

KIC 008410415

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})
008410415-01	OBS	2291.01	44.299245	141.282758	785.5	4.352	19.4	22.1	0.92	5316	2.67	10.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008410415-01	OBS	PC	0.98	0	0	0	0	NO_COMMENT

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

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

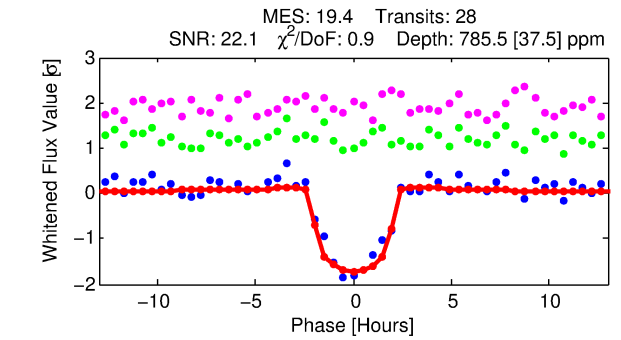
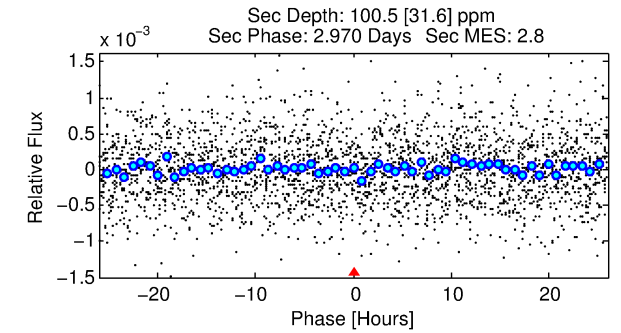
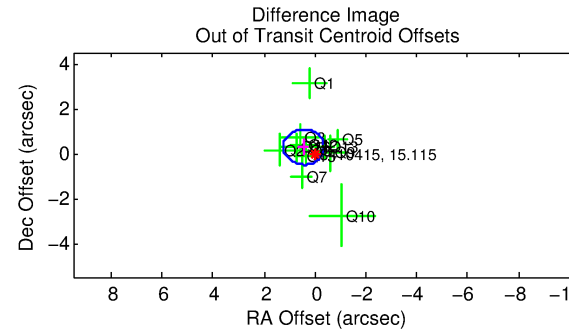
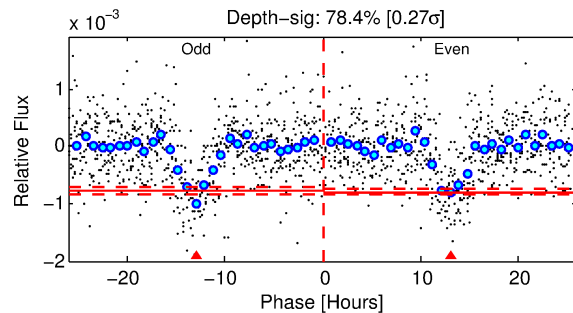
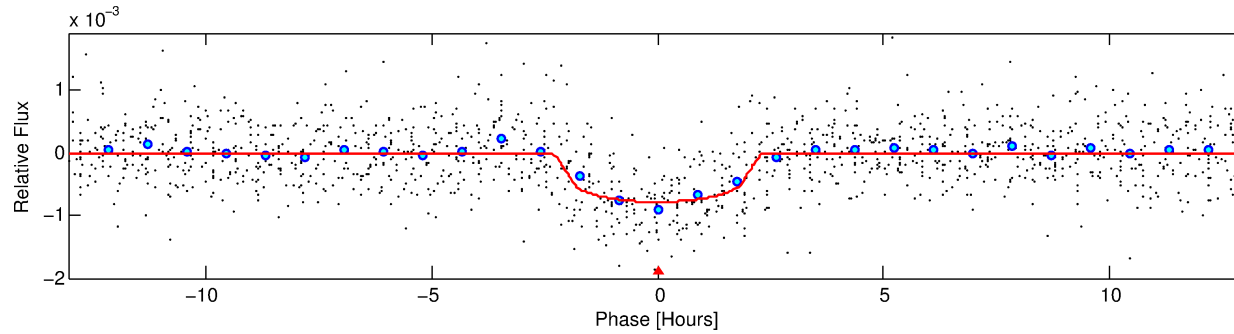
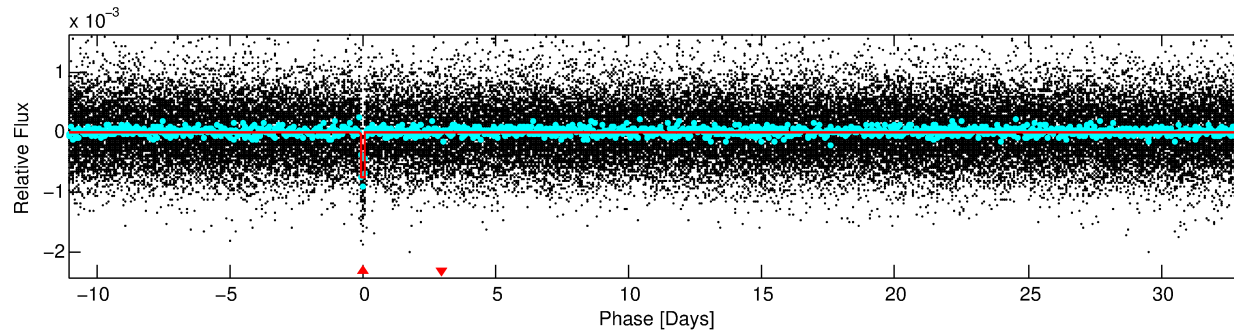
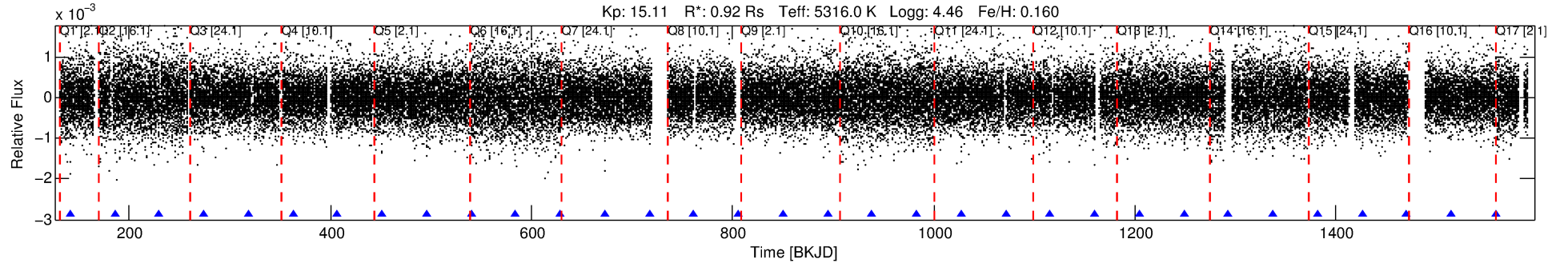
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008410415-01

No Significant Match Found

DV One-Page Summary

KIC: 8410415 Candidate: 1 of 1 Period: 44.299 d
KOI: K02291.01 Corr: 0.989



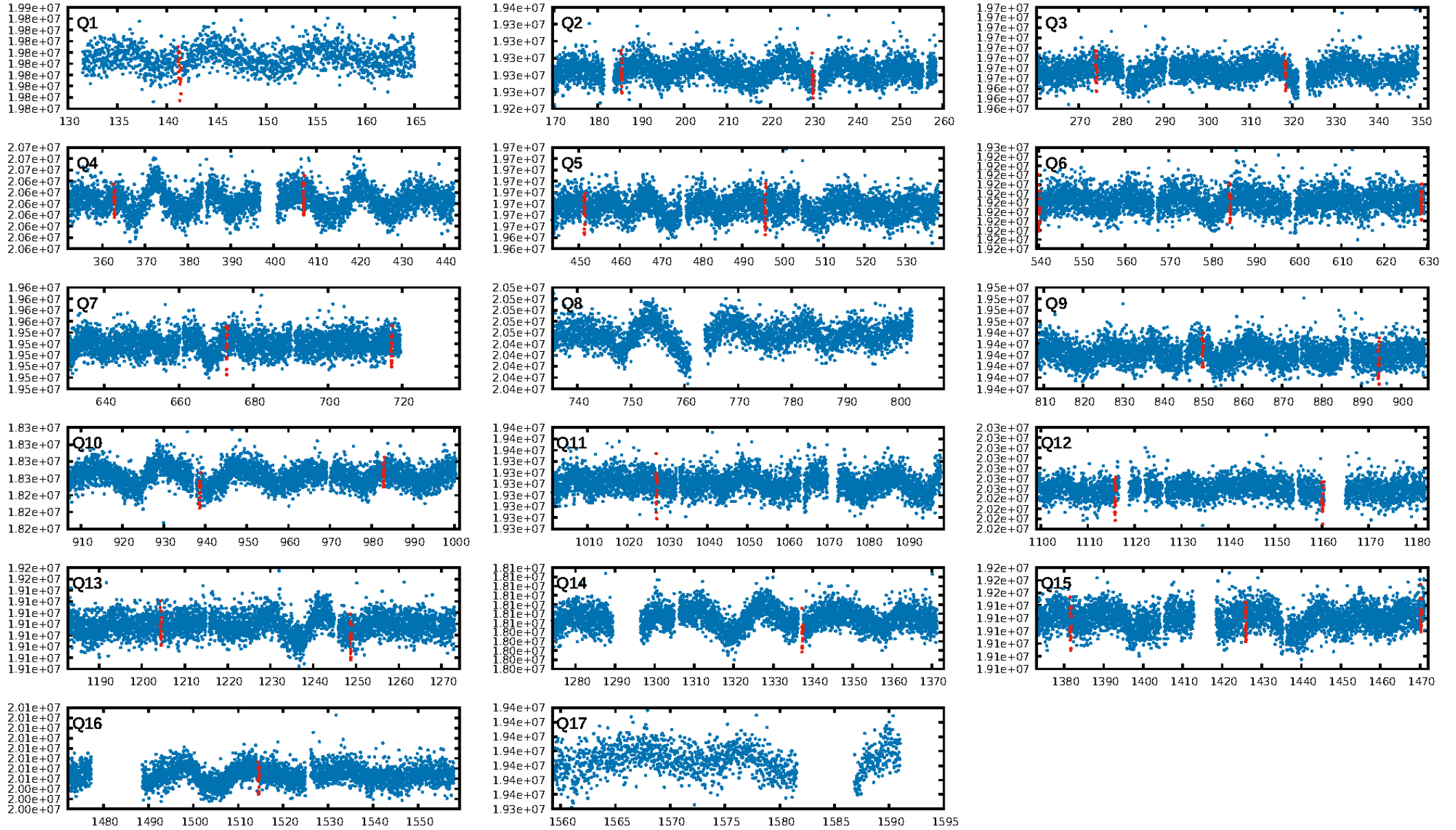
DV Fit Results:

