

KIC 009349757

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})
009349757-01	OBS	3348.01	36.434038	132.901683	412.2	4.622	12.8	13.5	1.10	5566	2.62	23.39
009349757-02	OBS	3348.02	17.719373	138.788196	164.7	4.562	7.9	7.7	1.10	5566	1.55	61.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009349757-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
009349757-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

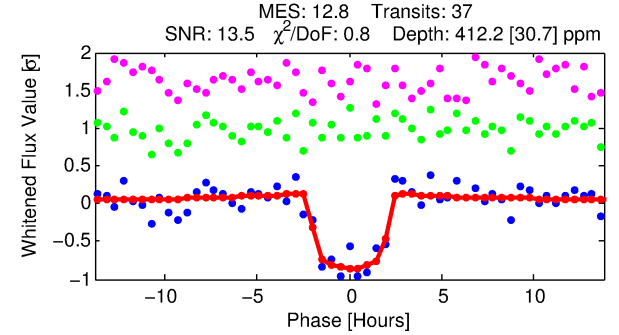
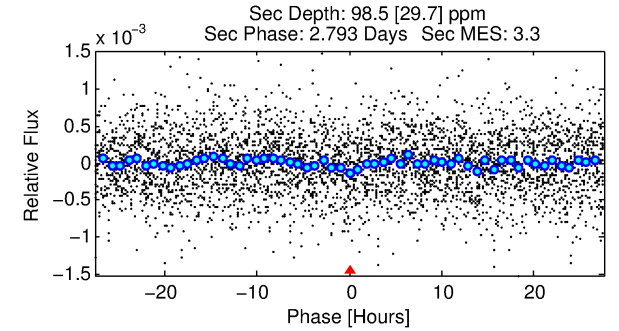
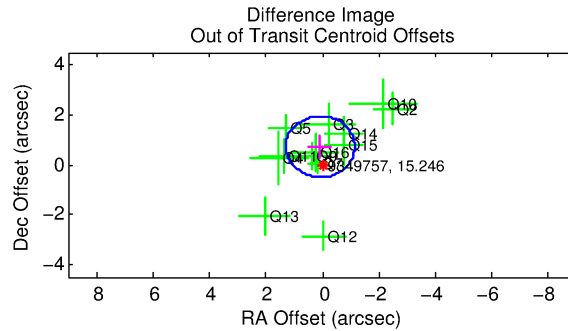
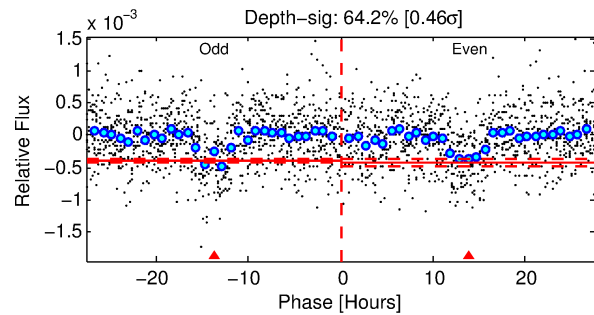
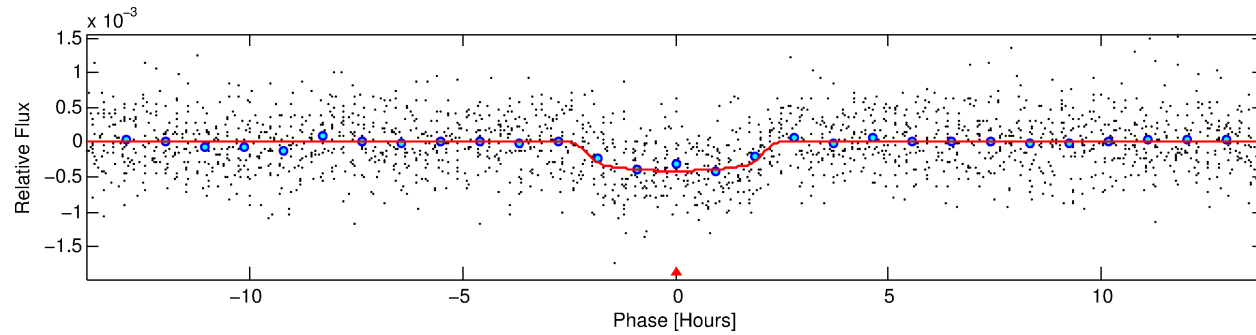
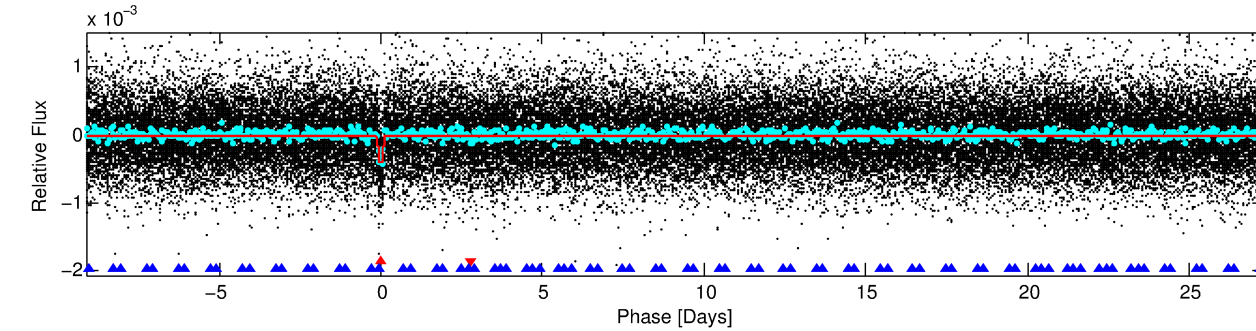
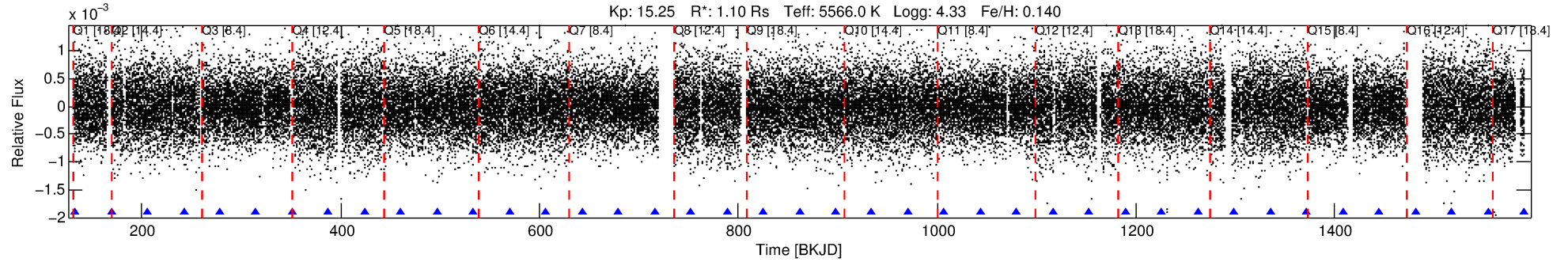
Ephemeris Match Information For 009349757-01

No Significant Match Found

DV One-Page Summary

KIC: 9349757 Candidate: 1 of 2 Period: 36.434 d

KOI: K03348.01 Corr: 0.945



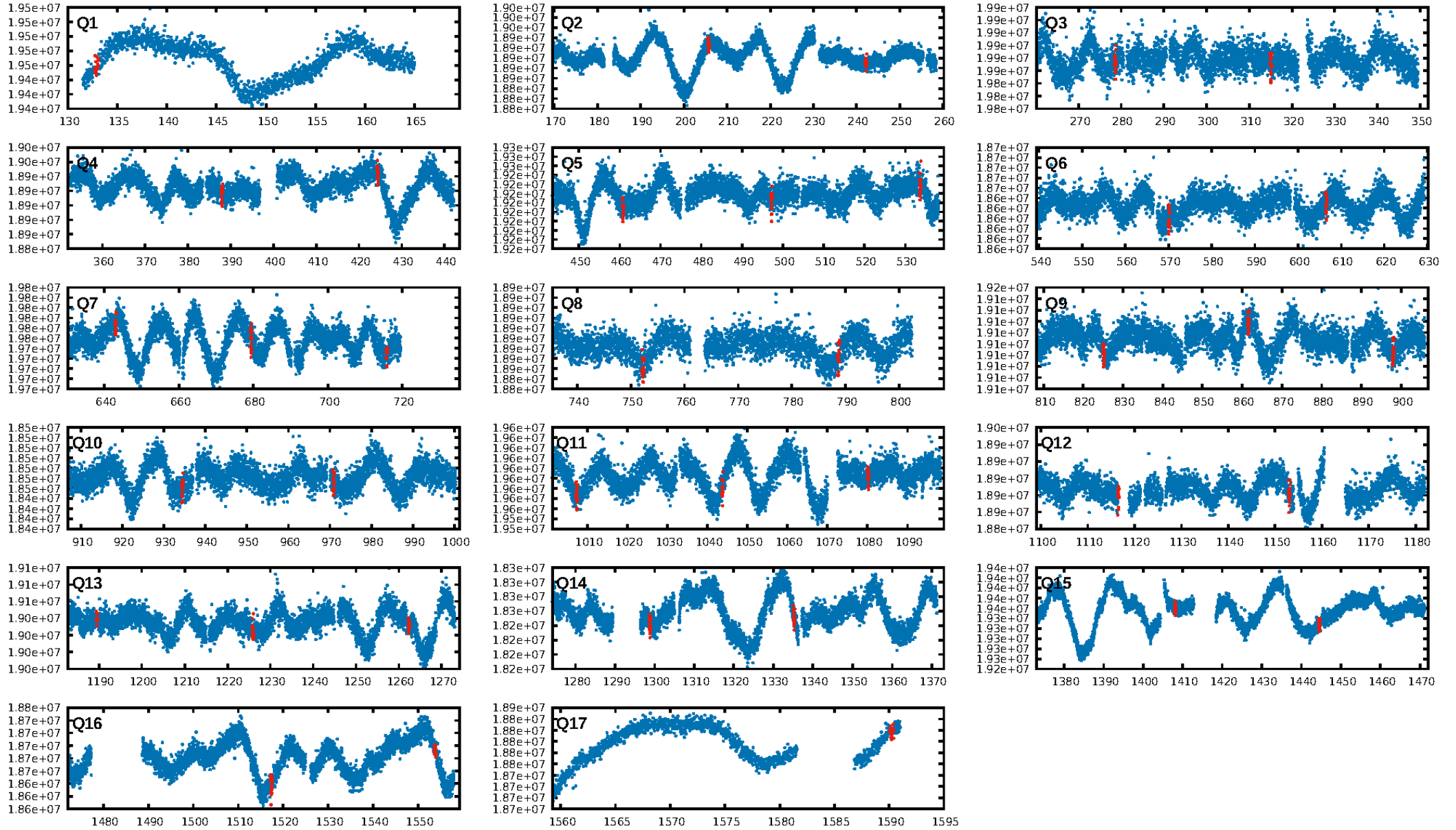
DV Fit Results:

Period = 36.43404 [0.00029] d
Epoch = 132.9017 [0.0068] BKJD
Rp/R* = 0.0219 [0.0051]
a/R* = 31.21 [30.57]
b = 0.88 [0.25]
Seff = 23.39 [5.49]
Teff = 561 [33] K
Rp = 2.63 [0.73] Re
a = 0.2107 [0.0303] AU
Ag = 349.27 [208.29] [1.67 σ]
Teffp = 3748 [520] K [6.12 σ]

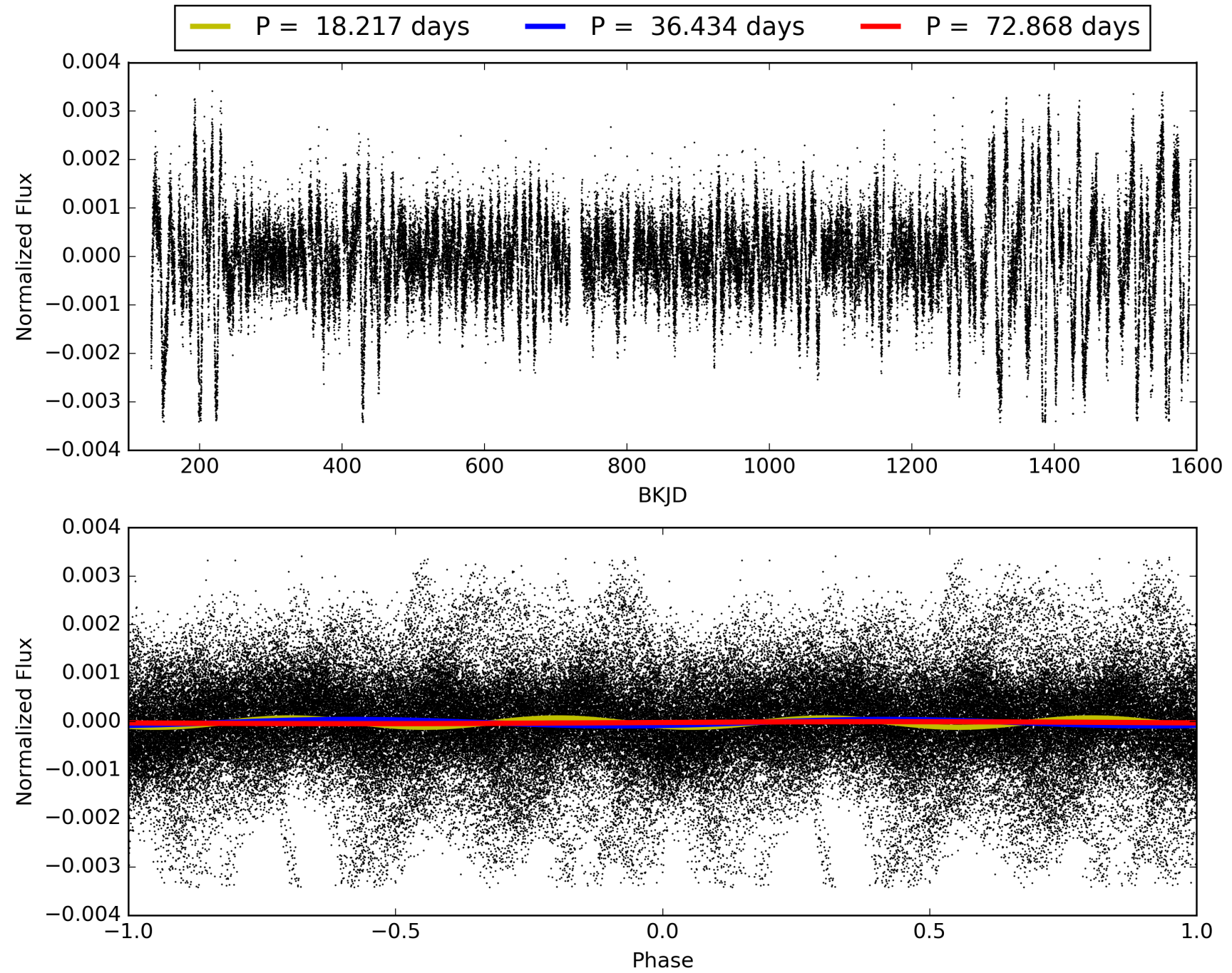
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [69.16 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.81e-36
RollingBand-fgt: 1.00 [35/35]
GhostDiagnostic-chr: 13.62
Centroid-sig: 10.6%
Centroid-so: 1.251 arcsec [1.44 σ]
OotOffset-rm: 0.724 arcsec [1.78 σ]
KicOffset-rm: 0.701 arcsec [2.01 σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009349757-01, PDC Light Curves

