

KIC 008652360

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})
008652360-01	OBS	4562.02	0.968052	131.972779	53.8	1.863	9.3	8.1	0.69	5367	0.60	1158.58
008652360-02	OBS	4562.01	0.968066	132.451440	76.6	1.541	9.3	10.6	0.69	5367	0.72	1158.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008652360-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
008652360-02	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST

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

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

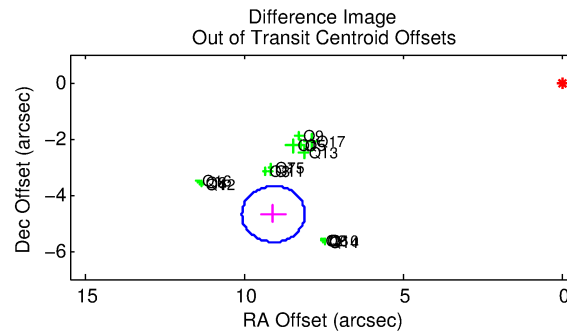
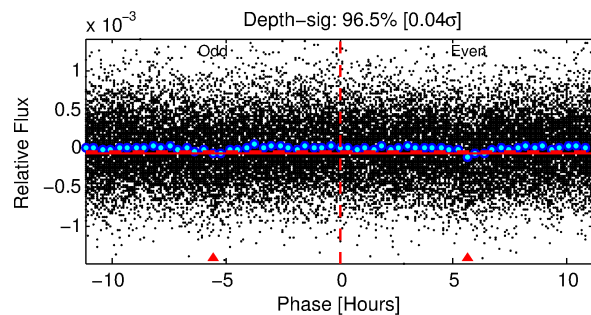
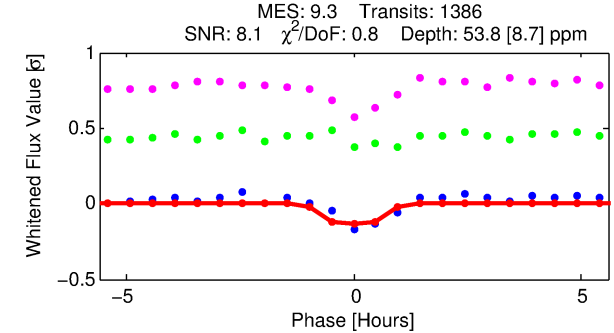
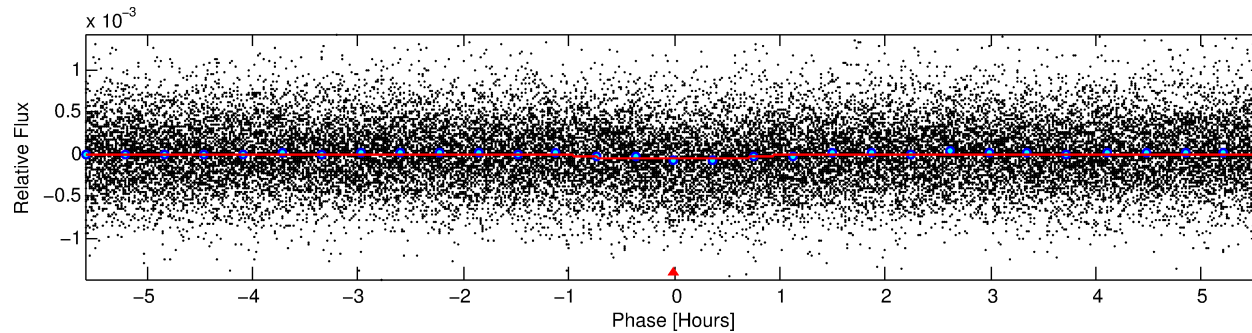
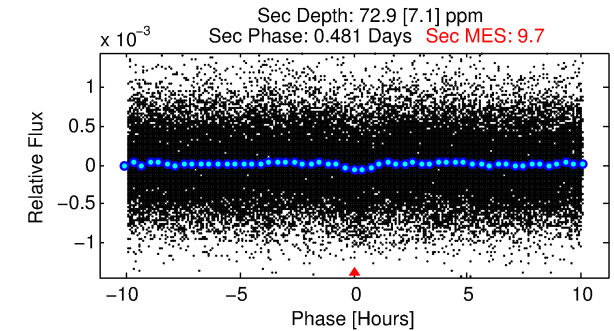
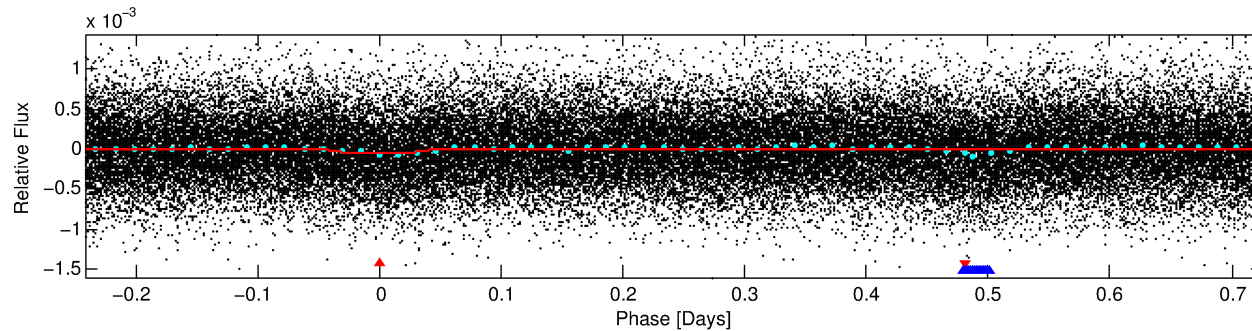
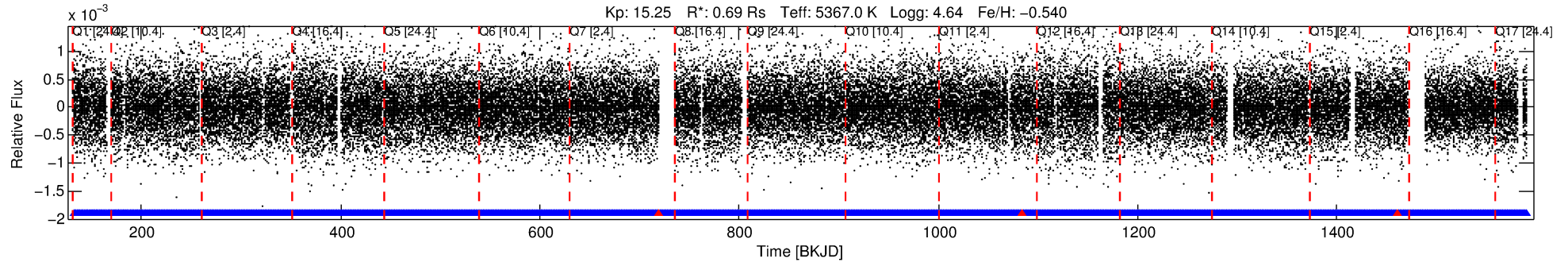
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008652360-01

No Significant Match Found

DV One-Page Summary

KIC: 8652360 Candidate: 1 of 2 Period: 0.968 d
KOI: K04562.02 Corr: 0.823



DV Fit Results:

Period = 0.96805 [0.00001] d
Epoch = 131.9728 [0.0032] BKJD
Rp/R* = 0.0081 [0.0062]
a/R* = 2.02 [5.43]
b = 0.90 [0.76]
Seff = 1158.58 [243.89]
Teq = 1488 [78] K
Rp = 0.60 [0.48] Re
a = 0.0174 [0.0022] AU
Ag = 33.35 [51.93] [0.62σ]
Teffp = 5527 [2145] K [1.88σ]

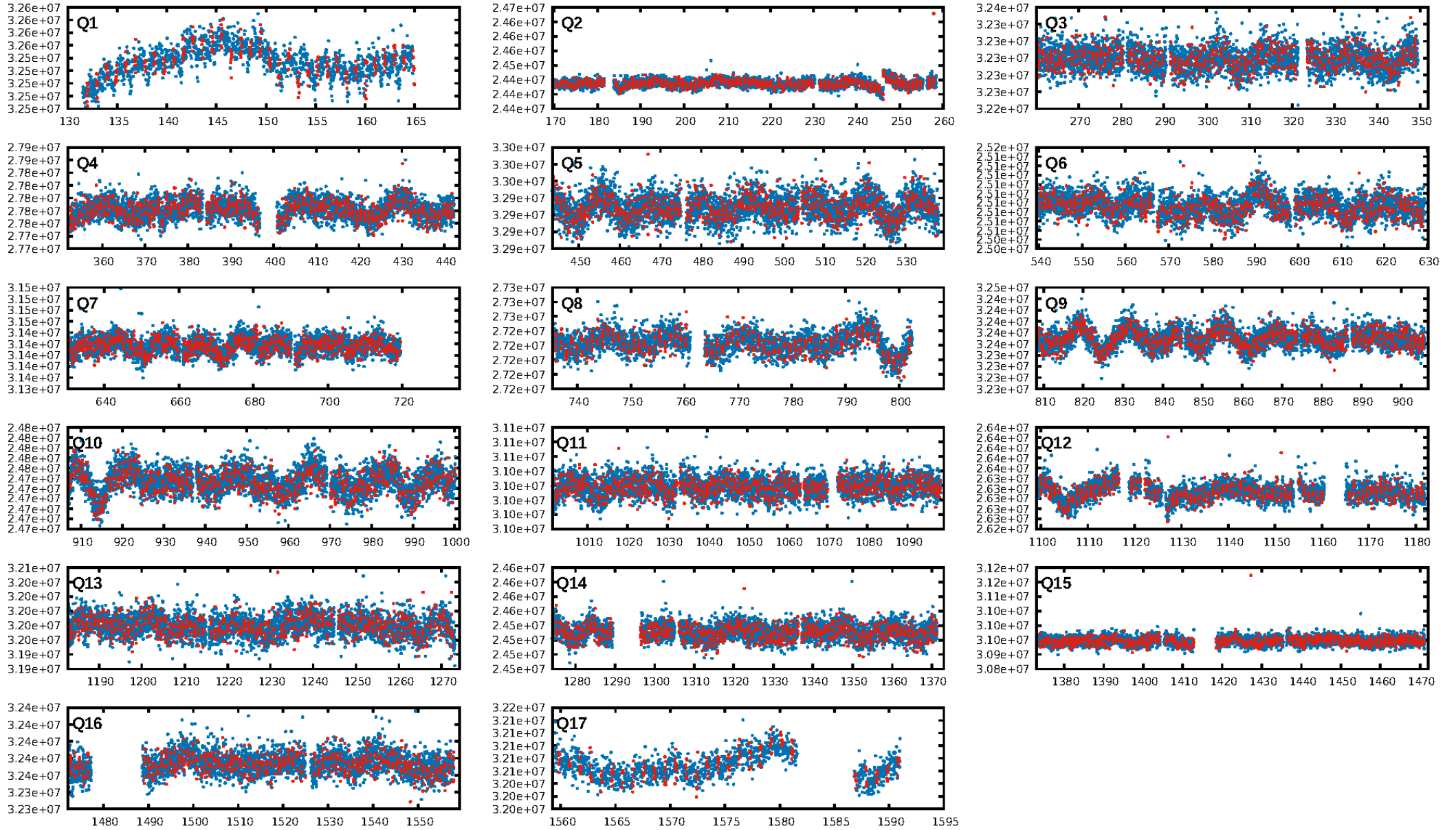
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.35e-36
RollingBand-fgt: 1.00 [1320/1323]
GhostDiagnostic-chr: -0.4806
Centroid-sig: 0.0%
Centroid-so: 8.187 arcsec [8.19σ]
OotOffset-rm: 10.235 arcsec [30.88σ]
KicOffset-rm: 10.356 arcsec [39.29σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

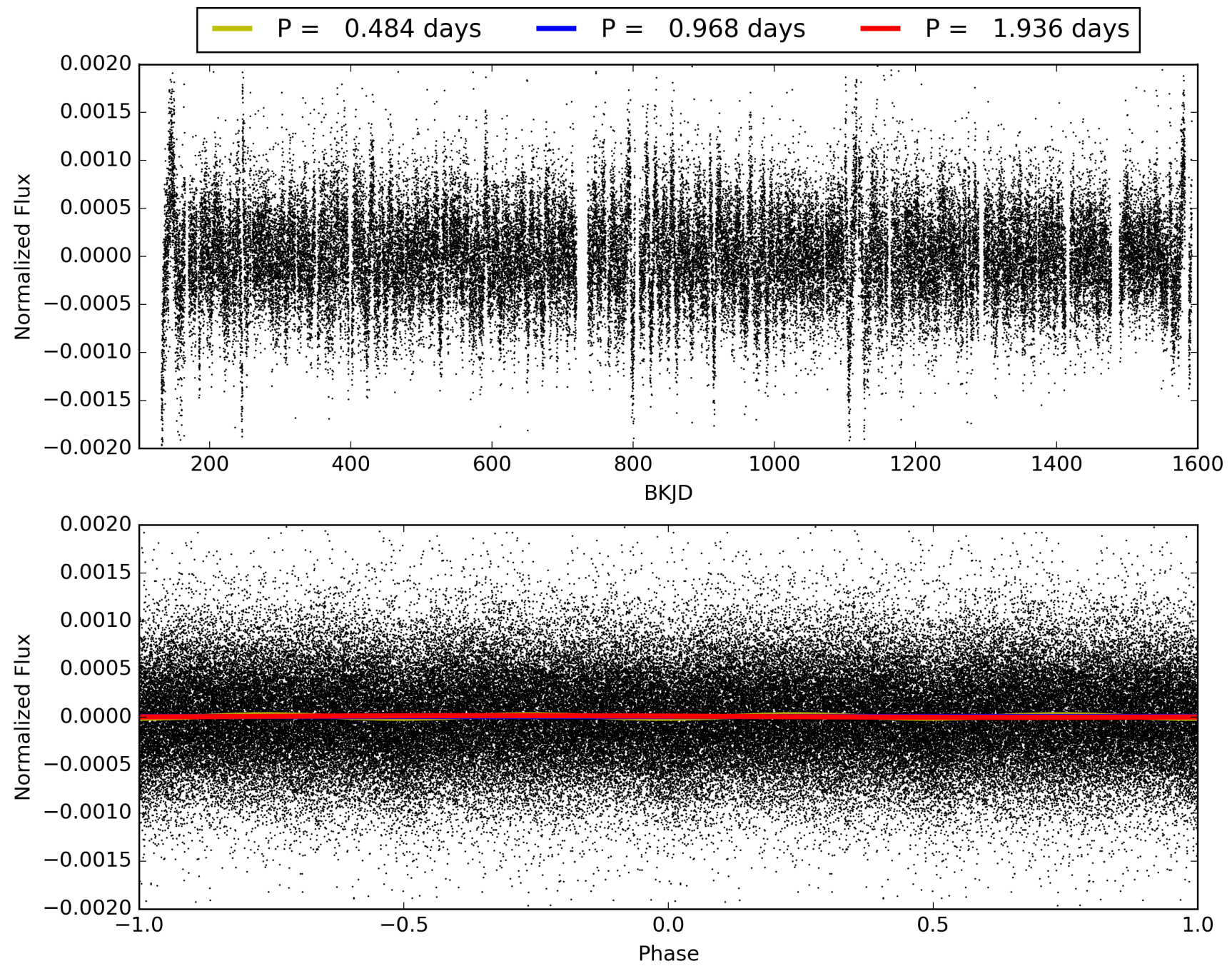
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:21:33 Z