Period = 44.29924 [0.00022] d
Epoch = 141.2828 [0.0039] BKJD
Rp/R* = 0.0267 [0.0195]
a/R* = 63.82 [172.16]
b = 0.62 [2.76]
Seff = 10.87 [1.57]
Teq = 463 [17] K
Rp = 2.67 [1.96] Re
a = 0.2347 [0.0188] AU
Ag = 428.59 [643.16] [0.66 σ]
Teffp = 3257 [1219] K [2.29 σ]

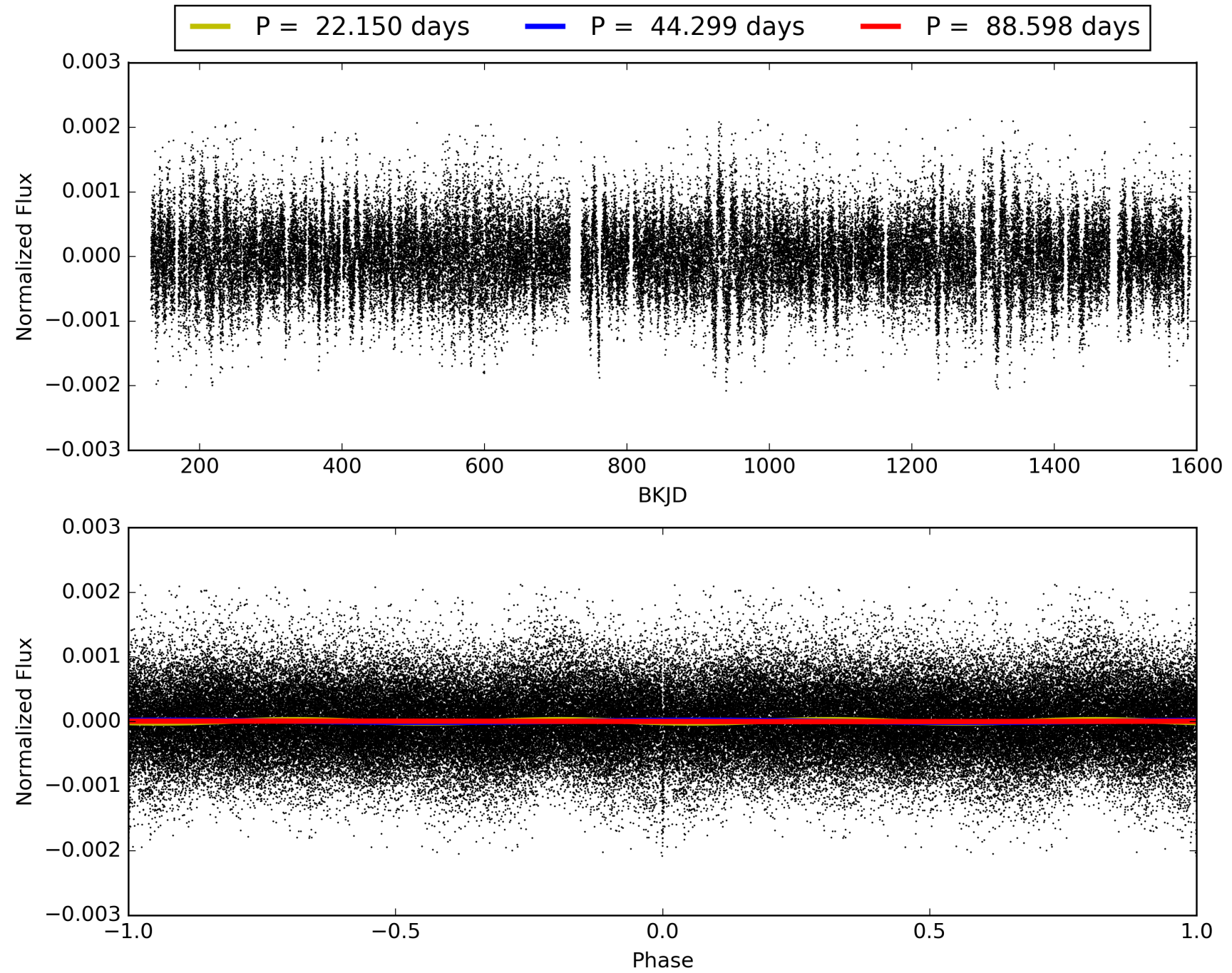
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.70e-87
RollingBand-fgt: 1.00 [27/27]
GhostDiagnostic-chr: 6.811
Centroid-sig: 65.1%
Centroid-so: 0.530 arcsec [0.86 σ]
OotOffset-rm: 0.523 arcsec [1.98 σ]
KicOffset-rm: 0.489 arcsec [1.62 σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 008410415-01, PDC Light Curves

