

KIC 009973488

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})
009973488-01	OBS	No	420.213935	506.513496	108.0	23.397	8.4	8.4	3.52	7780	3.97	20.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009973488-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQU_ALT—INCONSISTENT_TRANS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

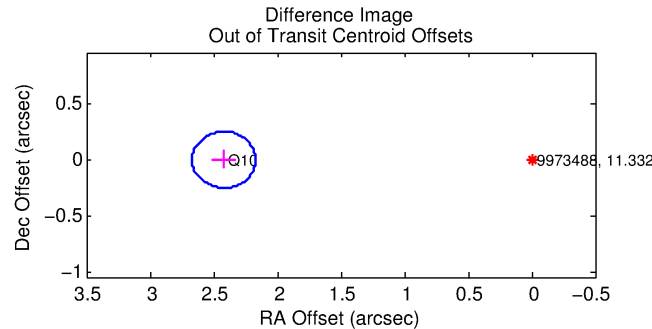
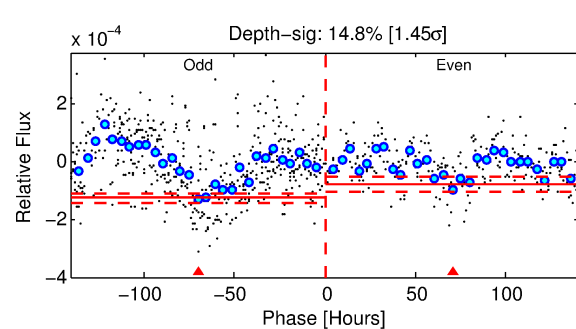
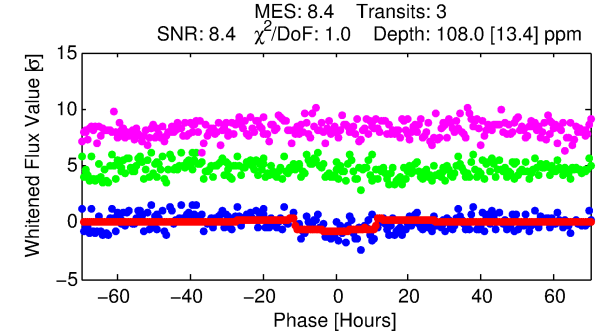
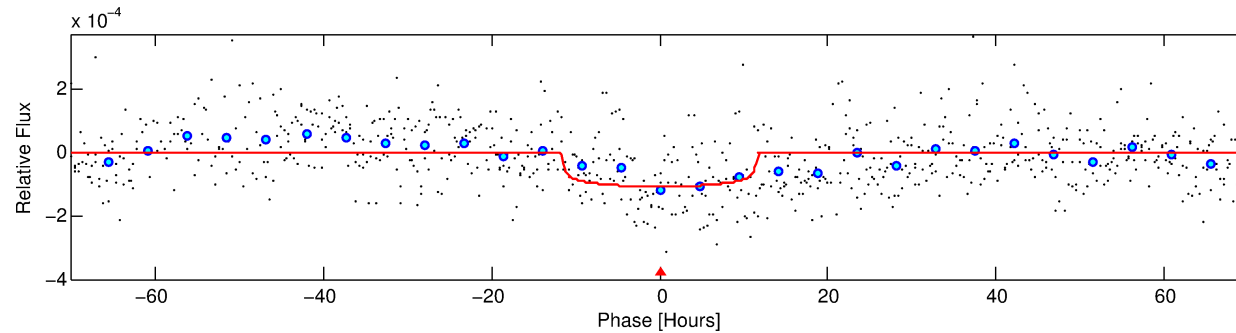
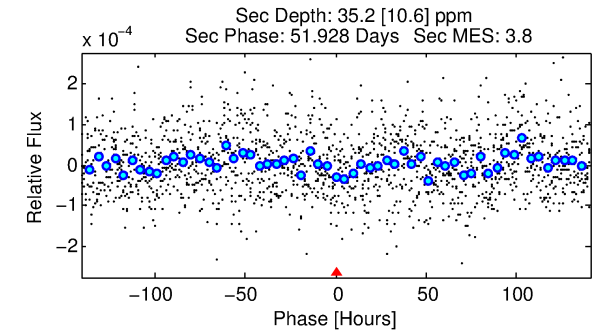
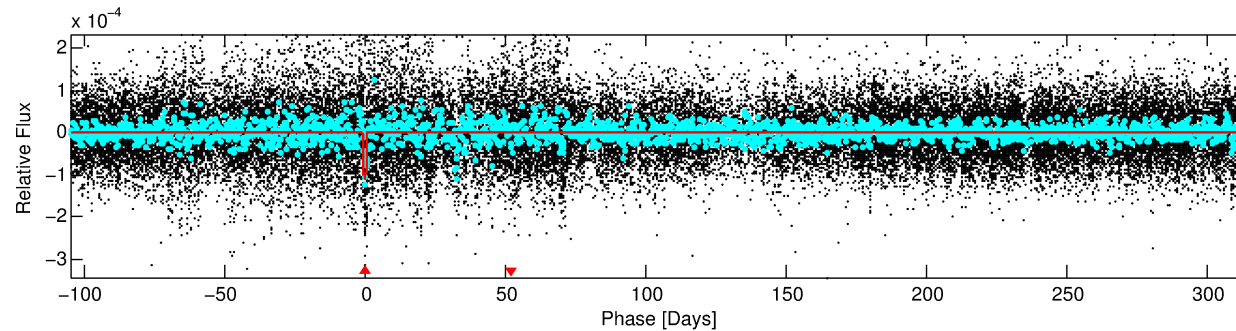
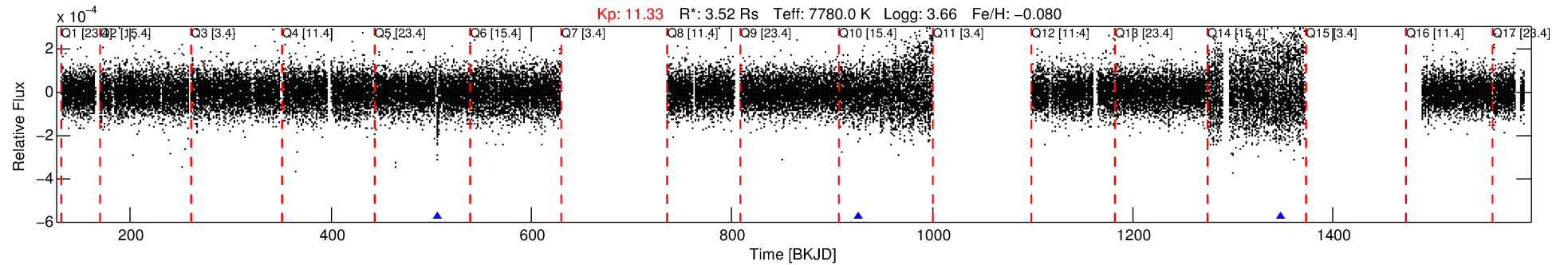
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009973488-01

No Significant Match Found

DV One-Page Summary

KIC: 9973488 Candidate: 1 of 1 Period: 420.214 d



DV Fit Results:

Period = 420.21393 [0.01499] d
Epoch = 506.5135 [0.0146] BKJD
Rp/R* = 0.0103 [0.0016]
a/R* = 92.44 [74.46]
b = 0.75 [0.46]
Seff = 20.84 [16.46]
Teq = 545 [108] K
Rp = 3.97 [1.98] Re
a = 1.3954 [0.6599] AU
Ag = 2393.51 [2117.03] [1.13σ]
Teff = 5892 [682] K [7.75σ]

