

KIC 008521059

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})
008521059-01	OBS	4093.01	0.535572	131.814845	99.4	1.258	25.6	28.6	1.31	6610	1.54	16073.85

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008521059-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_RESOLVED_OFFSET

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

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

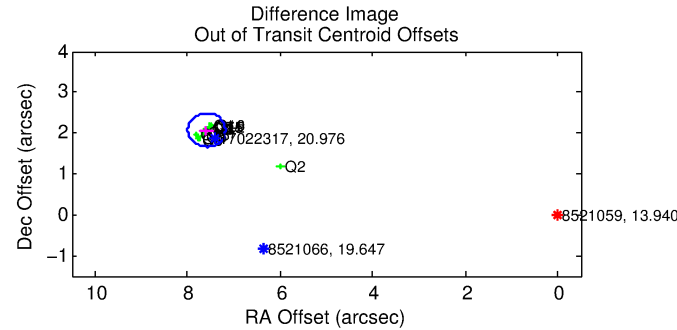
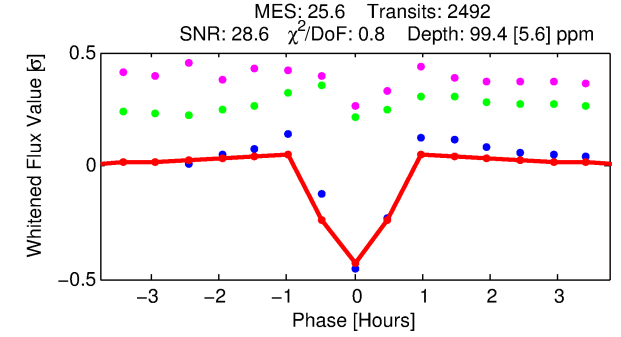
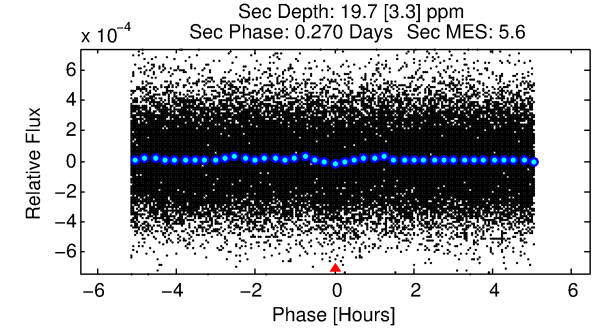
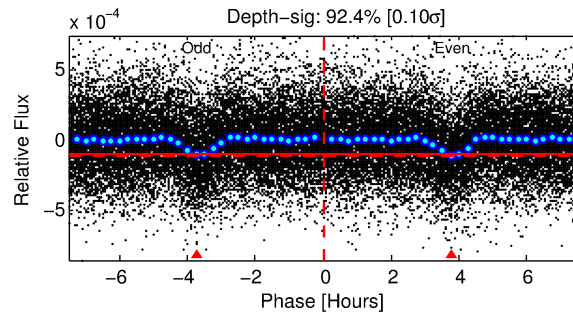
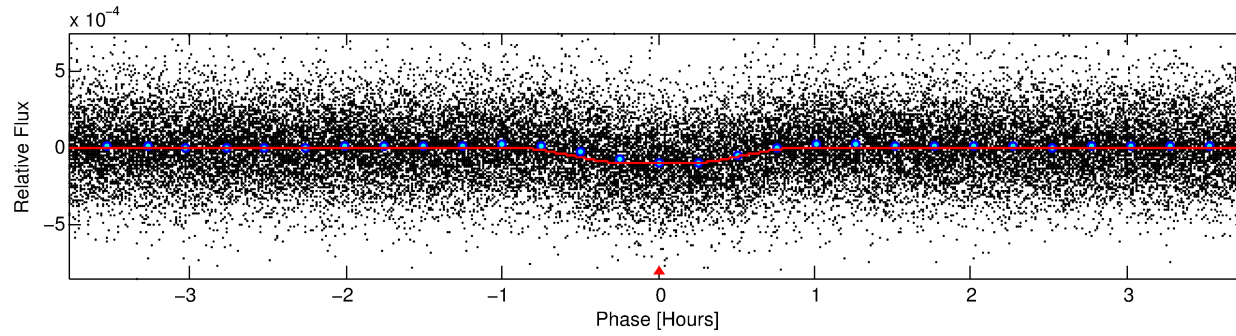
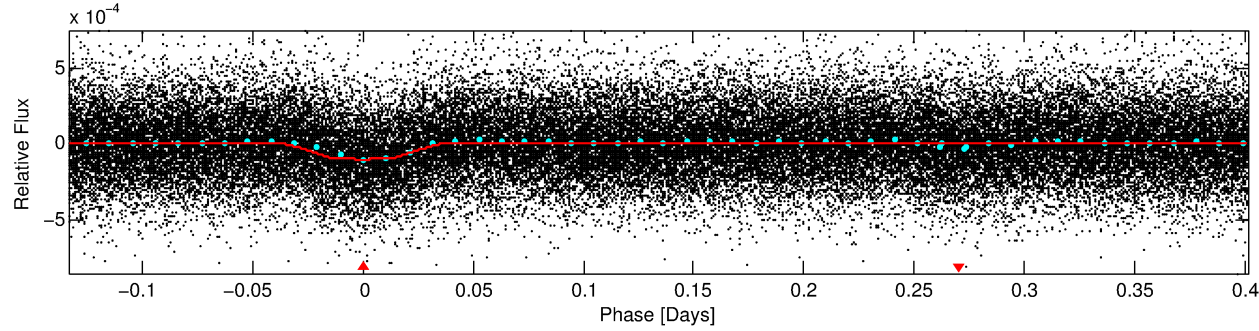
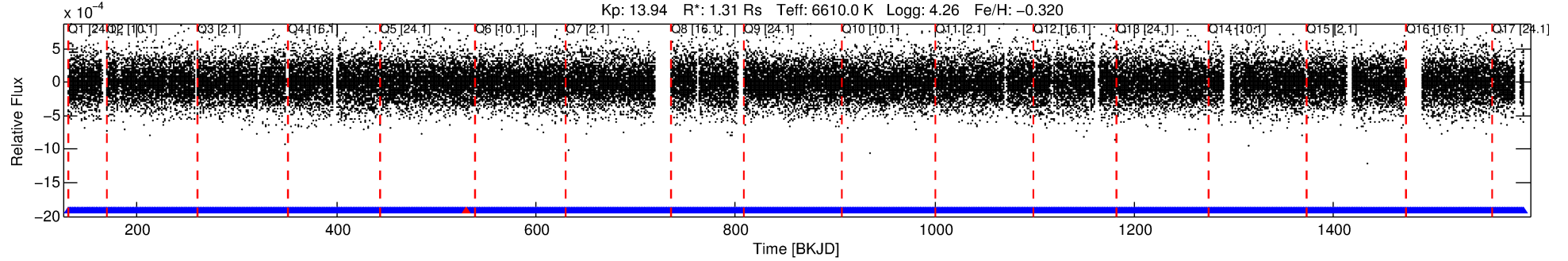
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008521059-01

No Significant Match Found

DV One-Page Summary

KIC: 8521059 Candidate: 1 of 1 Period: 0.536 d
KOI: K04093.01 Corr: 0.836



DV Fit Results:

Period = 0.53557 [0.00000] d
Epoch = 131.8148 [0.0006] BKJD
Rp/R* = 0.0107 [0.0024]
a/R* = 1.76 [1.53]
b = 0.90 [0.27]
Seff = 16073.85 [6002.98]
Teq = 2871 [268] K
Rp = 1.54 [0.56] Re
a = 0.0135 [0.0033] AU
Ag = 0.84 [0.49] [-0.31 σ]
Teffp = 4256 [521] K [2.36 σ]

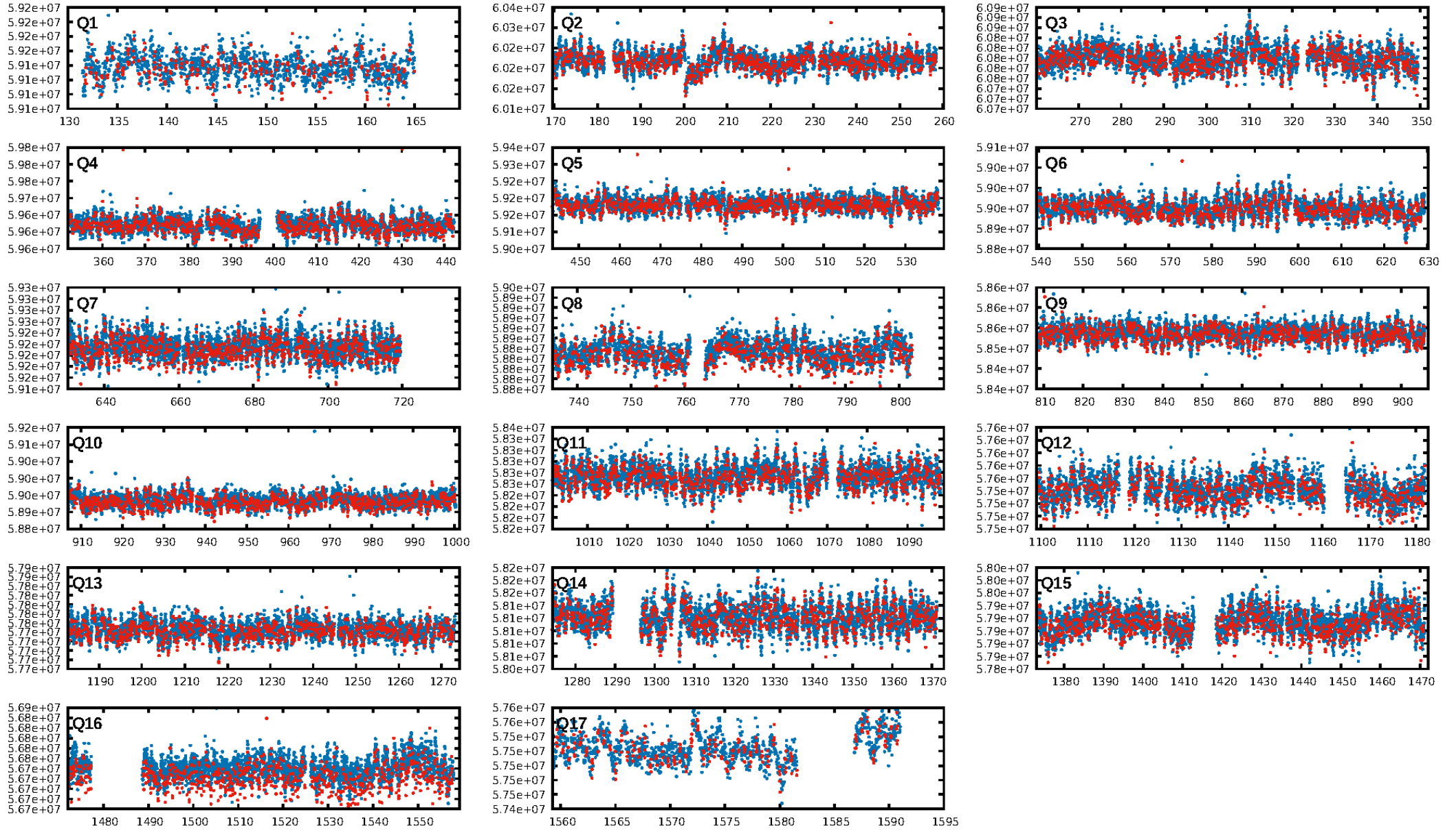
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.07e-137
RollingBand-fgt: 1.00 [2378/2379]
GhostDiagnostic-chr: -1.243
Centroid-sig: 0.0%
Centroid-so: 6.466 arcsec [15.75 σ]
OotOffset-rm: 7.869 arcsec [57.59 σ]
KicOffset-rm: 7.862 arcsec [55.38 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [17/17]

