

KIC 011520459

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})
011520459-01	OBS	2226.01	8.463502	134.357256	777.2	1.480	21.7	25.1	0.89	5427	2.98	99.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011520459-01	OBS	PC	1.00	0	0	0	0	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.

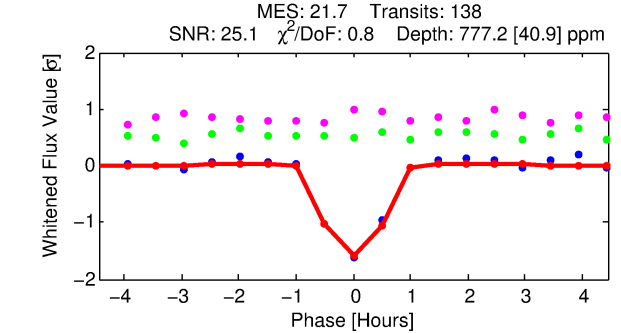
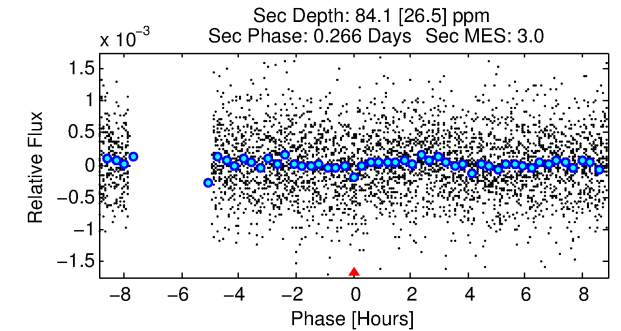
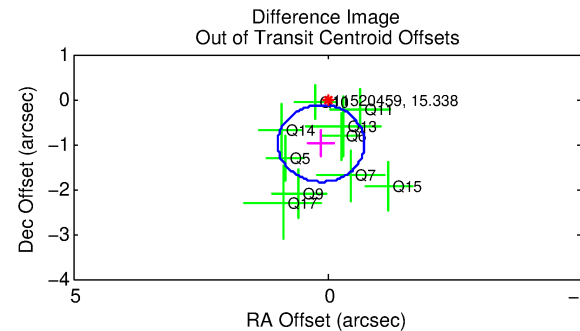
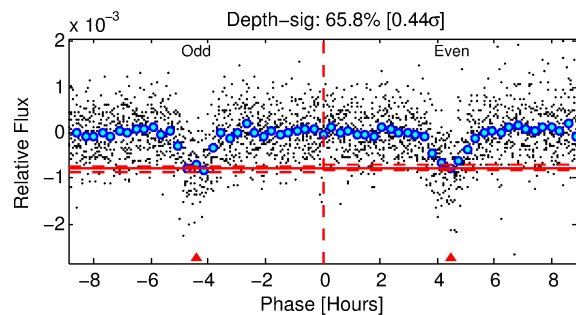
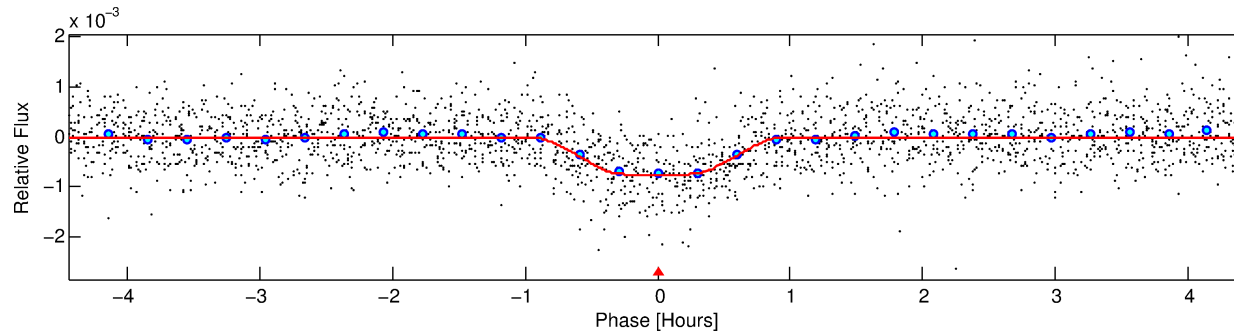
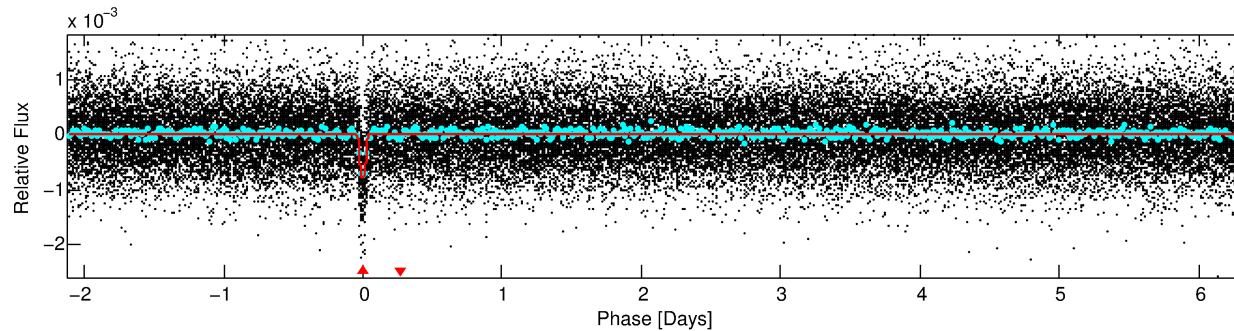
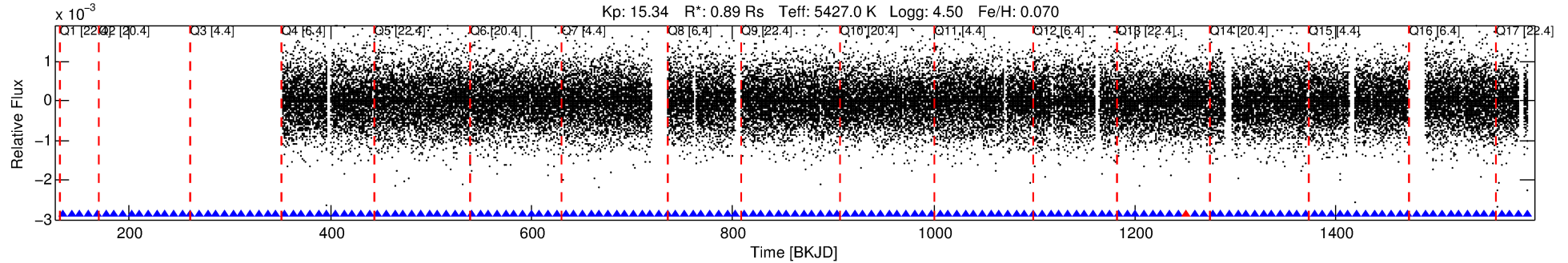
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011520459-01

No Significant Match Found

DV One-Page Summary

KIC: 11520459 Candidate: 1 of 1 Period: 8.464 d
KOI: K02226.01 Corr: 0.960



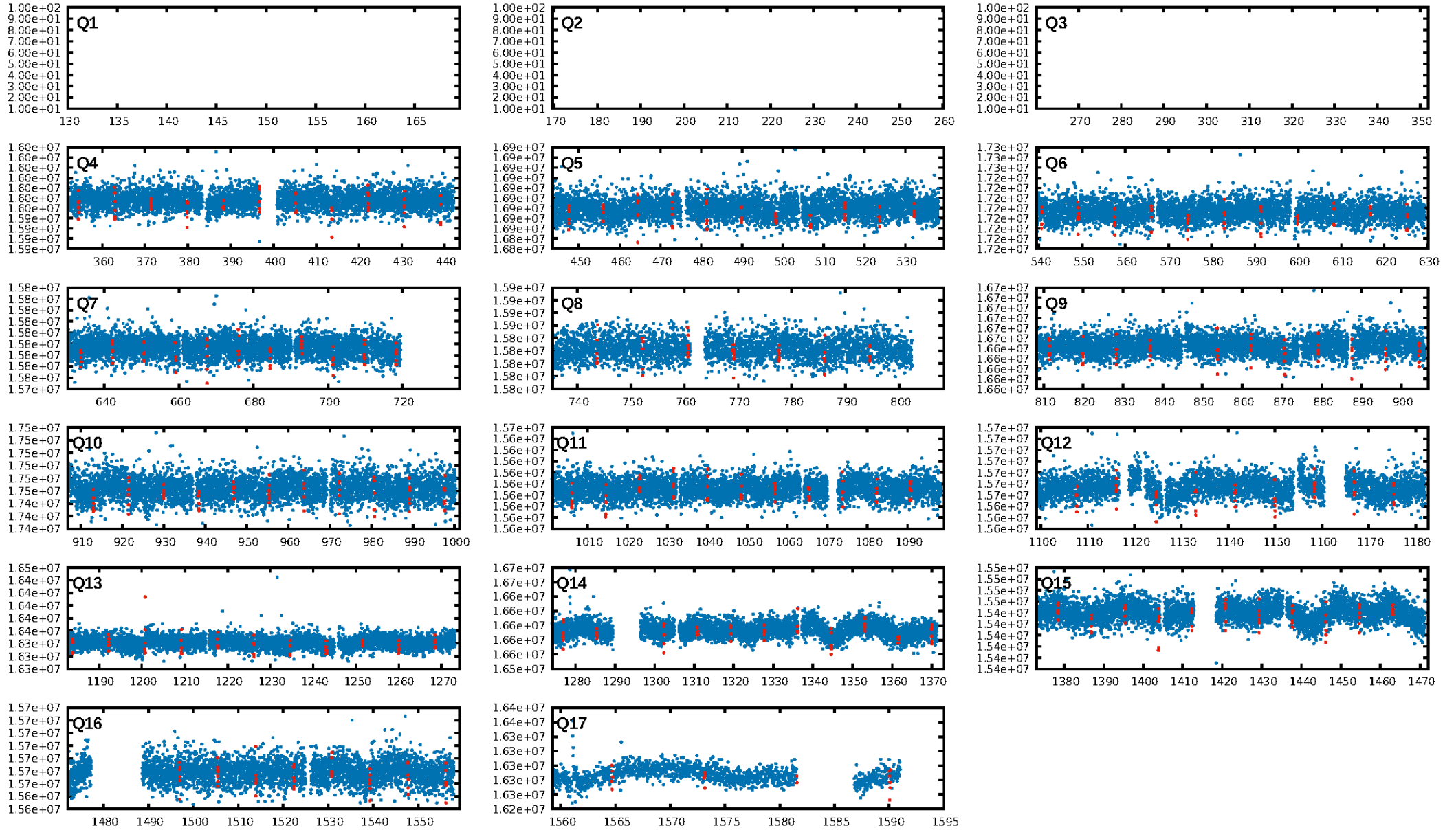
DV Fit Results:

Period = 8.46350 [0.00002] d
Epoch = 134.3573 [0.0018] BKJD
Rp/R* = 0.0308 [0.0073]
a/R* = 22.12 [21.36]
b = 0.90 [0.22]
Seff = 99.47 [31.16]
Teq = 805 [63] K
Rp = 2.98 [0.98] Re
a = 0.0784 [0.0151] AU
Ag = 31.94 [20.19] [1.53 σ]
Teffp = 2960 [431] K [4.95 σ]

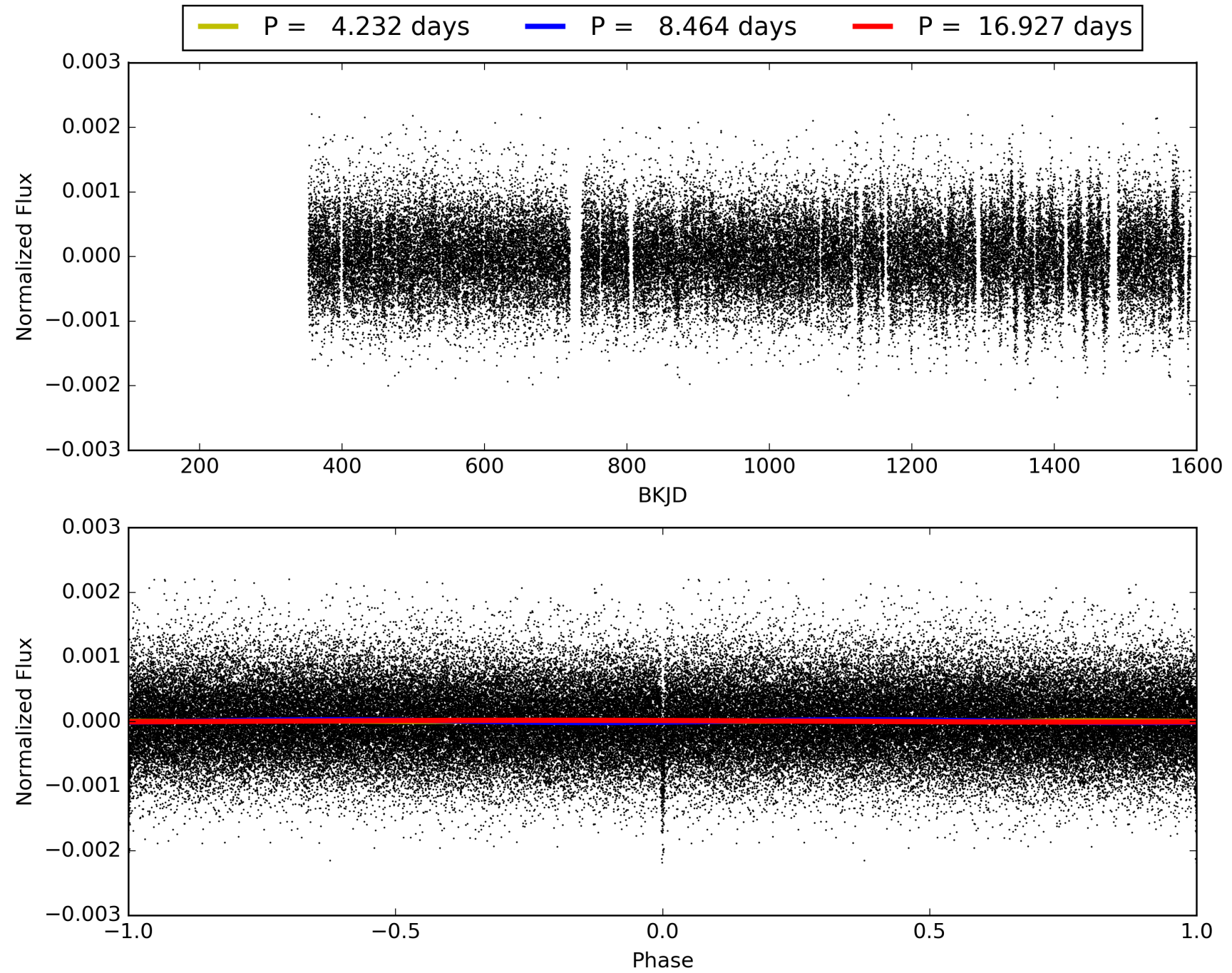
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.21e-101
RollingBand-fgt: 0.99 [133/134]
GhostDiagnostic-chr: 2.242
Centroid-sig: 0.0%
Centroid-so: 2.388 arcsec [5.55 σ]
OotOffset-rm: 0.993 arcsec [3.49 σ]
KicOffset-rm: 0.244 arcsec [1.09 σ]
OotOffset-st: 3/3/0/4 [10]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 011520459-01, PDC Light Curves

