

KIC 009407978

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})
009407978-01	OBS	No	627.700450	190.755620	643.1	8.324	8.6	5.7	0.99	6014	2.64	0.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009407978-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

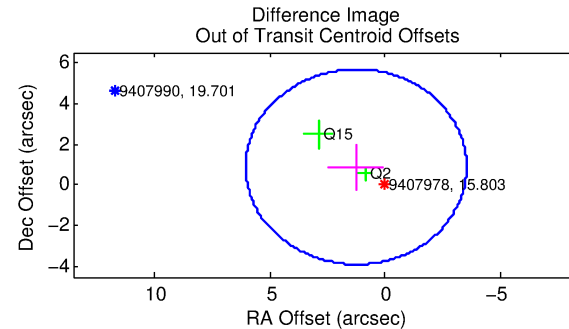
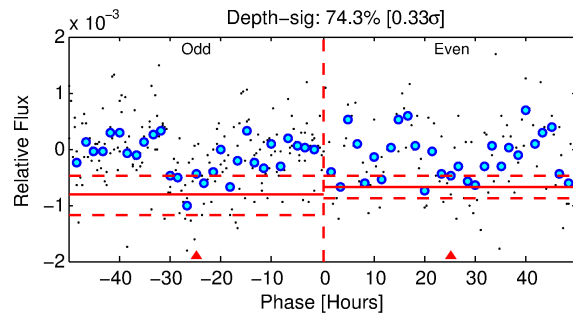
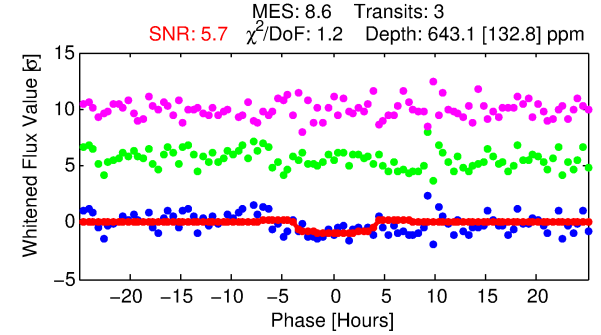
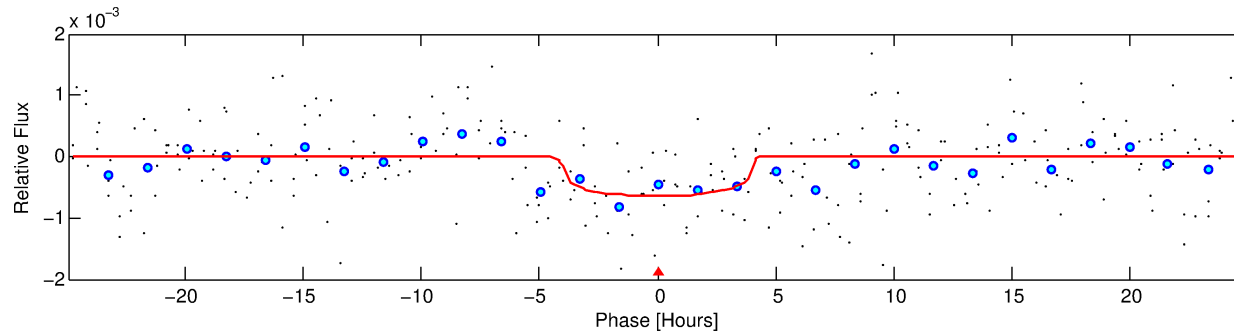
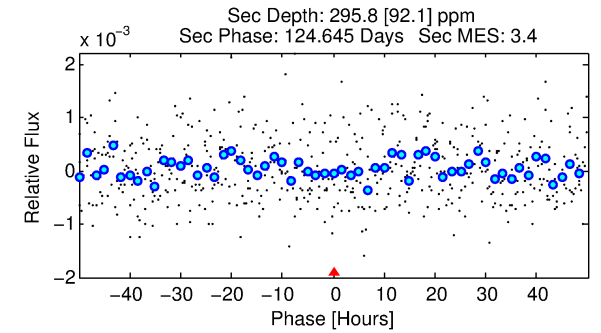
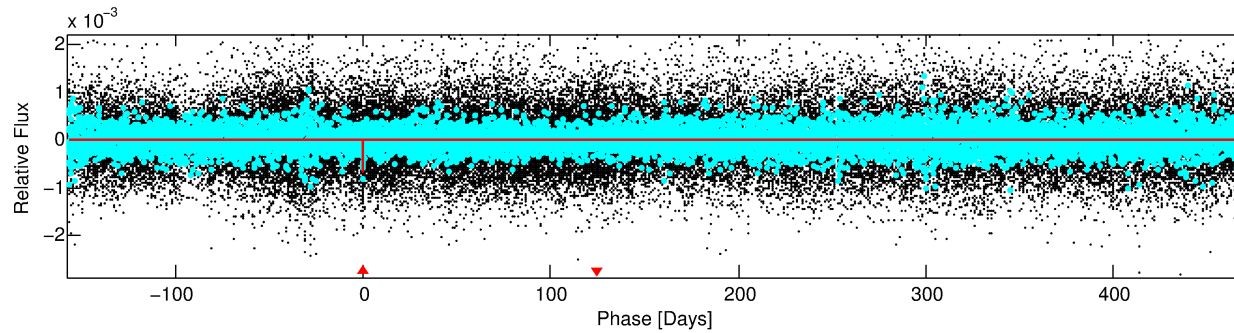
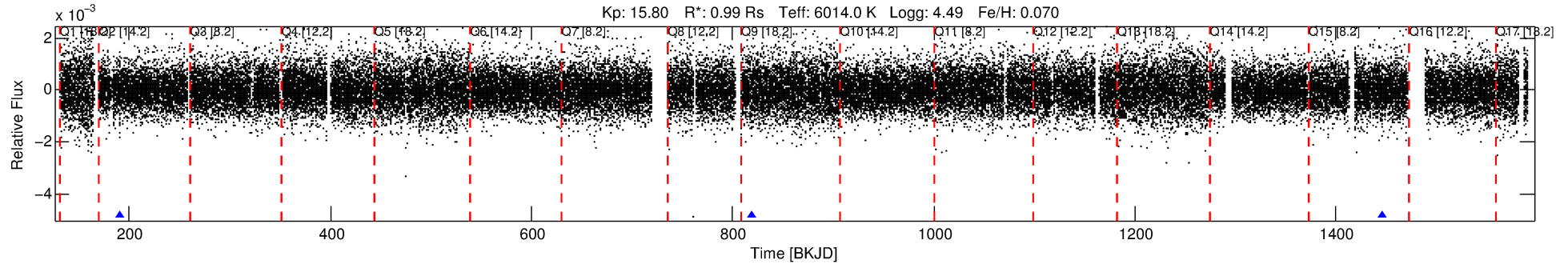
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009407978-01

No Significant Match Found

DV One-Page Summary

KIC: 9407978 Candidate: 1 of 1 Period: 627.700 d



DV Fit Results:

Period = 627.70045 [0.01617] d
Epoch = 190.7556 [0.0201] BKJD
Rp/R* = 0.0244 [0.0248]
a/R* = 466.55 [2175.65]
b = 0.63 [4.56]
Seff = 0.53 [0.21]
Teq = 217 [22] K
Rp = 2.64 [2.80] Re
a = 1.4819 [0.3641] AU
Ag = 51266.92 [107419.88] [0.48σ]
Teffp = 5053 [2613] K [1.85σ]

