

KIC 009957659

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})
009957659-01	OBS	5743.01	30.695294	155.722038	19818.1	5.653	245.4	205.2	1.19	6185	19.30	45.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009957659-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 009957659-01

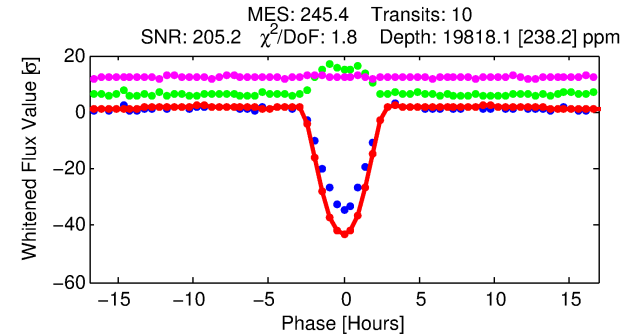
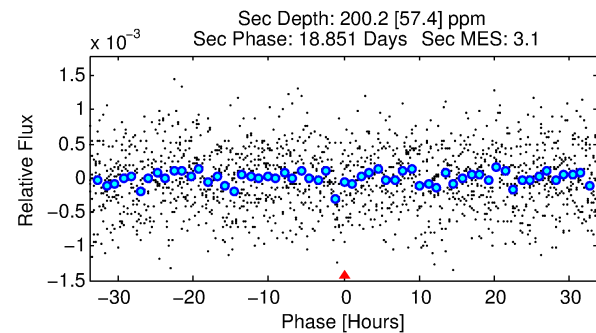
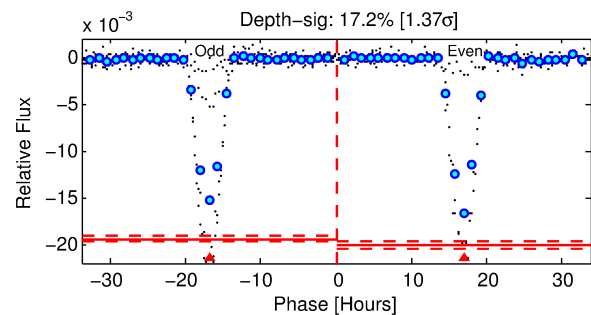
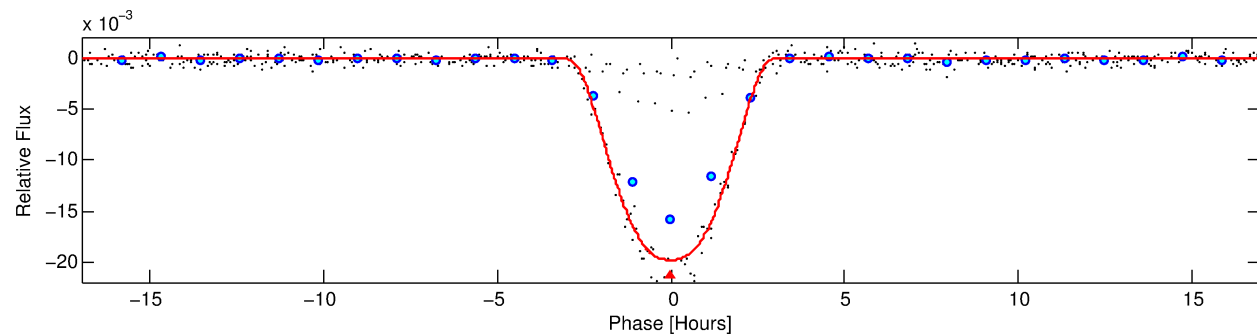
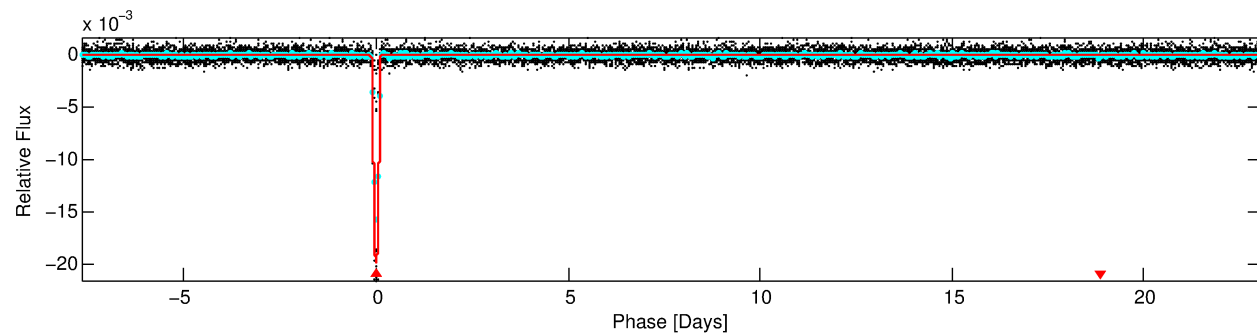
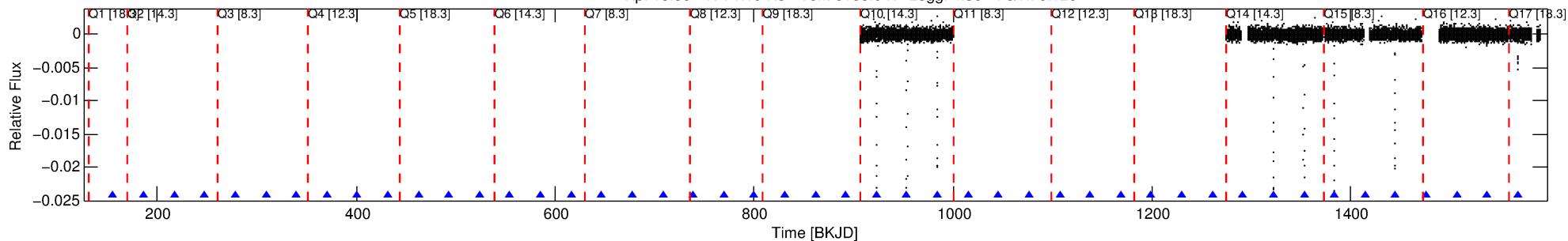
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009957659-01	9957659	5744.01	9957668	1:1	9.6	2	1	12.51	15.50	4.51	Direct-PRF	0	0.03	0.03

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9957659 Candidate: 1 of 1 Period: 30.695 d
KOI: K05743.01 Corr: 0.986

Kp: 15.50 R*: 1.19 Rs Teff: 6185.0 K Logg: 4.36 Fe/H: 0.120



DV Fit Results:

Period = 30.69529 [0.00005] d
Epoch = 155.7220 [0.0021] BKJD
Rp/R* = 0.1484 [0.0017]
a/R* = 32.17 [0.48]
b = 0.85 [0.01]
Seff = 45.40 [19.27]
Teq = 662 [70] K
Rp = 19.30 [6.35] Re
a = 0.2026 [0.0551] AU
Ag = 12.13 [5.88] [1.89σ]
Teffp = 1910 [159] K [7.17σ]

