

KIC 003644399

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})
003644399-01	OBS	4997.01	119.673646	176.133721	395.8	24.264	9.3	10.6	1.06	6382	2.52	6.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003644399-01	OBS	FP	0.00	1	0	0	1	INDIV_TRANS_SKYE—CENT_FEW_DIFFS—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 003644399-01

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
003644399-01	3644399	3511.01	3644542	1:1	146.5	3	36	8.35	15.49	755.08	Direct-PRF	0	0.76	0.35

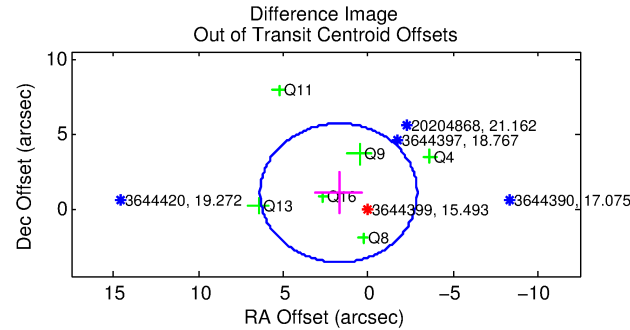
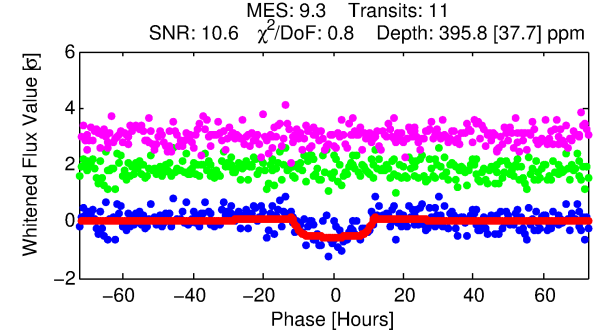
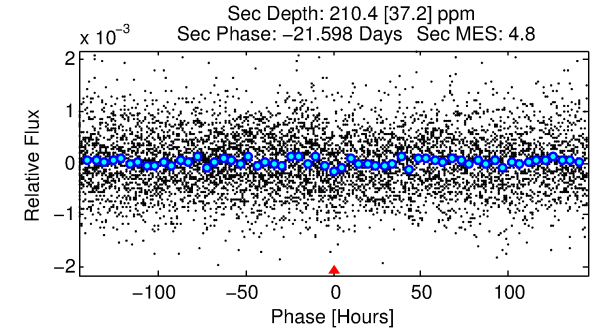
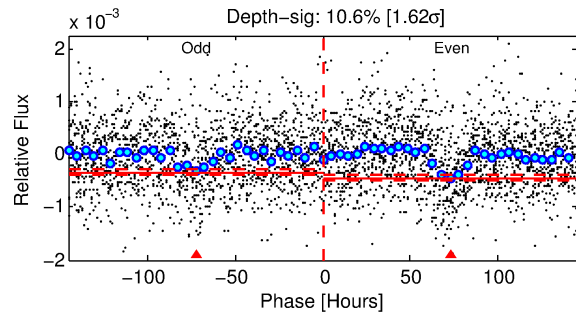
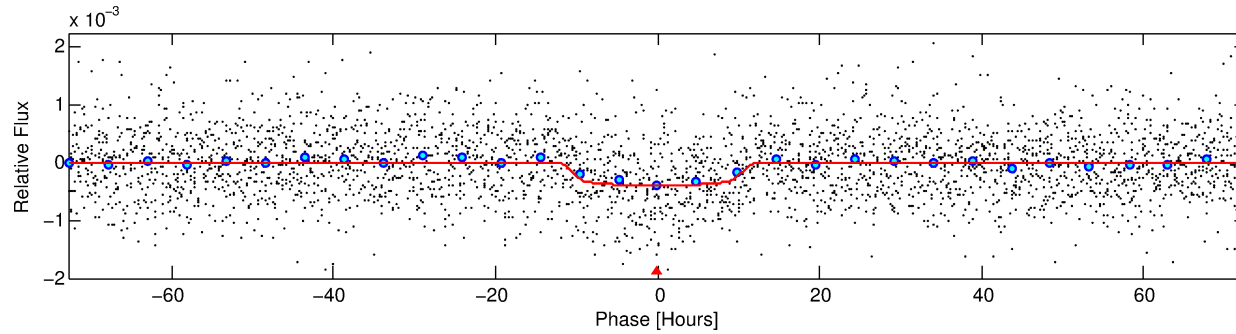
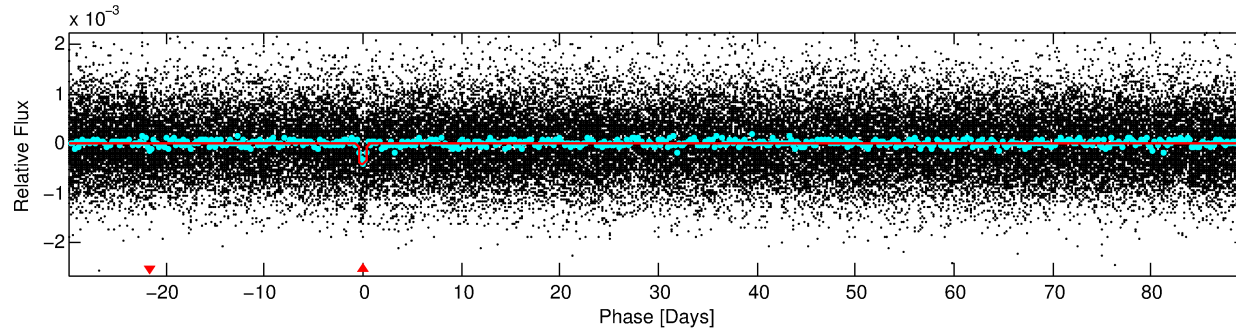
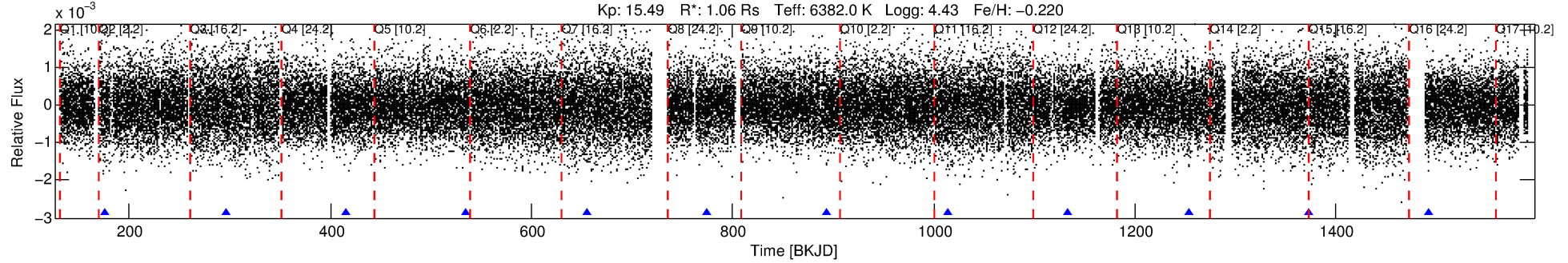
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 3644399 Candidate: 1 of 1 Period: 119.674 d

KOI: K04997.01 Corr: 0.922

Kp: 15.49 R*: 1.06 Rs Teff: 6382.0 K Logg: 4.43 Fe/H: -0.220



DV Fit Results:

Period = 119.67365 [0.00595] d
Epoch = 176.1337 [0.0373] BKJD
Rp/R* = 0.0218 [0.0018]
a/R* = 16.46 [5.60]
b = 0.92 [0.05]
Seff = 6.90 [2.52]
Teq = 413 [38] K
Rp = 2.52 [0.75] Re
a = 0.4916 [0.1163] AU
Ag = 4399.37 [1819.27] [2.42σ]
Teffp = 5203 [363] K [13.13σ]

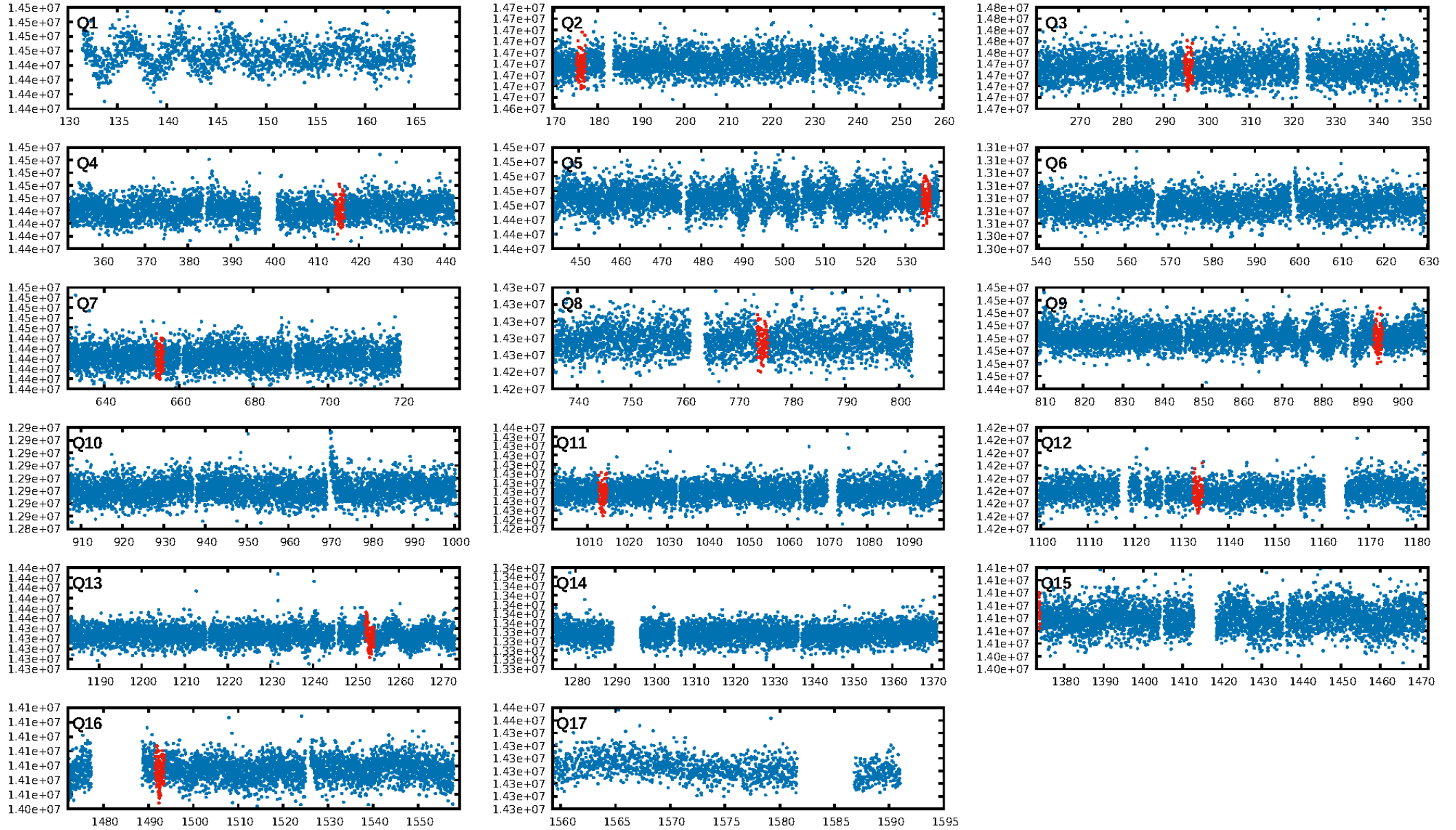
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 22.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.65e-19
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 0.3621
Centroid-sig: 1.2%
Centroid-so: 1.989 arcsec [1.75σ]
OotOffset-rm: 2.019 arcsec [1.31σ]
OotOffset-st: 0/1/3/2 [6]
KicOffset-rm: 1.990 arcsec [1.19σ]
KicOffset-st: 0/1/3/2 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 1.00 [10/10]

