

KIC 012167086

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})
012167086-01	OBS	No	414.259648	518.317068	166.2	10.842	7.6	7.9	1.84	4951	2.73	1.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012167086-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

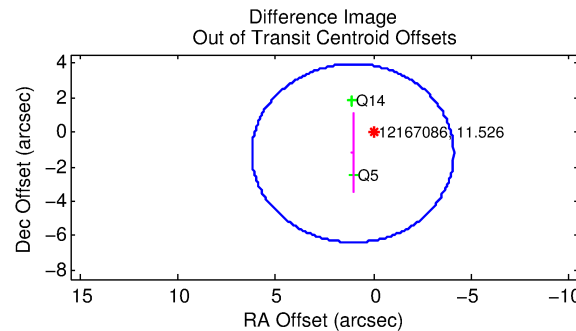
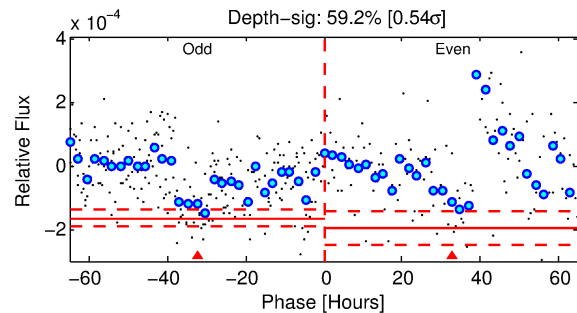
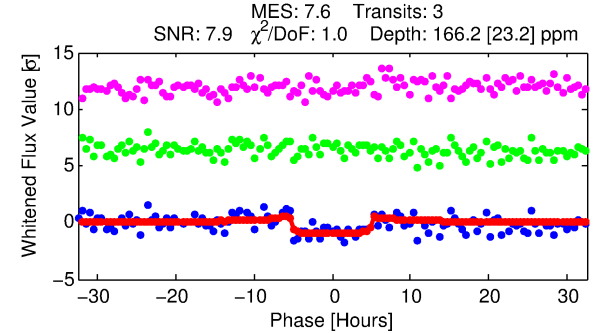
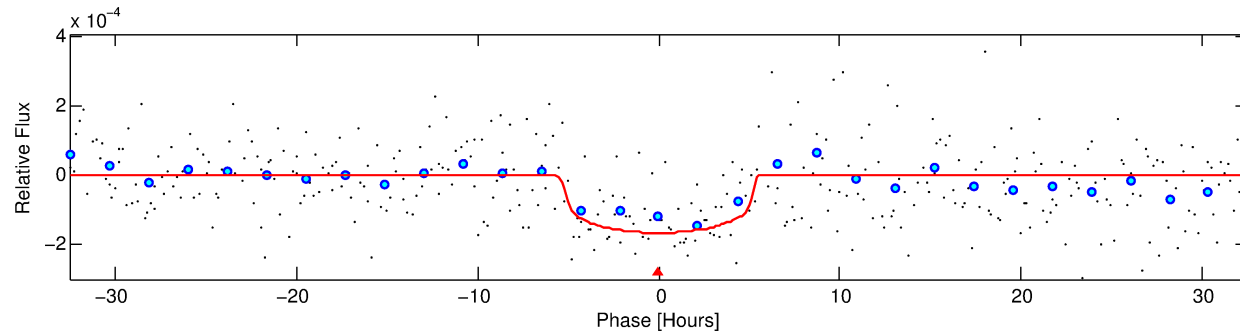
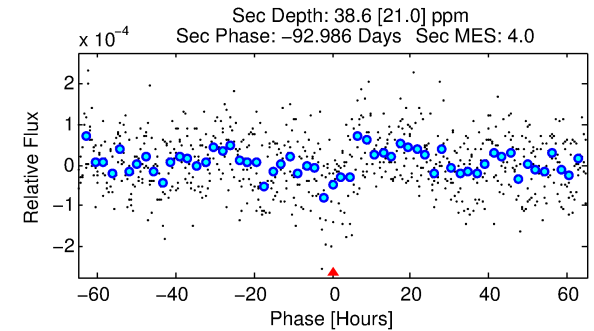
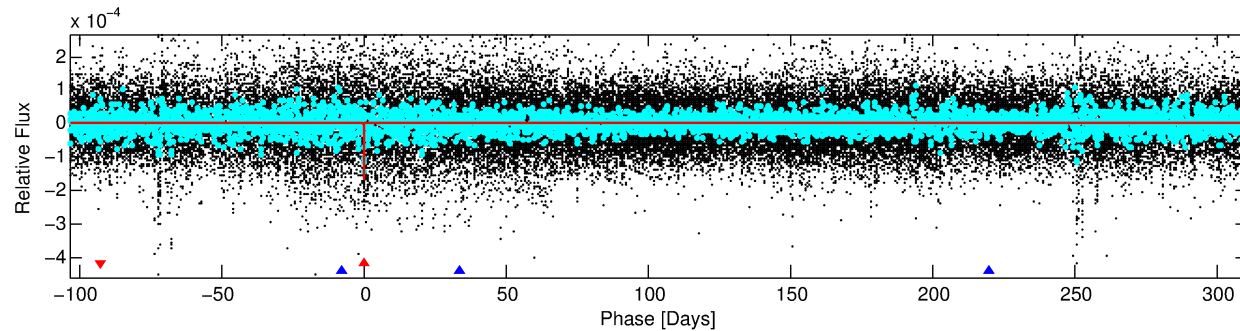
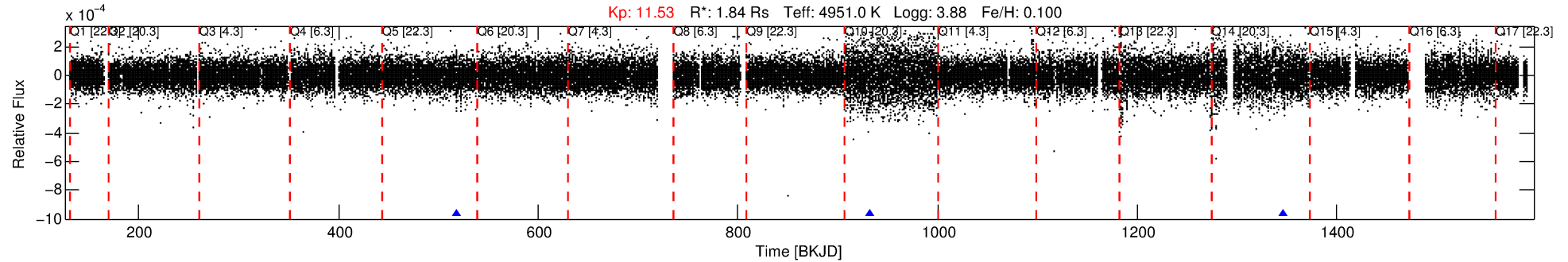
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012167086-01

No Significant Match Found

DV One-Page Summary

KIC: 12167086 Candidate: 1 of 2 Period: 414.260 d



DV Fit Results:

Period = 414.25965 [0.00969] d
Epoch = 518.3171 [0.0123] BKJD
Rp/R* = 0.0136 [0.0050]
a/R* = 167.08 [225.41]
b = 0.84 [0.49]
Seff = 1.62 [1.86]
Teq = 288 [82] K
Rp = 2.73 [2.01] Re
a = 1.0623 [0.7184] AU
Ag = 3212.24 [4702.64] [0.68σ]
Teffp = 3349 [779] K [3.91σ]