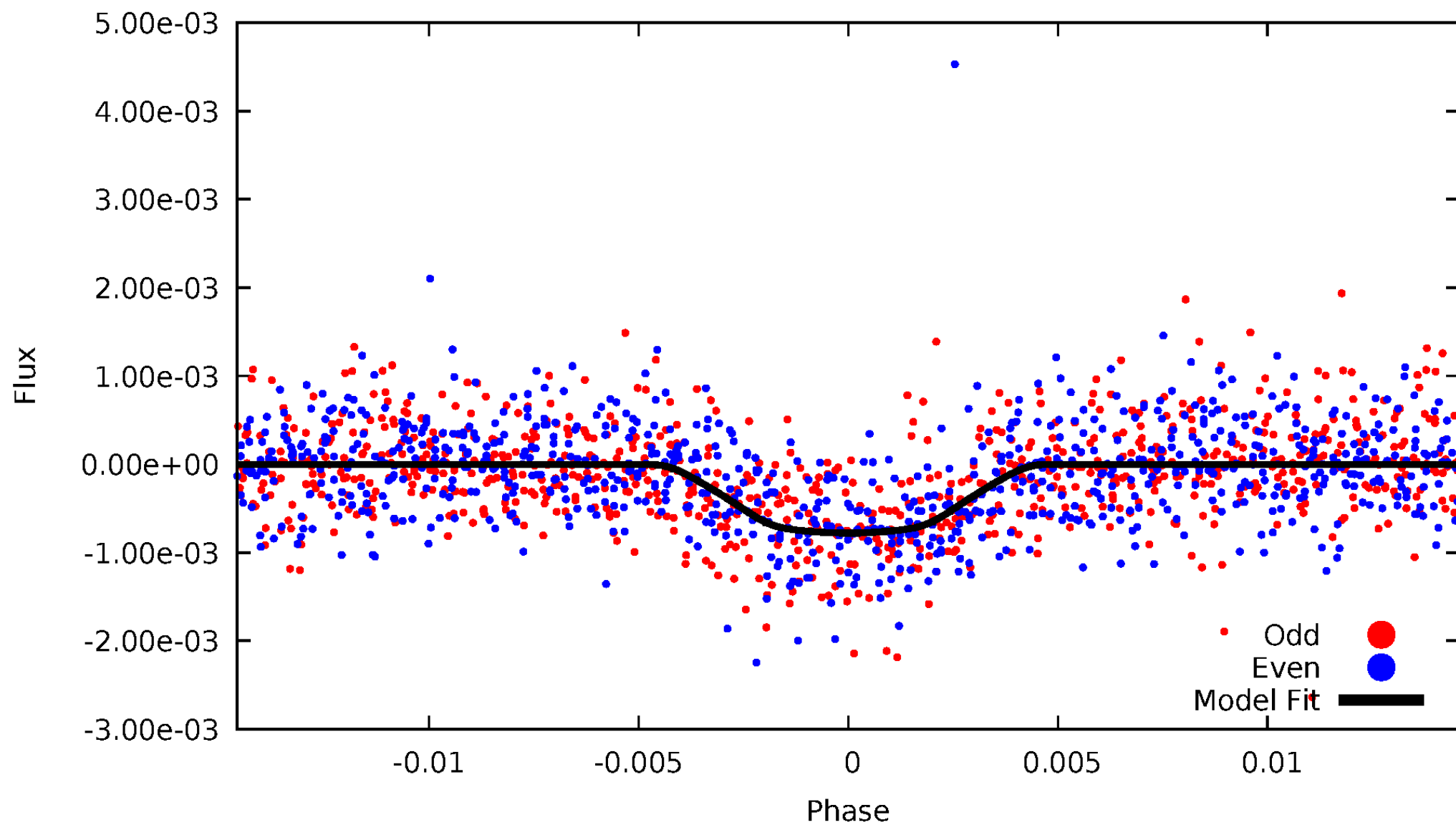


TCE 011520459-01



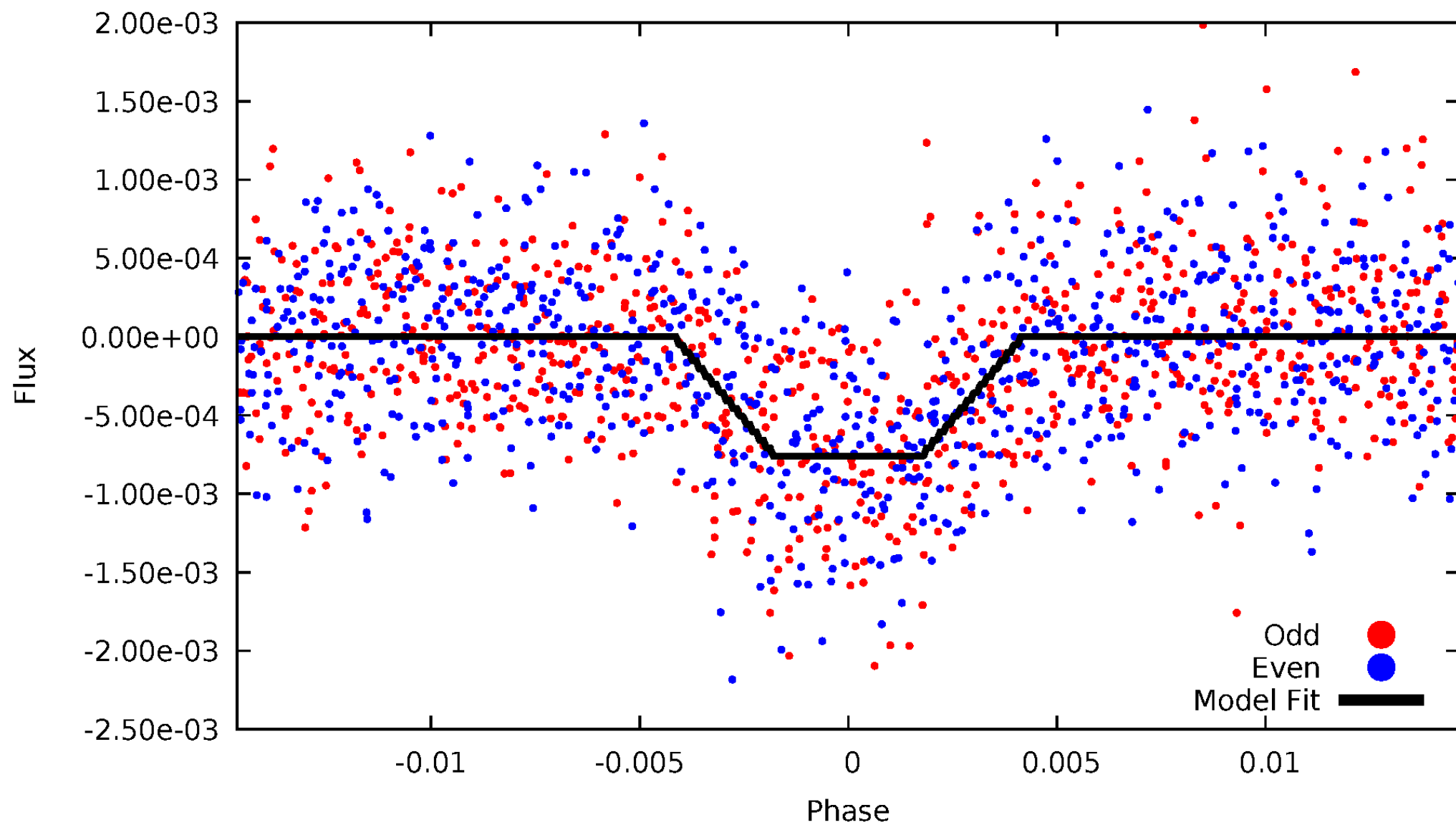
DV Odd/Even

TCE 011520459-01



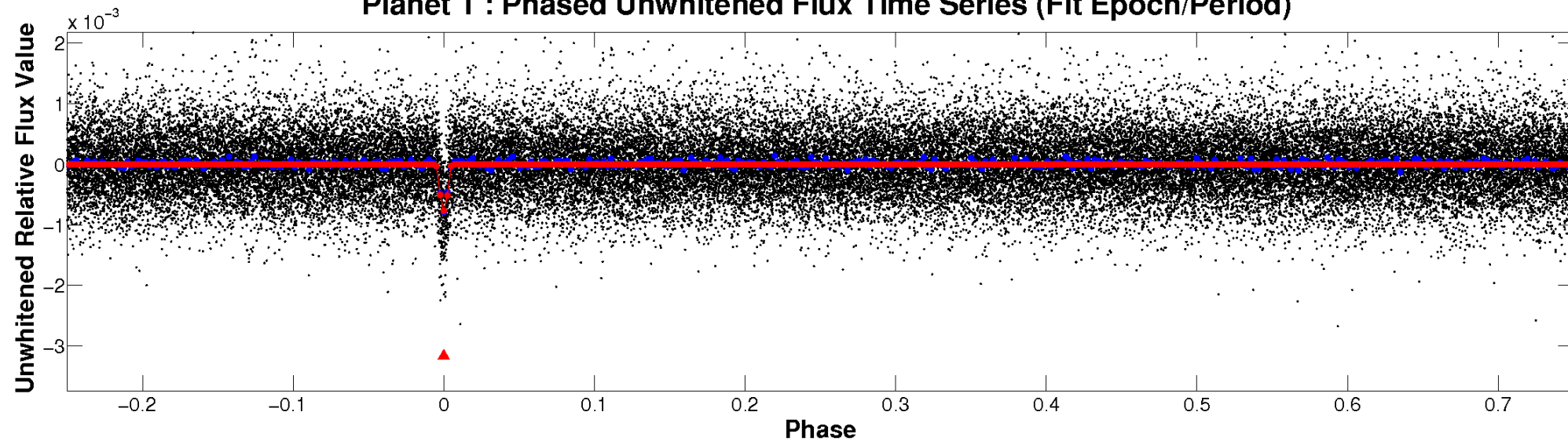
ALT Odd/Even

TCE 011520459-01

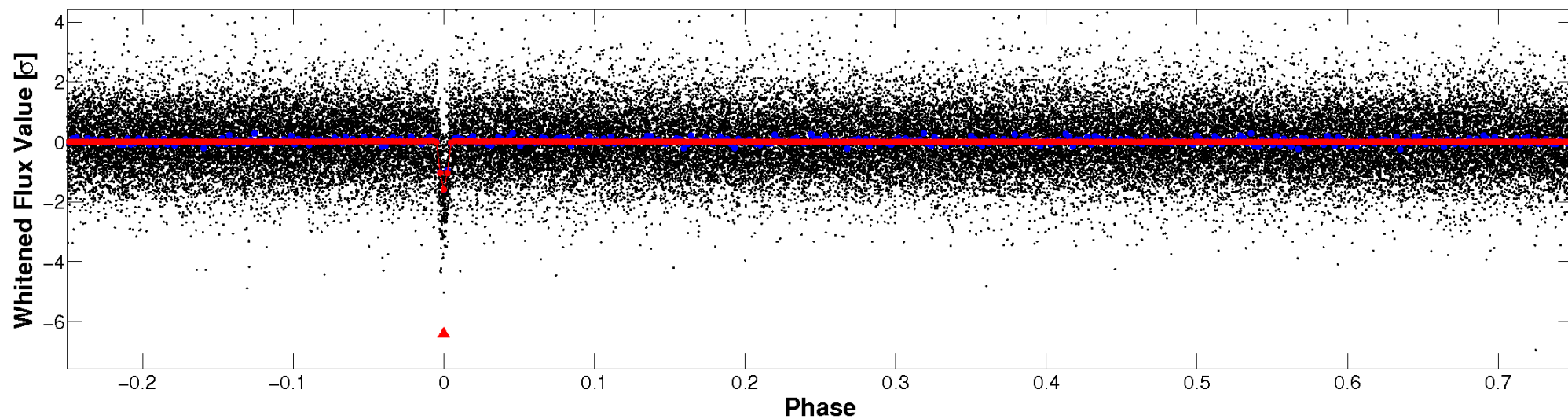


Non-Whitened Vs. Whitened Light Curve

