

KIC 004821709

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})
004821709-01	OBS	No	616.989822	328.763012	178.4	10.025	8.1	6.7	0.95	5904	1.43	0.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004821709-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS

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

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

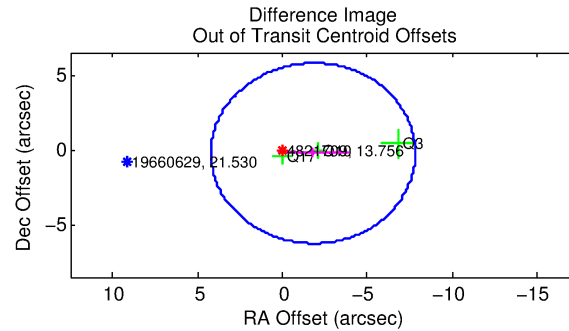
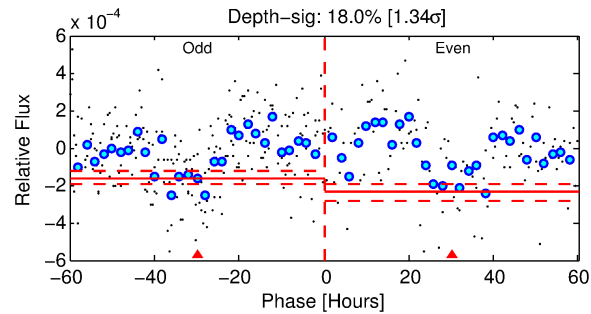
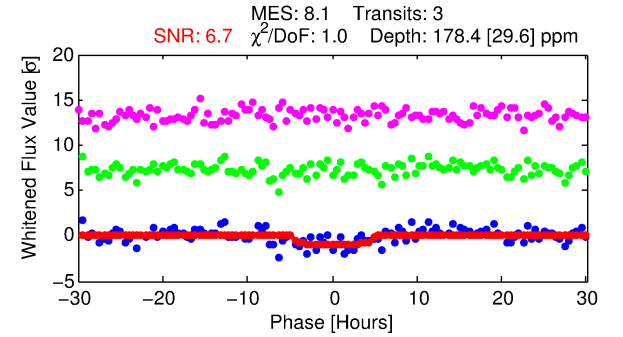
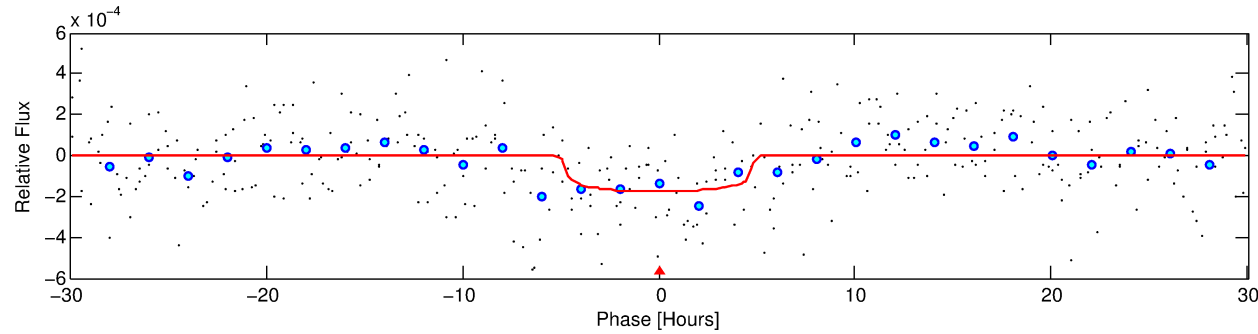
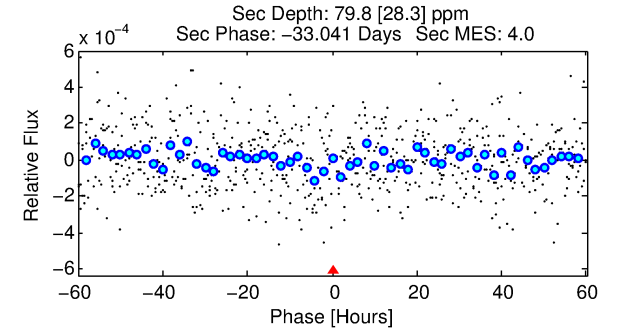
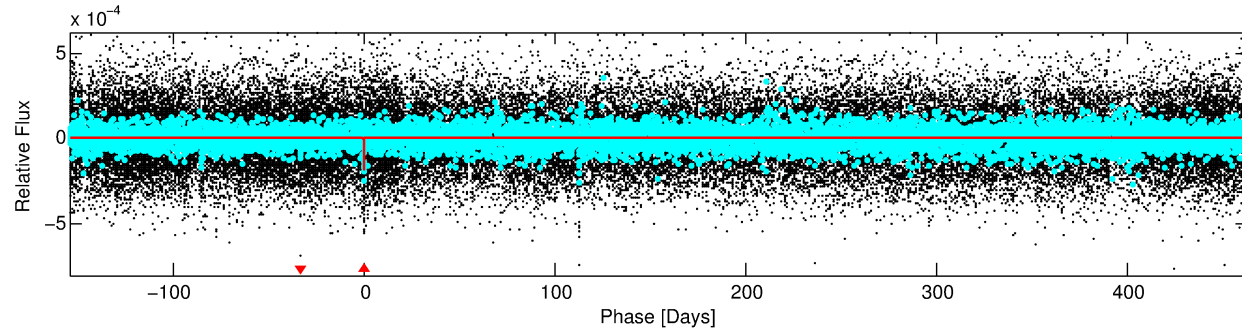
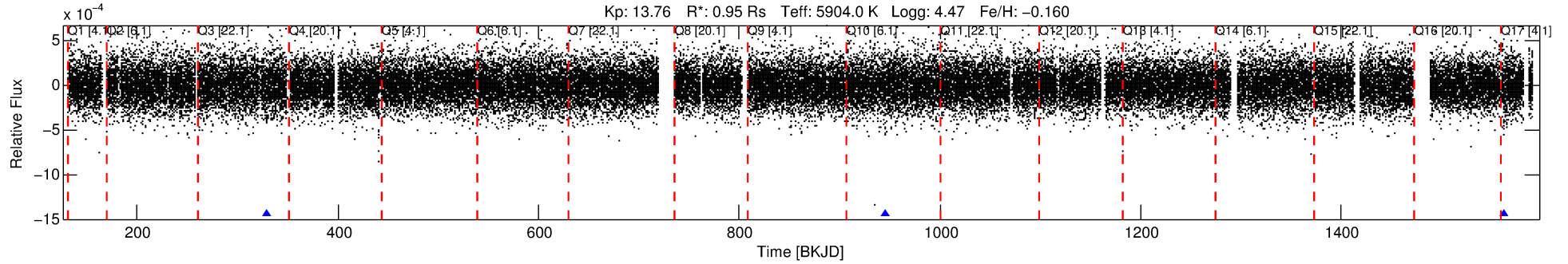
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004821709-01

No Significant Match Found

DV One-Page Summary

KIC: 4821709 Candidate: 1 of 1 Period: 616.990 d



DV Fit Results:

Period = 616.98982 [0.01770] d
Epoch = 328.7630 [0.0228] BKJD
Rp/R* = 0.0138 [0.0089]
a/R* = 269.02 [830.53]
b = 0.84 [1.12]
Seff = 0.50 [0.19]
Teq = 214 [20] K
Rp = 1.43 [1.00] Re
a = 1.4022 [0.3426] AU
Ag = 42412.39 [58542.30] [0.72σ]
Teffp = 4747 [1587] K [2.86σ]

