

KIC 008012943

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})
008012943-01	OBS	No	1.716972	131.735059	195.1	5.183	20.2	15.2	0.35	3482	0.48	40.53
008012943-02	OBS	No	1.716147	131.825777	4496.8	3.000	86.0	-1.0	0.35	3482	2.32	40.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008012943-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008012943-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

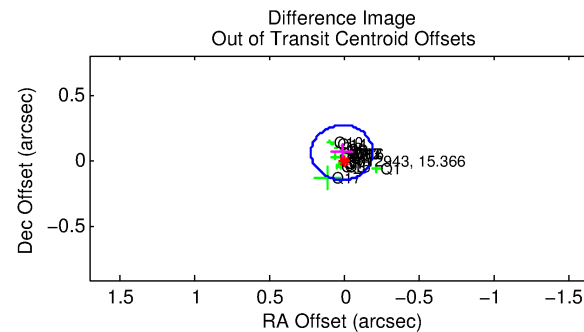
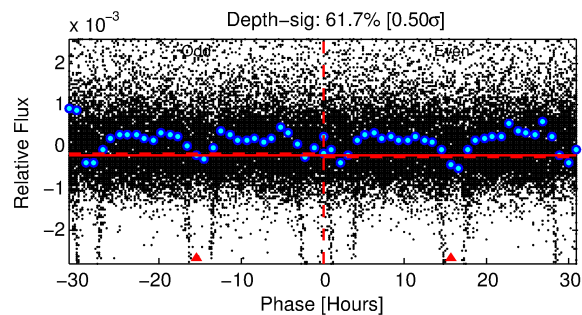
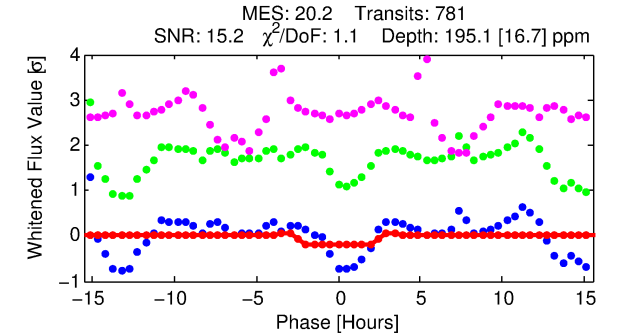
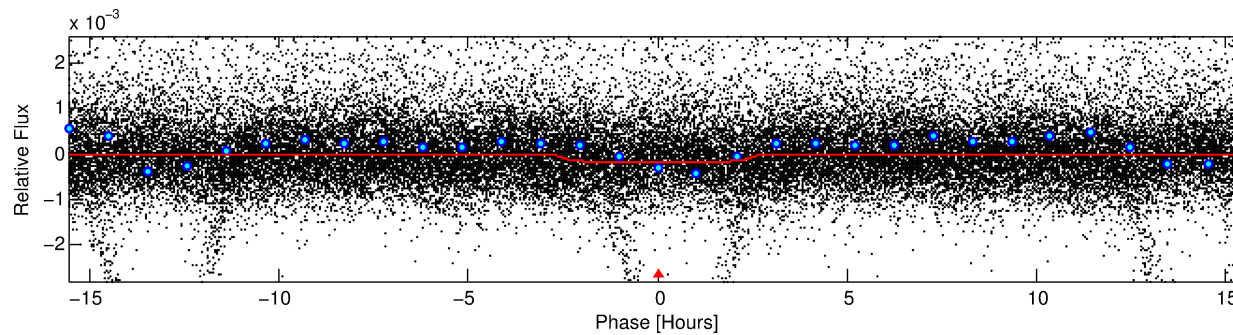
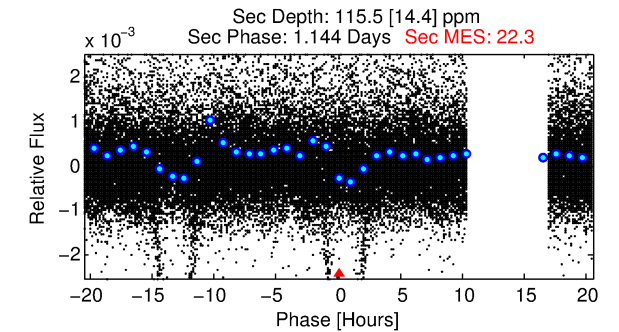
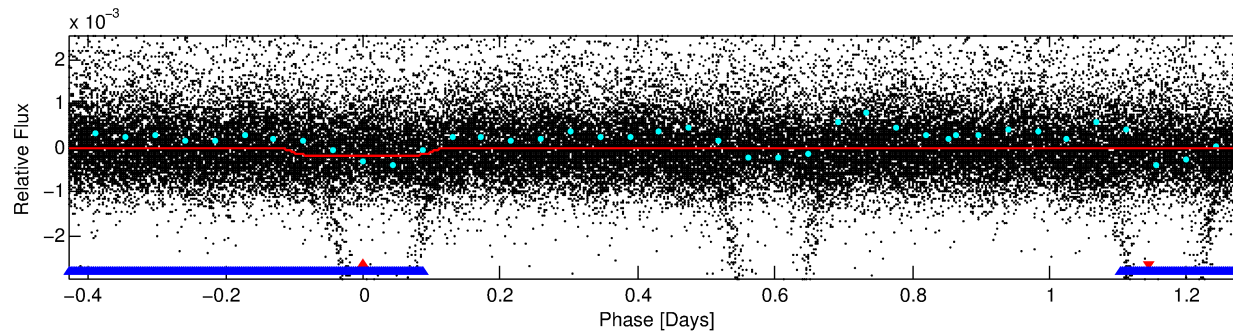
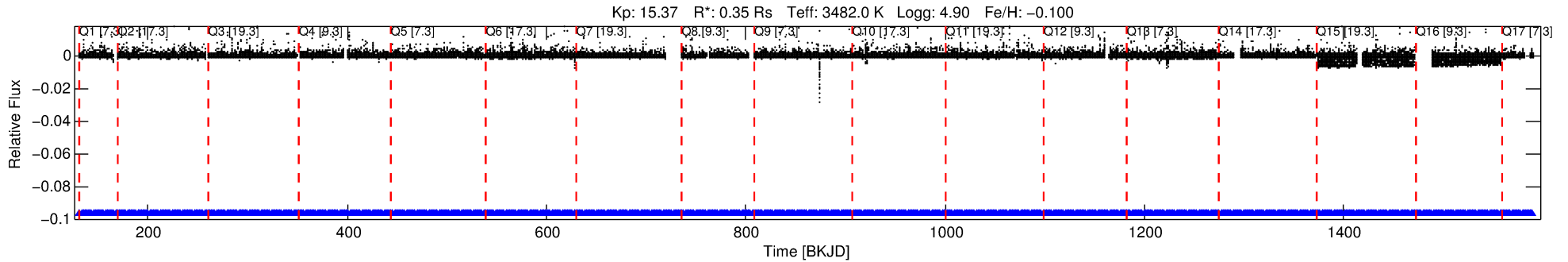
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008012943-01

No Significant Match Found

DV One-Page Summary

KIC: 8012943 Candidate: 1 of 2 Period: 1.717 d



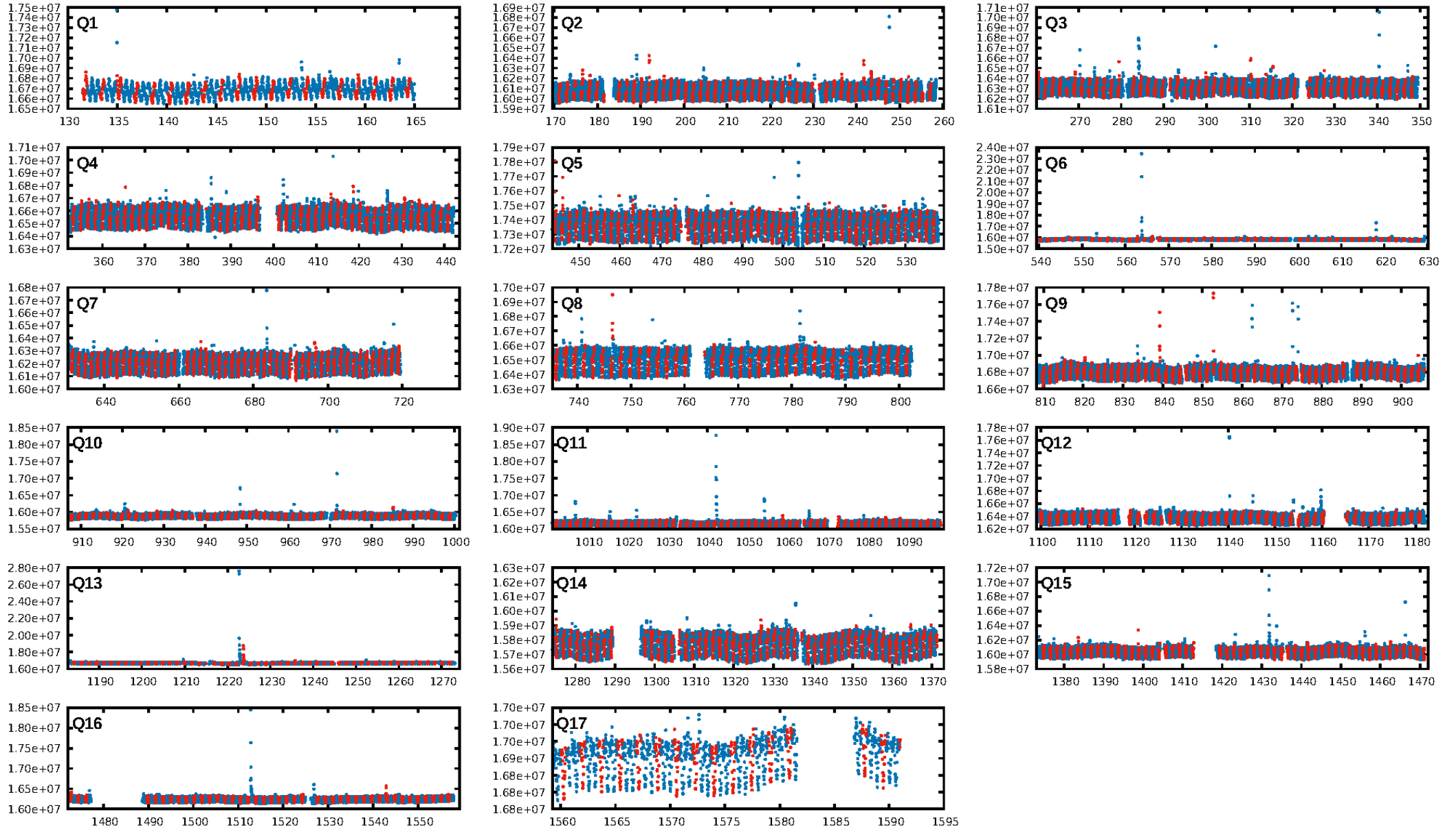
DV Fit Results:

Period = 1.71697 [0.00001] d
Epoch = 131.7351 [0.0030] BKJD
Rp/R* = 0.0126 [0.0259]
a/R* = 2.63 [20.49]
b = 0.01 [891.06]
Seff = 40.53 [5.10]
Teff = 643 [20] K
Rp = 0.48 [0.99] Re
a = 0.0199 [0.0018] AU
Ag = 108.53 [445.27] [0.24σ]
Teffp = 3211 [3292] K [0.78σ]

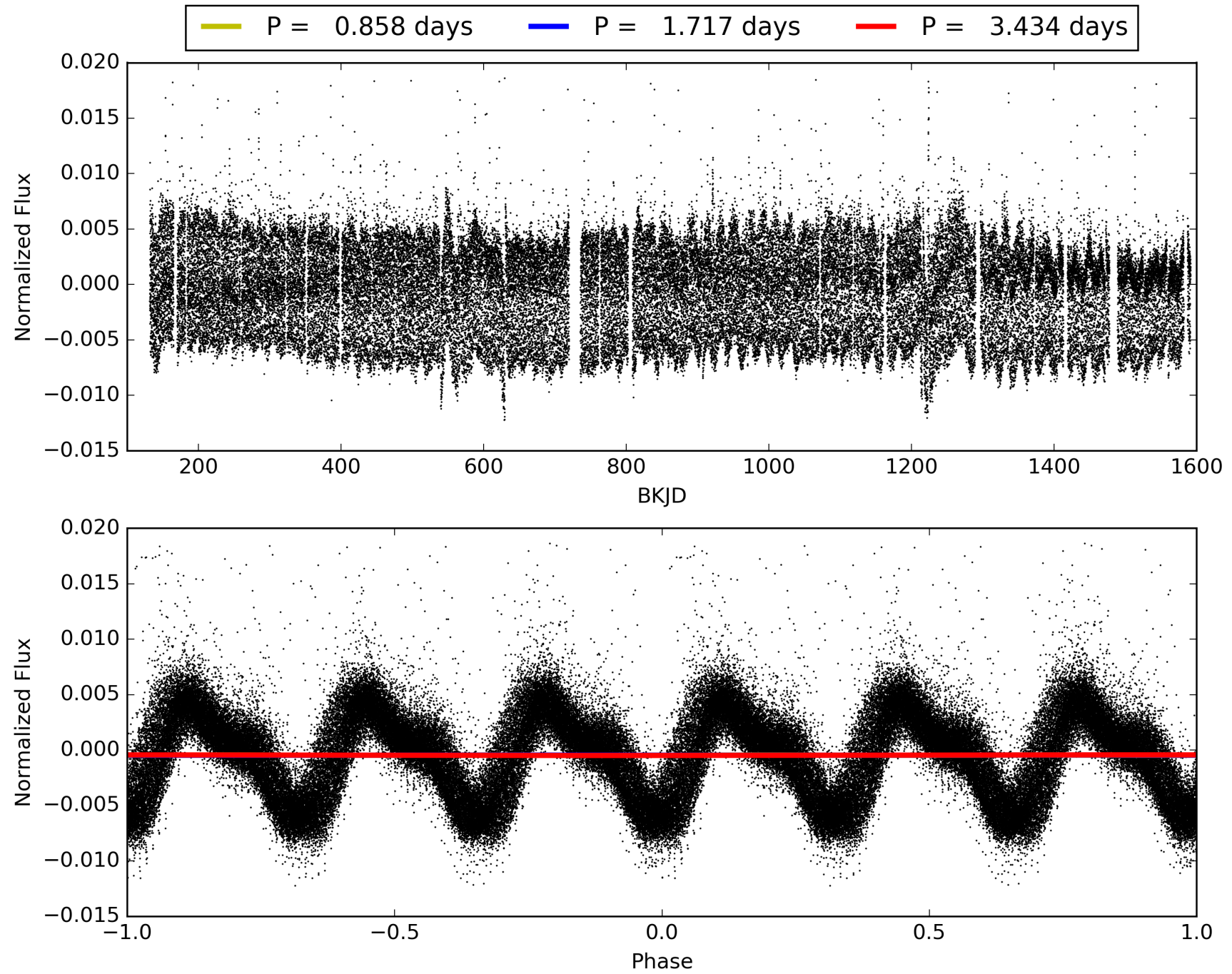
DV Diagnostic Results:

ShortPeriod-sig: 0.3% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [746/746]
GhostDiagnostic-chr: -7.687
Centroid-sig: 0.0%
Centroid-so: 1.174 arcsec [2.64σ]
OotOffset-rm: 0.065 arcsec [0.95σ]
KicOffset-rm: 0.286 arcsec [3.86σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.06 [1/17]