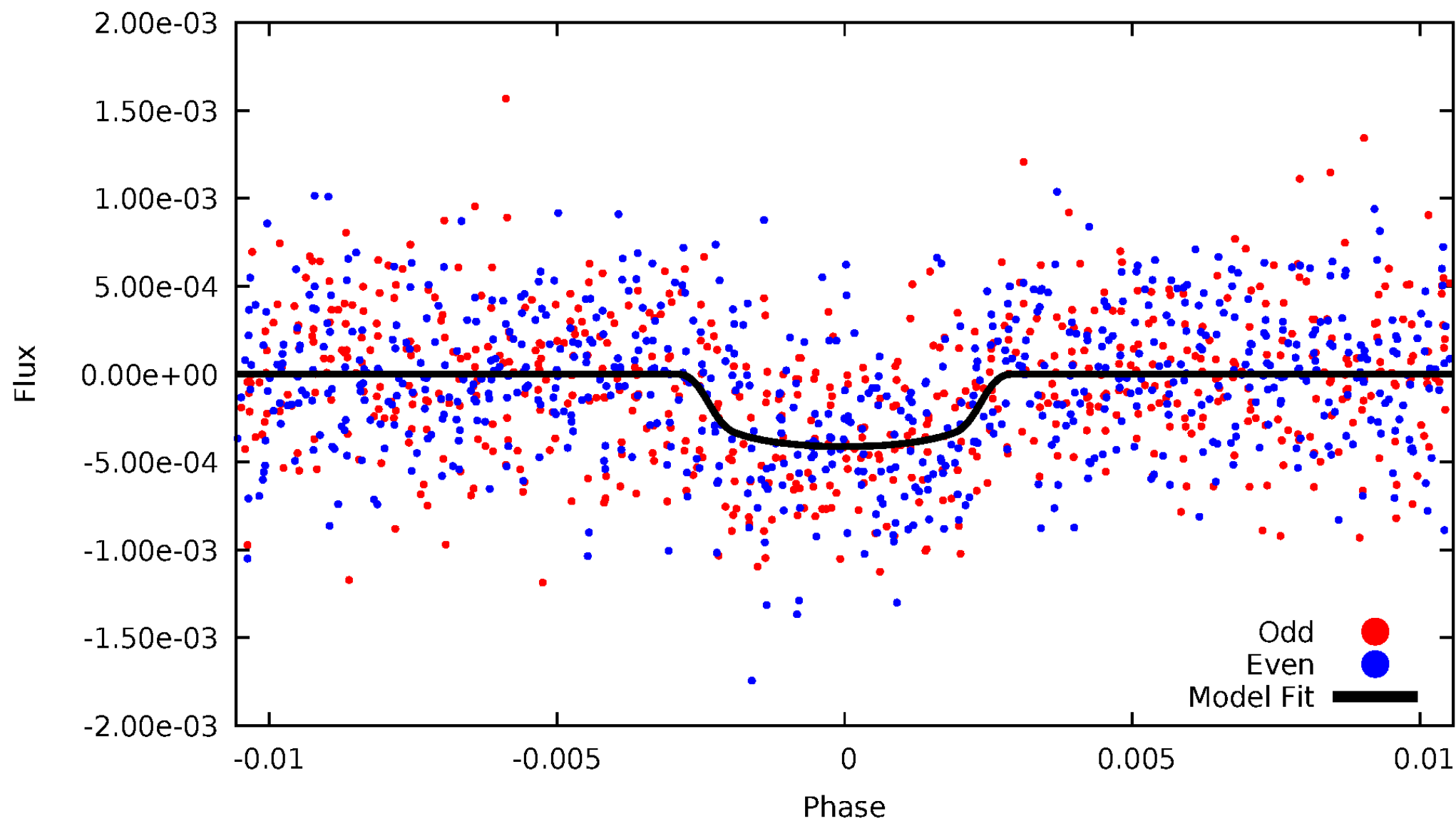


TCE 009349757-01



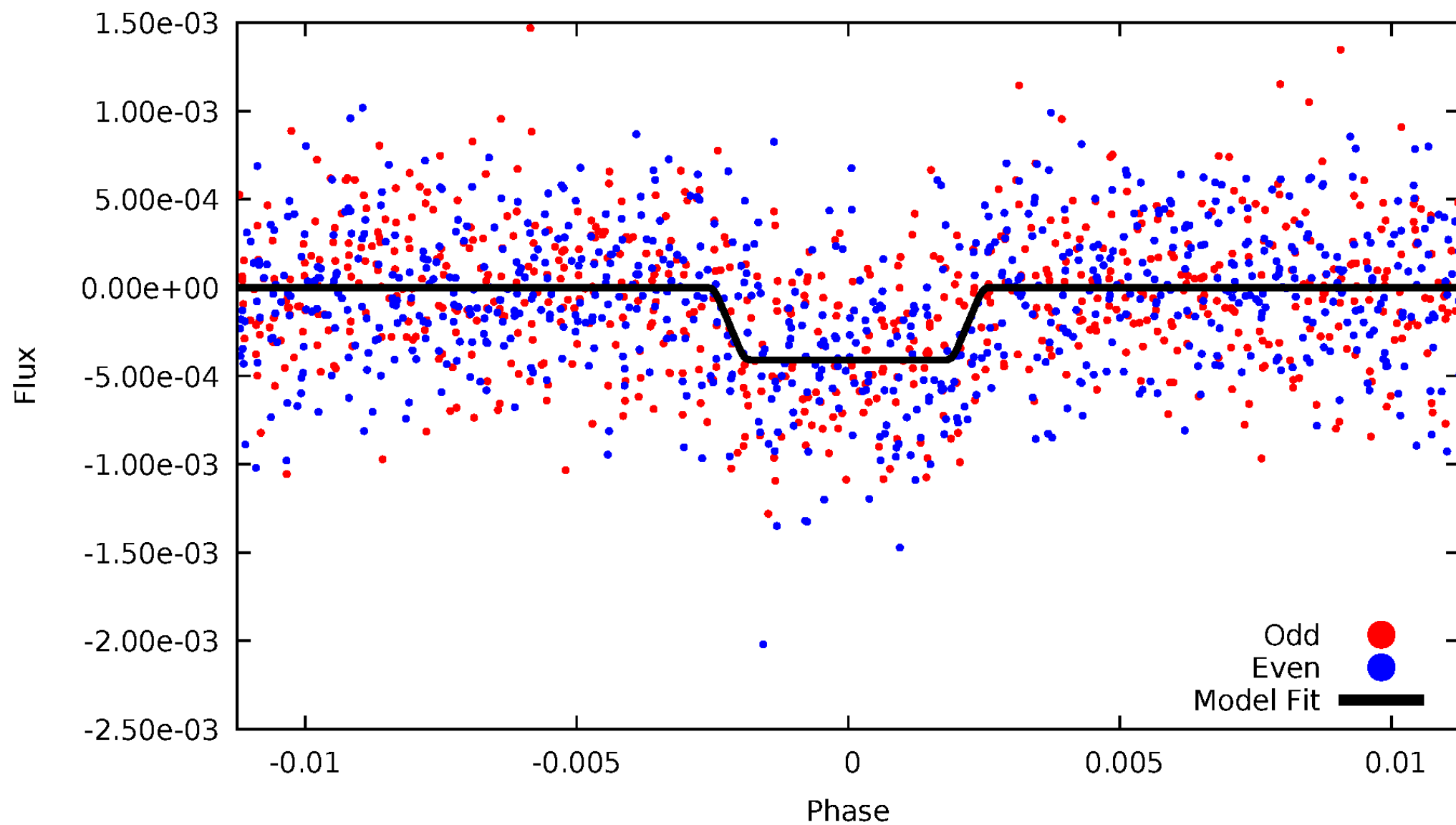
DV Odd/Even

TCE 009349757-01



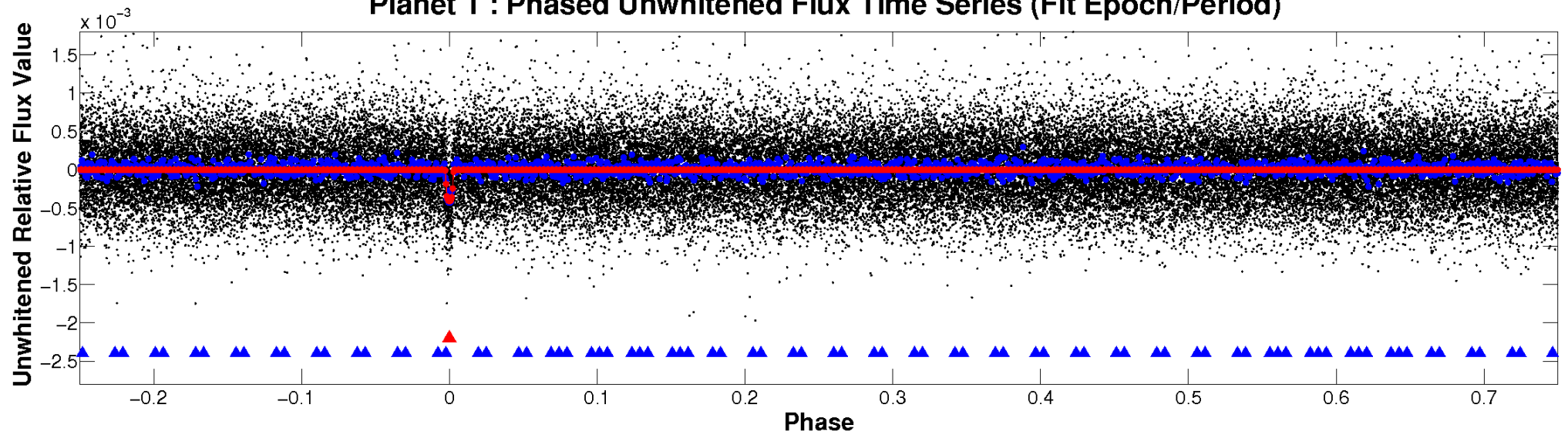
ALT Odd/Even

TCE 009349757-01

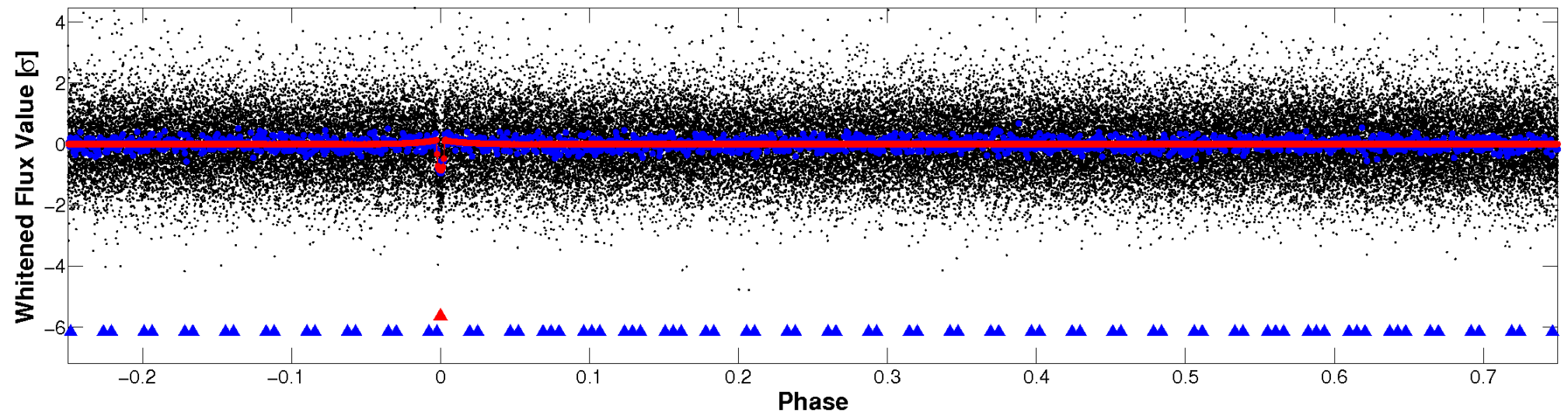


Non-Whitened Vs. Whitened Light Curve

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

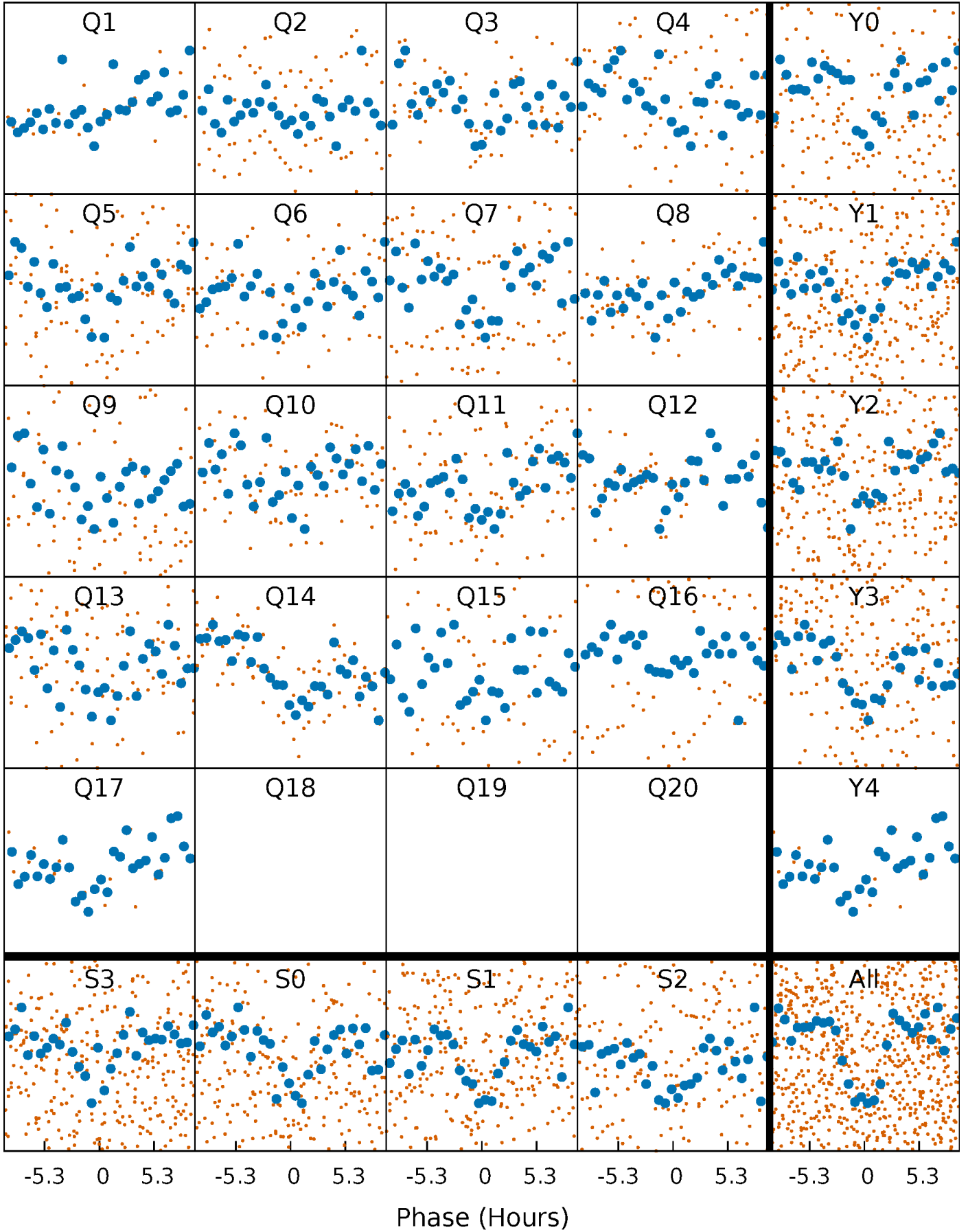


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



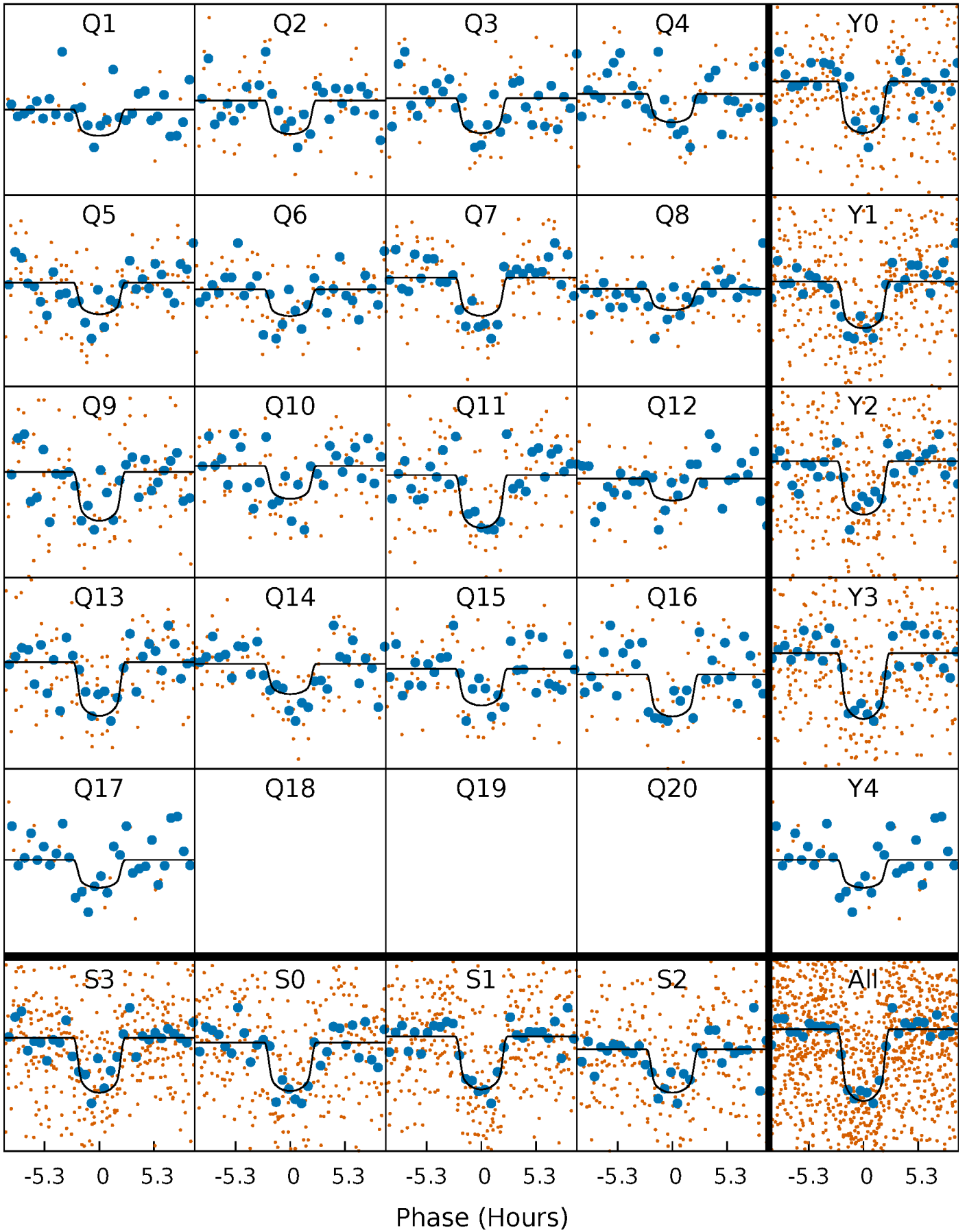
PDC Quarter-Phased Transit Curves

TCE 009349757-01 P= 36.434038 Days $T_0=132.901683$ (BKJD)



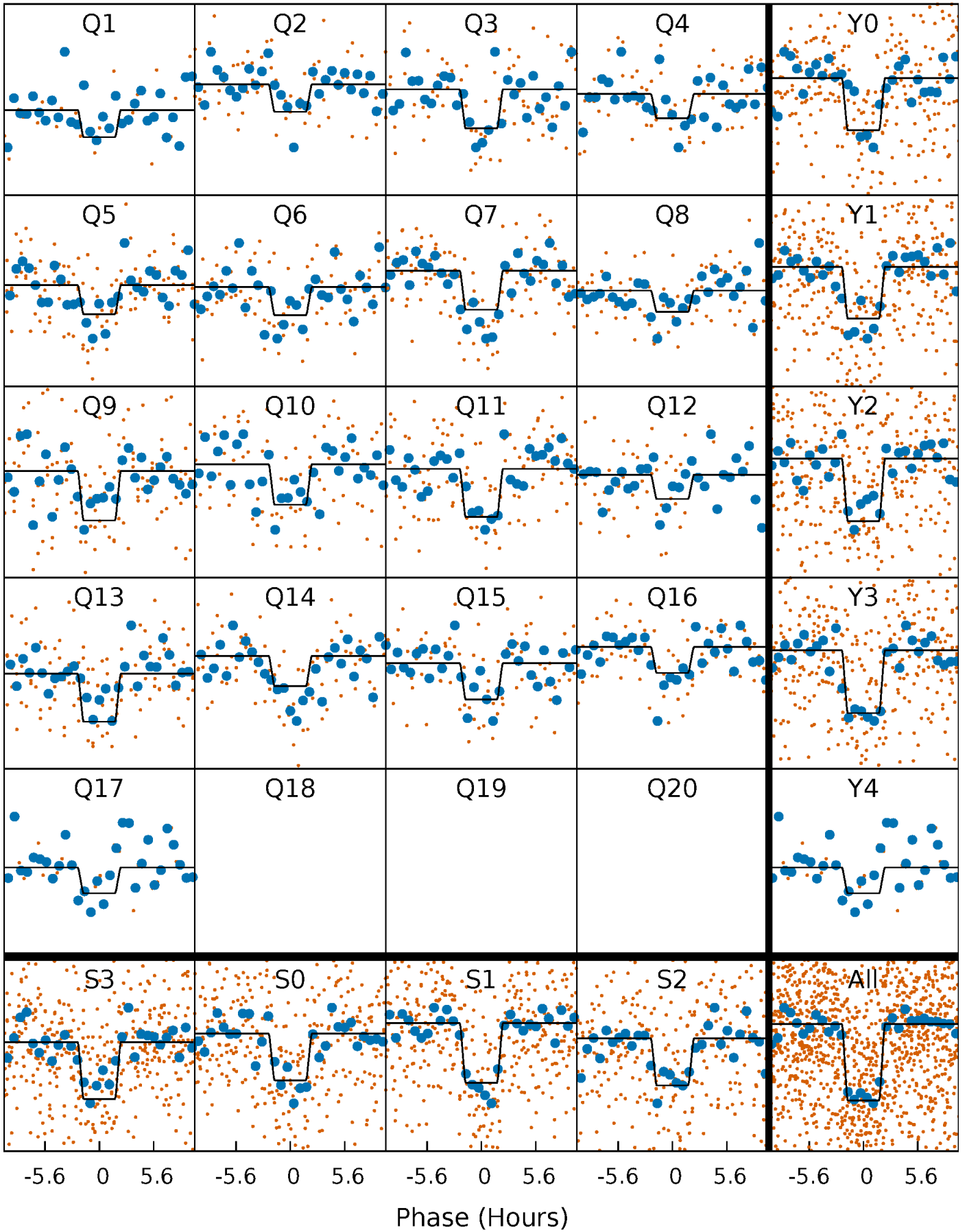
DV Quarter-Phased Transit Curves

TCE 009349757-01 P= 36.434038 Days $T_0=132.901683$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

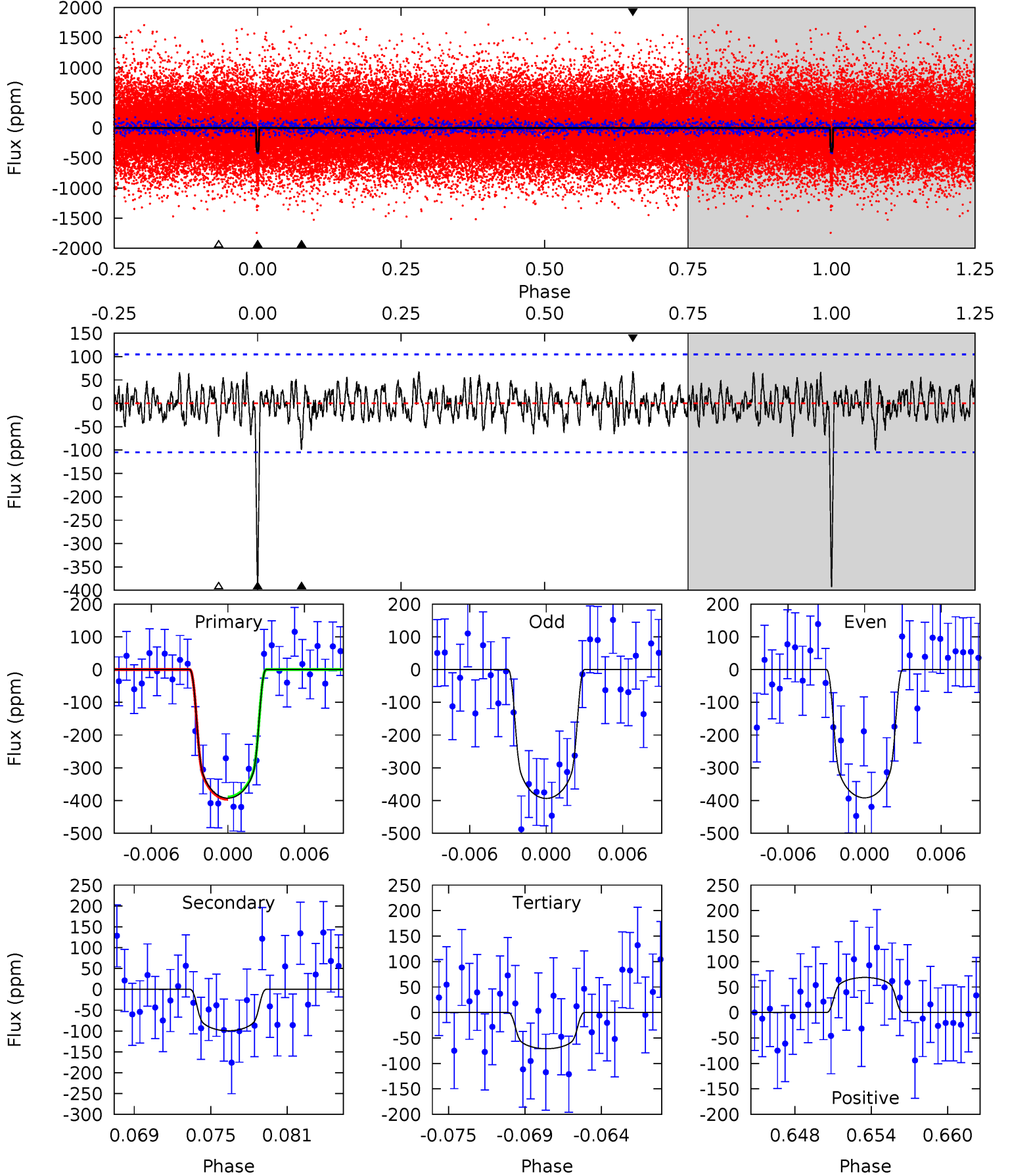
TCE 009349757-01 P= 36.434024 Days $T_0=132.900645$ (BKJD)



