

KIC 010645230

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})
010645230-01	OBS	No	0.838337	131.758149	23.4	4.507	8.9	3.4	1.27	6848	0.72	9718.13
010645230-02	OBS	No	0.838308	132.177821	90.2	2.608	9.4	10.8	1.27	6848	1.23	9718.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010645230-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010645230-02	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

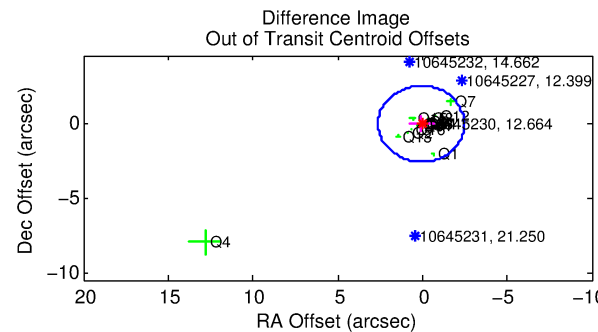
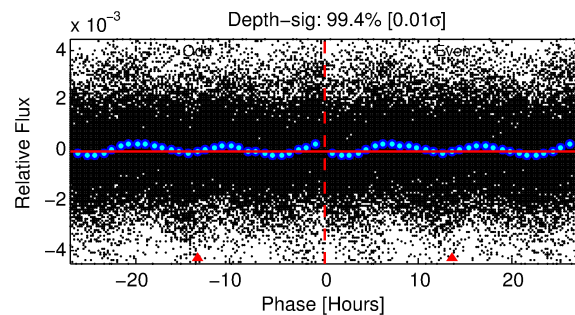
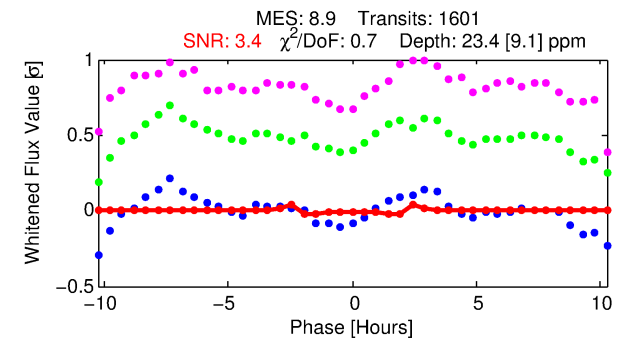
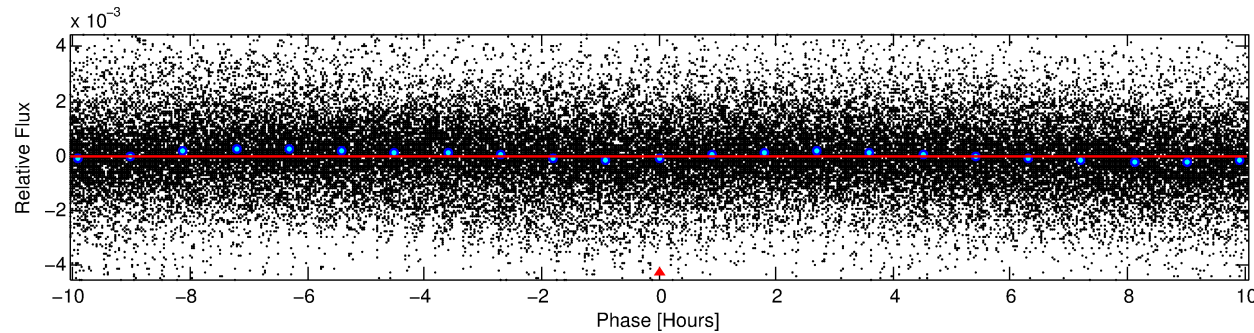
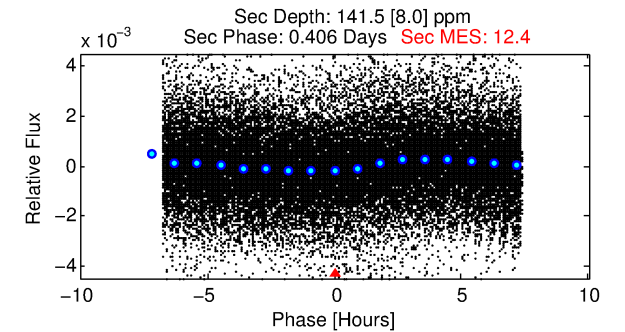
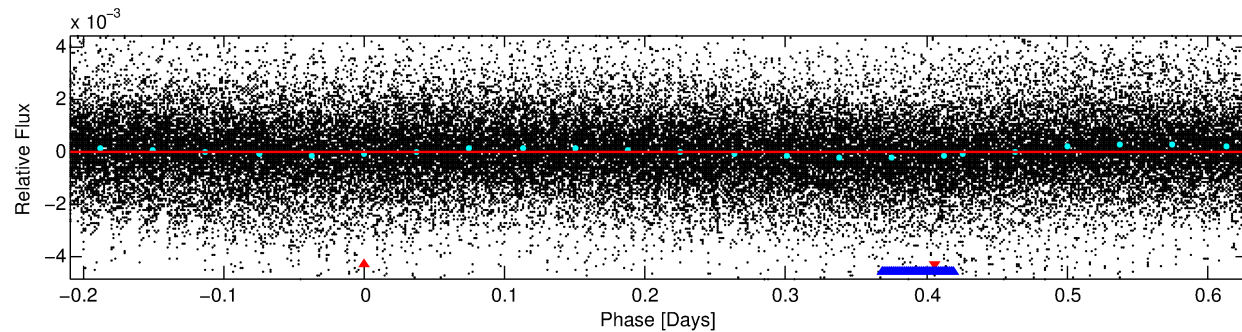
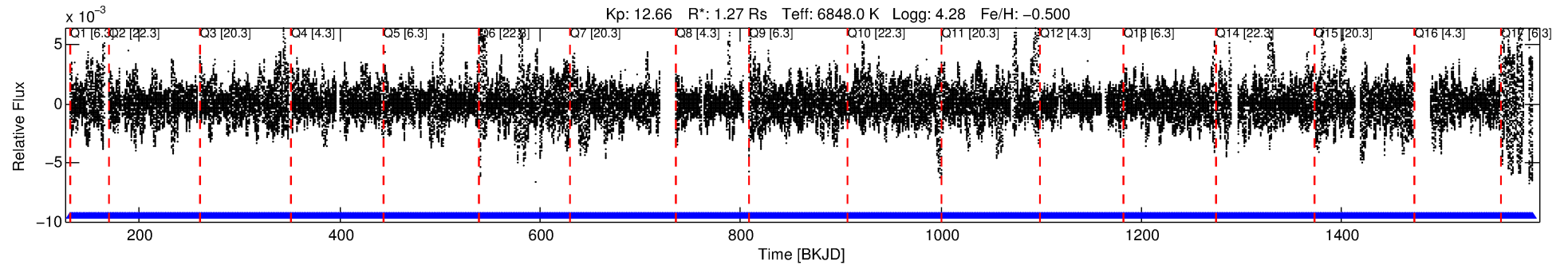
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010645230-01

No Significant Match Found

DV One-Page Summary

KIC: 10645230 Candidate: 1 of 2 Period: 0.838 d



DV Fit Results:

Period = 0.83834 [0.00003] d
Epoch = 131.7581 [0.0040] BKJD
Rp/R* = 0.0052 [0.0024]
a/R* = 1.13 [0.60]
b = 0.91 [0.49]
Seff = 9718.13 [3661.35]
Teq = 2532 [238] K
Rp = 0.72 [0.38] Re
a = 0.0181 [0.0042] AU
Ag = 49.29 [48.07] [1.00σ]
Teffp = 10371 [2423] K [3.2σ]

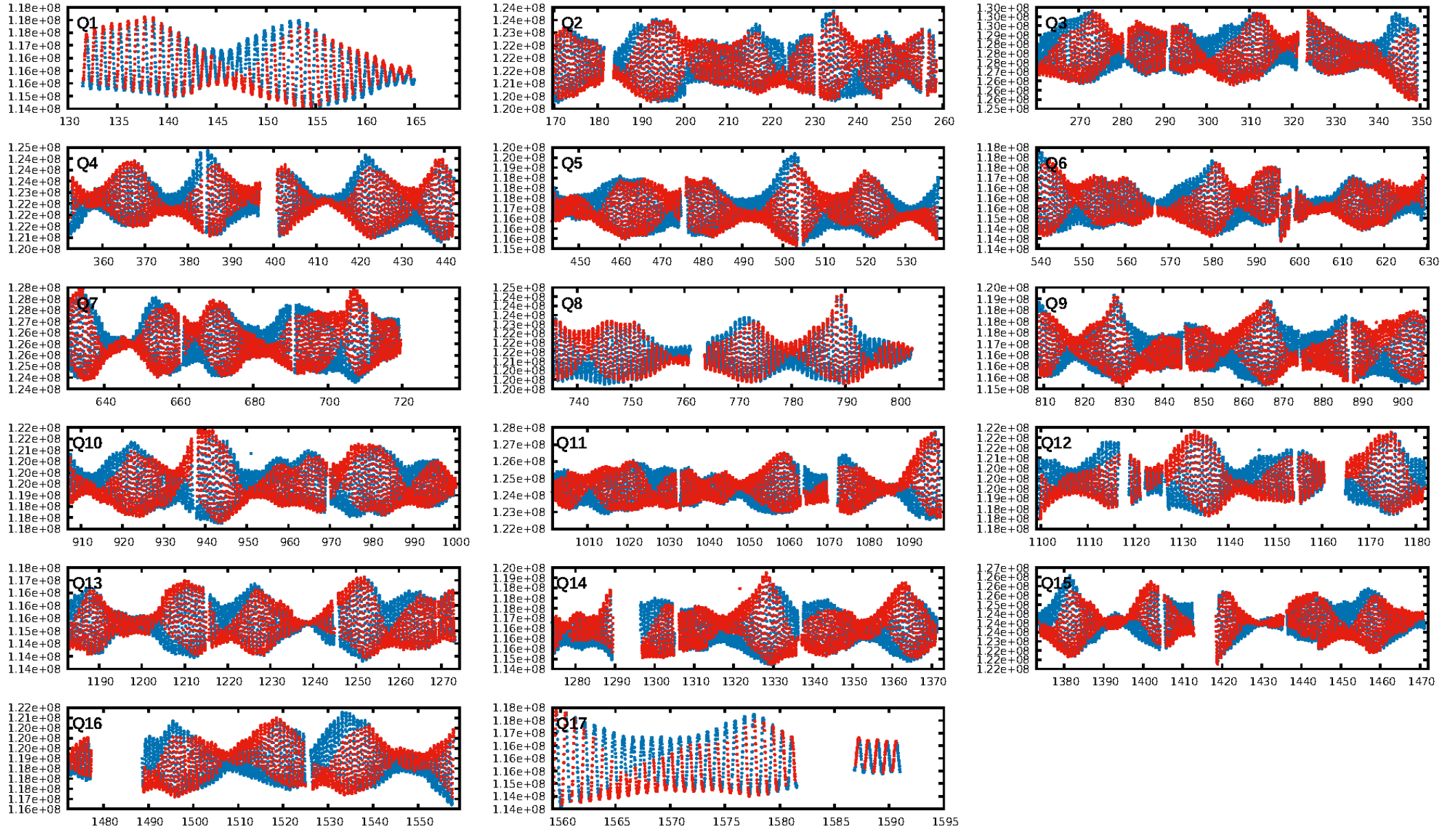
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.00e+00
RollingBand-fgt: 1.00 [1529/1529]
GhostDiagnostic-chr: 0.6985
Centroid-sig: 0.8%
Centroid-so: 1.931 arcsec [1.39σ]
OotOffset-rm: 0.110 arcsec [0.13σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.152 arcsec [0.21σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

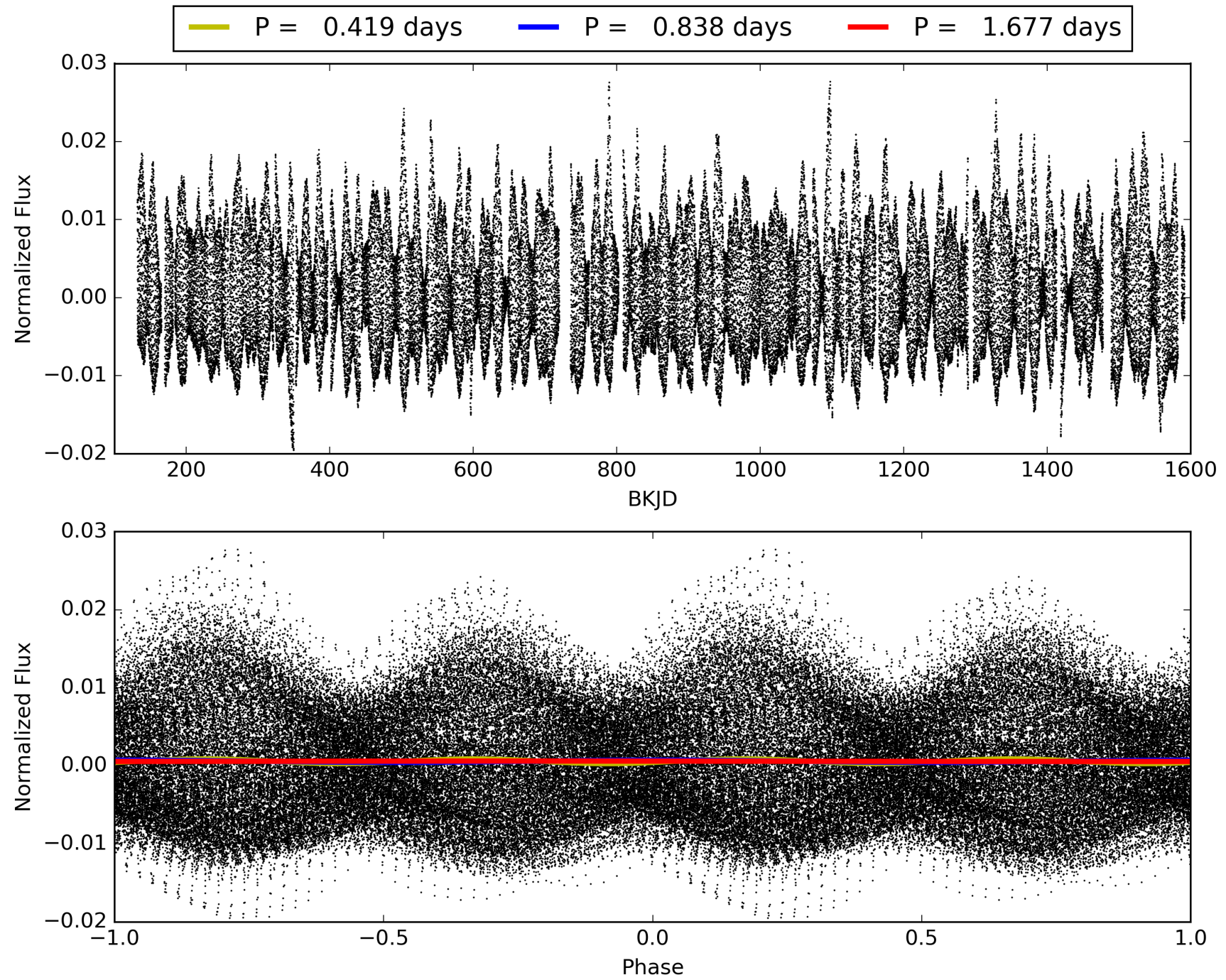
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:33:50 Z

