

KIC 002437209

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})
002437209-01	OBS	4939.01	281.320966	215.448525	14976.1	70.718	15.9	57.5	5.30	4818	62.81	15.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002437209-01	OBS	FP	0.00	1	0	0	0	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.

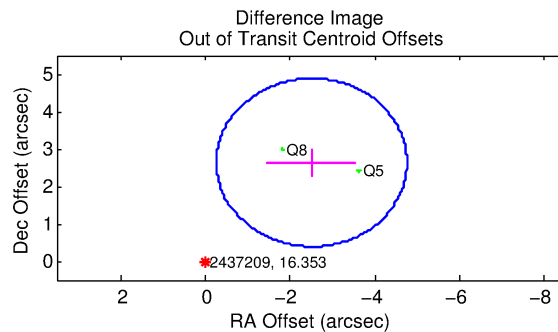
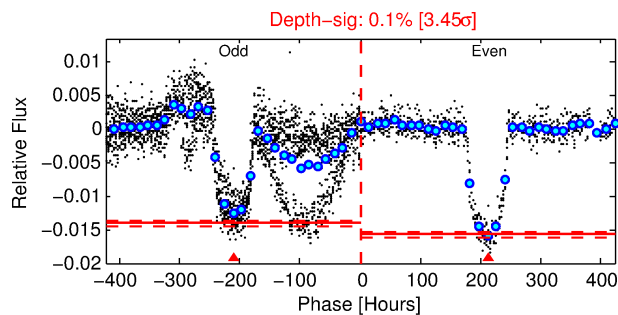
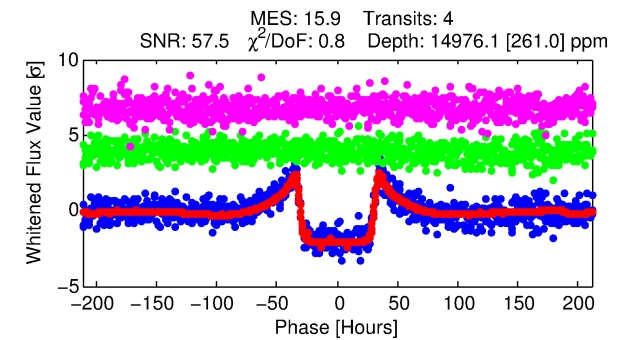
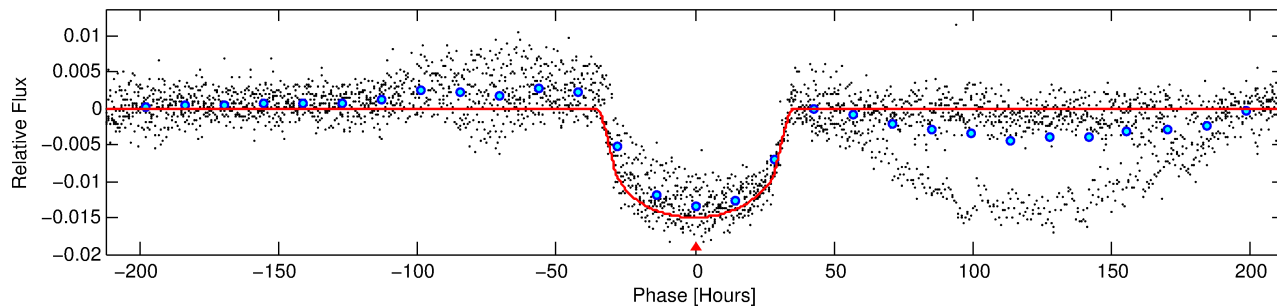
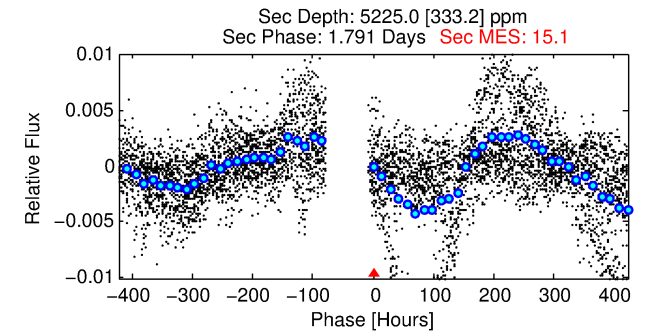
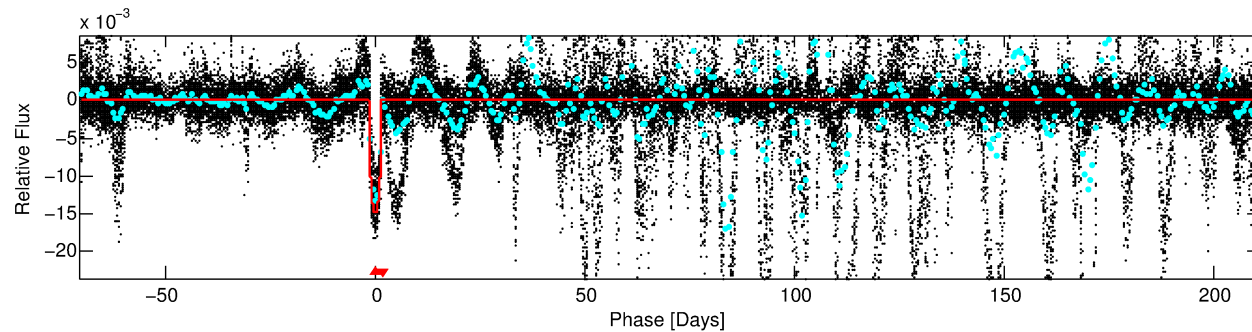
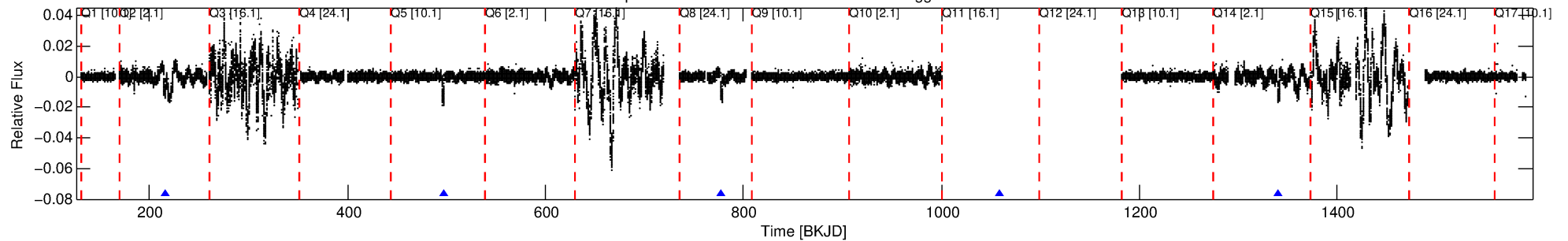
Ephemeris Match Information For 002437209-01

No Significant Match Found

DV One-Page Summary

KIC: 2437209 Candidate: 1 of 1 Period: 281.321 d
KOI: K04939.01 Corr: 0.957

Kp: 16.35 R*: 5.30 Rs Teff: 4818.0 K Logg: 3.12 Fe/H: 0.100



DV Fit Results:

Period = 281.32097 [0.00570] d
Epoch = 215.4485 [0.0107] BKJD
Rp/R* = 0.1085 [0.0019]
a/R* = 33.13 [1.44]
b = 0.20 [0.21]
Seff = 15.60 [4.87]
Teq = 507 [40] K
Rp = 62.81 [14.53] Re
a = 0.9329 [0.1886] AU
Ag = 634.19 [198.36] [3.19σ]
Teffp = 3932 [100] K [31.80σ]

