

KIC 005000456

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})
005000456-01	OBS	No	511.329212	240.950267	5399.3	14.650	11.2	11.1	1.84	7206	14.71	4.00
005000456-02	OBS	No	386.490908	439.567178	514.0	8.984	10.8	3.0	1.84	7206	4.37	5.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005000456-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005000456-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

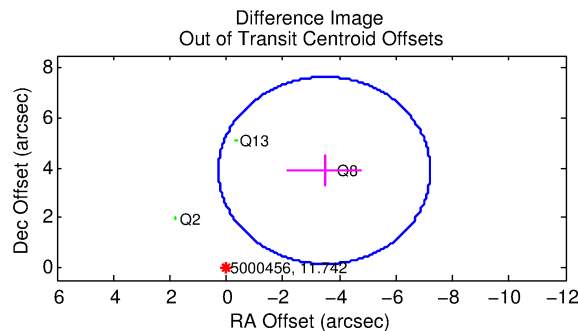
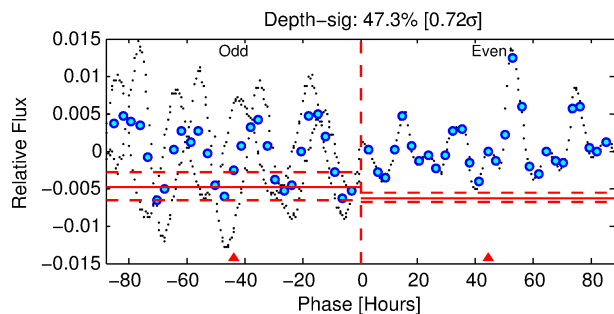
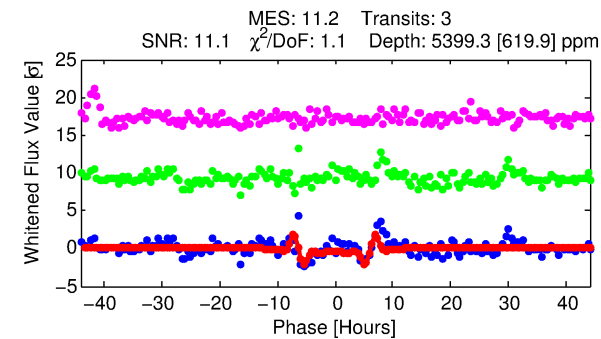
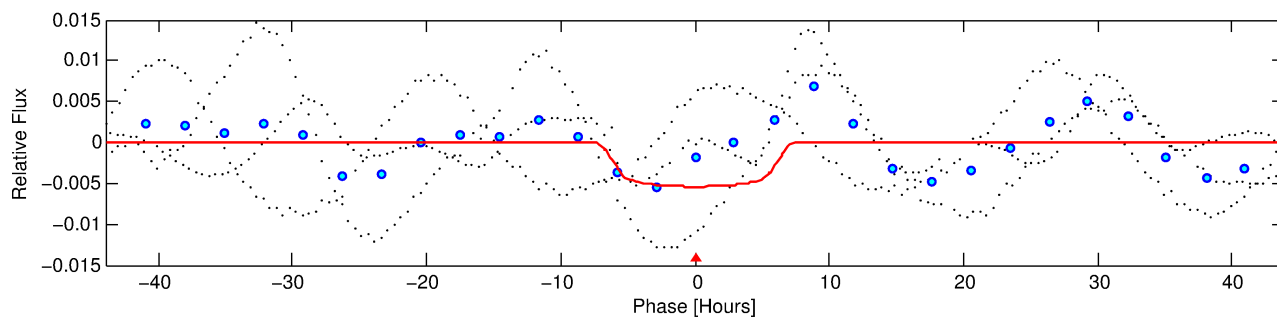
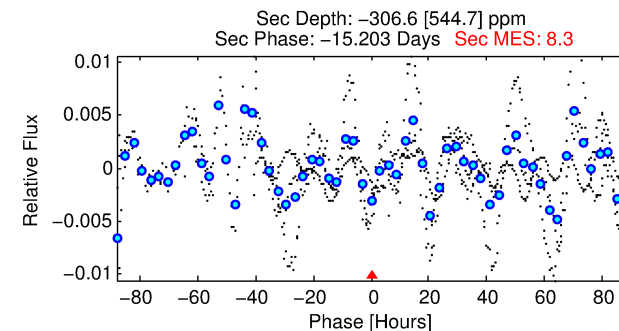
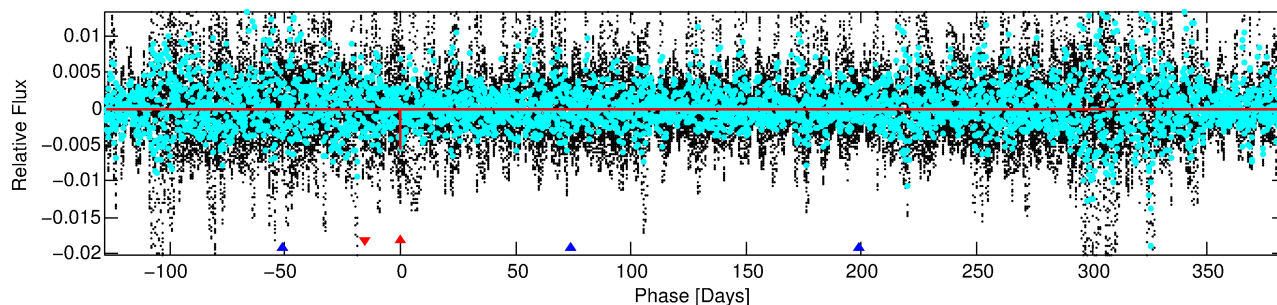
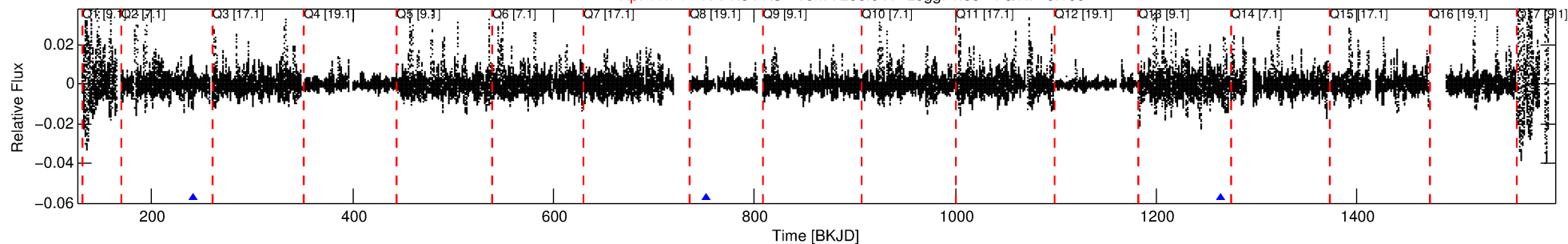
Ephemeris Match Information For 005000456-01

No Significant Match Found

DV One-Page Summary

KIC: 5000456 Candidate: 1 of 2 Period: 511.329 d

Kp: 11.74 R*: 1.84 Rs Teff: 7206.0 K Logg: 4.08 Fe/H: -0.160



DV Fit Results:

Period = 511.32921 [0.00656] d
Epoch = 240.9503 [0.0073] BKJD
Rp/R* = 0.0733 [0.0042]
a/R* = 202.13 [6.91]
b = 0.76 [0.02]
Seff = 4.00 [1.46]
Teq = 361 [33] K
Rp = 14.71 [4.37] Re
a = 1.4280 [0.3374] AU
Ag = N/A
Teffp = N/A

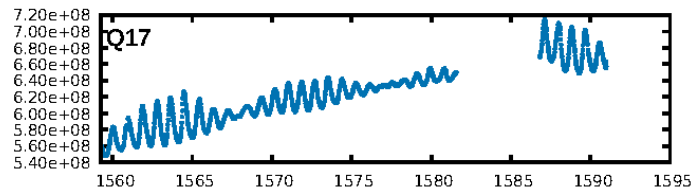
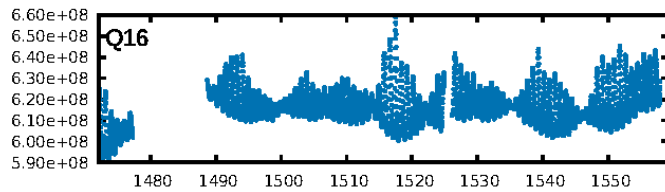
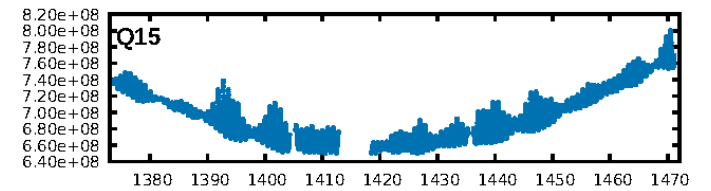
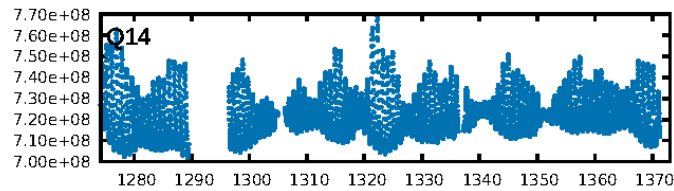
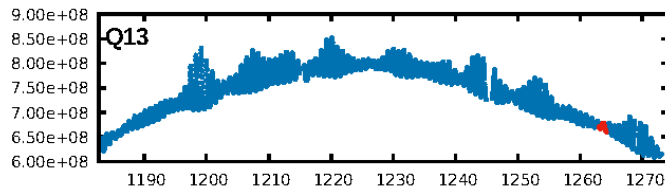
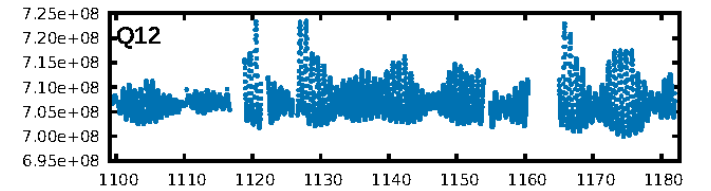
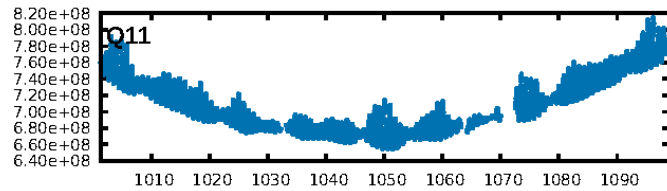
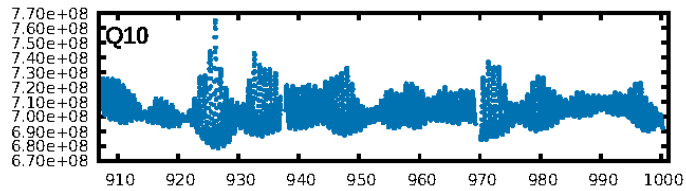
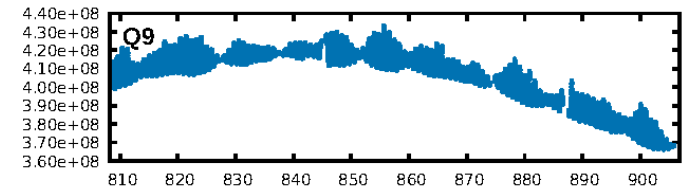
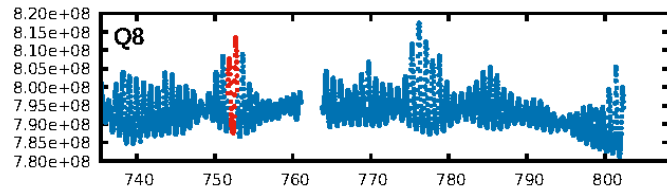
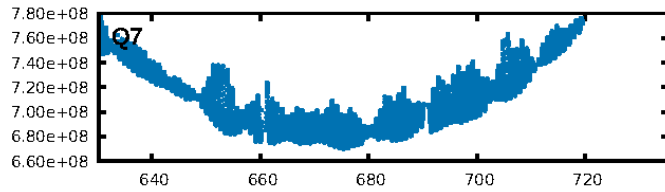
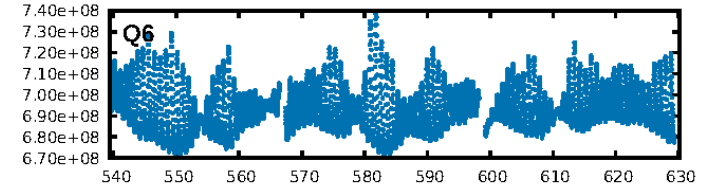
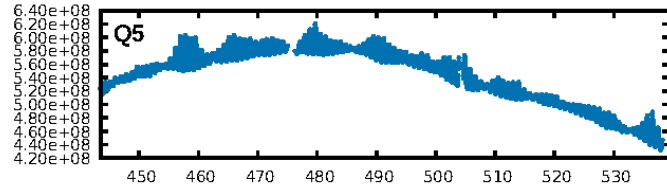
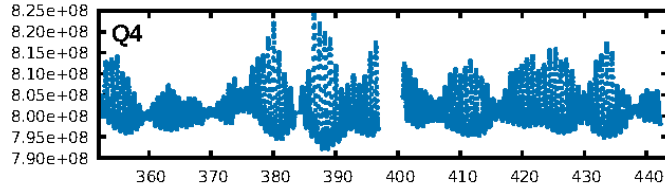
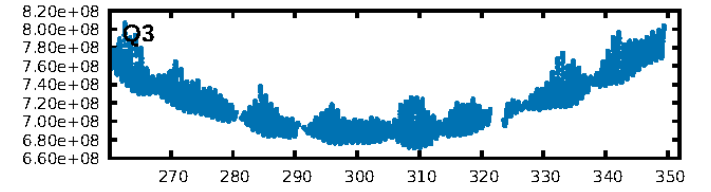
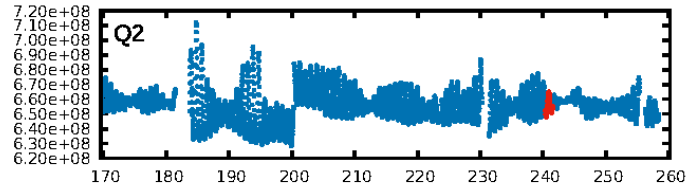
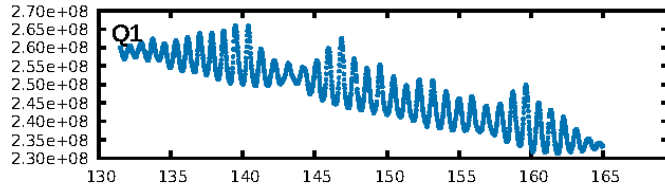
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [174.34σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.7%
ModelChiSquareGof-sig: 96.9%
Bootstrap-pfa: 7.34e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.601
Centroid-sig: 0.0%
Centroid-so: 0.286 arcsec [1.85σ]
OotOffset-rm: 5.209 arcsec [4.17σ]
KicOffset-rm: 5.321 arcsec [4.21σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [3/3]