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

TCE 010645230-01, PDC Light Curves

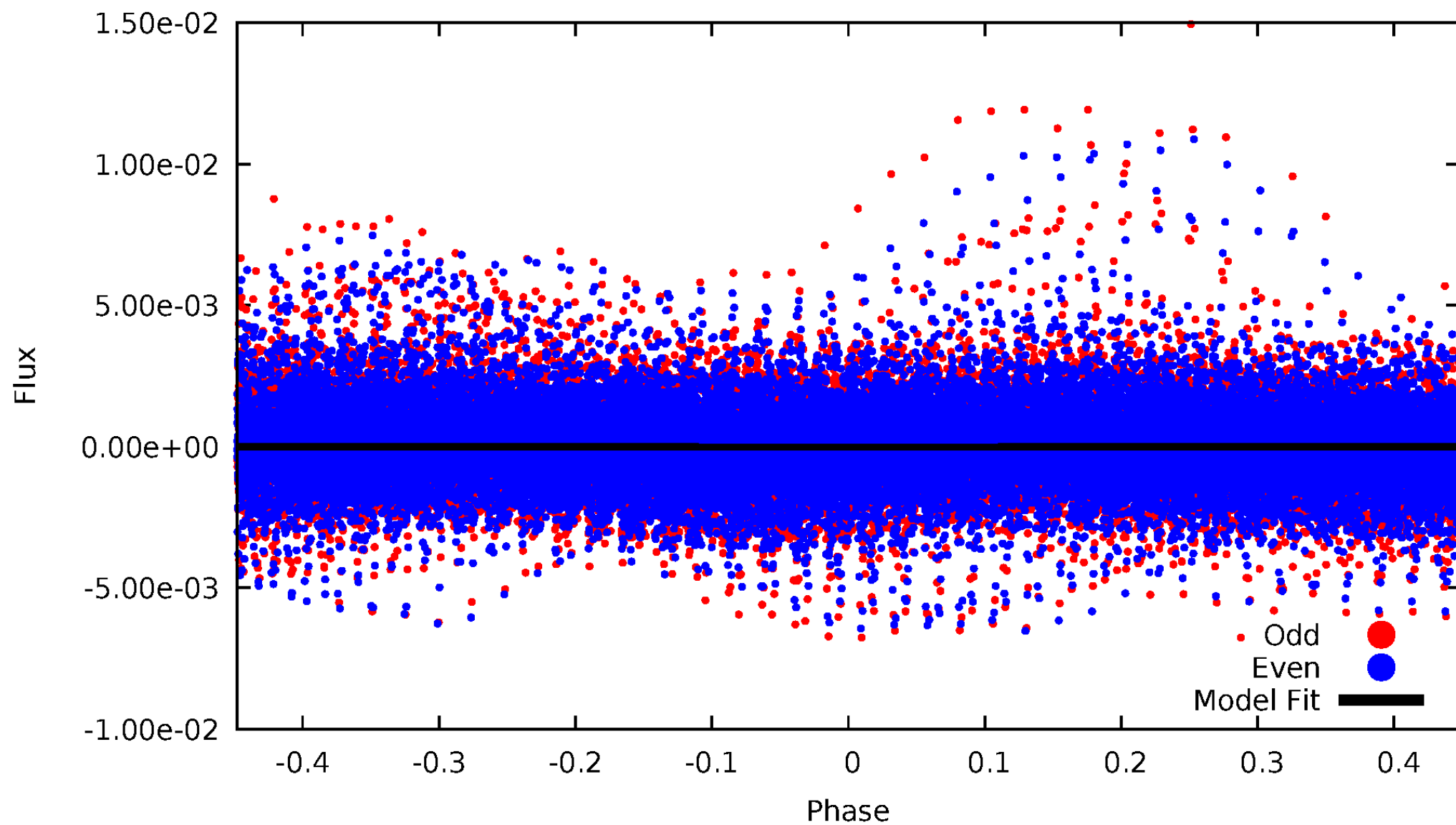


TCE 010645230-01



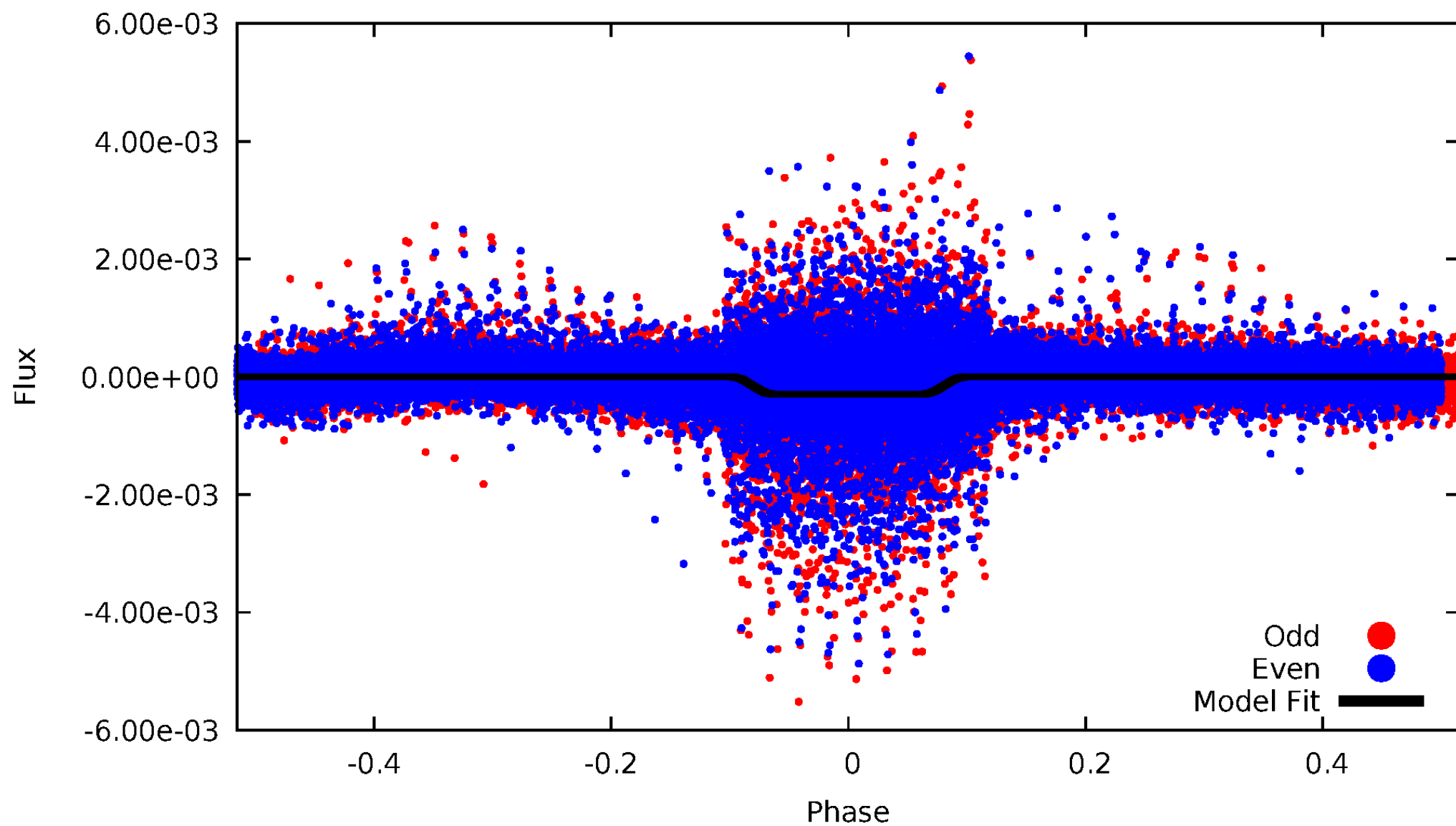
DV Odd/Even

TCE 010645230-01



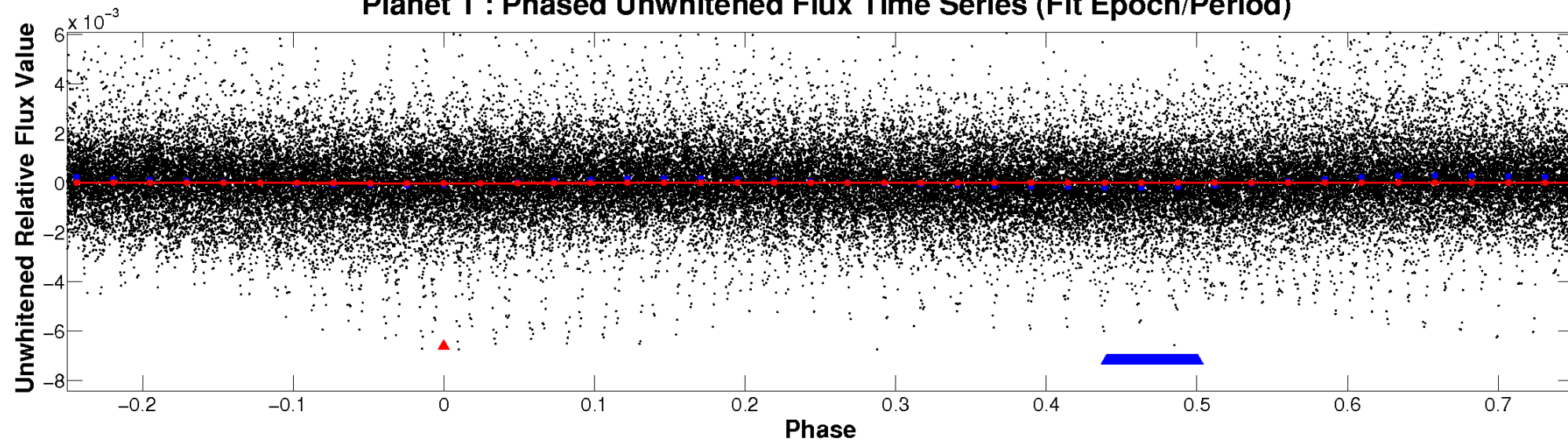
ALT Odd/Even

TCE 010645230-01

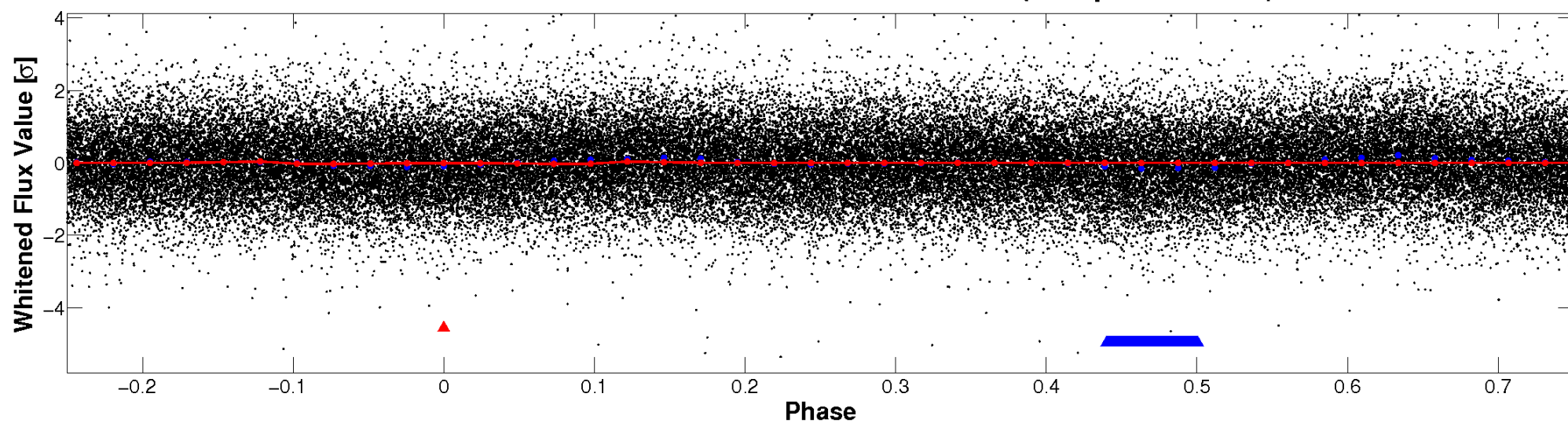


Non-Whitened Vs. Whitened Light Curve

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

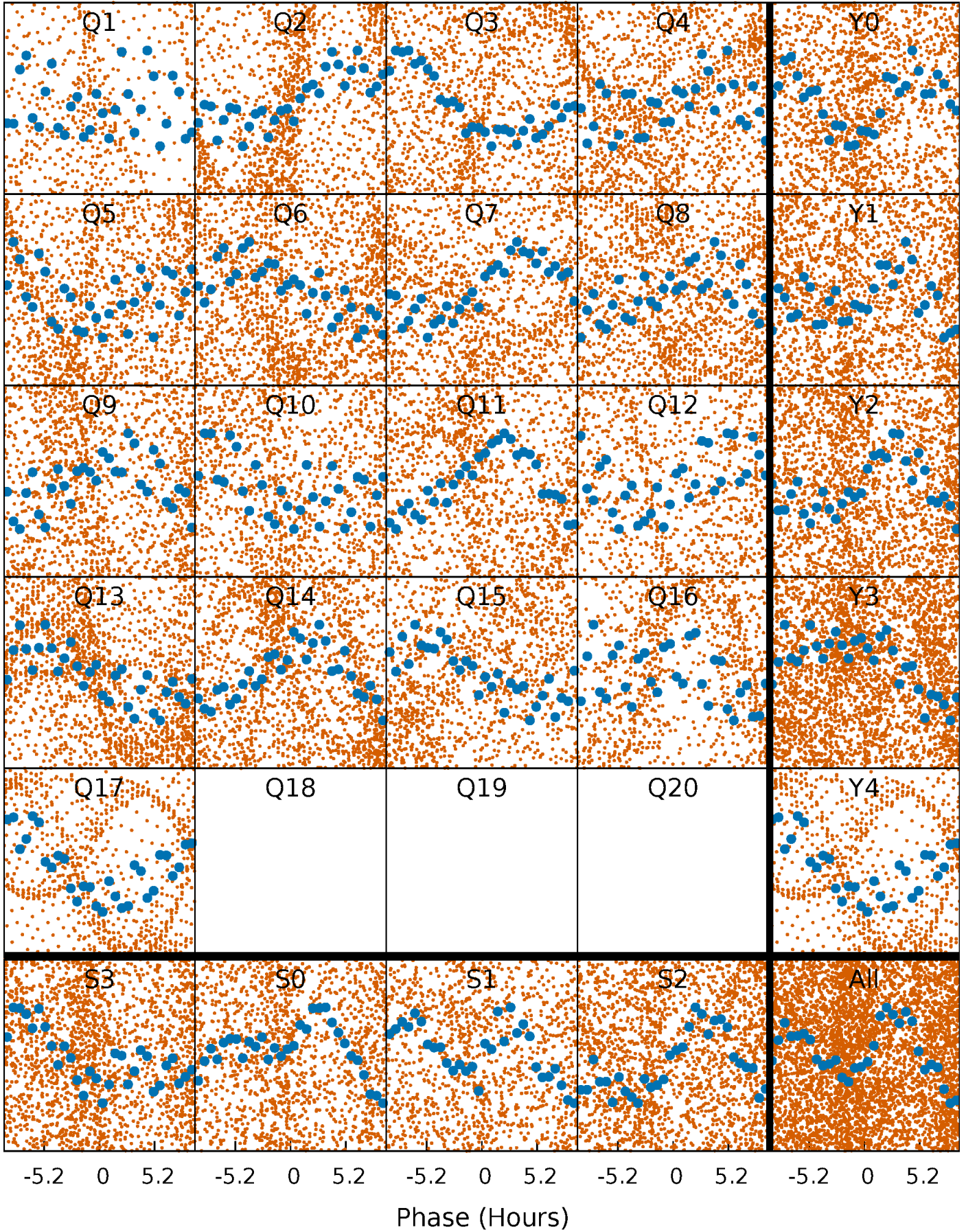


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



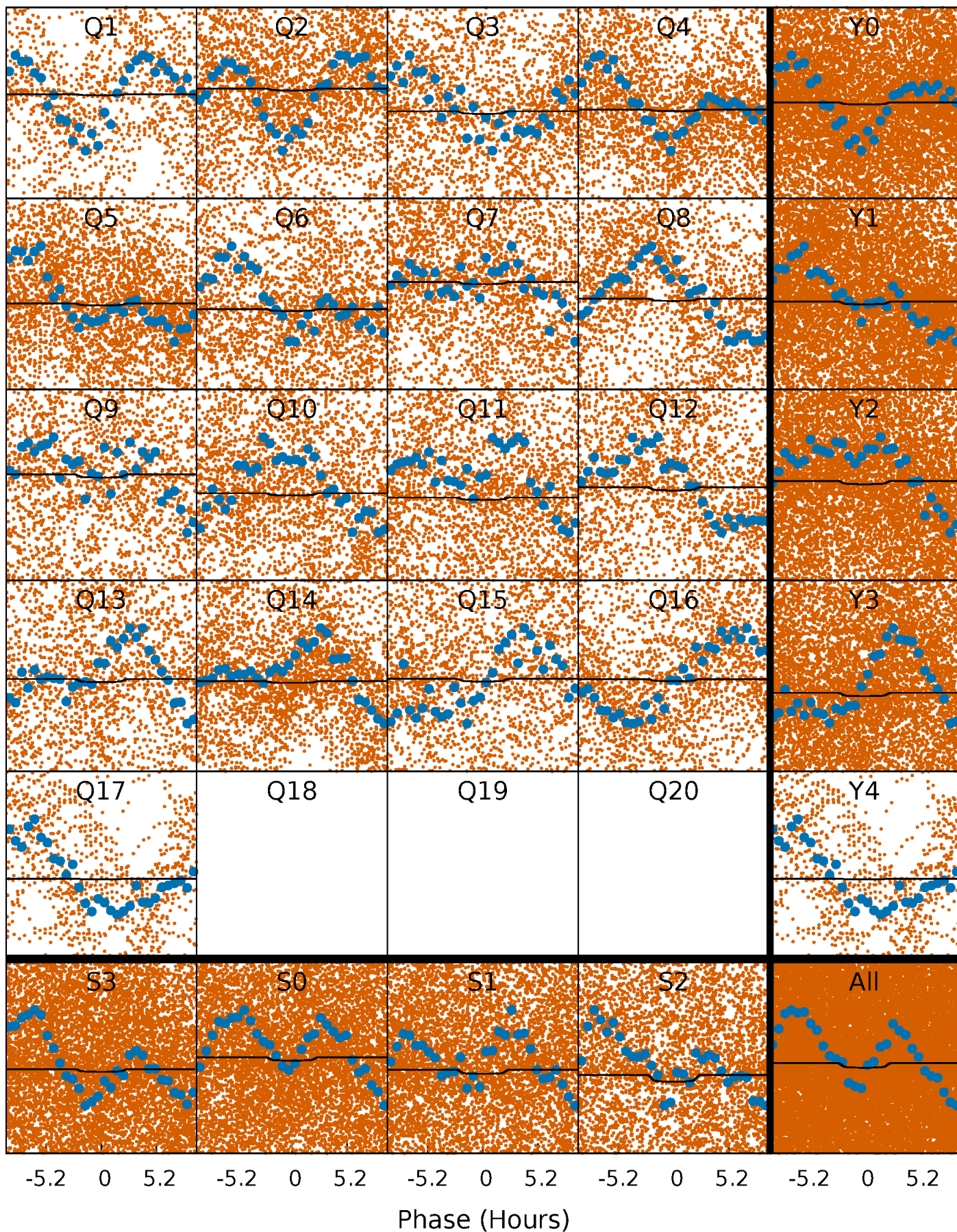
PDC Quarter-Phased Transit Curves

TCE 010645230-01 P= 0.838337 Days $T_0=131.758149$ (BKJD)