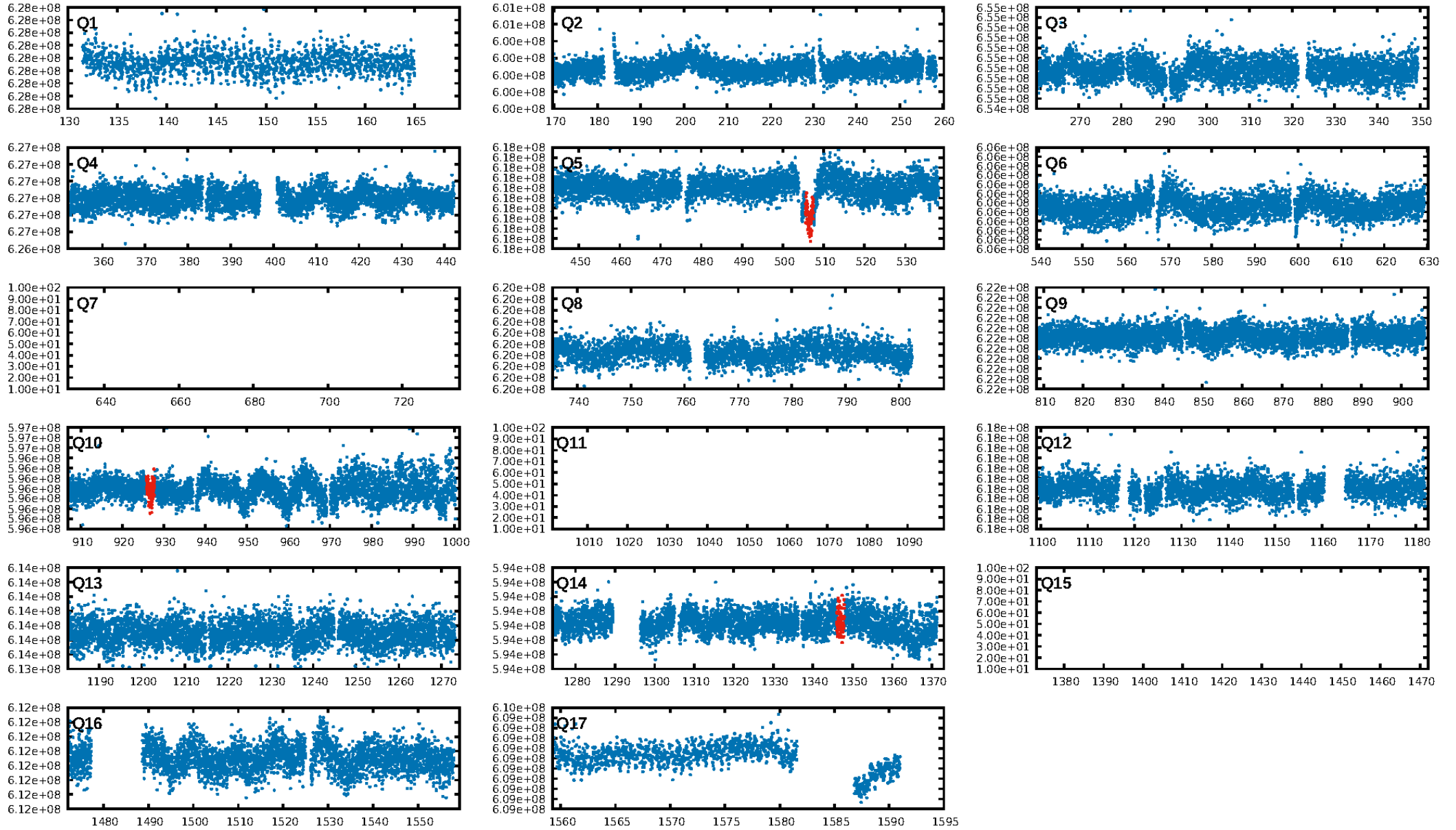
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.0%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: 5.02e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.011
Centroid-sig: 0.1%
Centroid-so: 4.429 arcsec [2.36σ]
OotOffset-rm: 2.420 arcsec [29.05σ]
KicOffset-rm: 2.307 arcsec [27.71σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

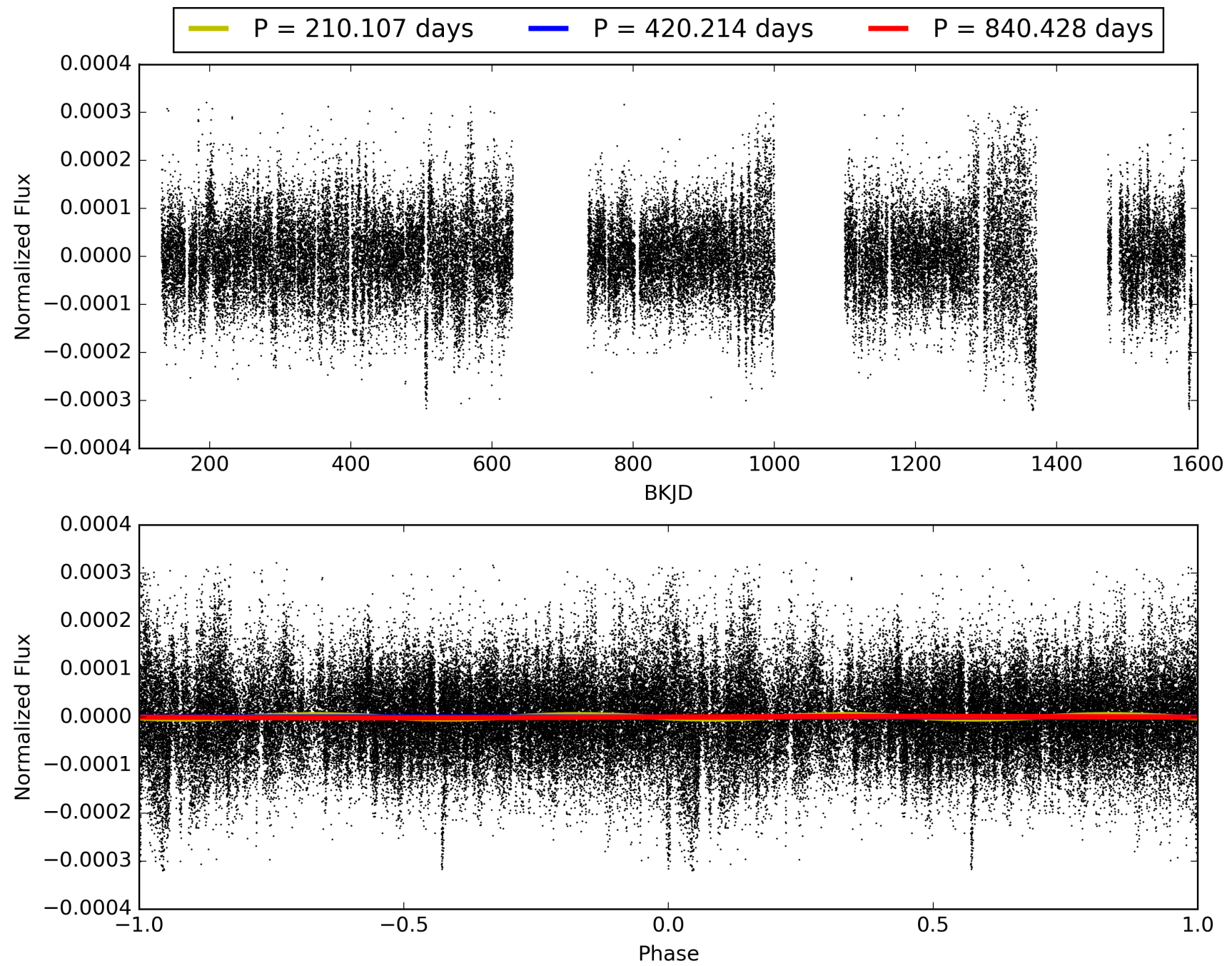
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:44:55 Z