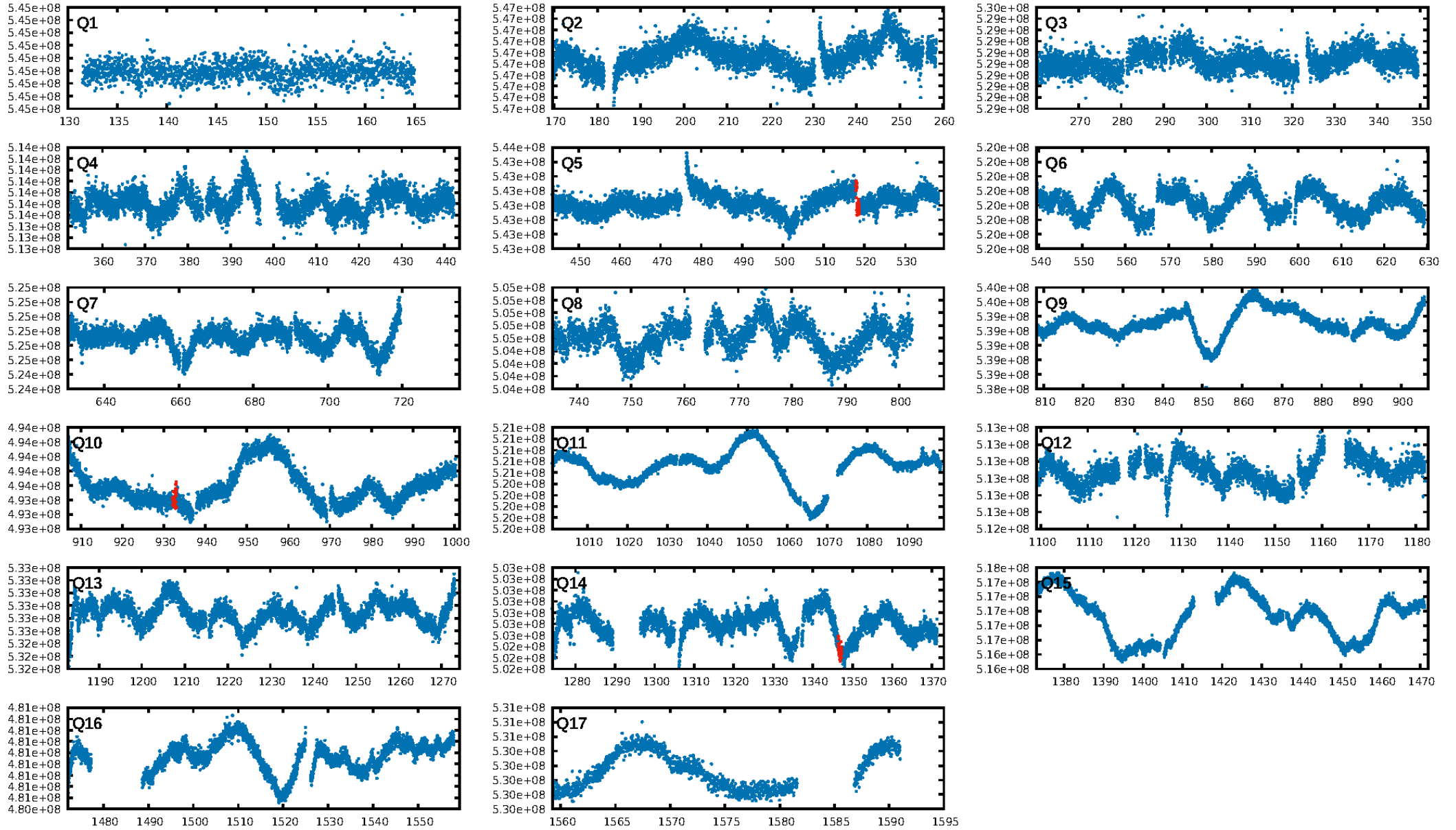
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [296.69σ]
ModelChiSquare2-sig: 88.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.48e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.156
Centroid-sig: 5.3%
Centroid-so: 1.848 arcsec [1.37σ]
OotOffset-rm: 1.615 arcsec [0.94σ]
KicOffset-rm: 2.443 arcsec [2.64σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

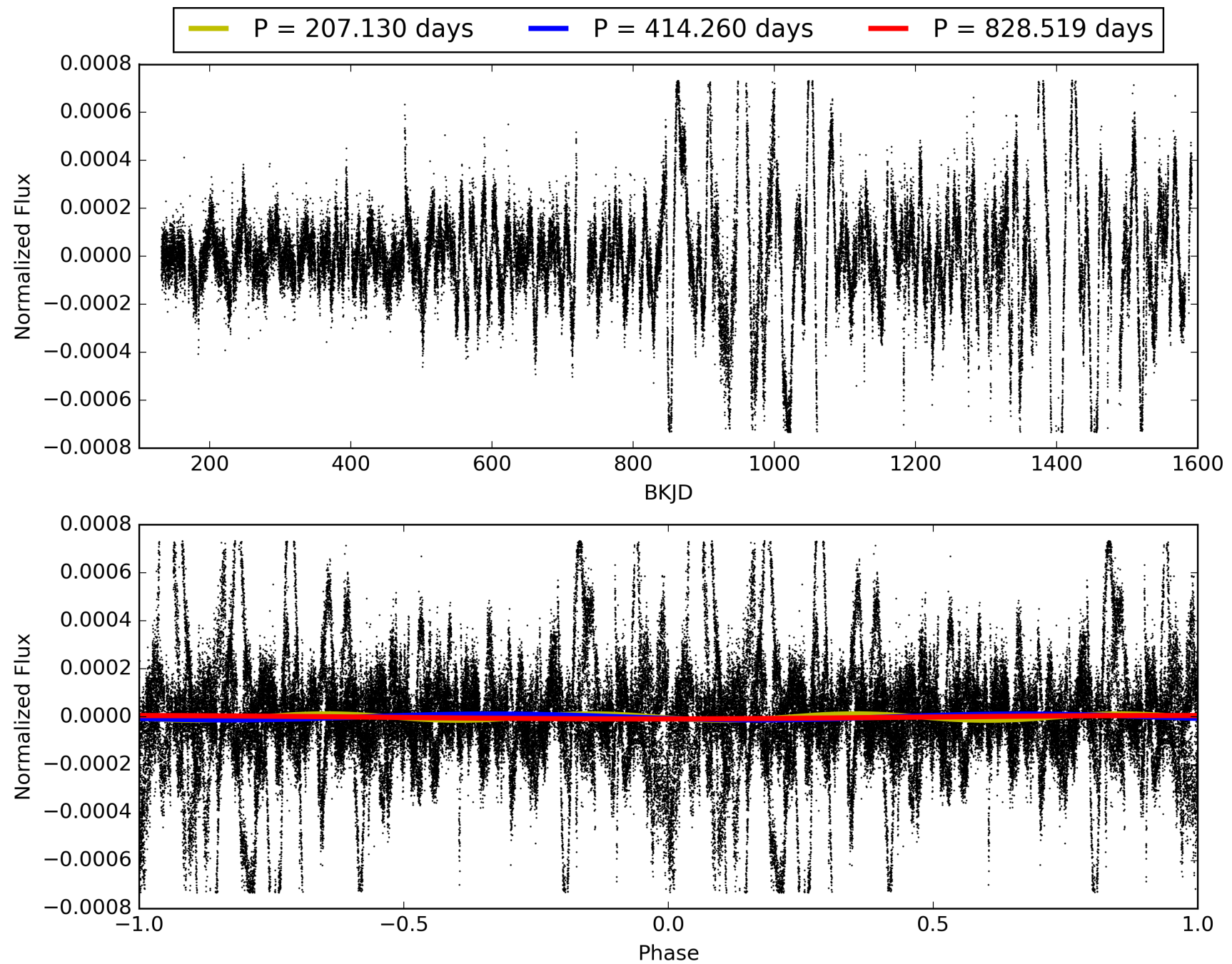
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:25:22 Z

