

KIC 003223460

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})
003223460-01	OBS	No	1.407199	132.844450	31.7	3.374	10.1	10.1	1.97	8126	1.24	17281.11
003223460-02	OBS	No	1.407236	132.109103	27.2	5.741	10.4	11.5	1.97	8126	1.04	17280.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003223460-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
003223460-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

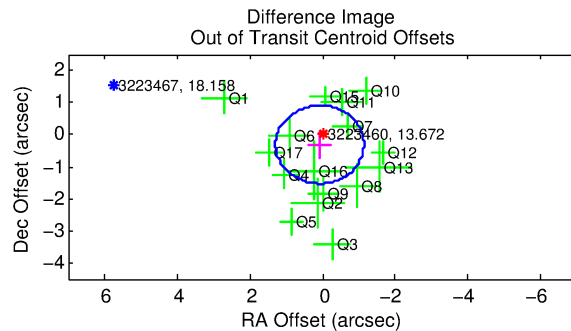
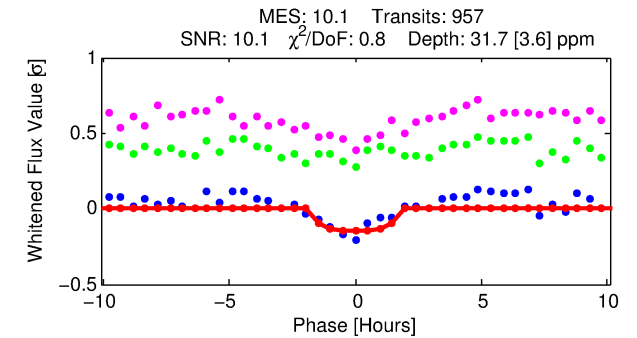
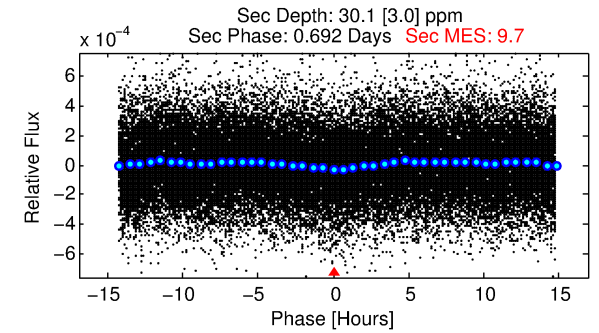
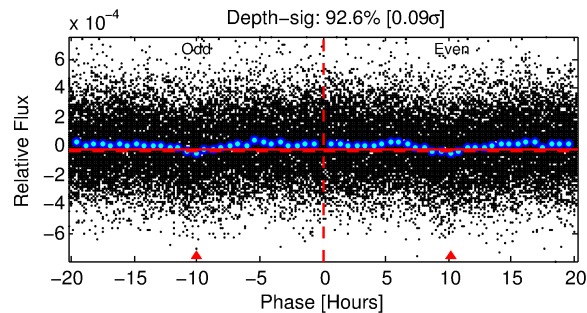
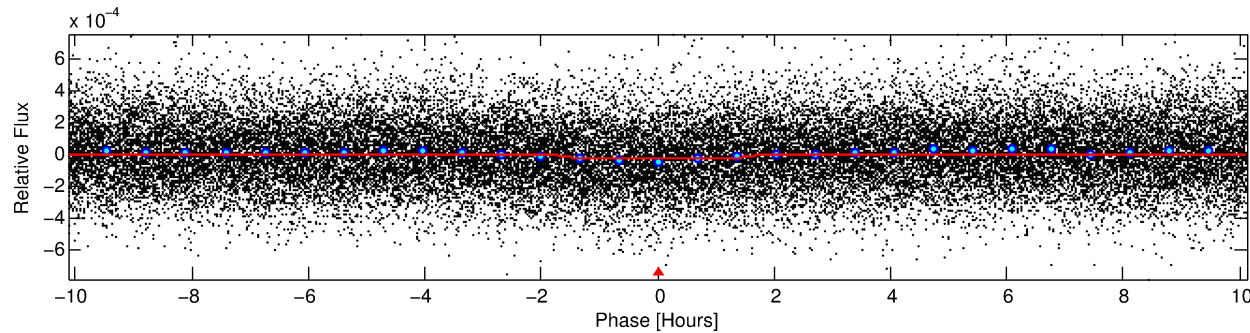
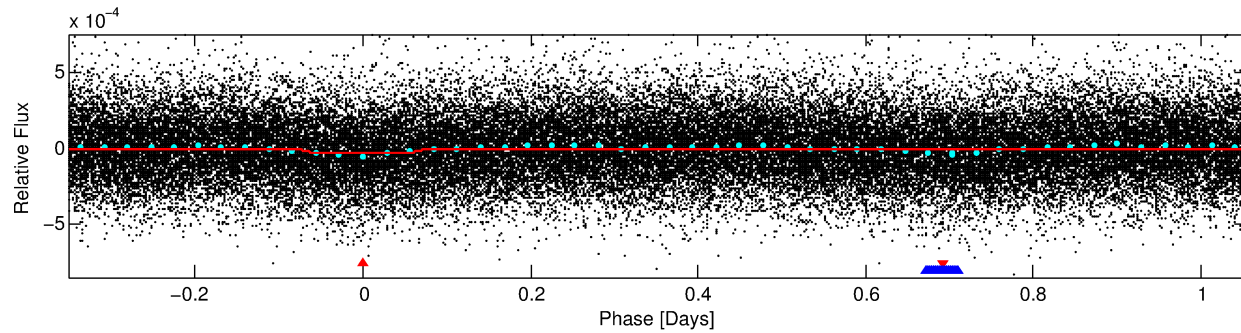
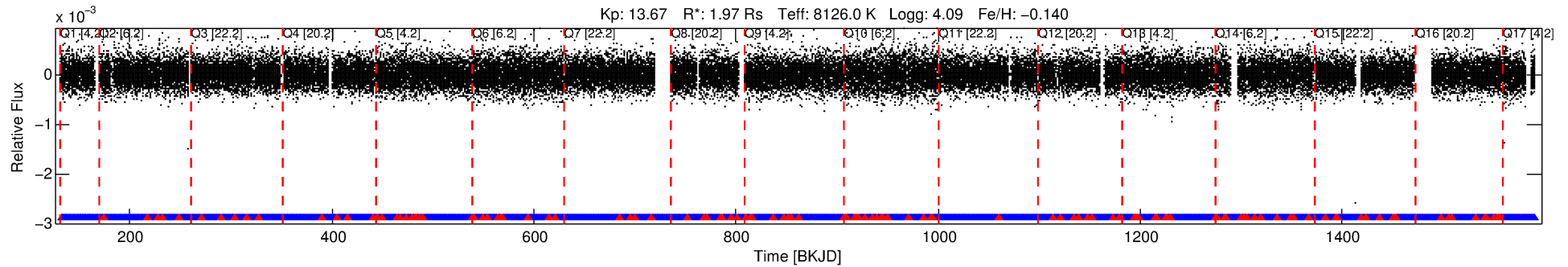
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003223460-01

No Significant Match Found

DV One-Page Summary

KIC: 3223460 Candidate: 1 of 2 Period: 1.407 d



DV Fit Results:

Period = 1.40720 [0.00001] d
Epoch = 132.8445 [0.0040] BKJD
Rp/R* = 0.0058 [0.0019]
a/R* = 2.01 [2.91]
b = 0.83 [0.72]
Seff = 17281.11 [5640.72]
Teq = 2924 [239] K
Rp = 1.24 [0.50] Re
a = 0.0296 [0.0058] AU
Ag = 9.46 [6.69] [1.26 σ]
Teffp = 7928 [1330] K [3.70 σ]

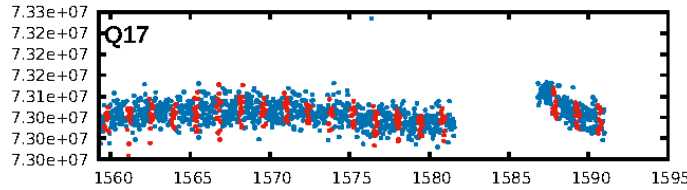
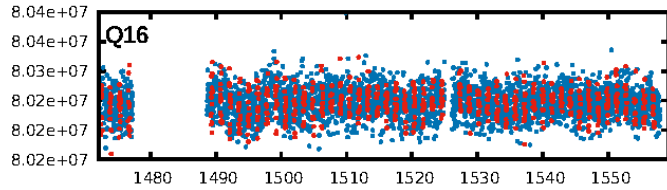
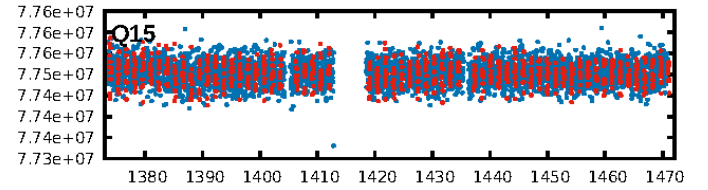
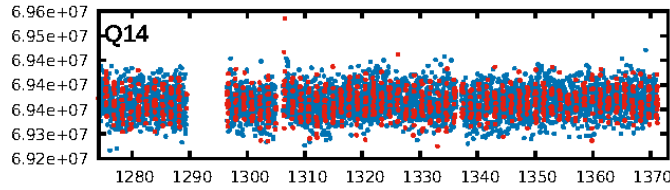
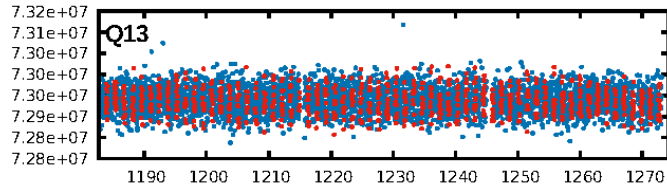
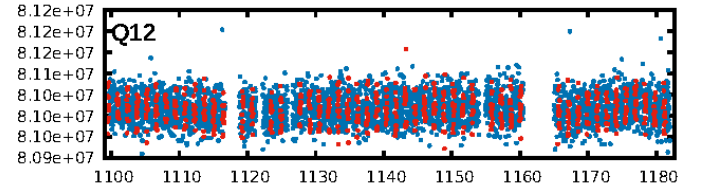
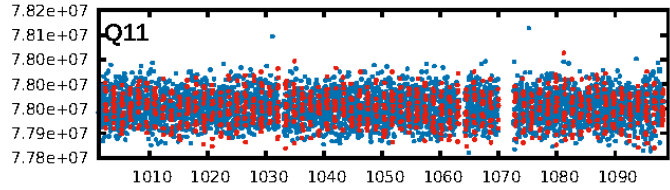
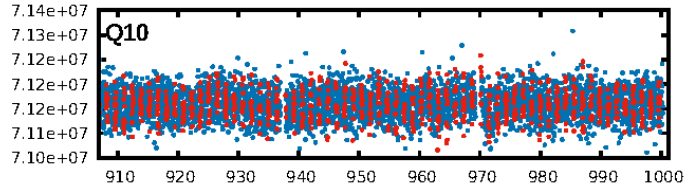
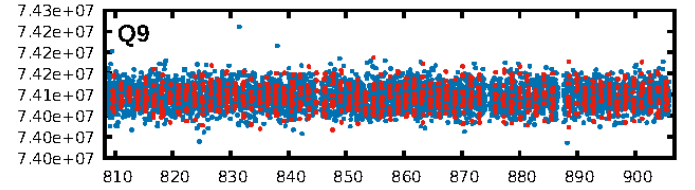
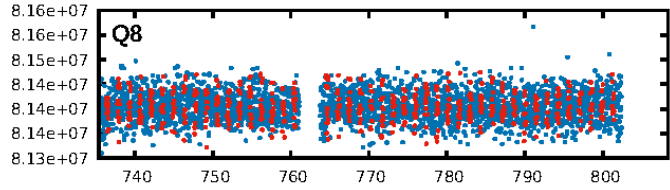
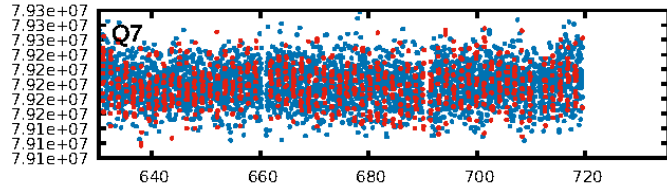
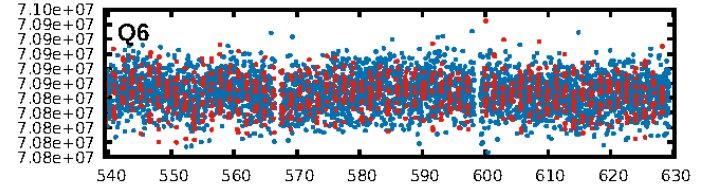
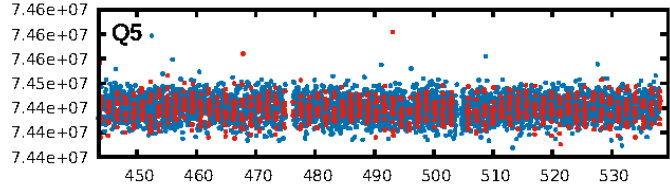
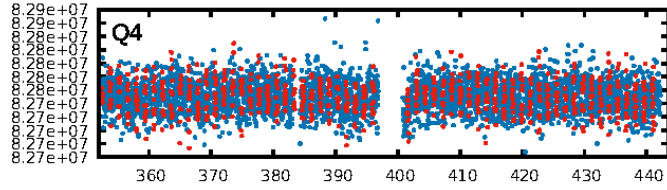
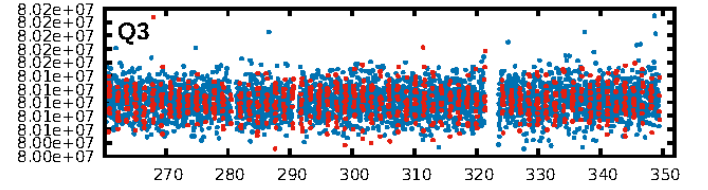
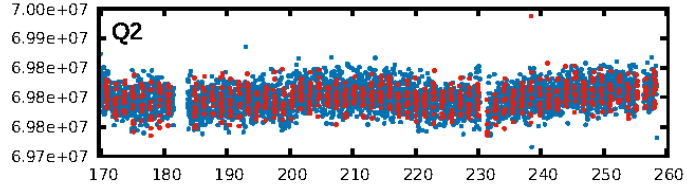
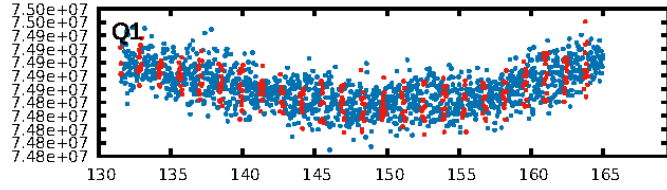
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.56e-30
RollingBand-fgt: 0.87 [794/914]
GhostDiagnostic-chr: 7.573
Centroid-sig: 0.9%
Centroid-so: 2.390 arcsec [1.71 σ]
OotOffset-rm: 0.322 arcsec [0.79 σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.280 arcsec [0.71 σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

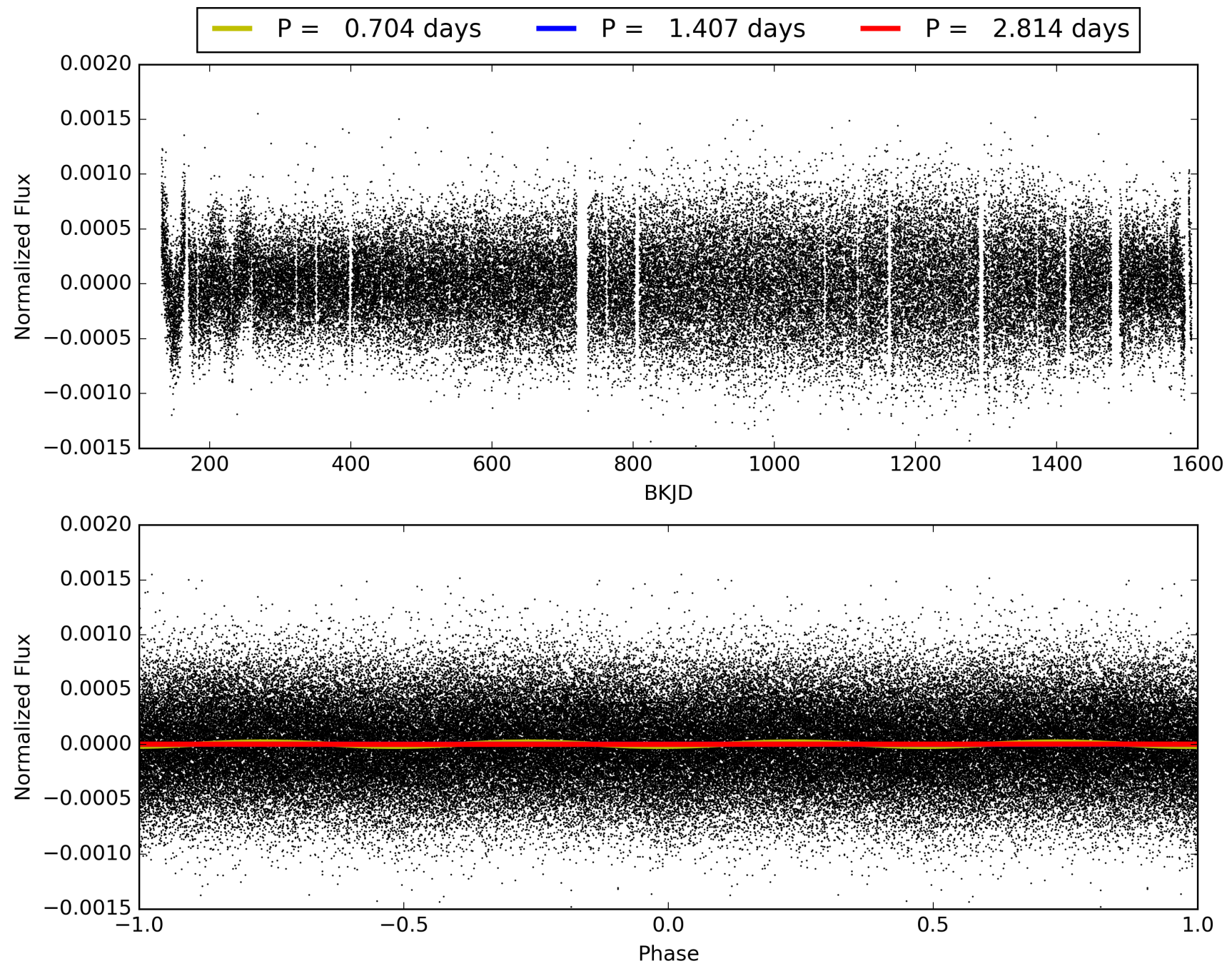
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:17:29 Z

