

KIC 007870306

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})
007870306-01	OBS	No	0.580691	131.743693	38.3	3.263	13.0	8.2	0.80	5203	0.53	2759.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007870306-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

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.

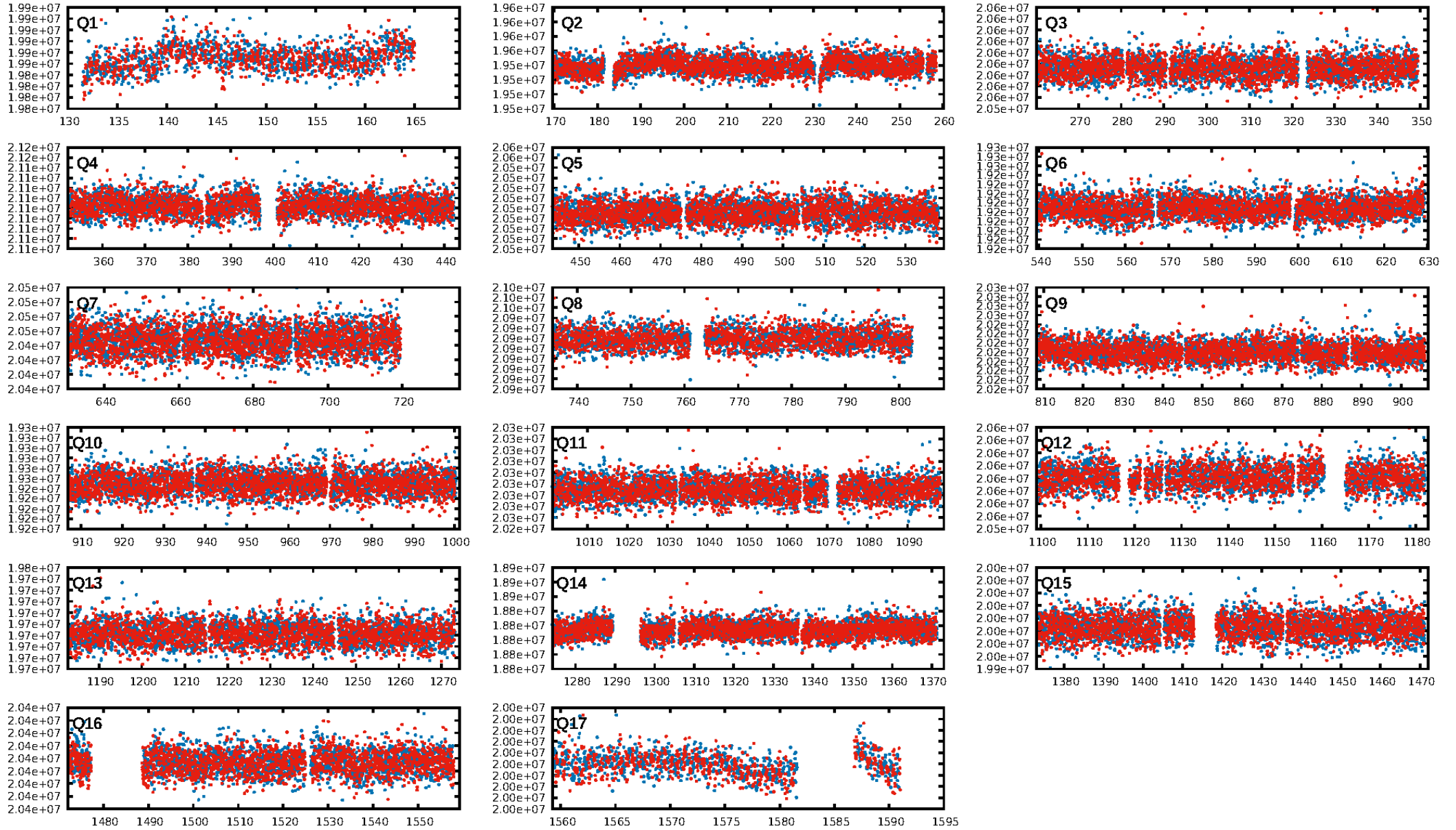
Ephemeris Match Information For 007870306-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
007870306-01	7870306	007870250-01	7870250	1:1	77.2	-15	11	14.57	15.11	0.61	Direct-PRF	1	1.79	1.33

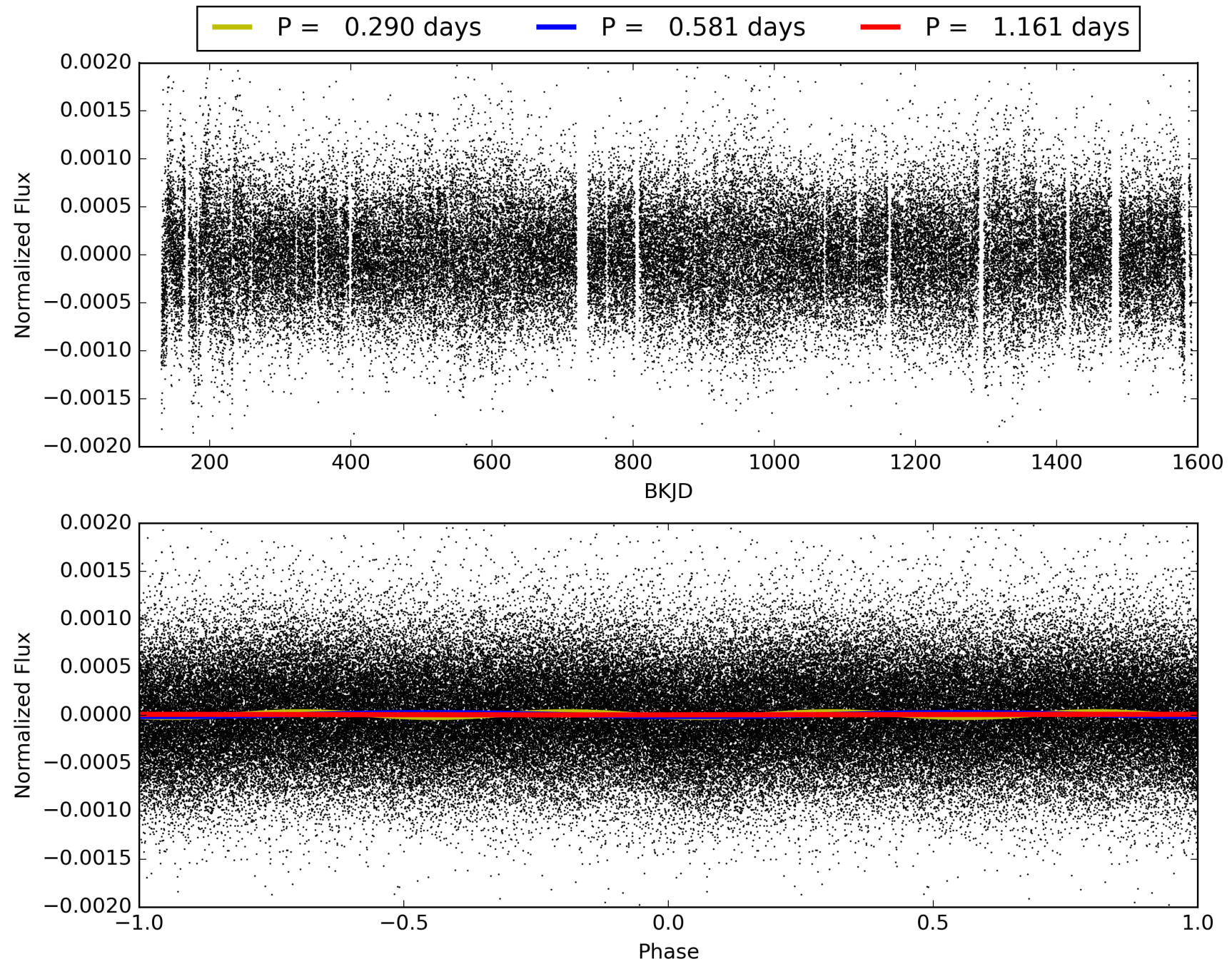
Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