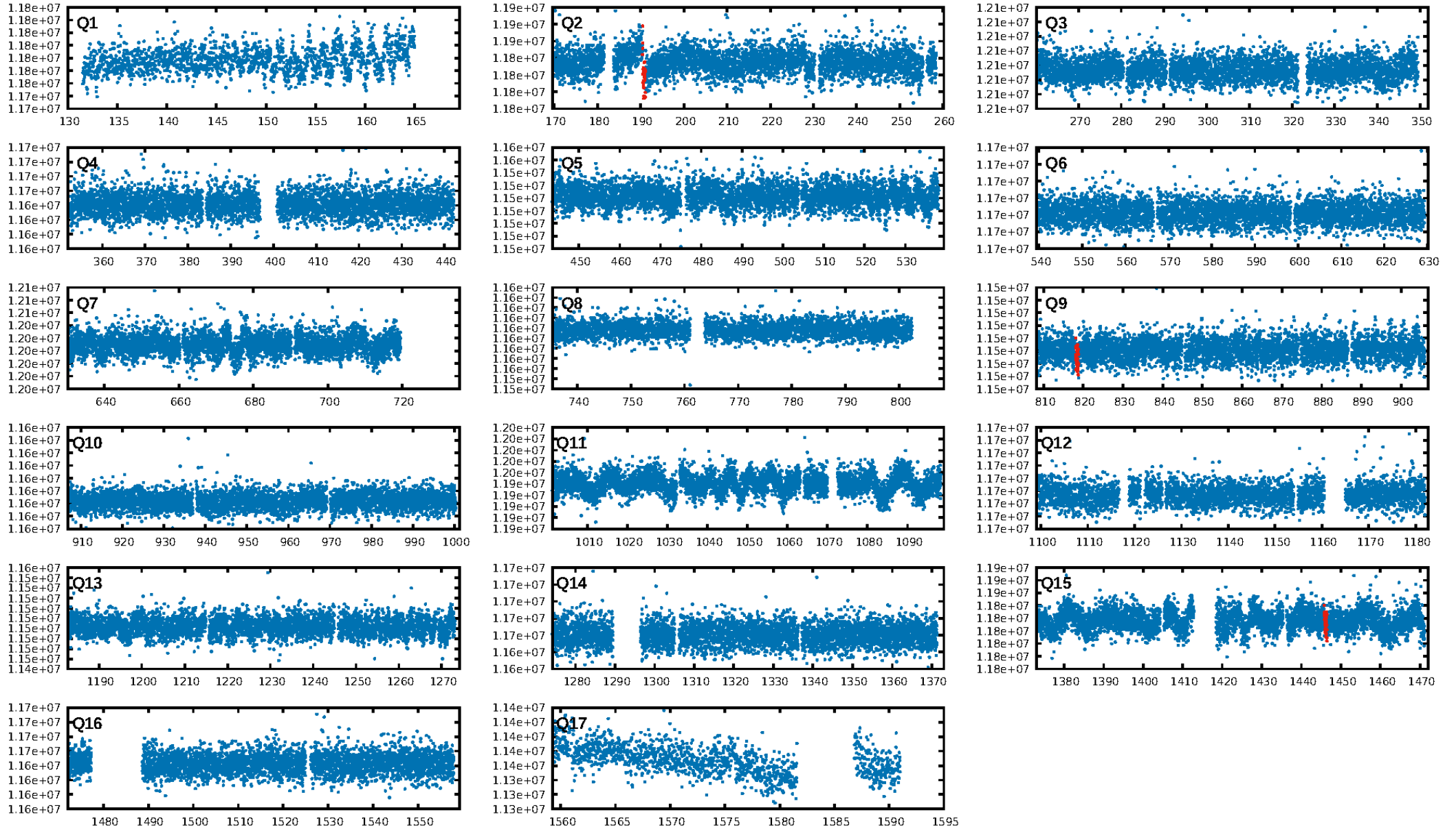
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 20.5%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: 1.90e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.2459
Centroid-sig: 0.4%
Centroid-so: 5.167 arcsec [1.89σ]
OotOffset-rm: 1.544 arcsec [0.97σ]
KicOffset-rm: 1.652 arcsec [1.80σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

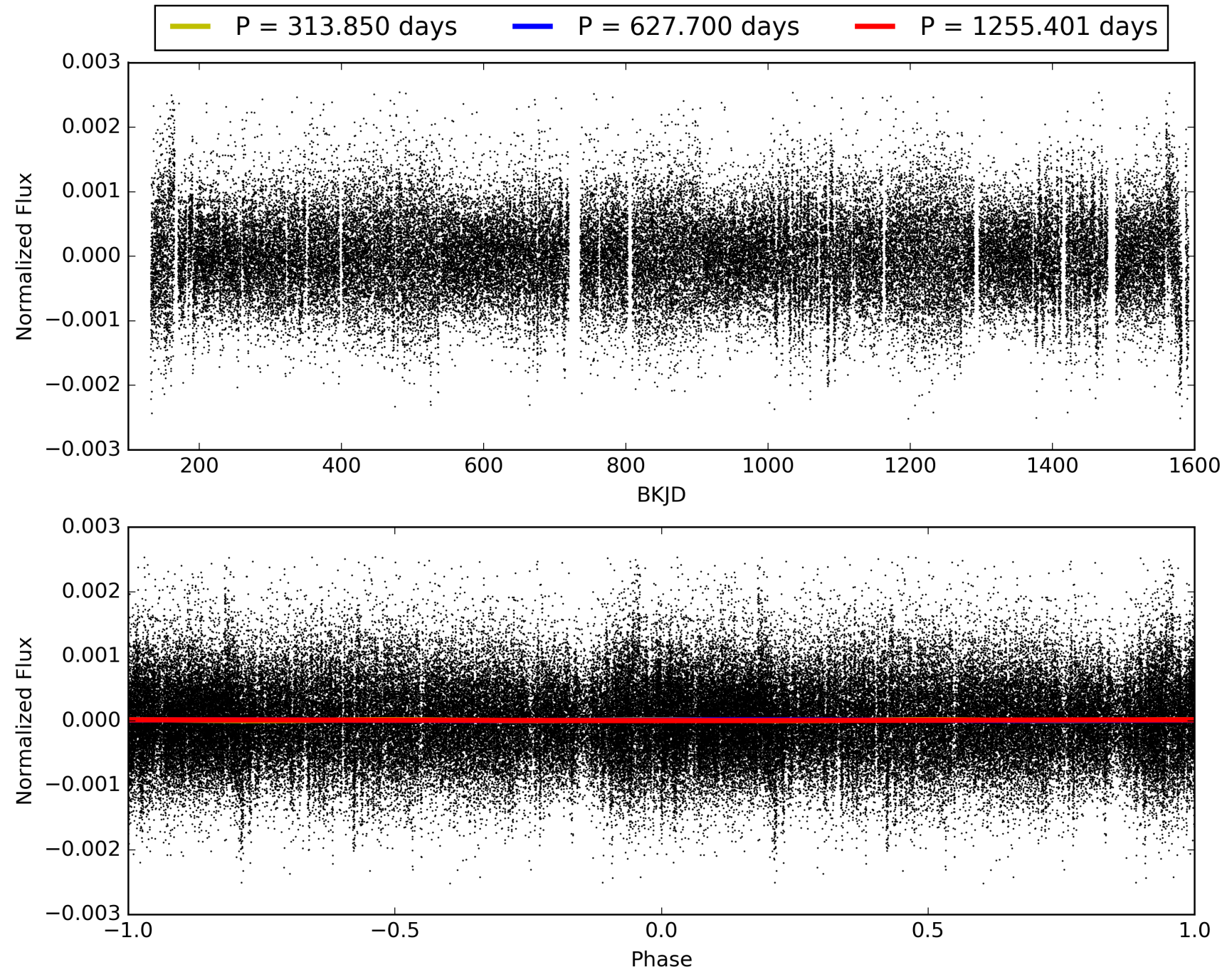
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:14:47 Z