TCE 008012943-01, PDC Light Curves

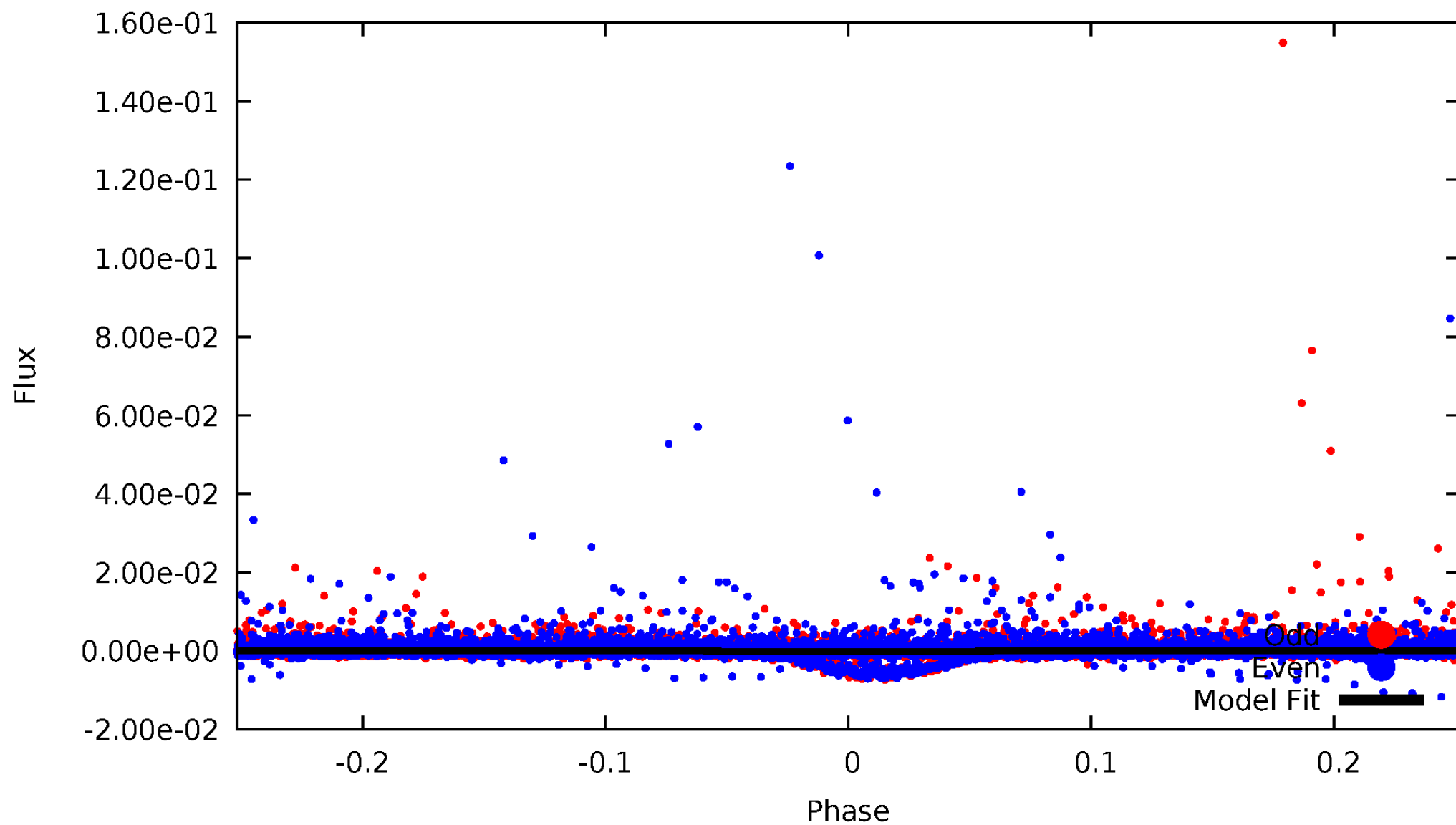


TCE 008012943-01



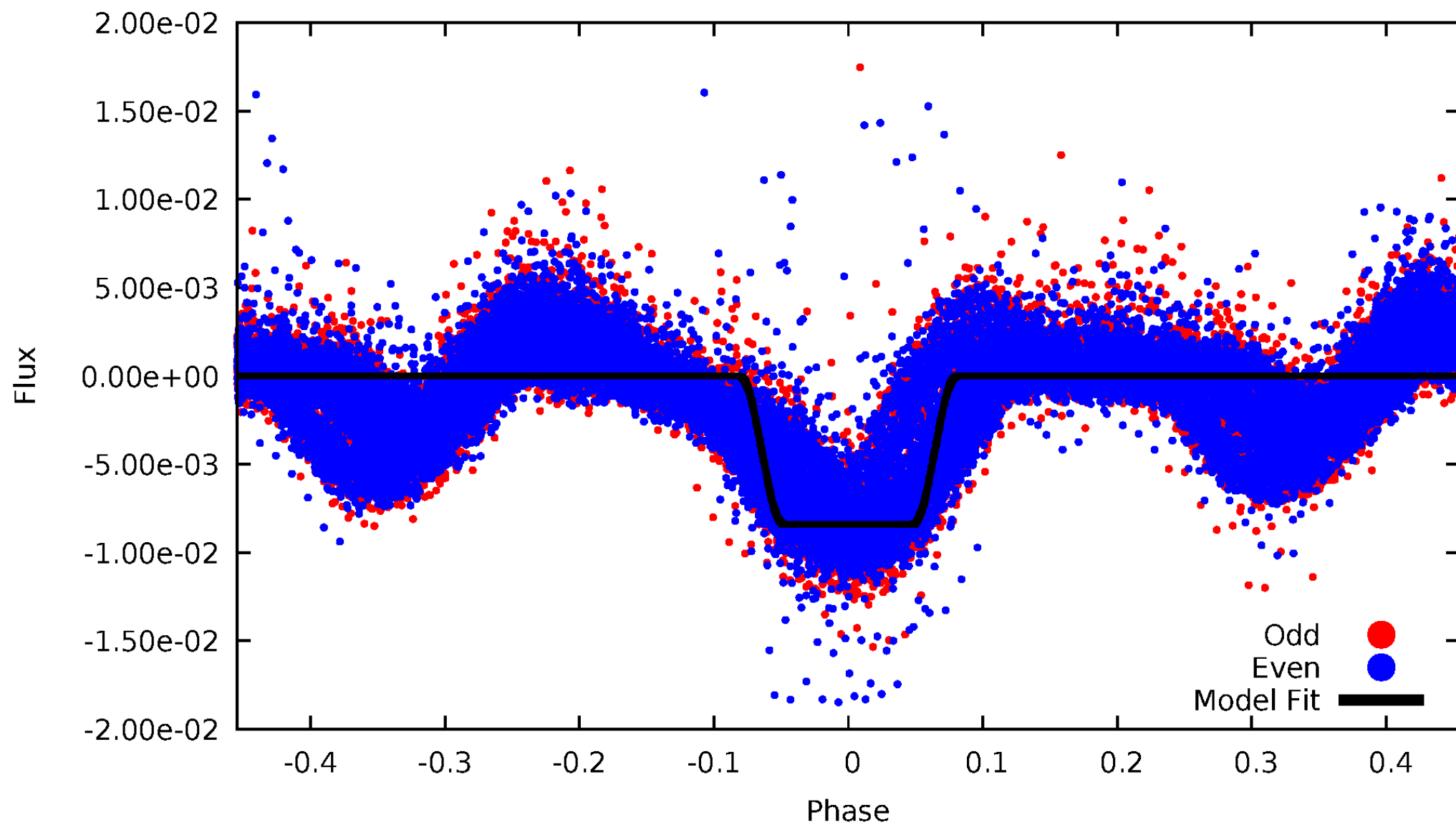
DV Odd/Even

TCE 008012943-01



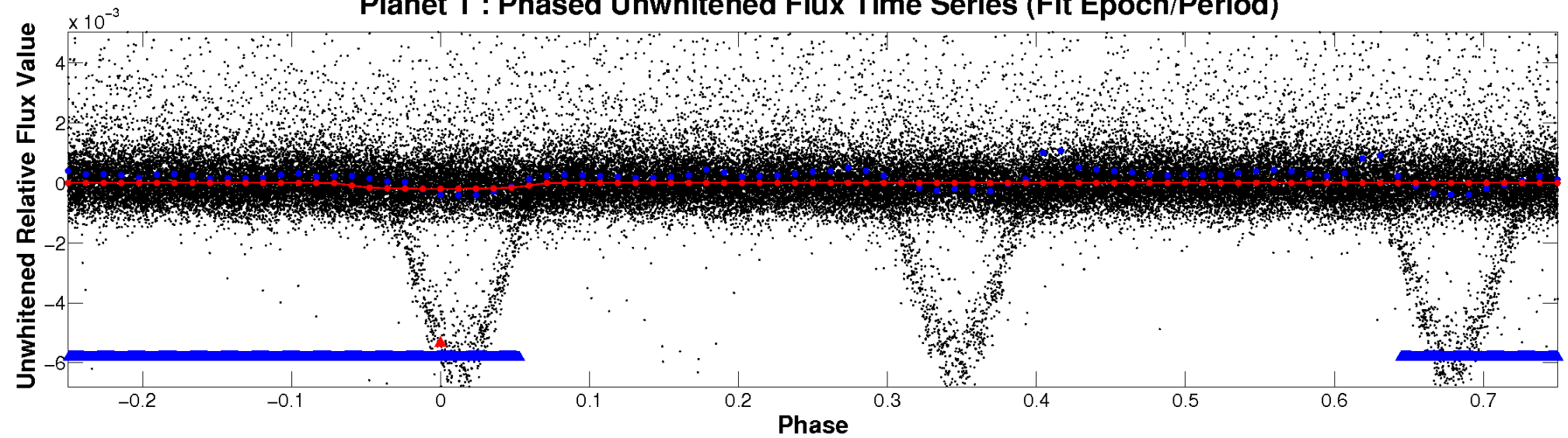
ALT Odd/Even

TCE 008012943-01

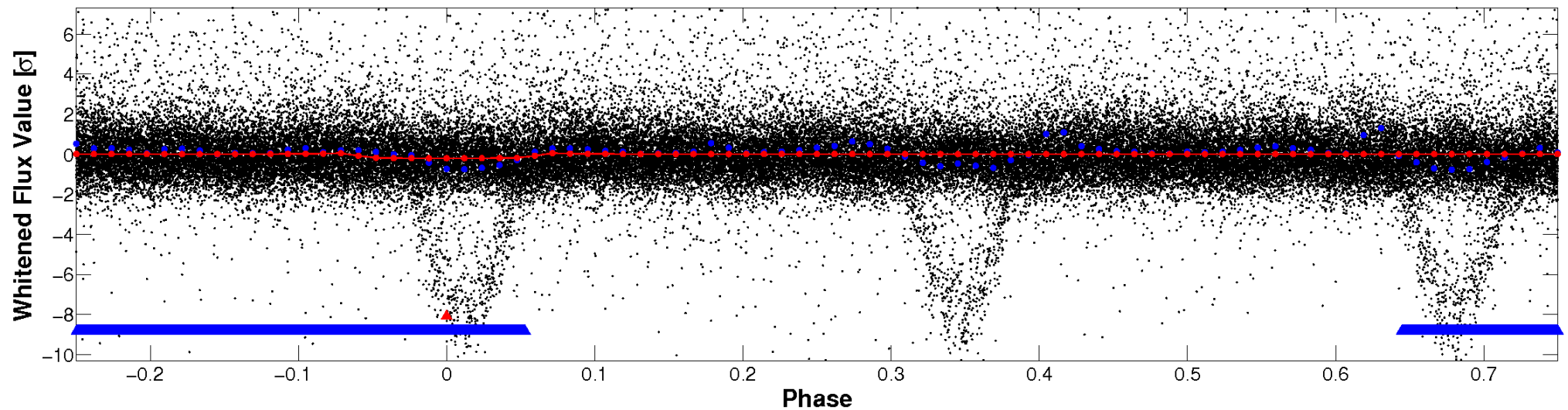


Non-Whitened Vs. Whitened Light Curve

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

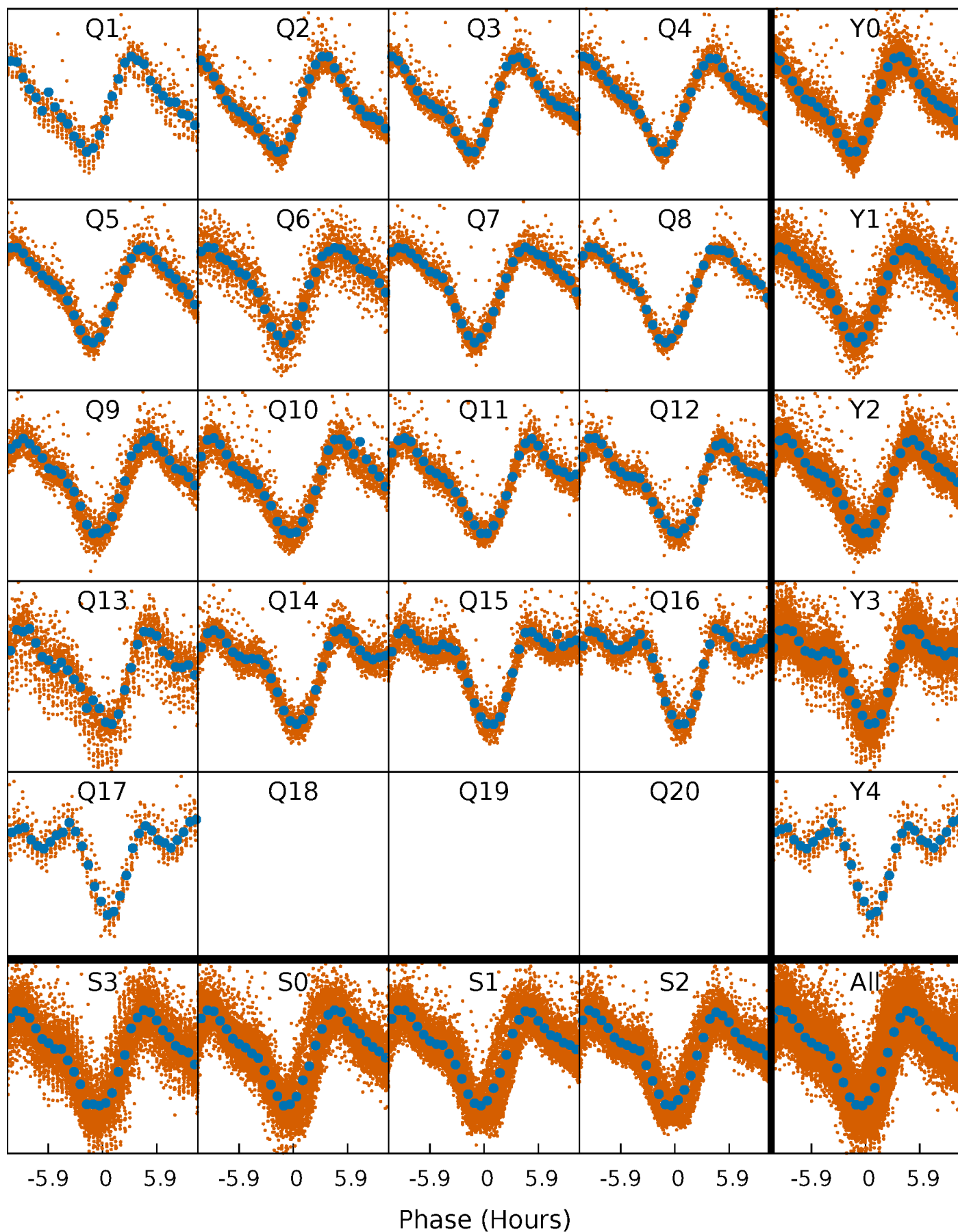


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



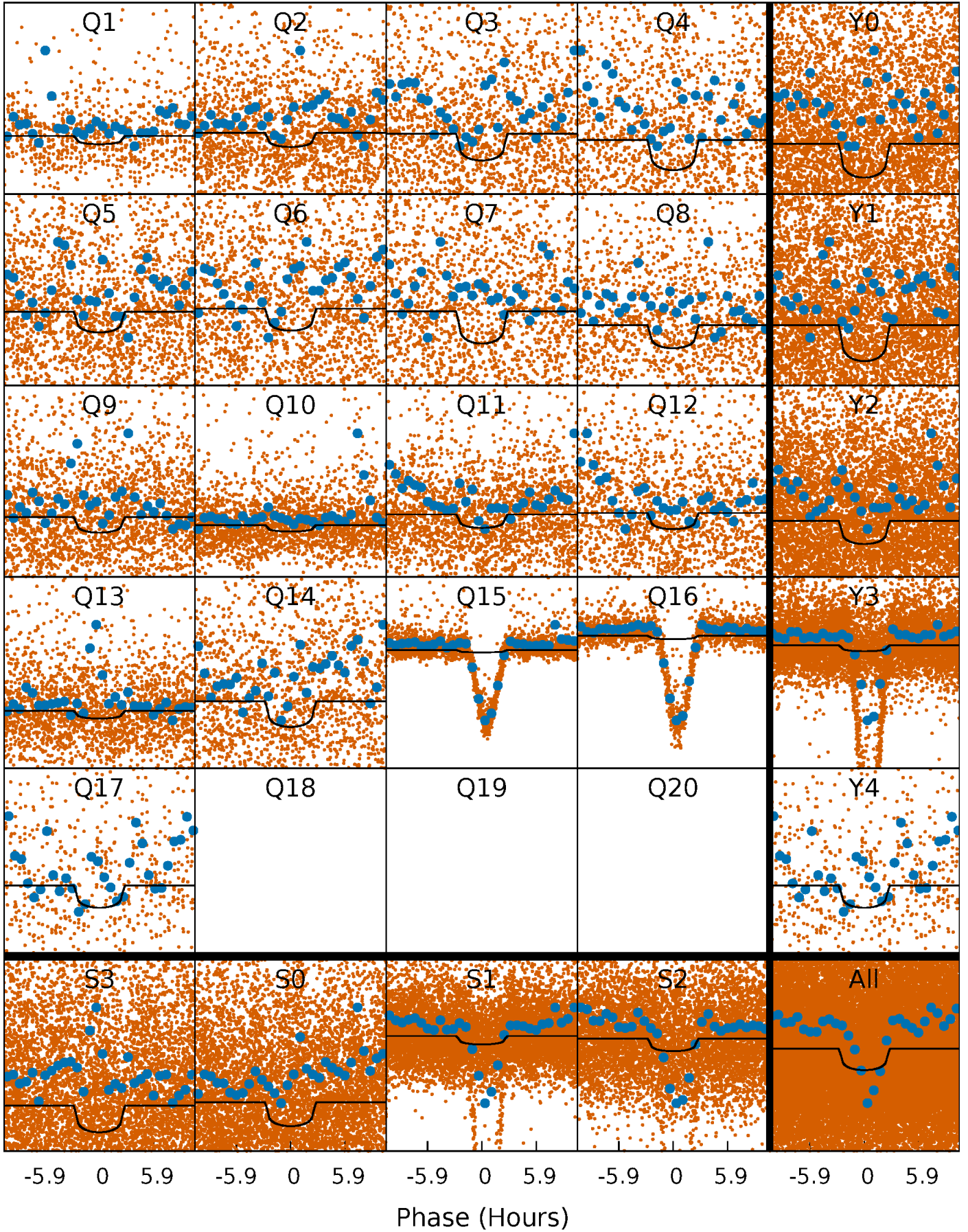
PDC Quarter-Phased Transit Curves

TCE 008012943-01 P= 1.716972 Days $T_0=131.735059$ (BKJD)



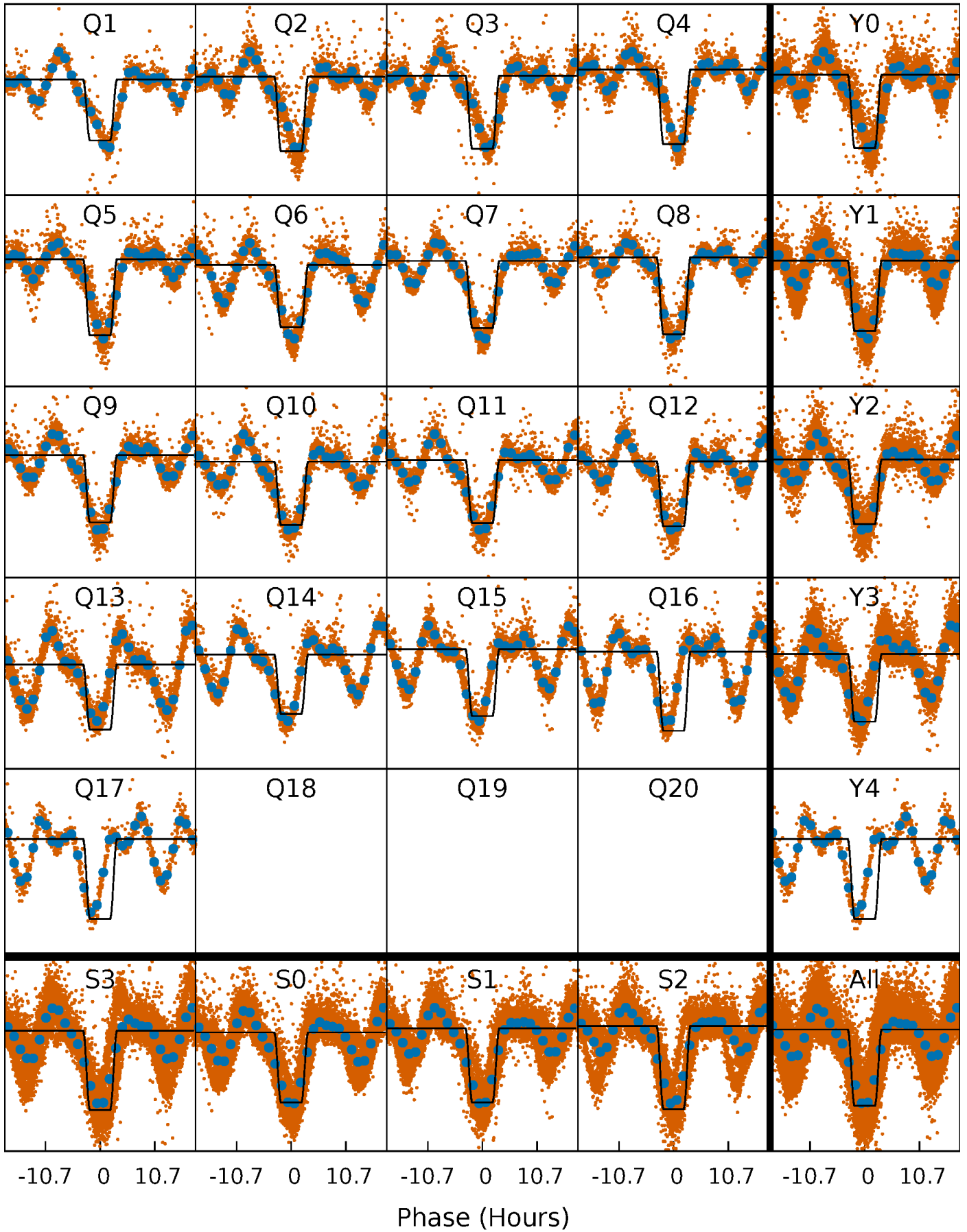
DV Quarter-Phased Transit Curves

TCE 008012943-01 P= 1.716972 Days $T_0=131.735059$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

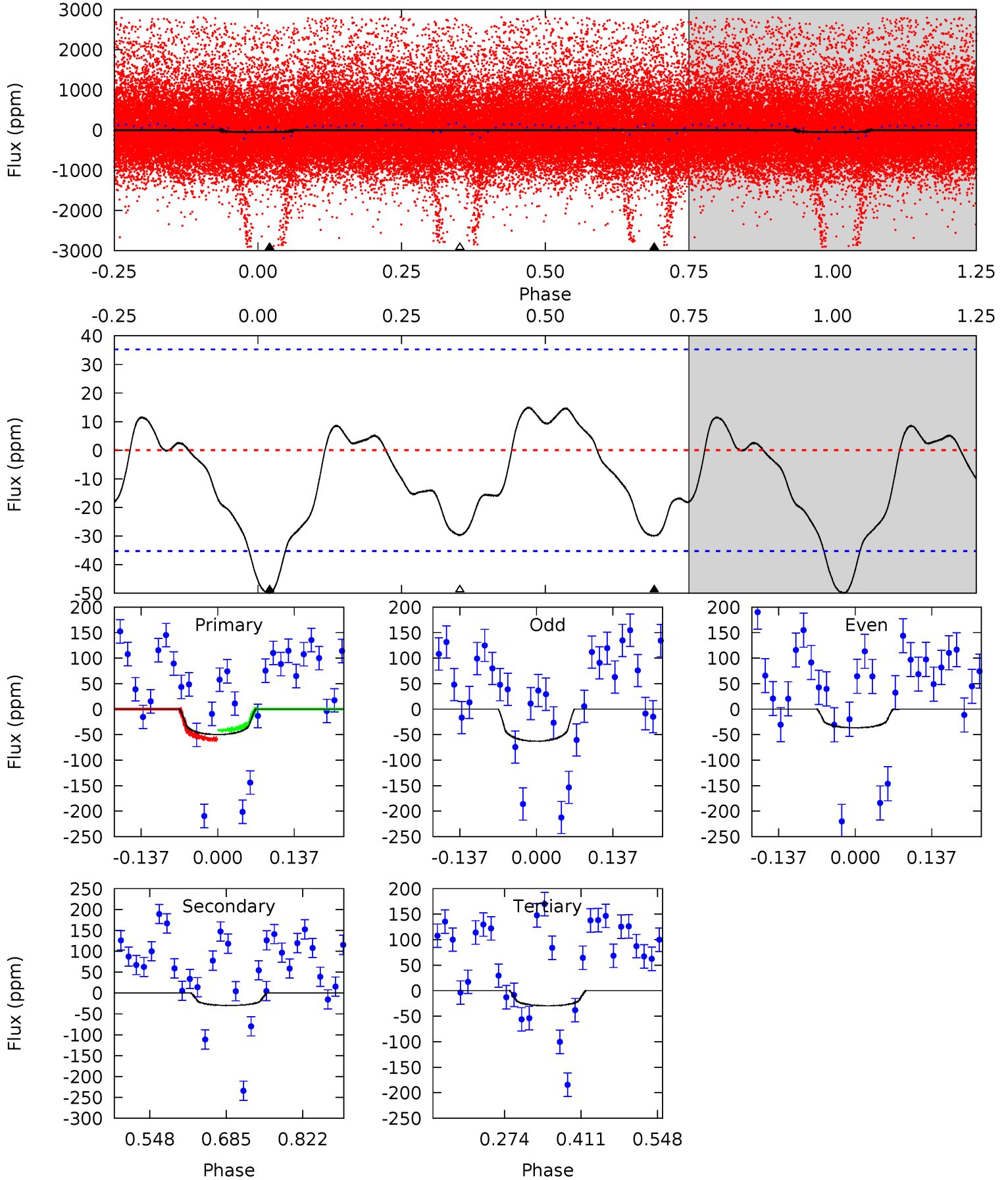
TCE 008012943-01 P= 1.717227 Days $T_0=131.613459$ (BKJD)