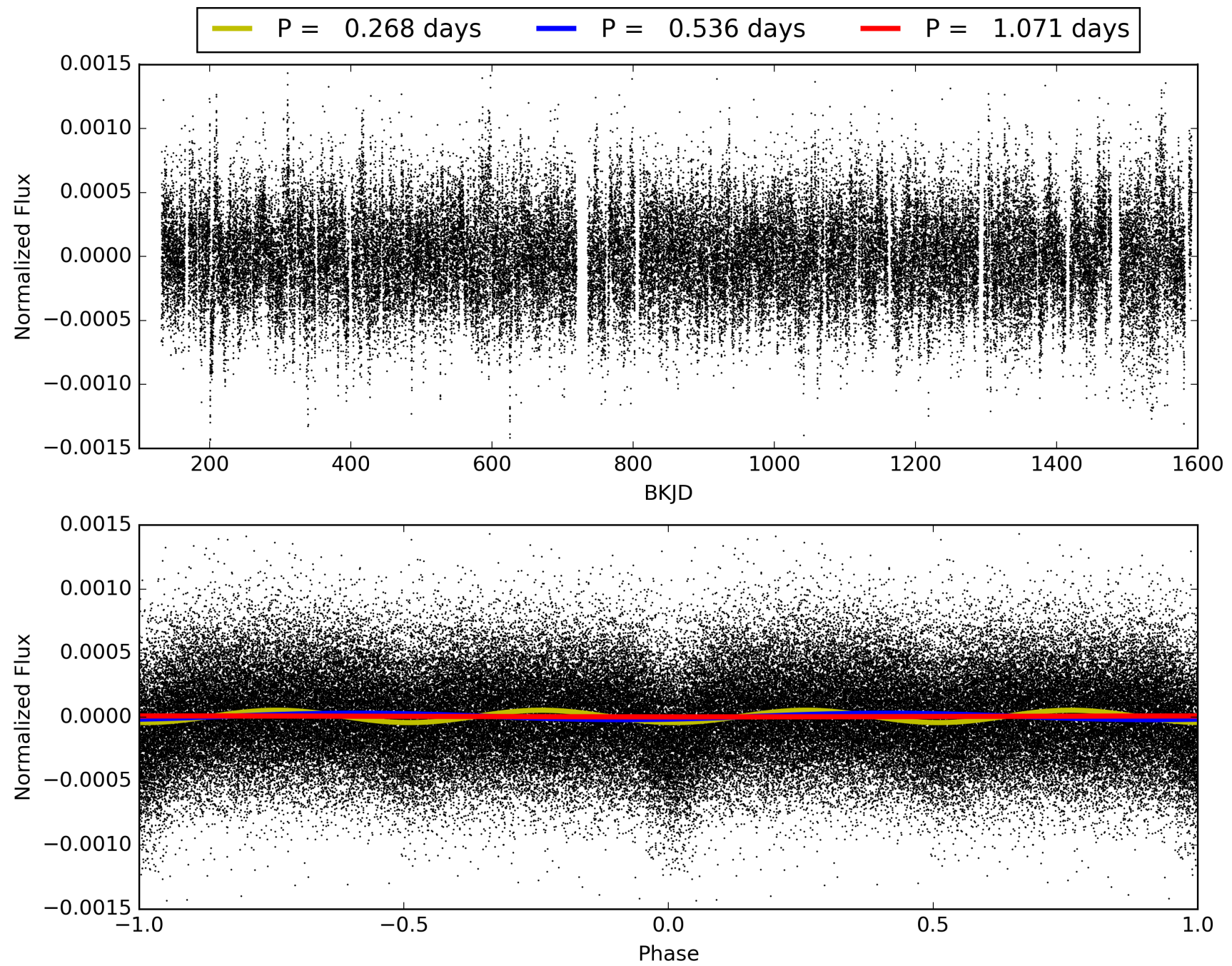
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:46:14 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008521059-01, PDC Light Curves

