

KIC 010028824

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})
010028824-01	OBS	No	24.045031	138.499855	104.7	32.445	7.8	8.3	1.10	6268	1.18	56.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010028824-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV

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

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

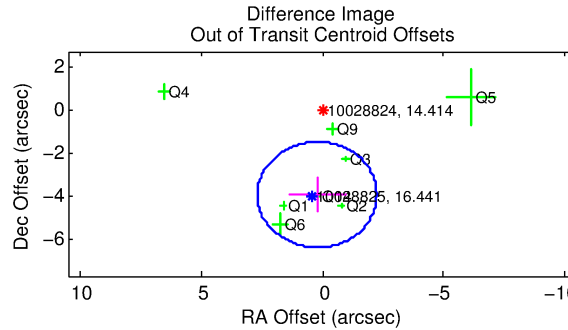
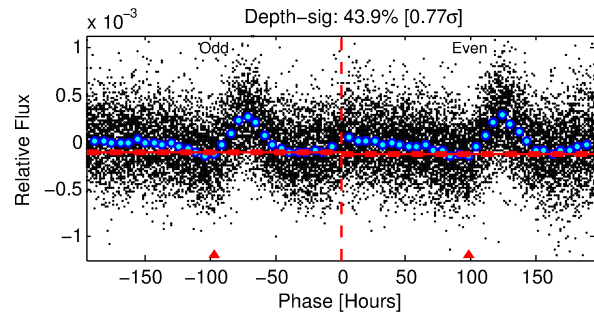
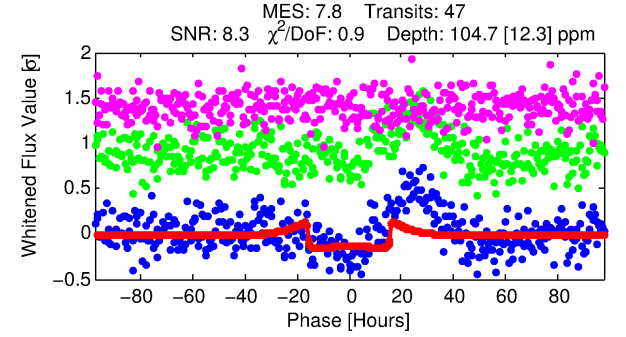
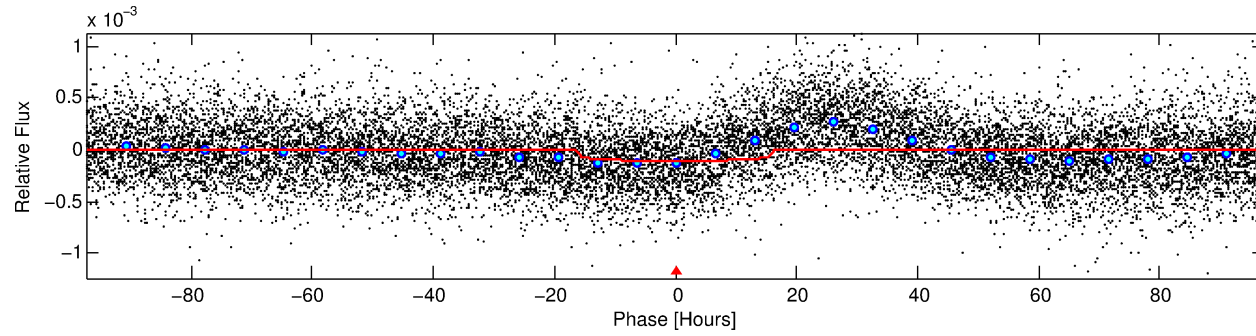
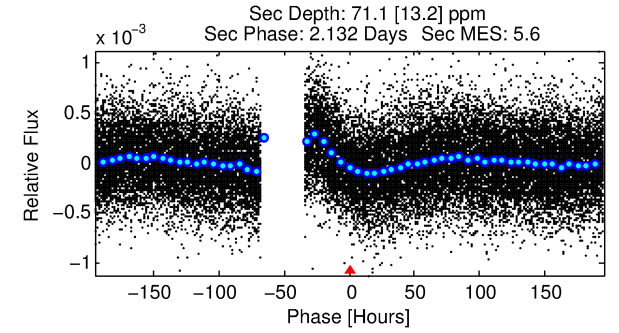
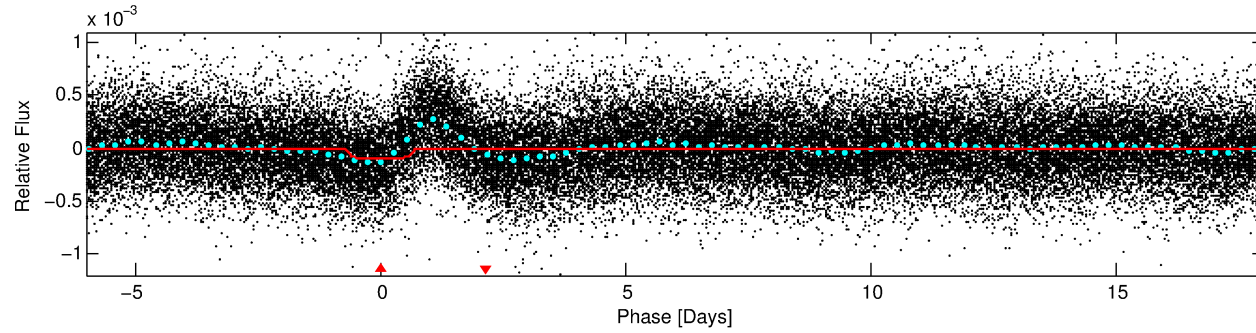
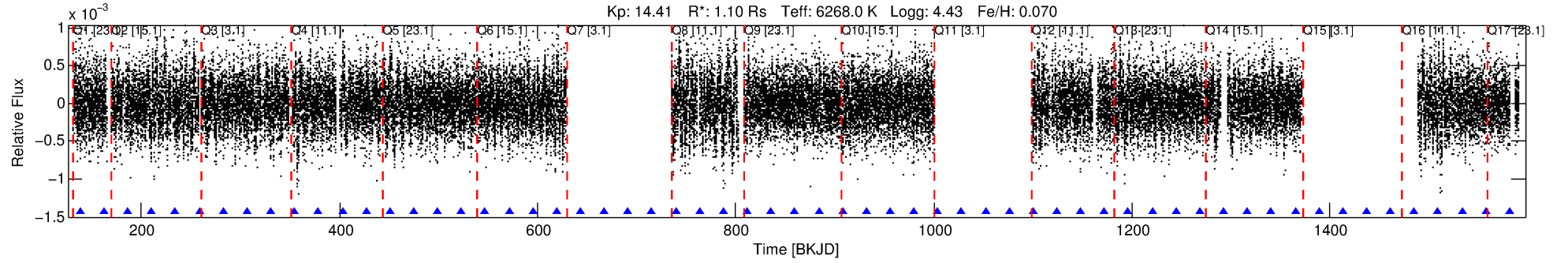
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010028824-01

No Significant Match Found

DV One-Page Summary

KIC: 10028824 Candidate: 1 of 1 Period: 24.045 d



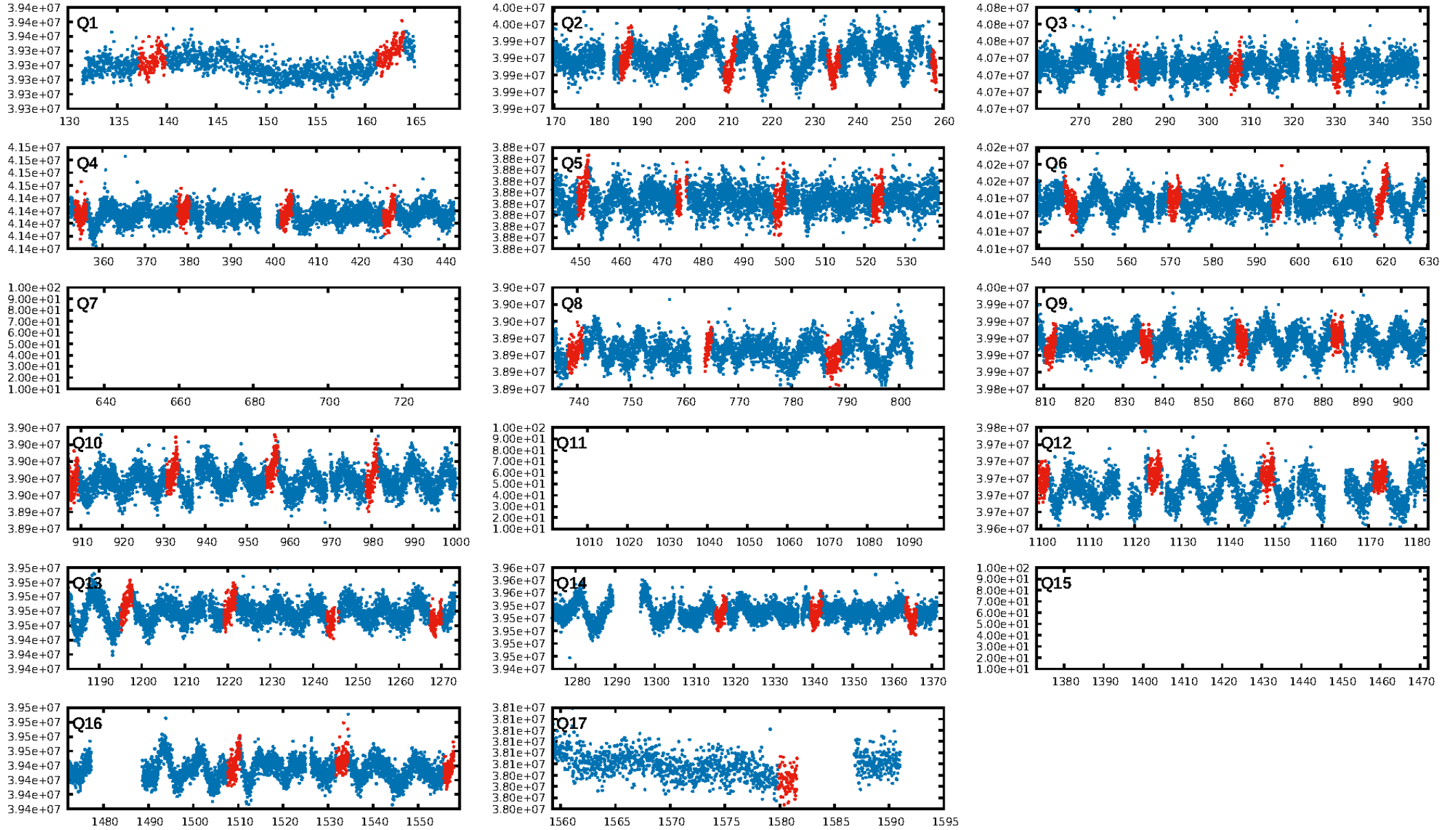
DV Fit Results:

Period = 24.04503 [0.00064] d
Epoch = 138.4999 [0.0203] BKJD
Rp/R* = 0.0098 [0.0018]
a/R* = 4.65 [3.80]
b = 0.60 [0.91]
Seff = 56.19 [20.22]
Teff = 698 [63] K
Rp = 1.18 [0.38] Re
a = 0.1726 [0.0397] AU
Ag = 841.17 [448.10] [1.87σ]
Teffp = 5813 [621] K [8.20σ]

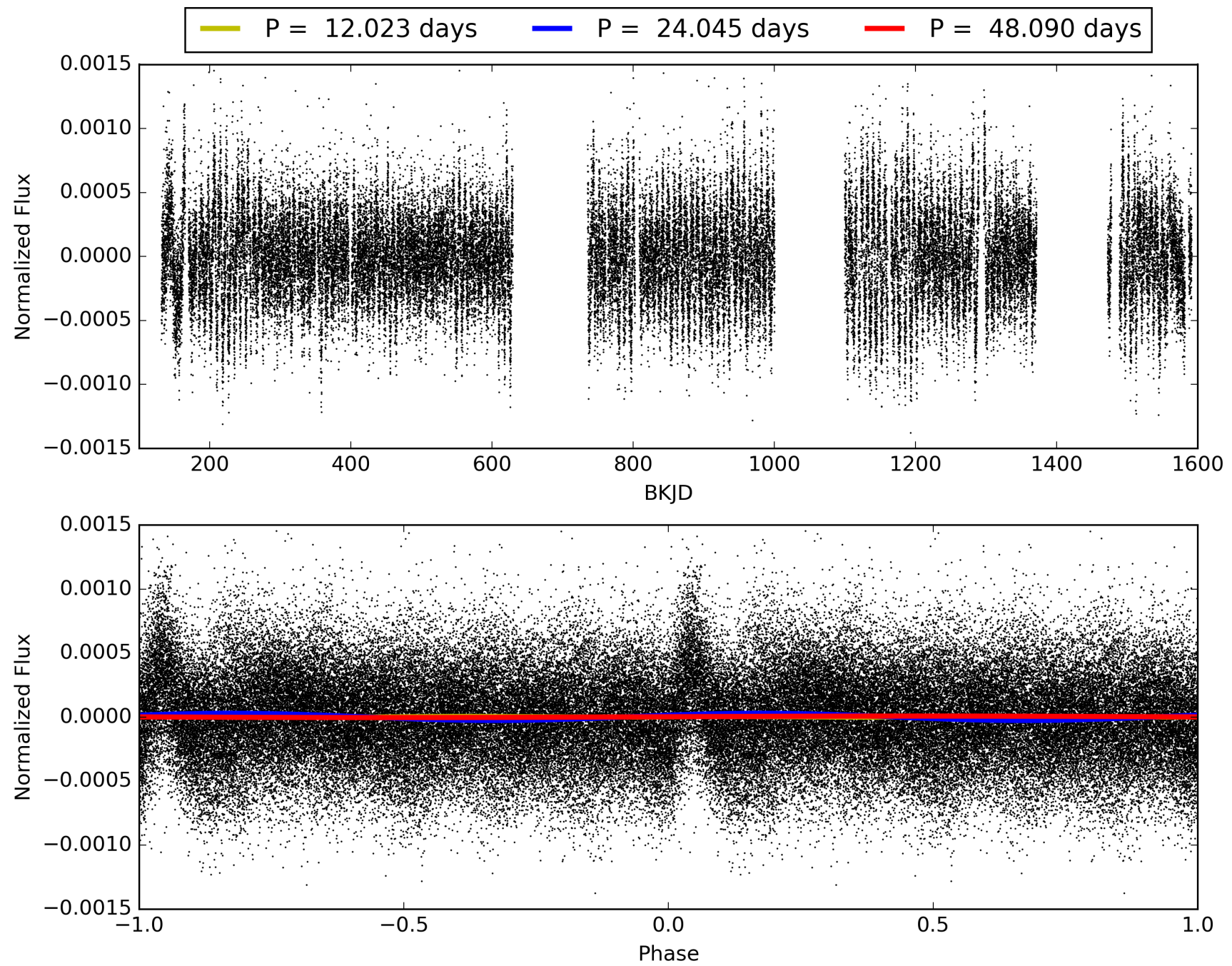
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 82.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.62e-15
RollingBand-fgt: 1.00 [44/44]
GhostDiagnostic-chr: -23.71
Centroid-sig: 28.0%
Centroid-so: 0.975 arcsec [0.58σ]
OotOffset-rm: 3.958 arcsec [4.81σ]
KicOffset-rm: 4.187 arcsec [4.55σ]
OotOffset-st: 3/1/1/3 [8]
KicOffset-st: 3/1/1/3 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 1.00 [11/11]