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

TCE 003223460-01, PDC Light Curves

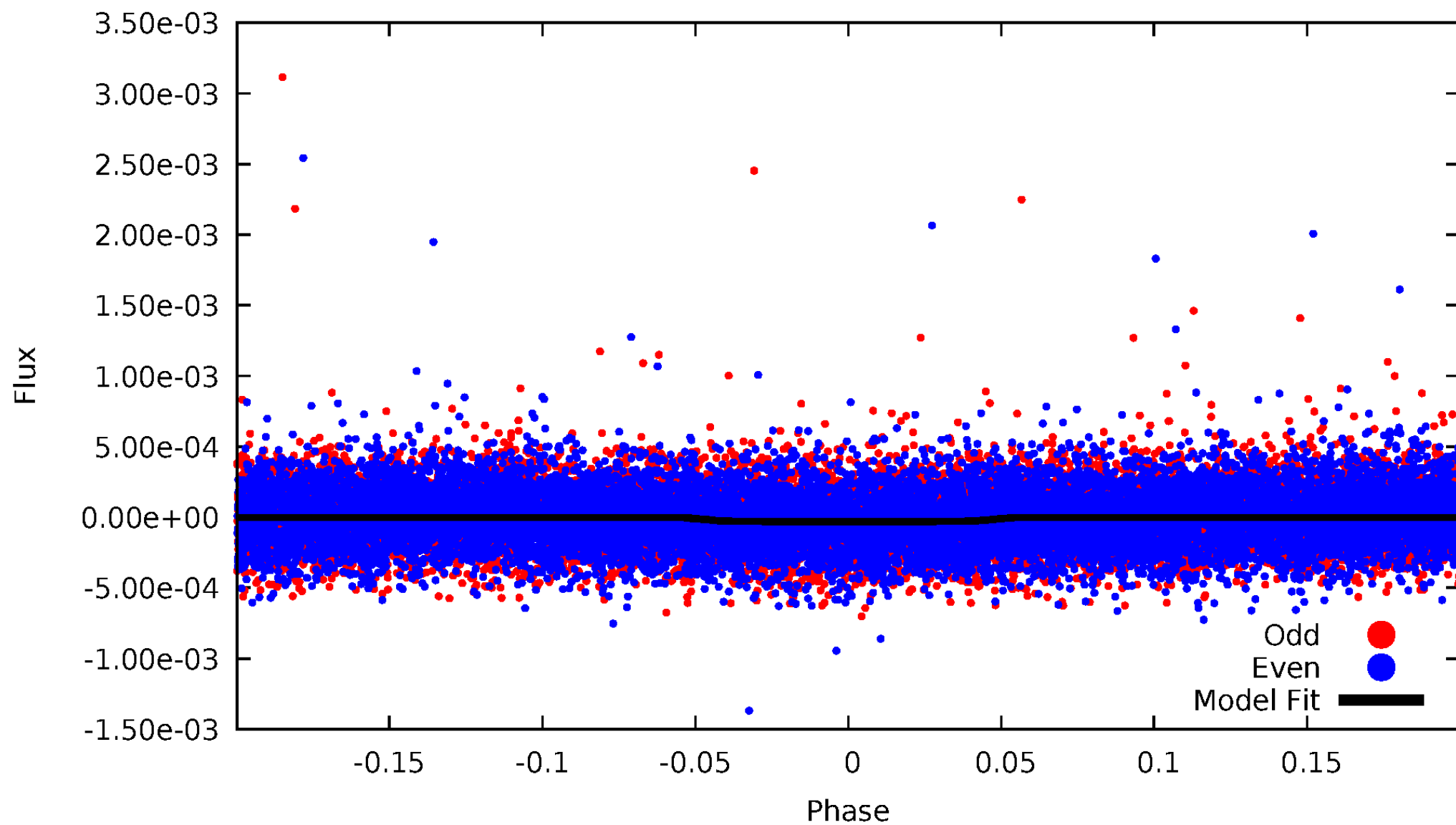


TCE 003223460-01



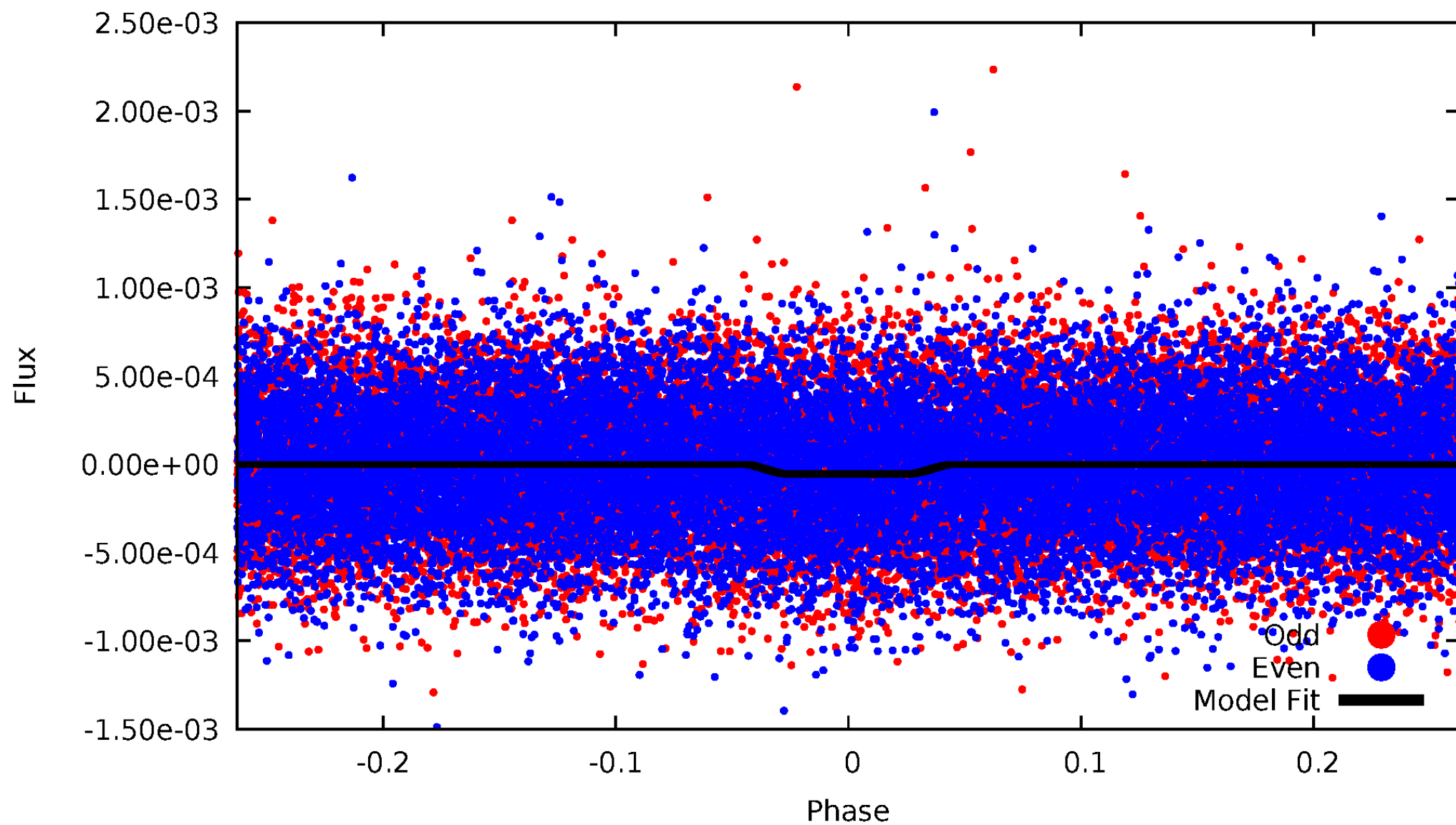
DV Odd/Even

TCE 003223460-01



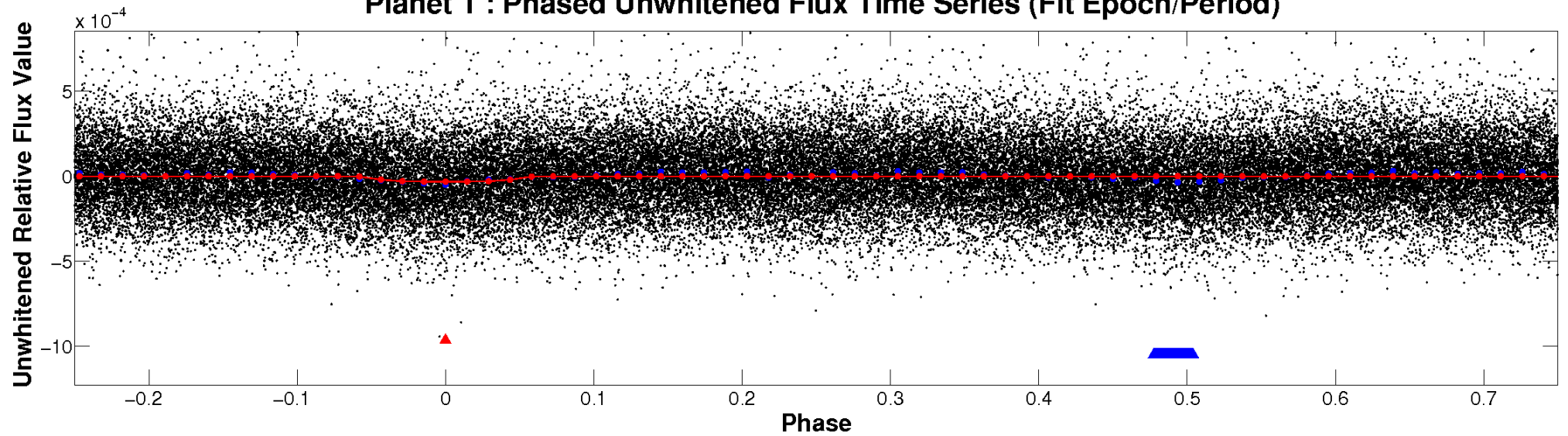
ALT Odd/Even

TCE 003223460-01

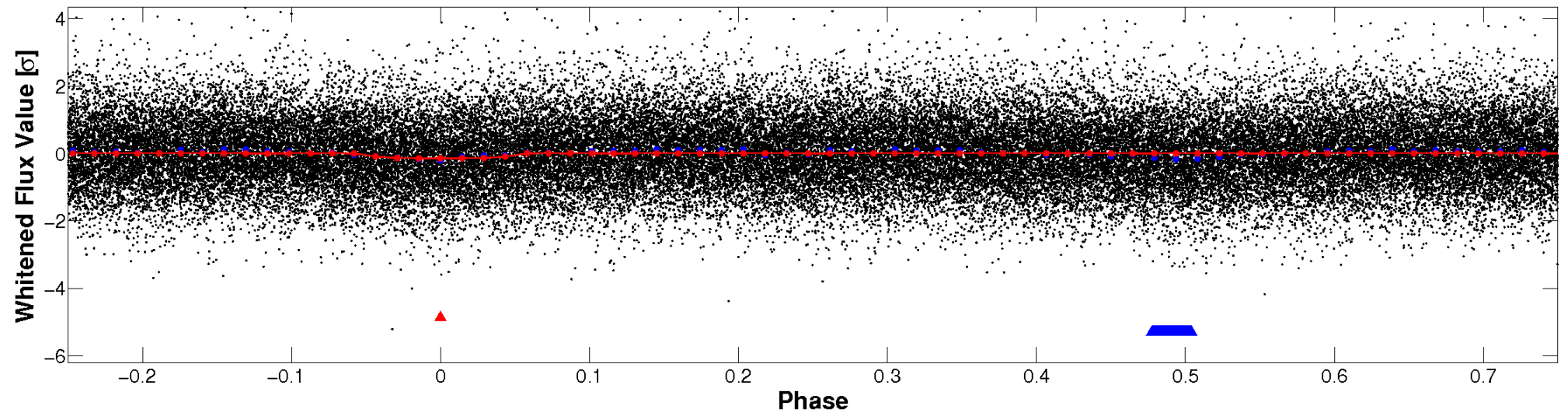


Non-Whitened Vs. Whitened Light Curve

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

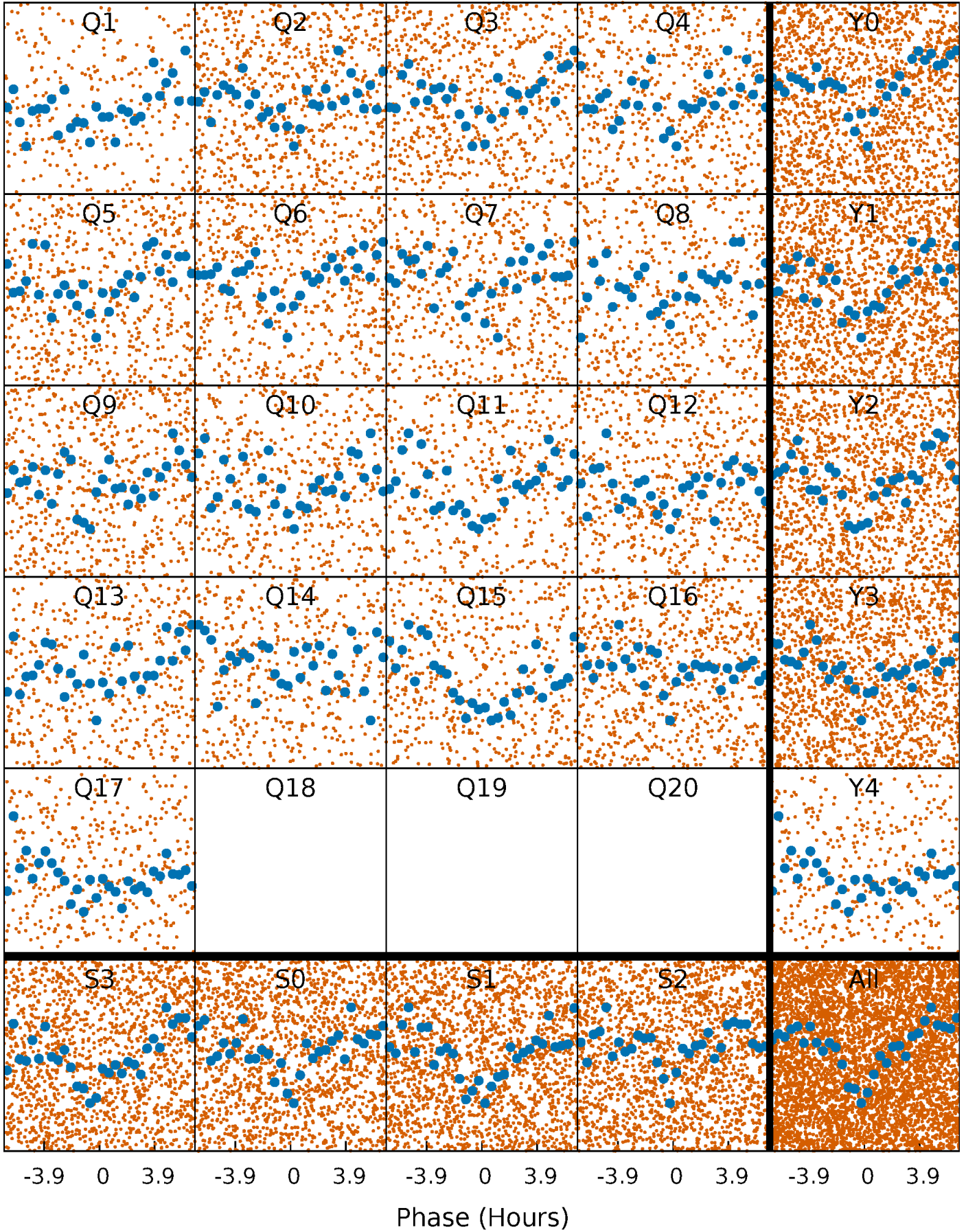


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



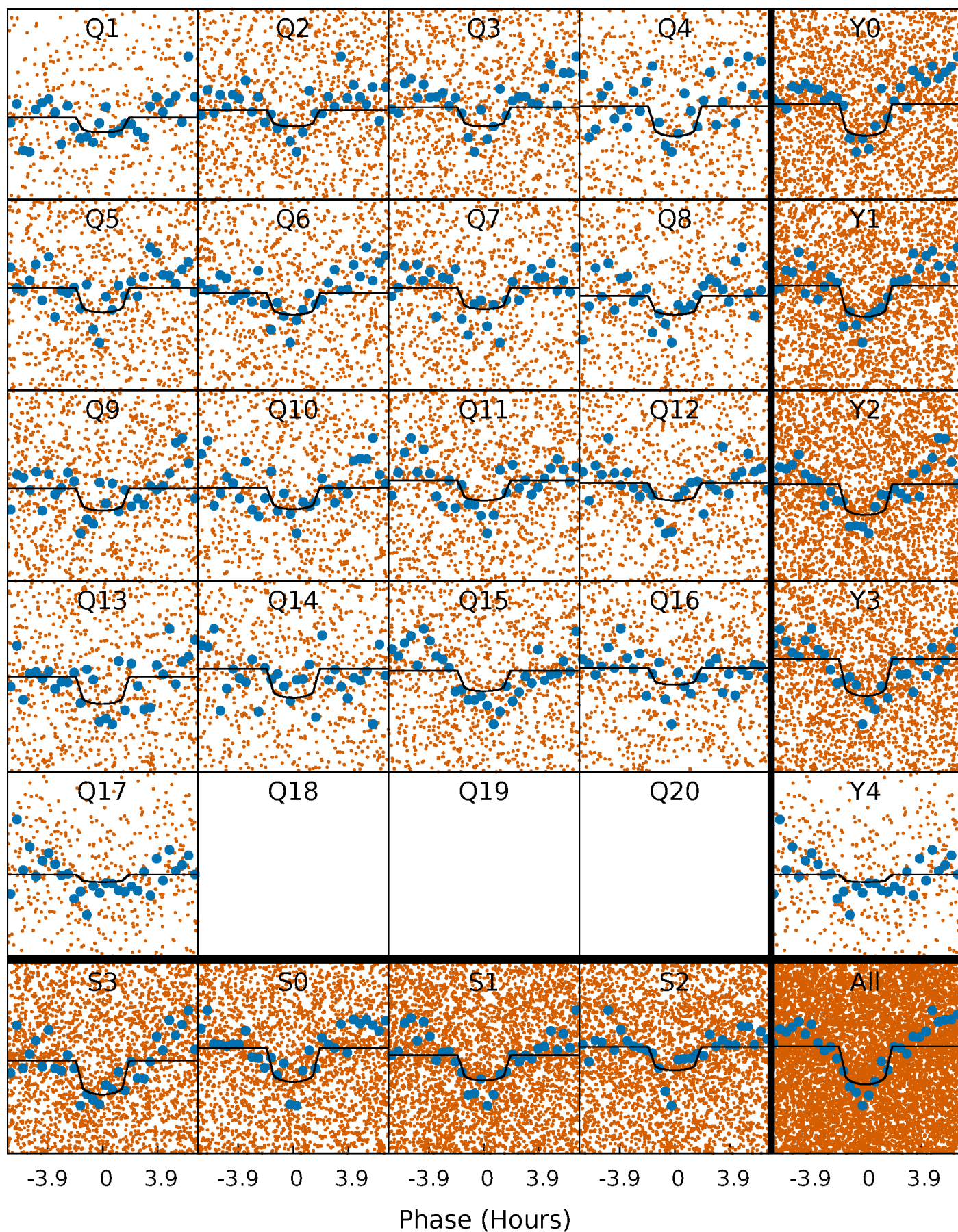
PDC Quarter-Phased Transit Curves

TCE 003223460-01 P= 1.407199 Days $T_0=132.844450$ (BKJD)



