

KIC 009636135

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})
009636135-01	OBS	1498.01	5.833789	132.911538	514.0	4.090	30.1	32.9	1.20	6213	3.11	404.03
009636135-02	OBS	1498.02	2.421493	133.840742	161.6	2.943	13.3	13.5	1.20	6213	1.77	1304.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009636135-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009636135-02	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.

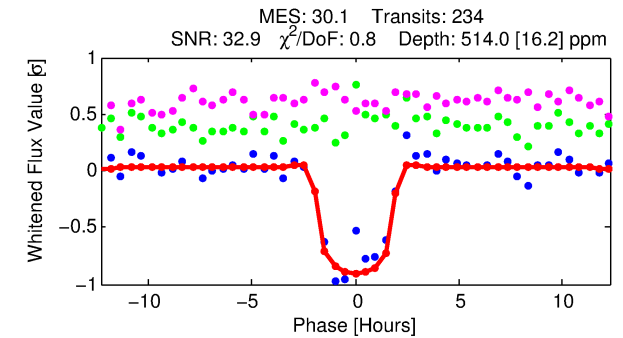
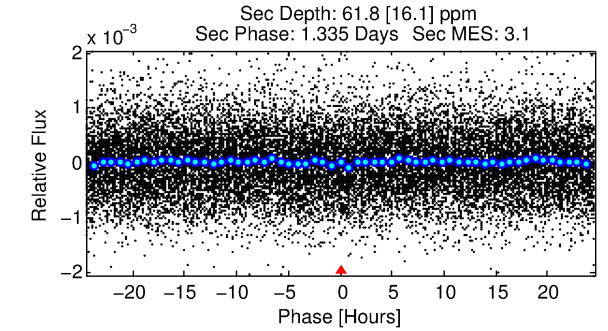
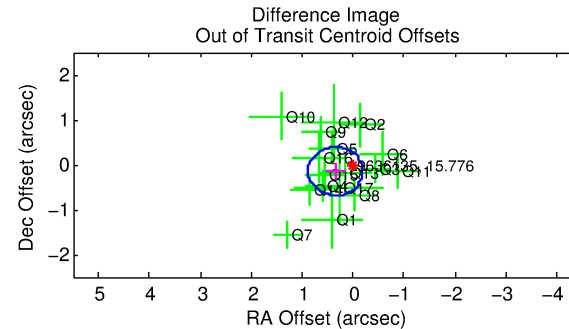
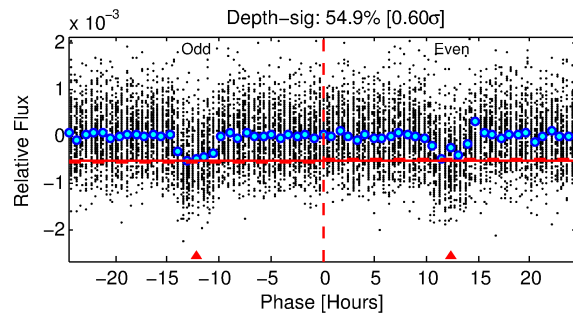
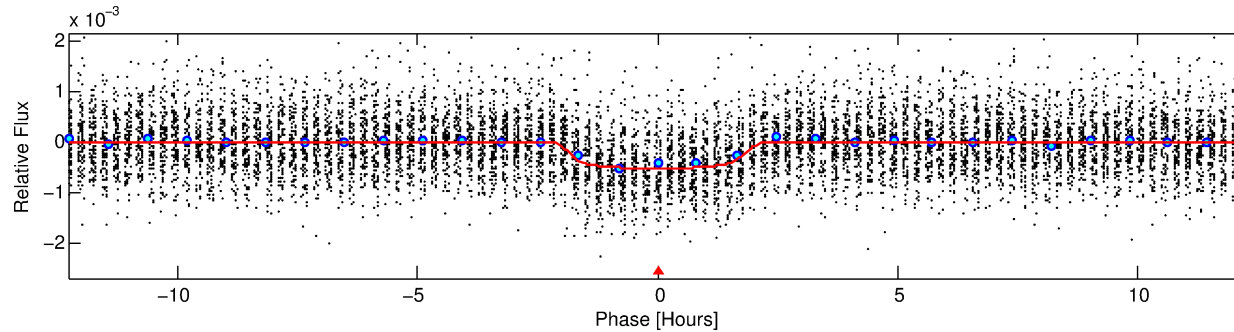
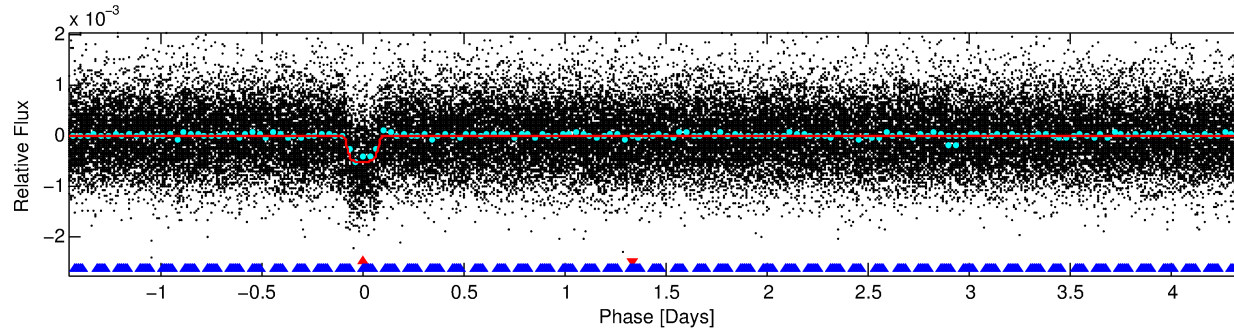
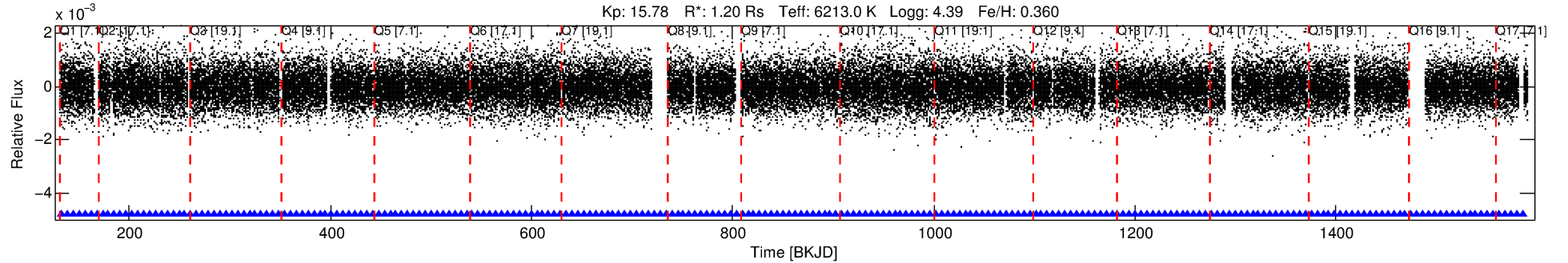
Ephemeris Match Information For 009636135-01

No Significant Match Found

DV One-Page Summary

KIC: 9636135 Candidate: 1 of 2 Period: 5.834 d
KOI: K01498.01 Corr: 0.972

Kp: 15.78 R*: 1.20 Rs Teff: 6213.0 K Logg: 4.39 Fe/H: 0.360



DV Fit Results:

Period = 5.83379 [0.00002] d
Epoch = 132.9115 [0.0022] BKJD
Rp/R* = 0.0238 [0.0032]
a/R* = 6.09 [3.89]
b = 0.86 [0.20]
Seff = 404.03 [158.04]
Teq = 1143 [112] K
Rp = 3.11 [1.00] Re
a = 0.0687 [0.0168] AU
Ag = 16.63 [8.56] [1.82σ]
Teffp = 3569 [366] K [6.35σ]

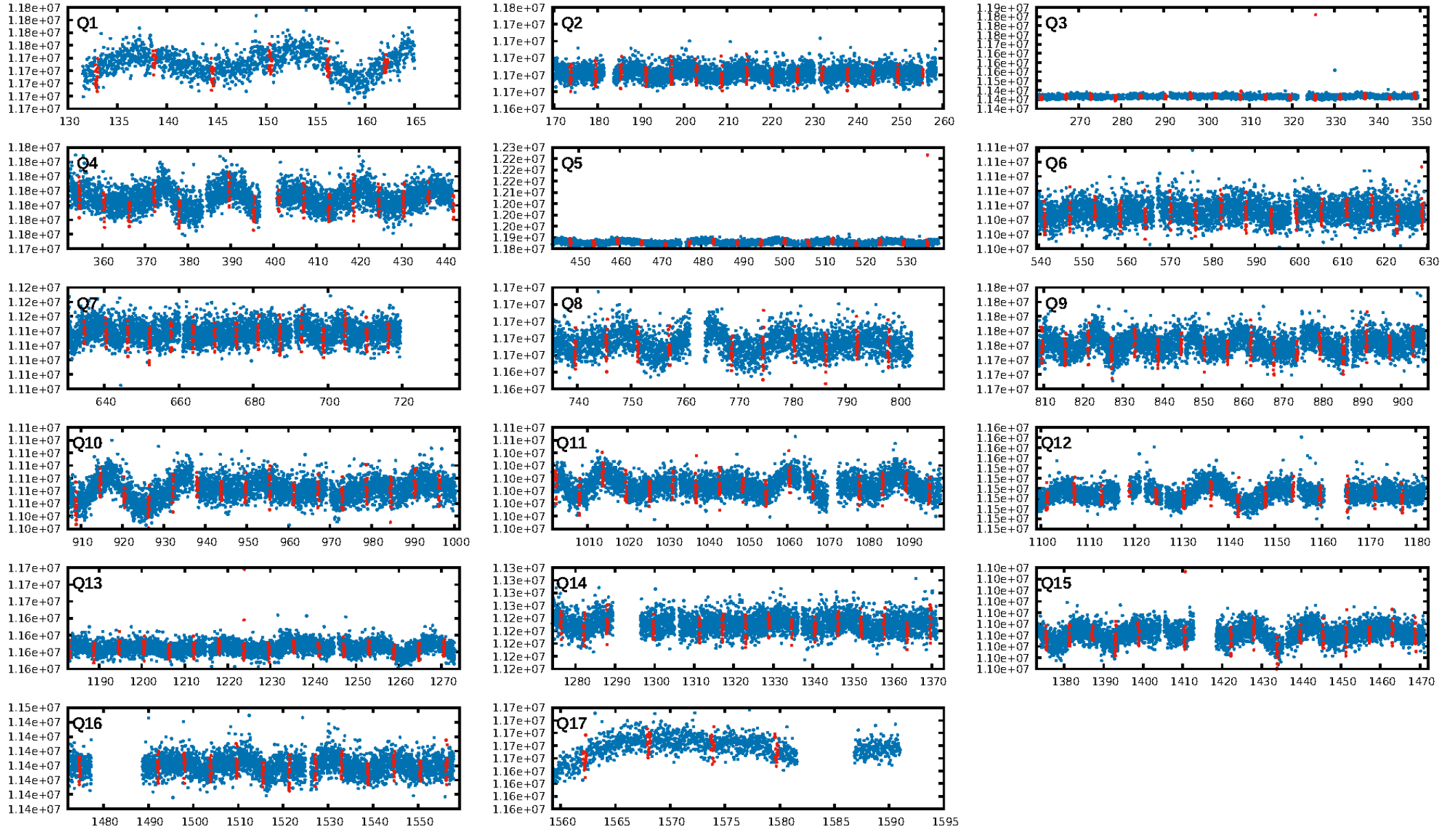
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.25σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.14e-194
RollingBand-fgt: 1.00 [224/224]
GhostDiagnostic-chr: 14.1
Centroid-sig: 0.0%
Centroid-so: 1.258 arcsec [2.76σ]
OotOffset-rm: 0.377 arcsec [2.09σ]
KicOffset-rm: 0.516 arcsec [2.76σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

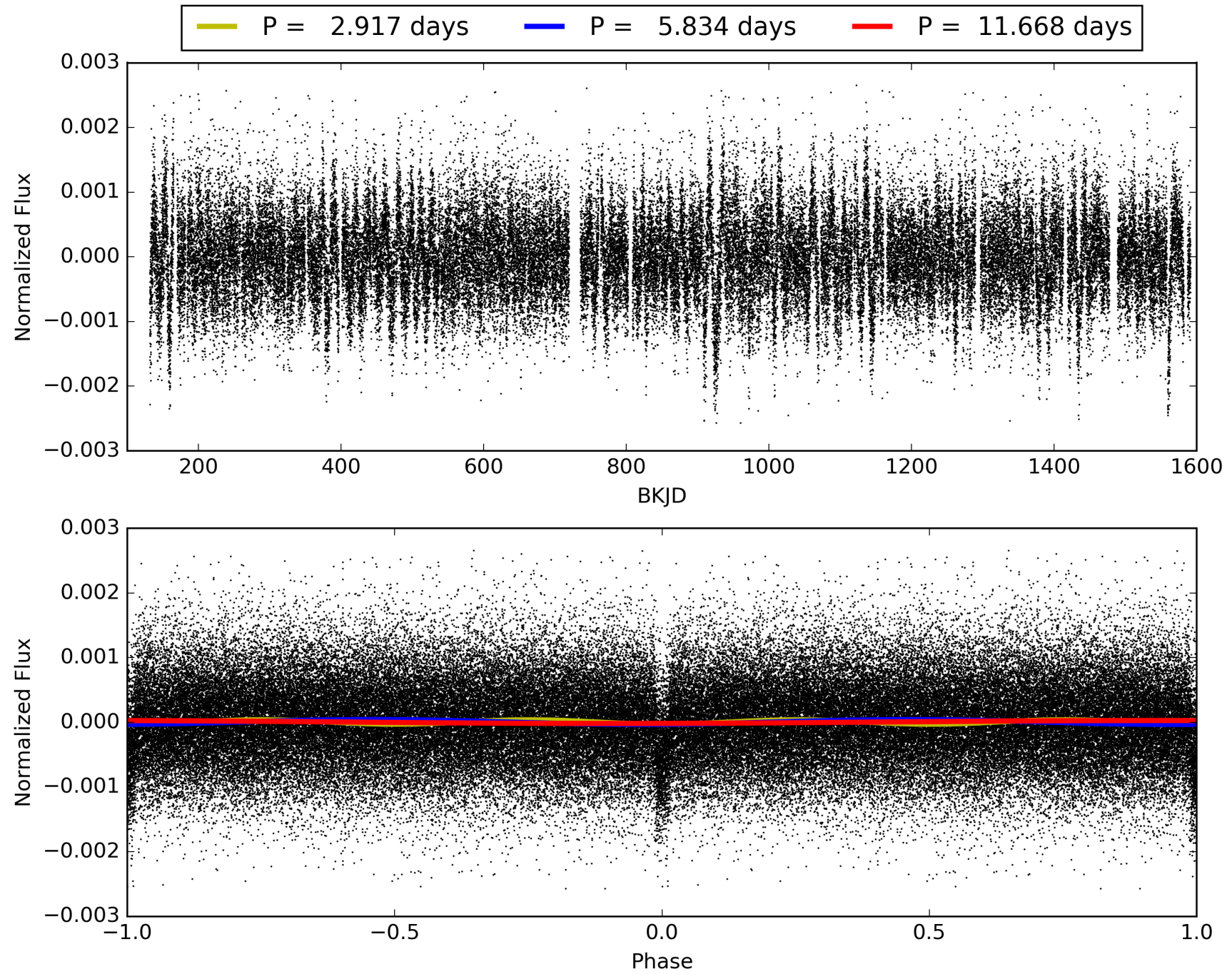
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:36:05 Z