DV Model-Shift Uniqueness Test

009349757-01, P = 36.434038 Days, E = 96.467645 Days

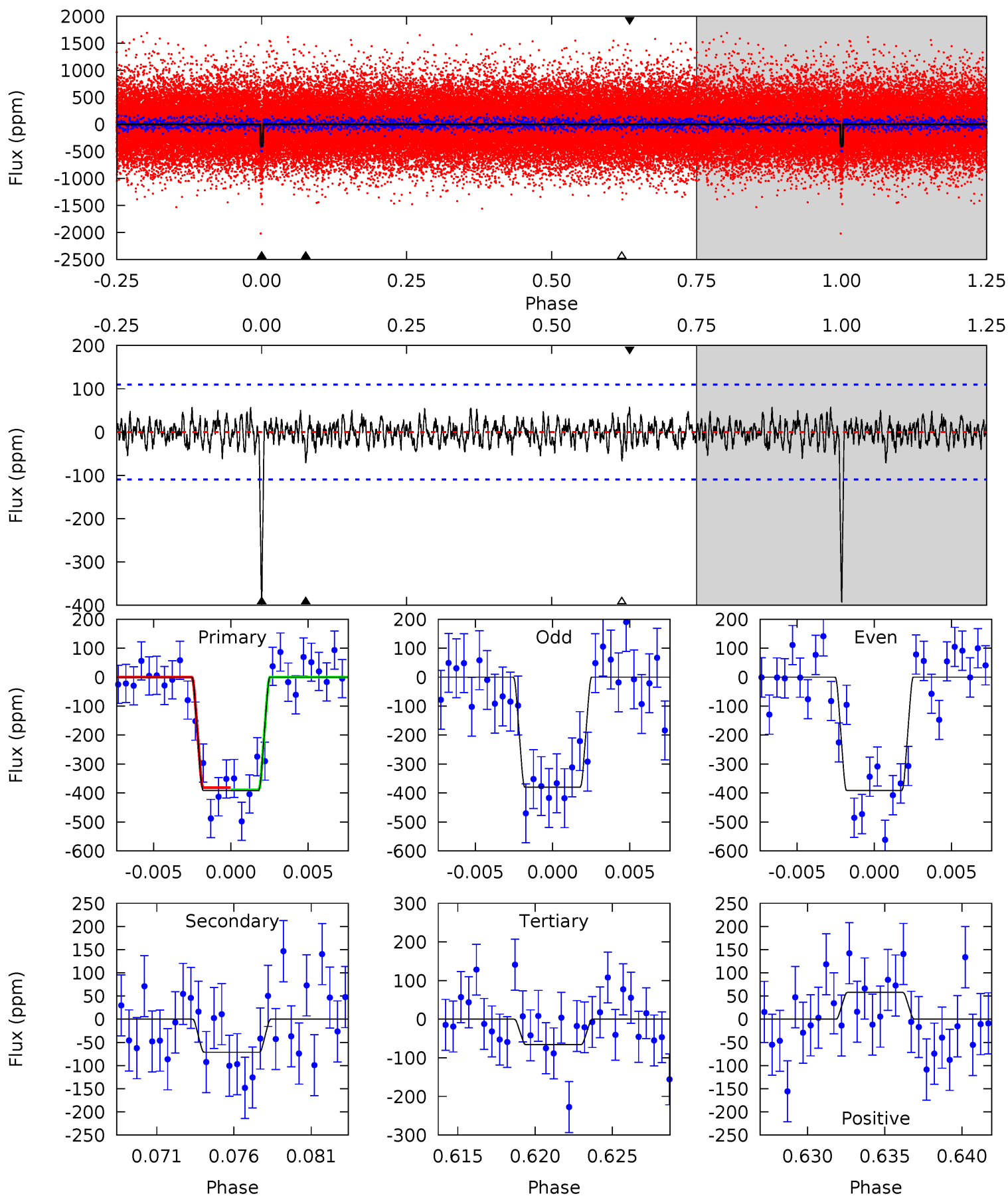
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	4.87	3.49	3.37	5.13	2.76	1.26	15.8	15.9	1.38	1.50	0.04	0.95	0.15	0.18



Alt Model-Shift Uniqueness Test

009349757-01, P = 36.434024 Days, E = 96.466621 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	3.35	3.10	2.71	5.15	2.80	0.98	15.3	15.7	0.25	0.64	0.26	0.96	0.13	0.18



Stellar Parameters For KIC 009349757

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5566^{+83}_{-75}	$4.329^{+0.132}_{-0.108}$	$0.140^{+0.150}_{-0.150}$	$1.099^{+0.168}_{-0.153}$	$0.938^{+0.069}_{-0.046}$	$0.997^{+0.582}_{-0.314}$
	+1%/-1%	+3%/-2%	+107%/-107%	+15%/-14%	+7%/-5%	+58%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 009349757-01 / KOI 3348.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-99 ± 20	$2.67^{+0.70}_{-0.65}$	781^{+37}_{-33}	4022^{+400}_{-333}	338^{+276}_{-137}
Alt.	-71 ± 21	$2.42^{+0.67}_{-0.63}$	781^{+34}_{-34}	3926^{+449}_{-374}	301^{+263}_{-142}

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

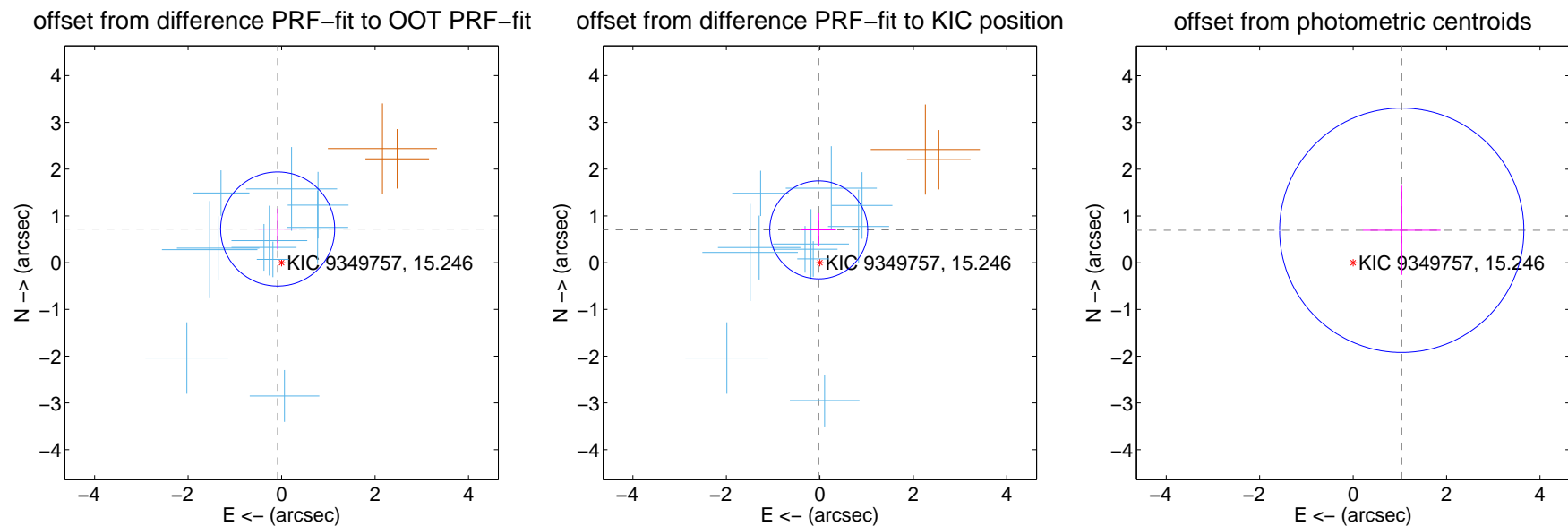
DV Centroid Data

Supplemental centroid analysis for 009349757-01. Kepler magnitude: 15.25. Transit SNR 13.47

There are 11 quarters with good PRF difference image offsets

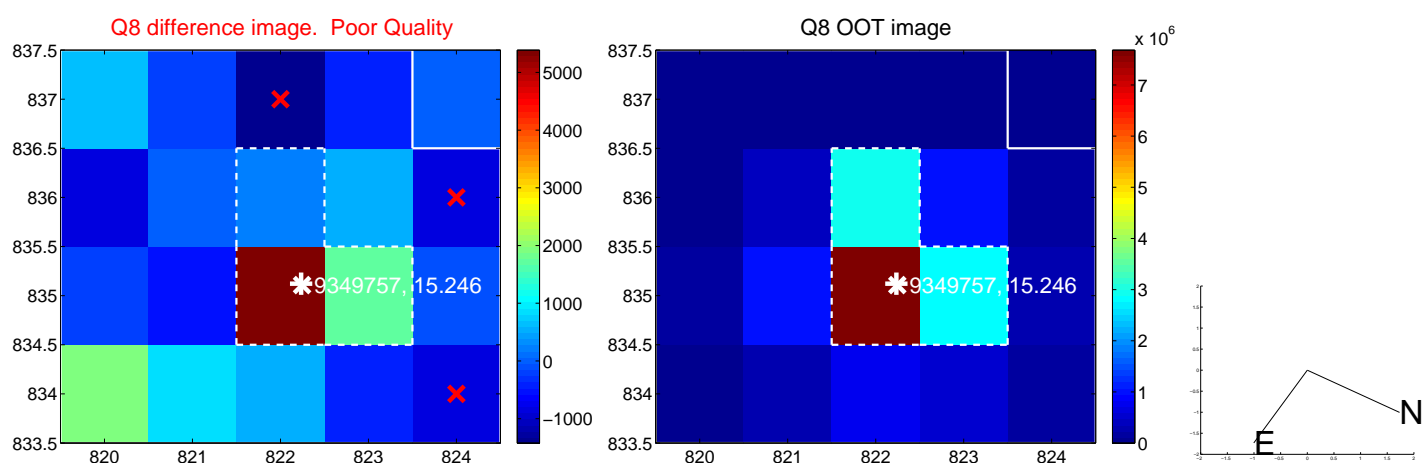
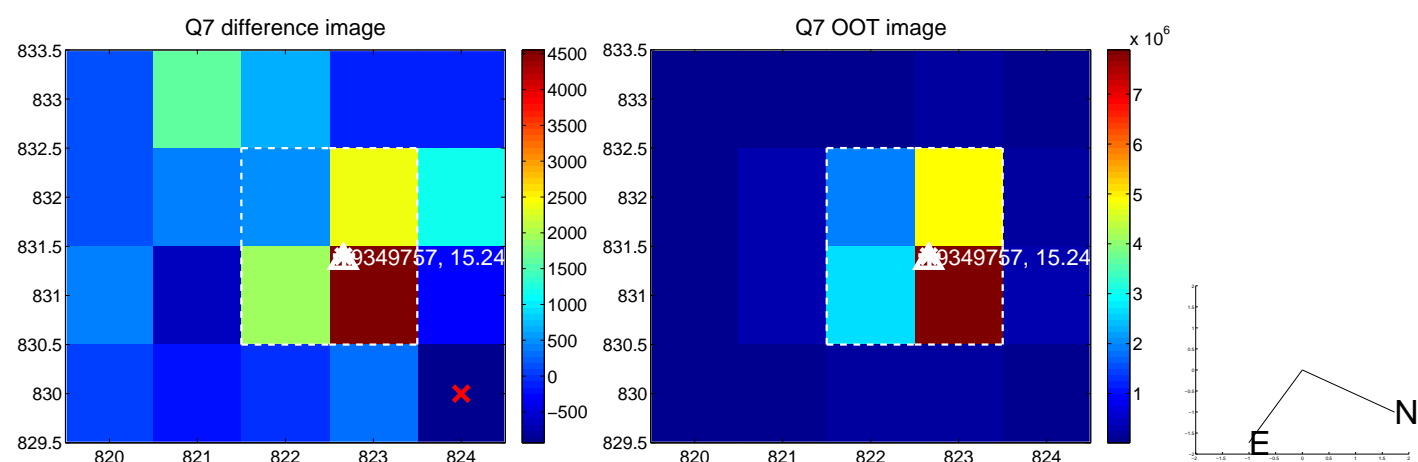
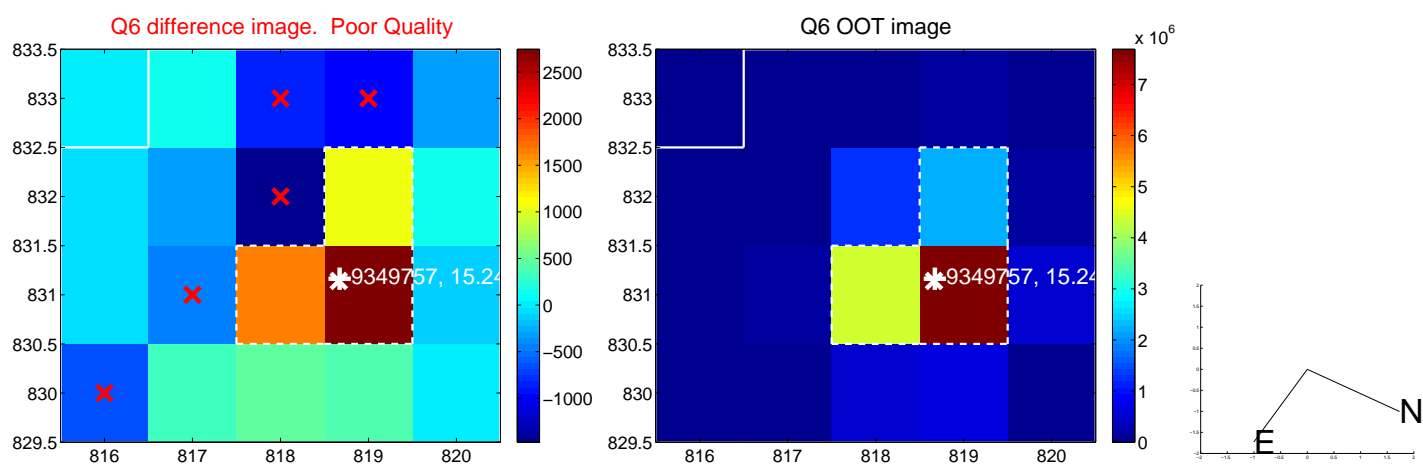
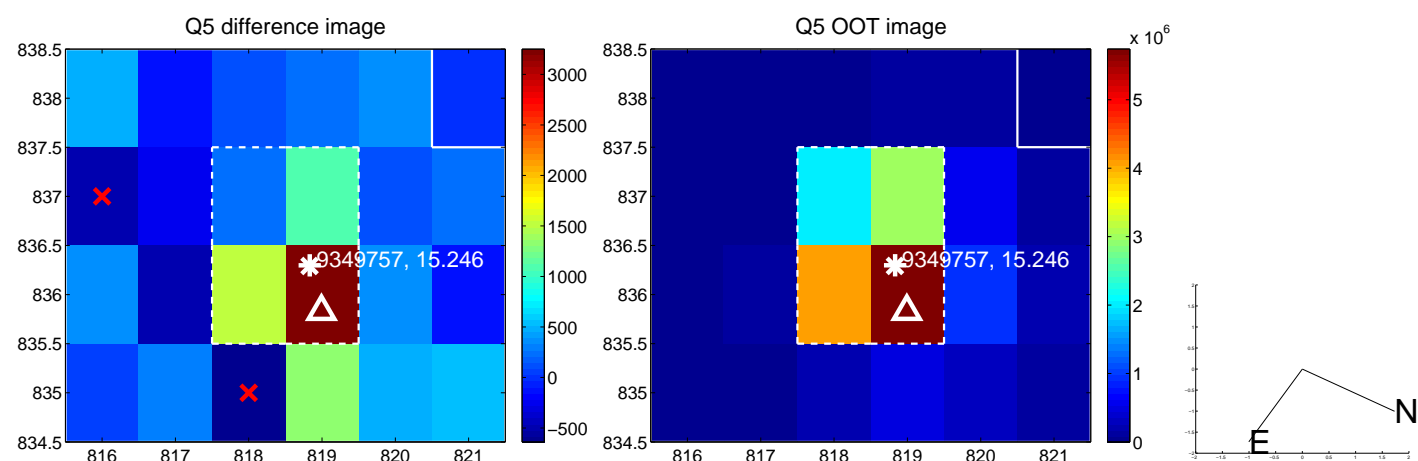
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.724 ± 0.407	1.78	0.084 ± 0.413	0.719 ± 0.436
PRF-fit source offset from KIC position	0.701 ± 0.349	2.01	0.024 ± 0.369	0.701 ± 0.355
photometric centroid source offset	1.25 ± 0.87	1.44	-1.04 ± 0.83	0.69 ± 0.95