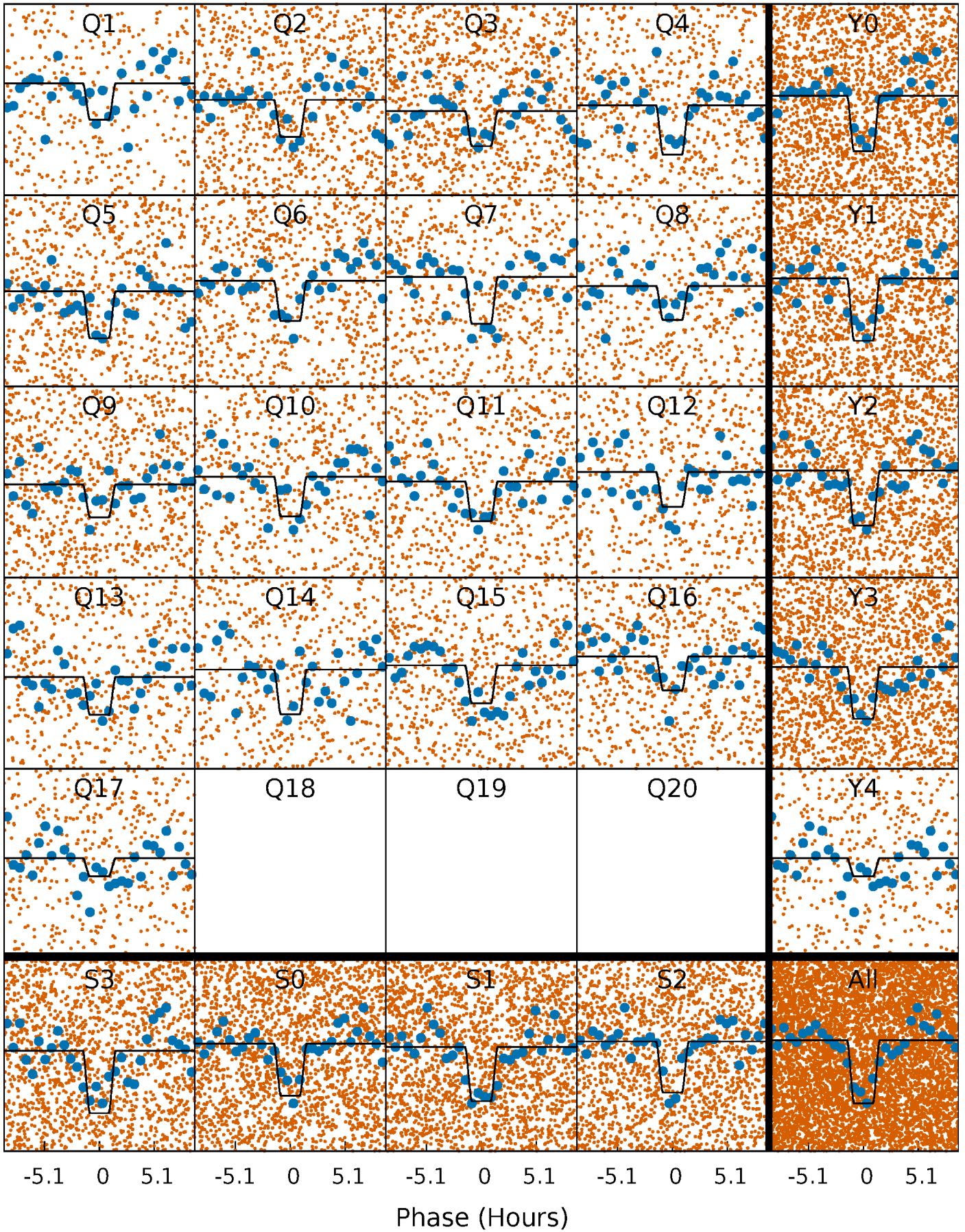
DV Quarter-Phased Transit Curves

TCE 003223460-01 P= 1.407199 Days $T_0=132.844450$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

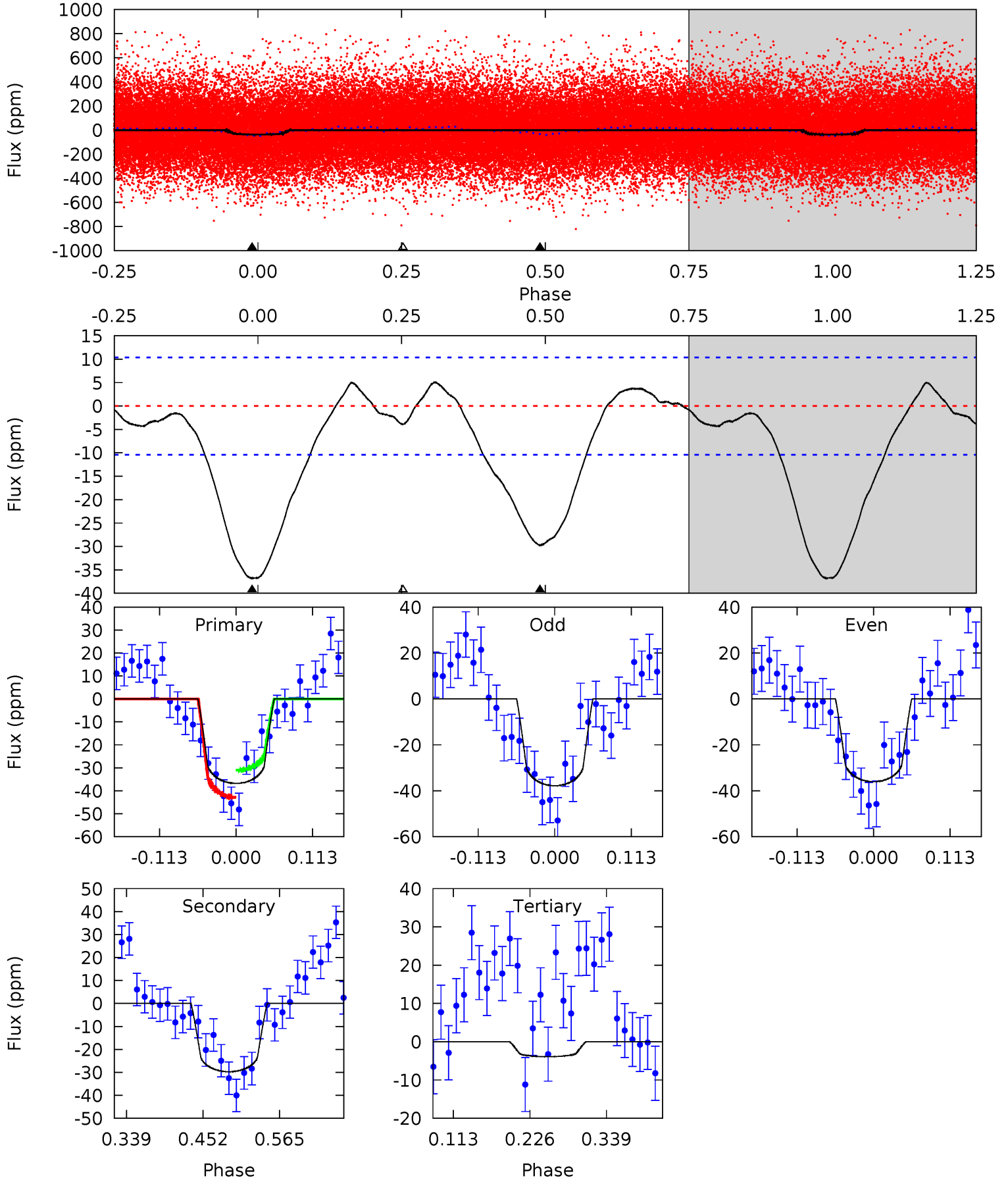
TCE 003223460-01 P= 1.407206 Days $T_0=132.830441$ (BKJD)



DV Model-Shift Uniqueness Test

003223460-01, P = 1.407199 Days, E = 131.437251 Days

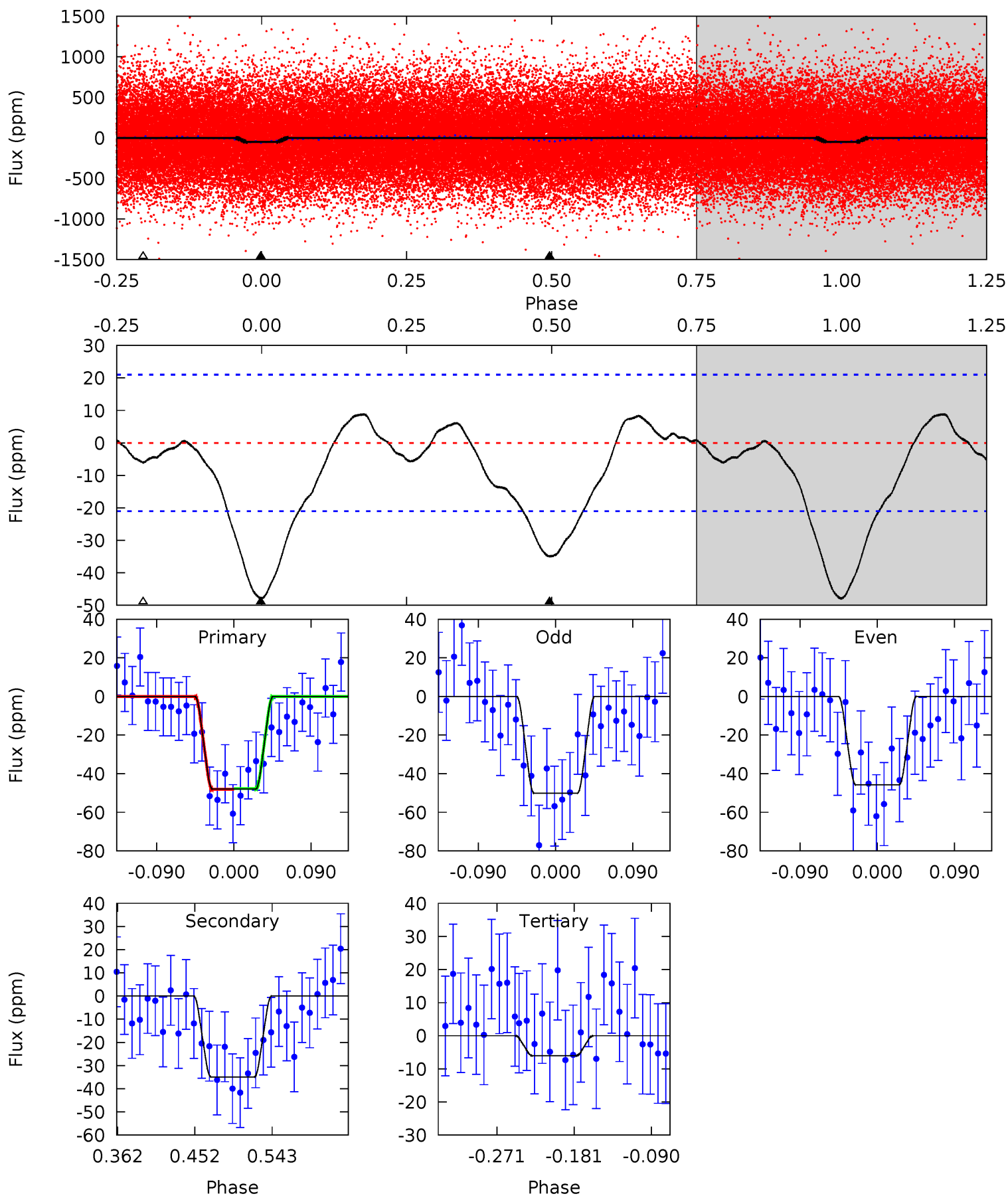
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	13.0	1.71	0	4.54	1.58	1.27	14.4	16.1	11.3	13.0	0.38	0.98	0.12	2.60



Alt Model-Shift Uniqueness Test

003223460-01, P = 1.407206 Days, E = 131.423235 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	7.62	1.32	0	4.59	1.69	1.14	9.13	10.4	6.30	7.62	0.48	1.01	0.16	0.04



Stellar Parameters For KIC 003223460

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8126^{+226}_{-340}	$4.092^{+0.150}_{-0.150}$	$-0.140^{+0.250}_{-0.350}$	$1.970^{+0.472}_{-0.429}$	$1.747^{+0.166}_{-0.271}$	$0.322^{+0.246}_{-0.140}$
	+3%/-4%	+4%/-4%	+179%/-250%	+24%/-22%	+10%/-16%	+76%/-44%
Source	KIC0	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 003223460-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-30 ± 2	$1.22^{+0.42}_{-0.40}$	4070^{+266}_{-272}	7651^{+2536}_{-1059}	$9.321^{+11.165}_{-4.095}$
Alt.	-35 ± 5	$1.57^{+0.48}_{-0.42}$	4069^{+281}_{-264}	6966^{+1404}_{-865}	$6.750^{+5.473}_{-2.878}$

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 $A_{obs} \gg 1.0$

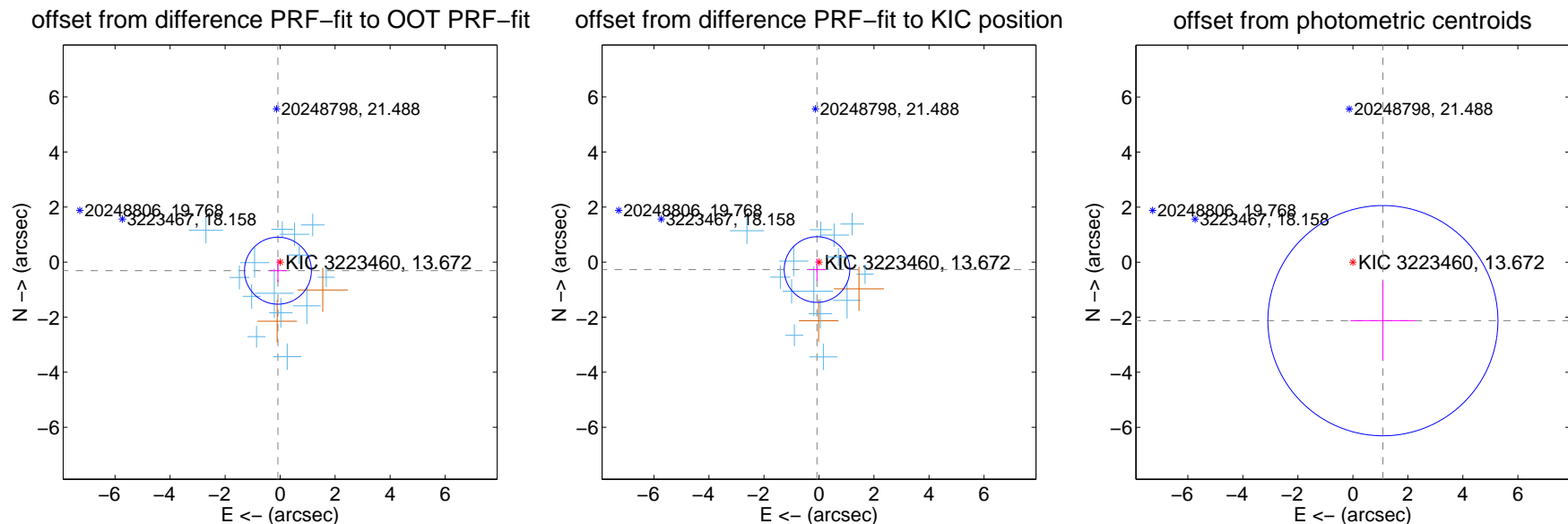
DV Centroid Data

Supplemental centroid analysis for 003223460-01. Kepler magnitude: 13.67. Transit SNR 10.06

There are 14 quarters with good PRF difference image offsets

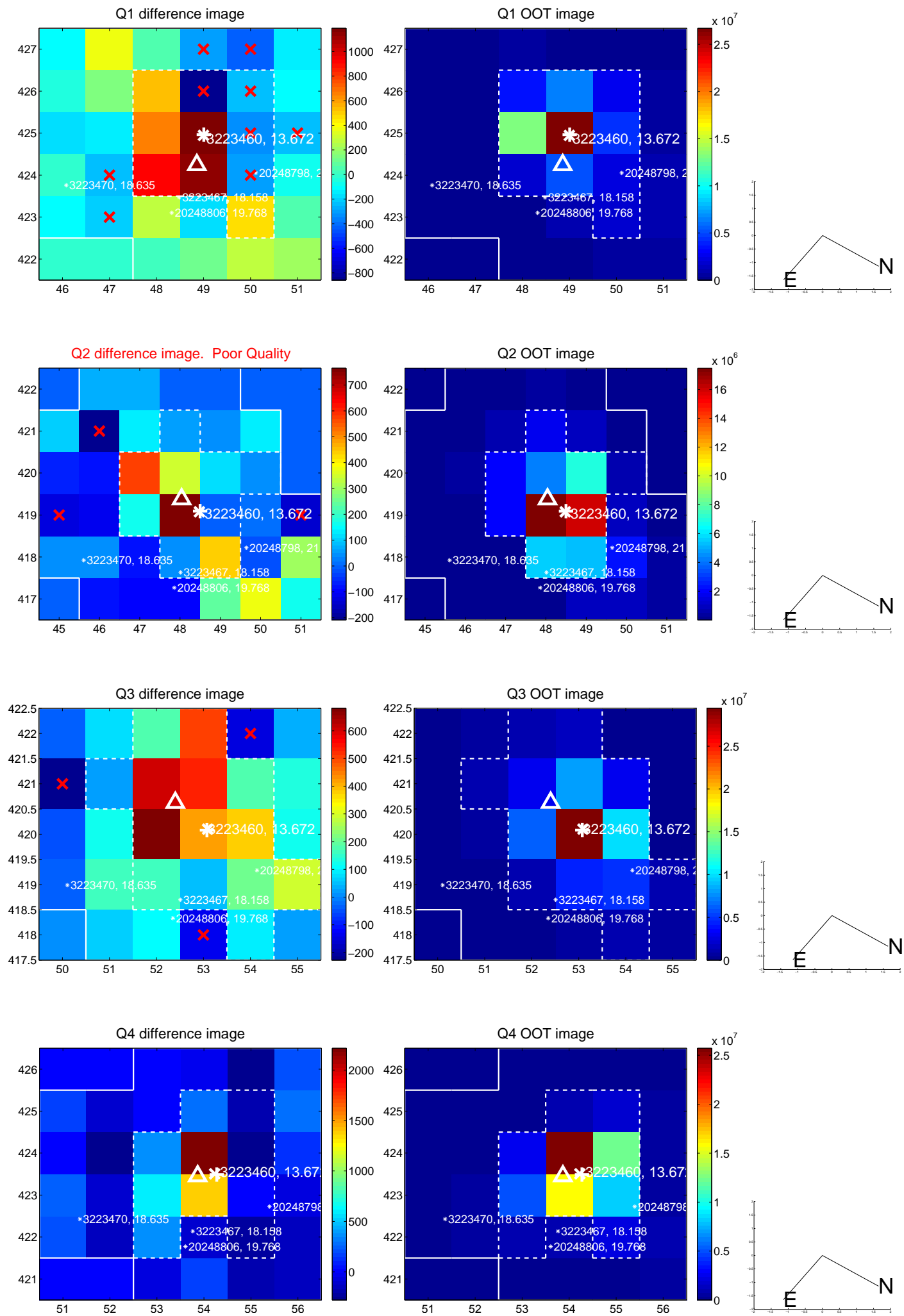
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.322 ± 0.406	0.79	0.078 ± 0.312	-0.312 ± 0.411
PRF-fit source offset from KIC position	0.280 ± 0.397	0.71	0.072 ± 0.309	-0.271 ± 0.403
photometric centroid source offset	2.39 ± 1.39	1.71	-1.09 ± 1.18	-2.13 ± 1.45