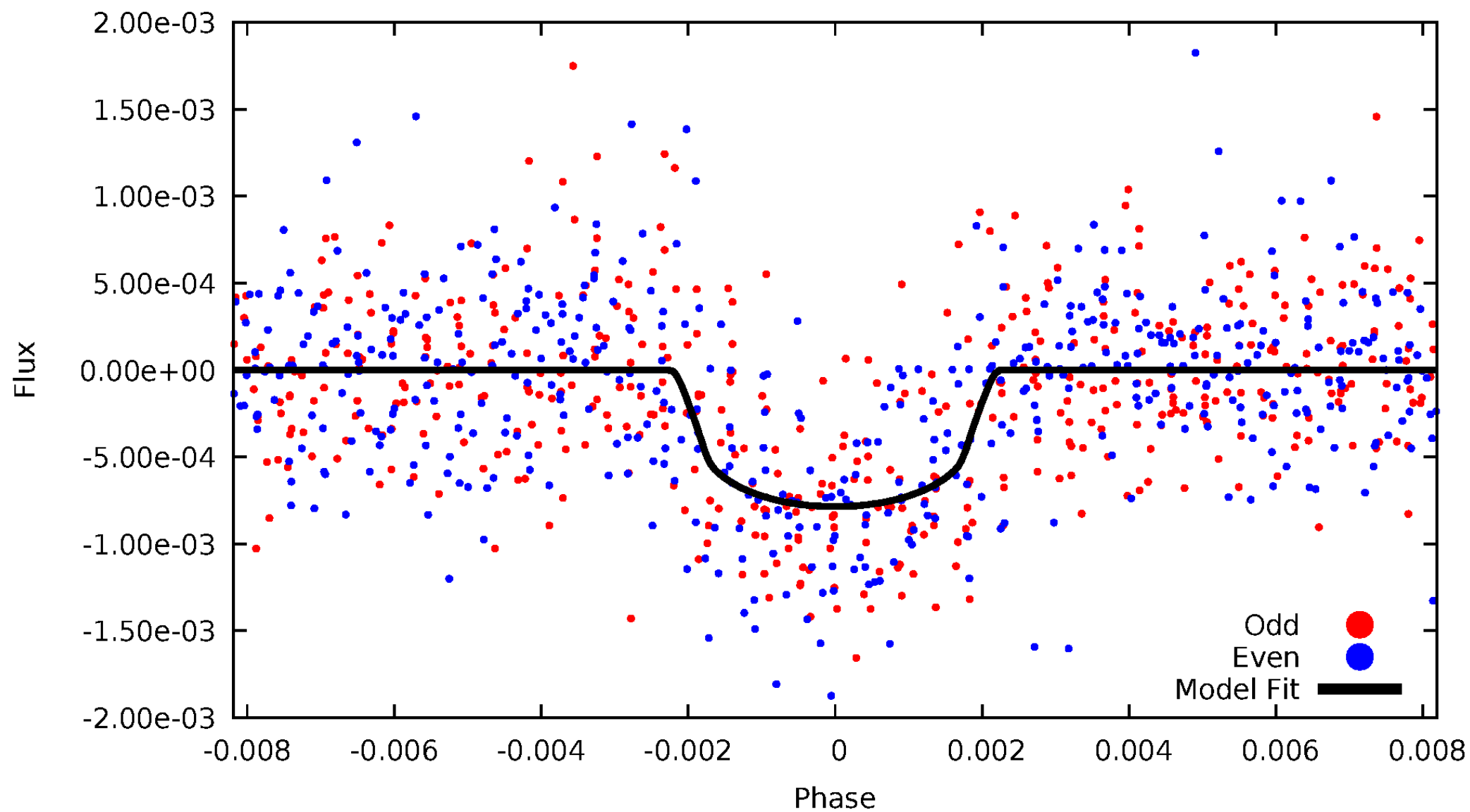


TCE 008410415-01



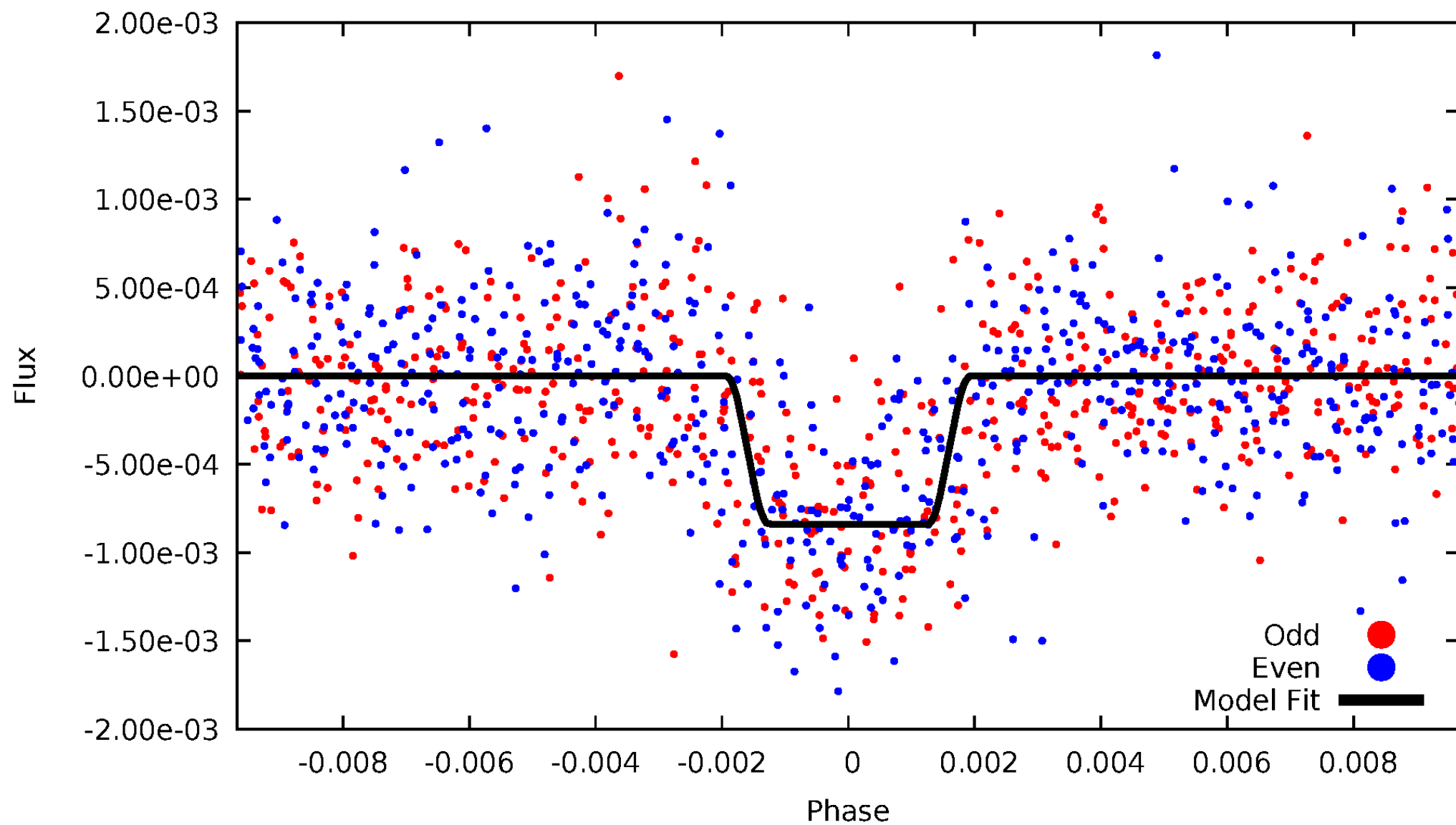
DV Odd/Even

TCE 008410415-01



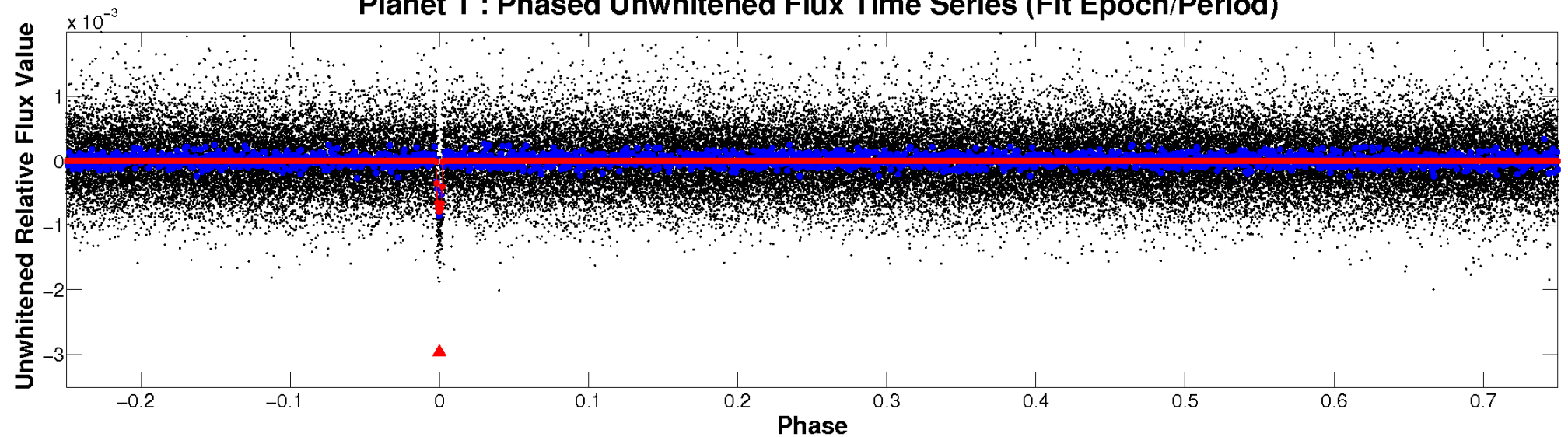
ALT Odd/Even

TCE 008410415-01

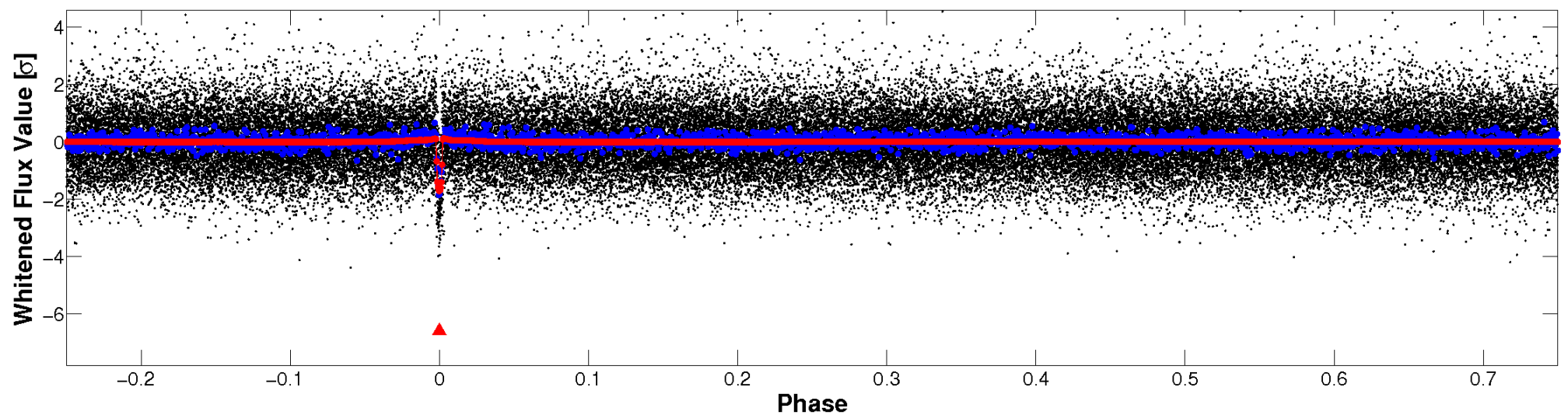


Non-Whitened Vs. Whitened Light Curve

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

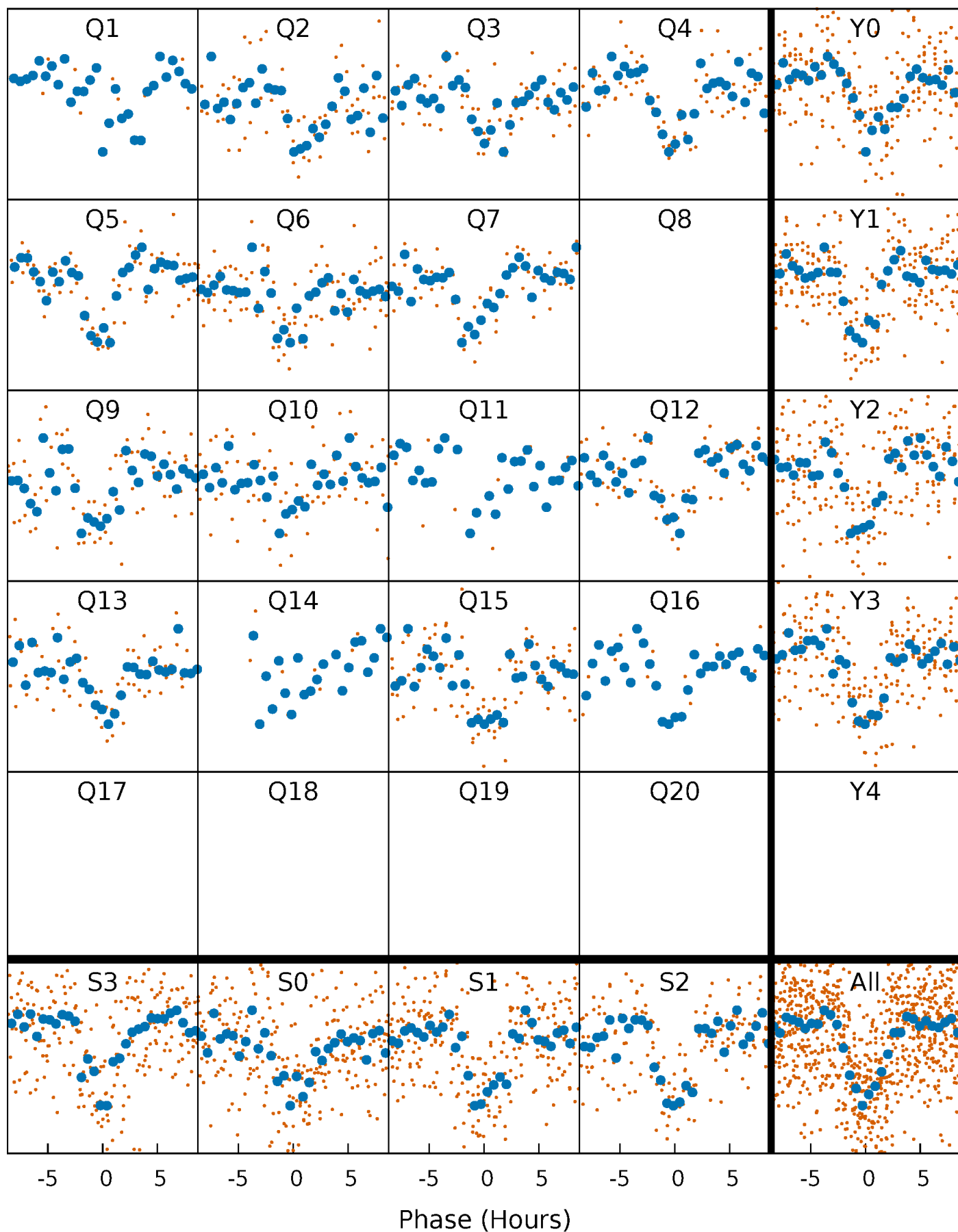


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



