

KIC 008109107

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})
008109107-01	OBS	4501.01	6.674099	136.937638	157.5	4.728	11.5	12.3	1.04	5949	1.77	258.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008109107-01	OBS	FP	0.00	0	0	1	0	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.

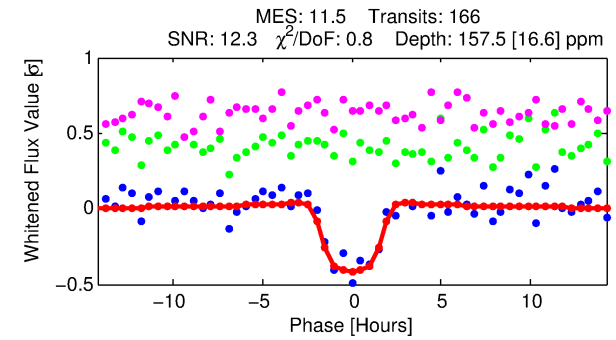
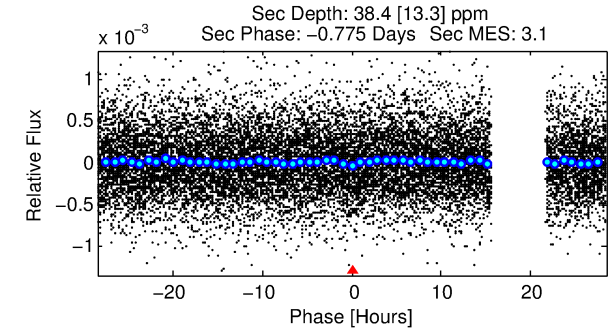
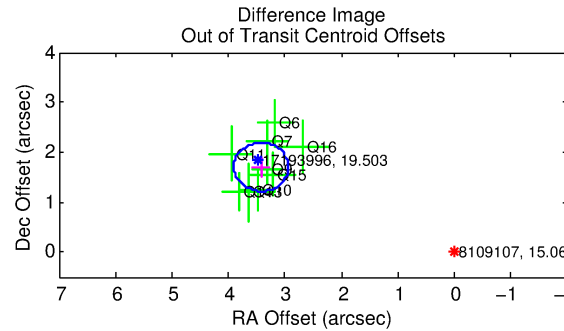
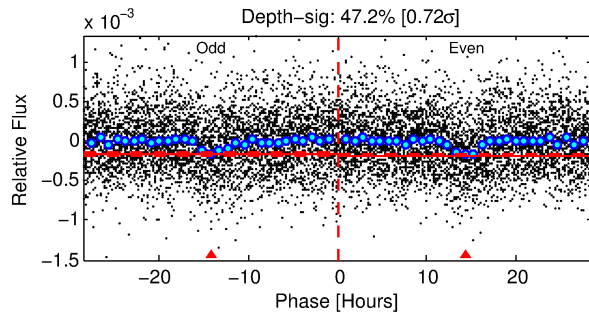
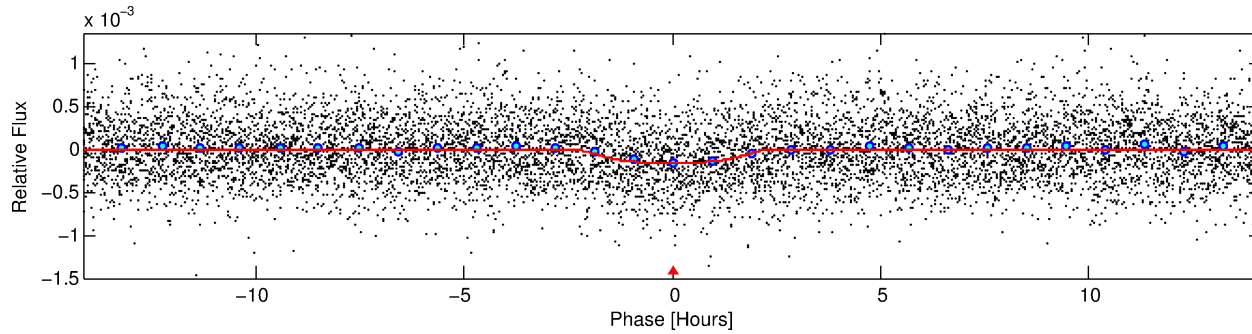
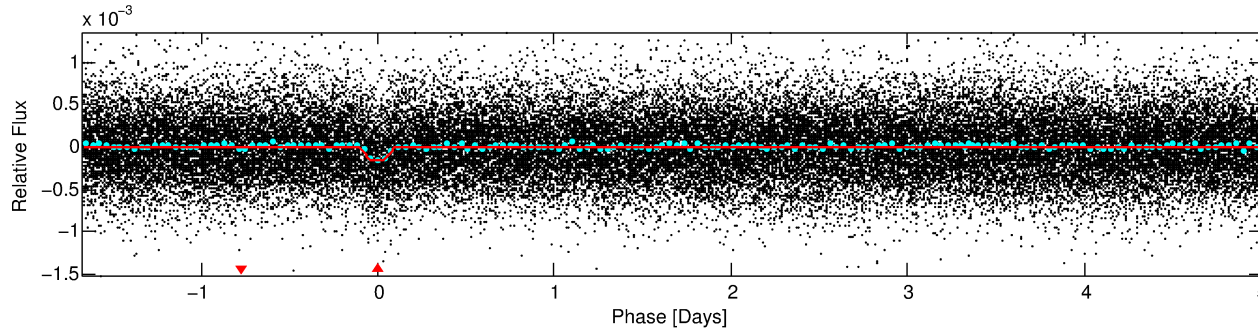
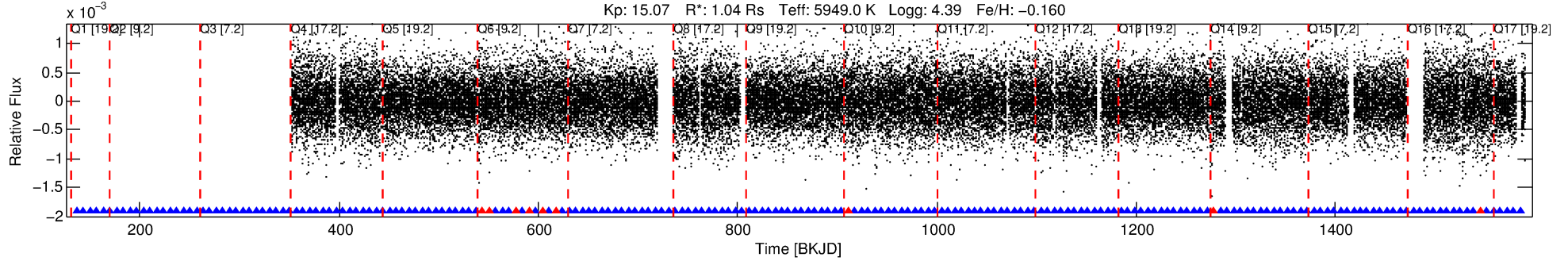
Ephemeris Match Information For 008109107-01

