

KIC 008423509

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})
008423509-01	OBS	No	456.591028	191.265912	474.2	8.757	7.2	6.6	0.95	6344	2.26	0.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008423509-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

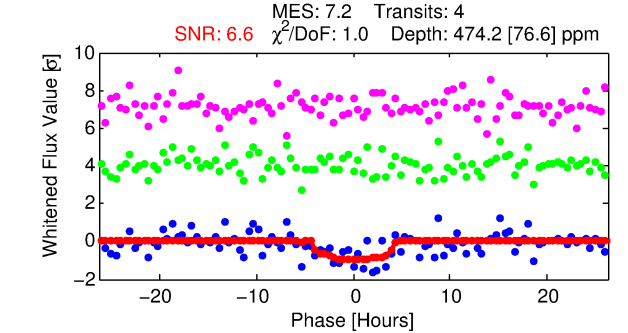
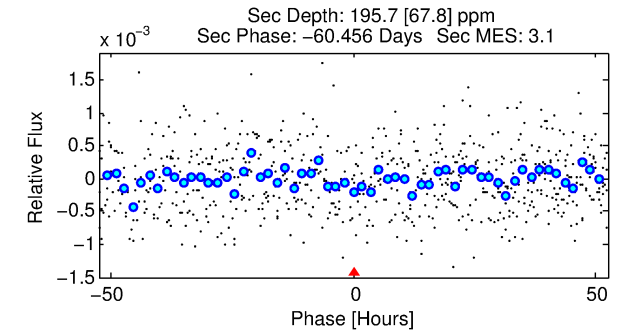
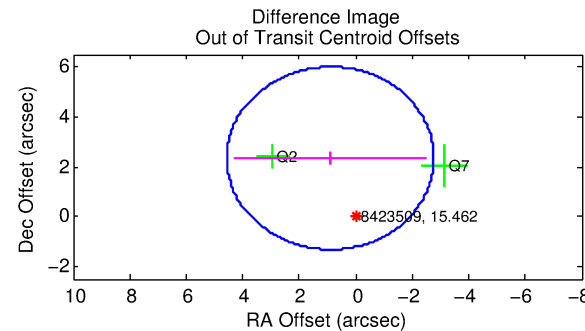
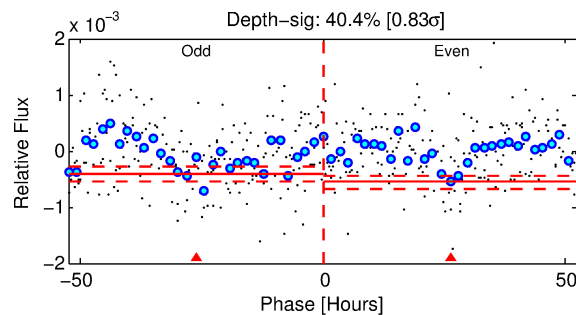
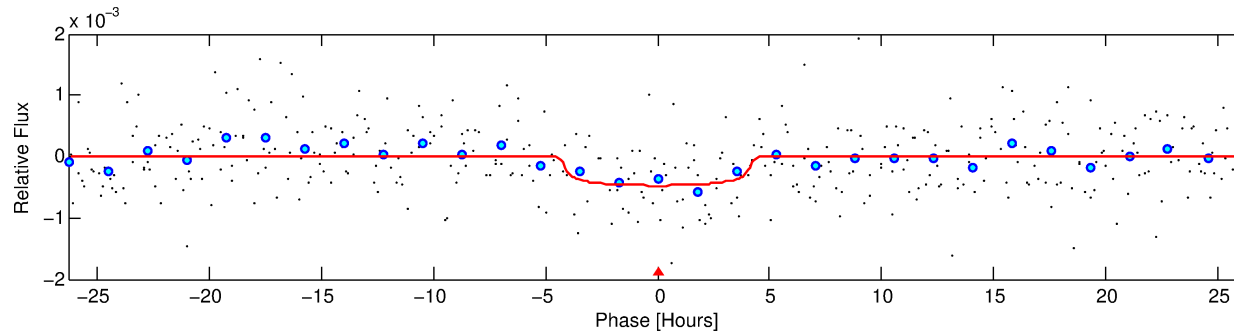
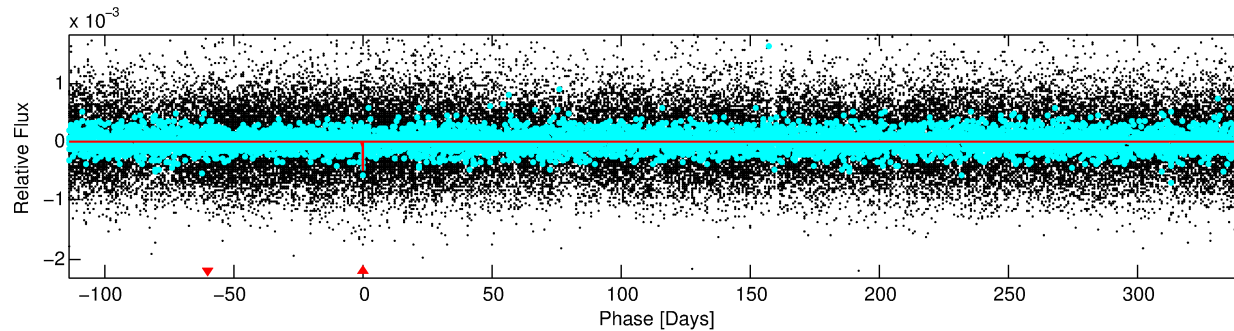
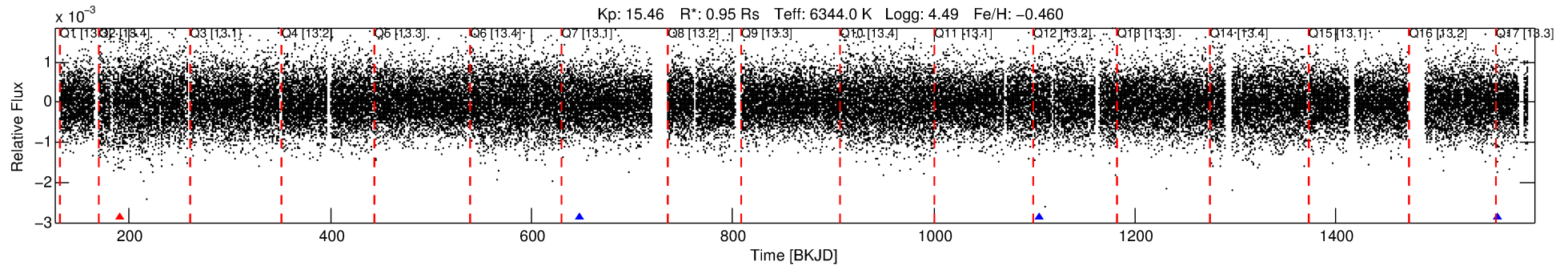
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008423509-01

No Significant Match Found

DV One-Page Summary

KIC: 8423509 Candidate: 1 of 1 Period: 456.591 d



DV Fit Results:

Period = 456.59103 [0.01485] d
Epoch = 191.2659 [0.0252] BKJD
Rp/R* = 0.0219 [0.0152]
a/R* = 261.67 [981.90]
b = 0.78 [1.88]
Seff = 0.96 [0.39]
Teq = 252 [25] K
Rp = 2.26 [1.71] Re
a = 1.1640 [0.3010] AU
Ag = 28484.09 [42098.32] [0.68 σ]
Teffp = 5071 [1820] K [2.65 σ]

