

KIC 012018440

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})
012018440-01	OBS	No	528.101243	389.471292	625.2	30.155	7.3	7.6	0.83	5726	2.45	0.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012018440-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—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.

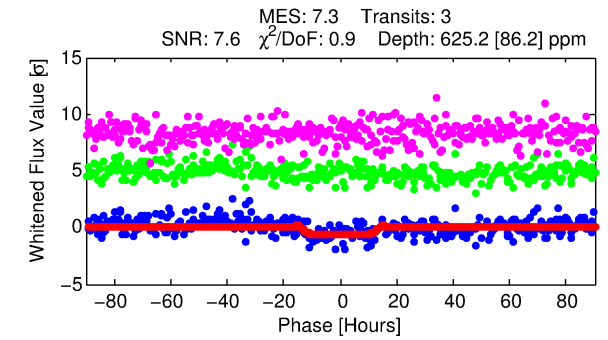
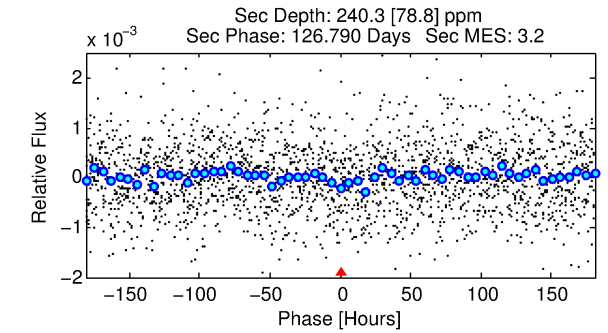
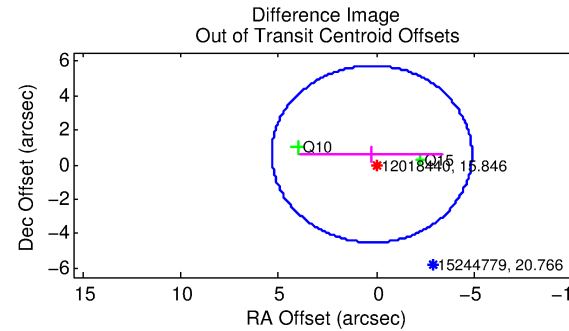
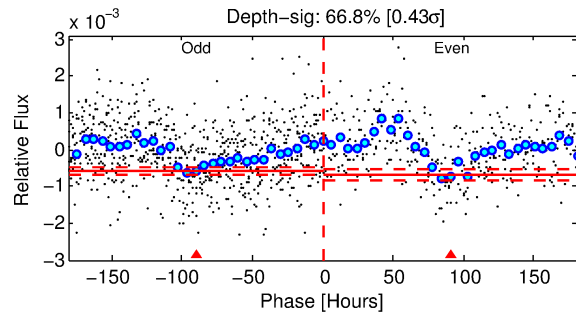
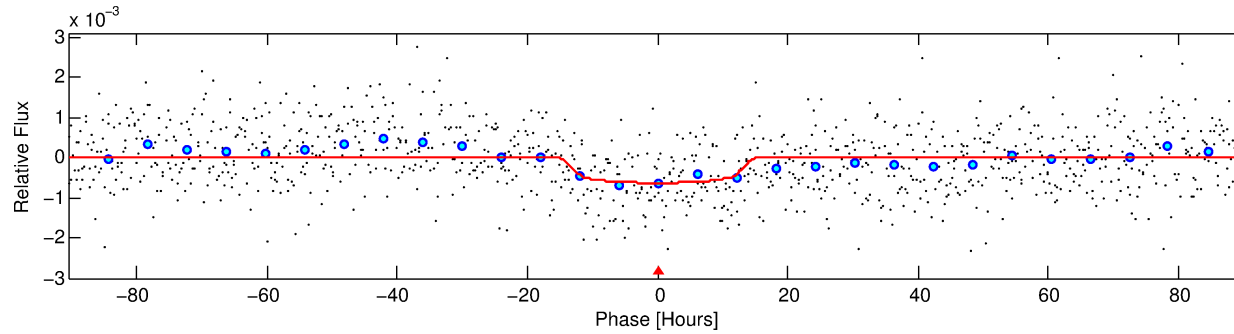
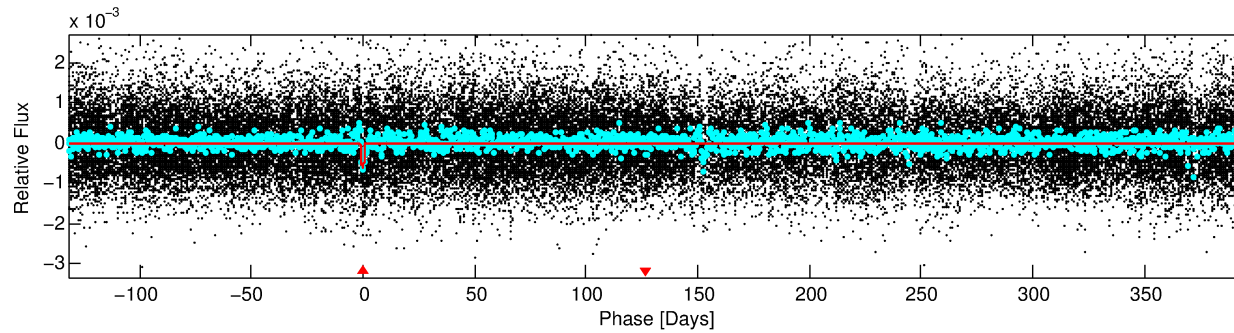
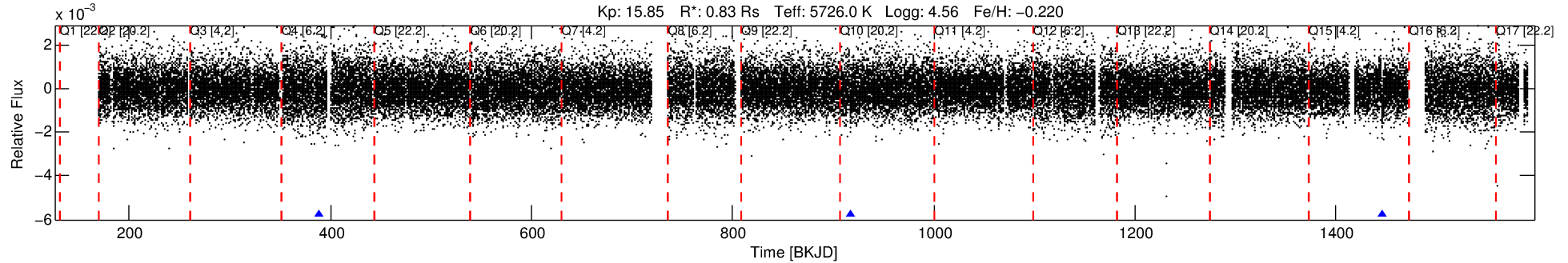
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012018440-01

No Significant Match Found

DV One-Page Summary

KIC: 12018440 Candidate: 1 of 1 Period: 528.101 d



DV Fit Results:

Period = 528.10124 [0.04445] d
Epoch = 389.4713 [0.0625] BKJD
Rp/R* = 0.0271 [0.0037]
a/R* = 67.41 [35.71]
b = 0.90 [0.12]
Seff = 0.43 [0.16]
Teq = 206 [19] K
Rp = 2.45 [0.77] Re
a = 1.2432 [0.3011] AU
Ag = 34073.20 [18969.22] [1.80σ]
Teffp = 4333 [482] K [8.56σ]

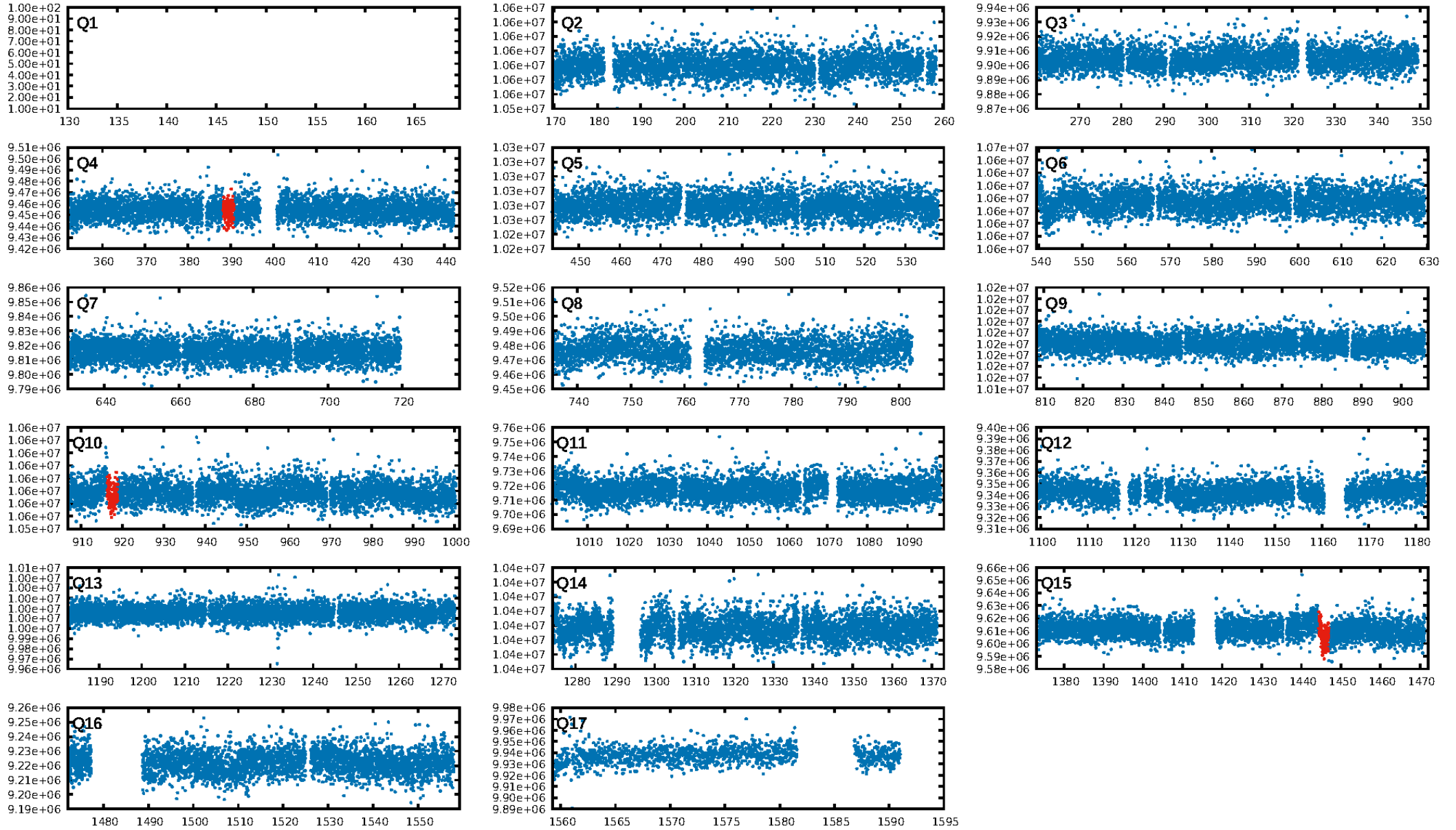
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.54e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7838
Centroid-sig: 21.5%
Centroid-so: 1.945 arcsec [0.99σ]
OotOffset-rm: 0.657 arcsec [0.39σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.481 arcsec [0.93σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

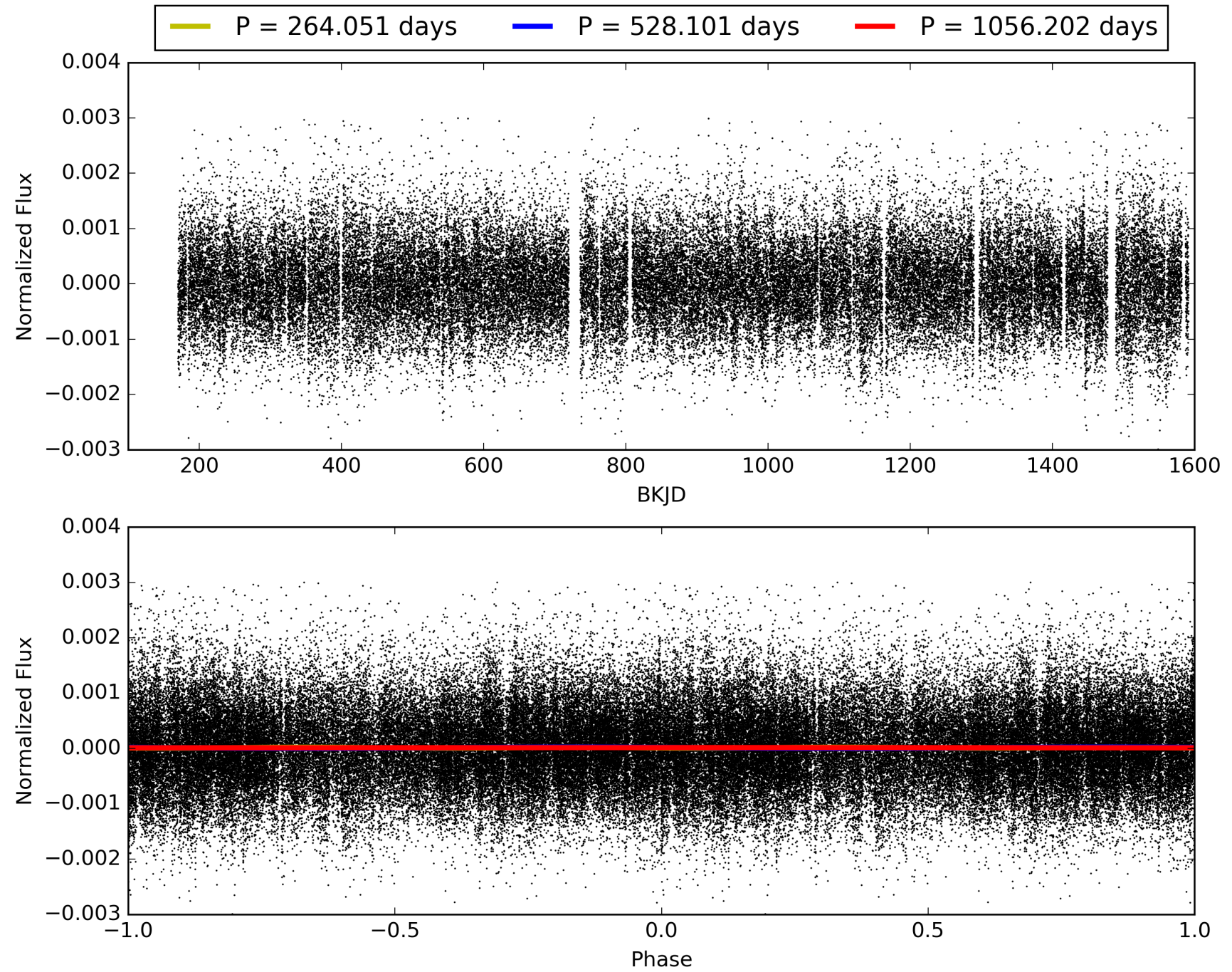
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:40:35 Z

