

KIC 002557816

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})
002557816-01	OBS	0488.01	9.378885	138.939079	544.6	3.418	36.6	38.7	0.81	5684	2.10	98.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002557816-01	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.

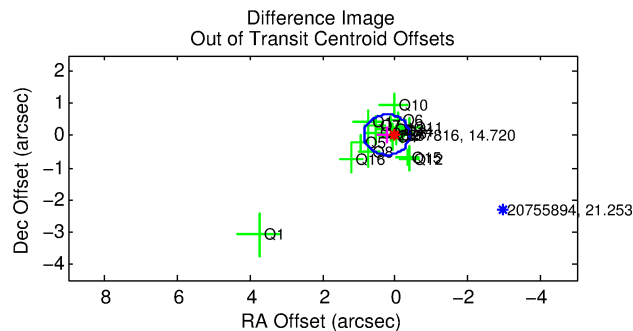
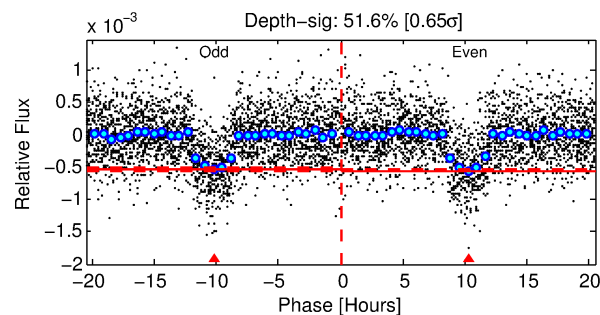
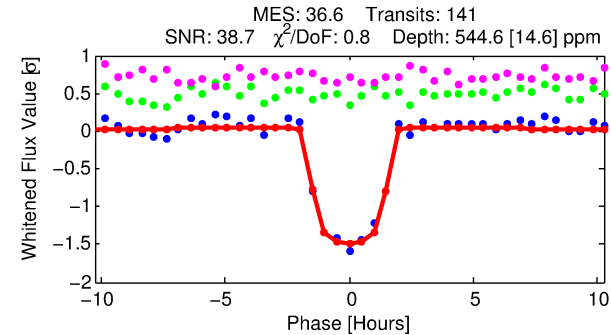
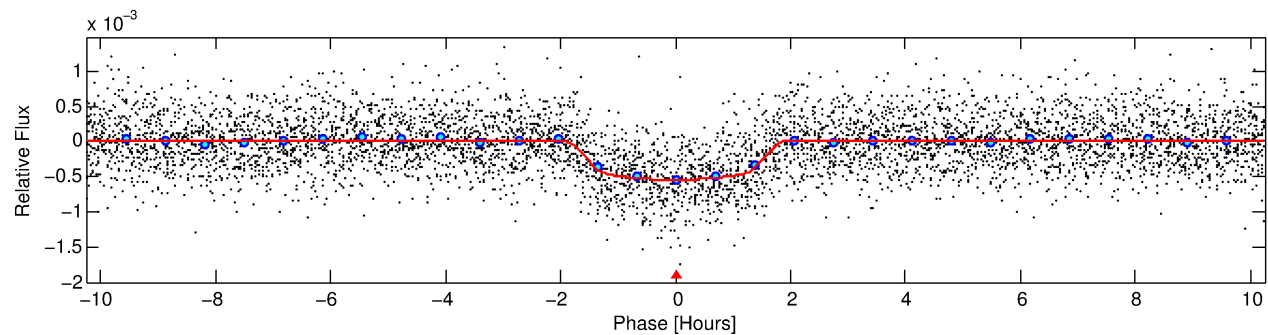
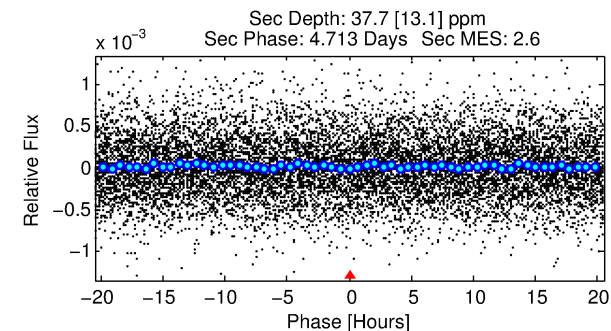
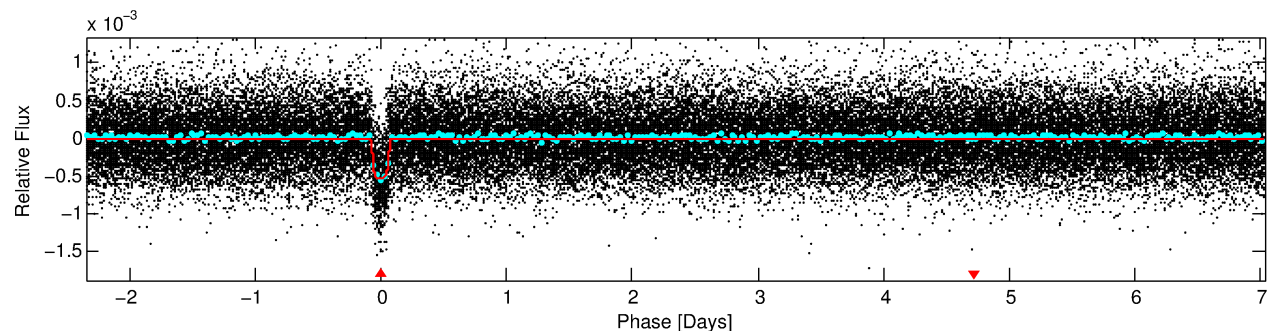
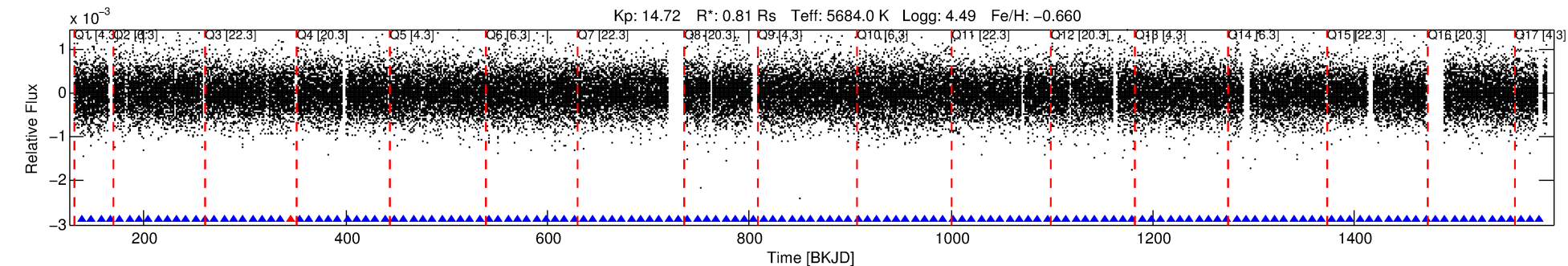
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002557816-01

No Significant Match Found

DV One-Page Summary

KIC: 2557816 Candidate: 1 of 1 Period: 9.379 d
KOI: K00488.01 Corr: 0.983



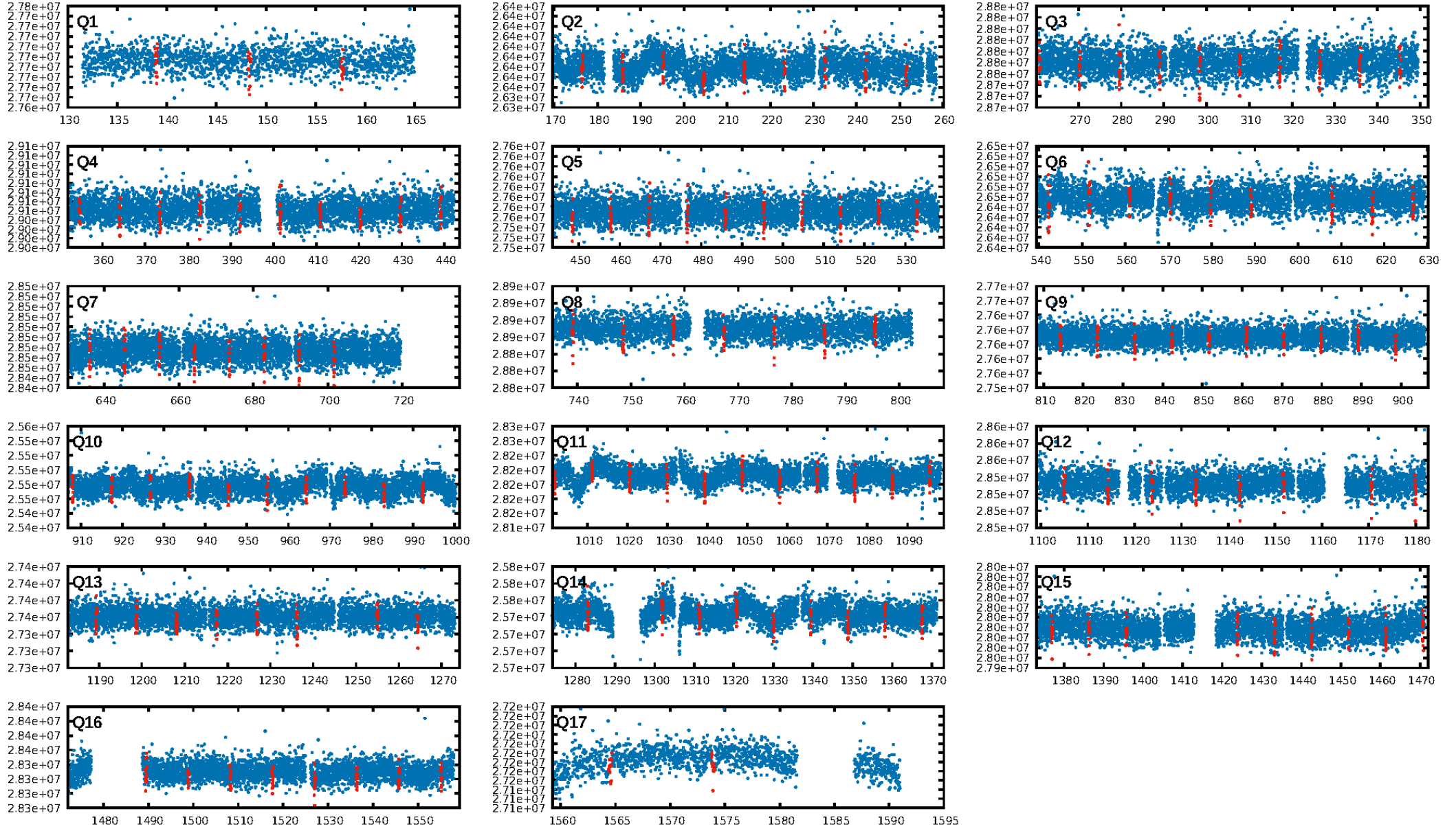
DV Fit Results:

Period = 9.37888 [0.00002] d
Epoch = 138.9391 [0.0019] BKJD
Rp/R* = 0.0239 [0.0041]
a/R* = 13.02 [10.71]
b = 0.81 [0.35]
Seff = 98.38 [27.31]
Teff = 803 [56] K
Rp = 2.10 [0.55] Re
a = 0.0788 [0.0134] AU
Ag = 29.11 [15.95] [1.76σ]
Teffp = 2884 [362] K [5.69σ]