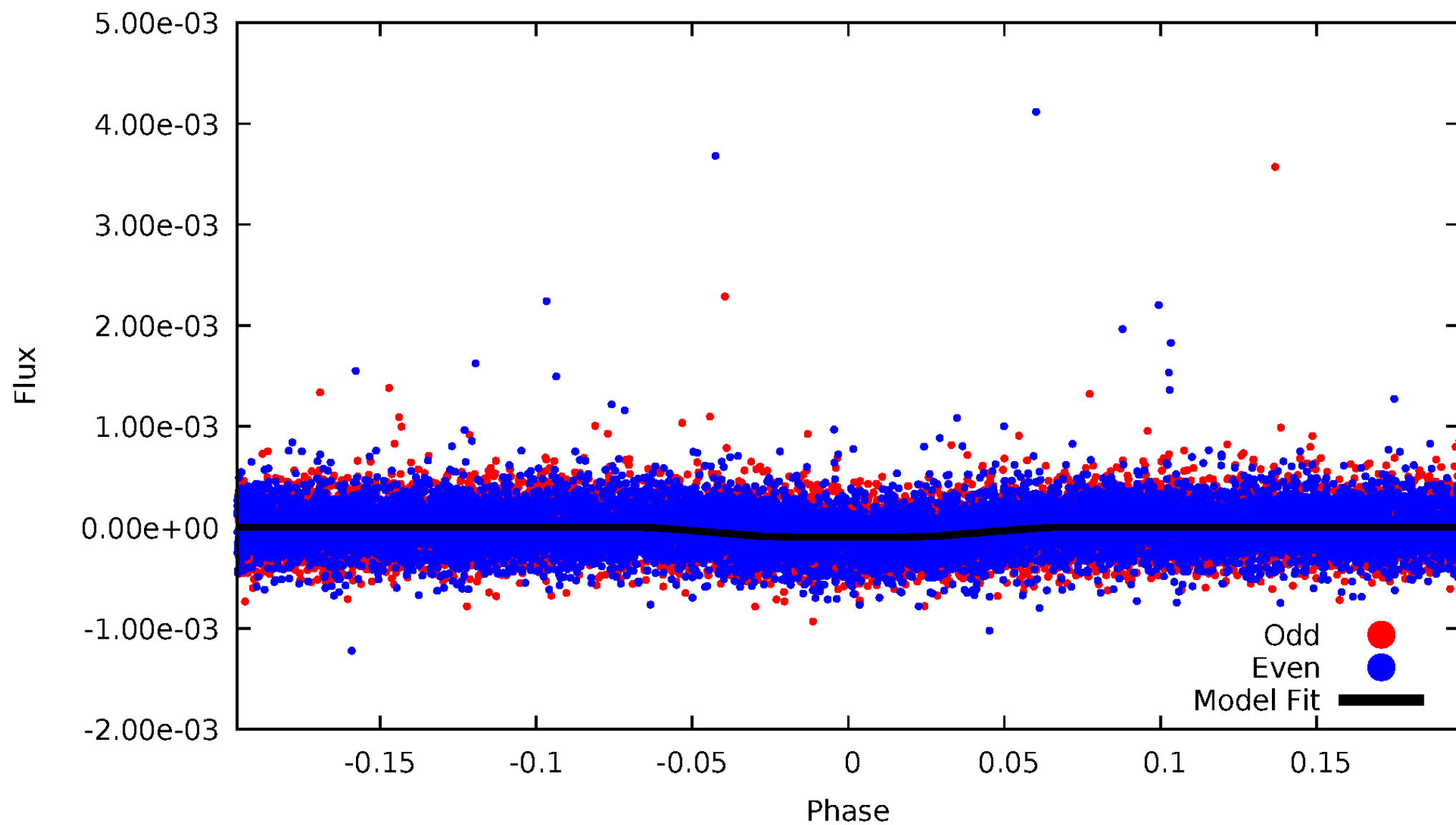


TCE 008521059-01



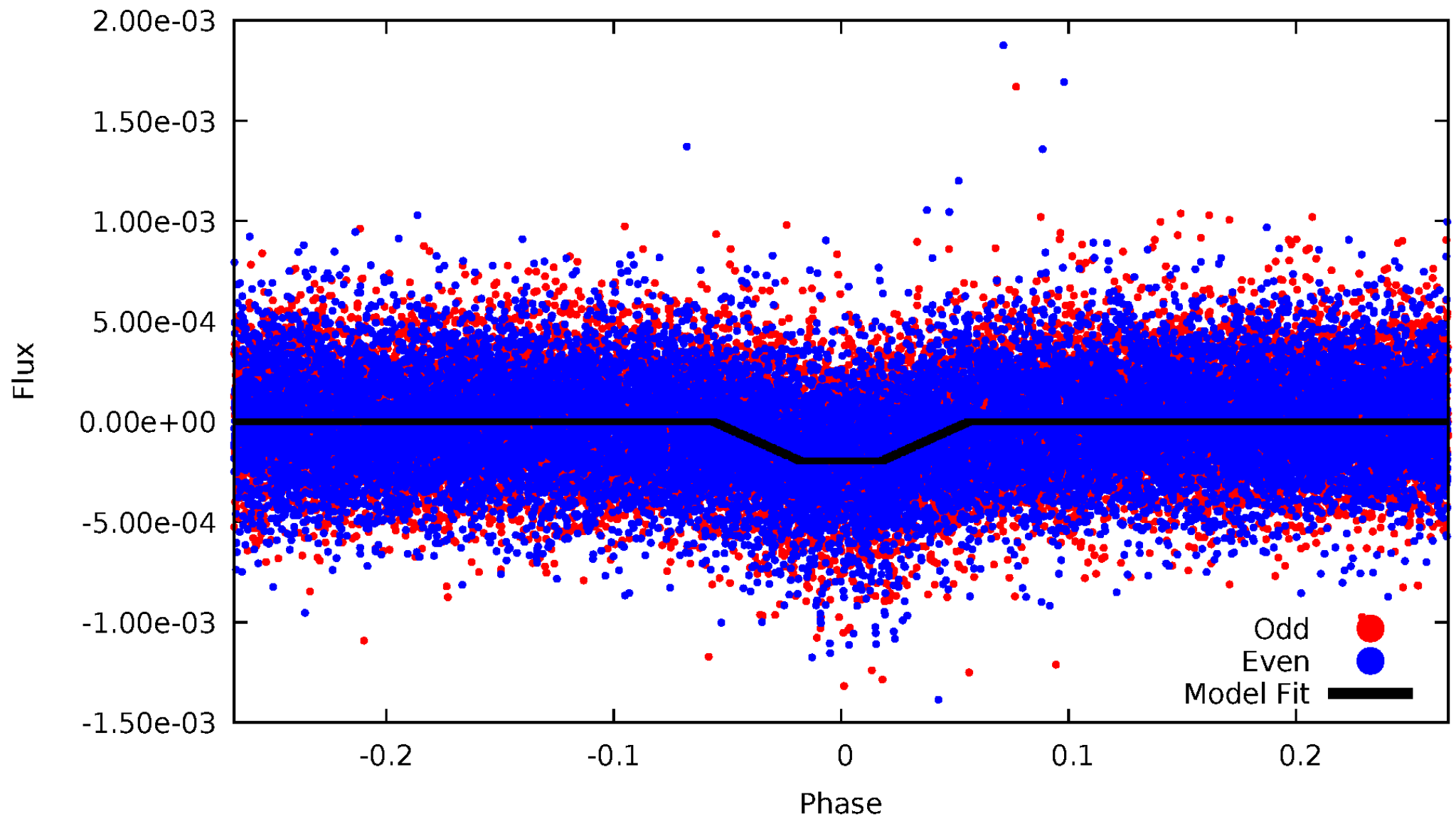
DV Odd/Even

TCE 008521059-01

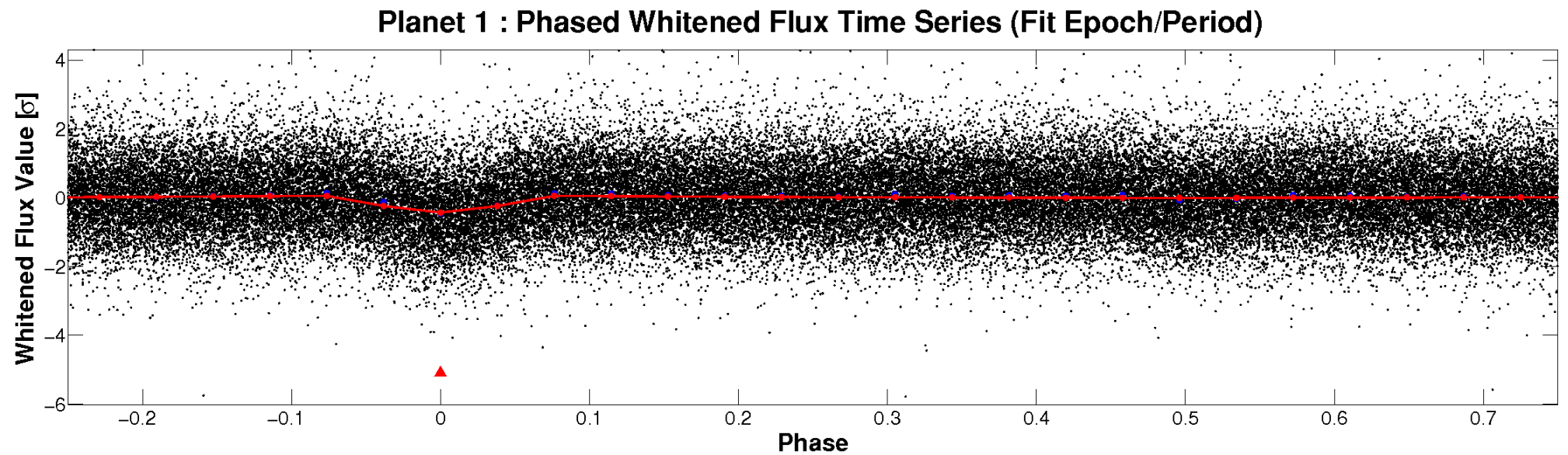
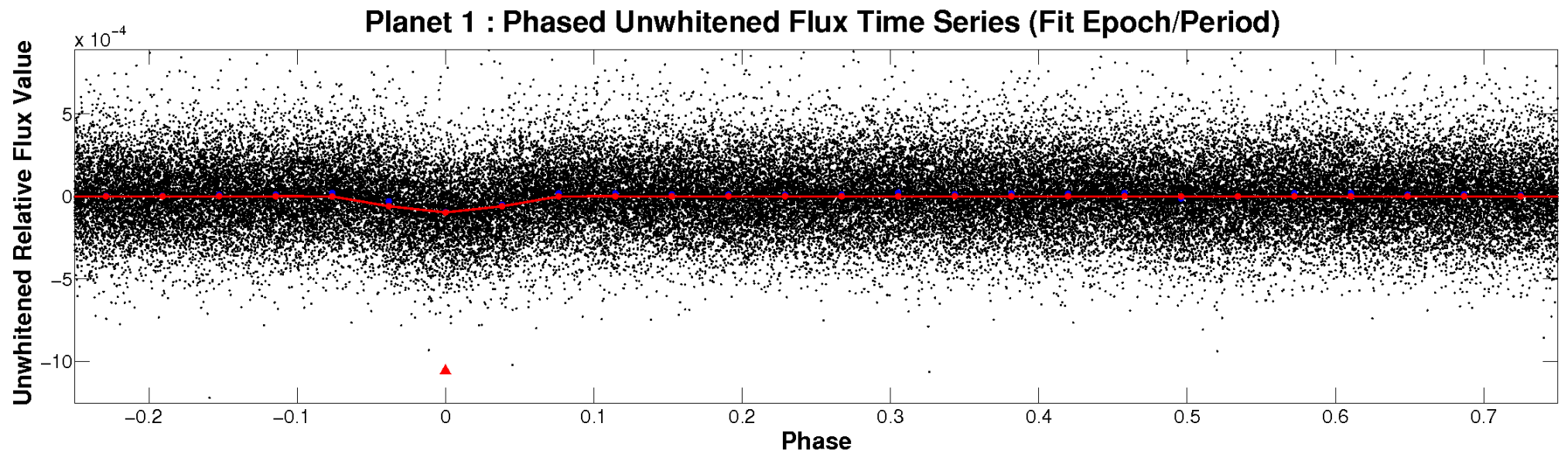


ALT Odd/Even

TCE 008521059-01

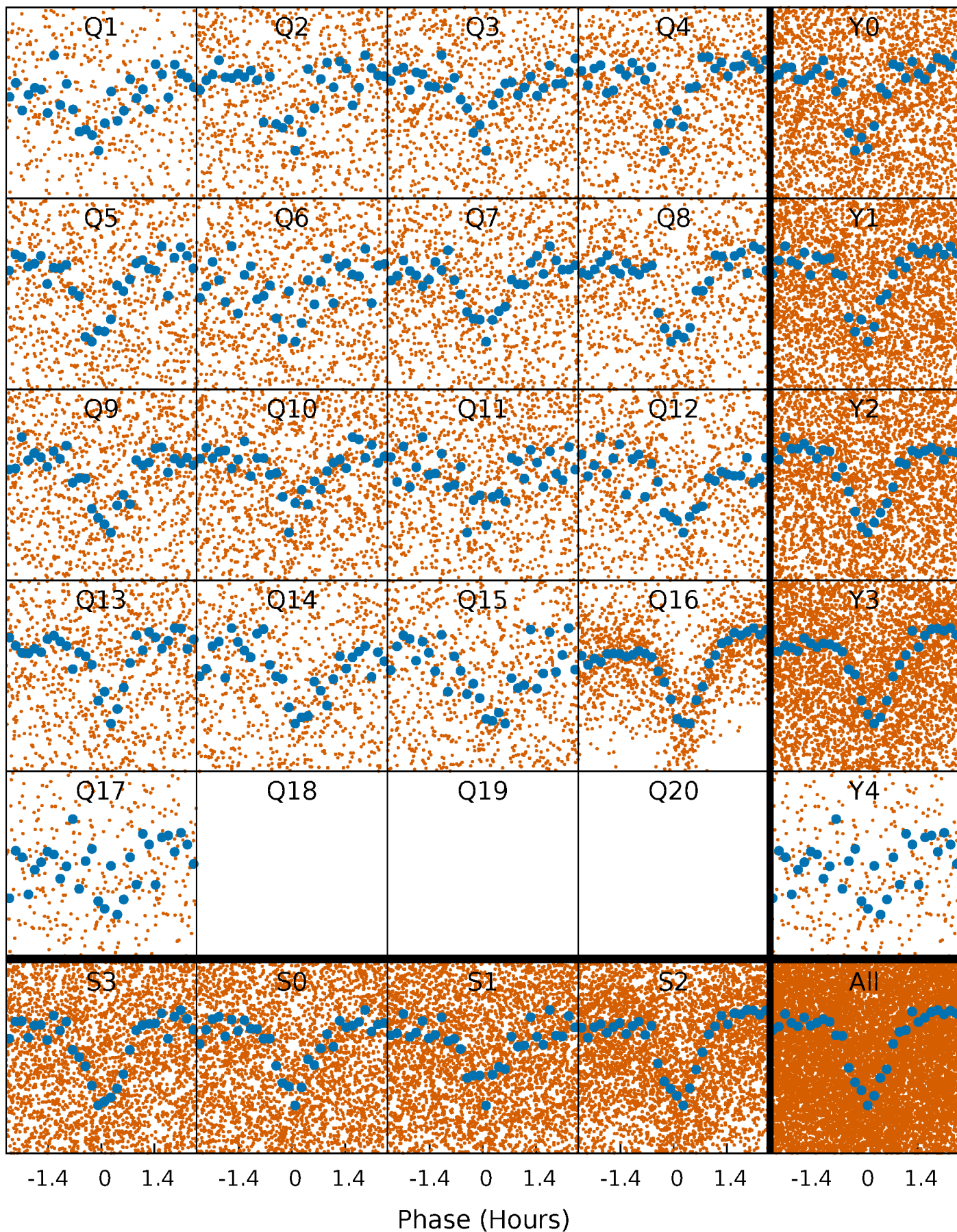


Non-Whitened Vs. Whitened Light Curve



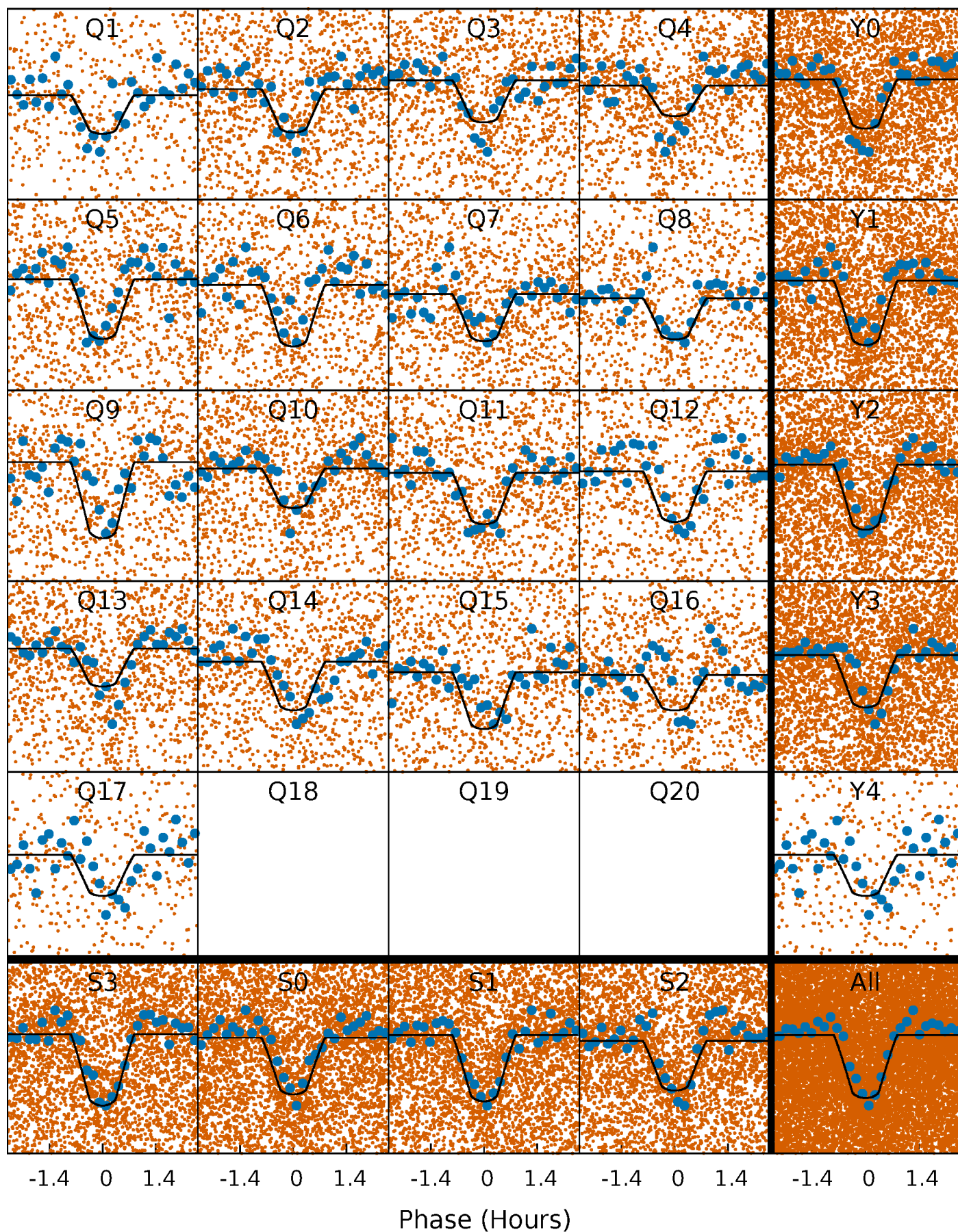
PDC Quarter-Phased Transit Curves

TCE 008521059-01 P= 0.535572 Days $T_0=131.814845$ (BKJD)



