

KIC 008866102

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})
008866102-01	OBS	0042.01	17.833764	145.563415	323.9	4.822	130.6	130.2	1.34	6407	2.78	133.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008866102-01	OBS	PC	1.00	0	0	0	0	CENT_SATURATED

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

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

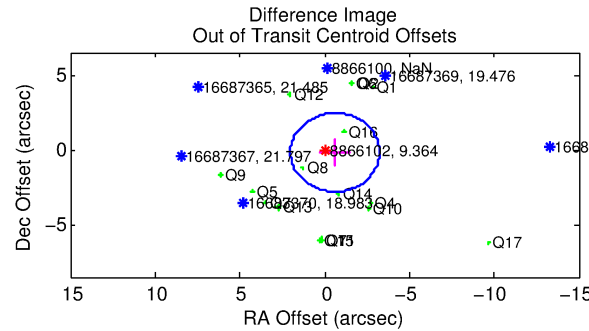
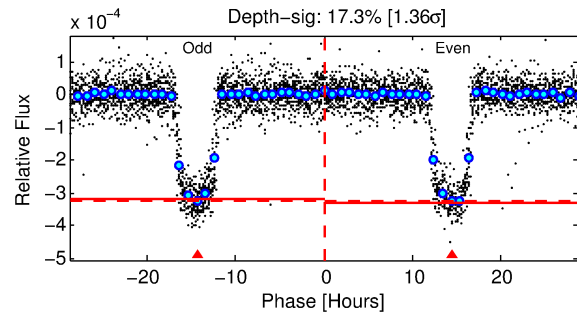
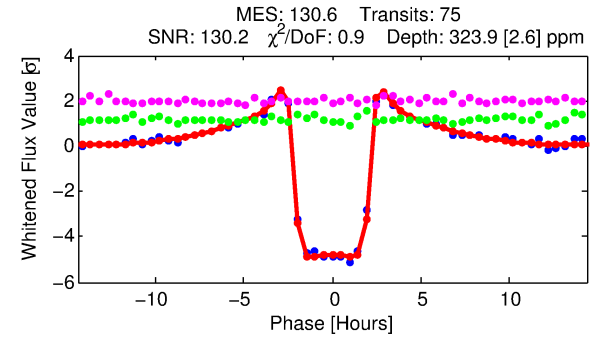
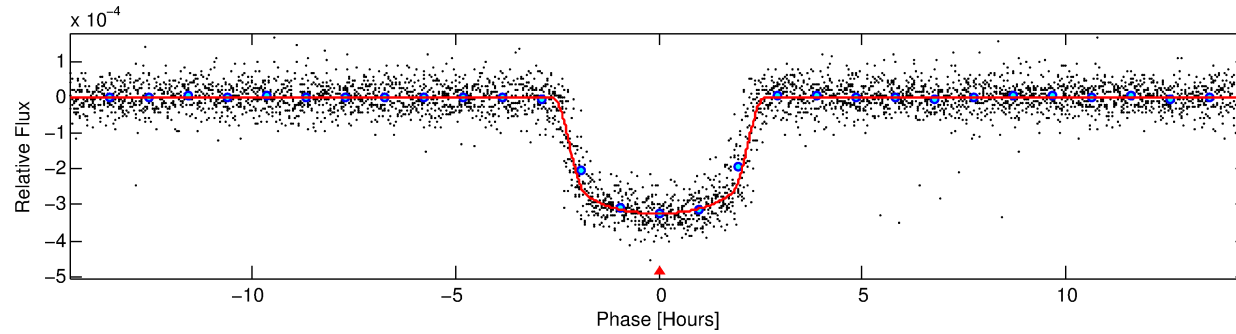
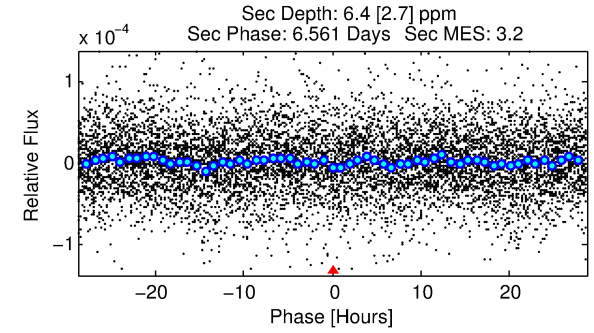
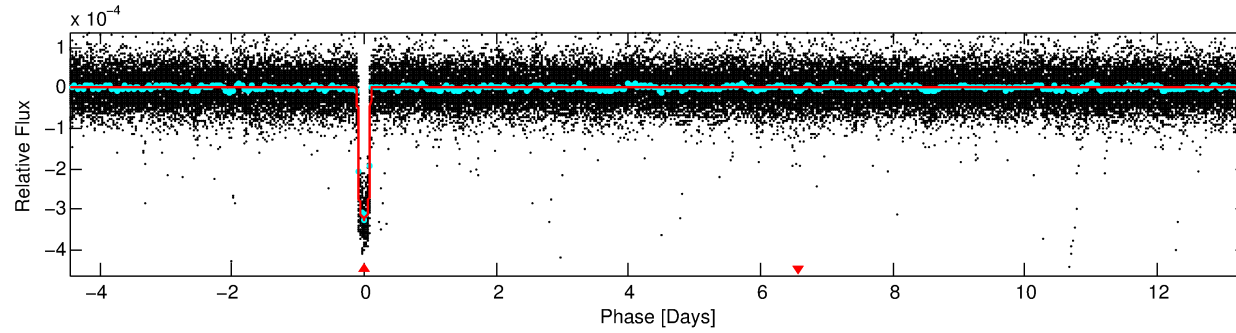
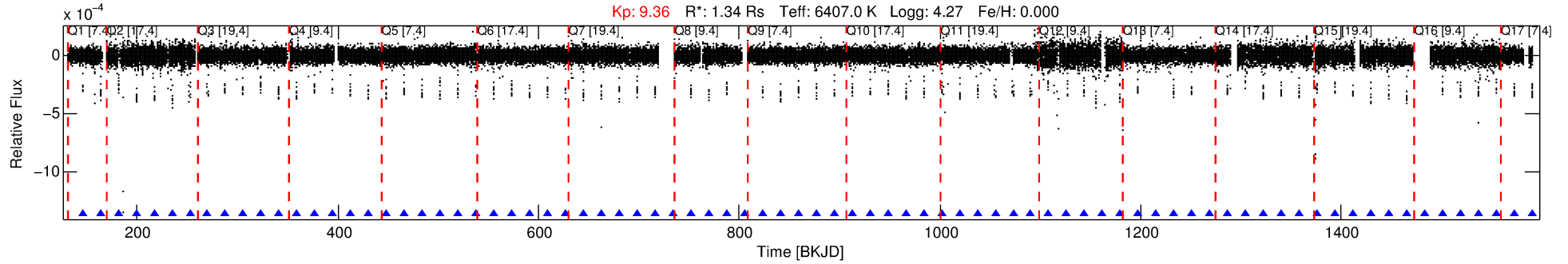
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008866102-01

No Significant Match Found

DV One-Page Summary

KIC: 8866102 Candidate: 1 of 1 Period: 17.834 d
 KOI: K00042.01 Name: Kepler-410Ab Corr: 0.970



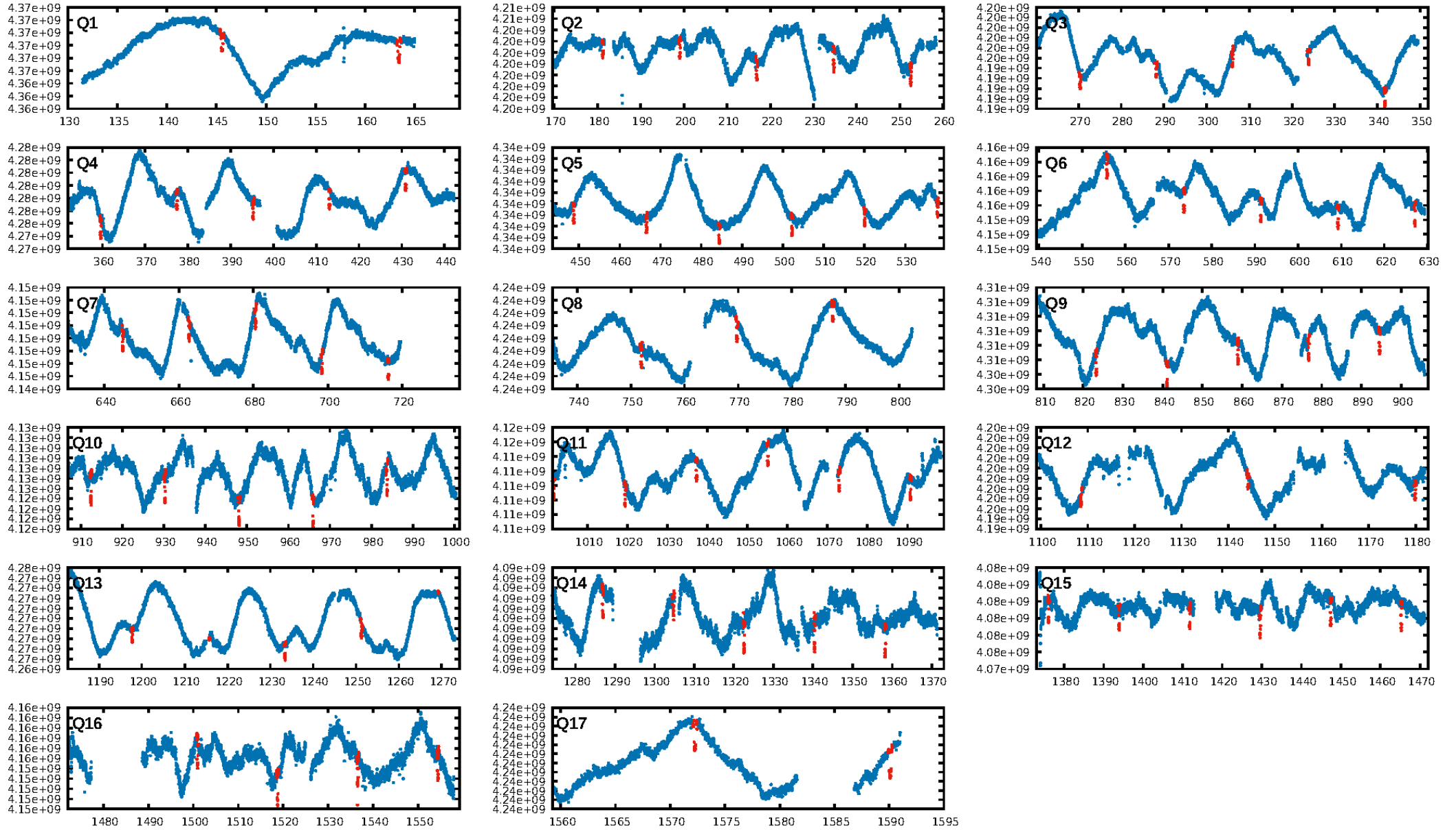
DV Fit Results:

Period = 17.83376 [0.00001] d
 Epoch = 145.5634 [0.0005] BKJD
 Rp/R* = 0.0191 [0.0003]
 a/R* = 14.44 [1.03]
 b = 0.88 [0.02]
 Seff = 133.23 [10.46]
 Teq = 866 [17] K
 Rp = 2.78 [0.16] Re
 a = 0.1423 [0.0062] AU
 Ag = 9.23 [3.94] [2.09σ]
 Tefp = 2335 [249] K [5.89σ]

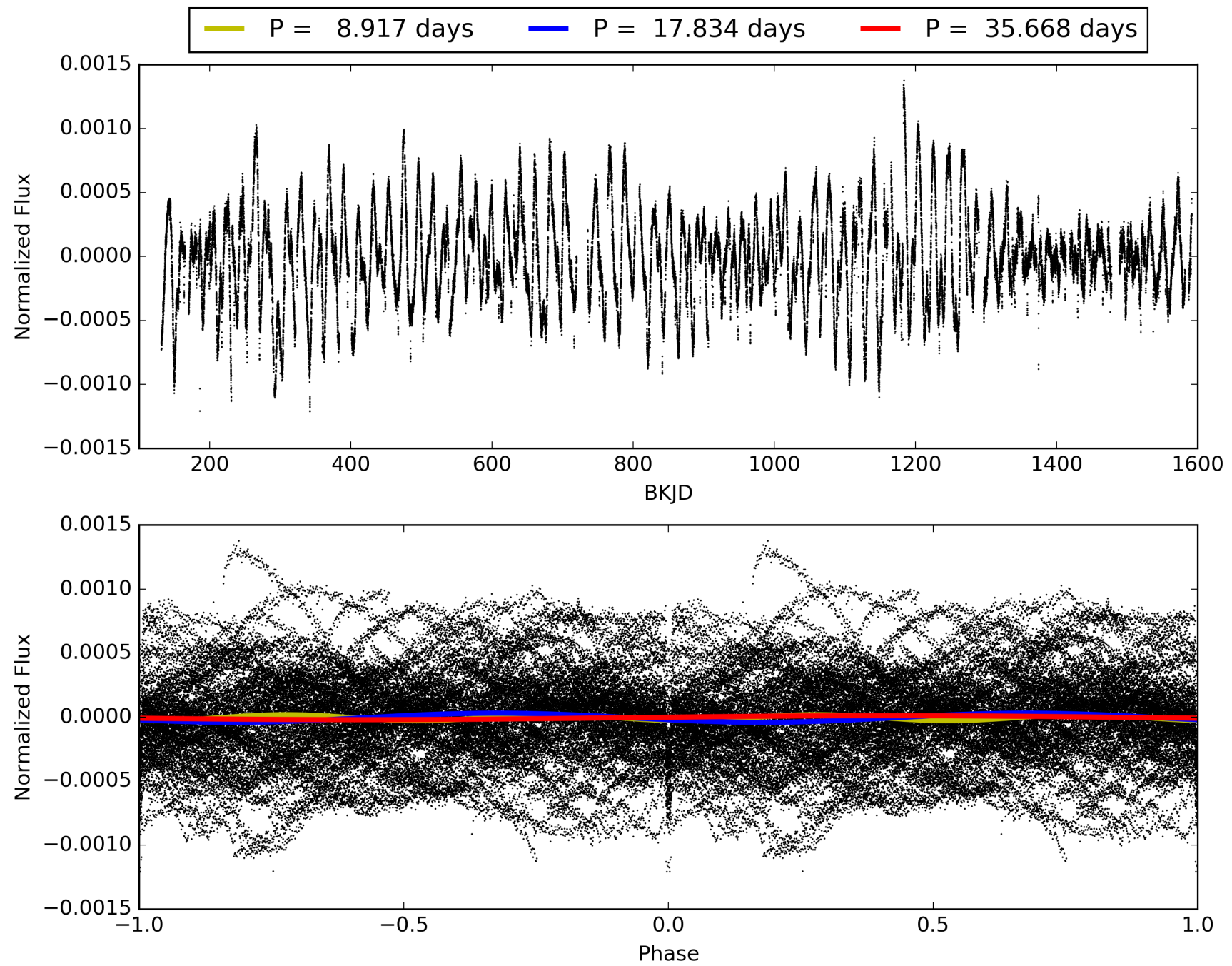
DV Diagnostic Results:

ShortPeriod-sig: N/A
 LongPeriod-sig: N/A
 ModelChiSquare2-sig: 46.8%
 ModelChiSquareGof-sig: 100.0%
 Bootstrap-pfa: 0.00e+00
 RollingBand-fgt: 1.00 [71/71]
 GhostDiagnostic-chr: N/A
 Centroid-sig: 0.0%
 Centroid-so: 0.639 arcsec [5.73σ]
 OotOffset-rm: 0.629 arcsec [0.72σ]
 KicOffset-rm: 1.327 arcsec [1.84σ]
 OotOffset-st: 4/4/4/5 [17]
 KicOffset-st: 4/4/4/5 [17]
 DiffImageQuality-fgm: 0.00 [0/17]
 DiffImageOverlap-fno: 1.00 [17/17]