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

TCE 009636135-01, PDC Light Curves

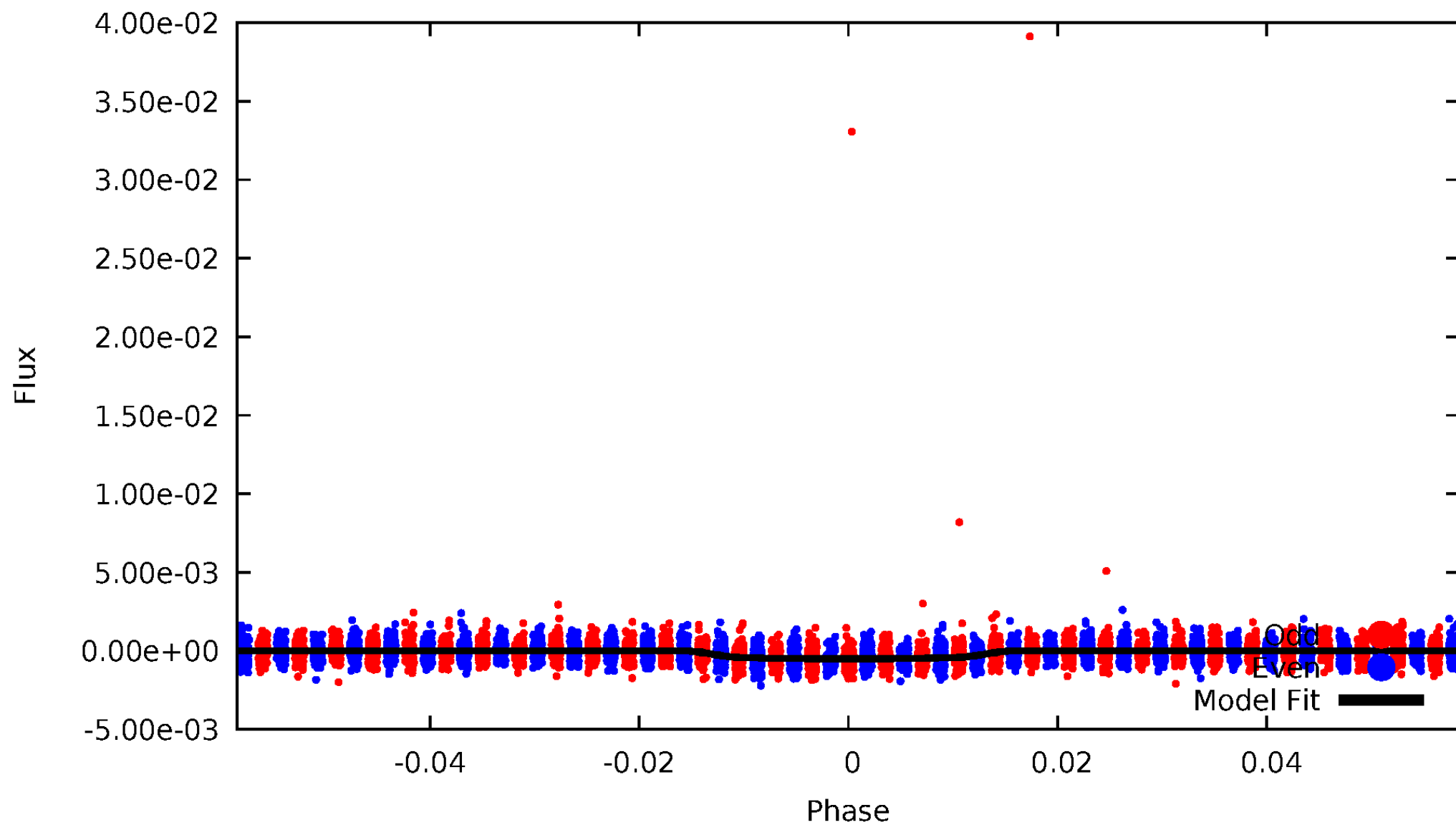


TCE 009636135-01



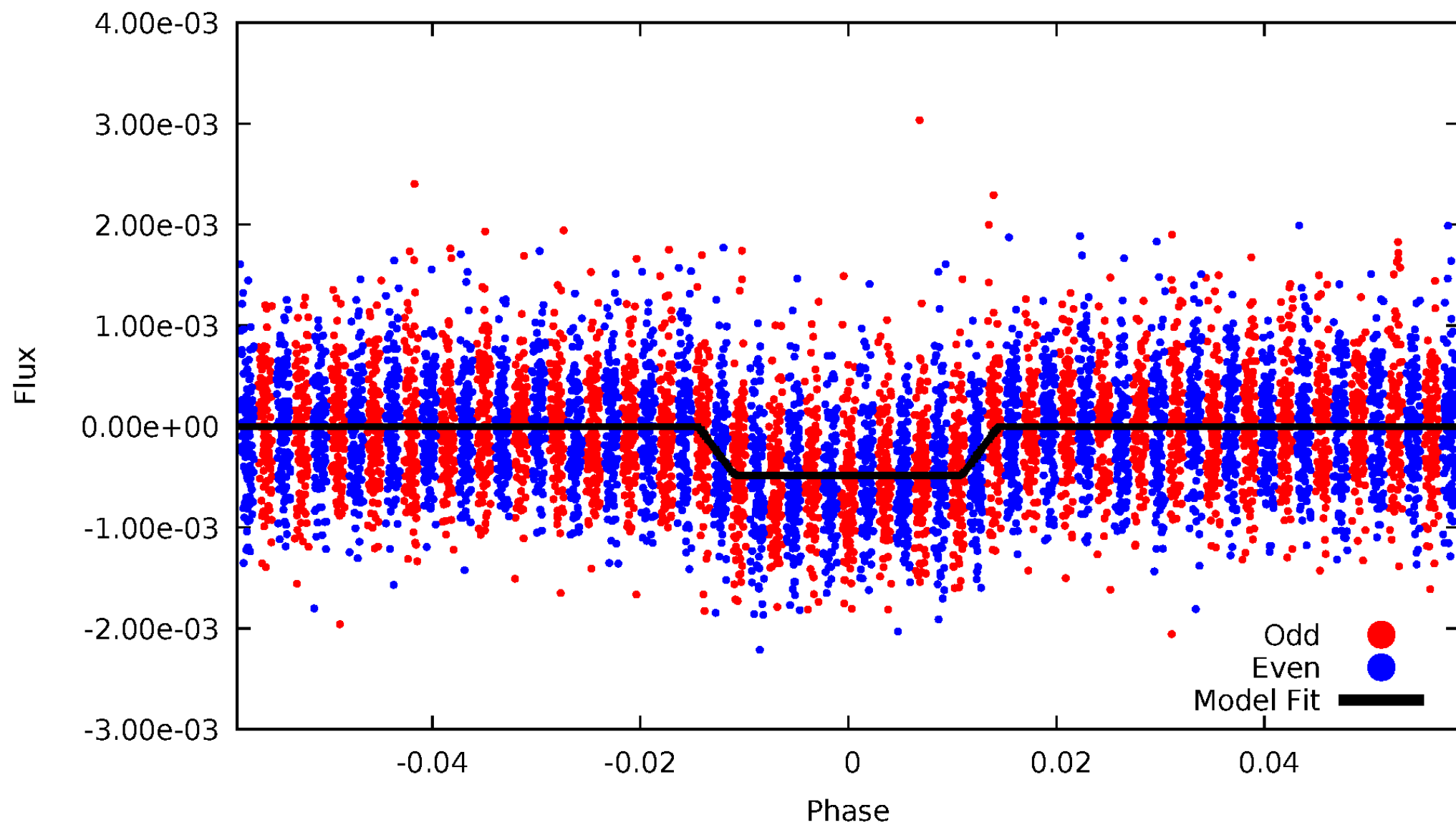
DV Odd/Even

TCE 009636135-01



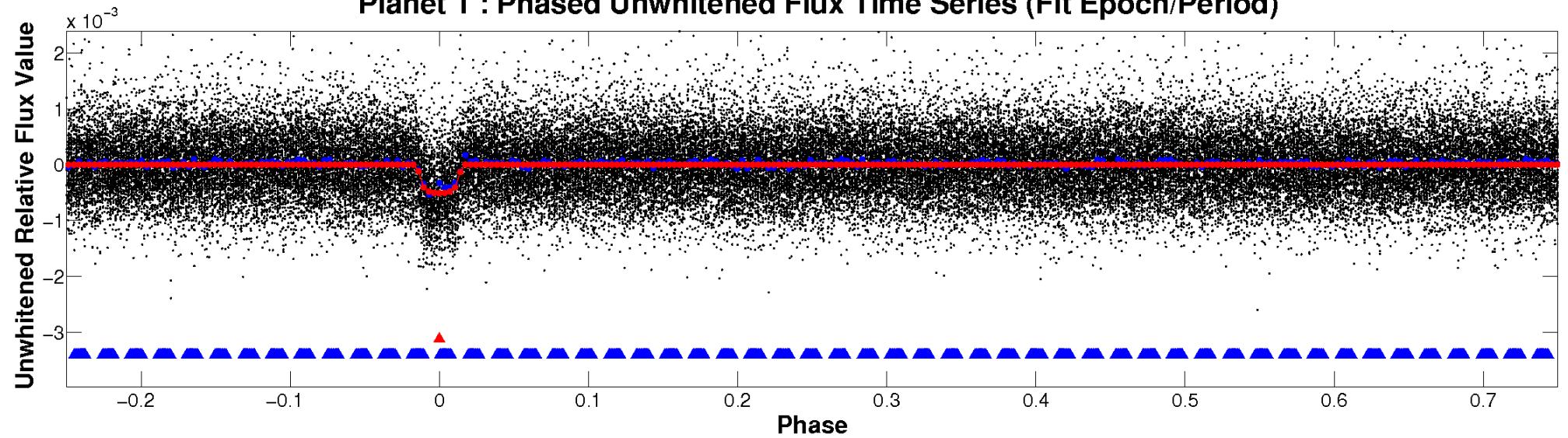
ALT Odd/Even

TCE 009636135-01

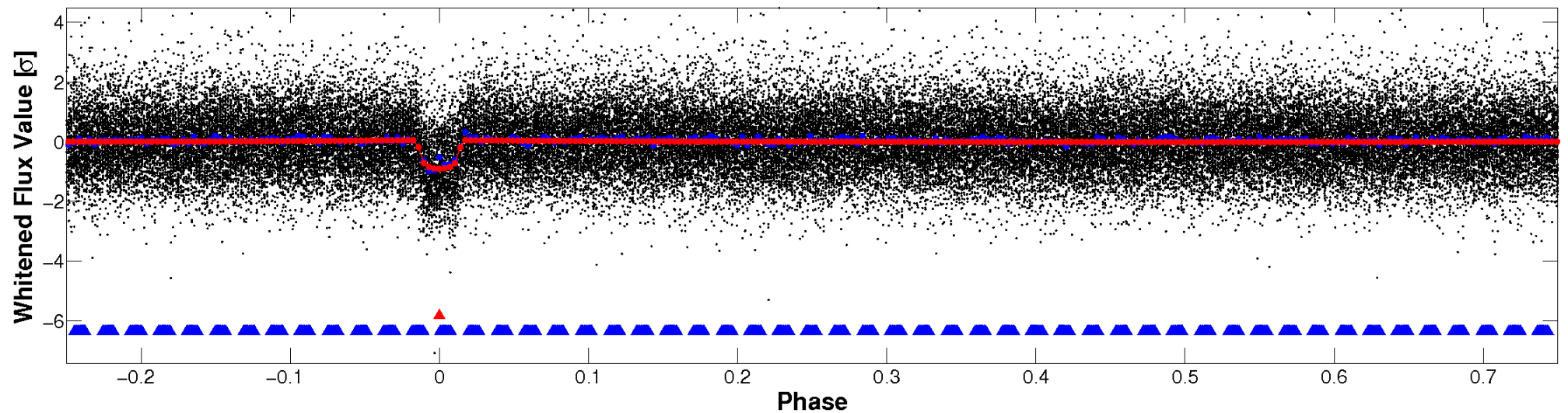


Non-Whitened Vs. Whitened Light Curve

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

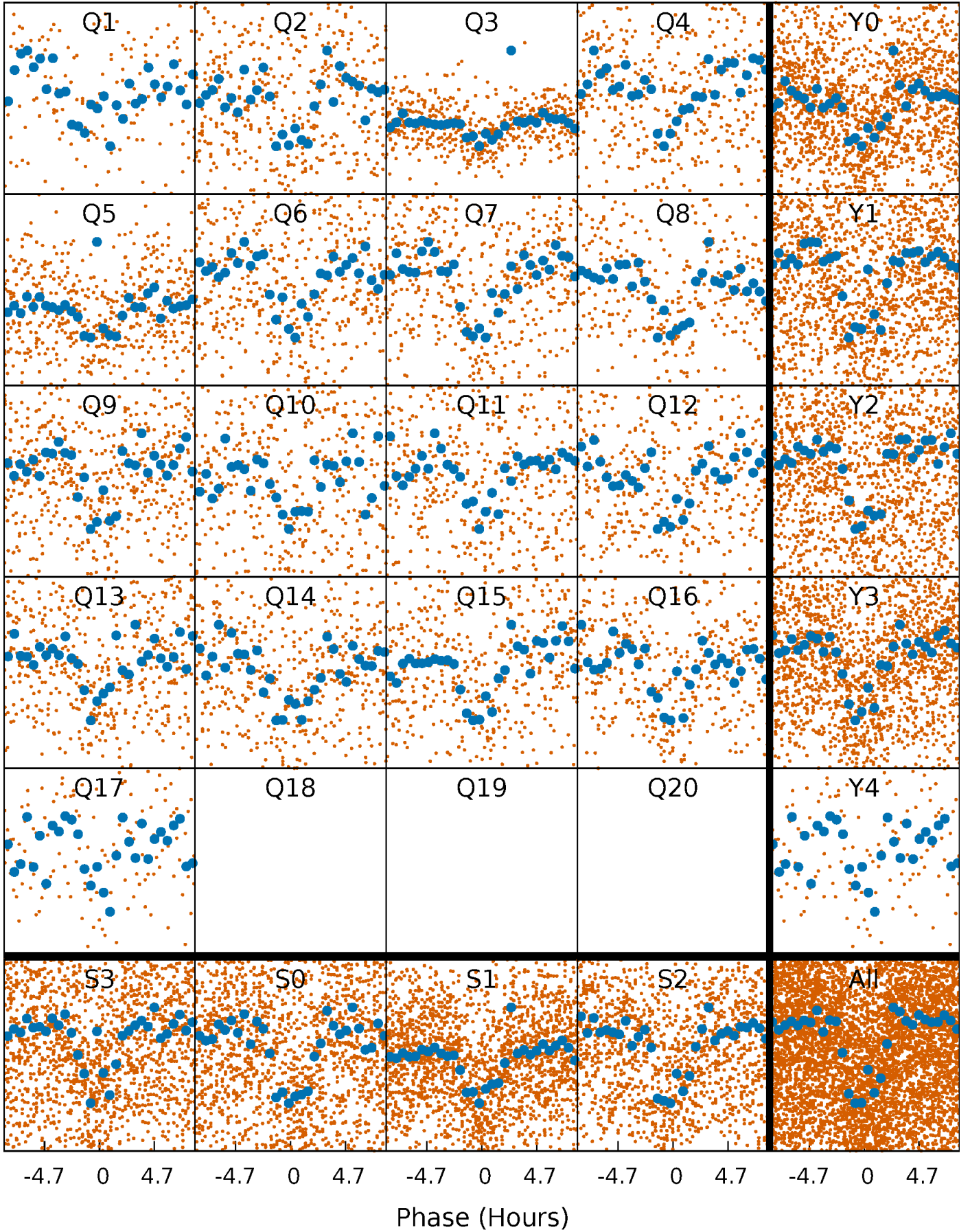


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



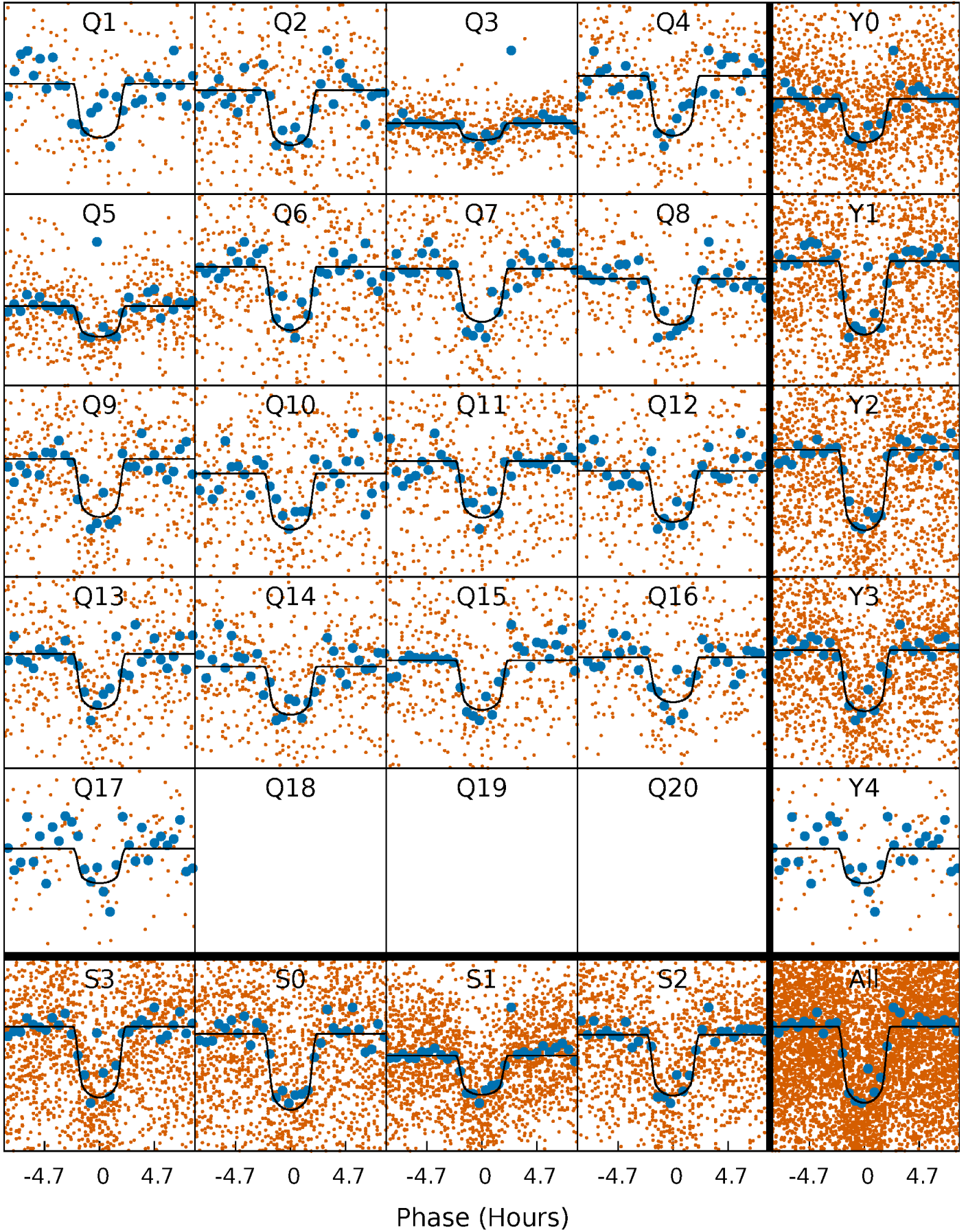
PDC Quarter-Phased Transit Curves

TCE 009636135-01 P= 5.833789 Days $T_0=132.911538$ (BKJD)



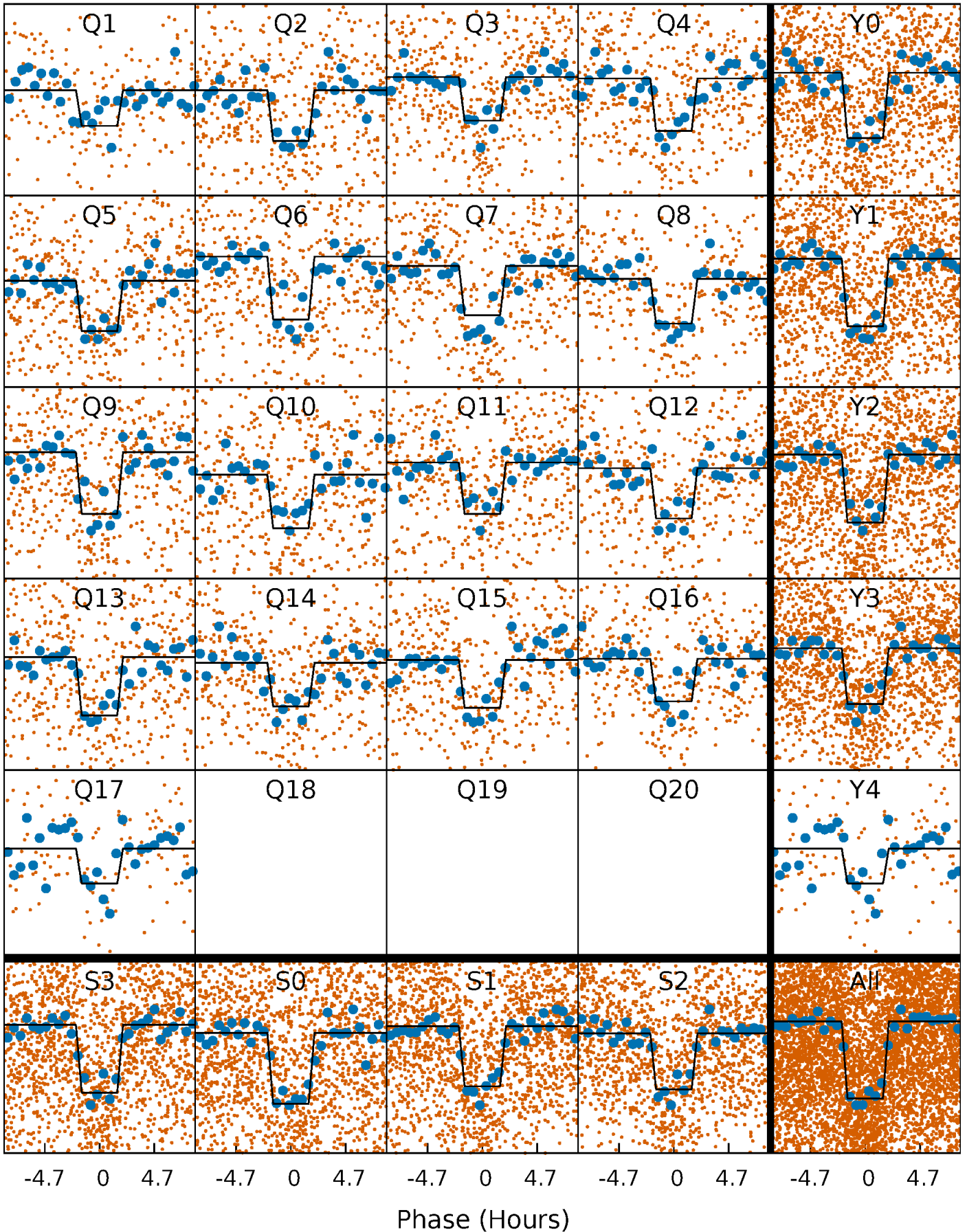
DV Quarter-Phased Transit Curves

TCE 009636135-01 P= 5.833789 Days $T_0=132.911538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

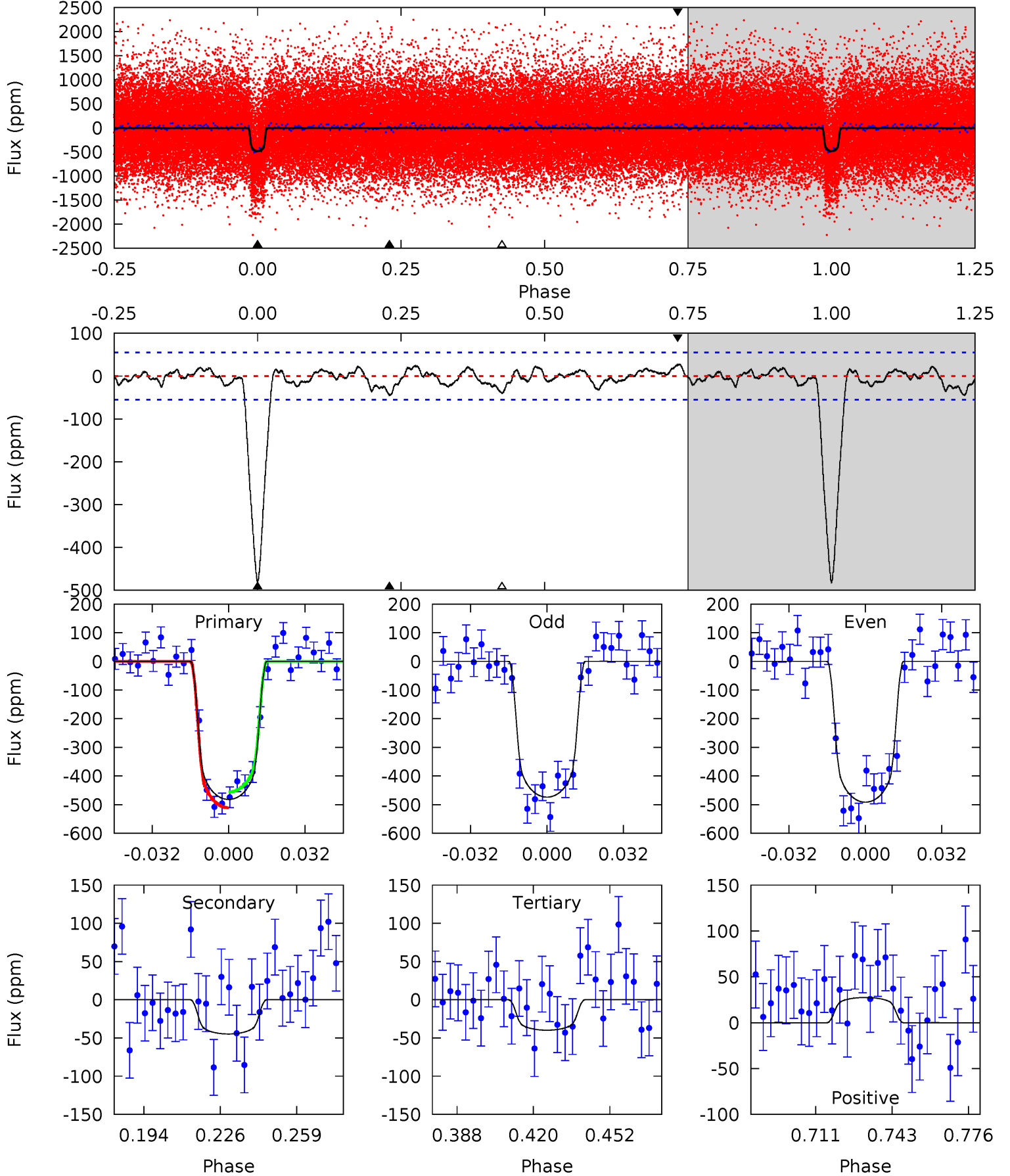
TCE 009636135-01 P= 5.833807 Days $T_0=132.909619$ (BKJD)



DV Model-Shift Uniqueness Test

009636135-01, P = 5.833789 Days, E = 127.077749 Days

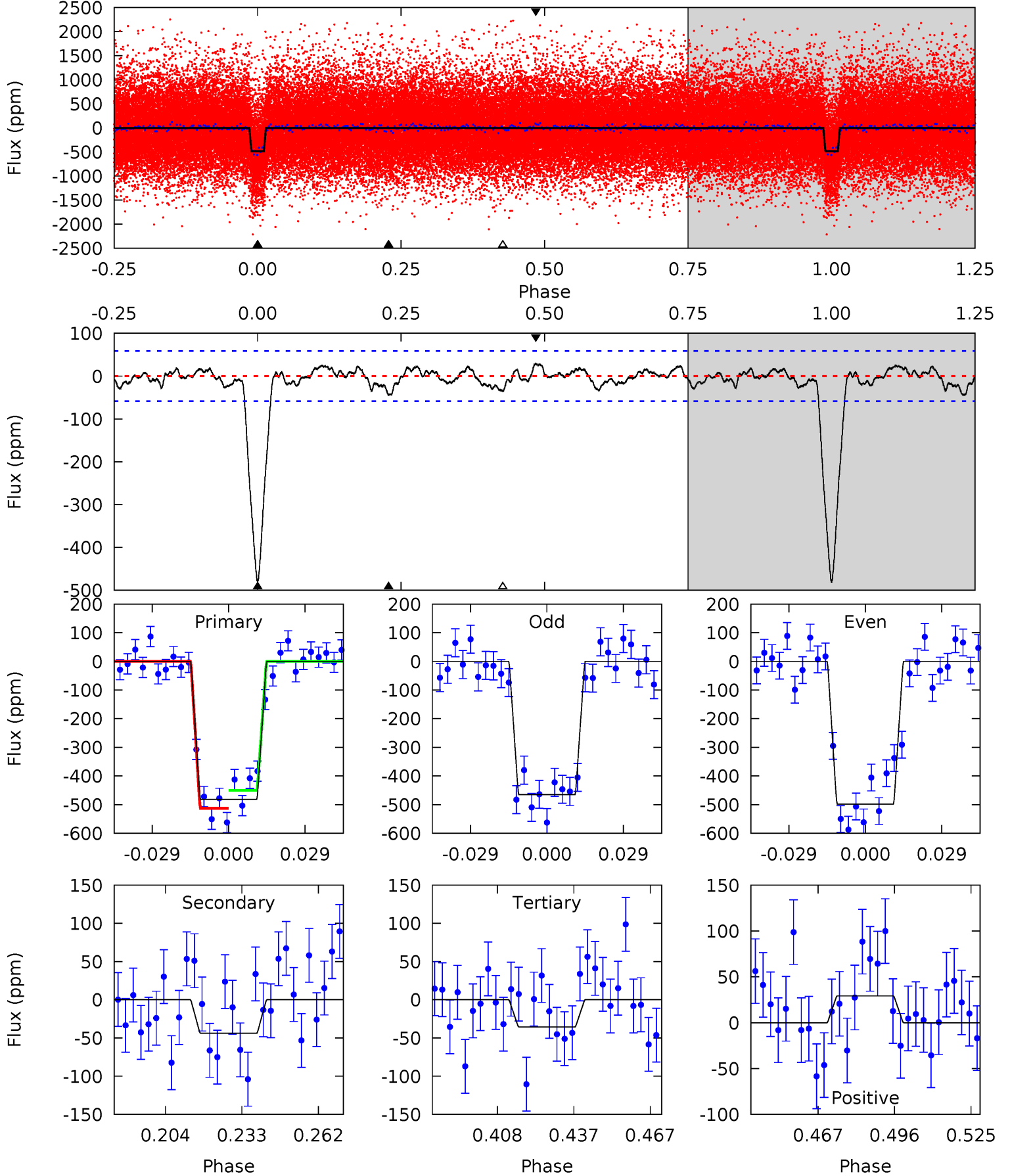
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.8	3.88	3.45	2.38	4.80	2.14	1.16	38.3	39.4	0.43	1.50	0.76	0.94	0.05	2.40



