

KIC 002011424

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})
002011424-01	OBS	No	0.521186	131.586556	65.0	2.301	16.0	24.2	2.54	7110	2.38	62110.65
002011424-02	OBS	No	0.521179	131.777921	54.1	1.547	15.6	20.1	2.54	7110	1.91	62111.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002011424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002011424-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

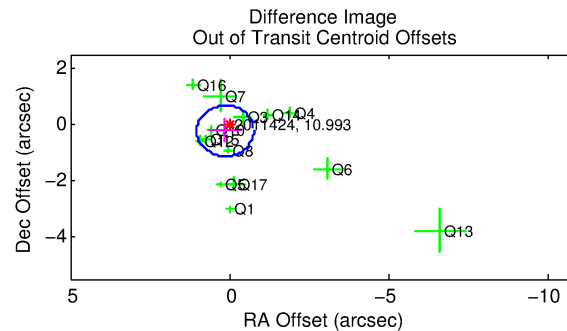
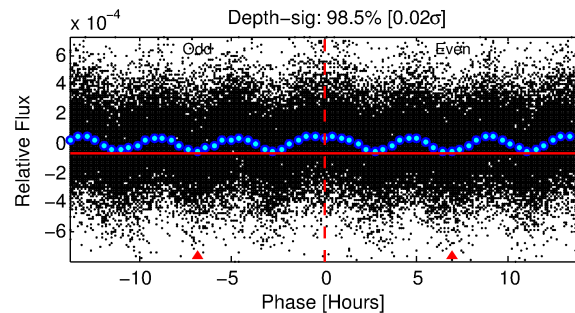
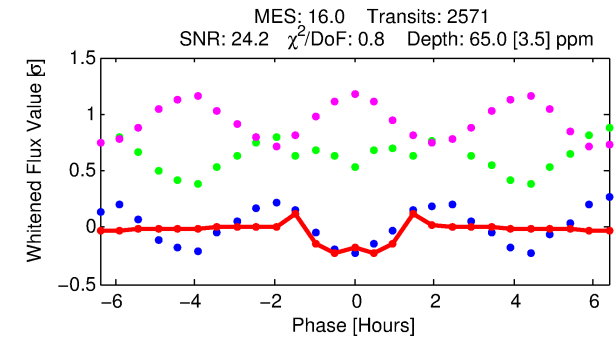
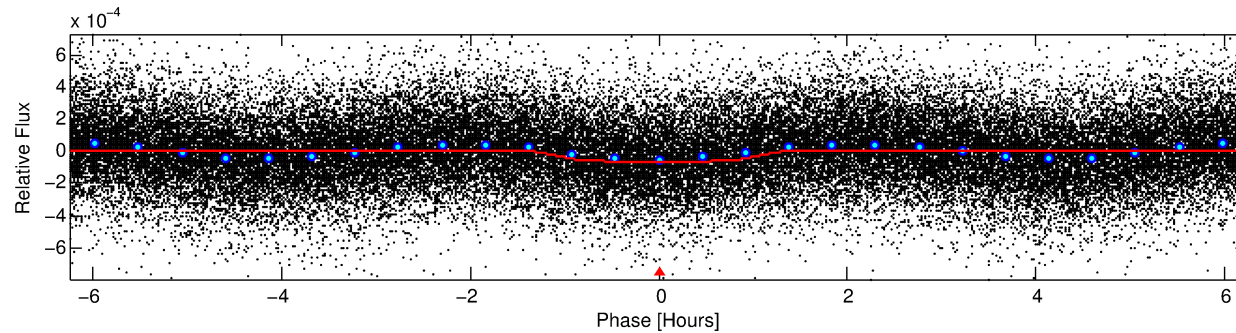
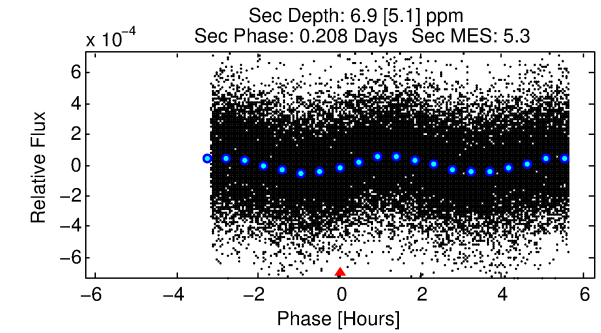
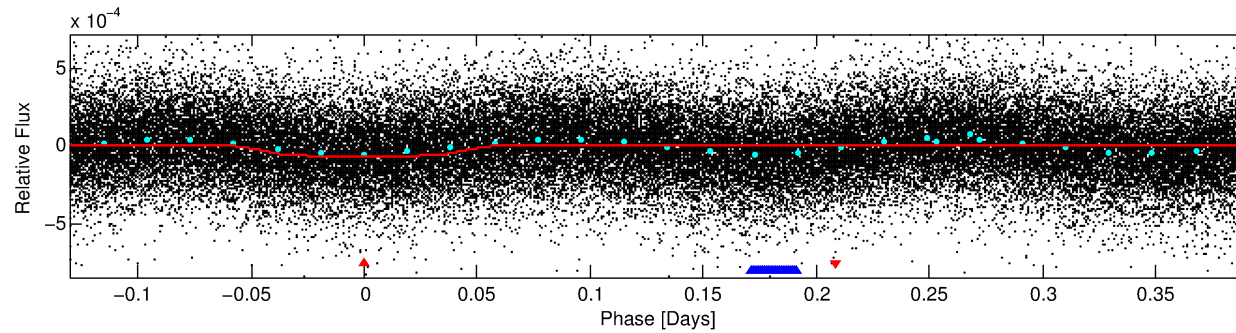
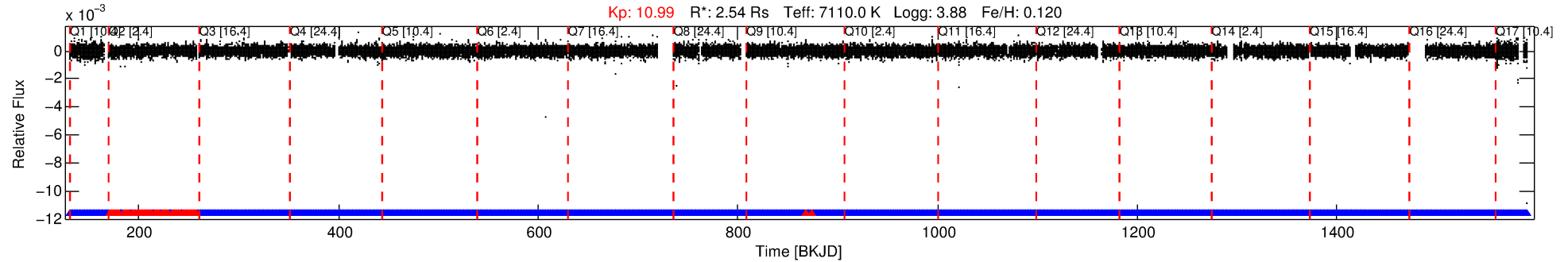
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002011424-01

No Significant Match Found

DV One-Page Summary

KIC: 2011424 Candidate: 1 of 2 Period: 0.521 d



DV Fit Results:

Period = 0.52119 [0.00000] d
Epoch = 131.5866 [0.0006] BKJD
Rp/R* = 0.0086 [0.0010]
a/R* = 1.23 [0.28]
b = 0.90 [0.14]
Seff = 62110.65 [18421.72]
Teq = 4025 [298] K
Rp = 2.38 [0.56] Re
a = 0.0154 [0.0029] AU
Ag = 0.16 [0.13] [-6.36σ]
Teffp = 3936 [761] K [-0.11σ]

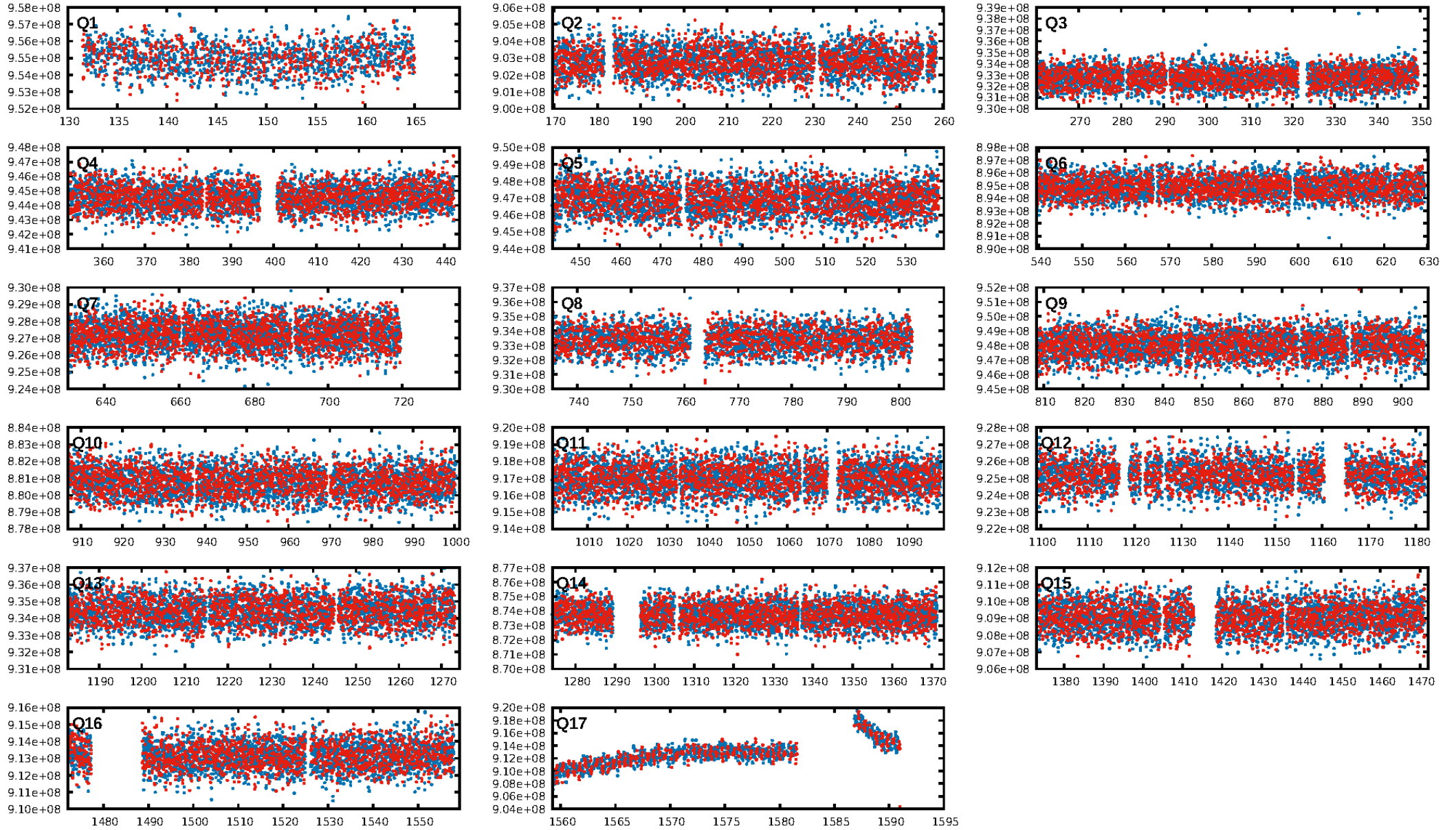
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.30e-21
RollingBand-fgt: 0.96 [2365/2455]
GhostDiagnostic-chr: 0.1409
Centroid-sig: 35.0%
Centroid-so: 0.378 arcsec [2.19σ]
OotOffset-rm: 0.262 arcsec [0.87σ]
KicOffset-rm: 0.873 arcsec [2.39σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 0.00 [0/17]

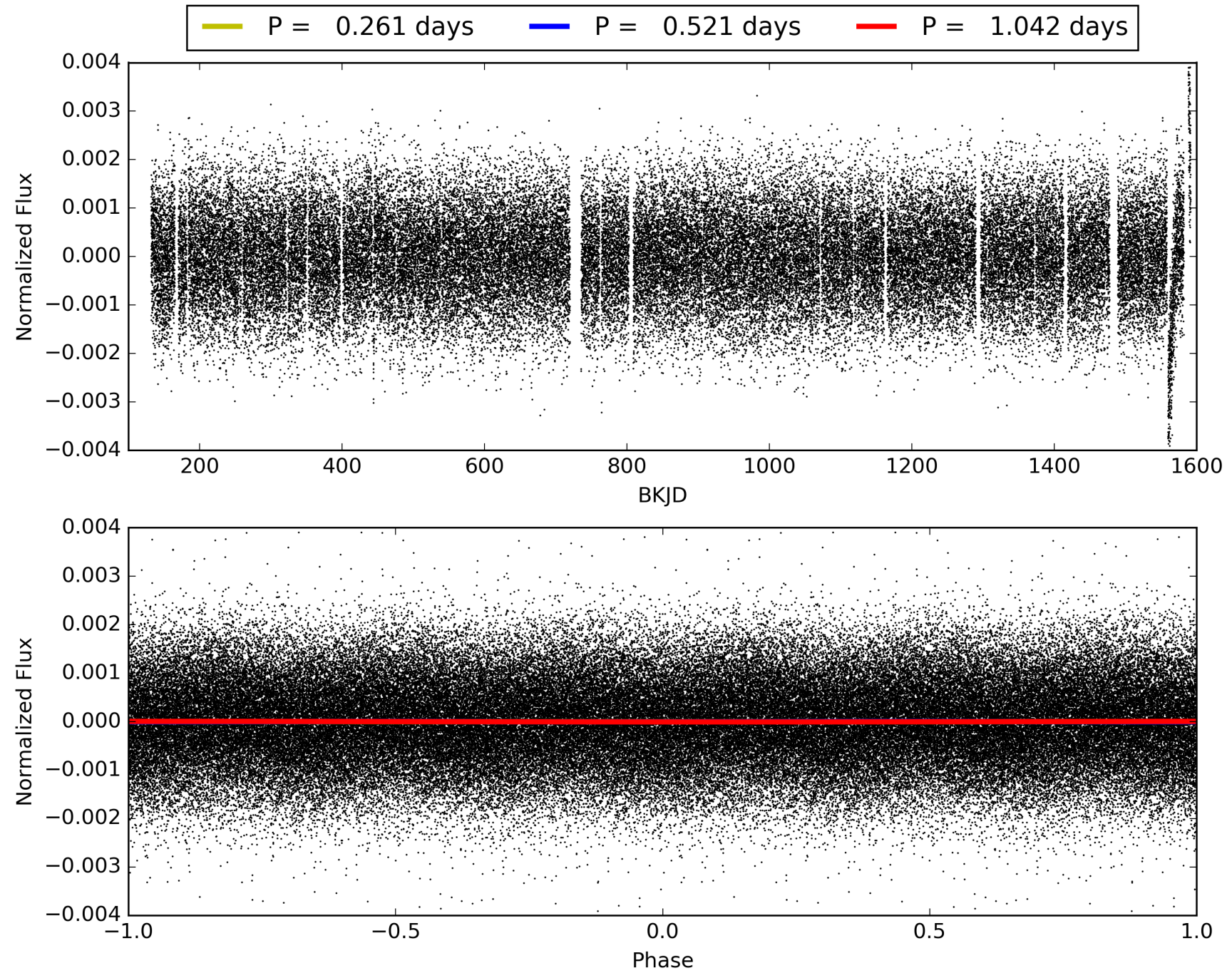
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002011424-01, PDC Light Curves