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

TCE 012167086-01, PDC Light Curves

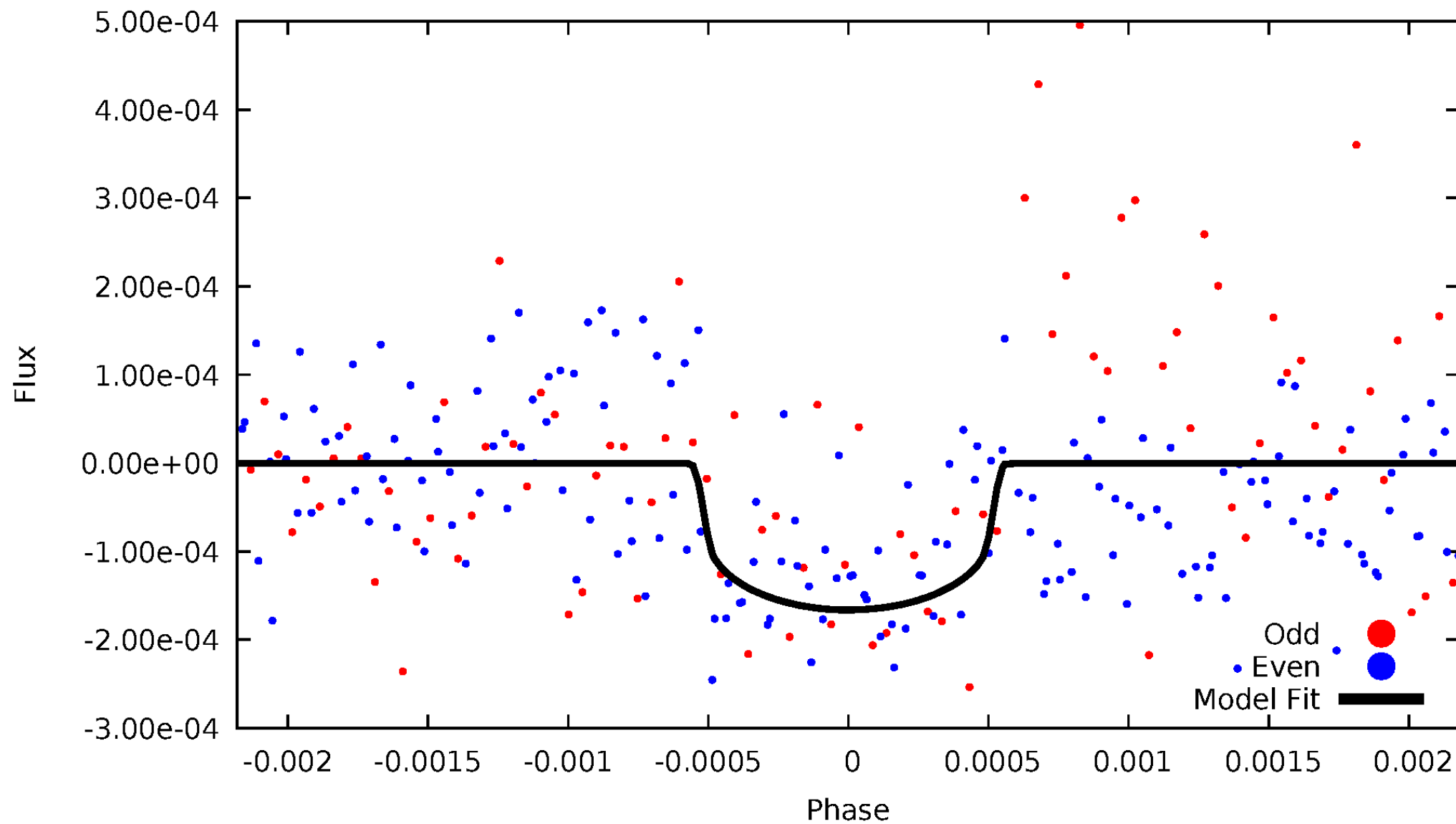


TCE 012167086-01



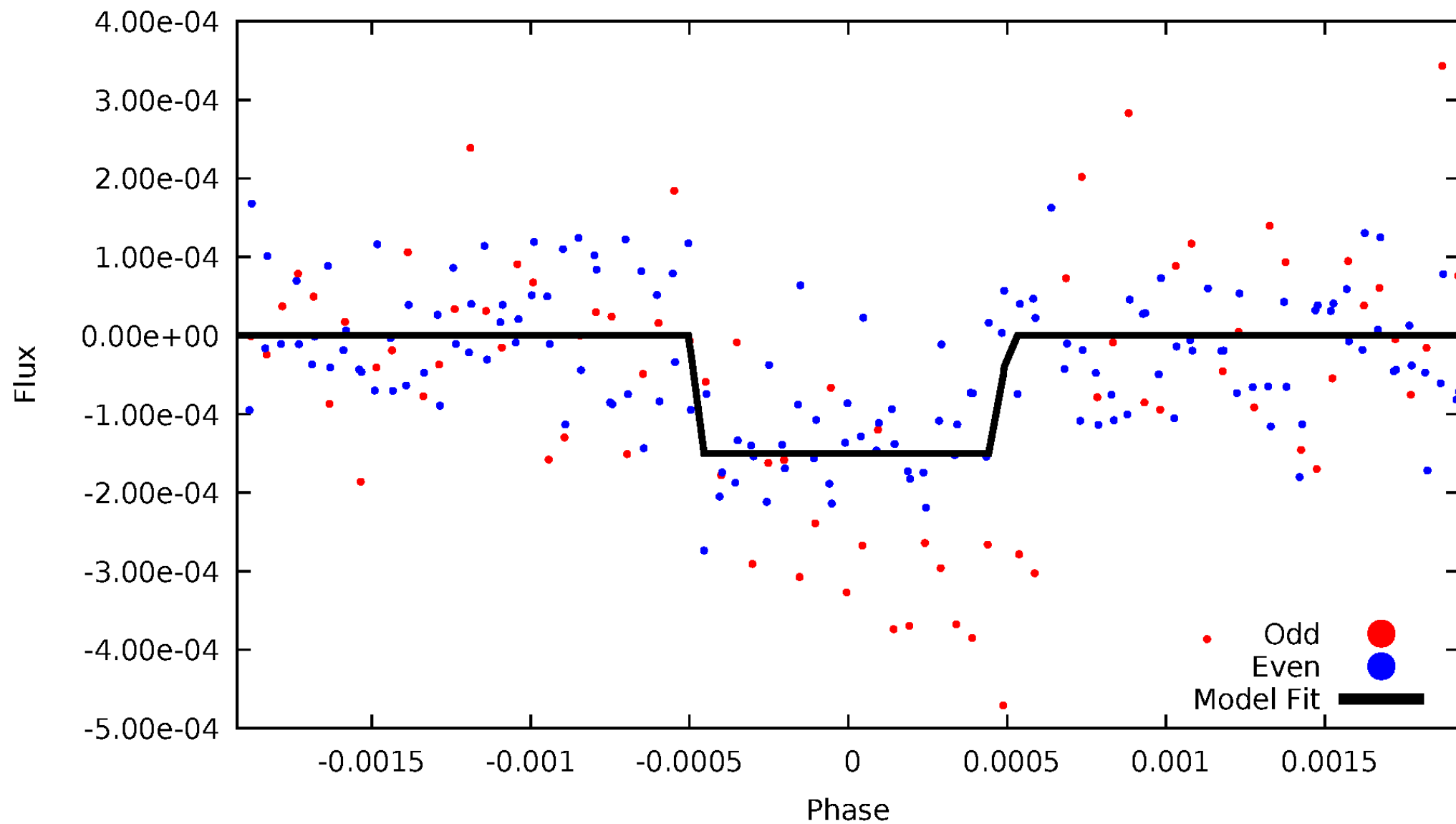
DV Odd/Even

TCE 012167086-01



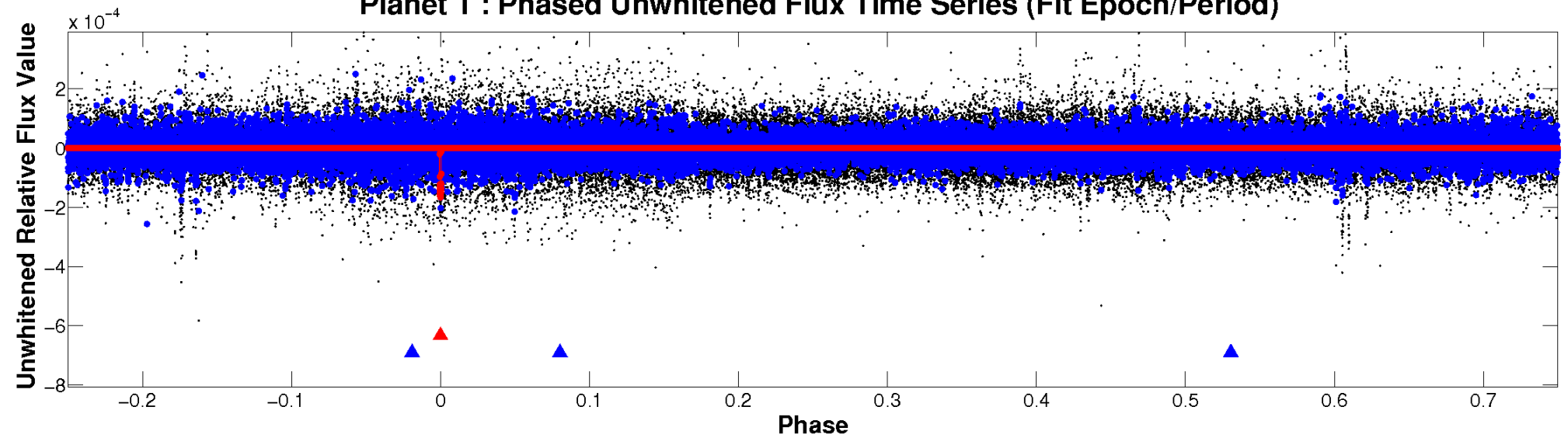
ALT Odd/Even

