

KIC 003744309

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})
003744309-01	OBS	No	0.566314	131.839893	169.1	1.742	11.5	8.7	3.44	7776	5.21	131763.29
003744309-02	OBS	No	1.080216	131.970491	412.8	11.795	9.2	17.4	3.44	7776	8.74	55700.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003744309-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003744309-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

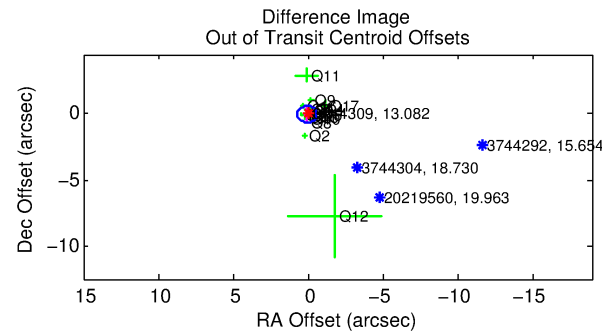
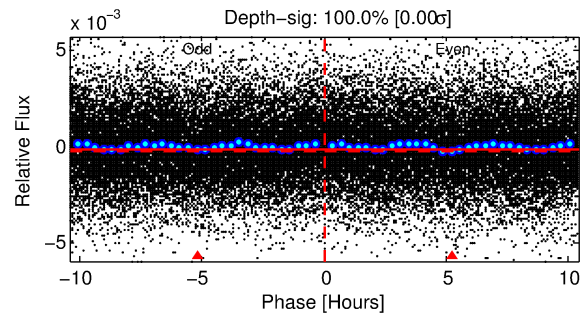
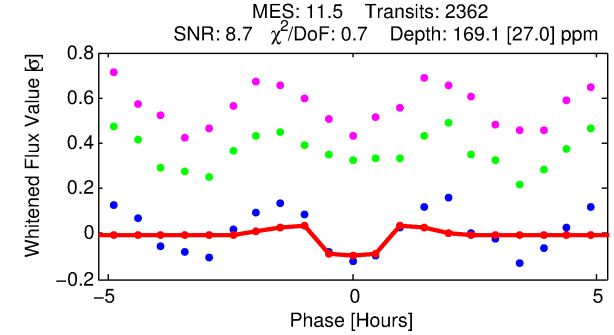
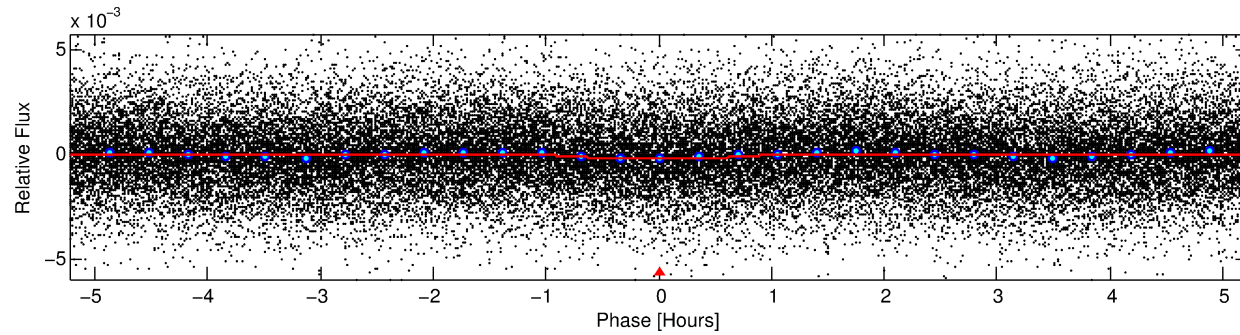
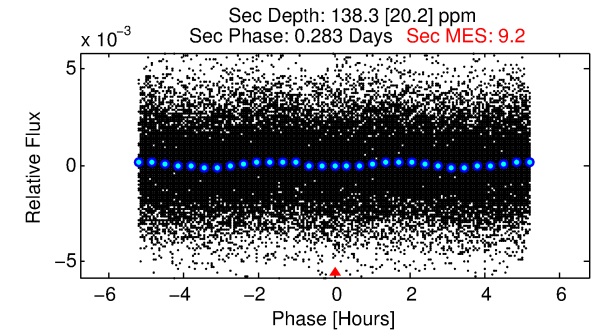
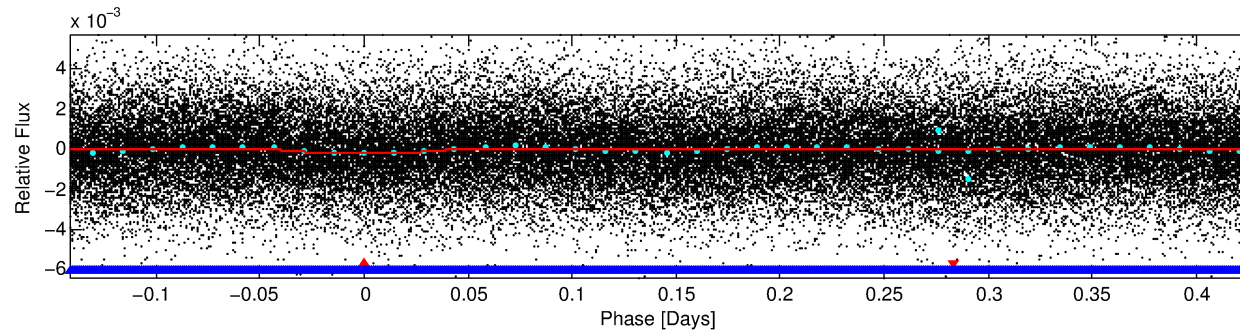
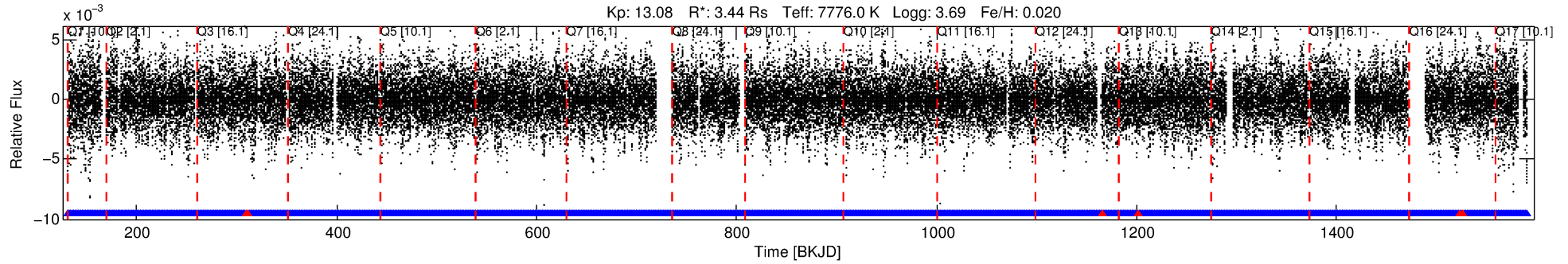
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003744309-01

No Significant Match Found

DV One-Page Summary

KIC: 3744309 Candidate: 1 of 2 Period: 0.566 d



DV Fit Results:

Period = 0.56631 [0.00001] d
Epoch = 131.8399 [0.0017] BKJD
Rp/R* = 0.0139 [0.0052]
a/R* = 1.49 [1.82]
b = 0.90 [0.47]
Seff = 131763.29 [99484.25]
Teff = 4858 [917] K
Rp = 5.21 [3.17] Re
a = 0.0171 [0.0079] AU
Ag = 0.82 [0.87] [-0.20σ]
Teffp = 7152 [1398] K [1.37σ]

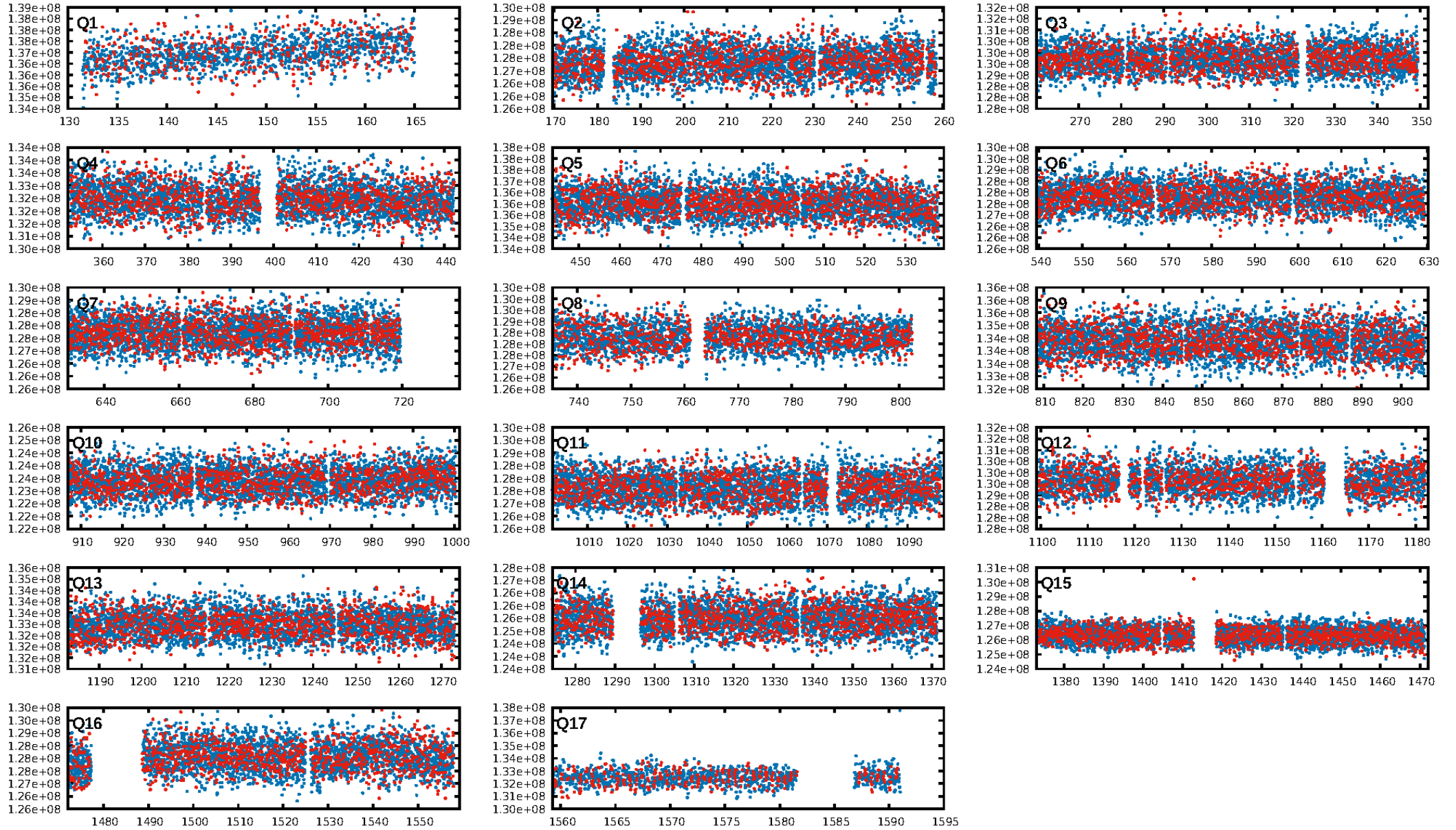
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 69.9% [1.03σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2250/2256]
GhostDiagnostic-chr: 0.9262
Centroid-sig: 0.0%
Centroid-so: 0.113 arcsec [0.68σ]
OotOffset-rm: 0.071 arcsec [0.34σ]
KicOffset-rm: 0.044 arcsec [0.18σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 1.00 [17/17]

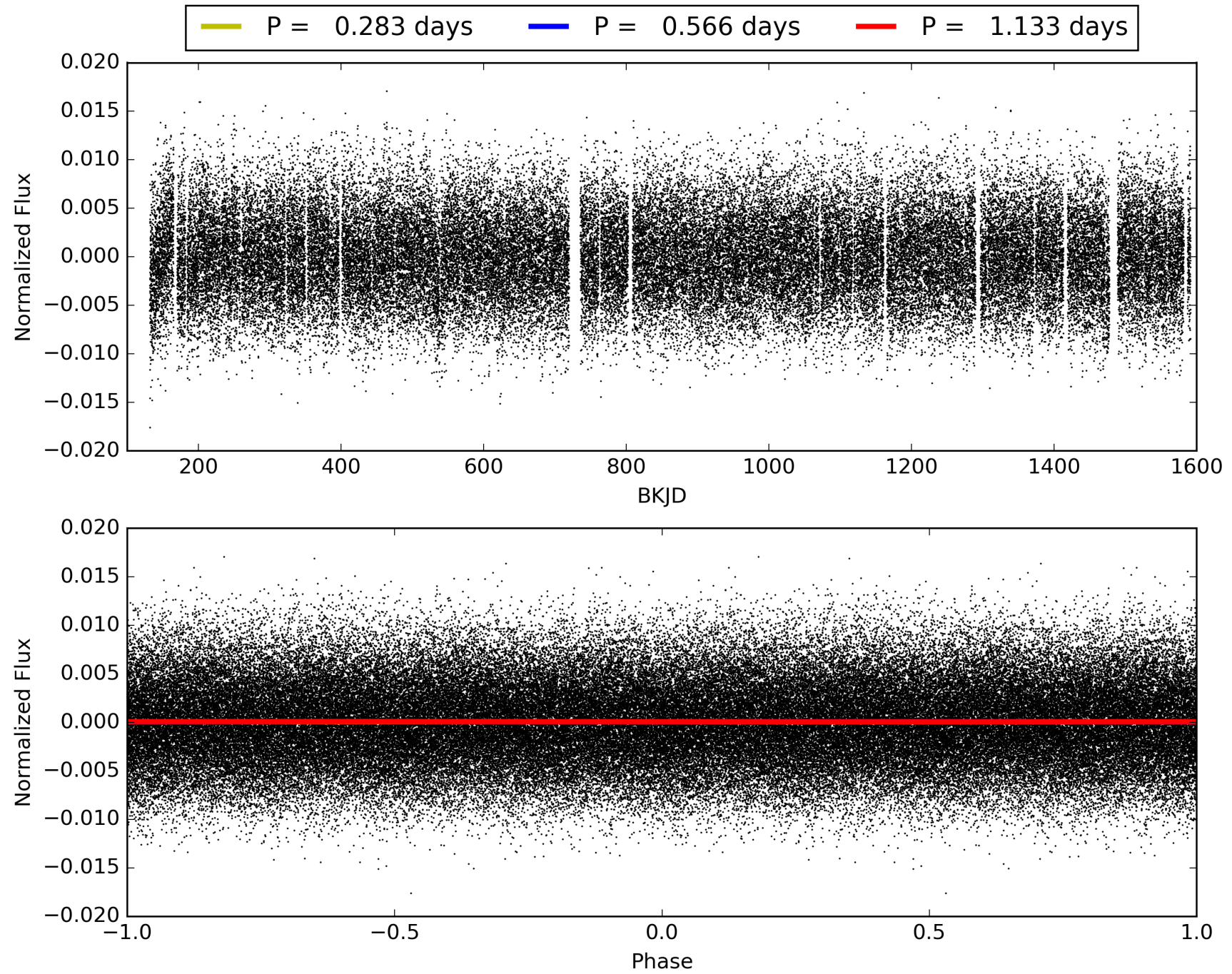
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:10:03 Z