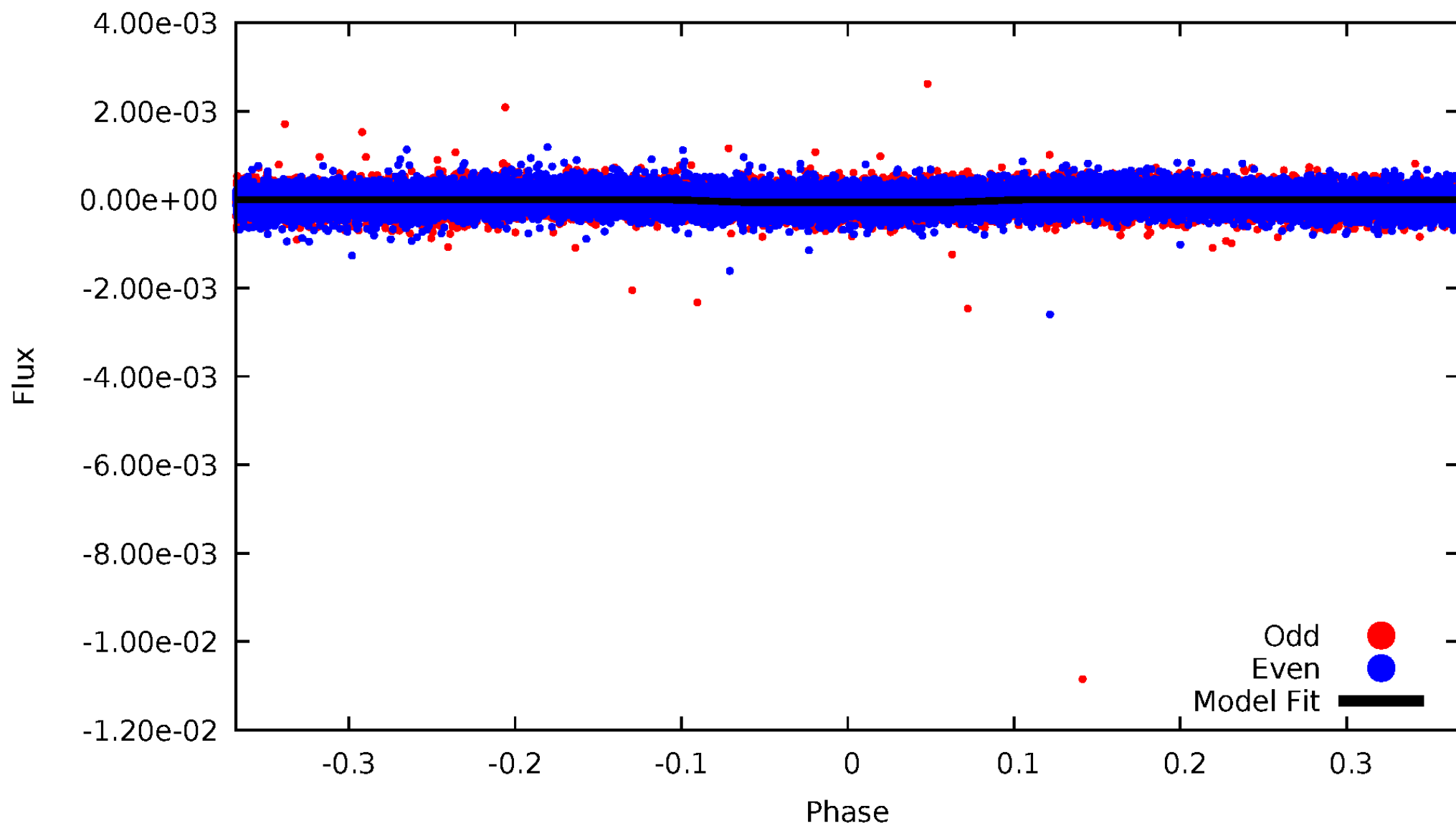


TCE 002011424-01



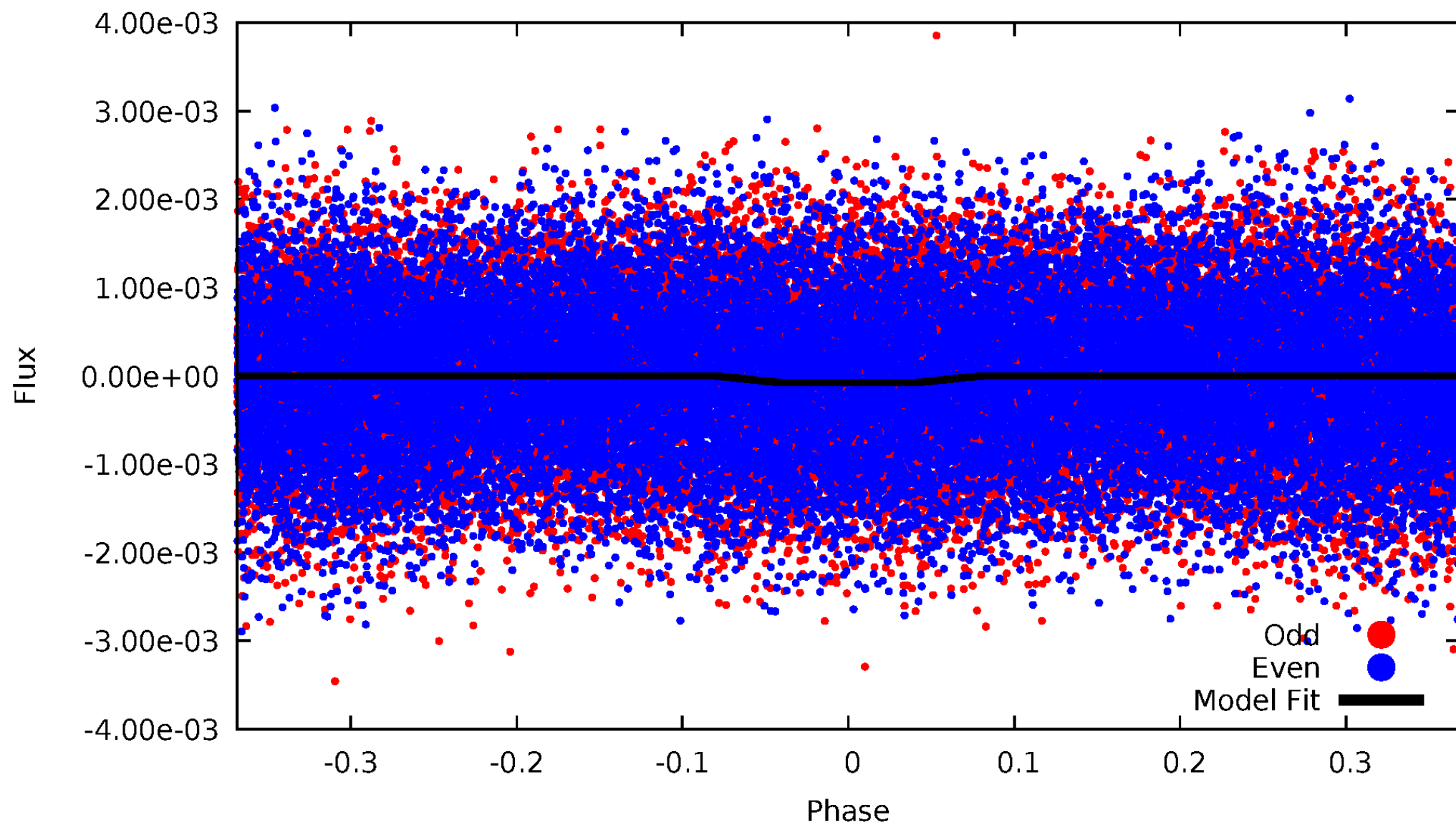
DV Odd/Even

TCE 002011424-01



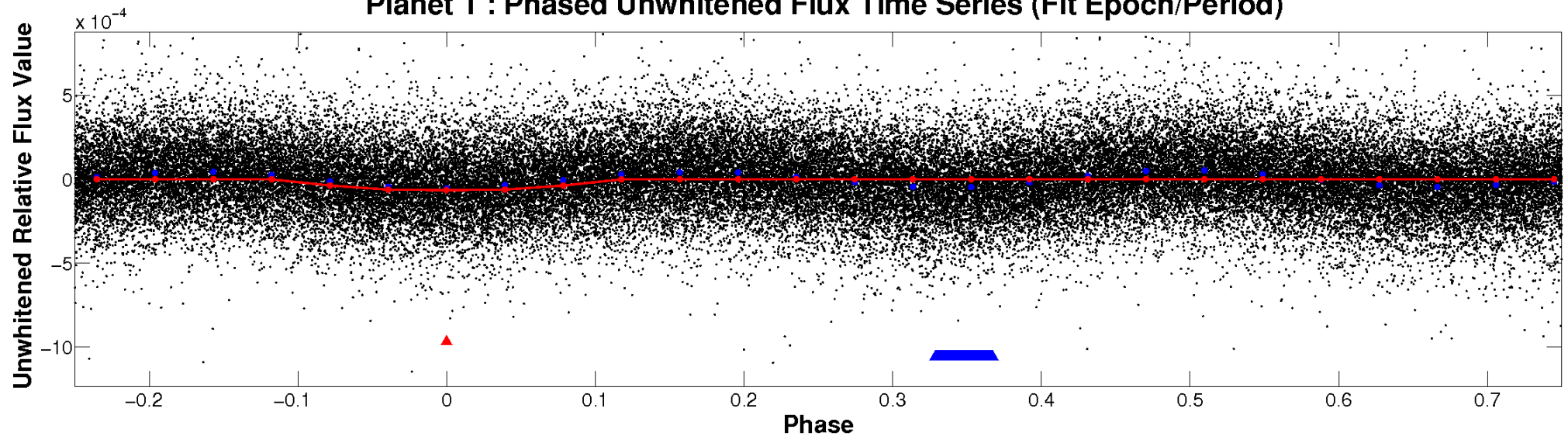
ALT Odd/Even

TCE 002011424-01

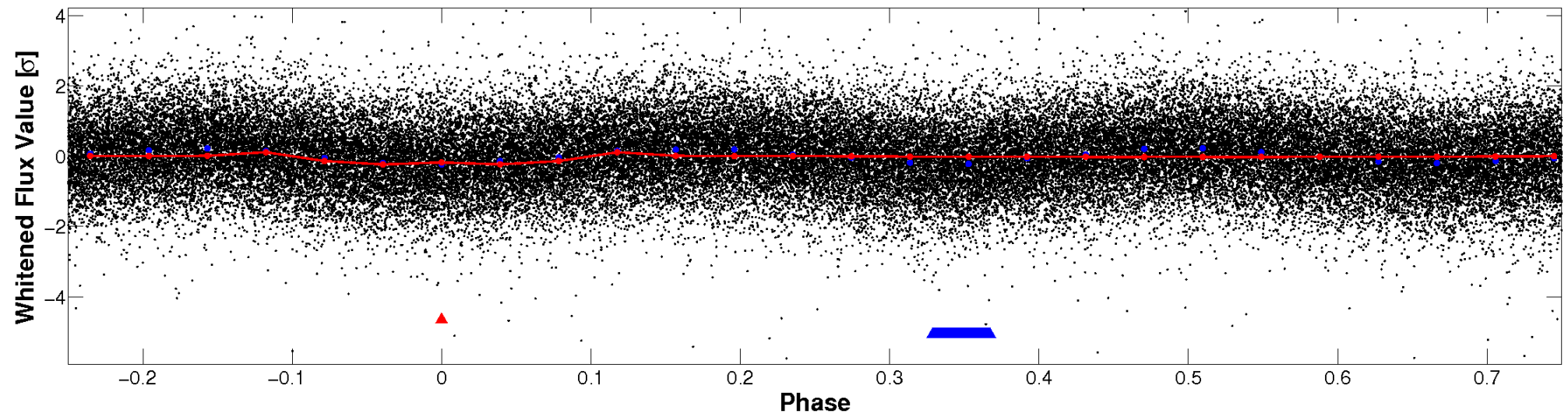


Non-Whitened Vs. Whitened Light Curve

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

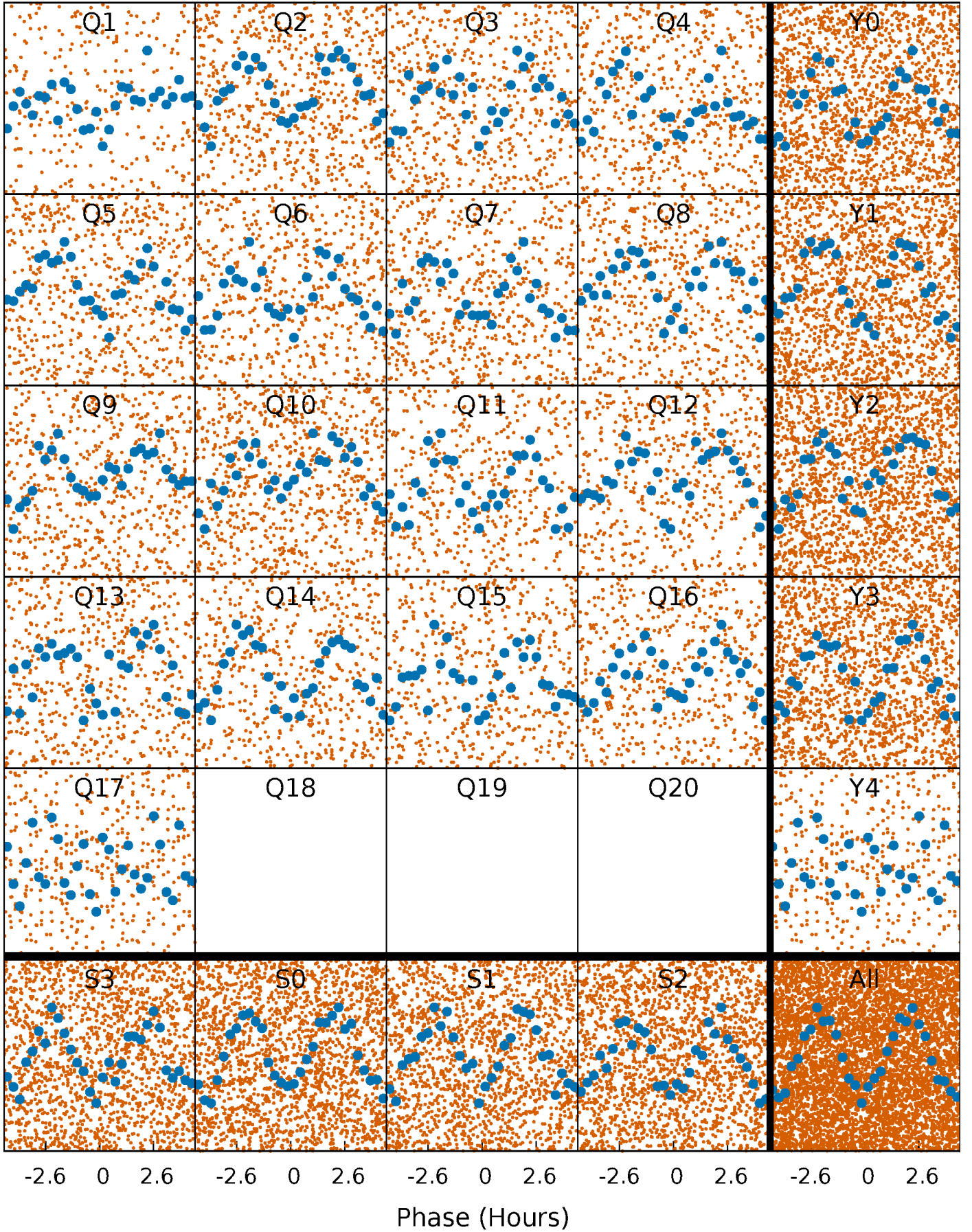


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



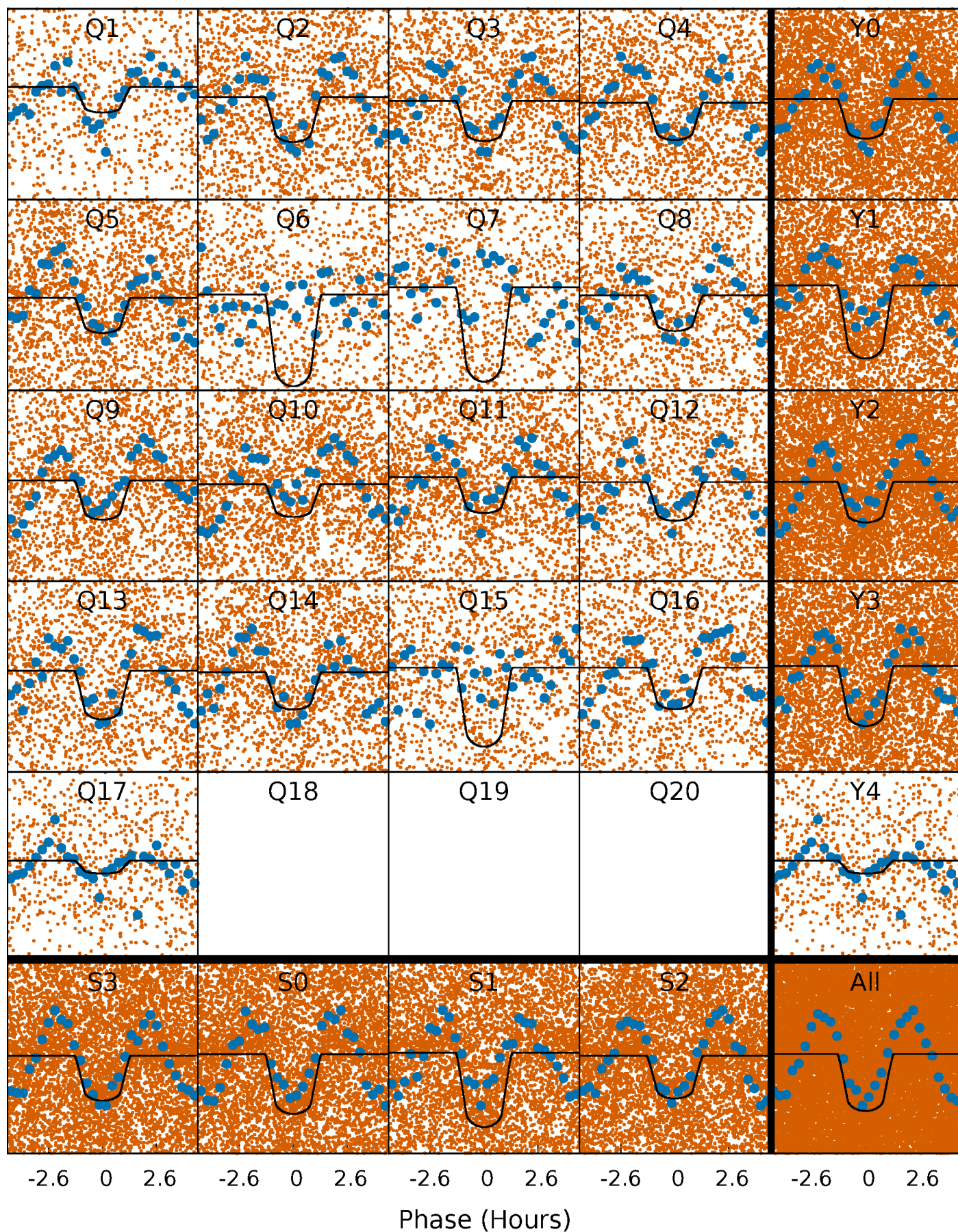
PDC Quarter-Phased Transit Curves

TCE 002011424-01 P= 0.521186 Days $T_0=131.586556$ (BKJD)



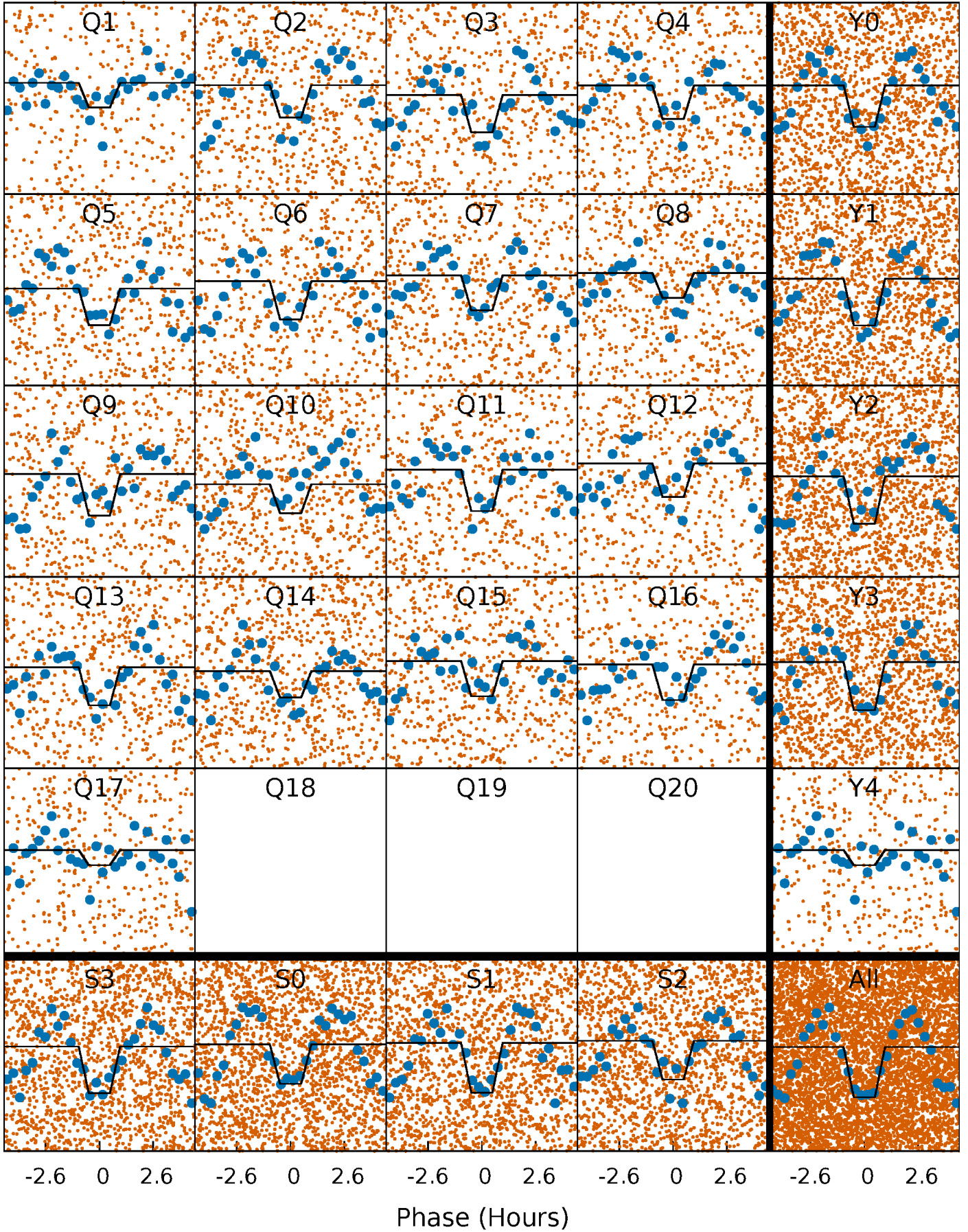
DV Quarter-Phased Transit Curves

TCE 002011424-01 P= 0.521186 Days $T_0=131.586556$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