No Significant Match Found

DV One-Page Summary

KIC: 8109107 Candidate: 1 of 1 Period: 6.674 d
KOI: K04501.01 Corr: 0.836

Kp: 15.07 R*: 1.04 Rs Teff: 5949.0 K Logg: 4.39 Fe/H: -0.160



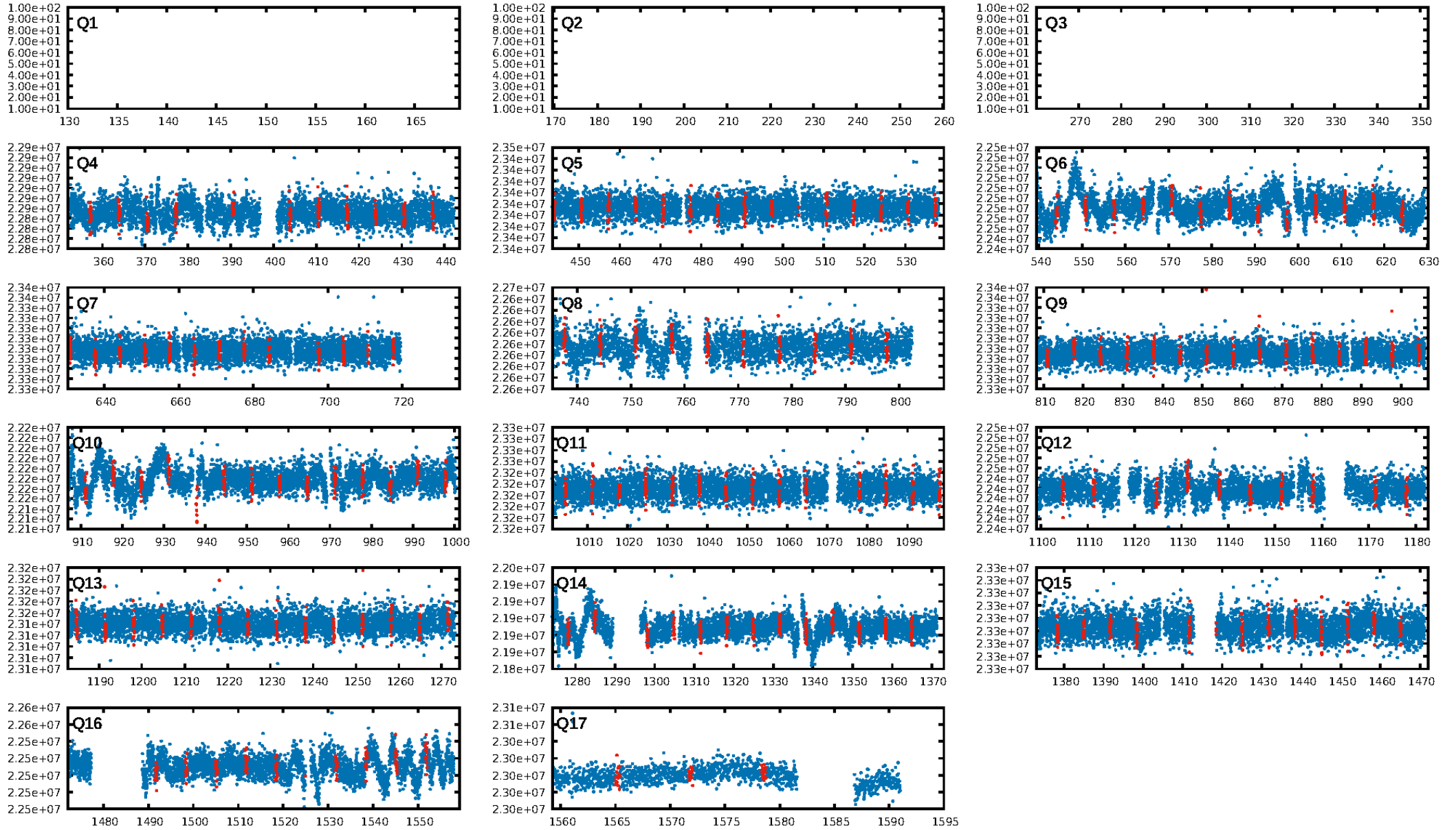
DV Fit Results:

Period = 6.67410 [0.00008] d
Epoch = 136.9376 [0.0107] BKJD
Rp/R* = 0.0156 [0.0012]
a/R* = 3.07 [0.60]
b = 0.98 [0.01]
Seff = 258.10 [96.13]
Teq = 1022 [95] K
Rp = 1.77 [0.53] Re
a = 0.0686 [0.0165] AU
Ag = 31.83 [16.33] [1.89σ]
Teffp = 3753 [380] K [6.98σ]

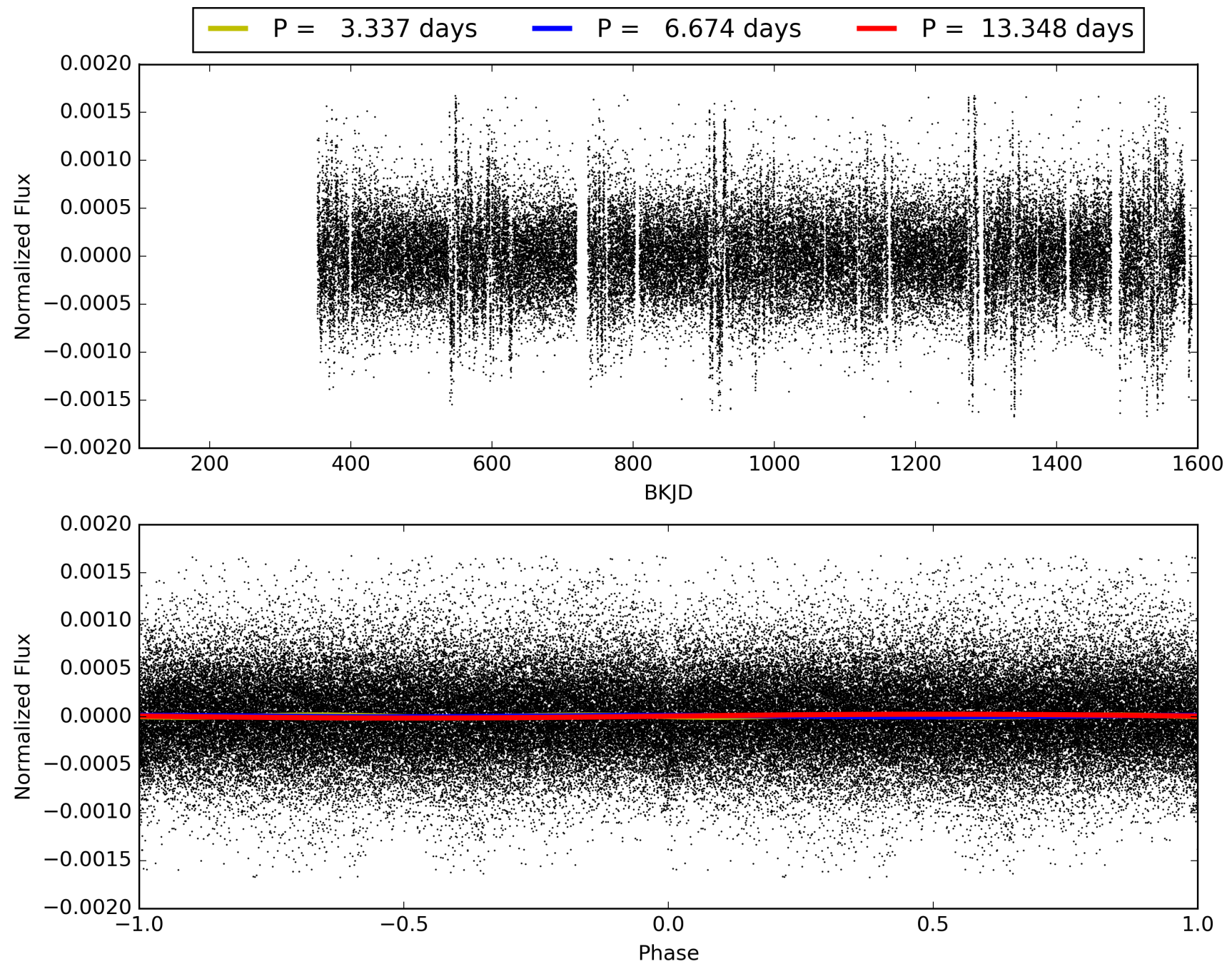
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.23e-29
RollingBand-fgt: 0.94 [154/163]
GhostDiagnostic-chr: 1.274
Centroid-sig: 0.0%
Centroid-so: 4.140 arcsec [3.84σ]
OotOffset-rm: 3.824 arcsec [23.72σ]
KicOffset-rm: 4.049 arcsec [25.57σ]
OotOffset-st: 3/3/1/2 [9]
KicOffset-st: 3/3/1/2 [9]
DiffImageQuality-fgm: 0.89 [8/9]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 008109107-01, PDC Light Curves

