

KIC 007434470

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})
007434470-01	OBS	No	1.820874	132.009667	25.1	2.784	10.0	3.8	1.92	7196	1.09	7742.33
007434470-02	OBS	No	1.820878	131.709280	60.2	21.851	12.1	16.1	1.92	7196	1.61	7742.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007434470-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007434470-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

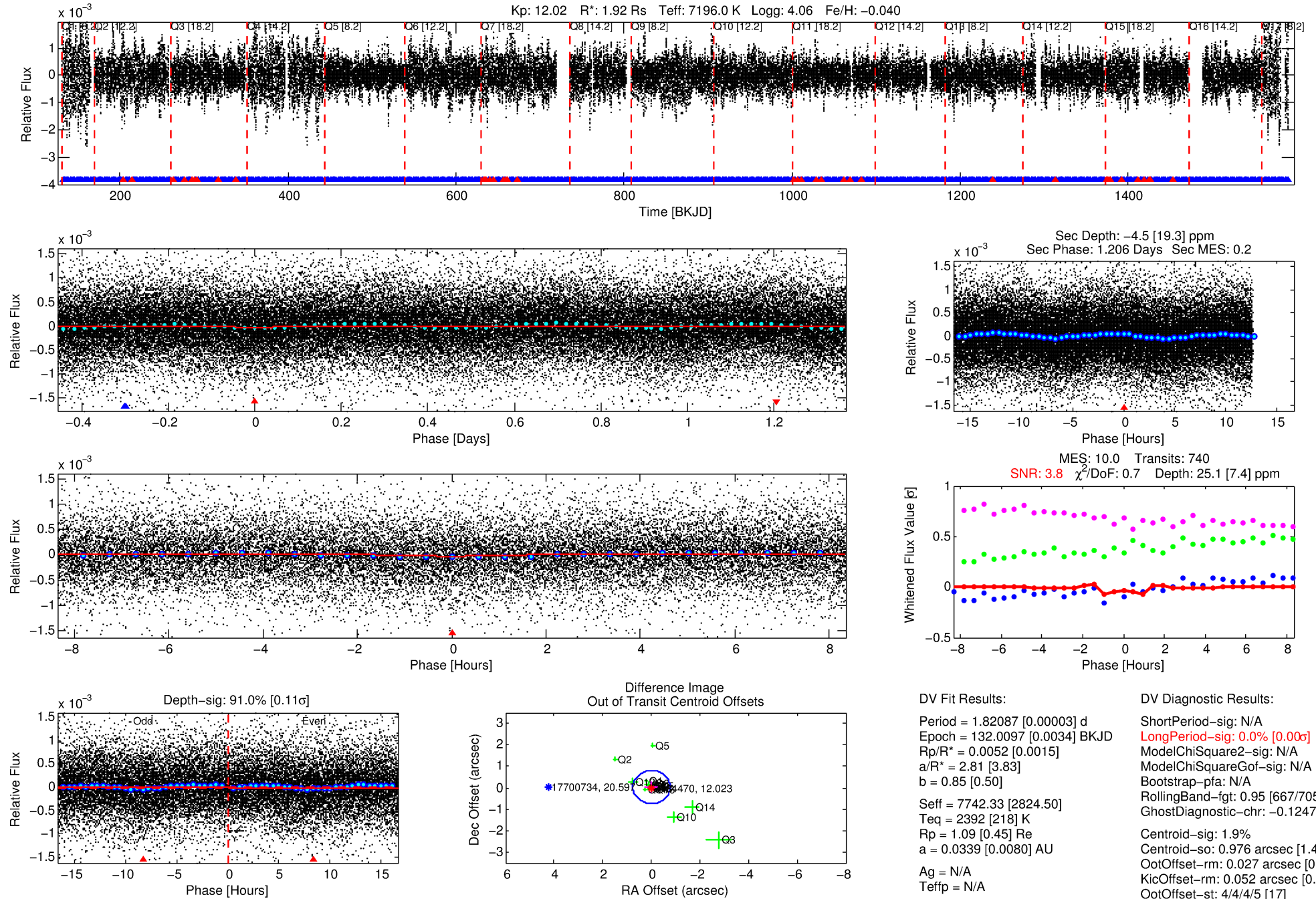
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007434470-01

No Significant Match Found

DV One-Page Summary

KIC: 7434470 Candidate: 1 of 2 Period: 1.821 d



DV Fit Results:

Period = 1.82087 [0.00003] d
Epoch = 132.0097 [0.0034] BKJD
Rp/R* = 0.0052 [0.0015]
a/R* = 2.81 [3.83]
b = 0.85 [0.50]
Seff = 7742.33 [2824.50]
Teq = 2392 [218] K
Rp = 1.09 [0.45] Re
a = 0.0339 [0.0080] AU
Ag = N/A
Teffp = N/A

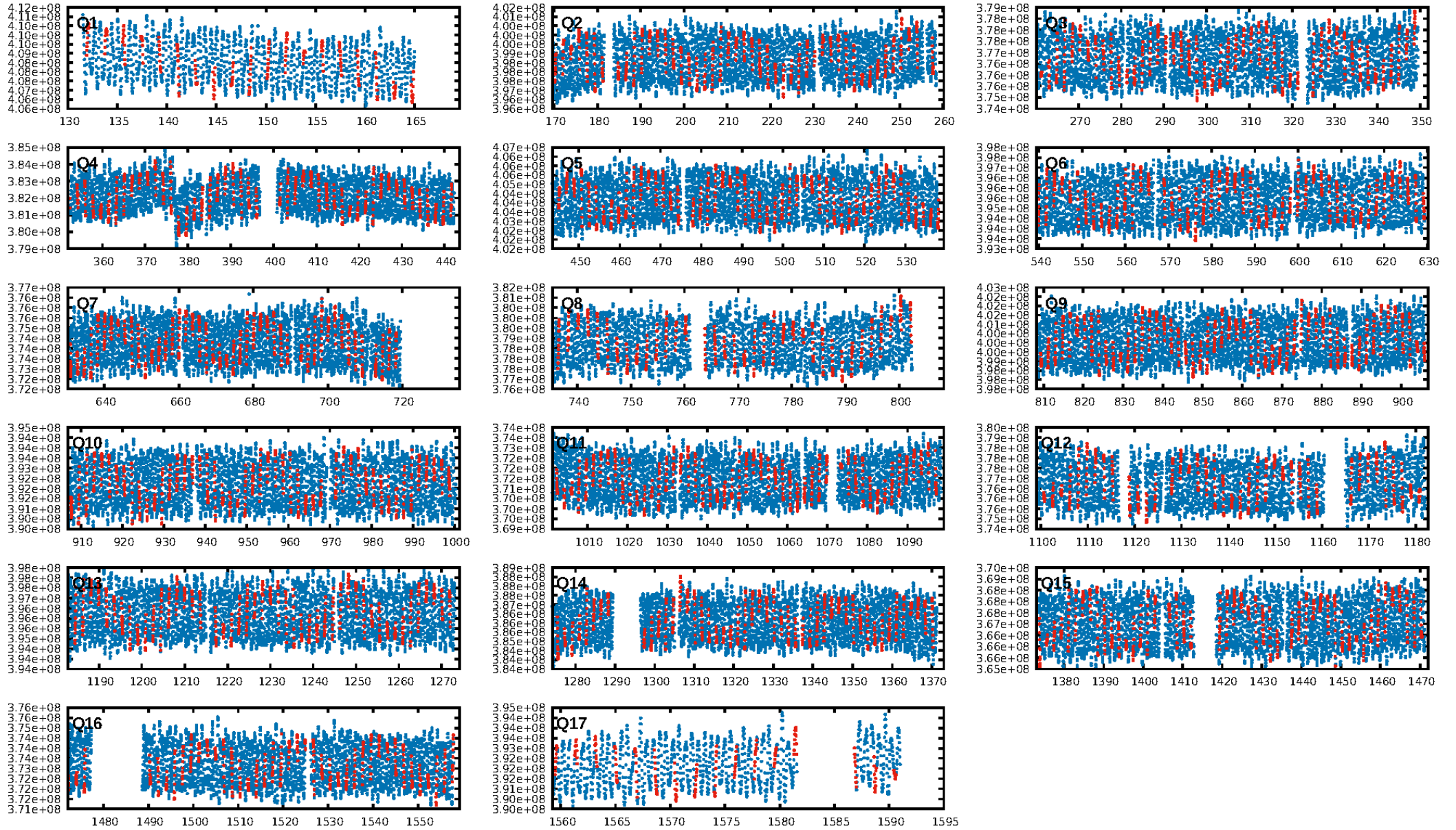
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [667/705]
GhostDiagnostic-chr: -0.1247
Centroid-sig: 1.9%
Centroid-so: 0.976 arcsec [1.47 σ]
OotOffset-rm: 0.027 arcsec [0.10 σ]
KicOffset-rm: 0.052 arcsec [0.41 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.35 [6/17]
DiffImageOverlap-fno: 0.00 [0/17]

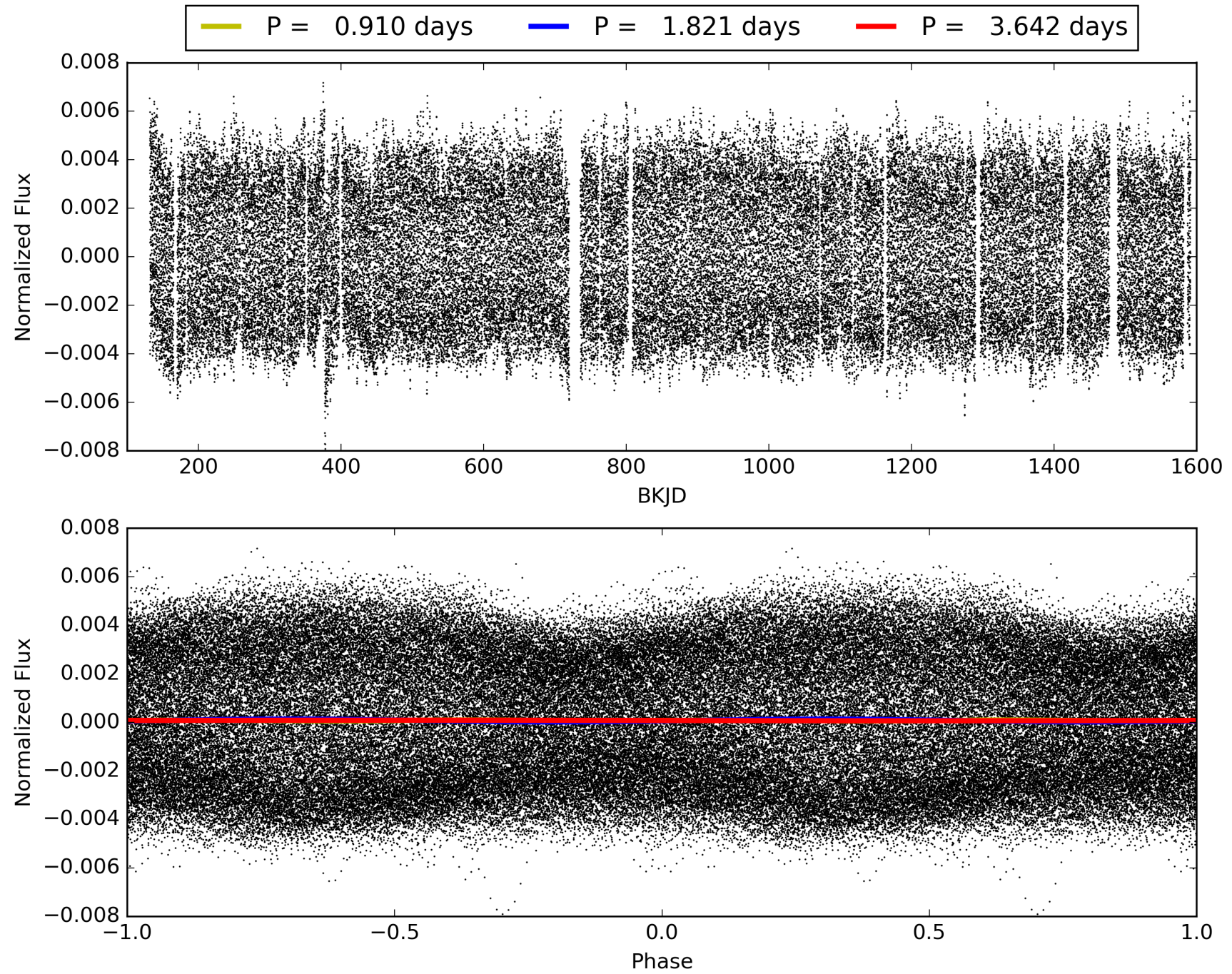
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:42:44 Z