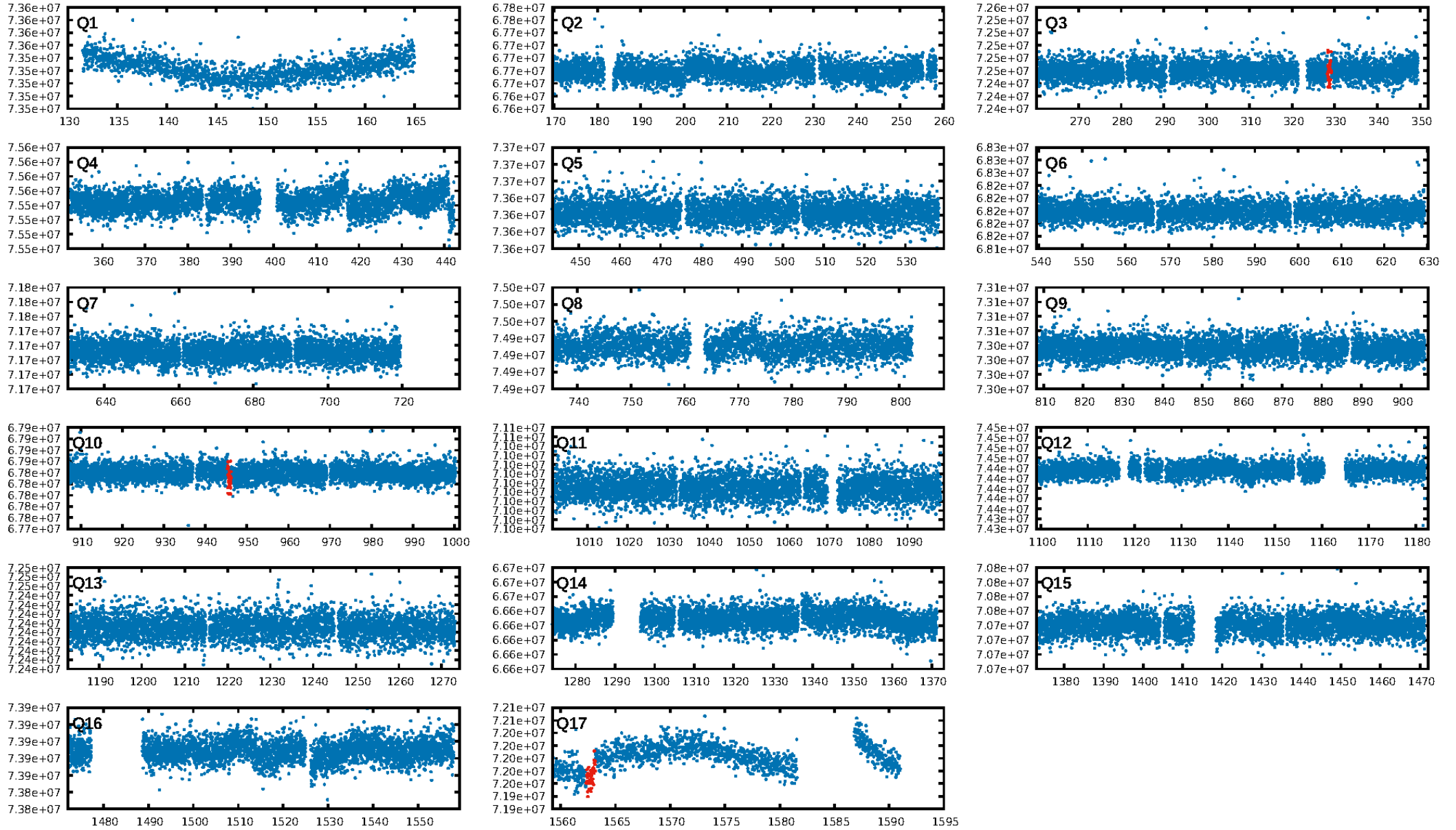
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 20.3%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 1.84e-10
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 6.114
Centroid-sig: 15.5%
Centroid-so: 2.341 arcsec [1.18σ]
OotOffset-rm: 1.839 arcsec [0.92σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 1.882 arcsec [1.11σ]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

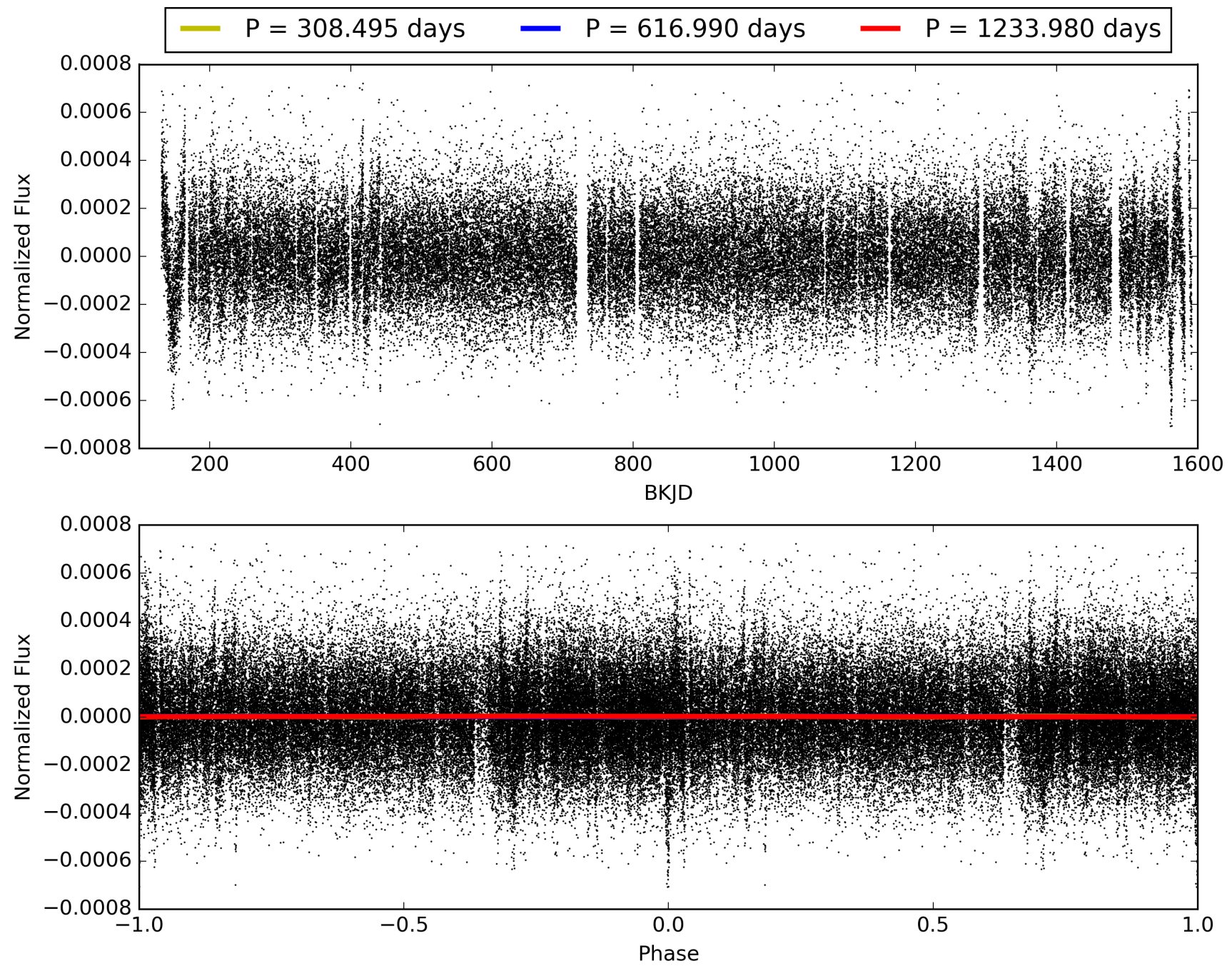
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:48:10 Z

