

KIC 005199426

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})
005199426-01	OBS	5138.01	78.604360	143.994934	78306.7	4.676	2192.0	2187.3	0.98	5938	39.29	8.69
005199426-02	OBS	No	78.594168	143.814881	253.9	51.193	9.4	11.1	0.98	5938	3.15	8.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005199426-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED
005199426-02	OBS	FP	0.00	1	0	0	0	LPP_DV—RESIDUAL_TCE

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.

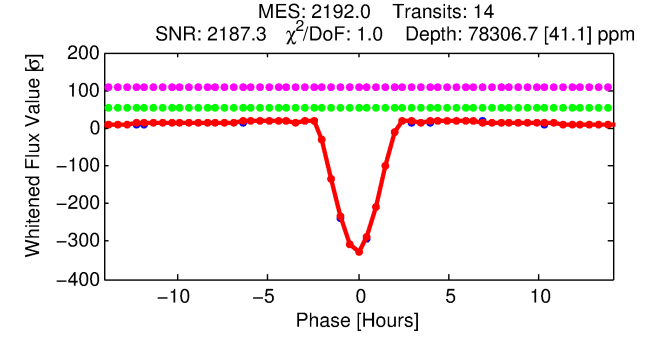
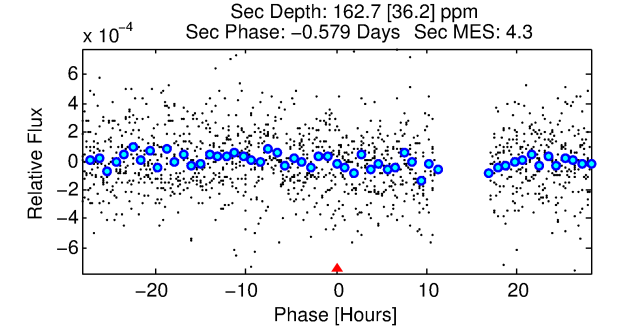
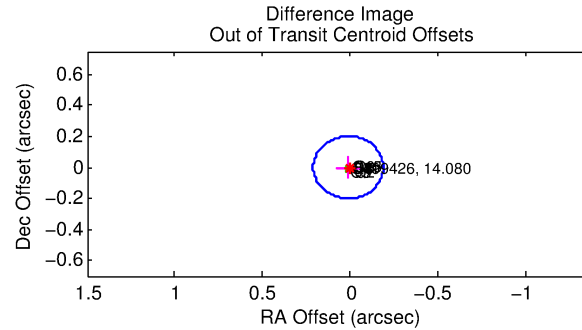
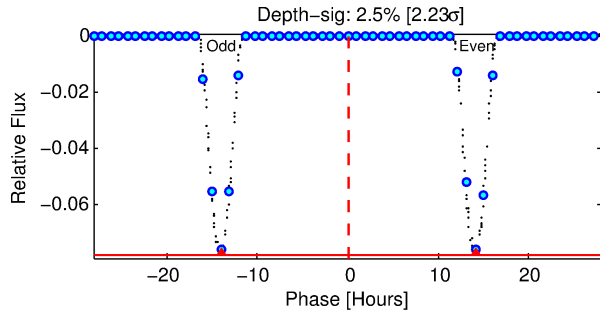
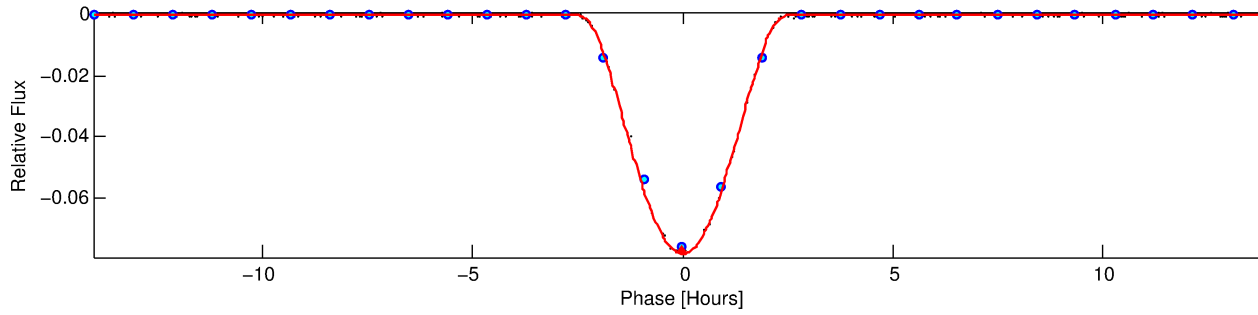
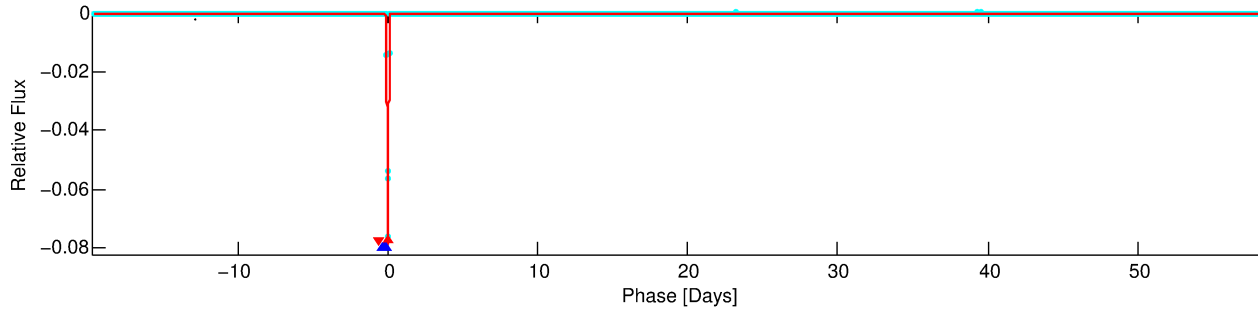
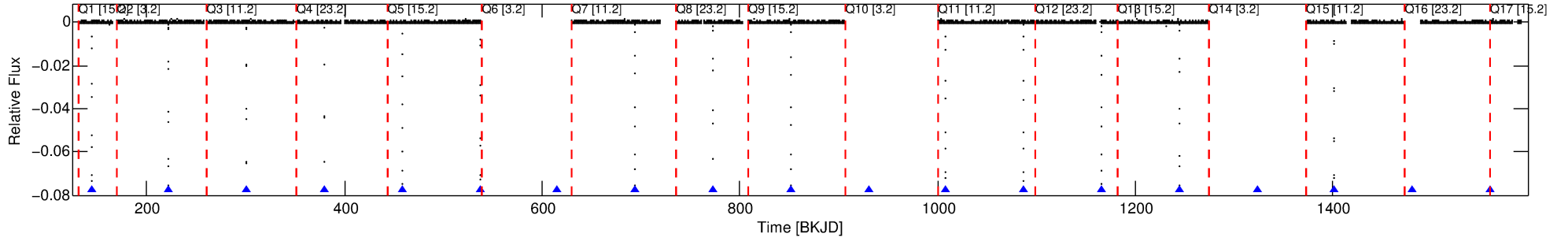
Ephemeris Match Information For 005199426-01

No Significant Match Found

DV One-Page Summary

KIC: 5199426 Candidate: 1 of 2 Period: 78.604 d
KOI: K05138.01 Corr: 1.000

Kp: 14.08 R*: 0.98 Rs Teff: 5938.0 K Logg: 4.43 Fe/H: -0.220



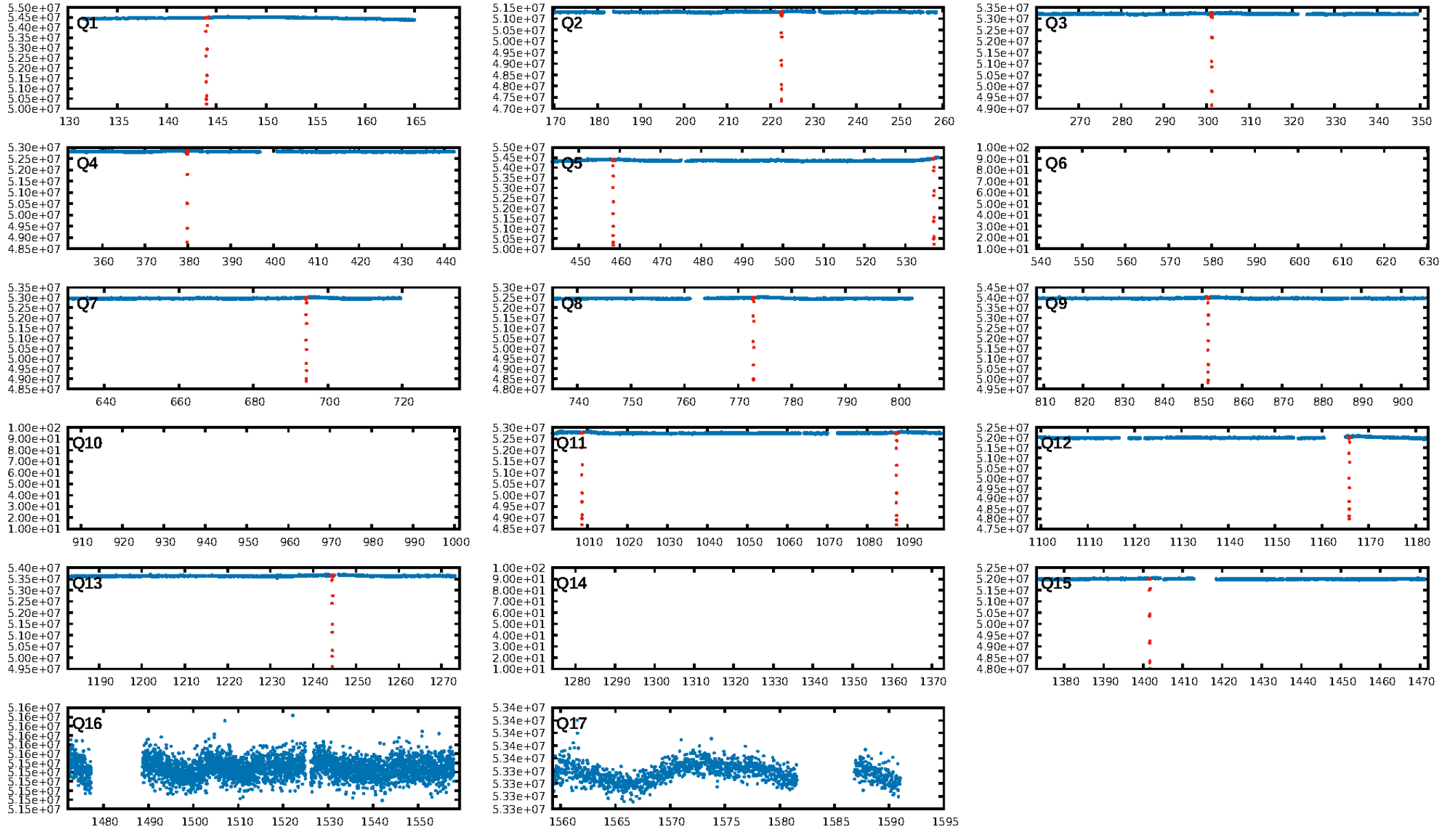
DV Fit Results:

Period = 78.60436 [0.00001] d
Epoch = 143.9949 [0.0000] BKJD
Rp/R* = 0.3655 [0.0093]
a/R* = 132.13 [0.13]
b = 0.90 [0.01]
Seff = 8.69 [3.30]
Teq = 438 [42] K
Rp = 39.29 [11.69] Re
a = 0.3526 [0.0876] AU
Ag = 7.21 [3.07] [2.02σ]
Teffp = 1109 [72] K [8.12σ]

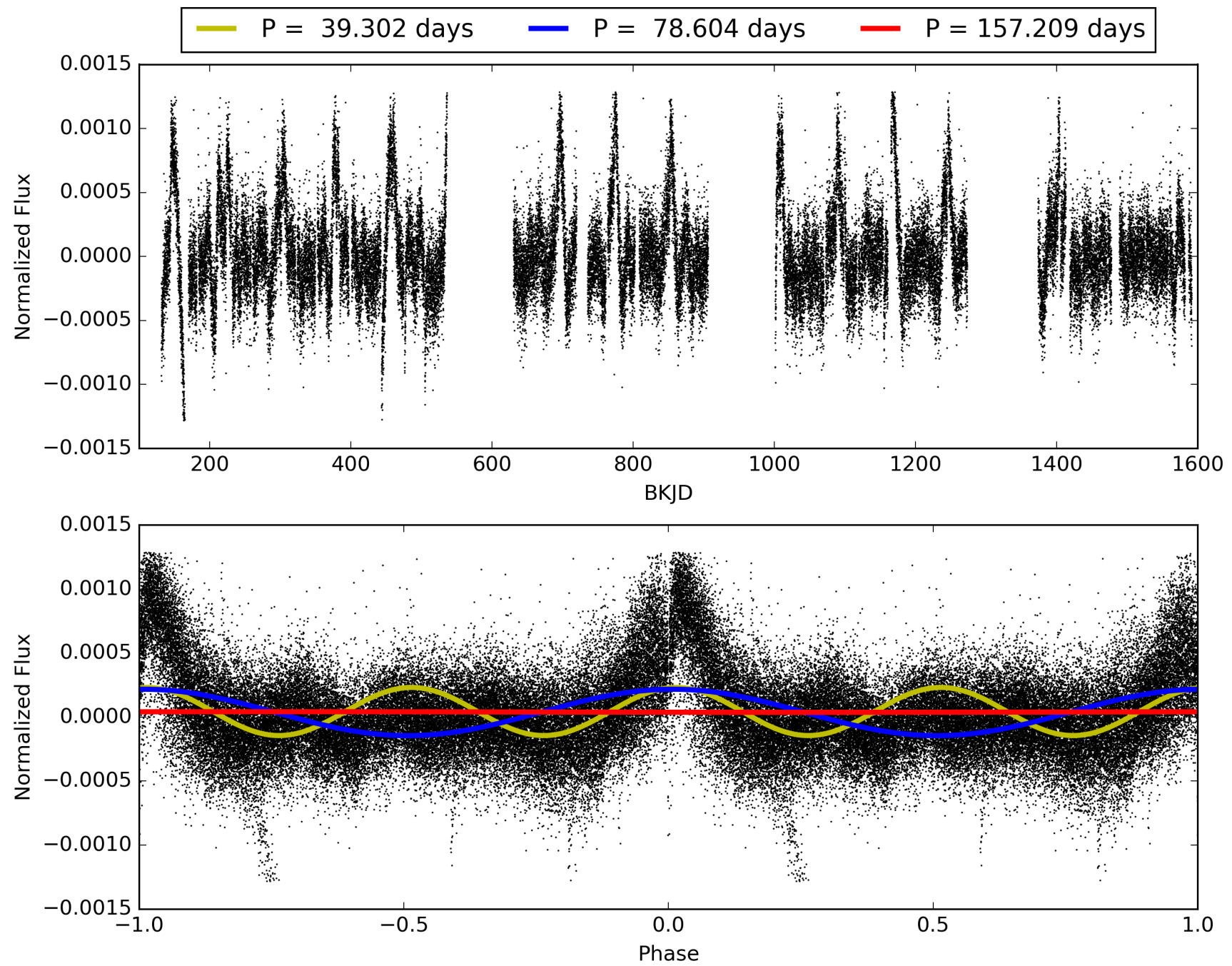
DV Diagnostic Results:

ShortPeriod-sig: 0.4% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: 8.026
Centroid-sig: 0.0%
Centroid-so: 0.025 arcsec [4.24σ]
OotOffset-rm: 0.012 arcsec [0.19σ]
KicOffset-rm: 0.024 arcsec [0.35σ]
OotOffset-st: 1/4/2/4 [11]
KicOffset-st: 1/4/2/4 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 0.00 [0/11]