TCE 010028824-01, PDC Light Curves

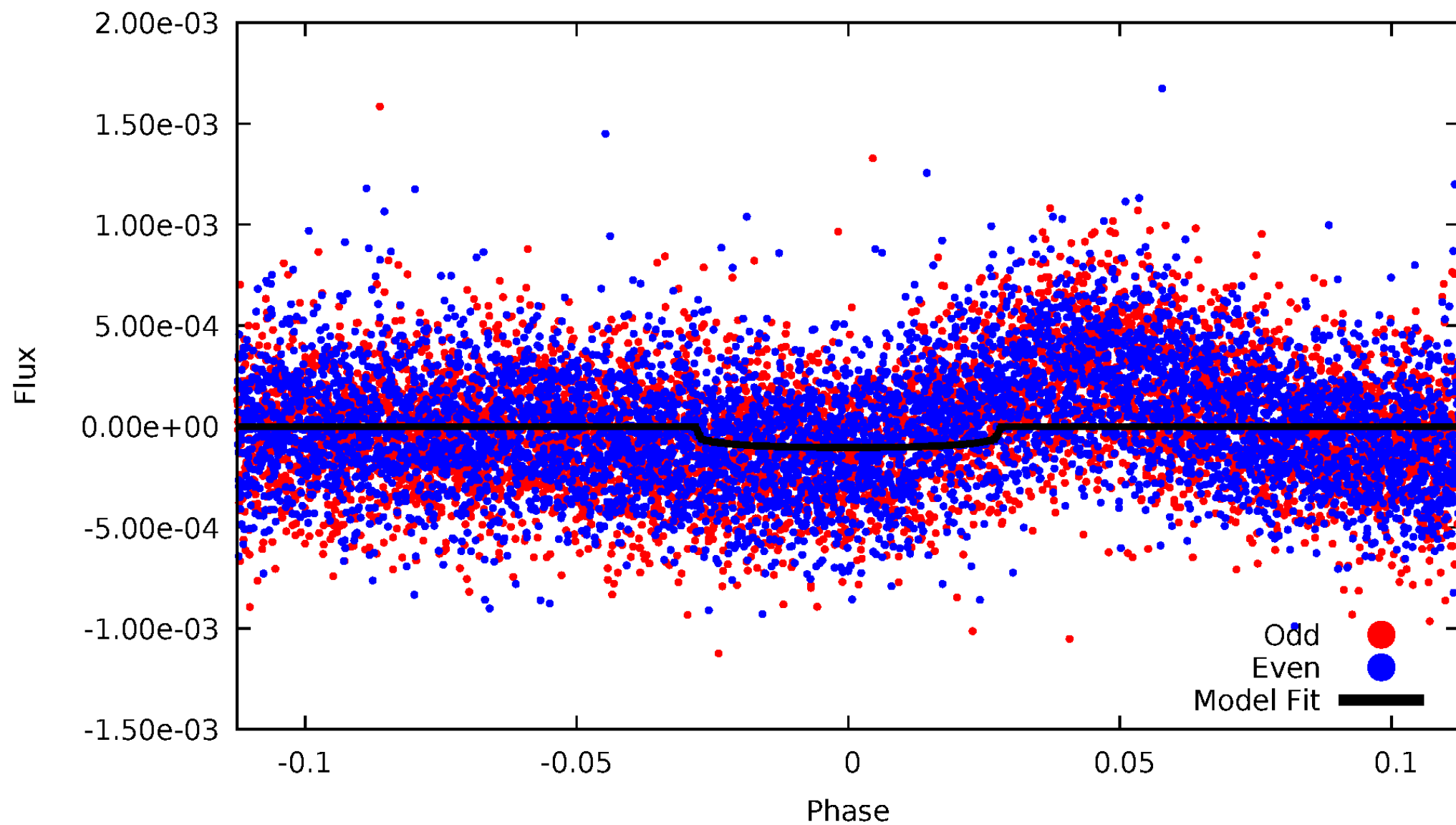


TCE 010028824-01



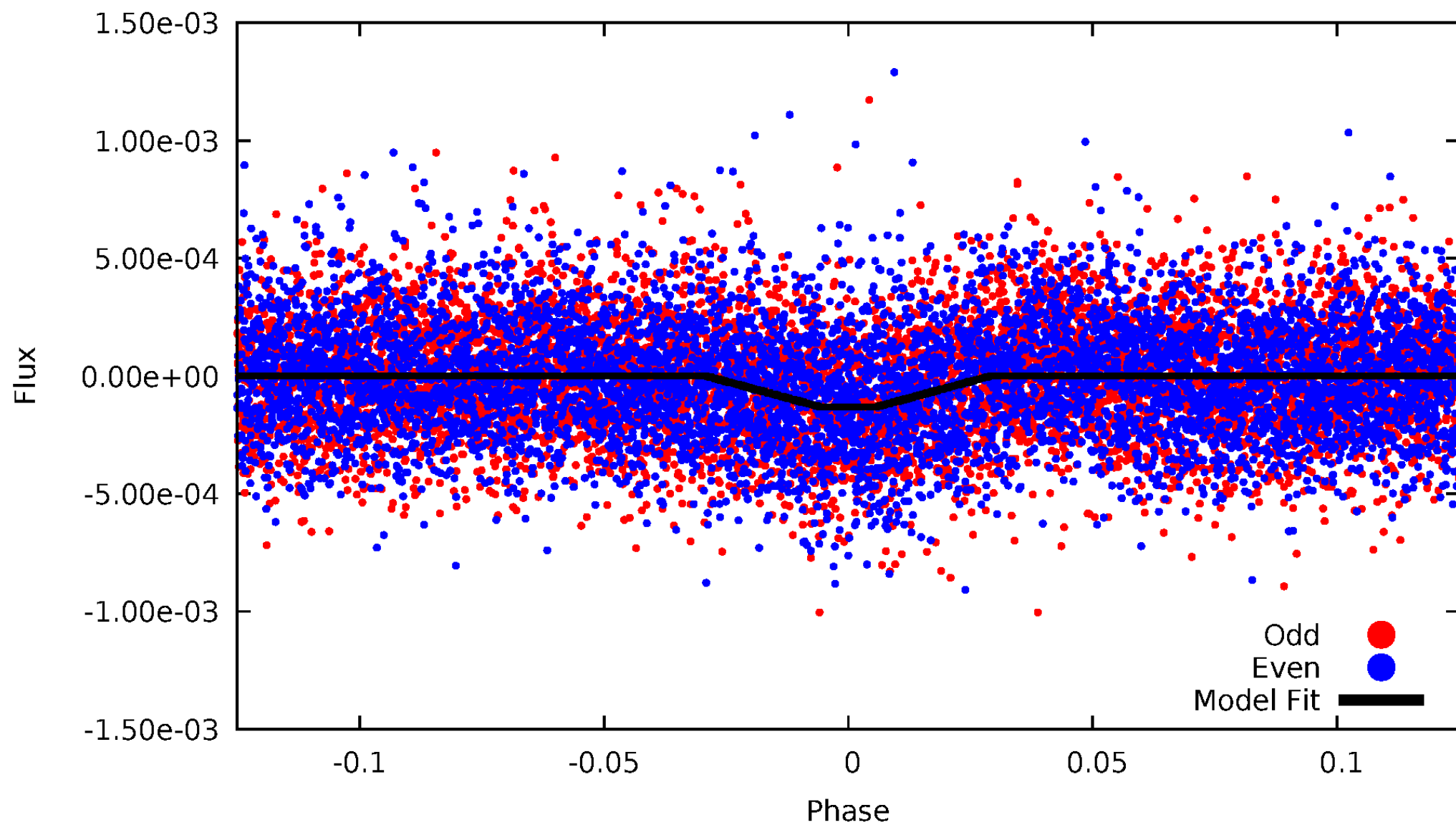
DV Odd/Even

TCE 010028824-01



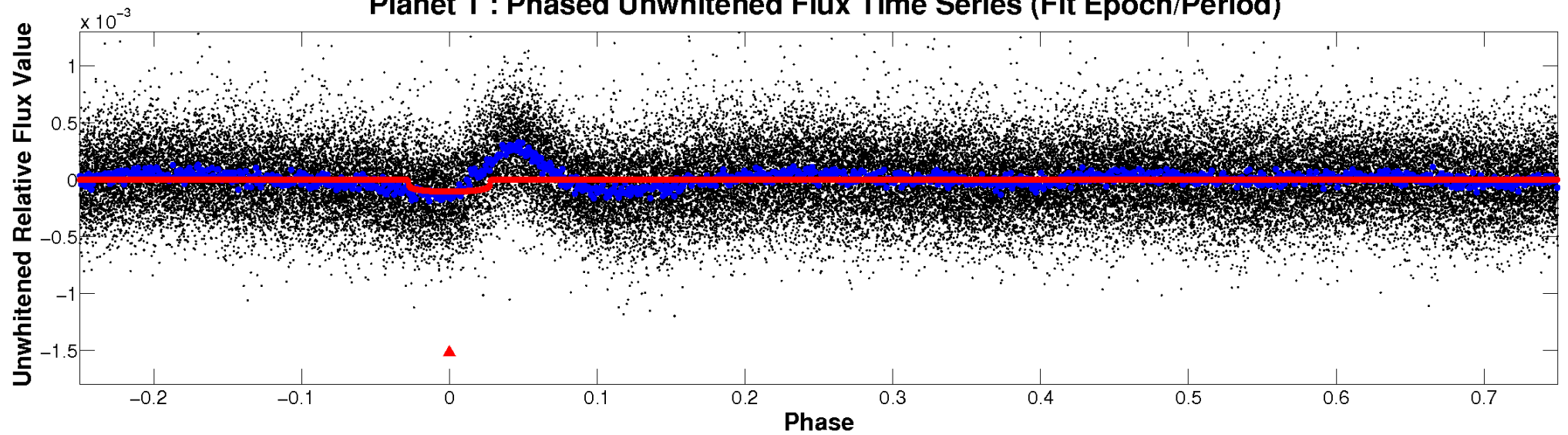
ALT Odd/Even

TCE 010028824-01

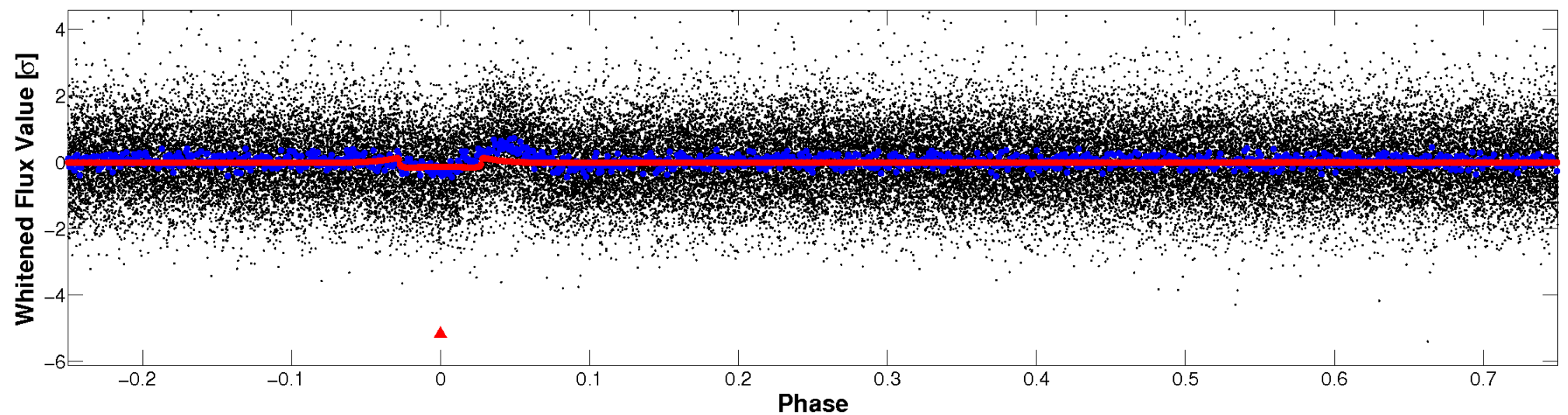


Non-Whitened Vs. Whitened Light Curve

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