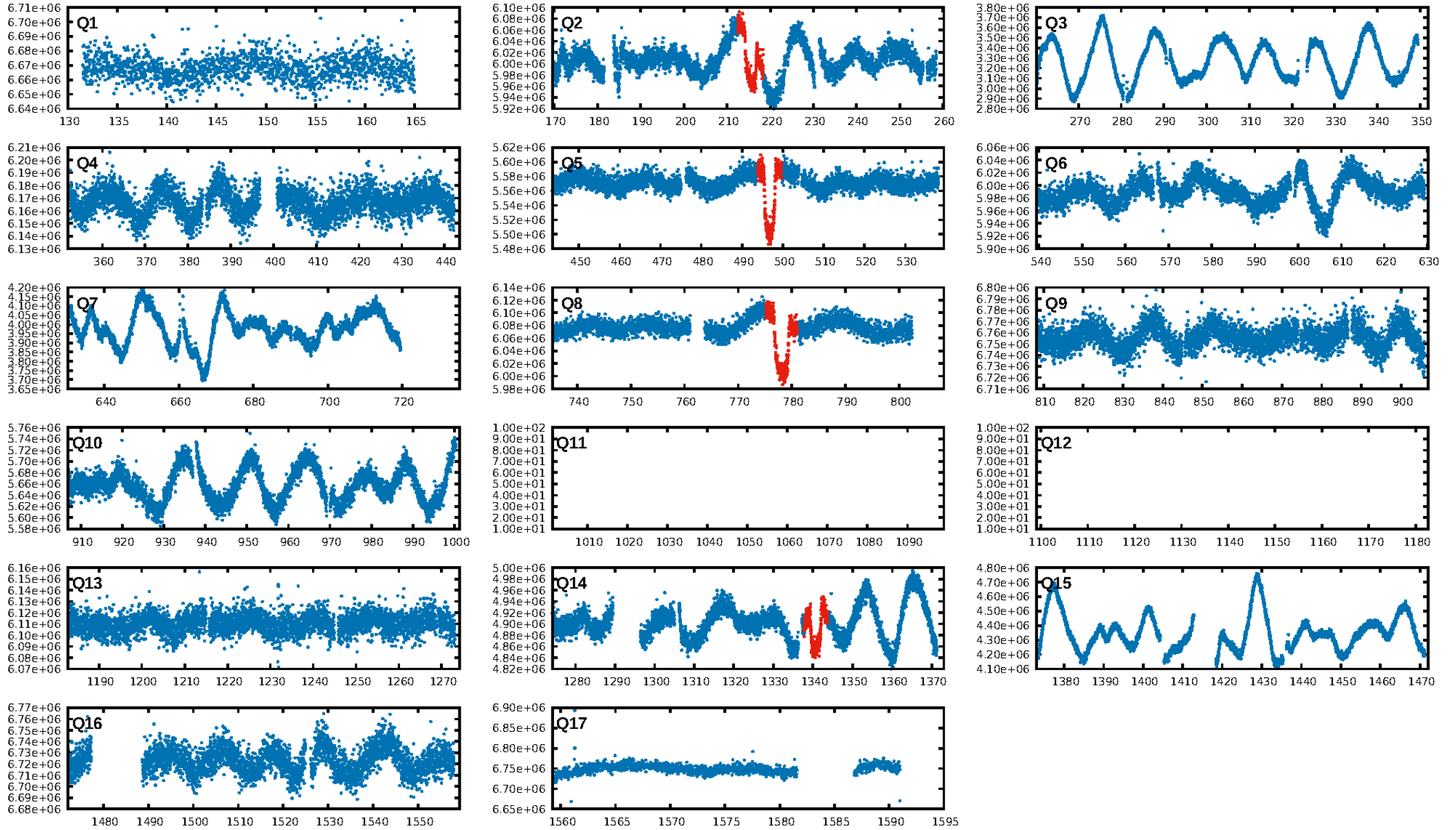
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.02e-22
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.3047
Centroid-sig: 2.1%
Centroid-so: 1.270 arcsec [5.83σ]
OotOffset-rm: 3.640 arcsec [4.86σ]
KicOffset-rm: 1.163 arcsec [1.10σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

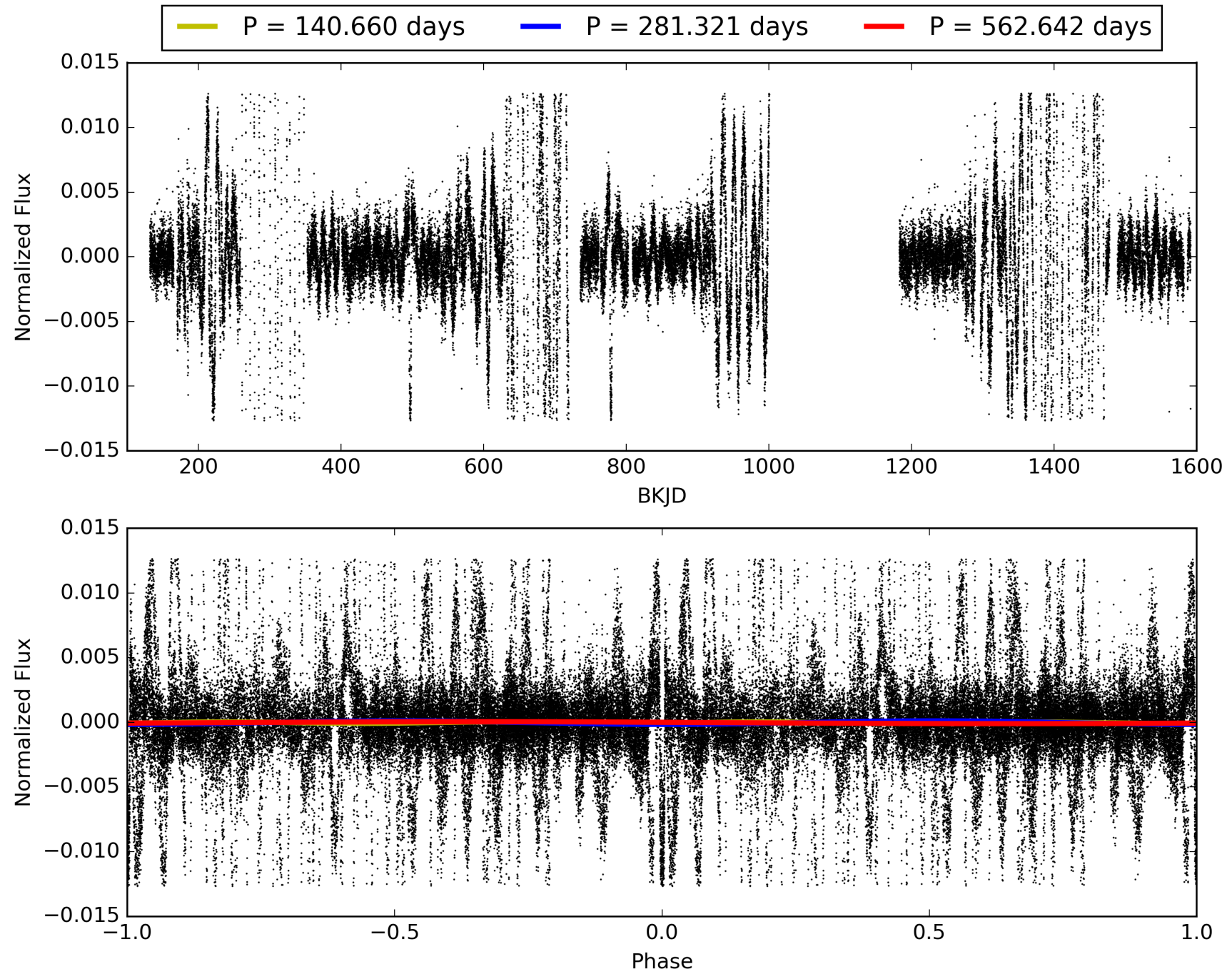
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:35:22 Z

