

KIC 009391506

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})
009391506-01	OBS	1410.01	15.749575	134.497041	648.2	4.730	36.7	39.8	1.02	6191	2.85	86.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009391506-01	OBS	PC	1.00	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.

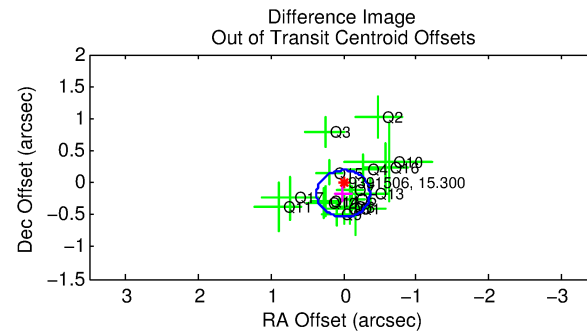
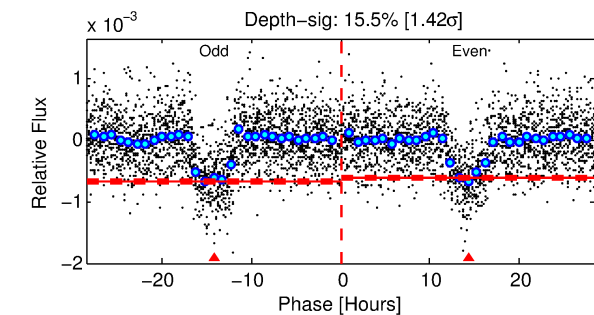
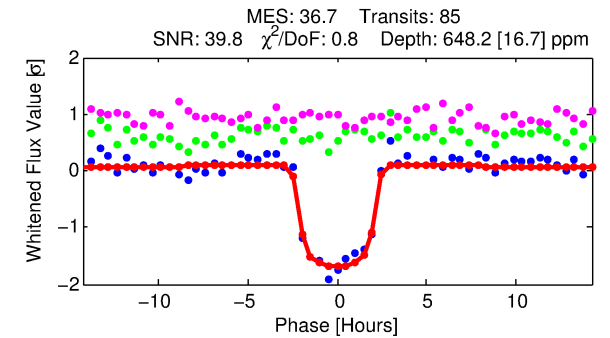
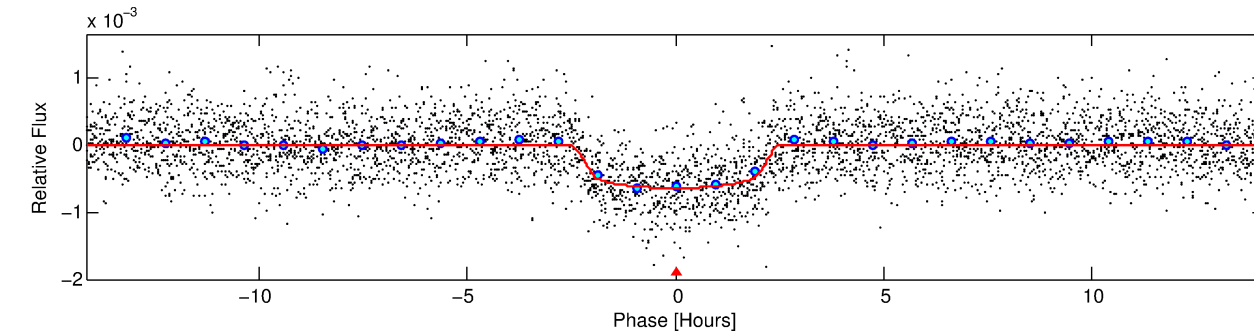
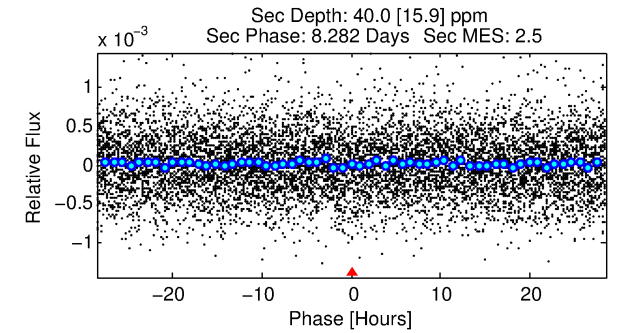
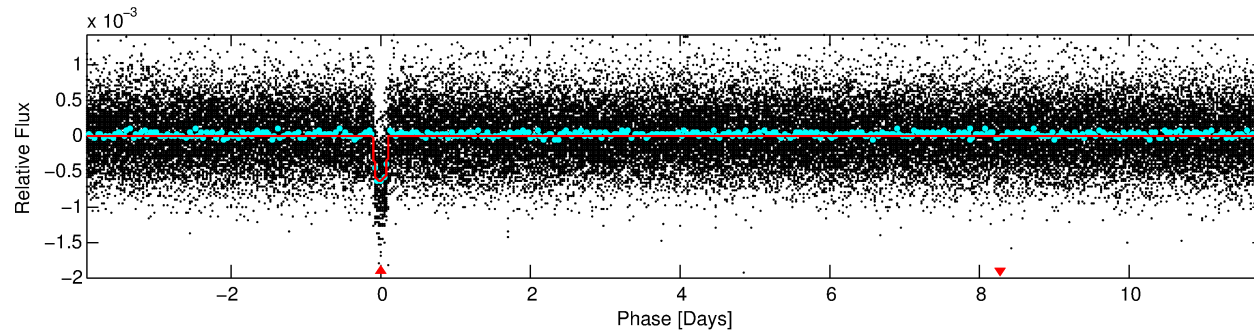
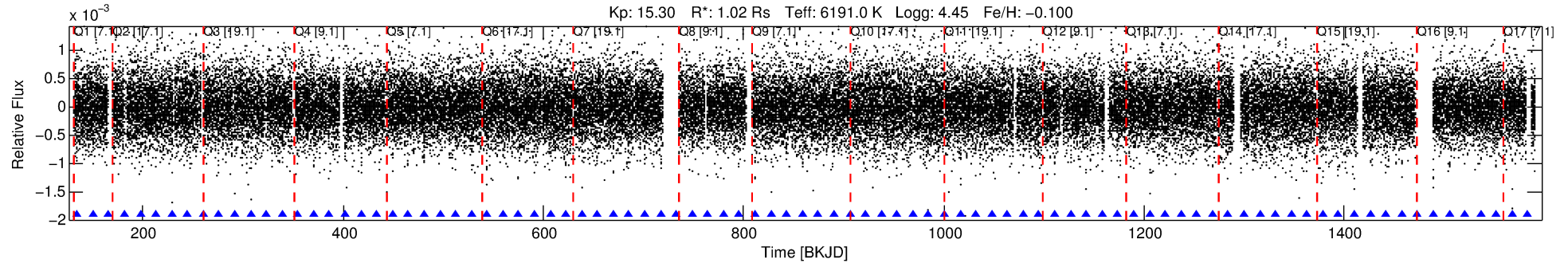
Ephemeris Match Information For 009391506-01

No Significant Match Found

DV One-Page Summary

KIC: 9391506 Candidate: 1 of 1 Period: 15.750 d

KOI: K01410.01 Corr: 0.995



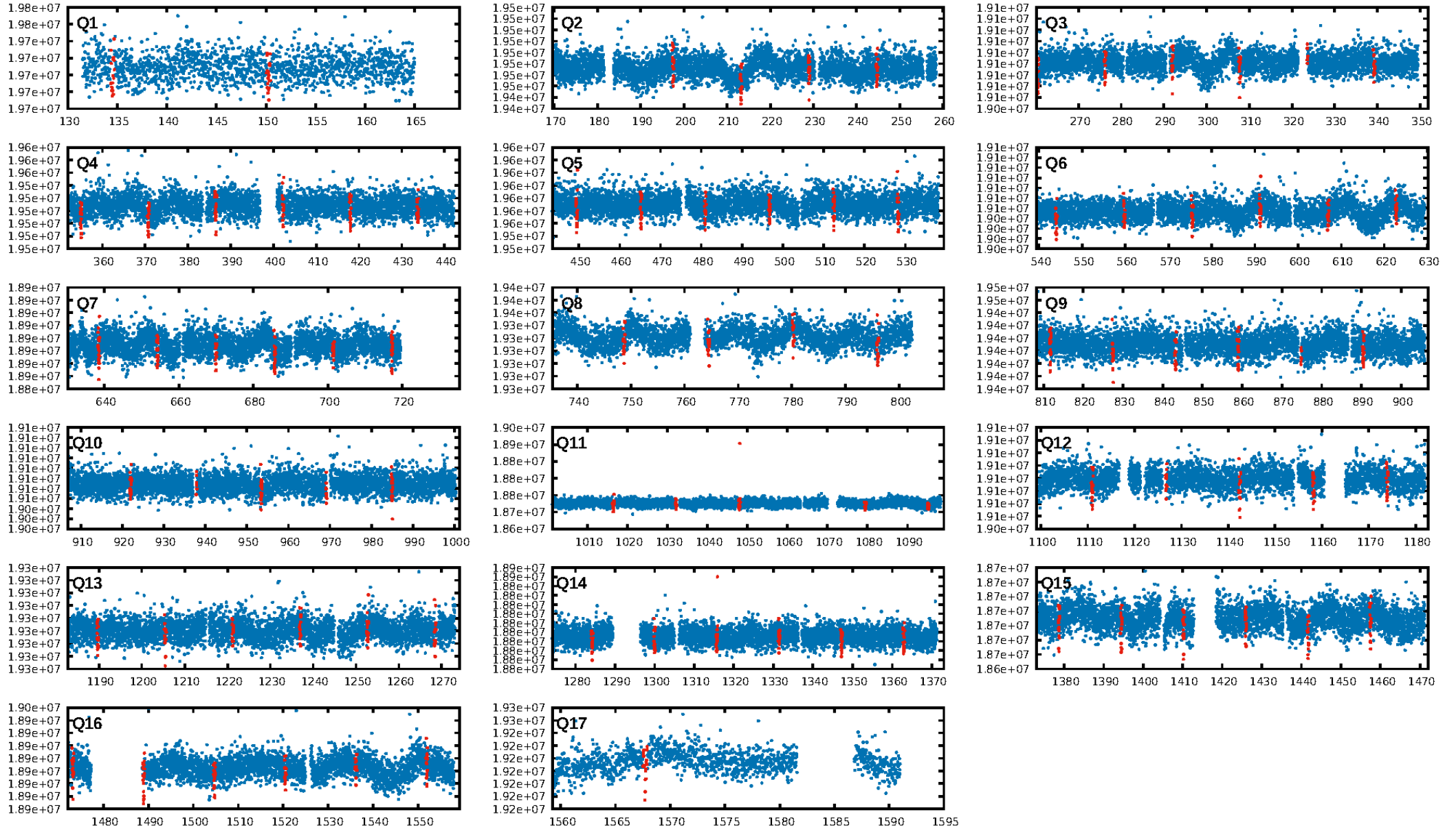
DV Fit Results:

Period = 15.74957 [0.00005] d
Epoch = 134.4970 [0.0025] BKJD
Rp/R* = 0.0255 [0.0035]
a/R* = 17.31 [11.87]
b = 0.77 [0.37]
Seff = 86.31 [35.59]
Teq = 777 [80] K
Rp = 2.85 [1.00] Re
a = 0.1266 [0.0341] AU
Ag = 43.39 [26.83] [1.58σ]
Teffp = 3084 [386] K [5.84σ]