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

TCE 007434470-01, PDC Light Curves

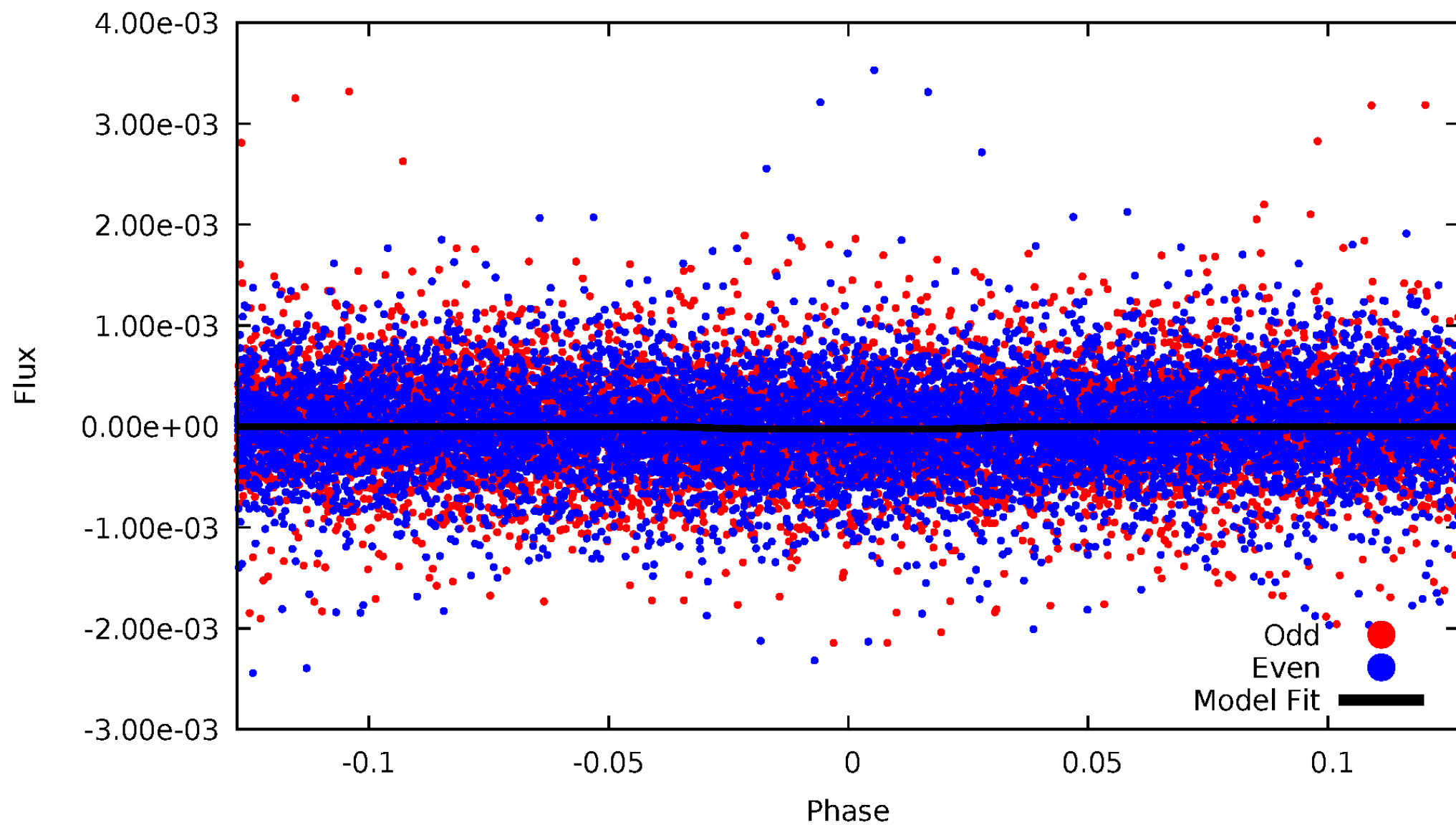


TCE 007434470-01



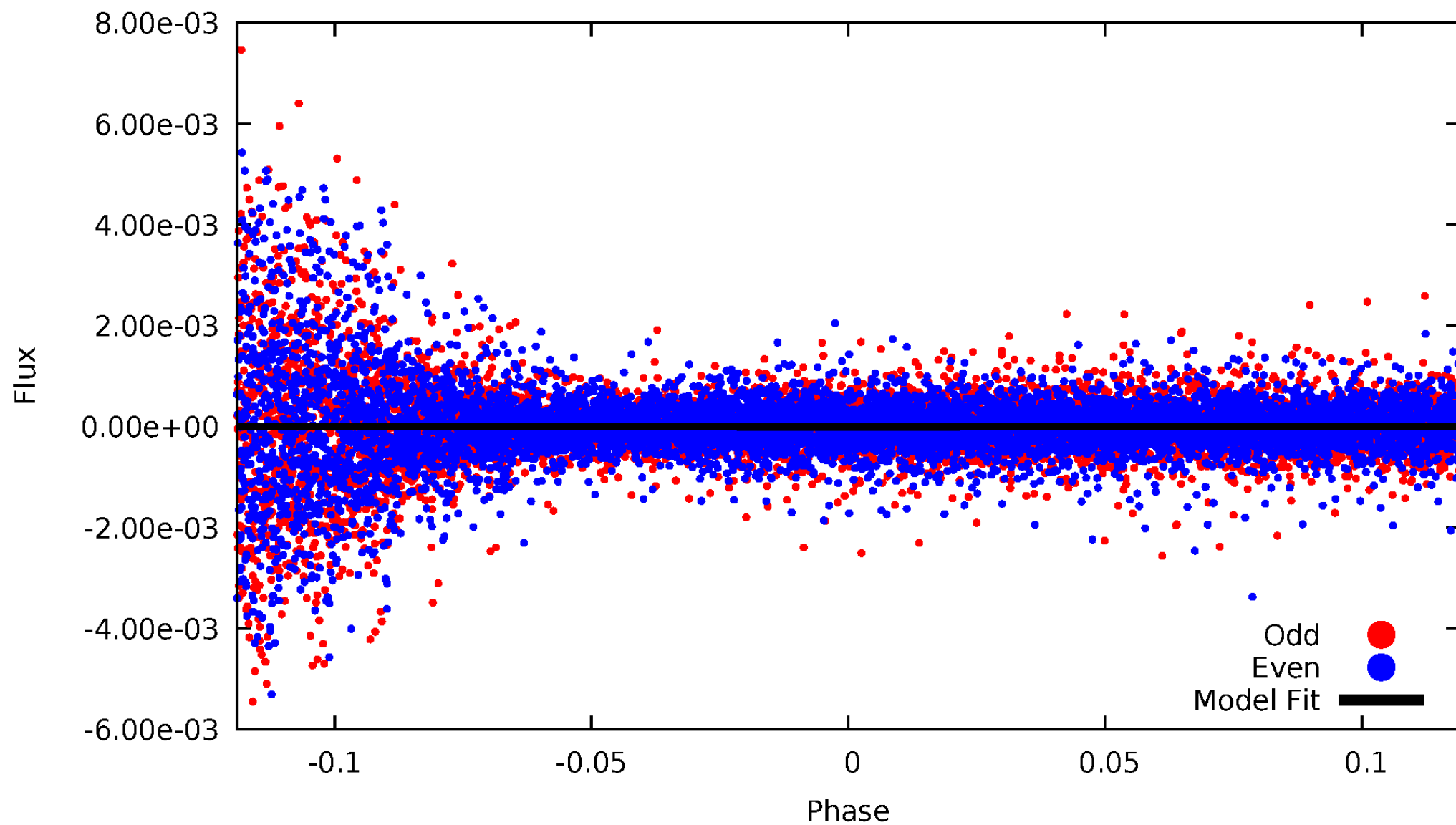
DV Odd/Even

TCE 007434470-01



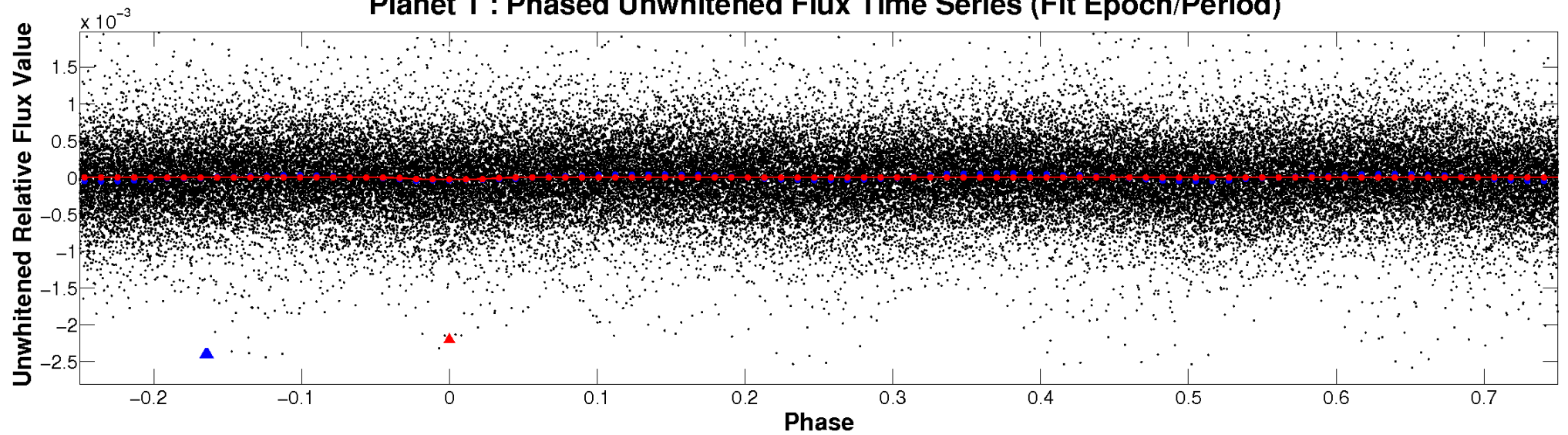
ALT Odd/Even

TCE 007434470-01

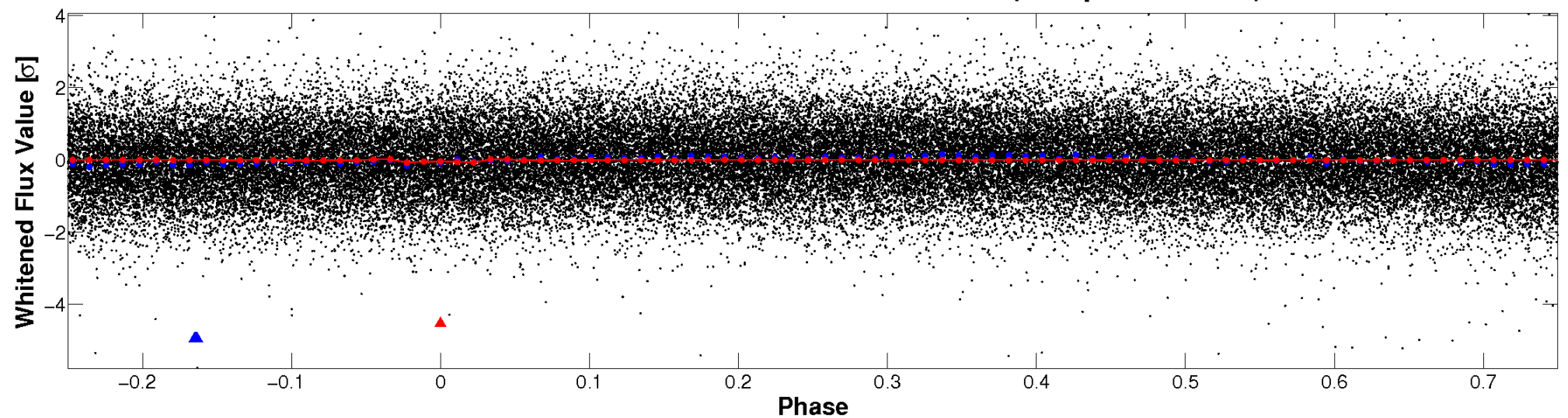


Non-Whitened Vs. Whitened Light Curve

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

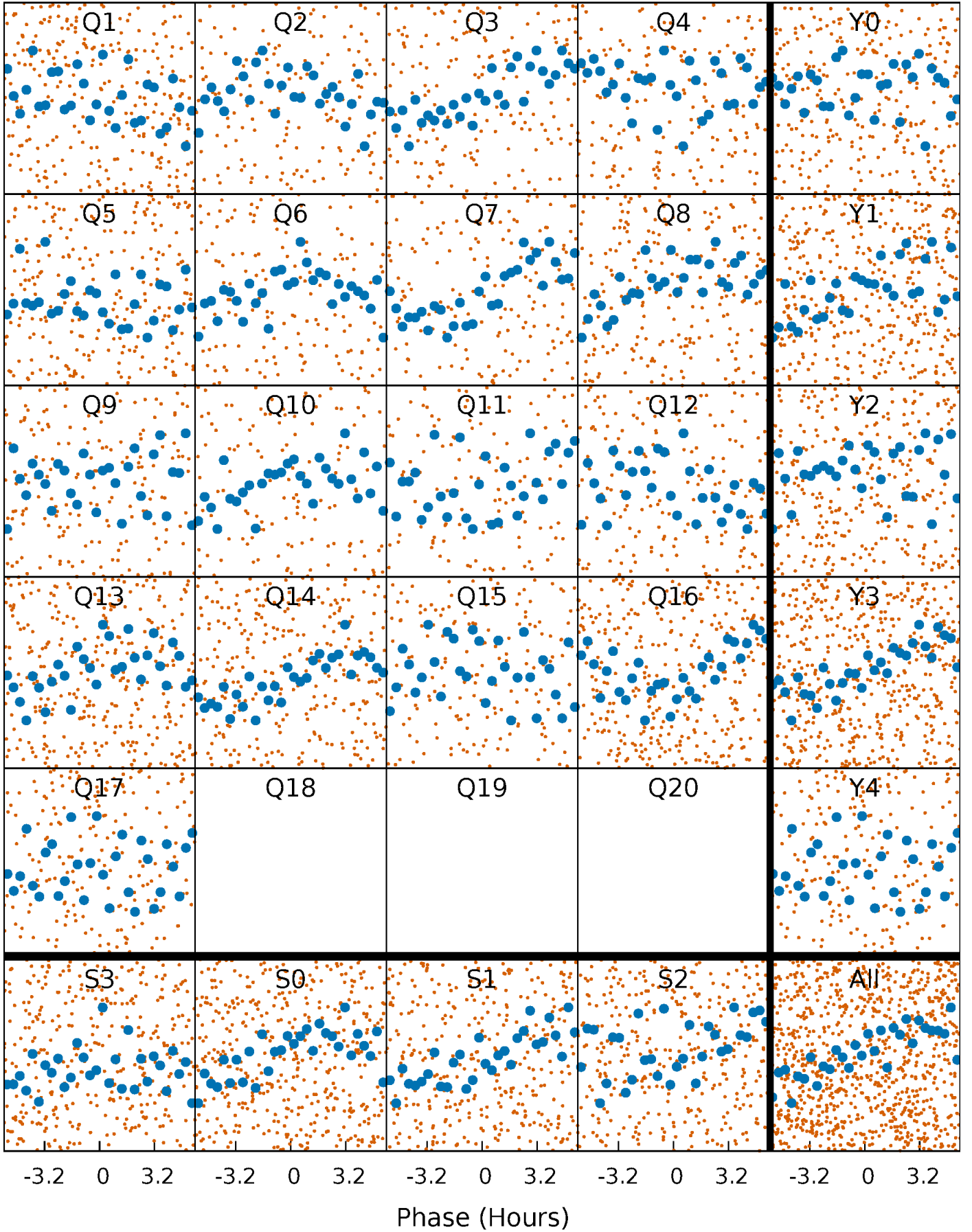


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



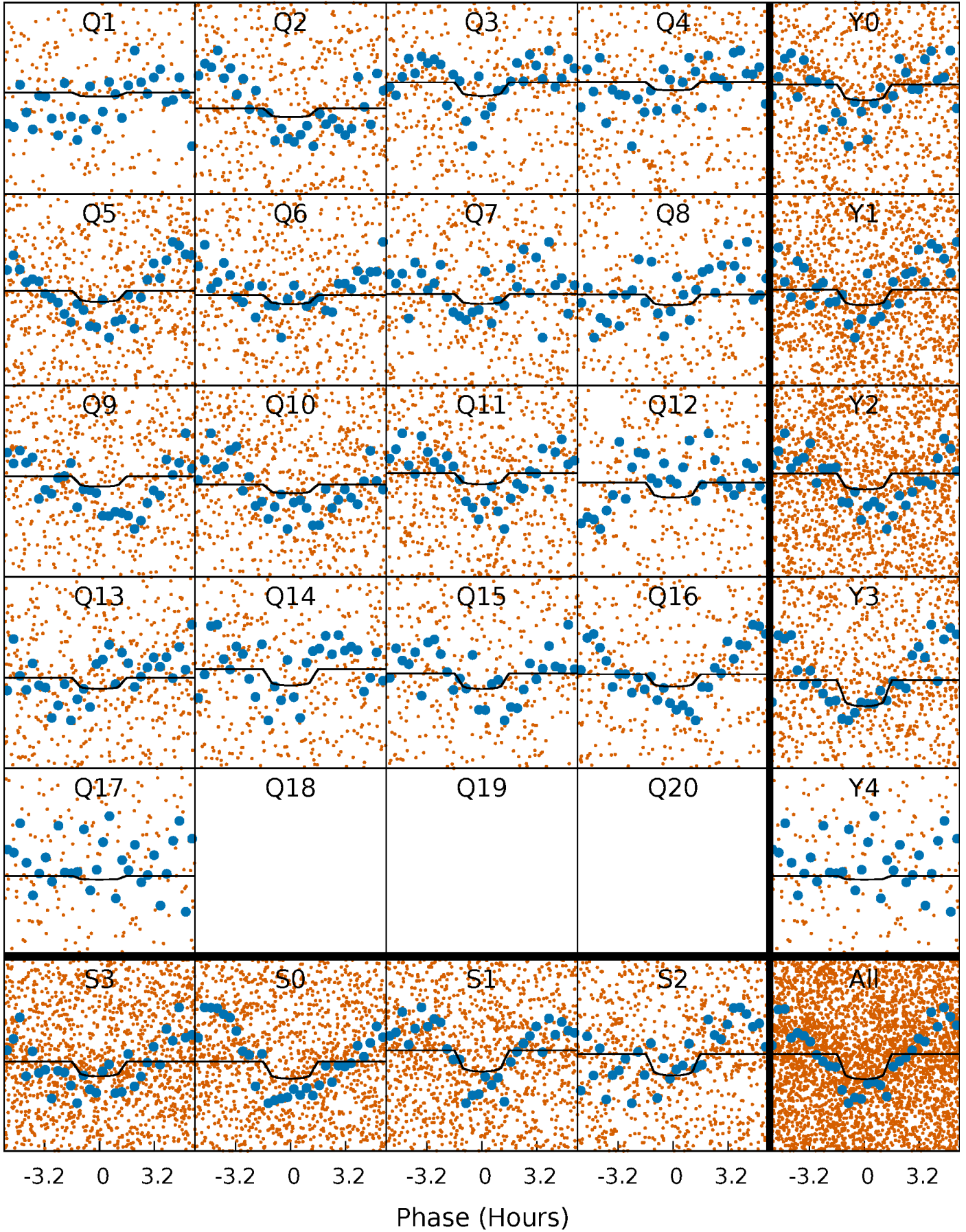
PDC Quarter-Phased Transit Curves

TCE 007434470-01 P= 1.820874 Days $T_0=132.009667$ (BKJD)



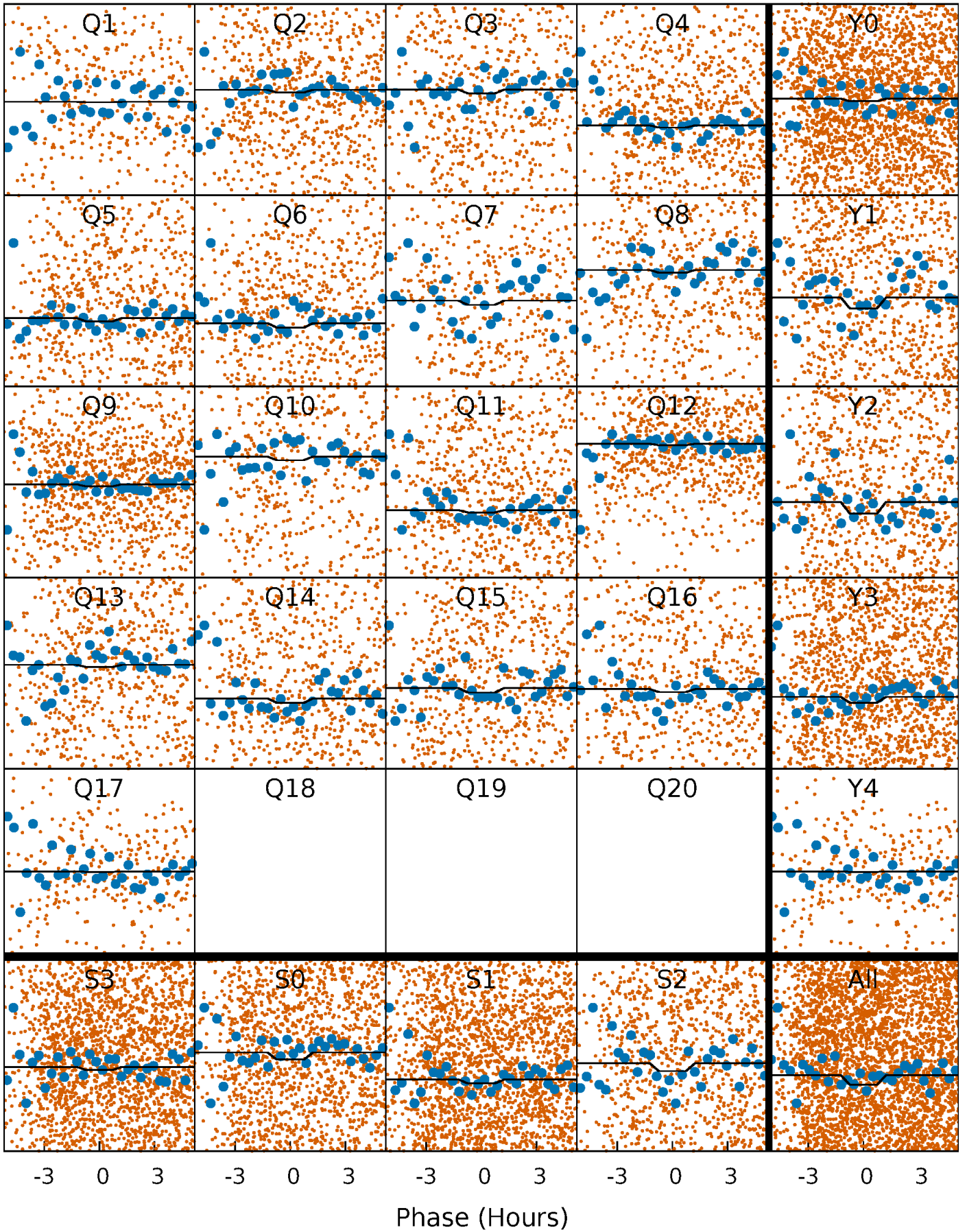
DV Quarter-Phased Transit Curves

TCE 007434470-01 P= 1.820874 Days $T_0=132.009667$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