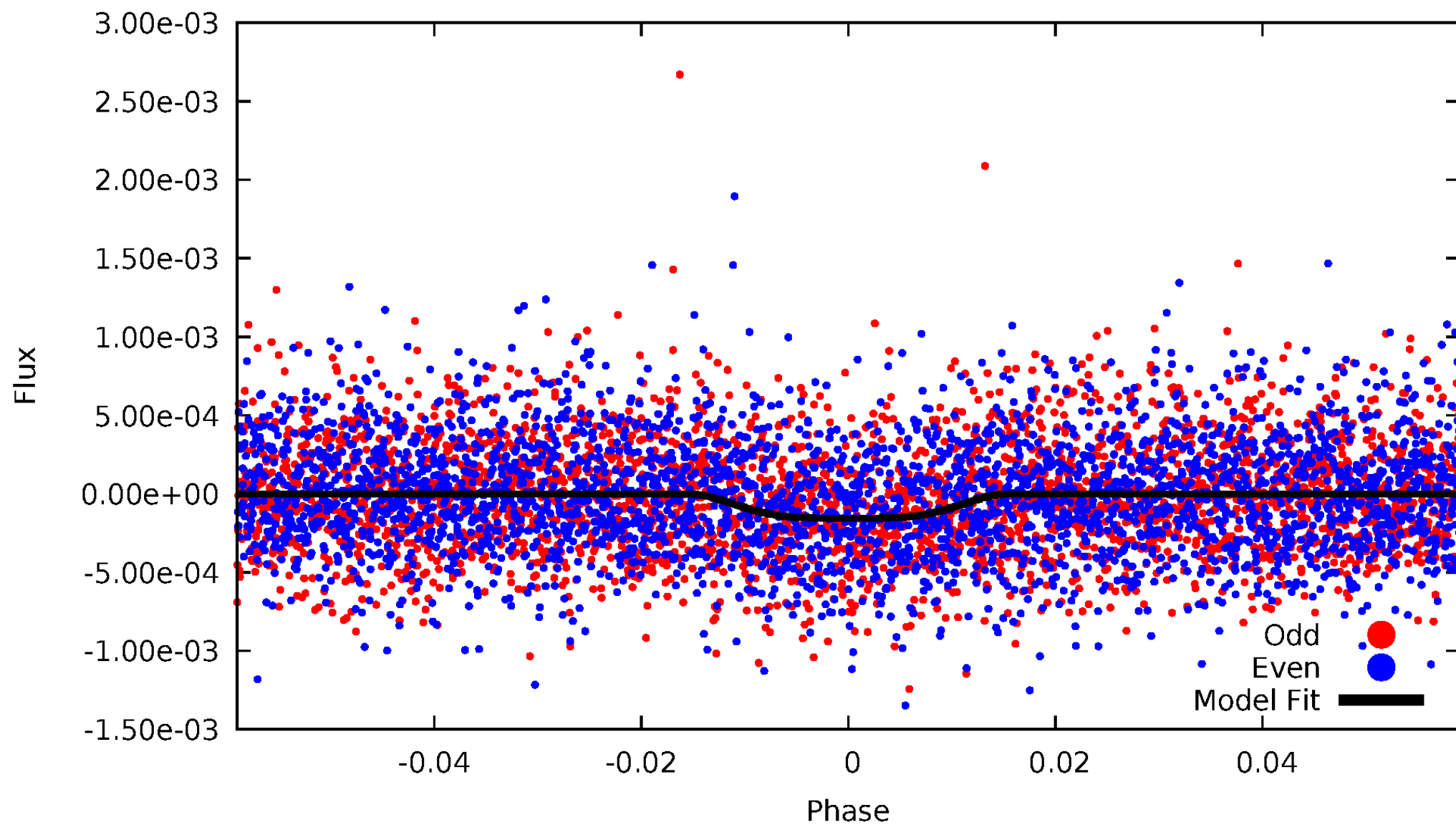


TCE 008109107-01



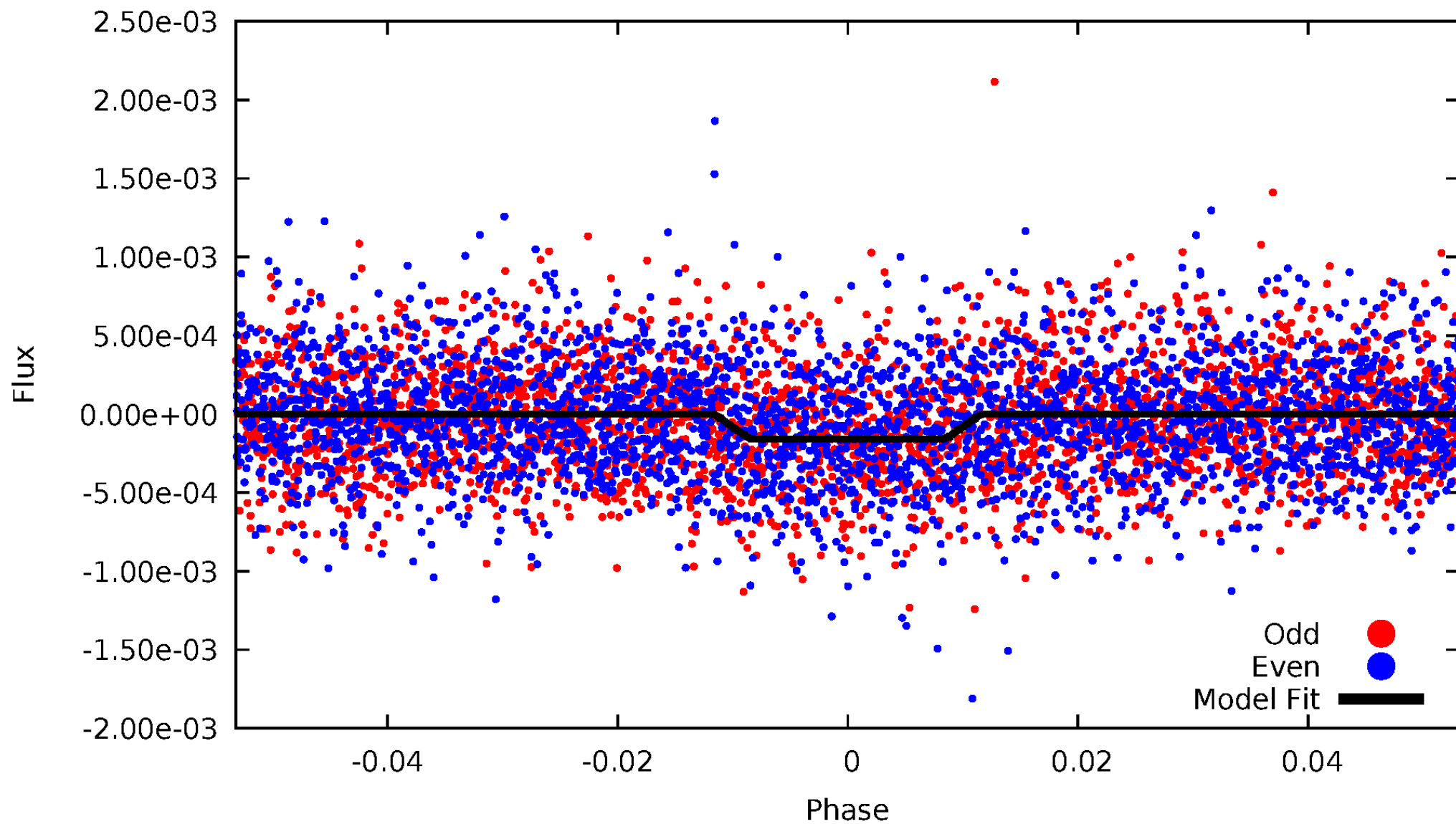
DV Odd/Even

TCE 008109107-01



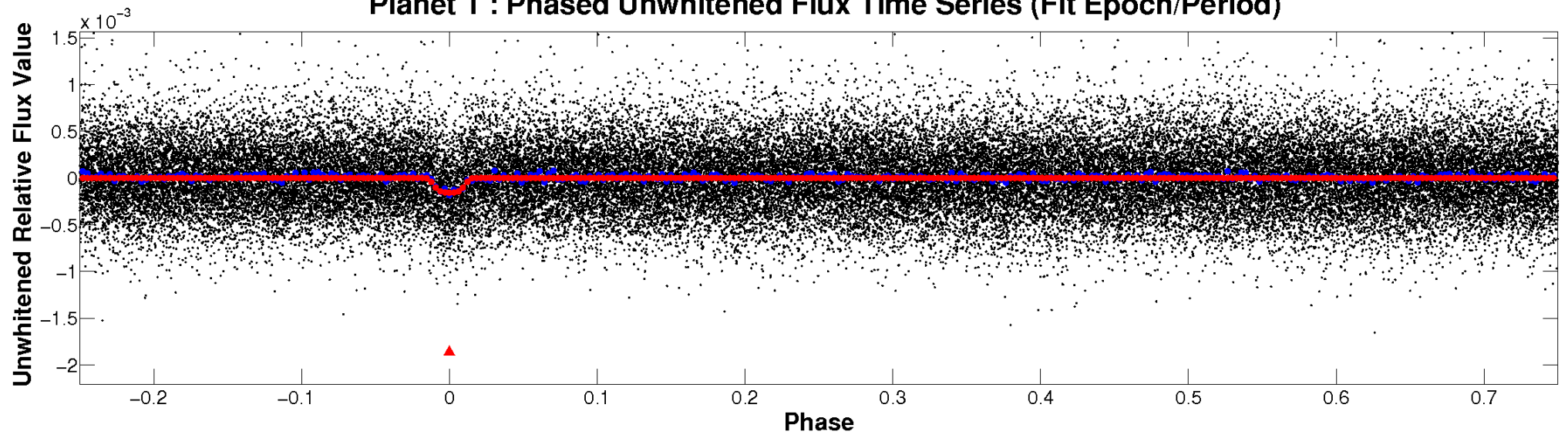
ALT Odd/Even

TCE 008109107-01

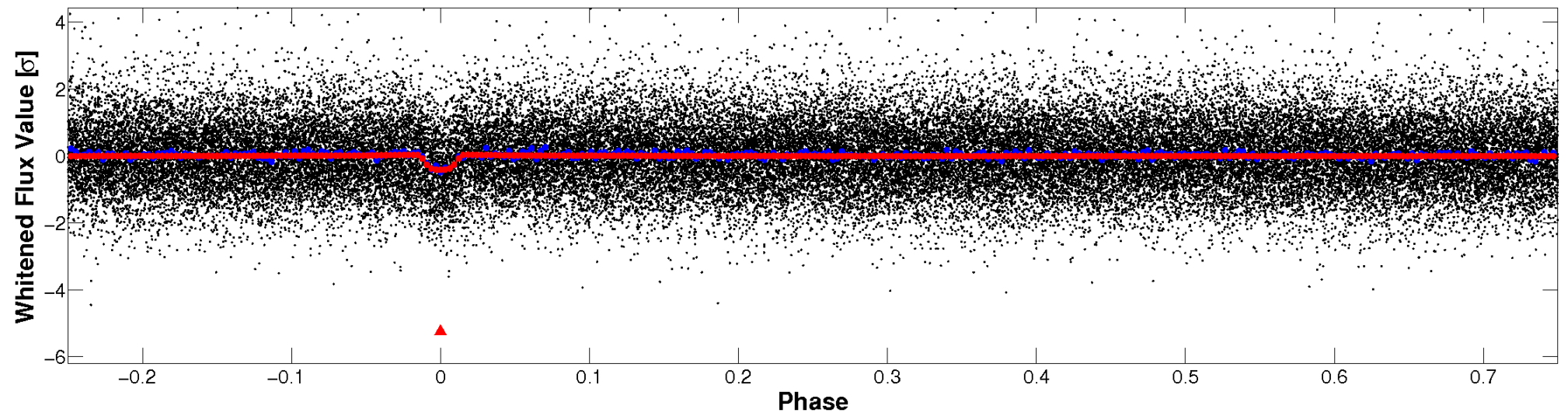


Non-Whitened Vs. Whitened Light Curve