TCE 012167086-01

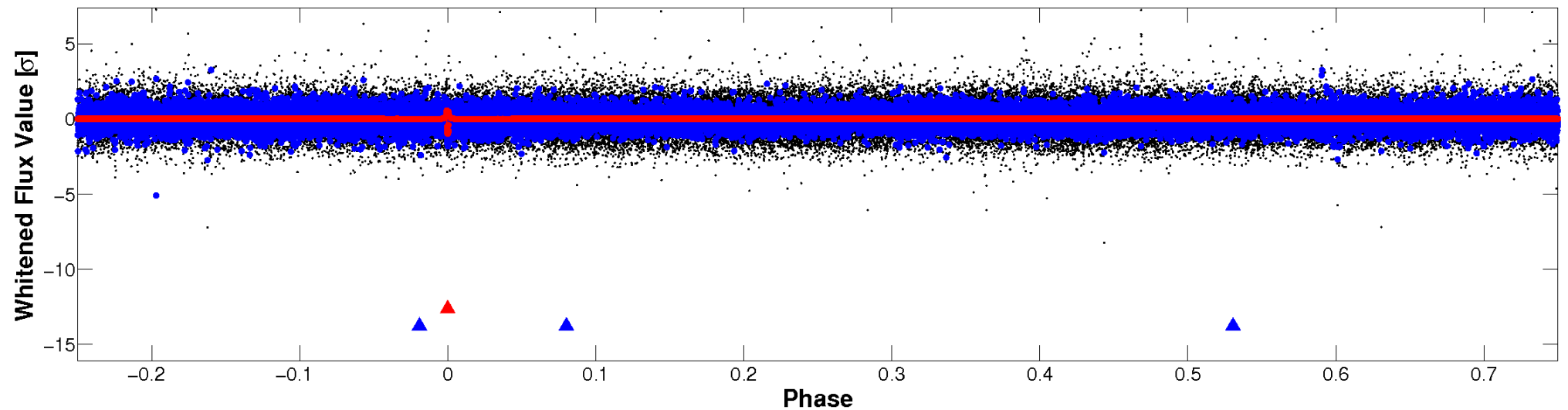


Non-Whitened Vs. Whitened Light Curve

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

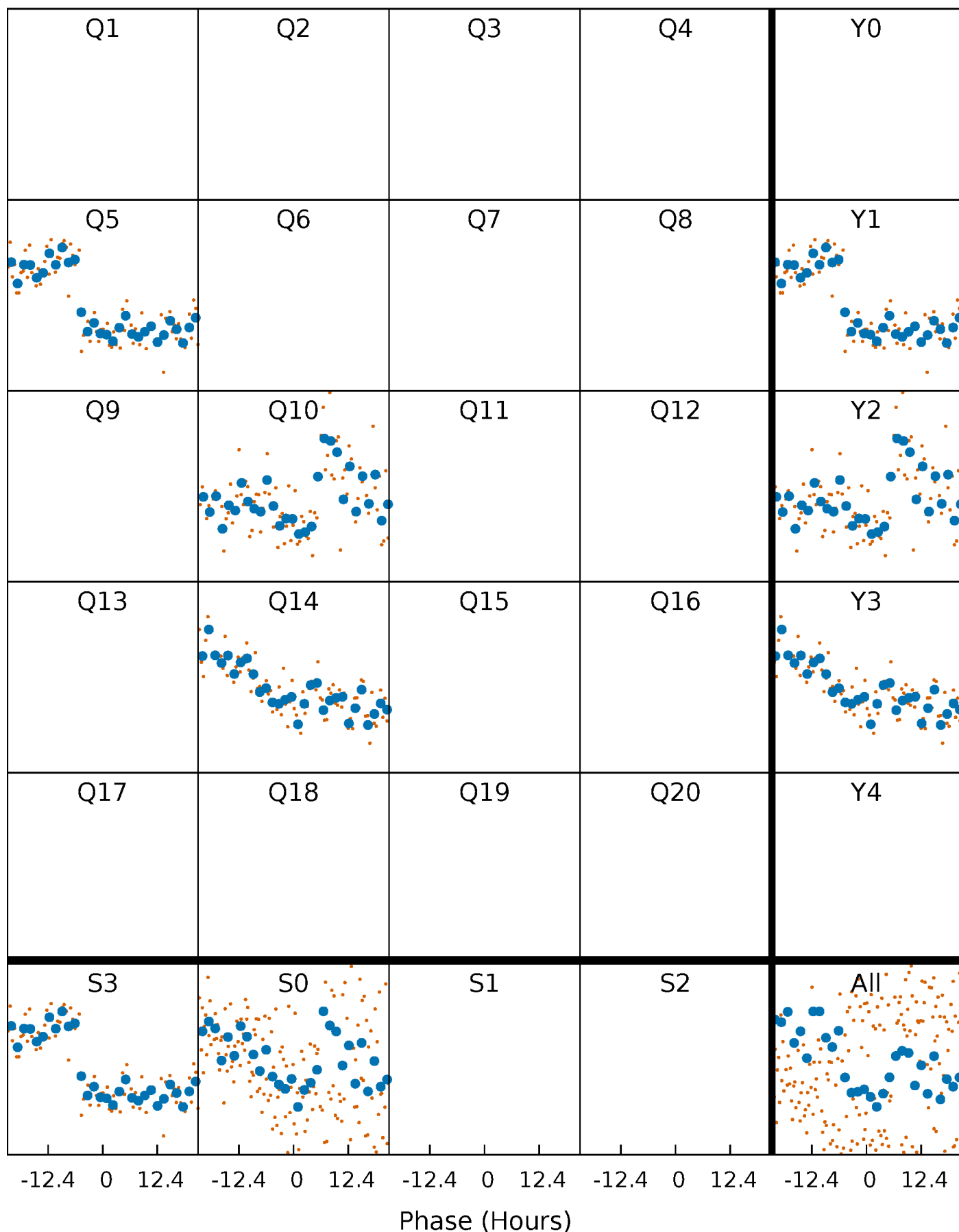


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



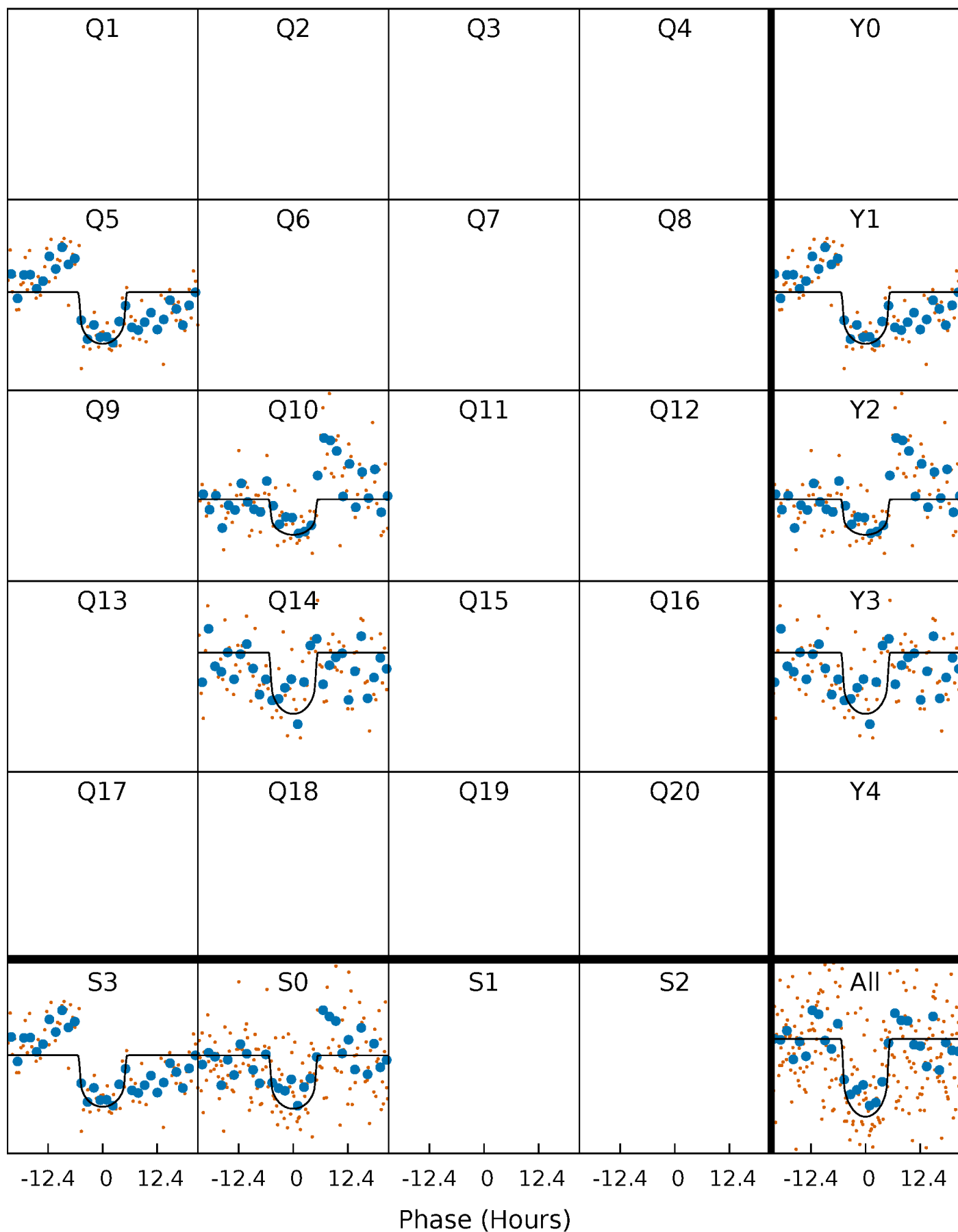