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

TCE 007870306-01, PDC Light Curves

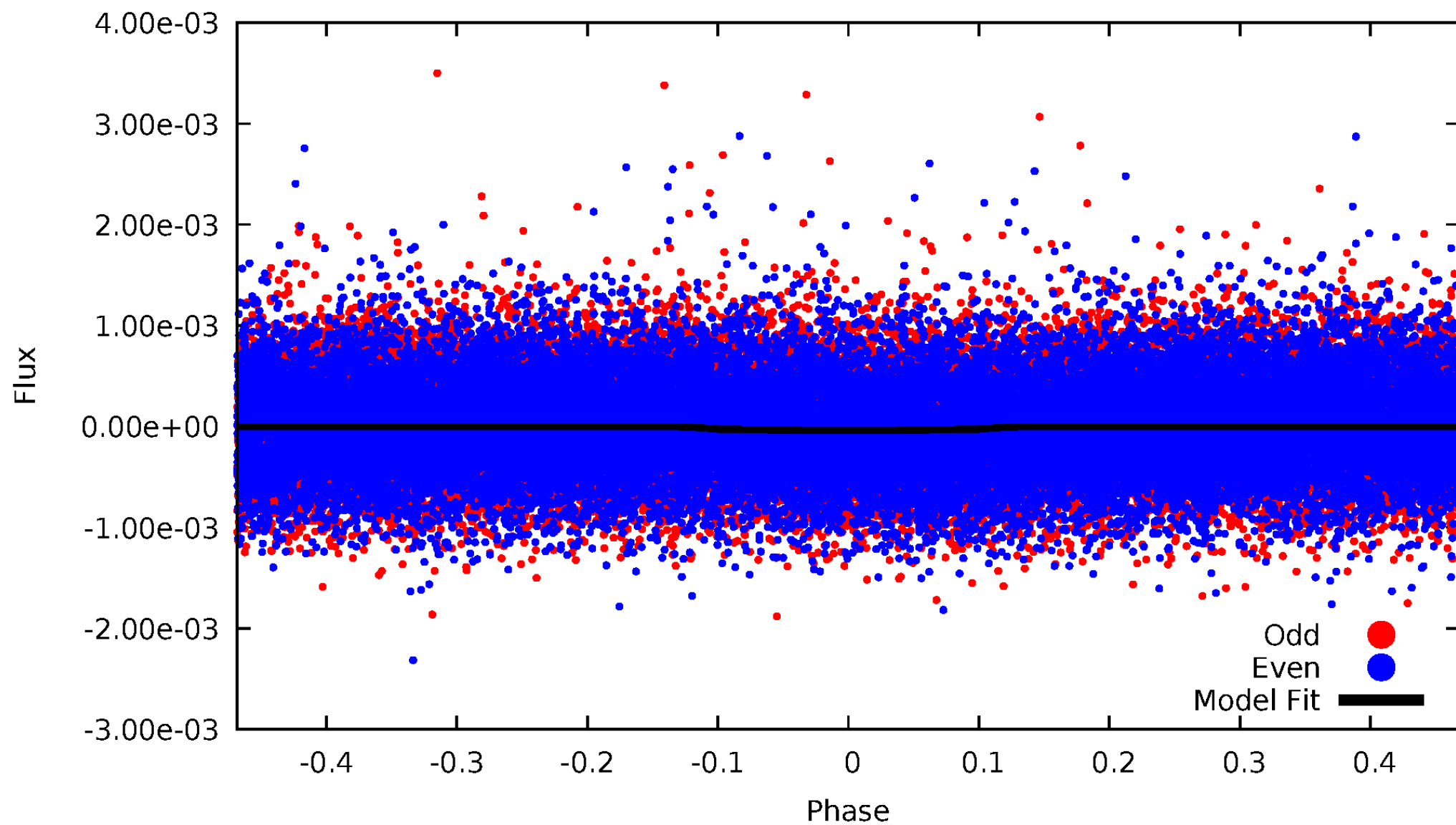


TCE 007870306-01



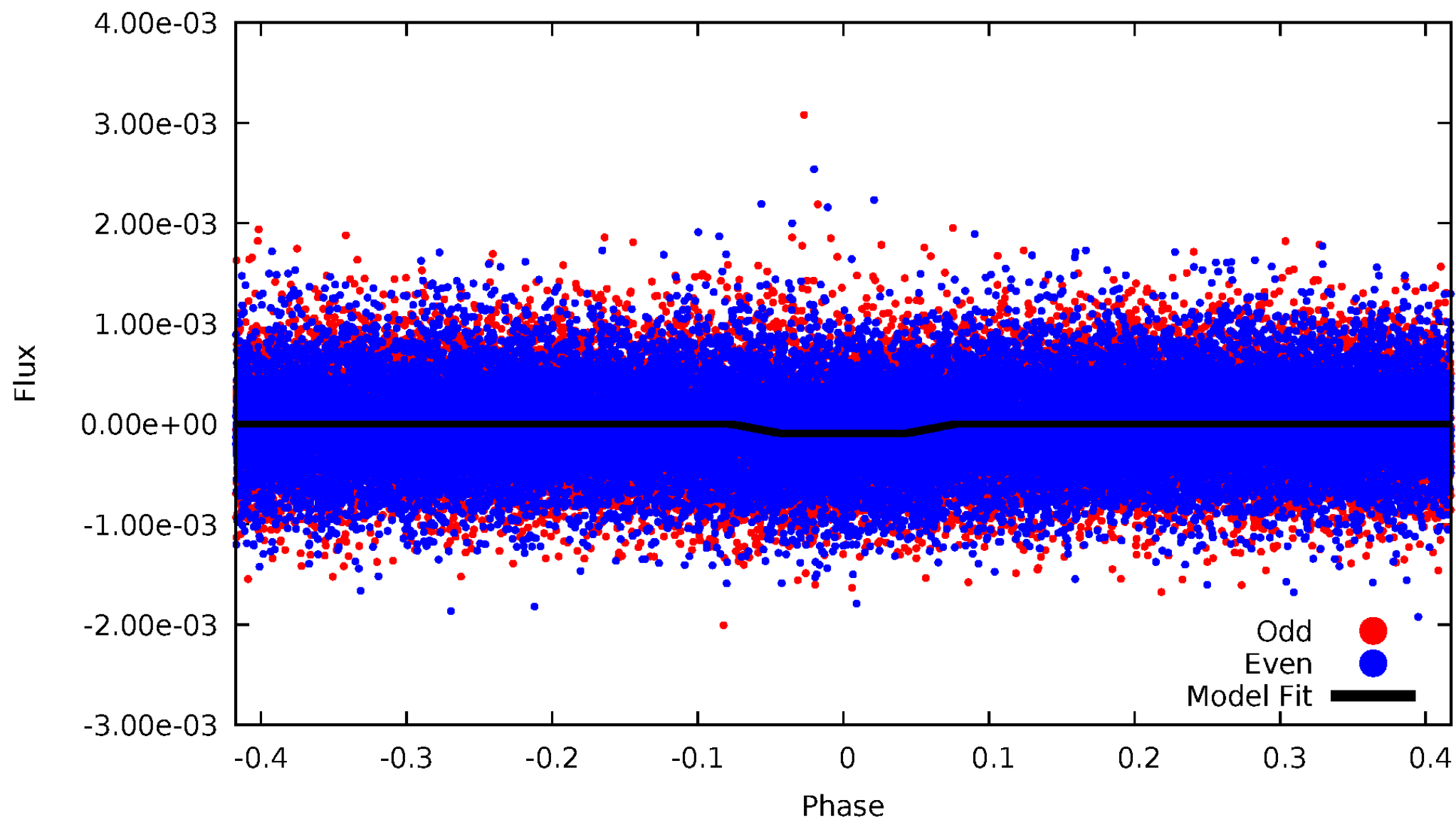
DV Odd/Even

TCE 007870306-01



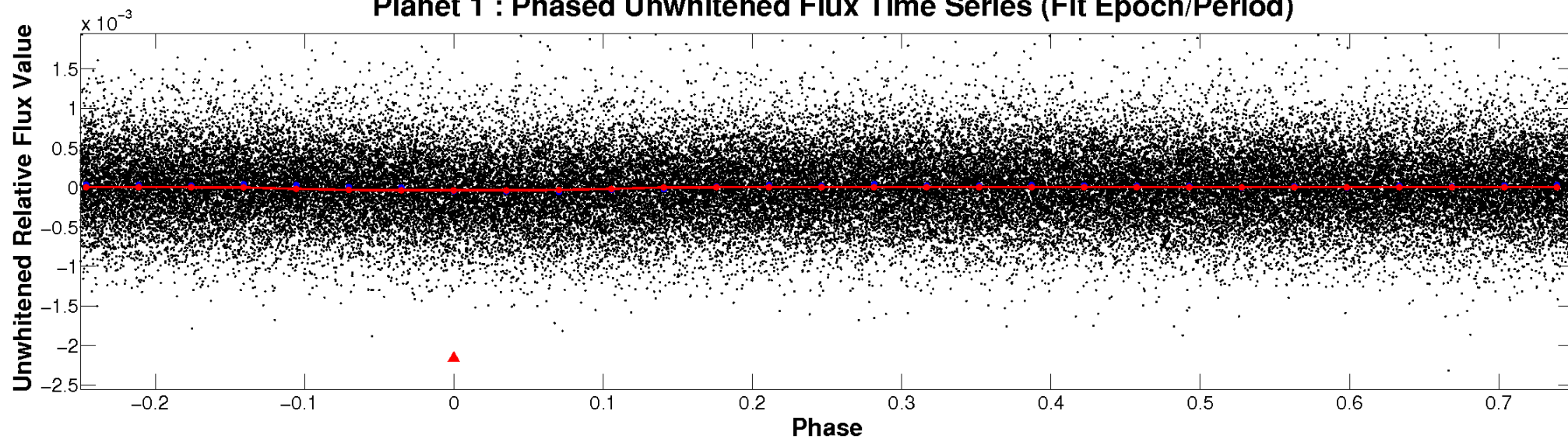
ALT Odd/Even

TCE 007870306-01

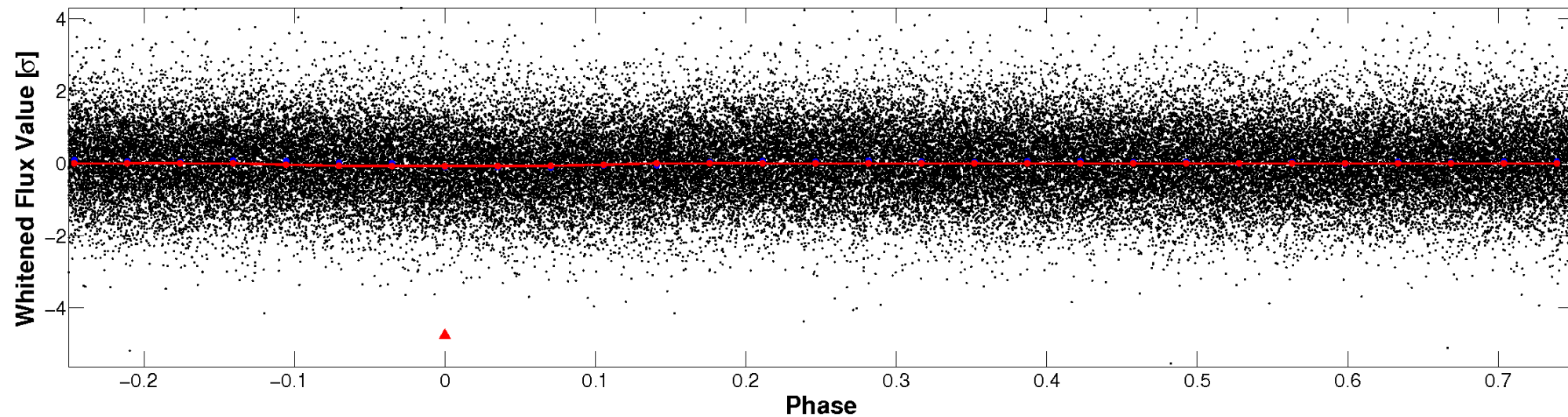


Non-Whitened Vs. Whitened Light Curve

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