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

TCE 009973488-01, PDC Light Curves

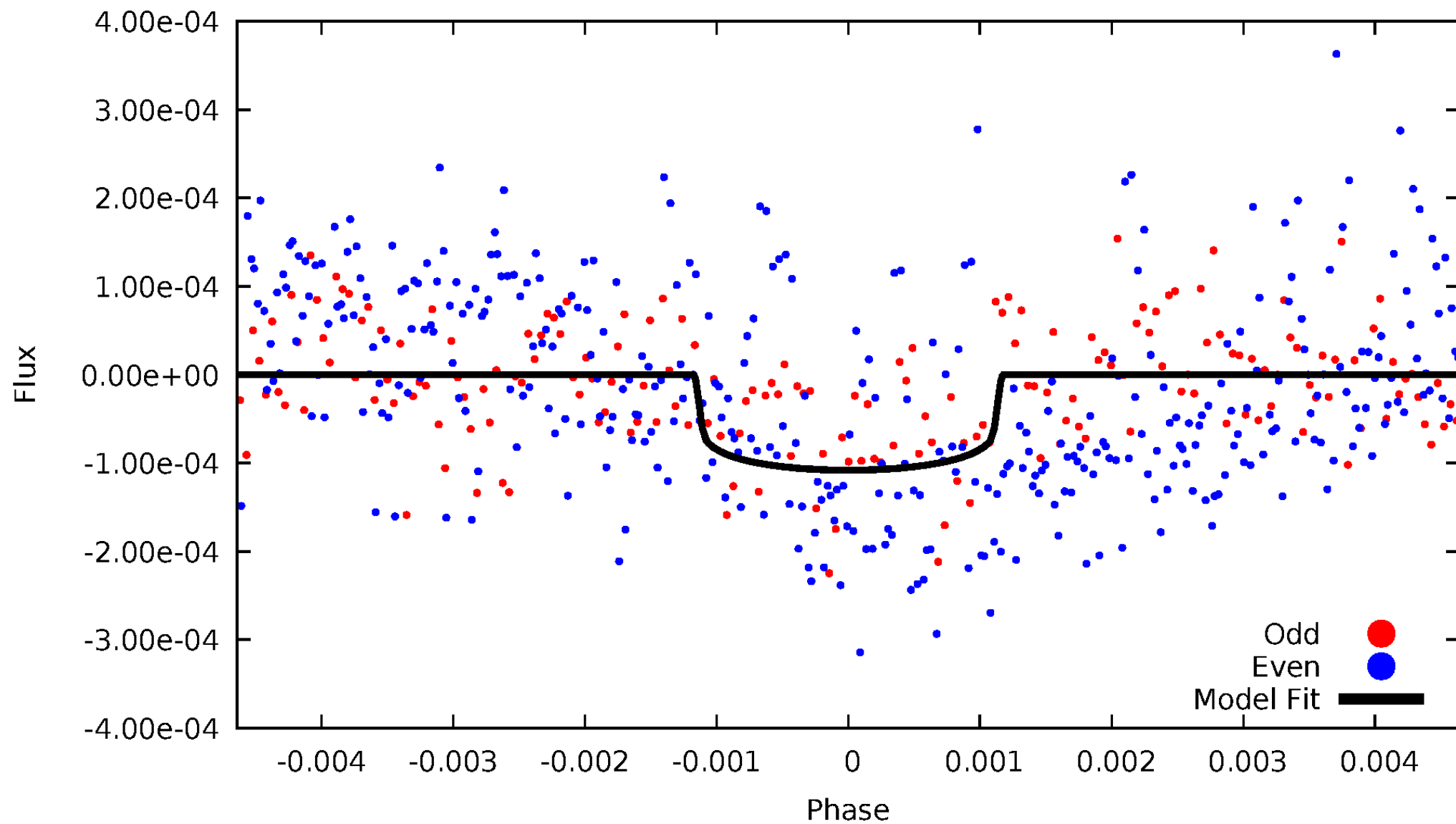


TCE 009973488-01



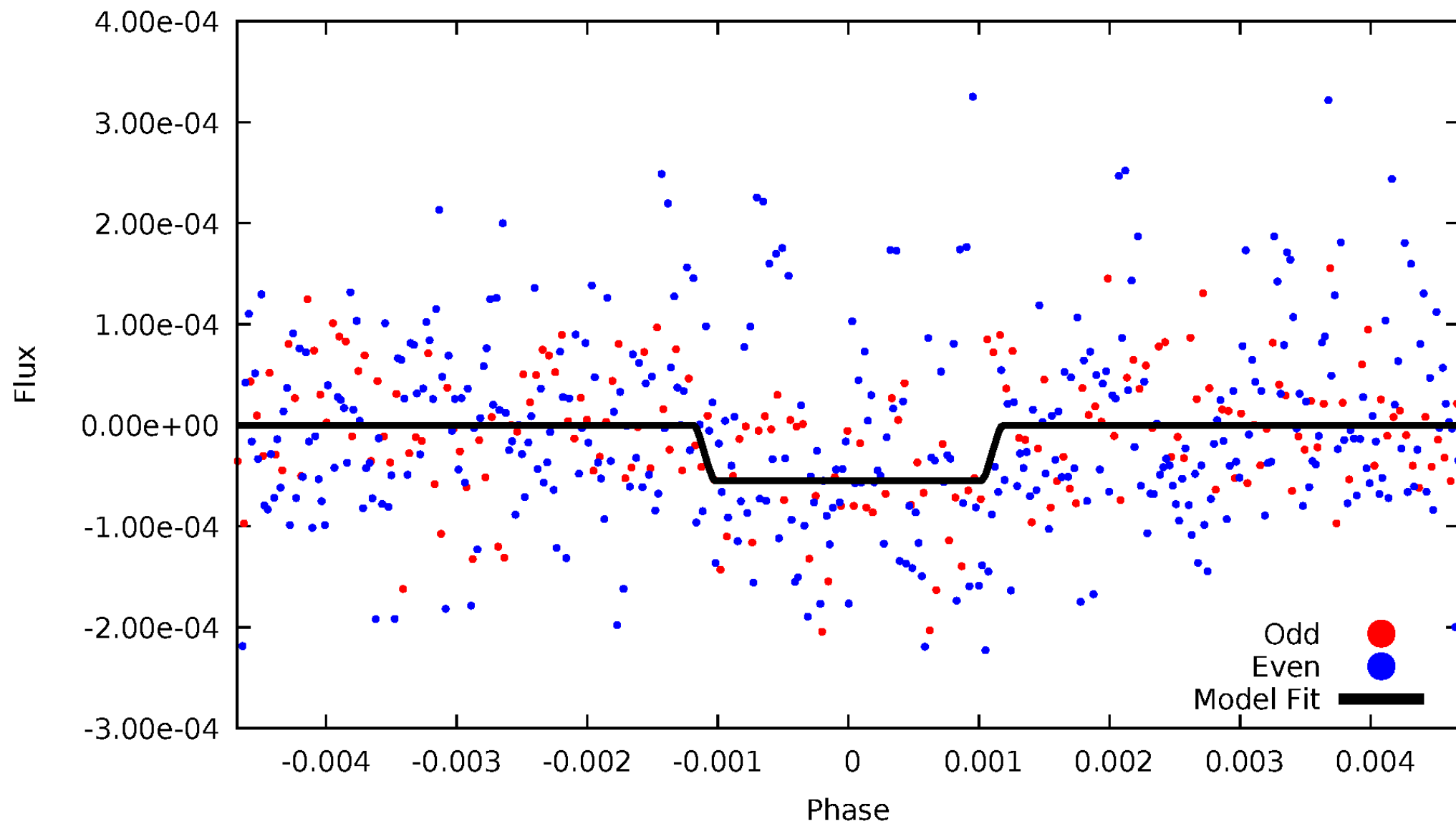
DV Odd/Even

TCE 009973488-01



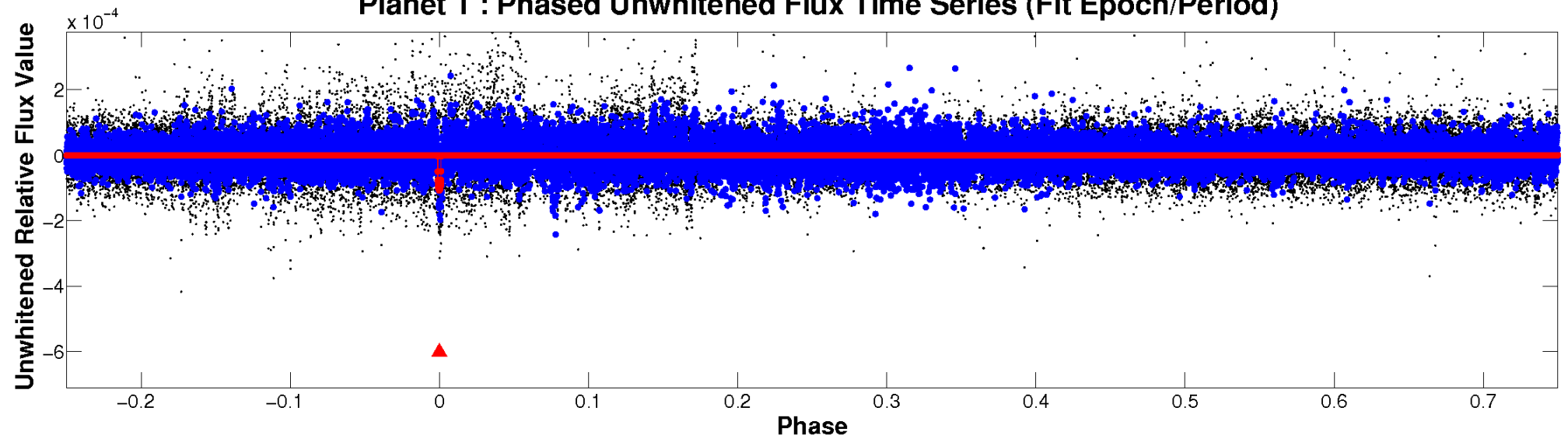
