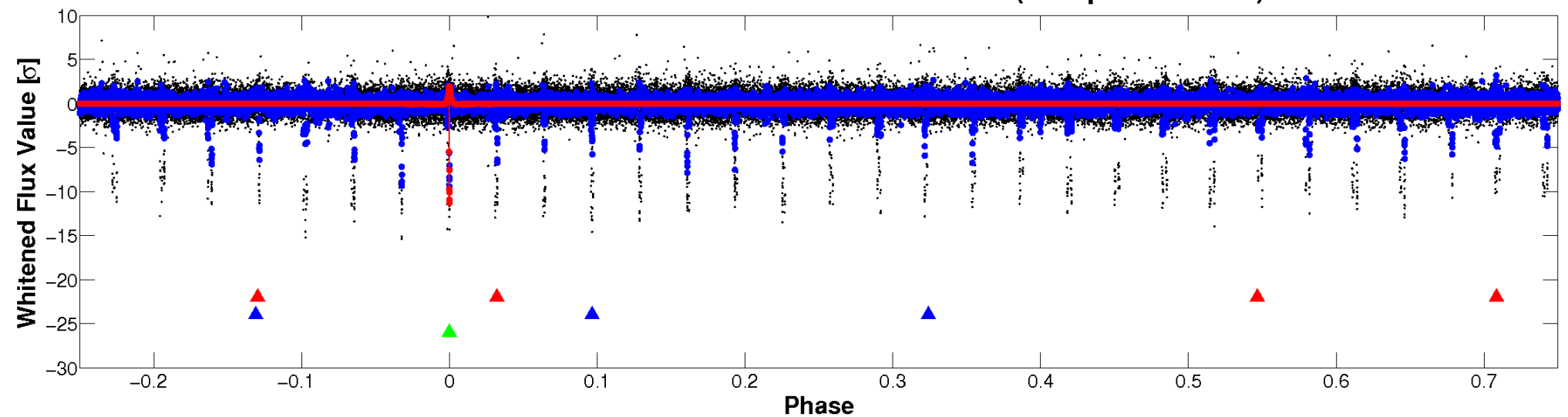


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

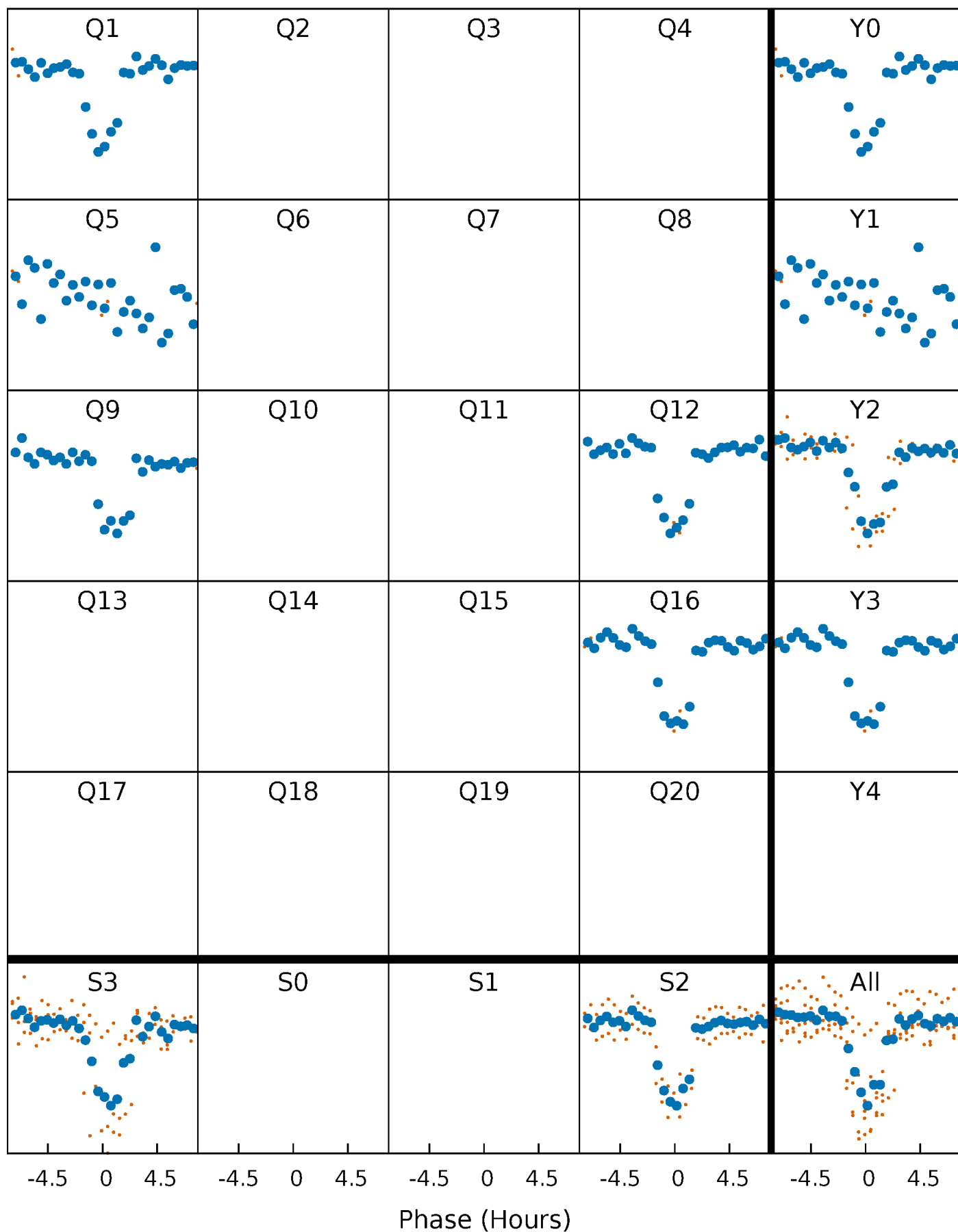


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