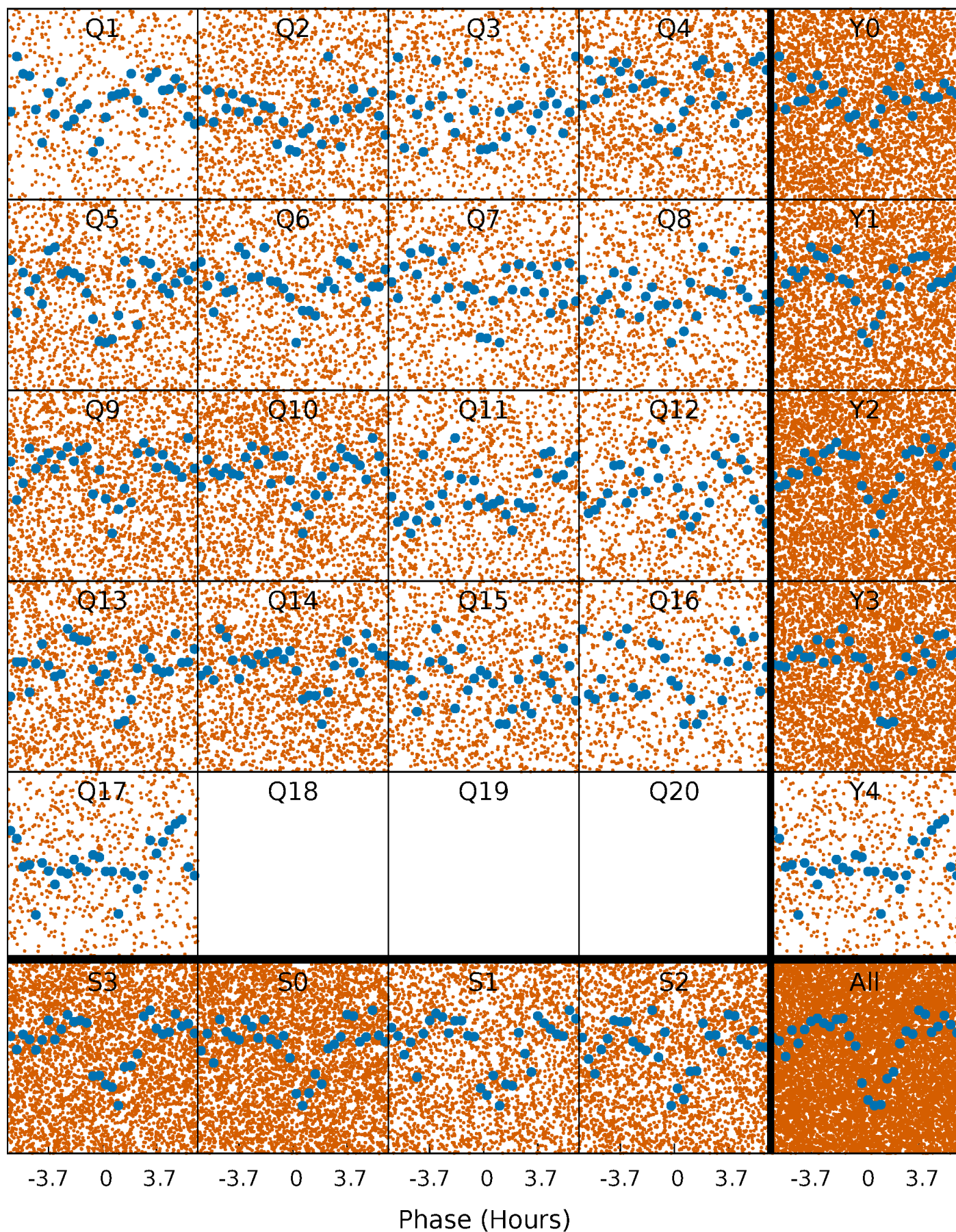


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



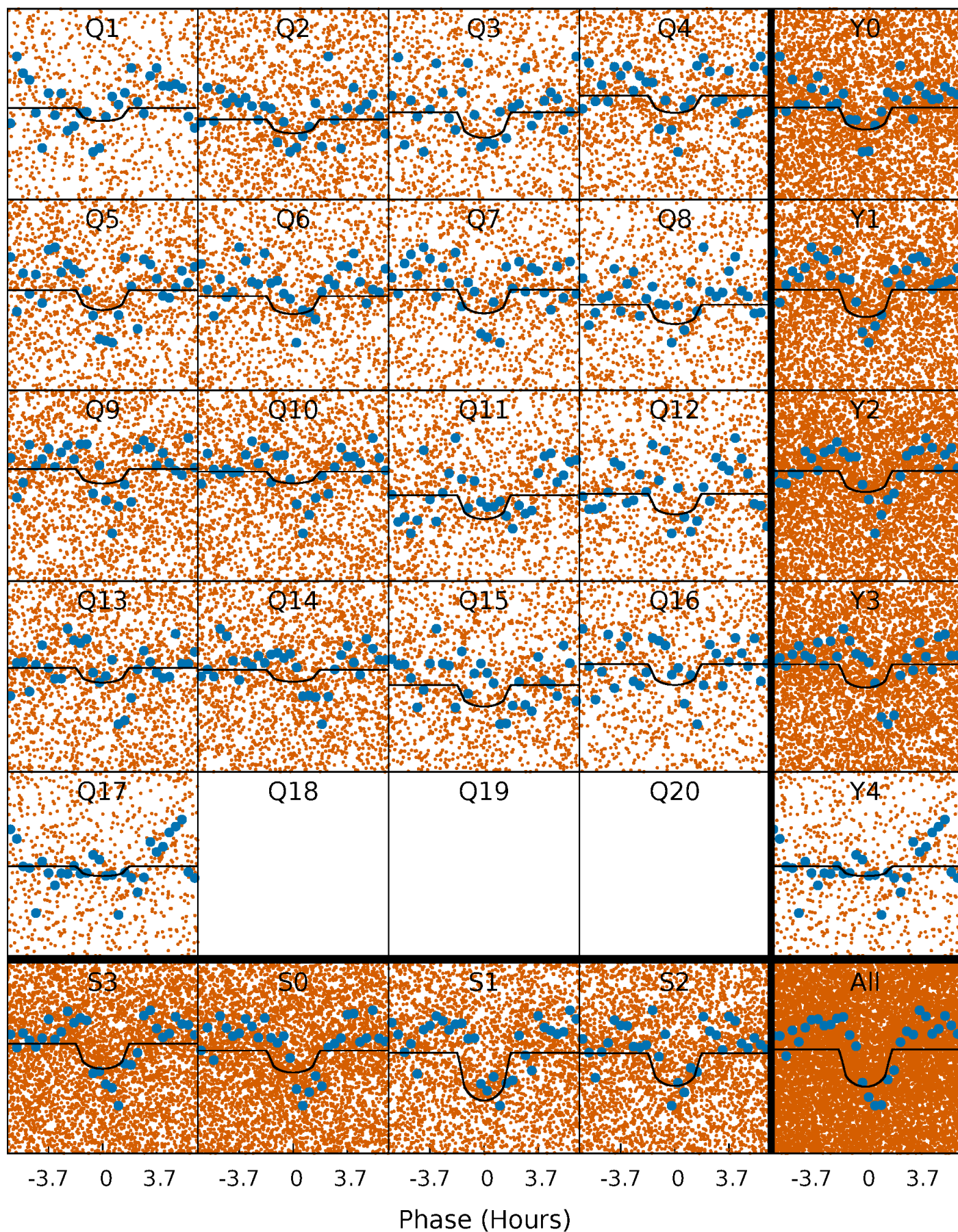
PDC Quarter-Phased Transit Curves

TCE 007870306-01 P= 0.580691 Days $T_0=131.743693$ (BKJD)



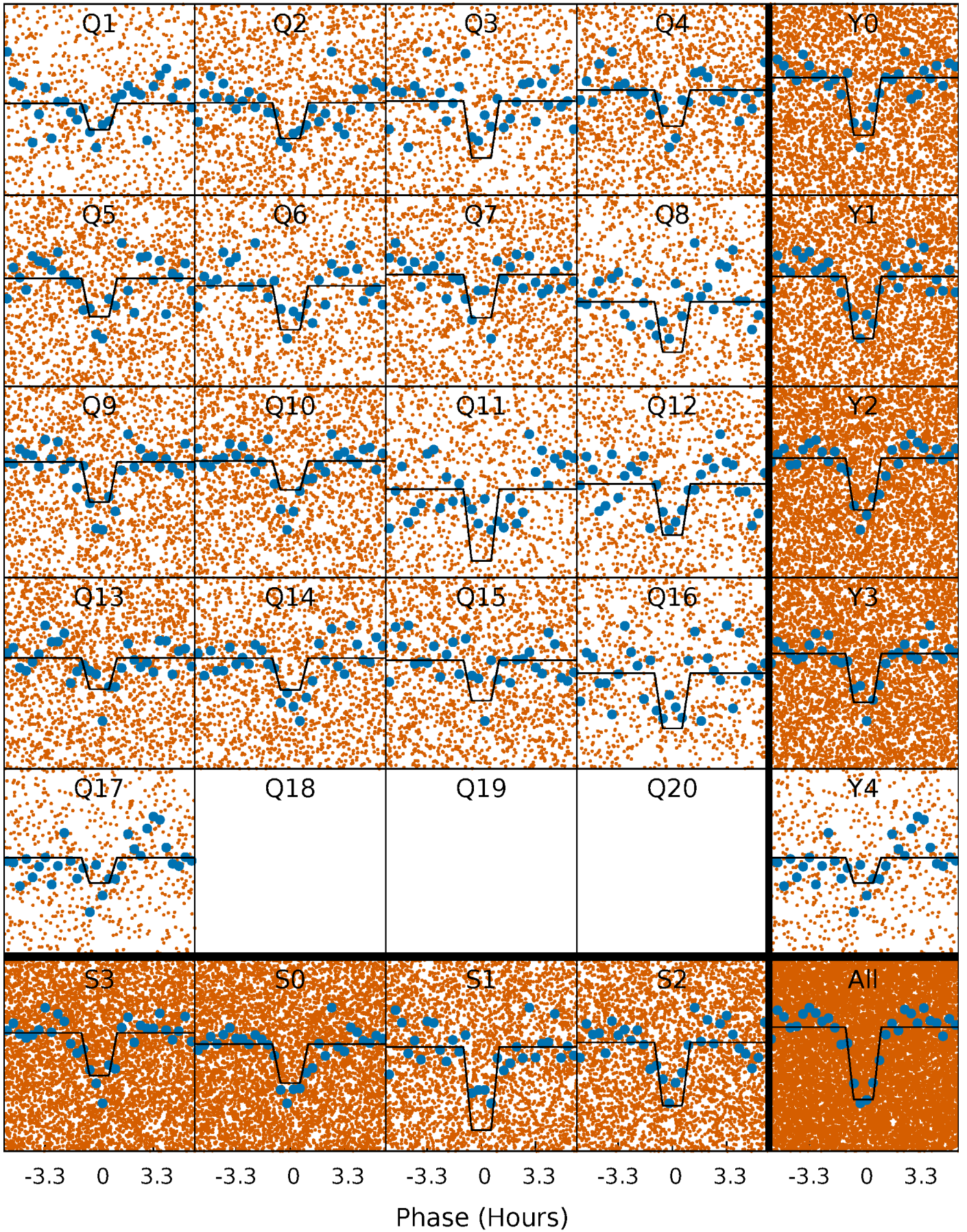
DV Quarter-Phased Transit Curves

TCE 007870306-01 P= 0.580691 Days $T_0=131.743693$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

