

KIC 007109851

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})
007109851-01	OBS	3012.01	1.086482	131.967512	65.3	0.618	16.3	17.4	2.00	5911	1.77	9836.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007109851-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET

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

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

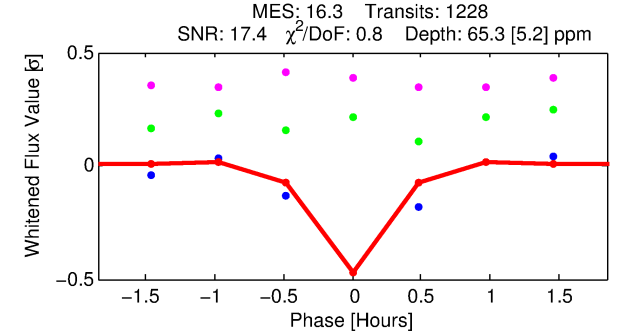
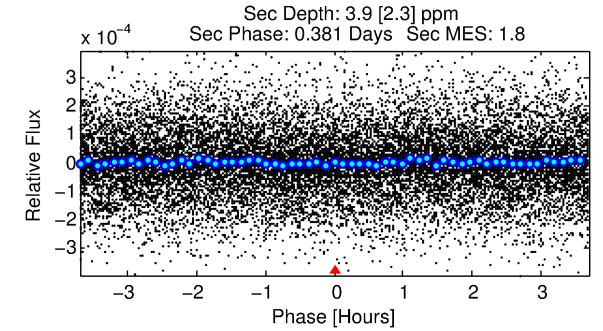
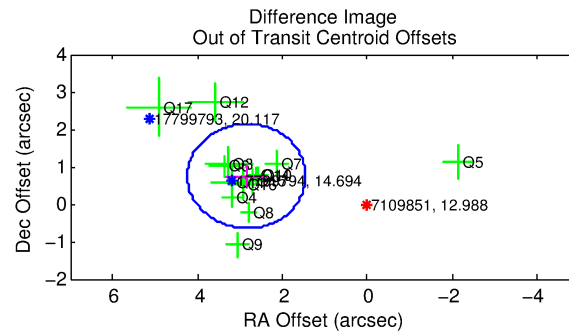
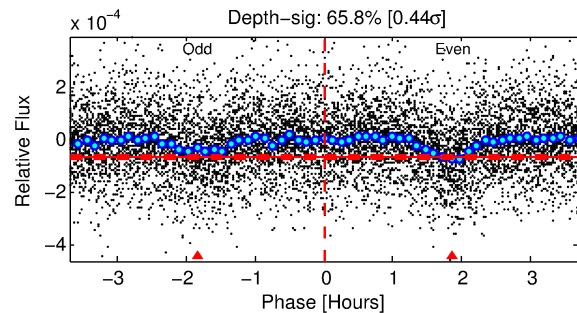
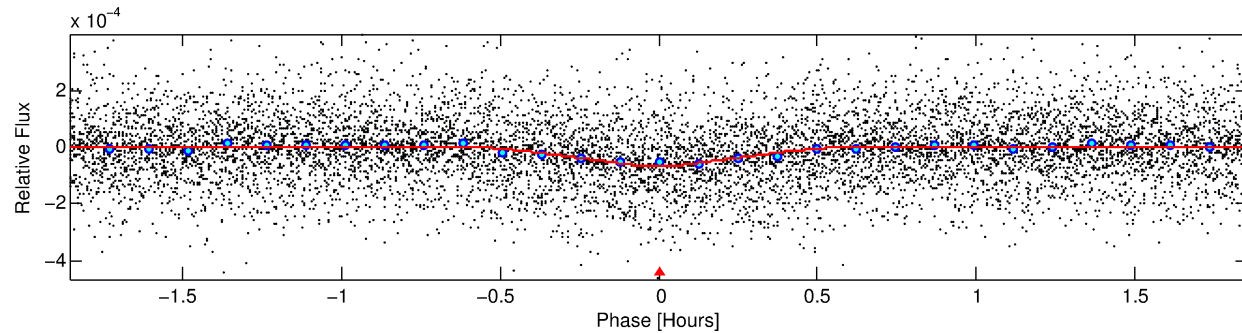
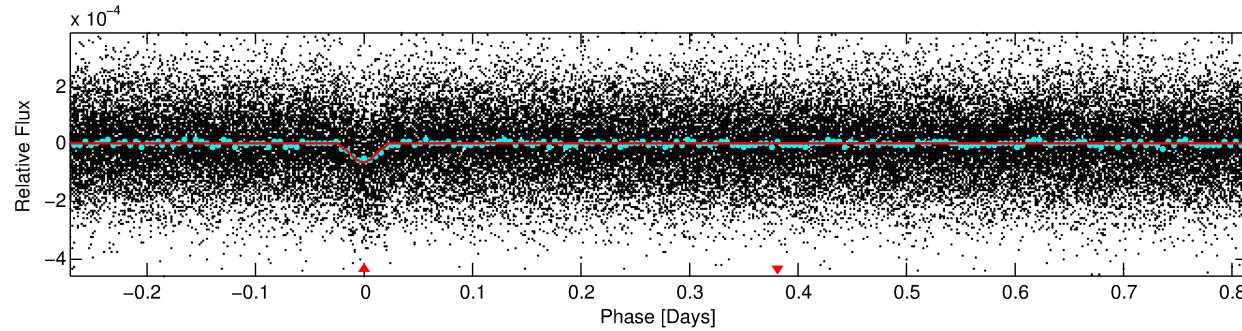
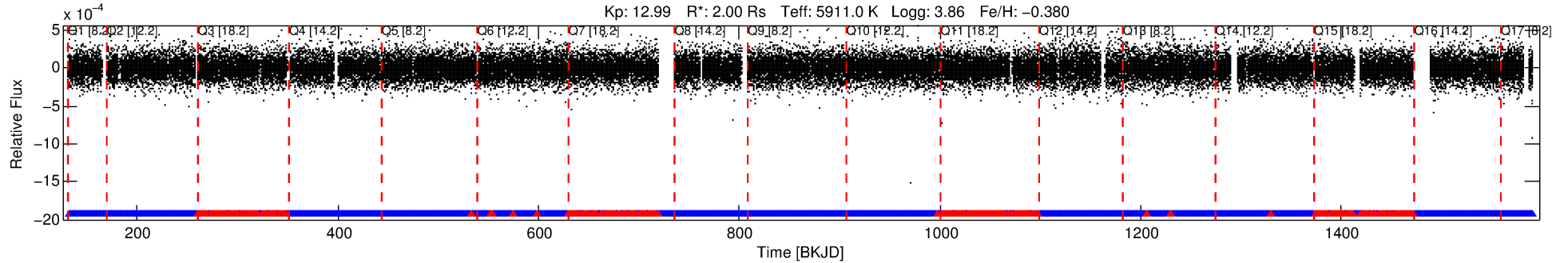
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007109851-01

No Significant Match Found

DV One-Page Summary

KIC: 7109851 Candidate: 1 of 1 Period: 1.086 d
KOI: K03012.01 Corr: 0.860



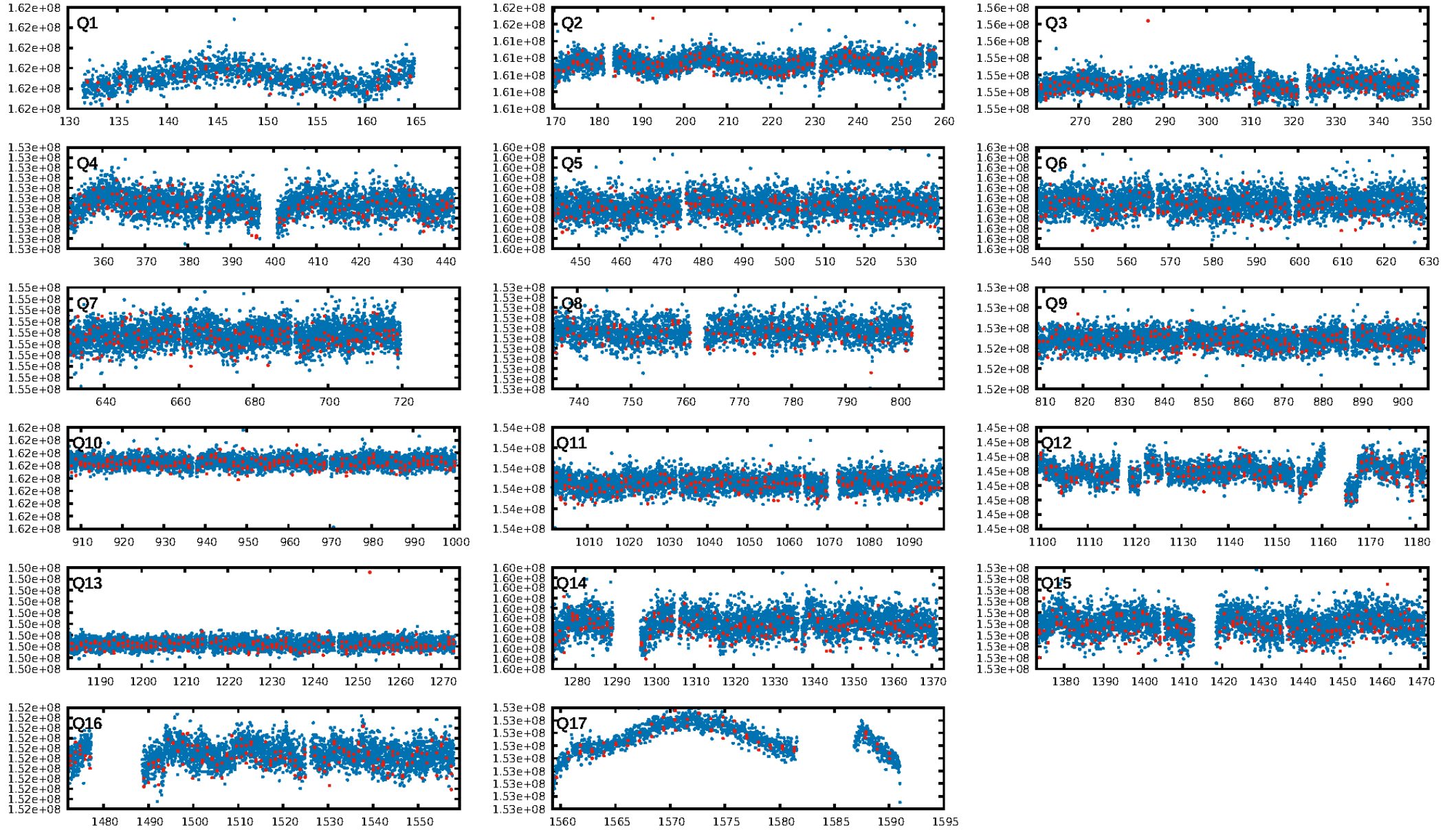
DV Fit Results:

Period = 1.08648 [0.00001] d
Epoch = 131.9675 [0.0007] BKJD
Rp/R* = 0.0081 [0.0017]
a/R* = 9.87 [9.92]
b = 0.69 [0.77]
Seff = 9836.97 [5416.85]
Teq = 2539 [350] K
Rp = 1.77 [0.72] Re
a = 0.0211 [0.0071] AU
Ag = 0.31 [0.28] [-2.52 σ]
Teffp = 2923 [531] K [0.60 σ]