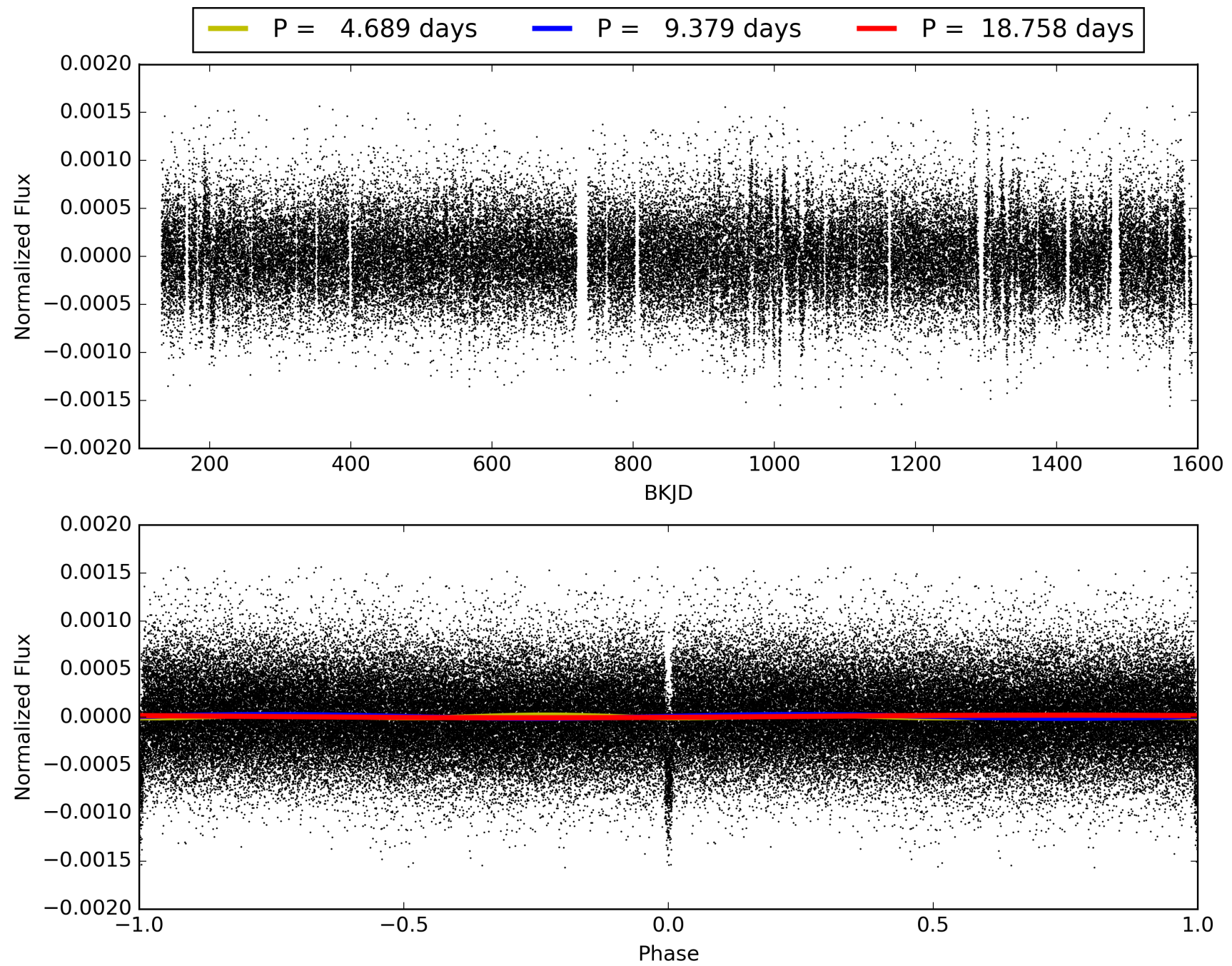
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.05e-278
RollingBand-fgt: 0.99 [135/136]
GhostDiagnostic-chr: 3.042
Centroid-sig: 92.4%
Centroid-so: 0.987 arcsec [3.09σ]
OotOffset-rm: 0.232 arcsec [1.11σ]
KicOffset-rm: 0.359 arcsec [1.20σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 002557816-01, PDC Light Curves