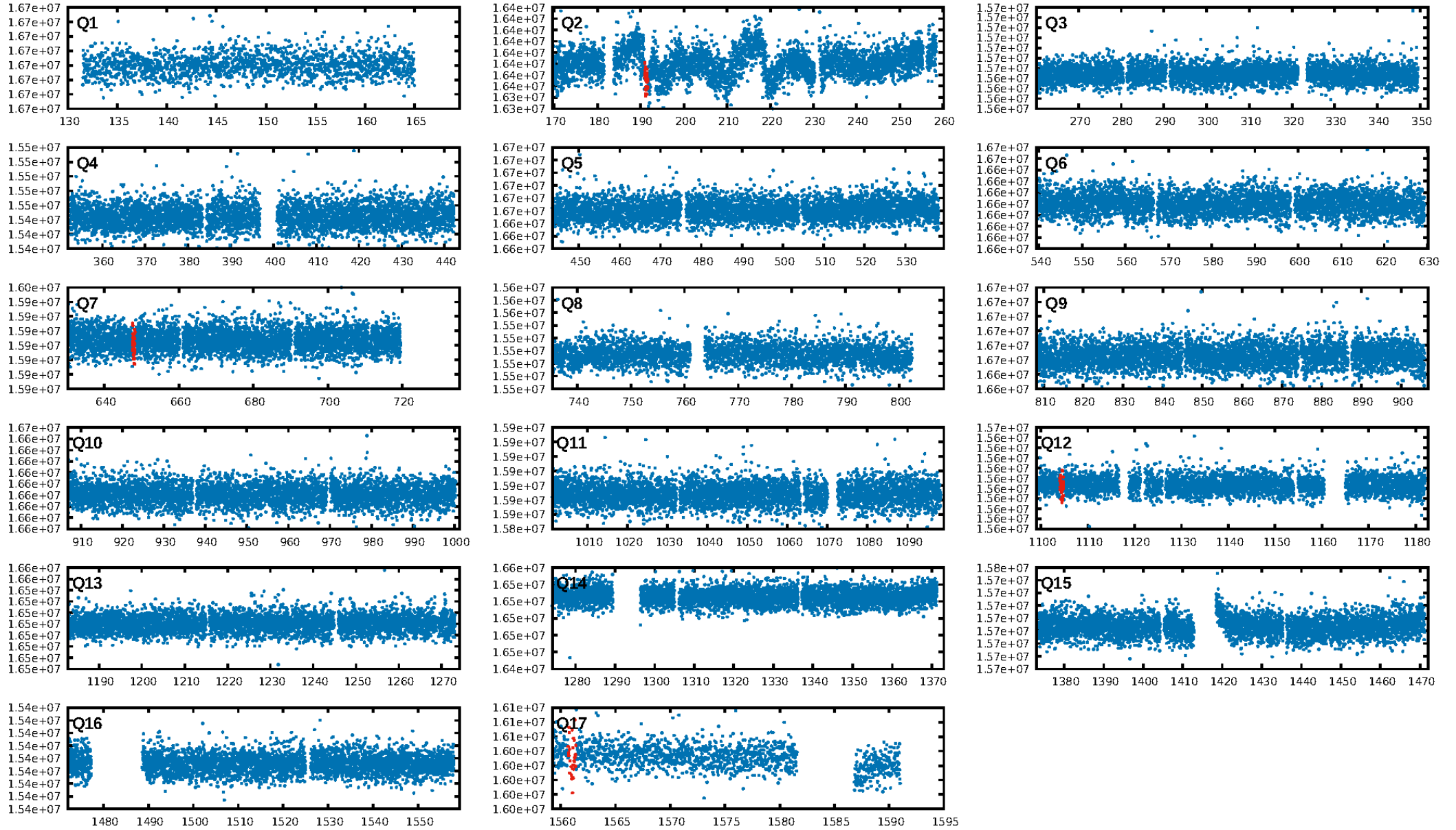
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 23.2%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 1.49e-10
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: -0.4383
Centroid-sig: 11.0%
Centroid-so: 3.213 arcsec [1.45 σ]
OotOffset-rm: 2.505 arcsec [2.05 σ]
KicOffset-rm: 2.508 arcsec [2.19 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

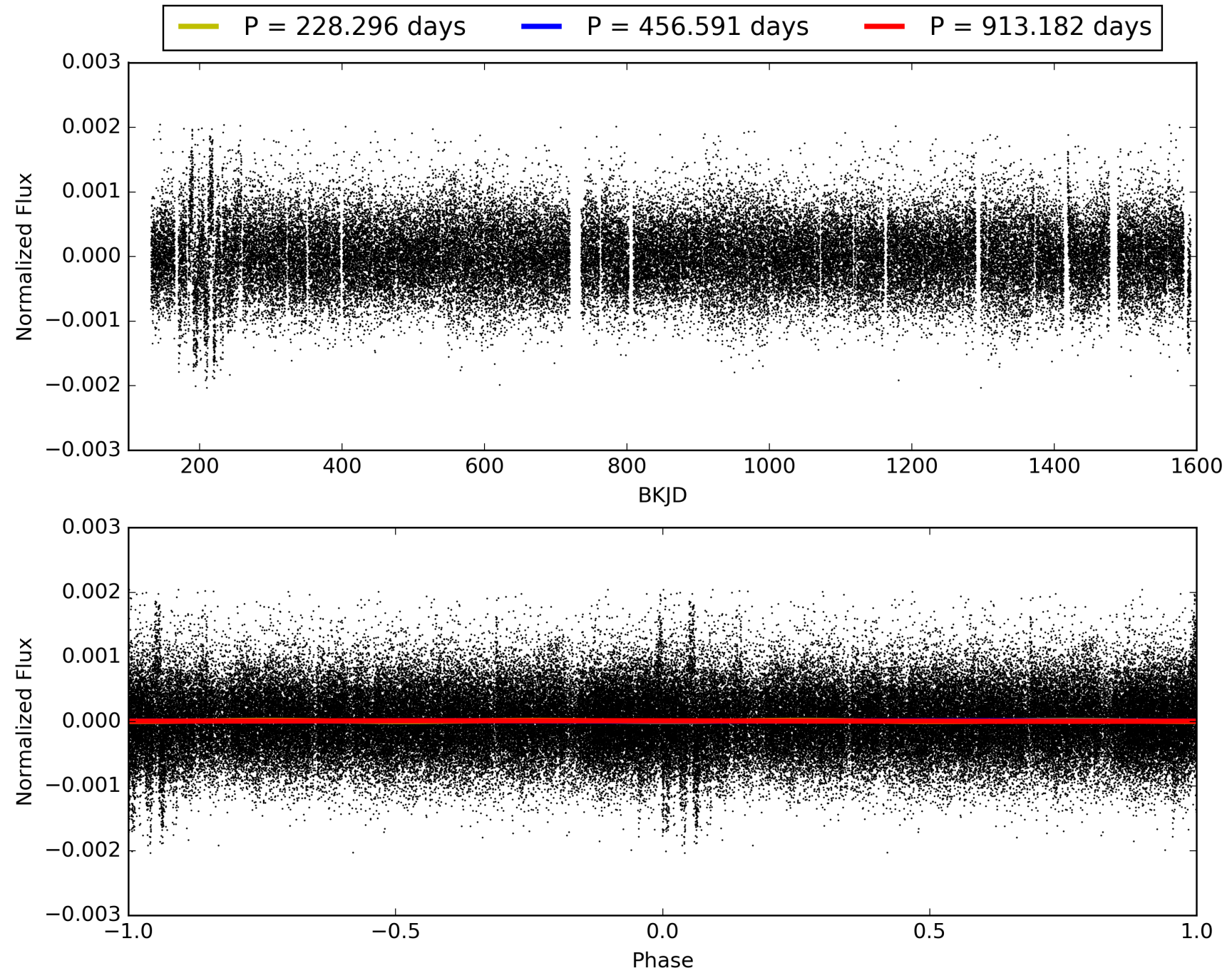
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:12:00 Z