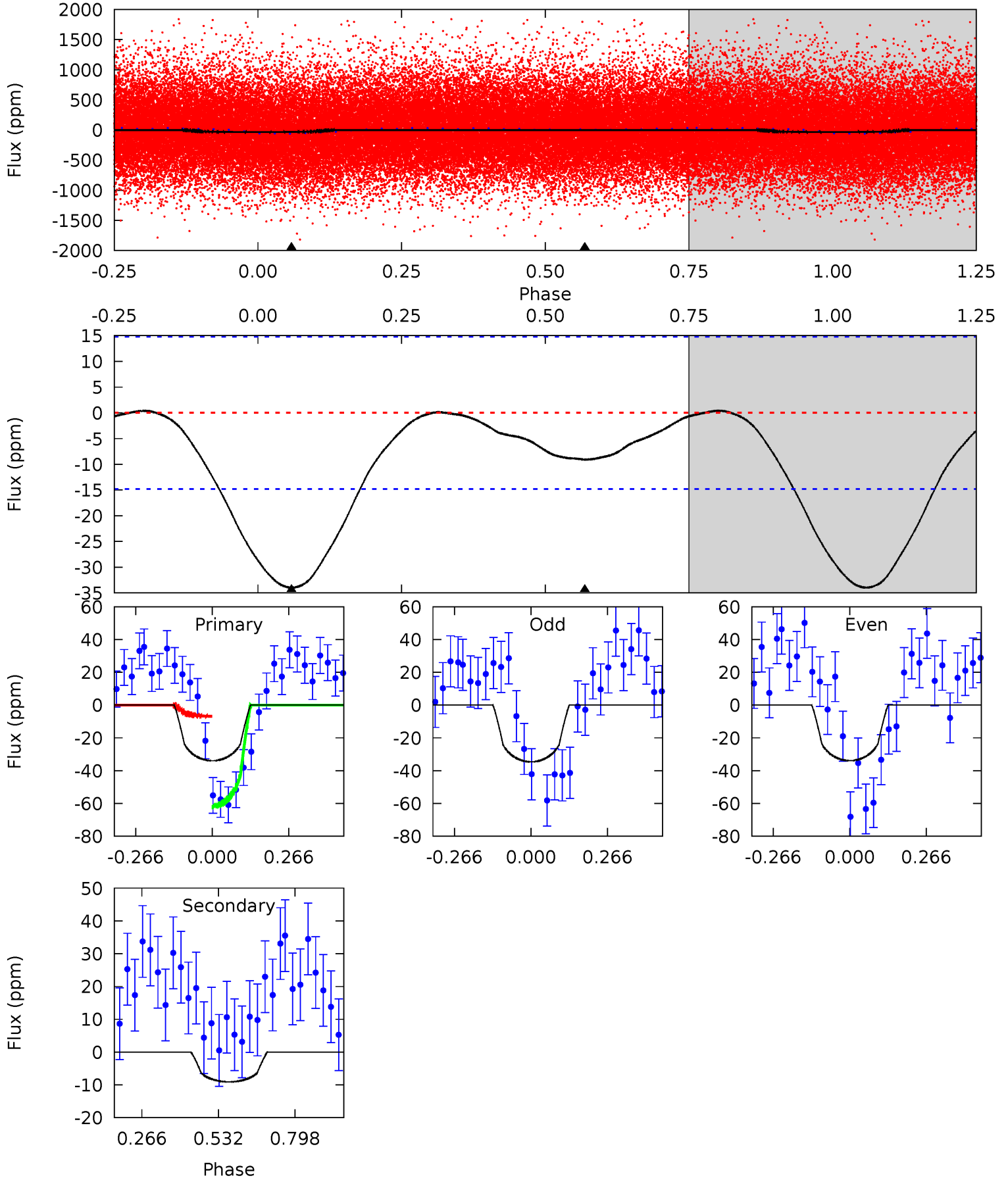
TCE 007870306-01 P= 0.580721 Days $T_0=131.737680$ (BKJD)



DV Model-Shift Uniqueness Test

007870306-01, P = 0.580691 Days, E = 131.163002 Days

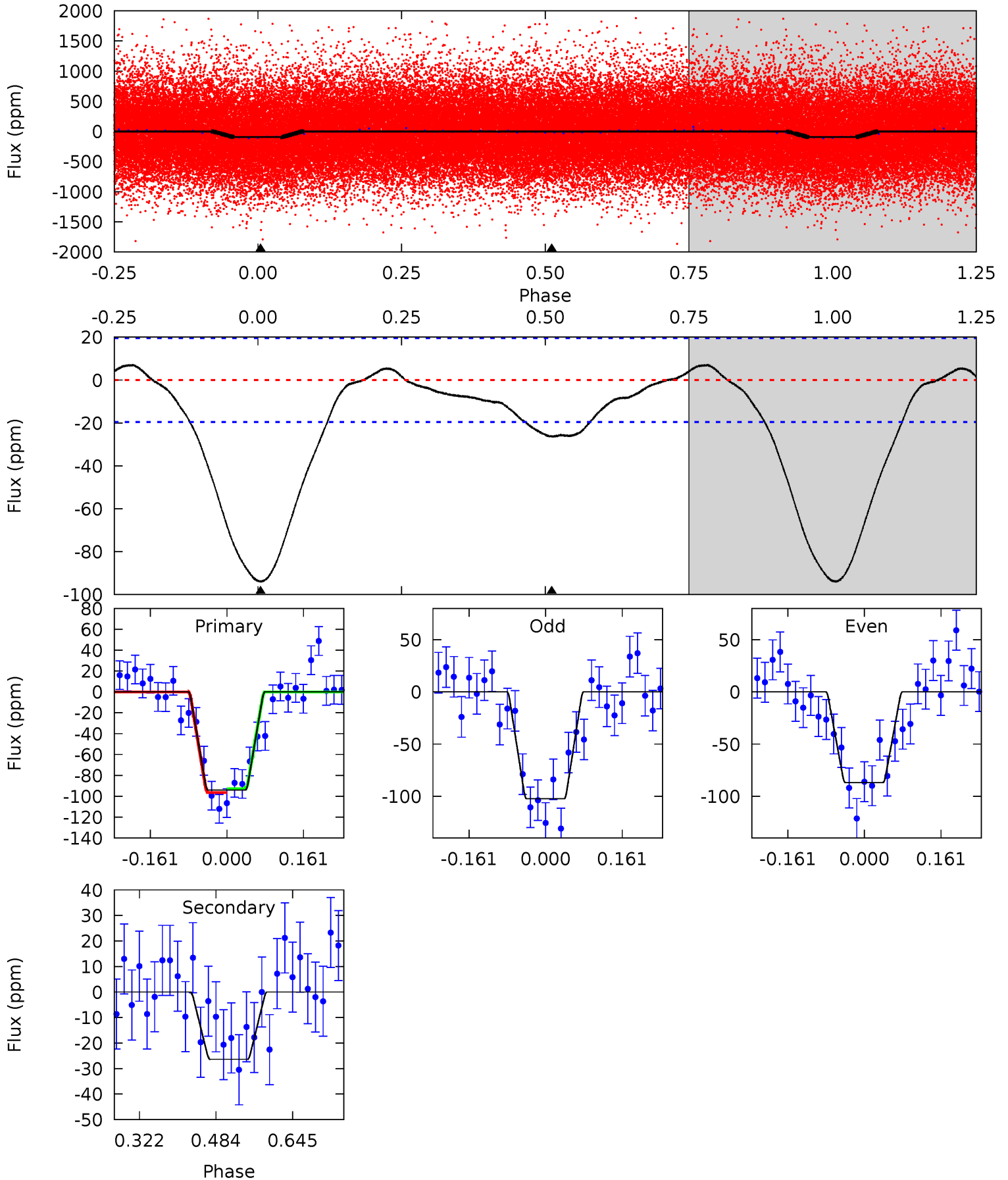
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.99	2.67	0	0	4.36	1.11	0.08	9.99	9.99	2.67	2.67	0.10	0.88	0.01	8.03



Alt Model-Shift Uniqueness Test

007870306-01, P = 0.580721 Days, E = 131.156959 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	6.03	0	0	4.46	1.40	0.91	21.5	21.5	6.03	6.03	1.77	0.99	0.07	0.42



Stellar Parameters For KIC 007870306

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5203^{+154}_{-154}	$4.504^{+0.095}_{-0.105}$	$-0.200^{+0.300}_{-0.300}$	$0.802^{+0.104}_{-0.094}$	$0.750^{+0.107}_{-0.058}$	$2.046^{+0.836}_{-0.592}$
	+3%/-3%	+2%/-2%	+150%/-150%	+13%/-12%	+14%/-8%	+41%/-29%
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 007870306-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-9 ± 3	$0.65^{+0.48}_{-0.44}$	2591^{+110}_{-121}	3575^{+2107}_{-824}	$1.770^{+14.296}_{-1.226}$
Alt.	-26 ± 4	$0.91^{+0.52}_{-0.47}$	2587^{+117}_{-115}	3875^{+1455}_{-640}	$2.761^{+9.013}_{-1.695}$

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

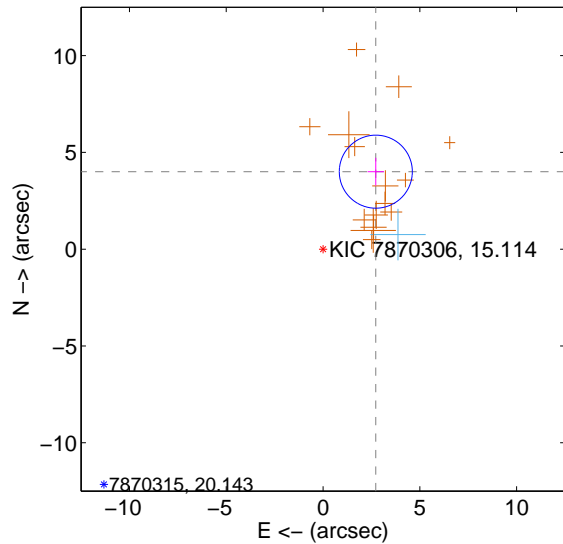
Supplemental centroid analysis for 007870306-01. Kepler magnitude: 15.11. Transit SNR 8.21

