

KIC 012416987

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})
012416987-01	OBS	2933.01	119.083139	163.565363	2830.5	2.581	13.6	17.7	0.62	4412	5.53	0.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012416987-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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.

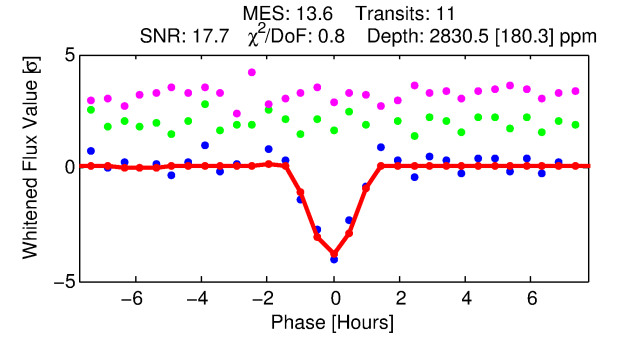
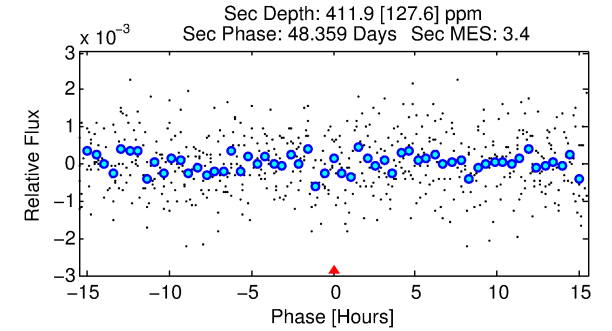
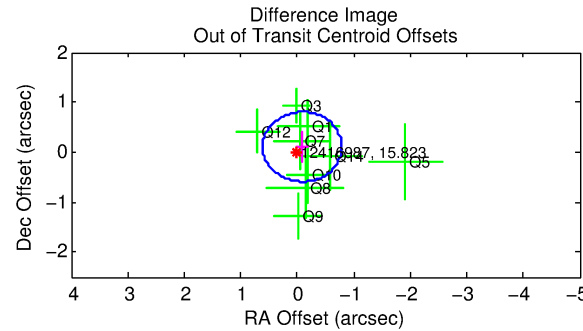
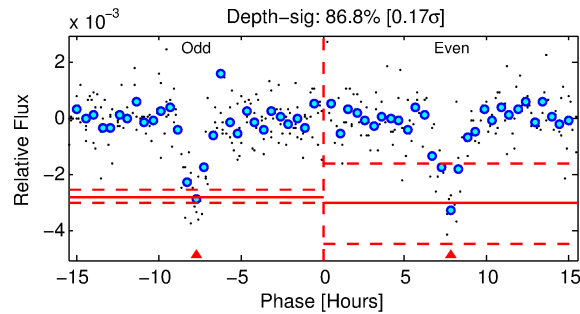
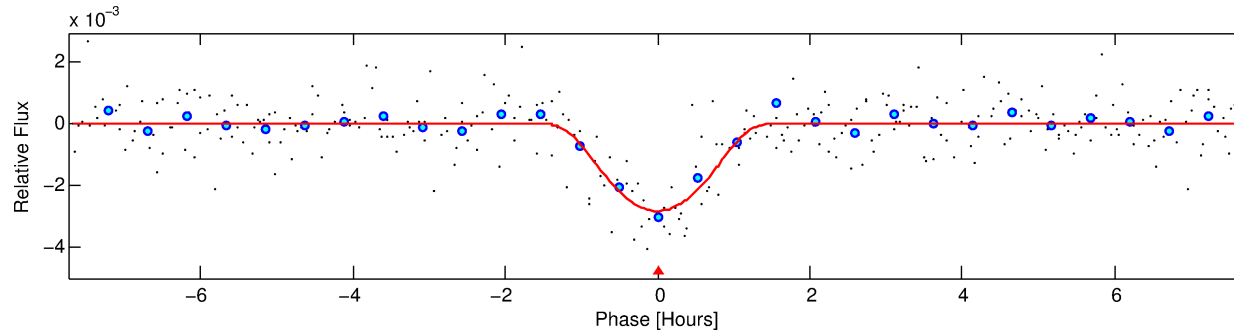
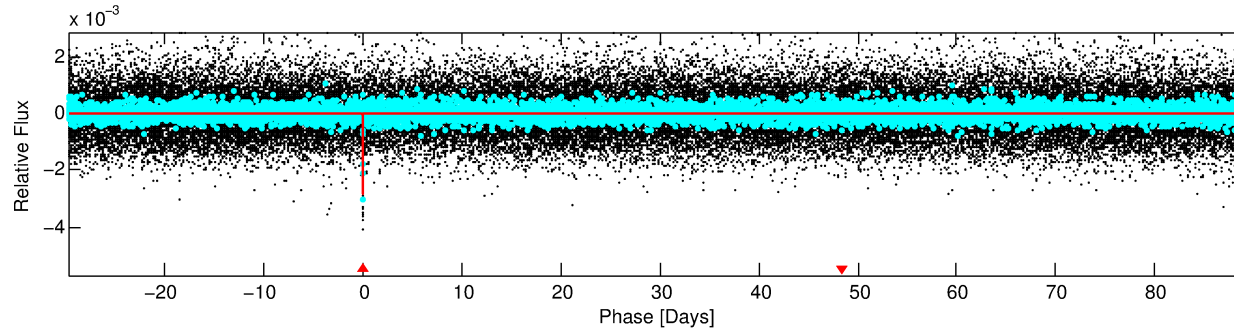
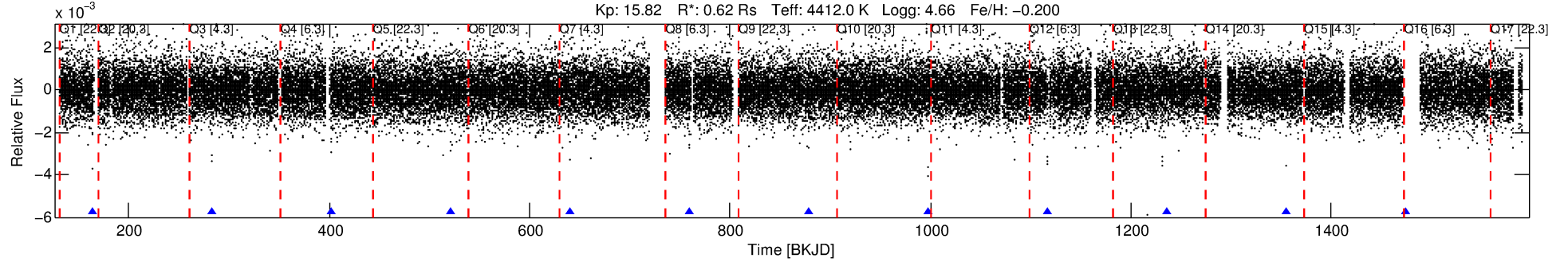
Ephemeris Match Information For 012416987-01

No Significant Match Found

DV One-Page Summary

KIC: 12416987 Candidate: 1 of 1 Period: 119.083 d

KOI: K02933.01 Corr: 0.953



DV Fit Results:

Period = 119.08314 [0.00056] d
Epoch = 163.5654 [0.0034] BKJD
Rp/R* = 0.0814 [0.1343]
a/R* = 164.58 [76.00]
b = 0.98 [0.23]
Seff = 0.78 [0.14]
Teq = 240 [11] K
Rp = 5.53 [9.14] Re
a = 0.4104 [0.0283] AU
Ag = 1247.49 [4137.42] [0.30 σ]
Teffp = 2203 [1828] K [1.07 σ]

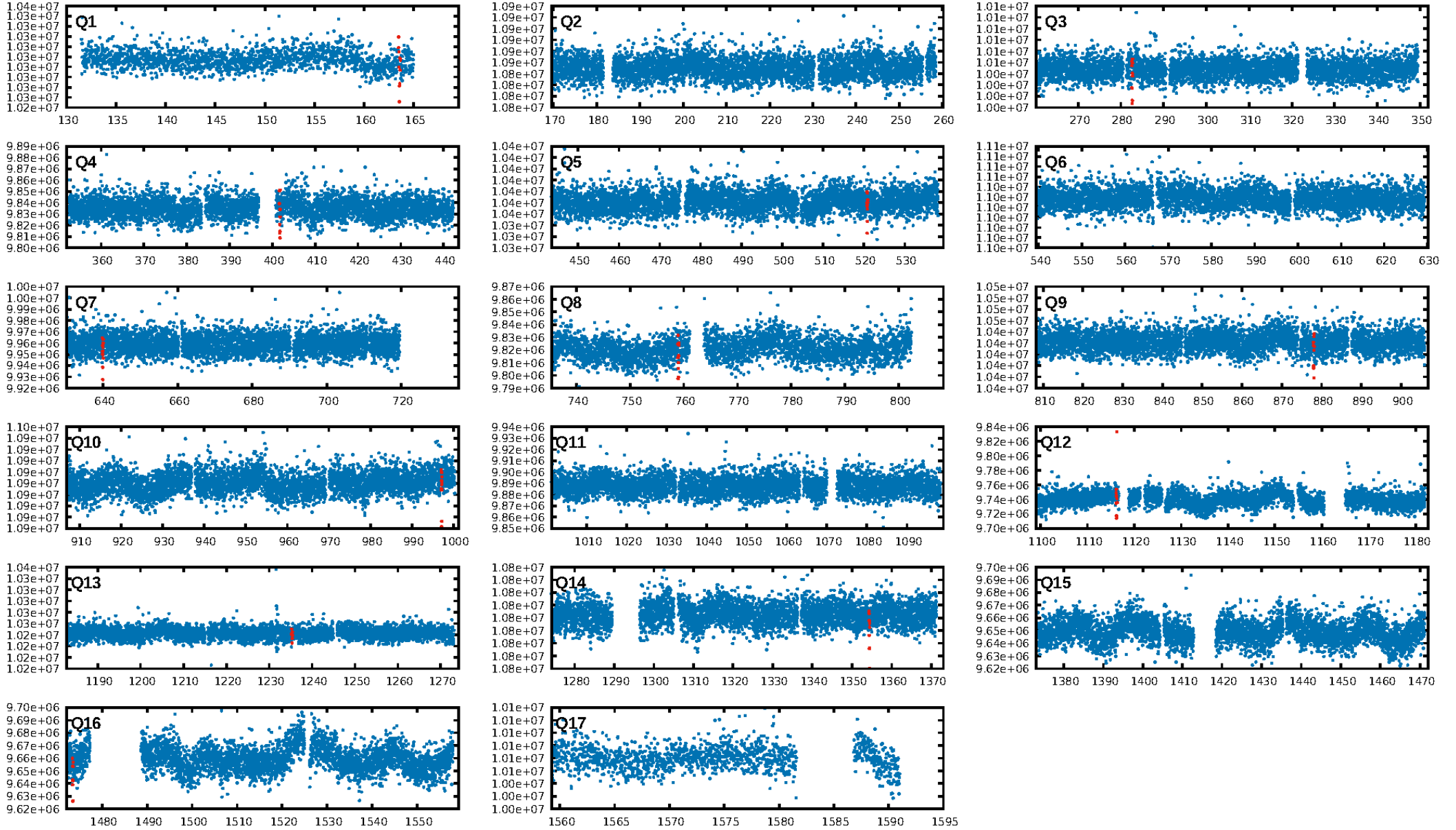
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.42e-40
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 2.844
Centroid-sig: 33.4%
Centroid-so: 0.818 arcsec [0.93 σ]
OotOffset-rm: 0.138 arcsec [0.59 σ]
KicOffset-rm: 0.145 arcsec [0.67 σ]
OotOffset-st: 2/2/2/3 [9]
KicOffset-st: 2/2/2/3 [9]
DiffImageQuality-fgm: 0.89 [8/9]
DiffImageOverlap-fno: 1.00 [10/10]