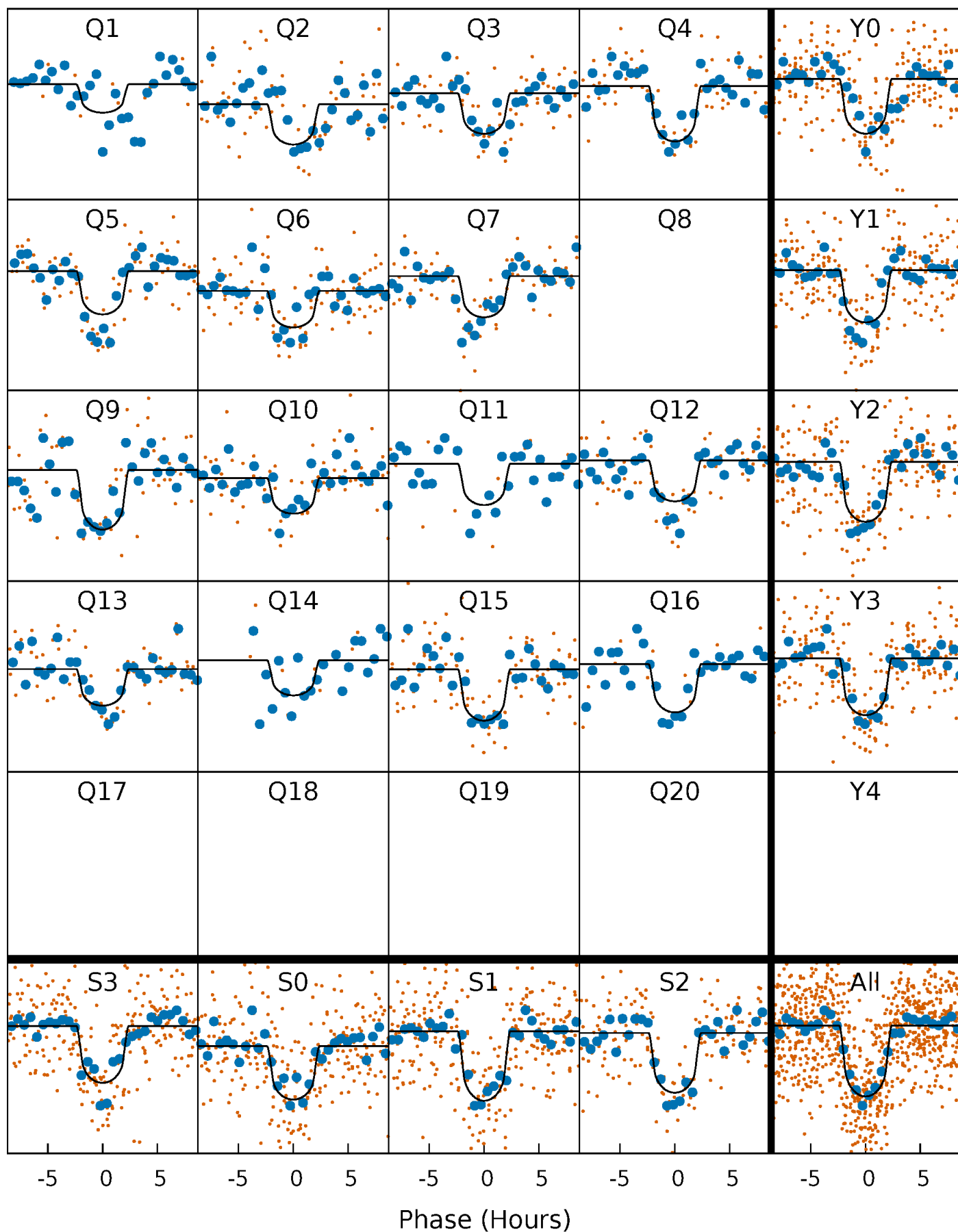
PDC Quarter-Phased Transit Curves

TCE 008410415-01 P= 44.299245 Days $T_0=141.282758$ (BKJD)



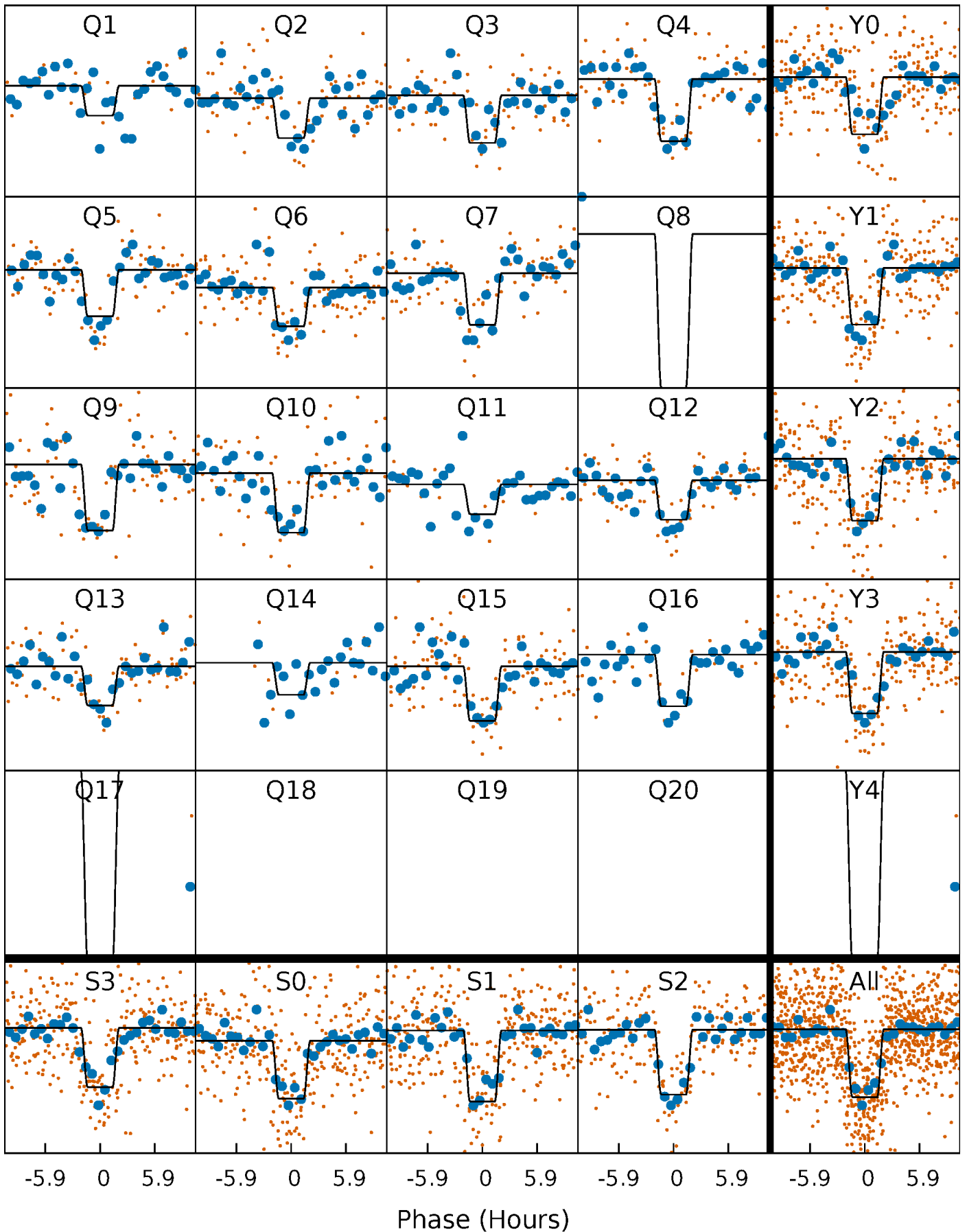
DV Quarter-Phased Transit Curves

TCE 008410415-01 P= 44.299245 Days $T_0=141.282758$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

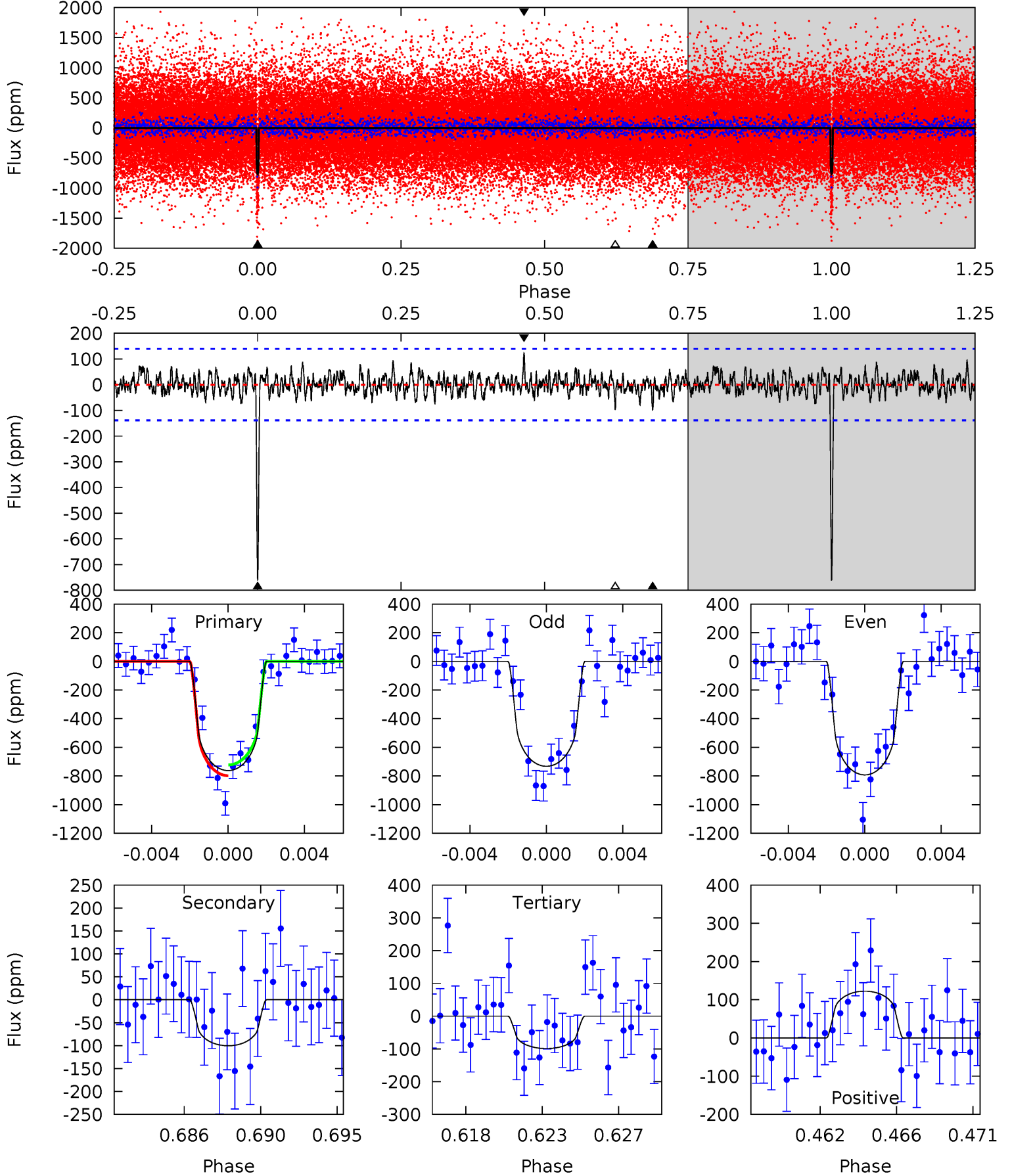
TCE 008410415-01 P= 44.299040 Days $T_0=141.287529$ (BKJD)