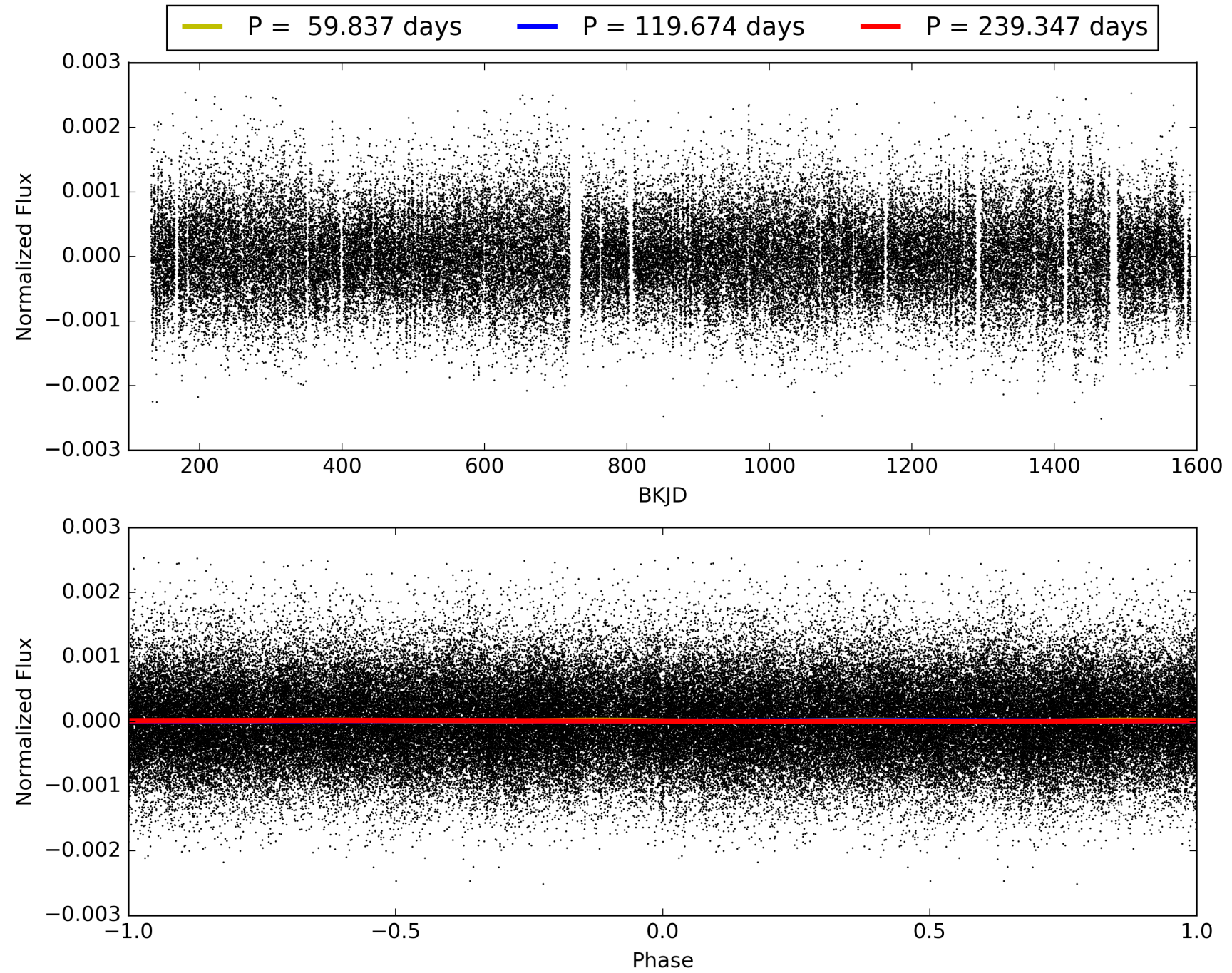
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:08:44 Z