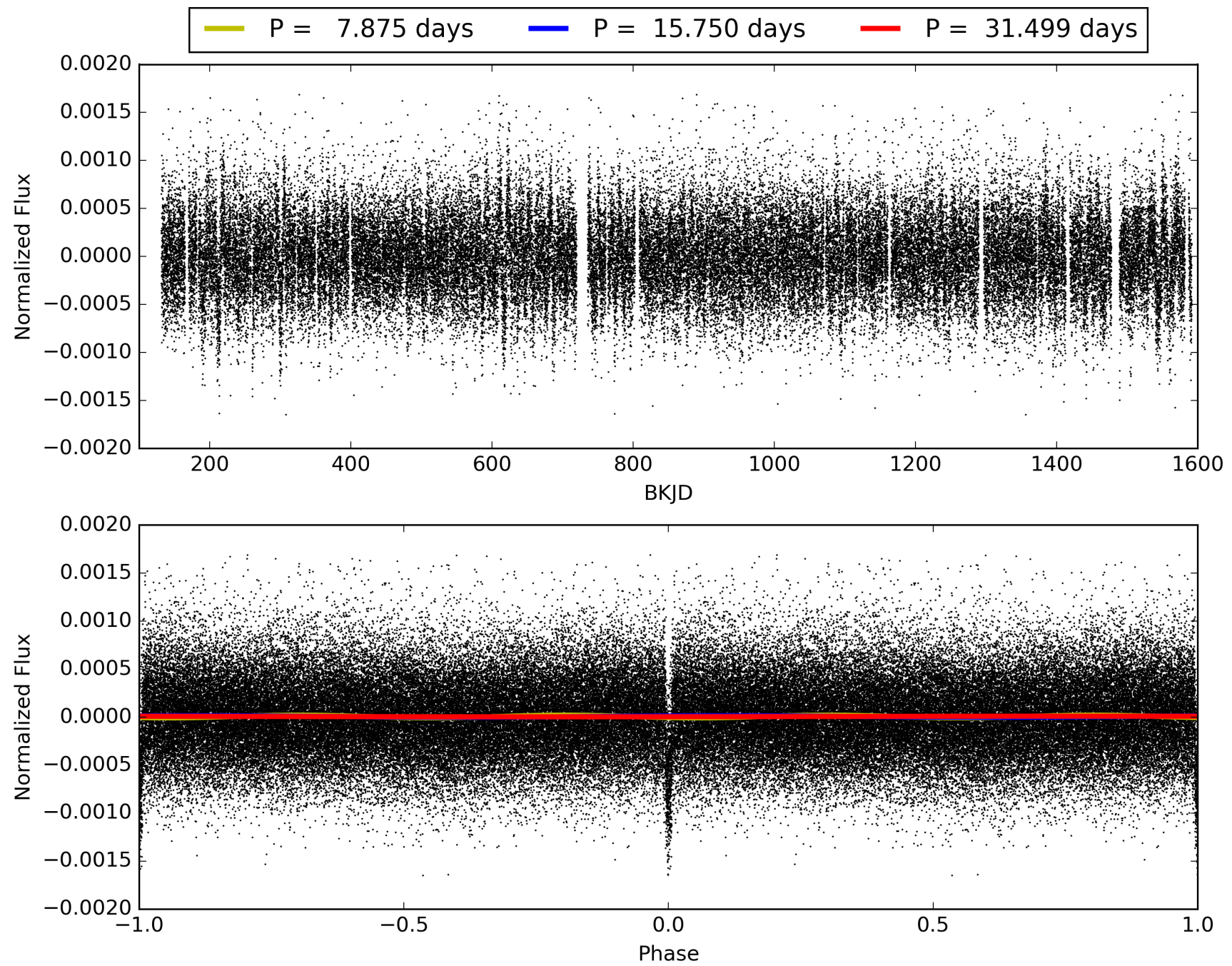
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.49e-290
RollingBand-fgt: 1.00 [82/82]
GhostDiagnostic-chr: 3.113
Centroid-sig: 0.0%
Centroid-so: 0.306 arcsec [1.06σ]
OotOffset-rm: 0.171 arcsec [1.40σ]
KicOffset-rm: 0.216 arcsec [1.61σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009391506-01, PDC Light Curves