There are 1 quarters with good PRF difference image offsets

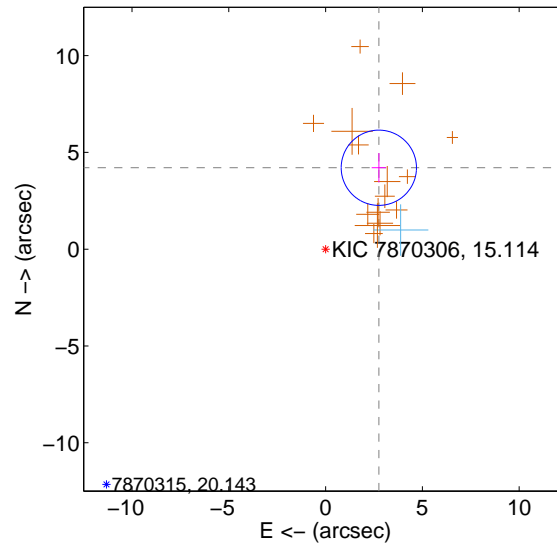
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.843 ± 0.629	7.70	-2.726 ± 0.422	4.003 ± 0.719
PRF-fit source offset from KIC position	5.025 ± 0.648	7.76	-2.750 ± 0.370	4.206 ± 0.762
photometric centroid source offset	5.44 ± 1.66	3.28	-4.53 ± 1.67	3.00 ± 1.62

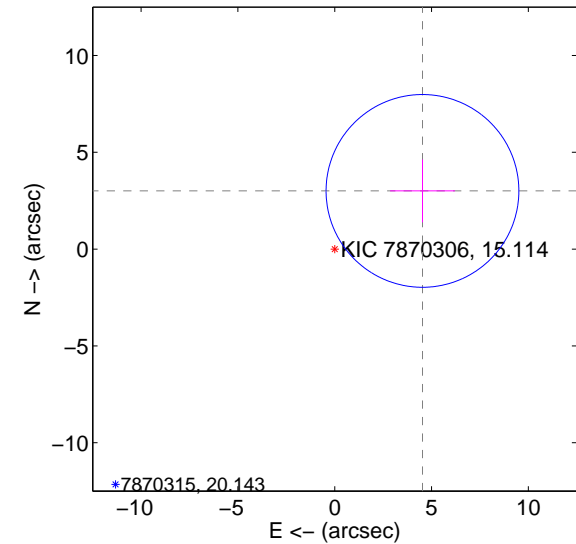
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

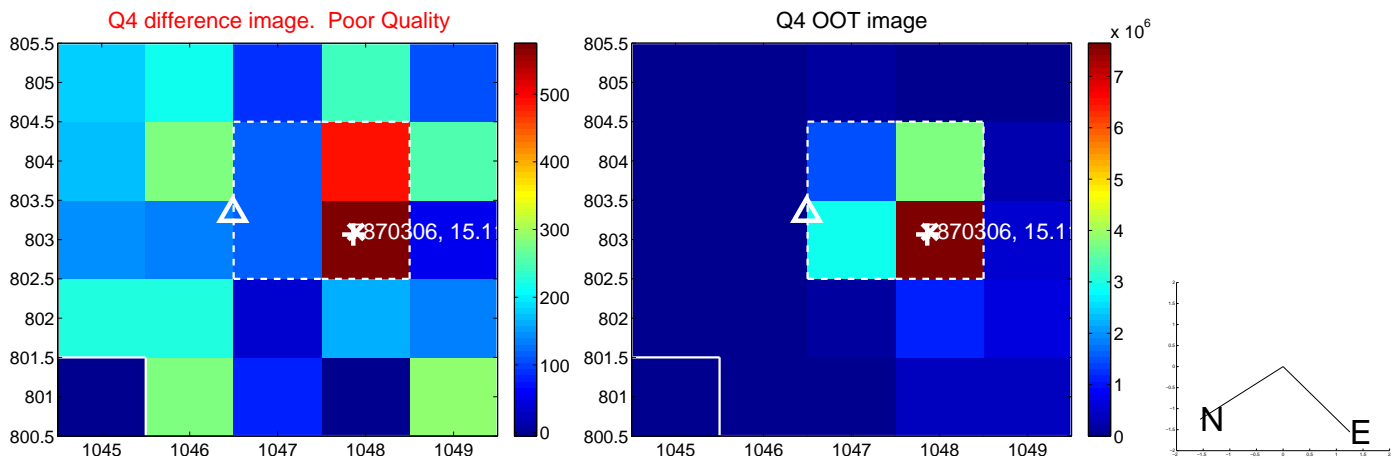
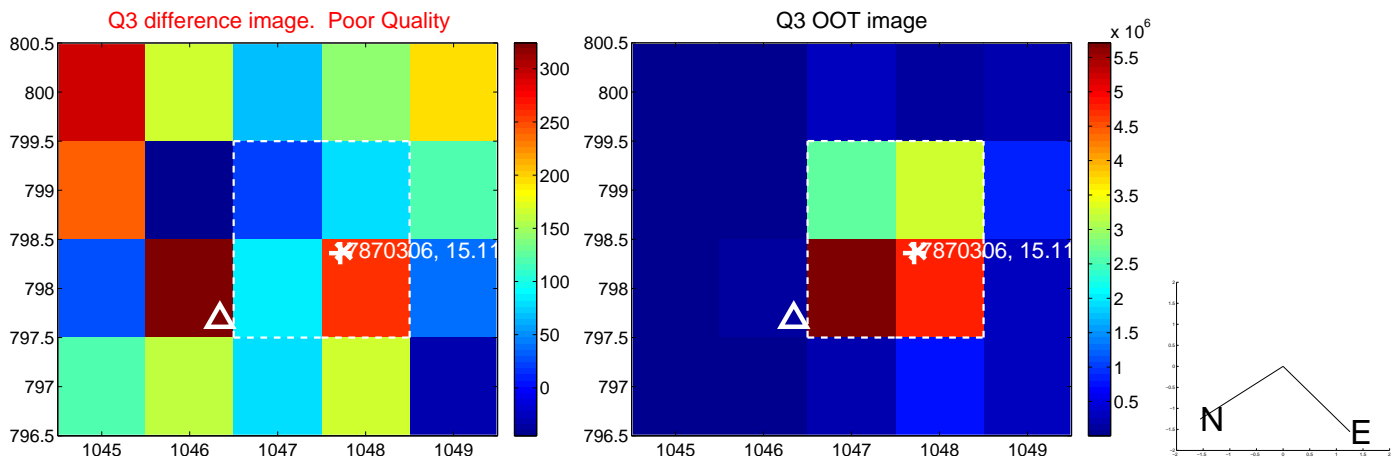
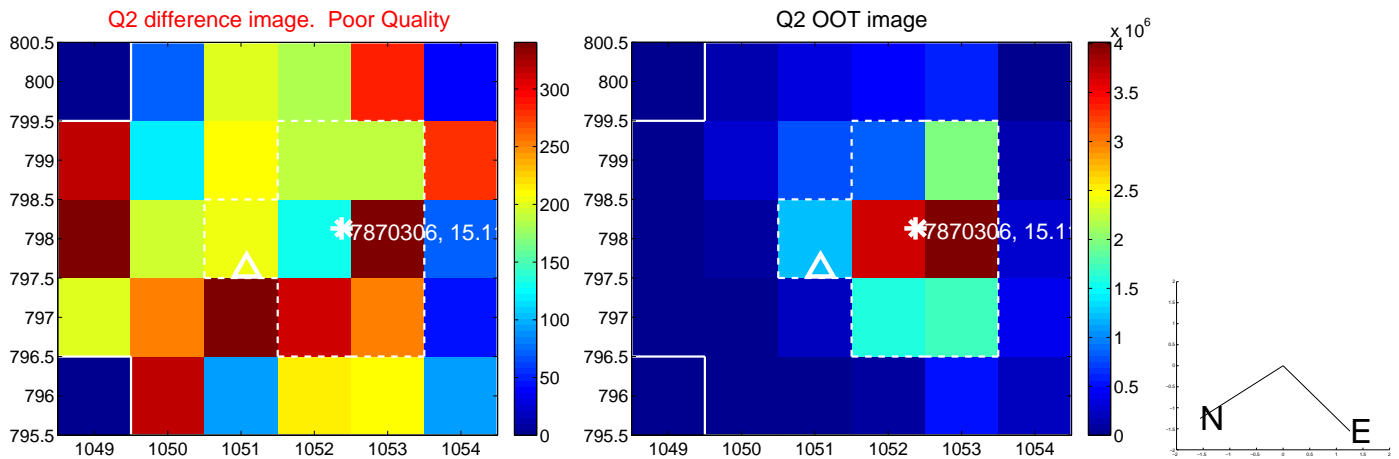
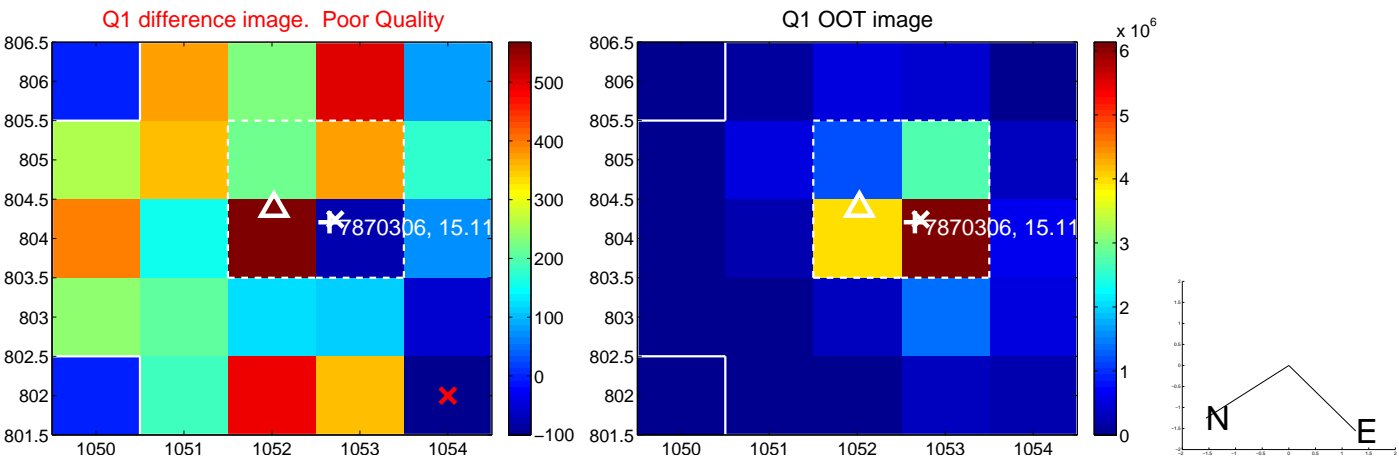