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

TCE 003644399-01, PDC Light Curves

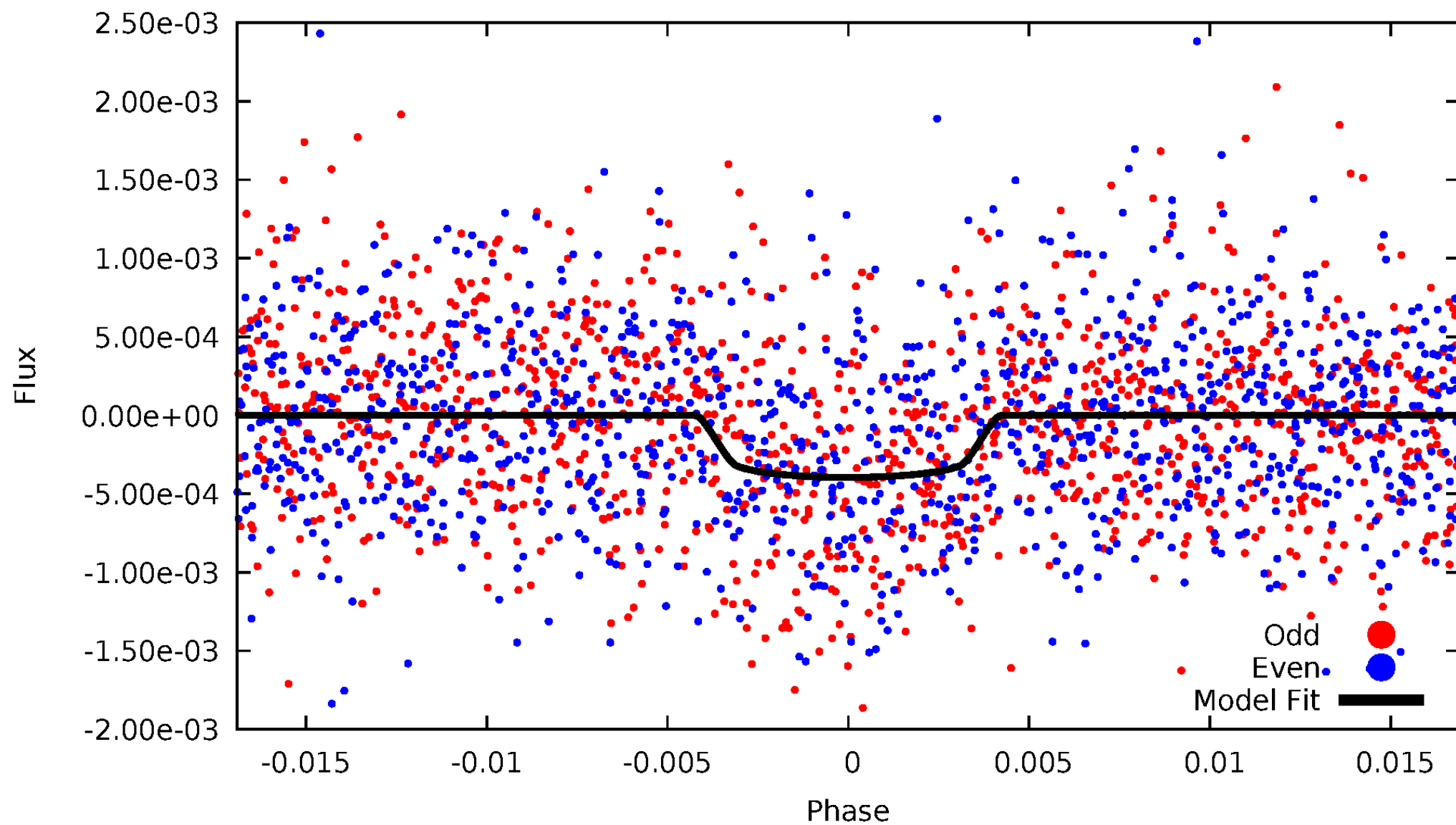


TCE 003644399-01



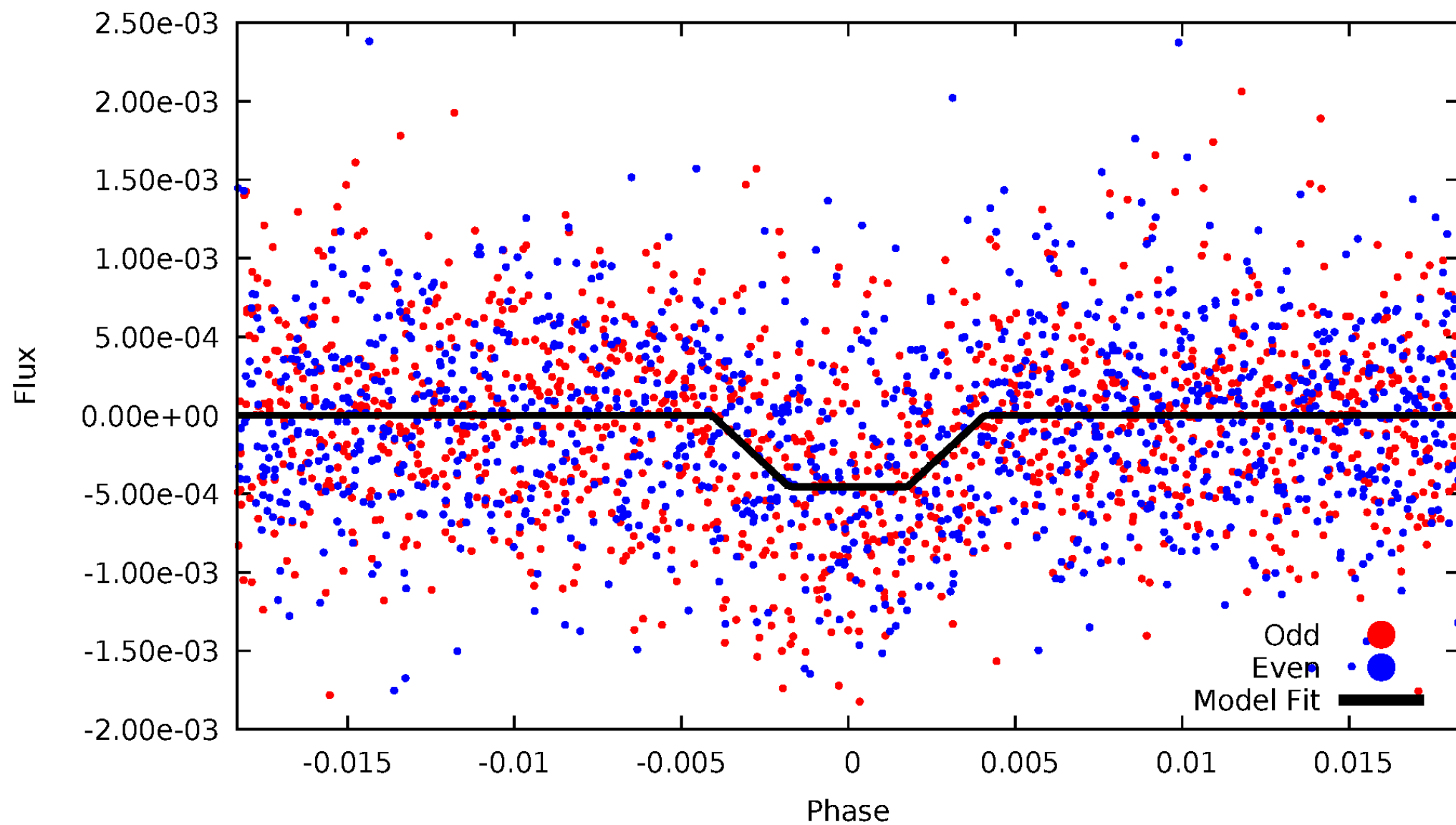
DV Odd/Even

TCE 003644399-01



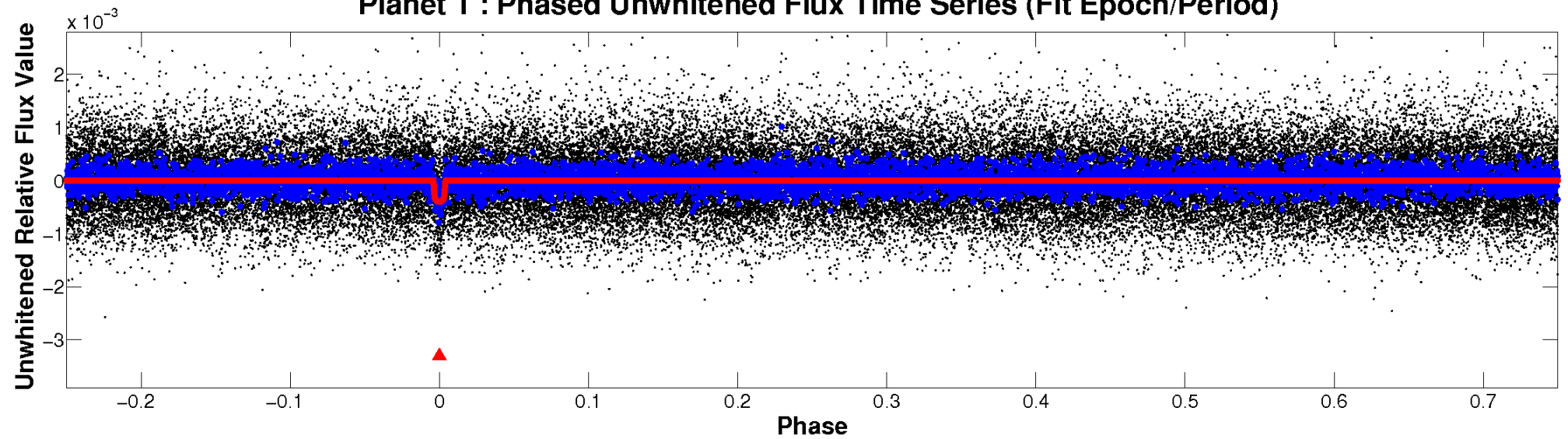
ALT Odd/Even

TCE 003644399-01

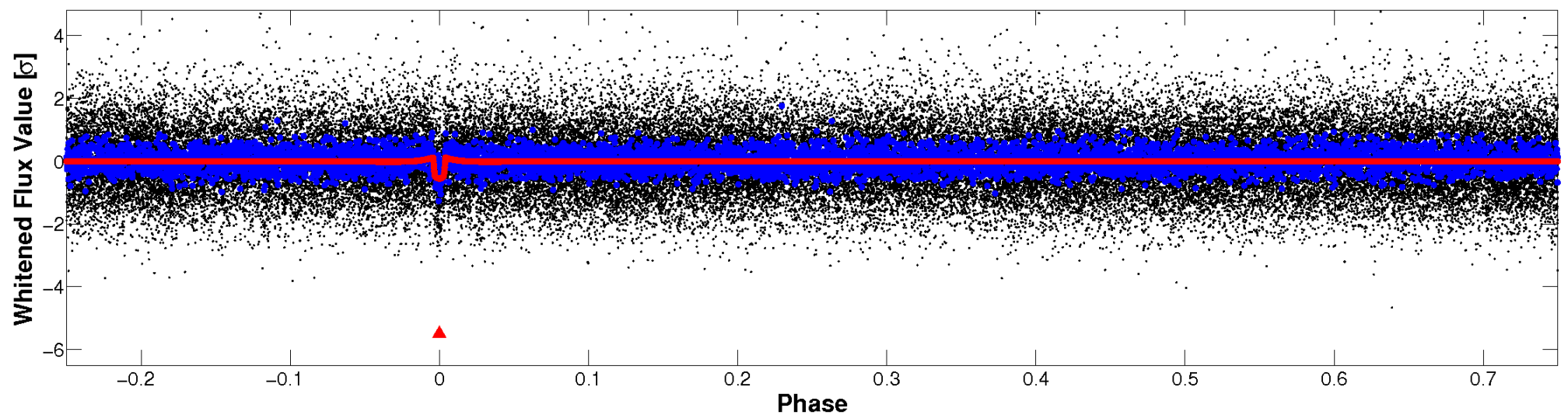


Non-Whitened Vs. Whitened Light Curve

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

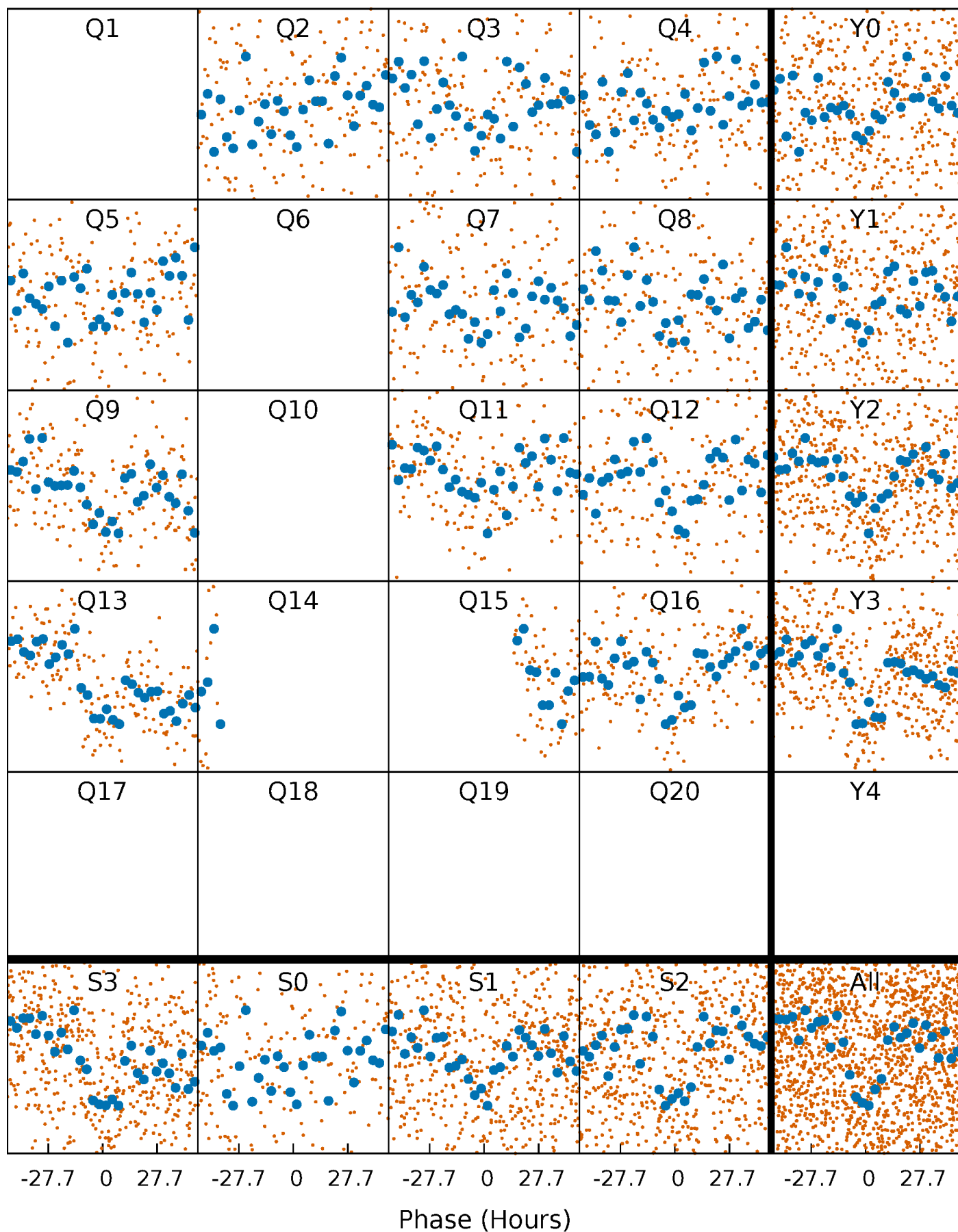