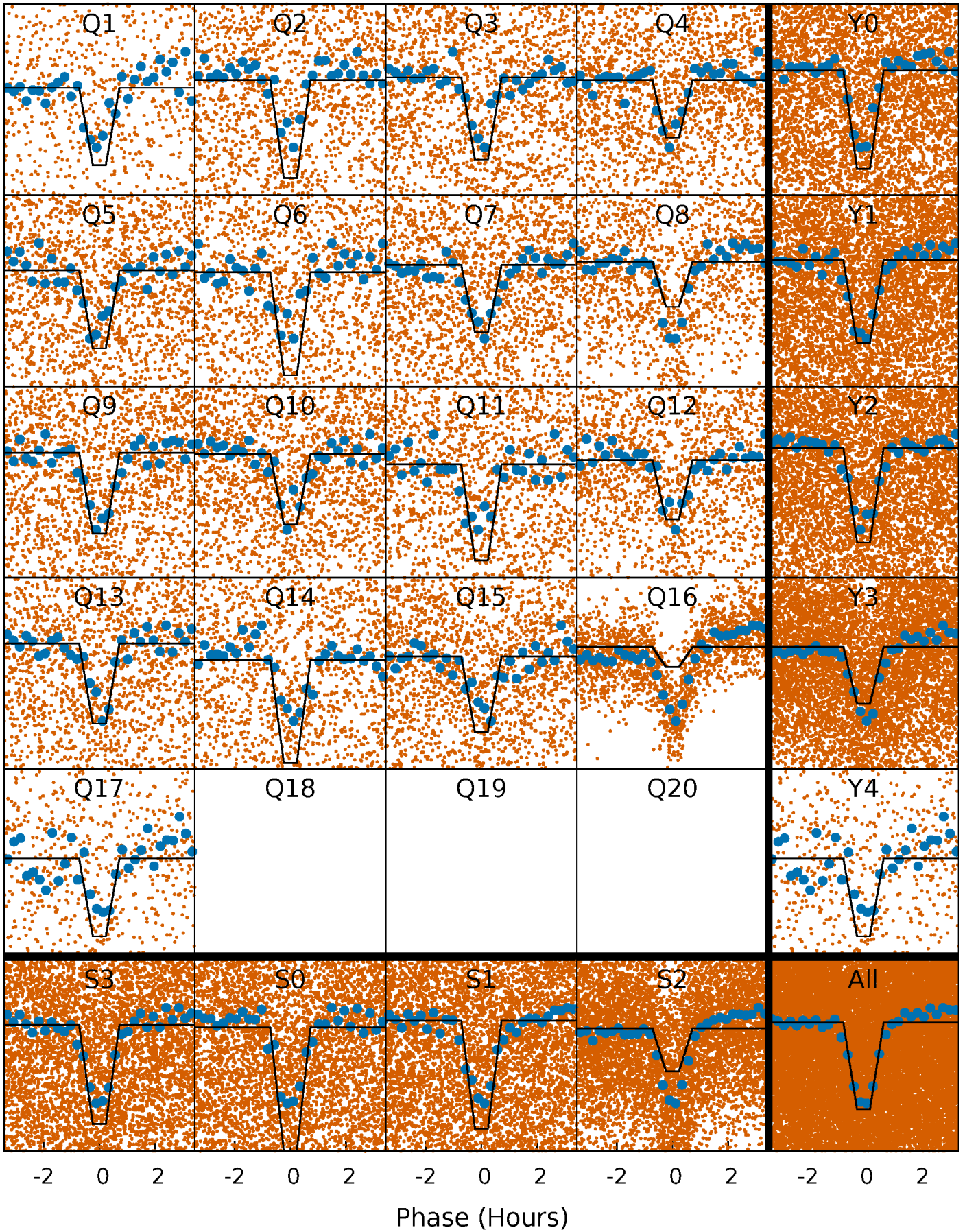
DV Quarter-Phased Transit Curves

TCE 008521059-01 P= 0.535572 Days $T_0=131.814845$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

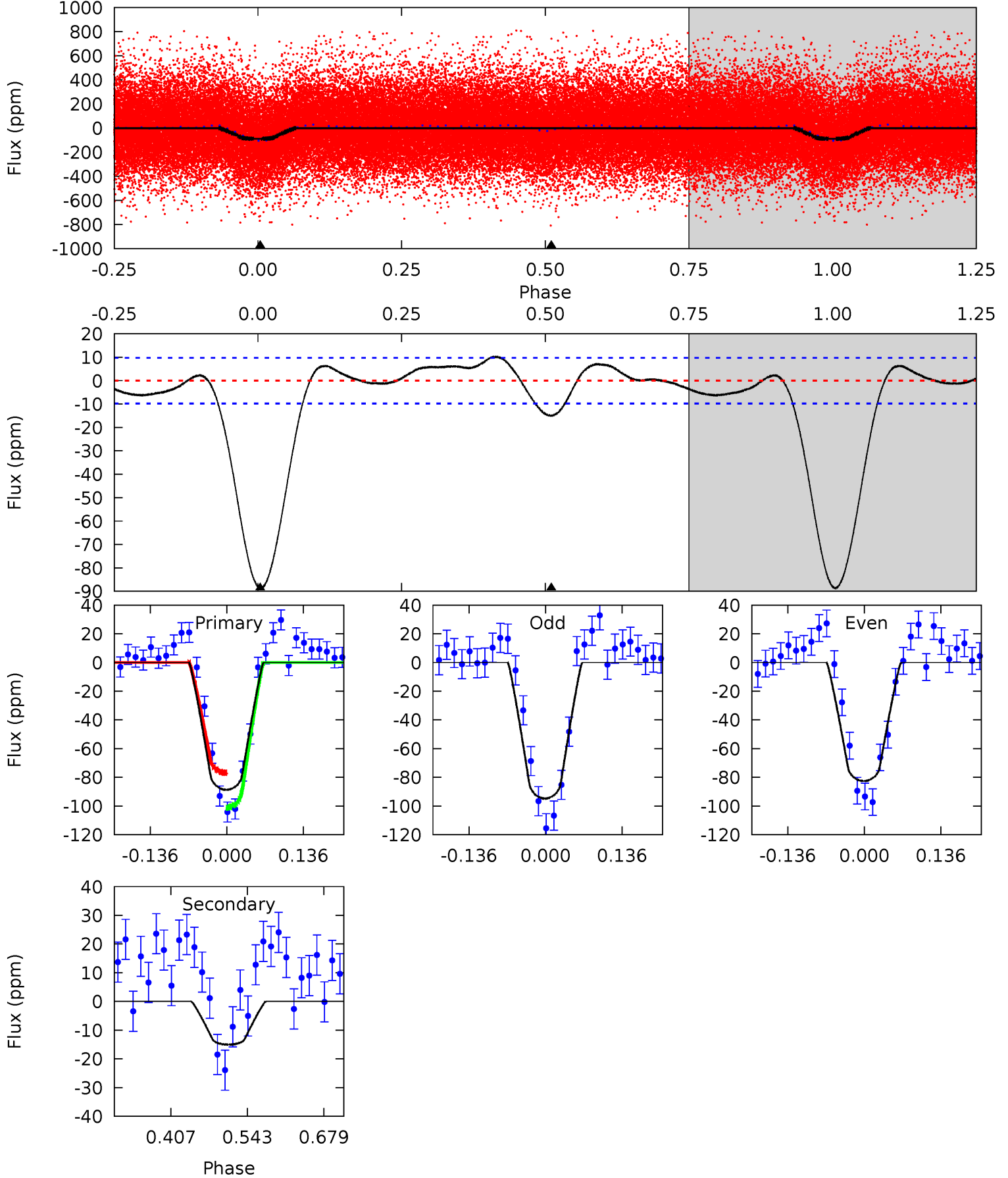
TCE 008521059-01 P= 0.535576 Days $T_0=131.811915$ (BKJD)



DV Model-Shift Uniqueness Test

008521059-01, P = 0.535572 Days, E = 131.279273 Days

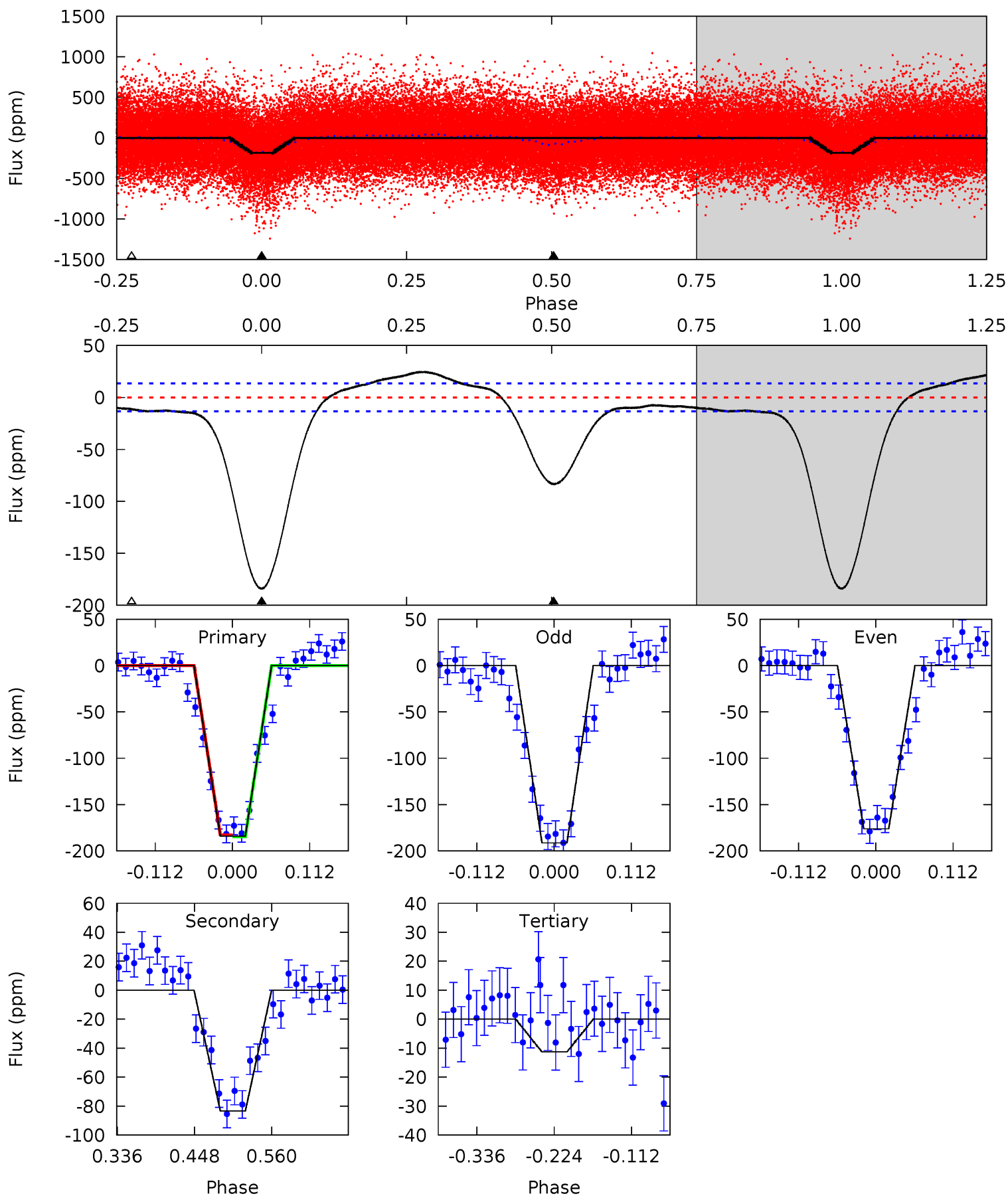
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	6.92	0	0	4.50	1.49	1.79	40.9	40.9	6.92	6.92	2.81	0.97	0.10	5.60



