

KIC 008409588

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})
008409588-01	OBS	0690.01	1.360832	131.606926	1382.8	1.276	280.7	256.3	0.87	6215	3.83	1797.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008409588-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT

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

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

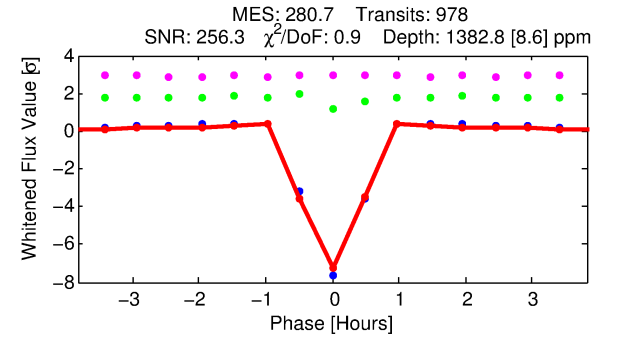
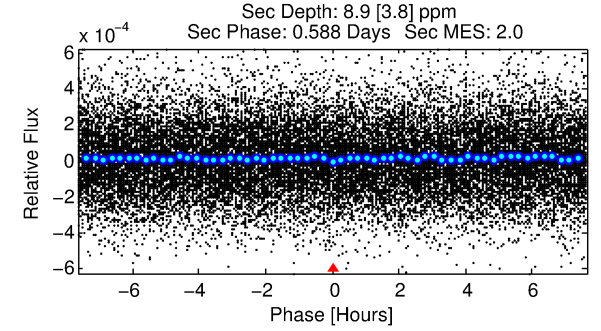
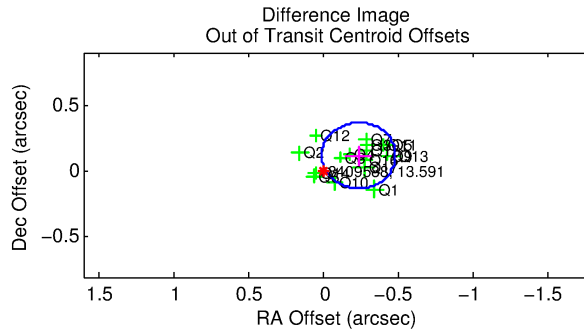
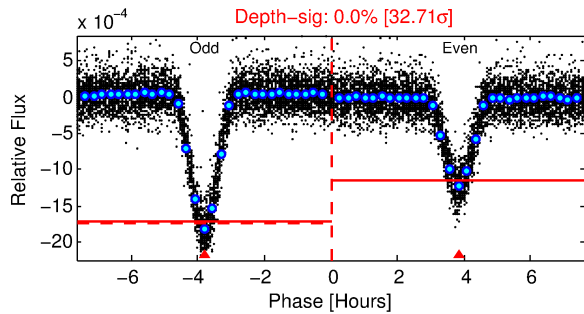
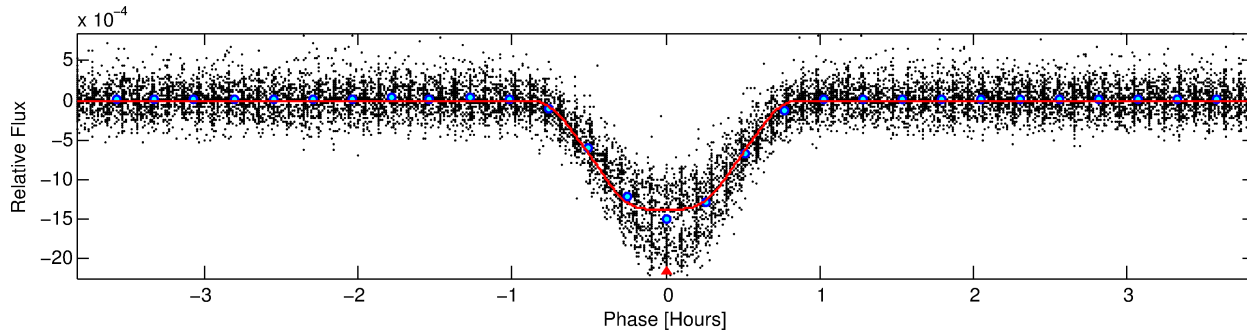
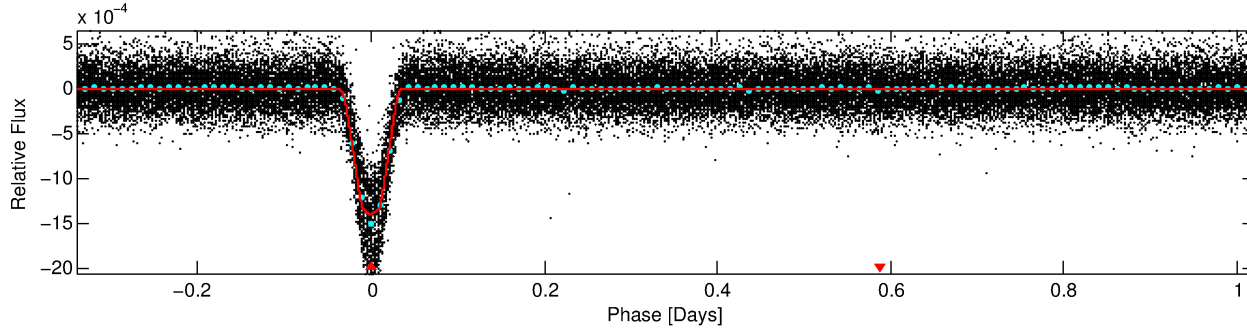
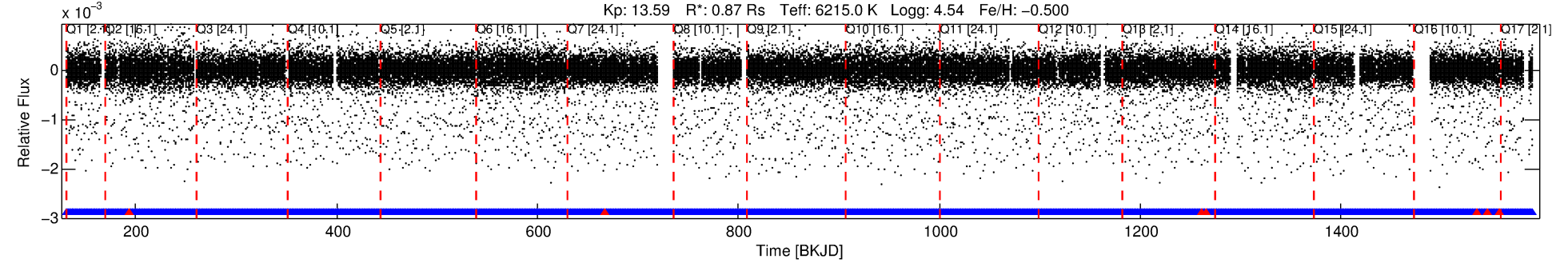
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008409588-01