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

TCE 003744309-01, PDC Light Curves

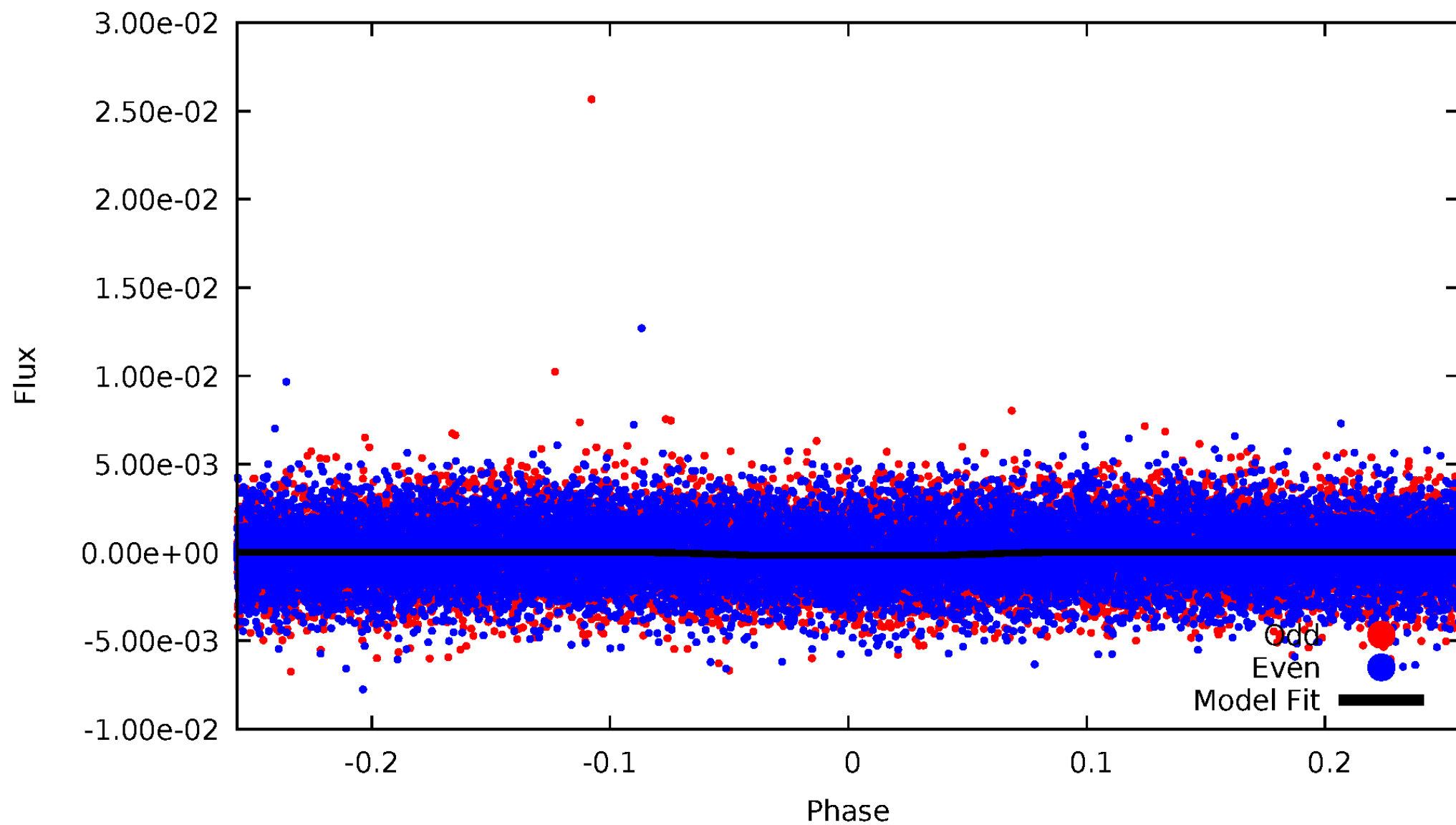


TCE 003744309-01



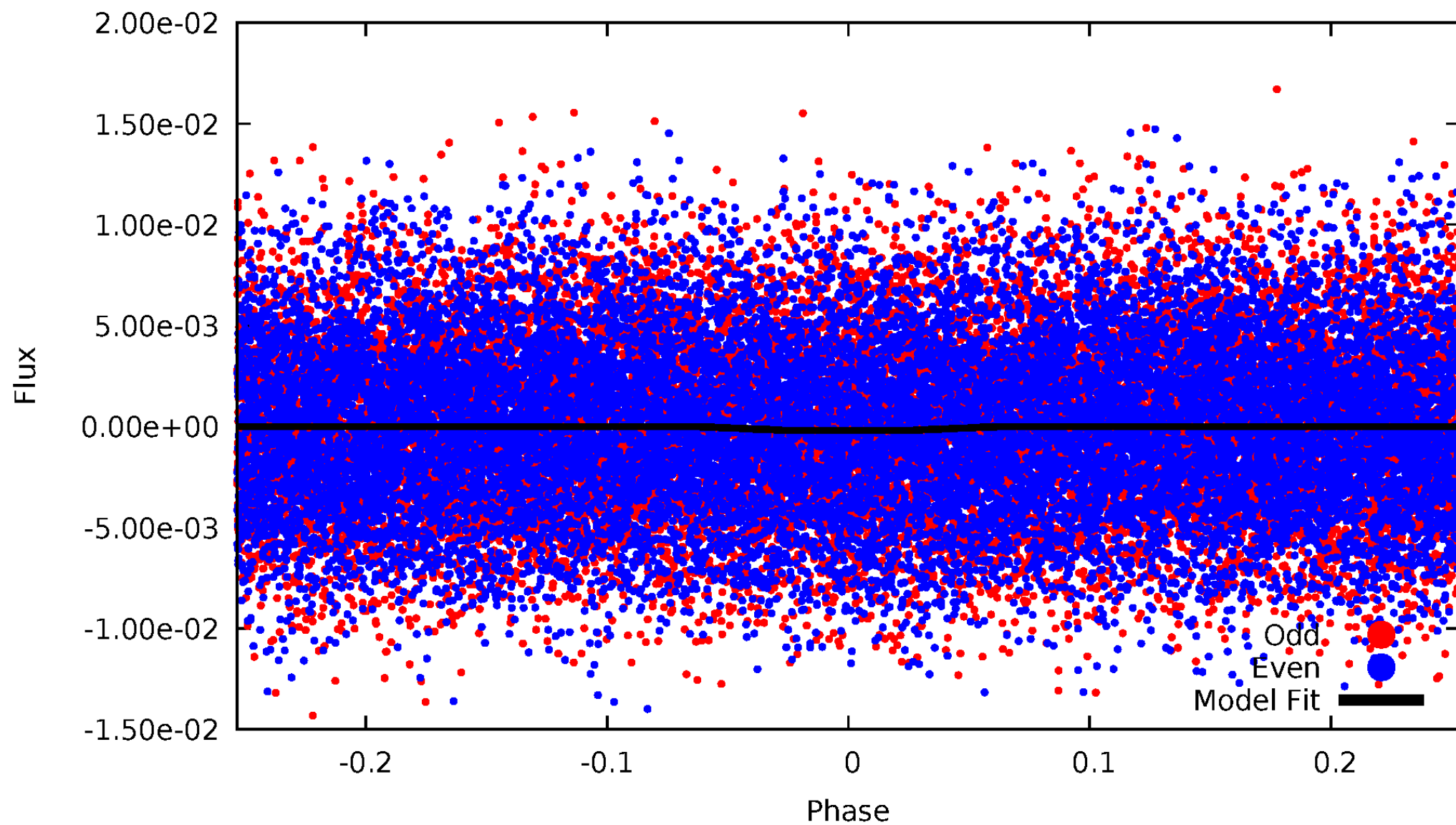
DV Odd/Even

TCE 003744309-01



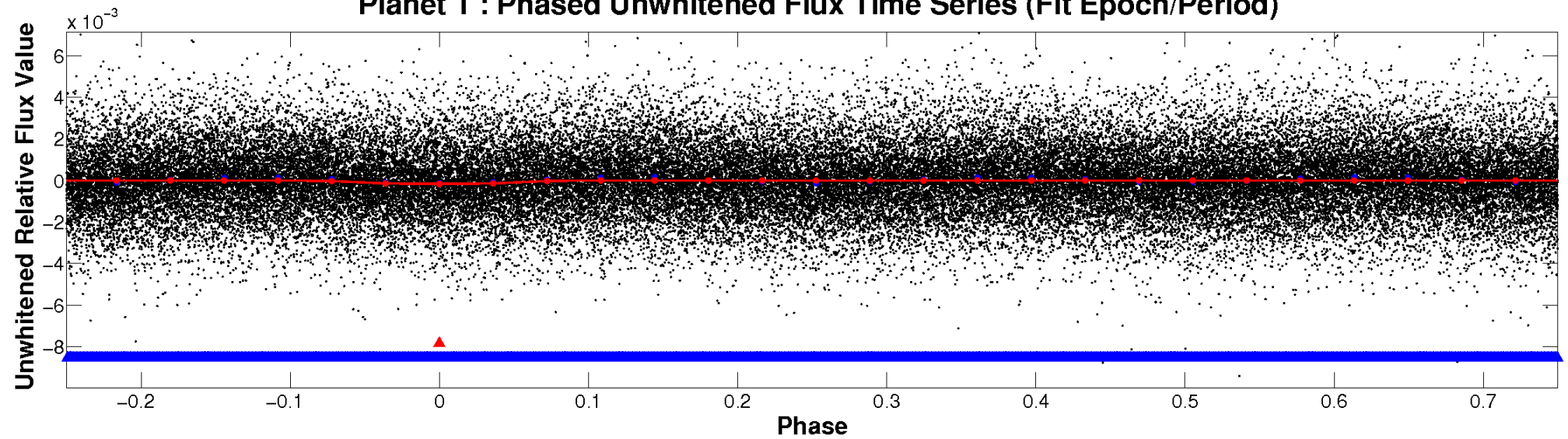
ALT Odd/Even

TCE 003744309-01

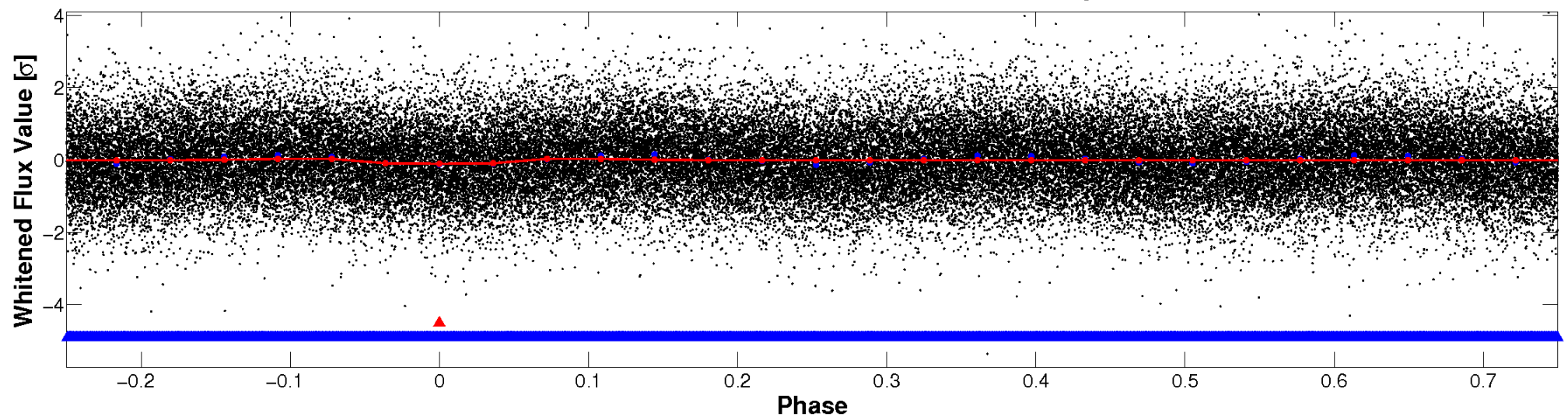


Non-Whitened Vs. Whitened Light Curve

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

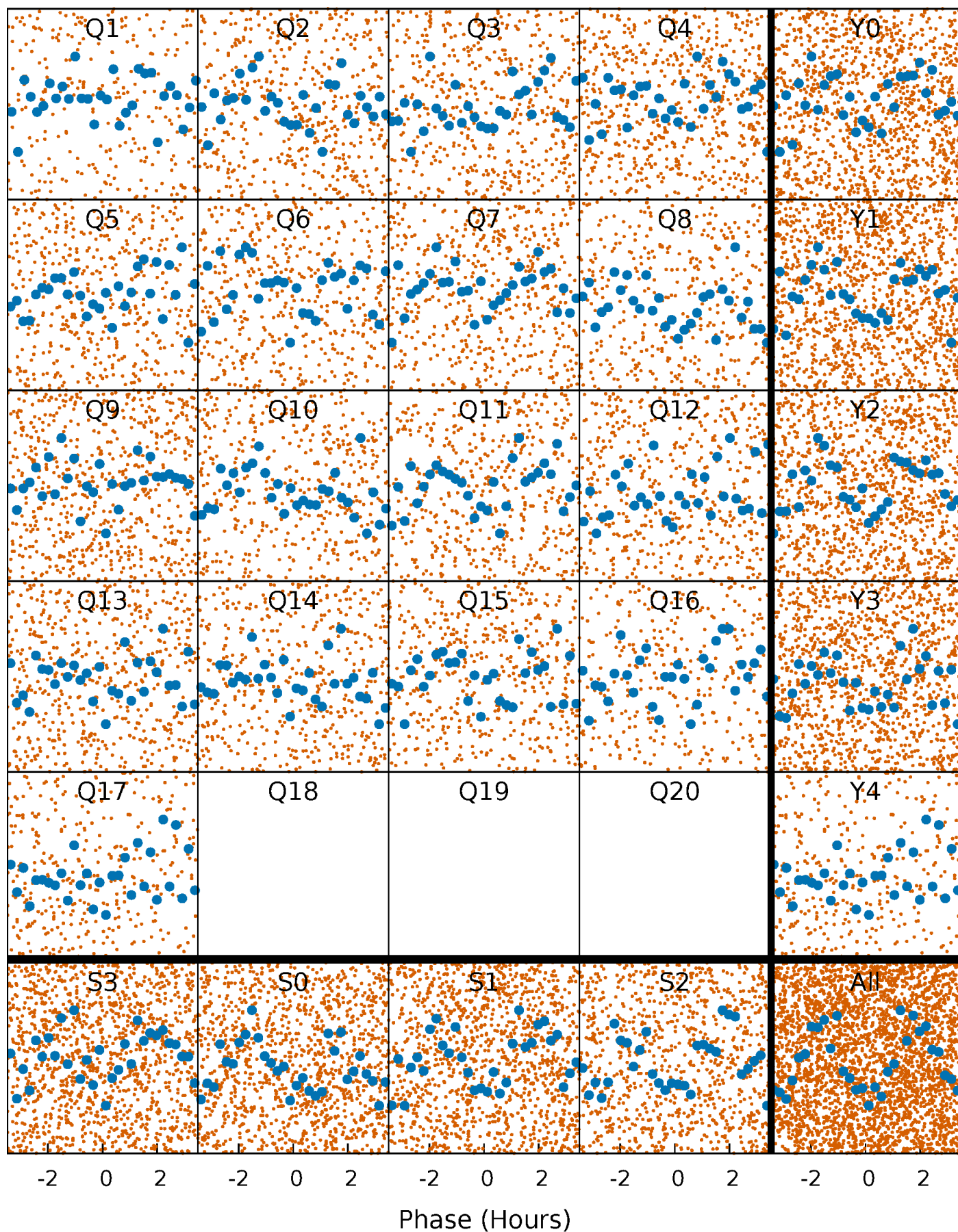


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



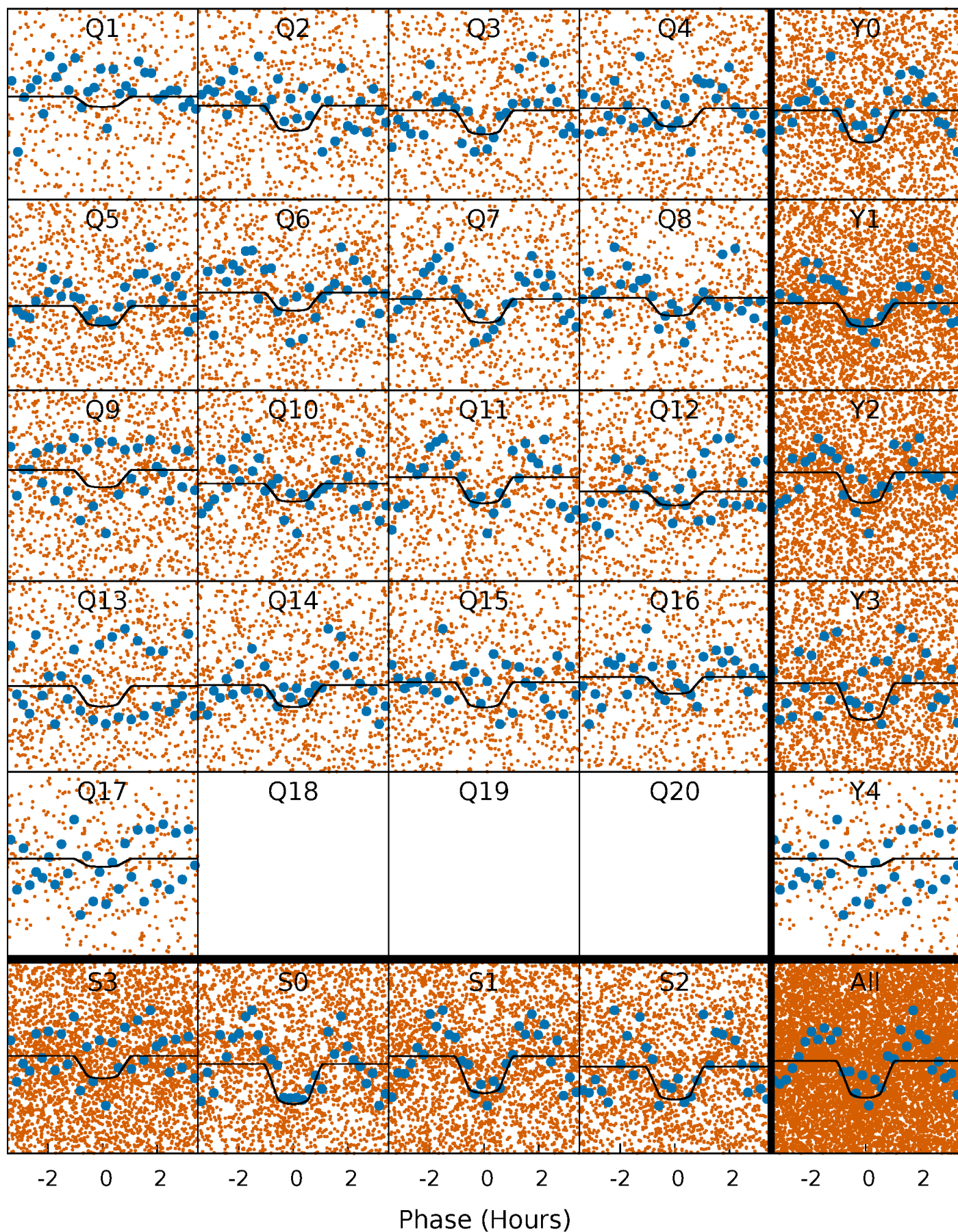
PDC Quarter-Phased Transit Curves

TCE 003744309-01 P= 0.566314 Days $T_0=131.839893$ (BKJD)



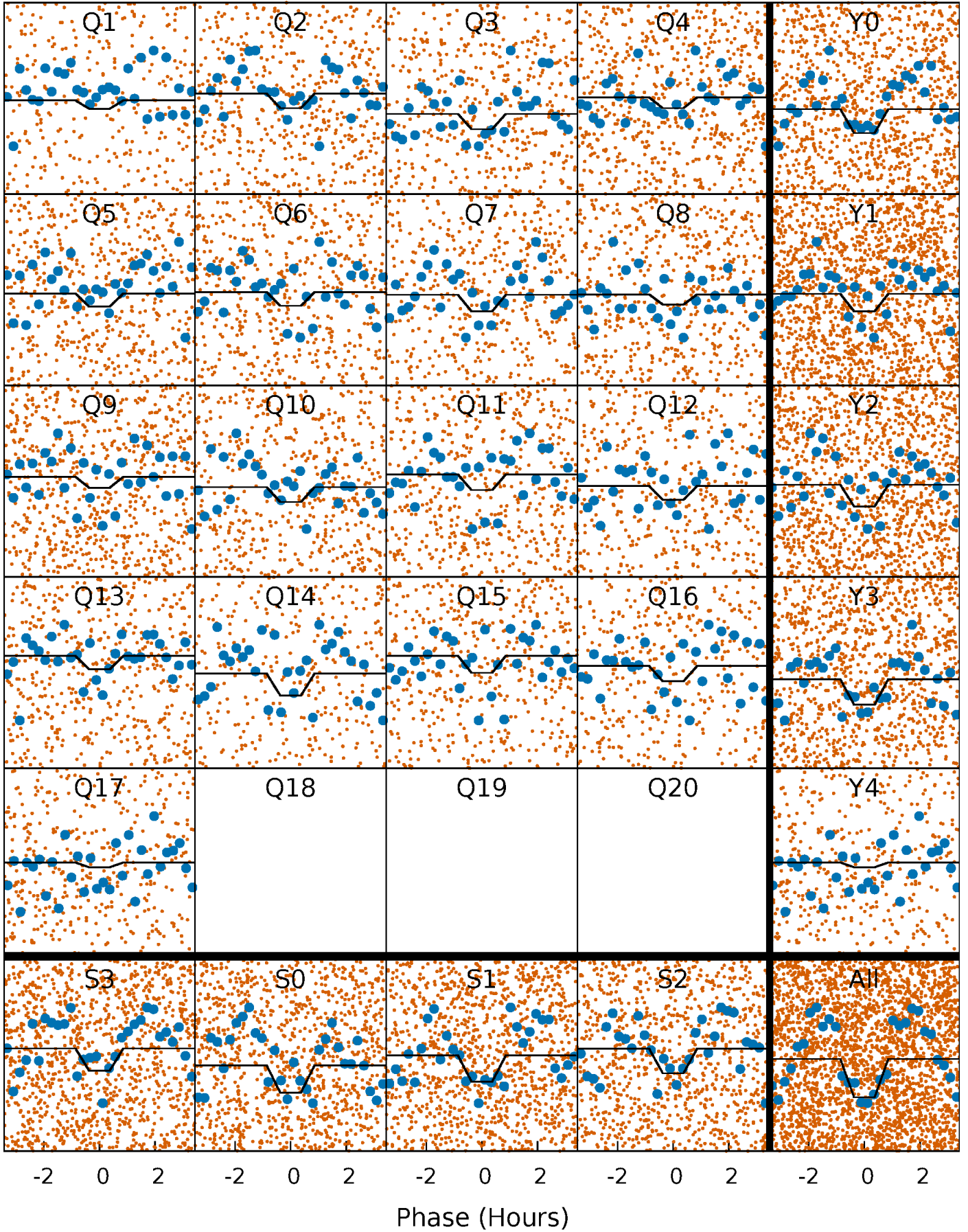
DV Quarter-Phased Transit Curves

TCE 003744309-01 P= 0.566314 Days $T_0=131.839893$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