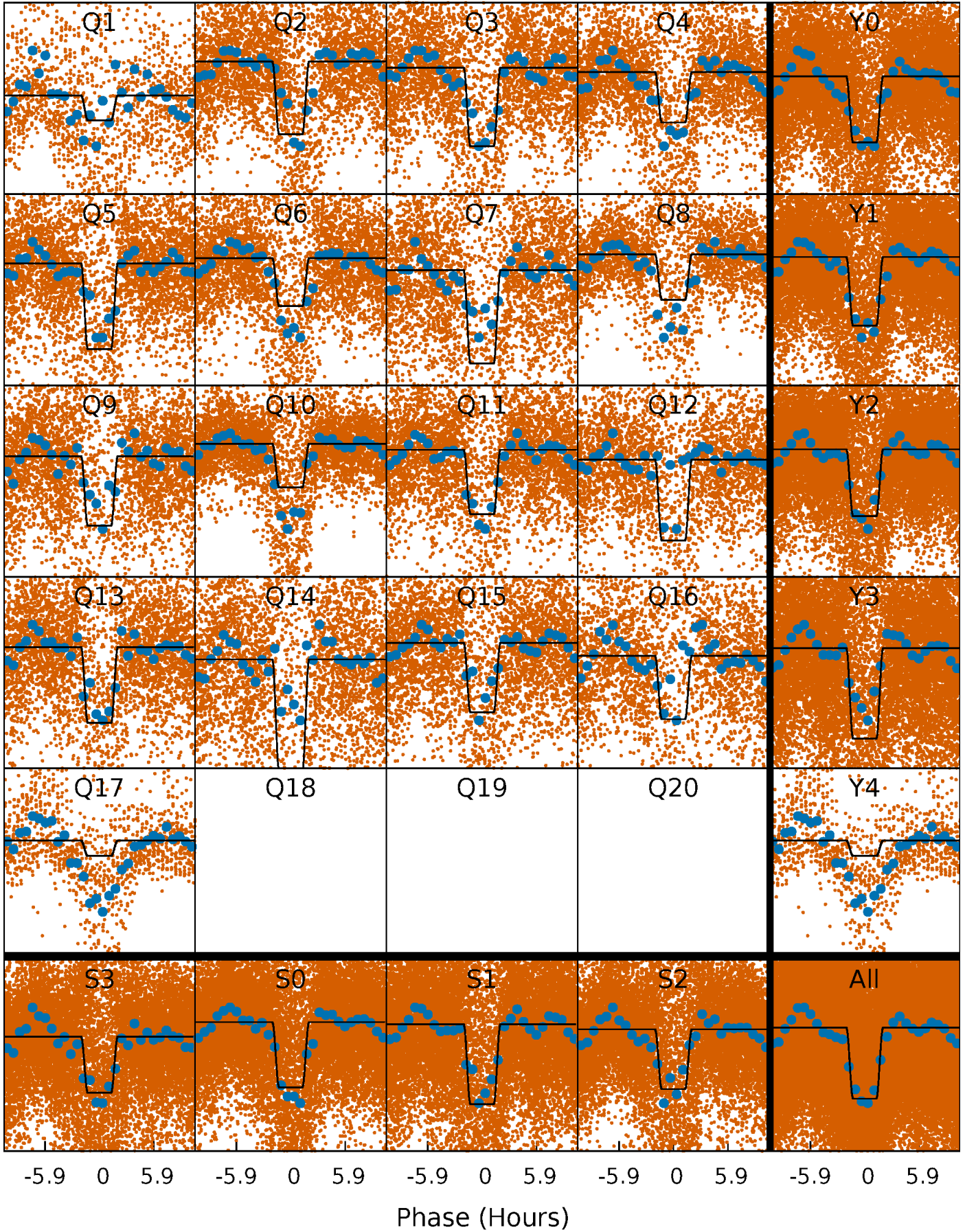
DV Quarter-Phased Transit Curves

TCE 010645230-01 P= 0.838337 Days $T_0=131.758149$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

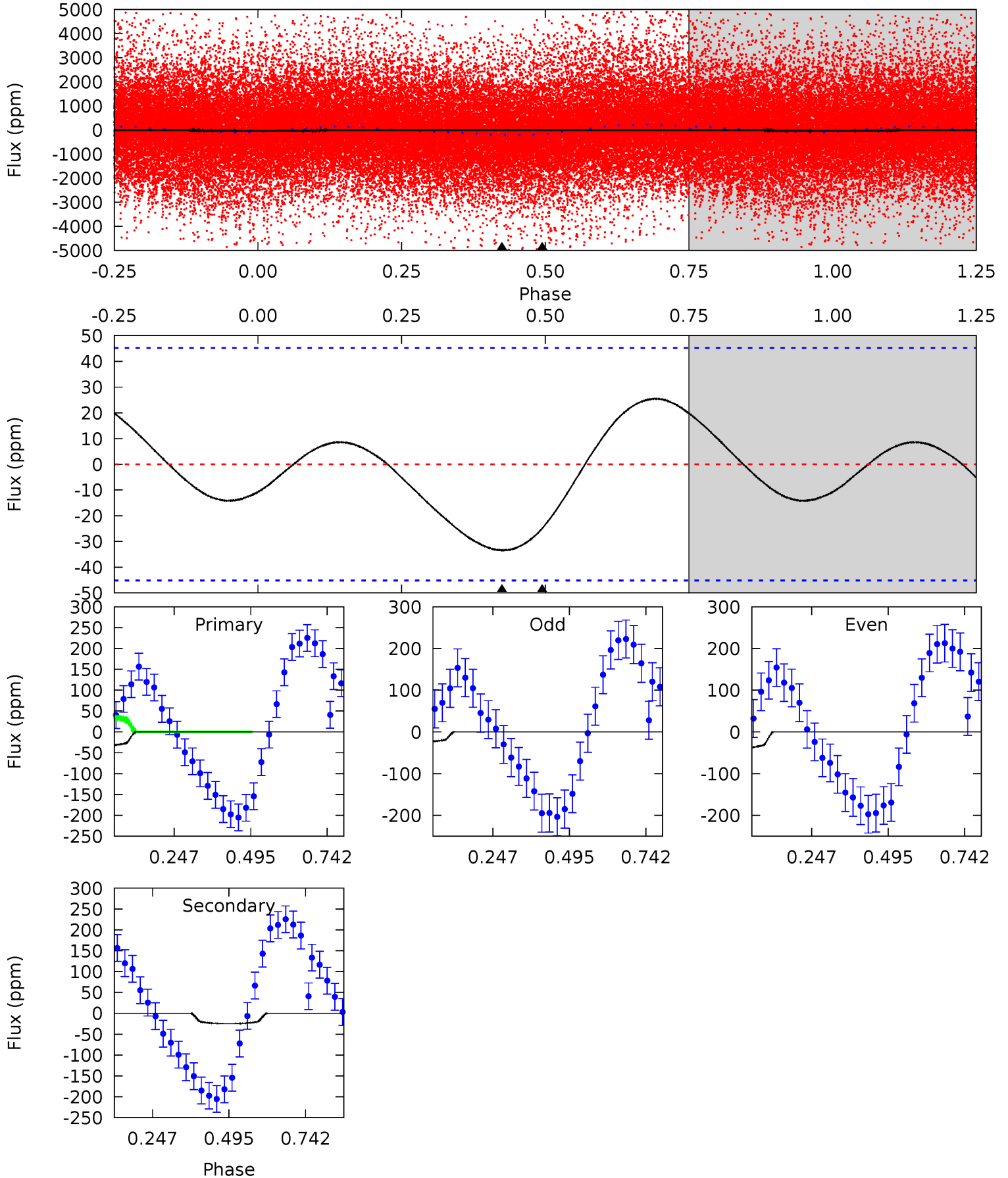
TCE 010645230-01 P= 0.838316 Days $T_0=131.751350$ (BKJD)



DV Model-Shift Uniqueness Test

010645230-01, P = 0.838337 Days, E = 130.919812 Days

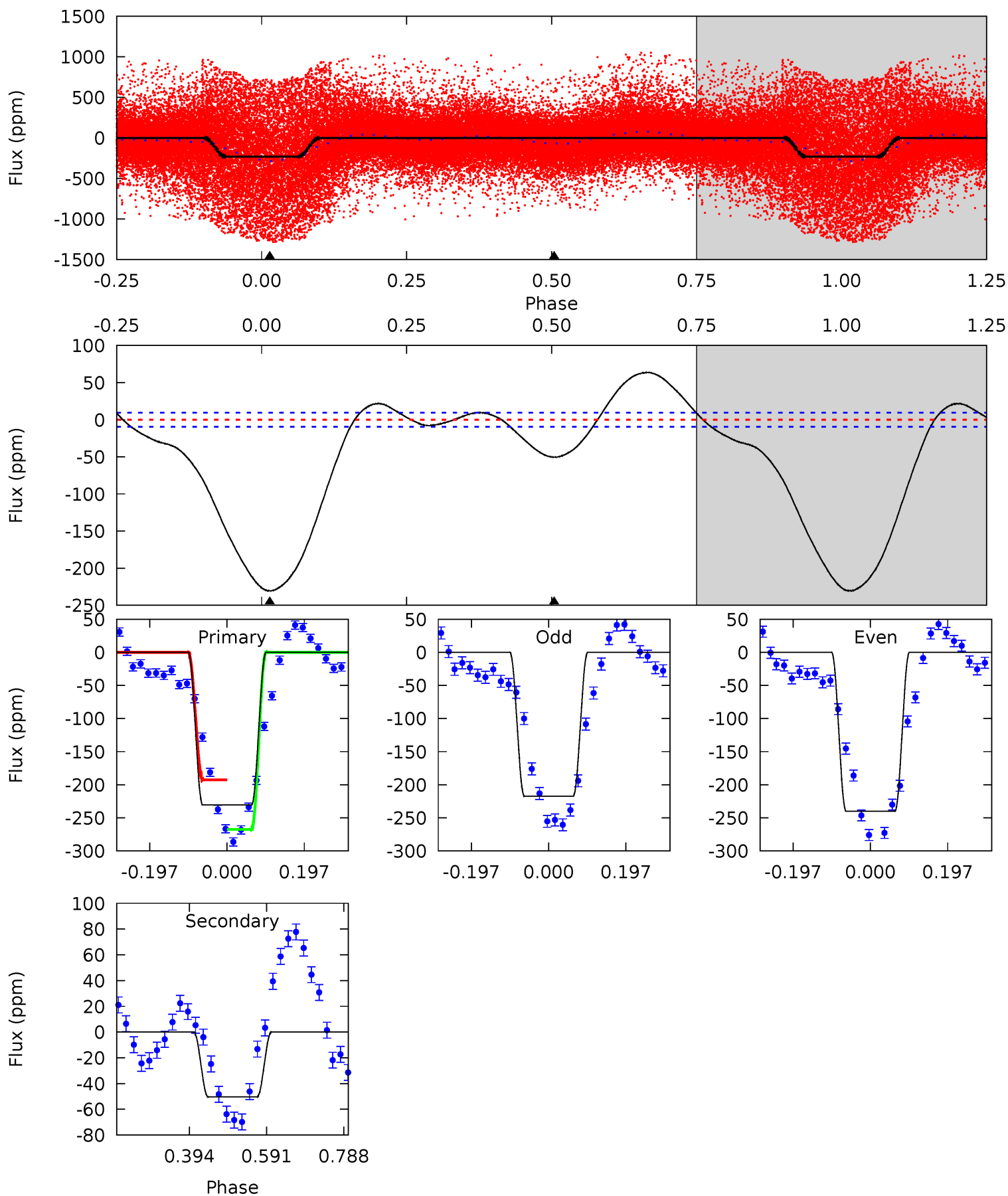
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.23	2.41	0	0	4.37	1.16	0.97	3.23	3.23	2.41	2.41	0.74	-13.8	0.43	3.06



Alt Model-Shift Uniqueness Test

010645230-01, P = 0.838316 Days, E = 130.913034 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
108.2	23.6	0	0	4.42	1.29	8.76	108.2	108.2	23.6	23.6	5.31	1.18	0.22	17.6



Stellar Parameters For KIC 010645230

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6848^{+212}_{-306}	$4.281^{+0.120}_{-0.180}$	$-0.500^{+0.250}_{-0.350}$	$1.272^{+0.350}_{-0.204}$	$1.127^{+0.169}_{-0.138}$	$0.771^{+0.436}_{-0.376}$
	+3%/-4%	+3%/-4%	+50%/-70%	+28%/-16%	+15%/-12%	+56%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010645230-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-25 ± 10	$0.73^{+0.36}_{-0.32}$	3546^{+276}_{-220}	6607^{+2925}_{-1454}	$8.454^{+18.917}_{-5.439}$
Alt.	-50 ± 2	$2.43^{+0.50}_{-0.41}$	3554^{+254}_{-221}	4345^{+344}_{-304}	$1.539^{+0.663}_{-0.460}$

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

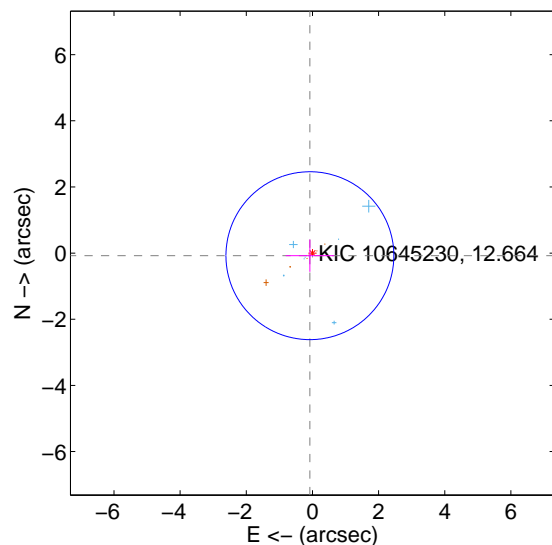
Supplemental centroid analysis for 010645230-01. Kepler magnitude: 12.66. Transit SNR 3.37

There are 9 quarters with good PRF difference image offsets

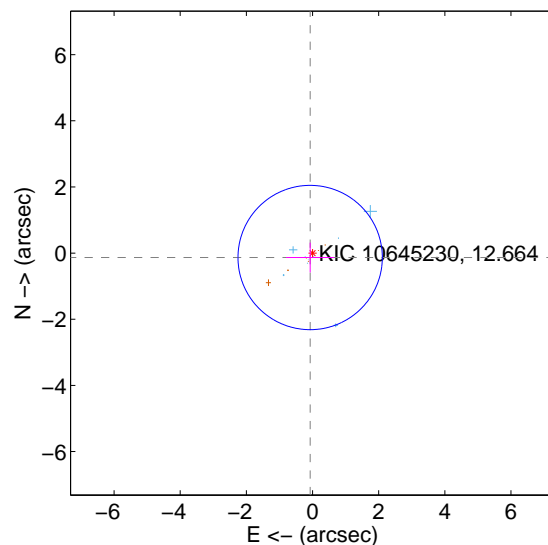
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.110 ± 0.846	0.13	0.077 ± 0.730	-0.078 ± 0.488
PRF-fit source offset from KIC position	0.152 ± 0.727	0.21	0.072 ± 0.726	-0.134 ± 0.450
photometric centroid source offset	1.93 ± 1.39	1.39	0.55 ± 2.12	-1.85 ± 1.30

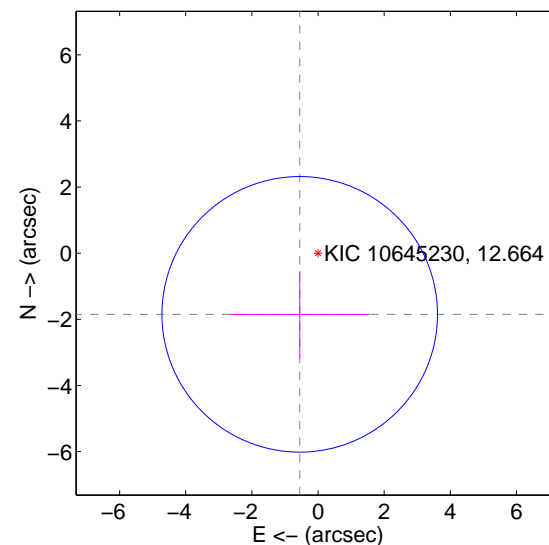
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