TCE 008866102-01, PDC Light Curves

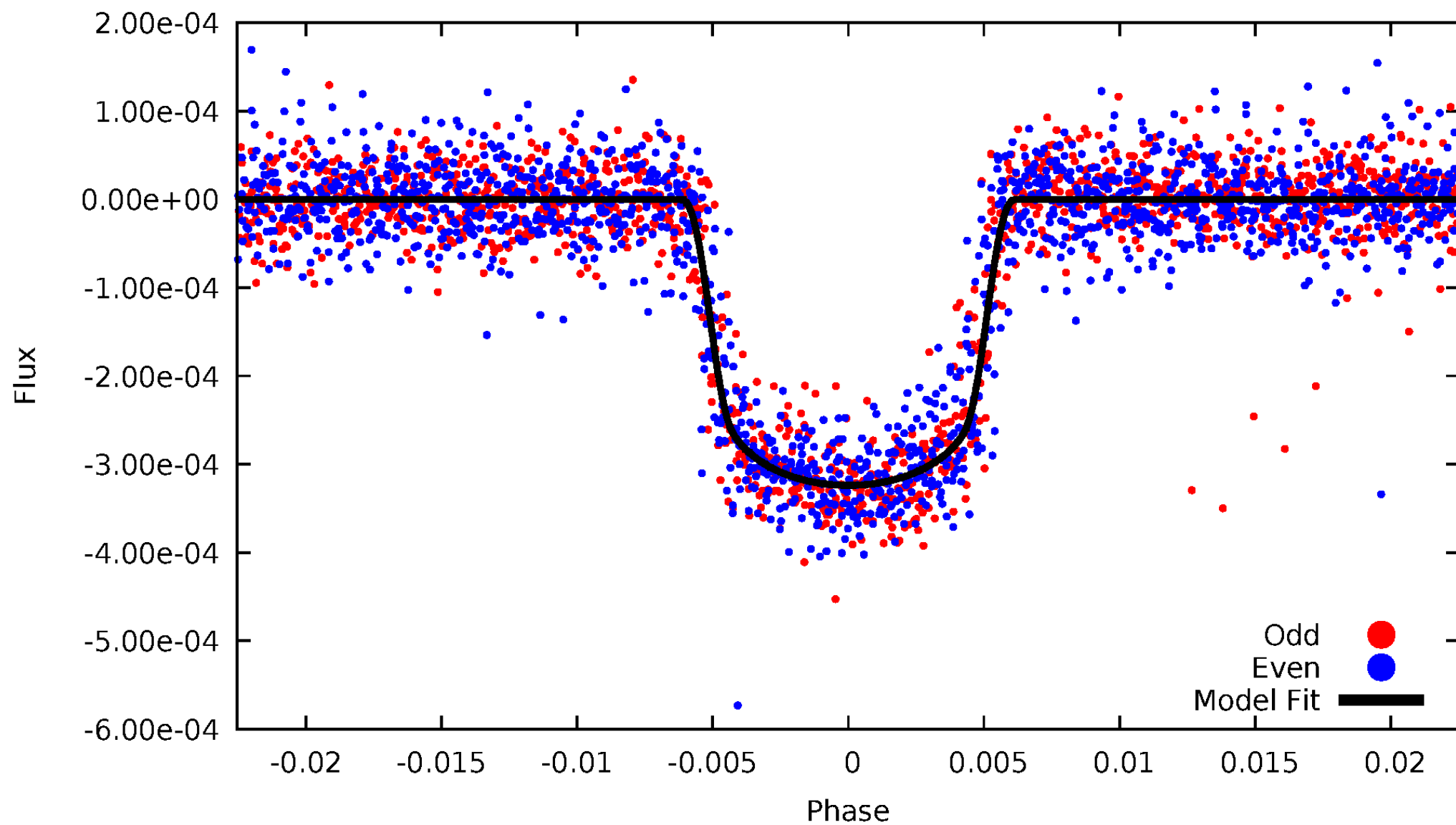


TCE 008866102-01



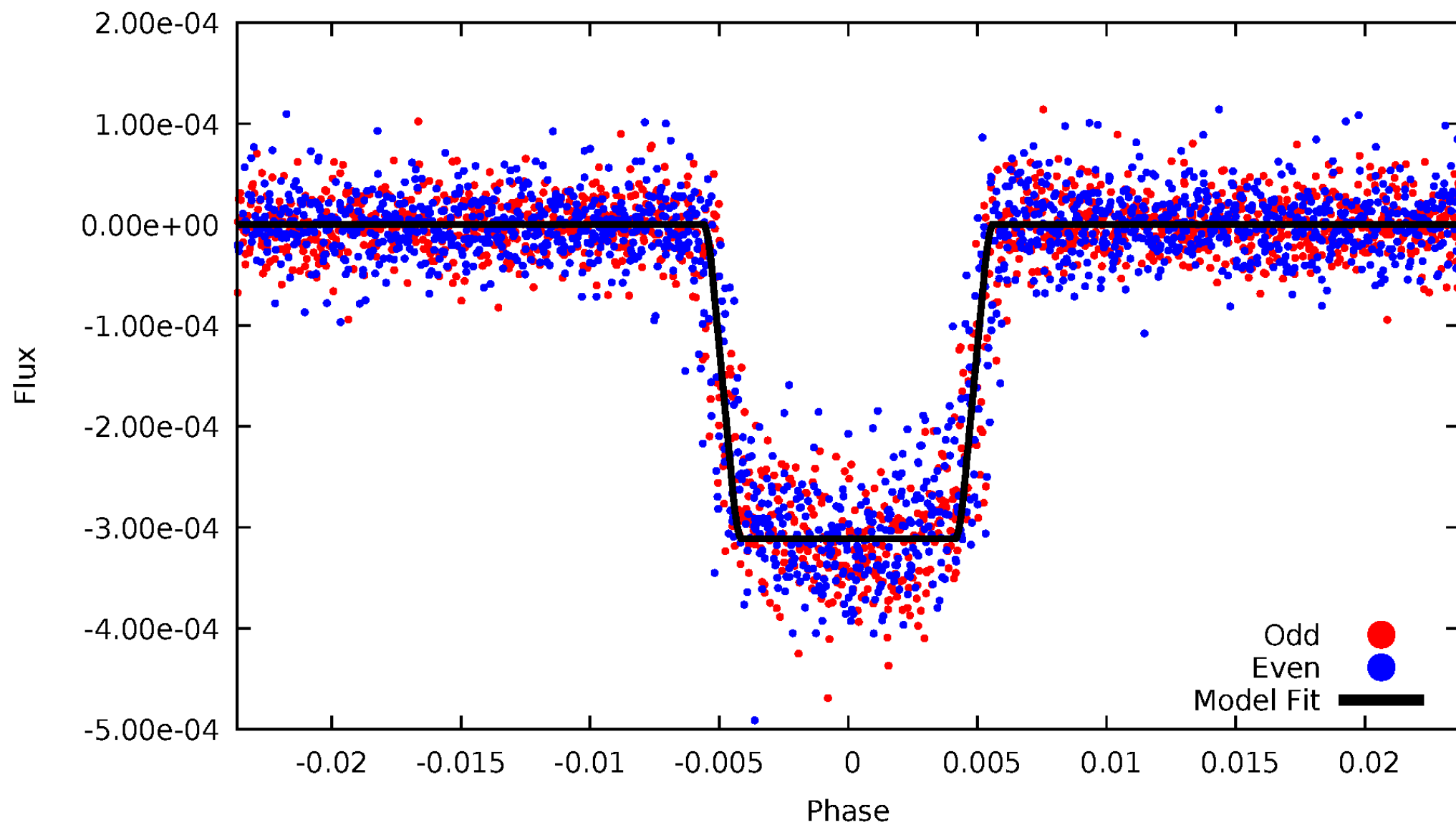
DV Odd/Even

TCE 008866102-01



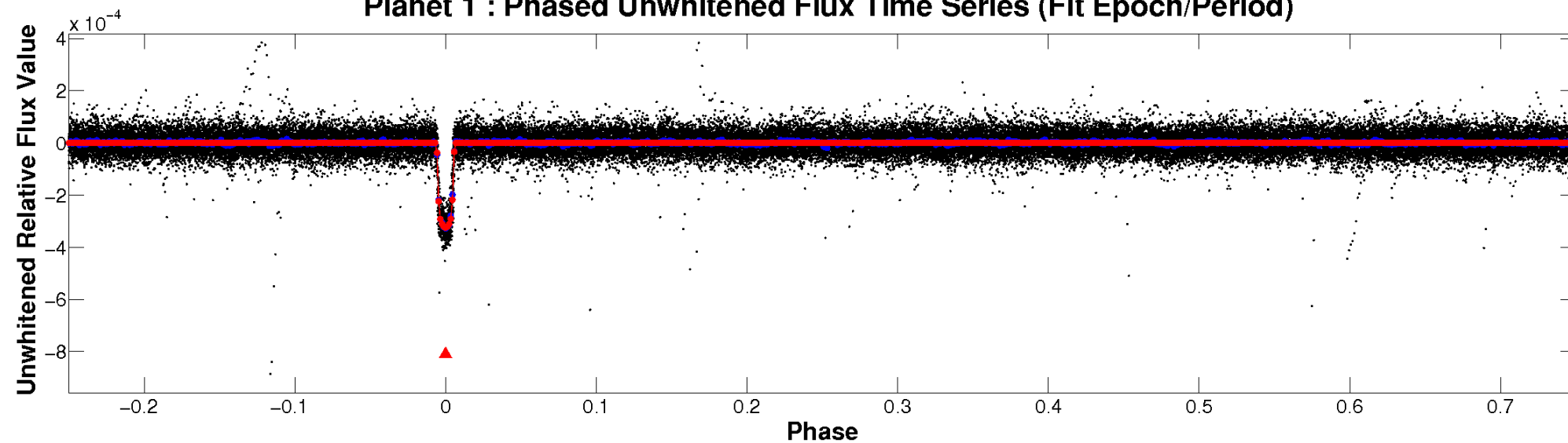
ALT Odd/Even

TCE 008866102-01

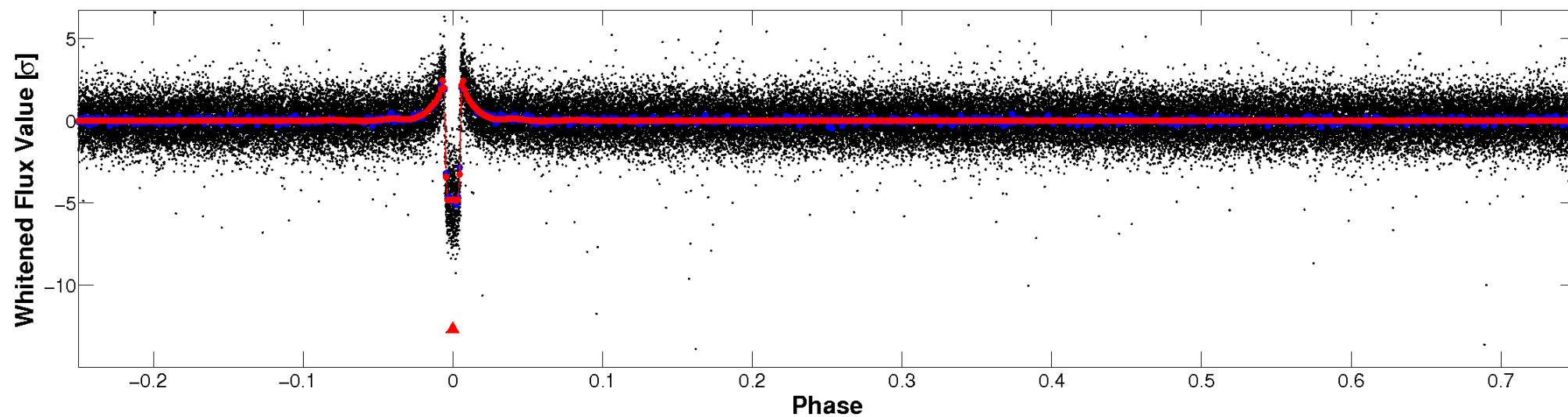


Non-Whitened Vs. Whitened Light Curve

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