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

TCE 008652360-01, PDC Light Curves

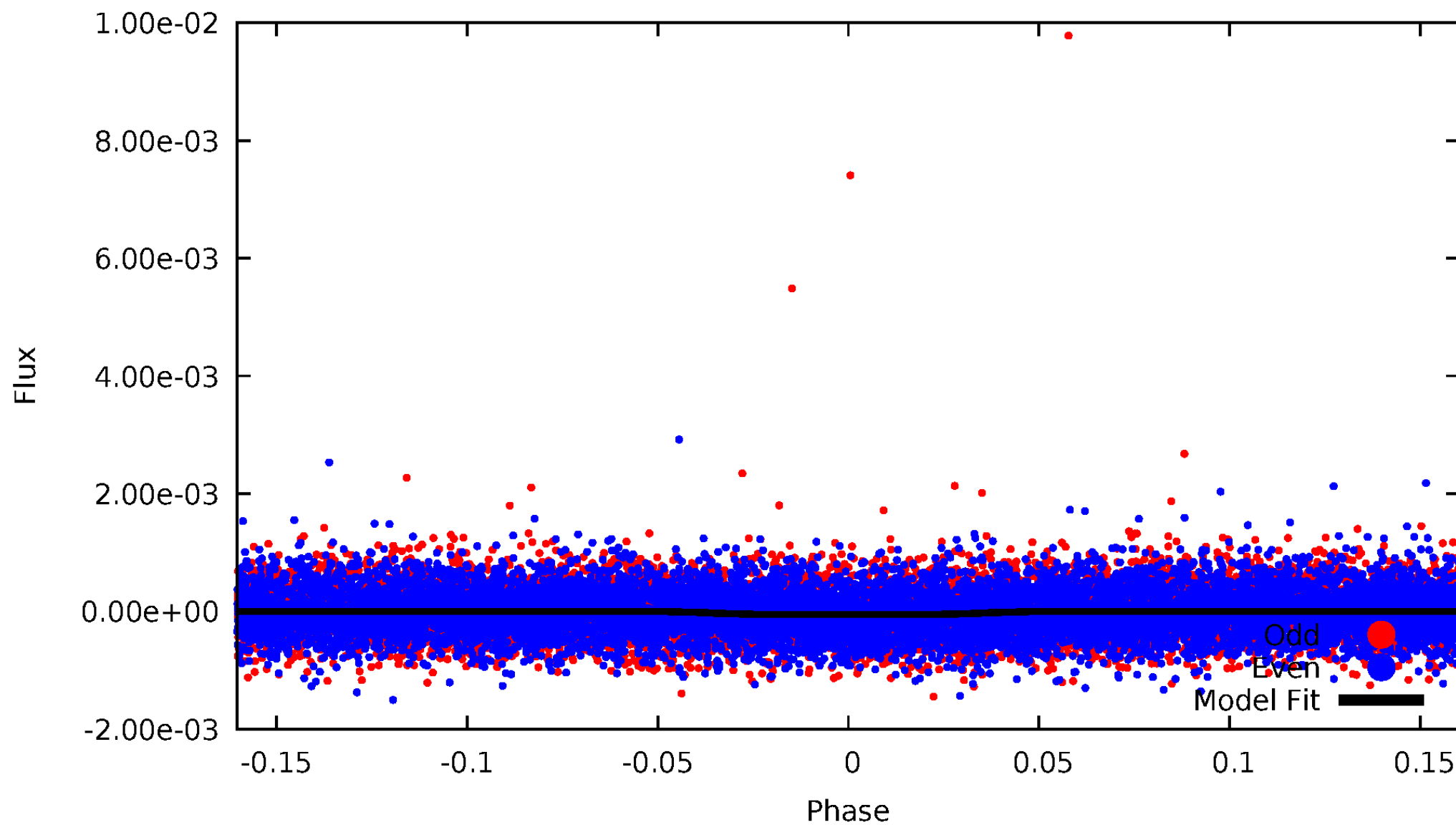


TCE 008652360-01



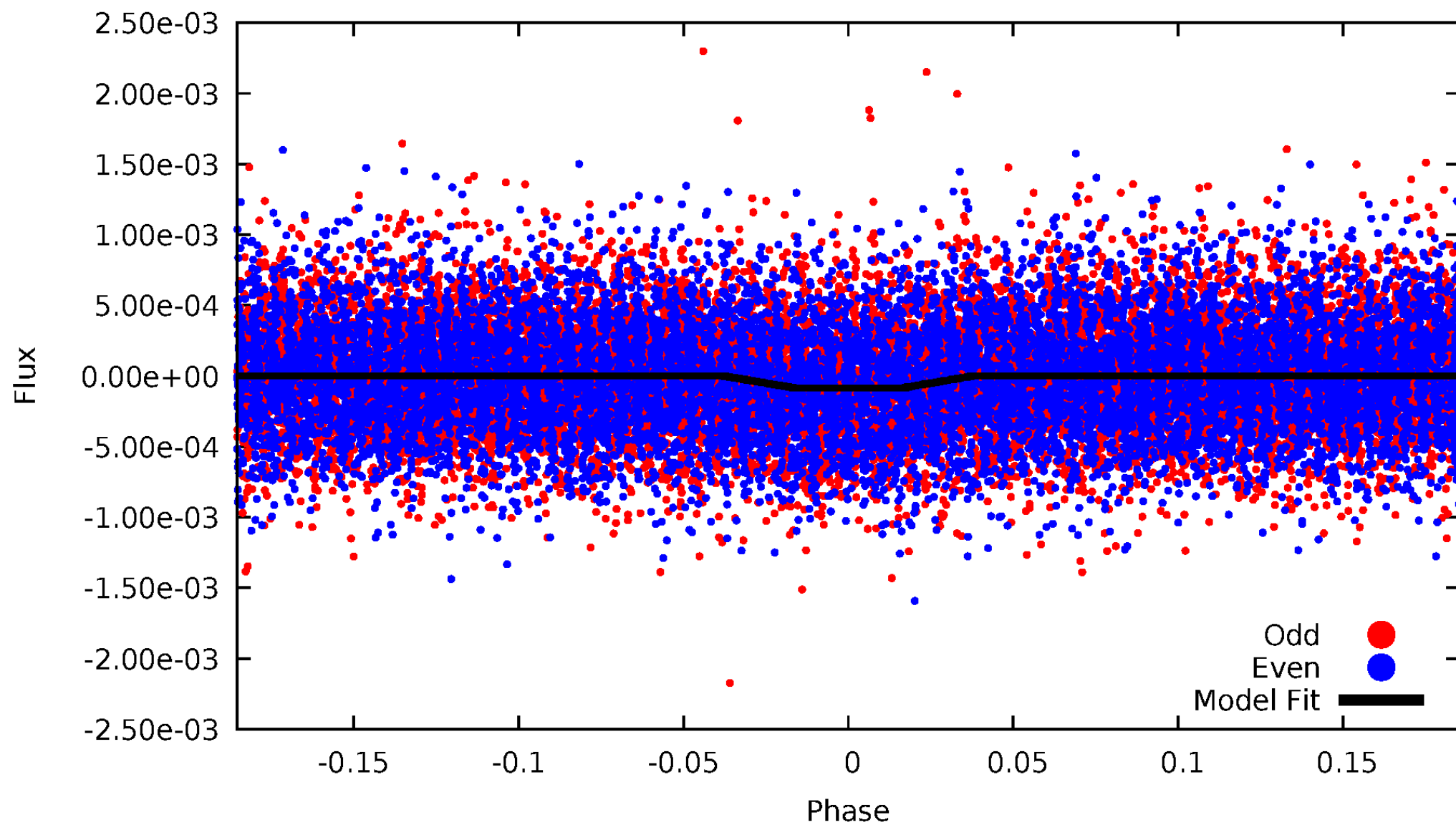
DV Odd/Even

TCE 008652360-01

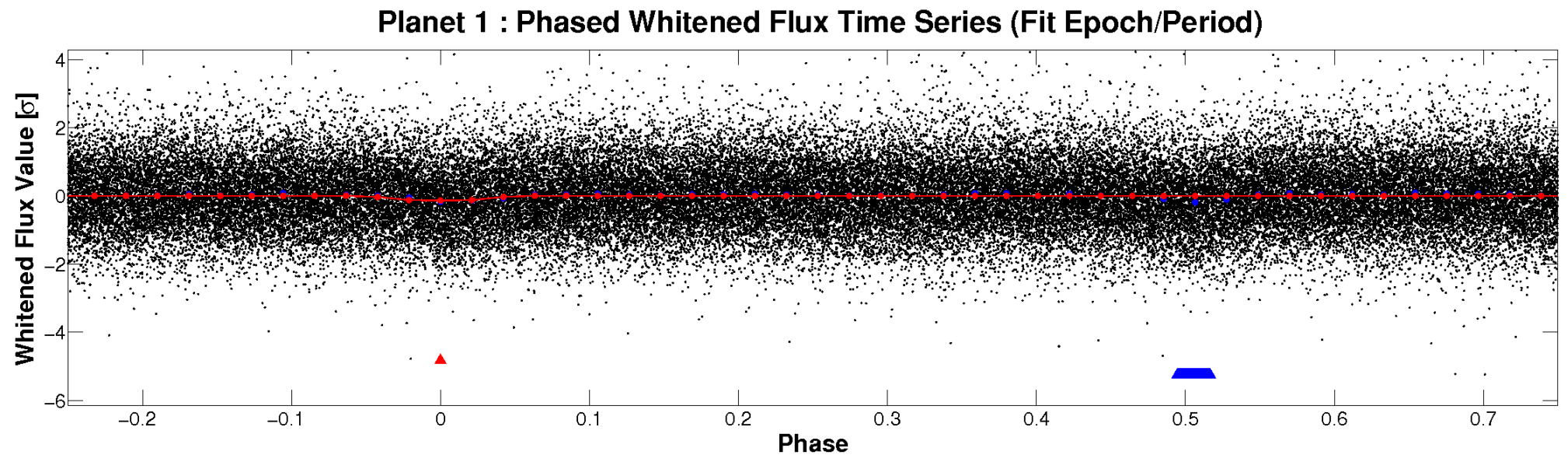
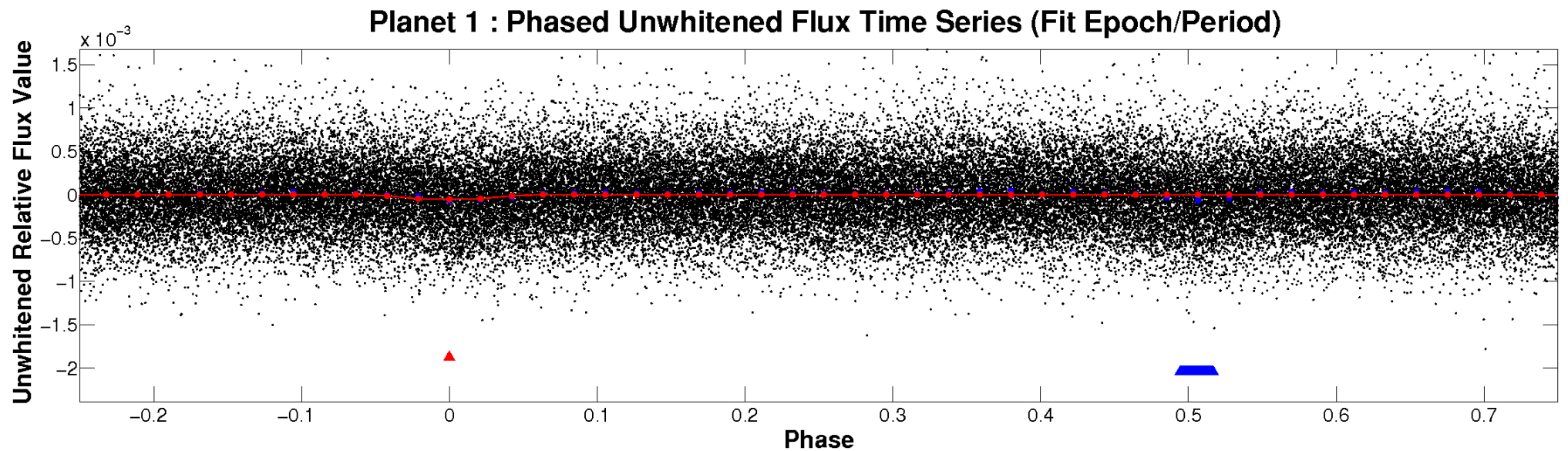


ALT Odd/Even

TCE 008652360-01

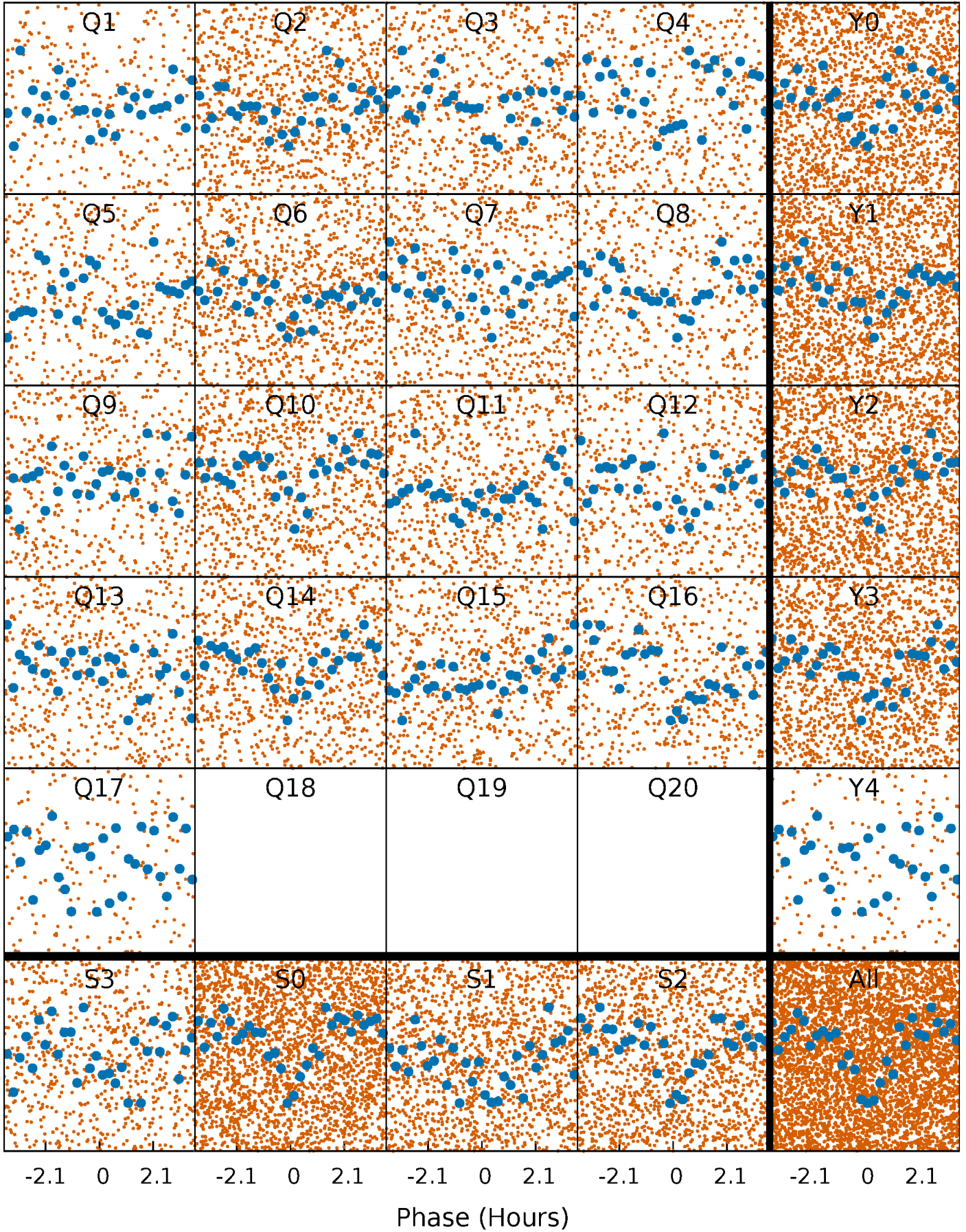


Non-Whitened Vs. Whitened Light Curve



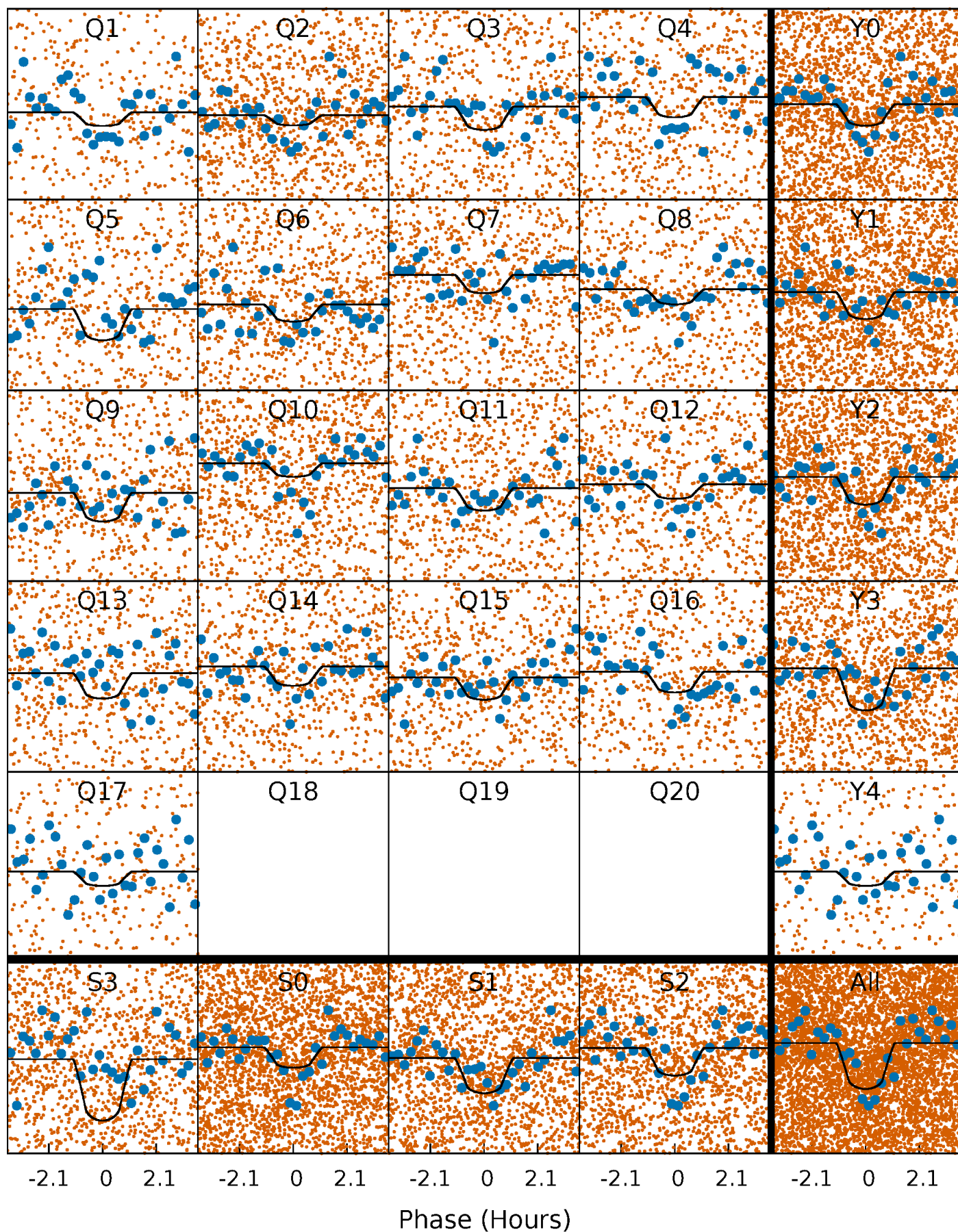
PDC Quarter-Phased Transit Curves

TCE 008652360-01 P= 0.968052 Days $T_0=131.972779$ (BKJD)



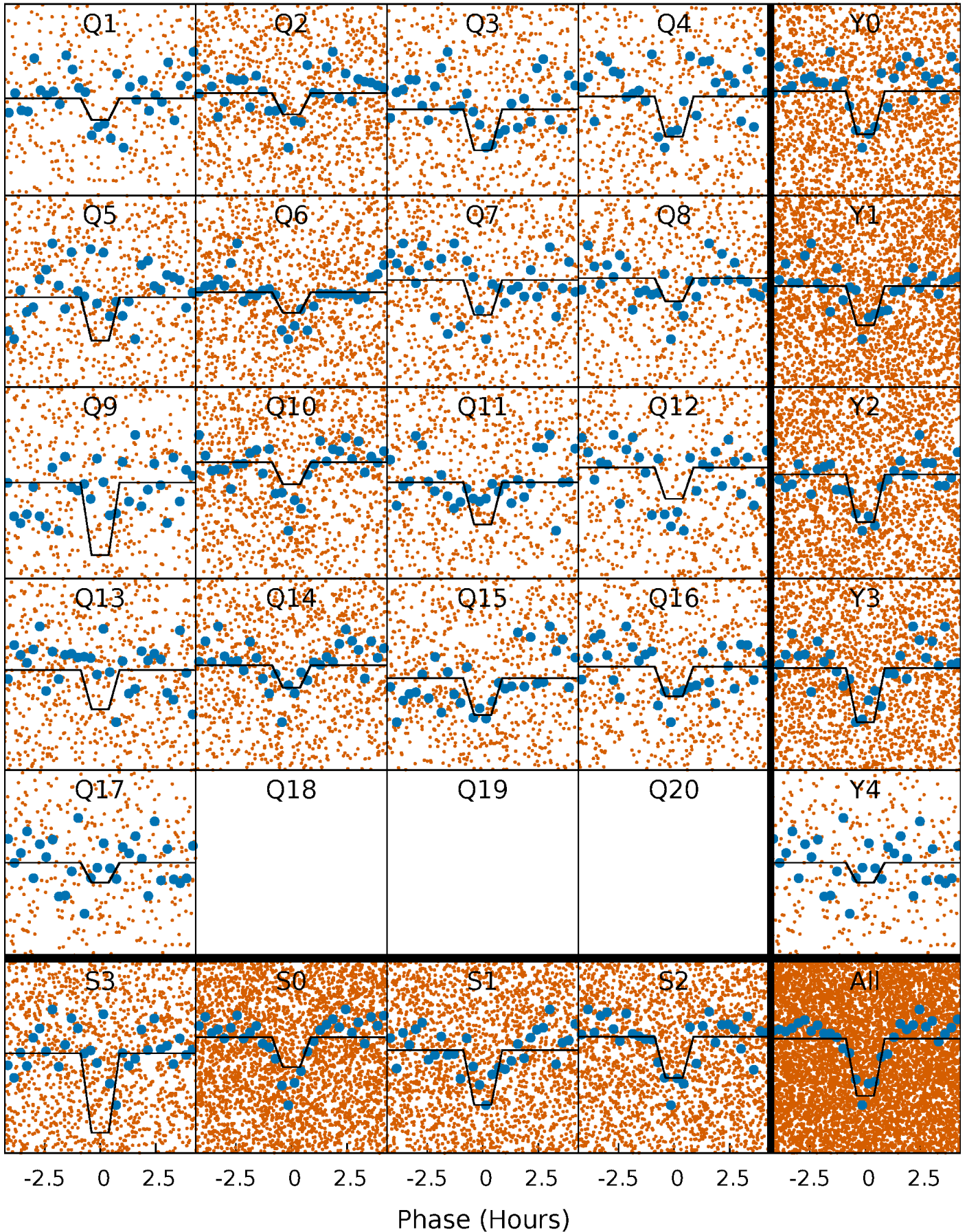
DV Quarter-Phased Transit Curves

TCE 008652360-01 P= 0.968052 Days $T_0=131.972779$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

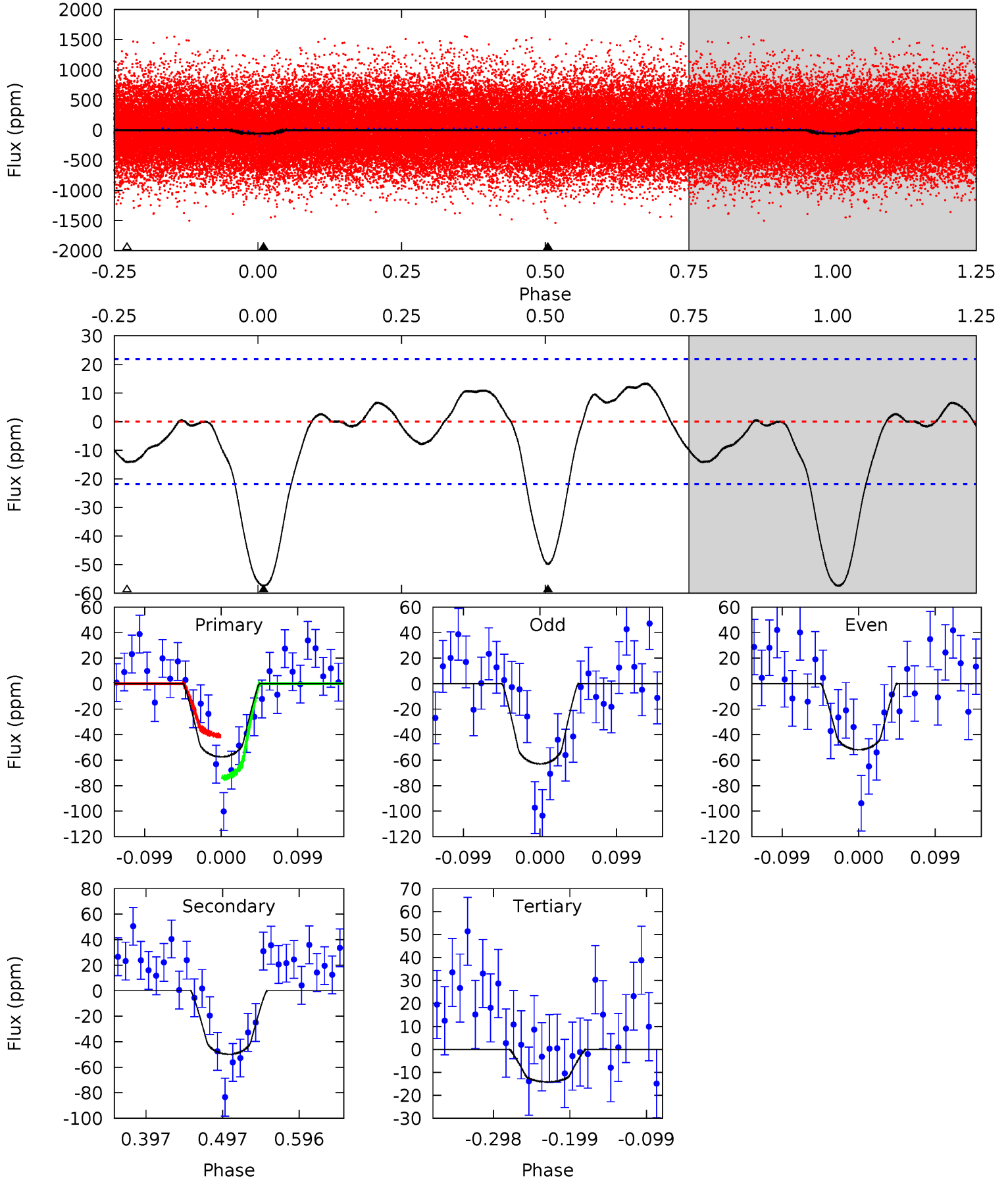
TCE 008652360-01 P= 0.968067 Days $T_0=131.970075$ (BKJD)