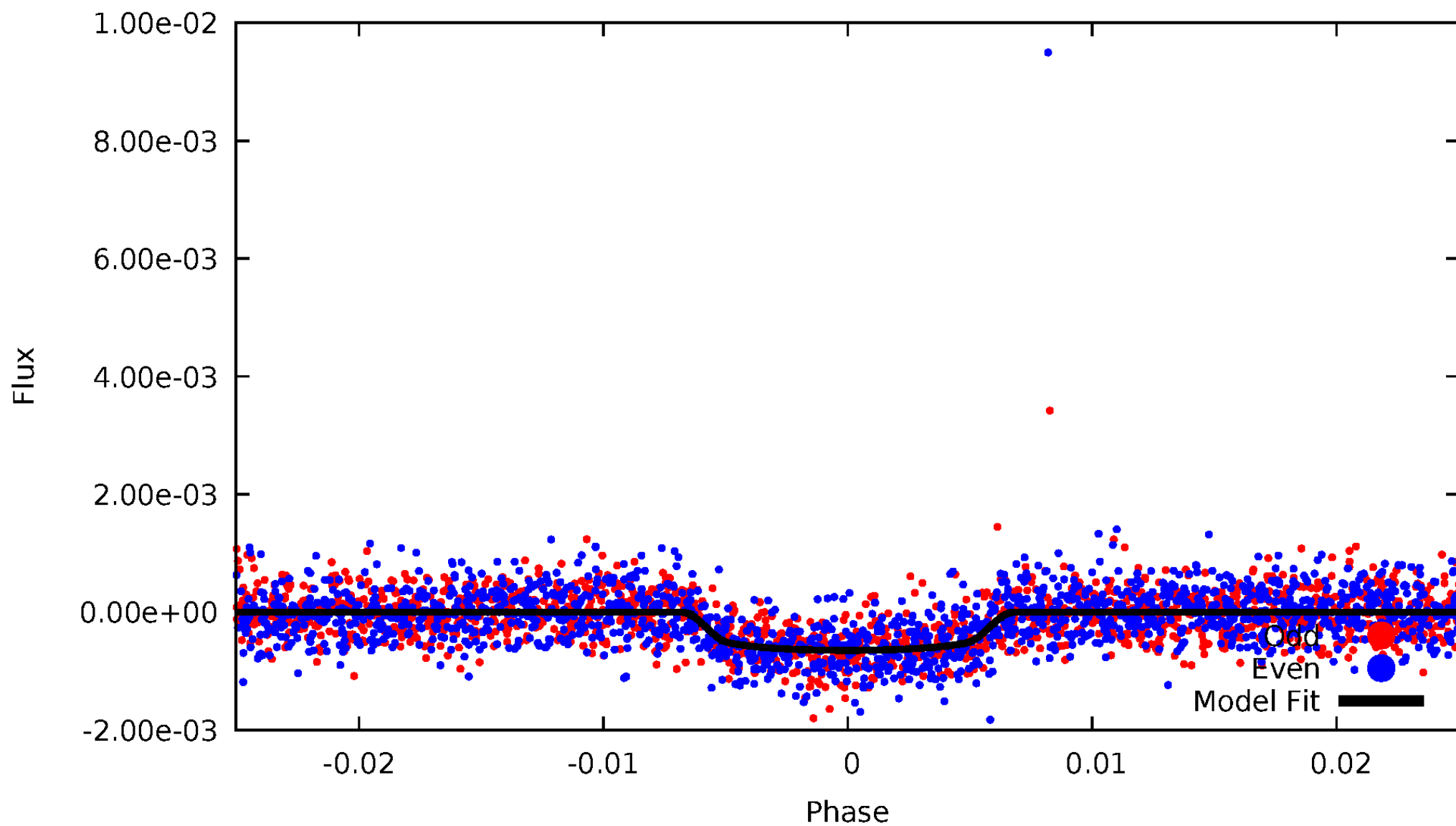


TCE 009391506-01



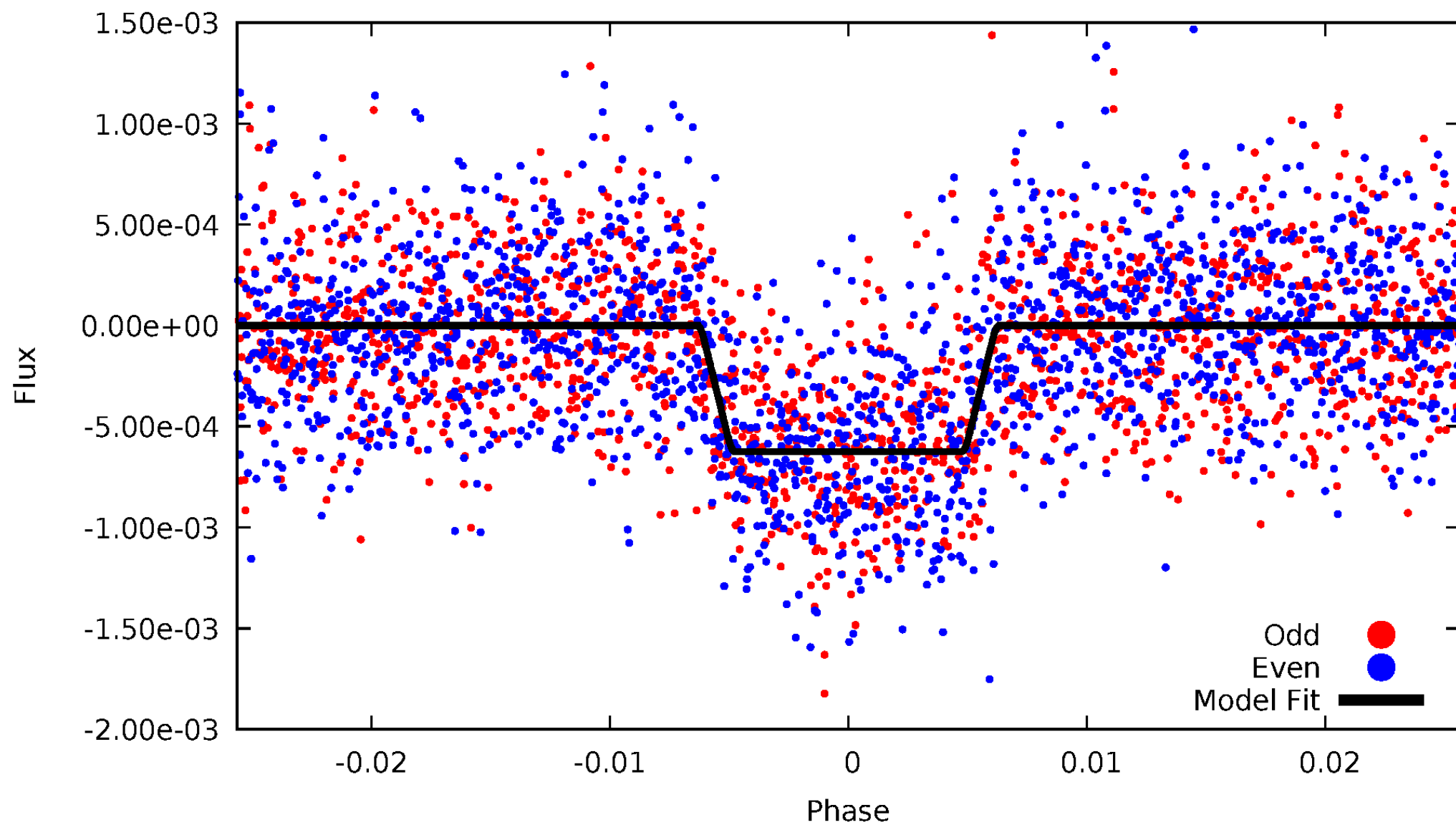
DV Odd/Even

TCE 009391506-01



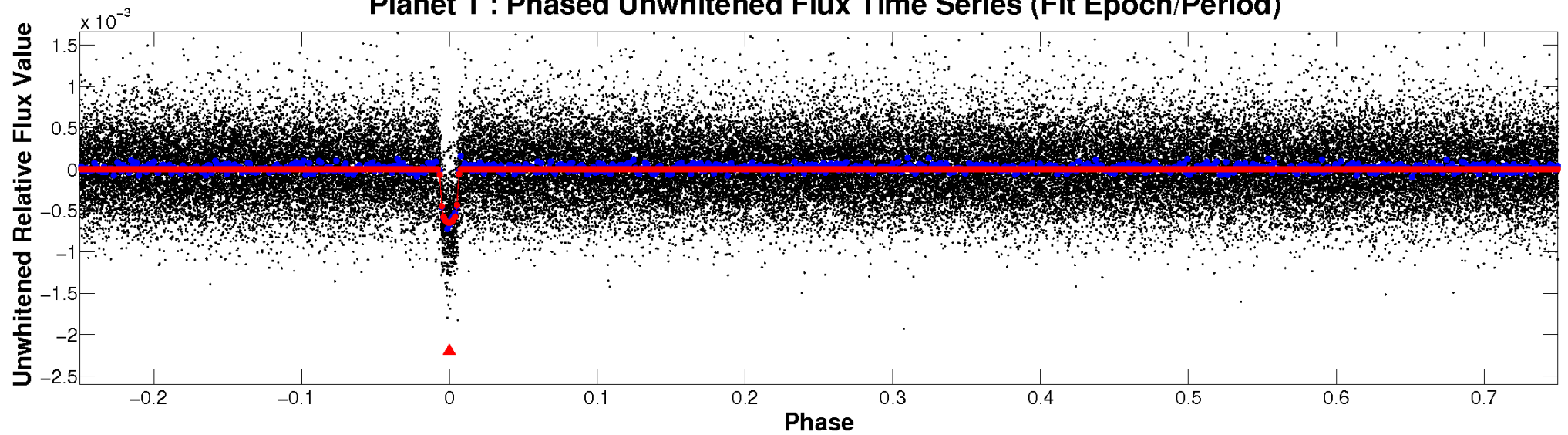
ALT Odd/Even

TCE 009391506-01

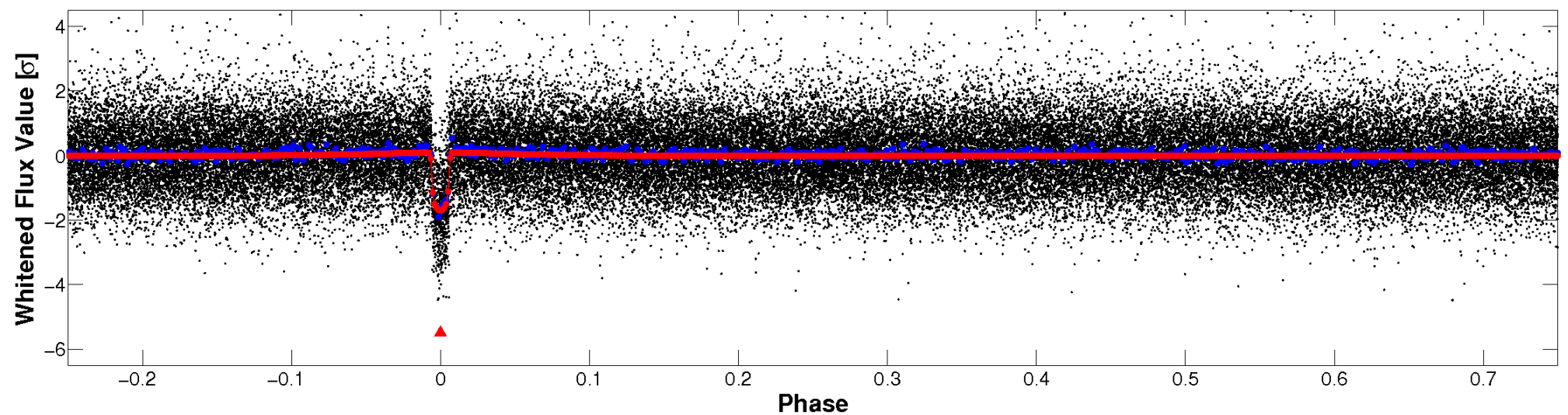


Non-Whitened Vs. Whitened Light Curve

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

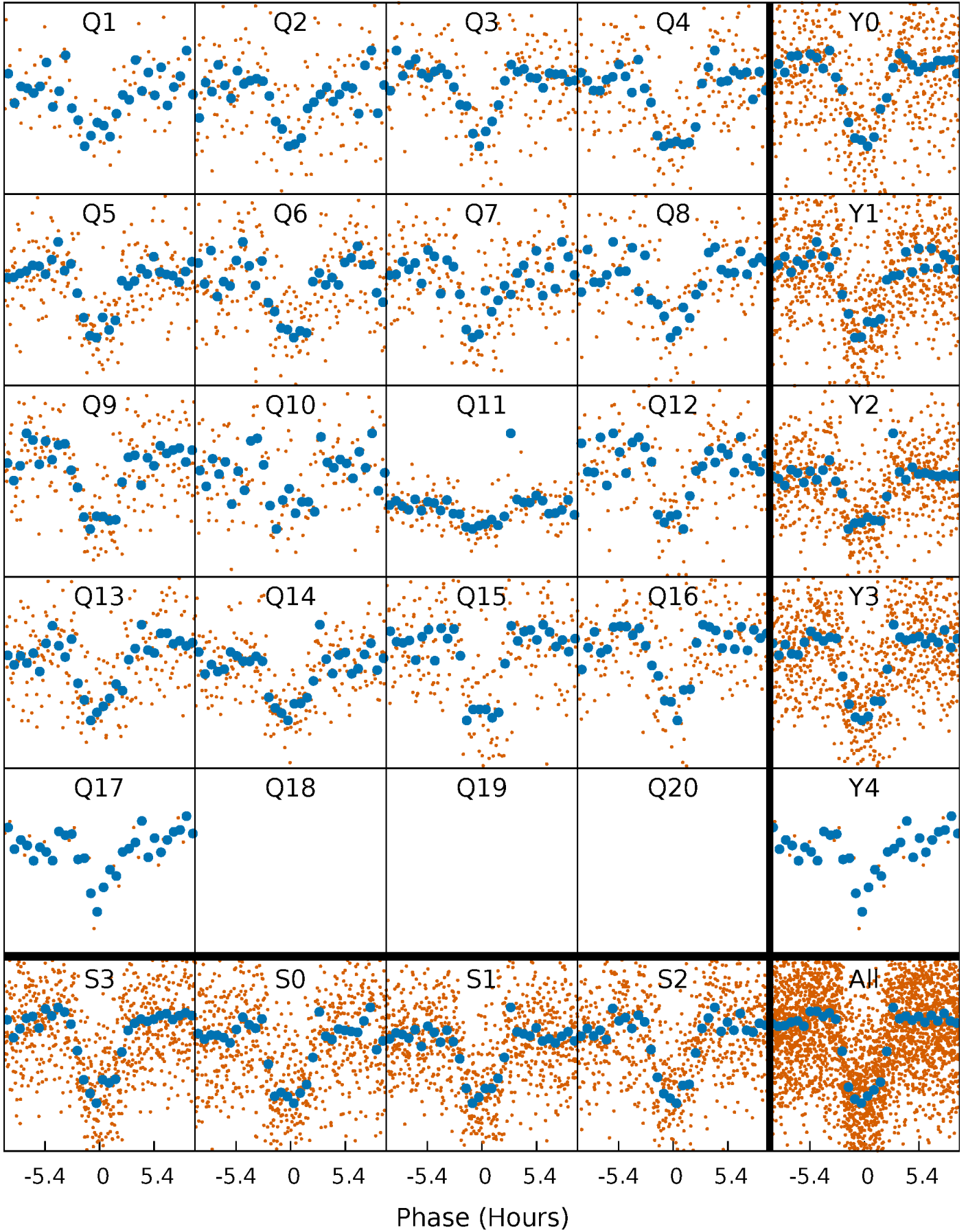


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



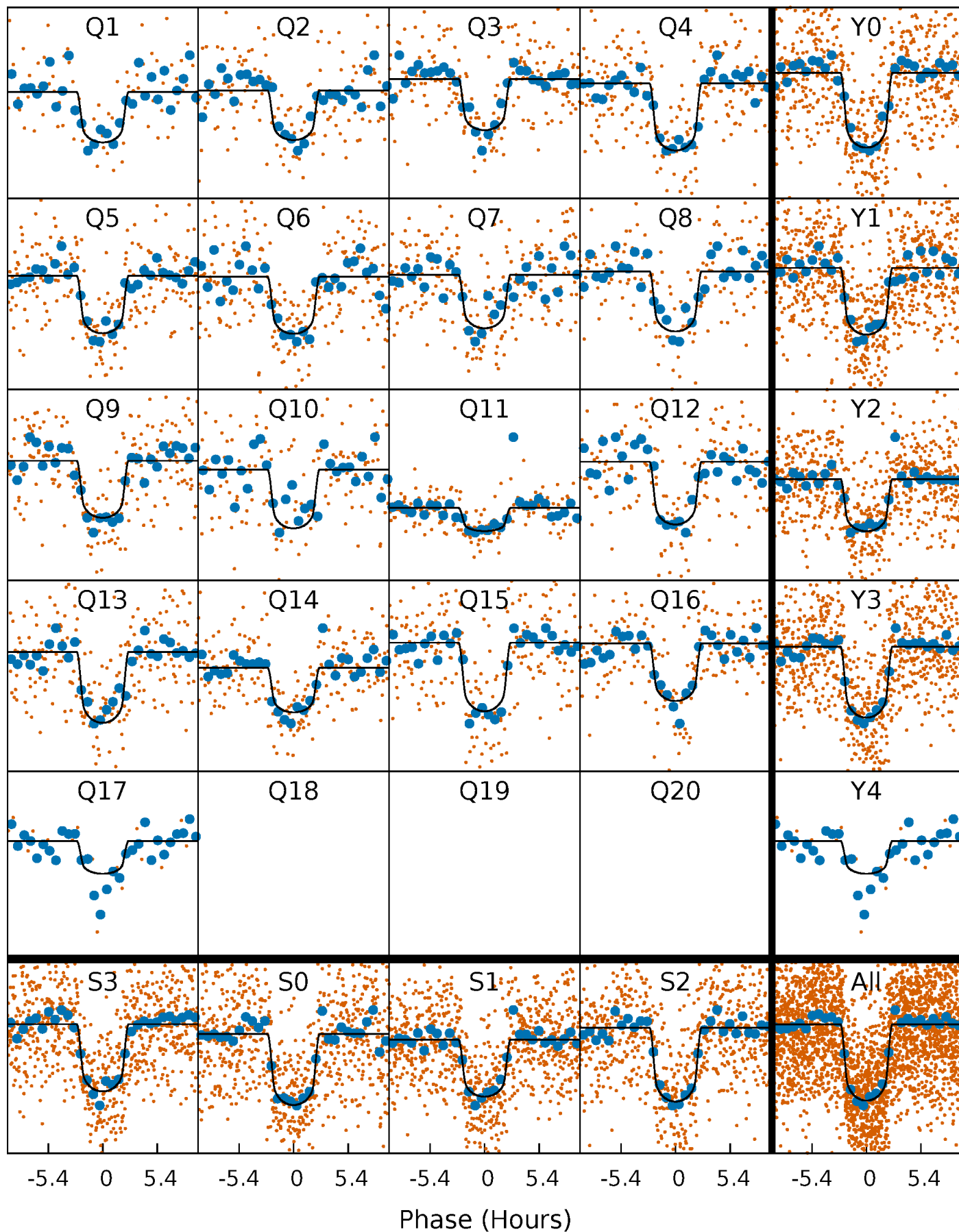
PDC Quarter-Phased Transit Curves

TCE 009391506-01 P= 15.749575 Days $T_0=134.497041$ (BKJD)