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



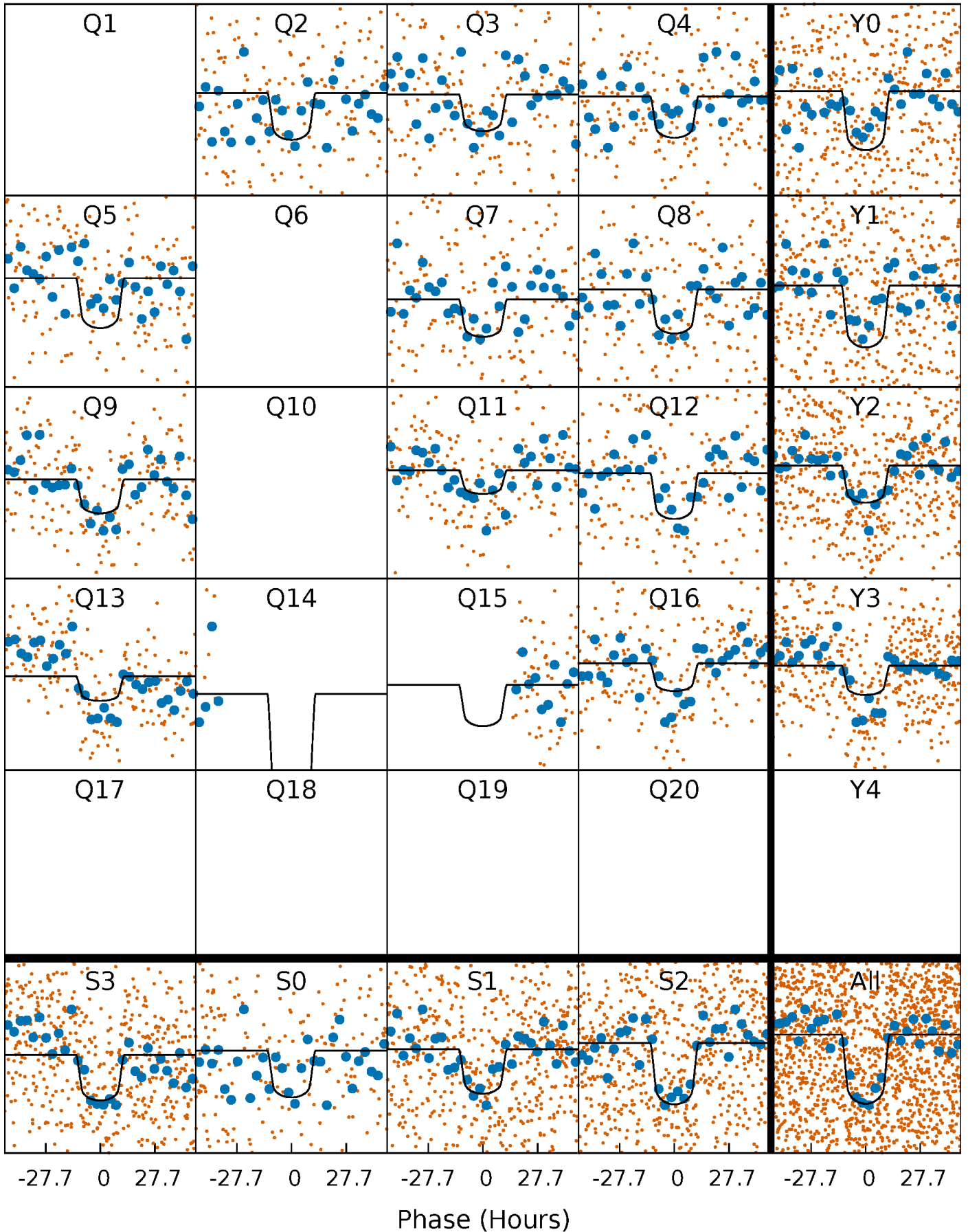
PDC Quarter-Phased Transit Curves

TCE 003644399-01 P=119.673646 Days $T_0=176.133721$ (BKJD)



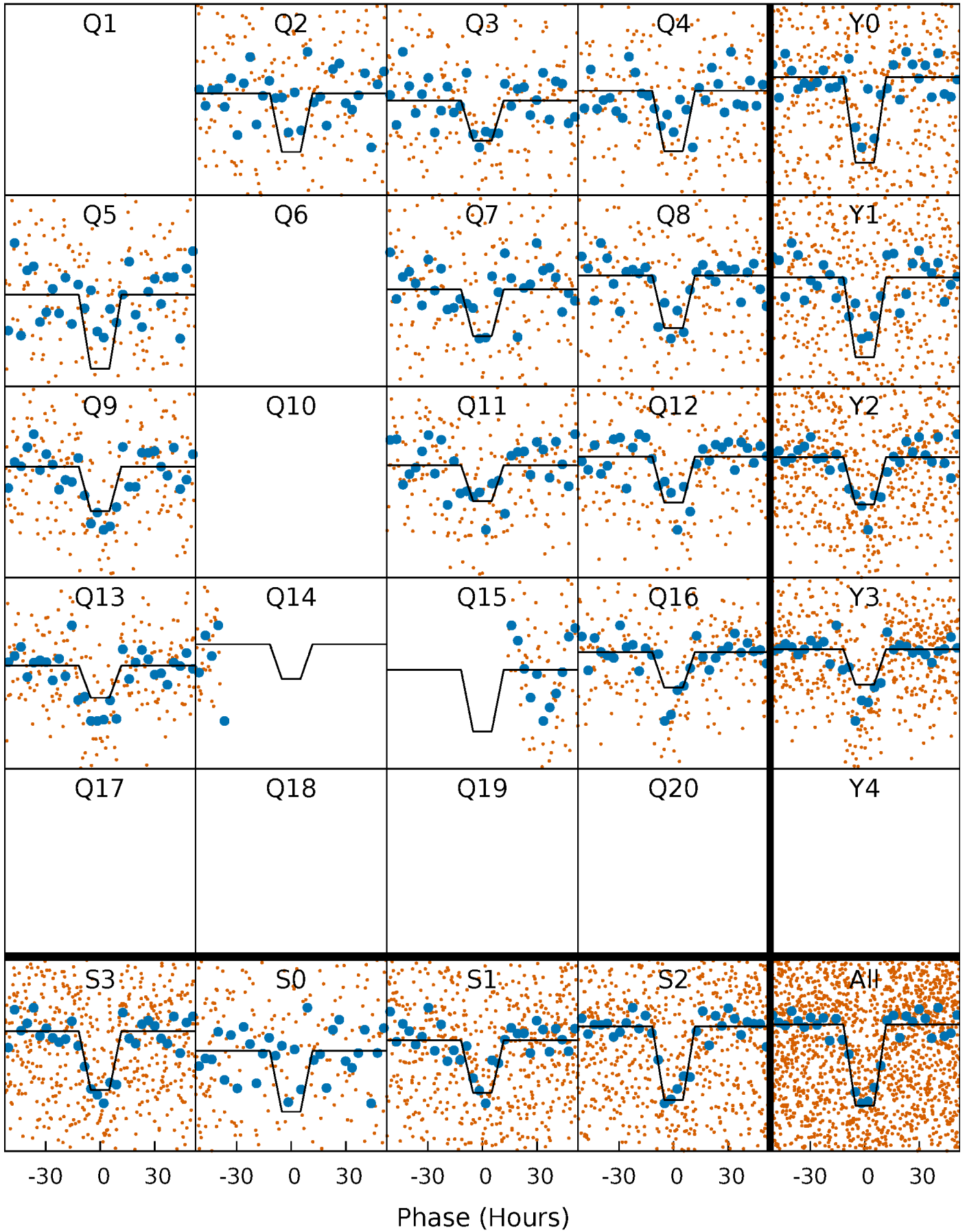
DV Quarter-Phased Transit Curves

TCE 003644399-01 P=119.673646 Days $T_0=176.133721$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

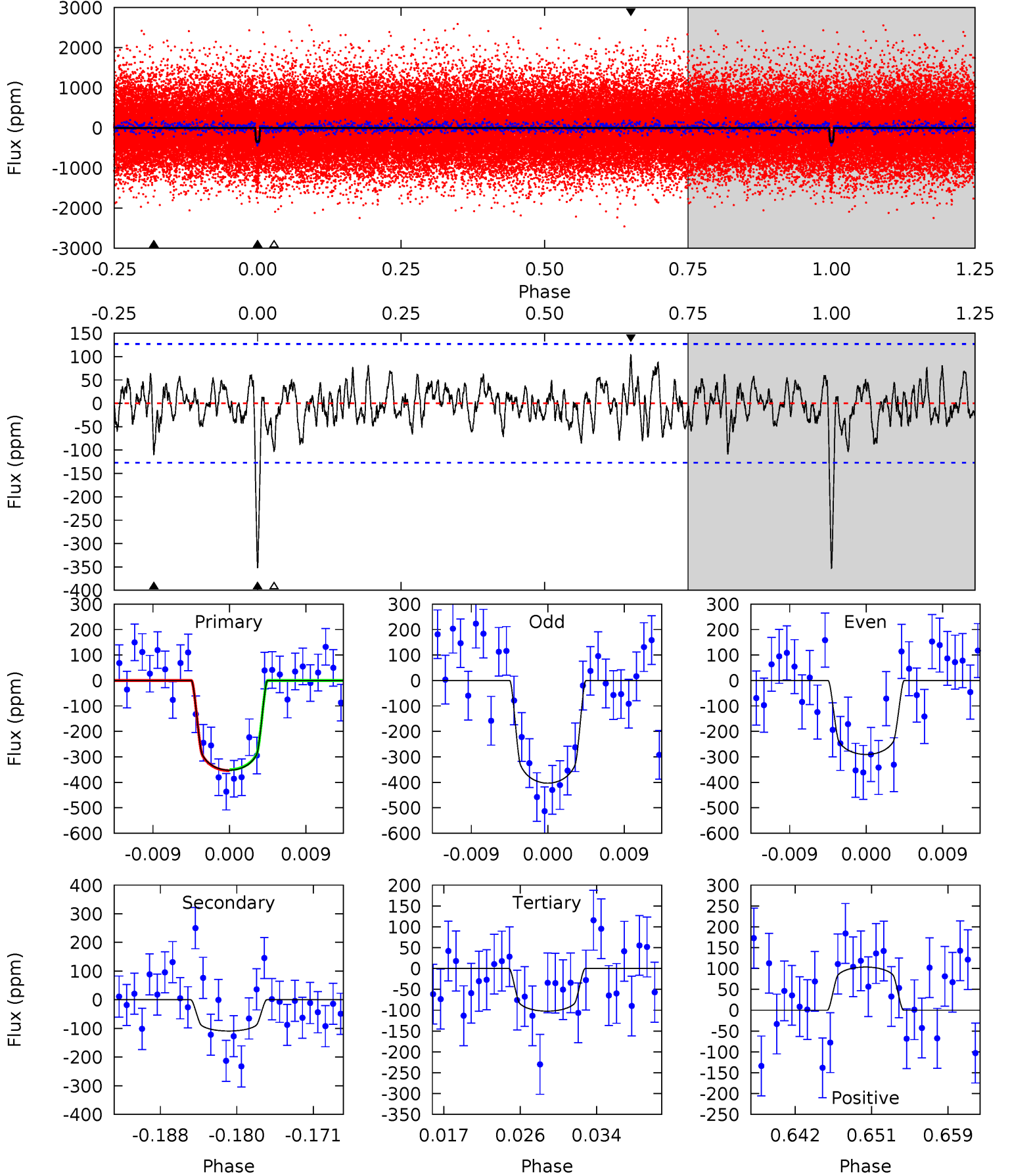
TCE 003644399-01 P=119.686172 Days $T_0=176.053236$ (BKJD)