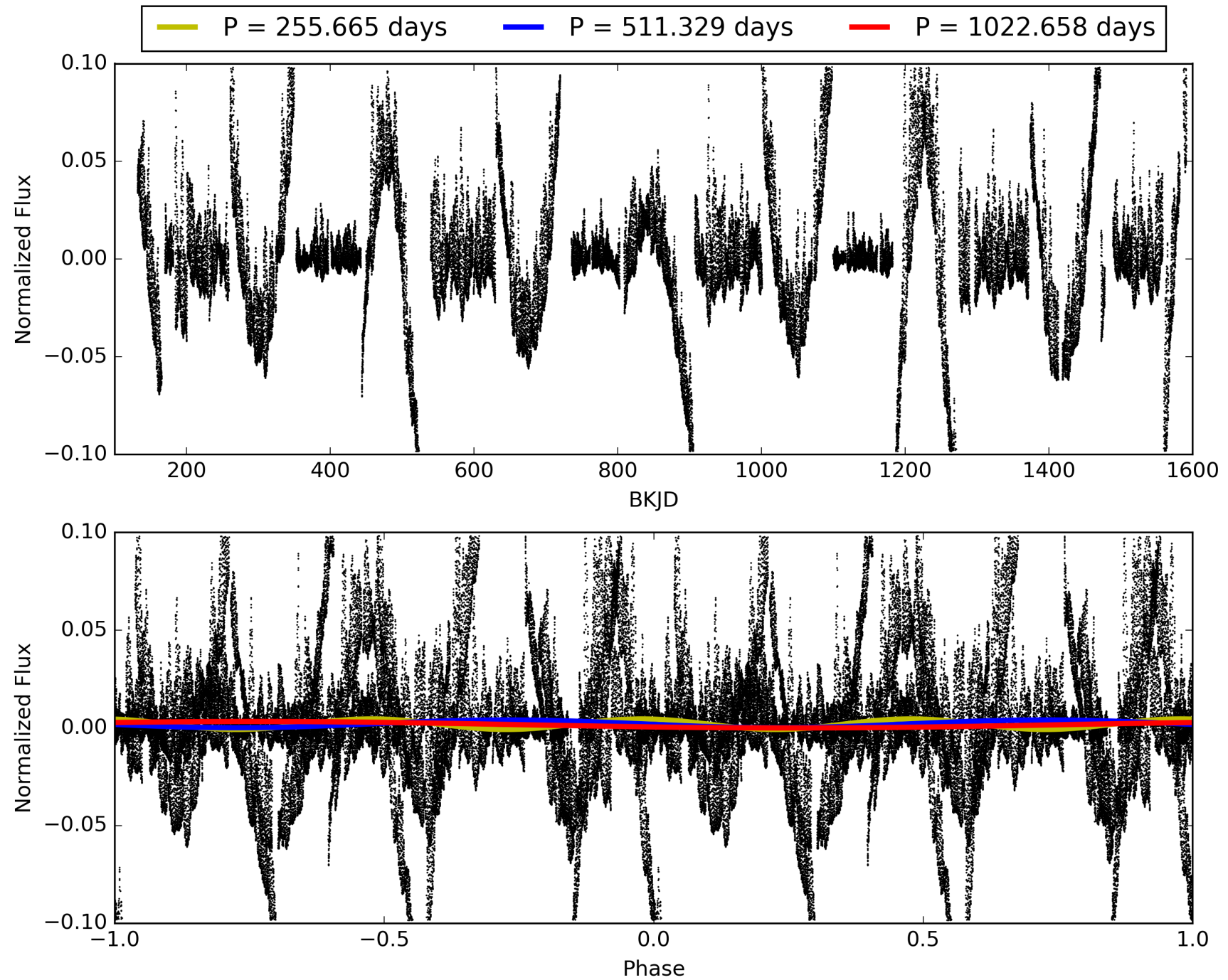
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005000456-01, PDC Light Curves