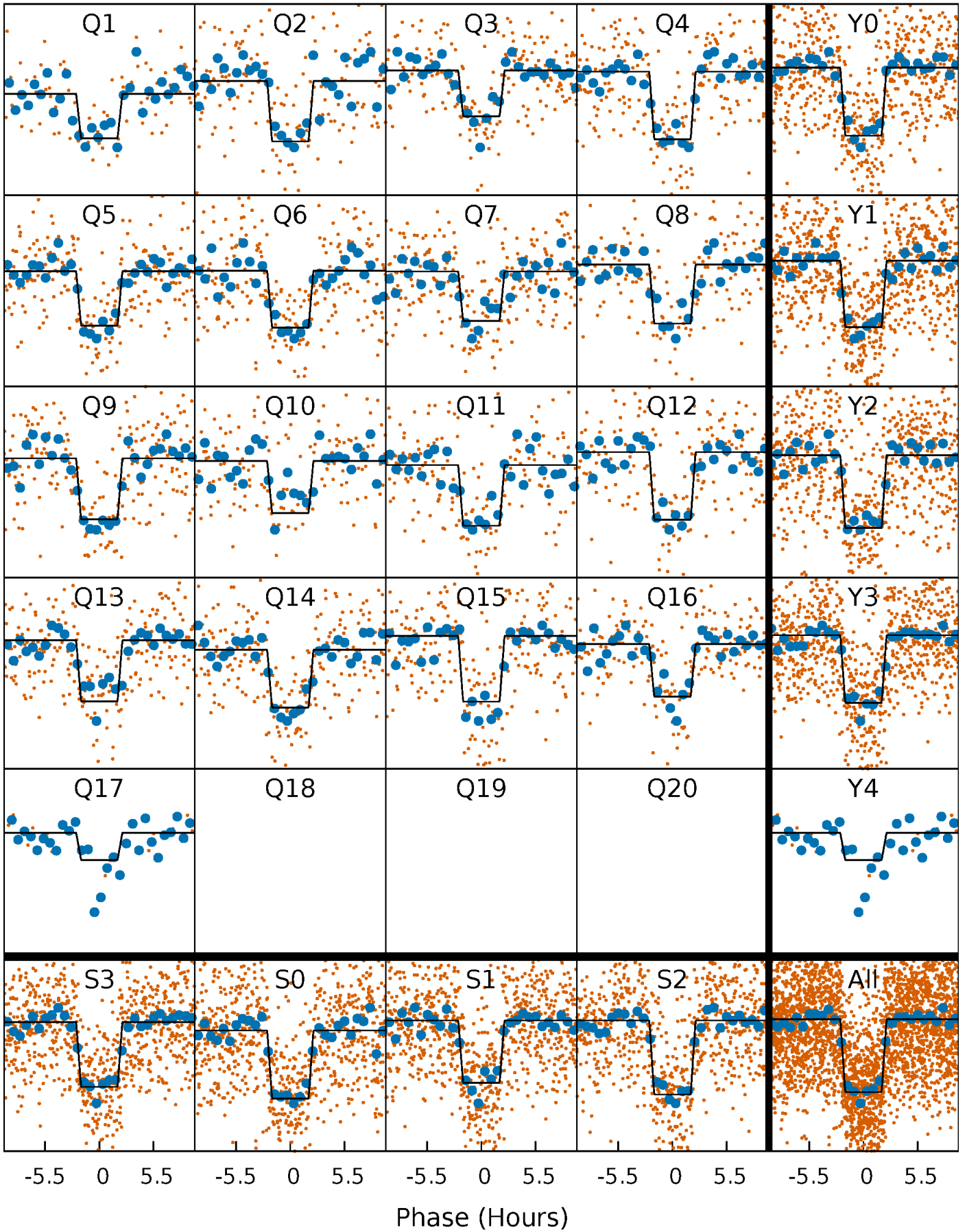
DV Quarter-Phased Transit Curves

TCE 009391506-01 P= 15.749575 Days $T_0=134.497041$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

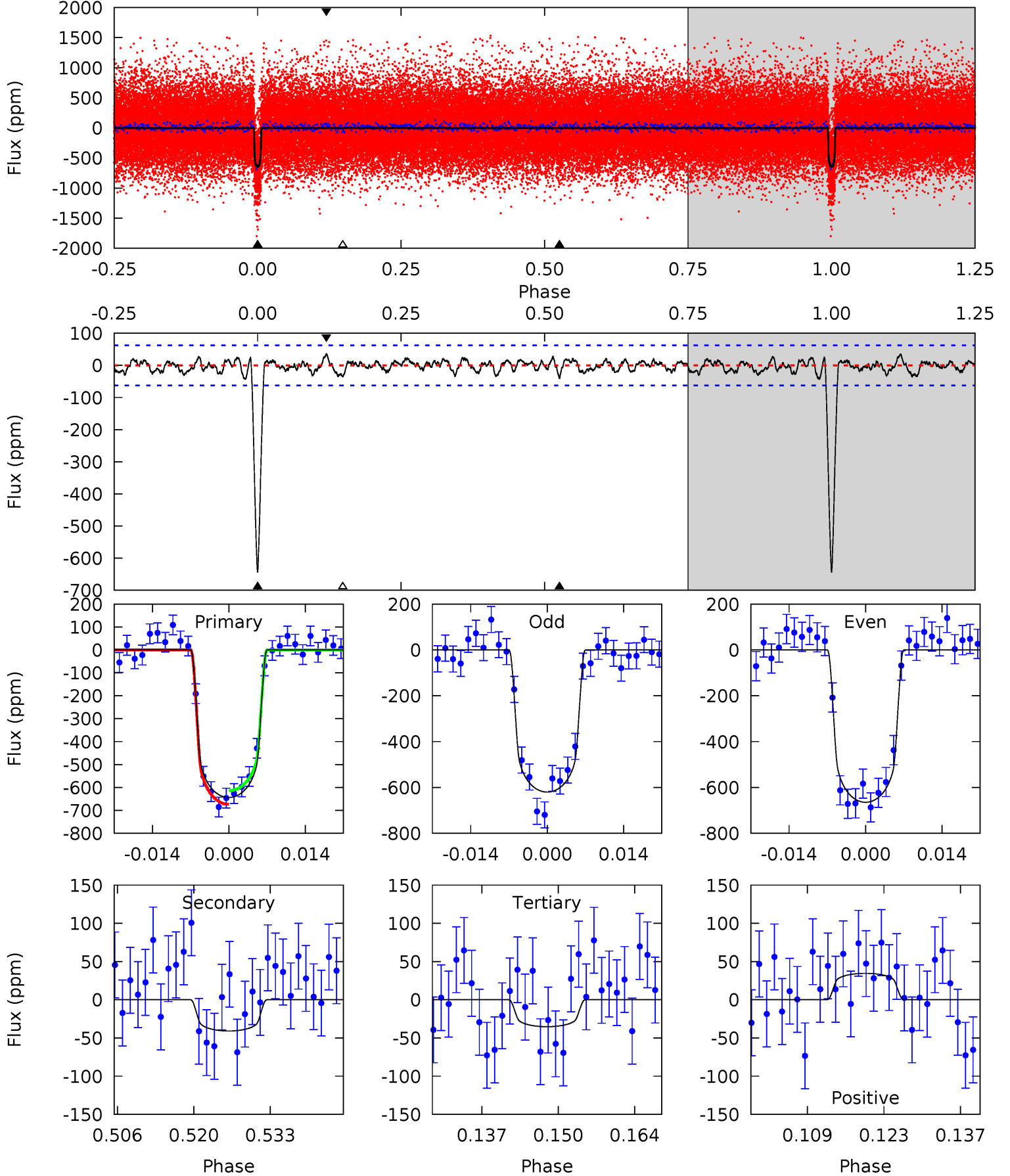
TCE 009391506-01 P= 15.749444 Days $T_0=134.502514$ (BKJD)



DV Model-Shift Uniqueness Test

009391506-01, $P = 15.749575$ Days, $E = 118.747466$ Days

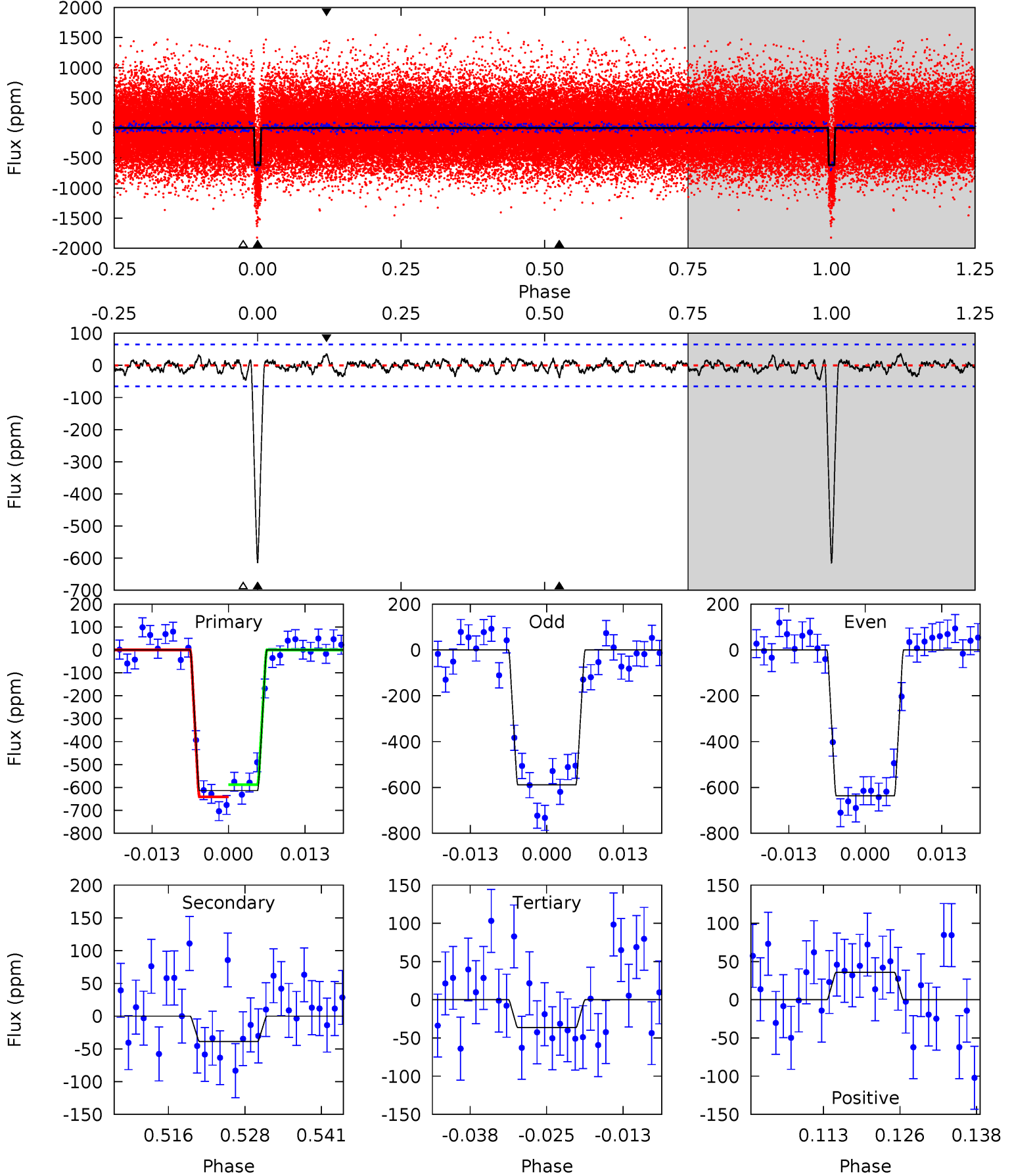
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.1	3.24	2.80	2.74	4.97	2.47	1.08	48.3	48.3	0.45	0.50	1.77	0.99	0.05	2.37