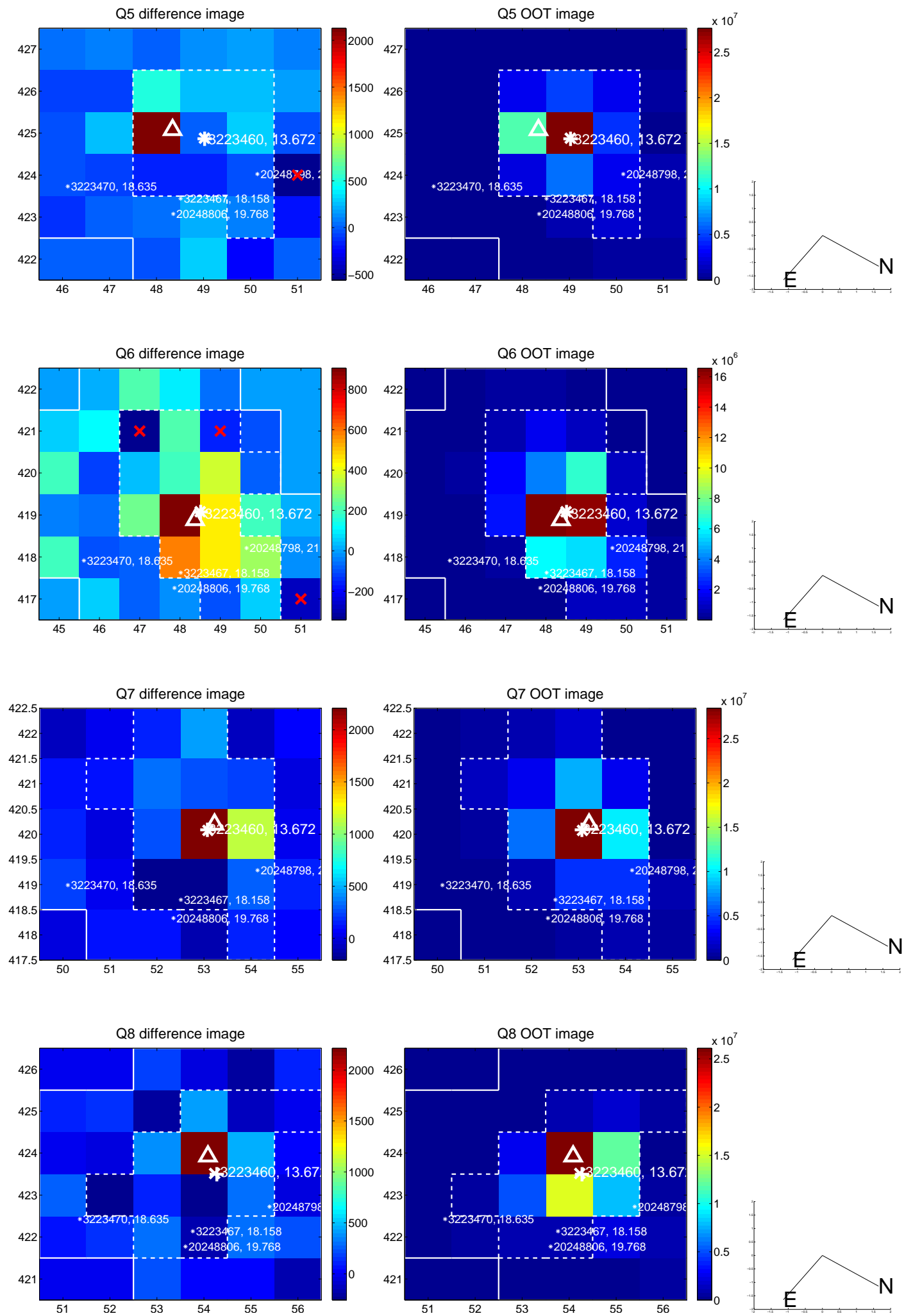


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

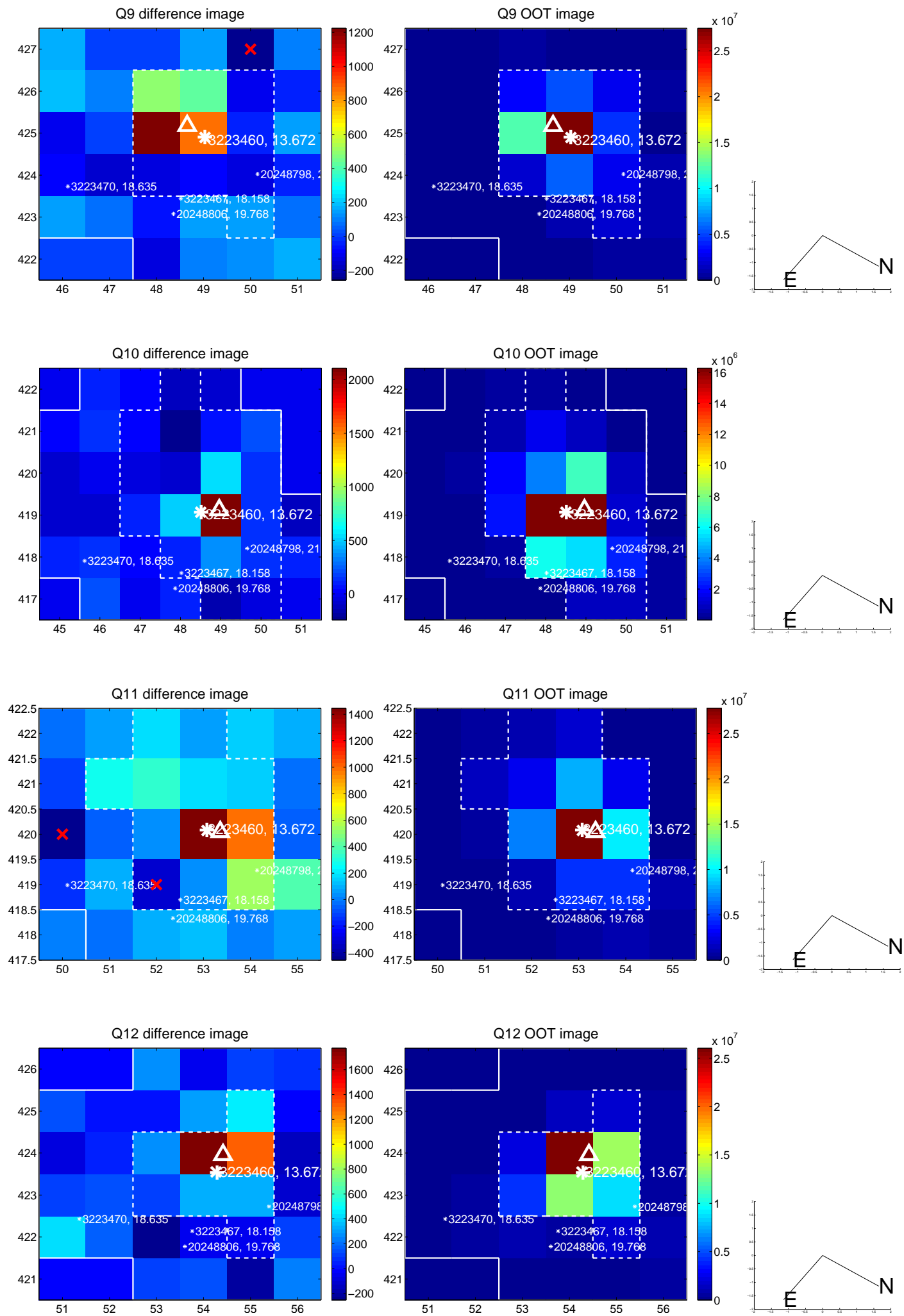
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



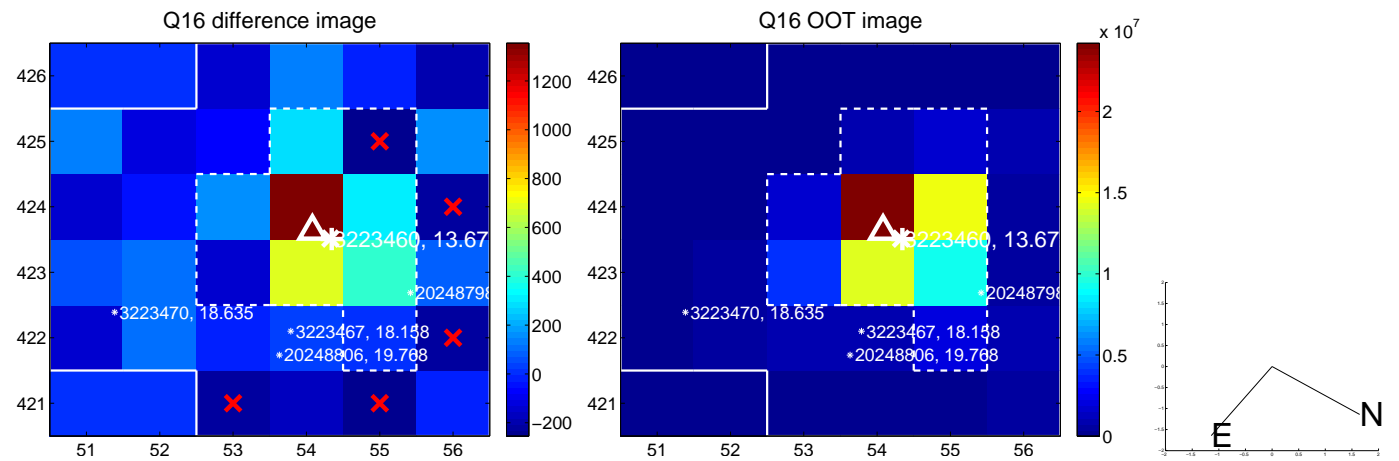
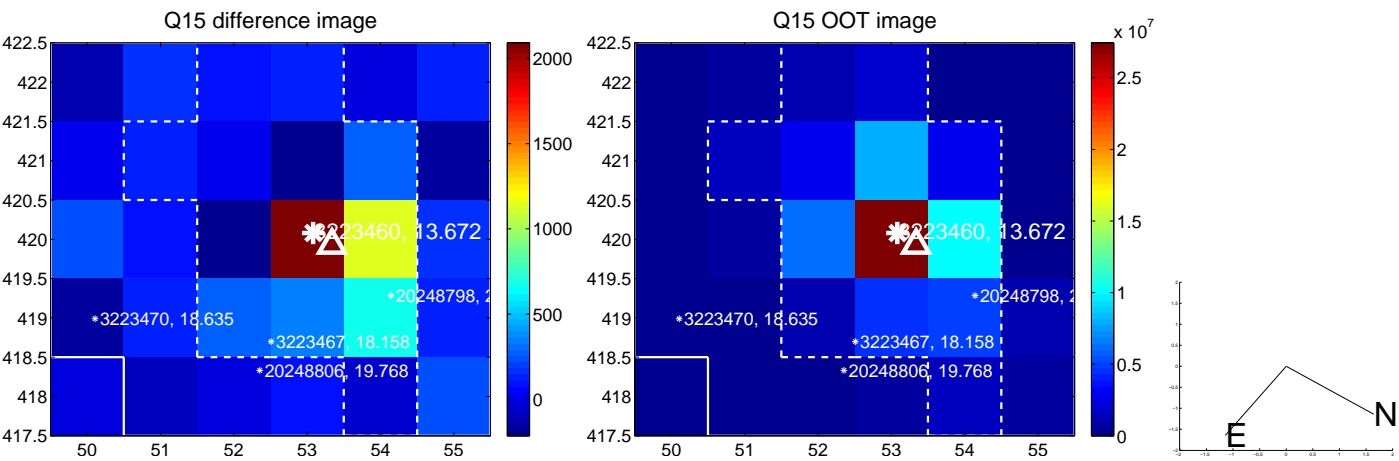
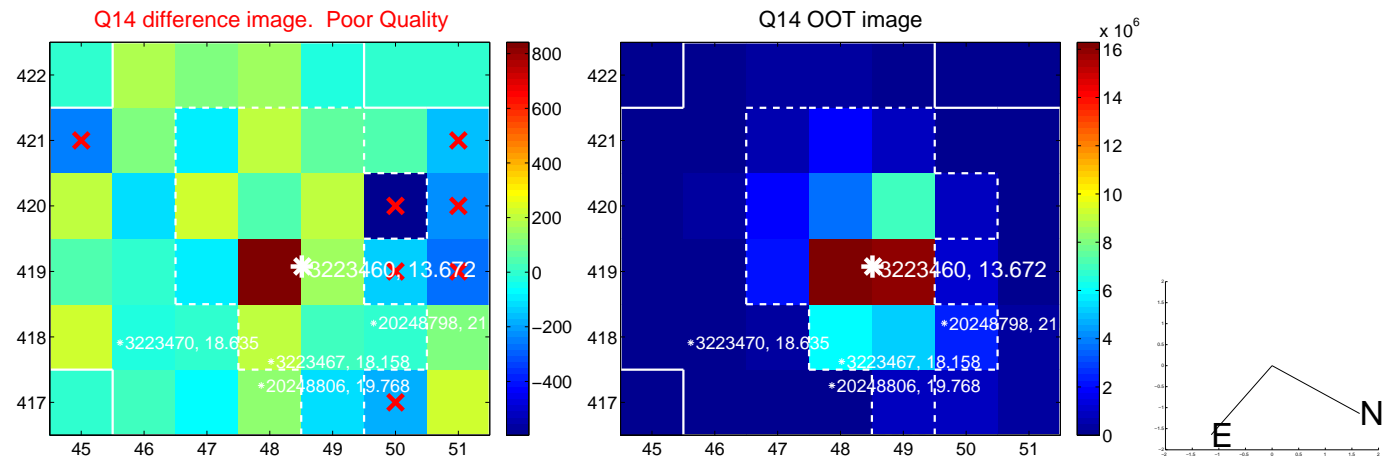
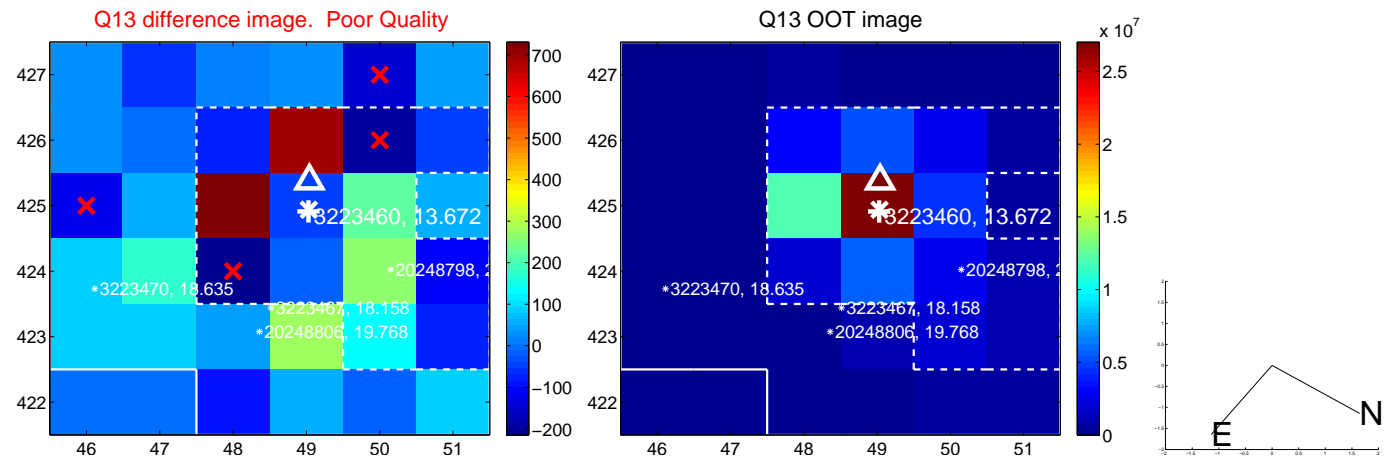
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



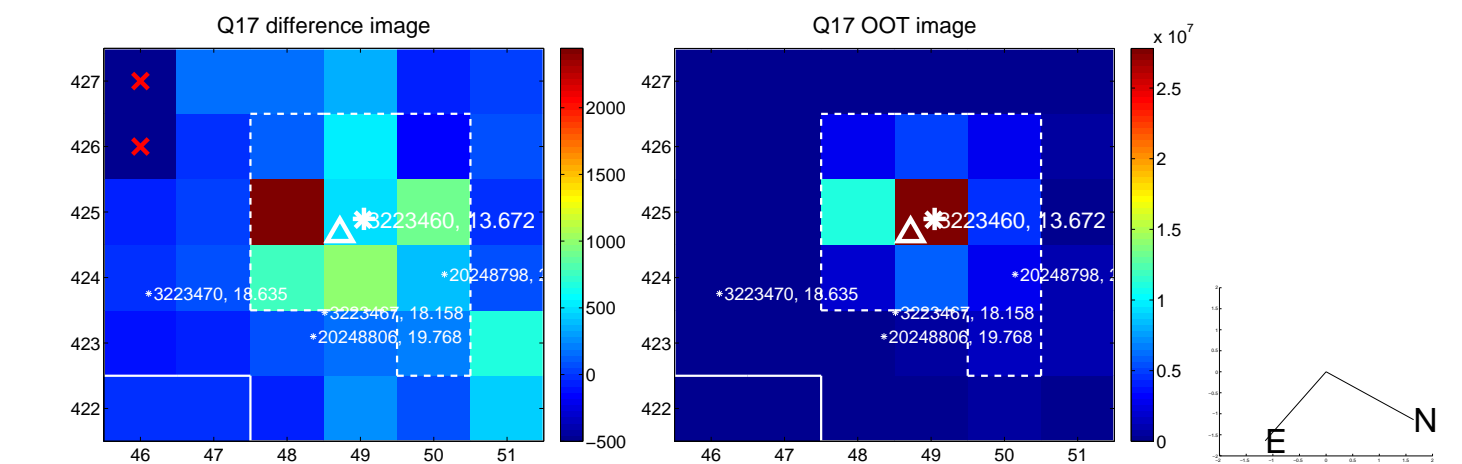
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



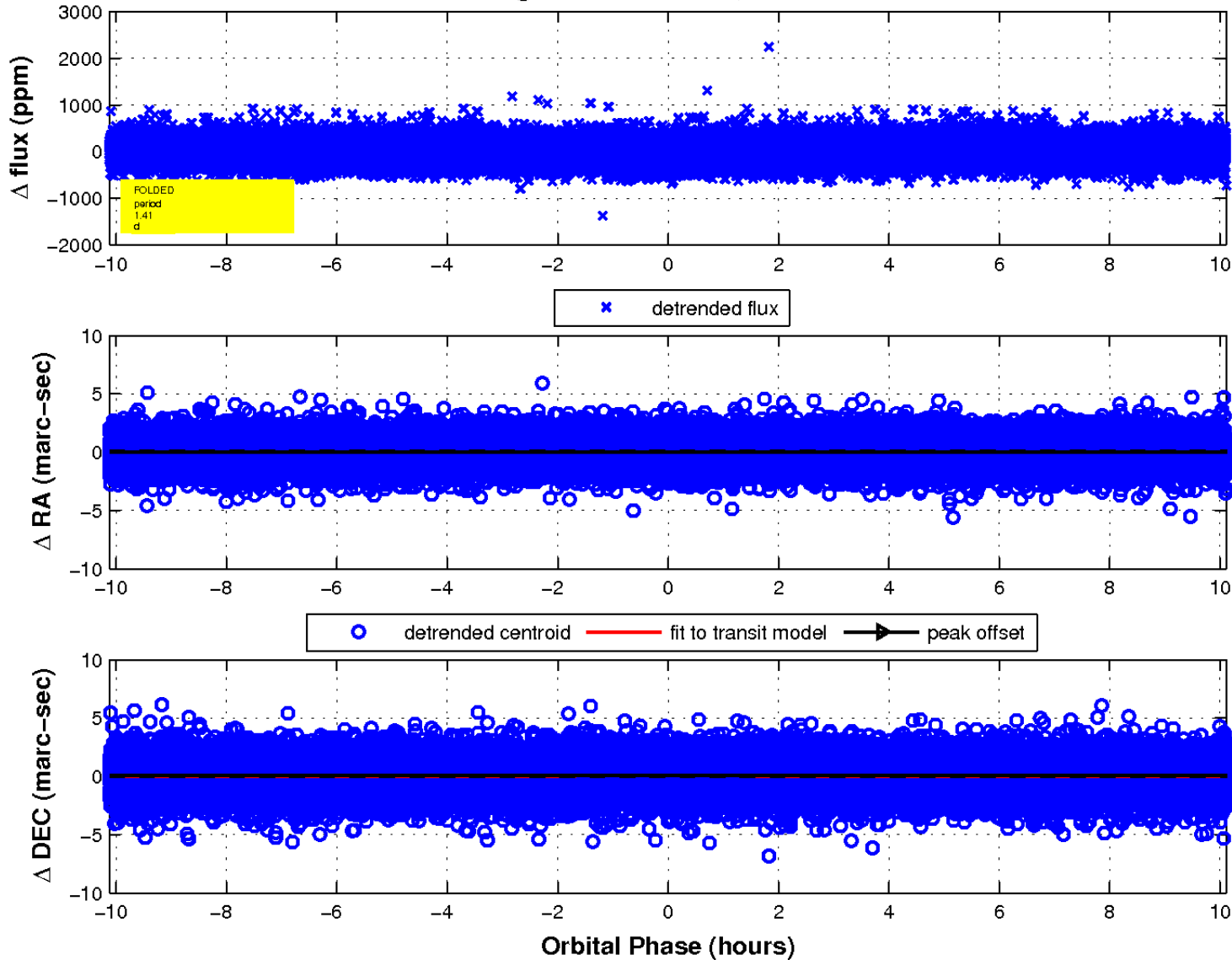
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