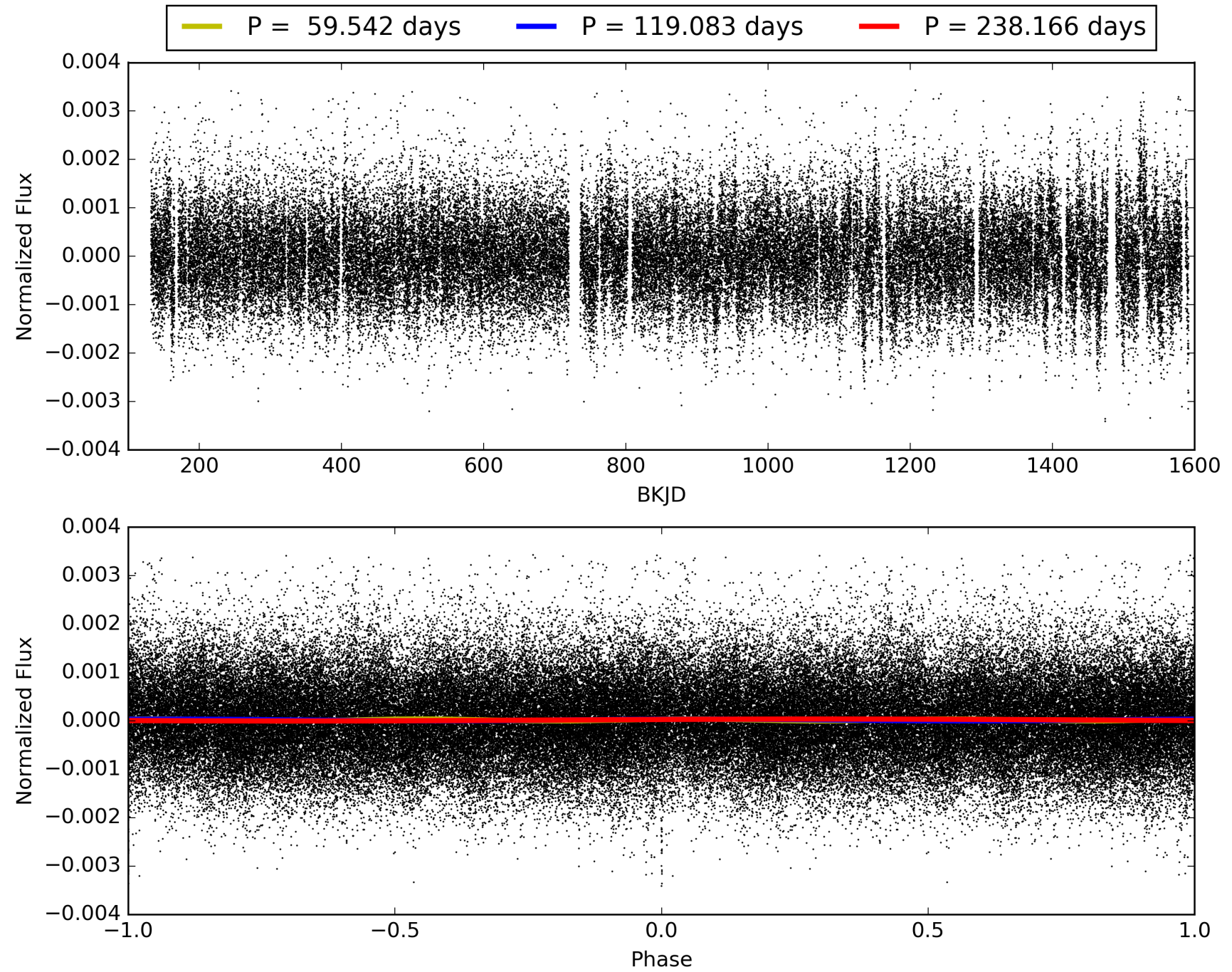
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:06:34 Z