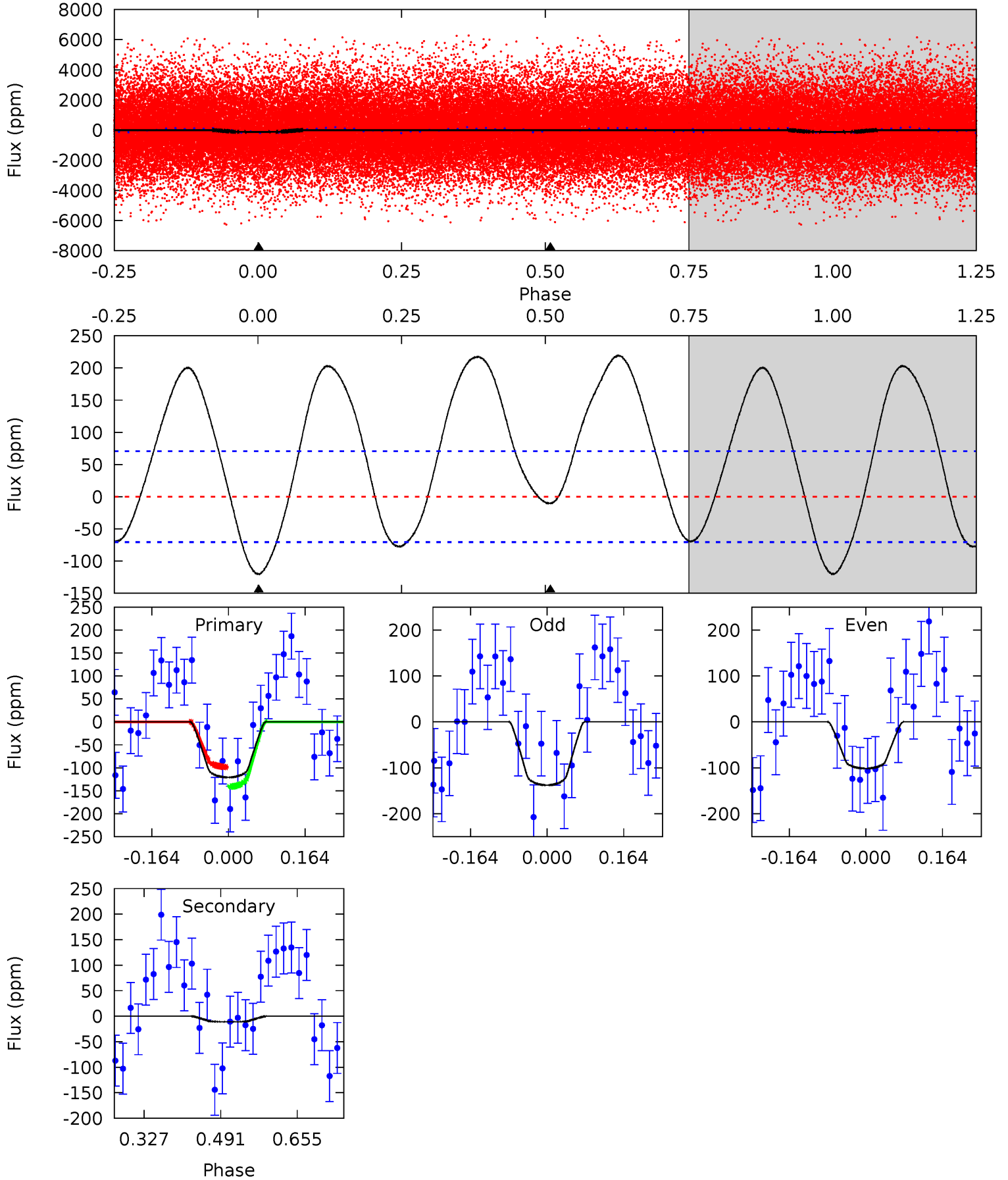
TCE 003744309-01 P= 0.566316 Days $T_0=131.840151$ (BKJD)



DV Model-Shift Uniqueness Test

003744309-01, P = 0.566314 Days, E = 131.273579 Days

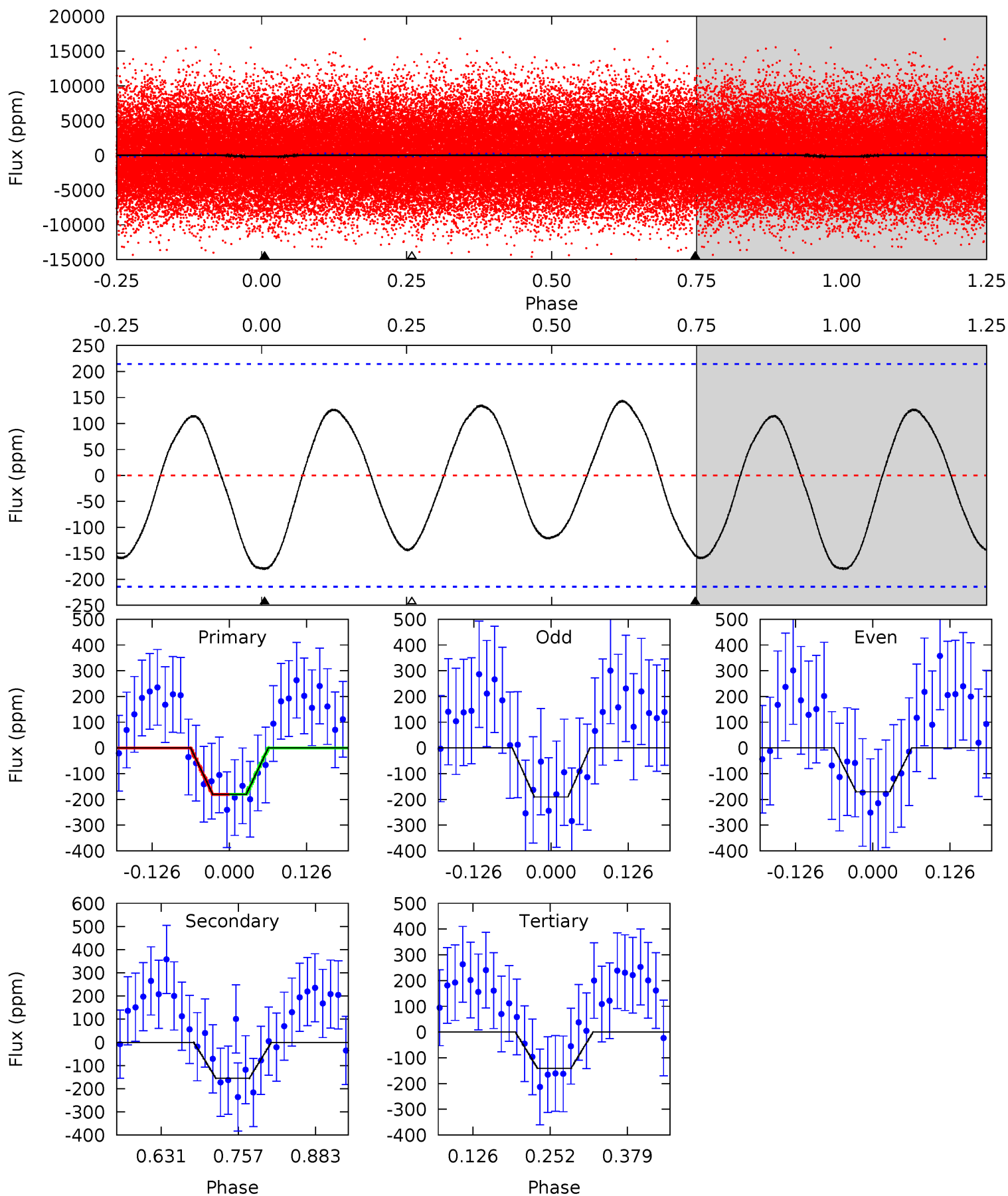
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.63	0.70	0	0	4.46	1.39	4.47	7.63	7.63	0.70	0.70	1.15	0.76	0.64	1.38



Alt Model-Shift Uniqueness Test

003744309-01, P = 0.566316 Days, E = 131.273835 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.80	3.26	2.97	0	4.52	1.53	1.96	0.83	3.80	0.29	3.26	0.21	0.74	0.44	0.01



Stellar Parameters For KIC 003744309

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7776^{+217}_{-326}	$3.686^{+0.432}_{-0.081}$	$0.020^{+0.200}_{-0.350}$	$3.435^{+0.706}_{-1.647}$	$2.086^{+0.298}_{-0.511}$	$0.072^{+0.298}_{-0.024}$
	+3%/-4%	+12%/-2%	+1000%/-1750%	+21%/-48%	+14%/-24%	+411%/-33%
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 003744309-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-11 ± 16	$4.42^{+2.25}_{-1.84}$	6489^{+502}_{-815}	-4852^{+7958}_{-700}	$0.083^{+0.236}_{-0.121}$
Alt.	-155 ± 47	$4.46^{+2.19}_{-1.88}$	6502^{+499}_{-787}	6815^{+2933}_{-1930}	$1.281^{+2.388}_{-0.780}$

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 $A_{obs} \gg 1.0$

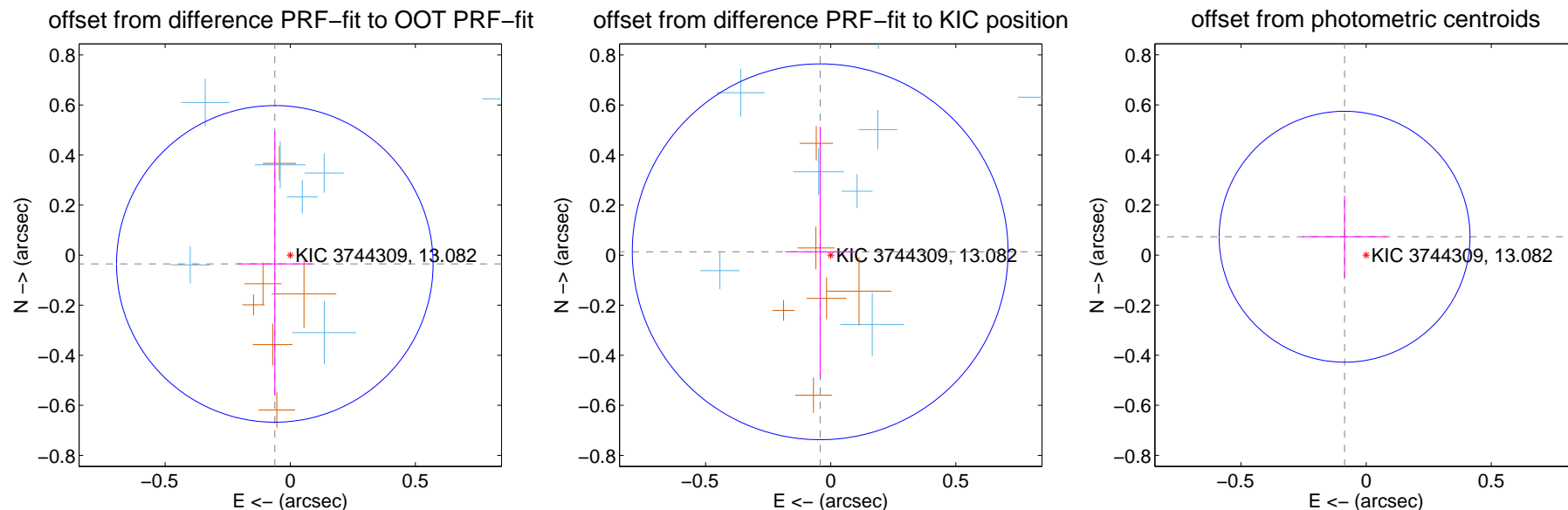
DV Centroid Data

Supplemental centroid analysis for 003744309-01. Kepler magnitude: 13.08. Transit SNR 8.67

There are 8 quarters with good PRF difference image offsets

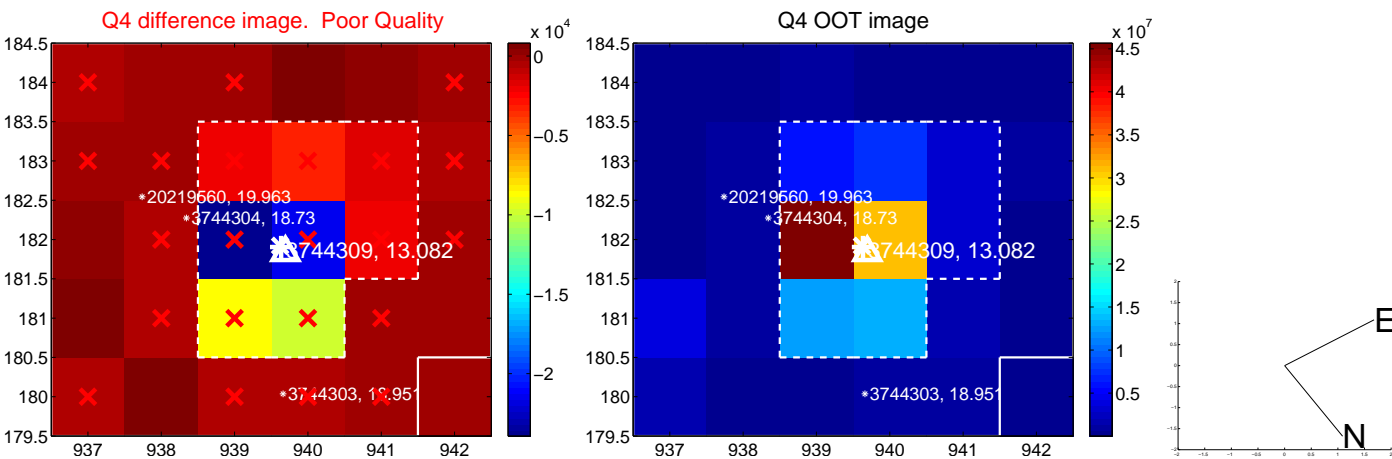
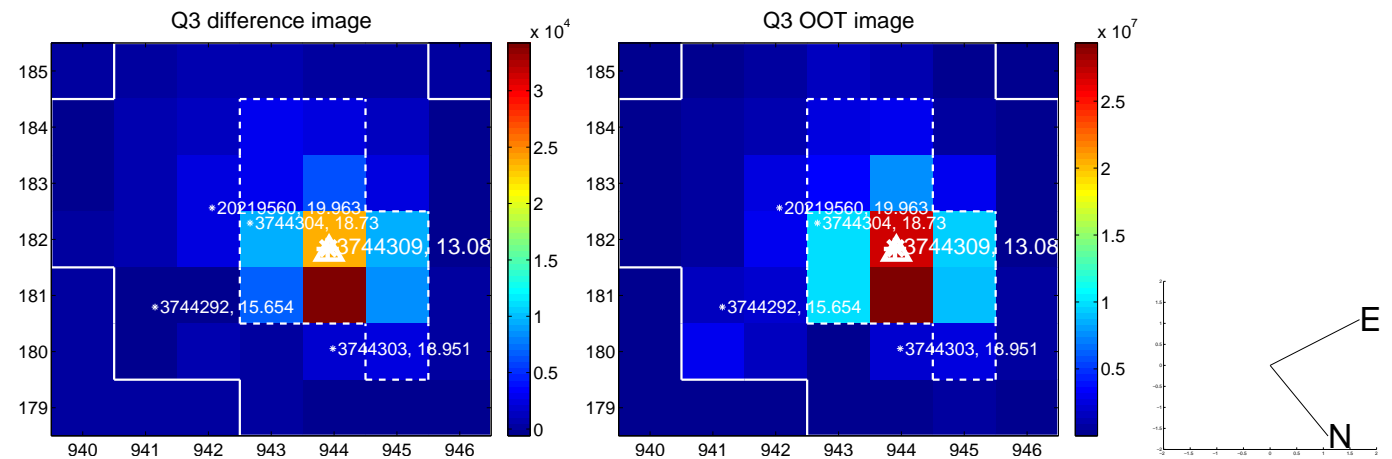
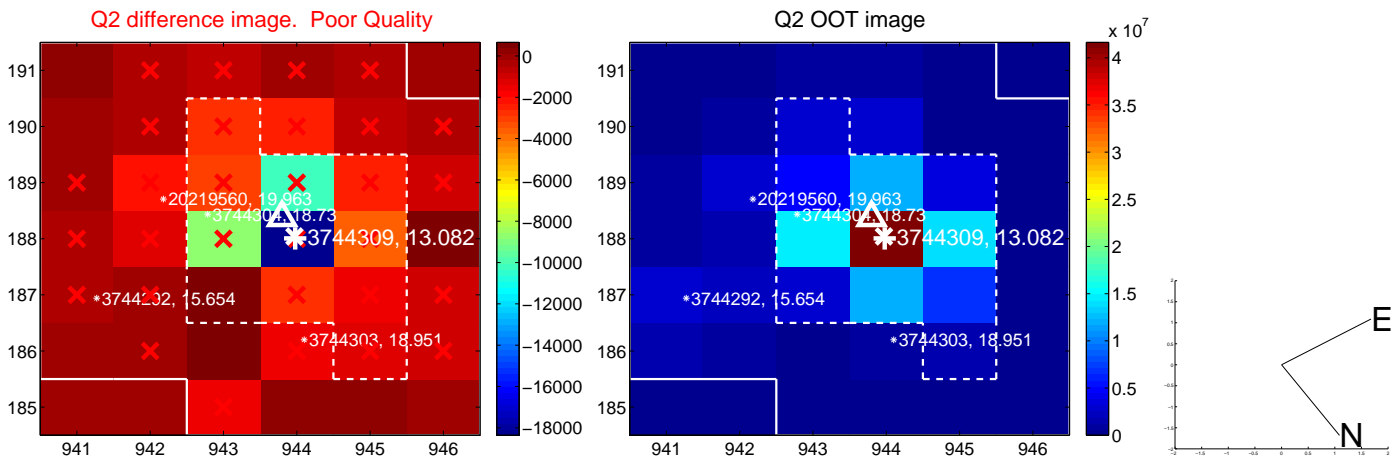
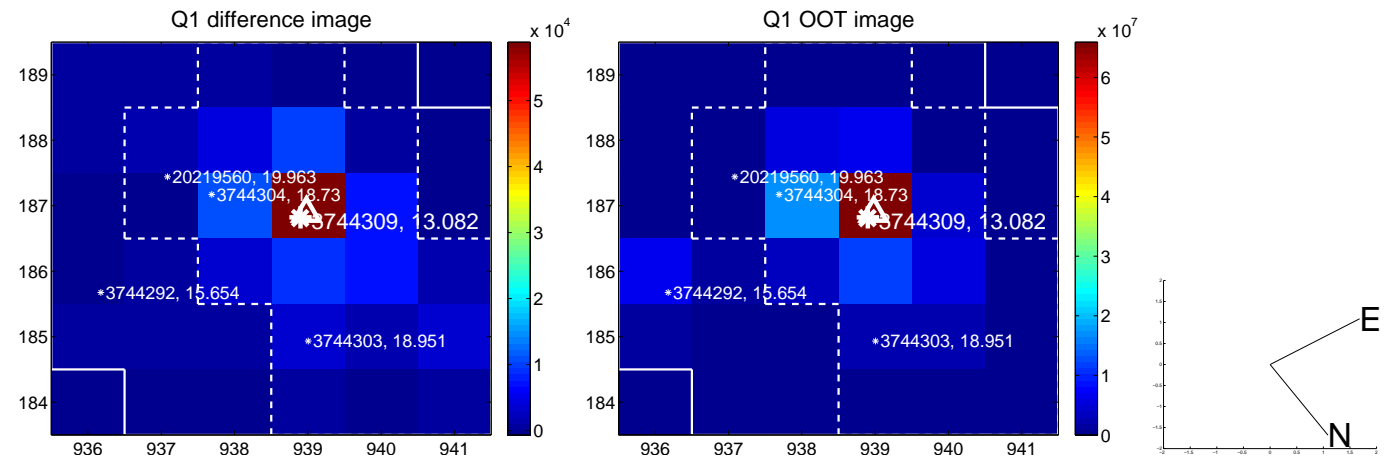
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.071 ± 0.211	0.34	0.062 ± 0.148	-0.035 ± 0.527
PRF-fit source offset from KIC position	0.044 ± 0.250	0.18	0.042 ± 0.140	0.013 ± 0.501
photometric centroid source offset	0.11 ± 0.17	0.68	0.09 ± 0.17	0.07 ± 0.16

