

KIC 009028709

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})
009028709-01	OBS	No	330.051032	433.652818	402.5	2.799	7.5	7.9	1.06	6078	2.57	1.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009028709-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_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.

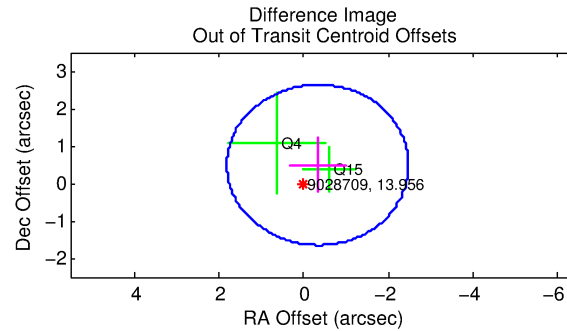
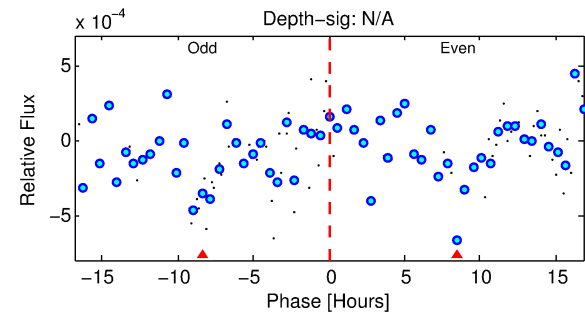
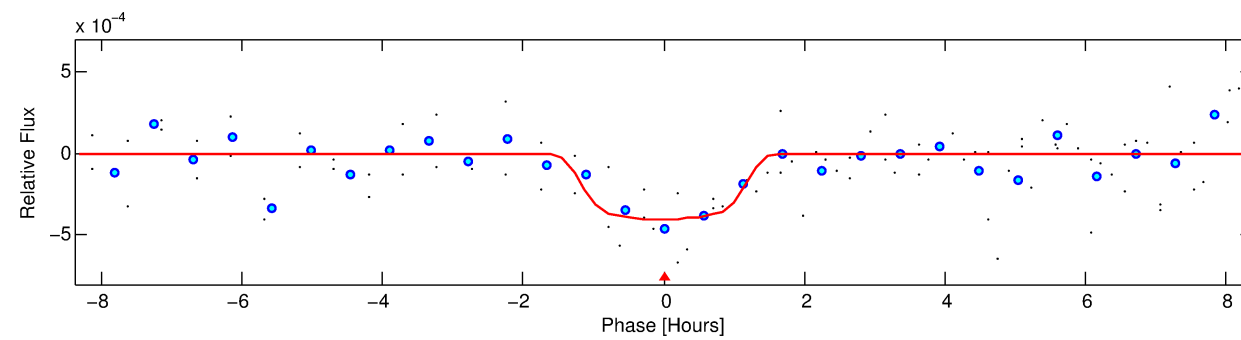
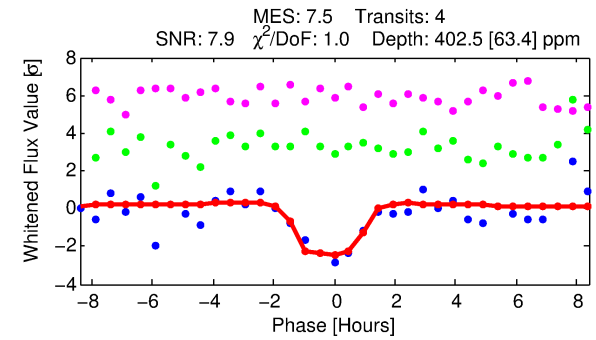
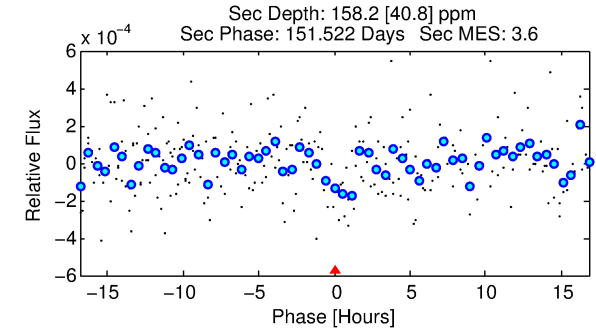
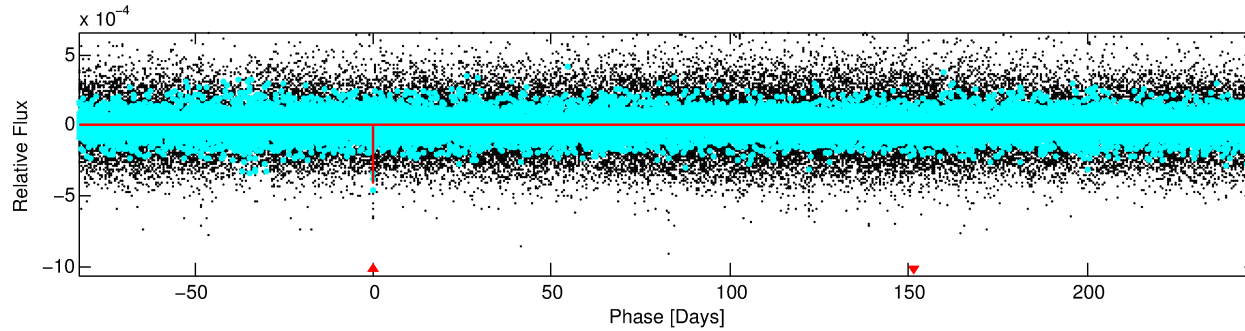
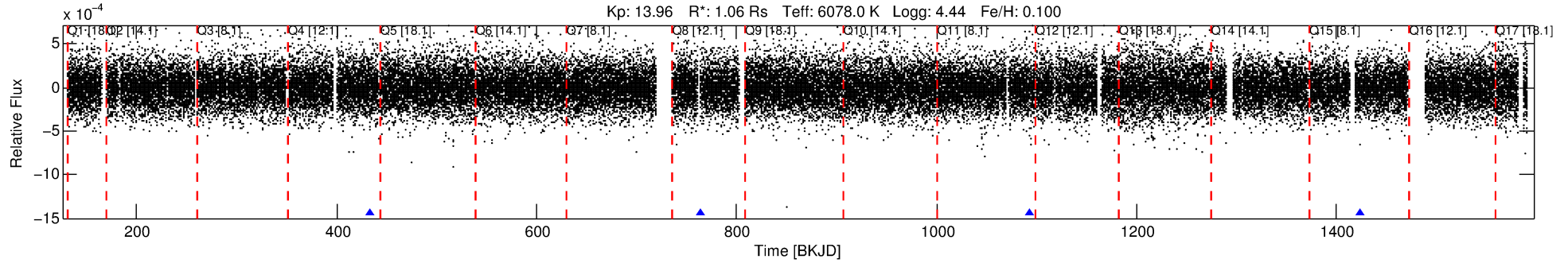
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009028709-01

No Significant Match Found

DV One-Page Summary

KIC: 9028709 Candidate: 1 of 1 Period: 330.051 d



DV Fit Results:

Period = 330.05103 [0.00361] d
Epoch = 433.6528 [0.0083] BKJD
Rp/R* = 0.0223 [0.0160]
a/R* = 393.88 [1439.41]
b = 0.92 [0.59]
Seff = 1.44 [0.63]
Teff = 279 [30] K
Rp = 2.57 [2.04] Re
a = 0.9732 [0.2749] AU
Ag = 12490.43 [18968.33] [0.66σ]
Teffp = 4565 [1677] K [2.56σ]

