

KIC 002831251

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})
002831251-01	OBS	4702.01	5.813054	131.538660	99.3	3.933	8.5	9.6	1.04	6175	1.43	348.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002831251-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET

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

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

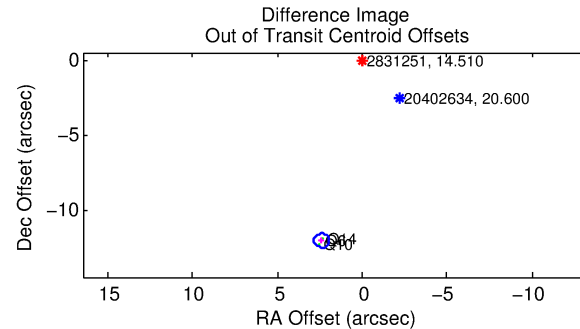
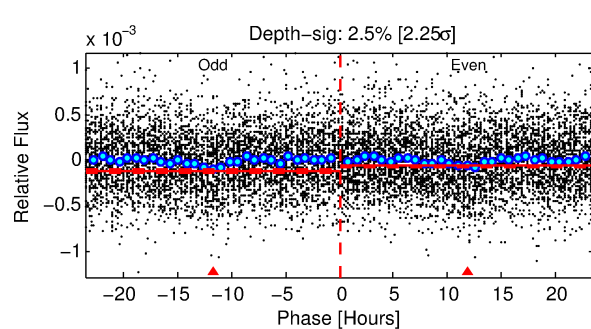
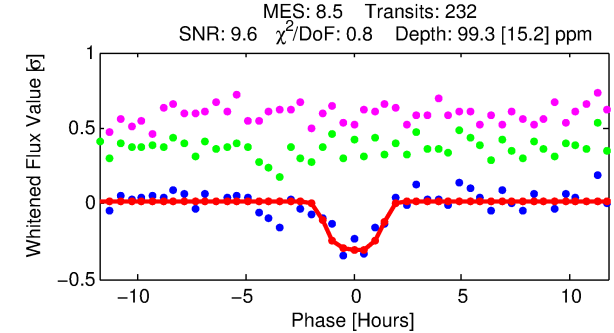
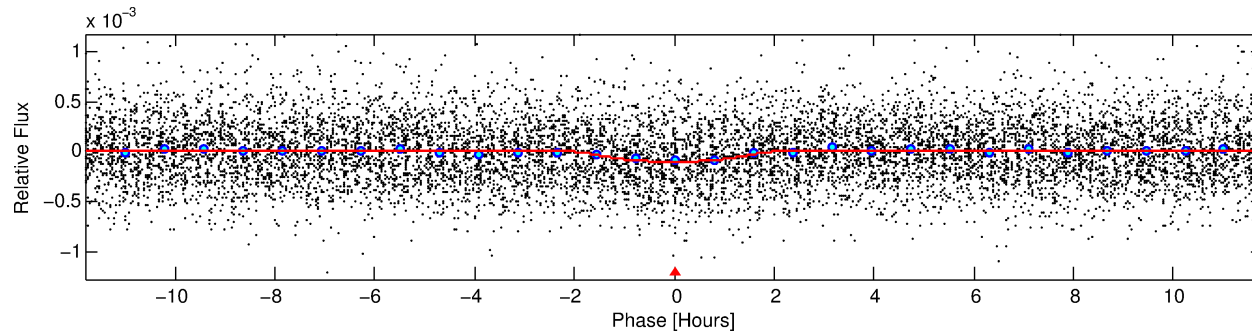
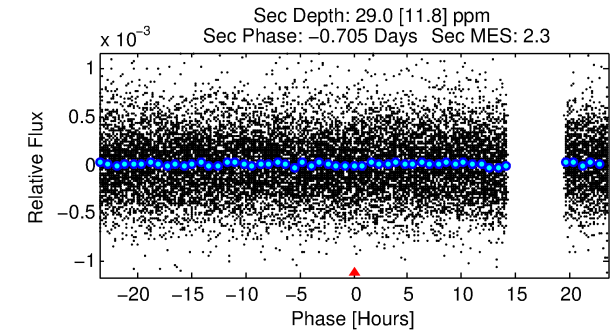
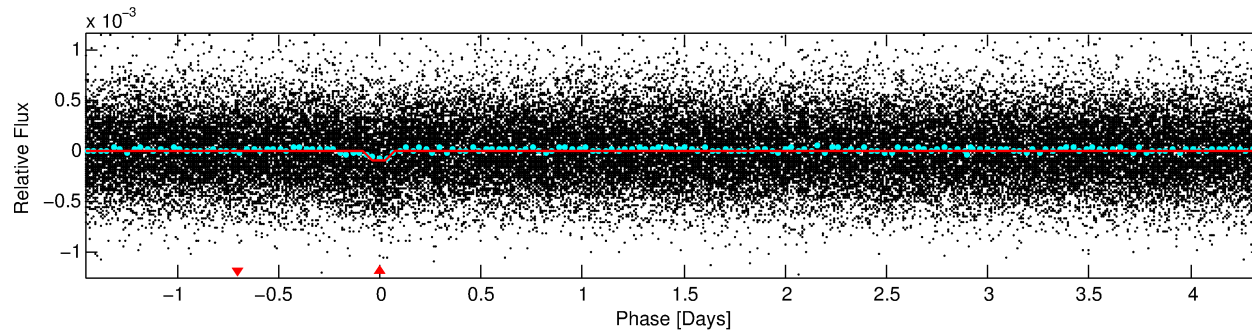
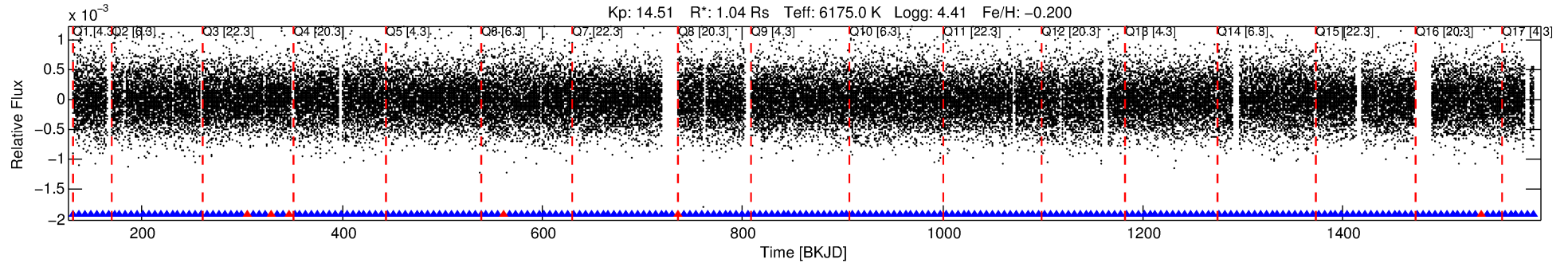
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002831251-01

No Significant Match Found

DV One-Page Summary

KIC: 2831251 Candidate: 1 of 1 Period: 5.813 d
KOI: K04702.01 Corr: 0.918



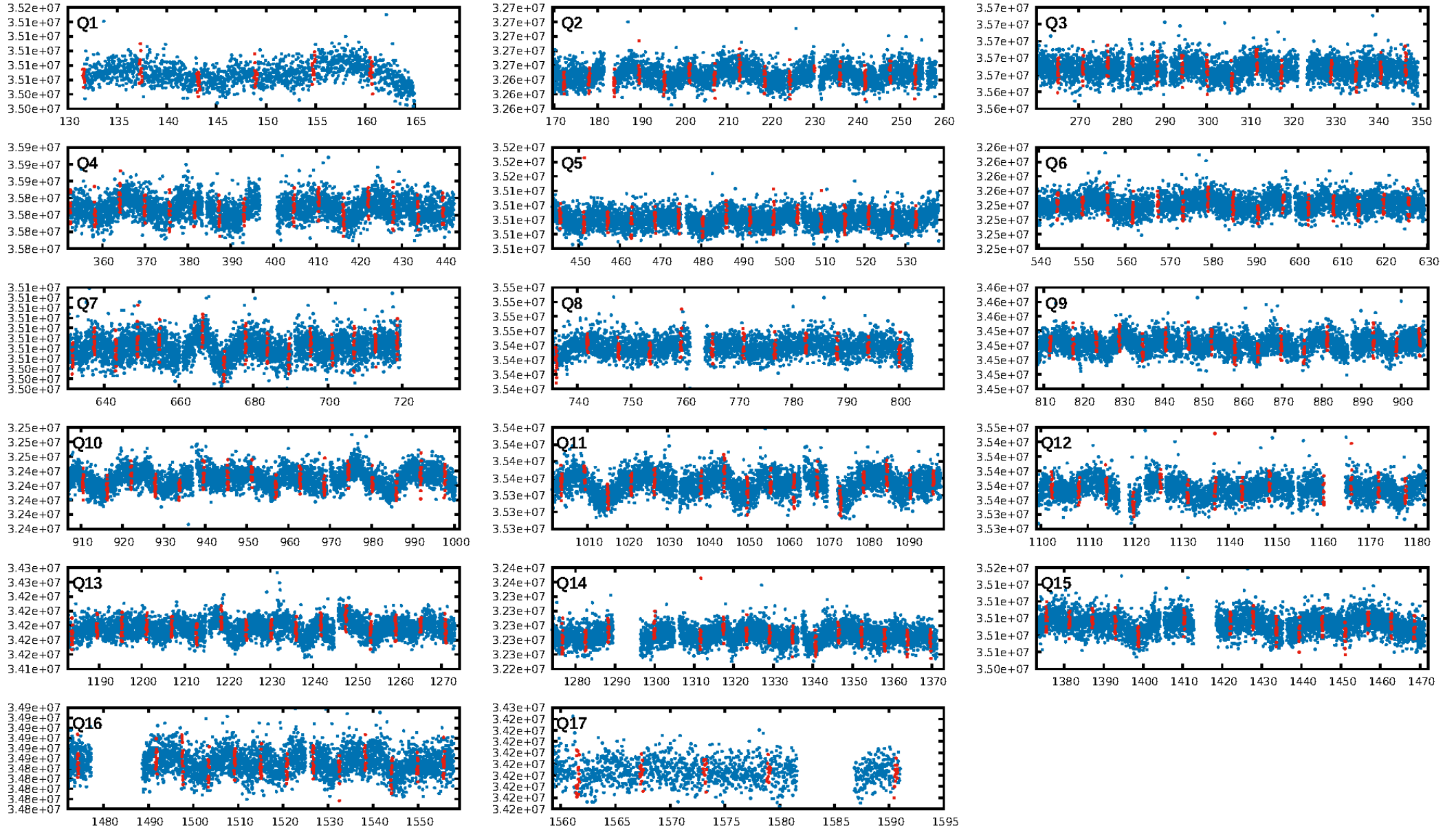
DV Fit Results:

Period = 5.81305 [0.00007] d
Epoch = 131.5387 [0.0093] BKJD
Rp/R* = 0.0125 [0.0013]
a/R* = 2.82 [0.63]
b = 0.99 [0.01]
Seff = 348.77 [138.89]
Teff = 1102 [110] K
Rp = 1.43 [0.47] Re
a = 0.0636 [0.0166] AU
Ag = 31.76 [18.87] [1.63σ]
Teffp = 4045 [484] K [5.92σ]

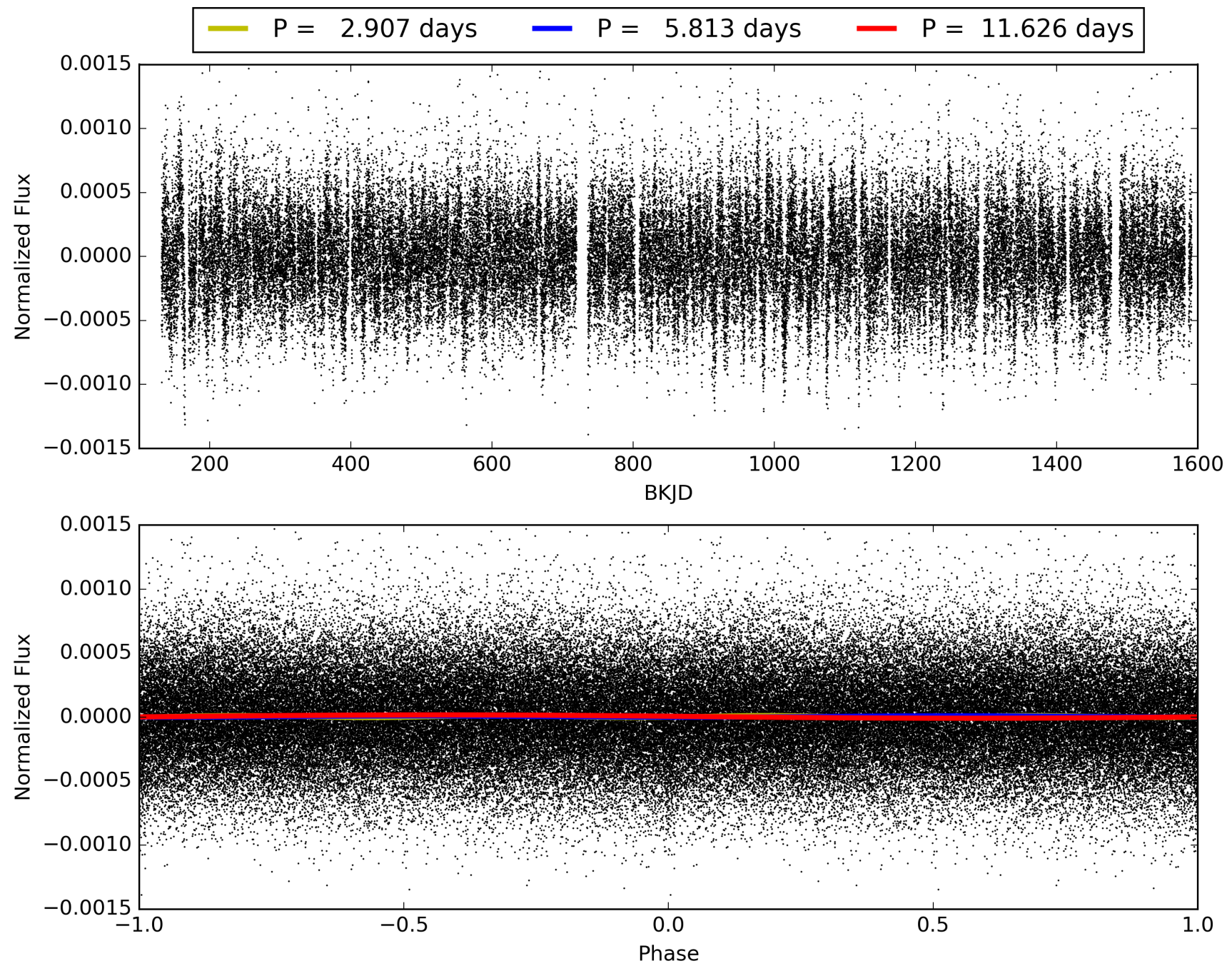
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.72e-17
RollingBand-fgt: 0.97 [215/221]
GhostDiagnostic-chr: -0.3791
Centroid-sig: 0.0%
Centroid-so: 51.509 arcsec [31.70σ]
OotOffset-rm: 12.318 arcsec [80.55σ]
KicOffset-rm: 12.573 arcsec [82.01σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002831251-01, PDC Light Curves