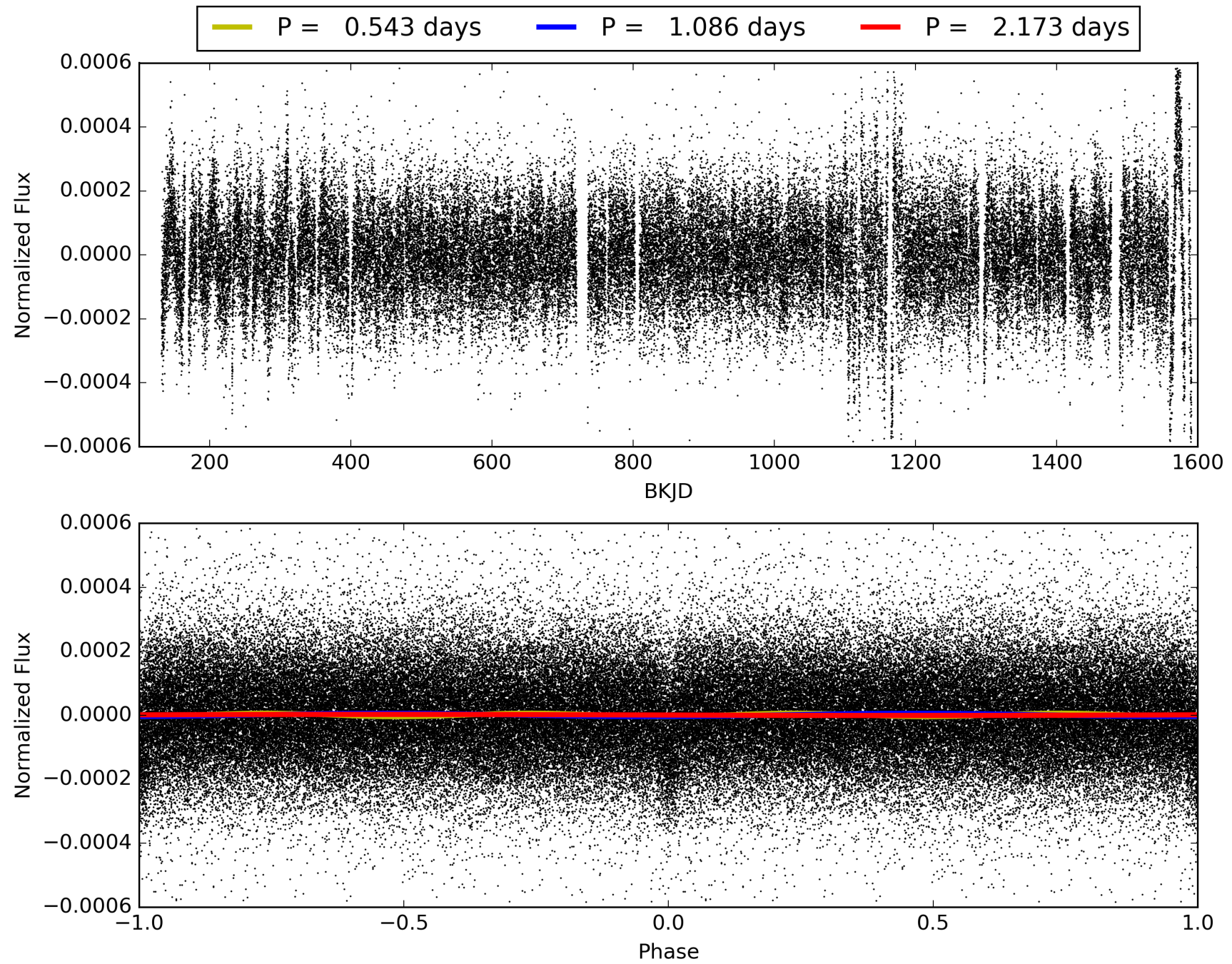
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.38e-56
RollingBand-fgt: 0.76 [887/1173]
GhostDiagnostic-chr: 1.489
Centroid-sig: 0.0%
Centroid-so: 4.122 arcsec [8.16 σ]
OotOffset-rm: 2.940 arcsec [6.33 σ]
KicOffset-rm: 2.739 arcsec [7.00 σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.79 [11/14]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007109851-01, PDC Light Curves