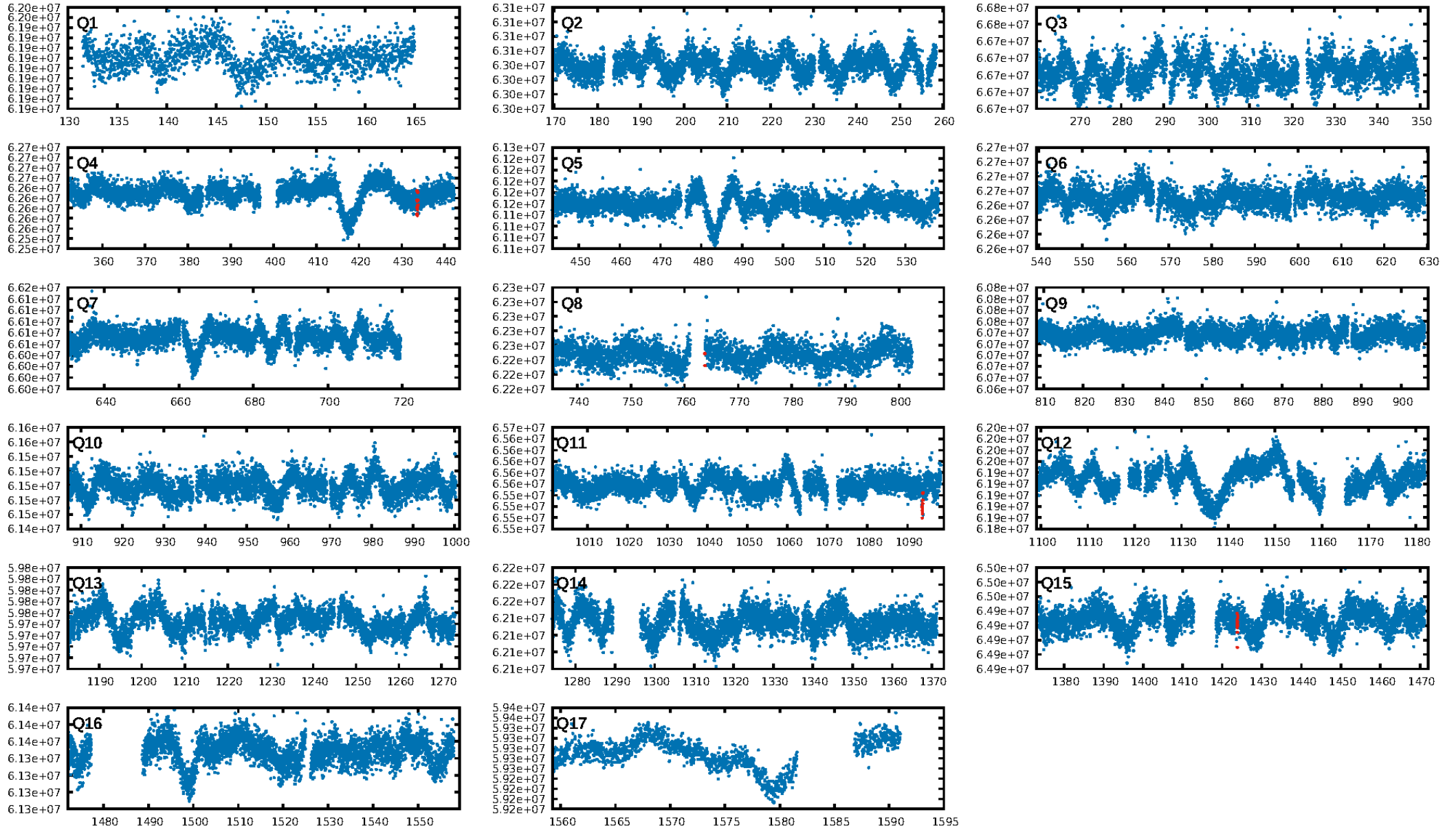
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 20.9%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: 8.55e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -15.71
Centroid-sig: 64.5%
Centroid-so: 1.177 arcsec [0.61σ]
OotOffset-rm: 0.597 arcsec [0.84σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.720 arcsec [0.99σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

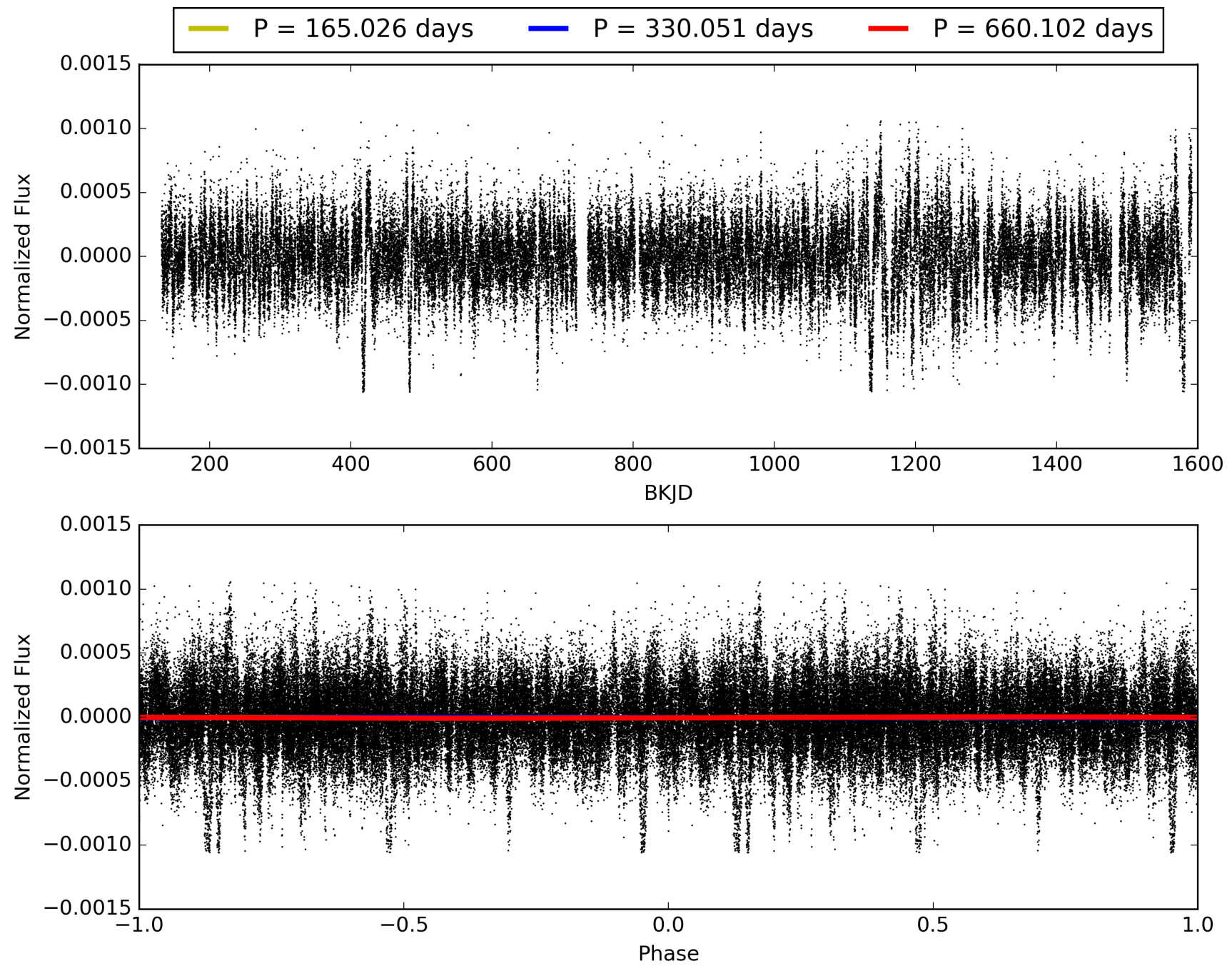
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:45:41 Z