TCE 005199426-01, PDC Light Curves

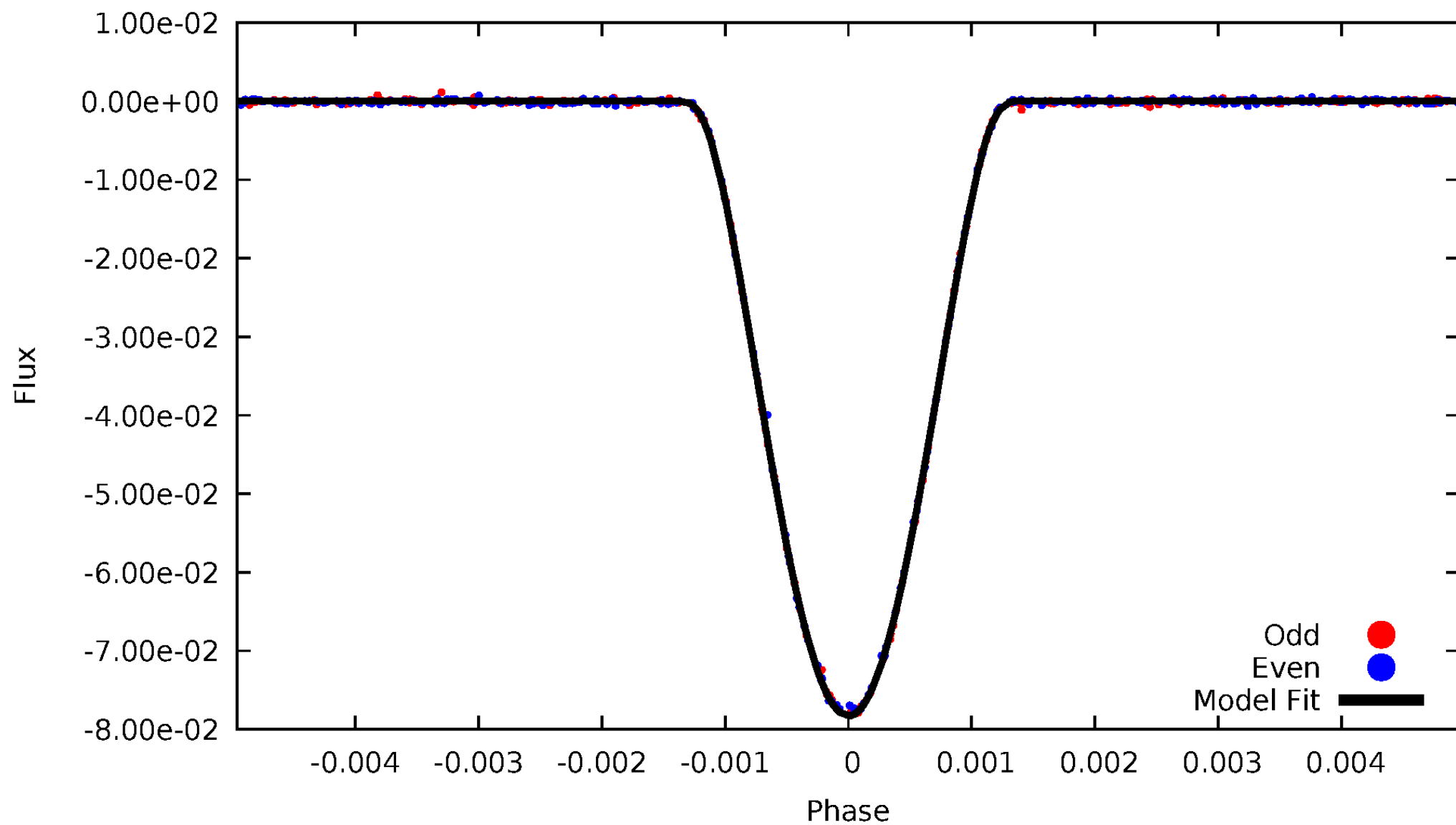


TCE 005199426-01



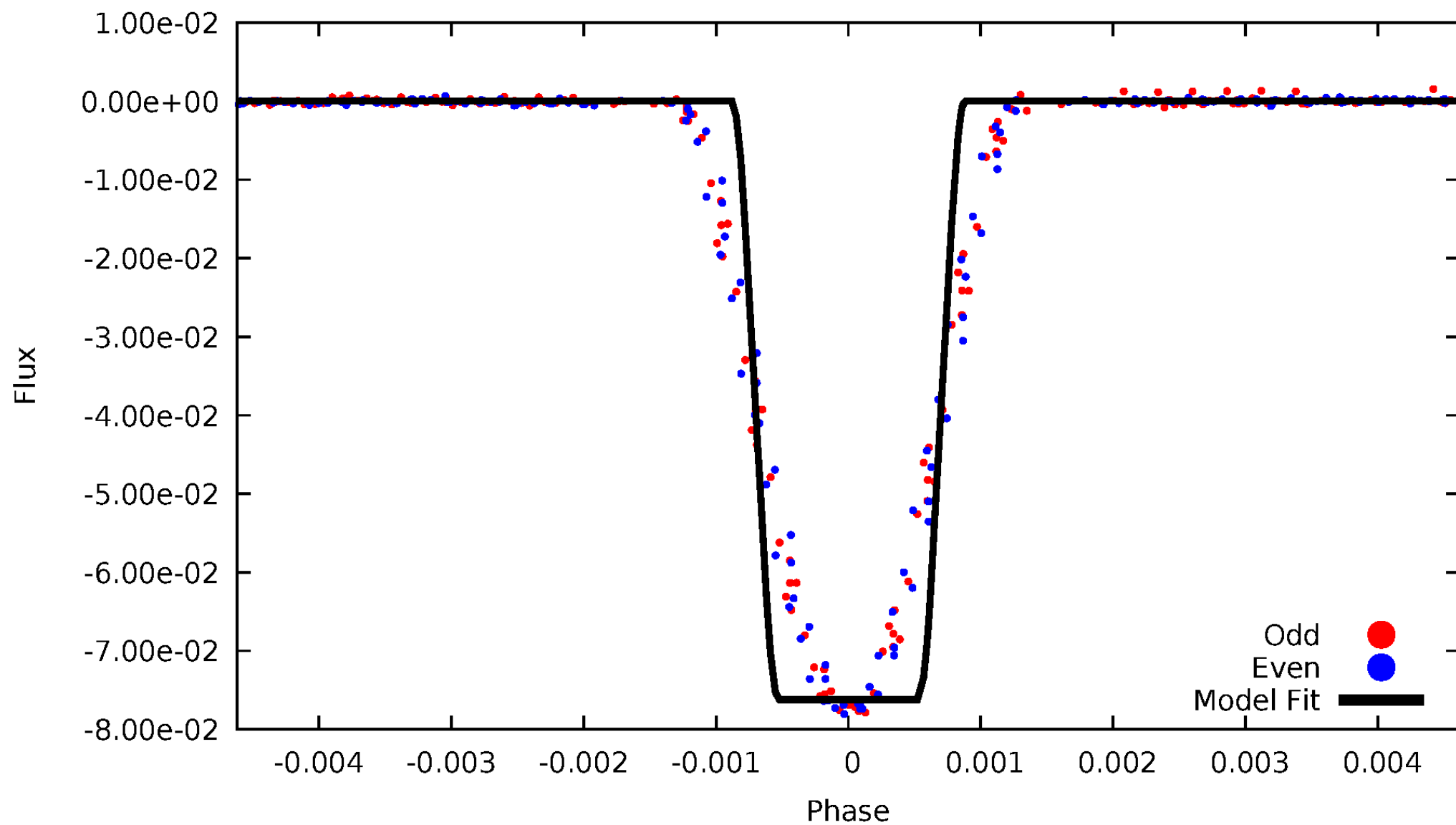
DV Odd/Even

TCE 005199426-01



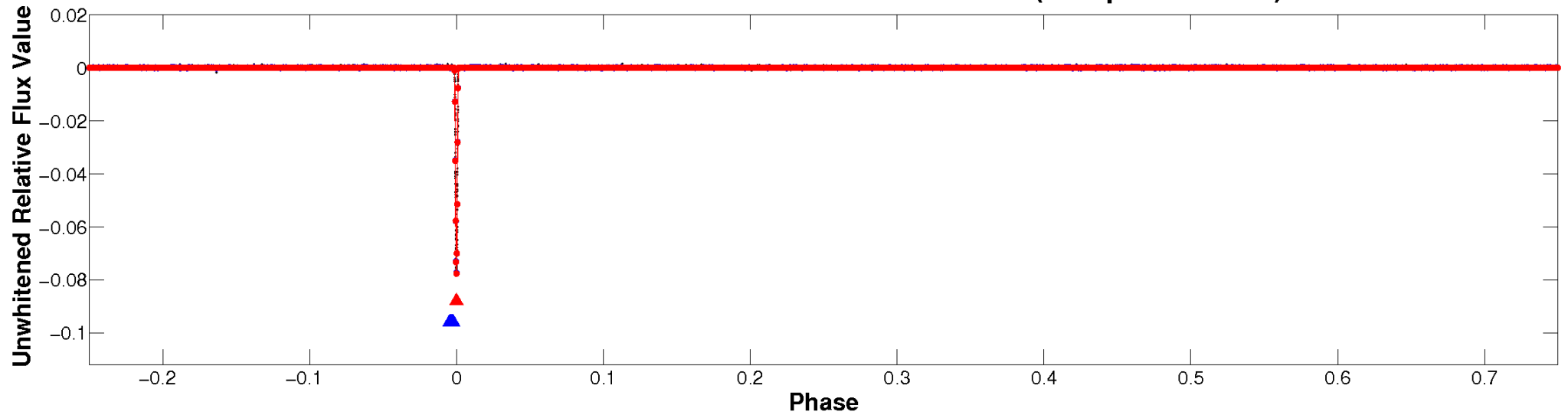
ALT Odd/Even

TCE 005199426-01

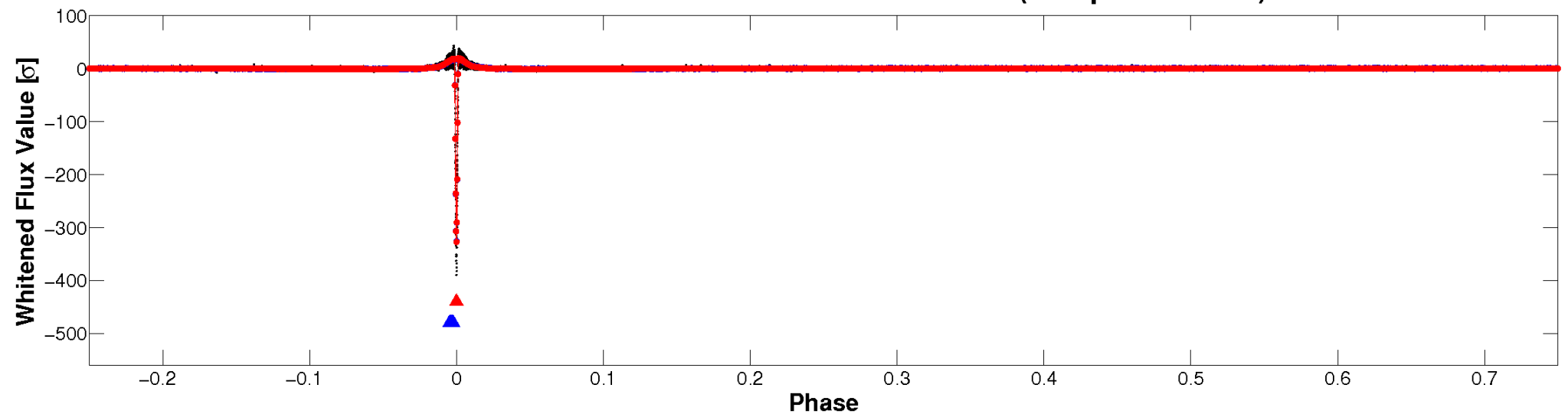


Non-Whitened Vs. Whitened Light Curve

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

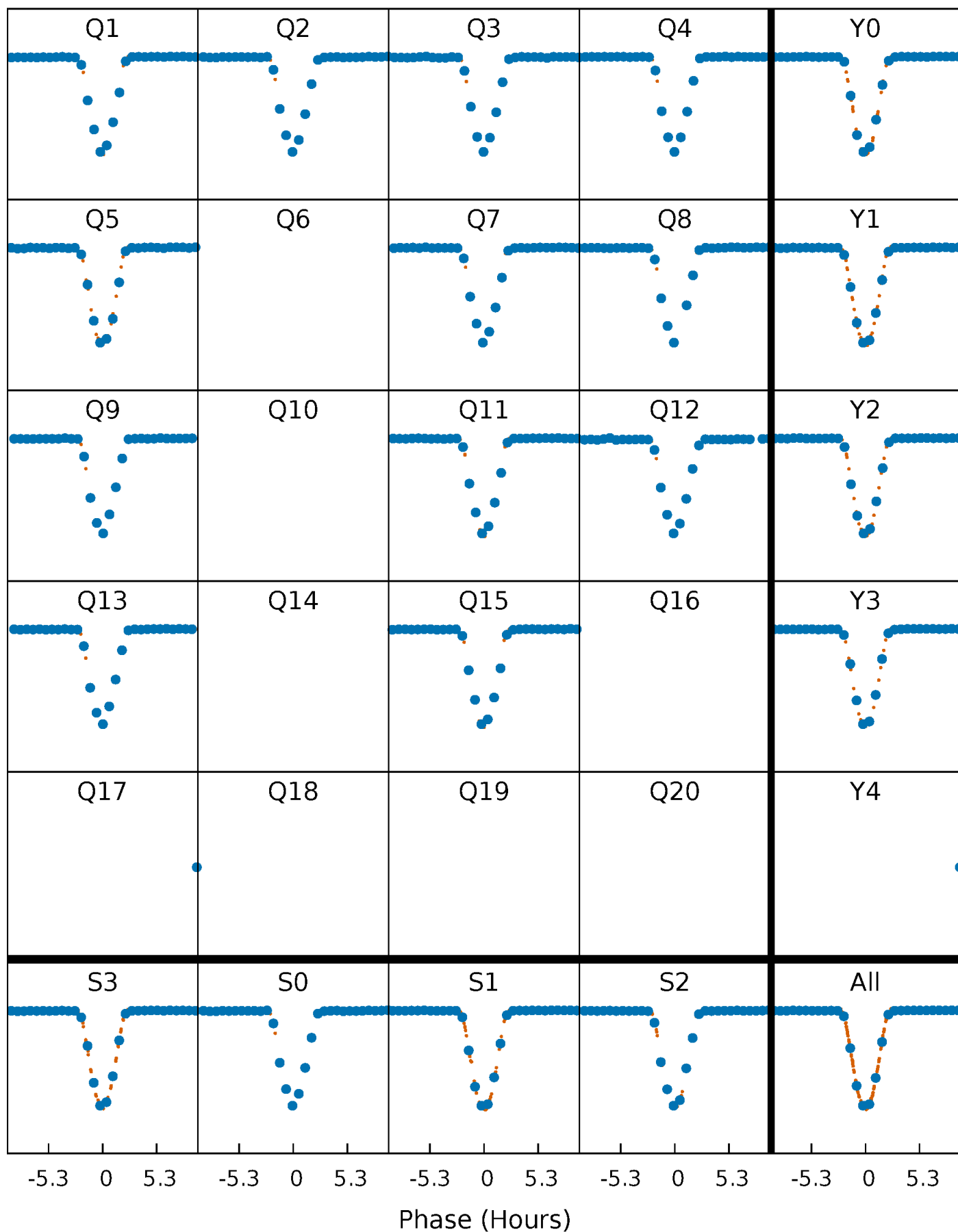


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



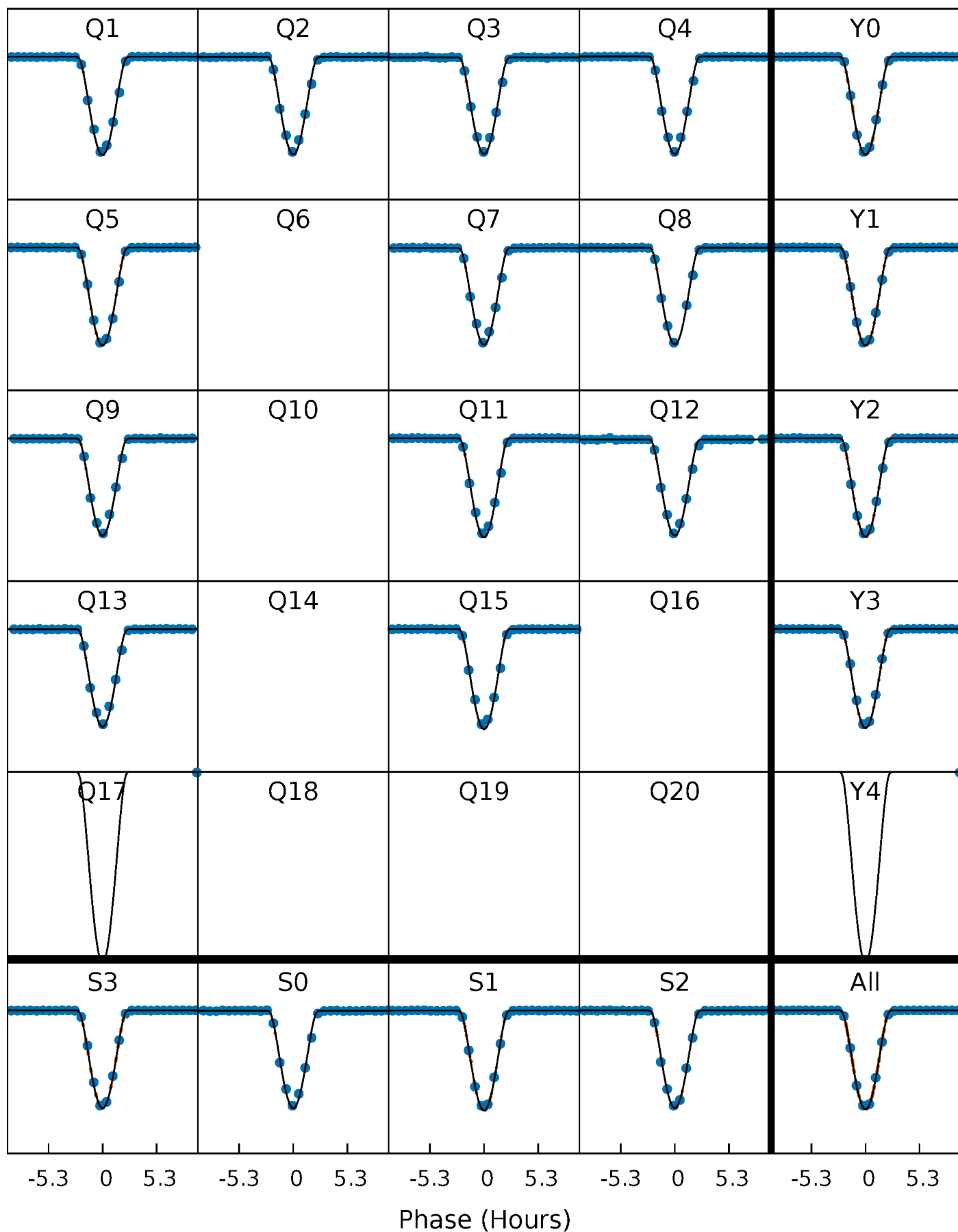
PDC Quarter-Phased Transit Curves

TCE 005199426-01 P= 78.604360 Days $T_0=143.994934$ (BKJD)



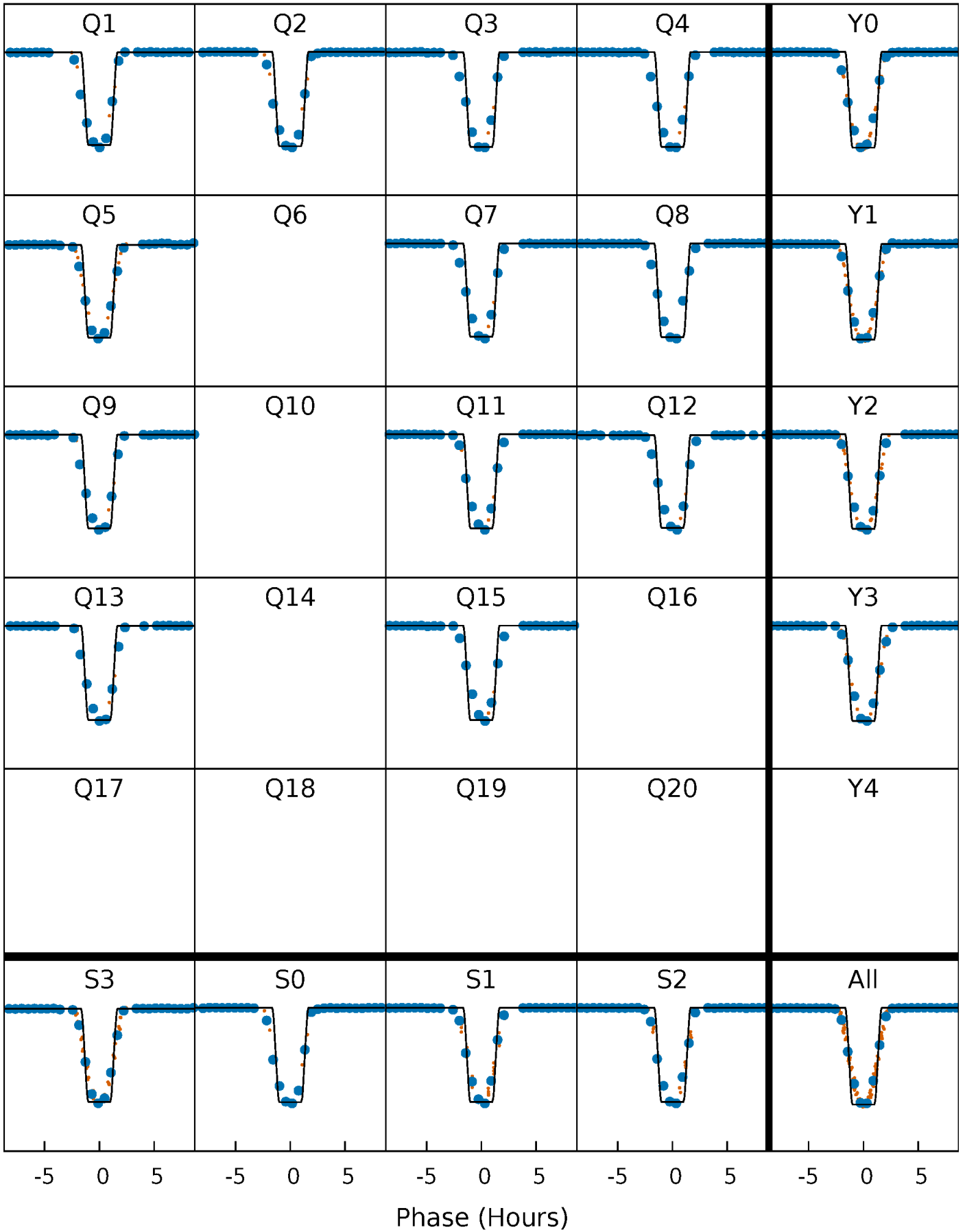
DV Quarter-Phased Transit Curves

TCE 005199426-01 P= 78.604360 Days $T_0=143.994934$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

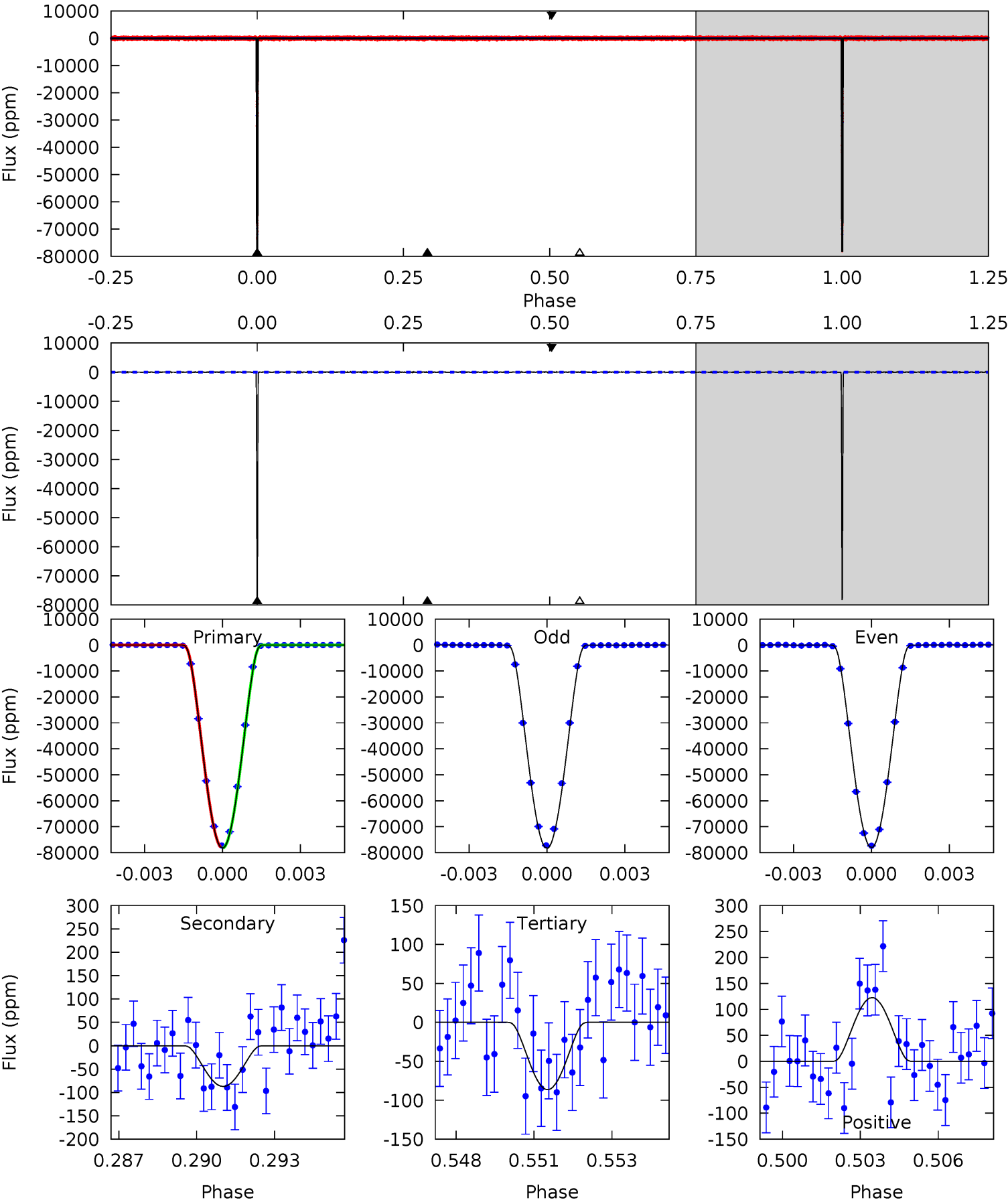
TCE 005199426-01 P= 78.603656 Days $T_0=144.000148$ (BKJD)