offset from photometric centroids

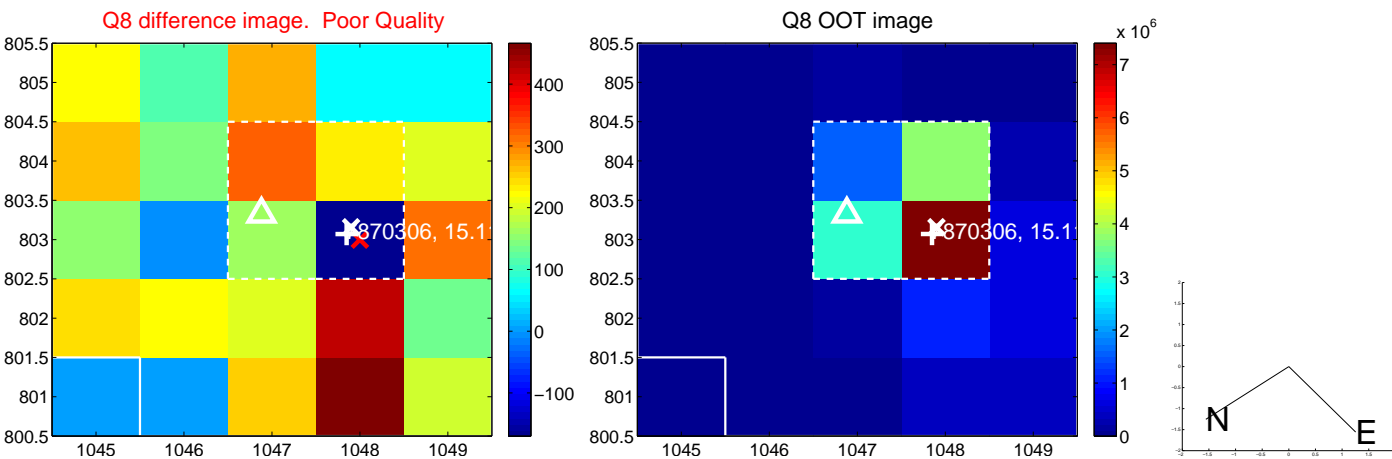
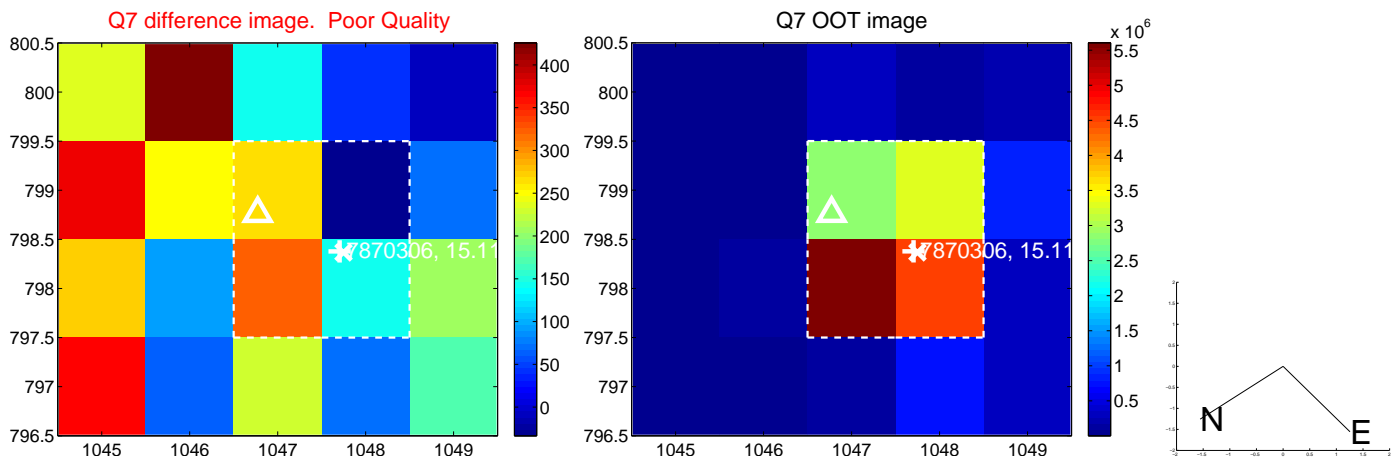
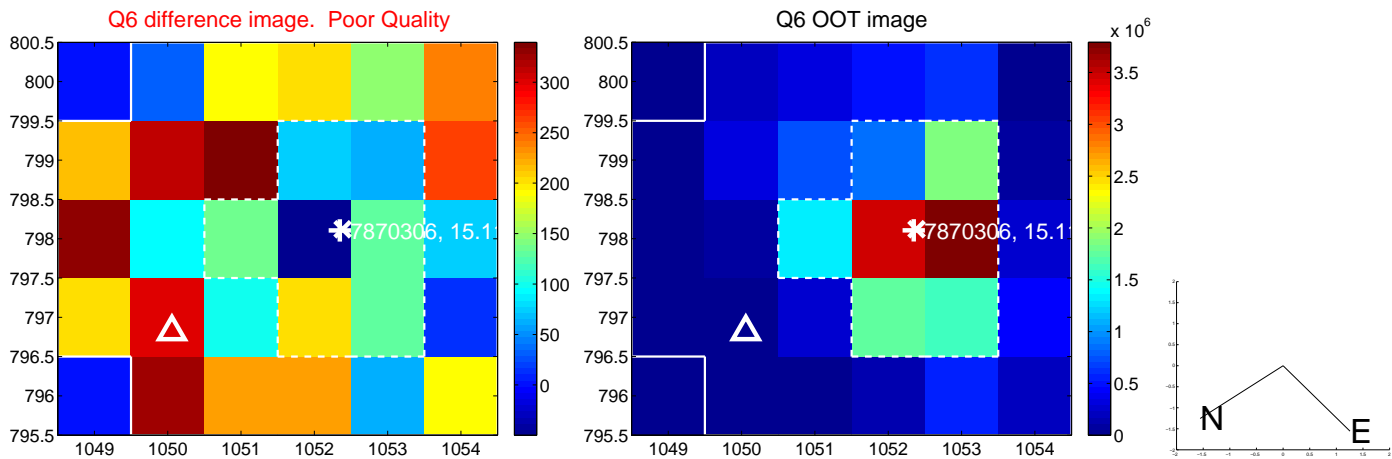
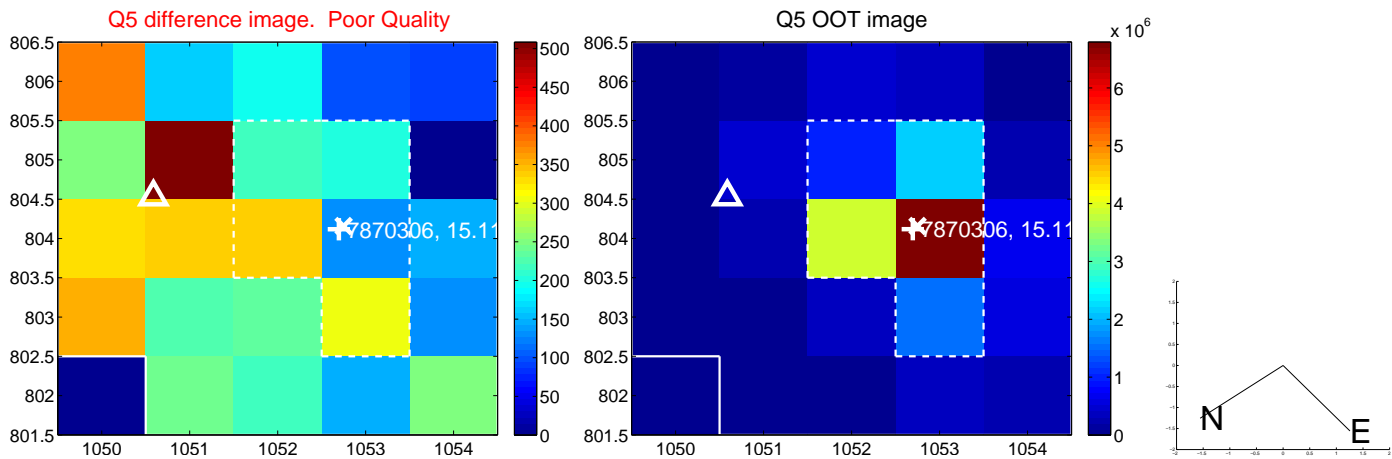