PDC Quarter-Phased Transit Curves

TCE 012167086-01 P=414.259648 Days $T_0=518.317068$ (BKJD)



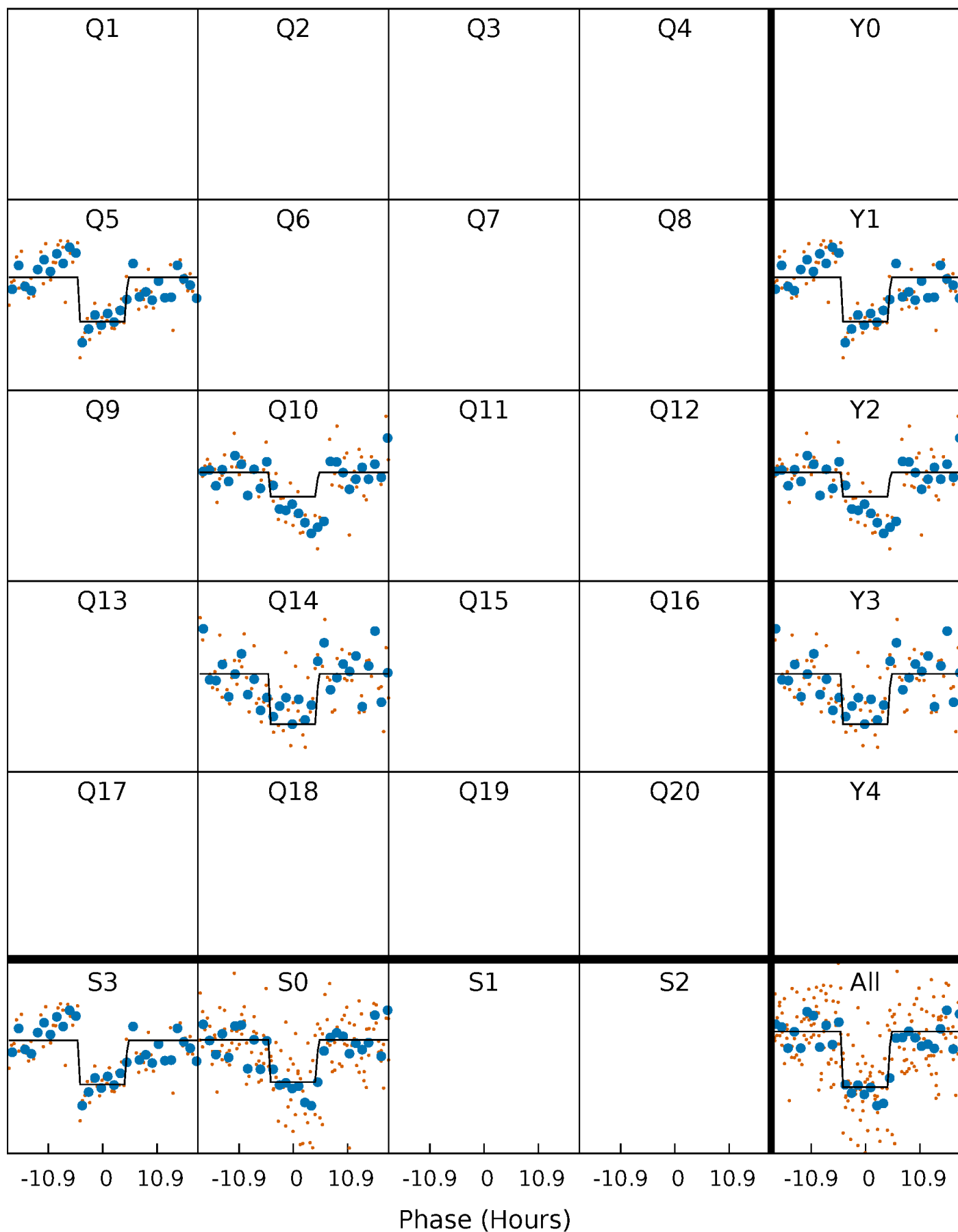
DV Quarter-Phased Transit Curves

TCE 012167086-01 P=414.259648 Days $T_0=518.317068$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