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

TCE 009407978-01, PDC Light Curves

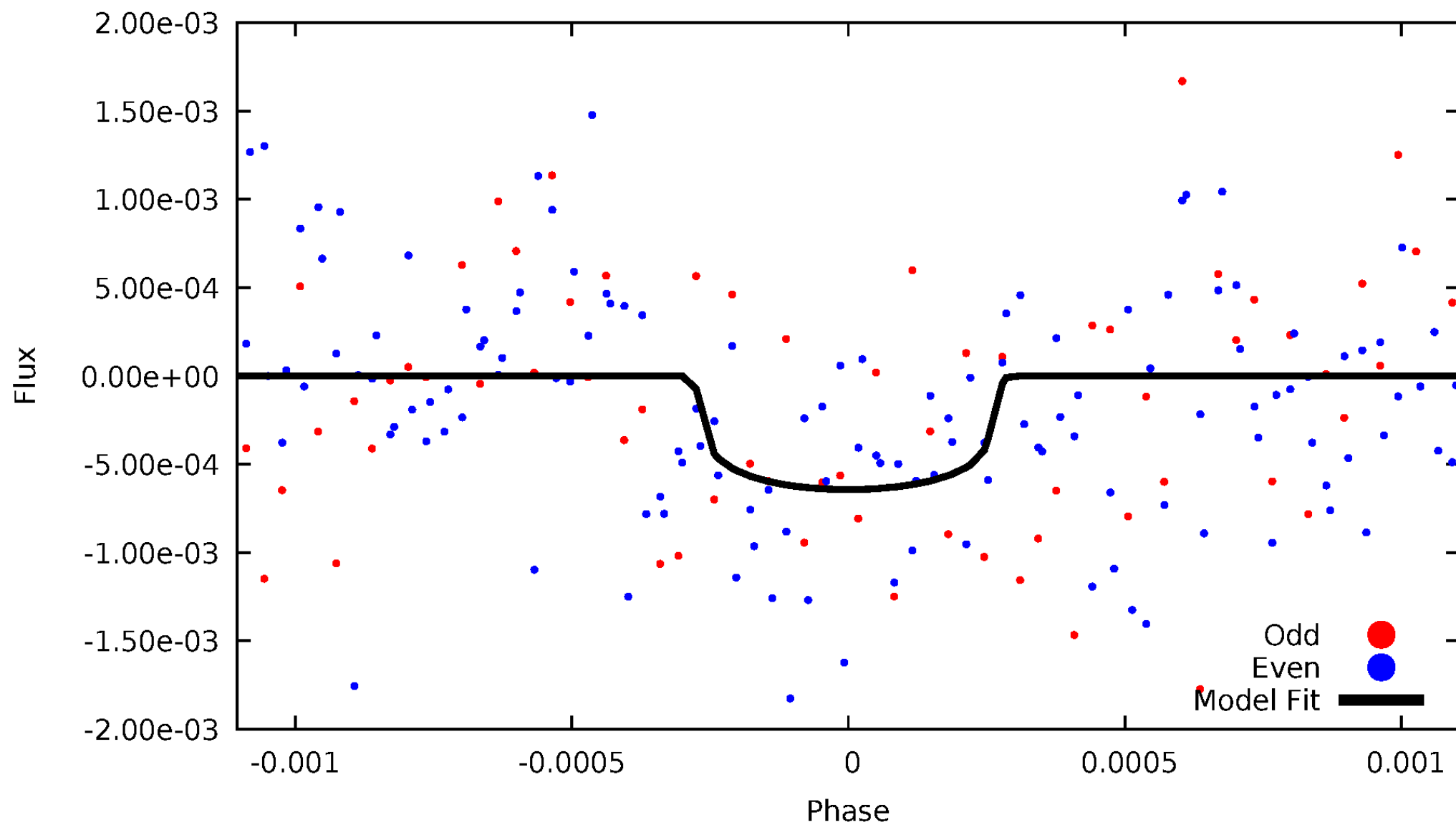


TCE 009407978-01



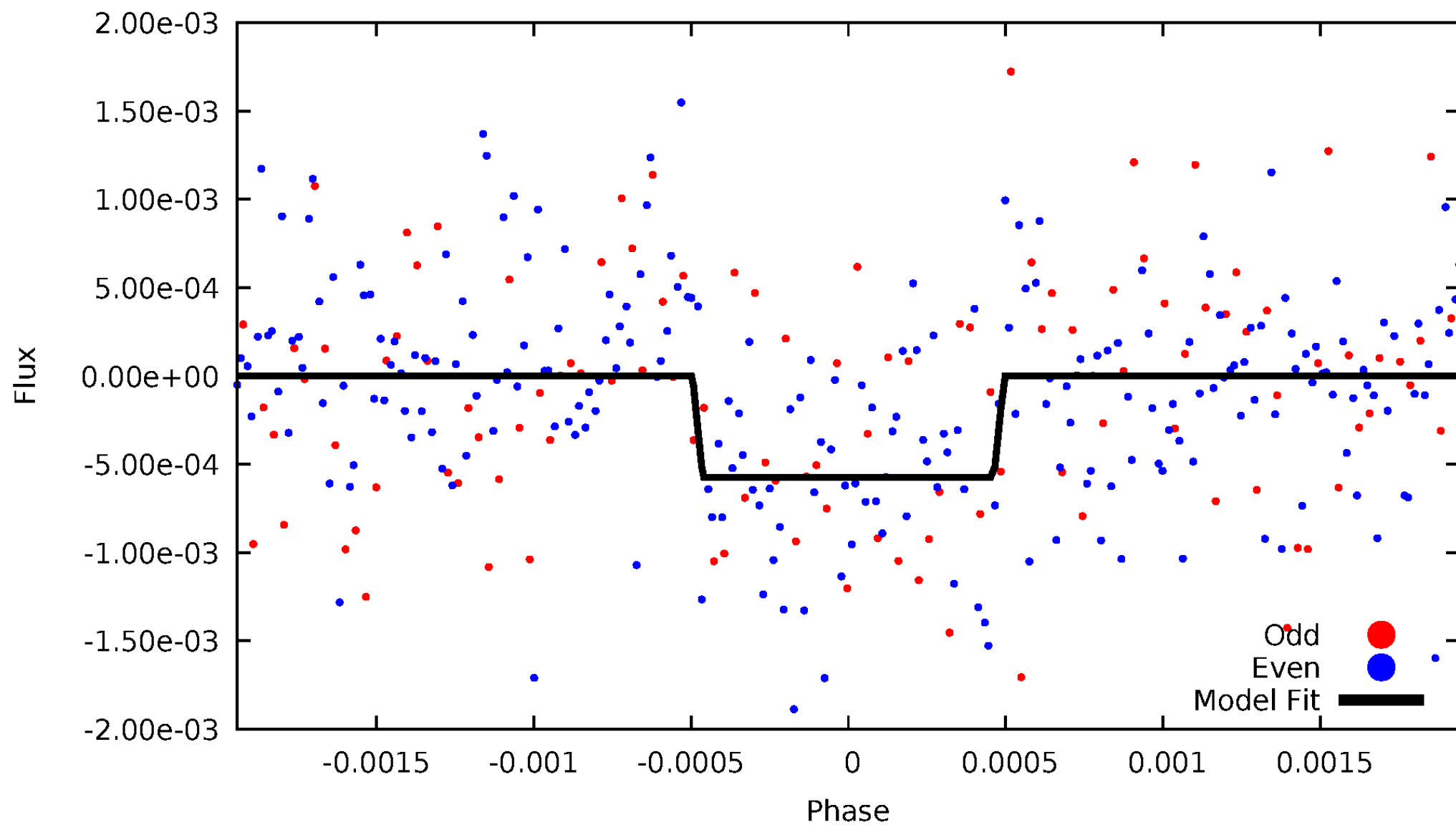
DV Odd/Even

TCE 009407978-01



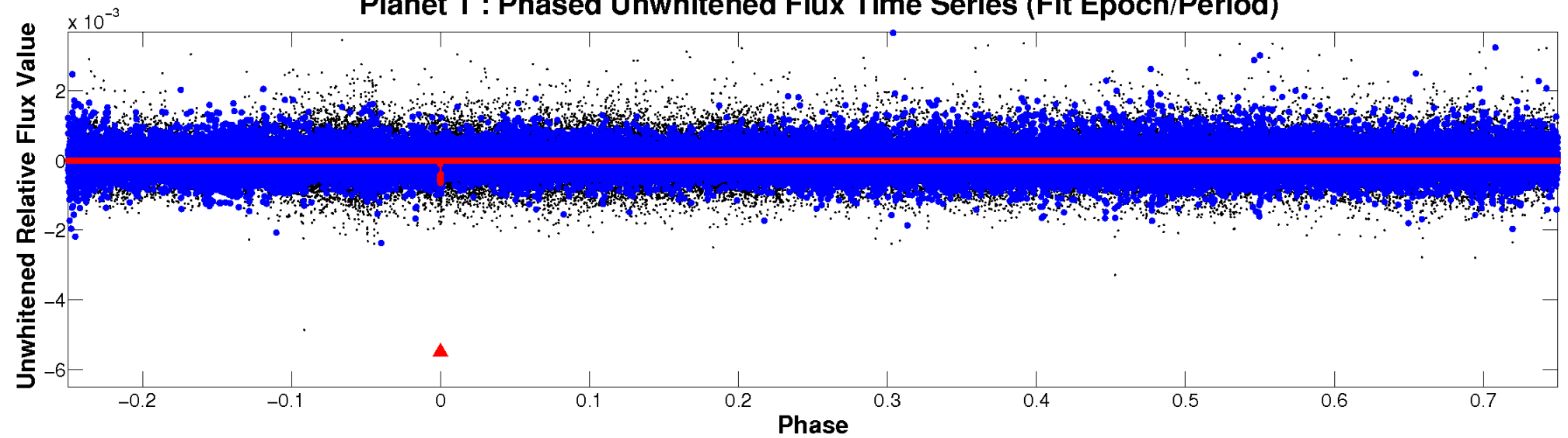
ALT Odd/Even

TCE 009407978-01