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

TCE 008423509-01, PDC Light Curves

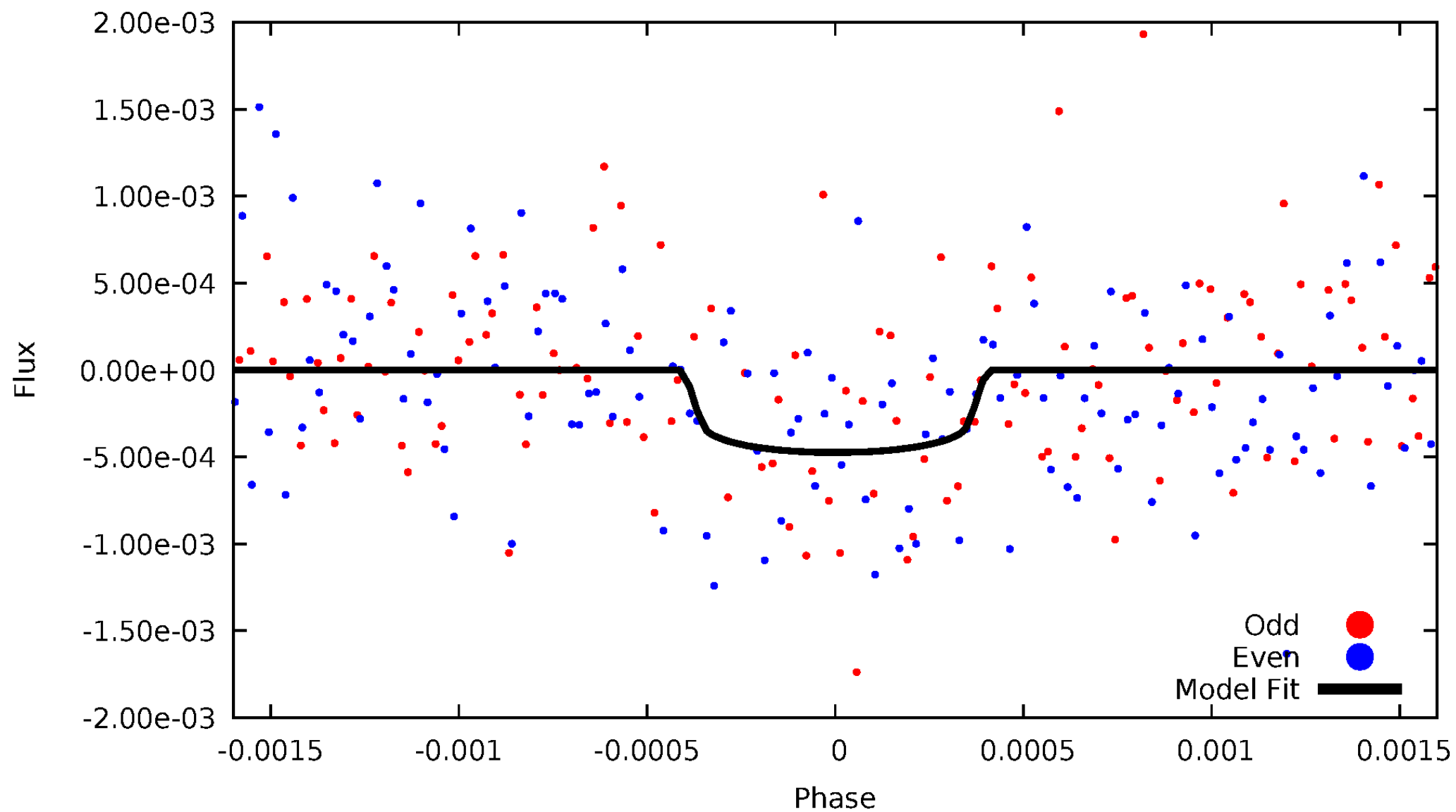


TCE 008423509-01



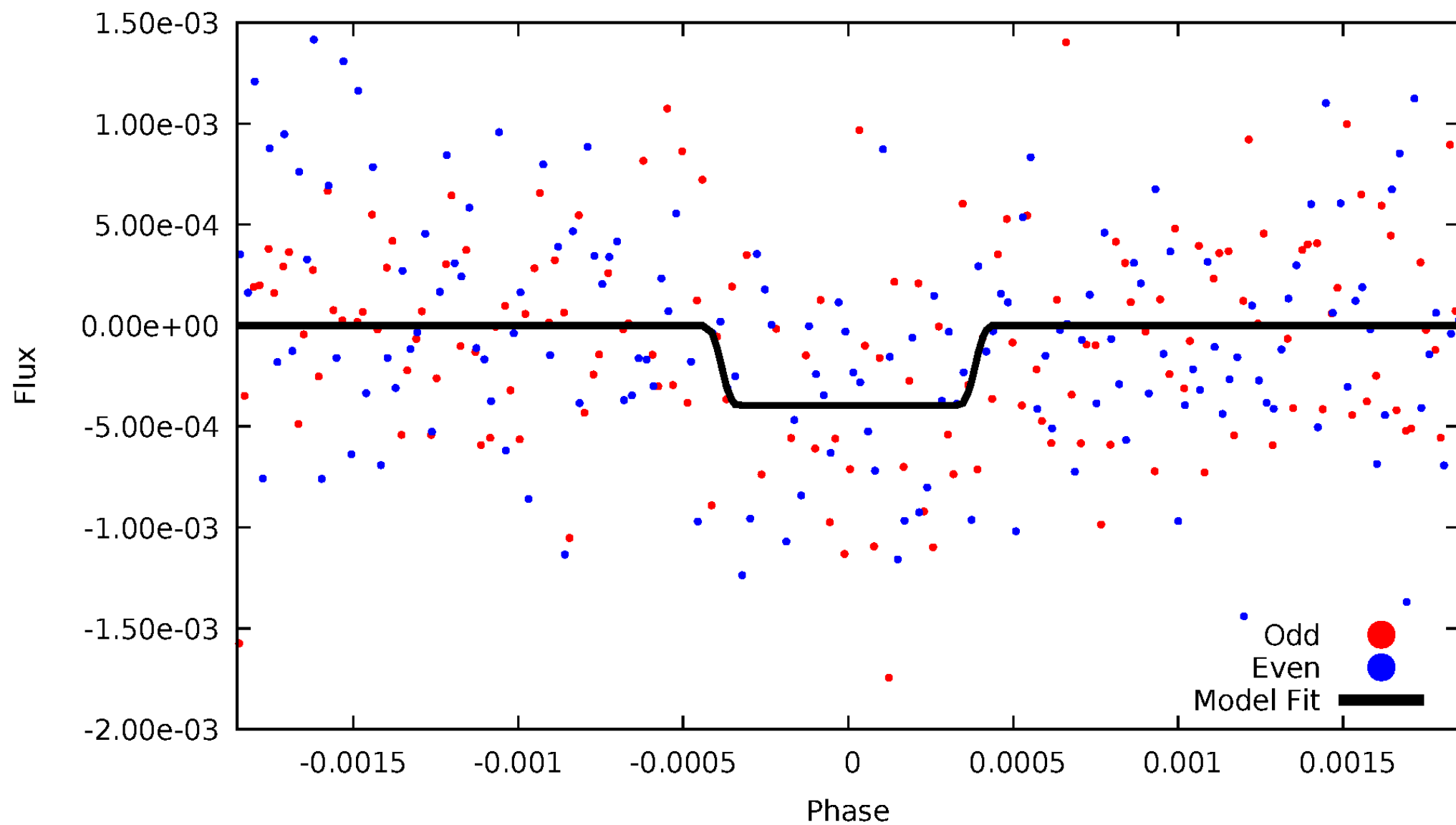
DV Odd/Even

TCE 008423509-01



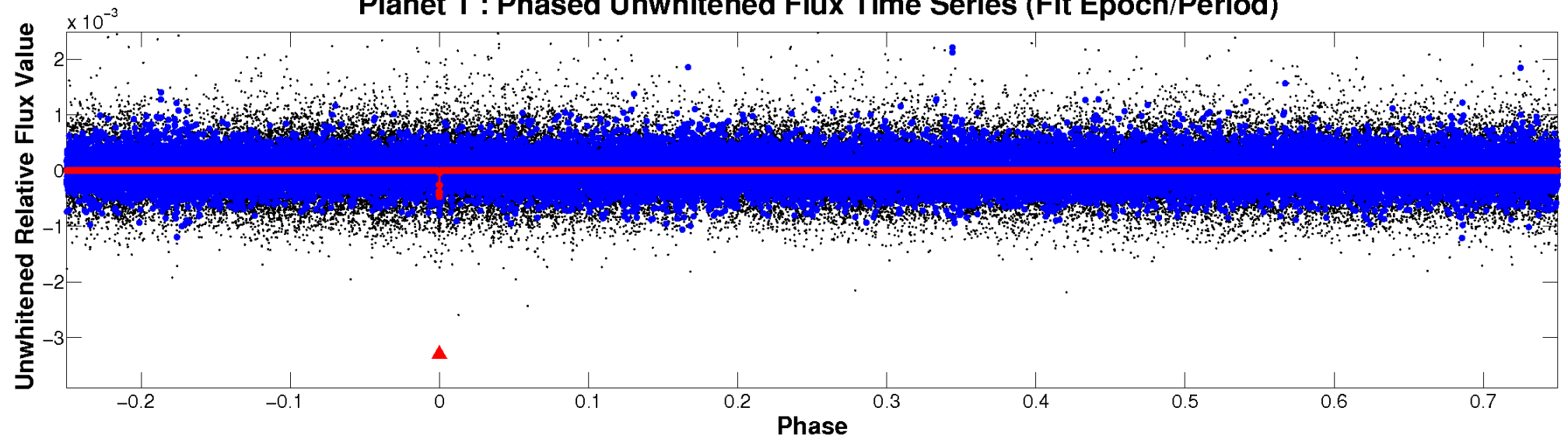