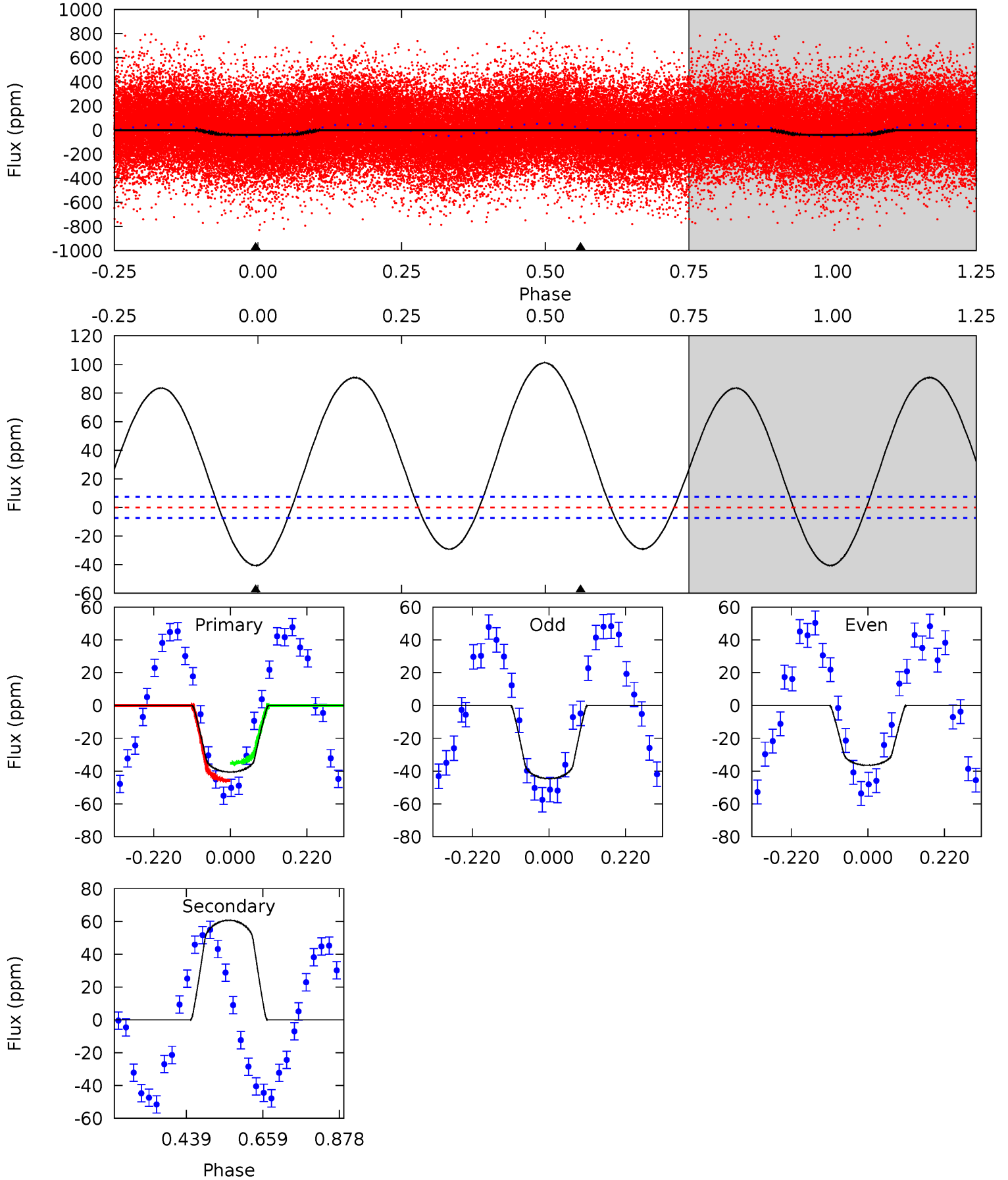
TCE 002011424-01 P= 0.521184 Days $T_0=131.586391$ (BKJD)



DV Model-Shift Uniqueness Test

002011424-01, P = 0.521186 Days, E = 131.065370 Days

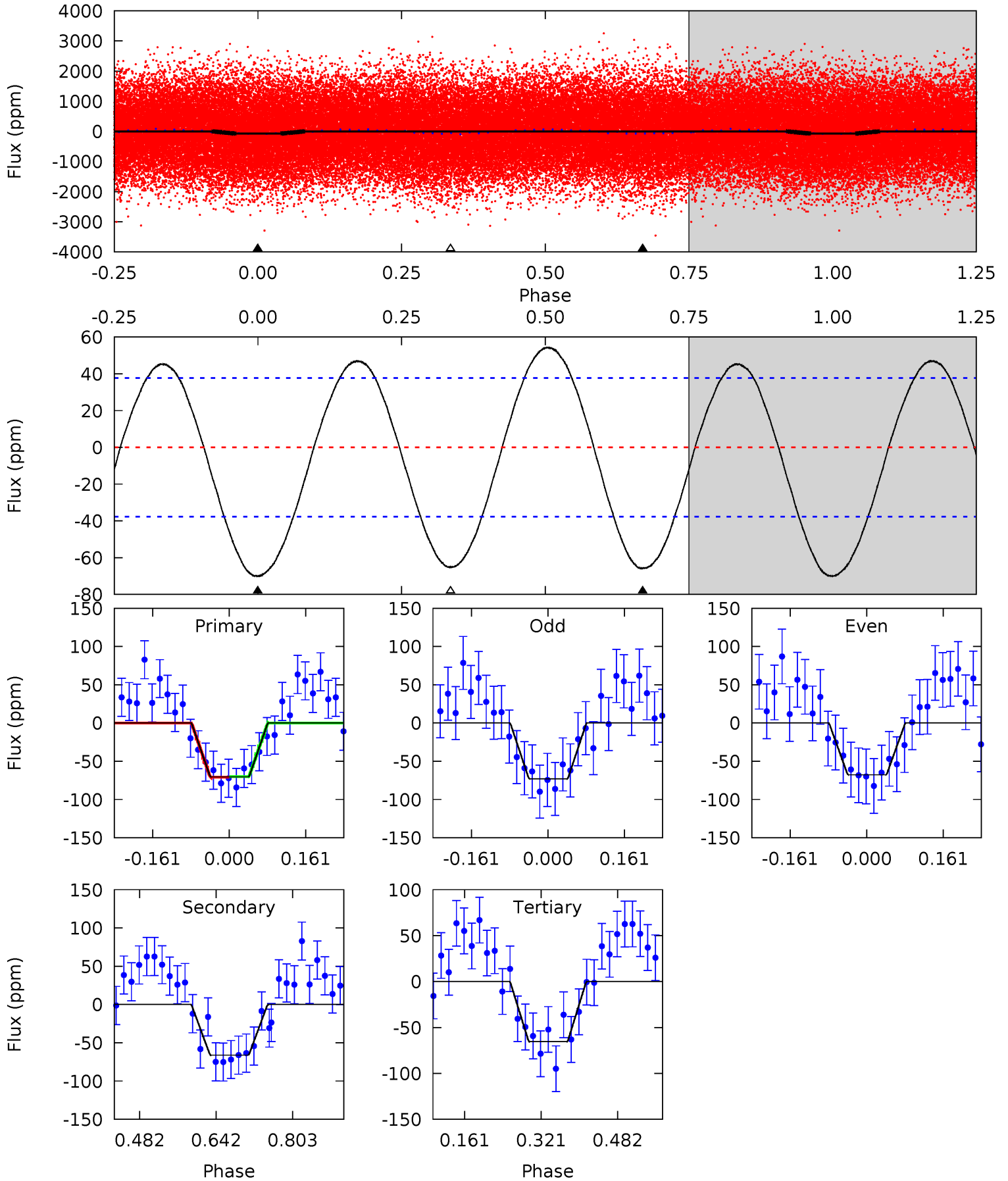
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.2	-36.2	0	0	4.40	1.23	19.0	24.2	24.2	-36.2	-36.2	2.43	0.99	0.71	3.23



Alt Model-Shift Uniqueness Test

002011424-01, P = 0.521184 Days, E = 131.065207 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.33	7.82	7.76	0	4.46	1.40	4.97	0.57	8.33	0.06	7.82	0.31	0.93	0.44	0.05



Stellar Parameters For KIC 002011424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7110^{+74}_{-85}	$3.884^{+0.168}_{-0.112}$	$0.120^{+0.150}_{-0.150}$	$2.542^{+0.475}_{-0.528}$	$1.804^{+0.198}_{-0.180}$	$0.155^{+0.135}_{-0.058}$
	+1%/-1%	+4%/-3%	+125%/-125%	+19%/-21%	+11%/-10%	+87%/-38%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 002011424-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	61 ± 2	$2.39^{+0.39}_{-0.38}$	5627^{+255}_{-332}	-7080^{+337}_{-446}	$-1.406^{+0.360}_{-0.540}$
Alt.	-66 ± 8	$2.36^{+0.39}_{-0.37}$	5591^{+285}_{-318}	6483^{+525}_{-532}	$1.562^{+0.599}_{-0.453}$

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

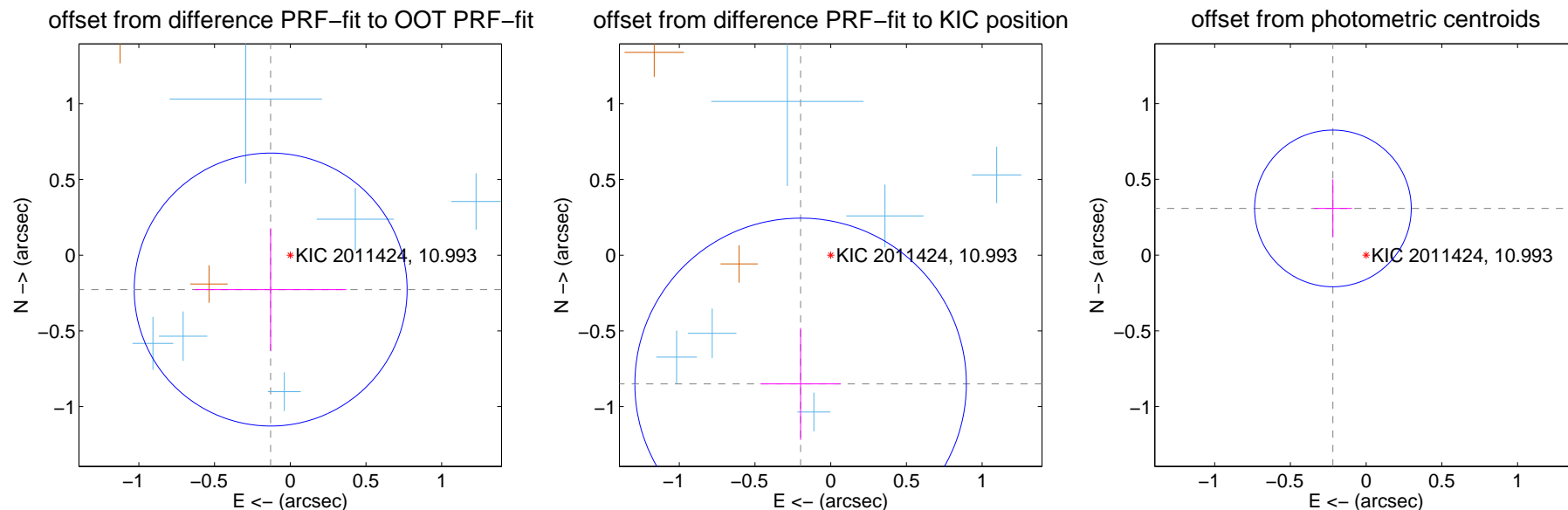
DV Centroid Data

Supplemental centroid analysis for 002011424-01. **Kepler magnitude: 10.99.** Transit SNR 24.20

There are 10 quarters with good PRF difference image offsets

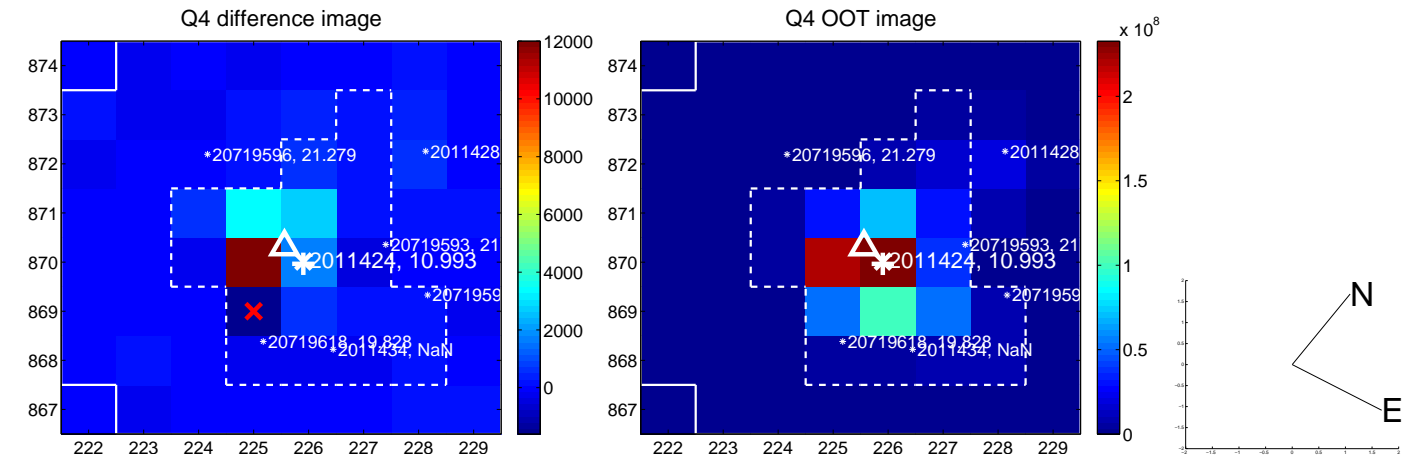
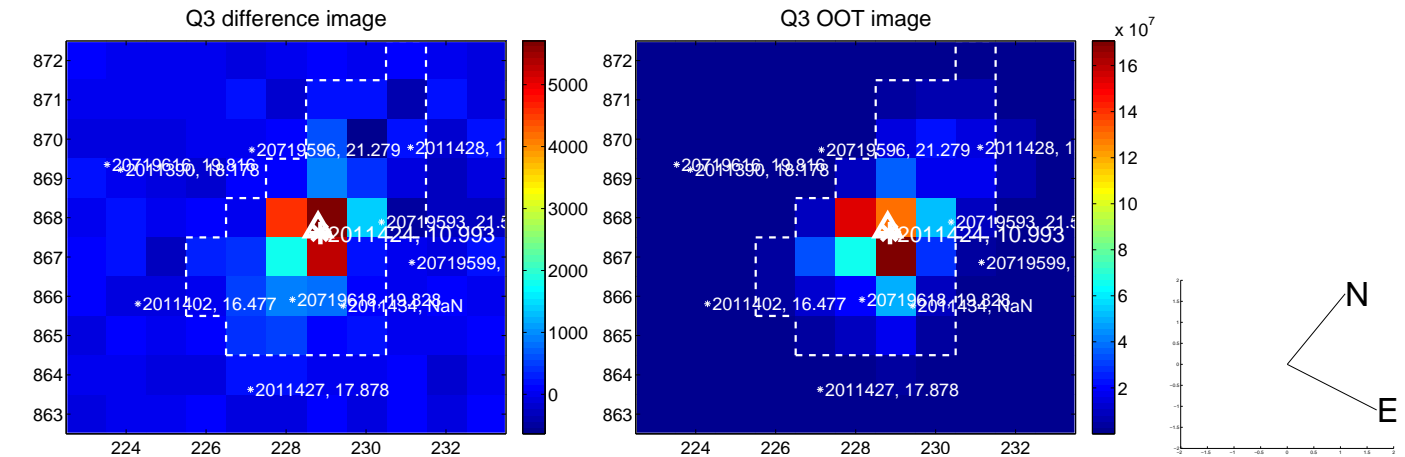
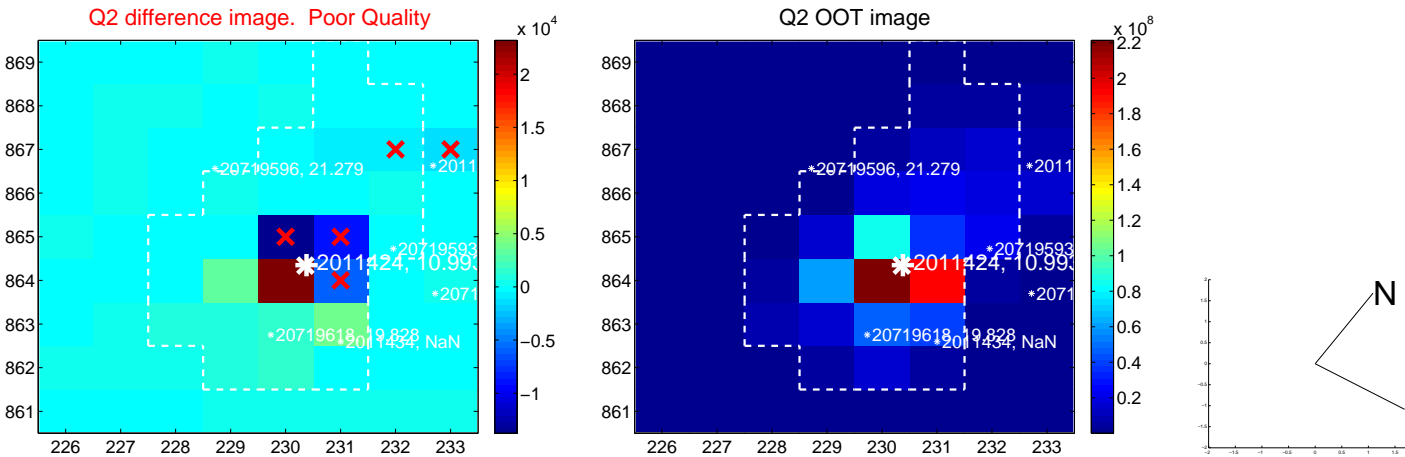
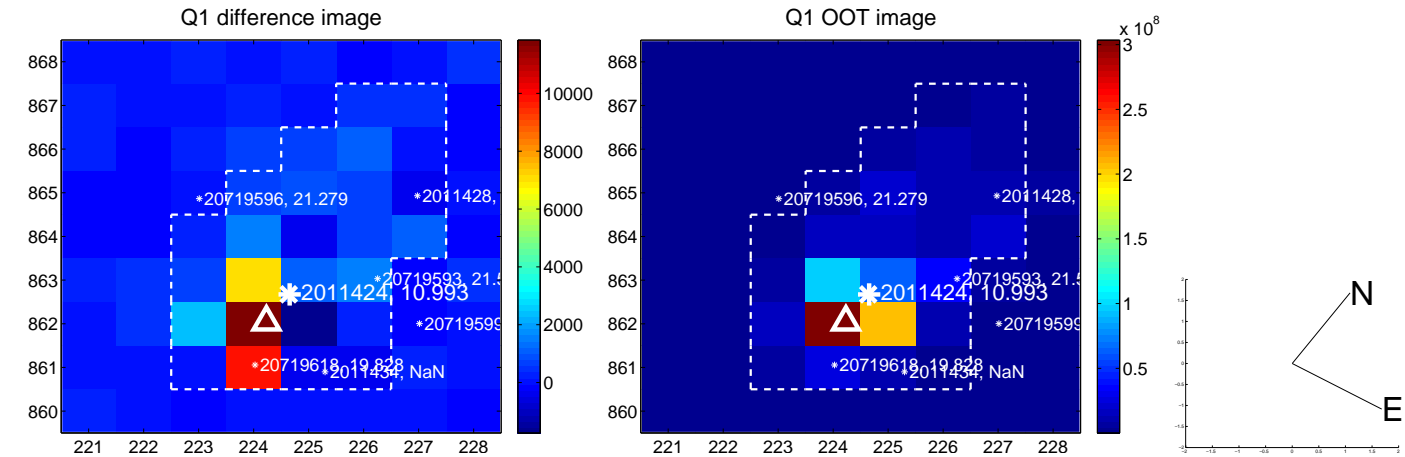
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.262 ± 0.300	0.87	0.129 ± 0.500	-0.227 ± 0.404
PRF-fit source offset from KIC position	0.873 ± 0.365	2.39	0.199 ± 0.265	-0.850 ± 0.370
photometric centroid source offset	0.38 ± 0.17	2.19	0.22 ± 0.13	0.31 ± 0.19