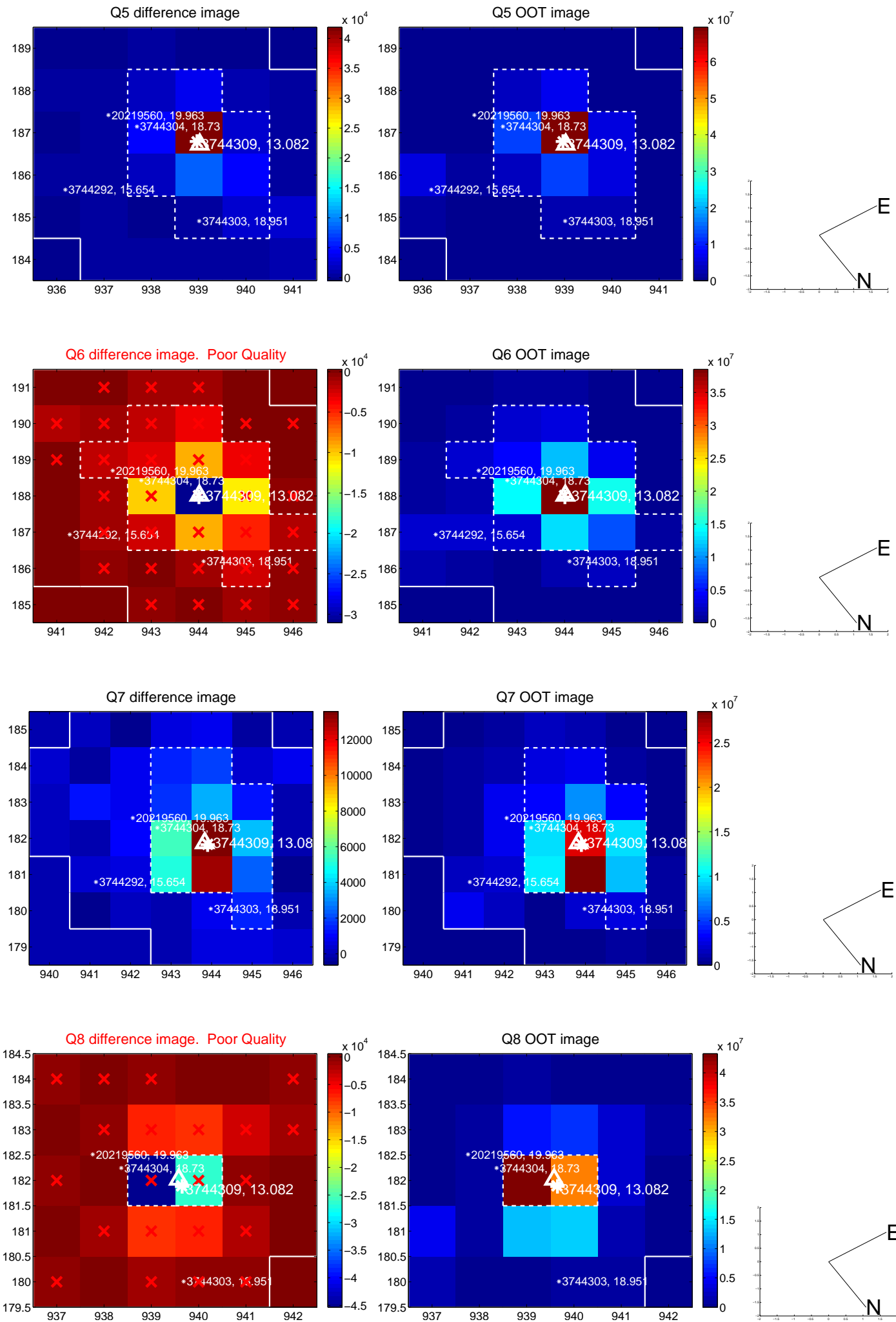


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

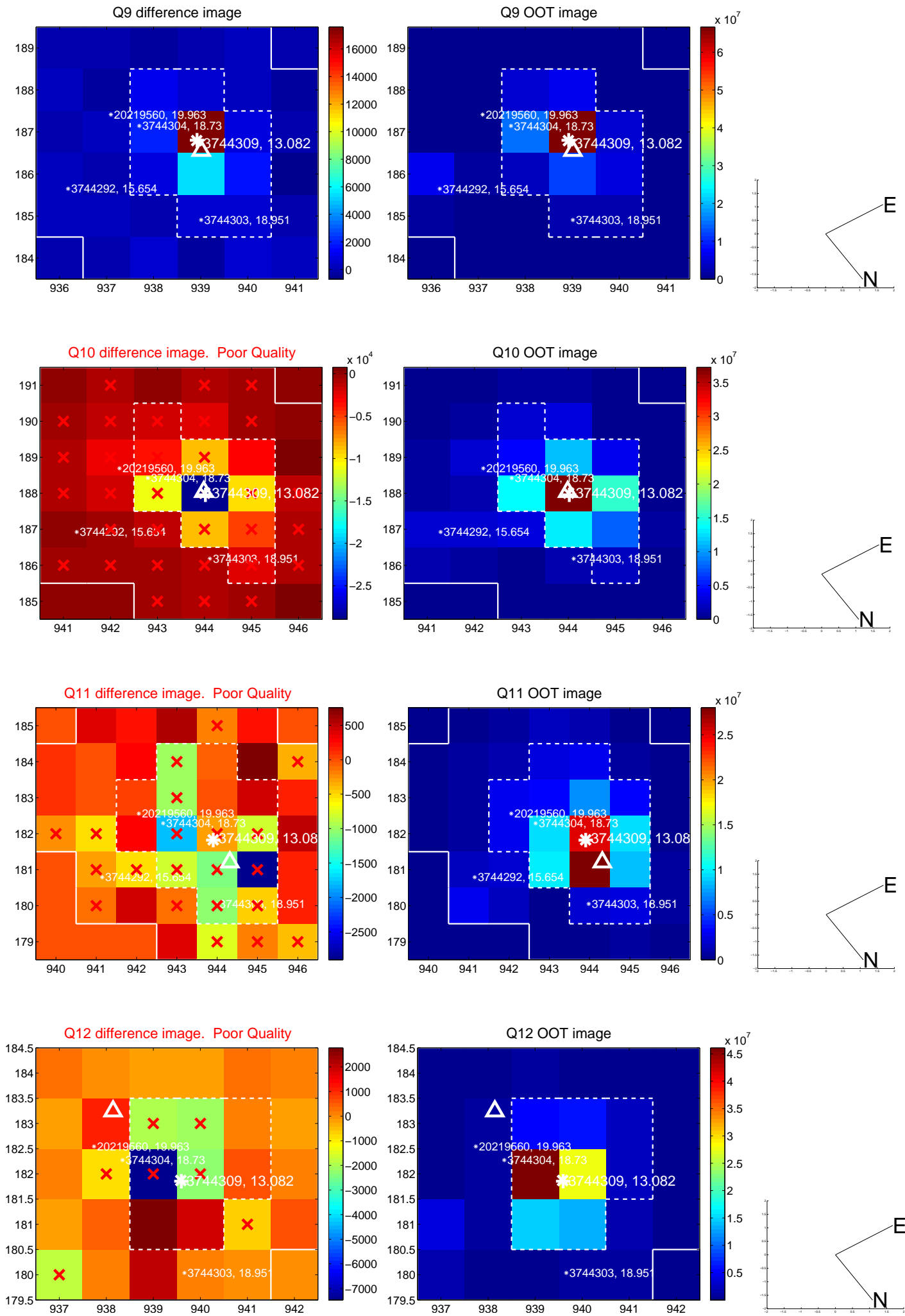
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



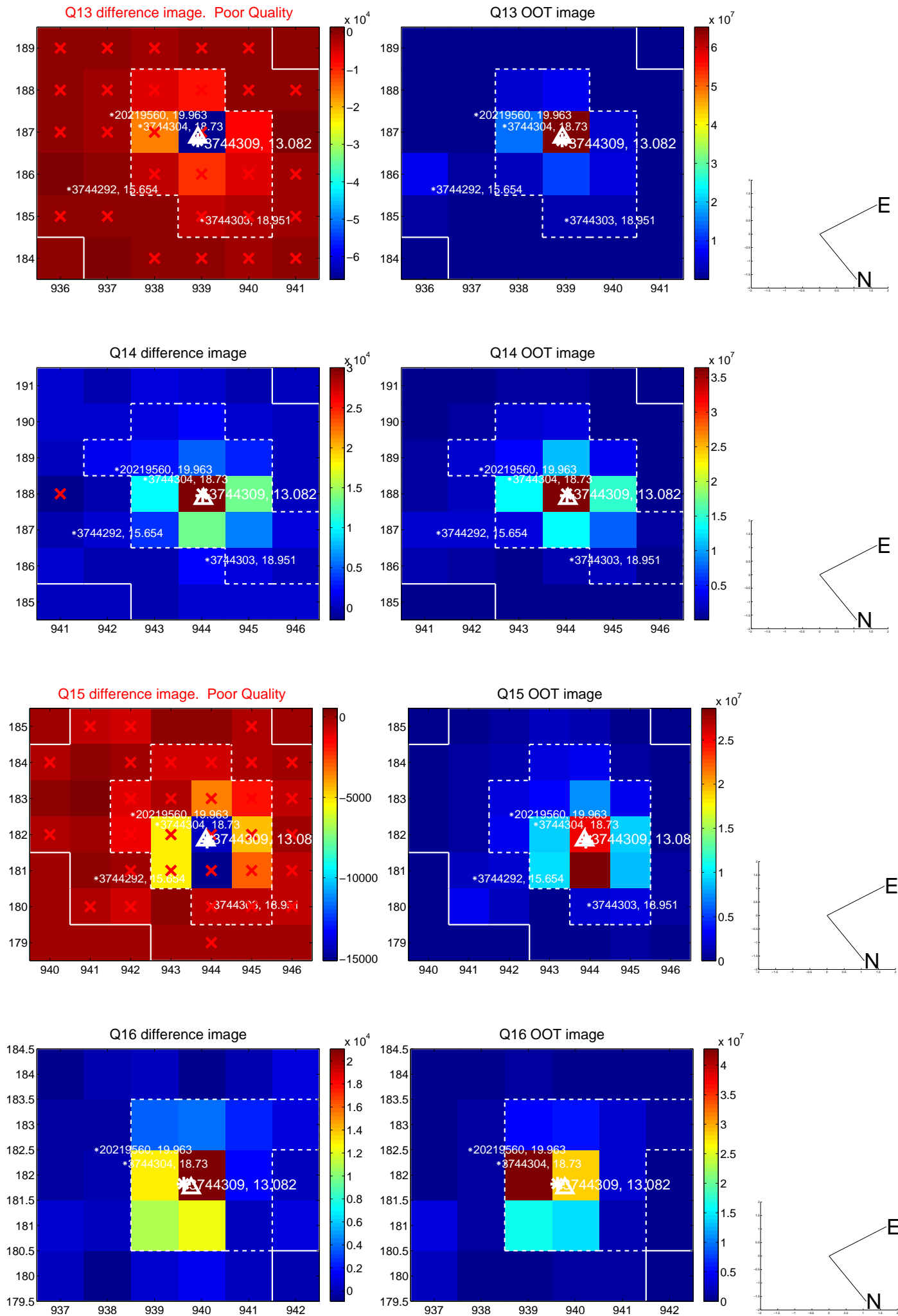
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



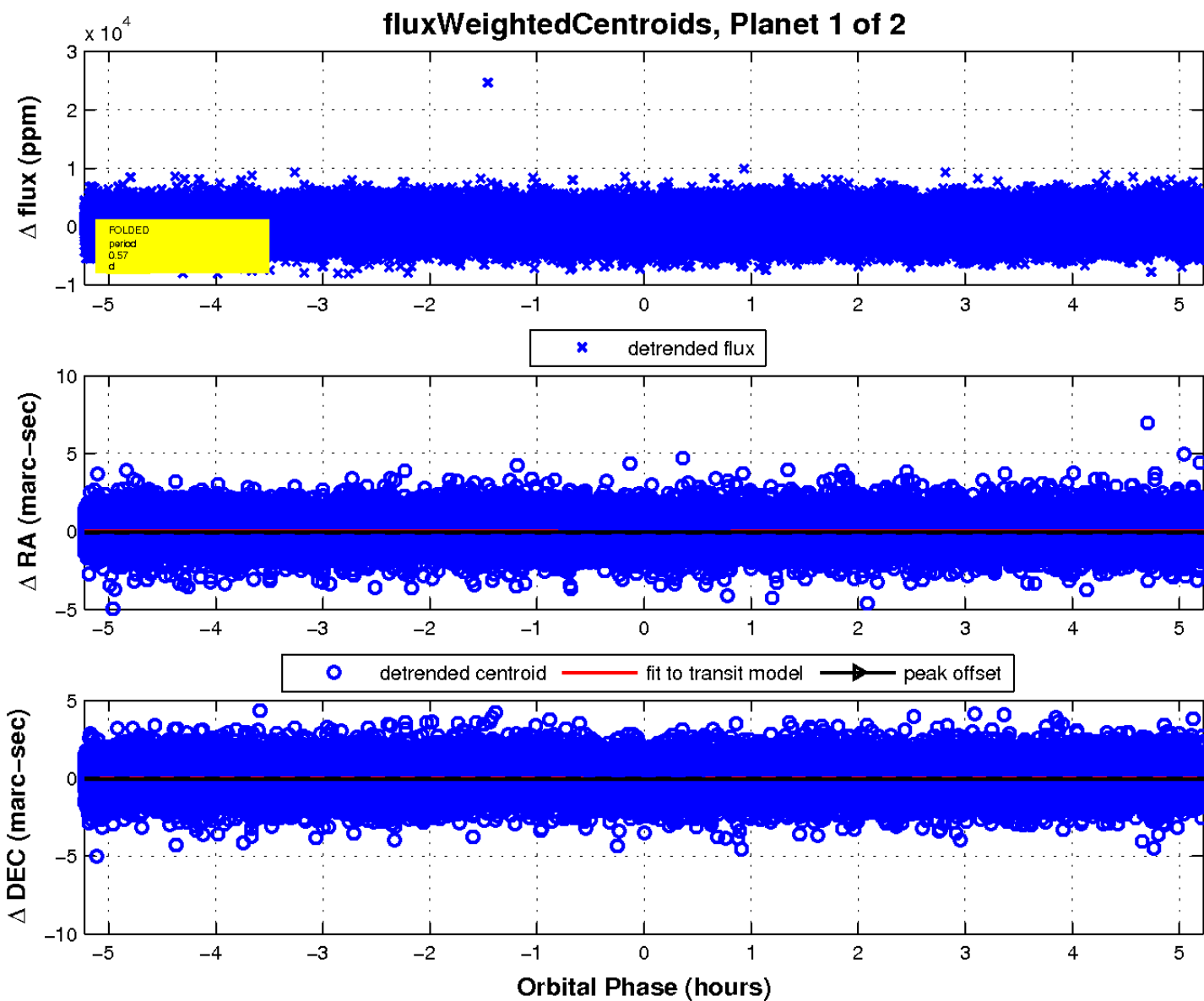
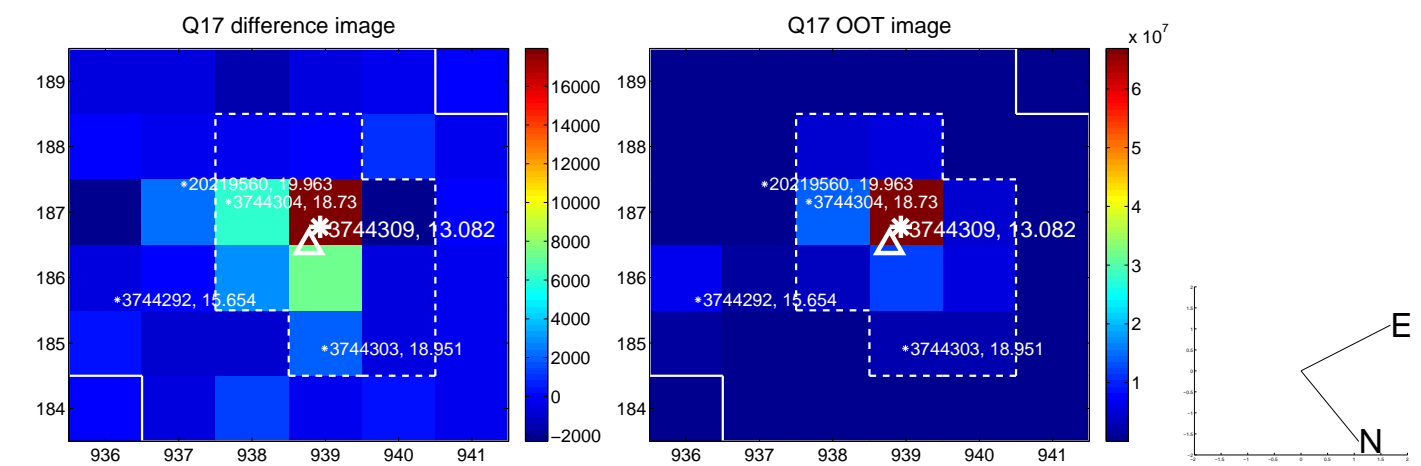
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