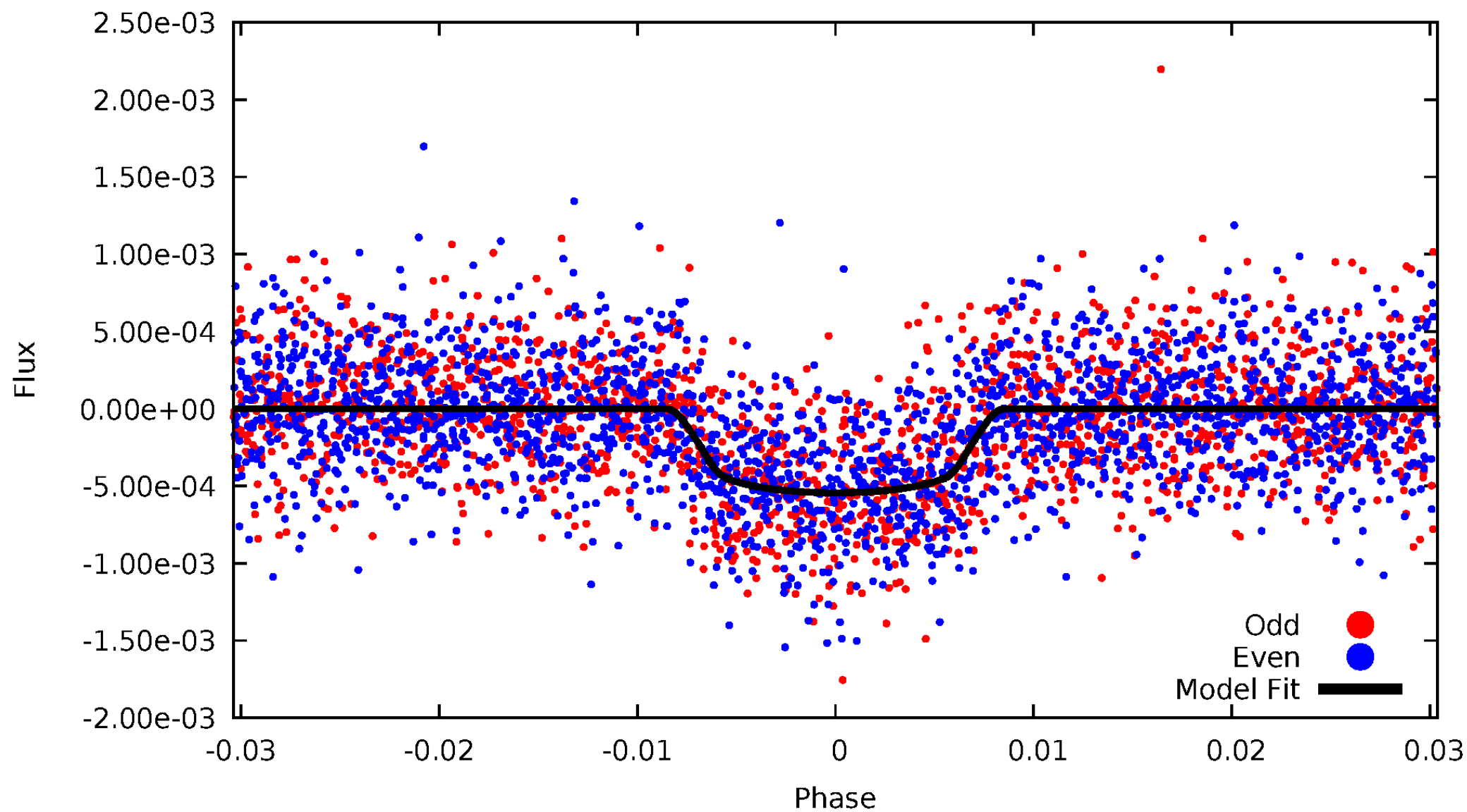


TCE 002557816-01



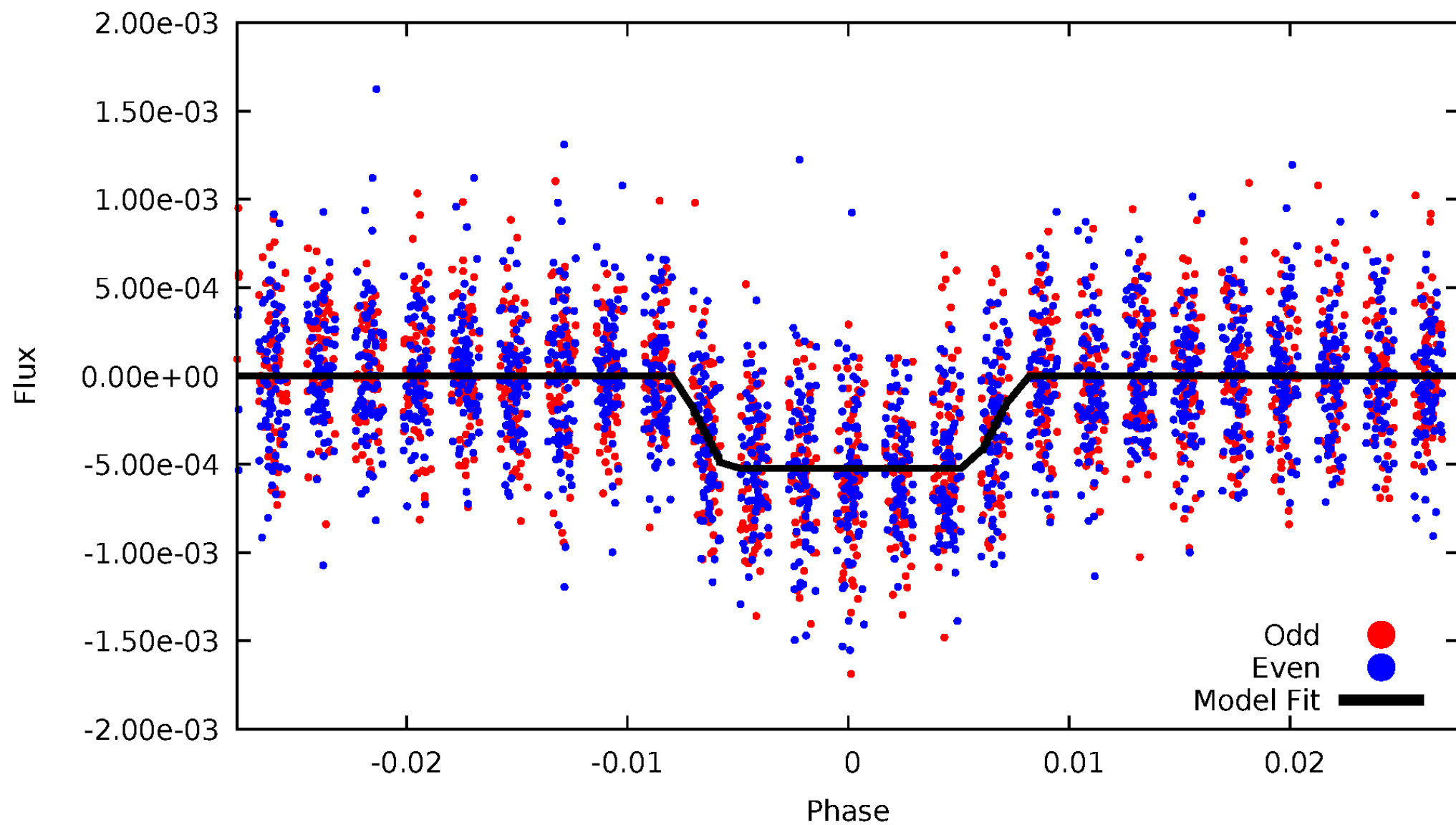
DV Odd/Even

TCE 002557816-01



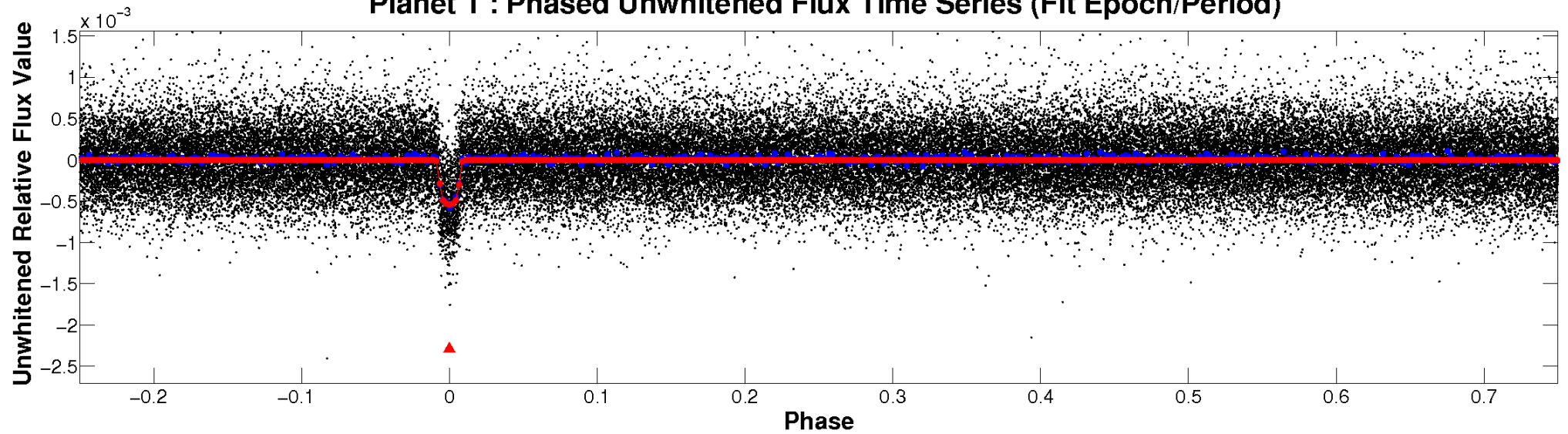
ALT Odd/Even

TCE 002557816-01

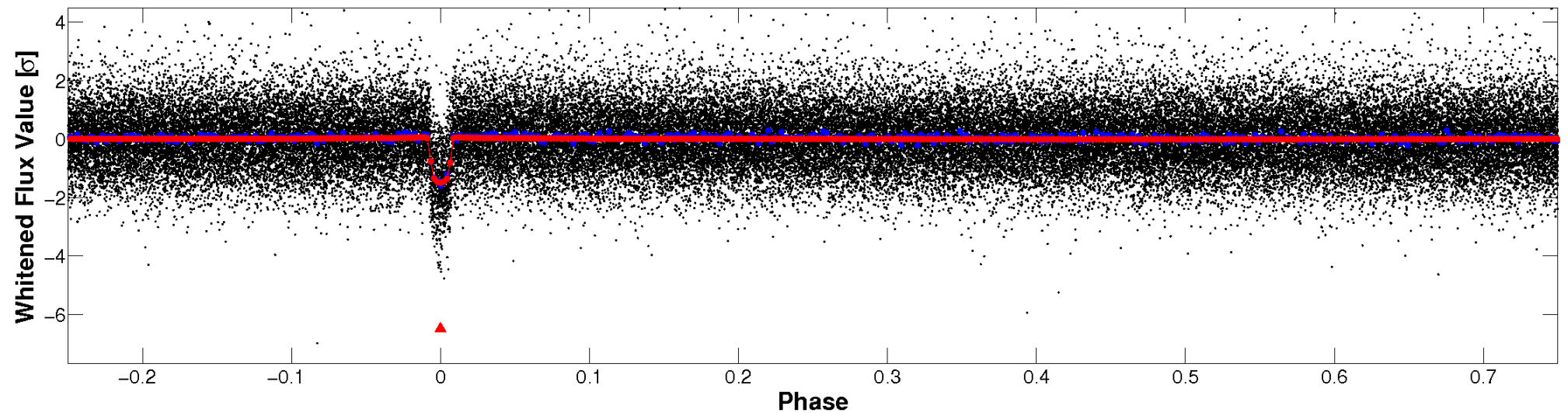


Non-Whitened Vs. Whitened Light Curve

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

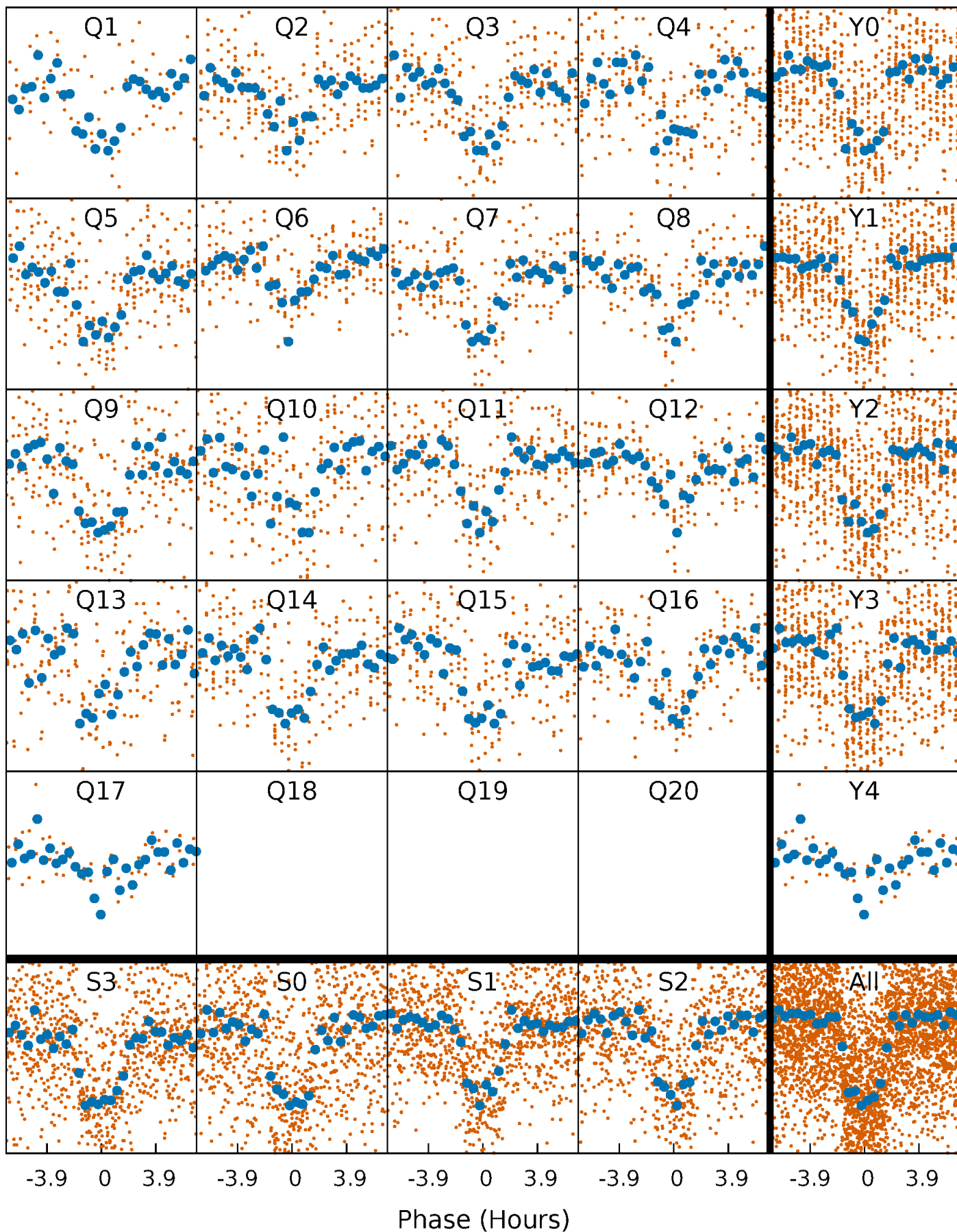


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



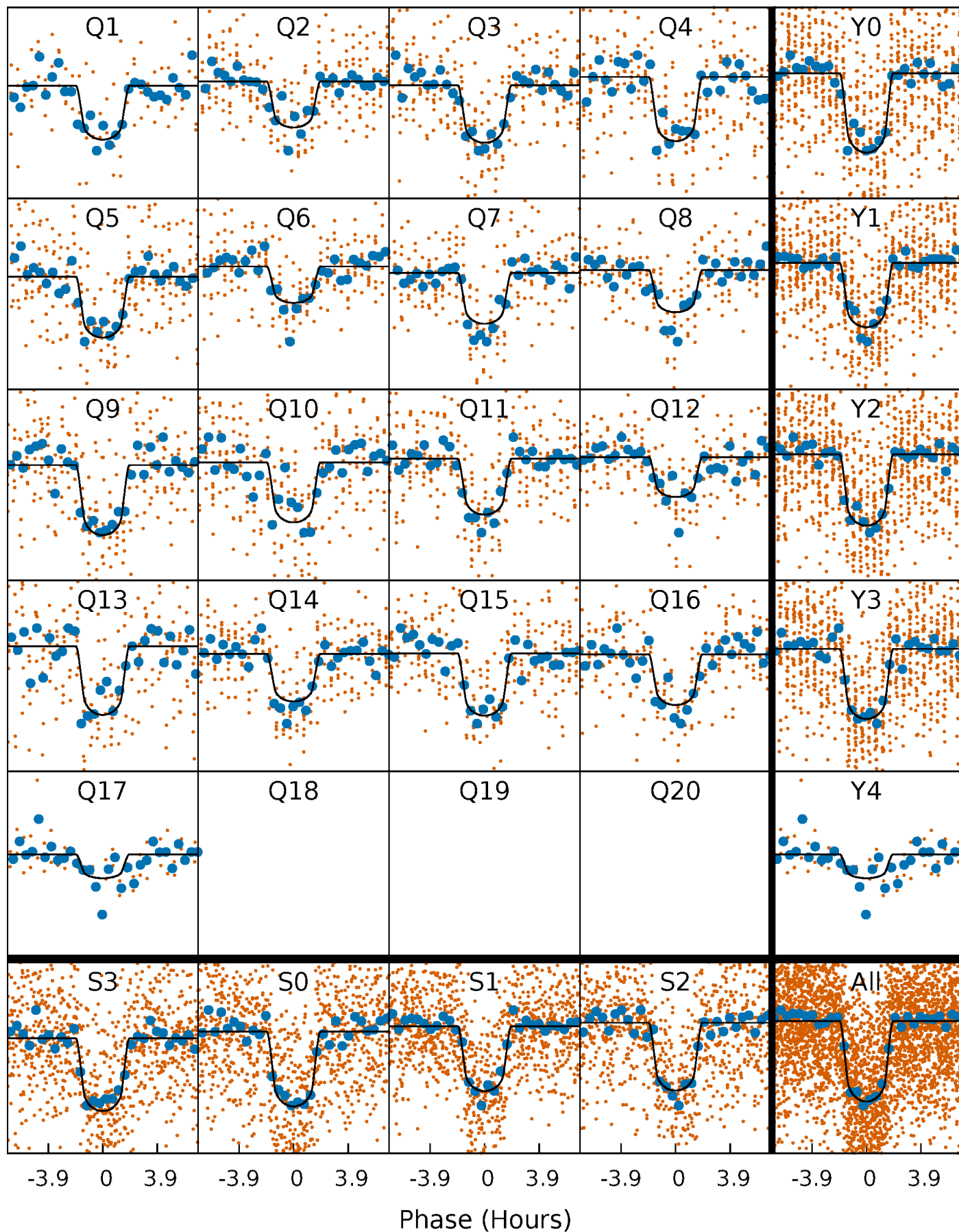
PDC Quarter-Phased Transit Curves

TCE 002557816-01 P= 9.378885 Days $T_0=138.939079$ (BKJD)