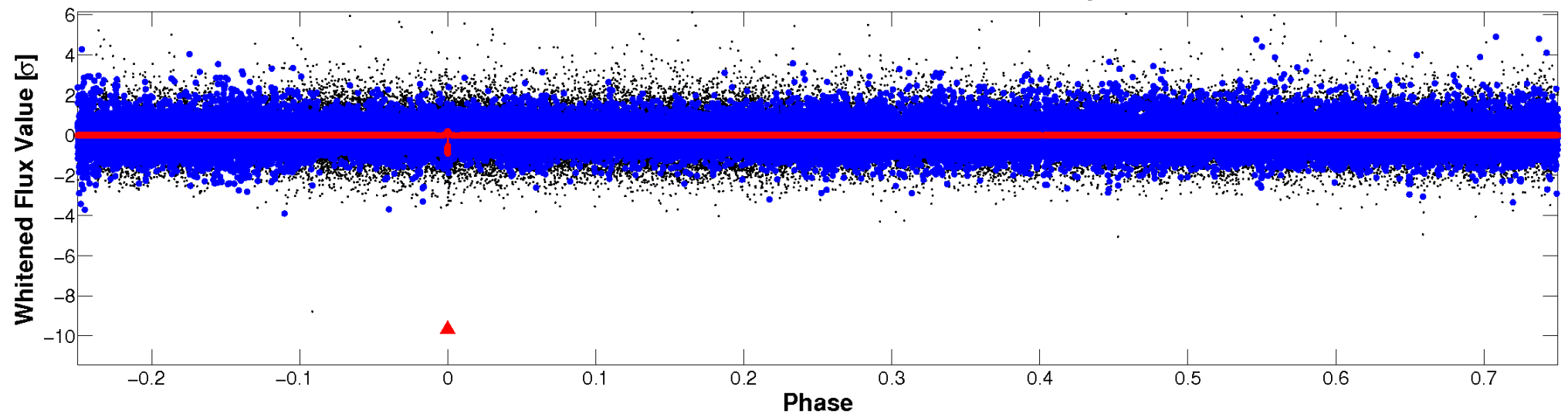


Non-Whitened Vs. Whitened Light Curve

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

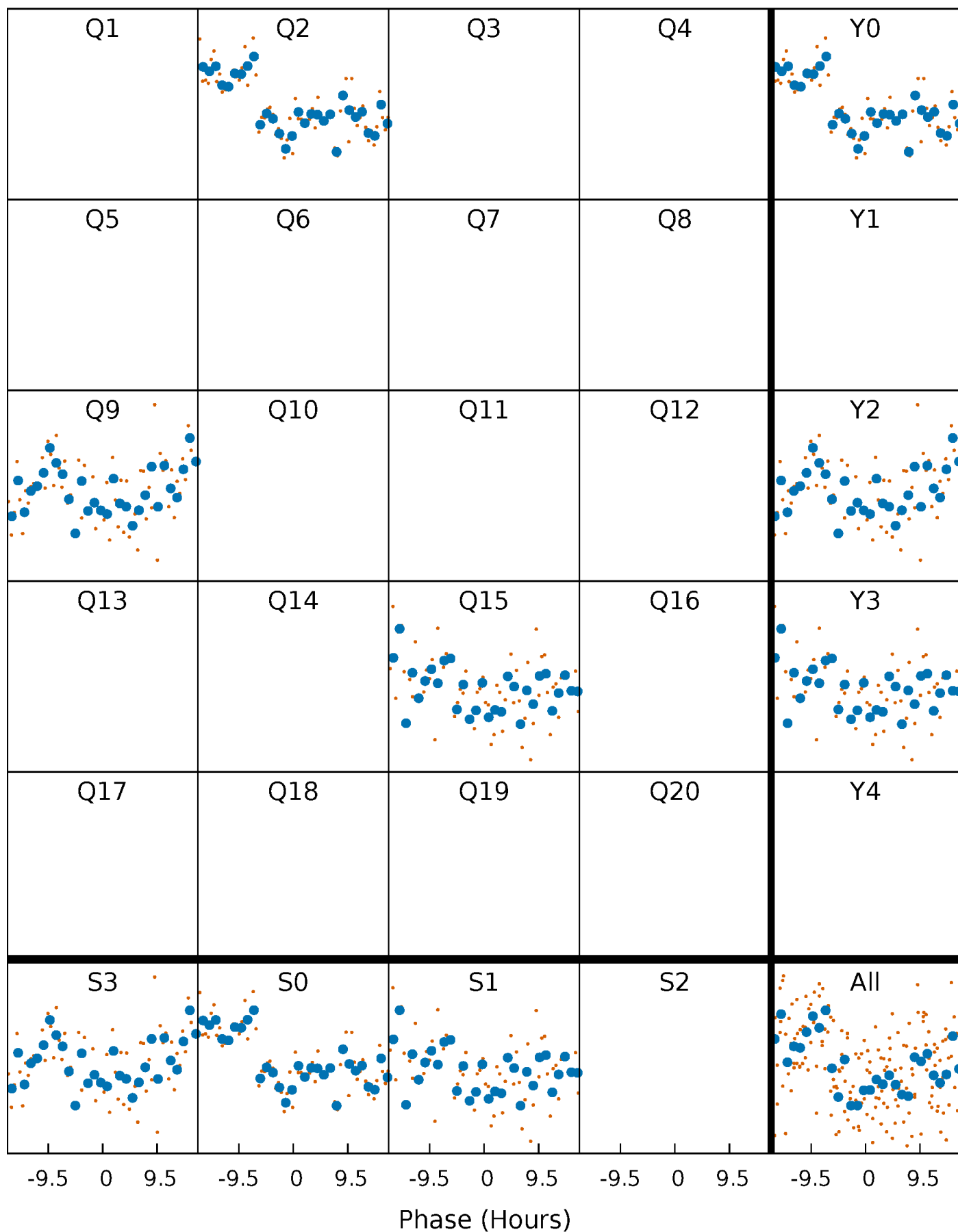


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009407978-01 P=627.700450 Days $T_0=190.755620$ (BKJD)