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

TCE 012018440-01, PDC Light Curves

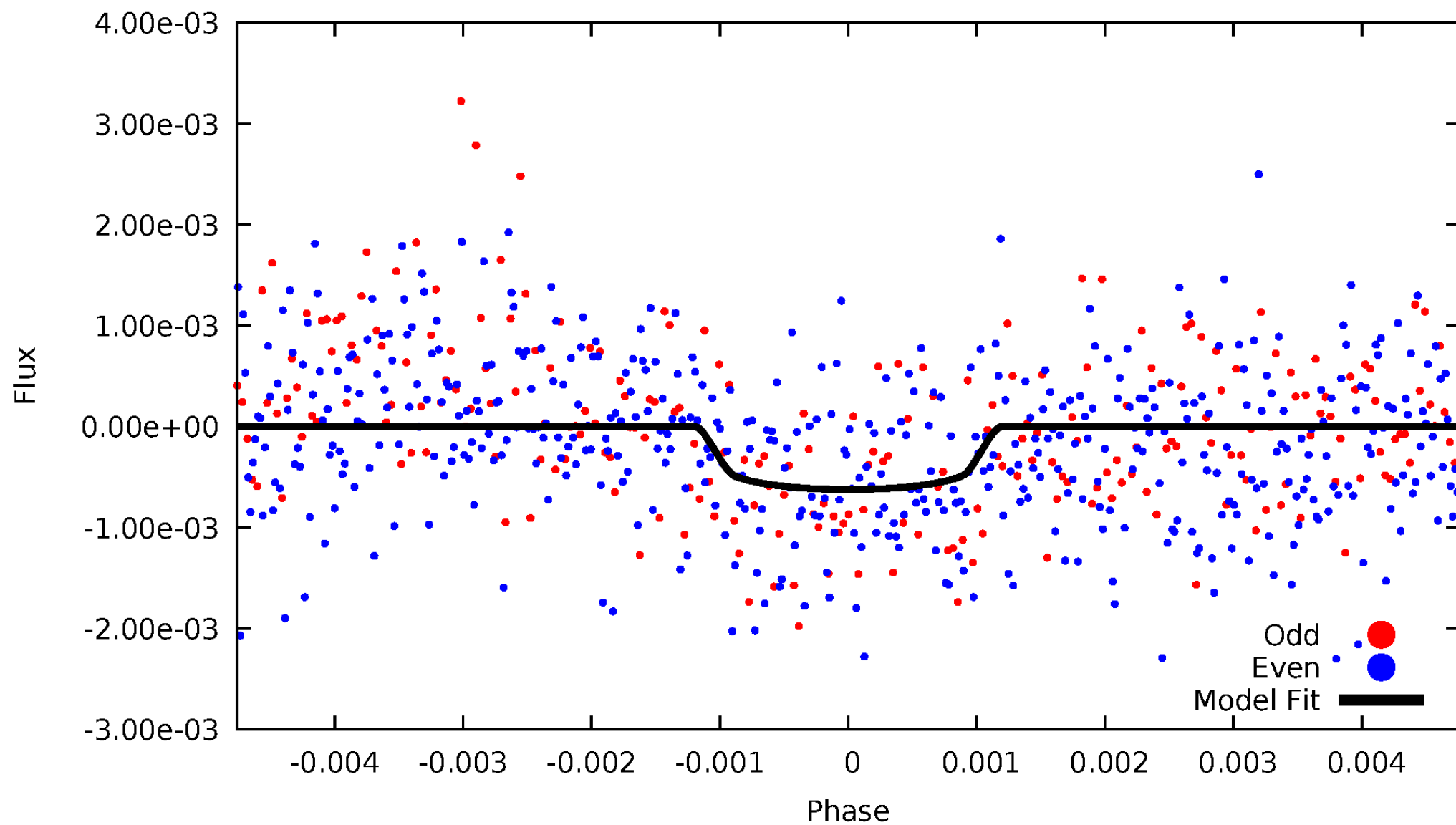


TCE 012018440-01



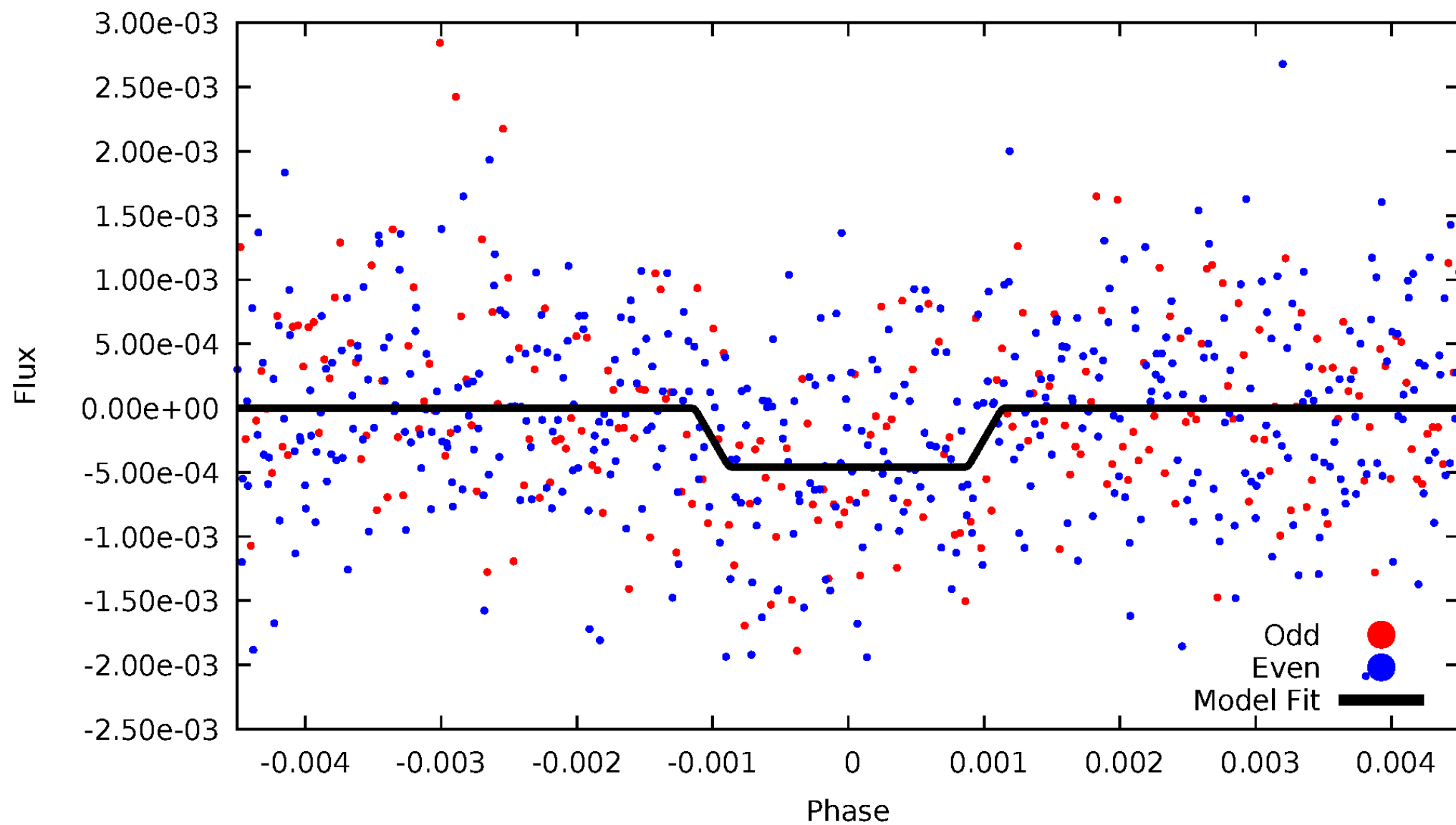
DV Odd/Even

TCE 012018440-01



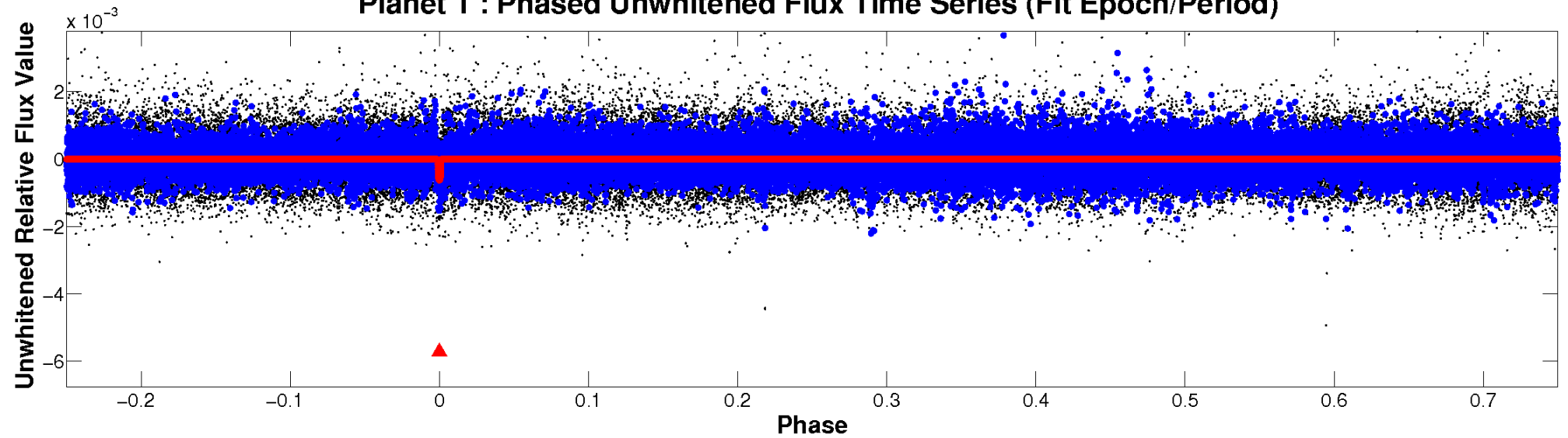
ALT Odd/Even

TCE 012018440-01