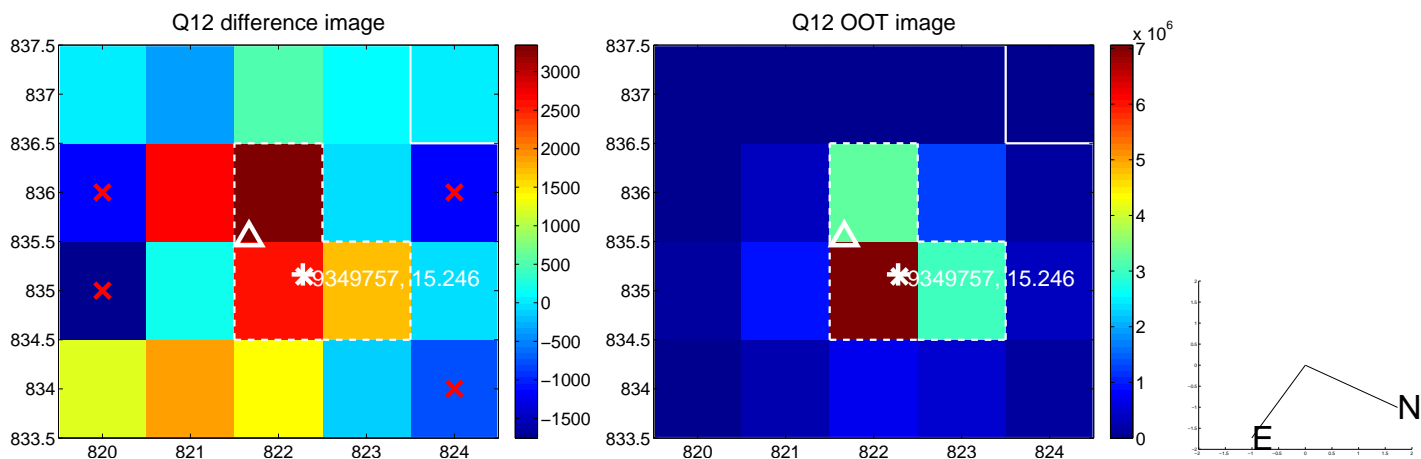
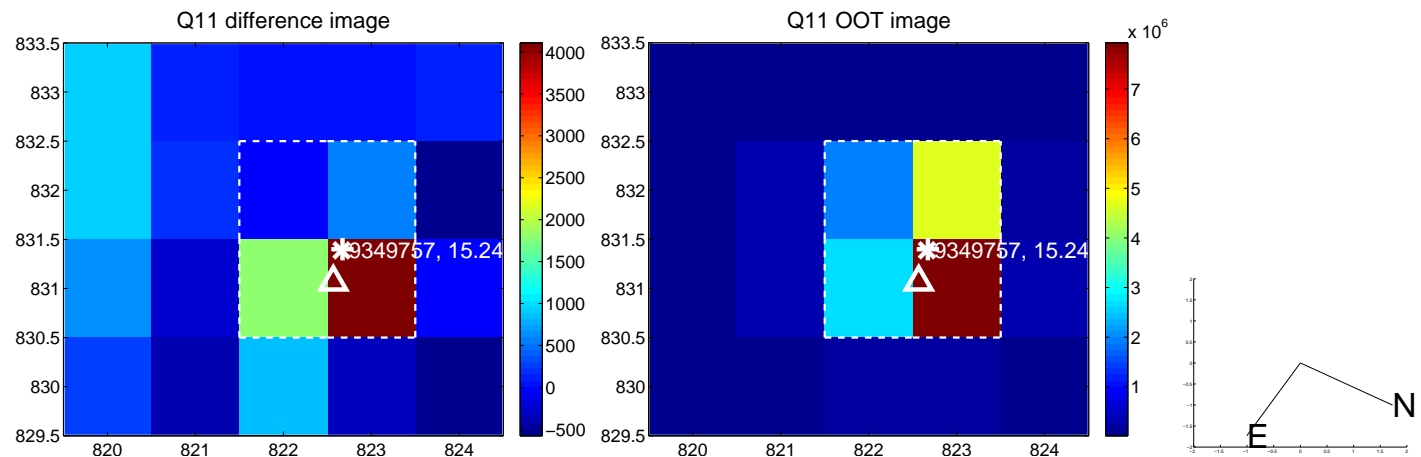
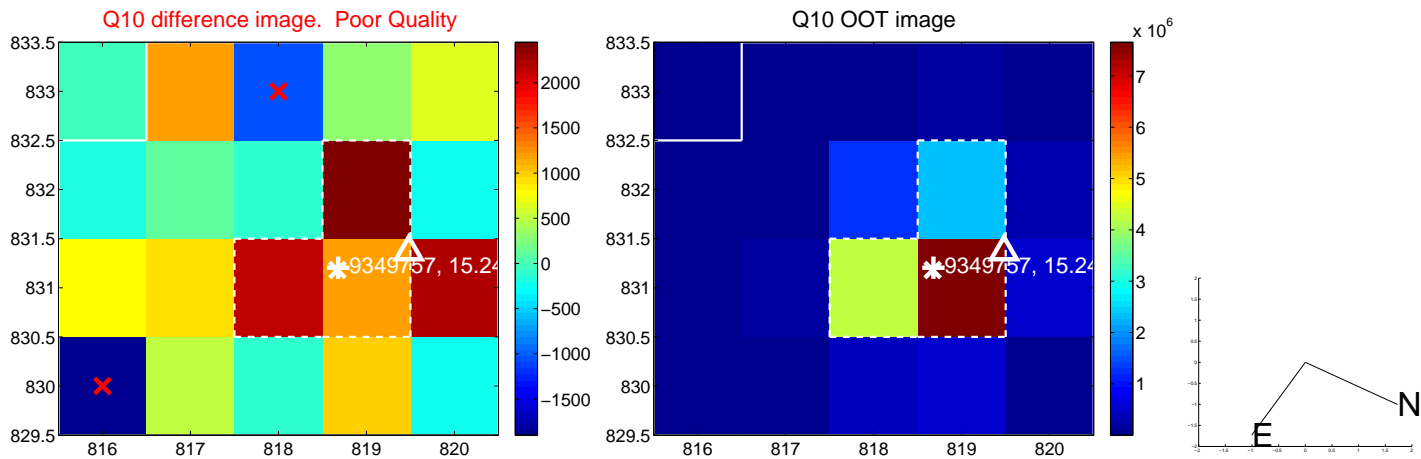
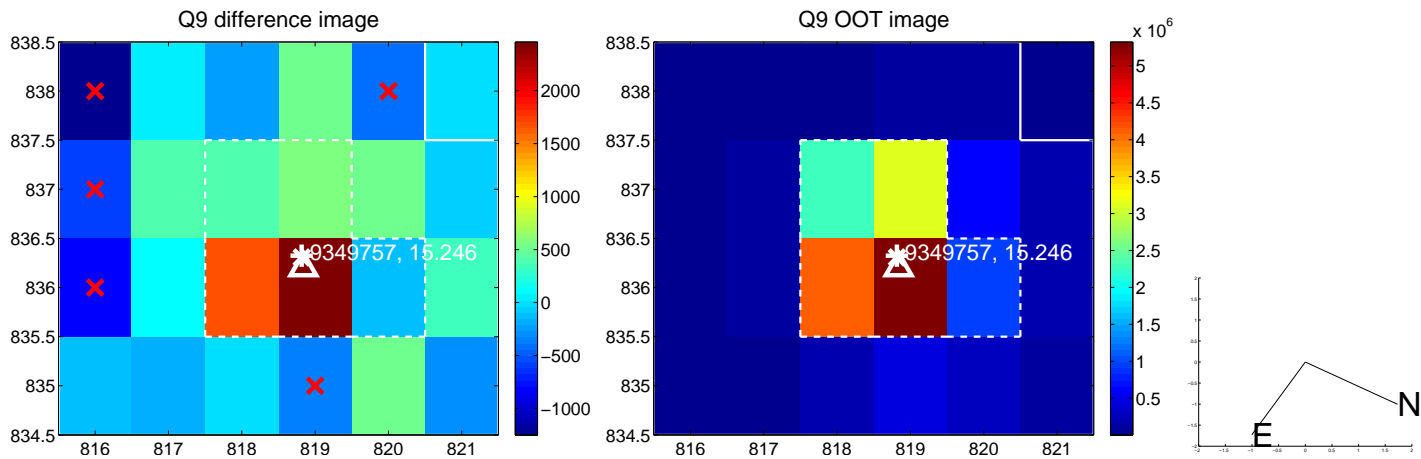


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

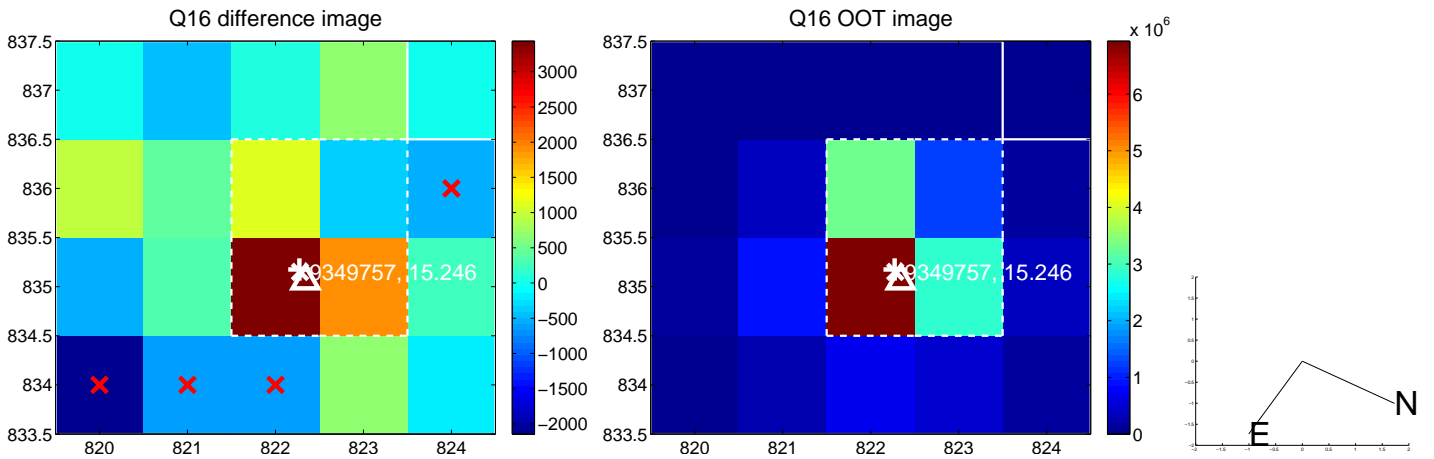
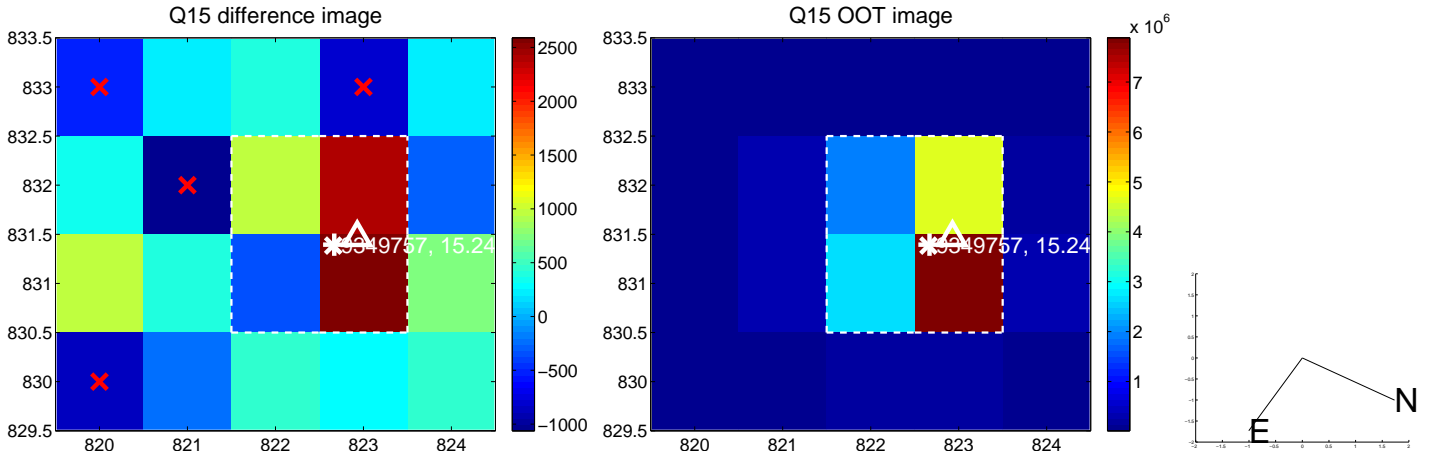
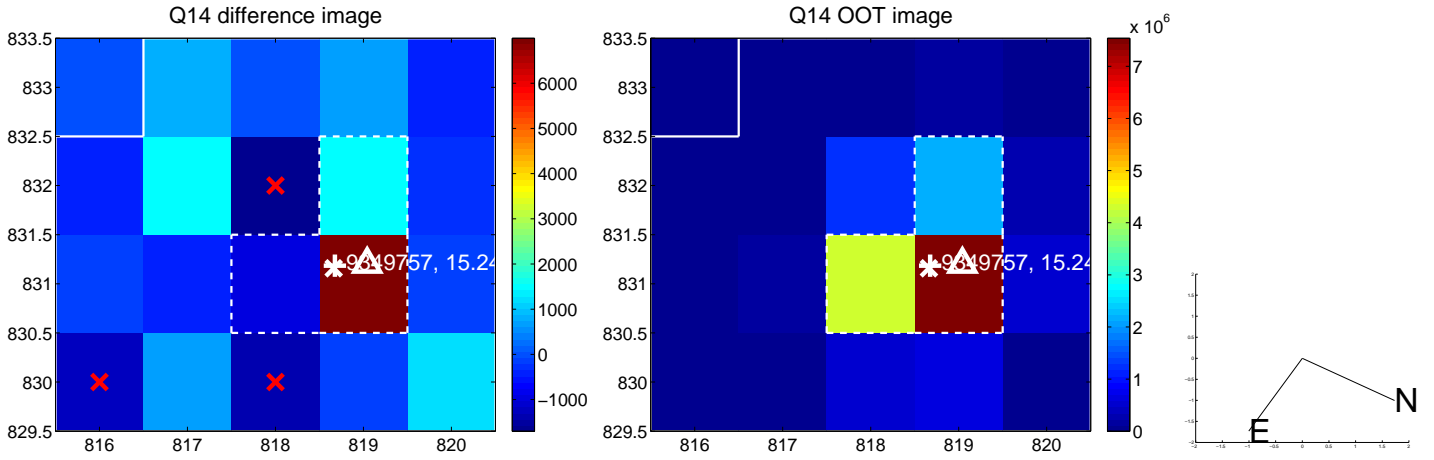
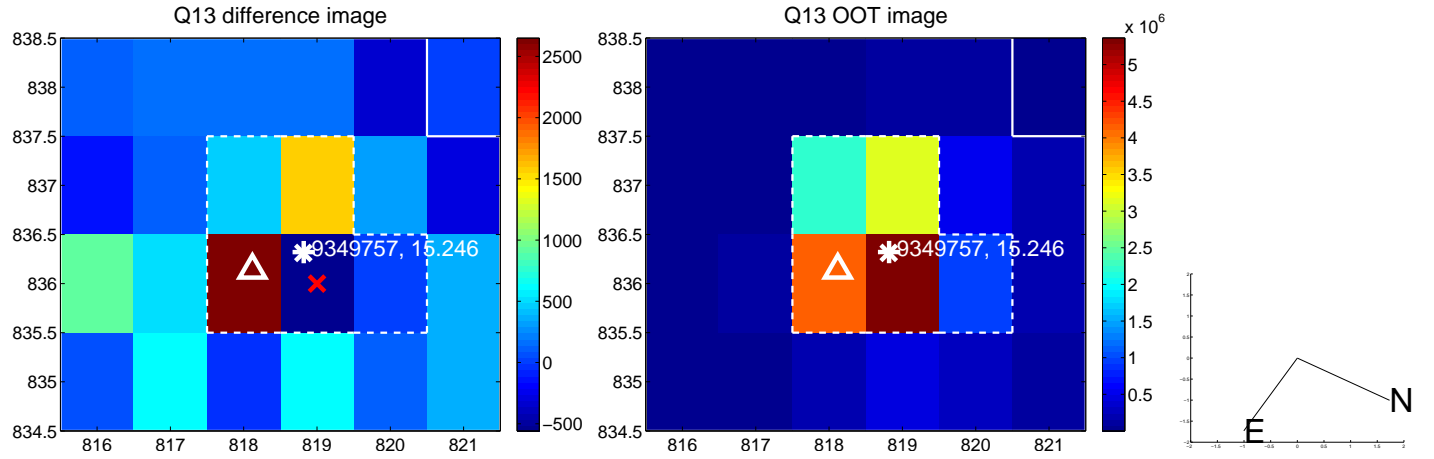
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



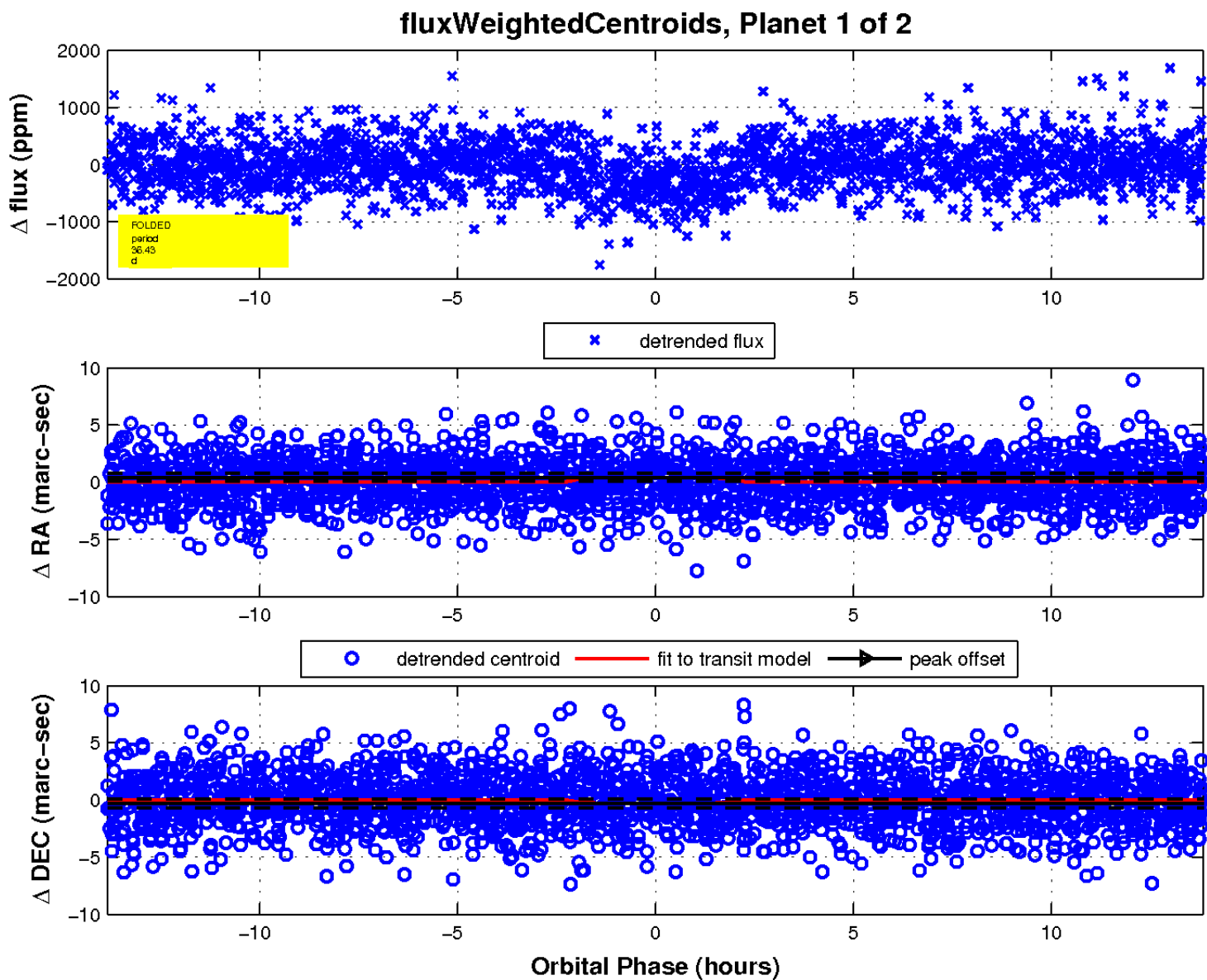
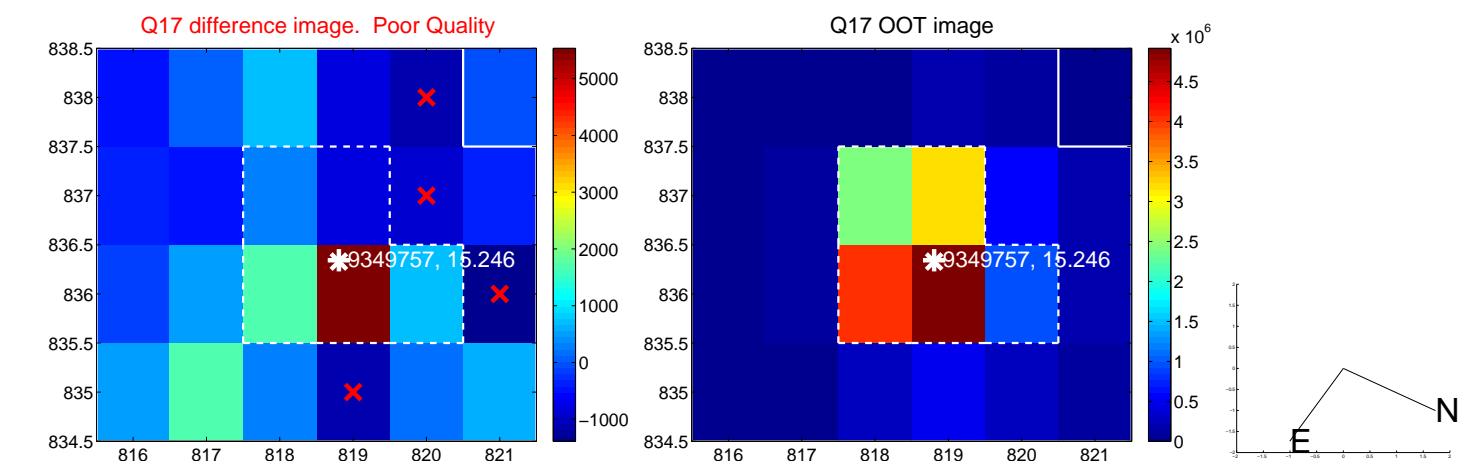
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