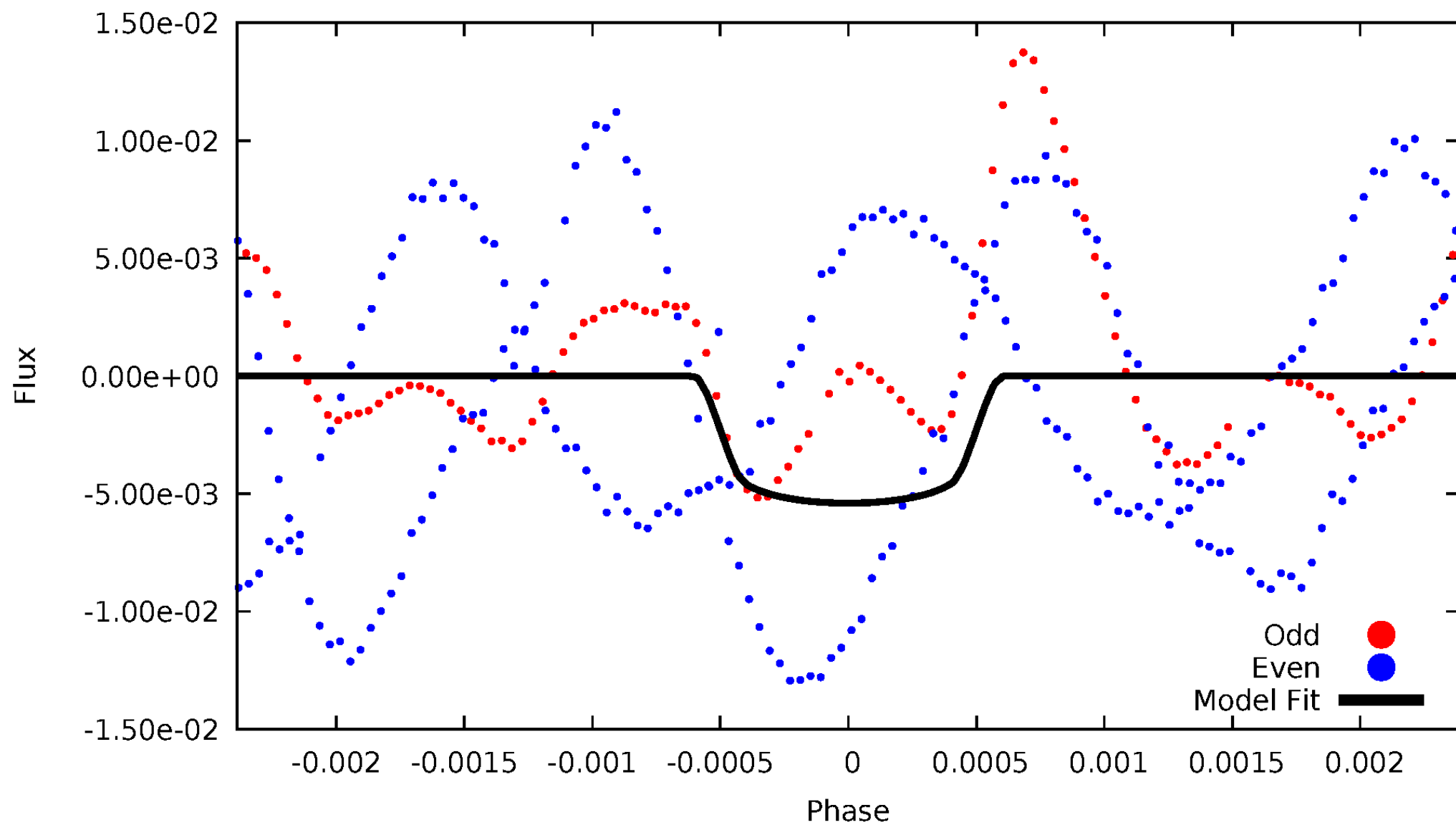


TCE 005000456-01



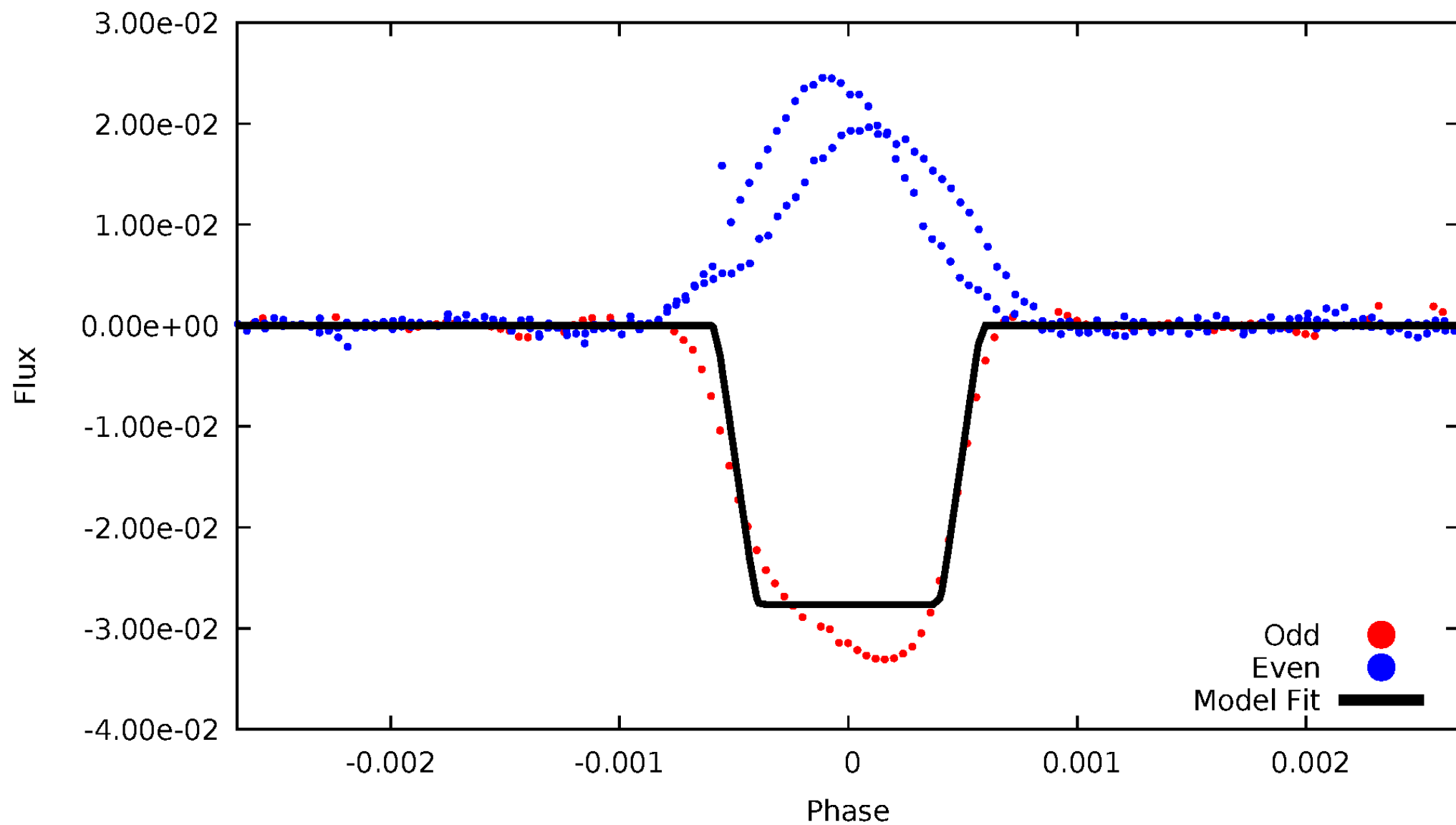
DV Odd/Even

TCE 005000456-01



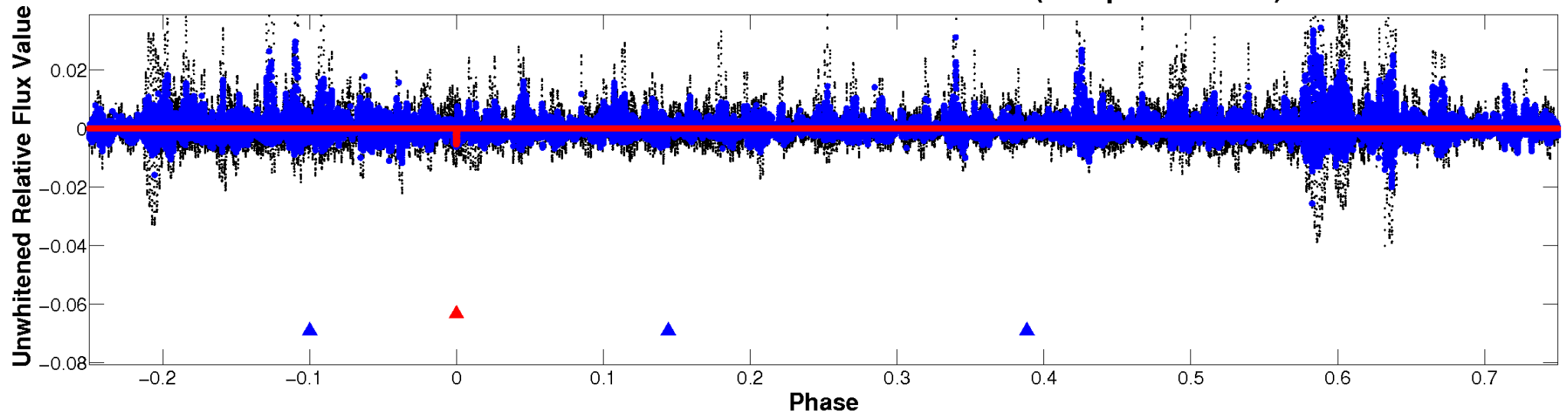
ALT Odd/Even

TCE 005000456-01

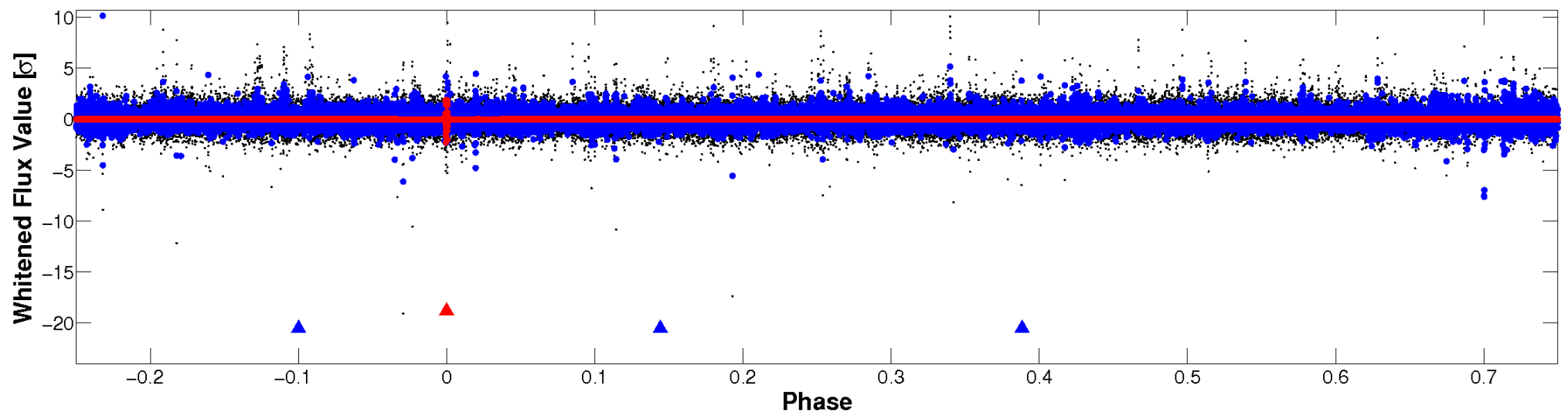


Non-Whitened Vs. Whitened Light Curve

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

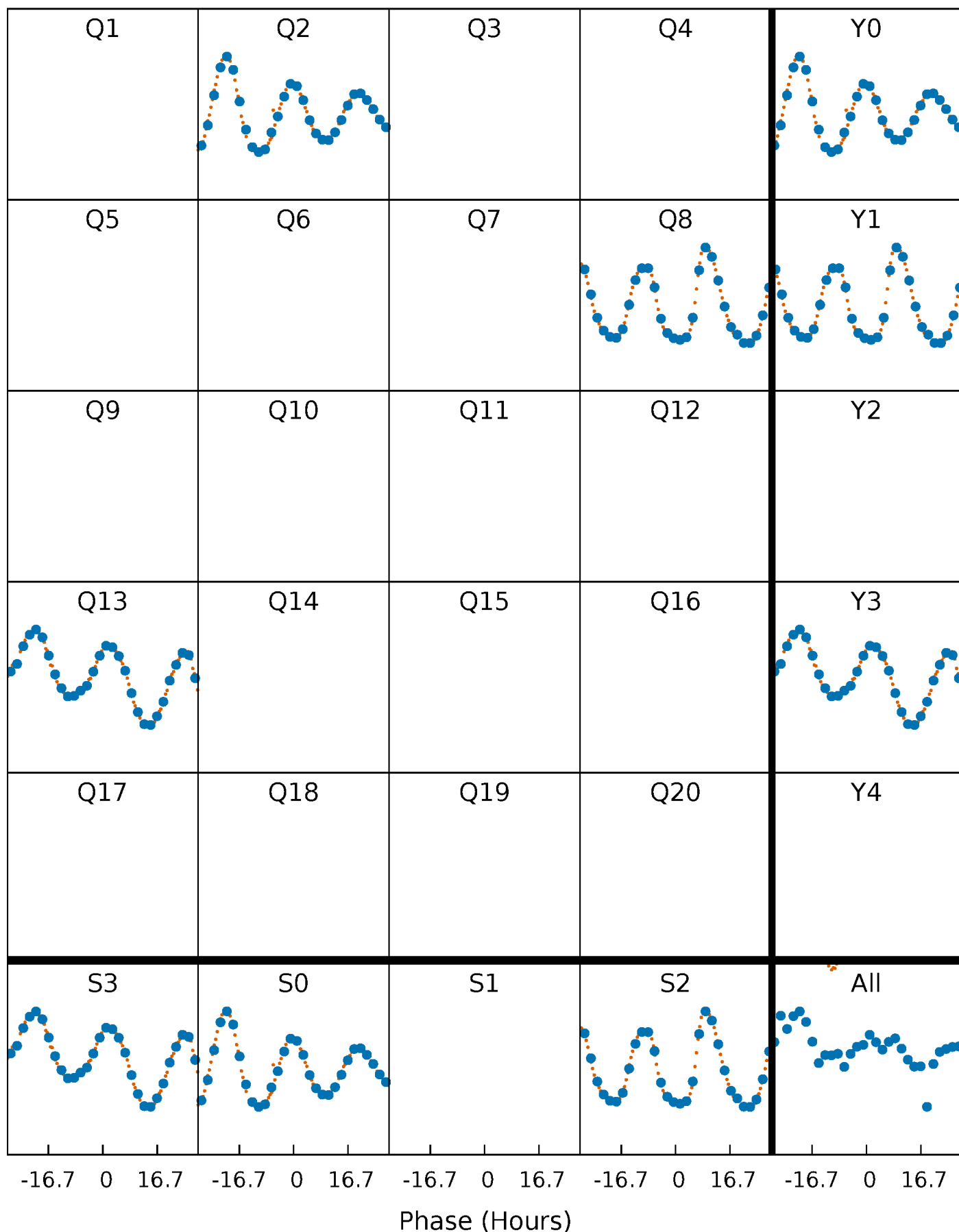


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



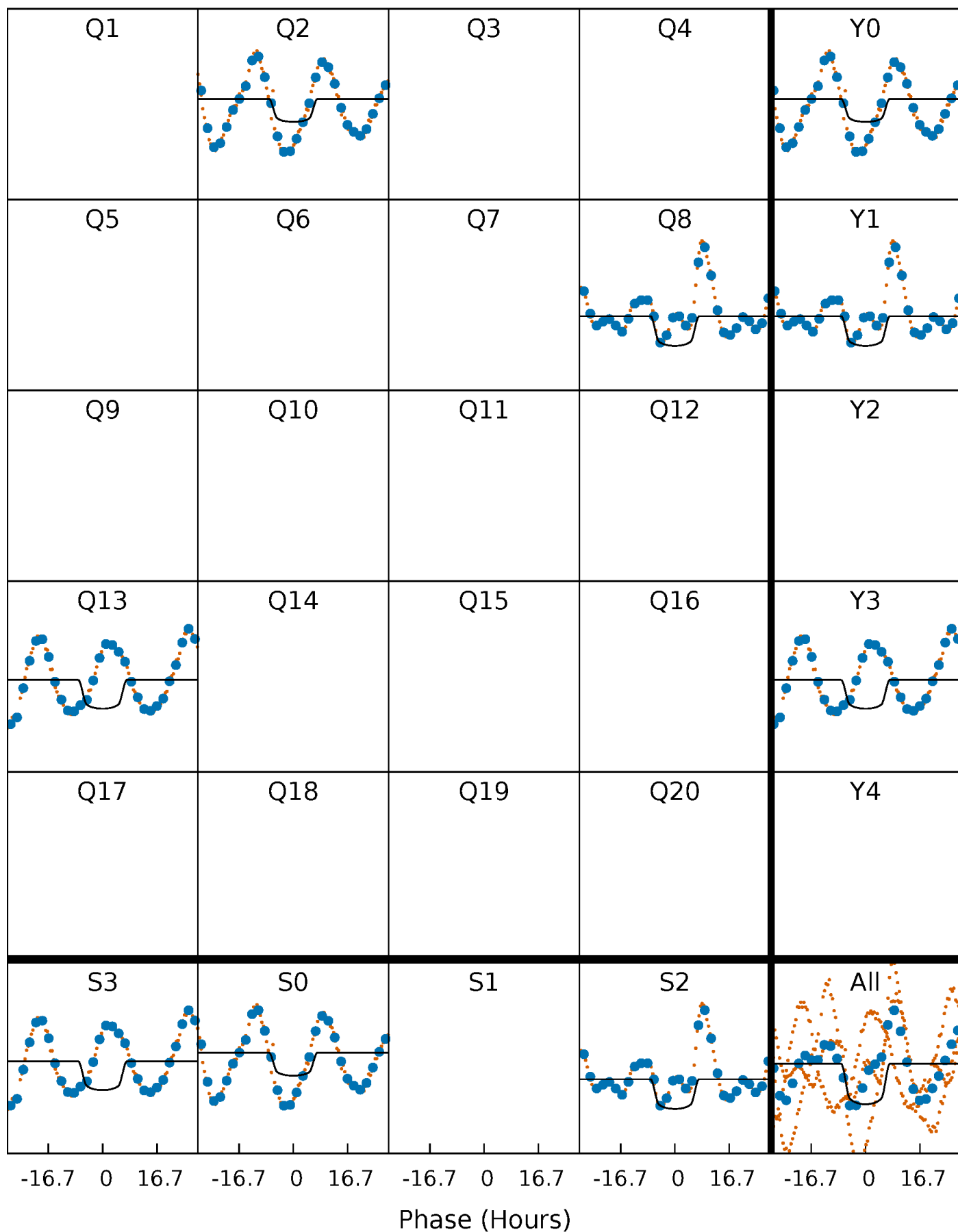
PDC Quarter-Phased Transit Curves

TCE 005000456-01 P=511.329212 Days $T_0=240.950267$ (BKJD)



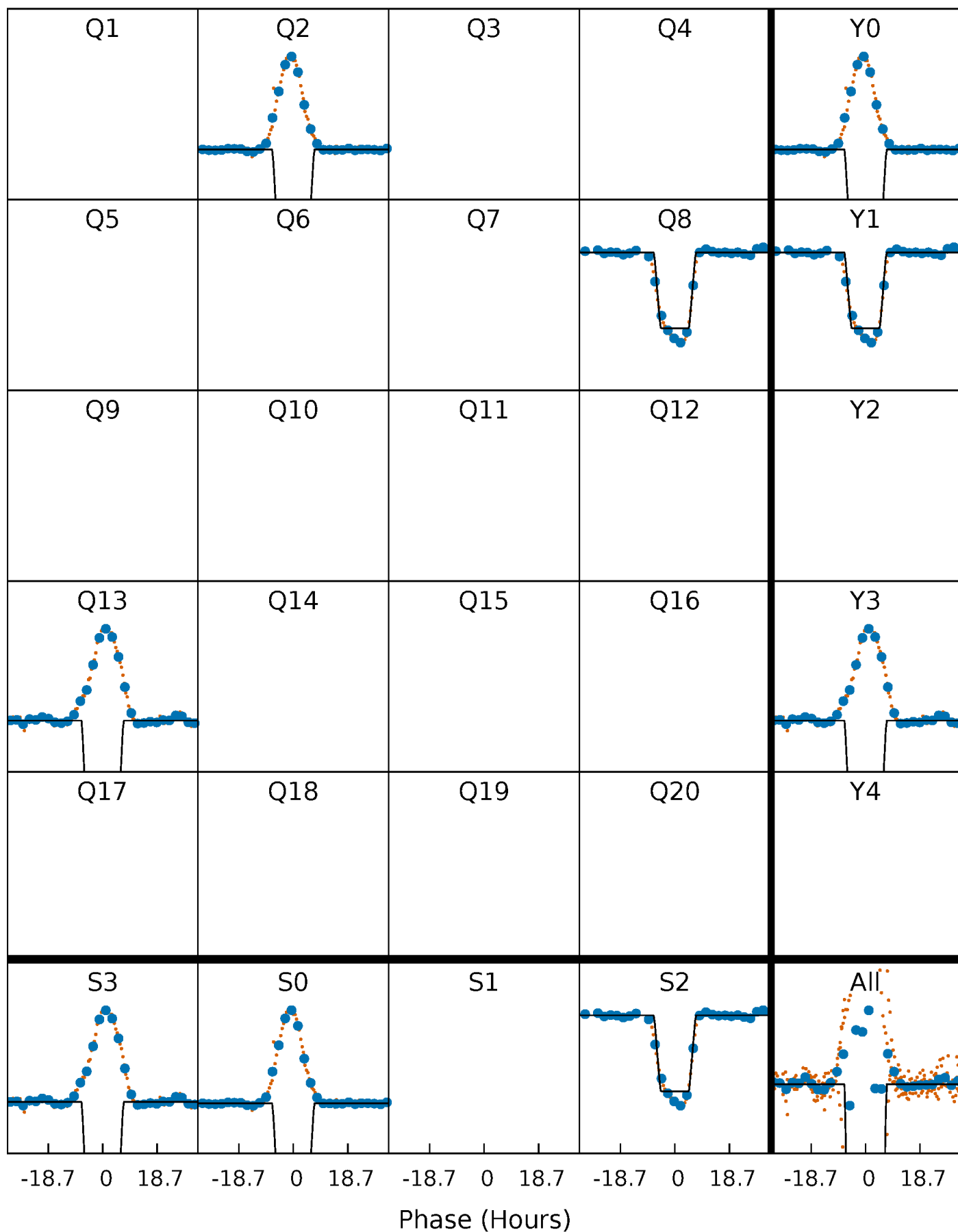
DV Quarter-Phased Transit Curves

TCE 005000456-01 P=511.329212 Days $T_0=240.950267$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

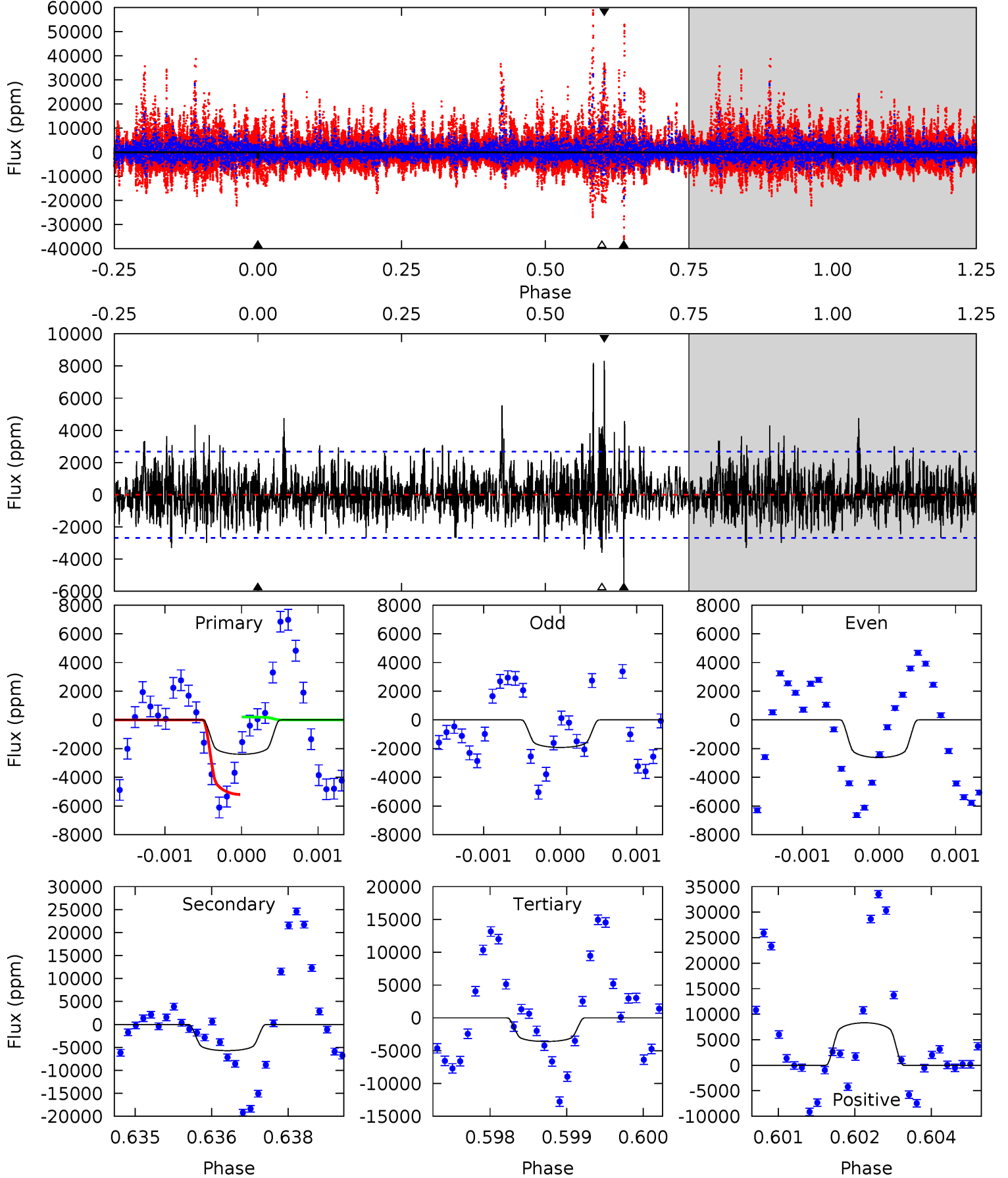
TCE 005000456-01 P=511.329405 Days $T_0=240.973213$ (BKJD)



DV Model-Shift Uniqueness Test

005000456-01, P = 511.329212 Days, E = 240.950267 Days

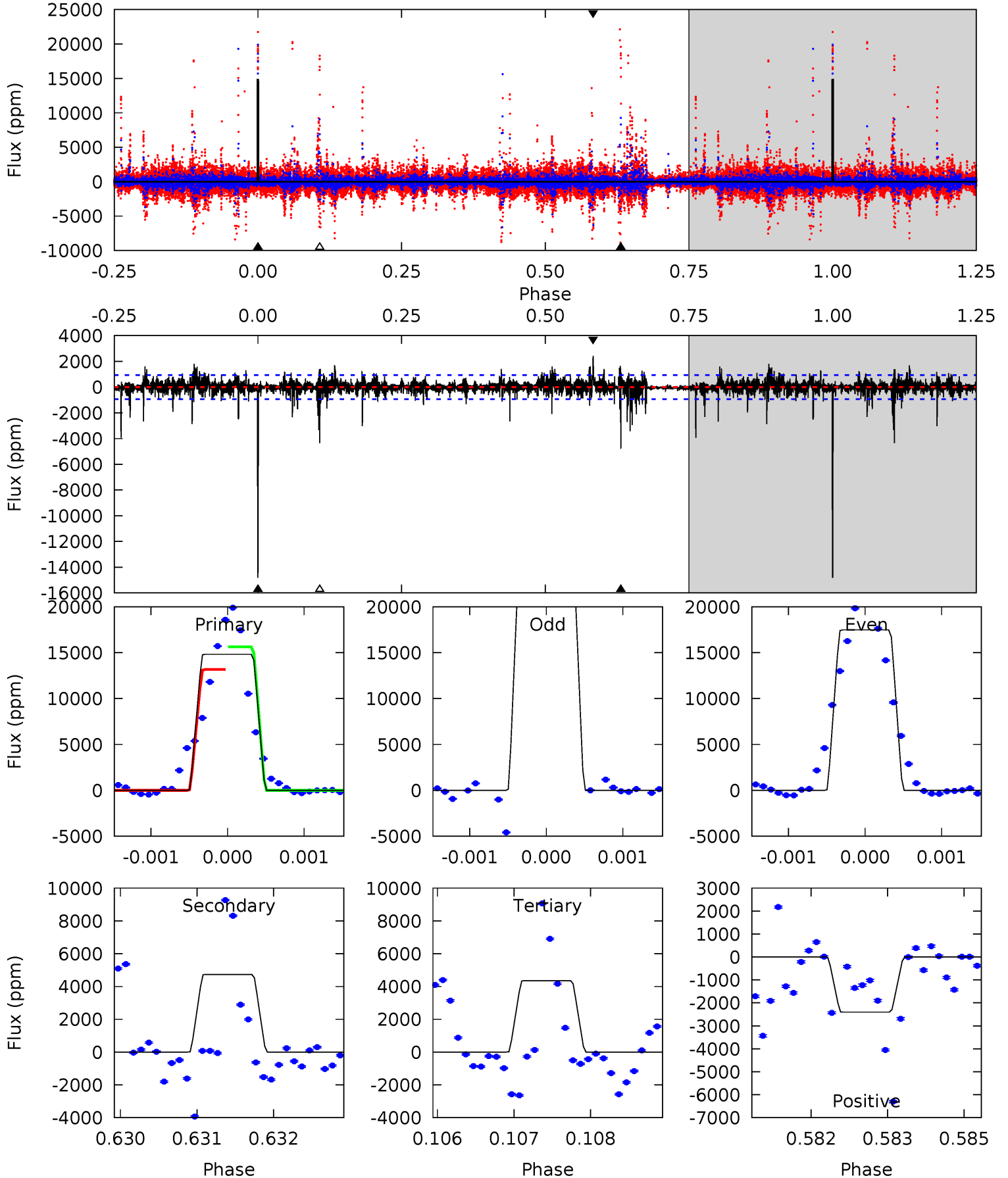
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.84	11.5	7.28	16.8	5.42	3.24	2.20	-2.44	-12.0	4.26	-5.28	0.51	1.24	0.59	4.96



Alt Model-Shift Uniqueness Test

005000456-01, P = 511.329405 Days, E = 240.973213 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
85.7	27.4	25.2	13.9	5.42	3.24	2.31	60.5	71.8	2.17	13.5	32.1	0.10	0.14	0