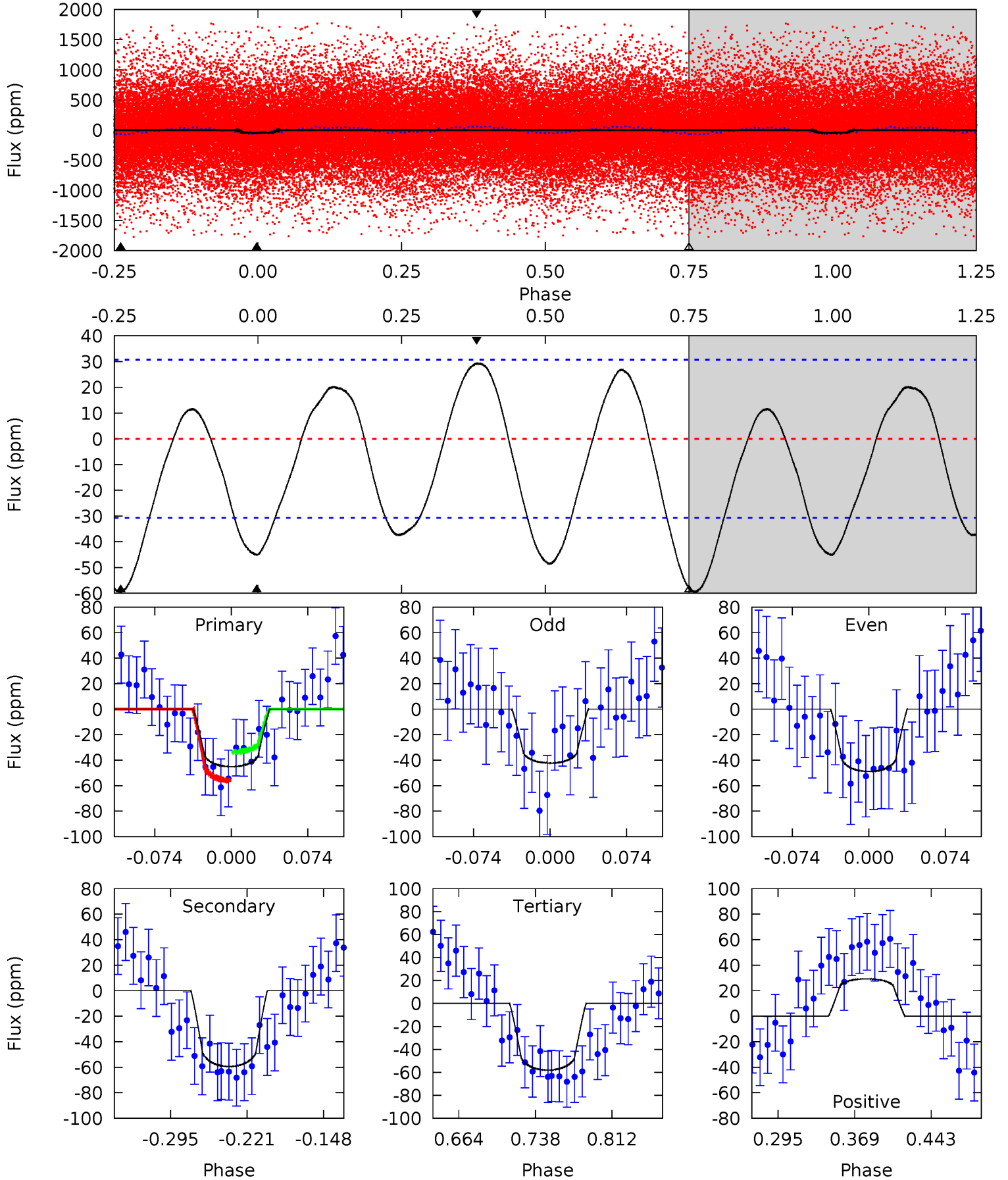
TCE 007434470-01 P= 1.820898 Days $T_0=132.003103$ (BKJD)



DV Model-Shift Uniqueness Test

007434470-01, P = 1.820874 Days, E = 130.188793 Days

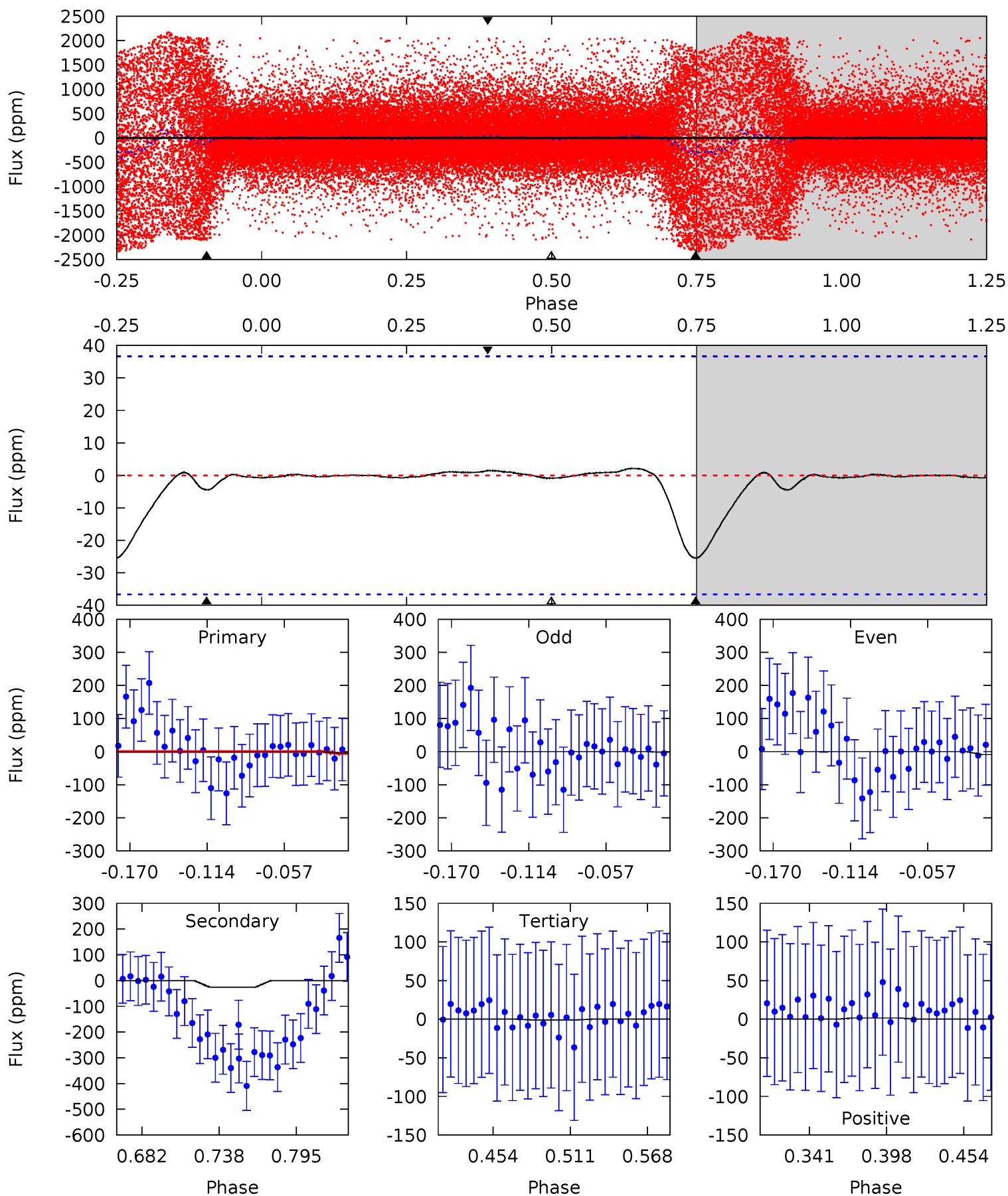
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.79	8.95	8.75	4.41	4.63	1.79	3.63	-1.96	2.38	0.21	4.54	0.50	0.93	0.33	1.69



Alt Model-Shift Uniqueness Test

007434470-01, P = 1.820898 Days, E = 130.182205 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.57	3.25	0.11	0.19	4.68	1.90	0.16	0.46	0.38	3.14	3.06	0.50	10.7	0.08	0.23



Stellar Parameters For KIC 007434470

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7196^{+200}_{-275}	$4.064^{+0.175}_{-0.175}$	$-0.040^{+0.250}_{-0.350}$	$1.923^{+0.559}_{-0.508}$	$1.562^{+0.222}_{-0.271}$	$0.309^{+0.306}_{-0.155}$
	+3%/-4%	+4%/-4%	+625%/-875%	+29%/-26%	+14%/-17%	+99%/-50%
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 007434470-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-59 ± 7	$1.07^{+0.39}_{-0.35}$	3347^{+272}_{-241}	9223^{+2976}_{-1604}	32^{+38}_{-15}
Alt.	-25 ± 8	$0.69^{+0.33}_{-0.31}$	3351^{+247}_{-253}	9353^{+5859}_{-2276}	32^{+79}_{-19}

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

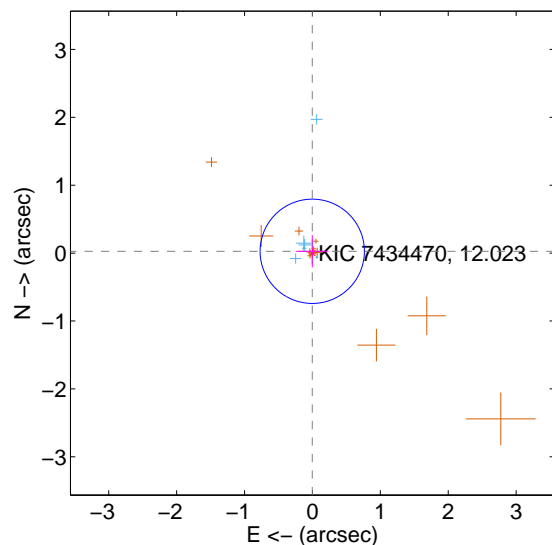
Supplemental centroid analysis for 007434470-01. Kepler magnitude: 12.02. Transit SNR 3.83

There are 6 quarters with good PRF difference image offsets

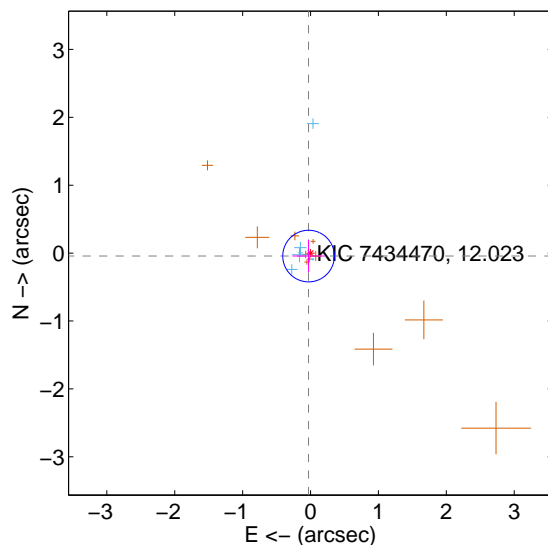
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.027 ± 0.256	0.10	0.003 ± 0.238	0.027 ± 0.237
PRF-fit source offset from KIC position	0.052 ± 0.127	0.41	0.029 ± 0.238	-0.044 ± 0.239
photometric centroid source offset	0.98 ± 0.66	1.47	0.12 ± 0.67	-0.97 ± 0.66

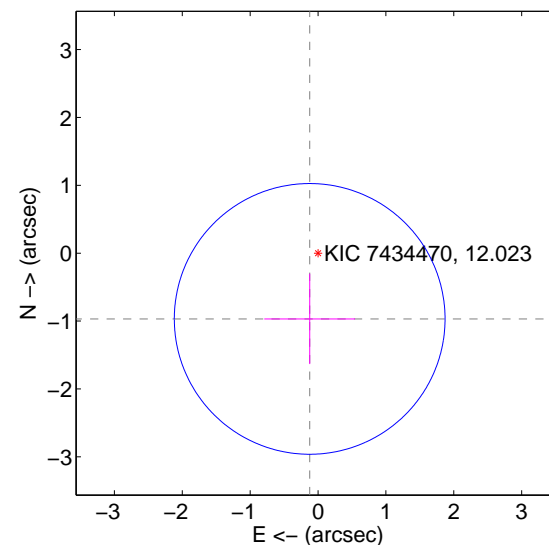
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