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

TCE 004821709-01, PDC Light Curves

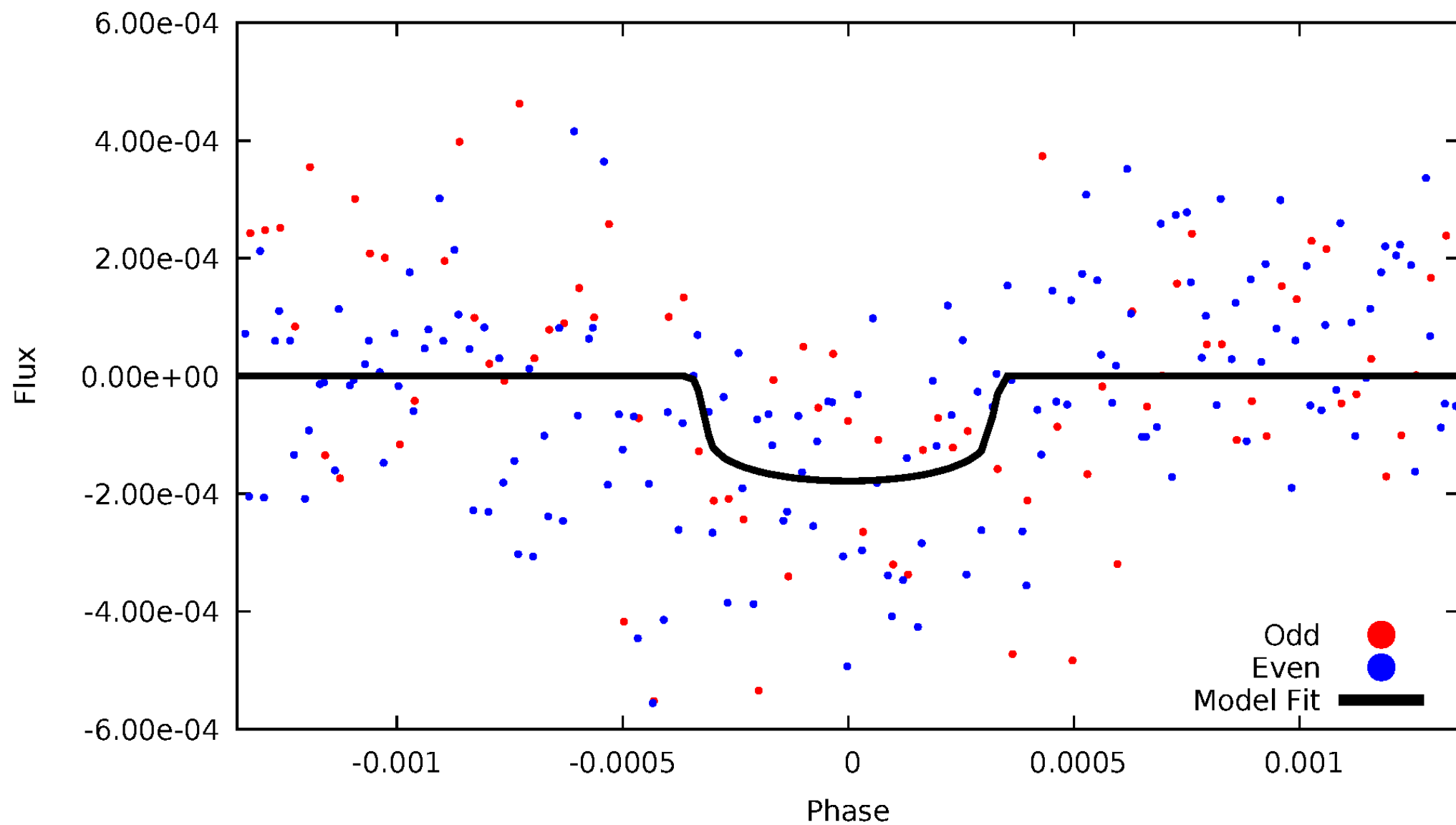


TCE 004821709-01



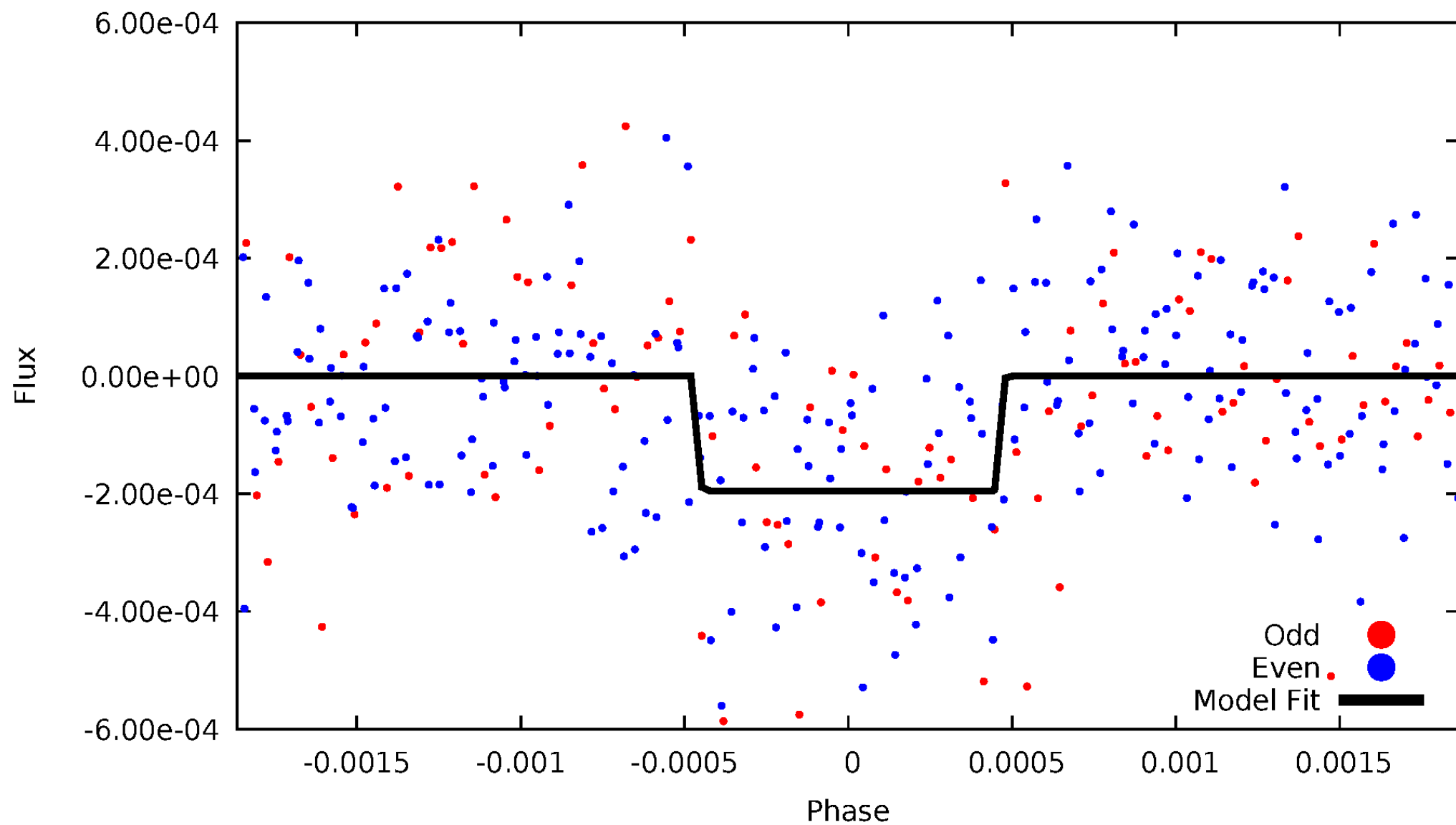
DV Odd/Even

TCE 004821709-01

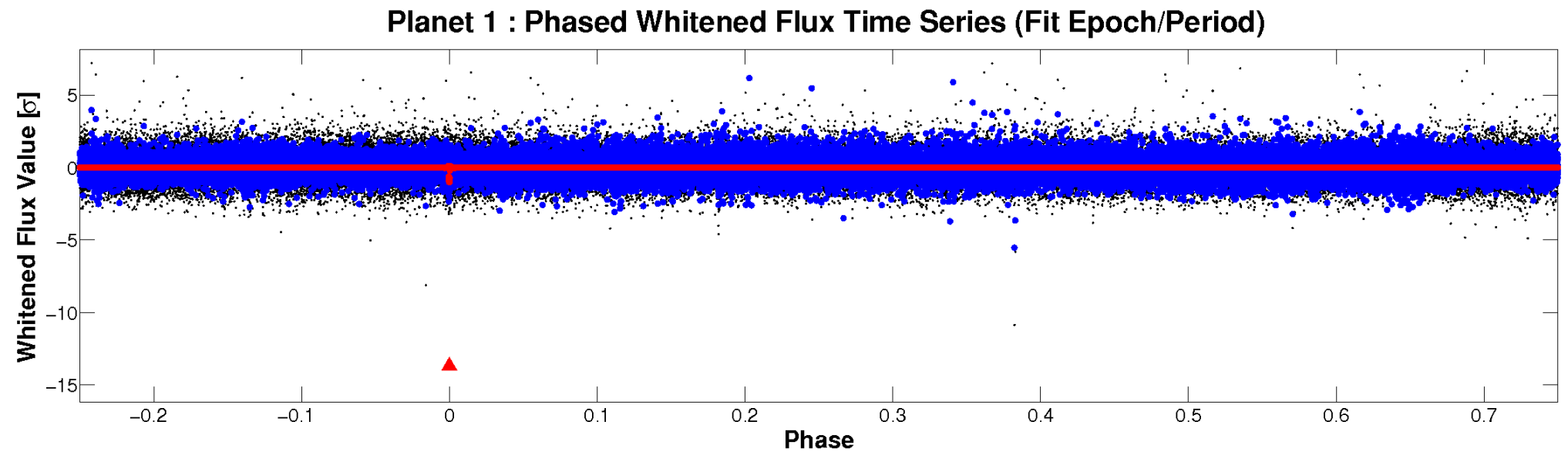
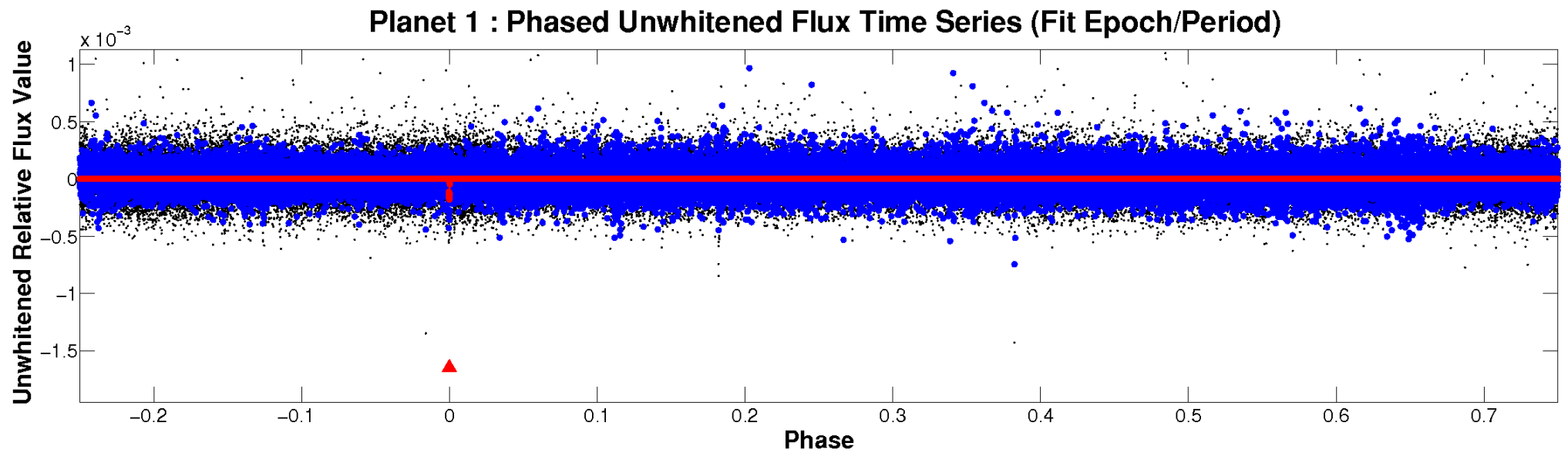