DV Model-Shift Uniqueness Test

008652360-01, P = 0.968052 Days, E = 131.004727 Days

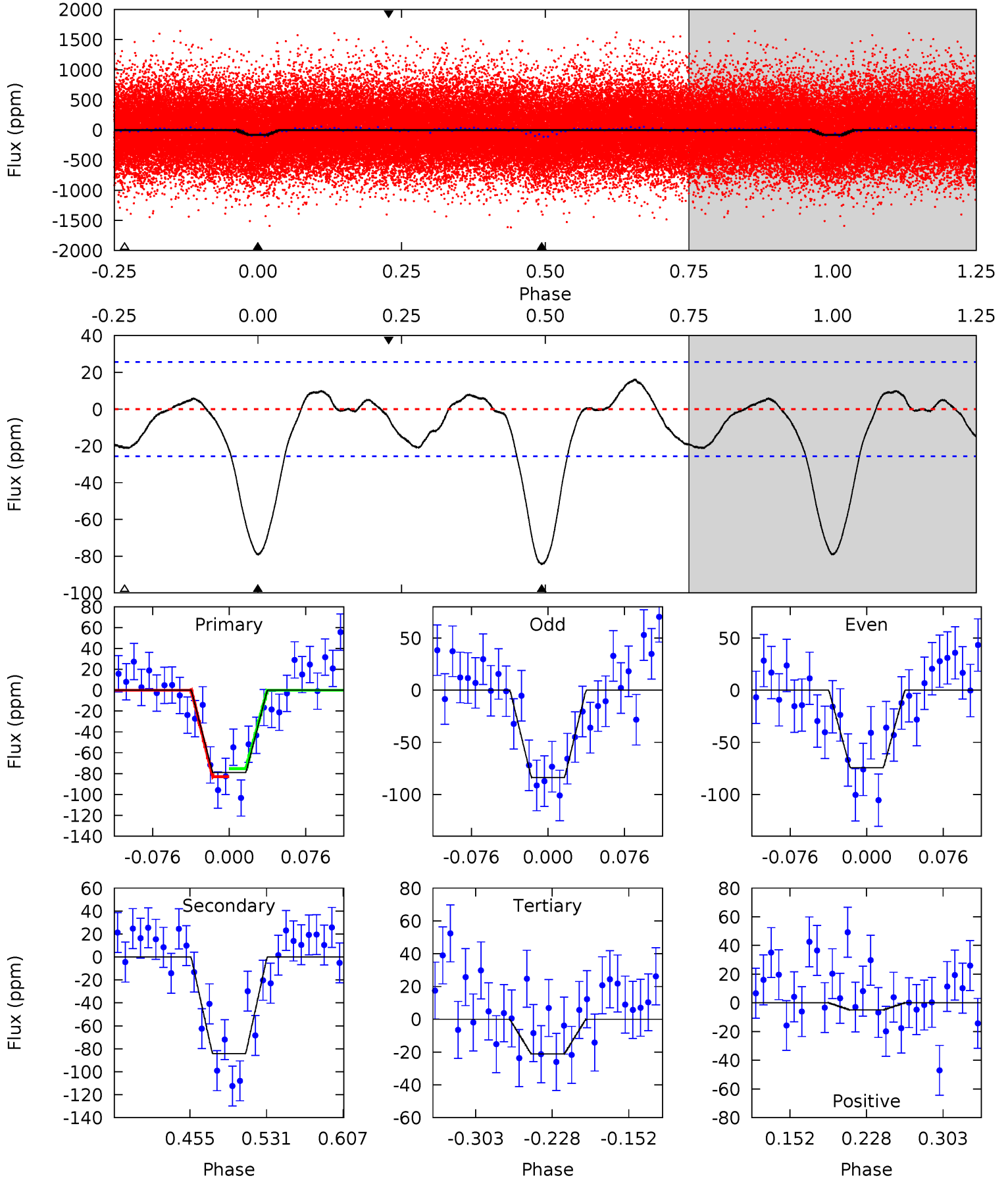
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	10.4	2.96	0	4.57	1.65	1.58	9.04	12.0	7.45	10.4	1.16	0.93	0.19	3.48



Alt Model-Shift Uniqueness Test

008652360-01, P = 0.968067 Days, E = 131.002008 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	15.2	3.80	-0.88	4.62	1.78	1.75	10.4	15.1	11.4	16.1	0.84	0.92	0.16	0.69



Stellar Parameters For KIC 008652360

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5367^{+160}_{-160}	$4.639^{+0.032}_{-0.091}$	$-0.540^{+0.300}_{-0.300}$	$0.687^{+0.106}_{-0.049}$	$0.757^{+0.072}_{-0.072}$	$3.286^{+0.539}_{-0.981}$
	+3%/-3%	+1%/-2%	+56%/-56%	+15%/-7%	+10%/-10%	+16%/-30%
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 008652360-01 / KOI 4562.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-50 ± 5	$0.69^{+0.45}_{-0.41}$	2104^{+87}_{-79}	4820^{+2832}_{-865}	18^{+87}_{-11}
Alt.	-84 ± 6	$0.70^{+0.47}_{-0.40}$	2102^{+93}_{-73}	5366^{+3023}_{-1061}	29^{+121}_{-18}

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

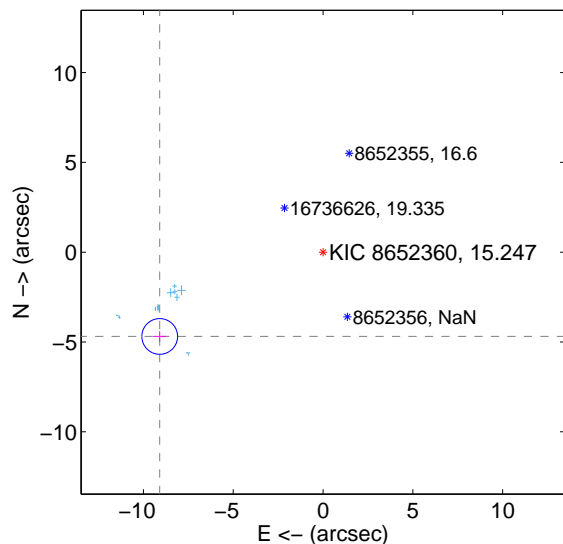
Supplemental centroid analysis for 008652360-01. Kepler magnitude: 15.25. Transit SNR 8.09

There are 17 quarters with good PRF difference image offsets

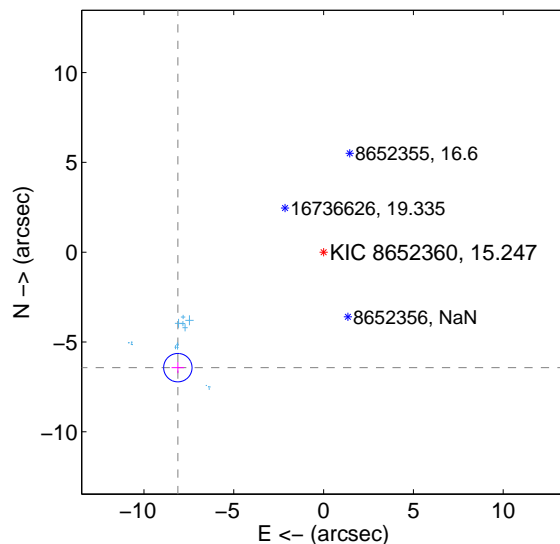
The direct PRF centroid is offset from the target star catalog position by about 1.72 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.235 \pm 0.331	30.88	9.095 \pm 0.362	-4.693 \pm 0.296
PRF-fit source offset from KIC position	10.356 \pm 0.264	39.29	8.117 \pm 0.349	-6.432 \pm 0.306
photometric centroid source offset	8.19 \pm 1.00	8.19	6.09 \pm 0.94	-5.48 \pm 1.07

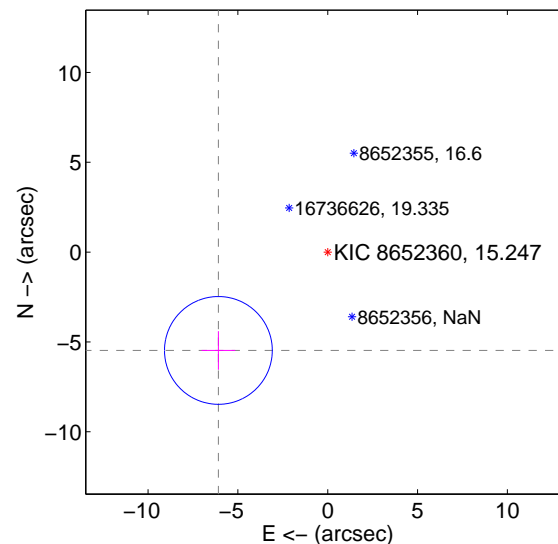
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

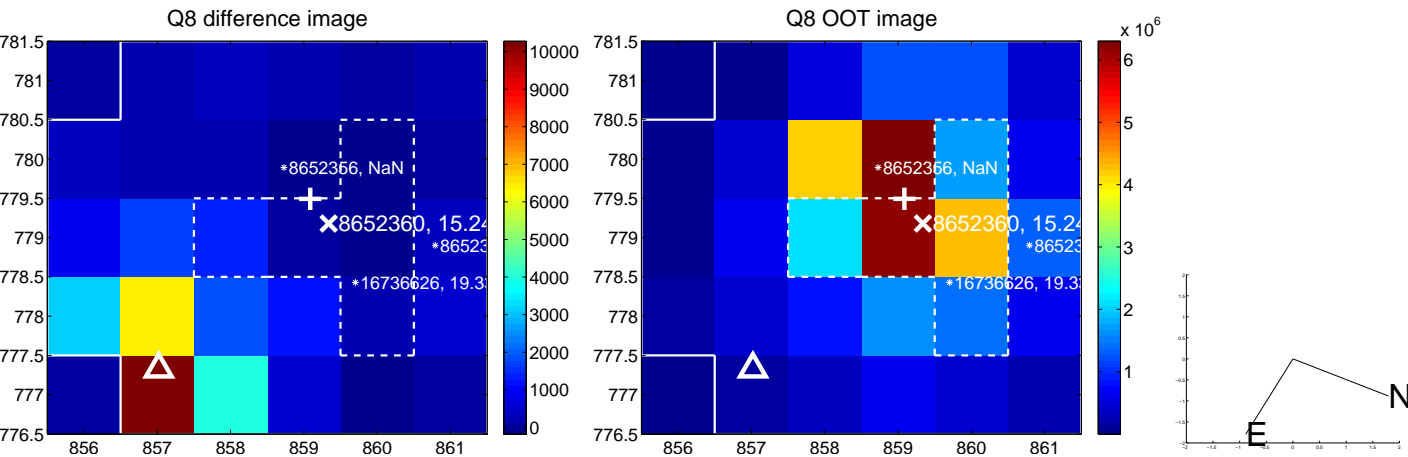
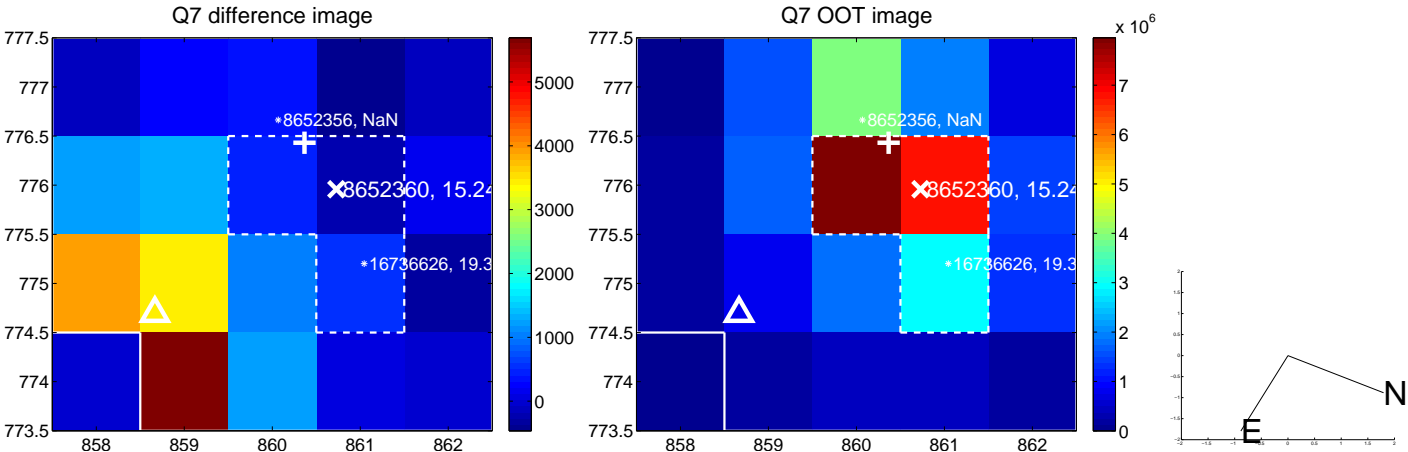
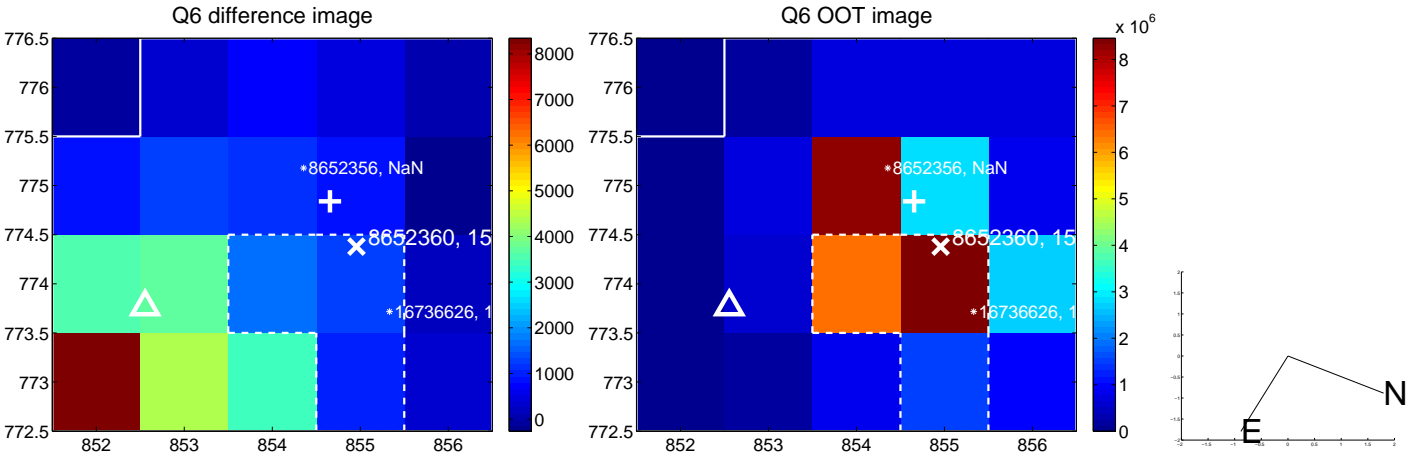
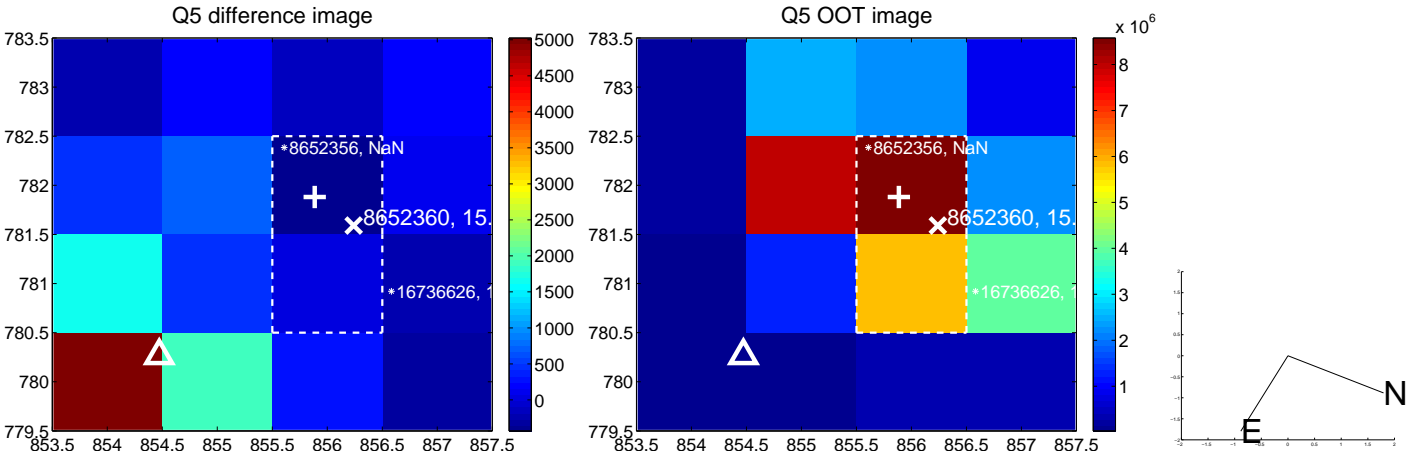


offset from photometric centroids

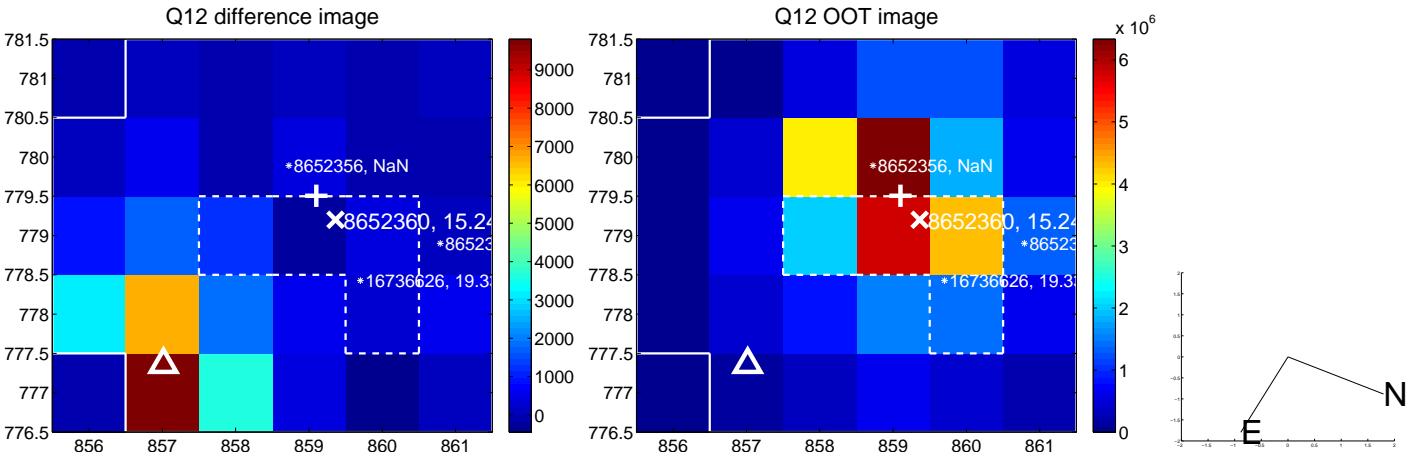
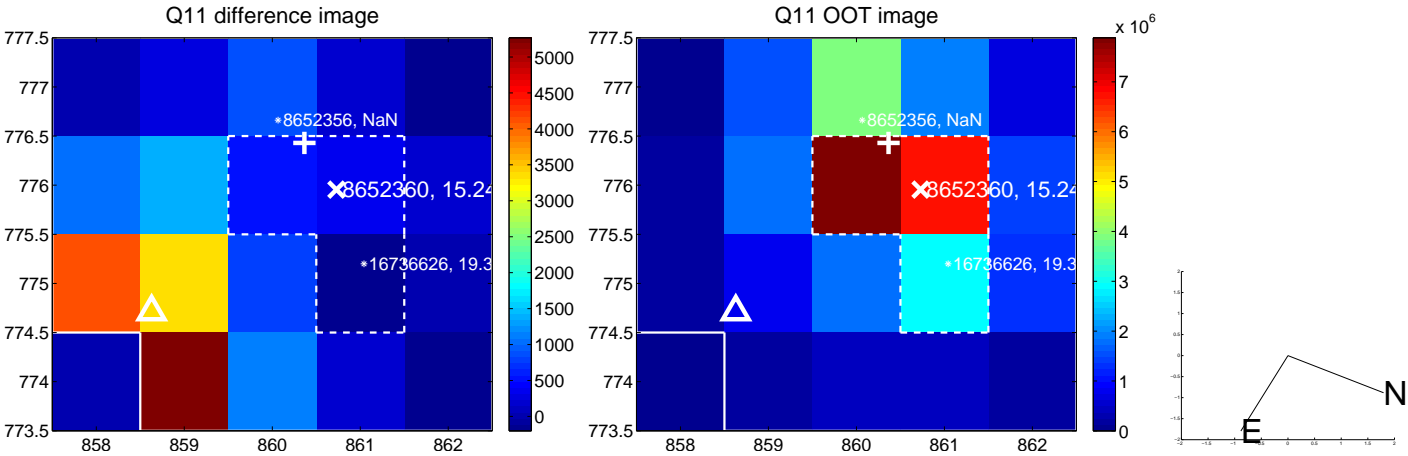
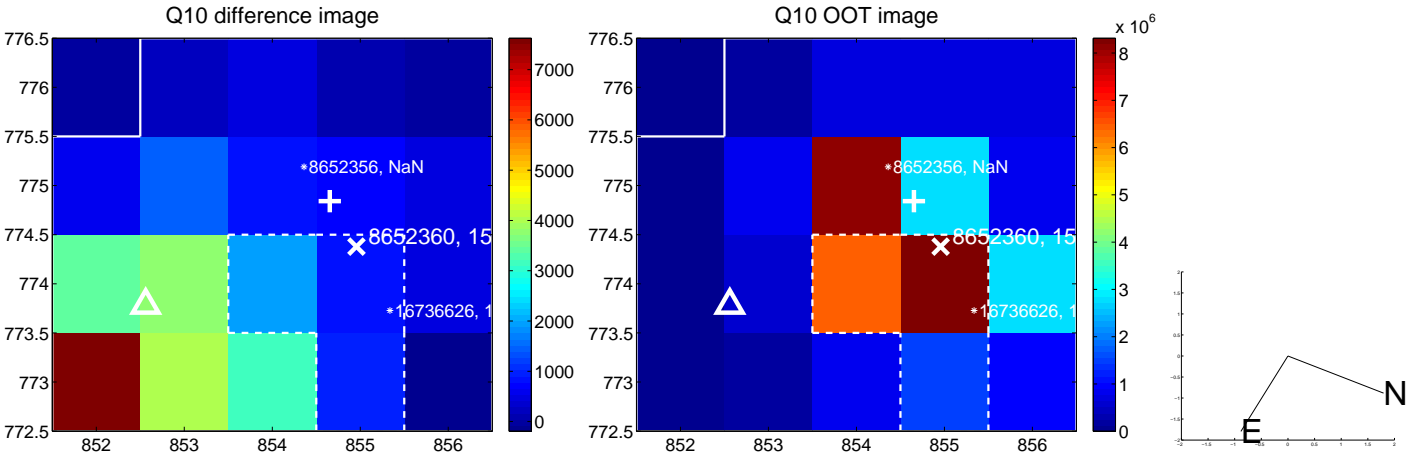
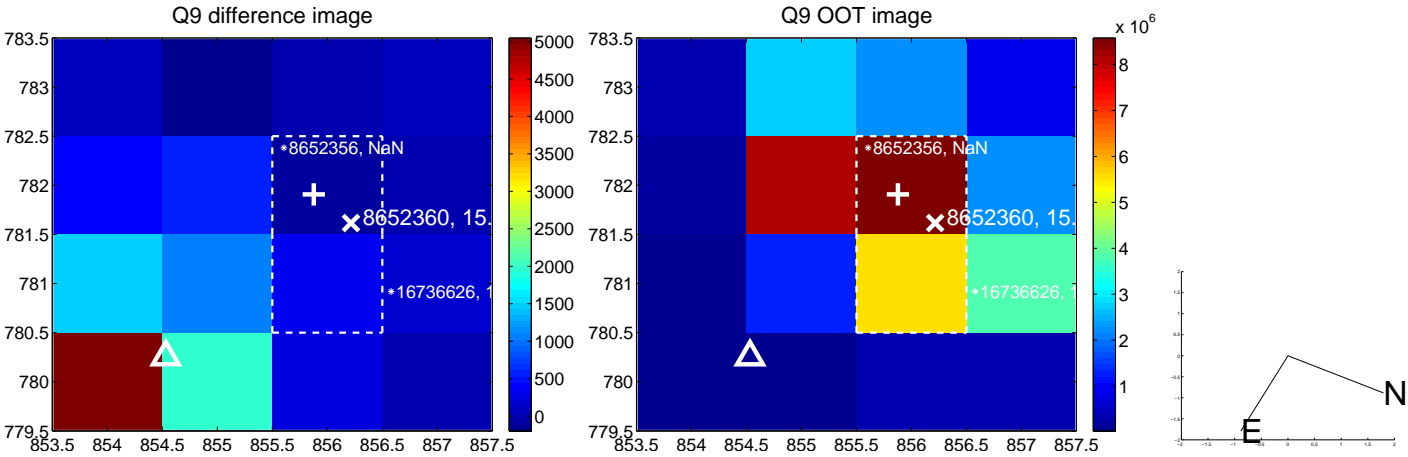