No Significant Match Found

DV One-Page Summary

KIC: 8409588 Candidate: 1 of 1 Period: 1.361 d
KOI: K00690.01 Corr: 0.950



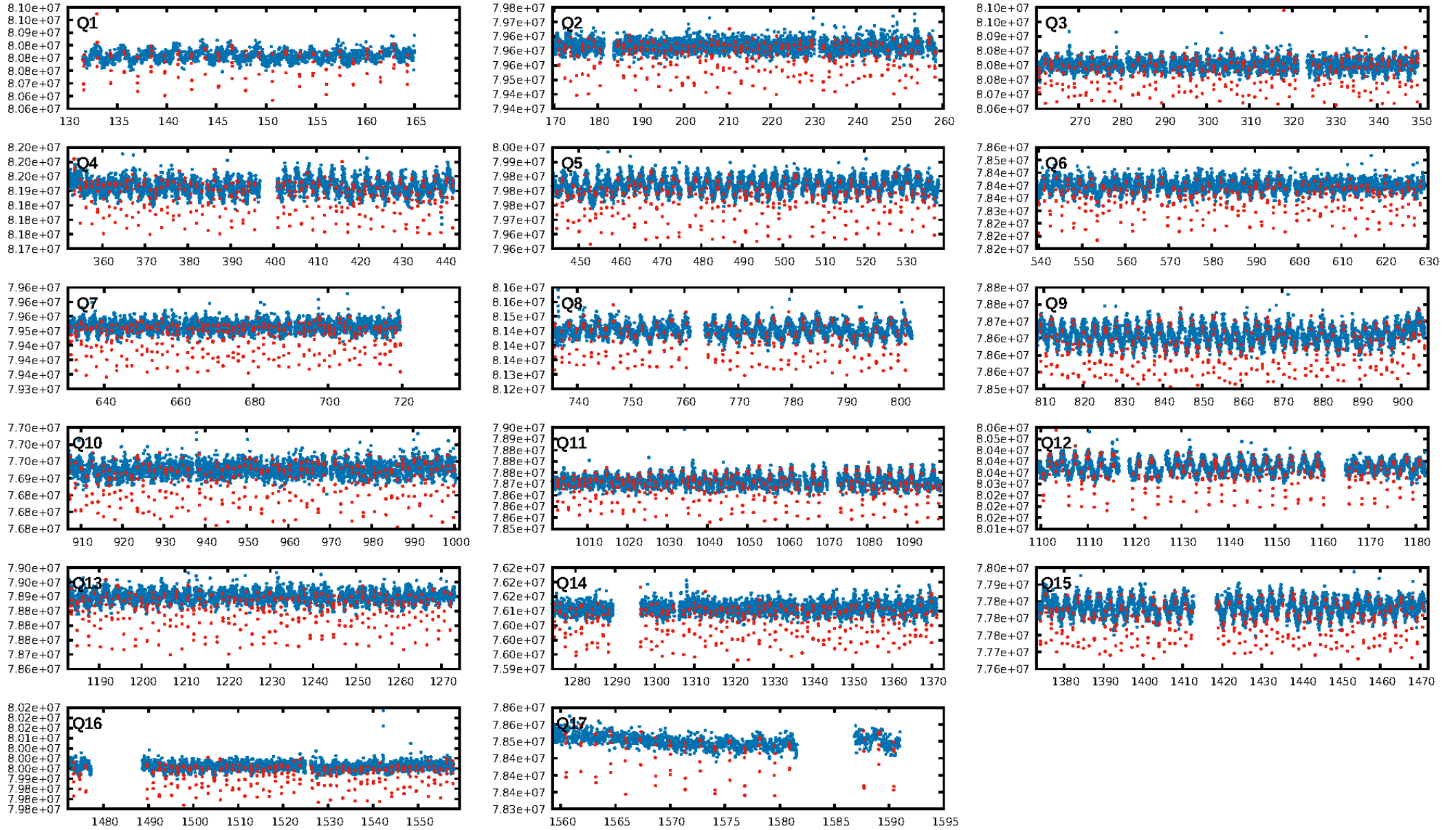
DV Fit Results:

Period = 1.36083 [0.00000] d
Epoch = 131.6069 [0.0001] BKJD
Rp/R* = 0.0402 [0.0005]
a/R* = 4.34 [0.25]
b = 0.90 [0.01]
Seff = 1797.20 [715.01]
Teq = 1660 [165] K
Rp = 3.83 [1.15] Re
a = 0.0238 [0.0061] AU
Ag = 0.19 [0.11] [-7.44 σ]
Teffp = 1693 [188] K [0.13 σ]

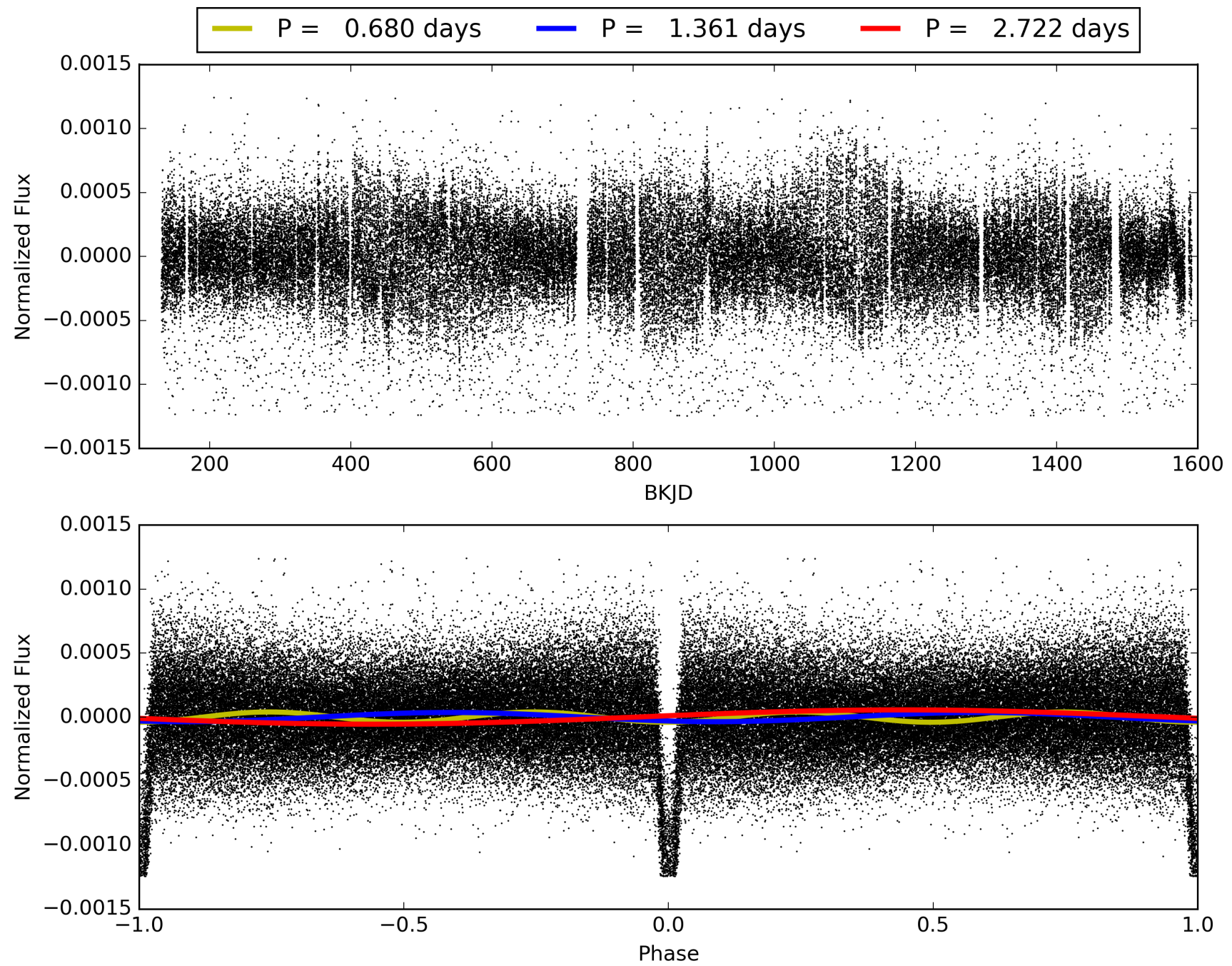
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [927/934]
GhostDiagnostic-chr: 3.181
Centroid-sig: 0.0%
Centroid-so: 0.447 arcsec [10.47 σ]
OotOffset-rm: 0.267 arcsec [3.23 σ]
KicOffset-rm: 0.238 arcsec [2.89 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008409588-01, PDC Light Curves