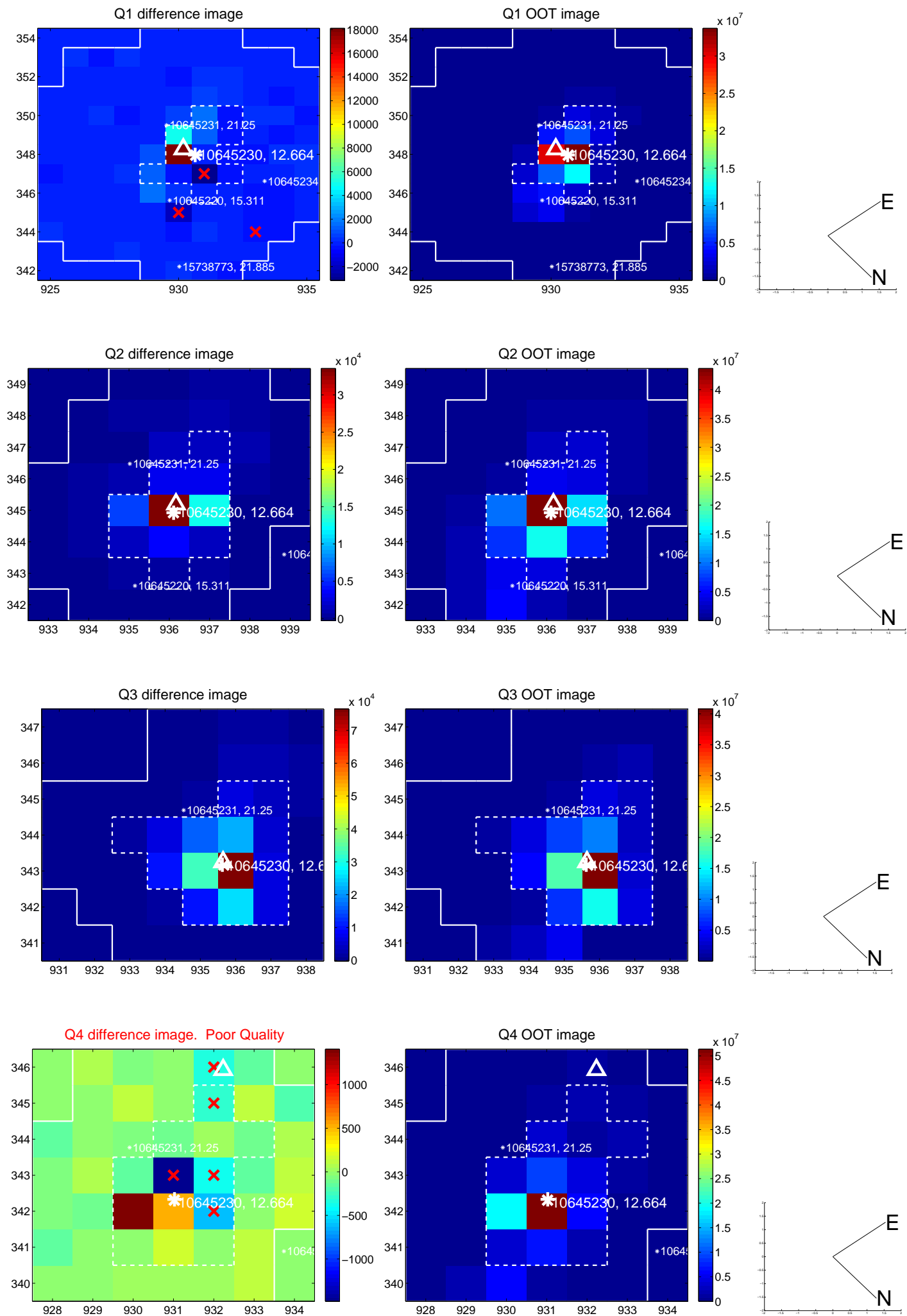


offset from photometric centroids

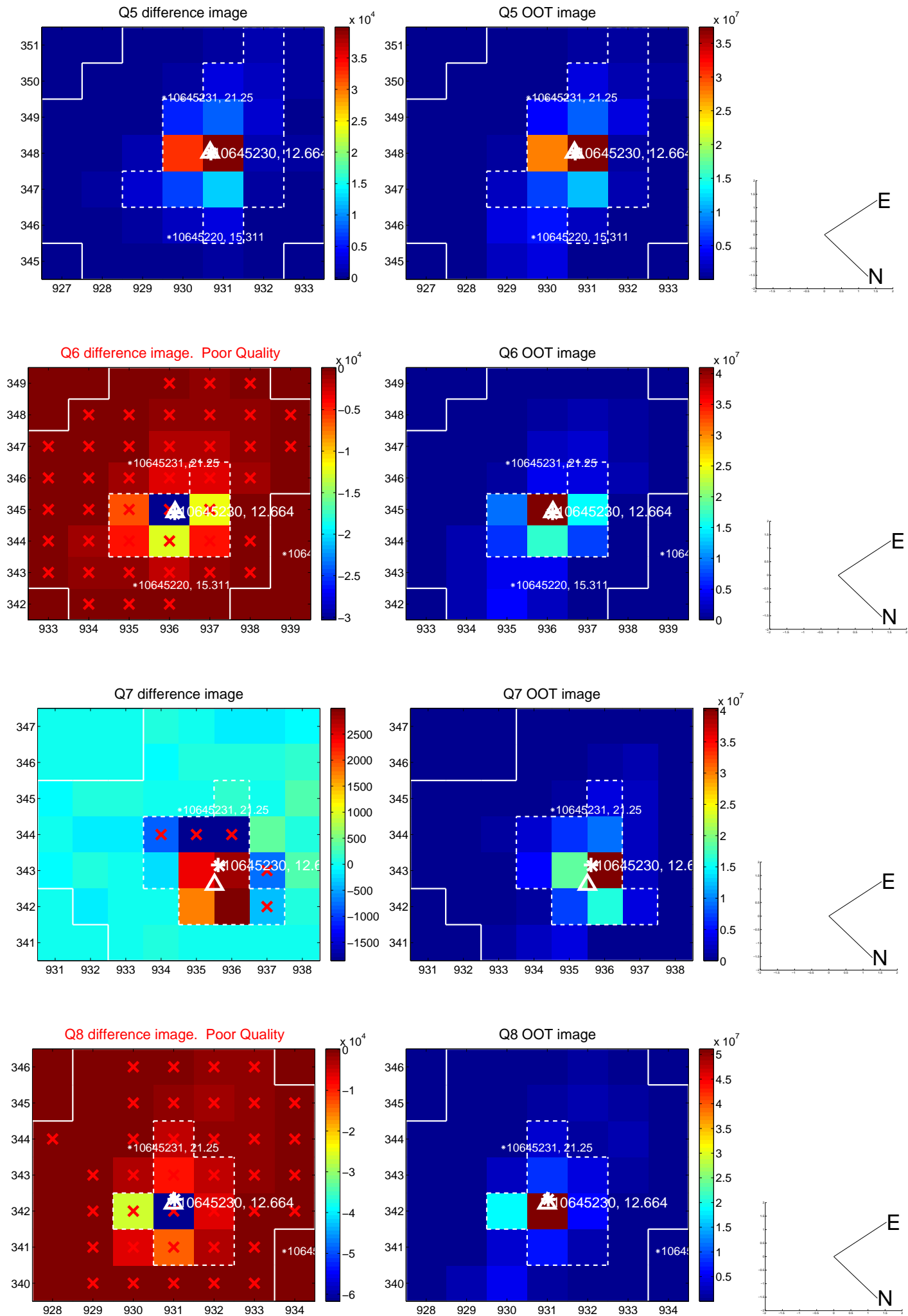


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs $> 15,000,000$ are from the UKIRT catalog.

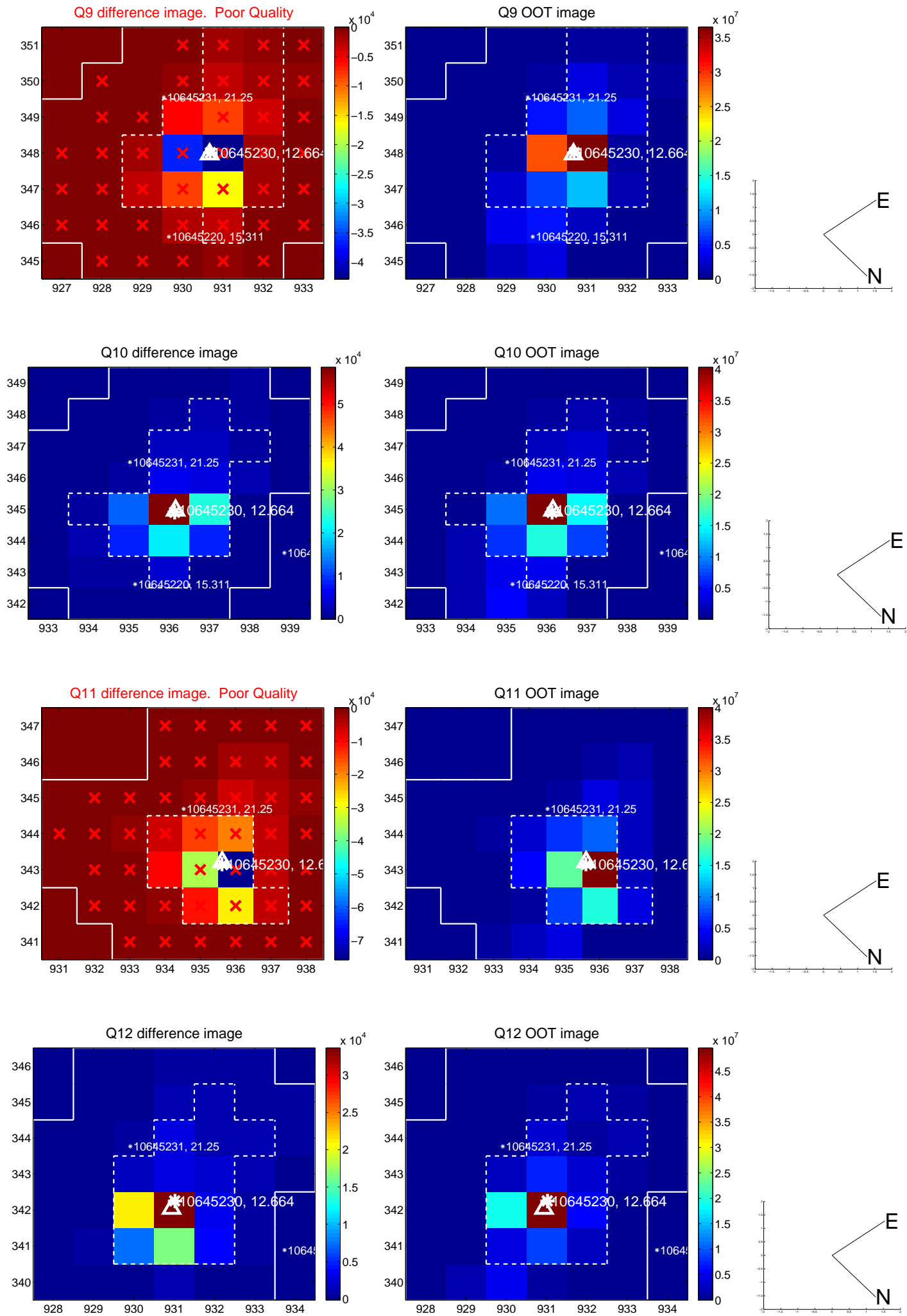
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



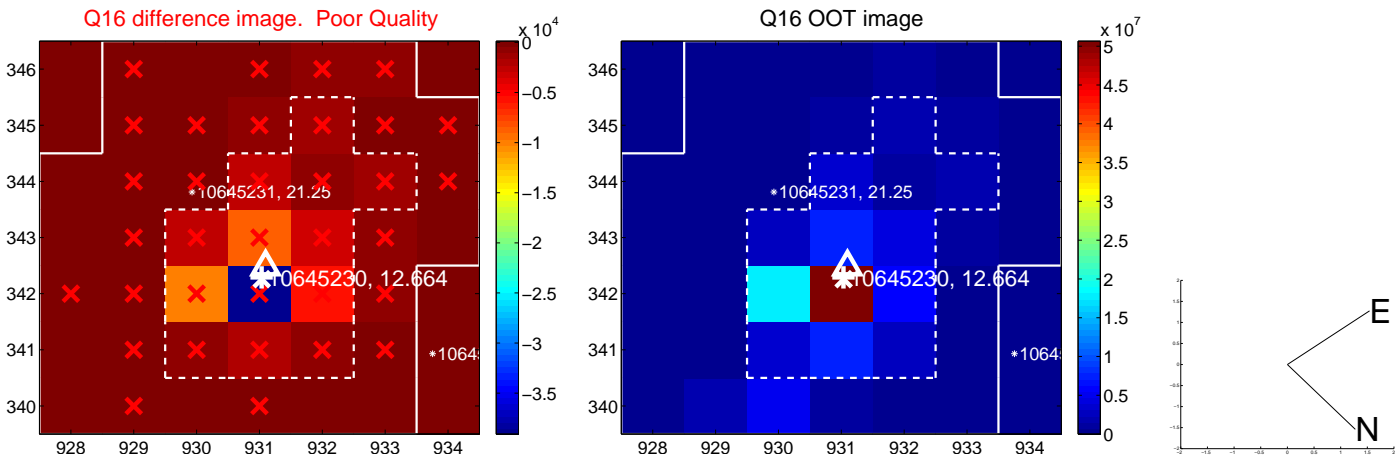
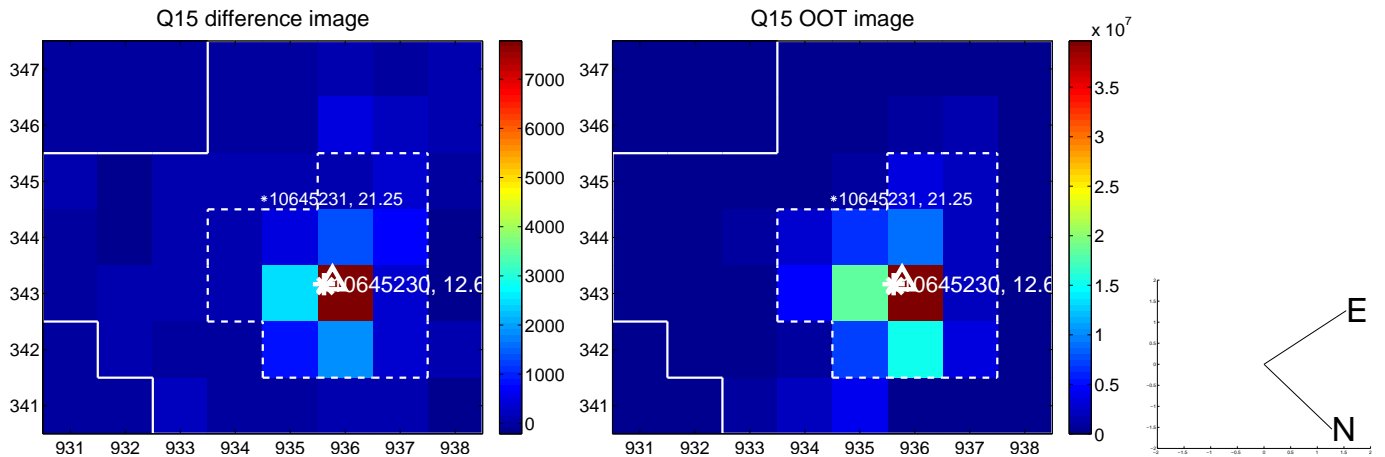
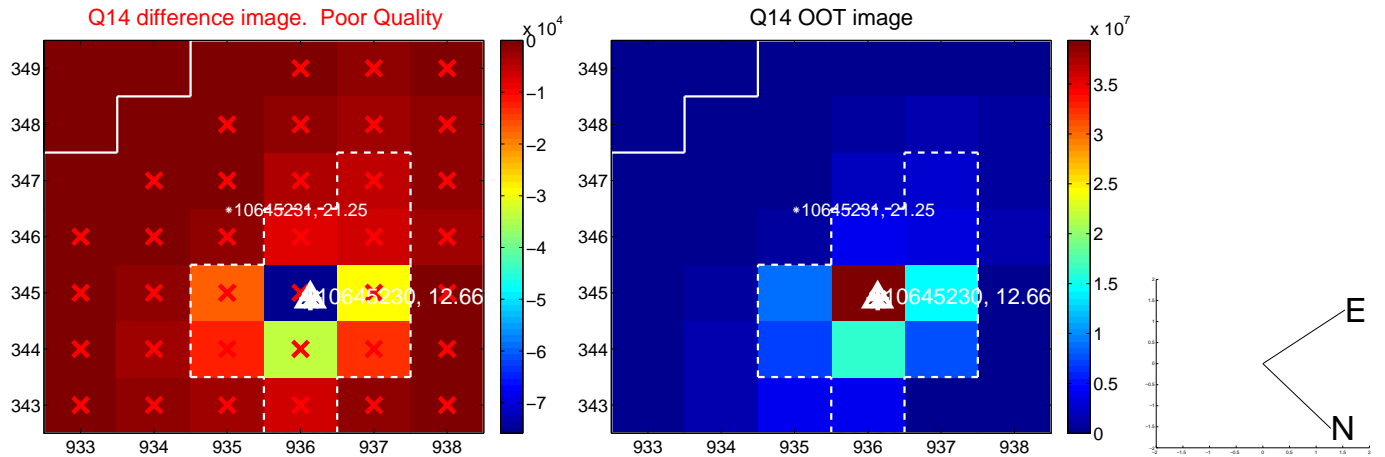
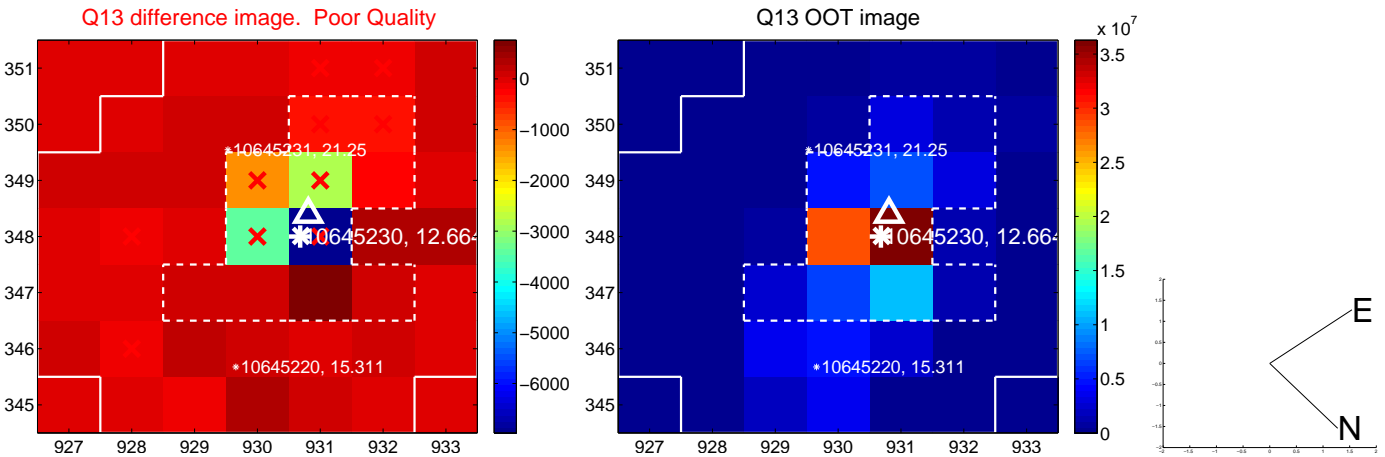
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