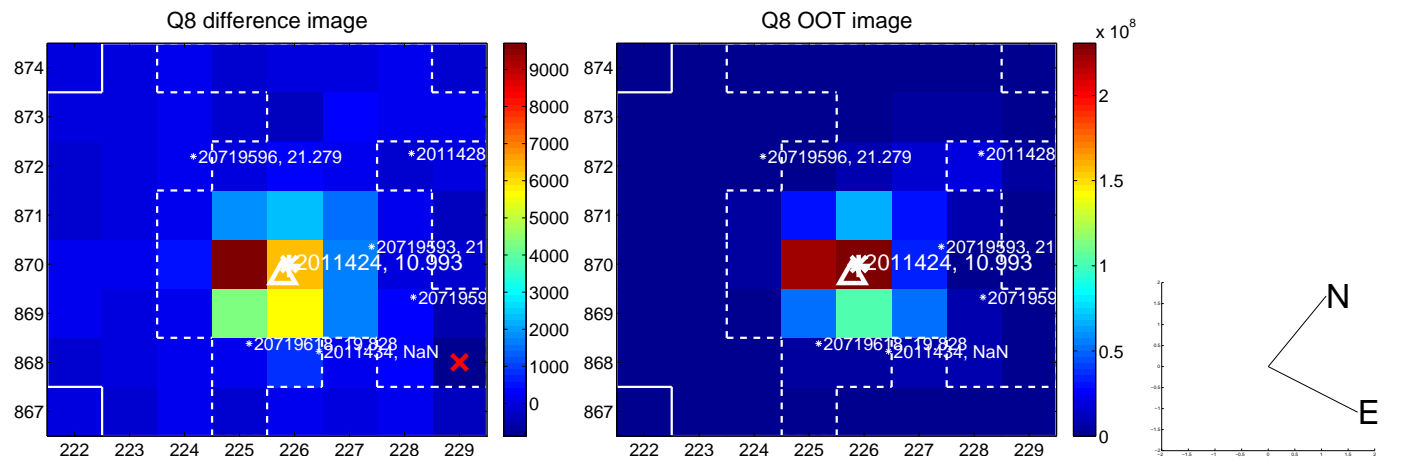
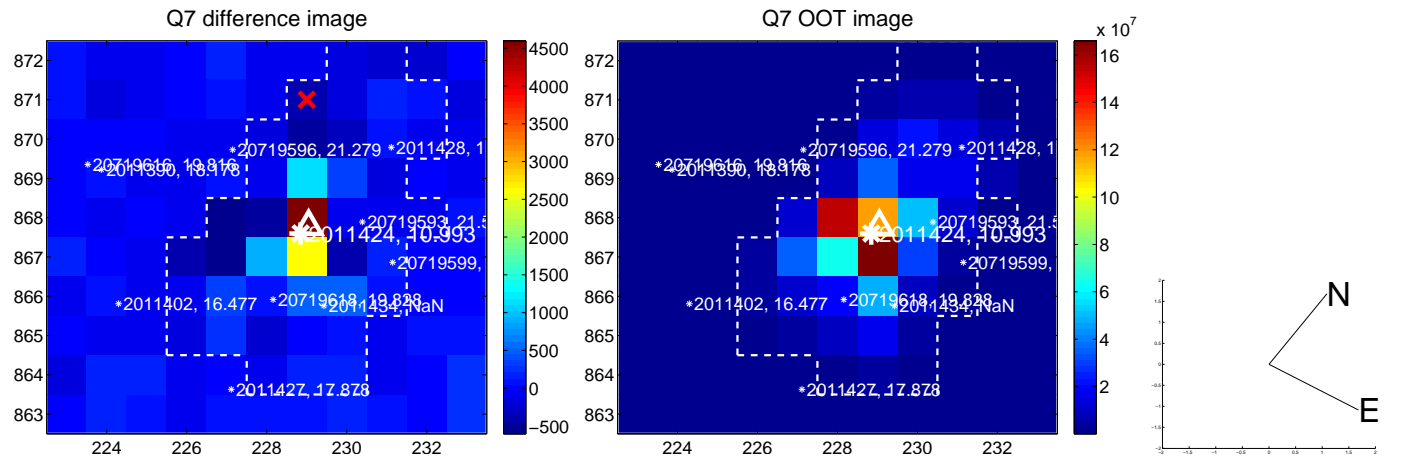
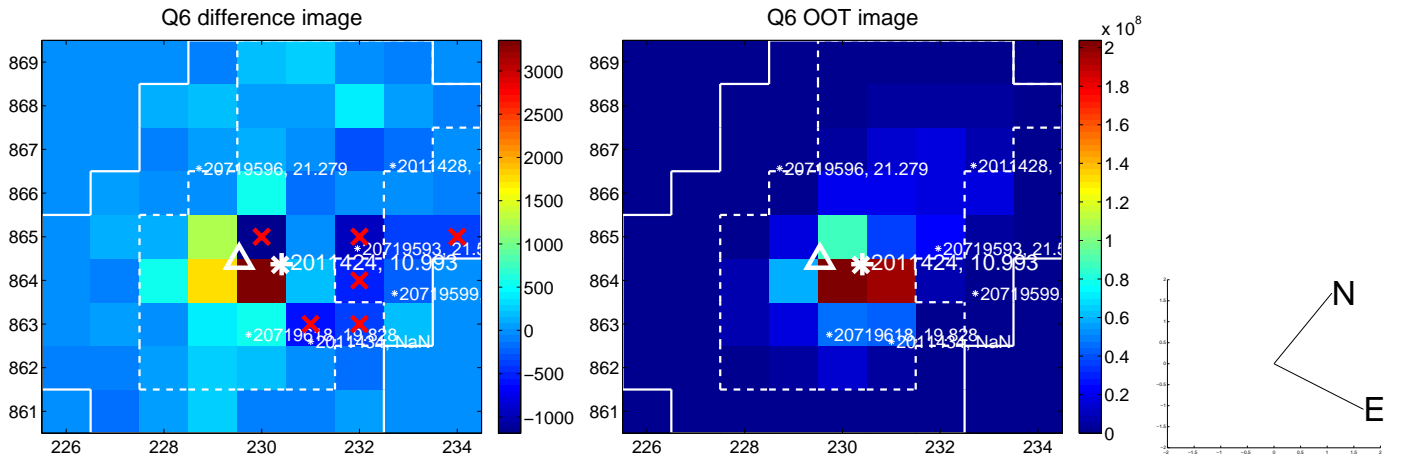
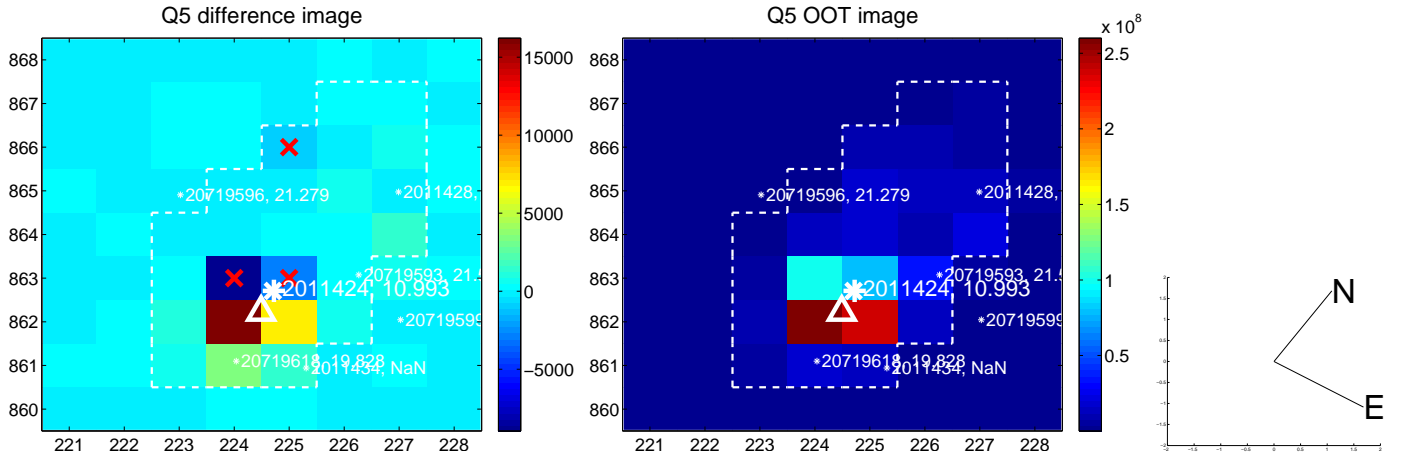


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

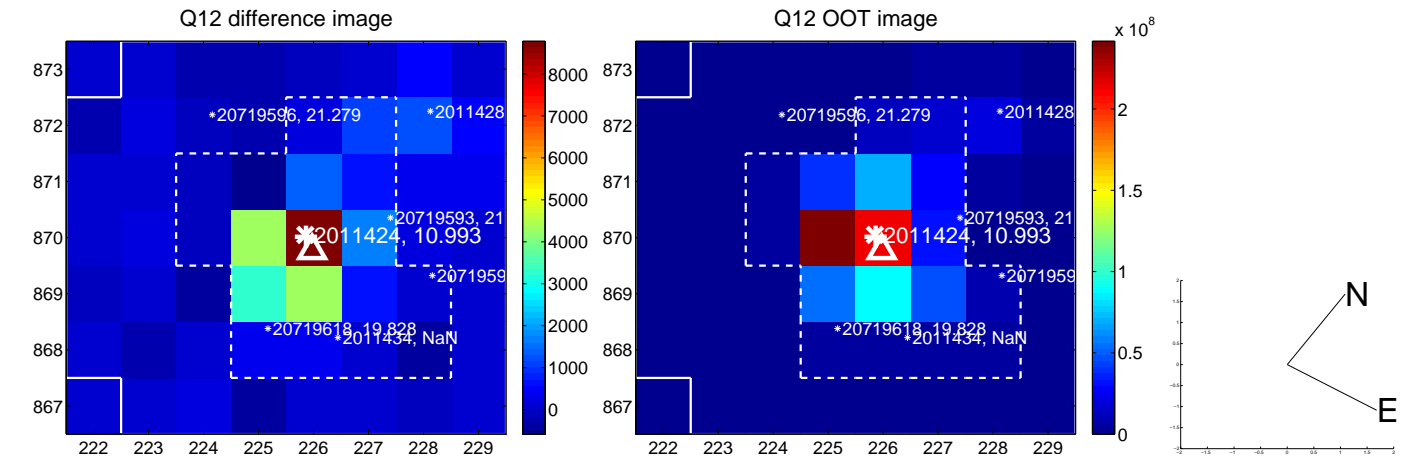
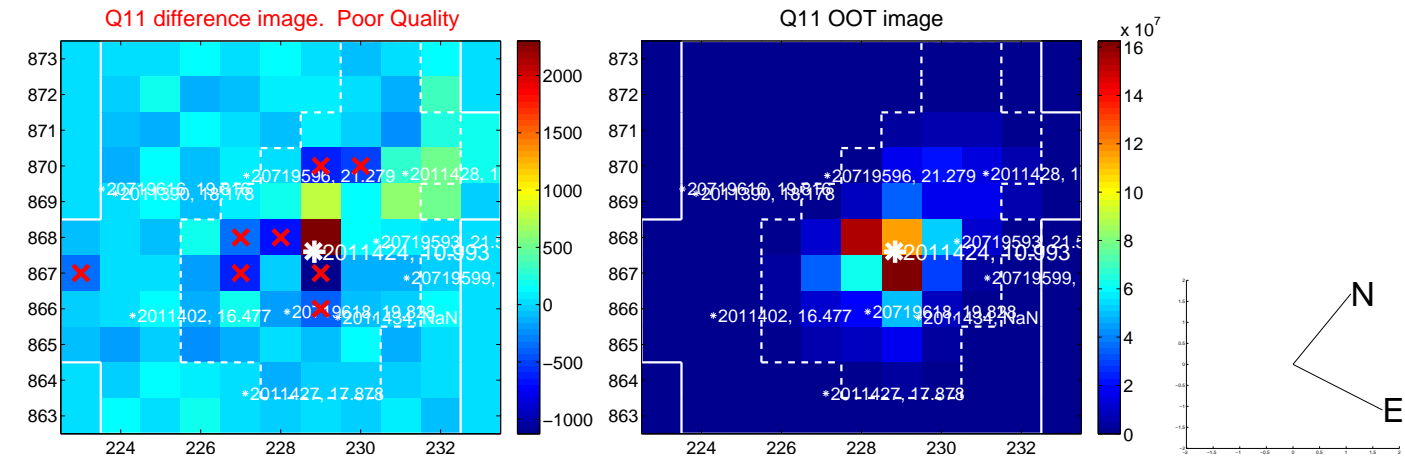
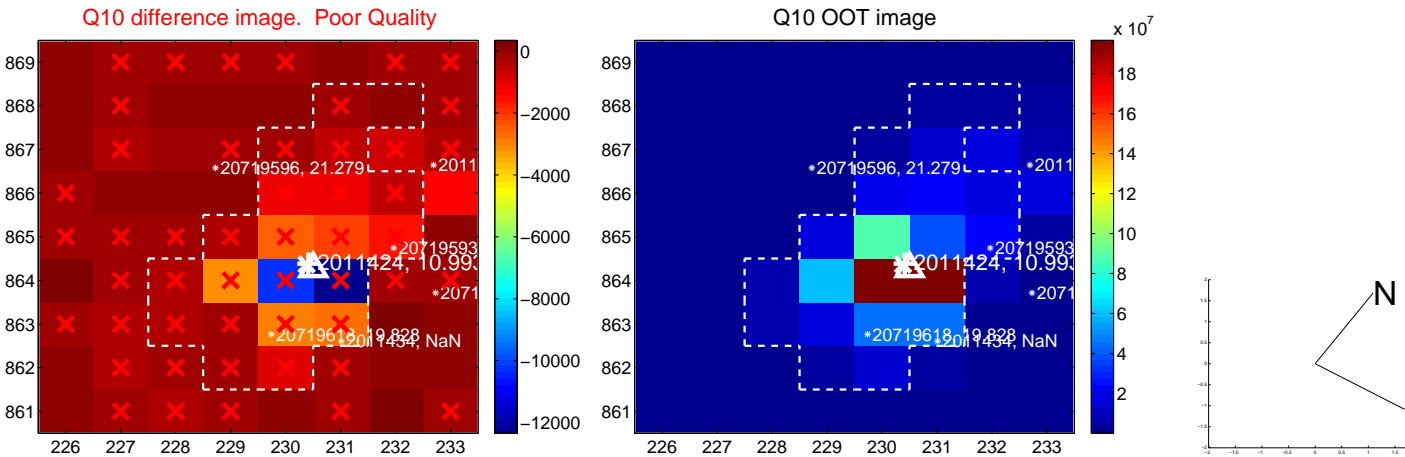
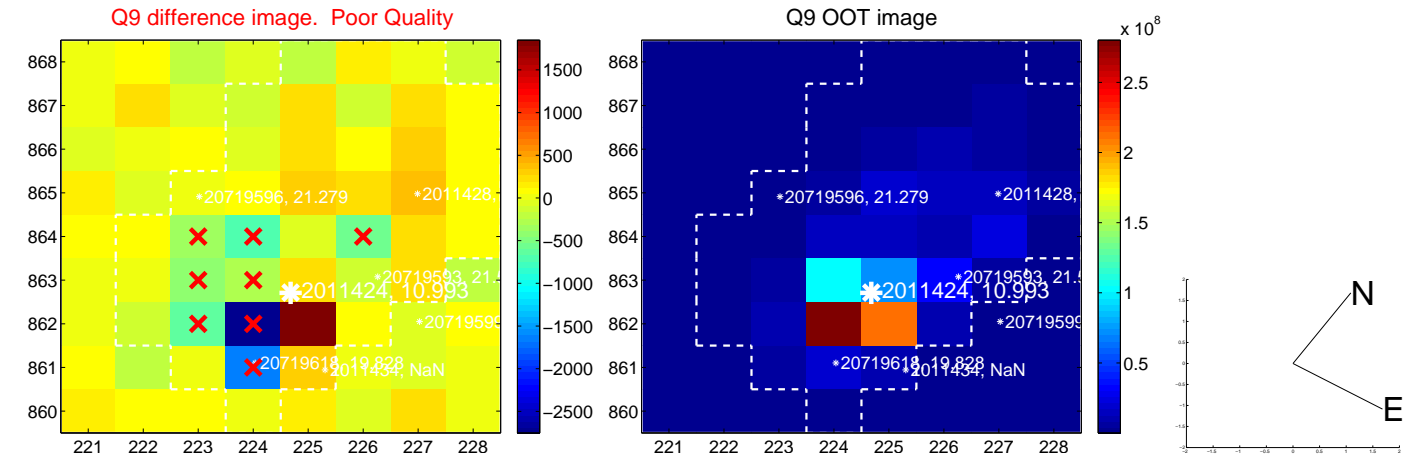
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