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

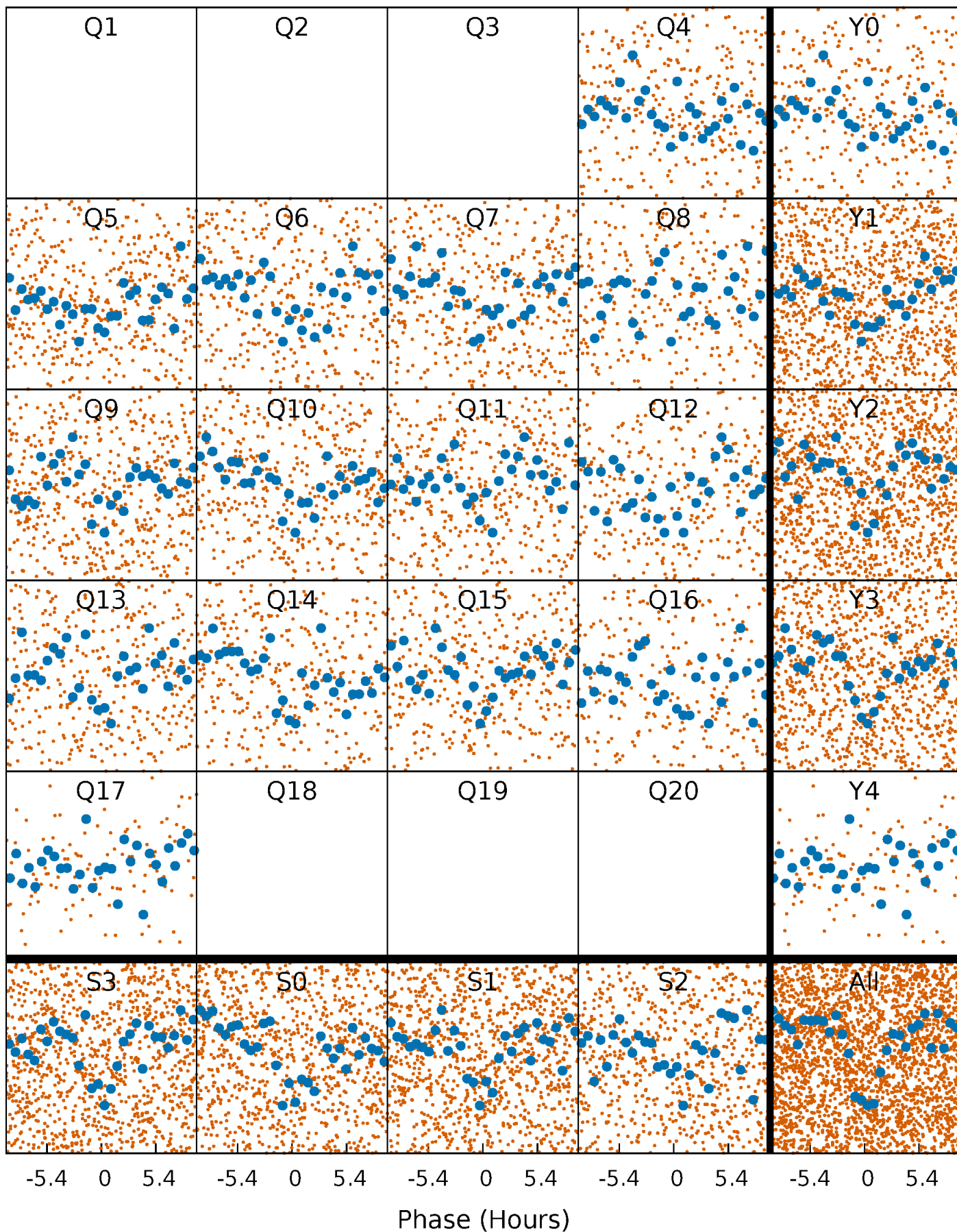


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



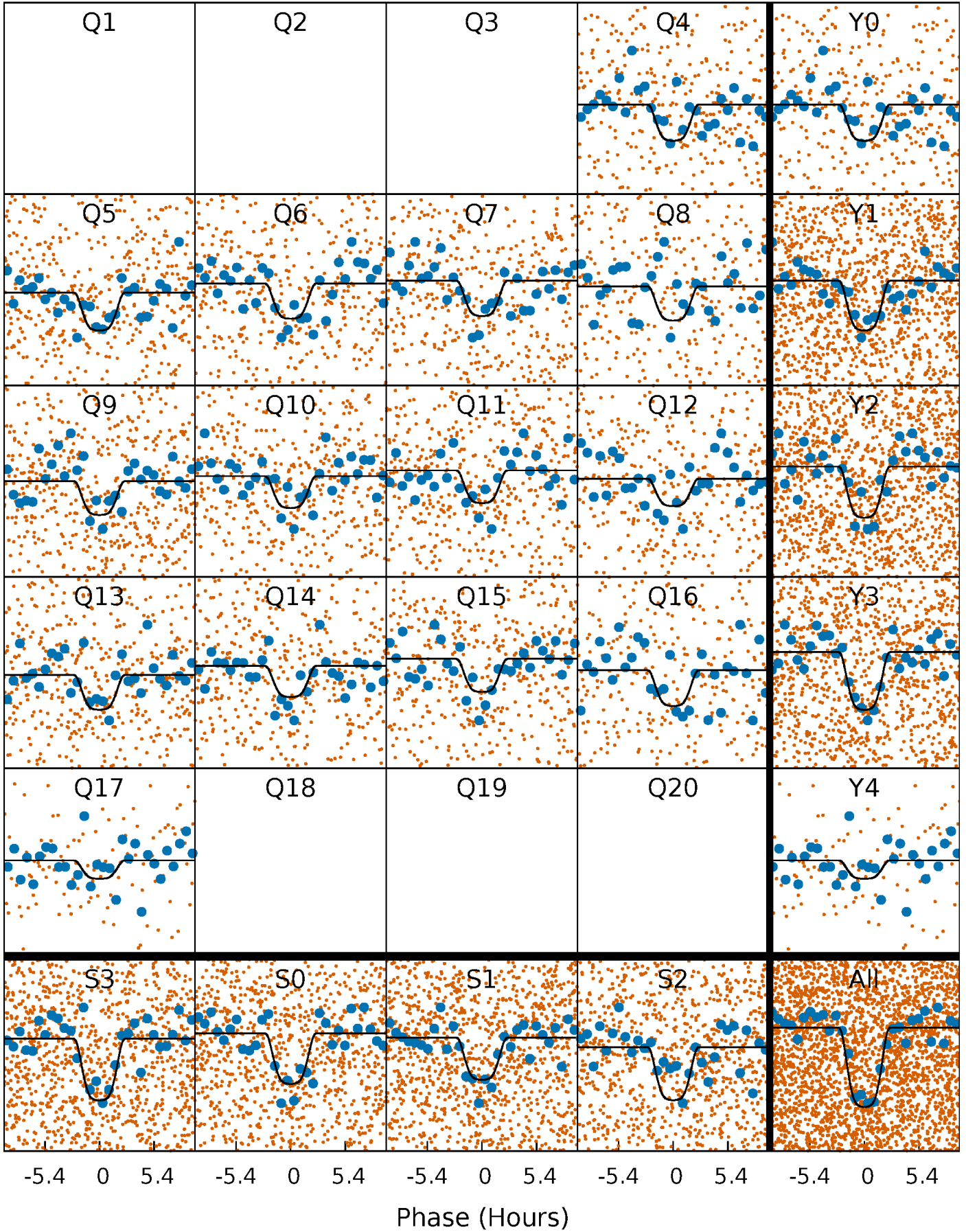
PDC Quarter-Phased Transit Curves

TCE 008109107-01 P= 6.674099 Days $T_0=136.937638$ (BKJD)