Alt Model-Shift Uniqueness Test

009636135-01, P = 5.833807 Days, E = 127.075812 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.6	3.61	2.92	2.40	4.82	2.18	1.16	36.7	37.2	0.69	1.22	1.36	0.99	0.06	2.56



Stellar Parameters For KIC 009636135

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6213^{+173}_{-259}	$4.387^{+0.060}_{-0.192}$	$0.360^{+0.100}_{-0.300}$	$1.195^{+0.351}_{-0.140}$	$1.270^{+0.142}_{-0.156}$	$1.049^{+0.266}_{-0.513}$
	+3%/-4%	+1%/-4%	+28%/-83%	+29%/-12%	+11%/-12%	+25%/-49%
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 009636135-01 / KOI 1498.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-45 ± 12	$3.25^{+0.58}_{-0.55}$	1622^{+111}_{-85}	3657^{+266}_{-245}	10^{+6}_{-4}
Alt.	-44 ± 12	$3.03^{+0.57}_{-0.49}$	1626^{+117}_{-86}	3741^{+297}_{-244}	12^{+7}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

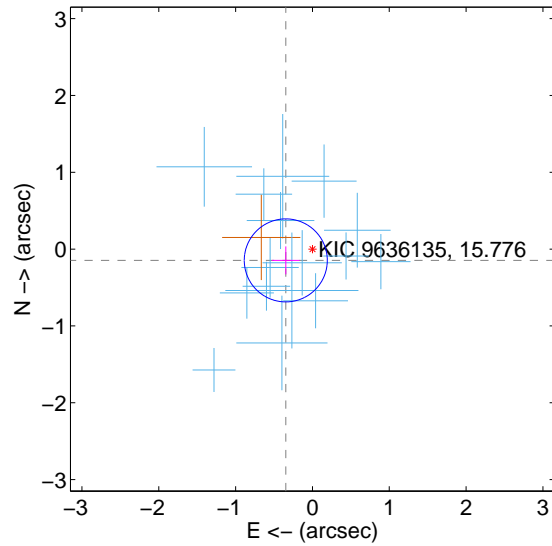
Supplemental centroid analysis for 009636135-01. Kepler magnitude: 15.78. Transit SNR 32.94

There are 16 quarters with good PRF difference image offsets

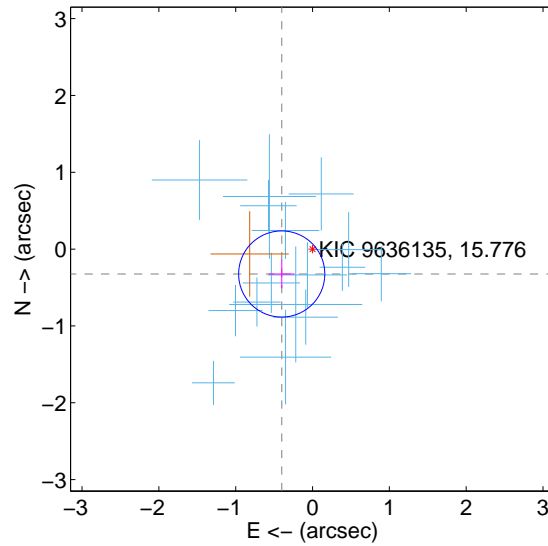
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.377 ± 0.180	2.09	0.347 ± 0.180	-0.147 ± 0.181
PRF-fit source offset from KIC position	0.516 ± 0.187	2.76	0.401 ± 0.168	-0.324 ± 0.185
photometric centroid source offset	1.26 ± 0.46	2.76	0.63 ± 0.46	-1.09 ± 0.45

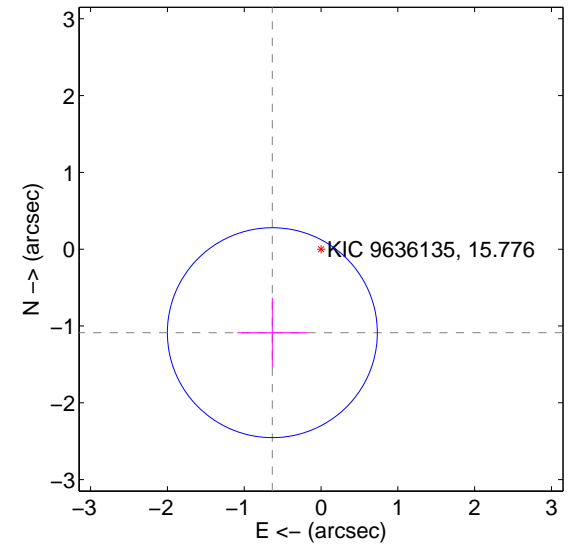
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

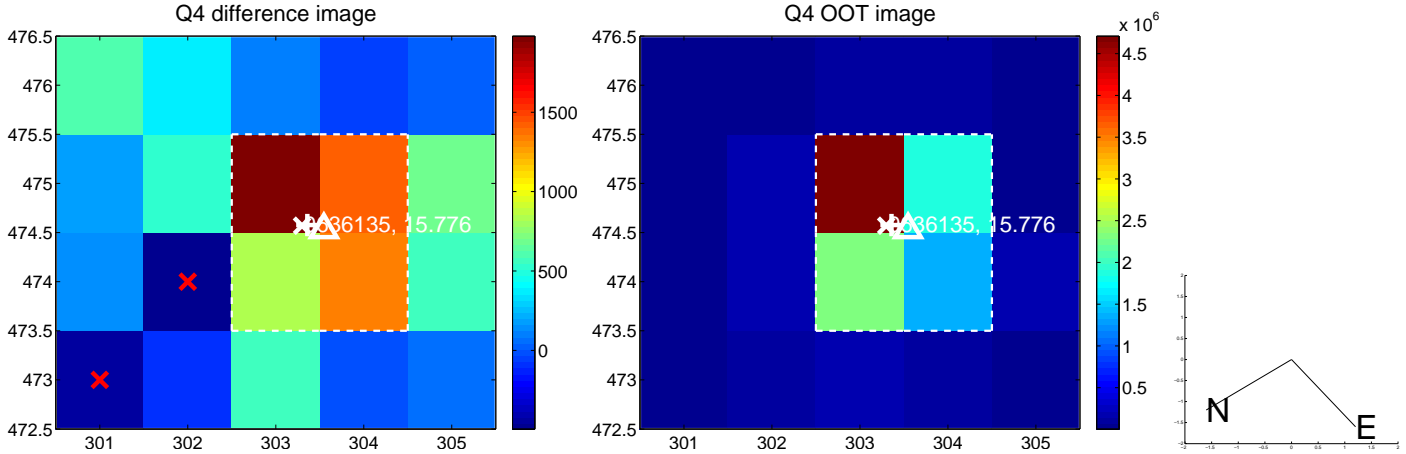
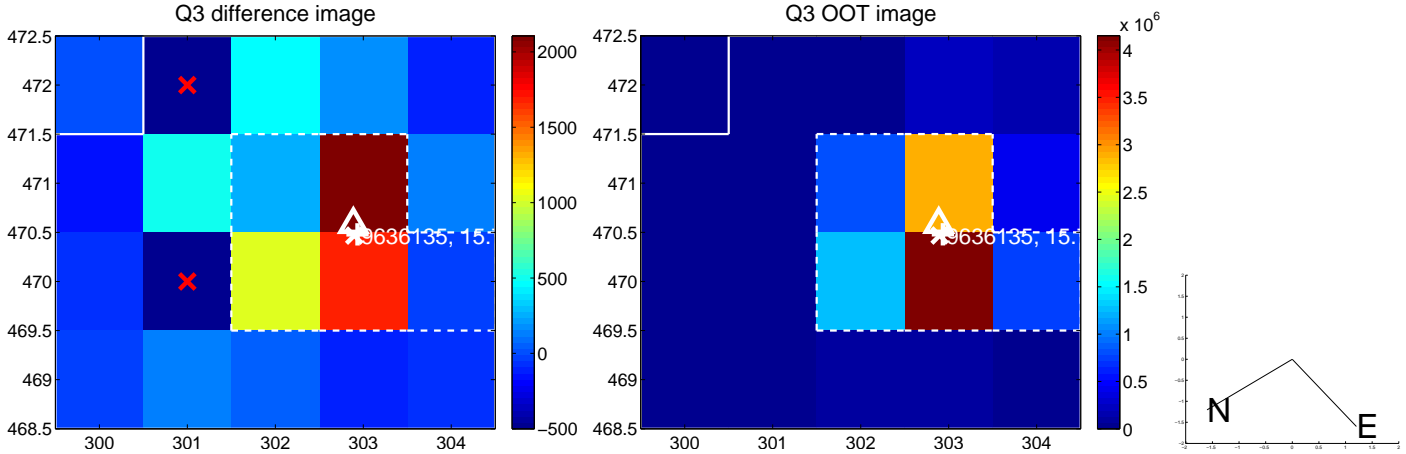
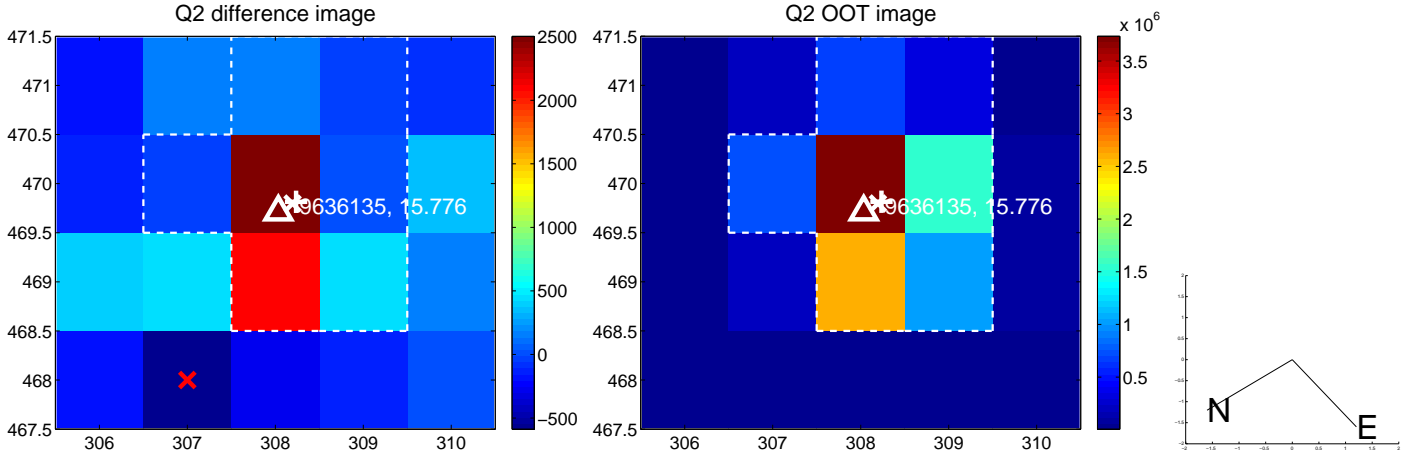
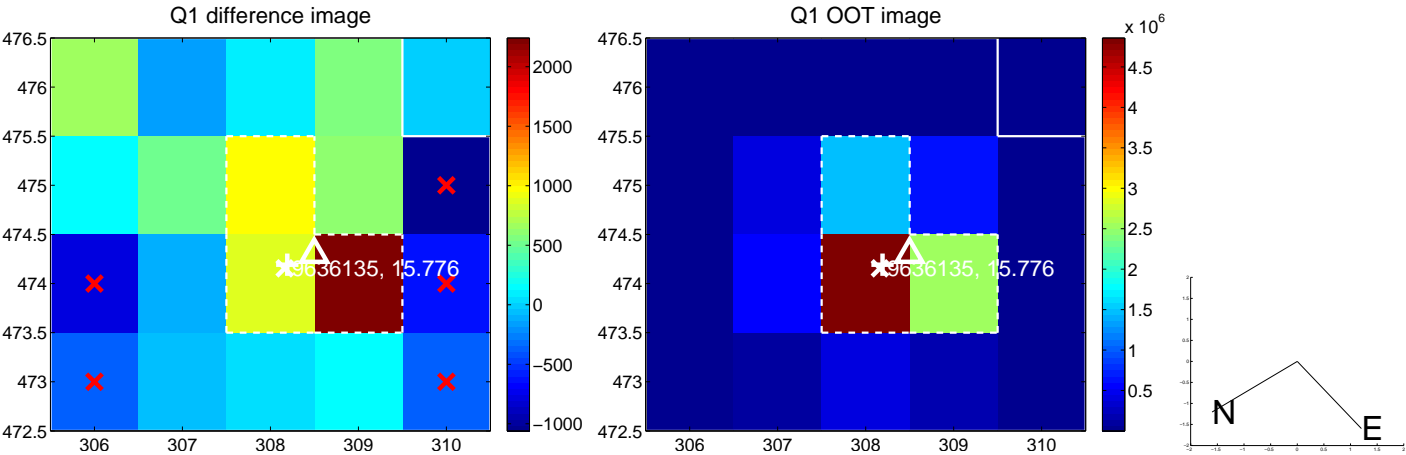


offset from photometric centroids

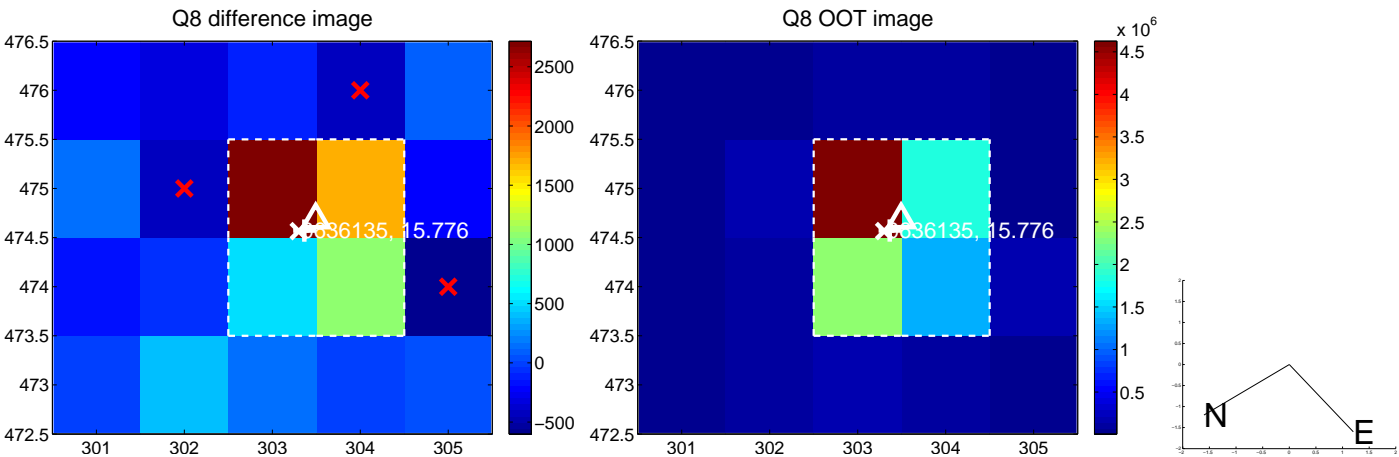
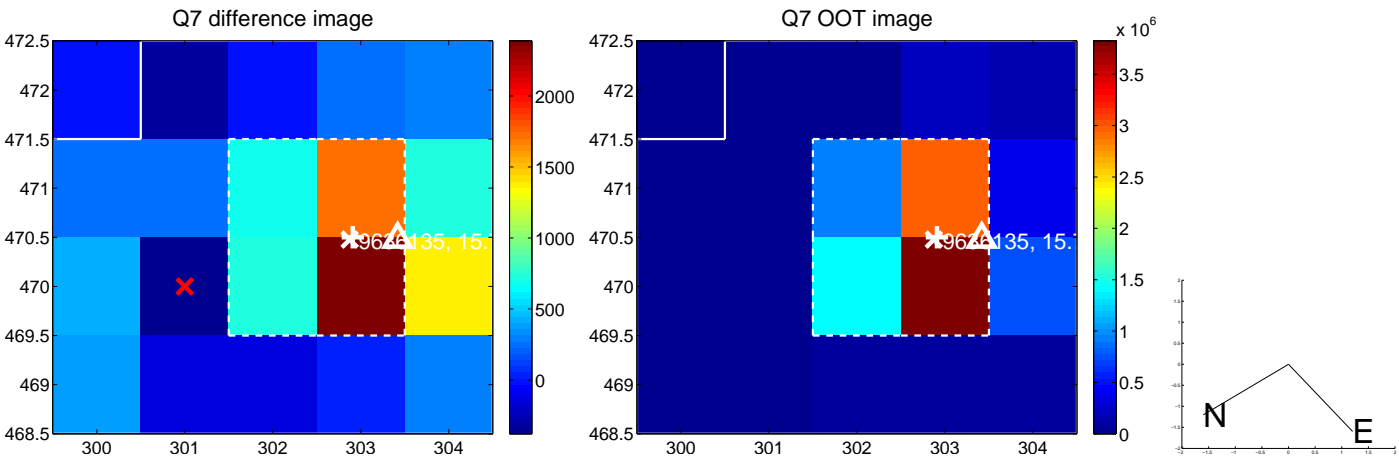
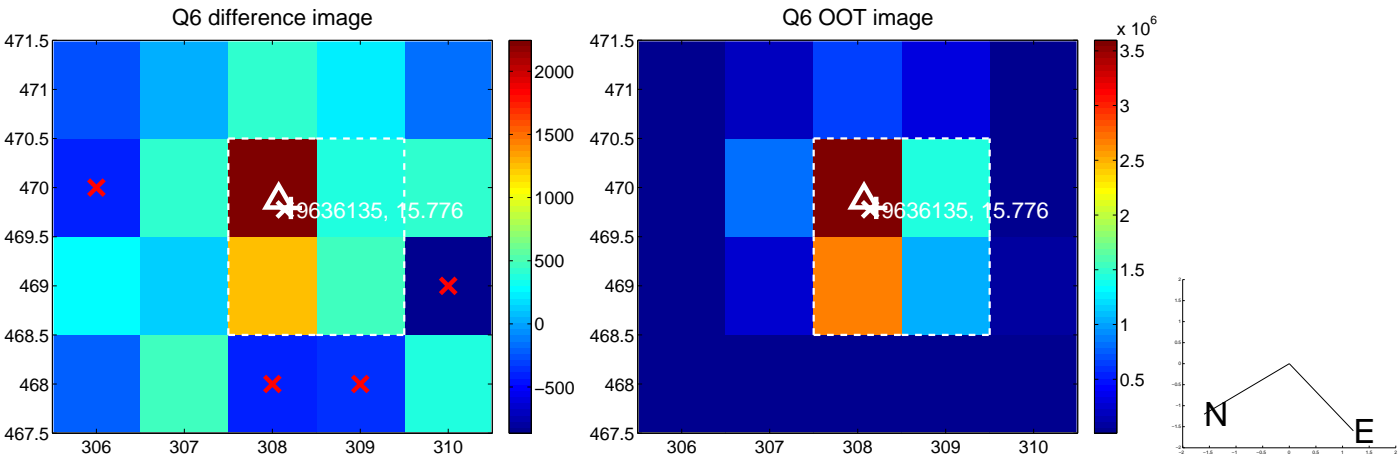
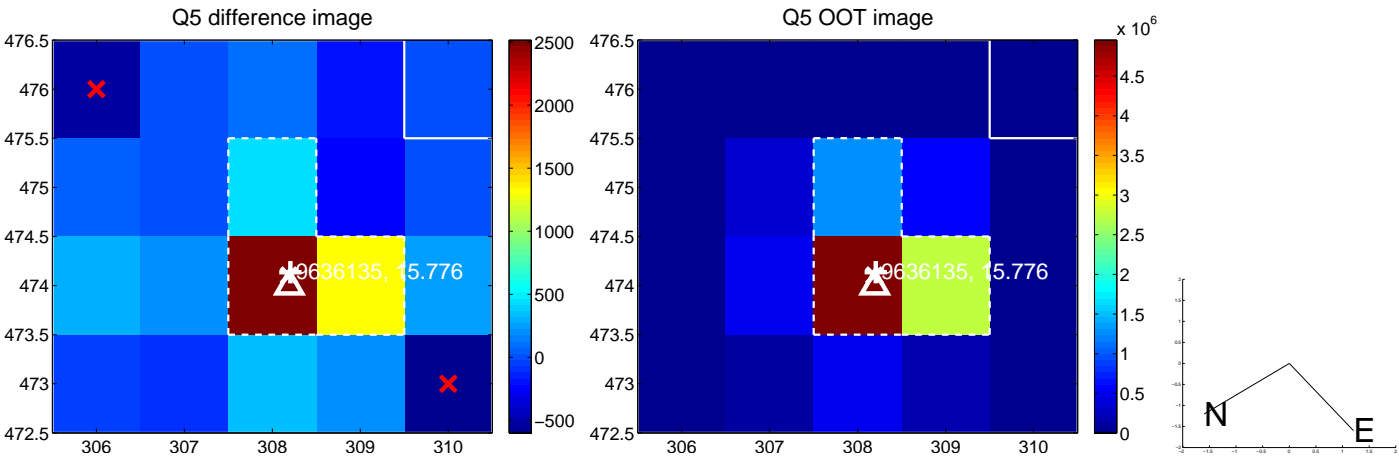