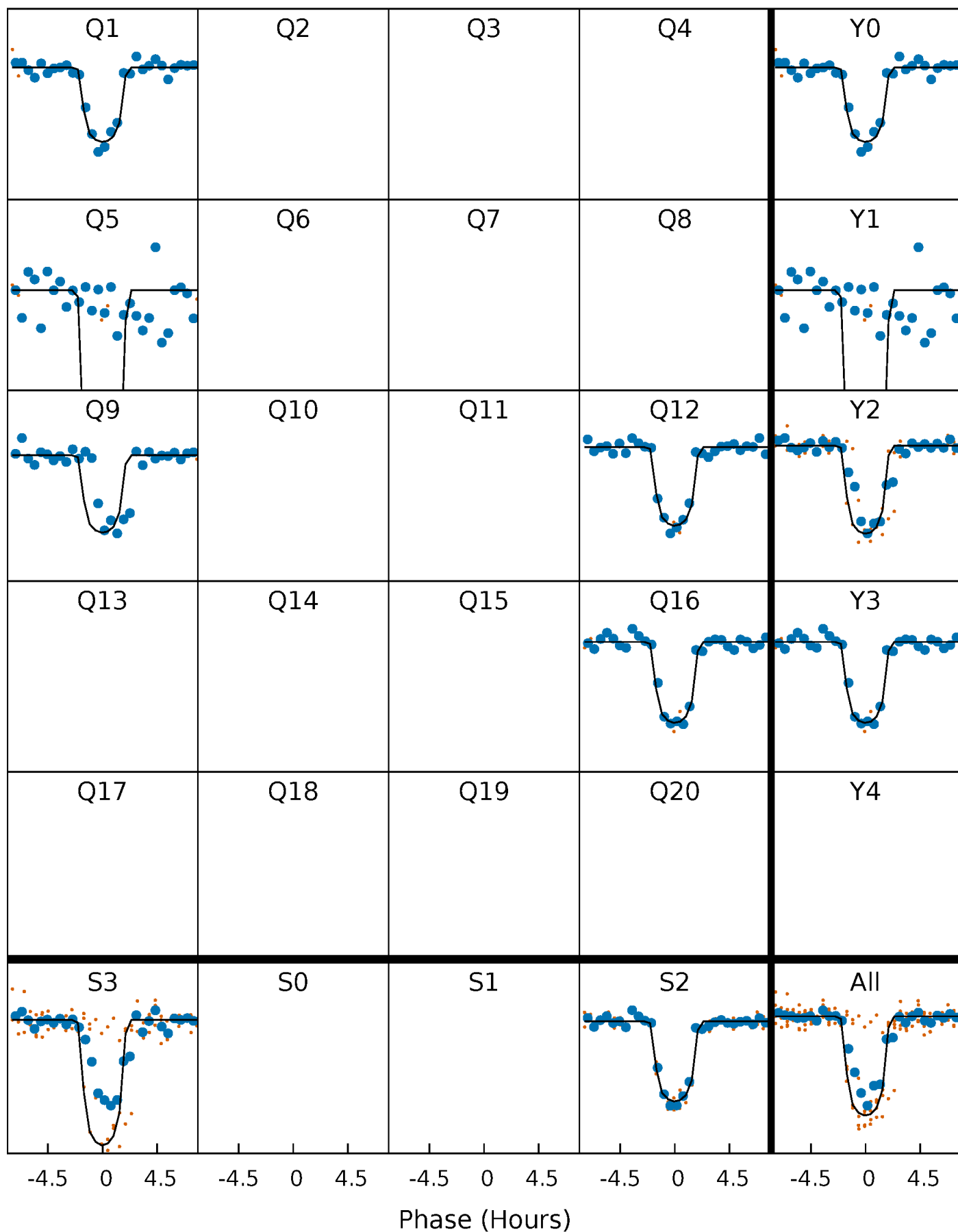
PDC Quarter-Phased Transit Curves

TCE 005446285-03 $P=339.421427$ Days $T_0=154.851322$ (BKJD)