DV Model-Shift Uniqueness Test

008410415-01, P = 44.299245 Days, E = 96.983513 Days

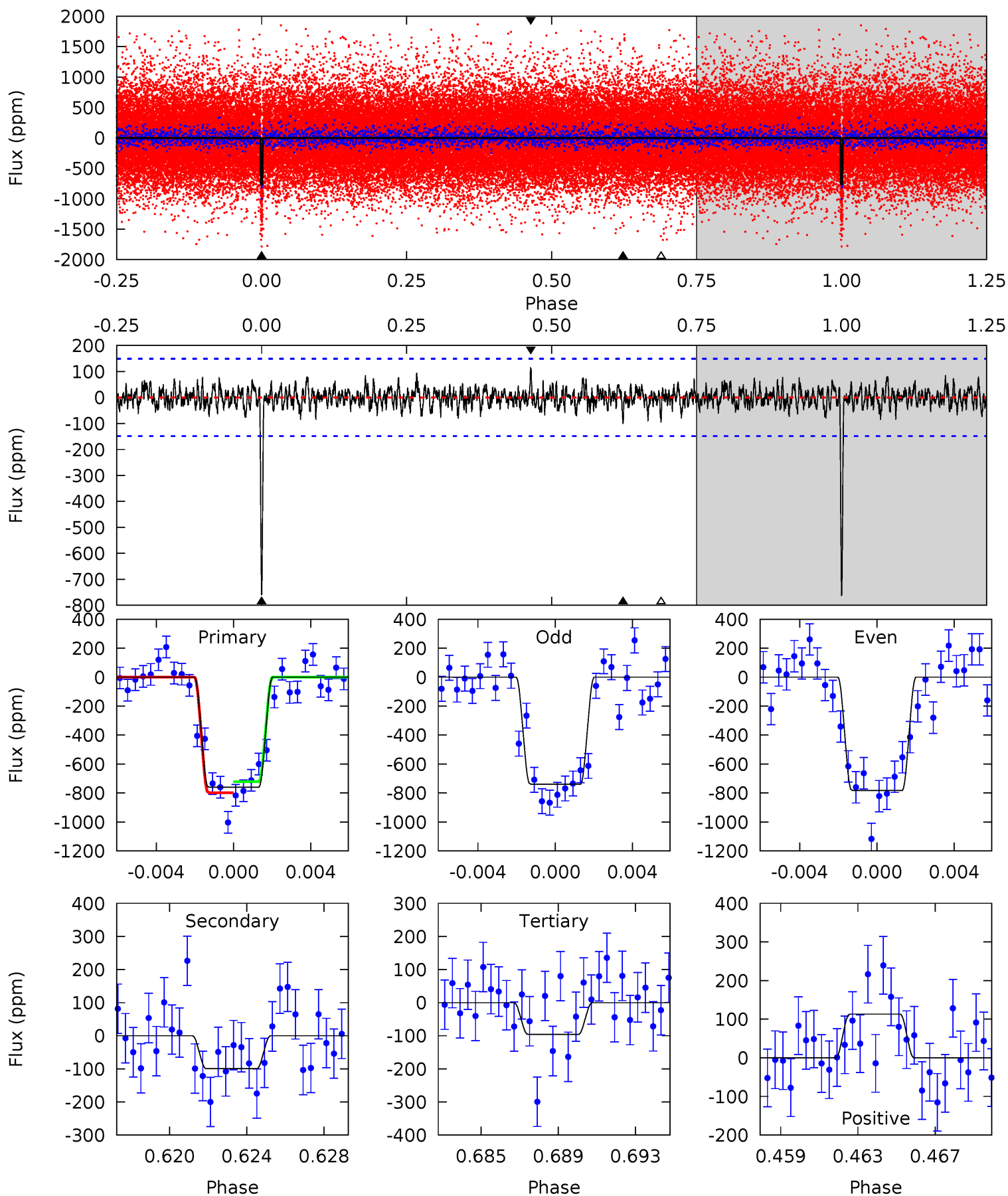
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.4	3.74	3.69	4.57	5.18	2.84	1.10	24.7	23.8	0.05	-0.83	1.12	1.04	0.14	1.40



Alt Model-Shift Uniqueness Test

008410415-01, P = 44.299040 Days, E = 96.988489 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	3.49	3.36	3.96	5.21	2.89	1.00	23.3	22.7	0.13	-0.47	0.78	0.99	0.13	1.35



Stellar Parameters For KIC 008410415

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5316^{+85}_{-74}	$4.459^{+0.077}_{-0.063}$	$0.160^{+0.150}_{-0.150}$	$0.915^{+0.074}_{-0.074}$	$0.878^{+0.050}_{-0.041}$	$1.617^{+0.494}_{-0.348}$
	+2%/-1%	+2%/-1%	+94%/-94%	+8%/-8%	+6%/-5%	+31%/-22%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 008410415-01 / KOI 2291.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-100 ± 27	$2.88^{+1.89}_{-1.55}$	646^{+17}_{-17}	3545^{+1205}_{-519}	364^{+1358}_{-240}
Alt.	-100 ± 29	$3.03^{+1.80}_{-1.66}$	646^{+18}_{-18}	3509^{+1179}_{-485}	331^{+1314}_{-210}

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 $A_{\text{obs}} \gg 1.0$

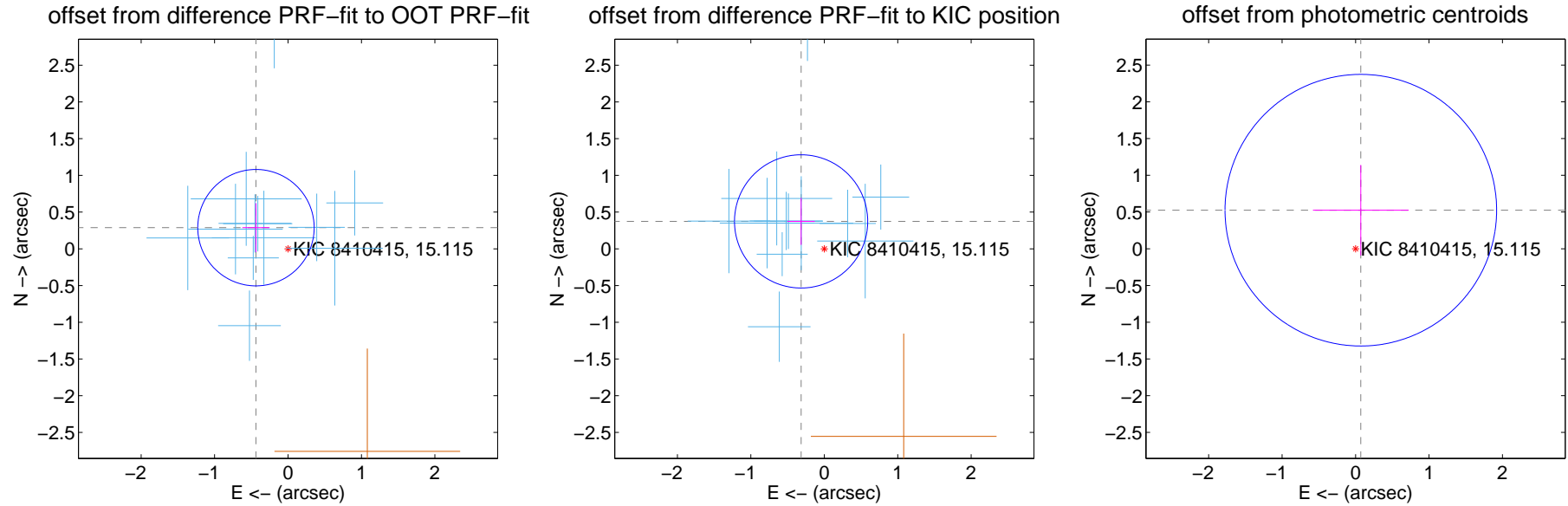
DV Centroid Data

Supplemental centroid analysis for 008410415-01. Kepler magnitude: 15.12. Transit SNR 22.09