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

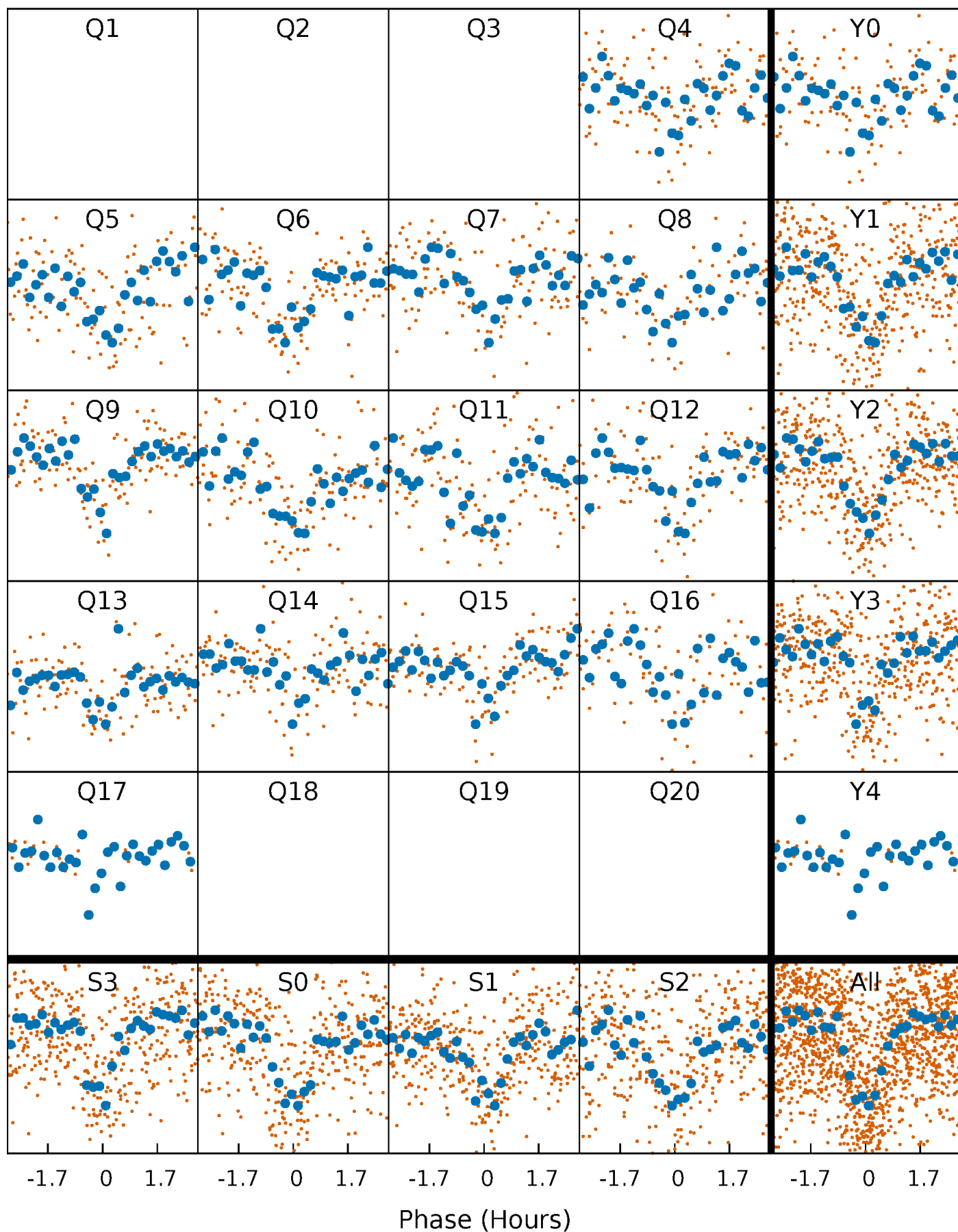


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



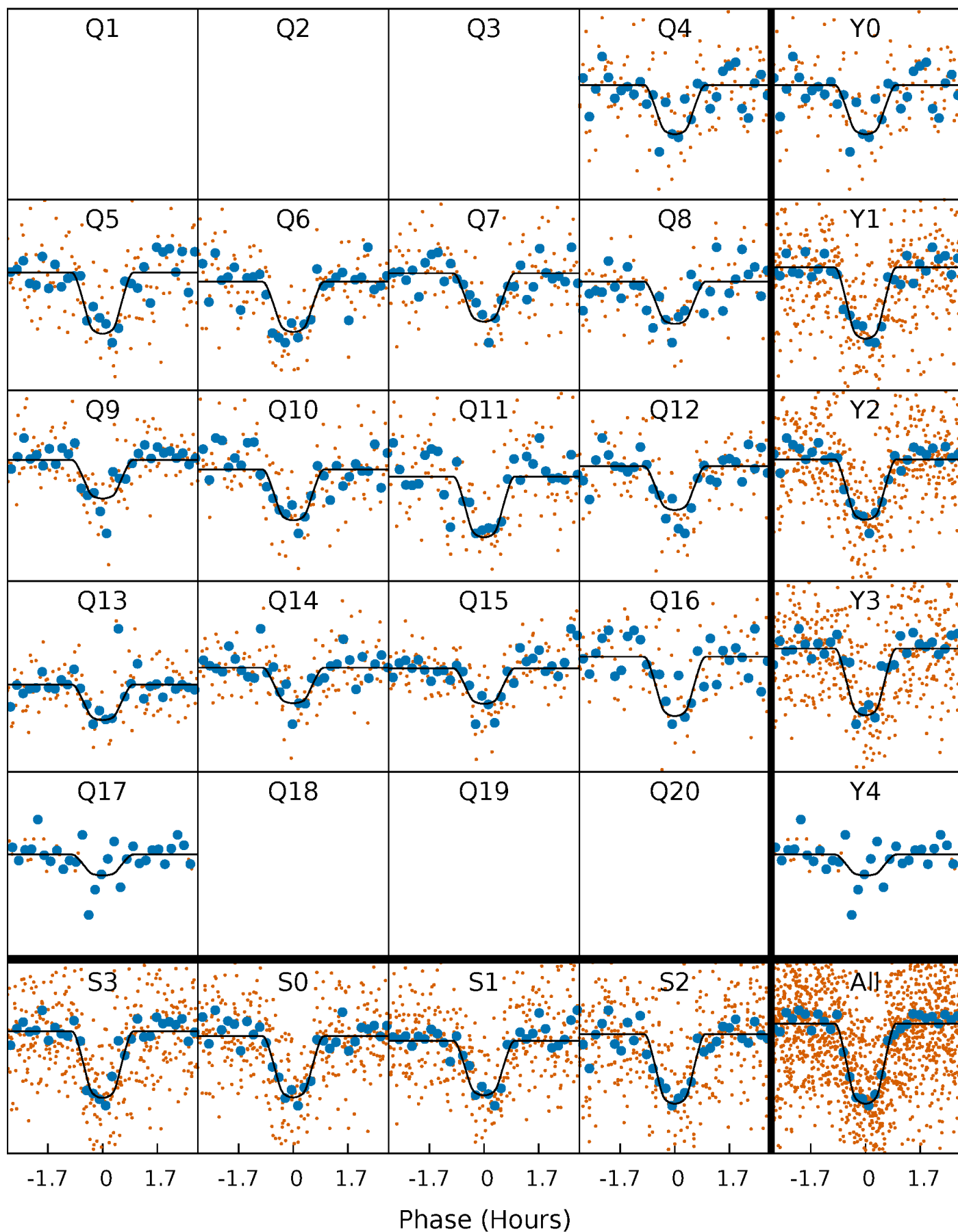
PDC Quarter-Phased Transit Curves

TCE 011520459-01 P= 8.463502 Days $T_0=134.357256$ (BKJD)