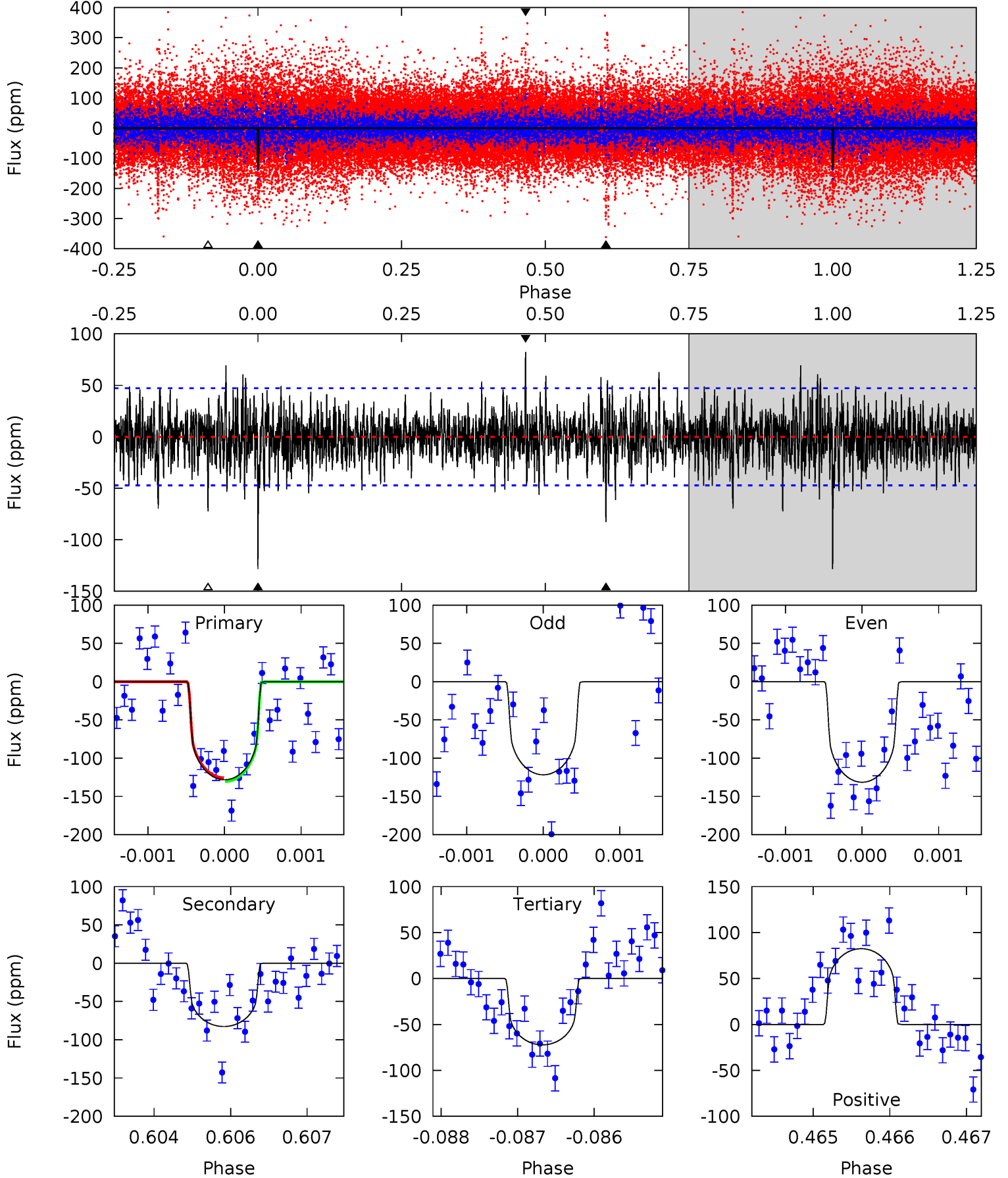
TCE 012167086-01 P=414.249562 Days $T_0=518.304052$ (BKJD)



DV Model-Shift Uniqueness Test

012167086-01, P = 414.259648 Days, E = 104.057420 Days

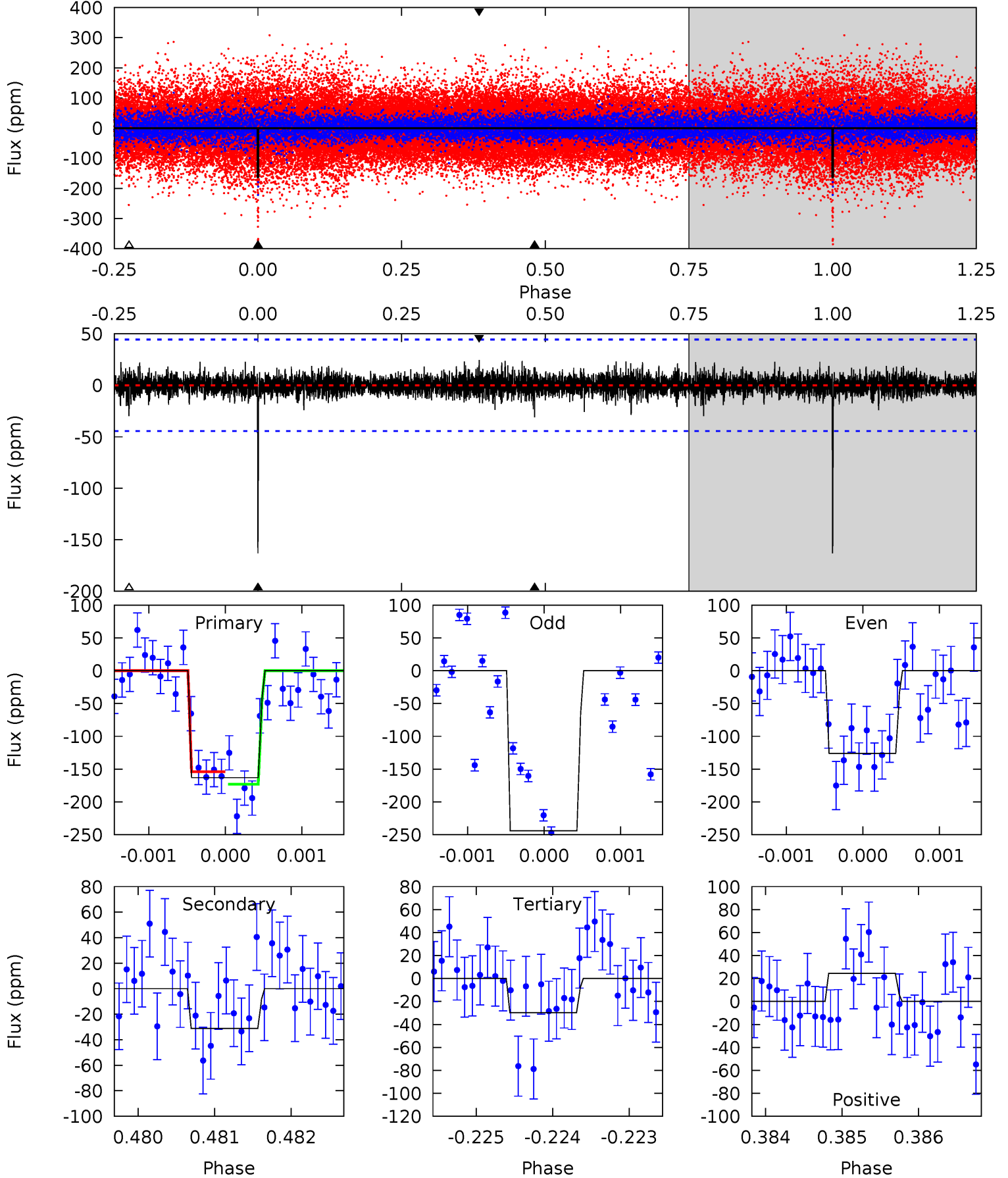
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	9.50	8.29	9.46	5.42	3.25	2.06	6.42	5.26	1.20	0.03	0.52	1.05	0.39	0.28



Alt Model-Shift Uniqueness Test

012167086-01, P = 414.249562 Days, E = 104.054490 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	3.81	3.65	3.00	5.45	3.28	0.75	16.3	17.0	0.16	0.81	6.86	1.08	0.13	1.16



Stellar Parameters For KIC 012167086

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4951^{+117}_{-161}	$3.876^{+0.688}_{-0.172}$	$0.100^{+0.200}_{-0.350}$	$1.843^{+0.389}_{-1.168}$	$0.931^{+0.124}_{-0.201}$	$0.209^{+2.695}_{-0.075}$
	+2%/-3%	+18%/-4%	+200%/-350%	+21%/-63%	+13%/-22%	+1286%/-36%
Source	PHO1	FLK73	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 012167086-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-83 ± 9	$2.41^{+1.35}_{-1.14}$	396^{+32}_{-67}	4252^{+880}_{-512}	8707^{+21754}_{-4976}
Alt.	-31 ± 8	$2.23^{+1.22}_{-0.96}$	396^{+29}_{-60}	3662^{+677}_{-426}	3960^{+8508}_{-2457}

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

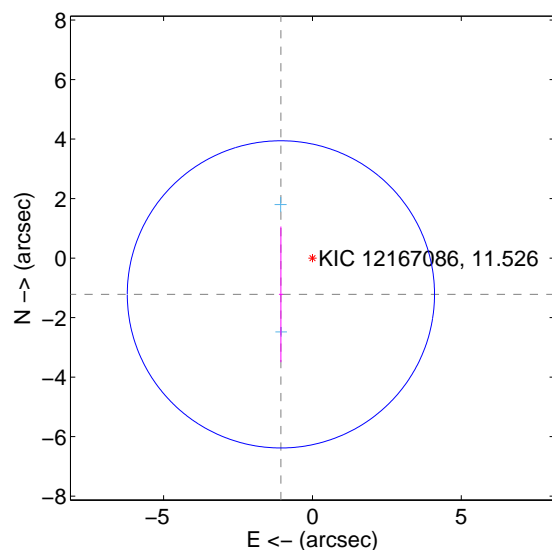
Supplemental centroid analysis for 012167086-01. **Kepler magnitude: 11.53.** Transit SNR 7.90