Stellar Parameters For KIC 005000456

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7206^{+201}_{-277}	$4.081^{+0.175}_{-0.175}$	$-0.160^{+0.250}_{-0.350}$	$1.838^{+0.536}_{-0.439}$	$1.483^{+0.221}_{-0.243}$	$0.336^{+0.356}_{-0.160}$
	+3%/-4%	+4%/-4%	+156%/-219%	+29%/-24%	+15%/-16%	+106%/-48%
Source	PHO1	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 005000456-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5710 ± 495	$14.88^{+2.43}_{-2.22}$	504^{+36}_{-35}	7309^{+394}_{-387}	29052^{+10196}_{-7262}
Alt.	-4732 ± 173	$33.01^{+5.52}_{-4.18}$	502^{+40}_{-35}	4733^{+115}_{-142}	4799^{+1382}_{-1154}

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

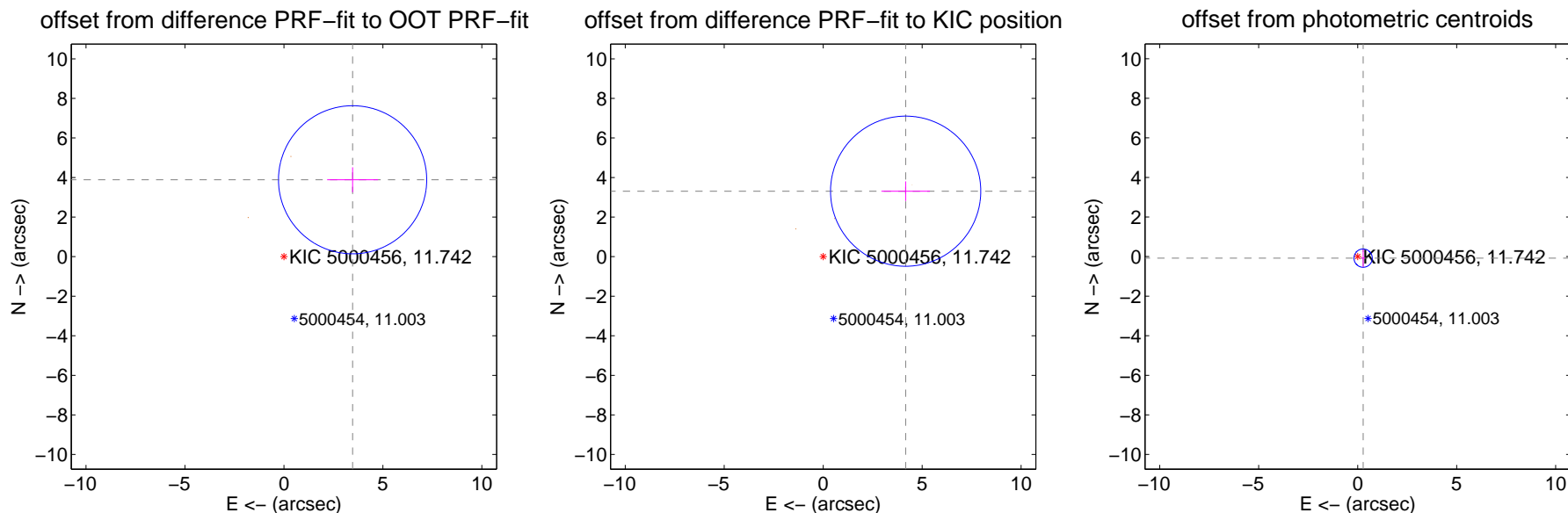
DV Centroid Data

Supplemental centroid analysis for 005000456-01. **Kepler magnitude: 11.74.** Transit SNR 11.13

There are 0 quarters with good PRF difference image offsets

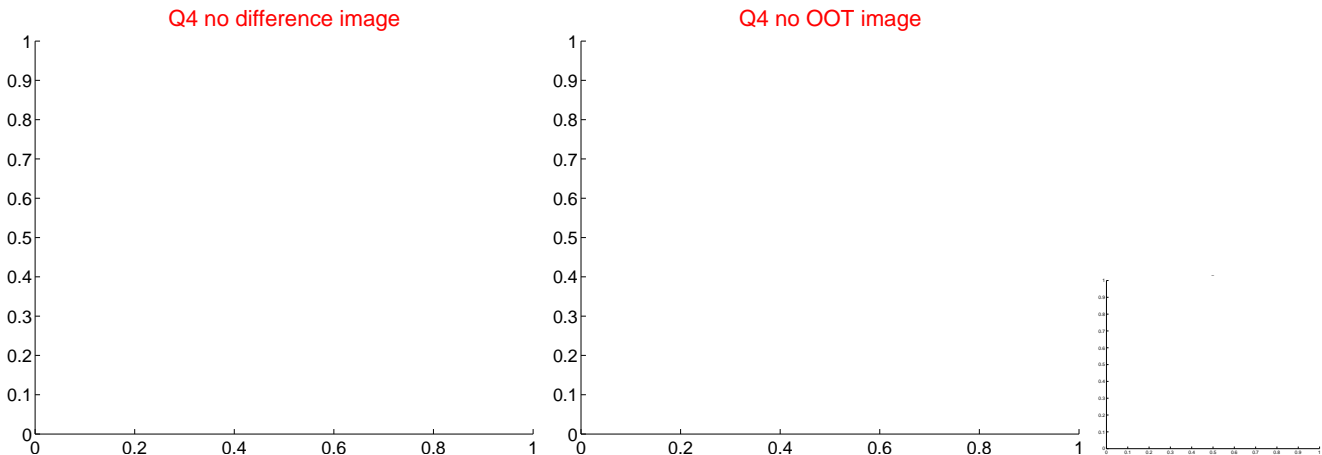
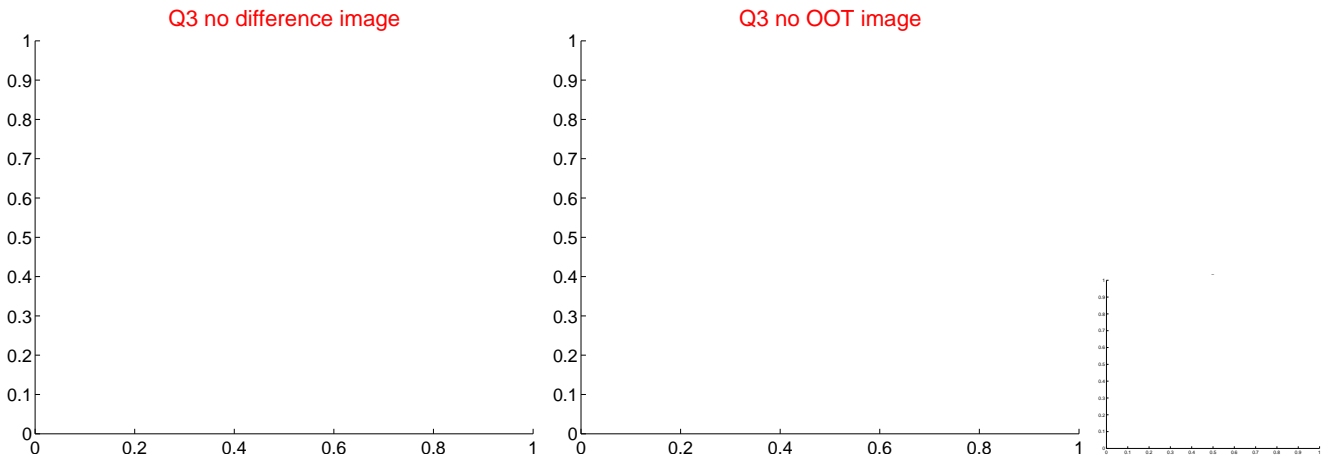
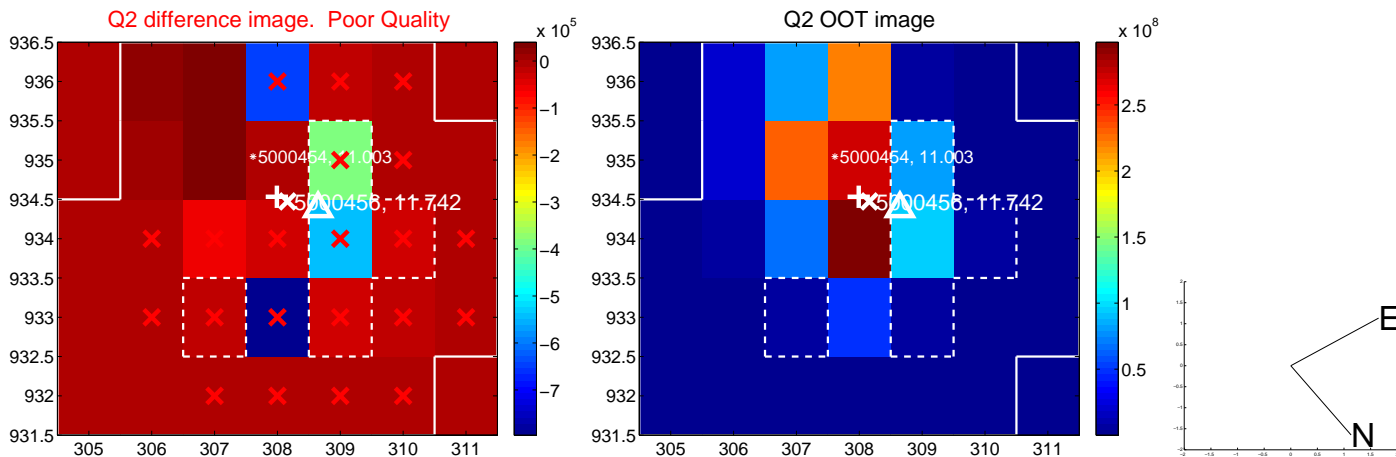
The OOT PRF centroid is offset from the target star catalog position by about 3.15 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.209 ± 1.248	4.17	-3.469 ± 1.285	3.886 ± 0.630
PRF-fit source offset from KIC position	5.321 ± 1.265	4.21	-4.166 ± 1.224	3.310 ± 0.498
photometric centroid source offset	0.29 ± 0.15	1.85	-0.28 ± 0.09	-0.08 ± 0.48

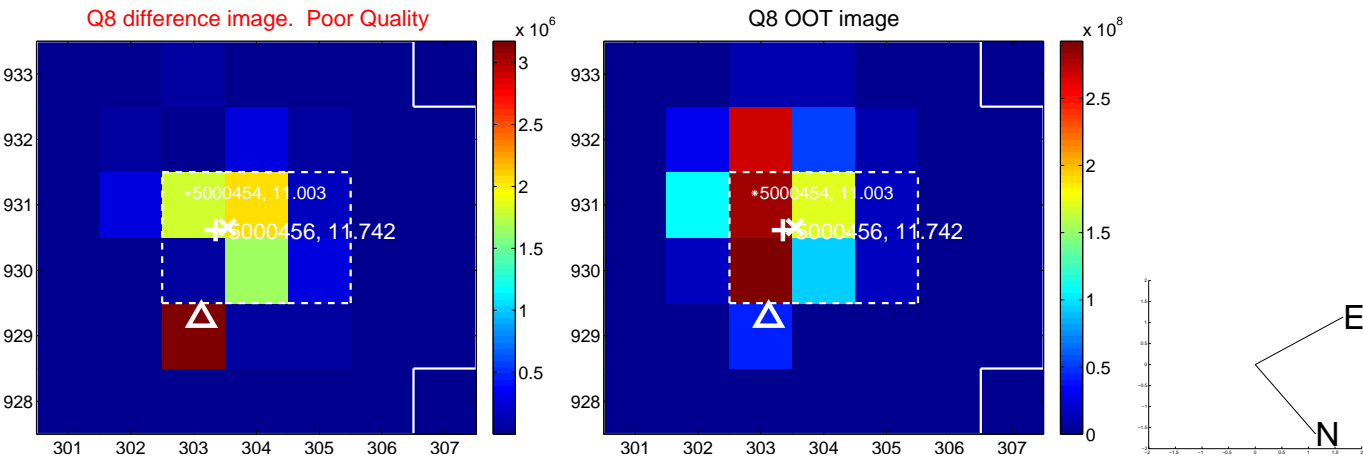


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



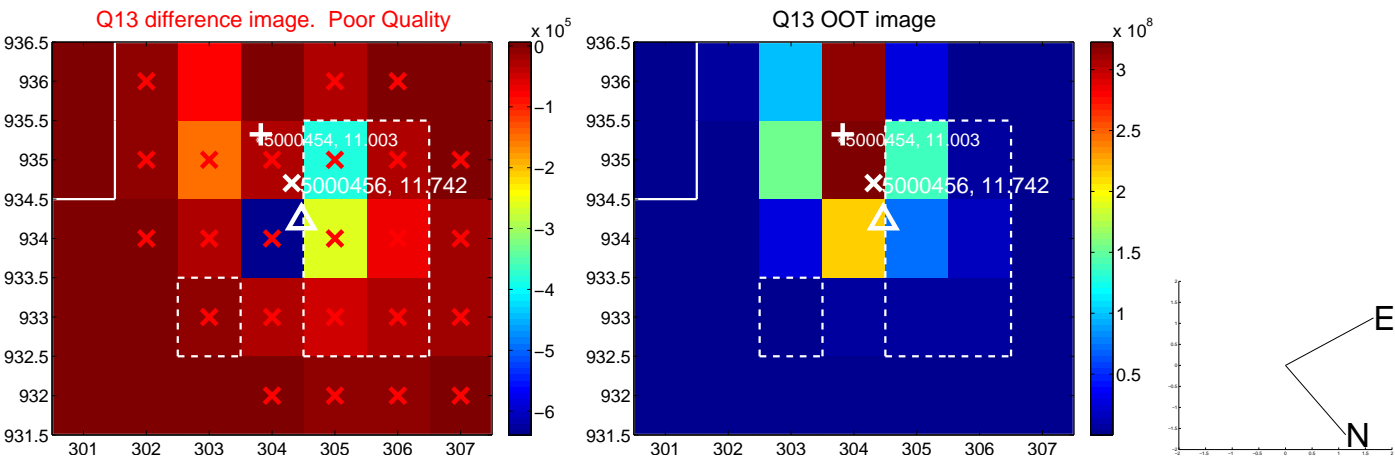
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



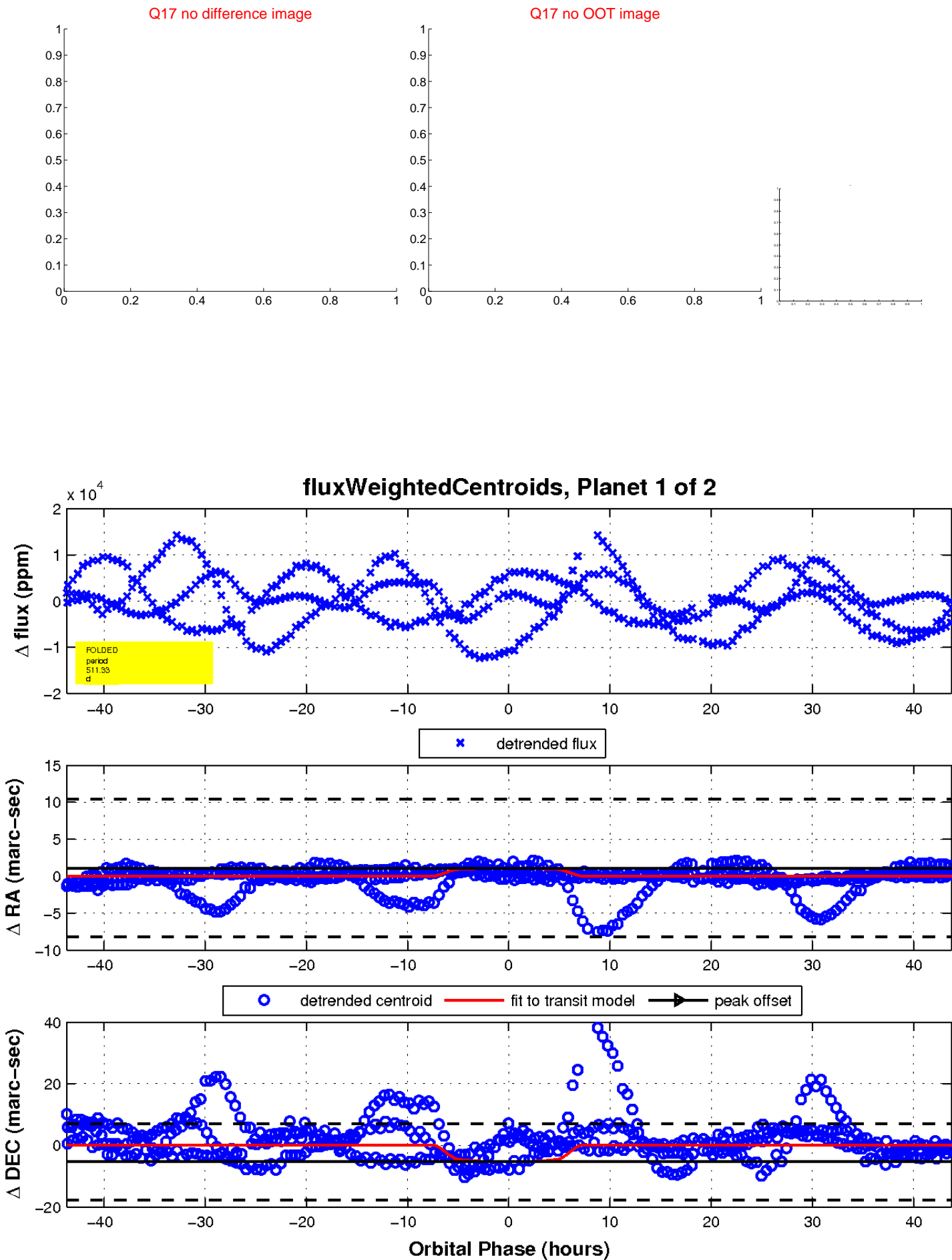
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