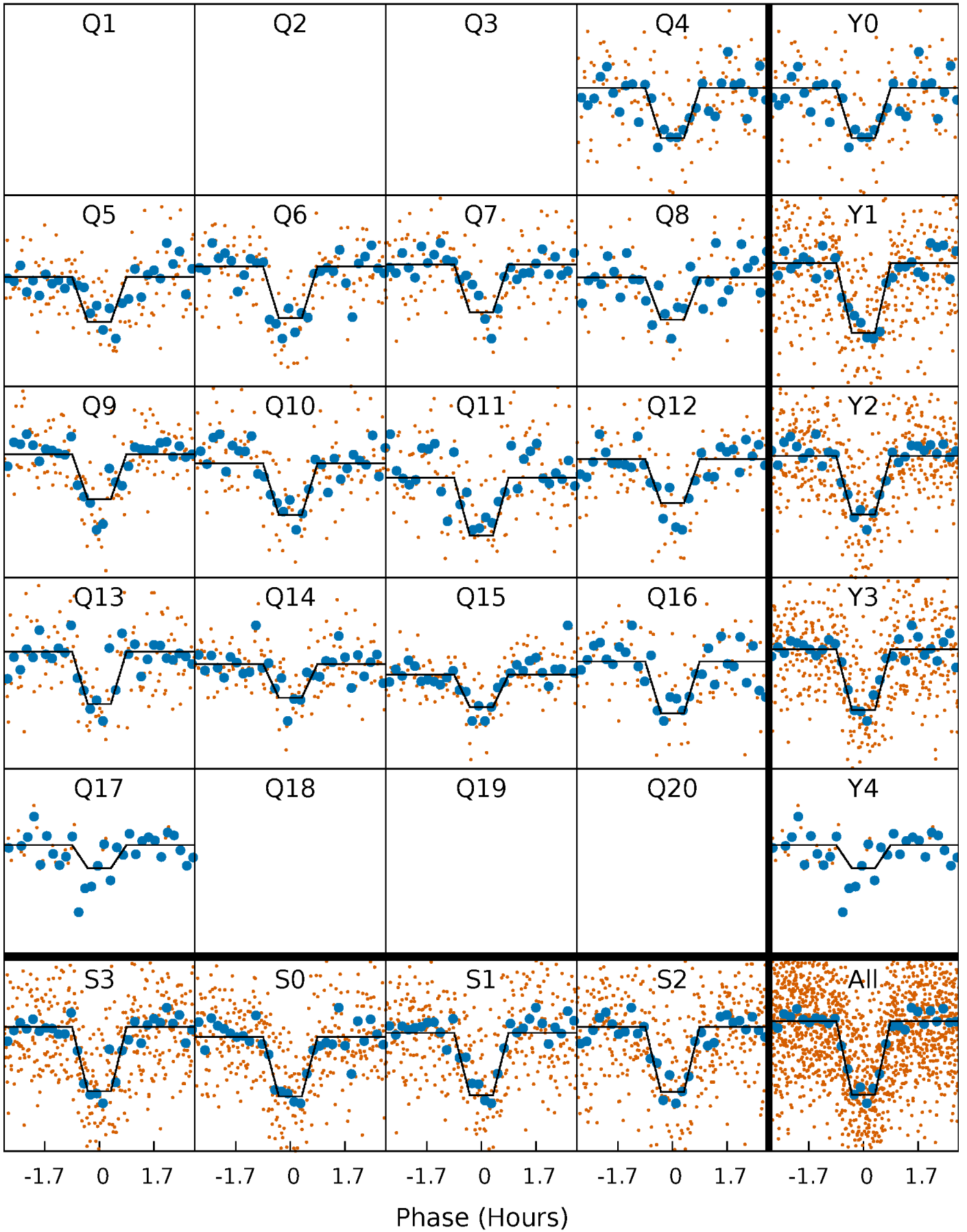
DV Quarter-Phased Transit Curves

TCE 011520459-01 P= 8.463502 Days $T_0=134.357256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

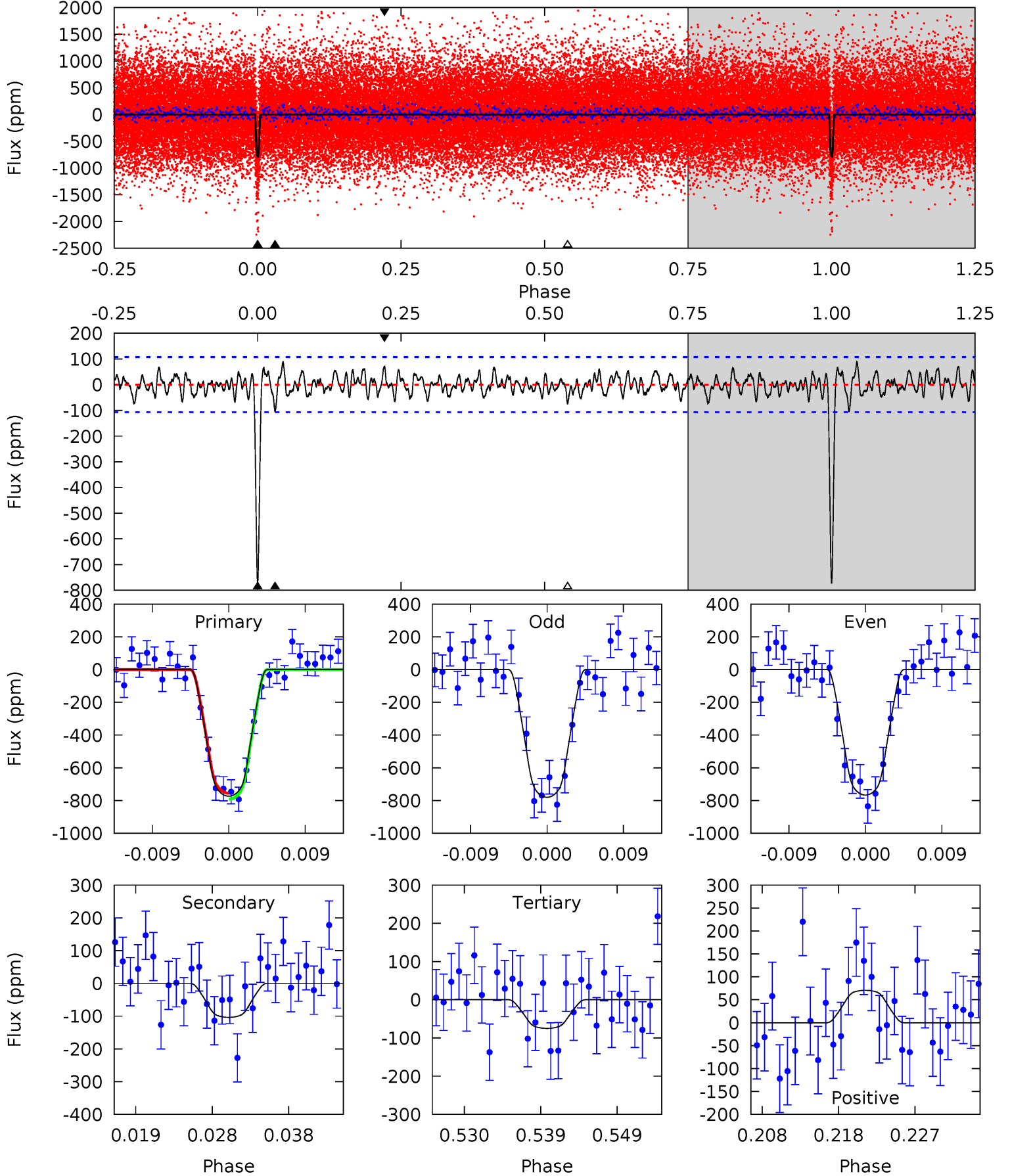
TCE 011520459-01 P= 8.463570 Days $T_0=134.350434$ (BKJD)