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

TCE 009028709-01, PDC Light Curves

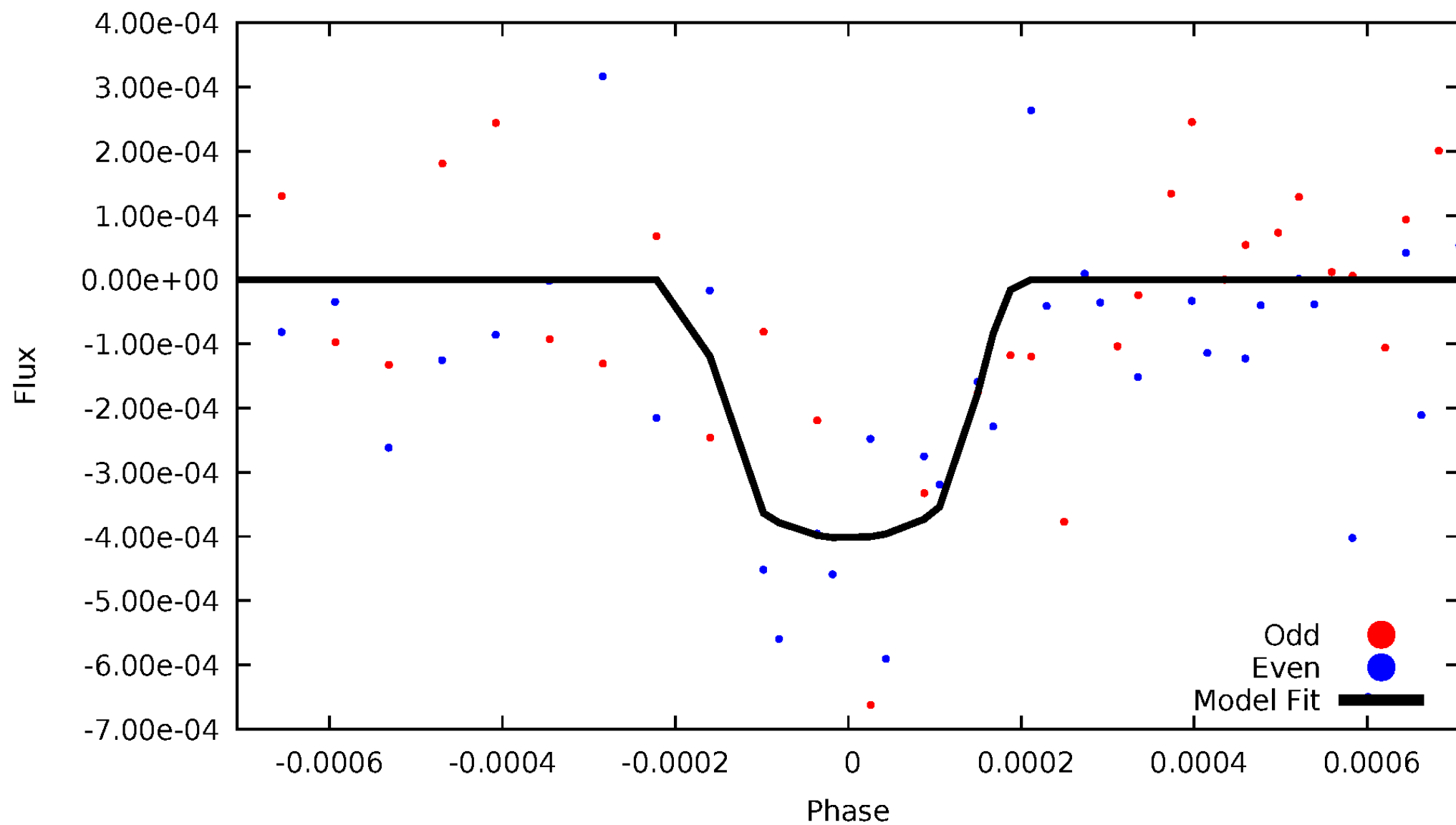


TCE 009028709-01



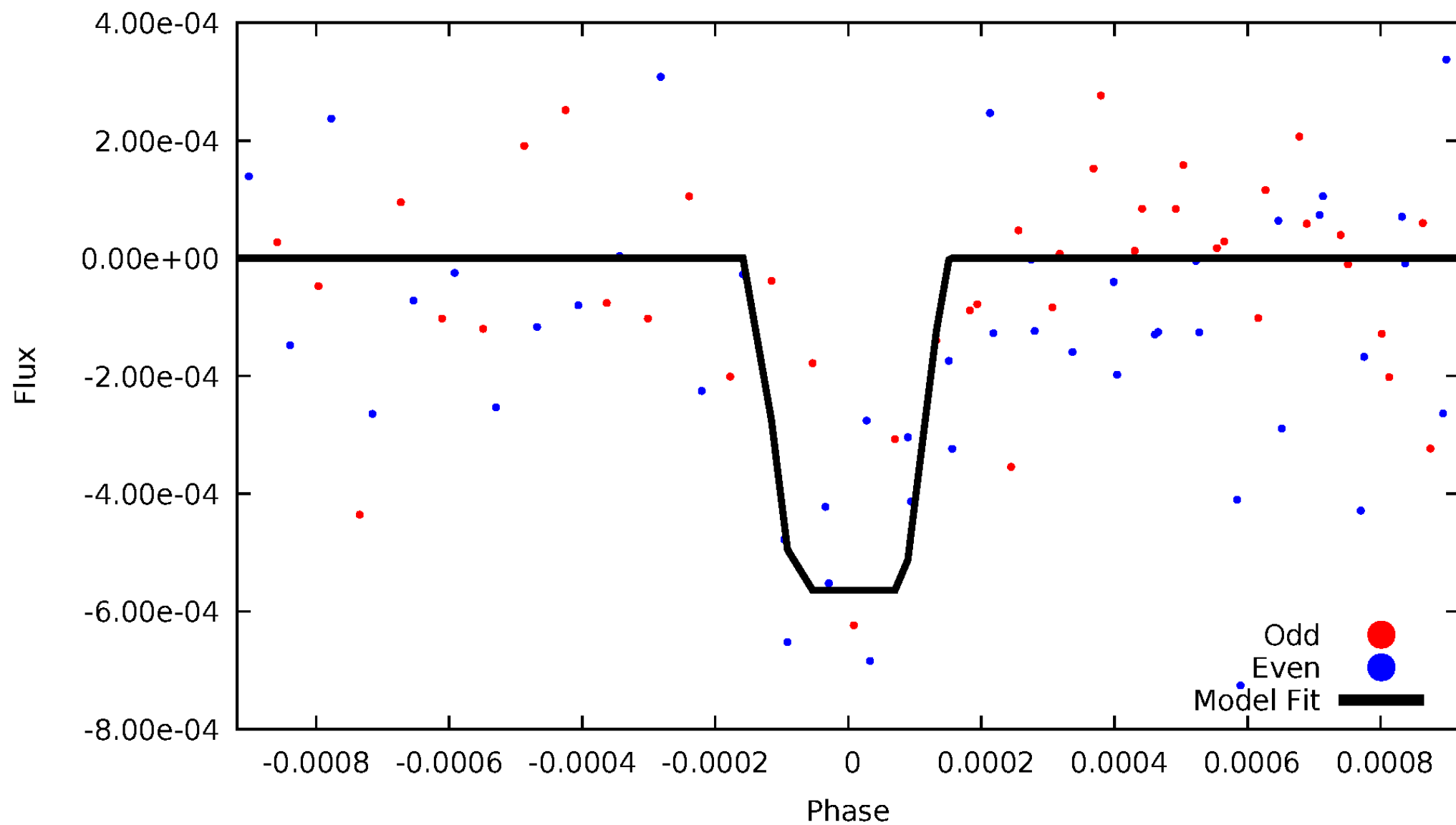
DV Odd/Even

TCE 009028709-01

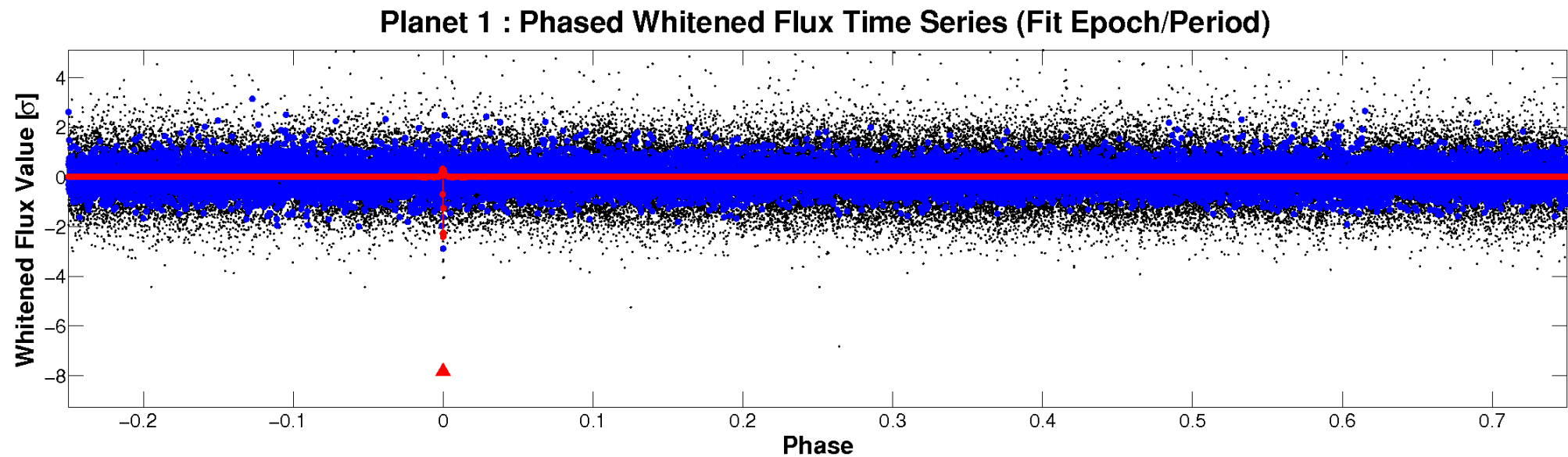
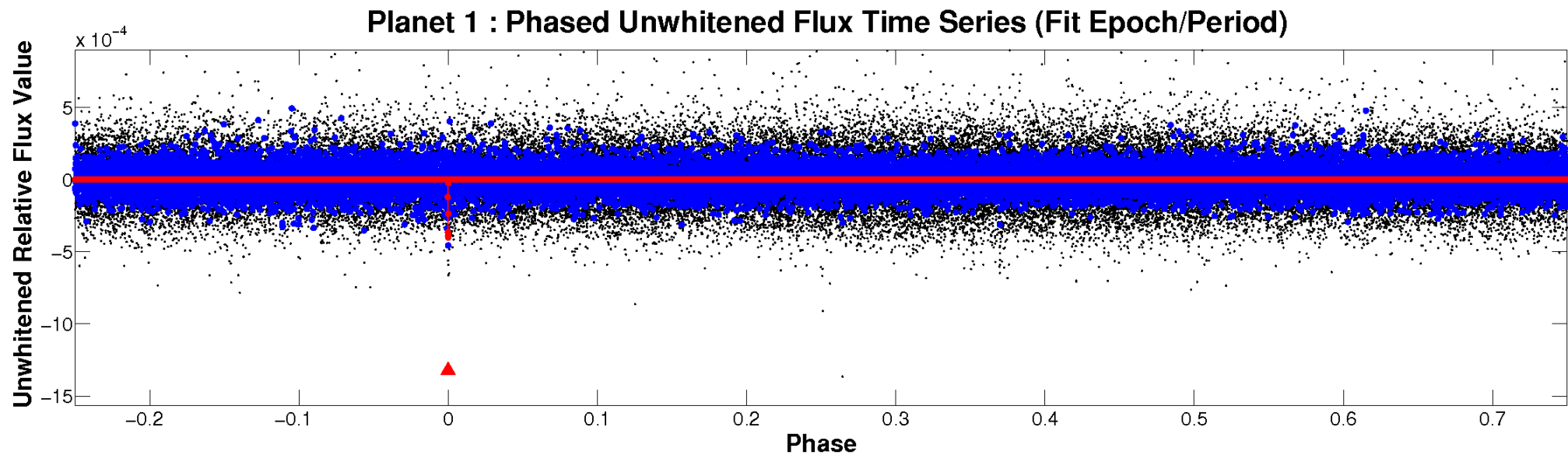