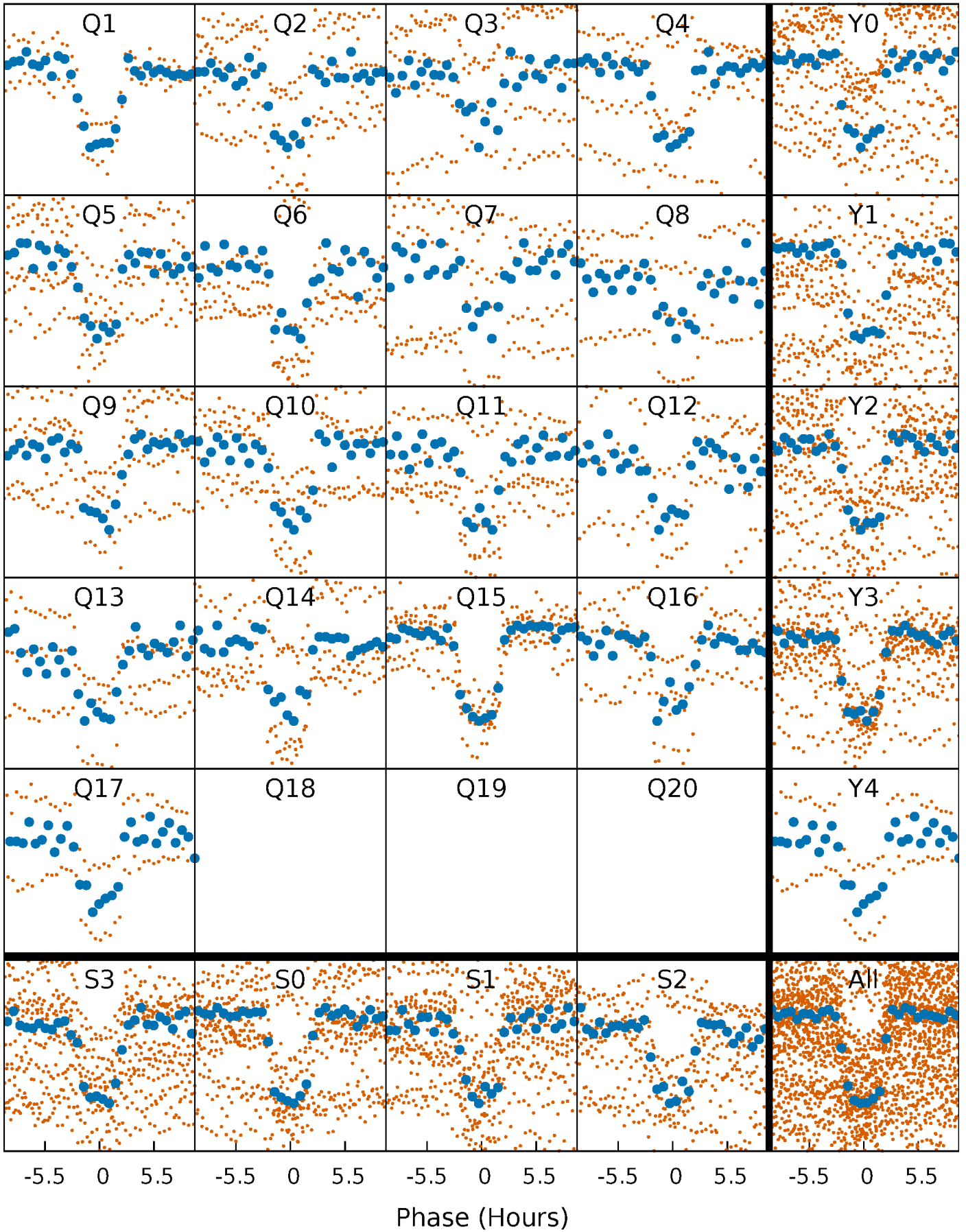


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



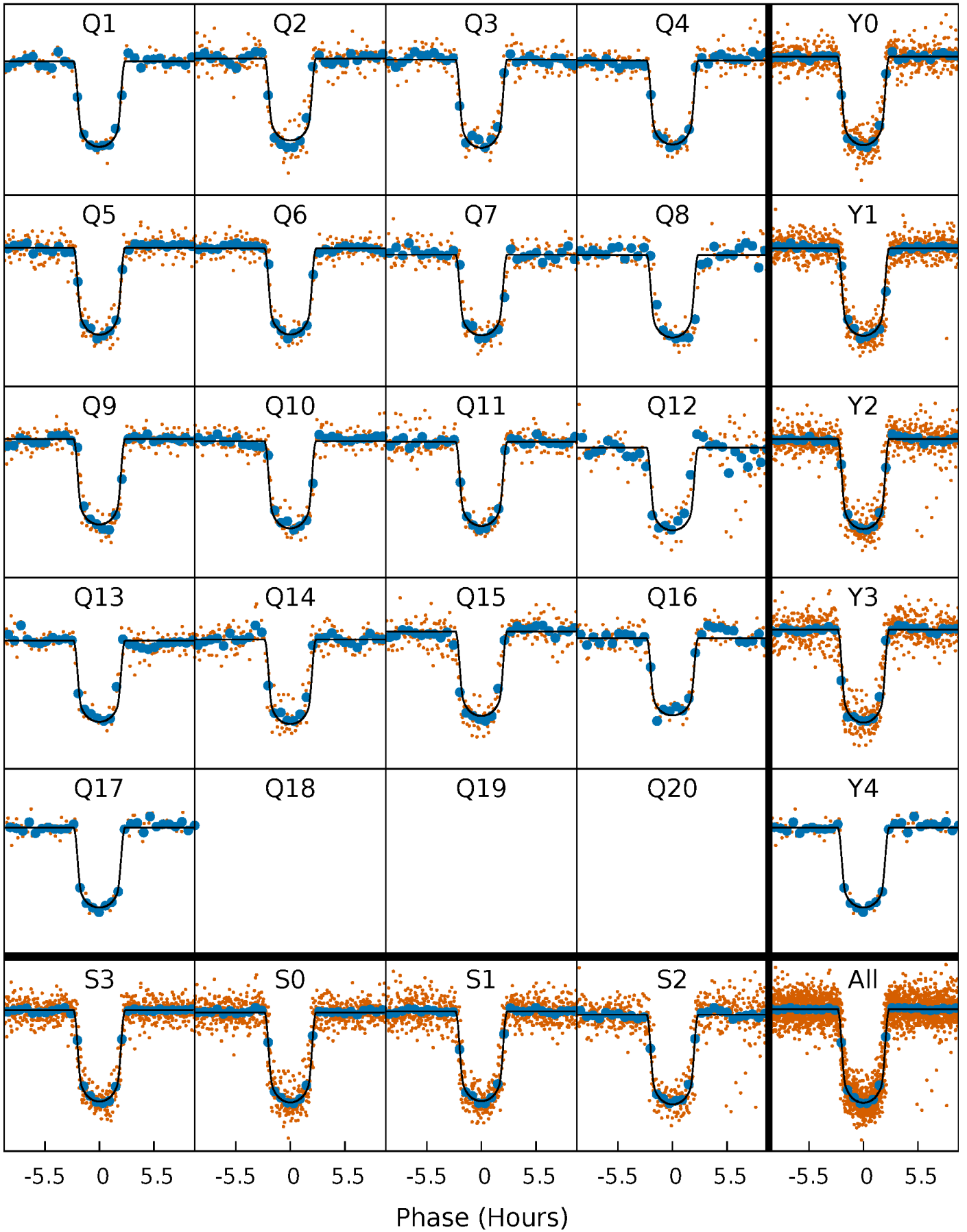
PDC Quarter-Phased Transit Curves

TCE 008866102-01 P= 17.833764 Days $T_0=145.563415$ (BKJD)



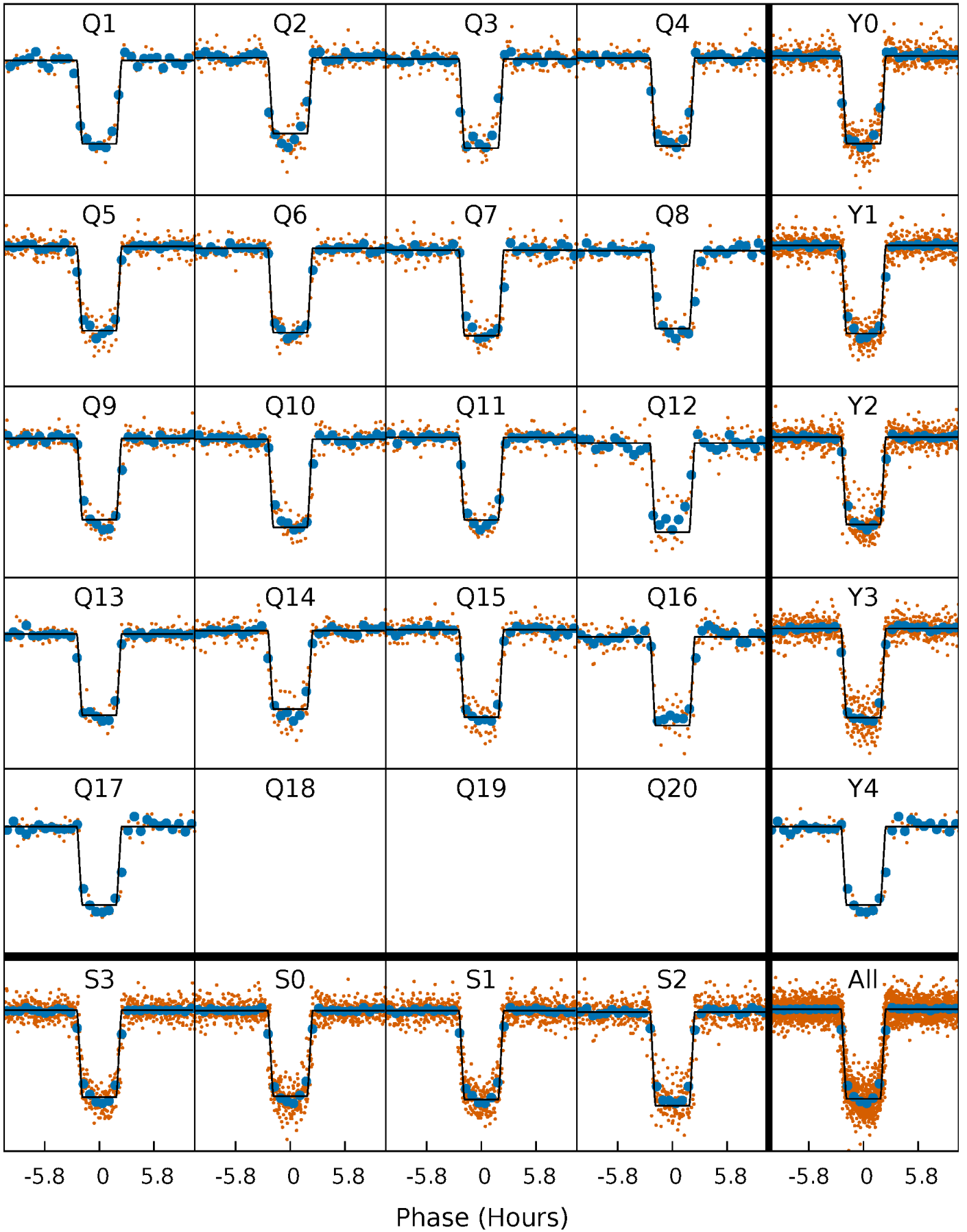
DV Quarter-Phased Transit Curves

TCE 008866102-01 P= 17.833764 Days $T_0=145.563415$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