Alt Model-Shift Uniqueness Test

008521059-01, P = 0.535576 Days, E = 131.276339 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.1	28.1	3.81	0	4.54	1.59	4.67	58.3	62.1	24.3	28.1	2.58	1.07	0.12	0.40



Stellar Parameters For KIC 008521059

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6610^{+162}_{-231}	$4.264^{+0.139}_{-0.186}$	$-0.320^{+0.250}_{-0.300}$	$1.313^{+0.386}_{-0.257}$	$1.160^{+0.178}_{-0.162}$	$0.722^{+0.445}_{-0.353}$
	+2%/-3%	+3%/-4%	+78%/-94%	+29%/-20%	+15%/-14%	+62%/-49%
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 008521059-01 / KOI 4093.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-15 ± 2	$1.57^{+0.43}_{-0.37}$	4013^{+309}_{-235}	3694^{+621}_{-680}	$0.604^{+0.465}_{-0.237}$
Alt.	-83 ± 3	$2.06^{+0.45}_{-0.42}$	4030^{+295}_{-249}	5140^{+531}_{-400}	$2.017^{+1.064}_{-0.648}$

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

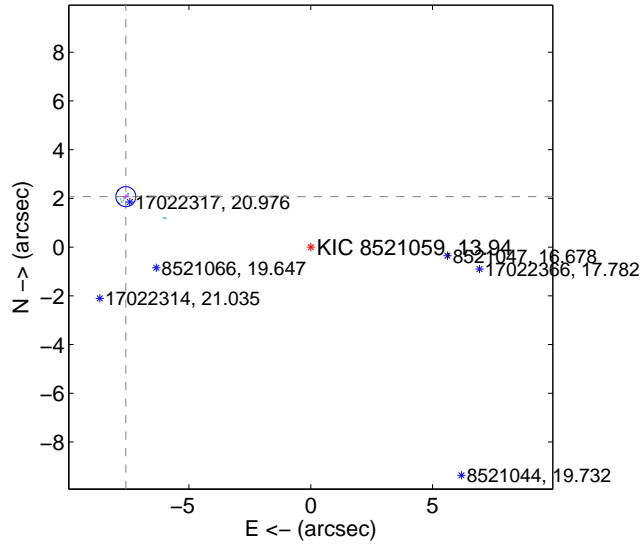
Supplemental centroid analysis for 008521059-01. Kepler magnitude: 13.94. Transit SNR 28.63

There are 14 quarters with good PRF difference image offsets

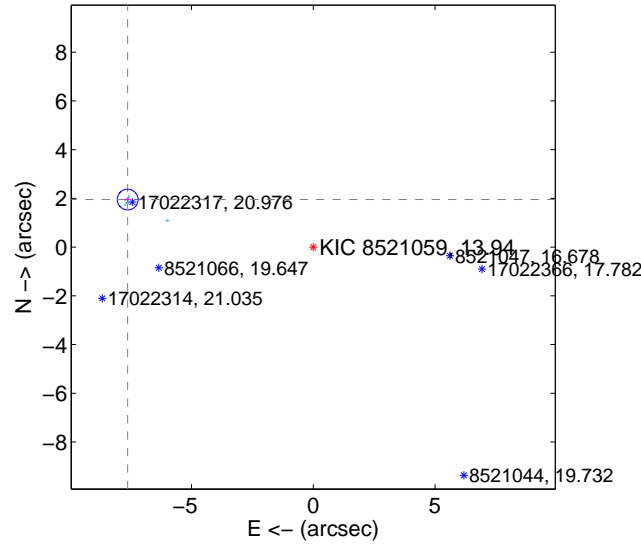
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.869 ± 0.137	57.59	7.591 ± 0.128	2.072 ± 0.093
PRF-fit source offset from KIC position	7.862 ± 0.142	55.38	7.616 ± 0.133	1.951 ± 0.092
photometric centroid source offset	6.47 ± 0.41	15.75	5.46 ± 0.42	3.47 ± 0.38

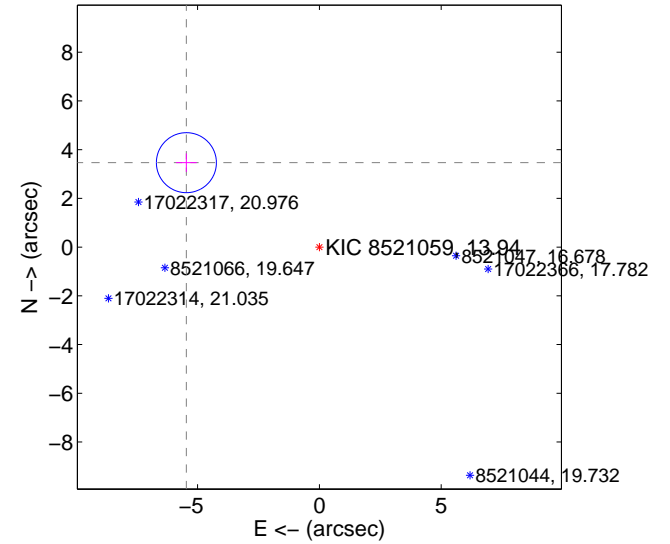
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

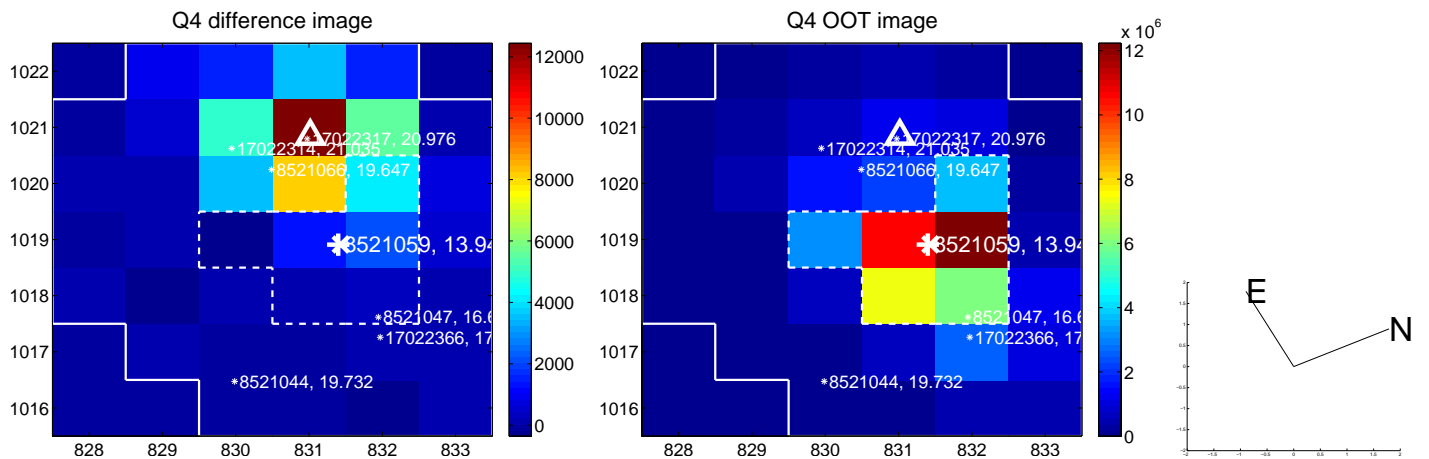
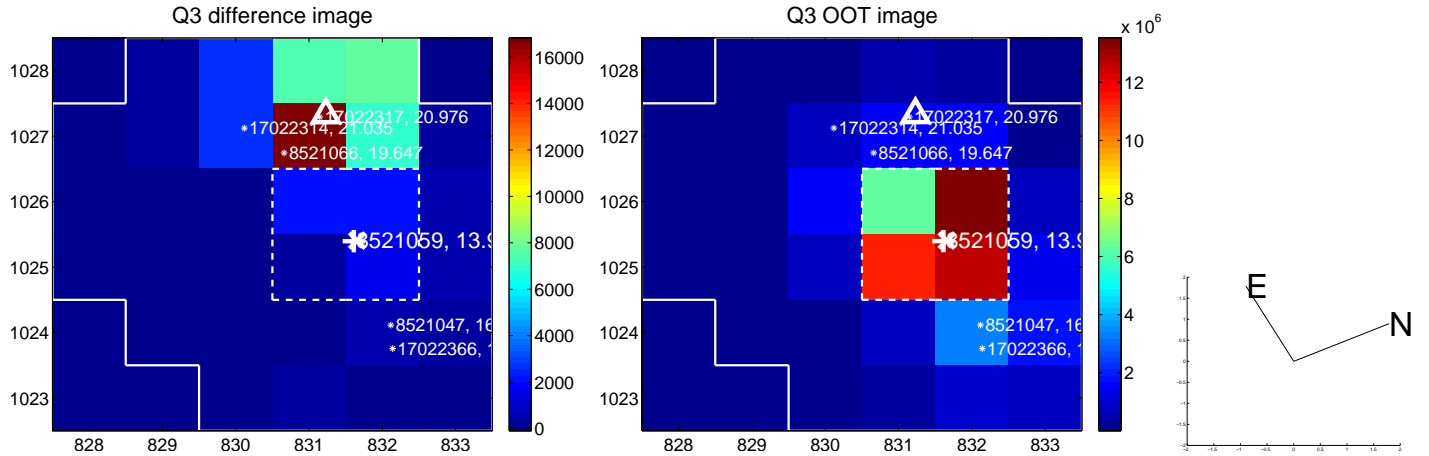
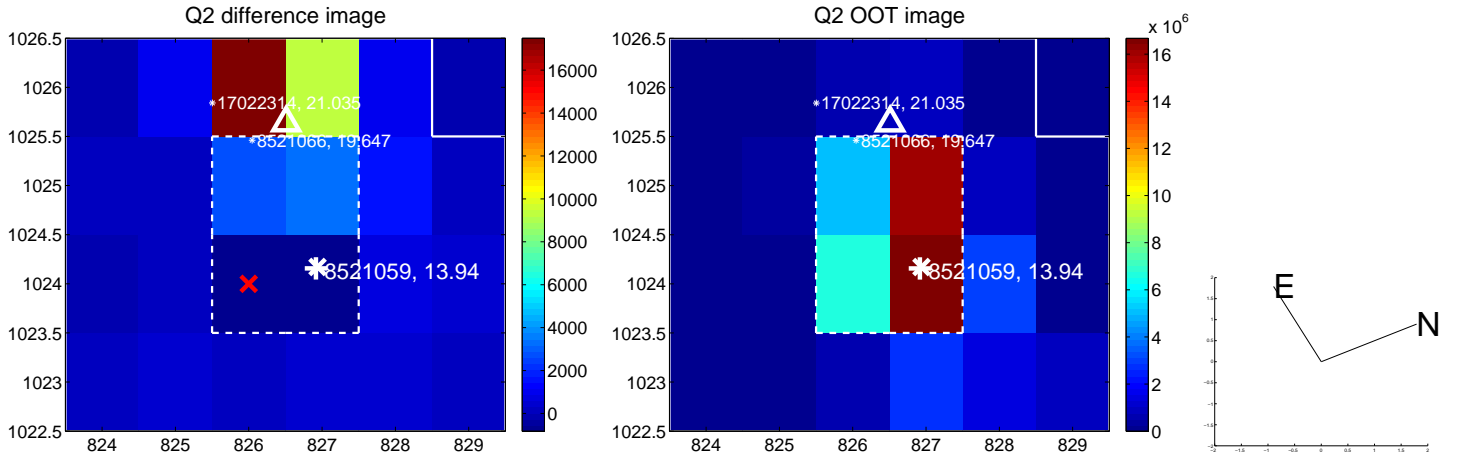
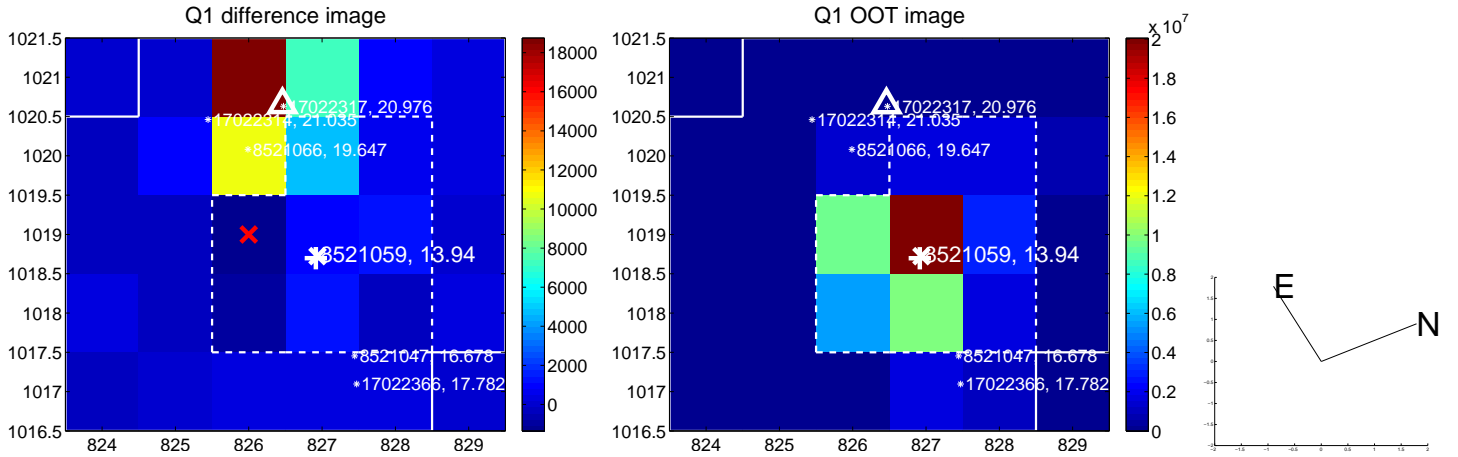