There are 12 quarters with good PRF difference image offsets

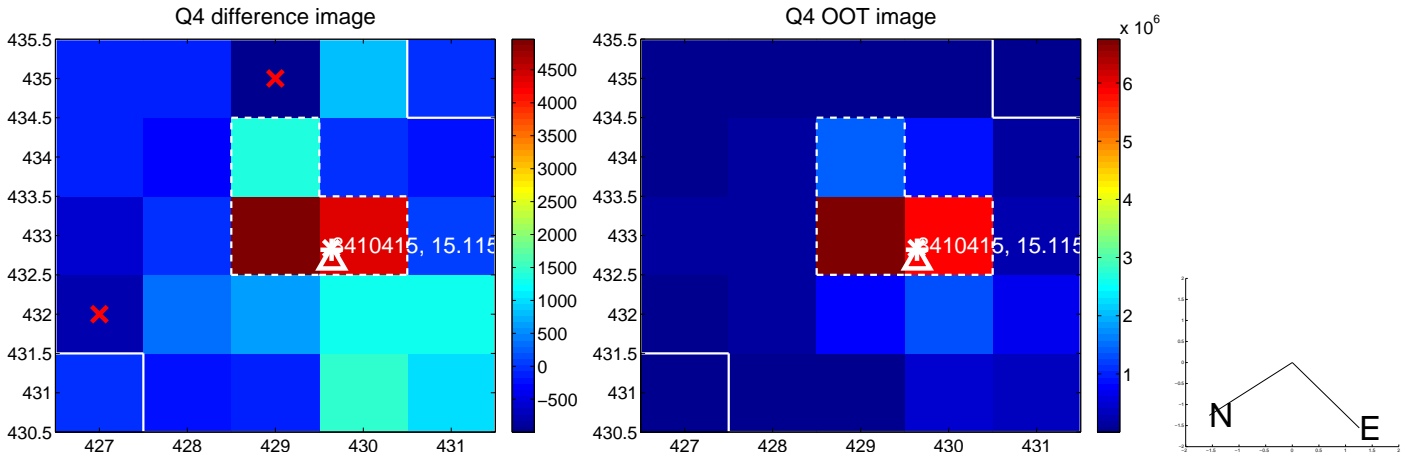
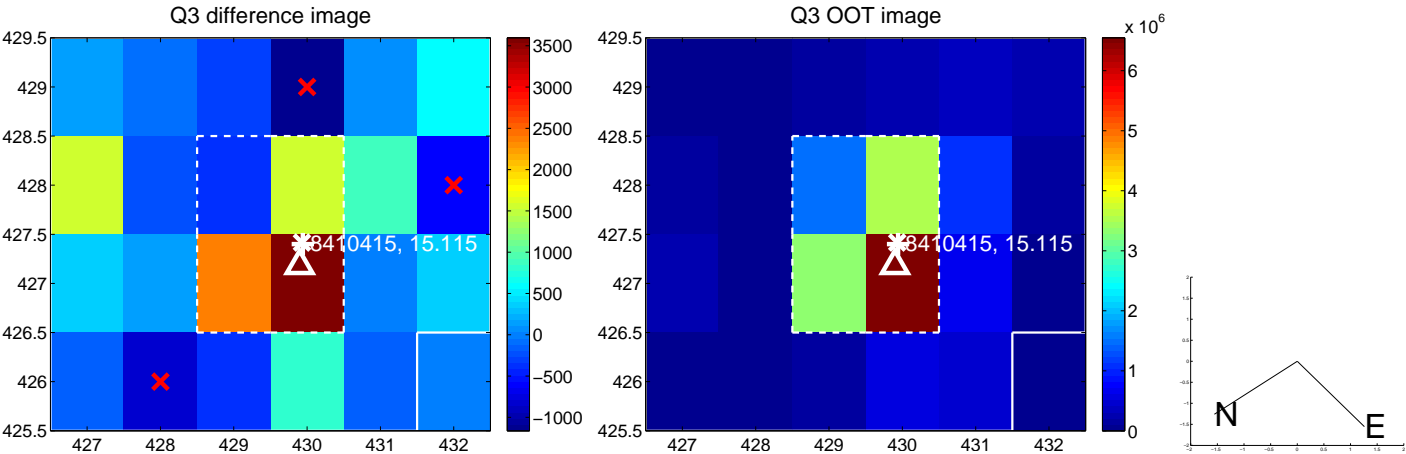
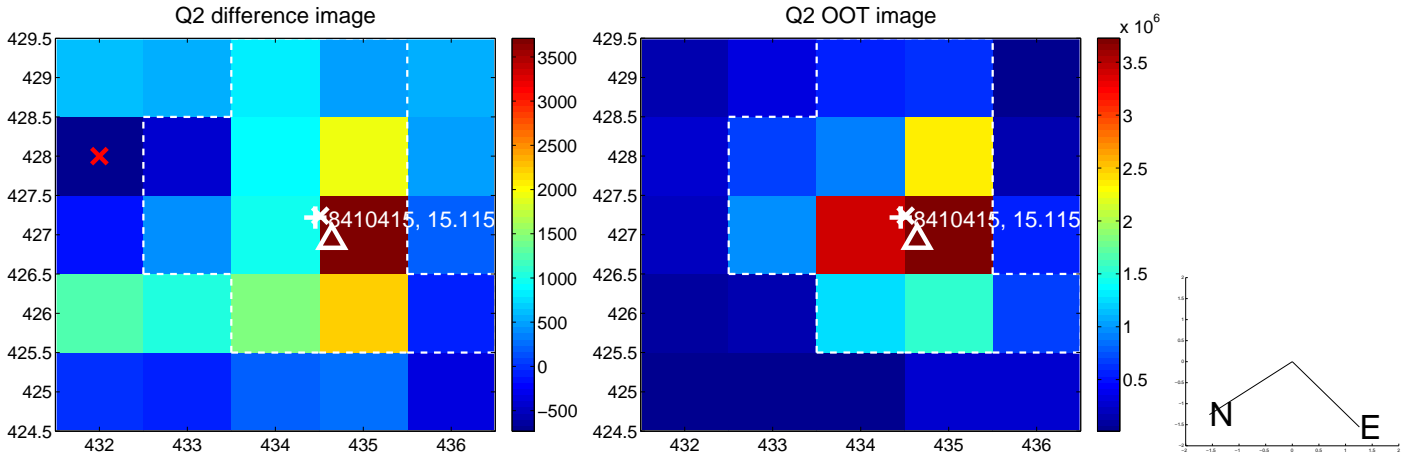
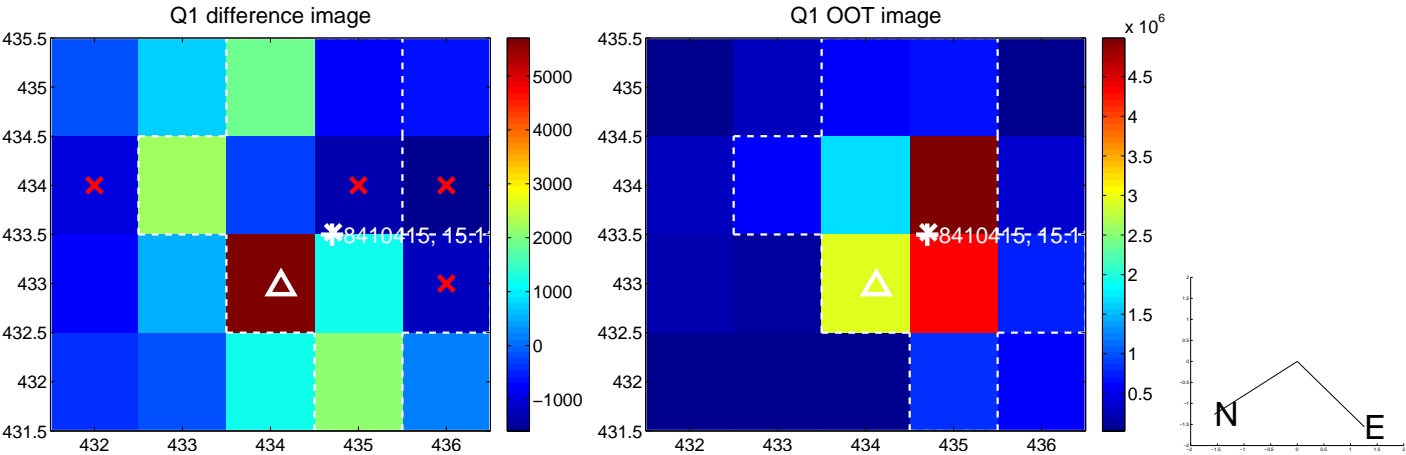
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.523 ± 0.264	1.98	0.437 ± 0.186	0.288 ± 0.334
PRF-fit source offset from KIC position	0.489 ± 0.302	1.62	0.316 ± 0.187	0.373 ± 0.321
photometric centroid source offset	0.53 ± 0.62	0.86	-0.07 ± 0.65	0.53 ± 0.62