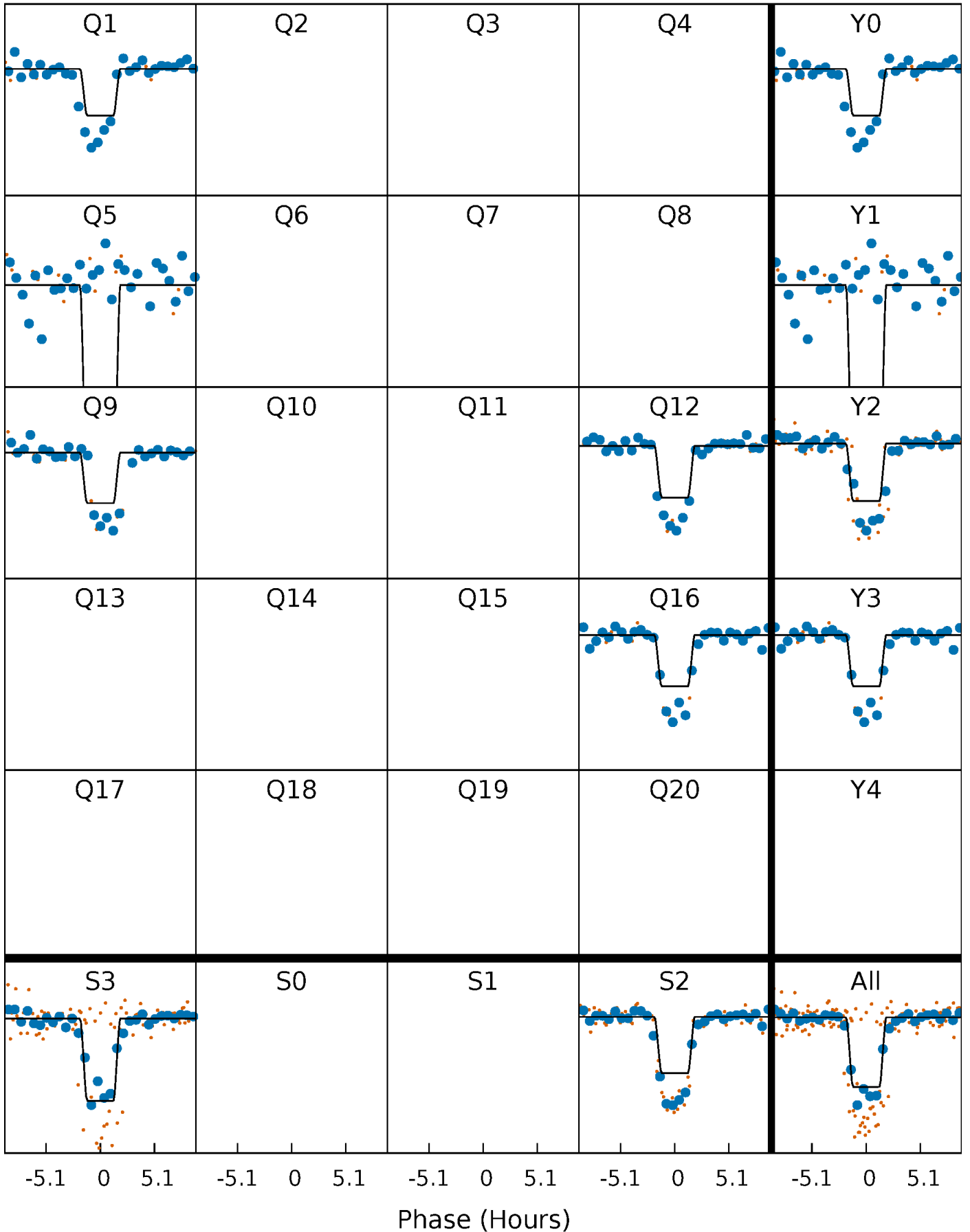
DV Quarter-Phased Transit Curves

TCE 005446285-03 $P=339.421427$ Days $T_0=154.851322$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

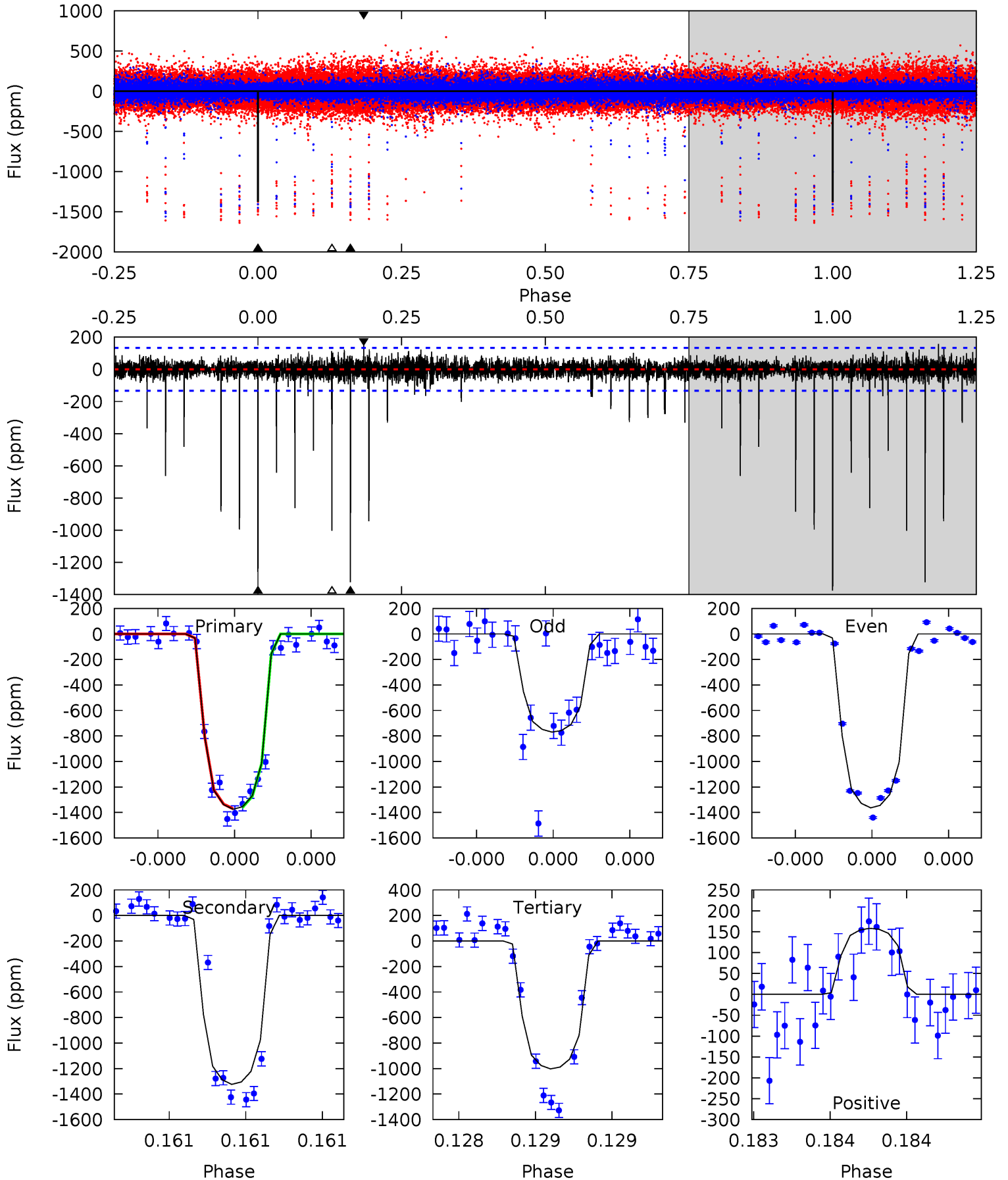
TCE 005446285-03 P=339.415741 Days $T_0=154.873976$ (BKJD)