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

TCE 002437209-01, PDC Light Curves

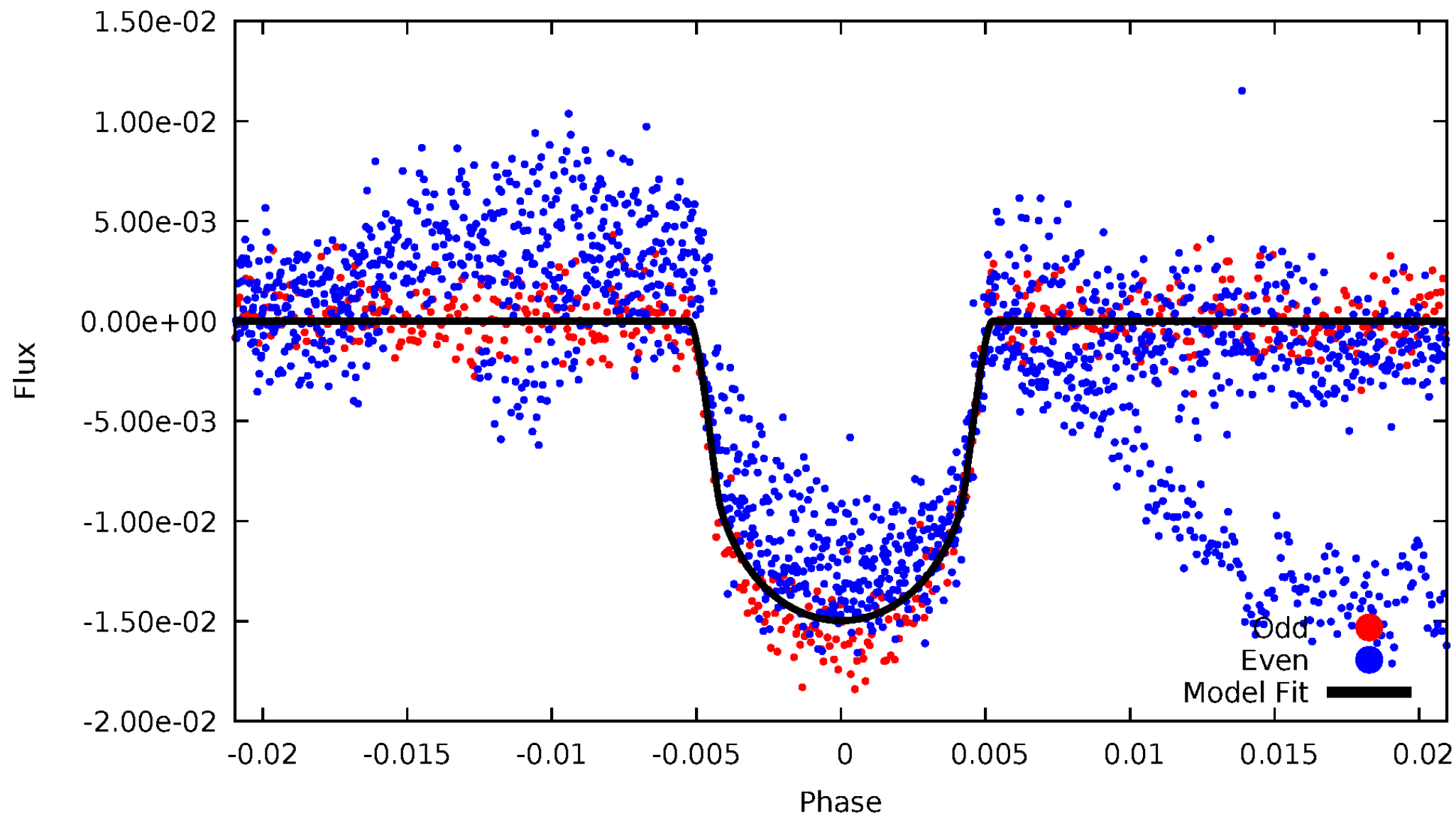


TCE 002437209-01



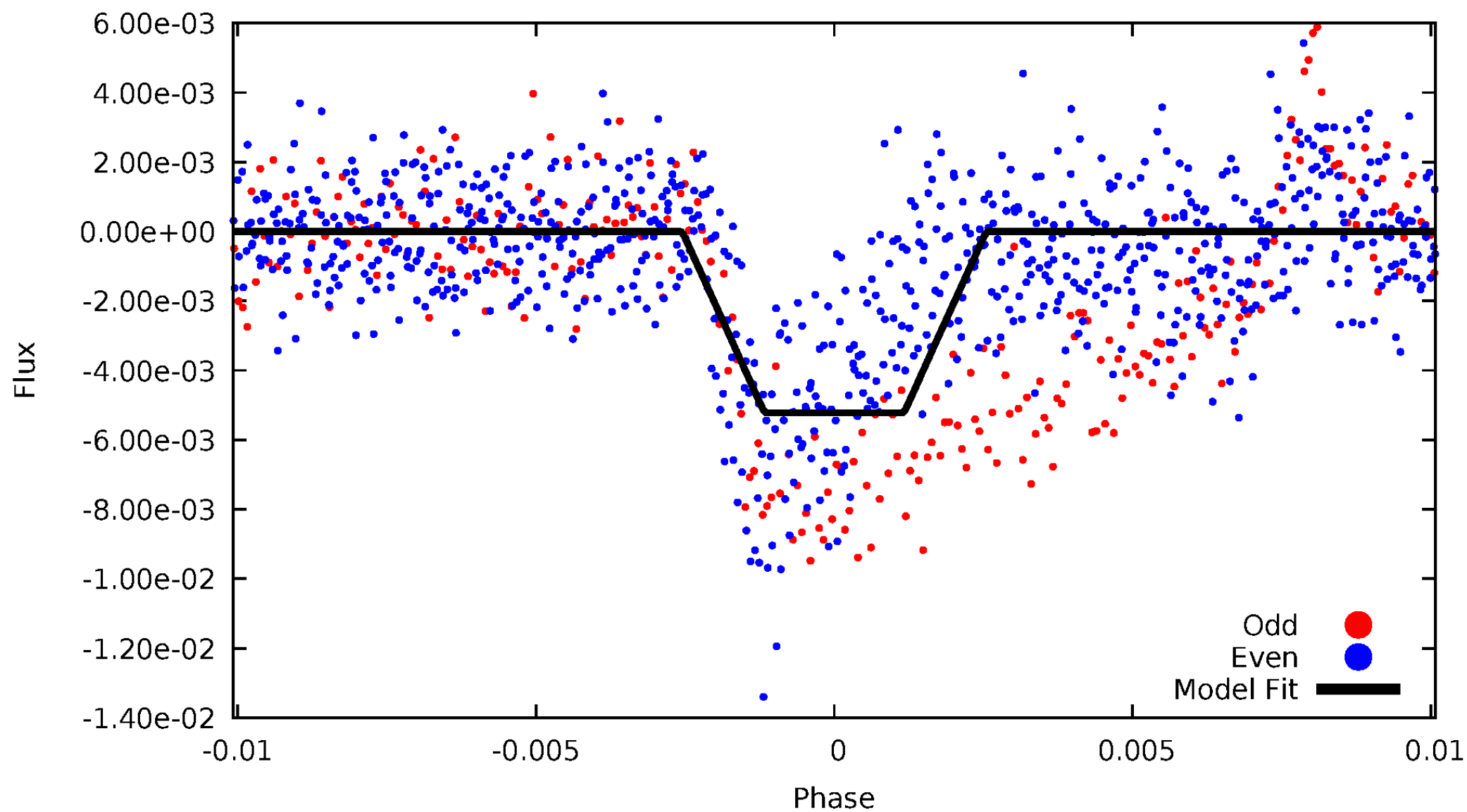
DV Odd/Even

TCE 002437209-01



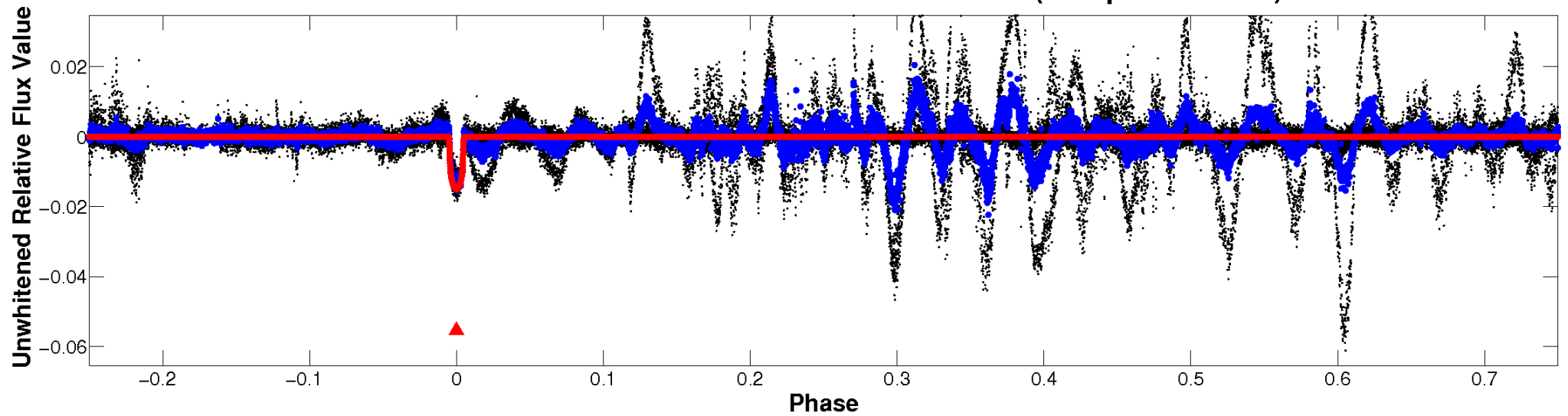
ALT Odd/Even

TCE 002437209-01