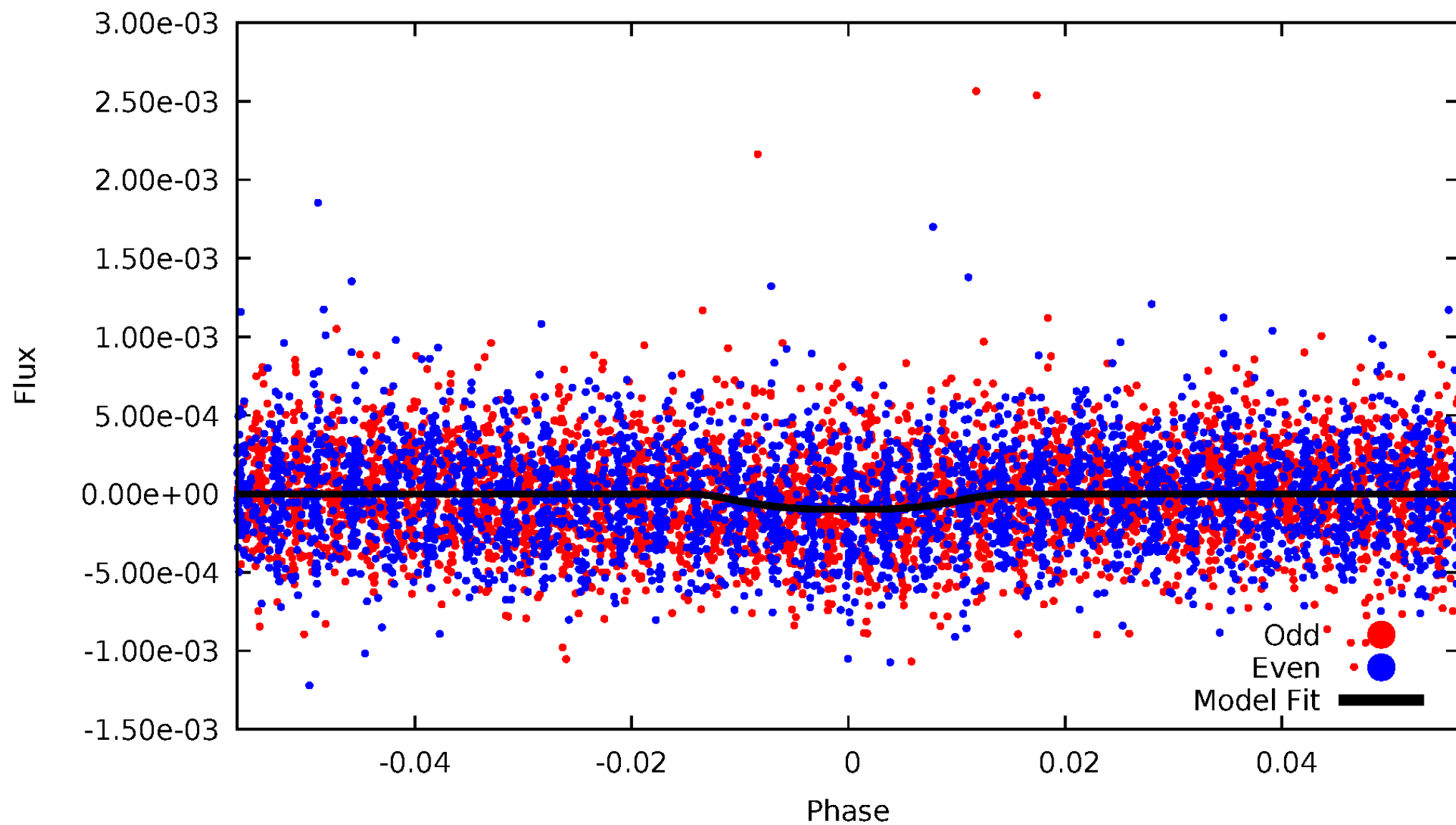


TCE 002831251-01



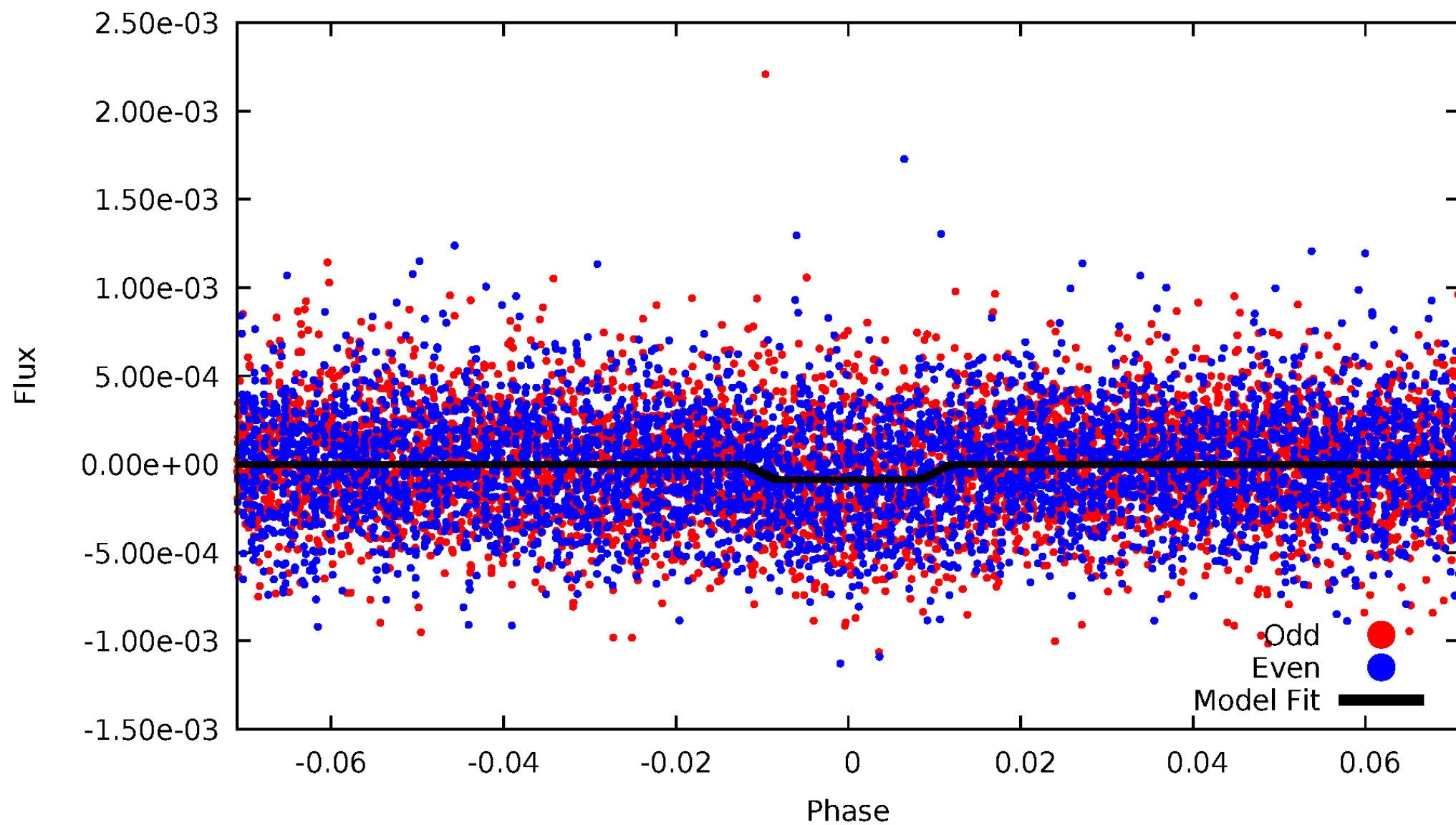
DV Odd/Even

TCE 002831251-01



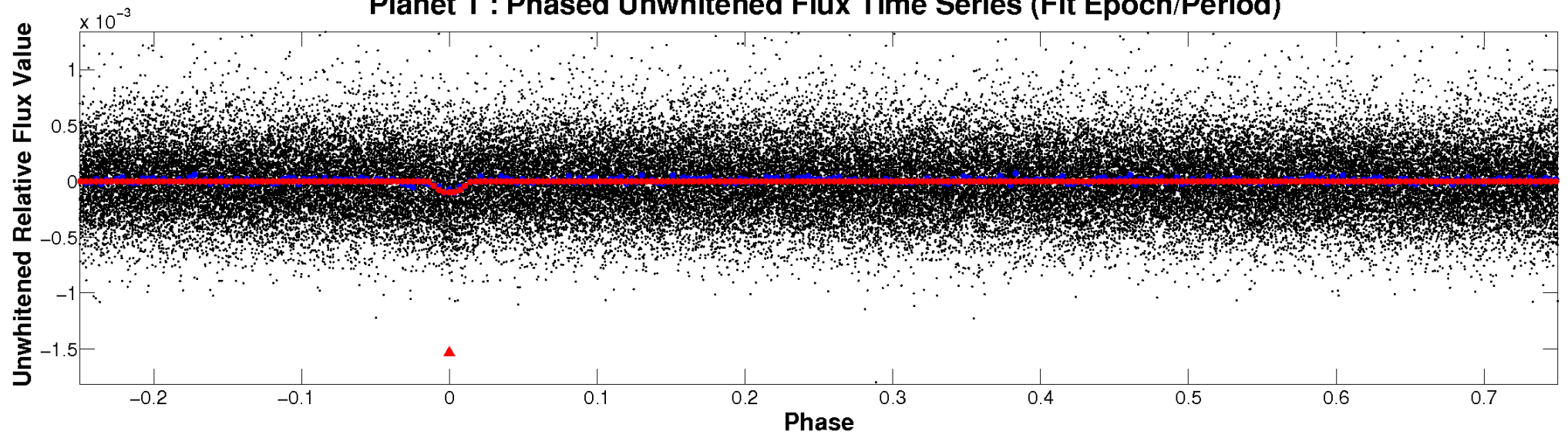
ALT Odd/Even

TCE 002831251-01

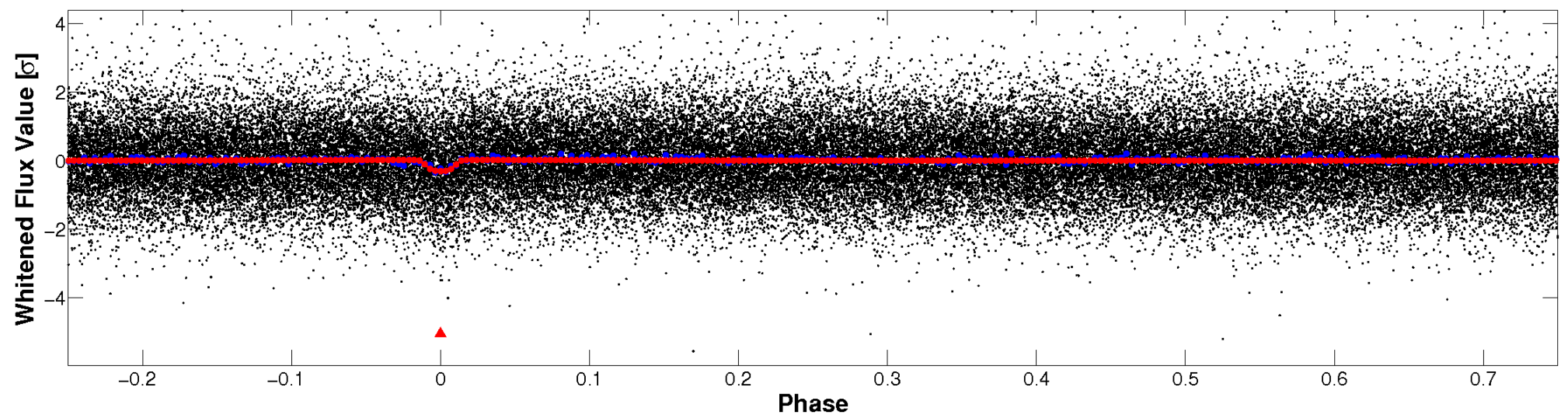


Non-Whitened Vs. Whitened Light Curve

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

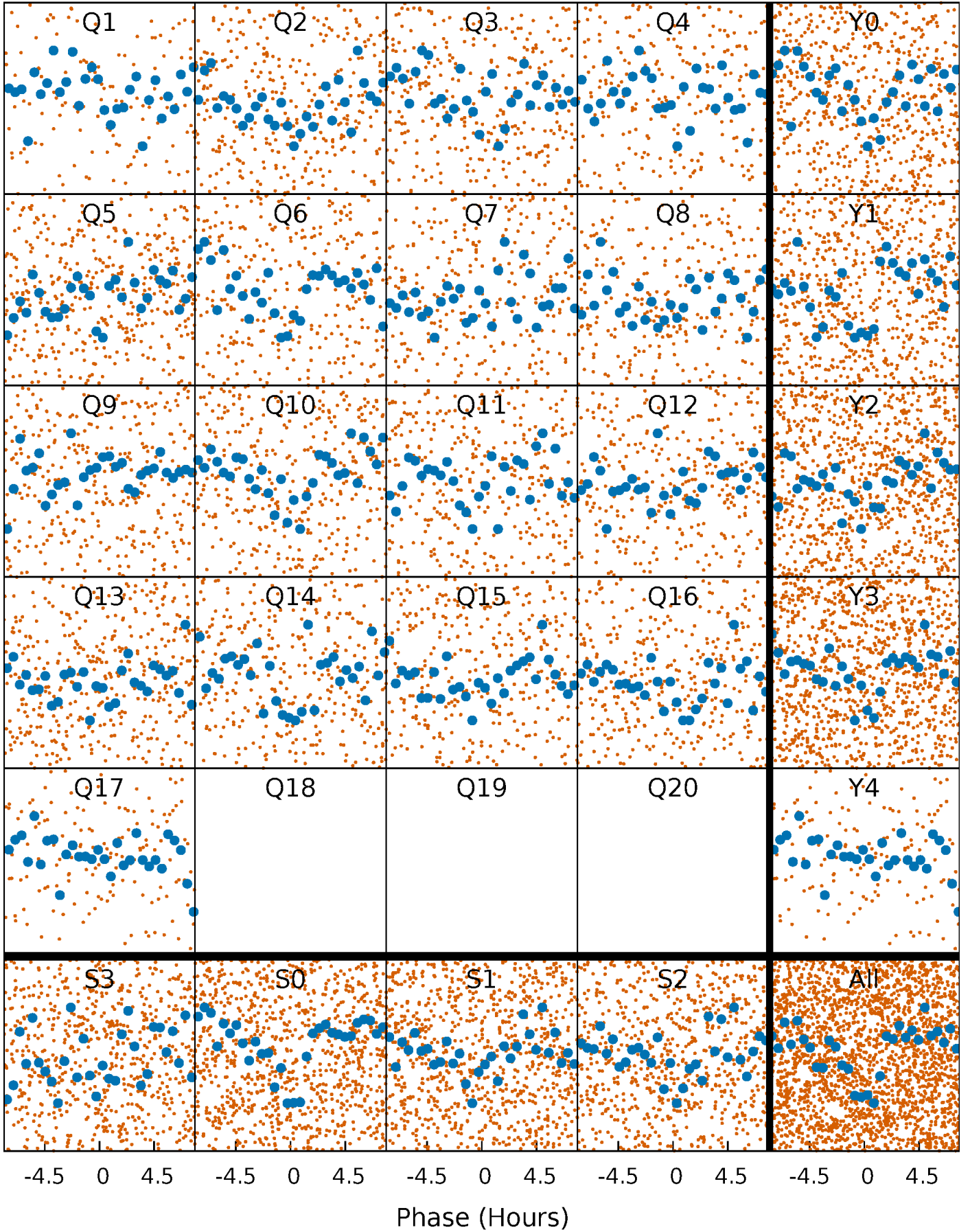


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