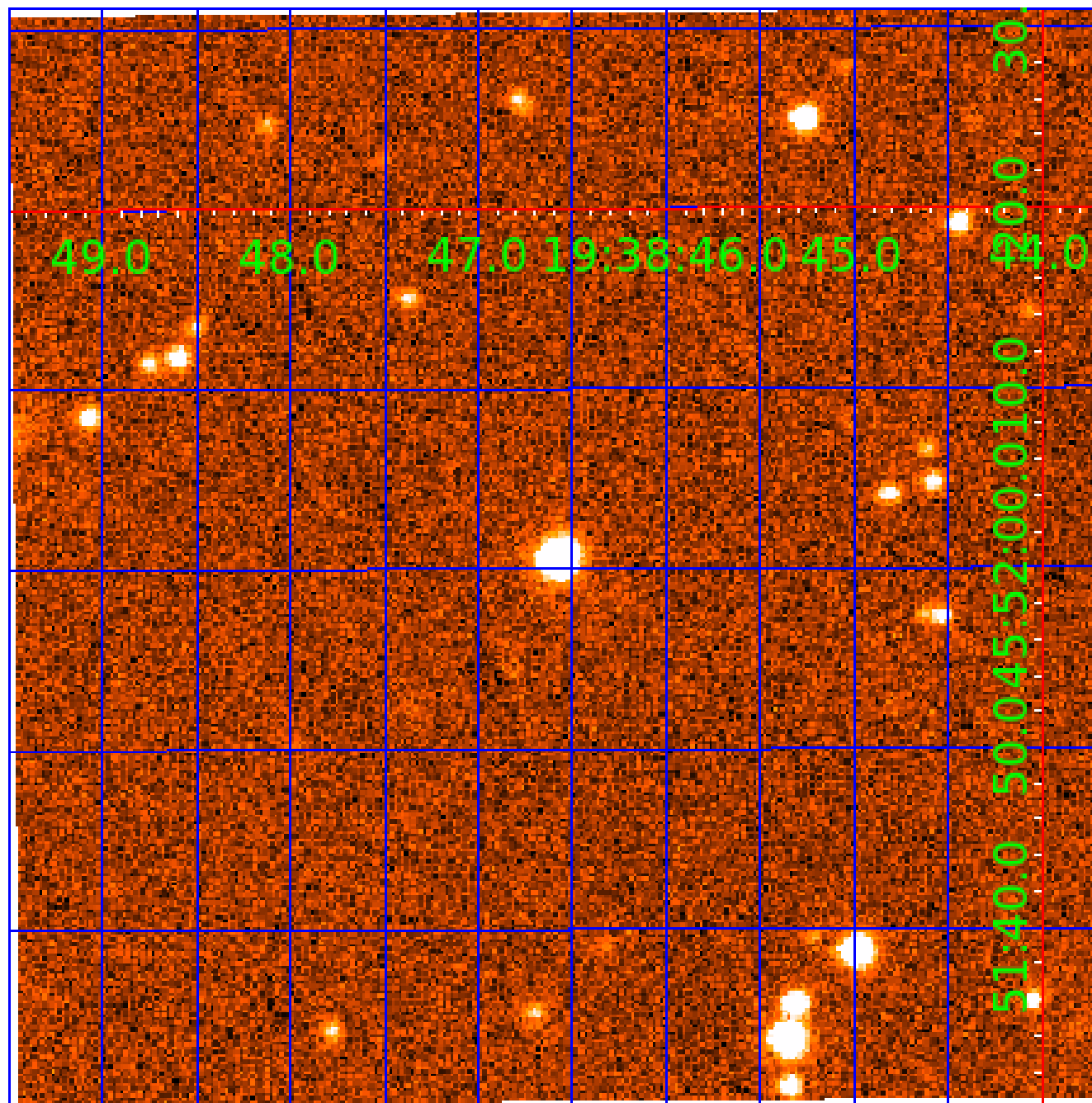


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009349757

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})
009349757-01	OBS	3348.01	36.434038	132.901683	412.2	4.622	12.8	13.5	1.10	5566	2.62	23.39
009349757-02	OBS	3348.02	17.719373	138.788196	164.7	4.562	7.9	7.7	1.10	5566	1.55	61.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009349757-01	OBS	PC	0.94	0	0	0	0	NO_COMMENT
009349757-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

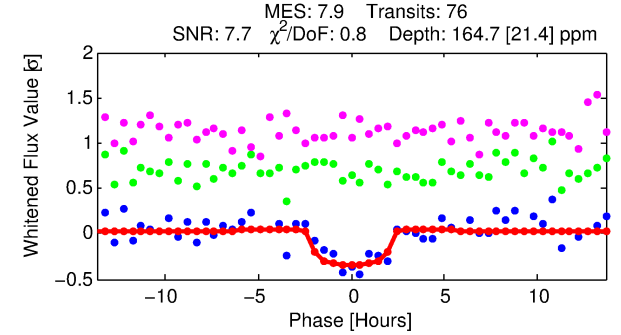
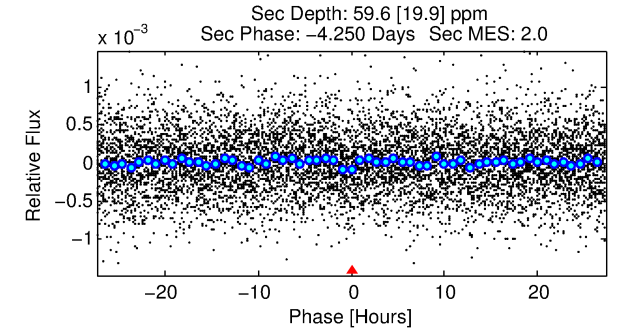
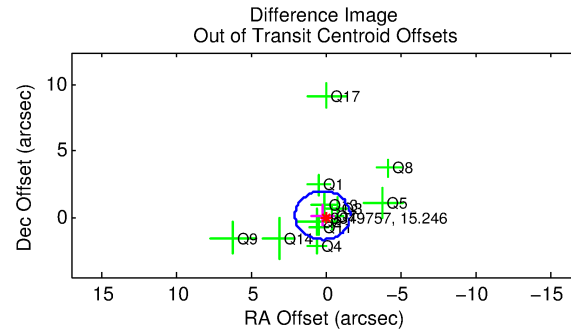
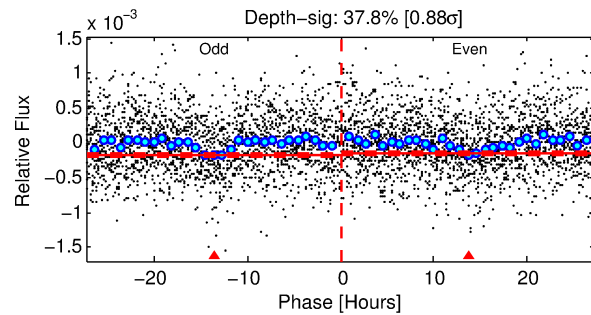
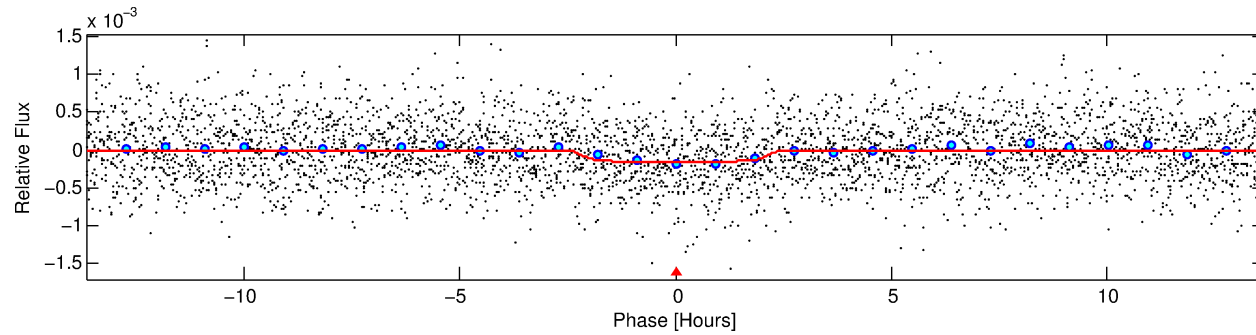
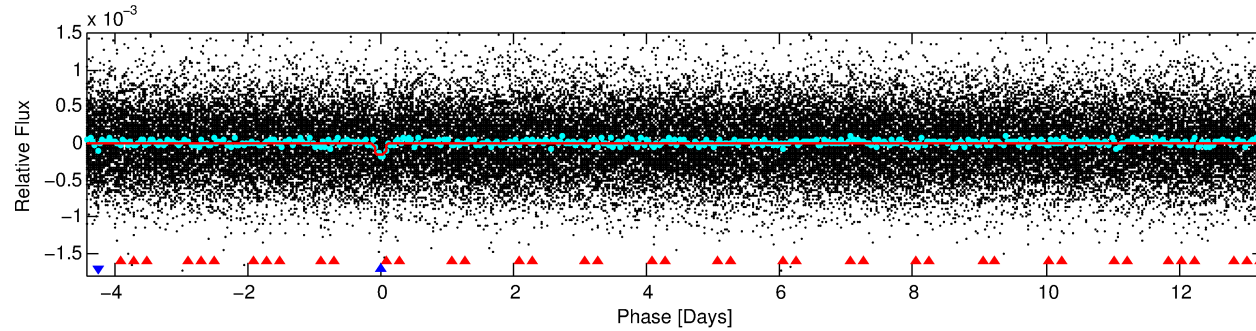
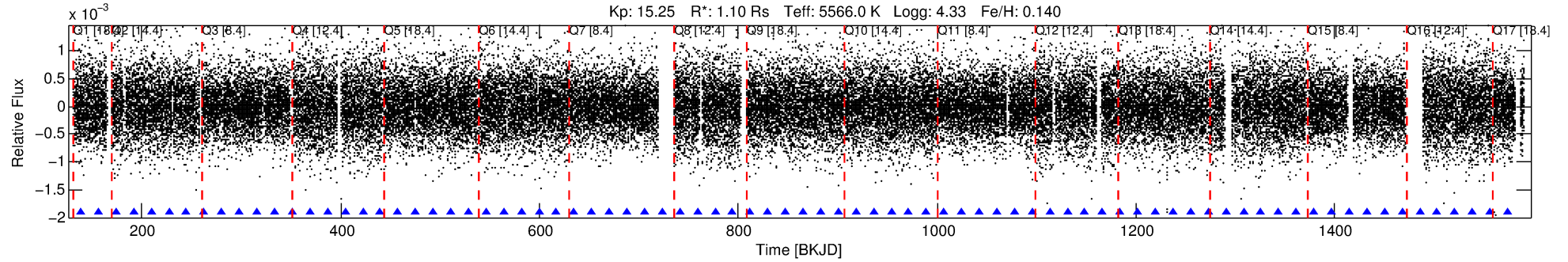
Ephemeris Match Information For 009349757-02

No Significant Match Found

DV One-Page Summary

KIC: 9349757 Candidate: 2 of 2 Period: 17.719 d

KOI: K03348.02 Corr: 0.979



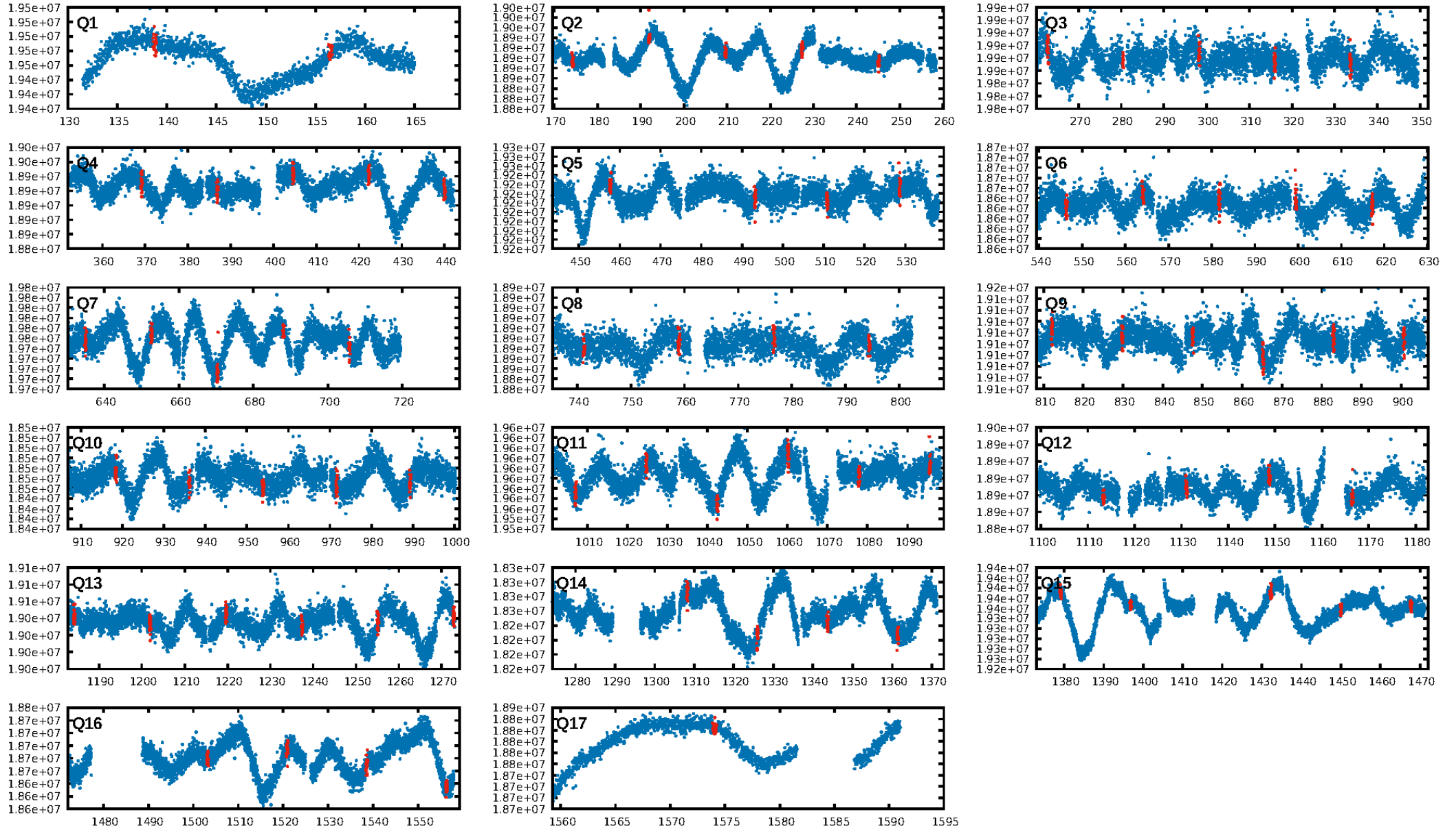
DV Fit Results:

Period = 17.71937 [0.00025] d
Epoch = 138.7882 [0.0111] BKJD
Rp/R* = 0.0129 [0.0133]
a/R* = 19.26 [82.31]
b = 0.78 [2.21]
Seff = 61.16 [14.34]
Teff = 713 [42] K
Rp = 1.55 [1.61] Re
a = 0.1303 [0.0187] AU
Ag = 230.94 [483.41] [0.48 σ]
Teffp = 4298 [2237] K [1.60 σ]

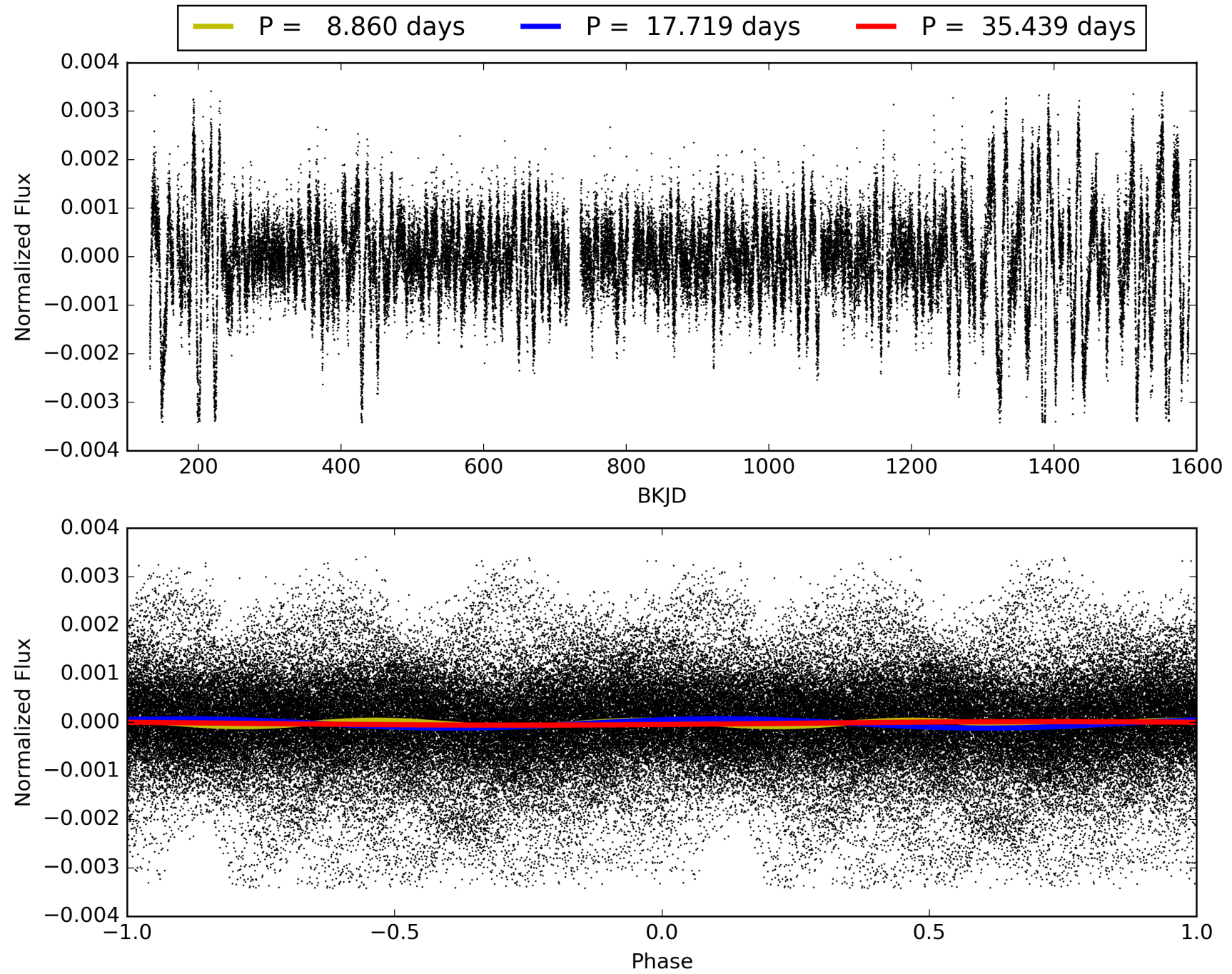
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [69.16 σ]
ModelChiSquare2-sig: 97.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.76e-15
RollingBand-fgt: 1.00 [73/73]
GhostDiagnostic-chr: -14.57
Centroid-sig: 0.0%
Centroid-so: 3.764 arcsec [2.28 σ]
OotOffset-rm: 0.261 arcsec [0.42 σ]
KicOffset-rm: 0.244 arcsec [0.37 σ]
OotOffset-st: 2/3/2/5 [12]
KicOffset-st: 2/3/2/5 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009349757-02, PDC Light Curves