DV Model-Shift Uniqueness Test

003644399-01, $P = 119.673646$ Days, $E = 56.460075$ Days

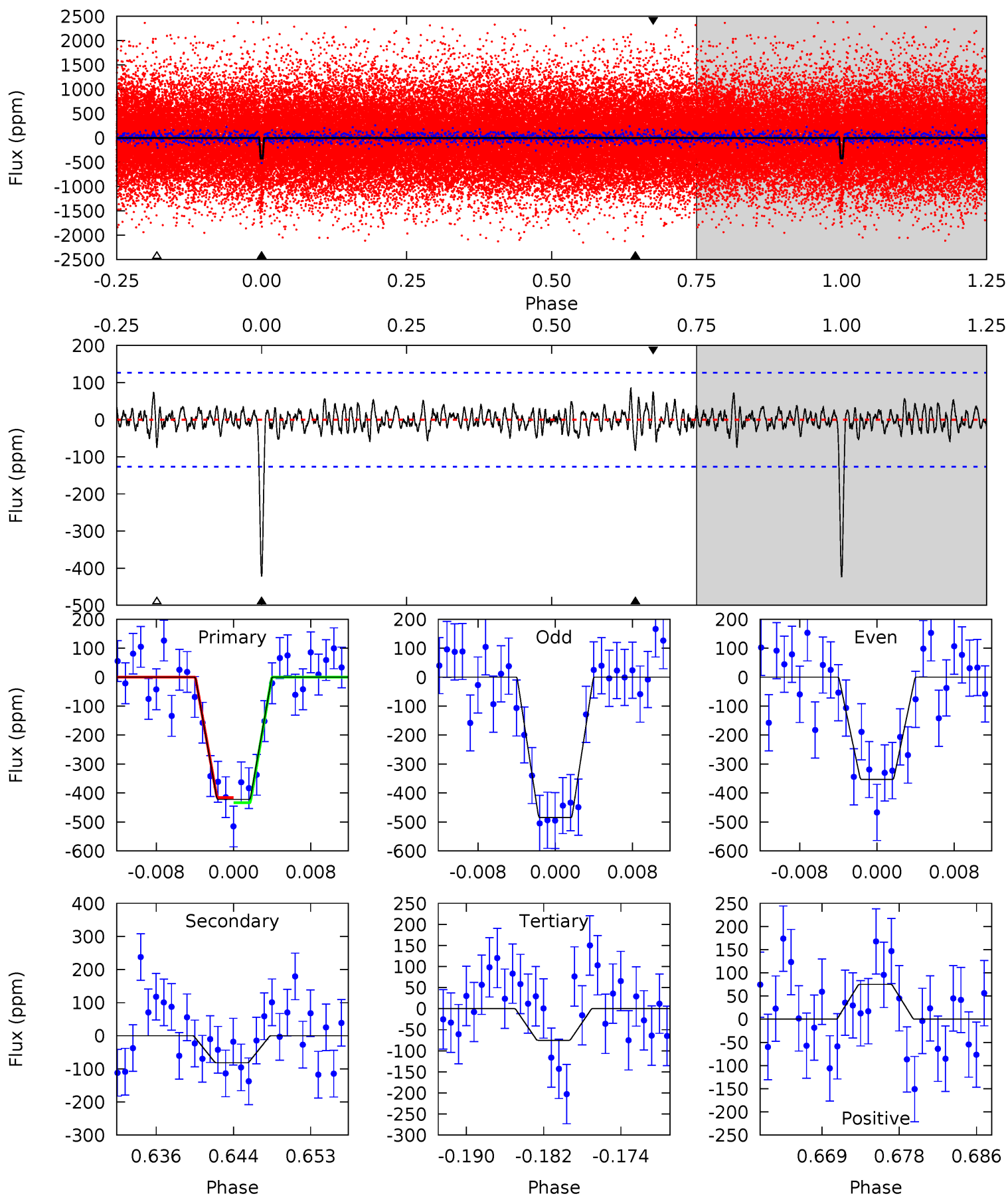
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	4.34	4.08	4.12	5.06	2.63	1.31	9.95	9.91	0.27	0.22	2.24	1.08	0.23	0.08



Alt Model-Shift Uniqueness Test

003644399-01, P = 119.686172 Days, E = 56.367064 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	3.25	3.00	3.00	5.06	2.64	0.88	13.9	13.9	0.26	0.26	2.61	0.96	0.17	0.35



Stellar Parameters For KIC 003644399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6382^{+169}_{-226}	$4.432^{+0.060}_{-0.180}$	$-0.220^{+0.250}_{-0.300}$	$1.059^{+0.305}_{-0.122}$	$1.104^{+0.143}_{-0.143}$	$1.310^{+0.411}_{-0.614}$
	+3%/-4%	+1%/-4%	+114%/-136%	+29%/-12%	+13%/-13%	+31%/-47%
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 003644399-01 / KOI 4997.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-109 ± 25	$2.59^{+0.40}_{-0.32}$	585^{+36}_{-28}	4567^{+284}_{-286}	2112^{+759}_{-674}
Alt.	-81 ± 25	$2.57^{+0.41}_{-0.31}$	589^{+37}_{-31}	4345^{+305}_{-293}	1588^{+741}_{-550}

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

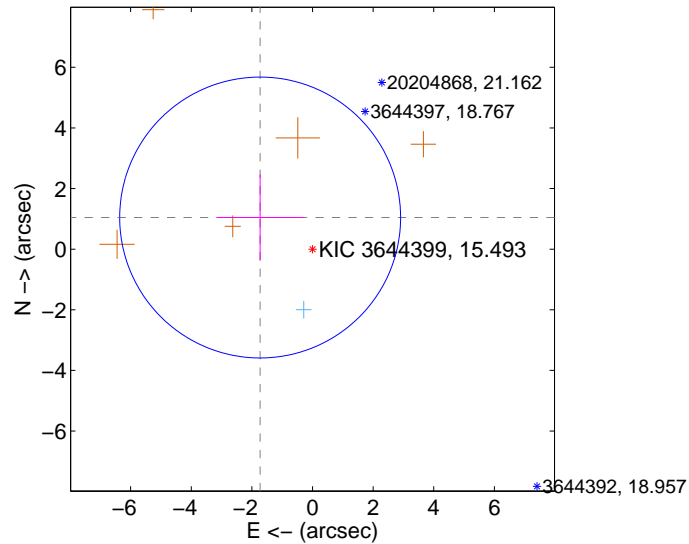
Supplemental centroid analysis for 003644399-01. Kepler magnitude: 15.49. Transit SNR 10.61

There are 1 quarters with good PRF difference image offsets

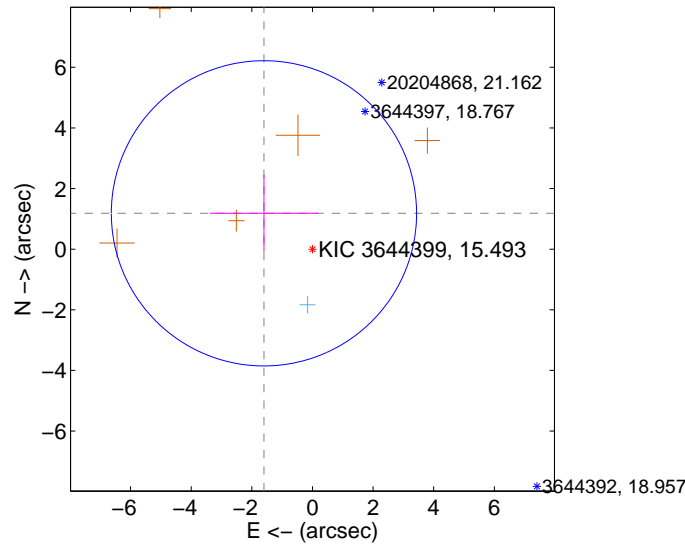
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.019 ± 1.545	1.31	1.728 ± 1.433	1.044 ± 1.416
PRF-fit source offset from KIC position	1.990 ± 1.679	1.19	1.600 ± 1.784	1.183 ± 1.268
photometric centroid source offset	1.99 ± 1.13	1.75	0.35 ± 1.25	1.96 ± 1.13