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

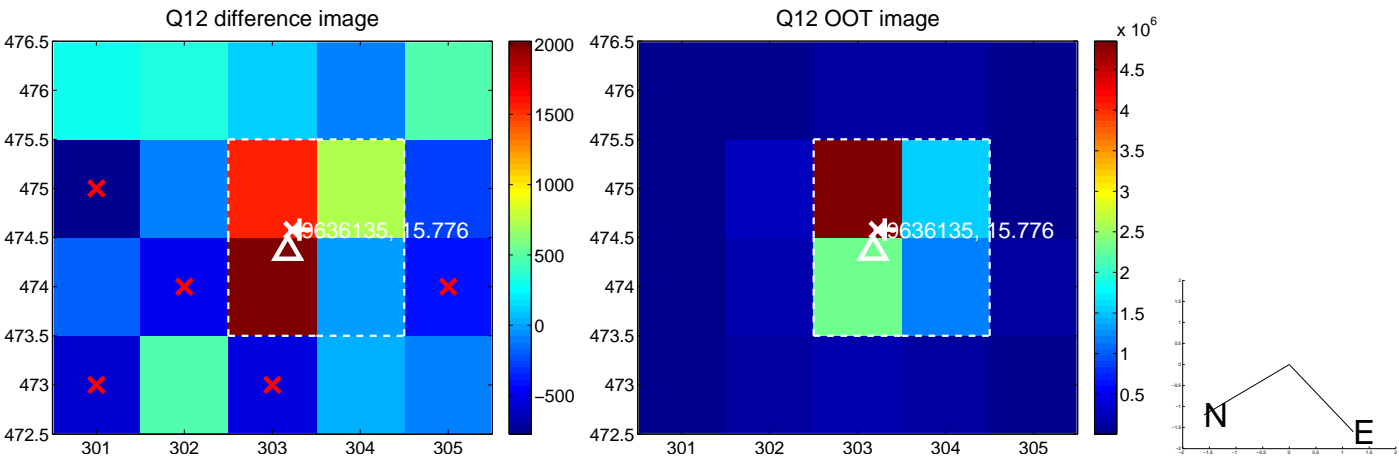
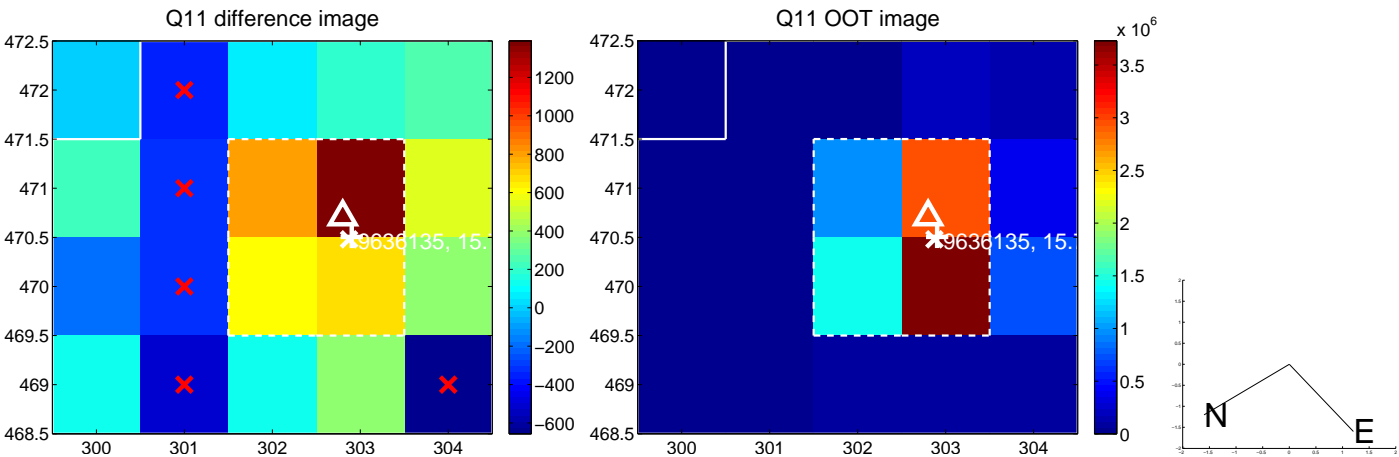
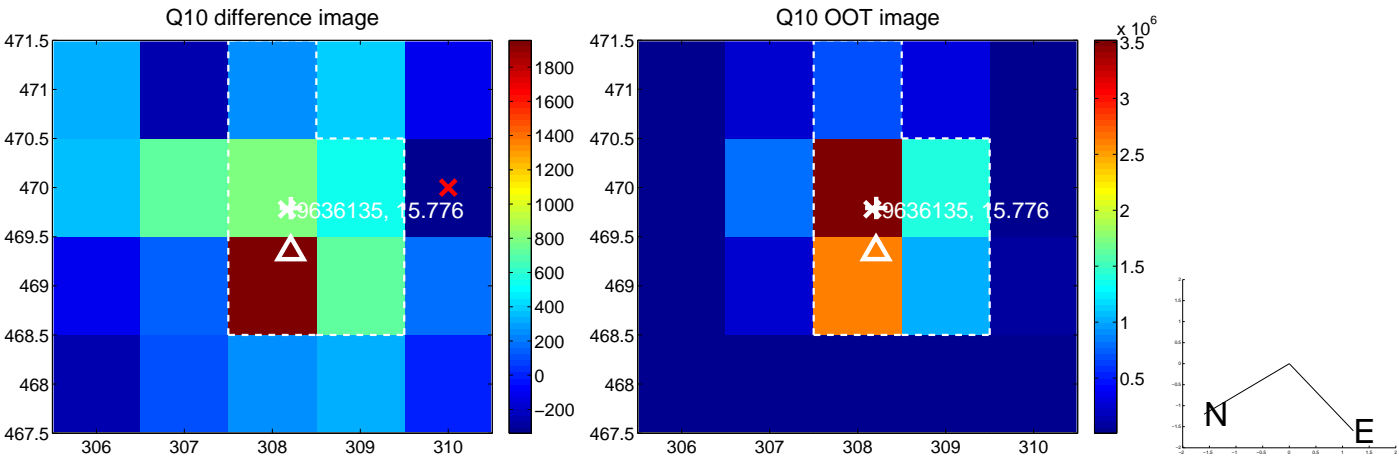
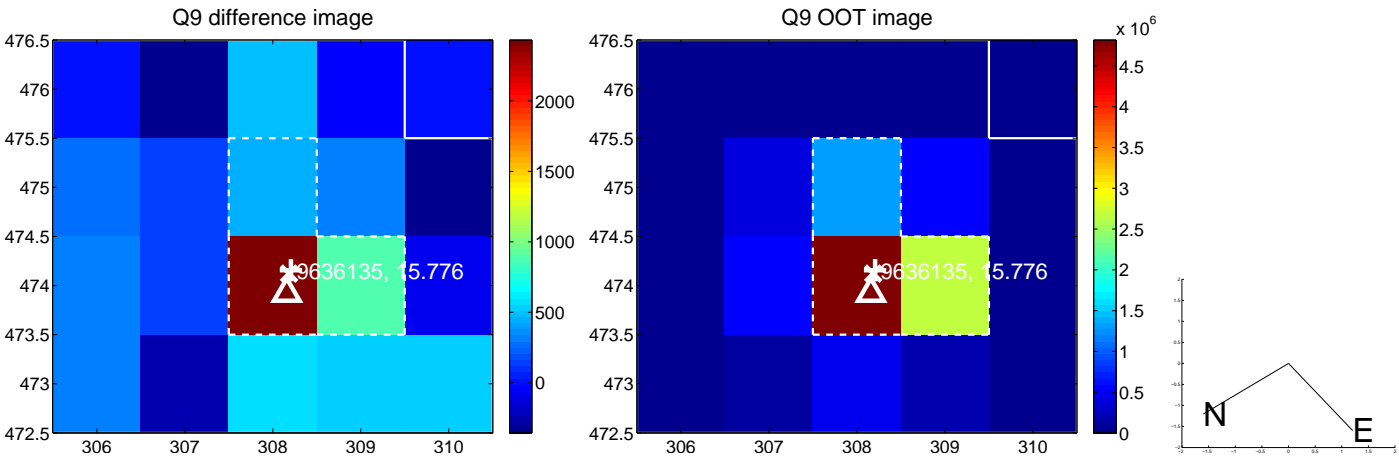
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



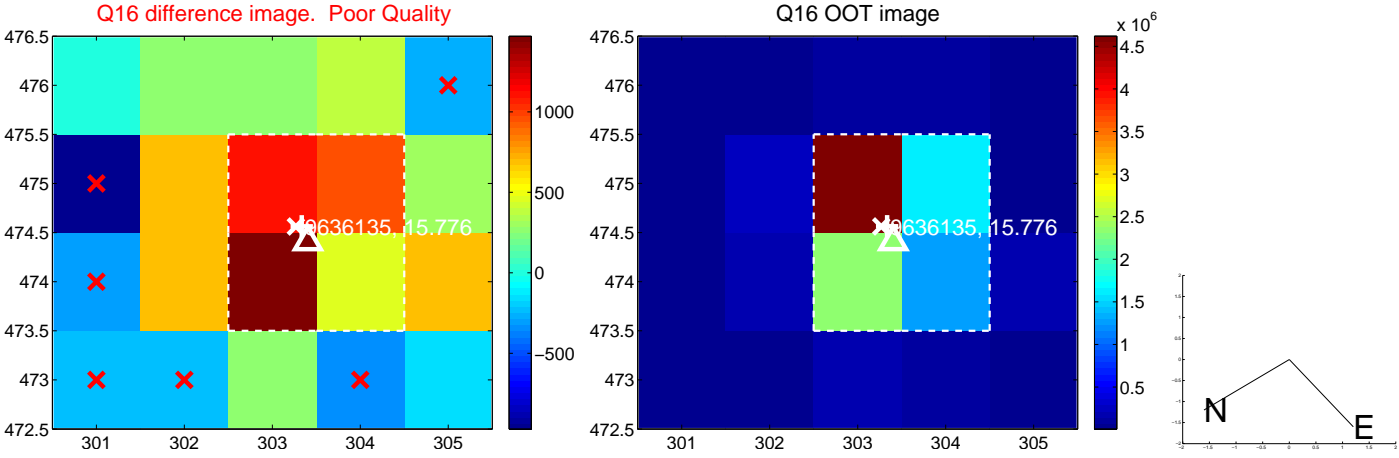
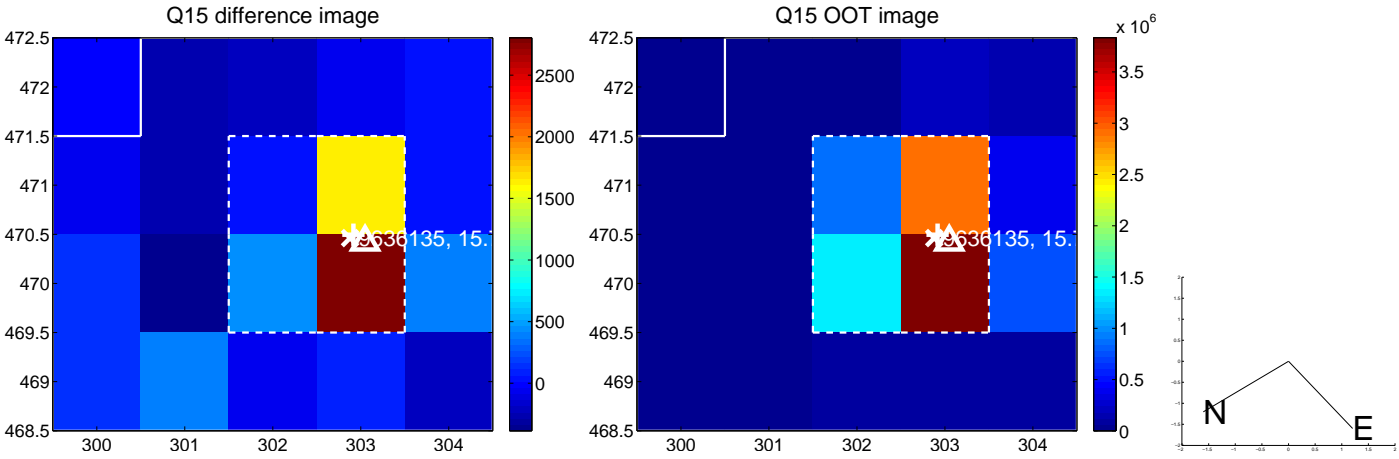
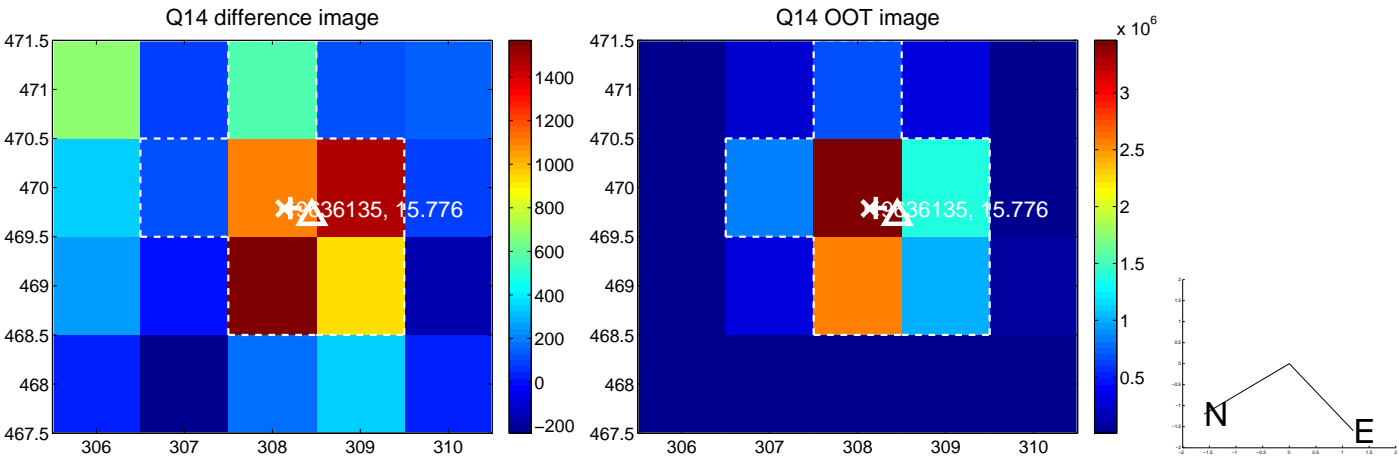
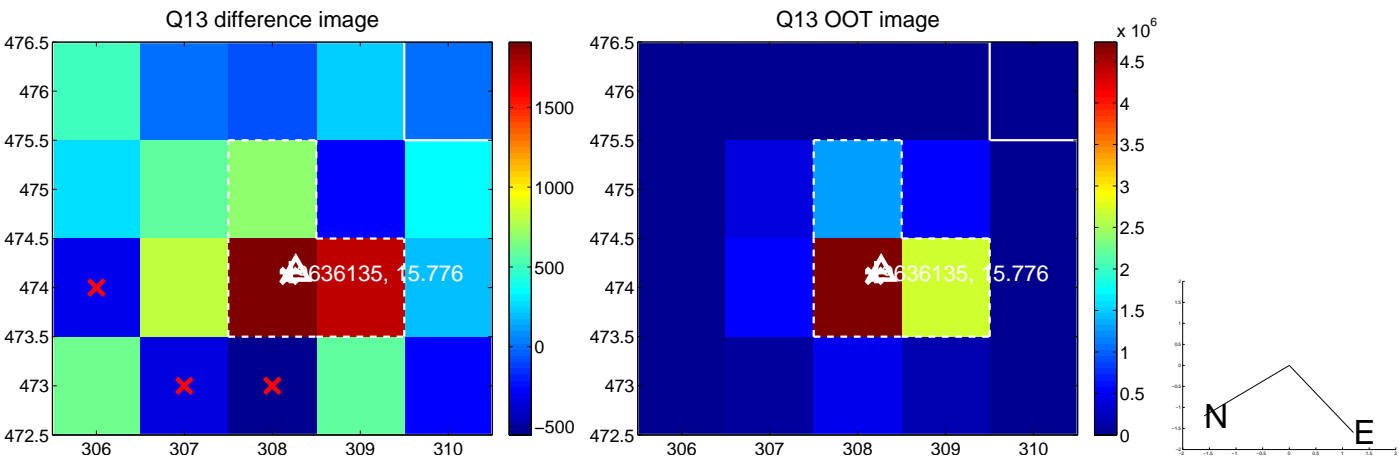
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



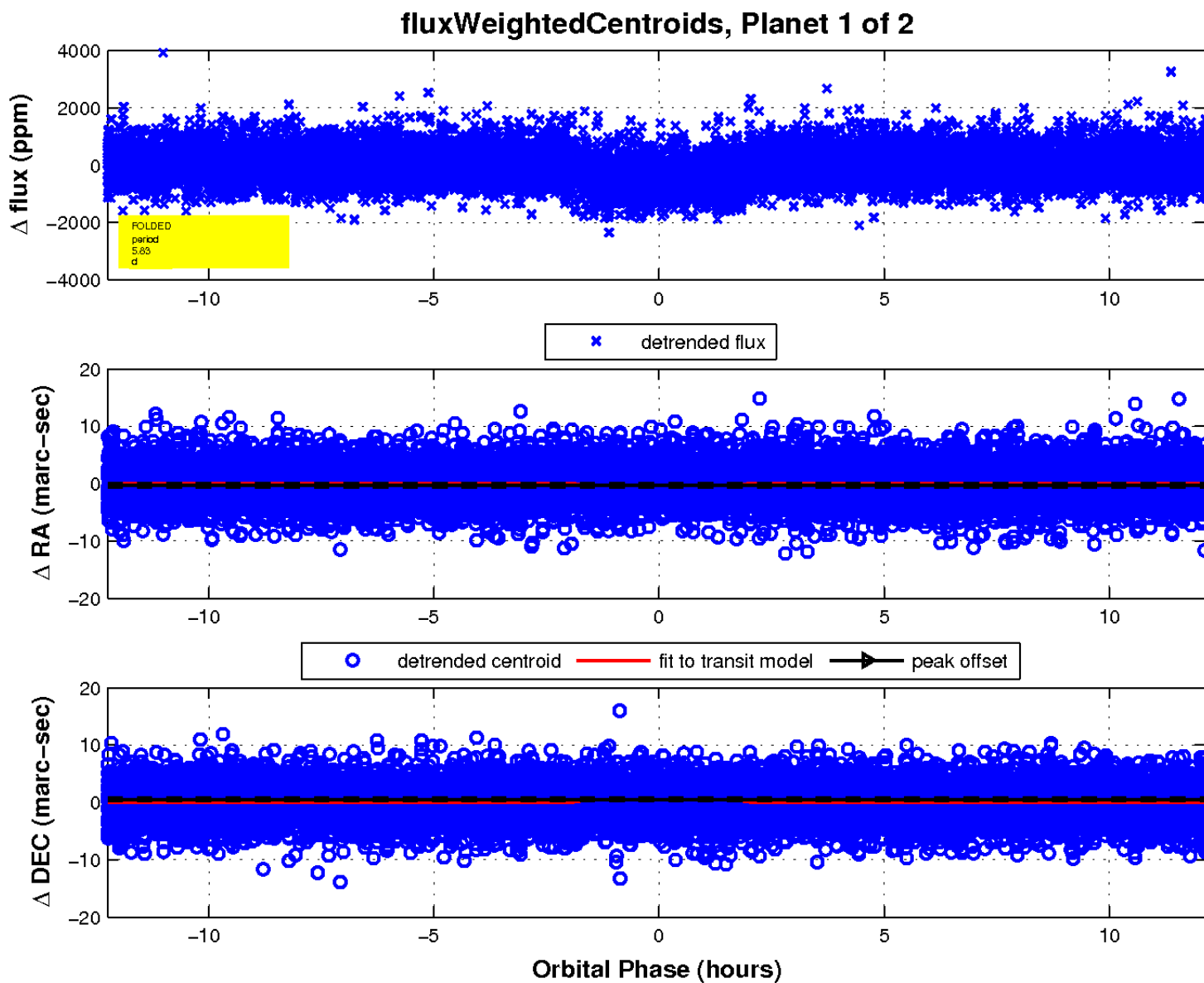
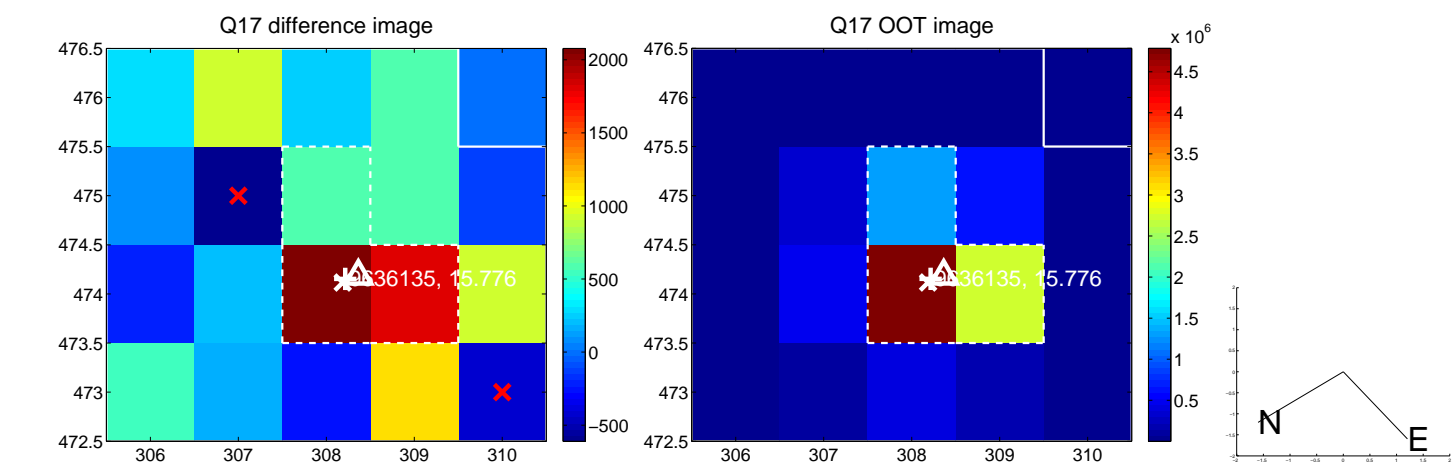
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

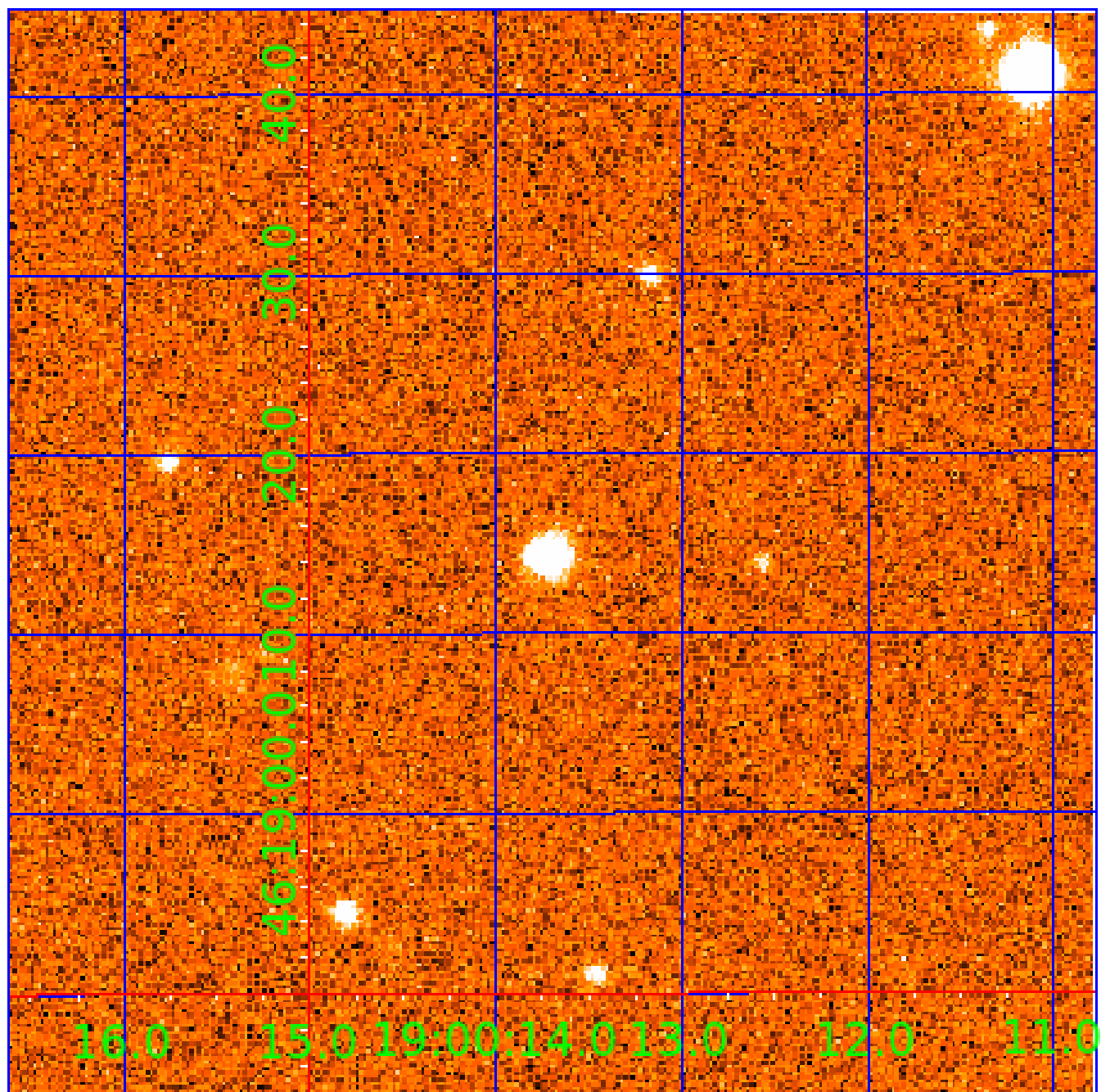


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009636135

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})
009636135-01	OBS	1498.01	5.833789	132.911538	514.0	4.090	30.1	32.9	1.20	6213	3.11	404.03
009636135-02	OBS	1498.02	2.421493	133.840742	161.6	2.943	13.3	13.5	1.20	6213	1.77	1304.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009636135-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
009636135-02	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.