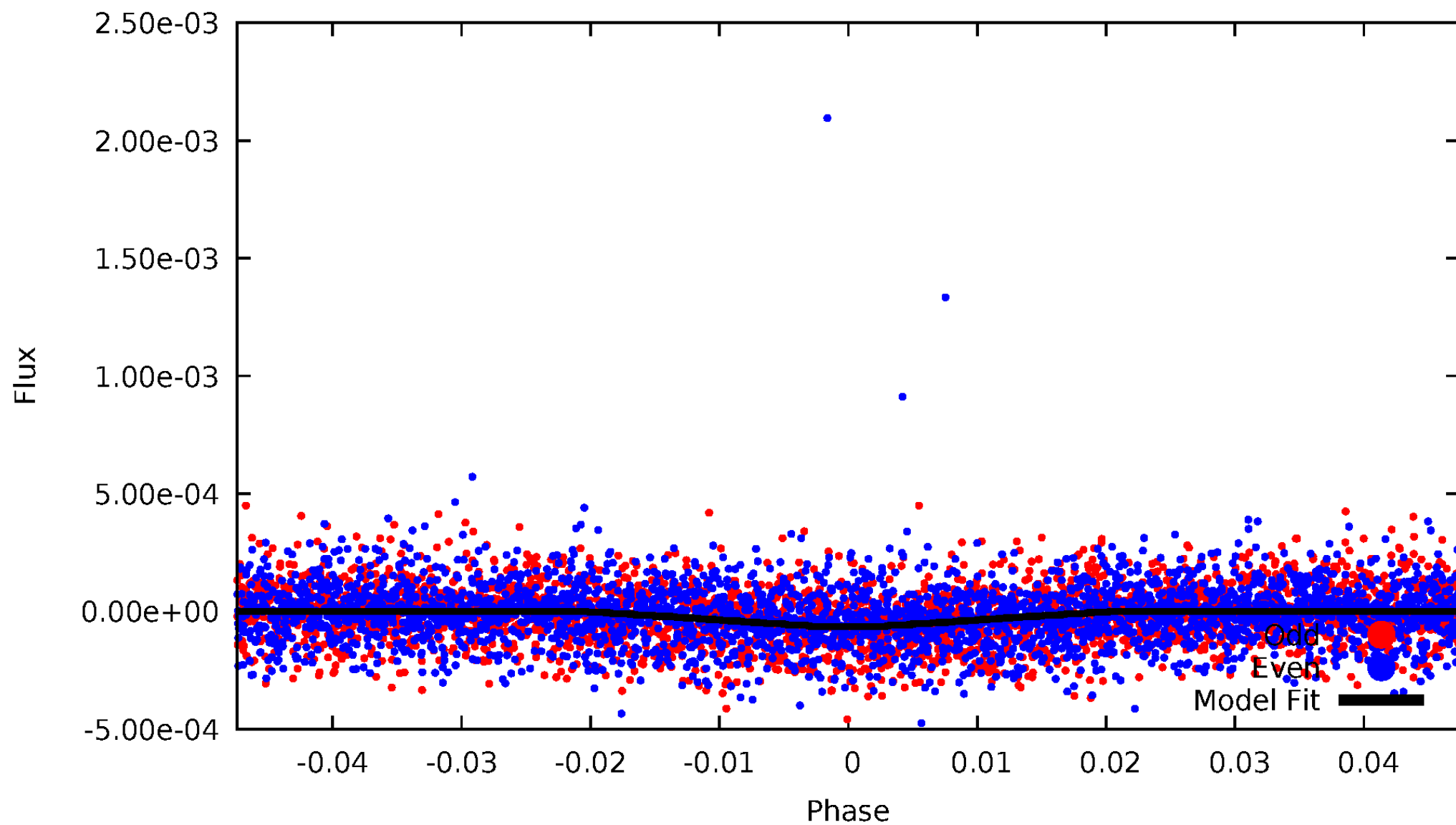


TCE 007109851-01



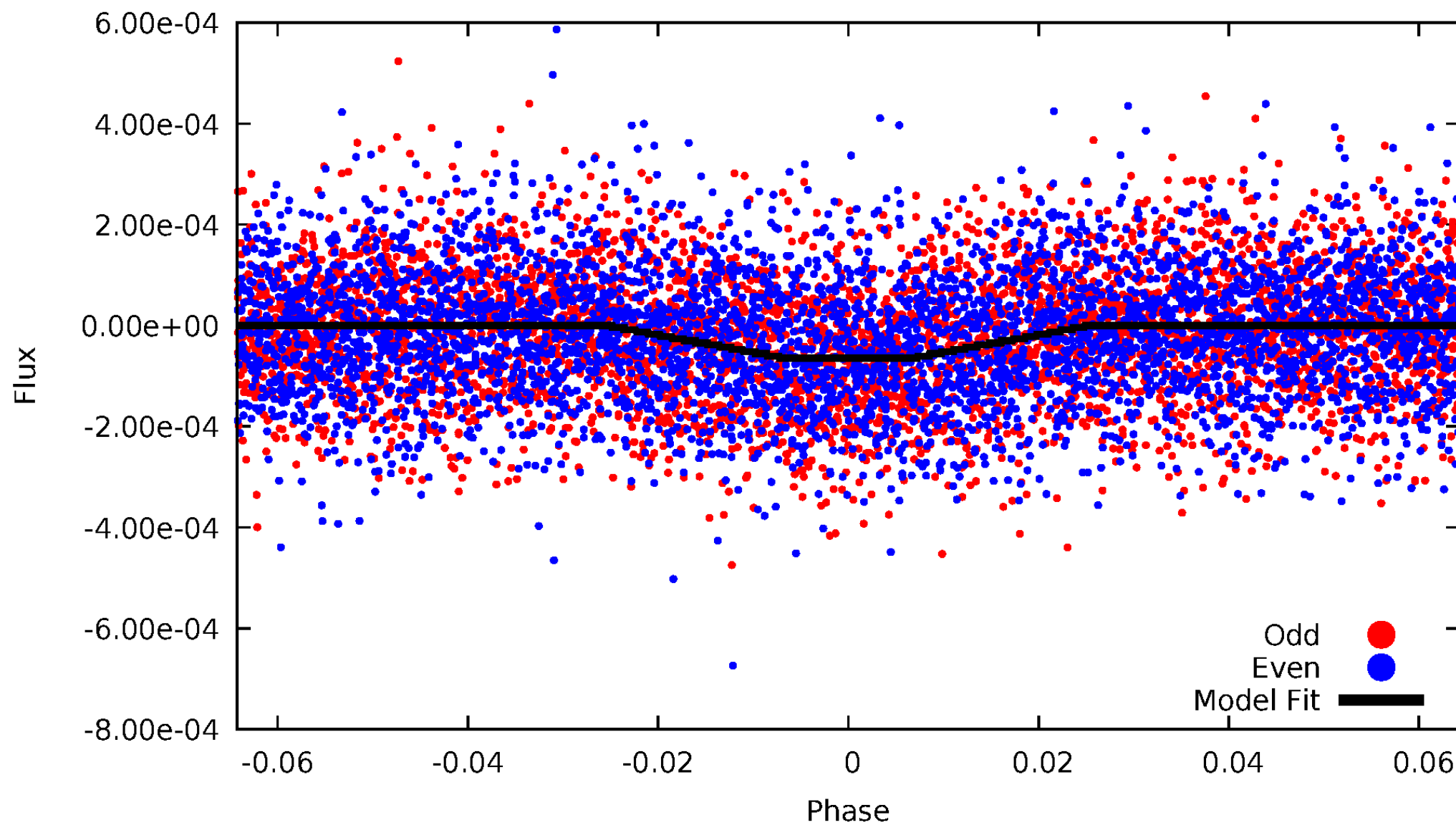
DV Odd/Even

TCE 007109851-01



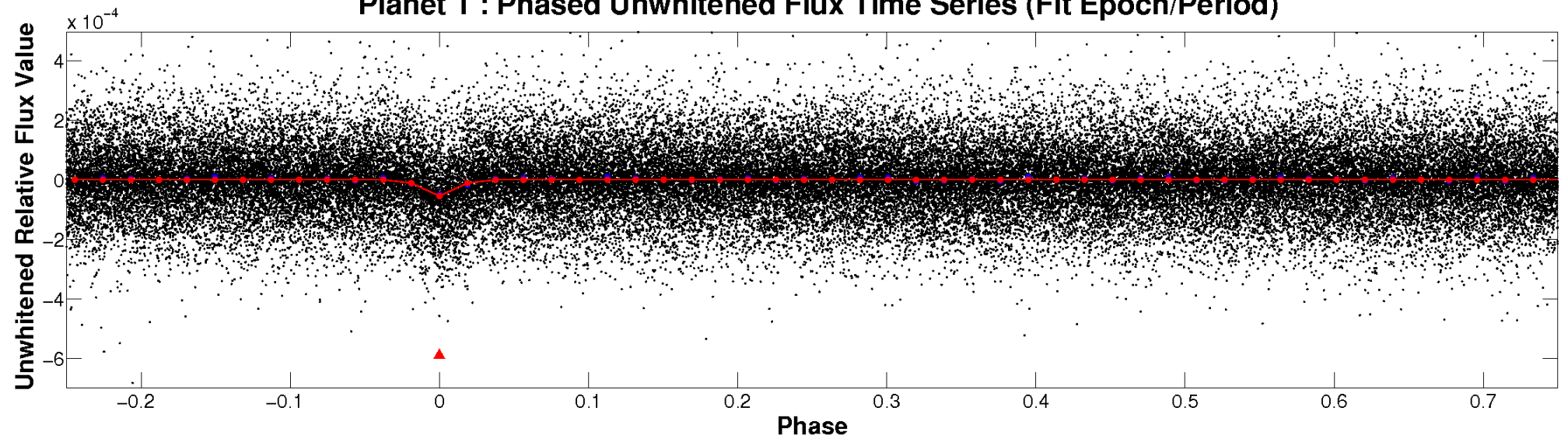
ALT Odd/Even

TCE 007109851-01

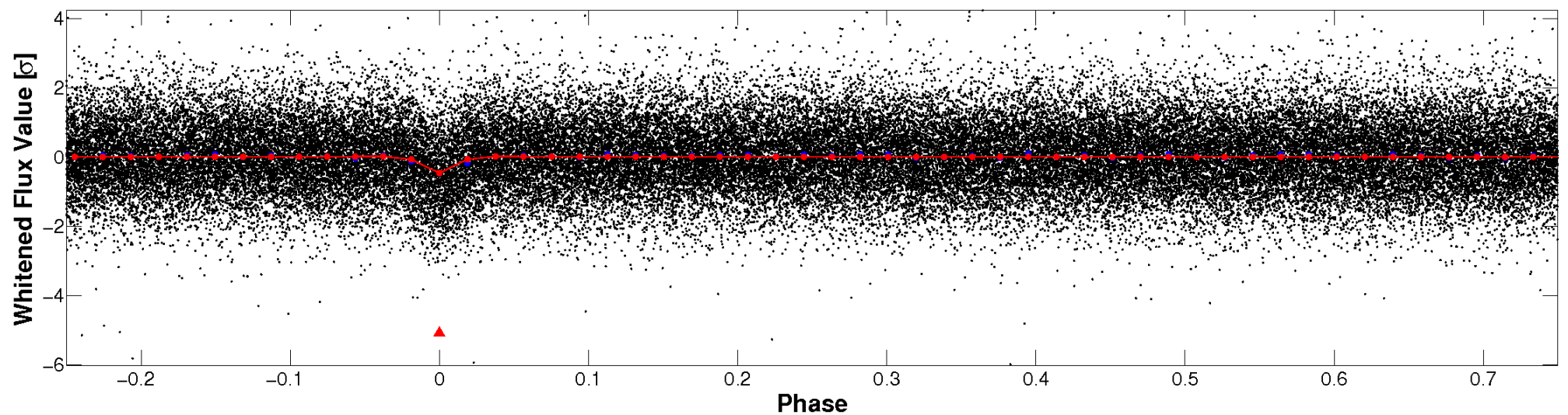


Non-Whitened Vs. Whitened Light Curve

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

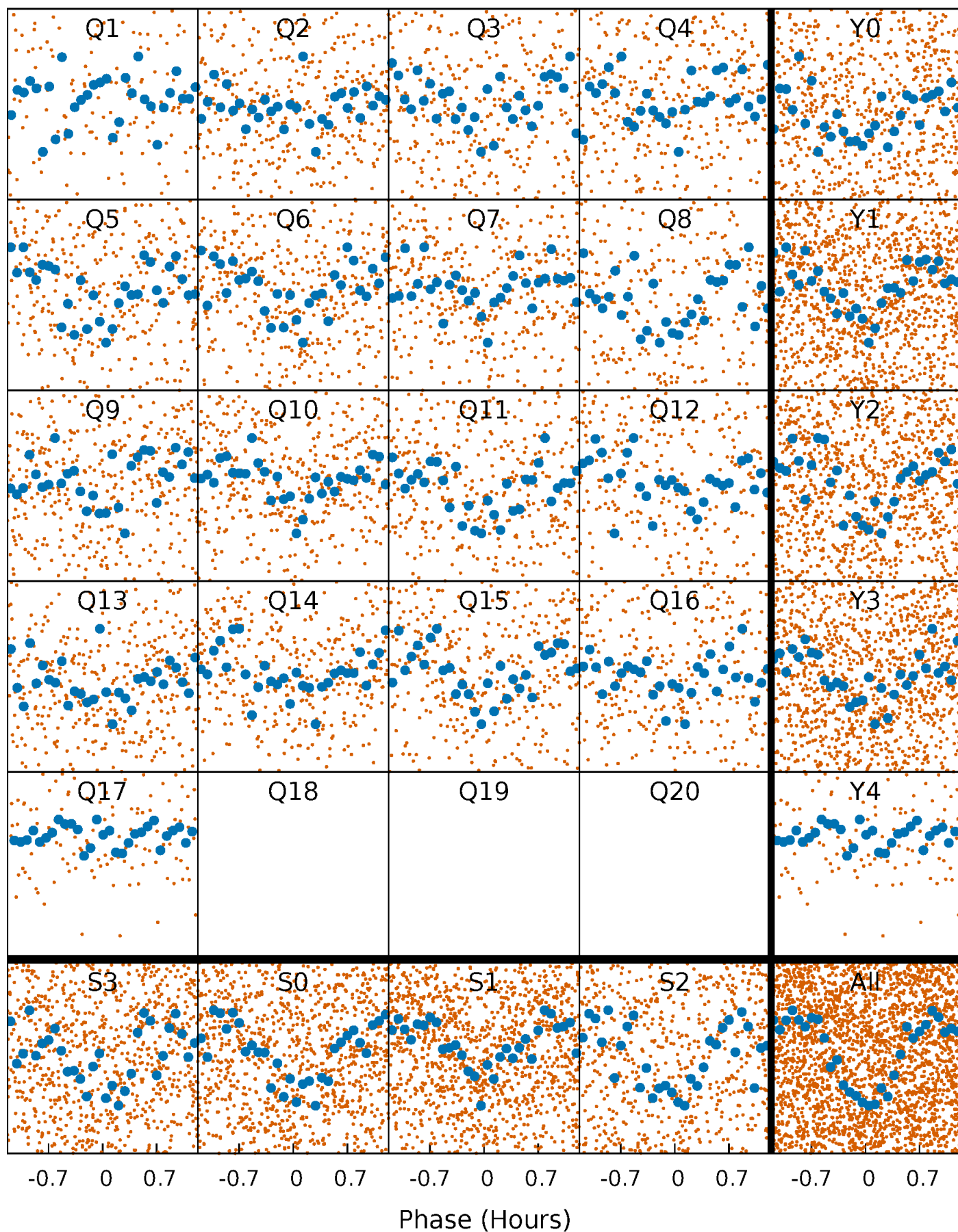


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



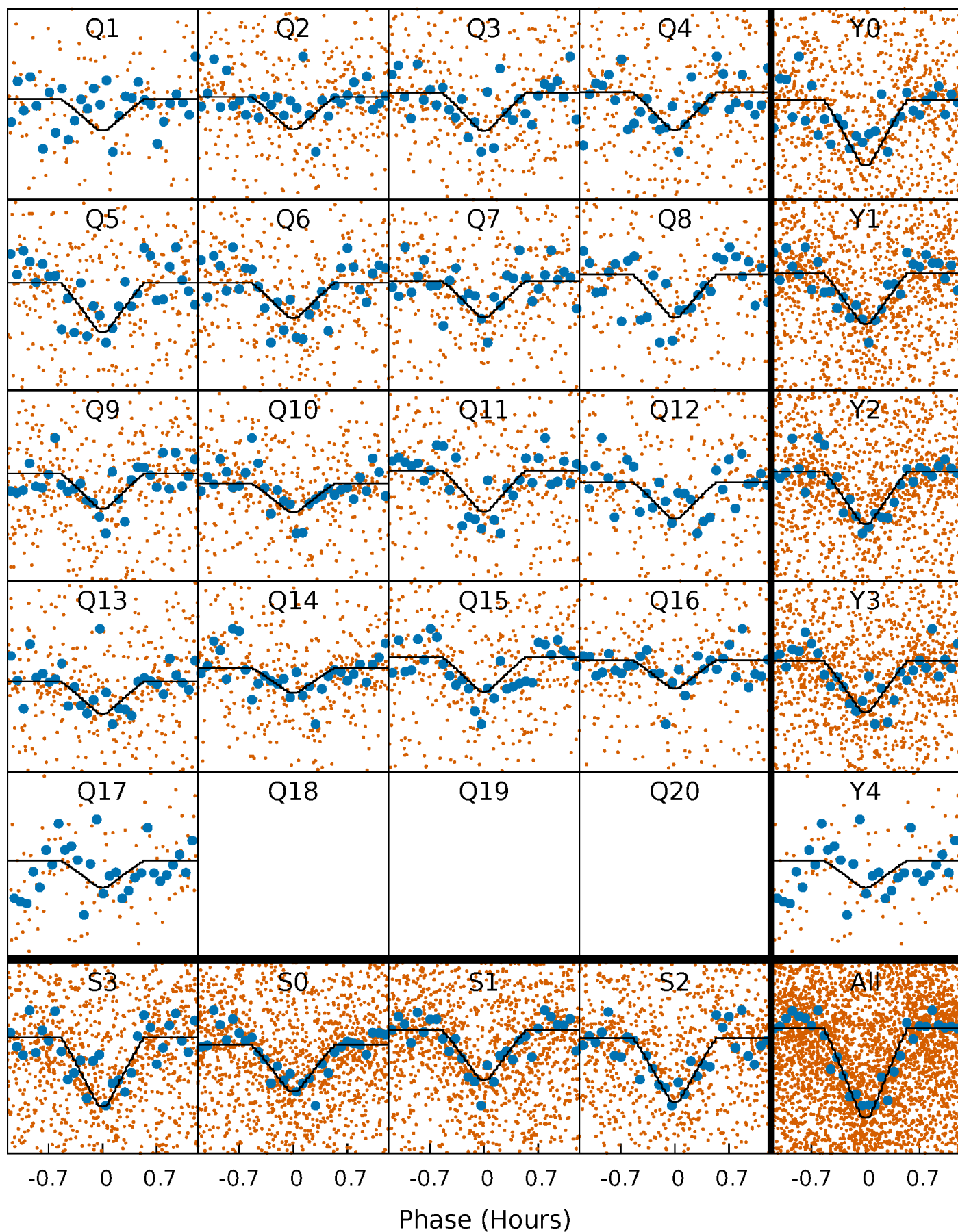
PDC Quarter-Phased Transit Curves

TCE 007109851-01 P= 1.086482 Days $T_0=131.967512$ (BKJD)