DV Model-Shift Uniqueness Test

005199426-01, P = 78.604360 Days, E = 65.390574 Days

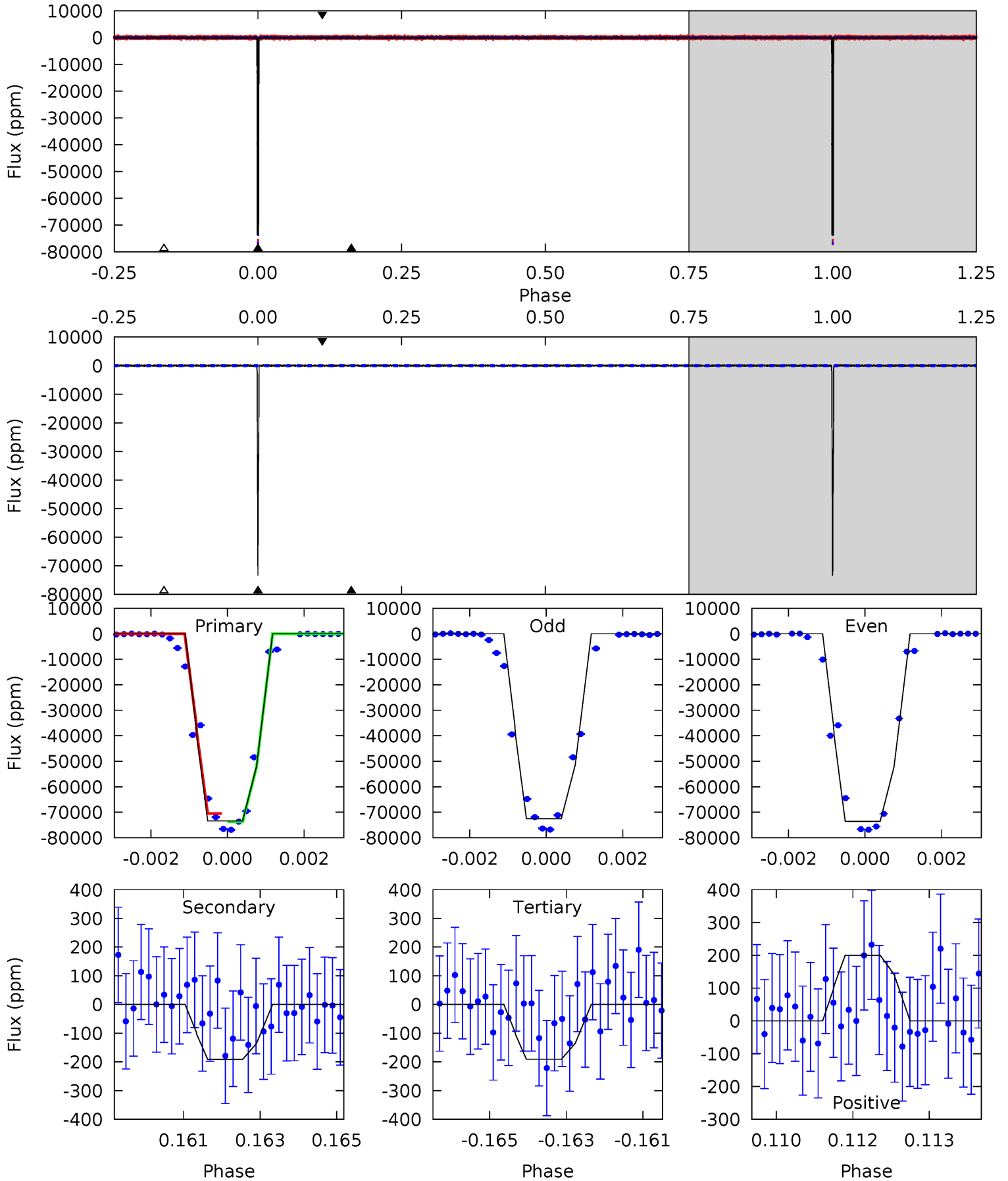
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4562	5.08	5.04	7.16	5.27	3.00	1.70	4557	4554	0.04	-2.08	7.25	1.00	0.00	12.3



Alt Model-Shift Uniqueness Test

005199426-01, P = 78.603656 Days, E = 65.396492 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1671	4.35	4.35	4.56	5.35	3.14	2.26	1667	1667	0.01	-0.21	12.9	1.00	0.00	0



Stellar Parameters For KIC 005199426

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5938^{+160}_{-178}	$4.427^{+0.098}_{-0.196}$	$-0.220^{+0.300}_{-0.300}$	$0.985^{+0.292}_{-0.125}$	$0.947^{+0.129}_{-0.103}$	$1.394^{+0.624}_{-0.737}$
	+3%/-3%	+2%/-4%	+136%/-136%	+30%/-13%	+14%/-11%	+45%/-53%
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 005199426-01 / KOI 5138.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-87 ± 17	$39.77^{+6.59}_{-3.52}$	618^{+48}_{-32}	1945^{+42}_{-54}	$3.658^{+1.127}_{-1.029}$
Alt.	-191 ± 44	$30.13^{+4.96}_{-2.79}$	618^{+45}_{-33}	2257^{+64}_{-75}	14^{+5}_{-4}

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

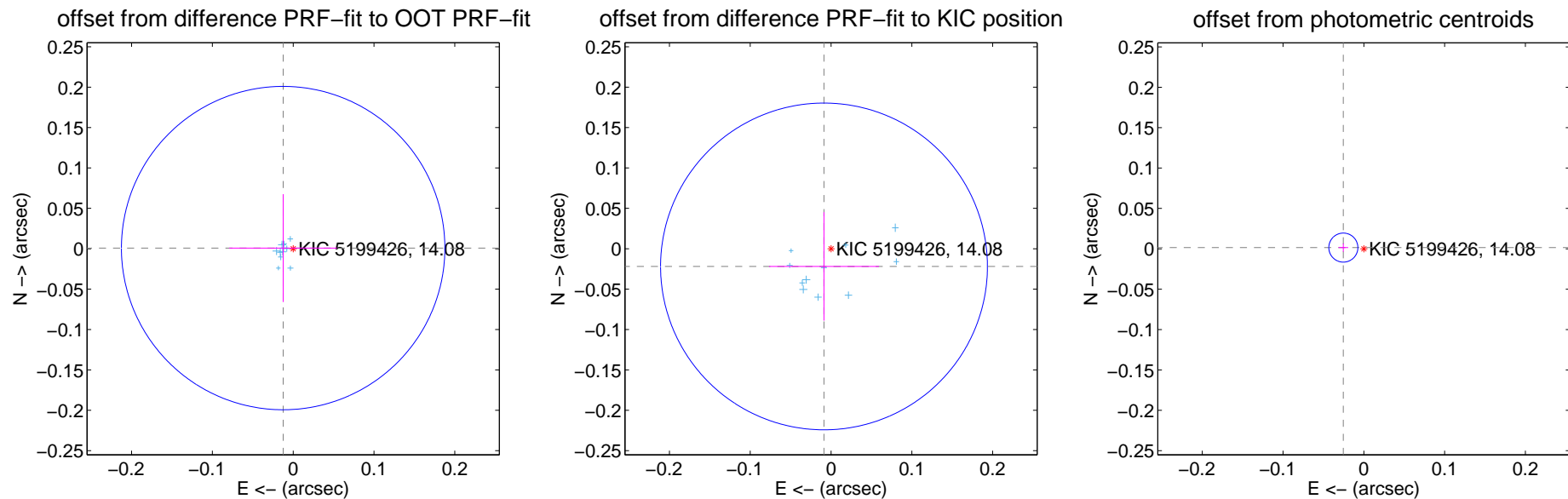
DV Centroid Data

Supplemental centroid analysis for 005199426-01. Kepler magnitude: 14.08. Transit SNR 2187.28

There are 11 quarters with good PRF difference image offsets

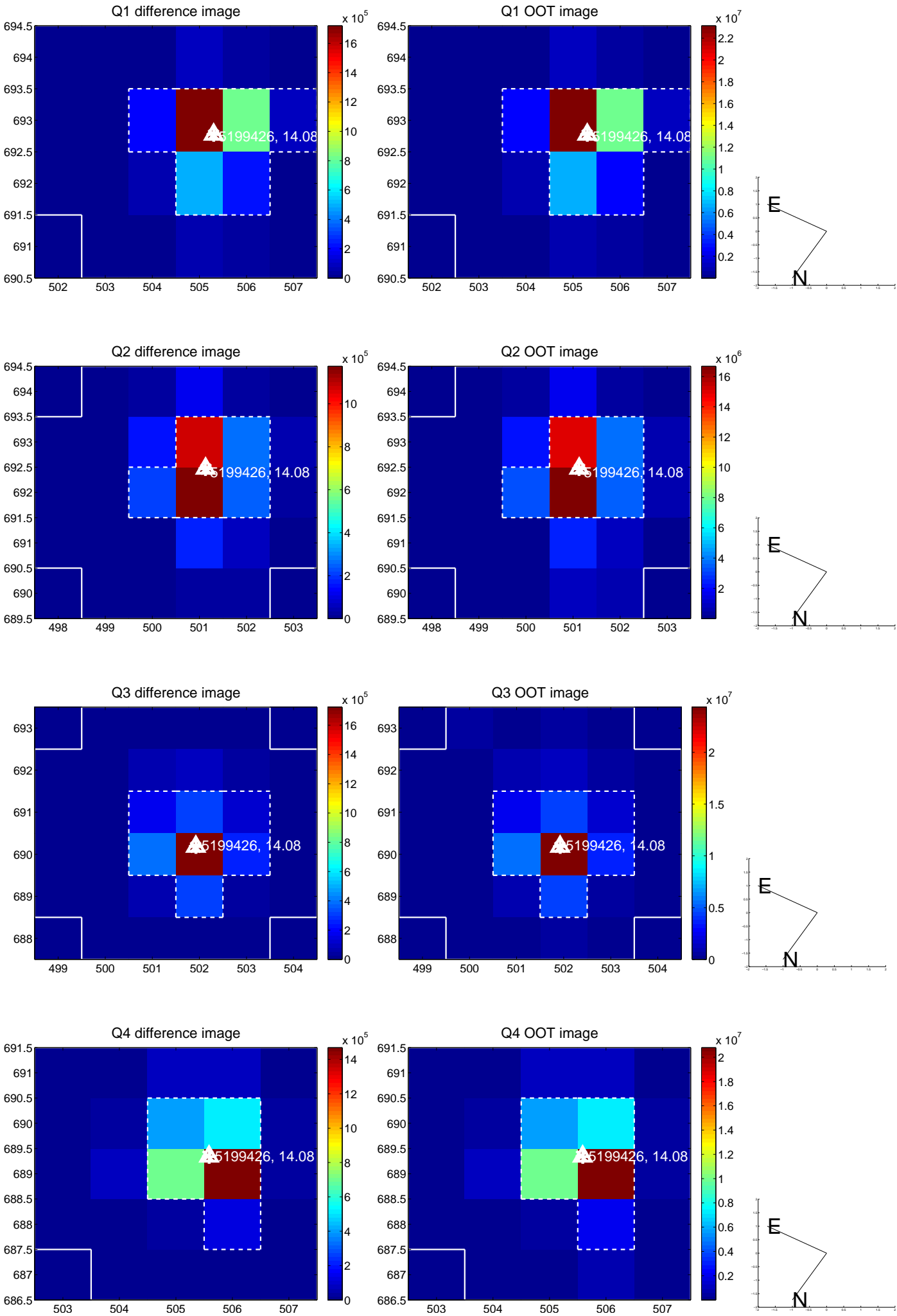
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.012 ± 0.067	0.19	0.012 ± 0.067	0.001 ± 0.067
PRF-fit source offset from KIC position	0.024 ± 0.067	0.35	0.009 ± 0.068	-0.022 ± 0.067
photometric centroid source offset	0.03 ± 0.01	4.24	0.03 ± 0.01	0.00 ± 0.01

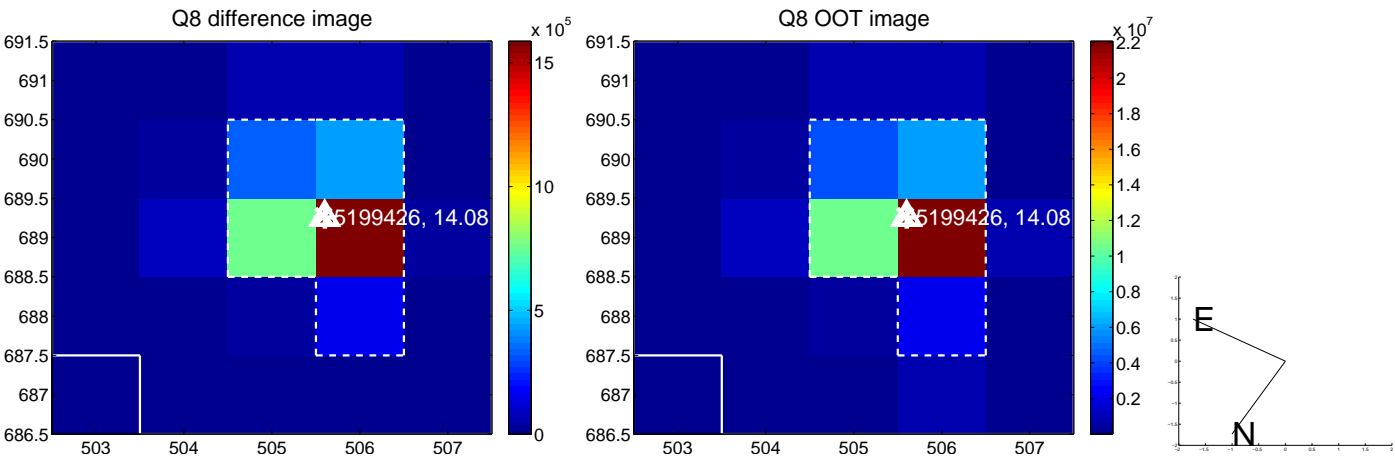
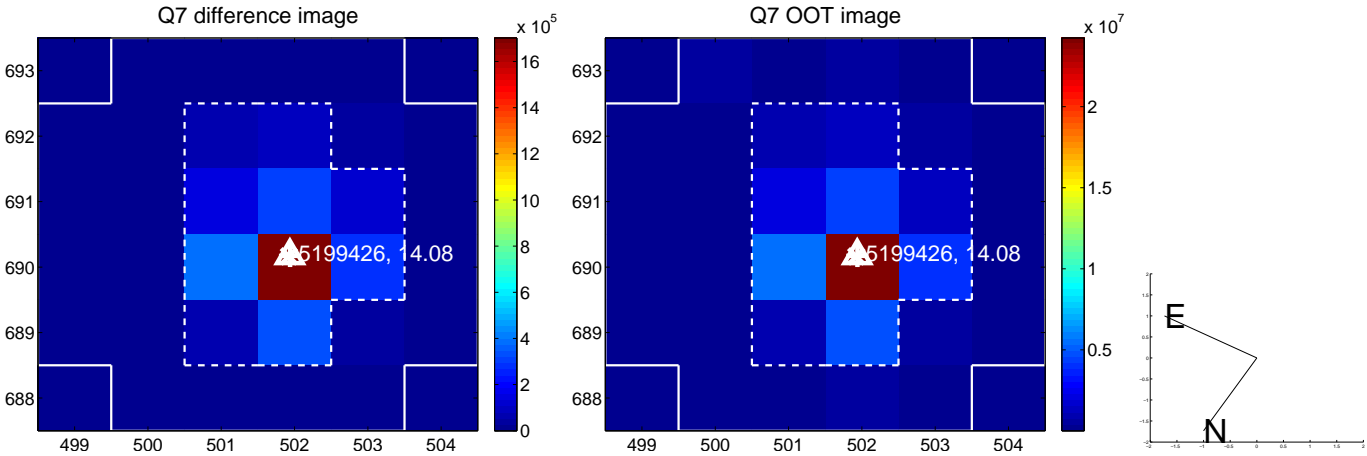
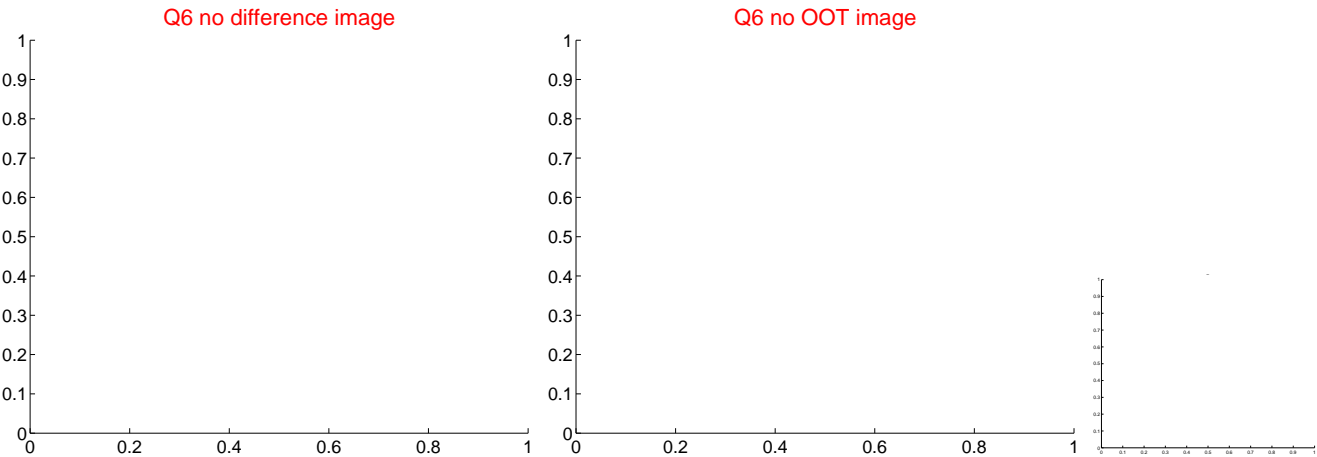
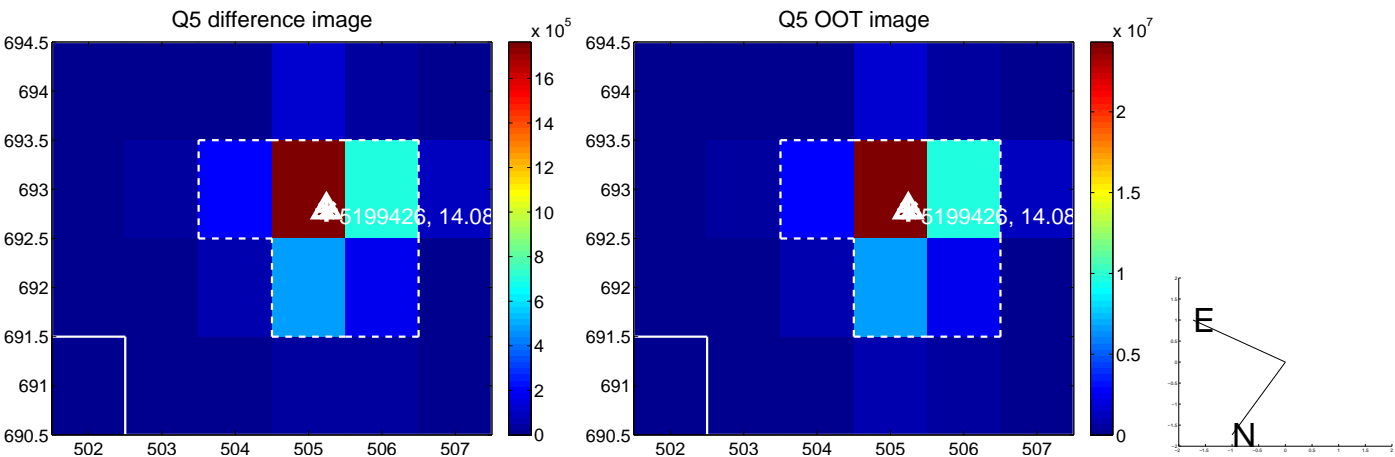