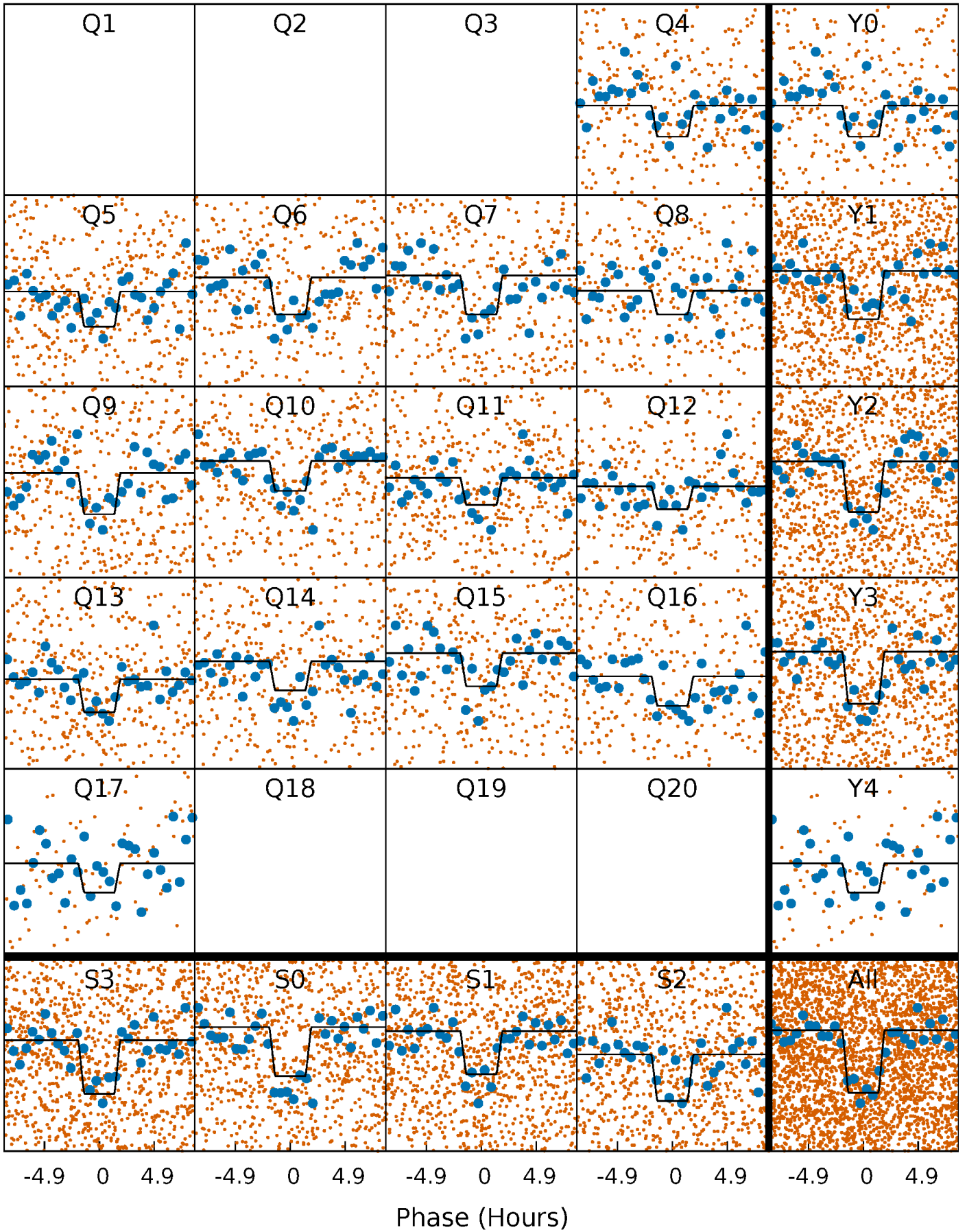
DV Quarter-Phased Transit Curves

TCE 008109107-01 P= 6.674099 Days $T_0=136.937638$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

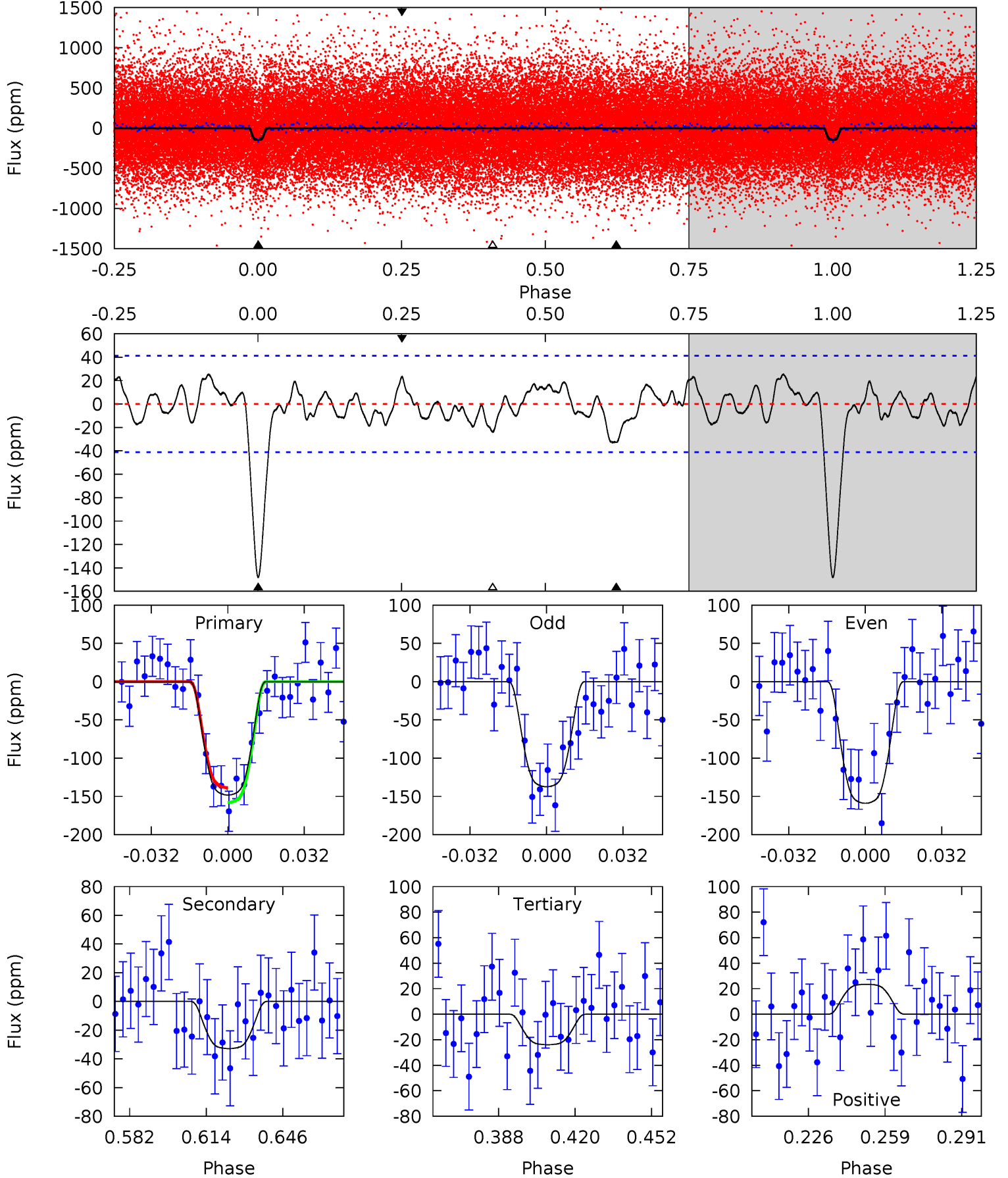
TCE 008109107-01 P= 6.674083 Days $T_0=136.943320$ (BKJD)