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

TCE 012416987-01, PDC Light Curves

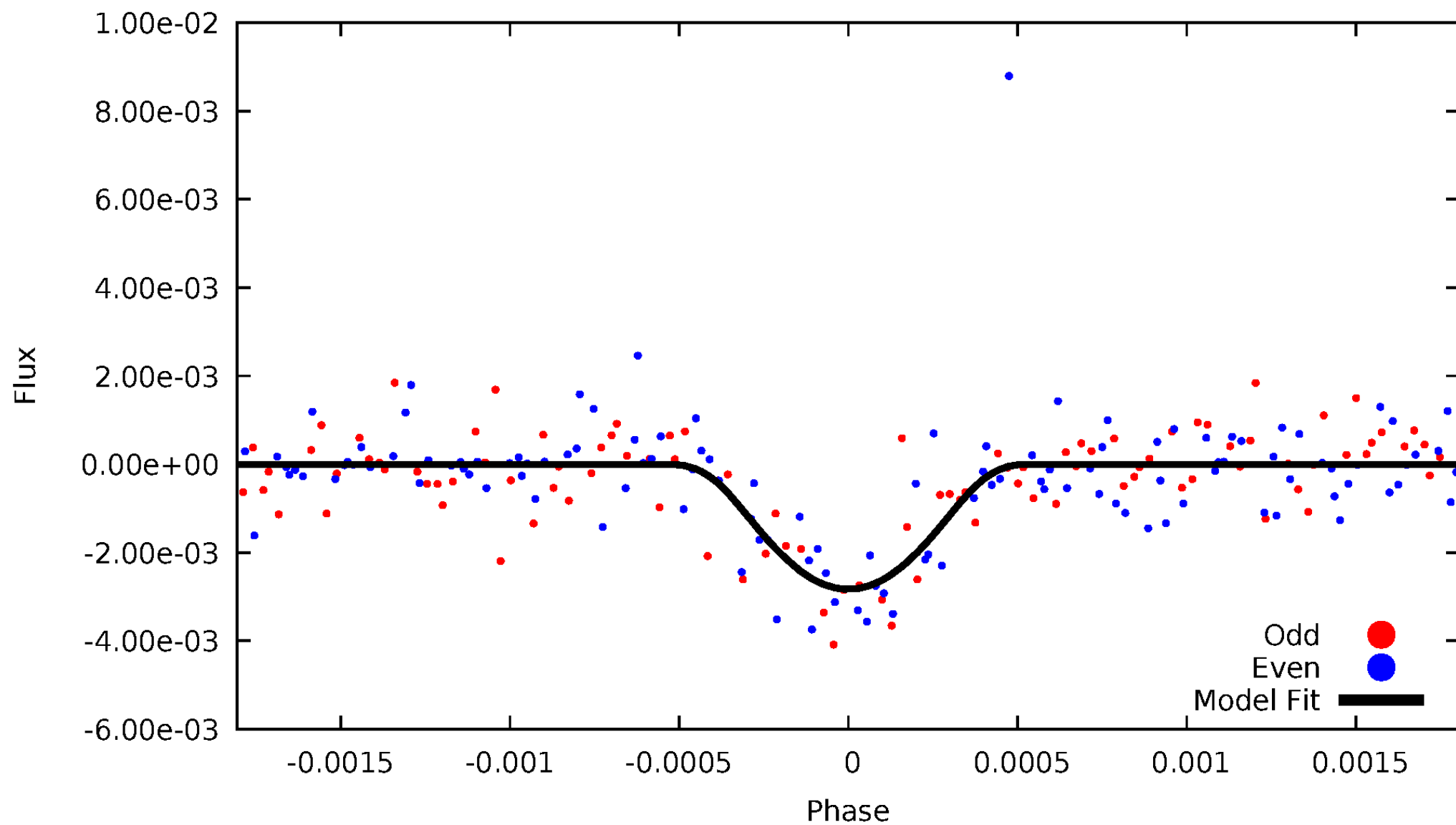


TCE 012416987-01



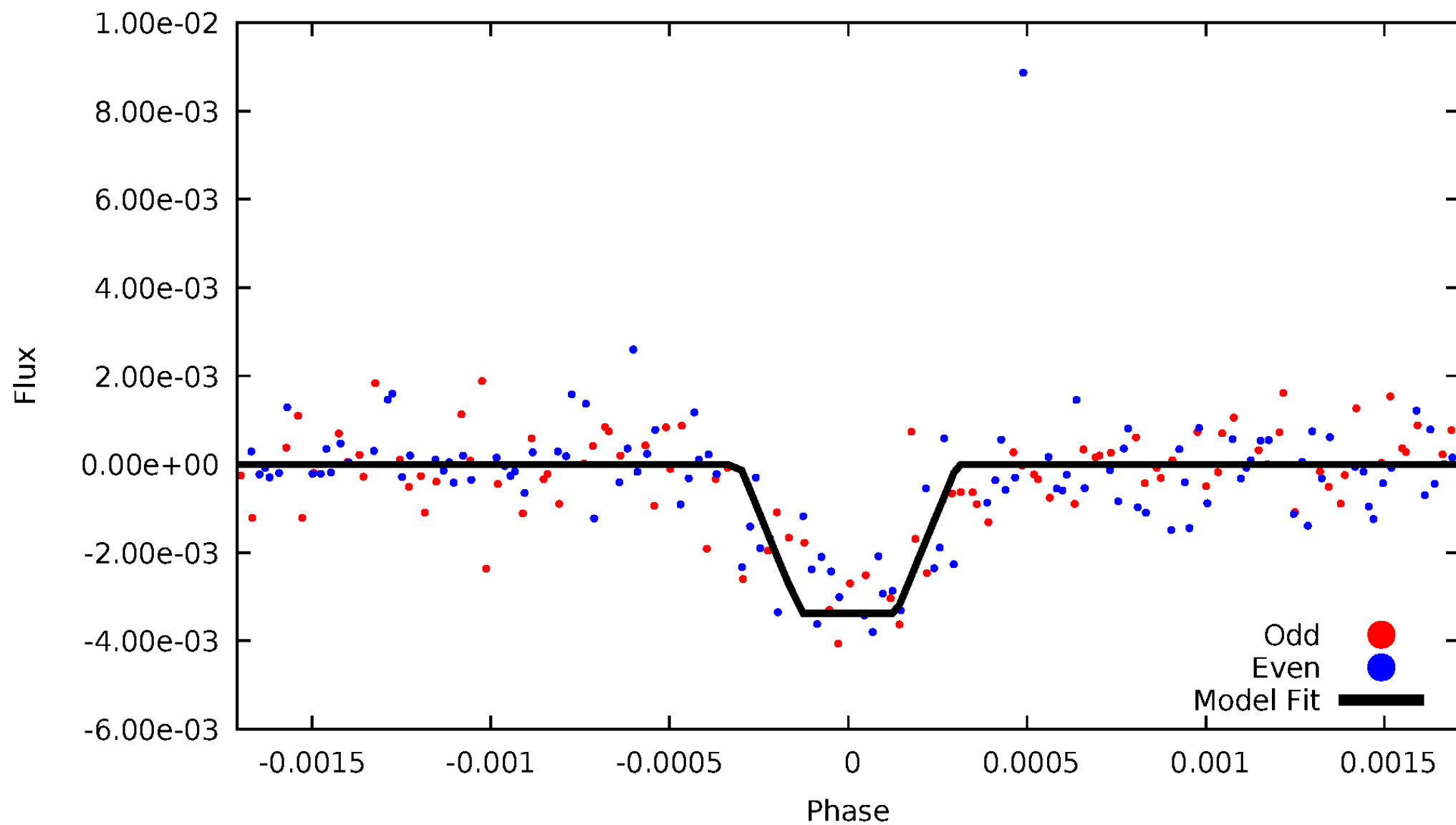
DV Odd/Even

TCE 012416987-01



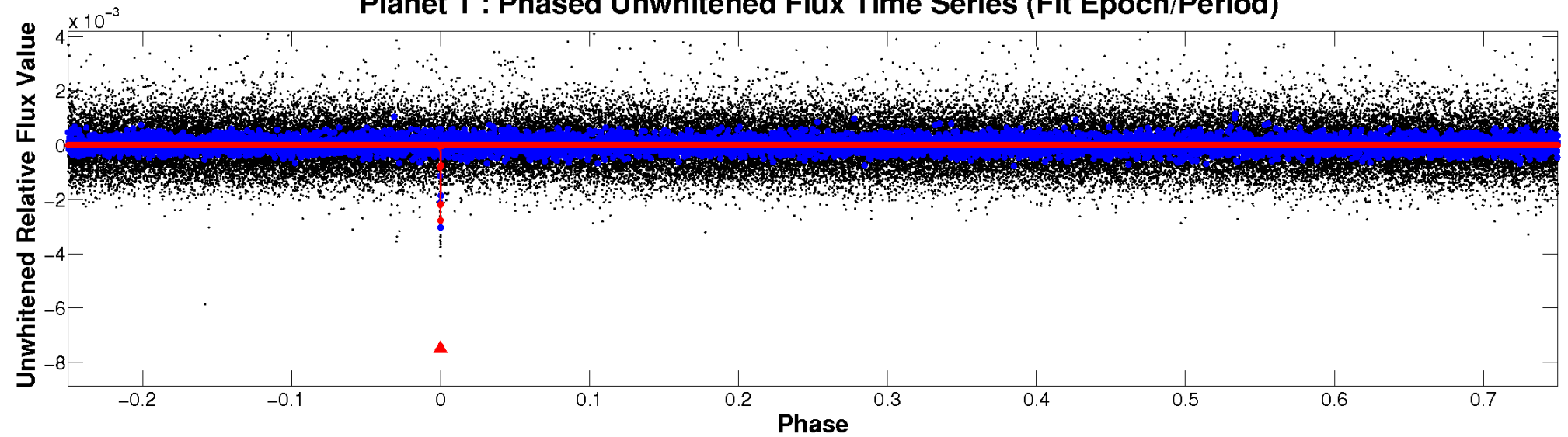
ALT Odd/Even

TCE 012416987-01

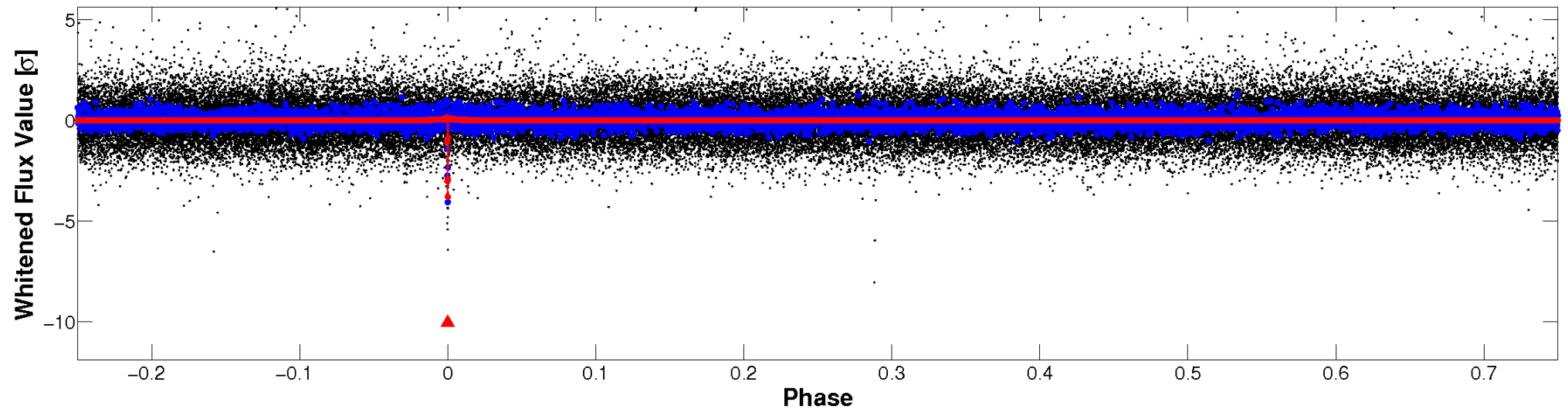


Non-Whitened Vs. Whitened Light Curve

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

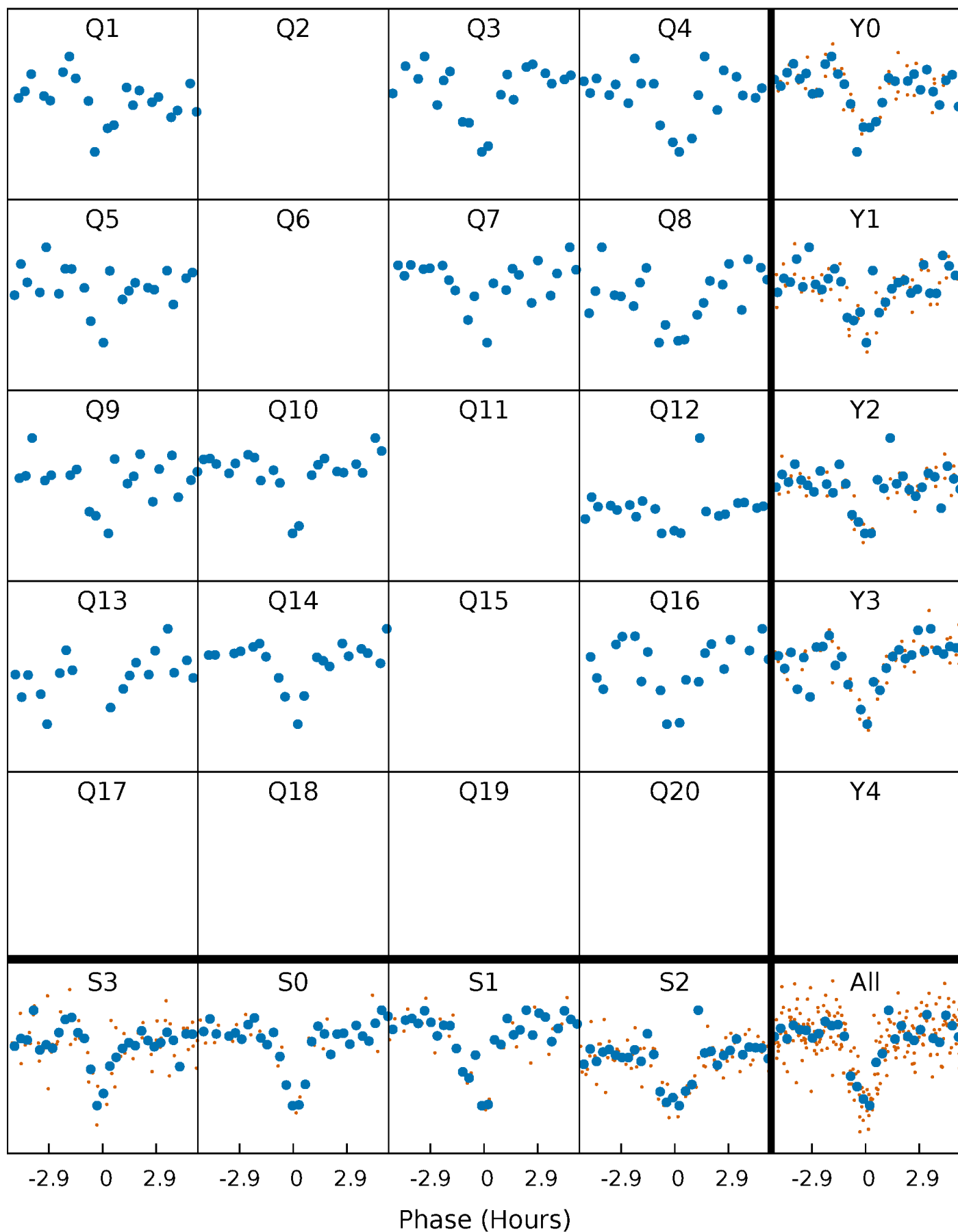