ALT Odd/Even

TCE 009973488-01

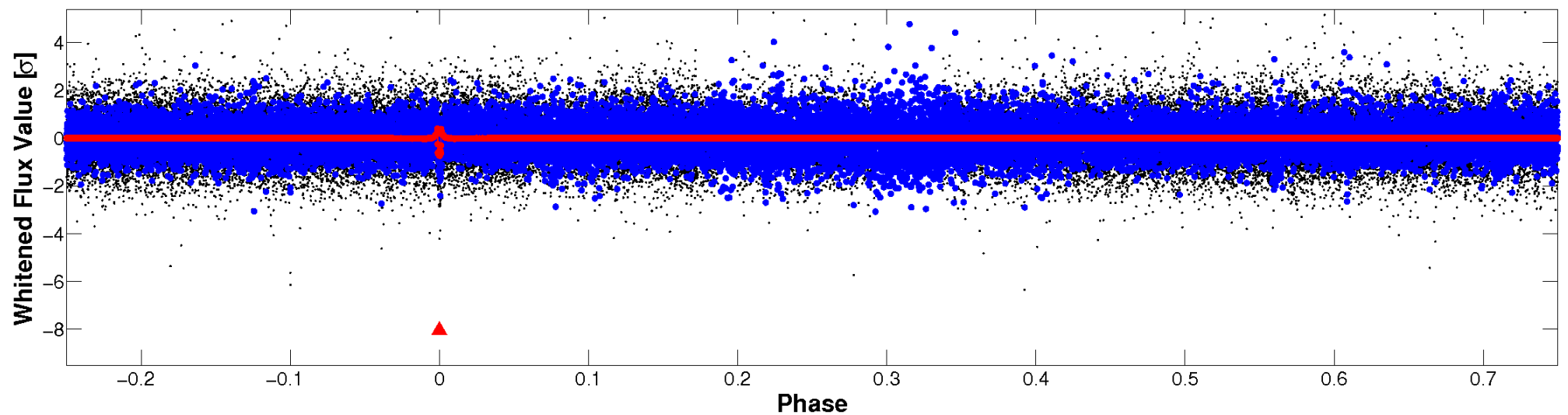


Non-Whitened Vs. Whitened Light Curve

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

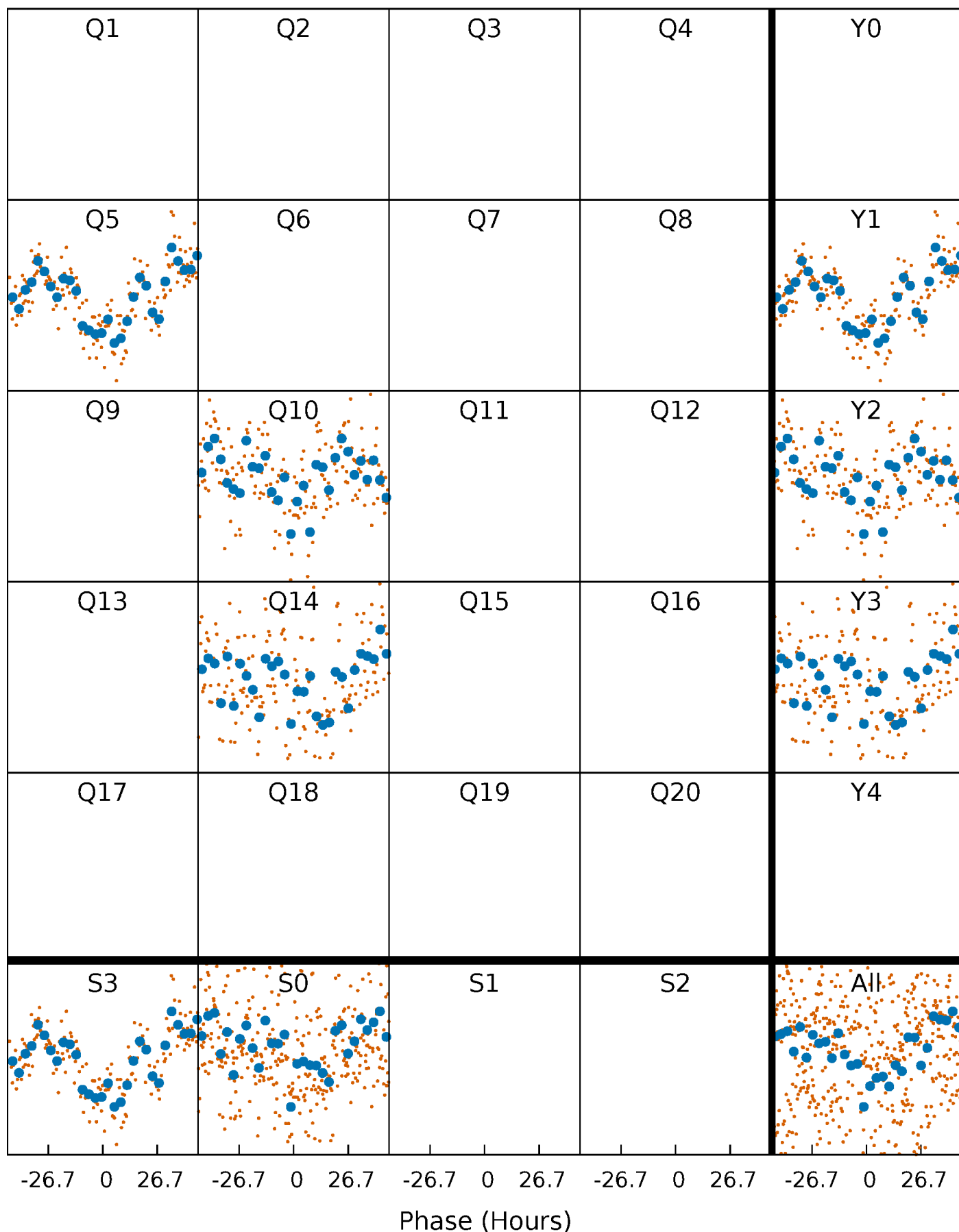


