

KIC 006863187

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
006863187-01	OBS	7794.01	1.994934	133.434545	62.6	5.935	8.9	8.6	0.97	5957	0.87	1048.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006863187-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_KIC_POS—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.

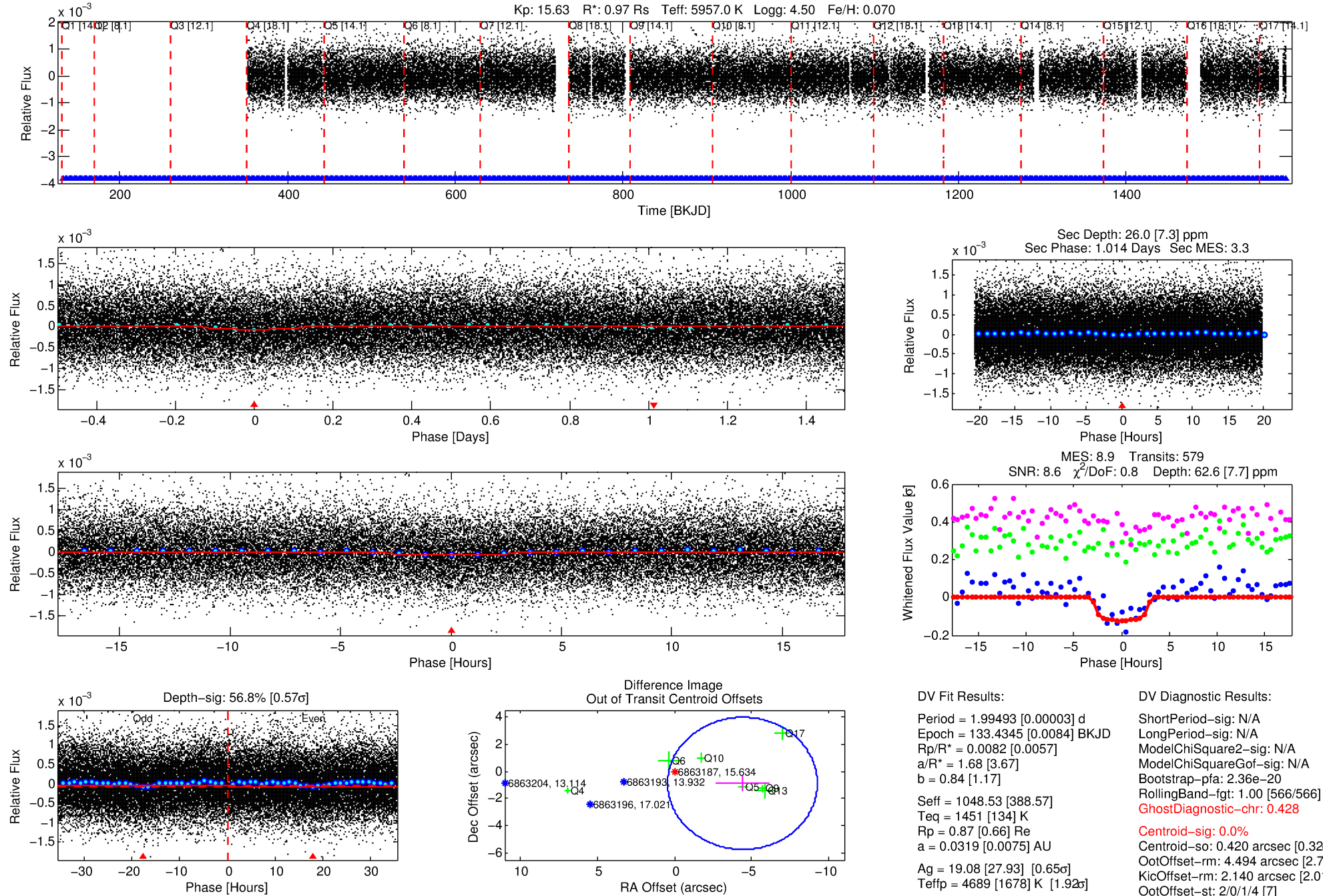
Ephemeris Match Information For 006863187-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
006863187-01	6863187	006863229-pri	6863229	1:1	77.6	-19	4	12.13	15.63	3019.00	Direct-PRF	0	0.48	1.19

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol 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 σ_P < 5.0 and σ_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.

DV One-Page Summary

KIC: 6863187 Candidate: 1 of 1 Period: 1.995 d



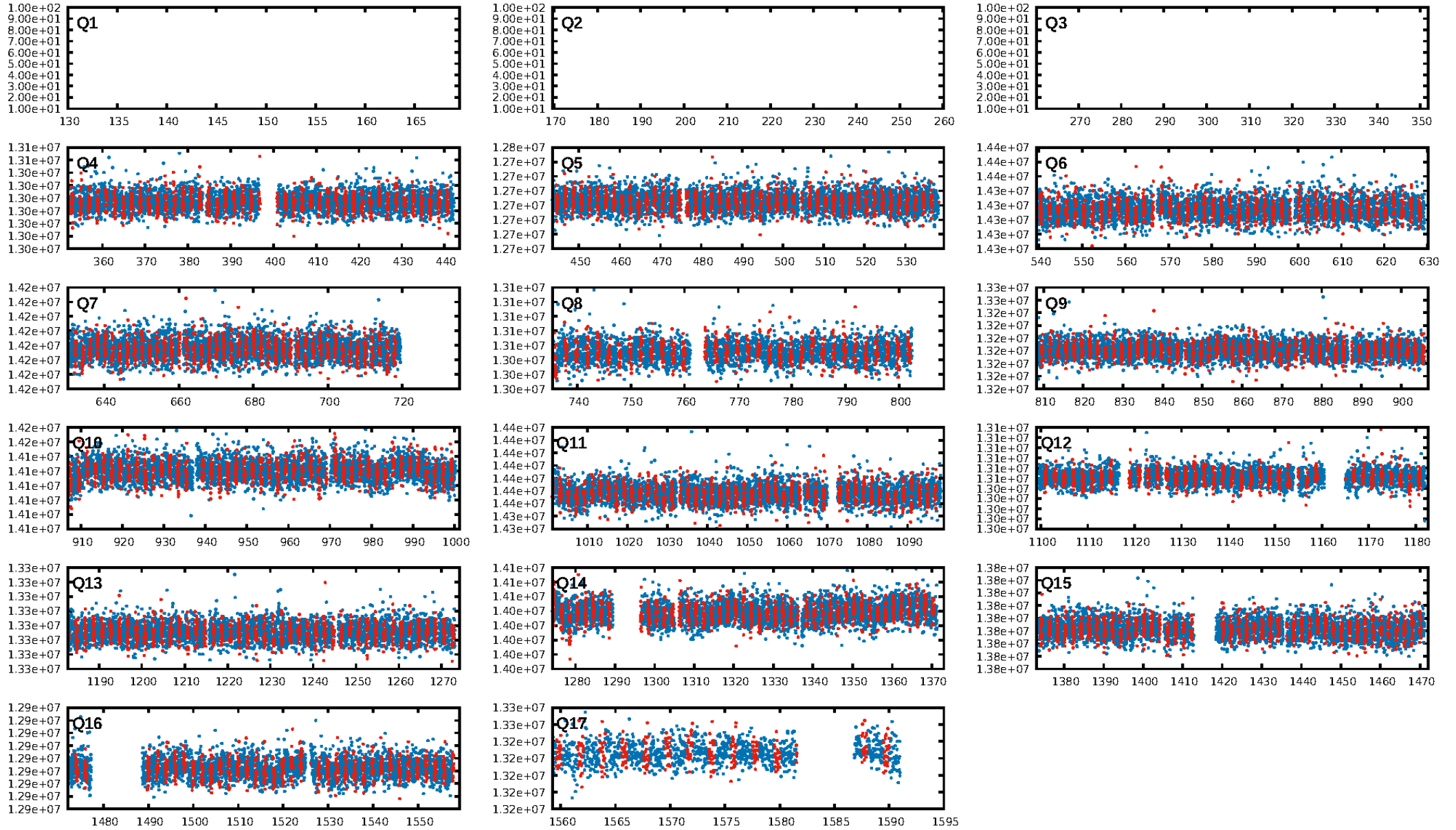
DV Fit Results:

Period = 1.99493 [0.00003] d
Epoch = 133.4345 [0.0084] BKJD
Rp/R* = 0.0082 [0.0057]
a/R* = 1.68 [3.67]
b = 0.84 [1.17]
Seff = 1048.53 [388.57]
Teff = 1451 [134] K
Rp = 0.87 [0.66] Re
a = 0.0319 [0.0075] AU
Ag = 19.08 [27.93] [0.65 σ]
Teffp = 4689 [1678] K [1.92 σ]