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



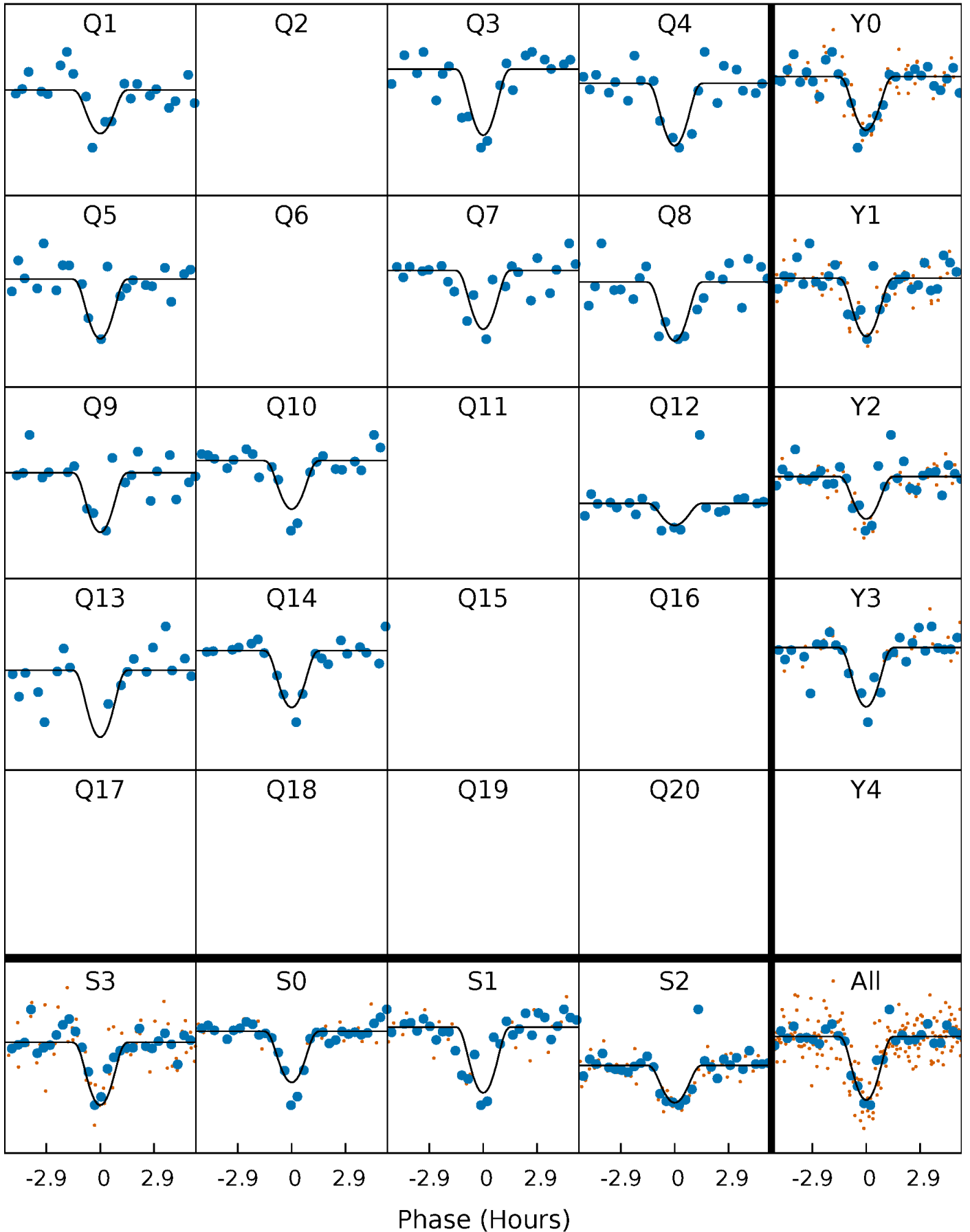
PDC Quarter-Phased Transit Curves

TCE 012416987-01 P=119.083139 Days $T_0=163.565363$ (BKJD)



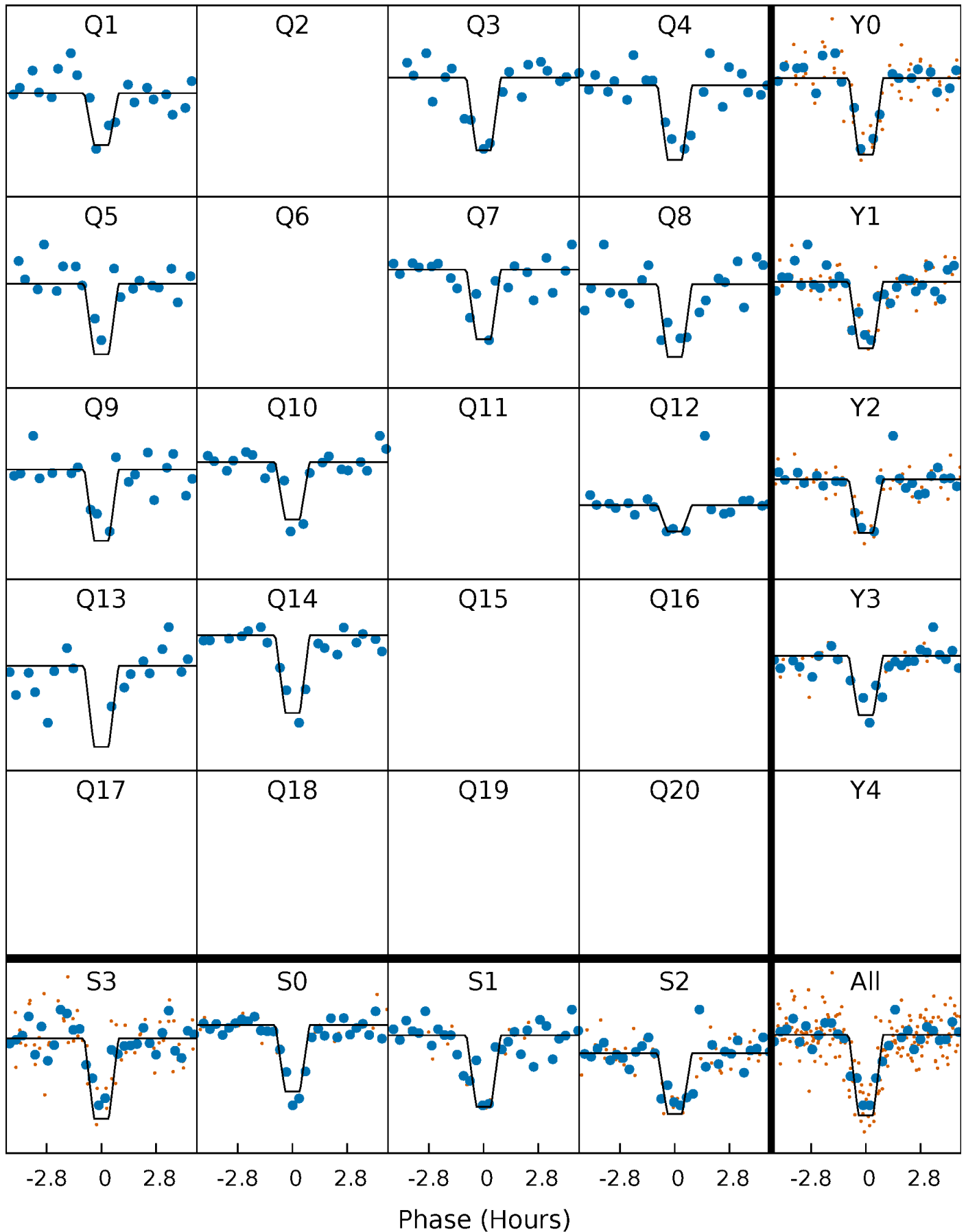
DV Quarter-Phased Transit Curves

TCE 012416987-01 P=119.083139 Days $T_0=163.565363$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

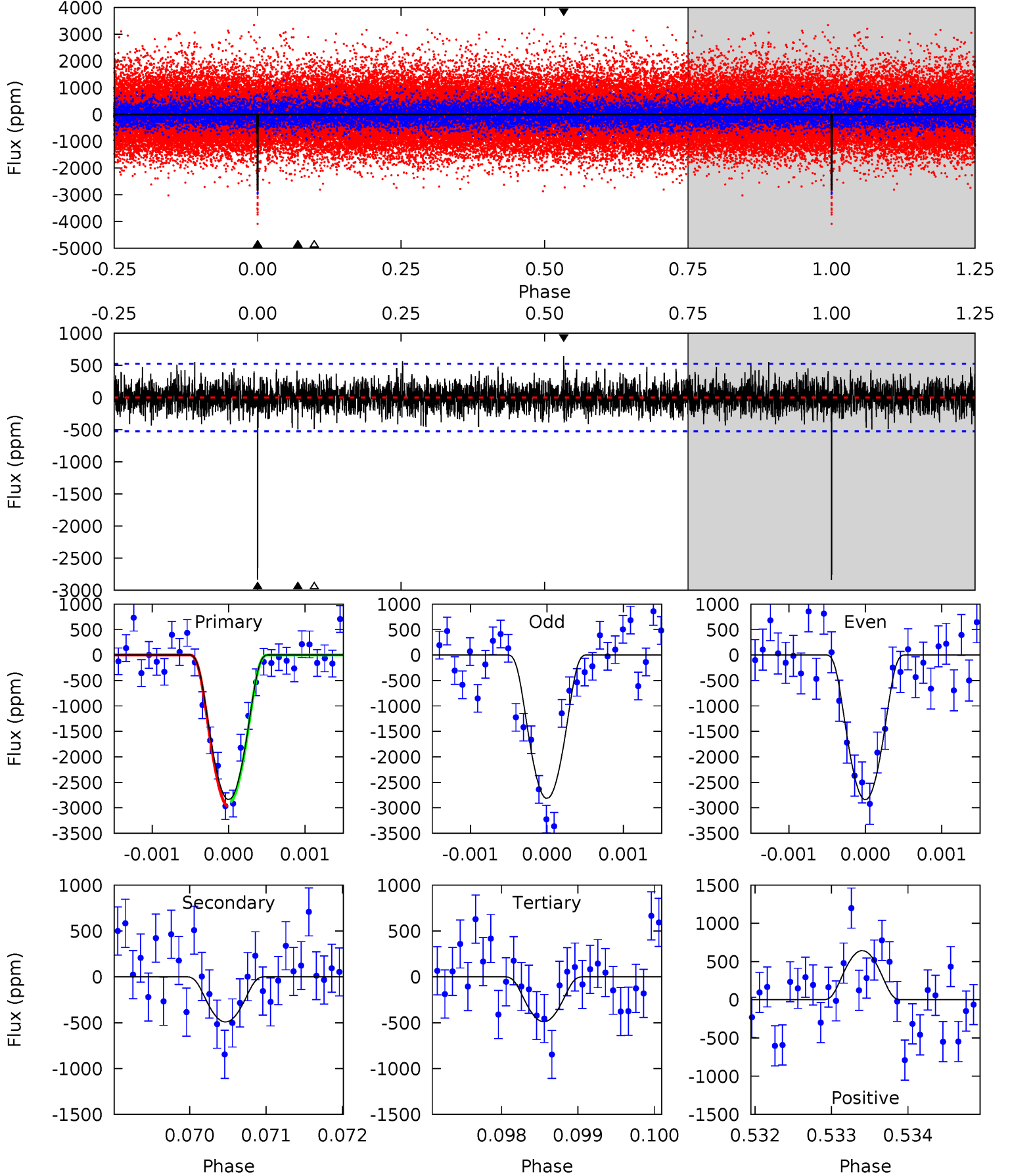
TCE 012416987-01 P=119.083220 Days $T_0=163.562984$ (BKJD)