offset from photometric centroids

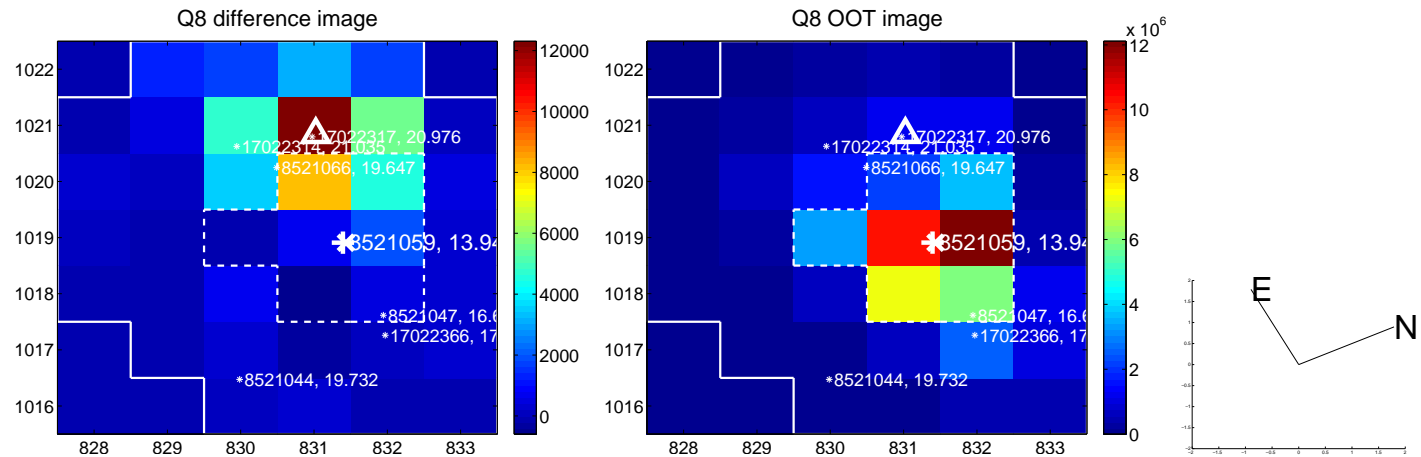
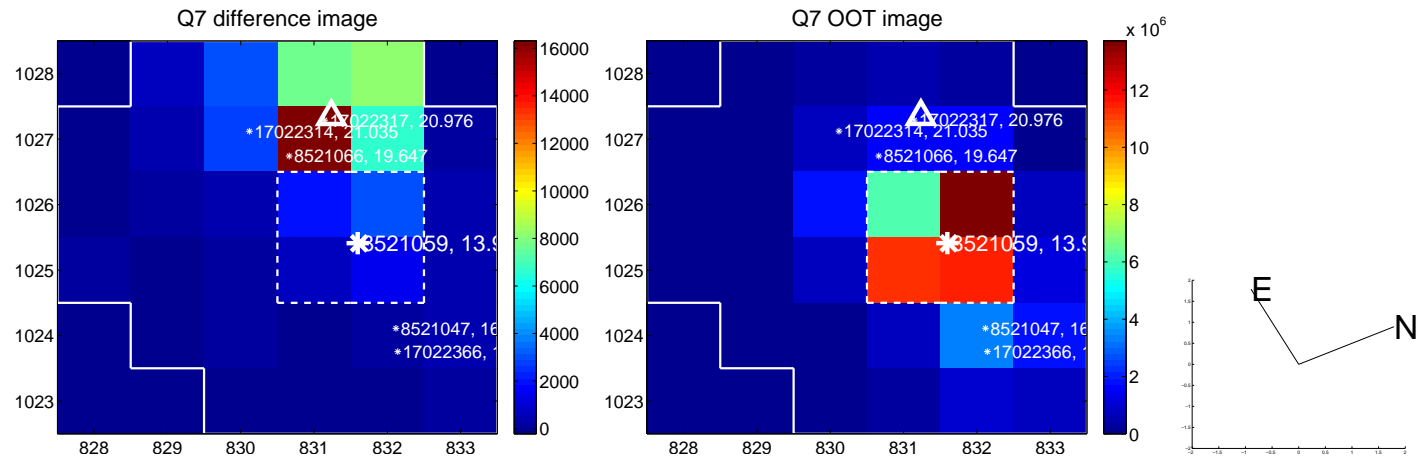
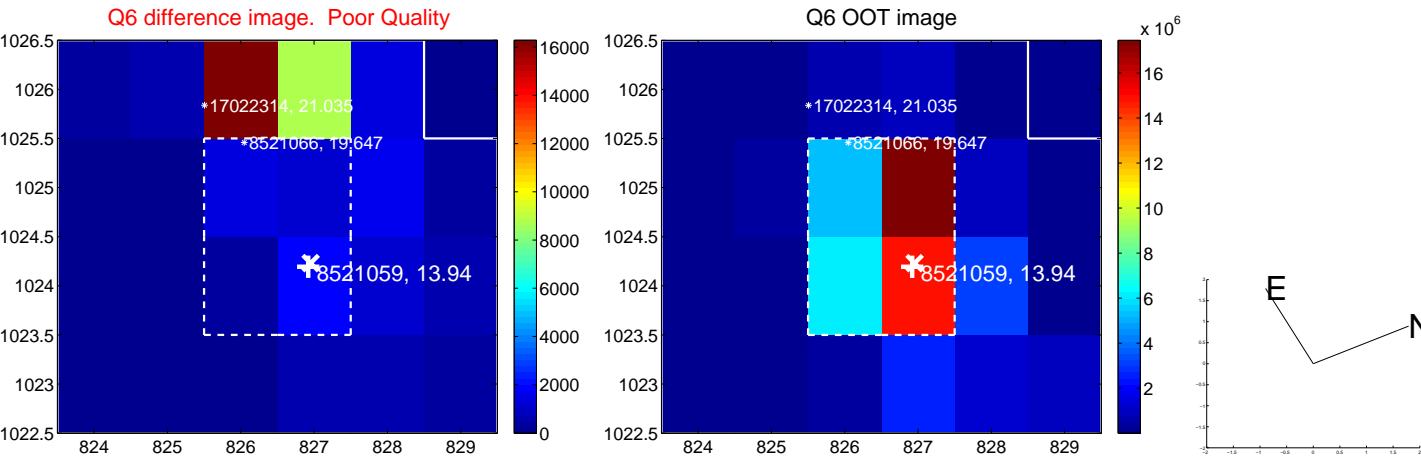
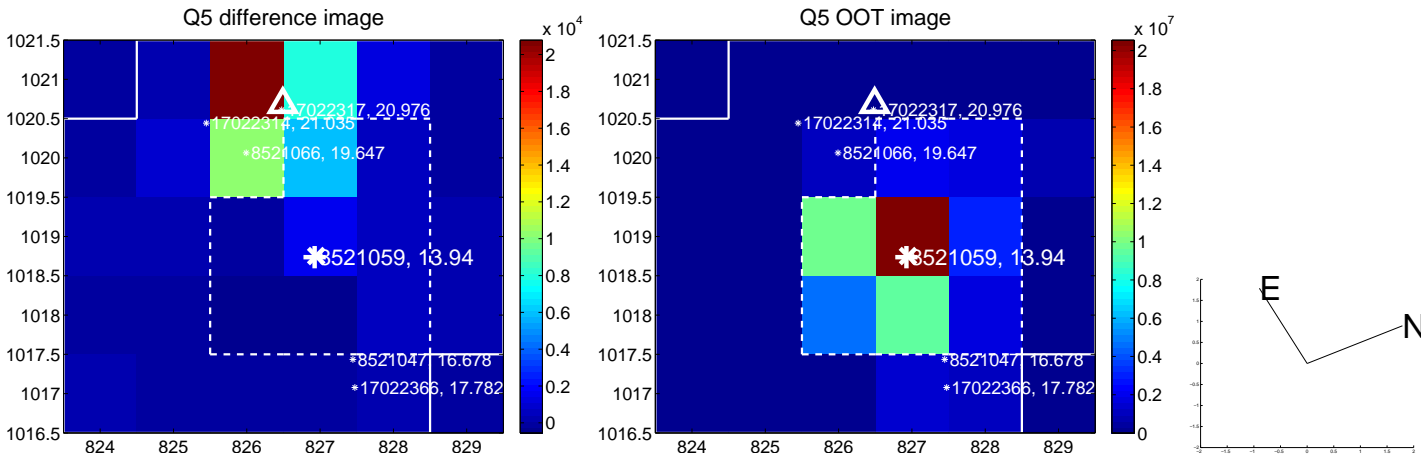