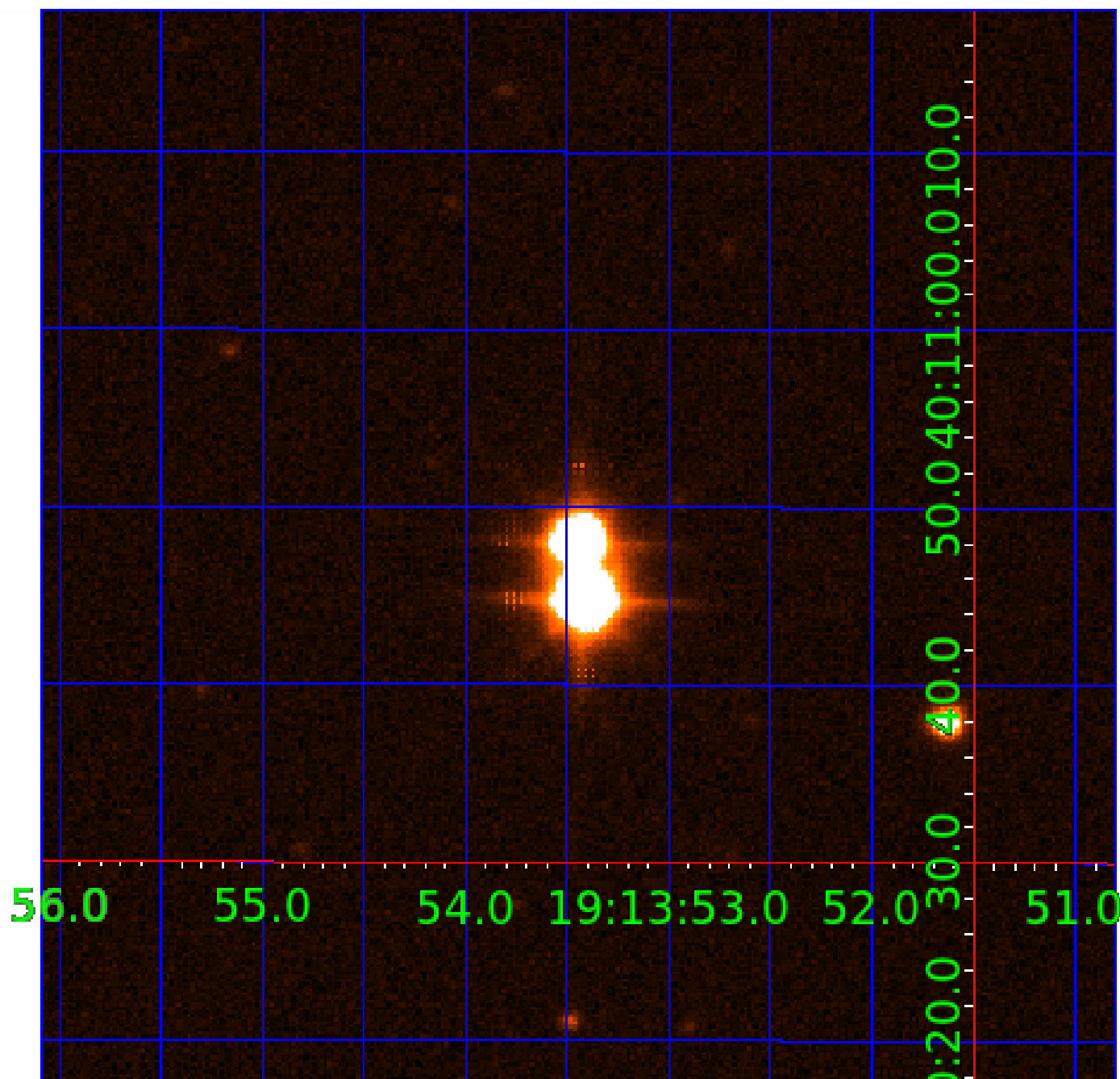


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005000456

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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005000456-02	OBS	No	386.490908	439.567178	514.0	8.984	10.8	3.0	1.84	7206	4.37	5.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005000456-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005000456-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

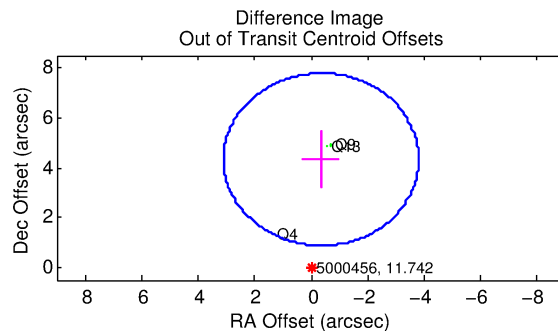
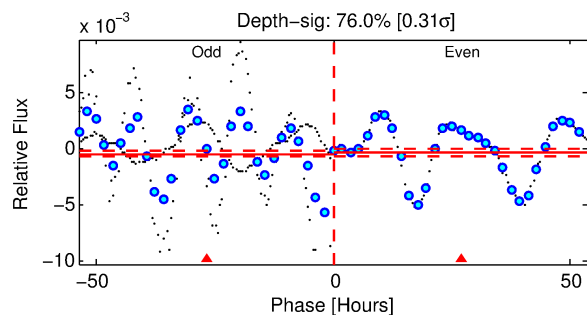
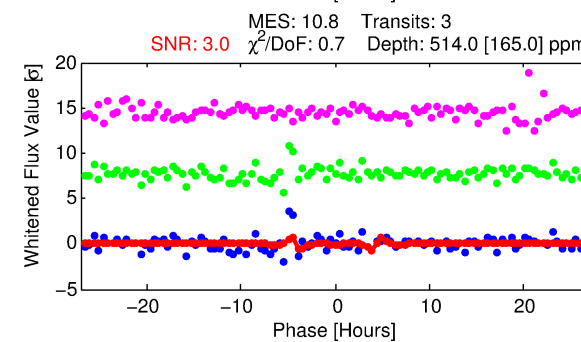
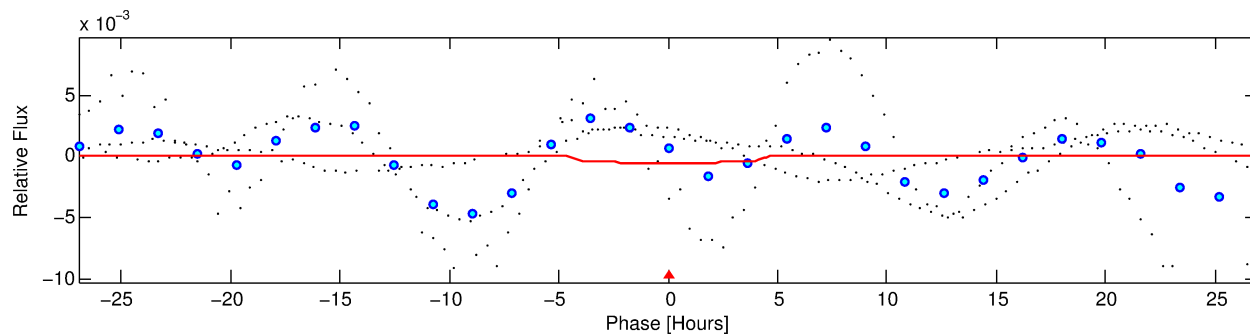
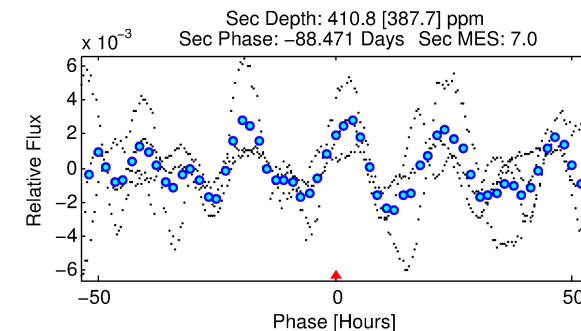
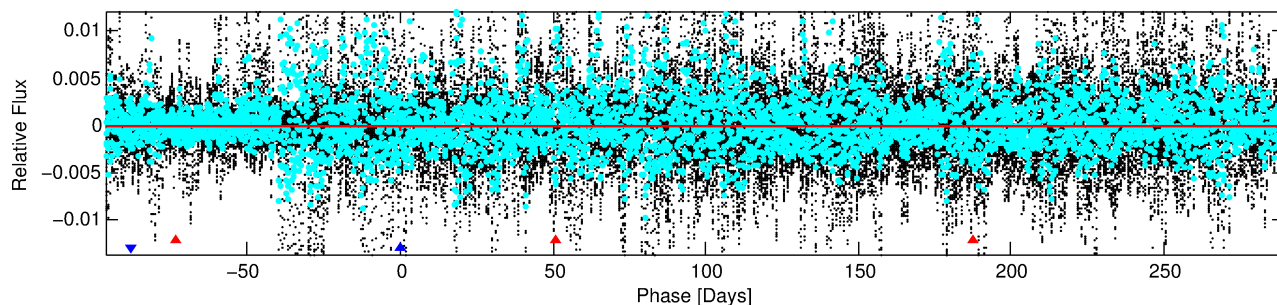
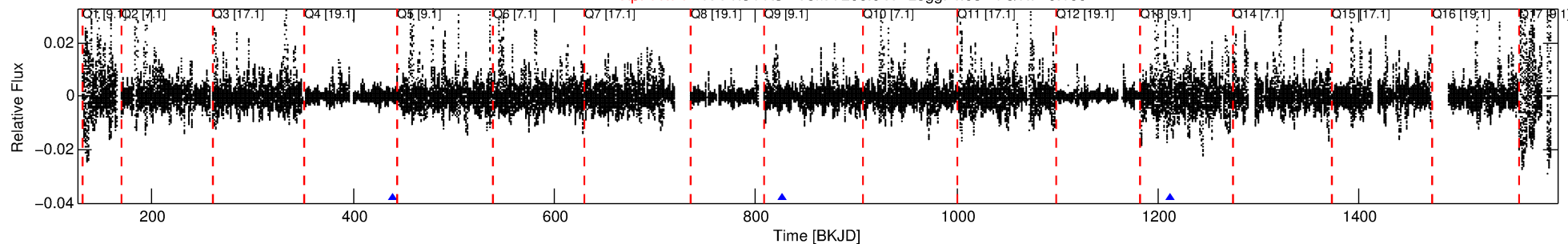
Ephemeris Match Information For 005000456-02

No Significant Match Found

DV One-Page Summary

KIC: 5000456 Candidate: 2 of 2 Period: 386.491 d

Kp: 11.74 R*: 1.84 Rs Teff: 7206.0 K Logg: 4.08 Fe/H: -0.160



DV Fit Results:

Period = 386.49091 [0.00838] d
Epoch = 439.5672 [0.0049] BKJD
Rp/R* = 0.0218 [0.0109]
a/R* = 275.12 [690.97]
b = 0.59 [2.82]
Seff = 5.81 [2.12]
Teq = 396 [36] K
Rp = 4.37 [2.53] Re
a = 1.1849 [0.2800] AU
Ag = 16601.07 [23455.86] [0.71σ]
Teff = 6949 [2401] K [2.73σ]

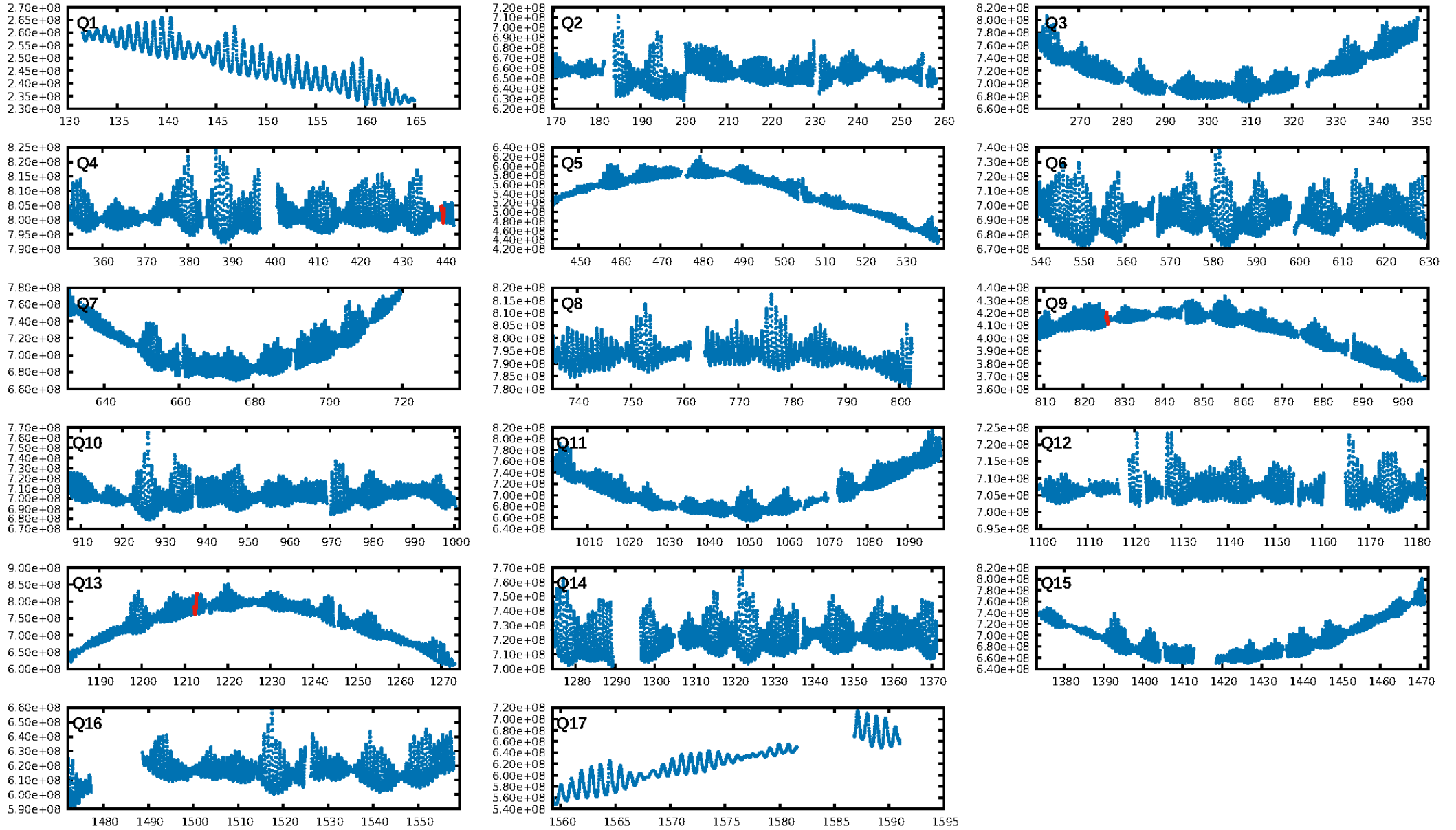
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [174.34σ]
ModelChiSquare2-sig: 69.3%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 1.05e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 13.06
Centroid-sig: 55.1%
Centroid-so: 1.214 arcsec [0.33σ]
OotOffset-rm: 4.344 arcsec [3.77σ]
KicOffset-rm: 1.552 arcsec [5.67σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