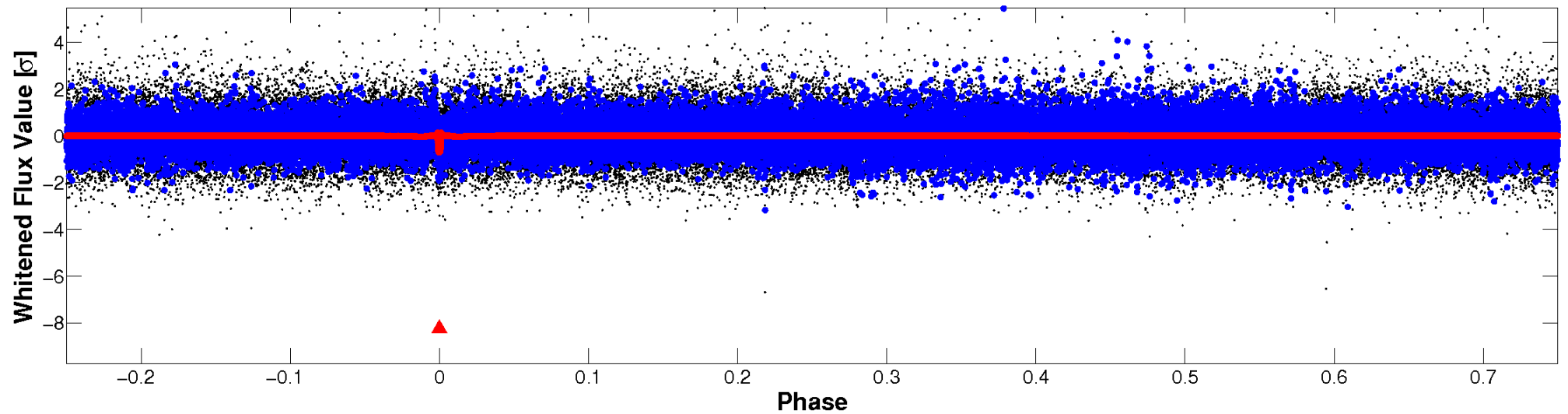


Non-Whitened Vs. Whitened Light Curve

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 012018440-01 P=528.101243 Days $T_0=389.471292$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 012018440-01 P=528.101243 Days $T_0=389.471292$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