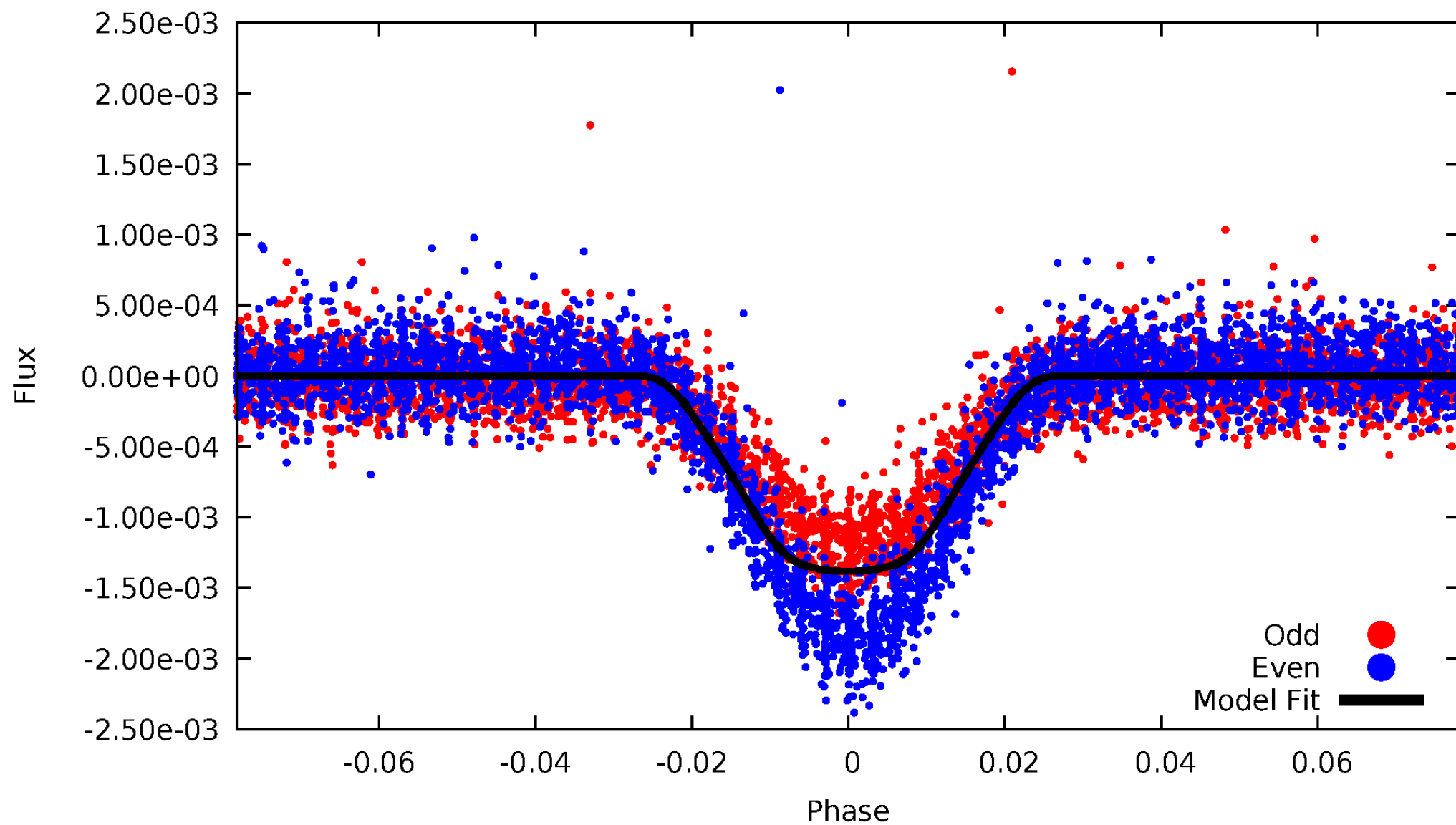


TCE 008409588-01



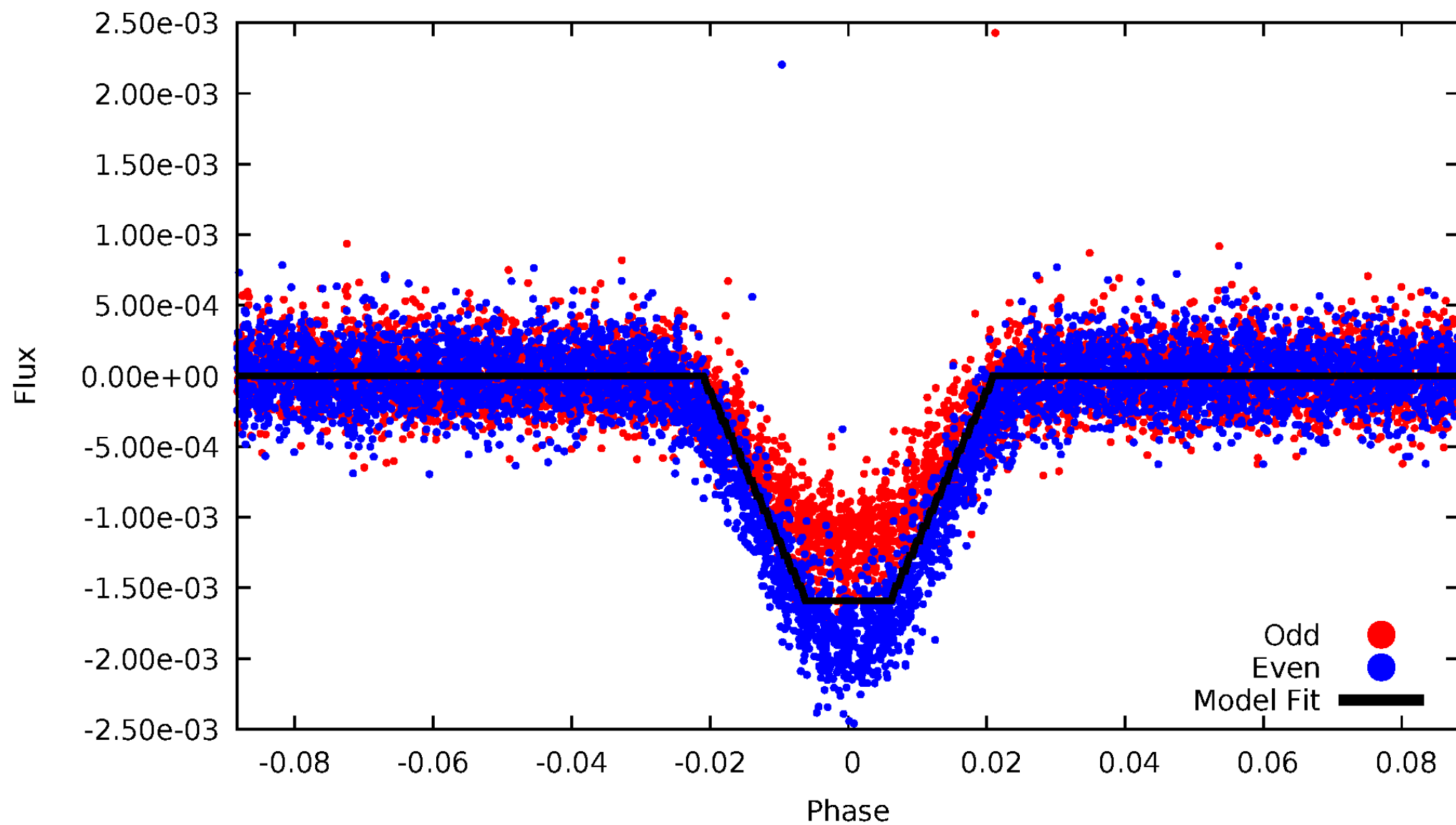
DV Odd/Even

TCE 008409588-01



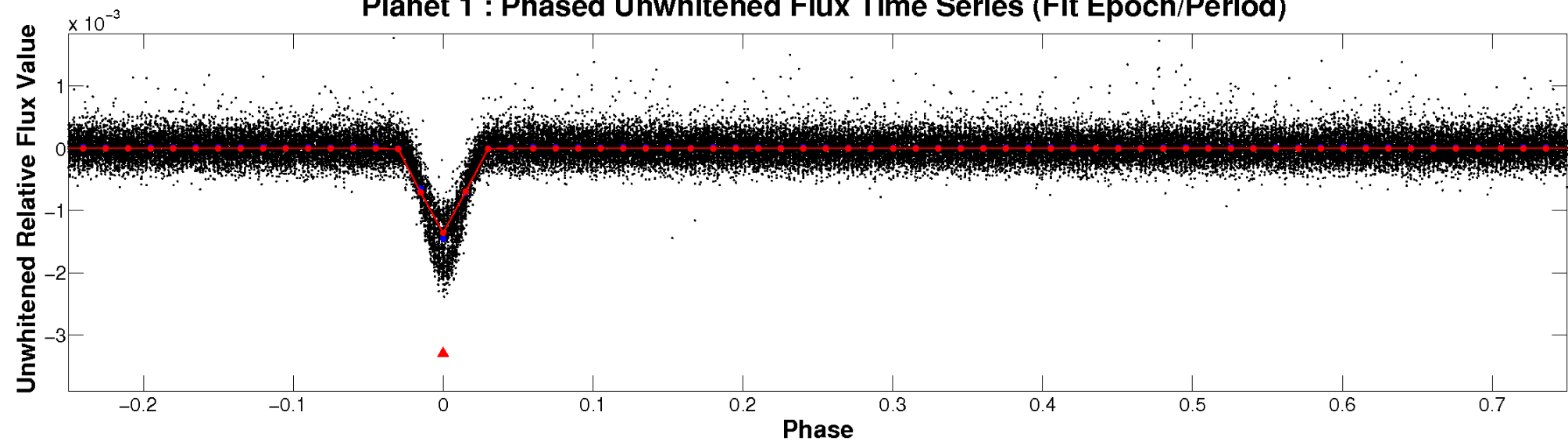
ALT Odd/Even

TCE 008409588-01

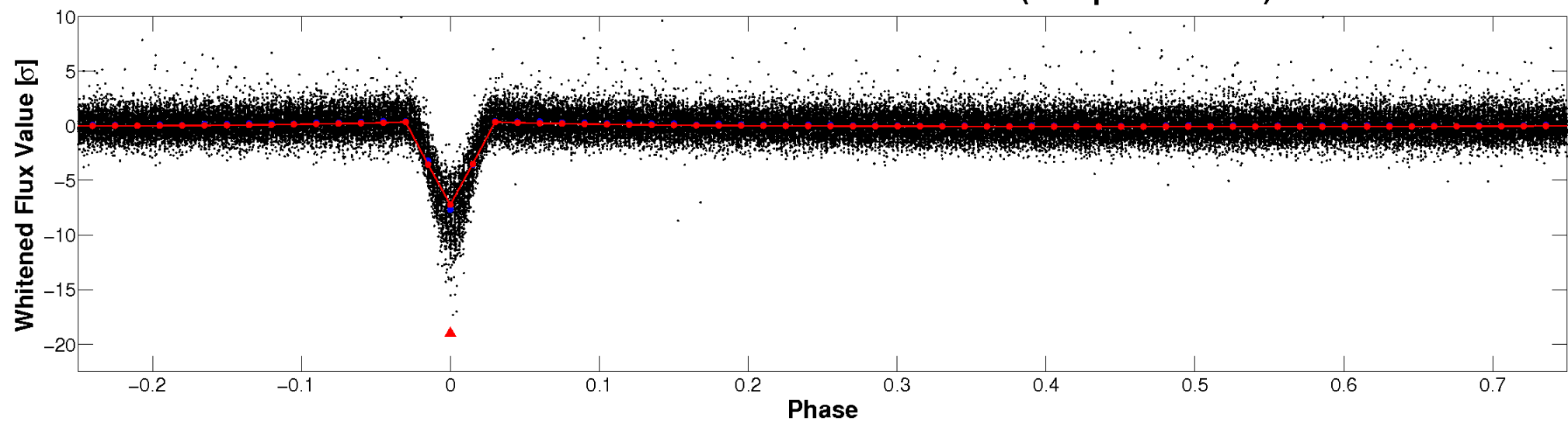


Non-Whitened Vs. Whitened Light Curve