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

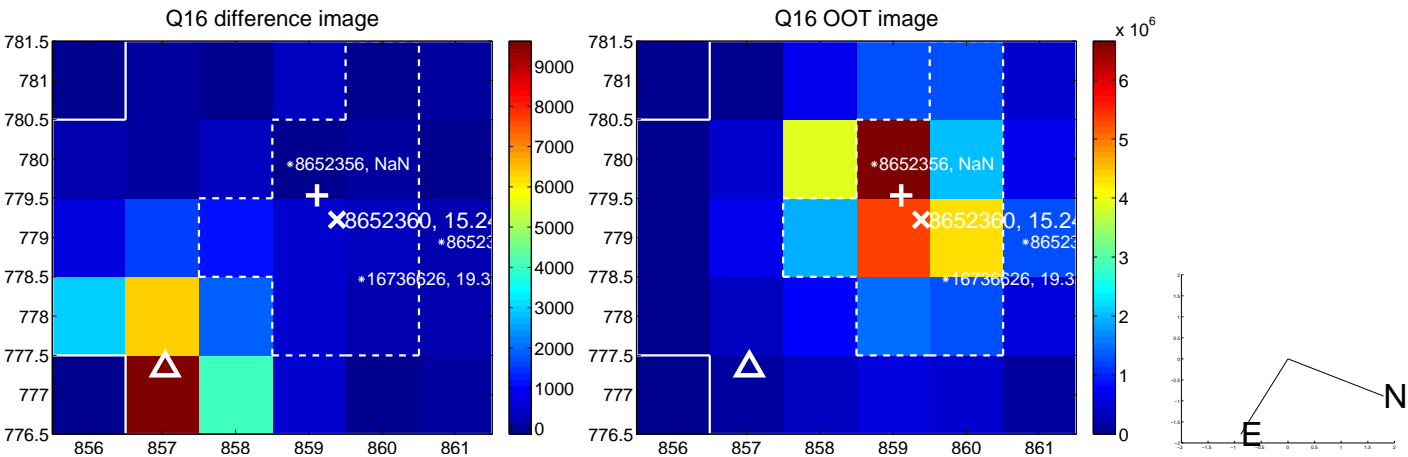
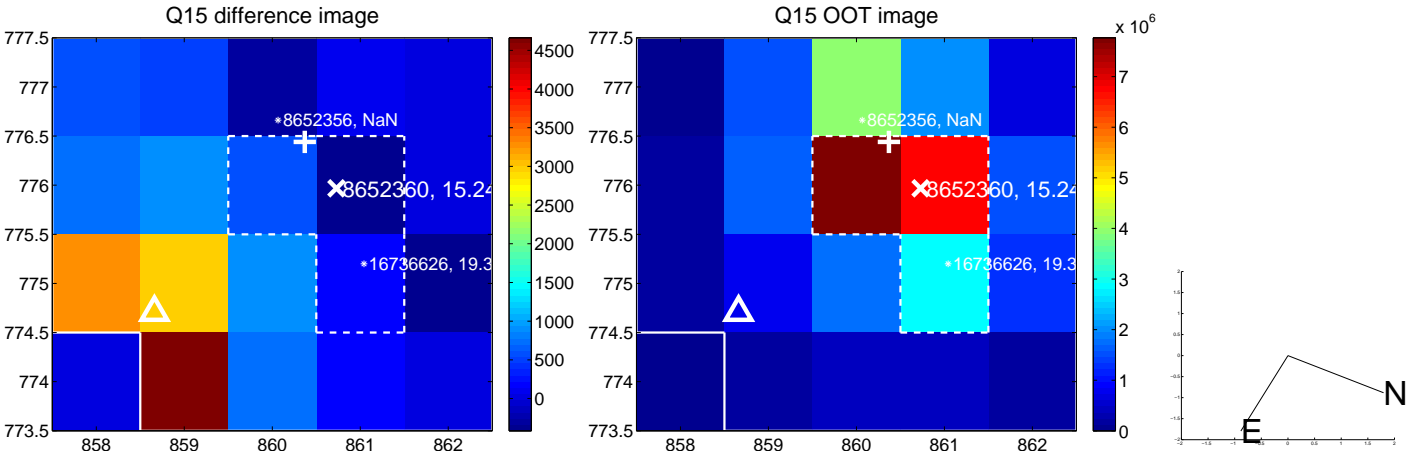
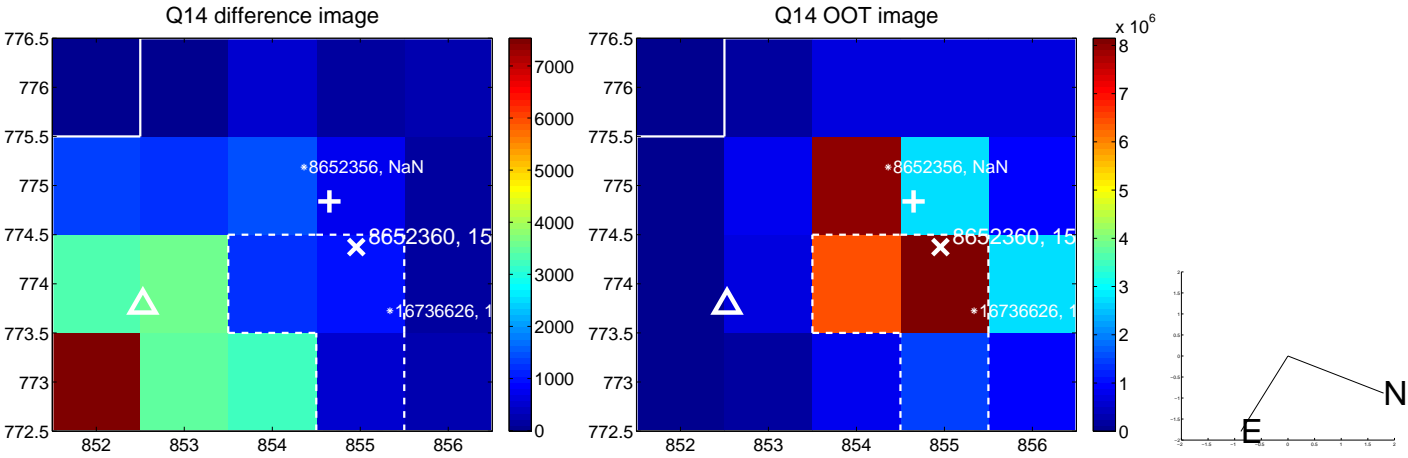
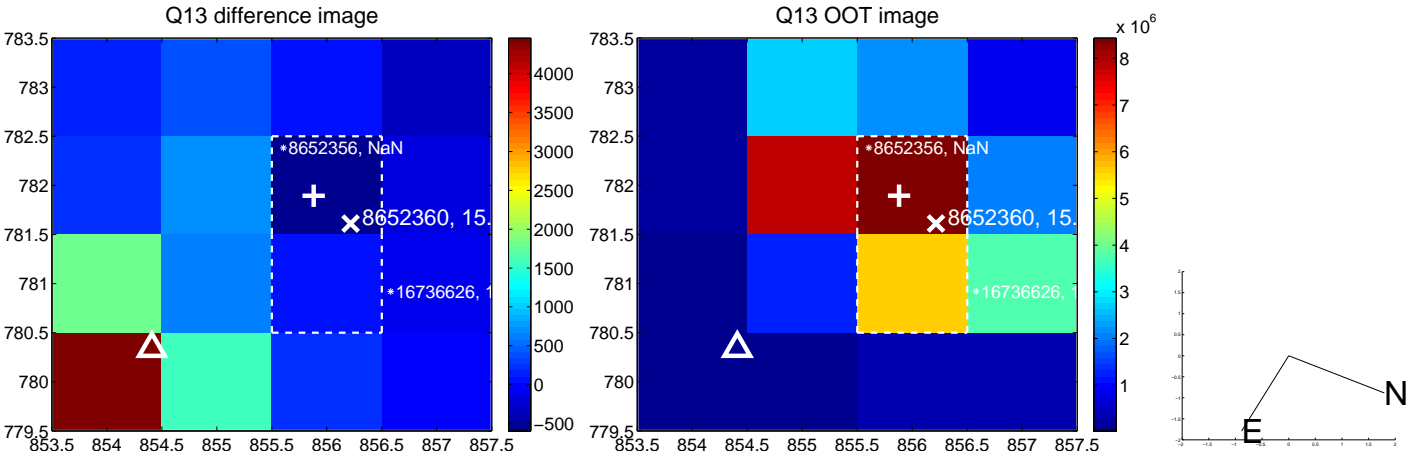
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



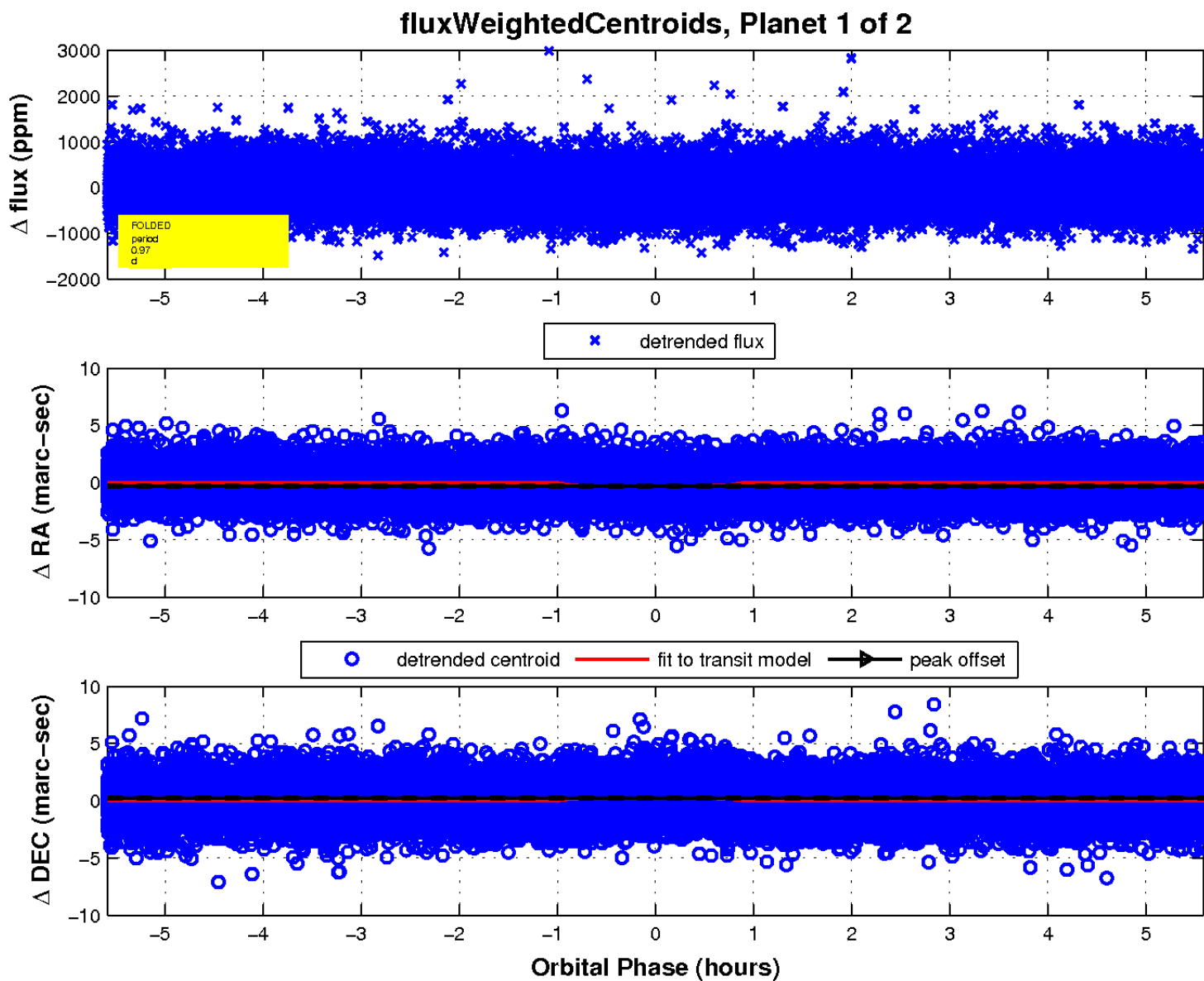
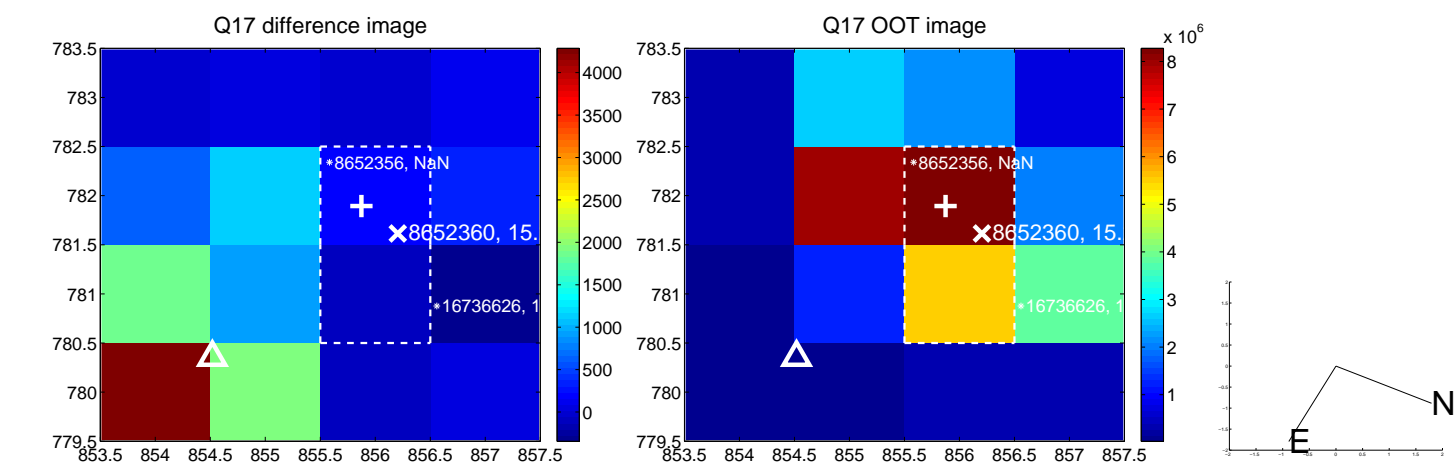
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

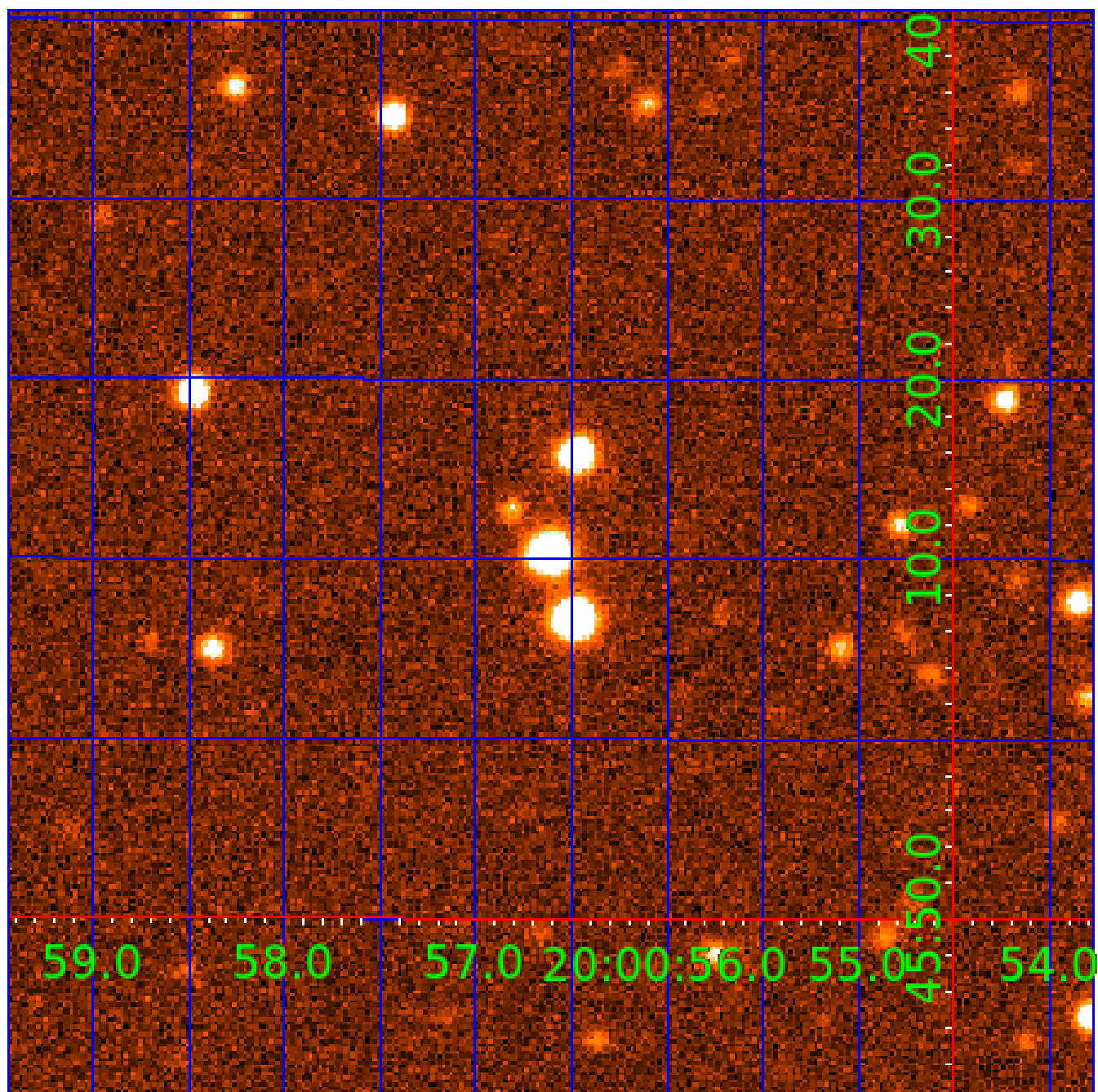


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008652360

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})
008652360-01	OBS	4562.02	0.968052	131.972779	53.8	1.863	9.3	8.1	0.69	5367	0.60	1158.58
008652360-02	OBS	4562.01	0.968066	132.451440	76.6	1.541	9.3	10.6	0.69	5367	0.72	1158.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008652360-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
008652360-02	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET—HALO_GHOST