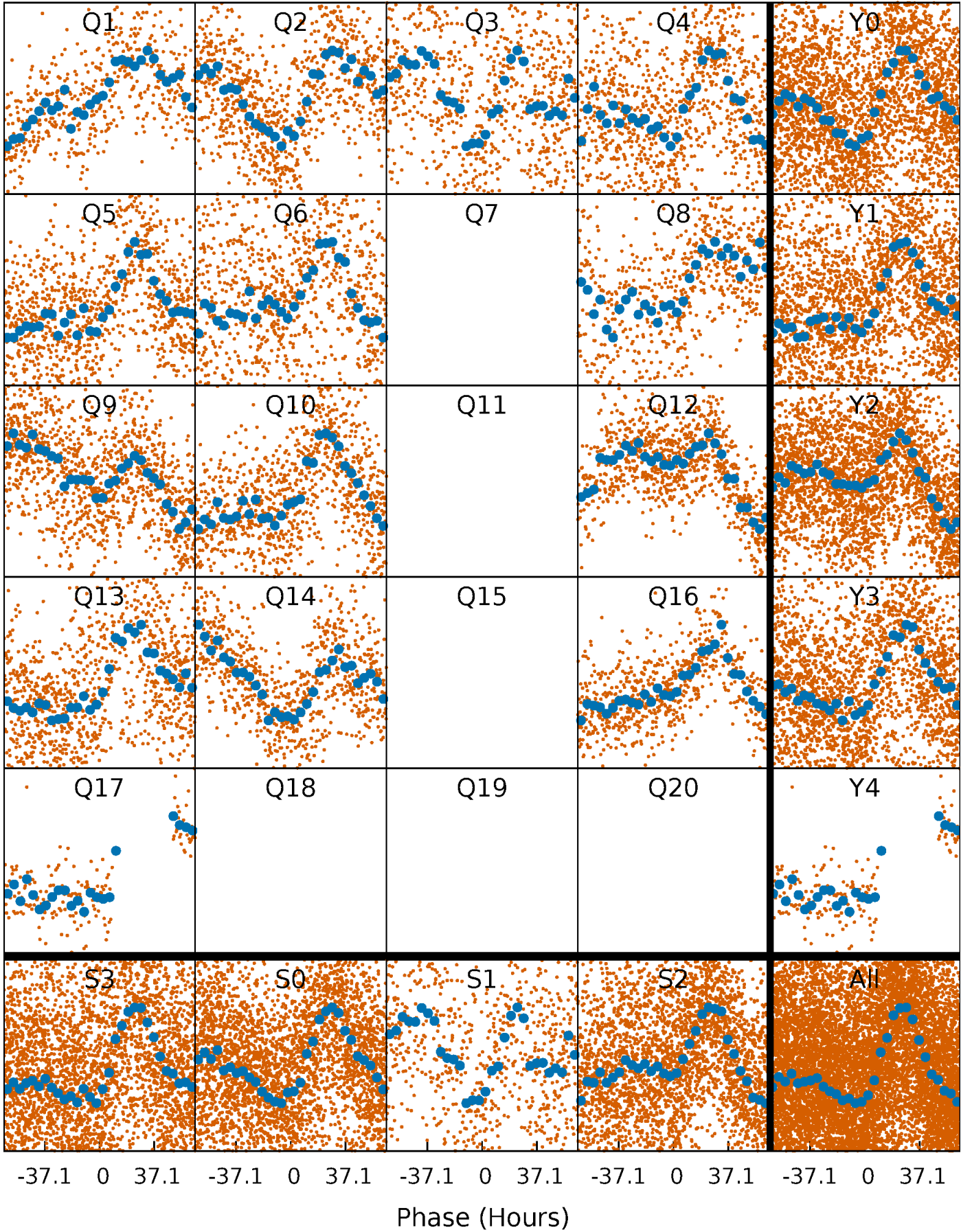


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



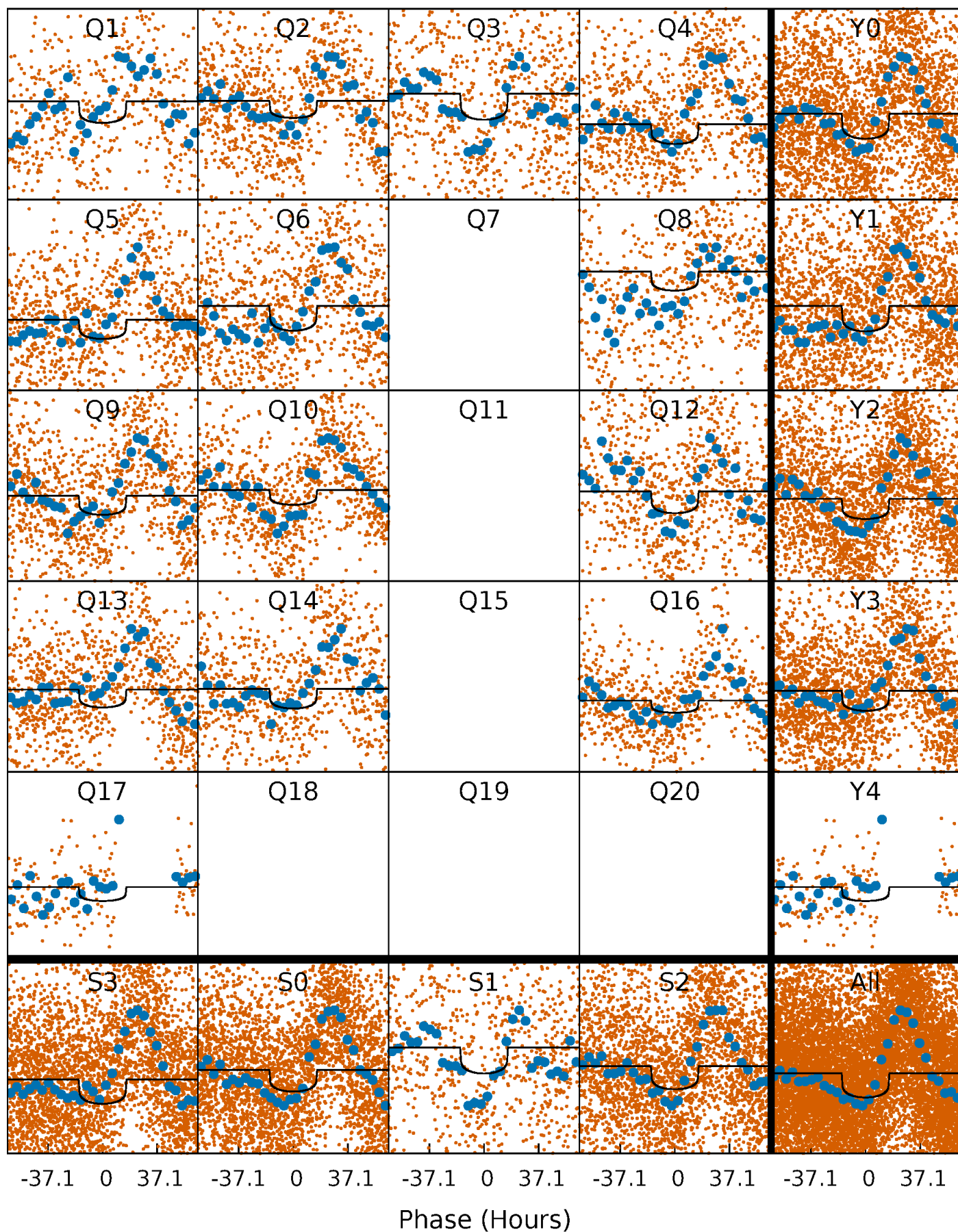
PDC Quarter-Phased Transit Curves

TCE 010028824-01 P= 24.045031 Days $T_0=138.499855$ (BKJD)



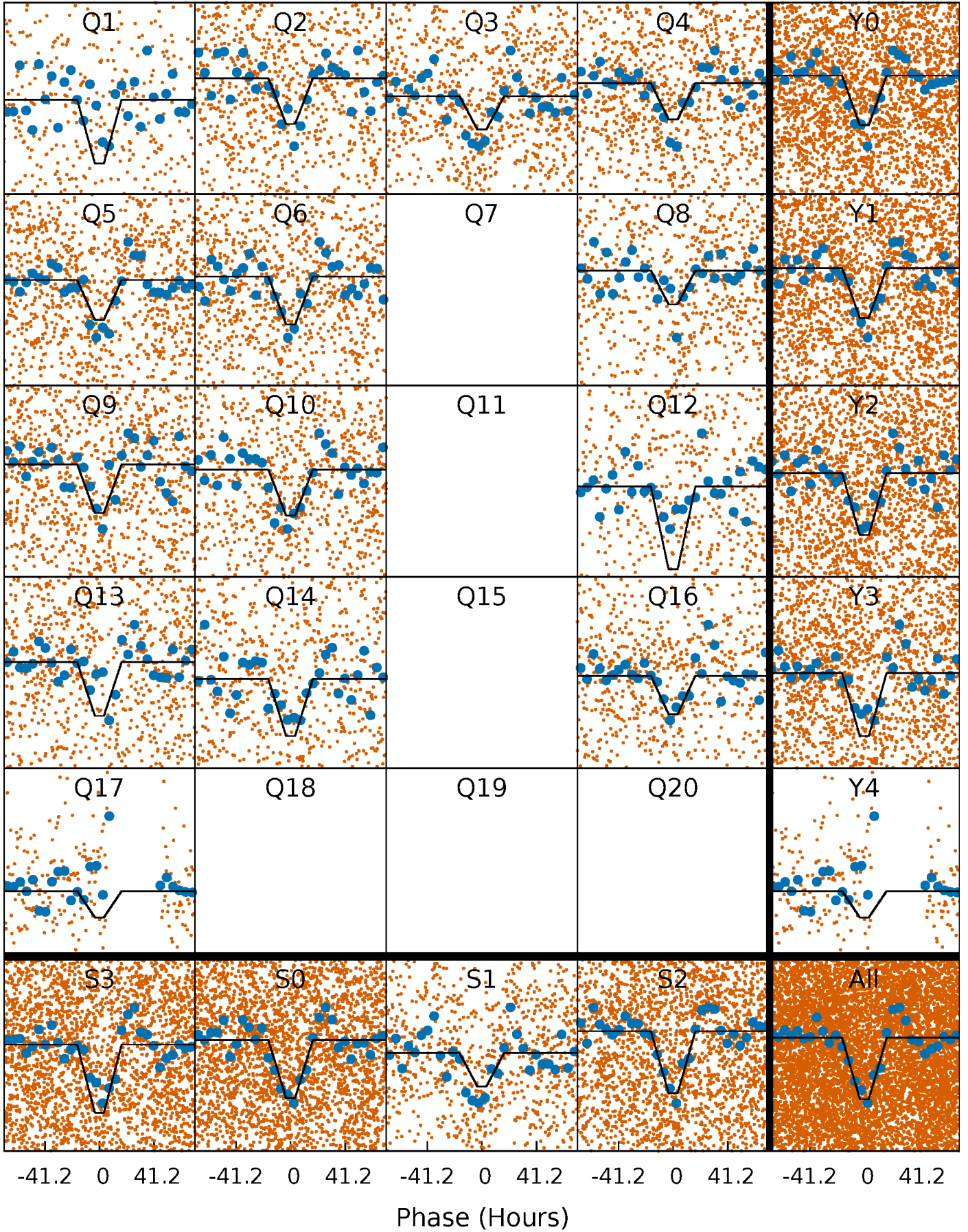
DV Quarter-Phased Transit Curves

TCE 010028824-01 P= 24.045031 Days $T_0=138.499855$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