ALT Odd/Even

TCE 004821709-01

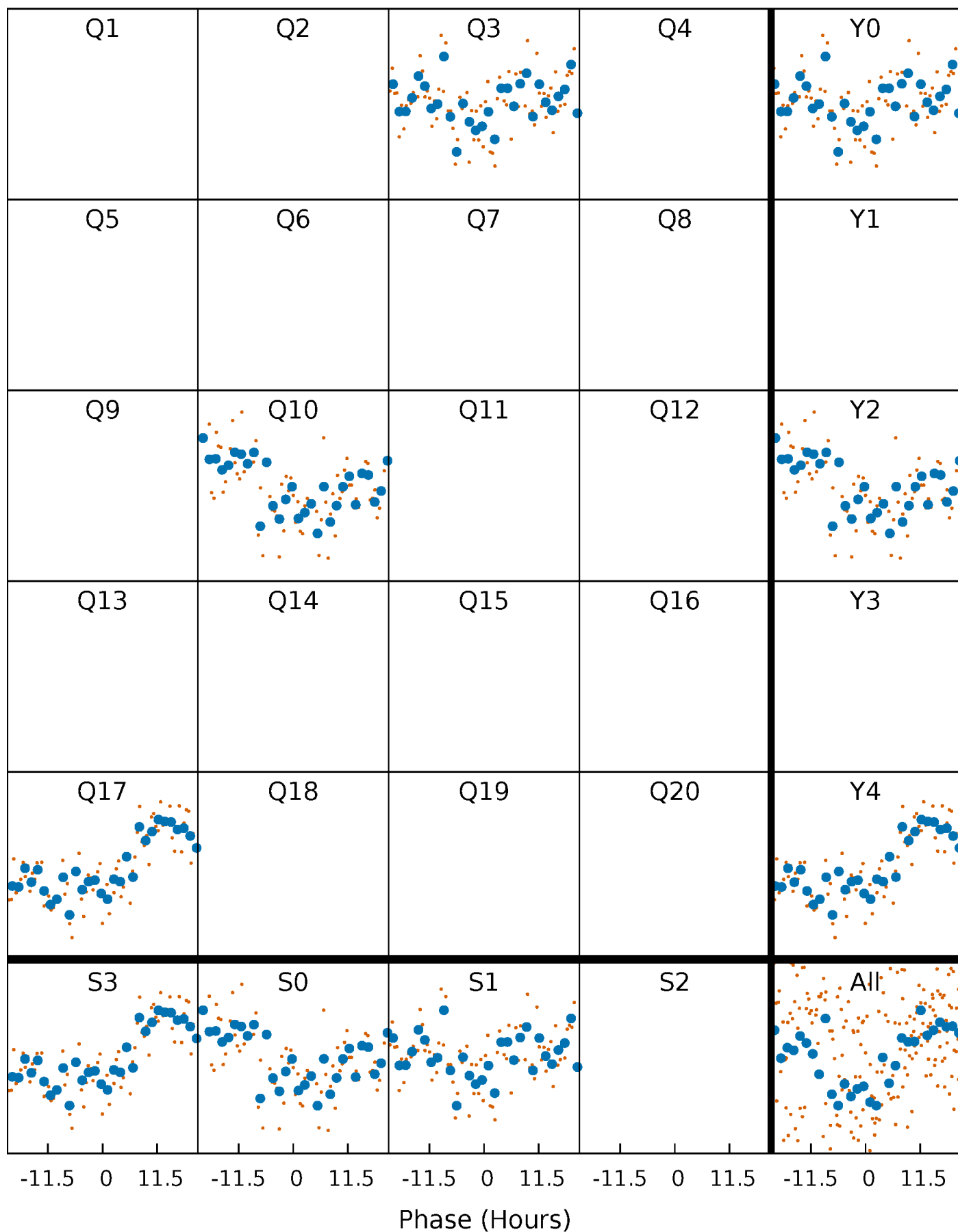


Non-Whitened Vs. Whitened Light Curve



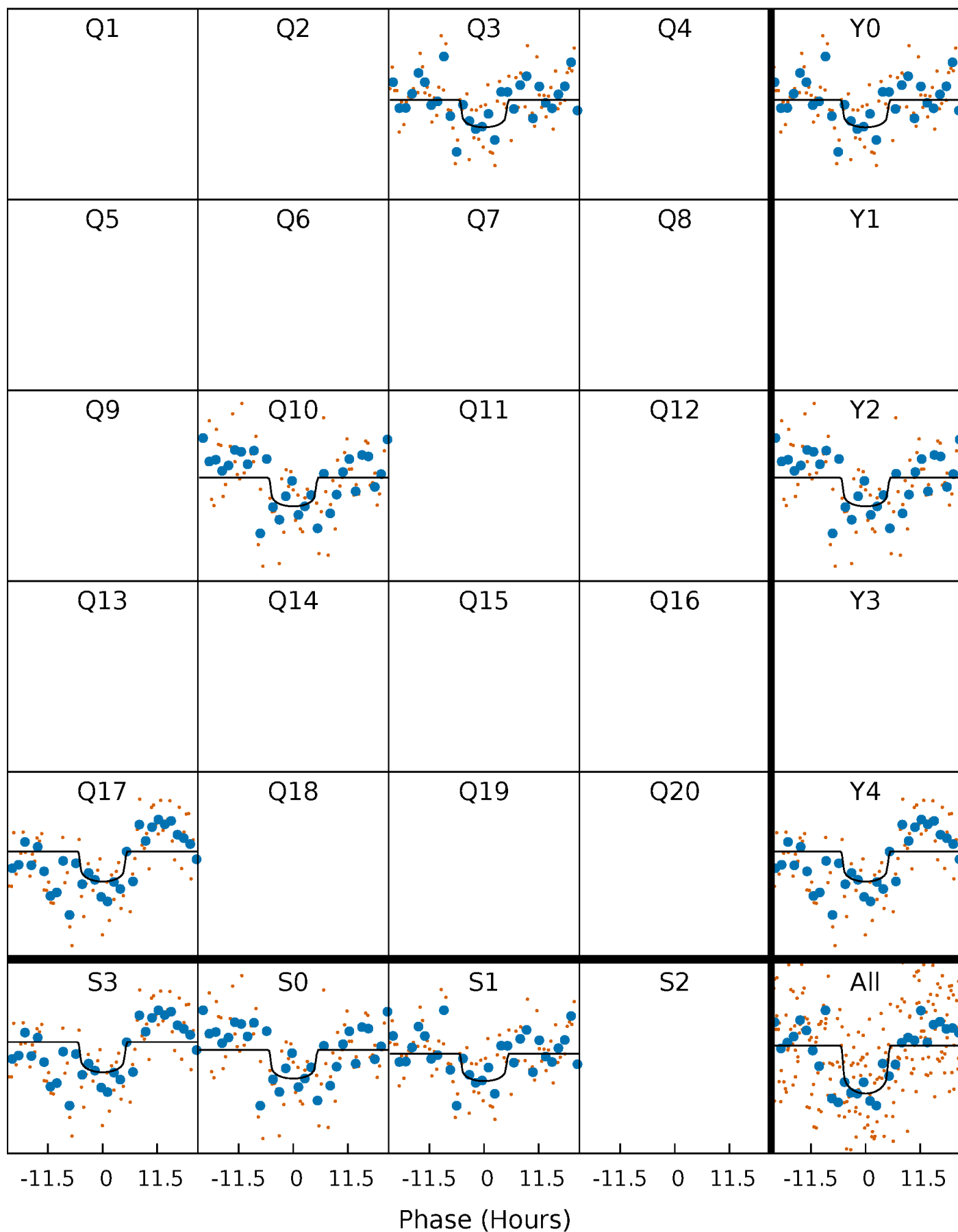
PDC Quarter-Phased Transit Curves

TCE 004821709-01 P=616.989822 Days $T_0=328.763013$ (BKJD)