There are 2 quarters with good PRF difference image offsets

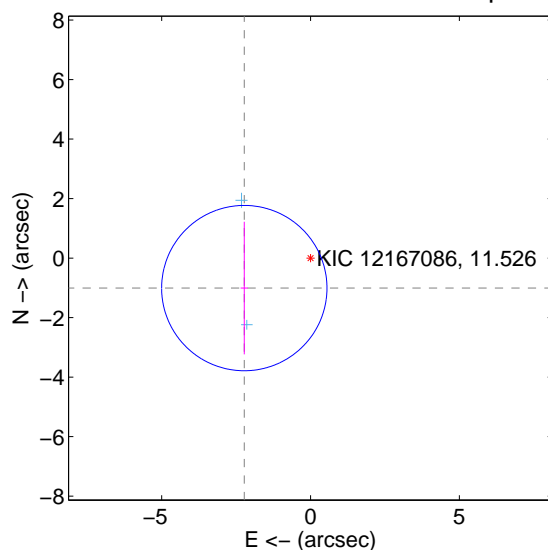
The direct PRF centroid is offset from the target star catalog position by about 1.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.615 ± 1.721	0.94	1.060 ± 0.068	-1.219 ± 2.280
PRF-fit source offset from KIC position	2.443 ± 0.926	2.64	2.226 ± 0.123	-1.008 ± 2.228
photometric centroid source offset	1.85 ± 1.35	1.37	0.26 ± 1.13	1.83 ± 1.36

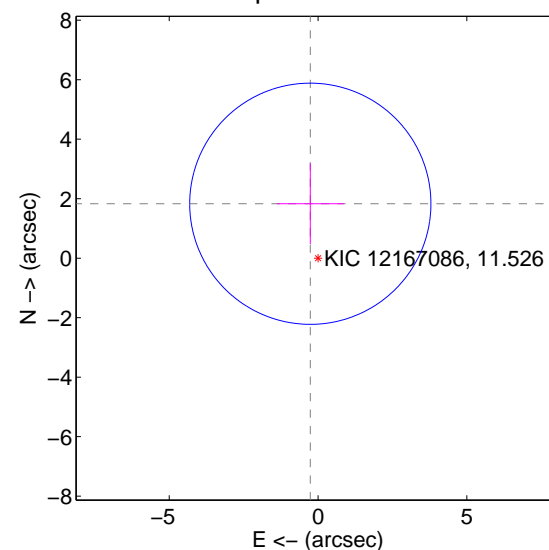
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

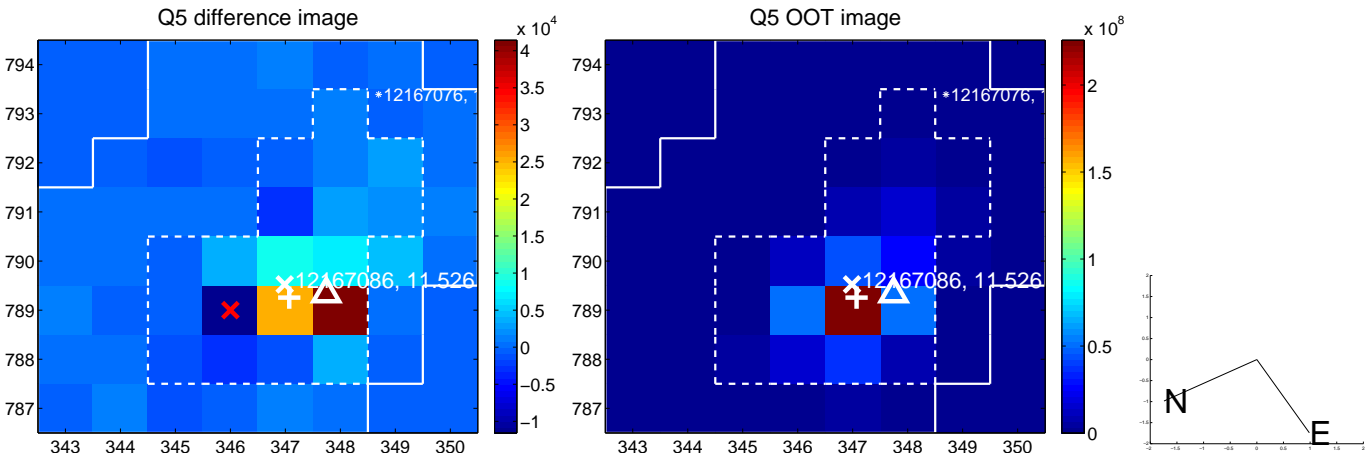


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

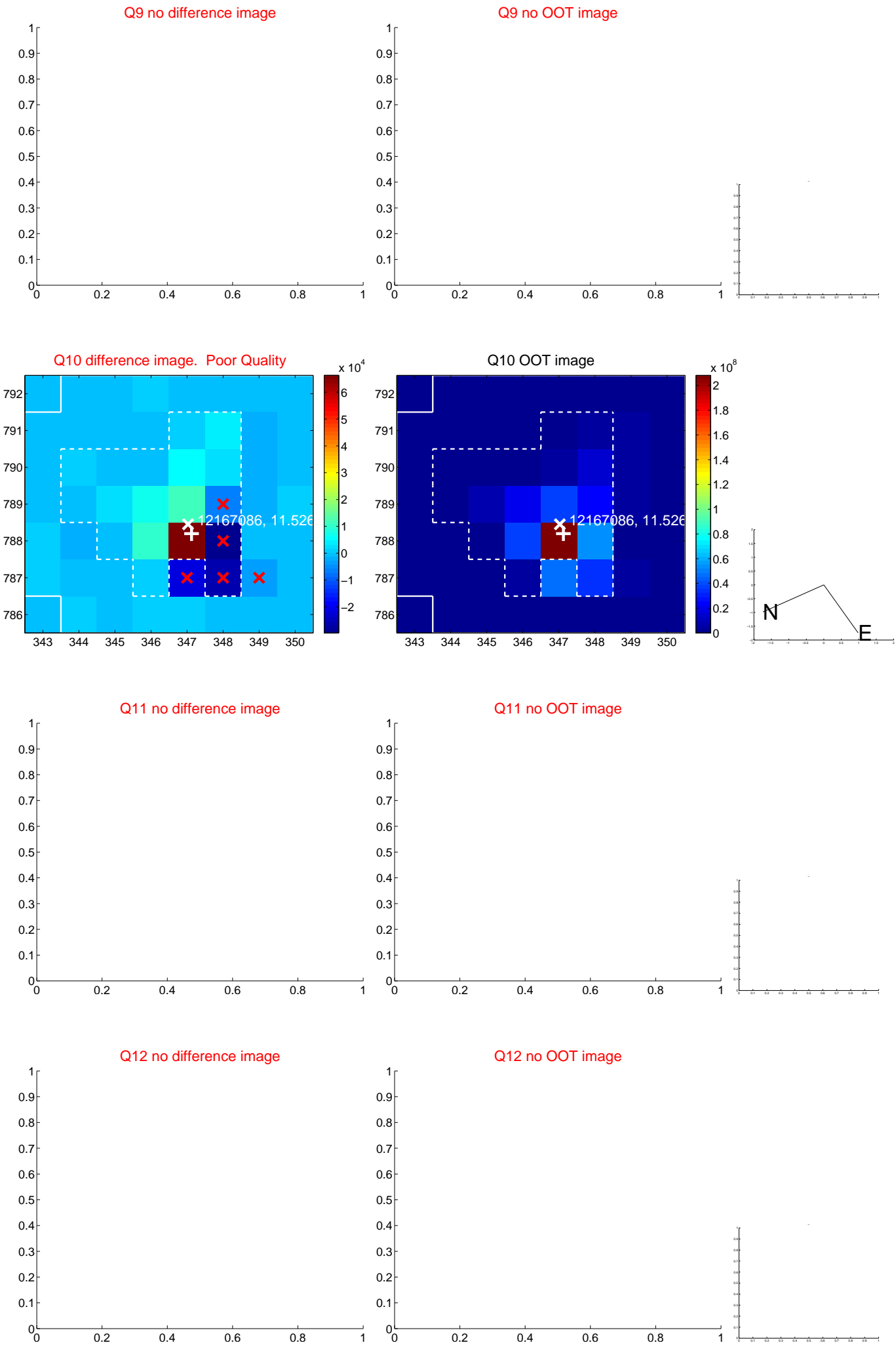
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