DV Model-Shift Uniqueness Test

011520459-01, P = 8.463502 Days, E = 134.357256 Days

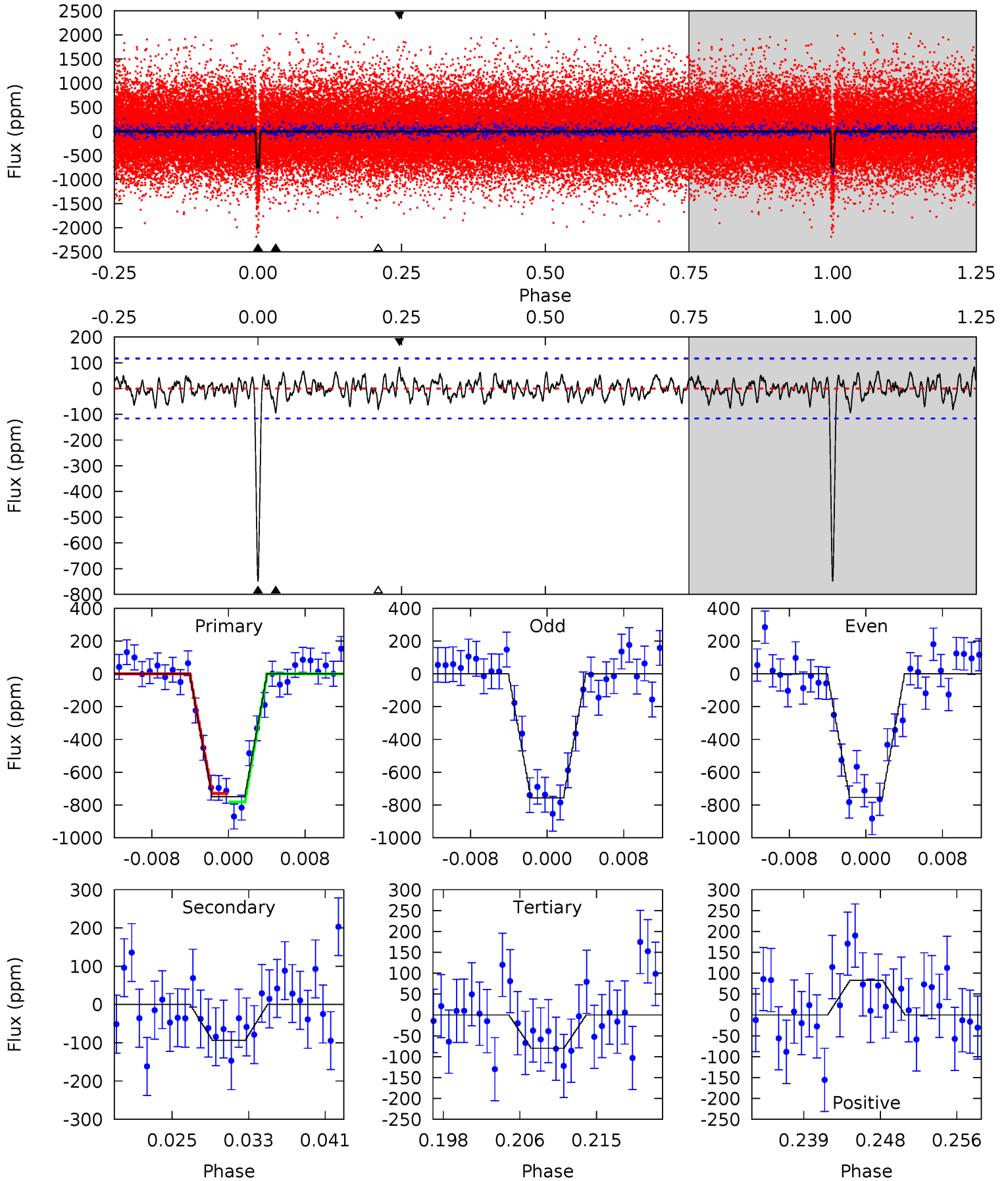
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.3	4.88	3.52	3.32	5.04	2.59	1.34	32.8	33.0	1.36	1.56	0.31	1.04	0.10	0.88



Alt Model-Shift Uniqueness Test

011520459-01, P = 8.463570 Days, E = 134.350434 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.5	4.07	3.46	3.59	5.06	2.64	1.20	29.0	28.9	0.61	0.48	0.06	1.04	0.10	1.16



Stellar Parameters For KIC 011520459

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5427^{+187}_{-168}	$4.495^{+0.066}_{-0.154}$	$0.070^{+0.250}_{-0.300}$	$0.887^{+0.203}_{-0.102}$	$0.896^{+0.089}_{-0.081}$	$1.811^{+0.505}_{-0.795}$
	+3%/-3%	+1%/-3%	+357%/-429%	+23%/-11%	+10%/-9%	+28%/-44%
Source	KIC0	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 011520459-01 / KOI 2226.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-104±21	$3.04^{+0.80}_{-0.74}$	1139^{+70}_{-53}	3567^{+368}_{-266}	37^{+29}_{-15}
Alt.	-94±23	$2.79^{+0.80}_{-0.82}$	1144^{+68}_{-57}	3614^{+502}_{-307}	41^{+45}_{-18}

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 $A_{obs} \gg 1.0$

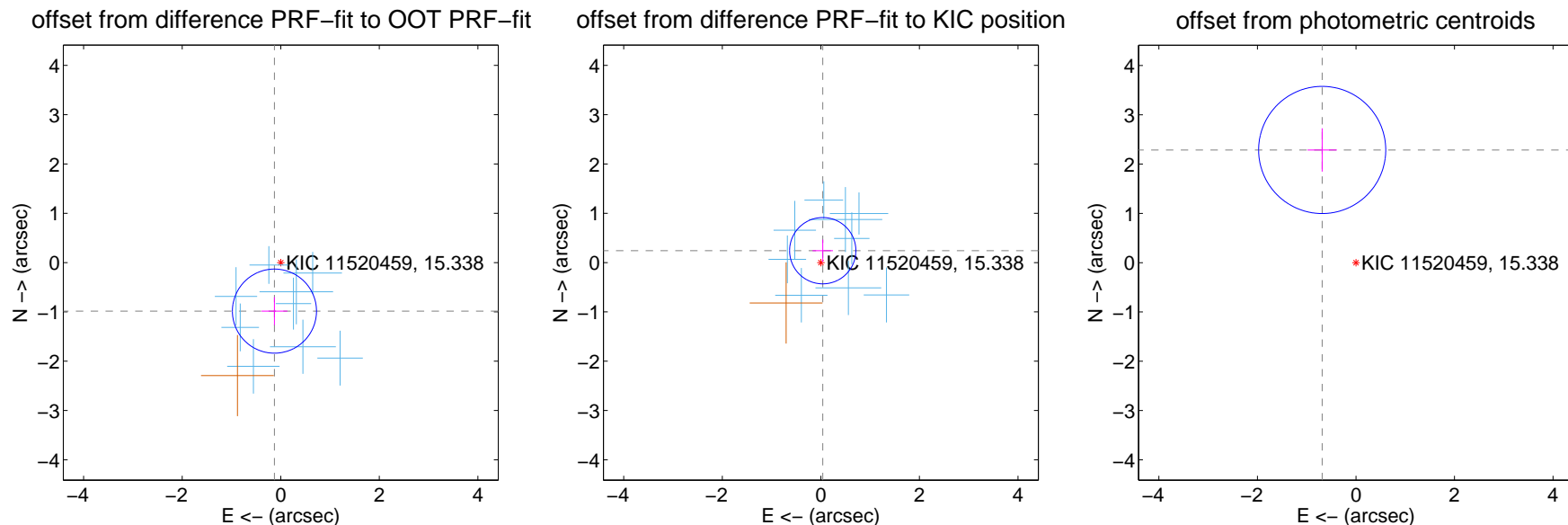
DV Centroid Data

Supplemental centroid analysis for 011520459-01. Kepler magnitude: 15.34. Transit SNR 25.12

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.993 ± 0.284	3.49	0.128 ± 0.262	-0.985 ± 0.285
PRF-fit source offset from KIC position	0.244 ± 0.224	1.09	-0.038 ± 0.208	0.241 ± 0.225
photometric centroid source offset	2.39 ± 0.43	5.55	0.69 ± 0.30	2.29 ± 0.44