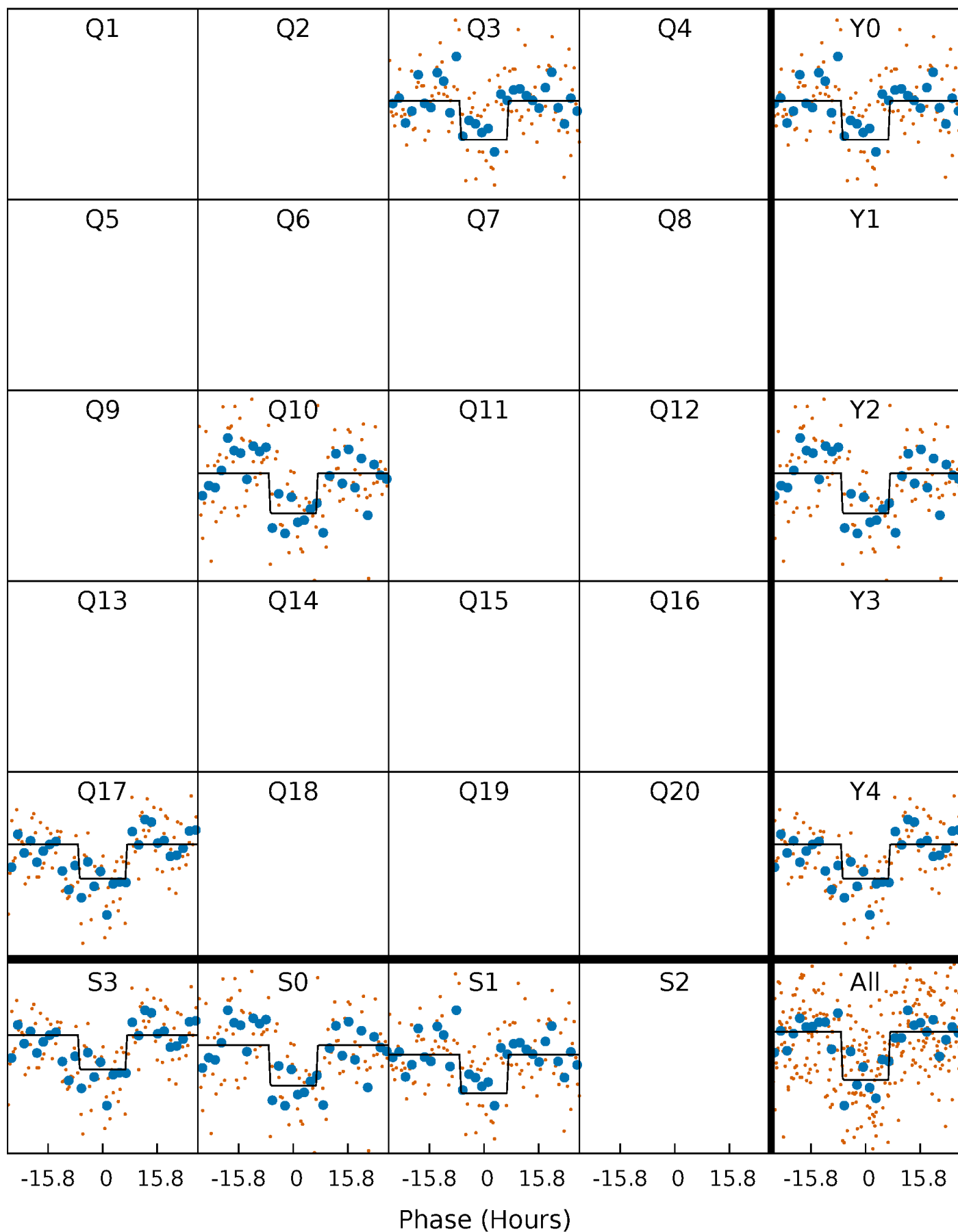
DV Quarter-Phased Transit Curves

TCE 004821709-01 P=616.989822 Days $T_0=328.763013$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

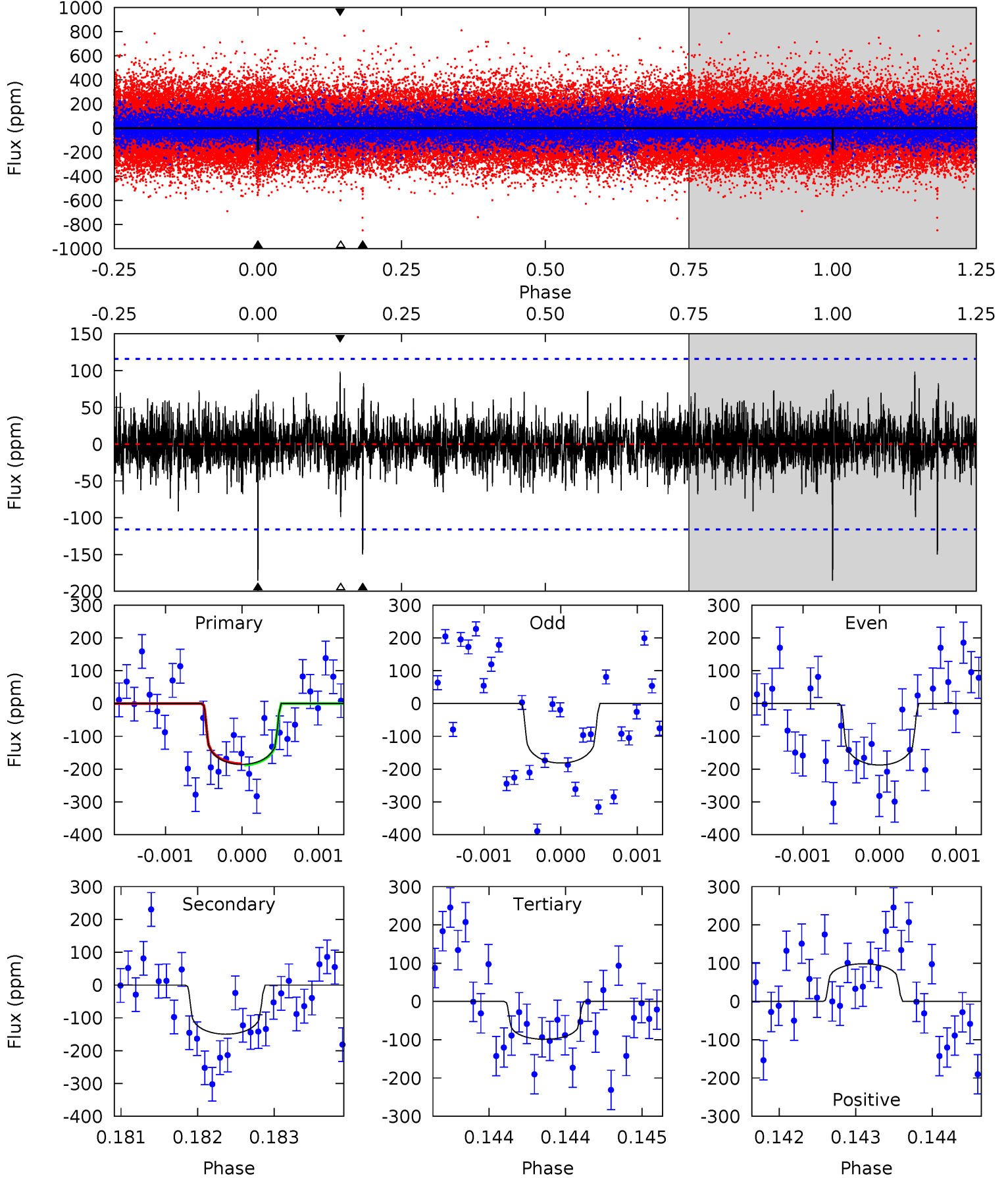
TCE 004821709-01 P=616.991344 Days $T_0=328.731025$ (BKJD)