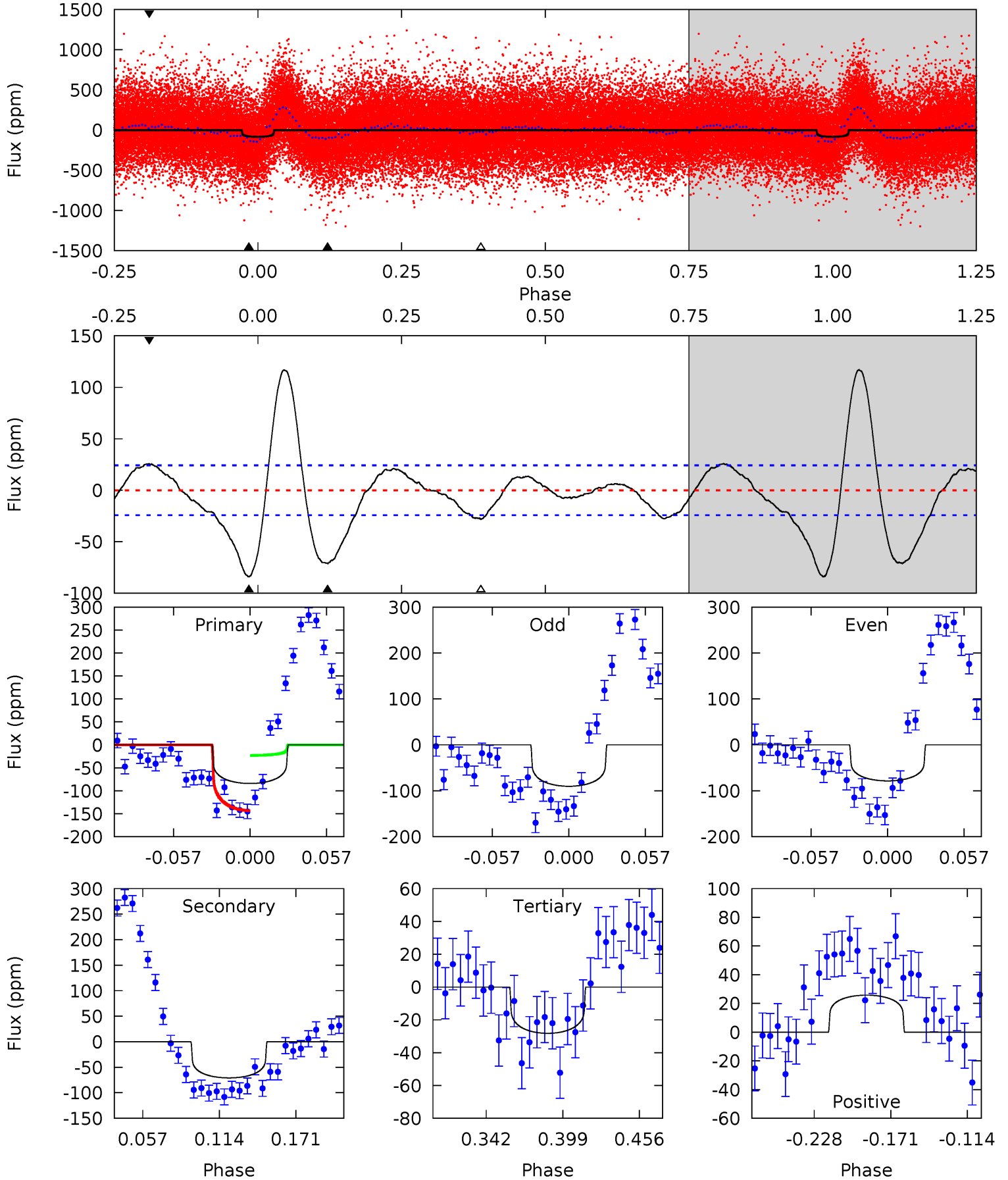
TCE 010028824-01 P= 24.047413 Days $T_0=138.482398$ (BKJD)



DV Model-Shift Uniqueness Test

010028824-01, $P = 24.045031$ Days, $E = 114.454824$ Days

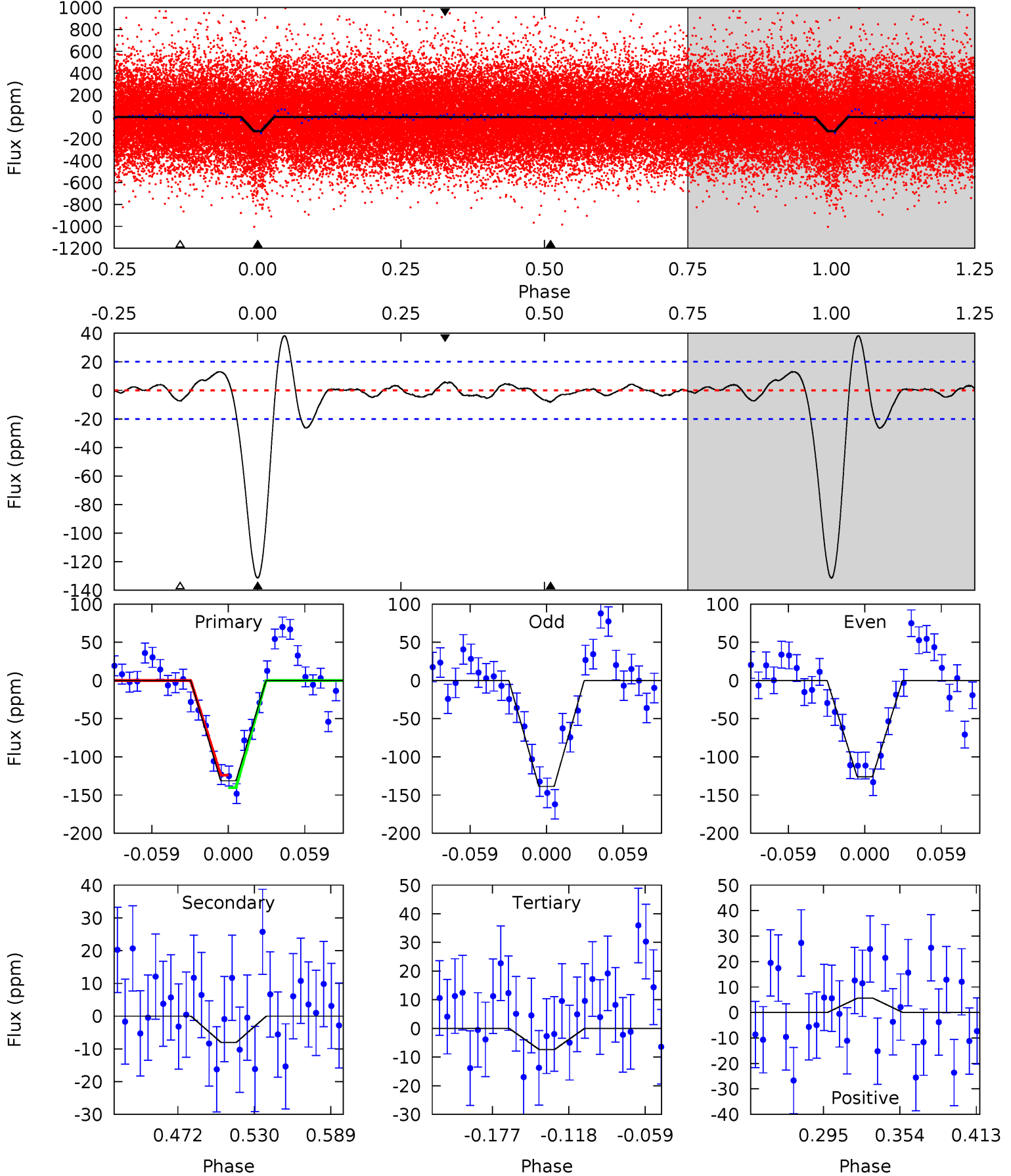
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	13.7	5.45	4.98	4.68	1.90	4.44	10.8	11.3	8.24	8.71	1.13	1.07	0.58	11.7



Alt Model-Shift Uniqueness Test

010028824-01, P = 24.047413 Days, E = 114.434985 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.5	1.86	1.71	1.31	4.67	1.89	1.40	28.8	29.2	0.15	0.55	1.48	1.12	0.23	1.91



Stellar Parameters For KIC 010028824

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6268^{+168}_{-186}	$4.429^{+0.050}_{-0.188}$	$0.070^{+0.200}_{-0.350}$	$1.100^{+0.296}_{-0.127}$	$1.188^{+0.141}_{-0.173}$	$1.257^{+0.325}_{-0.626}$
	+3%/-3%	+1%/-4%	+286%/-500%	+27%/-12%	+12%/-15%	+26%/-50%
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 010028824-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-71 ± 5	$1.24^{+0.26}_{-0.25}$	994^{+66}_{-44}	5754^{+678}_{-412}	728^{+439}_{-222}
Alt.	-8 ± 4	$1.42^{+0.30}_{-0.23}$	998^{+68}_{-44}	3564^{+371}_{-423}	62^{+49}_{-35}

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

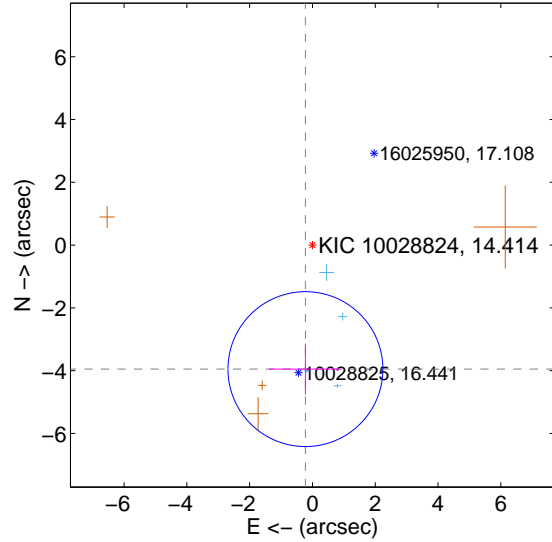
Supplemental centroid analysis for 010028824-01. Kepler magnitude: 14.41. Transit SNR 8.32