DV Model-Shift Uniqueness Test

008012943-01, P = 1.716972 Days, E = 130.018087 Days

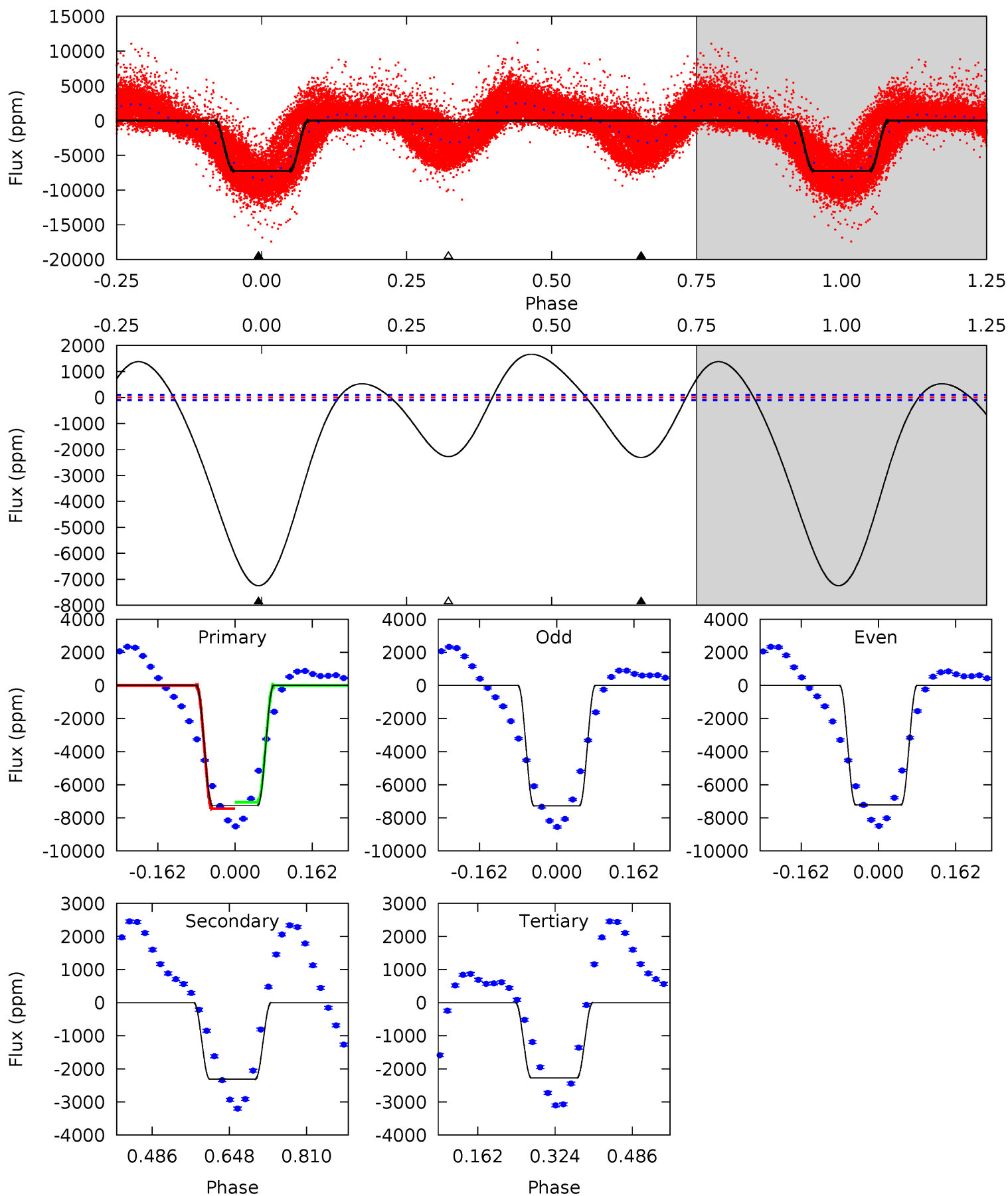
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.36	3.81	3.78	0	4.50	1.49	1.68	2.58	6.36	0.03	3.81	1.70	8.09	0.23	1.12



Alt Model-Shift Uniqueness Test

008012943-01, P = 1.717227 Days, E = 129.896232 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
316.2	100.9	99.4	0	4.46	1.40	56.1	216.8	316.2	1.51	100.9	1.36	0.99	0.19	8.47



Stellar Parameters For KIC 008012943

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3482^{+55}_{-55}	$4.904^{+0.045}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.349^{+0.036}_{-0.044}$	$0.358^{+0.045}_{-0.049}$	$11.830^{+3.039}_{-2.019}$
	+2%/-2%	+1%/-1%	+100%/-100%	+10%/-13%	+13%/-14%	+26%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008012943-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-30 ± 8	$0.88^{+0.84}_{-0.56}$	897^{+23}_{-20}	2328^{+745}_{-340}	$7.876^{+56.904}_{-5.916}$
Alt.	-2312 ± 23	$3.47^{+1.06}_{-0.94}$	897^{+23}_{-23}	2890^{+274}_{-206}	43^{+38}_{-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

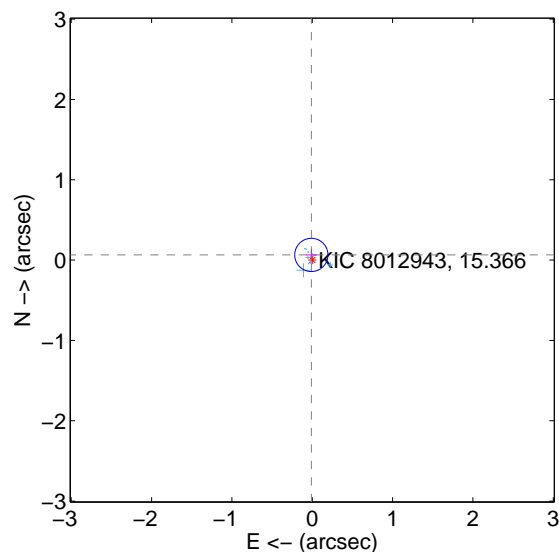
Supplemental centroid analysis for 008012943-01. Kepler magnitude: 15.37. Transit SNR 15.20

There are 17 quarters with good PRF difference image offsets

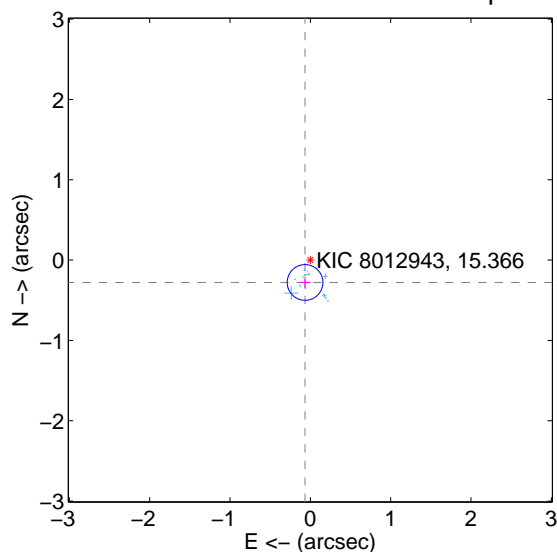
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.065 ± 0.069	0.95	0.011 ± 0.069	0.064 ± 0.069
PRF-fit source offset from KIC position	0.286 ± 0.074	3.86	0.066 ± 0.071	-0.278 ± 0.074
photometric centroid source offset	1.17 ± 0.45	2.64	1.08 ± 0.44	0.46 ± 0.46

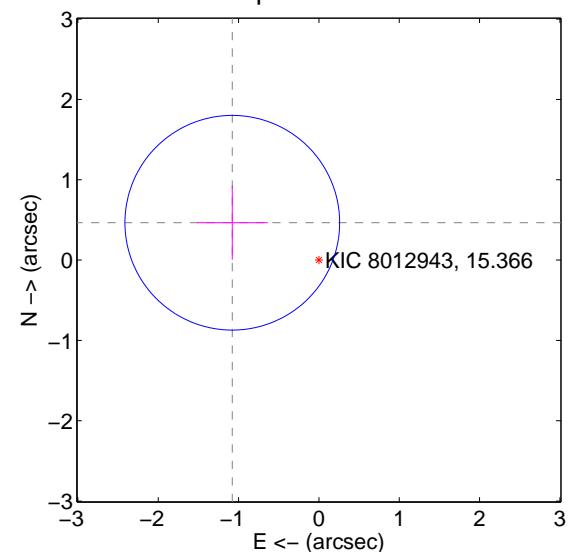
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

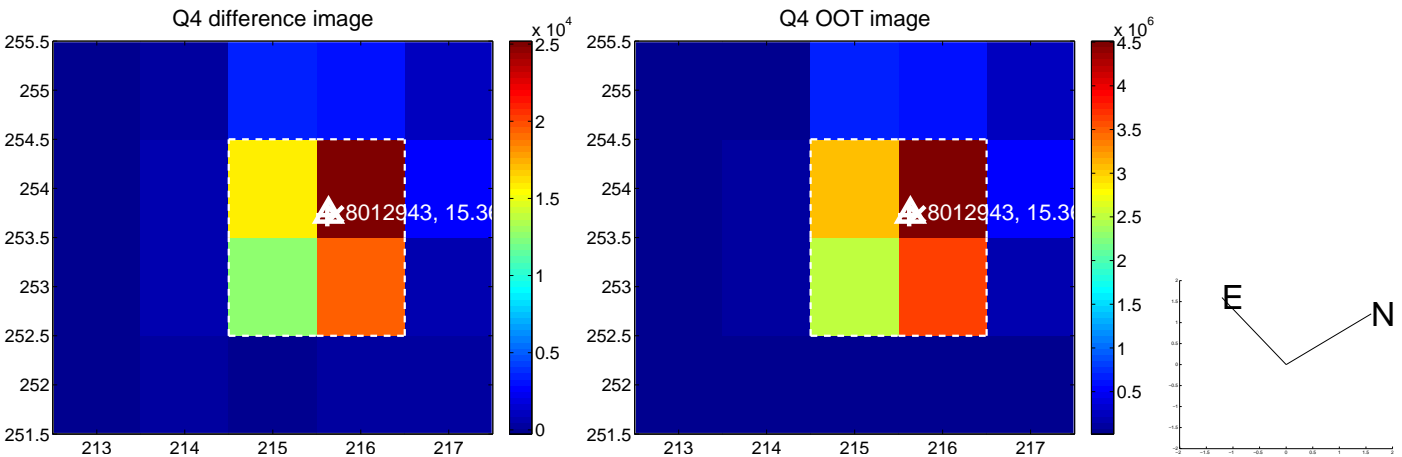
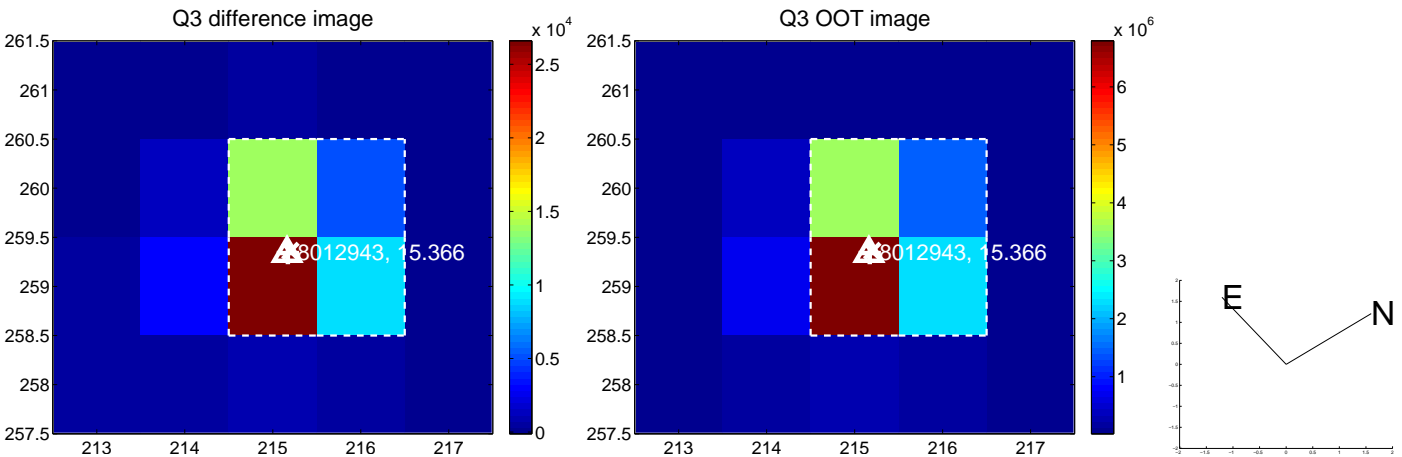
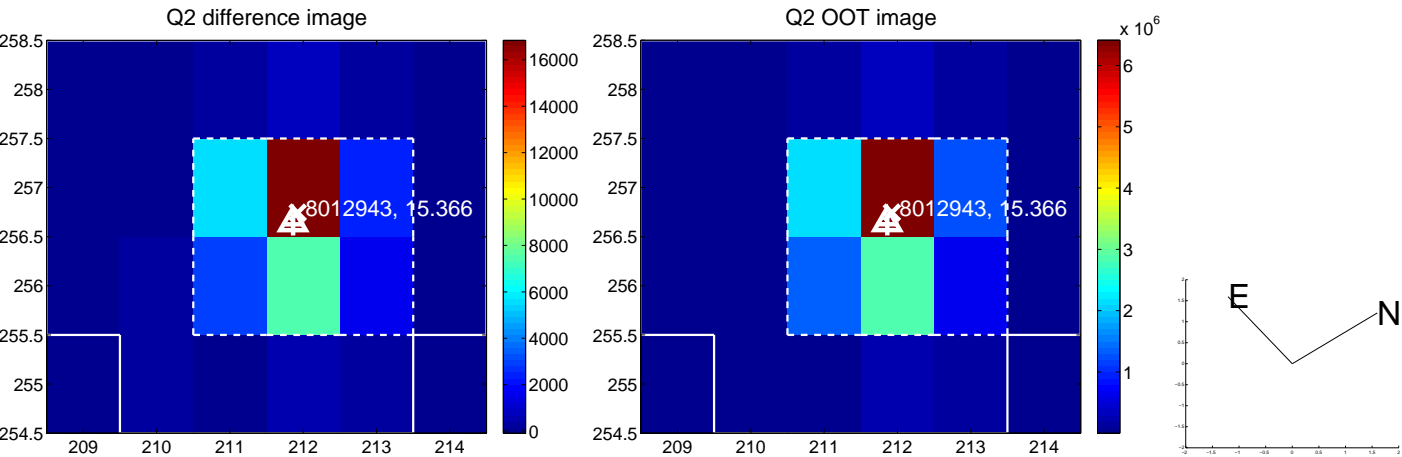
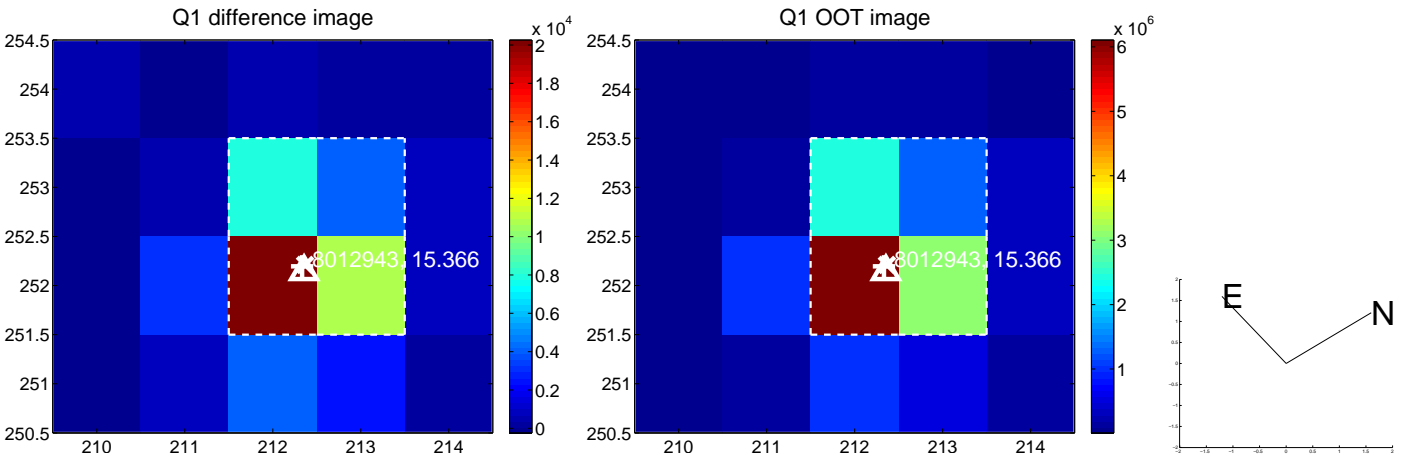


offset from photometric centroids

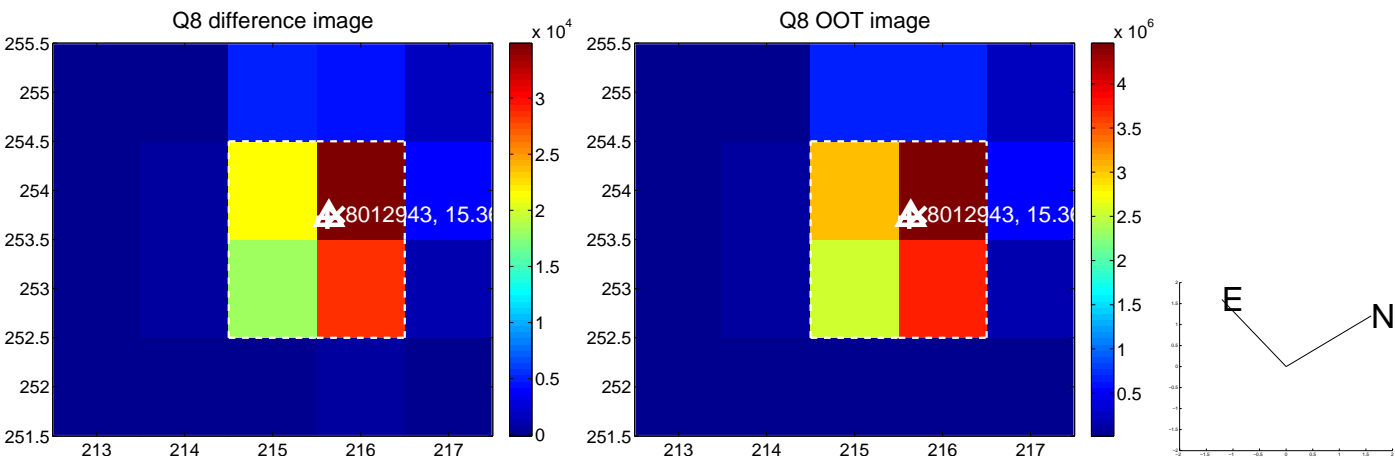
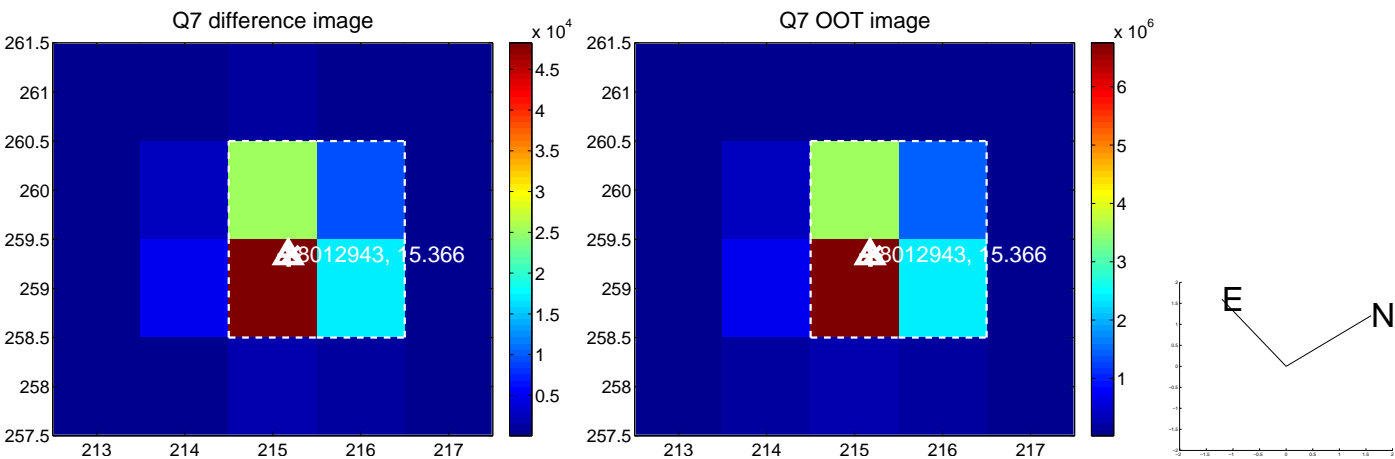
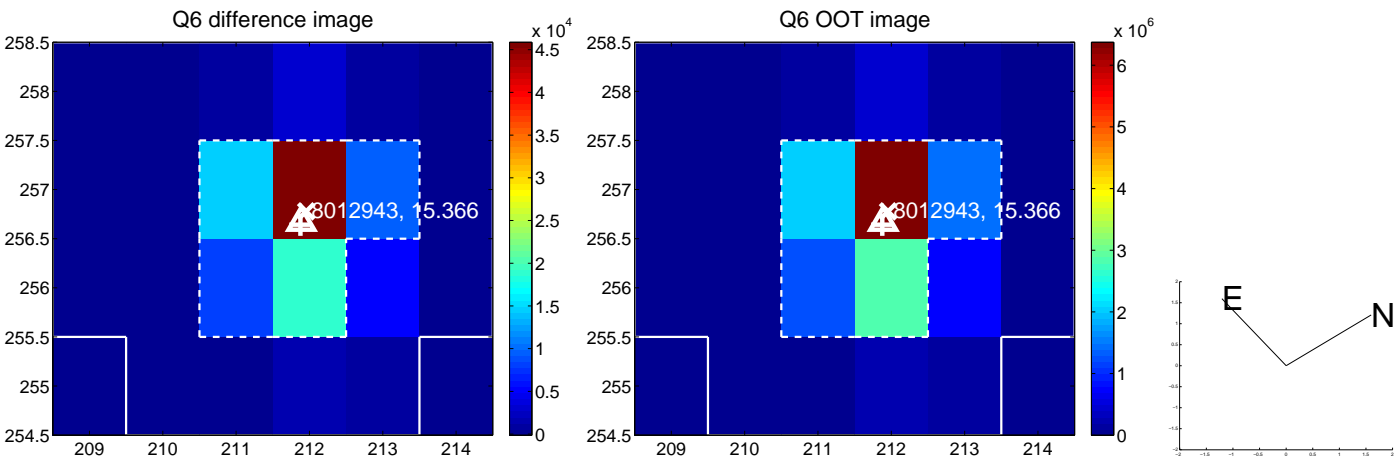
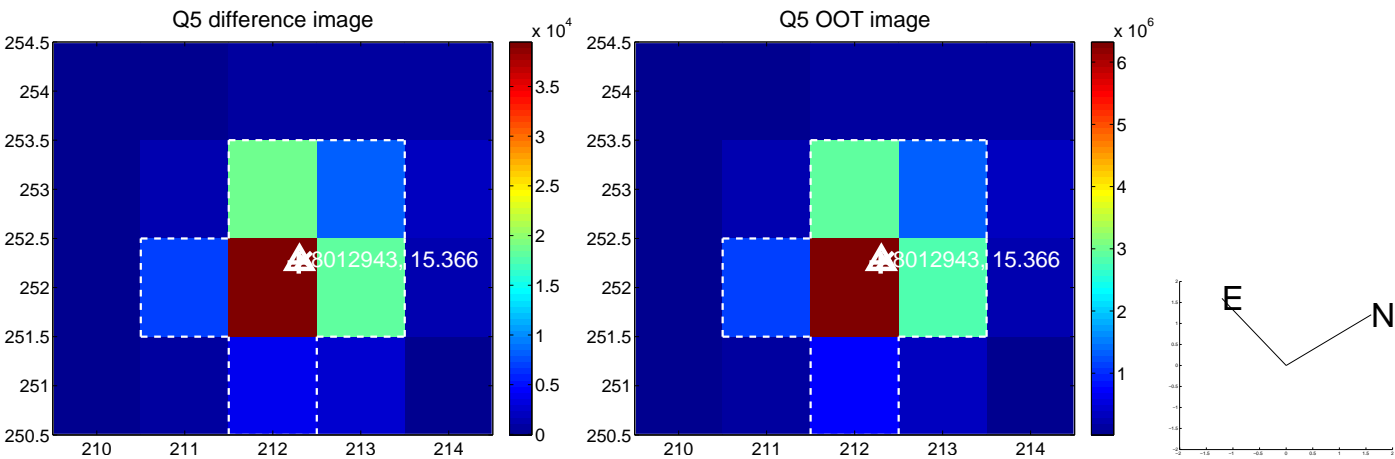