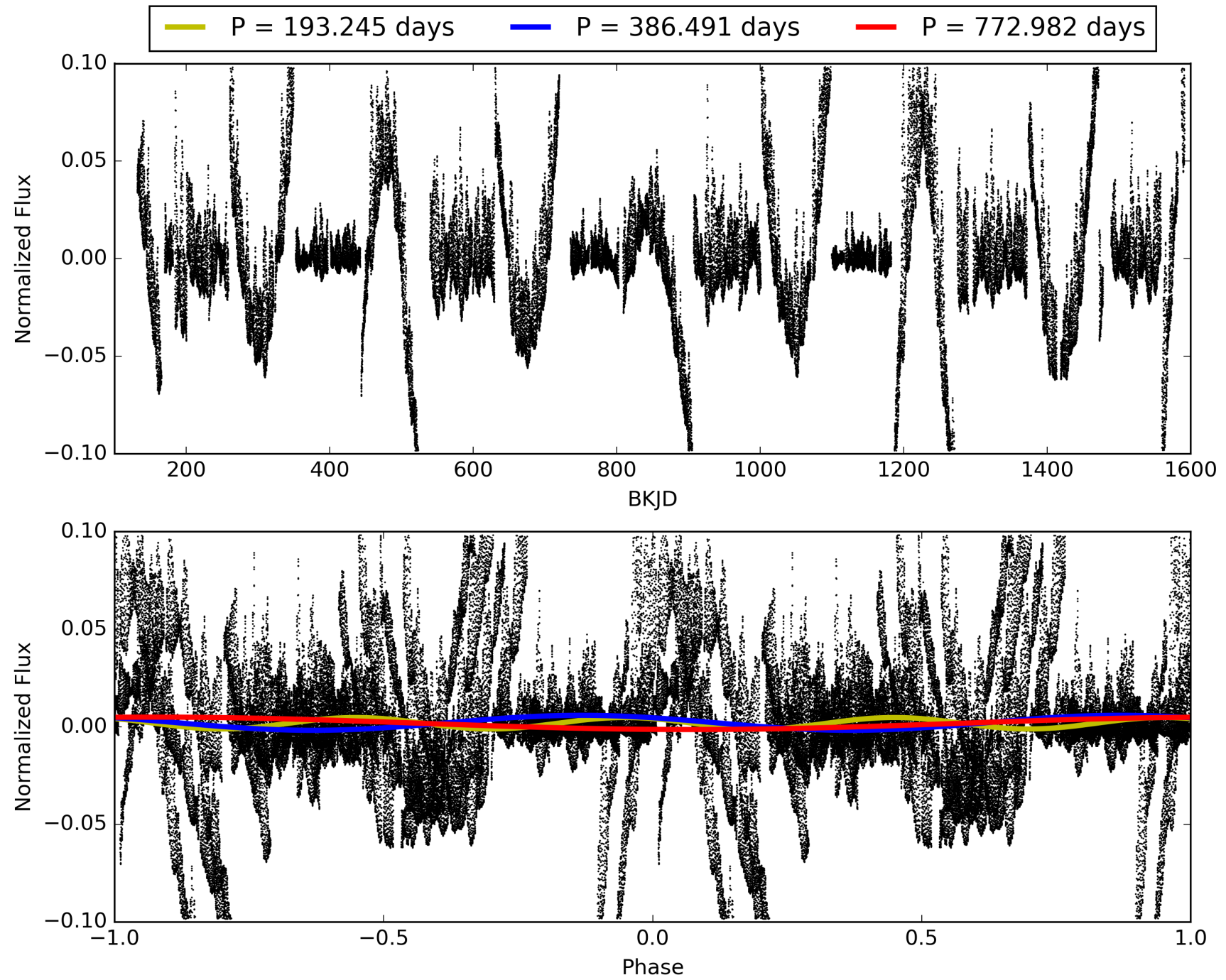
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005000456-02, PDC Light Curves