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

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

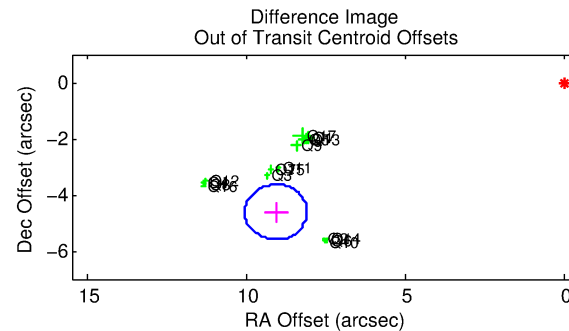
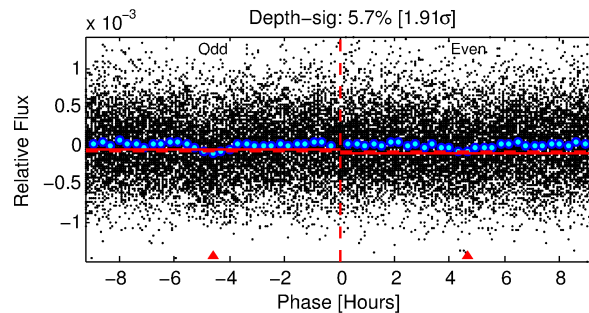
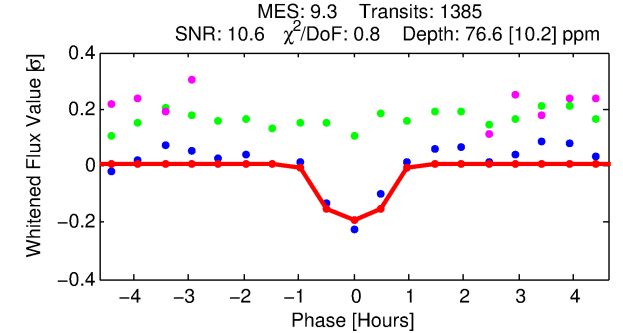
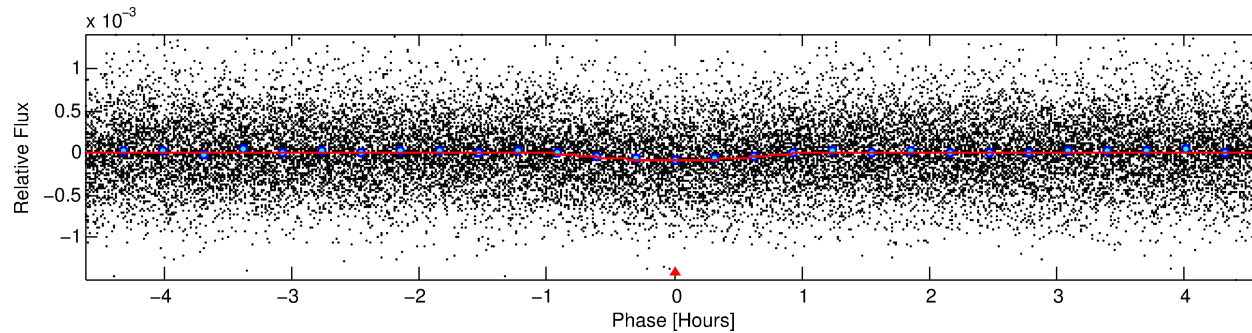
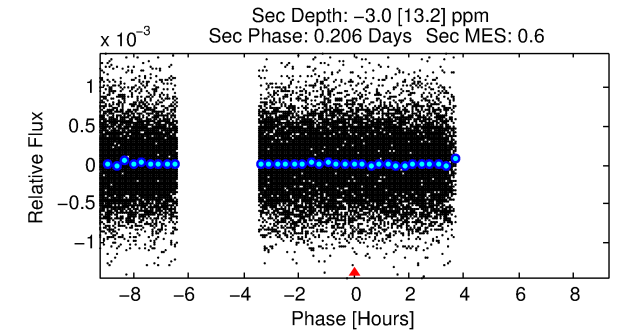
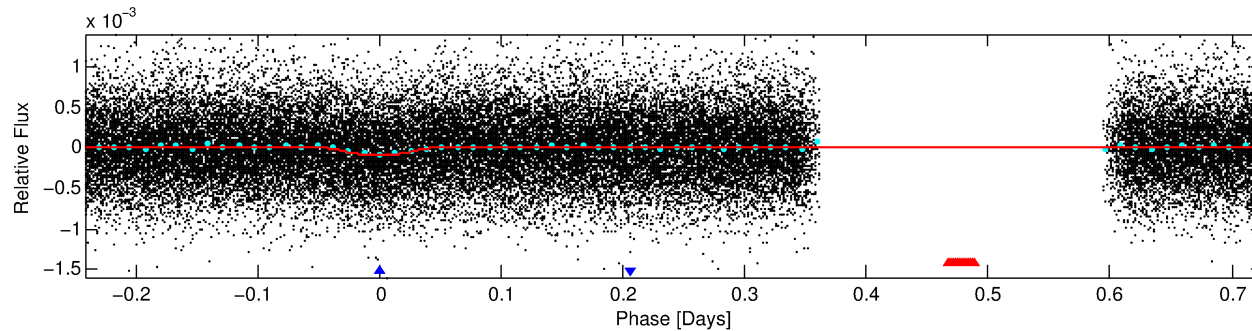
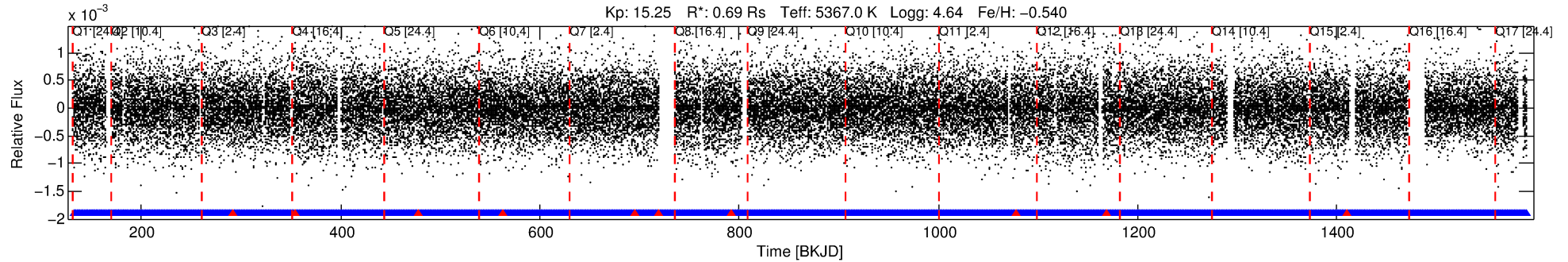
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008652360-02

No Significant Match Found

DV One-Page Summary

KIC: 8652360 Candidate: 2 of 2 Period: 0.968 d
KOI: K04562.01 Corr: 0.924



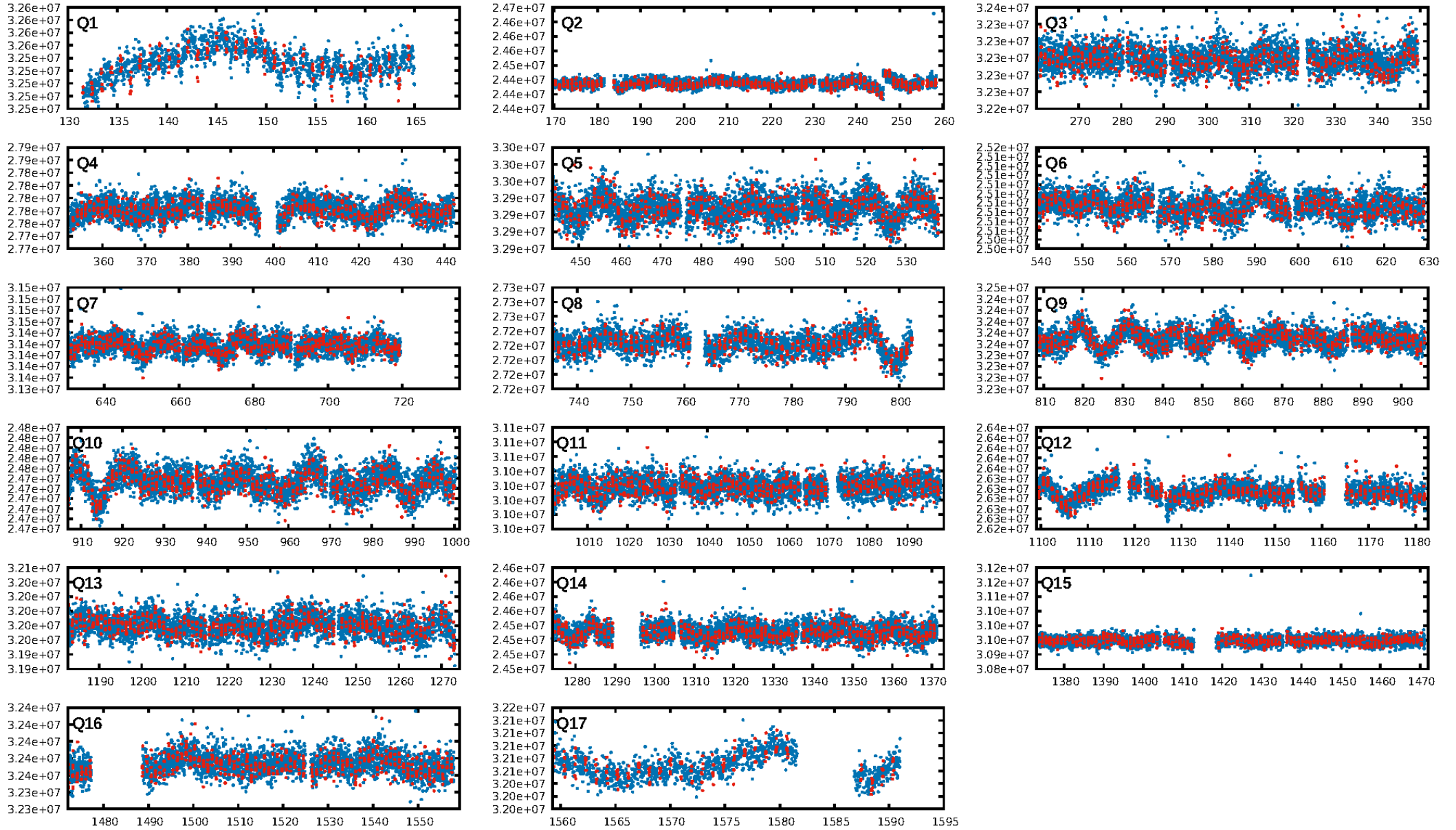
DV Fit Results:

Period = 0.96807 [0.00001] d
Epoch = 132.4514 [0.0022] BKJD
Rp/R* = 0.0096 [0.0072]
a/R* = 2.38 [6.74]
b = 0.90 [0.74]
Seff = 1158.56 [243.89]
Teff = 1488 [78] K
Rp = 0.72 [0.55] Re
a = 0.0174 [0.0022] AU
Ag = N/A
Teffp = N/A

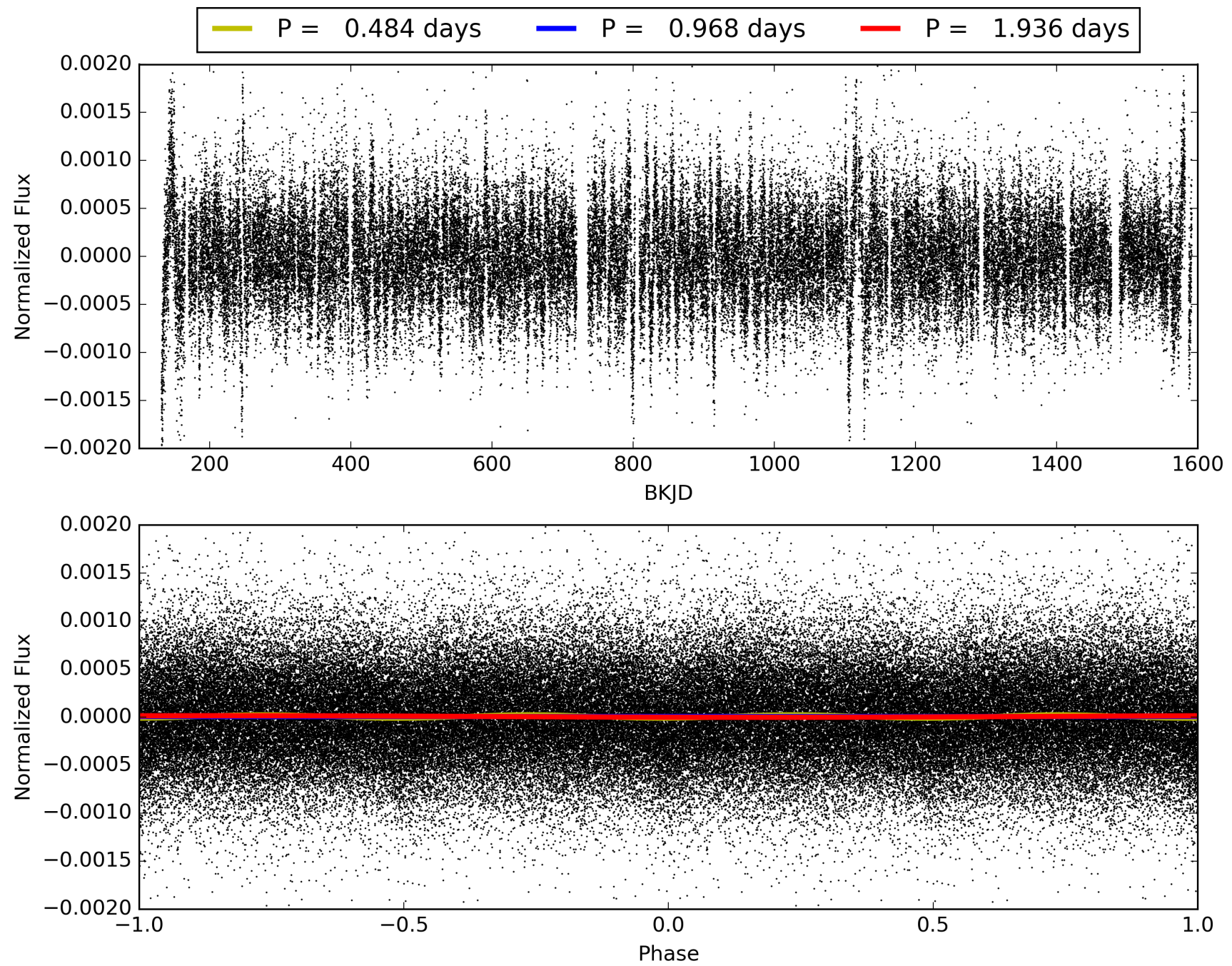
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.97e-22
RollingBand-fgt: 0.99 [1313/1323]
GhostDiagnostic-chr: -0.1575
Centroid-sig: 0.0%
Centroid-so: 6.039 arcsec [7.93σ]
OotOffset-rm: 10.187 arcsec [31.22σ]
KicOffset-rm: 10.295 arcsec [36.13σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008652360-02, PDC Light Curves