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

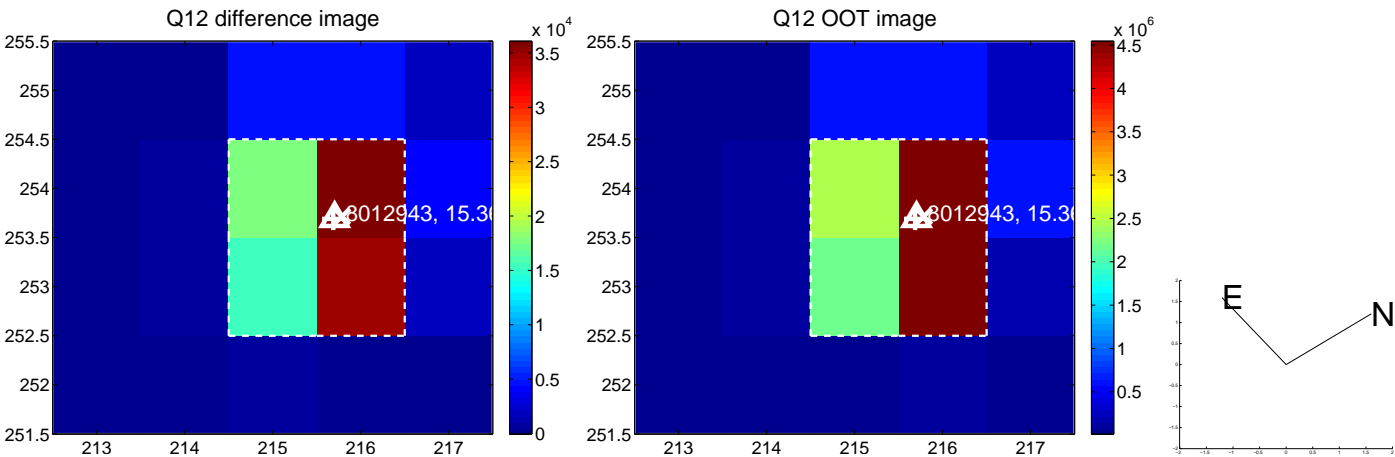
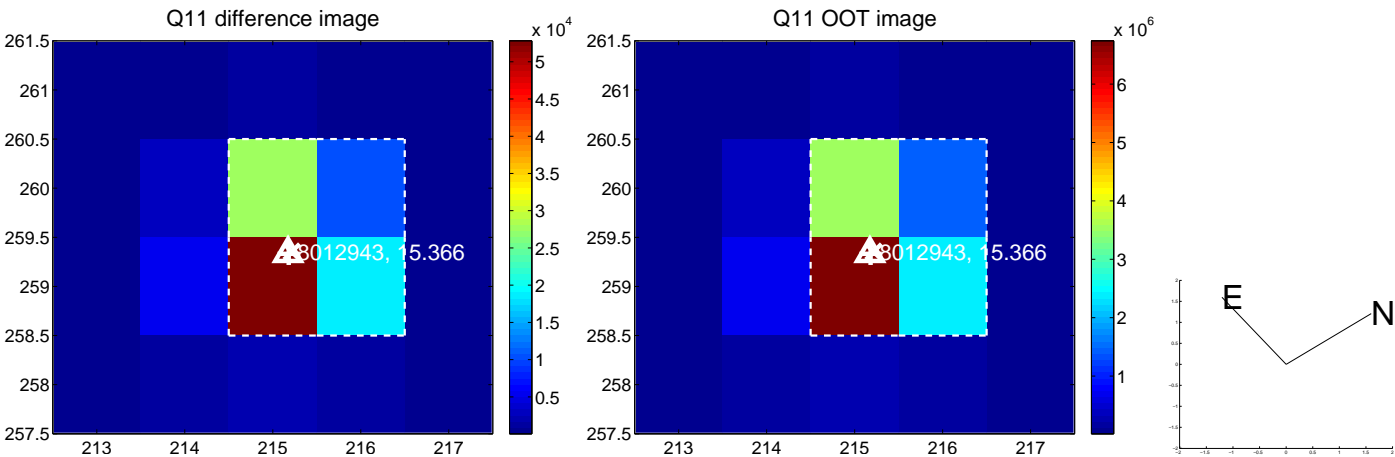
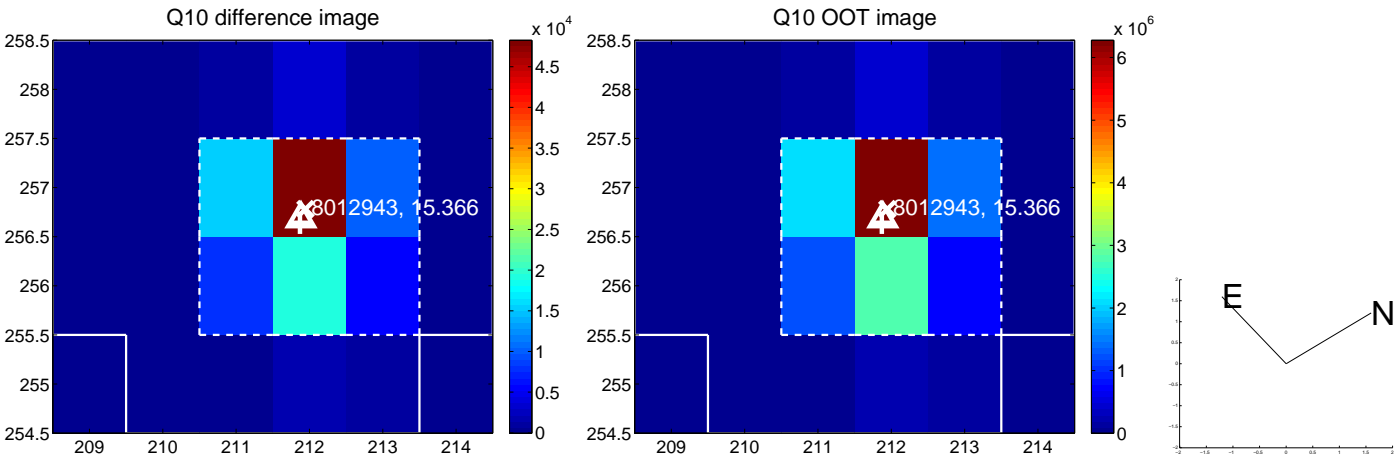
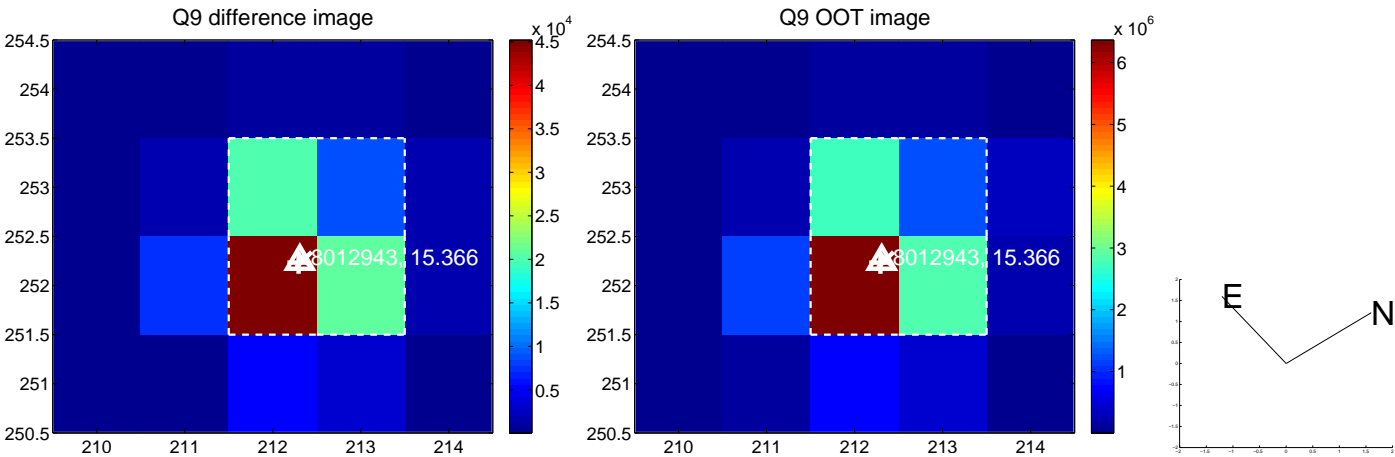
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



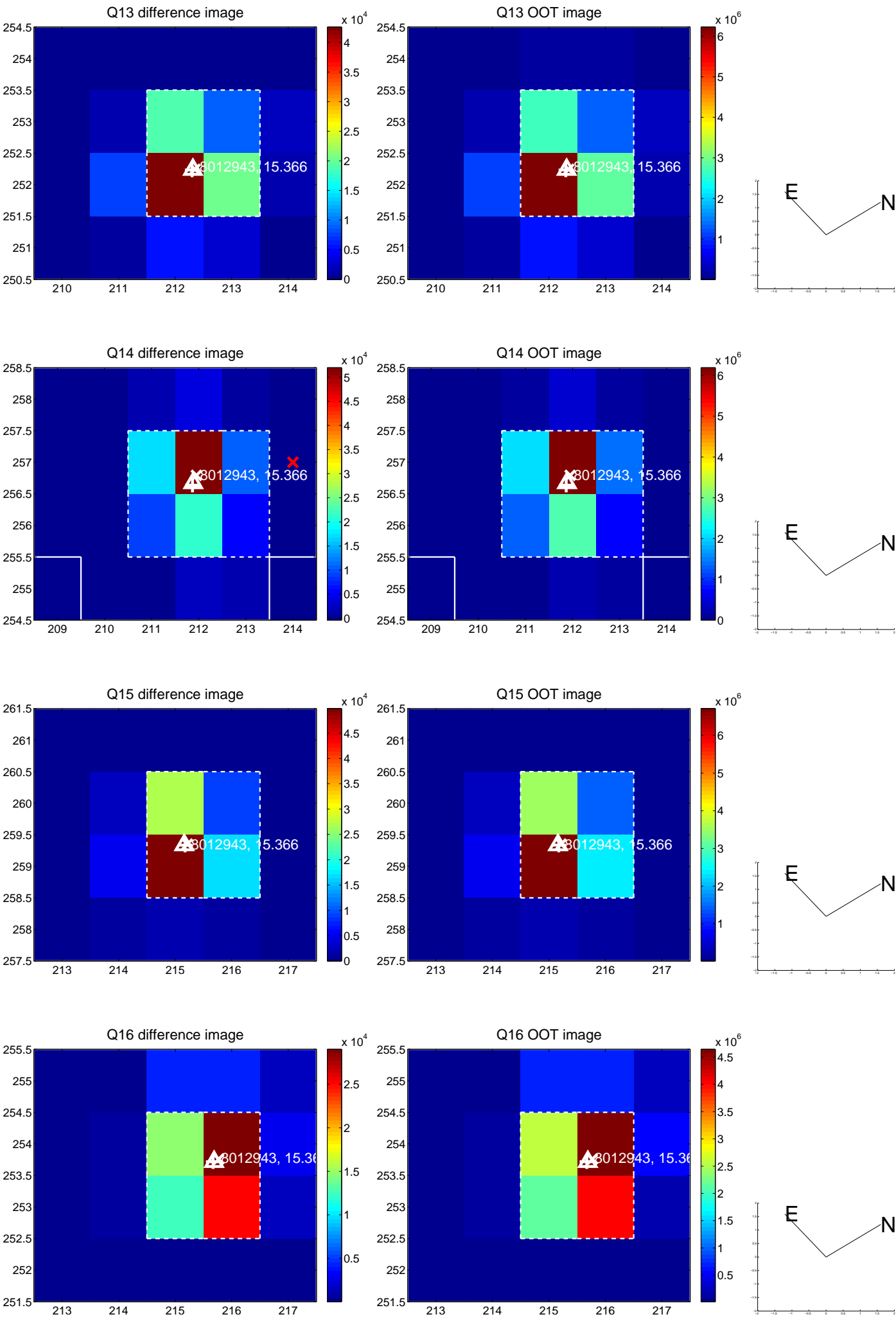
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



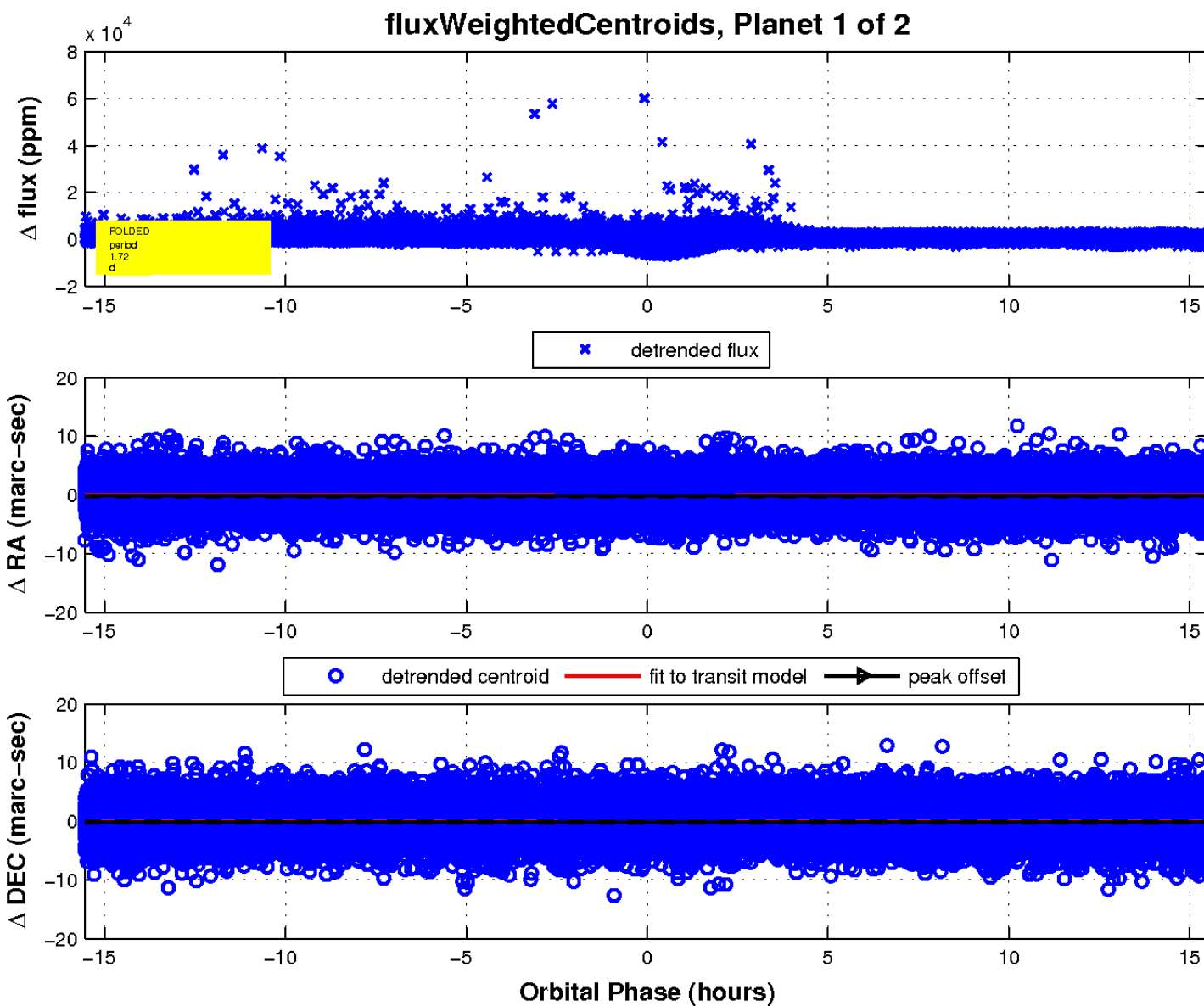
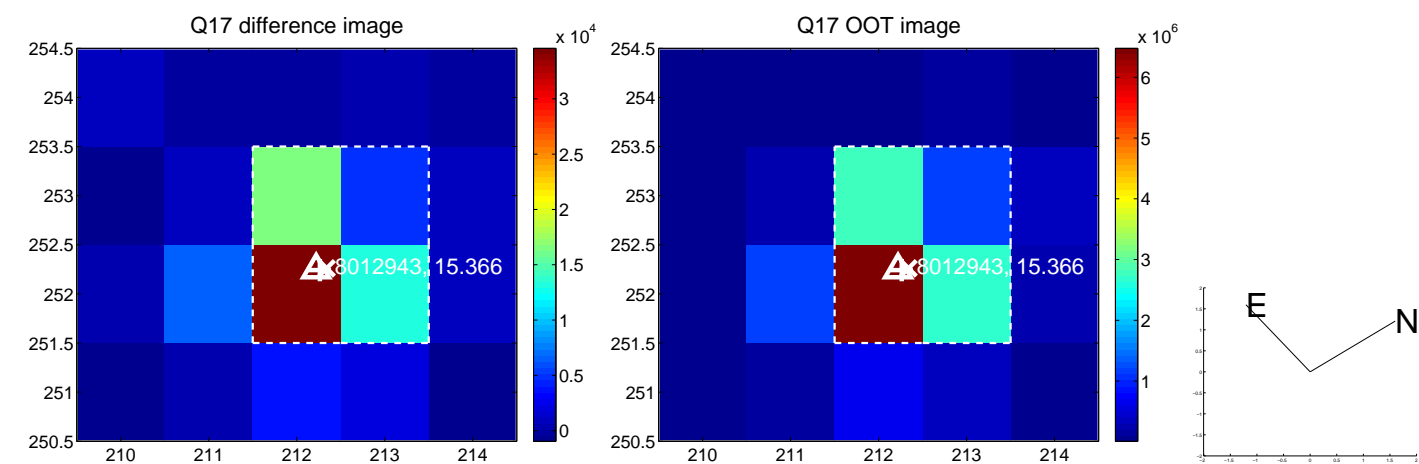
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