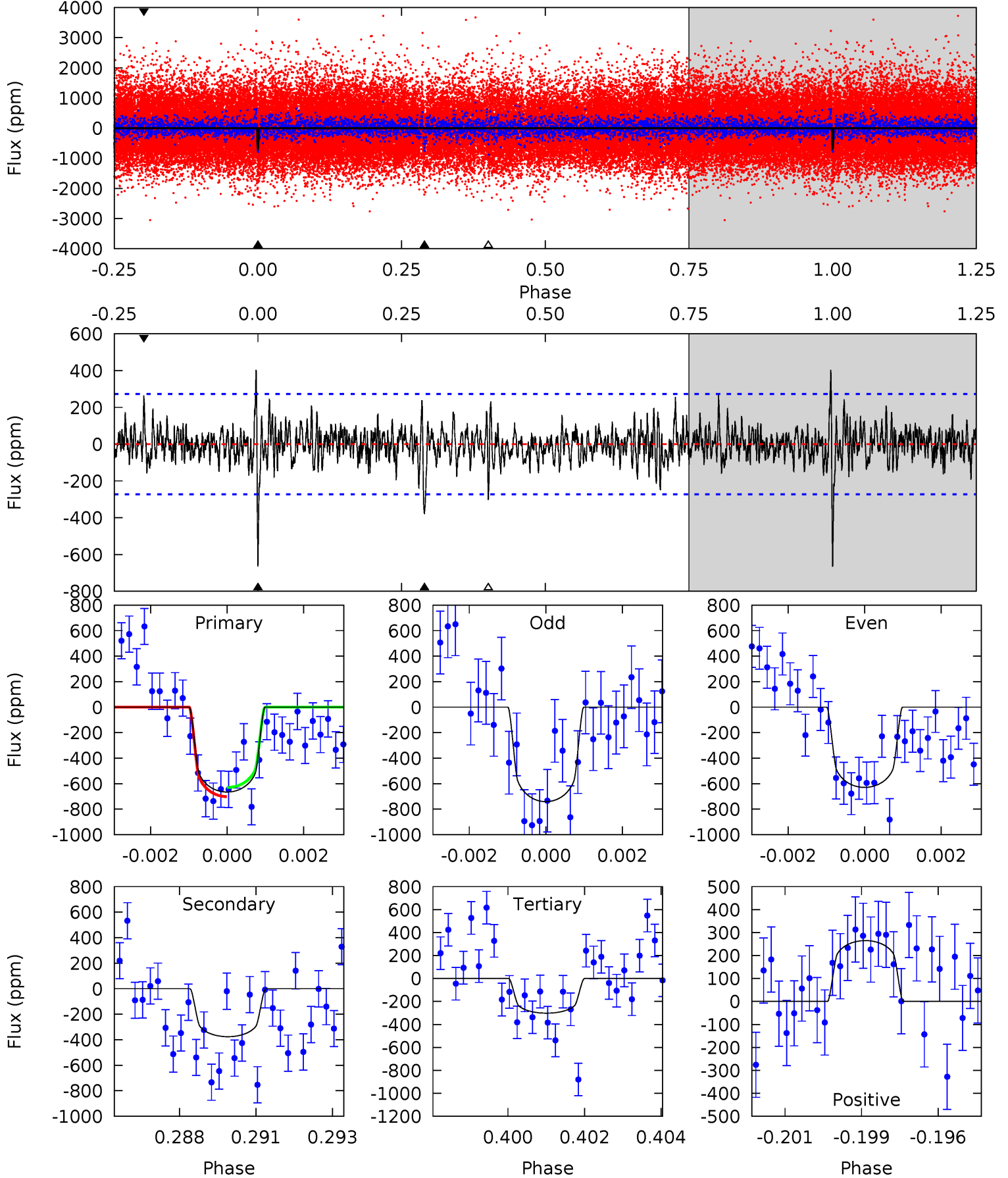
TCE 012018440-01 P=528.098547 Days $T_0=389.469600$ (BKJD)



DV Model-Shift Uniqueness Test

012018440-01, P = 528.101243 Days, E = 389.471292 Days

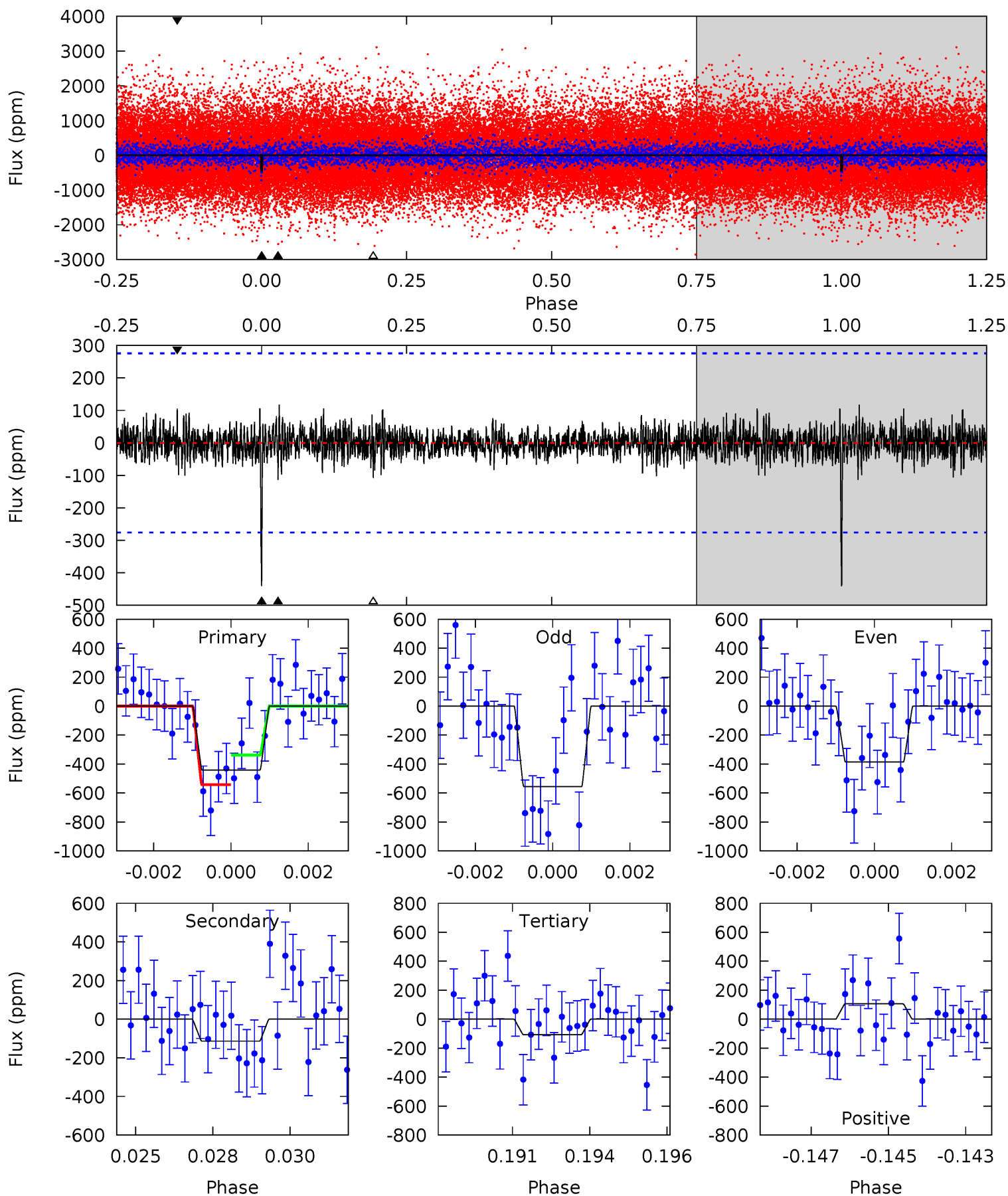
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	7.30	5.86	5.14	5.29	3.03	1.43	7.06	7.78	1.44	2.16	1.02	0.90	0.38	0.70