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

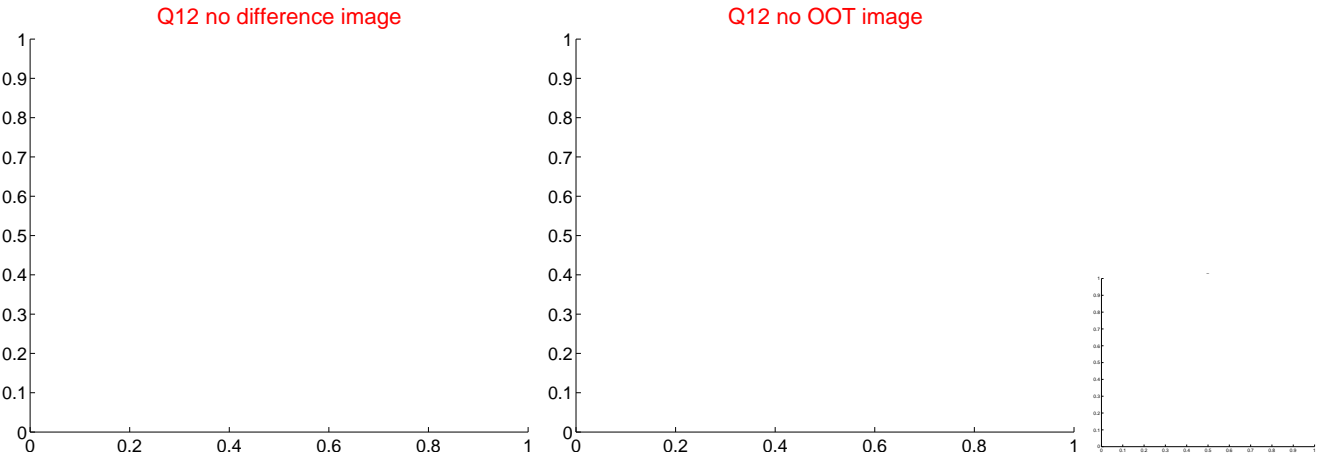
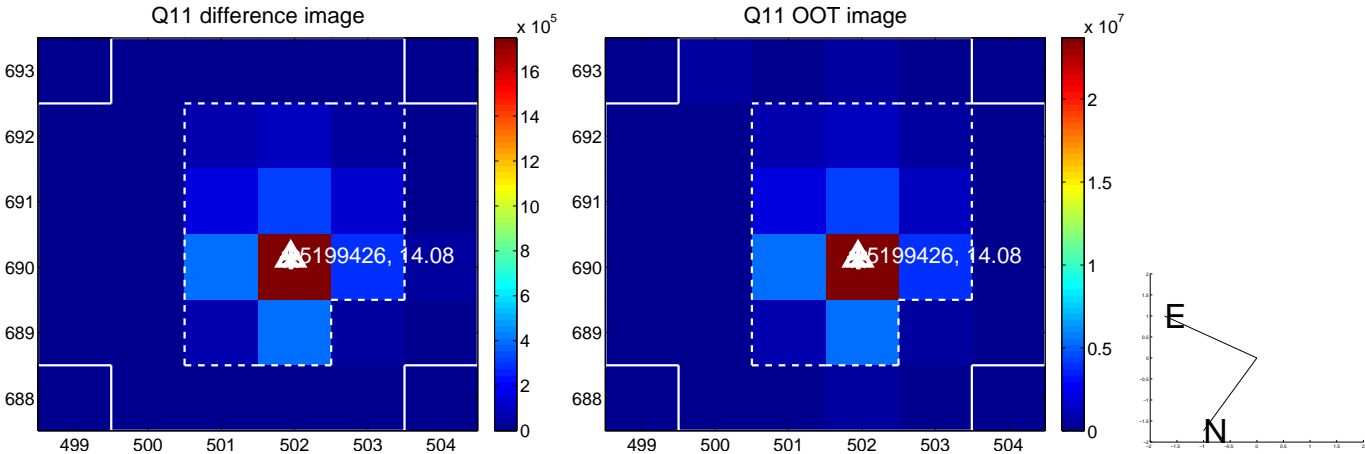
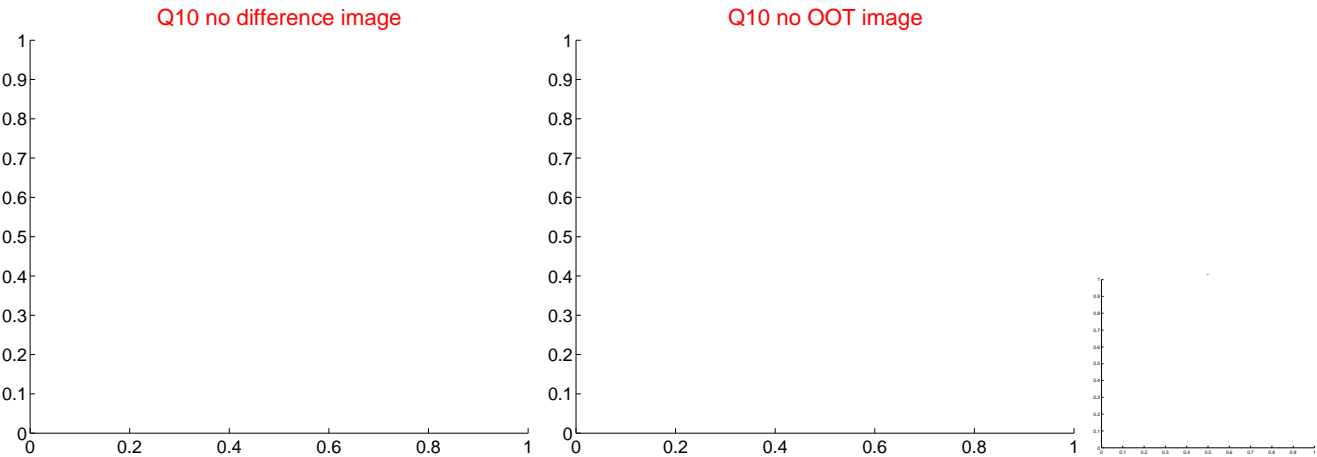
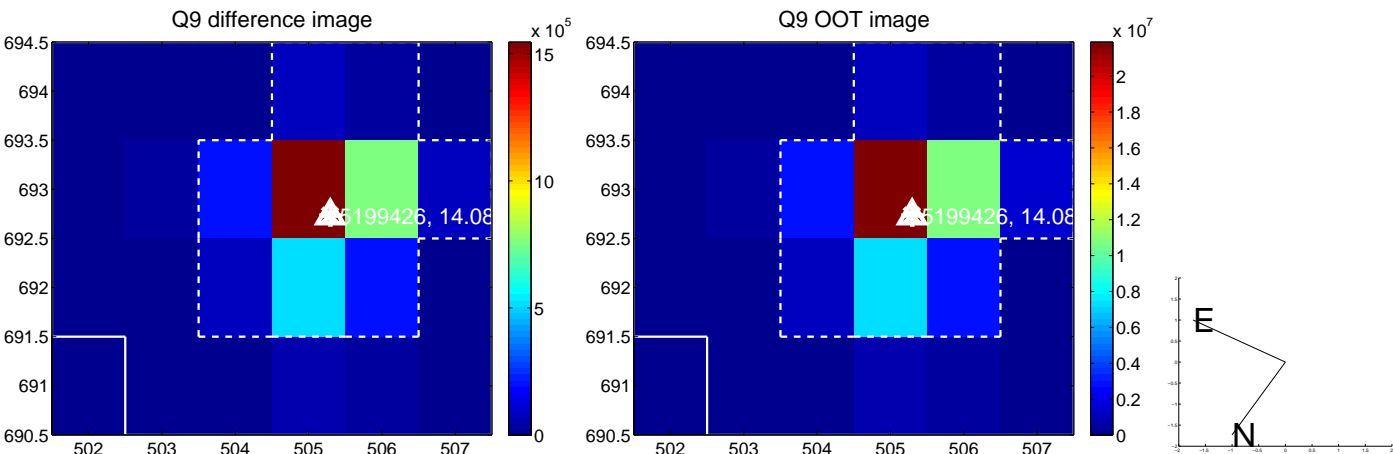
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



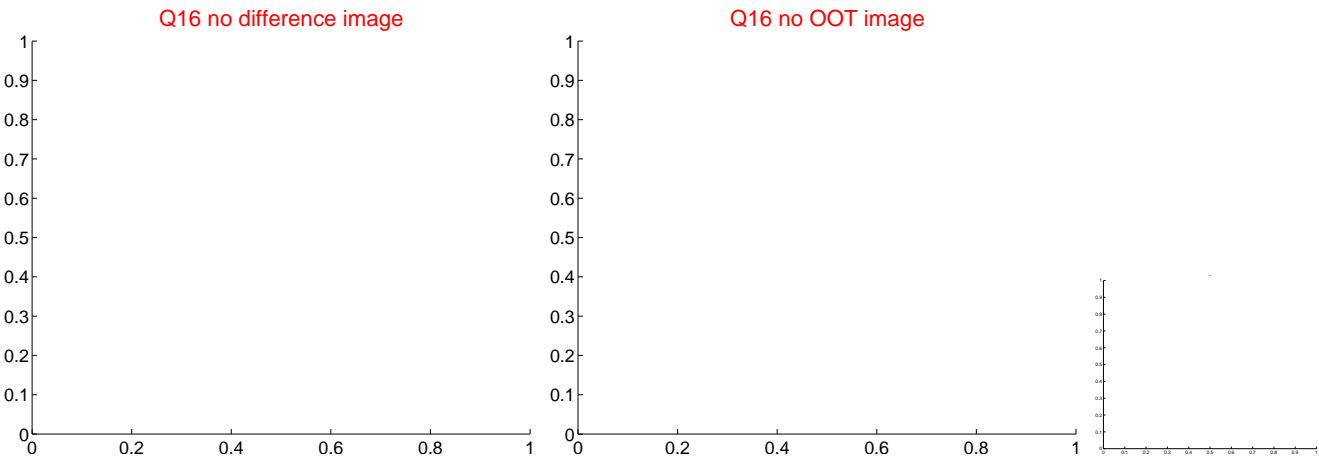
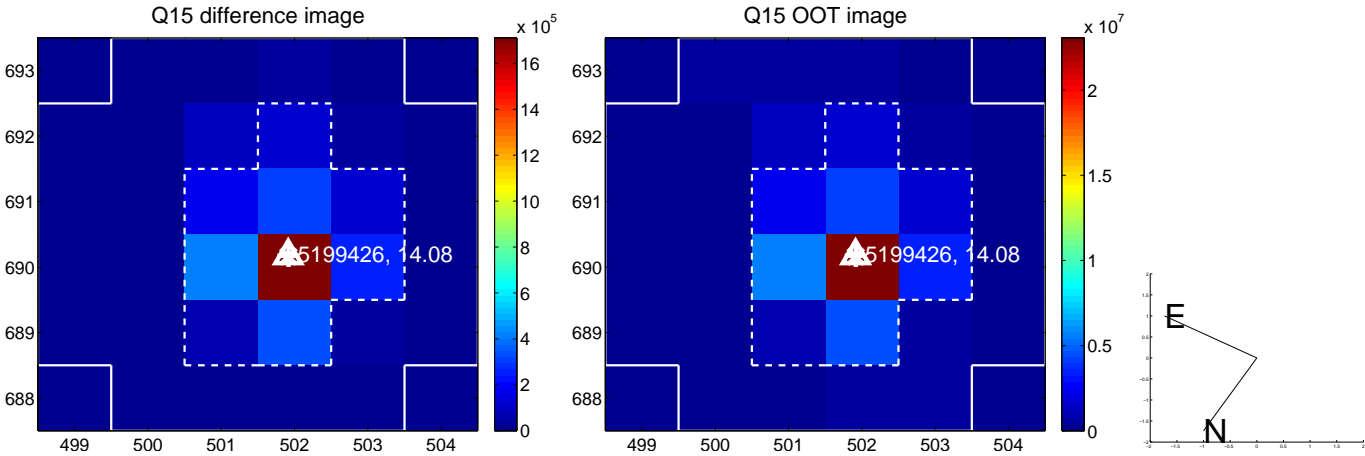
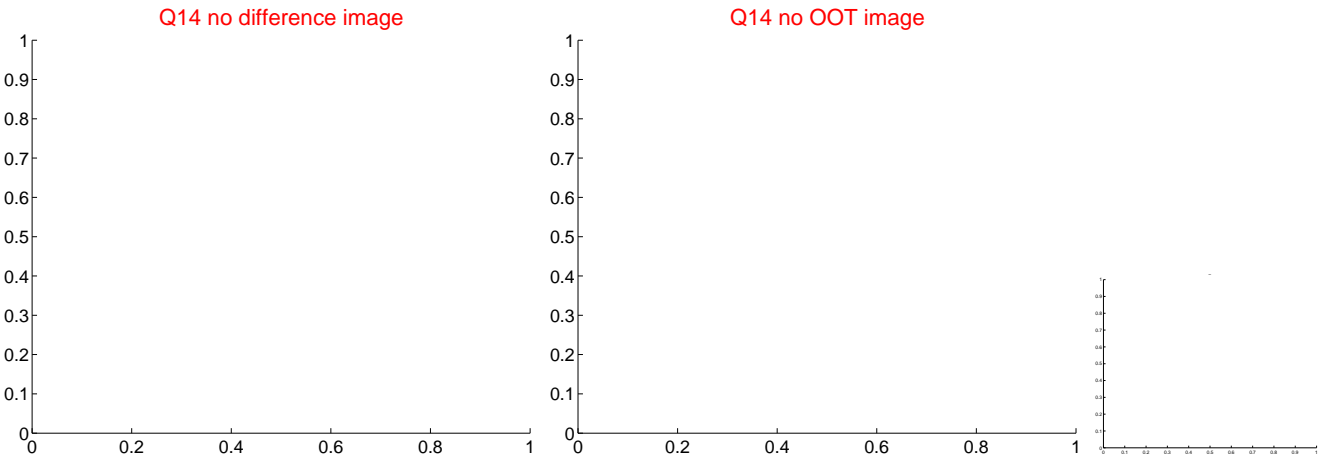
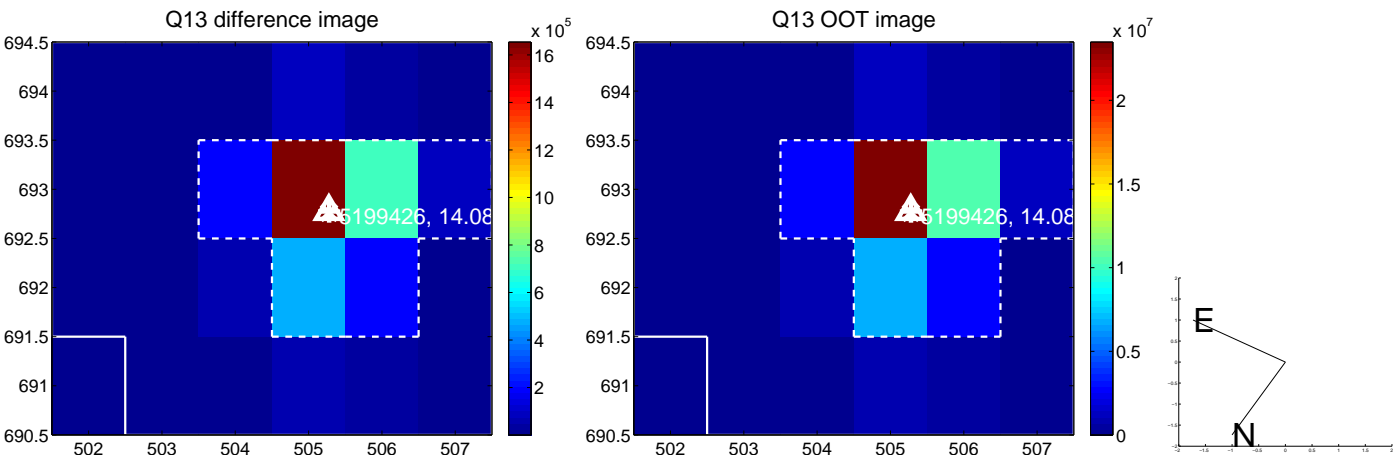
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



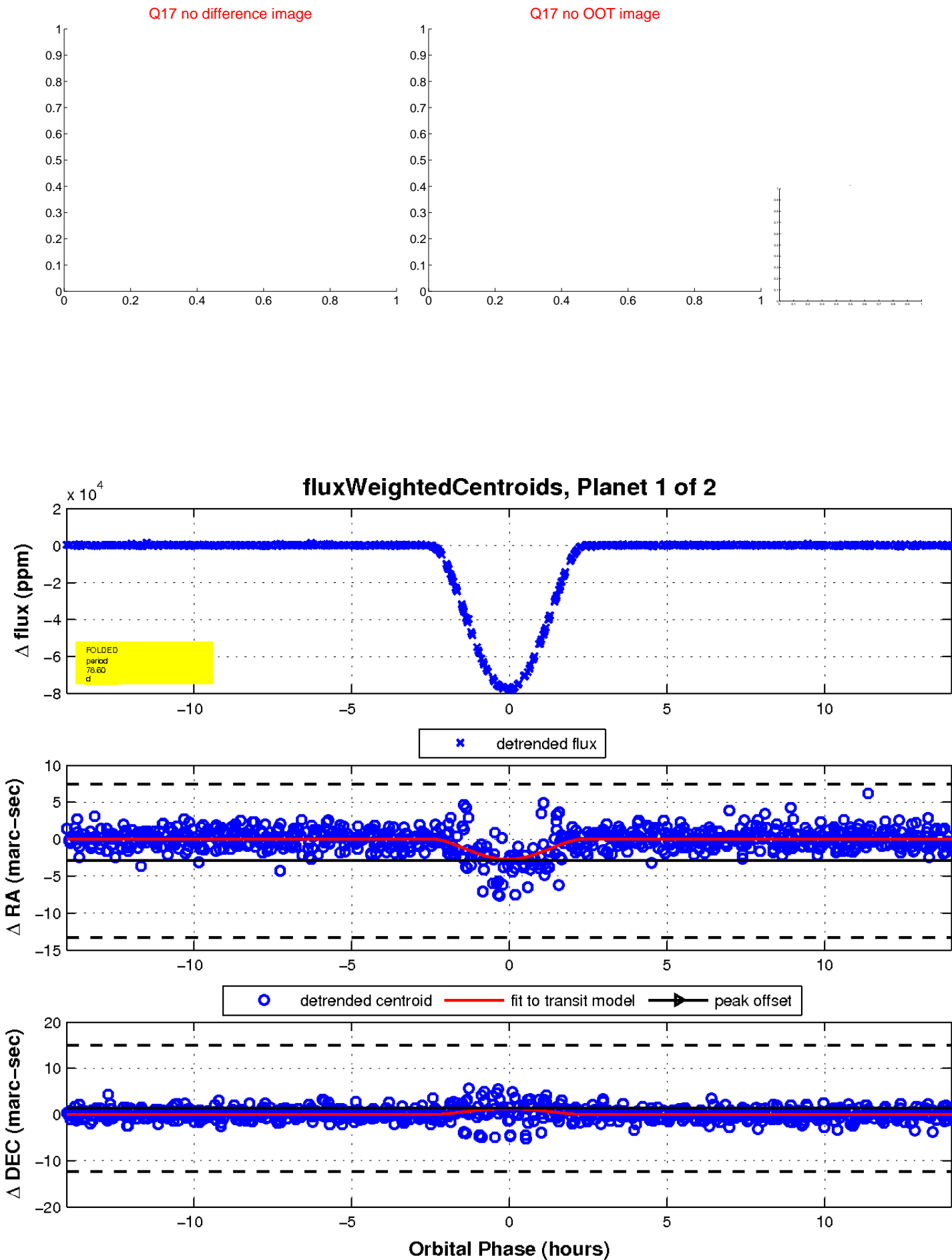
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