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



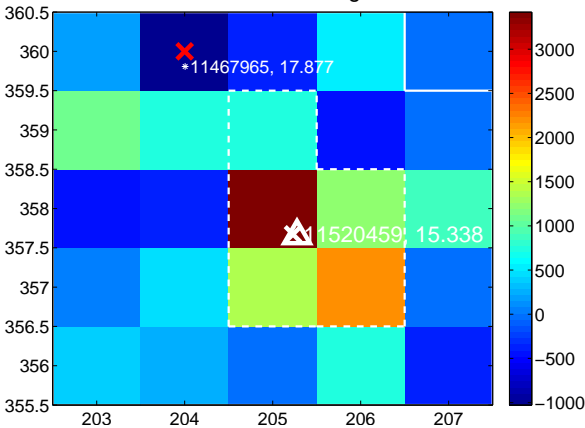
Q3 no difference image



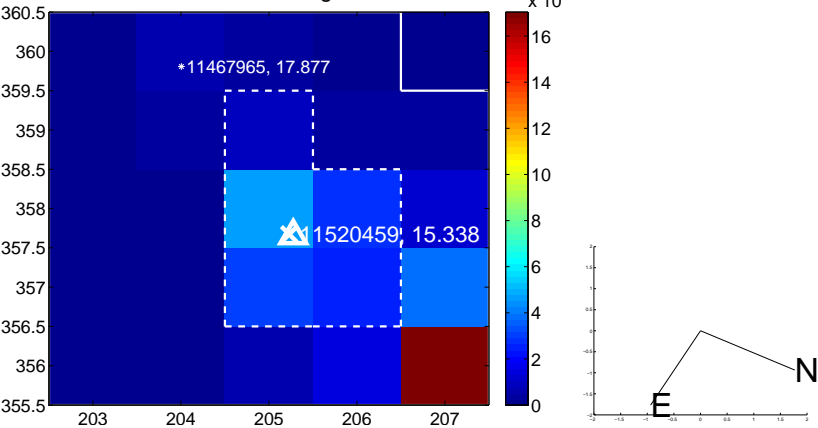
Q3 no OOT image



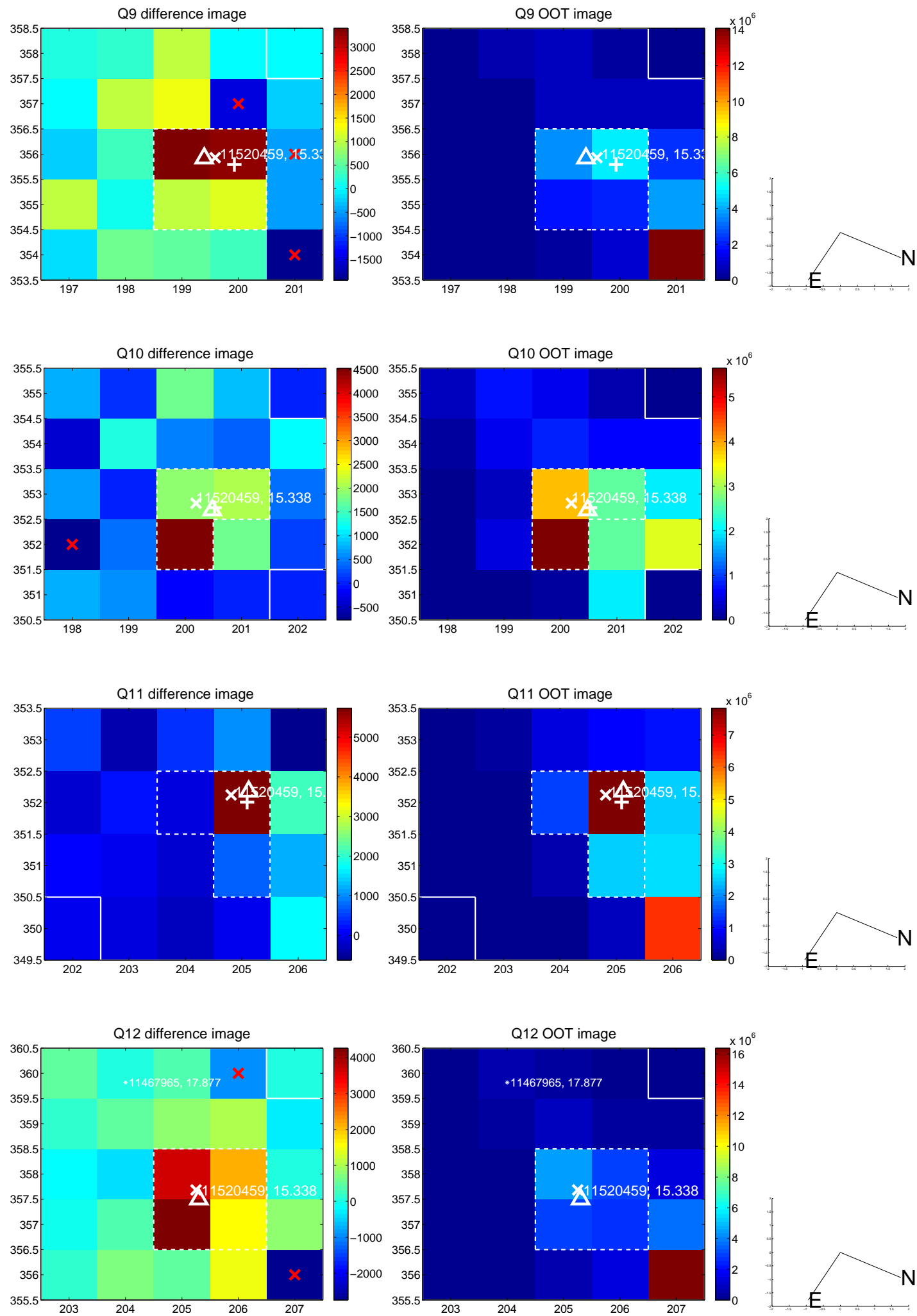
Q4 difference image



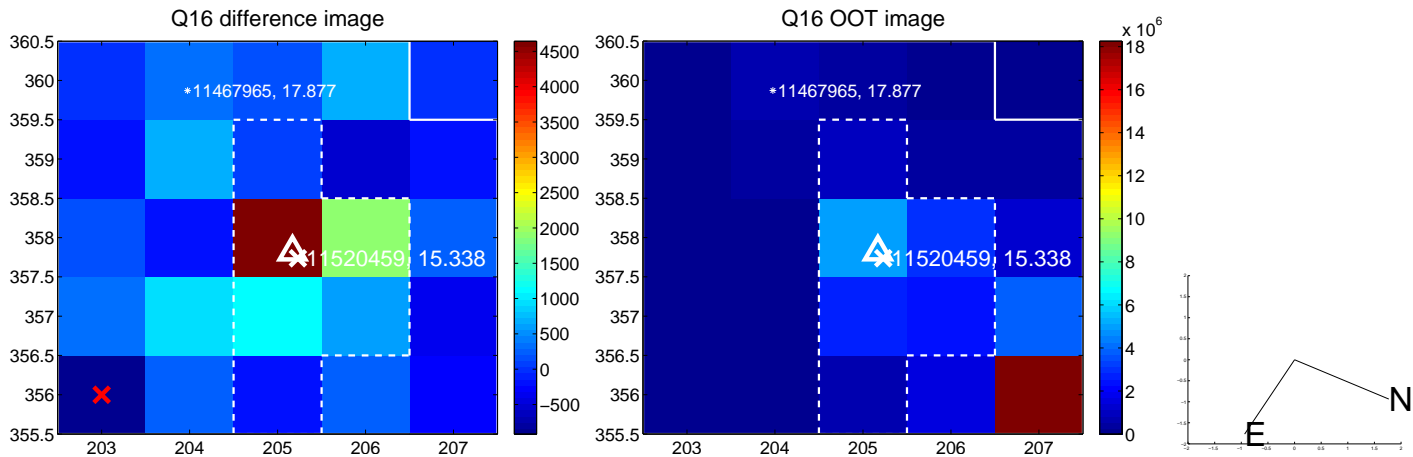
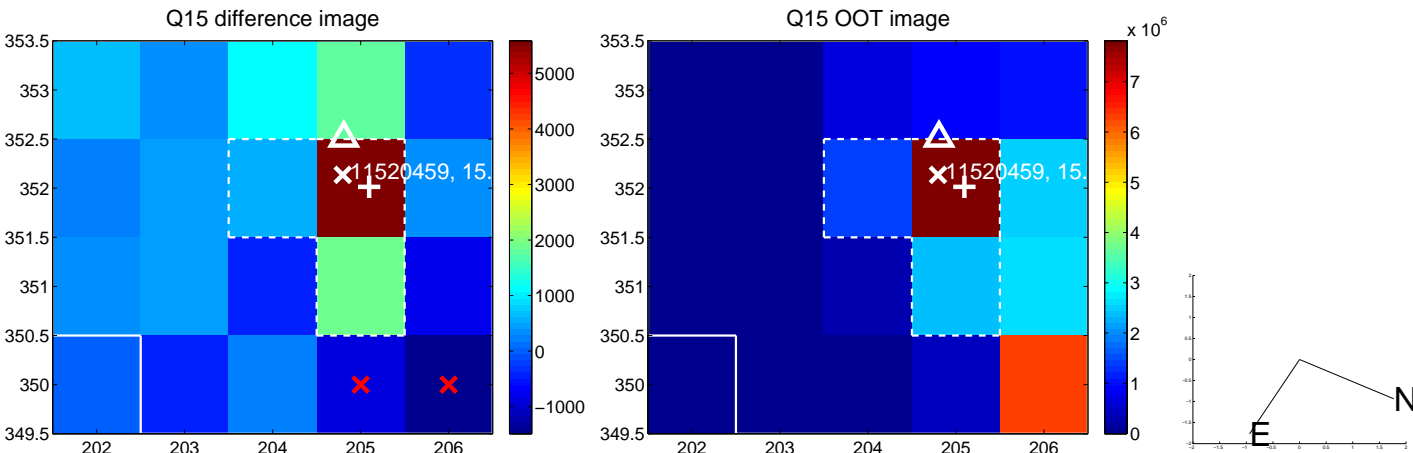
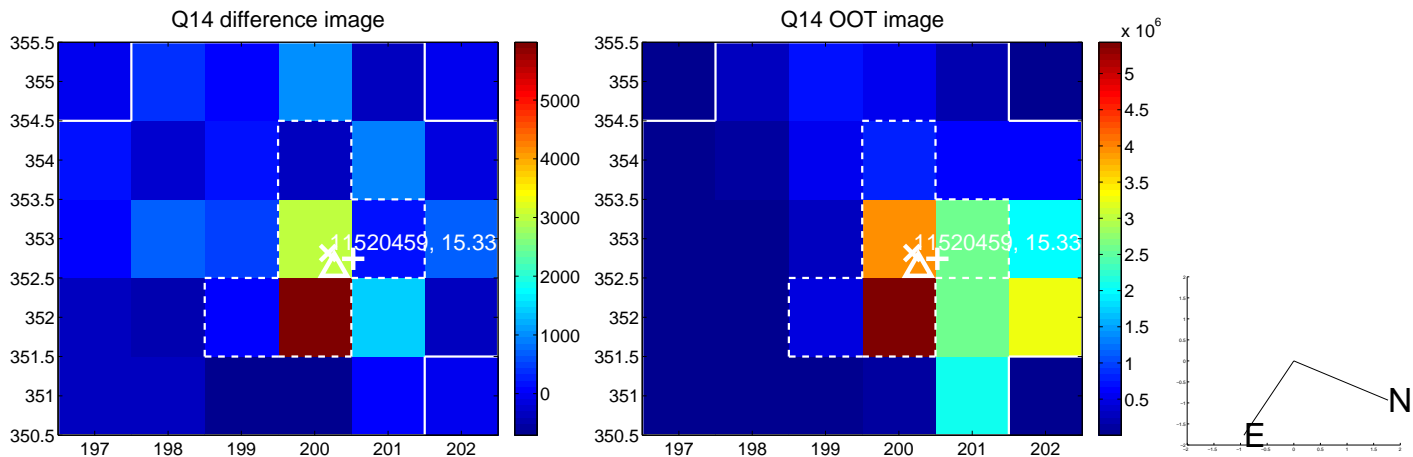
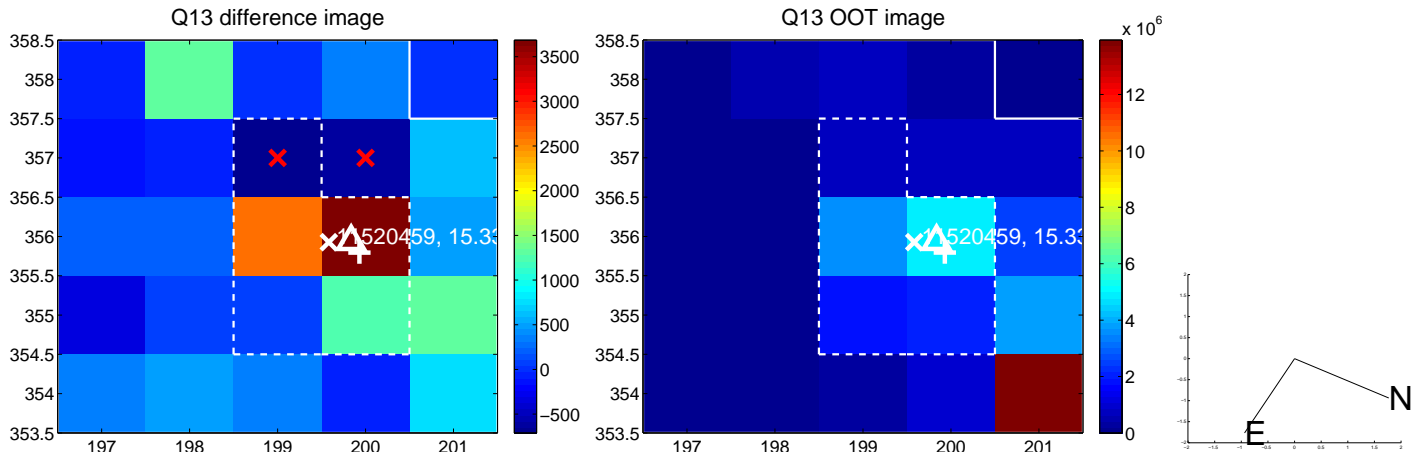
Q4 OOT image