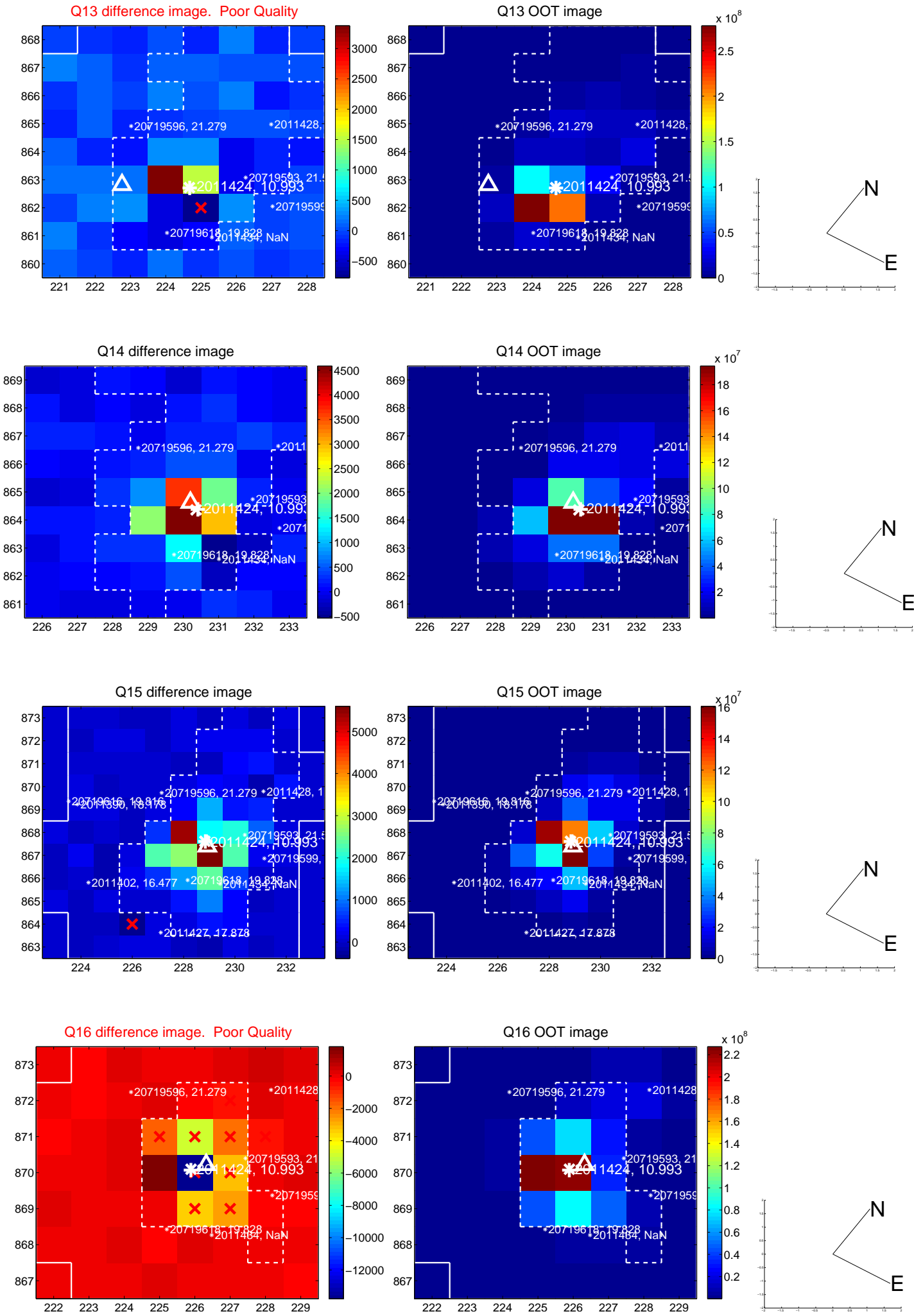
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



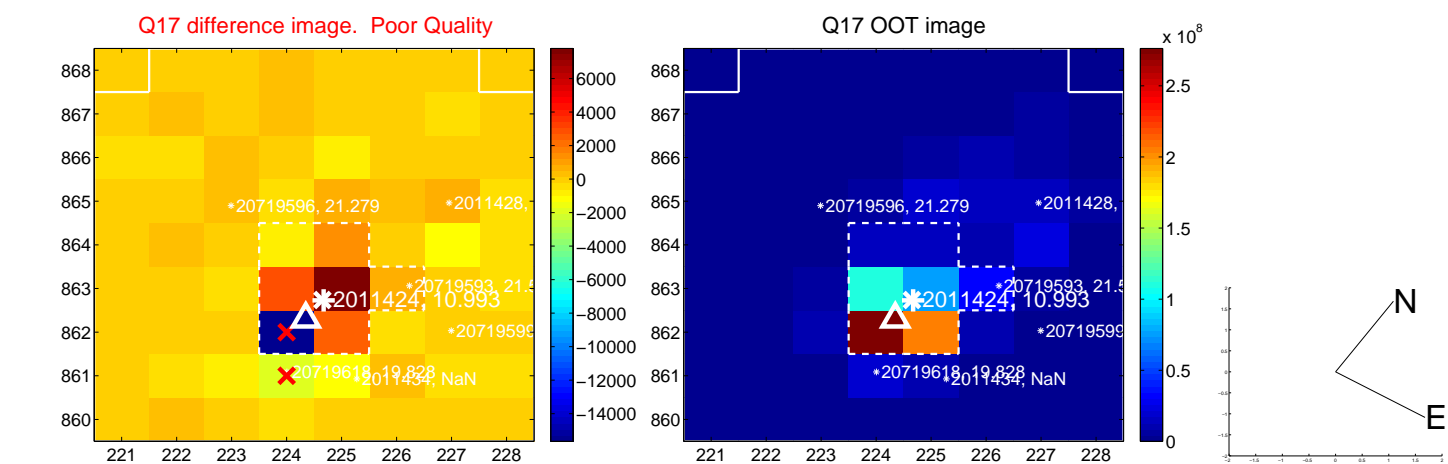
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



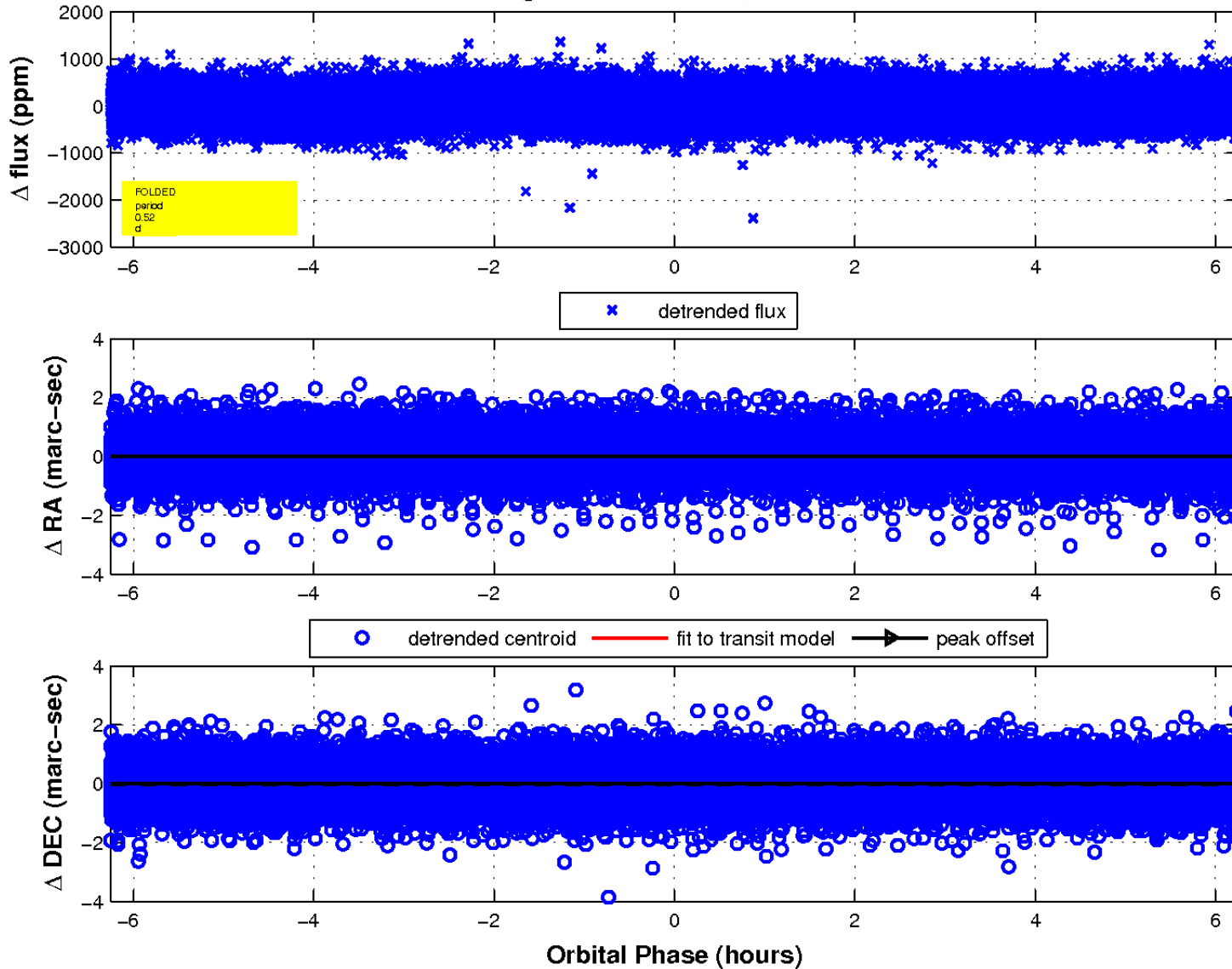
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

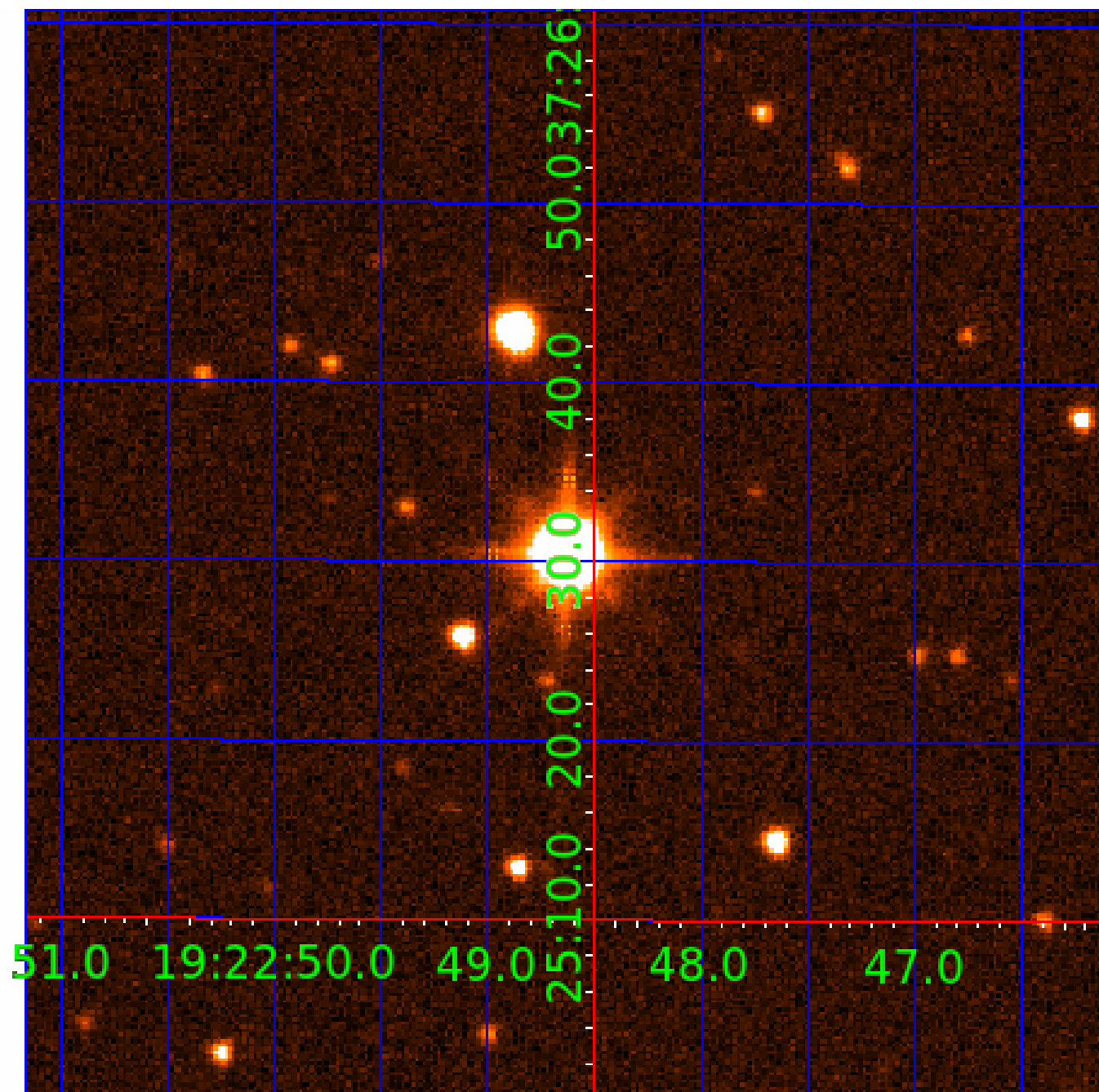


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 002011424

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})
002011424-01	OBS	No	0.521186	131.586556	65.0	2.301	16.0	24.2	2.54	7110	2.38	62110.65
002011424-02	OBS	No	0.521179	131.777921	54.1	1.547	15.6	20.1	2.54	7110	1.91	62111.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002011424-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002011424-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

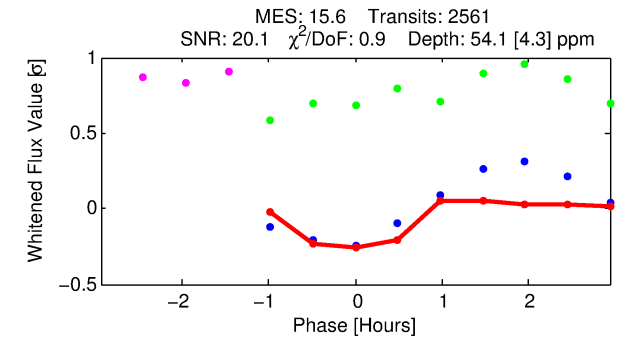
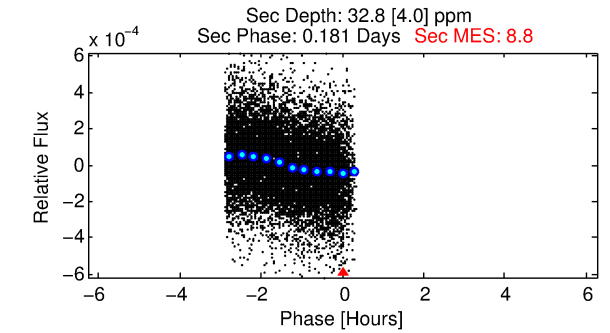
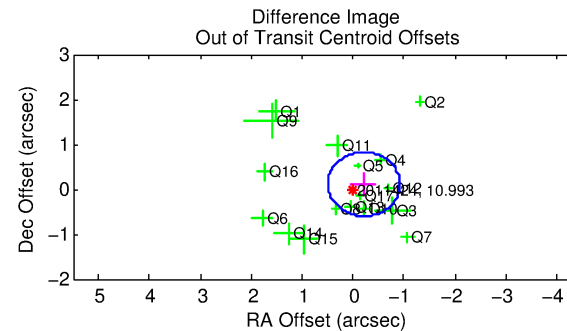
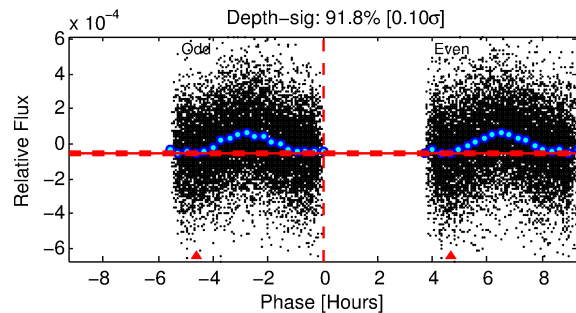
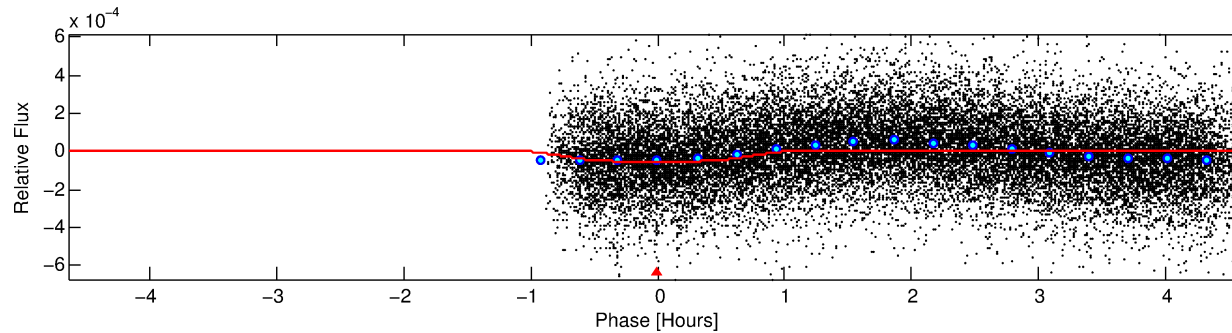
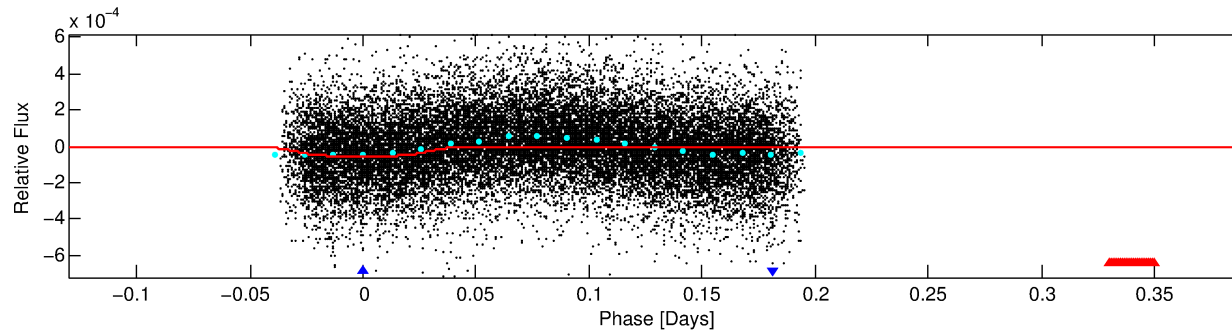
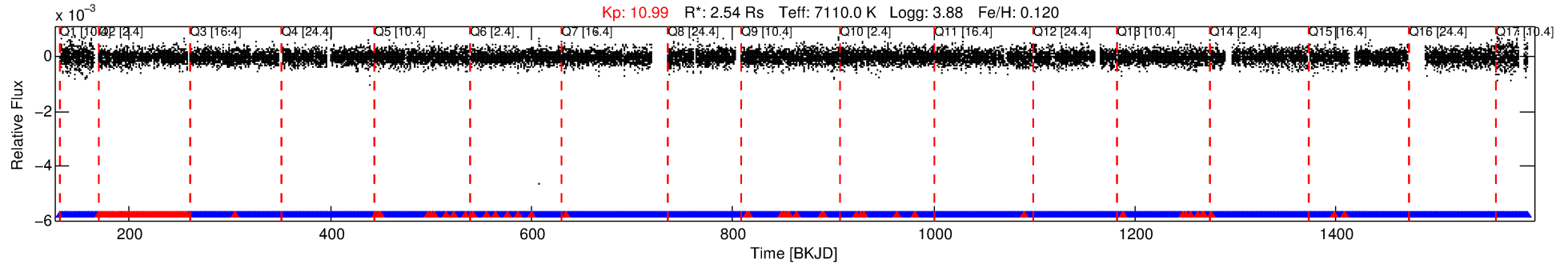
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002011424-02