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

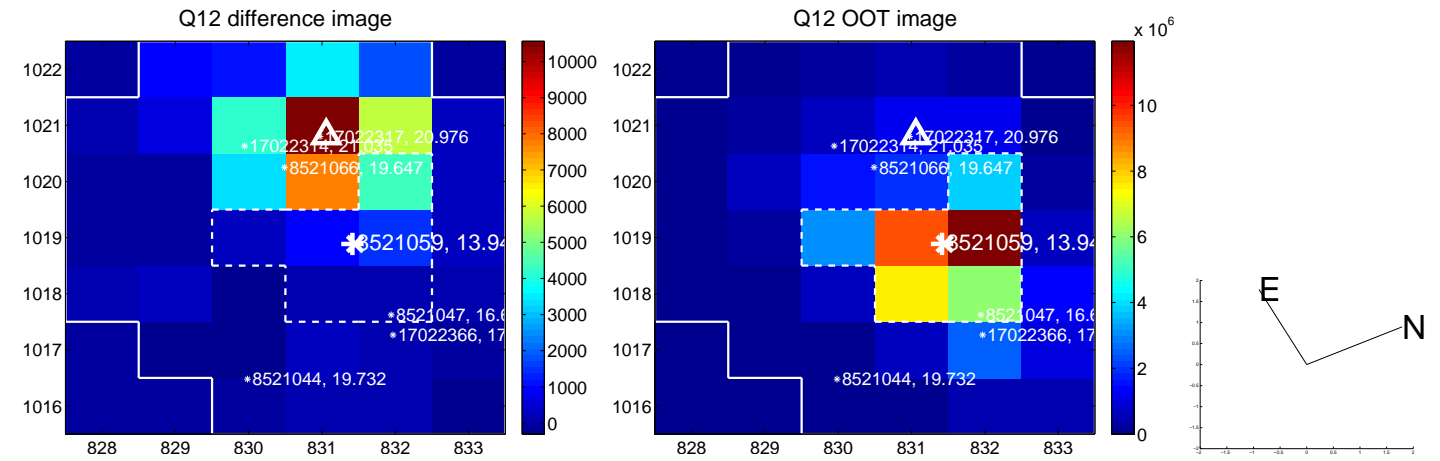
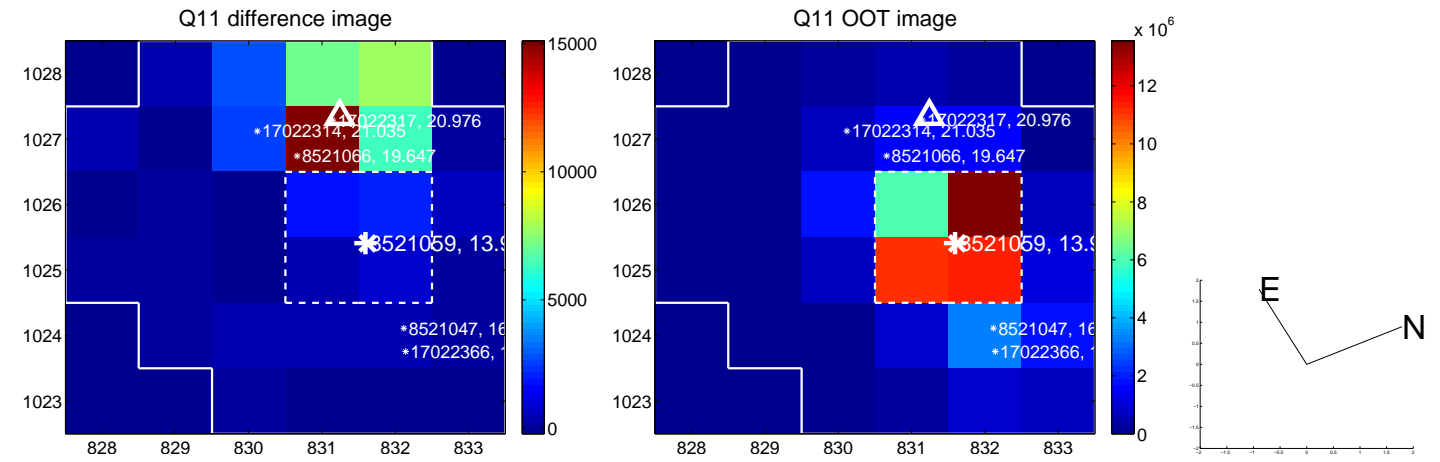
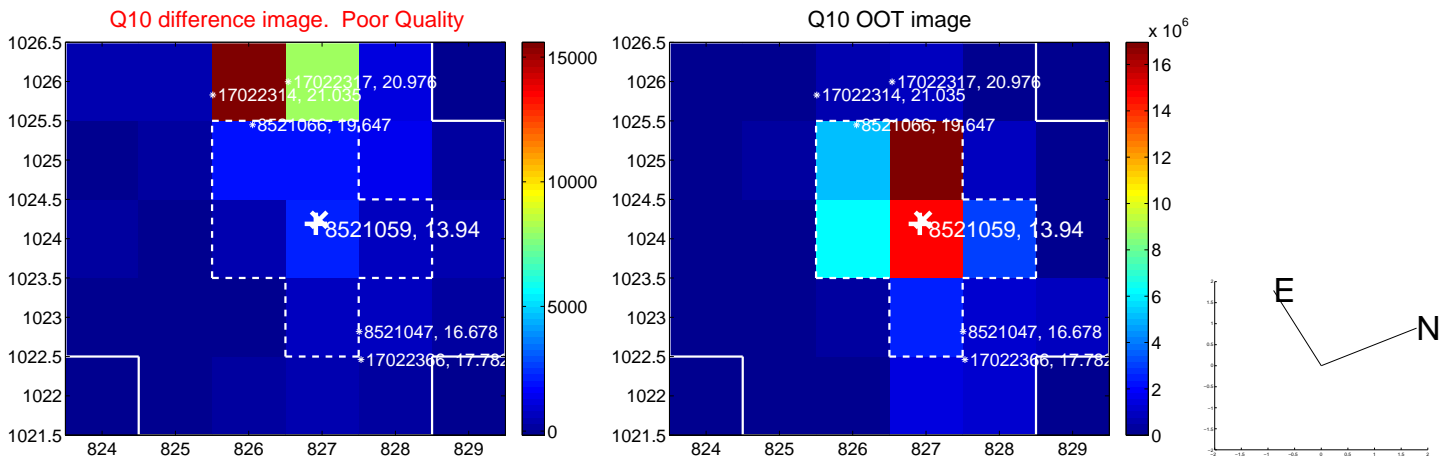
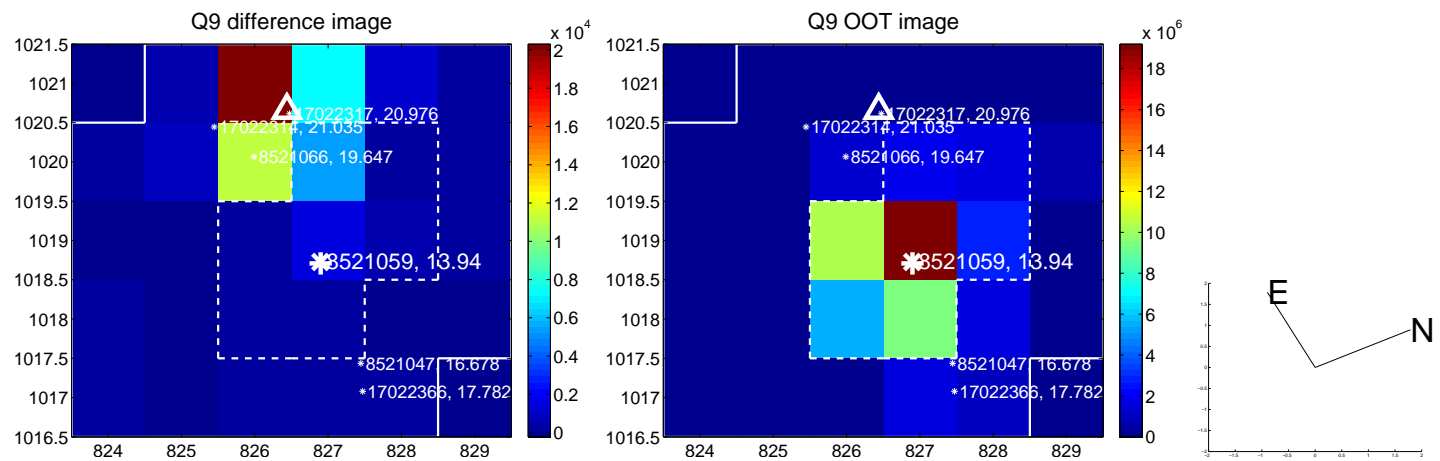
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