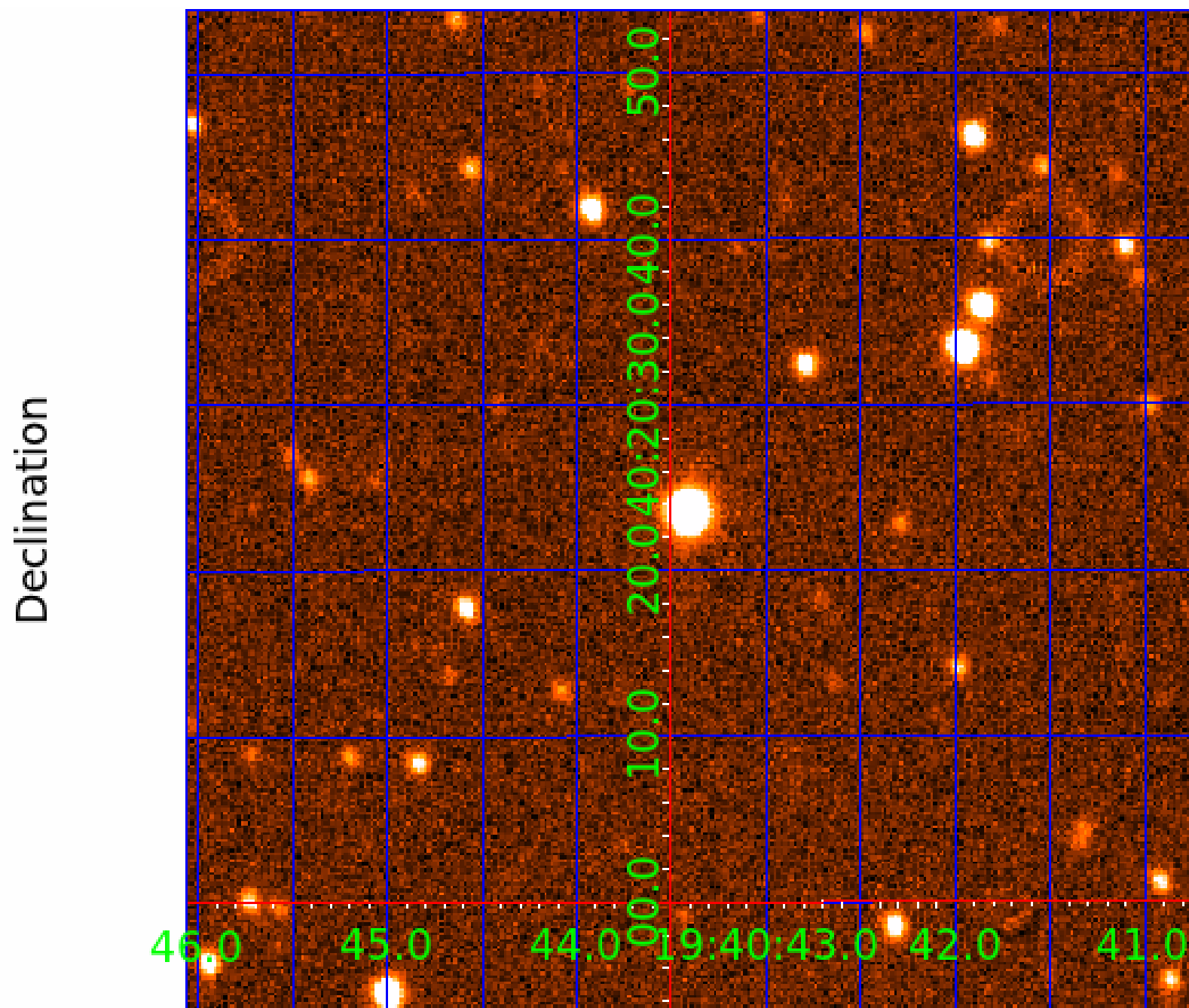
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005199426

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})
005199426-01	OBS	5138.01	78.604360	143.994934	78306.7	4.676	2192.0	2187.3	0.98	5938	39.29	8.69
005199426-02	OBS	No	78.594168	143.814881	253.9	51.193	9.4	11.1	0.98	5938	3.15	8.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005199426-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED
005199426-02	OBS	FP	0.00	1	0	0	0	LPP_DV—RESIDUAL_TCE

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.

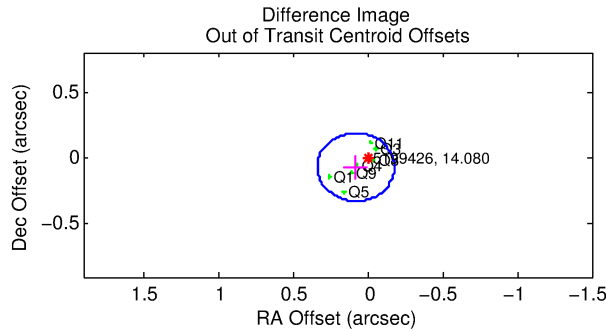
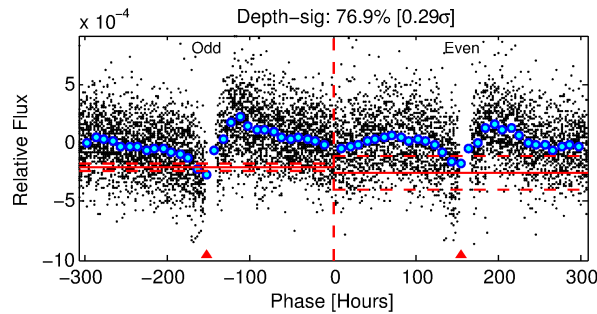
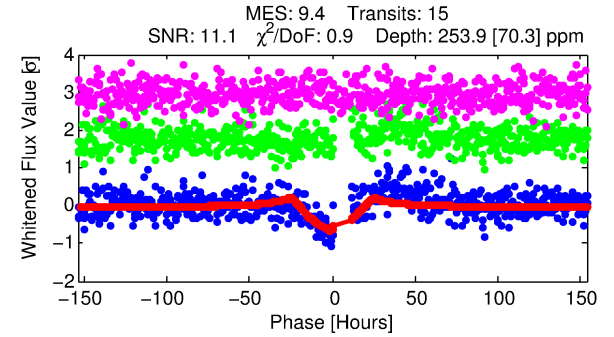
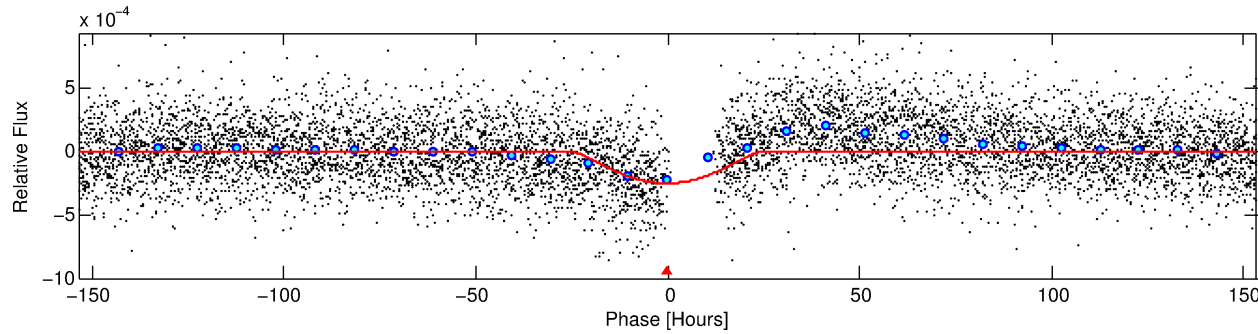
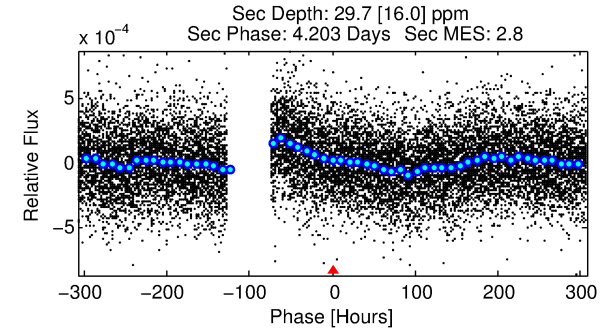
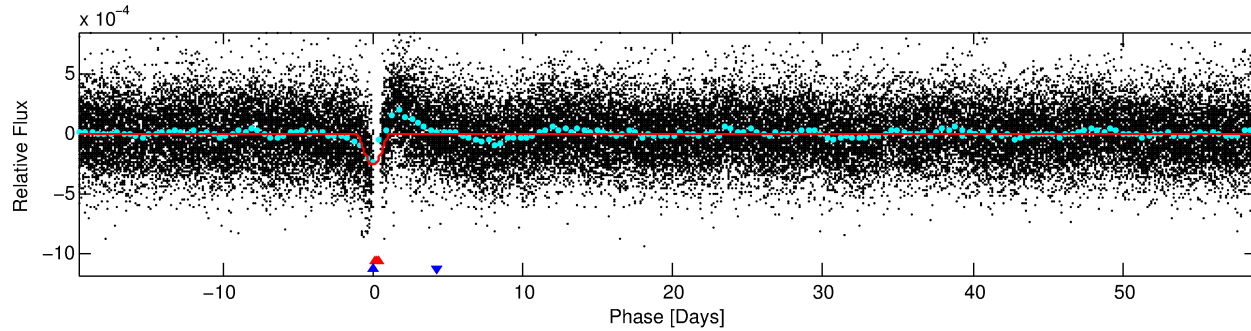
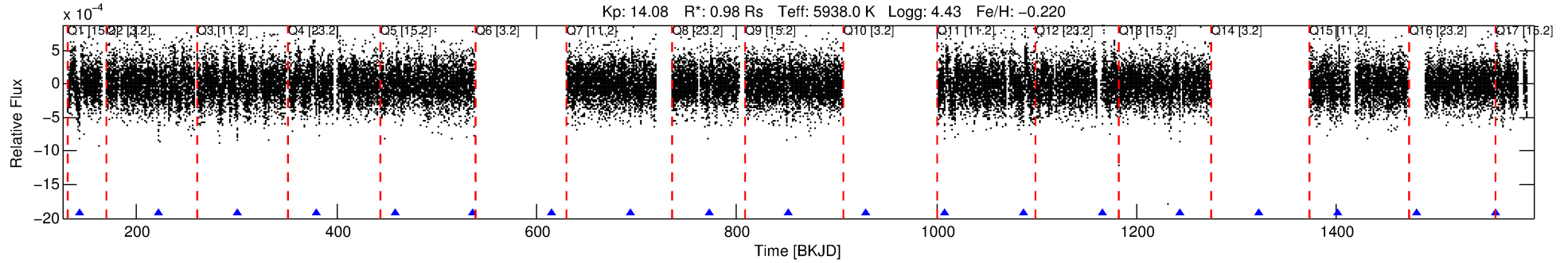
Ephemeris Match Information For 005199426-02

No Significant Match Found

DV One-Page Summary

KIC: 5199426 Candidate: 2 of 2 Period: 78.594 d

KOI: K05138 Corr: No Ephemeris Match



DV Fit Results:

Period = 78.59417 [0.00607] d
Epoch = 143.8149 [0.0583] BKJD
 R_p/R^* = 0.0293 [0.0512]
 a/R^* = 3.04 [1.18]
 b = 1.00 [0.07]
 Seff = 8.69 [3.30]
 T_{eq} = 438 [42] K
 R_p = 3.15 [5.58] R_e
 a = 0.3526 [0.0876] AU
 A_g = 205.07 [728.89] [0.28σ]
 T_{eff} = 2562 [2266] K [0.94σ]

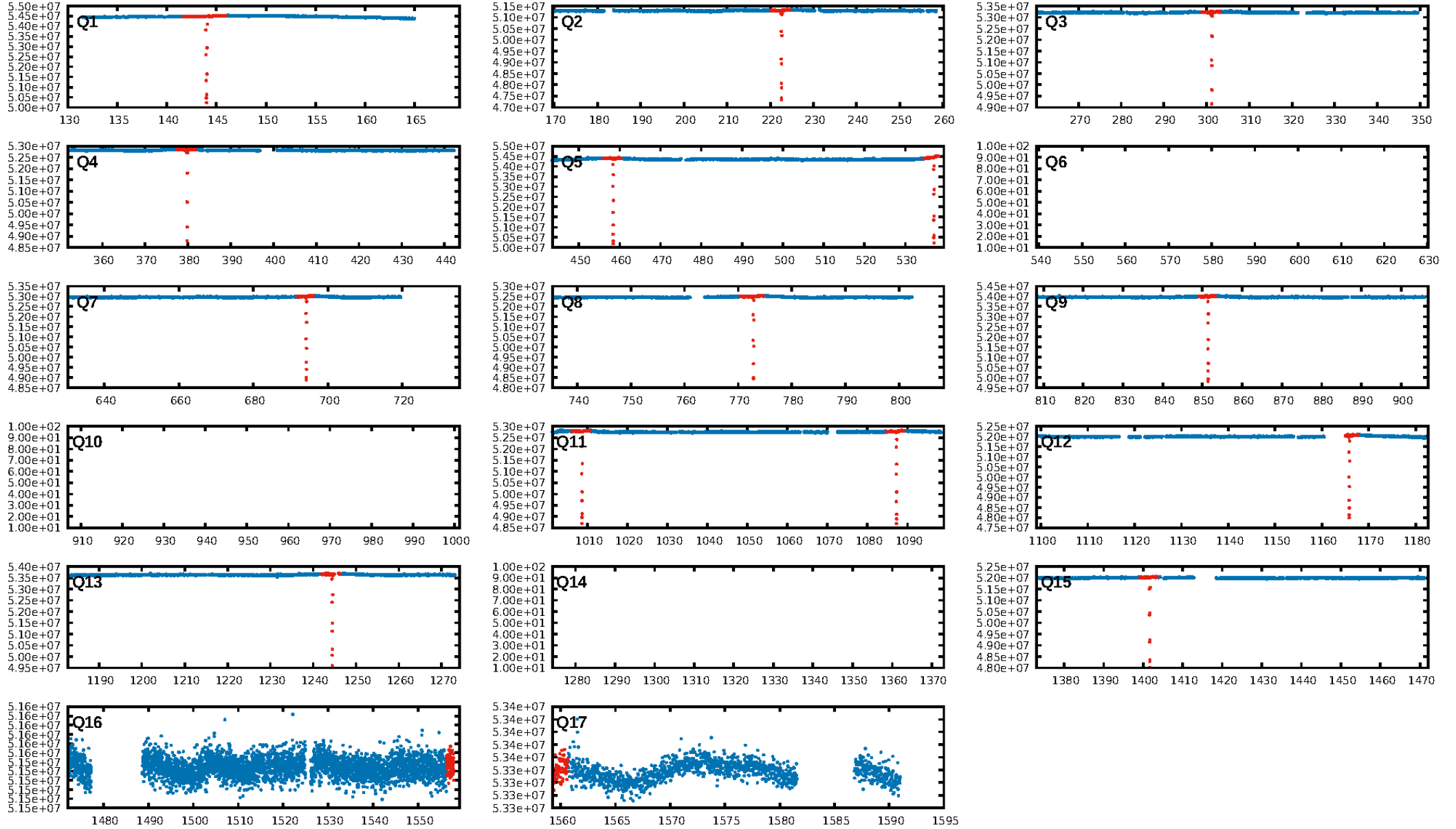
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.4% [0.00σ]
ModelChiSquare2-sig: 35.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.51e-20
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: -3.06
Centroid-sig: 55.3%
Centroid-so: 0.458 arcsec [0.79σ]
OotOffset-rm: 0.105 arcsec [1.22σ]
KicOffset-rm: 0.091 arcsec [1.07σ]
OotOffset-st: 0/2/2/3 [7]
KicOffset-st: 0/2/2/3 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 0.00 [0/7]

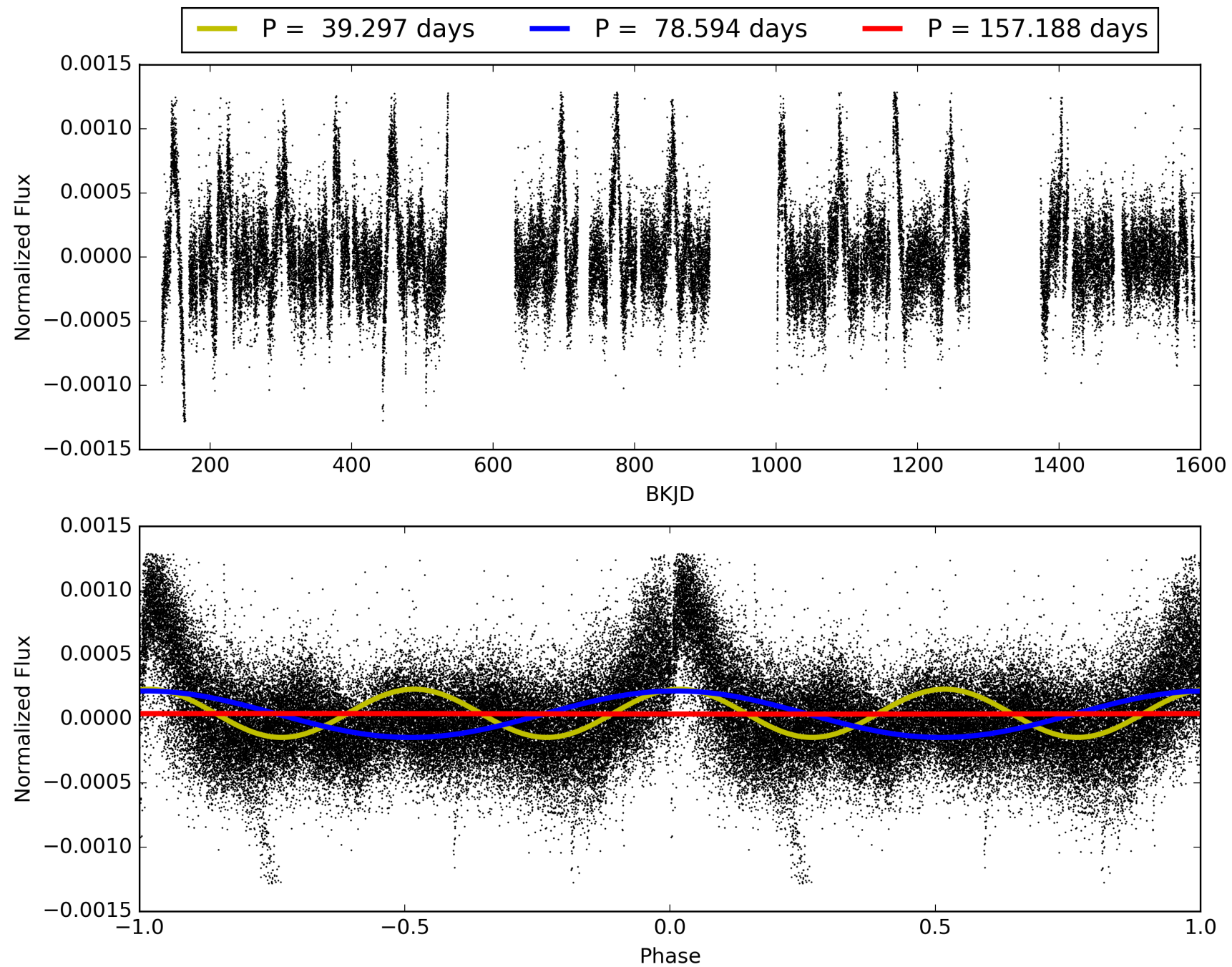
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005199426-02, PDC Light Curves