There are 4 quarters with good PRF difference image offsets

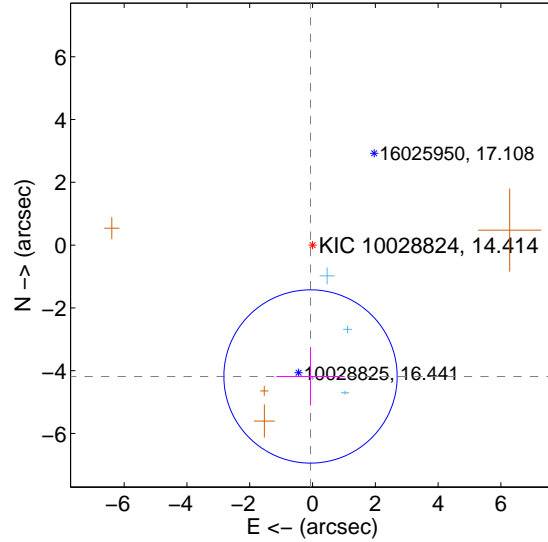
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.958 ± 0.823	4.81	0.224 ± 1.162	-3.952 ± 0.815
PRF-fit source offset from KIC position	4.187 ± 0.920	4.55	0.064 ± 1.087	-4.186 ± 0.920
photometric centroid source offset	0.98 ± 1.68	0.58	-0.04 ± 0.81	0.97 ± 1.68

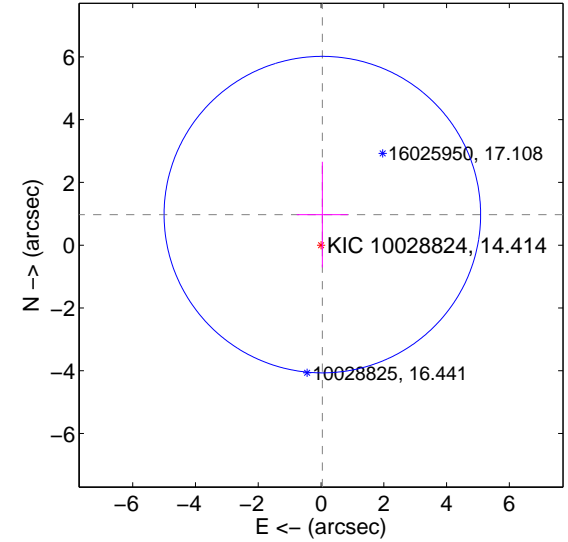
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

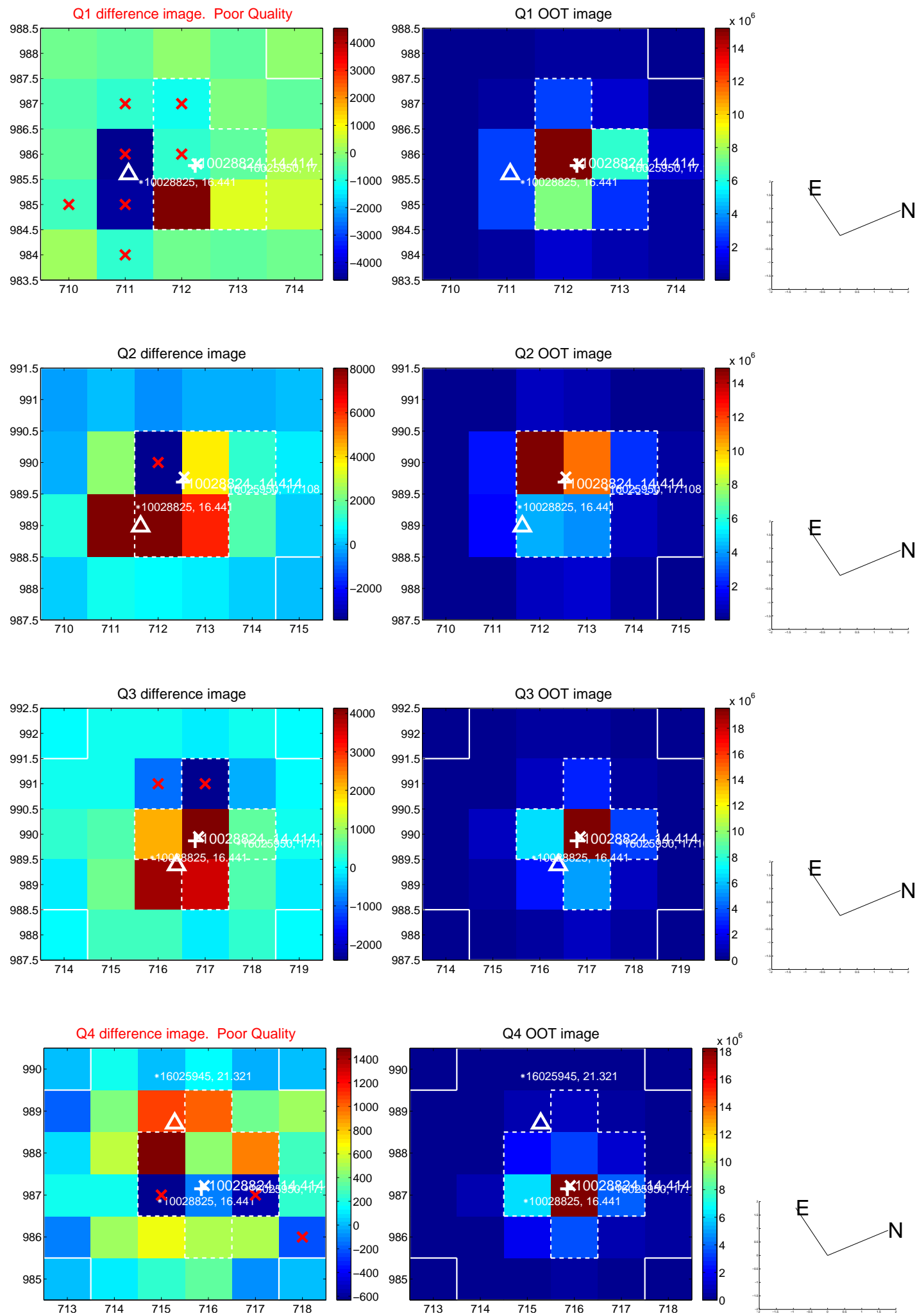


offset from photometric centroids

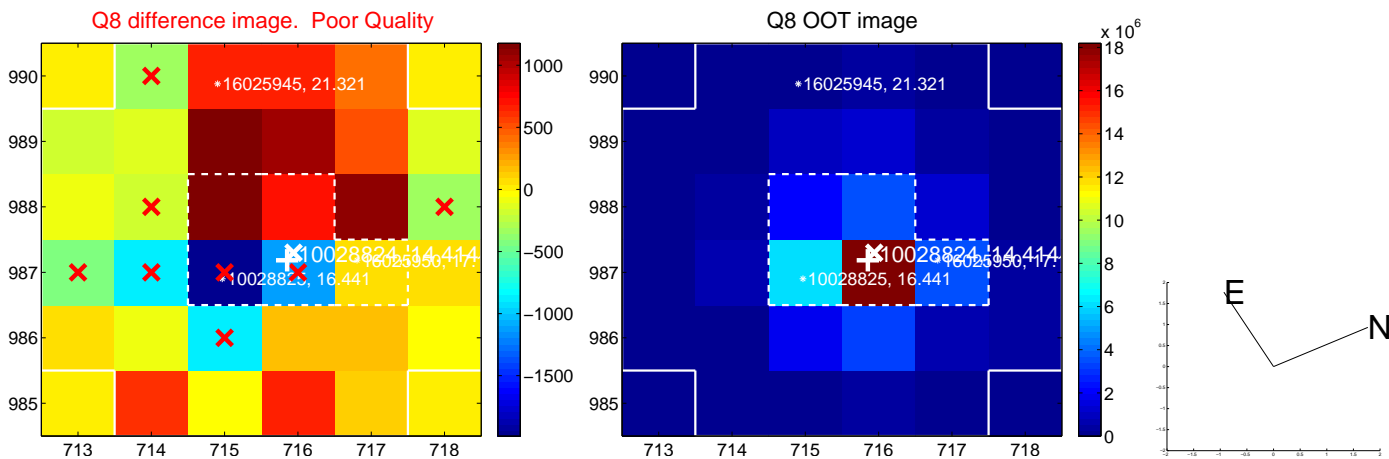
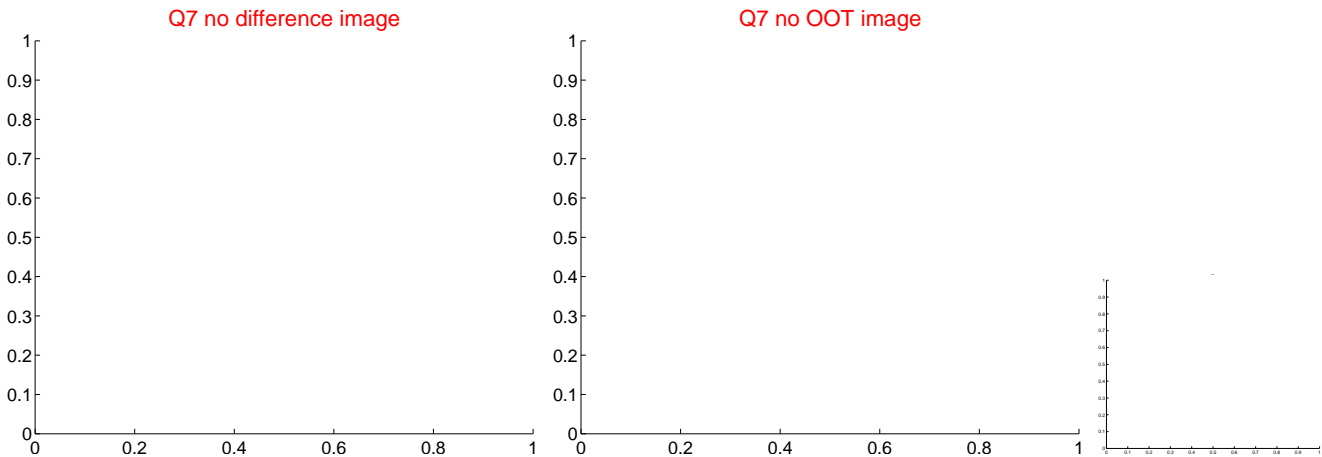
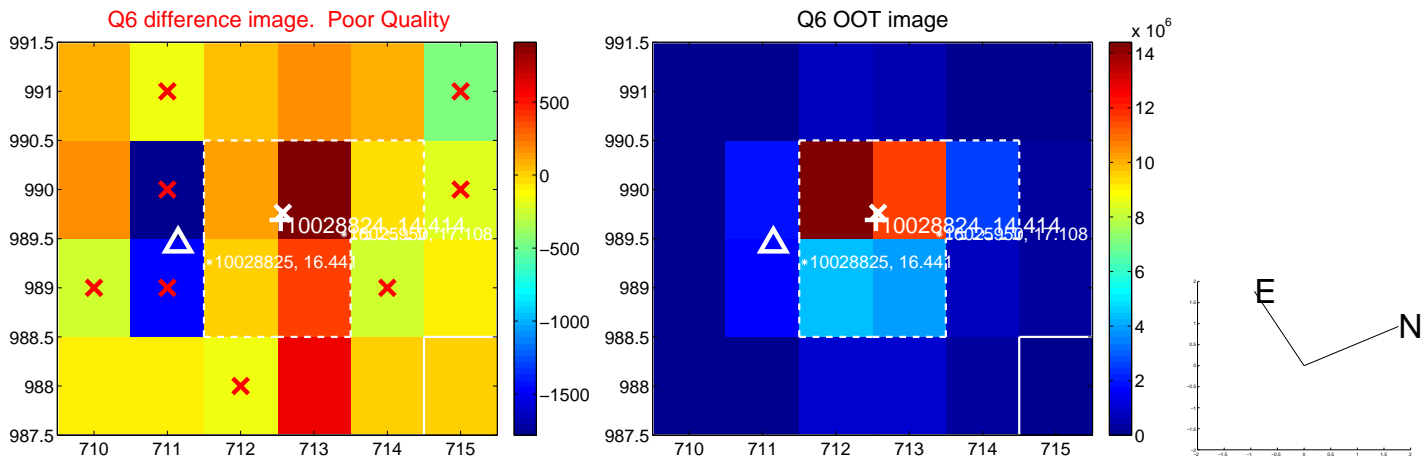
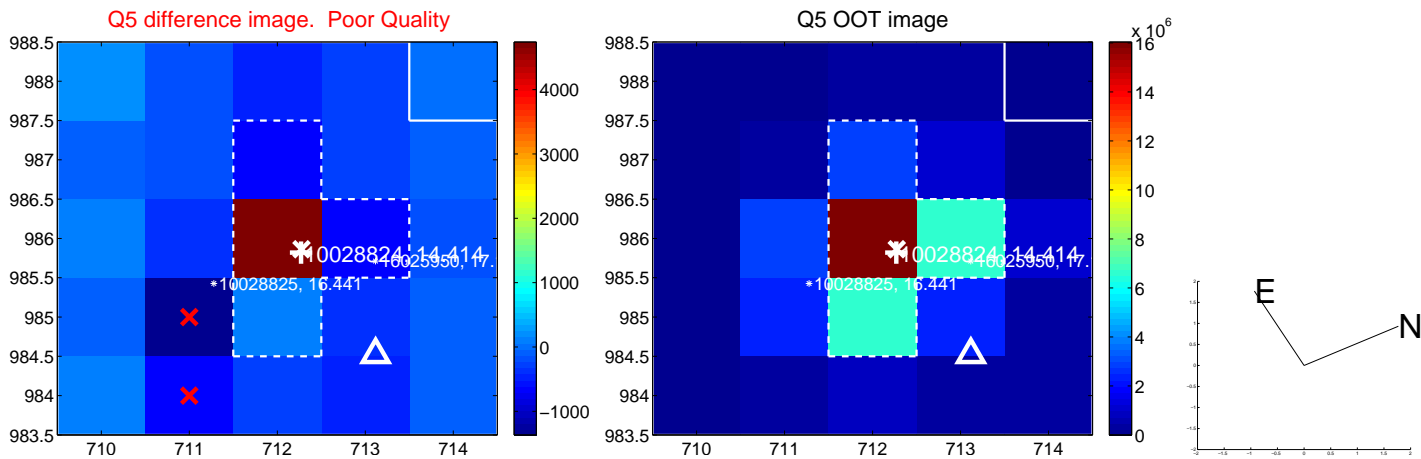