No Significant Match Found

DV One-Page Summary

KIC: 2011424 Candidate: 2 of 2 Period: 0.521 d



DV Fit Results:

Period = 0.52118 [0.00001] d
Epoch = 131.7779 [0.0010] BKJD
Rp/R* = 0.0069 [0.0019]
a/R* = 2.57 [3.41]
b = 0.27 [5.37]
Seff = 62111.79 [18422.06]
Teff = 4025 [298] K
Rp = 1.91 [0.66] Re
a = 0.0154 [0.0029] AU
Ag = 1.18 [0.75] [0.24 σ]
Teffp = 6484 [918] K [2.55 σ]

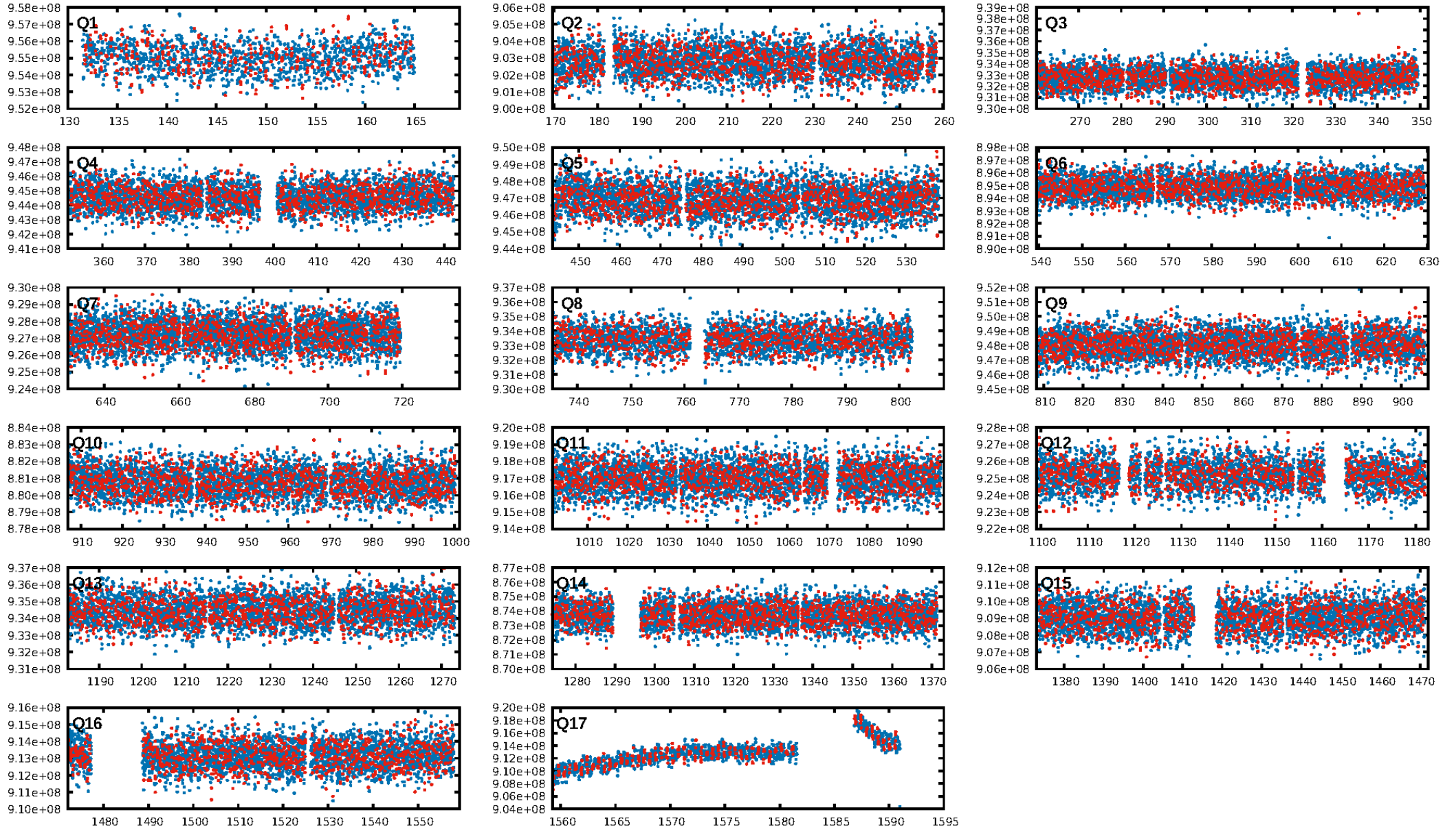
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.02e-17
RollingBand-fgt: 0.93 [2283/2446]
GhostDiagnostic-chr: 1.502
Centroid-sig: 0.0%
Centroid-so: 0.369 arcsec [2.02 σ]
OotOffset-rm: 0.239 arcsec [1.01 σ]
KicOffset-rm: 0.140 arcsec [0.52 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.82 [14/17]
DiffImageOverlap-fno: 0.00 [0/17]

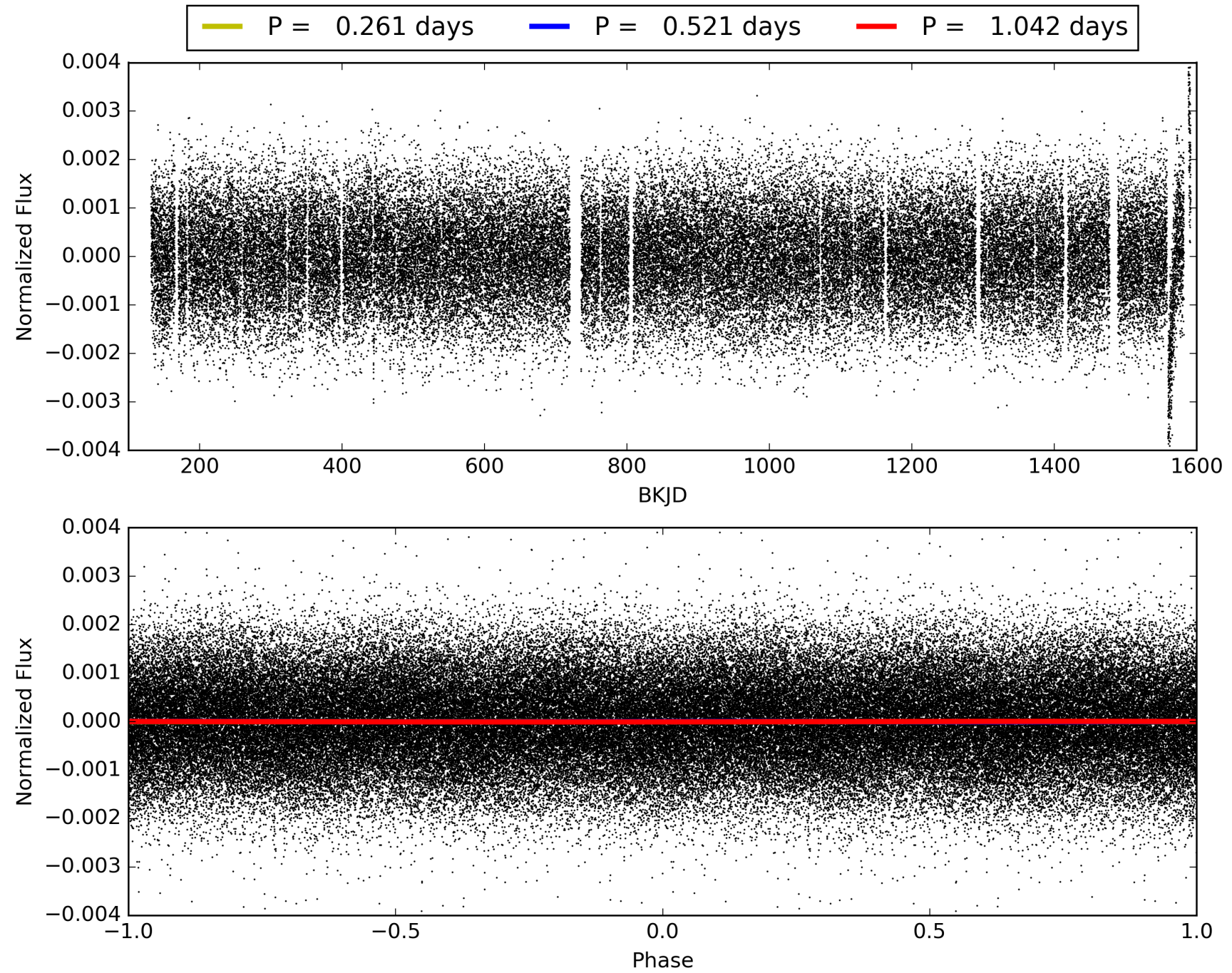
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:30:20 Z

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

TCE 002011424-02, PDC Light Curves

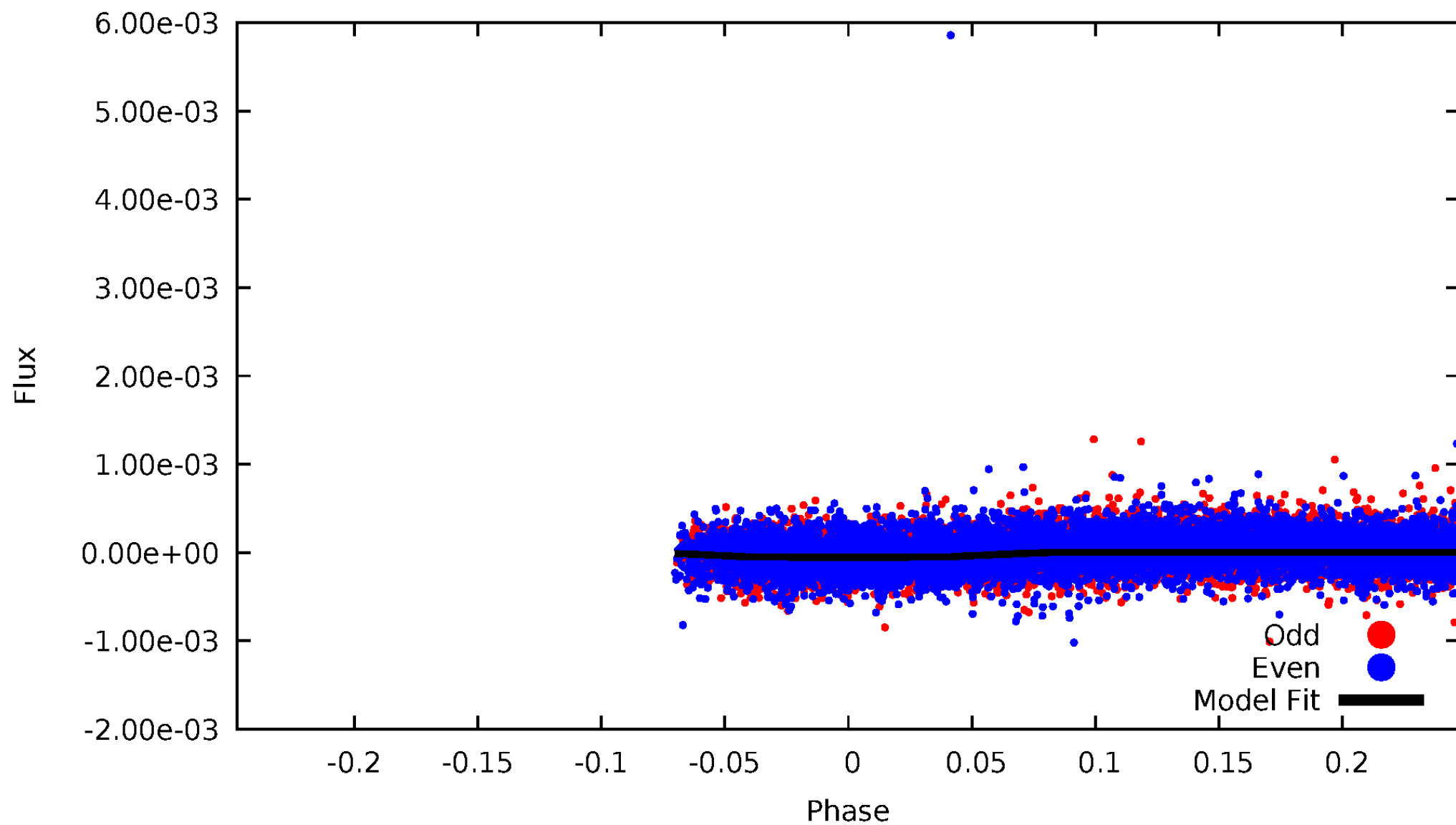


TCE 002011424-02



DV Odd/Even

TCE 002011424-02

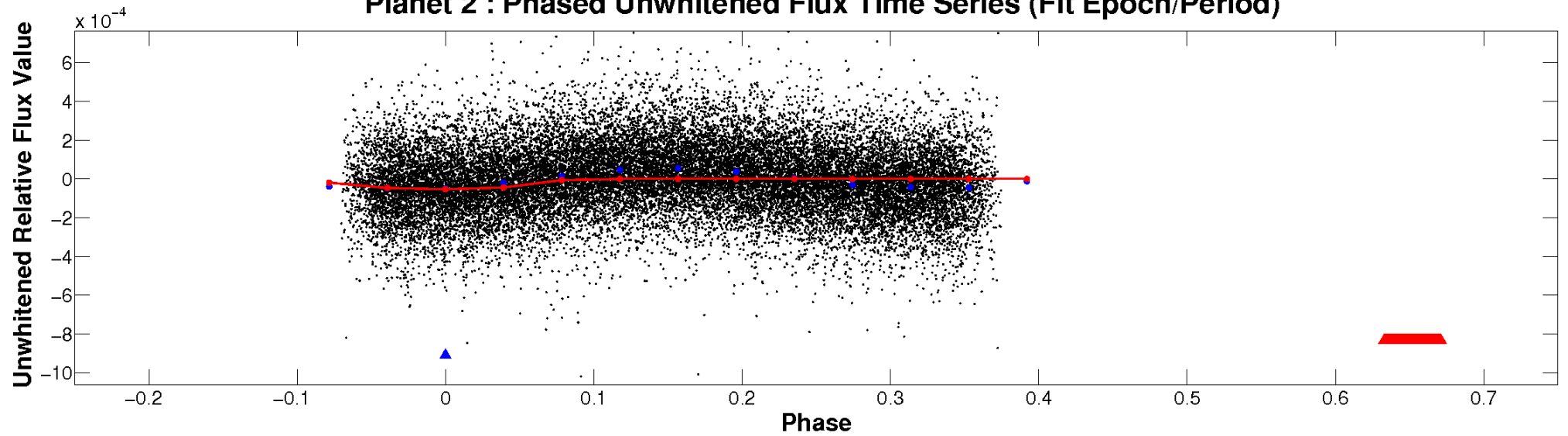


ALT Odd/Even

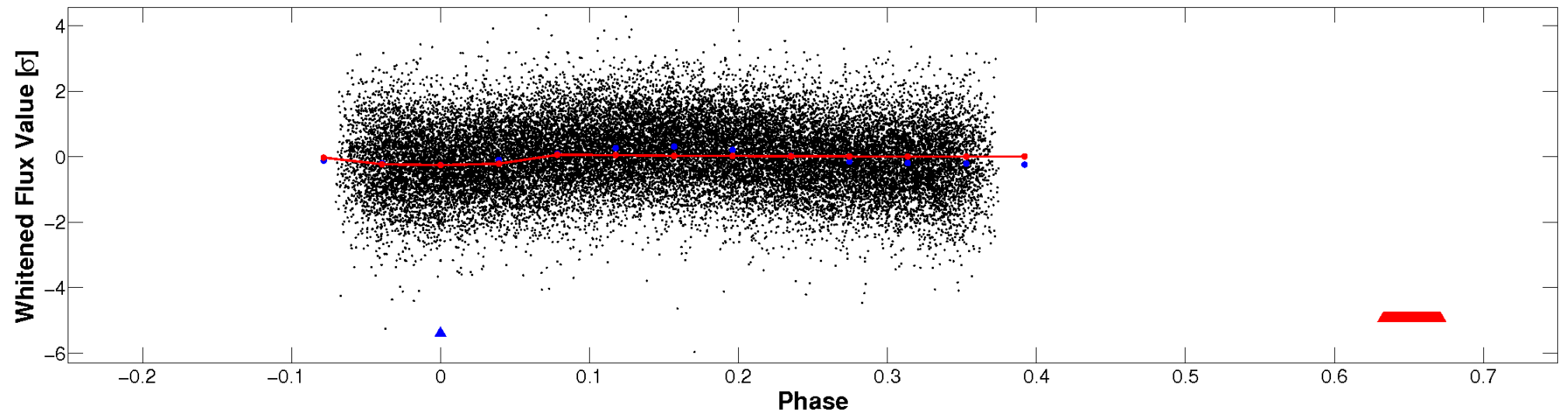
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