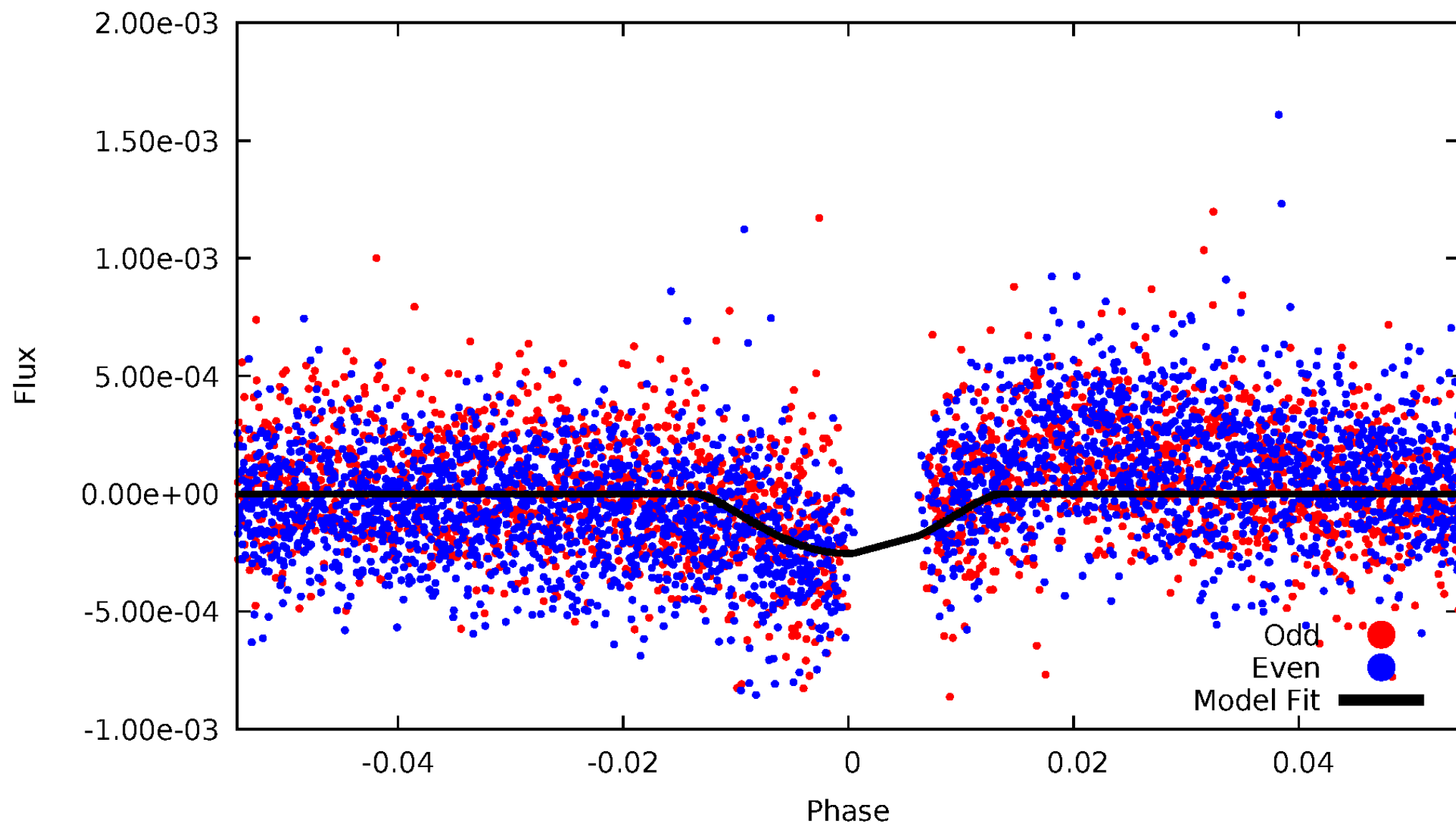


TCE 005199426-02



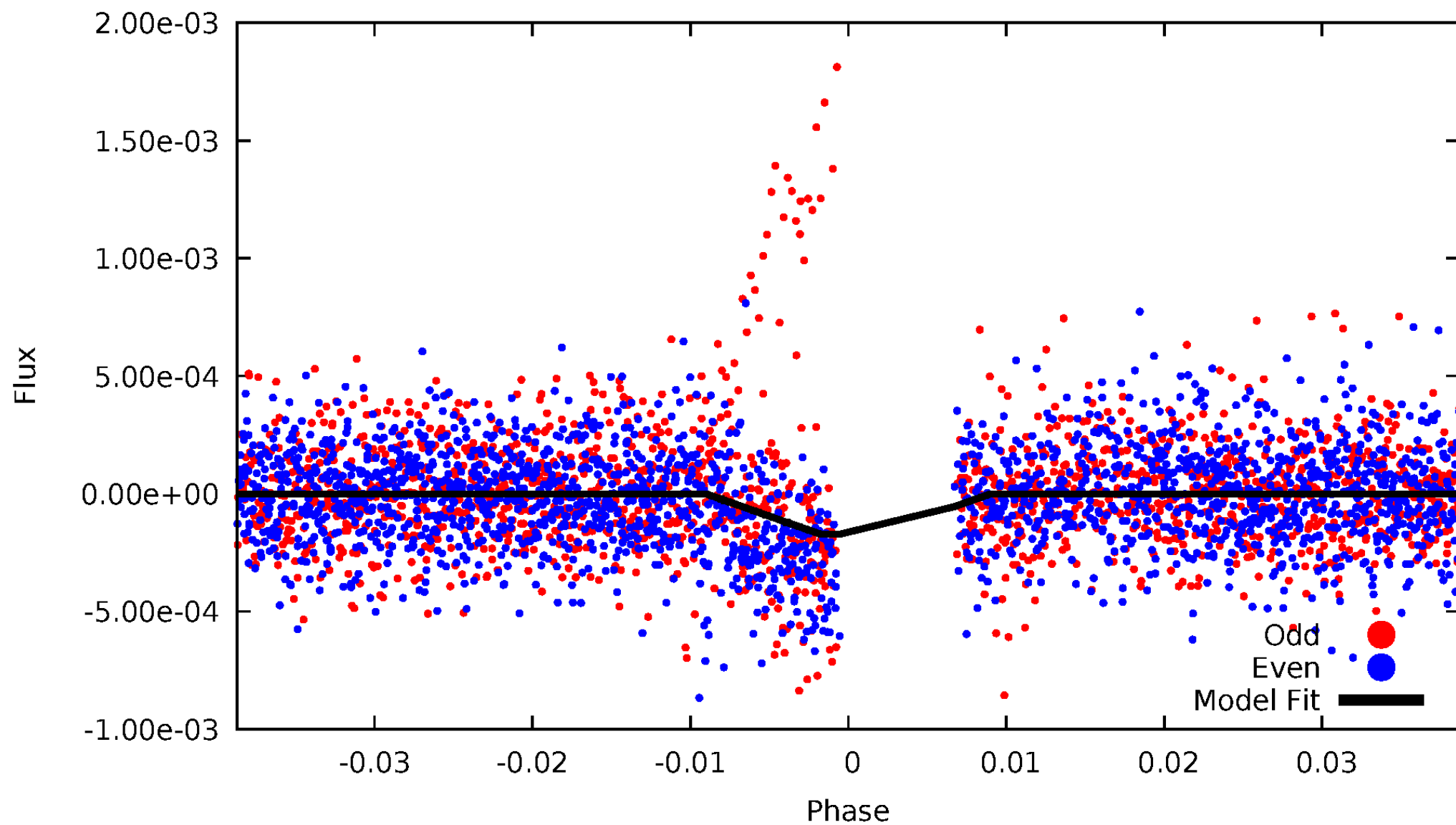
DV Odd/Even

TCE 005199426-02



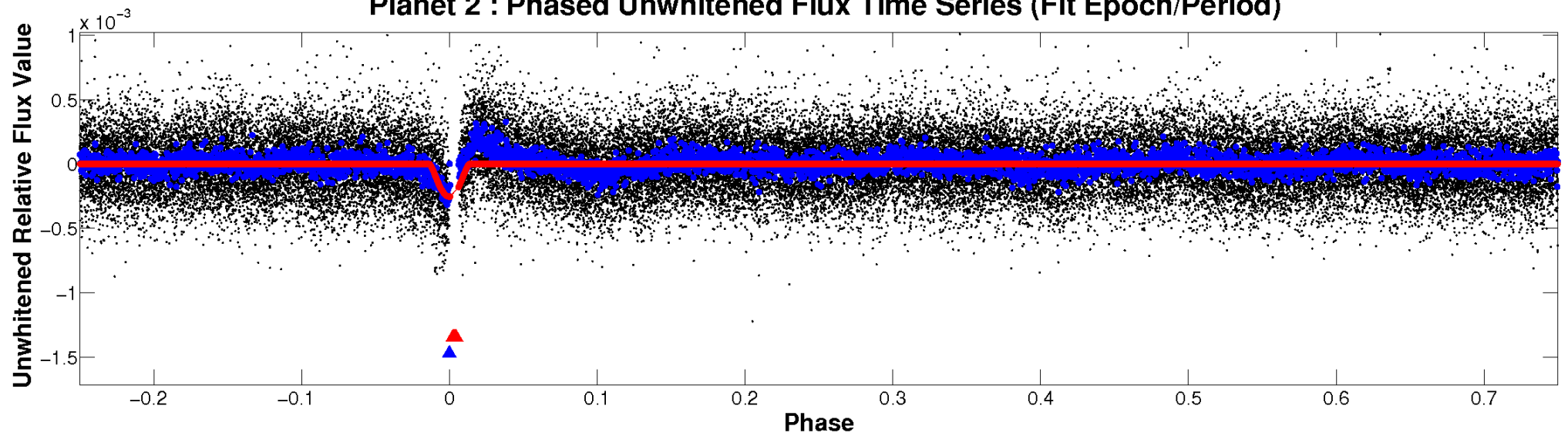
ALT Odd/Even

TCE 005199426-02

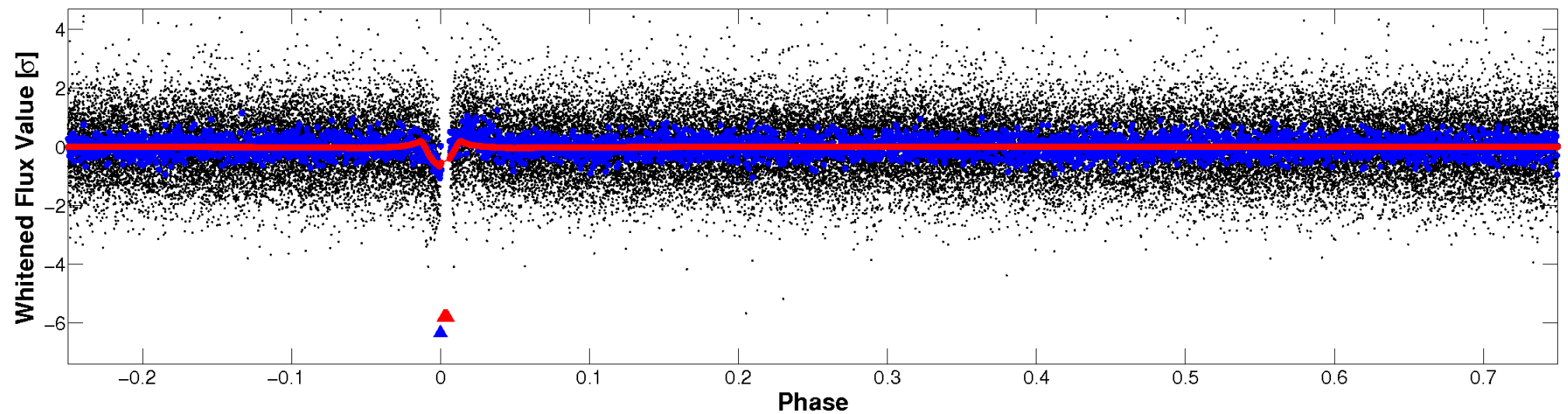


Non-Whitened Vs. Whitened Light Curve

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

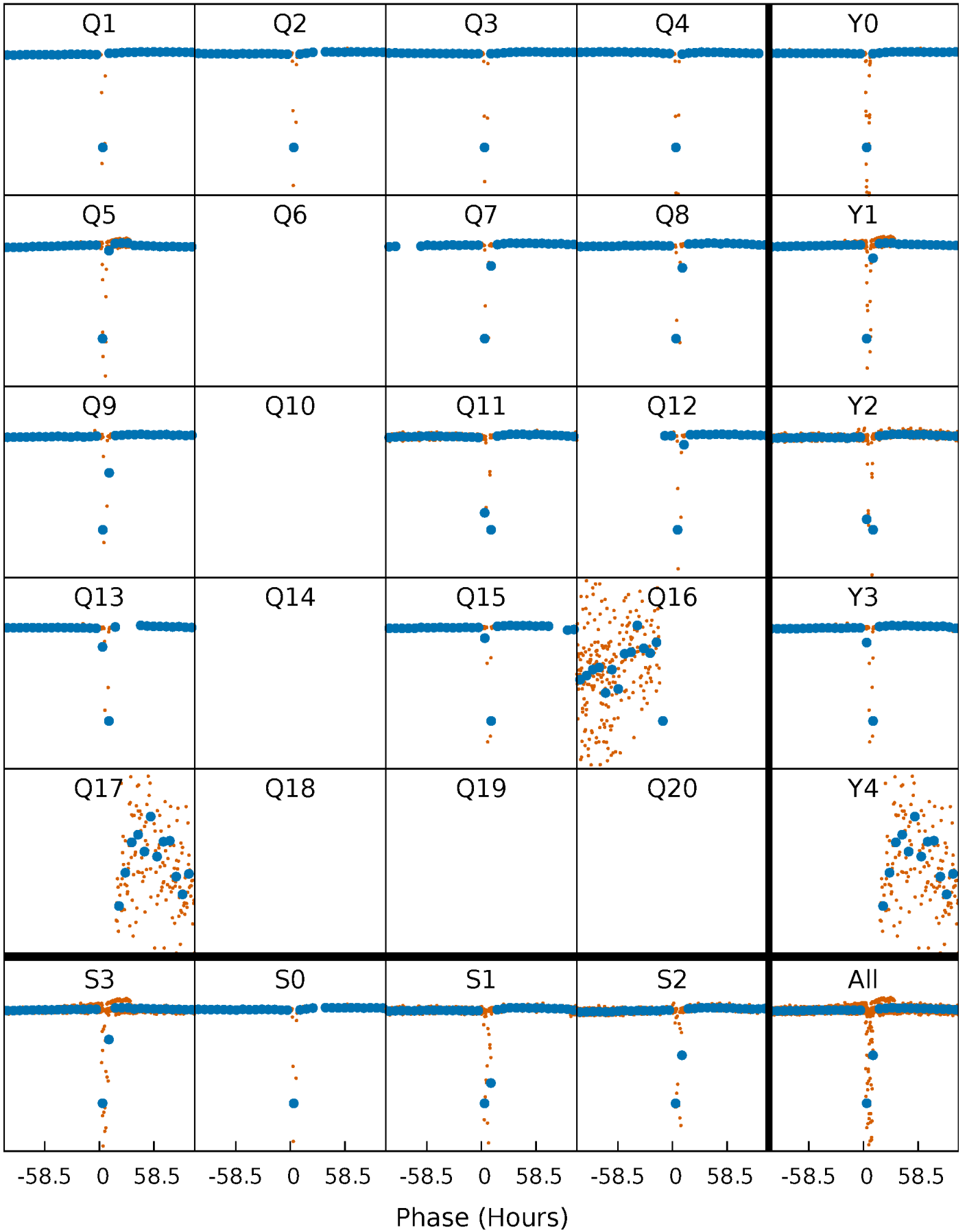


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



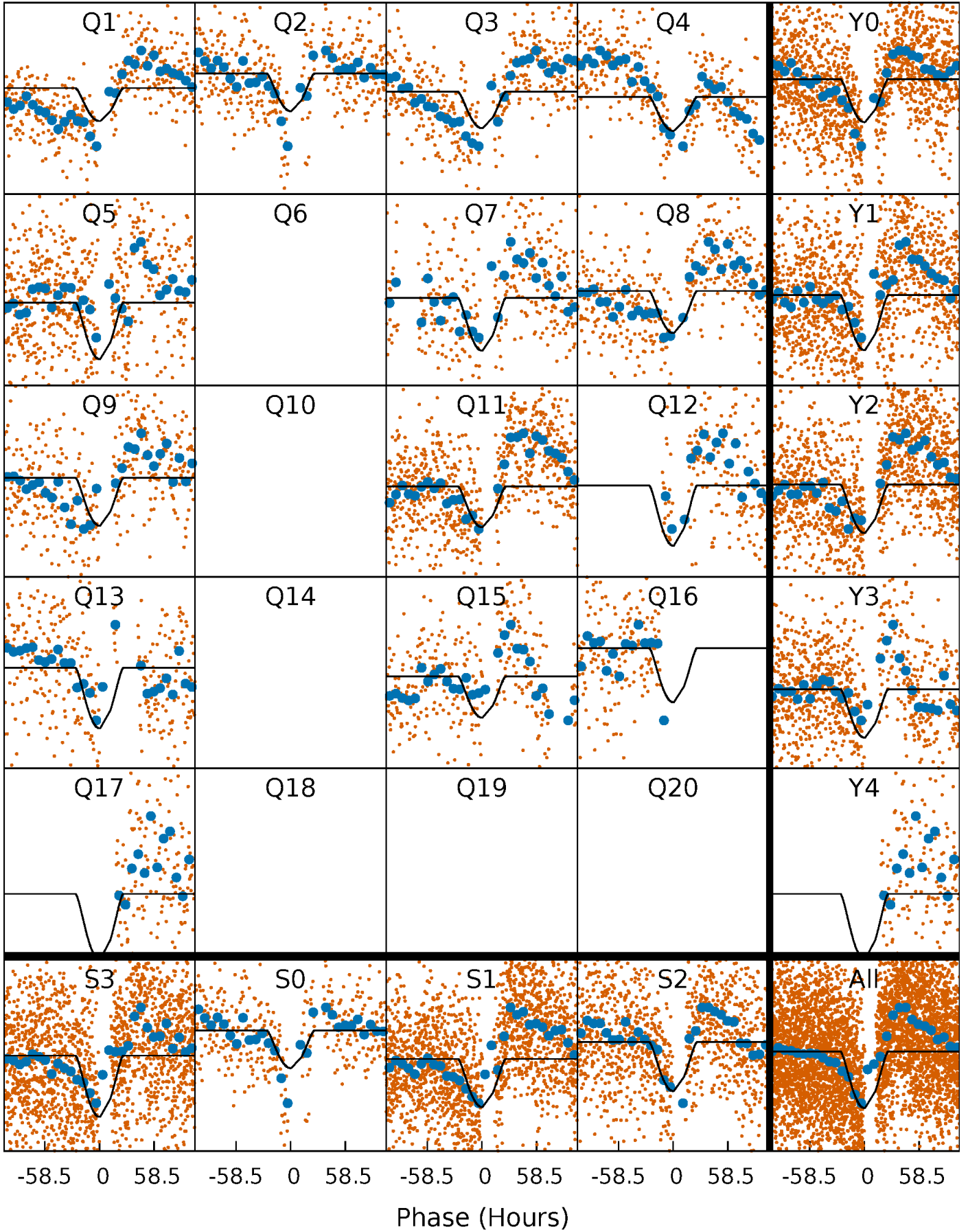
PDC Quarter-Phased Transit Curves

TCE 005199426-02 P= 78.594168 Days $T_0=143.814881$ (BKJD)



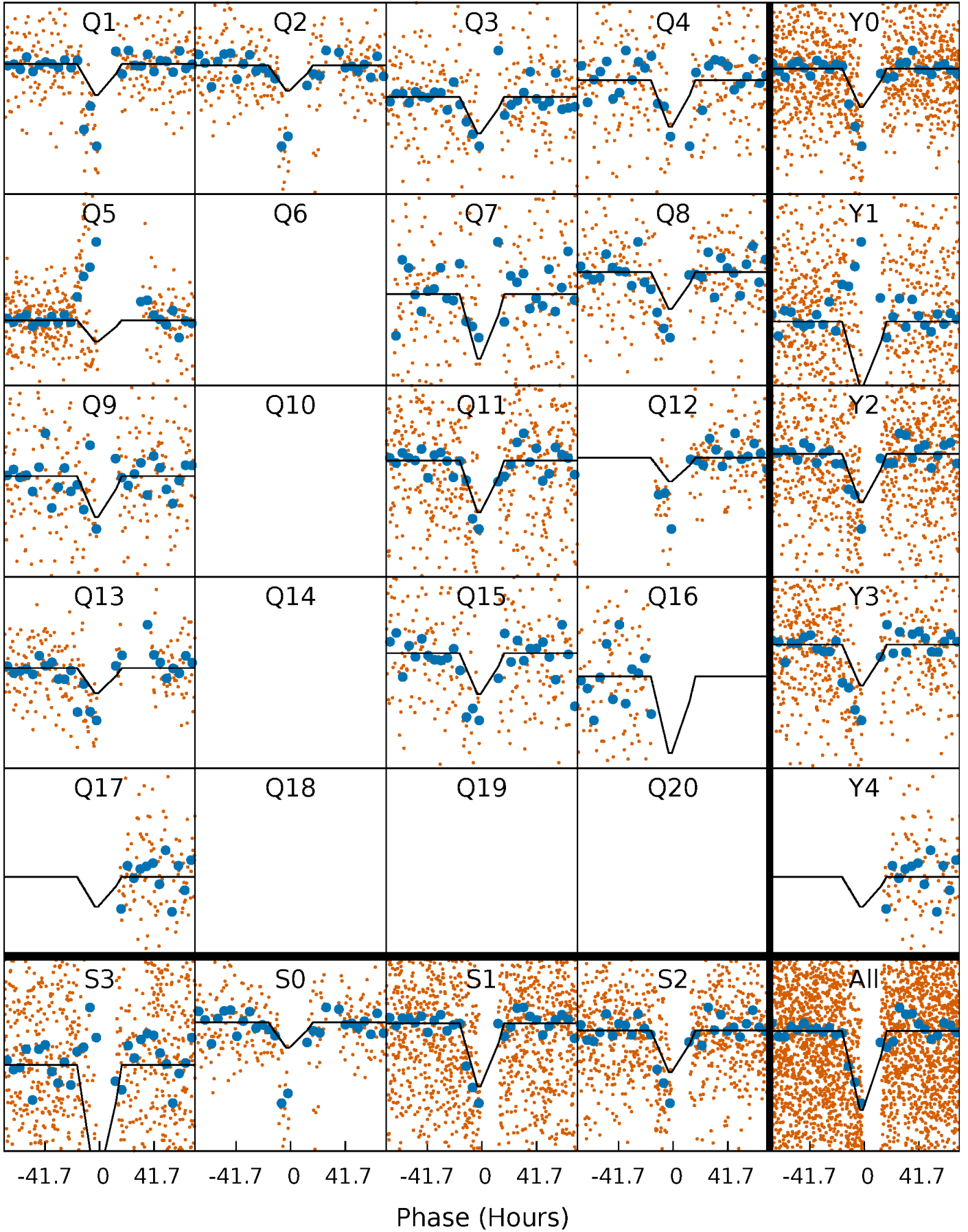
DV Quarter-Phased Transit Curves

TCE 005199426-02 P= 78.594168 Days $T_0=143.814881$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