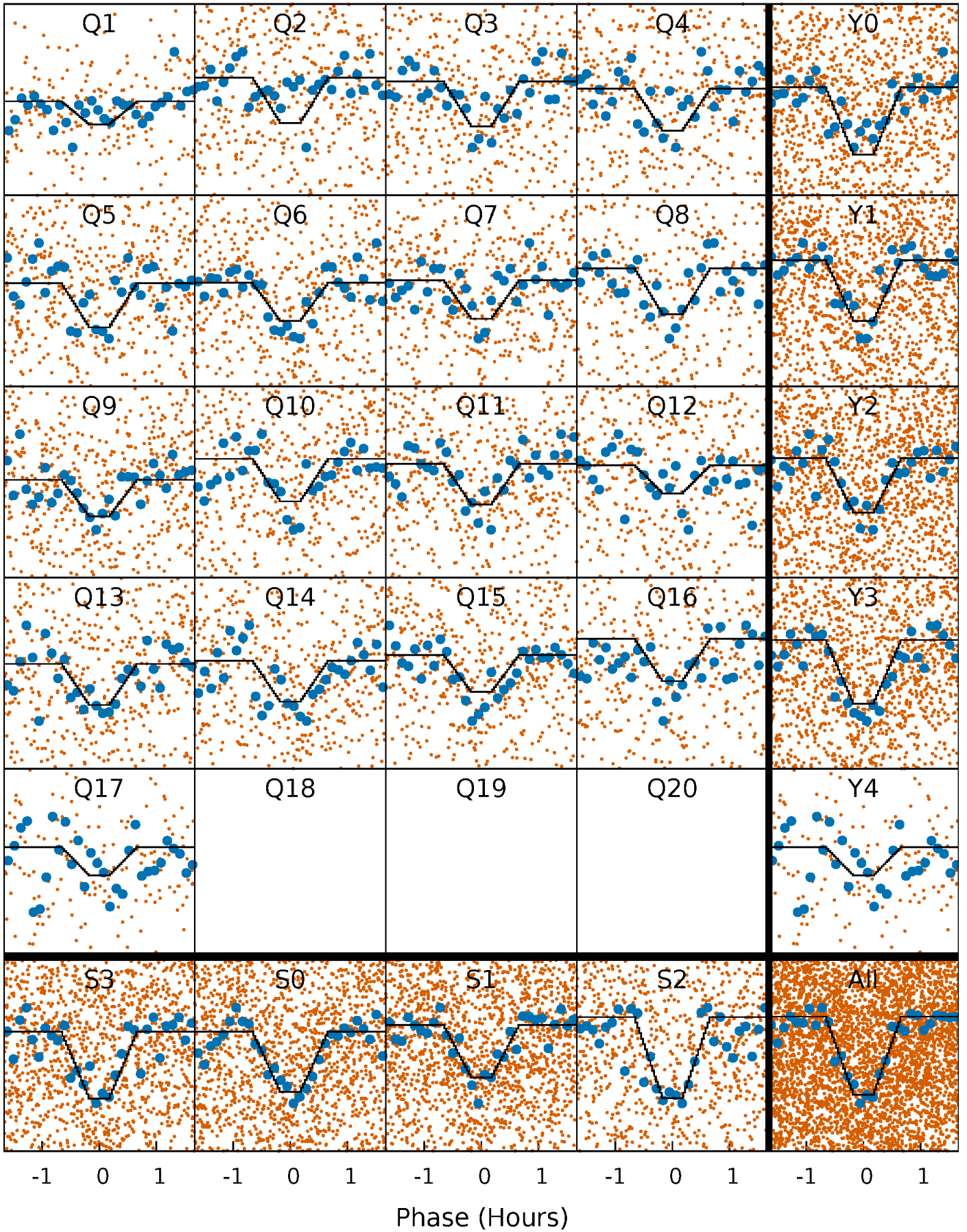
DV Quarter-Phased Transit Curves

TCE 007109851-01 P= 1.086482 Days $T_0=131.967512$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

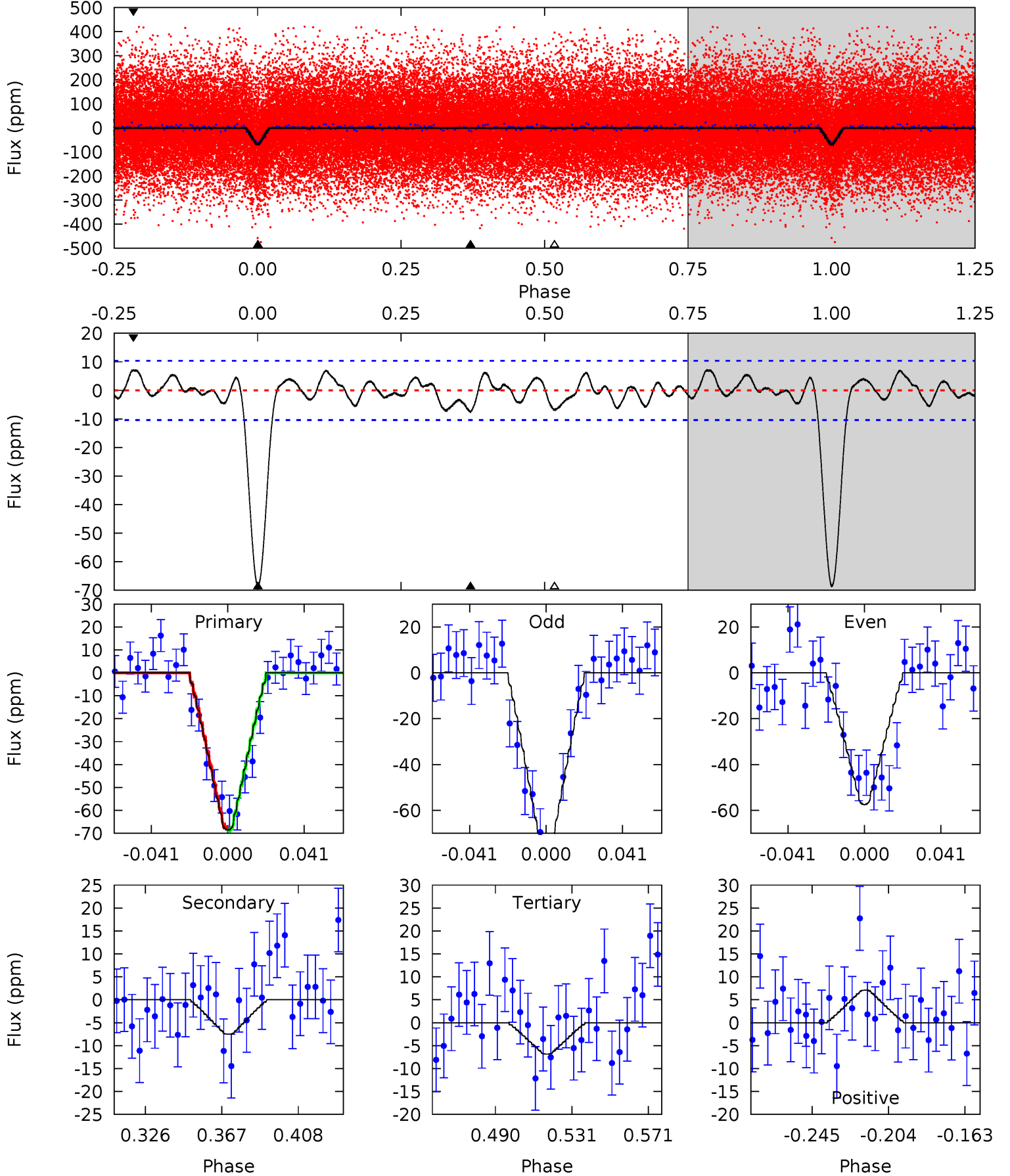
TCE 007109851-01 P= 1.086484 Days $T_0=131.967466$ (BKJD)



DV Model-Shift Uniqueness Test

007109851-01, P = 1.086482 Days, E = 130.881030 Days

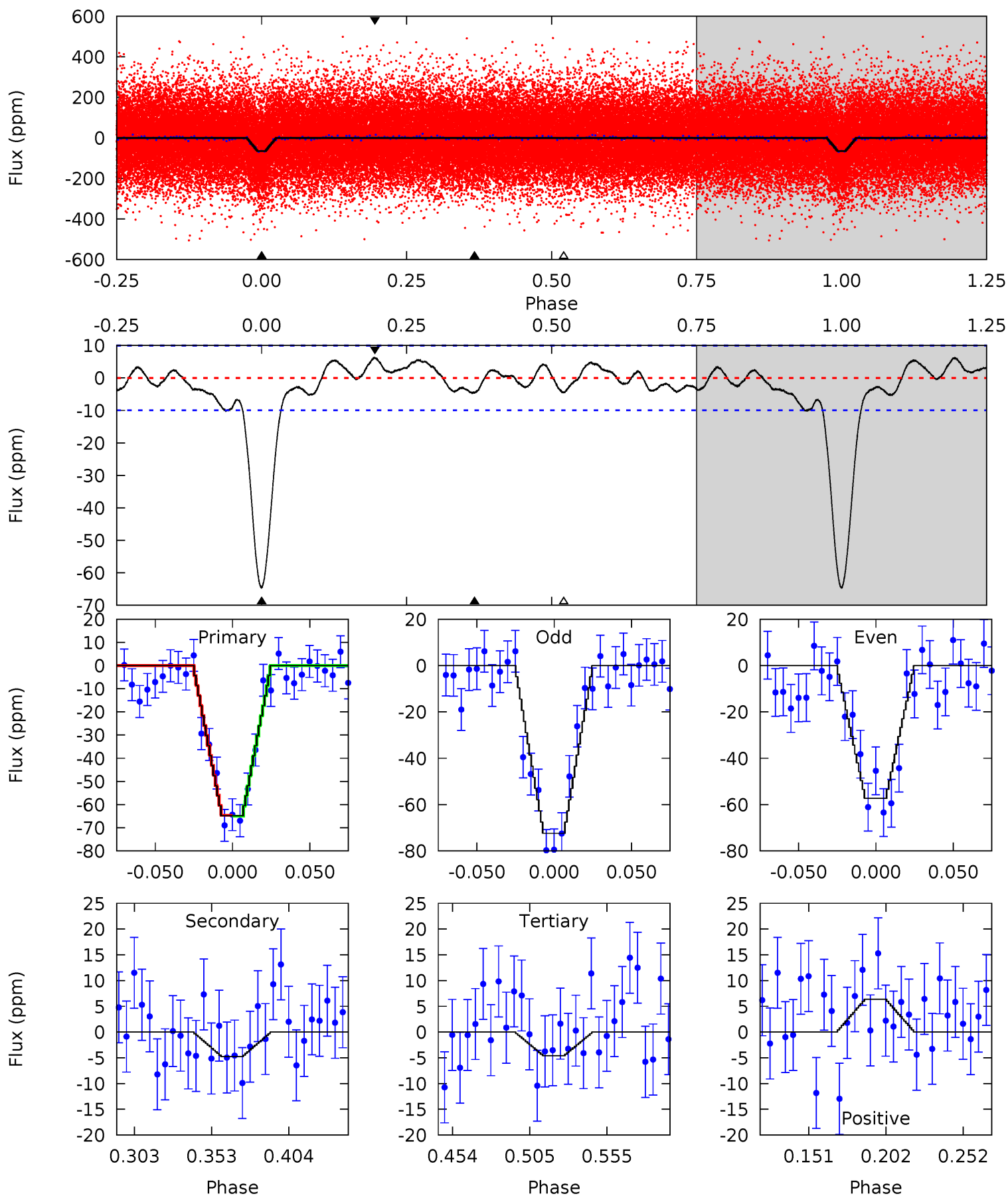
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.4	3.44	3.14	3.24	4.75	2.05	1.42	28.2	28.1	0.30	0.19	5.10	0.99	0.09	0.32