ALT Odd/Even

TCE 009028709-01

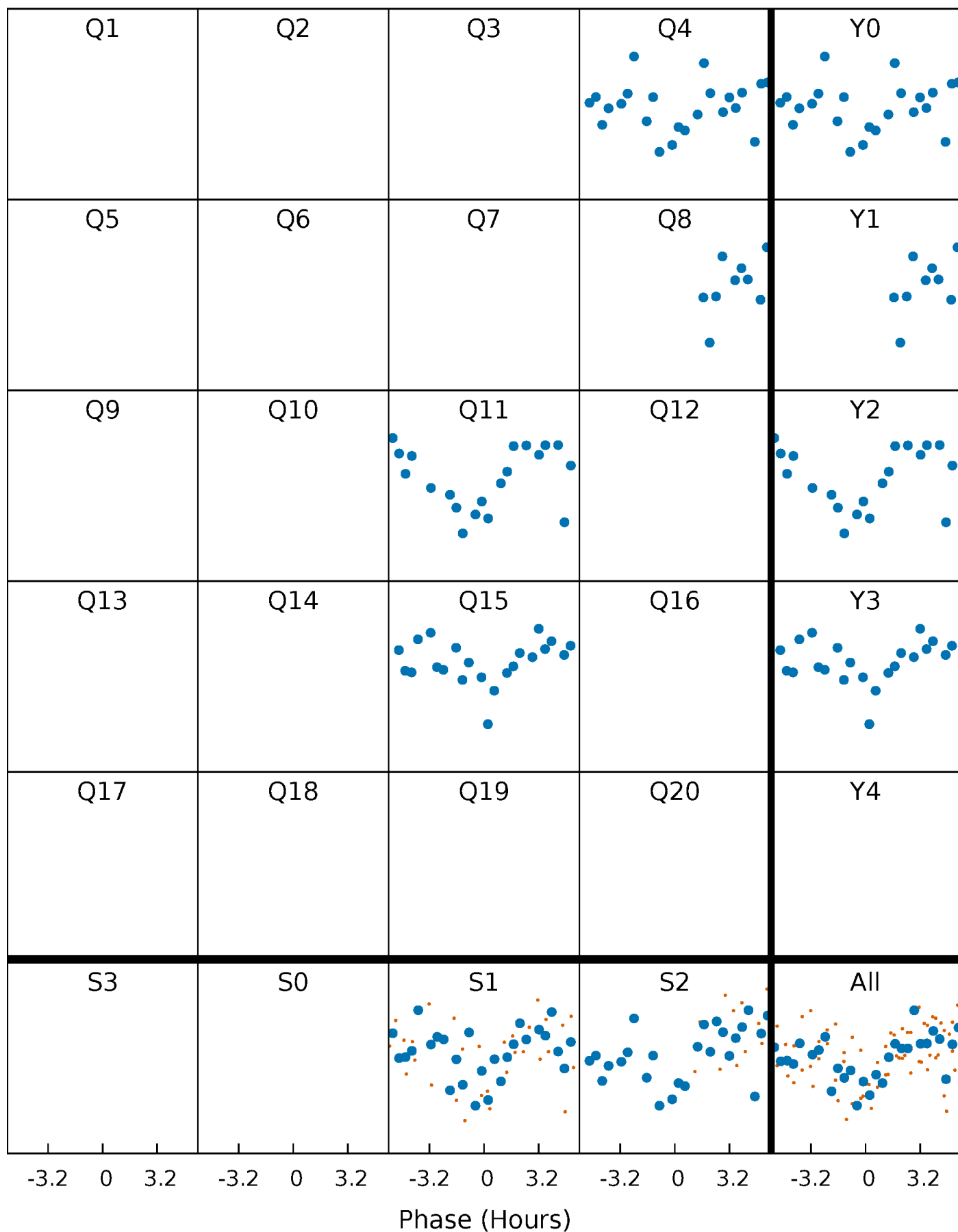


Non-Whitened Vs. Whitened Light Curve



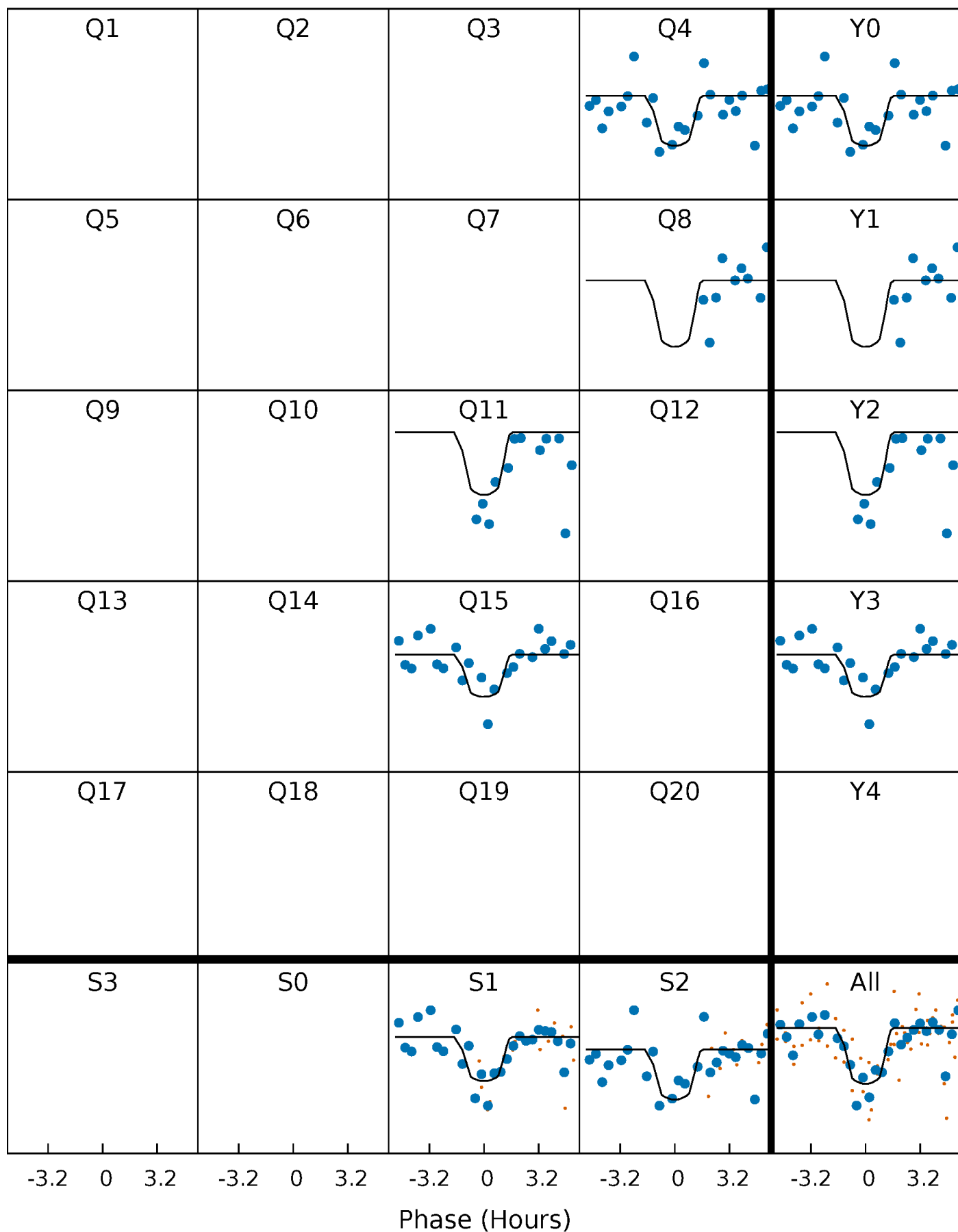
PDC Quarter-Phased Transit Curves

TCE 009028709-01 P=330.051032 Days $T_0=433.652819$ (BKJD)