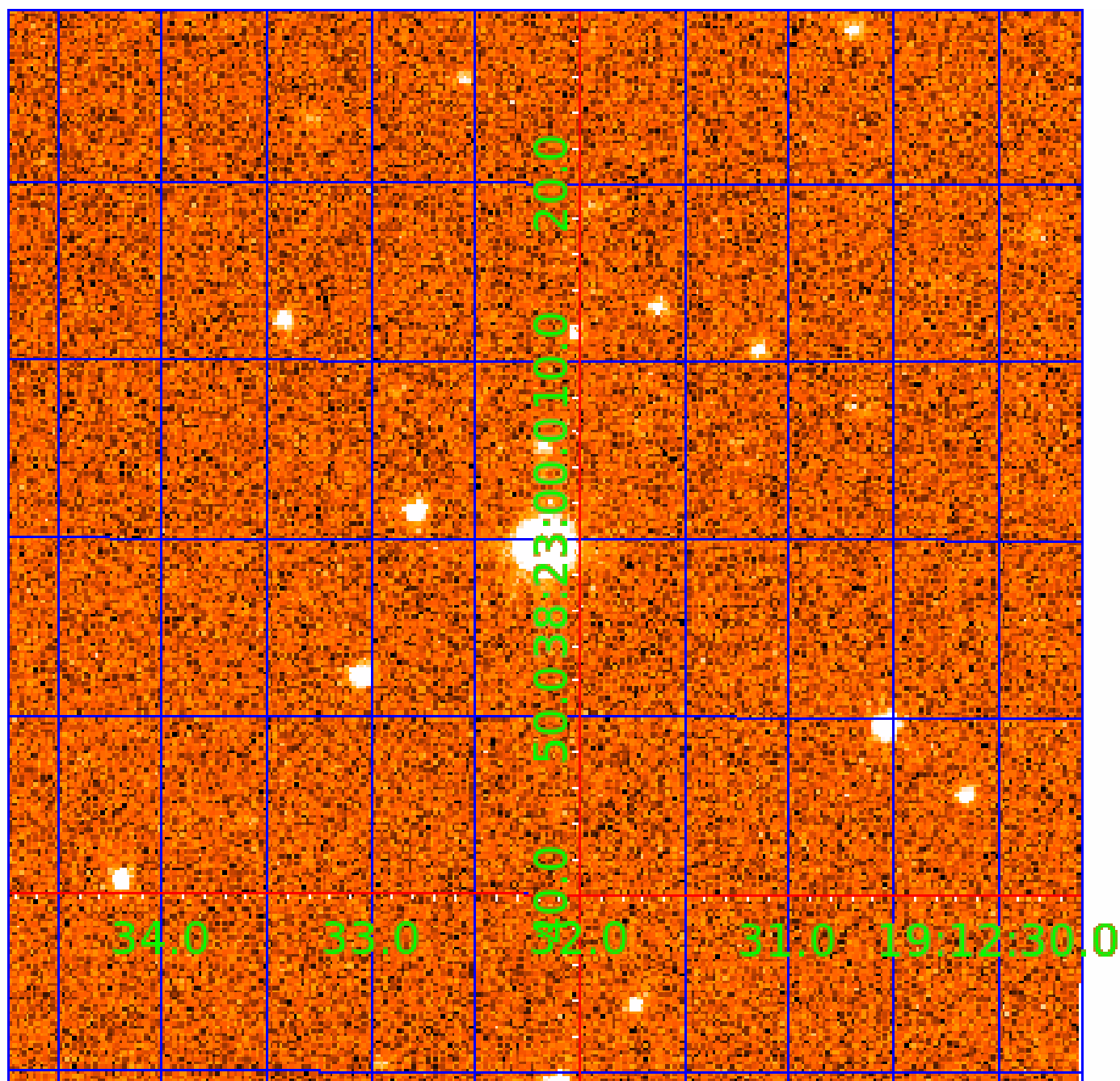


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003223460

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})
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Robovetter Results

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003223460-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

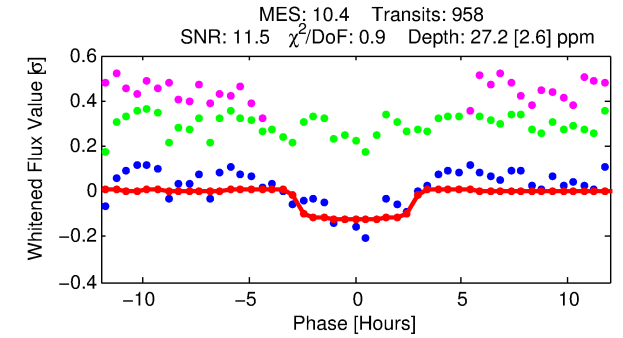
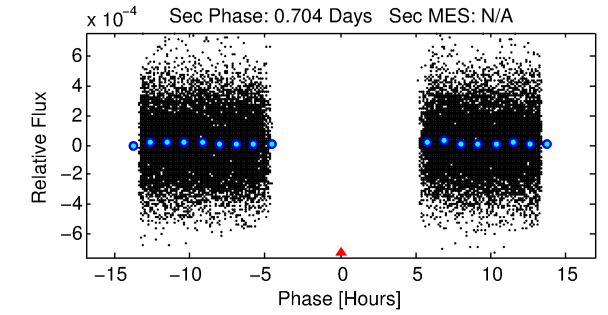
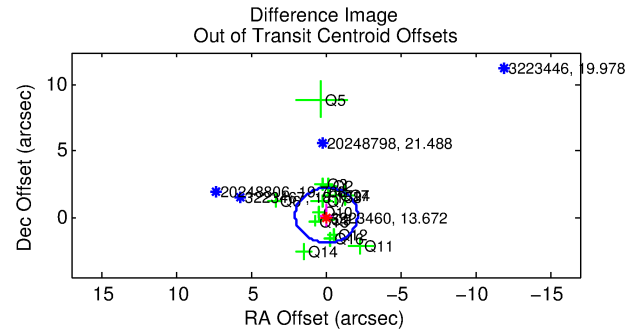
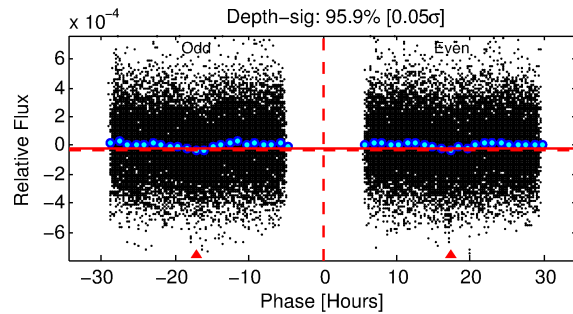
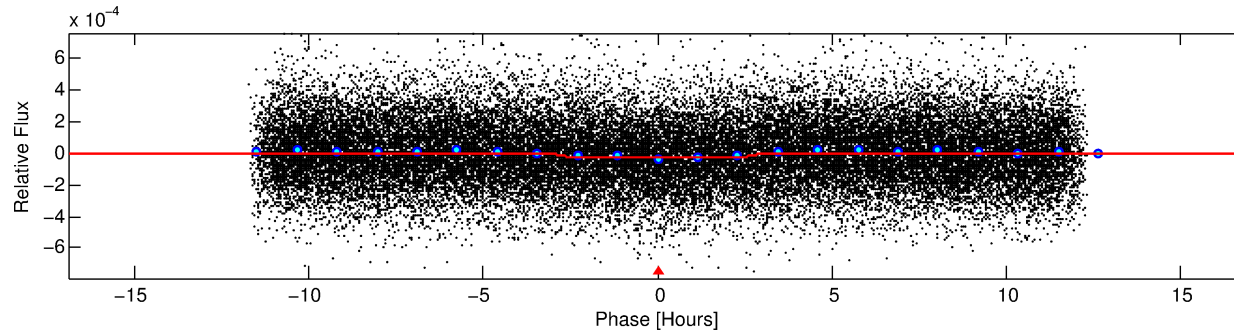
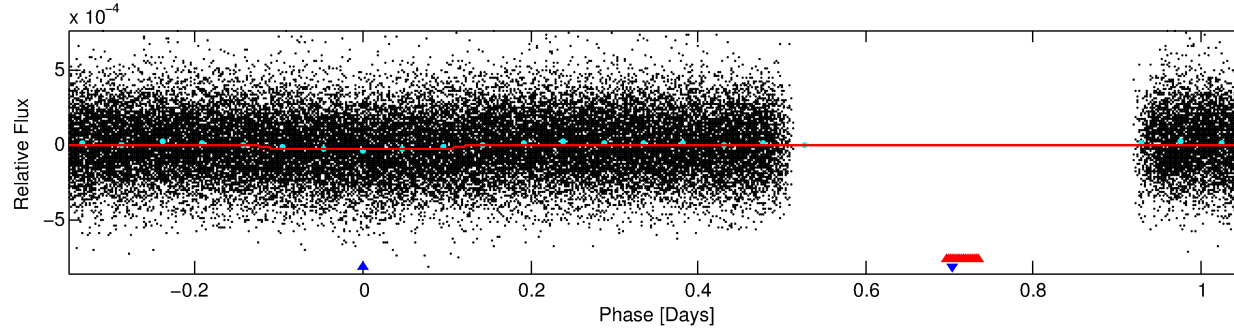
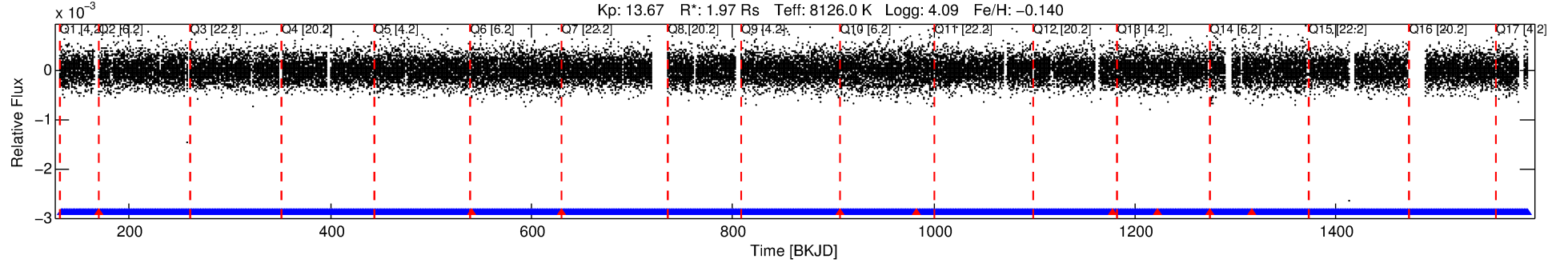
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003223460-02

No Significant Match Found

DV One-Page Summary

KIC: 3223460 Candidate: 2 of 2 Period: 1.407 d



DV Fit Results:

Period = 1.40724 [0.00002] d
Epoch = 132.1091 [0.0052] BKJD
Rp/R* = 0.0048 [0.0063]
a/R* = 1.97 [11.15]
b = 0.06 [131.36]
Seff = 17280.52 [5640.52]
Teq = 2924 [239] K
Rp = 1.04 [1.38] Re
a = 0.0296 [0.0058] AU

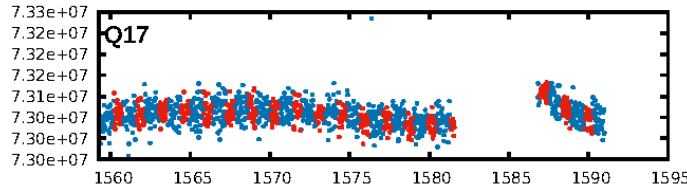
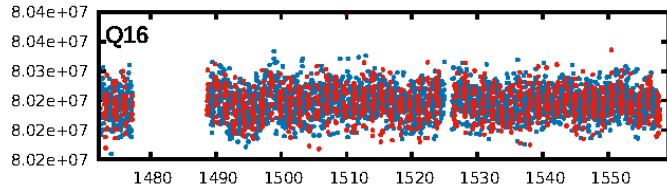
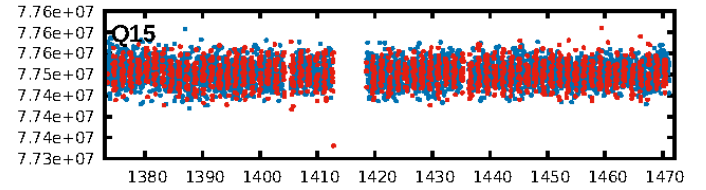
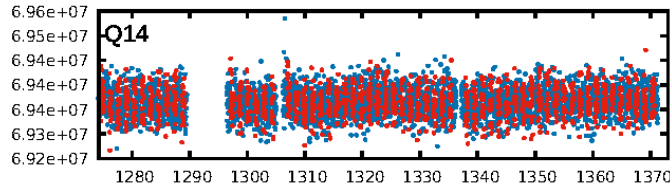
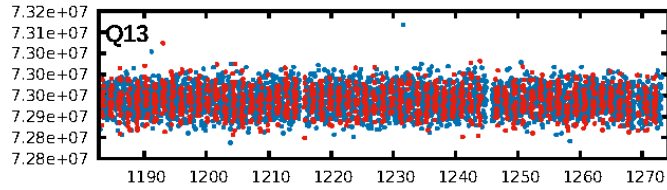
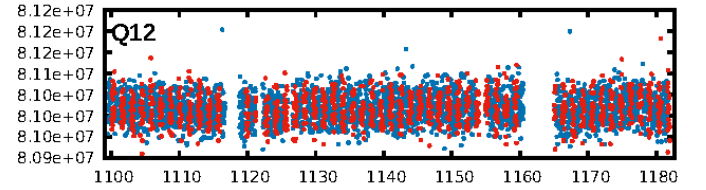
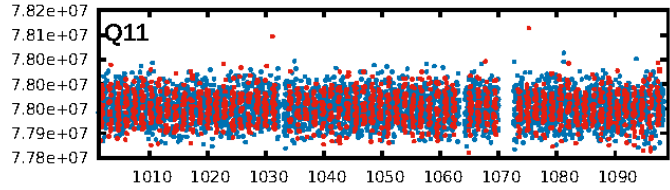
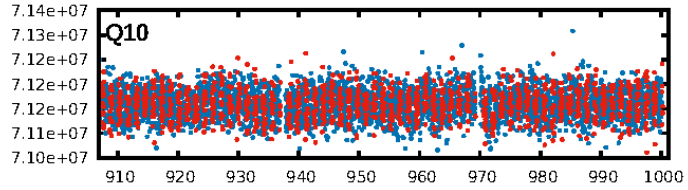
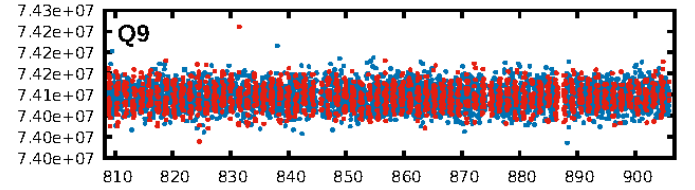
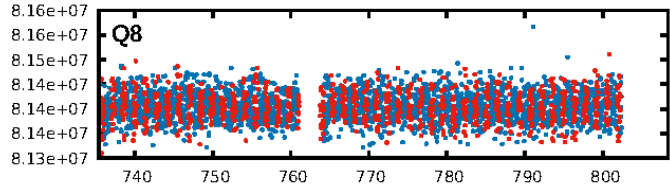
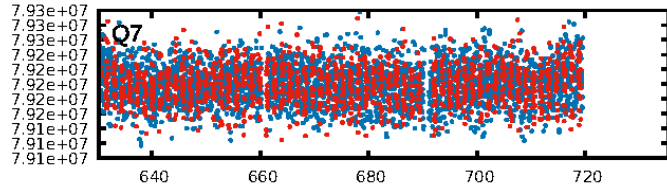
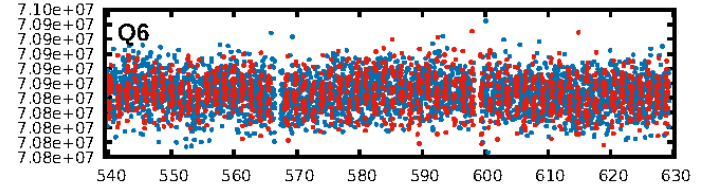
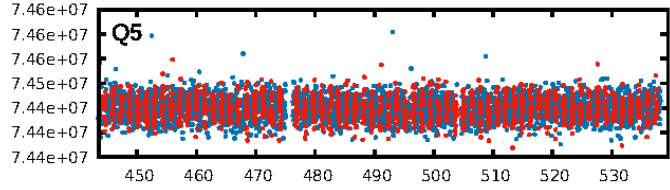
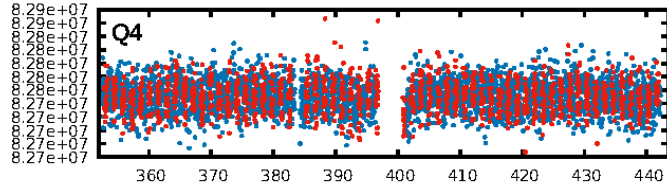
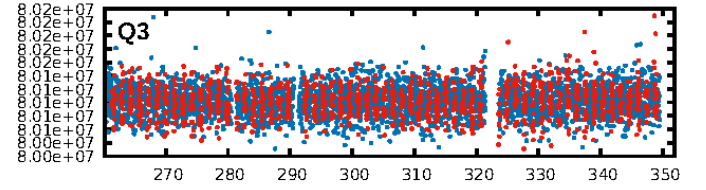
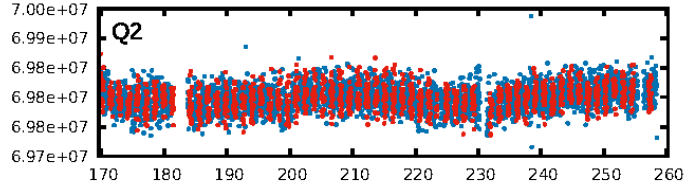
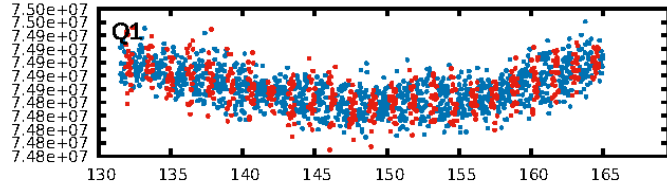
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.55e-31
RollingBand-fgt: 0.99 [906/915]
GhostDiagnostic-chr: 47.3
Centroid-sig: 16.2%
Centroid-so: 1.376 arcsec [1.09 σ]
OotOffset-rm: 0.175 arcsec [0.25 σ]
KicOffset-rm: 0.203 arcsec [0.31 σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [17/17]