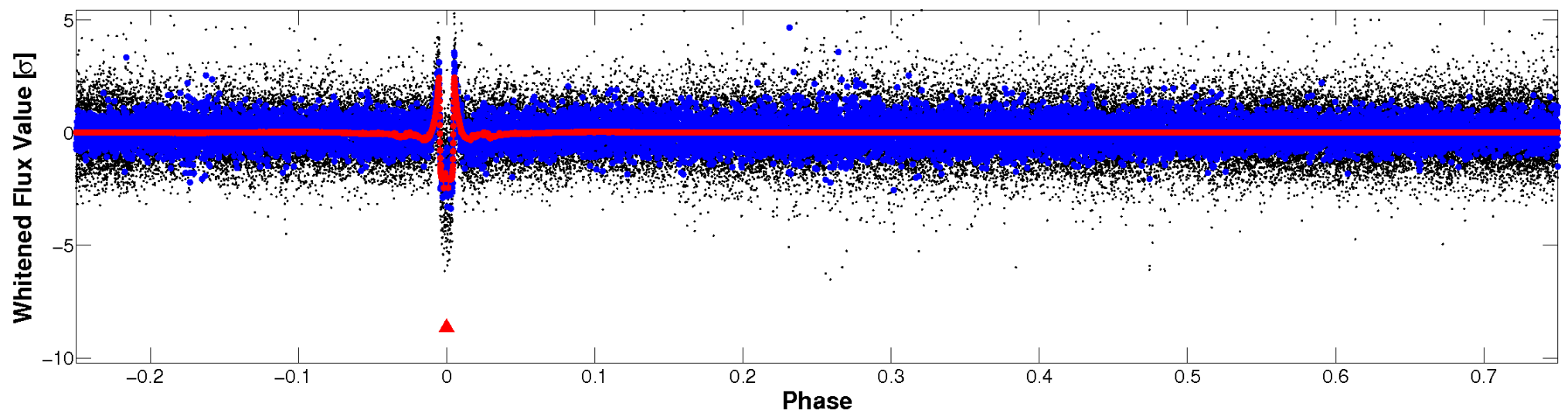


Non-Whitened Vs. Whitened Light Curve

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

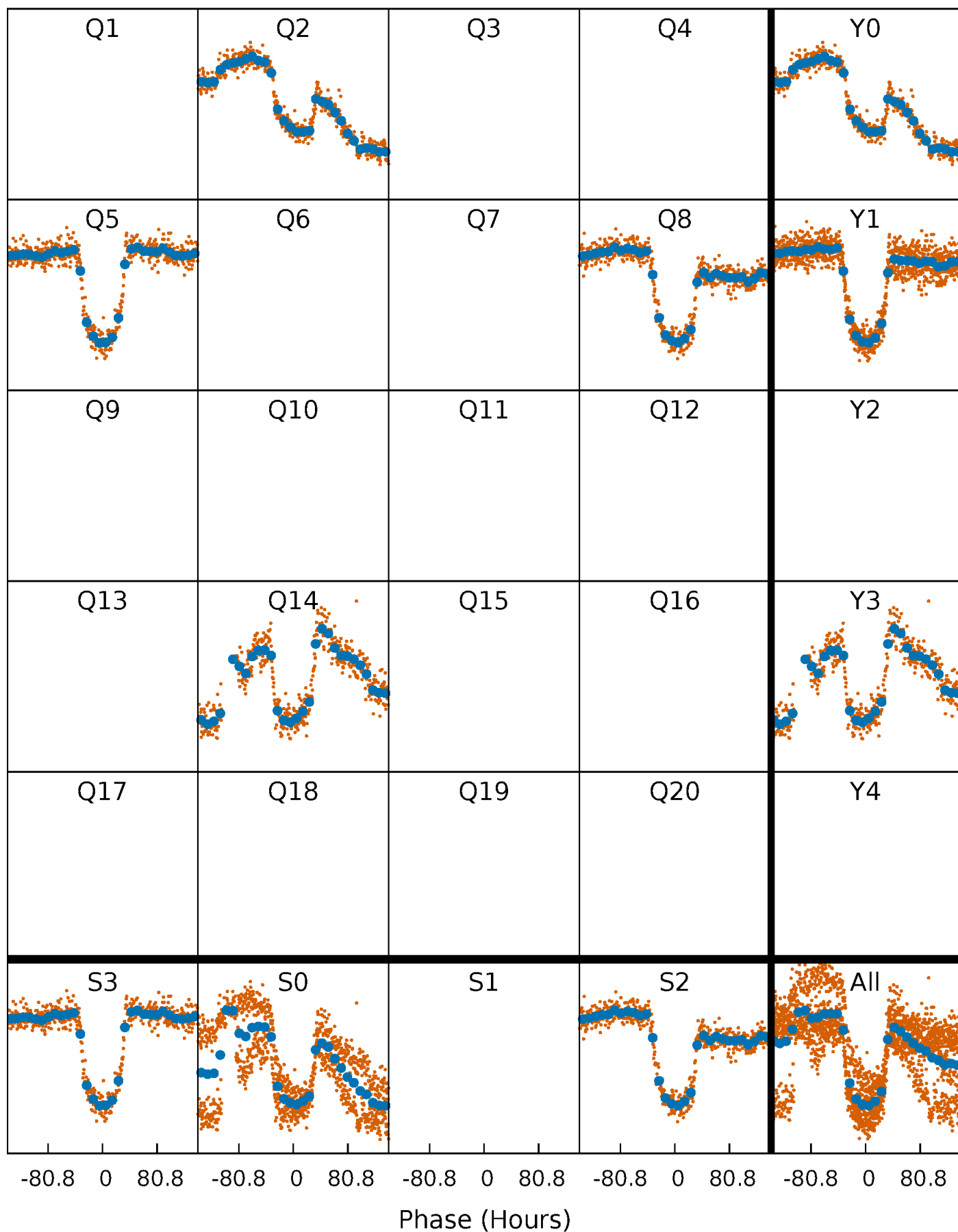


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



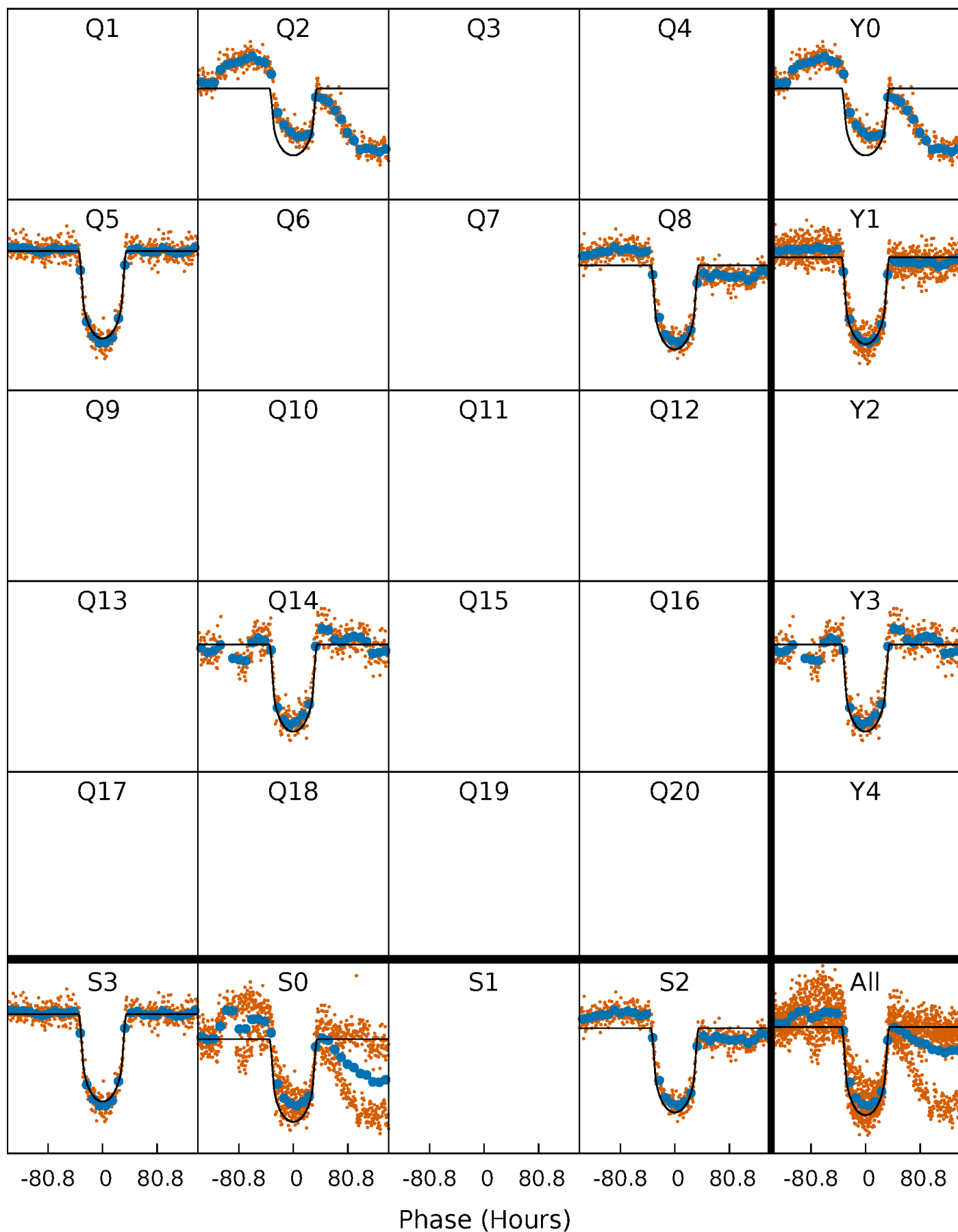
PDC Quarter-Phased Transit Curves