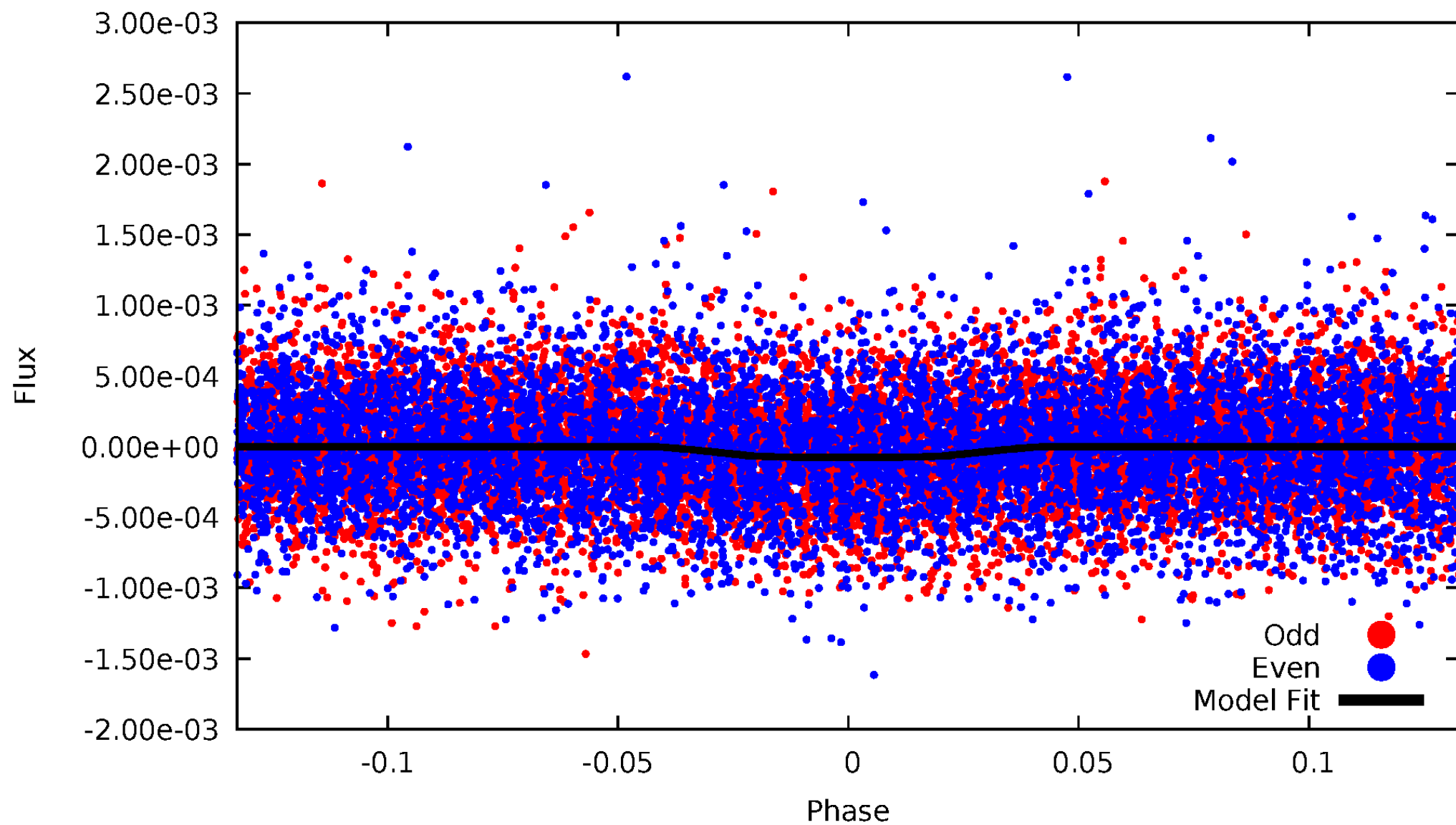


TCE 008652360-02



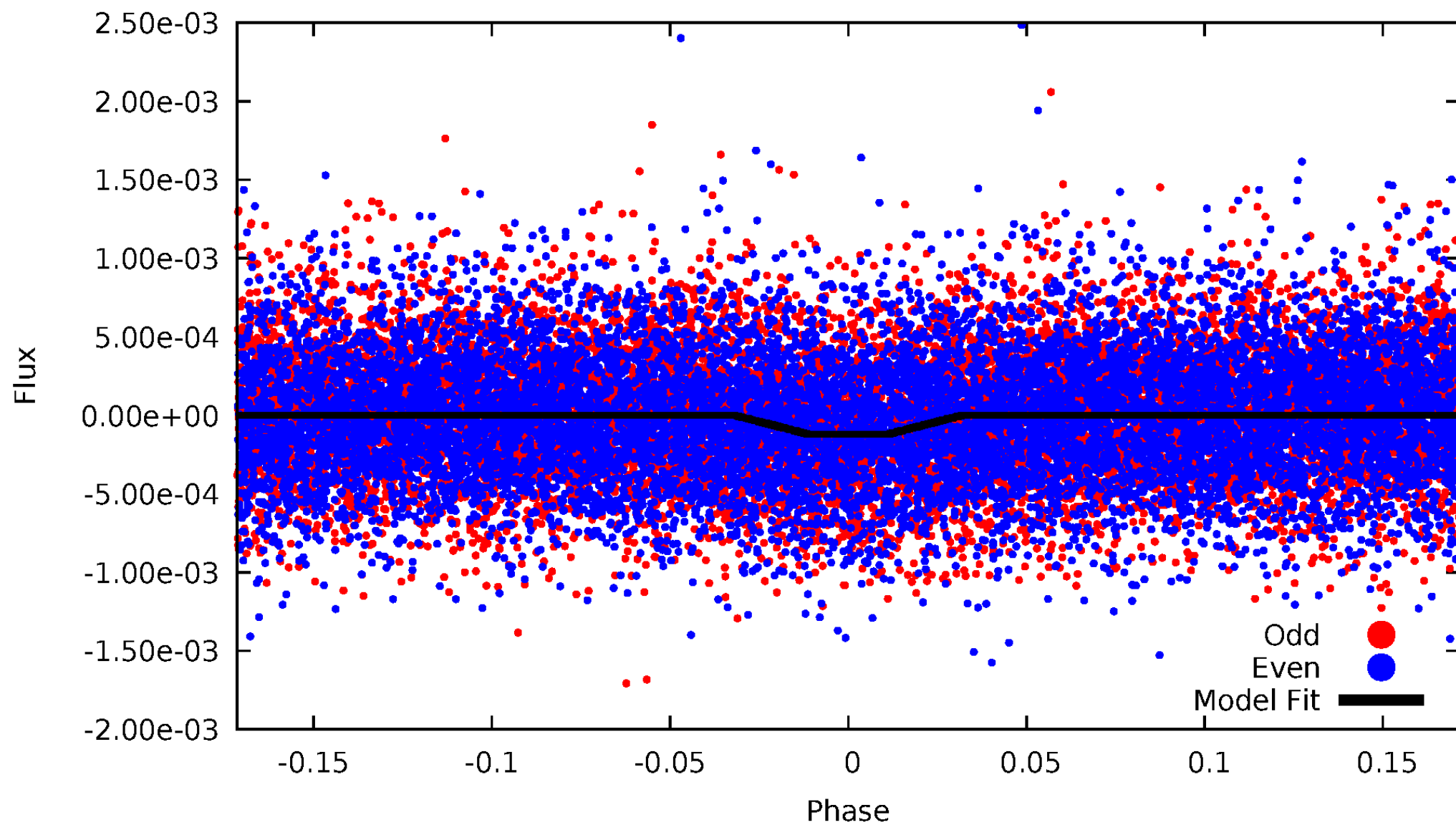
DV Odd/Even

TCE 008652360-02



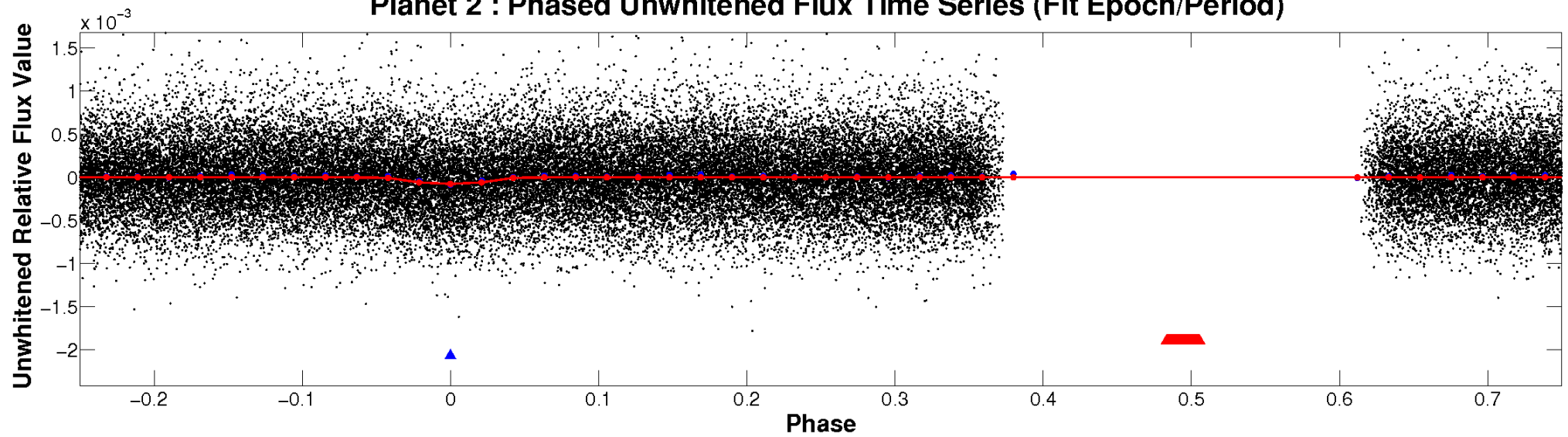
ALT Odd/Even

TCE 008652360-02

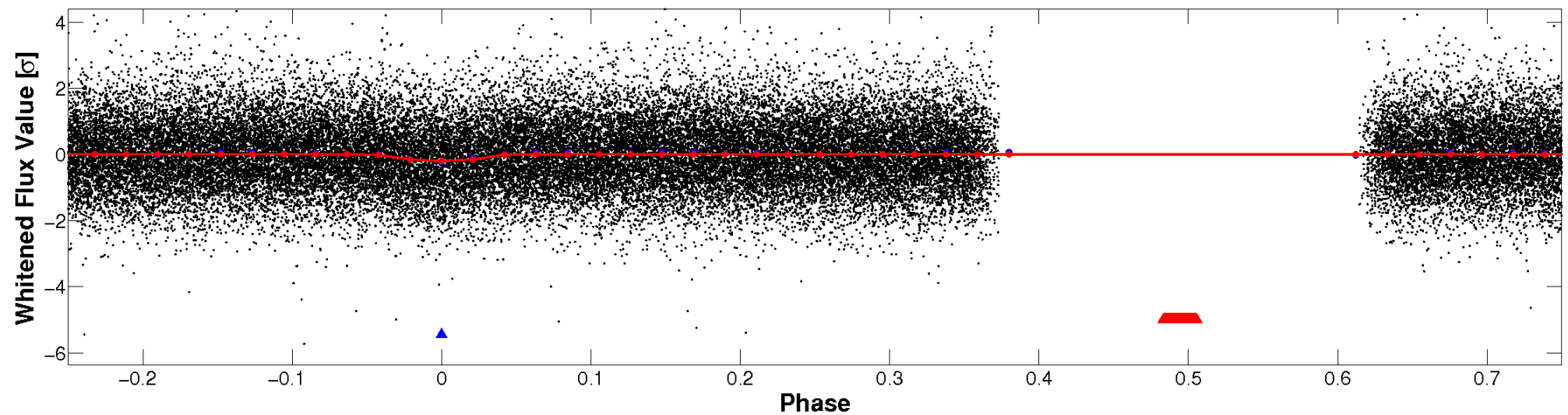


Non-Whitened Vs. Whitened Light Curve

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

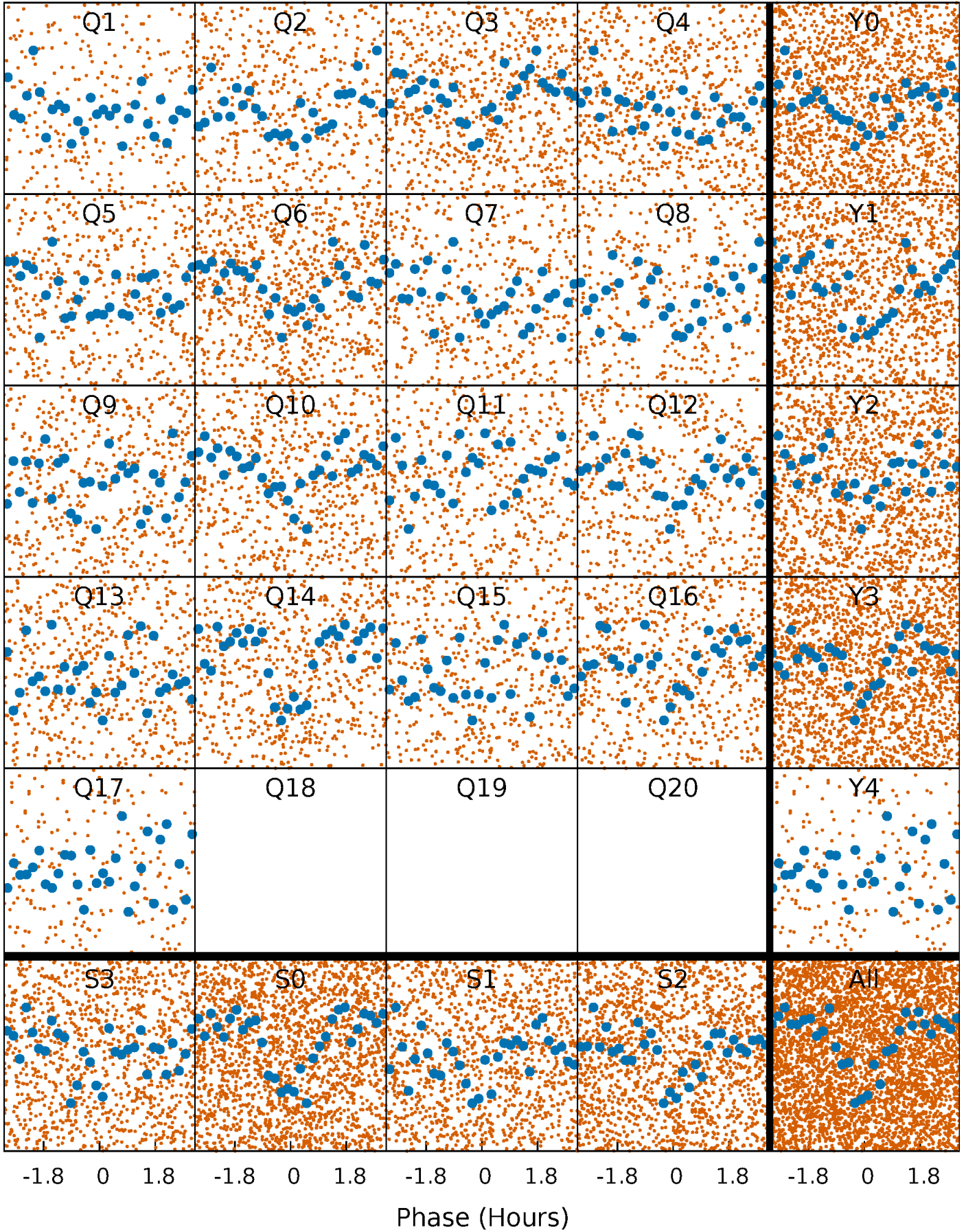


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



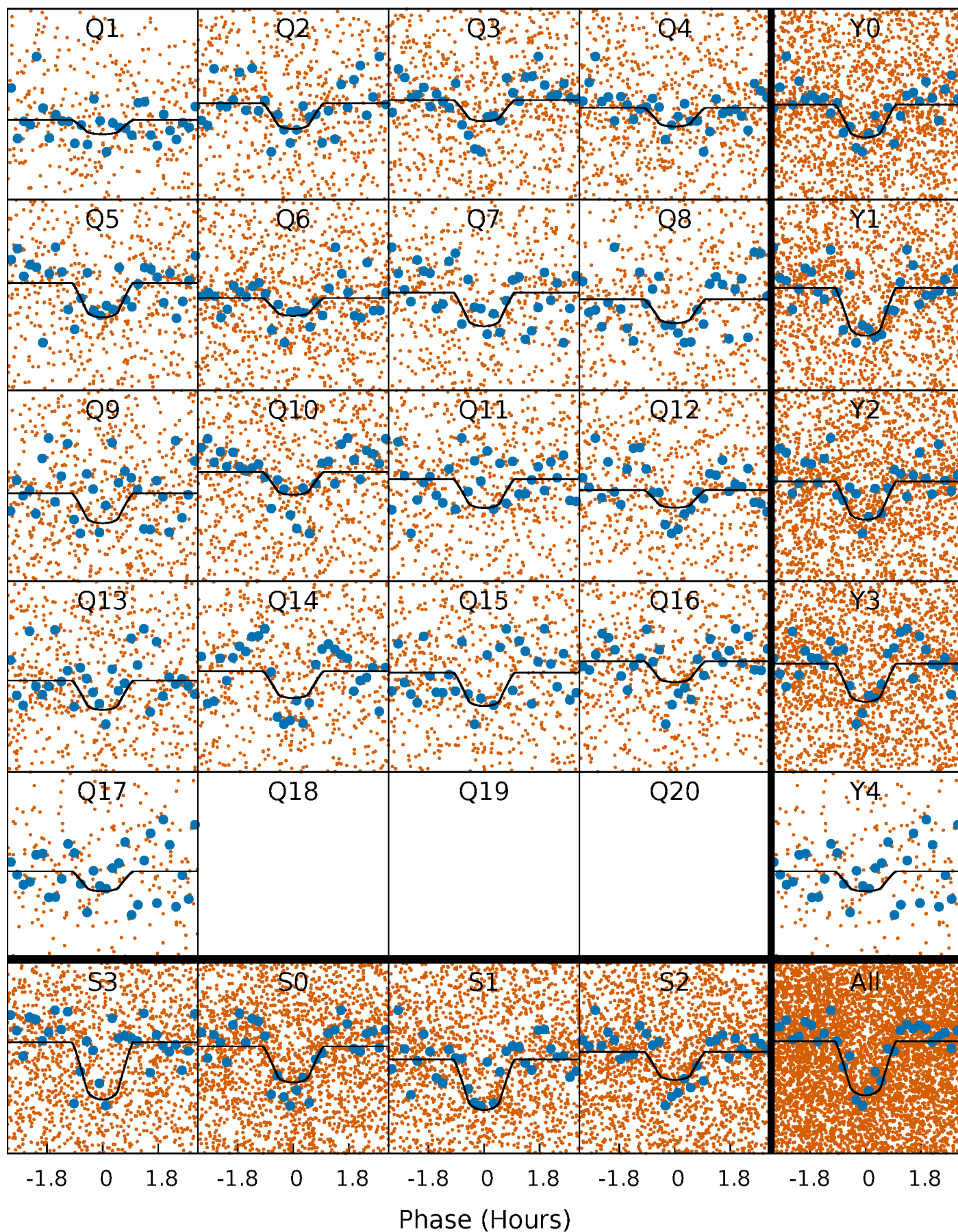
PDC Quarter-Phased Transit Curves

TCE 008652360-02 P= 0.968066 Days $T_0=132.451440$ (BKJD)



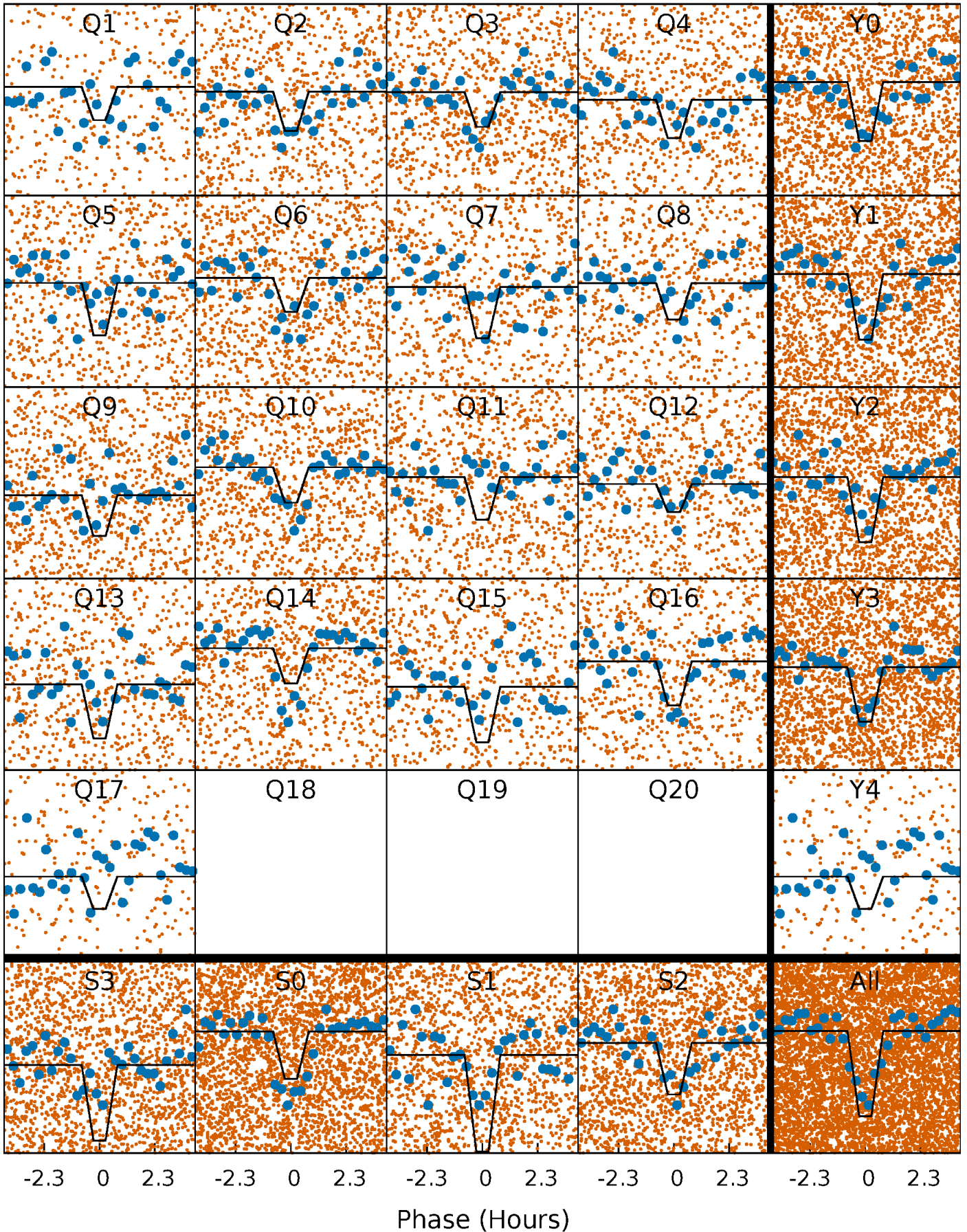
DV Quarter-Phased Transit Curves

TCE 008652360-02 P= 0.968066 Days $T_0=132.451440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

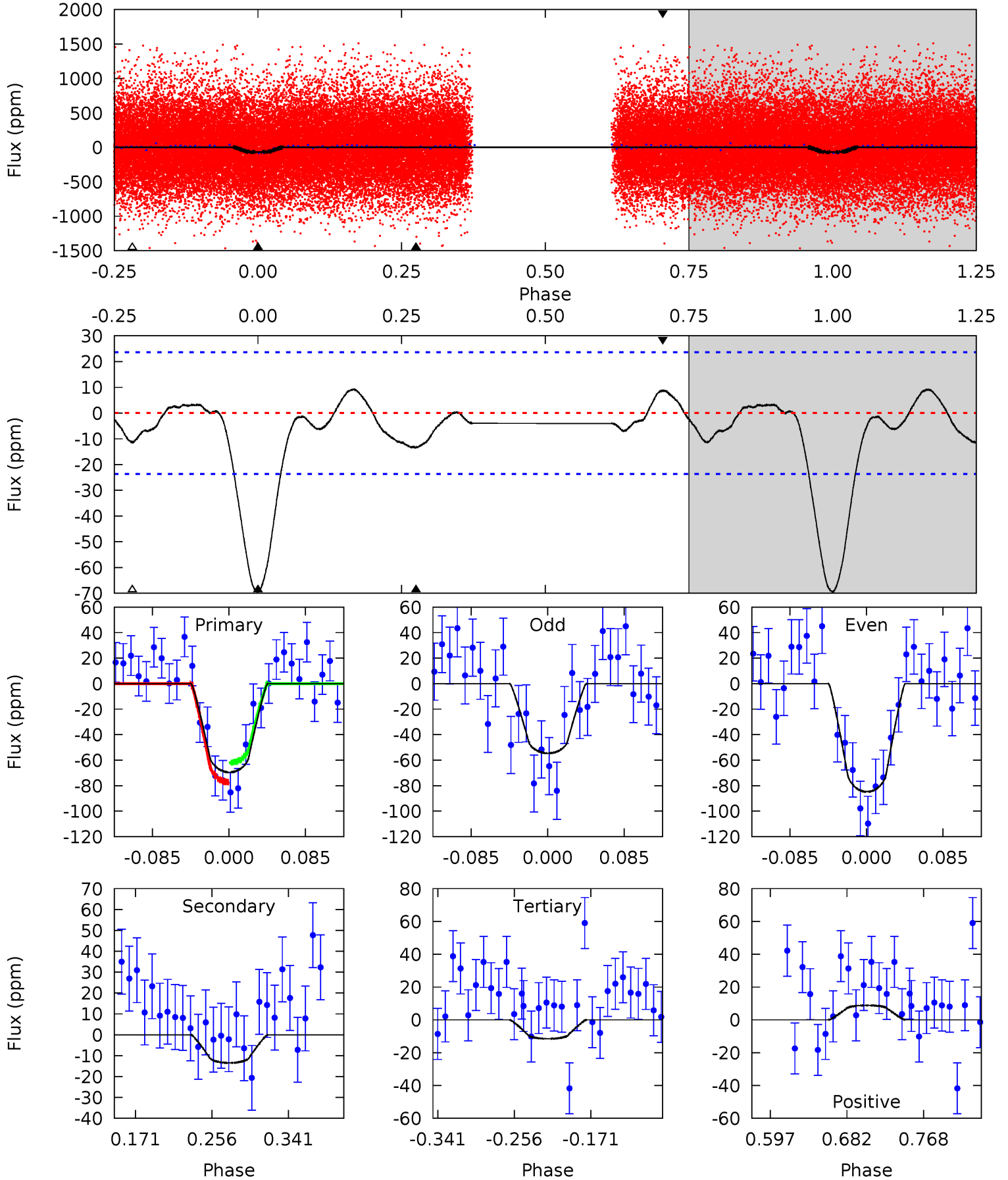
TCE 008652360-02 $P = 0.968066$ Days $T_0 = 132.451217$ (BKJD)



DV Model-Shift Uniqueness Test

008652360-02, P = 0.968066 Days, E = 131.483374 Days

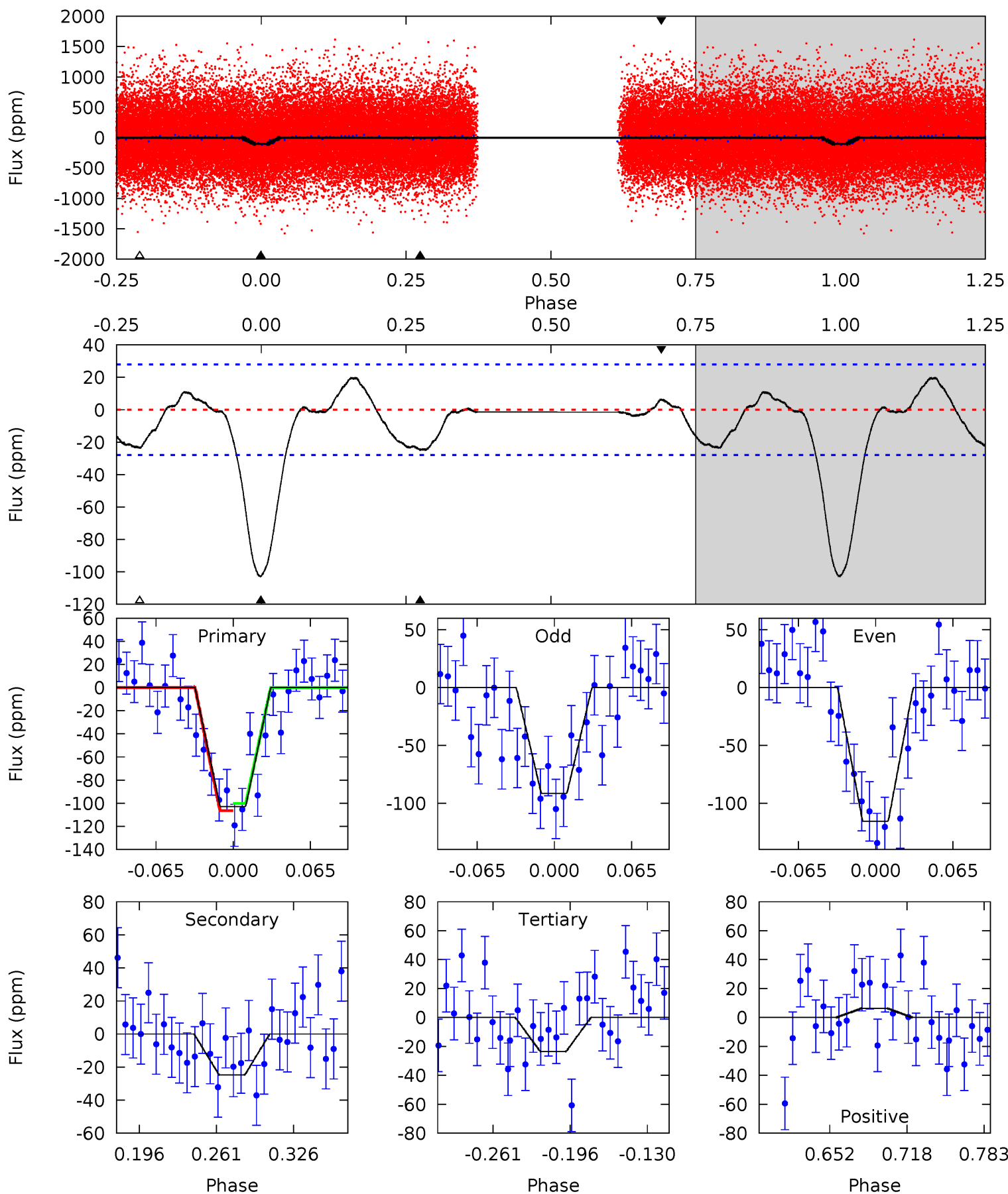
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	2.62	2.24	1.71	4.60	1.72	1.09	11.3	11.8	0.38	0.91	2.94	0.93	0.12	1.49



