

KIC 009663224

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})
009663224-01	OBS	No	0.708555	132.025574	121.4	5.504	16.8	6.6	0.88	5765	1.12	3495.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009663224-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS

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

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

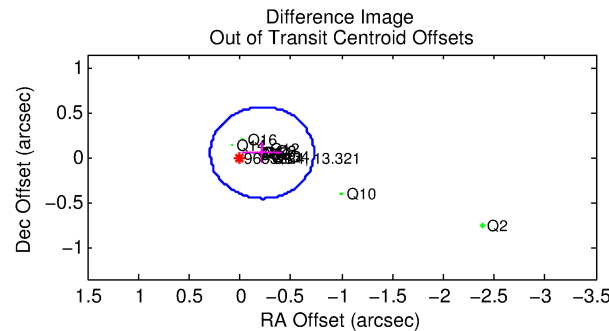
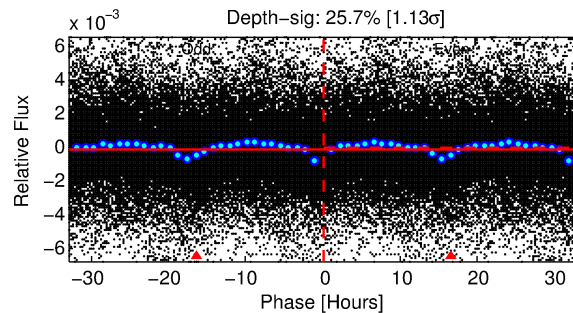
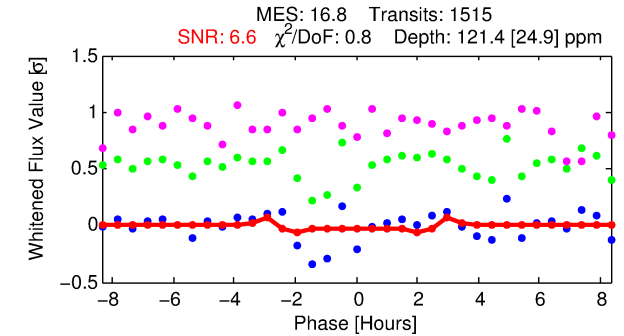
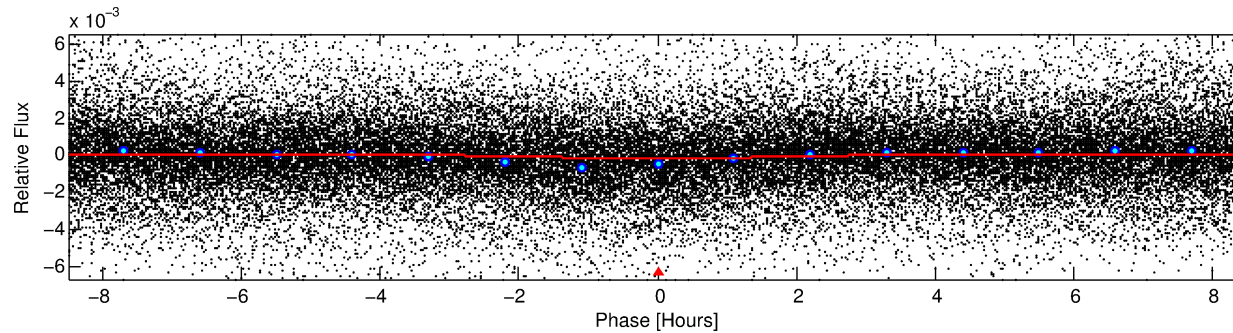
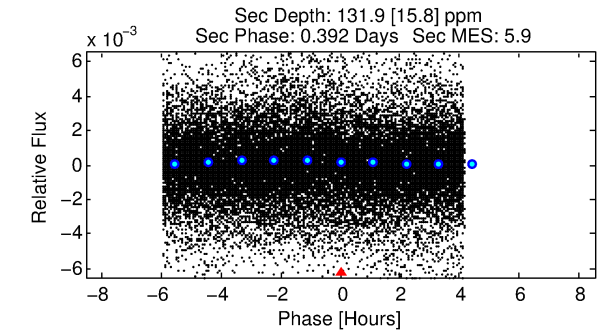
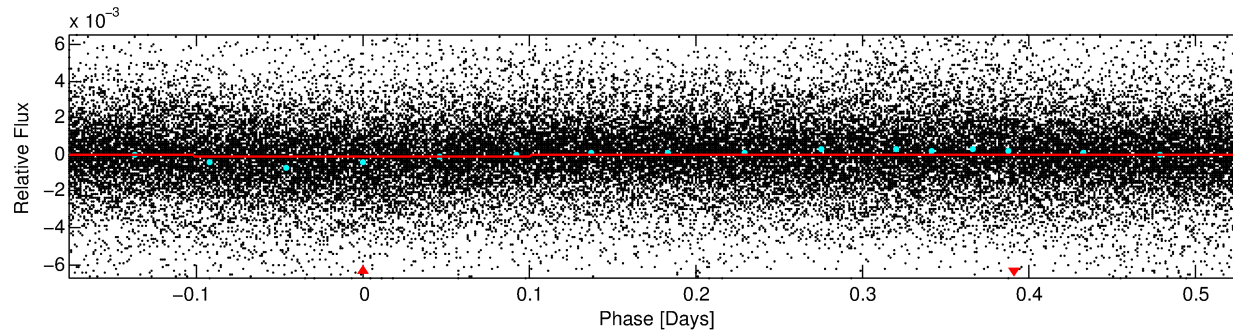
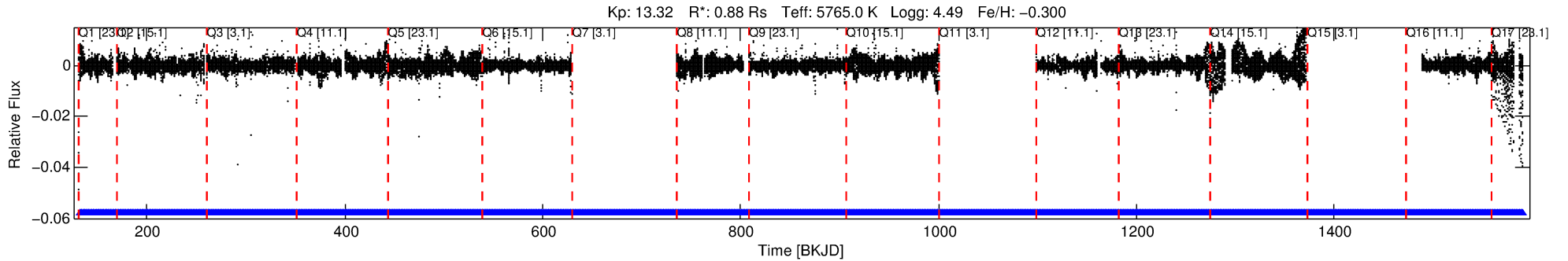
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009663224-01

No Significant Match Found

DV One-Page Summary

KIC: 9663224 Candidate: 1 of 1 Period: 0.709 d



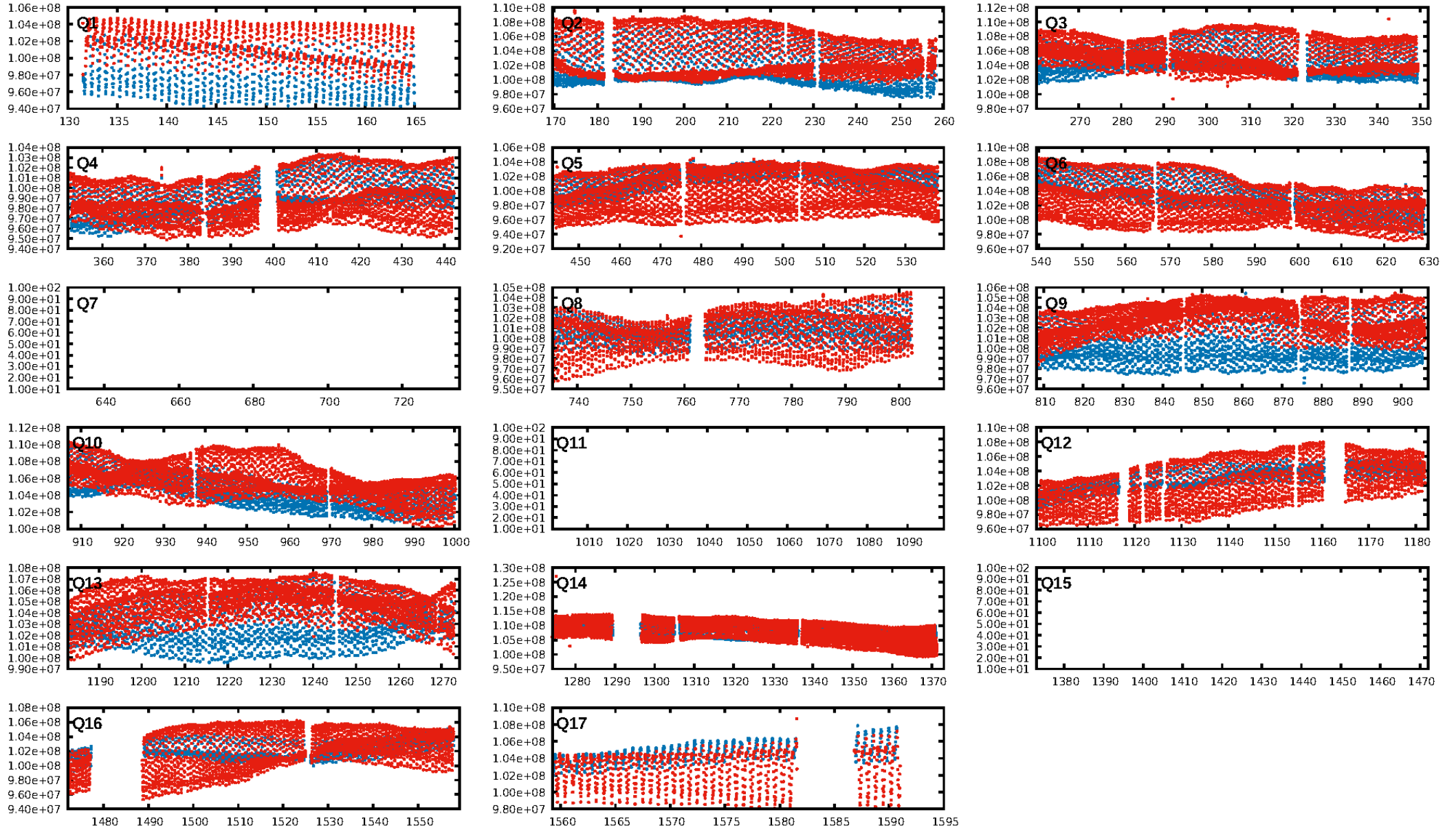
DV Fit Results:

Period = 0.70855 [0.00001] d
Epoch = 132.0256 [0.0020] BKJD
Rp/R* = 0.0116 [0.0021]
a/R* = 1.06 [0.08]
b = 0.87 [0.19]
Seff = 3495.97 [1212.56]
Teff = 1961 [170] K
Rp = 1.12 [0.36] Re
a = 0.0149 [0.0033] AU
Ag = 12.77 [6.46] [1.82 σ]
Teffp = 5730 [571] K [6.33 σ]

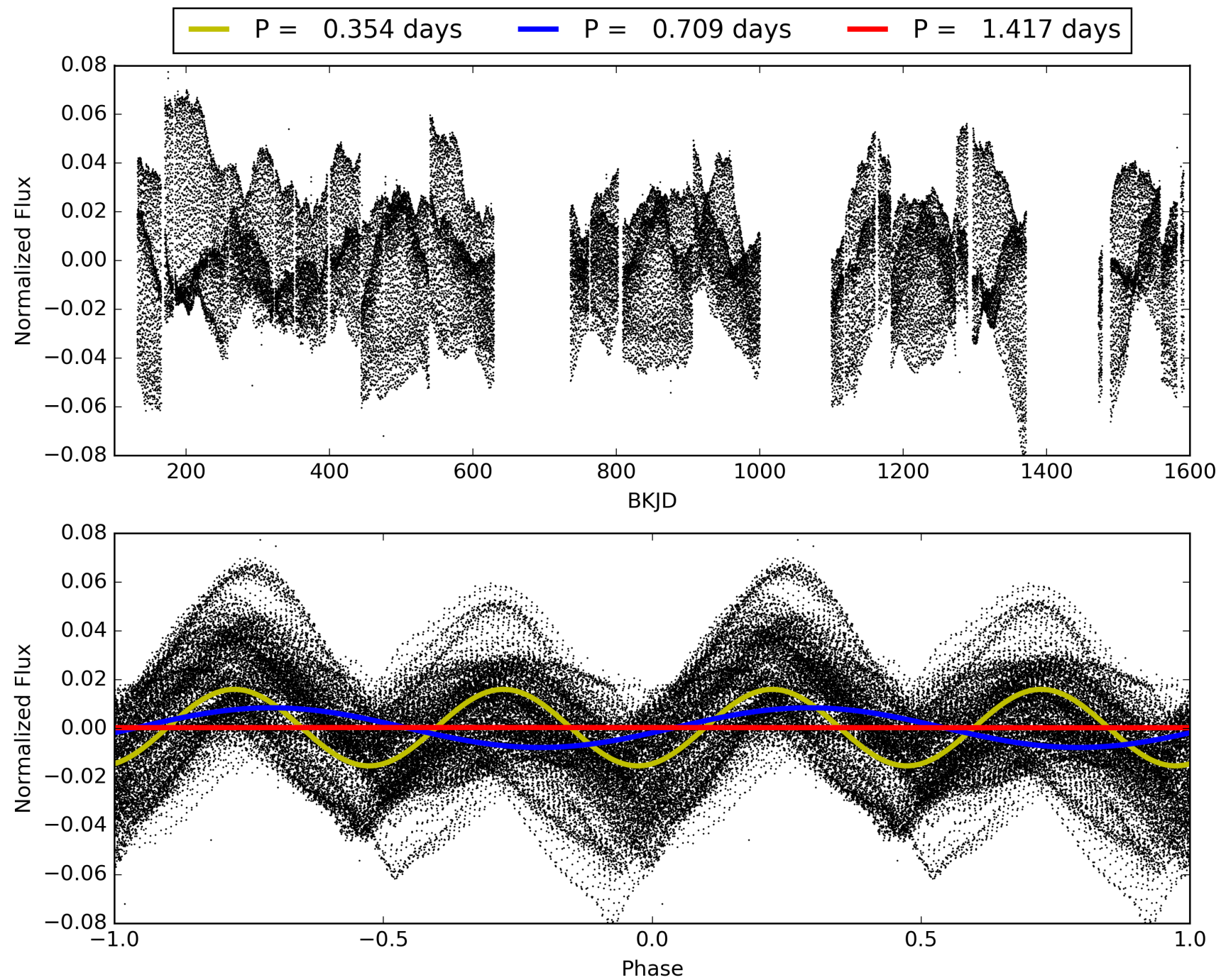
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1431/1431]
GhostDiagnostic-chr: 0.6974
Centroid-sig: 7.4%
Centroid-so: 0.252 arcsec [0.43 σ]
OotOffset-rm: 0.225 arcsec [1.33 σ]
KicOffset-rm: 0.072 arcsec [0.50 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 009663224-01, PDC Light Curves