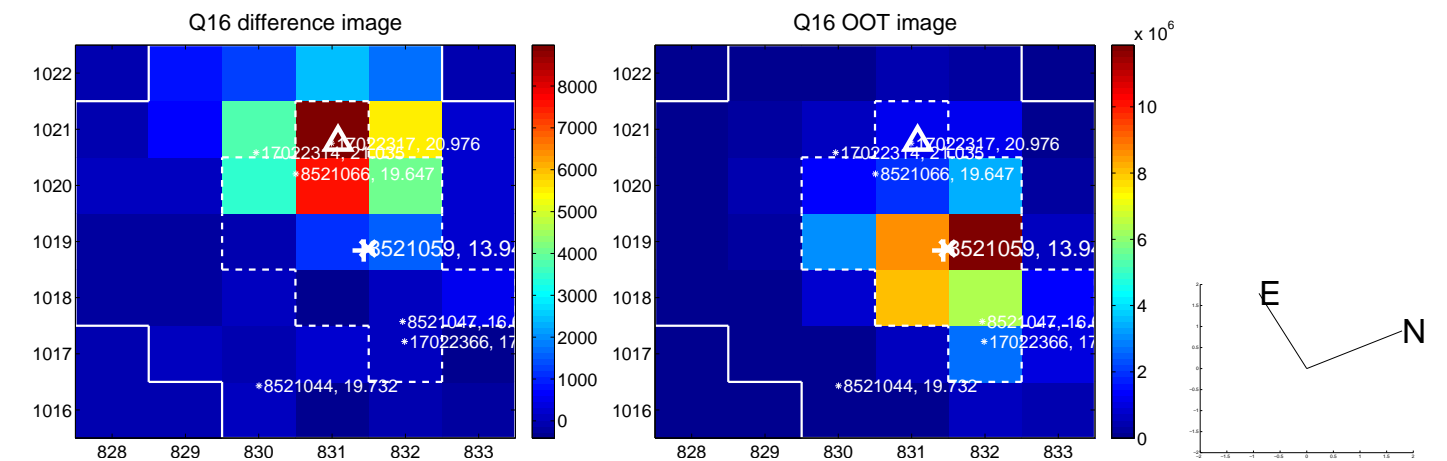
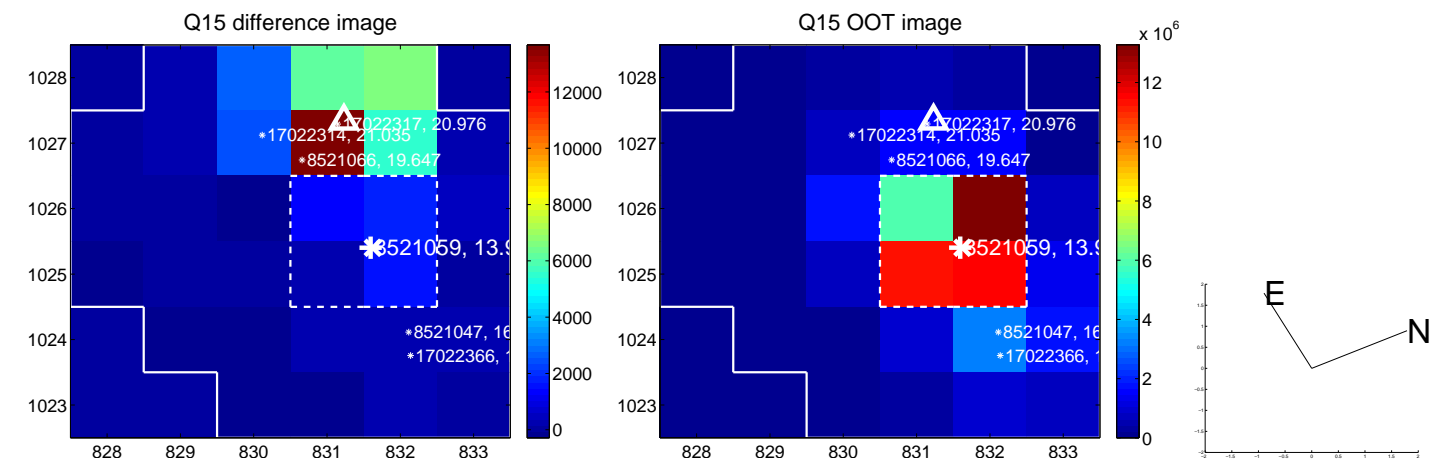
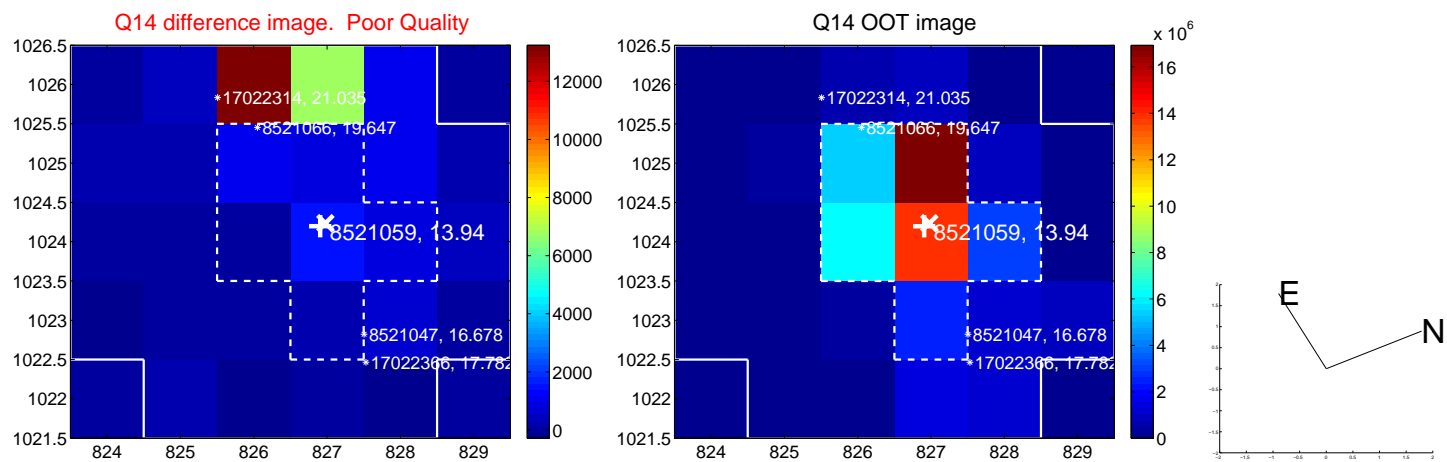
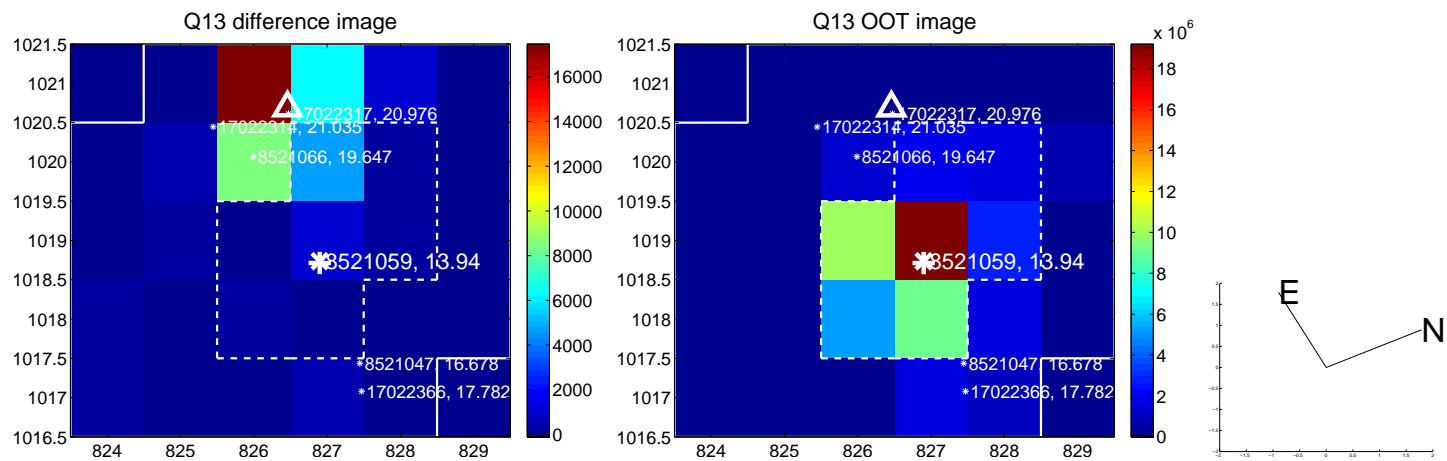
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



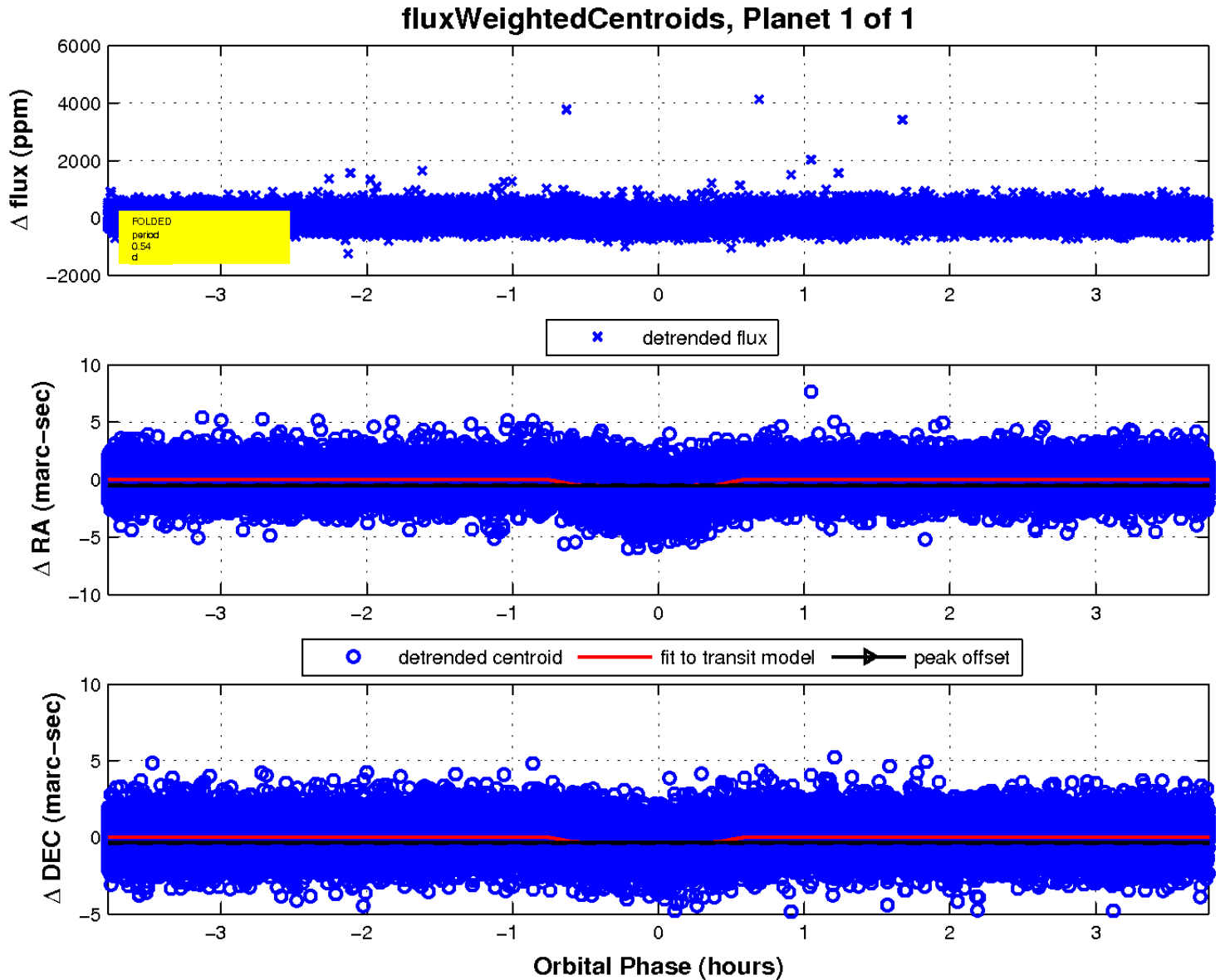
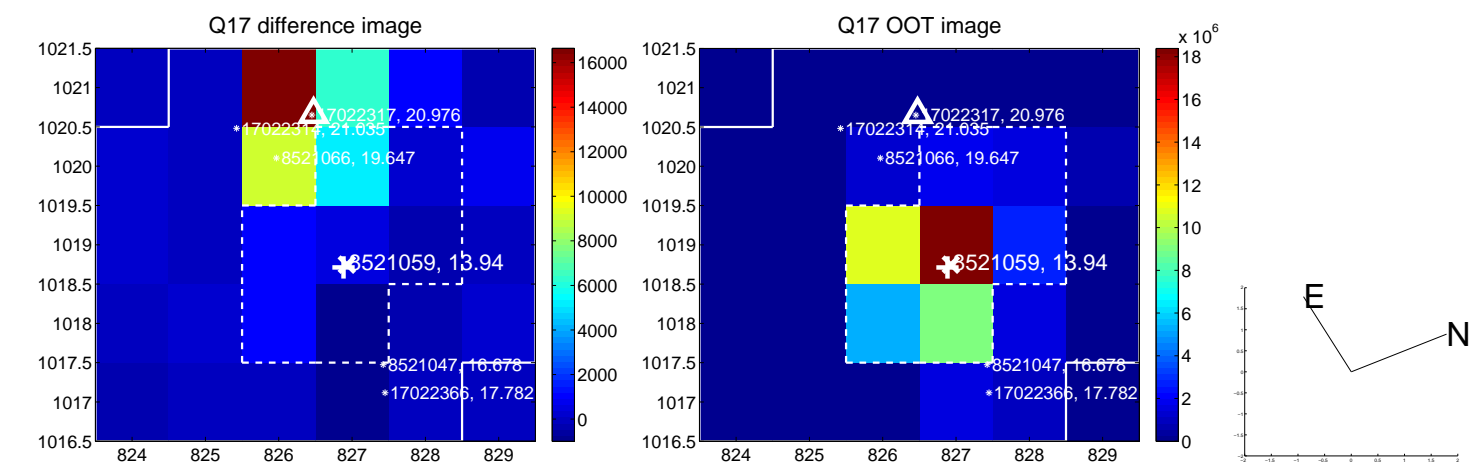
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