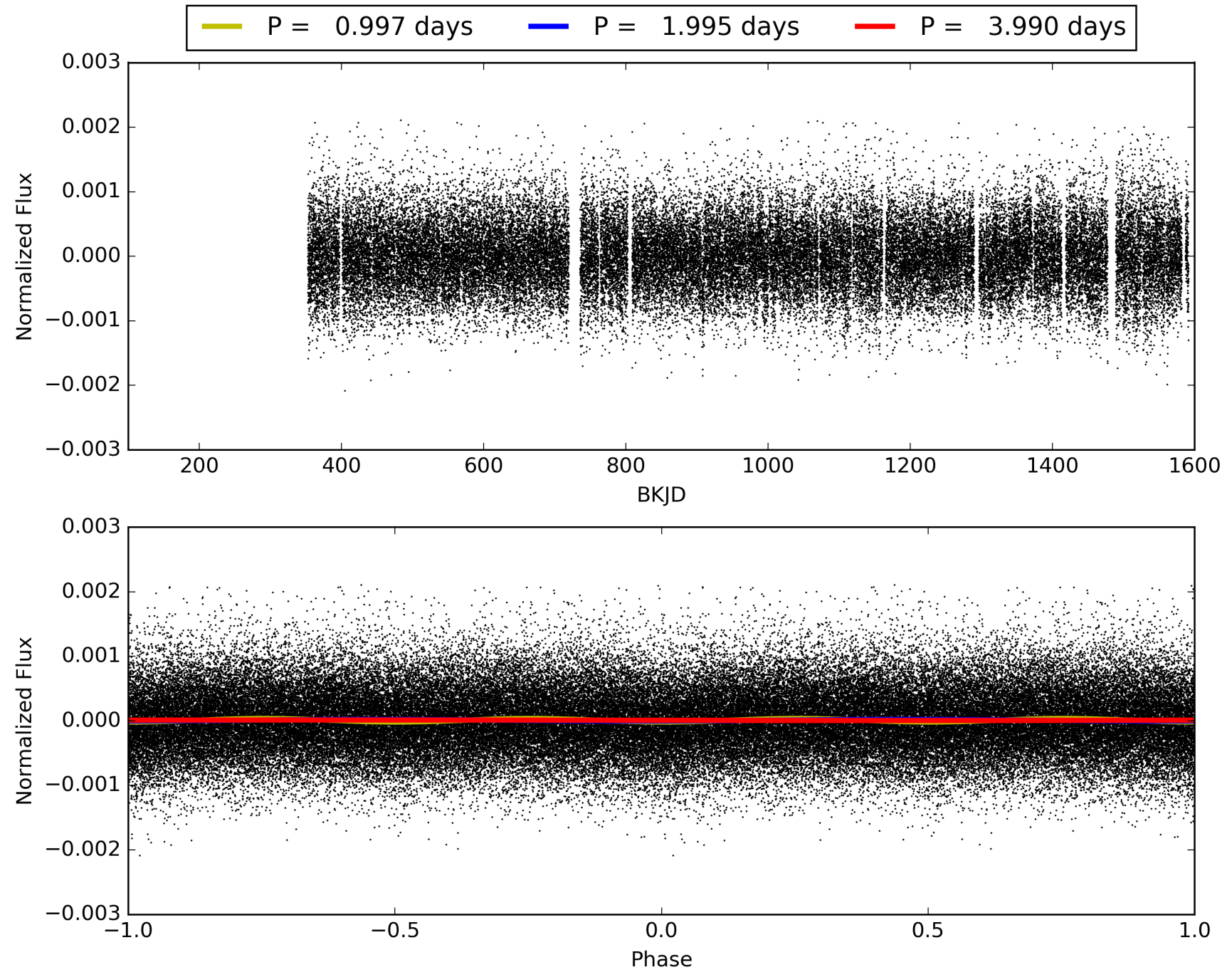
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.36e-20
RollingBand-fgt: 1.00 [566/566]
GhostDiagnostic-chr: 0.428
Centroid-sig: 0.0%
Centroid-so: 0.420 arcsec [0.32 σ]
OotOffset-rm: 4.494 arcsec [2.78 σ]
KicOffset-rm: 2.140 arcsec [2.01 σ]
OotOffset-st: 2/0/1/4 [7]
KicOffset-st: 2/3/1/4 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 006863187-01, PDC Light Curves