Alt Model-Shift Uniqueness Test

007109851-01, P = 1.086484 Days, E = 130.880982 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	2.25	2.18	3.01	4.71	1.96	1.62	28.4	27.6	0.08	-0.76	3.58	1.00	0.09	0.08



Stellar Parameters For KIC 007109851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5911^{+177}_{-159}	$3.861^{+0.315}_{-0.126}$	$-0.380^{+0.350}_{-0.250}$	$2.000^{+0.379}_{-0.704}$	$1.060^{+0.173}_{-0.173}$	$0.187^{+0.398}_{-0.068}$
	+3%/-3%	+8%/-3%	+92%/-66%	+19%/-35%	+16%/-16%	+214%/-36%
Source	PHO1	FLK73	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 007109851-01 / KOI 3012.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-8 ± 2	$1.75^{+0.43}_{-0.47}$	3534^{+227}_{-295}	3395^{+551}_{-765}	$0.617^{+0.548}_{-0.272}$
Alt.	-5 ± 2	$1.69^{+0.47}_{-0.43}$	3511^{+230}_{-315}	2902^{+741}_{-5861}	$0.412^{+0.435}_{-0.219}$

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

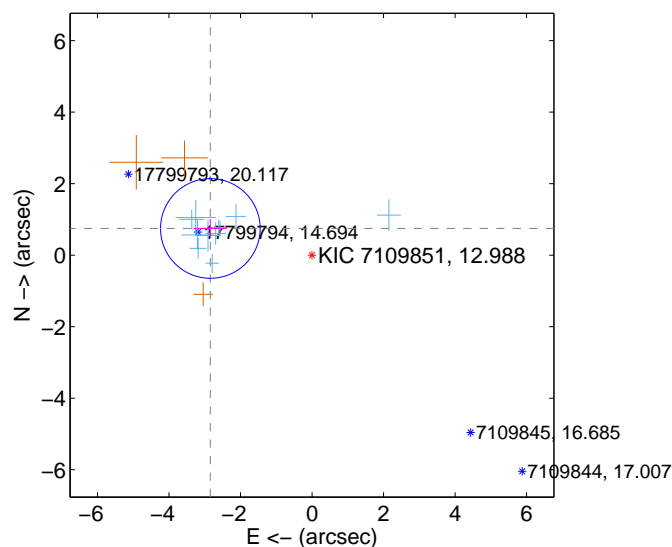
Supplemental centroid analysis for 007109851-01. Kepler magnitude: 12.99. Transit SNR 17.42

There are 11 quarters with good PRF difference image offsets

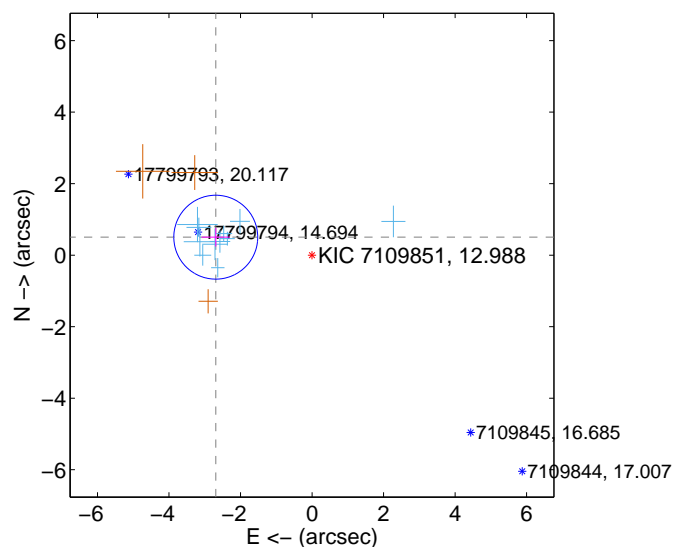
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.940 ± 0.464	6.33	2.843 ± 0.461	0.747 ± 0.264
PRF-fit source offset from KIC position	2.739 ± 0.391	7.00	2.692 ± 0.396	0.503 ± 0.260
photometric centroid source offset	4.12 ± 0.51	8.16	3.40 ± 0.50	2.33 ± 0.52

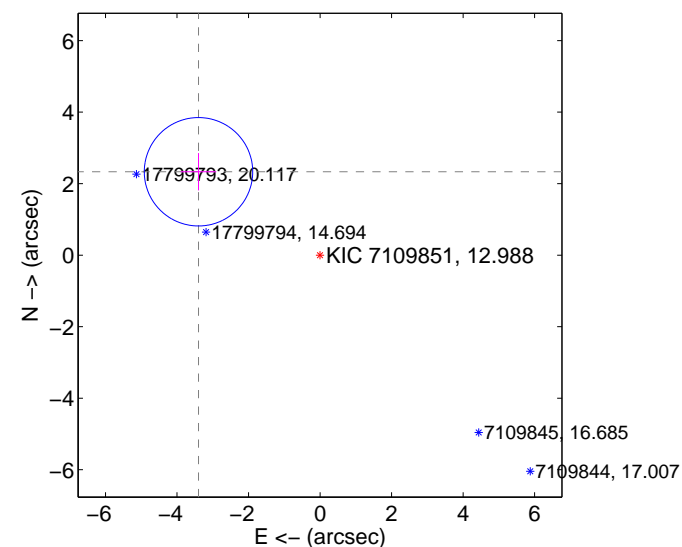
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

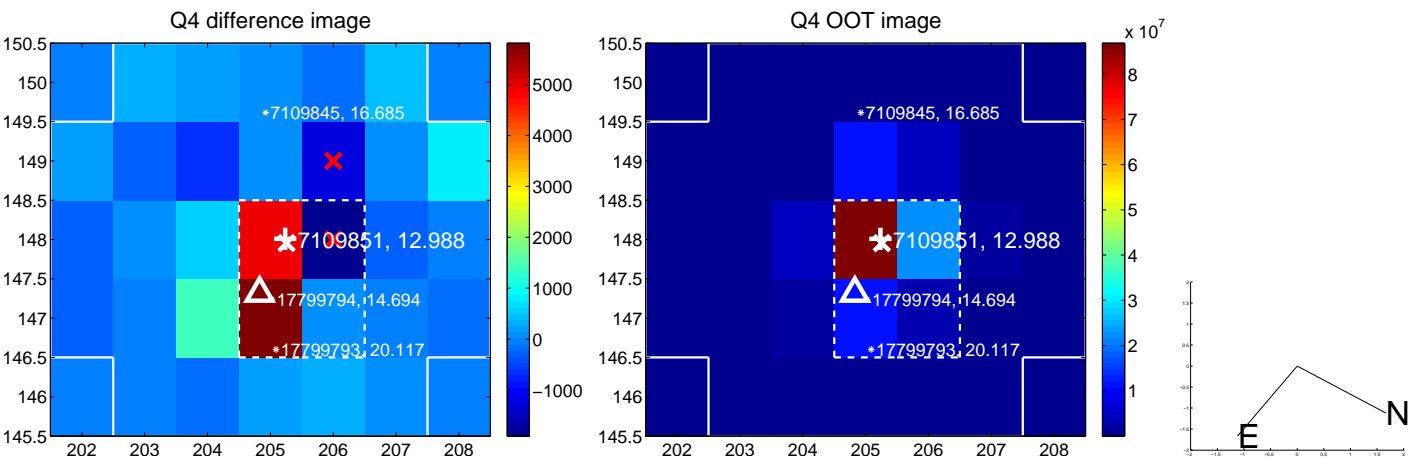
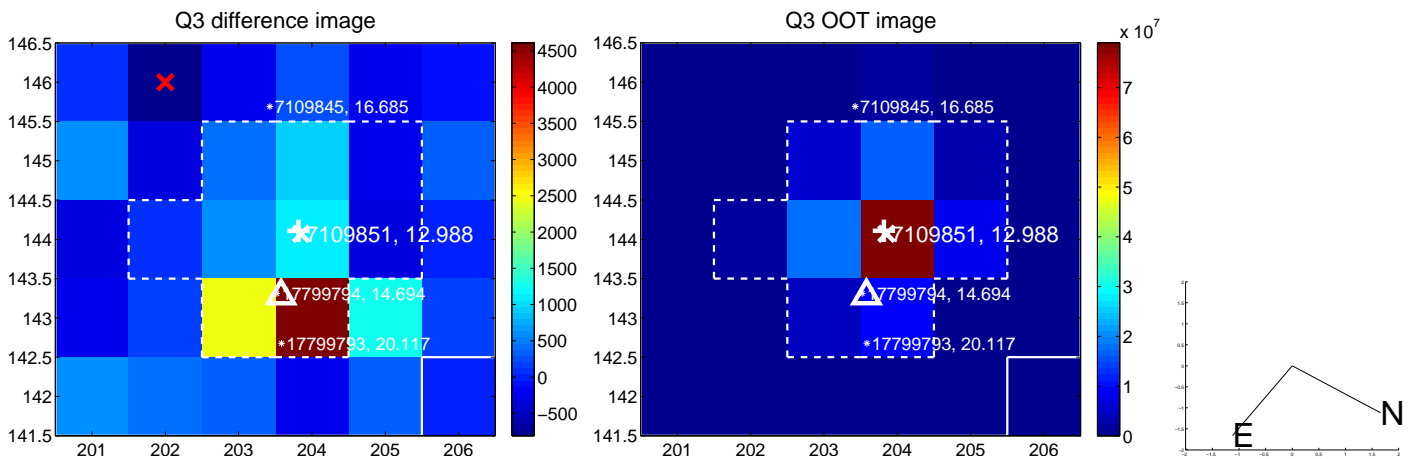
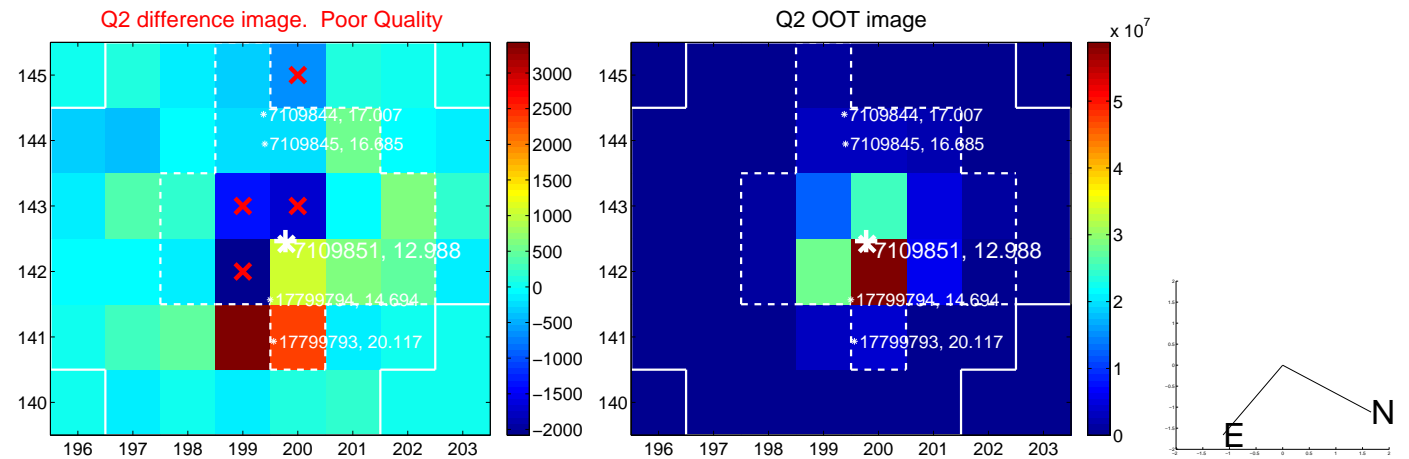
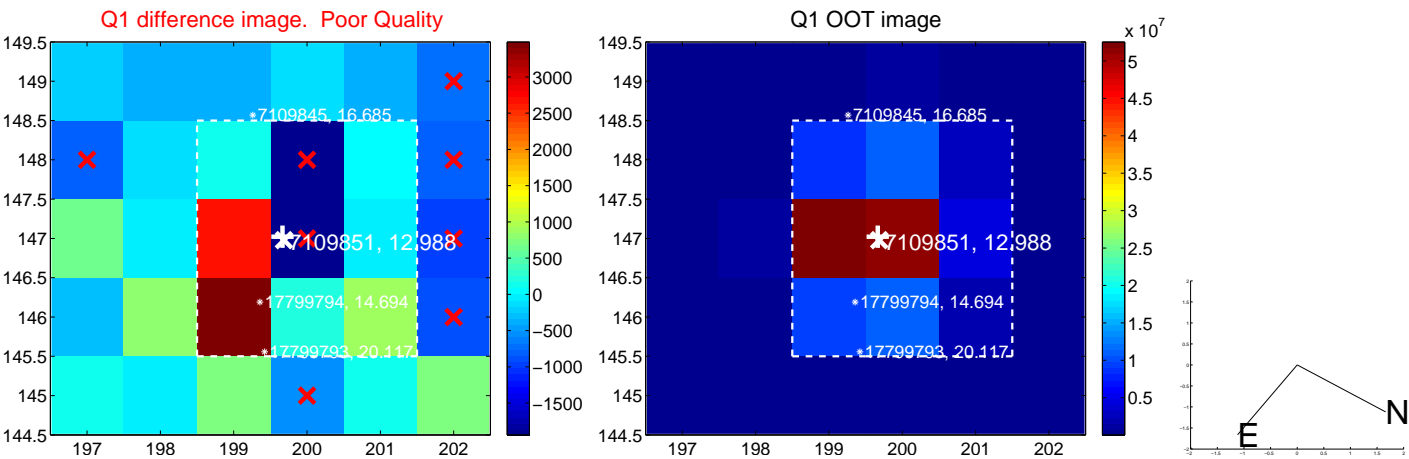