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

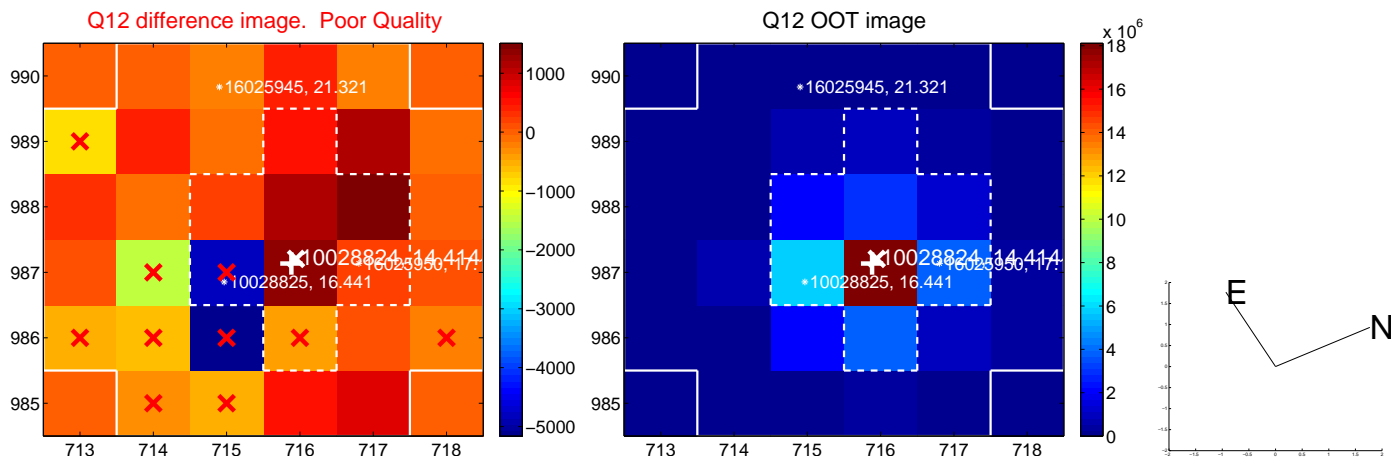
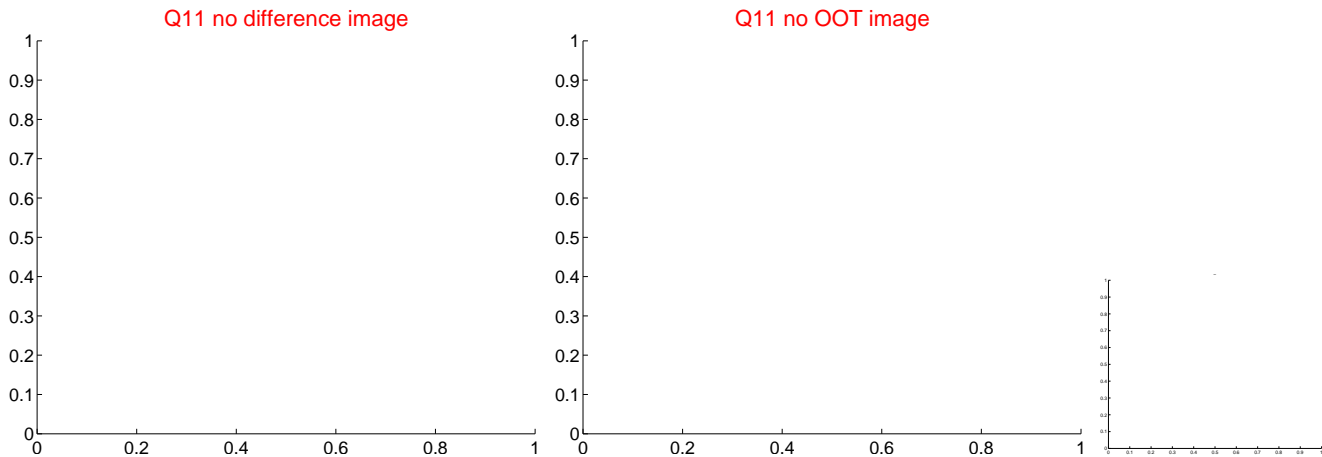
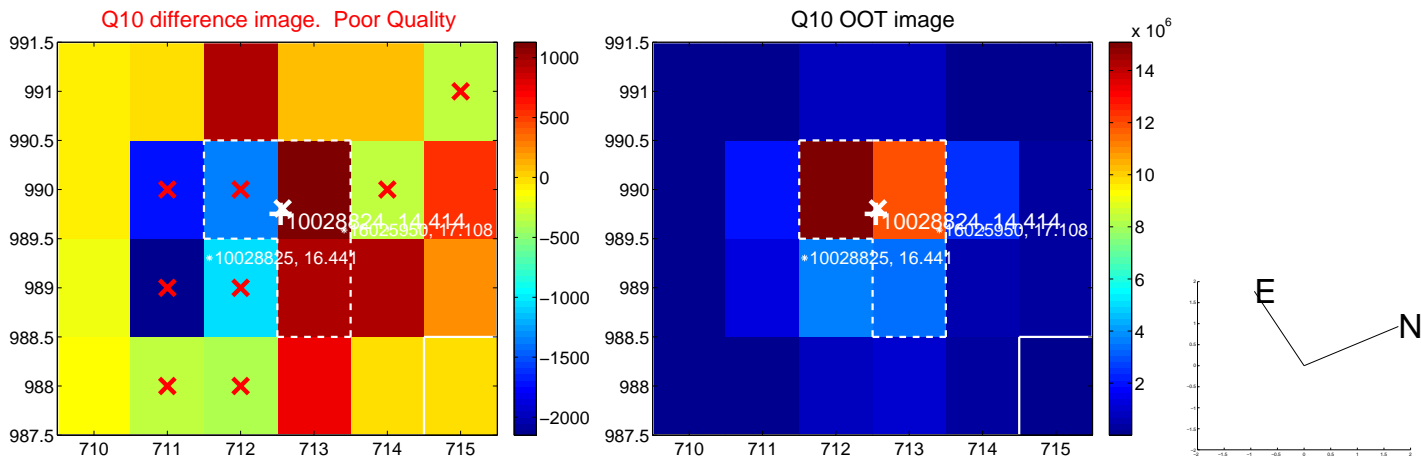
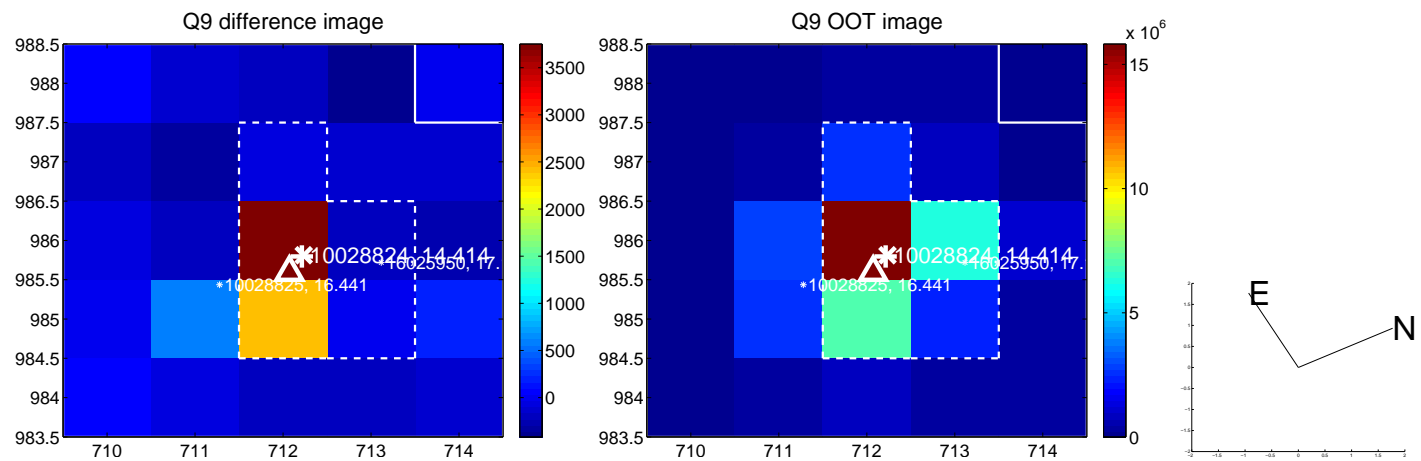
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