DV Model-Shift Uniqueness Test

005446285-03, P = 339.421427 Days, E = 154.851322 Days

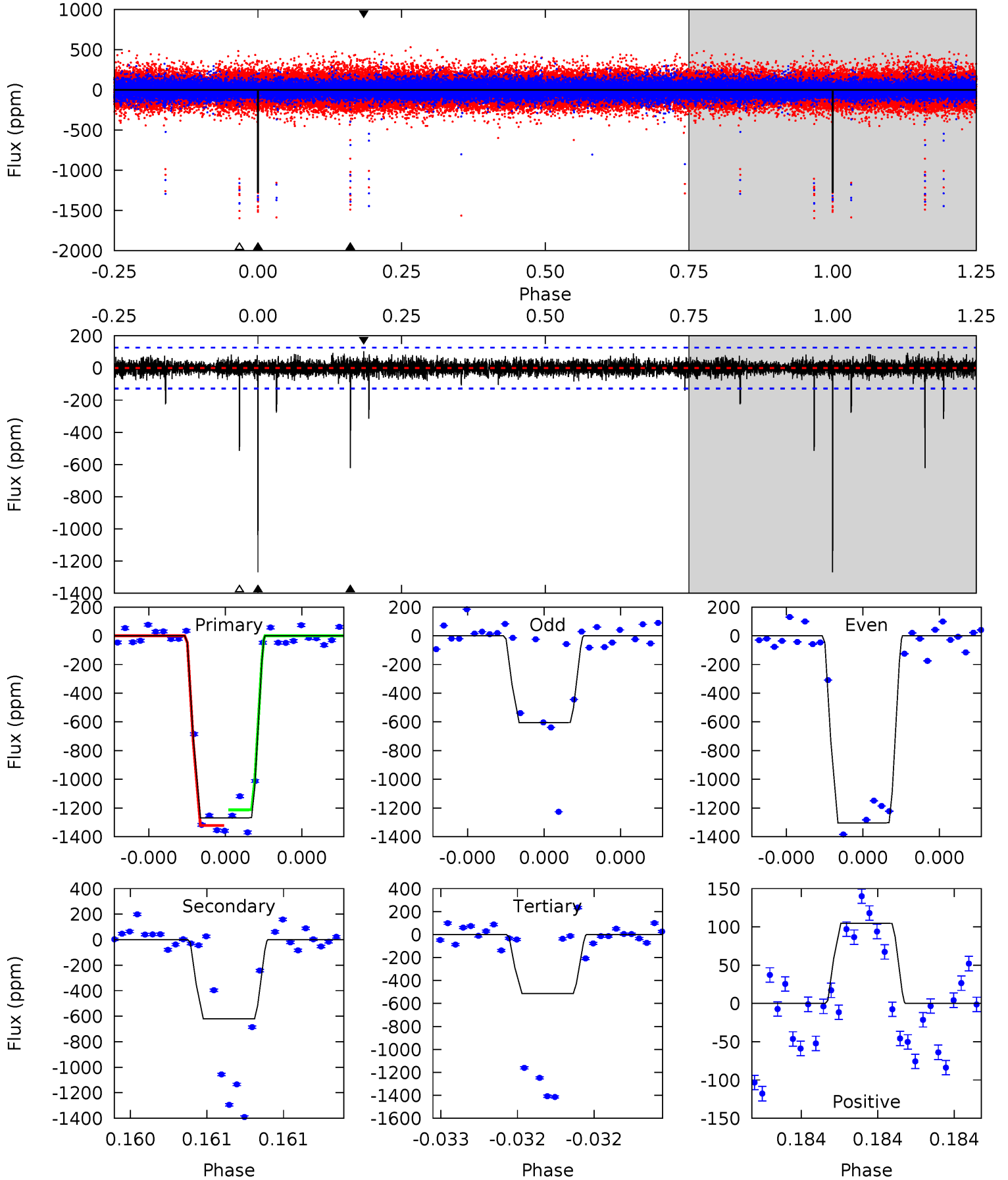
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.7	55.6	42.1	6.64	5.58	3.49	2.26	15.6	51.1	13.5	49.0	11.1	0.77	0.10	0.23



Alt Model-Shift Uniqueness Test

005446285-03, P = 339.415741 Days, E = 154.873976 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.7	27.3	22.6	4.60	5.59	3.51	1.17	33.1	51.1	4.68	22.7	15.4	0.81	0.08	2.40



Stellar Parameters For KIC 005446285

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5486^{+109}_{-109}	$4.449^{+0.068}_{-0.102}$	$0.220^{+0.150}_{-0.150}$	$0.962^{+0.128}_{-0.079}$	$0.950^{+0.053}_{-0.053}$	$1.502^{+0.385}_{-0.434}$
	+2%/-2%	+2%/-2%	+68%/-68%	+13%/-8%	+6%/-6%	+26%/-29%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 005446285-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1323 ± 24	$4.15^{+0.37}_{-0.29}$	344^{+14}_{-12}	5306^{+162}_{-156}	37047^{+5868}_{-5839}
Alt.	-621 ± 23	$3.14^{+0.28}_{-0.28}$	344^{+14}_{-11}	5081^{+188}_{-169}	30520^{+5894}_{-5349}