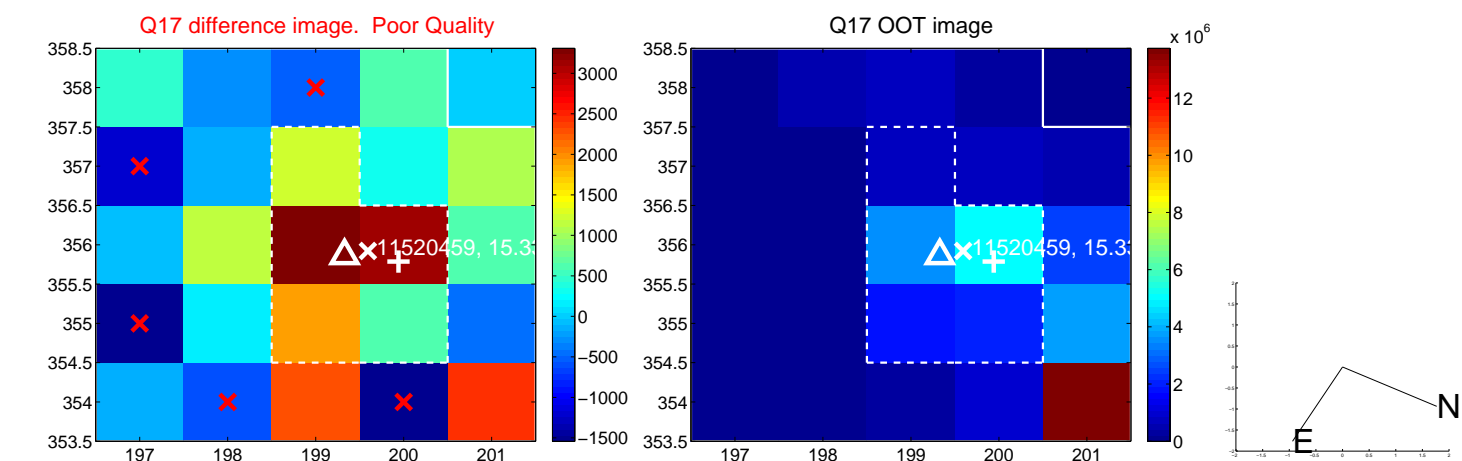
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



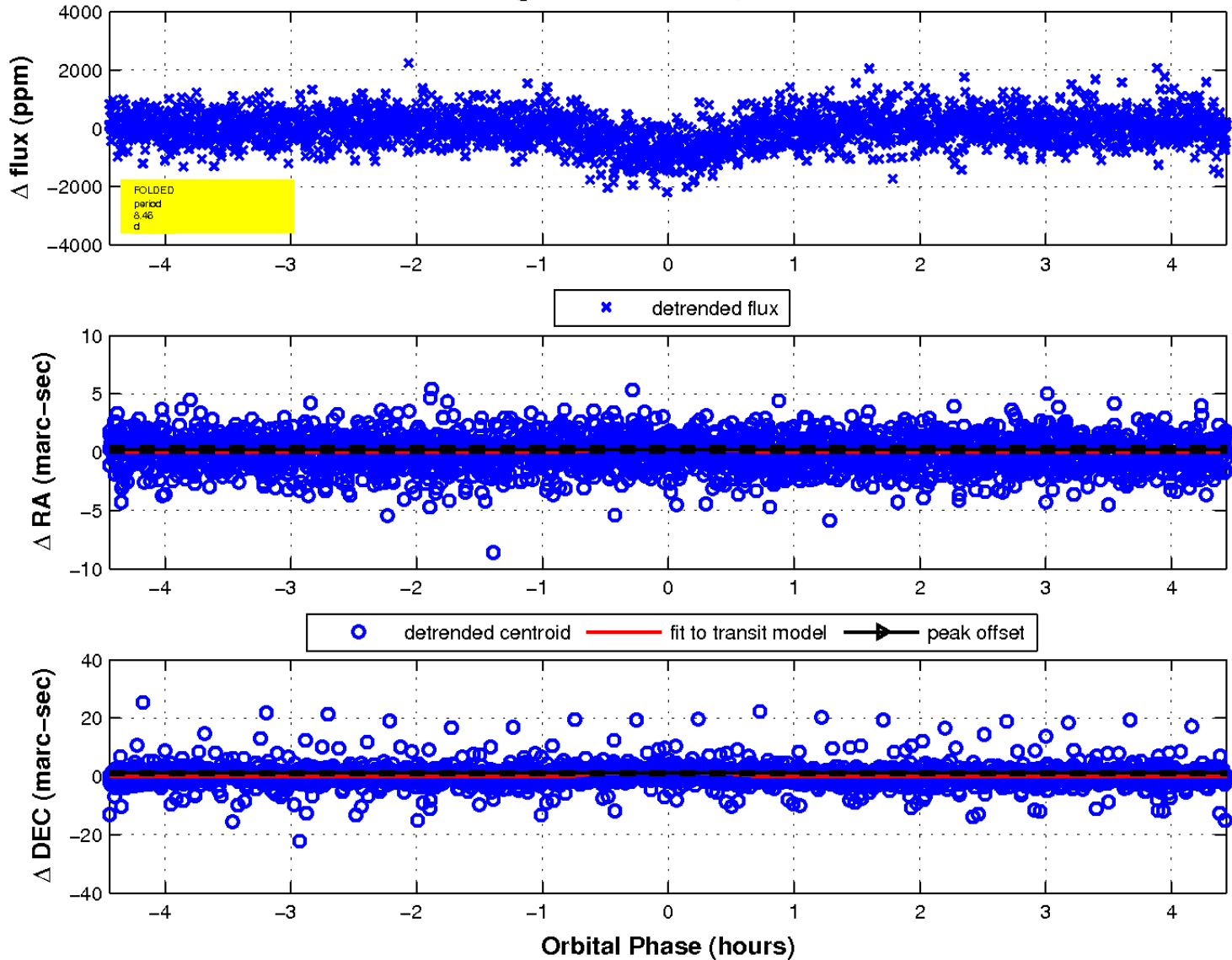
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