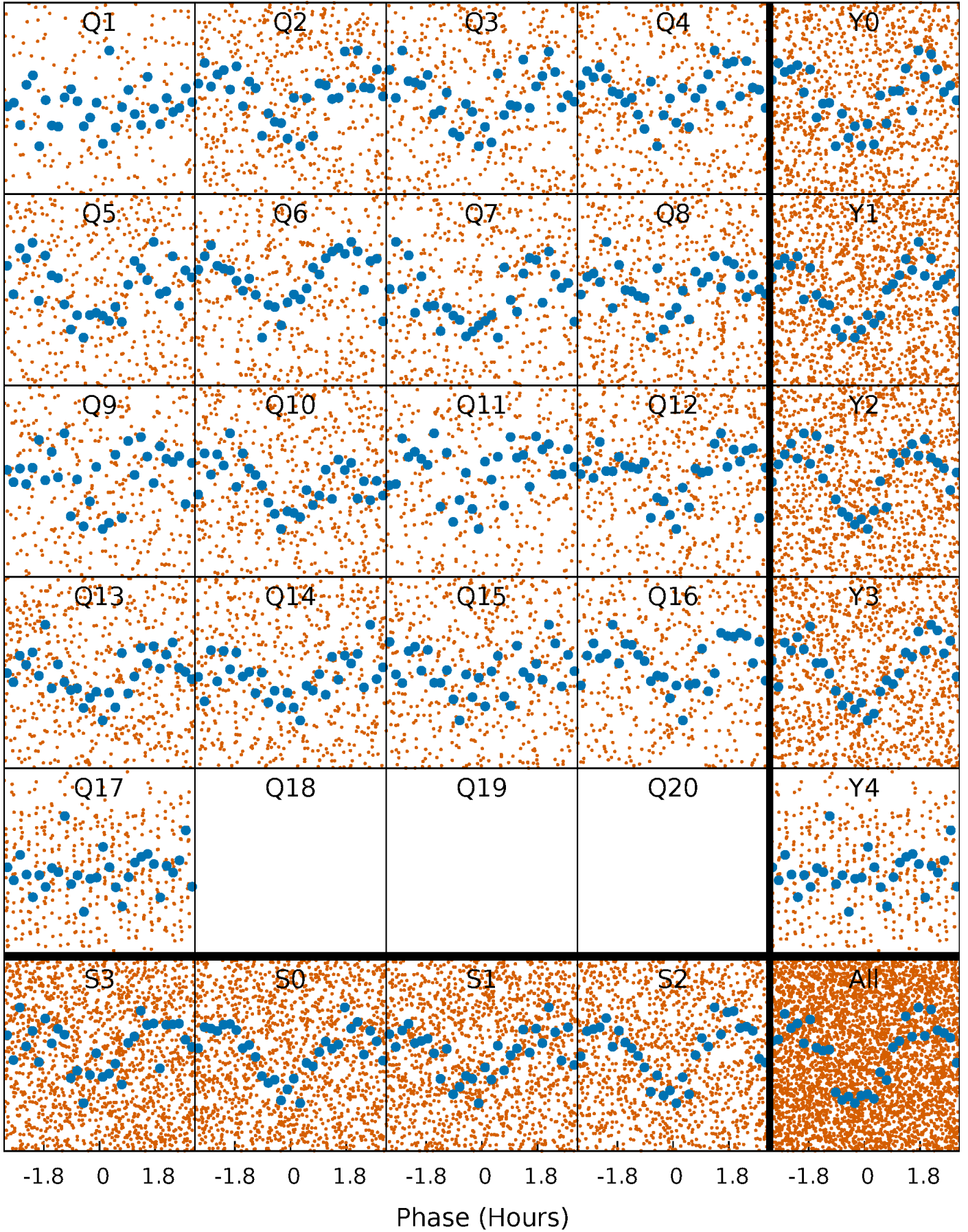


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



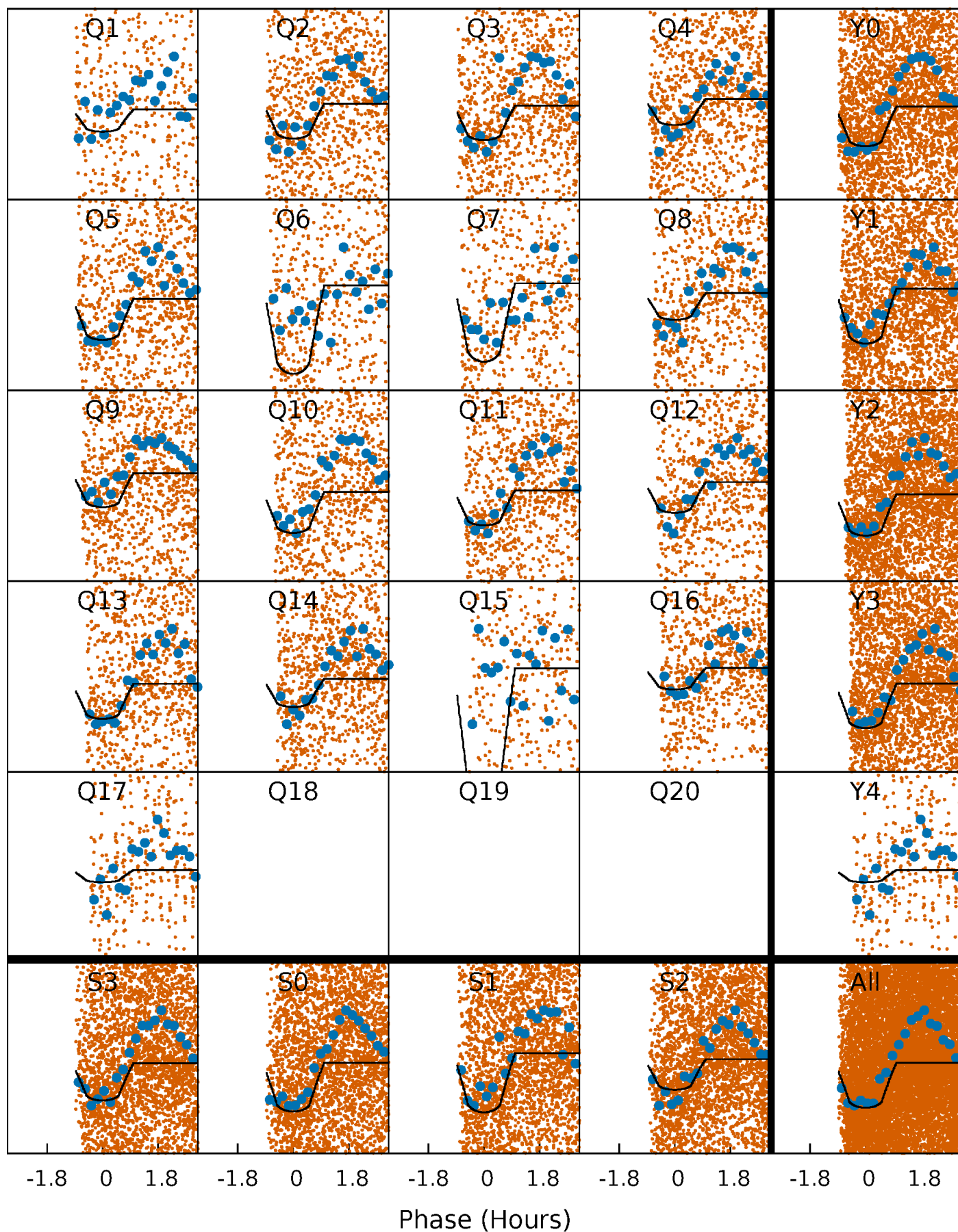
PDC Quarter-Phased Transit Curves

TCE 002011424-02 P= 0.521179 Days $T_0=131.777921$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 002011424-02 P= 0.521179 Days $T_0=131.777921$ (BKJD)

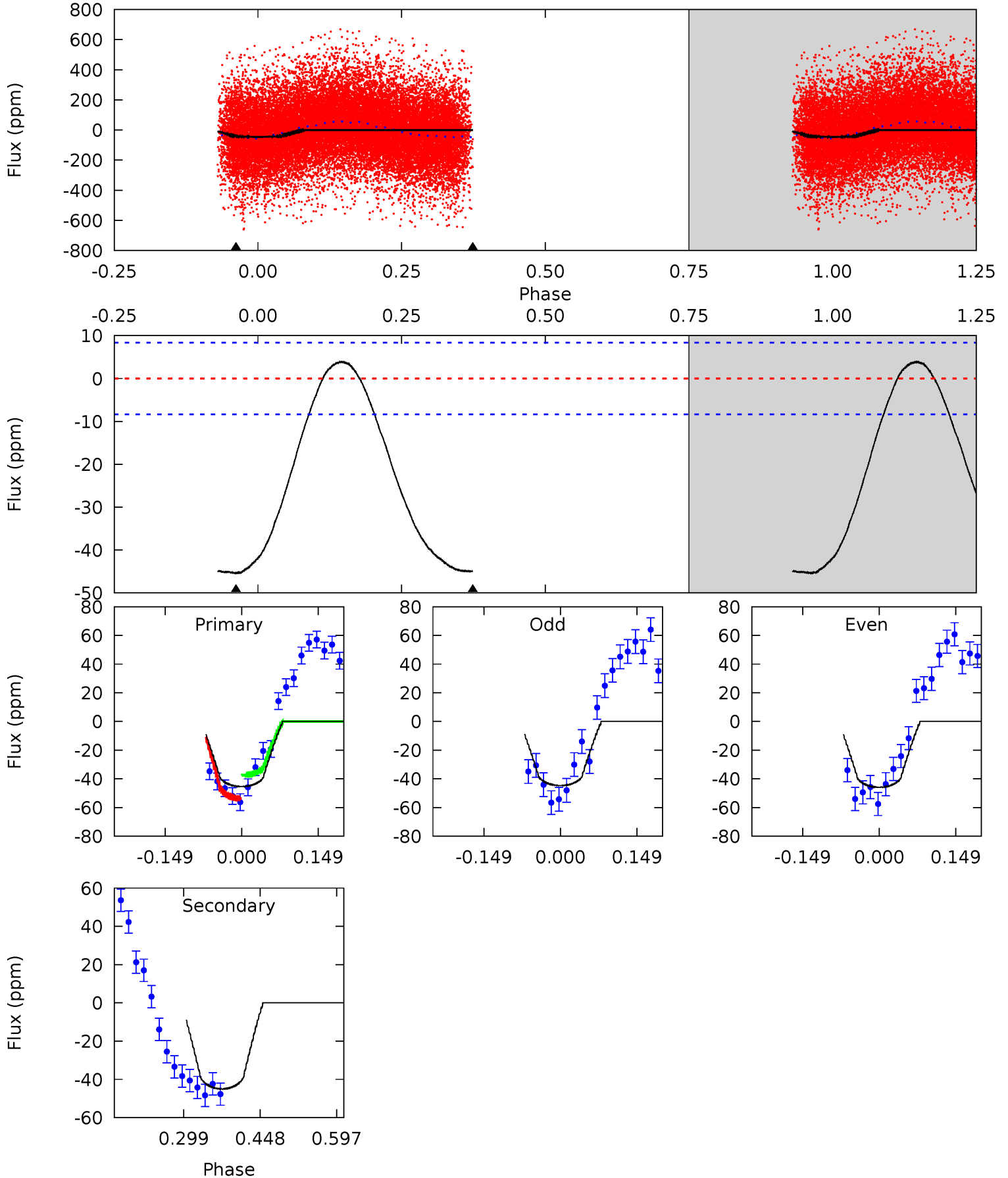


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

002011424-02, P = 0.521179 Days, E = 131.256742 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.3	24.1	0	0	4.48	1.44	4.03	24.3	24.3	24.1	24.1	0.32	0.96	0.08	4.44



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 002011424

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7110^{+74}_{-85}	$3.884^{+0.168}_{-0.112}$	$0.120^{+0.150}_{-0.150}$	$2.542^{+0.475}_{-0.528}$	$1.804^{+0.198}_{-0.180}$	$0.155^{+0.135}_{-0.058}$
	+1%/-1%	+4%/-3%	+125%/-125%	+19%/-21%	+11%/-10%	+87%/-38%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 002011424-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-45 ± 2	$1.88^{+0.59}_{-0.51}$	5600^{+250}_{-292}	6663^{+1372}_{-1007}	$1.710^{+1.396}_{-0.721}$
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

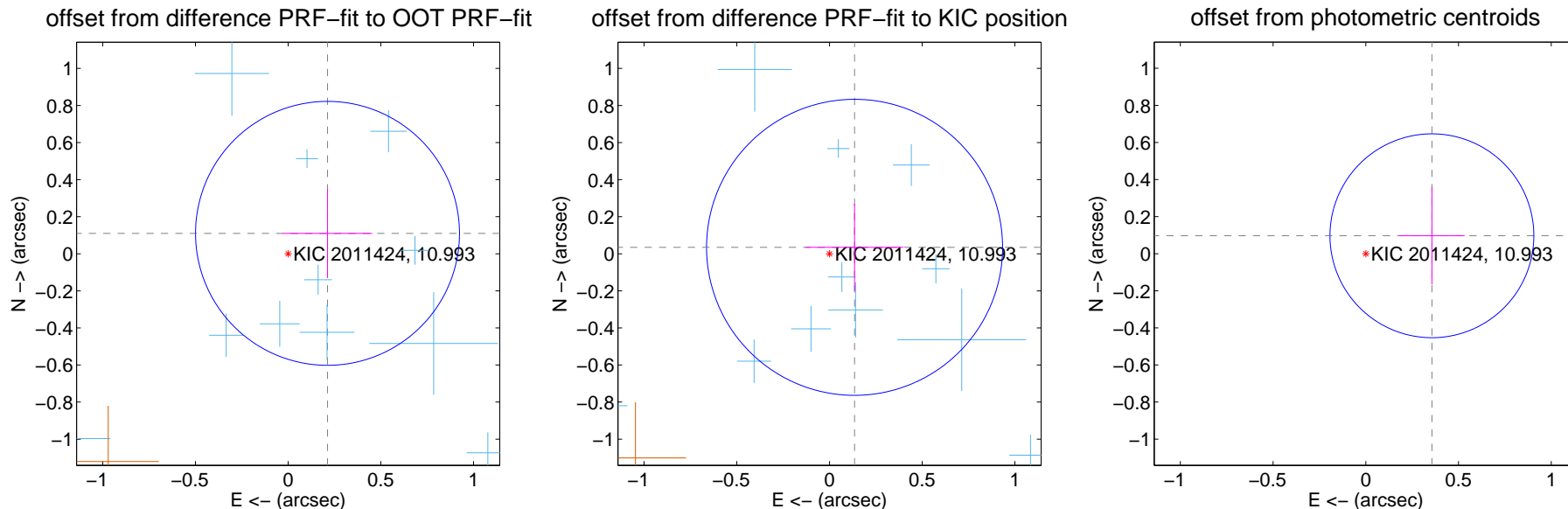
DV Centroid Data

Supplemental centroid analysis for 002011424-02. **Kepler magnitude: 10.99.** Transit SNR 20.06

There are 14 quarters with good PRF difference image offsets

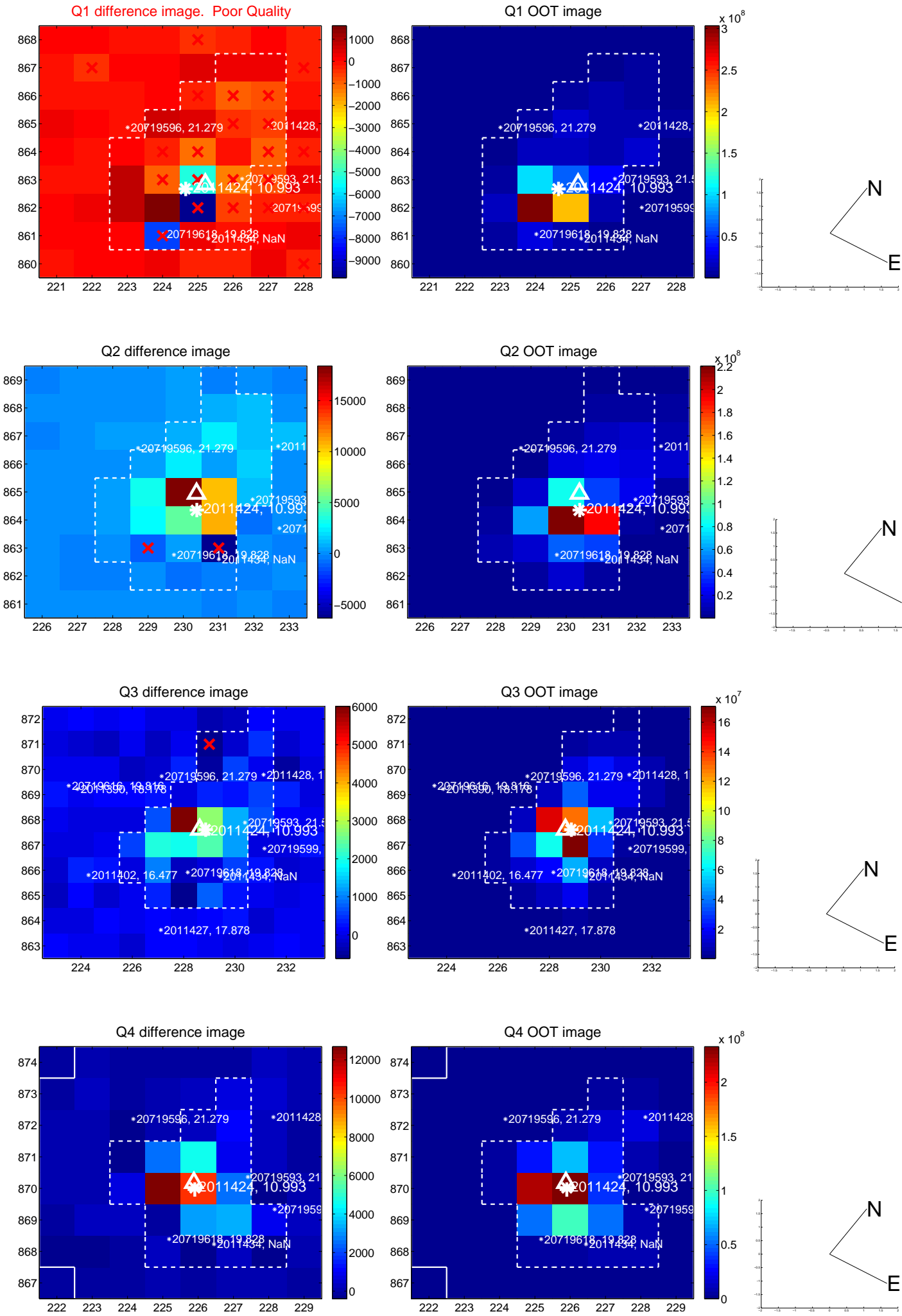
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.239 ± 0.237	1.01	-0.212 ± 0.241	0.110 ± 0.240
PRF-fit source offset from KIC position	0.140 ± 0.266	0.52	-0.135 ± 0.264	0.035 ± 0.235
photometric centroid source offset	0.37 ± 0.18	2.02	-0.36 ± 0.18	0.10 ± 0.26