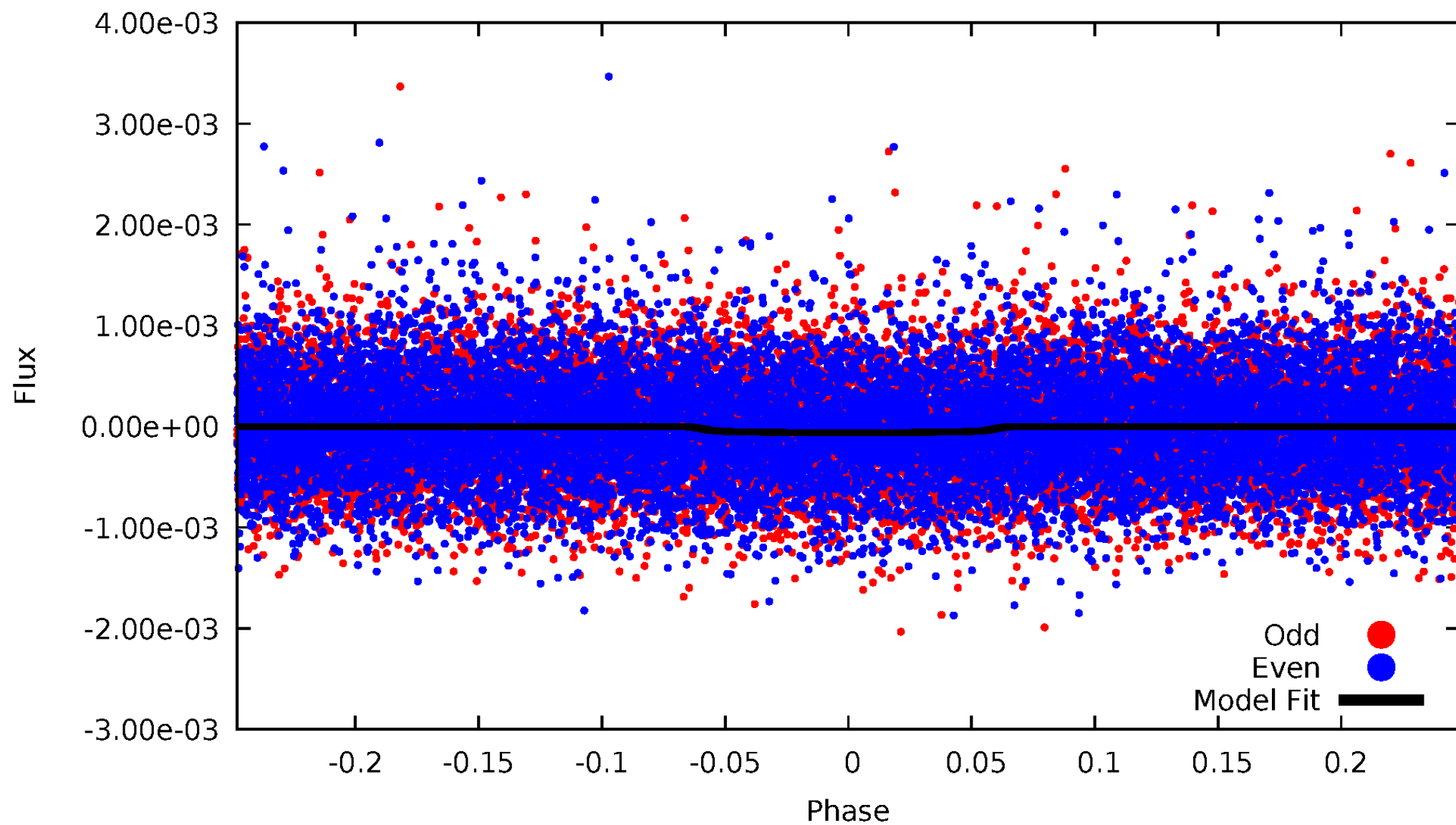


TCE 006863187-01



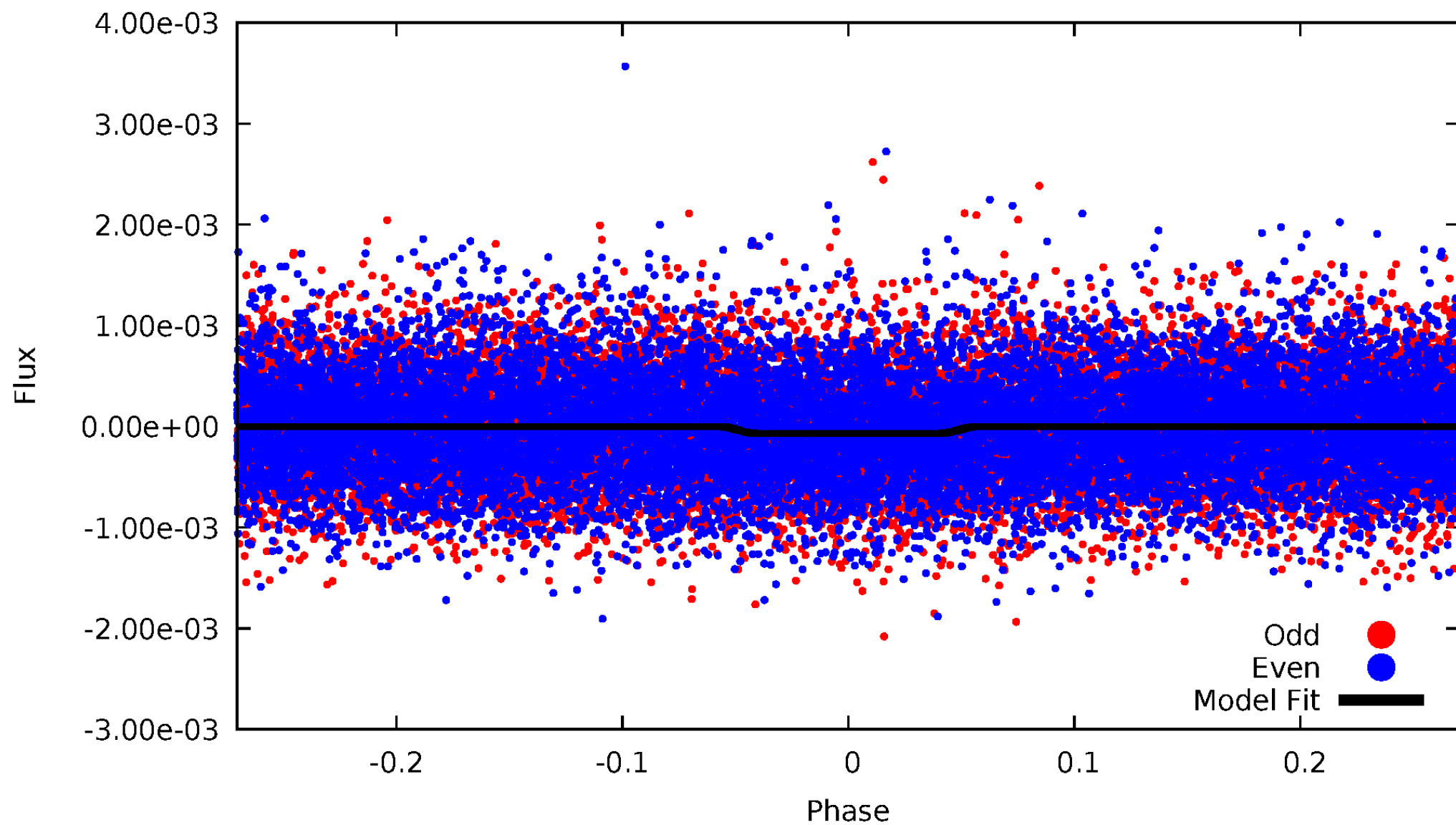
DV Odd/Even

TCE 006863187-01



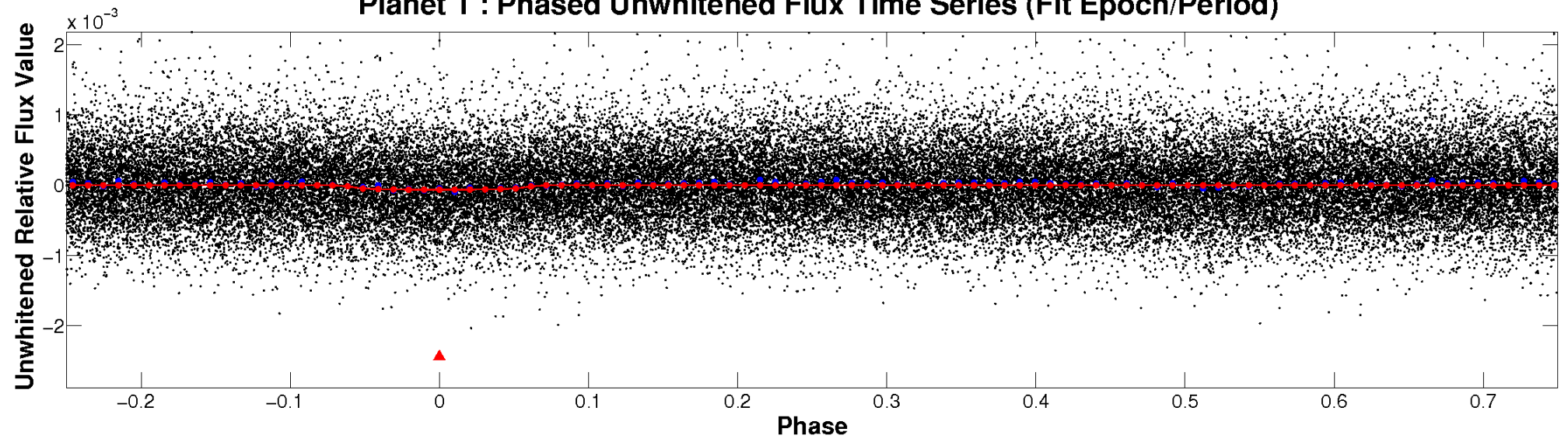
ALT Odd/Even

TCE 006863187-01

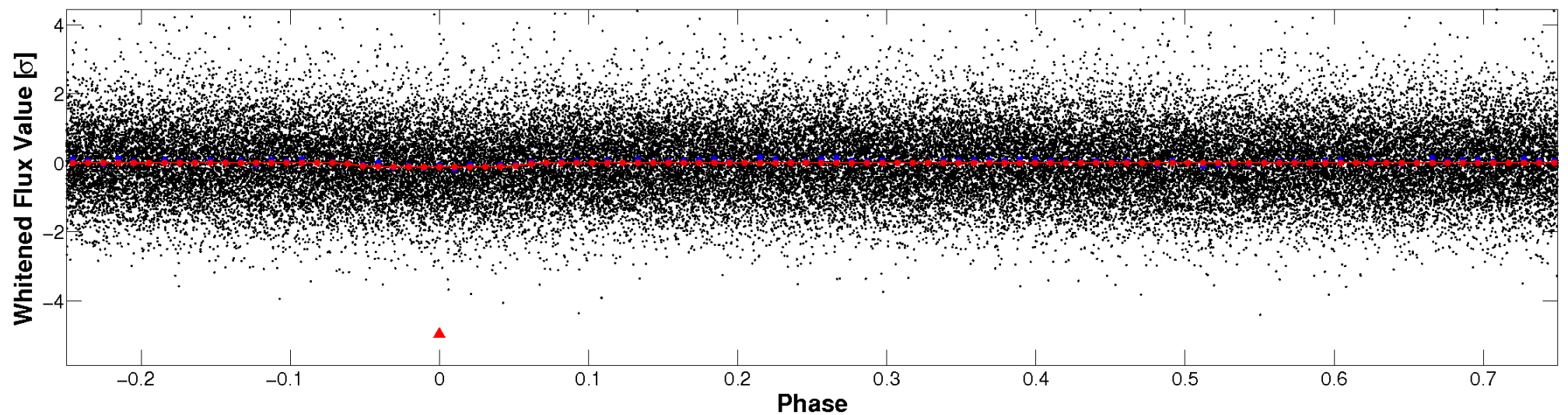


Non-Whitened Vs. Whitened Light Curve

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

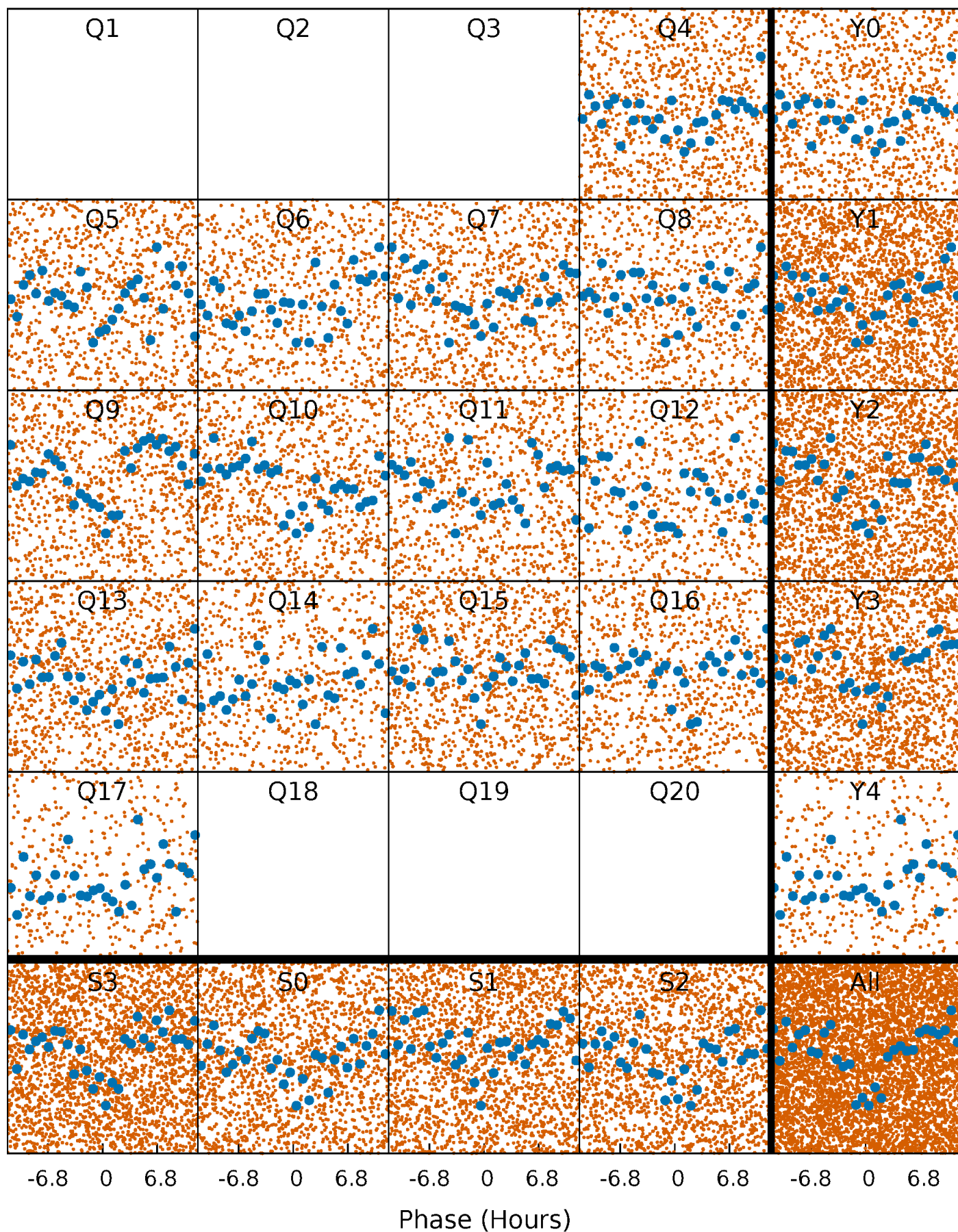