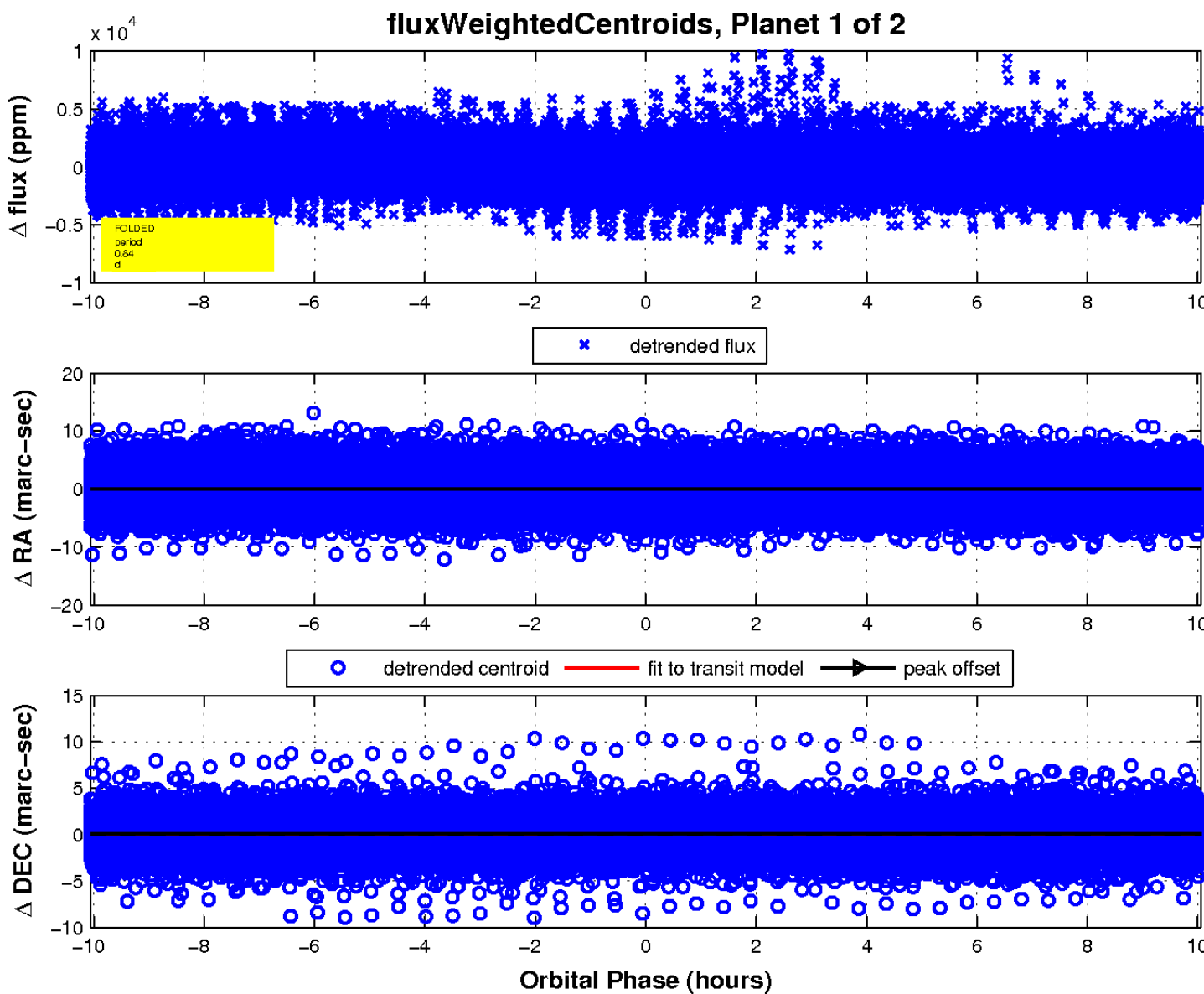
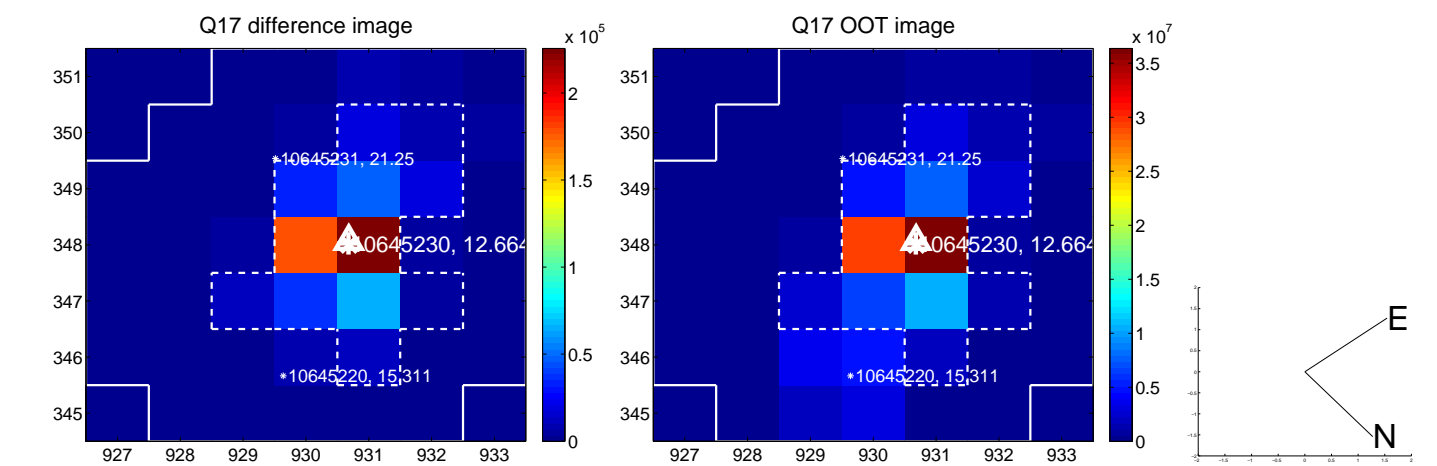
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

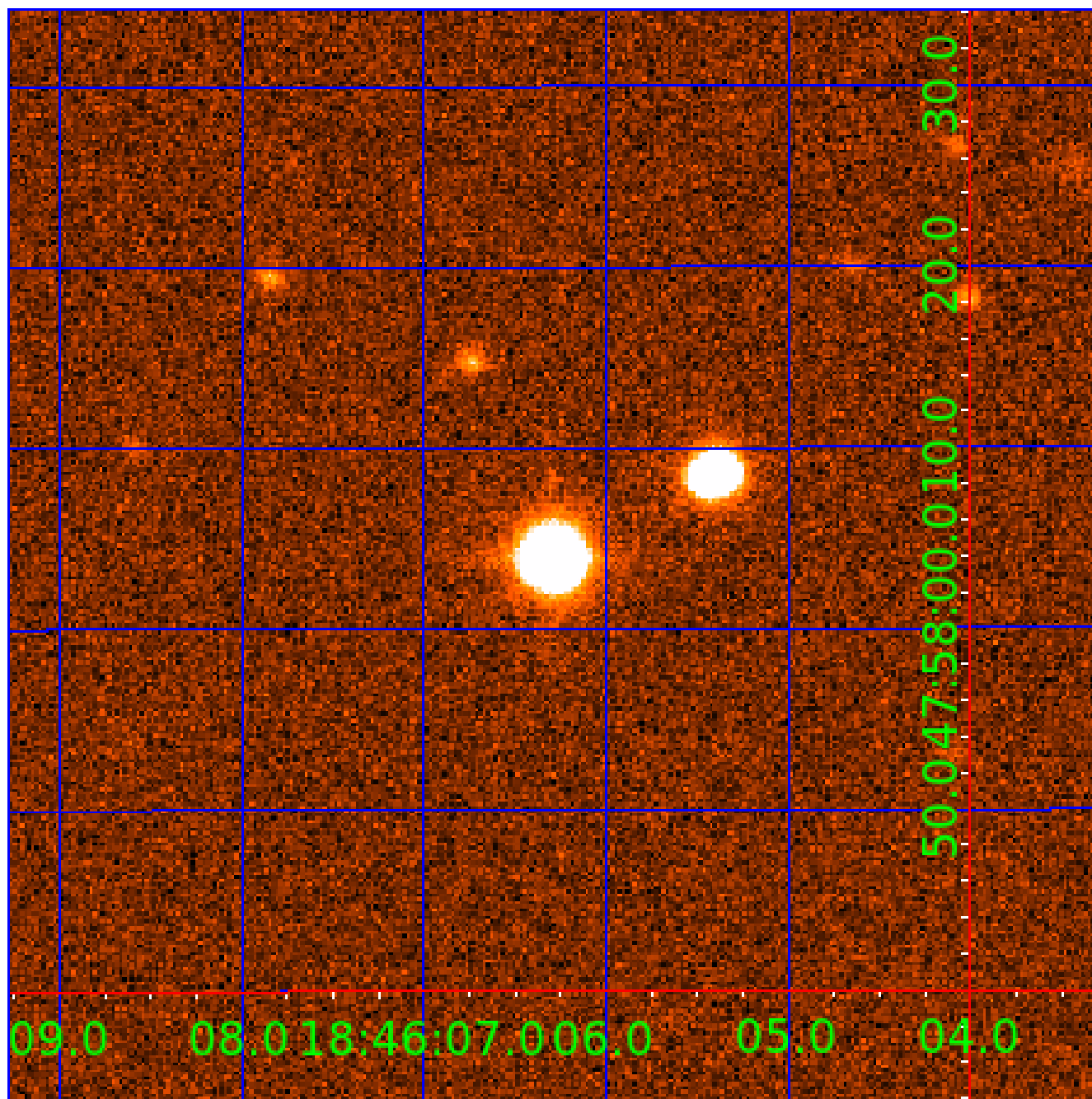


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010645230

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})
010645230-01	OBS	No	0.838337	131.758149	23.4	4.507	8.9	3.4	1.27	6848	0.72	9718.13
010645230-02	OBS	No	0.838308	132.177821	90.2	2.608	9.4	10.8	1.27	6848	1.23	9718.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010645230-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010645230-02	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

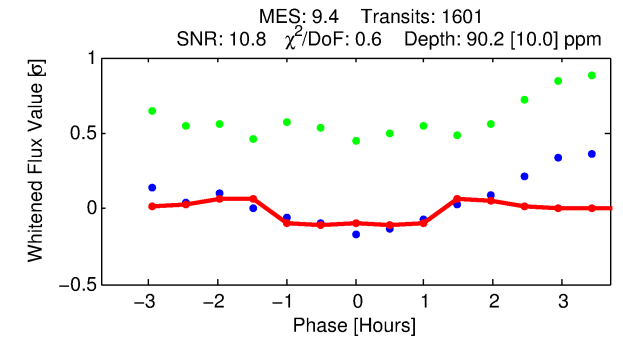
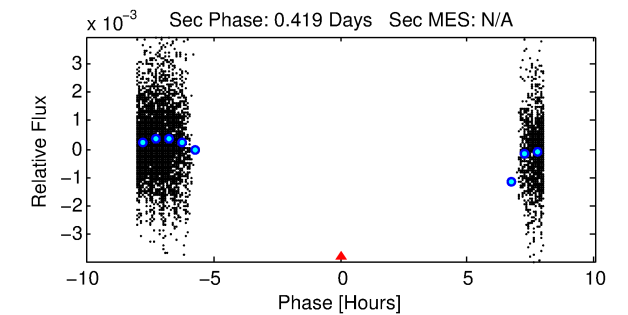
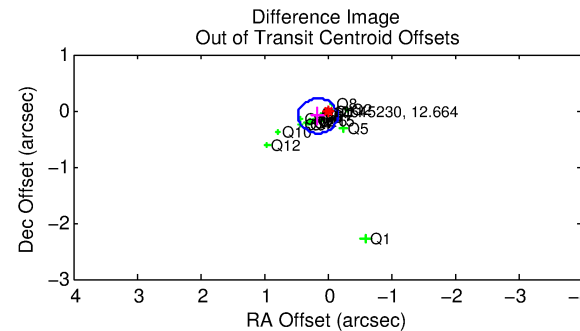
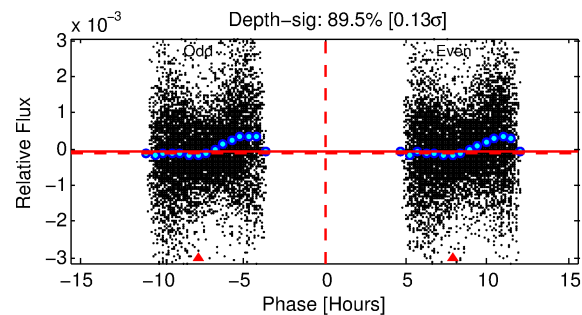
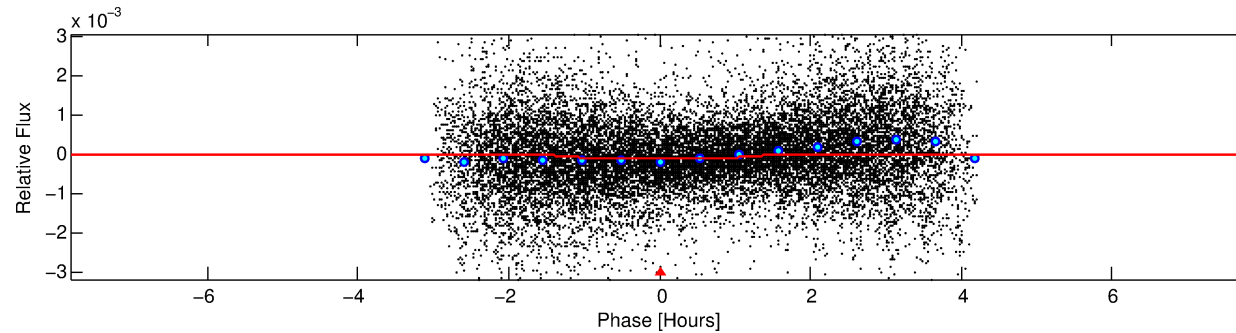
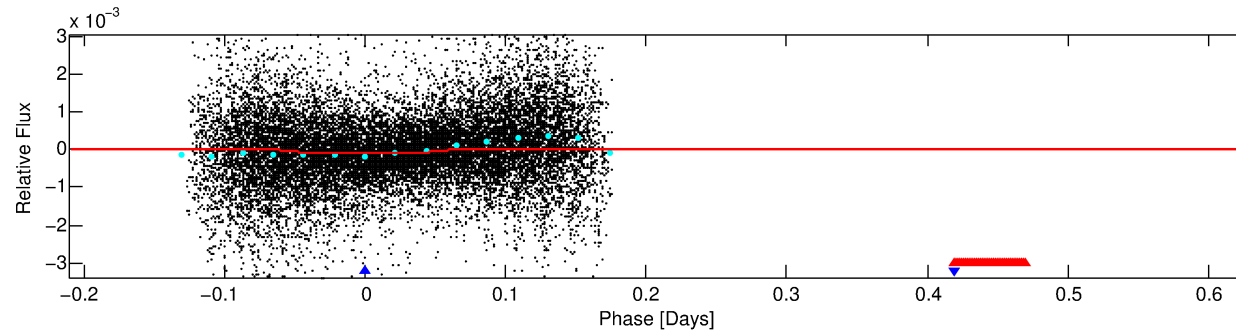
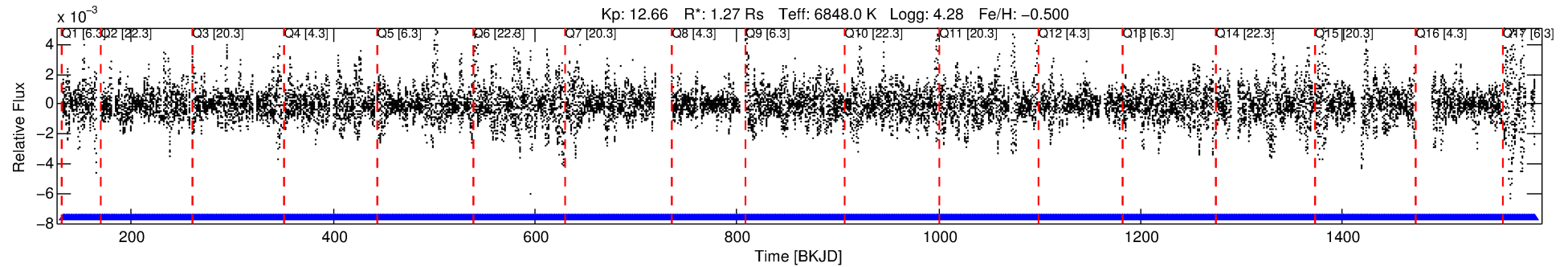
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010645230-02

No Significant Match Found

DV One-Page Summary

KIC: 10645230 Candidate: 2 of 2 Period: 0.838 d



DV Fit Results:

Period = 0.83831 [0.00001] d
Epoch = 132.1778 [0.0013] BKJD
Rp/R* = 0.0089 [0.0026]
a/R* = 2.46 [3.38]
b = 0.29 [5.34]
Seff = 9718.58 [3661.52]
Teq = 2532 [238] K
Rp = 1.23 [0.50] Re
a = 0.0181 [0.0042] AU

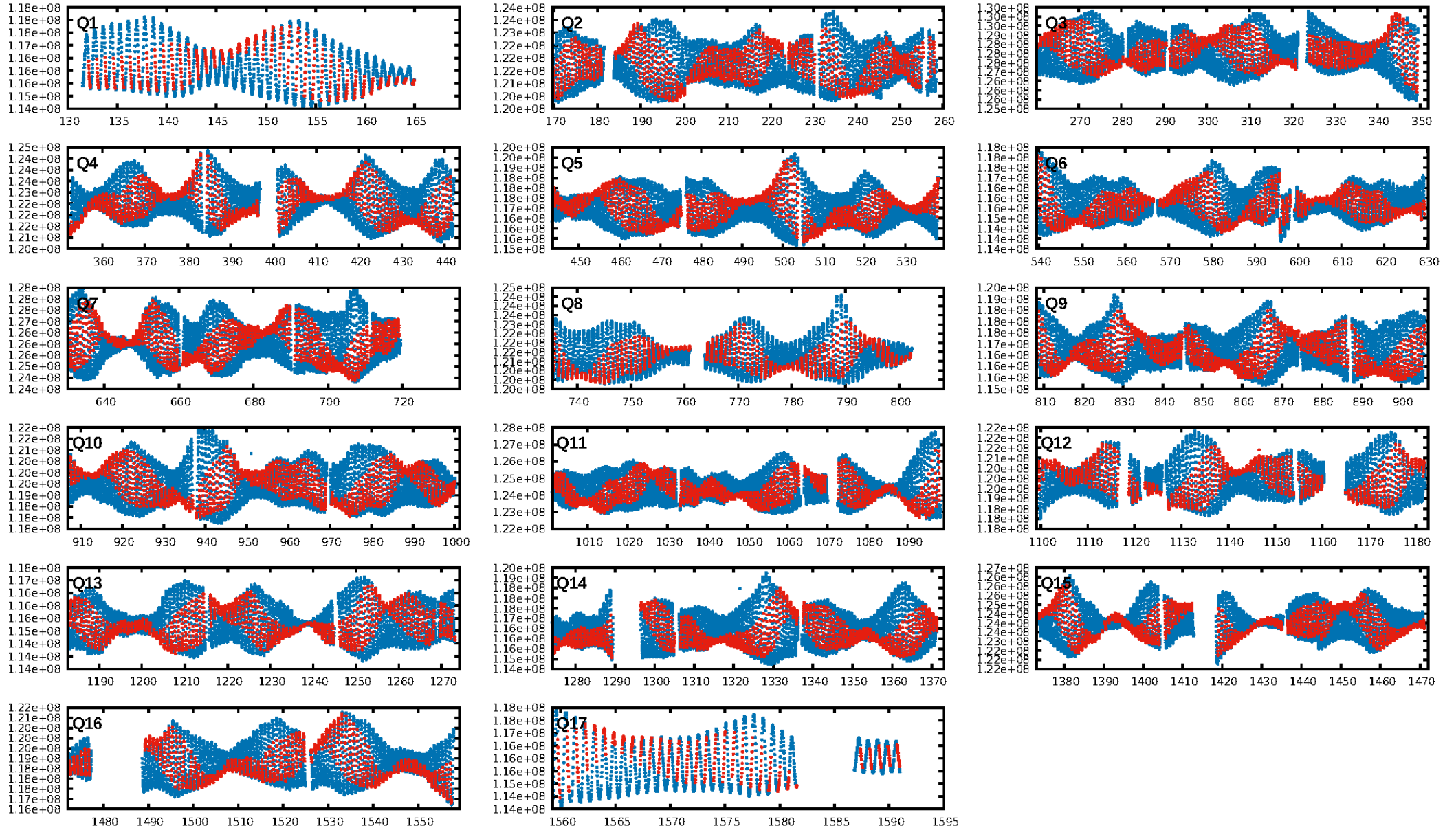
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.00e+00
RollingBand-fgt: 1.00 [1529/1529]
GhostDiagnostic-chr: 1.464
Centroid-sig: 0.0%
Centroid-so: 1.160 arcsec [2.07σ]
OotOffset-rm: 0.180 arcsec [1.75σ]
KicOffset-rm: 0.199 arcsec [1.74σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 0.76 [13/17]

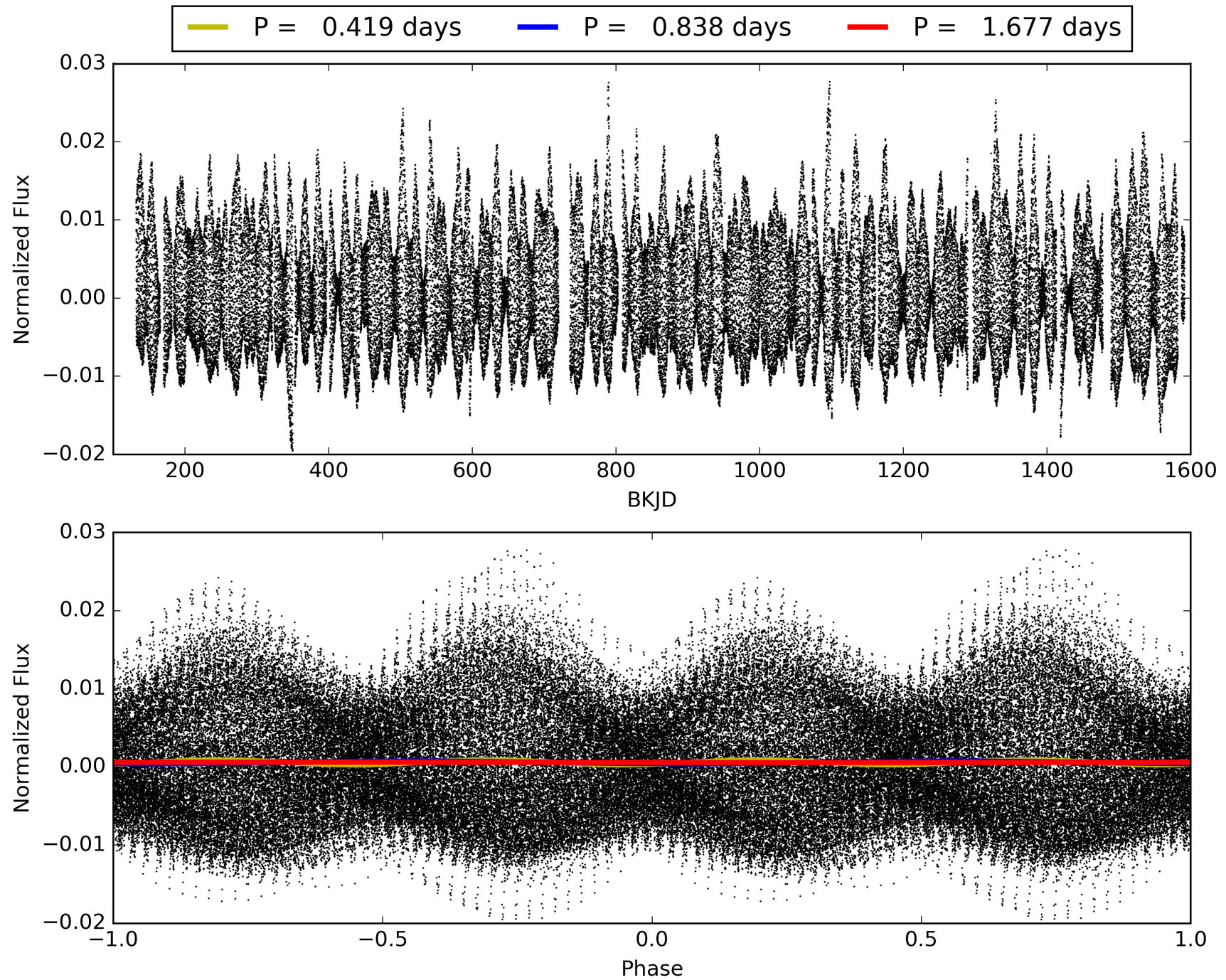
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:34:03 Z

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

TCE 010645230-02, PDC Light Curves

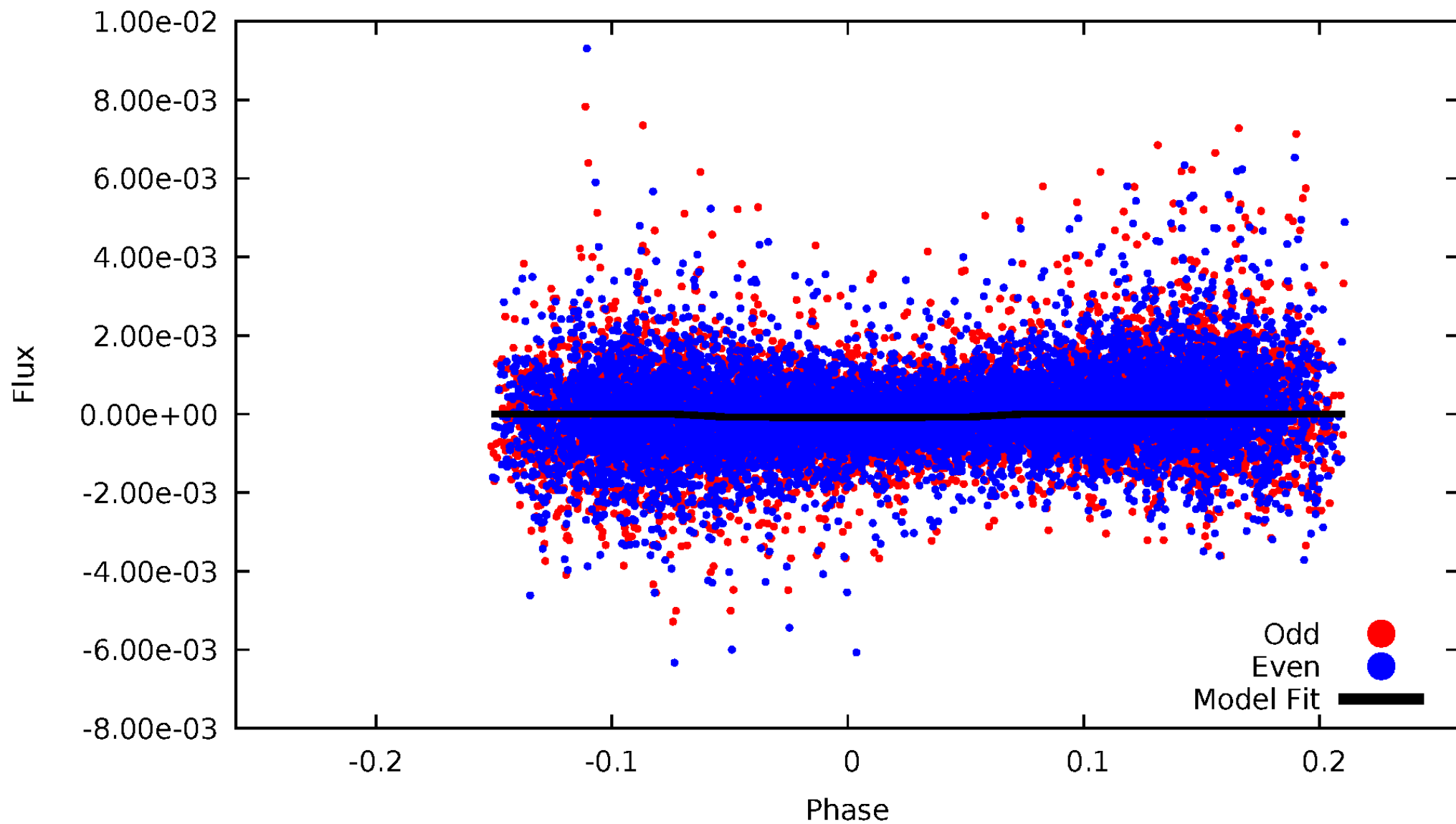


TCE 010645230-02



DV Odd/Even

TCE 010645230-02

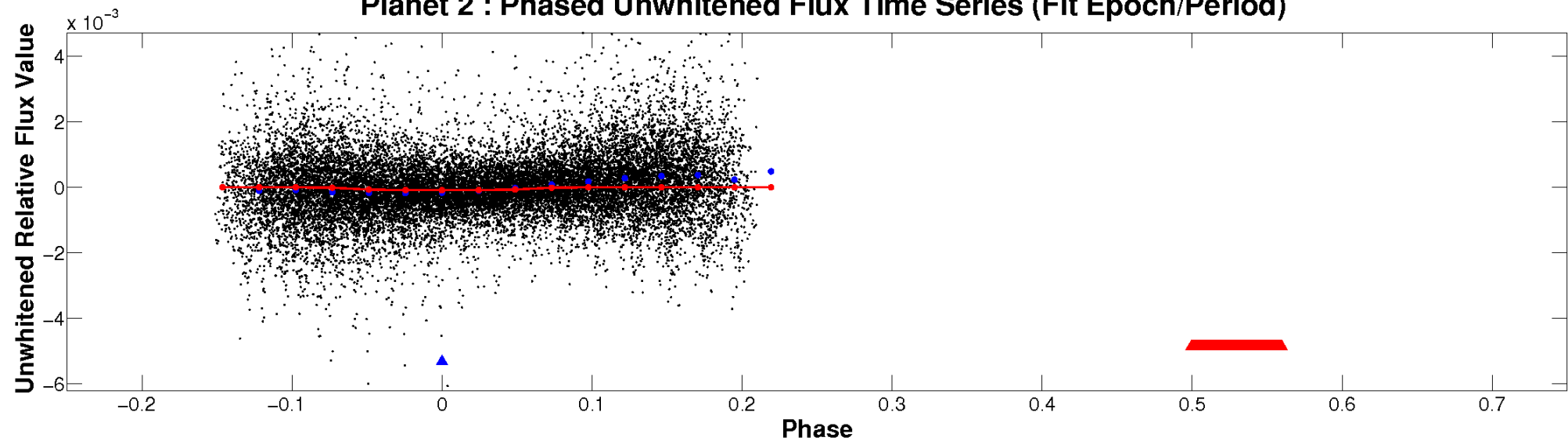


ALT Odd/Even

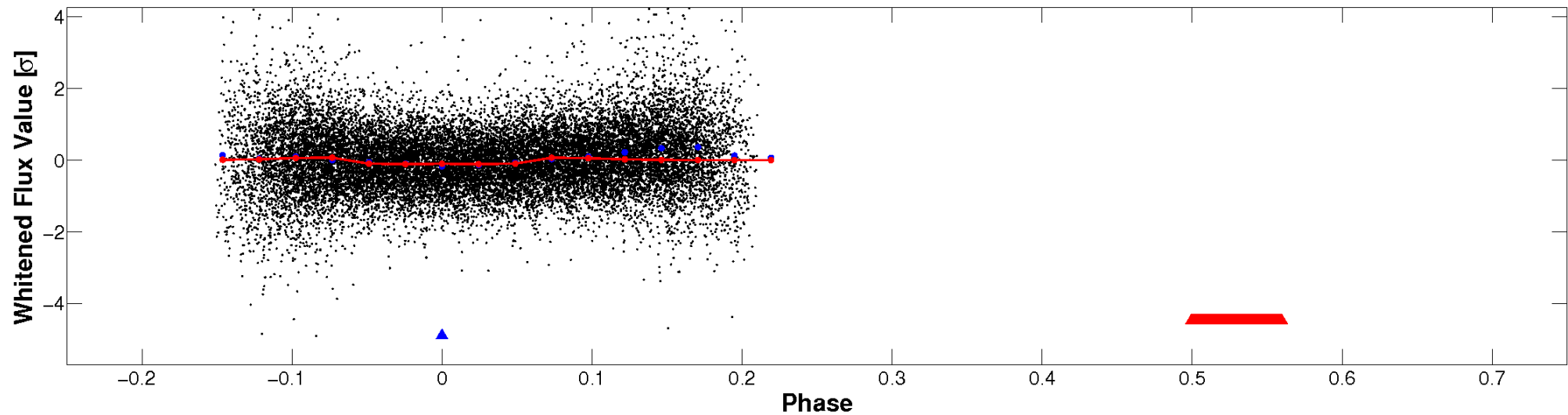
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