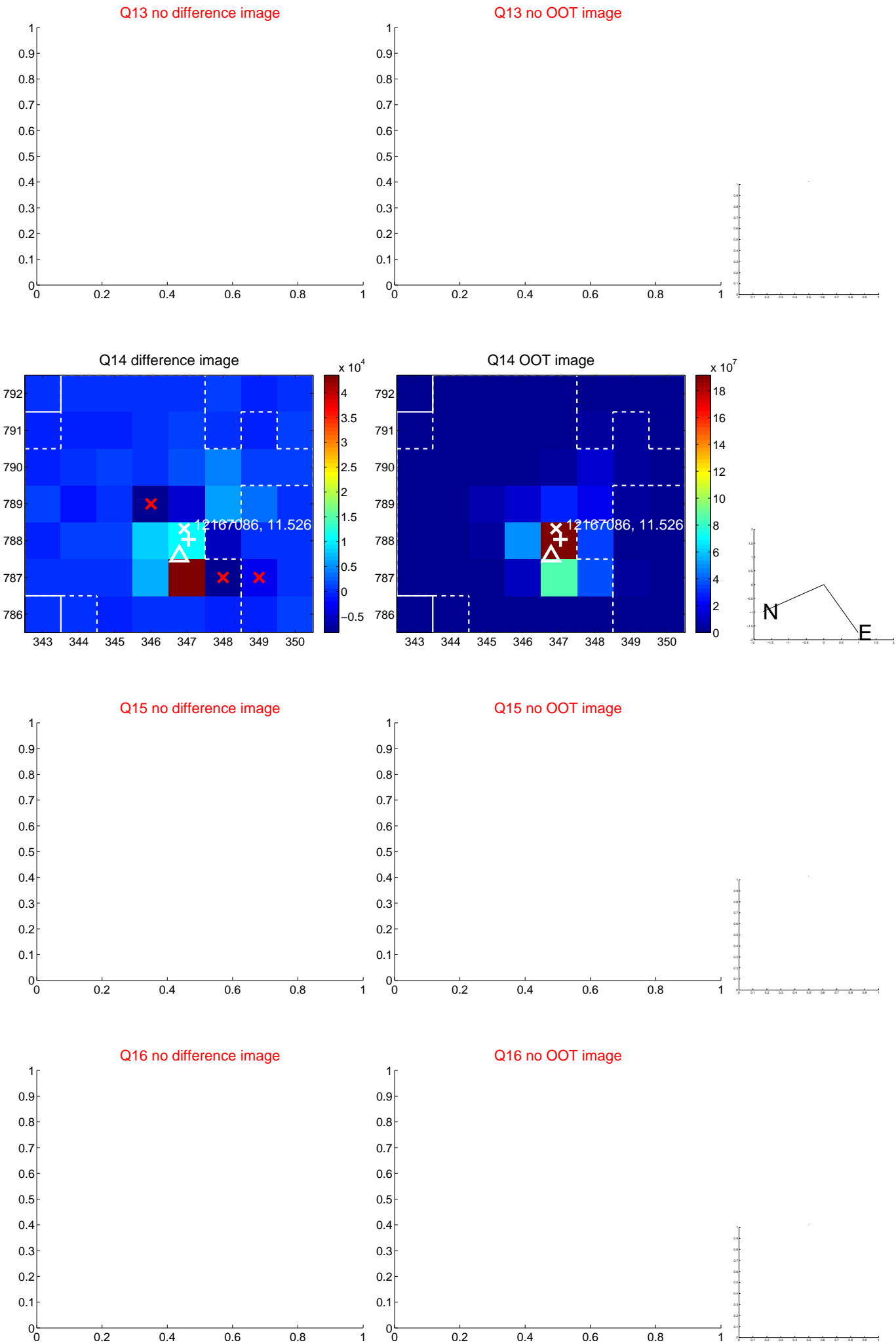
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



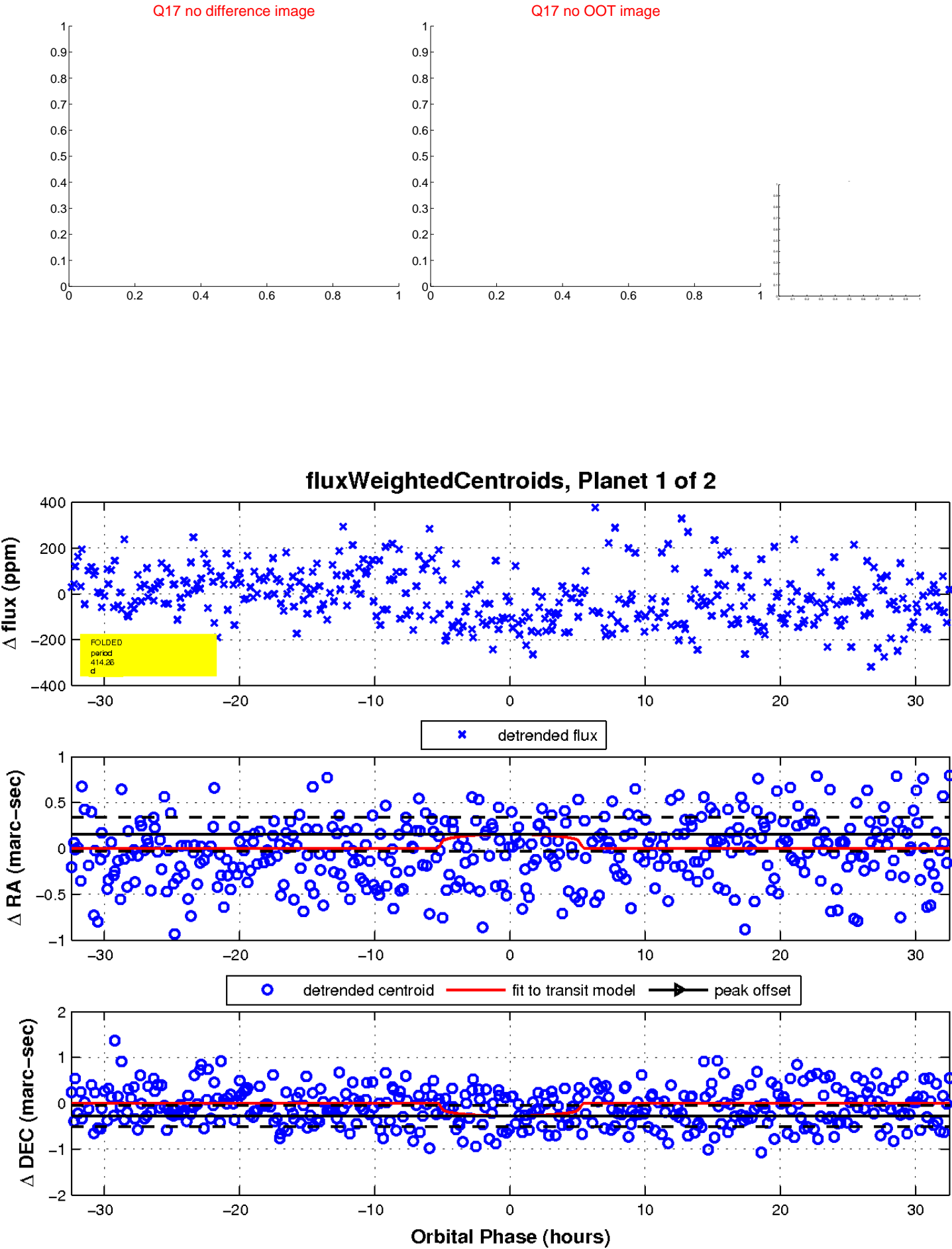
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