ALT Odd/Even

TCE 008423509-01

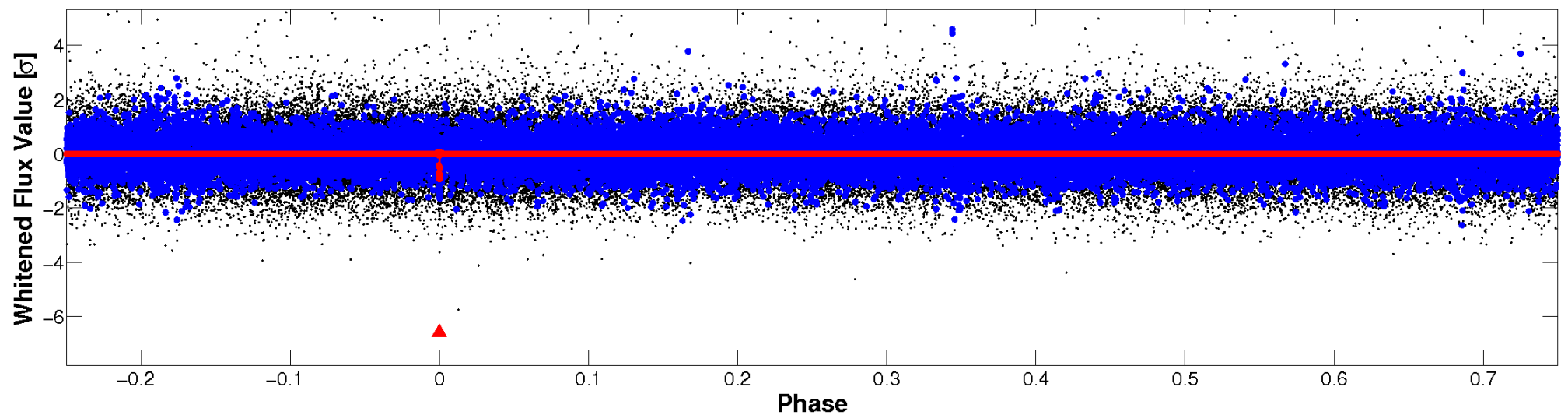


Non-Whitened Vs. Whitened Light Curve

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

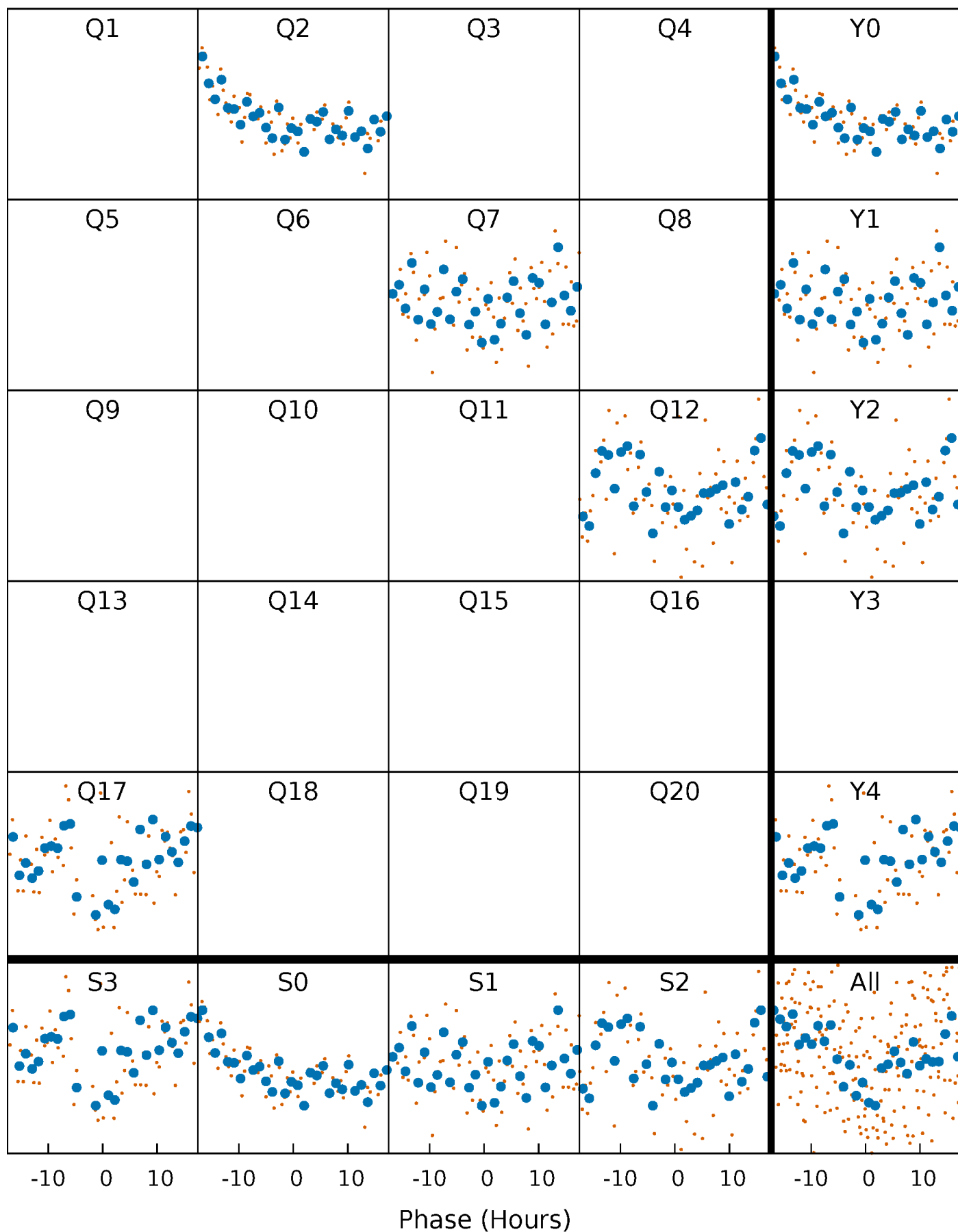