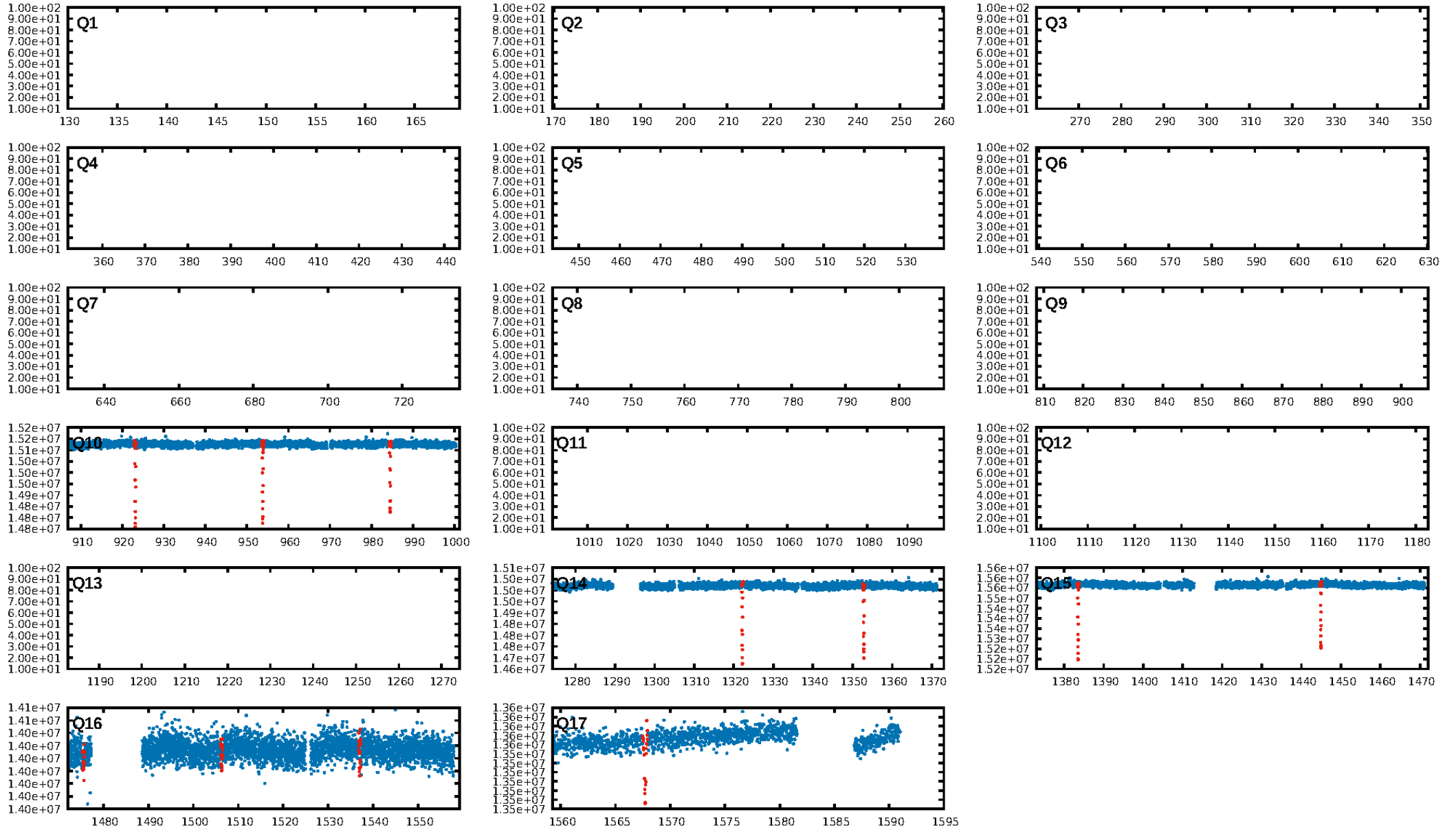
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 36.1%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.315
Centroid-sig: 0.0%
Centroid-so: 8.648 arcsec [401.89σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [5/5]

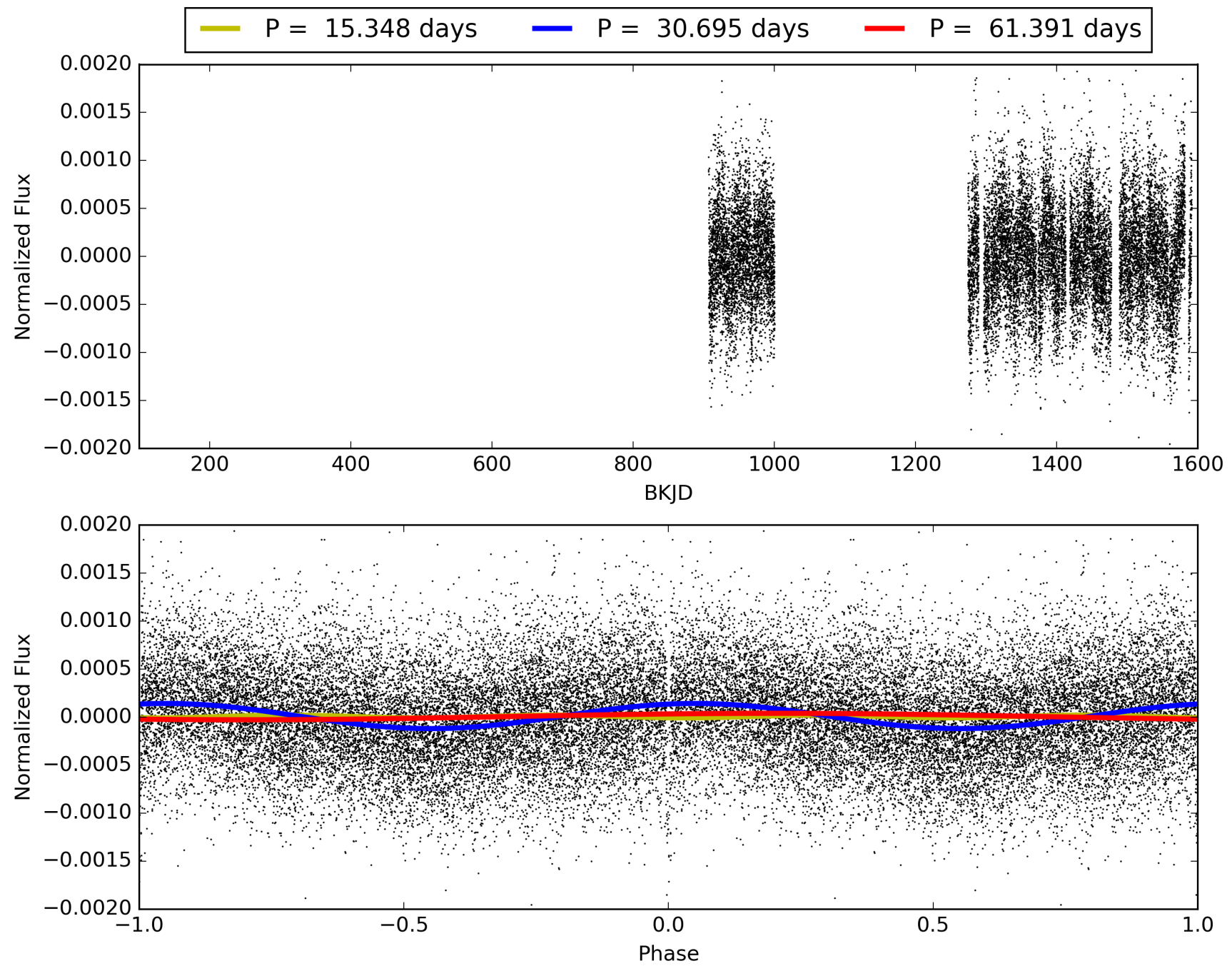
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:16:57 Z