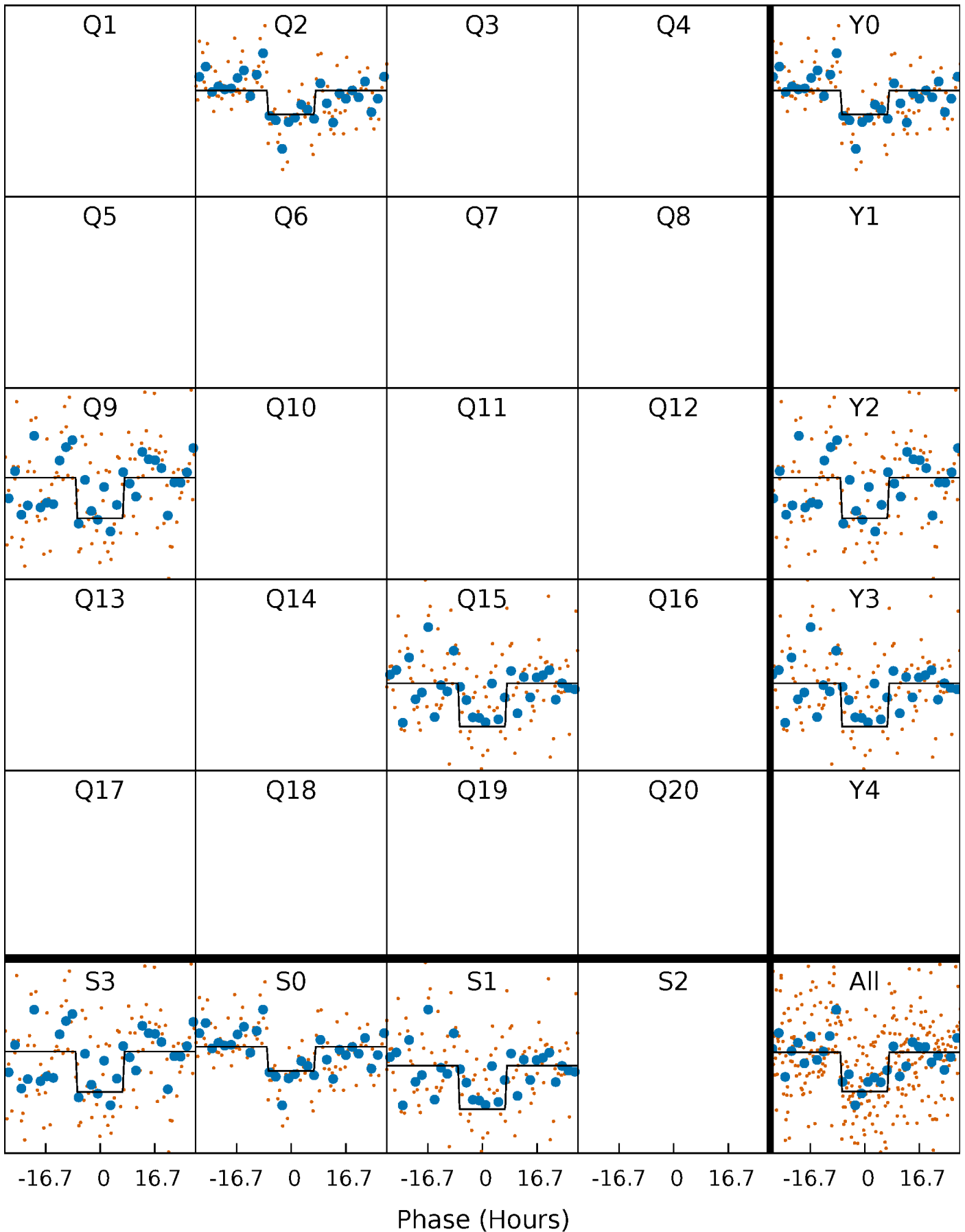
DV Quarter-Phased Transit Curves

TCE 009407978-01 P=627.700450 Days $T_0=190.755620$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

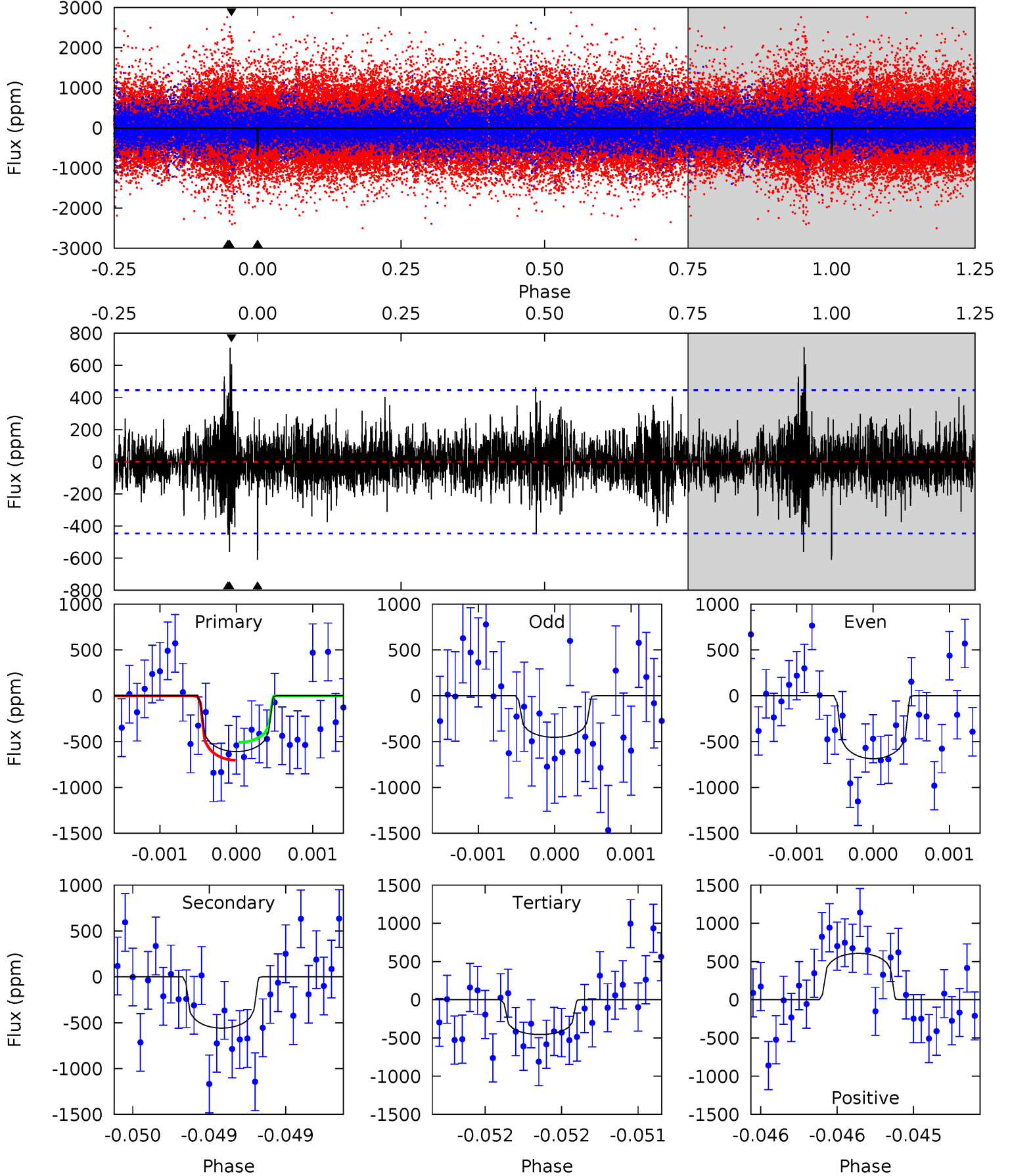
TCE 009407978-01 P=627.712152 Days $T_0=190.798285$ (BKJD)