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

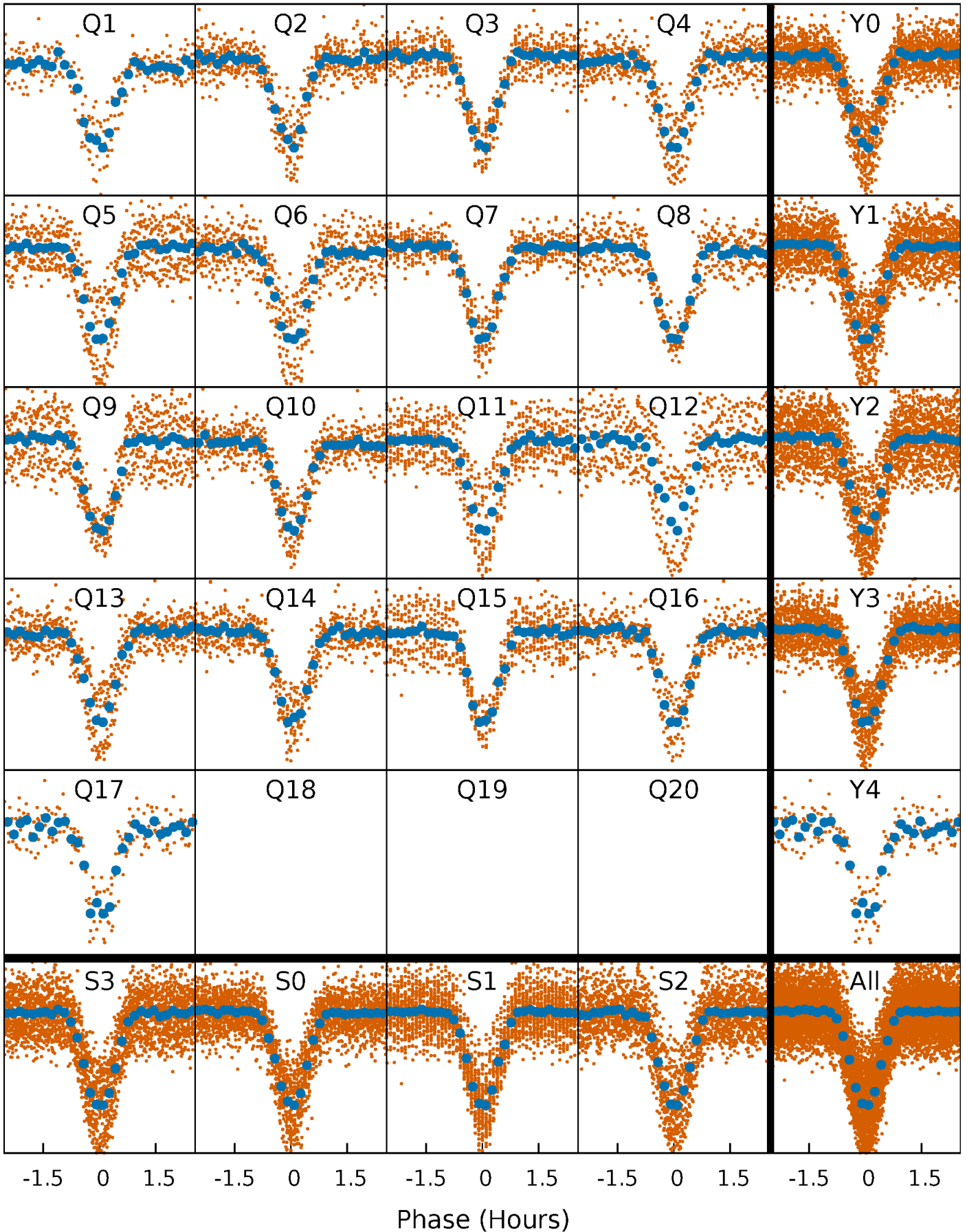


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



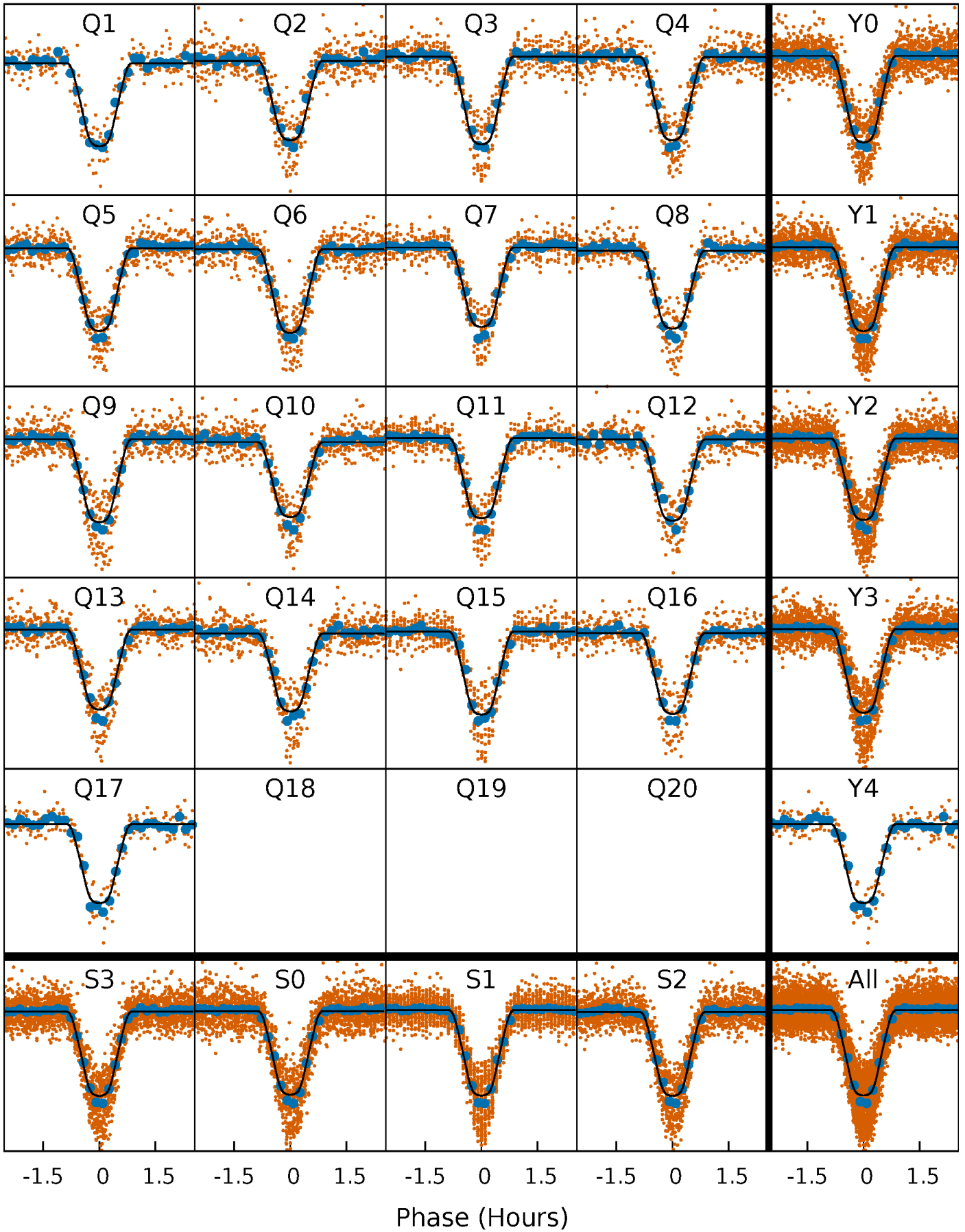
PDC Quarter-Phased Transit Curves

TCE 008409588-01 P= 1.360832 Days $T_0=131.606926$ (BKJD)