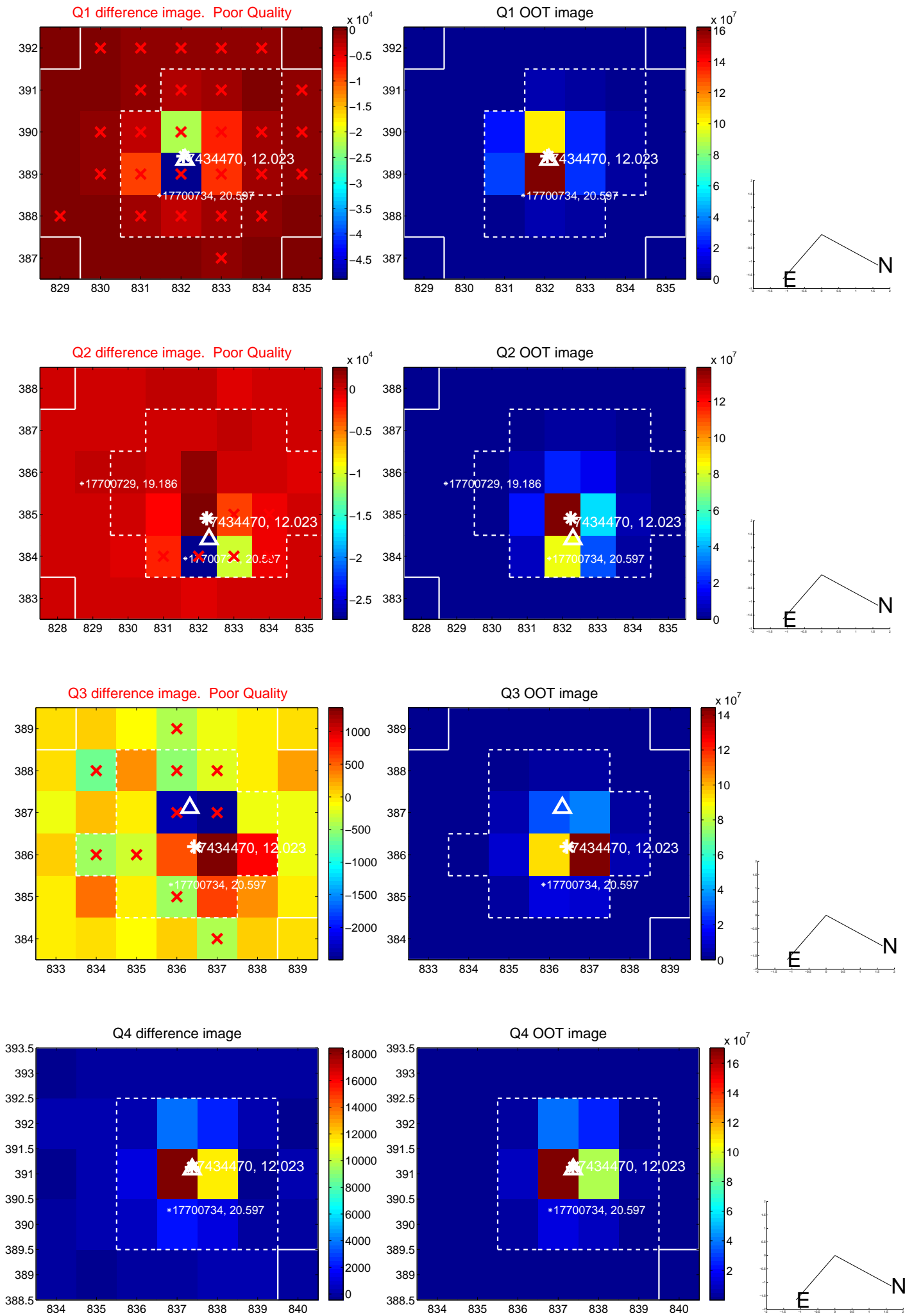


offset from photometric centroids

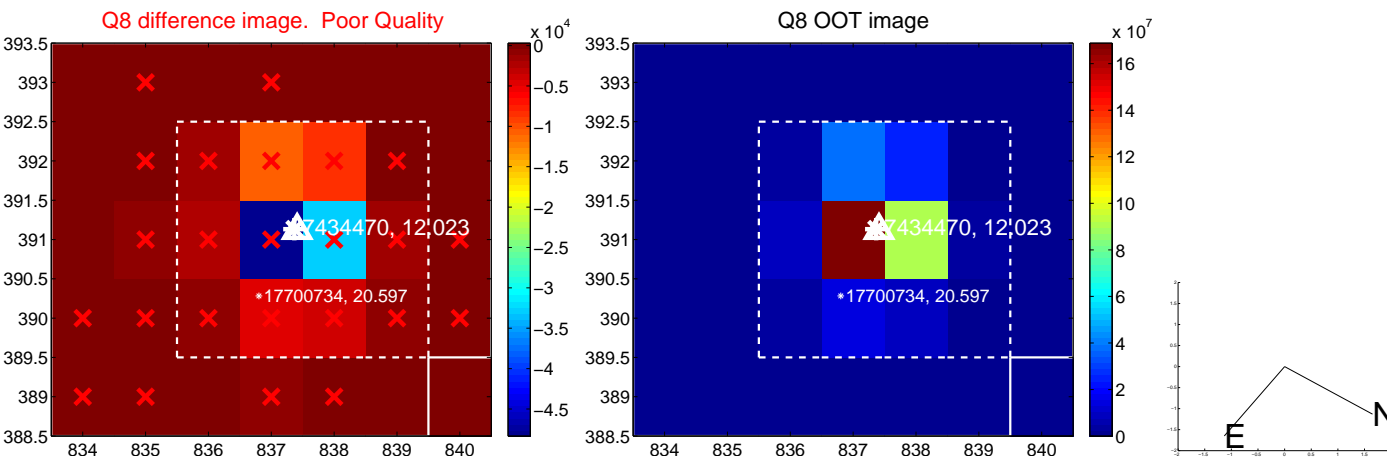
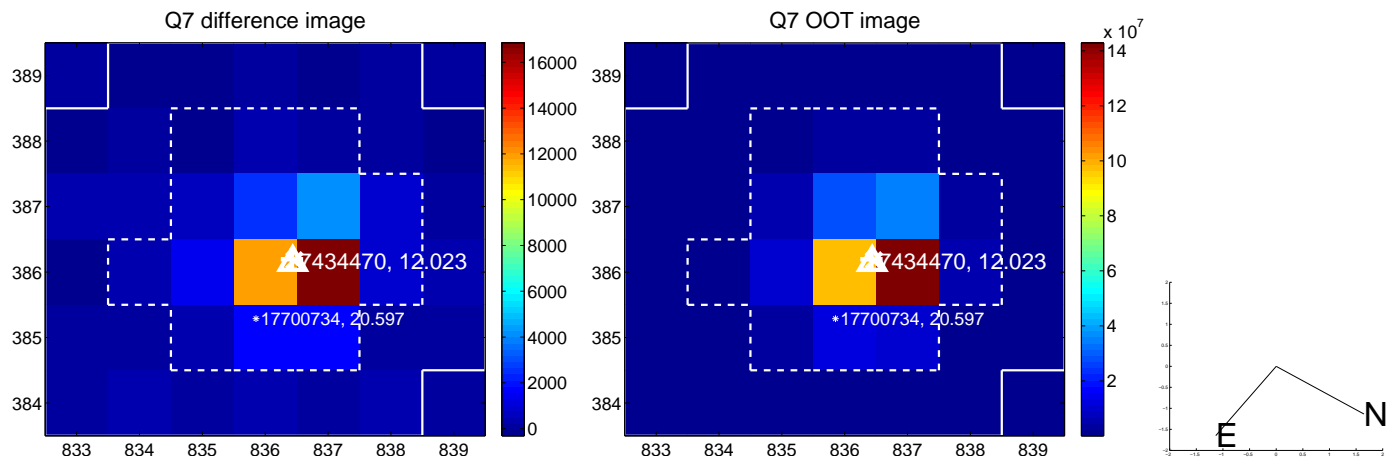
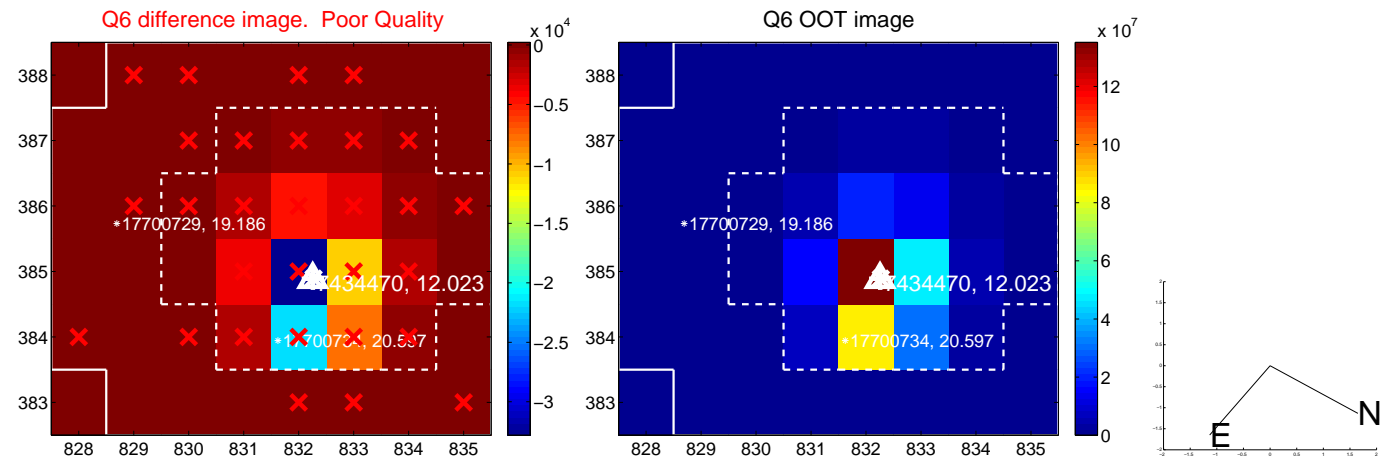
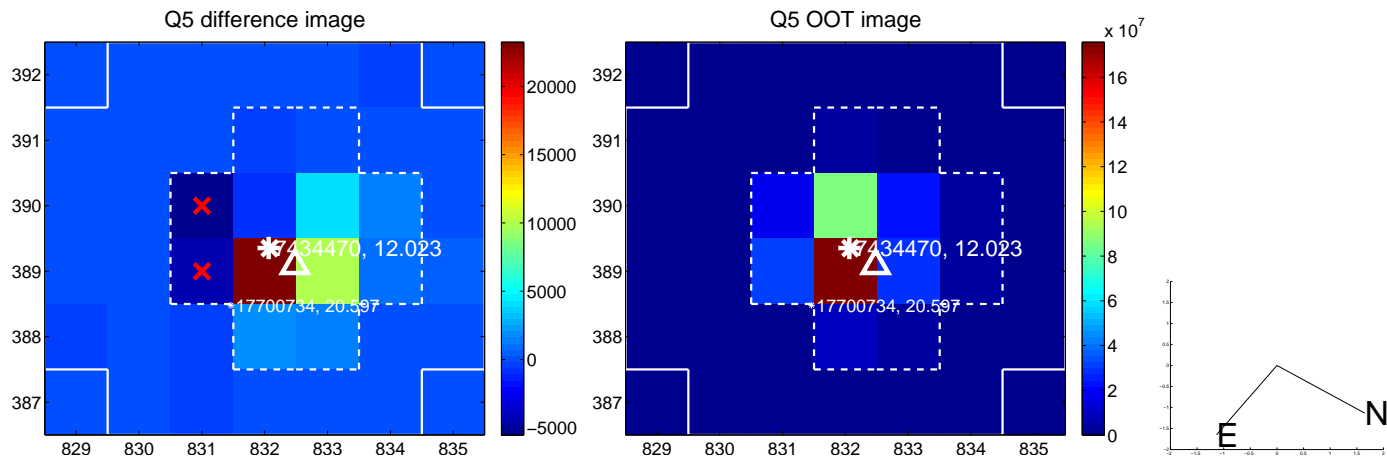


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

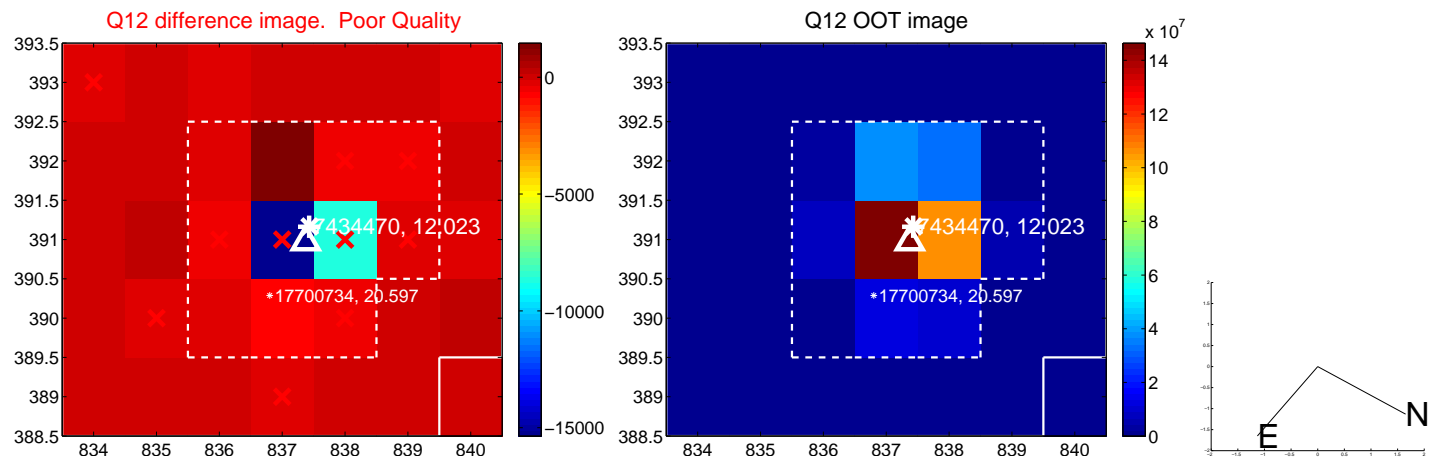
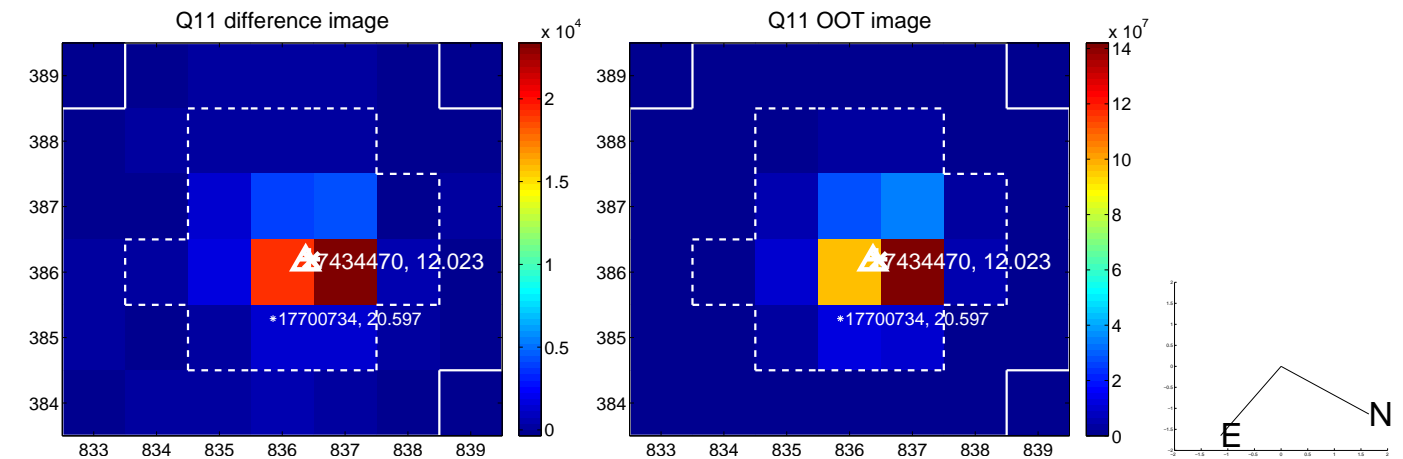
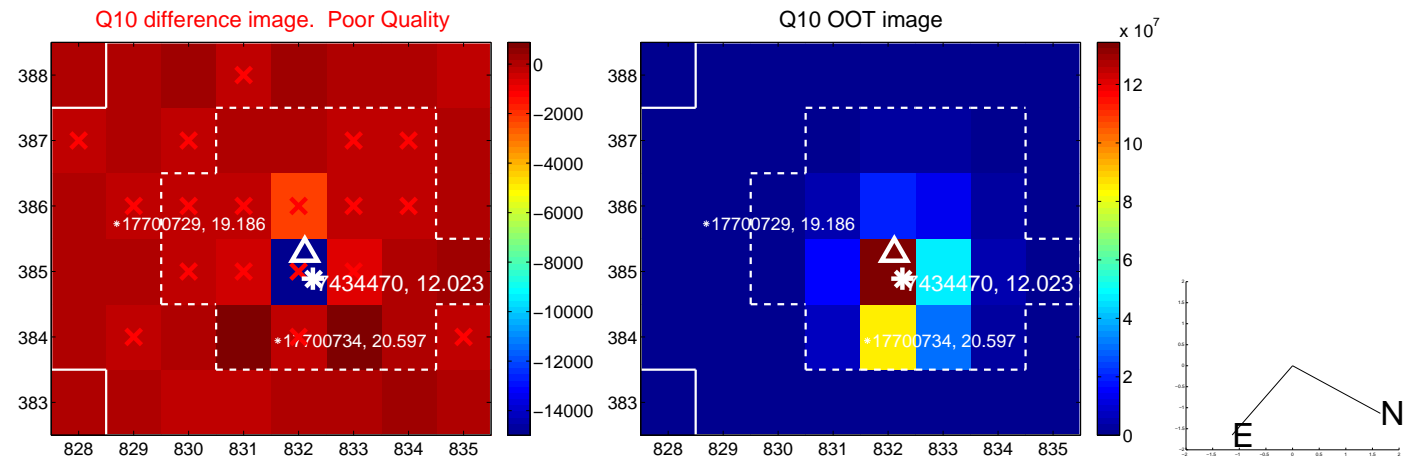
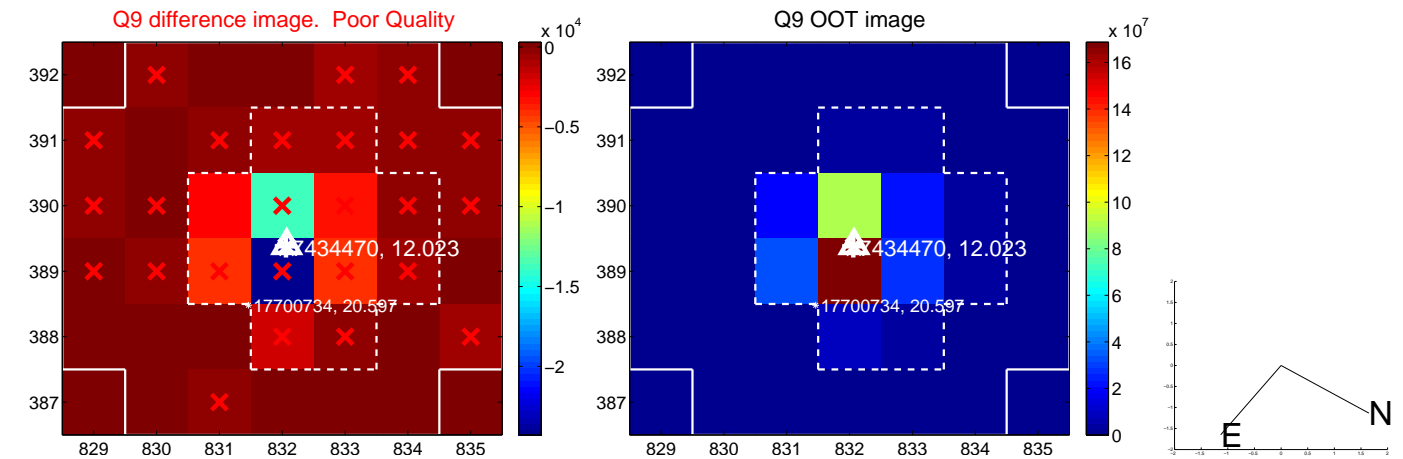
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



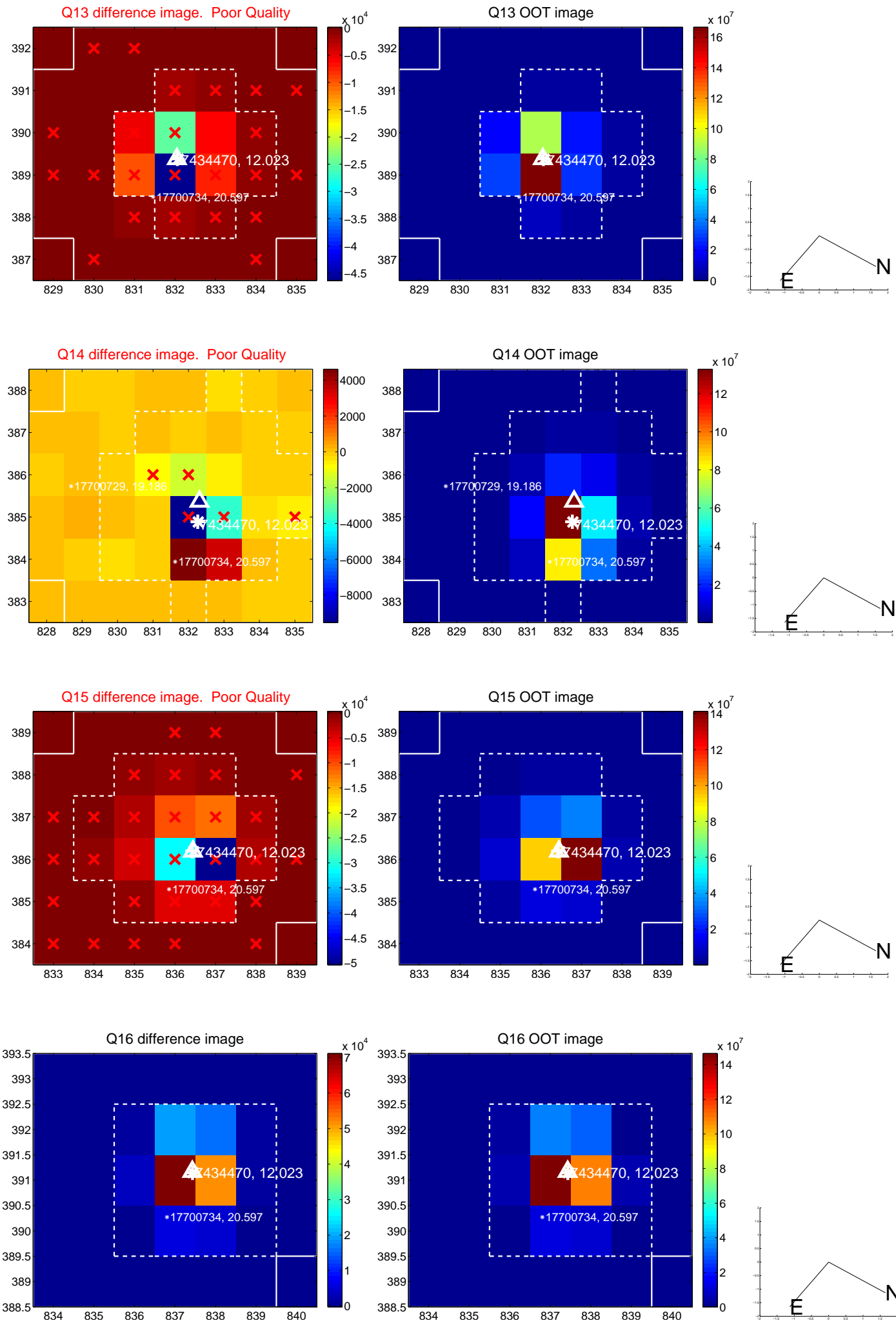
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



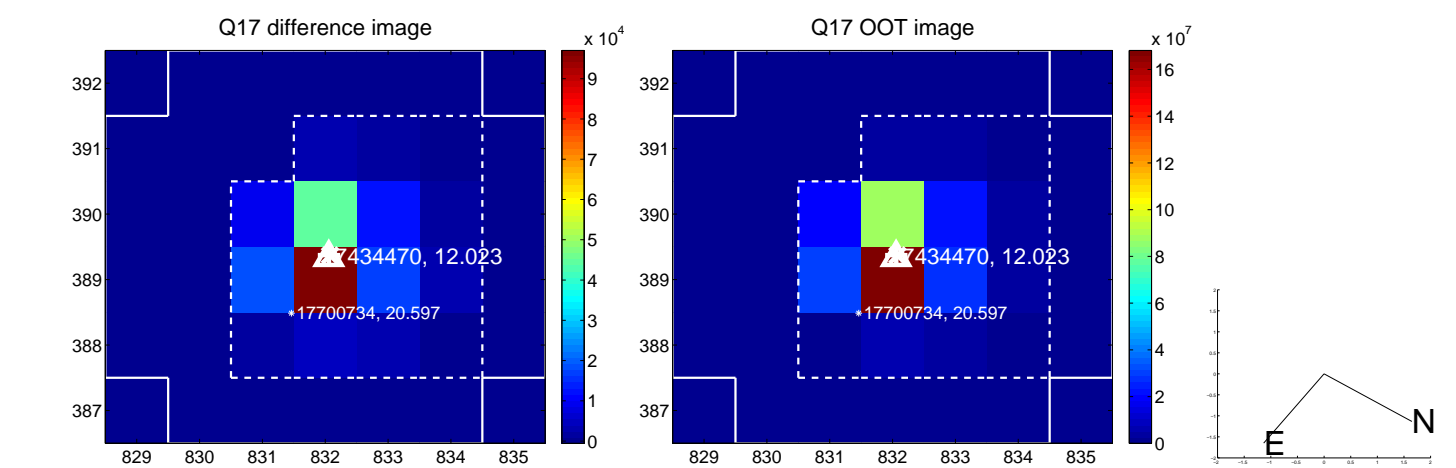
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