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



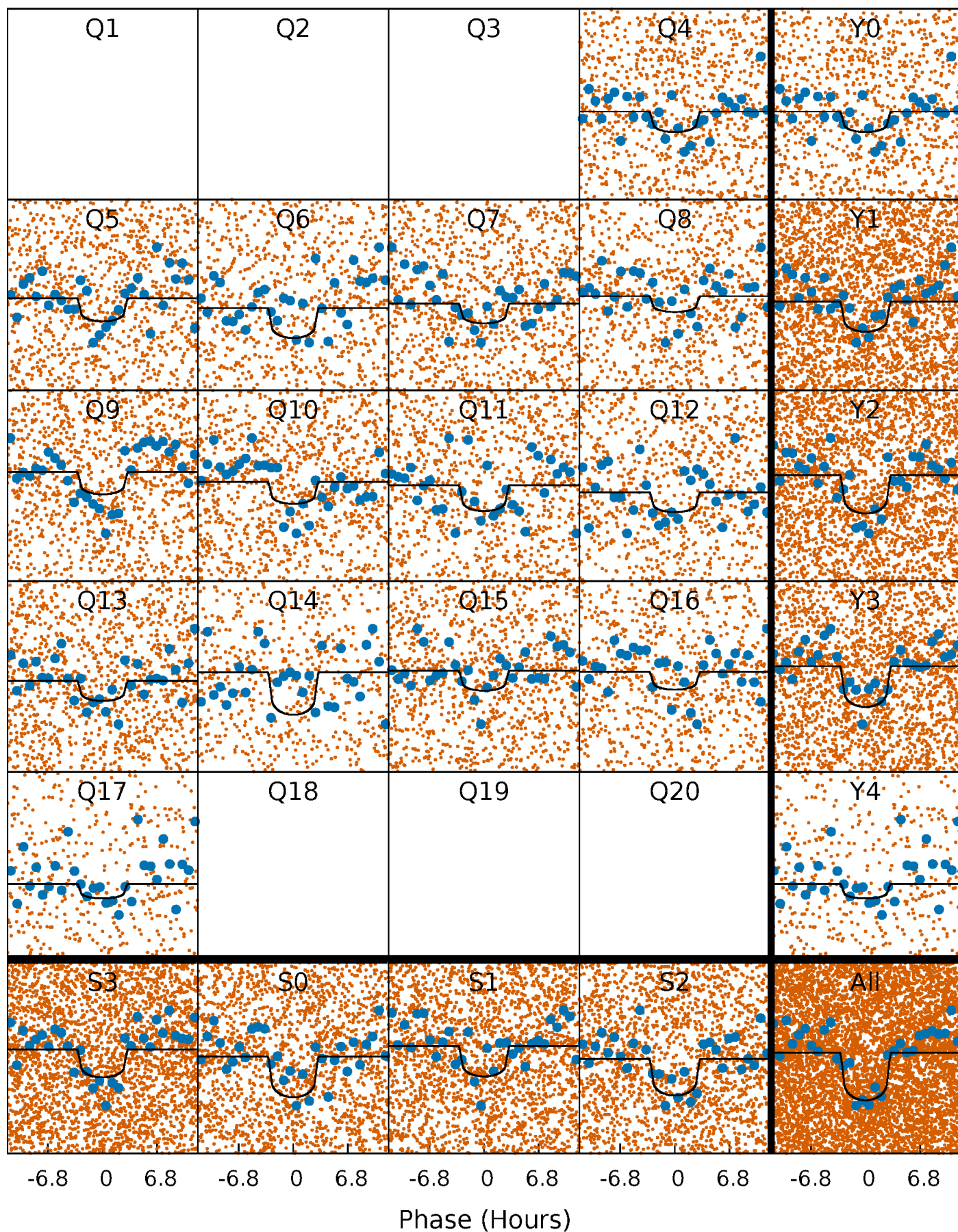
PDC Quarter-Phased Transit Curves

TCE 006863187-01 P= 1.994934 Days $T_0=133.434545$ (BKJD)



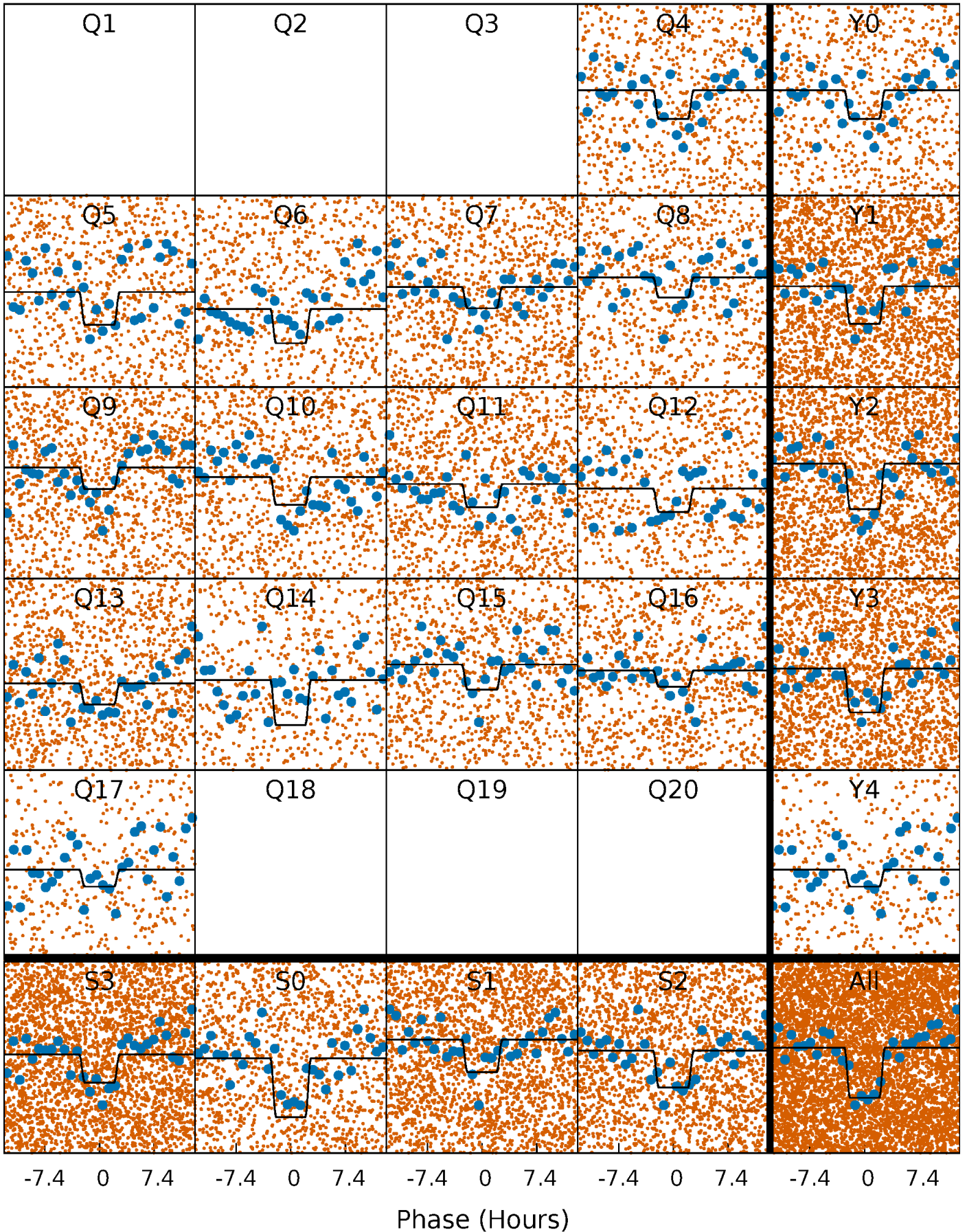
DV Quarter-Phased Transit Curves

TCE 006863187-01 P= 1.994934 Days $T_0=133.434545$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