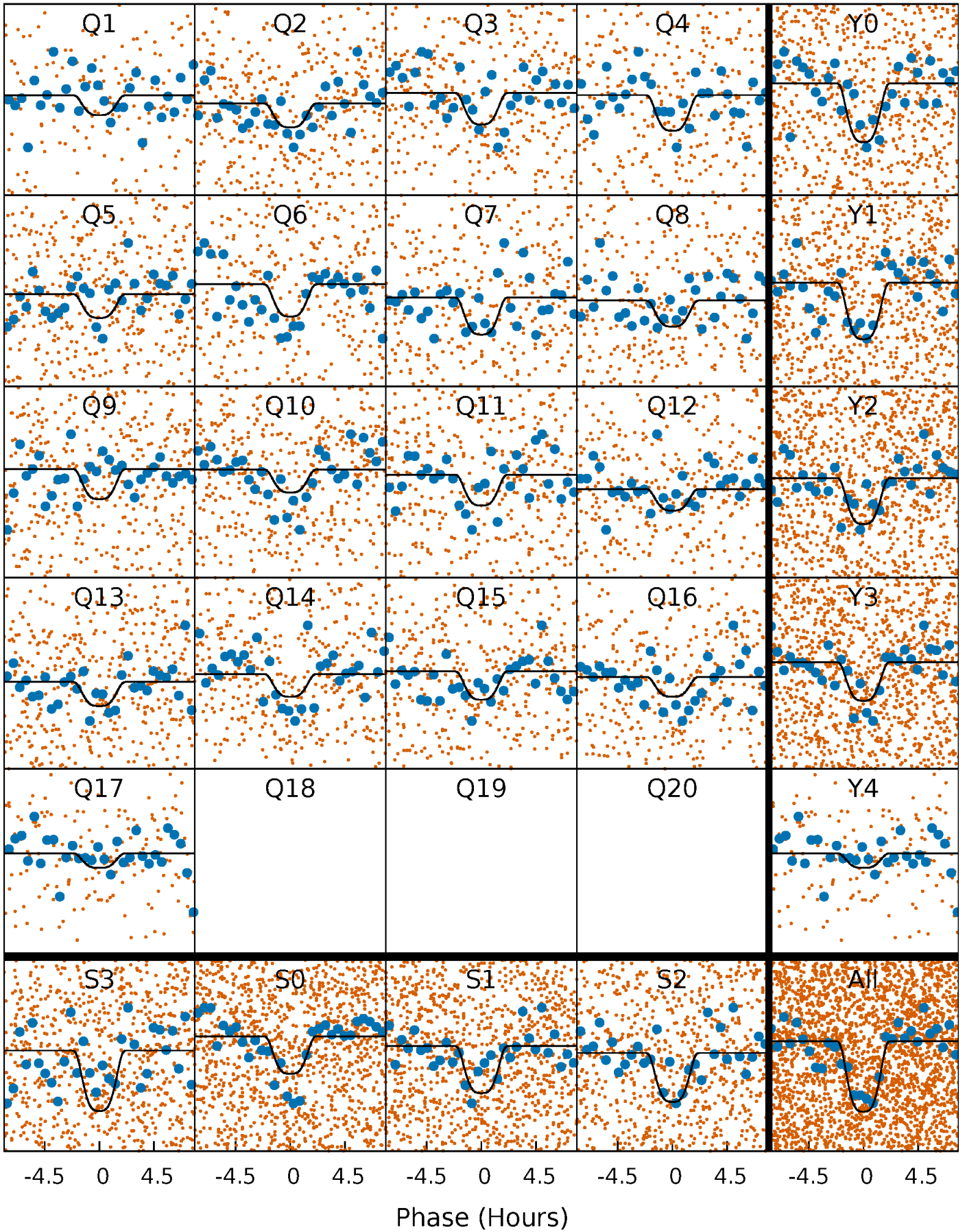
PDC Quarter-Phased Transit Curves

TCE 002831251-01 P= 5.813054 Days $T_0=131.538660$ (BKJD)



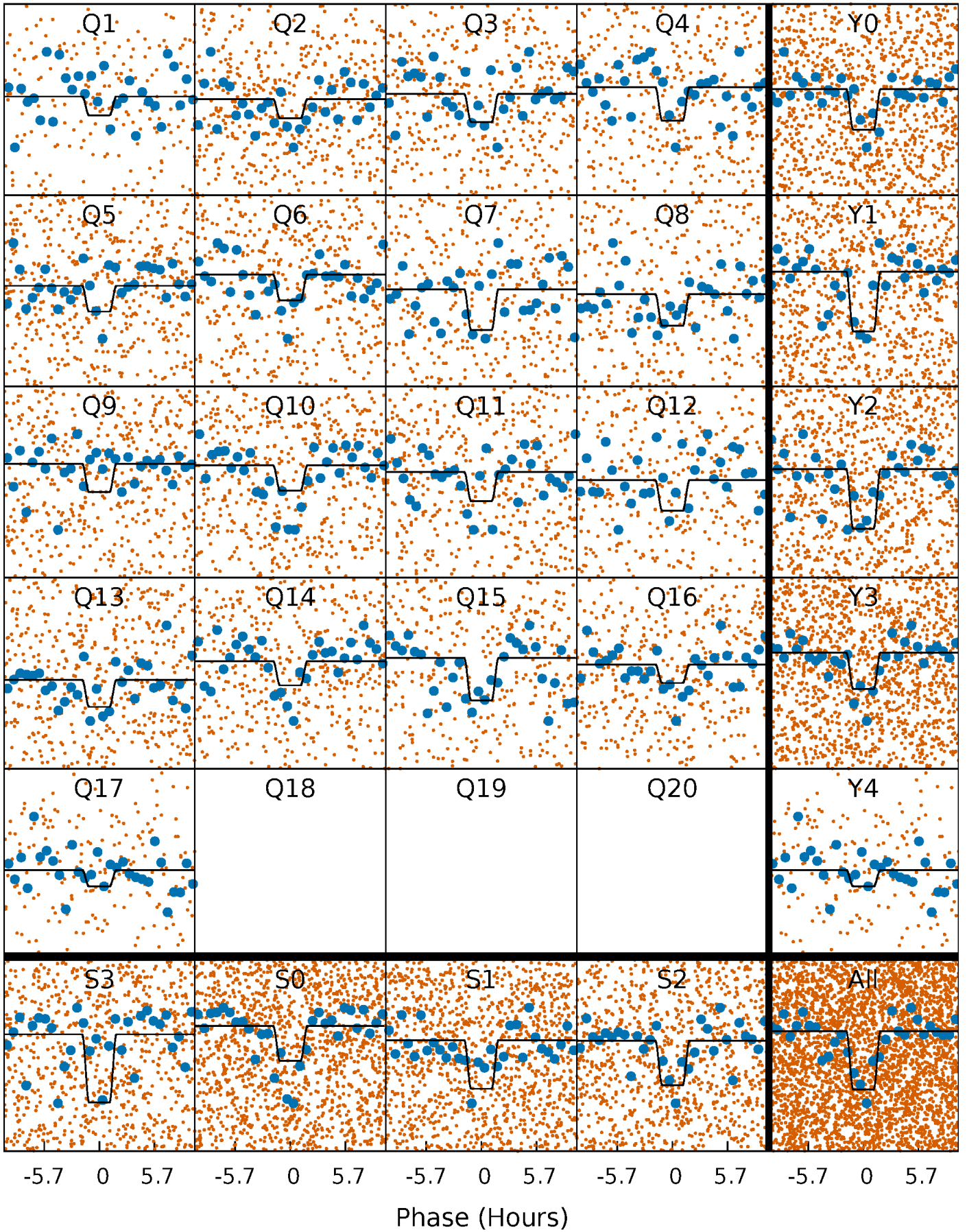
DV Quarter-Phased Transit Curves

TCE 002831251-01 P= 5.813054 Days $T_0=131.538660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

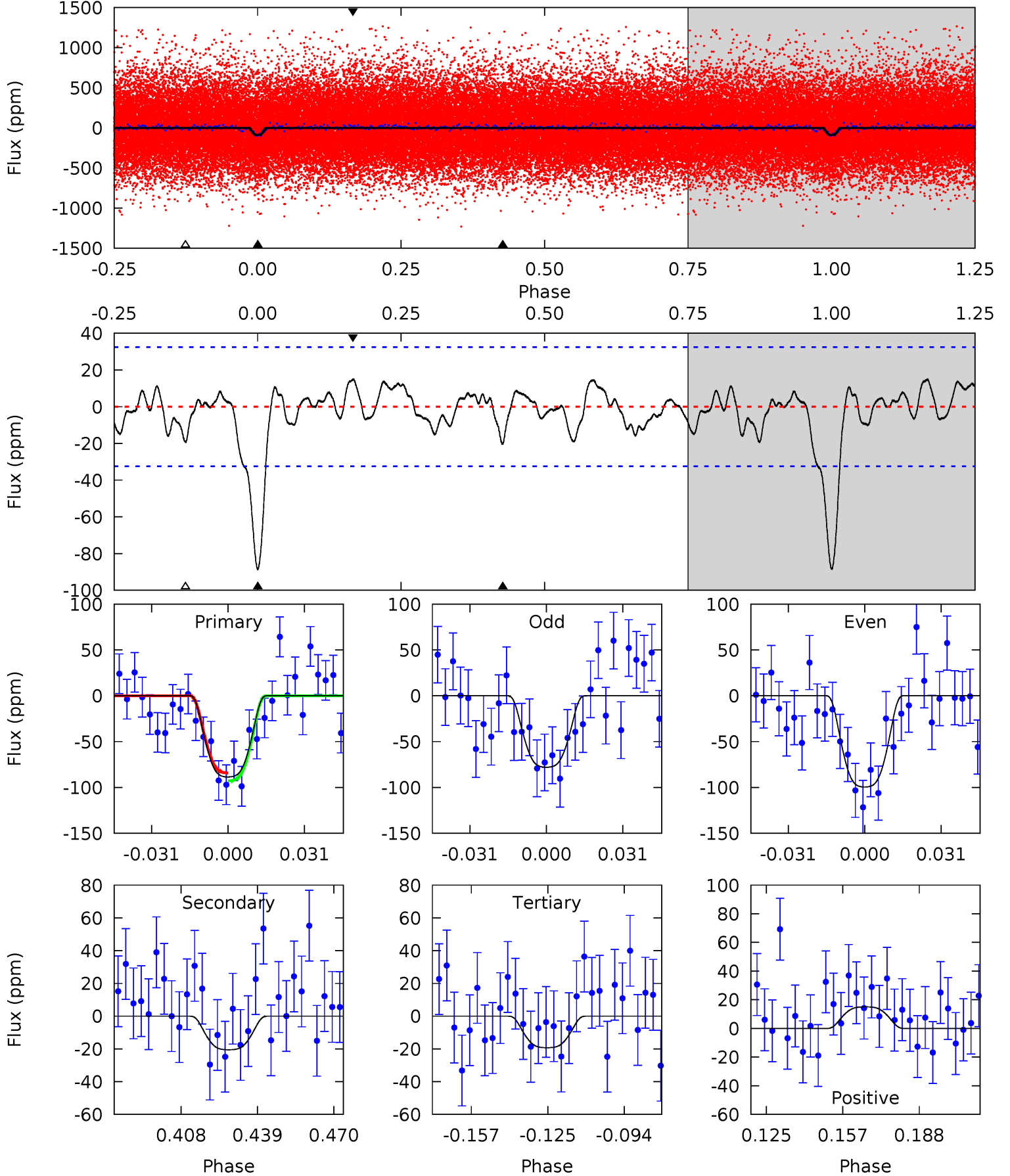
TCE 002831251-01 P= 5.813139 Days $T_0=131.531391$ (BKJD)