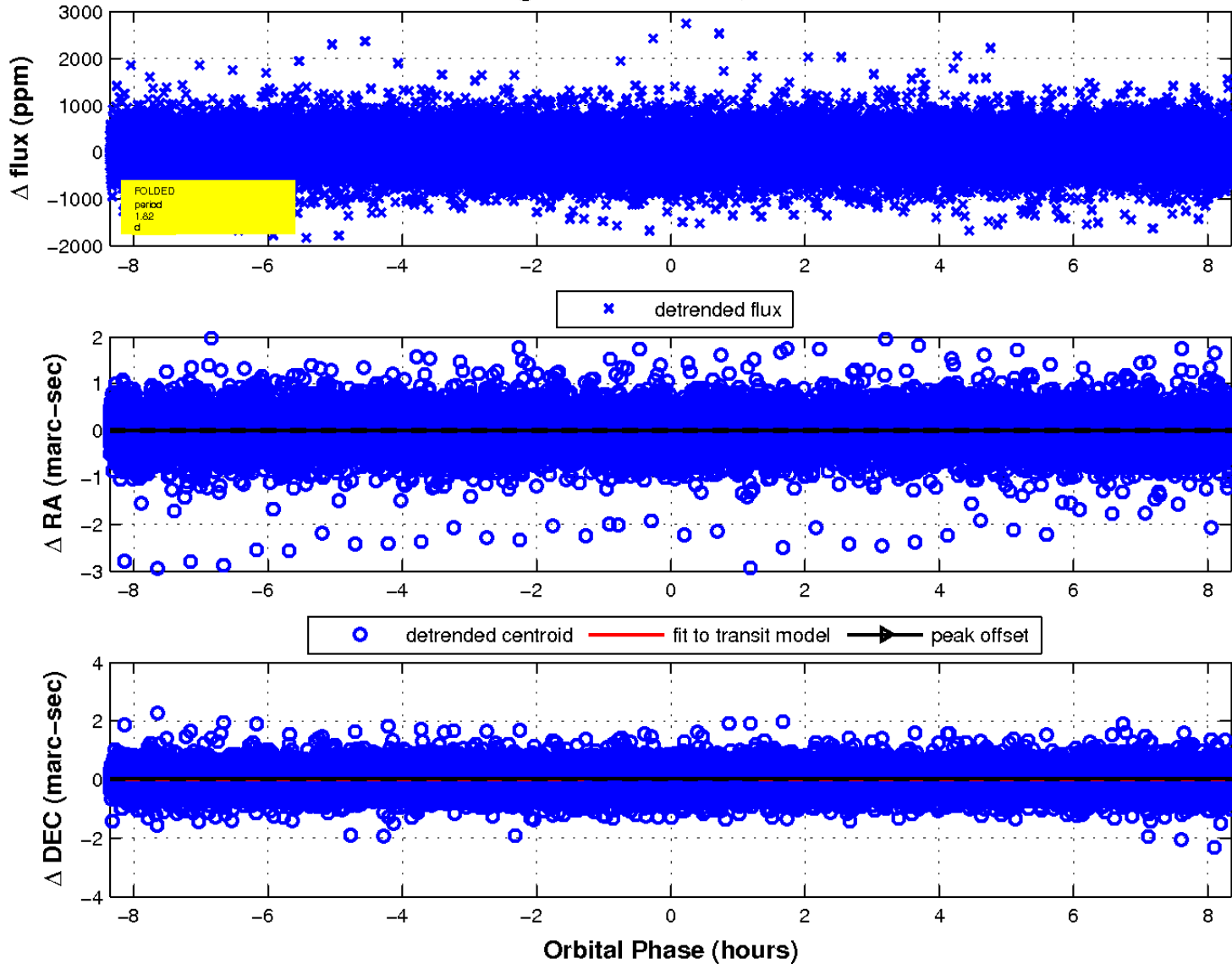
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

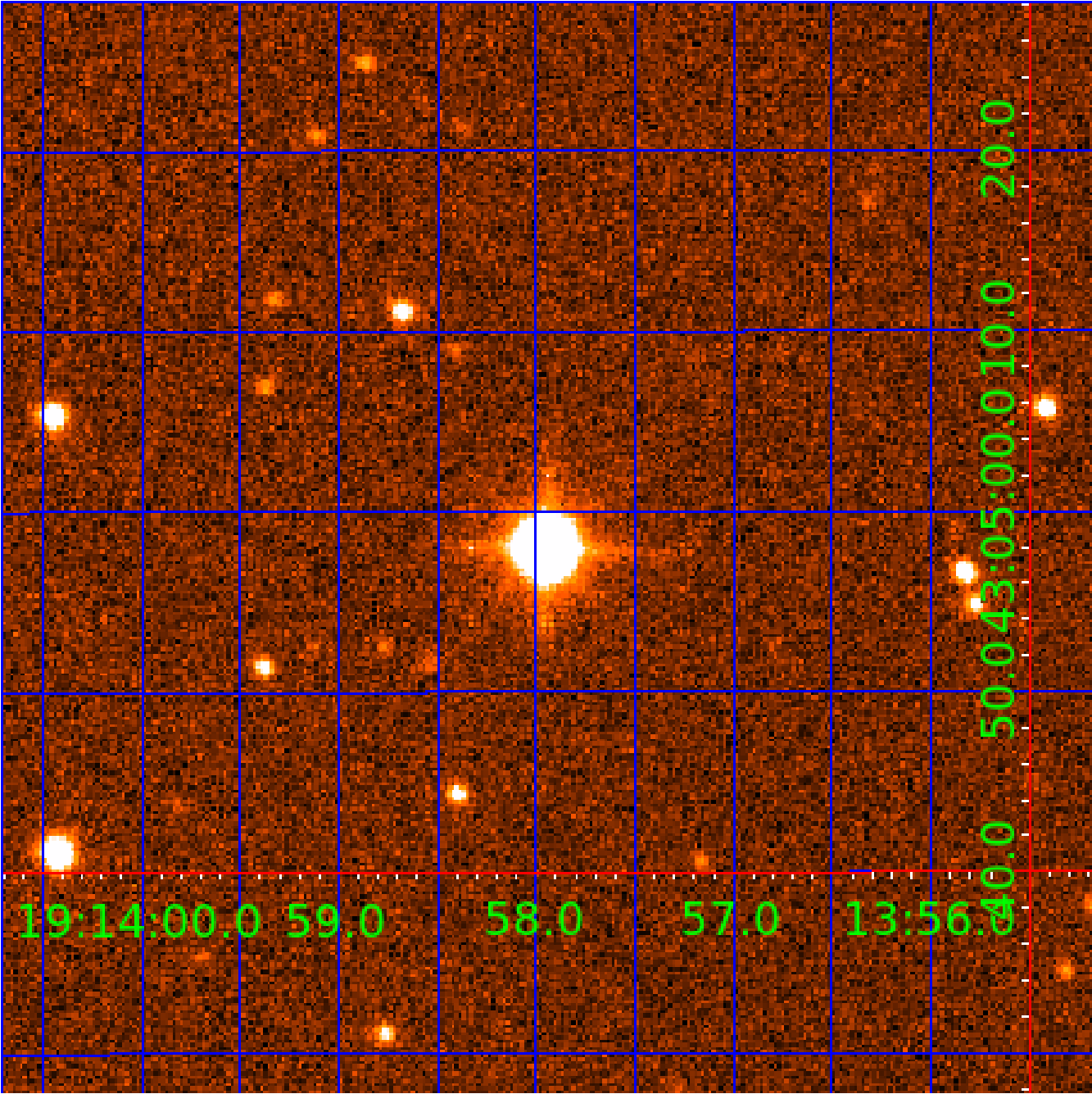


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007434470

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})
007434470-01	OBS	No	1.820874	132.009667	25.1	2.784	10.0	3.8	1.92	7196	1.09	7742.33
007434470-02	OBS	No	1.820878	131.709280	60.2	21.851	12.1	16.1	1.92	7196	1.61	7742.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007434470-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
007434470-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

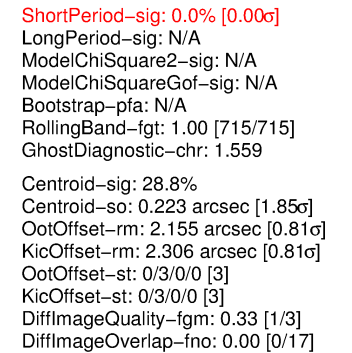
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

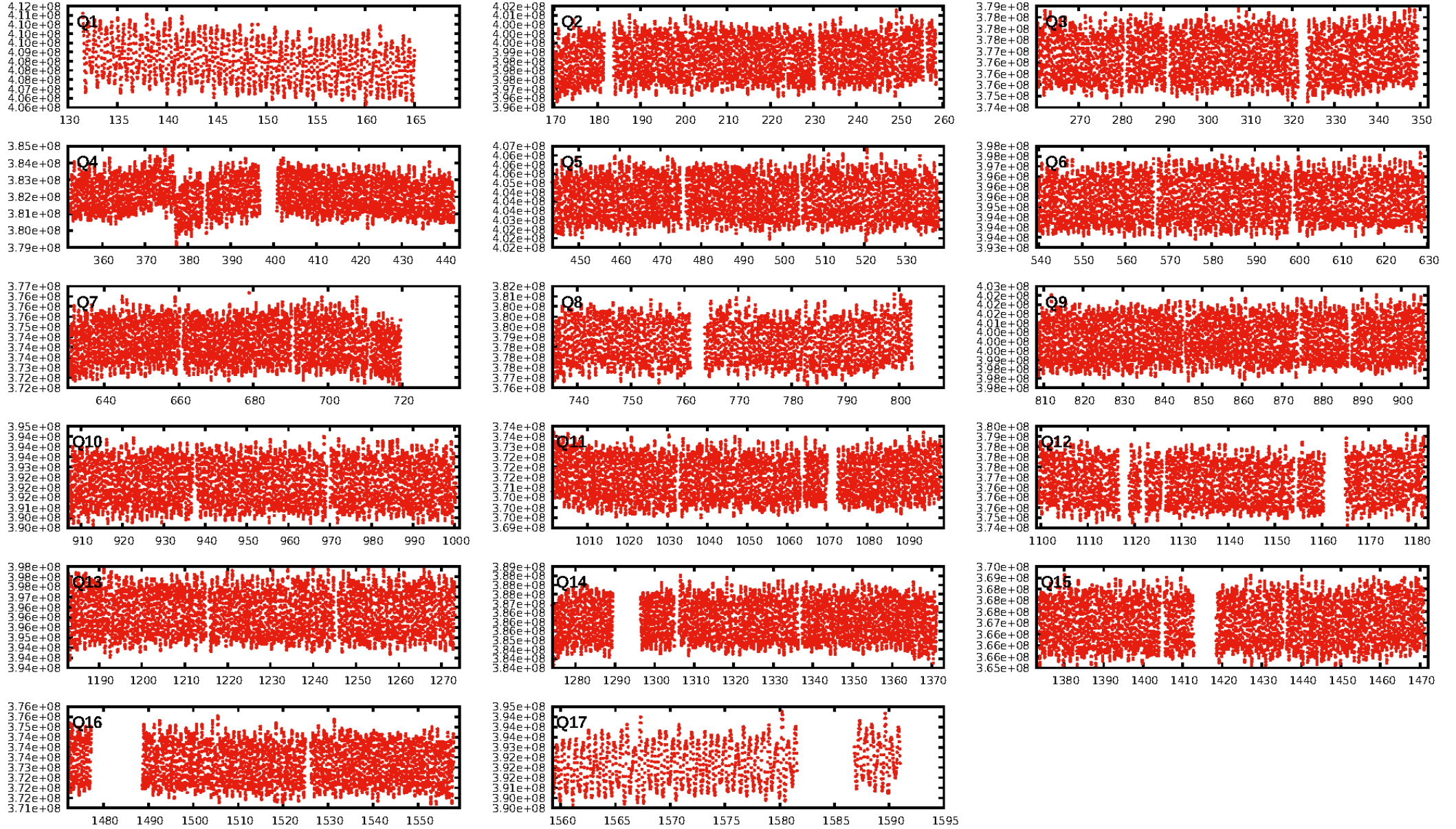
Ephemeris Match Information For 007434470-02

No Significant Match Found

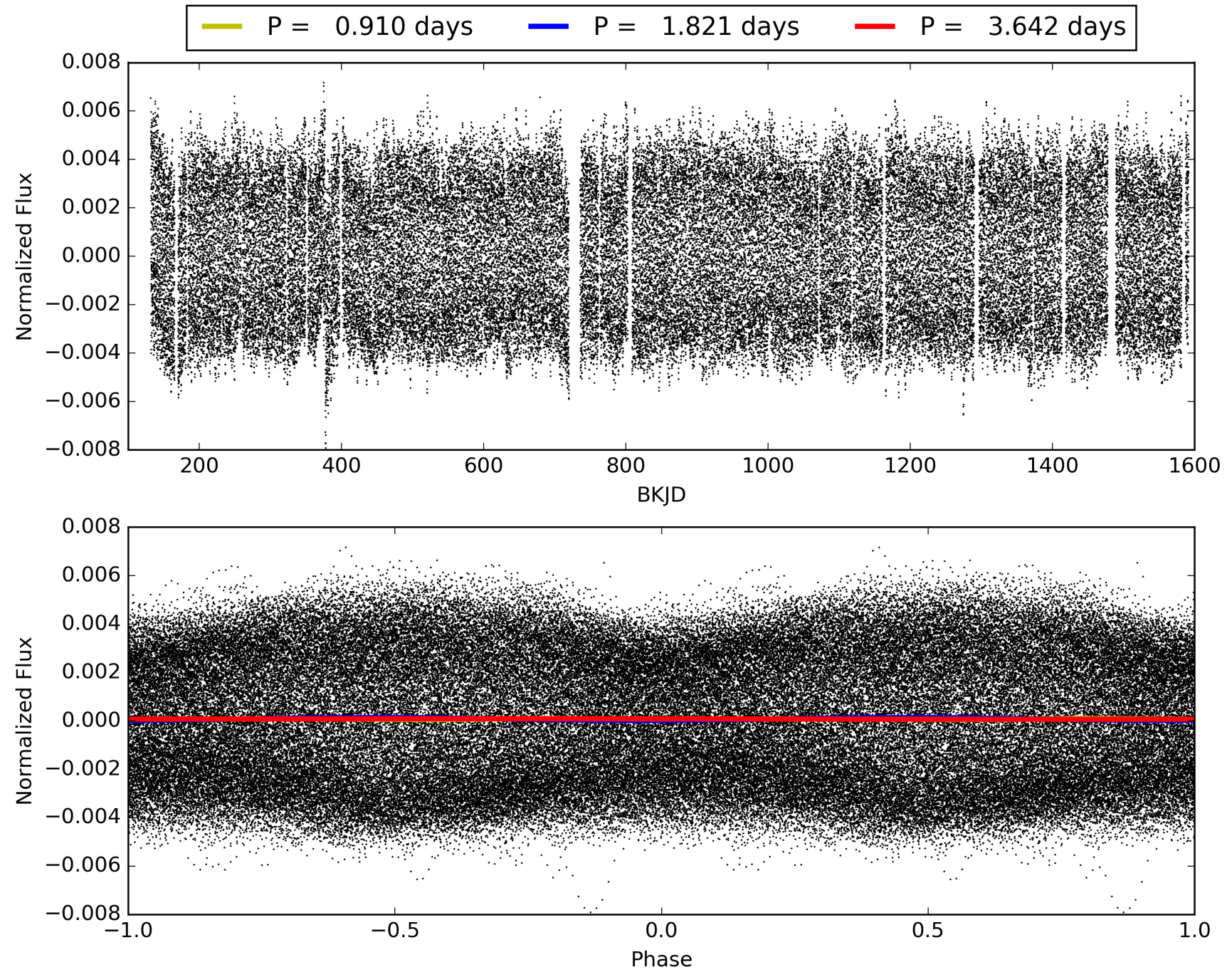
KIC: 7434470 Candidate: 2 of 2 Period: 1.821 d