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009973488-01 P=420.213935 Days $T_0=506.513496$ (BKJD)



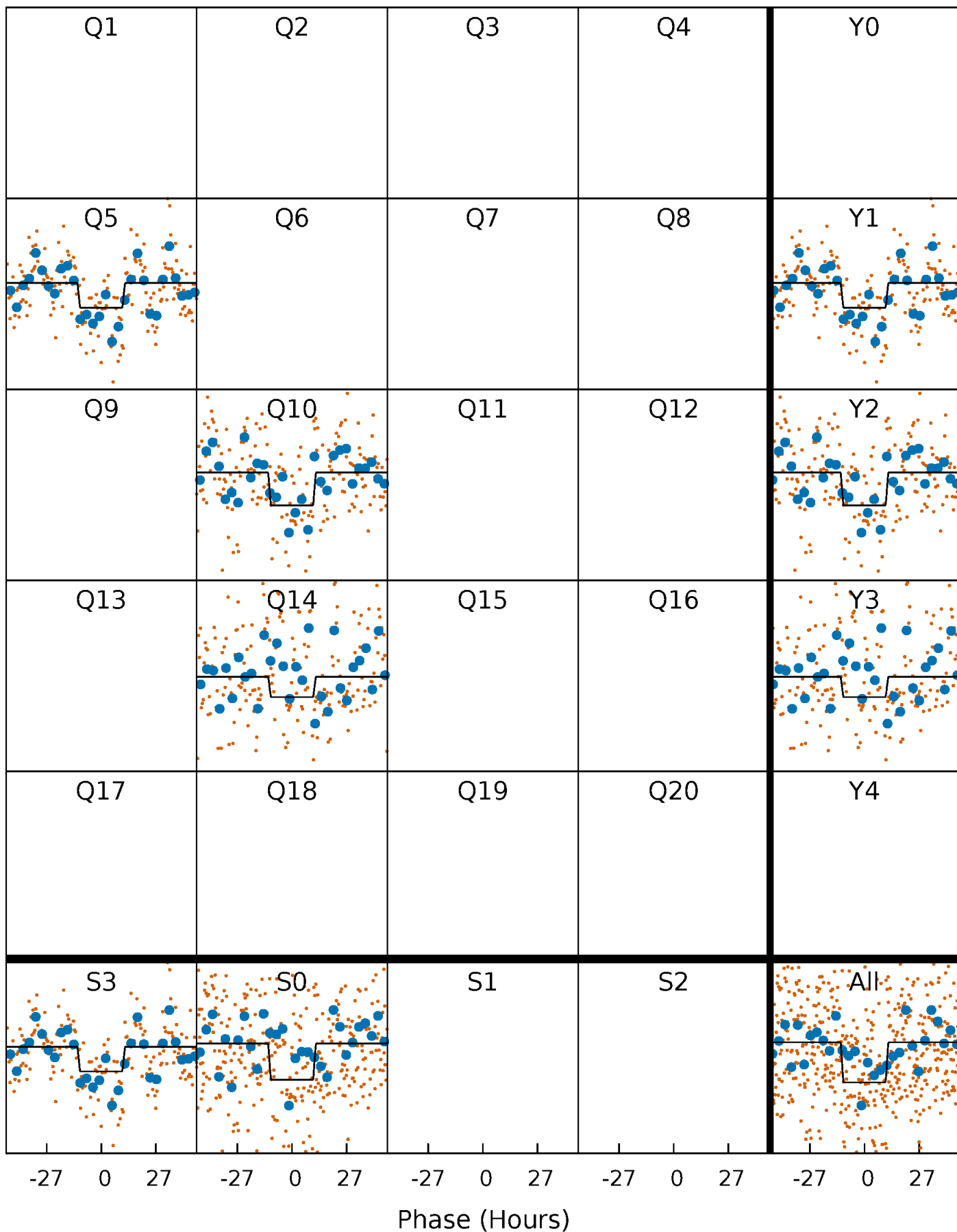
DV Quarter-Phased Transit Curves

TCE 009973488-01 P=420.213935 Days $T_0=506.513496$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