DV Model-Shift Uniqueness Test

004821709-01, P = 616.989822 Days, E = 328.763013 Days

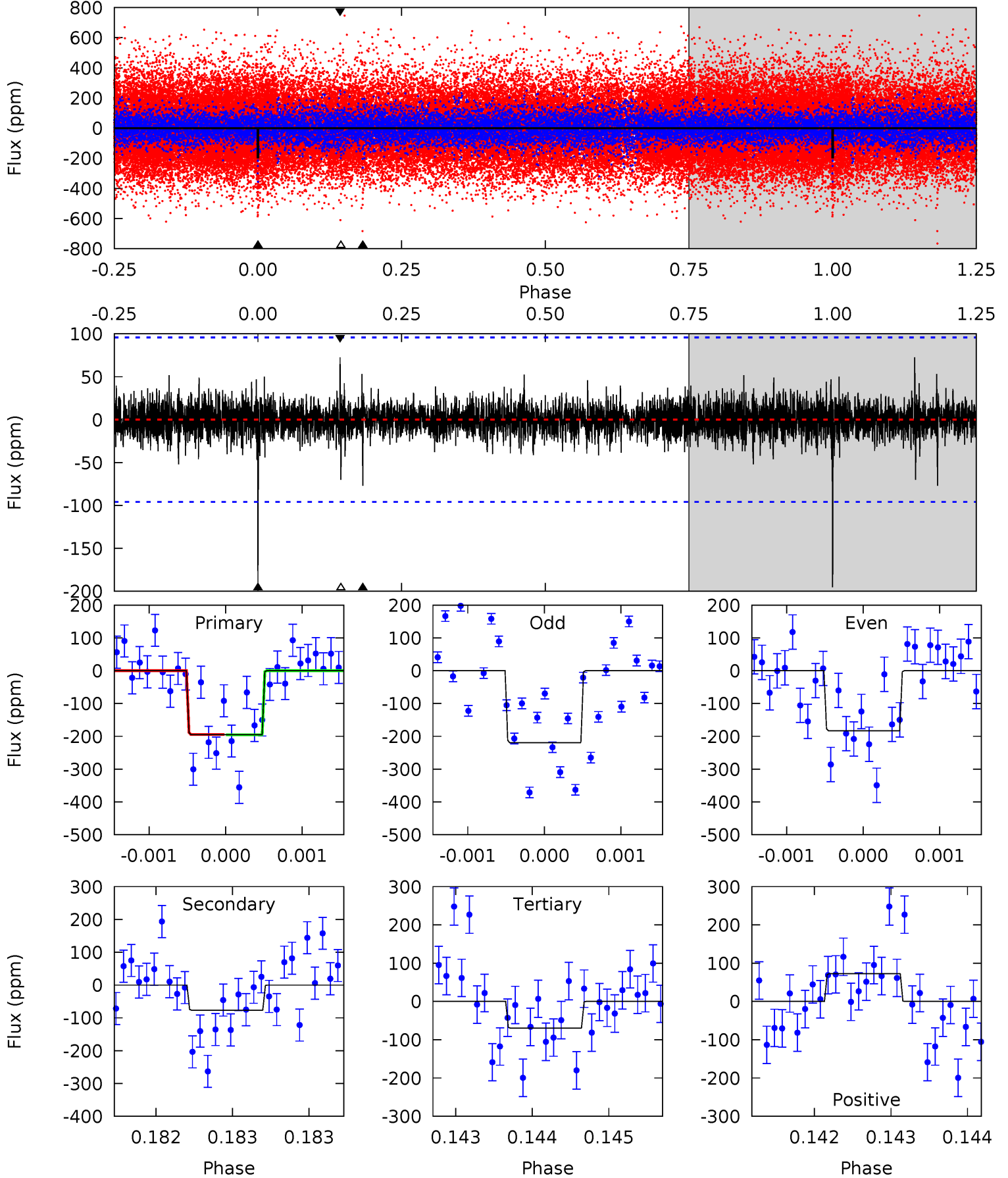
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.84	7.13	4.71	4.69	5.52	3.39	1.04	4.13	4.15	2.42	2.44	0.14	1.02	0.35	0.09



Alt Model-Shift Uniqueness Test

004821709-01, P = 616.991344 Days, E = 328.731025 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	4.38	3.98	4.14	5.46	3.31	0.72	7.16	7.00	0.40	0.24	0.97	0.89	0.27	0.03



Stellar Parameters For KIC 004821709

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5904^{+141}_{-177}	$4.471^{+0.067}_{-0.202}$	$-0.160^{+0.300}_{-0.300}$	$0.946^{+0.268}_{-0.115}$	$0.966^{+0.120}_{-0.120}$	$1.606^{+0.550}_{-0.795}$
	+2%/-3%	+1%/-5%	+188%/-188%	+28%/-12%	+12%/-12%	+34%/-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 004821709-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-150 ± 21	$1.61^{+0.91}_{-0.90}$	304^{+21}_{-15}	5359^{+2703}_{-898}	$61190^{+232673}_{-37168}$
Alt.	-77 ± 18	$1.53^{+0.99}_{-0.83}$	303^{+20}_{-13}	4694^{+2405}_{-801}	$34339^{+147006}_{-22373}$

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

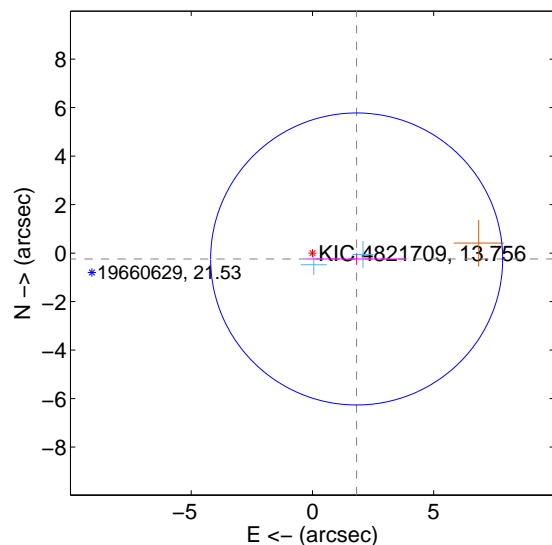
Supplemental centroid analysis for 004821709-01. Kepler magnitude: 13.76. Transit SNR 6.68

There are 2 quarters with good PRF difference image offsets

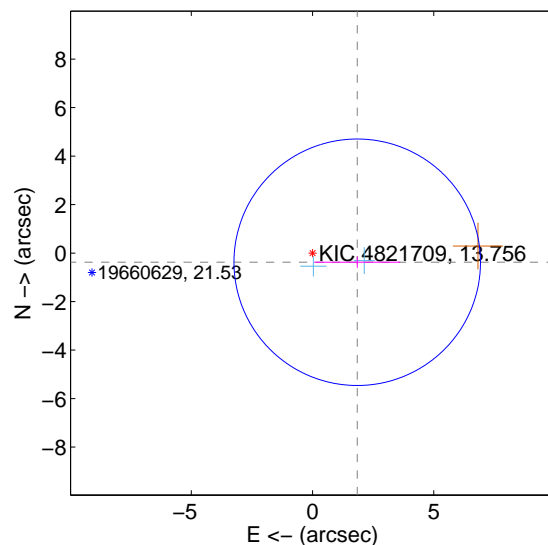
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.839 ± 2.007	0.92	-1.823 ± 2.056	-0.242 ± 0.248
PRF-fit source offset from KIC position	1.882 ± 1.694	1.11	-1.843 ± 1.775	-0.377 ± 0.232
photometric centroid source offset	2.34 ± 1.99	1.18	2.12 ± 1.95	1.00 ± 2.16

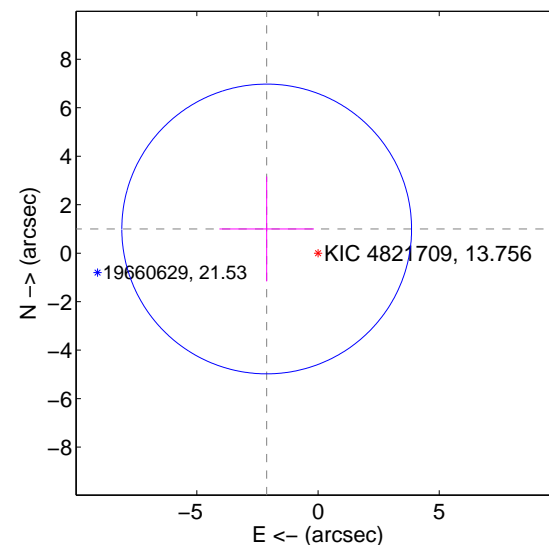
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