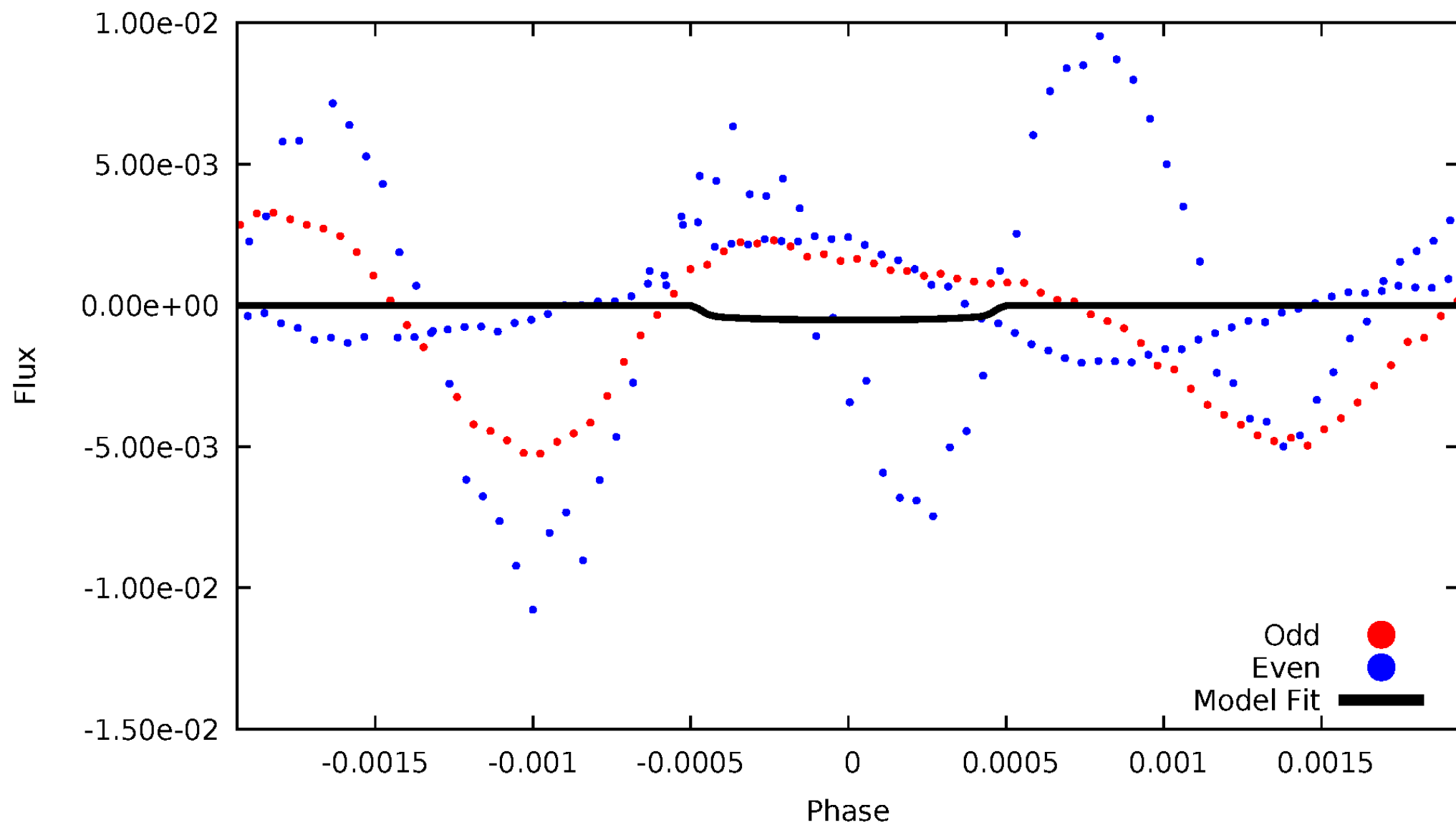


TCE 005000456-02



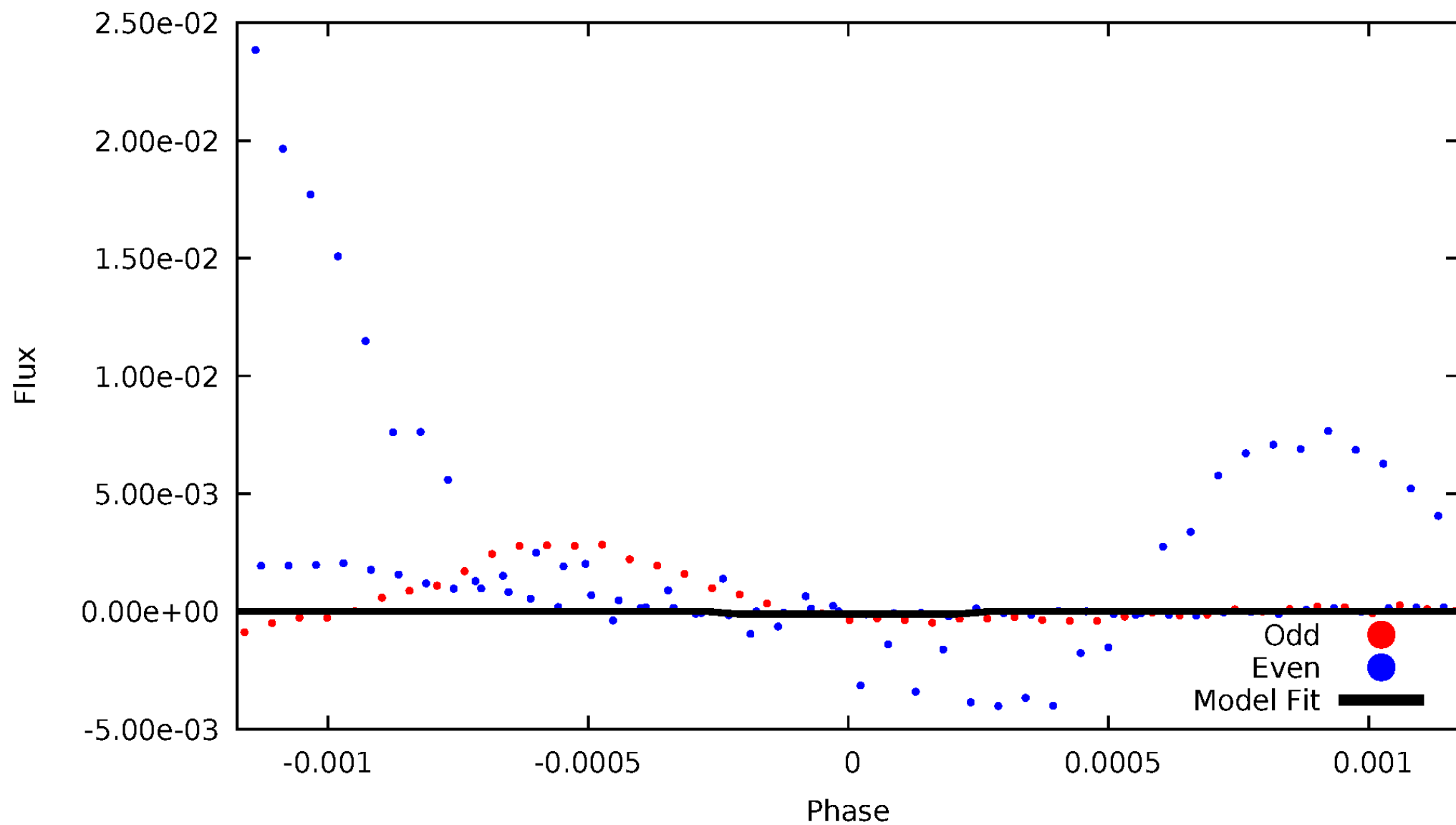
DV Odd/Even

TCE 005000456-02



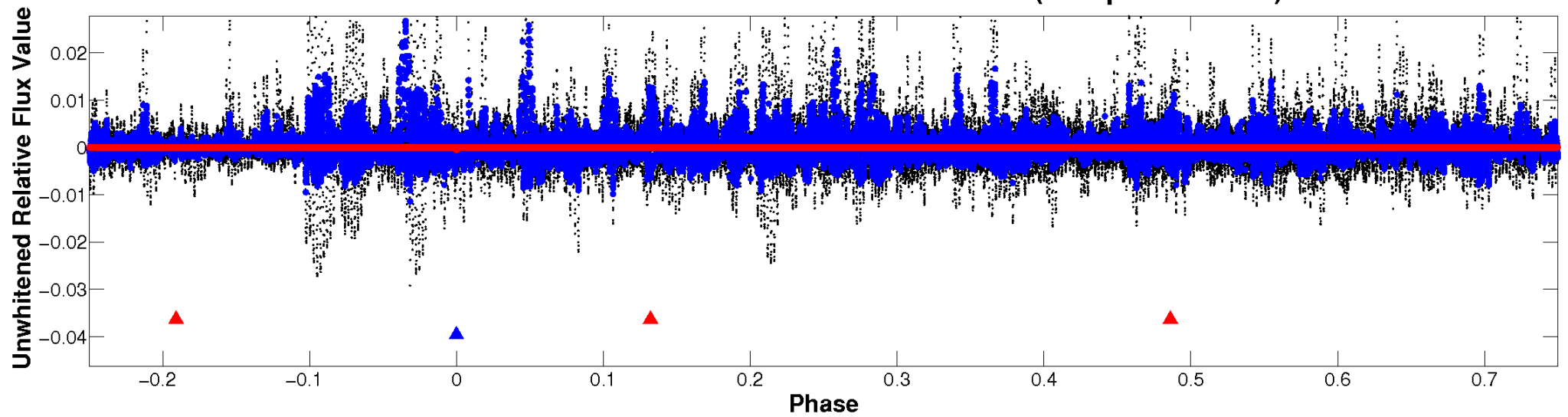
ALT Odd/Even

TCE 005000456-02

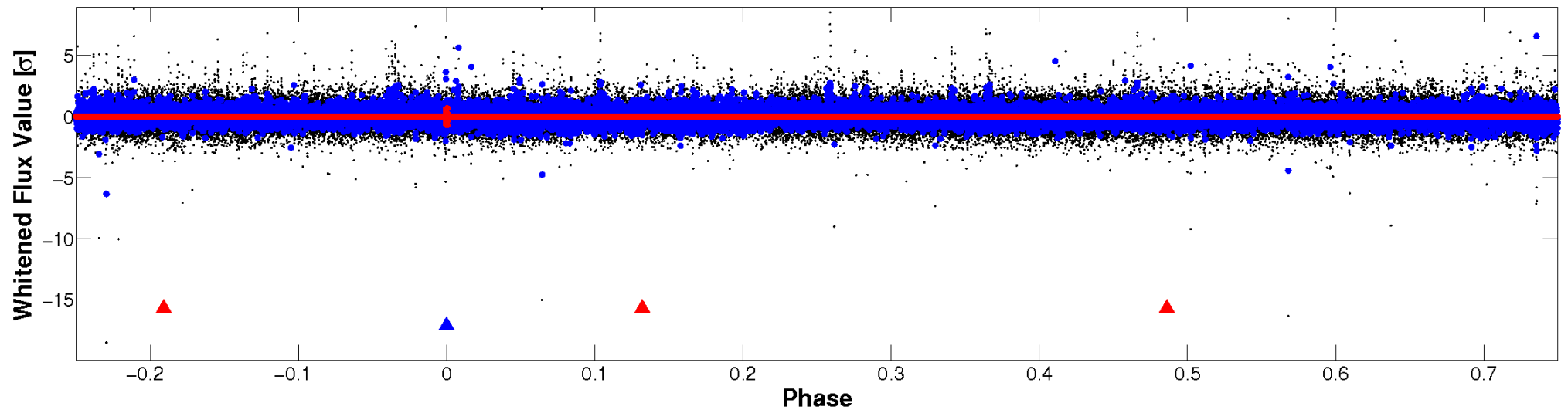


Non-Whitened Vs. Whitened Light Curve

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

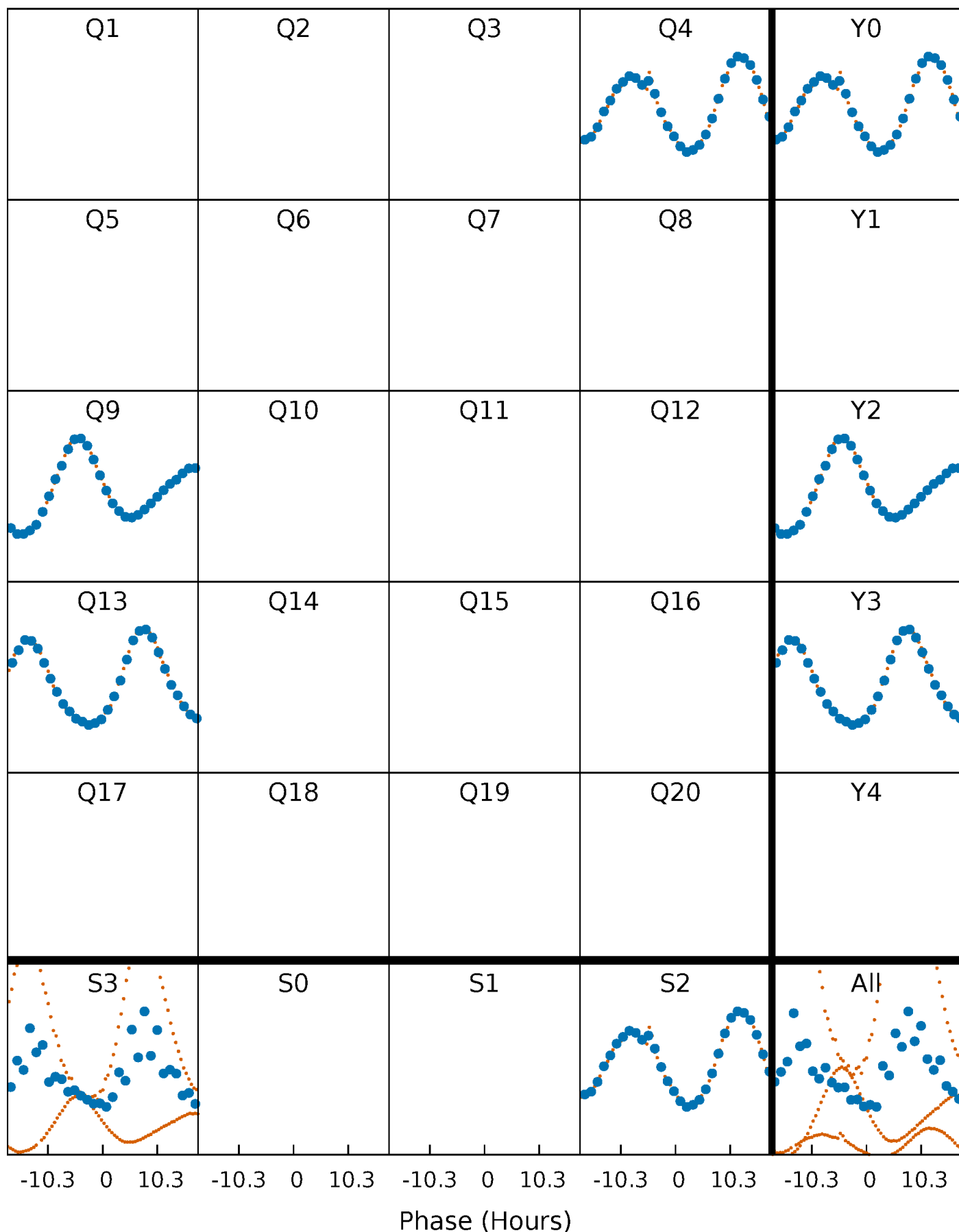


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



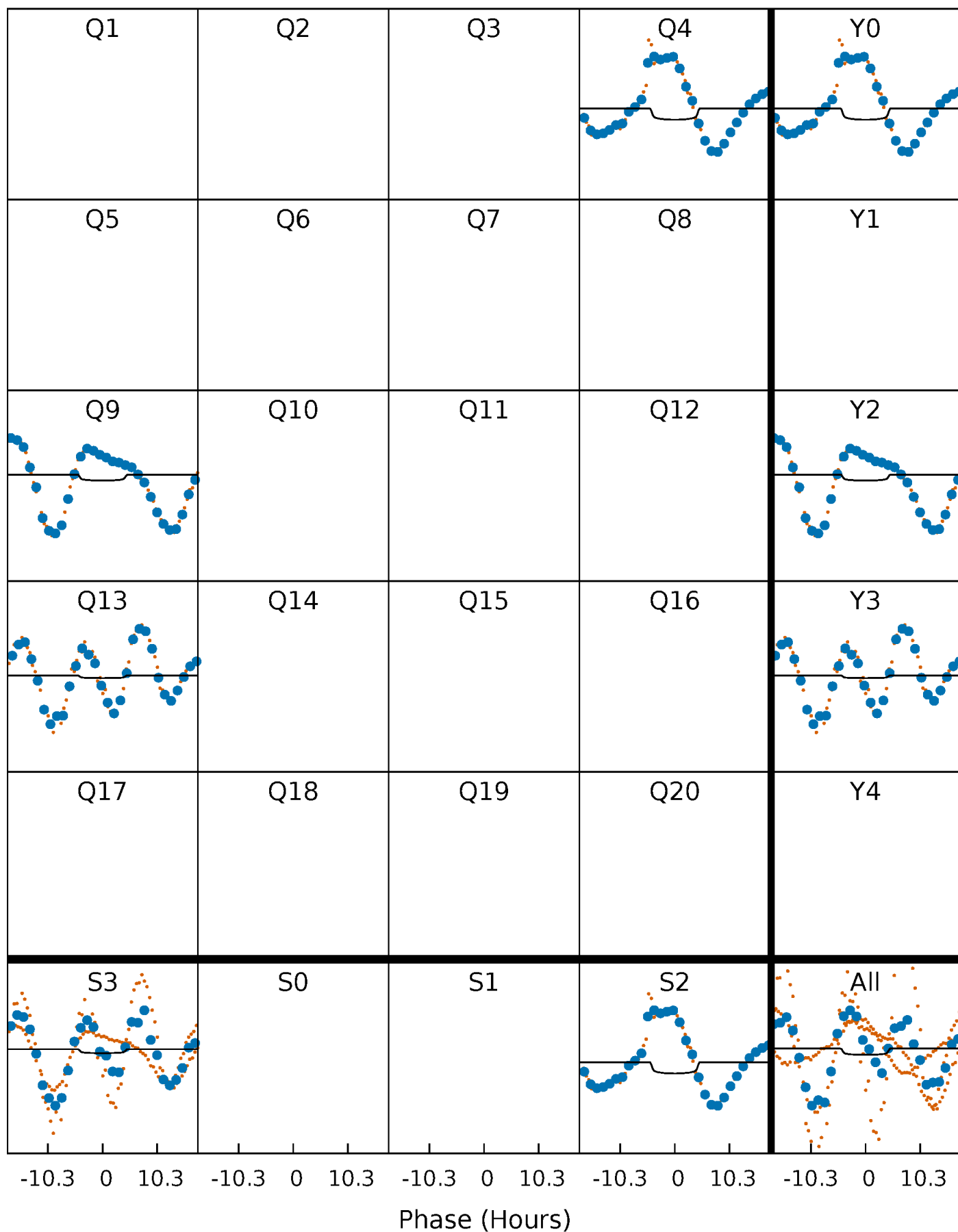
PDC Quarter-Phased Transit Curves

TCE 005000456-02 P=386.490908 Days $T_0=439.567178$ (BKJD)



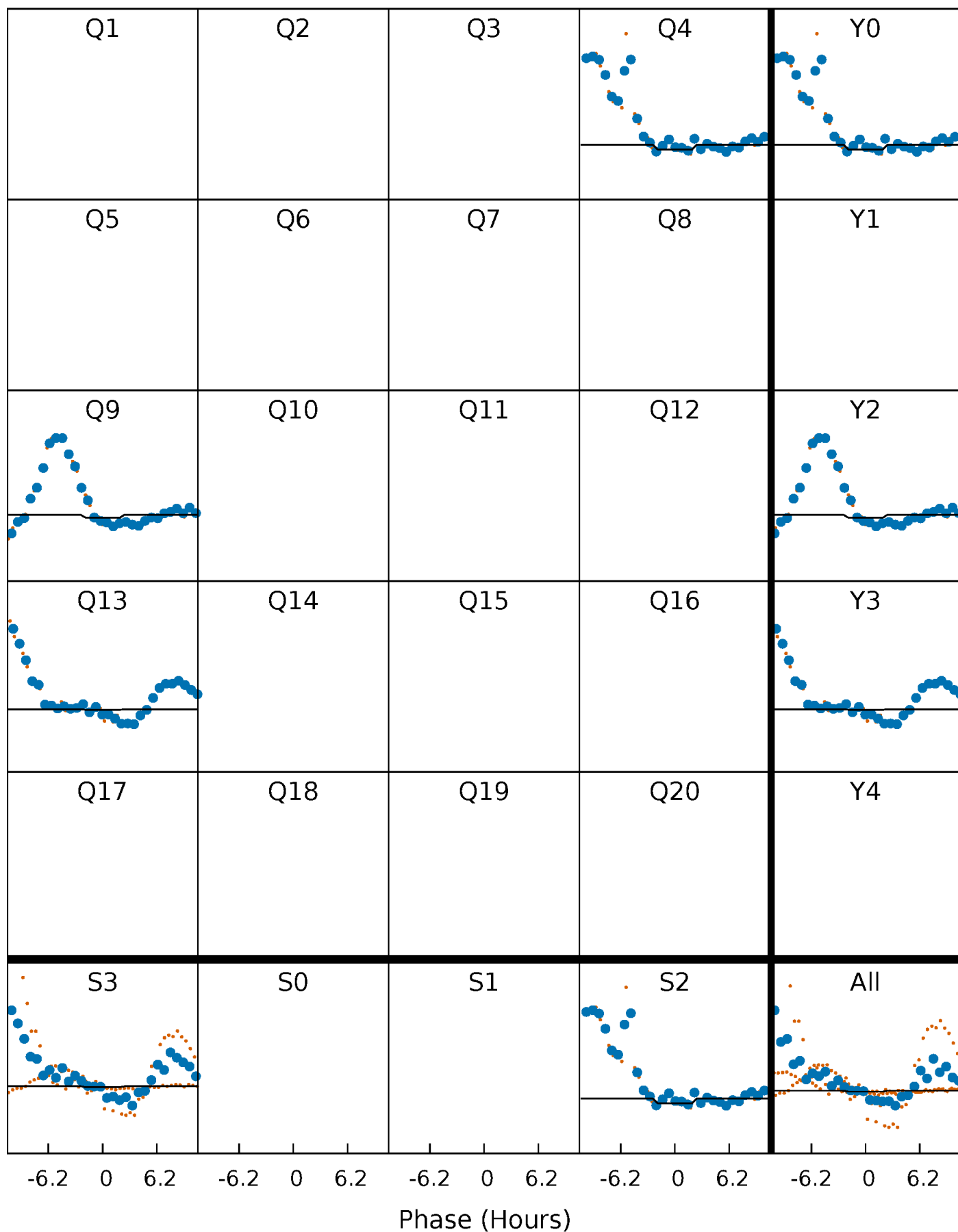
DV Quarter-Phased Transit Curves

TCE 005000456-02 $P=386.490908$ Days $T_0=439.567178$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

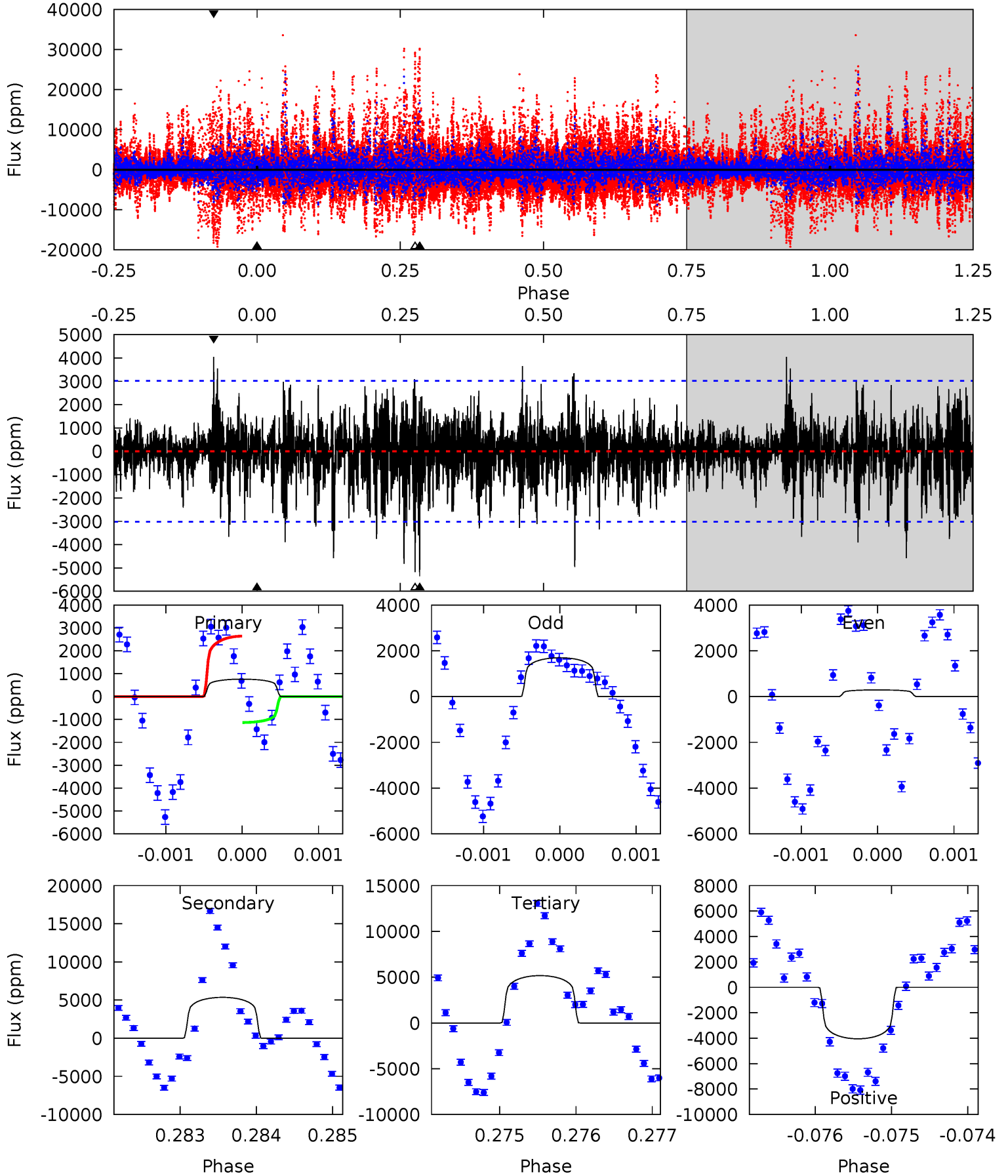
TCE 005000456-02 $P=386.453109$ Days $T_0=439.594514$ (BKJD)



DV Model-Shift Uniqueness Test

005000456-02, P = 386.490908 Days, E = 53.076270 Days

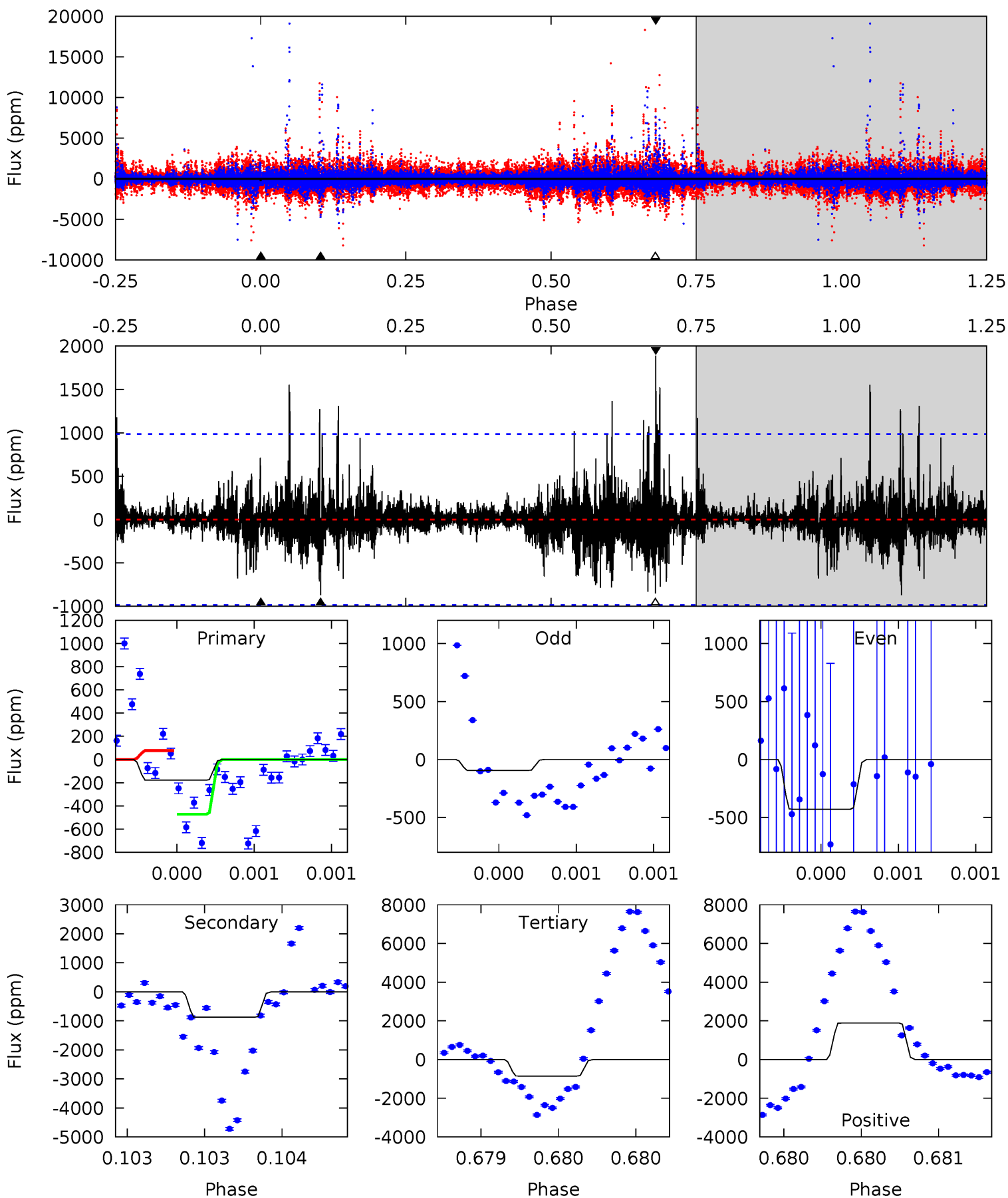
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.37	9.66	9.33	7.30	5.45	3.29	1.82	-7.95	-5.93	0.33	2.36	0.89	0.45	0.43	1.37