DV Model-Shift Uniqueness Test

002831251-01, P = 5.813054 Days, E = 125.725606 Days

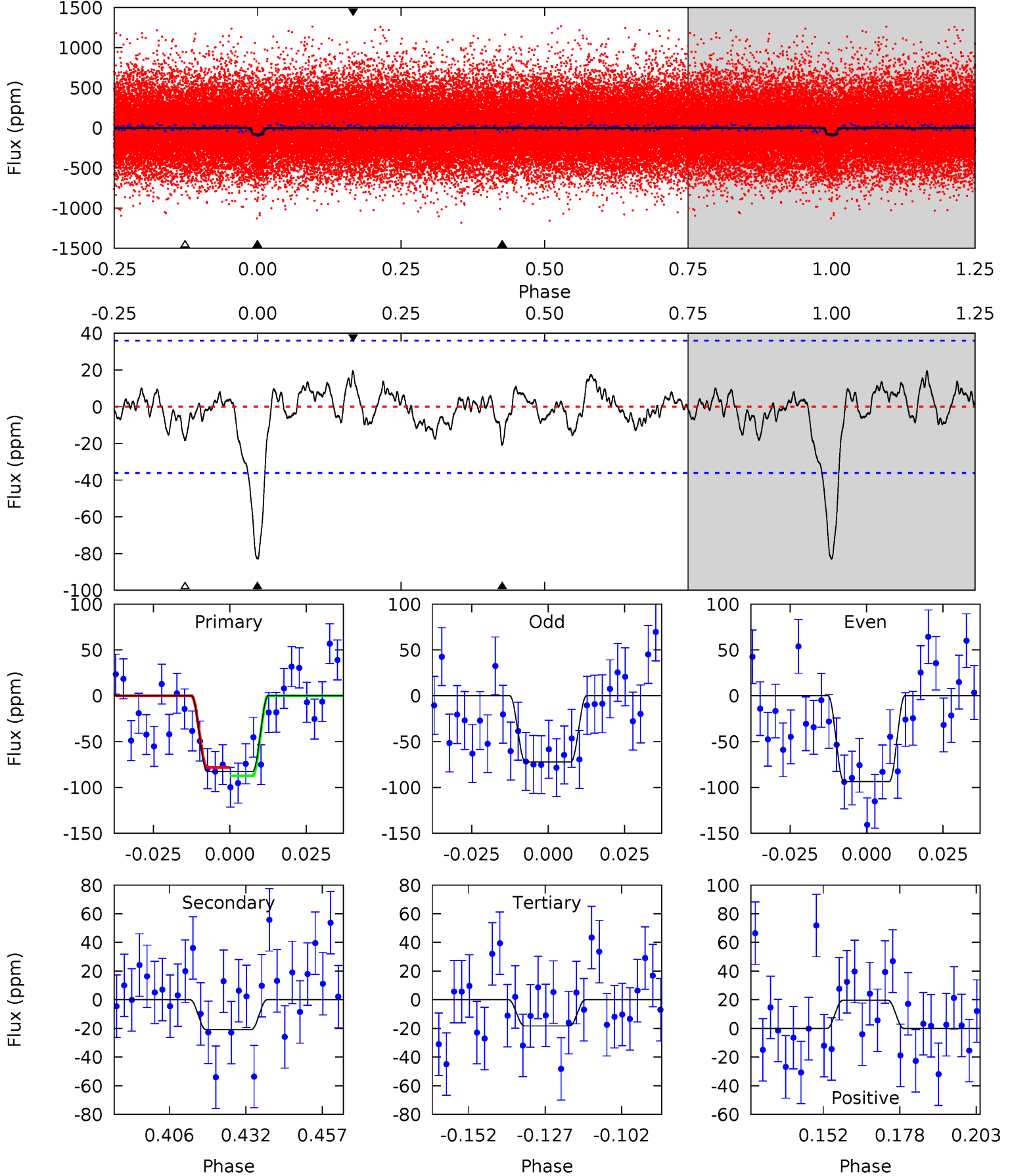
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	3.04	2.86	2.23	4.80	2.15	1.16	10.3	10.9	0.18	0.81	1.60	0.90	0.15	0.64



Alt Model-Shift Uniqueness Test

002831251-01, P = 5.813139 Days, E = 125.718252 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	2.80	2.45	2.63	4.84	2.24	1.00	8.67	8.49	0.35	0.17	1.43	1.00	0.19	0.61



Stellar Parameters For KIC 002831251

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6175^{+168}_{-205}	$4.410^{+0.087}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.041^{+0.327}_{-0.140}$	$1.013^{+0.159}_{-0.116}$	$1.265^{+0.498}_{-0.690}$
	+3%/-3%	+2%/-5%	+125%/-150%	+31%/-13%	+16%/-11%	+39%/-55%
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 002831251-01 / KOI 4702.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-21 ± 7	$1.45^{+0.29}_{-0.22}$	1557^{+123}_{-79}	4027^{+280}_{-295}	22^{+11}_{-9}
Alt.	-21 ± 7	$1.12^{+0.22}_{-0.19}$	1568^{+112}_{-82}	4458^{+404}_{-427}	36^{+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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

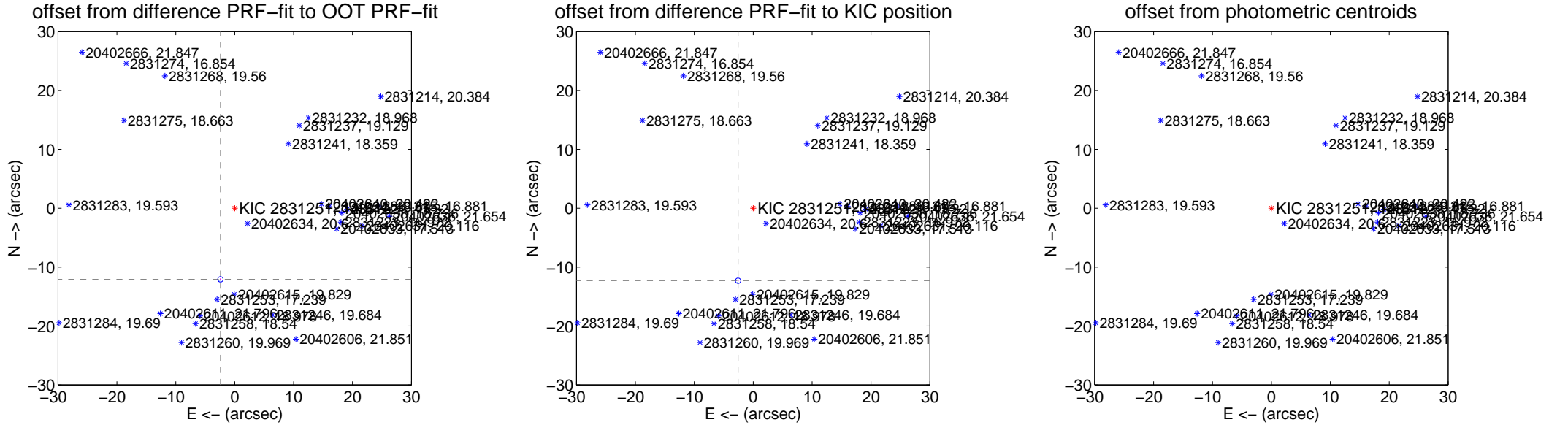
DV Centroid Data

Supplemental centroid analysis for 002831251-01. Kepler magnitude: 14.51. Transit SNR 9.56

There are 3 quarters with good PRF difference image offsets

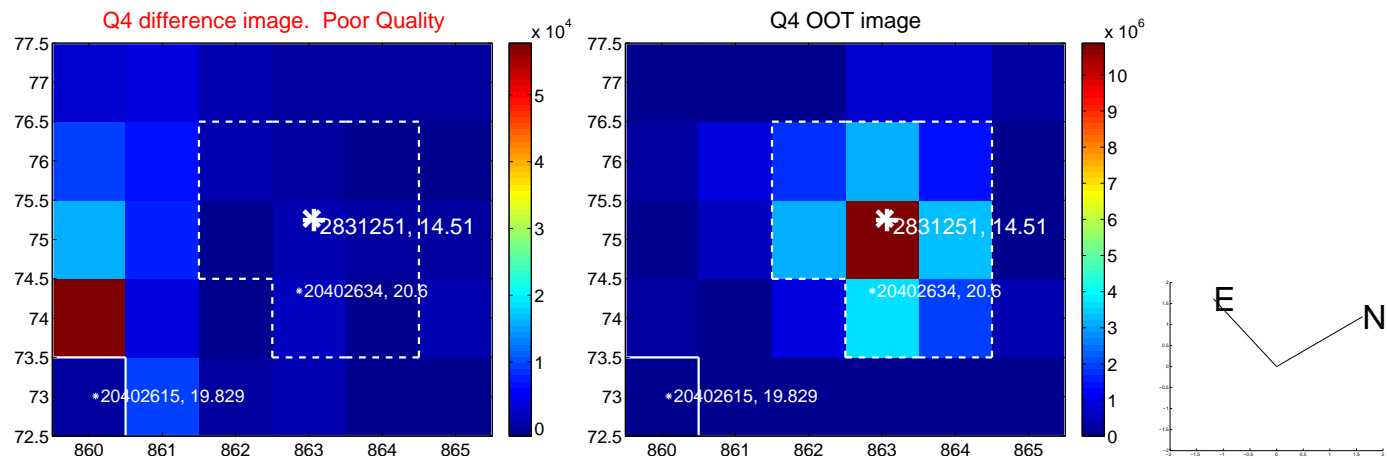
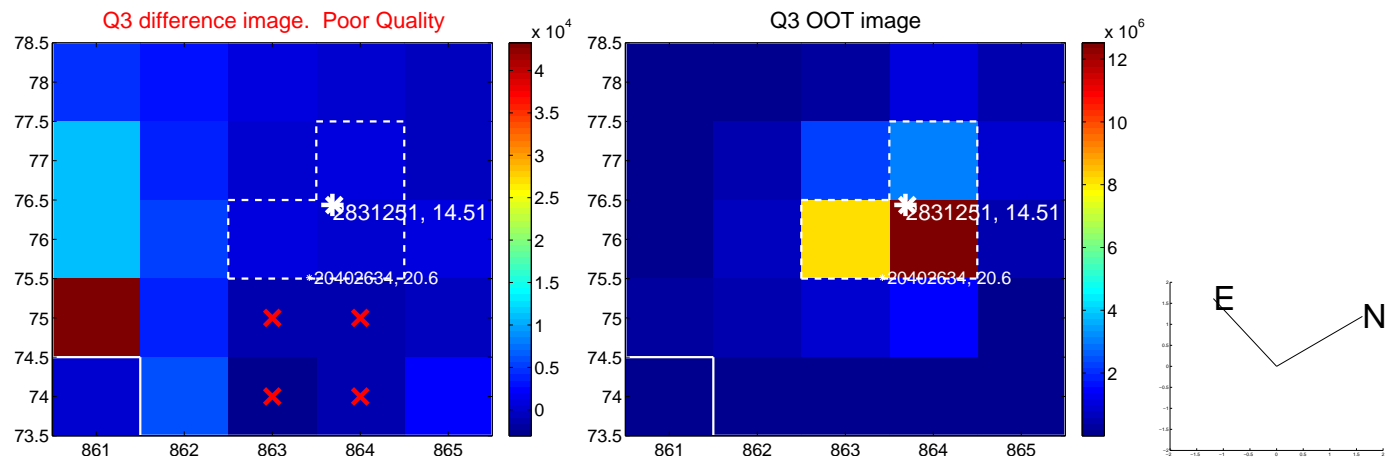
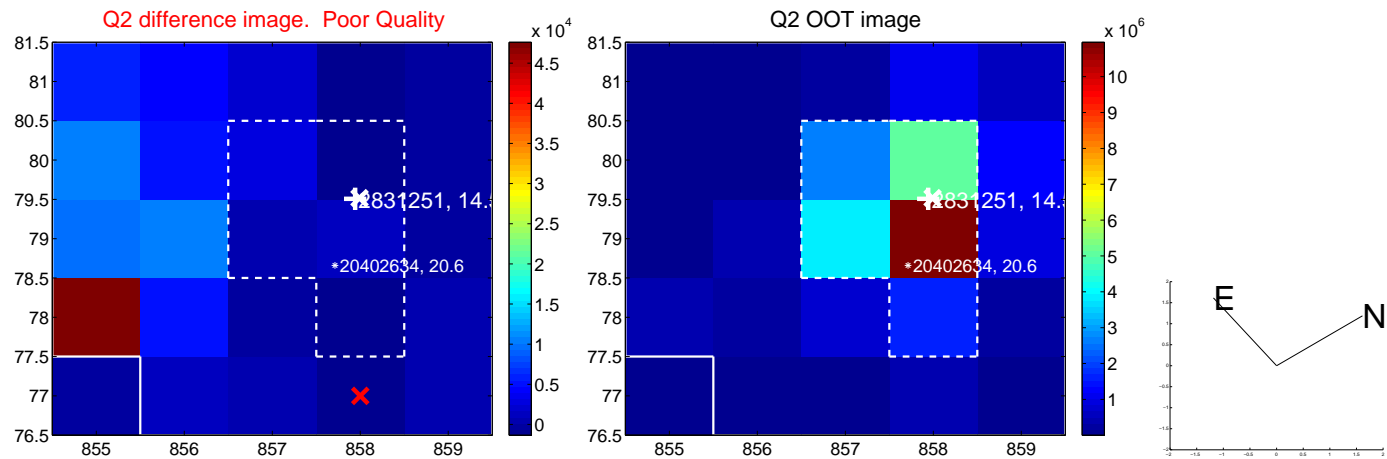
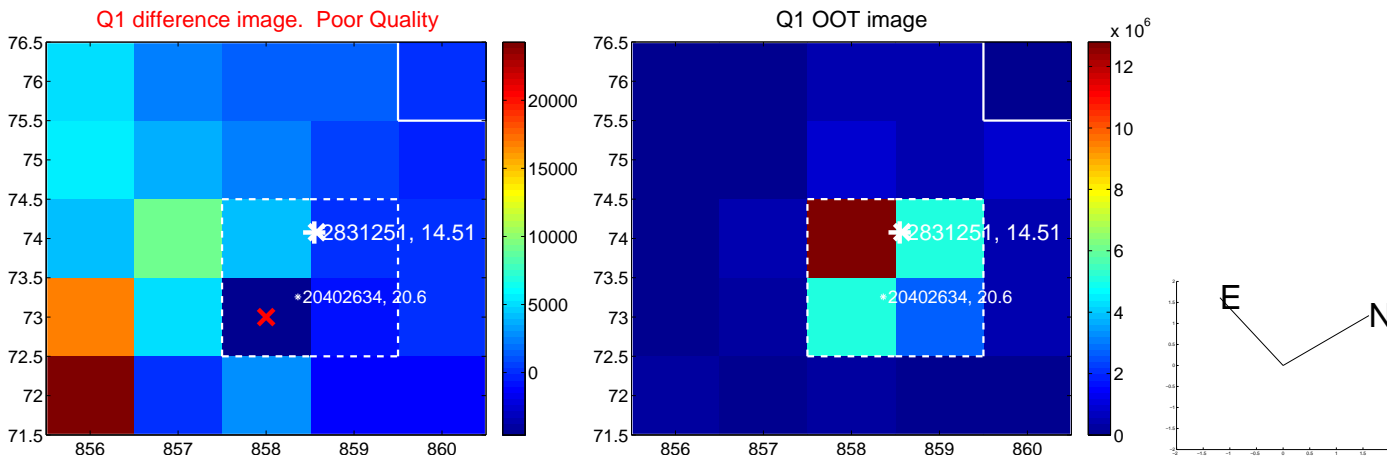
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.318 \pm 0.153	80.55	2.423 \pm 0.084	-12.077 \pm 0.155
PRF-fit source offset from KIC position	12.573 \pm 0.153	82.01	2.566 \pm 0.071	-12.309 \pm 0.156
photometric centroid source offset	51.51 \pm 1.63	31.70	36.44 \pm 1.49	-36.41 \pm 1.75