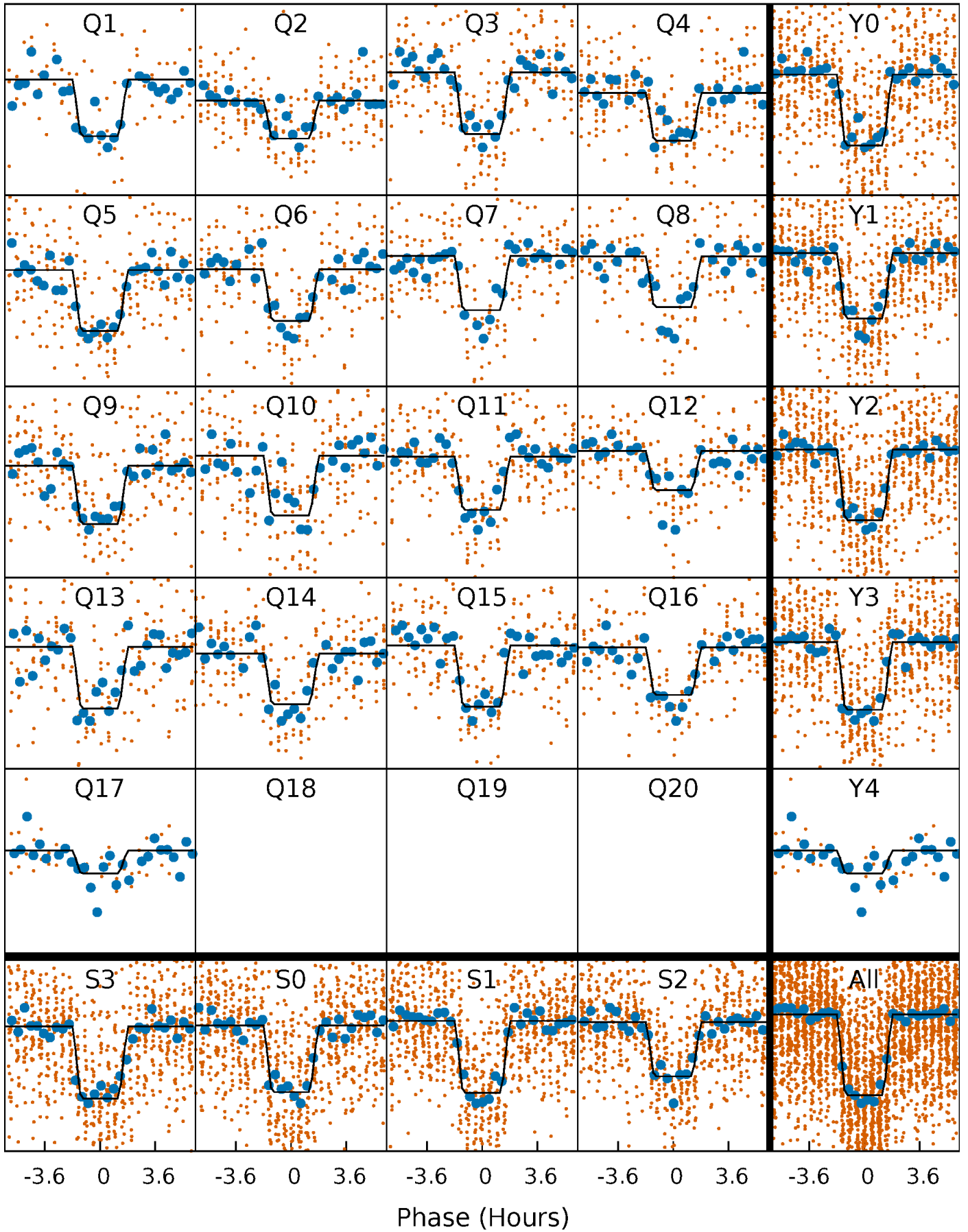
DV Quarter-Phased Transit Curves

TCE 002557816-01 P= 9.378885 Days $T_0=138.939079$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

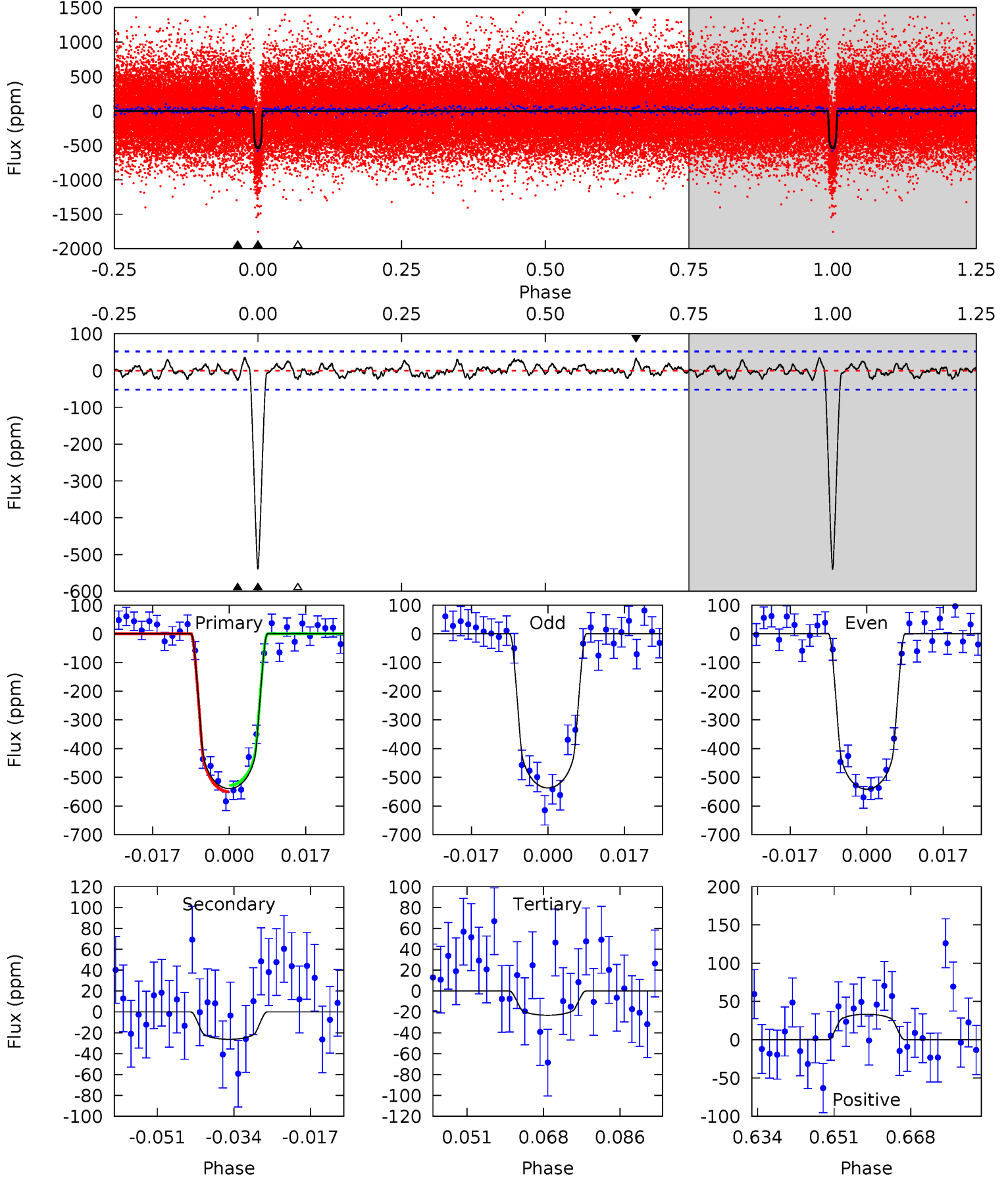
TCE 002557816-01 P= 9.378963 Days $T_0=138.932659$ (BKJD)



DV Model-Shift Uniqueness Test

002557816-01, P = 9.378885 Days, E = 129.560194 Days

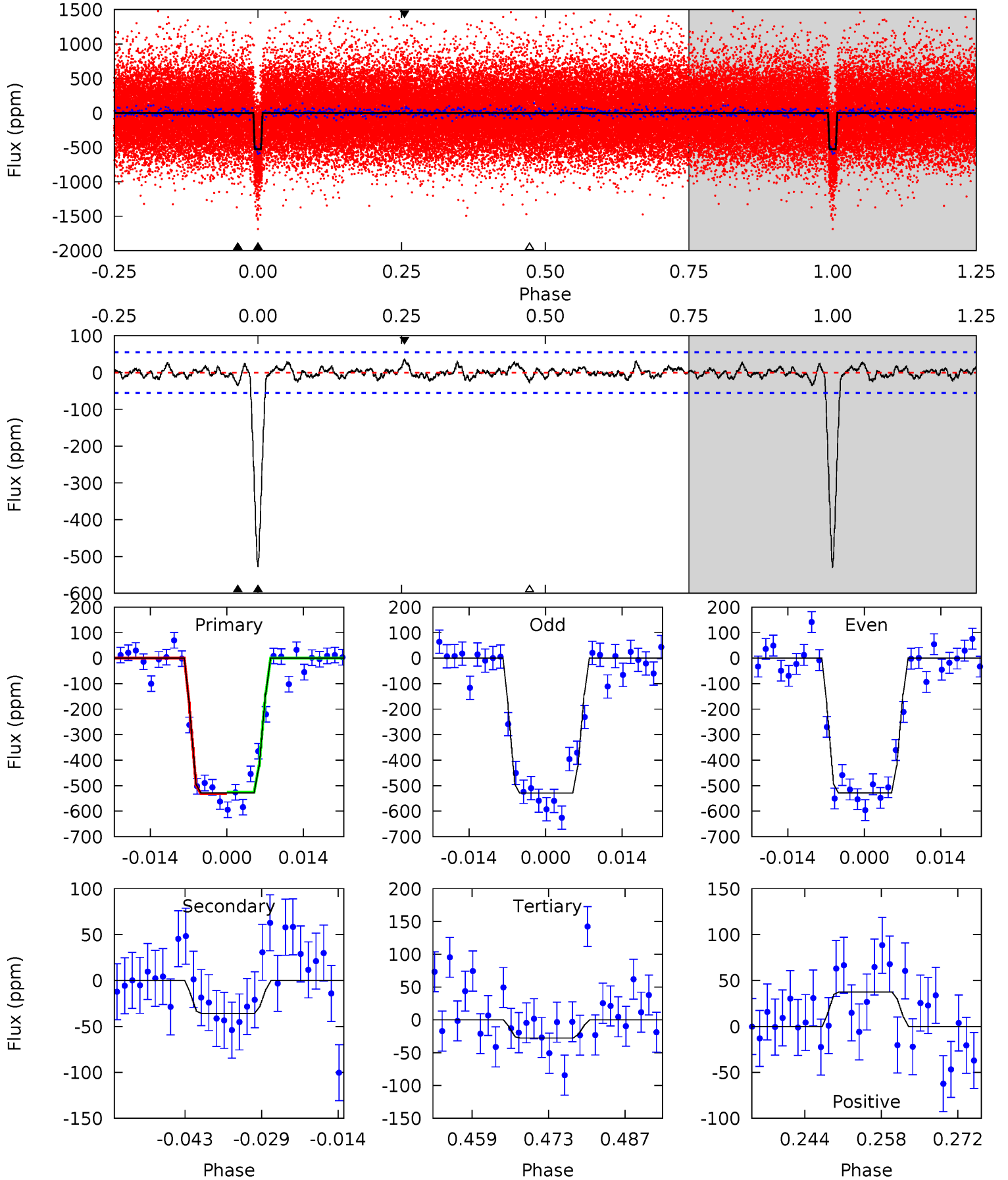
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.3	2.50	2.20	3.16	4.92	2.38	1.07	49.1	48.1	0.29	-0.67	0.21	0.99	0.06	1.05