TCE 002437209-01 $P=281.320966$ Days $T_0=215.448525$ (BKJD)



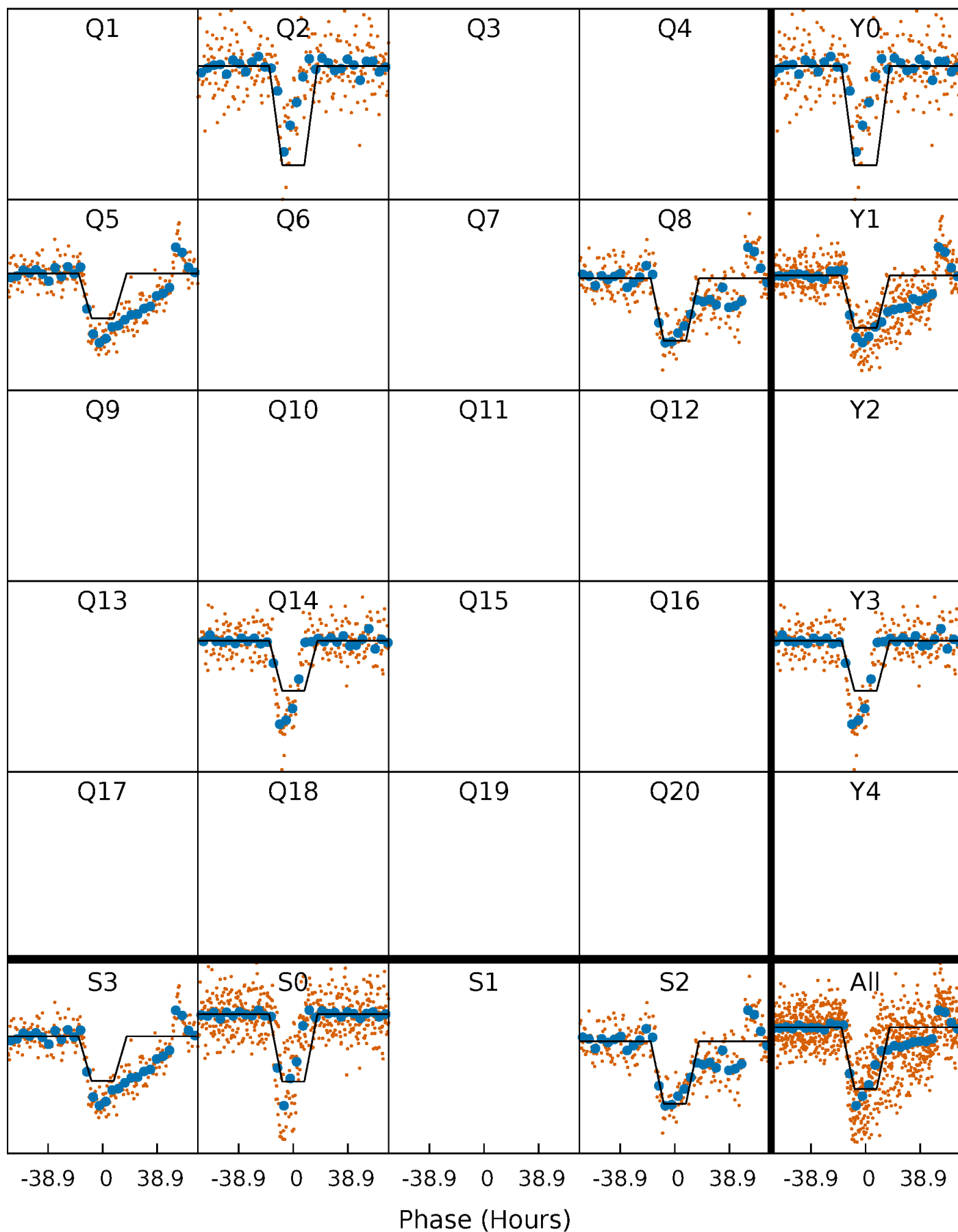
DV Quarter-Phased Transit Curves

TCE 002437209-01 P=281.320966 Days $T_0=215.448525$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

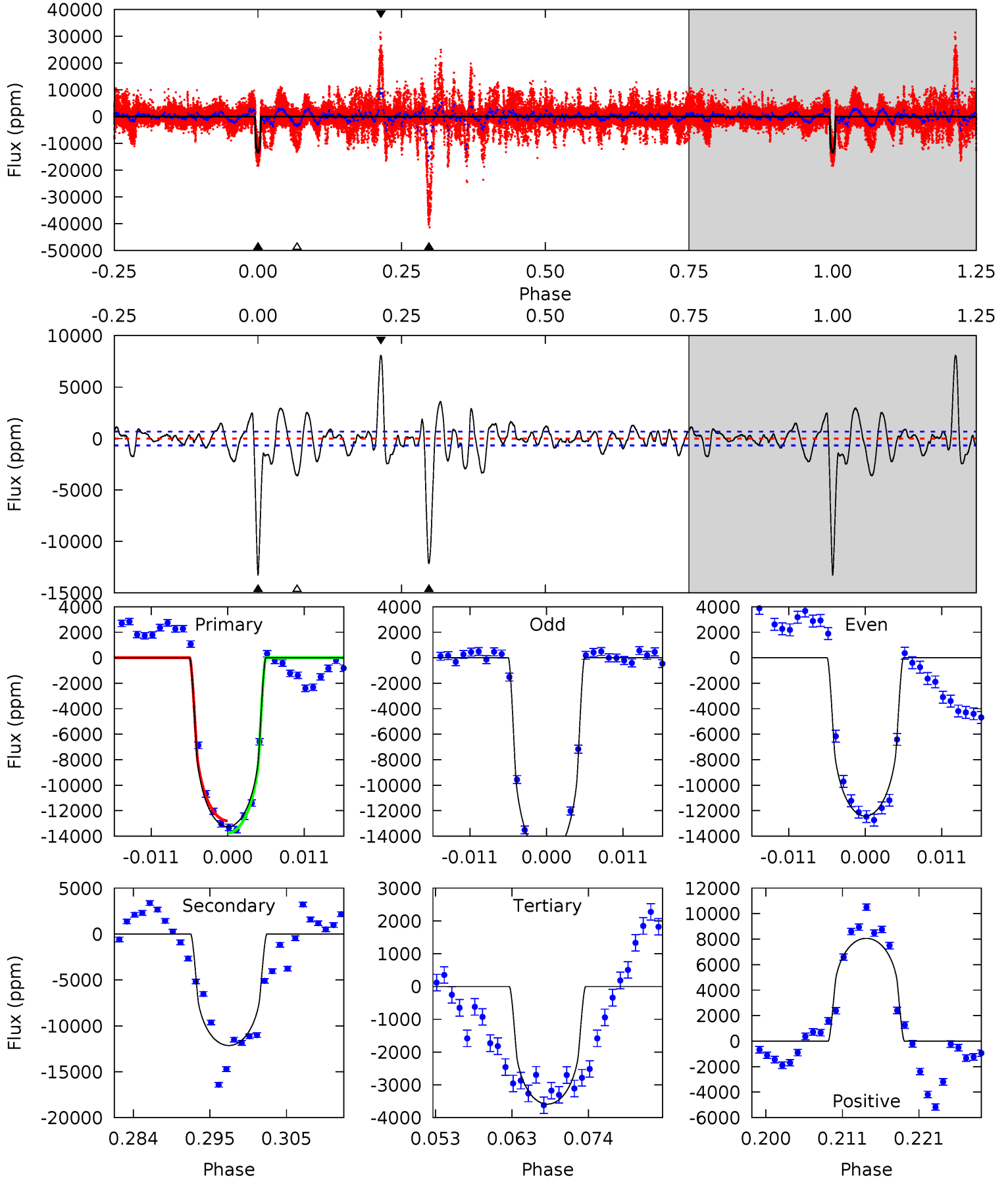
TCE 002437209-01 P=281.329254 Days $T_0=214.647023$ (BKJD)