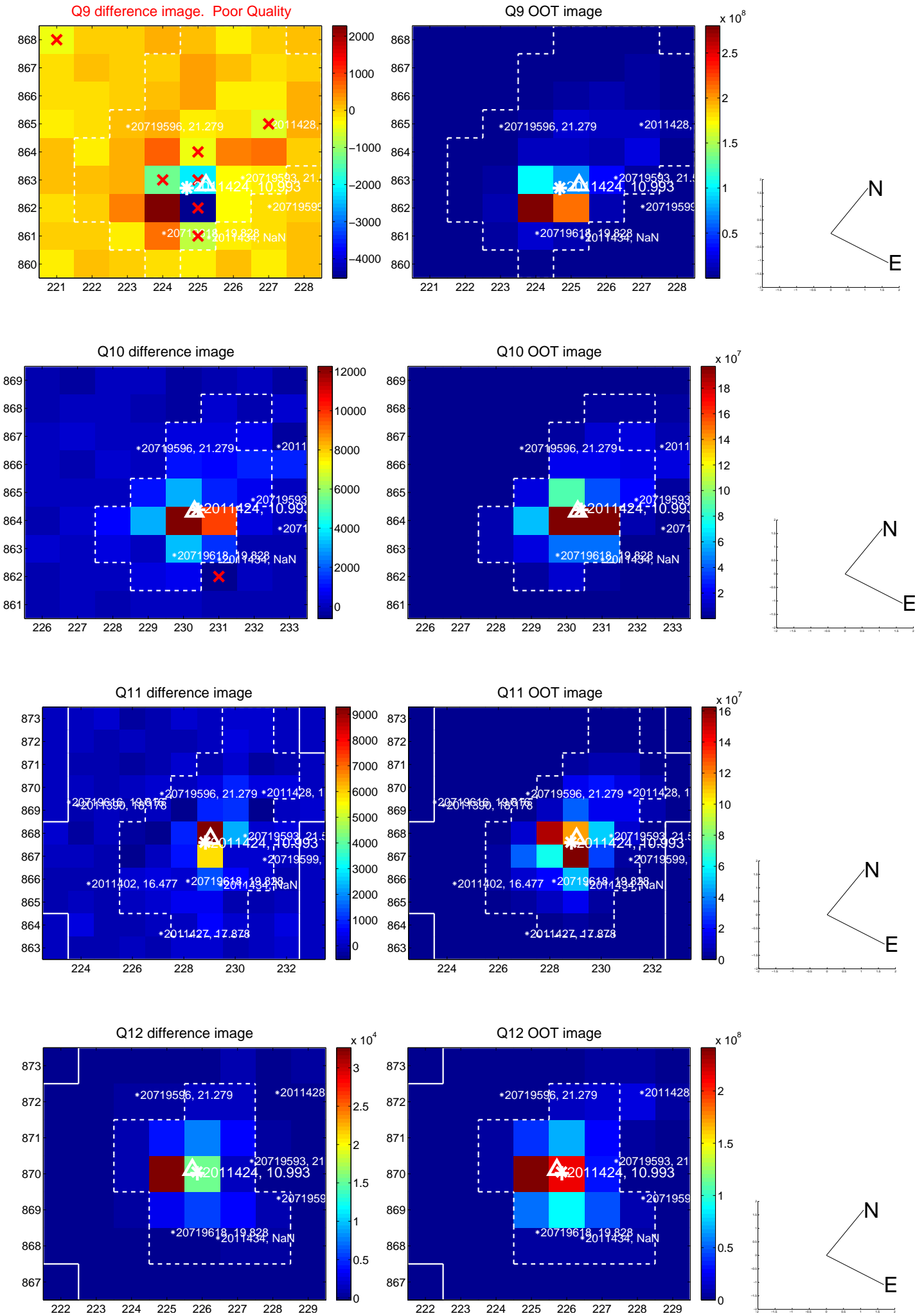


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

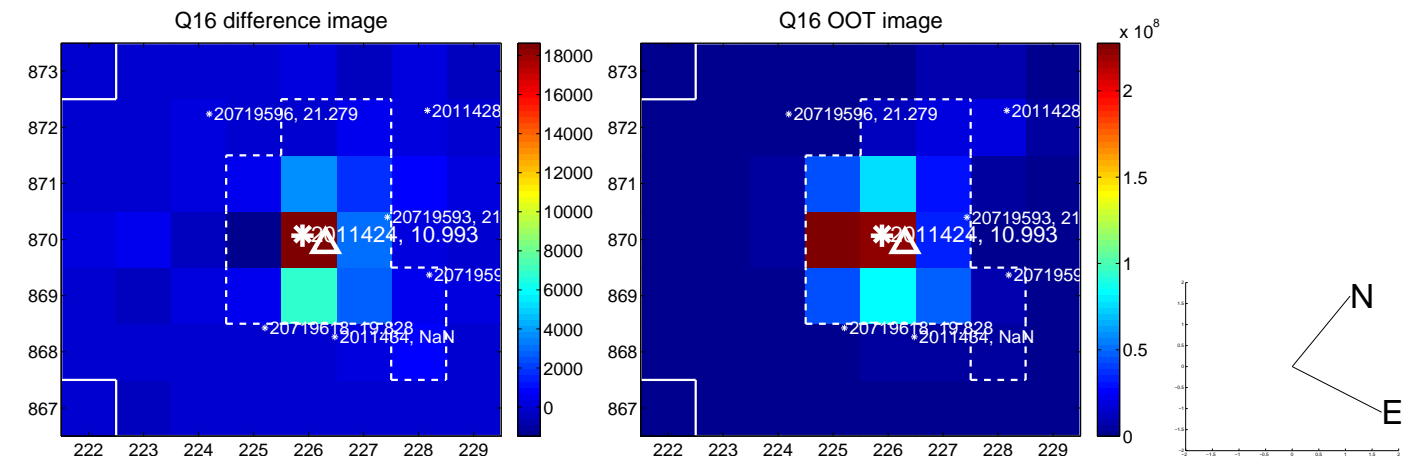
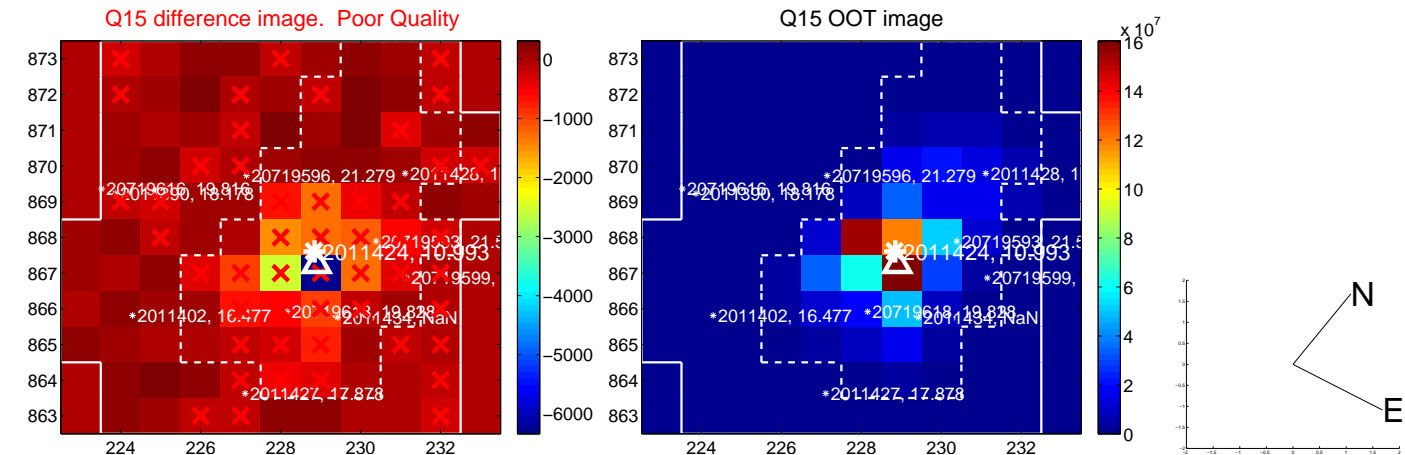
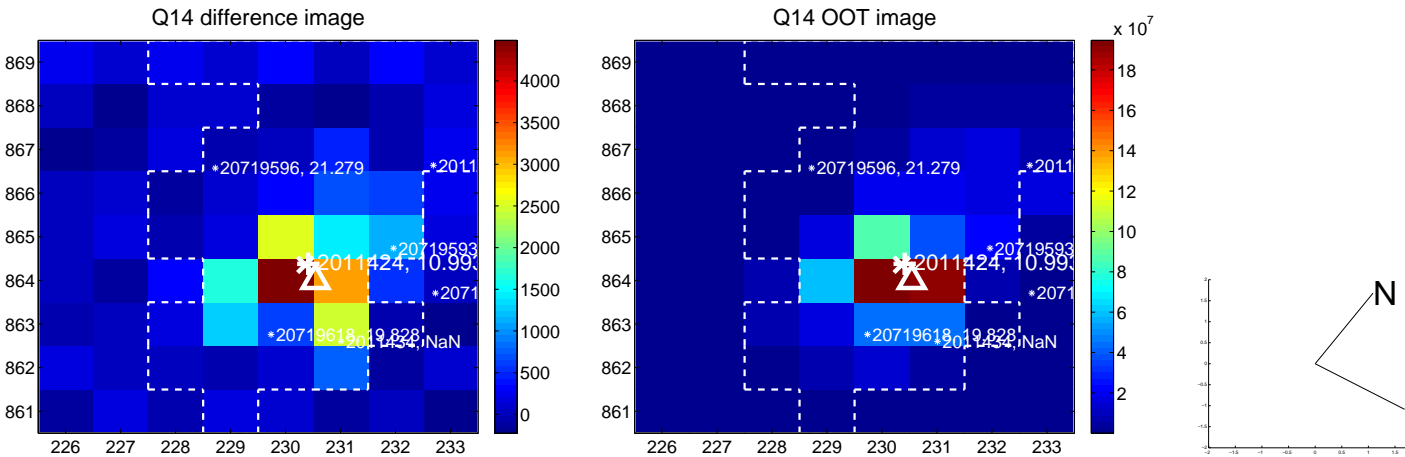
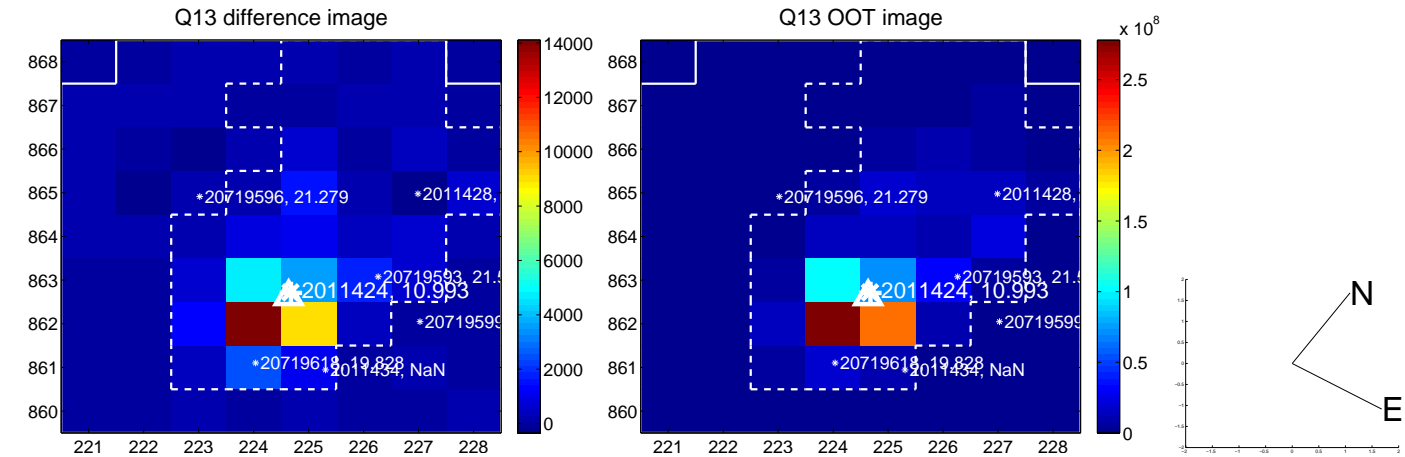
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



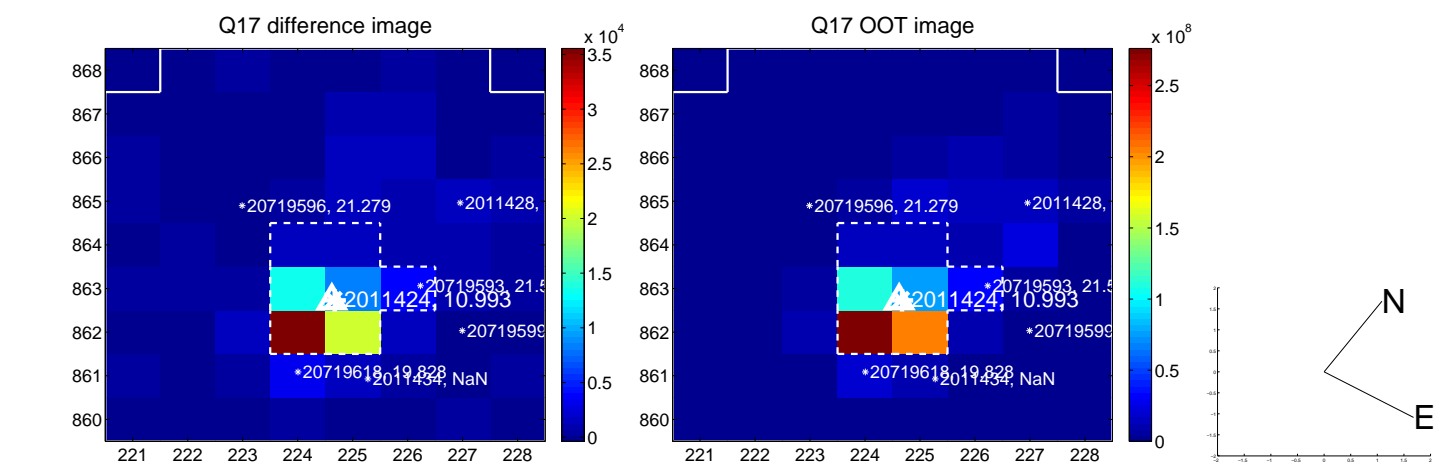
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



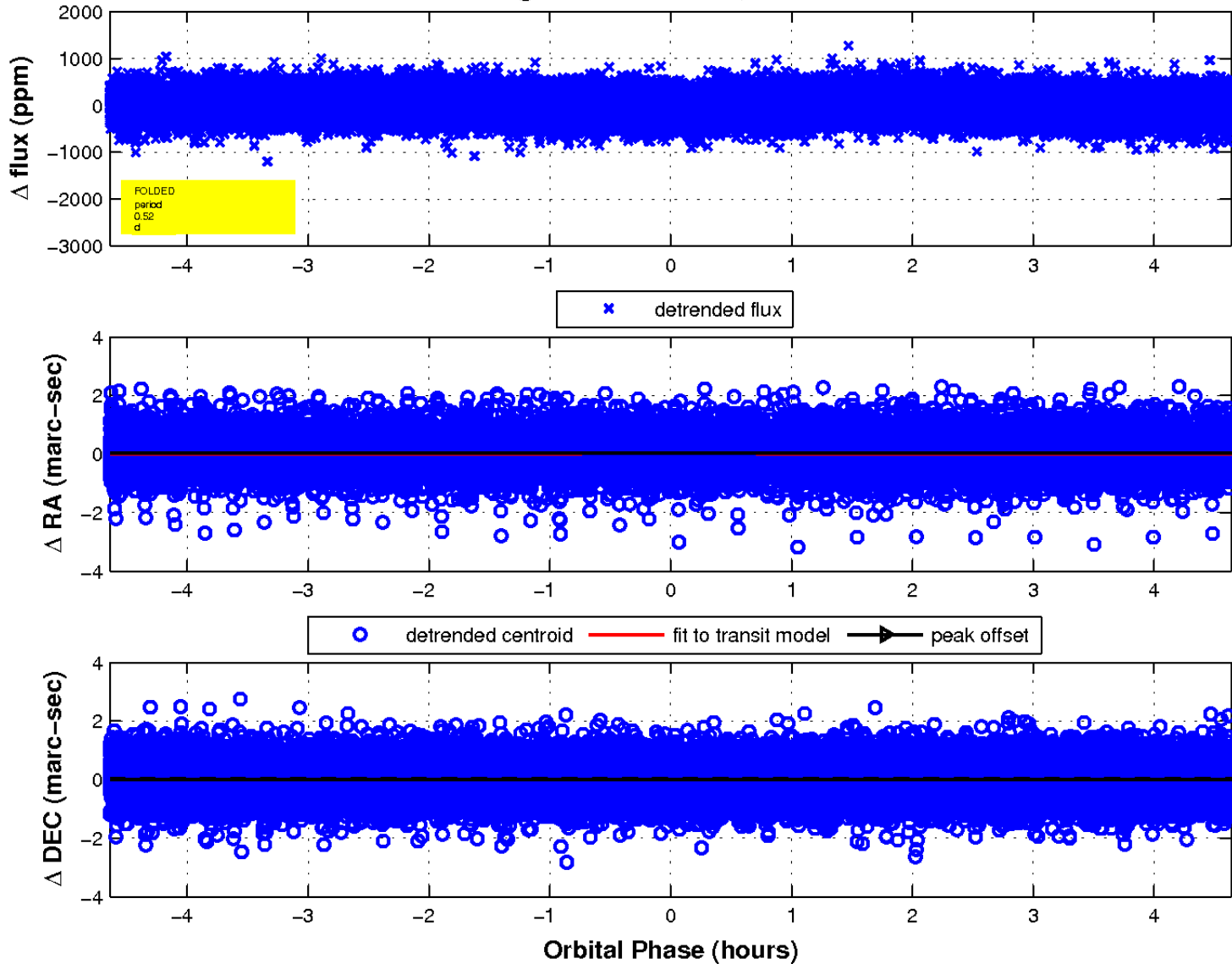
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