offset from photometric centroids

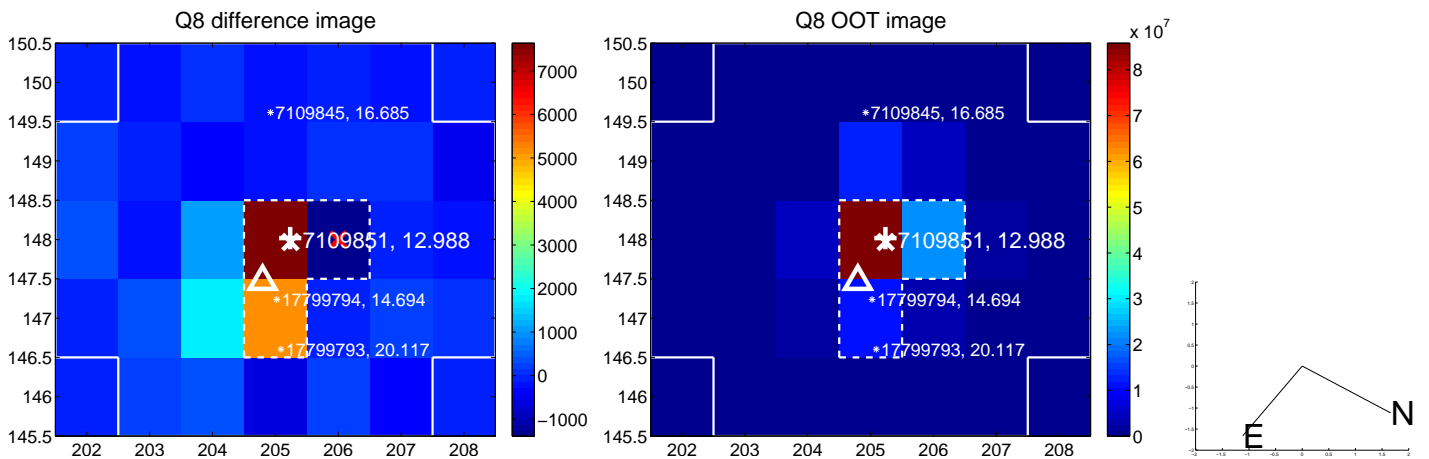
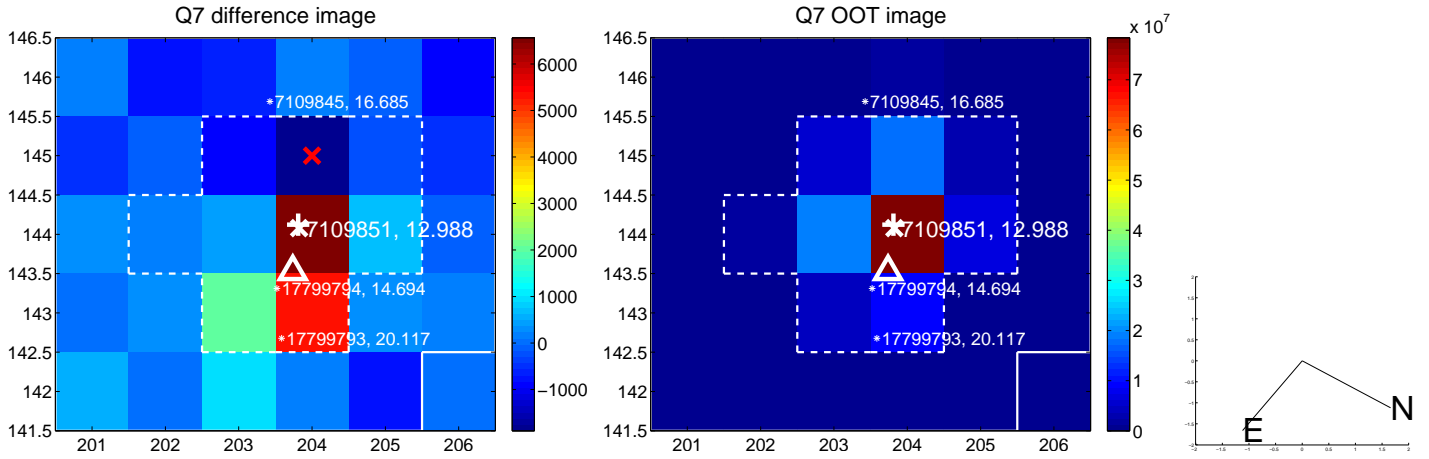
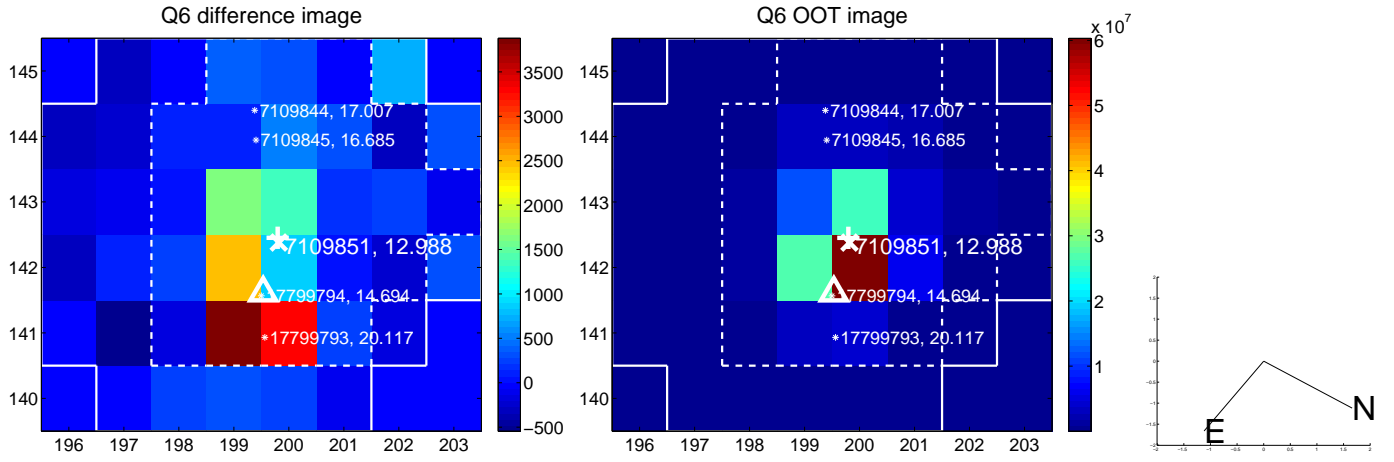
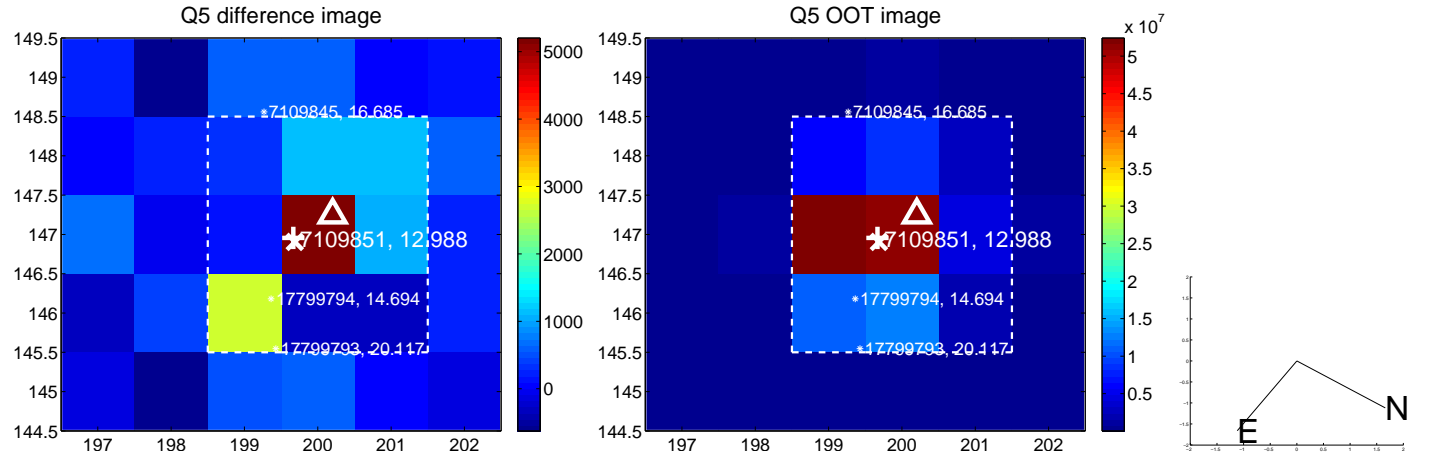