DV Model-Shift Uniqueness Test

008109107-01, P = 6.674099 Days, E = 136.937638 Days

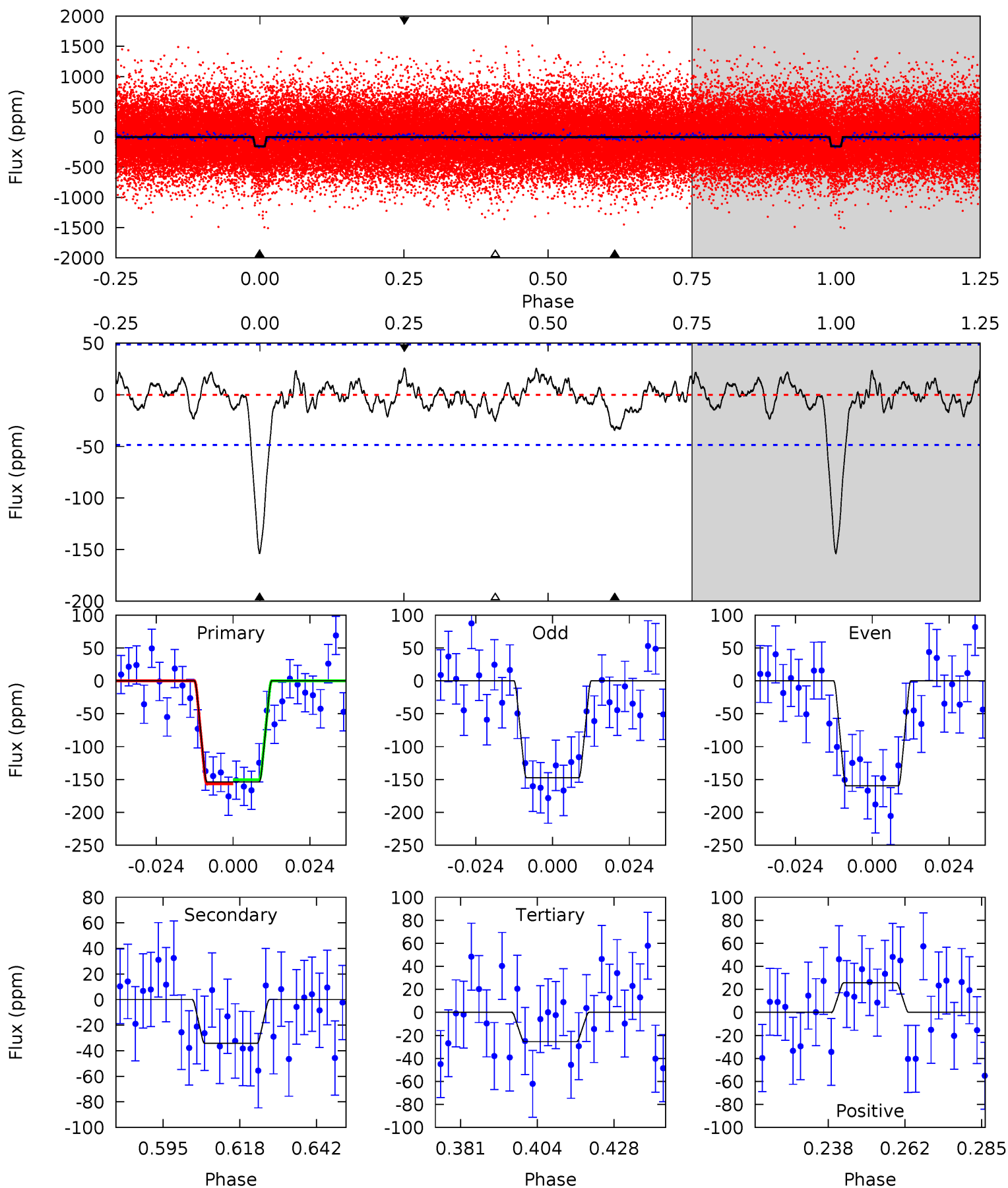
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	3.82	2.78	2.73	4.80	2.14	1.26	14.5	14.5	1.04	1.09	1.26	0.95	0.15	1.13



Alt Model-Shift Uniqueness Test

008109107-01, P = 6.674083 Days, E = 136.943320 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	3.42	2.54	2.57	4.86	2.26	1.00	12.8	12.8	0.88	0.84	0.60	0.96	0.14	0.32



Stellar Parameters For KIC 008109107

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5949^{+188}_{-208}	$4.389^{+0.124}_{-0.186}$	$-0.160^{+0.300}_{-0.300}$	$1.041^{+0.303}_{-0.163}$	$0.968^{+0.145}_{-0.119}$	$1.209^{+0.674}_{-0.581}$
	+3%/-3%	+3%/-4%	+188%/-188%	+29%/-16%	+15%/-12%	+56%/-48%
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 008109107-01 / KOI 4501.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-33 ± 9	$1.78^{+0.28}_{-0.23}$	1429^{+103}_{-84}	3923^{+231}_{-243}	25^{+13}_{-8}
Alt.	-34 ± 10	$1.45^{+0.27}_{-0.21}$	1439^{+100}_{-85}	4283^{+300}_{-304}	41^{+21}_{-16}

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 $A_{obs} \gg 1.0$

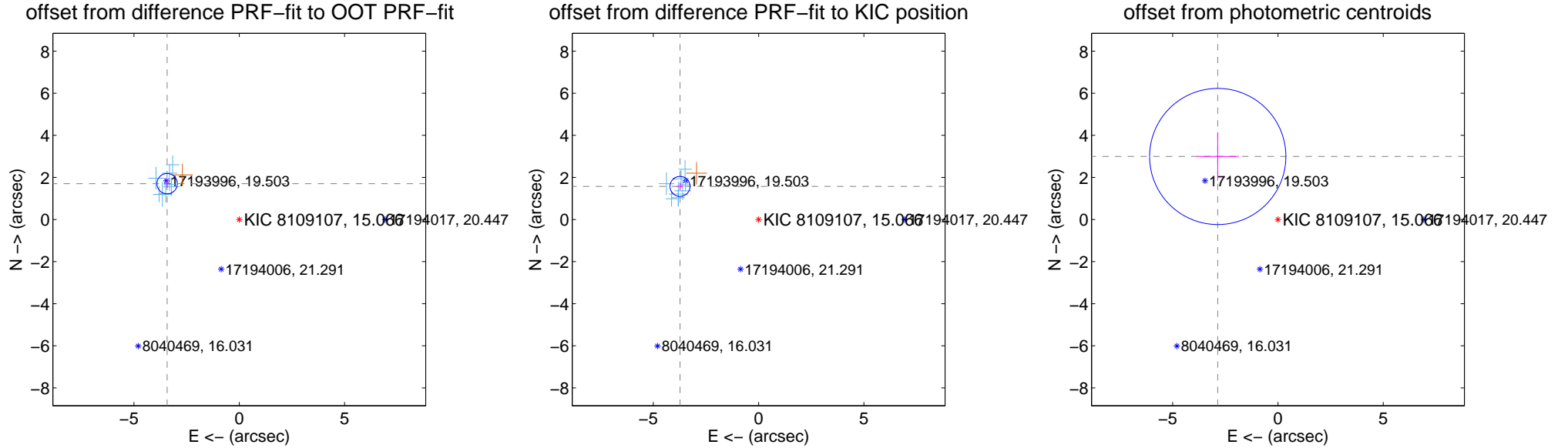
DV Centroid Data

Supplemental centroid analysis for 008109107-01. Kepler magnitude: 15.07. Transit SNR 12.30

There are 8 quarters with good PRF difference image offsets

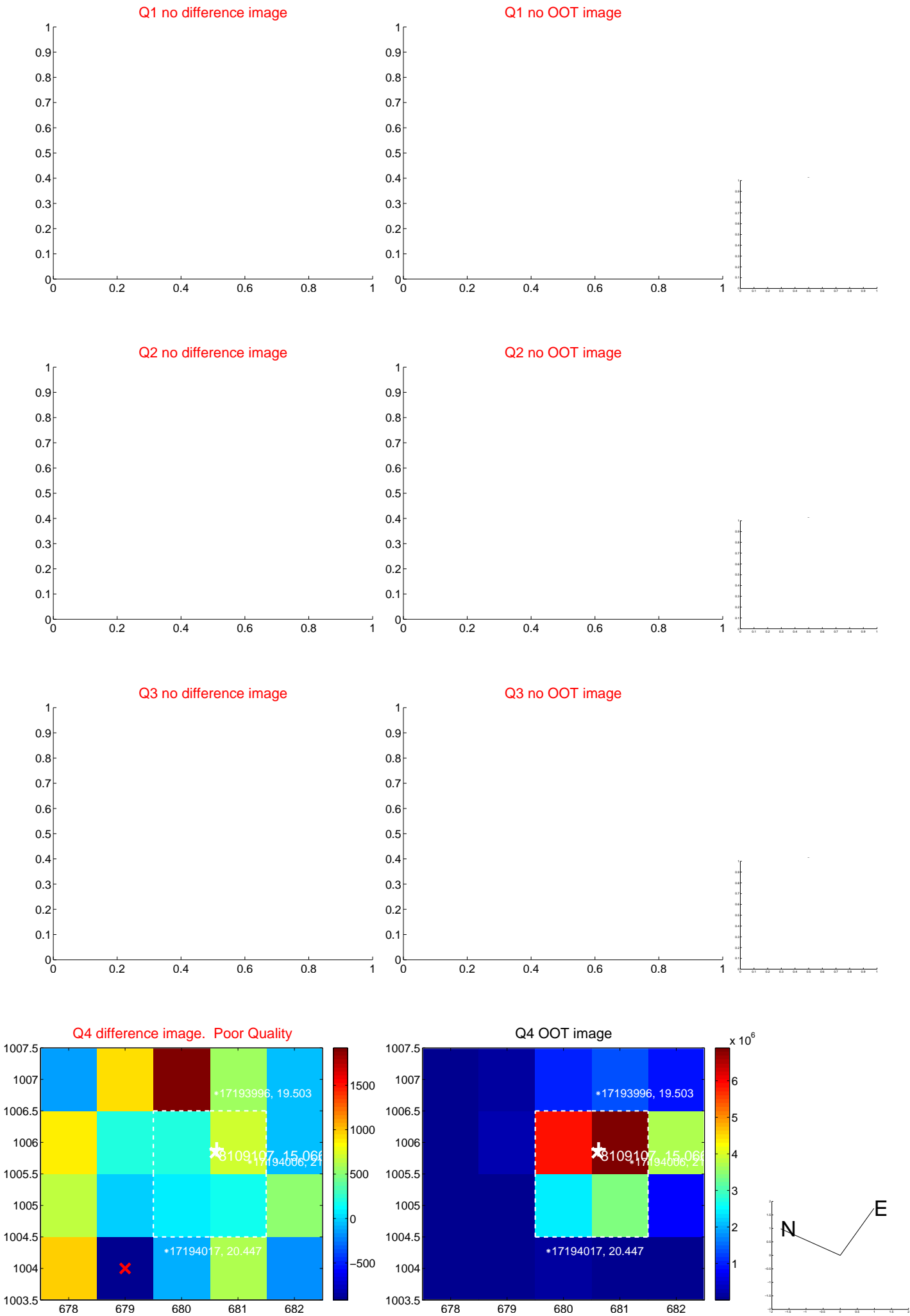
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.824 ± 0.161	23.72	3.424 ± 0.153	1.703 ± 0.190
PRF-fit source offset from KIC position	4.049 ± 0.158	25.57	3.731 ± 0.151	1.573 ± 0.193
photometric centroid source offset	4.14 ± 1.08	3.84	2.86 ± 0.99	2.99 ± 1.15