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

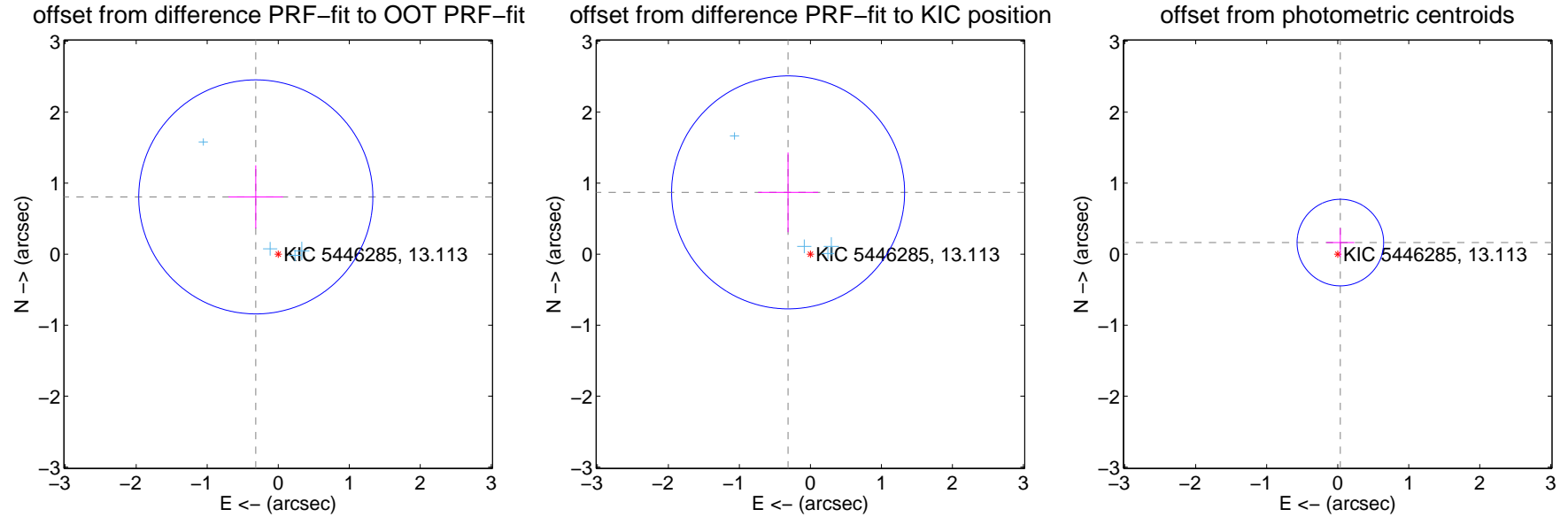
DV Centroid Data

Supplemental centroid analysis for 005446285-03. Kepler magnitude: 13.11. Transit SNR 49.27