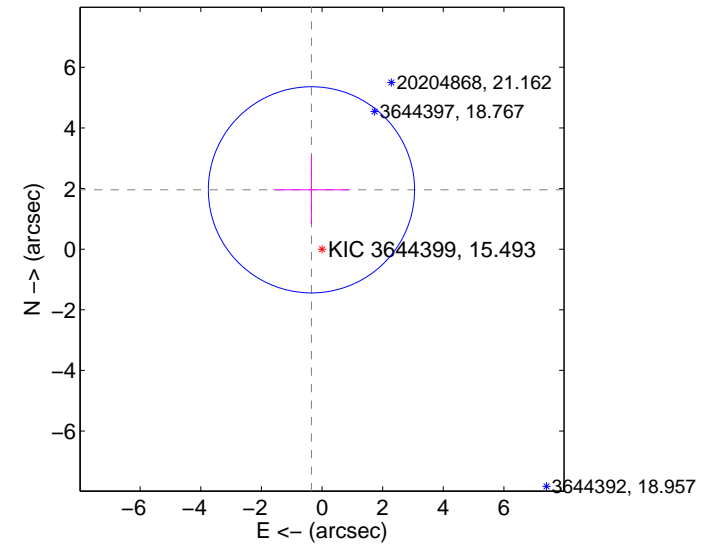
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

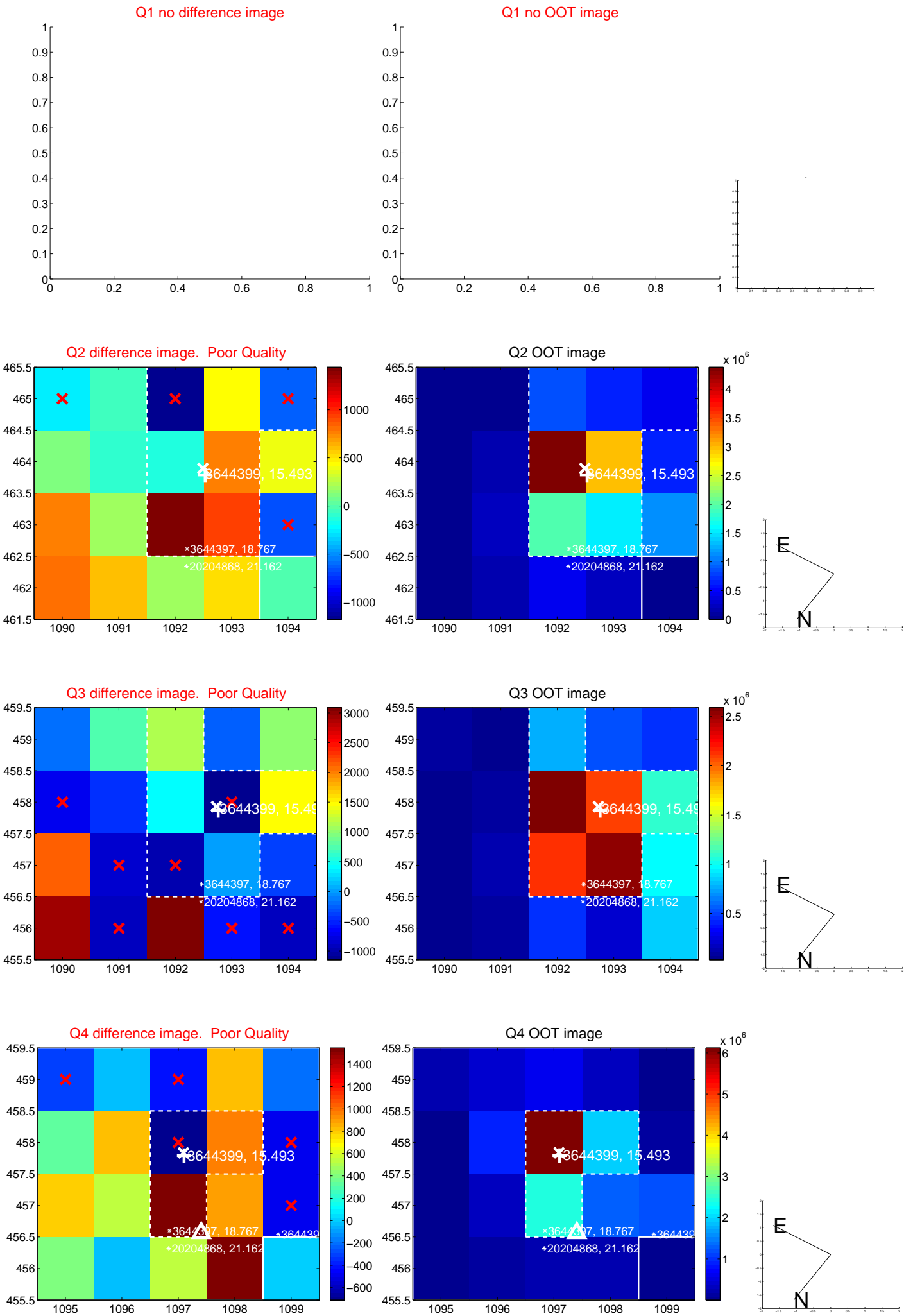


offset from photometric centroids

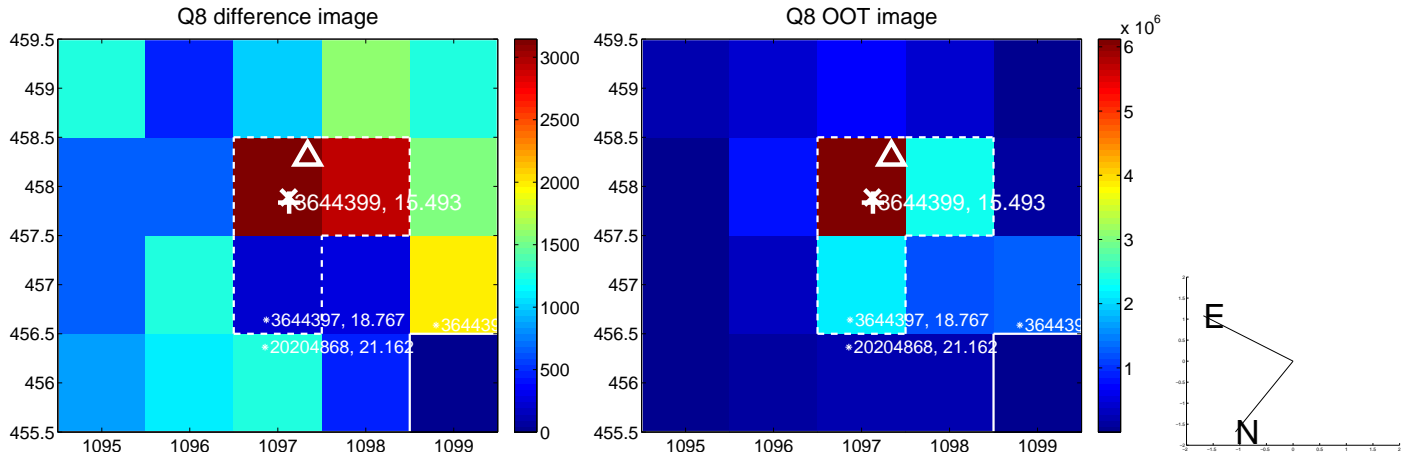
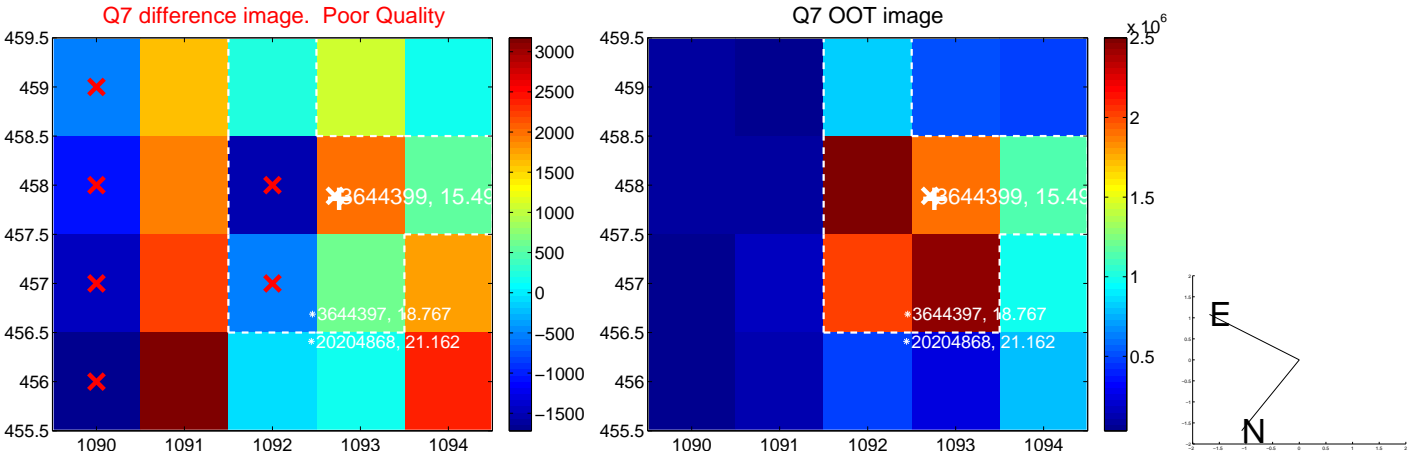
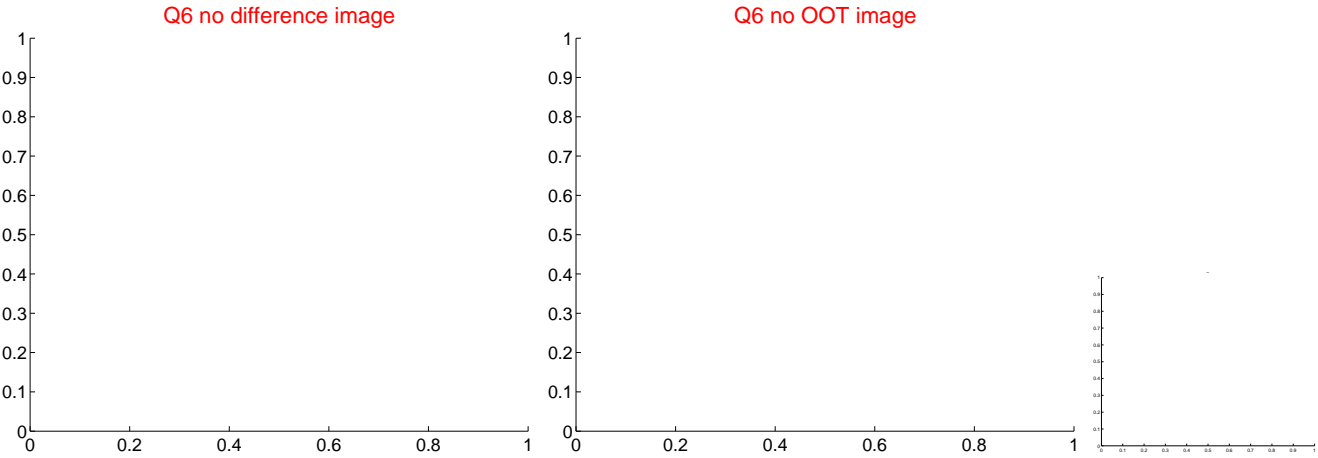
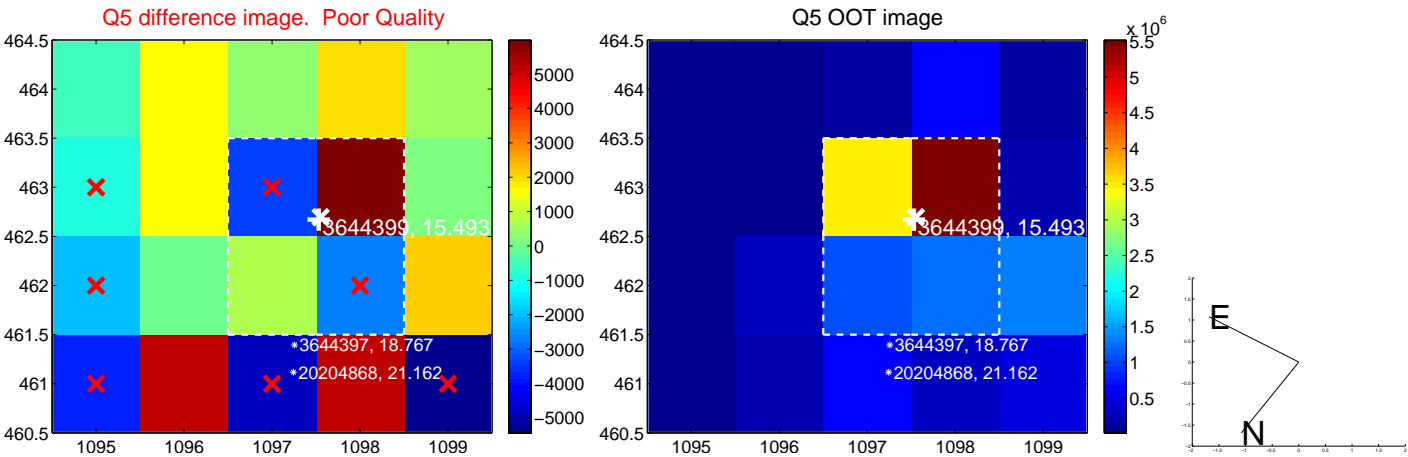