Alt Model-Shift Uniqueness Test

012018440-01, P = 528.098547 Days, E = 389.469600 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.48	2.18	2.04	2.03	5.30	3.05	0.59	6.44	6.45	0.14	0.15	1.54	0.89	0.21	1.96



Stellar Parameters For KIC 012018440

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5726^{+155}_{-172}	$4.564^{+0.035}_{-0.196}$	$-0.220^{+0.300}_{-0.300}$	$0.829^{+0.236}_{-0.063}$	$0.923^{+0.098}_{-0.109}$	$2.283^{+0.445}_{-1.171}$
	+3%/-3%	+1%/-4%	+136%/-136%	+28%/-8%	+11%/-12%	+19%/-51%
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 012018440-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-376 ± 52	$2.55^{+0.54}_{-0.41}$	296^{+19}_{-14}	4937^{+394}_{-312}	47098^{+22353}_{-14947}
Alt.	-113 ± 52	$2.04^{+0.47}_{-0.38}$	296^{+20}_{-13}	4248^{+481}_{-491}	21767^{+17119}_{-11165}

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

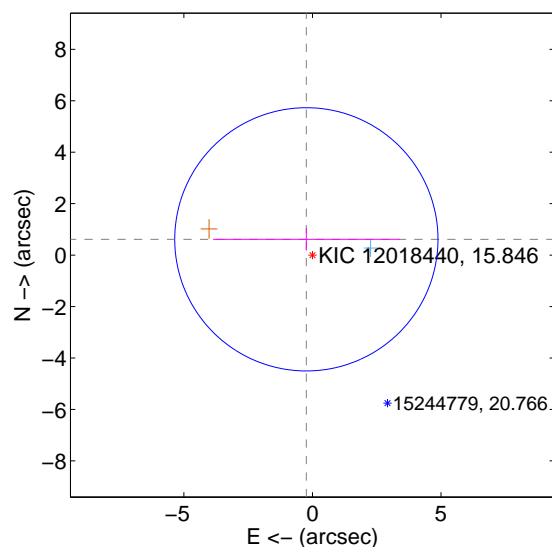
Supplemental centroid analysis for 012018440-01. Kepler magnitude: 15.85. Transit SNR 7.63

There are 1 quarters with good PRF difference image offsets

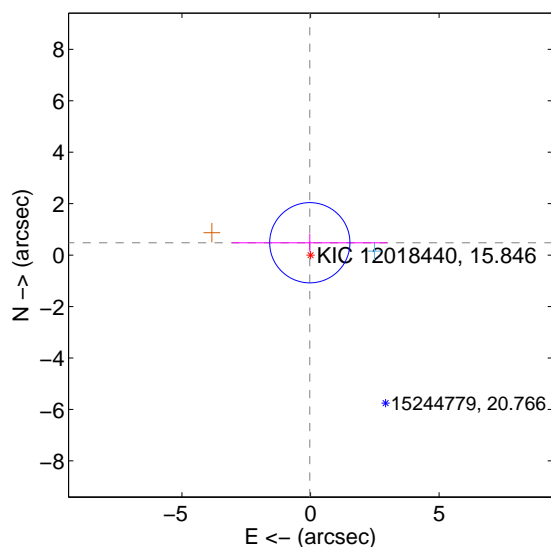
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.657 ± 1.706	0.39	0.236 ± 3.625	0.613 ± 0.434
PRF-fit source offset from KIC position	0.481 ± 0.520	0.93	0.028 ± 3.028	0.480 ± 0.349
photometric centroid source offset	1.95 ± 1.97	0.99	-1.05 ± 1.84	1.64 ± 2.02

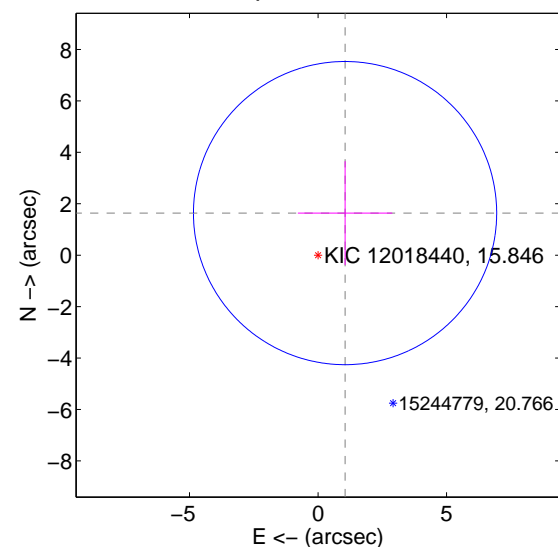
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