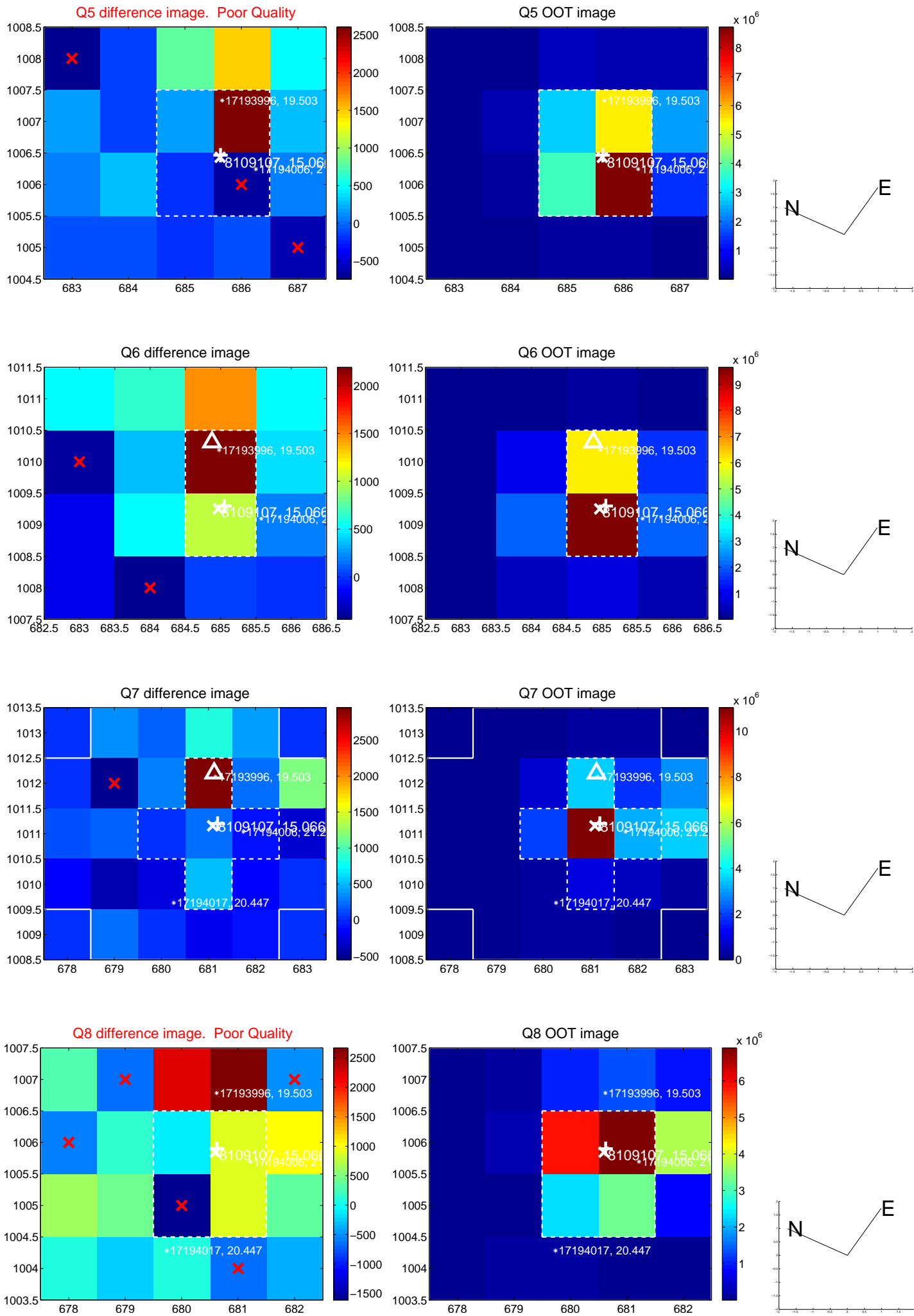


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

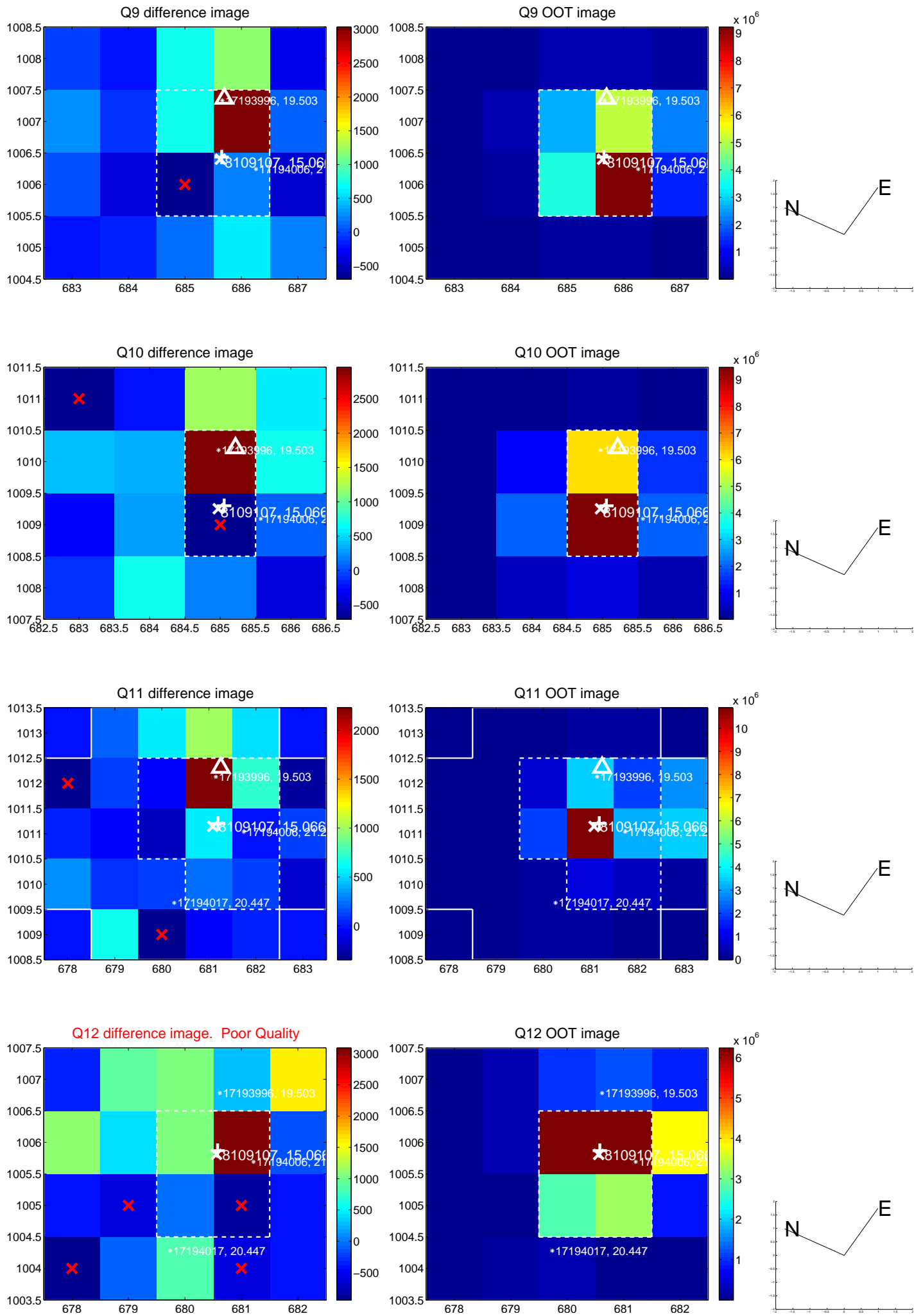
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