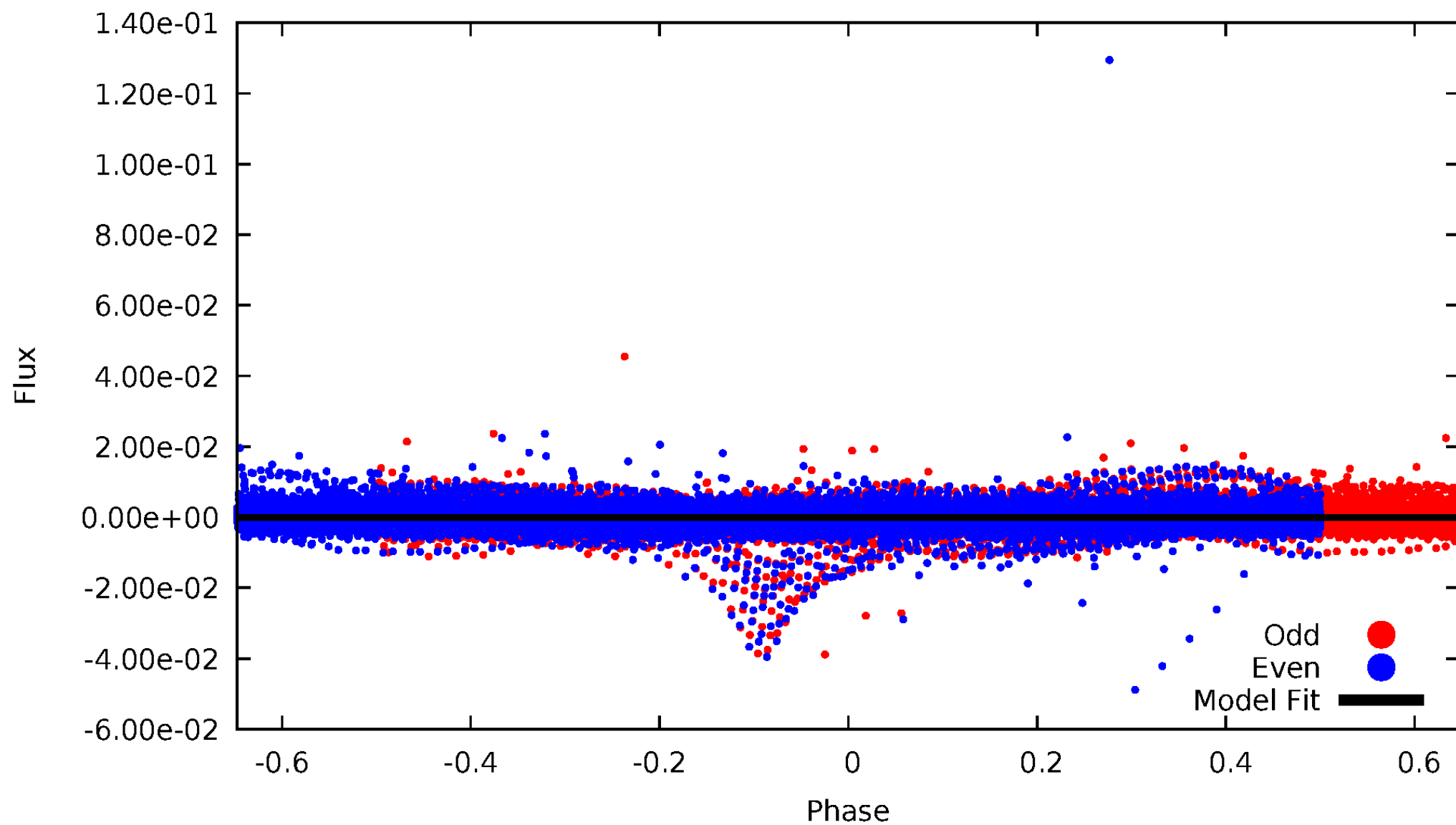


TCE 009663224-01



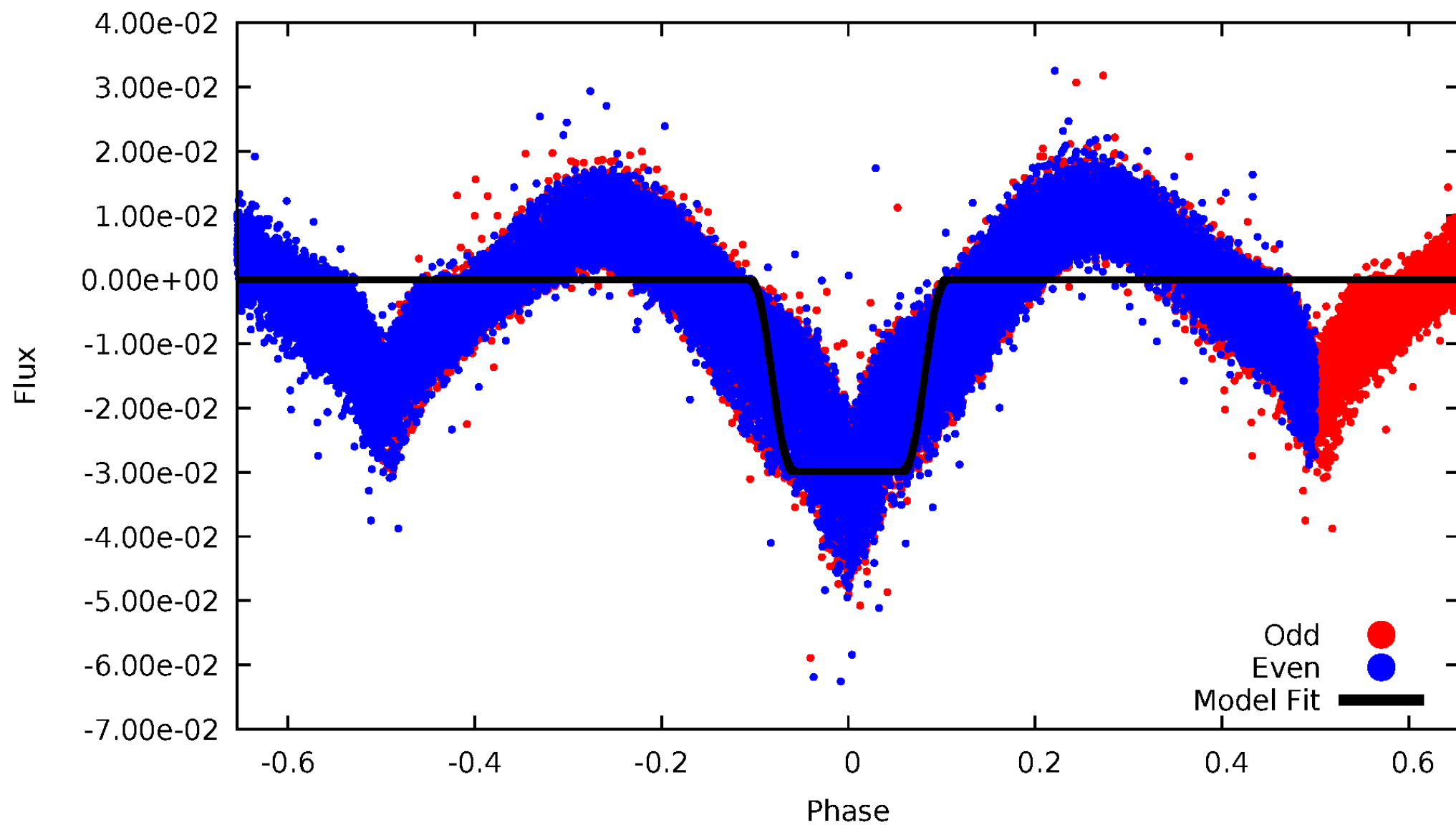
DV Odd/Even

TCE 009663224-01



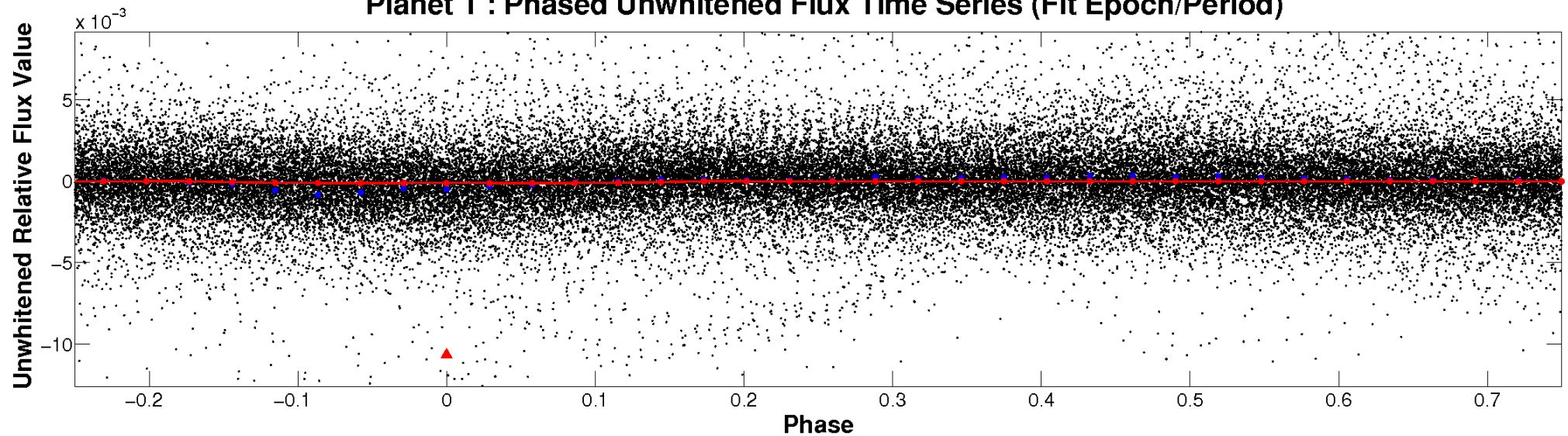
ALT Odd/Even

TCE 009663224-01

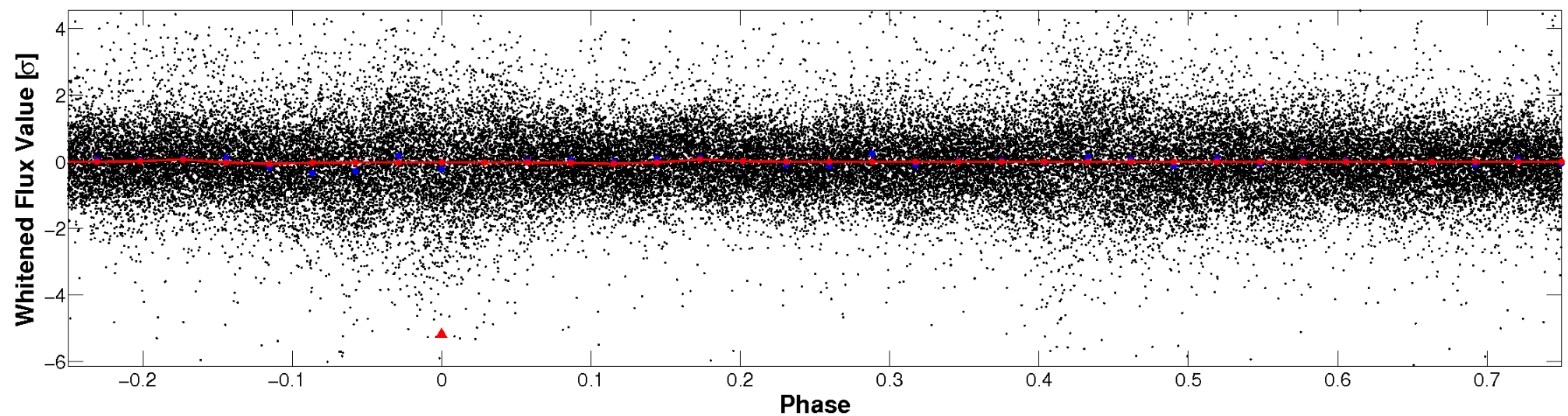


Non-Whitened Vs. Whitened Light Curve

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

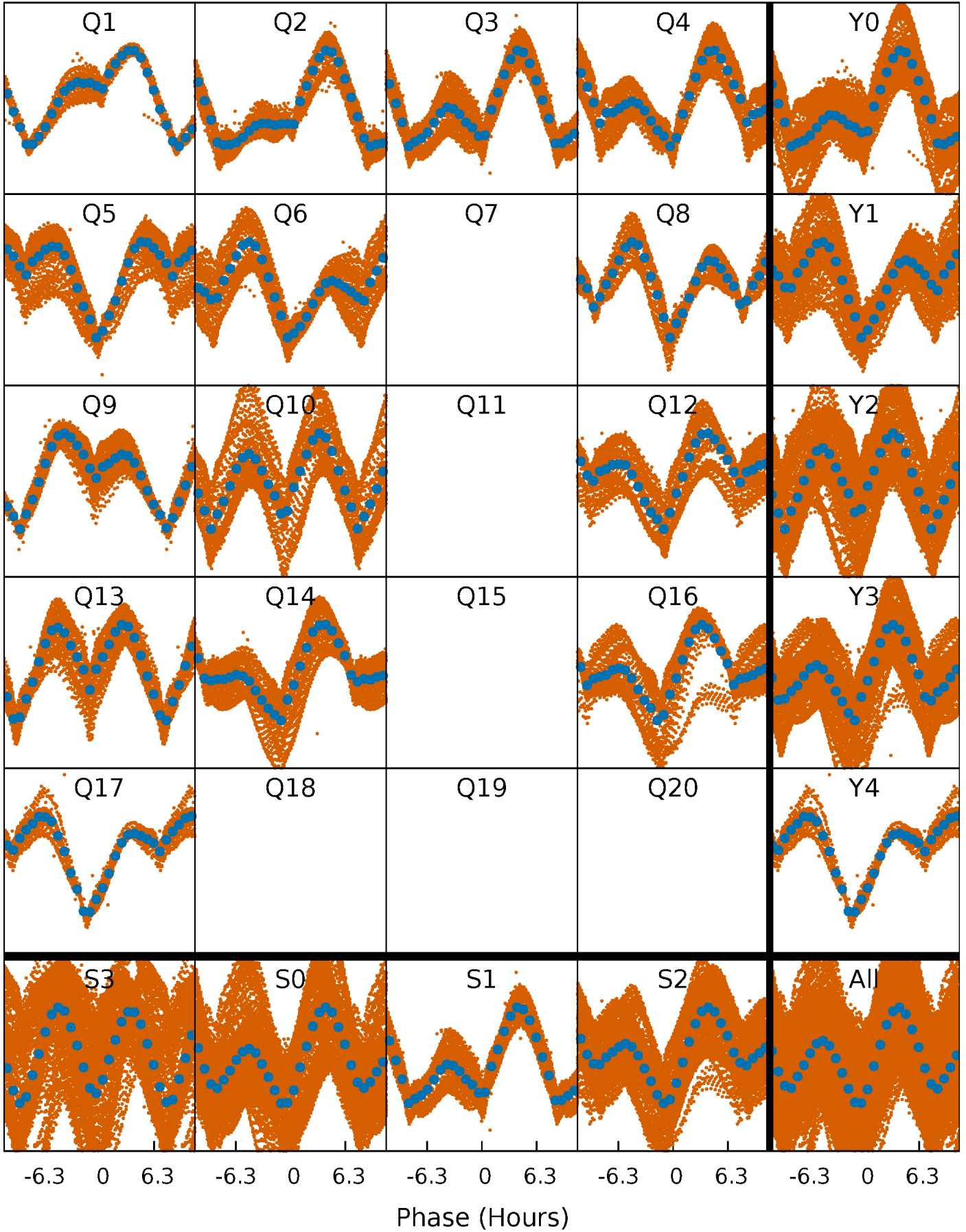


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