Alt Model-Shift Uniqueness Test

009391506-01, $P = 15.749444$ Days, $E = 118.753070$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.8	2.95	2.78	2.75	4.98	2.50	0.95	44.1	44.1	0.17	0.20	1.82	0.99	0.06	2.04



Stellar Parameters For KIC 009391506

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6191^{+172}_{-216}	$4.454^{+0.056}_{-0.210}$	$-0.100^{+0.250}_{-0.350}$	$1.025^{+0.332}_{-0.111}$	$1.088^{+0.153}_{-0.153}$	$1.423^{+0.420}_{-0.776}$
	+3%/-3%	+1%/-5%	+250%/-350%	+32%/-11%	+14%/-14%	+30%/-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 009391506-01 / KOI 1410.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-41 ± 13	$3.00^{+0.52}_{-0.50}$	1107^{+83}_{-52}	3539^{+256}_{-236}	38^{+22}_{-15}
Alt.	-39 ± 13	$2.89^{+0.58}_{-0.46}$	1105^{+77}_{-58}	3536^{+279}_{-268}	39^{+25}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

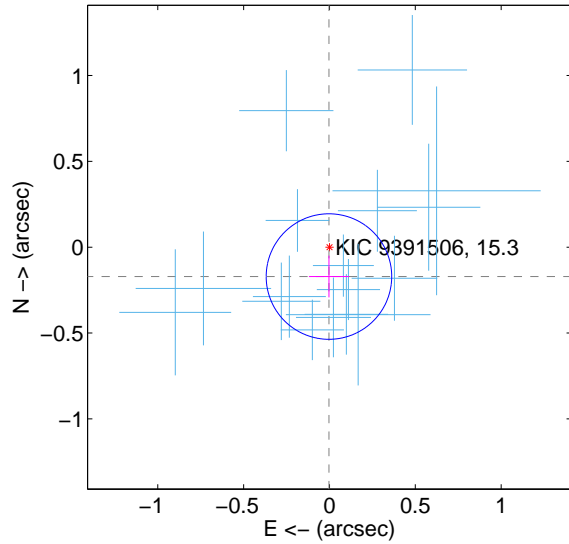
Supplemental centroid analysis for 009391506-01. Kepler magnitude: 15.30. Transit SNR 39.76

There are 17 quarters with good PRF difference image offsets

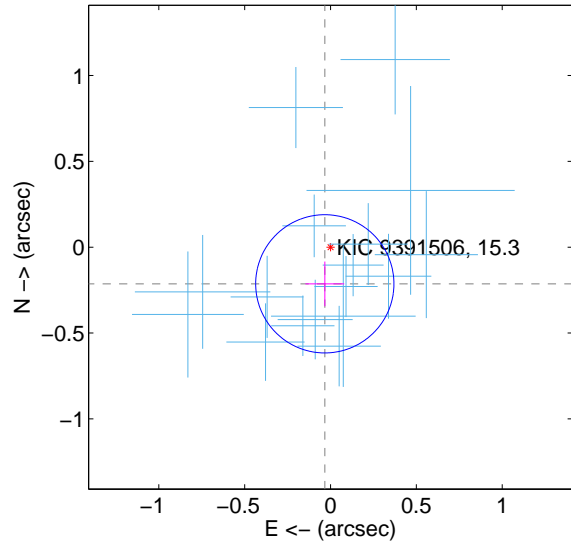
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.171 ± 0.122	1.40	0.003 ± 0.117	-0.171 ± 0.121
PRF-fit source offset from KIC position	0.216 ± 0.134	1.61	0.033 ± 0.113	-0.214 ± 0.130
photometric centroid source offset	0.31 ± 0.29	1.06	0.24 ± 0.27	-0.19 ± 0.32

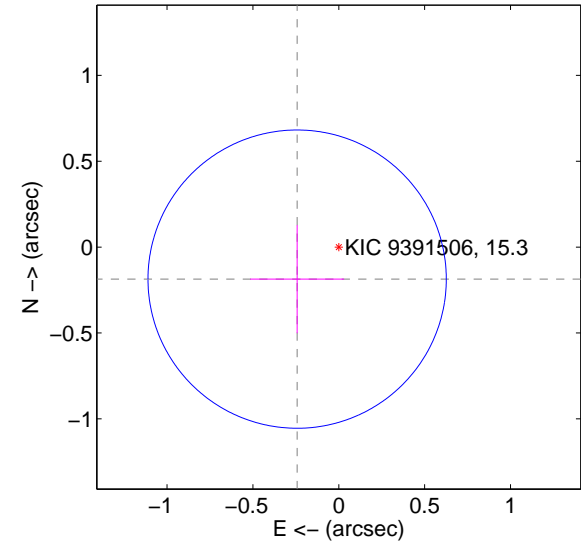
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

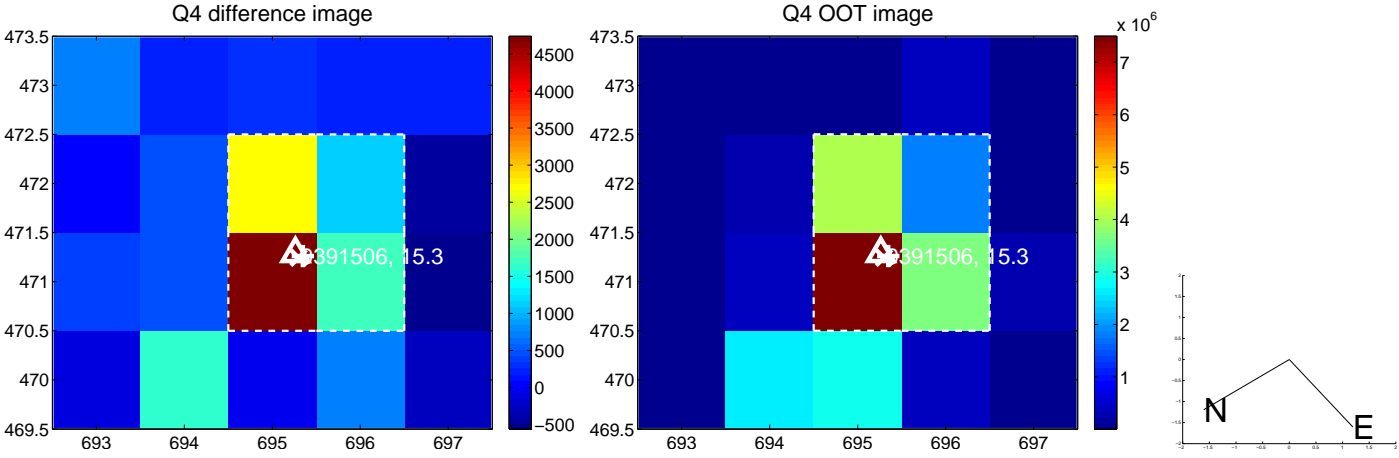
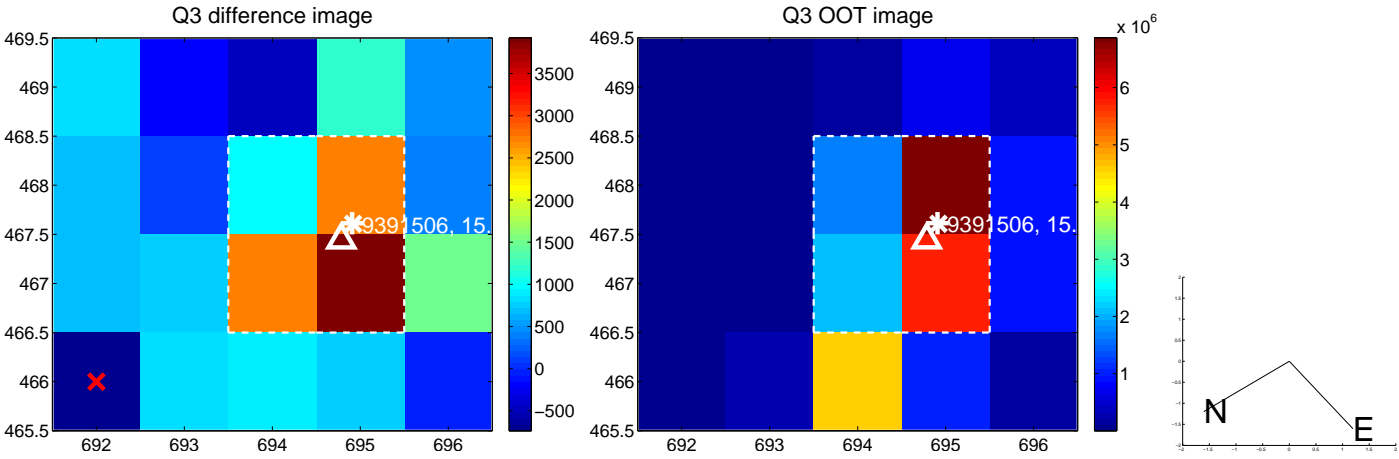
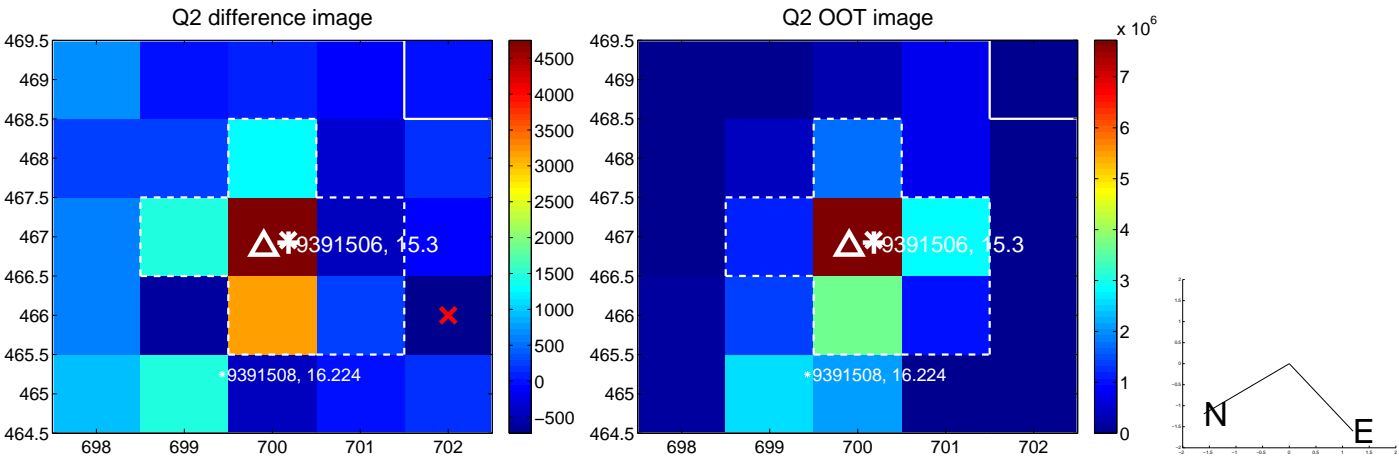
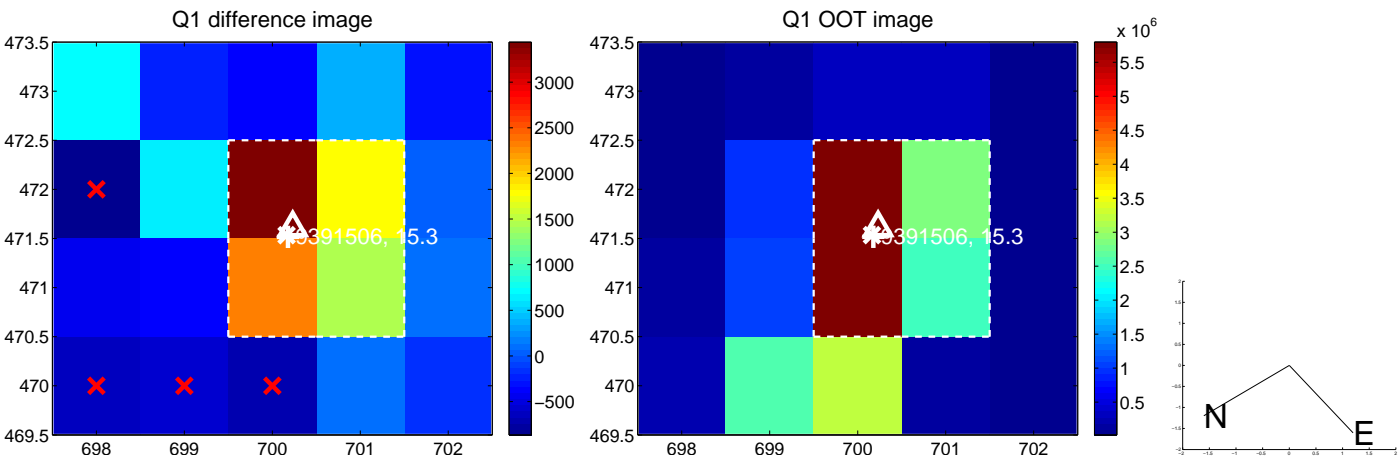