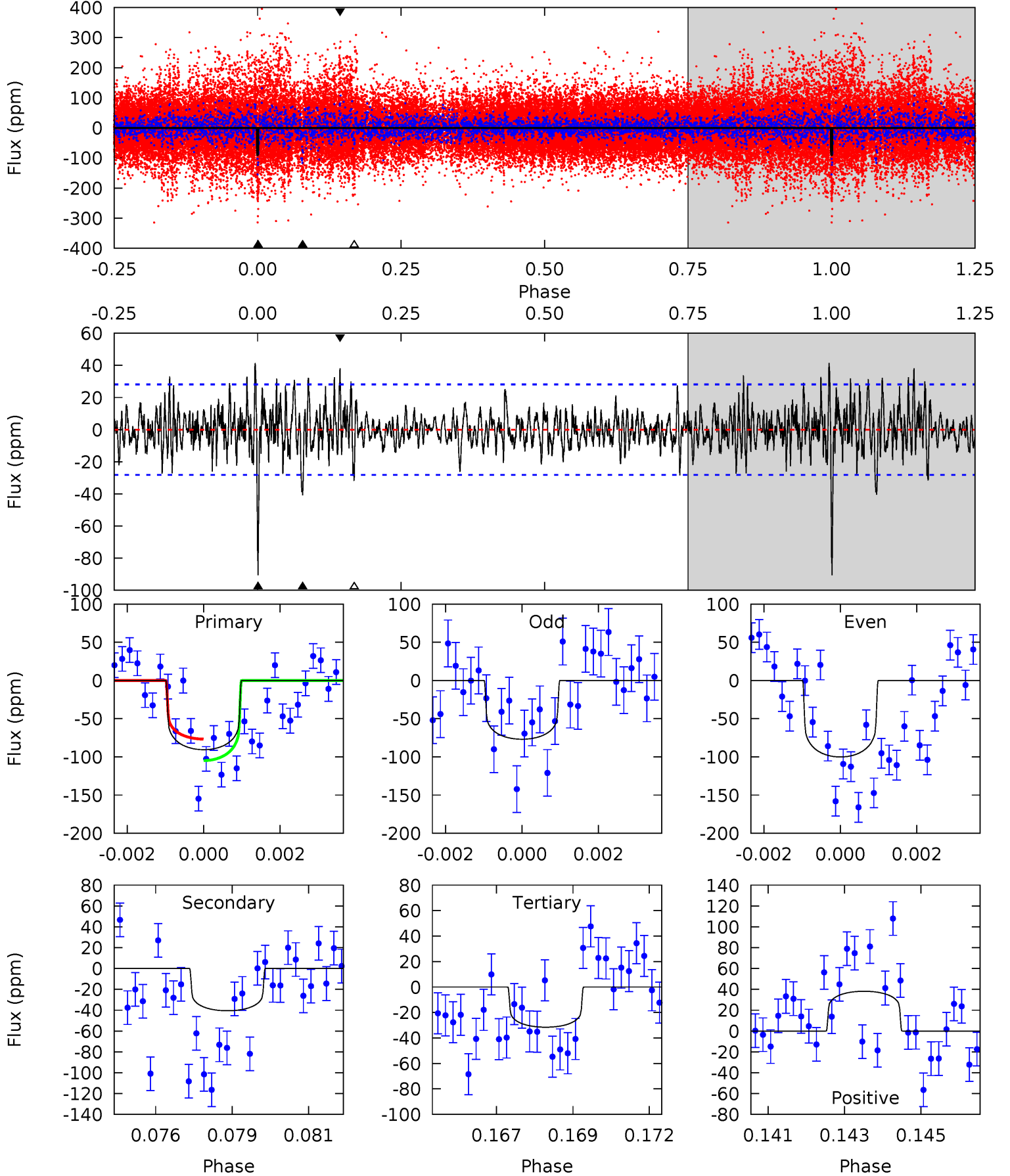
TCE 009973488-01 P=420.202539 Days $T_0=506.548755$ (BKJD)



DV Model-Shift Uniqueness Test

009973488-01, $P = 420.213935$ Days, $E = 86.299561$ Days

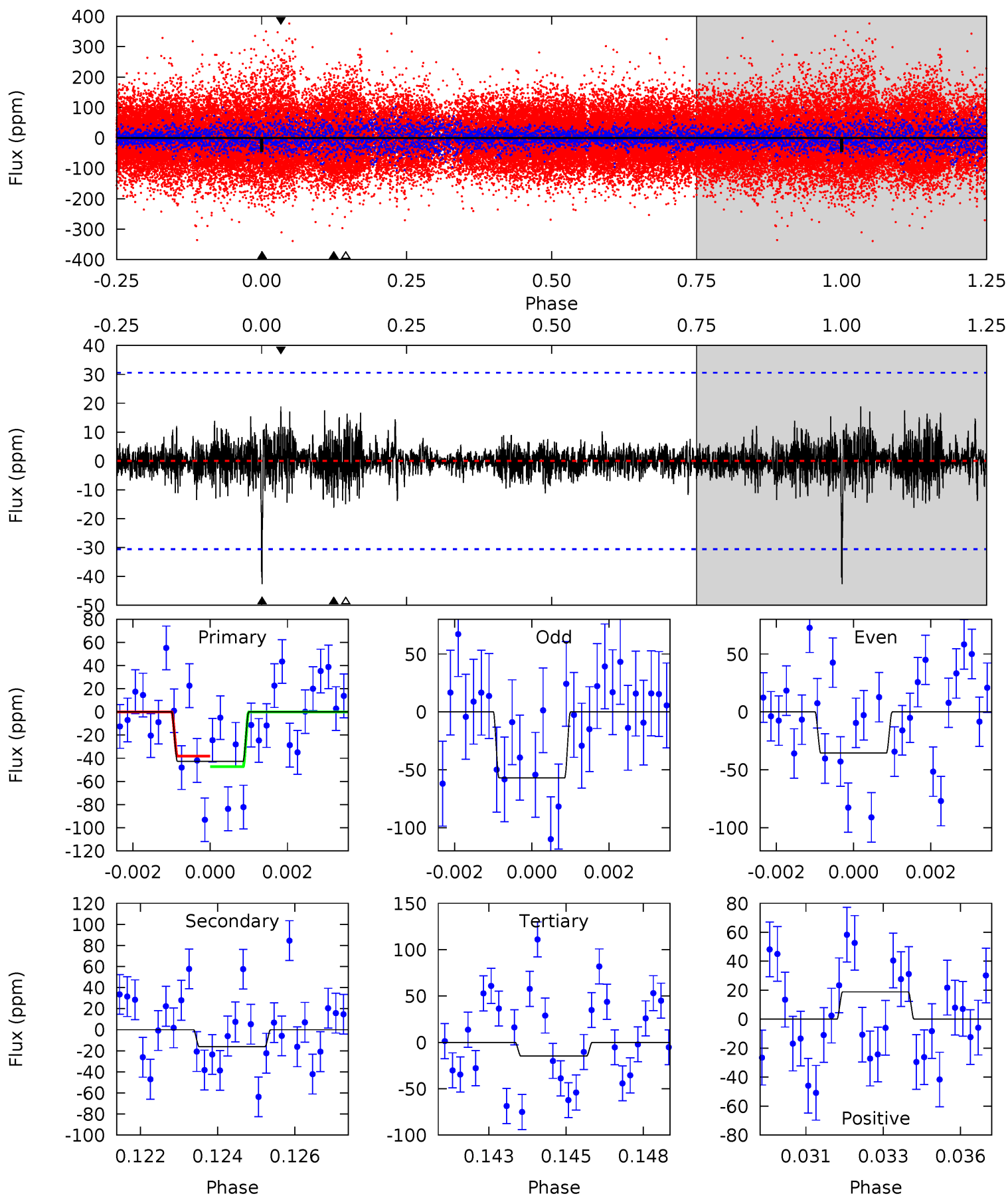
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	7.63	5.93	7.17	5.29	3.04	1.79	11.1	9.86	1.69	0.45	2.10	1.15	0.31	2.64



Alt Model-Shift Uniqueness Test

009973488-01, P = 420.202539 Days, E = 86.346216 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.39	2.80	2.56	3.26	5.29	3.04	0.66	4.83	4.12	0.24	-0.46	1.82	0.71	0.31	0.80