TCE 007434470-02, PDC Light Curves

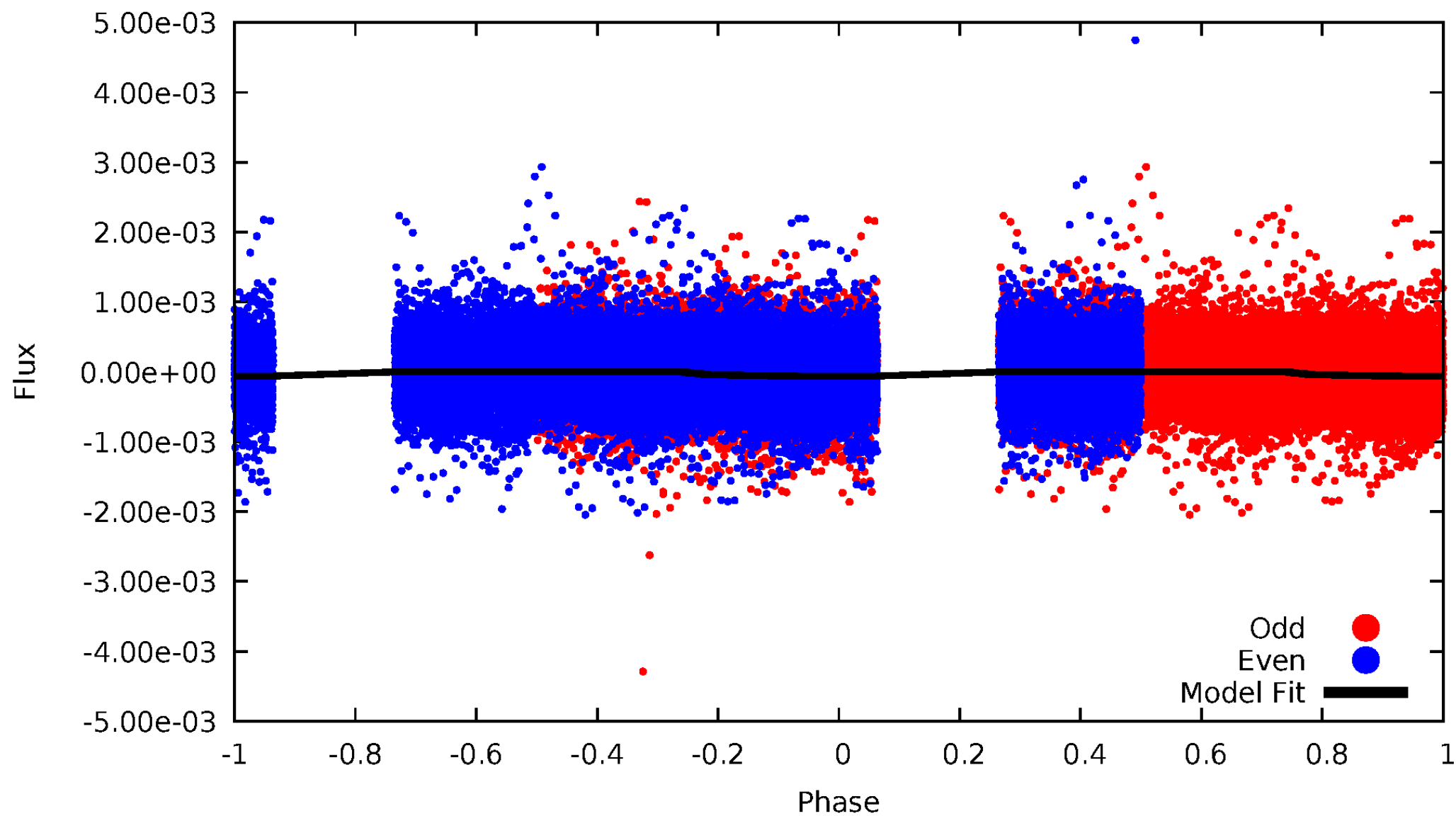


TCE 007434470-02



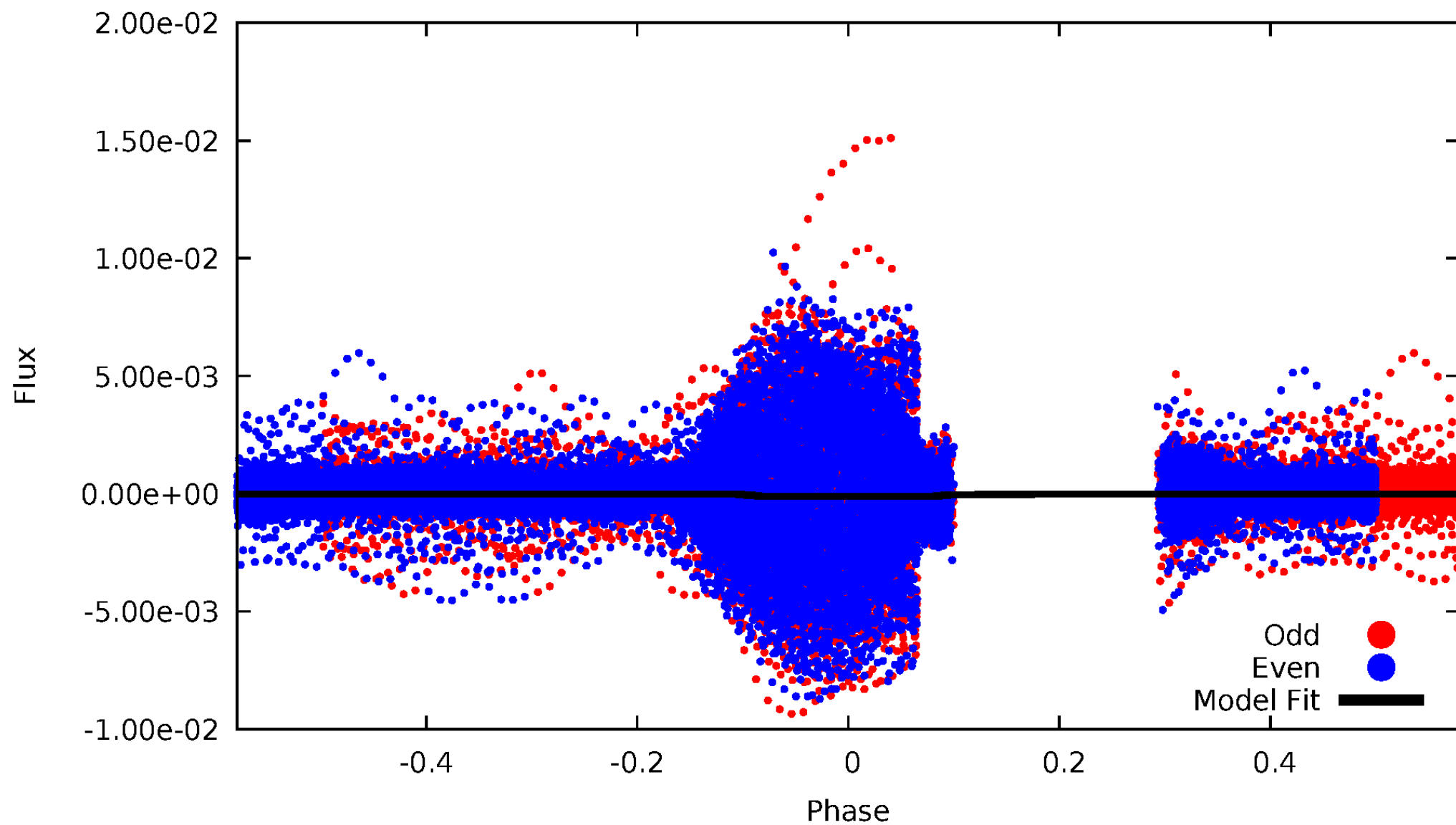
DV Odd/Even

TCE 007434470-02



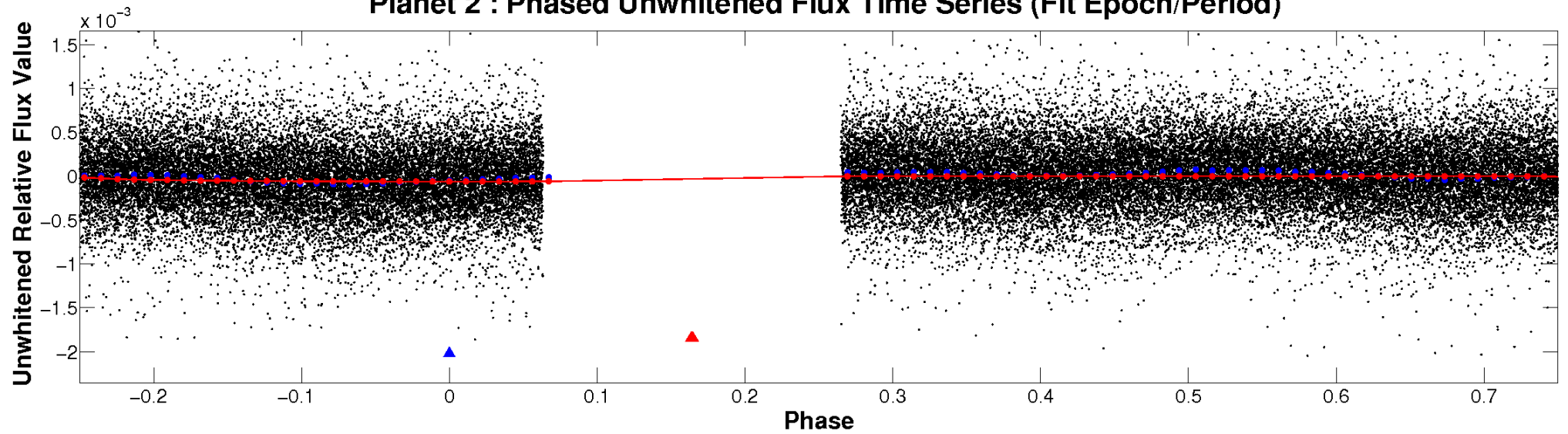
ALT Odd/Even

TCE 007434470-02

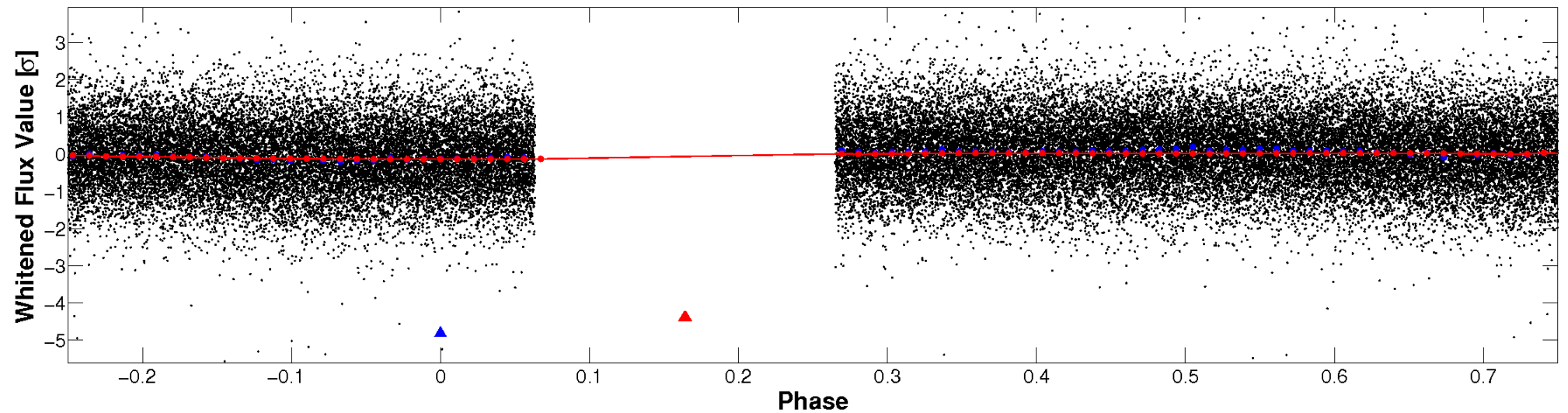


Non-Whitened Vs. Whitened Light Curve

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

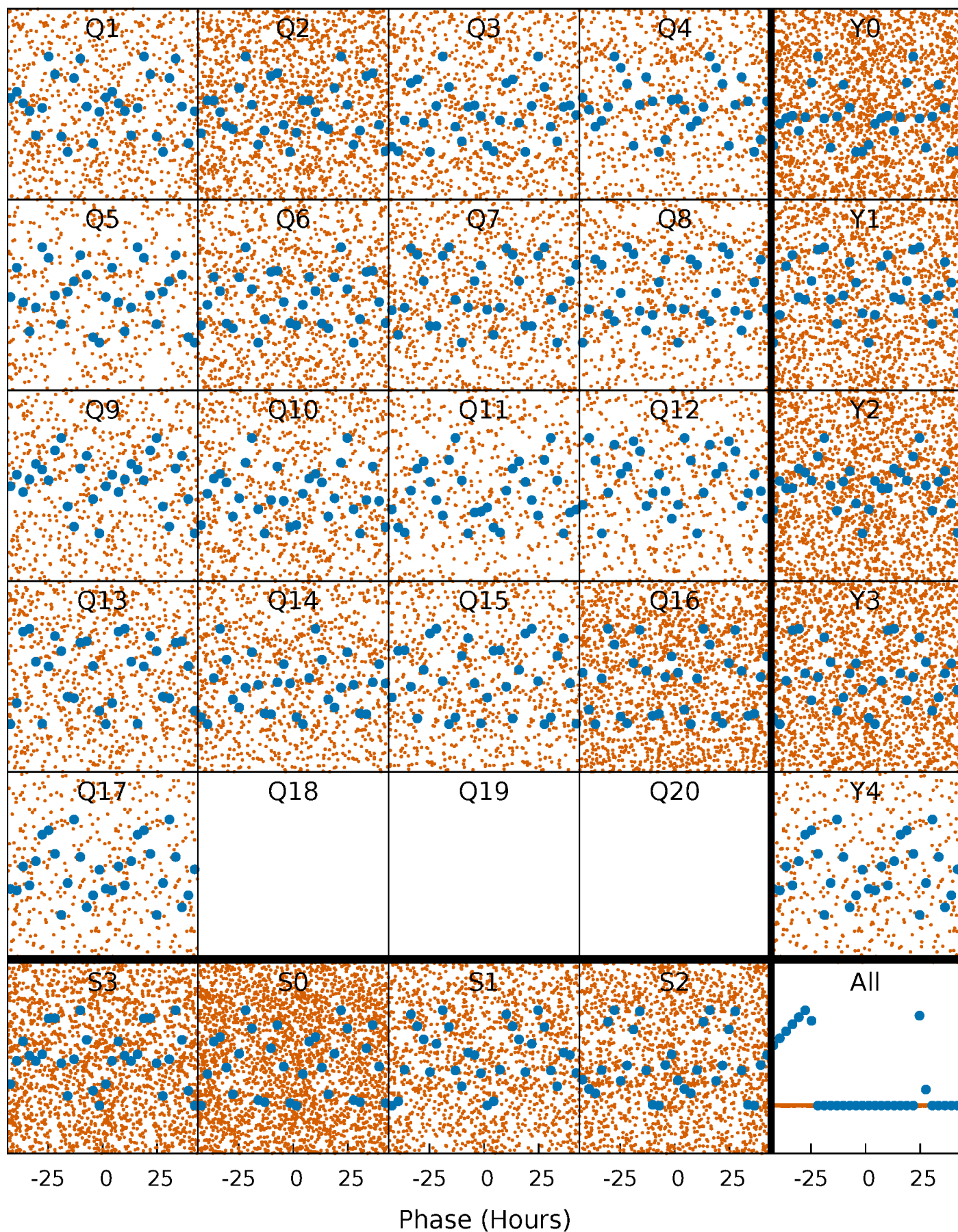


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



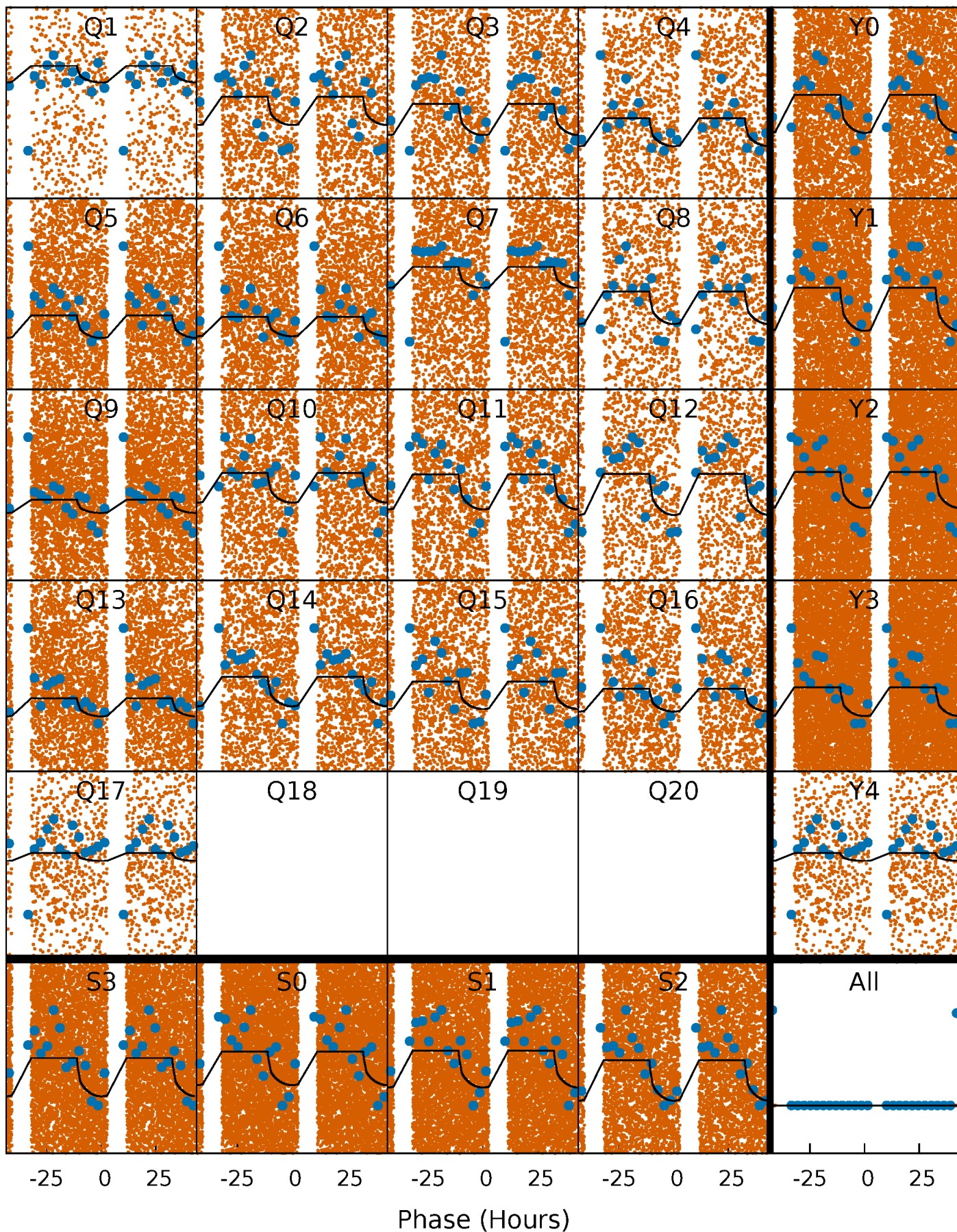
PDC Quarter-Phased Transit Curves

TCE 007434470-02 P= 1.820878 Days $T_0=131.709280$ (BKJD)