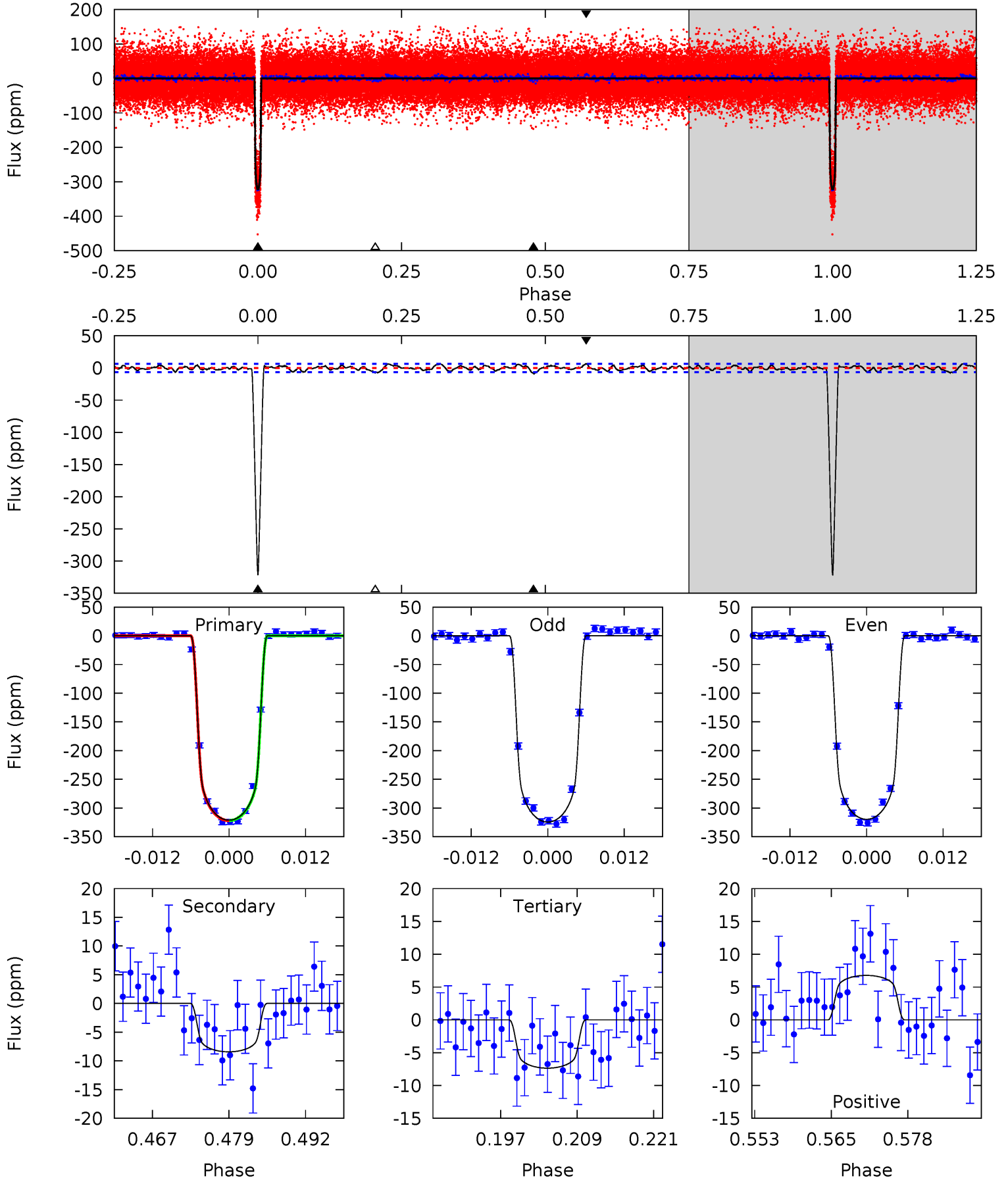
TCE 008866102-01 P= 17.833576 Days $T_0=145.569958$ (BKJD)



DV Model-Shift Uniqueness Test

008866102-01, $P = 17.833764$ Days, $E = 127.729651$ Days

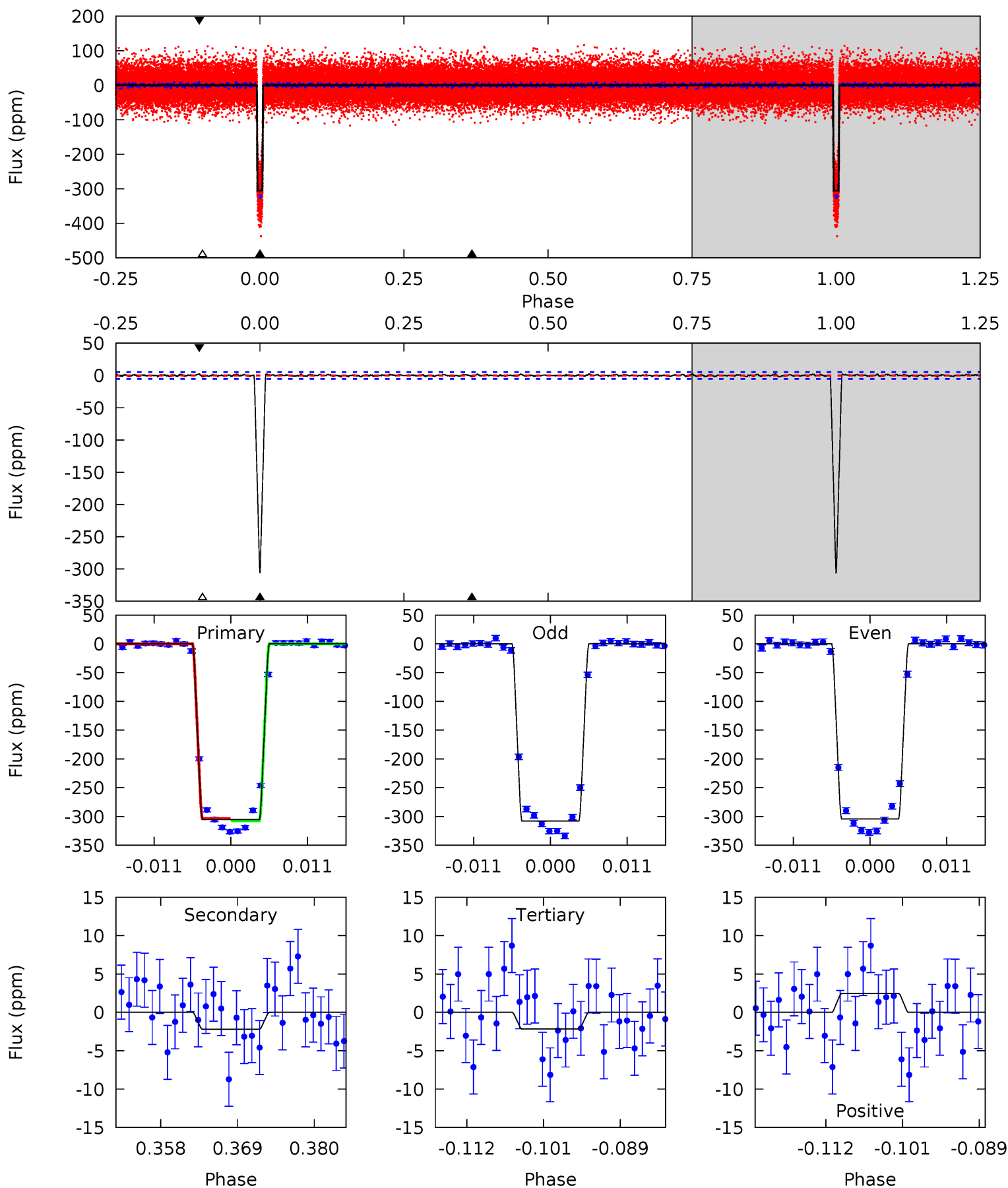
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
243.4	6.39	5.58	5.13	4.99	2.50	1.95	237.9	238.3	0.81	1.25	1.83	1.00	0.02	0.09



Alt Model-Shift Uniqueness Test

008866102-01, P = 17.833576 Days, E = 127.736382 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
286.4	2.06	2.03	2.30	5.00	2.54	0.72	284.4	284.1	0.02	-0.24	1.78	0.98	0.01	0



Stellar Parameters For KIC 008866102

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6407^{+76}_{-83}	$4.268^{+0.030}_{-0.030}$	$0.000^{+0.150}_{-0.150}$	$1.337^{+0.067}_{-0.074}$	$1.208^{+0.068}_{-0.093}$	$0.712^{+0.087}_{-0.077}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+5%/-6%	+6%/-8%	+12%/-11%
Source	SPE72	AST69	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 008866102-01 / KOI 0042.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-8 ± 1	$2.79^{+0.10}_{-0.10}$	1210^{+20}_{-21}	3112^{+73}_{-81}	12^{+2}_{-2}
Alt.	-2 ± 1	$2.58^{+0.09}_{-0.10}$	1209^{+21}_{-22}	2625^{+154}_{-209}	$3.694^{+1.722}_{-1.684}$