DV Model-Shift Uniqueness Test

002437209-01, P = 281.320966 Days, E = 215.448525 Days

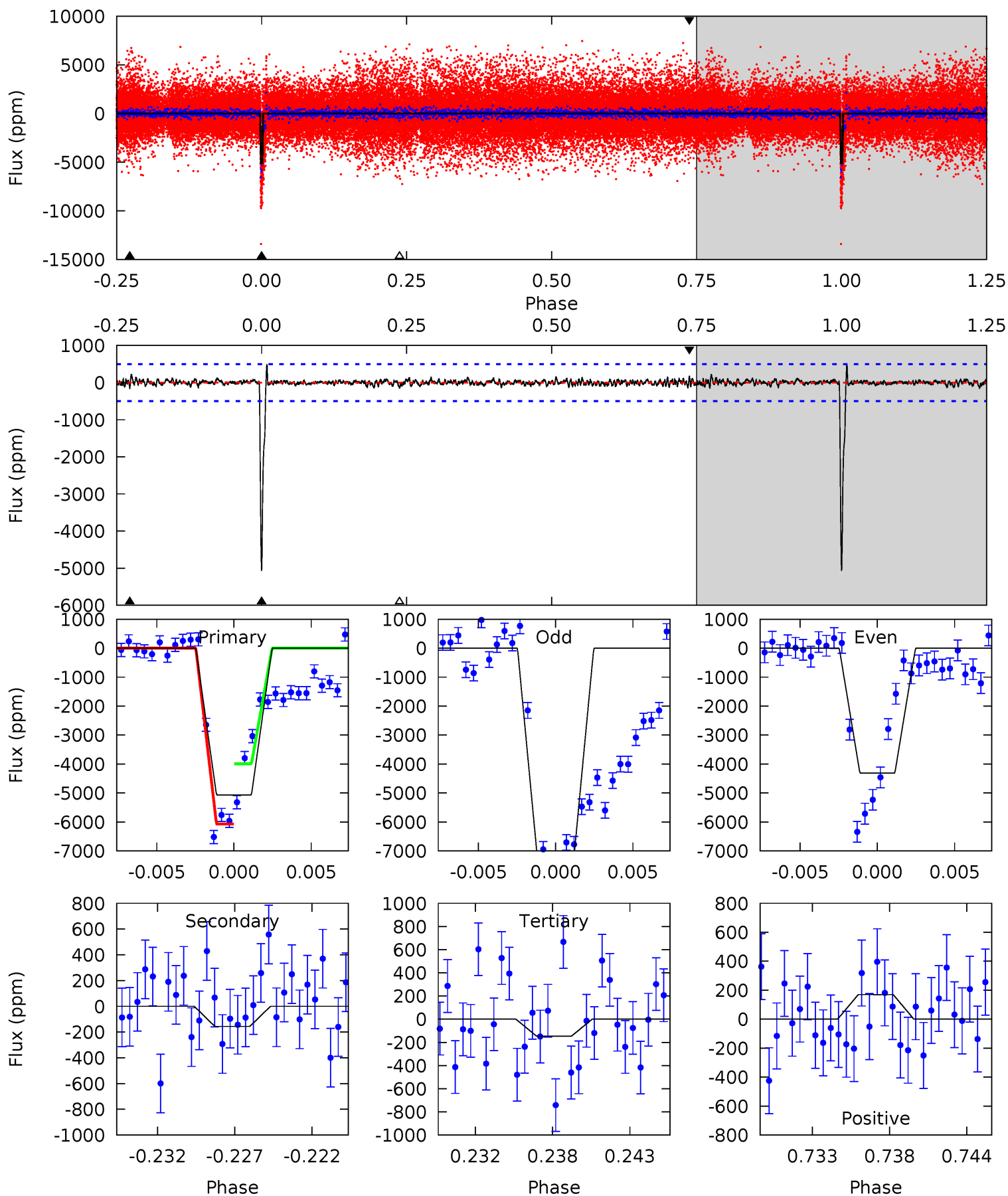
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.4	91.1	26.9	60.5	5.02	2.56	9.65	72.5	38.9	64.2	30.6	7.89	0.97	0.38	3.24



Alt Model-Shift Uniqueness Test

002437209-01, P = 281.329254 Days, E = 214.647023 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.3	1.61	1.51	1.75	5.15	2.80	0.70	50.8	50.6	0.10	-0.14	15.9	0.96	0.09	10.7



Stellar Parameters For KIC 002437209

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4818^{+86}_{-86}	$3.125^{+0.171}_{-0.124}$	$0.100^{+0.150}_{-0.150}$	$5.303^{+1.001}_{-1.223}$	$1.366^{+0.182}_{-0.312}$	$0.013^{+0.012}_{-0.004}$
	+2%/-2%	+5%/-4%	+150%/-150%	+19%/-23%	+13%/-23%	+89%/-34%
Source	PHO1	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 002437209-01 / KOI 4939.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12143 ± 133	$62.71^{+7.12}_{-8.45}$	706^{+40}_{-38}	4866^{+95}_{-99}	1506^{+374}_{-277}
Alt.	-156 ± 97	$41.65^{+4.99}_{-5.38}$	707^{+35}_{-43}	2735^{+184}_{-294}	44^{+31}_{-26}

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

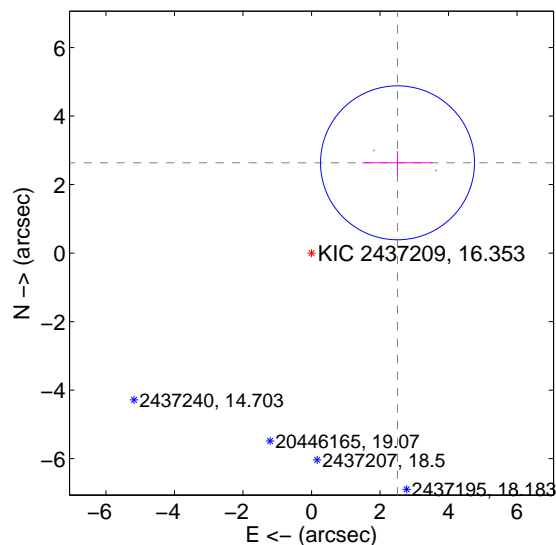
Supplemental centroid analysis for 002437209-01. Kepler magnitude: 16.35. Transit SNR 57.52

There are 2 quarters with good PRF difference image offsets

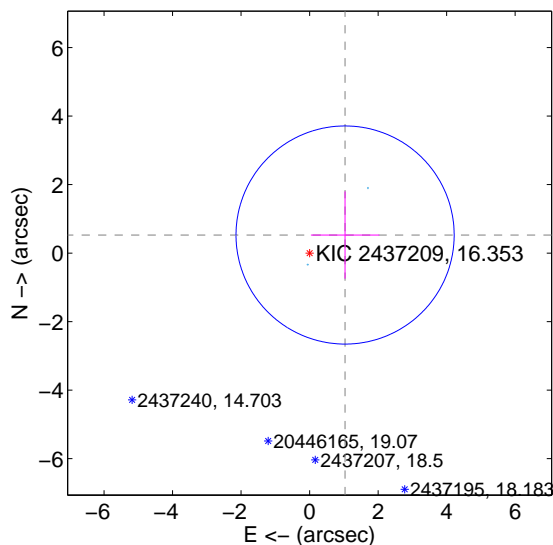
The direct PRF centroid is offset from the target star catalog position by about 1.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.640 ± 0.749	4.86	-2.511 ± 1.025	2.636 ± 0.341
PRF-fit source offset from KIC position	1.163 ± 1.061	1.10	-1.036 ± 0.999	0.528 ± 1.274
photometric centroid source offset	1.27 ± 0.22	5.83	0.66 ± 0.27	-1.08 ± 0.20