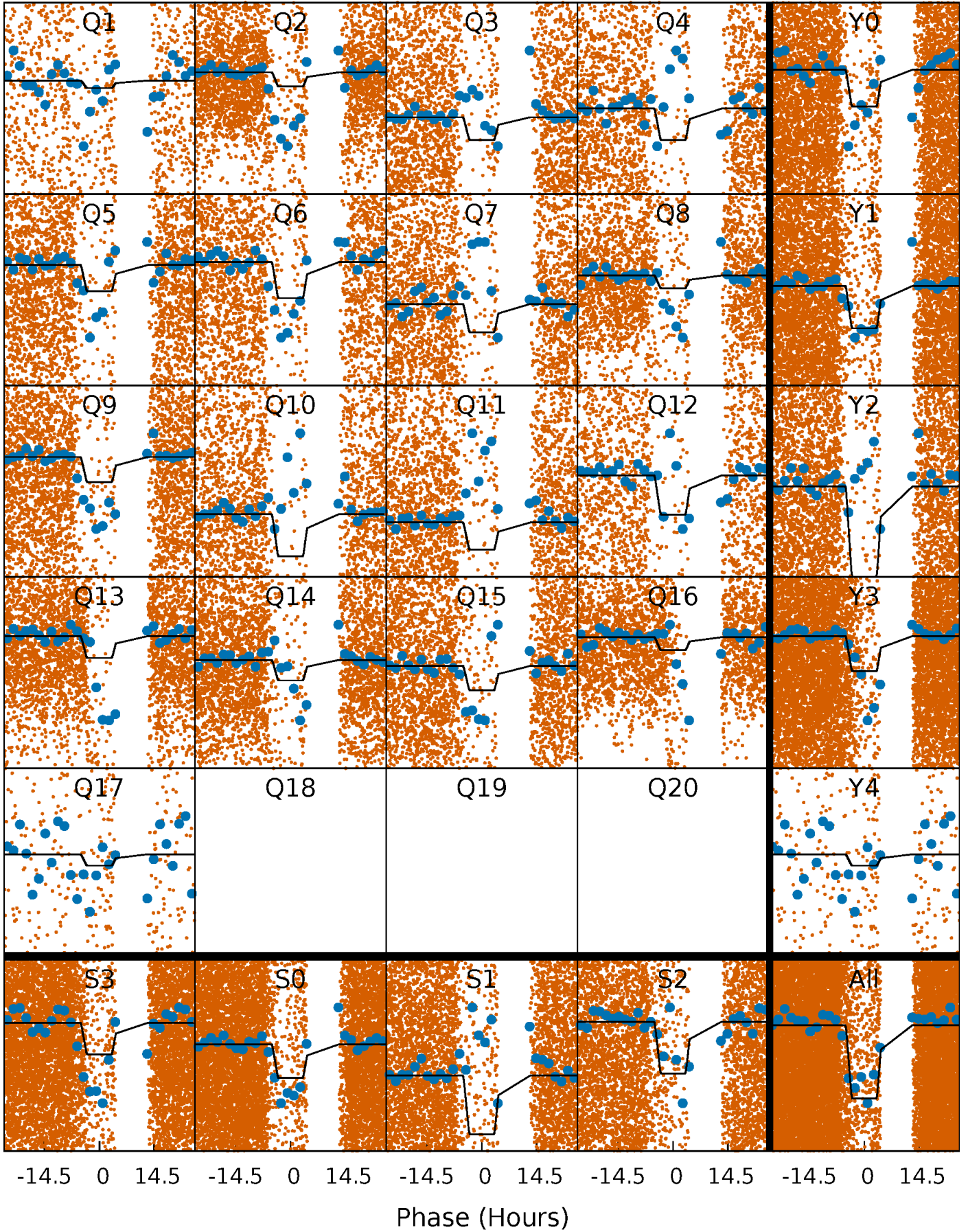
DV Quarter-Phased Transit Curves

TCE 007434470-02 P= 1.820878 Days $T_0=131.709280$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

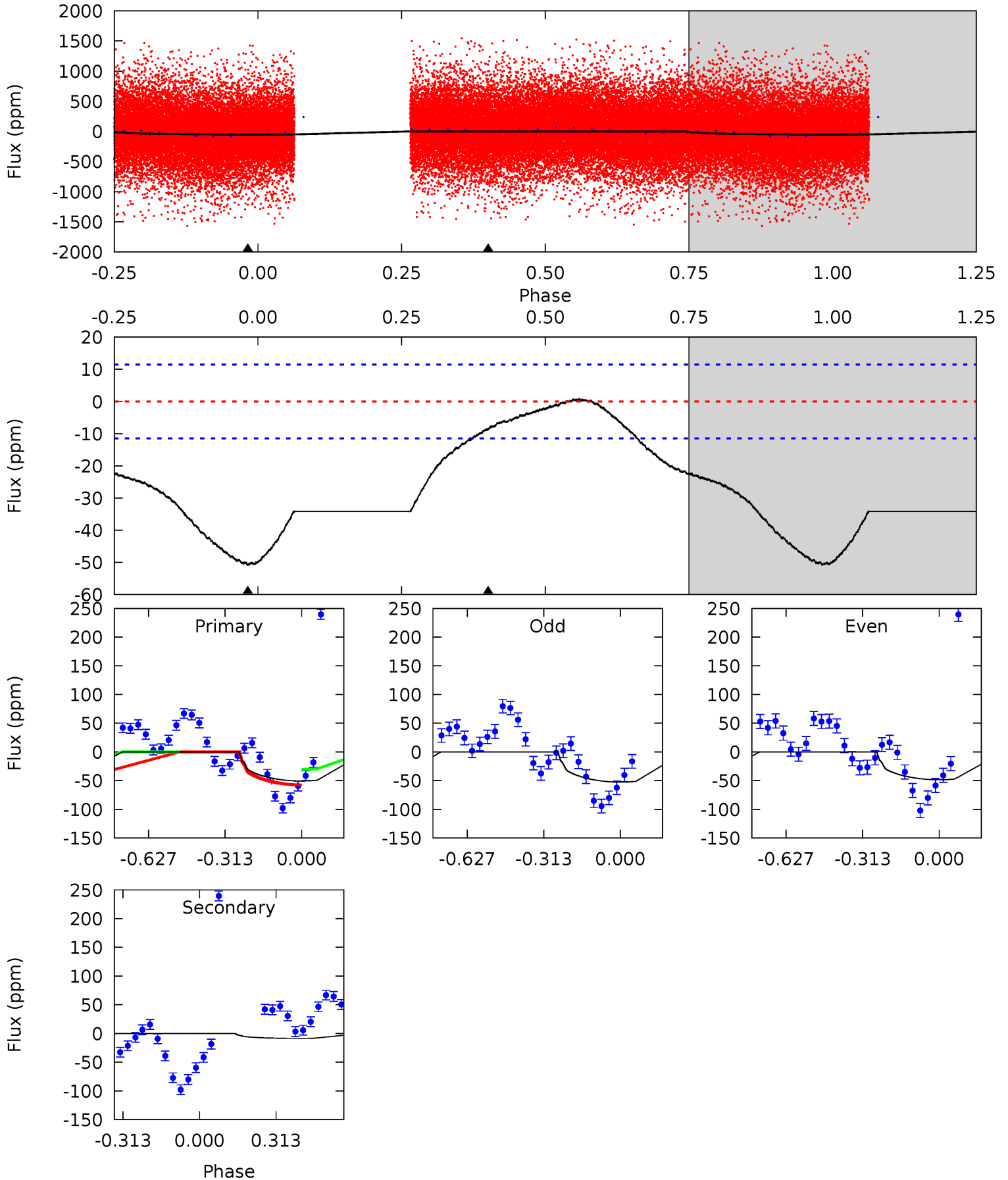
TCE 007434470-02 P= 1.820898 Days $T_0=131.642263$ (BKJD)



DV Model-Shift Uniqueness Test

007434470-02, P = 1.820878 Days, E = 129.888402 Days

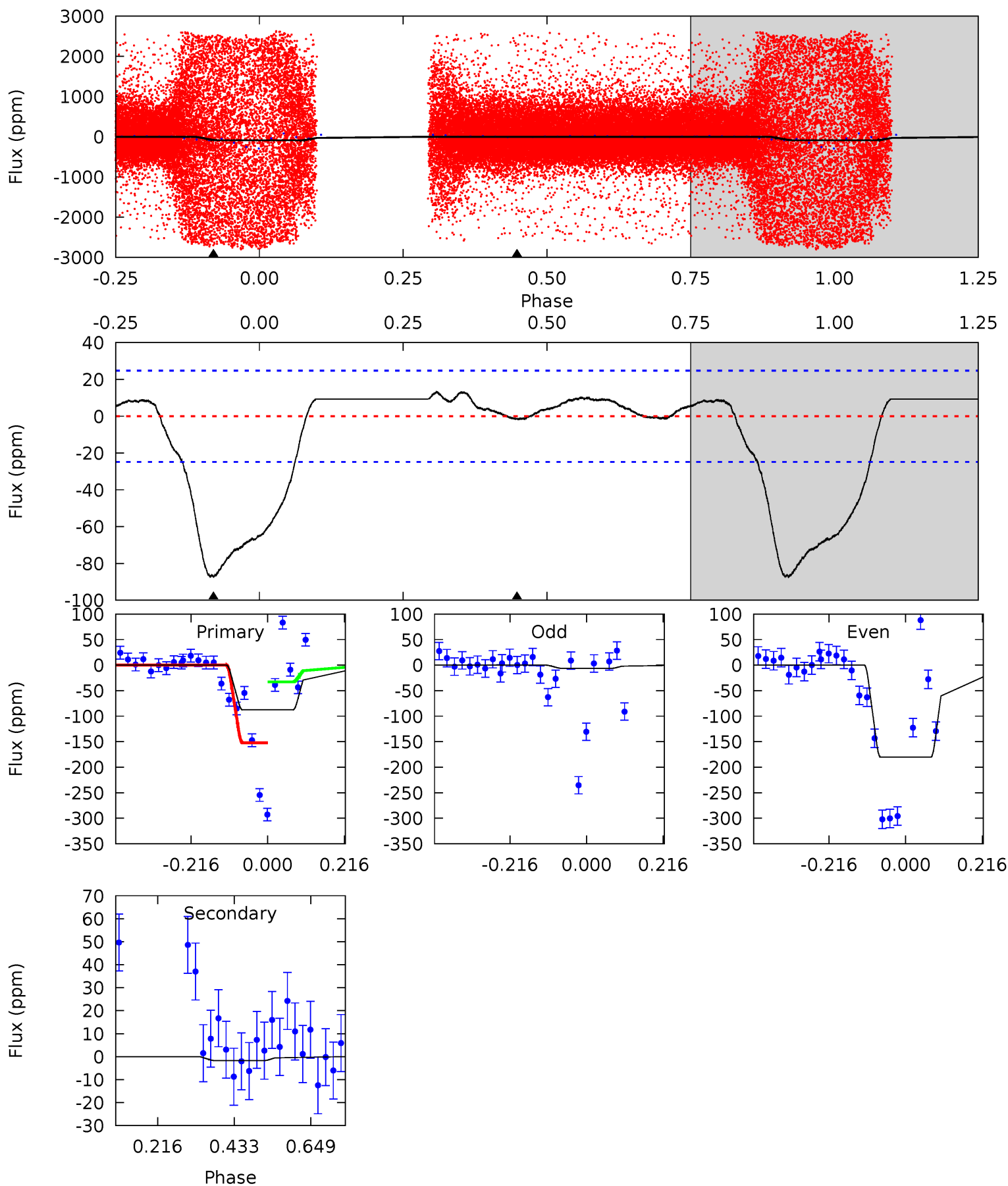
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	3.26	0	0	4.32	1.01	0.30	19.1	19.1	3.26	3.26	0.78	0.98	0.01	4.12



Alt Model-Shift Uniqueness Test

007434470-02, P = 1.820898 Days, E = 129.821365 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	0.30	0	0	4.40	1.24	0.34	15.5	15.5	0.30	0.30	14.7	0.86	0.13	0



Stellar Parameters For KIC 007434470

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7196^{+200}_{-275}	$4.064^{+0.175}_{-0.175}$	$-0.040^{+0.250}_{-0.350}$	$1.923^{+0.559}_{-0.508}$	$1.562^{+0.222}_{-0.271}$	$0.309^{+0.306}_{-0.155}$
	+3%/-4%	+4%/-4%	+625%/-875%	+29%/-26%	+14%/-17%	+99%/-50%
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 007434470-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 3	$1.61^{+0.27}_{-0.24}$	3338^{+240}_{-245}	4413^{+330}_{-394}	$1.995^{+1.047}_{-0.734}$
Alt.	-2 ± 6	$2.30^{+0.37}_{-0.29}$	3345^{+247}_{-241}	-2965^{+6596}_{-880}	$0.149^{+0.728}_{-0.641}$

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

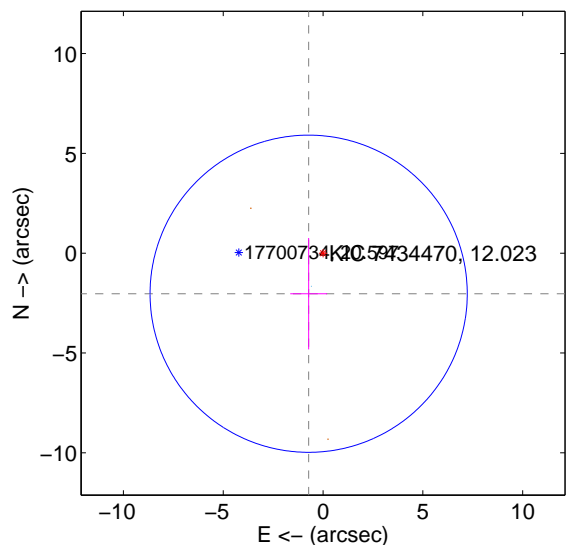
Supplemental centroid analysis for 007434470-02. Kepler magnitude: 12.02. Transit SNR 16.11

There are 1 quarters with good PRF difference image offsets

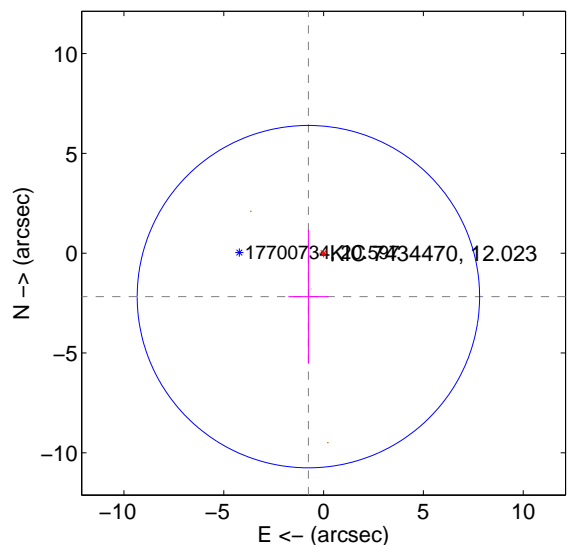
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.155 ± 2.648	0.81	0.720 ± 0.922	-2.031 ± 2.790
PRF-fit source offset from KIC position	2.306 ± 2.858	0.81	0.761 ± 1.004	-2.177 ± 3.349
photometric centroid source offset	0.22 ± 0.12	1.85	0.20 ± 0.12	-0.09 ± 0.12

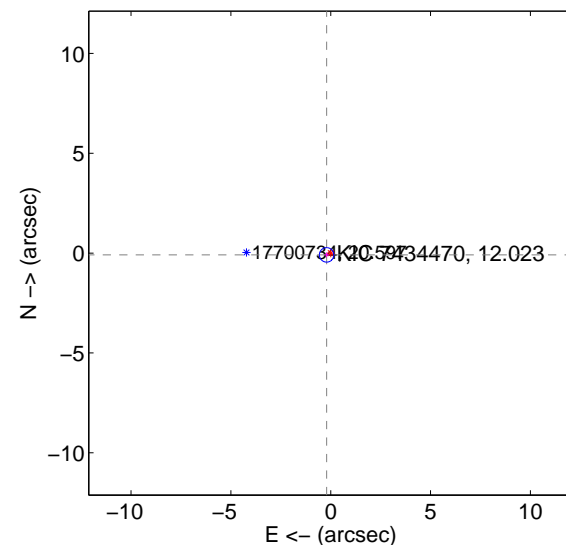
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