offset from photometric centroids

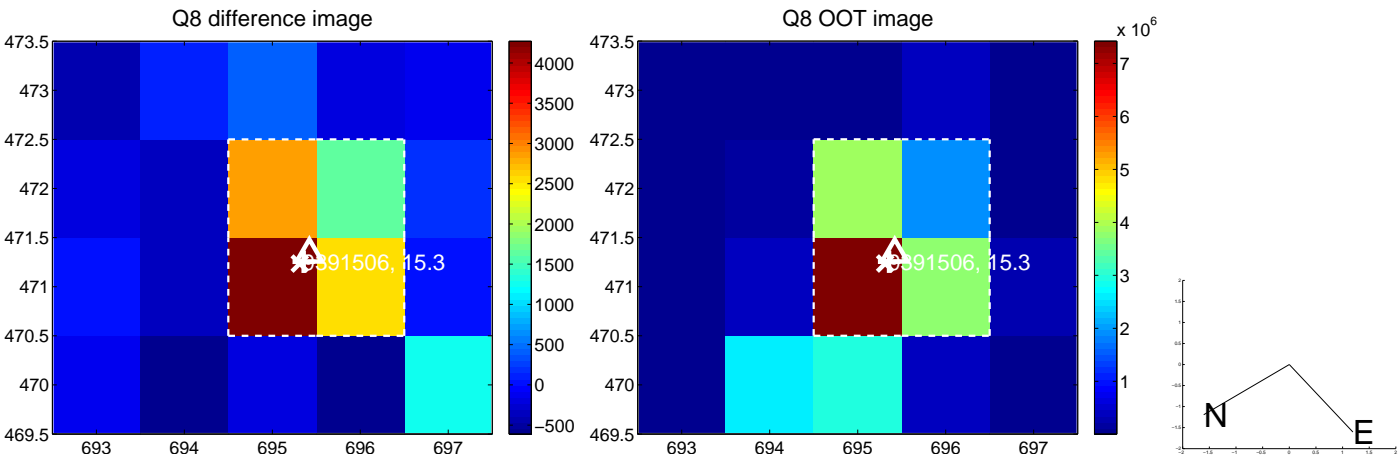
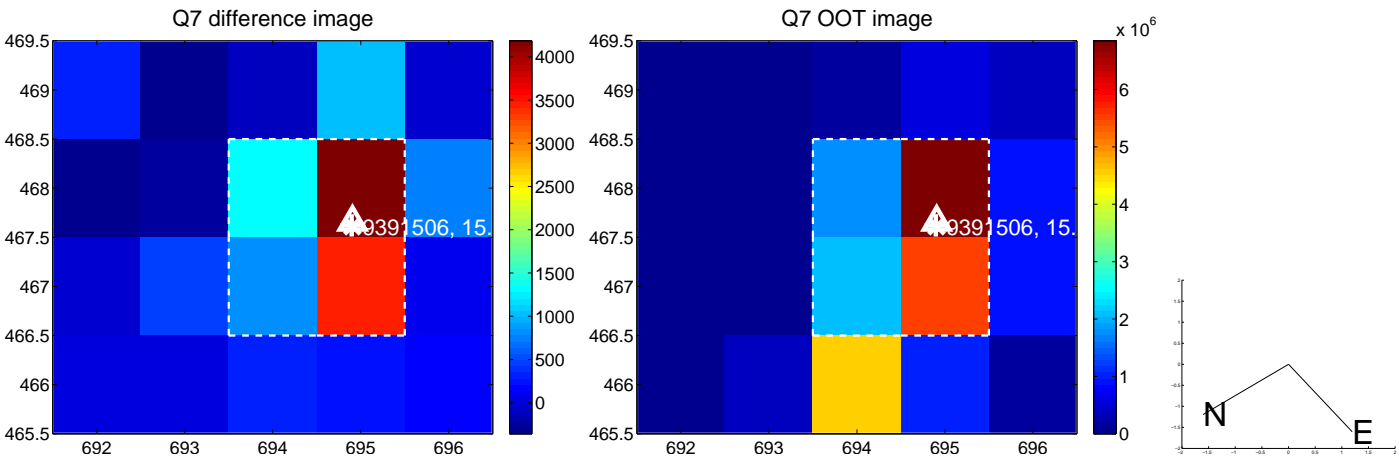
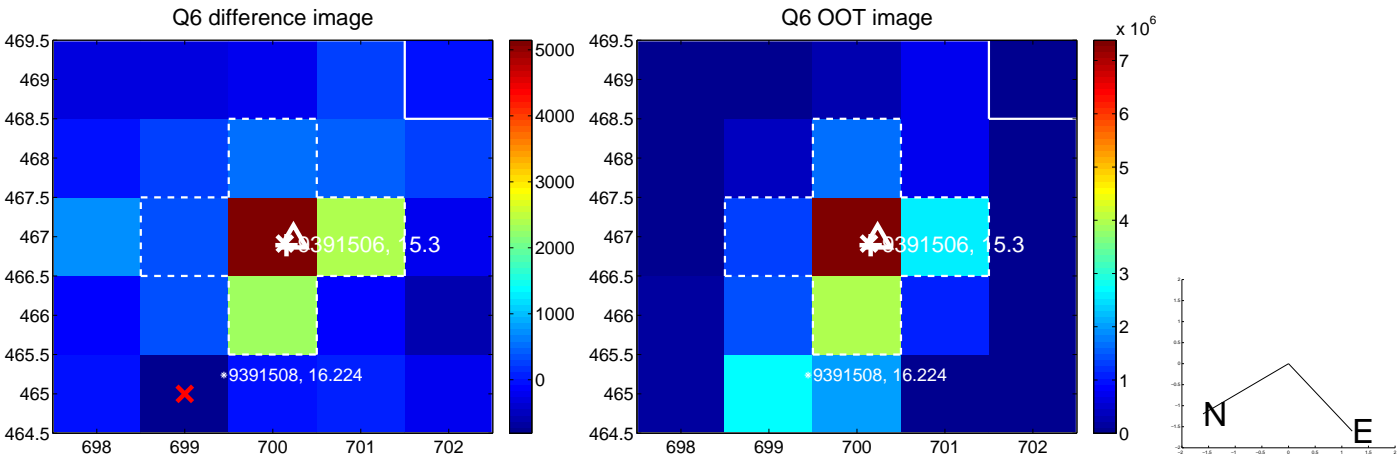
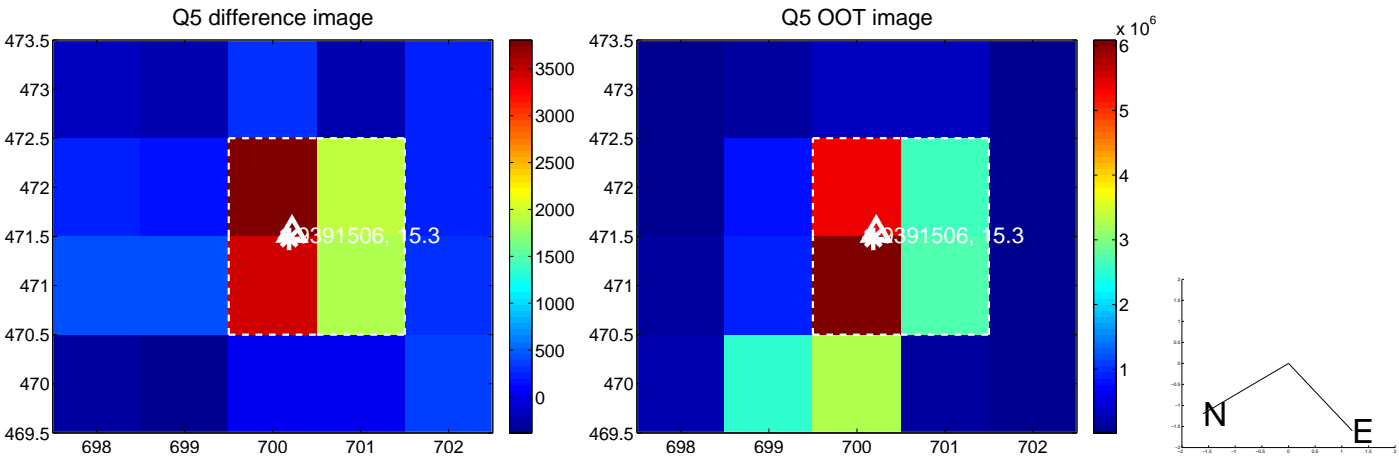