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

TCE 009957659-01, PDC Light Curves

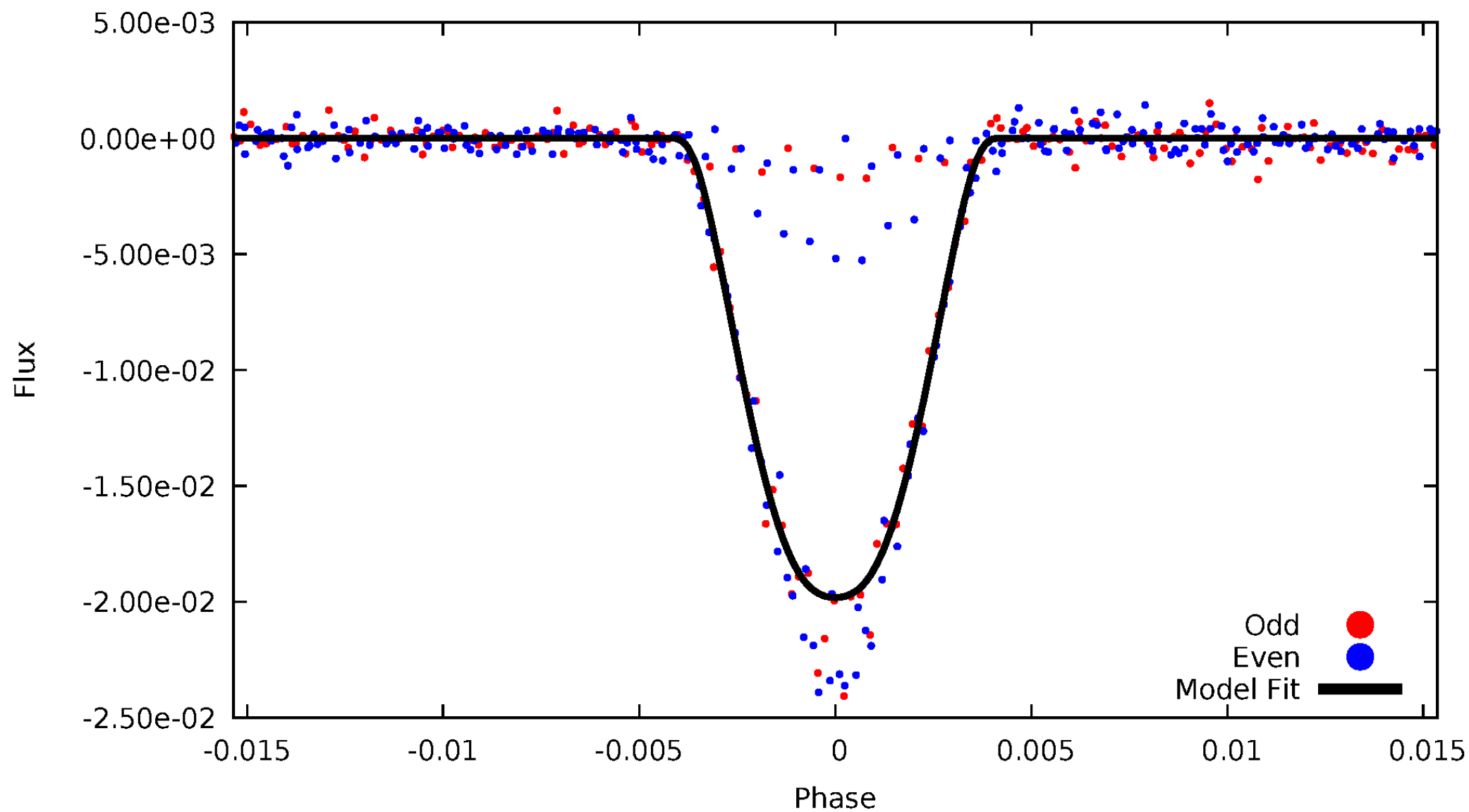


TCE 009957659-01



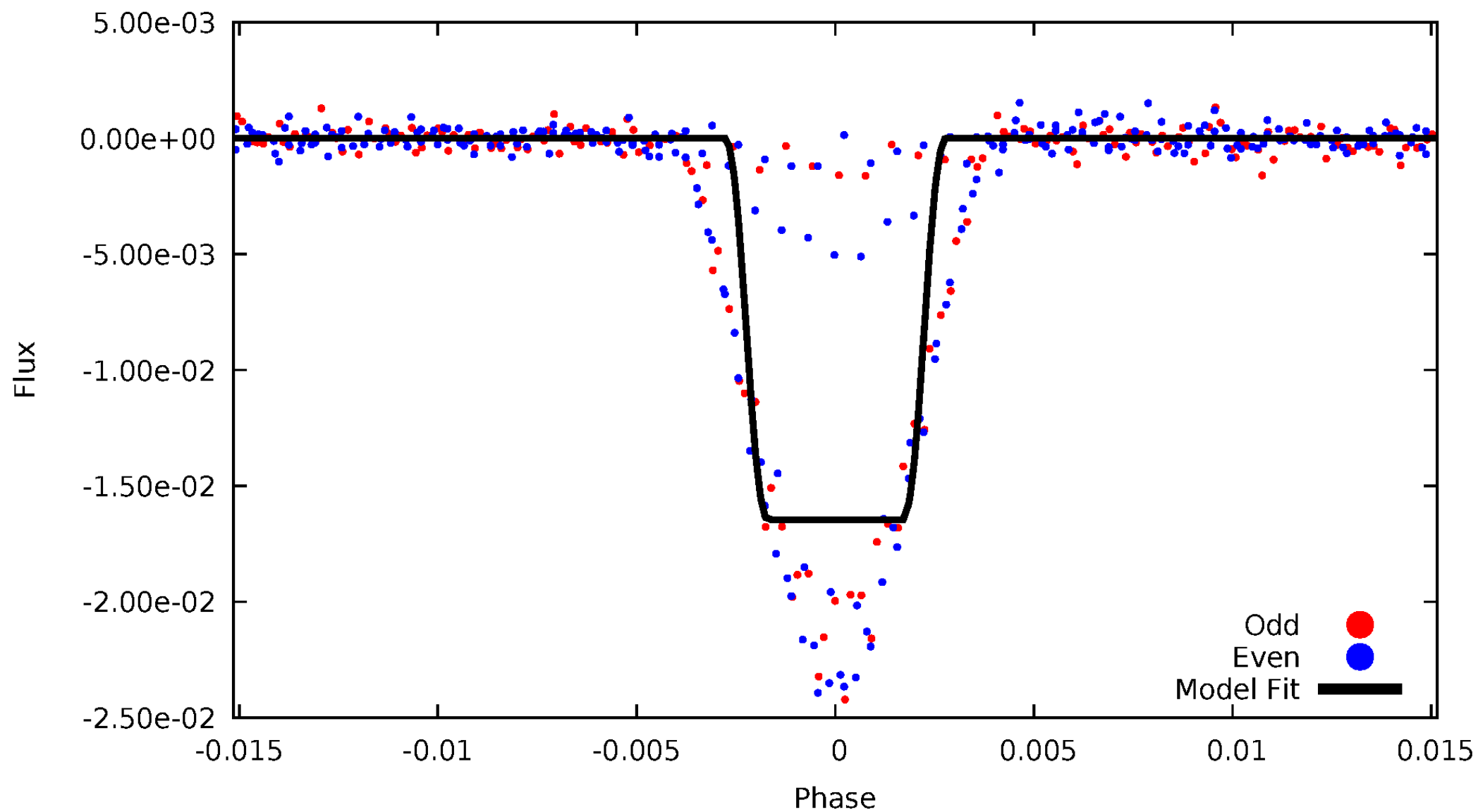
DV Odd/Even

TCE 009957659-01



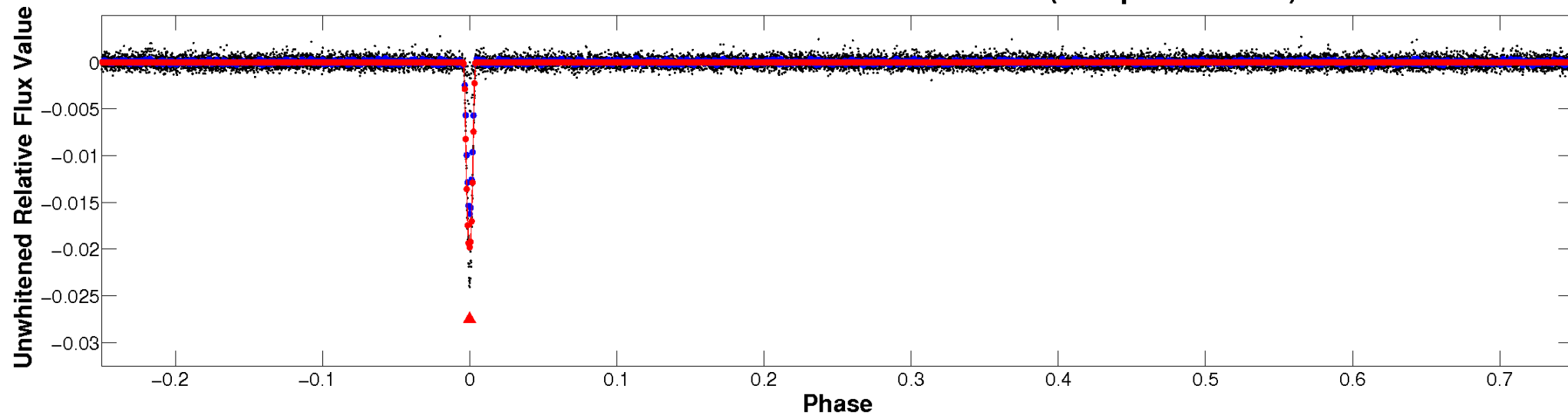
ALT Odd/Even

TCE 009957659-01