Alt Model-Shift Uniqueness Test

008652360-02, P = 0.968066 Days, E = 131.483151 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	4.13	3.94	1.06	4.65	1.84	1.68	13.2	16.1	0.19	3.07	2.01	0.93	0.16	0.51



Stellar Parameters For KIC 008652360

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5367^{+160}_{-160}	$4.639^{+0.032}_{-0.091}$	$-0.540^{+0.300}_{-0.300}$	$0.687^{+0.106}_{-0.049}$	$0.757^{+0.072}_{-0.072}$	$3.286^{+0.539}_{-0.981}$
	+3%/-3%	+1%/-2%	+56%/-56%	+15%/-7%	+10%/-10%	+16%/-30%
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 008652360-02 / KOI 4562.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-13 ± 5	$0.78^{+0.55}_{-0.46}$	2099^{+88}_{-68}	3568^{+1464}_{-647}	$3.512^{+17.153}_{-2.371}$
Alt.	-25 ± 6	$0.87^{+0.53}_{-0.46}$	2104^{+80}_{-85}	3822^{+1352}_{-630}	$5.269^{+18.529}_{-3.292}$

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

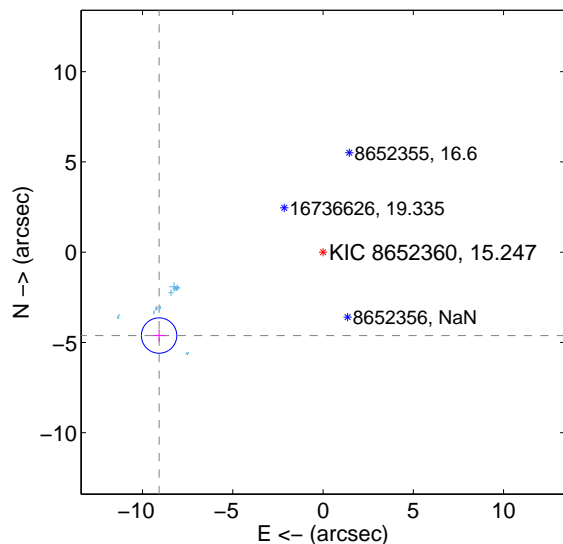
Supplemental centroid analysis for 008652360-02. Kepler magnitude: 15.25. Transit SNR 10.57

There are 17 quarters with good PRF difference image offsets

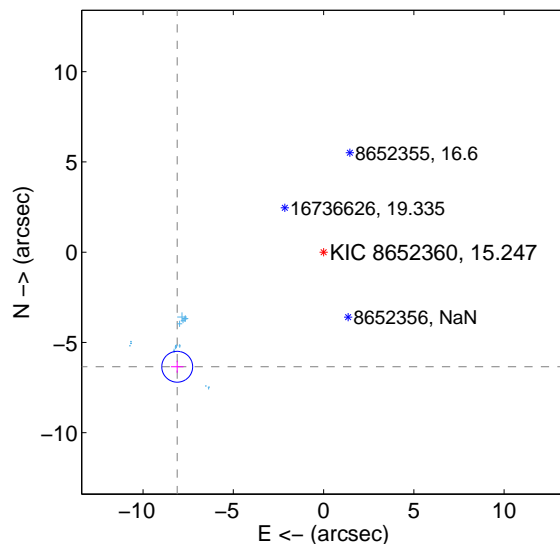
The direct PRF centroid is offset from the target star catalog position by about 1.72 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.187 ± 0.326	31.22	9.080 ± 0.353	-4.618 ± 0.327
PRF-fit source offset from KIC position	10.295 ± 0.285	36.13	8.106 ± 0.348	-6.346 ± 0.335
photometric centroid source offset	6.04 ± 0.76	7.93	5.04 ± 0.73	-3.33 ± 0.84

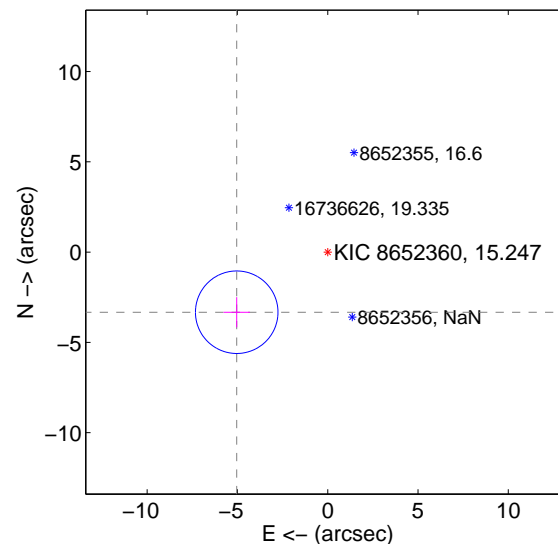
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

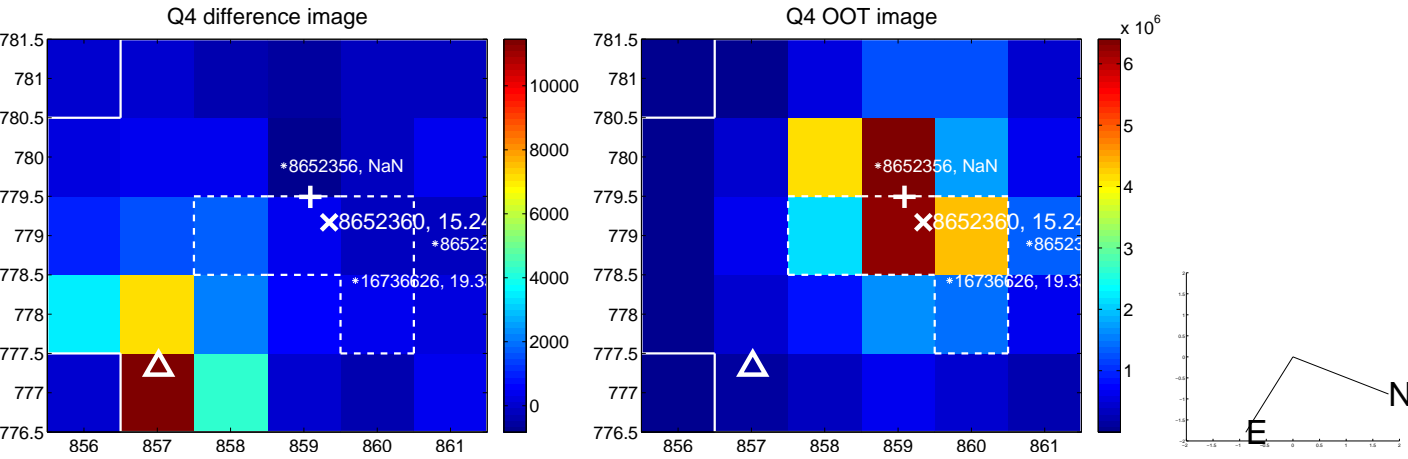
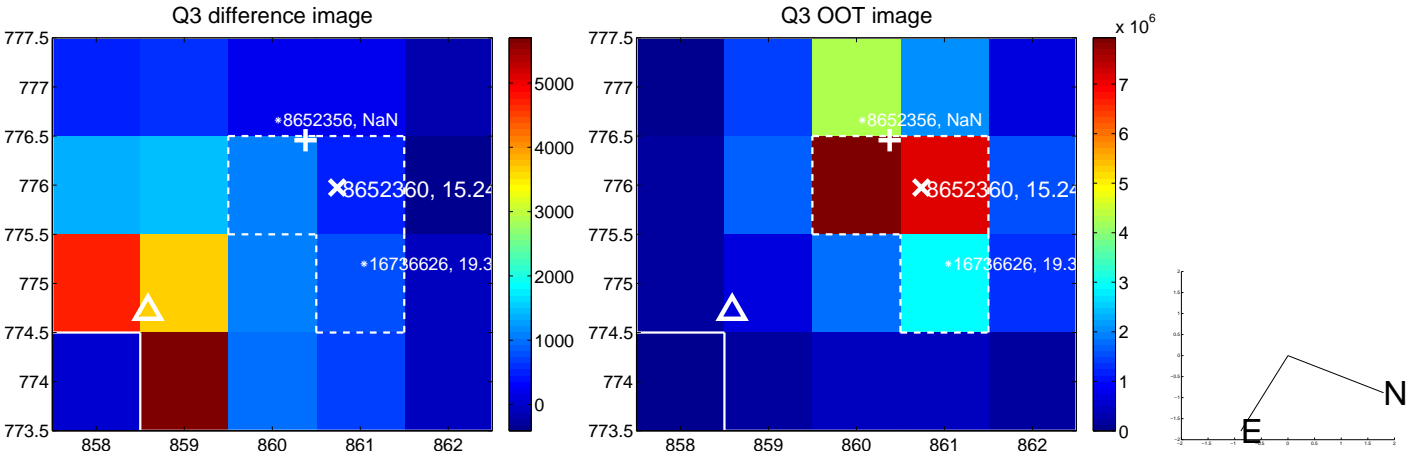
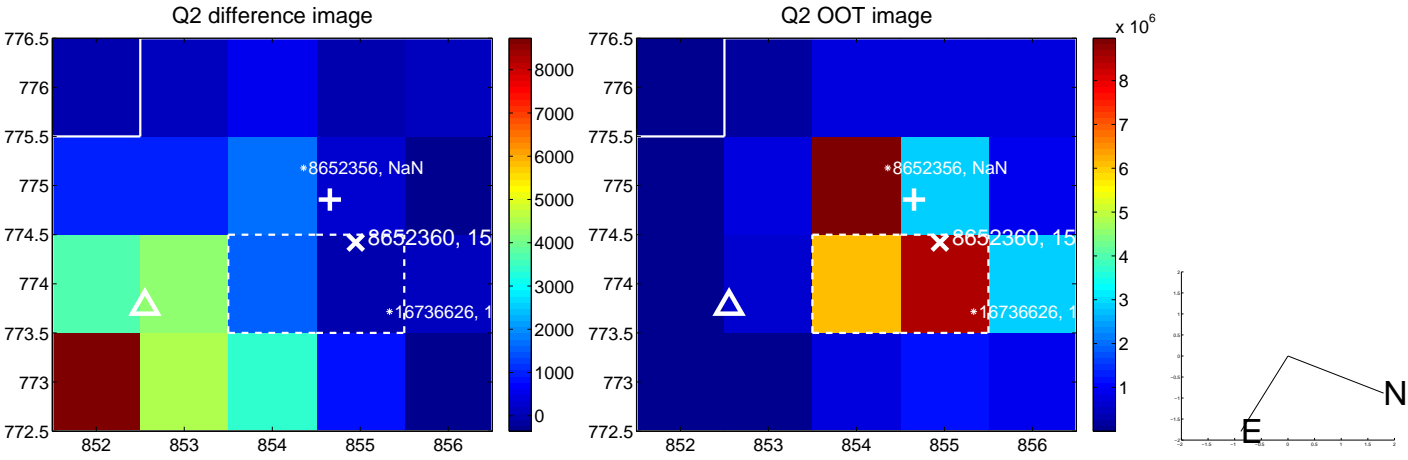
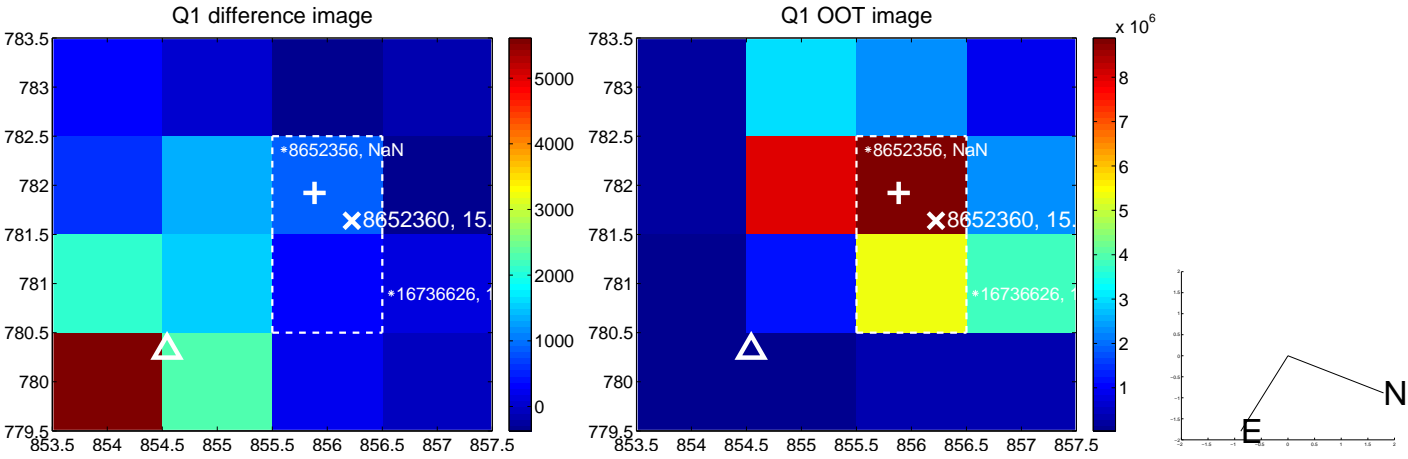


offset from photometric centroids

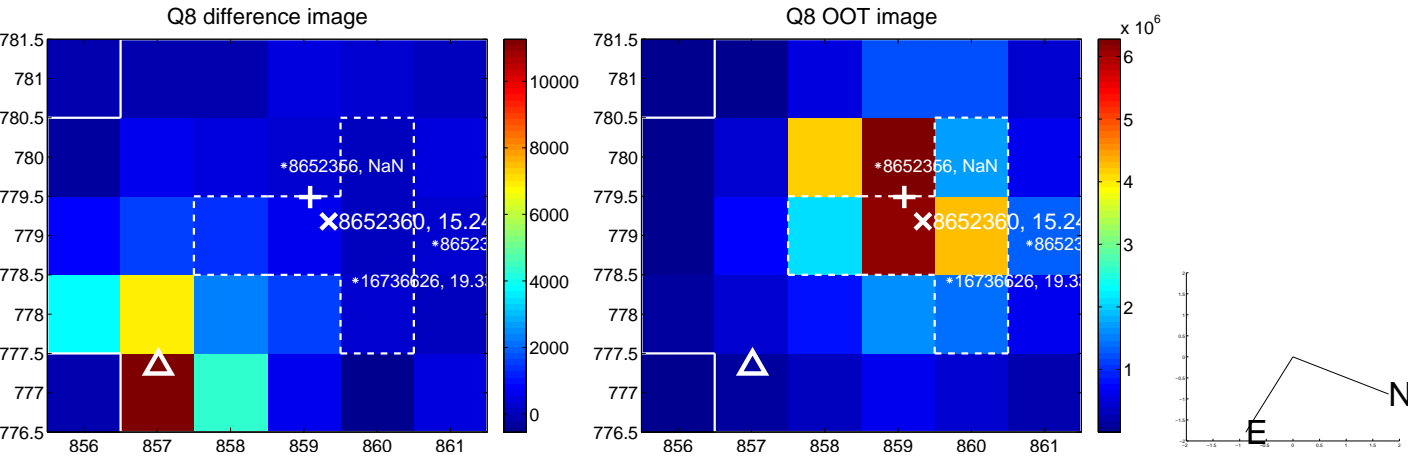
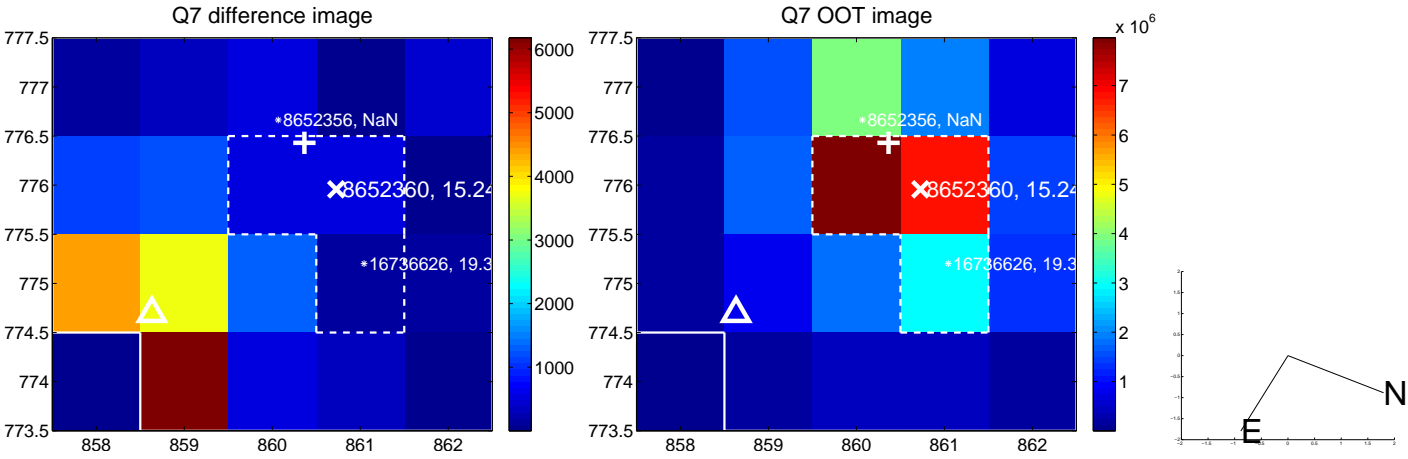
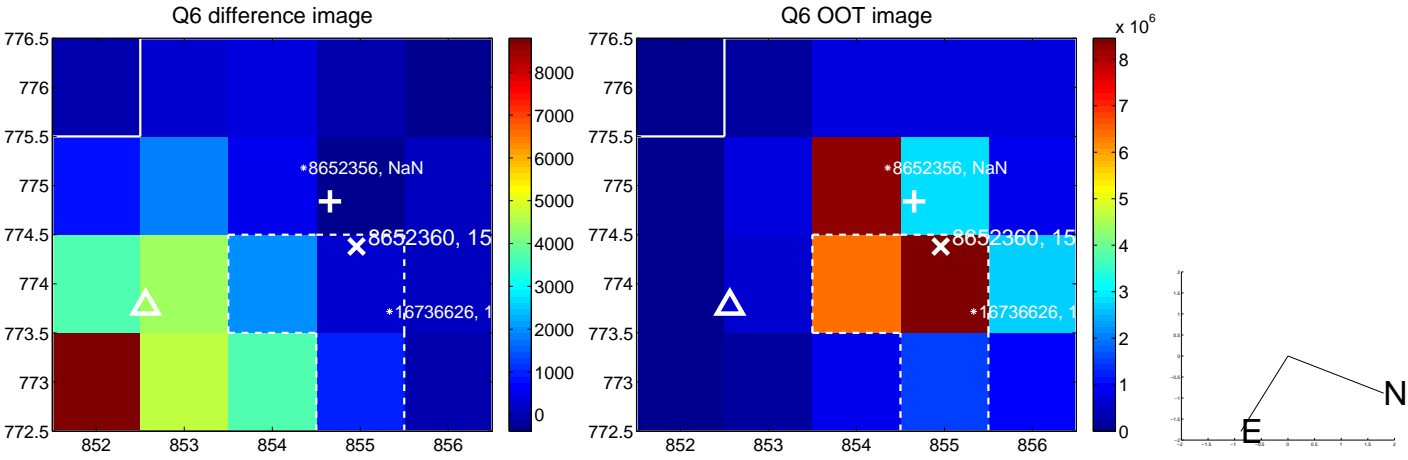
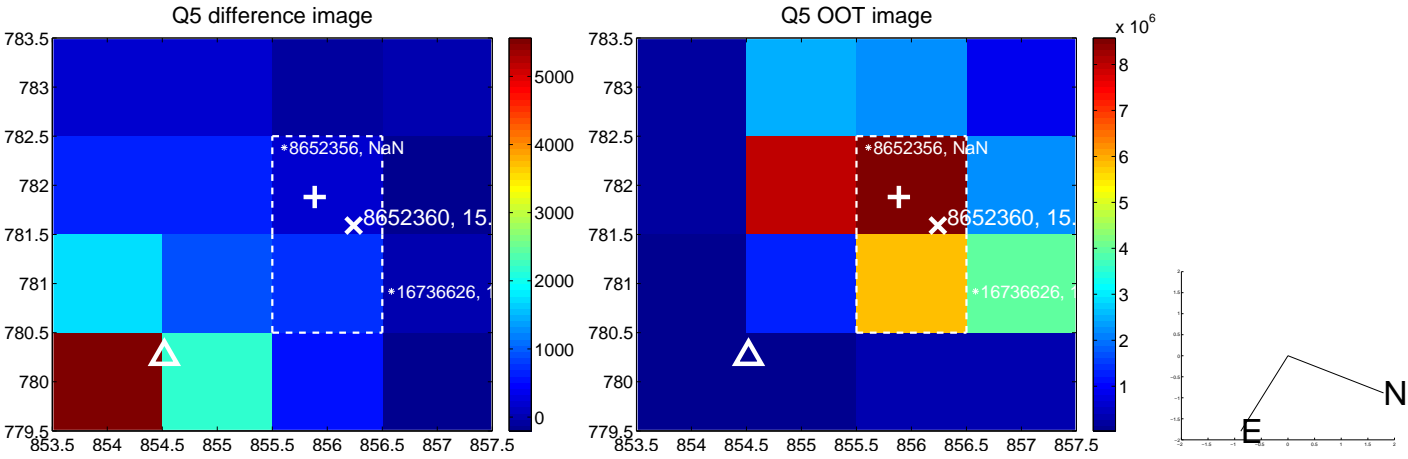