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

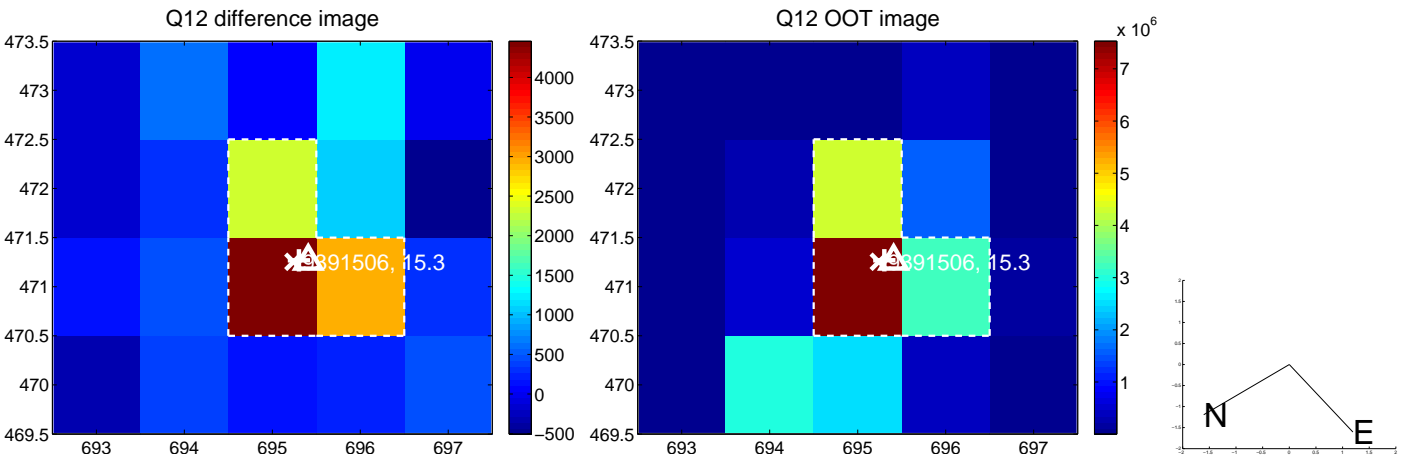
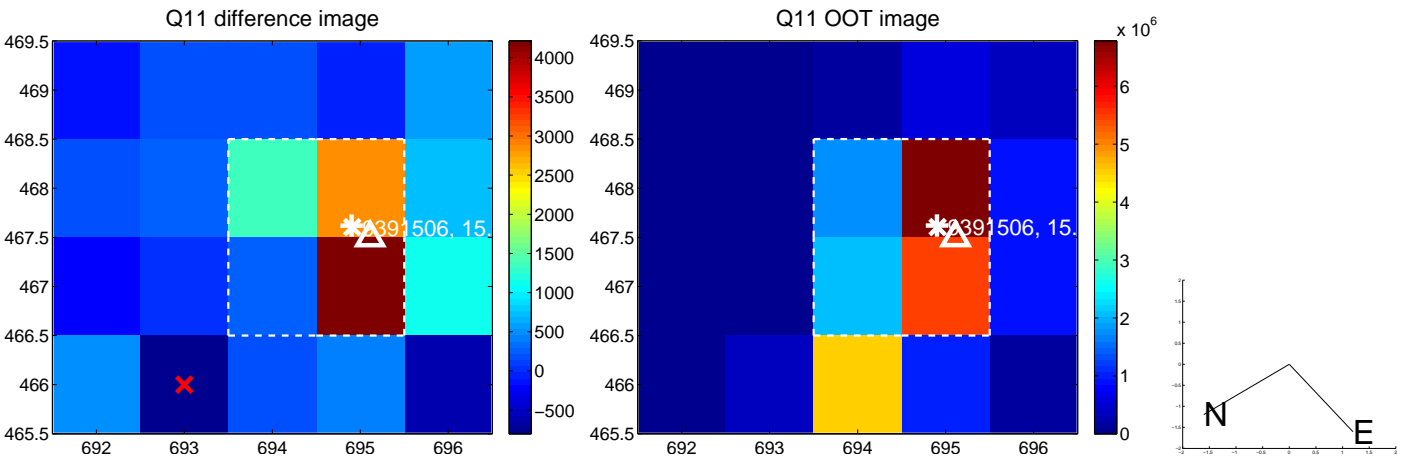
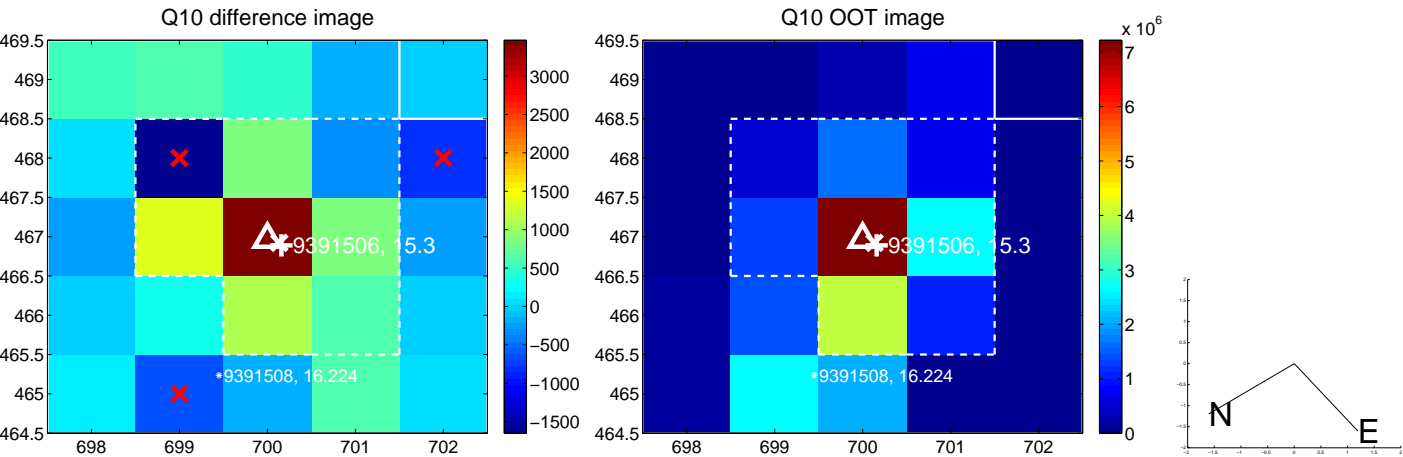
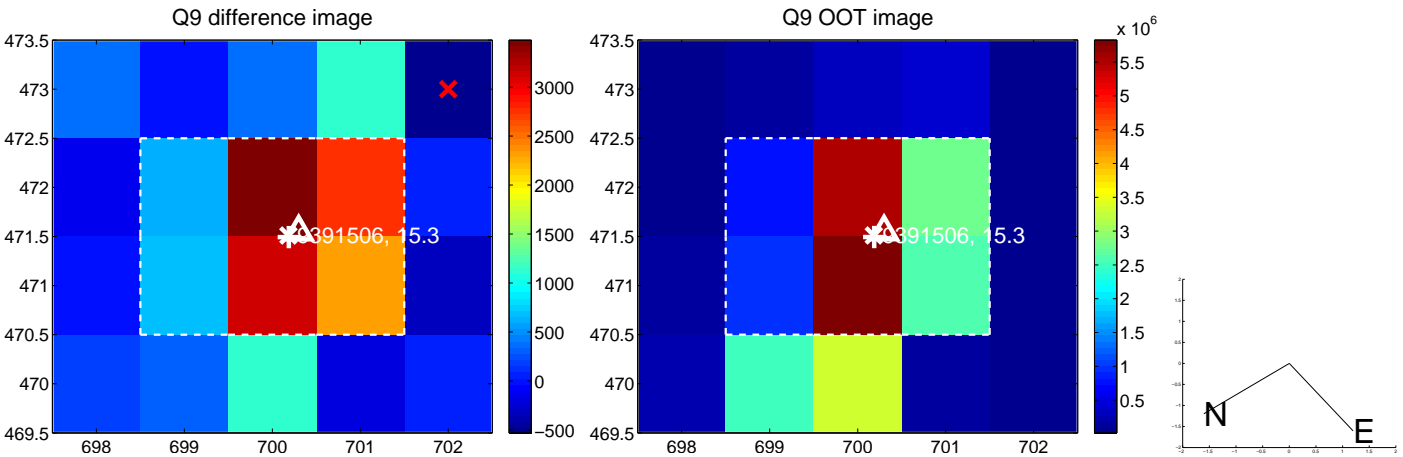
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