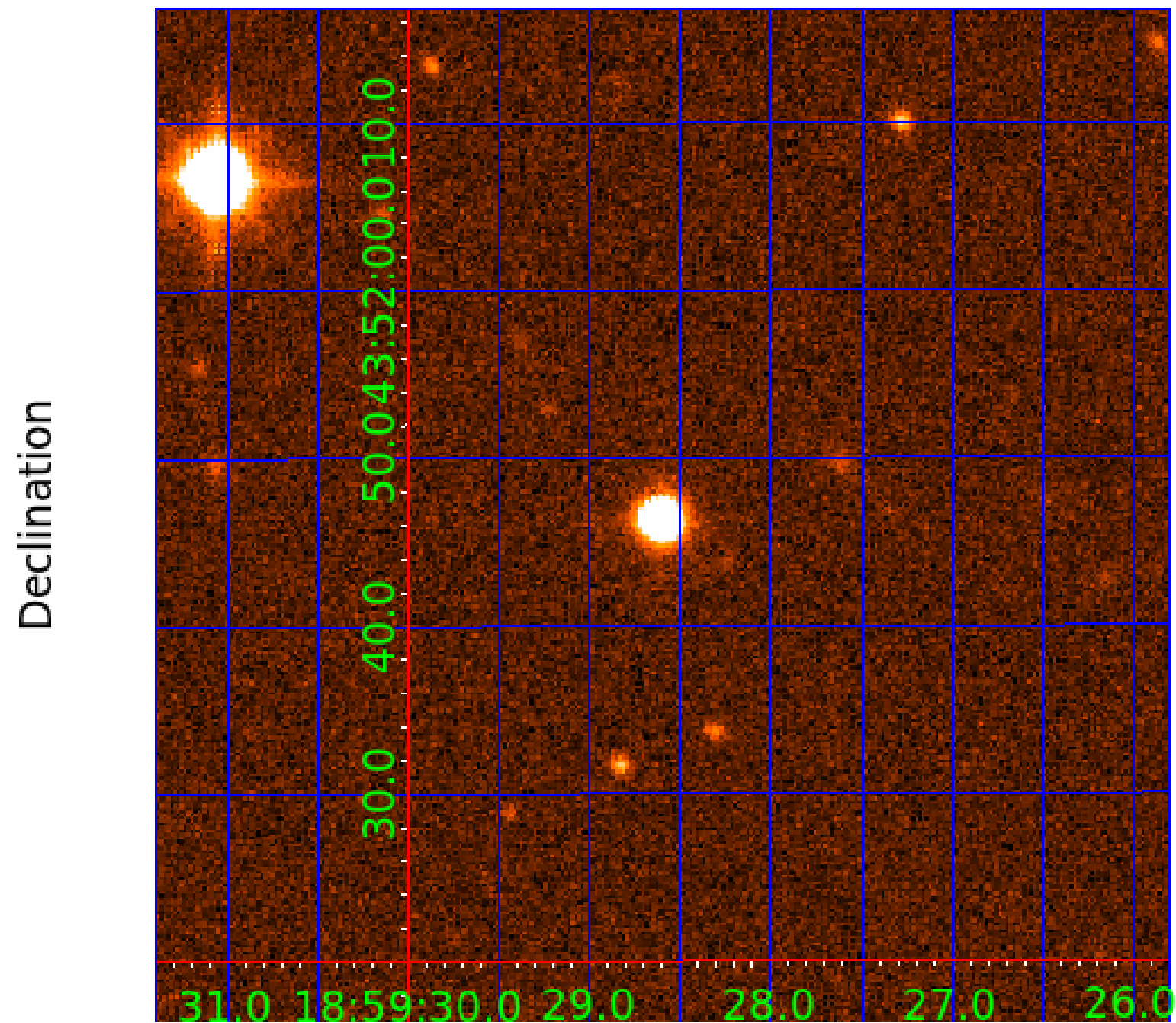
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008012943

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})
008012943-01	OBS	No	1.716972	131.735059	195.1	5.183	20.2	15.2	0.35	3482	0.48	40.53
008012943-02	OBS	No	1.716147	131.825777	4496.8	3.000	86.0	-1.0	0.35	3482	2.32	40.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008012943-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008012943-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

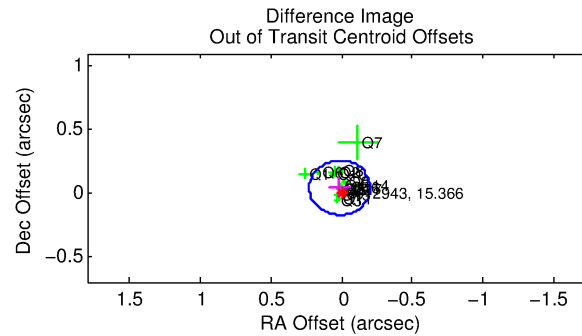
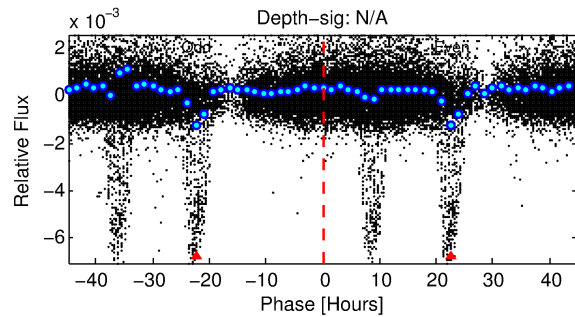
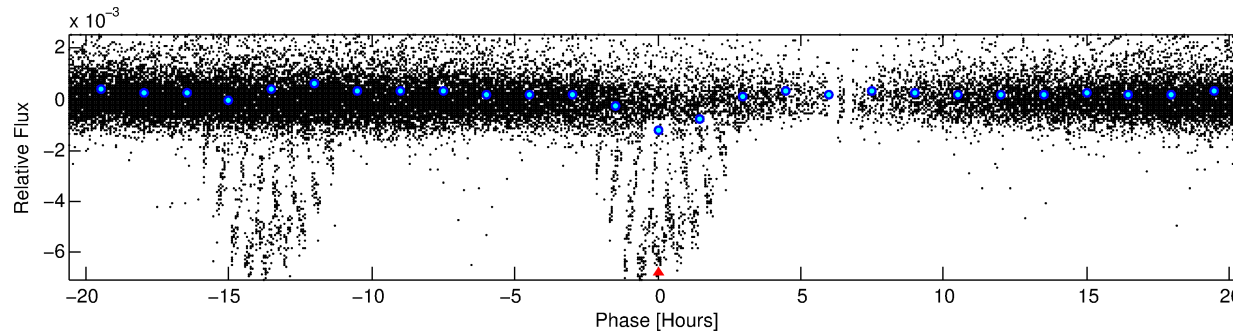
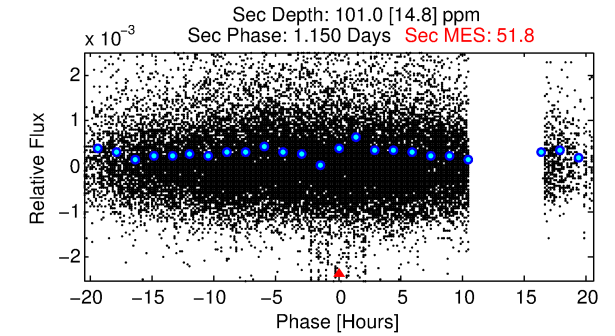
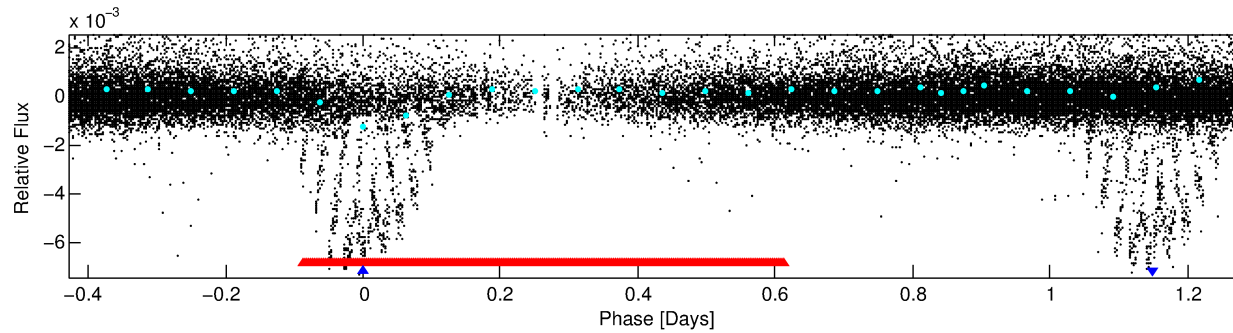
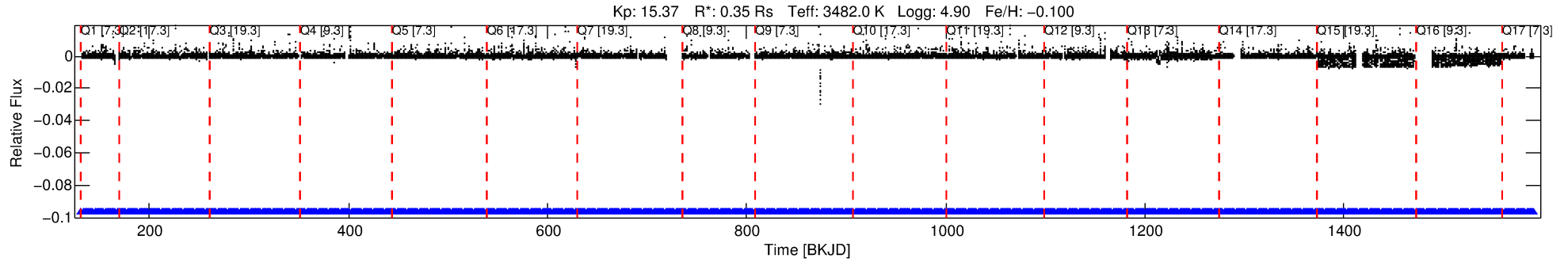
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008012943-02

No Significant Match Found

DV One-Page Summary

KIC: 8012943 Candidate: 2 of 2 Period: 1.716 d



TPS TCE Results:

Period = 1.71615 d
Epoch = 131.8258 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.3% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [468/468]
GhostDiagnostic-chr: -1.118

Centroid-sig: 27.6%
Centroid-so: 0.268 arcsec [13.01 σ]
OotOffset-rm: 0.045 arcsec [0.63 σ]
KicOffset-rm: 0.274 arcsec [3.38 σ]
OotOffset-st: 4/4/4 [16]
KicOffset-st: 4/4/4 [16]
DiffImageQuality-fgm: 0.56 [9/16]
DiffImageOverlap-fno: 0.00 [0/17]

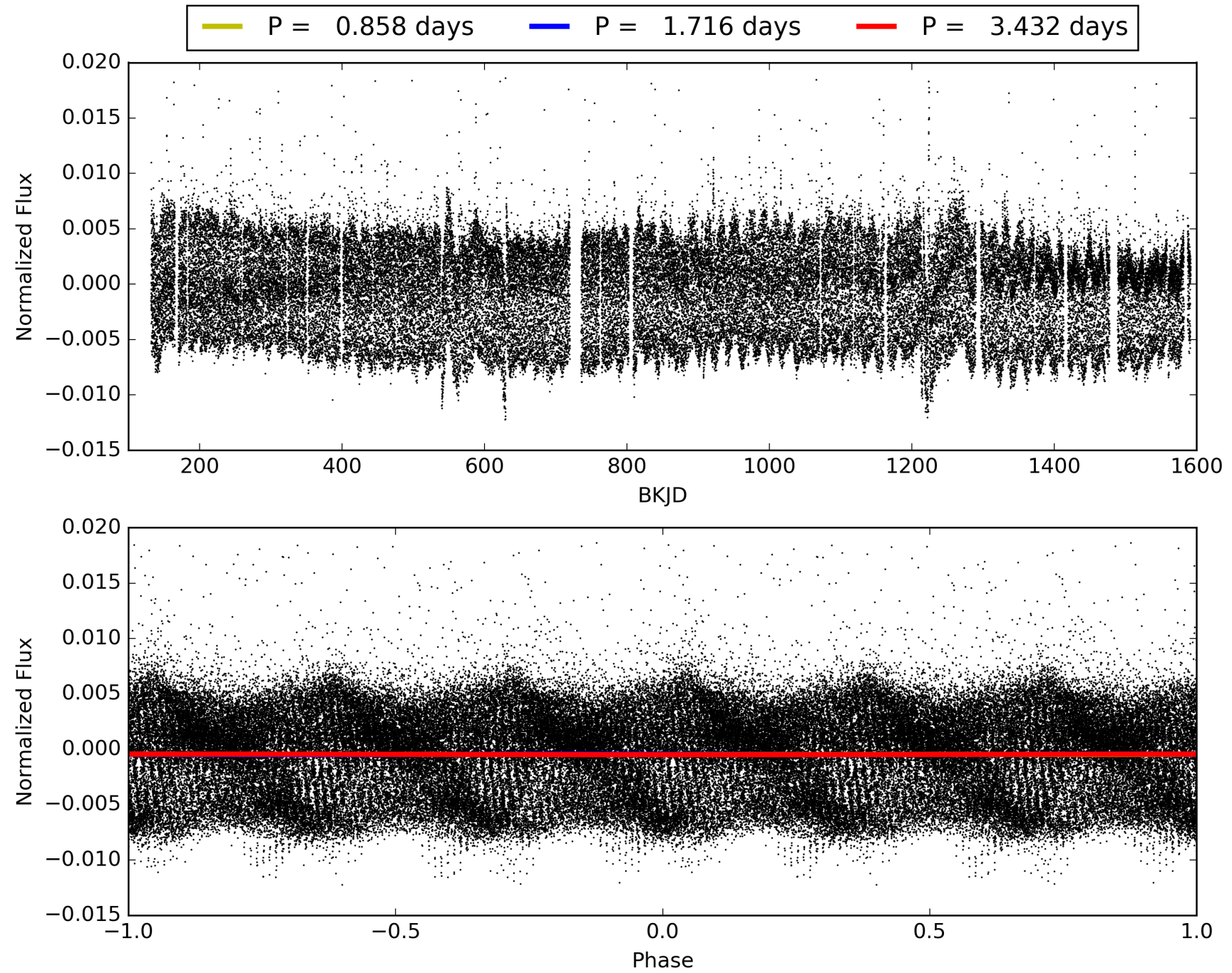
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:07:30 Z