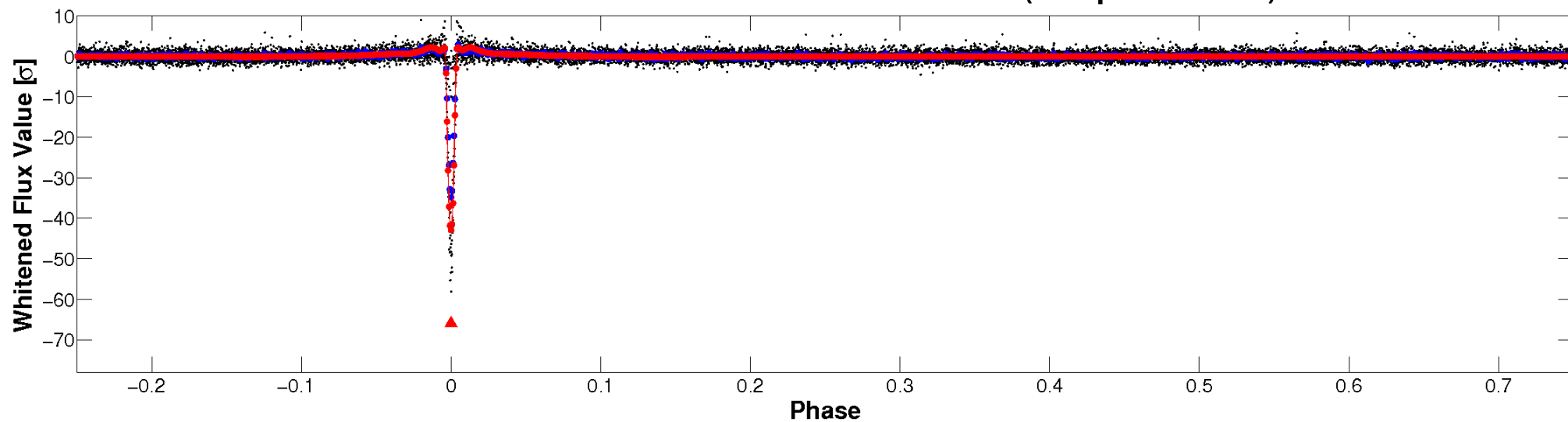


Non-Whitened Vs. Whitened Light Curve

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

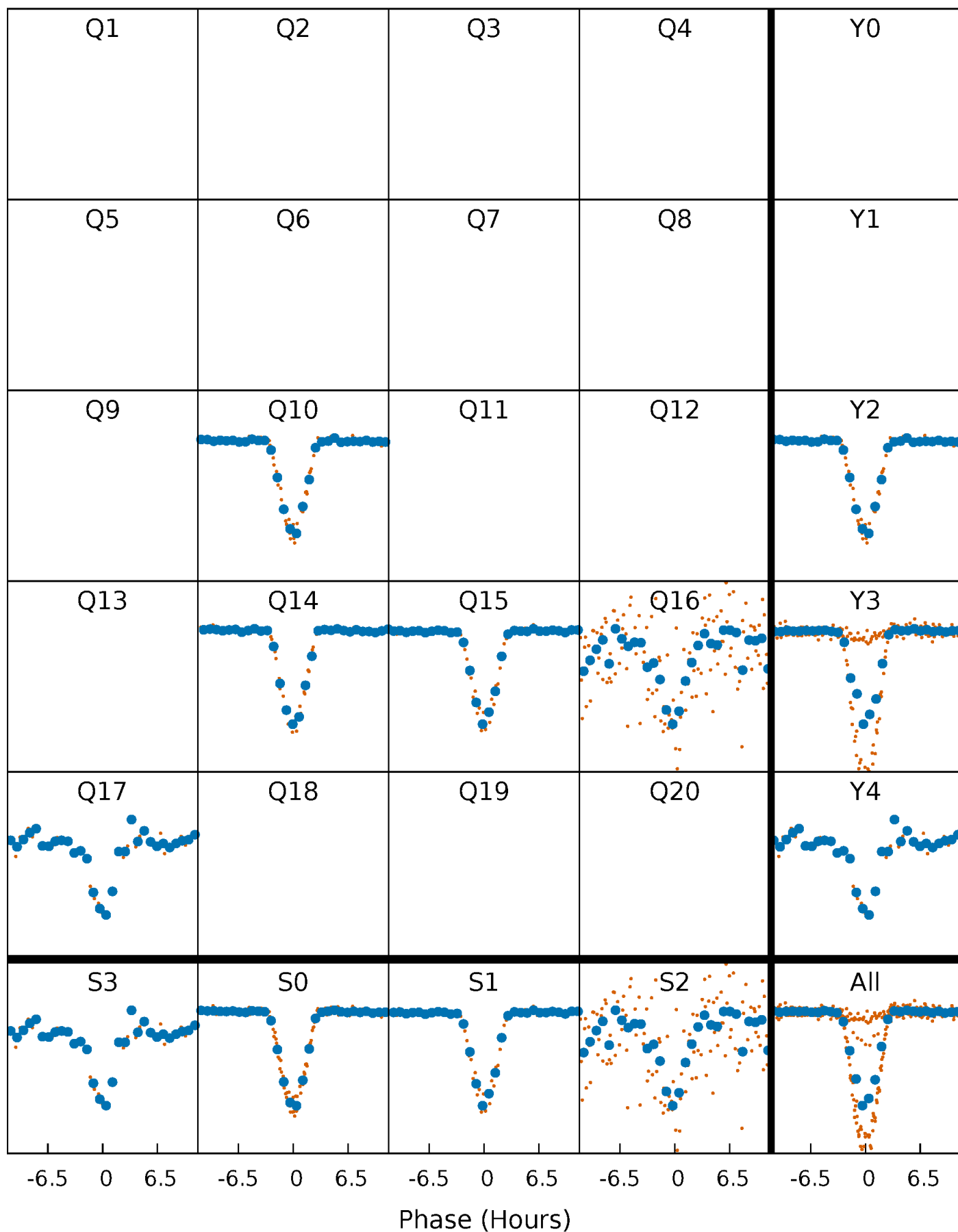


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



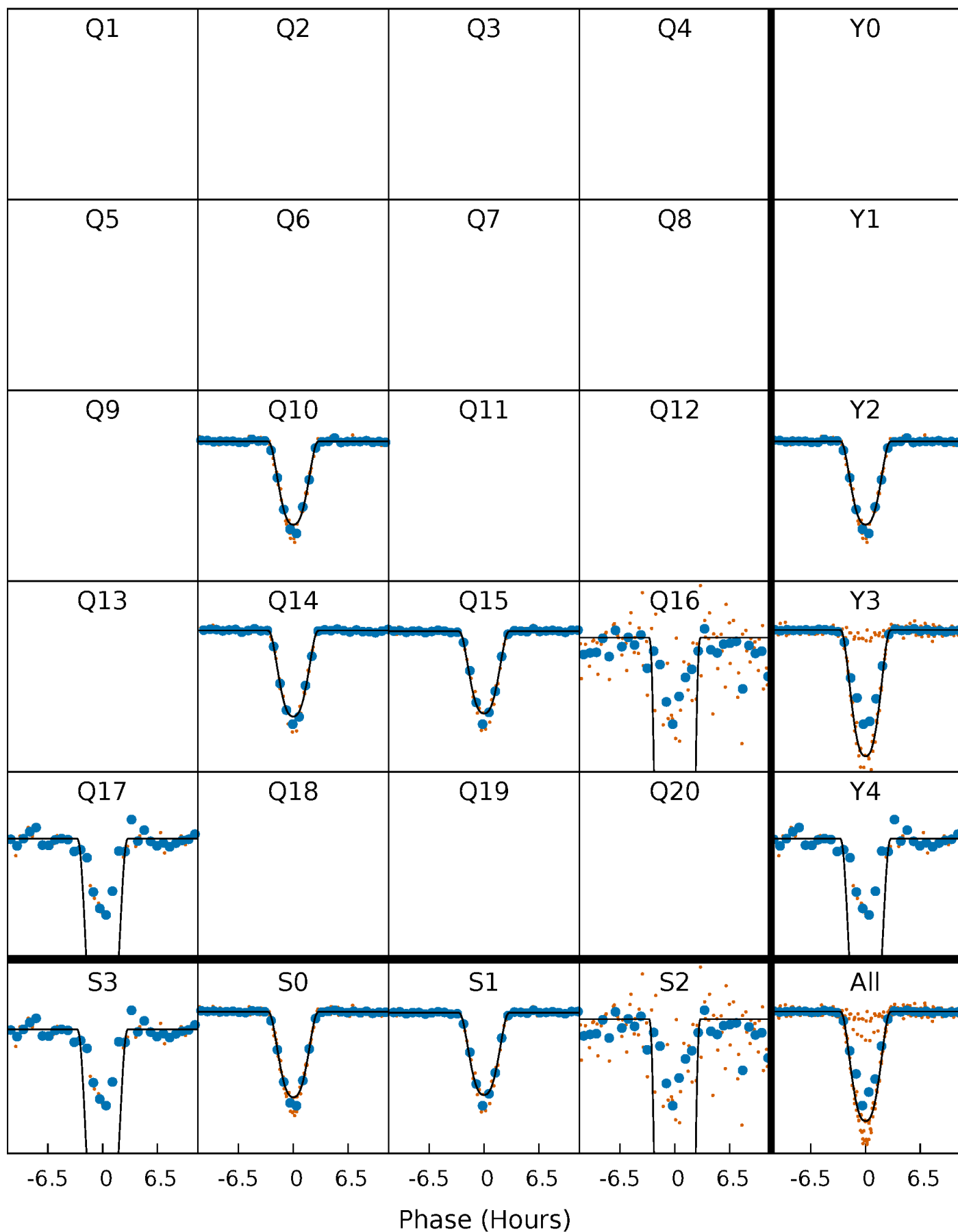
PDC Quarter-Phased Transit Curves