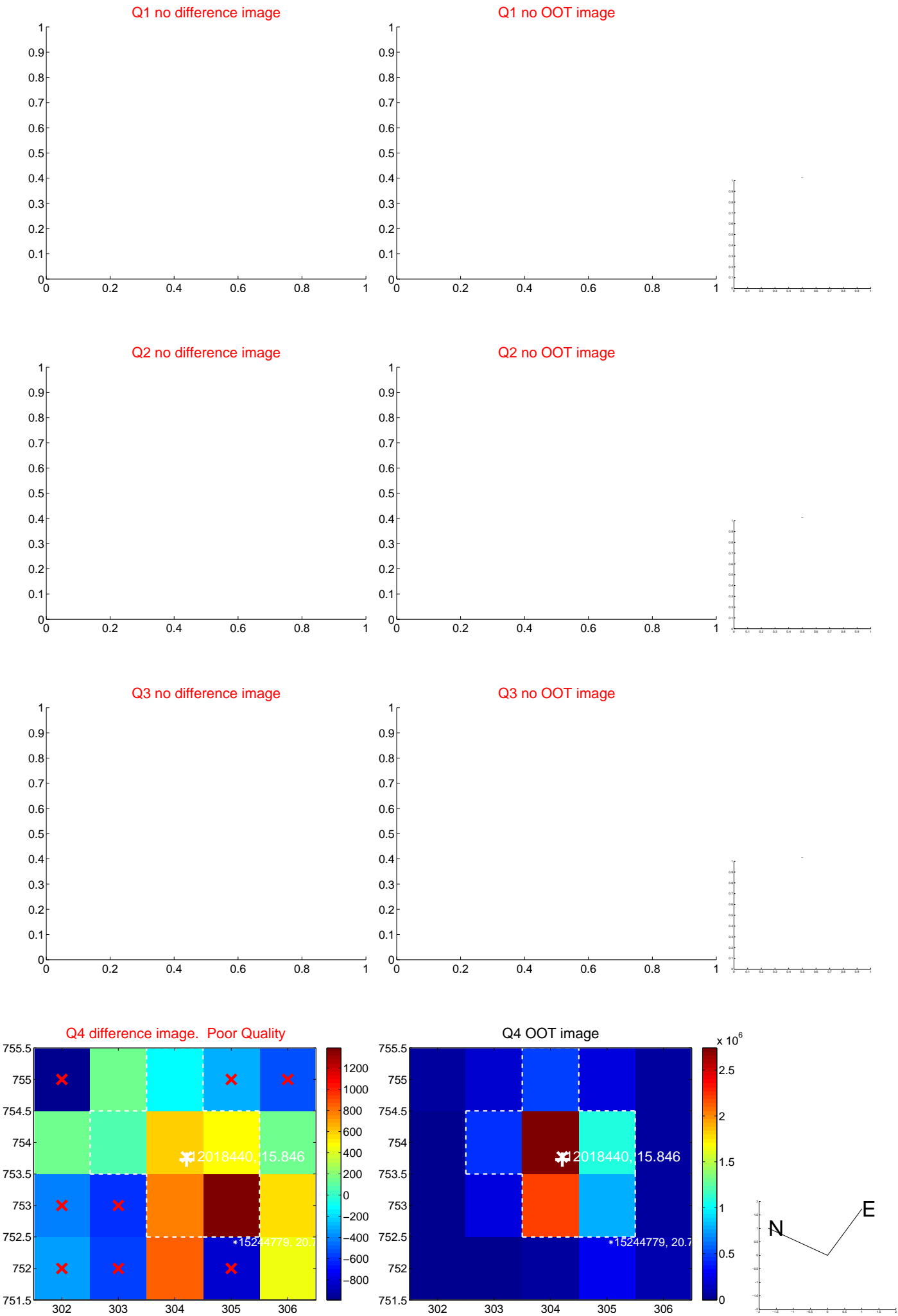


offset from photometric centroids



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.

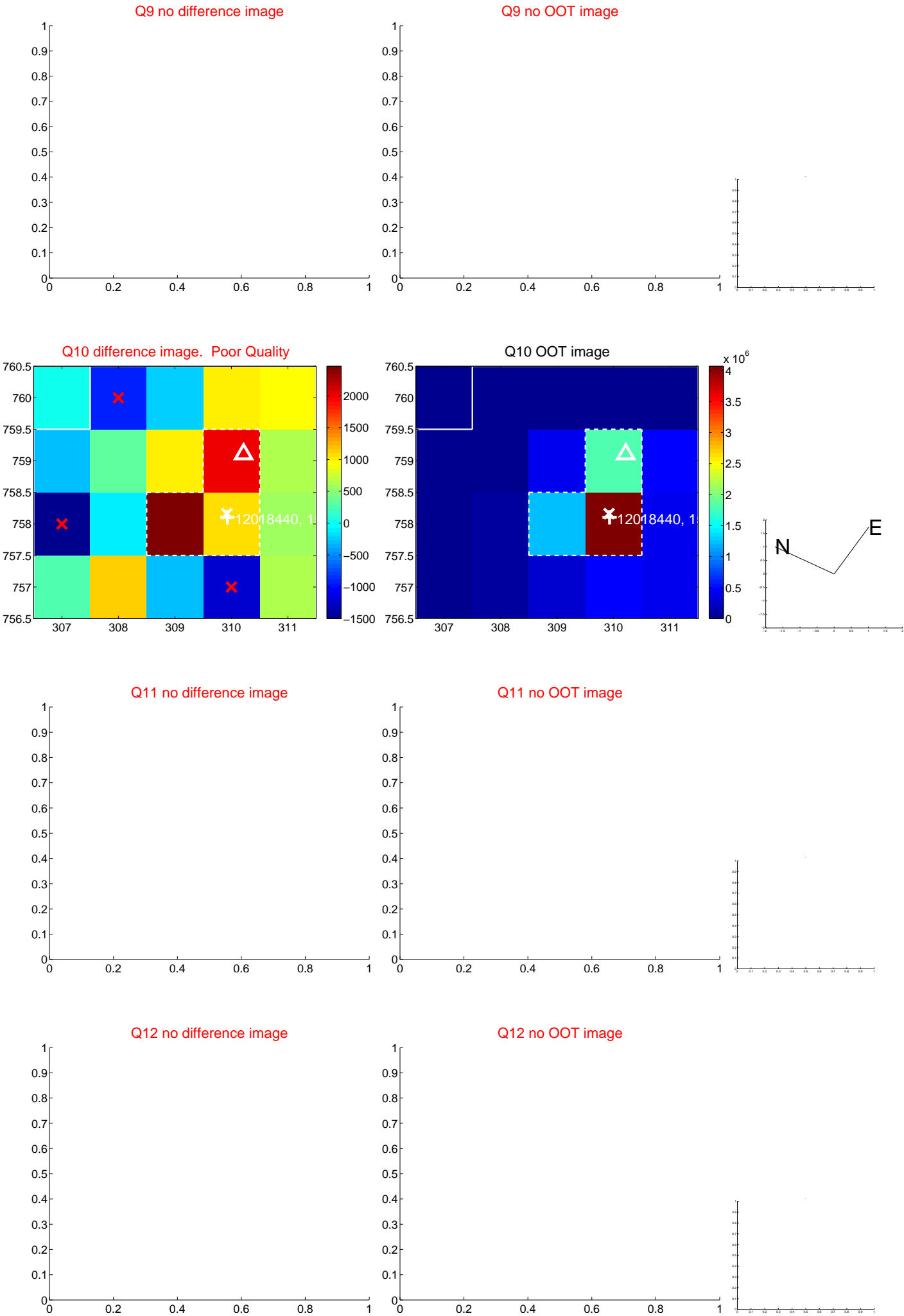
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