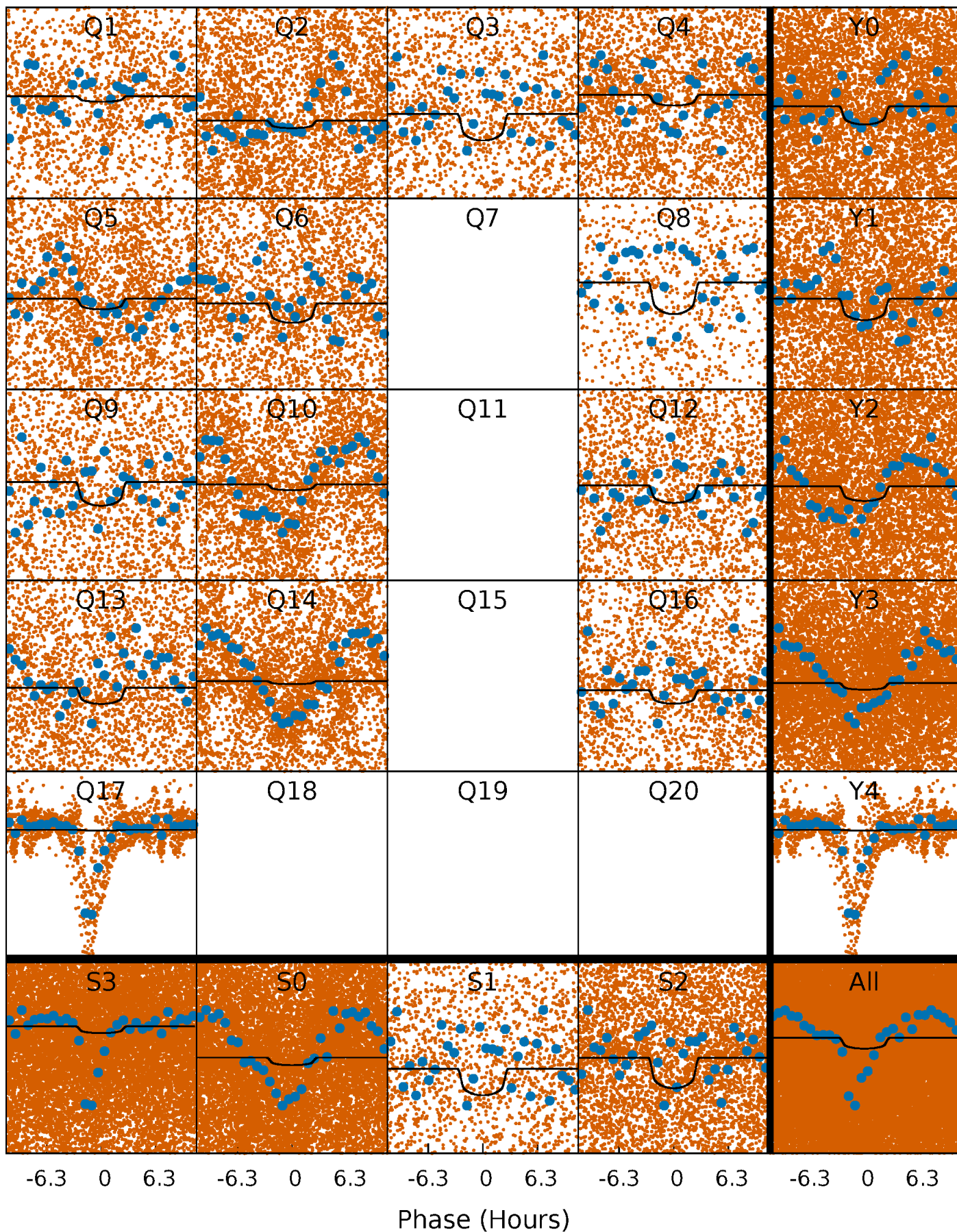
PDC Quarter-Phased Transit Curves

TCE 009663224-01 P= 0.708555 Days $T_0=132.025575$ (BKJD)



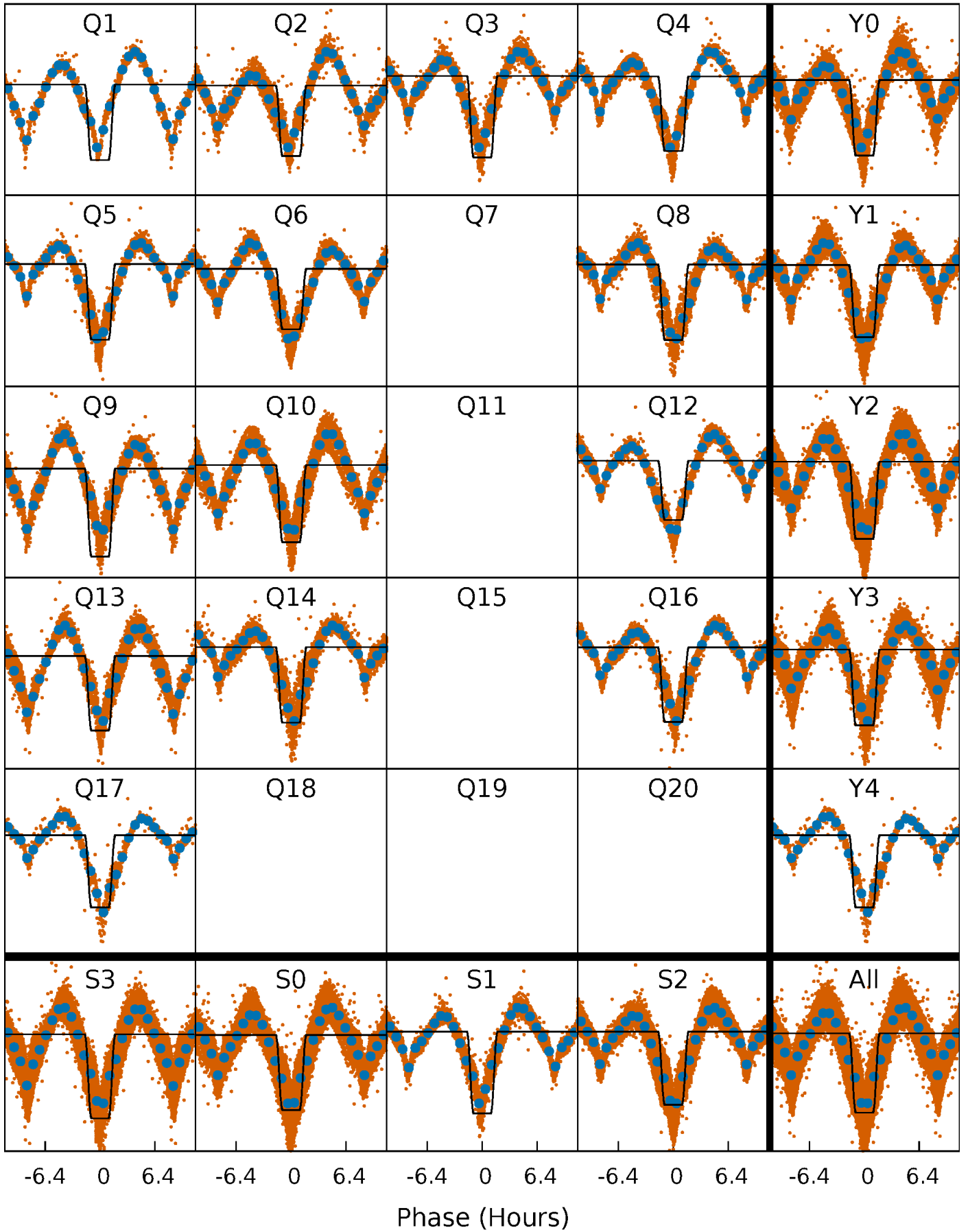
DV Quarter-Phased Transit Curves

TCE 009663224-01 P= 0.708555 Days $T_0=132.025575$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

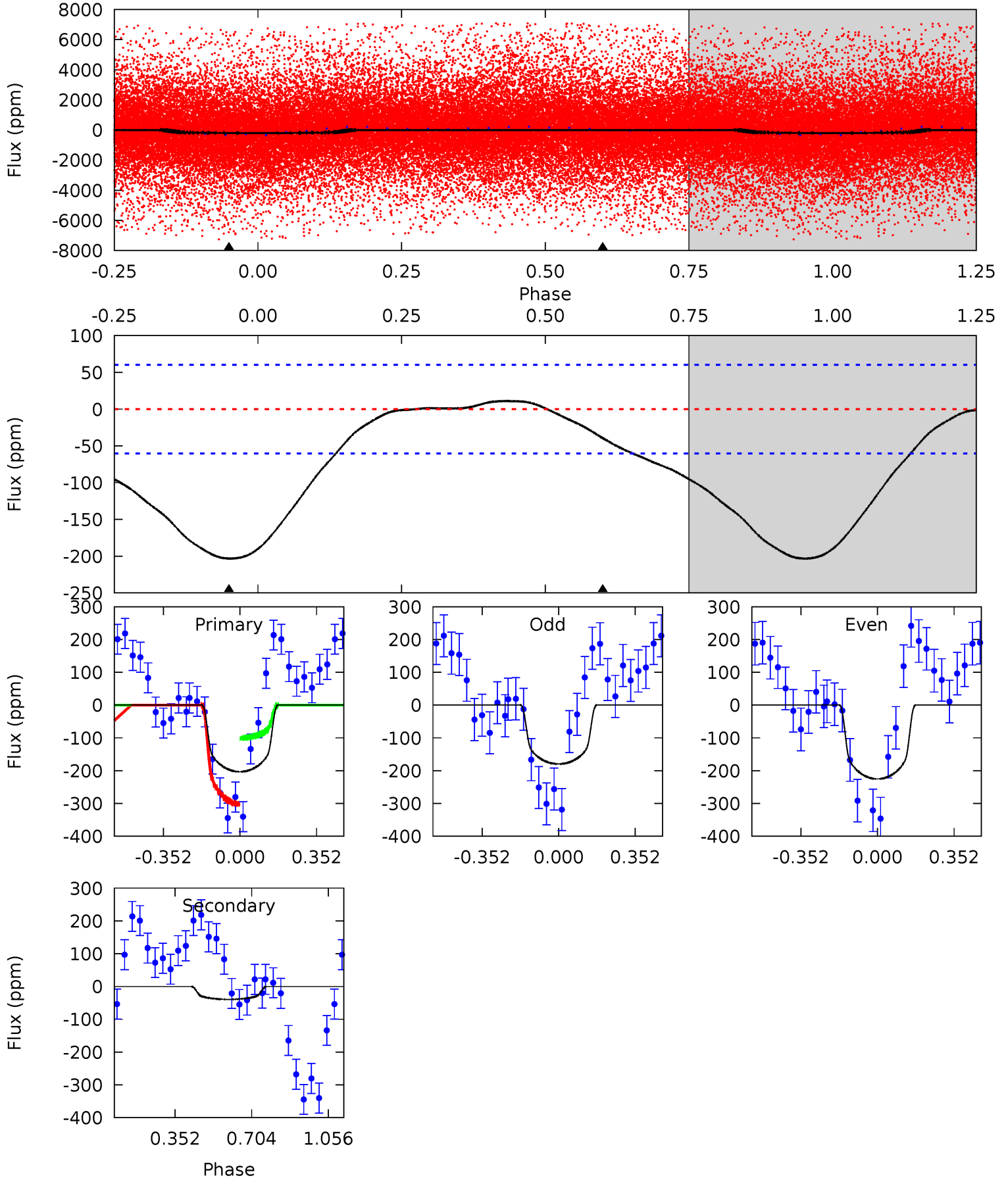
TCE 009663224-01 P= 0.708508 Days $T_0=132.047058$ (BKJD)