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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

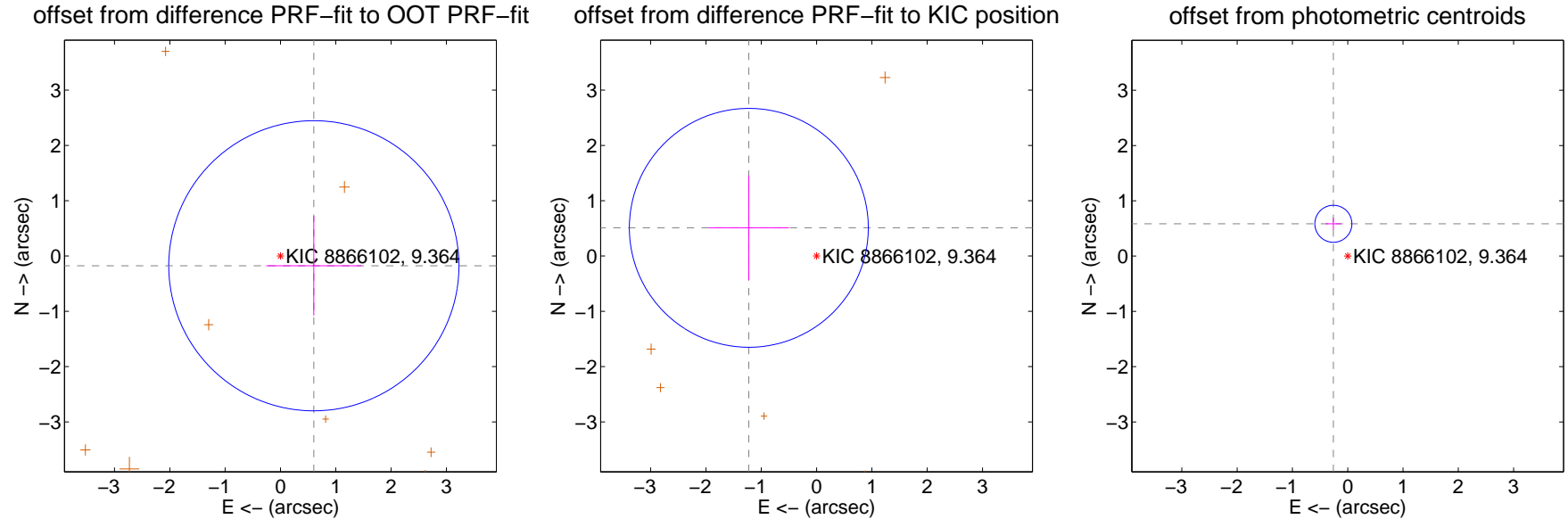
DV Centroid Data

Supplemental centroid analysis for 008866102-01. **Kepler magnitude: 9.36.** Transit SNR 130.24

There are 0 quarters with good PRF difference image offsets

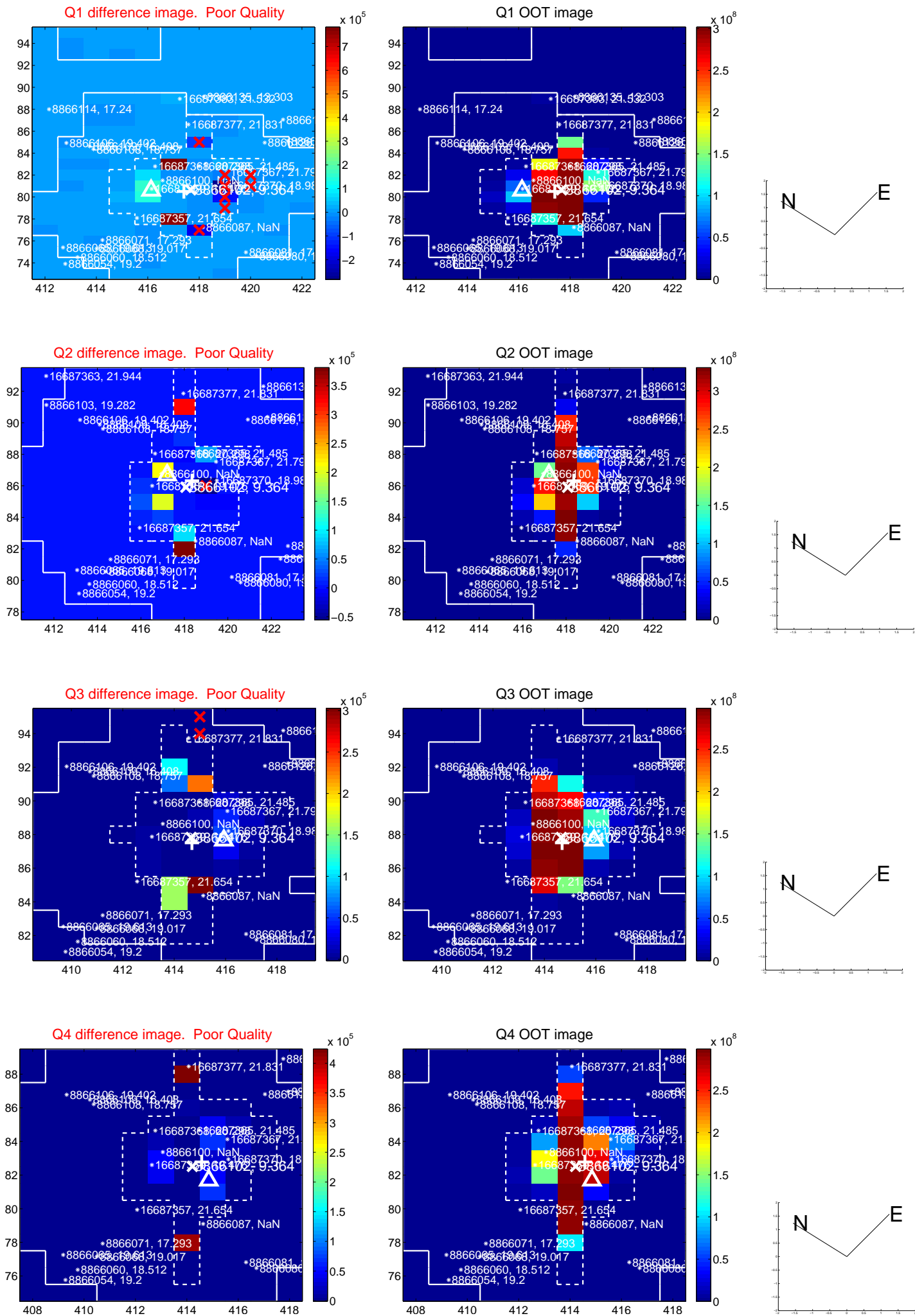
The OOT PRF centroid is offset from the target star catalog position by about 3.21 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.629 ± 0.875	0.72	-0.604 ± 0.862	-0.176 ± 0.900
PRF-fit source offset from KIC position	1.327 ± 0.720	1.84	1.225 ± 0.726	0.510 ± 0.949
photometric centroid source offset	0.64 ± 0.11	5.73	0.26 ± 0.14	0.58 ± 0.11