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

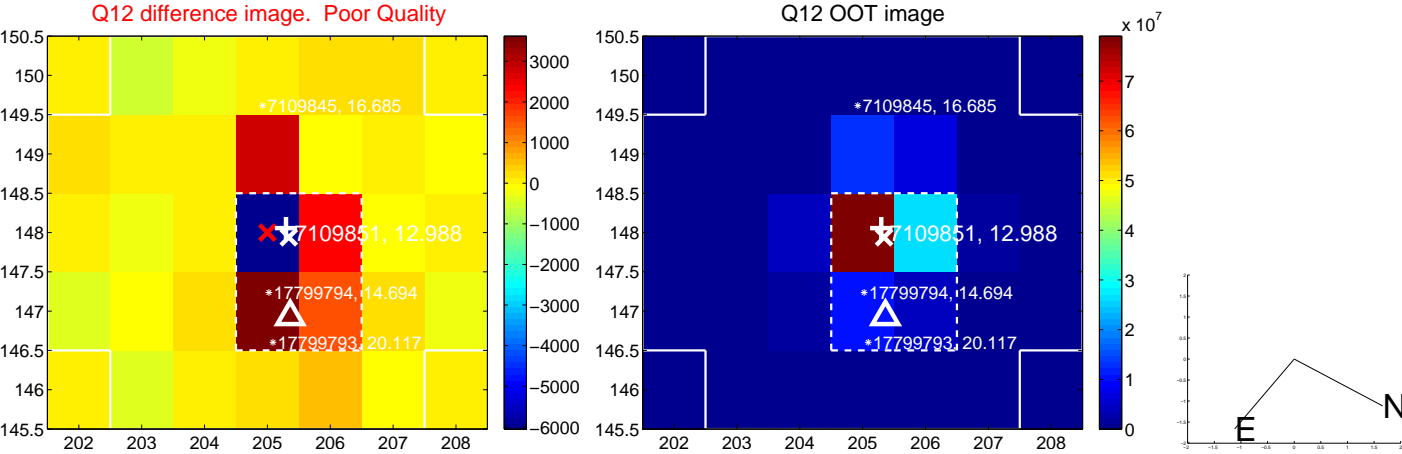
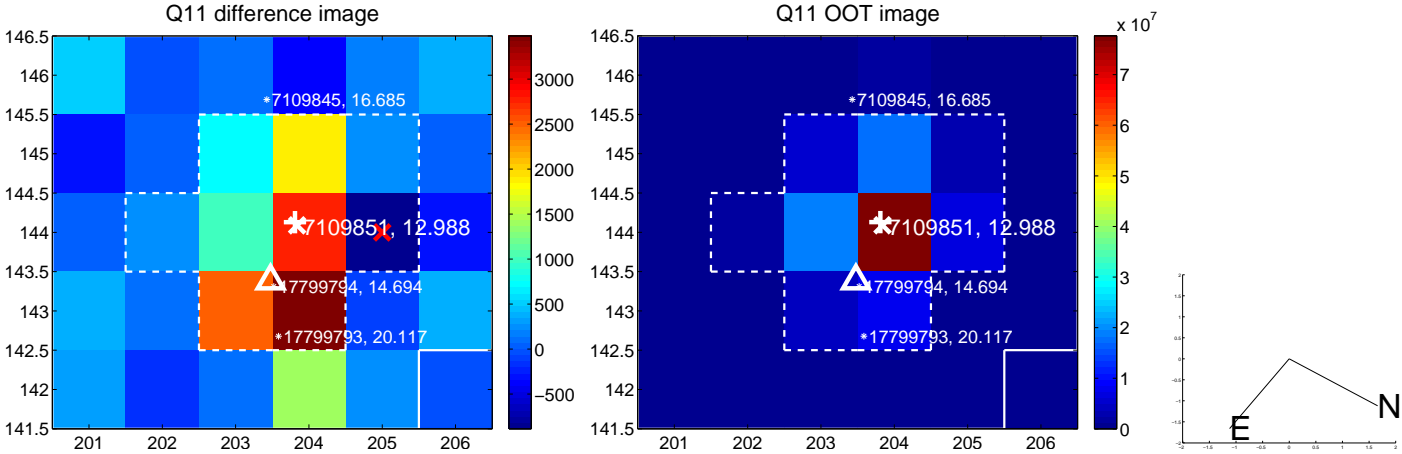
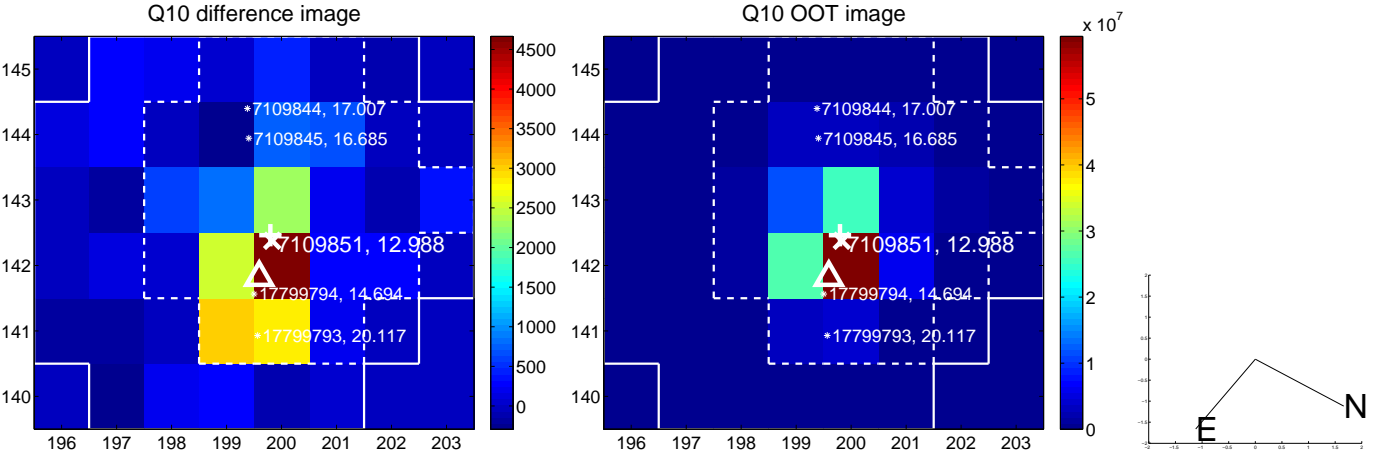
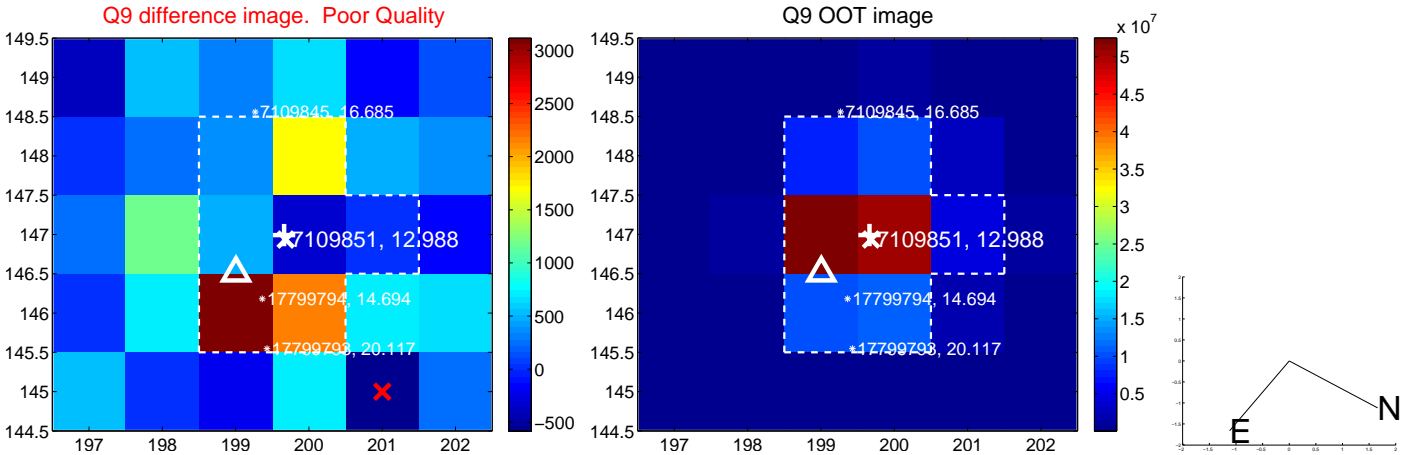
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