DV Model-Shift Uniqueness Test

009407978-01, P = 627.700450 Days, E = 190.755620 Days

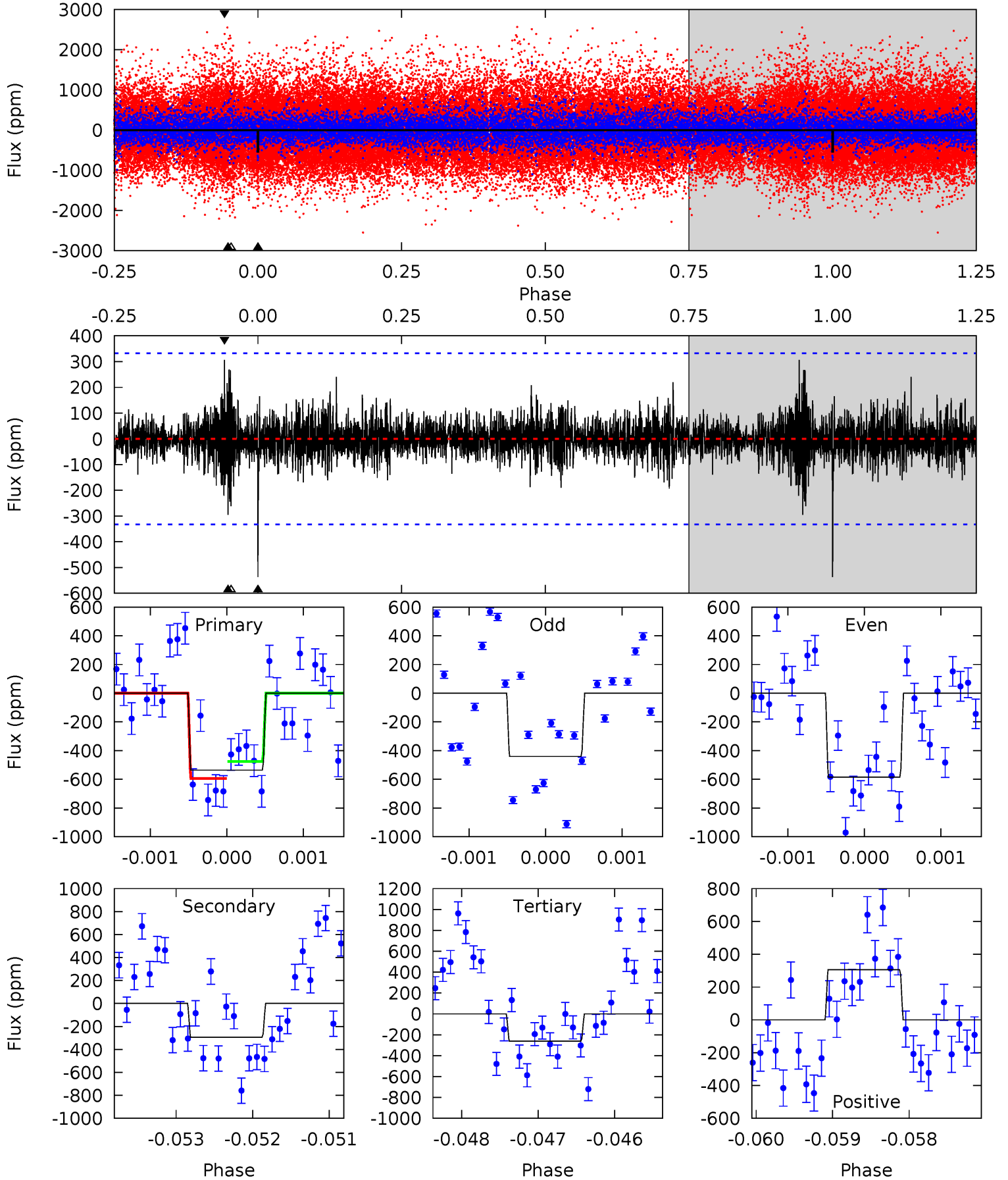
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.56	6.94	5.65	7.54	5.55	3.44	1.34	1.91	0.02	1.29	-0.60	1.38	1.19	0.54	1.19



Alt Model-Shift Uniqueness Test

009407978-01, P = 627.712152 Days, E = 190.798285 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.80	4.84	4.30	5.03	5.46	3.30	0.89	4.50	3.77	0.54	-0.19	1.14	1.22	0.36	0.97



Stellar Parameters For KIC 009407978

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6014^{+169}_{-232}	$4.486^{+0.048}_{-0.204}$	$0.070^{+0.250}_{-0.300}$	$0.993^{+0.282}_{-0.101}$	$1.101^{+0.120}_{-0.147}$	$1.584^{+0.323}_{-0.796}$
	+3%/-4%	+1%/-5%	+357%/-429%	+28%/-10%	+11%/-13%	+20%/-50%
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 009407978-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-559±81	$3.30^{+2.47}_{-2.12}$	310^{+20}_{-16}	5451^{+4184}_{-1130}	$60869^{+383368}_{-40793}$
Alt.	-295±61	$3.29^{+2.73}_{-2.03}$	310^{+20}_{-16}	4662^{+2792}_{-857}	$31002^{+170706}_{-21713}$