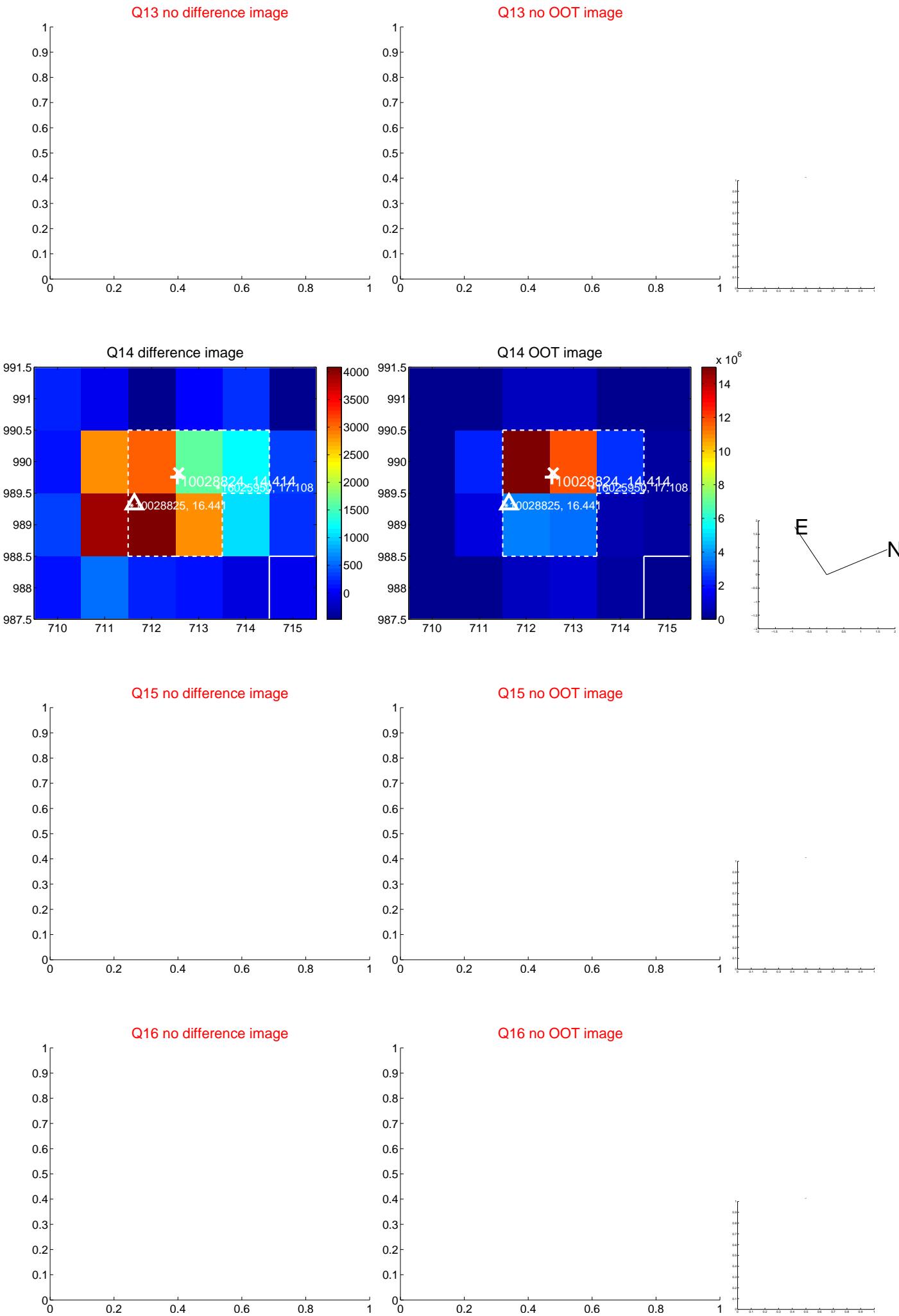
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



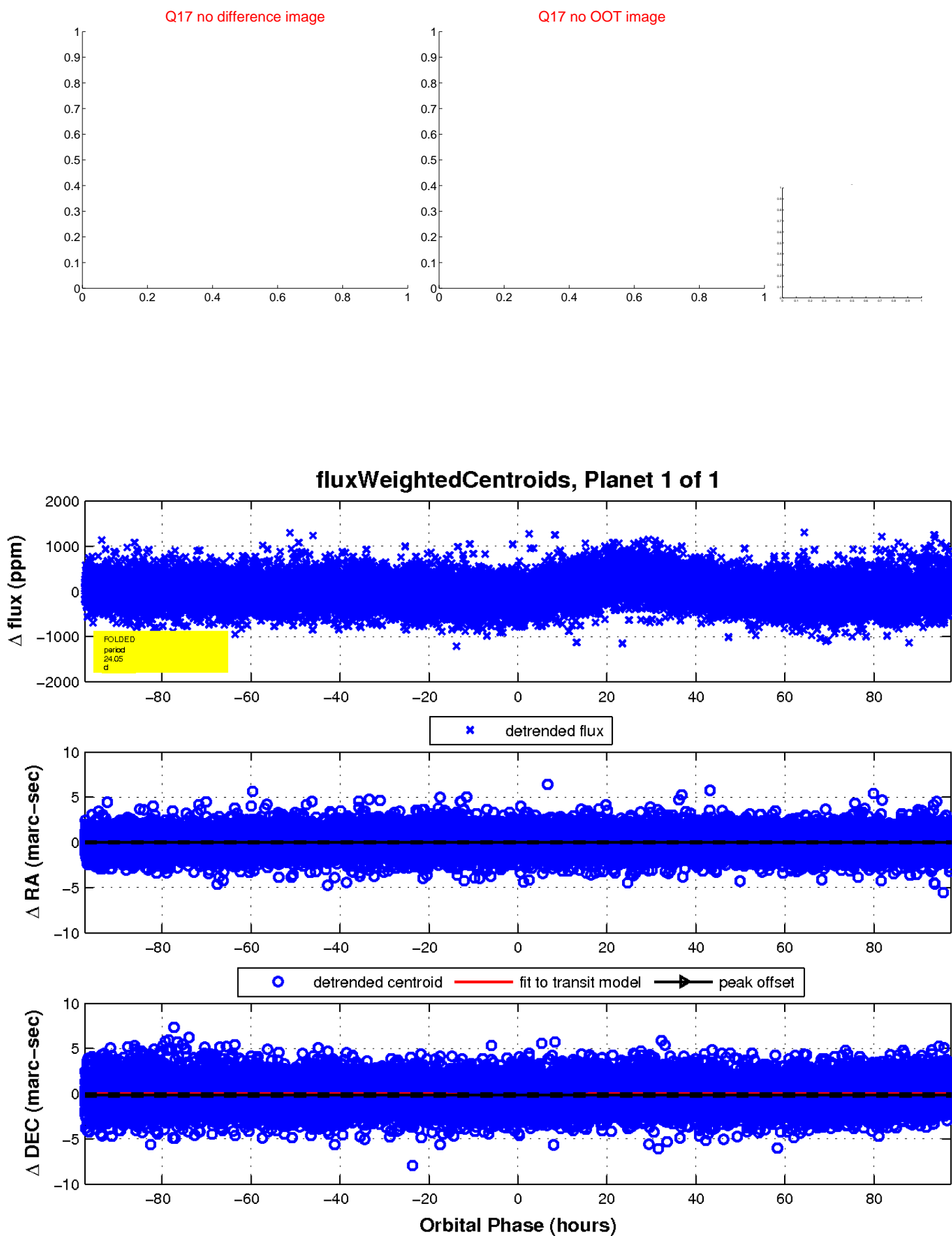
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