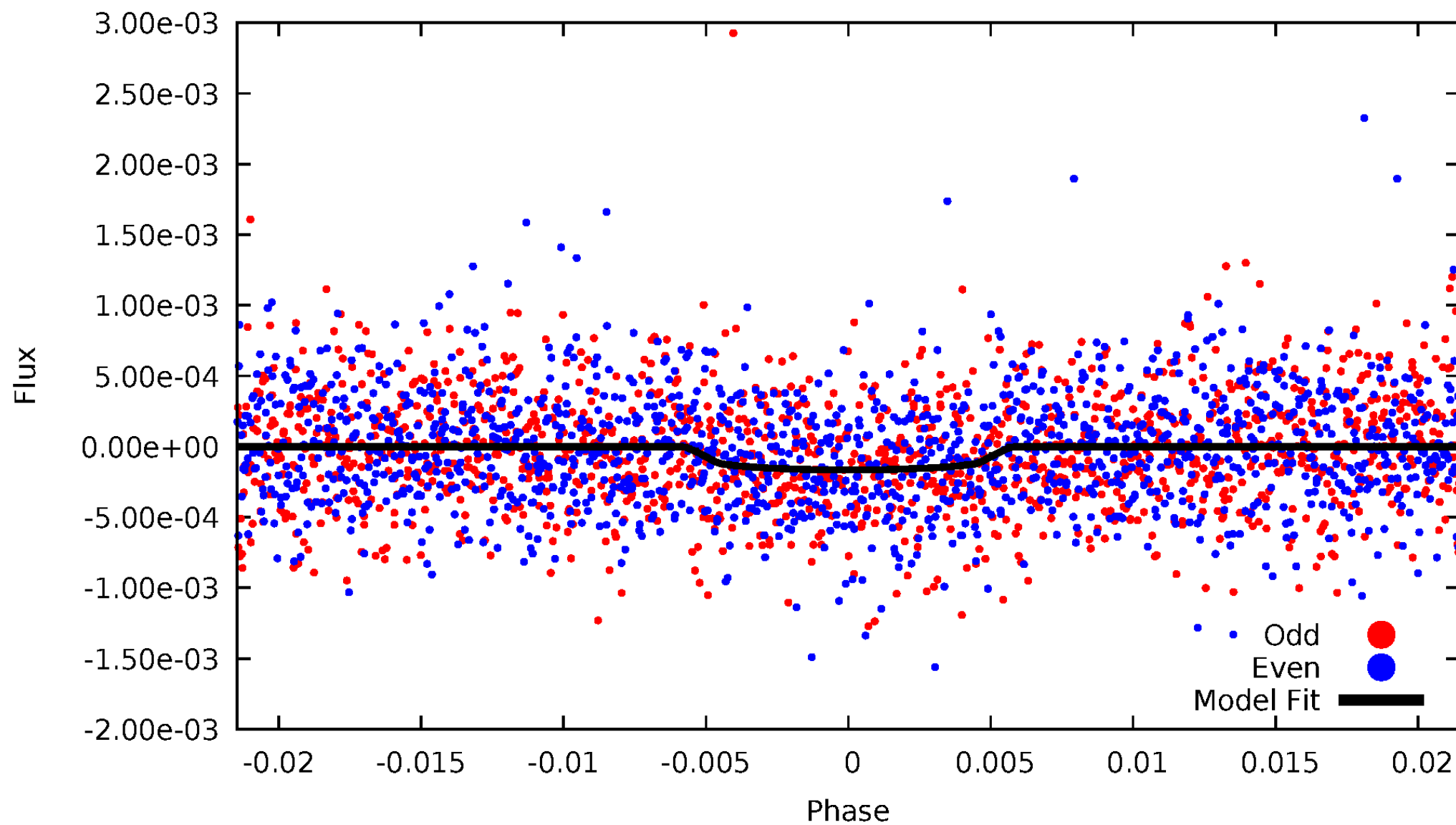


TCE 009349757-02



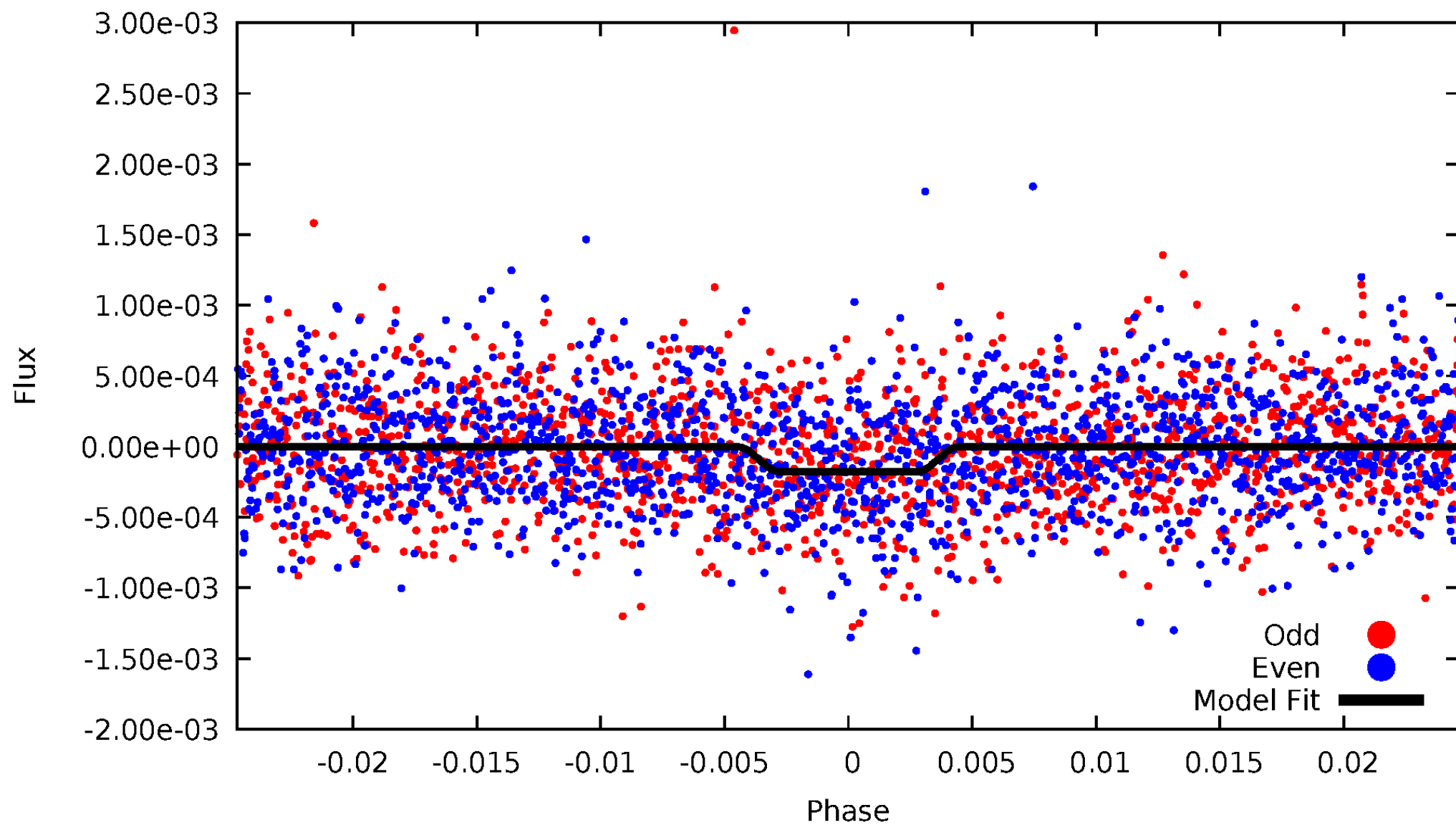
DV Odd/Even

TCE 009349757-02



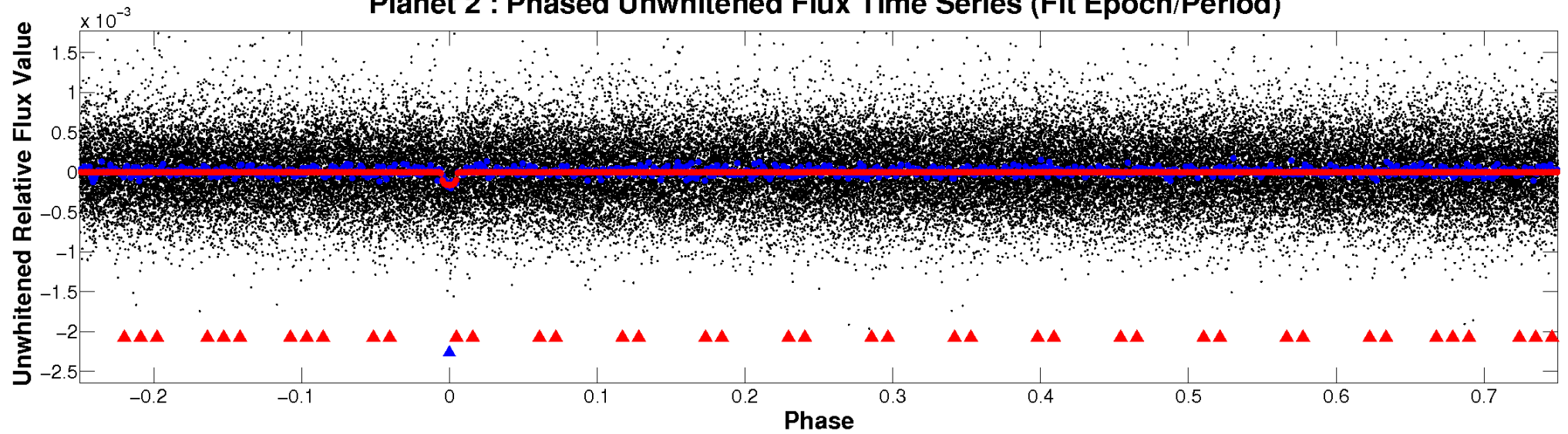
ALT Odd/Even

TCE 009349757-02

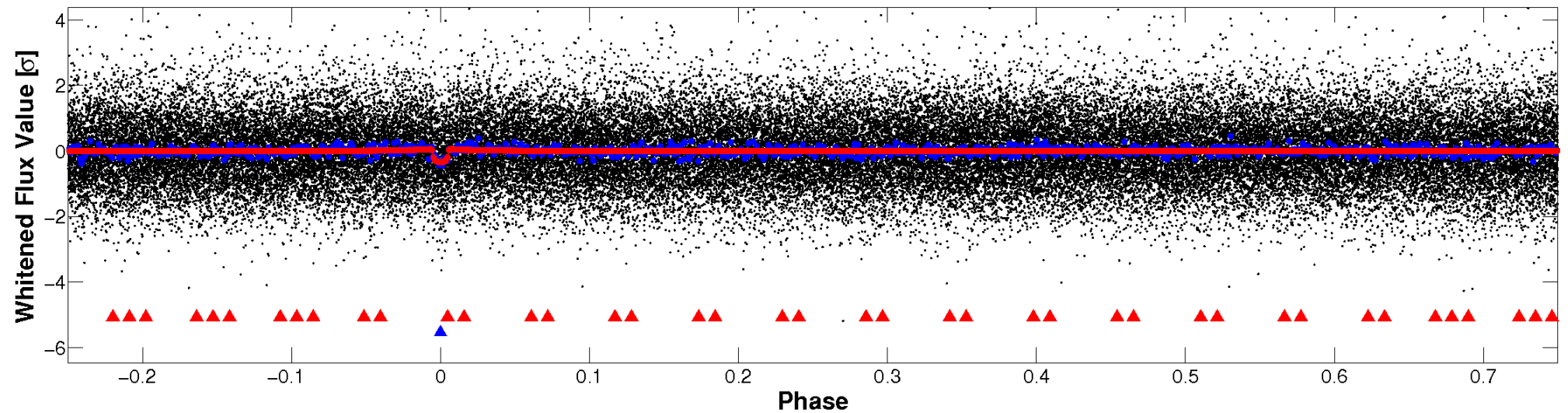


Non-Whitened Vs. Whitened Light Curve

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

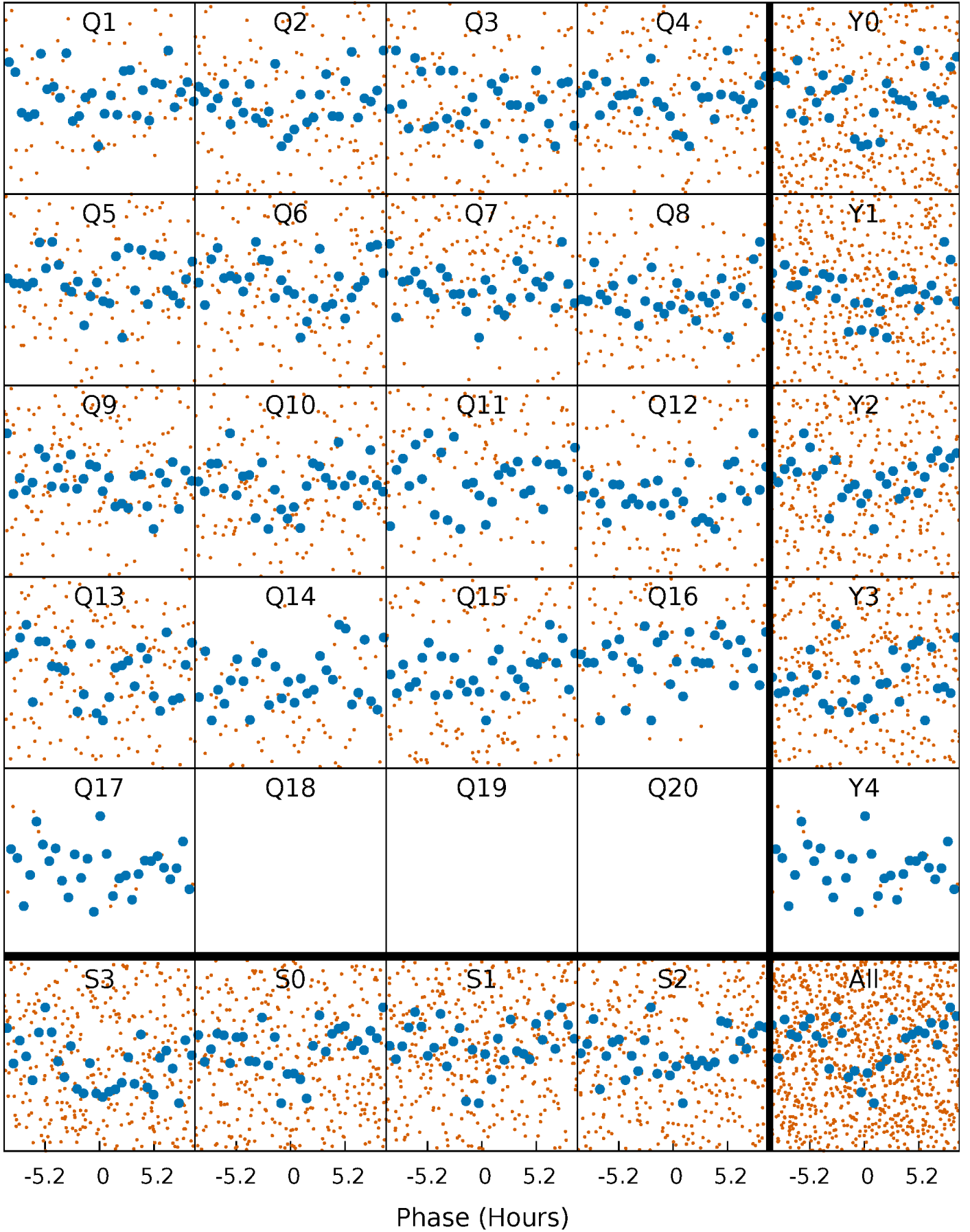


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



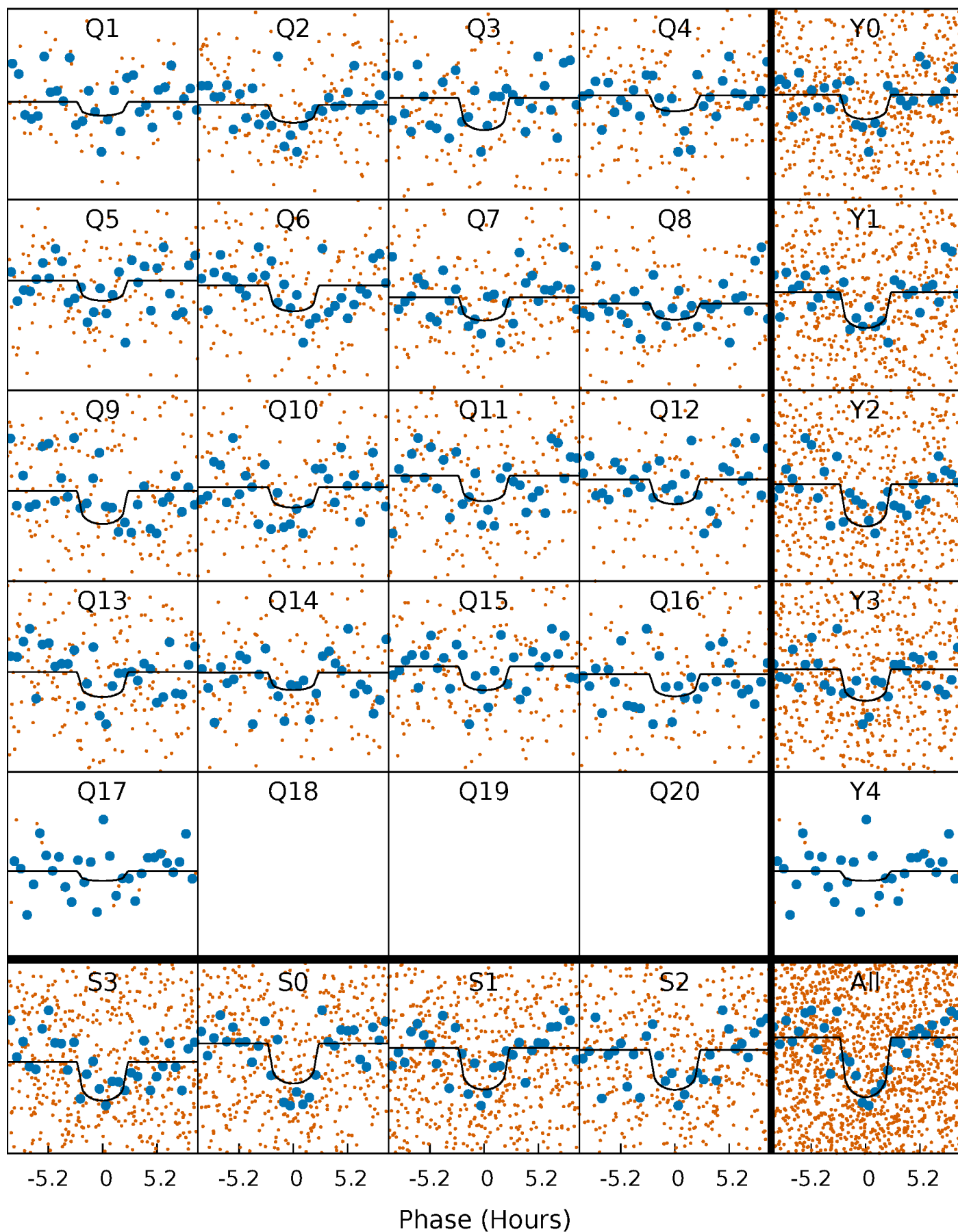
PDC Quarter-Phased Transit Curves

TCE 009349757-02 $P = 17.719373$ Days $T_0 = 138.788196$ (BKJD)



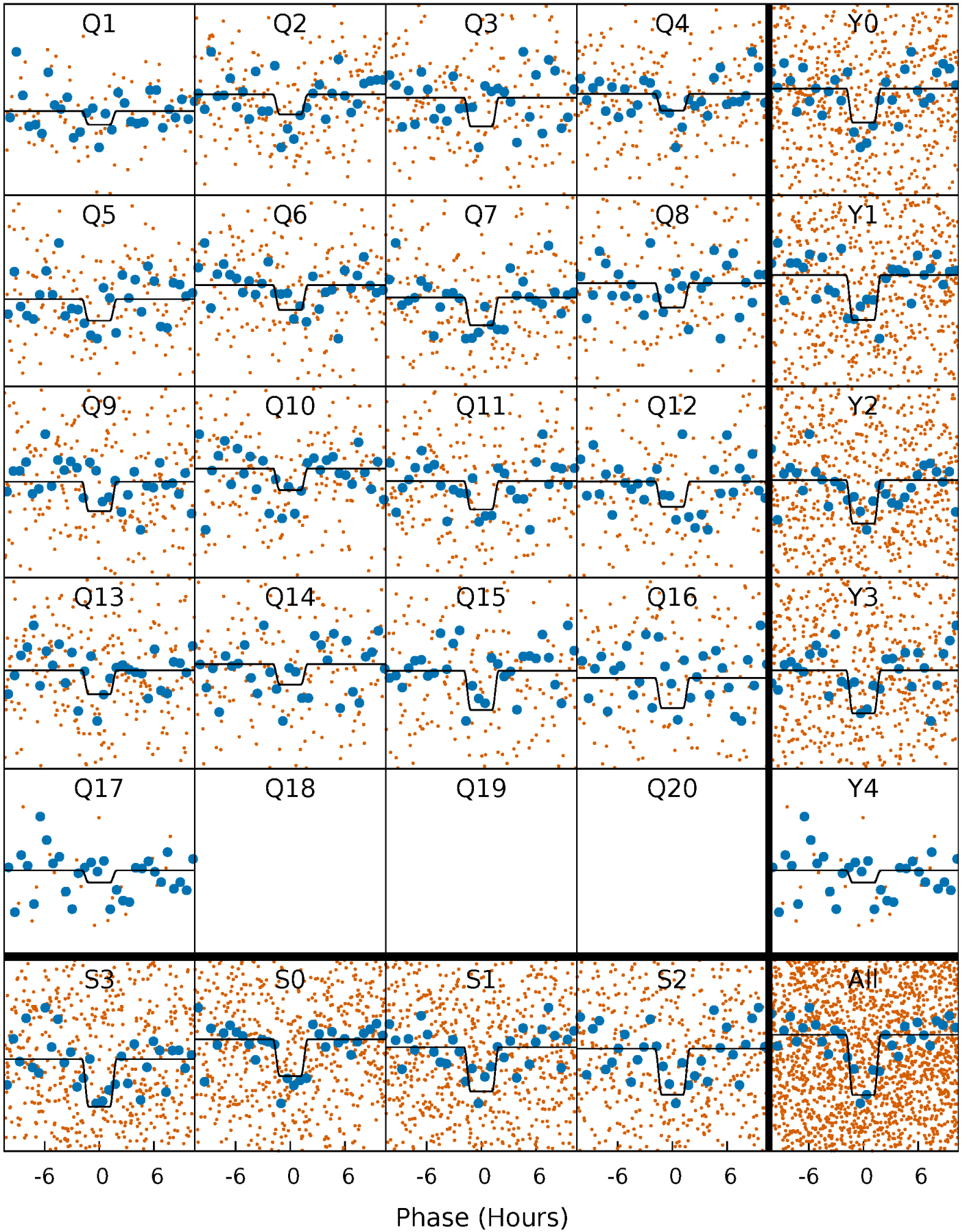
DV Quarter-Phased Transit Curves

TCE 009349757-02 P= 17.719373 Days $T_0=138.788196$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