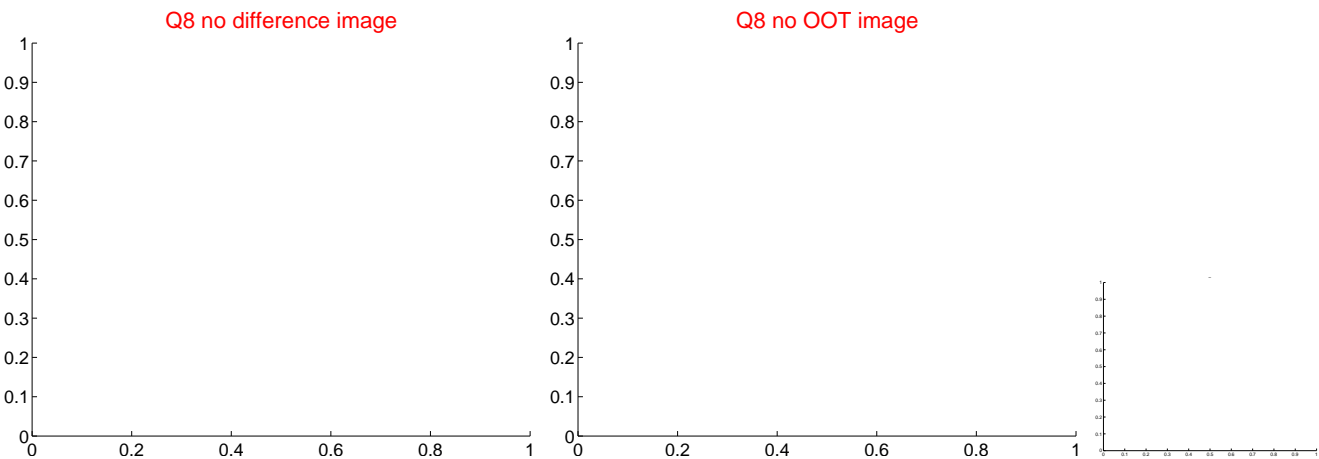
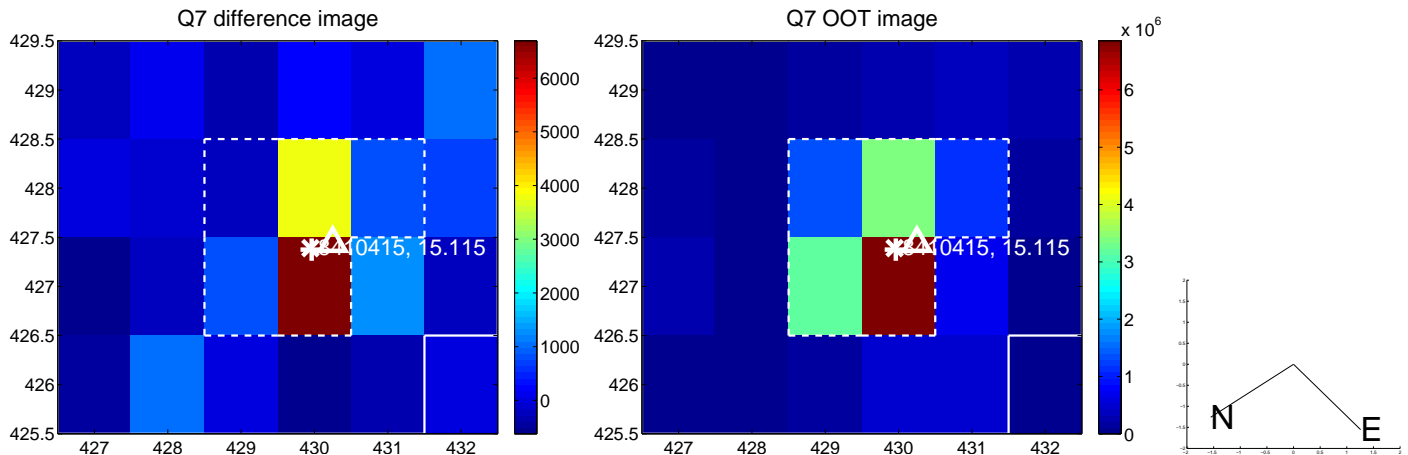
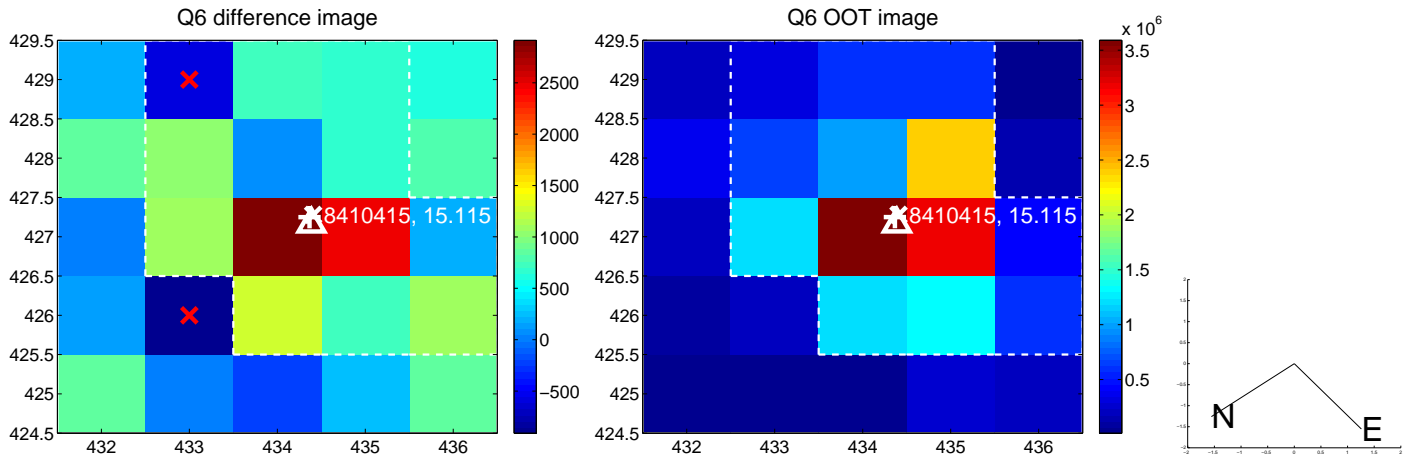
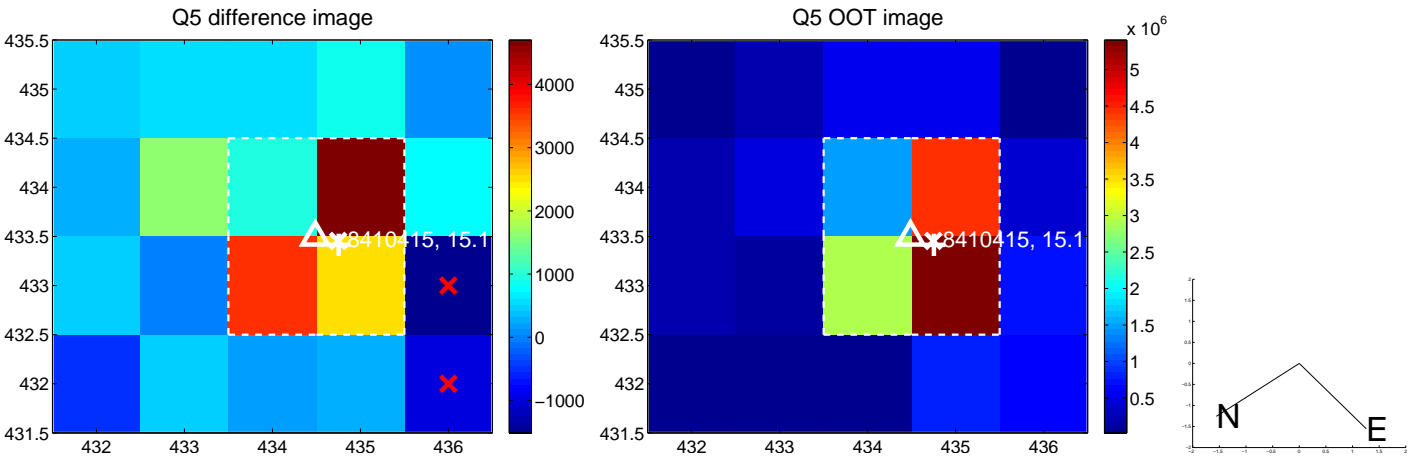


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

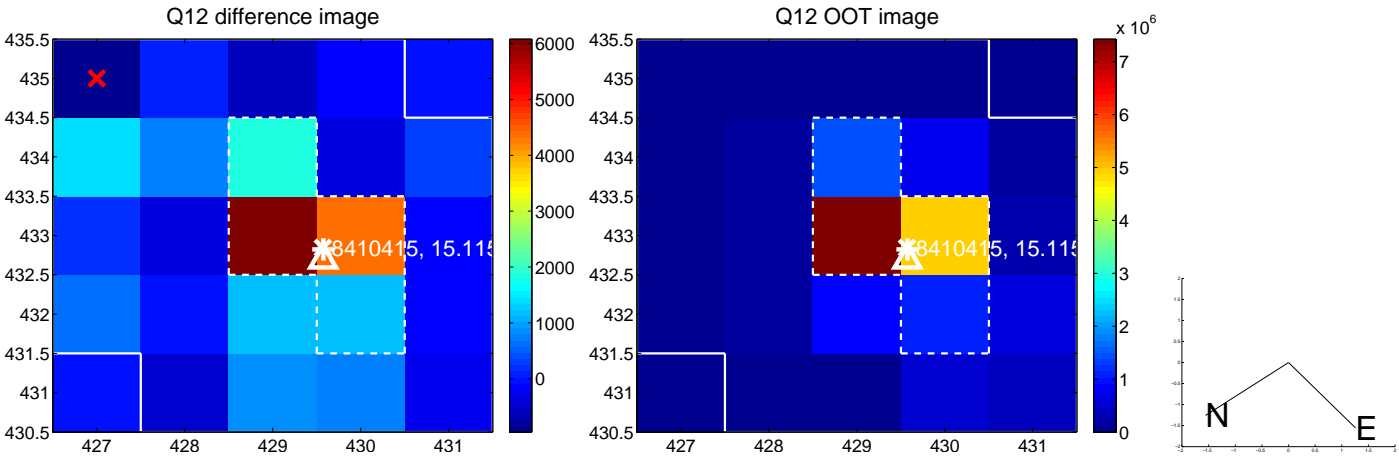
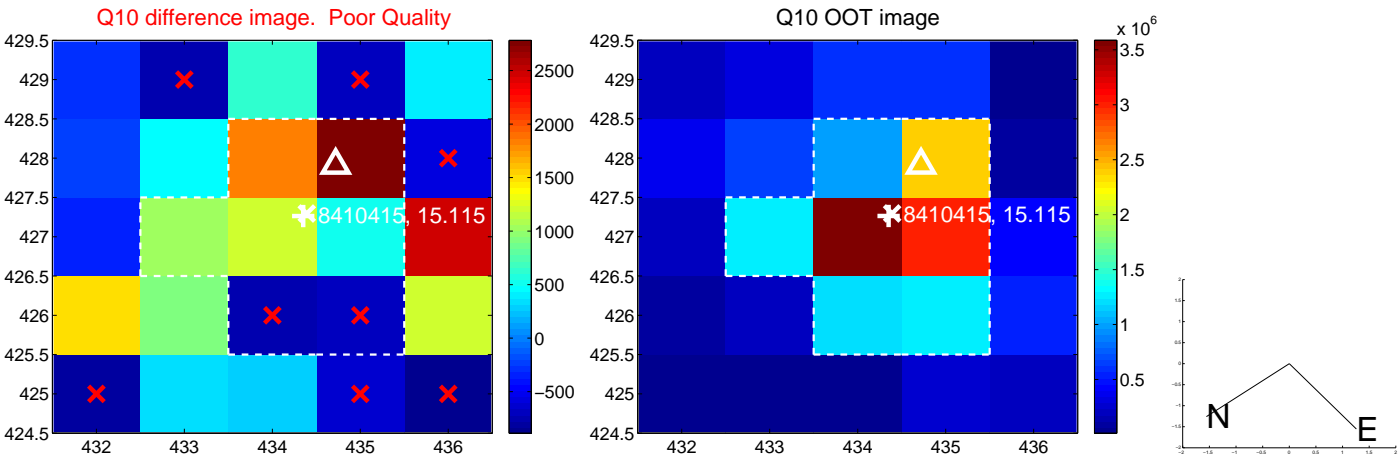
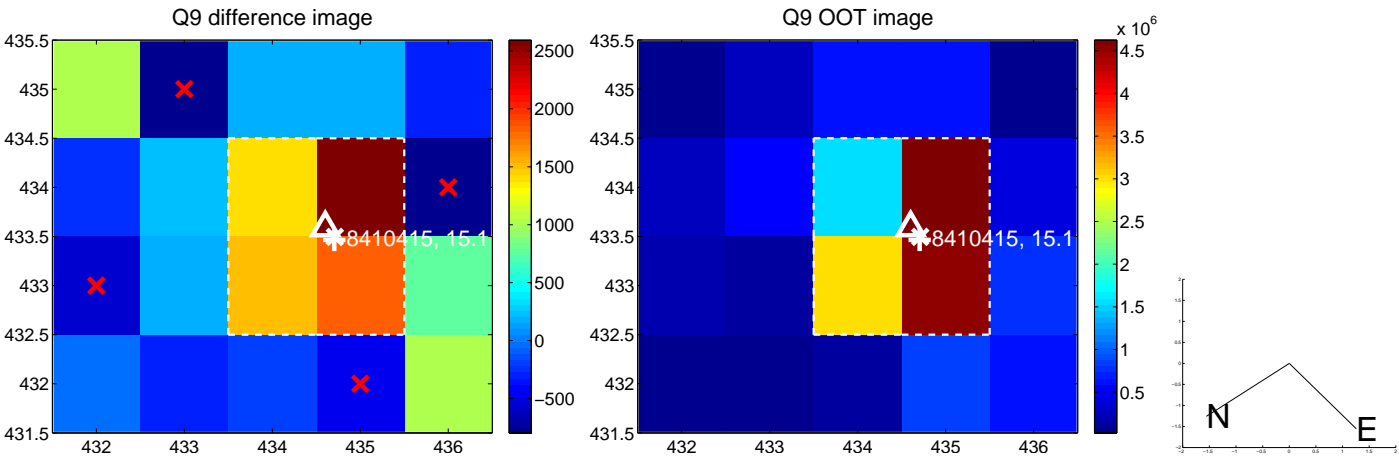
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