DV Model-Shift Uniqueness Test

012416987-01, P = 119.083139 Days, E = 44.482224 Days

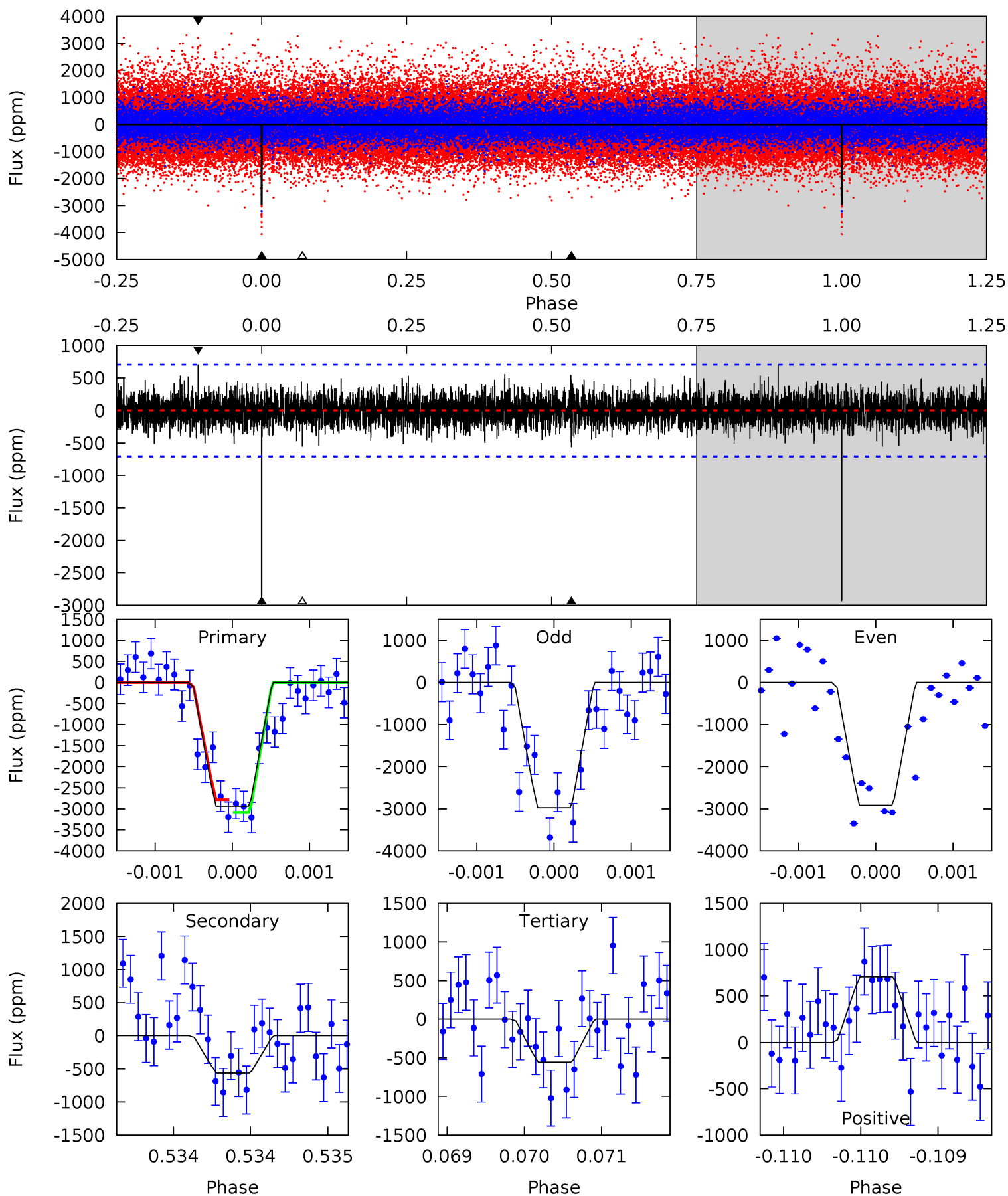
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.4	5.09	5.06	6.65	5.44	3.28	1.51	24.3	22.7	0.03	-1.56	0.13	0.92	0.18	0.42



Alt Model-Shift Uniqueness Test

012416987-01, $P = 119.083220$ Days, $E = 44.479764$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	4.43	4.35	5.56	5.54	3.43	1.22	18.7	17.5	0.07	-1.13	0.23	1.00	0.19	1.19



Stellar Parameters For KIC 012416987

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4412^{+155}_{-170}	$4.662^{+0.032}_{-0.042}$	$-0.200^{+0.300}_{-0.300}$	$0.623^{+0.057}_{-0.051}$	$0.650^{+0.063}_{-0.063}$	$3.777^{+0.639}_{-0.603}$
	+4%/-4%	+1%/-1%	+150%/-150%	+9%/-8%	+10%/-10%	+17%/-16%
Source	PHO16	PHO16	PHO16	DSEP		

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

Secondary Eclipse Parameters for KIC 012416987-01 / KOI 2933.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-492 ± 97	$8.74^{+7.71}_{-5.54}$	336^{+13}_{-14}	2577^{+828}_{-360}	588^{+3917}_{-420}
Alt.	-564 ± 127	$8.10^{+7.51}_{-5.72}$	335^{+13}_{-14}	2662^{+1222}_{-404}	802^{+8704}_{-601}

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

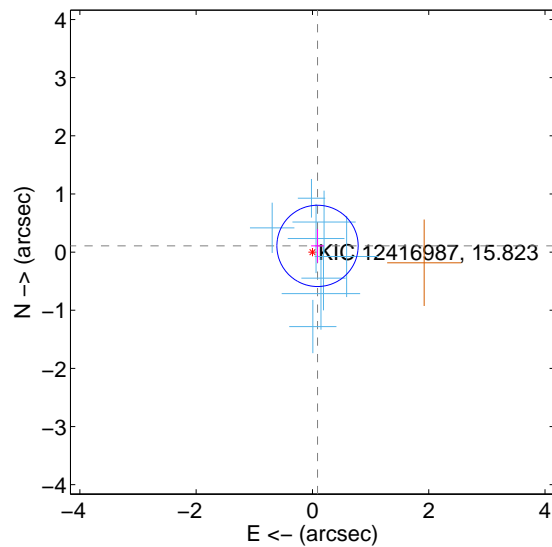
Supplemental centroid analysis for 012416987-01. Kepler magnitude: 15.82. Transit SNR 17.69

There are 8 quarters with good PRF difference image offsets

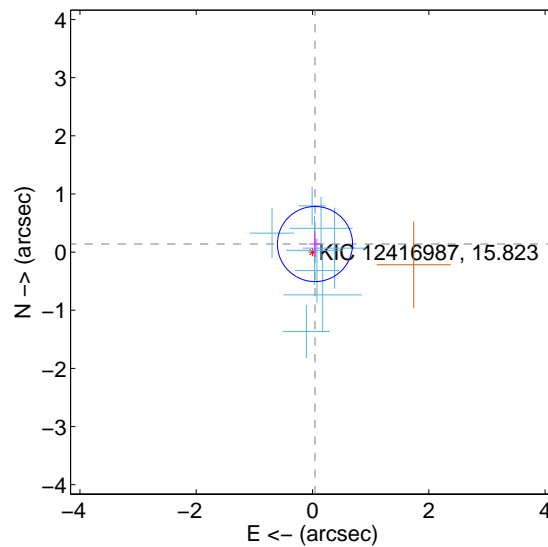
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.138 ± 0.233	0.59	-0.087 ± 0.110	0.107 ± 0.287
PRF-fit source offset from KIC position	0.145 ± 0.215	0.67	-0.043 ± 0.099	0.139 ± 0.223
photometric centroid source offset	0.82 ± 0.88	0.93	0.81 ± 0.88	-0.11 ± 0.99

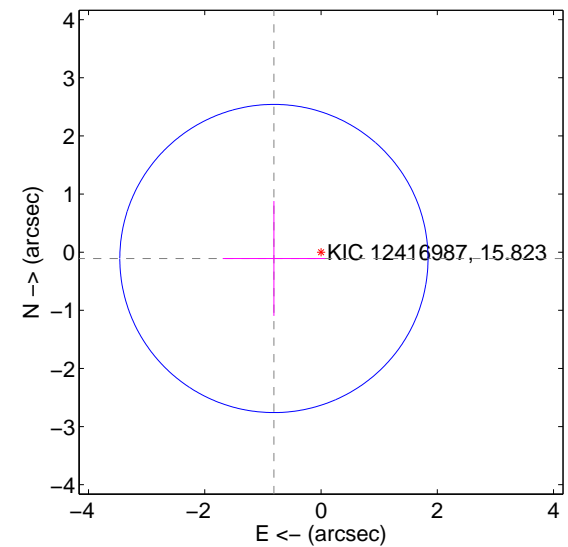
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