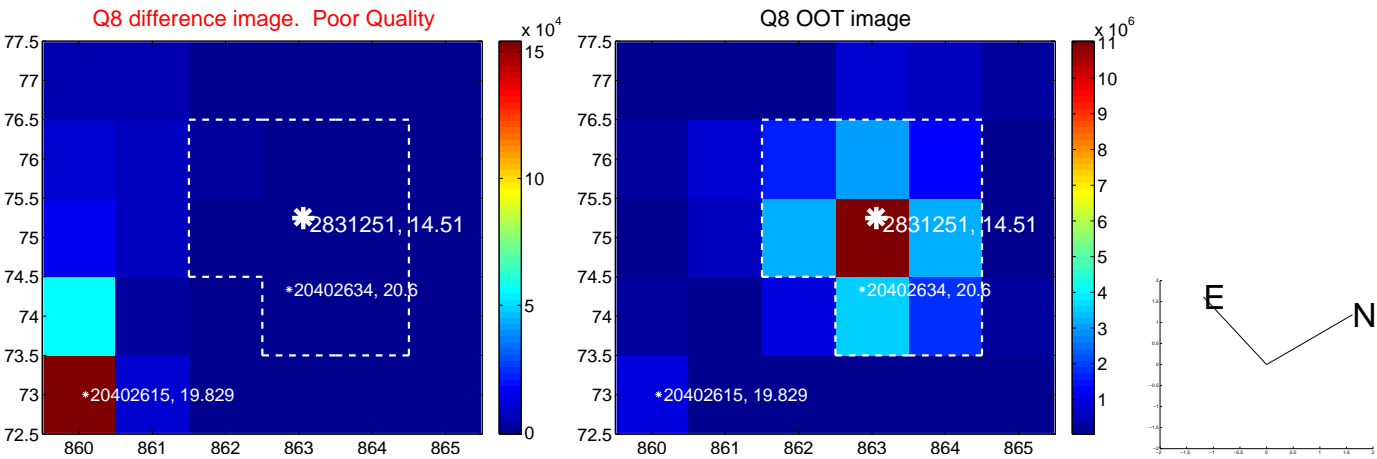
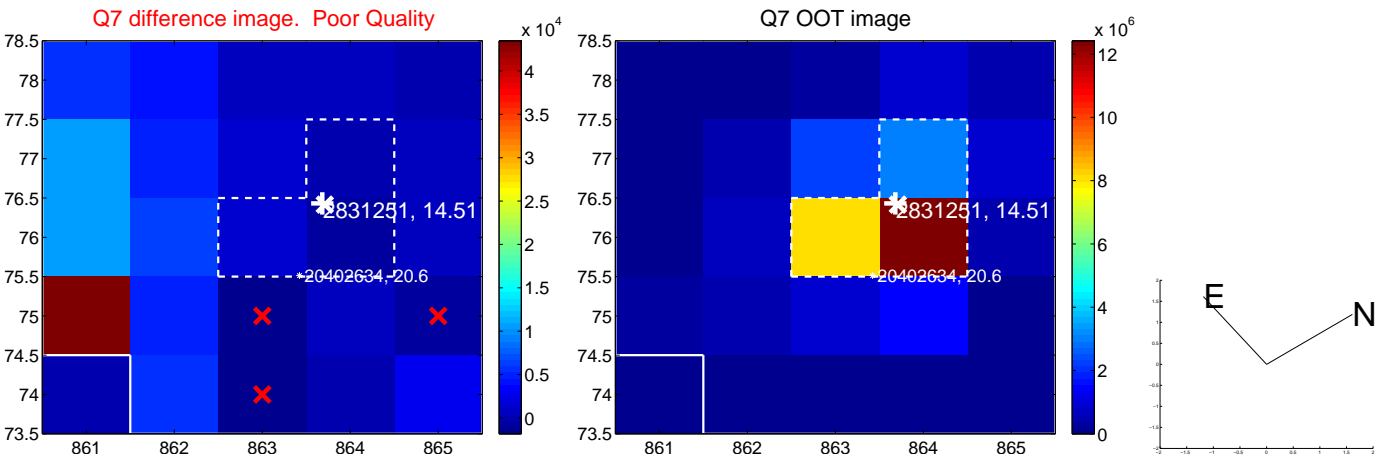
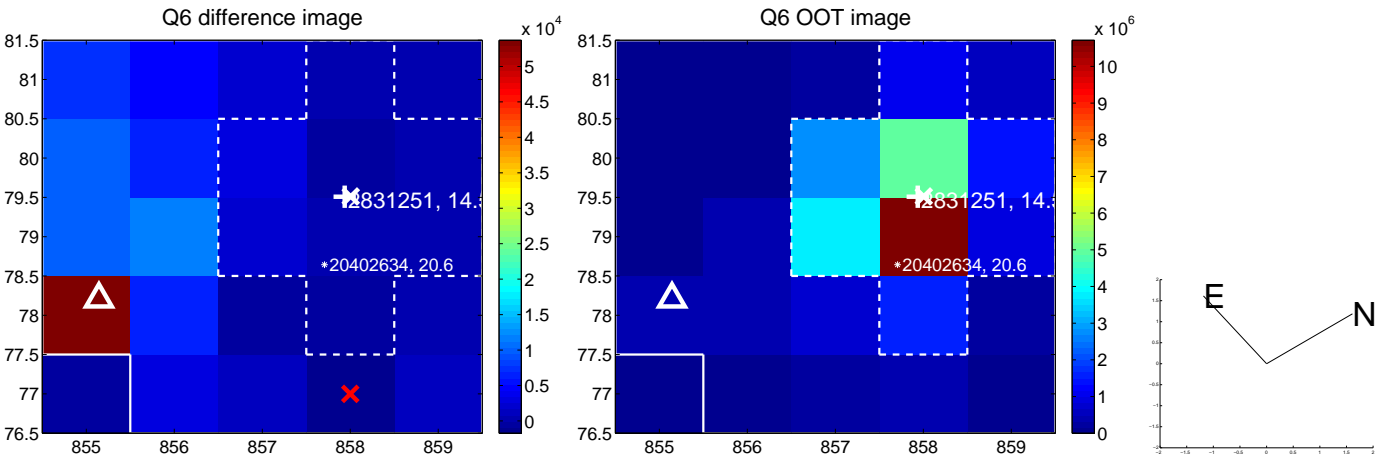
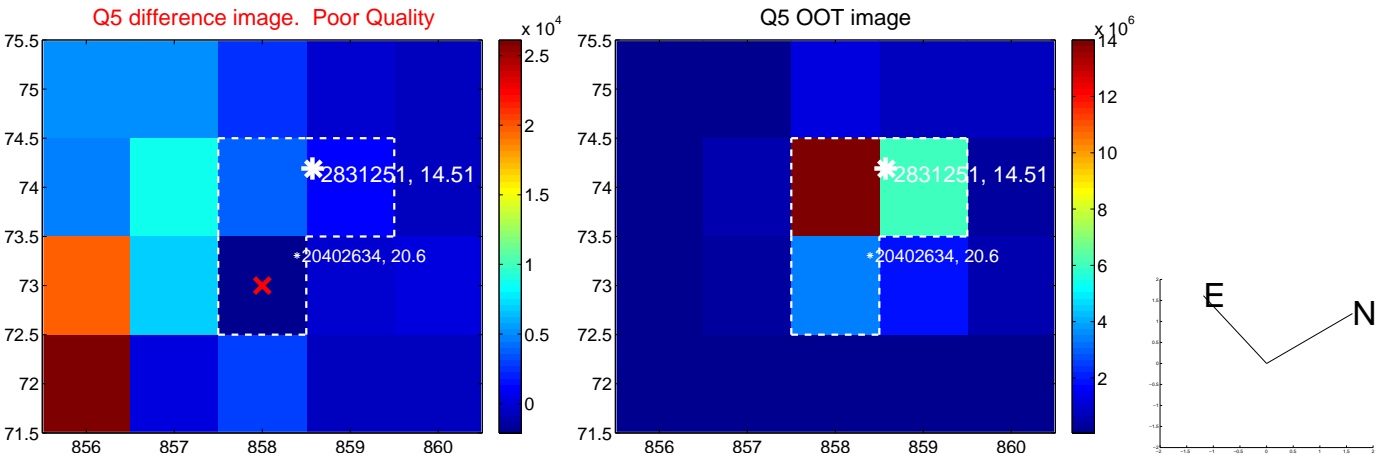