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

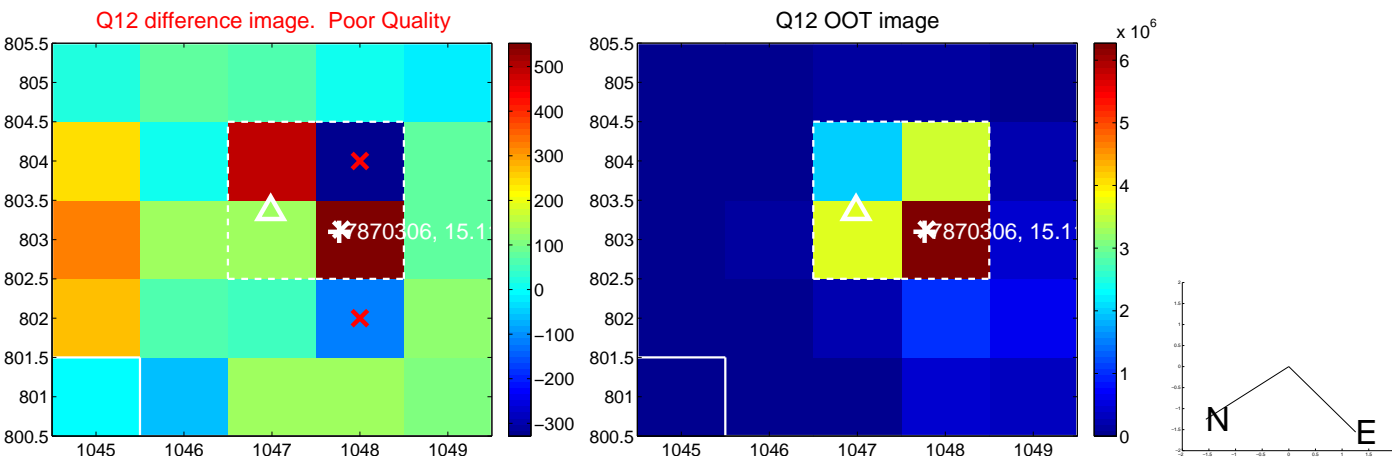
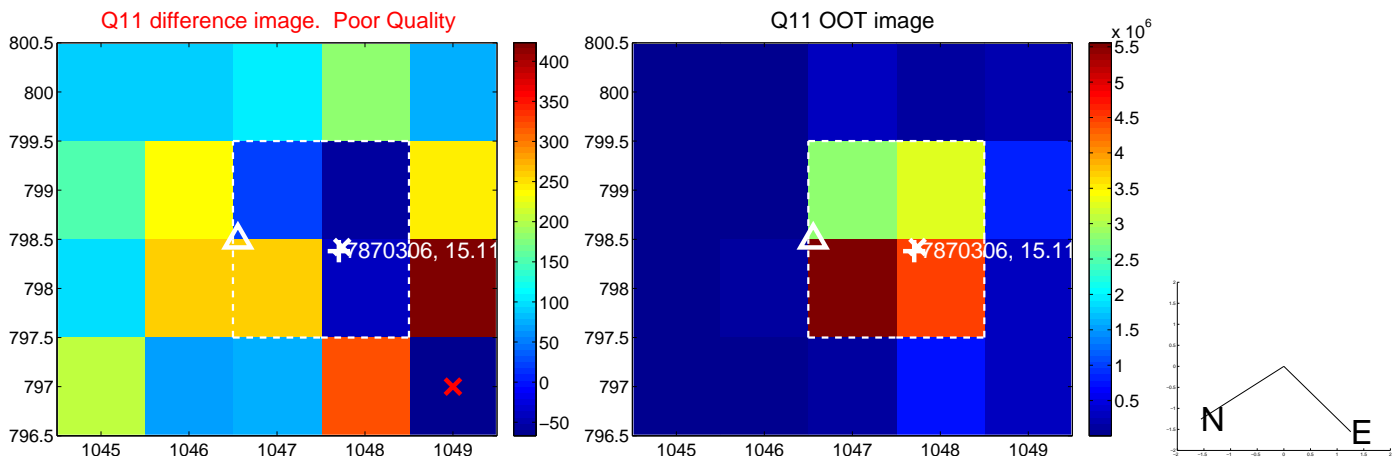
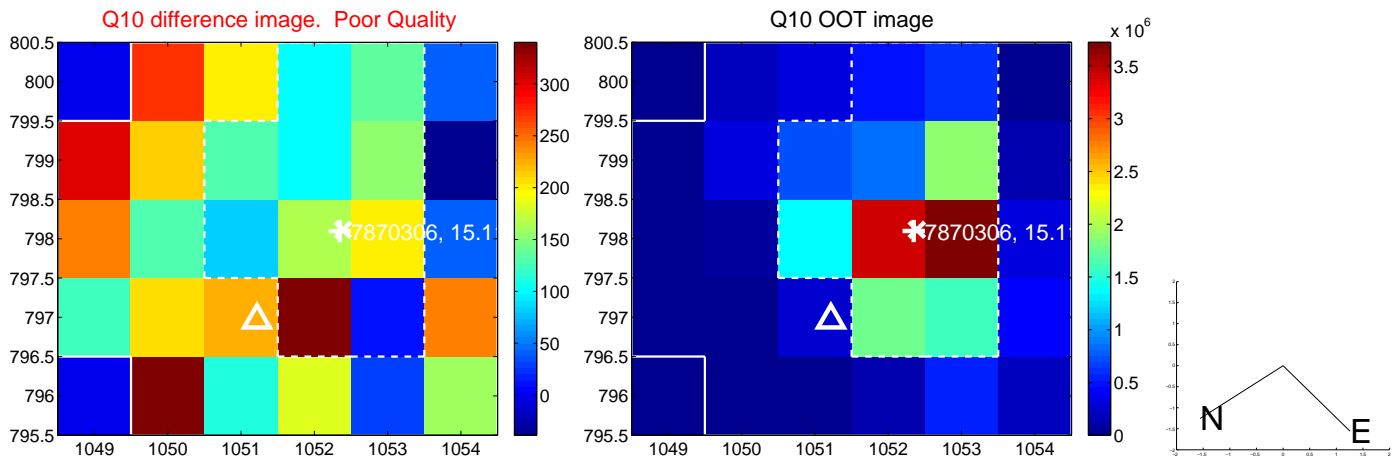
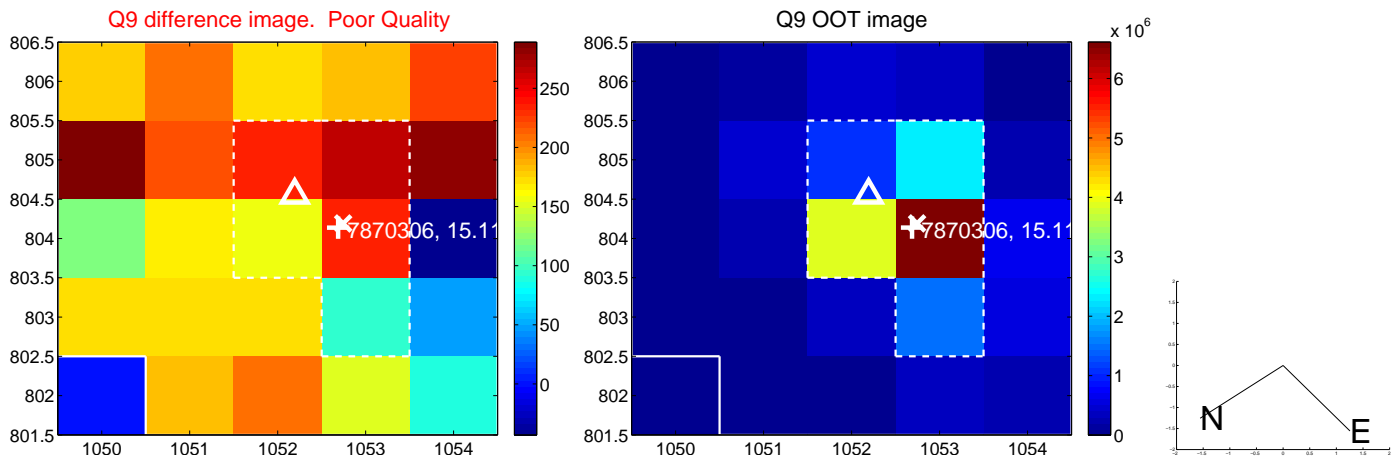
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