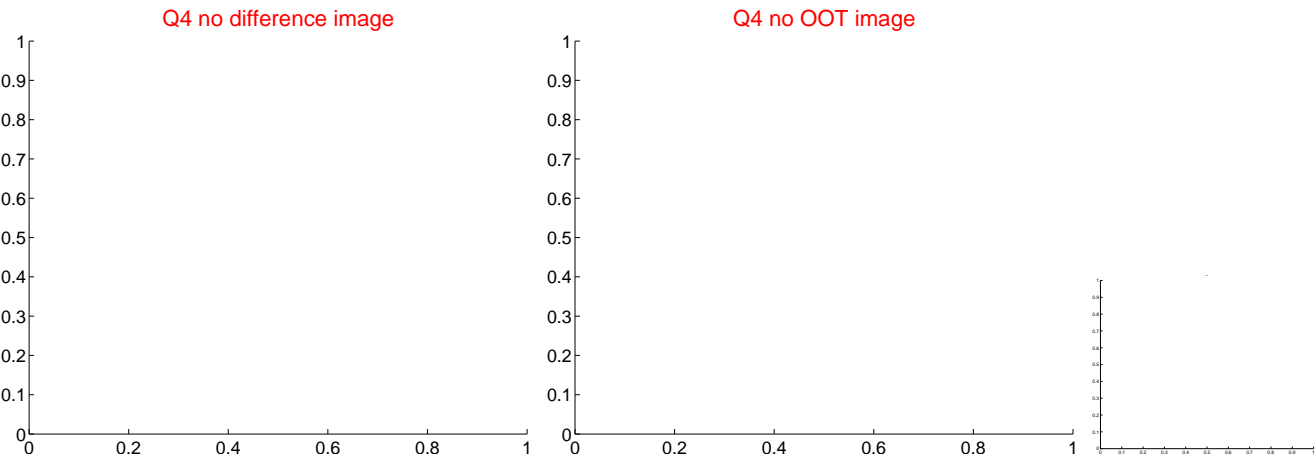
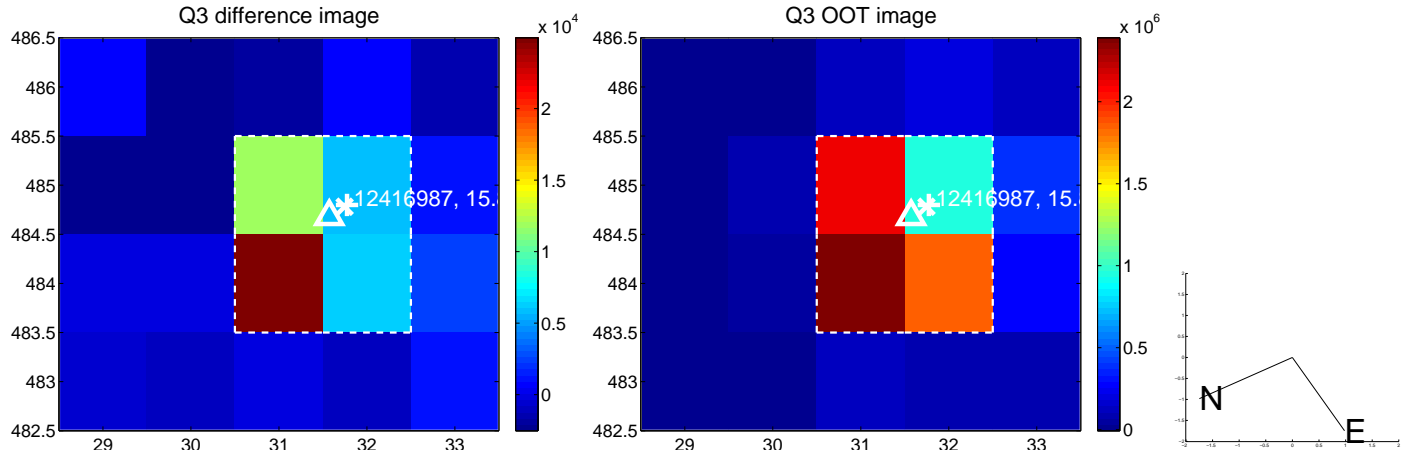
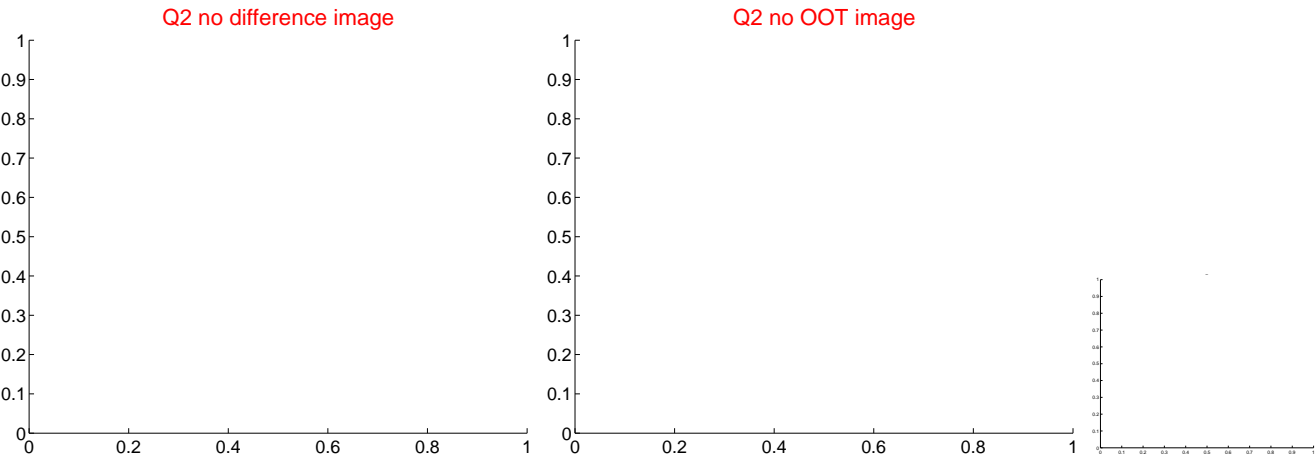
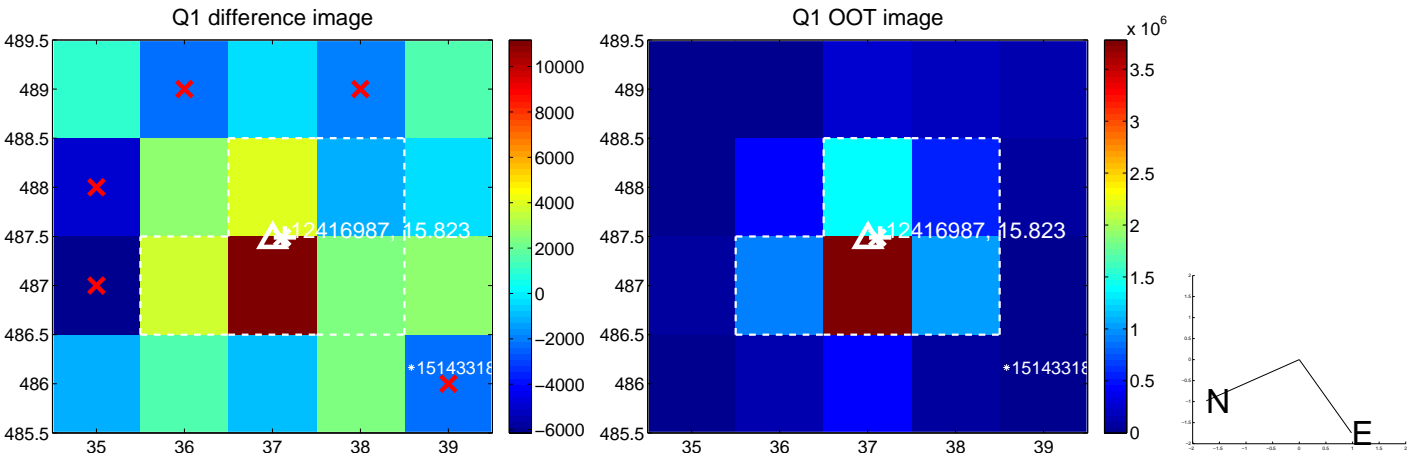


offset from photometric centroids

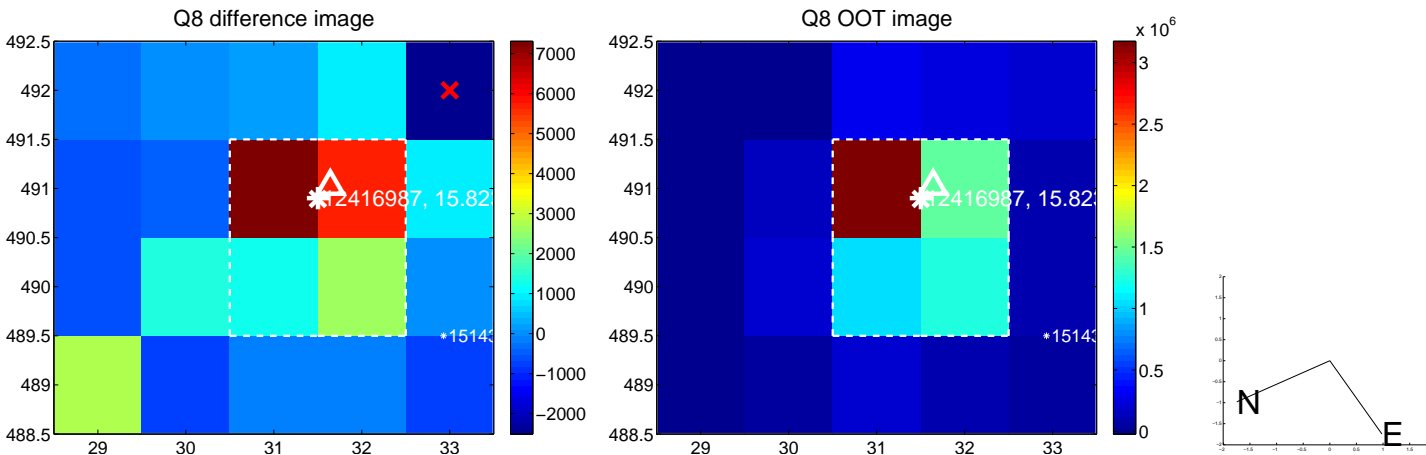
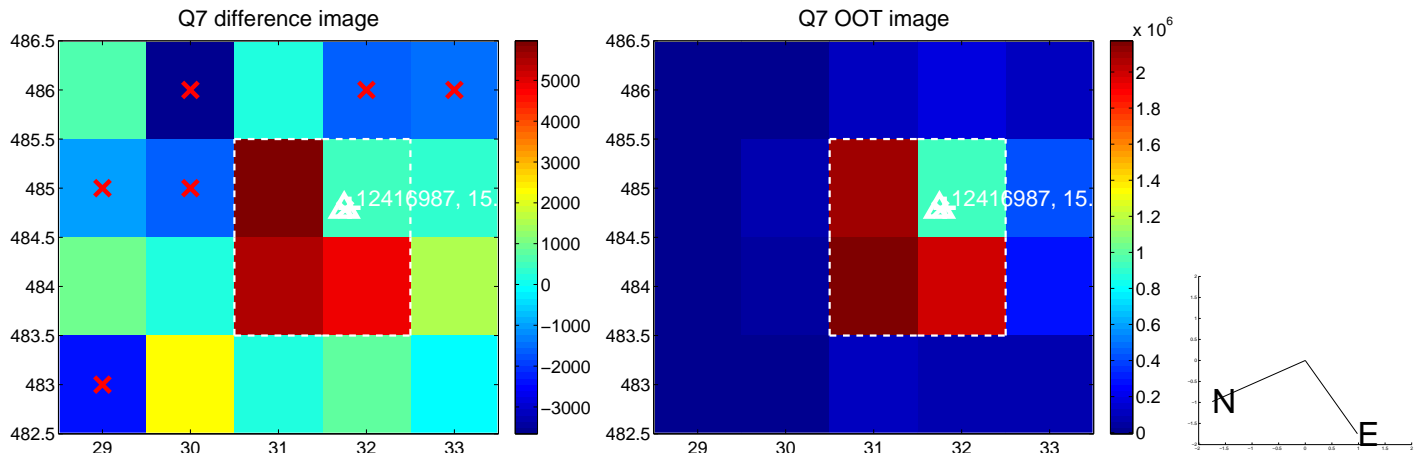
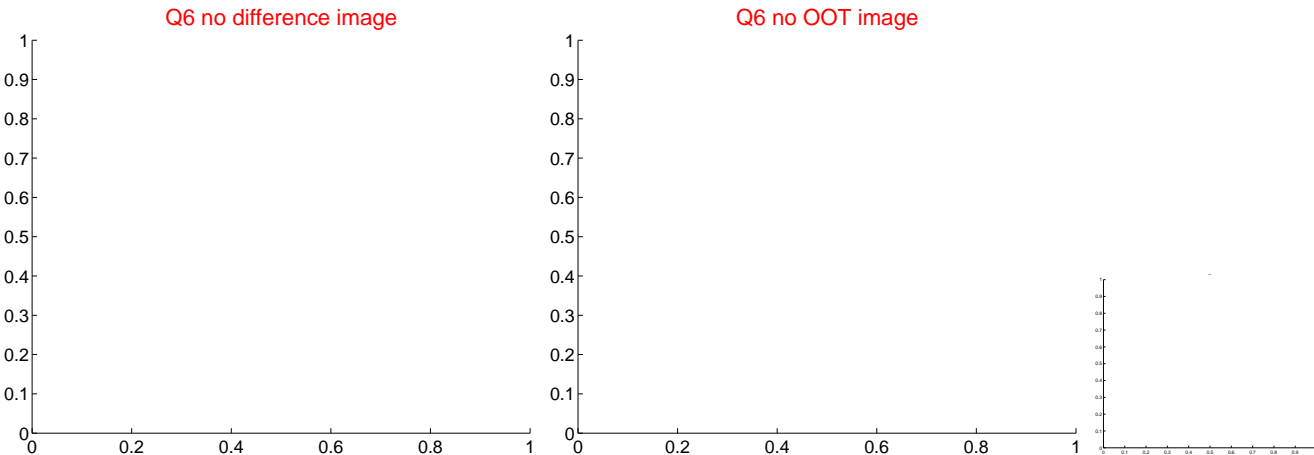
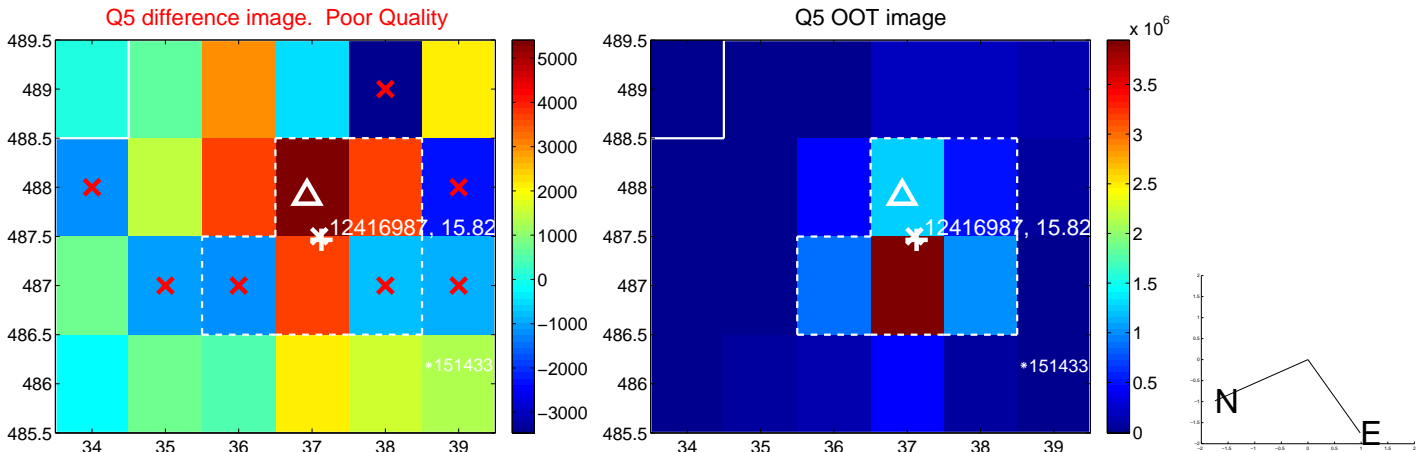