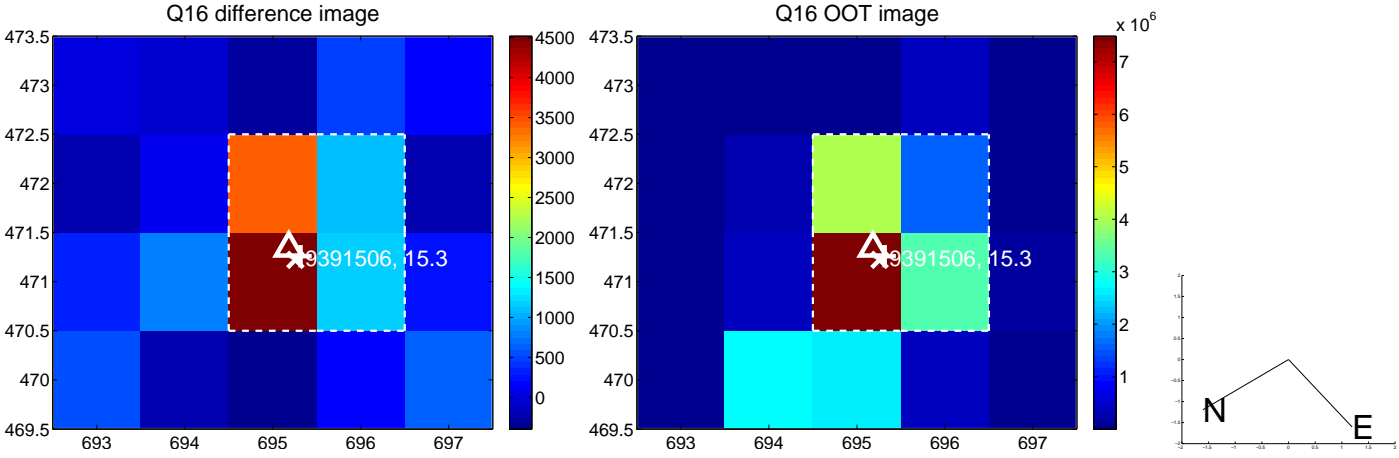
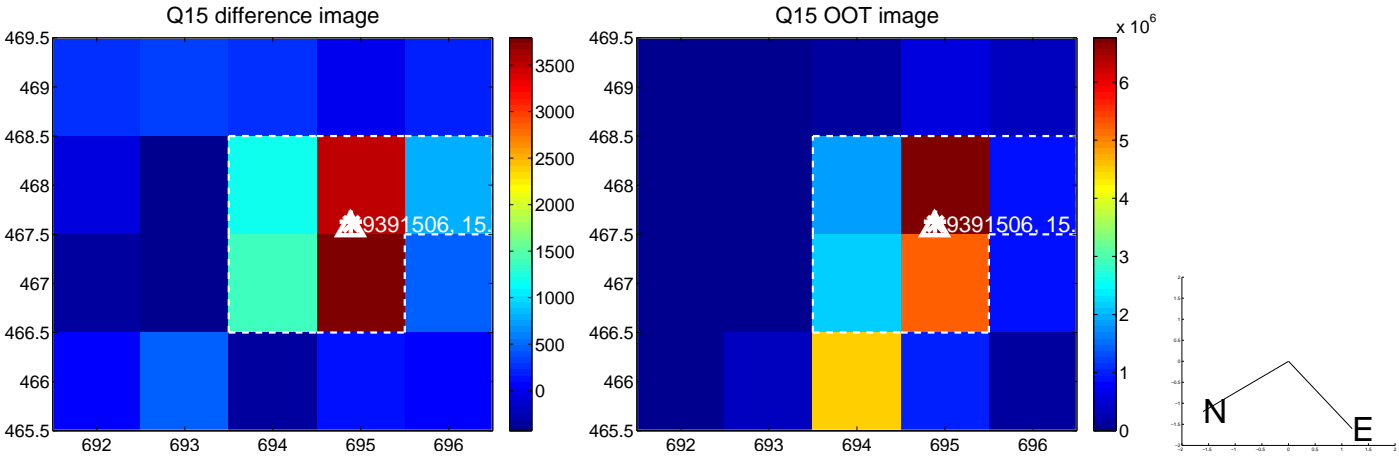
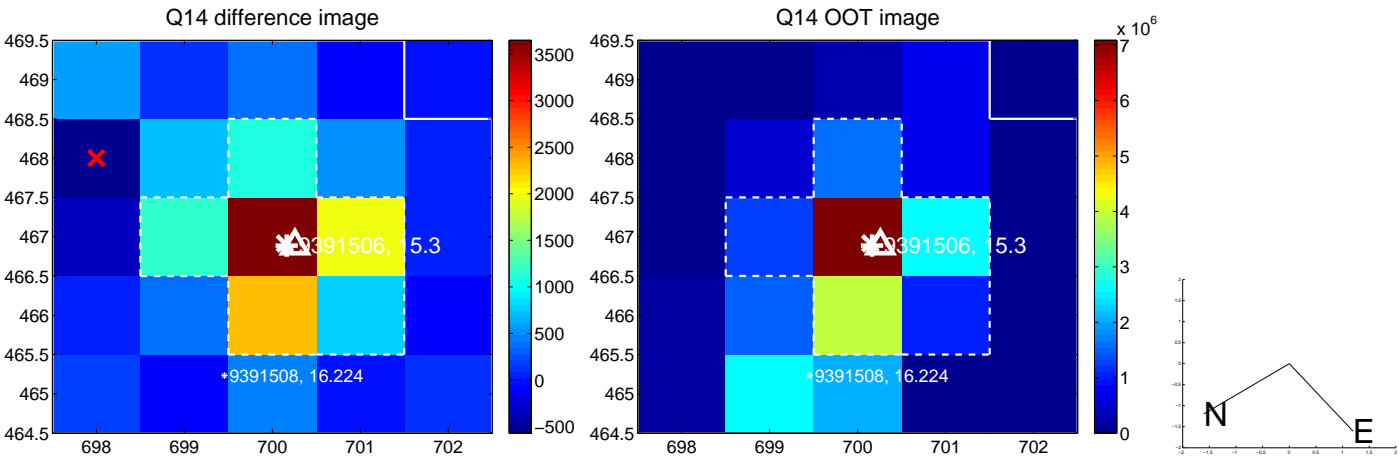
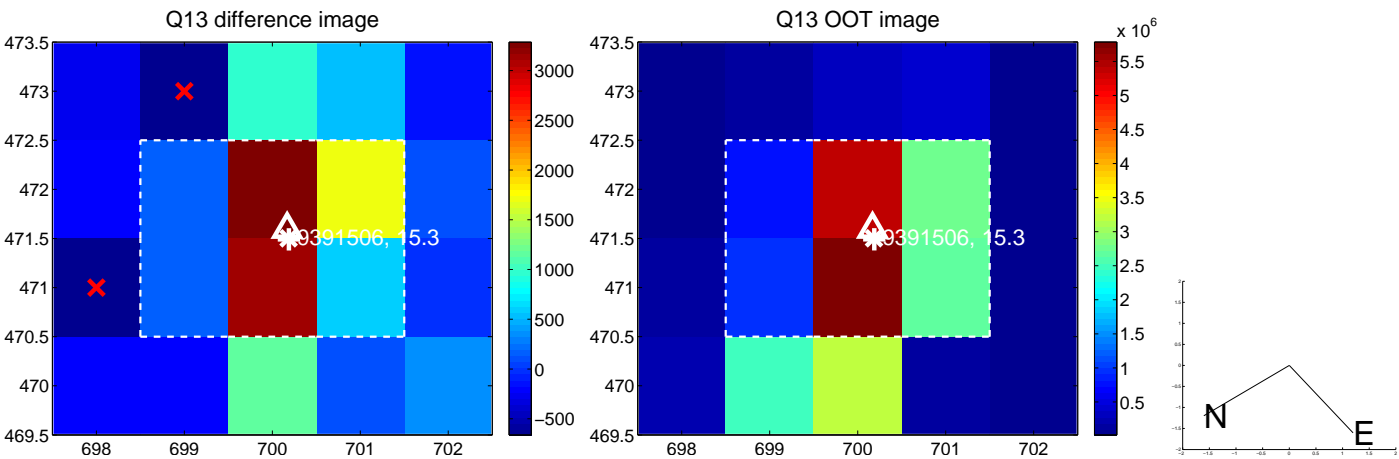
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



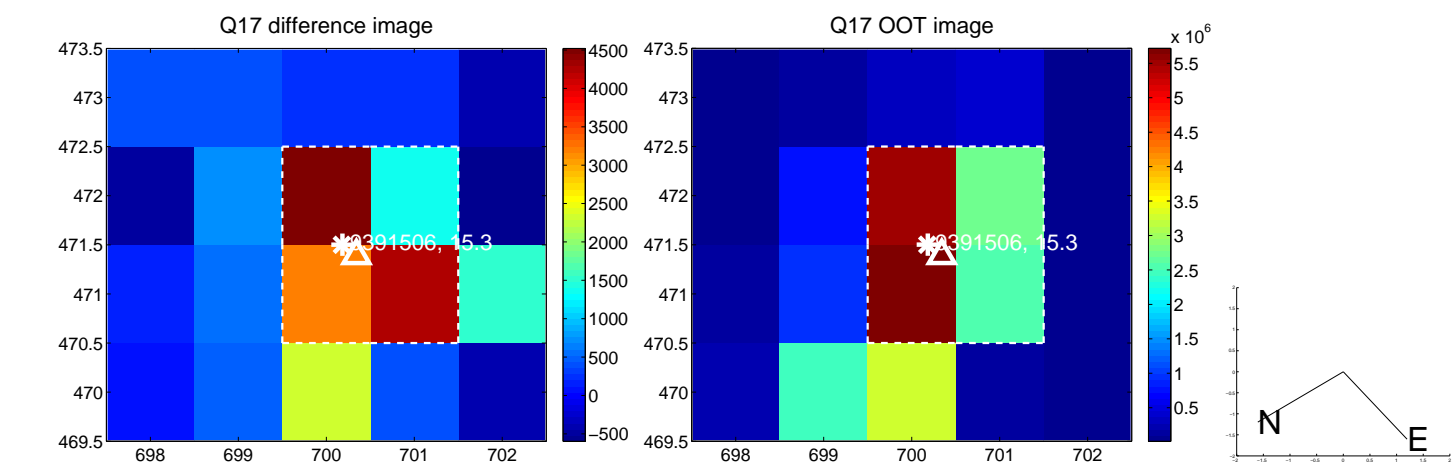
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



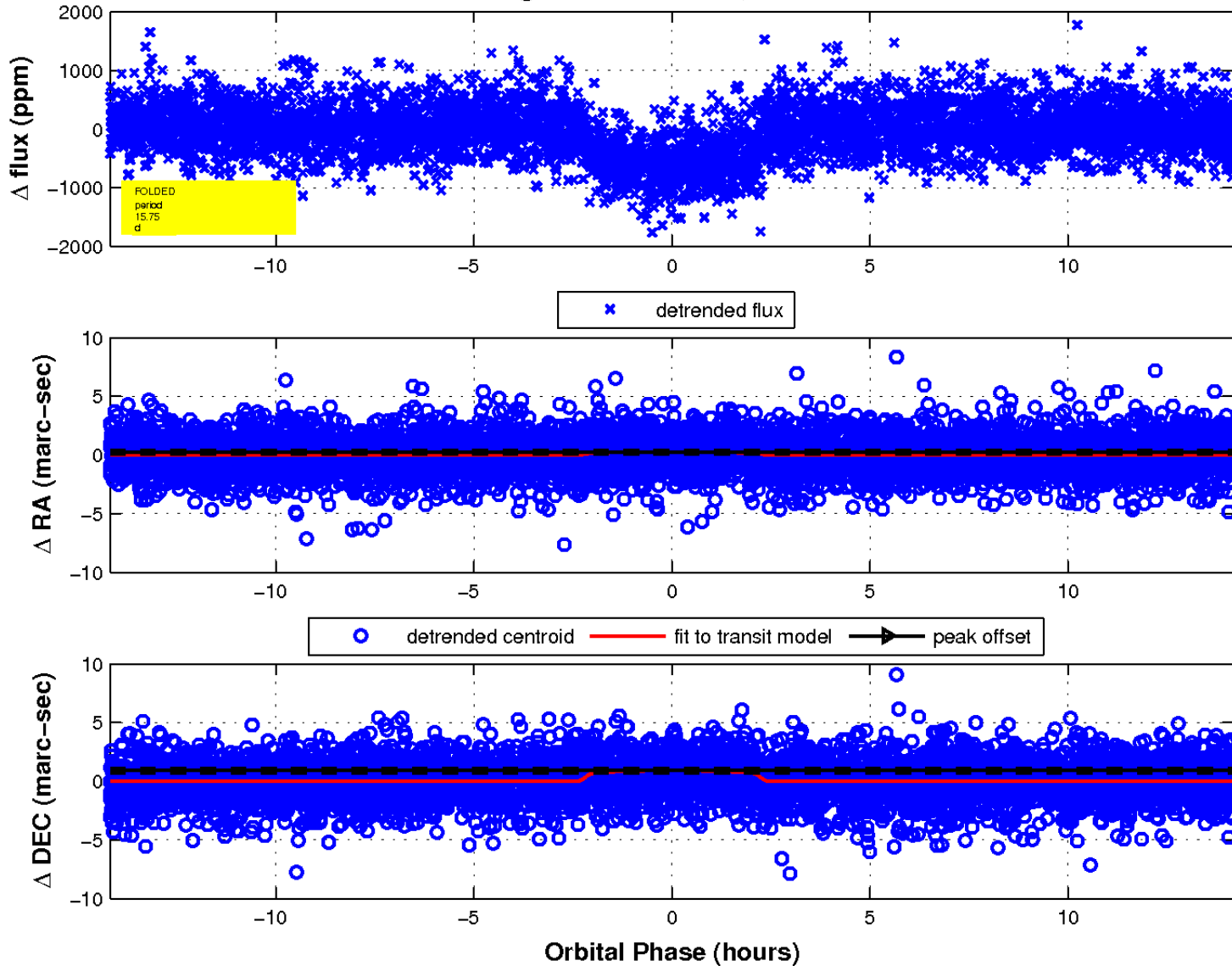
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