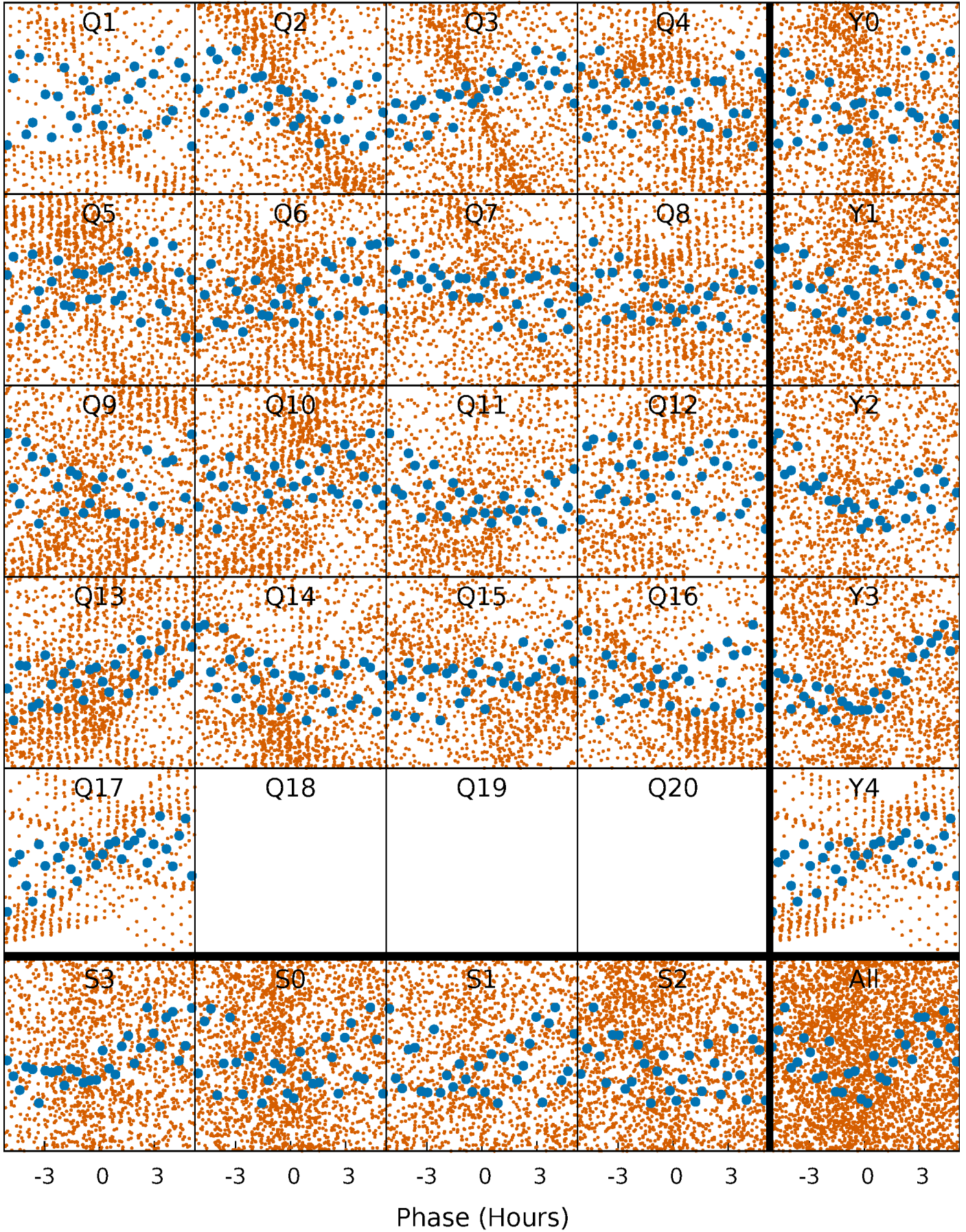


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



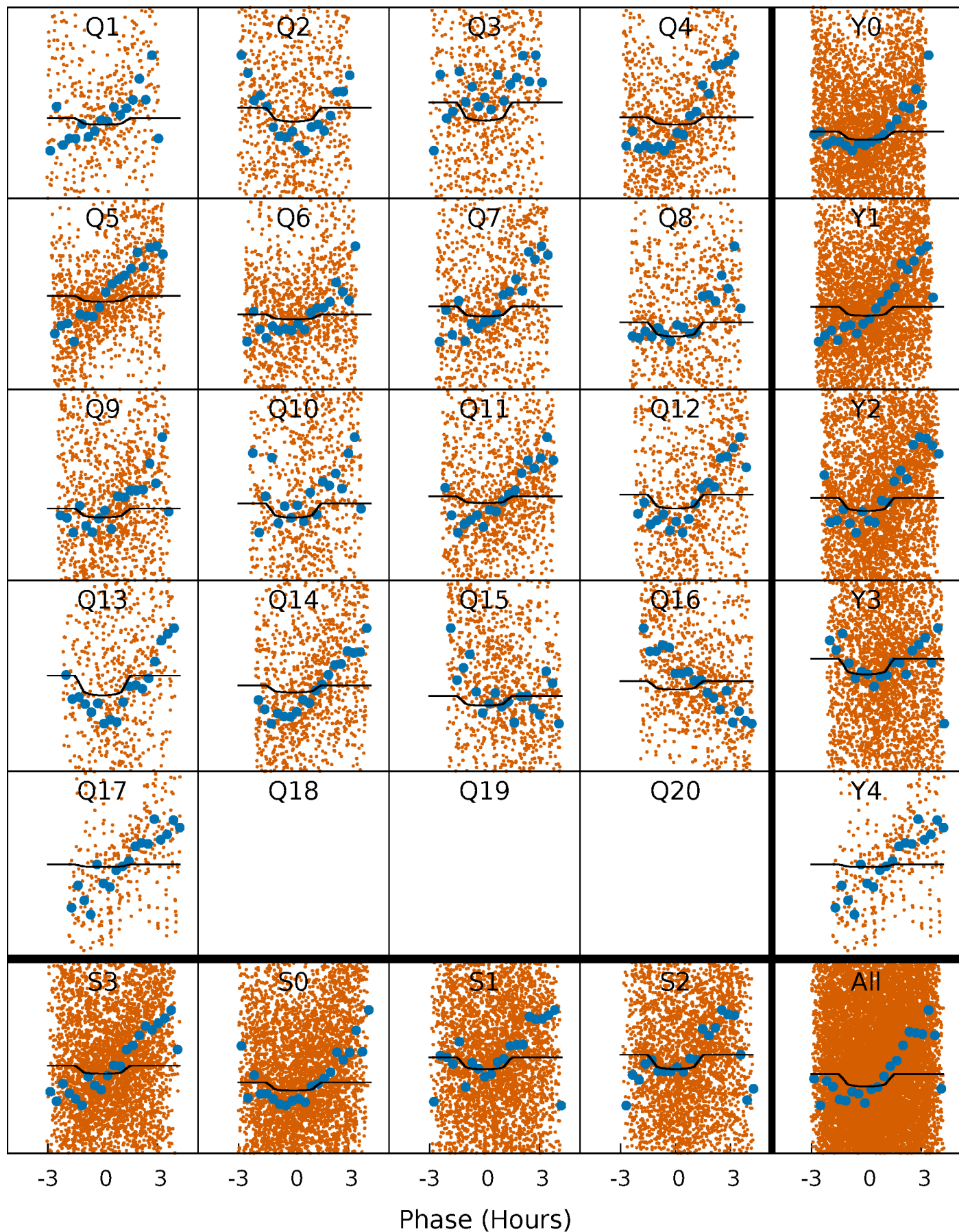
PDC Quarter-Phased Transit Curves

TCE 010645230-02 P= 0.838308 Days $T_0=132.177821$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 010645230-02 P= 0.838308 Days $T_0=132.177821$ (BKJD)

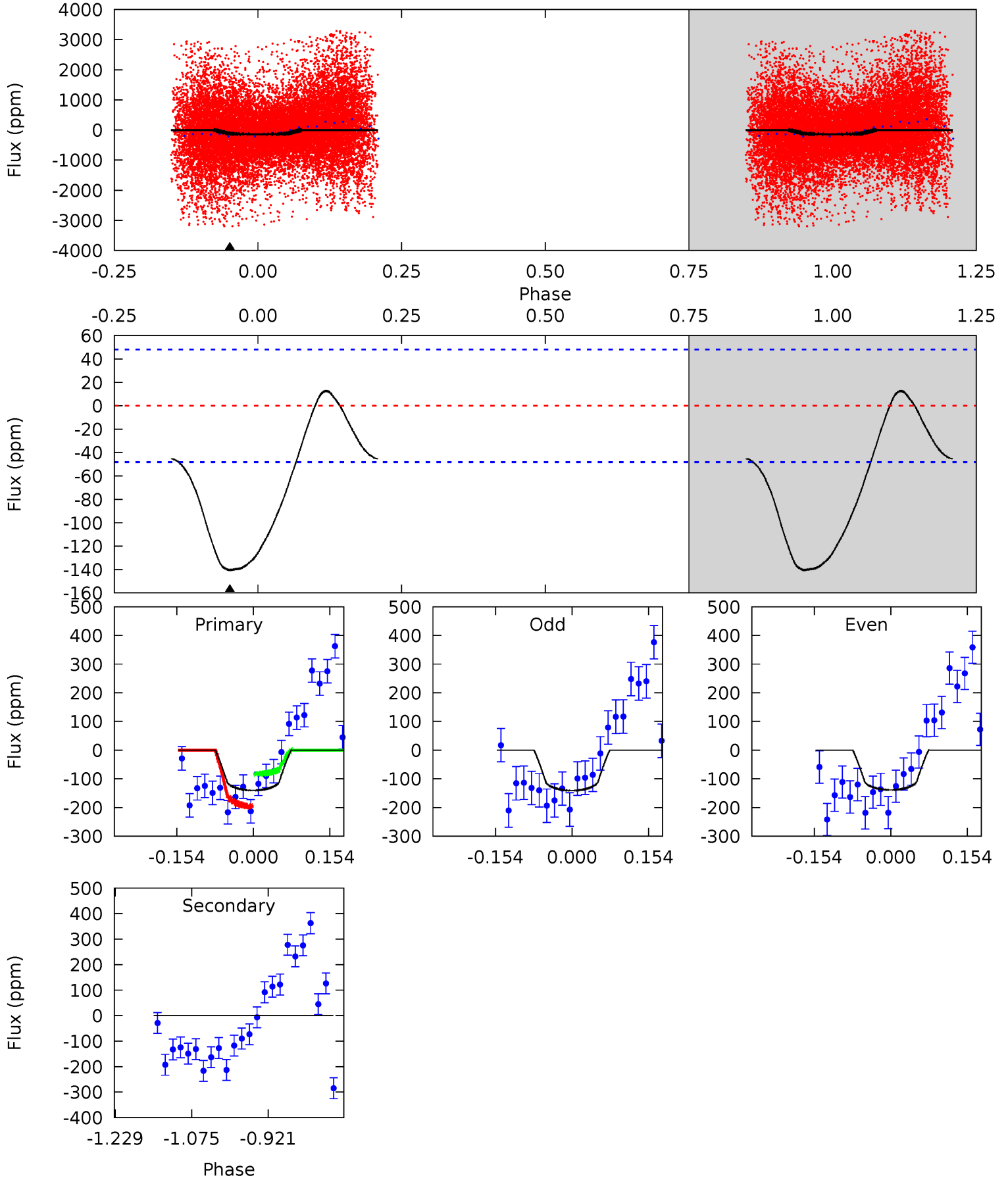


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

010645230-02, P = 0.838308 Days, E = 131.339513 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	0	0	0	4.47	1.43	1.61	13.1	13.1	0	0	0.11	0.95	0.08	6.10



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 010645230

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6848^{+212}_{-306}	$4.281^{+0.120}_{-0.180}$	$-0.500^{+0.250}_{-0.350}$	$1.272^{+0.350}_{-0.204}$	$1.127^{+0.169}_{-0.138}$	$0.771^{+0.436}_{-0.376}$
	+3%/-4%	+3%/-4%	+50%/-70%	+28%/-16%	+15%/-12%	+56%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 010645230-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 11	$1.26^{+0.42}_{-0.41}$	3565^{+251}_{-240}	-3320^{+7533}_{-1268}	$0.044^{+1.377}_{-1.359}$
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 $A_{obs} \gg 1.0$

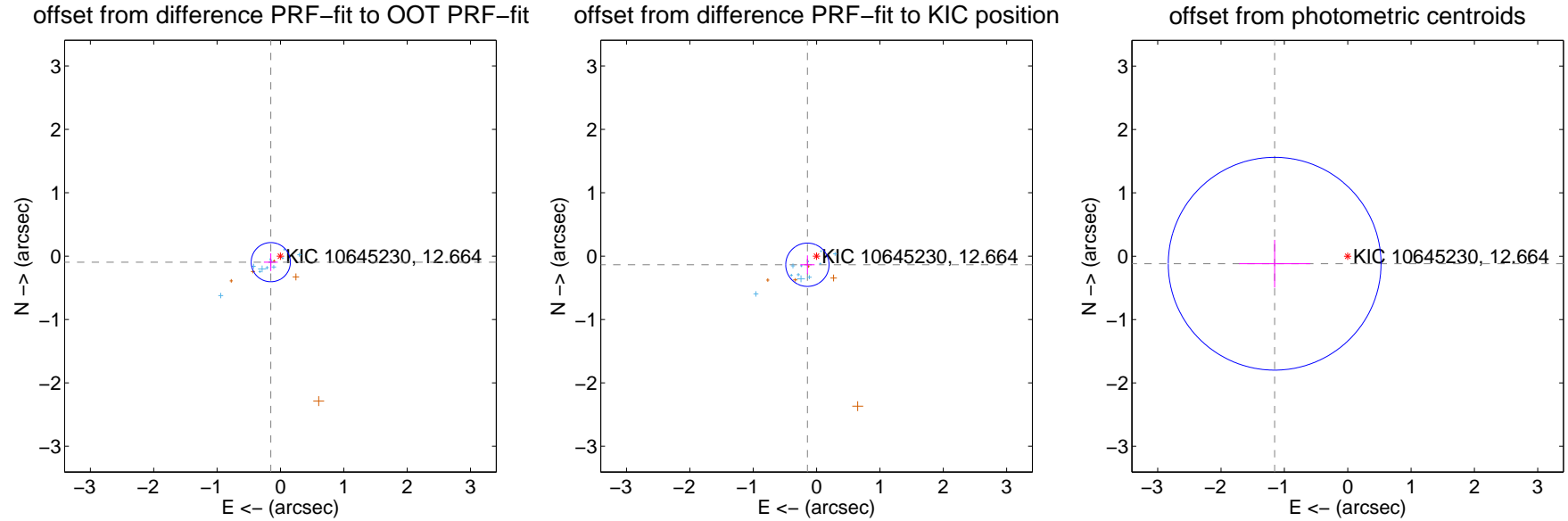
DV Centroid Data

Supplemental centroid analysis for 010645230-02. Kepler magnitude: 12.66. Transit SNR 10.84

There are 12 quarters with good PRF difference image offsets

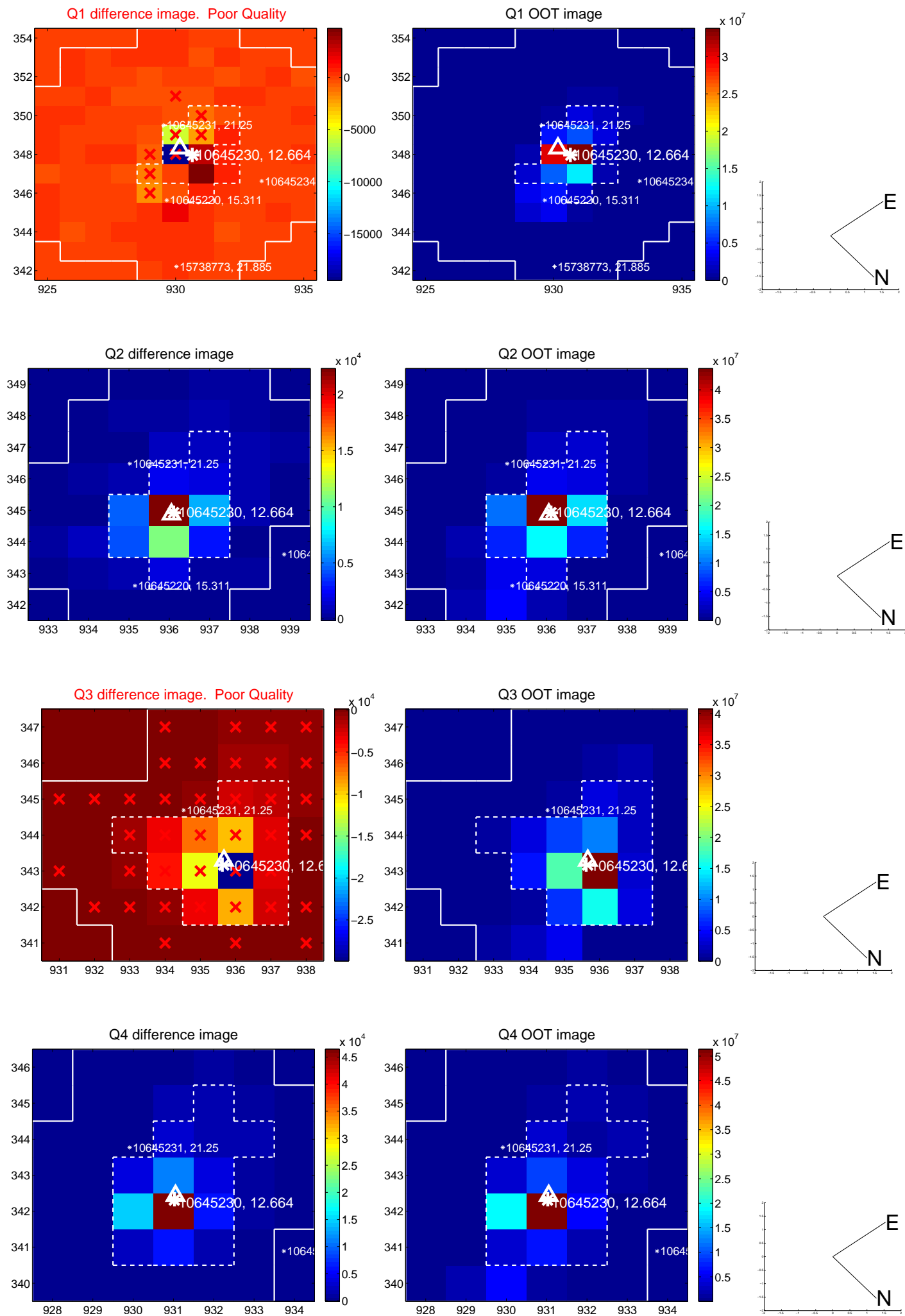
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.180 ± 0.103	1.75	0.153 ± 0.109	-0.095 ± 0.140
PRF-fit source offset from KIC position	0.199 ± 0.114	1.74	0.145 ± 0.113	-0.136 ± 0.148
photometric centroid source offset	1.16 ± 0.56	2.07	1.15 ± 0.56	-0.12 ± 0.38