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

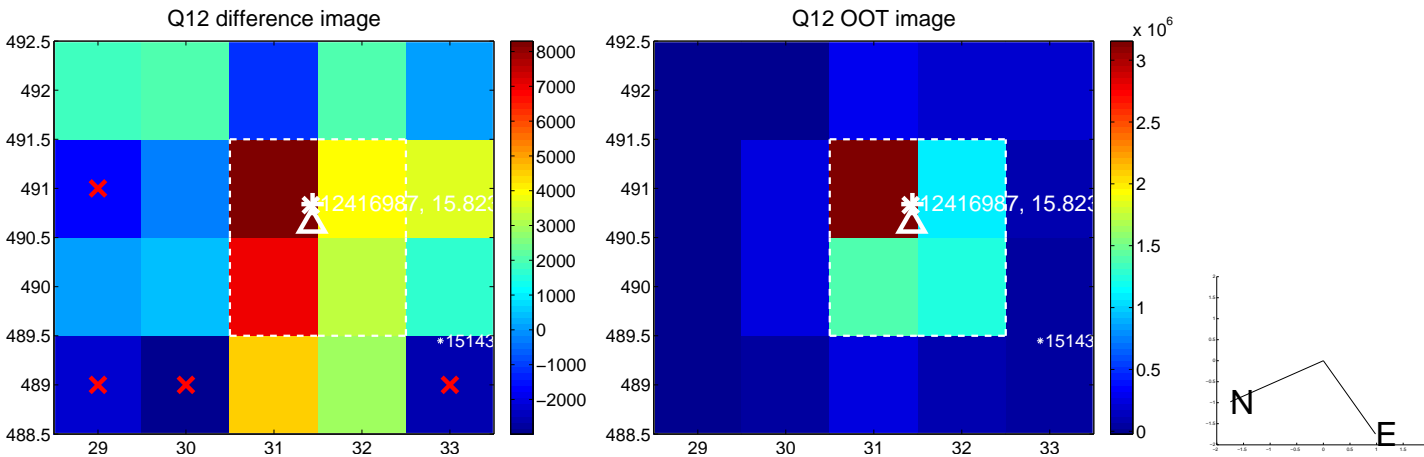
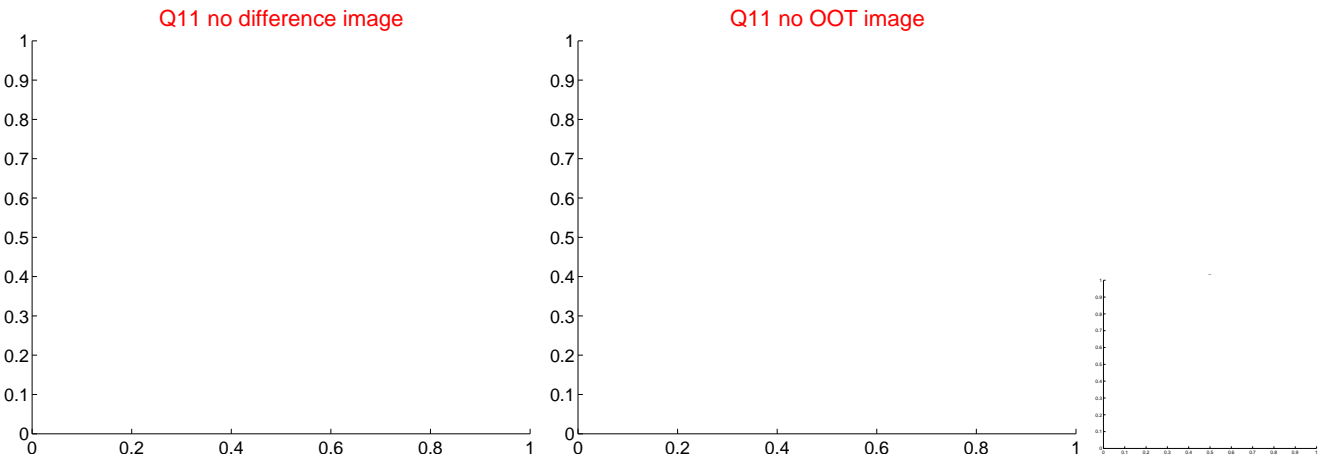
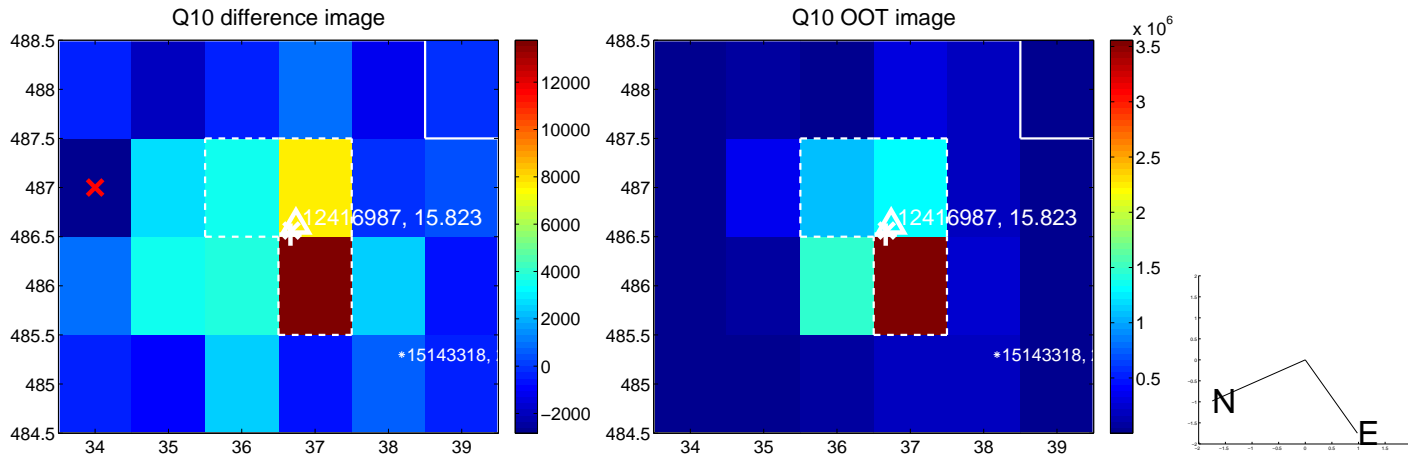
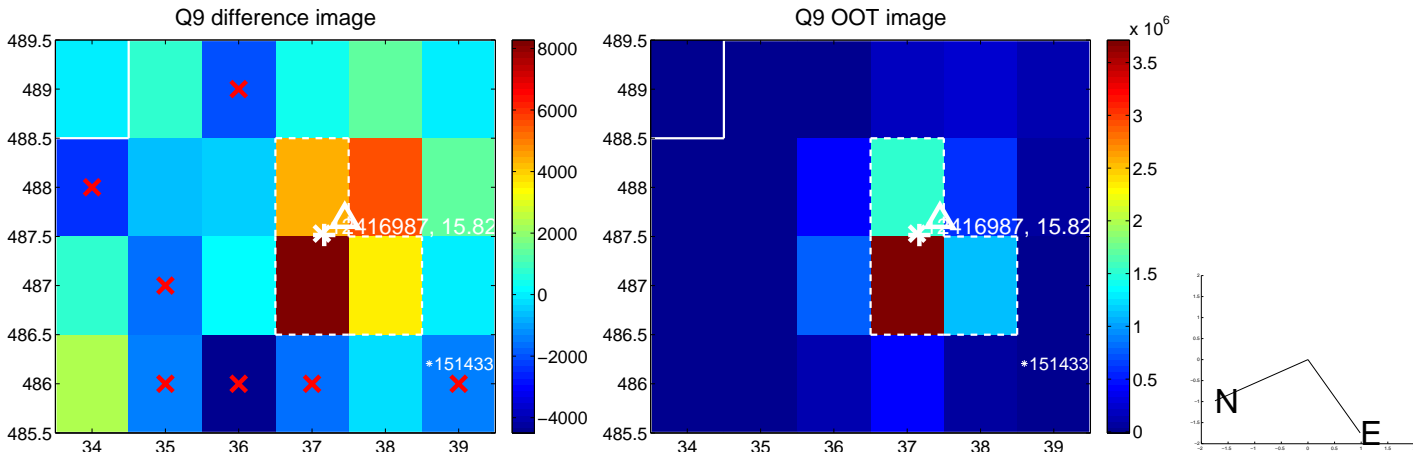
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