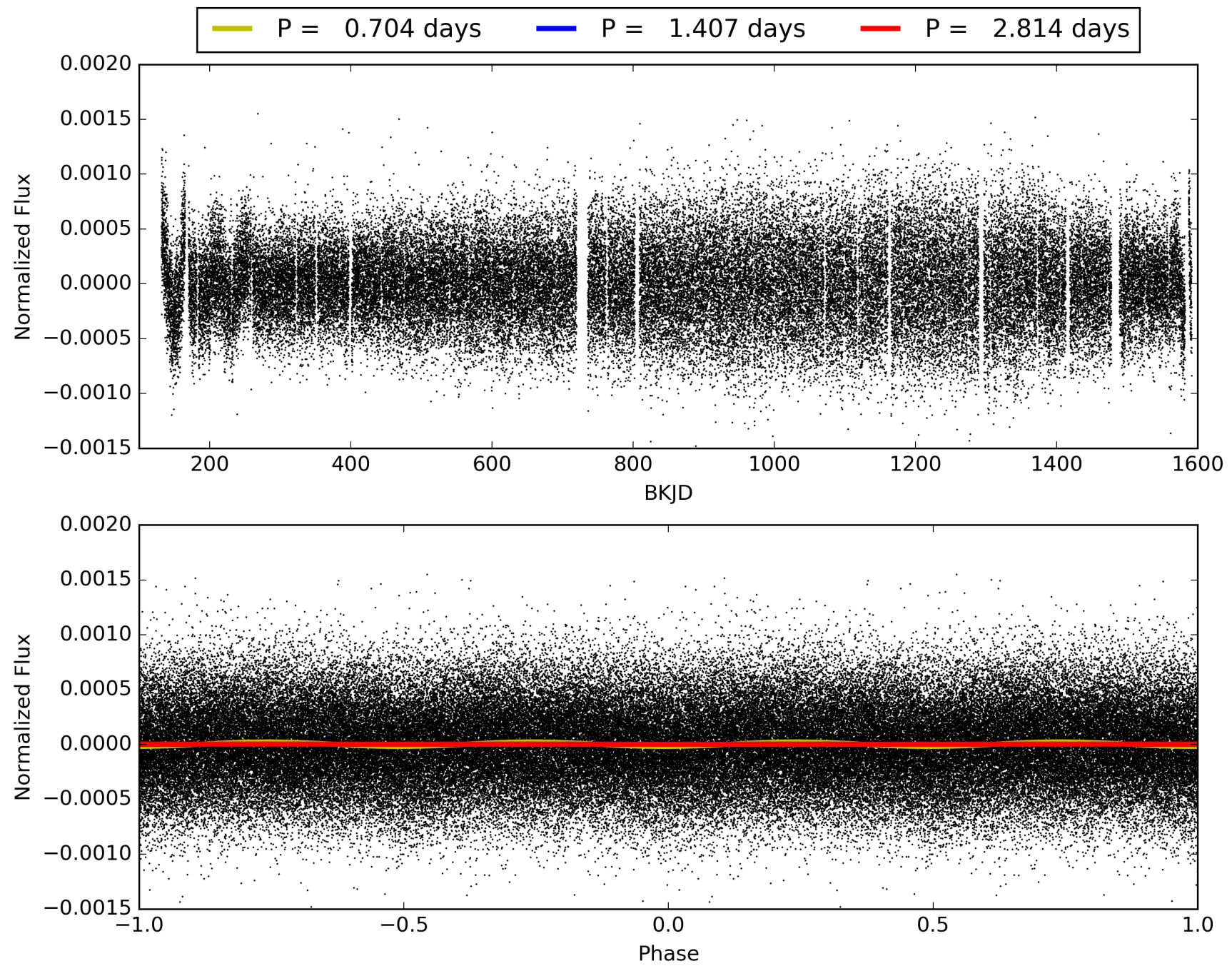
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:17:40 Z

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

TCE 003223460-02, PDC Light Curves

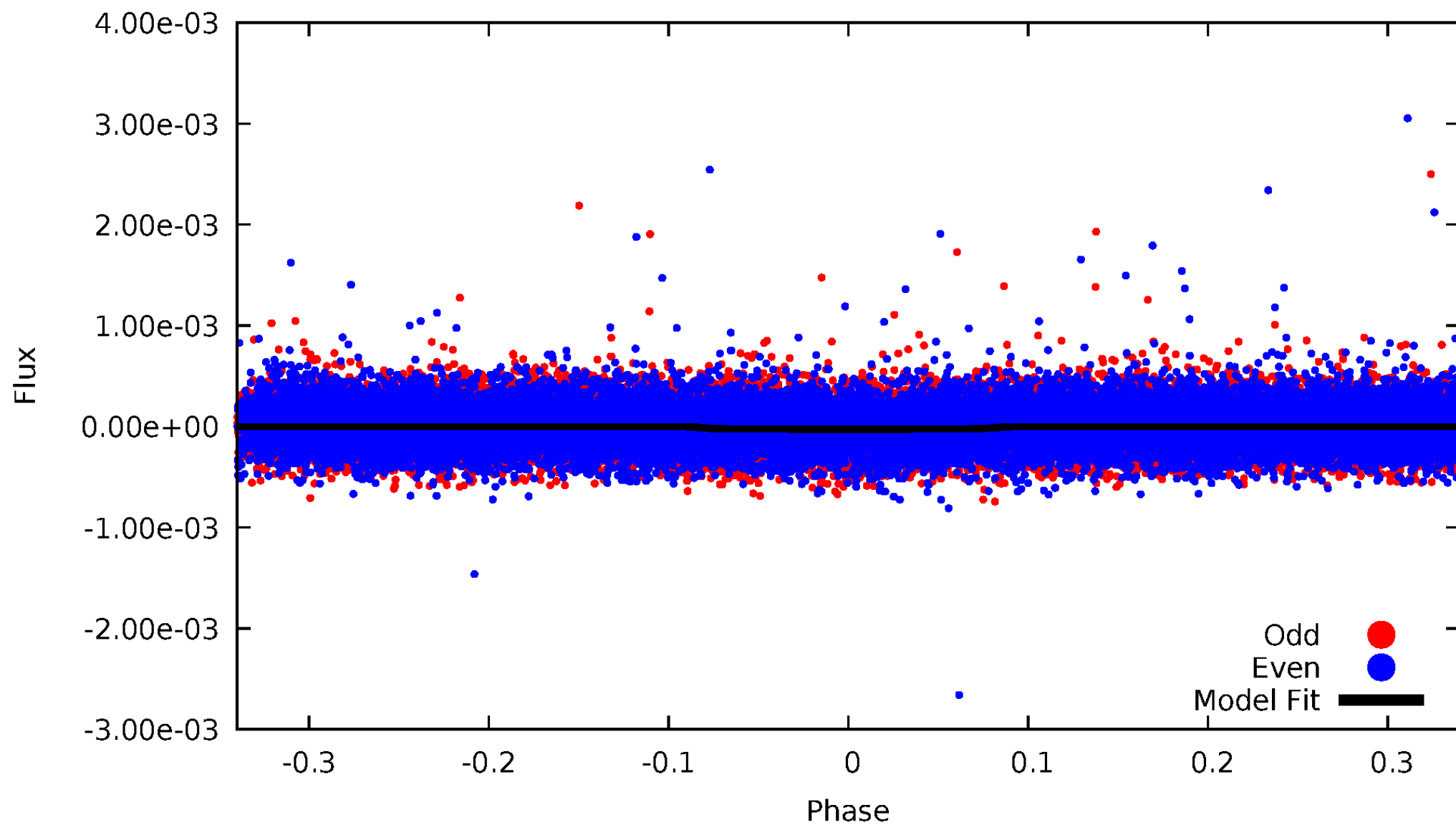


TCE 003223460-02



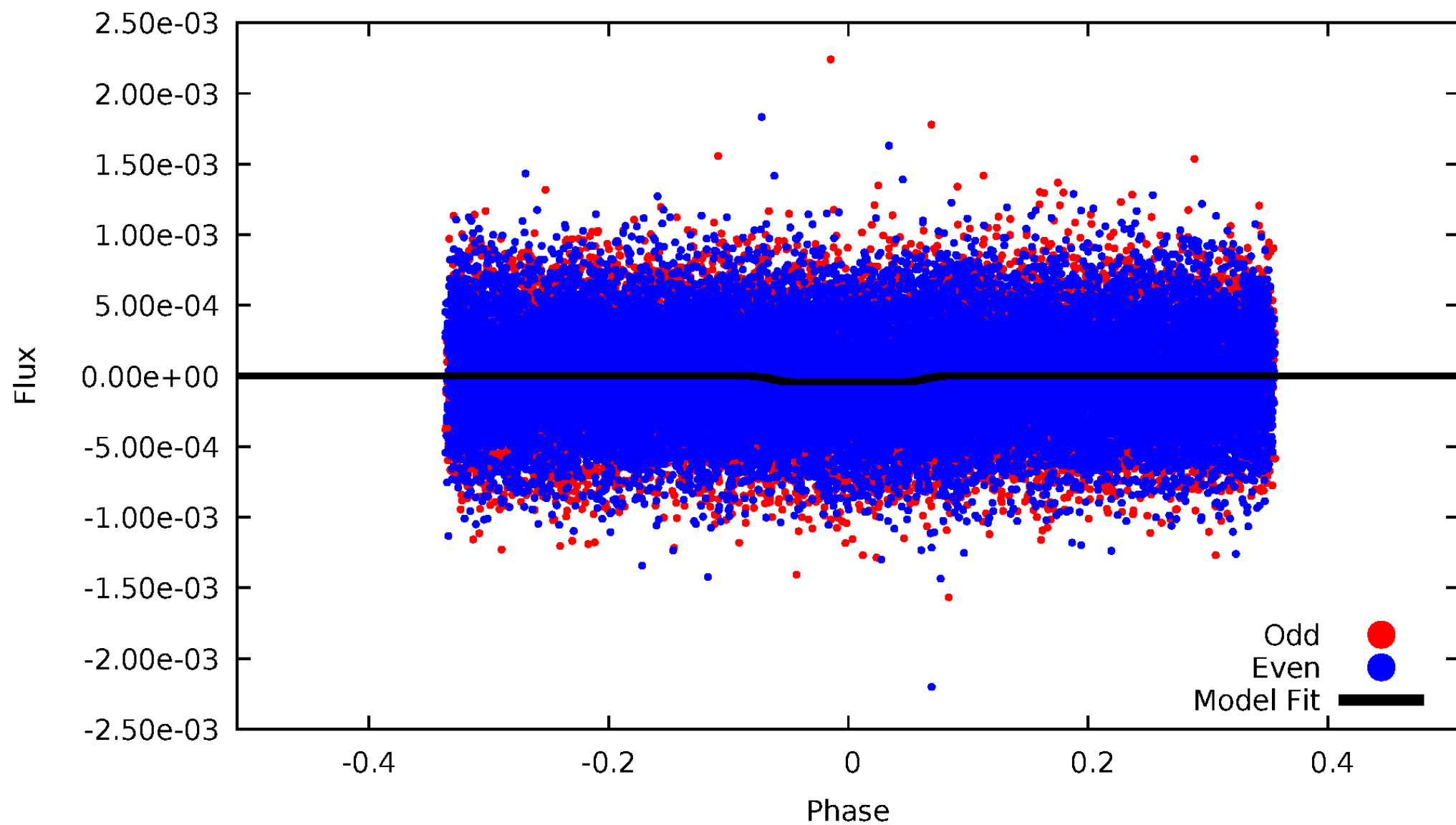
DV Odd/Even

TCE 003223460-02



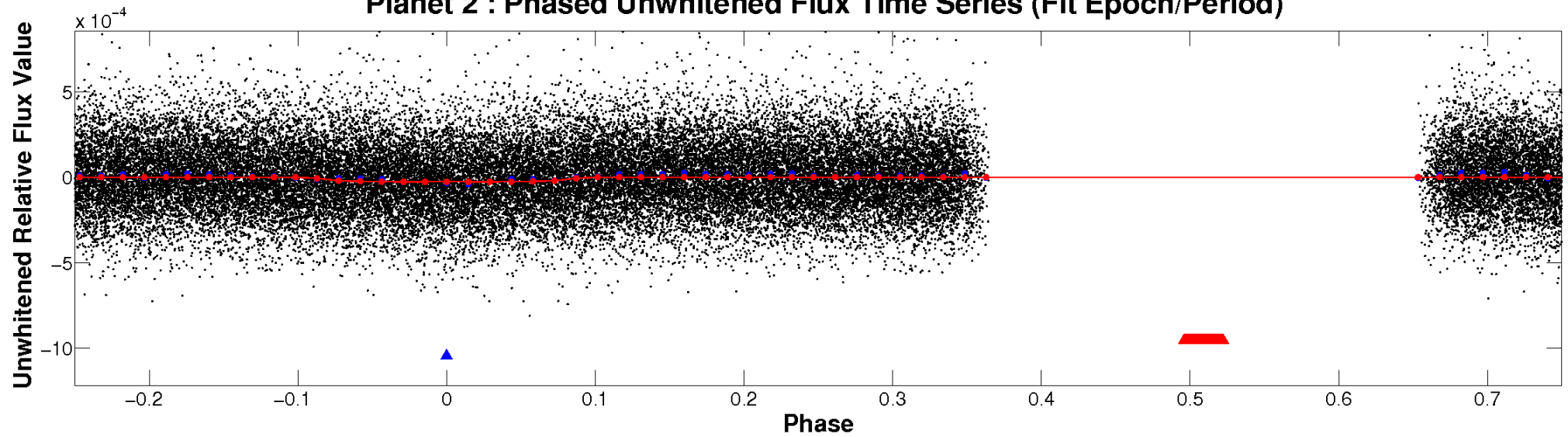
ALT Odd/Even

TCE 003223460-02

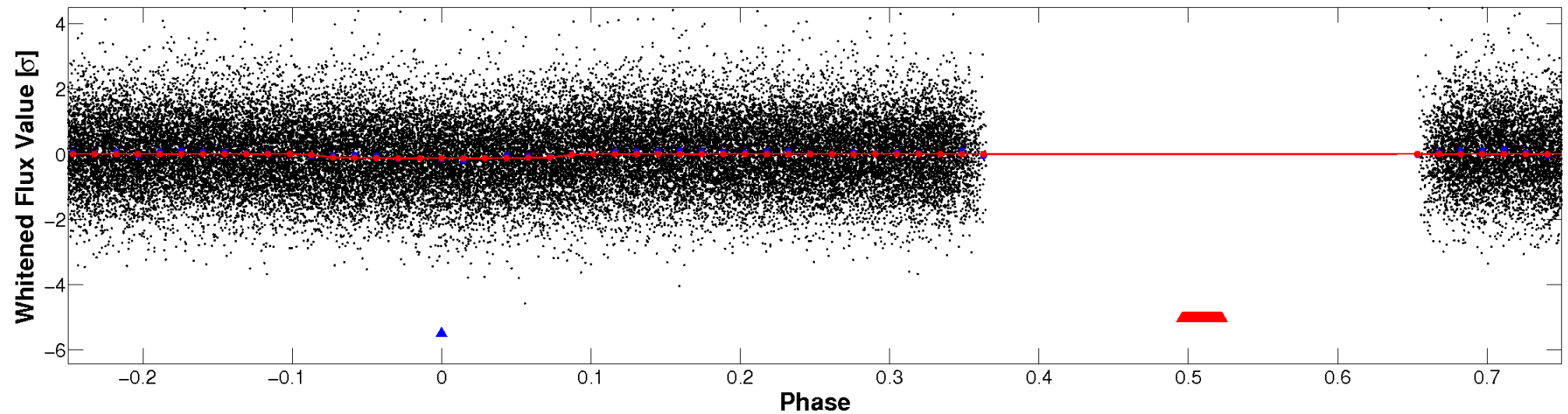


Non-Whitened Vs. Whitened Light Curve

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

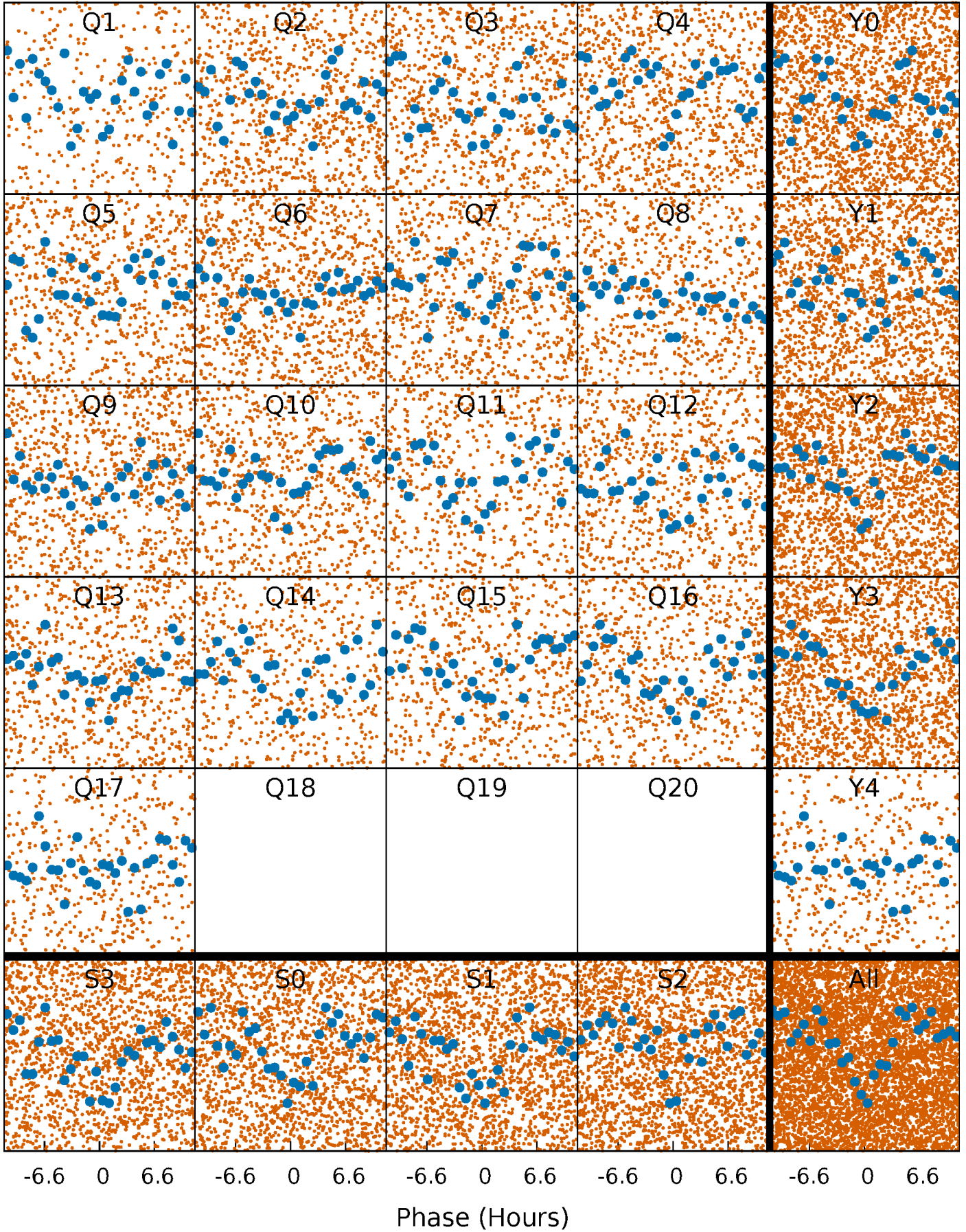


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



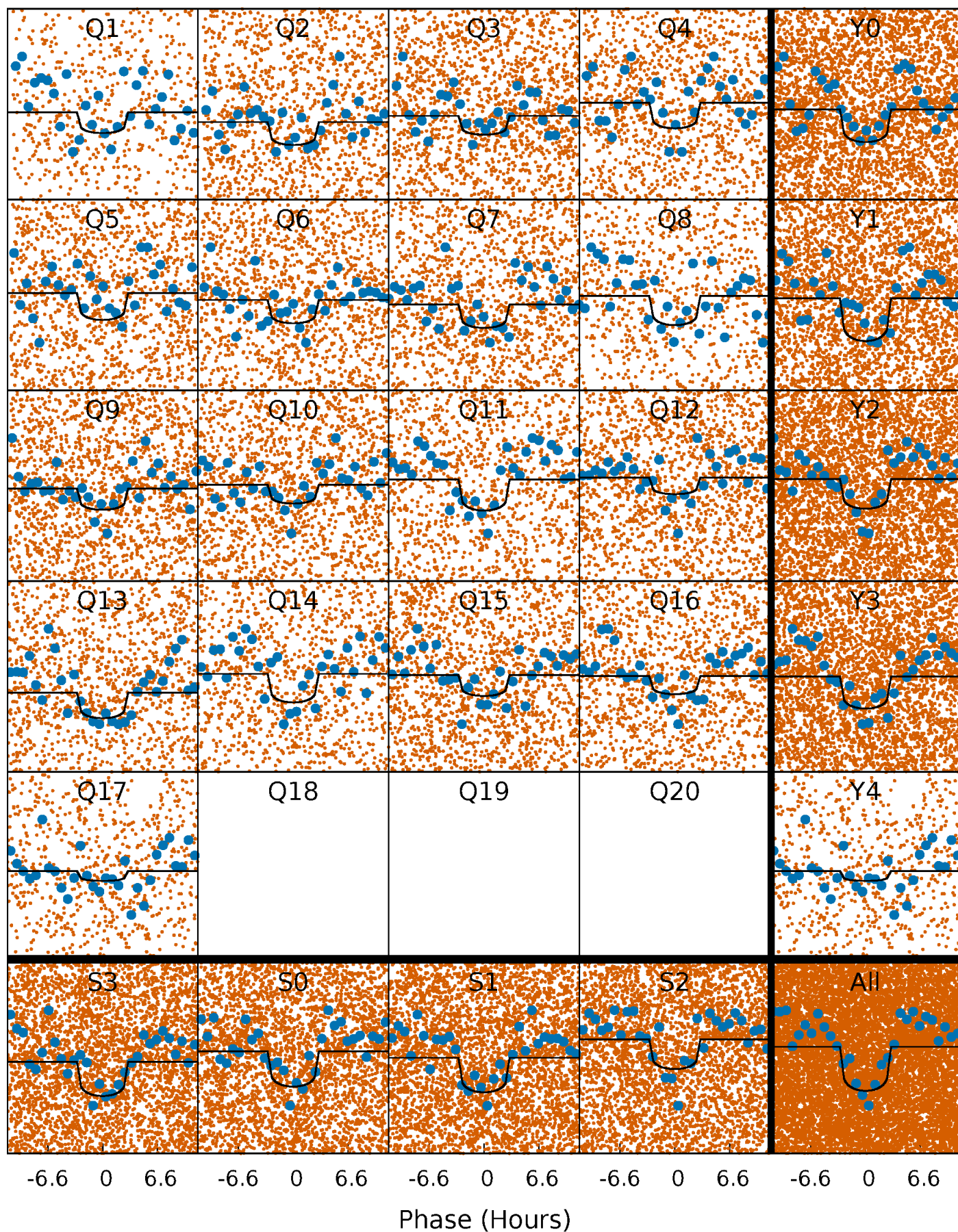
PDC Quarter-Phased Transit Curves

TCE 003223460-02 P= 1.407236 Days $T_0=132.109103$ (BKJD)