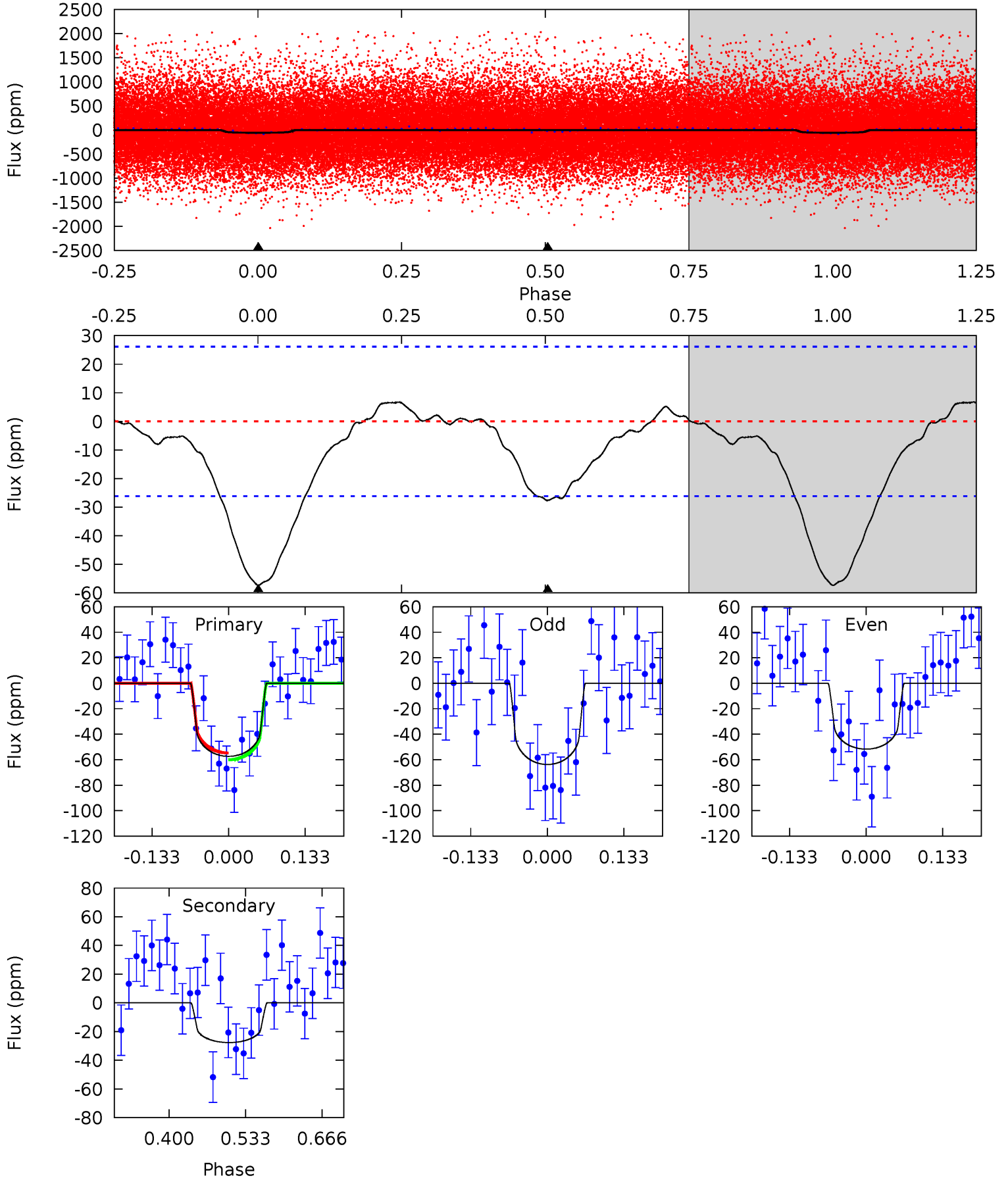
TCE 006863187-01 P= 1.994914 Days $T_0=133.448307$ (BKJD)



DV Model-Shift Uniqueness Test

006863187-01, P = 1.994934 Days, E = 133.434545 Days

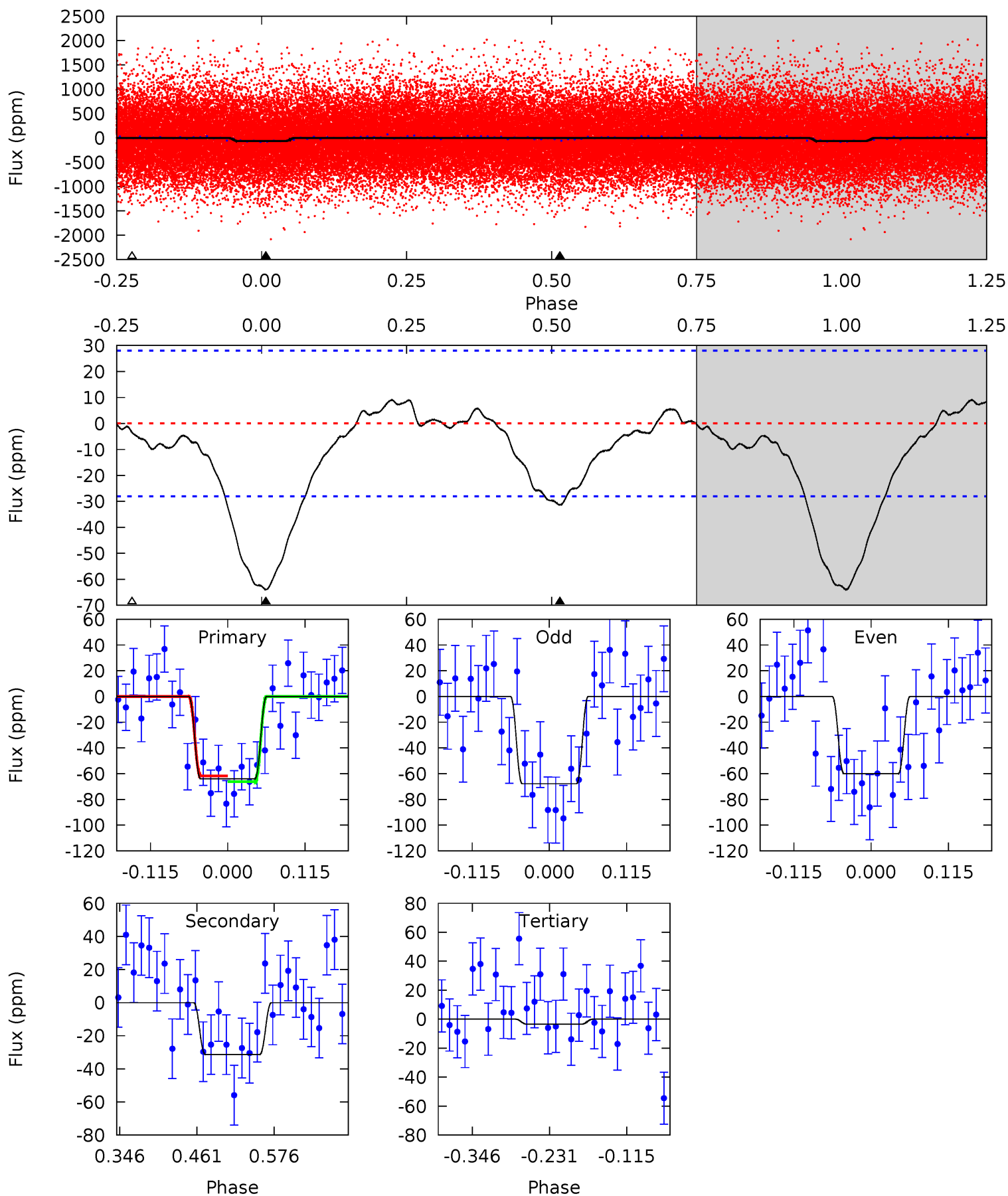
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.88	4.77	0	0	4.50	1.50	0.68	9.88	9.88	4.77	4.77	1.04	0.84	0.11	0.46



Alt Model-Shift Uniqueness Test

006863187-01, P = 1.994914 Days, E = 133.448307 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	5.07	0.56	0	4.53	1.57	0.81	9.78	10.3	4.51	5.07	0.63	0.82	0.12	0.37



Stellar Parameters For KIC 006863187

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5957^{+182}_{-223}	$4.498^{+0.046}_{-0.184}$	$0.070^{+0.250}_{-0.300}$	$0.971^{+0.273}_{-0.091}$	$1.083^{+0.112}_{-0.137}$	$1.665^{+0.394}_{-0.819}$
	+3%/-4%	+1%/-4%	+357%/-429%	+28%/-9%	+10%/-13%	+24%/-49%
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 006863187-01 / KOI 7794.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-28 ± 6	$0.94^{+0.66}_{-0.54}$	2066^{+143}_{-98}	4761^{+2452}_{-882}	17^{+79}_{-11}
Alt.	-31 ± 6	$1.00^{+0.59}_{-0.57}$	2068^{+129}_{-102}	4798^{+2527}_{-833}	18^{+79}_{-11}

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

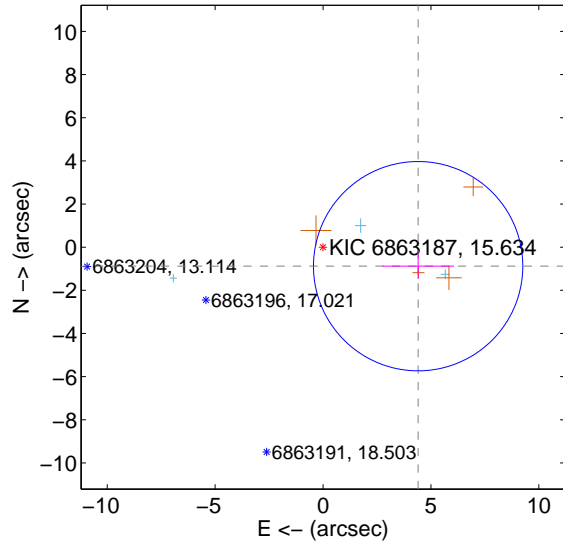
Supplemental centroid analysis for 006863187-01. Kepler magnitude: 15.63. Transit SNR 8.56