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 $A_{obs} \gg 1.0$

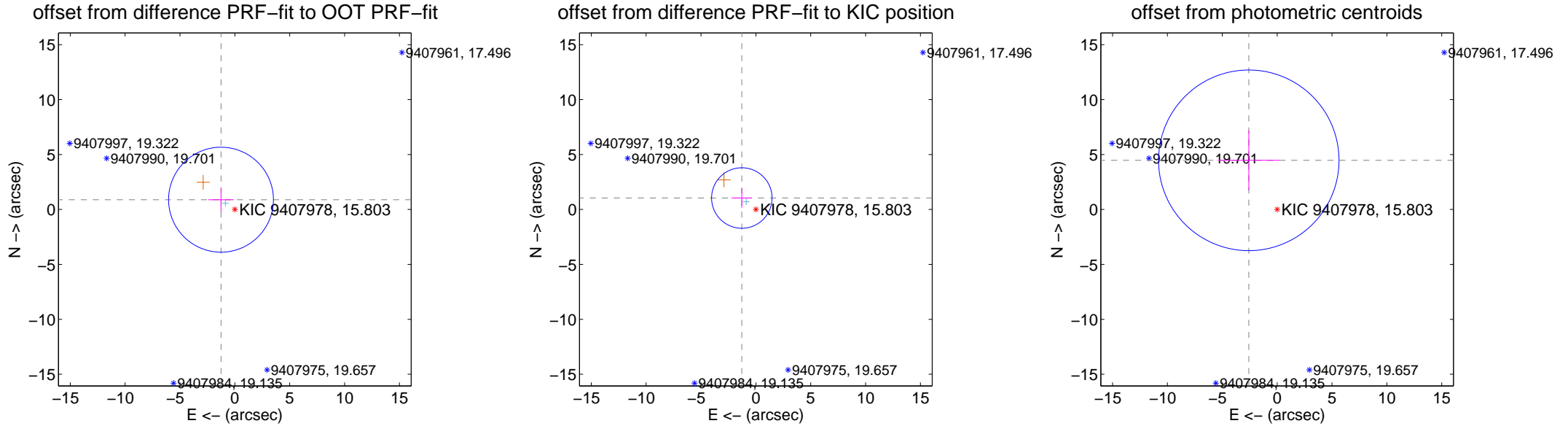
DV Centroid Data

Supplemental centroid analysis for 009407978-01. Kepler magnitude: 15.80. Transit SNR 5.75

There are 1 quarters with good PRF difference image offsets

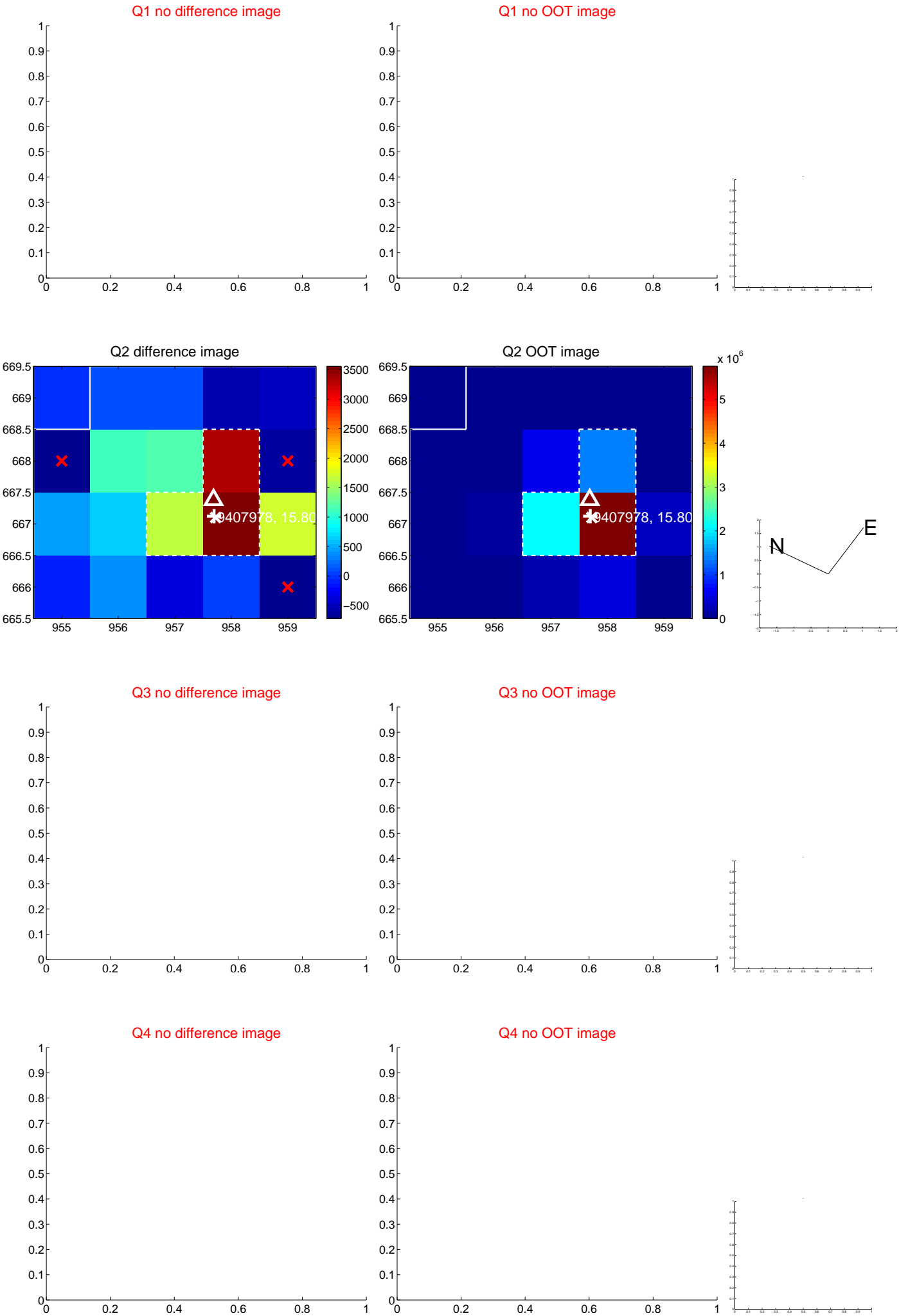
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.544 ± 1.592	0.97	1.262 ± 1.170	0.889 ± 1.106
PRF-fit source offset from KIC position	1.652 ± 0.918	1.80	1.281 ± 0.944	1.043 ± 0.878
photometric centroid source offset	5.17 ± 2.74	1.89	2.58 ± 2.80	4.47 ± 2.72



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.

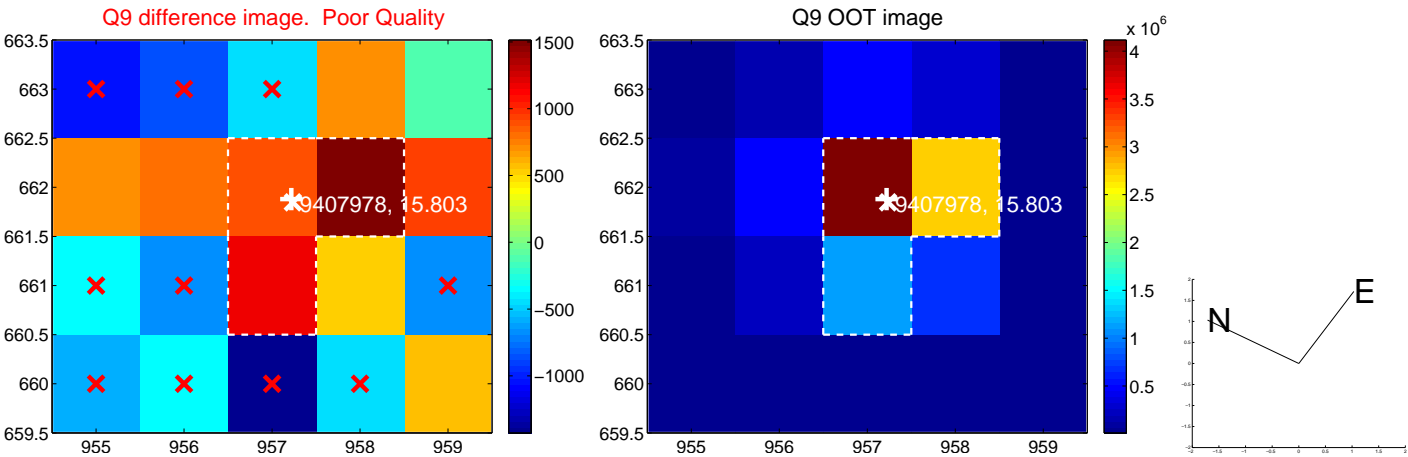
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