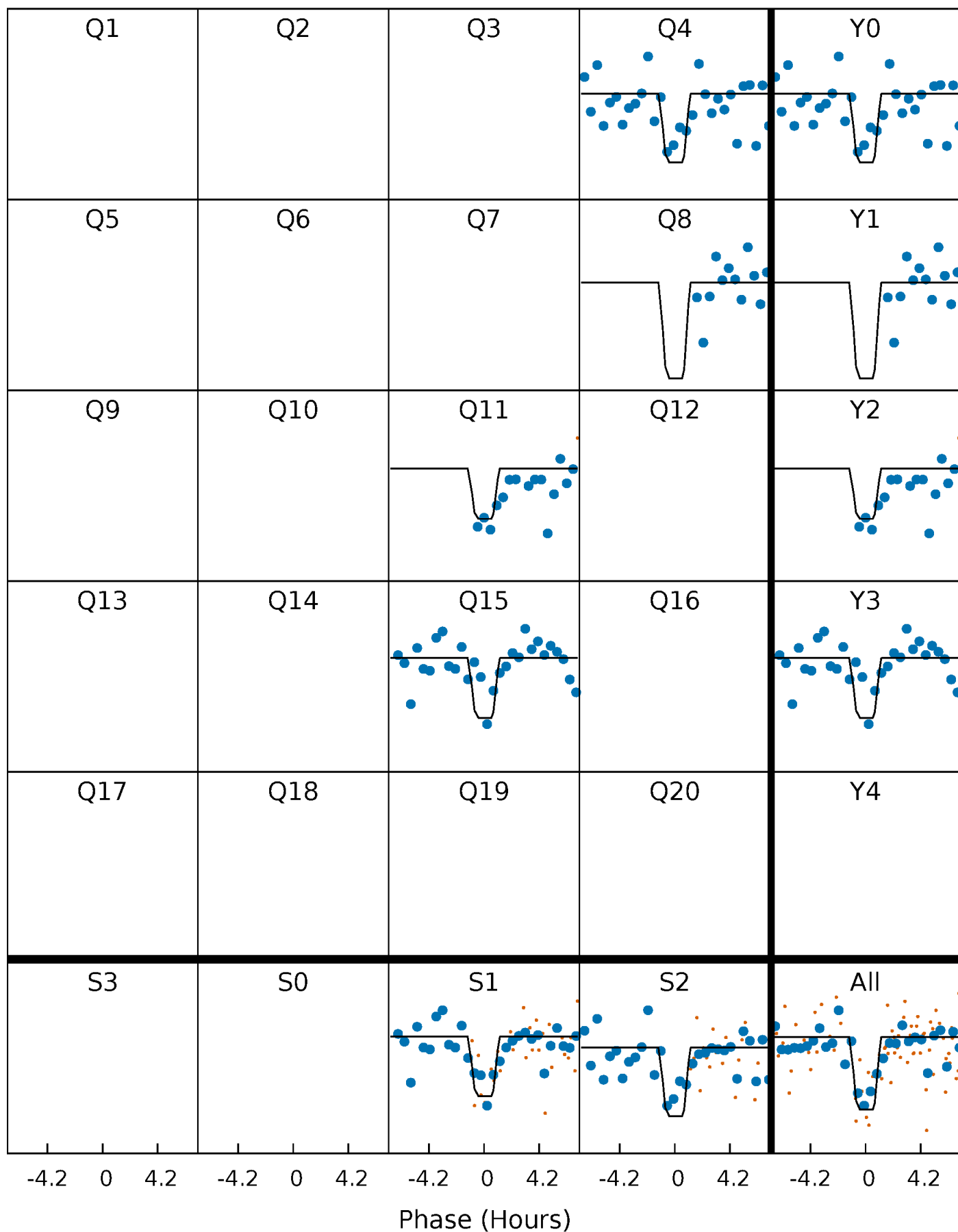
DV Quarter-Phased Transit Curves

TCE 009028709-01 P=330.051032 Days $T_0=433.652819$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

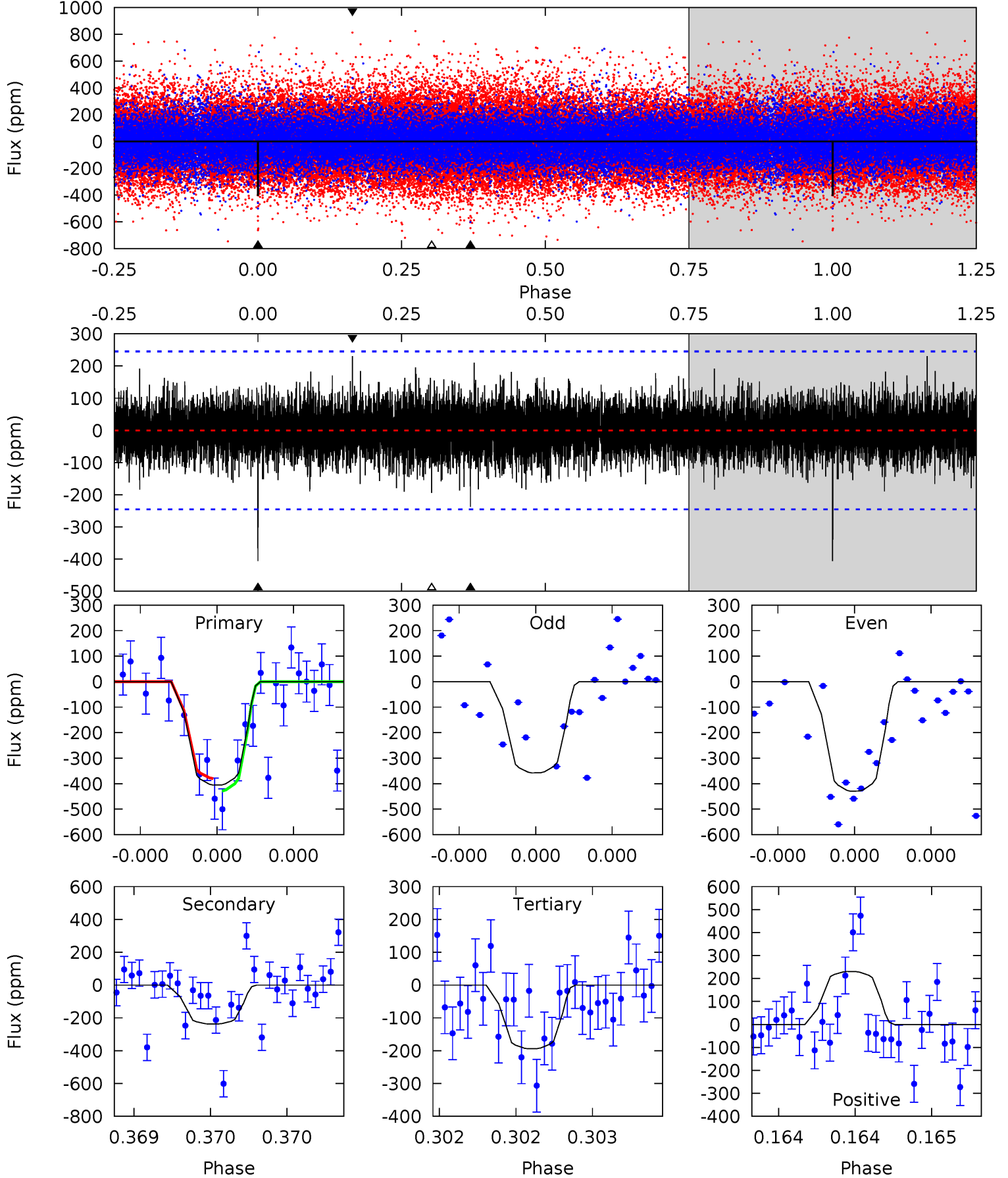
TCE 009028709-01 P=330.053179 Days $T_0=433.652218$ (BKJD)