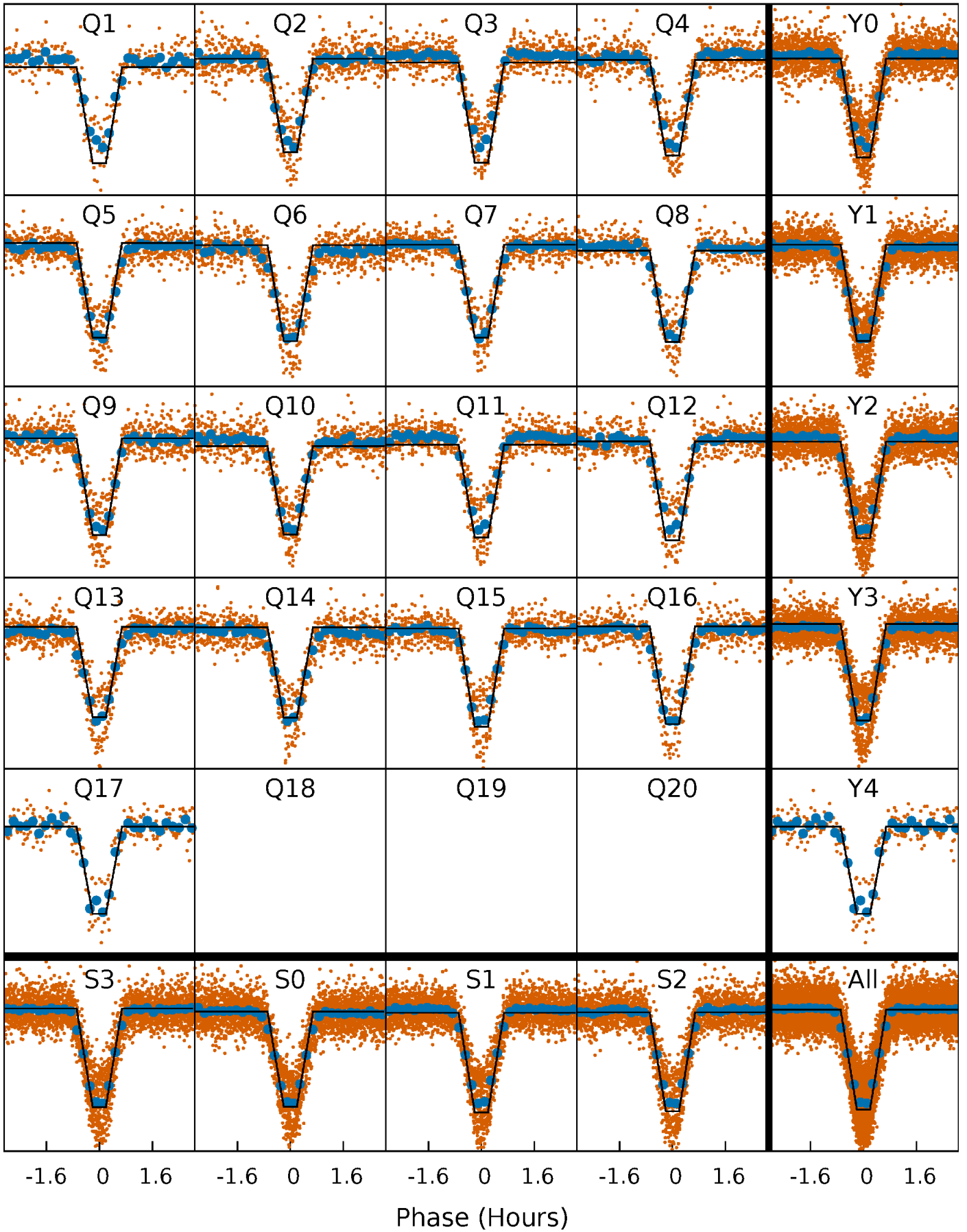
DV Quarter-Phased Transit Curves

TCE 008409588-01 P= 1.360832 Days $T_0=131.606926$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

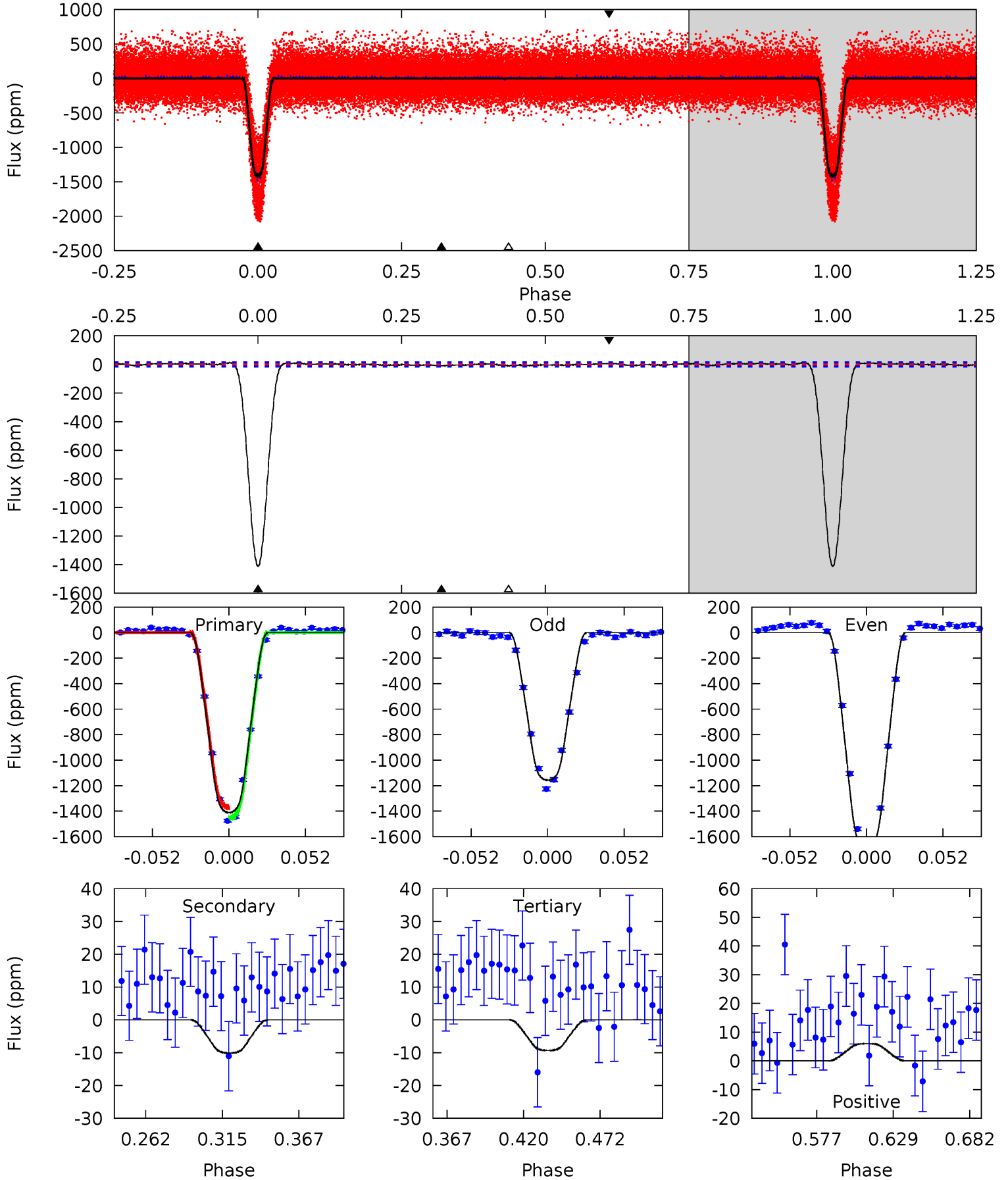
TCE 008409588-01 P= 1.360835 Days $T_0=131.606122$ (BKJD)