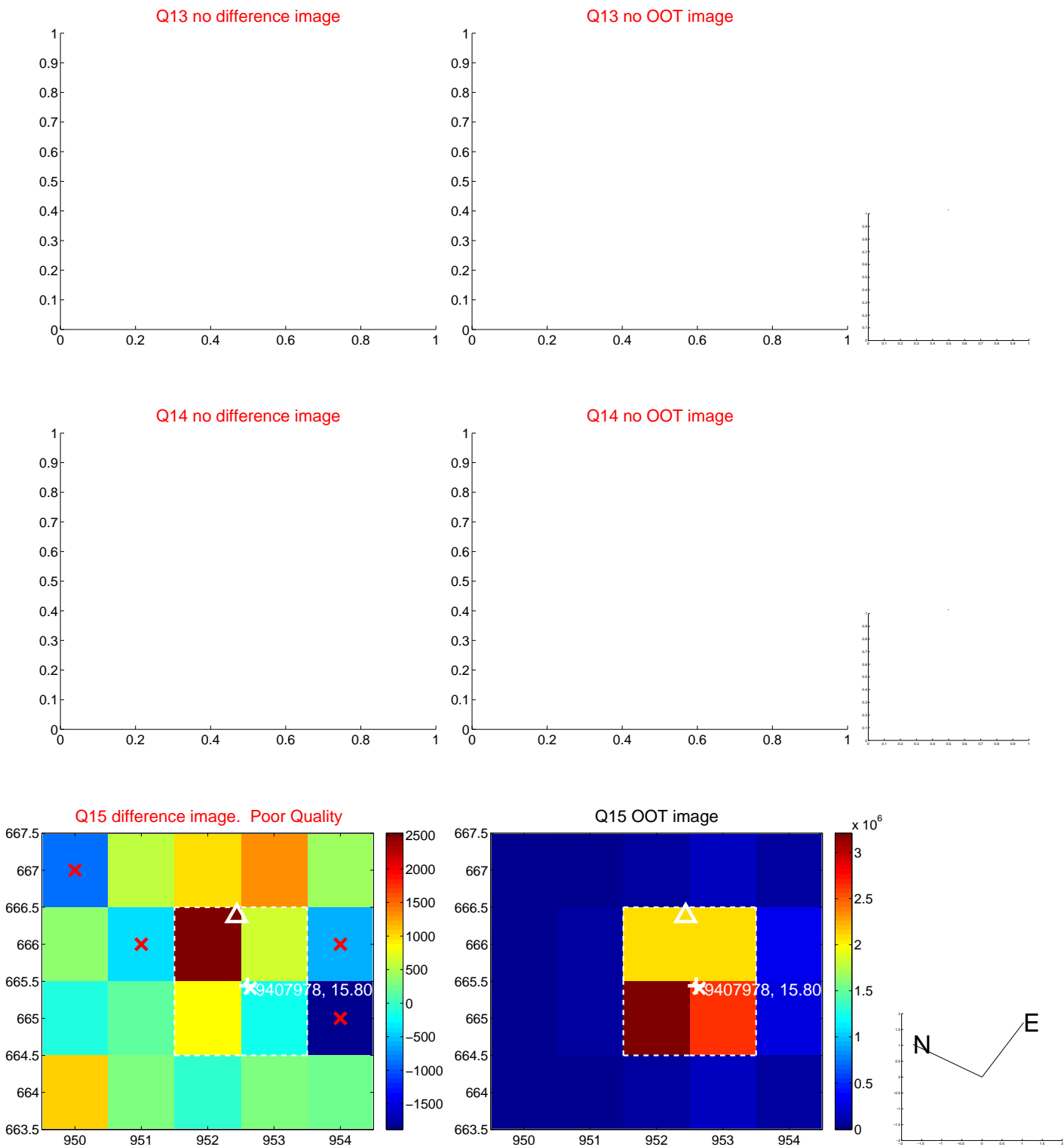
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



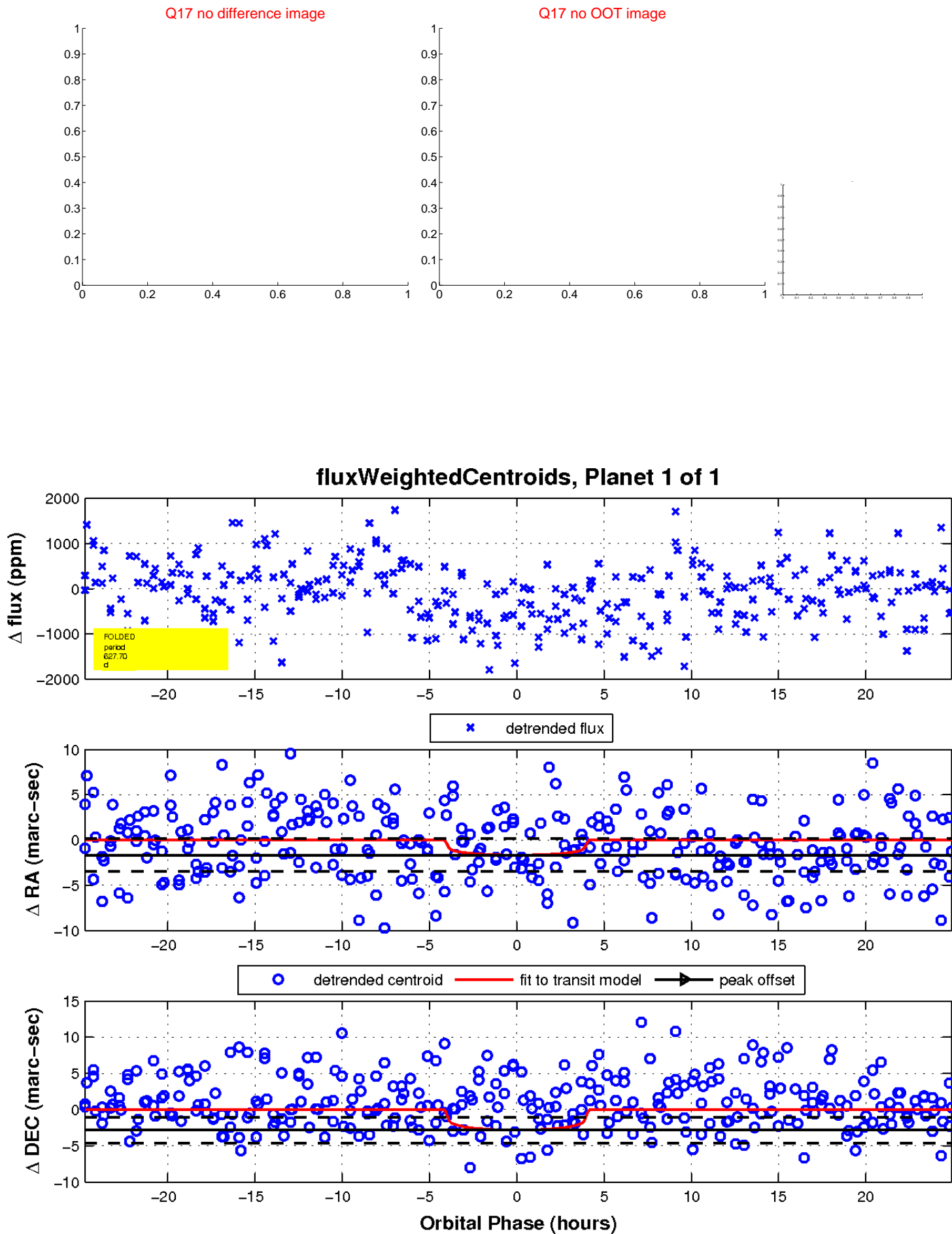
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