DV Model-Shift Uniqueness Test

009028709-01, P = 330.051032 Days, E = 103.601787 Days

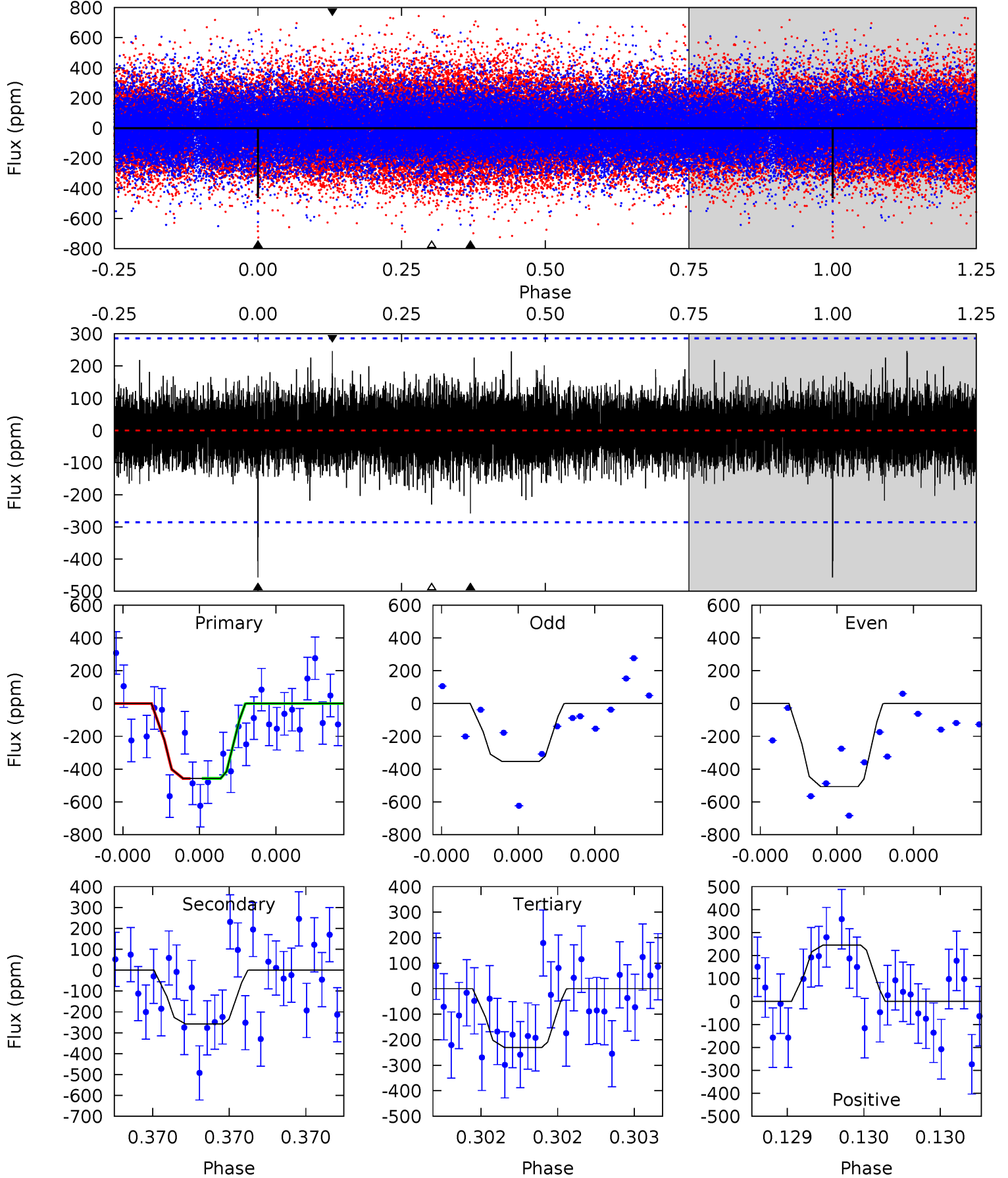
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.30	5.45	4.45	5.28	5.62	3.56	1.17	4.85	4.01	1.00	0.17	0.80	1.14	0.36	0.55



Alt Model-Shift Uniqueness Test

009028709-01, P = 330.053179 Days, E = 103.599039 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.10	5.14	4.58	4.90	5.69	3.66	1.09	4.52	4.20	0.56	0.25	1.46	1.16	0.35	0.01



Stellar Parameters For KIC 009028709

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6078^{+163}_{-217}	$4.443^{+0.056}_{-0.224}$	$0.100^{+0.200}_{-0.300}$	$1.056^{+0.355}_{-0.118}$	$1.128^{+0.136}_{-0.151}$	$1.348^{+0.398}_{-0.727}$
	+3%/-4%	+1%/-5%	+200%/-300%	+34%/-11%	+12%/-13%	+29%/-54%
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 009028709-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-238 ± 44	$2.71^{+2.10}_{-1.54}$	400^{+31}_{-21}	5052^{+2906}_{-986}	16059^{+75168}_{-10901}
Alt.	-258 ± 50	$3.07^{+1.96}_{-1.72}$	399^{+31}_{-20}	4883^{+2446}_{-809}	13640^{+58847}_{-8558}

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

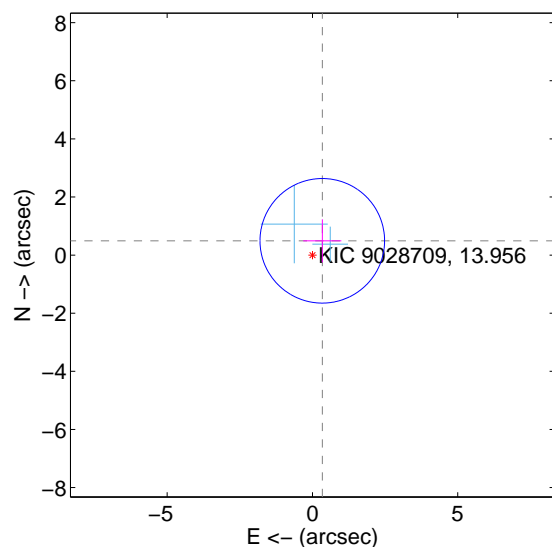
Supplemental centroid analysis for 009028709-01. Kepler magnitude: 13.96. Transit SNR 7.86

There are 2 quarters with good PRF difference image offsets

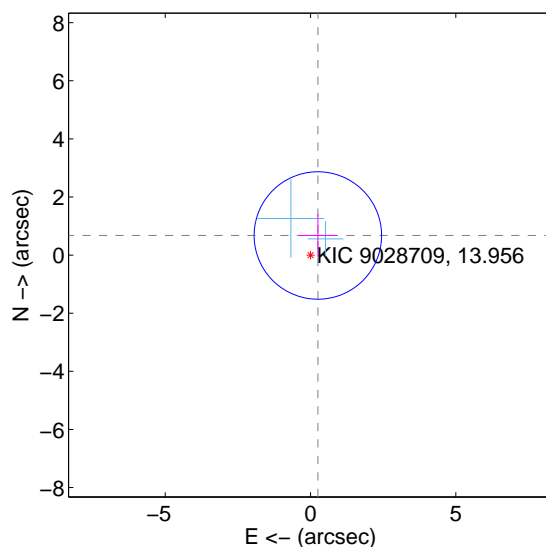
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.597 ± 0.714	0.84	-0.339 ± 0.656	0.492 ± 0.741
PRF-fit source offset from KIC position	0.720 ± 0.731	0.99	-0.252 ± 0.656	0.675 ± 0.741
photometric centroid source offset	1.18 ± 1.92	0.61	0.41 ± 1.64	1.10 ± 1.96

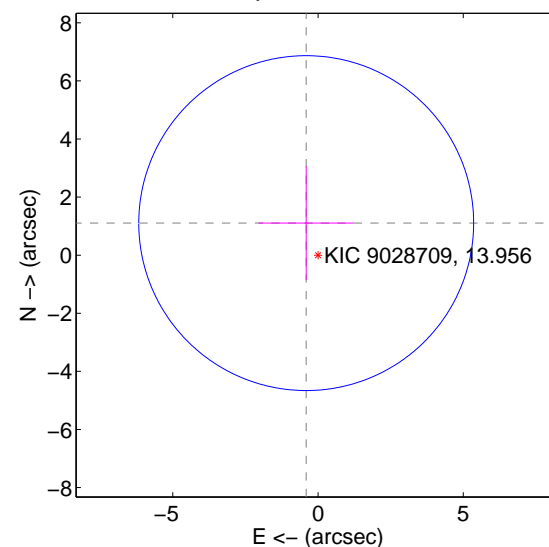
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



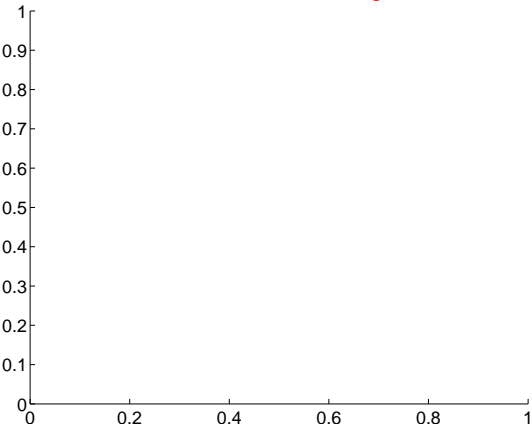
offset from photometric centroids



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.