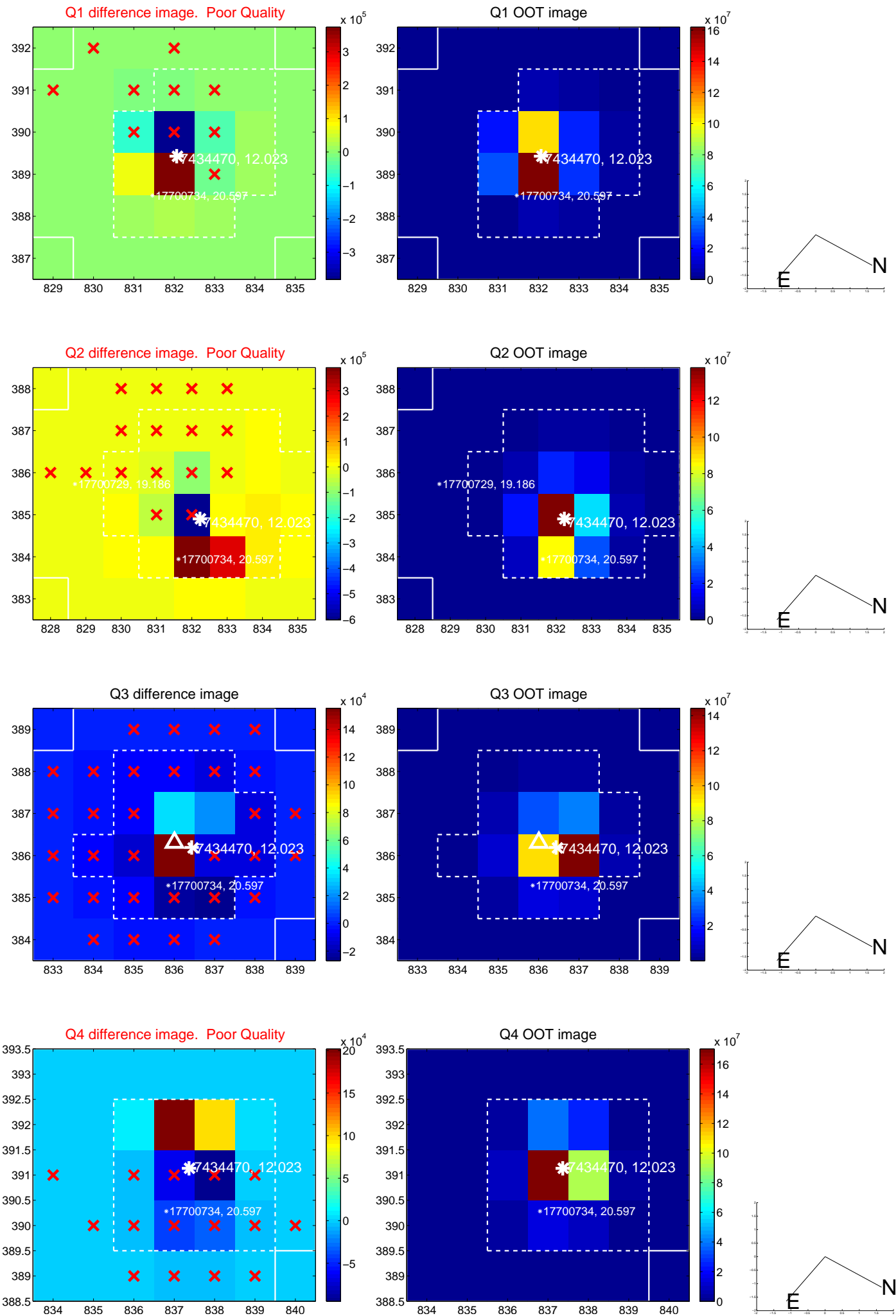


offset from photometric centroids

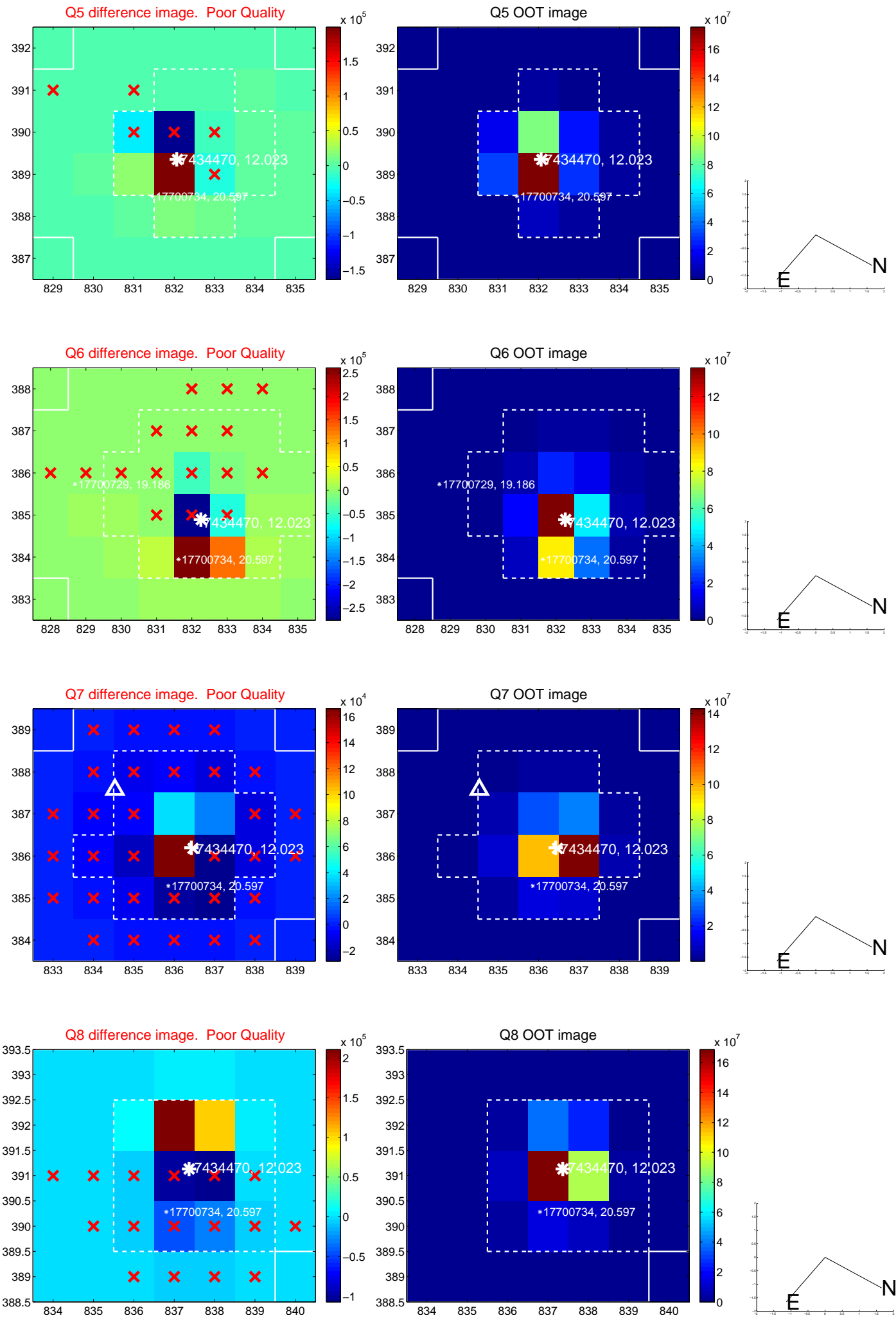


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

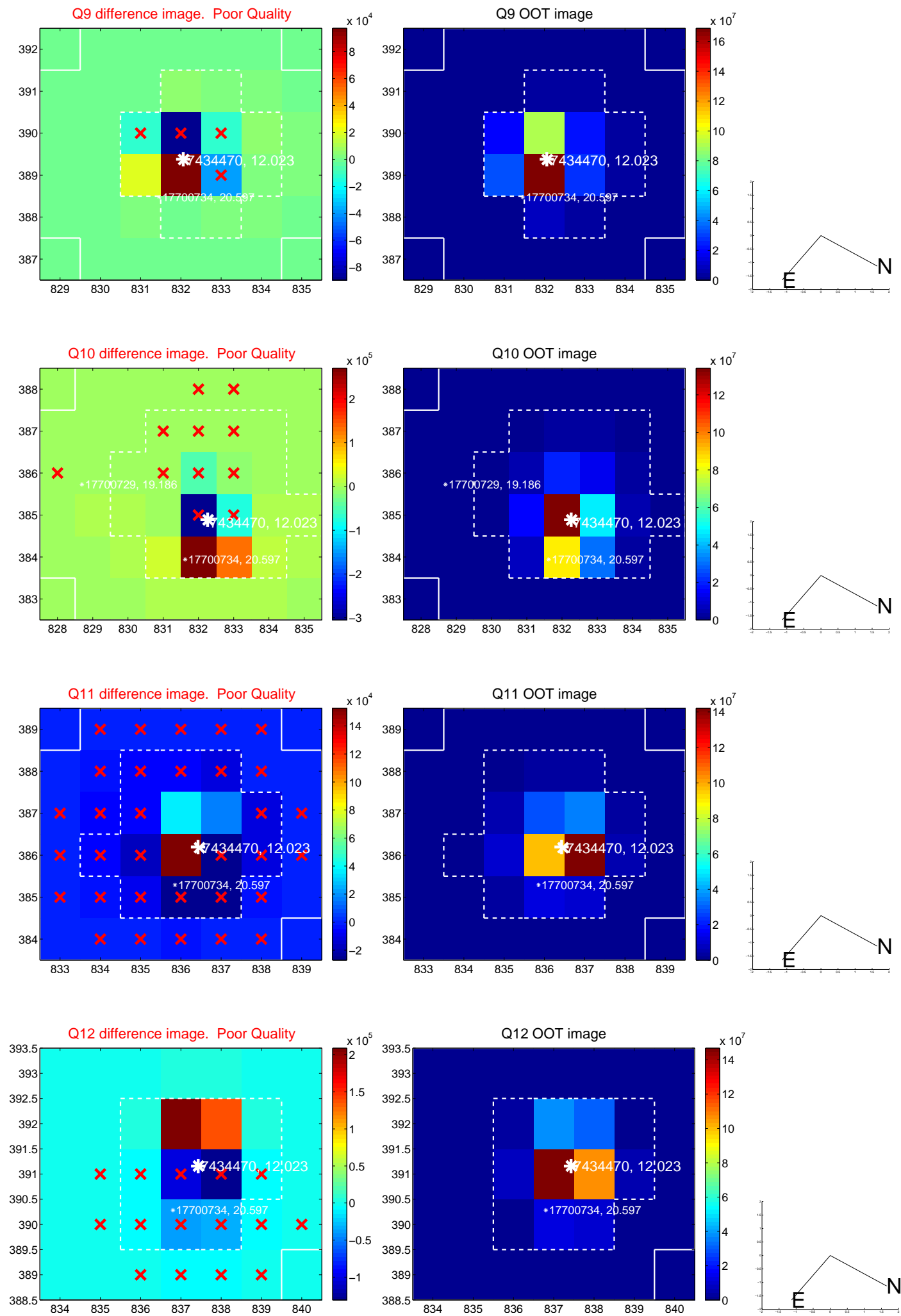
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



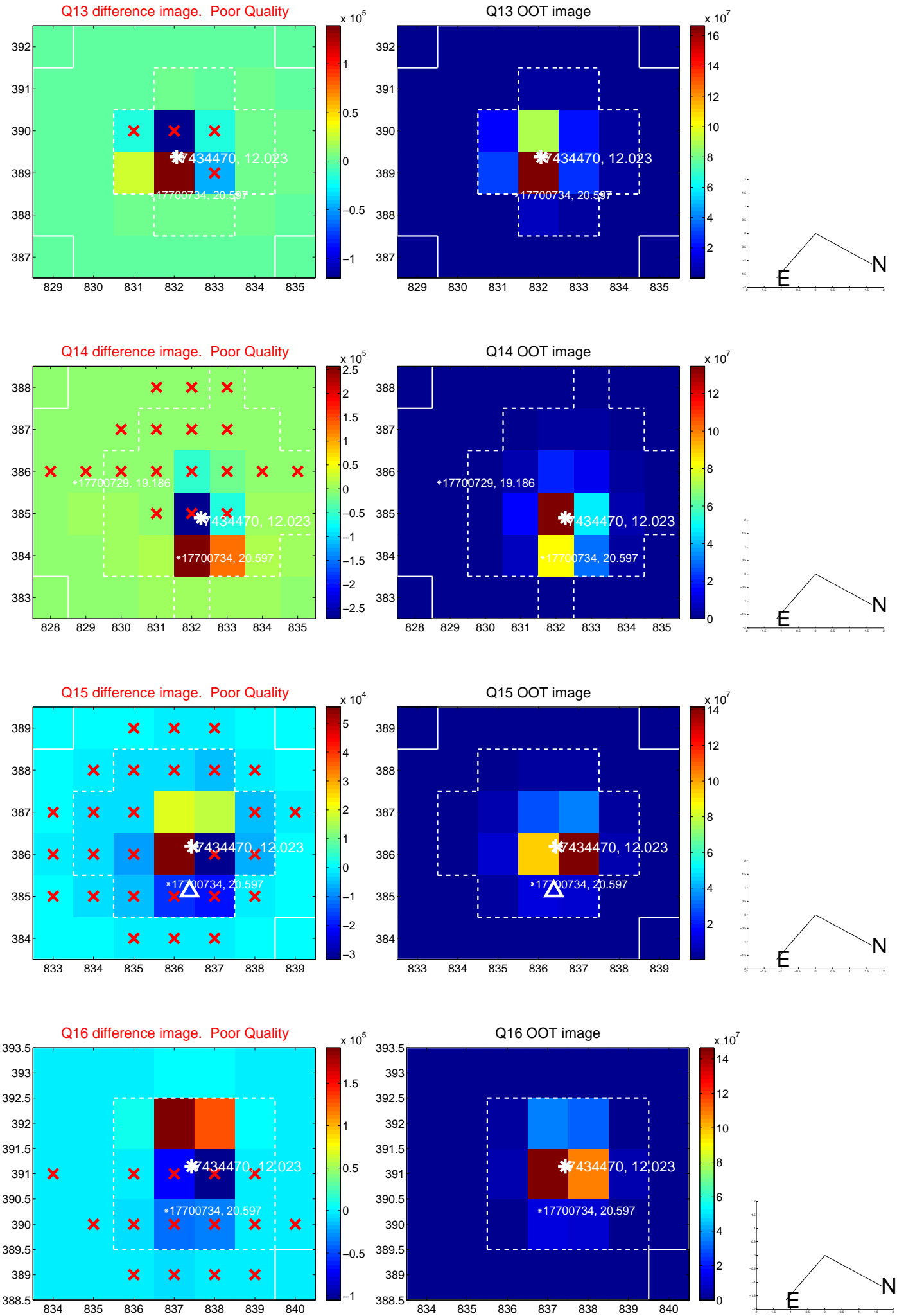
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



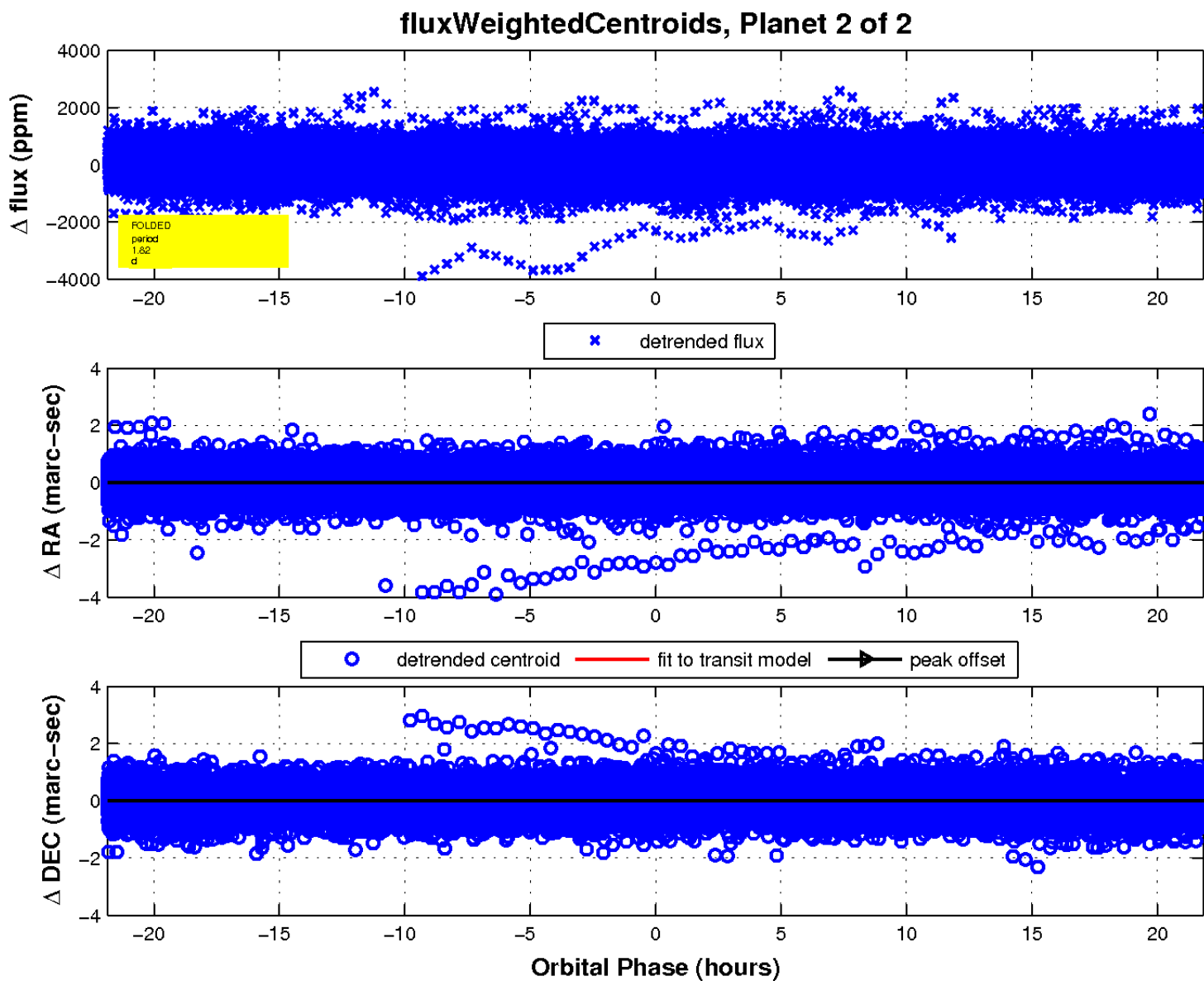
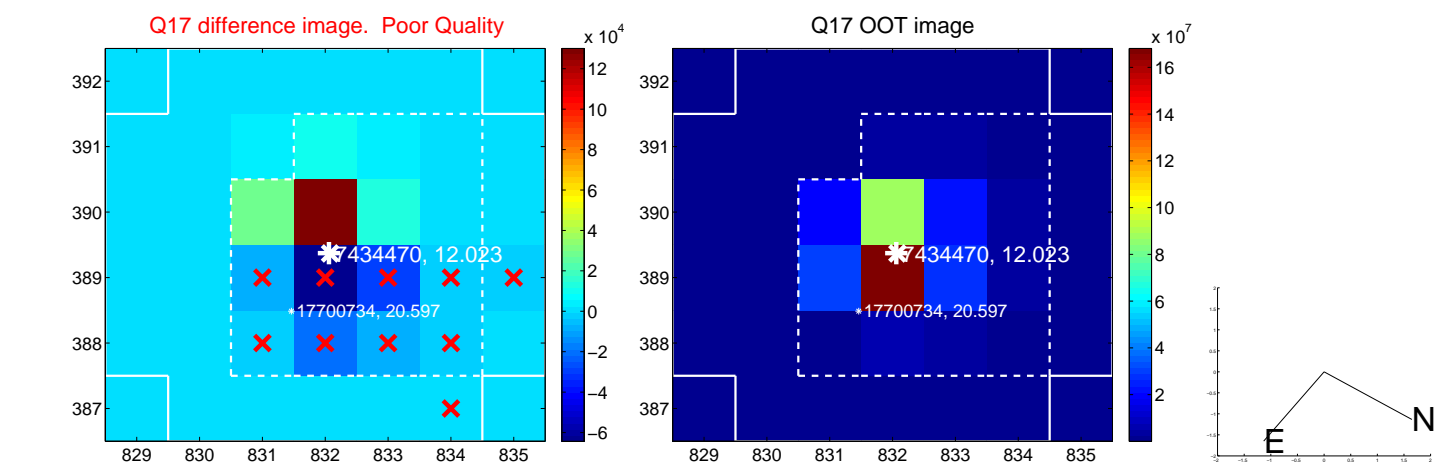
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