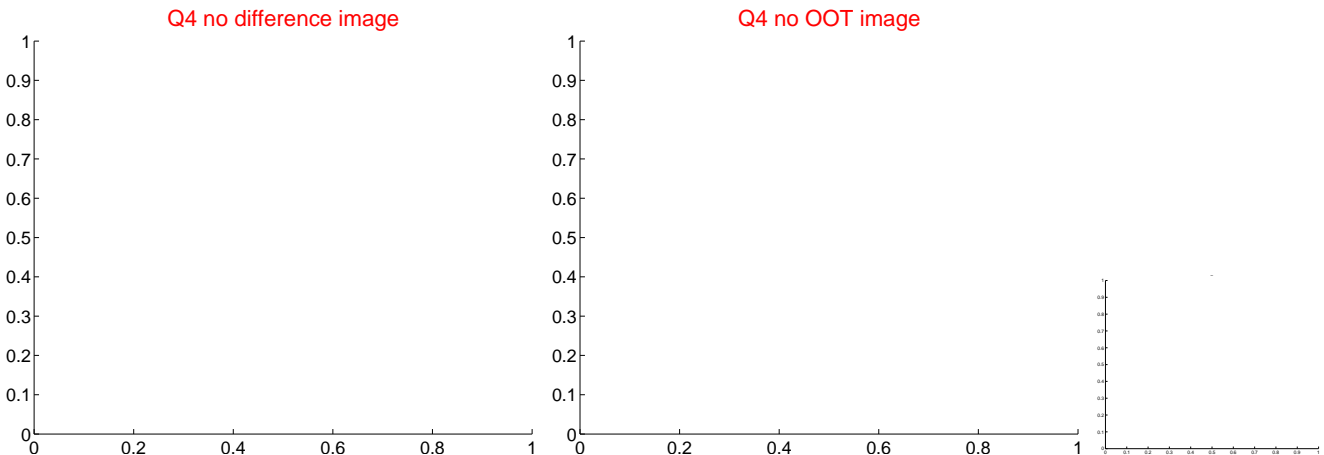
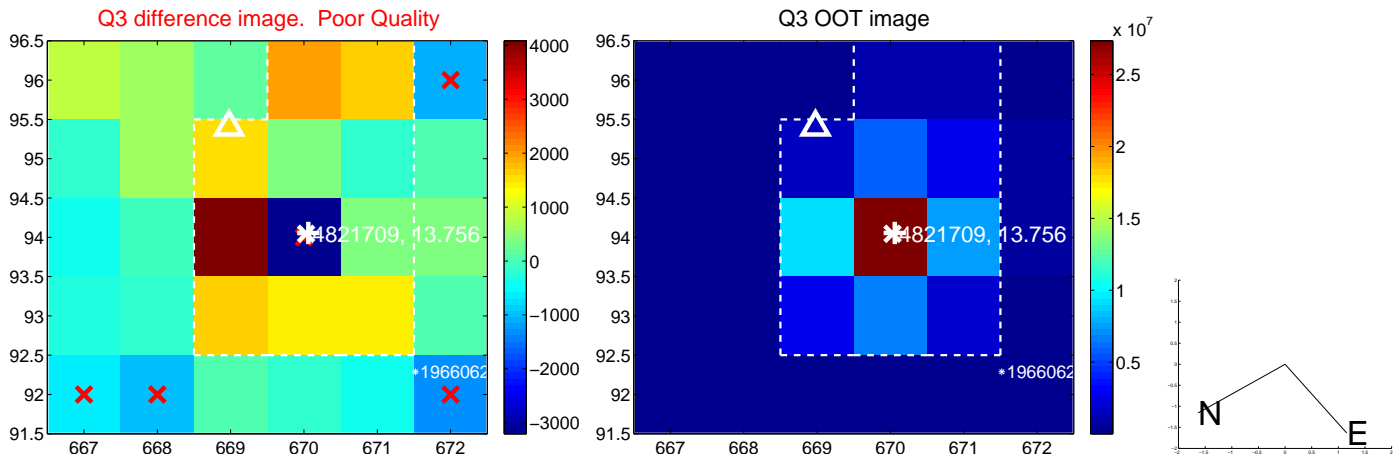
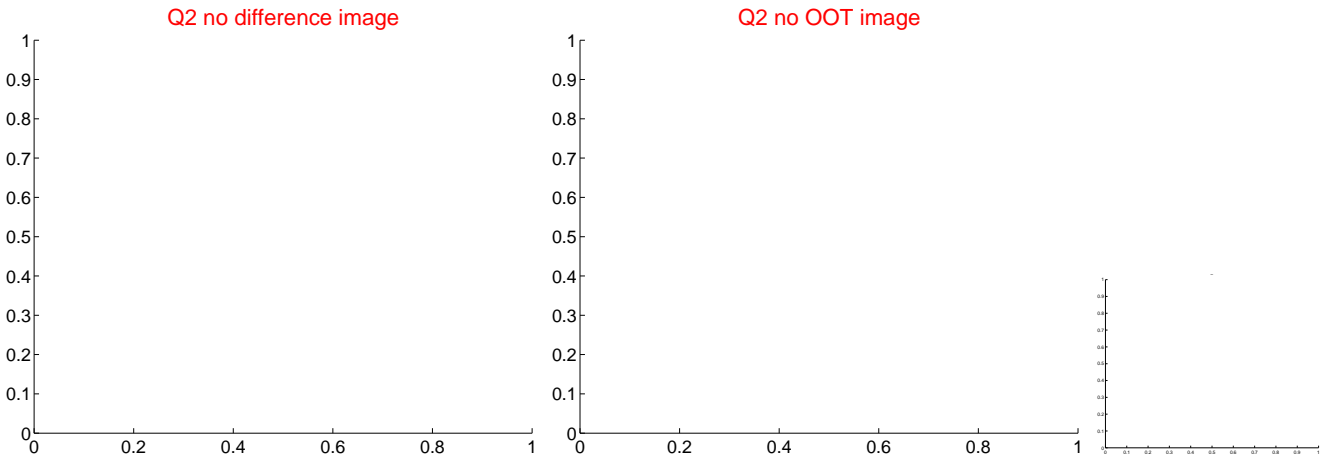
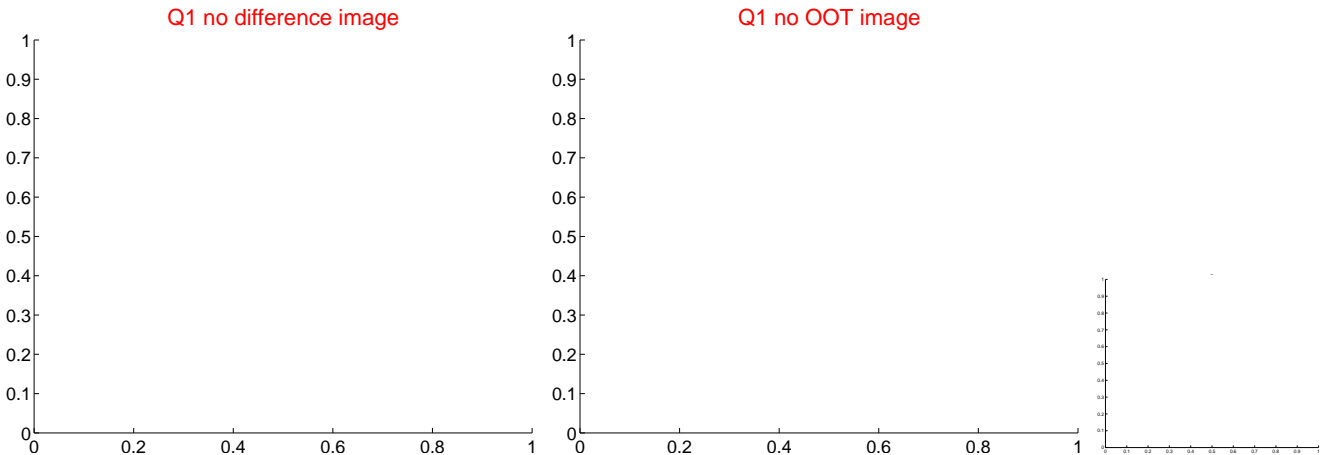


offset from photometric centroids



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.