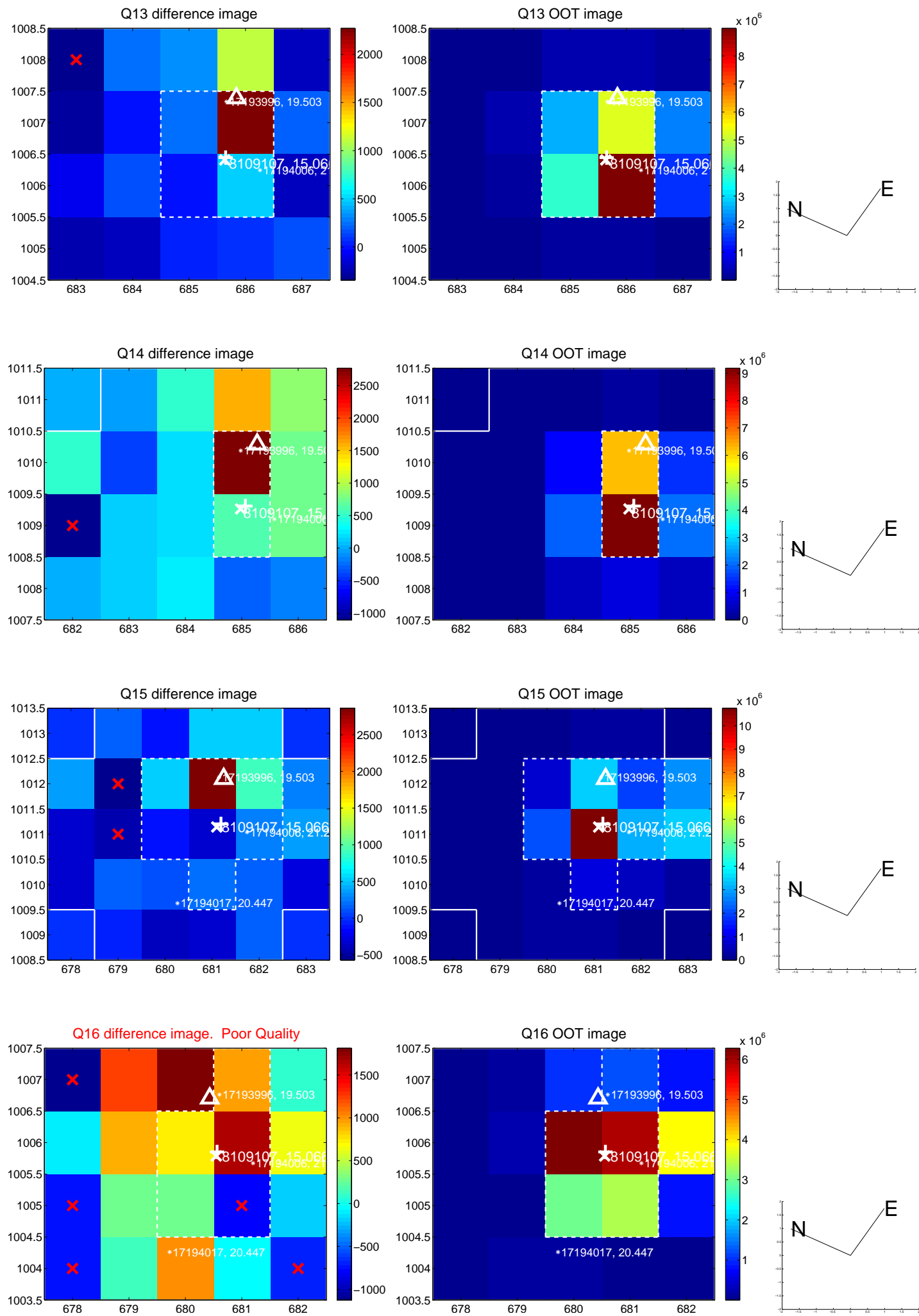
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



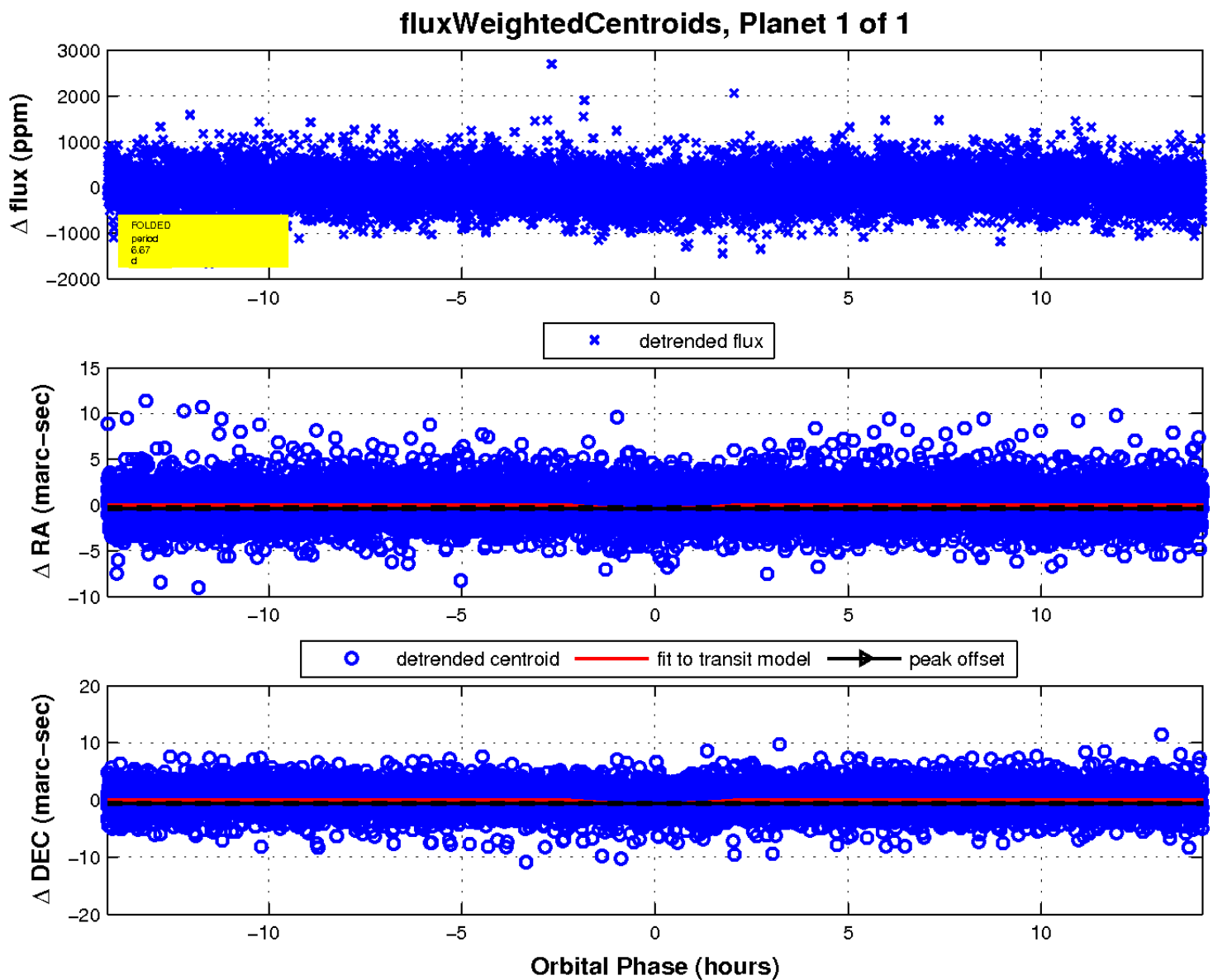
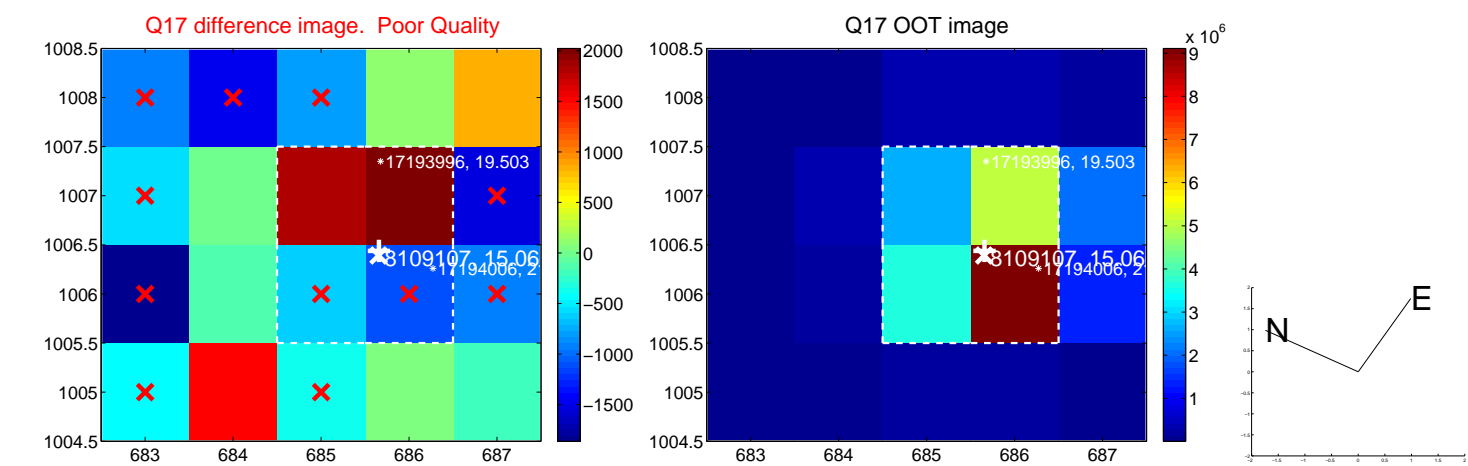
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