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 008423509-01 P=456.591027 Days $T_0=191.265912$ (BKJD)



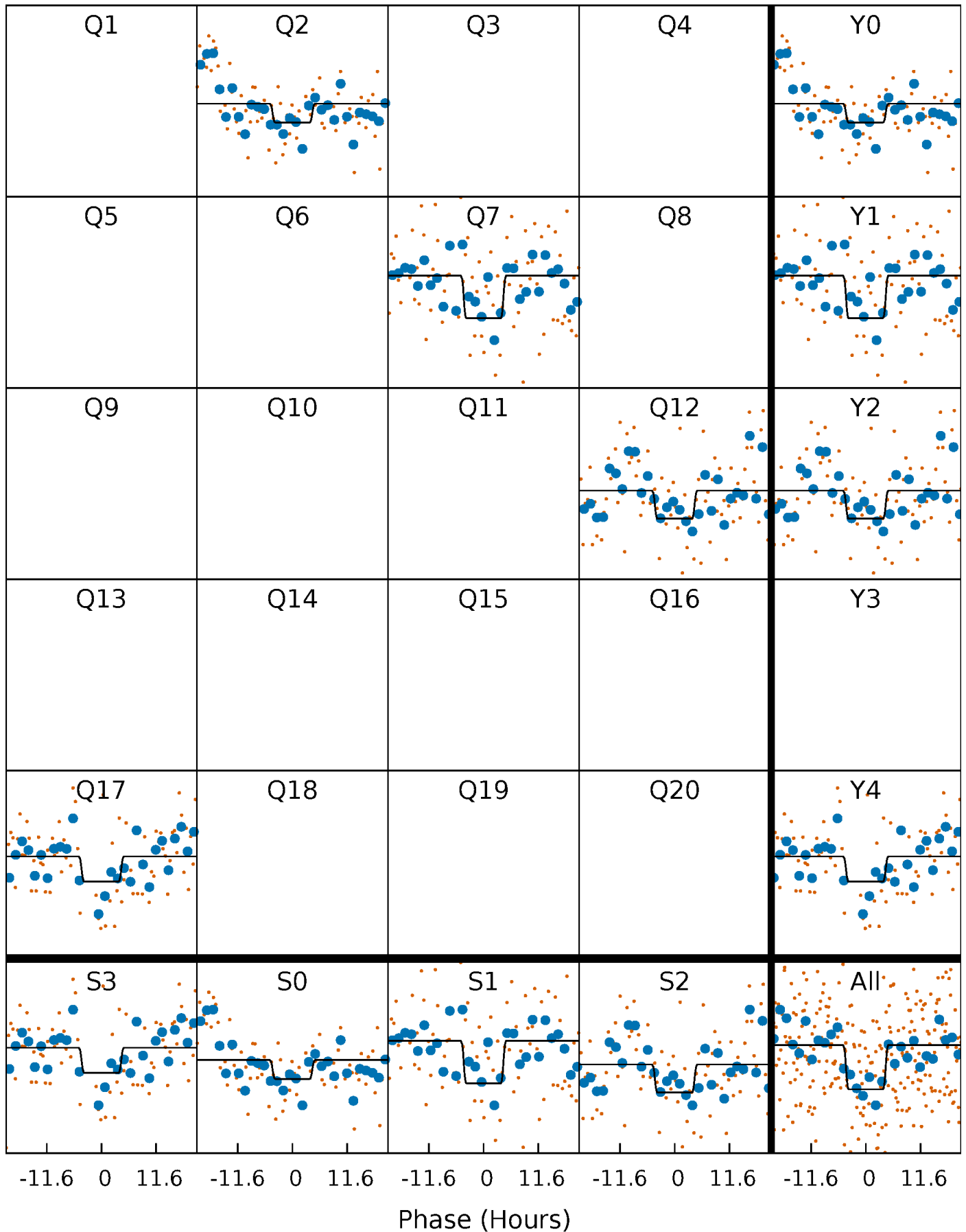
DV Quarter-Phased Transit Curves

TCE 008423509-01 $P=456.591027$ Days $T_0=191.265912$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