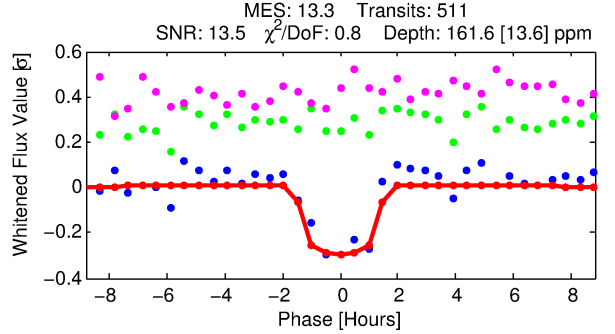
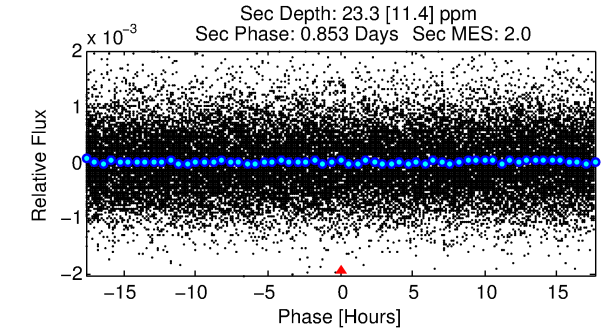
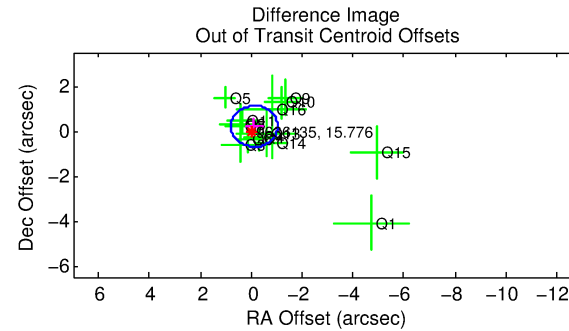
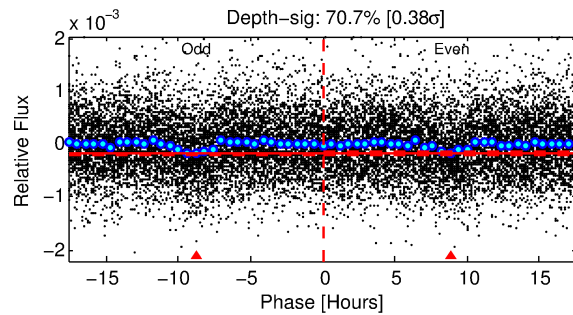
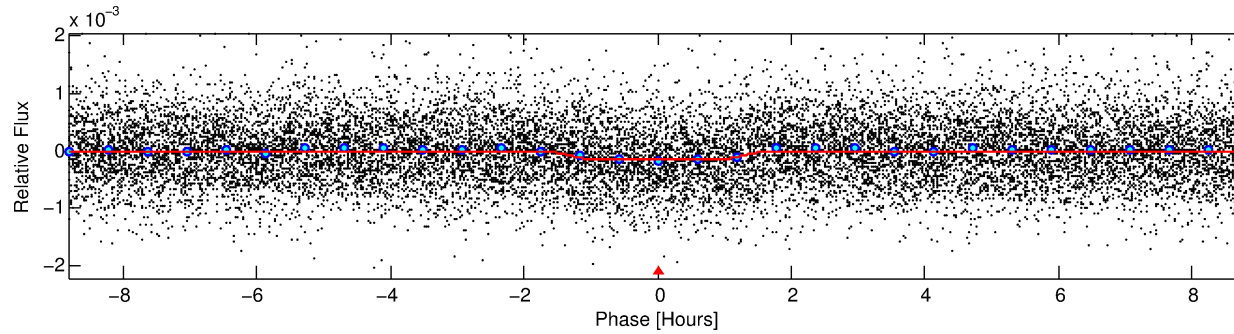
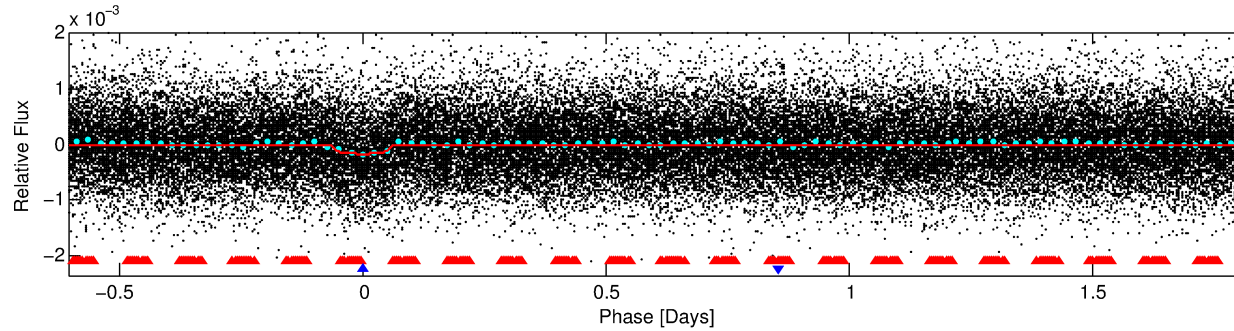
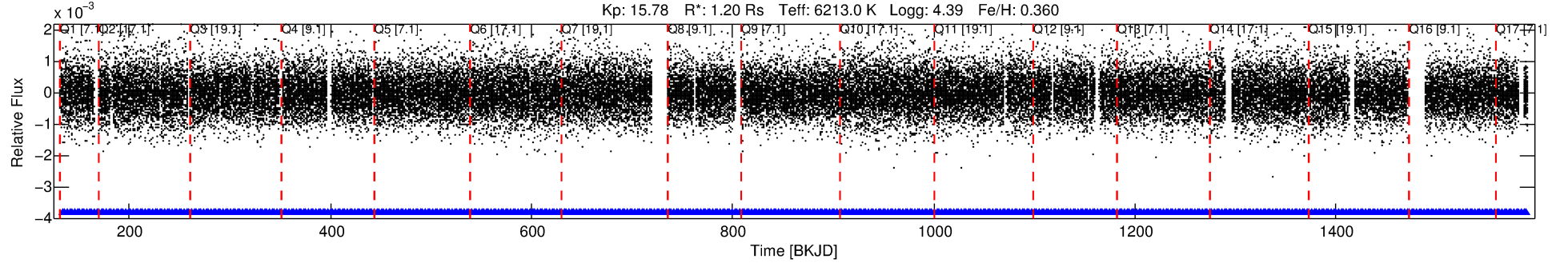
Ephemeris Match Information For 009636135-02

No Significant Match Found

DV One-Page Summary

KIC: 9636135 Candidate: 2 of 2 Period: 2.421 d
KOI: K01498.02 Corr: 0.949

Kp: 15.78 R*: 1.20 Rs Teff: 6213.0 K Logg: 4.39 Fe/H: 0.360



DV Fit Results:

Period = 2.42149 [0.00001] d
Epoch = 133.8407 [0.0033] BKJD
Rp/R* = 0.0135 [0.0069]
a/R* = 3.28 [7.59]
b = 0.88 [0.66]
Seff = 1304.87 [510.43]
Teq = 1533 [150] K
Rp = 1.77 [1.04] Re
a = 0.0382 [0.0094] AU
Ag = 6.01 [7.09] [0.71σ]
Teffp = 3710 [1056] K [2.04σ]

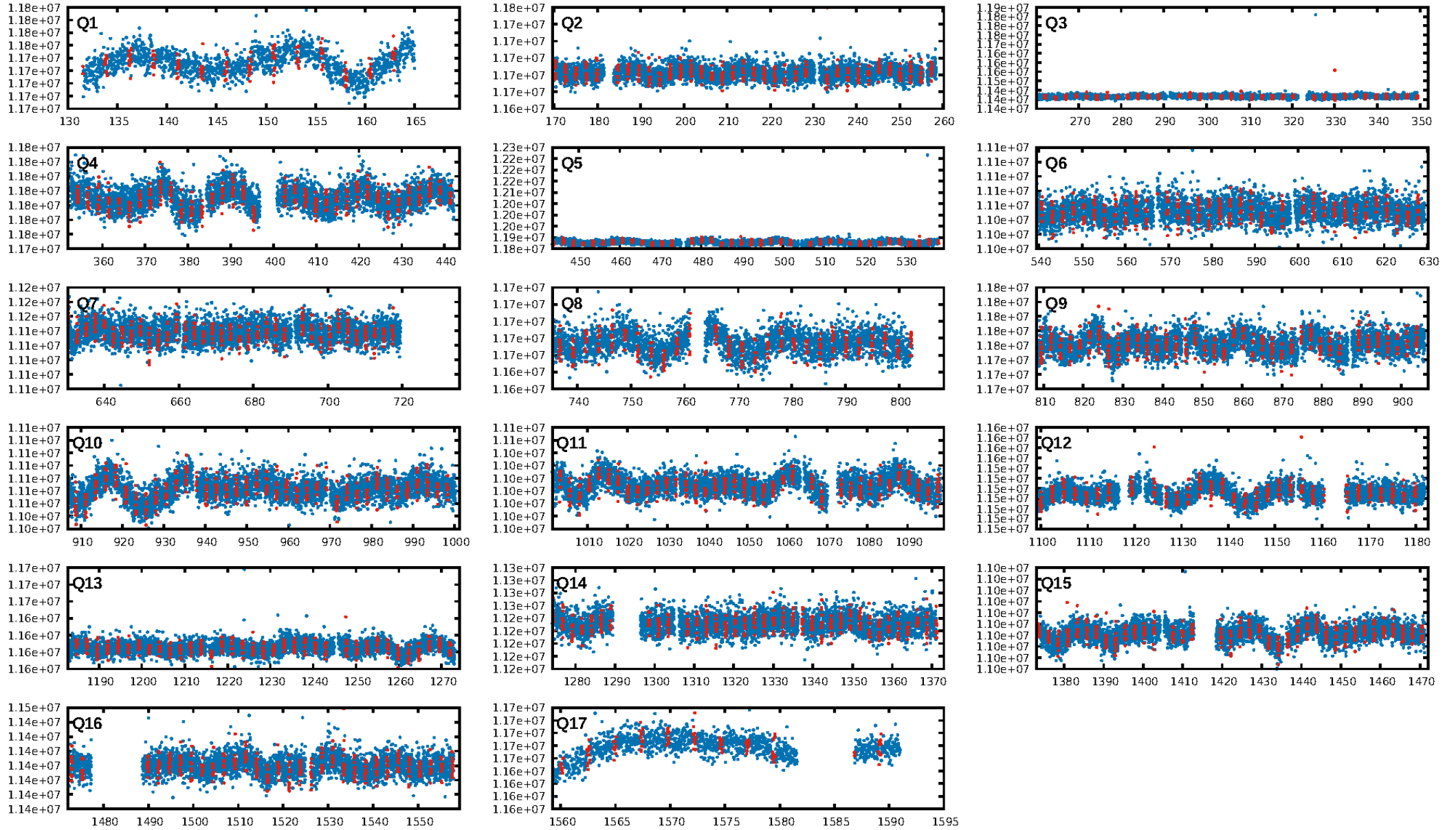
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [16.25σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.42e-40
RollingBand-fgt: 1.00 [489/489]
GhostDiagnostic-chr: 2.745
Centroid-sig: 4.3%
Centroid-so: 2.109 arcsec [1.91σ]
OotOffset-rm: 0.239 arcsec [0.78σ]
KicOffset-rm: 0.029 arcsec [0.09σ]
OotOffset-st: 3/4/3/4 [14]
KicOffset-st: 3/4/3/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [17/17]

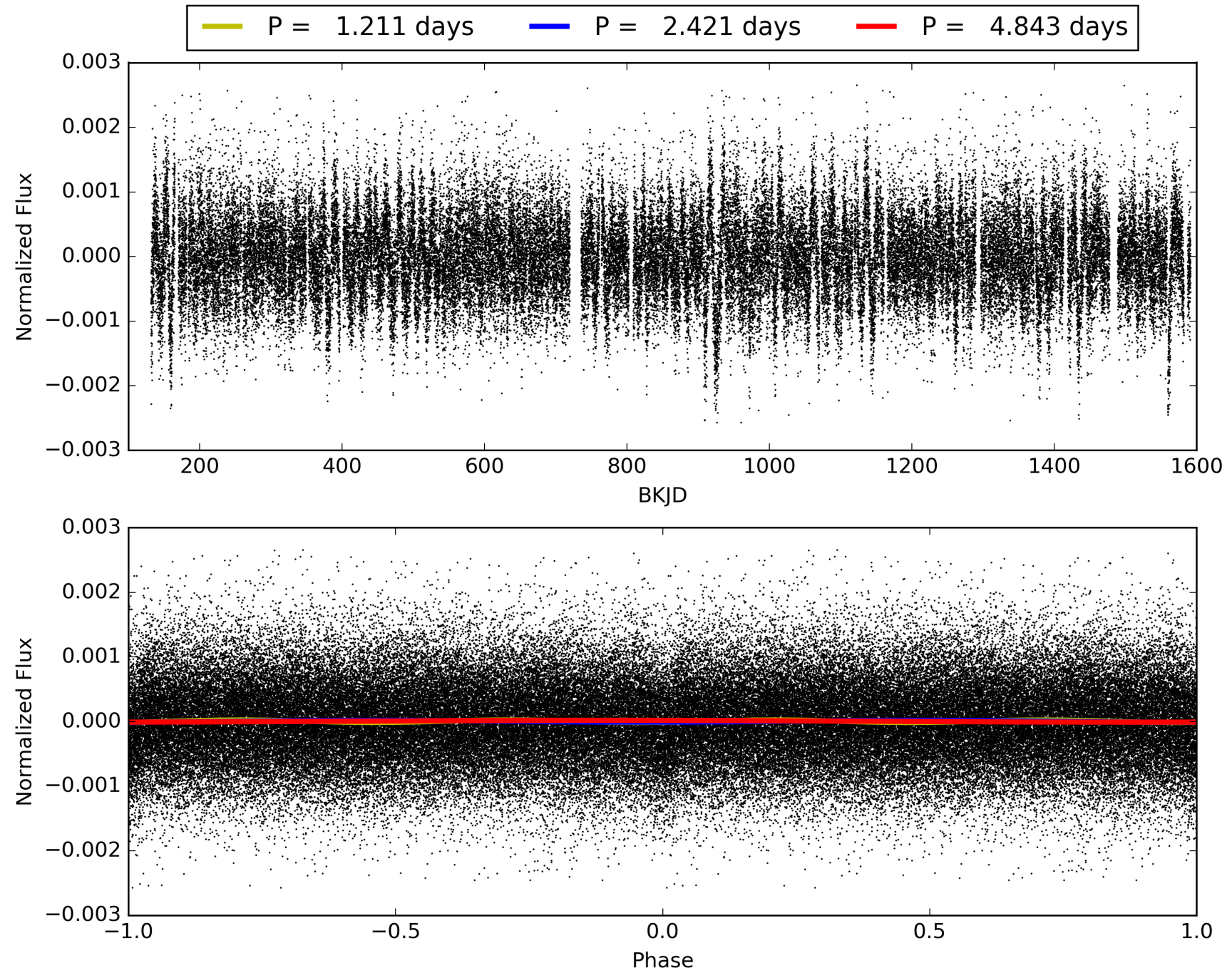
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:36:12 Z