TCE 009957659-01 P= 30.695294 Days $T_0=155.722038$ (BKJD)



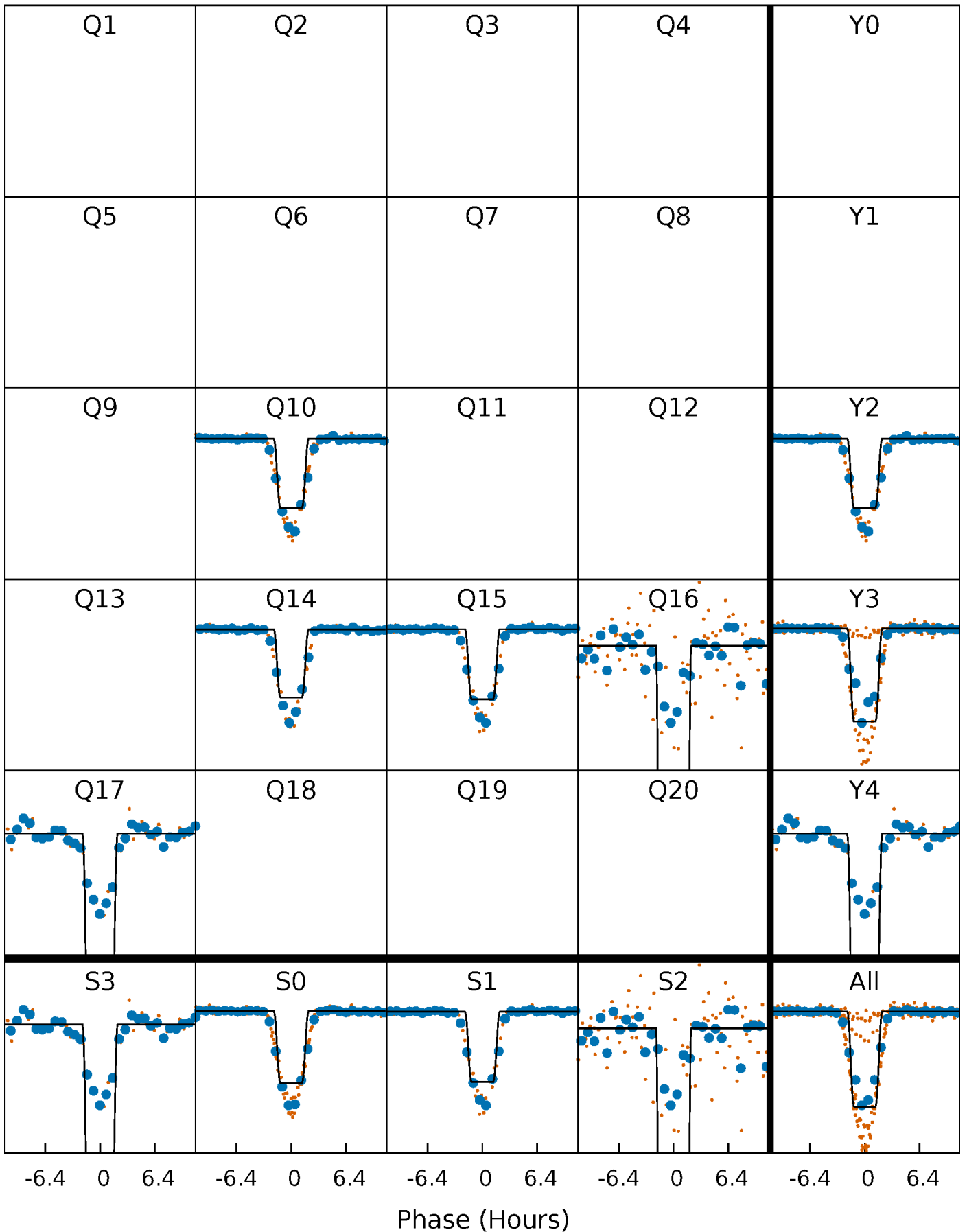
DV Quarter-Phased Transit Curves

TCE 009957659-01 P= 30.695294 Days $T_0=155.722038$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

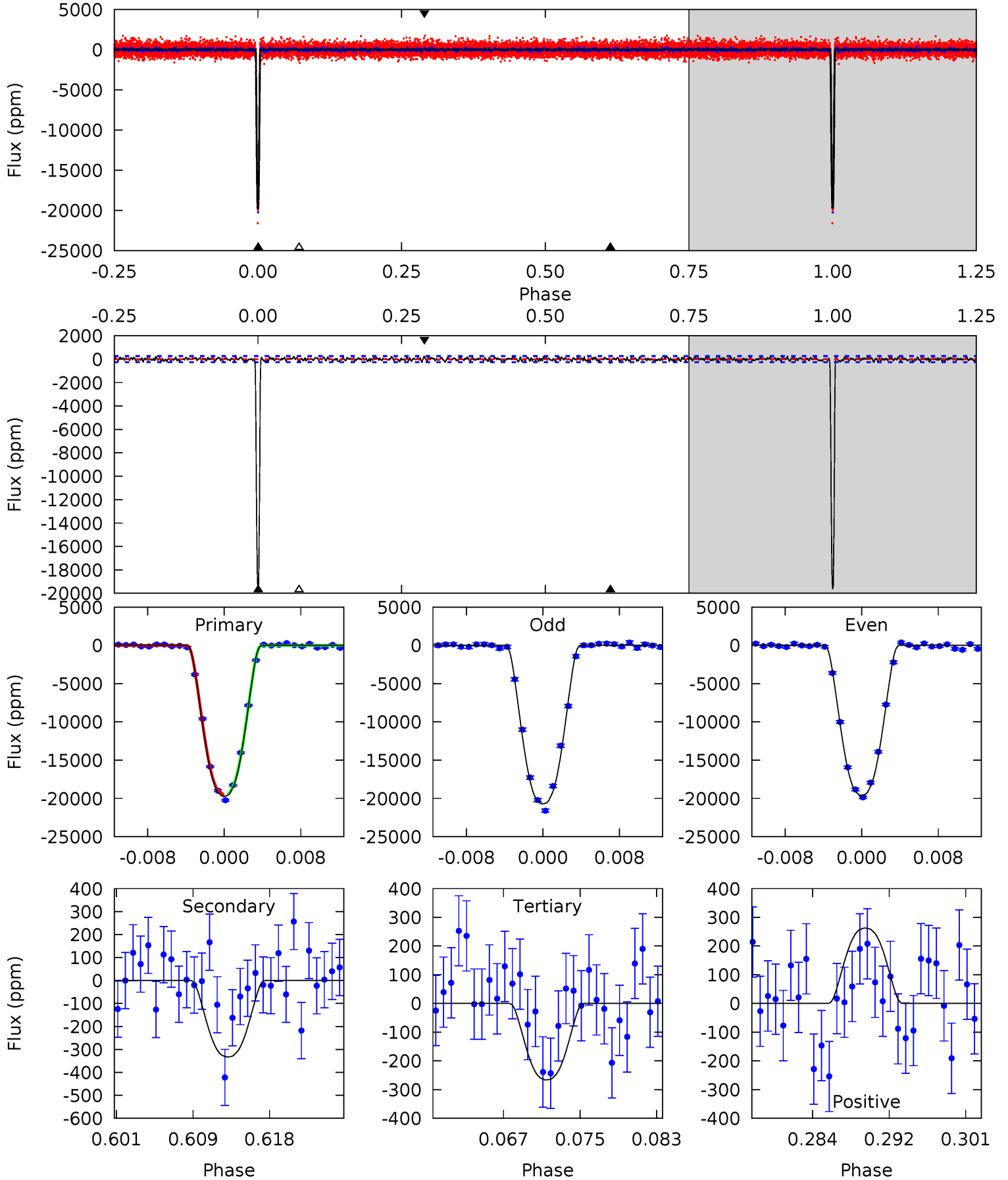
TCE 009957659-01 P= 30.695384 Days $T_0=155.719033$ (BKJD)