There are 4 quarters with good PRF difference image offsets

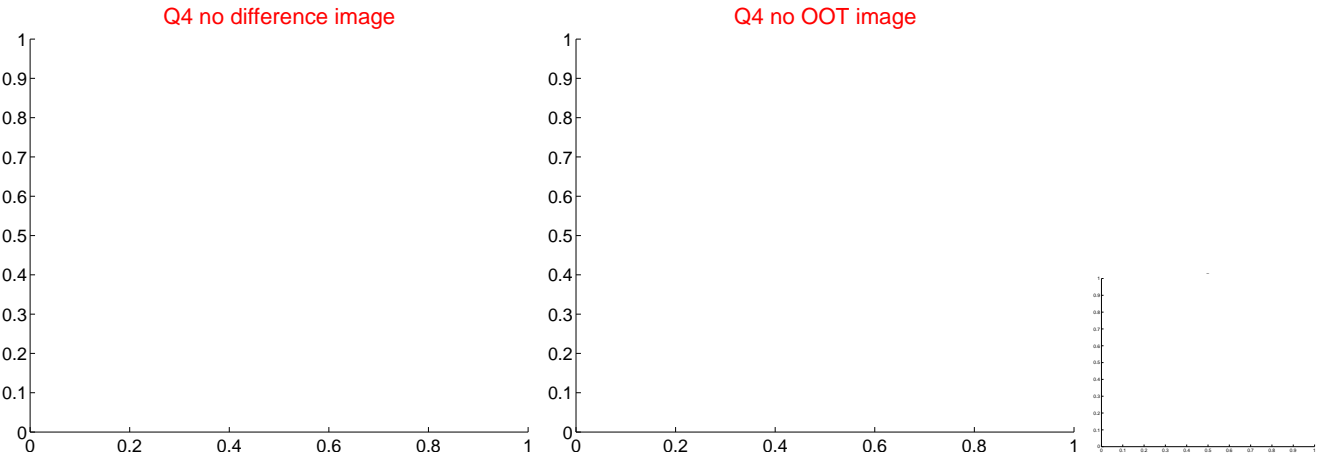
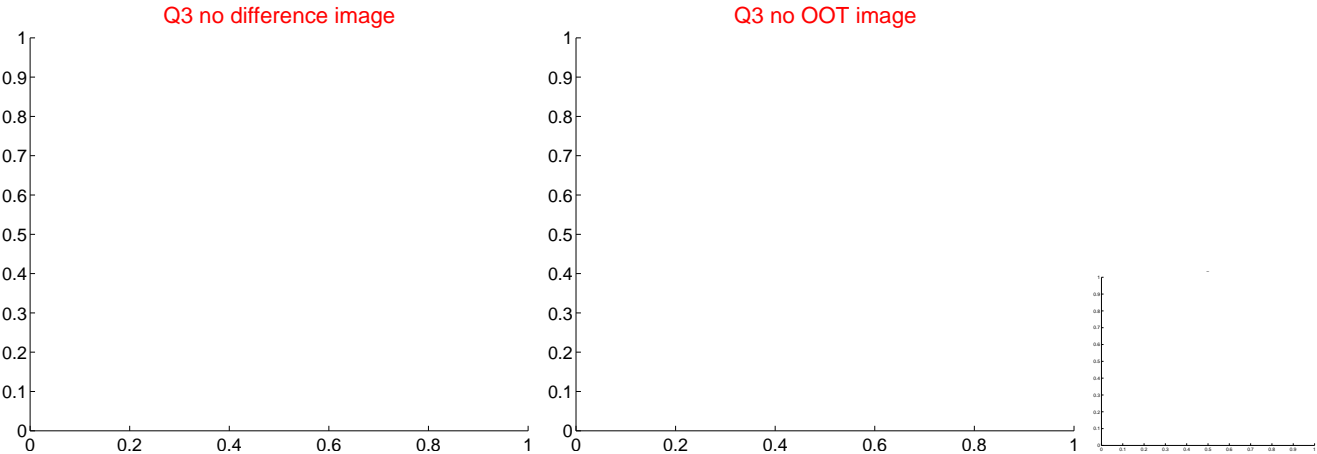
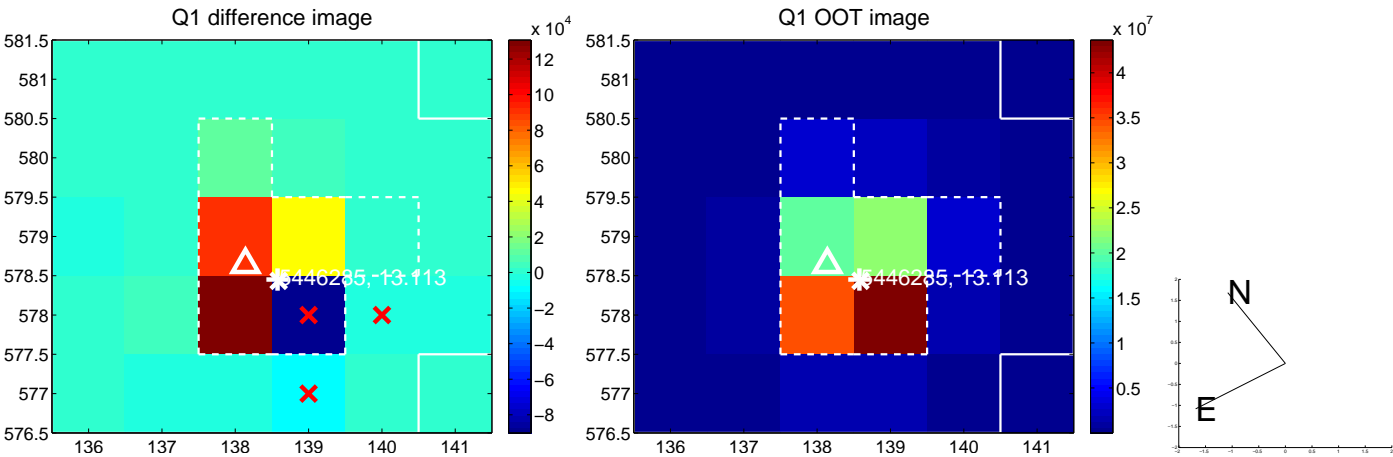
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.866 ± 0.549	1.58	0.316 ± 0.384	0.807 ± 0.445
PRF-fit source offset from KIC position	0.925 ± 0.547	1.69	0.314 ± 0.424	0.870 ± 0.561
photometric centroid source offset	0.17 ± 0.20	0.82	-0.04 ± 0.20	0.16 ± 0.20