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

TCE 009636135-02, PDC Light Curves

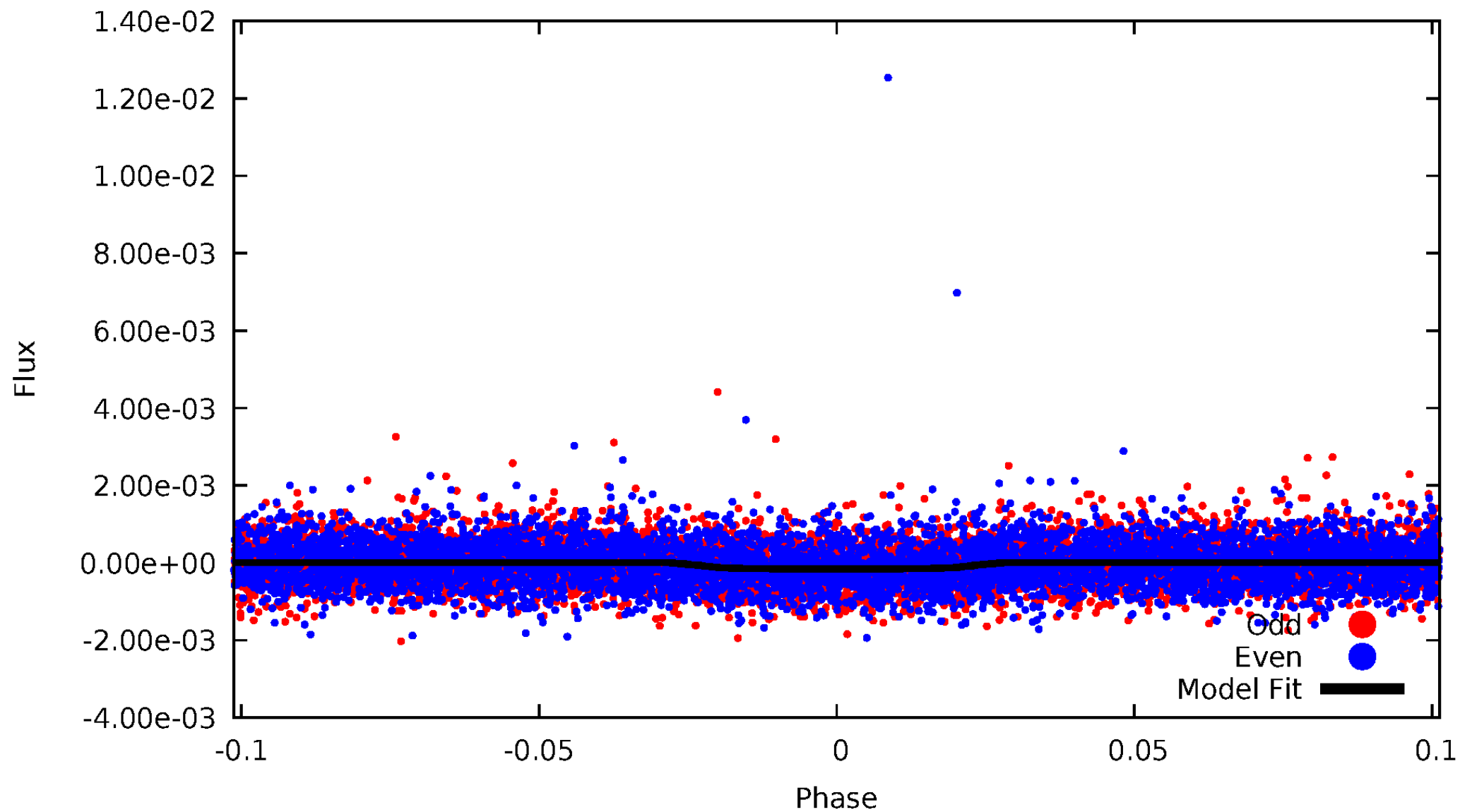


TCE 009636135-02



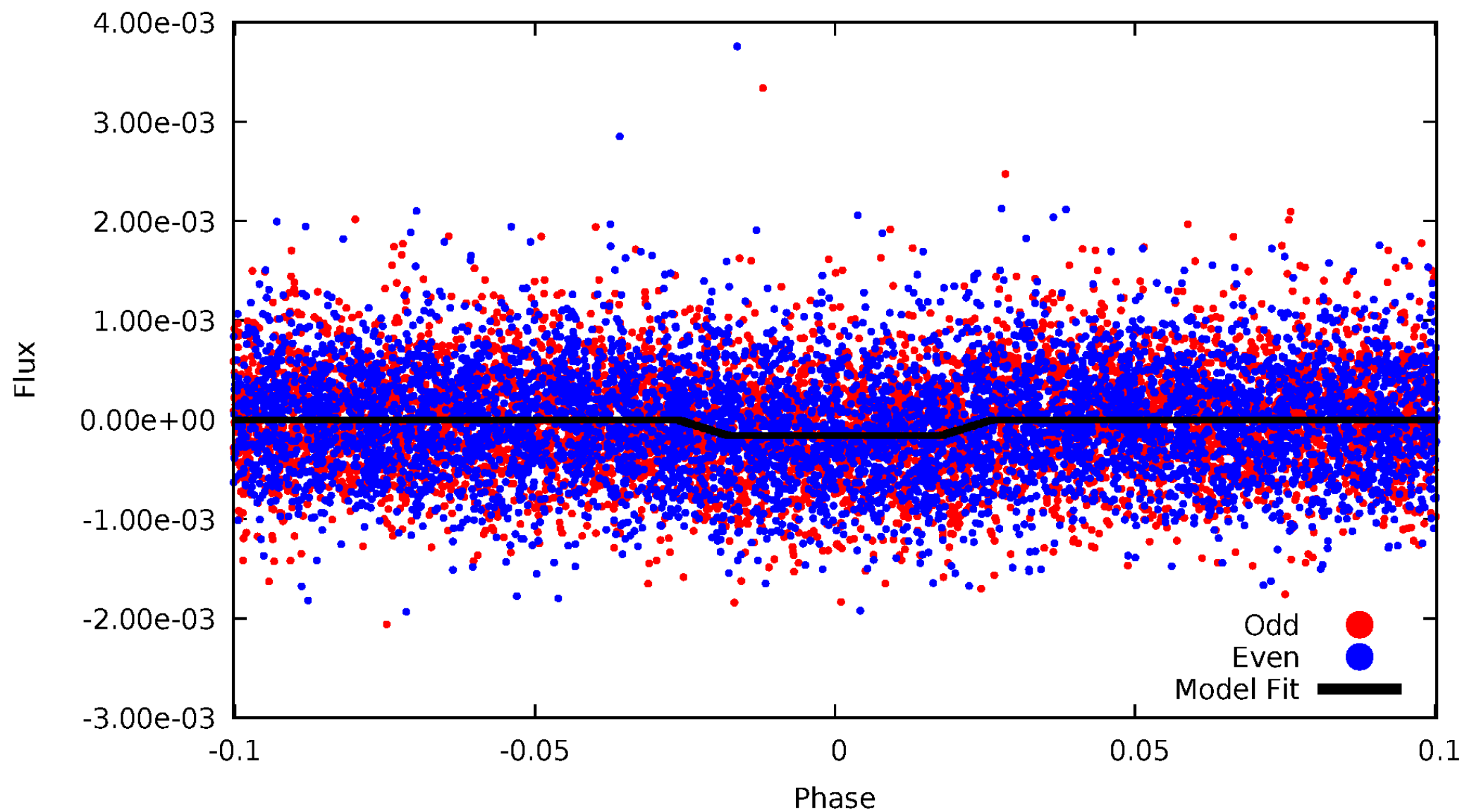
DV Odd/Even

TCE 009636135-02



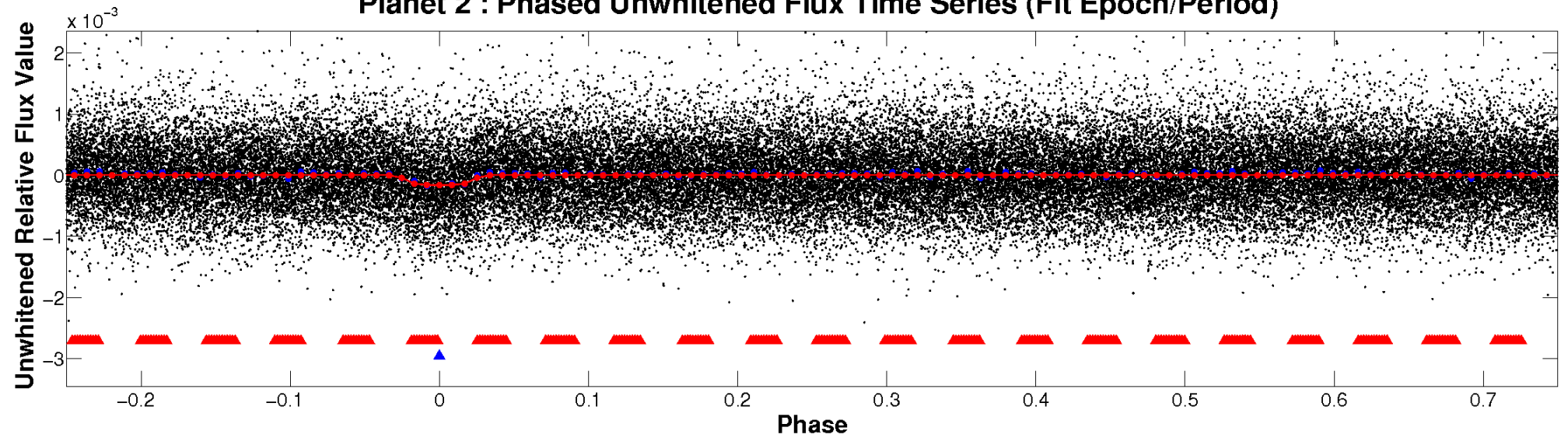
ALT Odd/Even

TCE 009636135-02

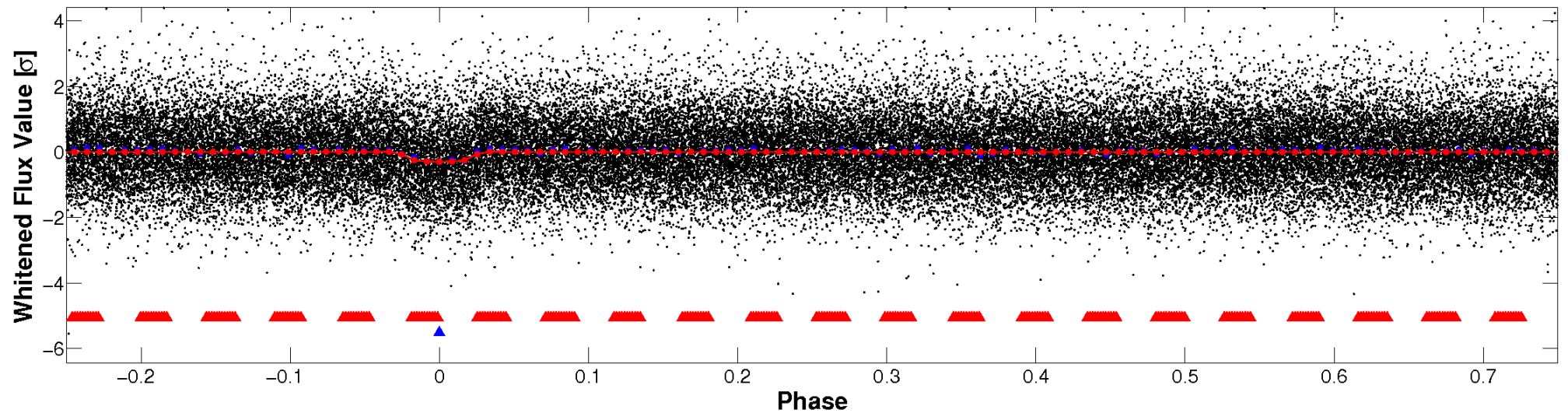


Non-Whitened Vs. Whitened Light Curve

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

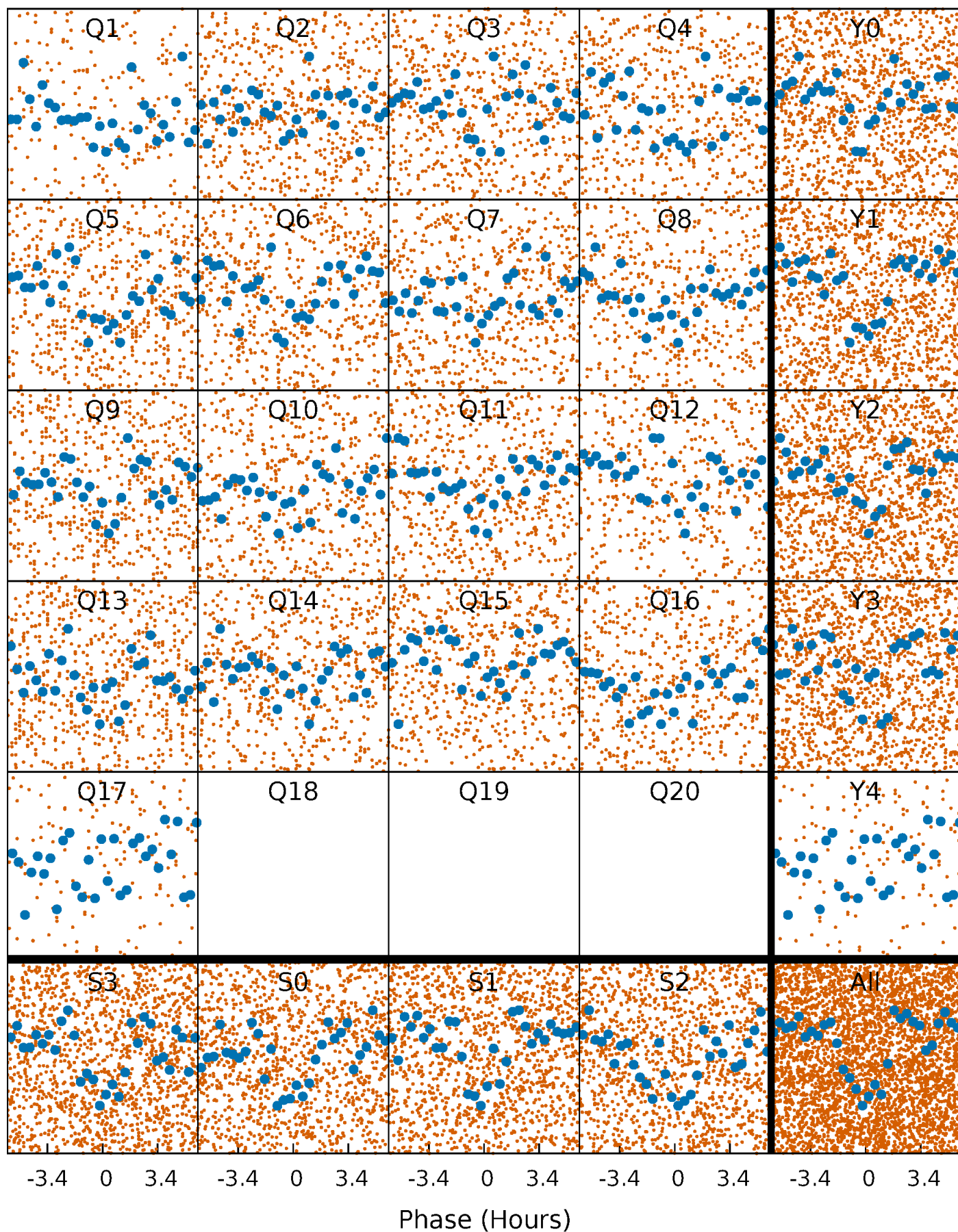


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



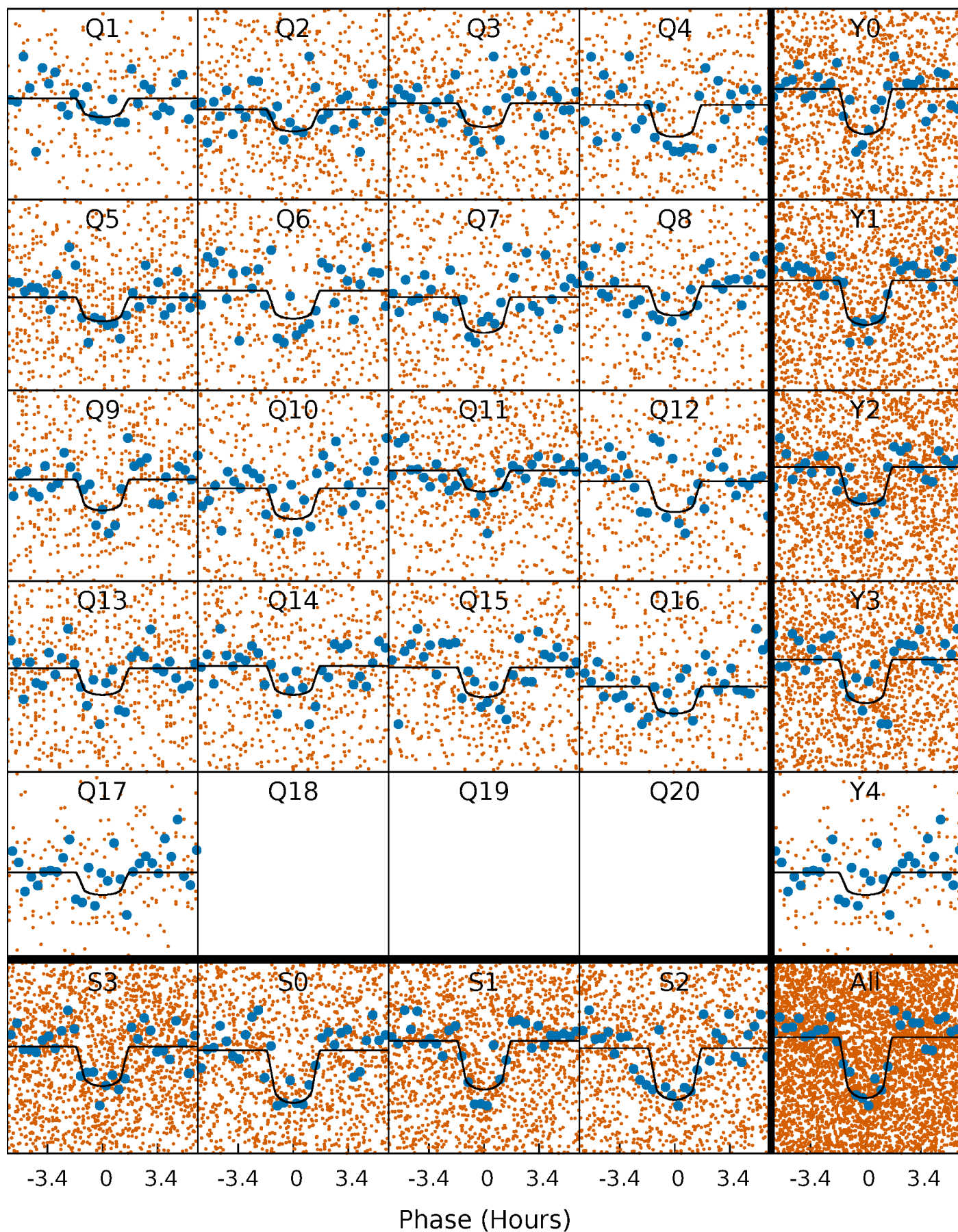
PDC Quarter-Phased Transit Curves

TCE 009636135-02 P= 2.421493 Days $T_0=133.840742$ (BKJD)



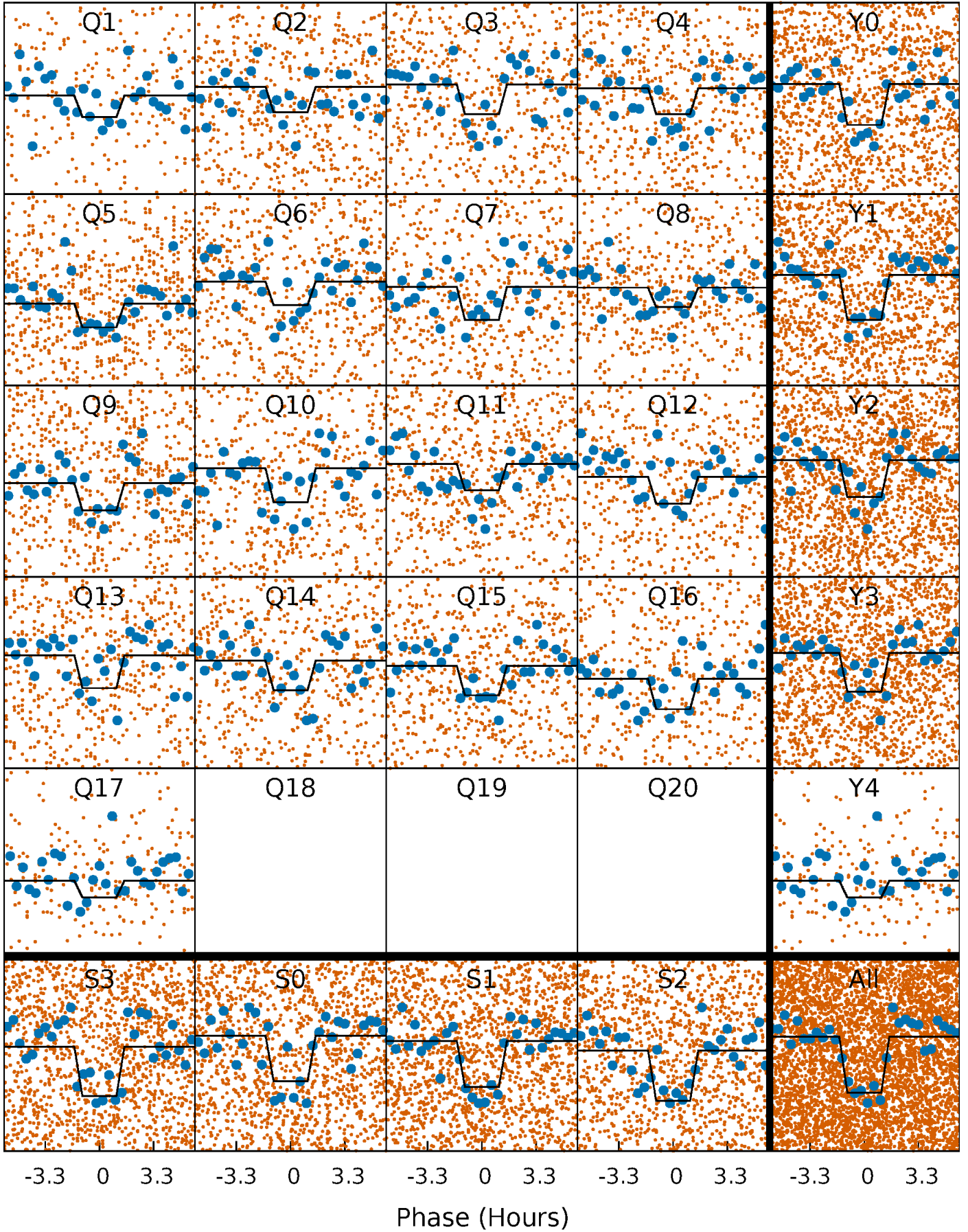
DV Quarter-Phased Transit Curves

TCE 009636135-02 P= 2.421493 Days $T_0=133.840742$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

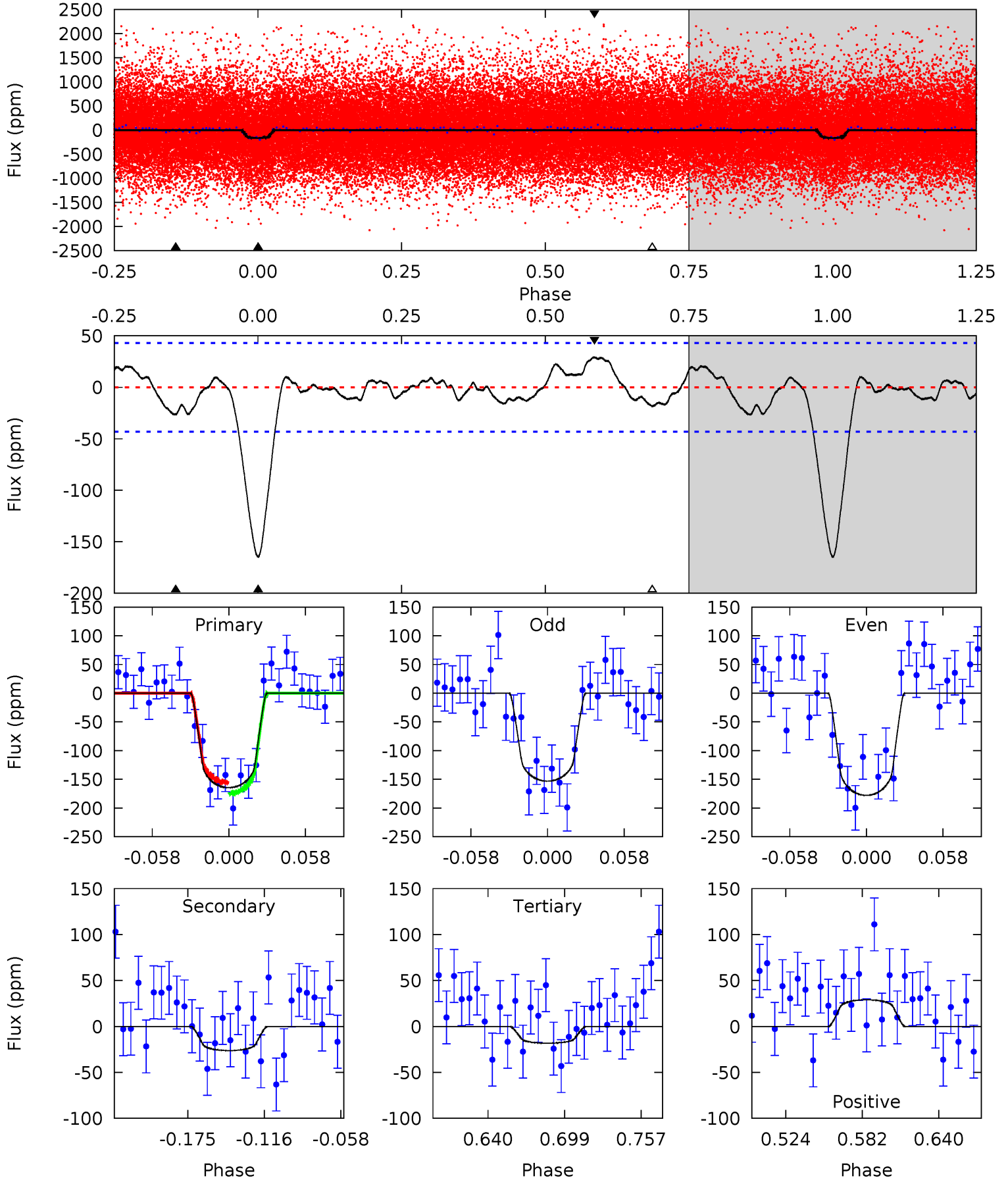
TCE 009636135-02 P= 2.421503 Days $T_0=133.839076$ (BKJD)