There are 3 quarters with good PRF difference image offsets

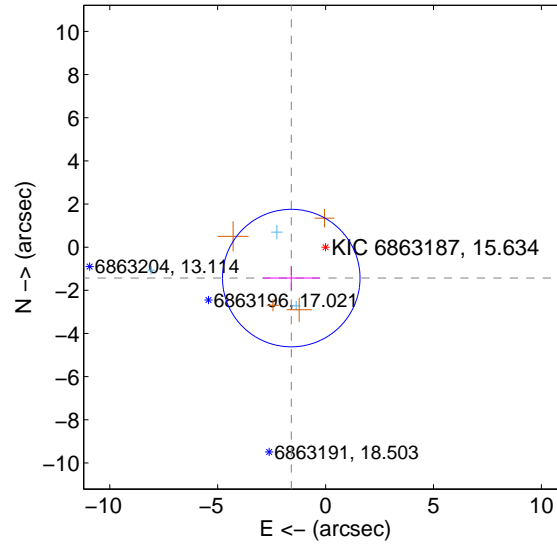
The OOT PRF centroid is offset from the target star catalog position by about 7.16 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.494 ± 1.617	2.78	-4.407 ± 1.668	-0.881 ± 0.576
PRF-fit source offset from KIC position	2.140 ± 1.062	2.01	1.591 ± 1.322	-1.432 ± 0.560
photometric centroid source offset	0.42 ± 1.31	0.32	0.34 ± 1.55	0.24 ± 0.58

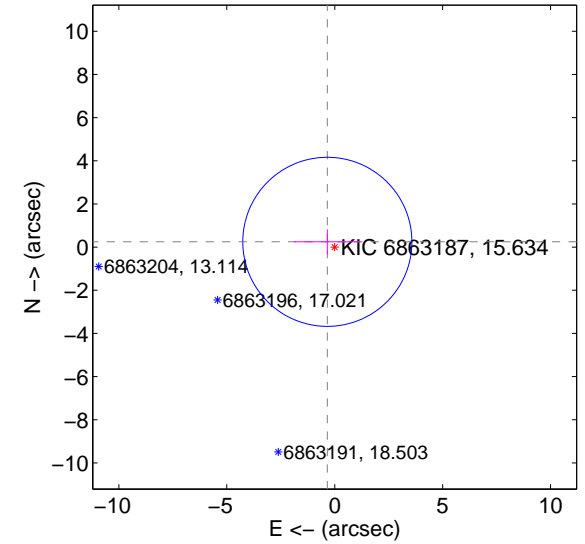
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