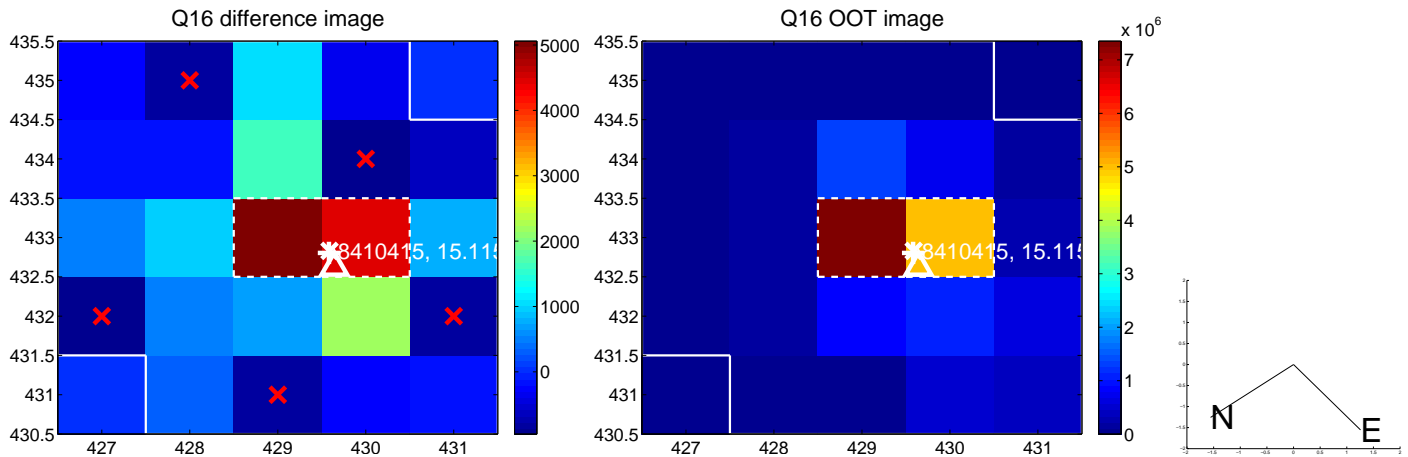
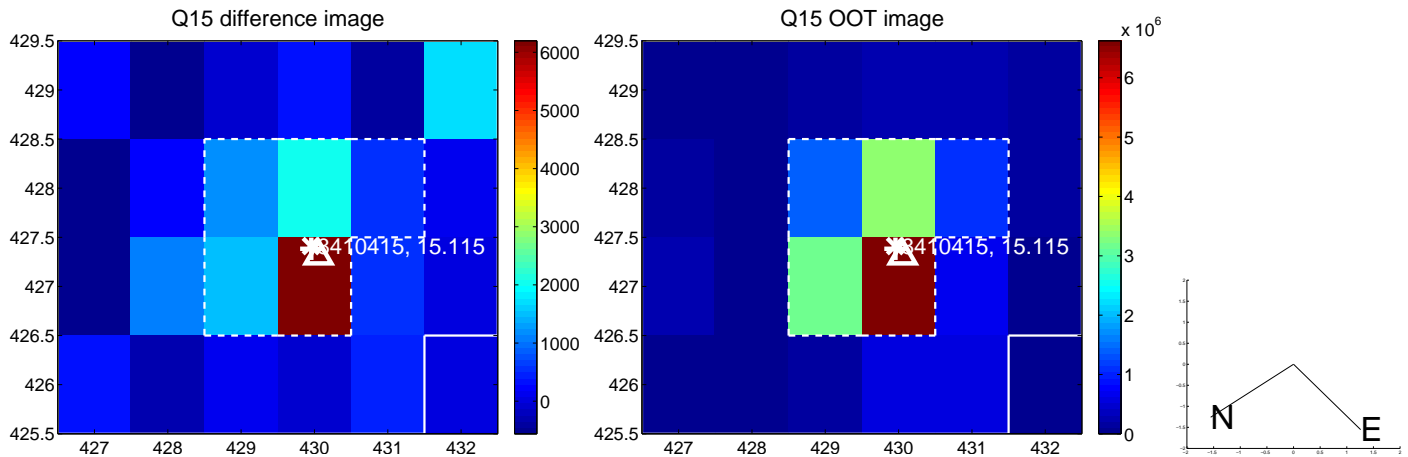
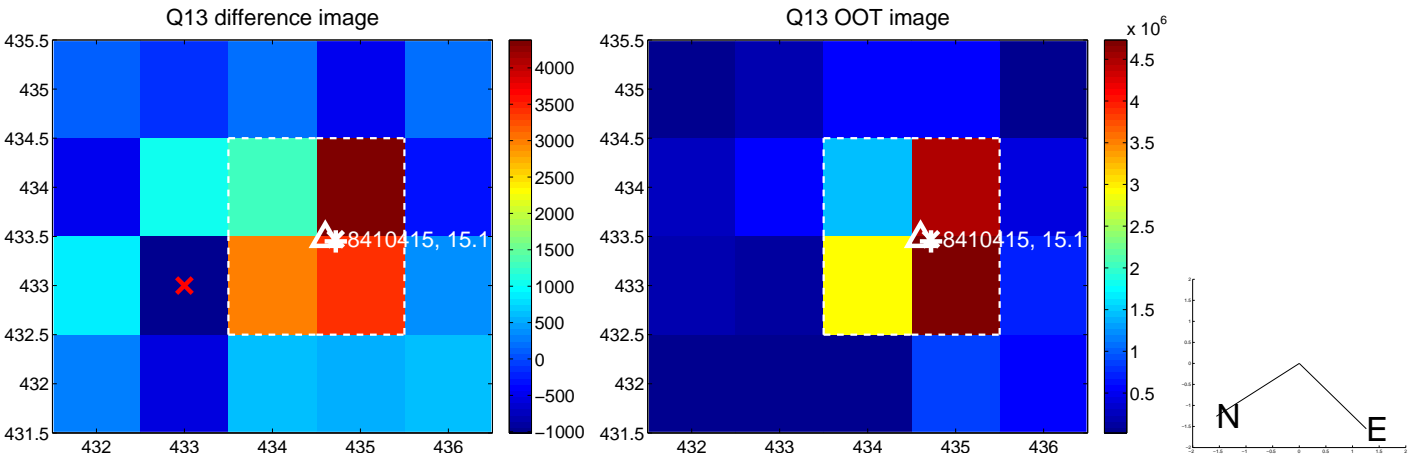
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



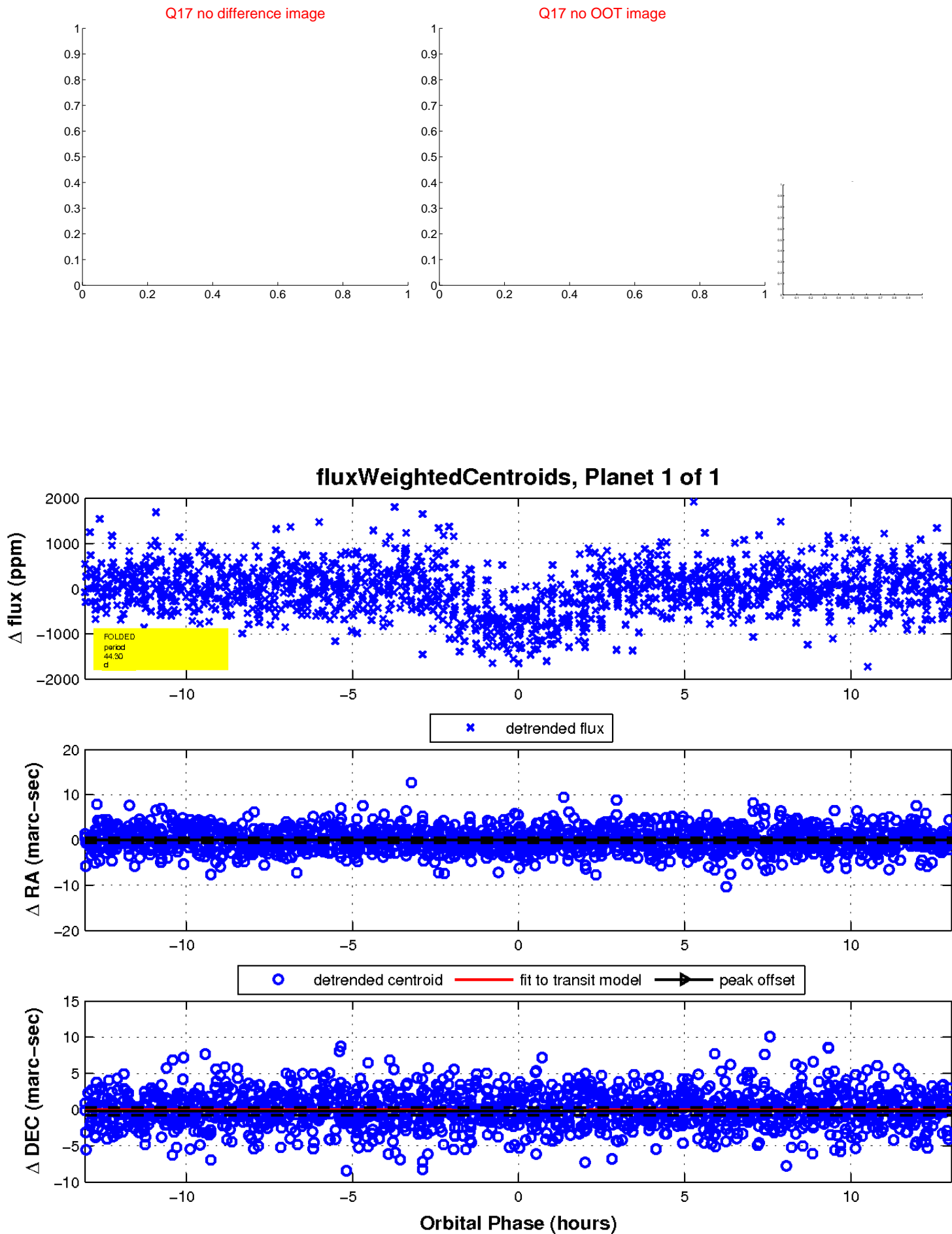
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UKIRT Image

Declination