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

TCE 008012943-02, PDC Light Curves

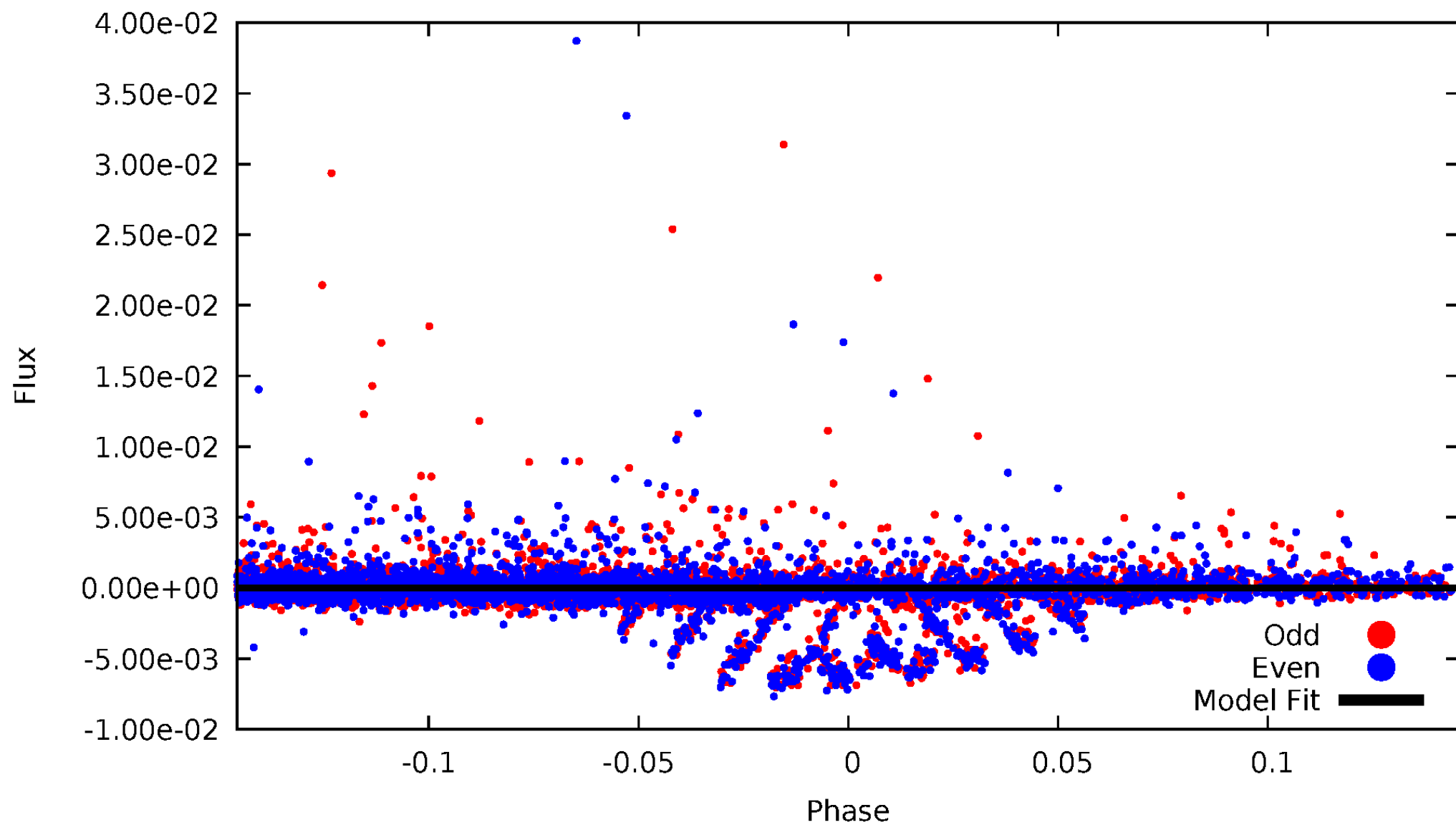


TCE 008012943-02



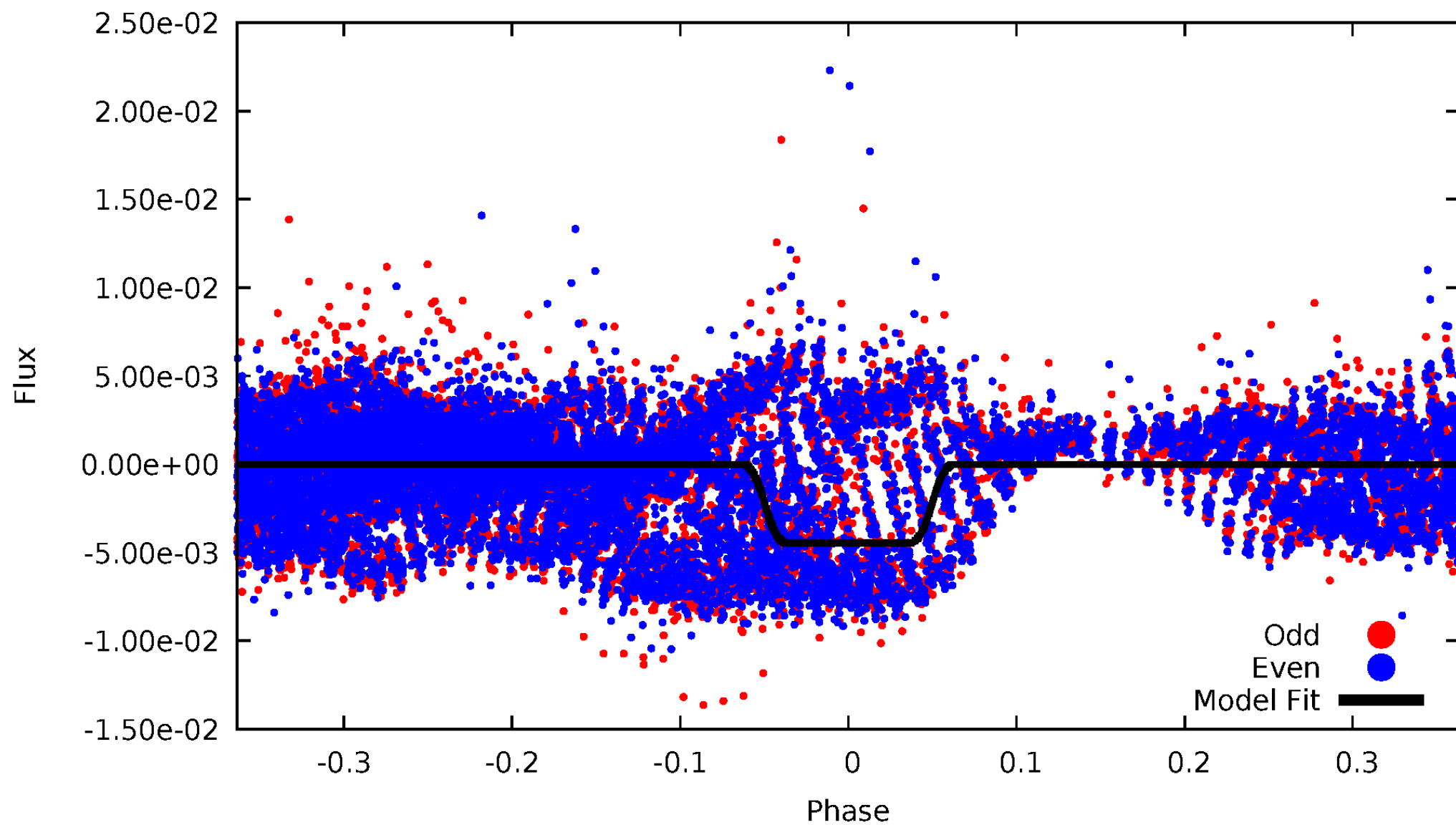
DV Odd/Even

TCE 008012943-02



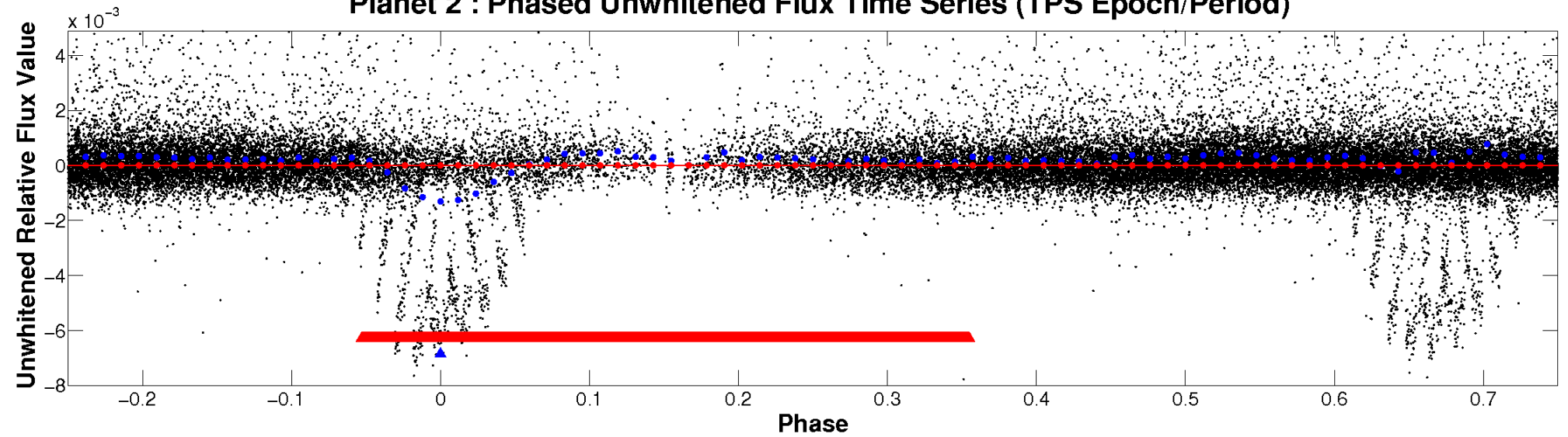
ALT Odd/Even

TCE 008012943-02



Non-Whitened Vs. Whitened Light Curve

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

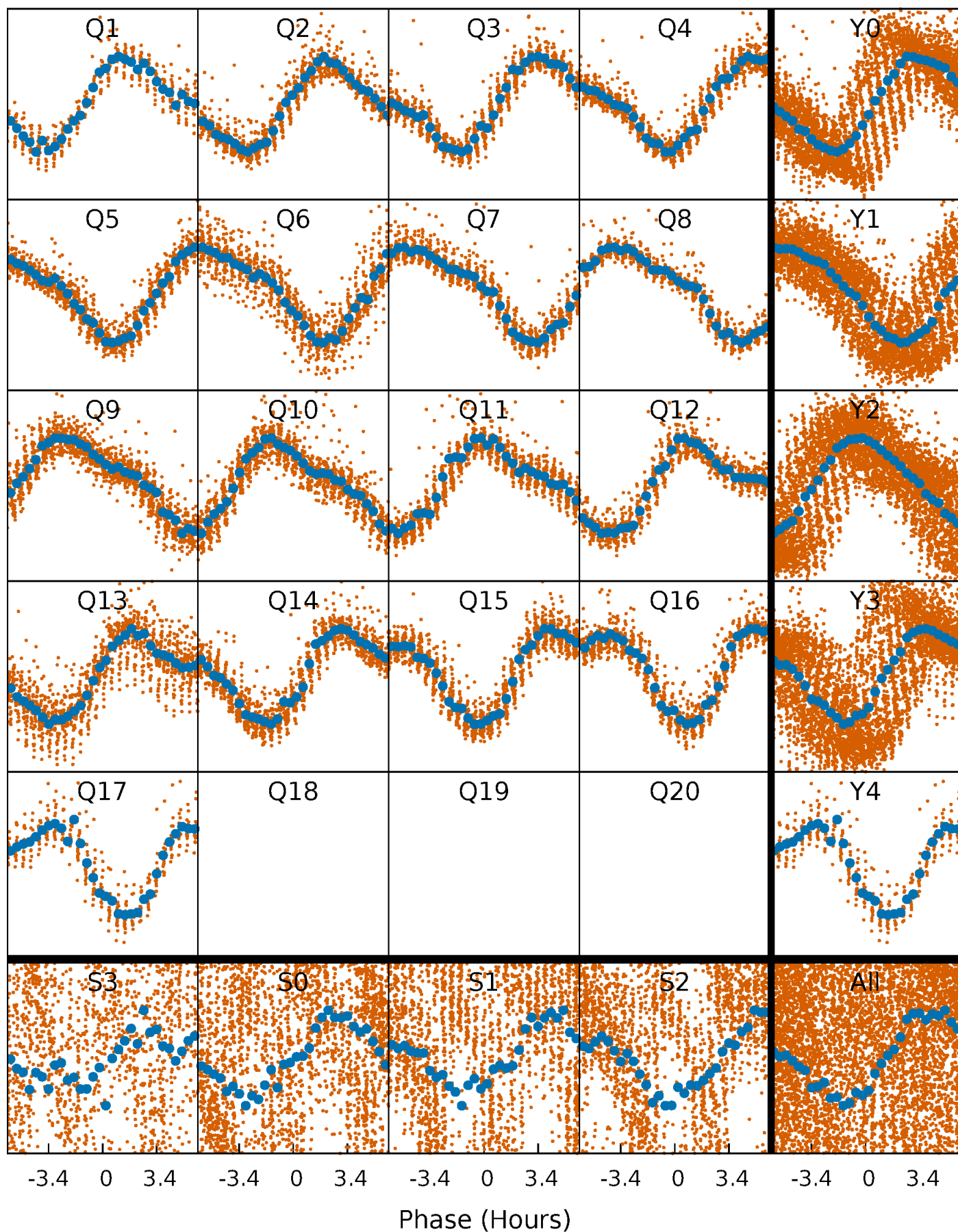


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



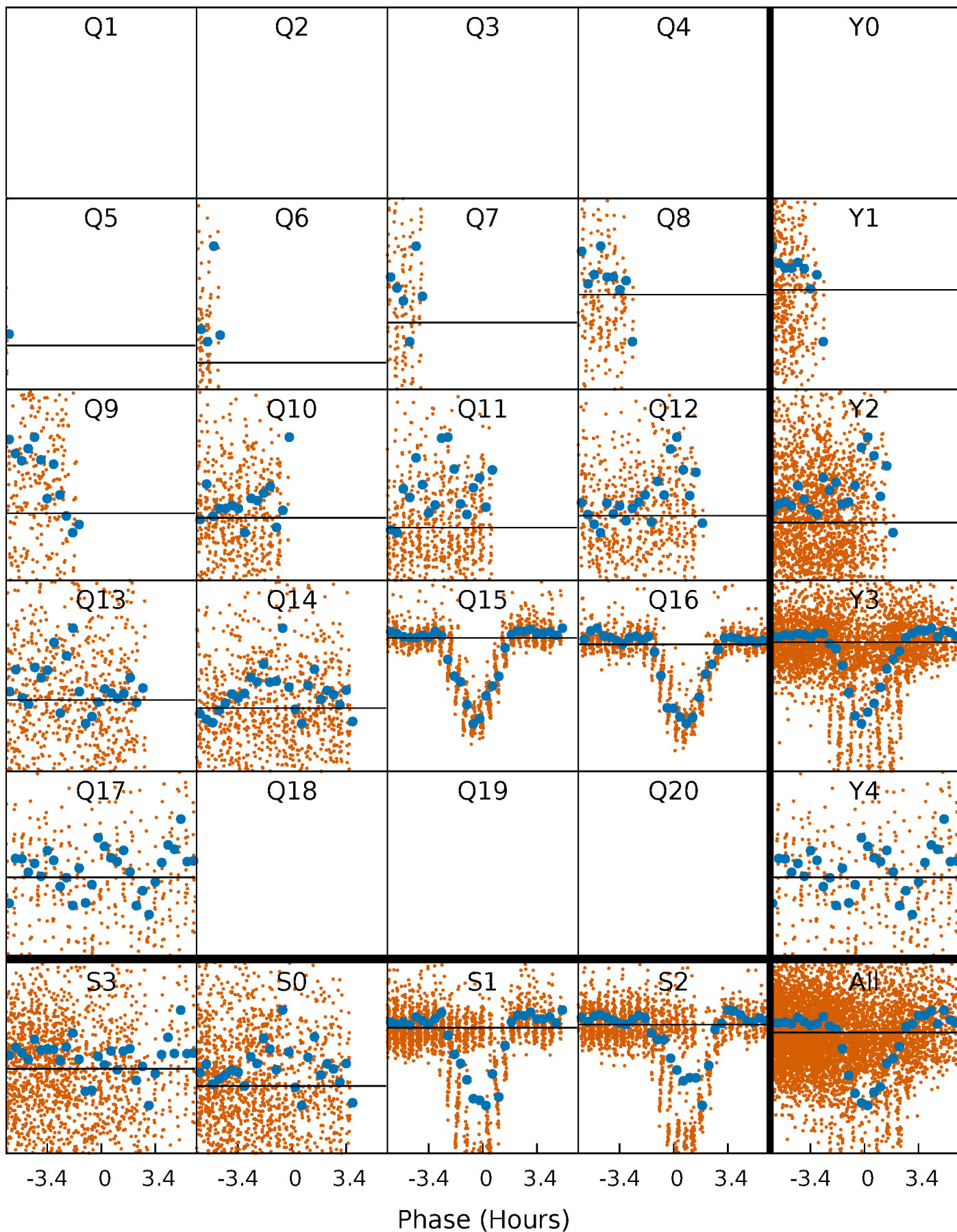
PDC Quarter-Phased Transit Curves

TCE 008012943-02 P= 1.716147 Days $T_0=131.825777$ (BKJD)



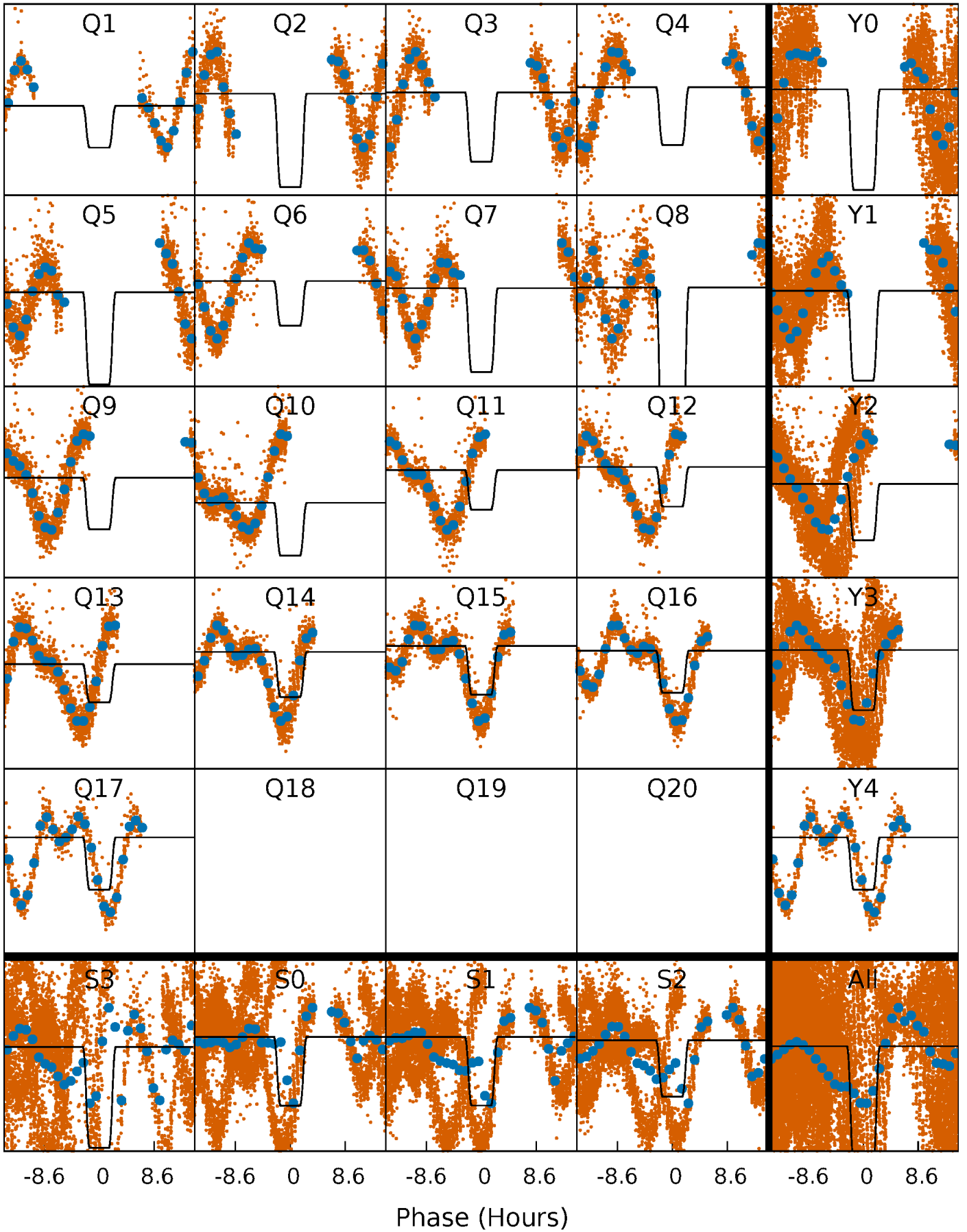
DV Quarter-Phased Transit Curves

TCE 008012943-02 P= 1.716147 Days $T_0=131.825777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

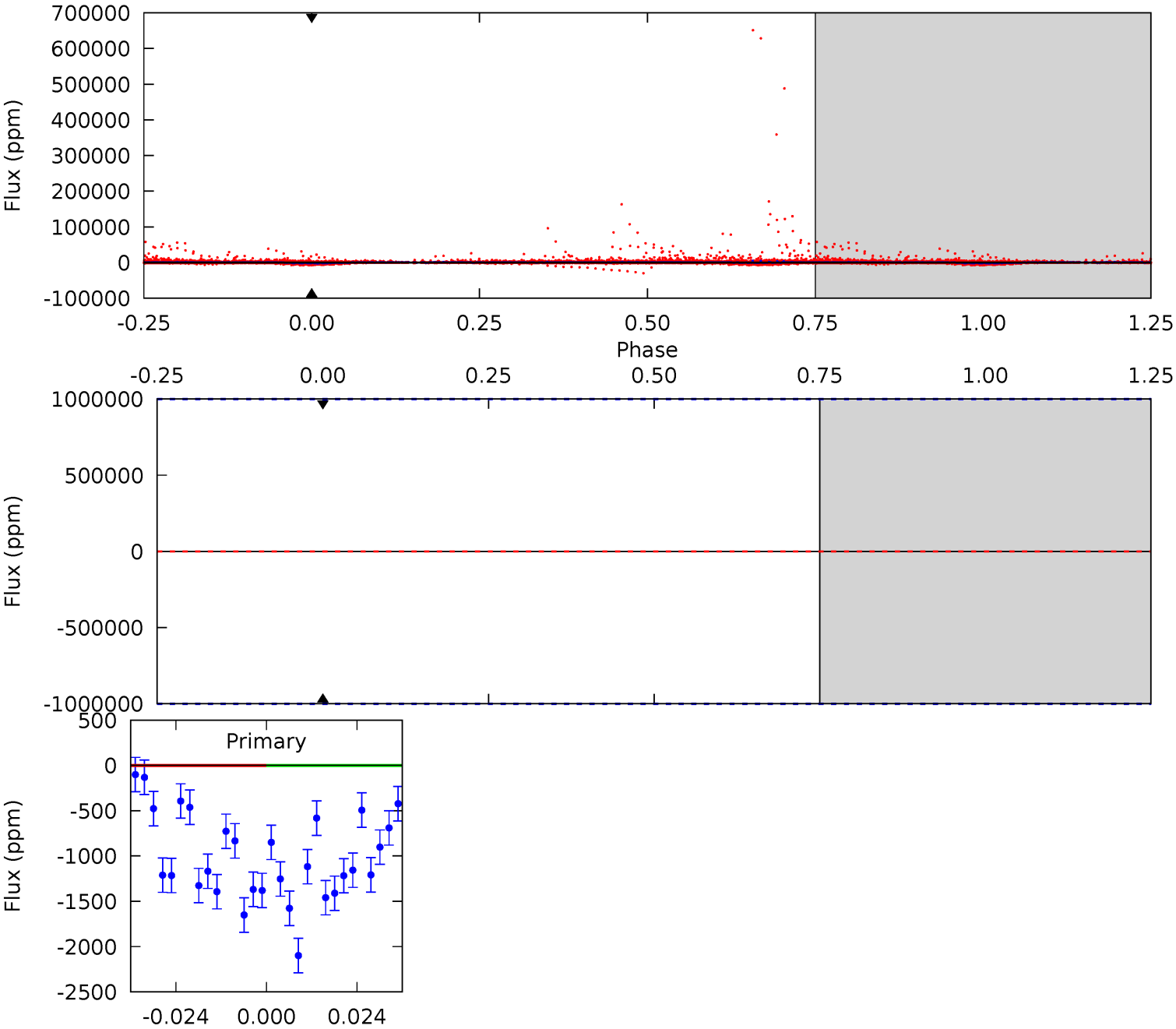
TCE 008012943-02 P= 1.716147 Days $T_0=131.822399$ (BKJD)



DV Model-Shift Uniqueness Test

008012943-02, P = 1.716147 Days, E = 131.825777 Days

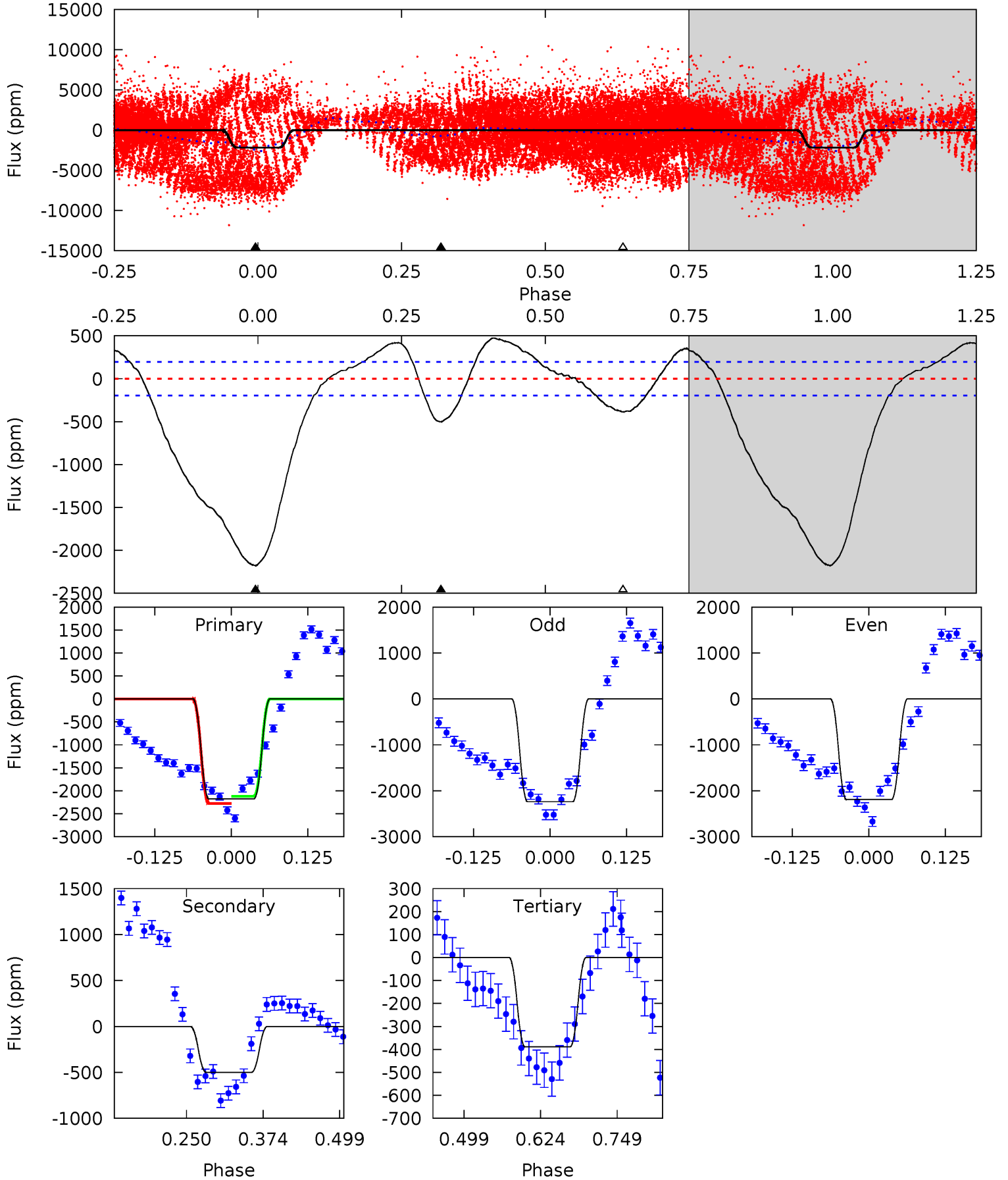
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008012943-02, P = 1.716147 Days, E = 131.822399 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.4	11.6	9.00	0	4.52	1.53	7.51	41.4	50.4	2.58	11.6	0.53	-2.60	0.18	1.71