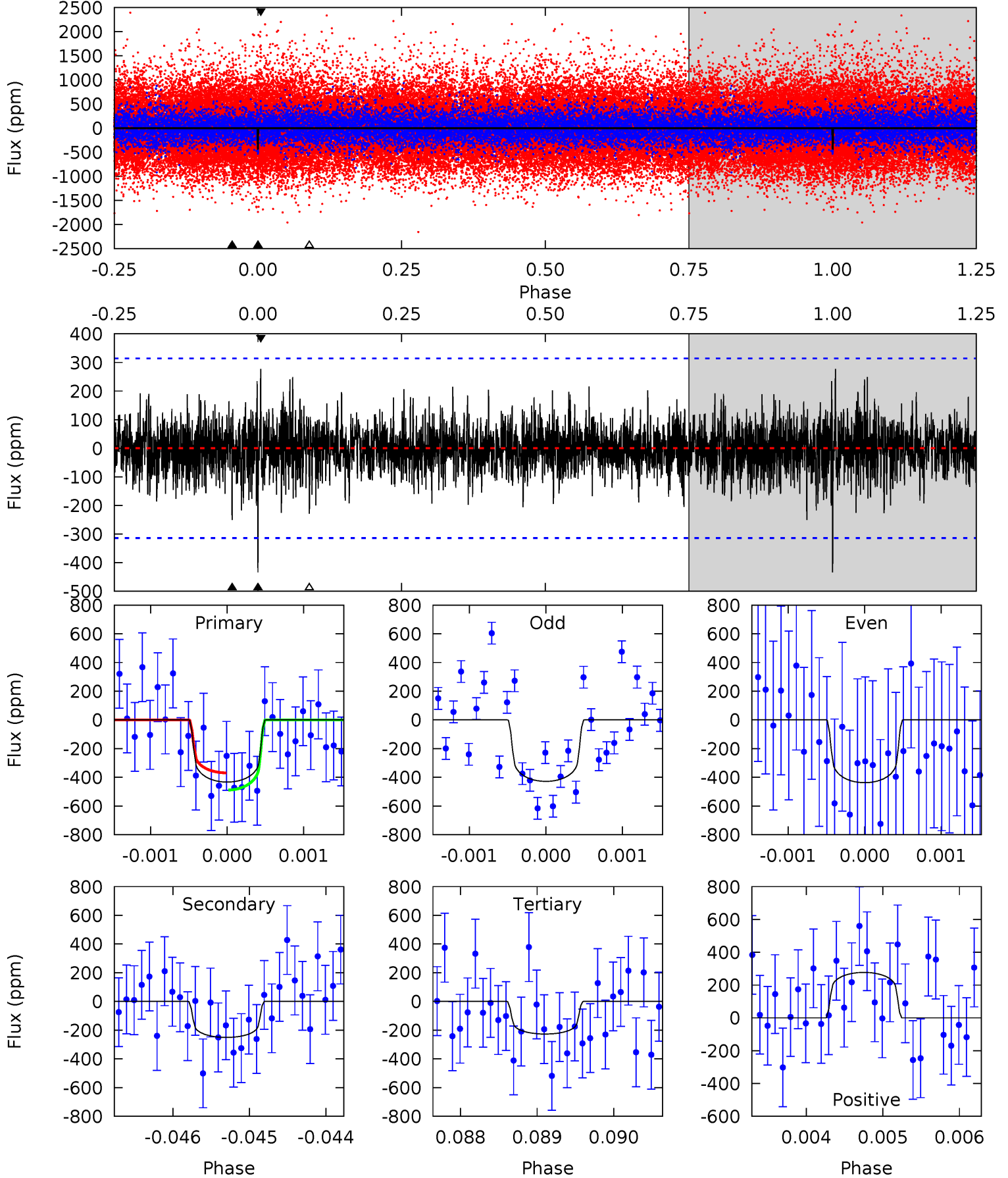
TCE 008423509-01 P=456.581087 Days $T_0=191.265912$ (BKJD)



DV Model-Shift Uniqueness Test

008423509-01, P = 456.591027 Days, E = 191.265912 Days

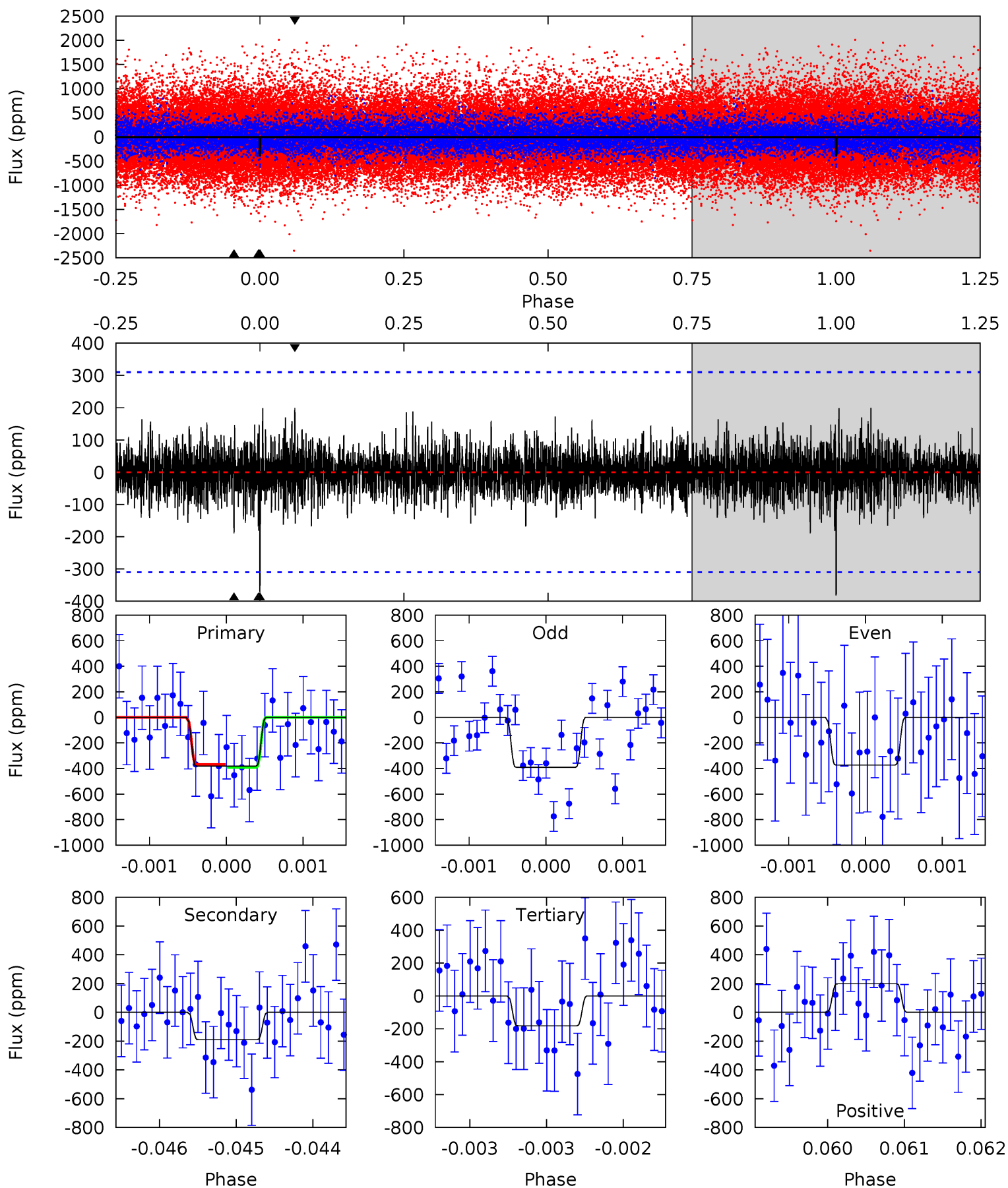
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.56	4.38	3.96	4.84	5.48	3.34	1.11	3.60	2.73	0.41	-0.46	0.08	1.01	0.39	1.04



Alt Model-Shift Uniqueness Test

008423509-01, P = 456.581087 Days, E = 191.265912 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.74	3.34	3.21	3.51	5.48	3.34	0.87	3.53	3.22	0.14	-0.17	0.16	1.06	0.34	0.19



Stellar Parameters For KIC 008423509

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6344^{+177}_{-222}	$4.489^{+0.052}_{-0.208}$	$-0.460^{+0.250}_{-0.350}$	$0.947^{+0.289}_{-0.096}$	$1.010^{+0.132}_{-0.132}$	$1.674^{+0.371}_{-0.888}$
	+3%/-3%	+1%/-5%	+54%/-76%	+31%/-10%	+13%/-13%	+22%/-53%
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 008423509-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-251 ± 57	$2.53^{+1.72}_{-1.39}$	360^{+25}_{-17}	5248^{+2648}_{-996}	$28230^{+108314}_{-18590}$
Alt.	-189 ± 57	$2.28^{+1.80}_{-1.29}$	358^{+26}_{-16}	5137^{+2747}_{-1053}	$26466^{+120208}_{-18898}$