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

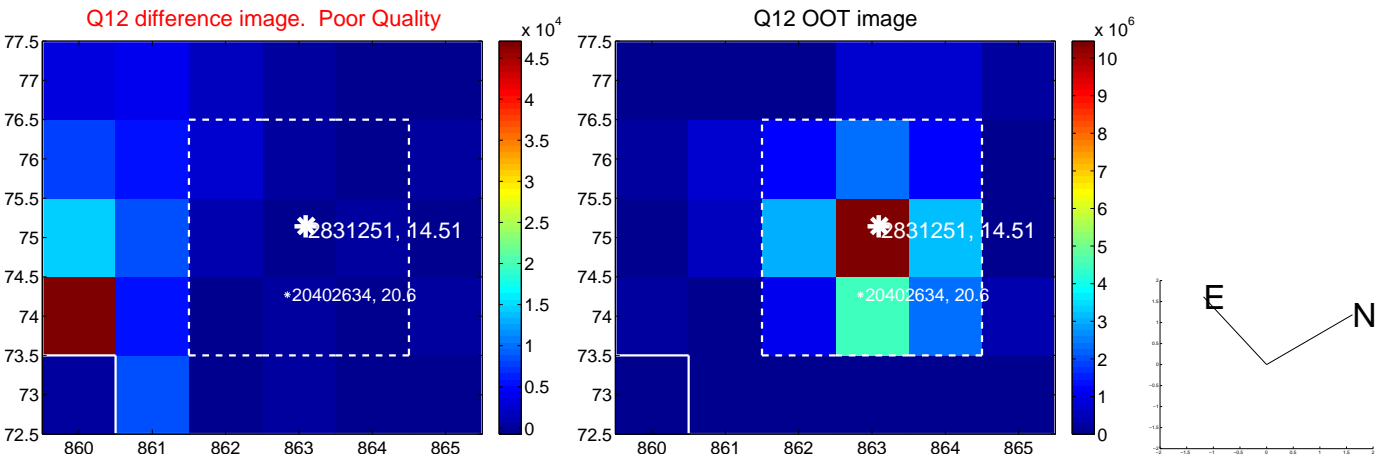
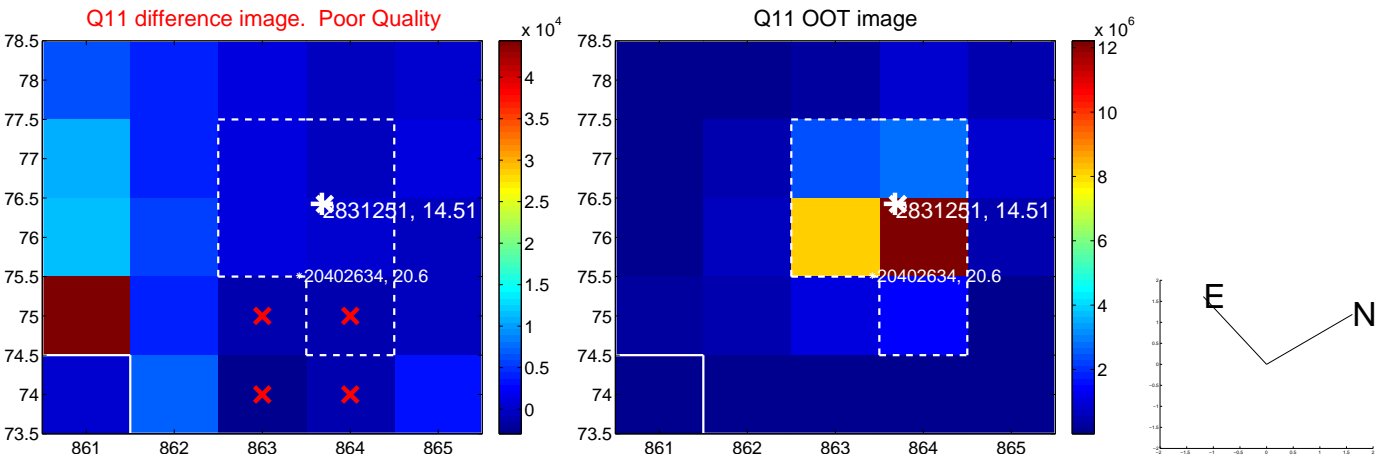
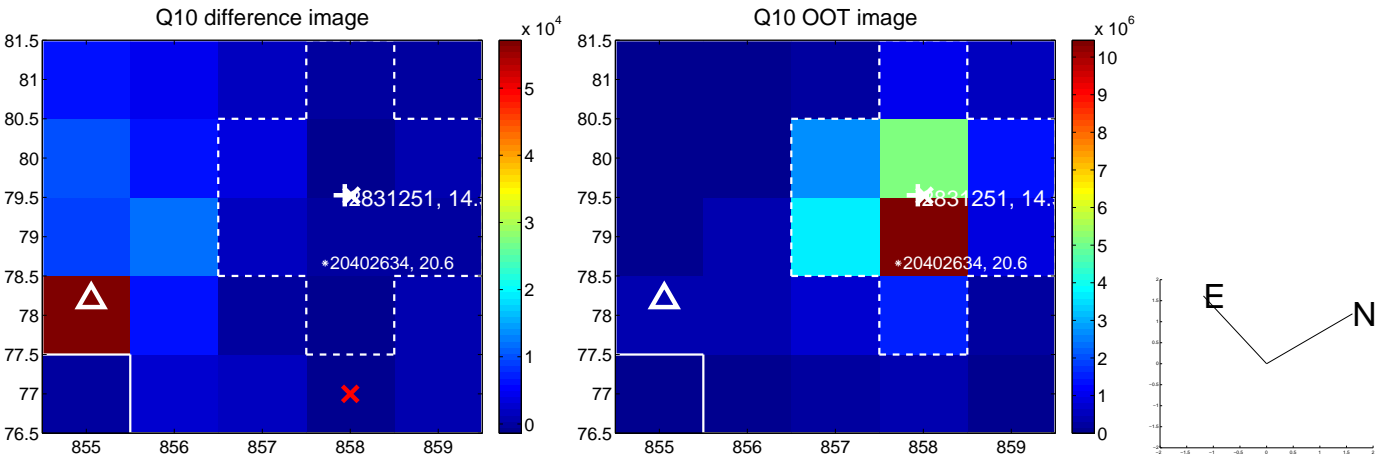
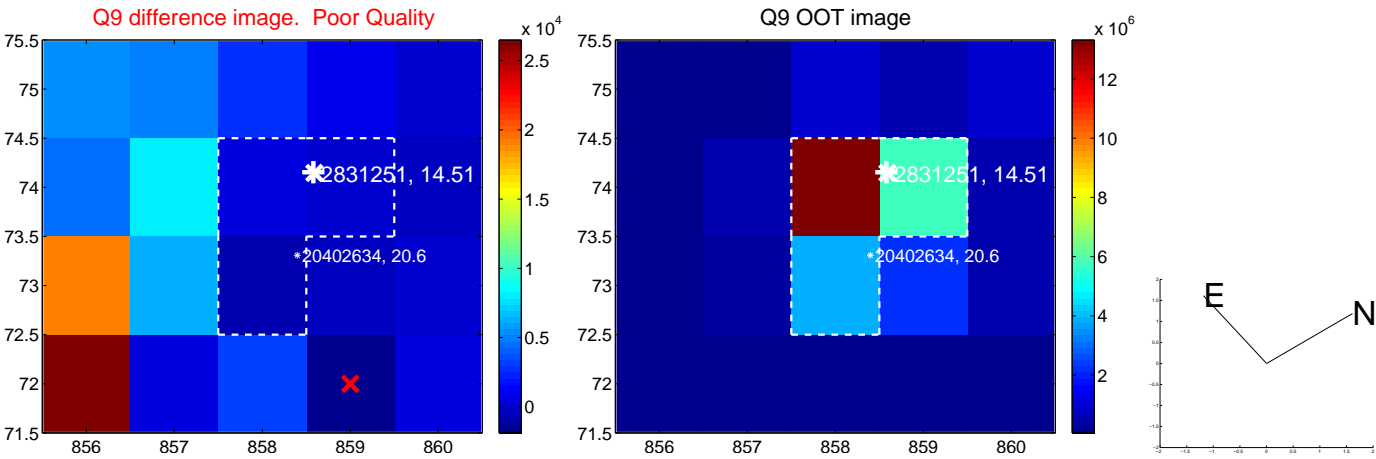
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