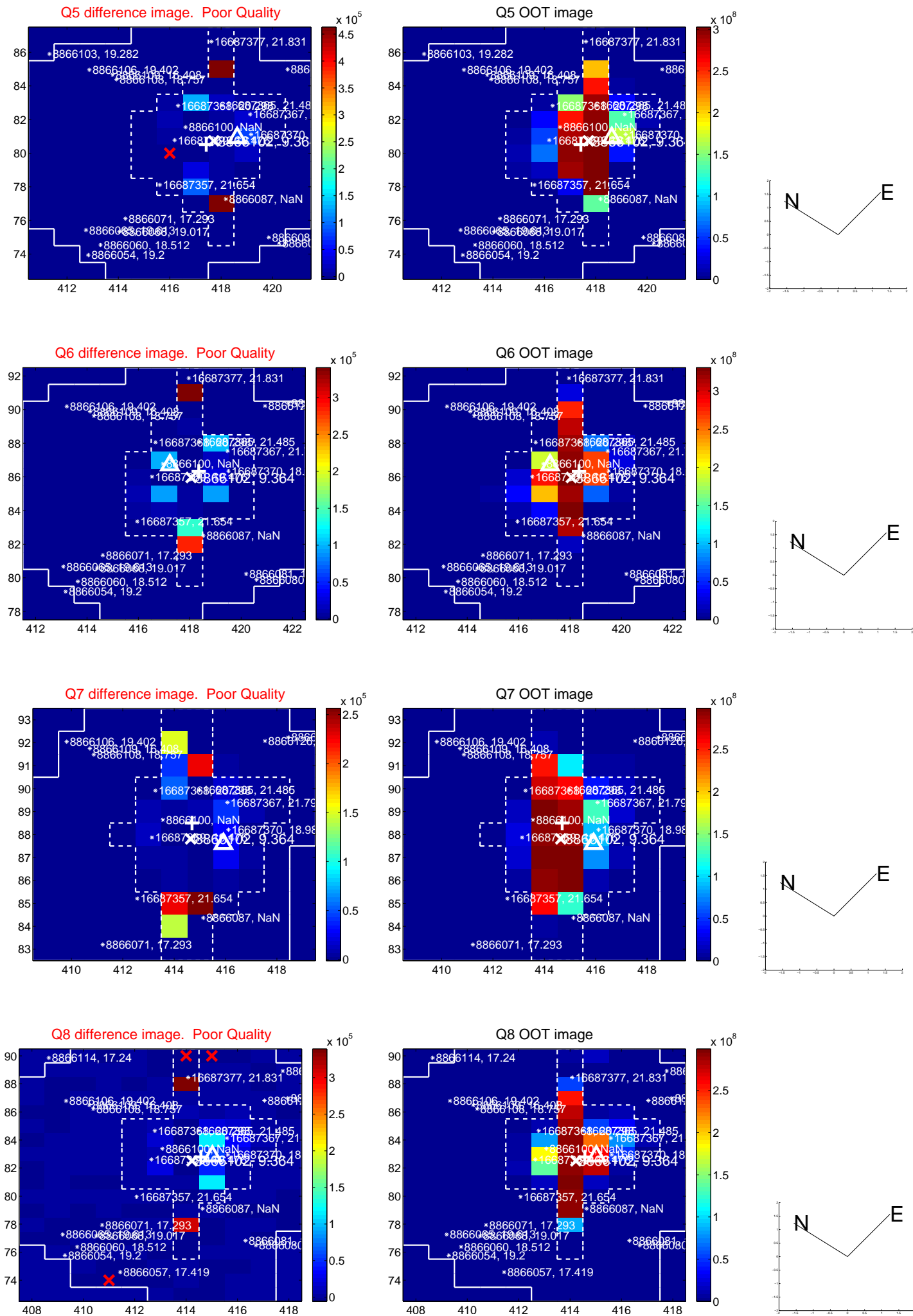


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

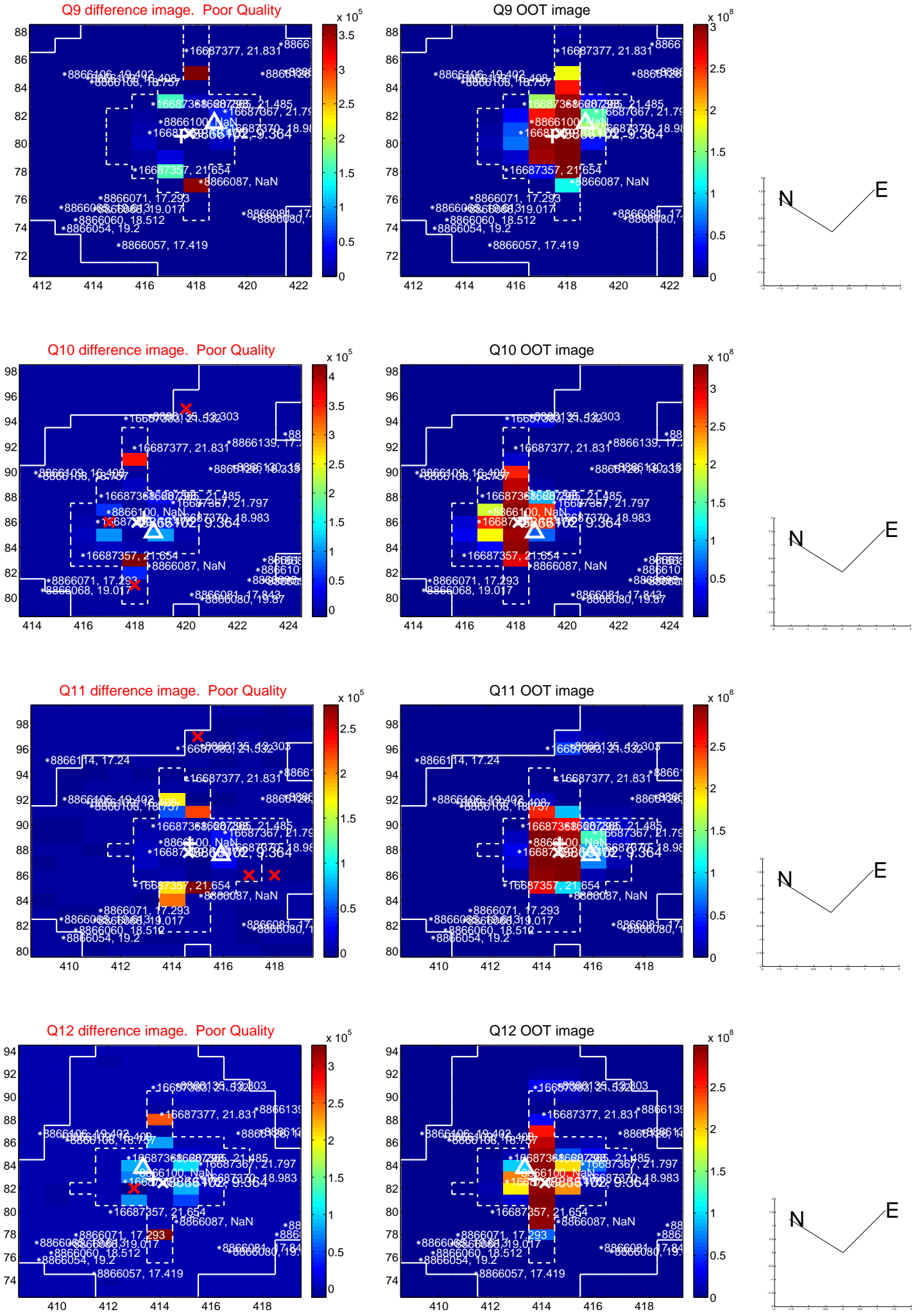
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



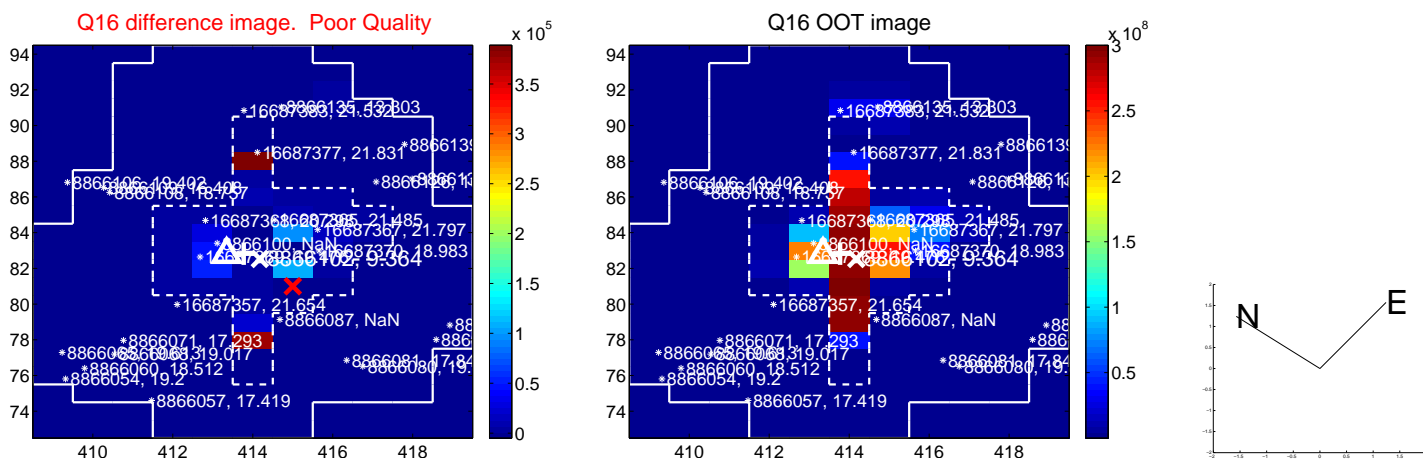
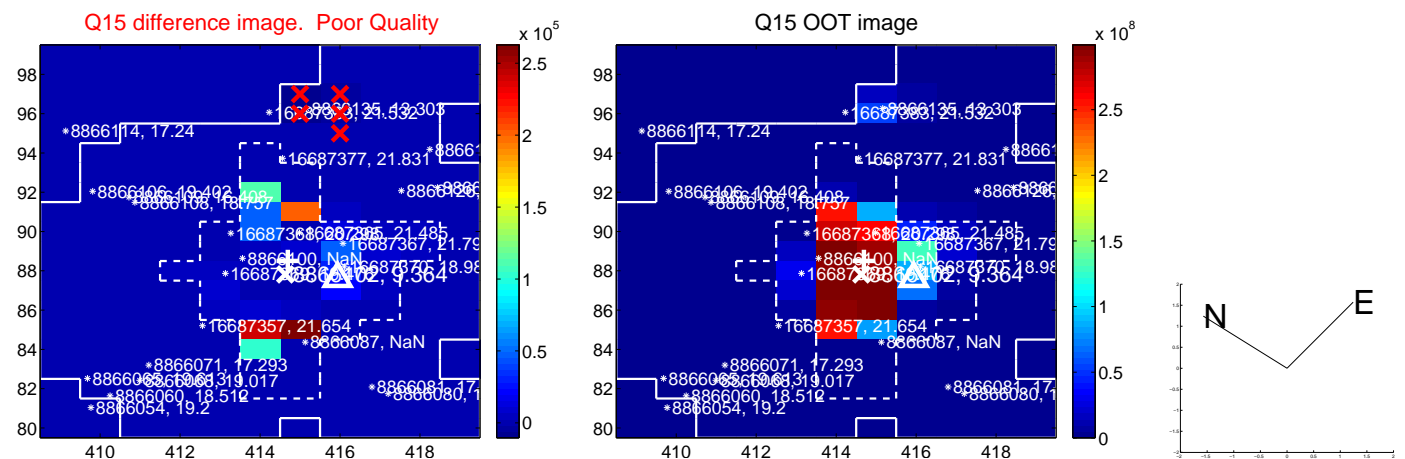
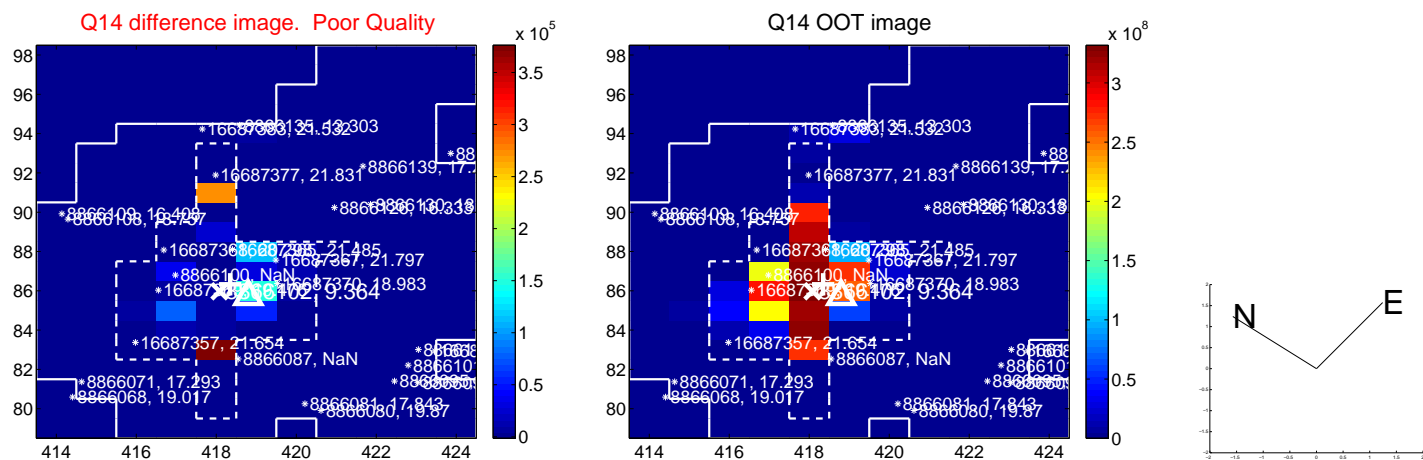
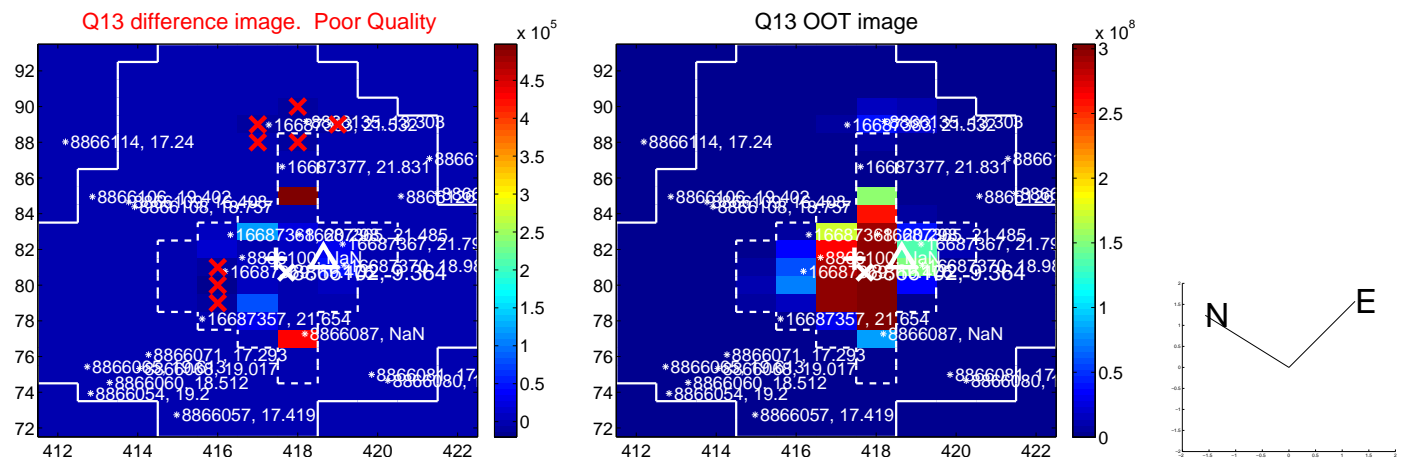
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