DV Model-Shift Uniqueness Test

009663224-01, P = 0.708555 Days, E = 131.317020 Days

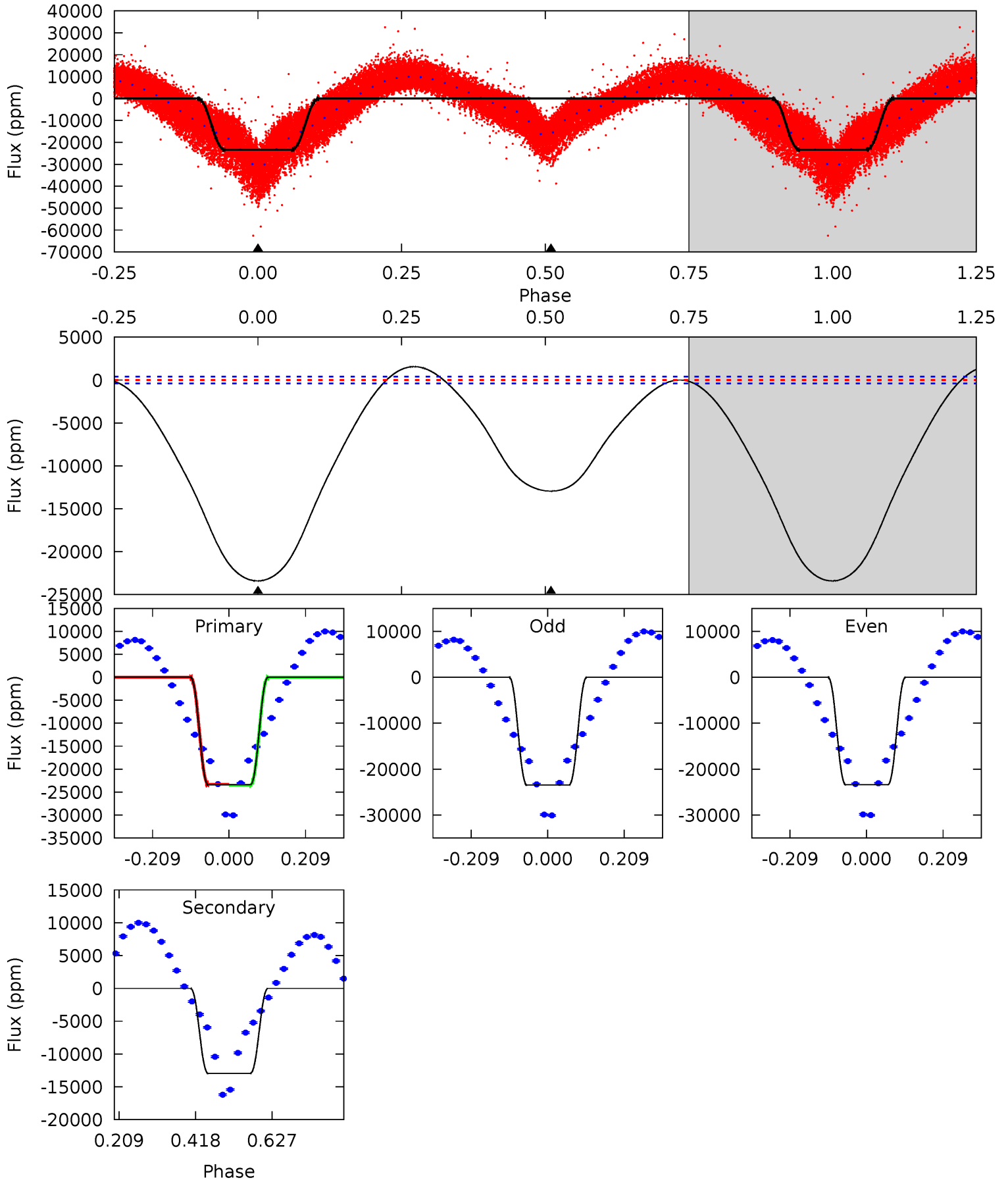
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	2.81	0	0	4.29	0.93	0.12	14.5	14.5	2.81	2.81	1.64	2.31	0.05	6.94



Alt Model-Shift Uniqueness Test

009663224-01, P = 0.708508 Days, E = 131.338550 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
263.0	145.4	0	0	4.41	1.26	11.2	263.0	263.0	145.4	145.4	0.36	1.03	0.06	0.96



Stellar Parameters For KIC 009663224

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5765^{+138}_{-155}	$4.486^{+0.078}_{-0.182}$	$-0.300^{+0.300}_{-0.300}$	$0.883^{+0.232}_{-0.100}$	$0.871^{+0.109}_{-0.082}$	$1.782^{+0.575}_{-0.849}$
	+2%/-3%	+2%/-4%	+100%/-100%	+26%/-11%	+13%/-9%	+32%/-48%
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 009663224-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-39 ± 14	$1.16^{+0.27}_{-0.24}$	2772^{+173}_{-136}	4342^{+506}_{-447}	$3.437^{+2.679}_{-1.426}$
Alt.	-12946 ± 89	$16.83^{+2.52}_{-1.17}$	2776^{+167}_{-122}	4755^{+109}_{-112}	$5.544^{+0.847}_{-1.162}$

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

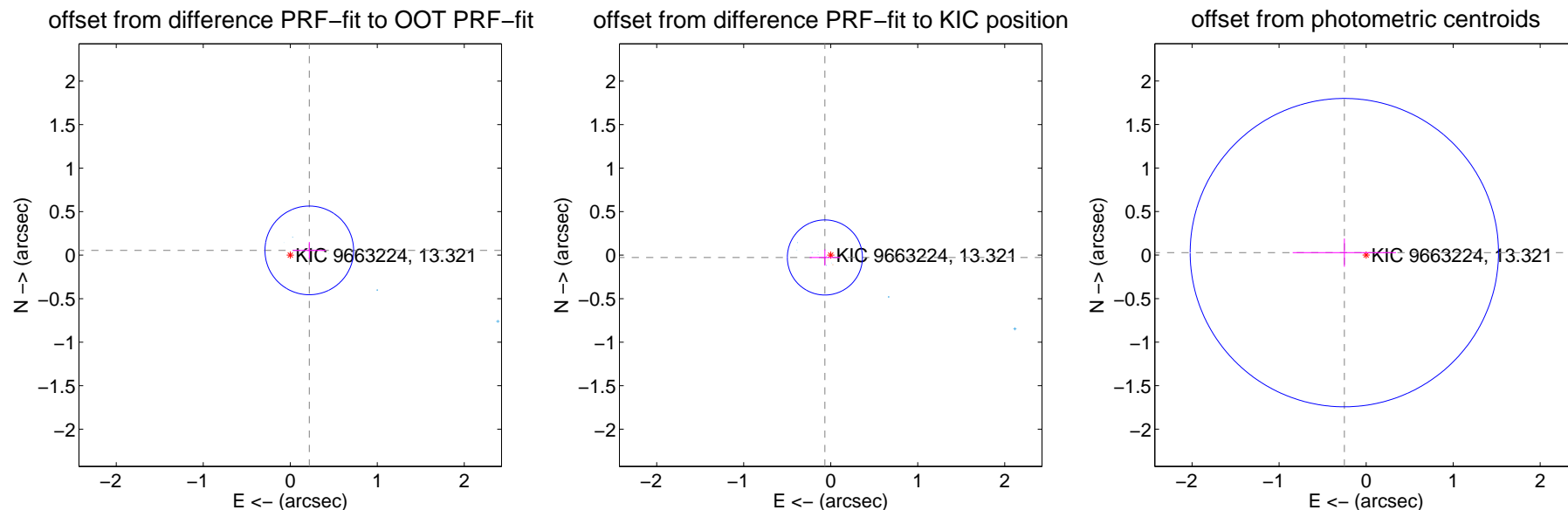
DV Centroid Data

Supplemental centroid analysis for 009663224-01. Kepler magnitude: 13.32. Transit SNR 6.57

There are 11 quarters with good PRF difference image offsets

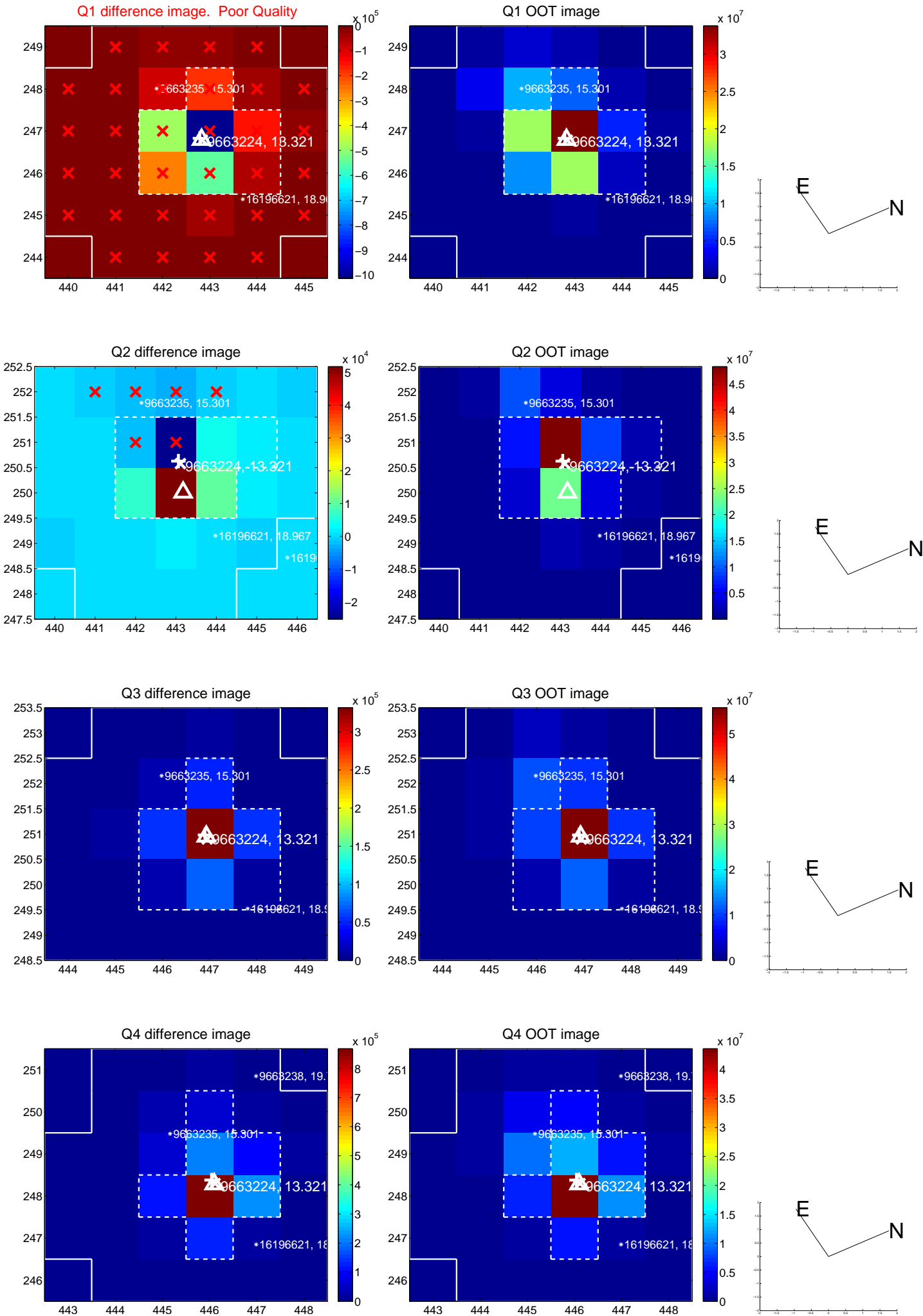
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.225 ± 0.170	1.33	-0.219 ± 0.190	0.055 ± 0.096
PRF-fit source offset from KIC position	0.072 ± 0.144	0.50	0.067 ± 0.175	-0.027 ± 0.093
photometric centroid source offset	0.25 ± 0.59	0.43	0.25 ± 0.59	0.03 ± 0.16