DV Model-Shift Uniqueness Test

009957659-01, P = 30.695294 Days, E = 155.722038 Days

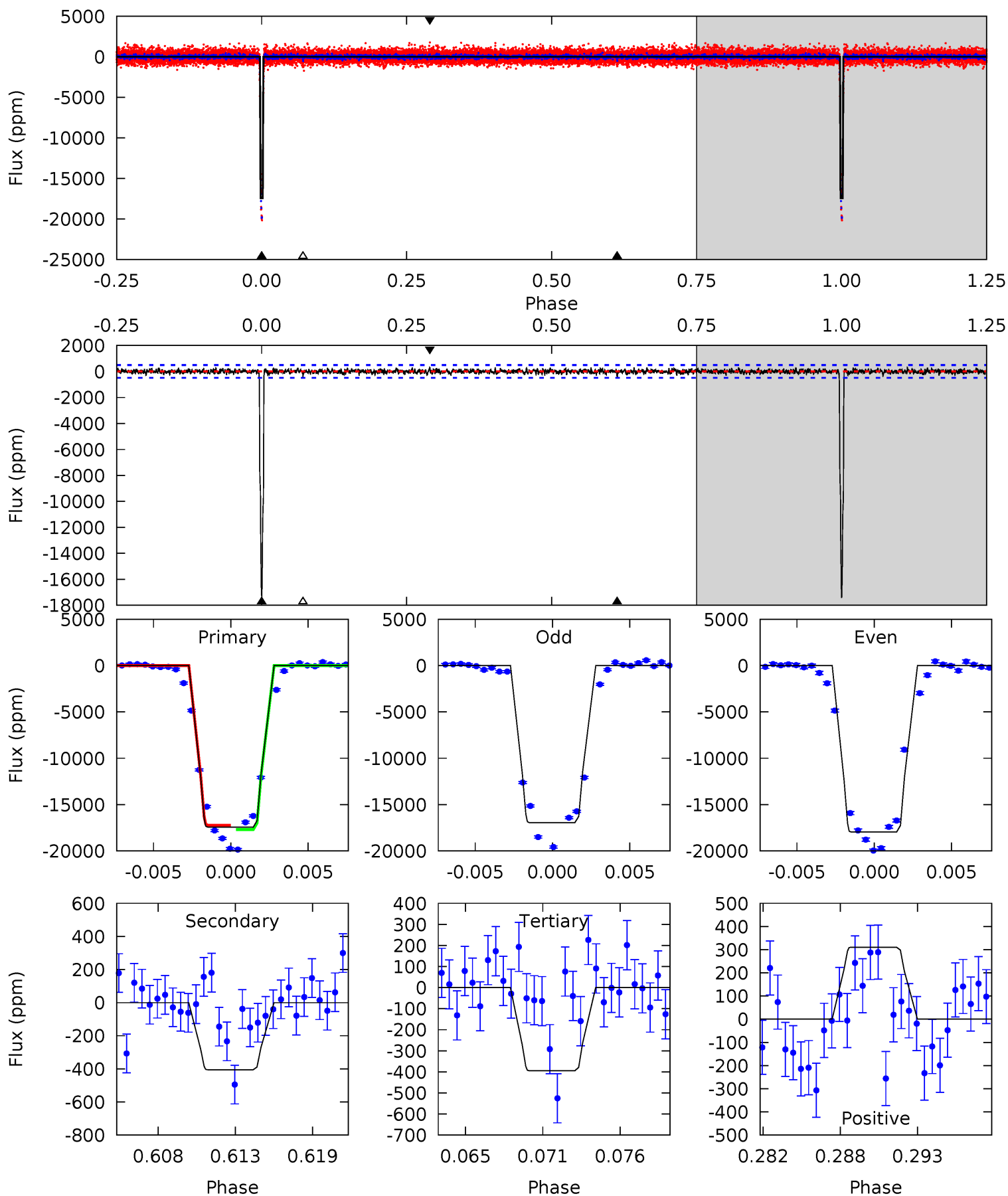
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
378.5	6.39	5.11	5.04	5.06	2.64	1.66	373.4	373.5	1.28	1.35	10.8	0.79	0.01	0.29



Alt Model-Shift Uniqueness Test

009957659-01, P = 30.695384 Days, E = 155.719033 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
181.9	4.23	4.12	3.24	5.14	2.78	0.99	177.8	178.7	0.12	0.99	5.44	0.79	0.02	2.46



Stellar Parameters For KIC 009957659

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+173}_{-260}	$4.356^{+0.090}_{-0.210}$	$0.120^{+0.200}_{-0.300}$	$1.192^{+0.392}_{-0.168}$	$1.179^{+0.170}_{-0.170}$	$0.980^{+0.398}_{-0.540}$
	+3%/-4%	+2%/-5%	+167%/-250%	+33%/-14%	+14%/-14%	+41%/-55%
Source	KIC0	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 009957659-01 / KOI 5743.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-331 ± 52	$19.59^{+3.35}_{-1.62}$	934^{+71}_{-55}	2861^{+84}_{-83}	18^{+5}_{-5}
Alt.	-406 ± 96	$17.00^{+3.04}_{-1.53}$	938^{+69}_{-55}	3069^{+127}_{-132}	30^{+10}_{-9}

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

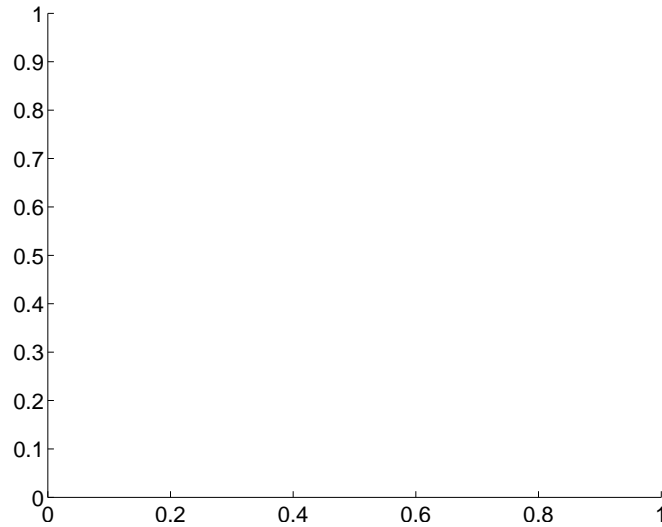
Supplemental centroid analysis for 009957659-01. Kepler magnitude: 15.50. Transit SNR 205.20