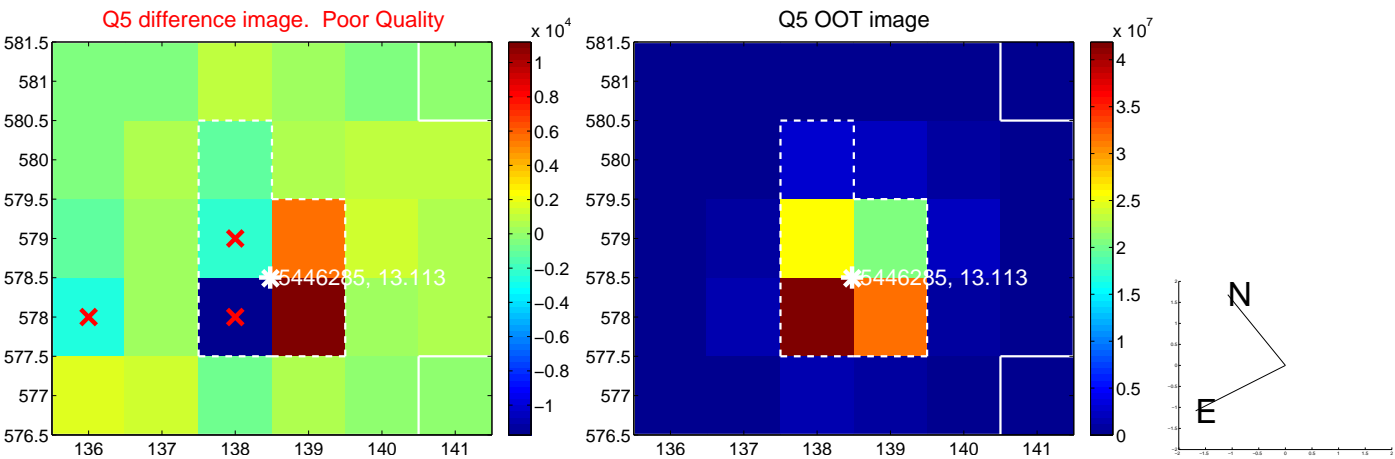


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

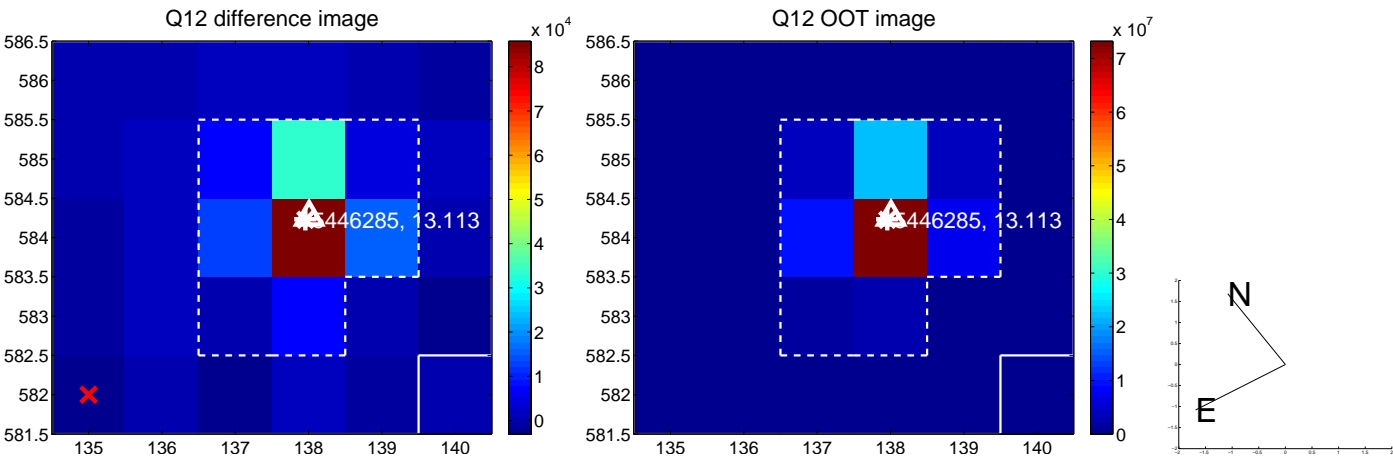
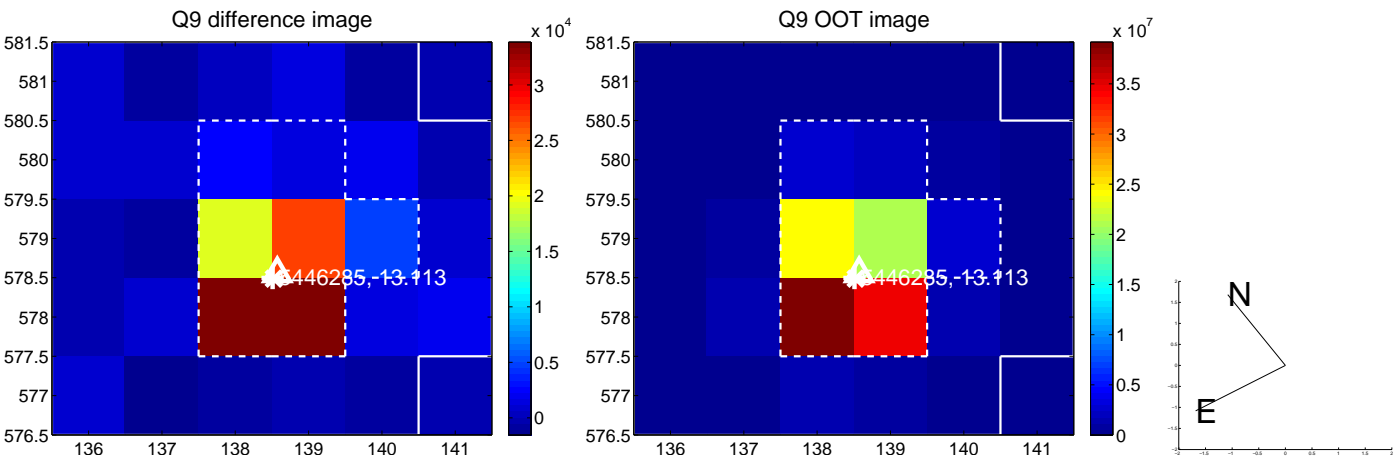
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