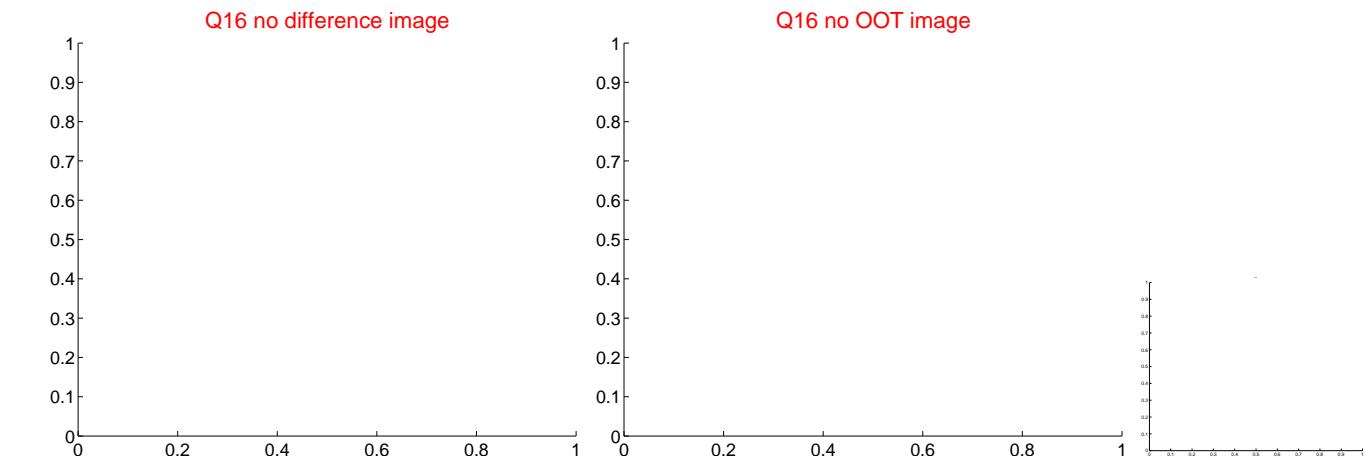
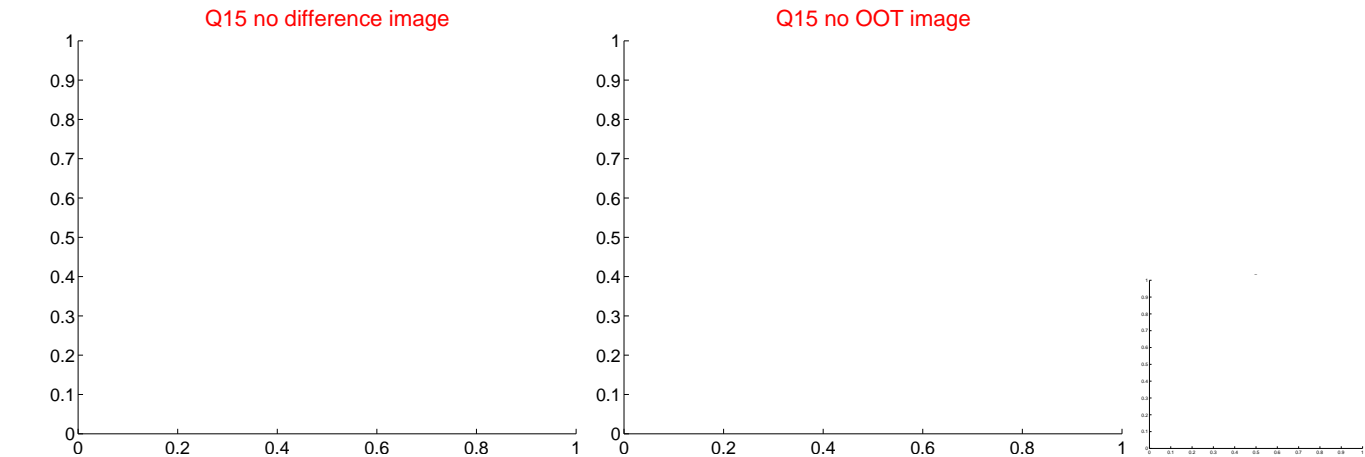
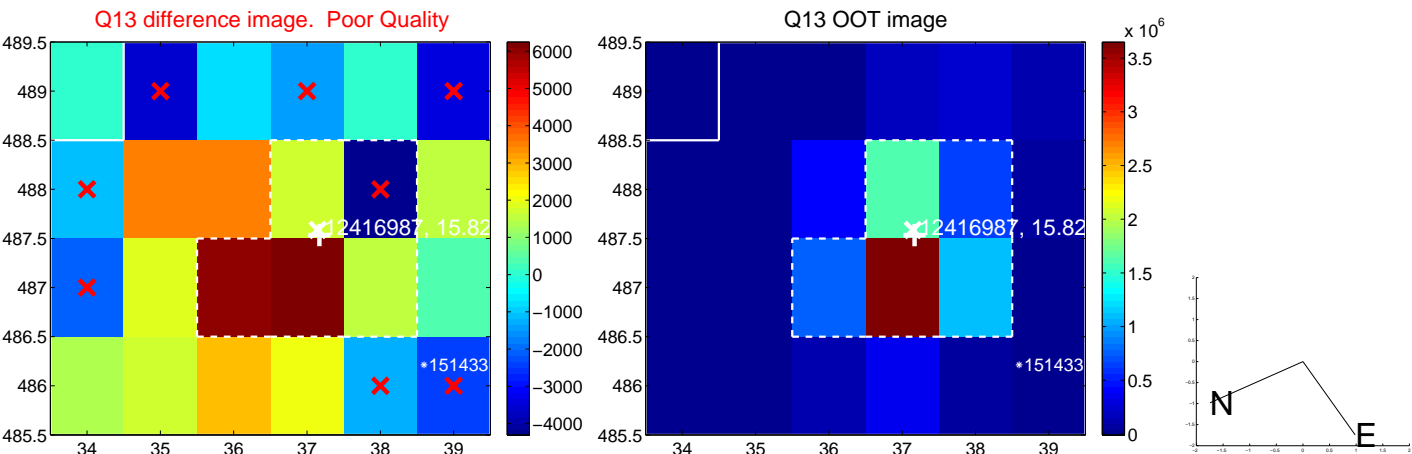
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



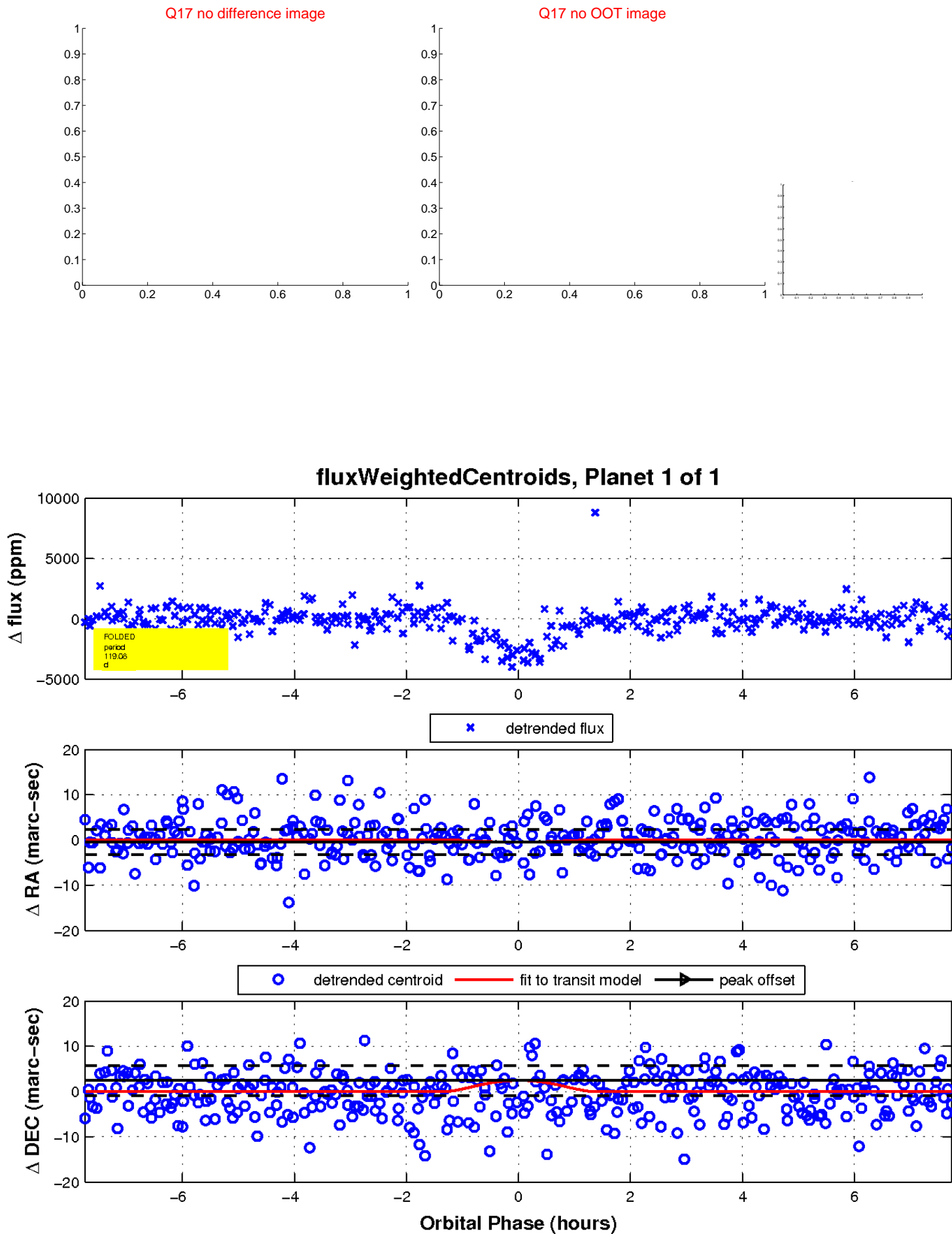
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



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



UKIRT Image

Declination