Alt Model-Shift Uniqueness Test

002557816-01, P = 9.378963 Days, E = 129.553696 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.3	3.20	2.48	3.35	4.96	2.45	0.94	44.9	44.0	0.72	-0.15	0.03	0.98	0.07	0.27



Stellar Parameters For KIC 002557816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5684^{+170}_{-170}	$4.493^{+0.112}_{-0.138}$	$-0.660^{+0.300}_{-0.300}$	$0.808^{+0.162}_{-0.108}$	$0.741^{+0.098}_{-0.042}$	$1.979^{+0.959}_{-0.759}$
	+3%/-3%	+2%/-3%	+45%/-45%	+20%/-13%	+13%/-6%	+48%/-38%
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 002557816-01 / KOI 0488.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-26 ± 11	$2.12^{+0.43}_{-0.37}$	1124^{+61}_{-60}	3197^{+265}_{-253}	19^{+13}_{-8}
Alt.	-36 ± 11	$2.05^{+0.41}_{-0.39}$	1123^{+62}_{-57}	3383^{+274}_{-242}	28^{+20}_{-11}

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 $A_{obs} \gg 1.0$

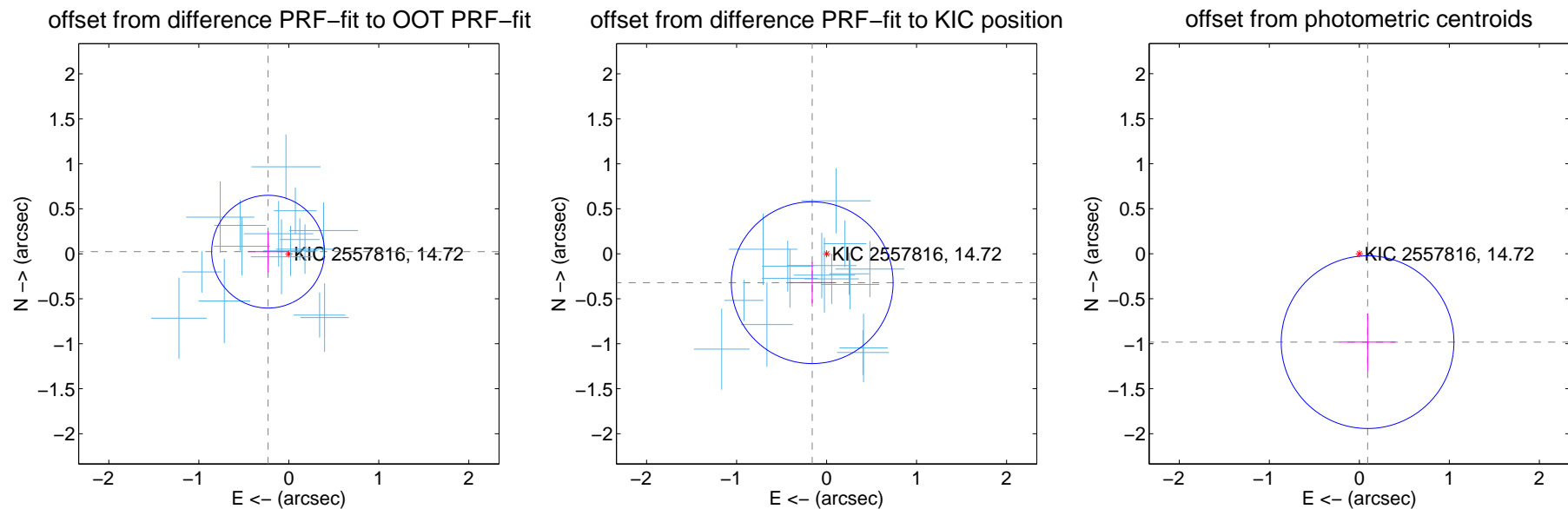
DV Centroid Data

Supplemental centroid analysis for 002557816-01. Kepler magnitude: 14.72. Transit SNR 38.66

There are 16 quarters with good PRF difference image offsets

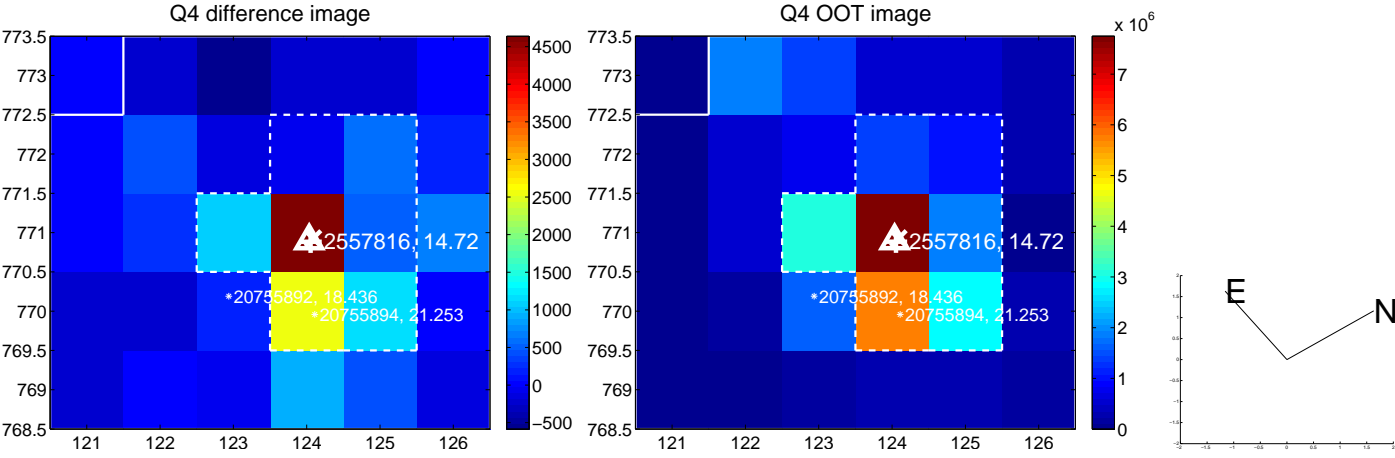
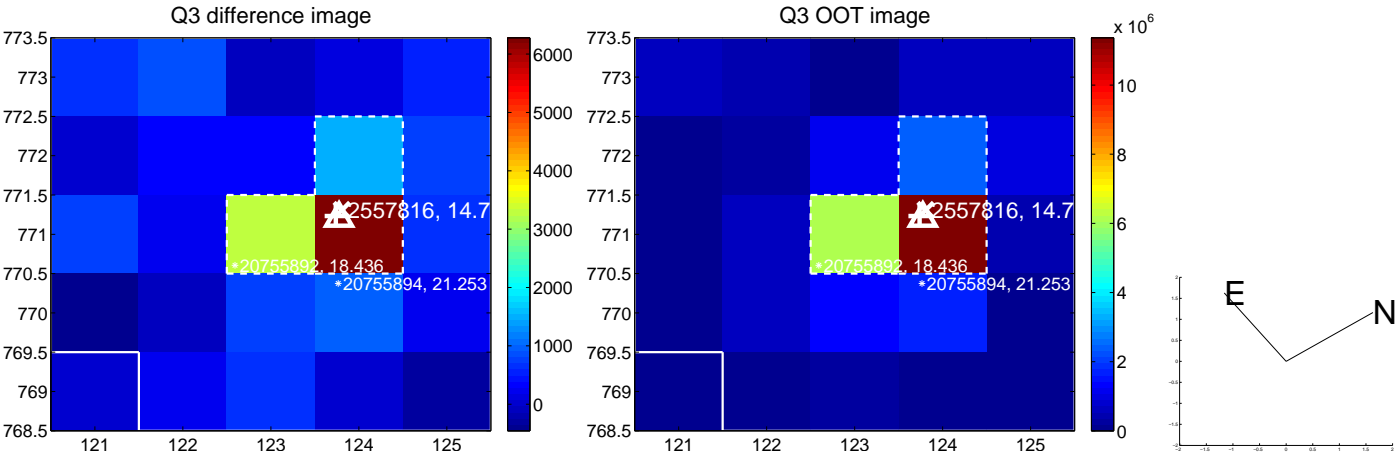
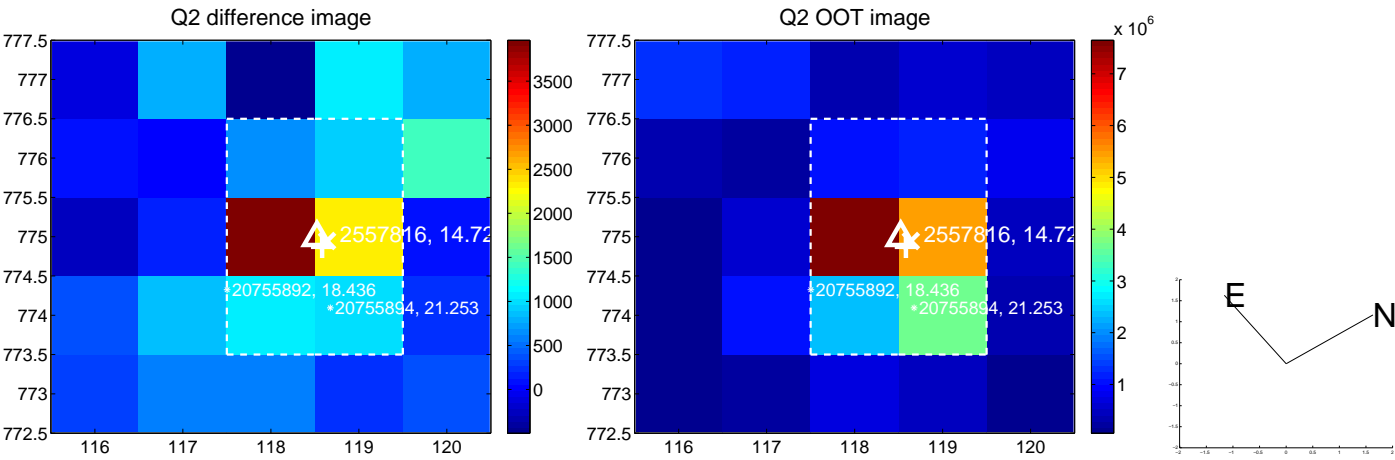
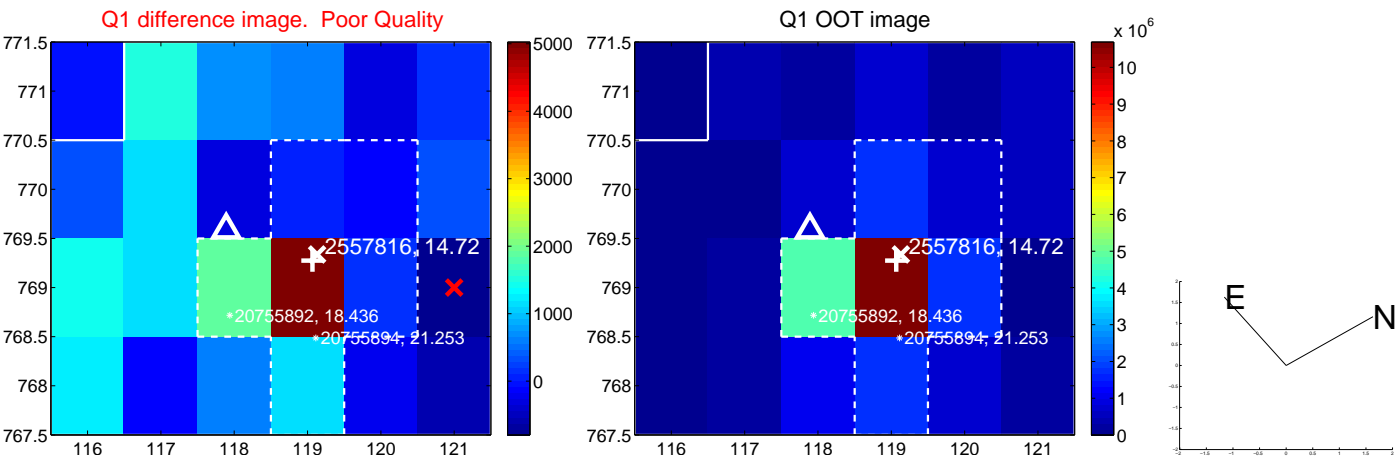
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.232 ± 0.209	1.11	0.230 ± 0.226	0.023 ± 0.225
PRF-fit source offset from KIC position	0.359 ± 0.300	1.20	0.160 ± 0.257	-0.321 ± 0.228
photometric centroid source offset	0.99 ± 0.32	3.09	-0.09 ± 0.31	-0.98 ± 0.32