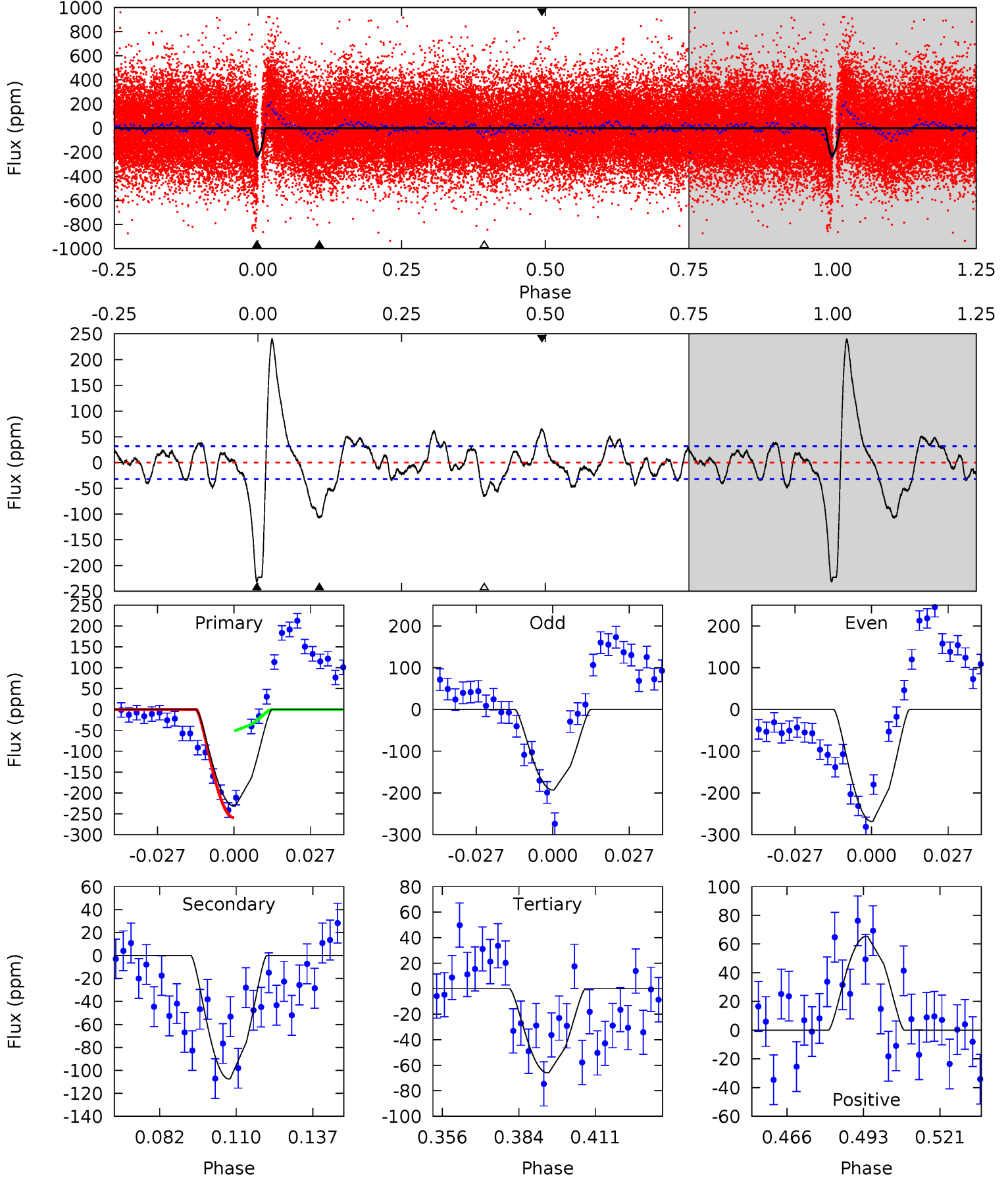
TCE 005199426-02 P= 78.606825 Days $T_0=143.734479$ (BKJD)



DV Model-Shift Uniqueness Test

005199426-02, P = 78.594168 Days, E = 65.220713 Days

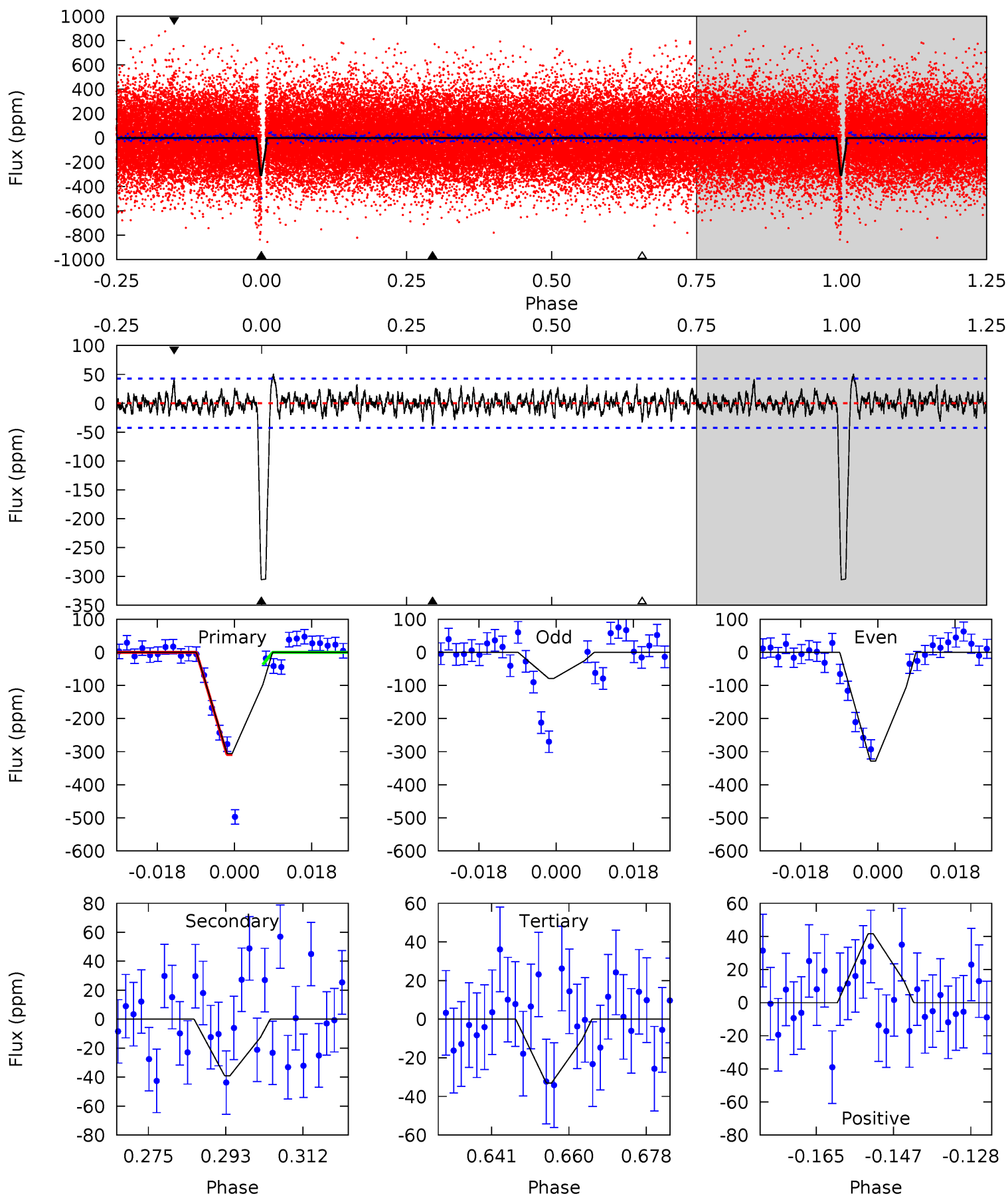
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.0	16.2	9.96	9.87	4.83	2.21	5.27	25.0	25.1	6.26	6.35	5.67	0.94	0.51	14.9



Alt Model-Shift Uniqueness Test

005199426-02, P = 78.606825 Days, E = 65.127654 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.2	4.50	3.80	4.79	4.91	2.36	1.31	31.4	30.4	0.70	-0.28	14.3	0.96	0.14	12.8



Stellar Parameters For KIC 005199426

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5938^{+160}_{-178}	$4.427^{+0.098}_{-0.196}$	$-0.220^{+0.300}_{-0.300}$	$0.985^{+0.292}_{-0.125}$	$0.947^{+0.129}_{-0.103}$	$1.394^{+0.624}_{-0.737}$
	+3%/-3%	+2%/-4%	+136%/-136%	+30%/-13%	+14%/-11%	+45%/-53%
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 005199426-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-107 ± 7	$5.38^{+4.88}_{-3.68}$	620^{+47}_{-35}	3306^{+1693}_{-572}	247^{+2365}_{-177}
Alt.	-39 ± 9	$4.26^{+4.67}_{-2.75}$	615^{+46}_{-32}	3031^{+1270}_{-536}	148^{+1105}_{-114}

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

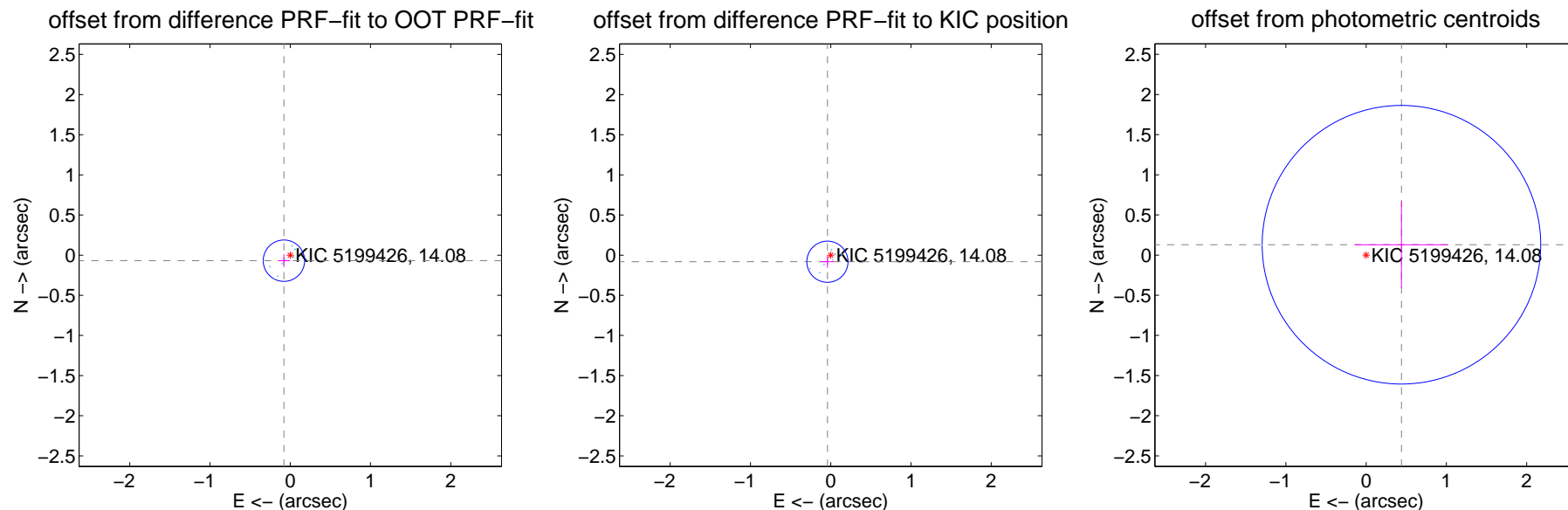
DV Centroid Data

Supplemental centroid analysis for 005199426-02. Kepler magnitude: 14.08. Transit SNR 11.06

There are 7 quarters with good PRF difference image offsets

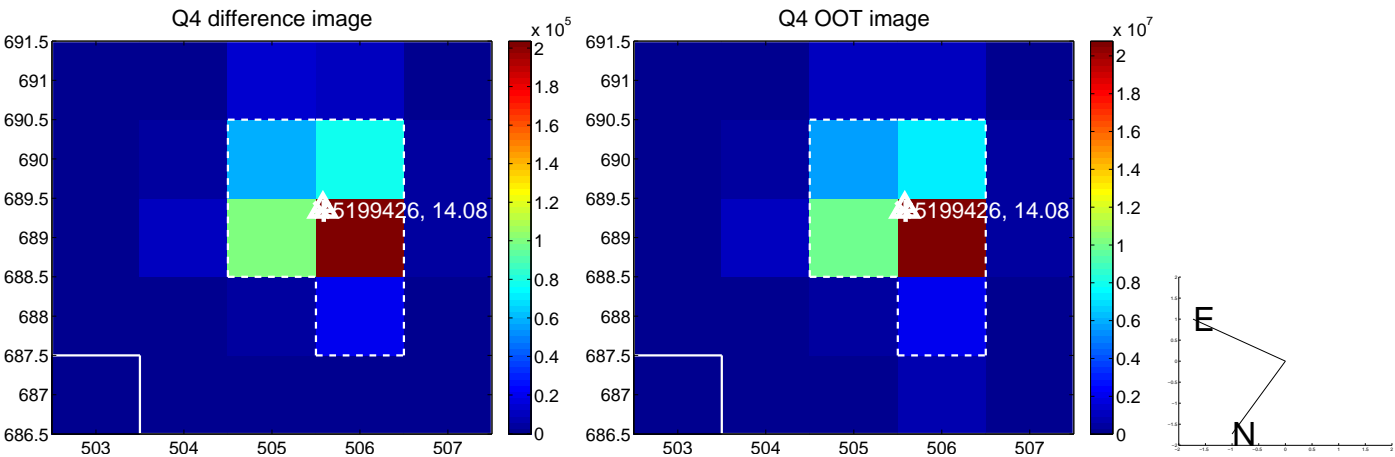
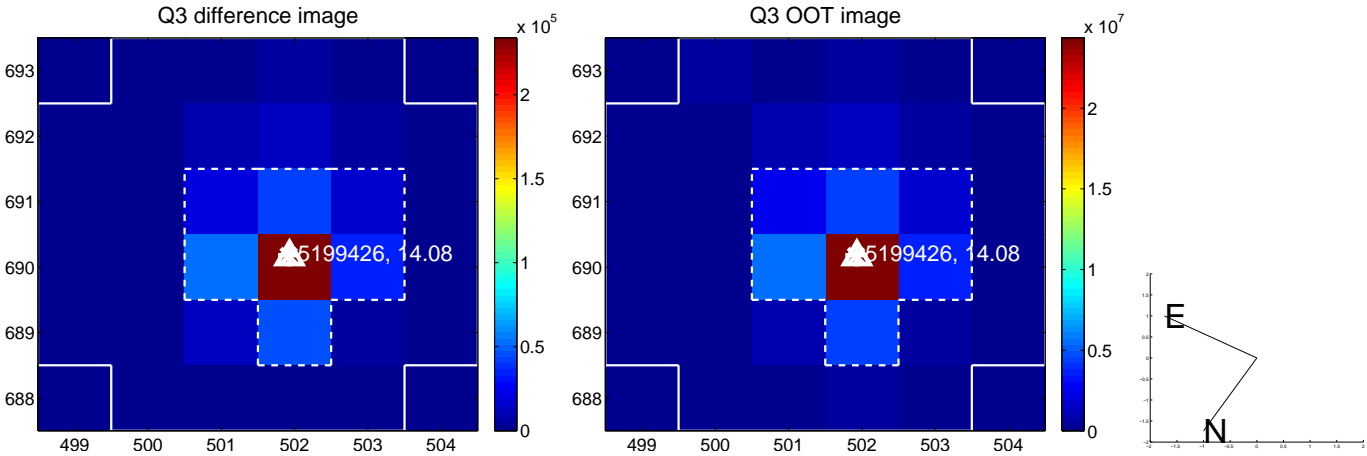
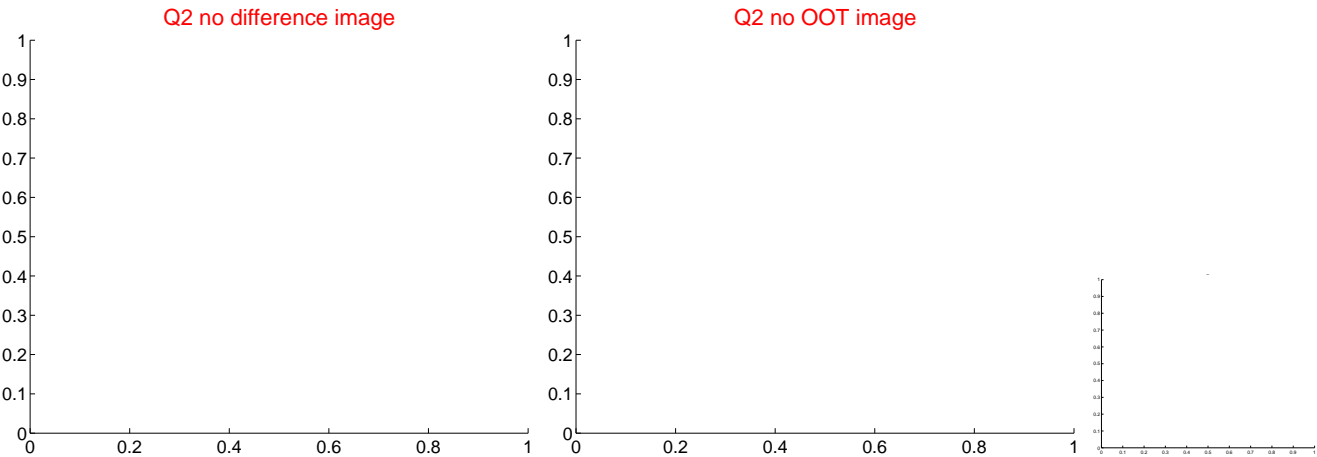
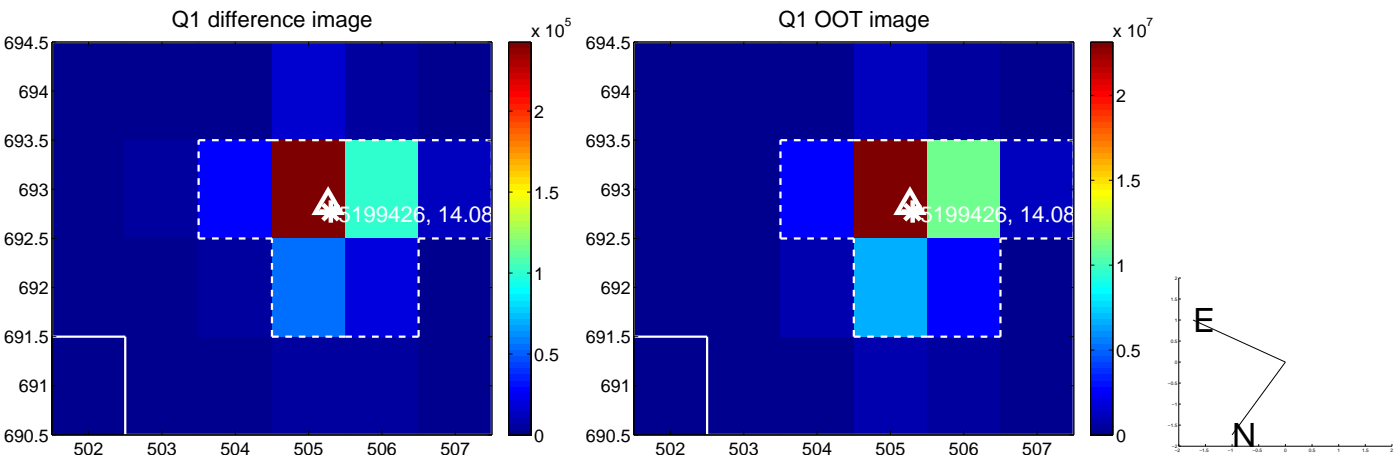
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.105 ± 0.086	1.22	0.079 ± 0.077	-0.069 ± 0.081
PRF-fit source offset from KIC position	0.091 ± 0.085	1.07	0.041 ± 0.084	-0.082 ± 0.076
photometric centroid source offset	0.46 ± 0.58	0.79	-0.44 ± 0.58	0.13 ± 0.54