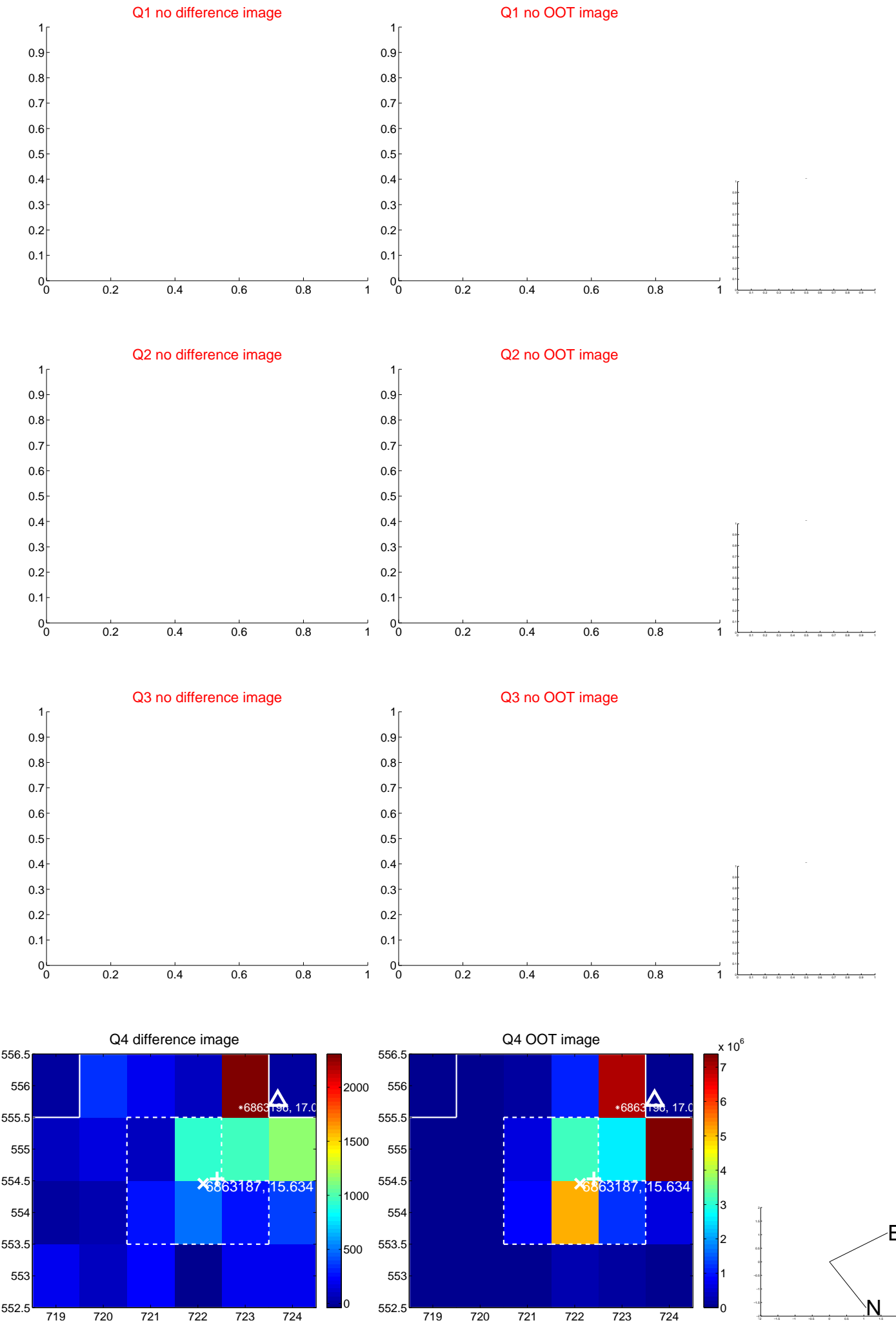


offset from photometric centroids

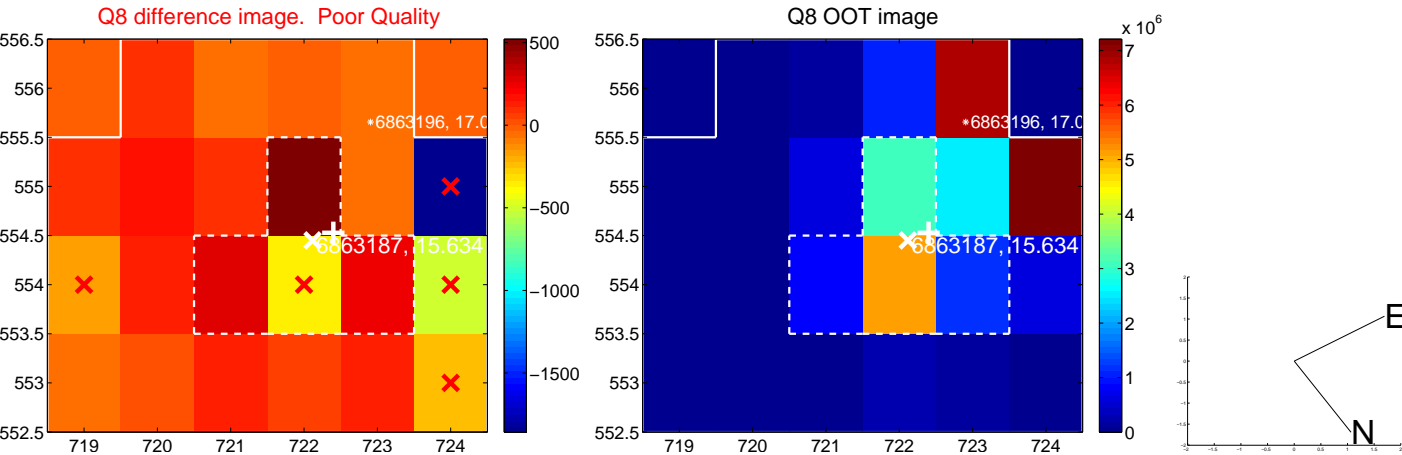
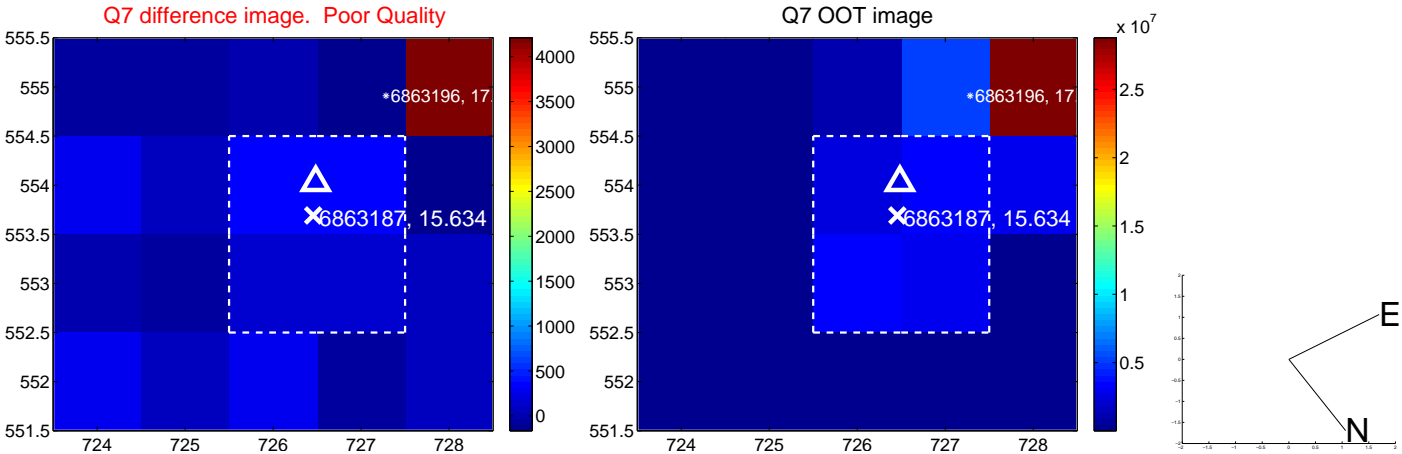
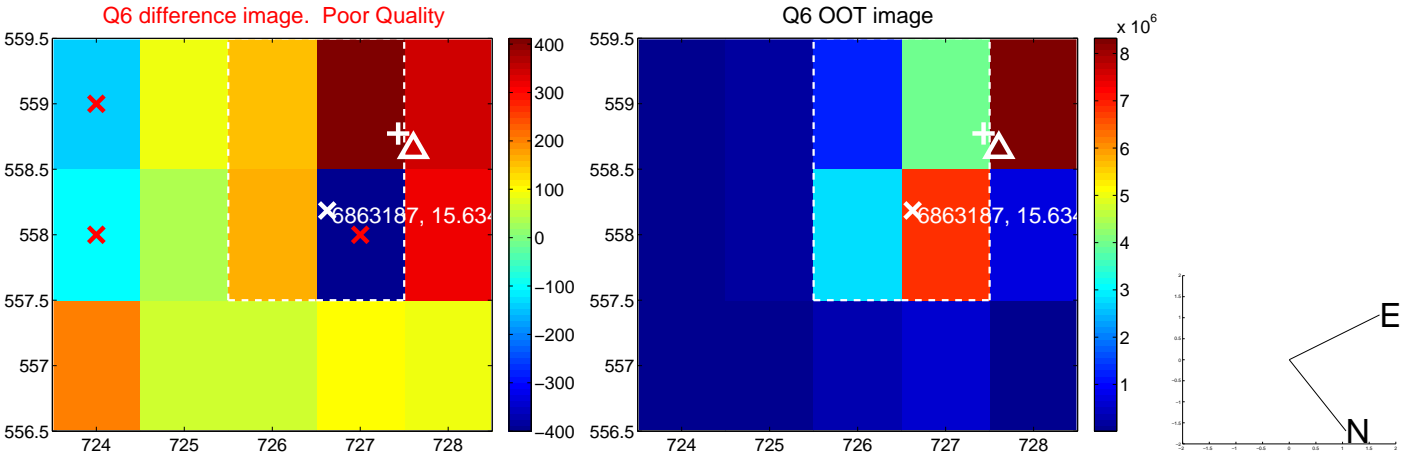
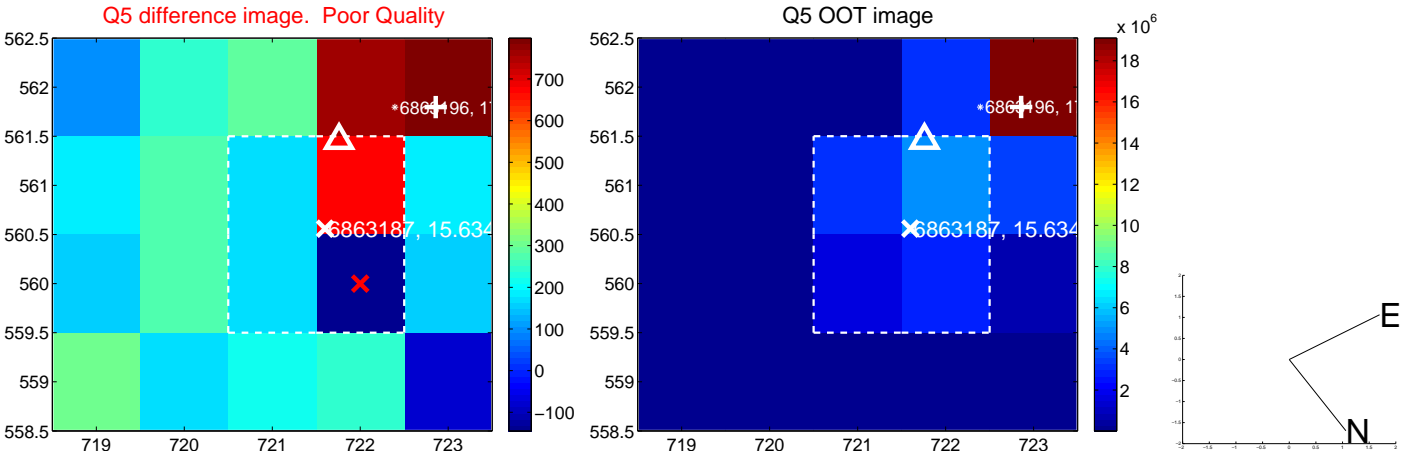


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

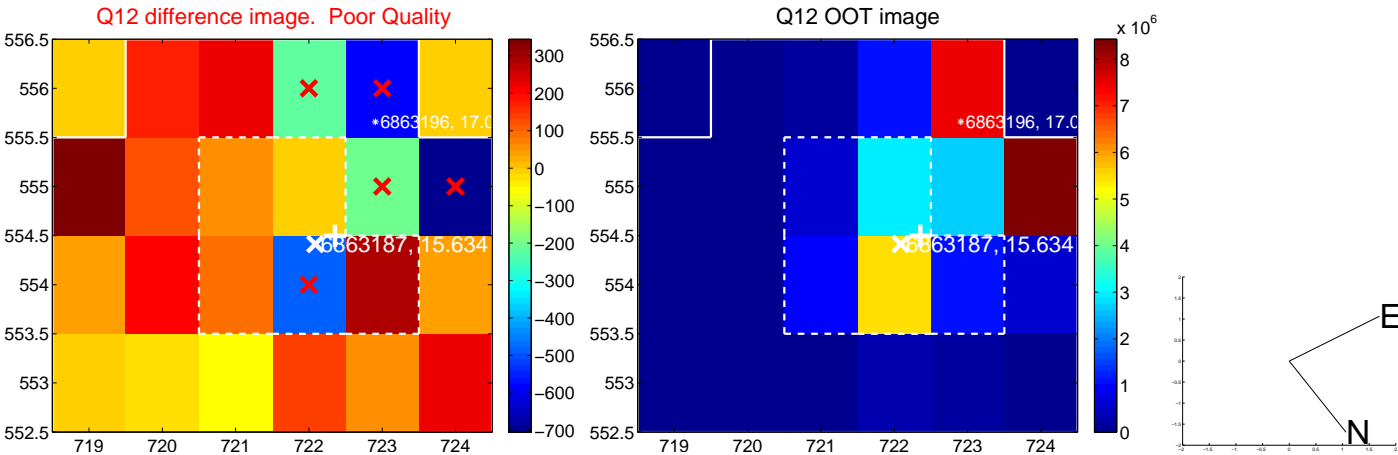
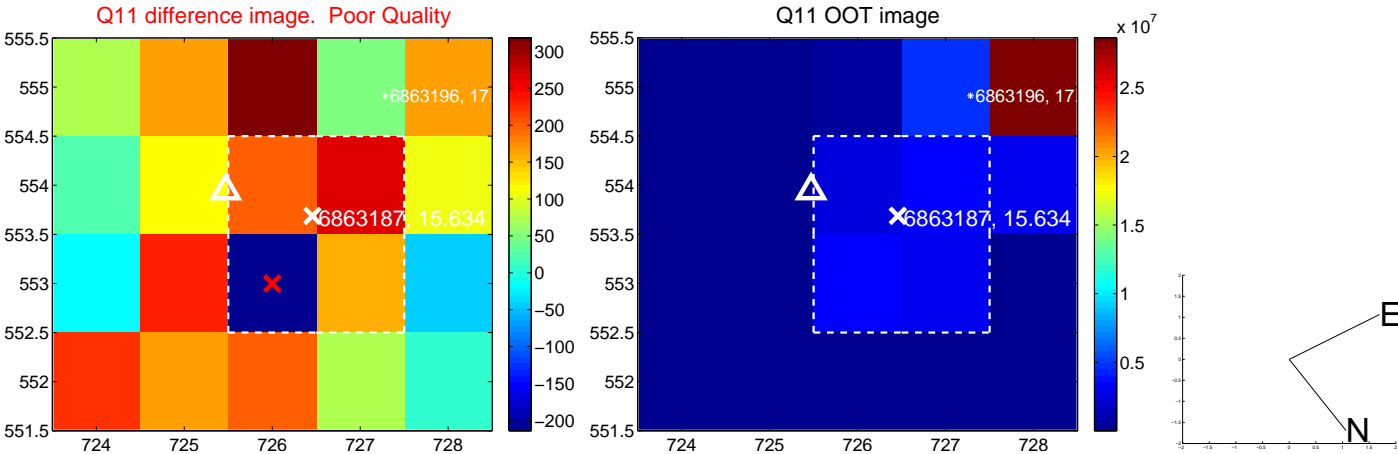
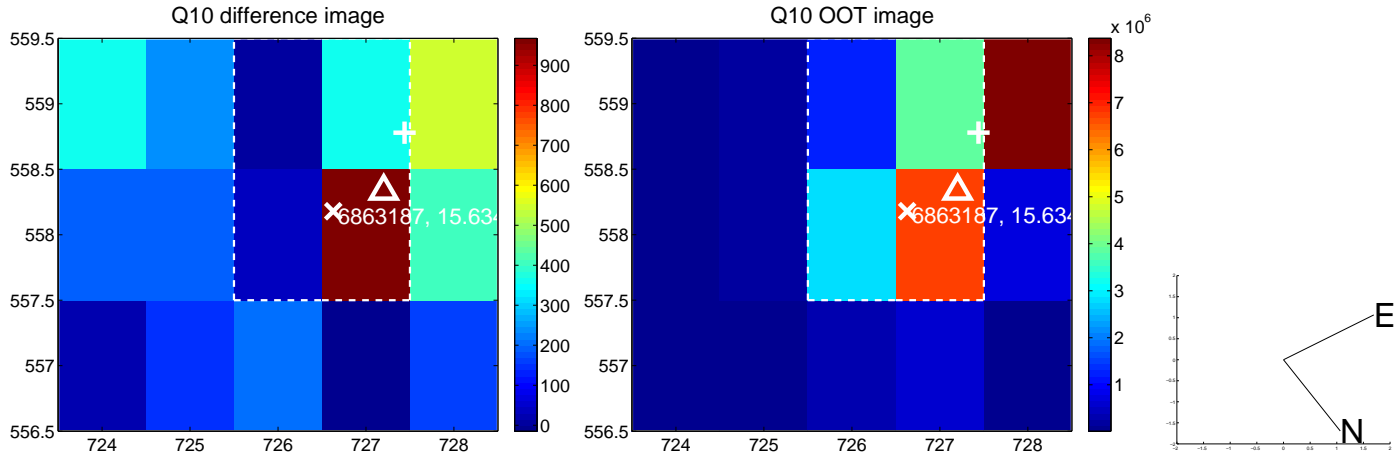
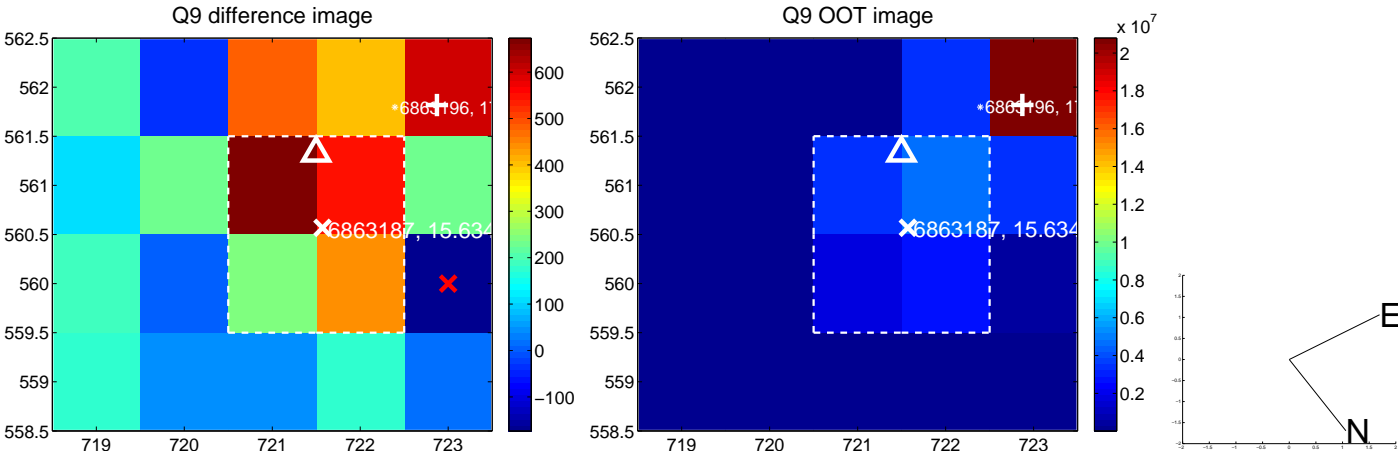
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