DV Model-Shift Uniqueness Test

009636135-02, P = 2.421493 Days, E = 131.419249 Days

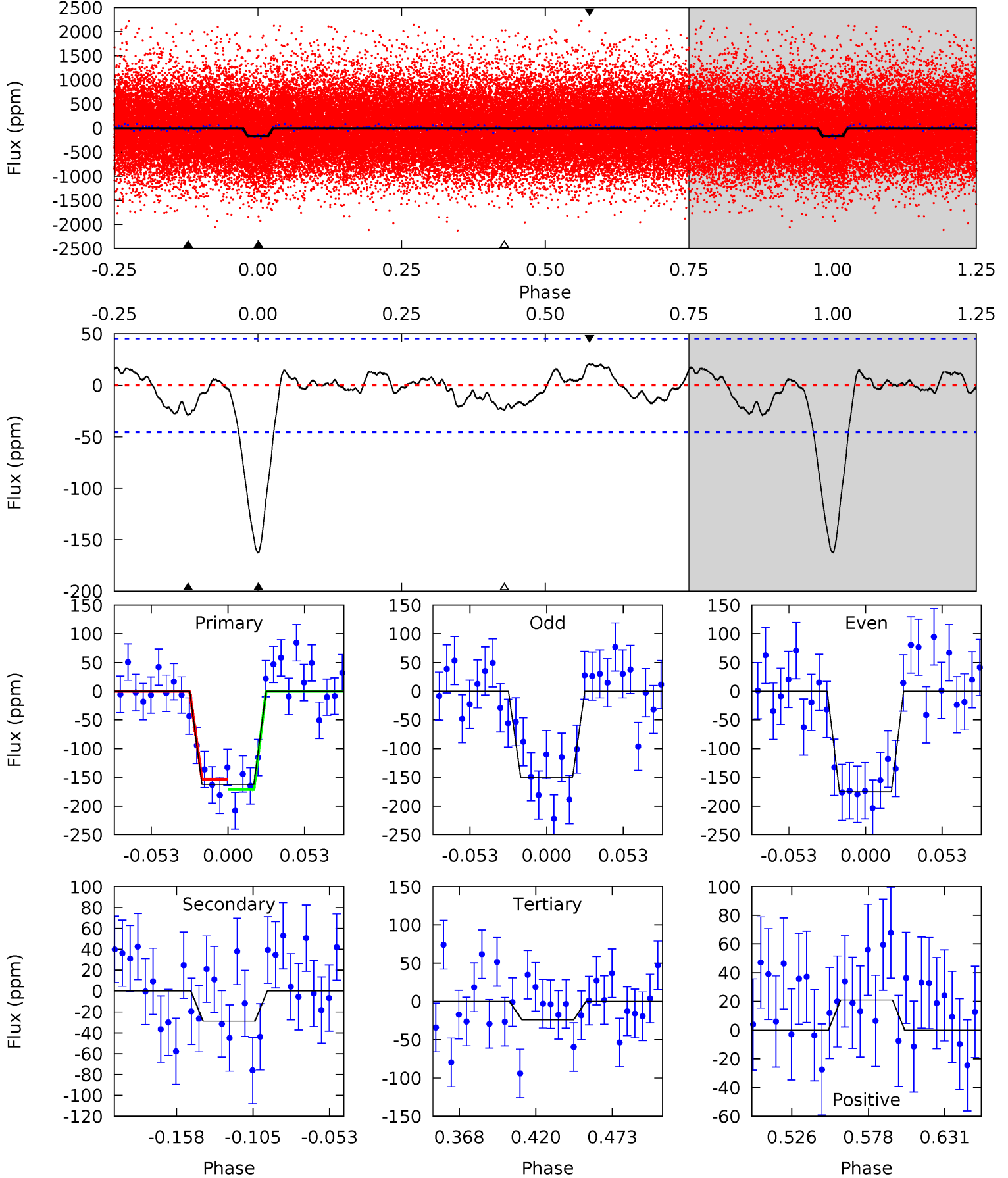
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	2.86	1.99	3.15	4.68	1.89	1.26	15.9	14.7	0.87	-0.29	1.35	0.91	0.15	1.04



Alt Model-Shift Uniqueness Test

009636135-02, P = 2.421503 Days, E = 131.417573 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	2.98	2.48	2.18	4.70	1.94	1.13	14.3	14.6	0.51	0.81	1.30	0.96	0.11	0.93



Stellar Parameters For KIC 009636135

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6213^{+173}_{-259}	$4.387^{+0.060}_{-0.192}$	$0.360^{+0.100}_{-0.300}$	$1.195^{+0.351}_{-0.140}$	$1.270^{+0.142}_{-0.156}$	$1.049^{+0.266}_{-0.513}$
	+3%/-4%	+1%/-4%	+28%/-83%	+29%/-12%	+11%/-12%	+25%/-49%
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 009636135-02 / KOI 1498.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-26 ± 9	$1.83^{+1.00}_{-0.92}$	2175^{+147}_{-116}	4038^{+1305}_{-634}	$6.278^{+17.969}_{-4.091}$
Alt.	-29 ± 10	$1.78^{+0.93}_{-0.91}$	2174^{+158}_{-105}	4162^{+1489}_{-657}	$7.048^{+21.988}_{-4.265}$

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

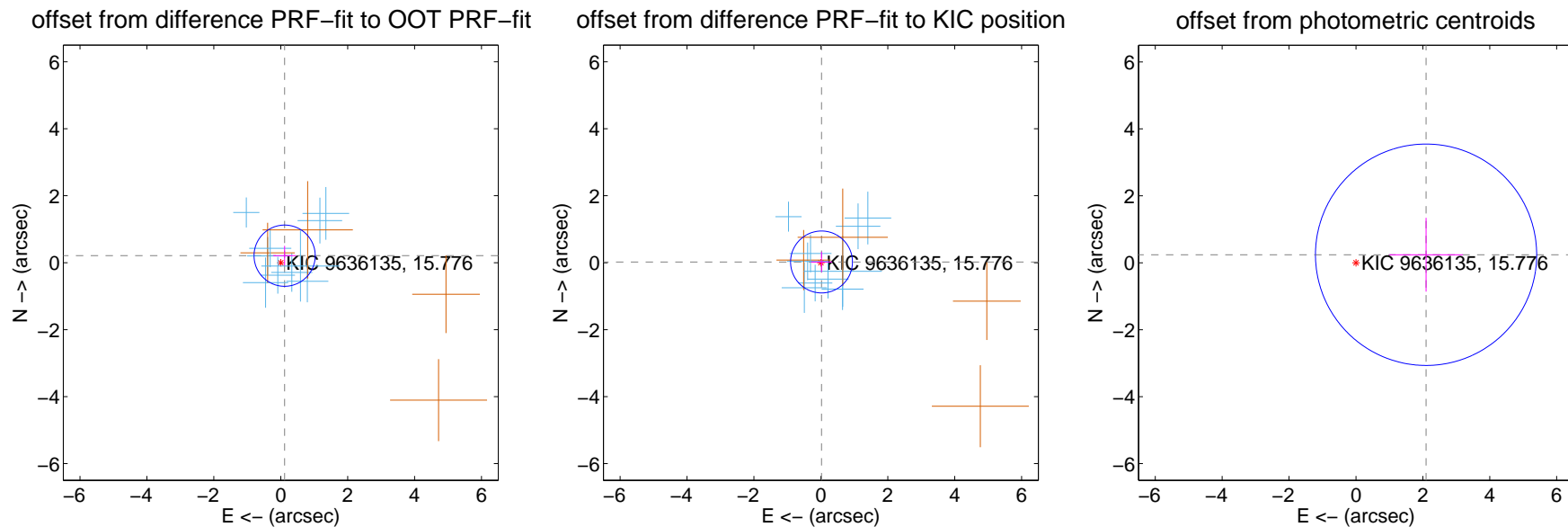
DV Centroid Data

Supplemental centroid analysis for 009636135-02. Kepler magnitude: 15.78. Transit SNR 13.47

There are 10 quarters with good PRF difference image offsets

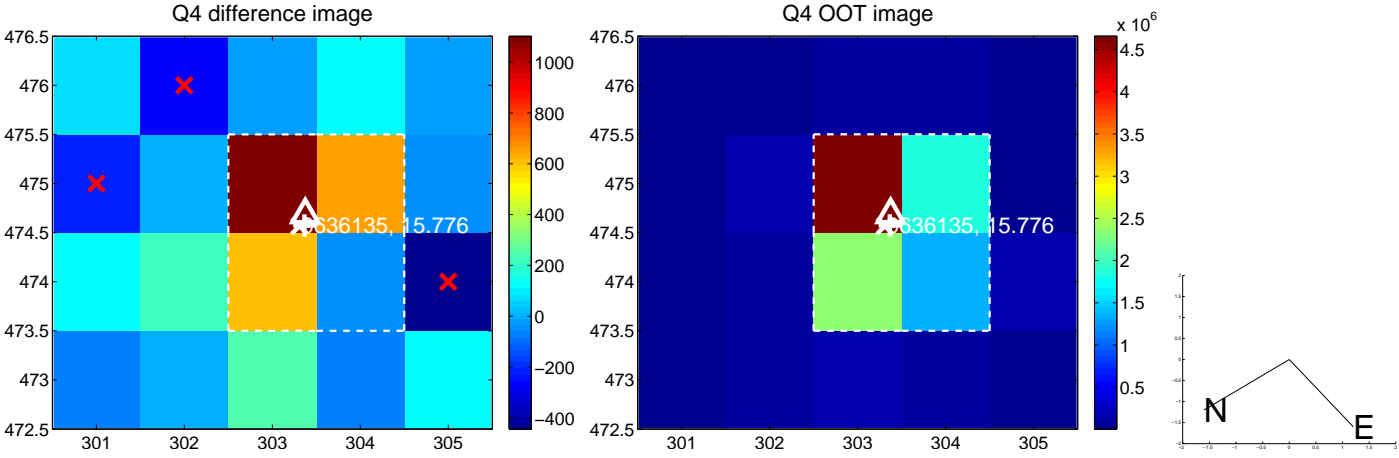
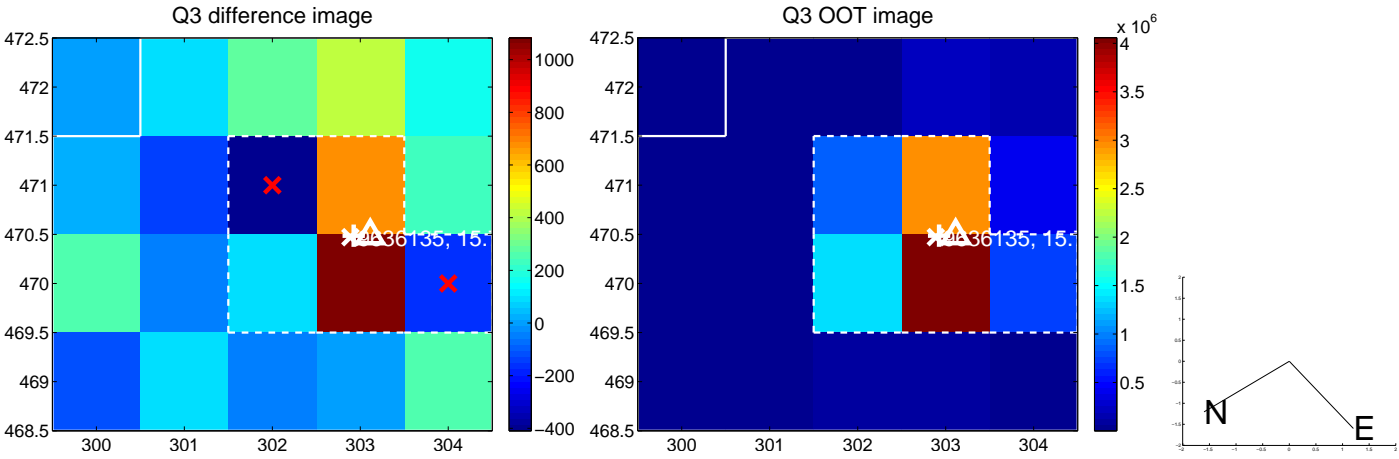
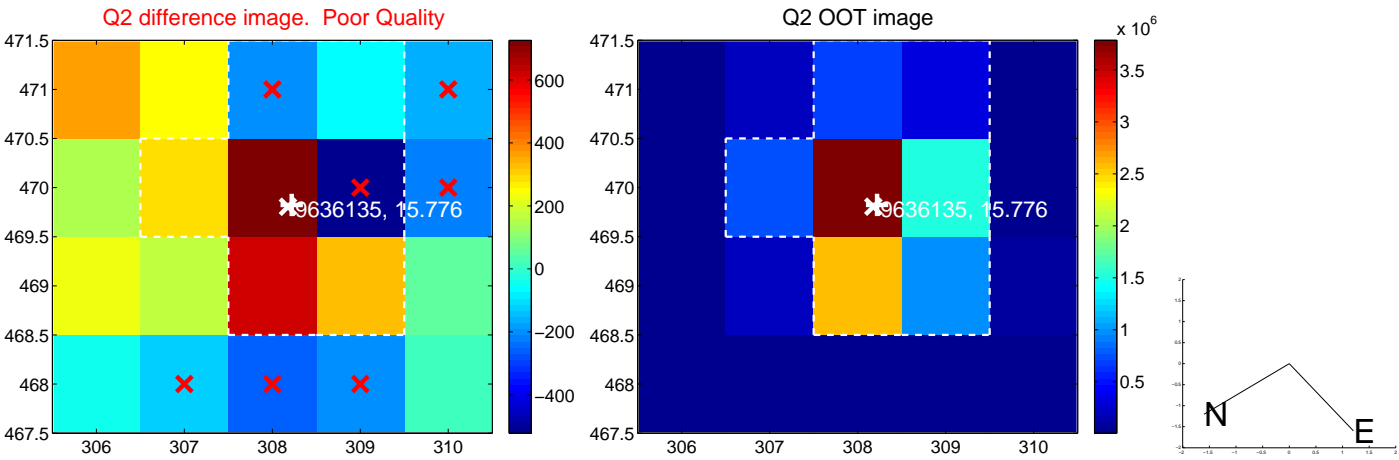
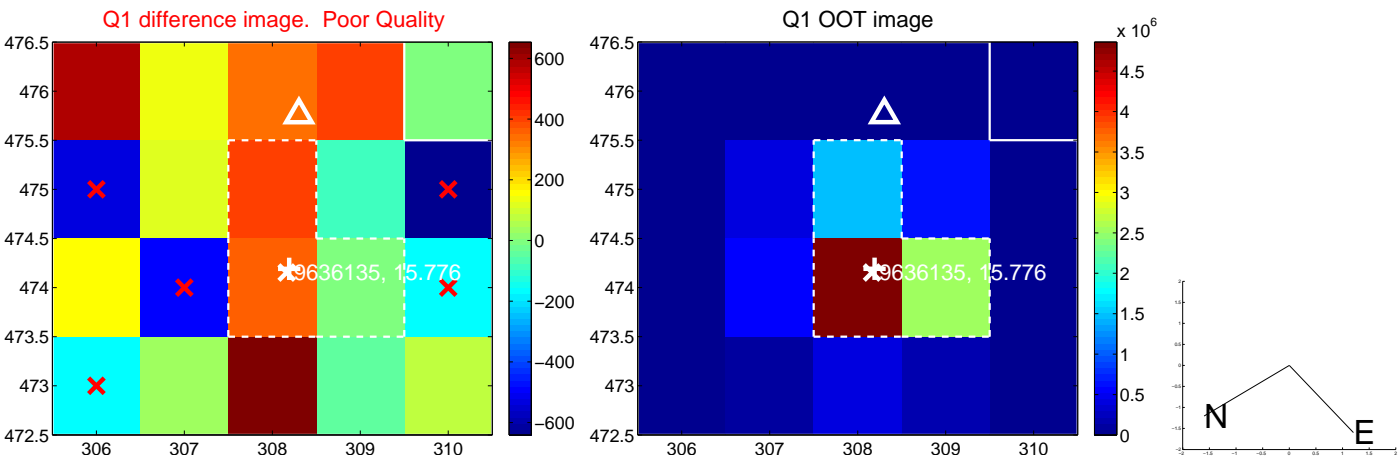
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.239 ± 0.305	0.78	-0.116 ± 0.339	0.209 ± 0.293
PRF-fit source offset from KIC position	0.029 ± 0.308	0.09	-0.019 ± 0.316	0.022 ± 0.302
photometric centroid source offset	2.11 ± 1.10	1.91	-2.10 ± 1.10	0.24 ± 1.10

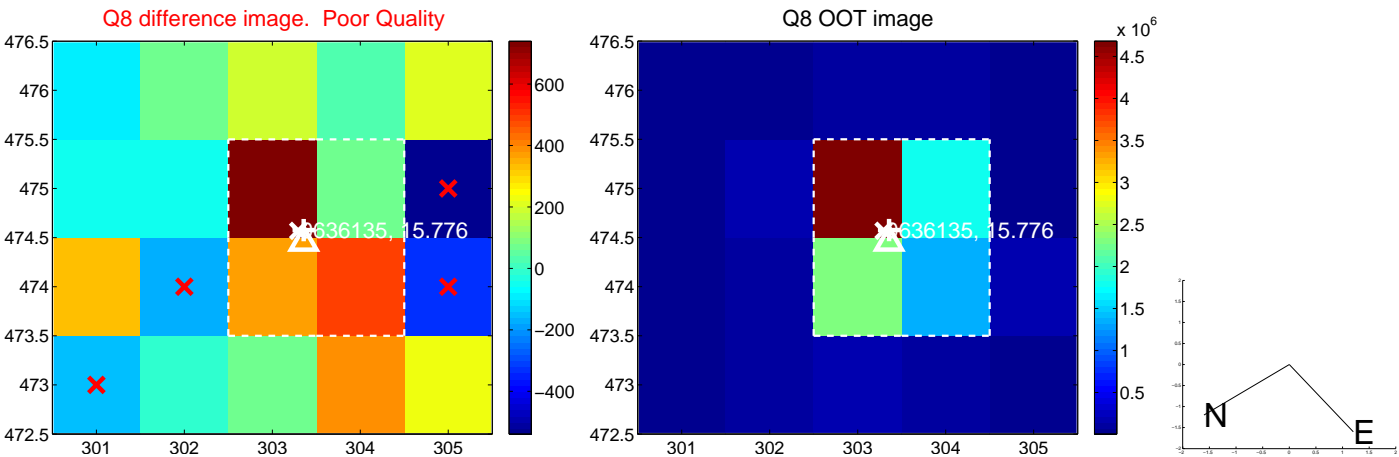
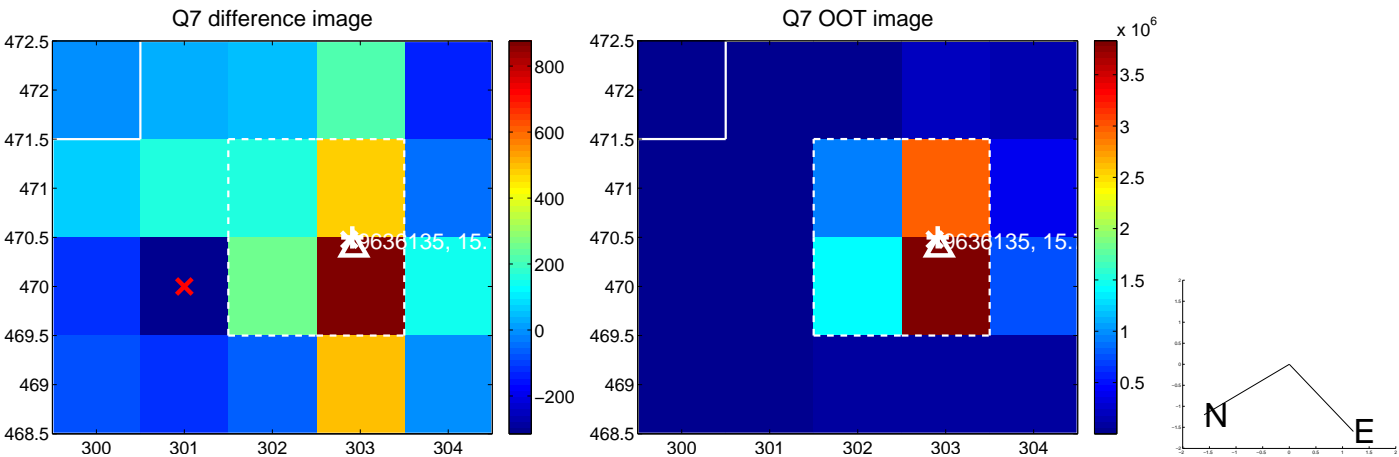
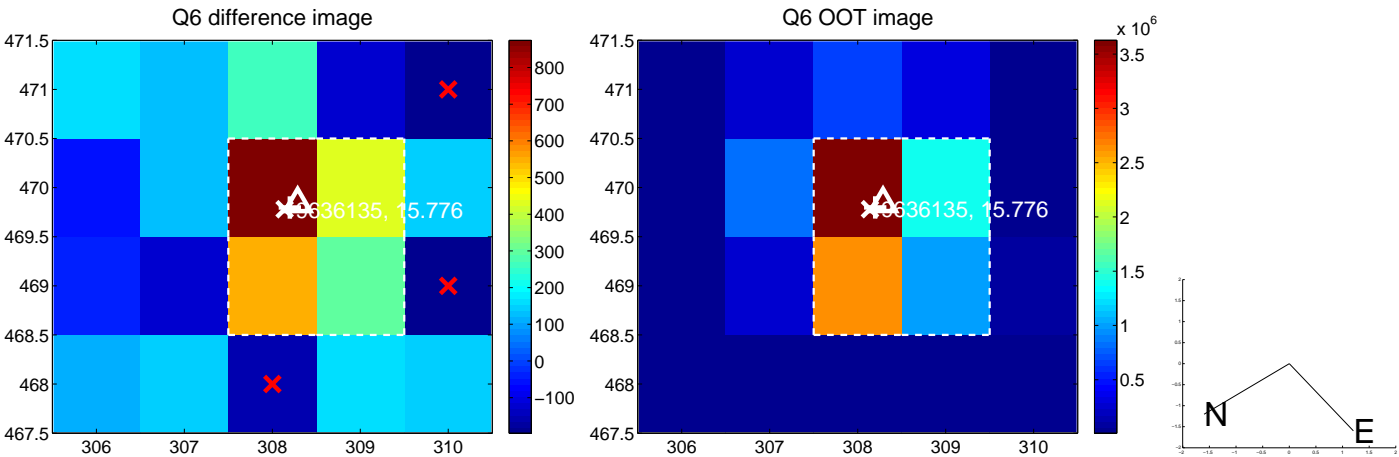
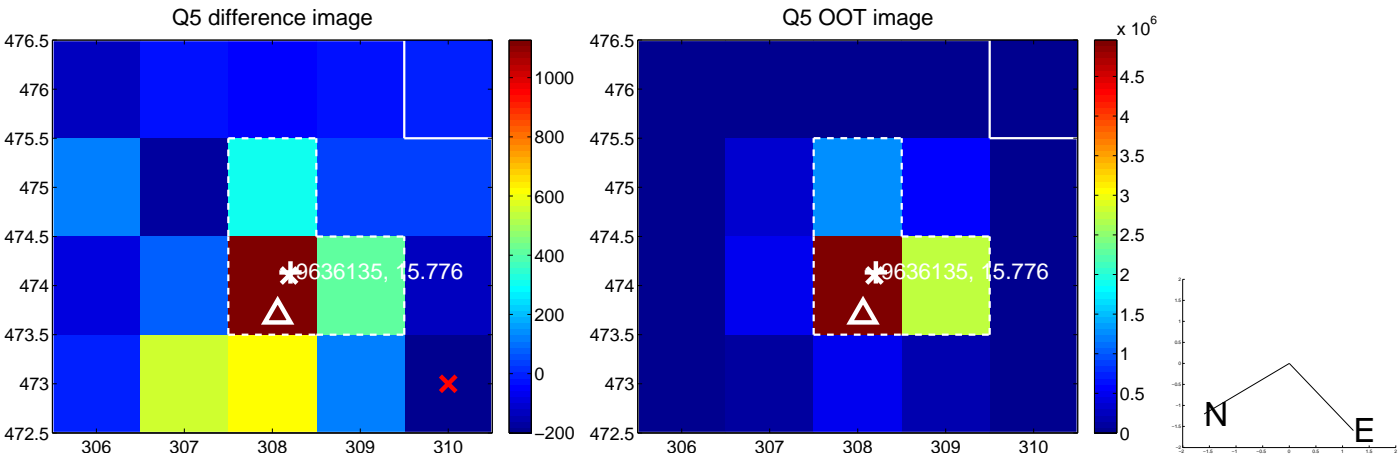