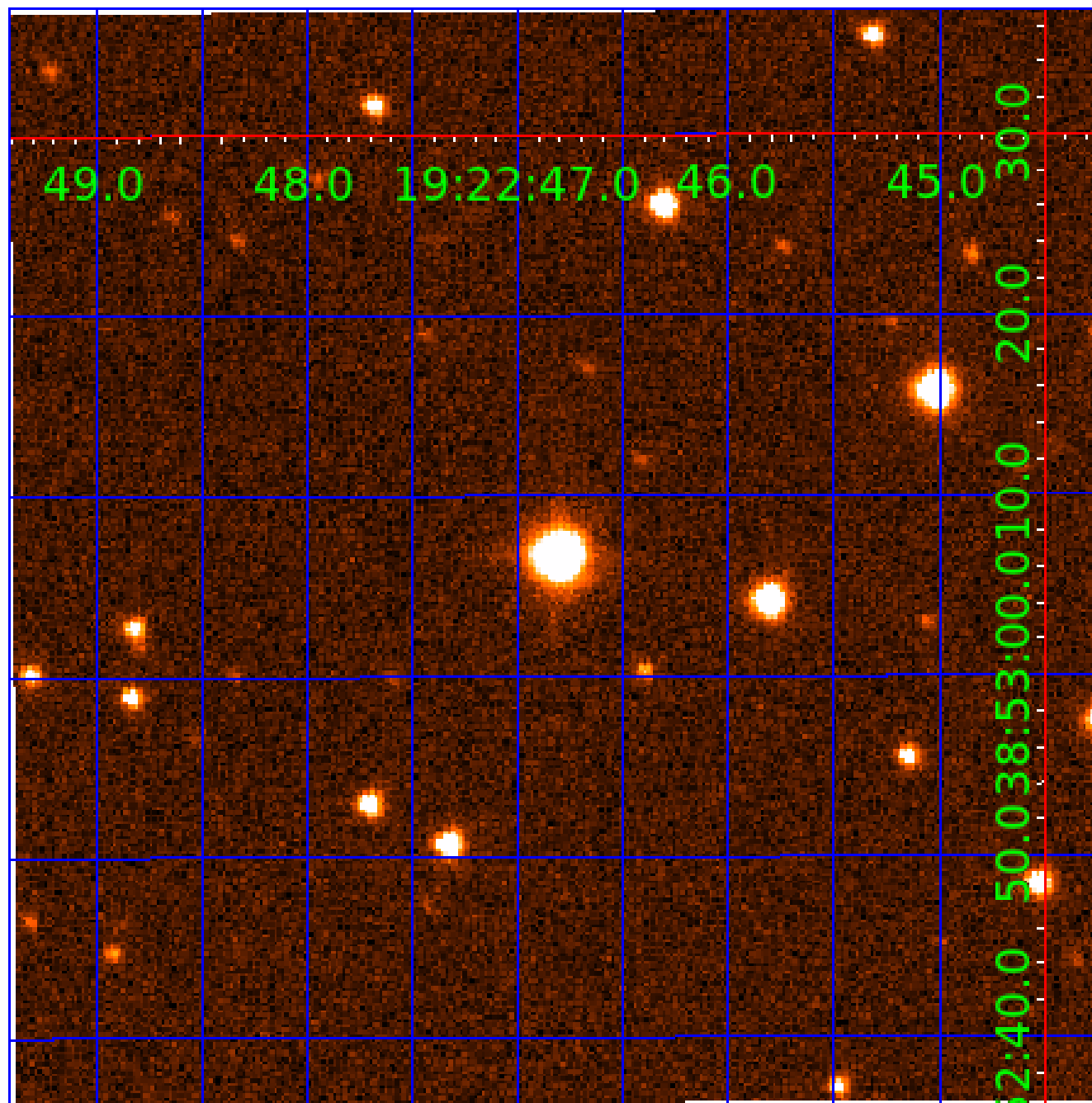


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003744309

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})
003744309-01	OBS	No	0.566314	131.839893	169.1	1.742	11.5	8.7	3.44	7776	5.21	131763.29
003744309-02	OBS	No	1.080216	131.970491	412.8	11.795	9.2	17.4	3.44	7776	8.74	55700.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003744309-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003744309-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

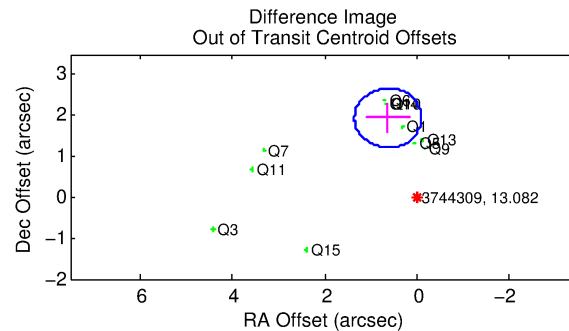
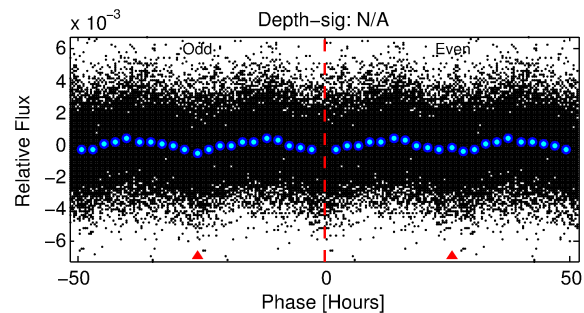
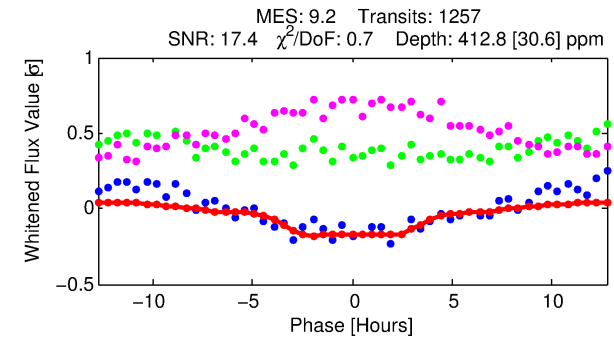
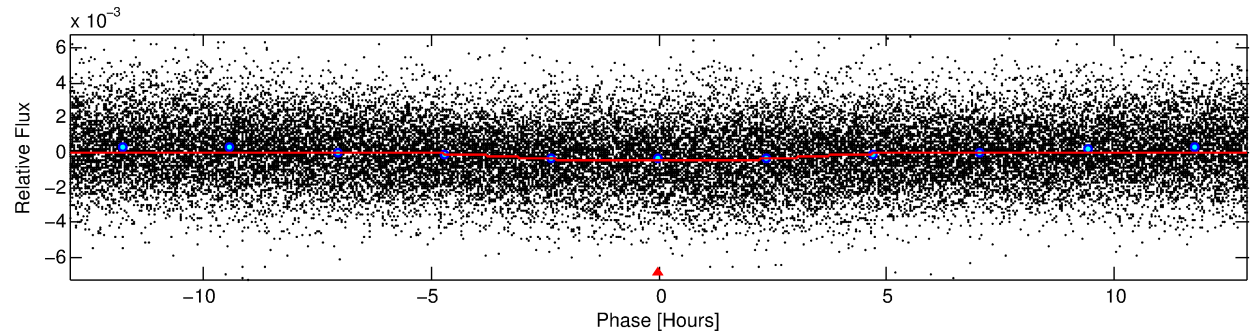
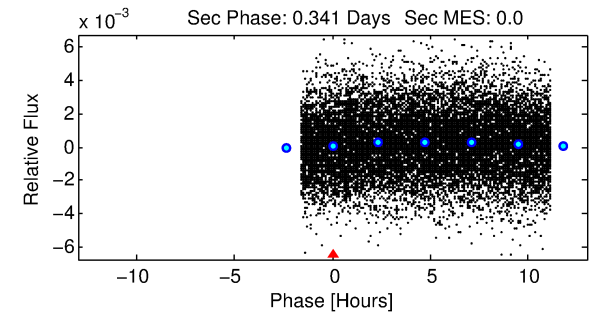
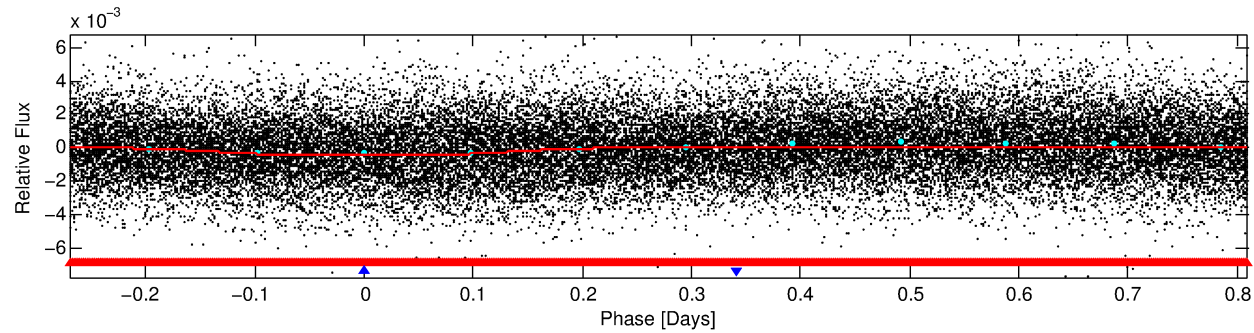
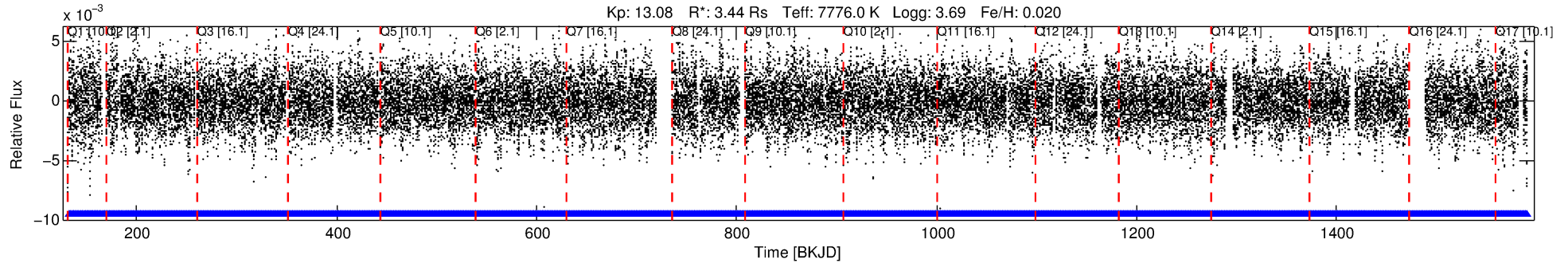
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003744309-02

No Significant Match Found

DV One-Page Summary

KIC: 3744309 Candidate: 2 of 2 Period: 1.080 d



DV Fit Results:

Period = 1.08022 [0.00002] d
Epoch = 131.9705 [0.0105] BKJD
Rp/R* = 0.0233 [0.0010]
a/R* = 1.02 [0.01]
b = 0.96 [0.01]
Seff = 55700.16 [42054.87]
Teff = 3917 [739] K
Rp = 8.74 [4.21] Re
a = 0.0263 [0.0121] AU
Ag = N/A
Teffp = N/A

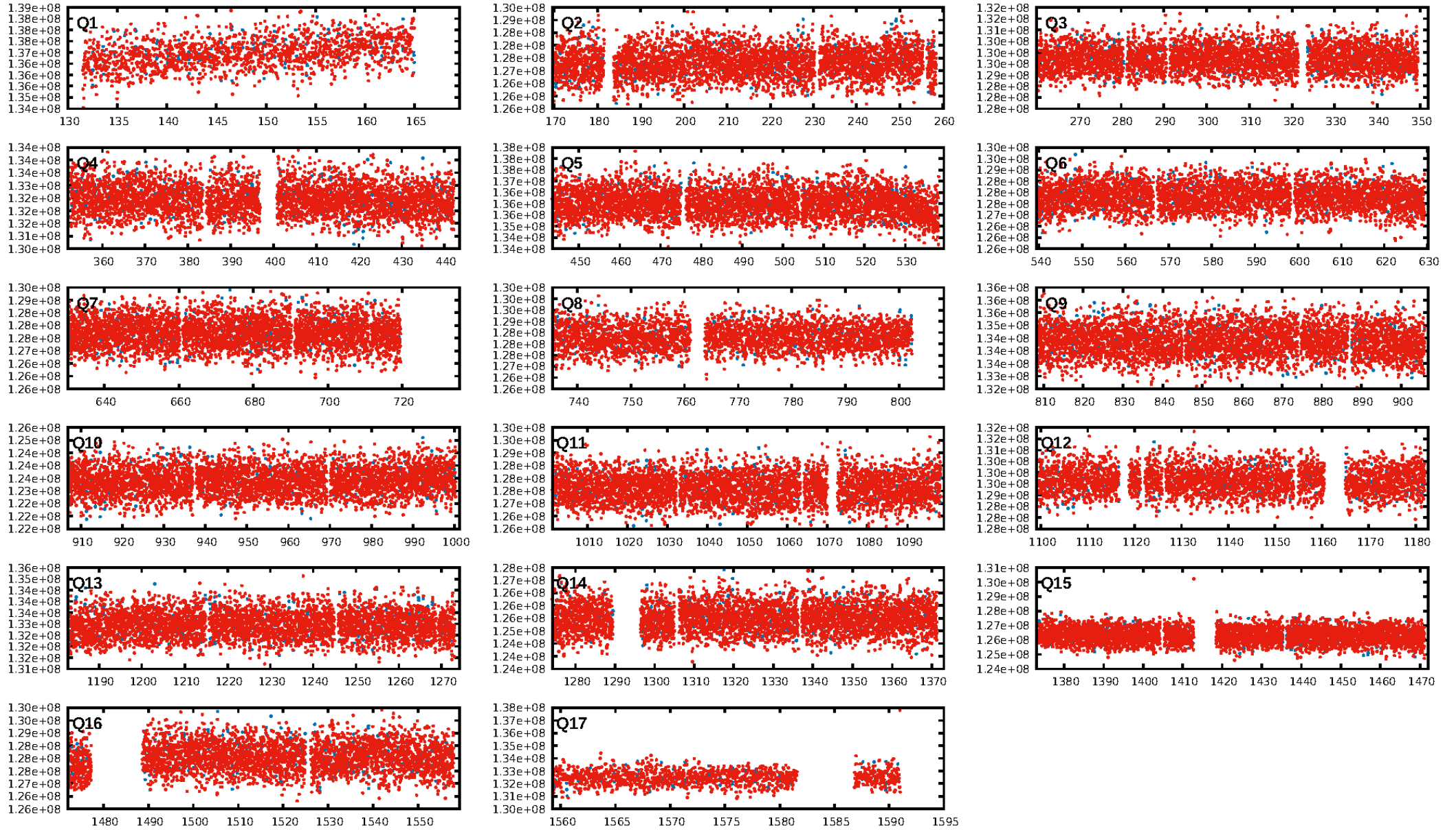
DV Diagnostic Results:

ShortPeriod-sig: 69.9% [1.03σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1201/1201]
GhostDiagnostic-chr: 2.6
Centroid-sig: 0.0%
Centroid-so: 0.096 arcsec [2.11σ]
OotOffset-rm: 2.042 arcsec [8.45σ]
KicOffset-rm: 2.127 arcsec [7.16σ]
OotOffset-st: 3/4/0/4 [11]
KicOffset-st: 3/4/0/4 [11]
DiffImageQuality-fgm: 0.64 [7/11]
DiffImageOverlap-fno: 0.00 [0/17]

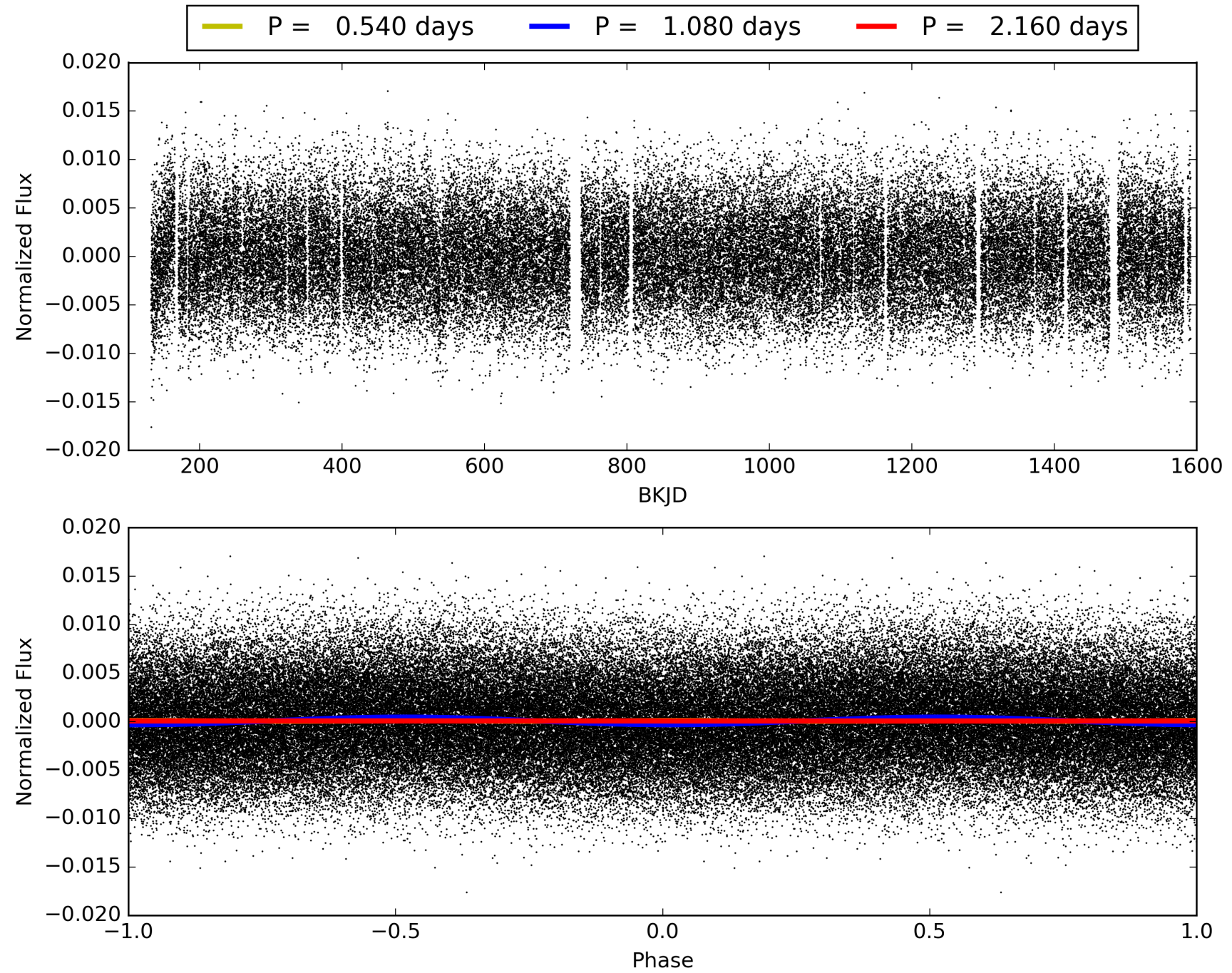
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:10:20 Z