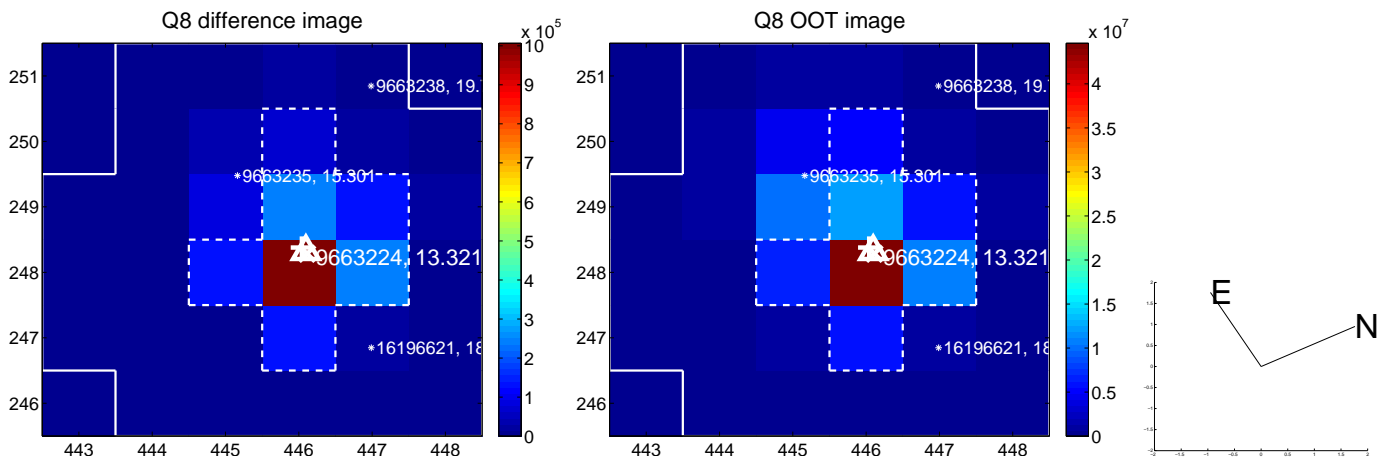
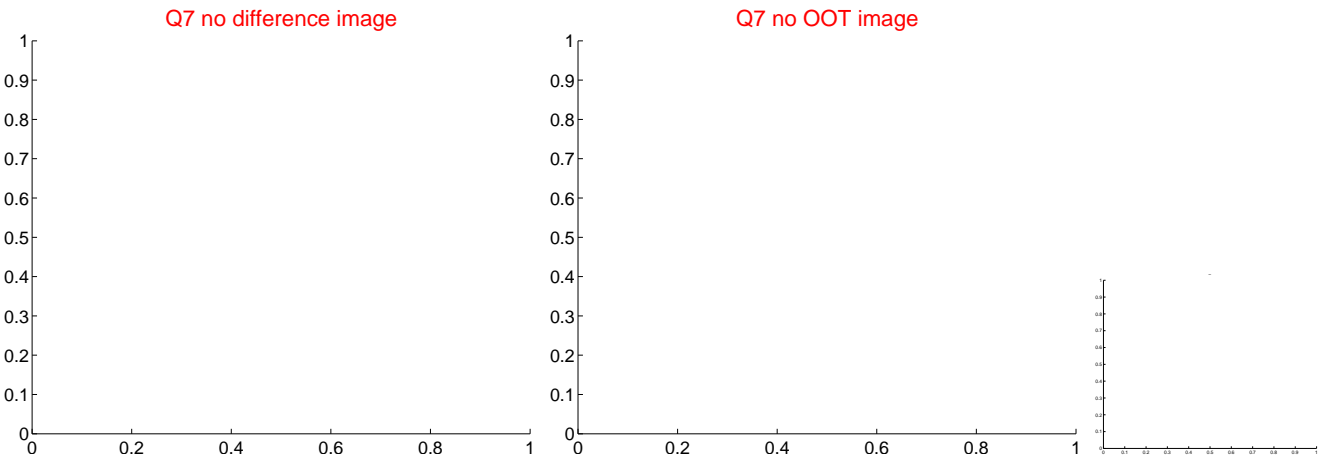
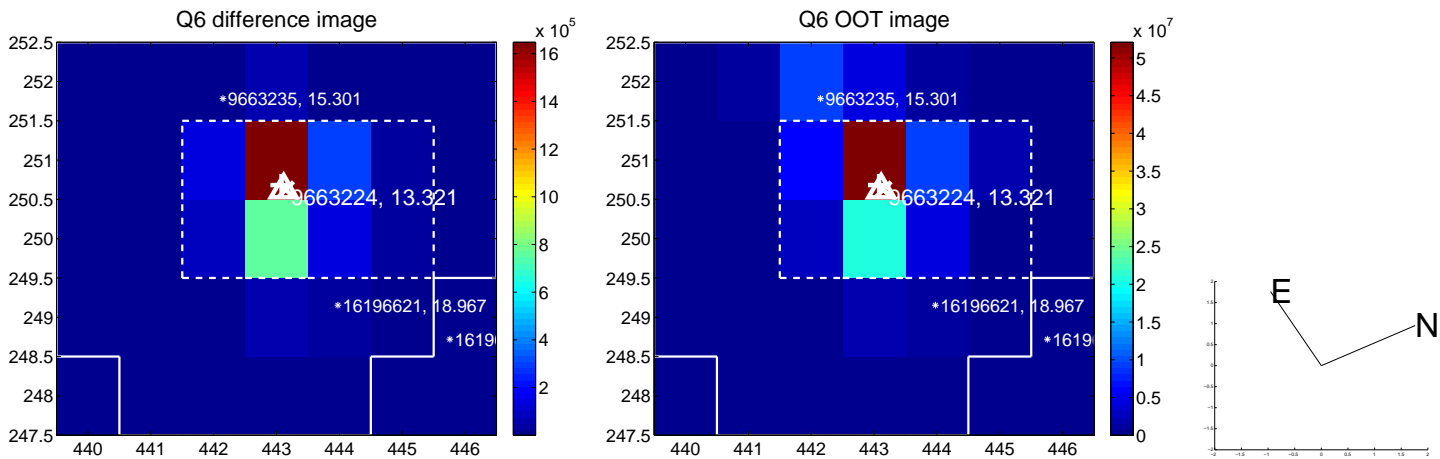
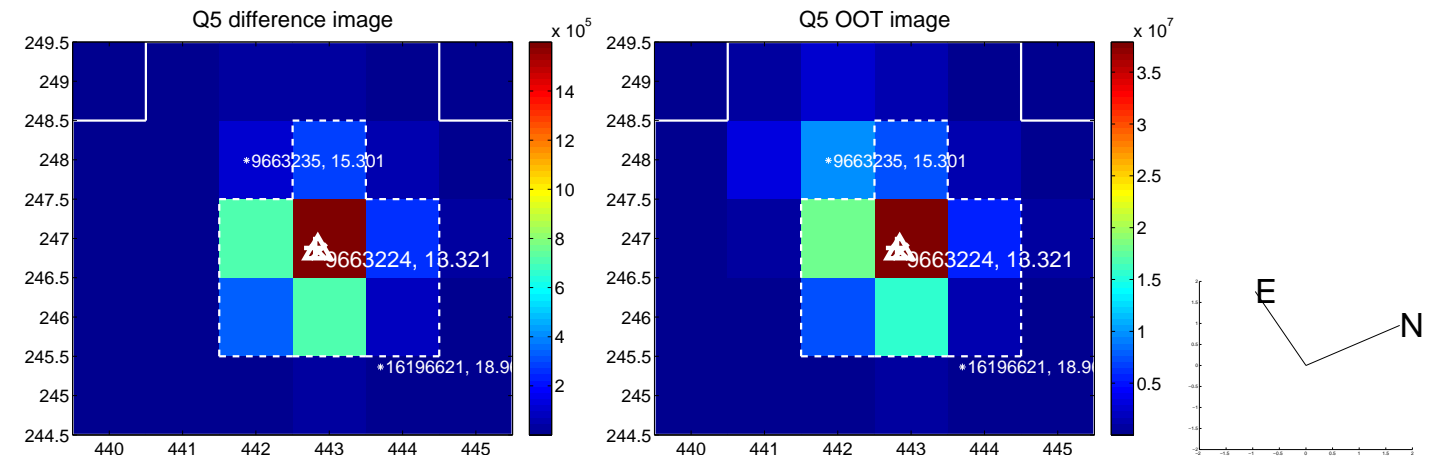