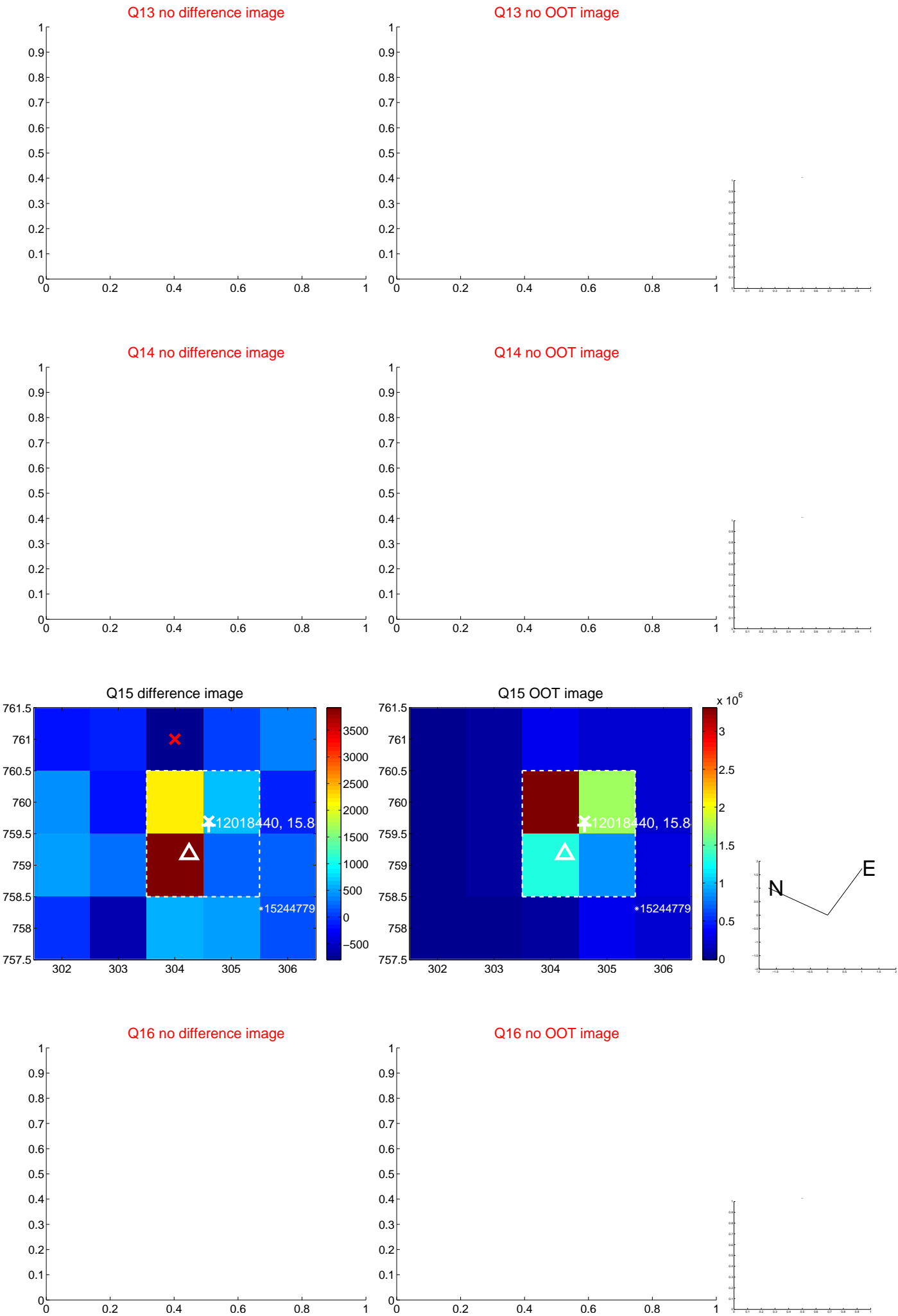
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



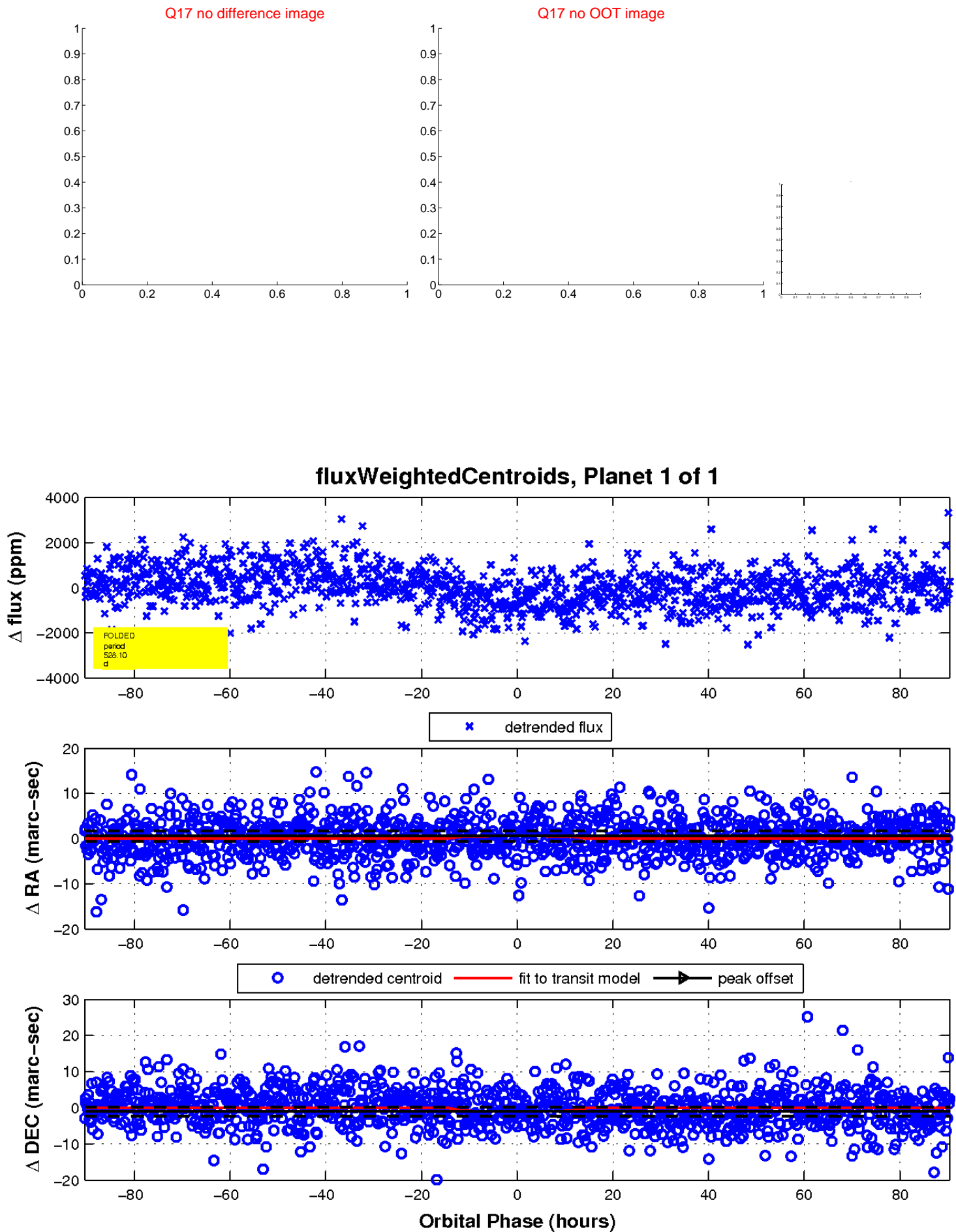
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