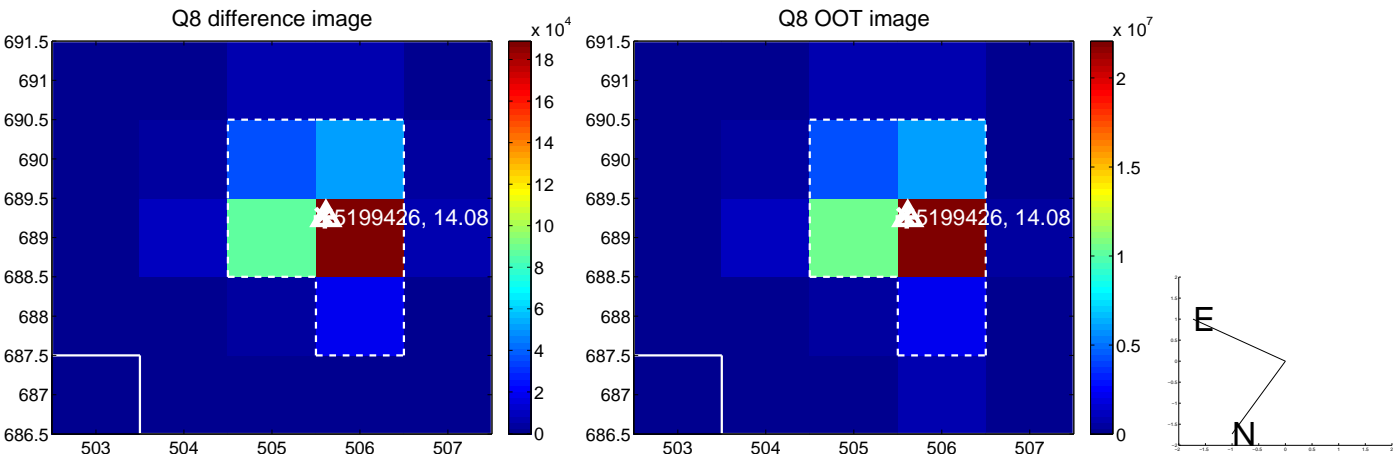
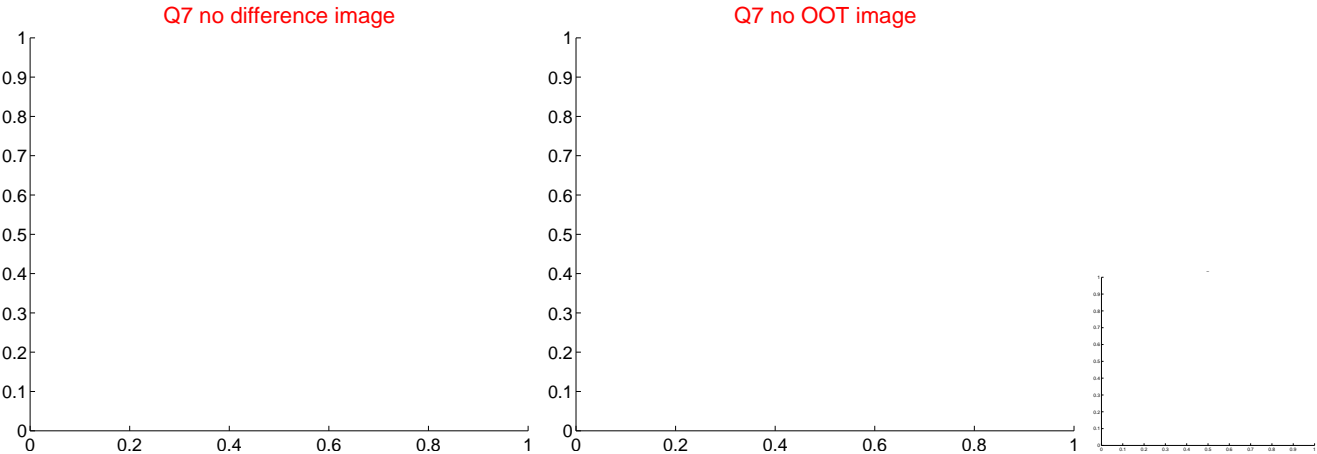
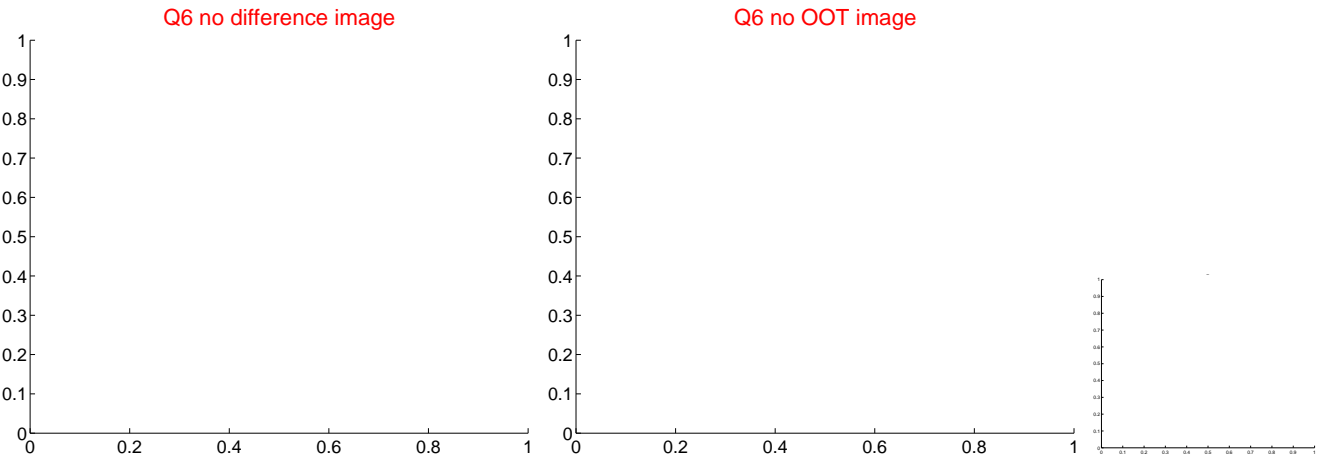
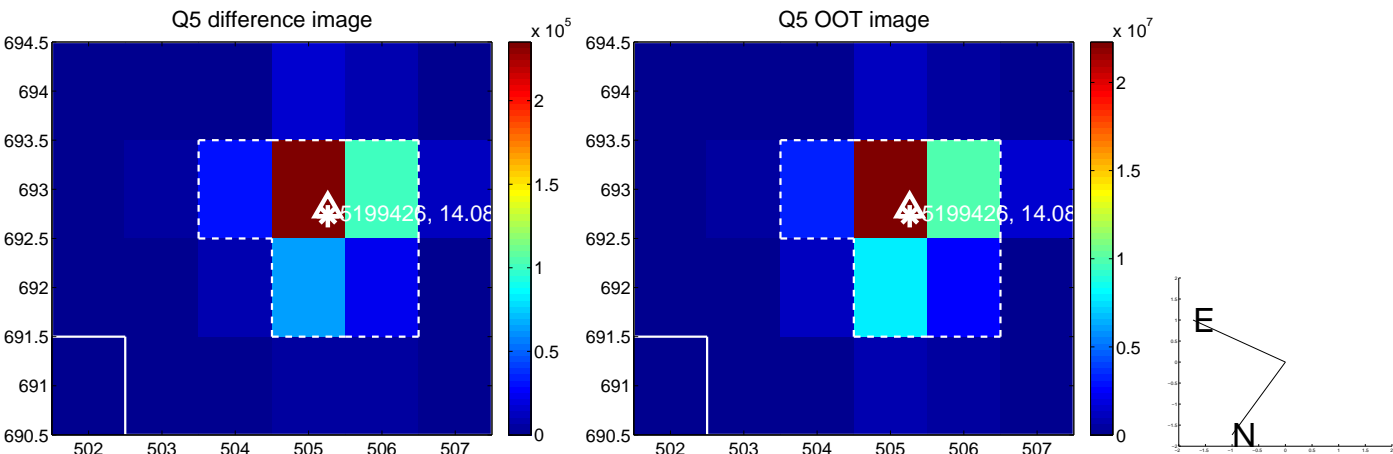


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

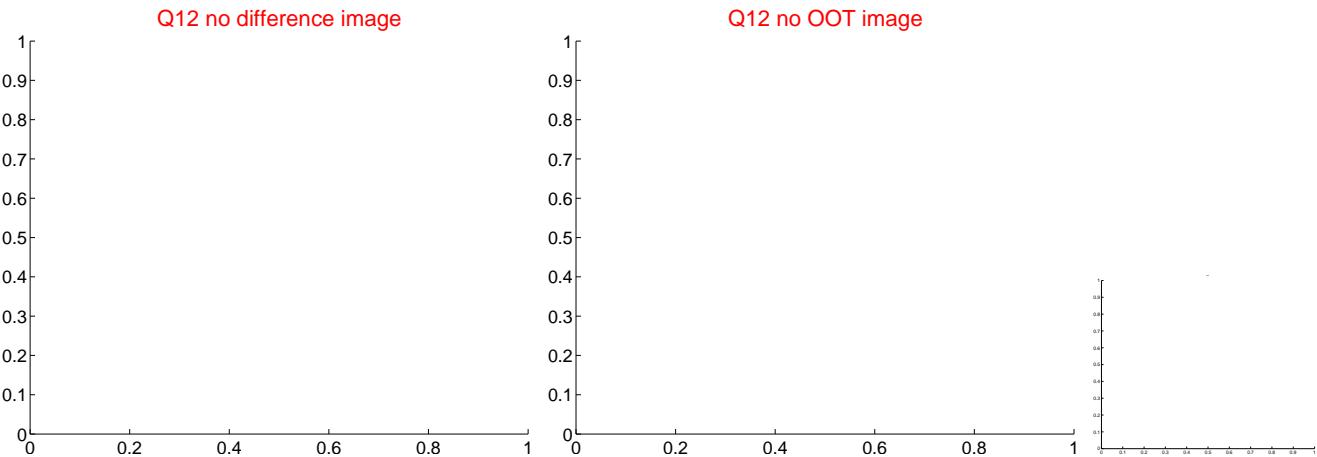
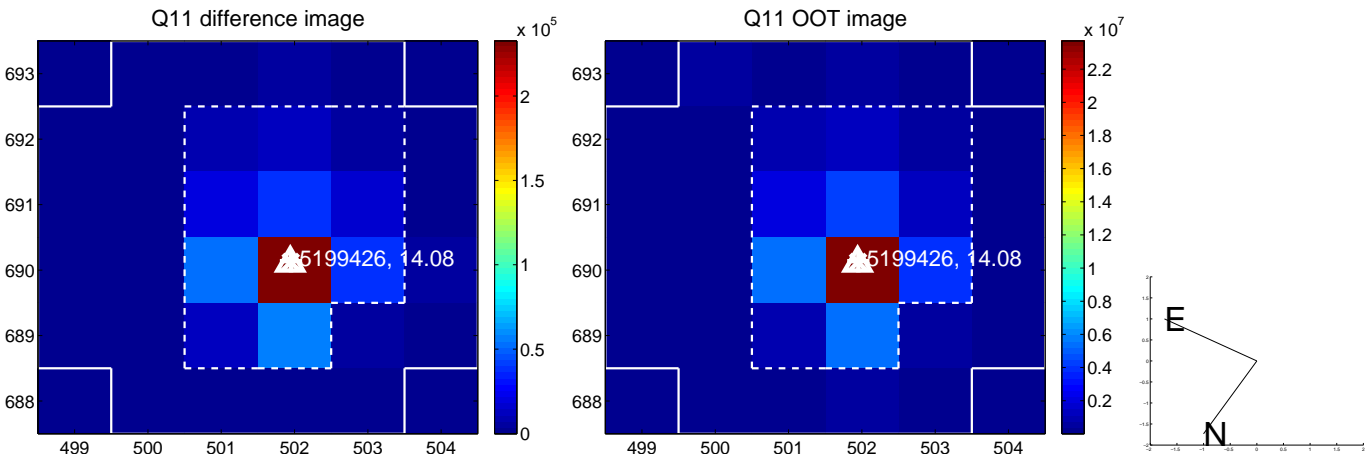
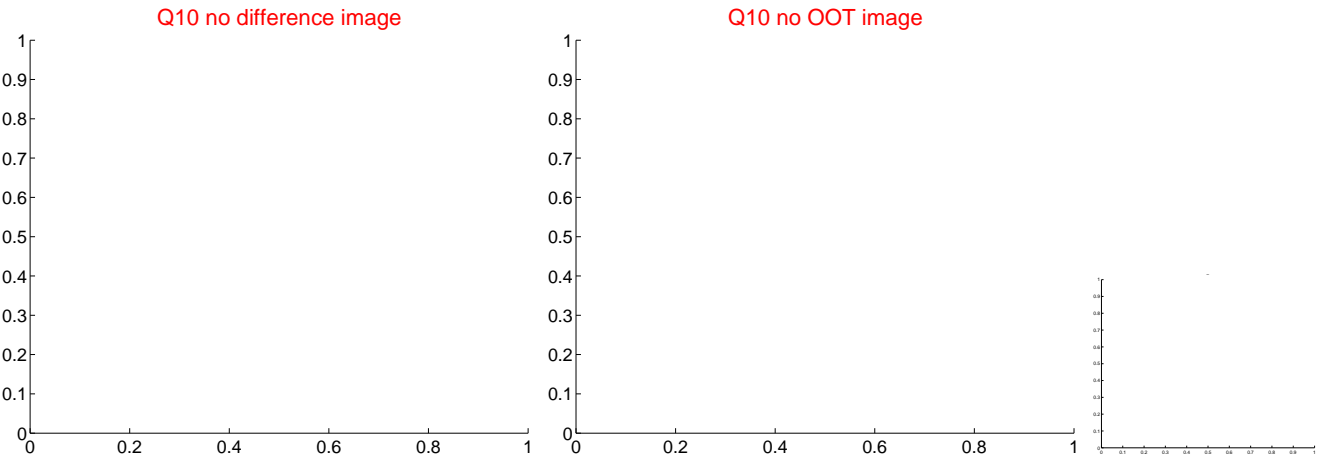
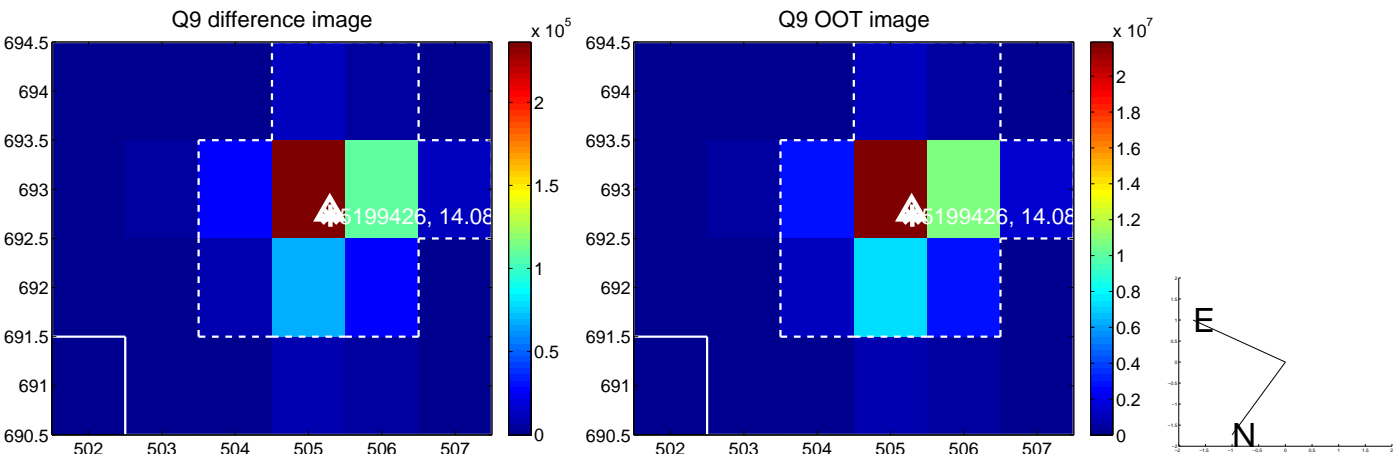
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



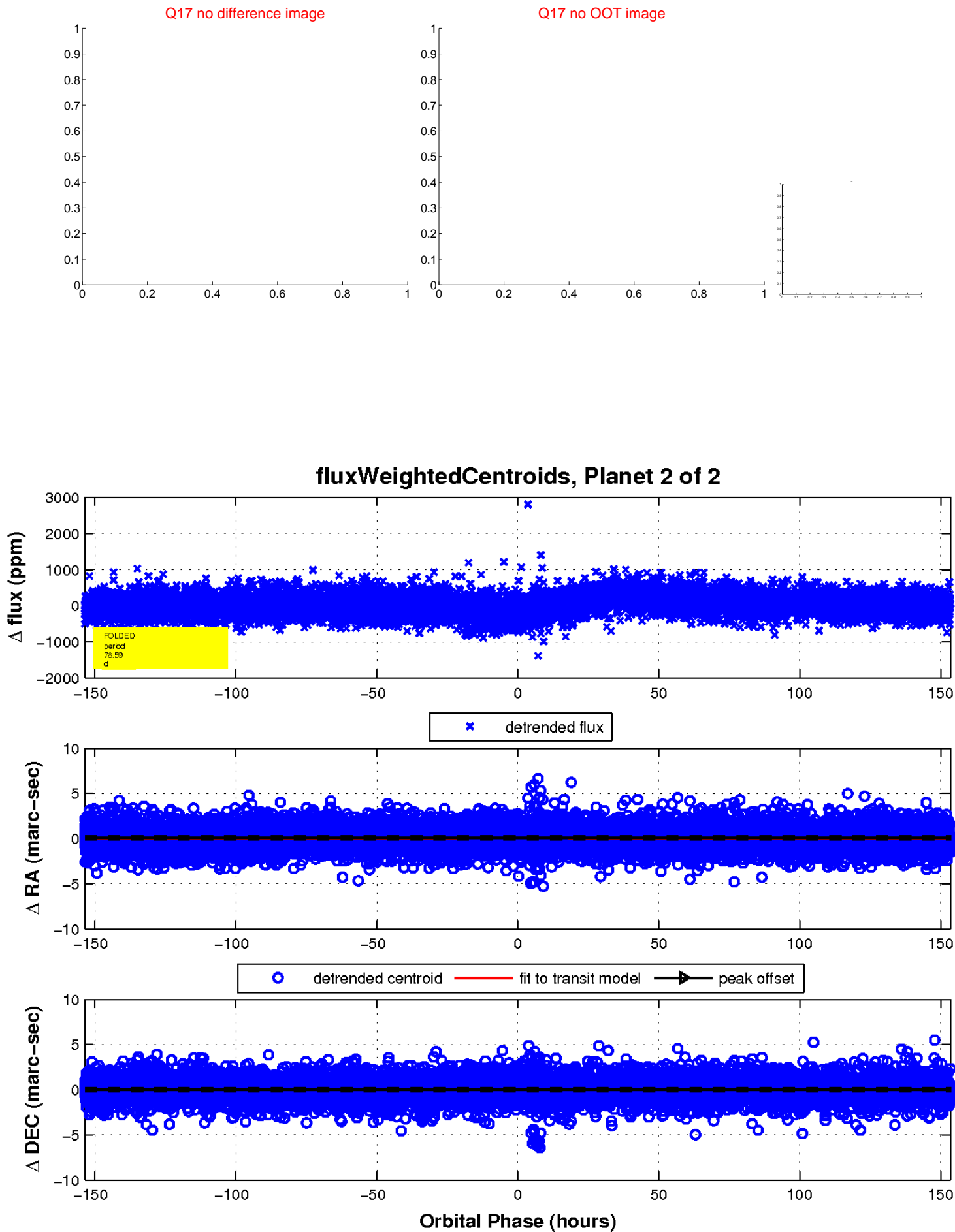
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