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

TCE 003744309-02, PDC Light Curves

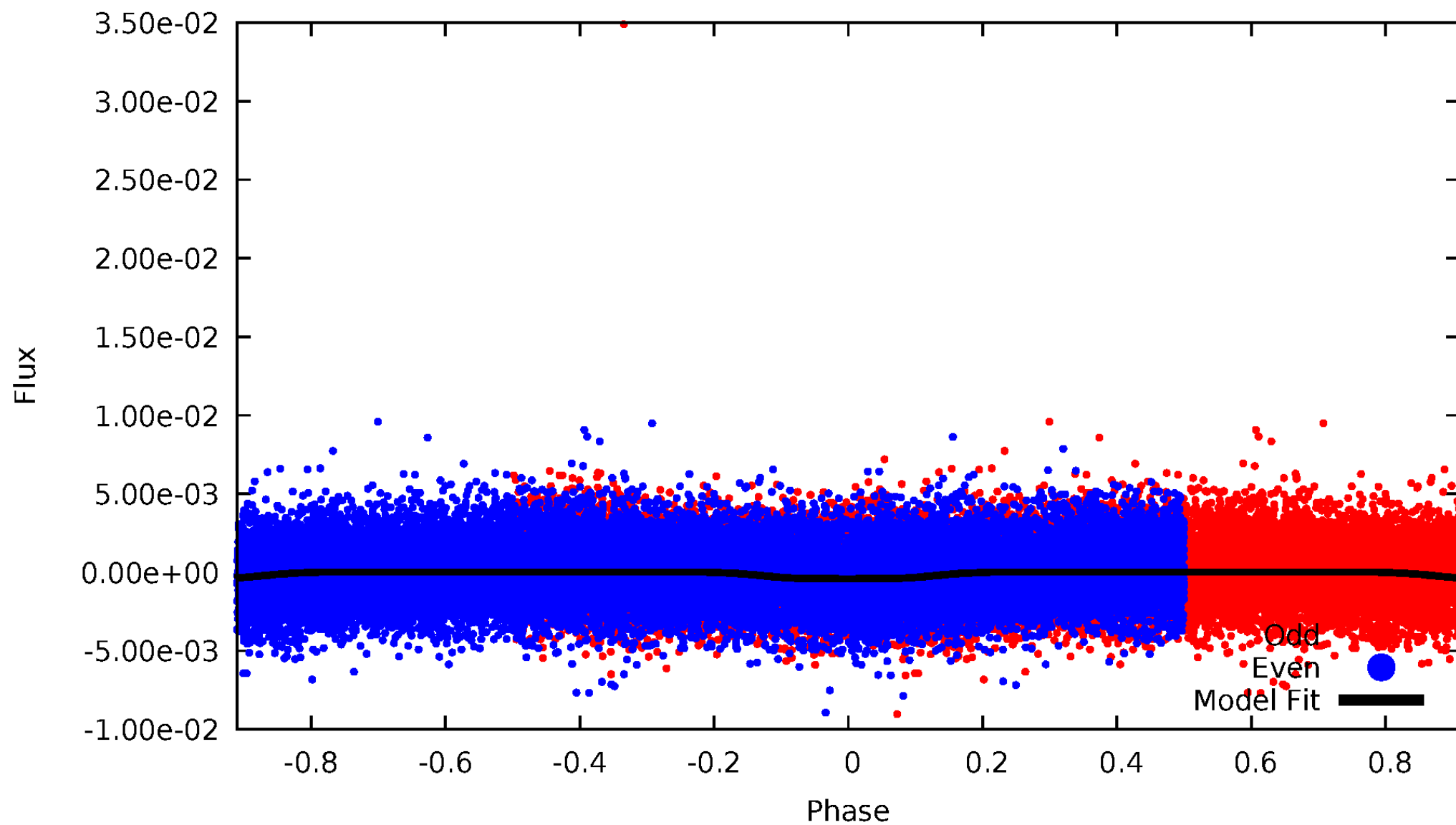


TCE 003744309-02



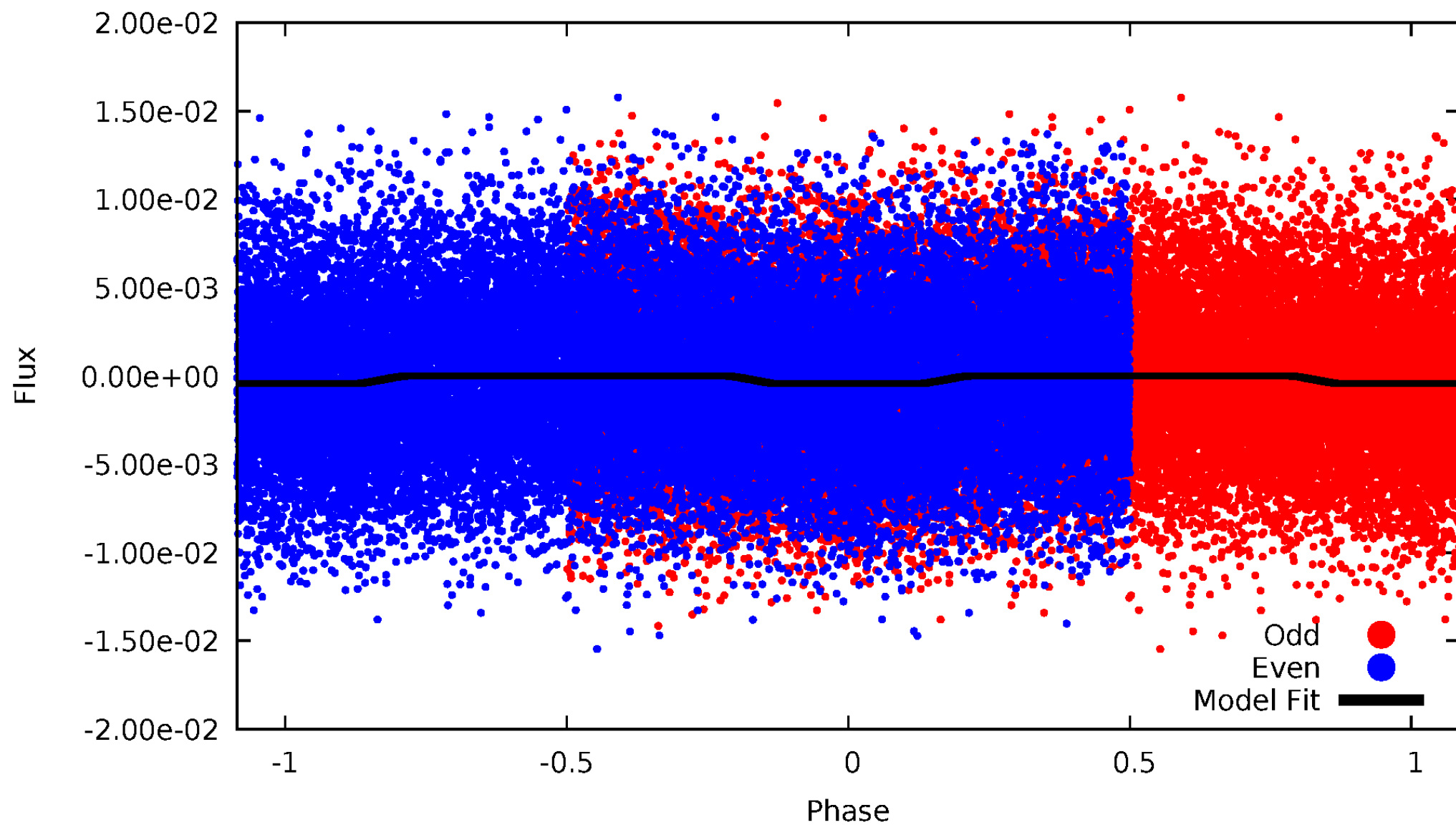
DV Odd/Even

TCE 003744309-02



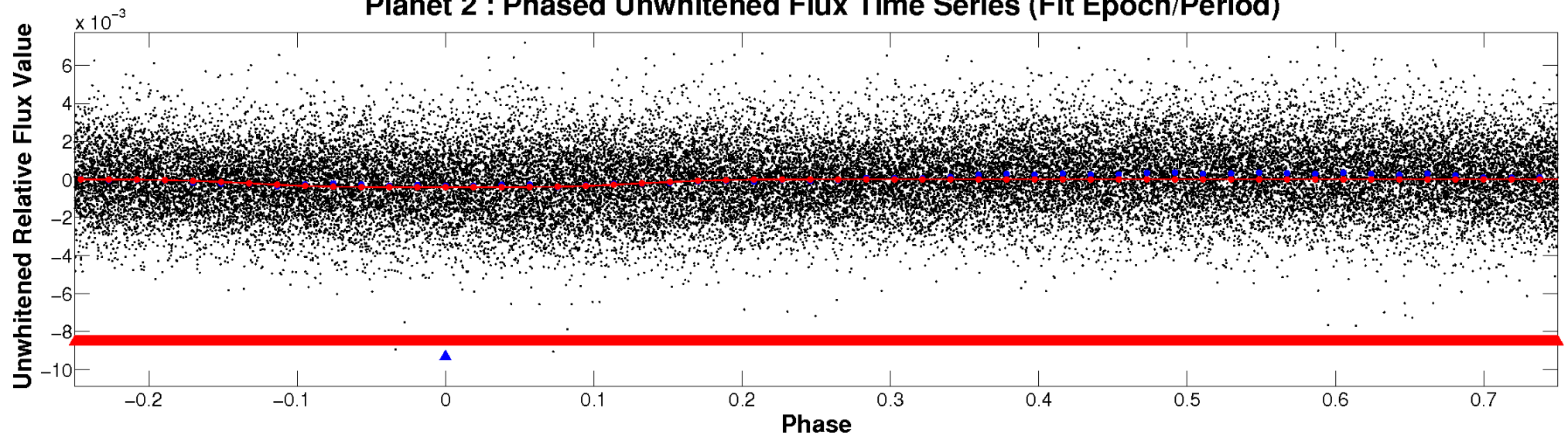
ALT Odd/Even

TCE 003744309-02

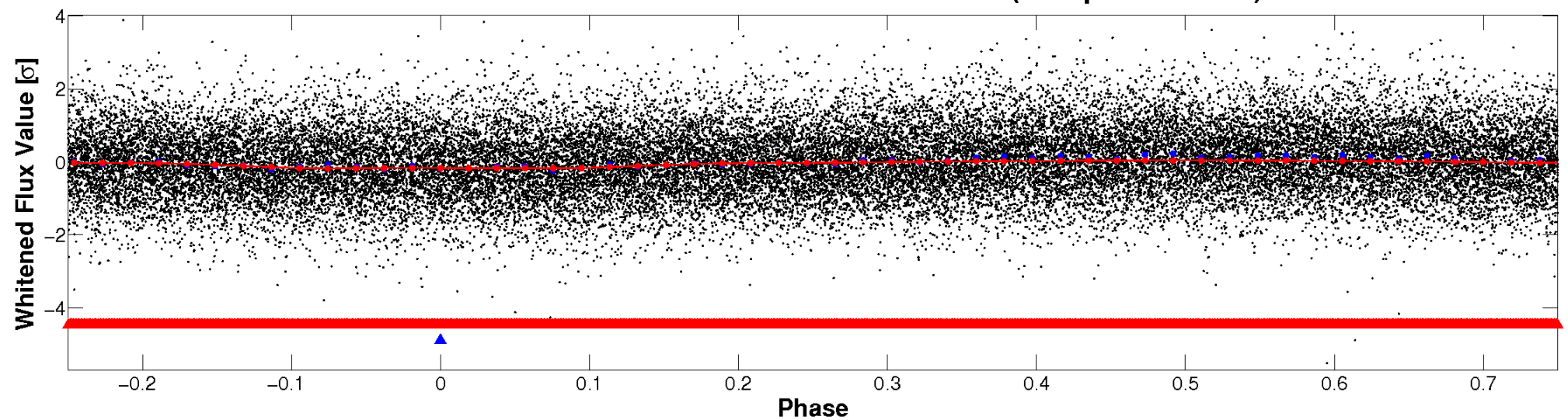


Non-Whitened Vs. Whitened Light Curve

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

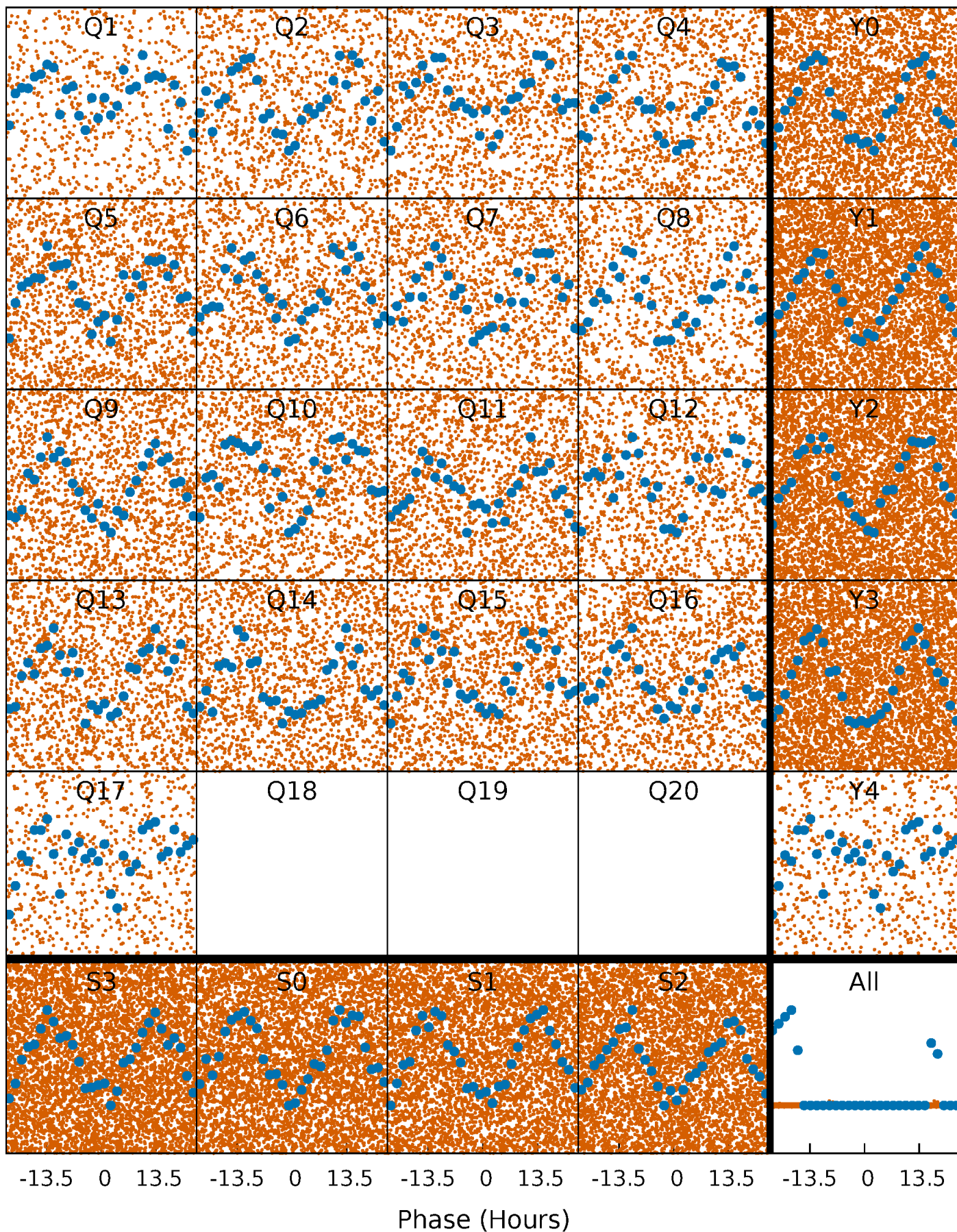


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



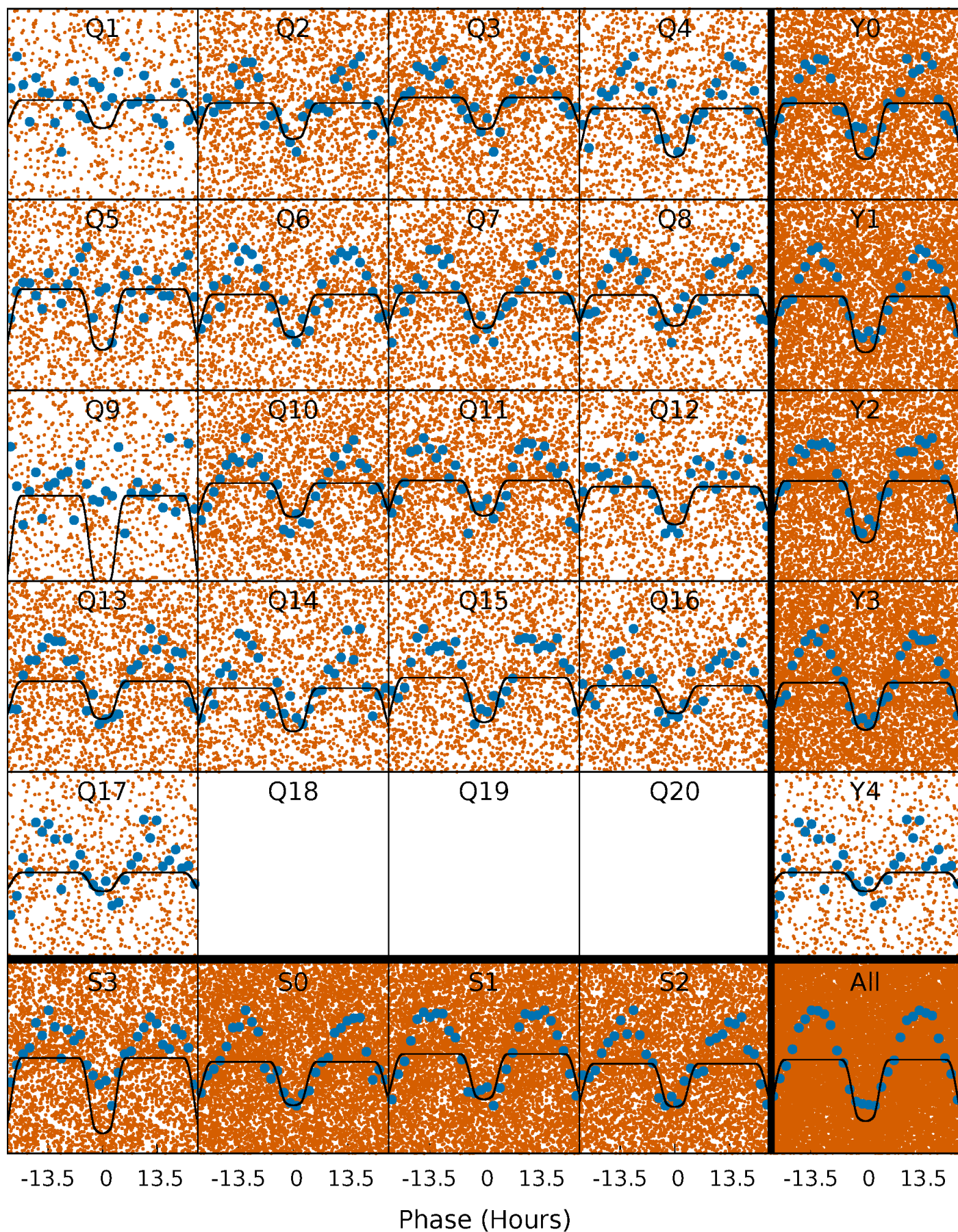
PDC Quarter-Phased Transit Curves

TCE 003744309-02 P= 1.080216 Days $T_0=131.970491$ (BKJD)