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 $A_{\text{obs}} \gg 1.0$

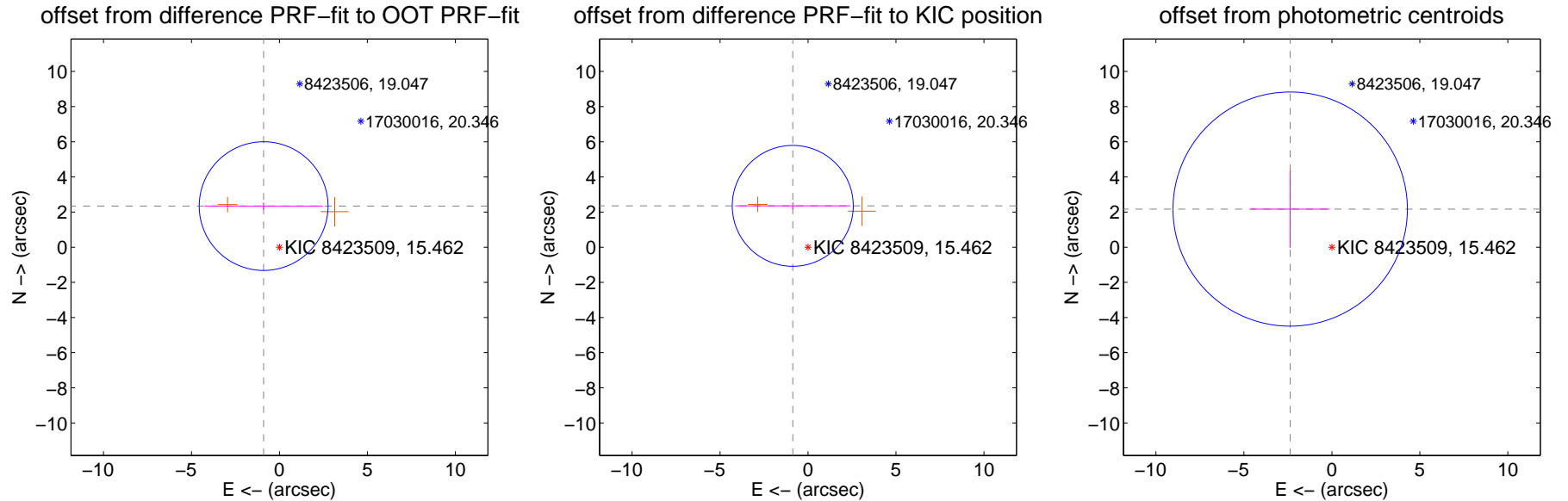
DV Centroid Data

Supplemental centroid analysis for 008423509-01. Kepler magnitude: 15.46. Transit SNR 6.58

There are 0 quarters with good PRF difference image offsets

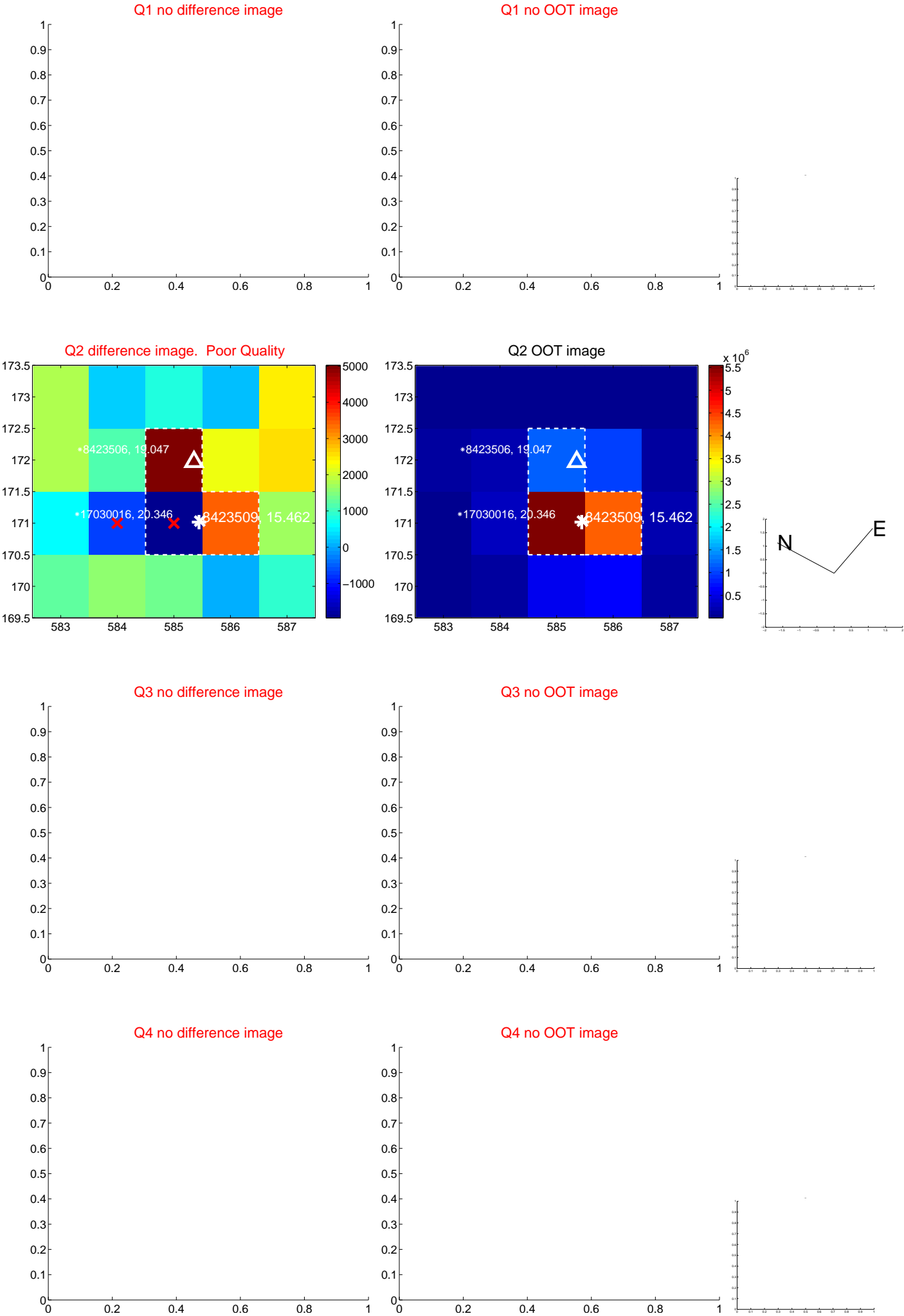
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.505 ± 1.220	2.05	0.898 ± 3.360	2.339 ± 0.205
PRF-fit source offset from KIC position	2.508 ± 1.146	2.19	0.868 ± 3.269	2.353 ± 0.198
photometric centroid source offset	3.21 ± 2.22	1.45	2.37 ± 2.24	2.17 ± 2.20