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

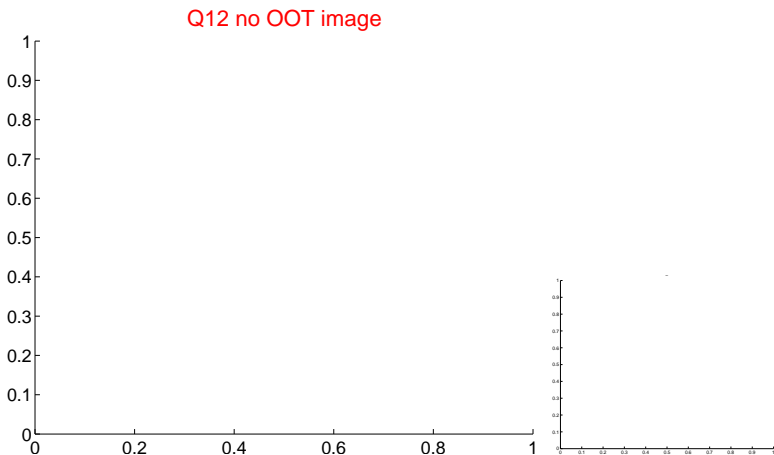
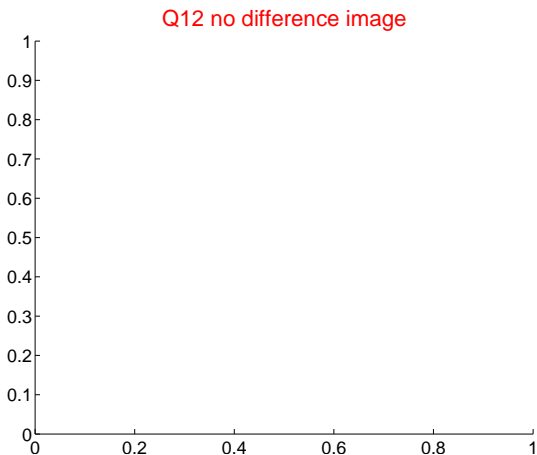
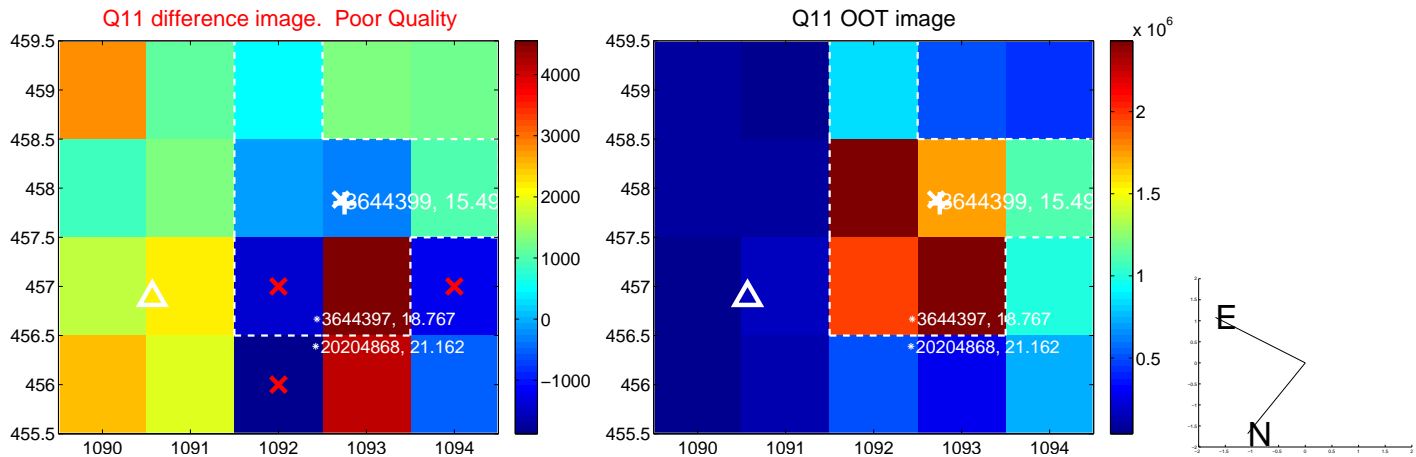
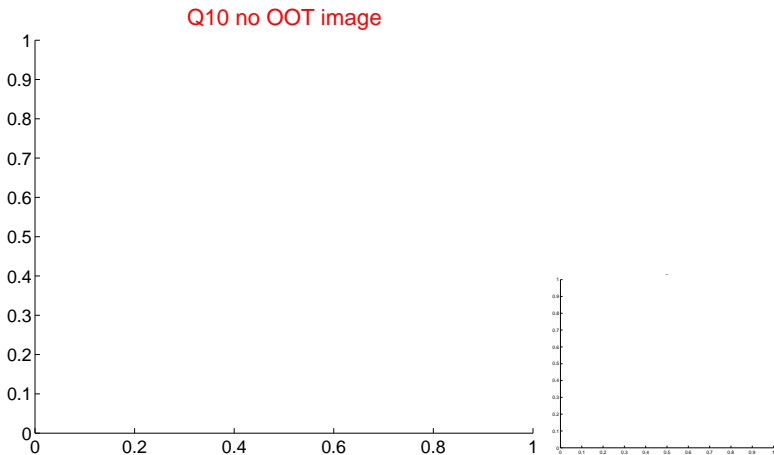
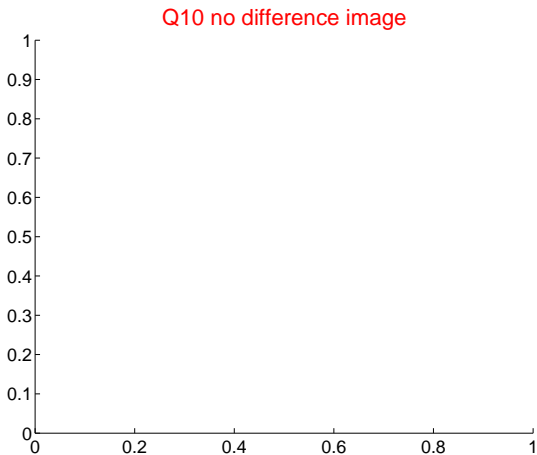
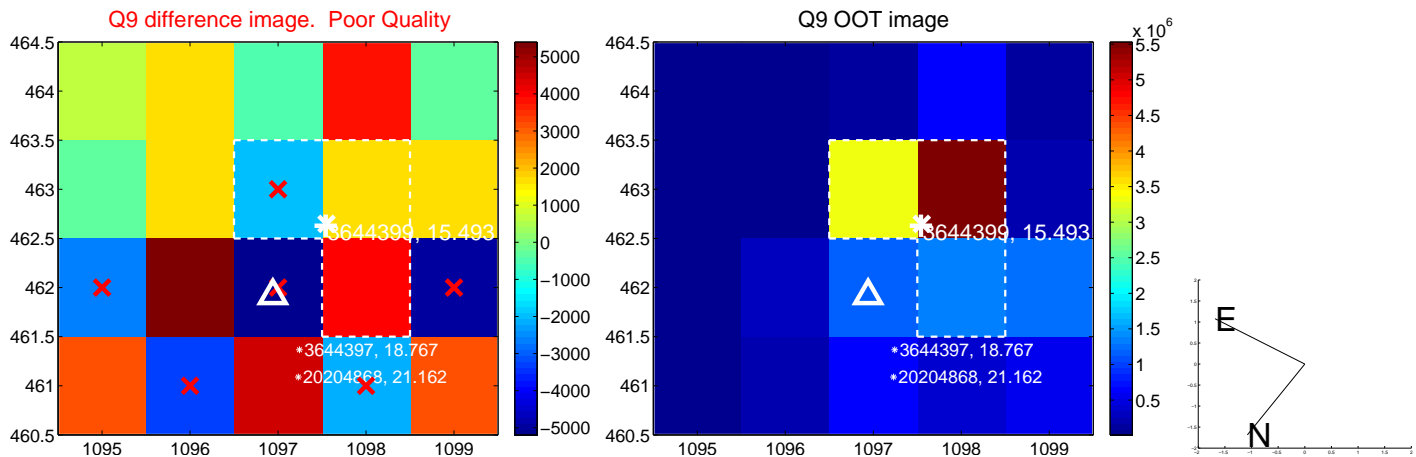
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