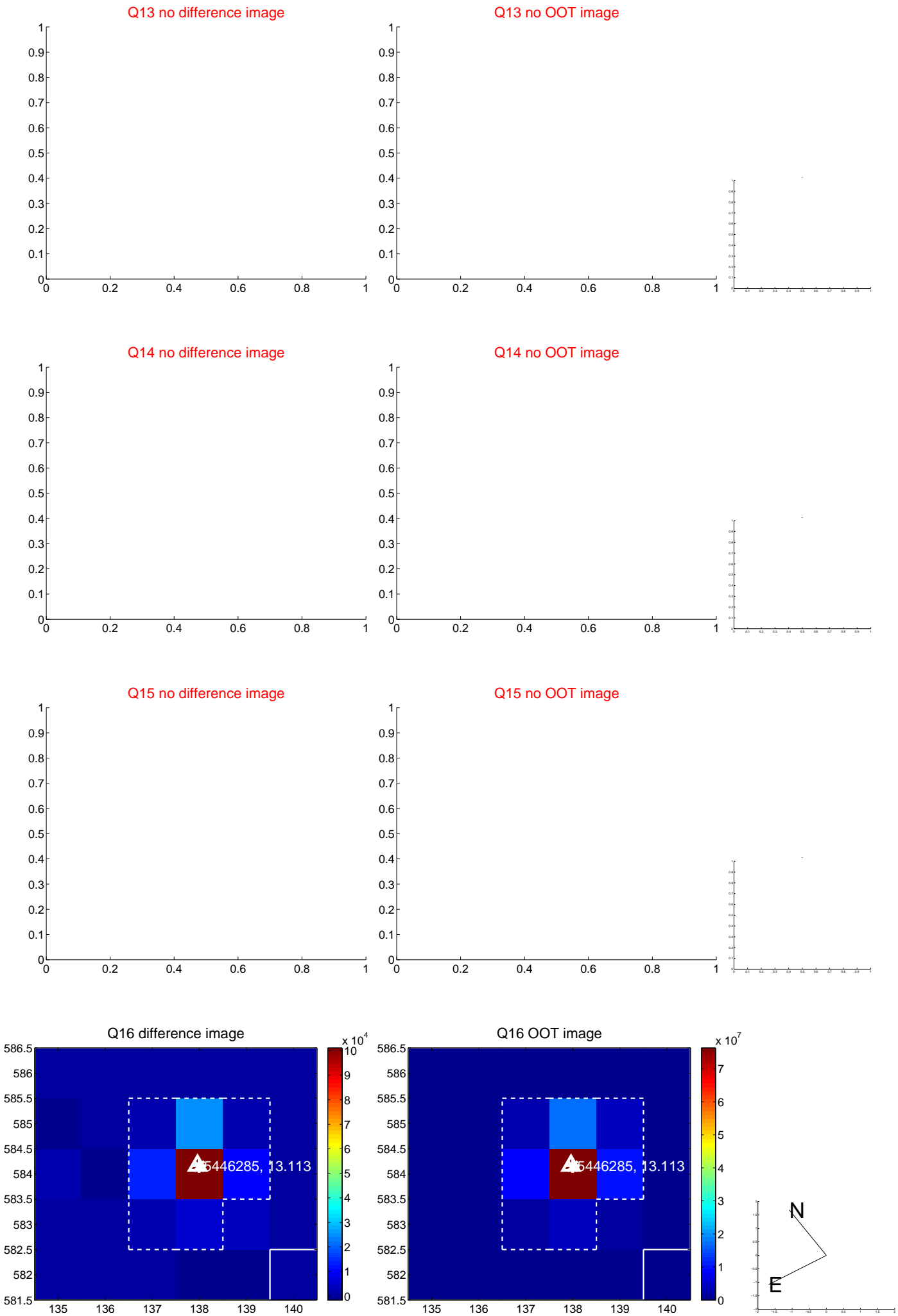
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



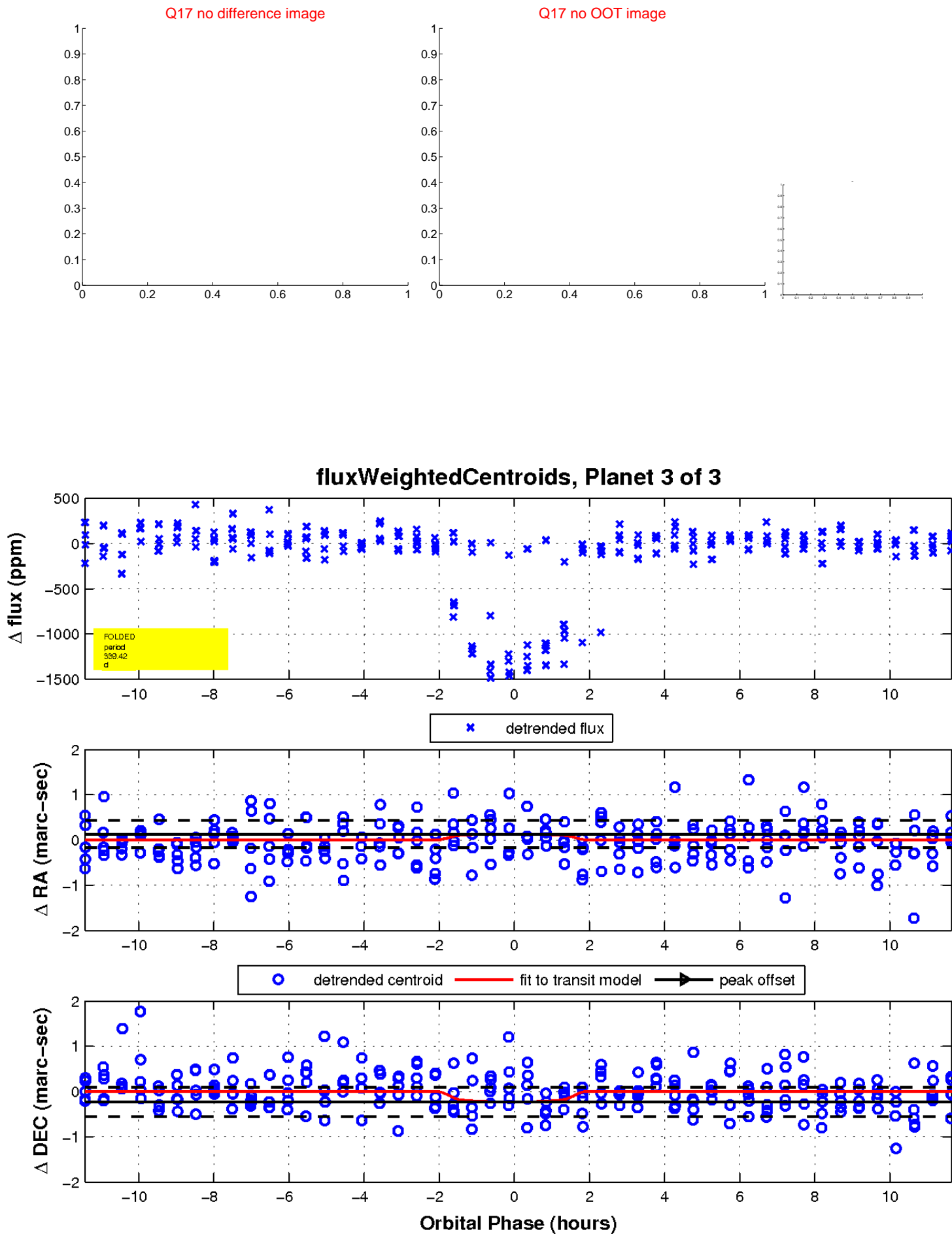
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