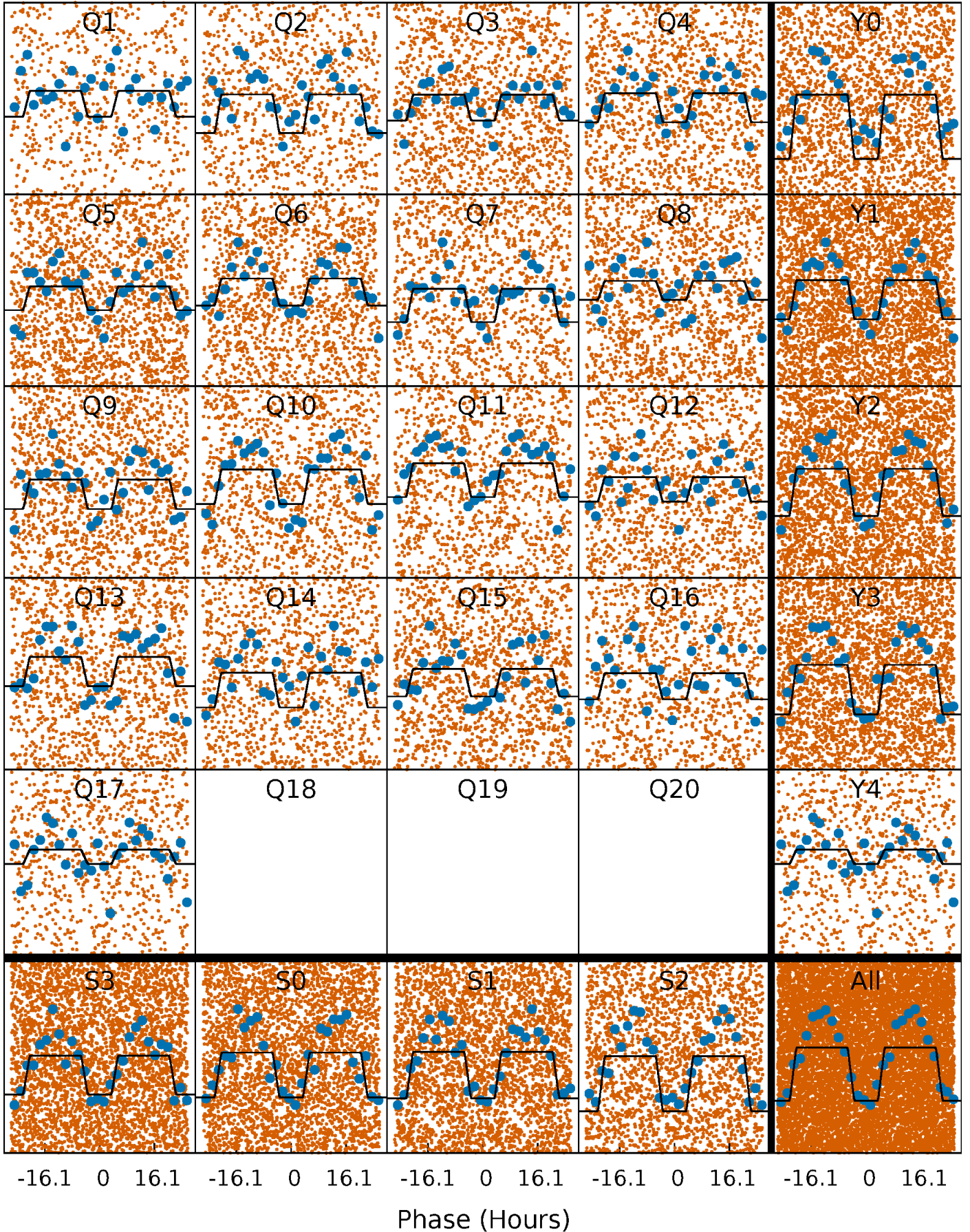
DV Quarter-Phased Transit Curves

TCE 003744309-02 P= 1.080216 Days $T_0=131.970491$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

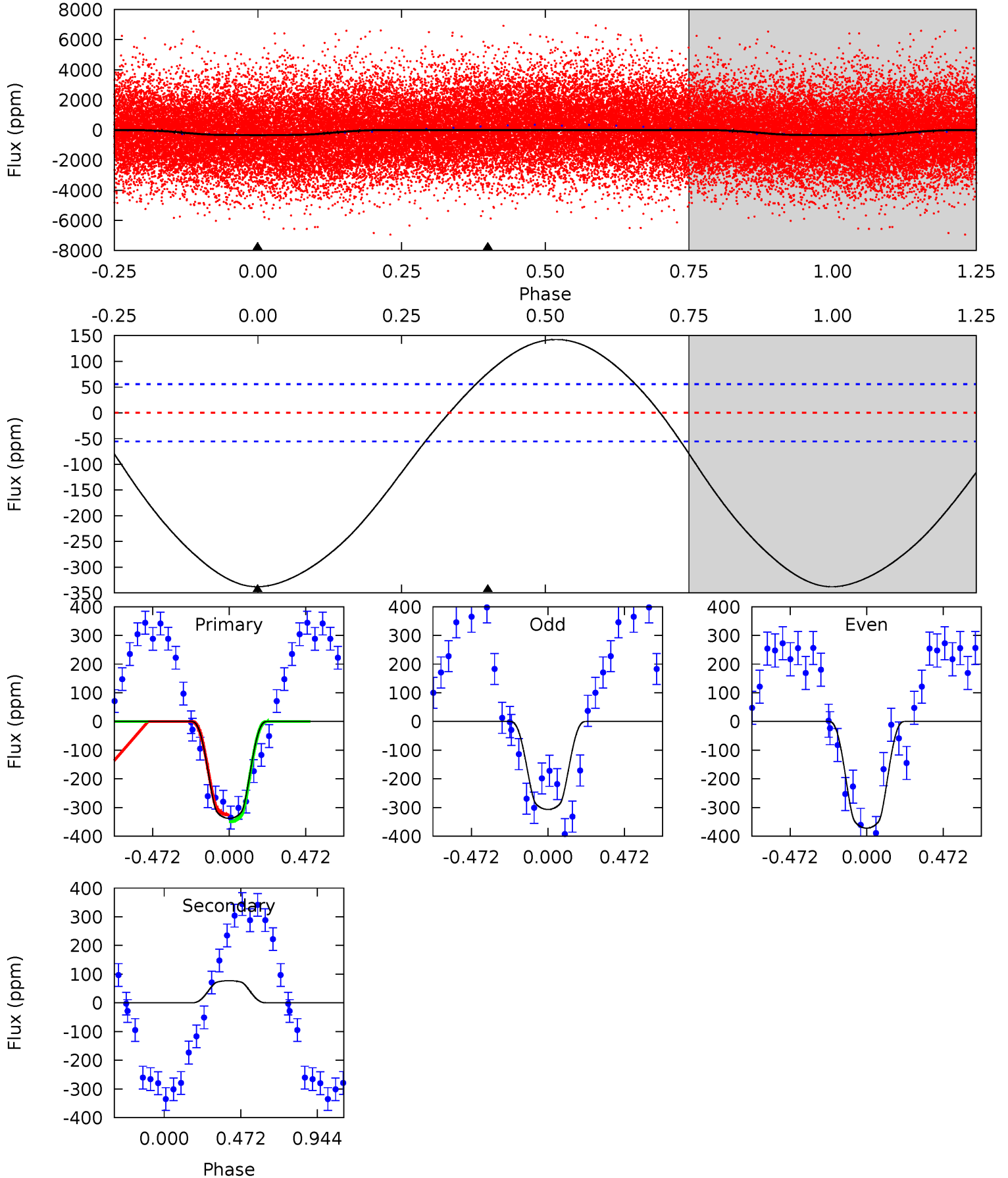
TCE 003744309-02 P= 1.080209 Days $T_0=131.992902$ (BKJD)



DV Model-Shift Uniqueness Test

003744309-02, P = 1.080216 Days, E = 130.890275 Days

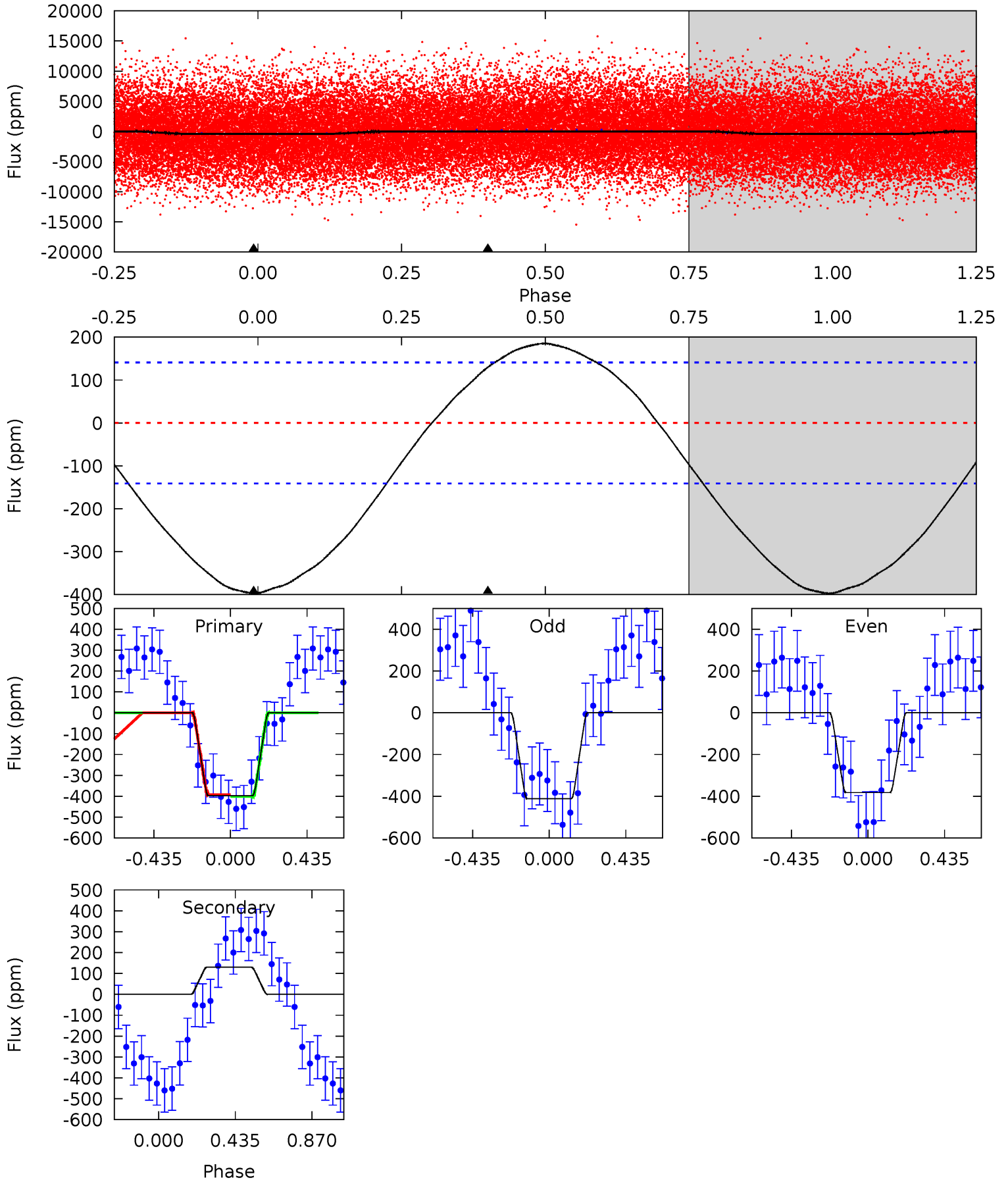
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.7	-5.88	0	0	4.23	0.72	3.27	25.7	25.7	-5.88	-5.88	2.50	0.76	0.30	0.96



Alt Model-Shift Uniqueness Test

003744309-02, P = 1.080209 Days, E = 130.912693 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	-3.91	0	0	4.25	0.78	1.53	12.0	12.0	-3.91	-3.91	0.44	1.04	0.32	0.12



Stellar Parameters For KIC 003744309

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7776^{+217}_{-326}	$3.686^{+0.432}_{-0.081}$	$0.020^{+0.200}_{-0.350}$	$3.435^{+0.706}_{-1.647}$	$2.086^{+0.298}_{-0.511}$	$0.072^{+0.298}_{-0.024}$
	+3%/-4%	+12%/-2%	+1000%/-1750%	+21%/-48%	+14%/-24%	+411%/-33%
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 003744309-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	77 ± 13	$8.29^{+1.25}_{-2.04}$	5266^{+399}_{-647}	-5330^{+267}_{-242}	$-0.438^{+0.120}_{-0.287}$
Alt.	130 ± 33	$7.15^{+1.20}_{-1.66}$	5223^{+447}_{-627}	-6002^{+363}_{-397}	$-0.991^{+0.353}_{-0.684}$

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

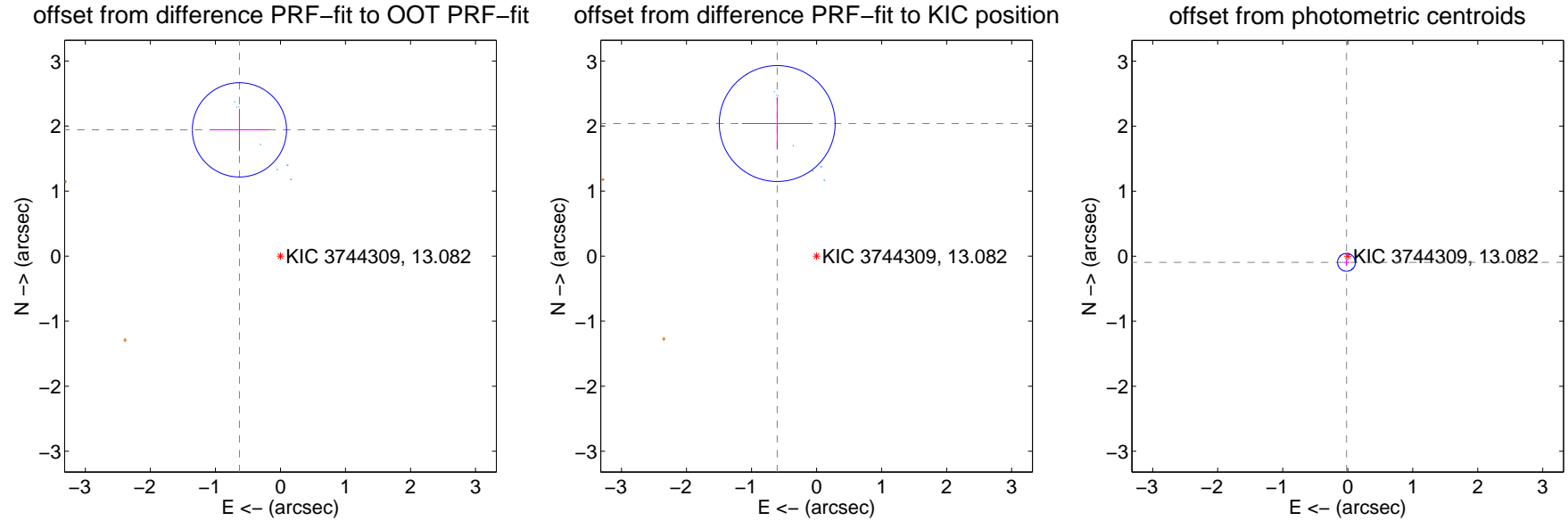
DV Centroid Data

Supplemental centroid analysis for 003744309-02. Kepler magnitude: 13.08. Transit SNR 17.43

There are 7 quarters with good PRF difference image offsets

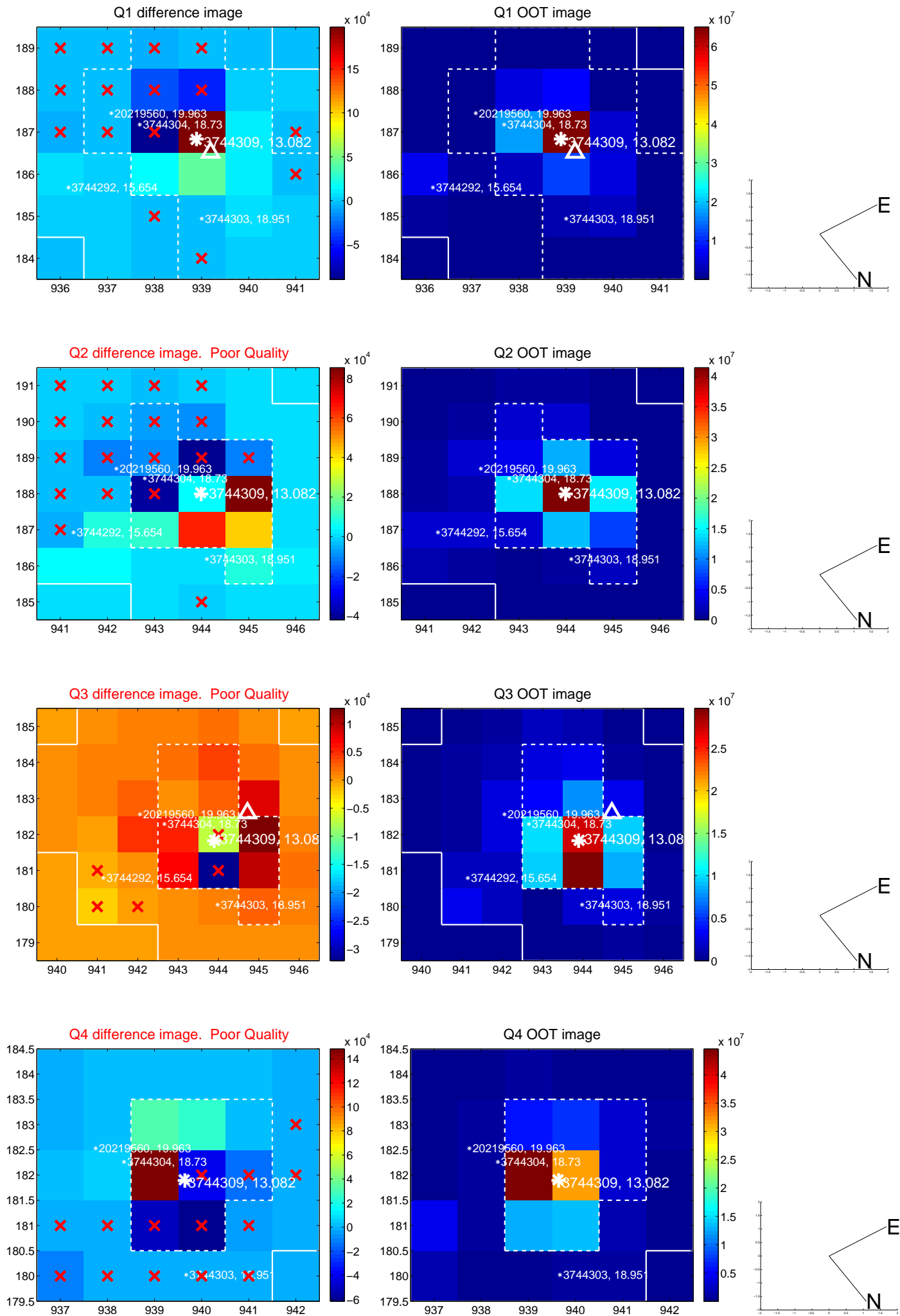
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.042 ± 0.242	8.45	0.631 ± 0.452	1.942 ± 0.326
PRF-fit source offset from KIC position	2.127 ± 0.297	7.16	0.605 ± 0.544	2.039 ± 0.401
photometric centroid source offset	0.10 ± 0.05	2.11	0.02 ± 0.05	-0.09 ± 0.05