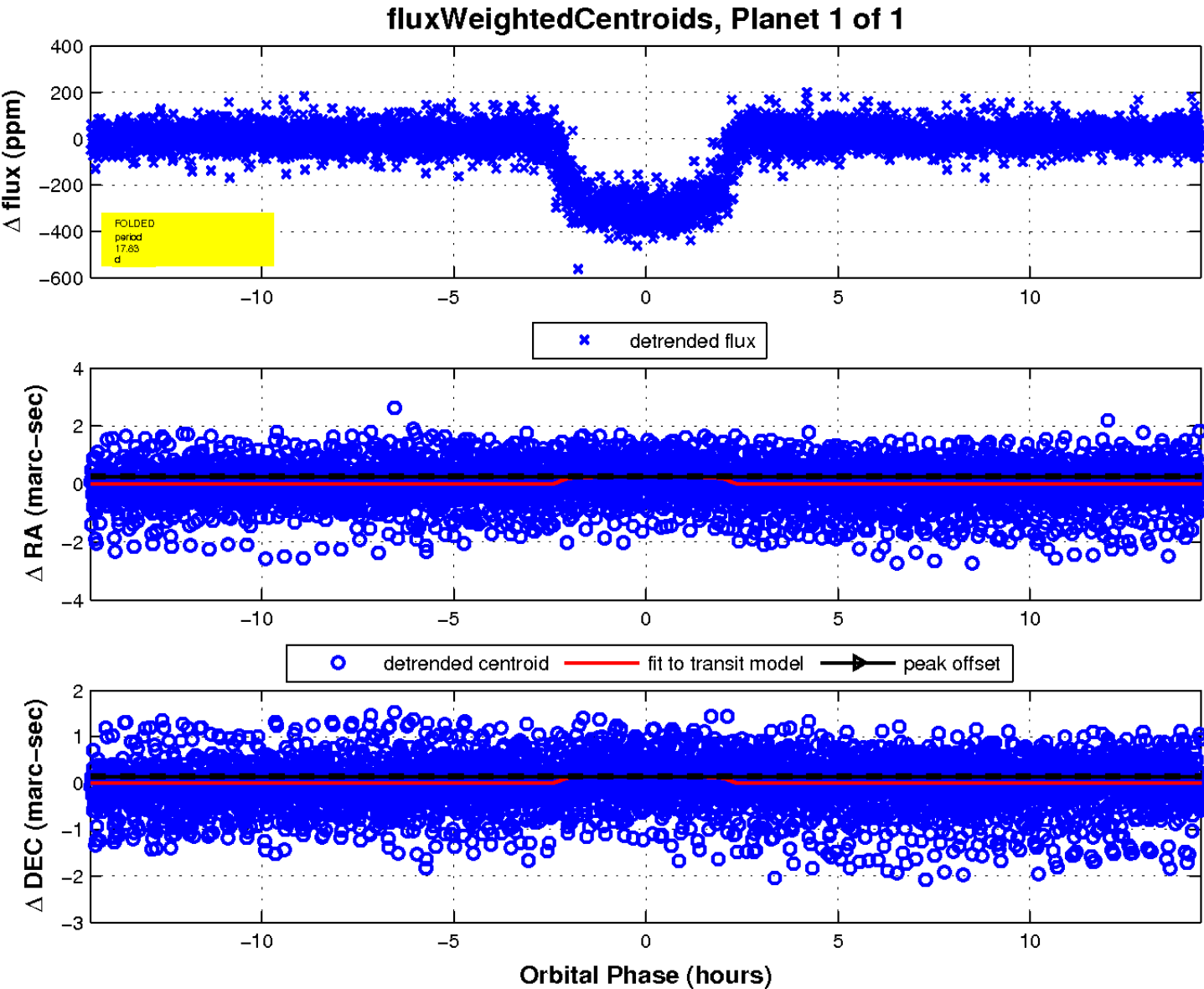
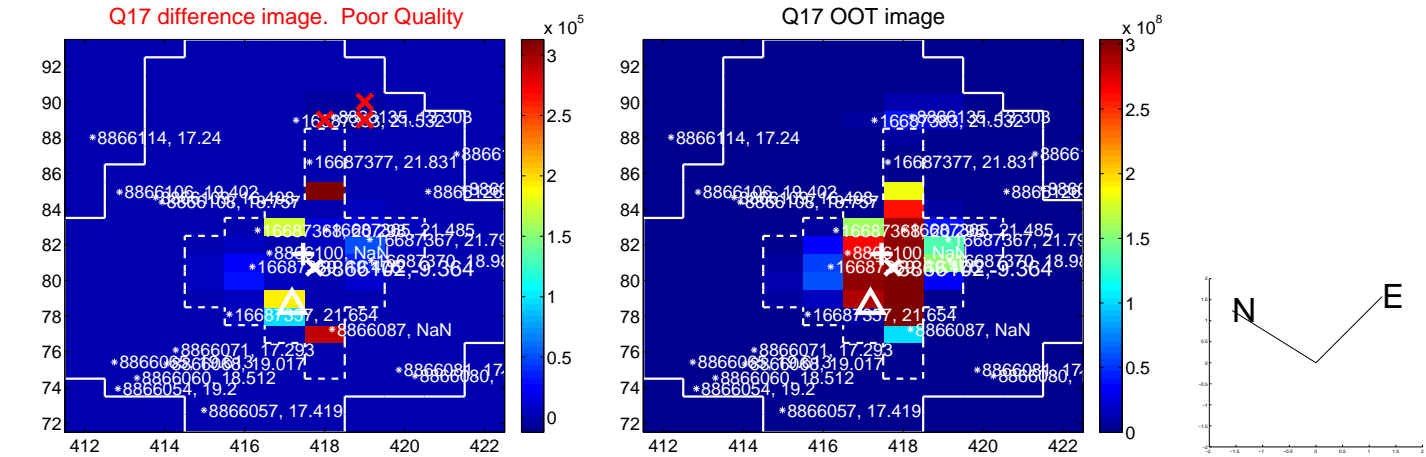
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UKIRT Image