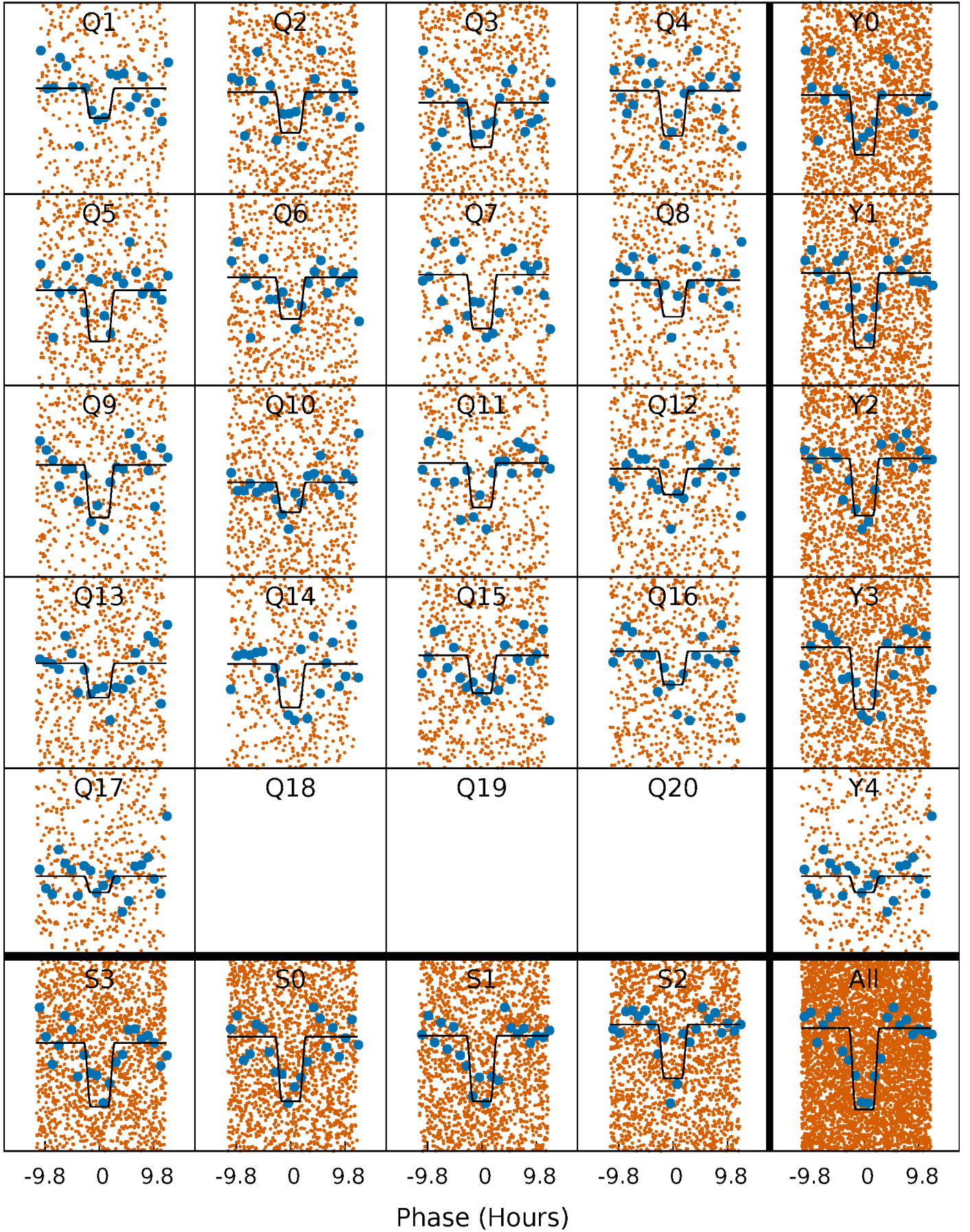
DV Quarter-Phased Transit Curves

TCE 003223460-02 P= 1.407236 Days $T_0=132.109103$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

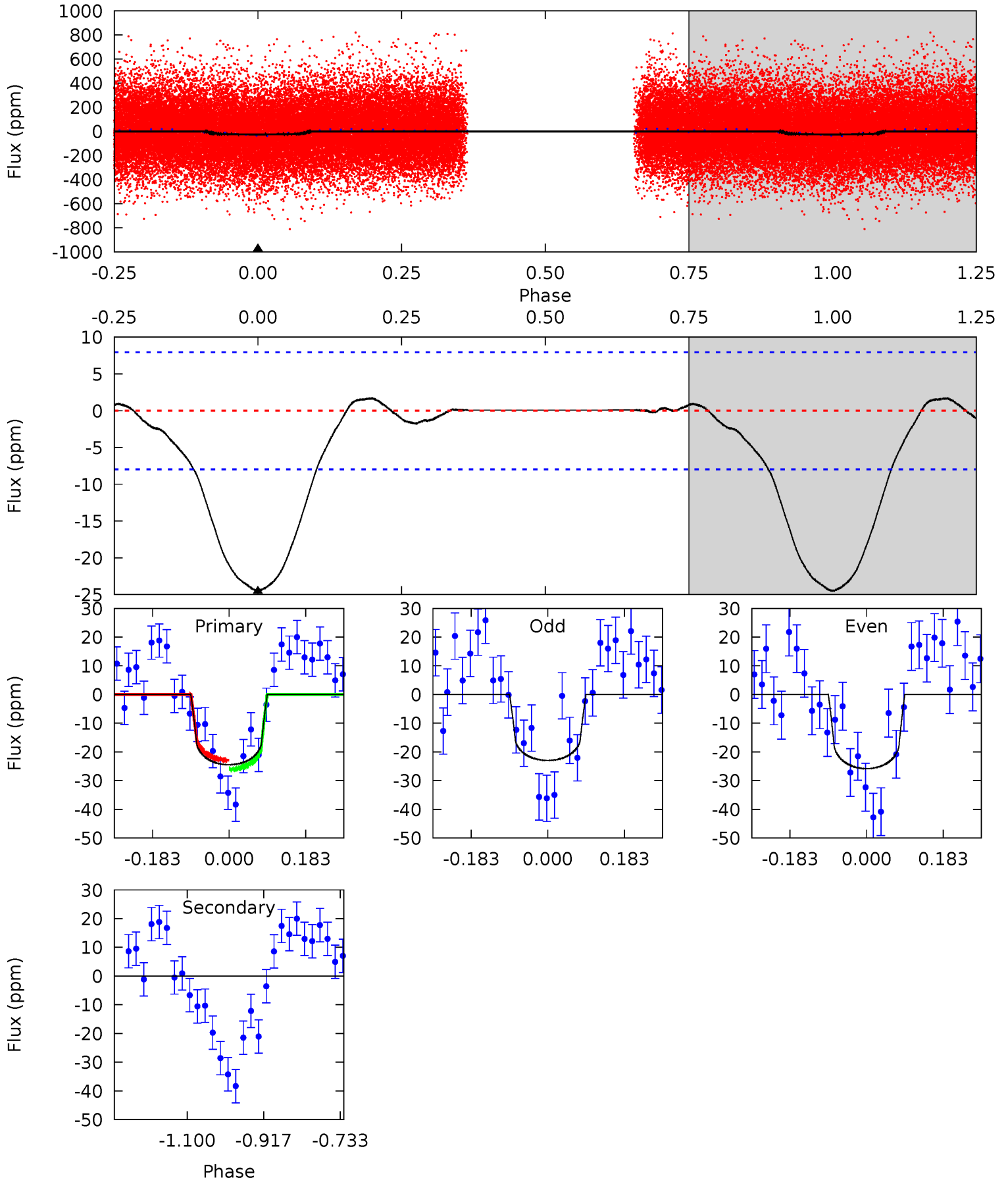
TCE 003223460-02 $P = 1.407210$ Days $T_0 = 132.121698$ (BKJD)



DV Model-Shift Uniqueness Test

003223460-02, P = 1.407236 Days, E = 130.701867 Days

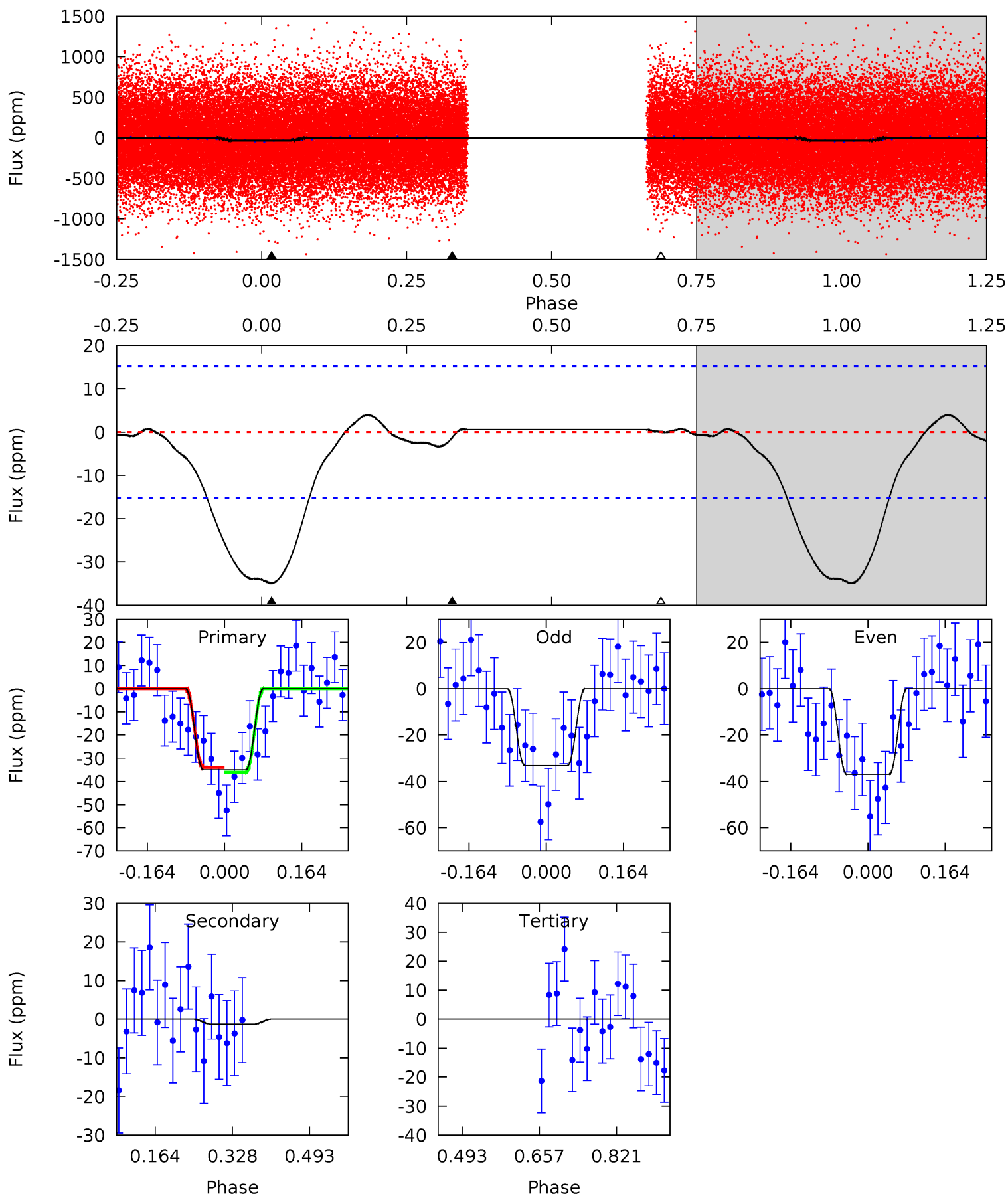
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	0	0	0	4.44	1.33	0.54	13.6	13.6	0	0	0.79	0.91	0.06	0.89



Alt Model-Shift Uniqueness Test

003223460-02, P = 1.407210 Days, E = 130.714488 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	0.38	-0.01	0	4.46	1.39	0.29	10.3	10.2	0.39	0.38	0.57	0.93	0.10	0.29



Stellar Parameters For KIC 003223460

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8126^{+226}_{-340}	$4.092^{+0.150}_{-0.150}$	$-0.140^{+0.250}_{-0.350}$	$1.970^{+0.472}_{-0.429}$	$1.747^{+0.166}_{-0.271}$	$0.322^{+0.246}_{-0.140}$
	+3%/-4%	+4%/-4%	+179%/-250%	+24%/-22%	+10%/-16%	+76%/-44%
Source	KIC0	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 003223460-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 2	$1.44^{+1.23}_{-0.95}$	4085^{+263}_{-287}	-3688^{+7489}_{-875}	$-0.007^{+0.673}_{-0.730}$
Alt.	-1 ± 3	$1.57^{+1.23}_{-0.92}$	4064^{+273}_{-279}	-3152^{+8006}_{-1111}	$0.175^{+1.580}_{-0.505}$

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

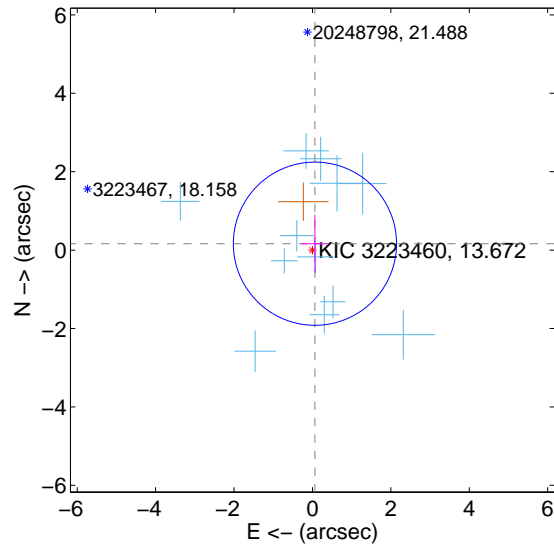
Supplemental centroid analysis for 003223460-02. Kepler magnitude: 13.67. Transit SNR 11.52

There are 12 quarters with good PRF difference image offsets

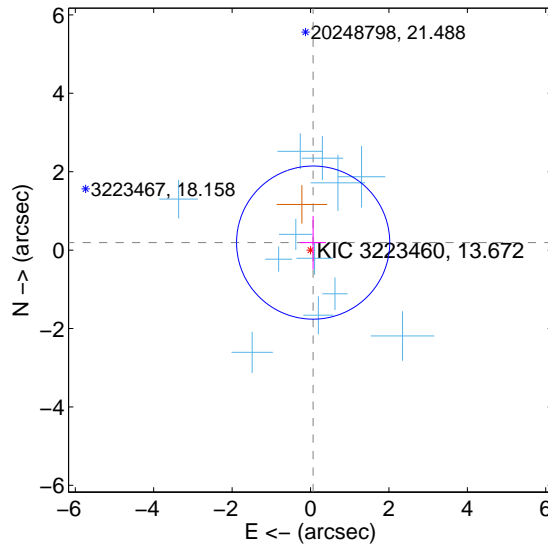
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.175 ± 0.694	0.25	-0.064 ± 0.342	0.163 ± 0.735
PRF-fit source offset from KIC position	0.203 ± 0.651	0.31	-0.067 ± 0.328	0.192 ± 0.681
photometric centroid source offset	1.38 ± 1.26	1.09	0.74 ± 1.08	1.16 ± 1.32

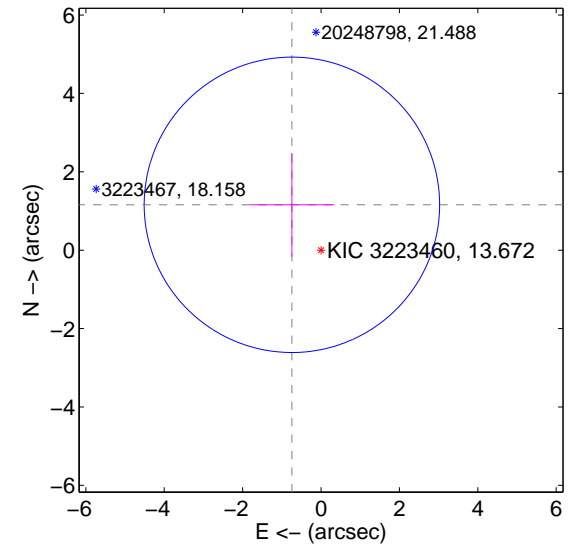
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