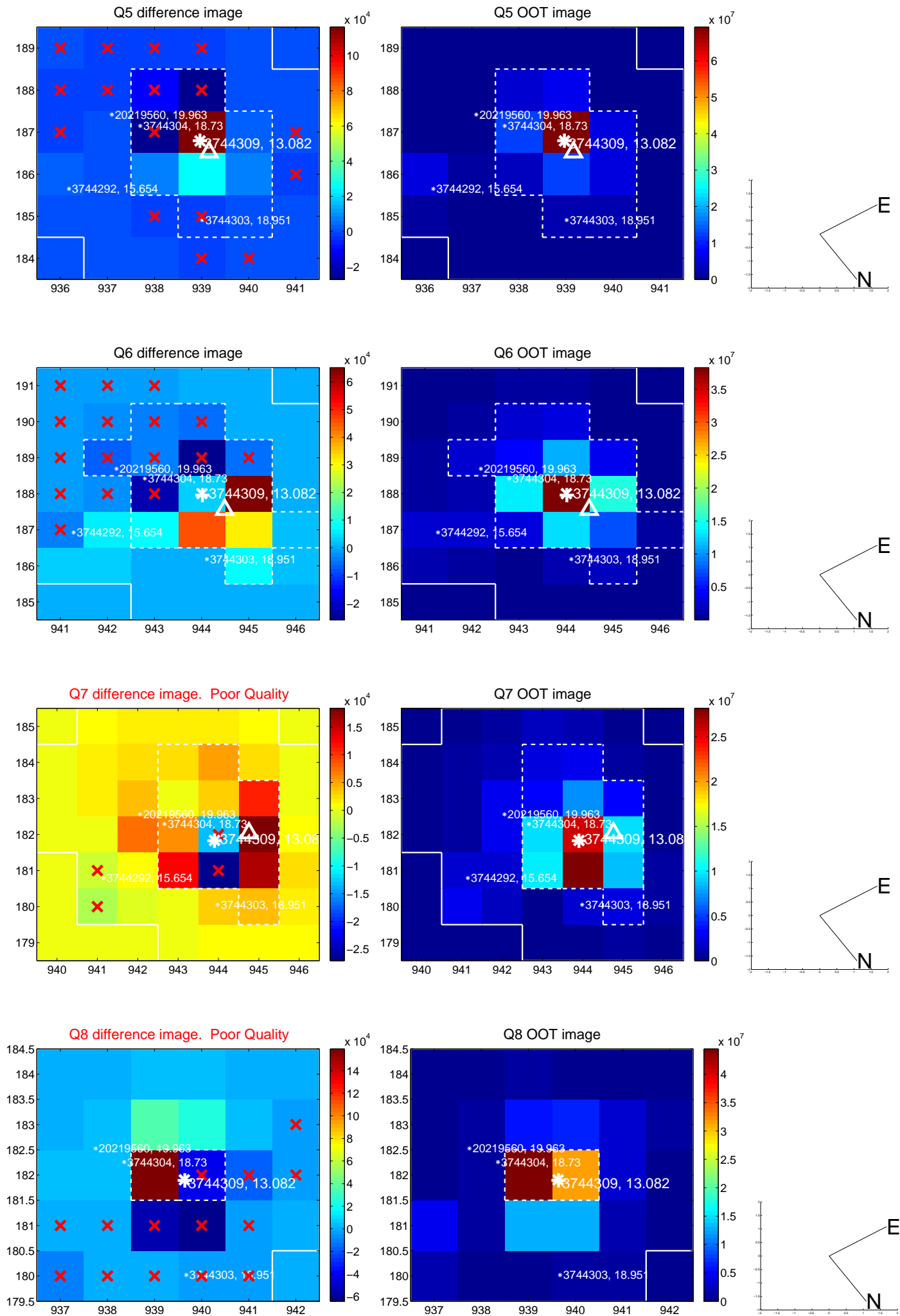


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

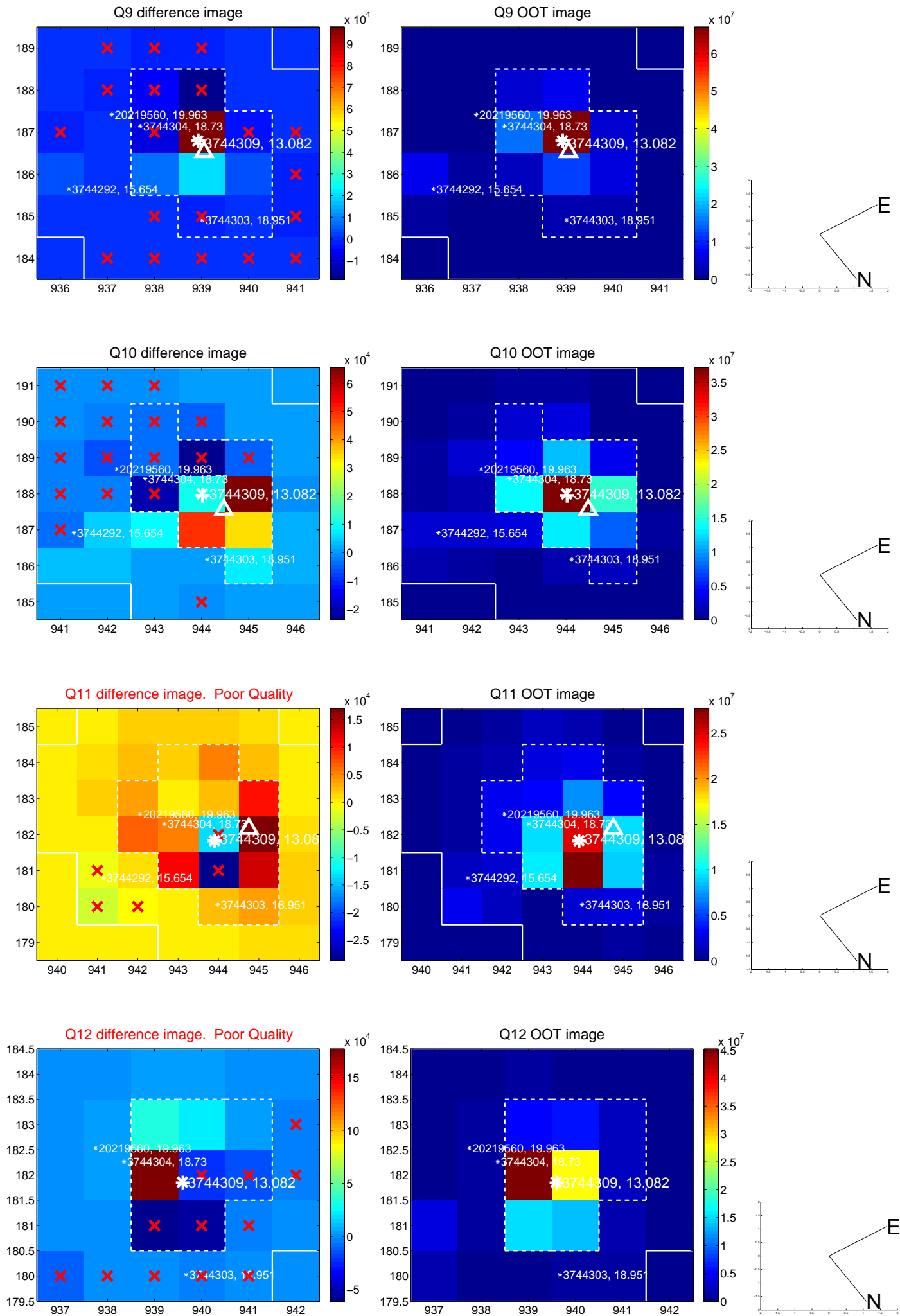
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



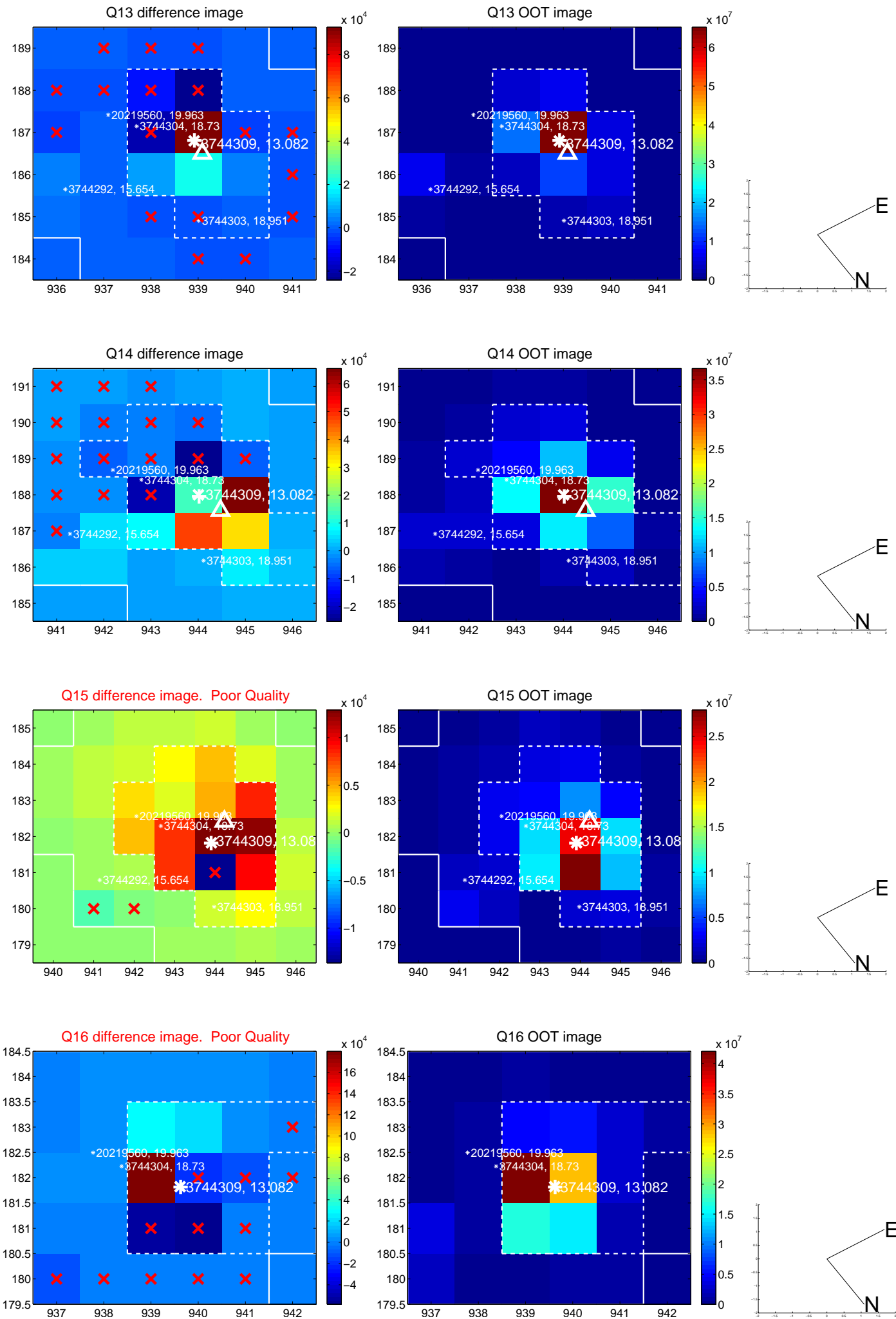
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



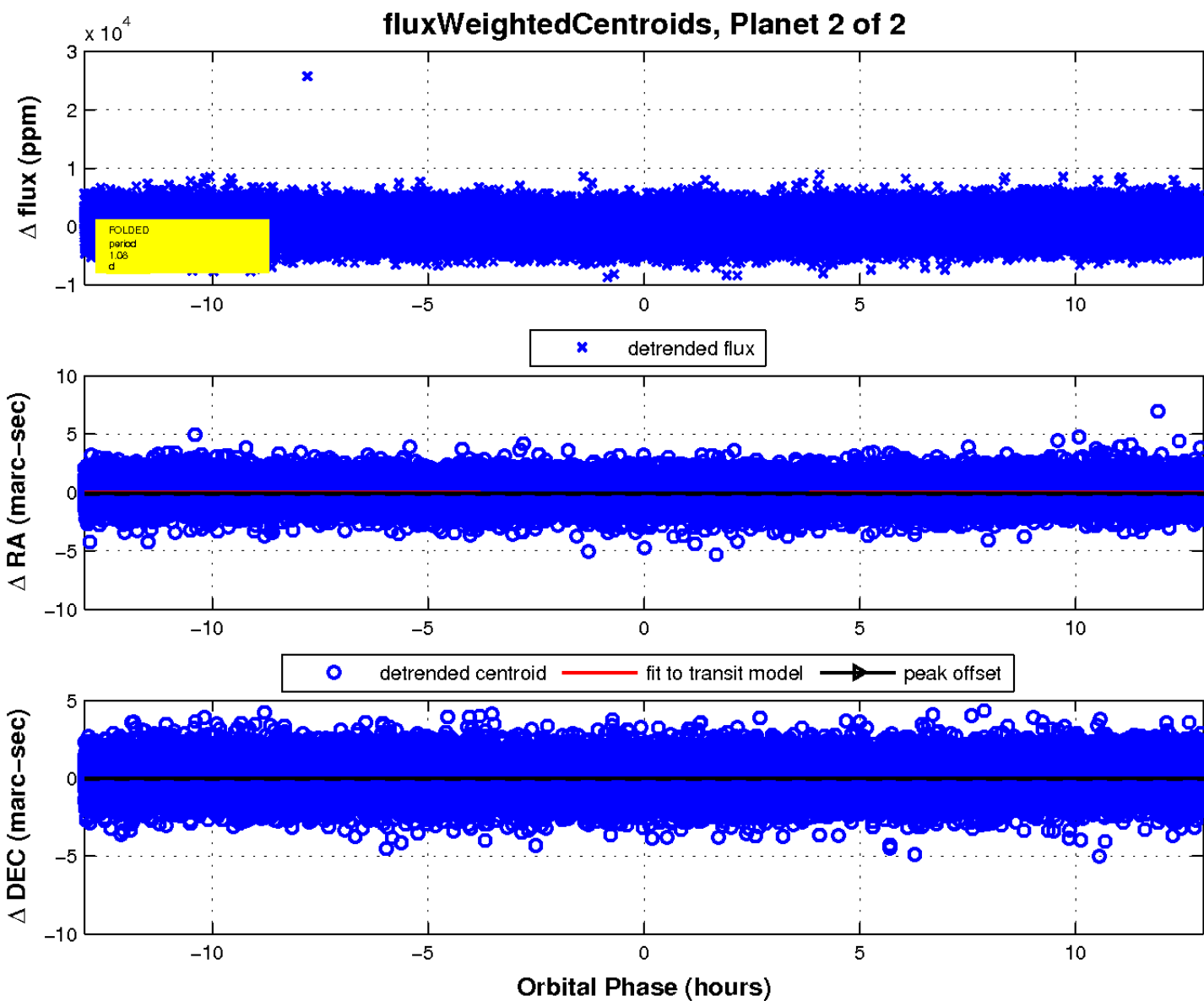
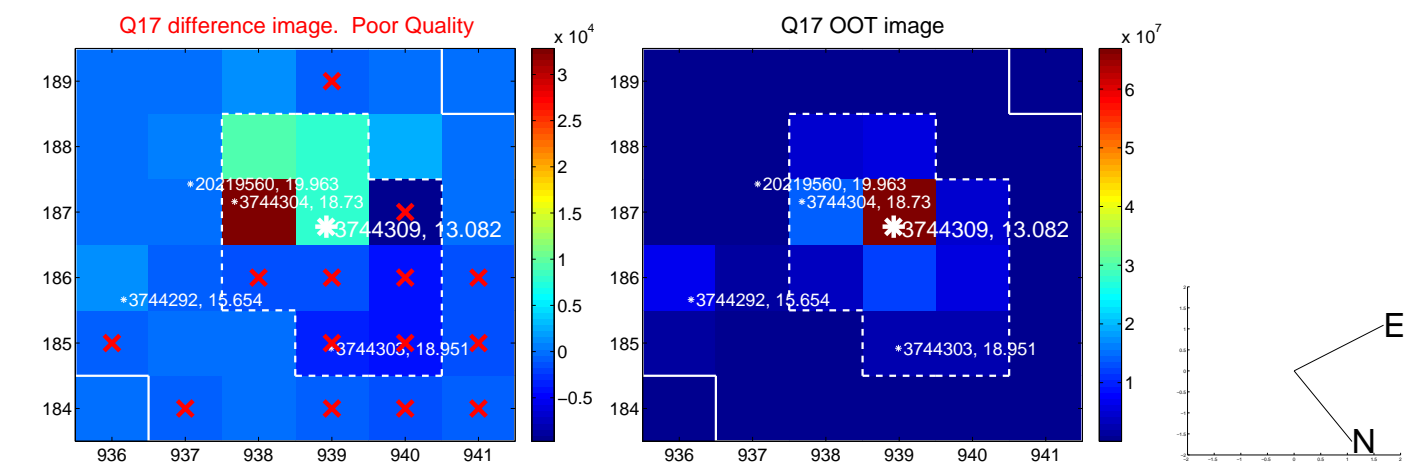
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