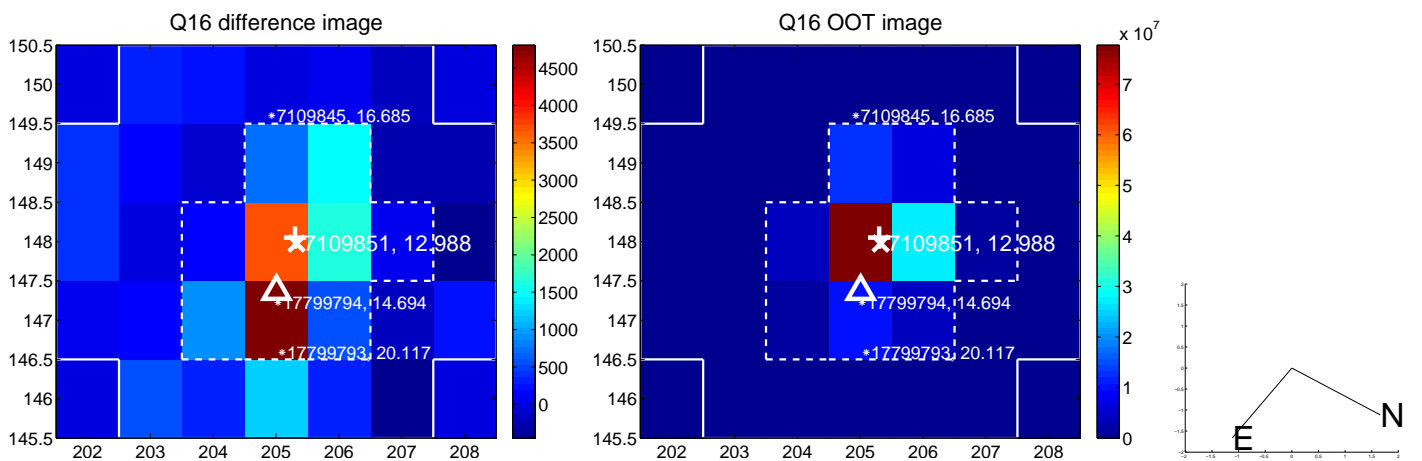
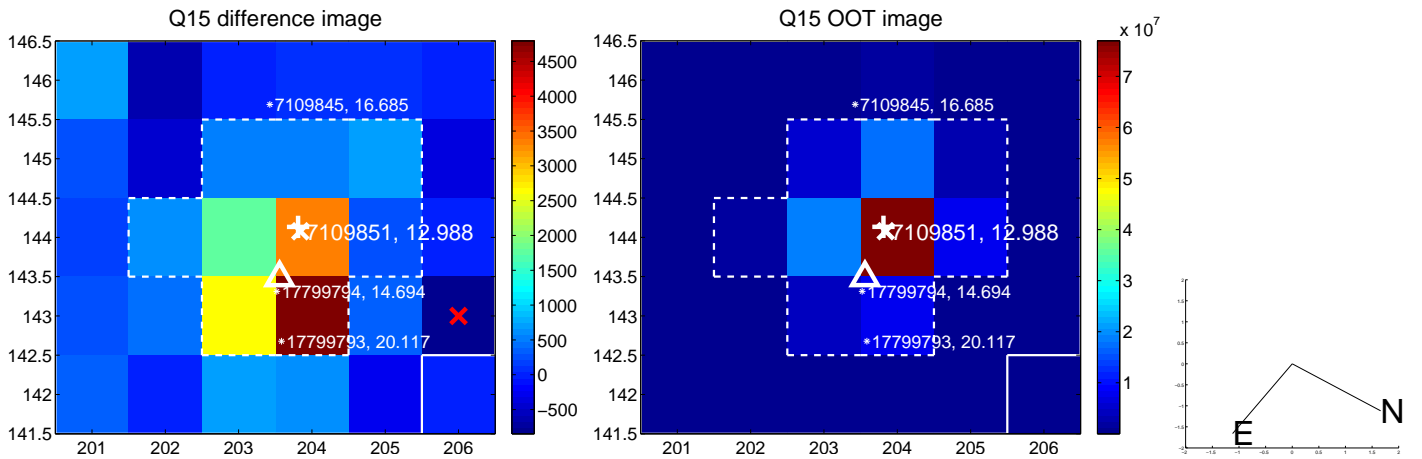
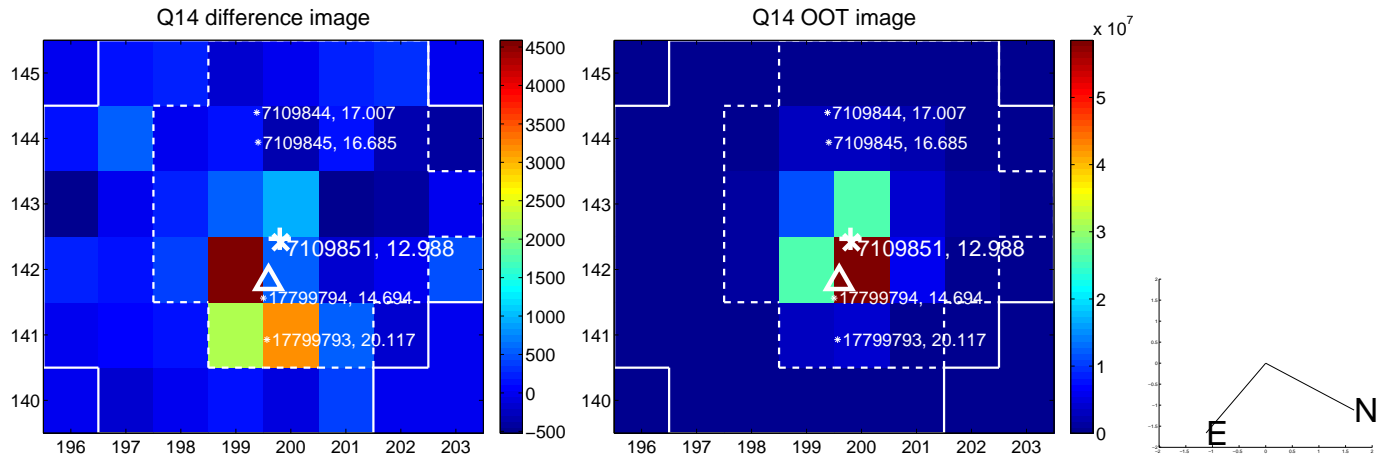
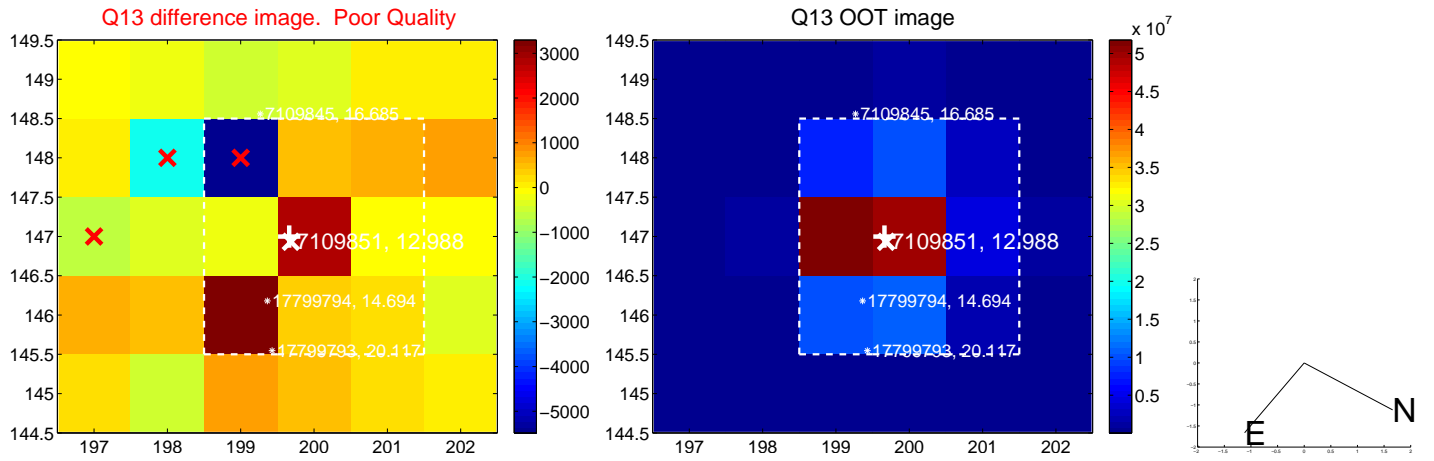
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



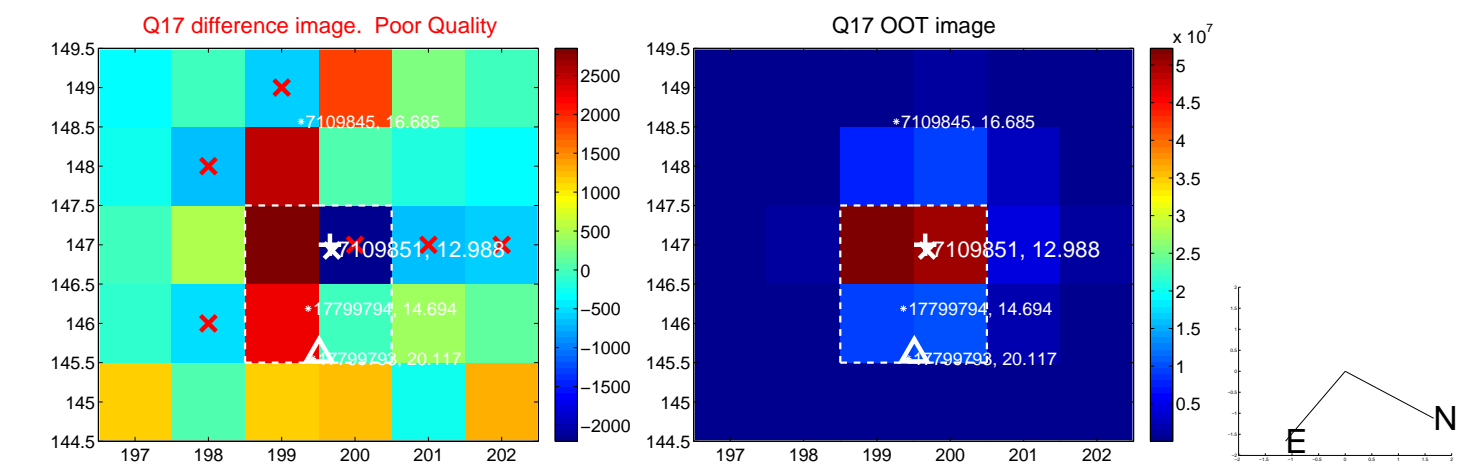
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



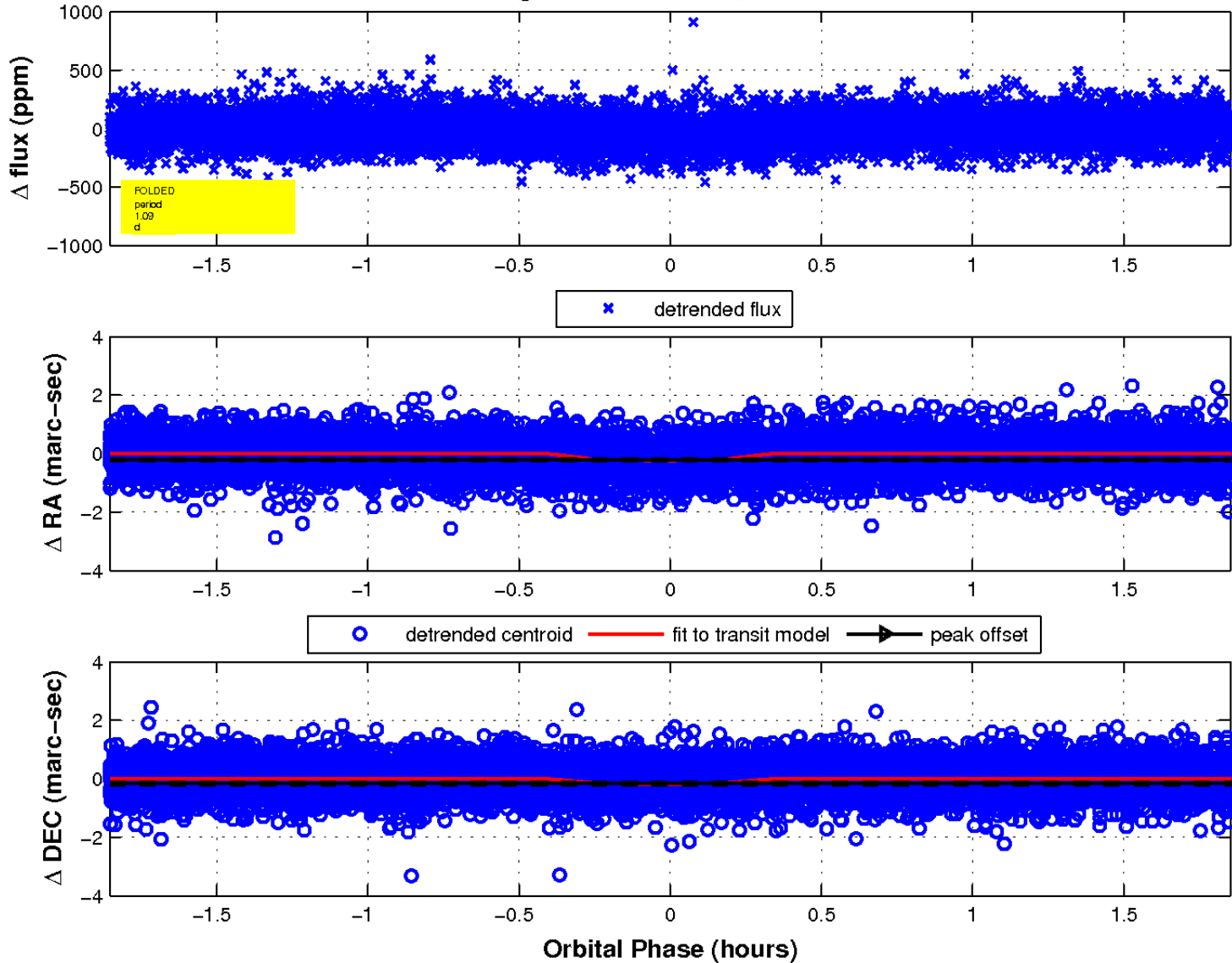
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