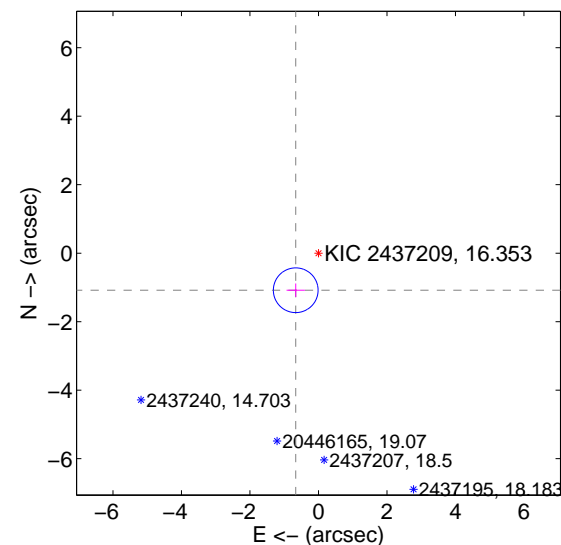
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

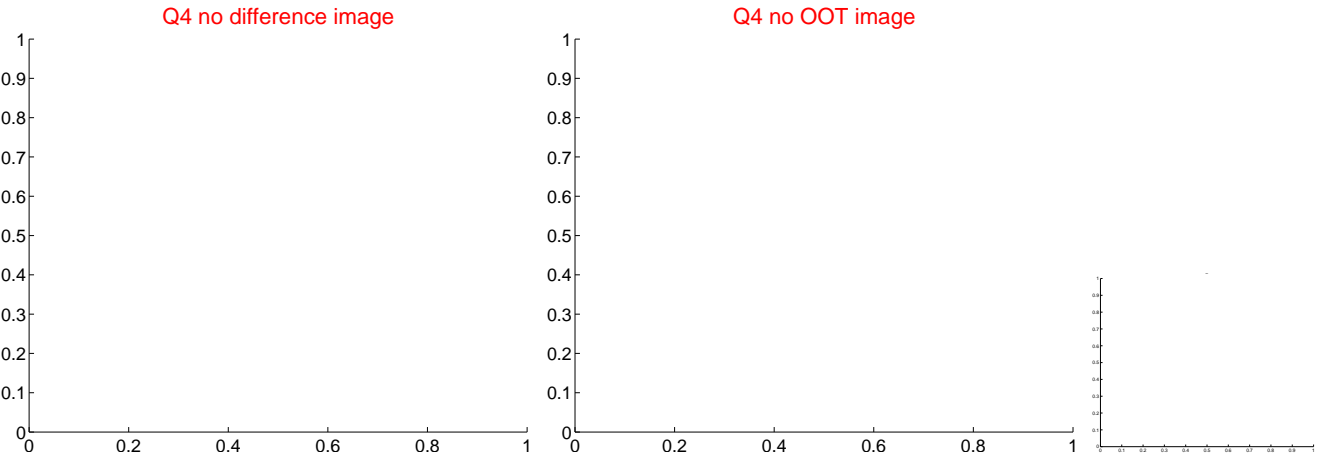
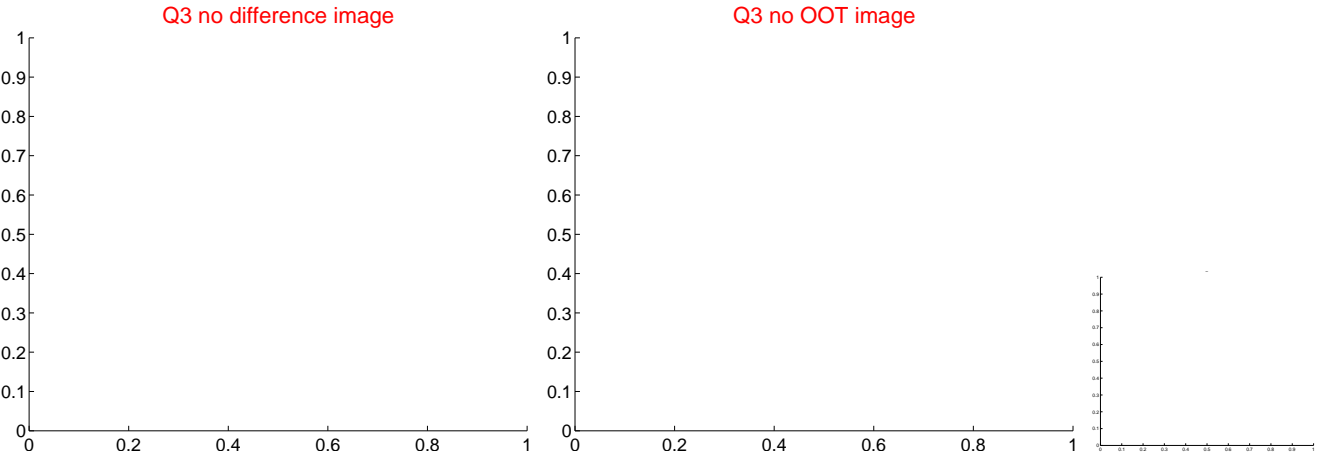
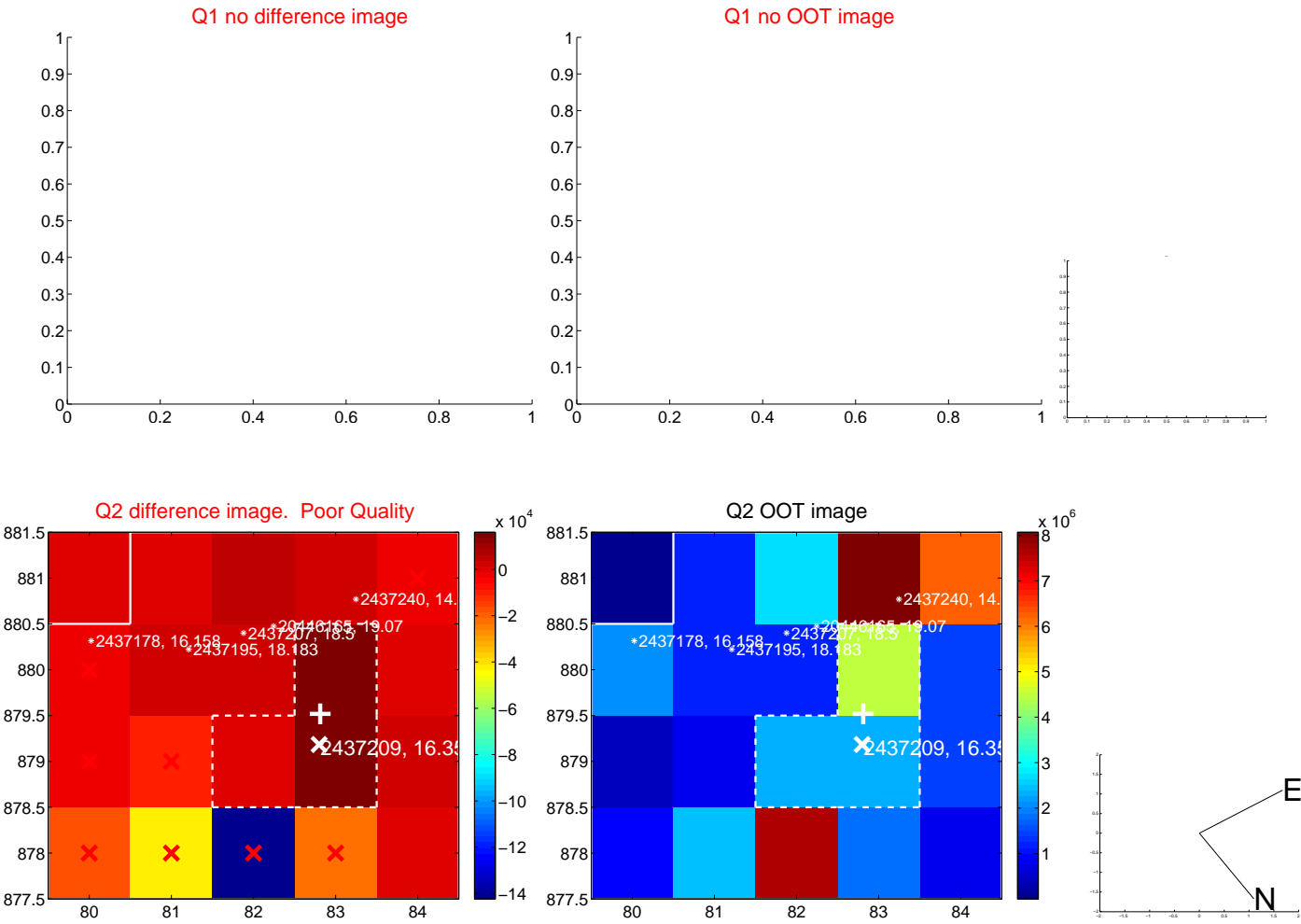