Stellar Parameters For KIC 009973488

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7780^{+216}_{-324}	$3.658^{+0.459}_{-0.081}$	$-0.080^{+0.200}_{-0.350}$	$3.516^{+0.713}_{-1.664}$	$2.054^{+0.344}_{-0.516}$	$0.067^{+0.302}_{-0.024}$
	+3%/-4%	+13%/-2%	+250%/-438%	+20%/-47%	+17%/-25%	+454%/-36%
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 009973488-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-41 ± 5	$3.60^{+0.96}_{-0.95}$	732^{+54}_{-85}	5984^{+579}_{-467}	3392^{+2691}_{-1232}
Alt.	-16 ± 6	$2.56^{+0.87}_{-0.79}$	730^{+52}_{-89}	5568^{+839}_{-677}	2508^{+2899}_{-1186}

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 $A_{obs} \gg 1.0$

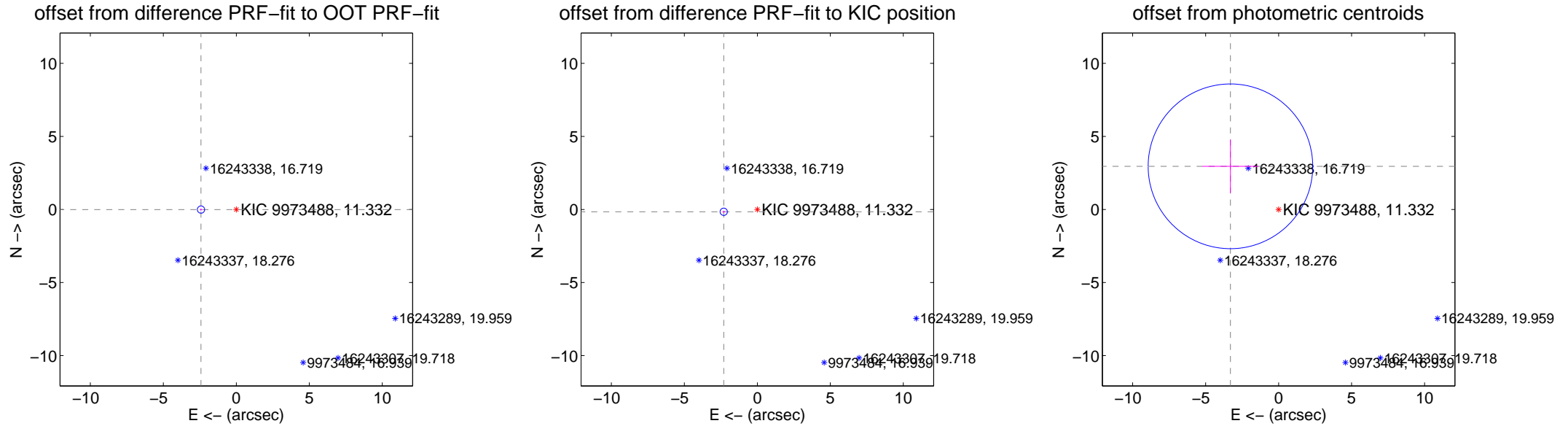
DV Centroid Data

Supplemental centroid analysis for 009973488-01. **Kepler magnitude: 11.33.** Transit SNR 8.39

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.420 ± 0.083	29.05	2.420 ± 0.083	-0.007 ± 0.075
PRF-fit source offset from KIC position	2.307 ± 0.083	27.71	2.301 ± 0.083	-0.157 ± 0.075
photometric centroid source offset	4.43 ± 1.88	2.36	3.30 ± 1.92	2.95 ± 1.83



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.

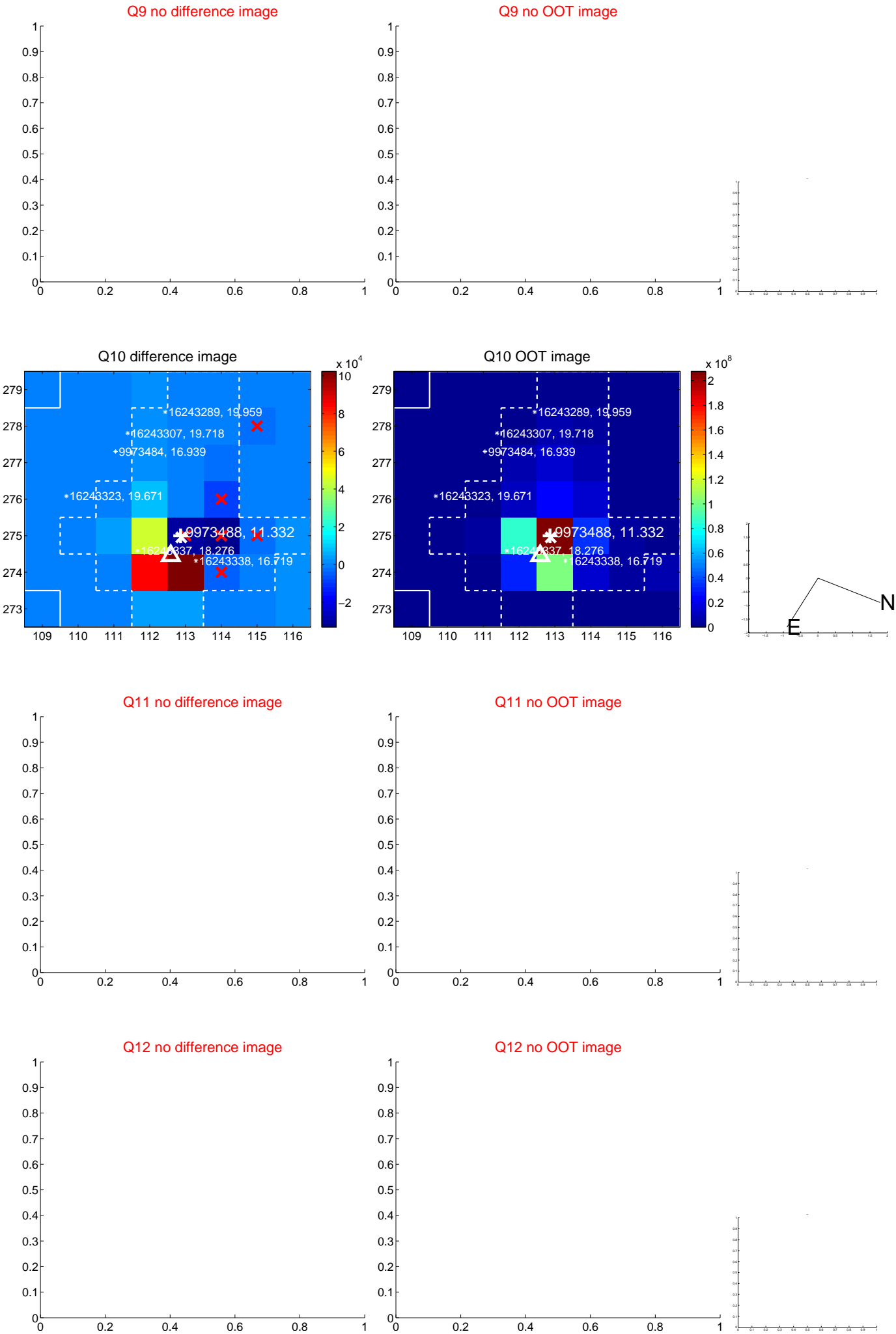
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