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

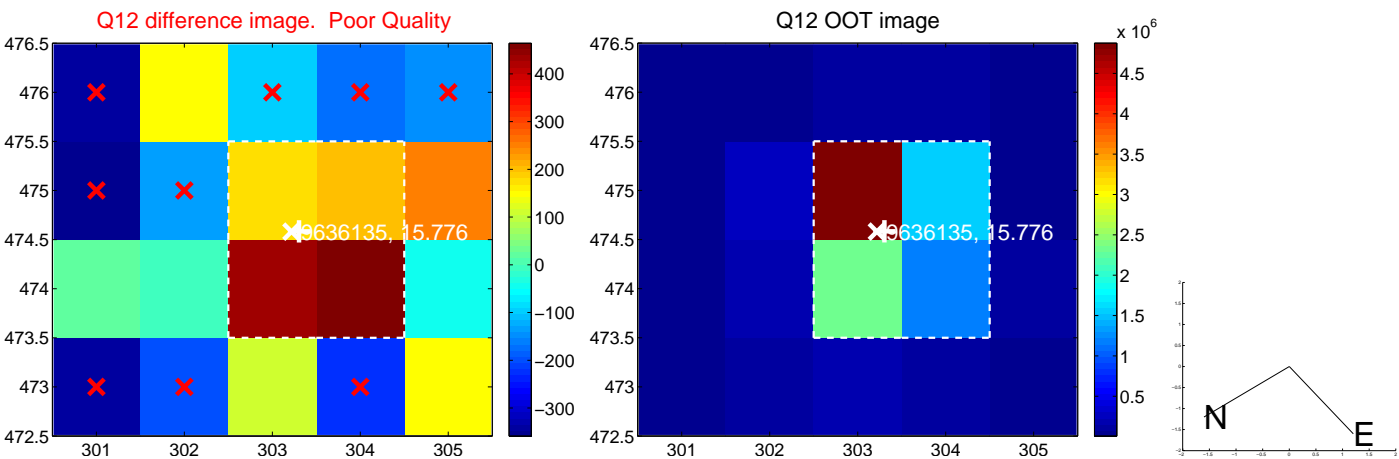
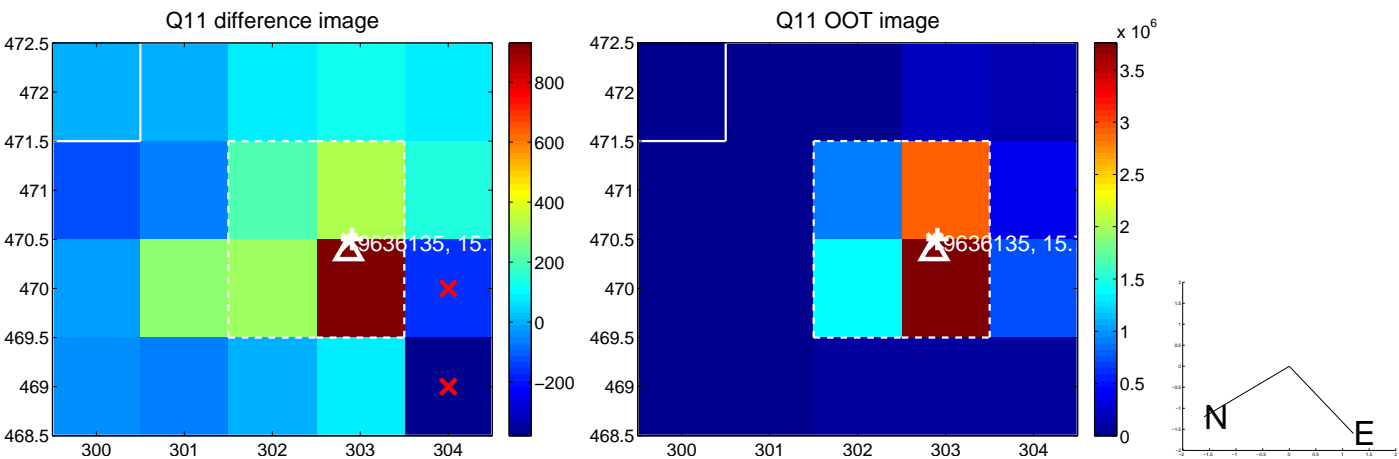
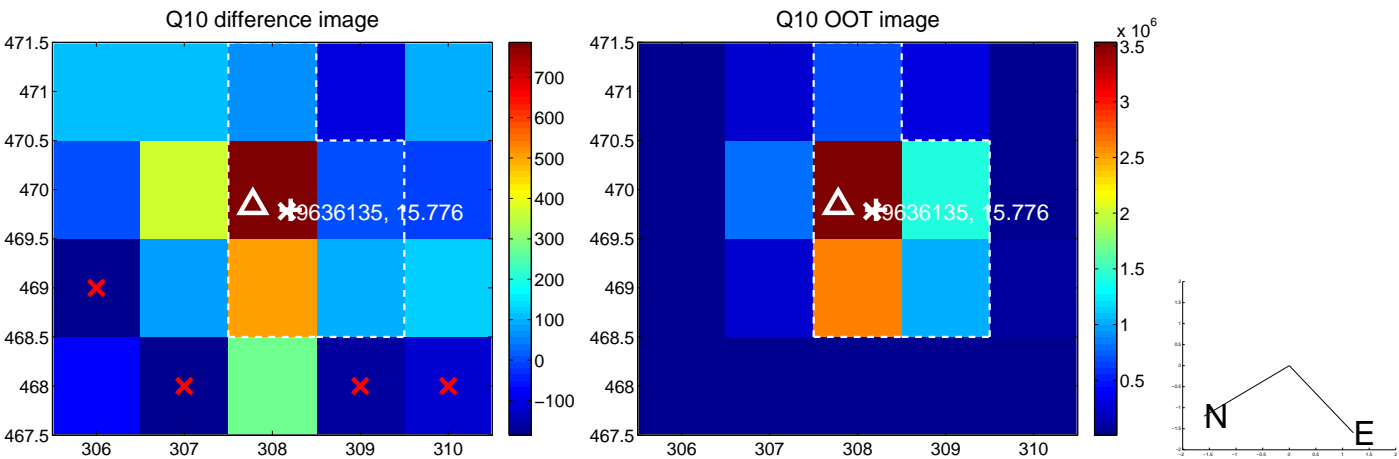
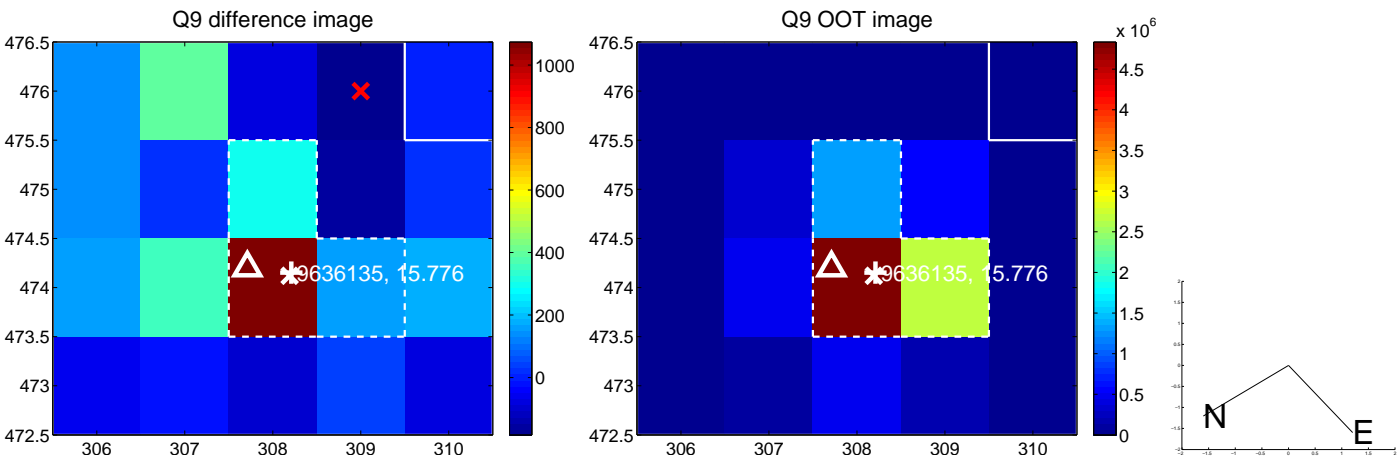
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



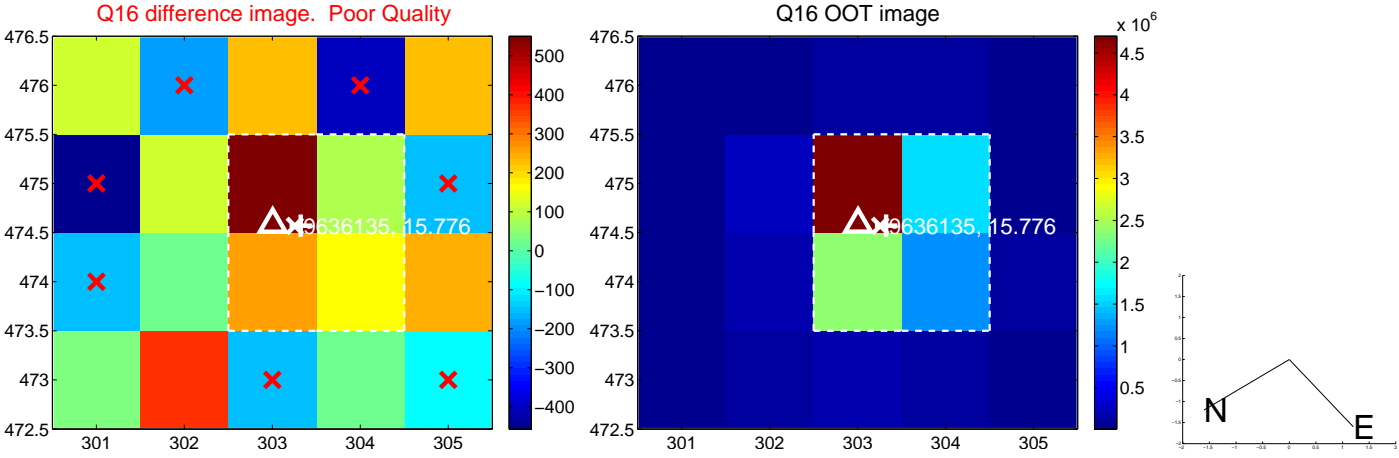
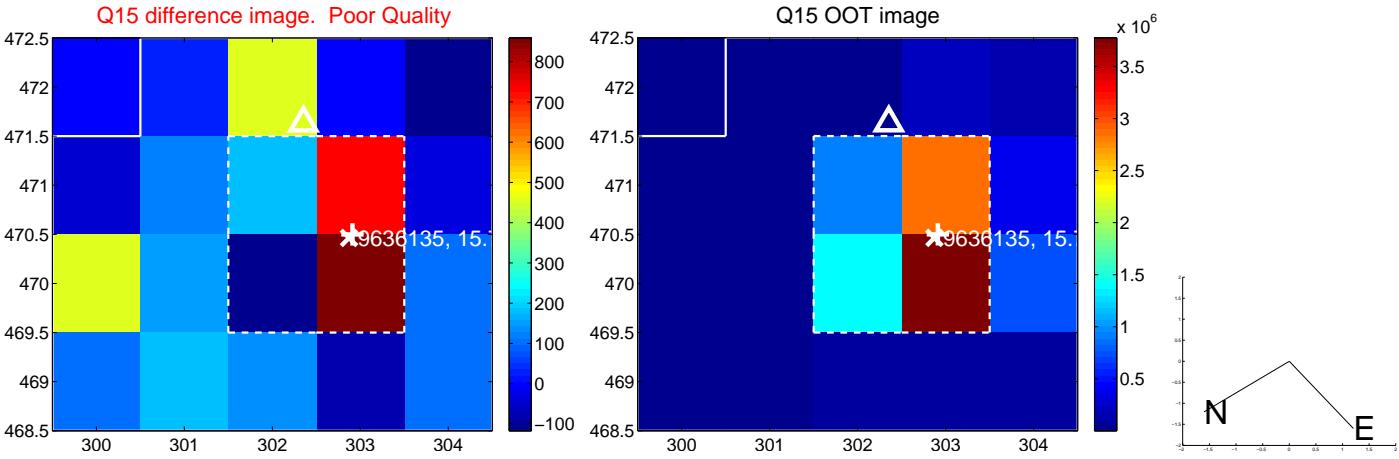
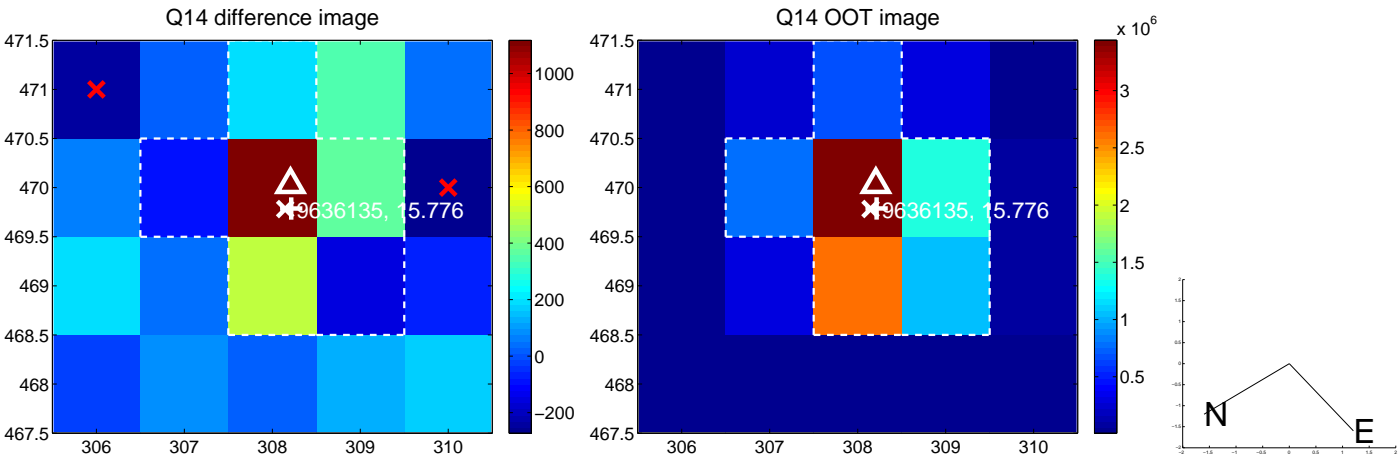
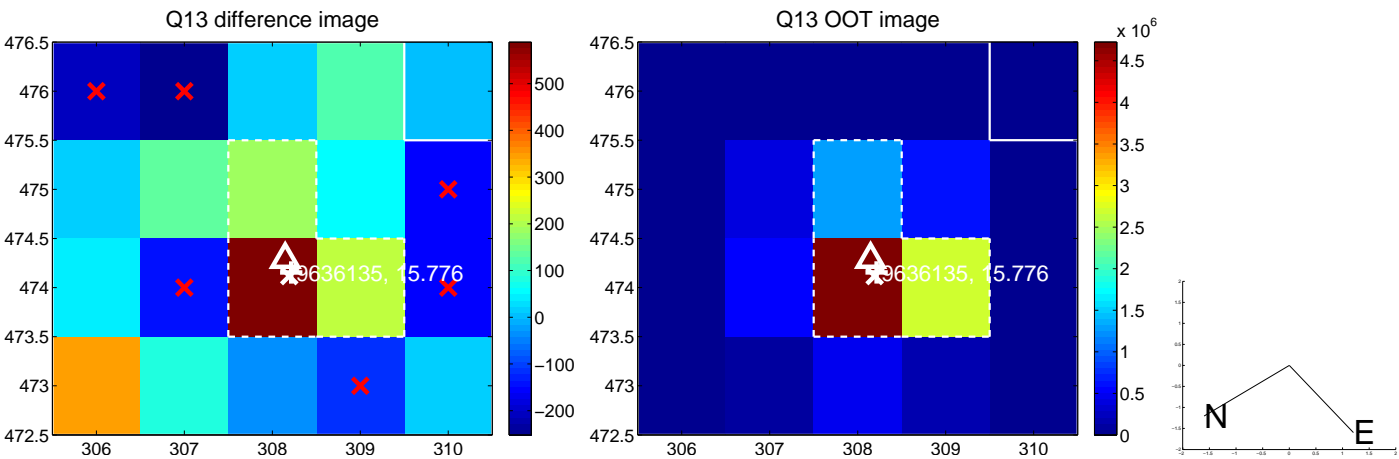
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



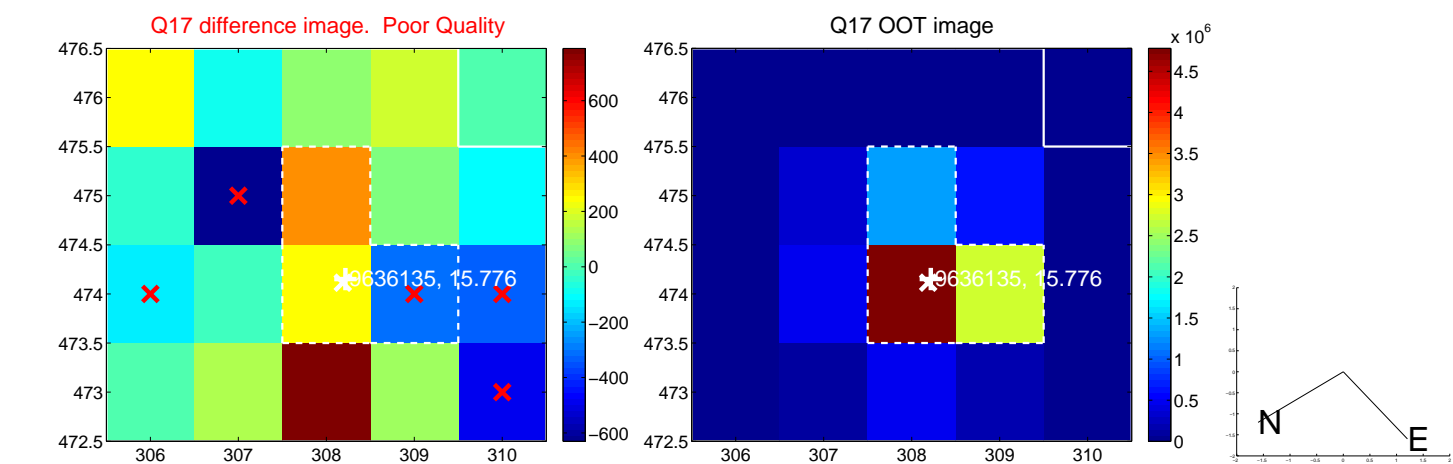
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



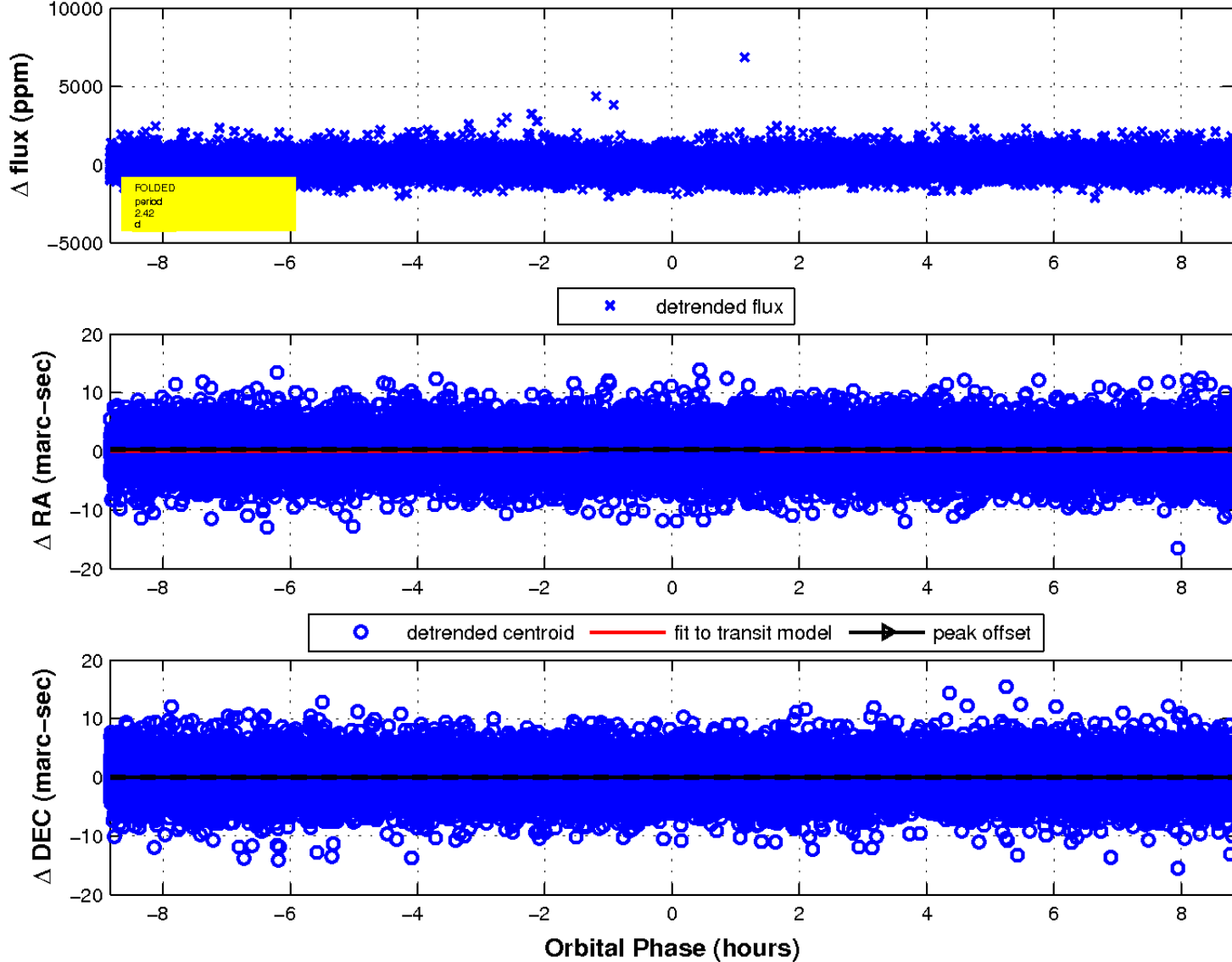
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