offset from photometric centroids

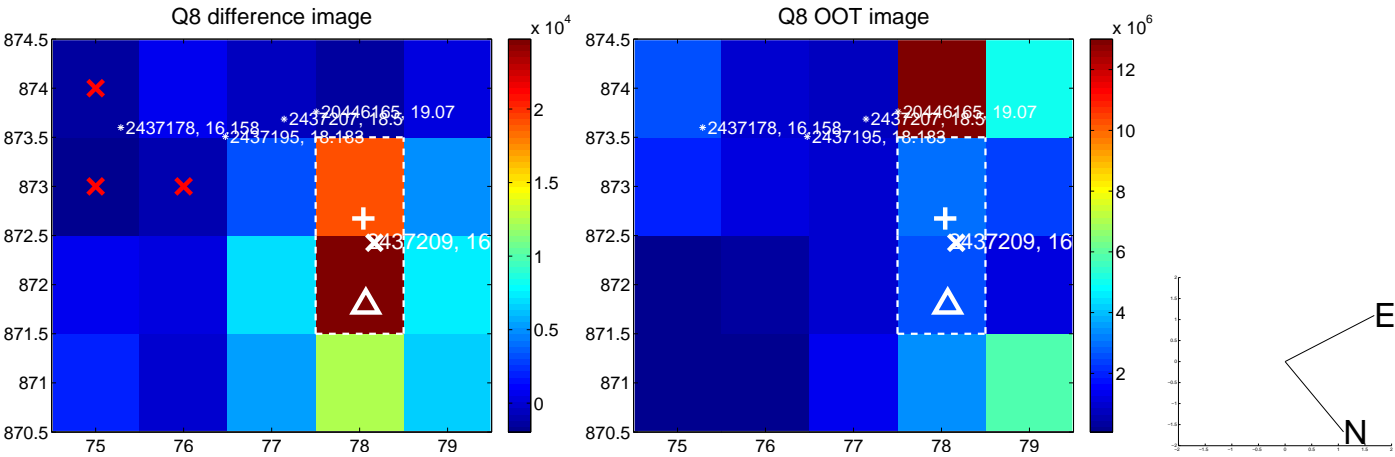
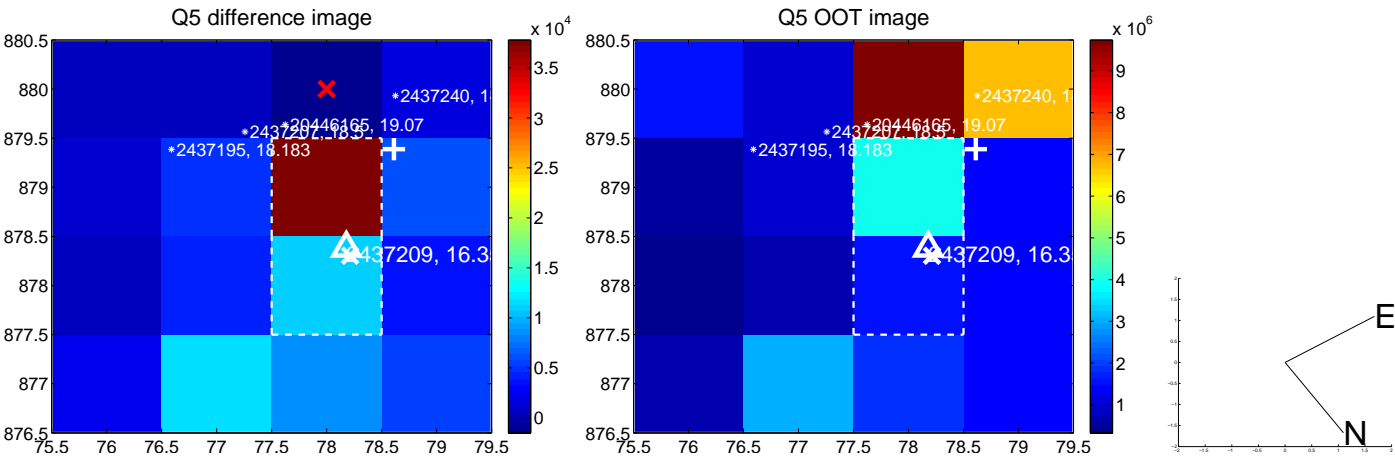


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



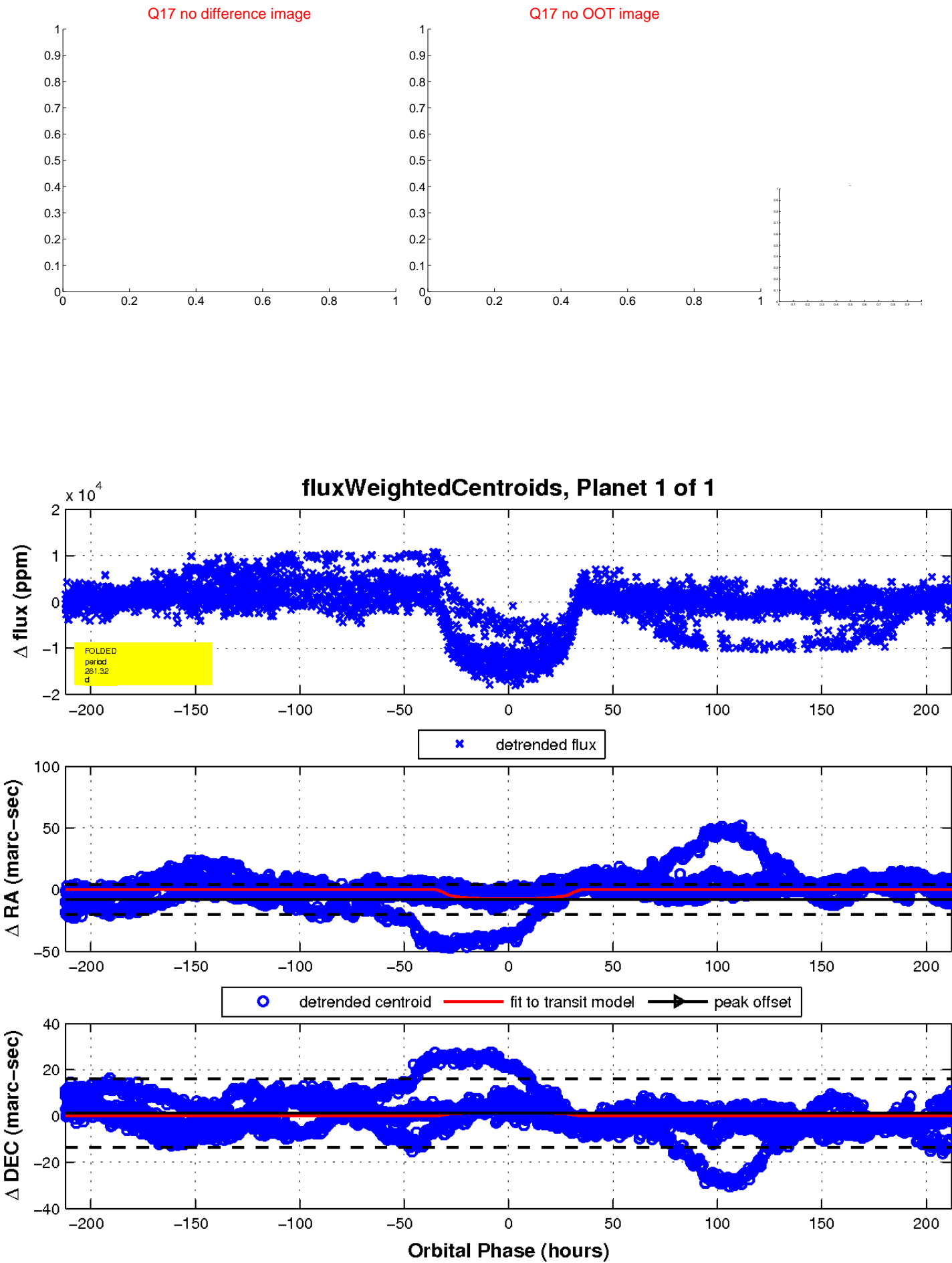
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