Alt Model-Shift Uniqueness Test

005000456-02, P = 386.453109 Days, E = 53.141405 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.01	4.93	4.82	10.7	5.57	3.48	1.04	-3.81	-9.67	0.11	-5.75	0.59	5.41	0.68	1.15



Stellar Parameters For KIC 005000456

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7206^{+201}_{-277}	$4.081^{+0.175}_{-0.175}$	$-0.160^{+0.250}_{-0.350}$	$1.838^{+0.536}_{-0.439}$	$1.483^{+0.221}_{-0.243}$	$0.336^{+0.356}_{-0.160}$
	+3%/-4%	+4%/-4%	+156%/-219%	+29%/-24%	+15%/-16%	+106%/-48%
Source	PHO1	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 005000456-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5354 ± 554	$4.46^{+2.28}_{-2.25}$	552^{+40}_{-40}	18321^{+24579}_{-6216}	$211092^{+633636}_{-125430}$
Alt.	-872 ± 177	$2.66^{+2.00}_{-1.70}$	554^{+38}_{-39}	12866^{+28721}_{-4541}	$94900^{+671308}_{-65253}$

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

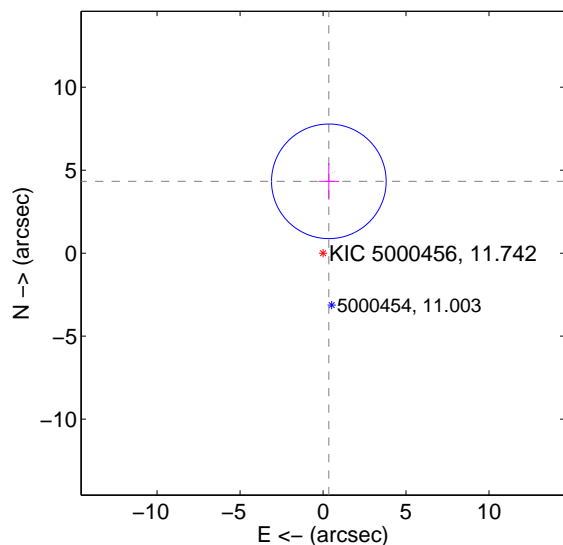
Supplemental centroid analysis for 005000456-02. **Kepler magnitude: 11.74.** Transit SNR 2.95

There are 2 quarters with good PRF difference image offsets

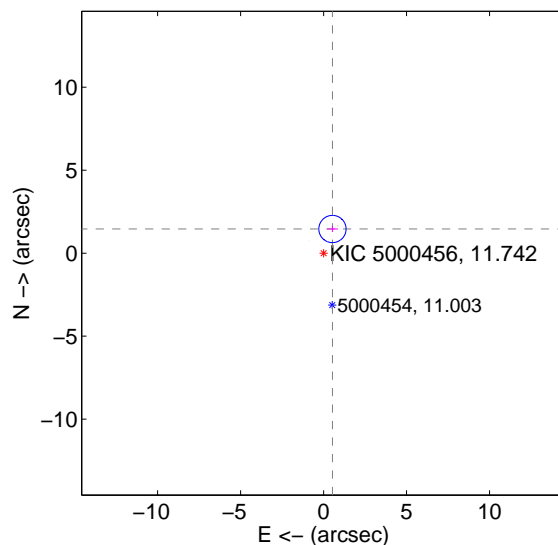
The OOT PRF centroid is offset from the target star catalog position by about 3.27 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.344 \pm 1.151	3.77	-0.350 \pm 0.617	4.330 \pm 1.105
PRF-fit source offset from KIC position	1.552 \pm 0.274	5.67	-0.535 \pm 0.333	1.457 \pm 0.176
photometric centroid source offset	1.21 \pm 3.65	0.33	0.52 \pm 0.81	-1.10 \pm 4.02

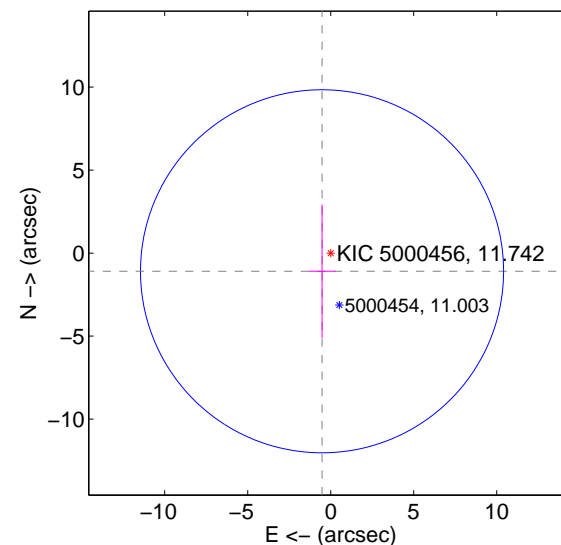
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

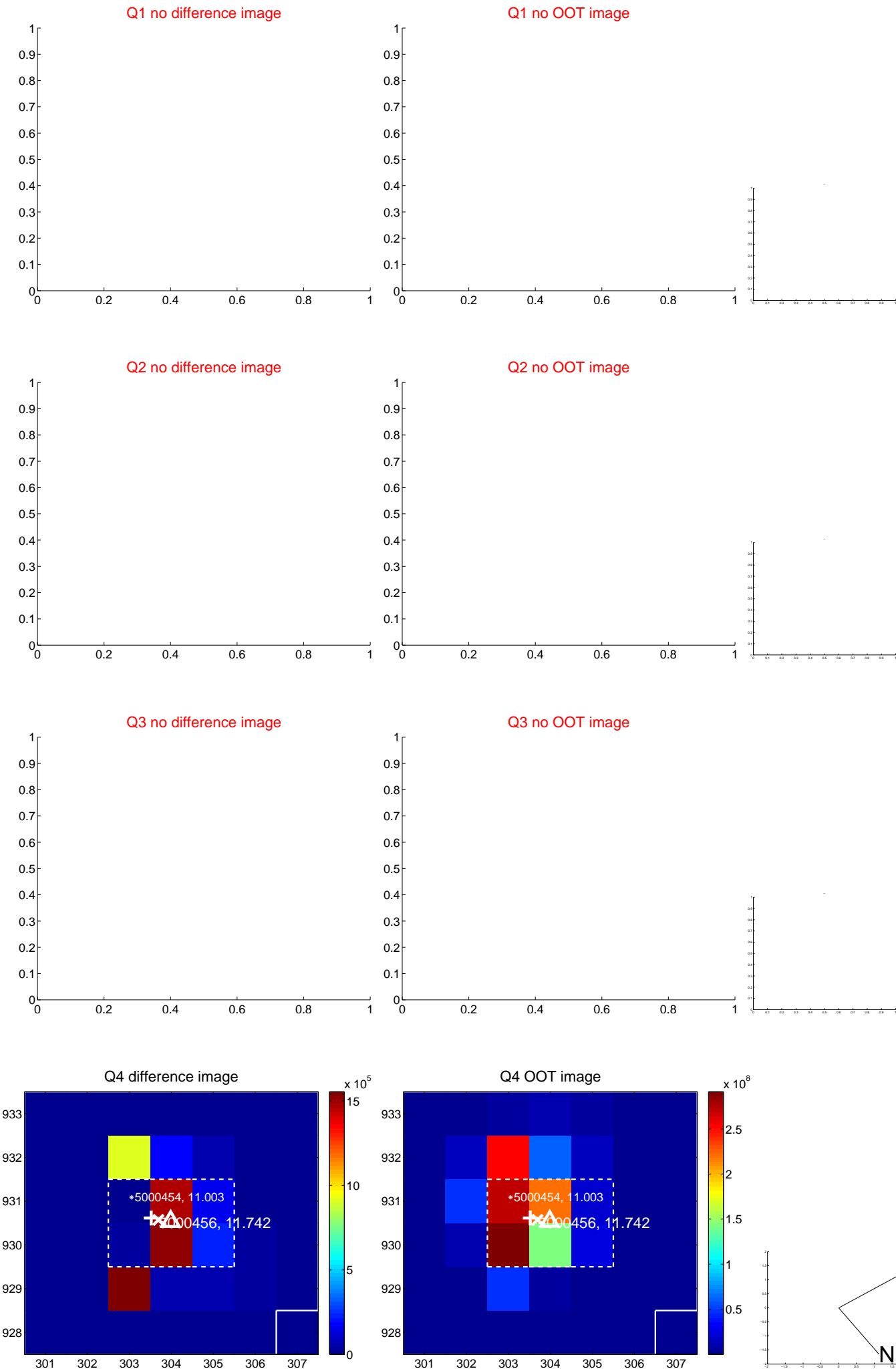


offset from photometric centroids



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.

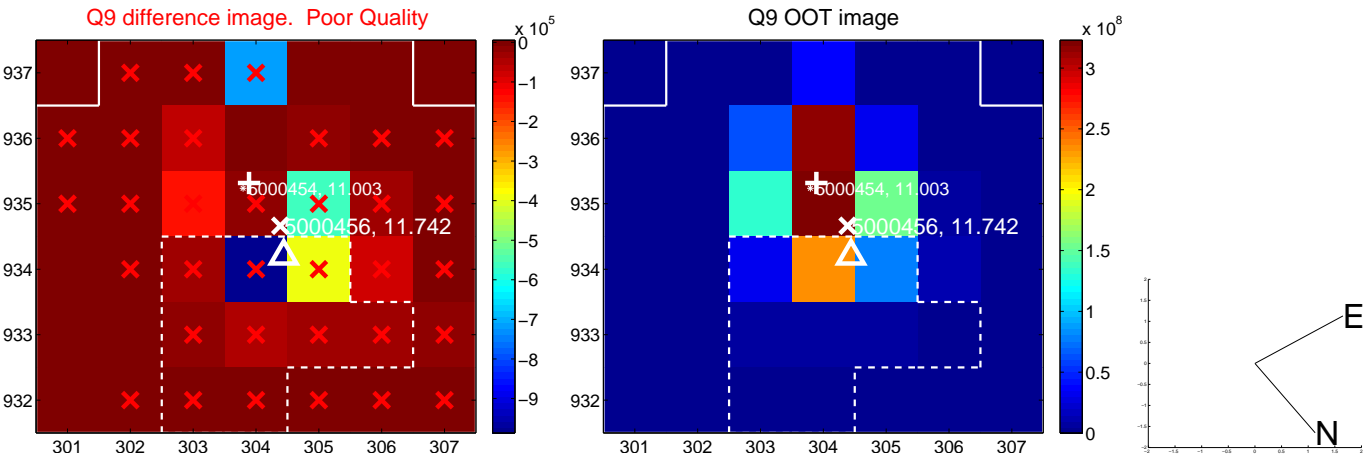
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



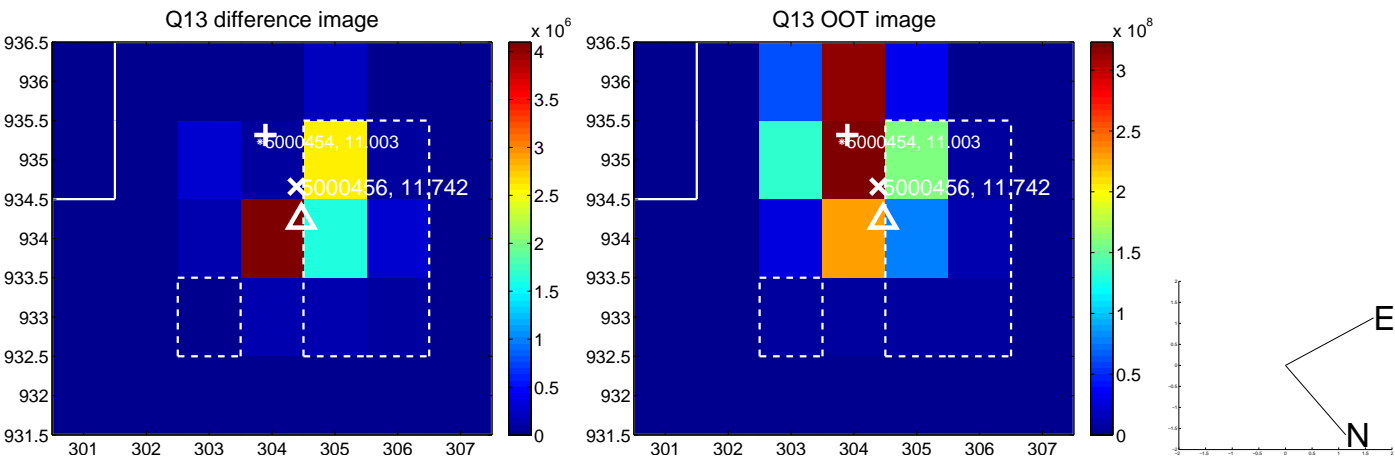
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



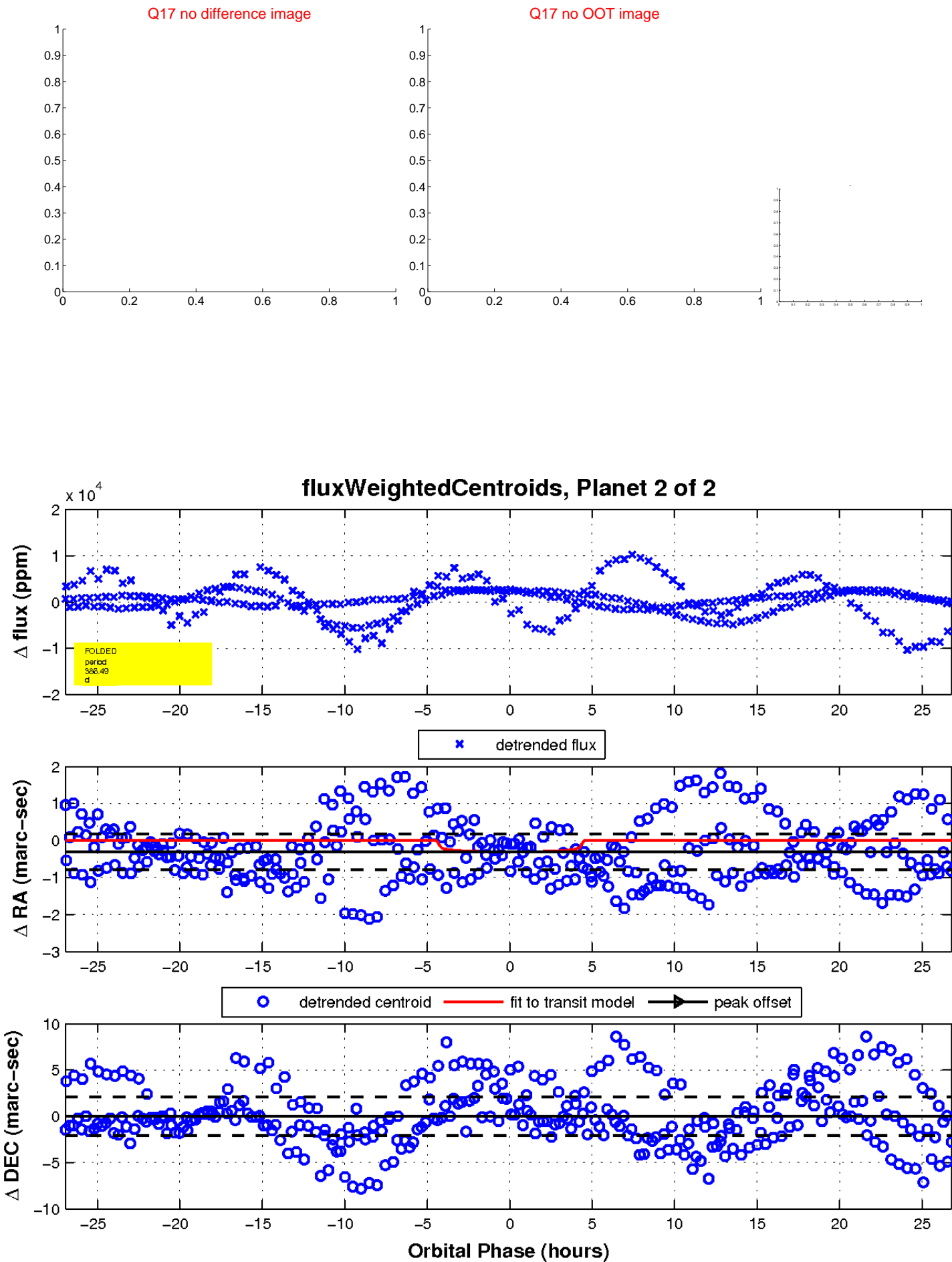
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