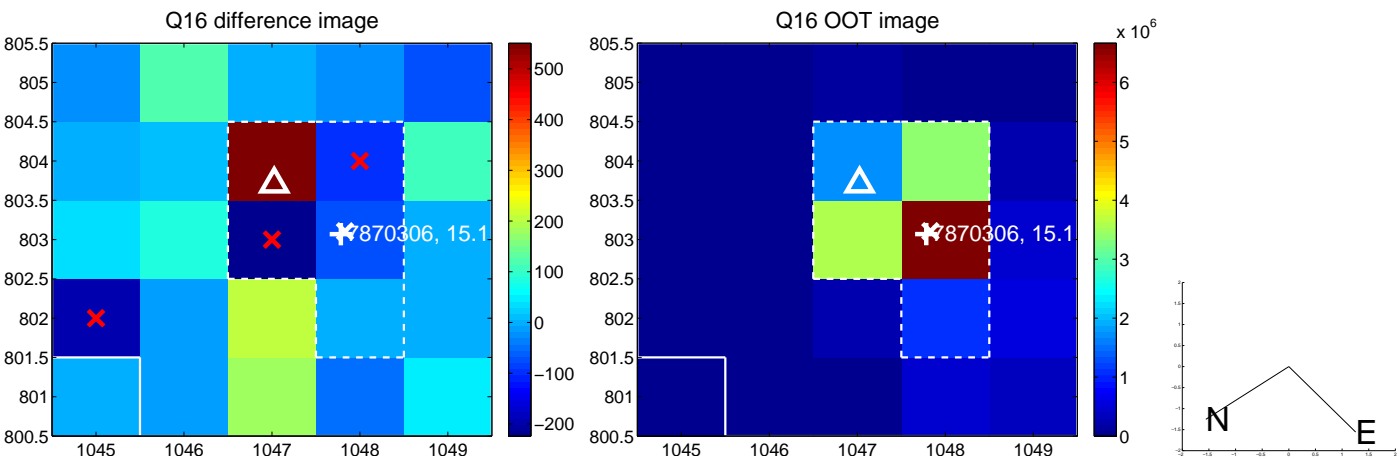
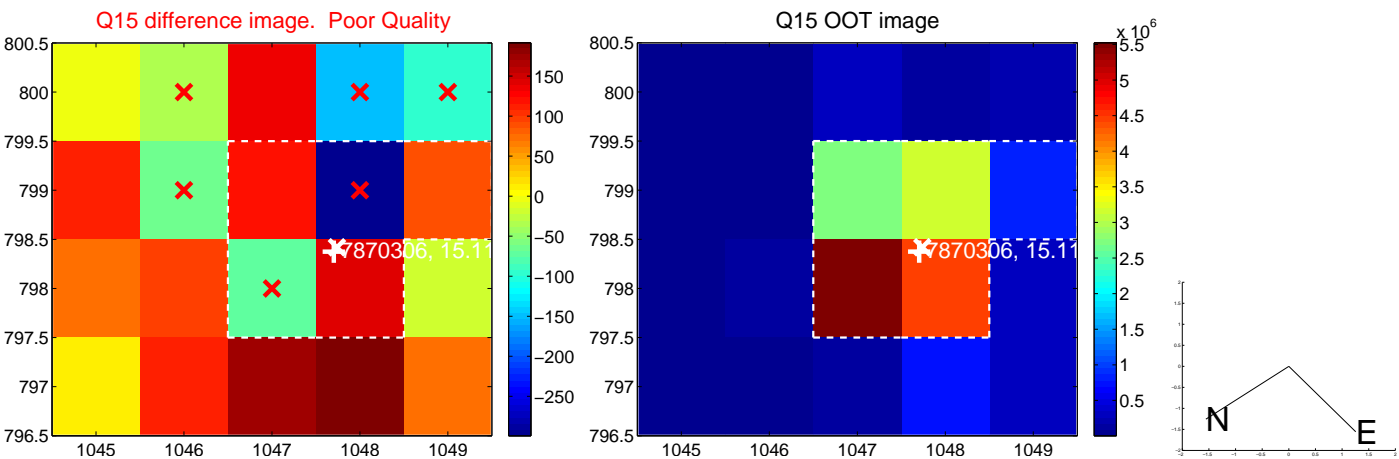
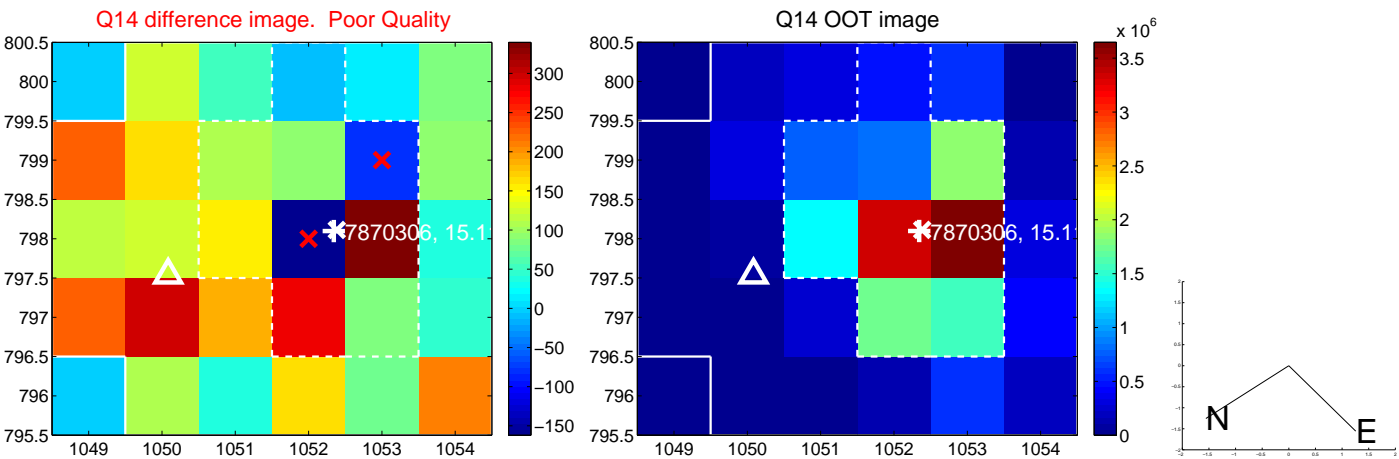
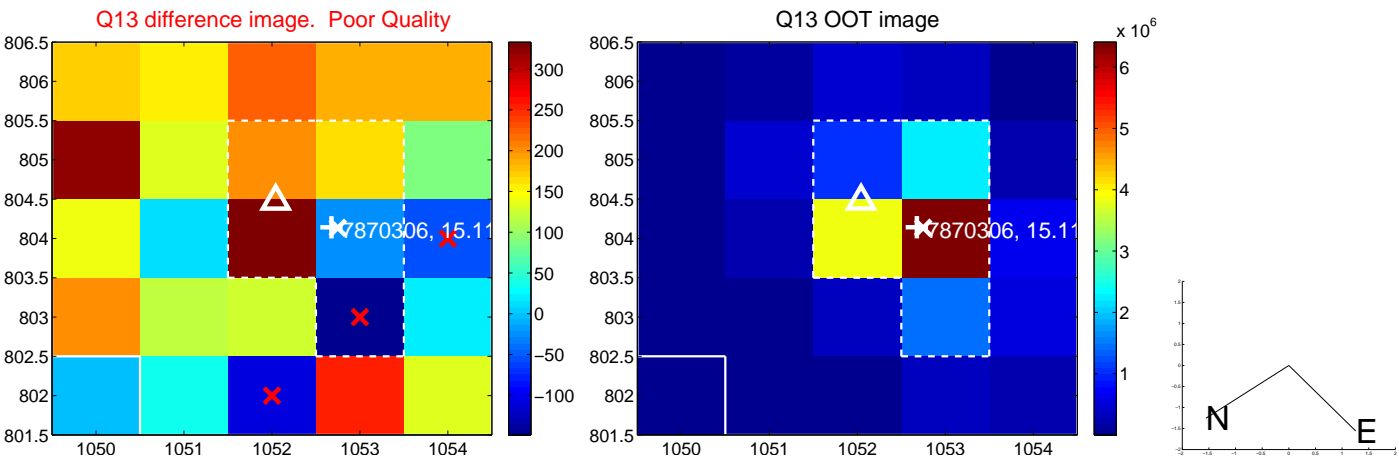
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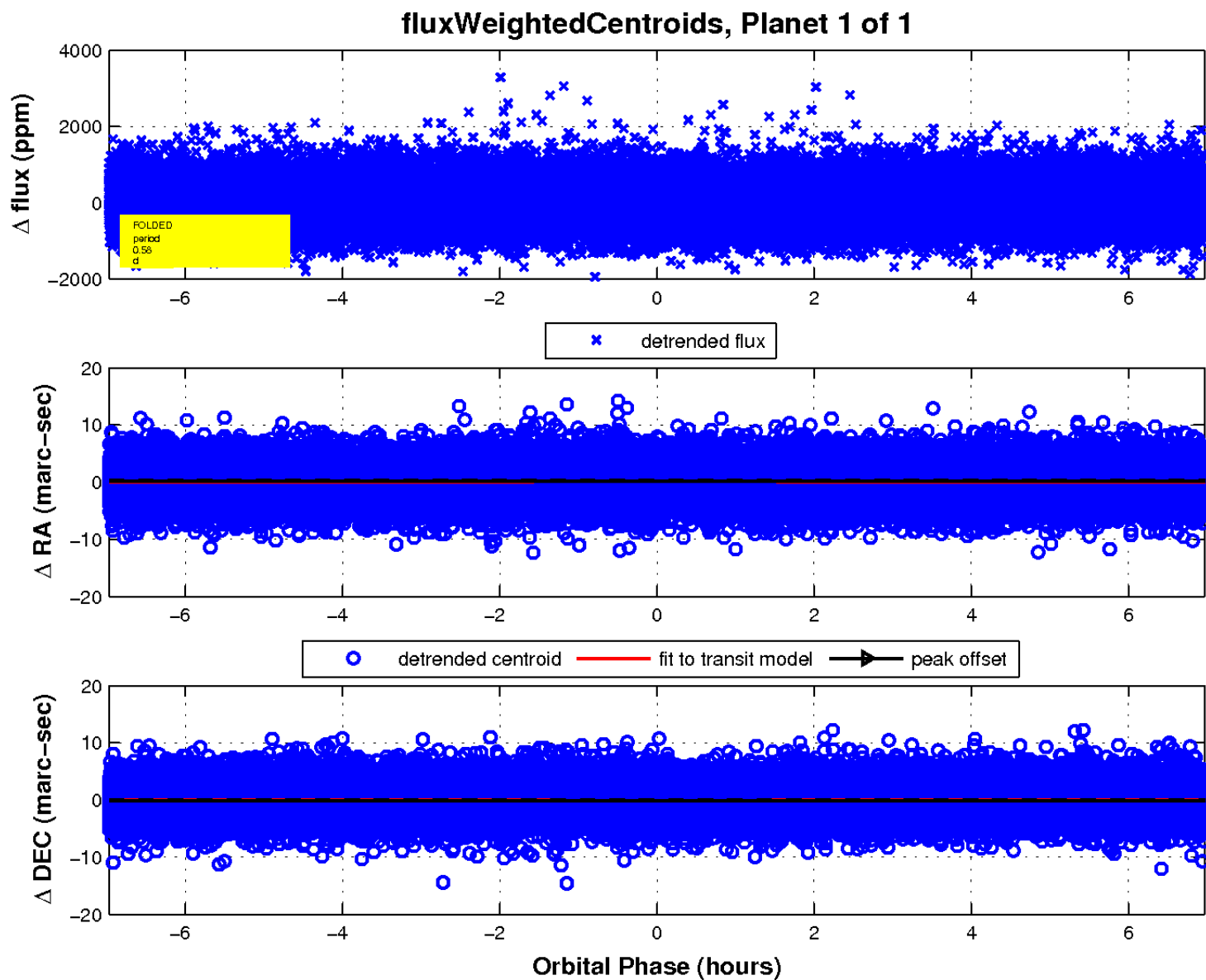
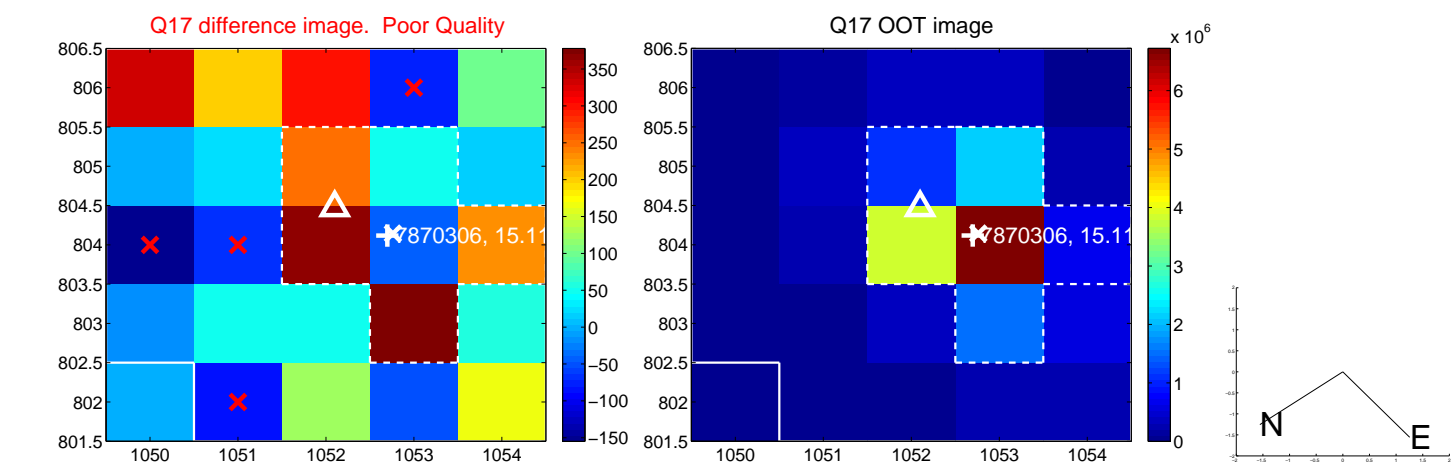
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