Stellar Parameters For KIC 008012943

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3482^{+55}_{-55}	$4.904^{+0.045}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.349^{+0.036}_{-0.044}$	$0.358^{+0.045}_{-0.049}$	$11.830^{+3.039}_{-2.019}$
	+2%/-2%	+1%/-1%	+100%/-100%	+10%/-13%	+13%/-14%	+26%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008012943-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$3.68^{+3.28}_{-2.50}$	899^{+22}_{-24}	3192^{+3389}_{-9134}	85^{+3508}_{-2452}
Alt.	-500 ± 43	$3.82^{+3.35}_{-2.58}$	899^{+22}_{-23}	2328^{+769}_{-332}	$7.756^{+61.620}_{-5.652}$

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

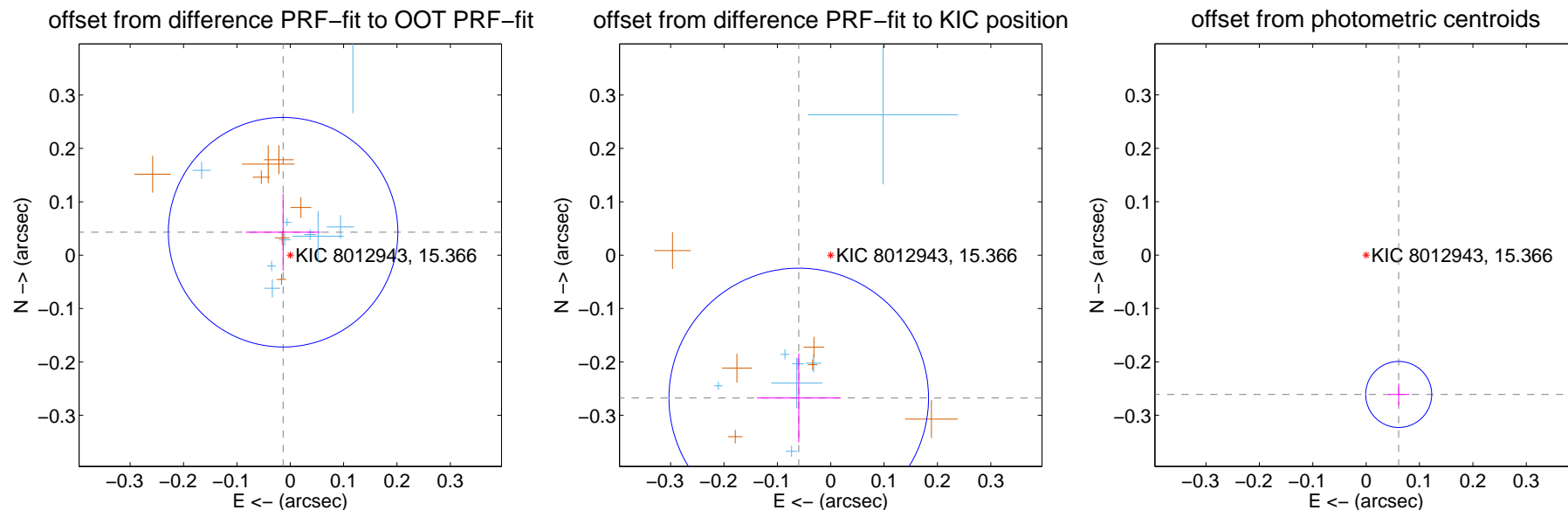
DV Centroid Data

Supplemental centroid analysis for 008012943-02. Kepler magnitude: 15.37. Transit SNR -1.00

There are 9 quarters with good PRF difference image offsets

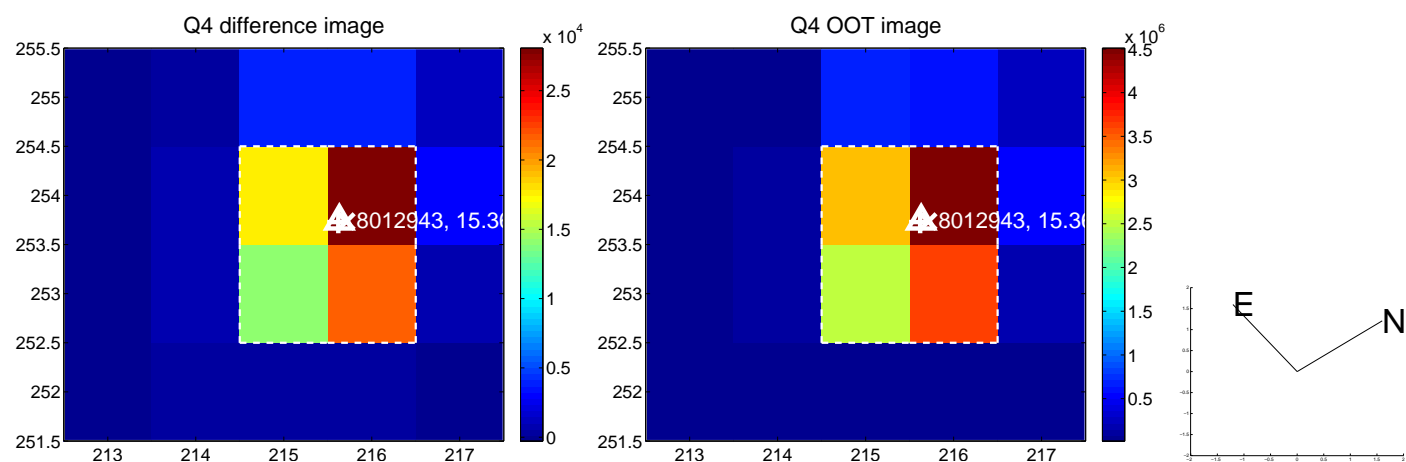
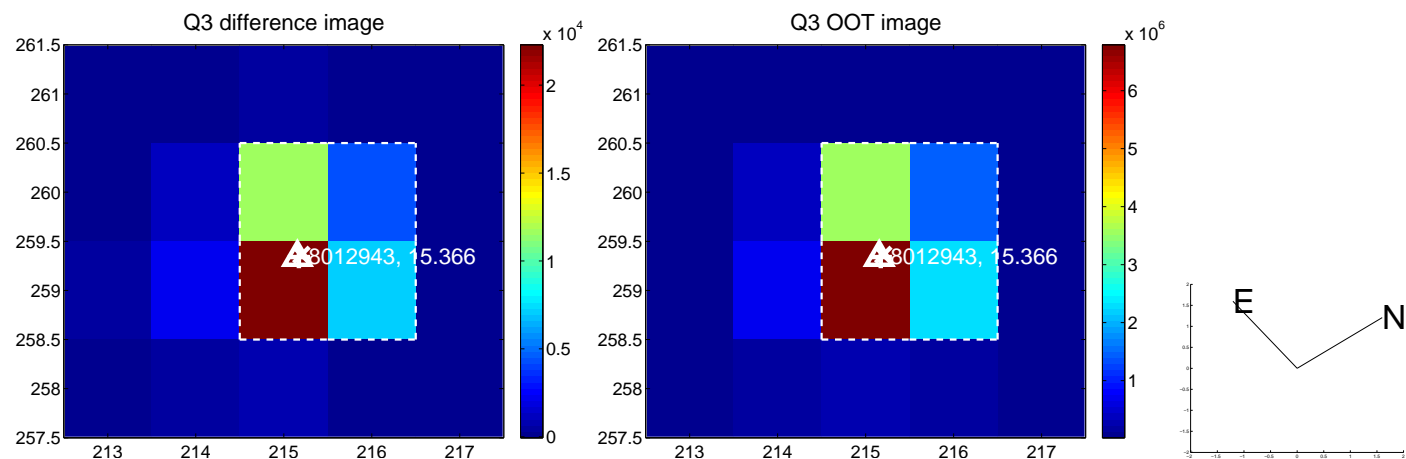
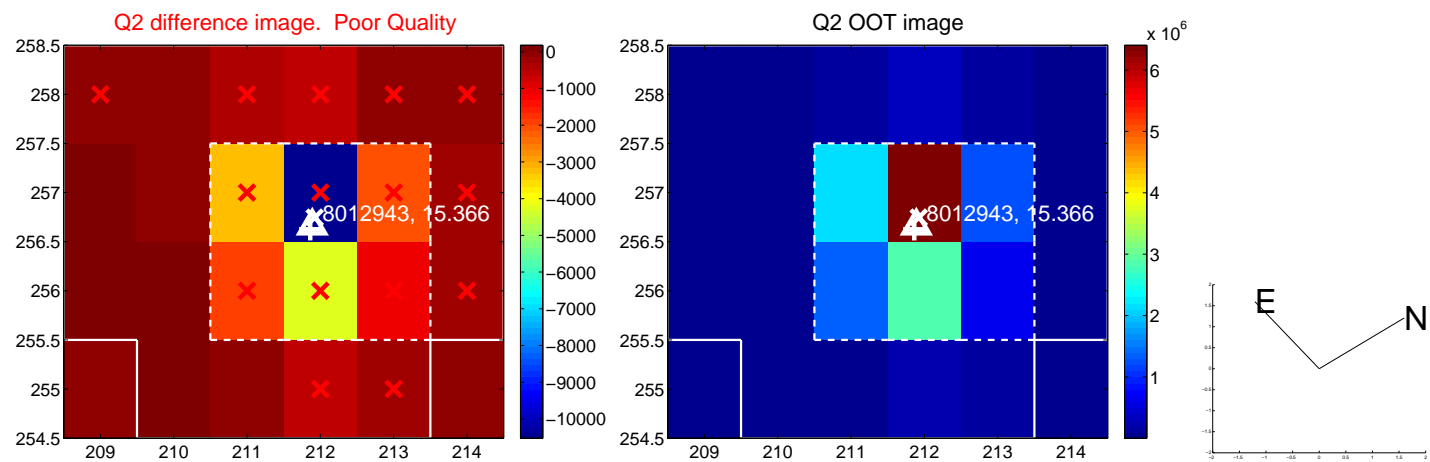
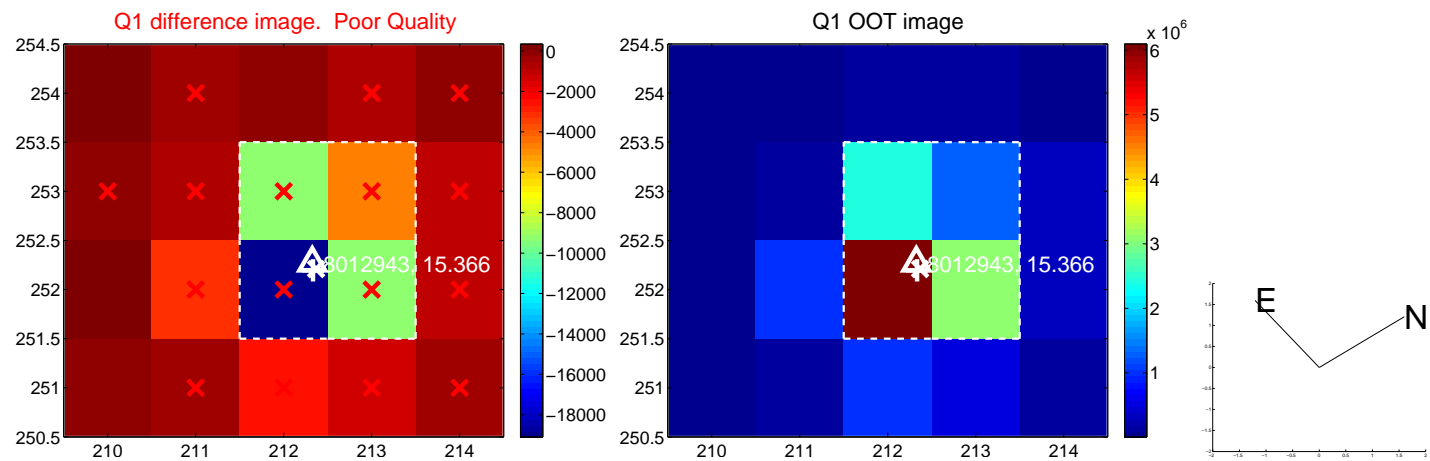
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.045 ± 0.072	0.63	0.013 ± 0.070	0.043 ± 0.072
PRF-fit source offset from KIC position	0.274 ± 0.081	3.38	0.060 ± 0.078	-0.268 ± 0.083
photometric centroid source offset	0.27 ± 0.02	13.01	-0.06 ± 0.02	-0.26 ± 0.02

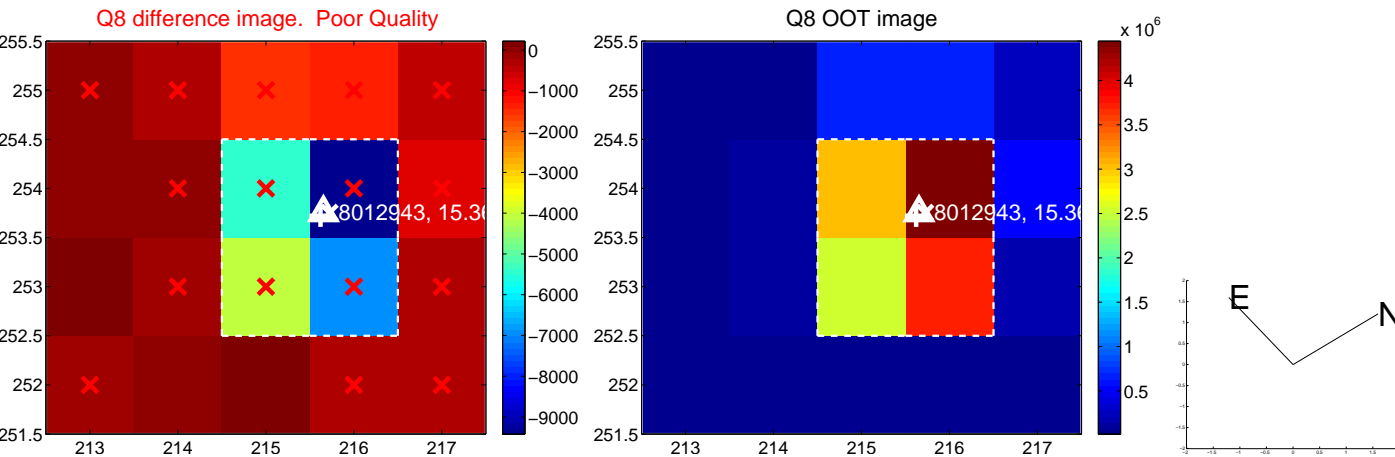
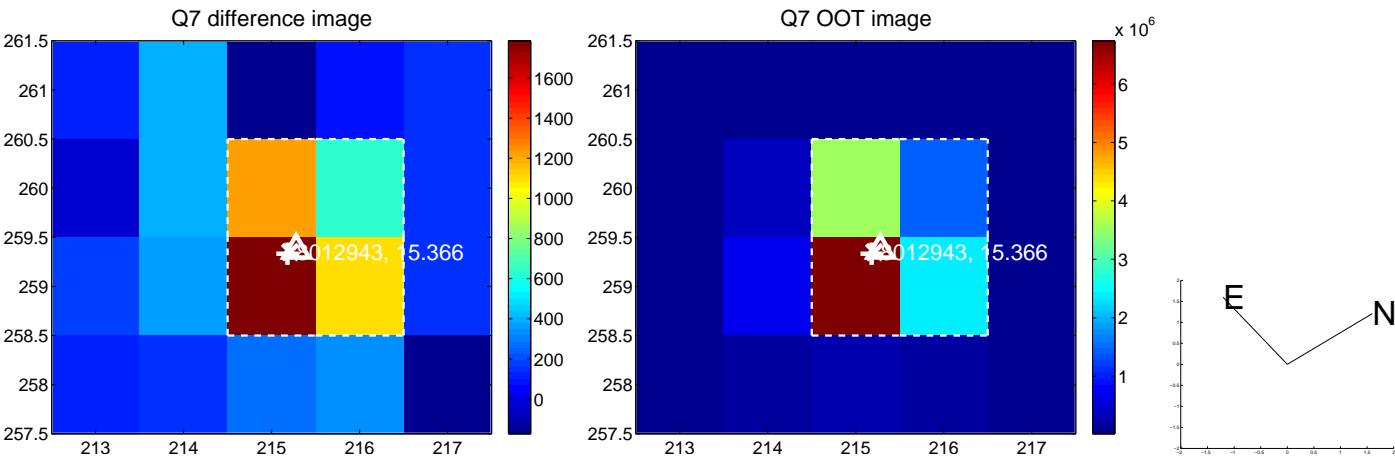
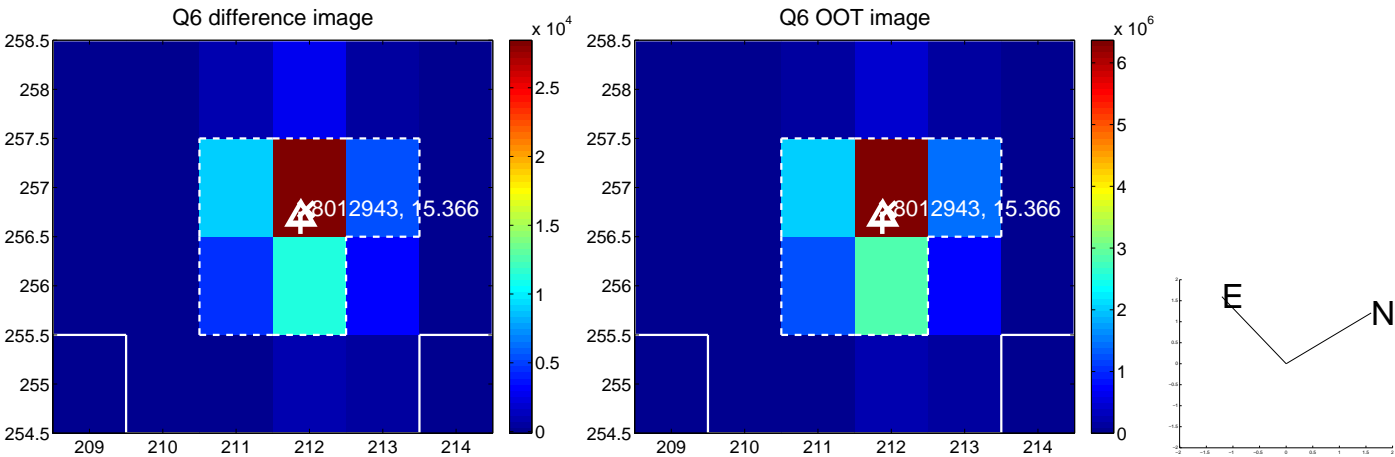
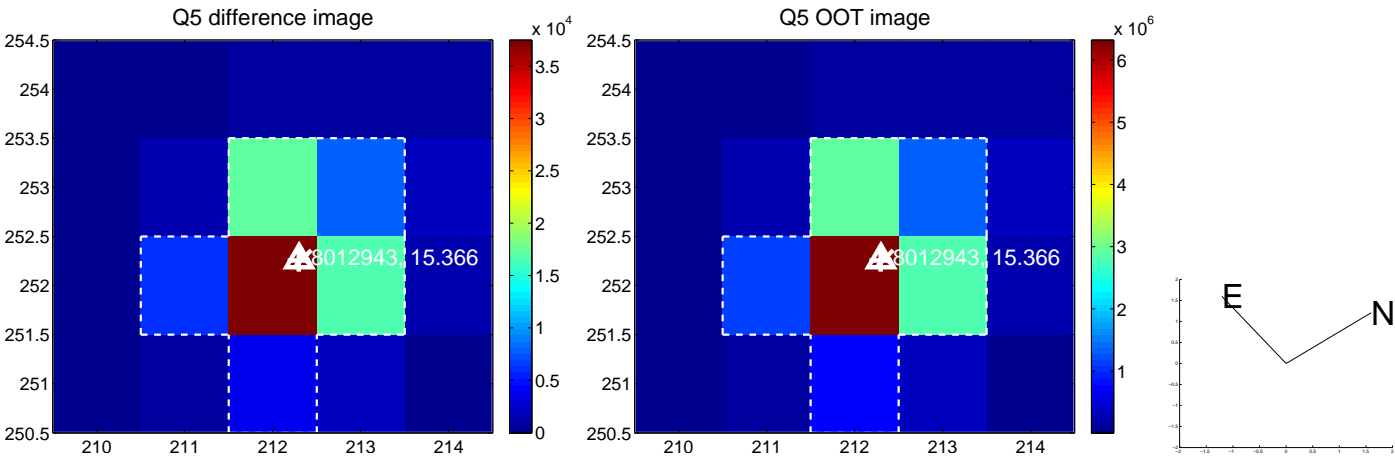