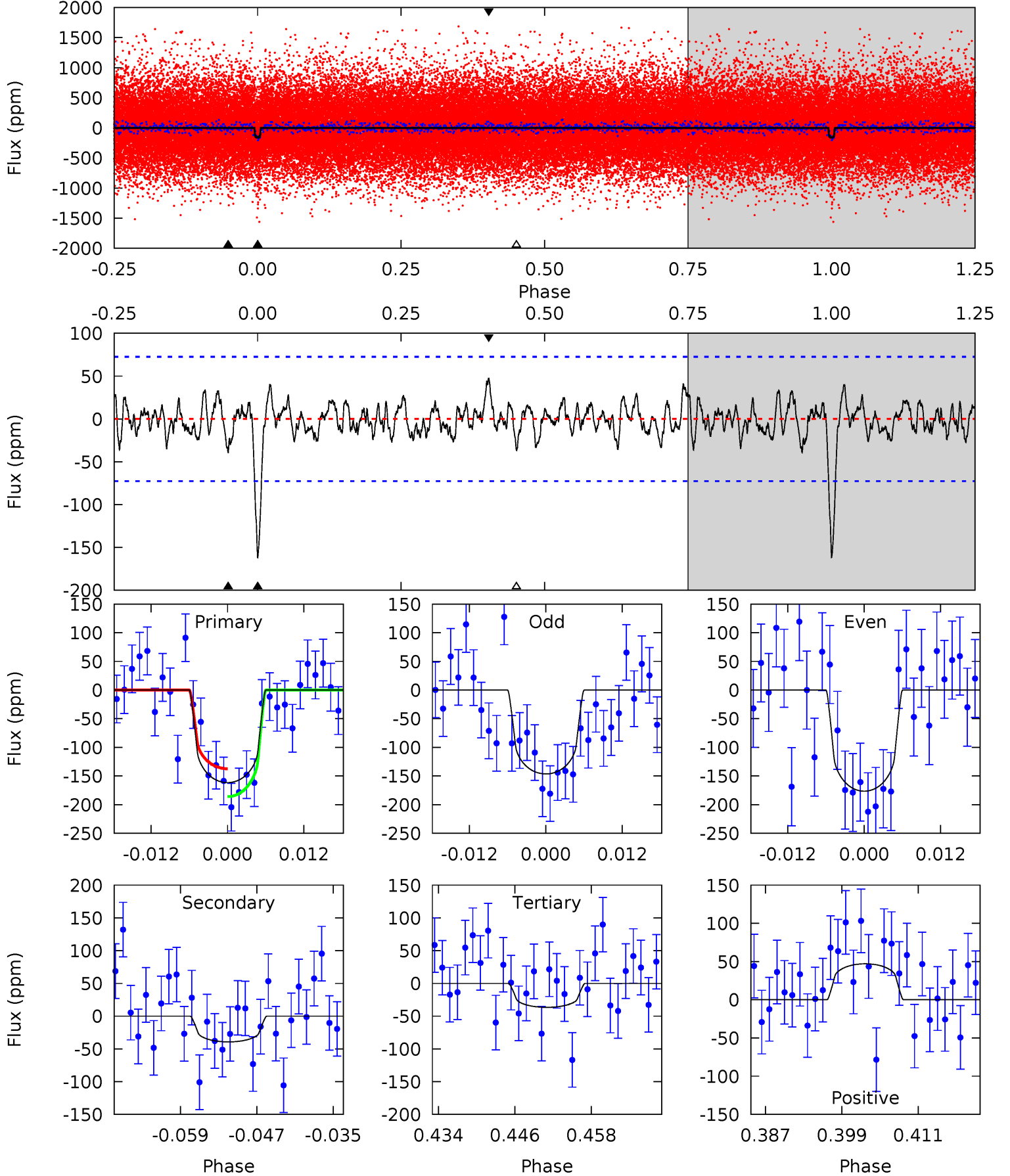
TCE 009349757-02 P= 17.719308 Days $T_0=138.798523$ (BKJD)



DV Model-Shift Uniqueness Test

009349757-02, P = 17.719373 Days, E = 121.068823 Days

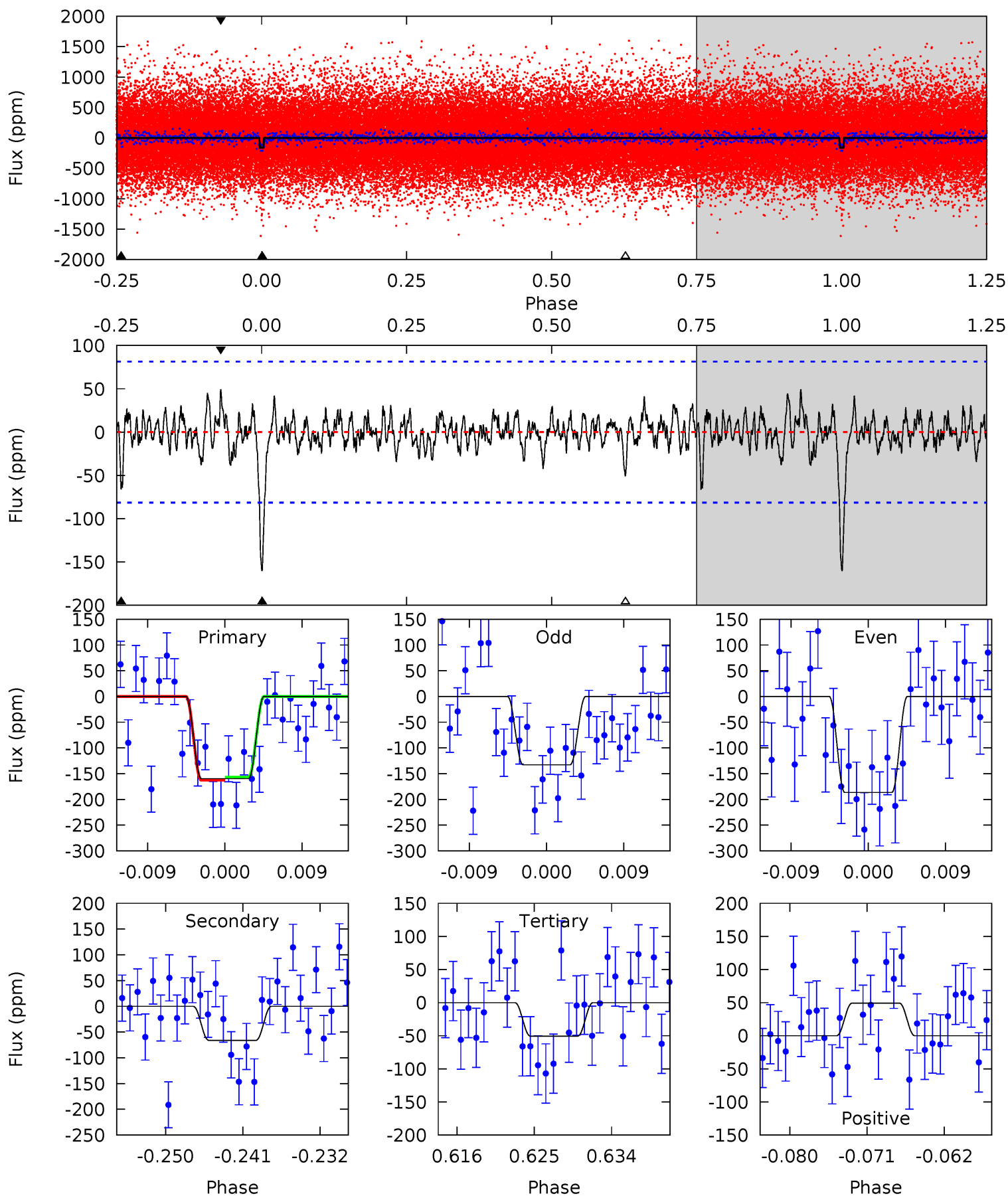
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	2.71	2.52	3.24	5.00	2.52	1.02	8.61	7.89	0.19	-0.53	1.04	1.04	0.23	1.68



Alt Model-Shift Uniqueness Test

009349757-02, P = 17.719308 Days, E = 121.079215 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.89	4.10	3.14	3.06	5.05	2.61	0.91	6.76	6.84	0.96	1.04	1.66	0.93	0.24	0.19



Stellar Parameters For KIC 009349757

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5566^{+83}_{-75}	$4.329^{+0.132}_{-0.108}$	$0.140^{+0.150}_{-0.150}$	$1.099^{+0.168}_{-0.153}$	$0.938^{+0.069}_{-0.046}$	$0.997^{+0.582}_{-0.314}$
	+1%/-1%	+3%/-2%	+107%/-107%	+15%/-14%	+7%/-5%	+58%/-32%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 009349757-02 / KOI 3348.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-39 ± 15	$1.86^{+1.54}_{-1.11}$	998^{+42}_{-44}	3822^{+1887}_{-661}	100^{+603}_{-70}
Alt.	-66 ± 16	$1.87^{+1.53}_{-1.18}$	994^{+42}_{-42}	4212^{+2230}_{-777}	167^{+1121}_{-116}

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 $A_{obs} \gg 1.0$

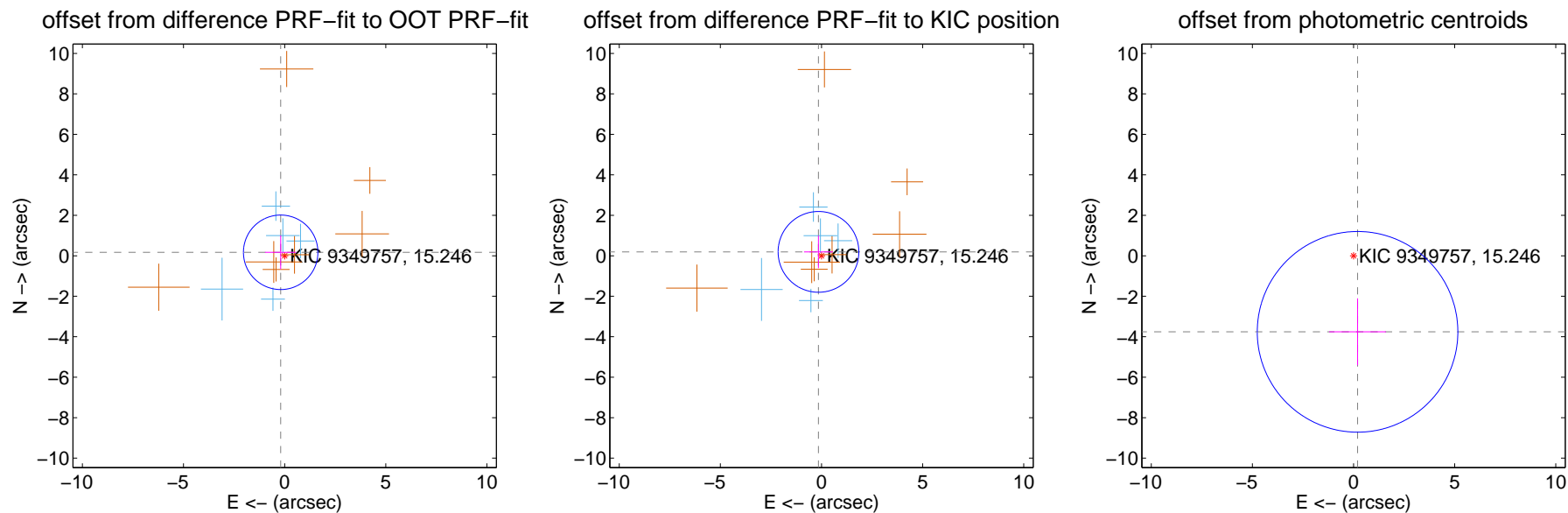
DV Centroid Data

Supplemental centroid analysis for 009349757-02. Kepler magnitude: 15.25. Transit SNR 7.69

There are 5 quarters with good PRF difference image offsets

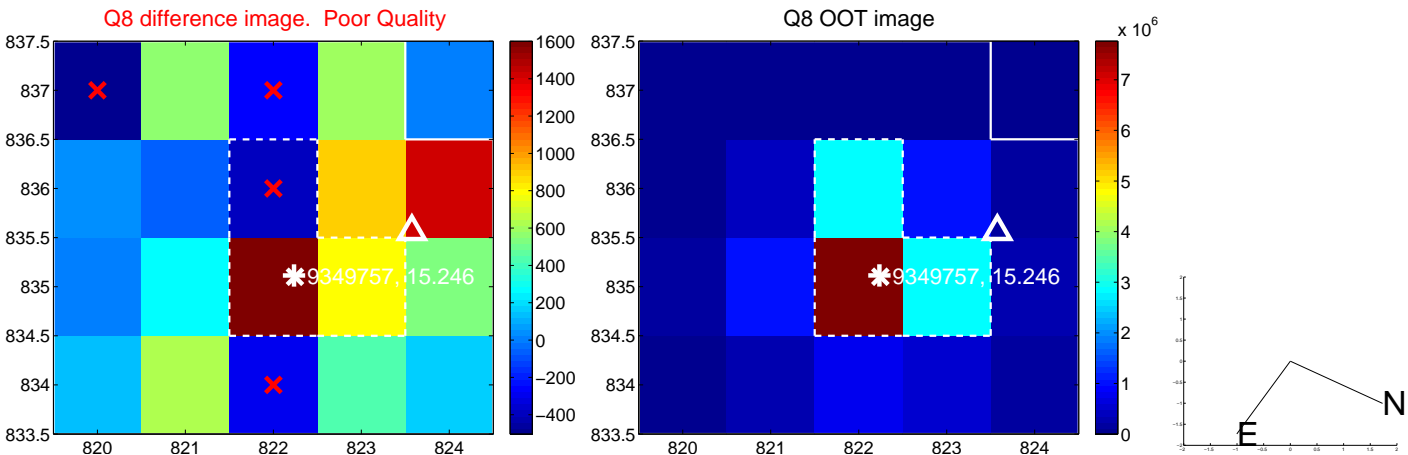
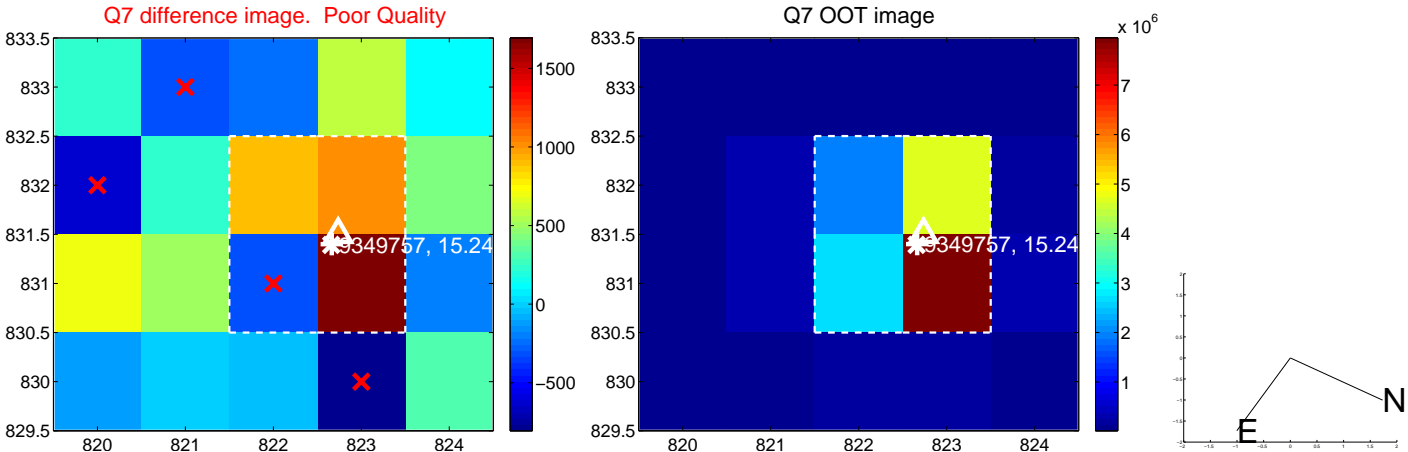
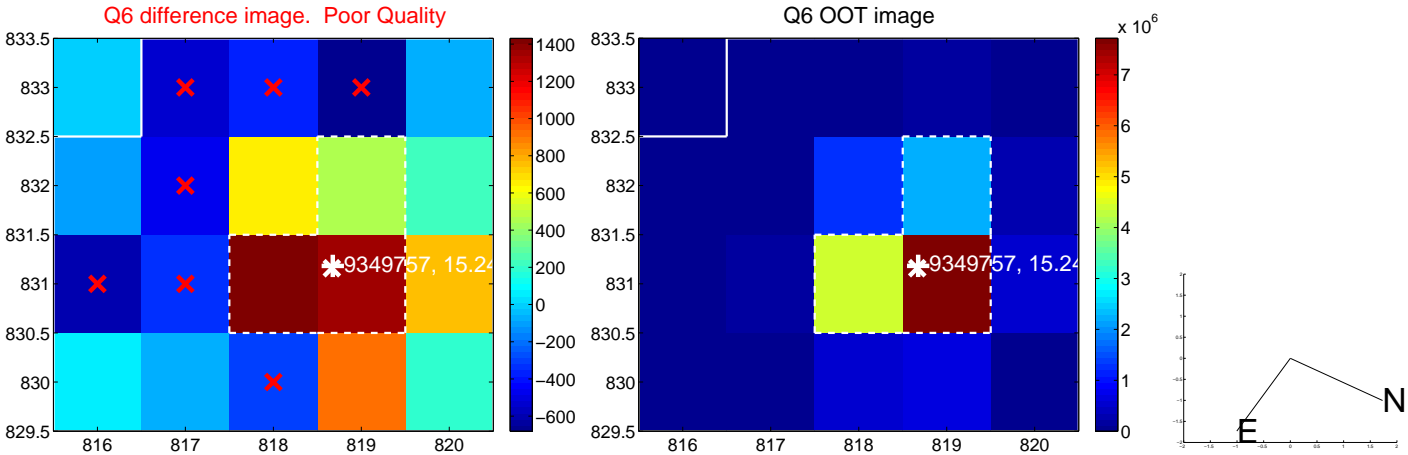
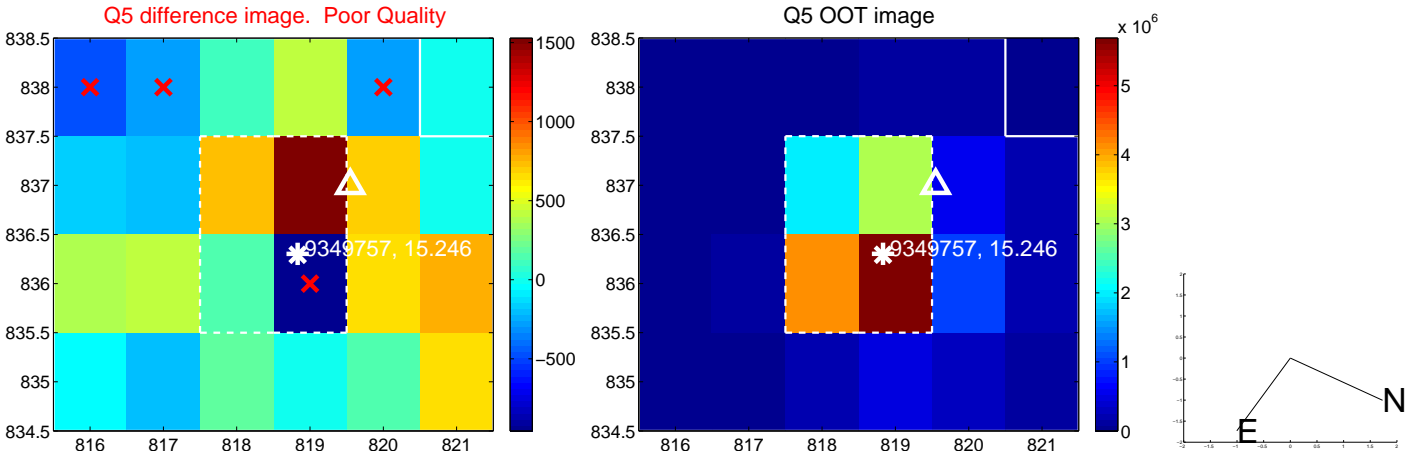
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.261 ± 0.614	0.42	0.196 ± 0.775	0.171 ± 0.832
PRF-fit source offset from KIC position	0.244 ± 0.665	0.37	0.149 ± 0.714	0.193 ± 0.805
photometric centroid source offset	3.76 ± 1.65	2.28	-0.20 ± 1.41	-3.76 ± 1.65