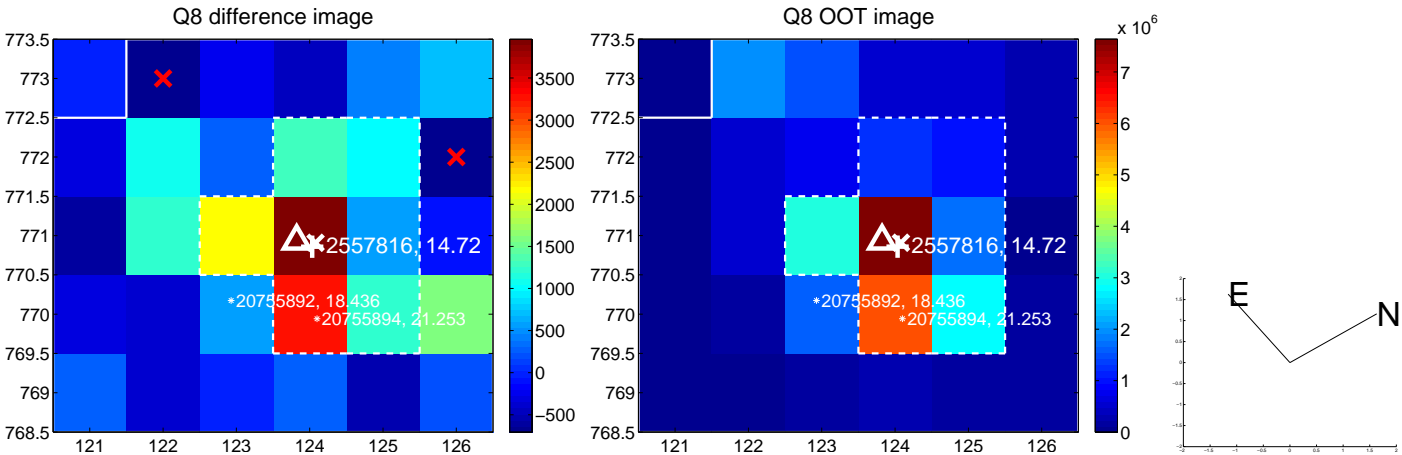
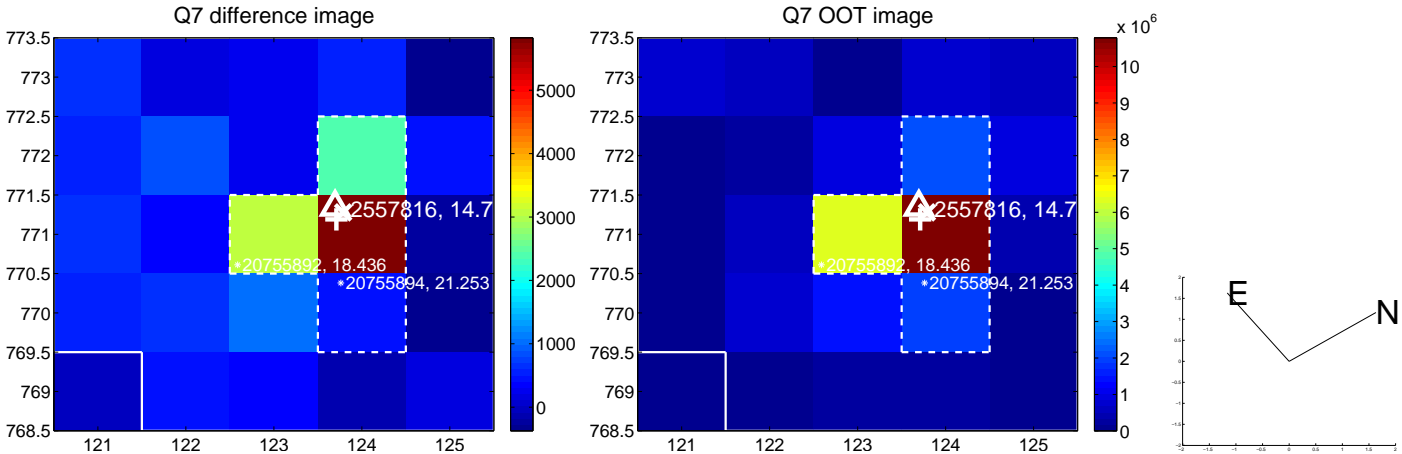
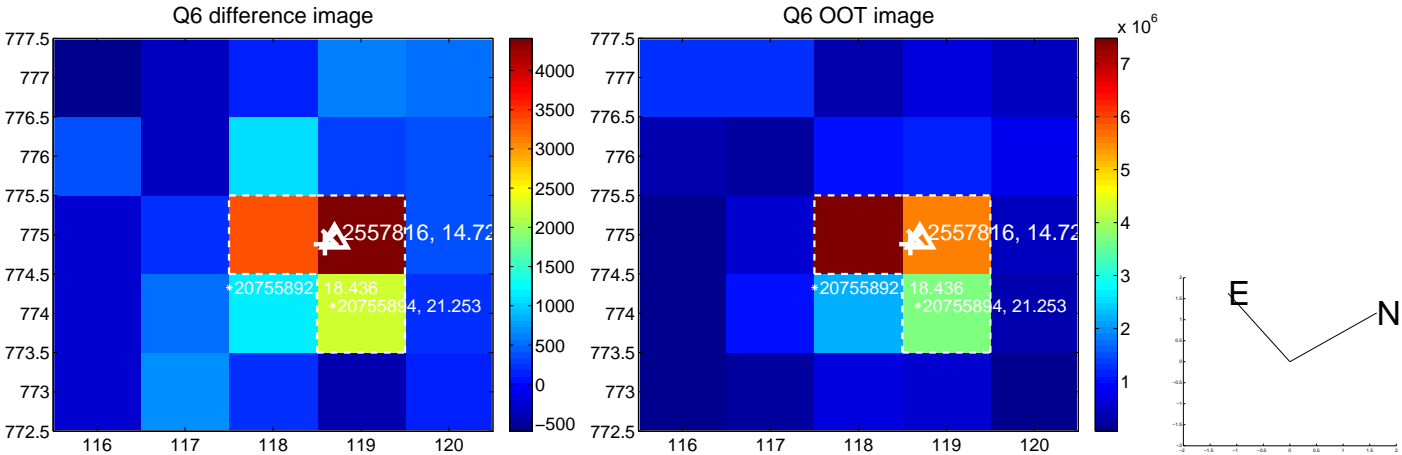
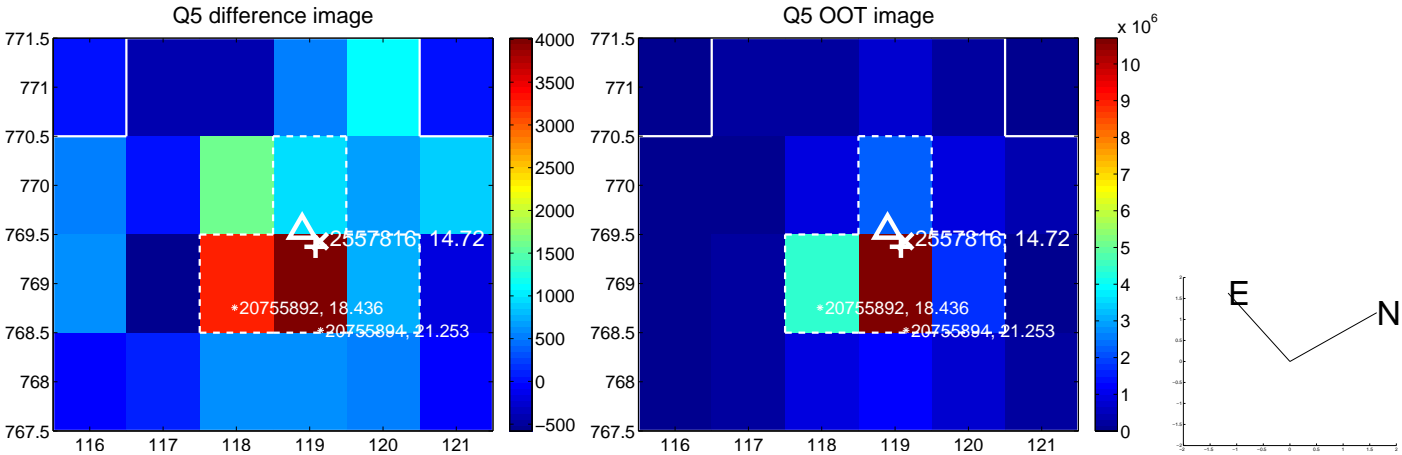