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

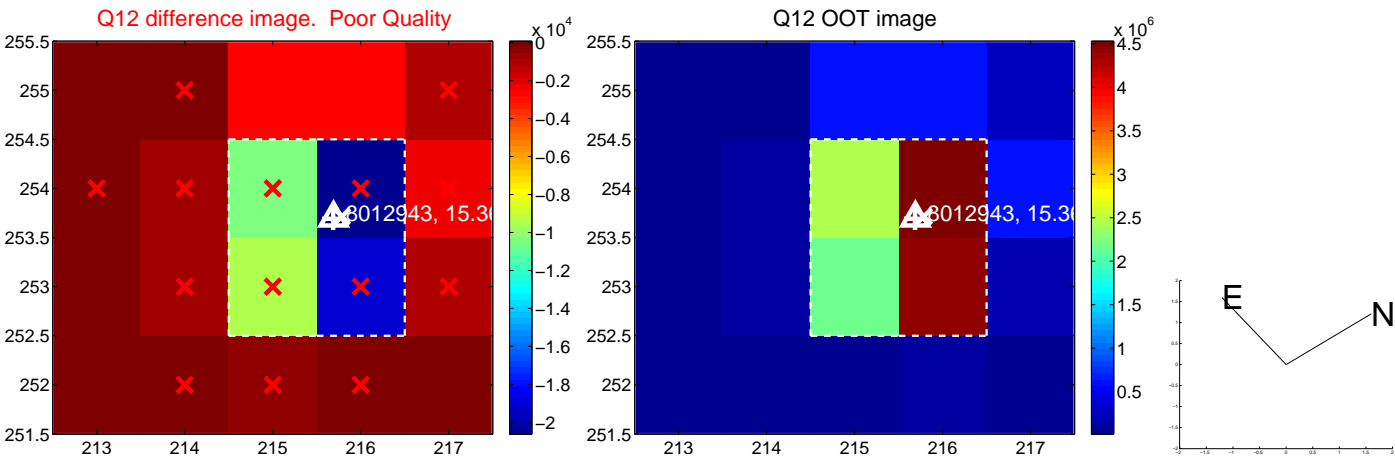
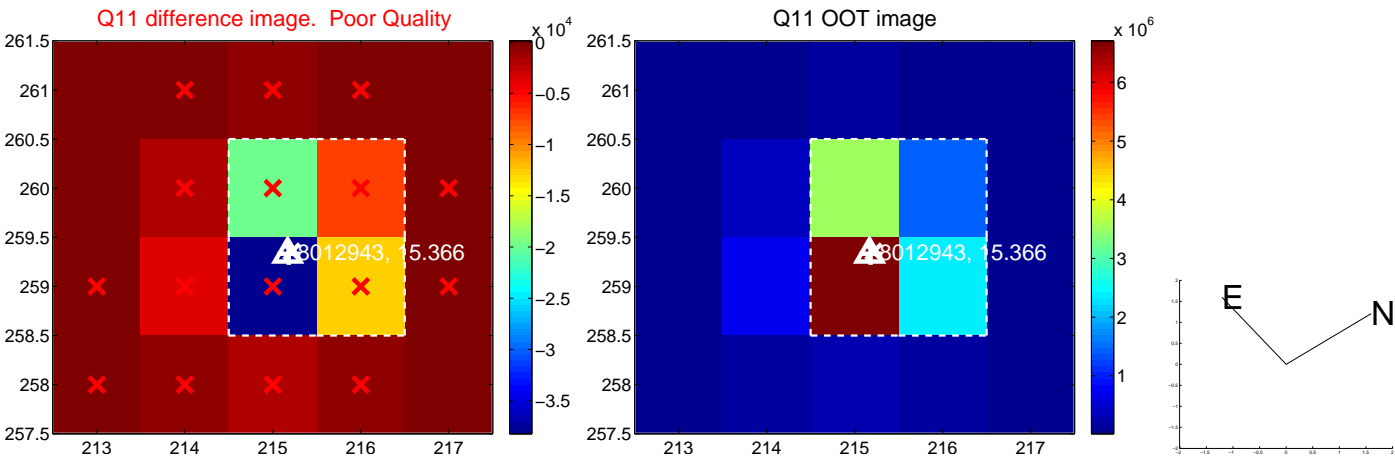
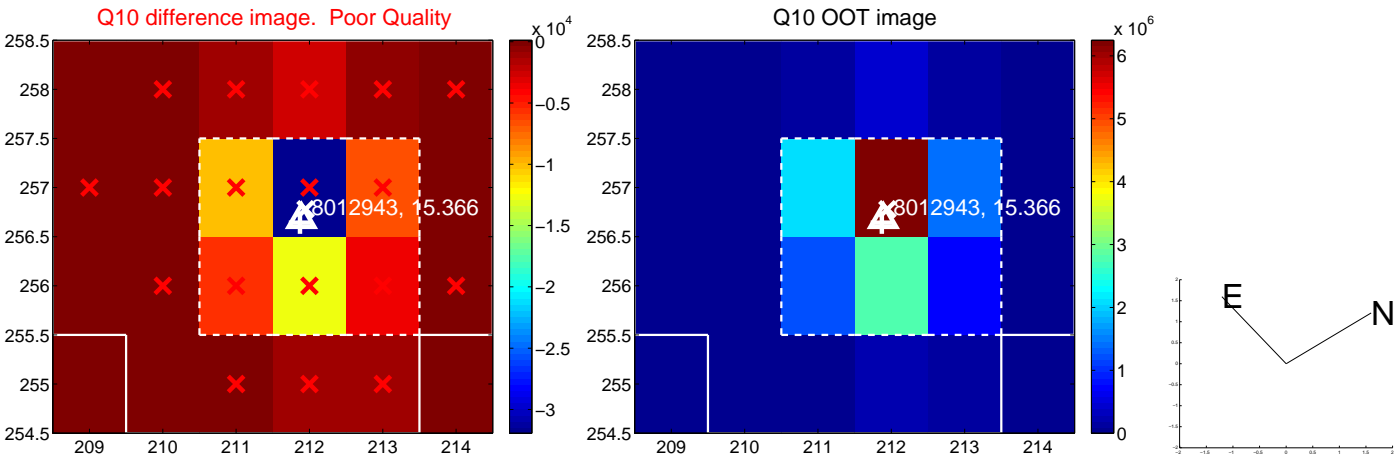
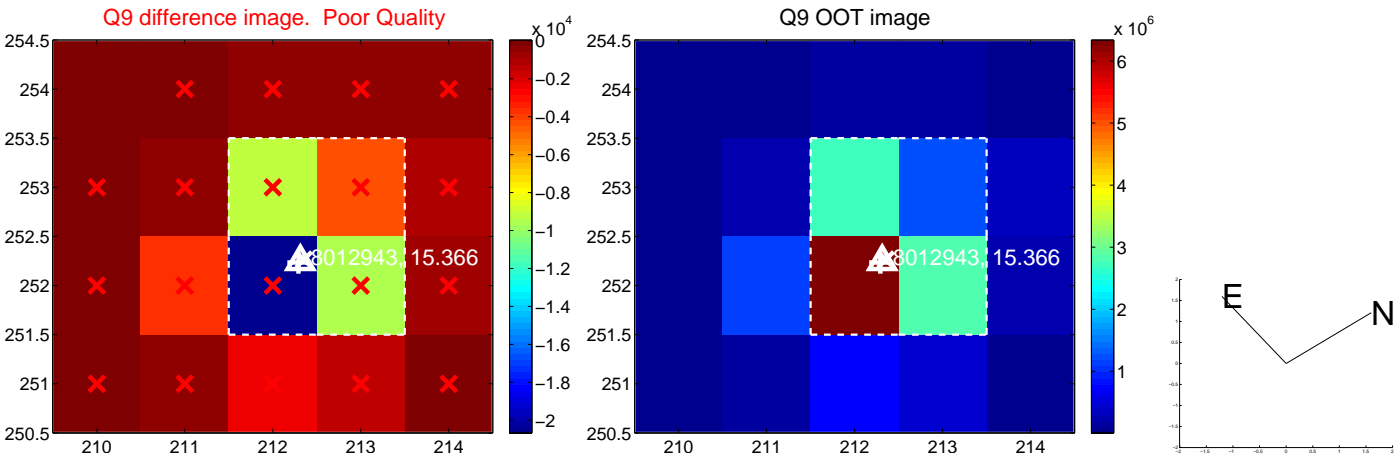
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



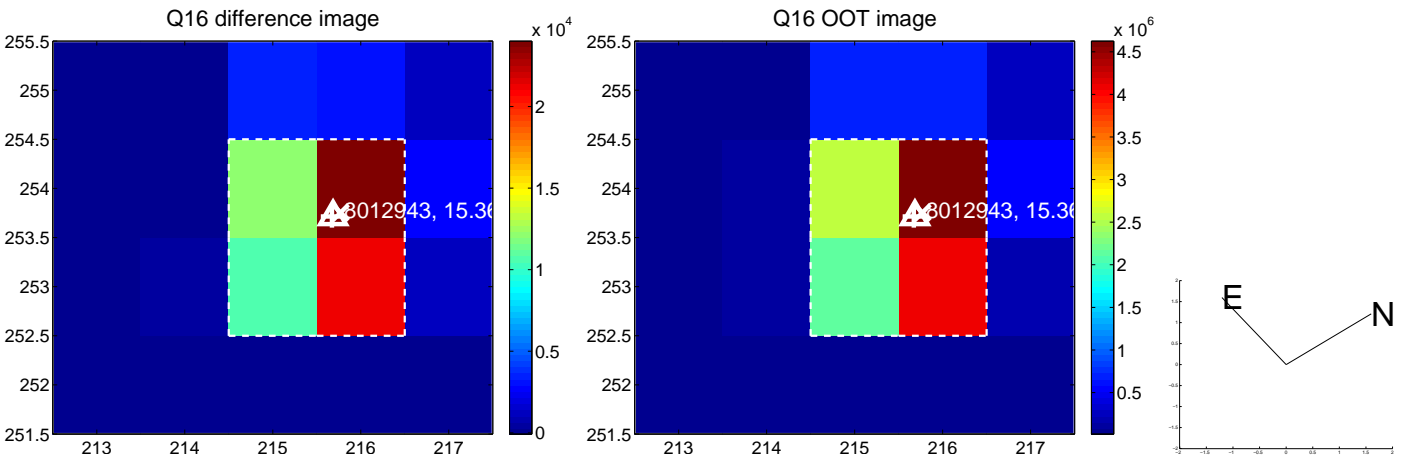
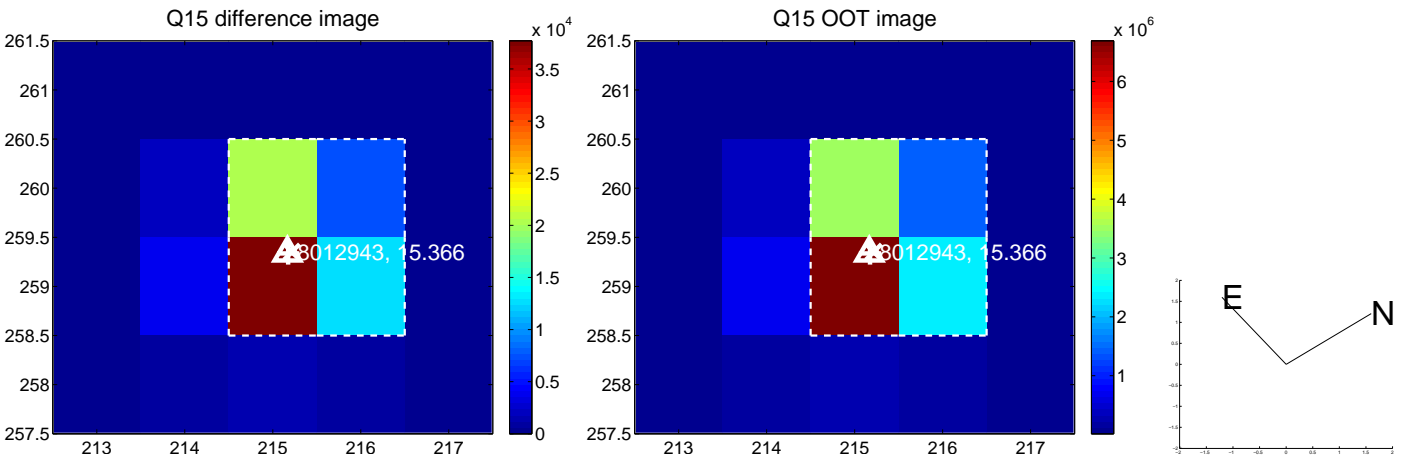
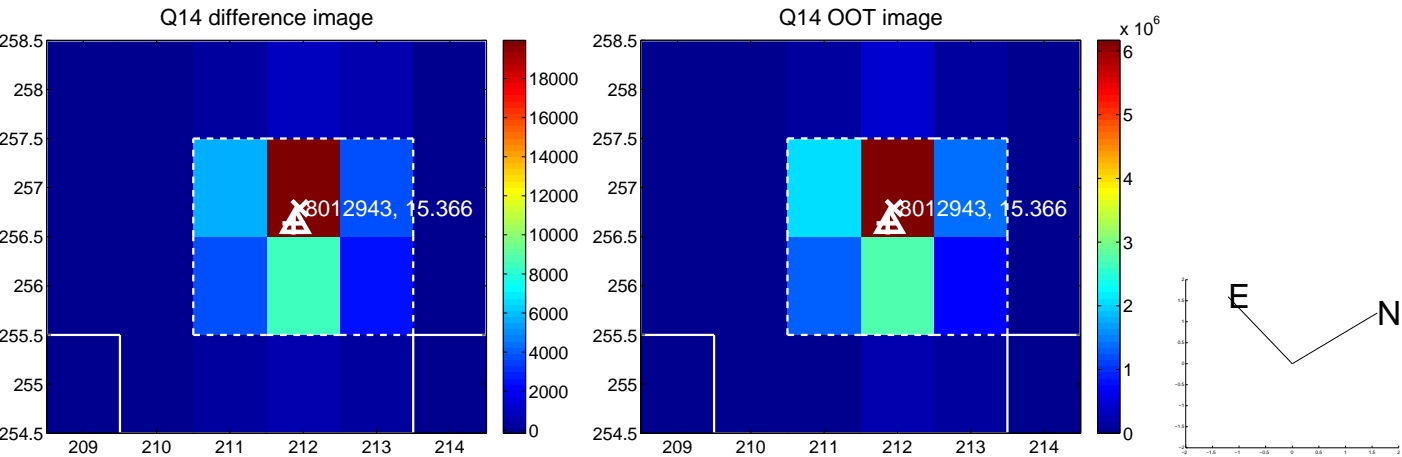
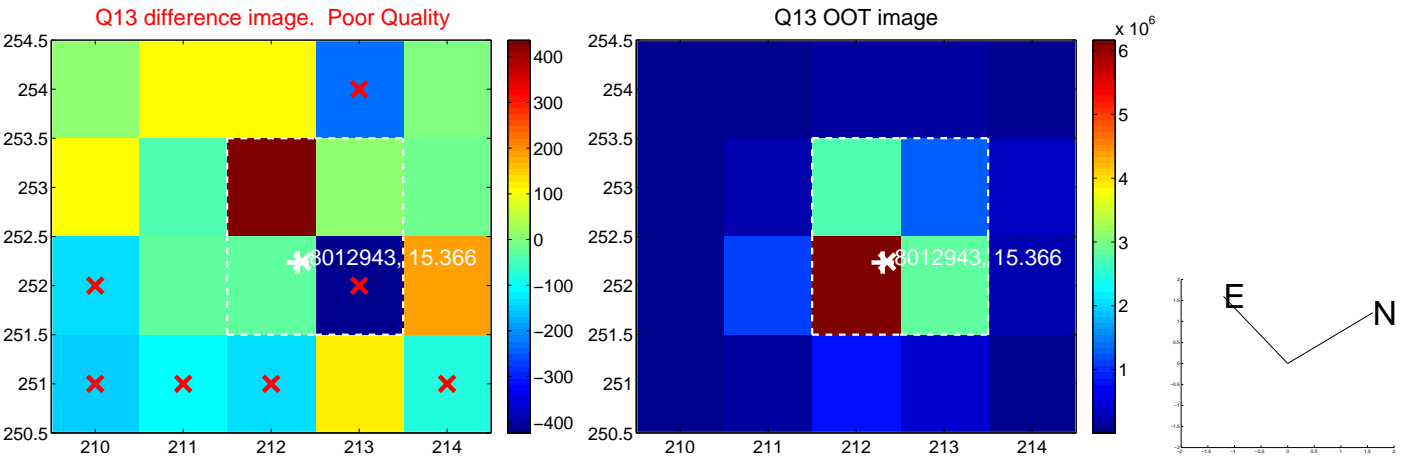
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



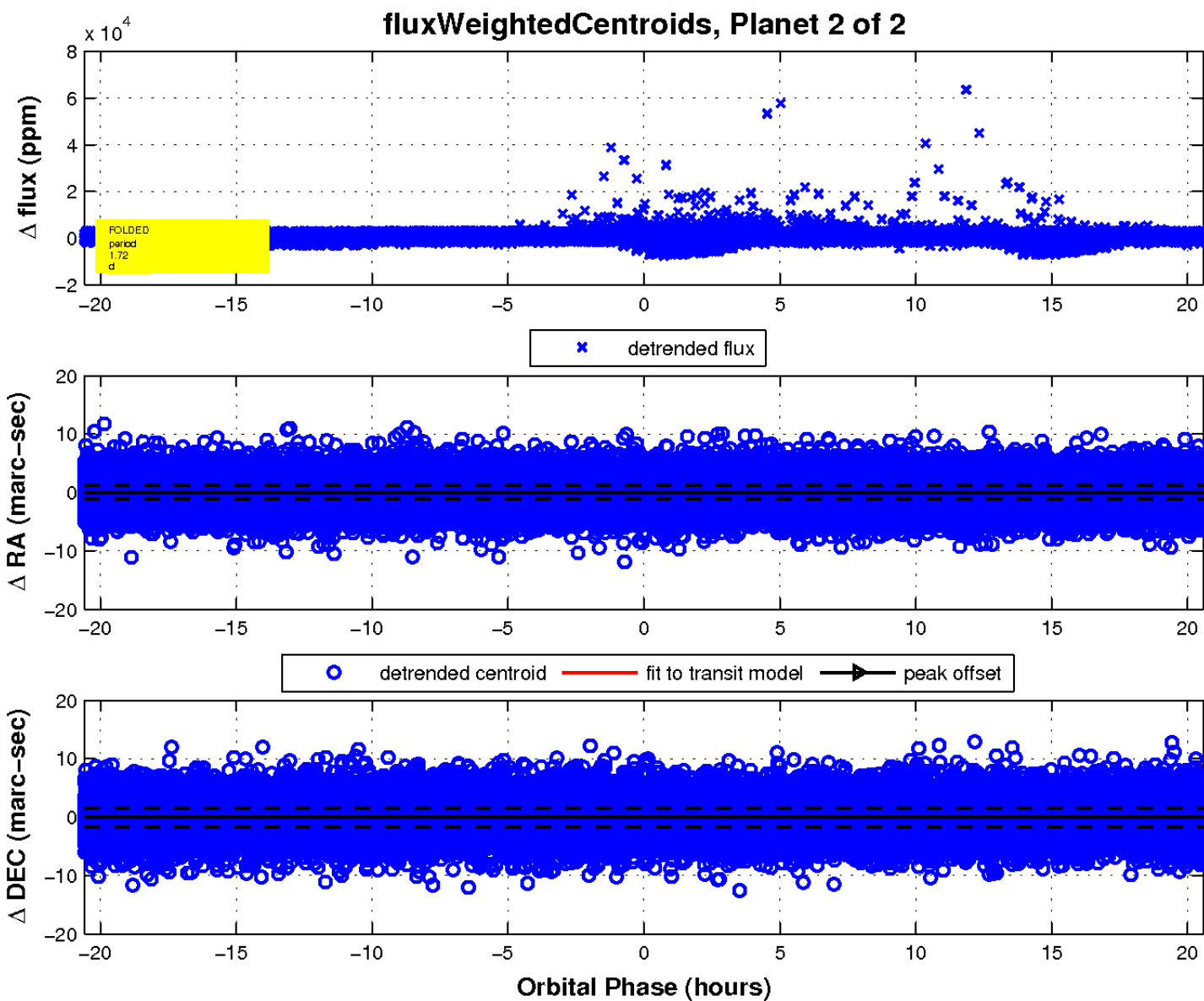
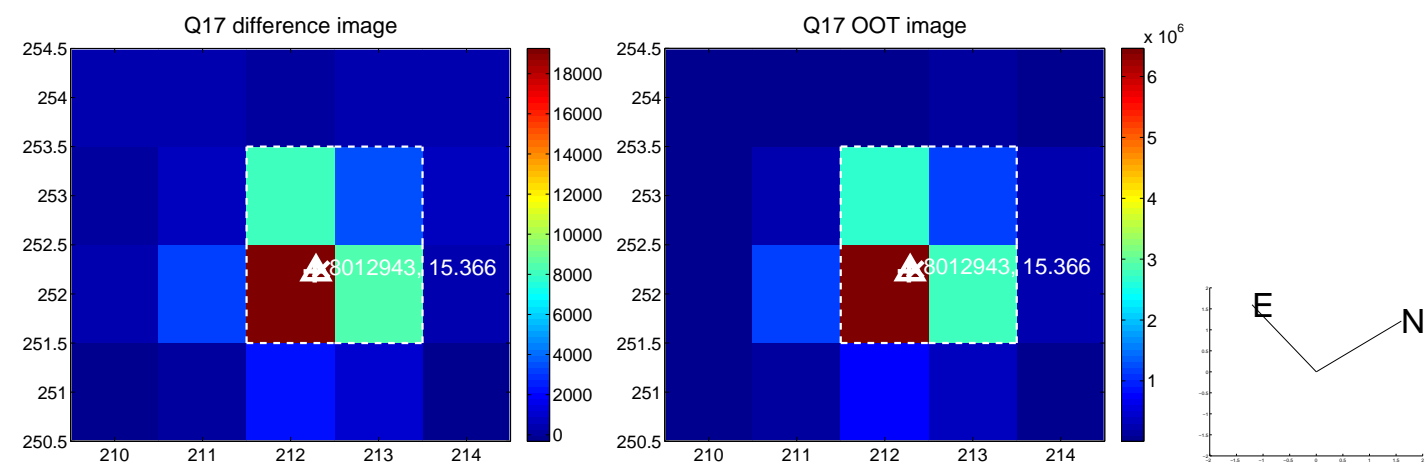
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