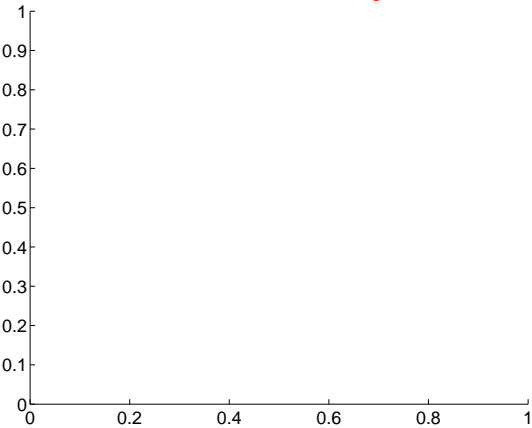
Q1 no difference image



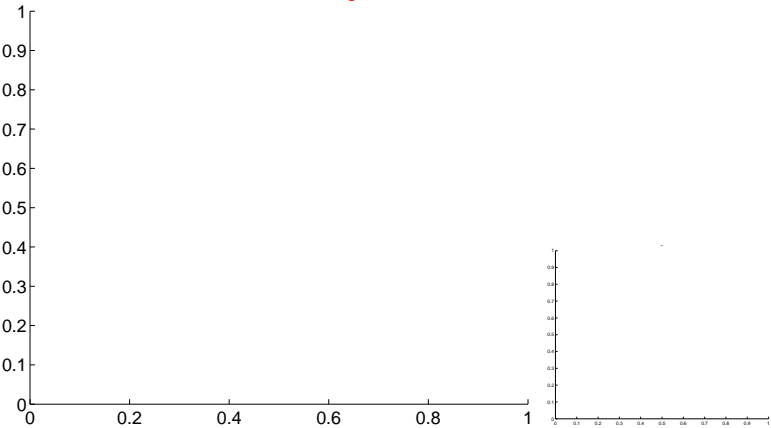
Q1 no OOT image



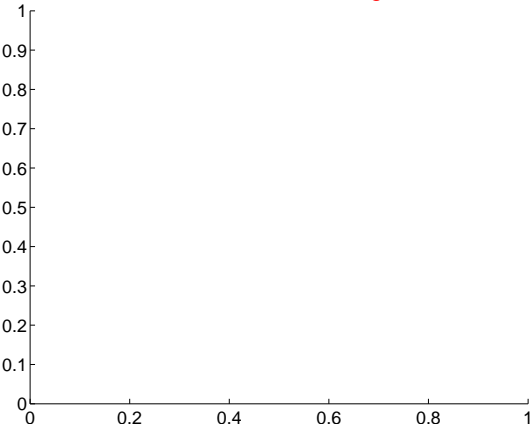
Q2 no difference image



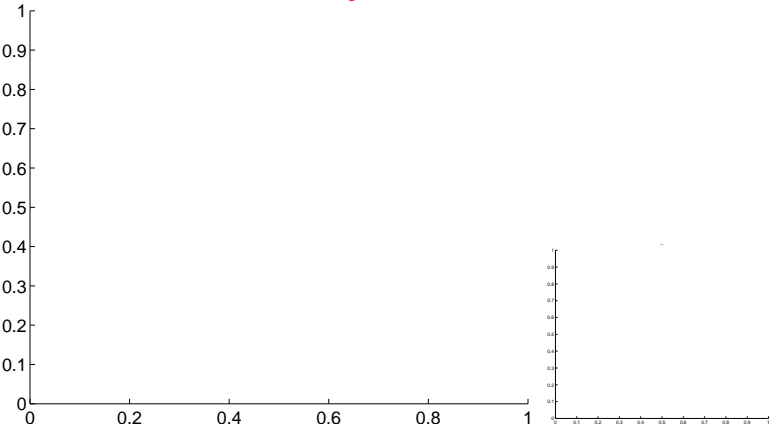
Q2 no OOT image



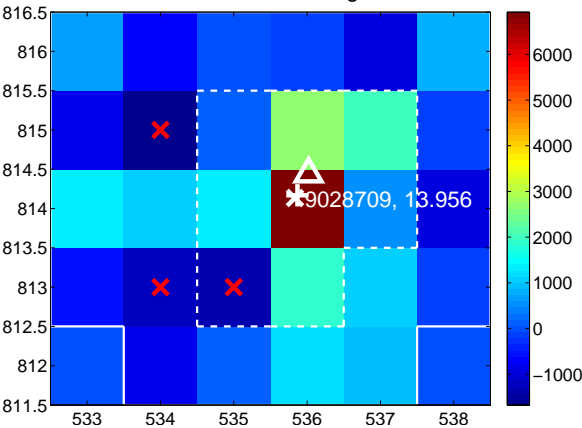
Q3 no difference image



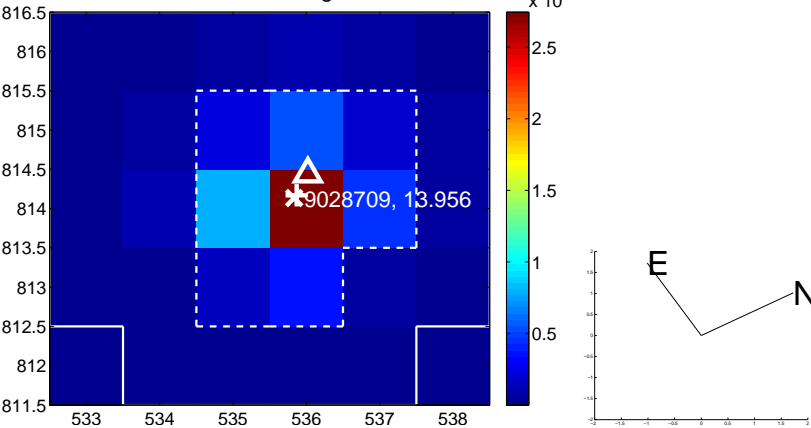
Q3 no OOT image



Q4 difference image



Q4 OOT image



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

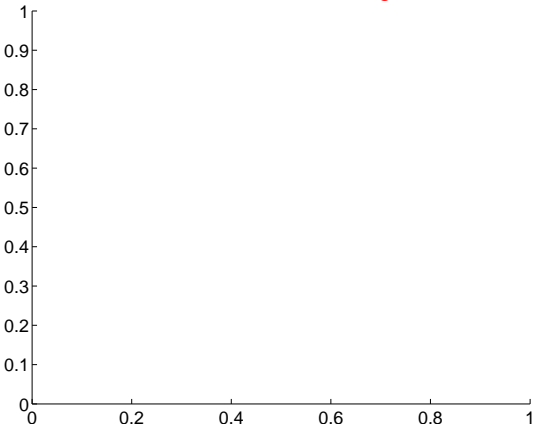


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