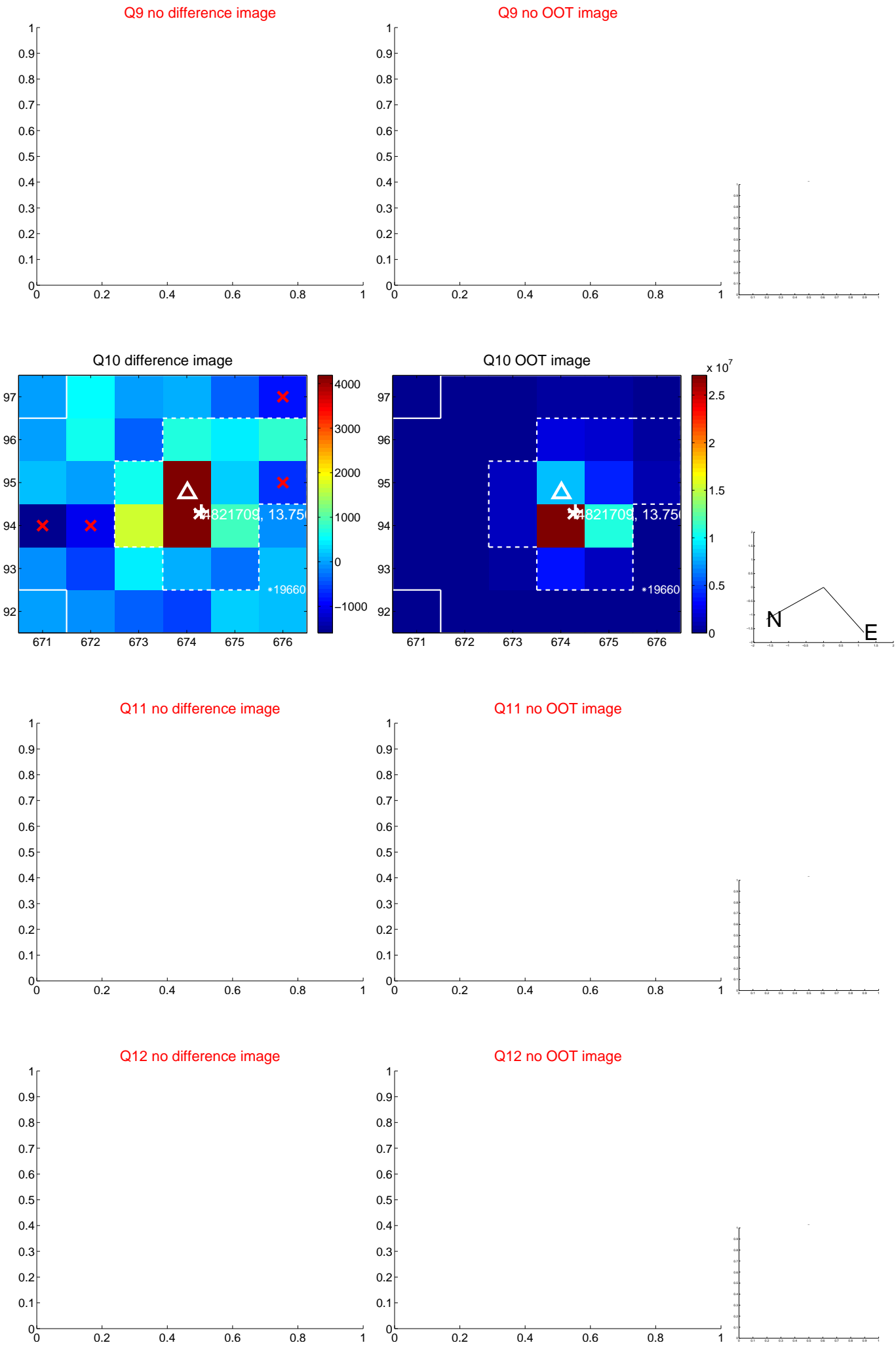
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



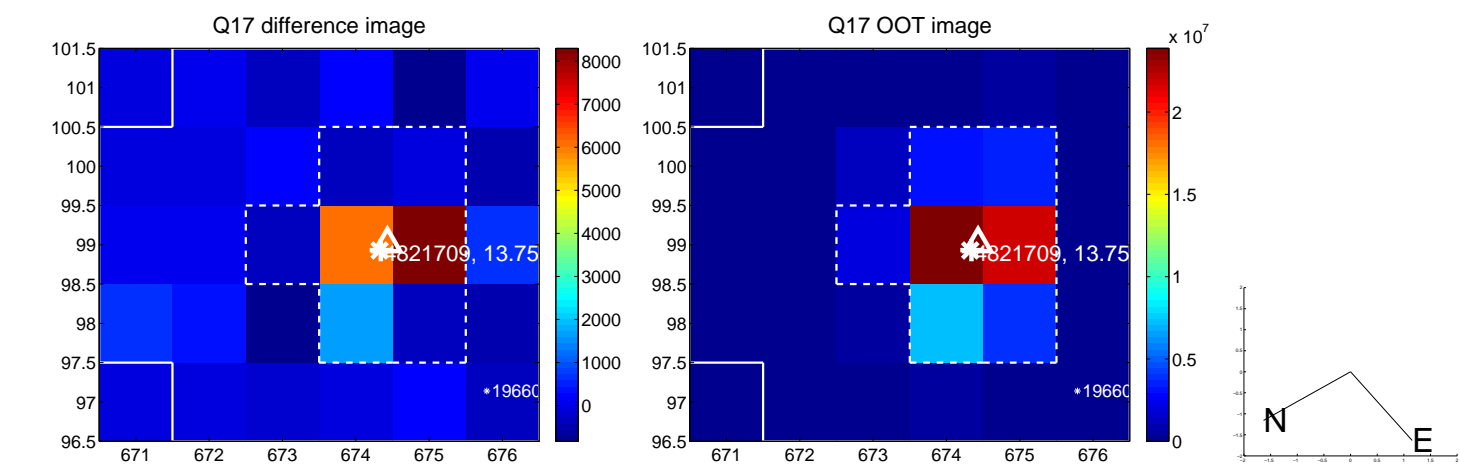
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



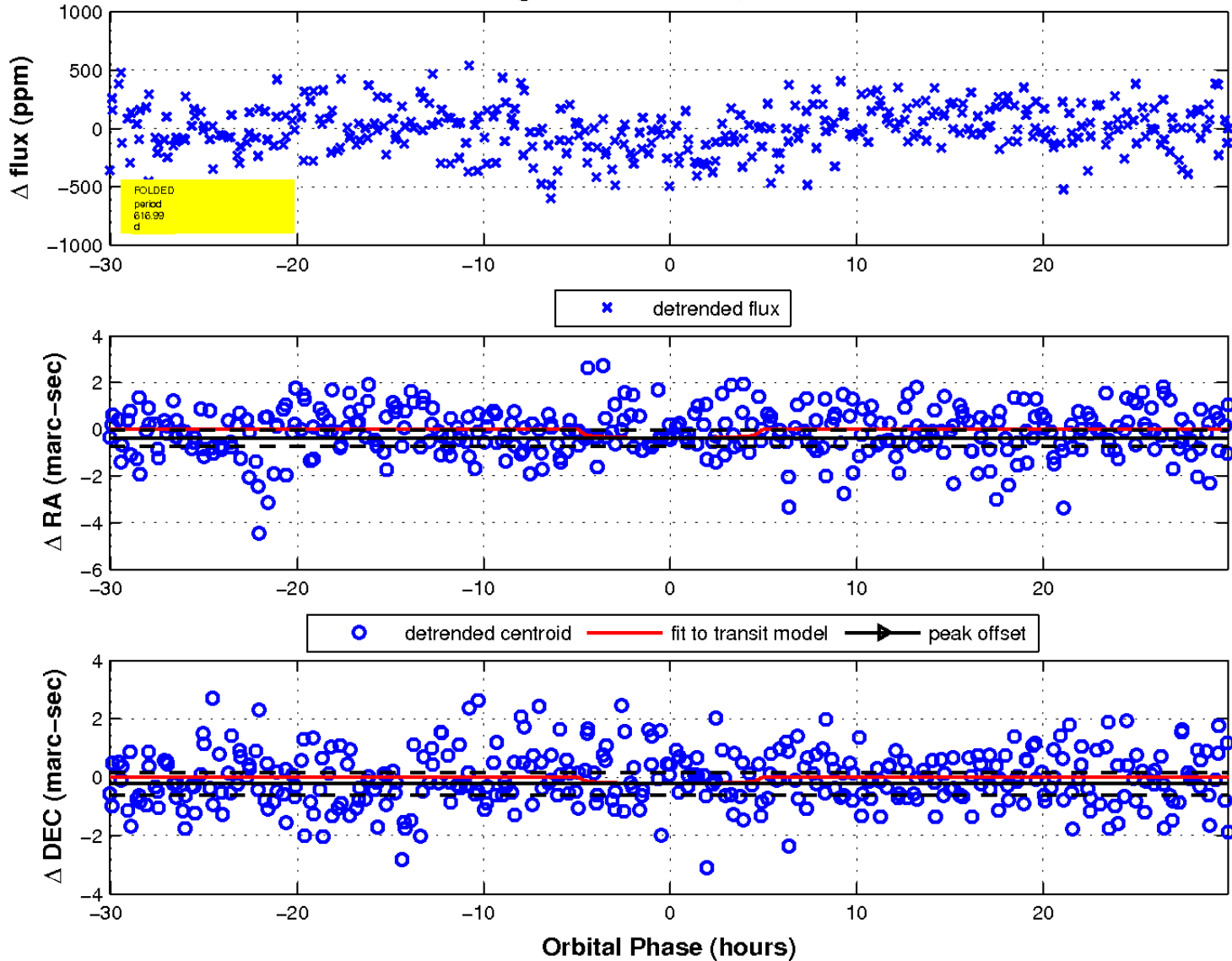
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