DV Model-Shift Uniqueness Test

008409588-01, P = 1.360832 Days, E = 130.246094 Days

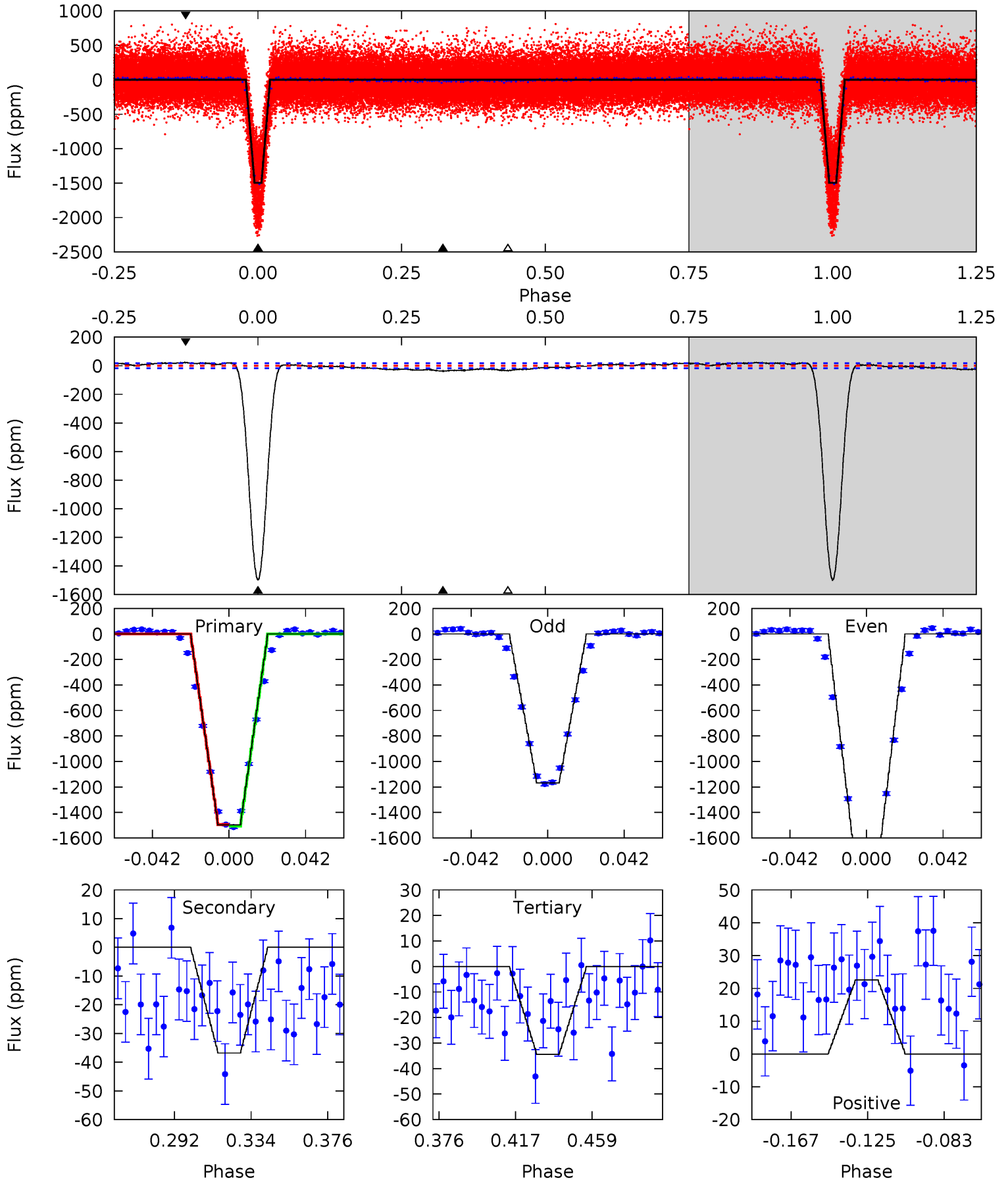
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
463.3	3.32	3.07	1.97	4.70	1.94	1.37	460.3	461.3	0.25	1.34	87.7	1.01	0.01	13.7



Alt Model-Shift Uniqueness Test

008409588-01, P = 1.360835 Days, E = 130.245287 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
400.1	9.84	9.20	6.03	4.74	2.04	4.30	390.9	394.1	0.63	3.80	86.5	1.00	0.01	1.70



Stellar Parameters For KIC 008409588

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6215^{+172}_{-172}	$4.543^{+0.038}_{-0.212}$	$-0.500^{+0.300}_{-0.300}$	$0.872^{+0.262}_{-0.066}$	$0.968^{+0.105}_{-0.117}$	$2.056^{+0.403}_{-1.050}$
	+3%/-3%	+1%/-5%	+60%/-60%	+30%/-8%	+11%/-12%	+20%/-51%
Source	PHO1	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 008409588-01 / KOI 0690.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-10 ± 3	$3.91^{+0.60}_{-0.25}$	2373^{+162}_{-101}	-2404^{+286}_{-200}	$0.190^{+0.071}_{-0.063}$
Alt.	-37 ± 4	$3.85^{+0.65}_{-0.22}$	2364^{+165}_{-98}	2839^{+95}_{-110}	$0.730^{+0.133}_{-0.171}$

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 $A_{obs} \gg 1.0$

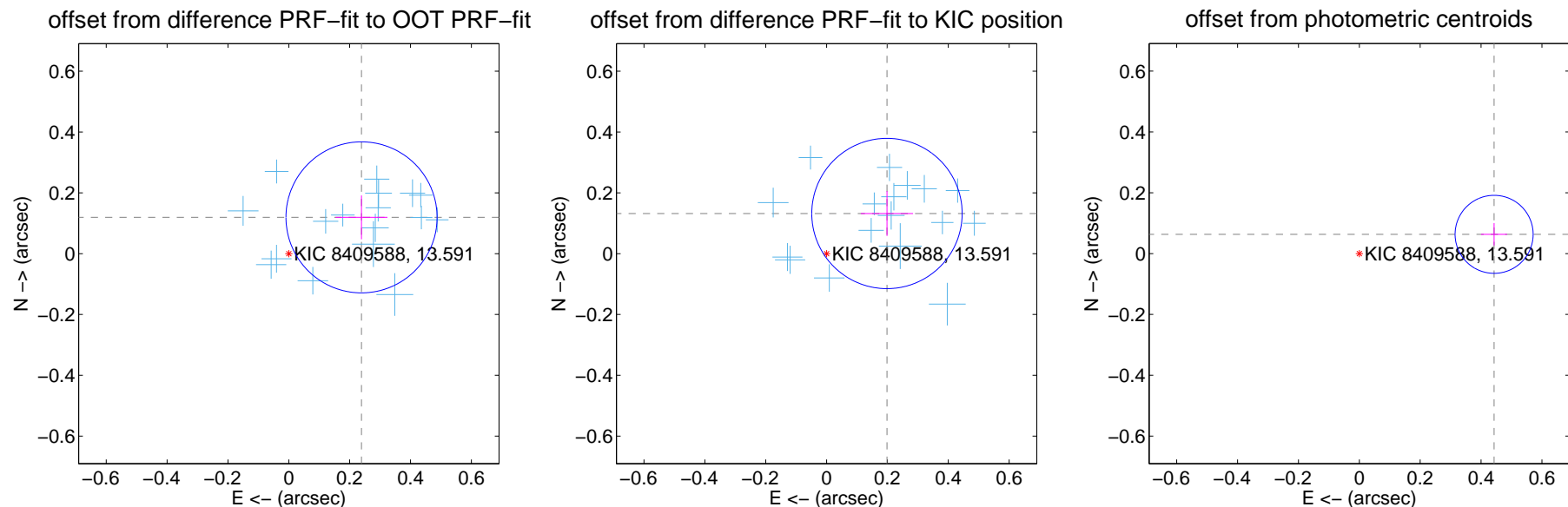
DV Centroid Data

Supplemental centroid analysis for 008409588-01. Kepler magnitude: 13.59. Transit SNR 256.34