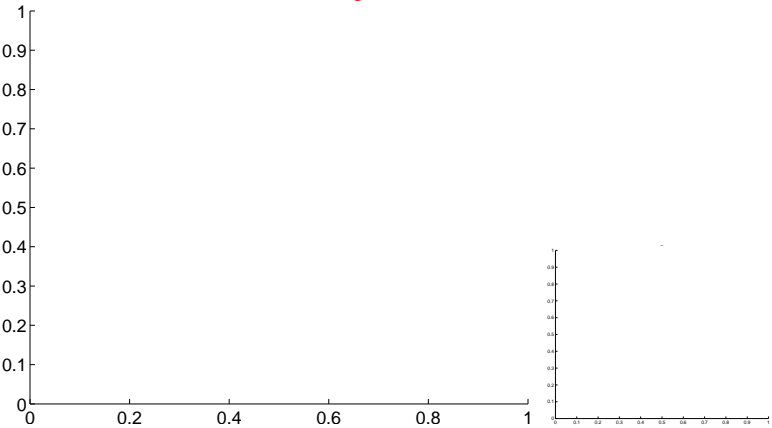


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

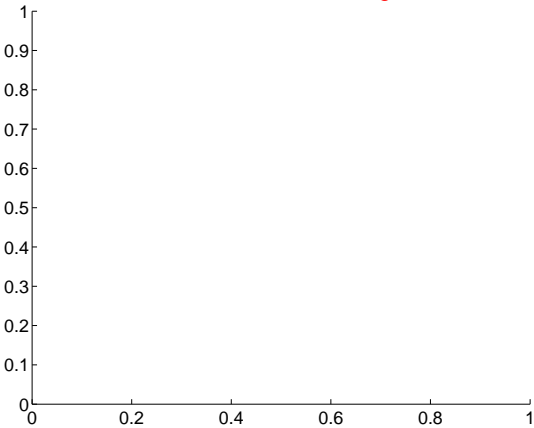
Q13 no difference image



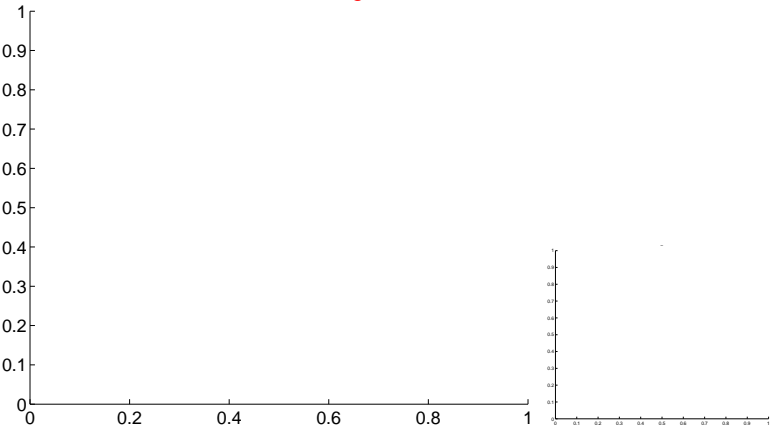
Q13 no OOT image



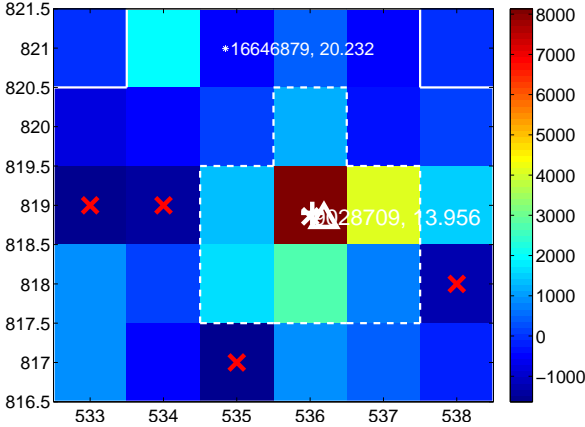
Q14 no difference image



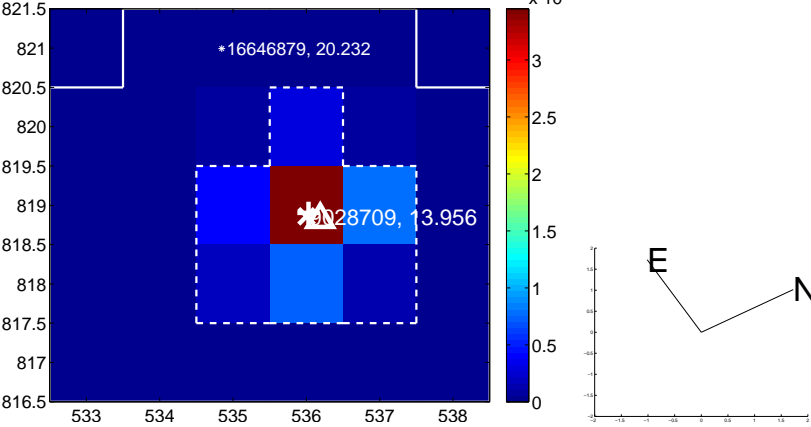
Q14 no OOT image



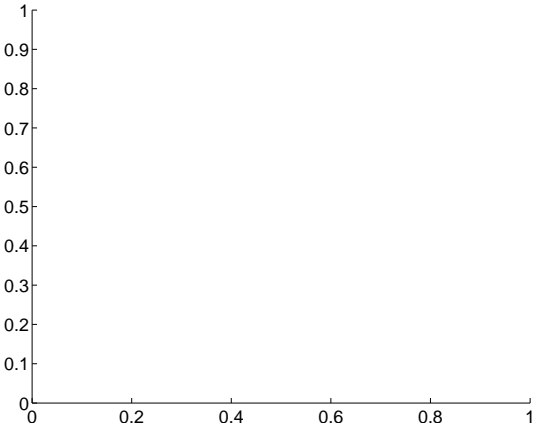
Q15 difference image



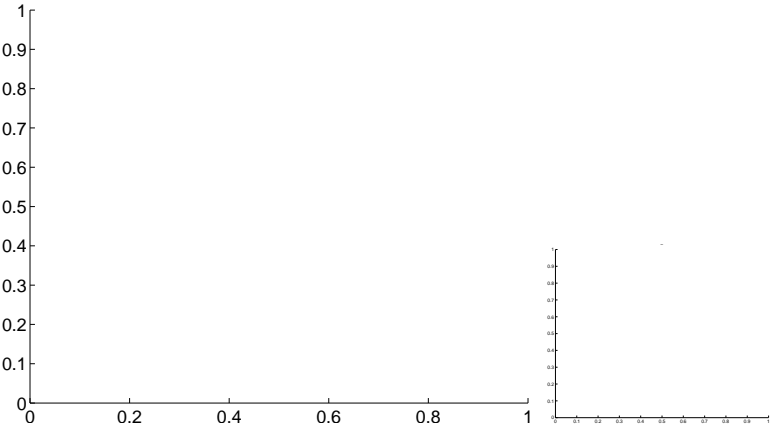
Q15 OOT image



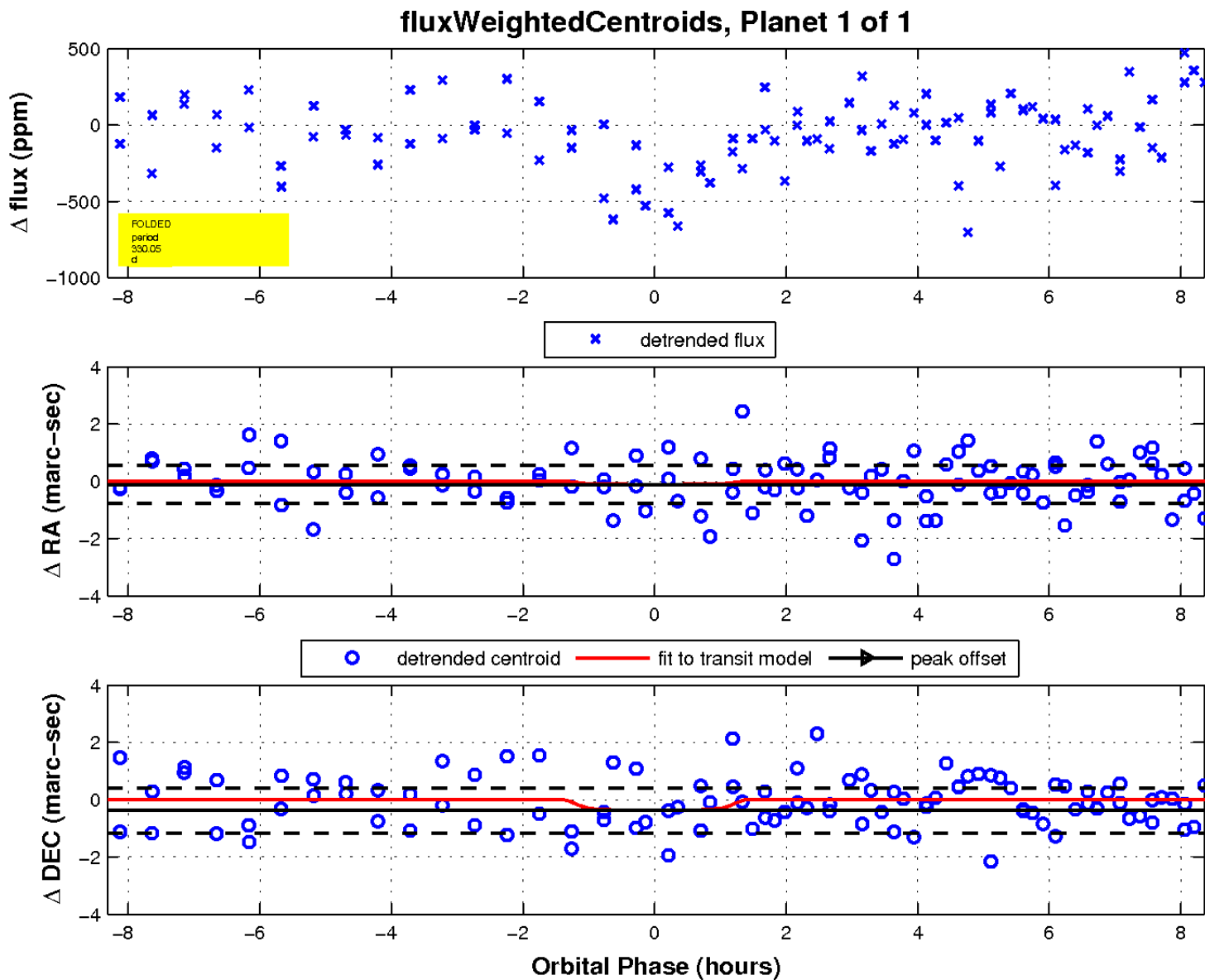
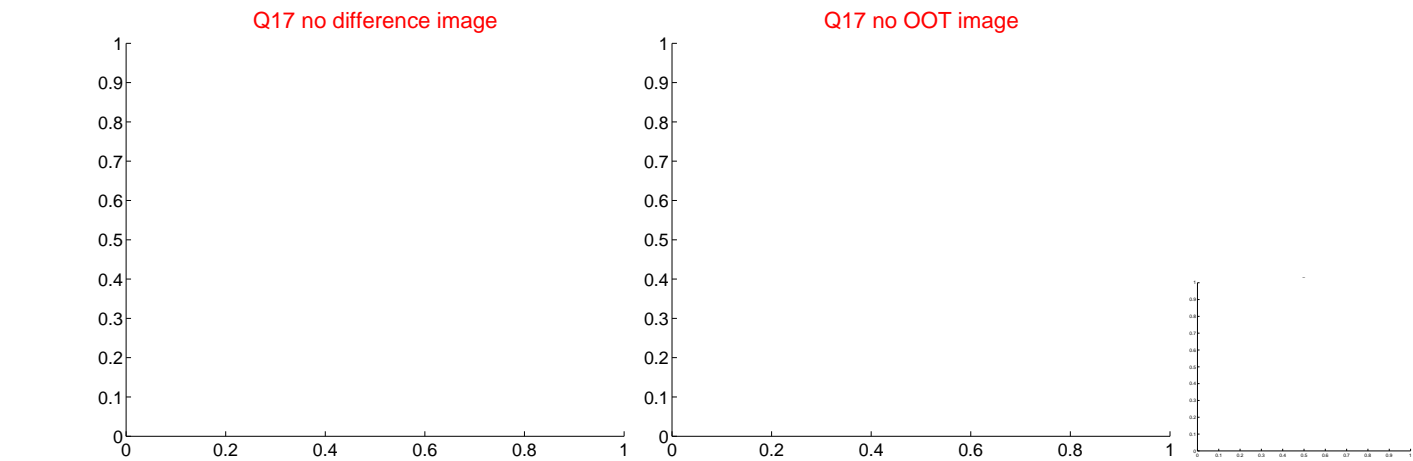
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