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

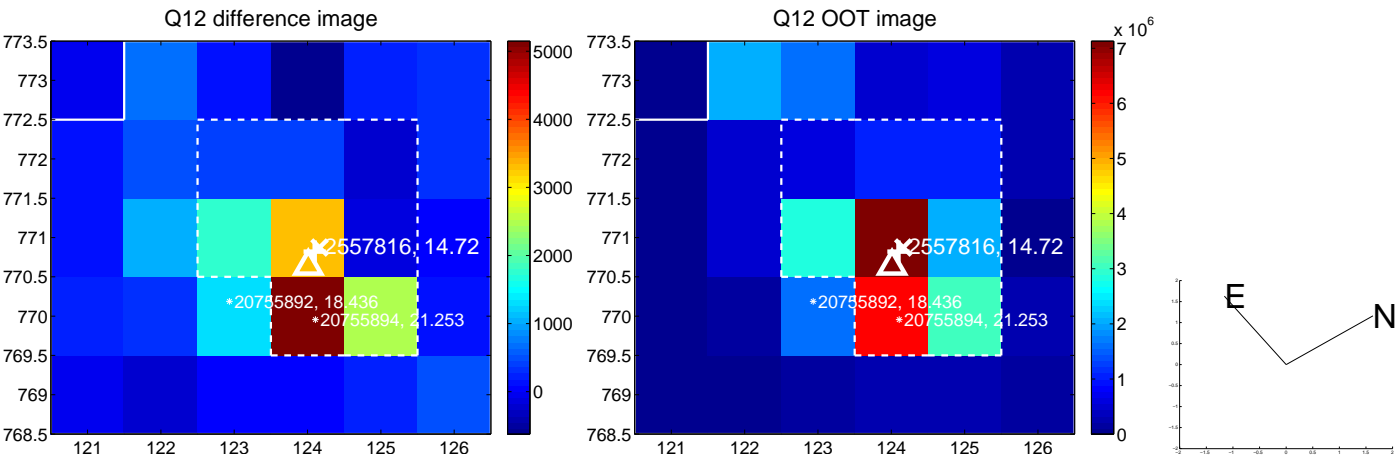
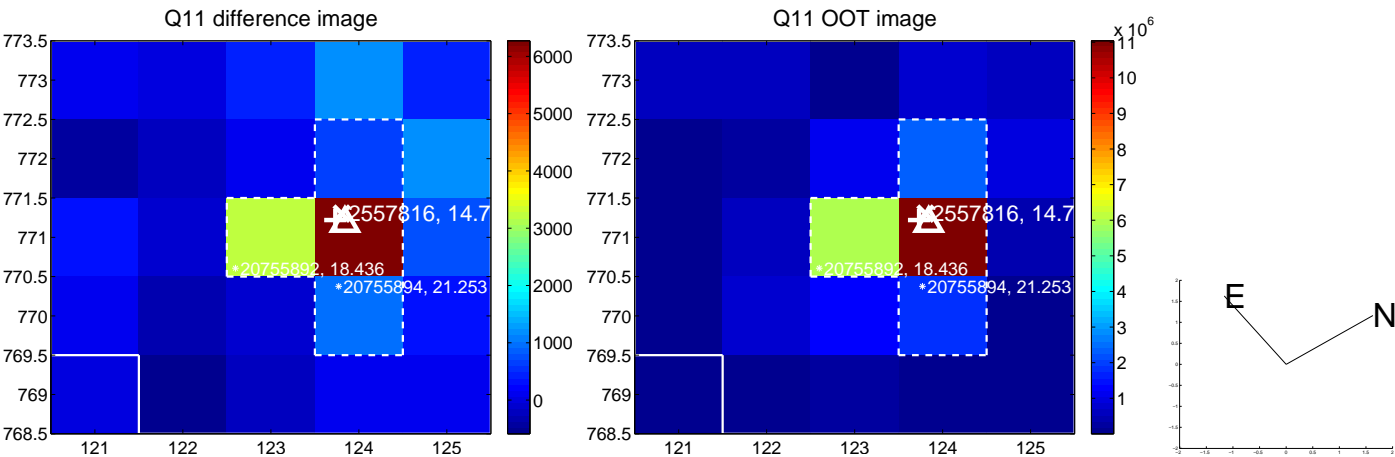
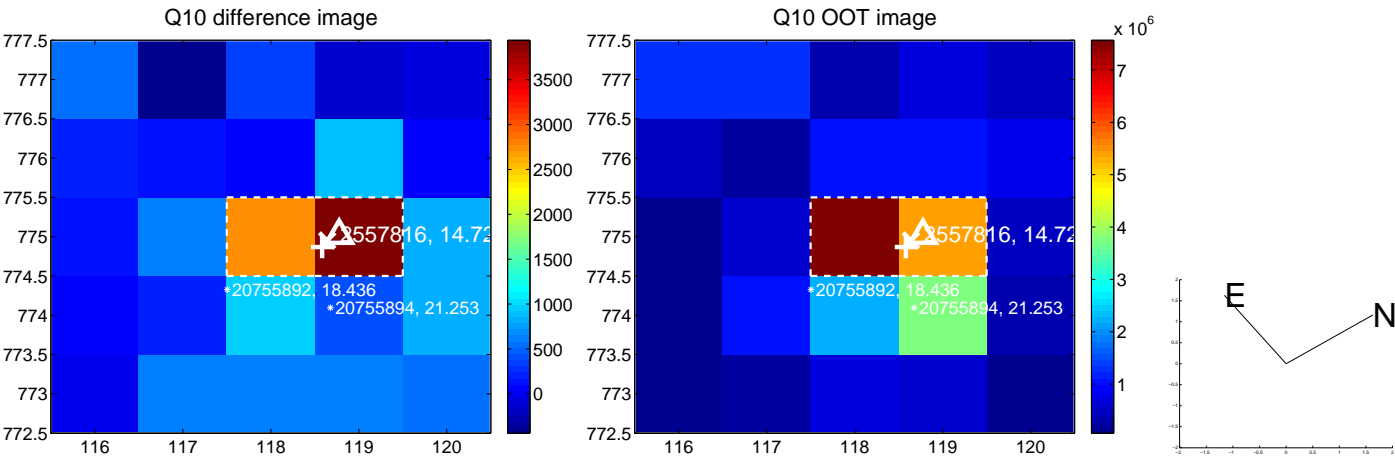
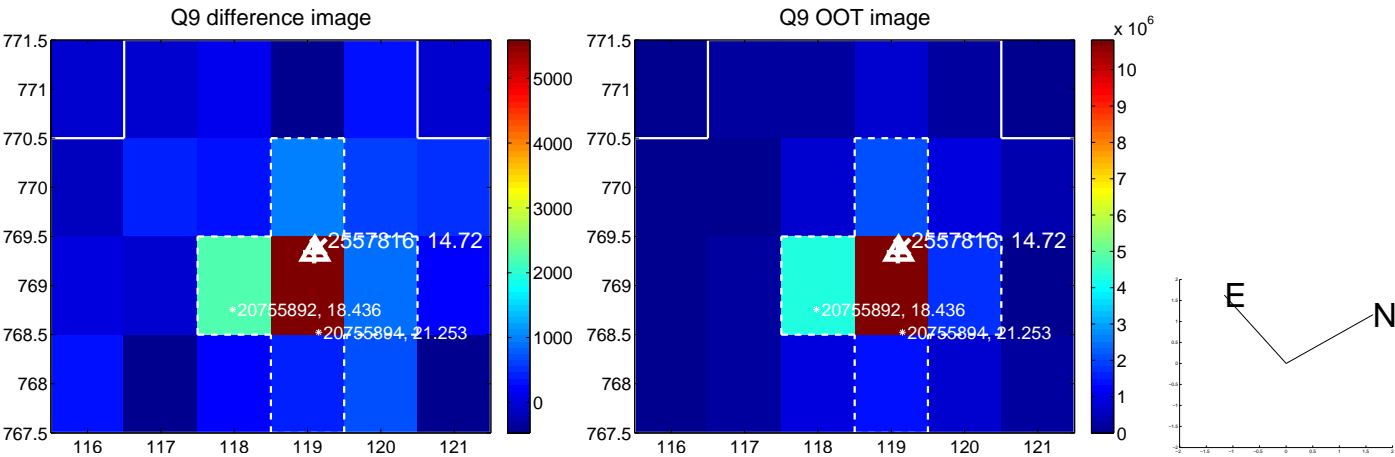
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