There are 17 quarters with good PRF difference image offsets

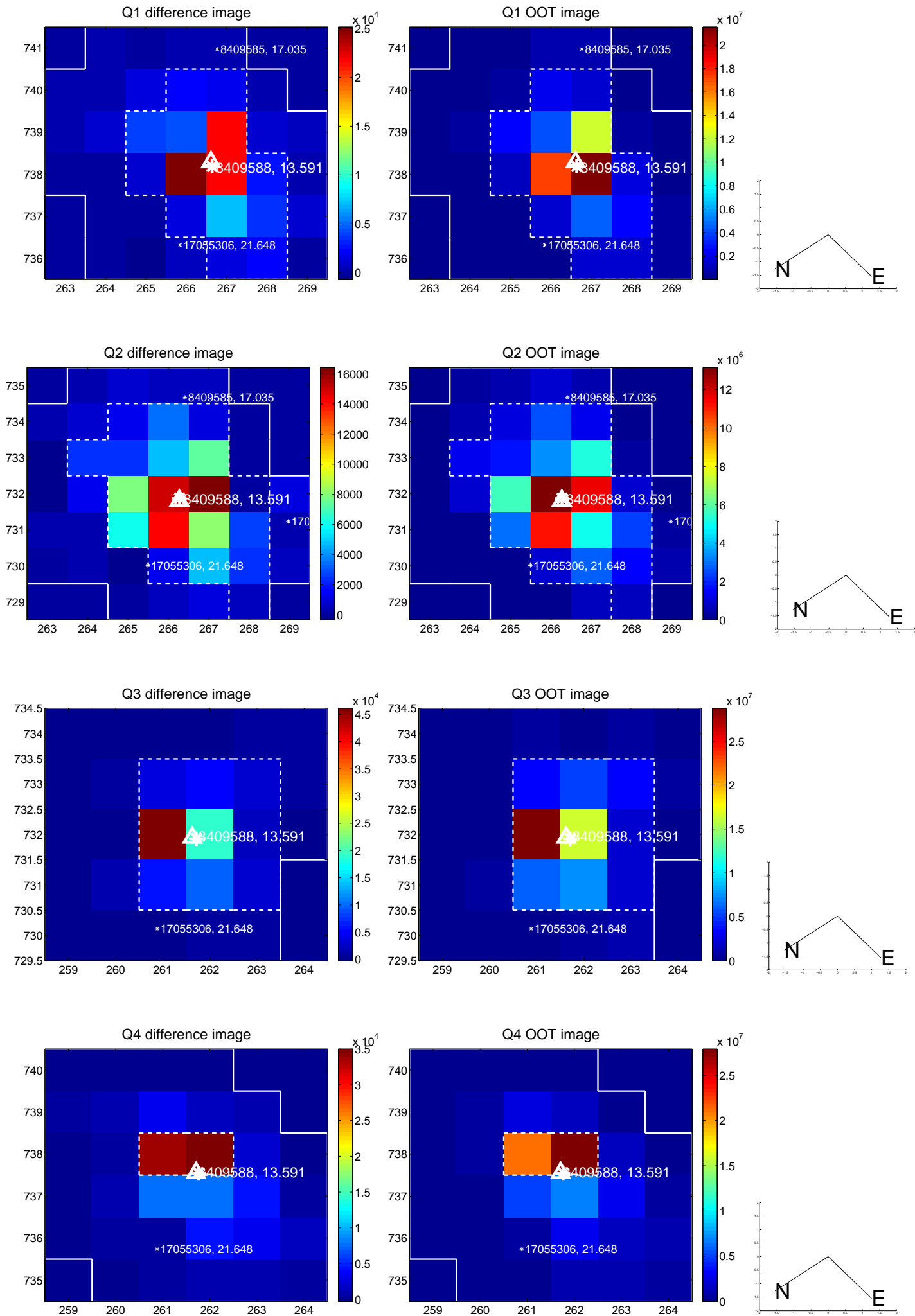
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.267 ± 0.083	3.23	-0.239 ± 0.085	0.119 ± 0.072
PRF-fit source offset from KIC position	0.238 ± 0.082	2.89	-0.198 ± 0.086	0.132 ± 0.074
photometric centroid source offset	0.45 ± 0.04	10.47	-0.44 ± 0.04	0.06 ± 0.04

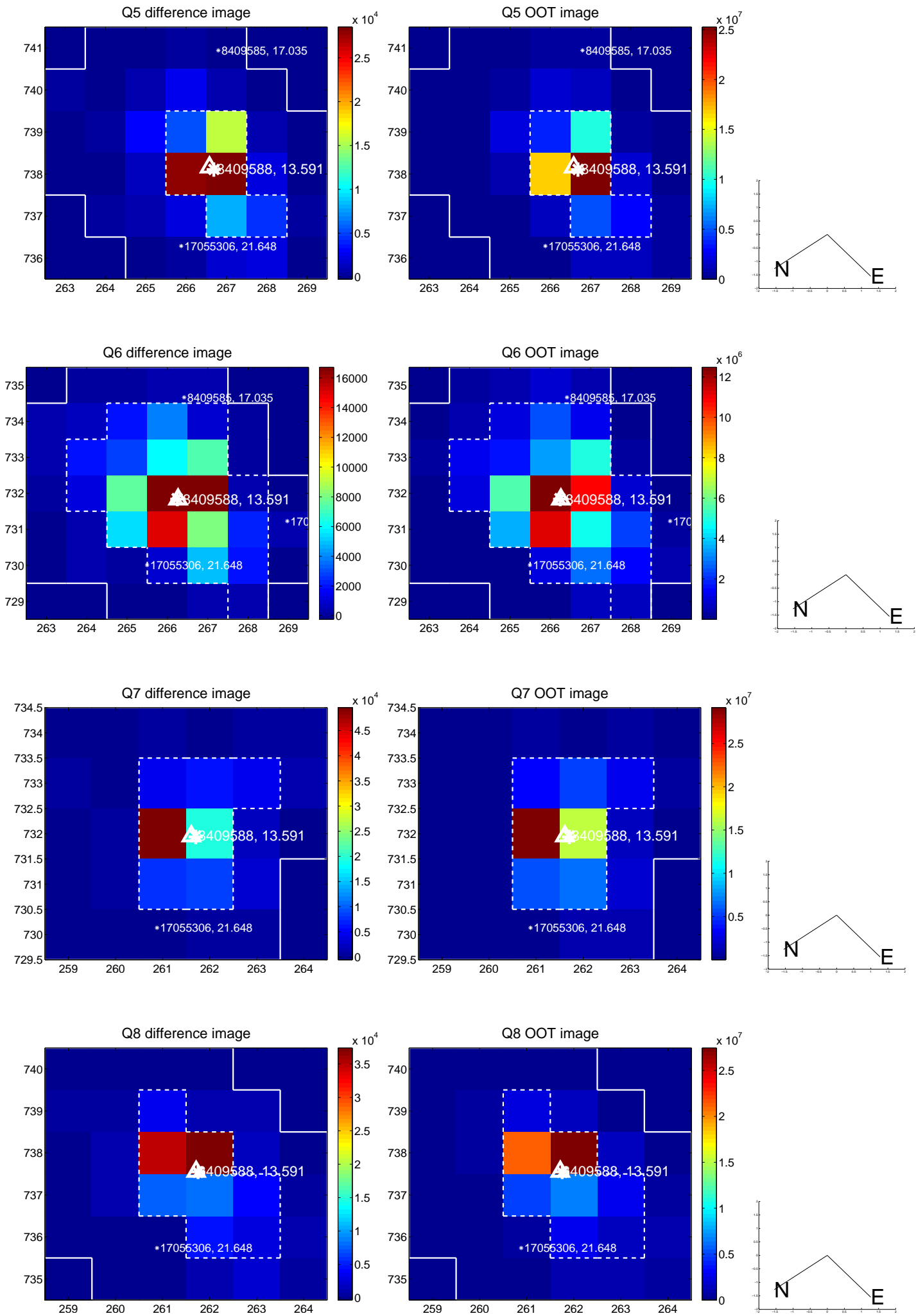


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

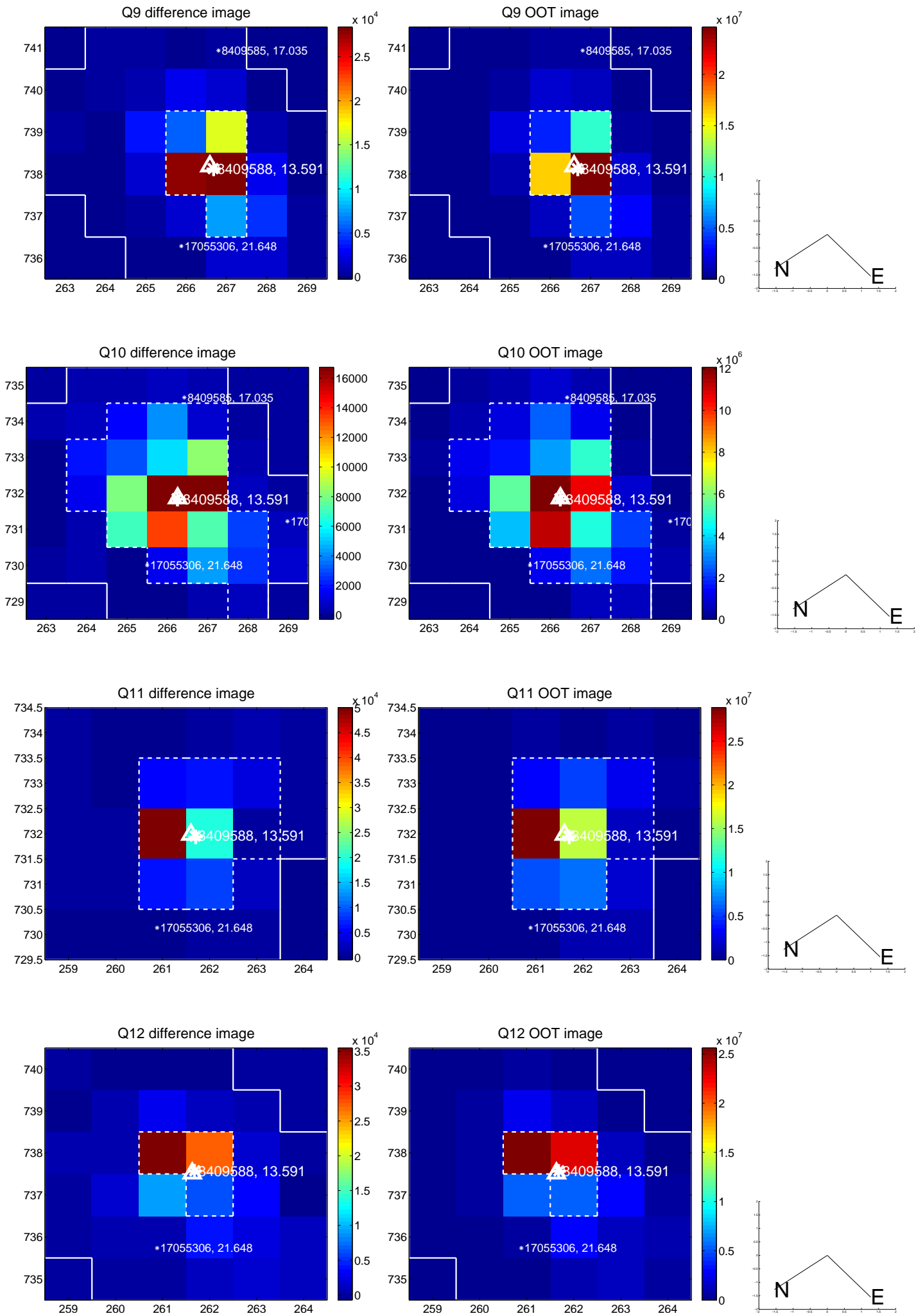
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