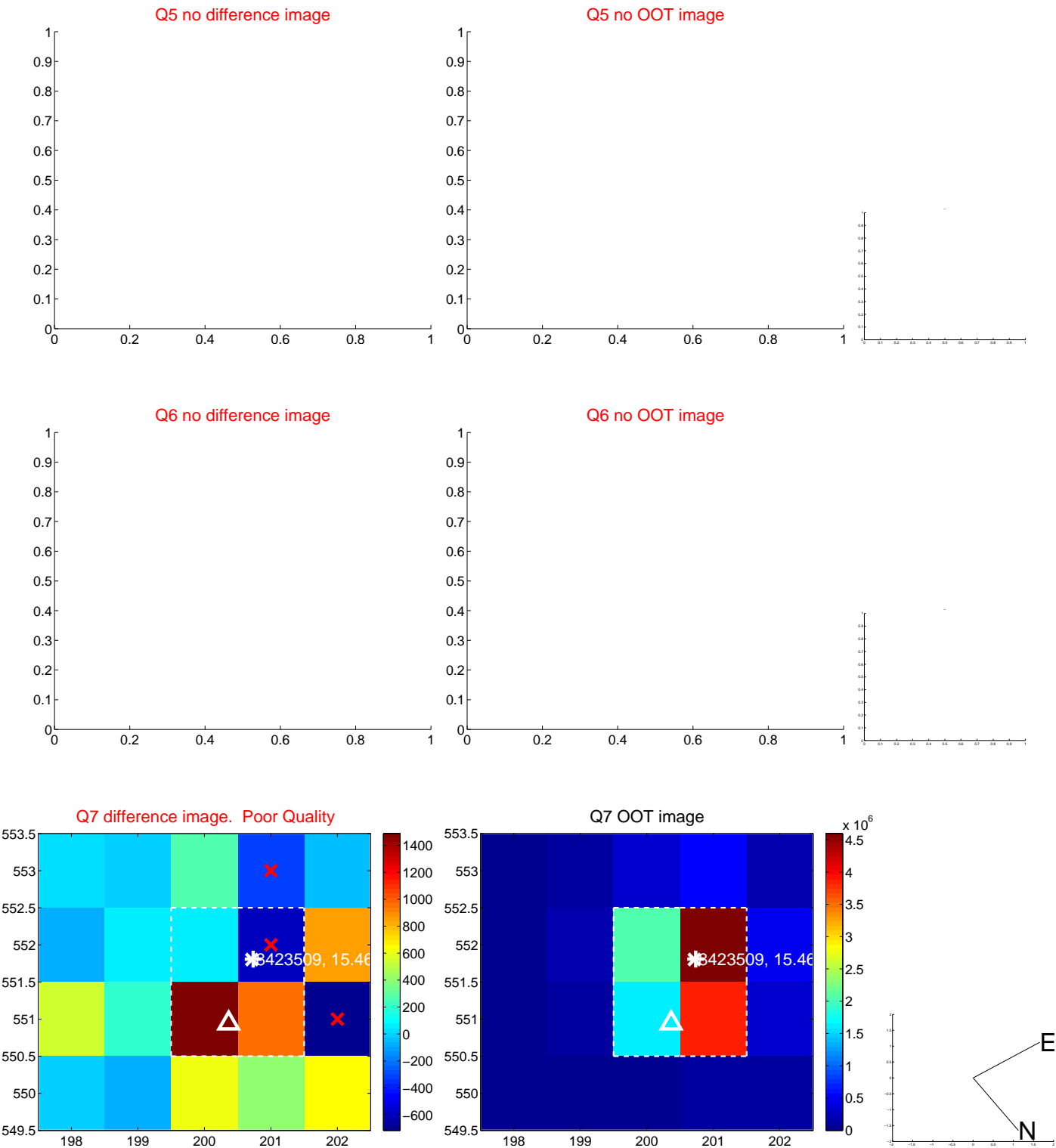


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



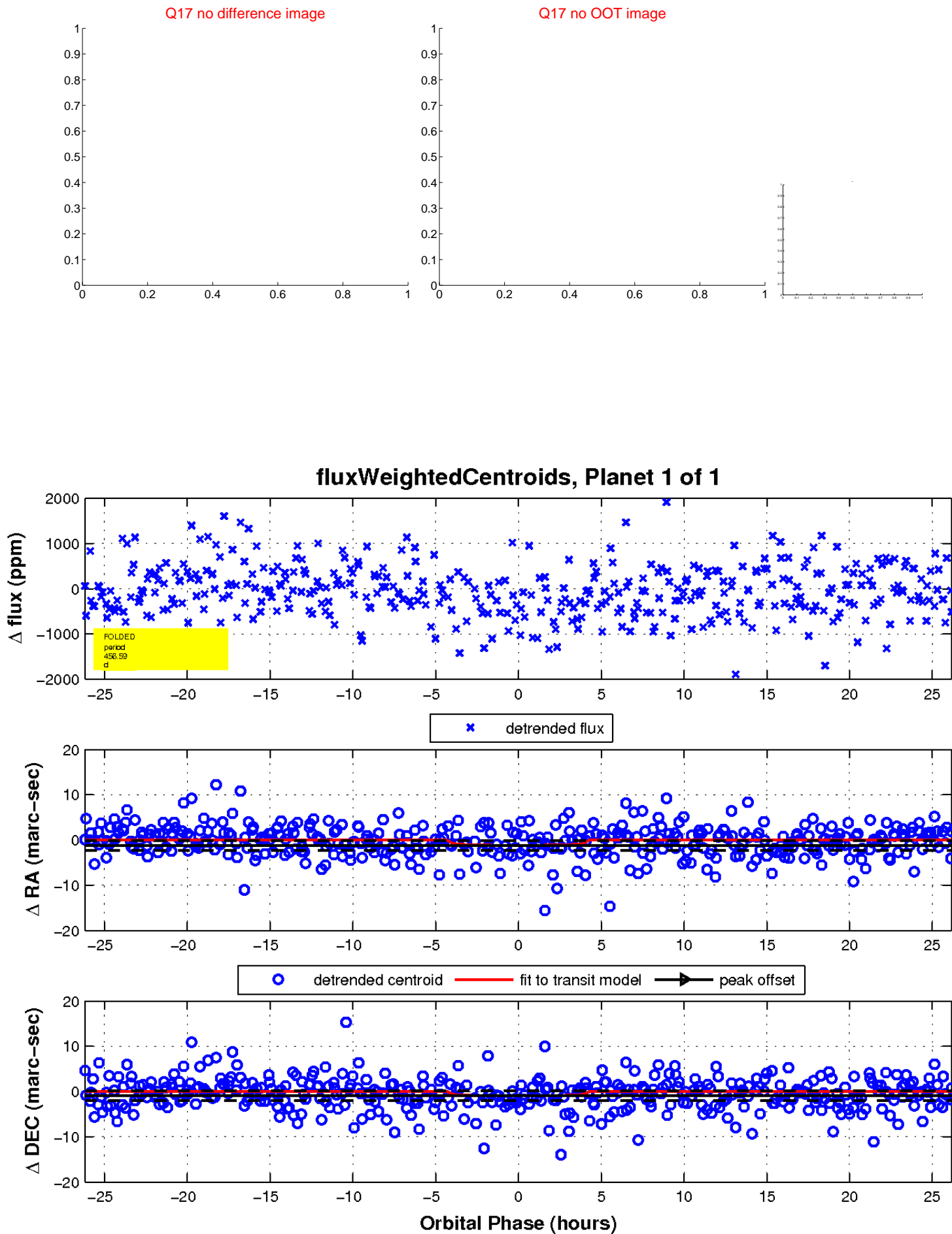
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