There are 0 quarters with good PRF difference image offsets

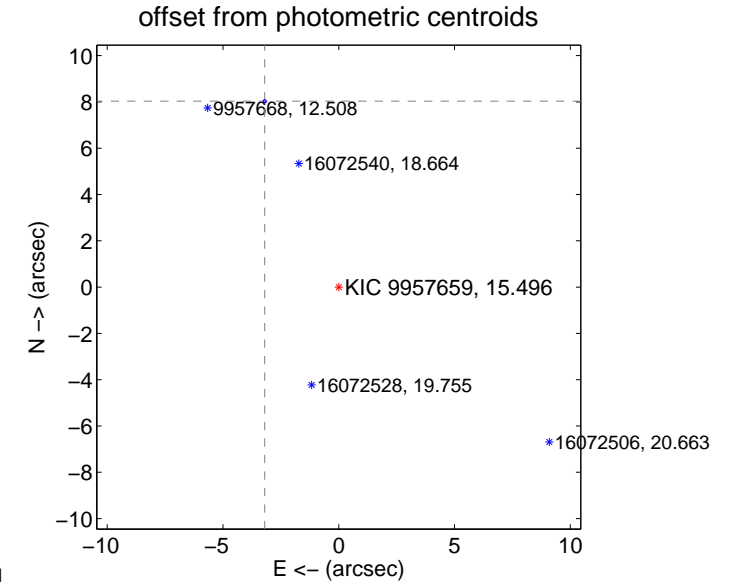
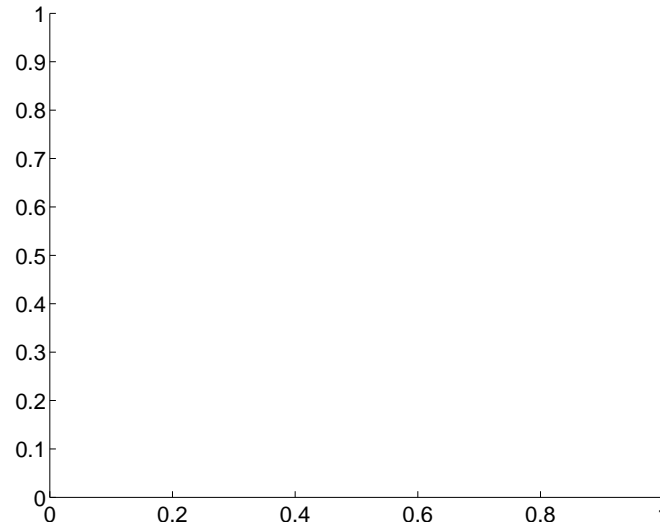
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	8.65 ± 0.02	401.88	3.20 ± 0.01	8.03 ± 0.02

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



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.



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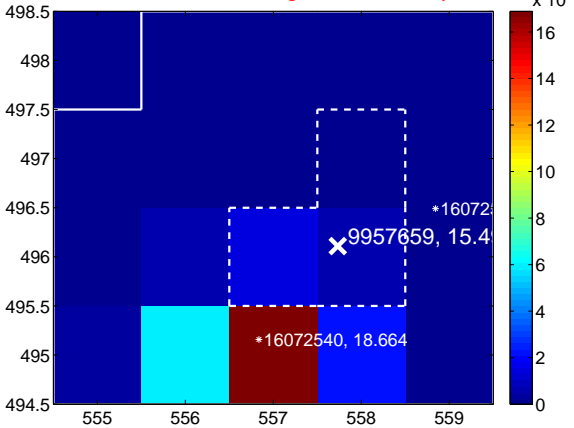
Q9 no difference image



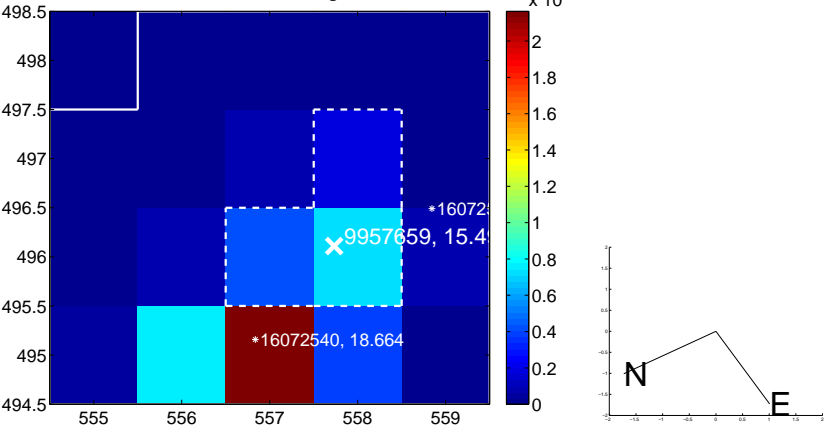
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



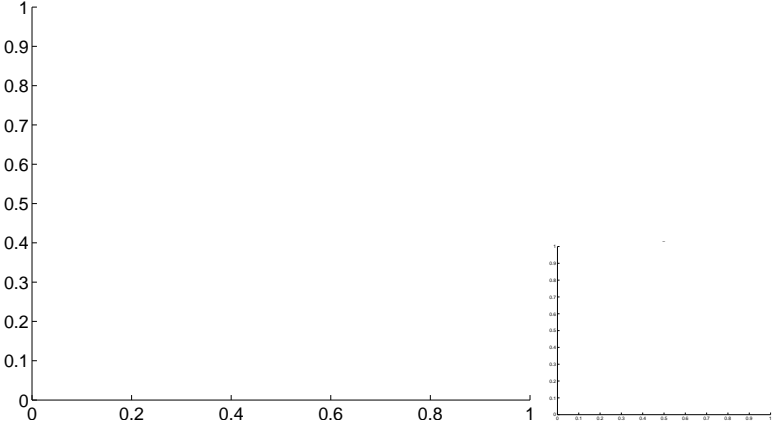
Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

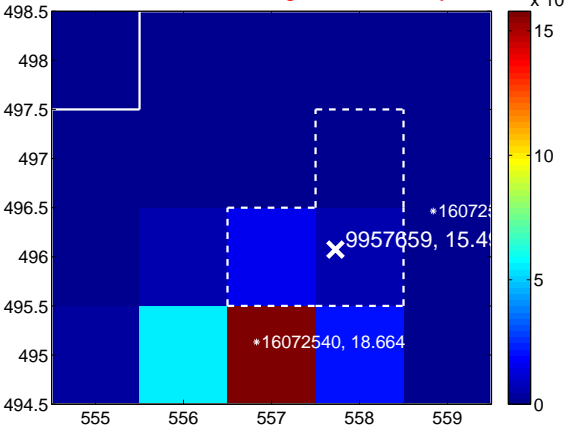
Q13 no difference image



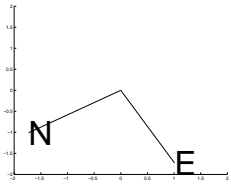
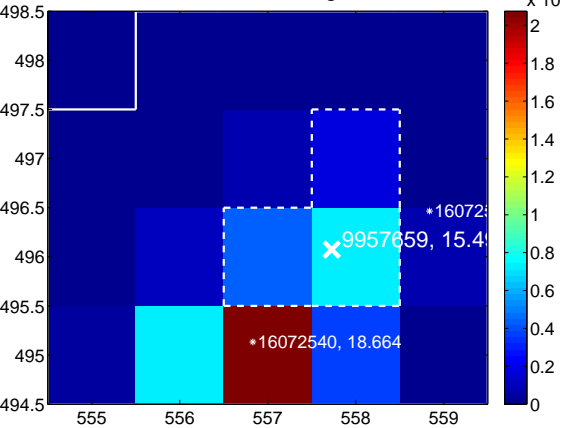
Q13 no OOT image



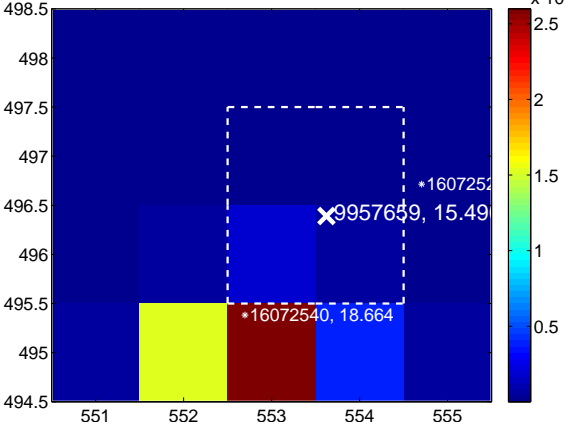
Q14 difference image. Poor Quality



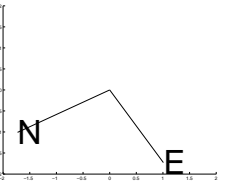
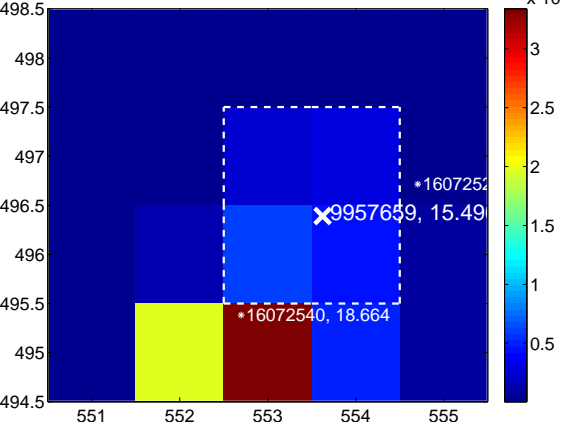
Q14 OOT image