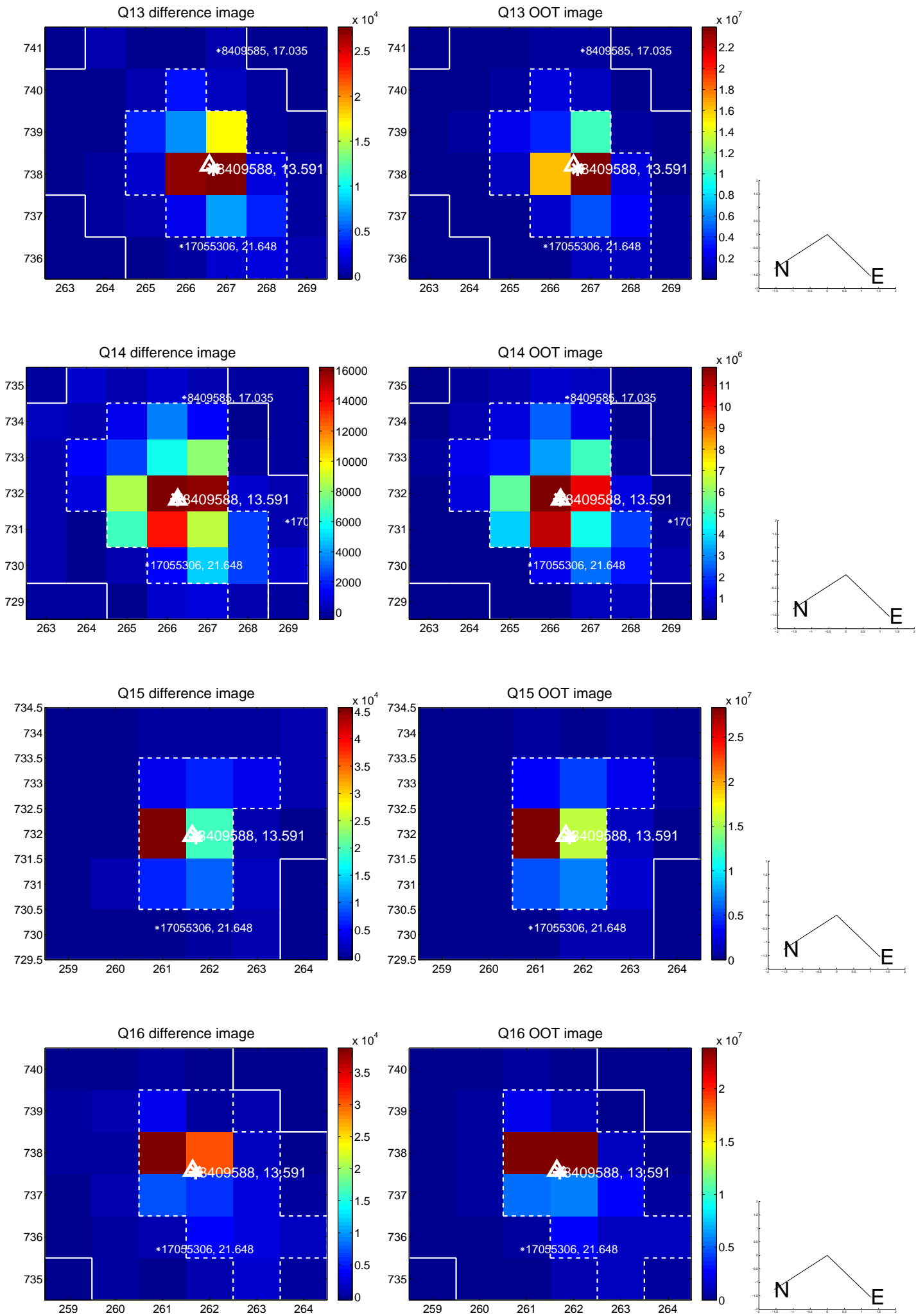
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



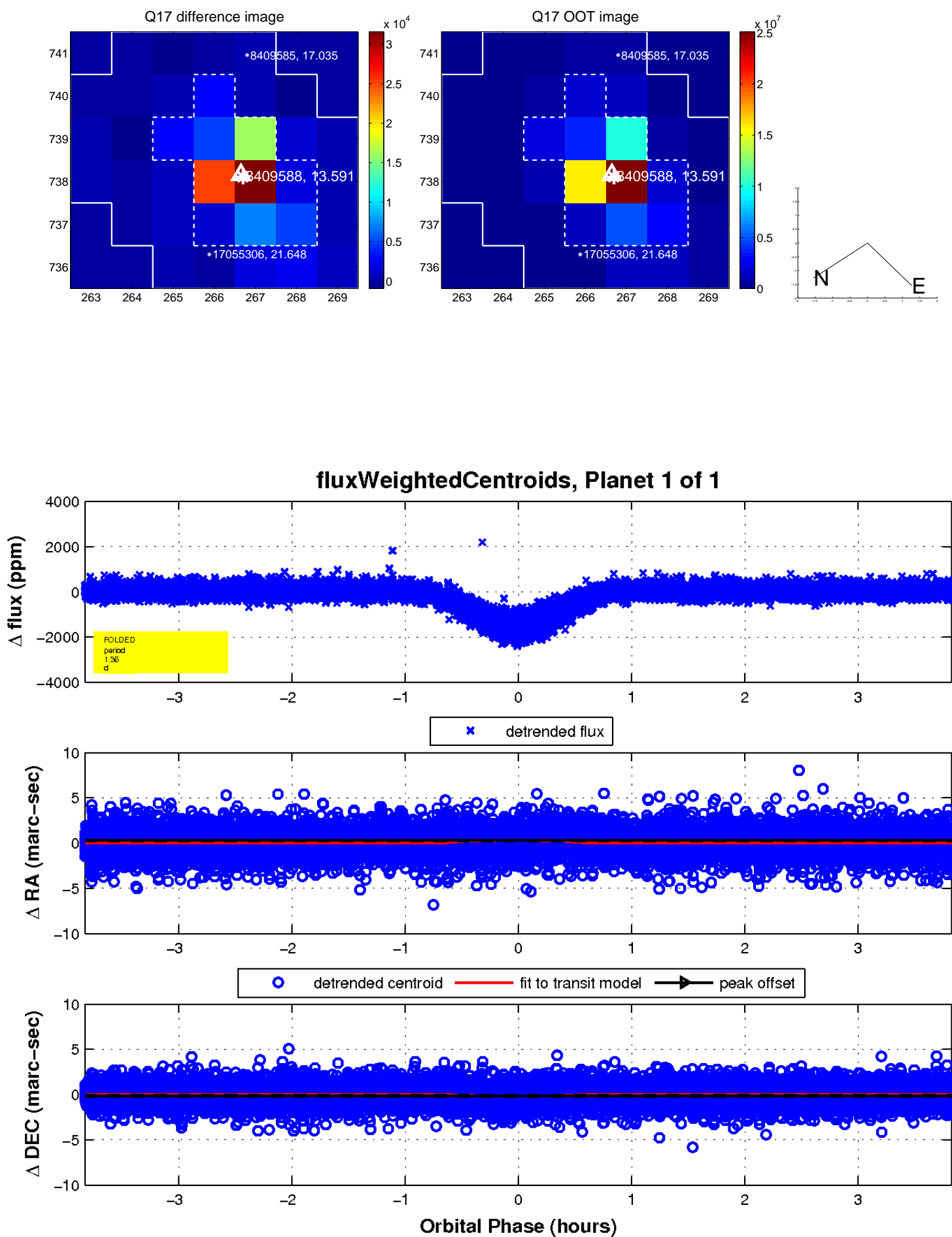
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