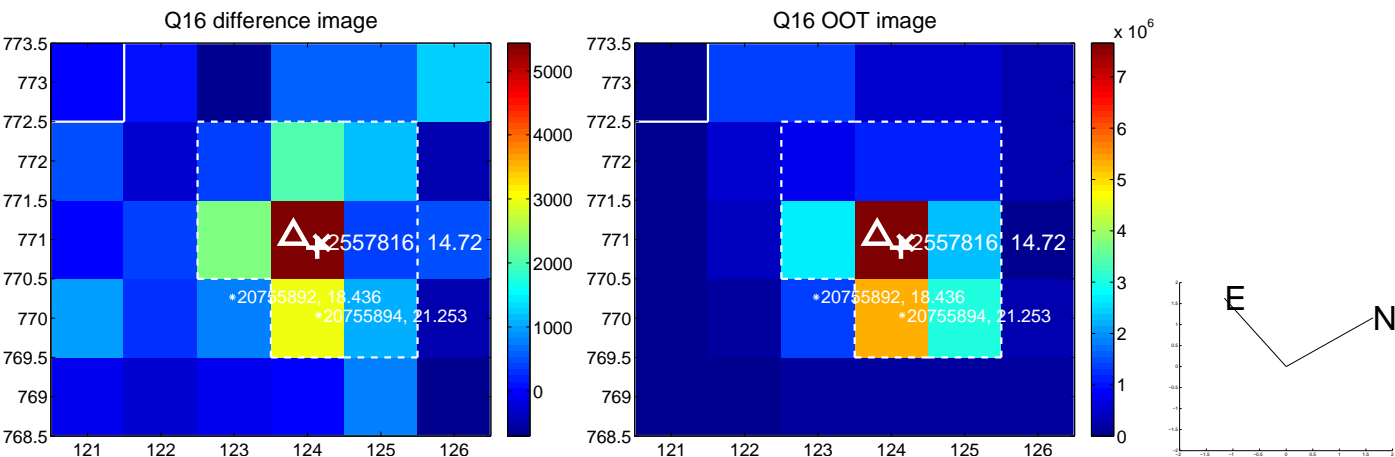
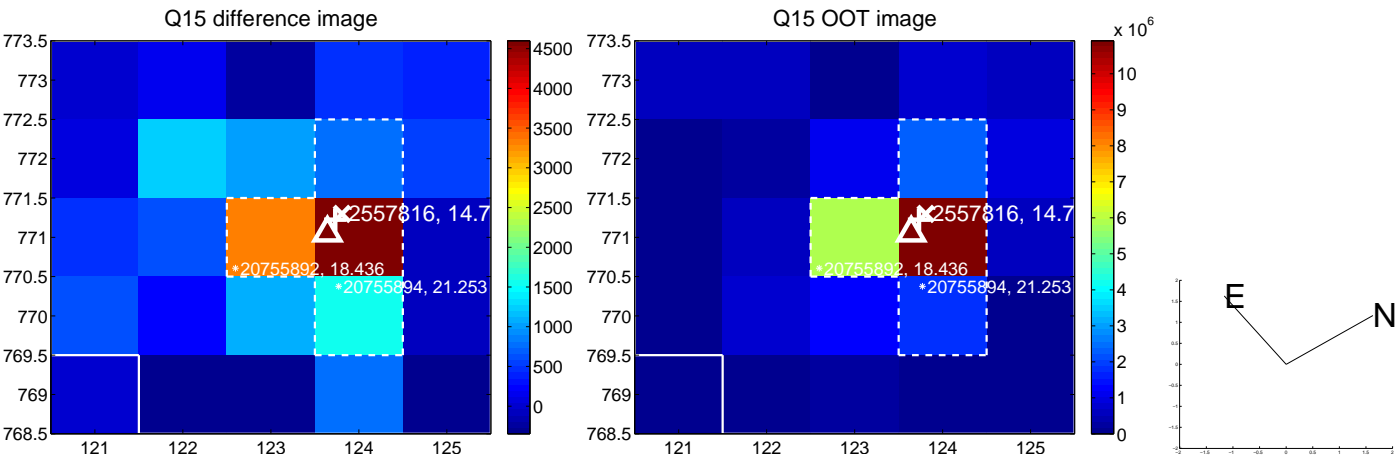
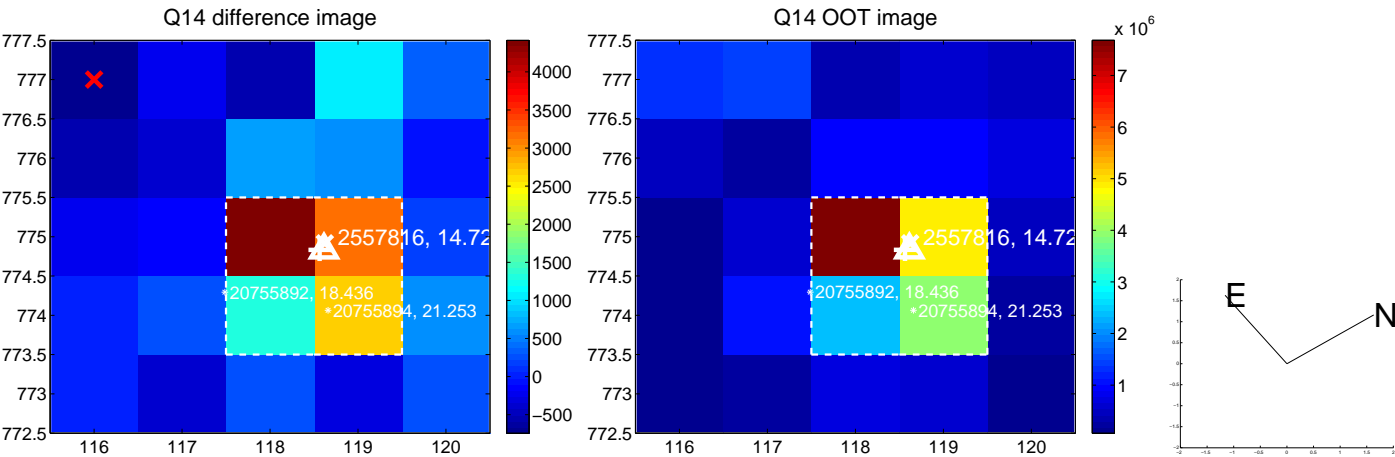
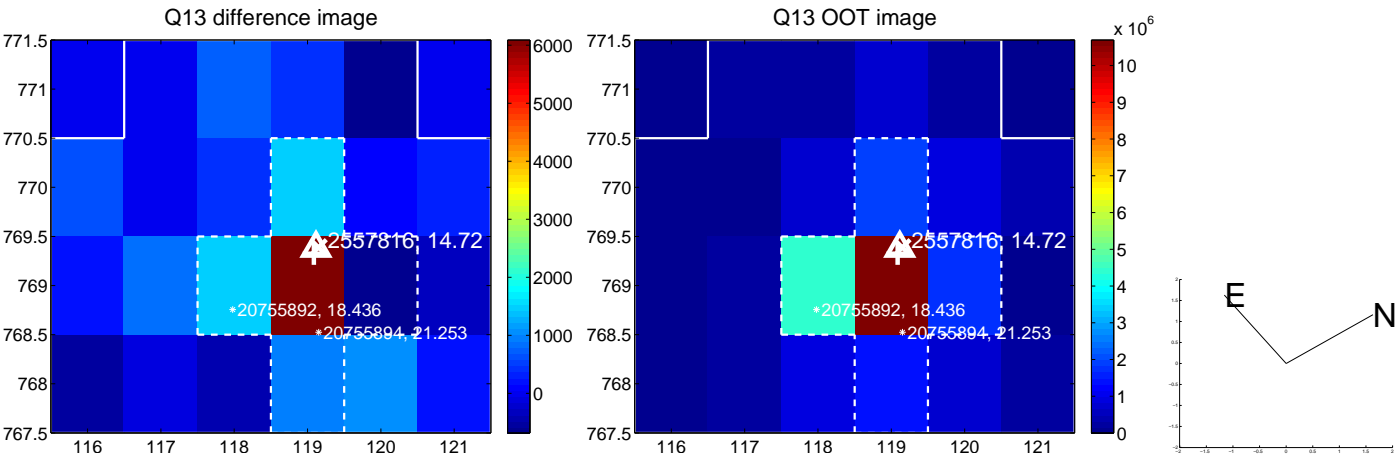
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



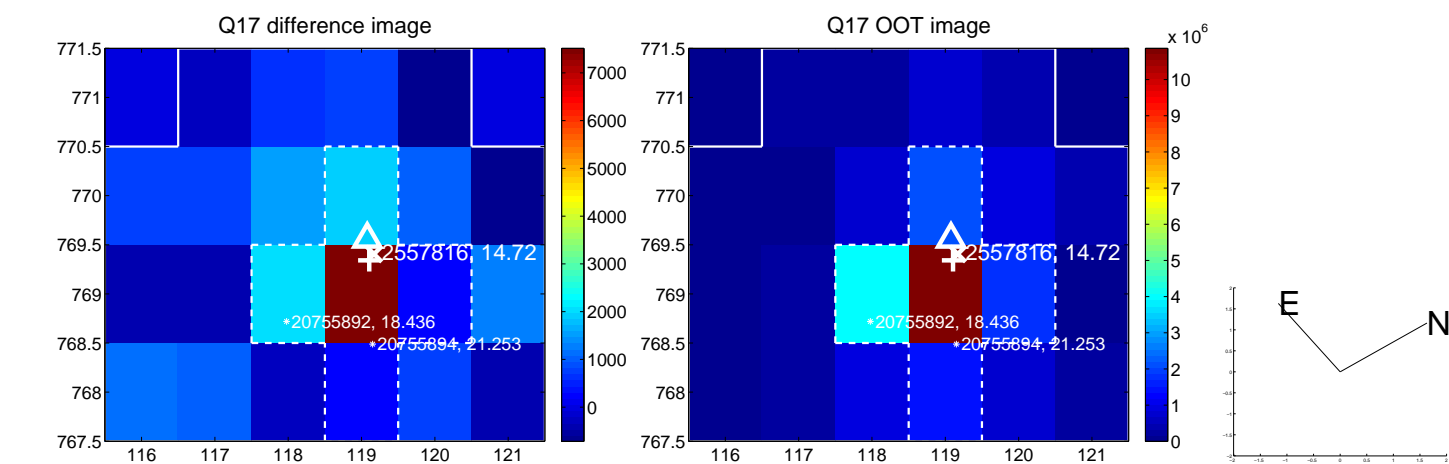
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



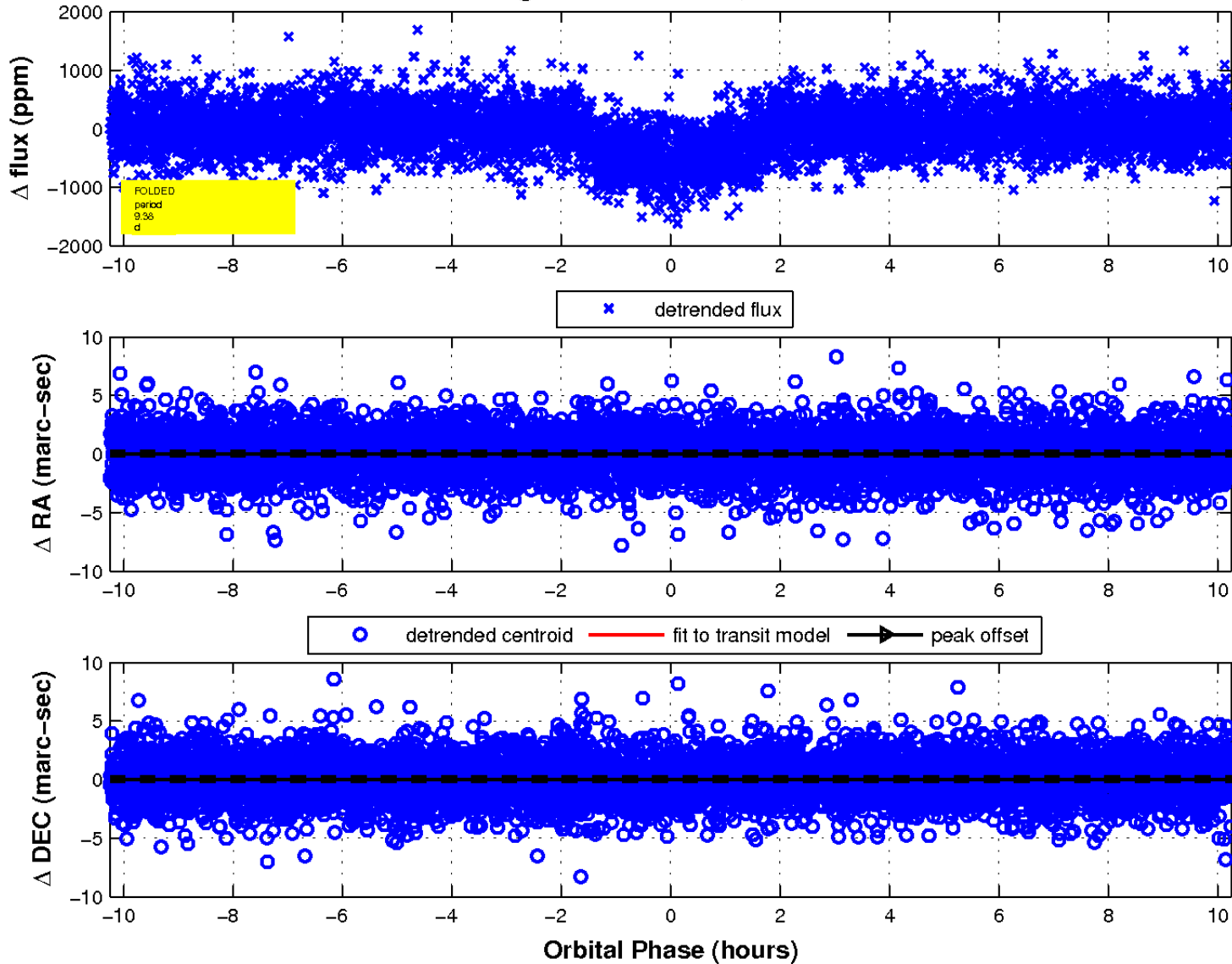
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