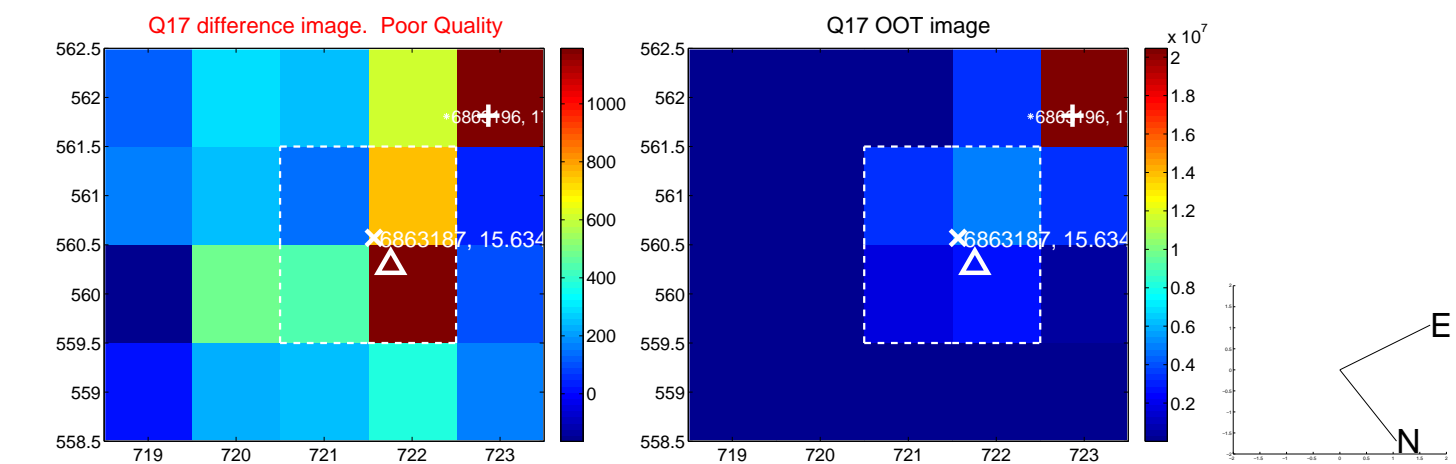
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



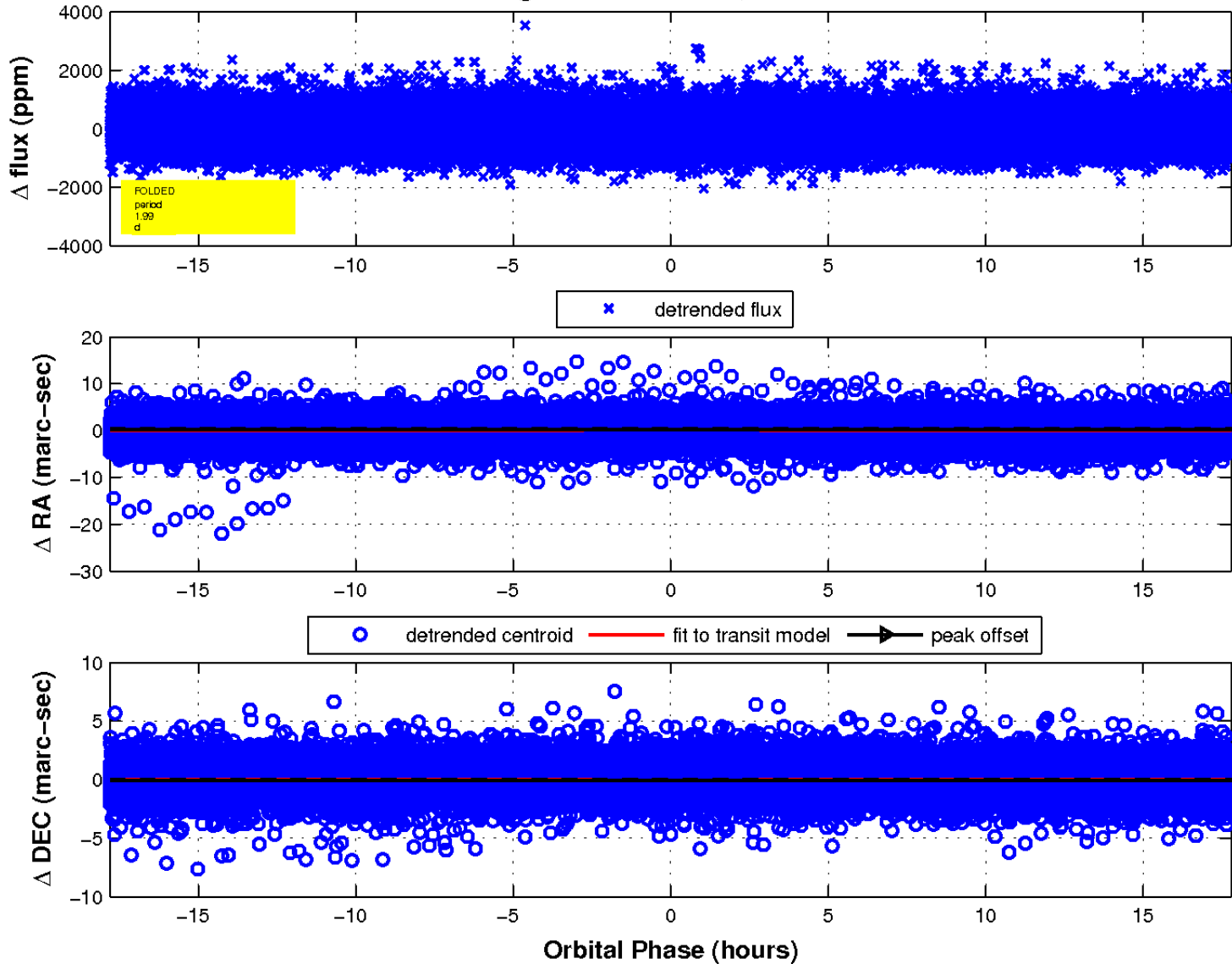
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