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

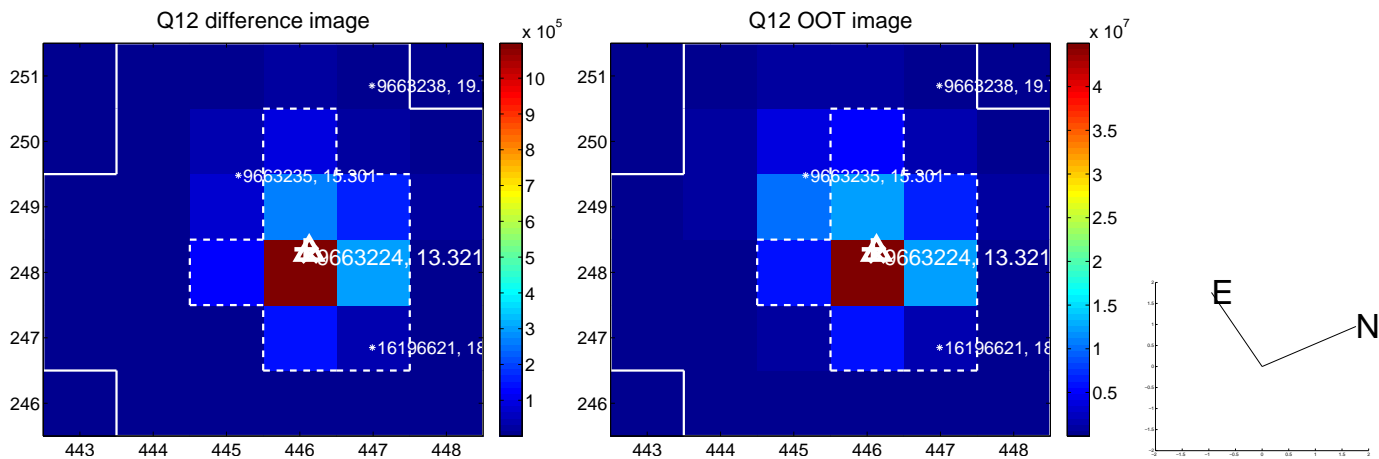
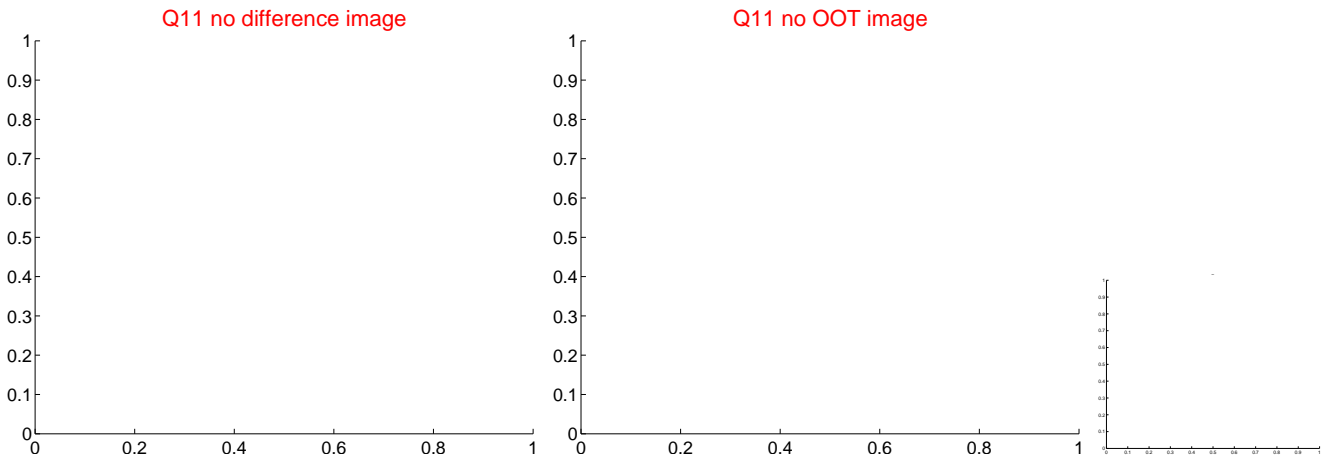
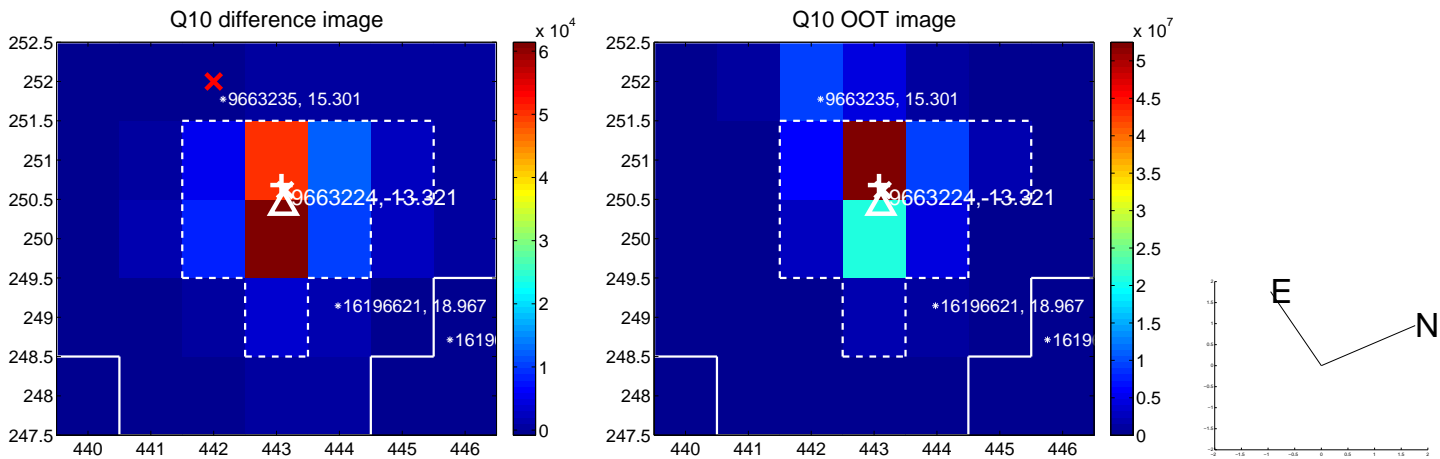
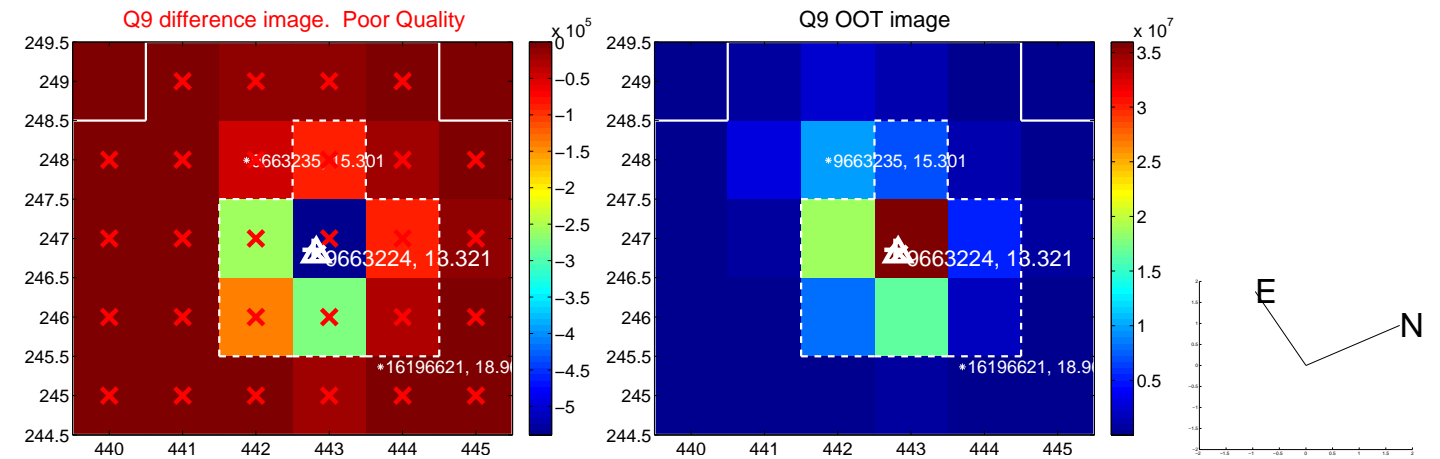
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