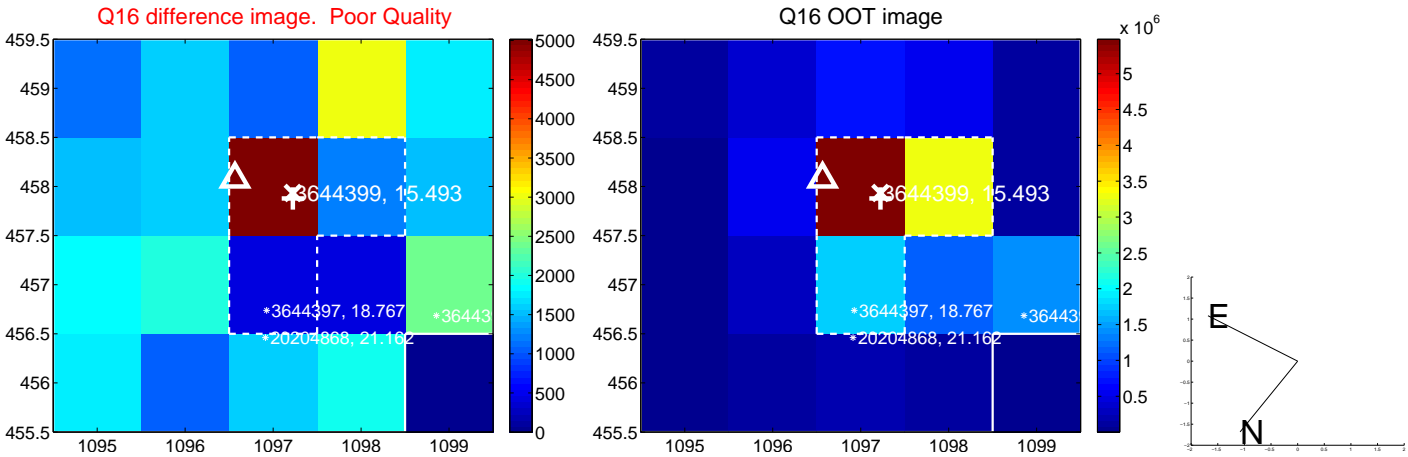
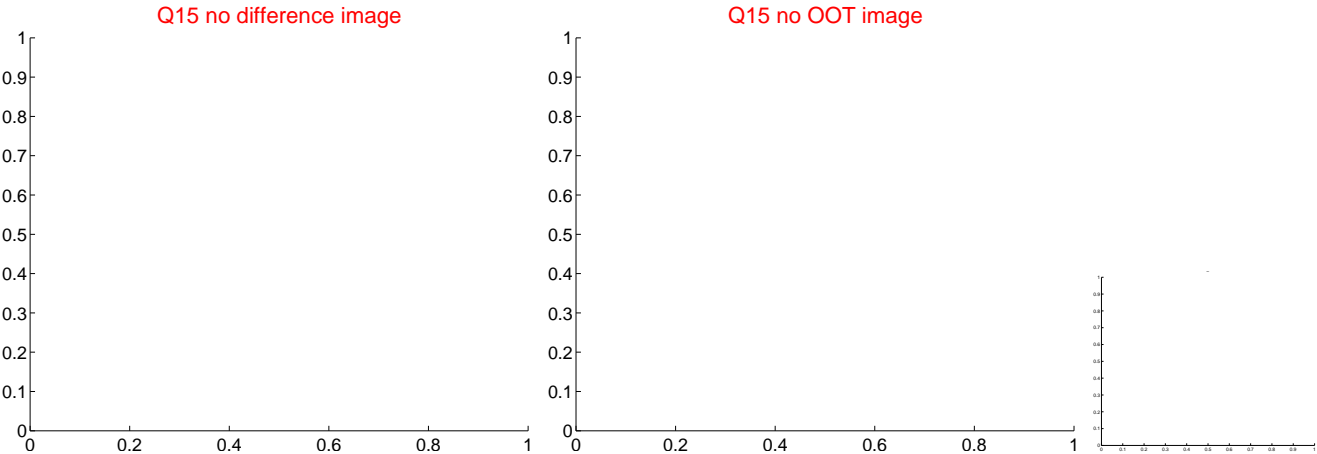
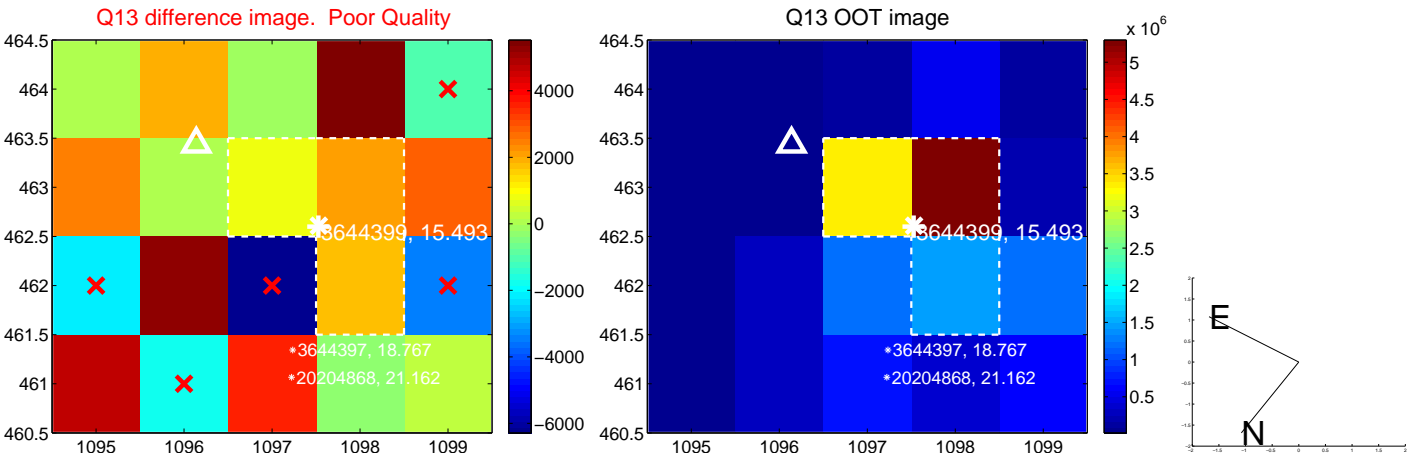
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



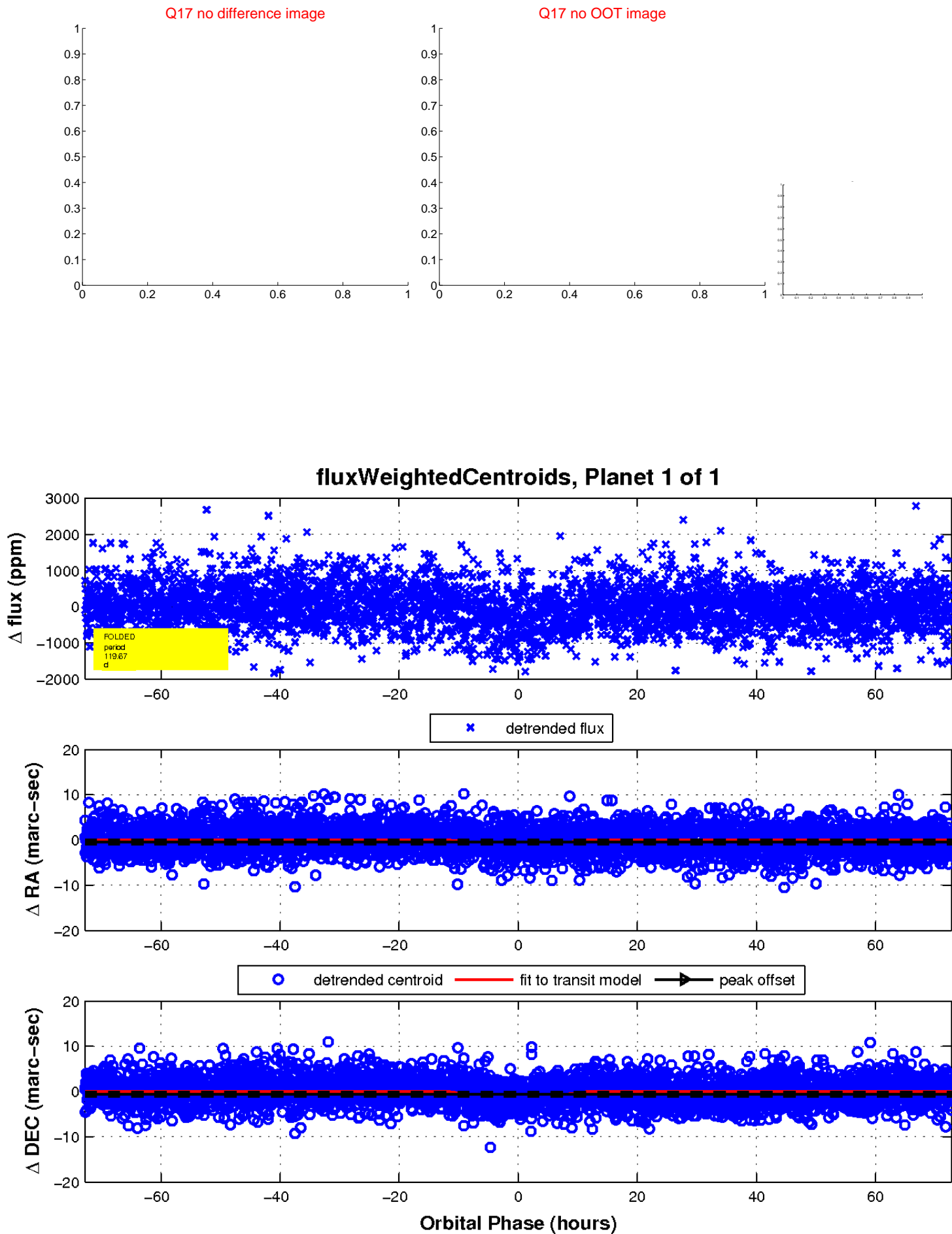
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