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

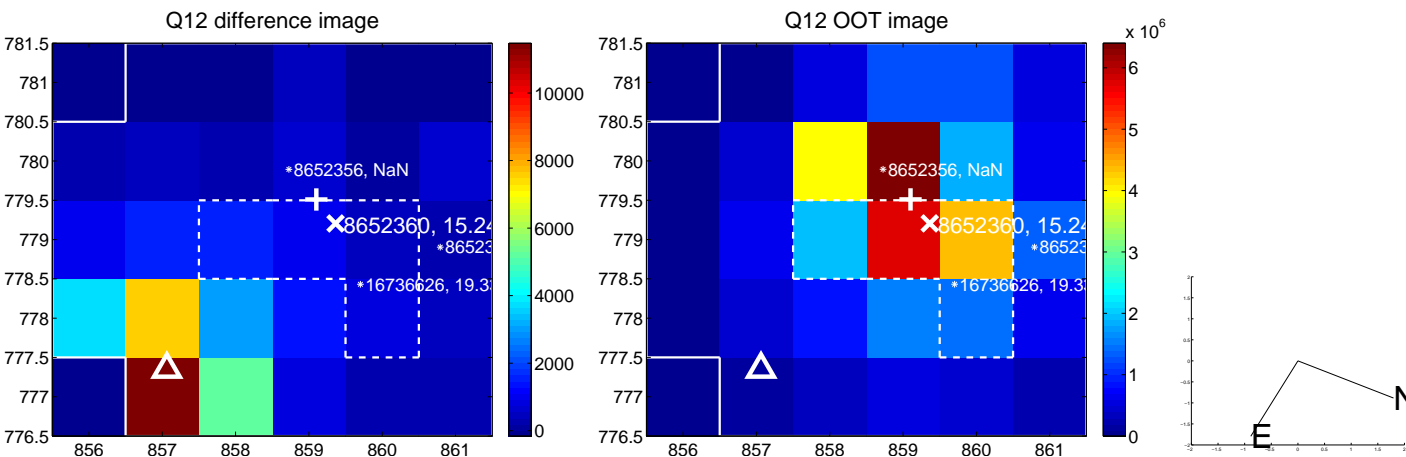
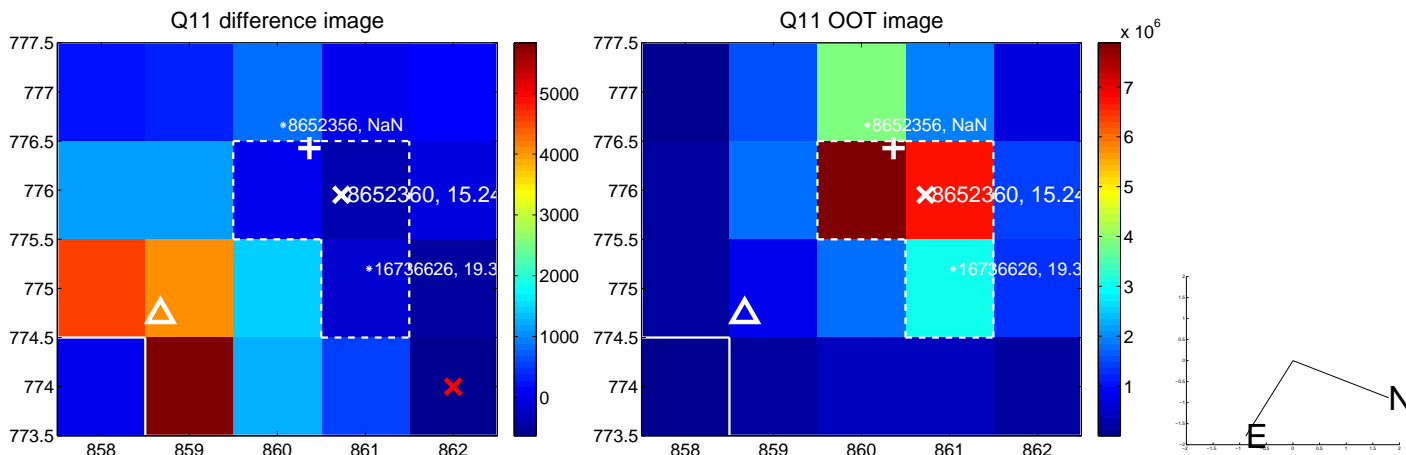
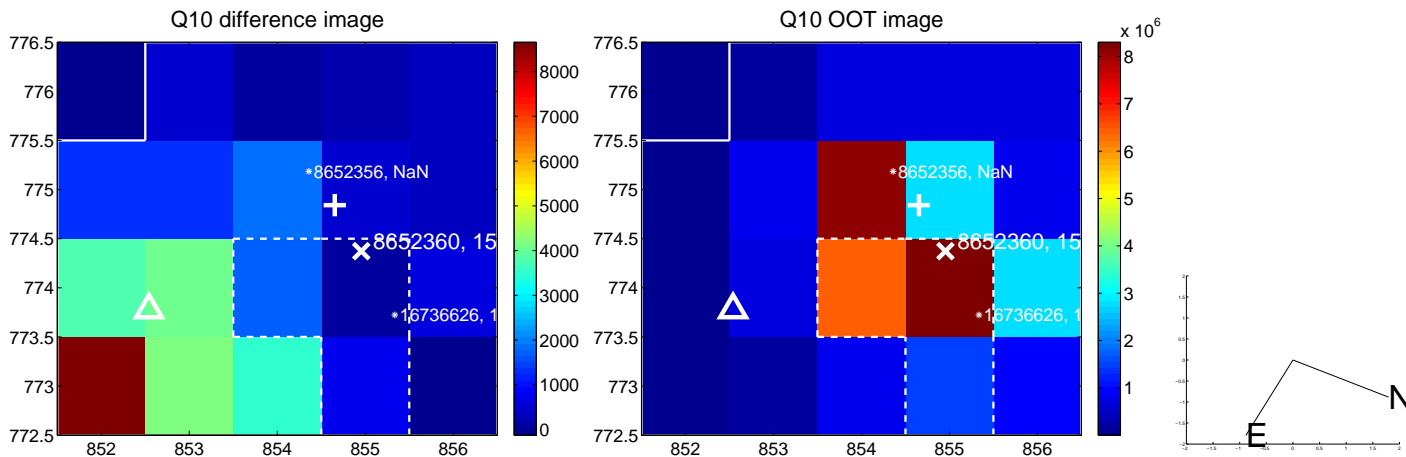
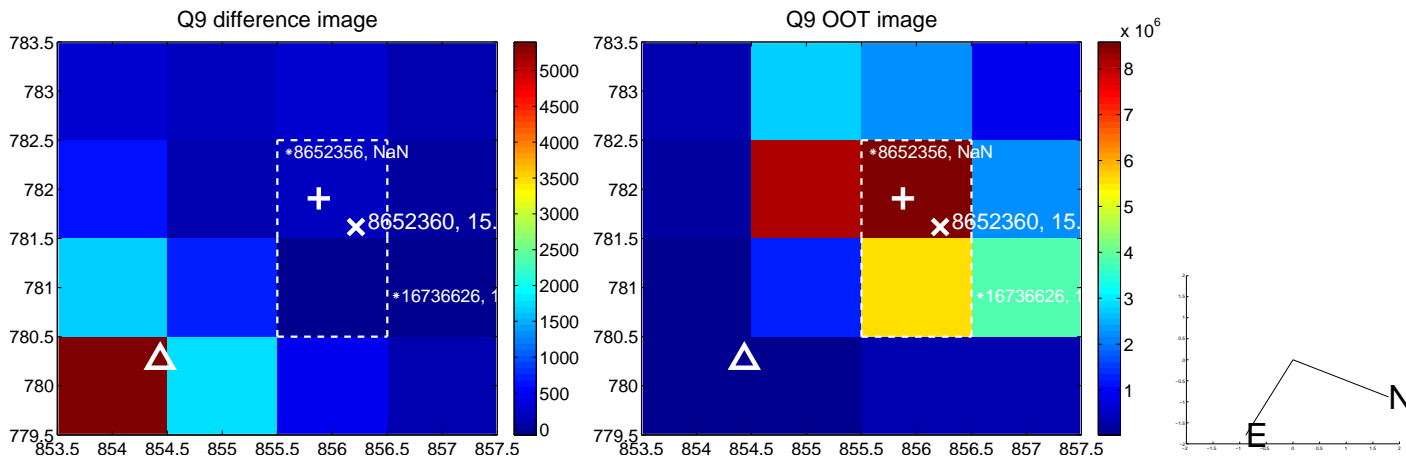
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



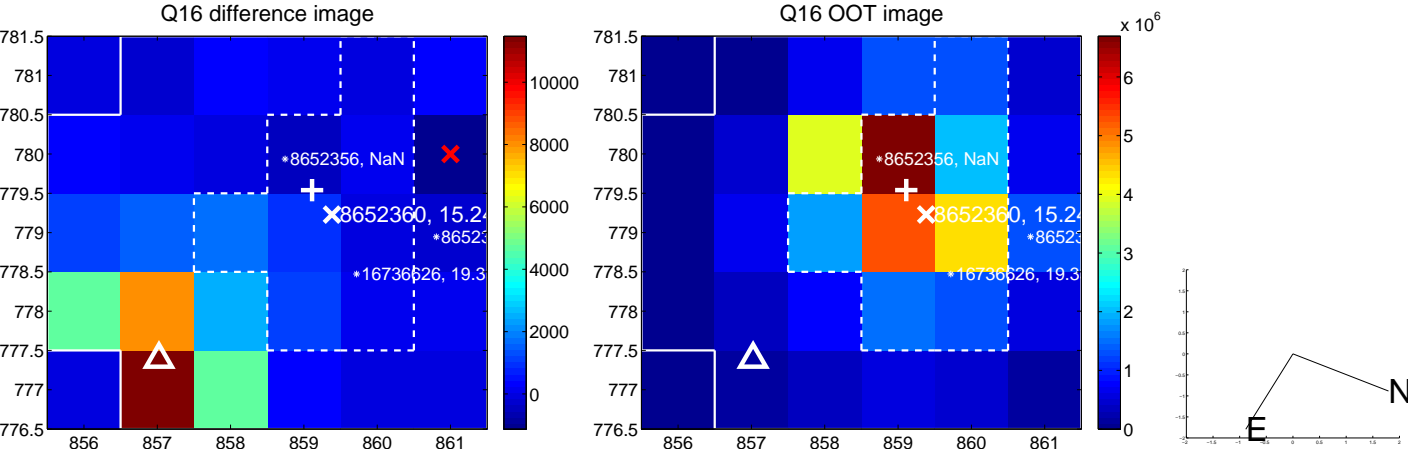
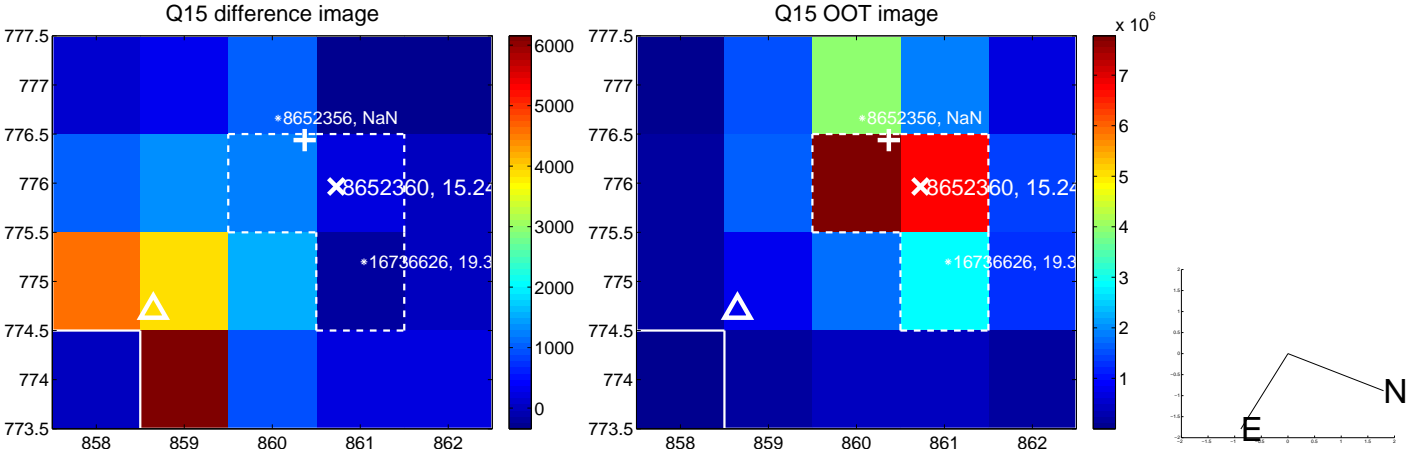
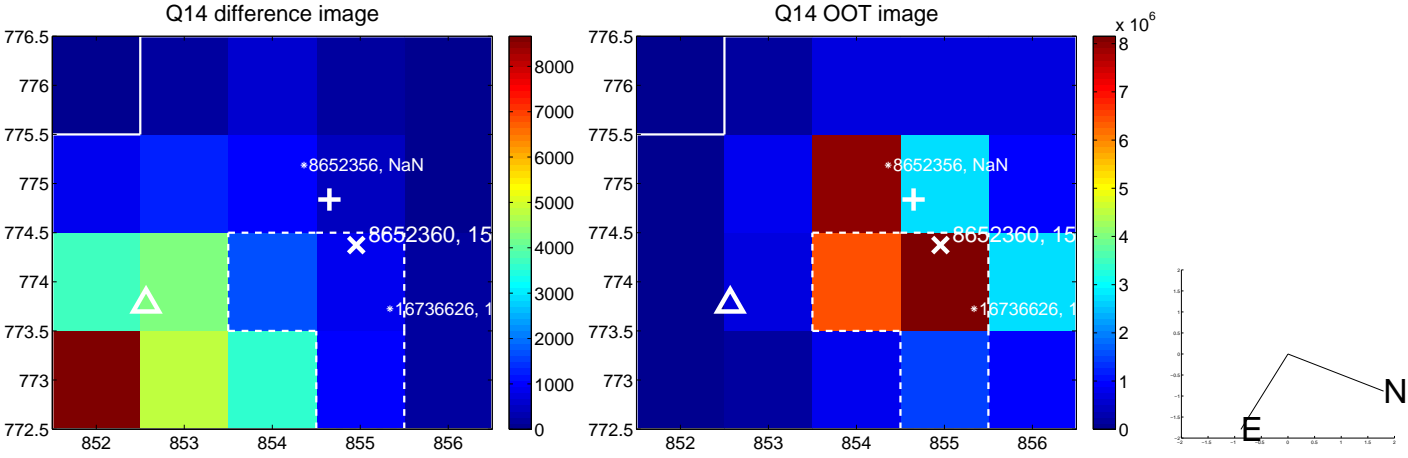
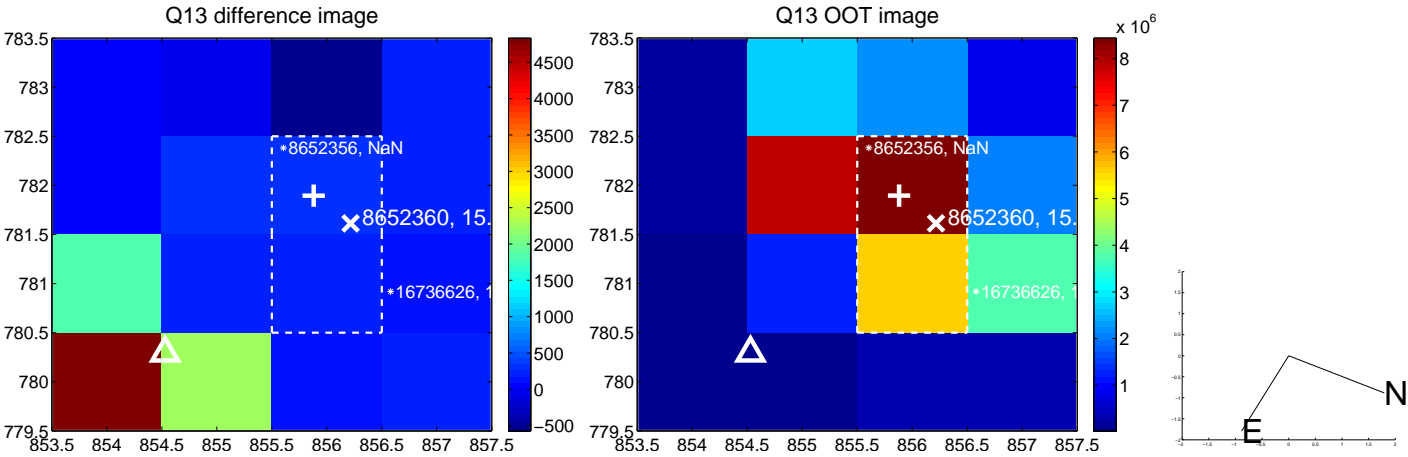
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



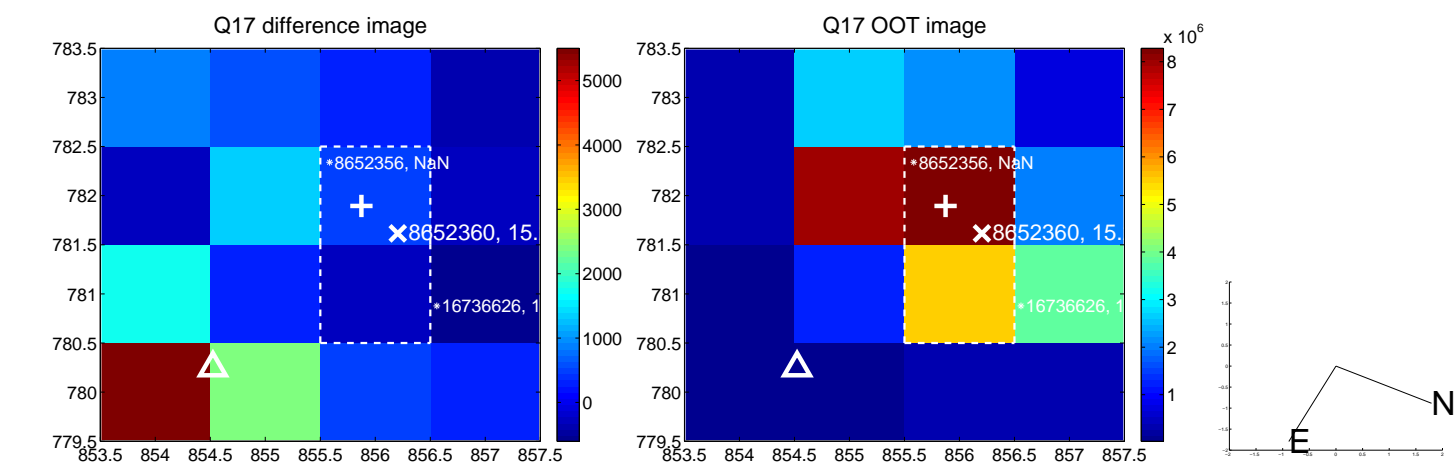
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



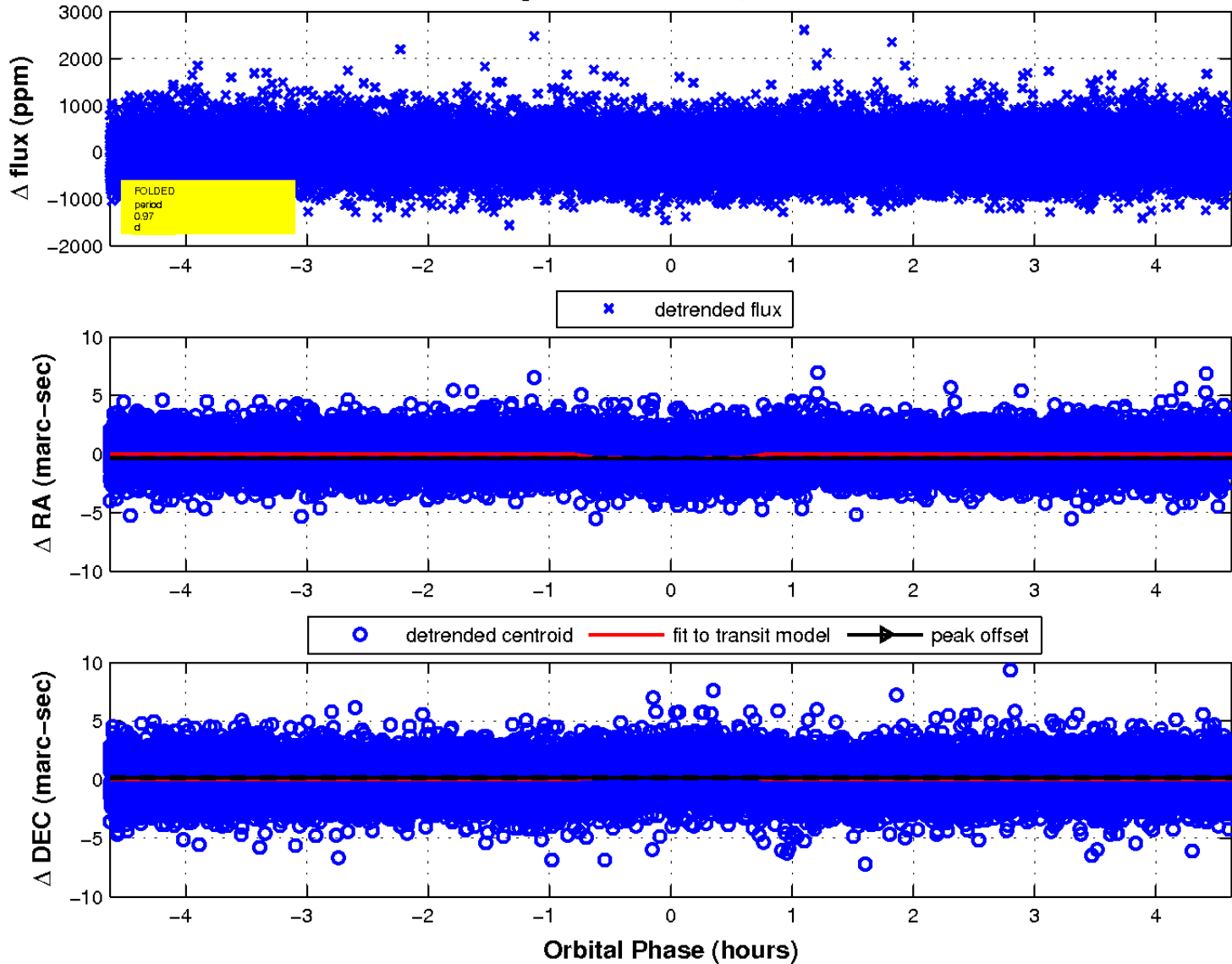
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