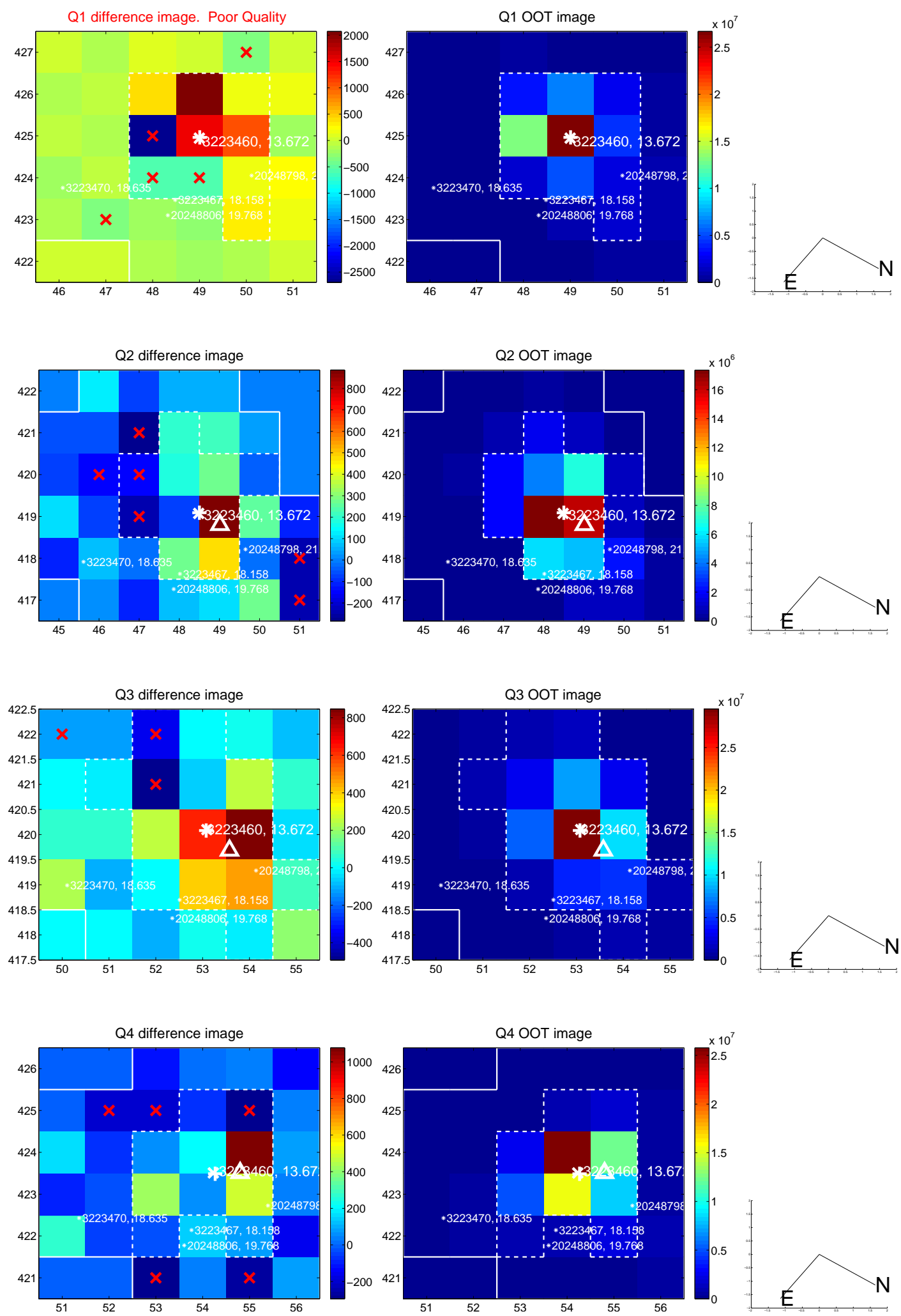


offset from photometric centroids

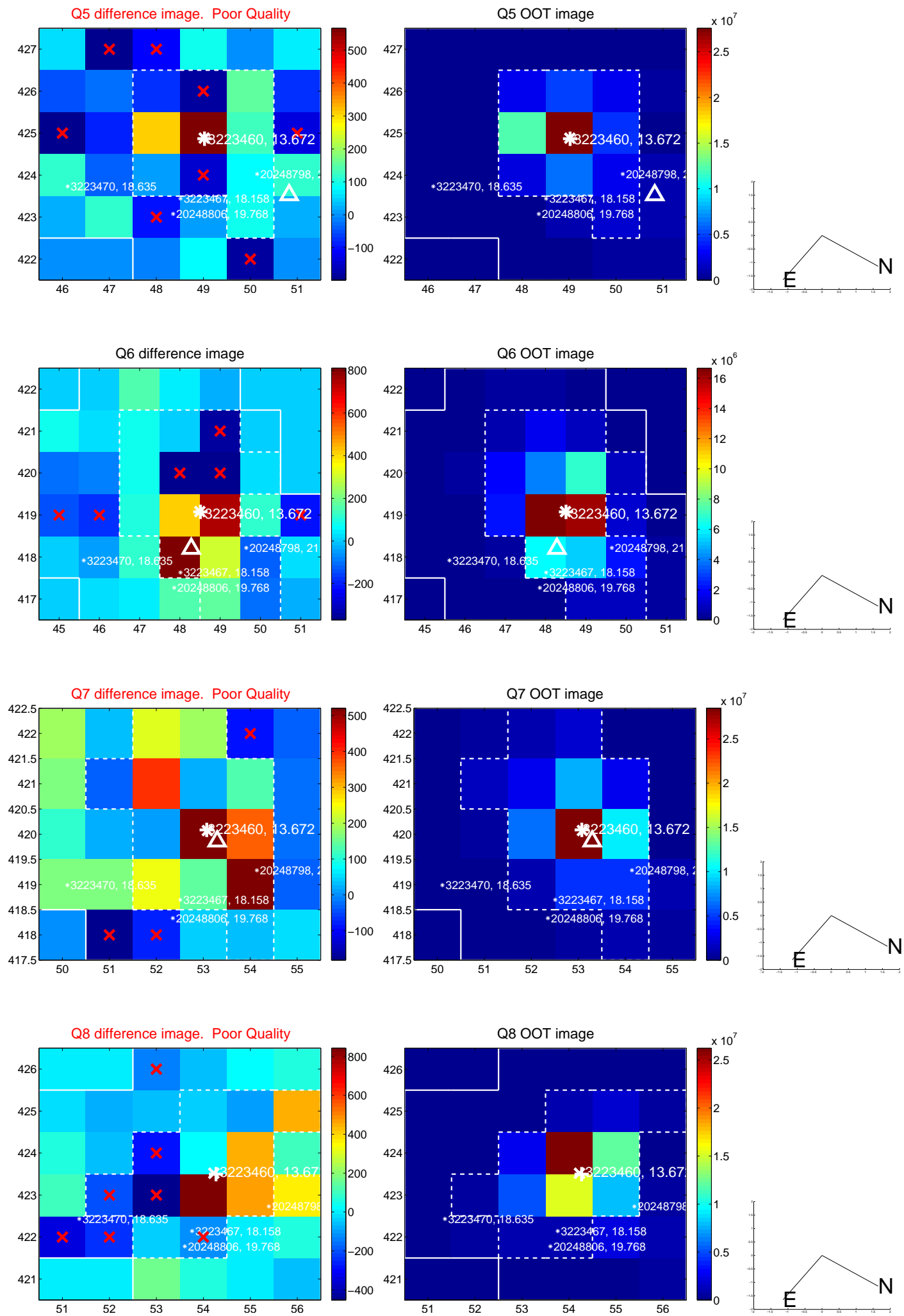


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

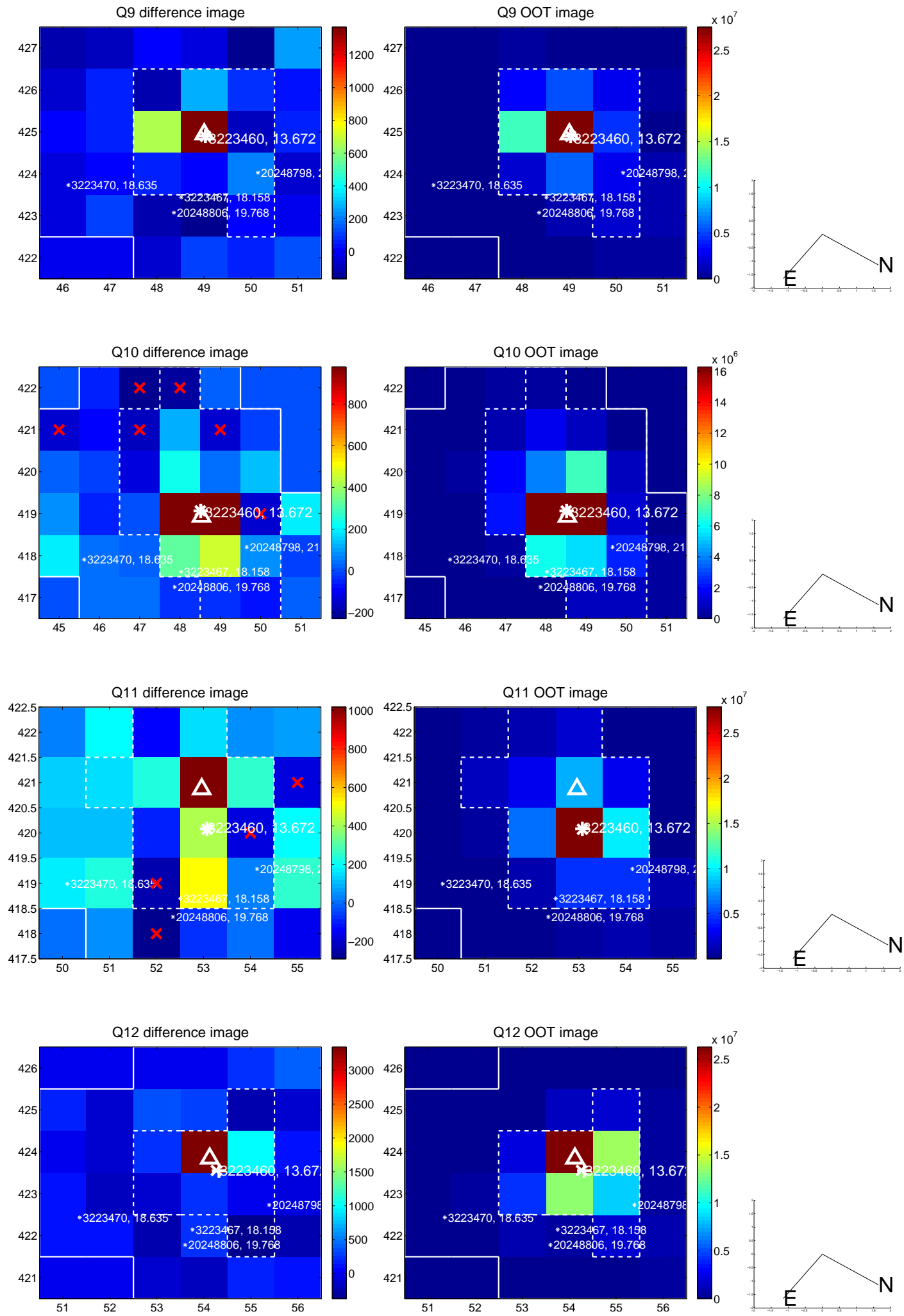
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



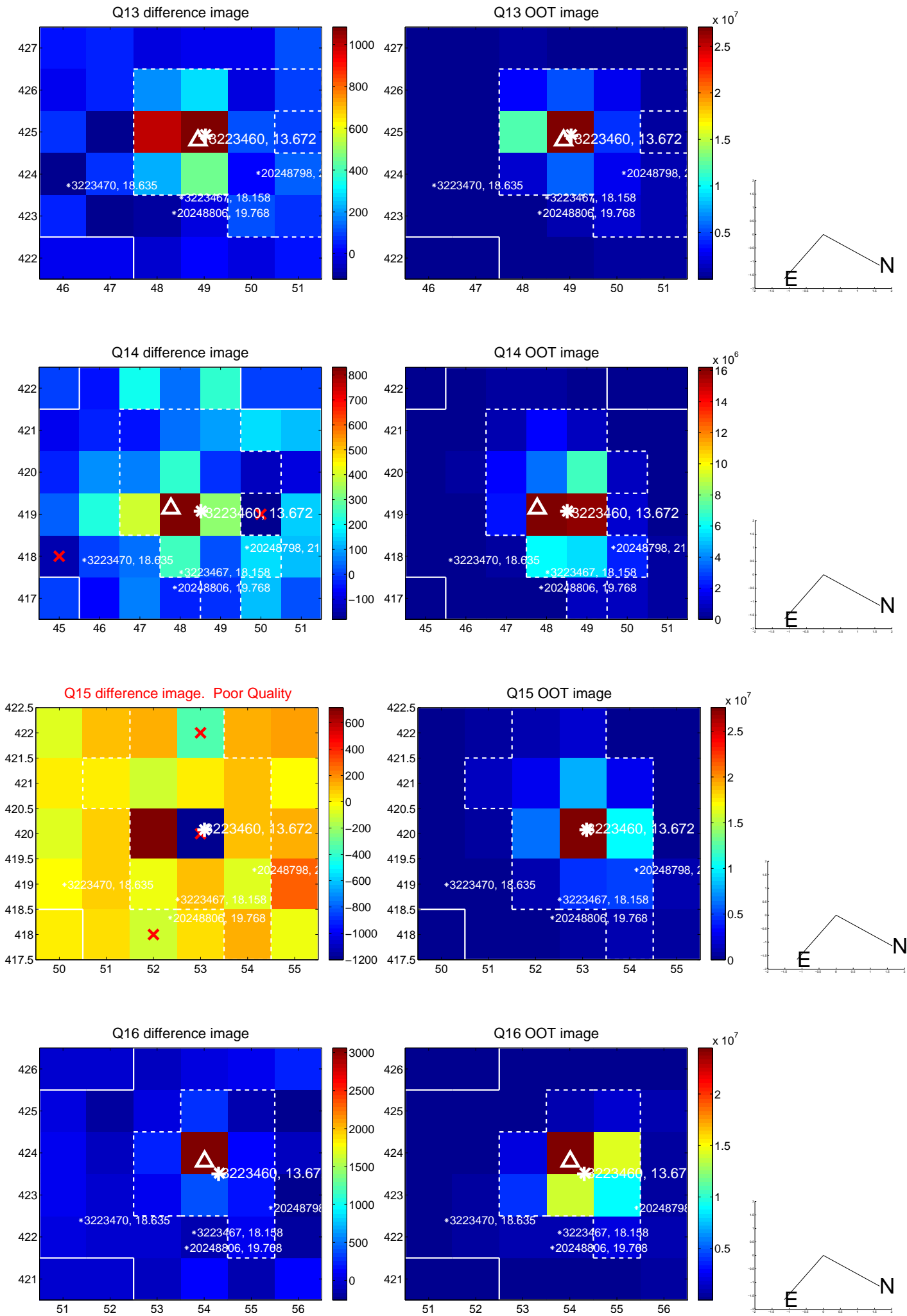
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



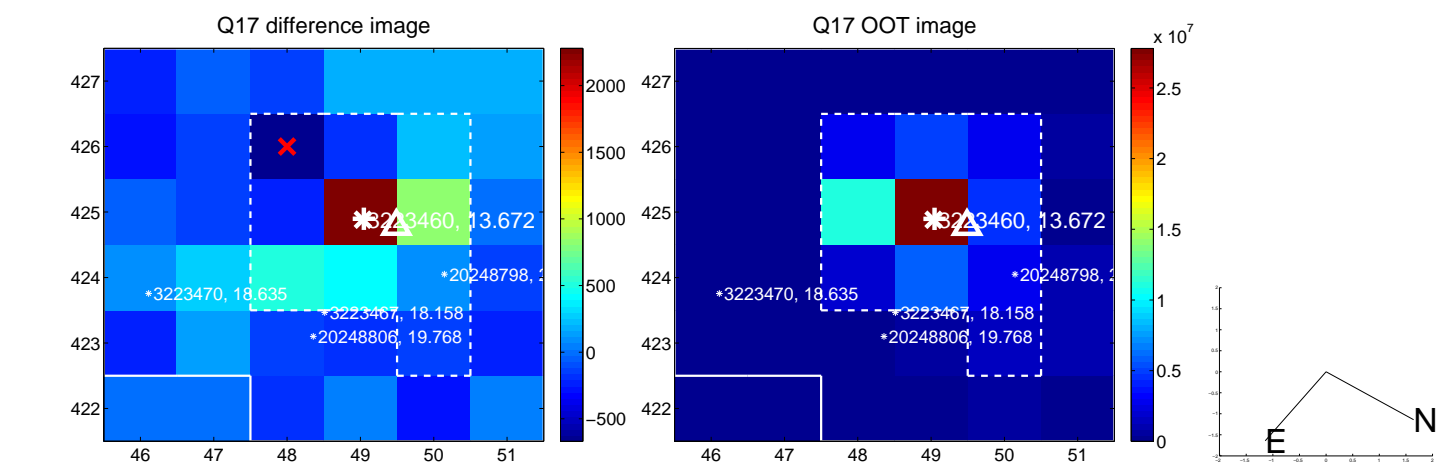
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



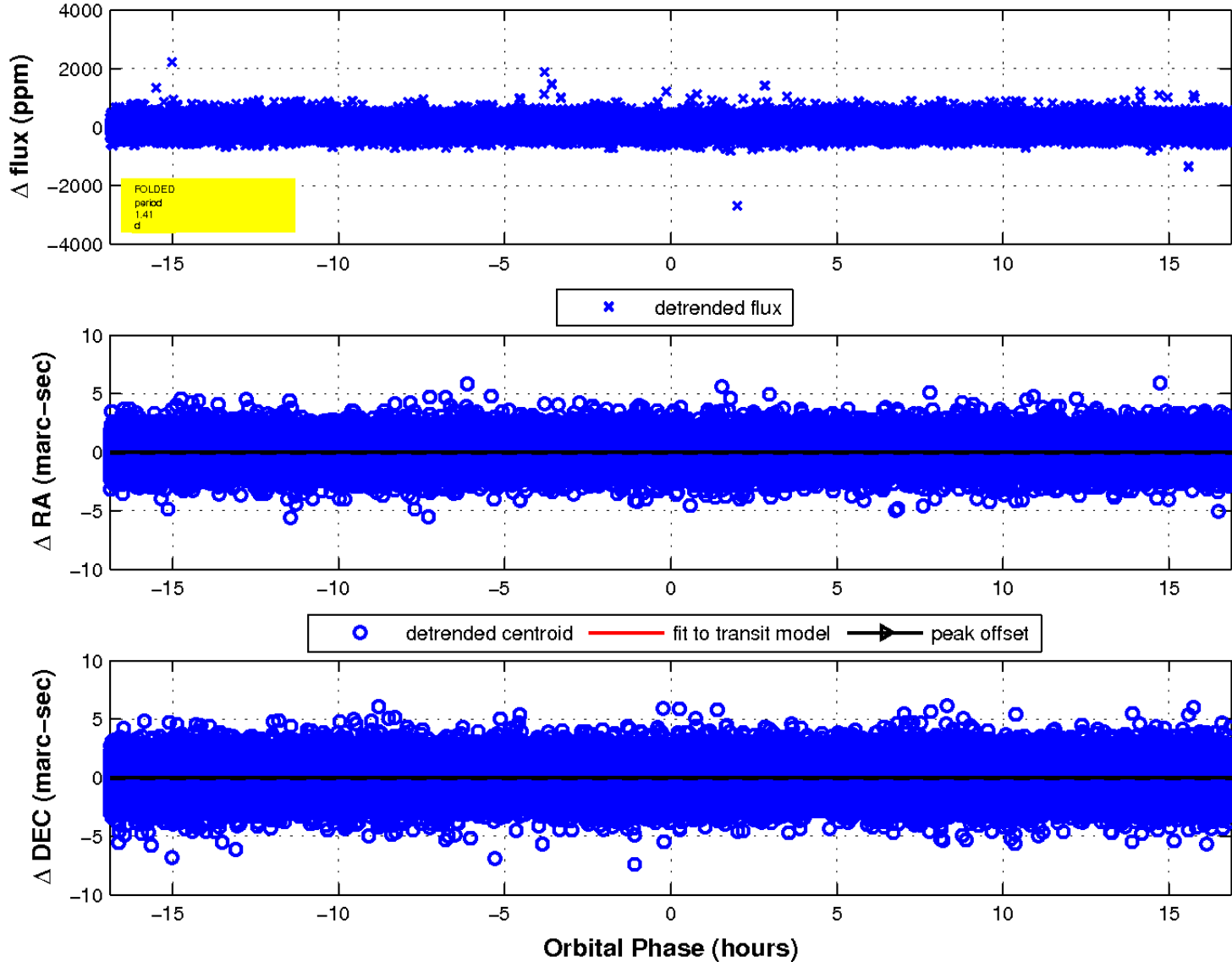
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