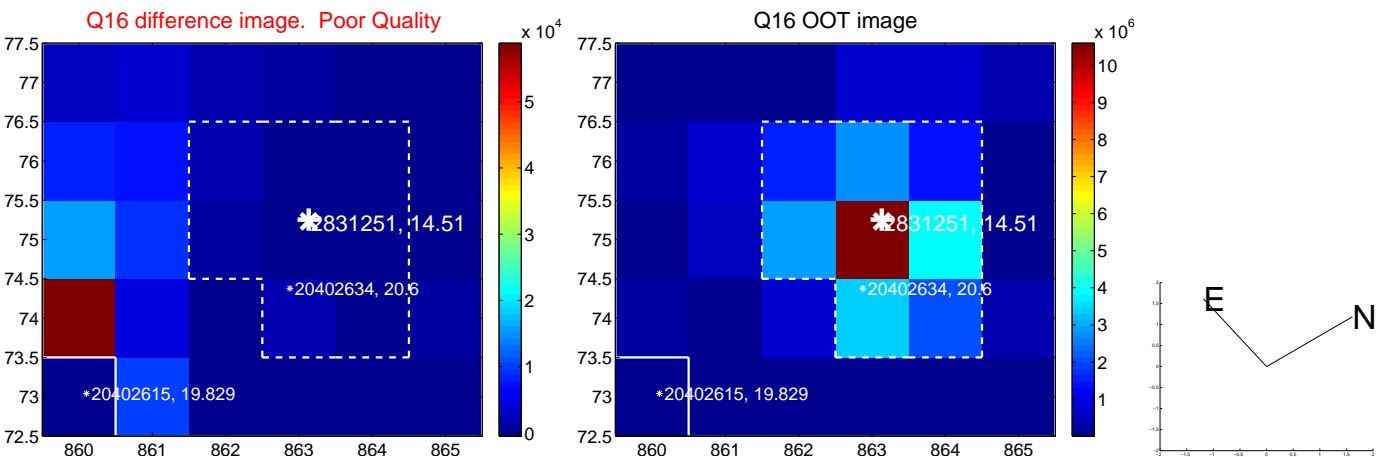
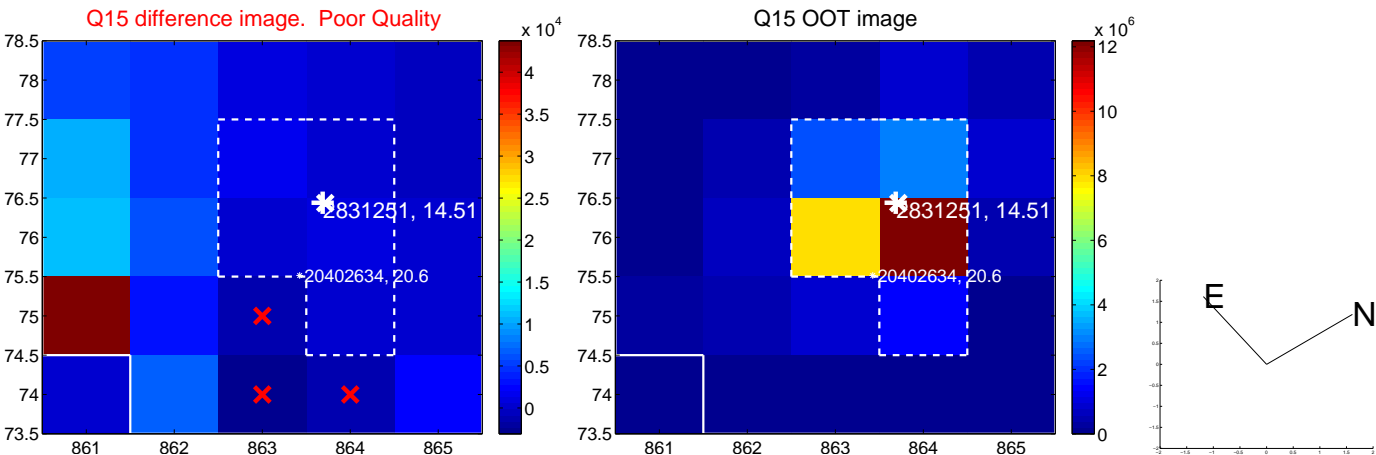
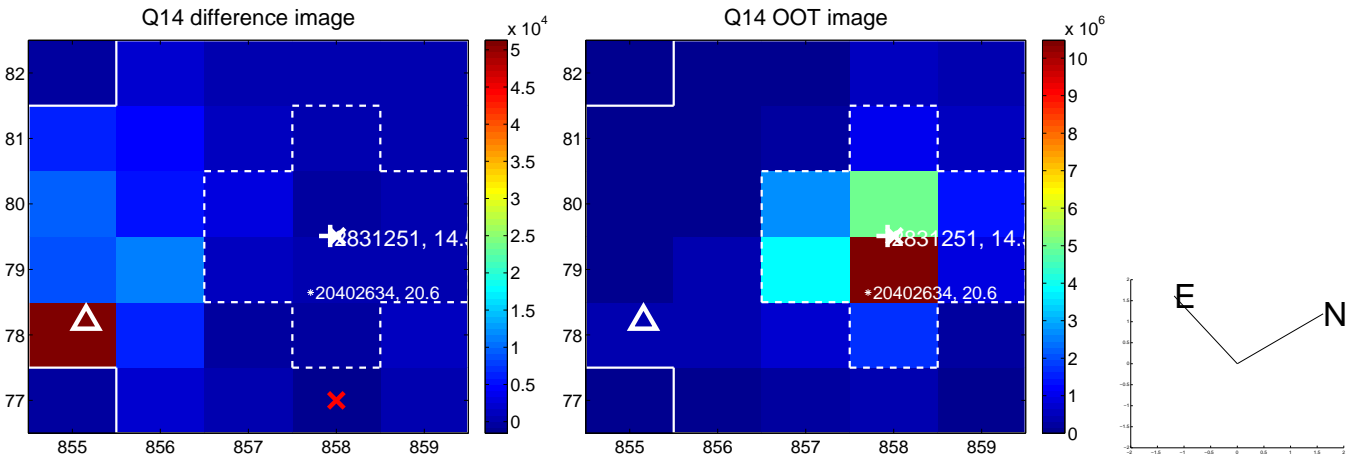
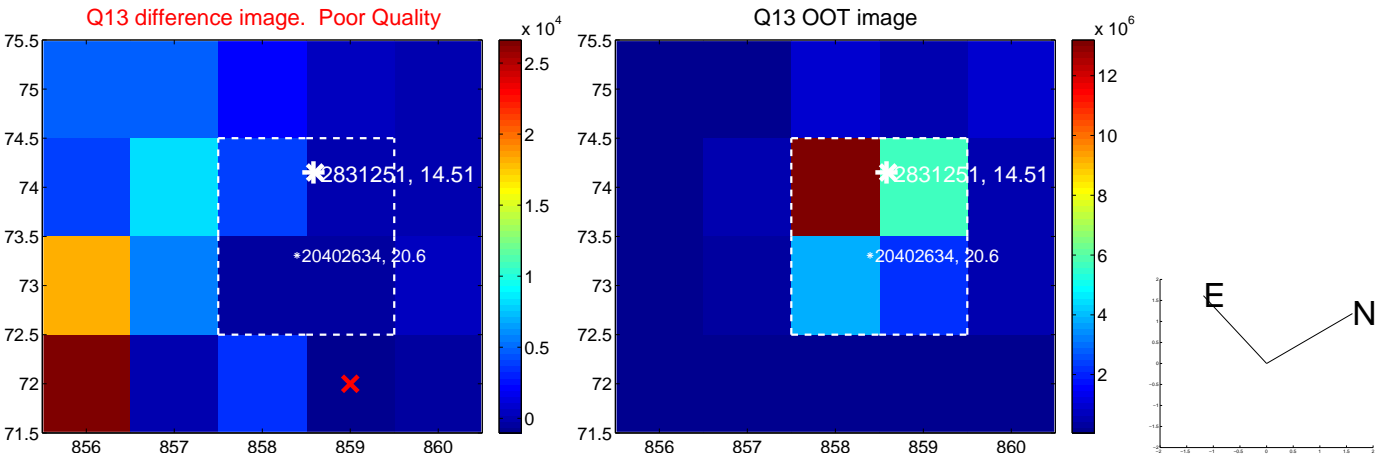
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



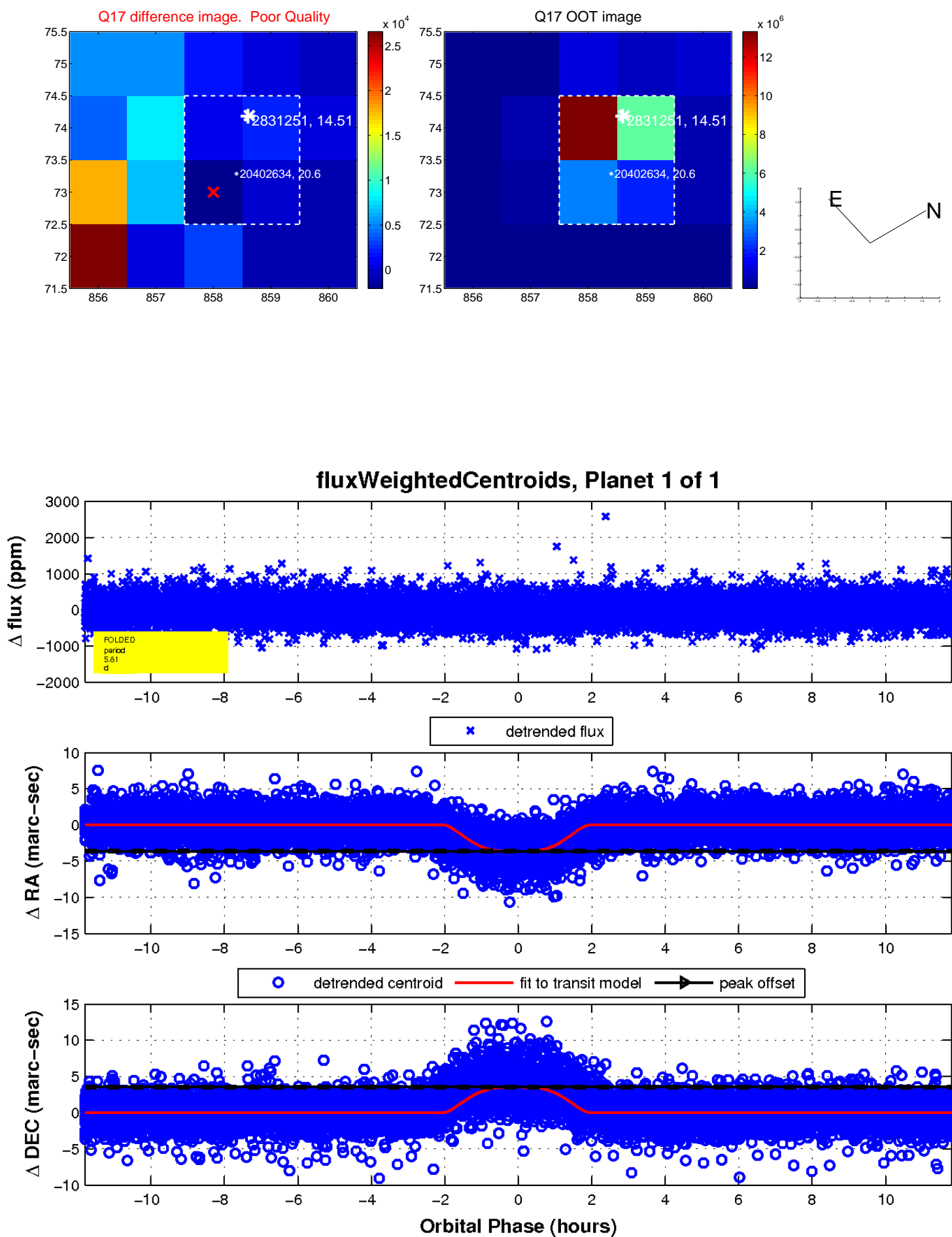
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UKIRT Image

Declination