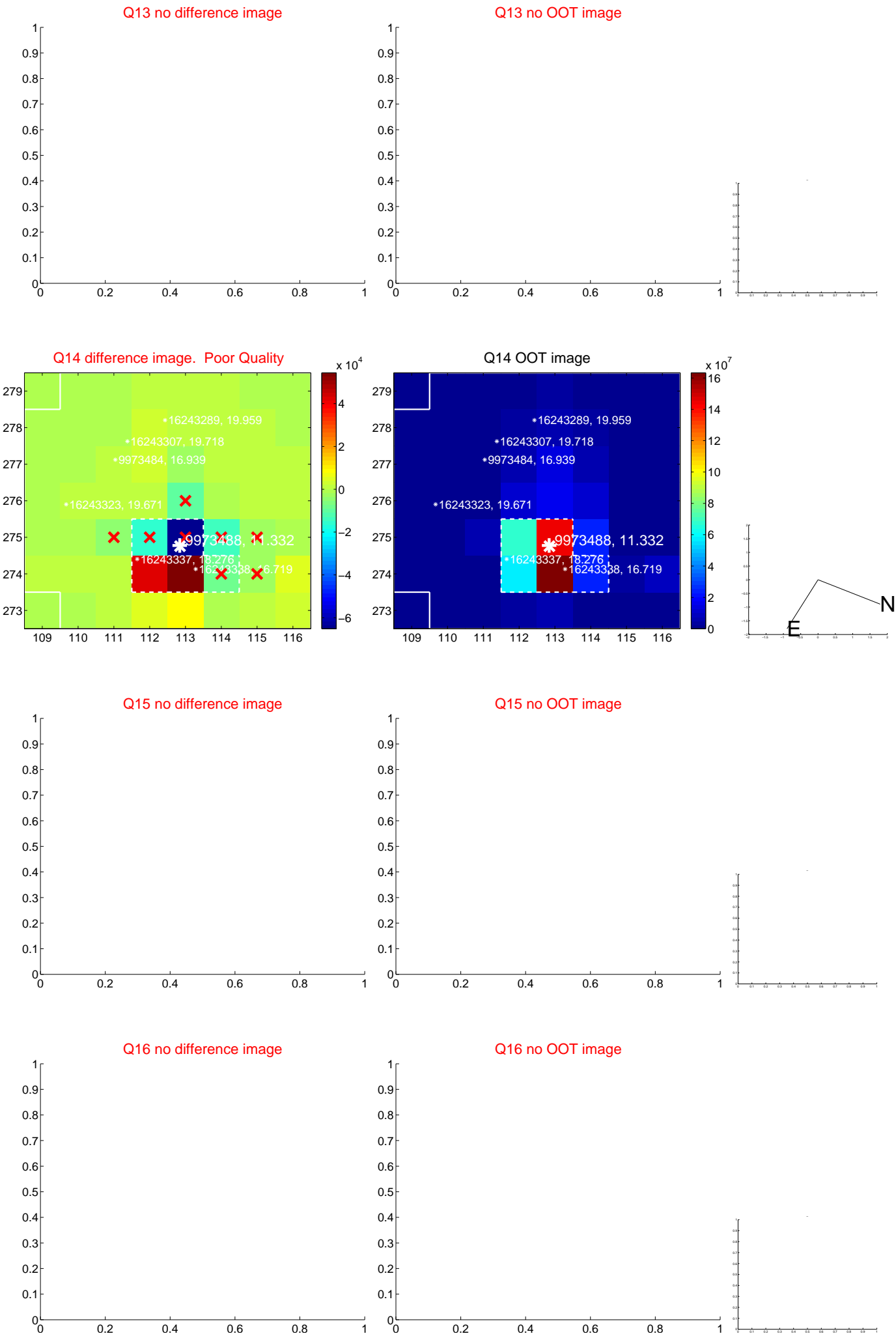
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



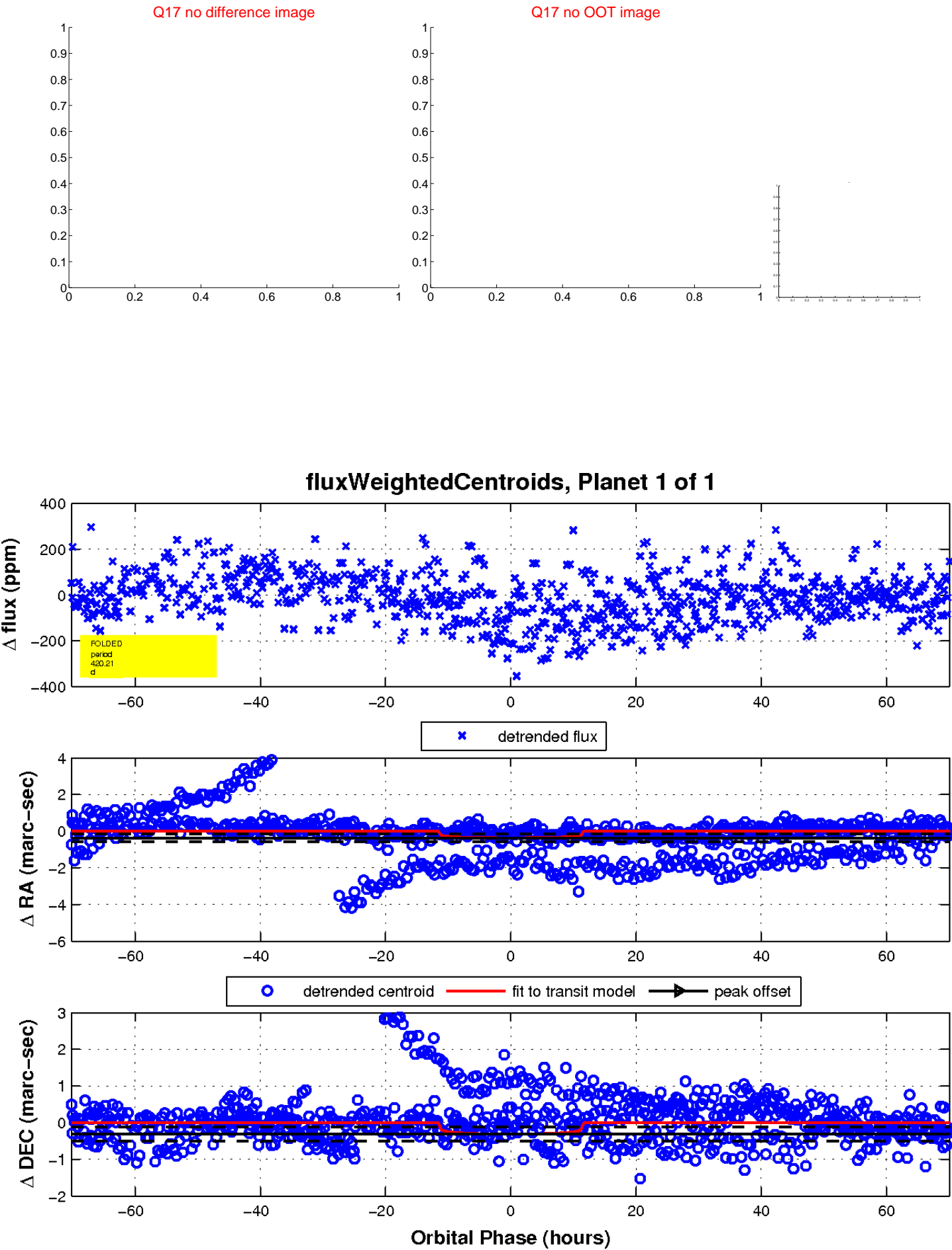
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