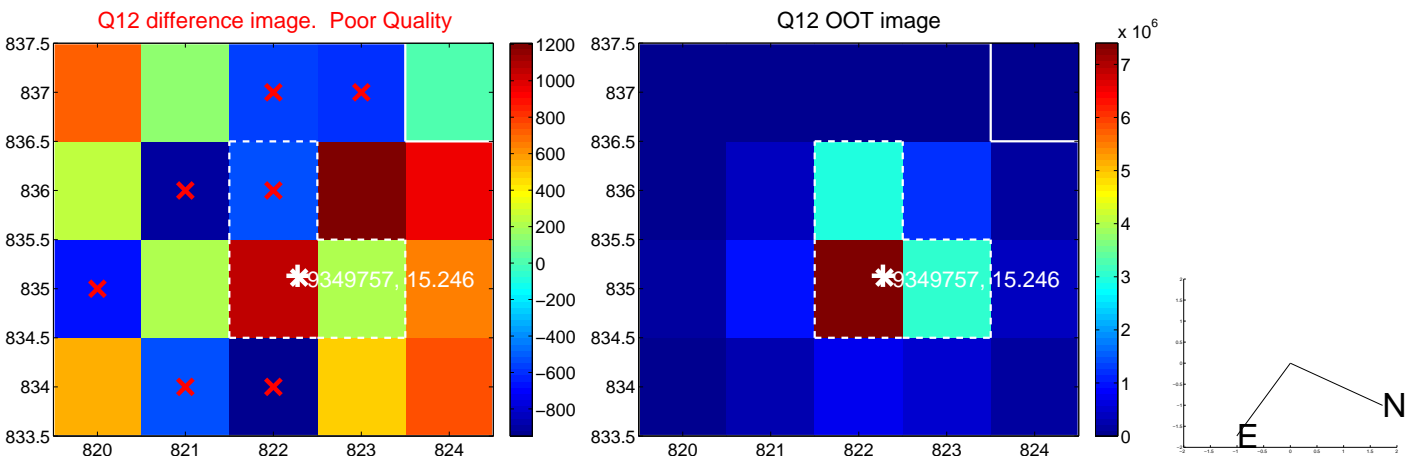
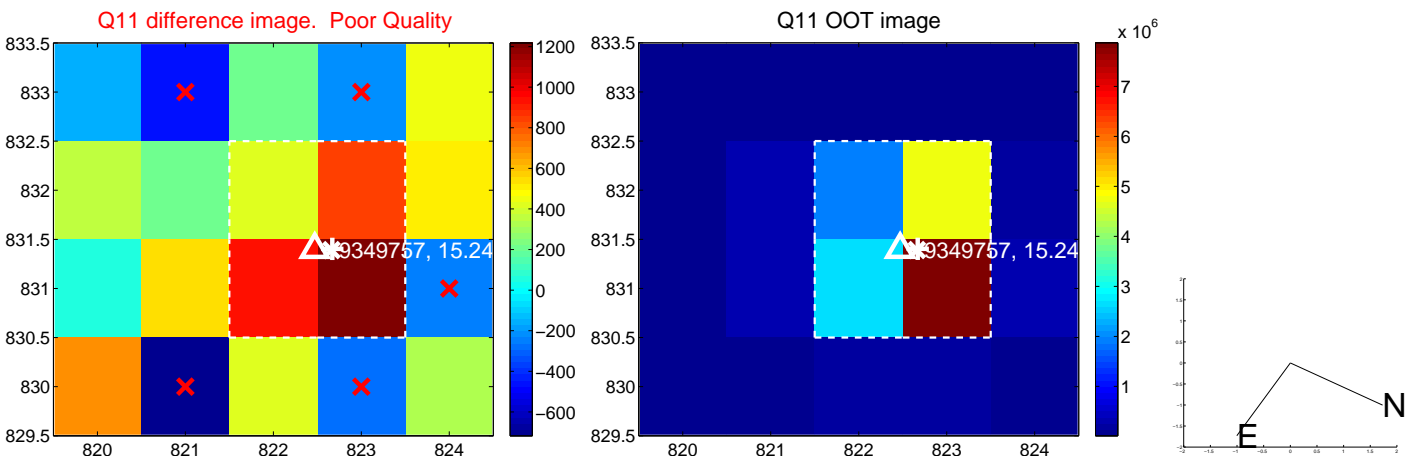
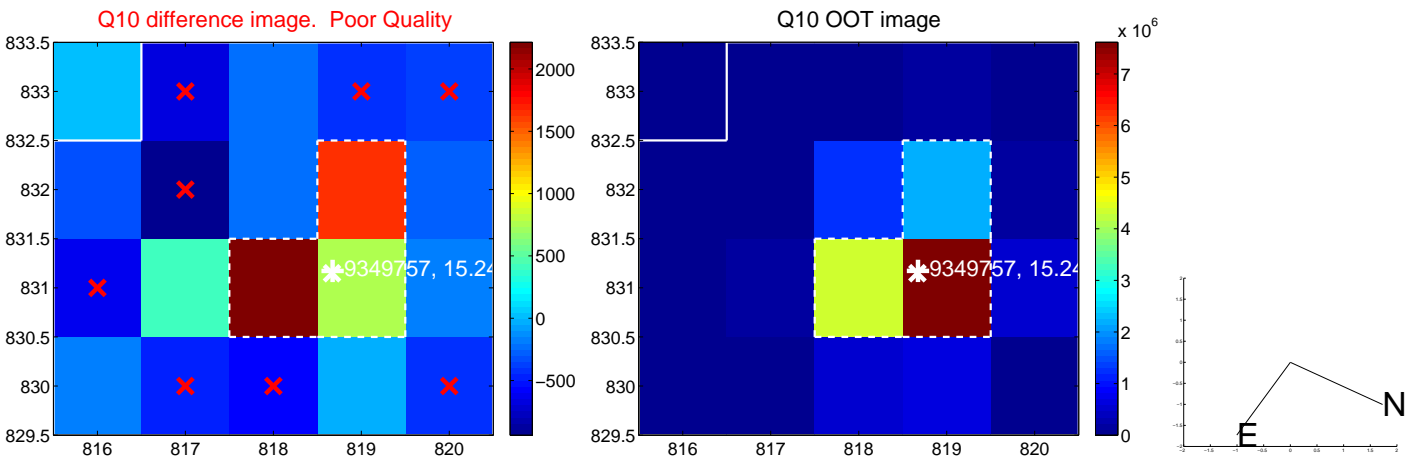
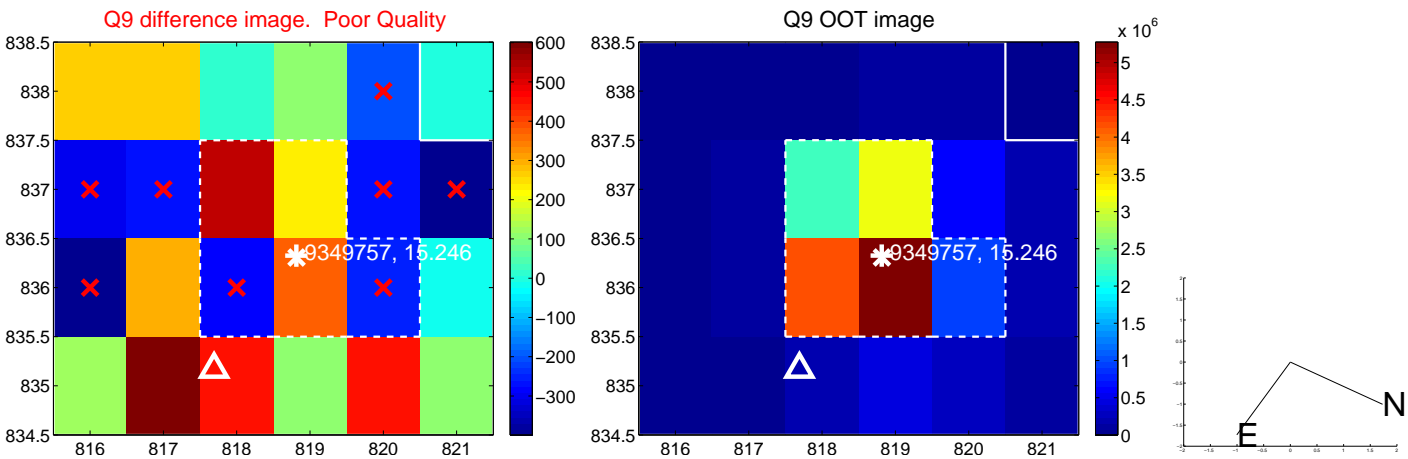


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

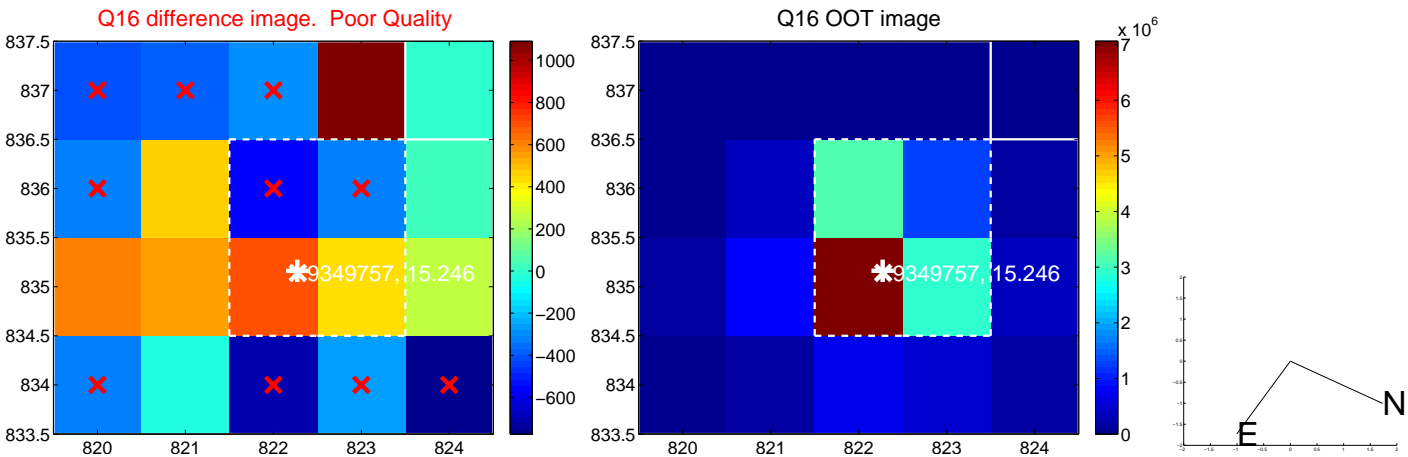
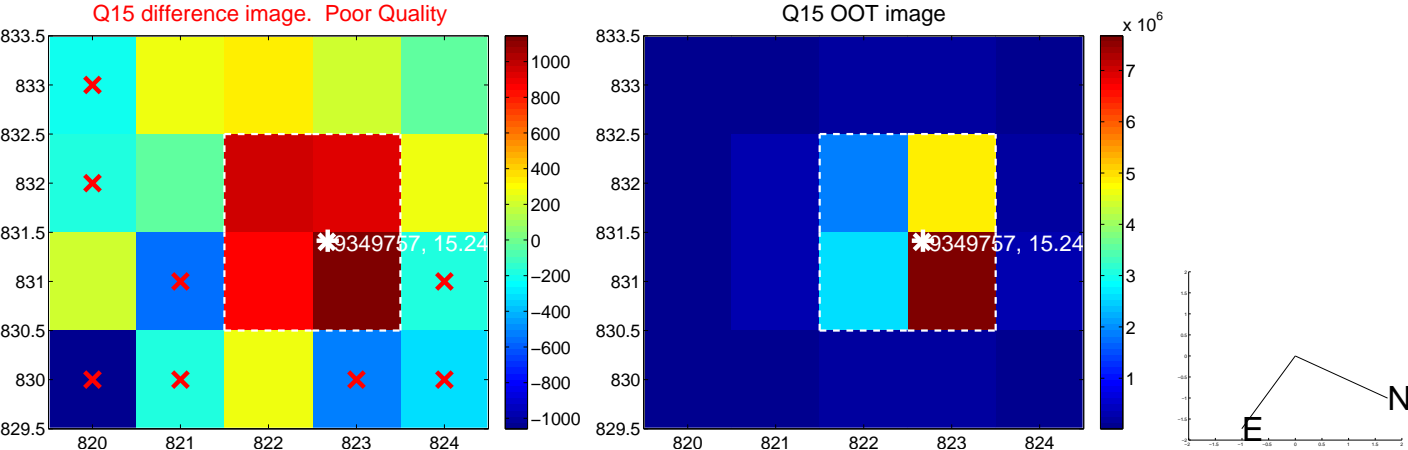
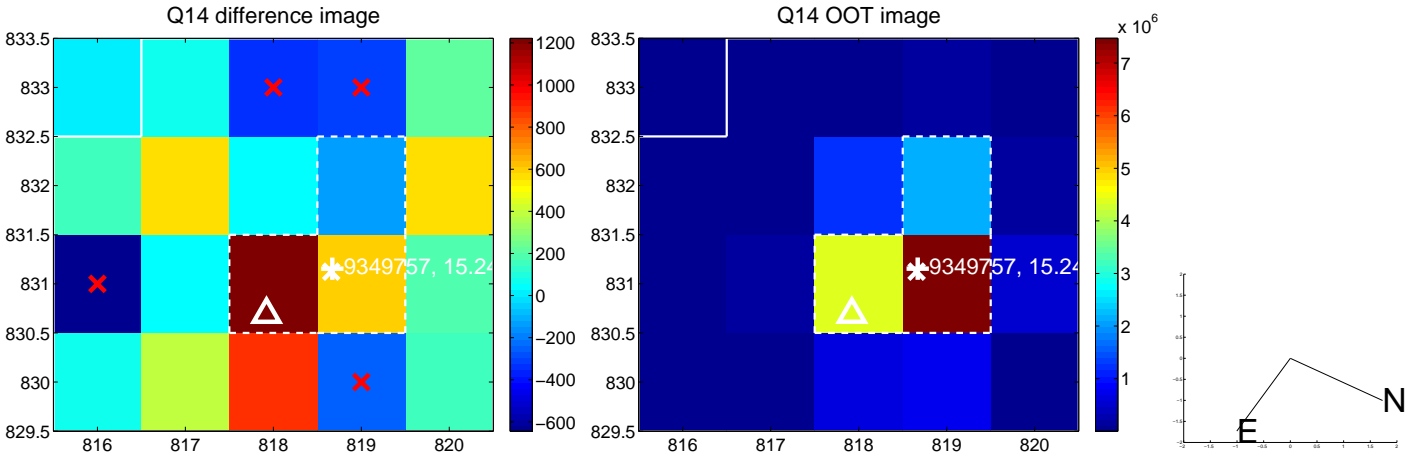
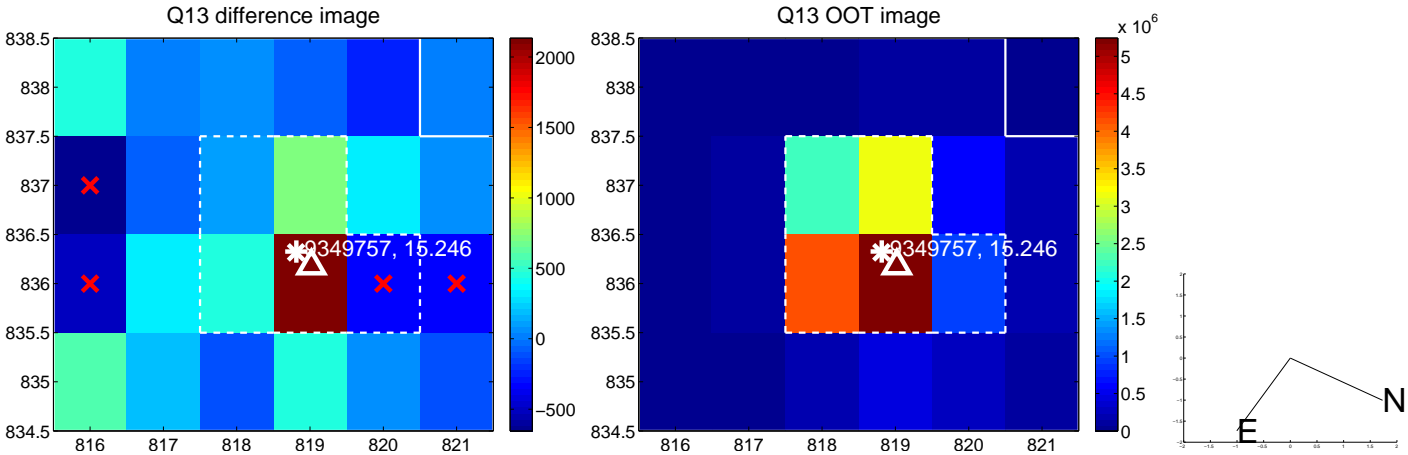
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



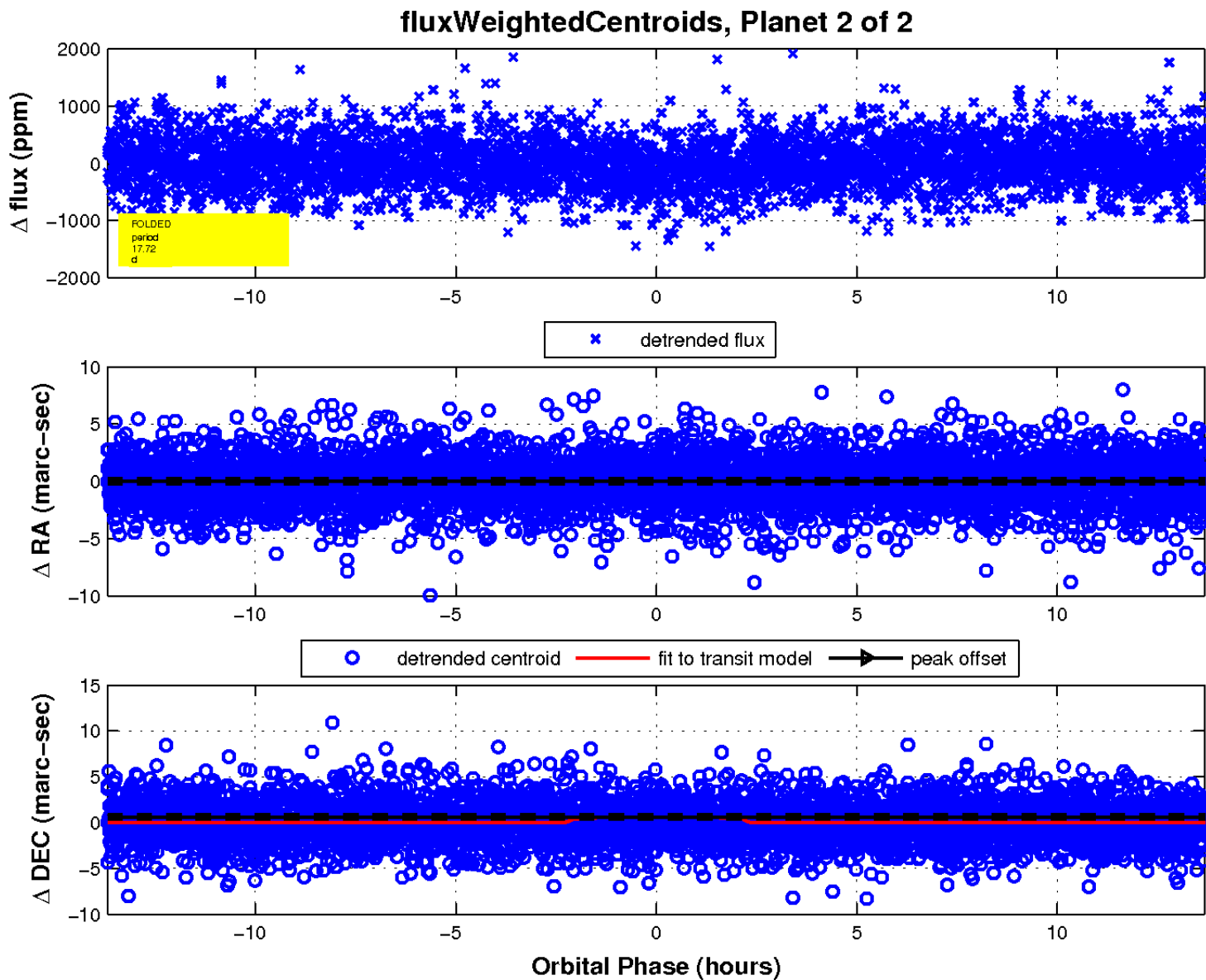
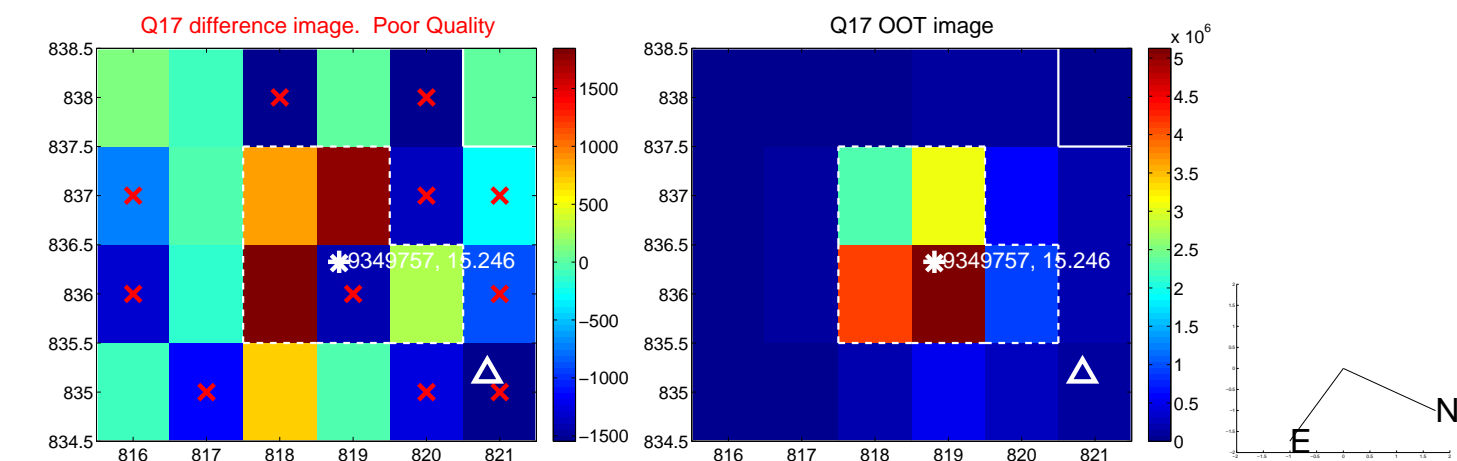
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