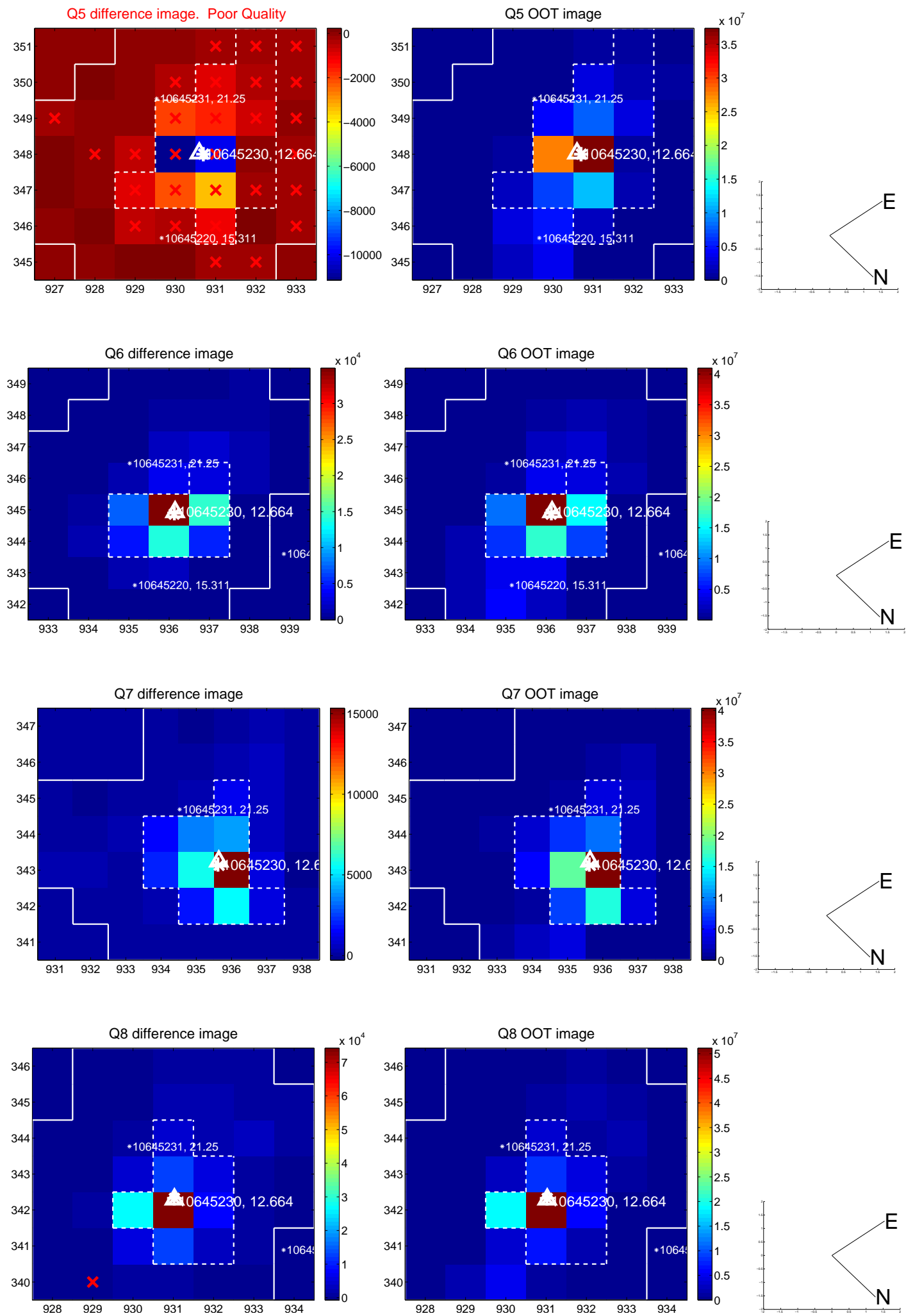


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

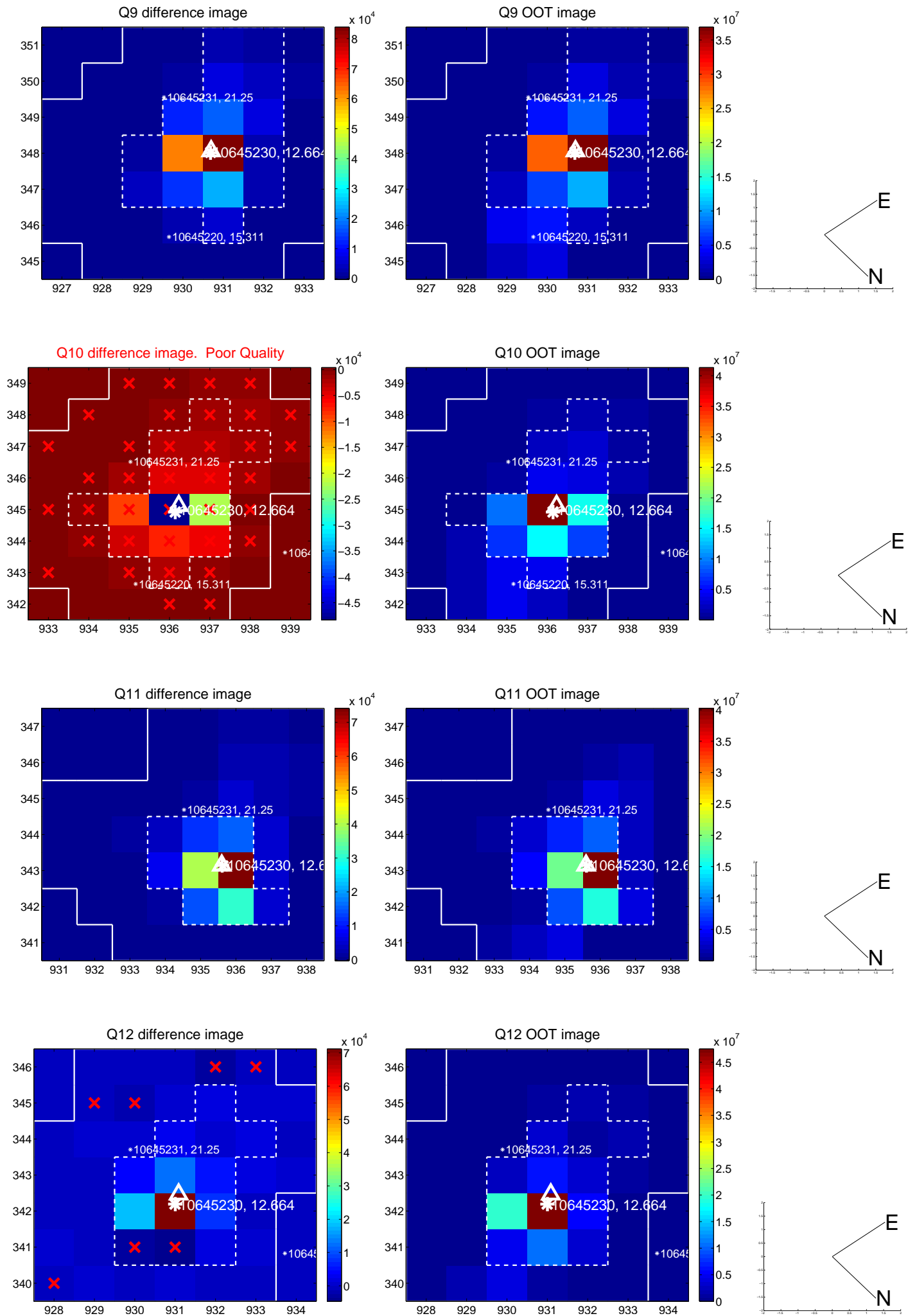
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



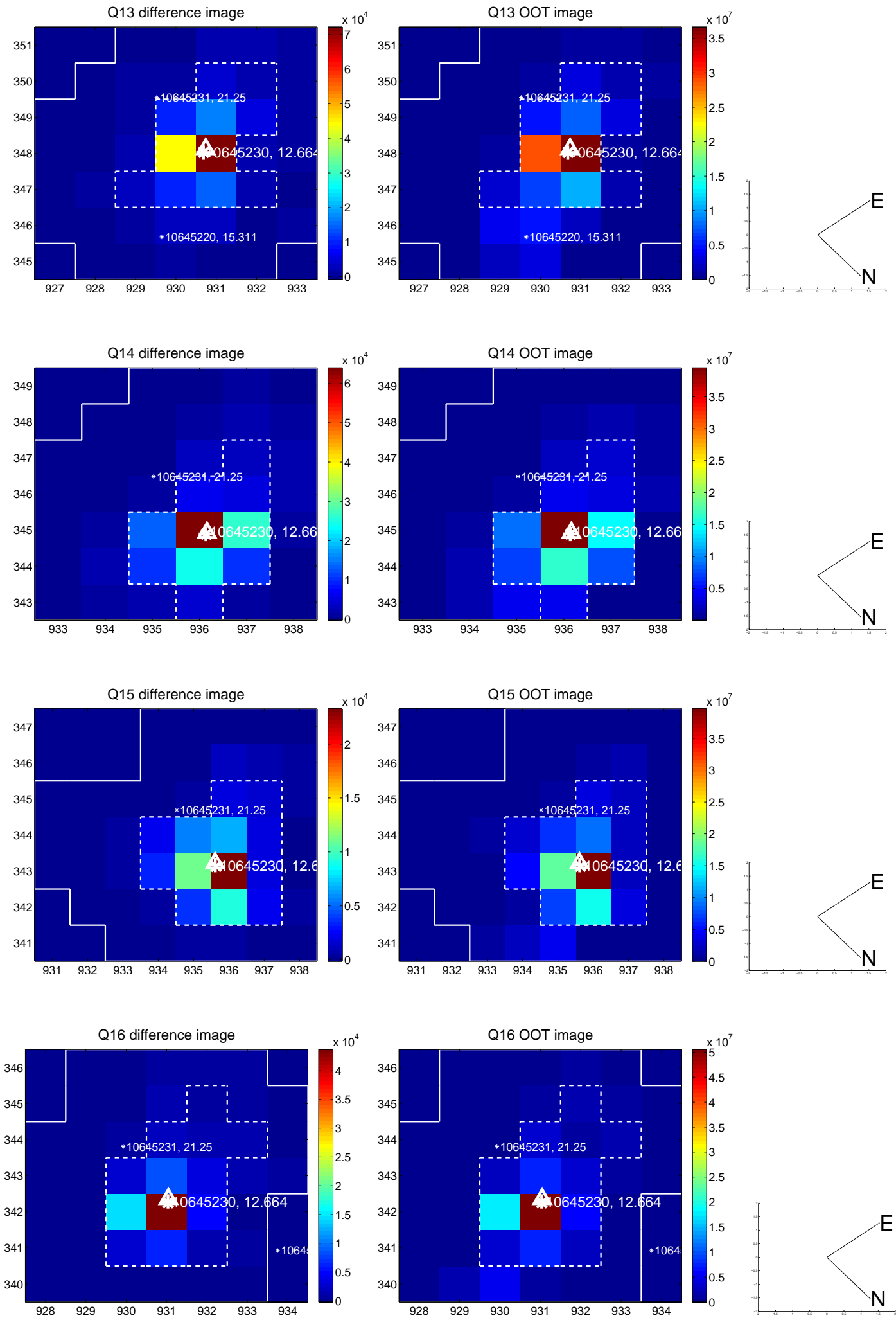
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



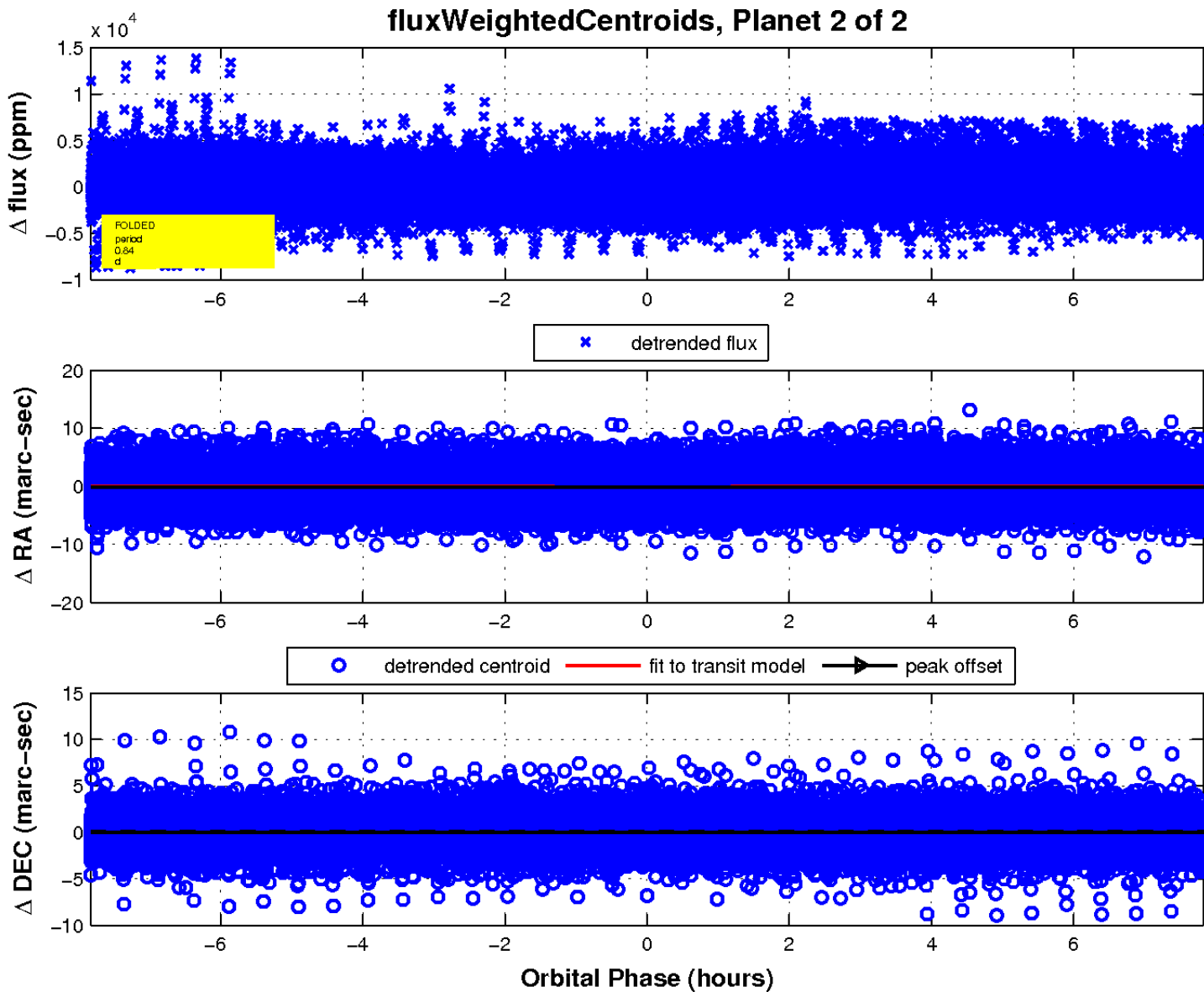
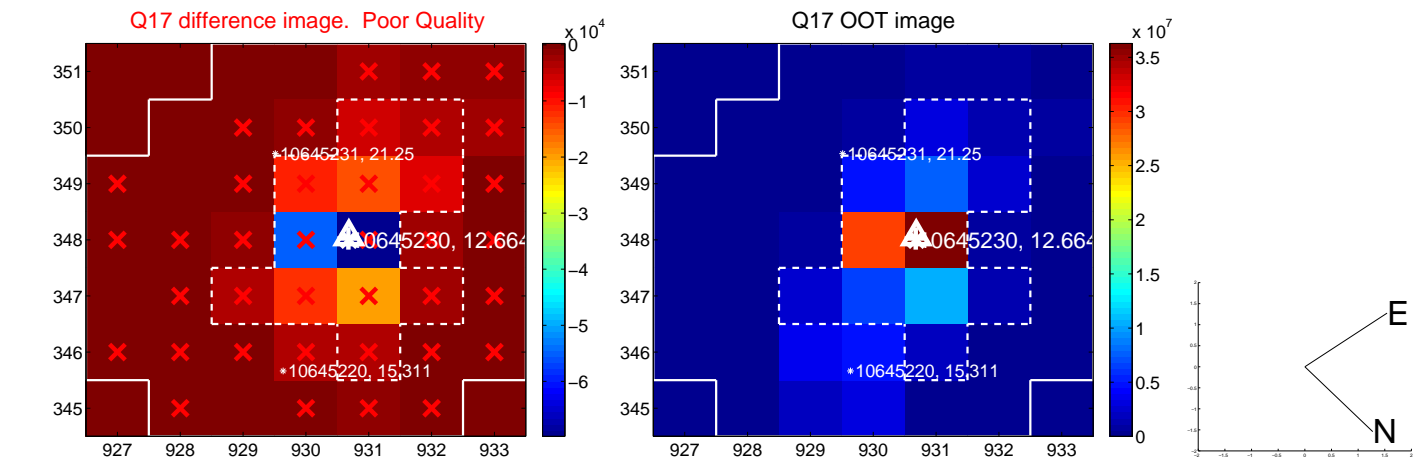
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