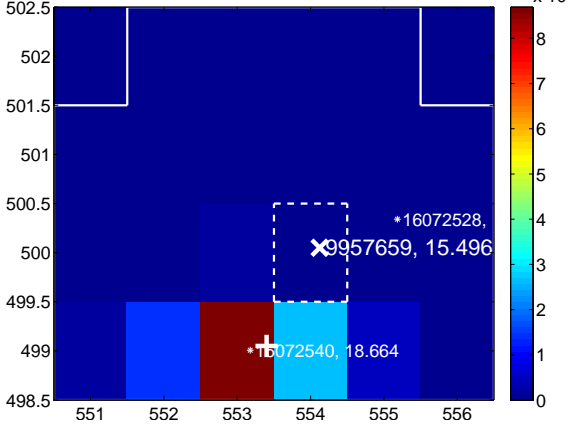
Q15 difference image. Poor Quality



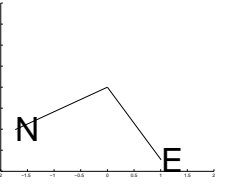
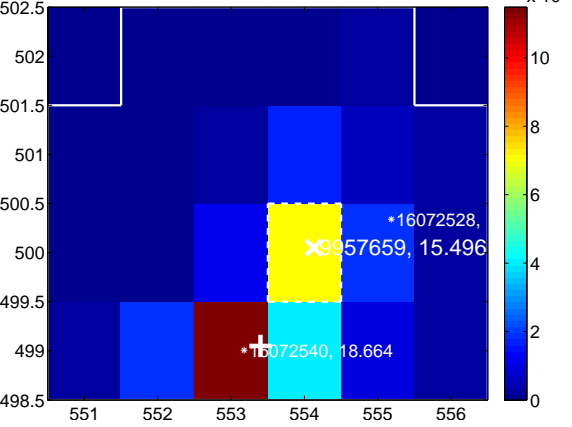
Q15 OOT image



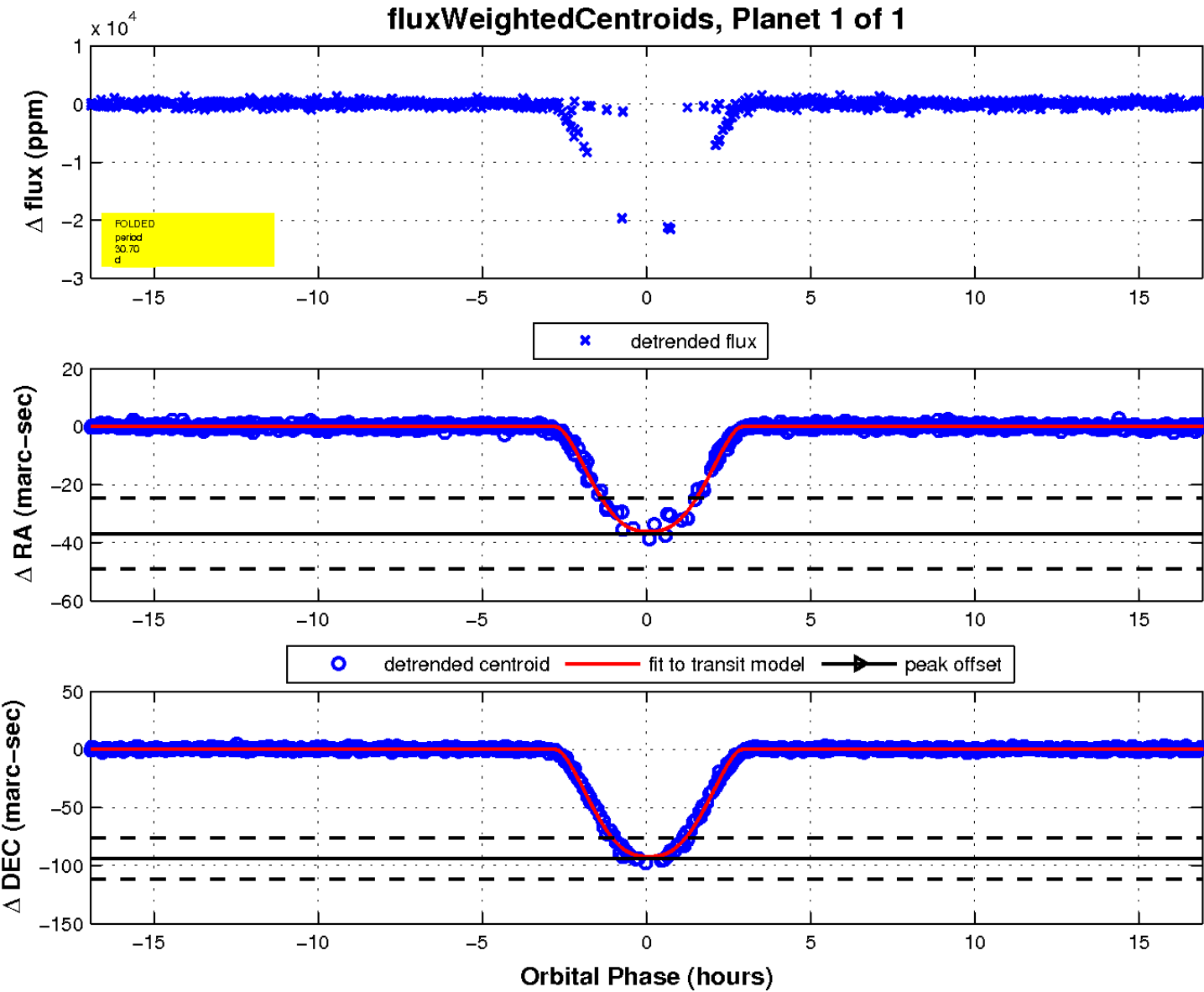
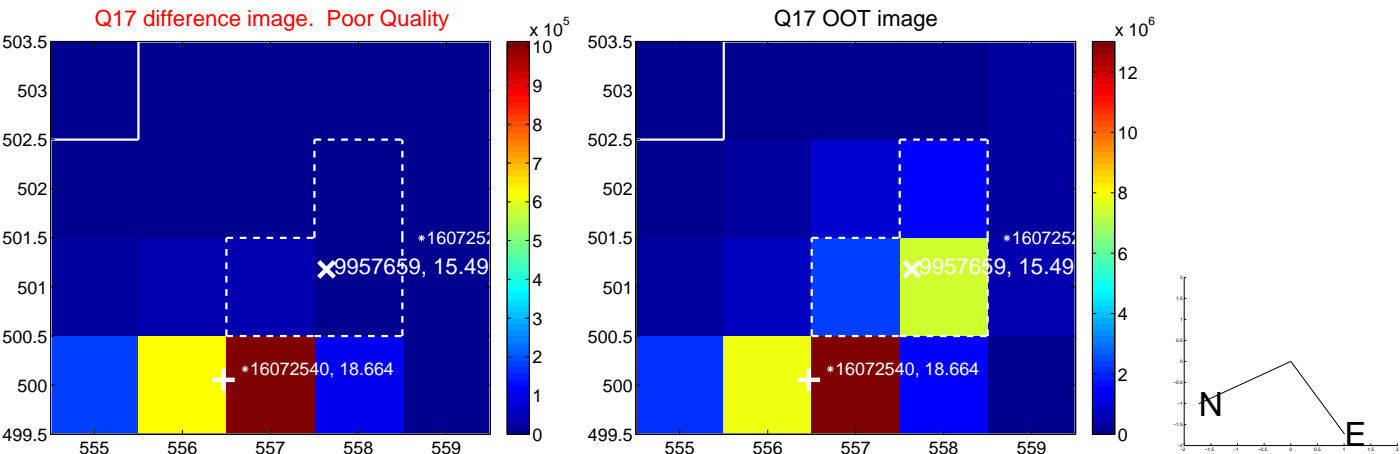
Q16 difference image. Poor Quality



Q16 OOT image



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



UKIRT Image

Declination