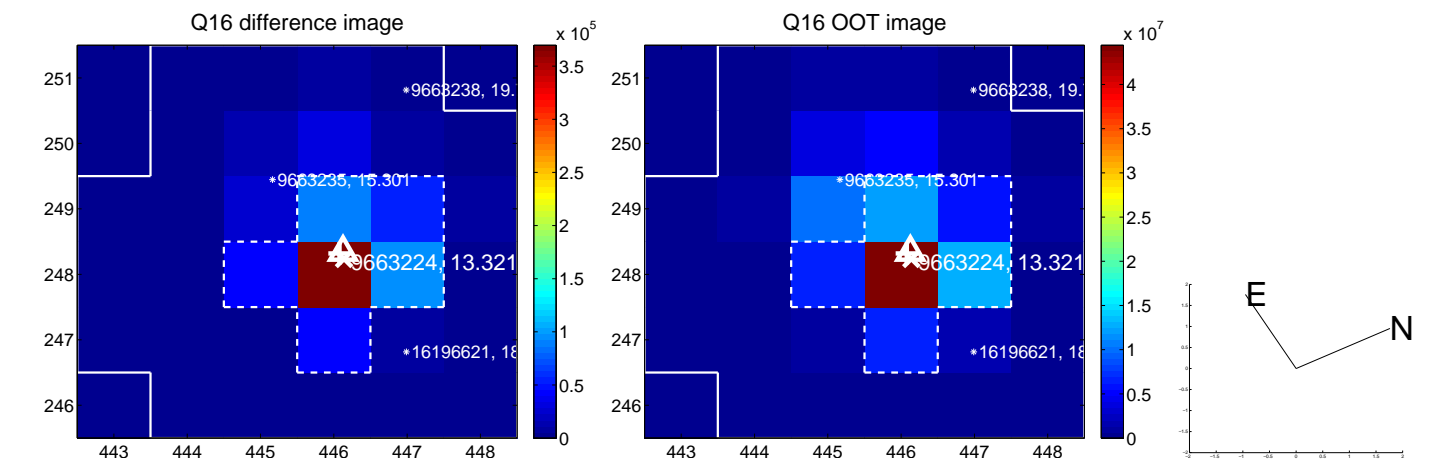
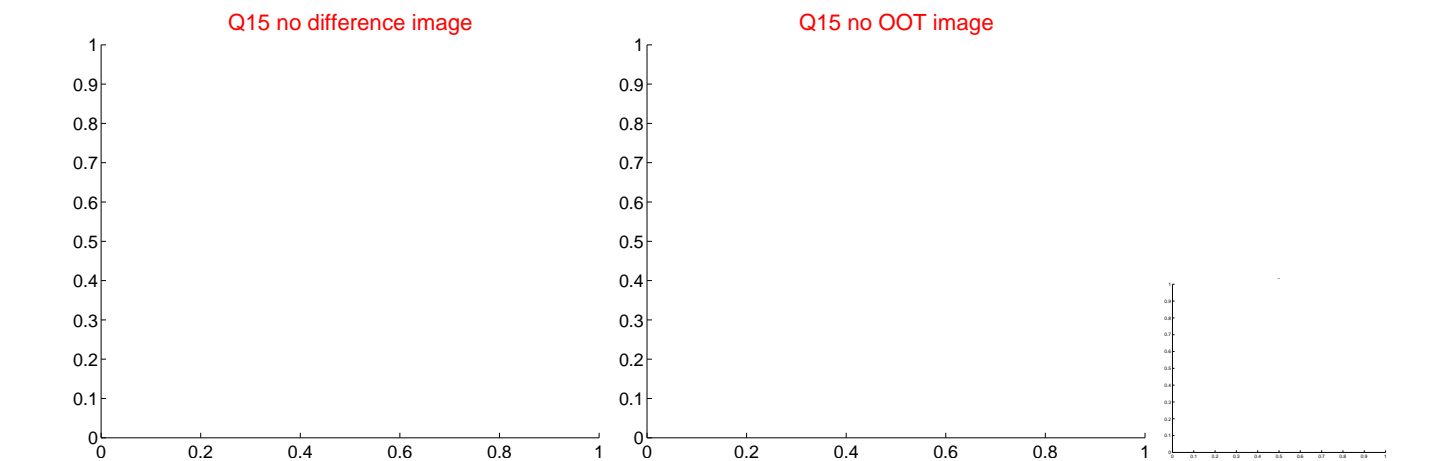
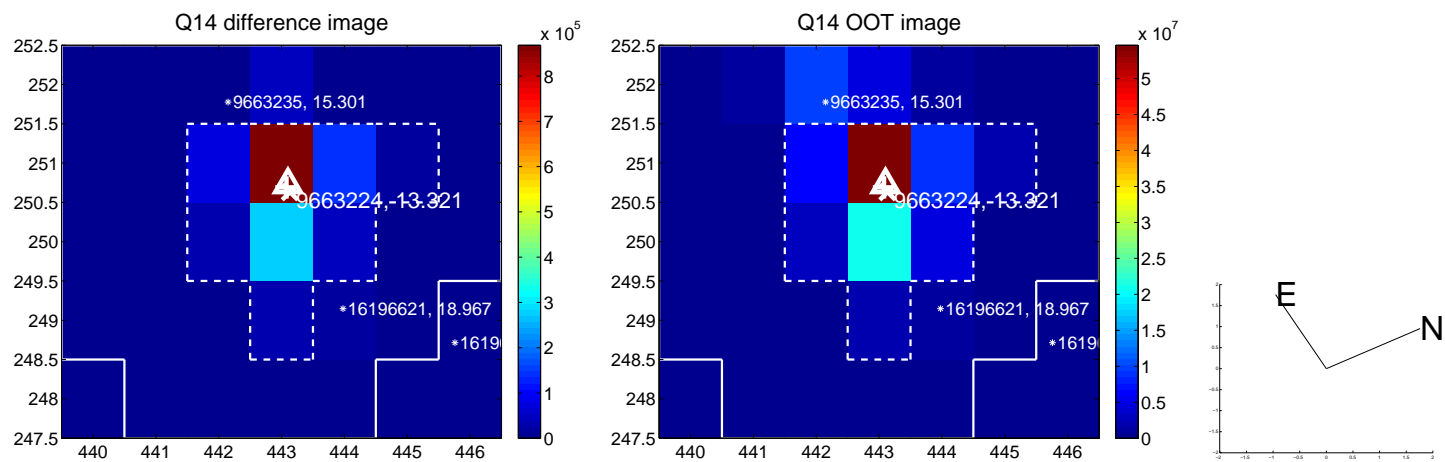
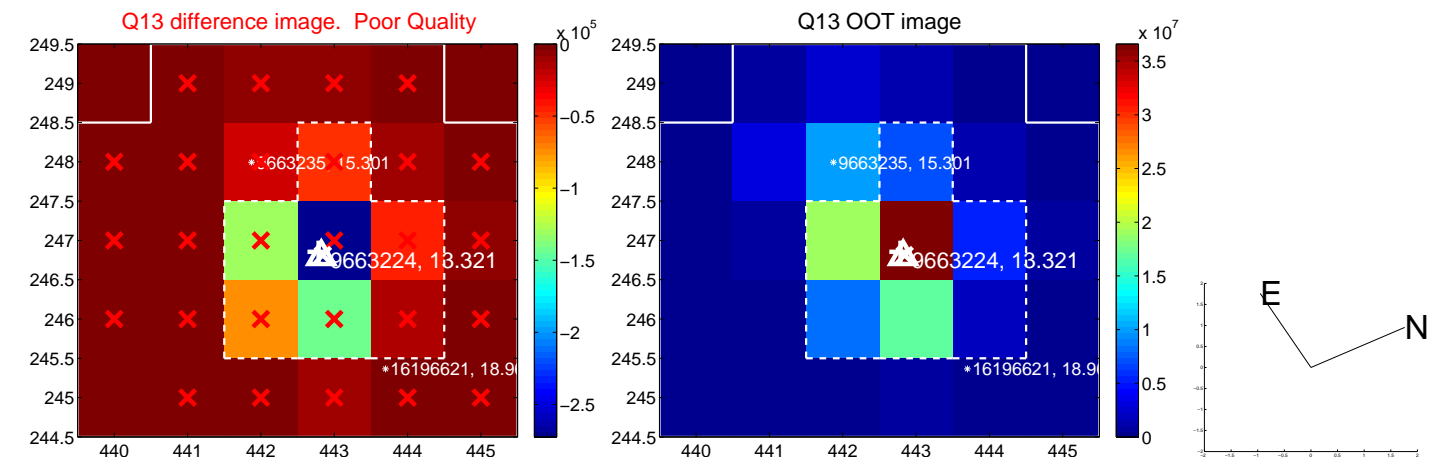
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



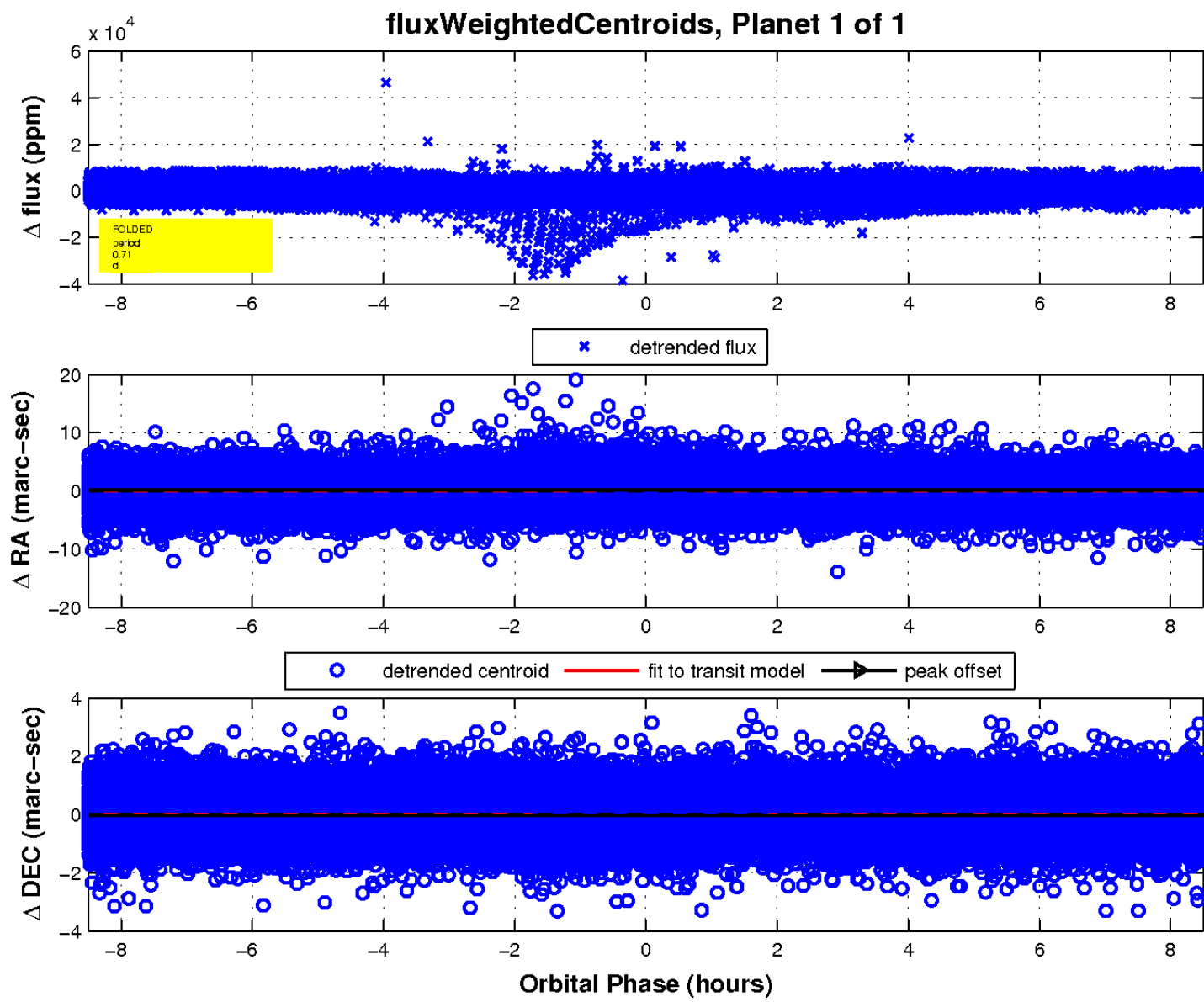
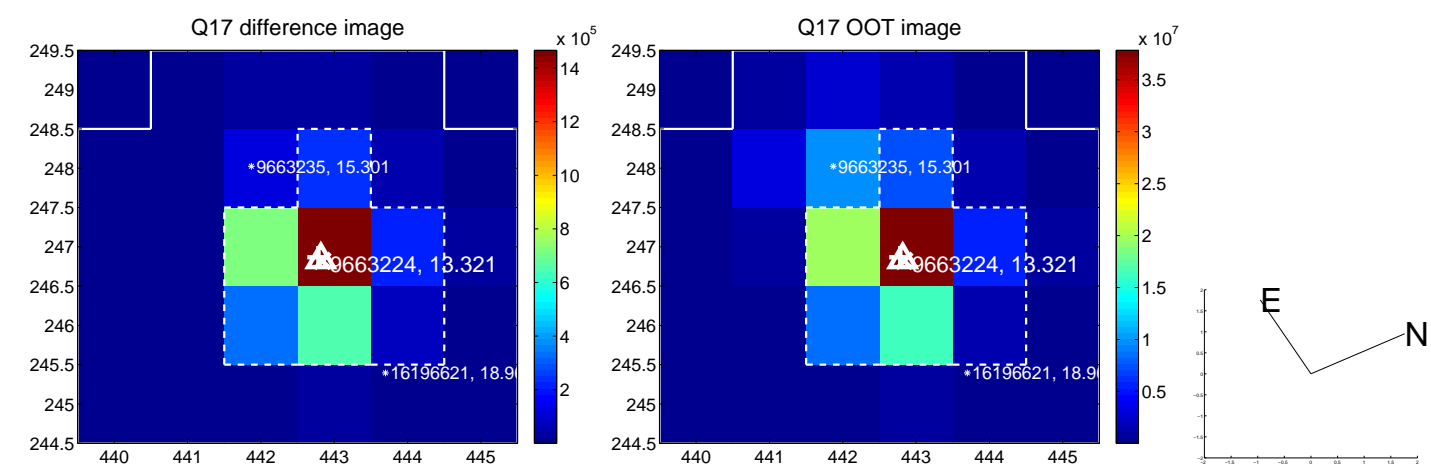
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

