

KIC 010812504

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})
010812504-01	OBS	2570.01	79.920468	197.213856	1238.2	4.427	16.2	16.7	0.48	3812	1.76	0.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010812504-01	OBS	FP	0.00	0	0	1	0	CENT_UNRESOLVED_OFFSET

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

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

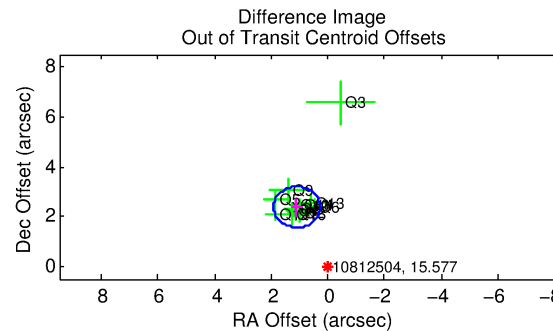
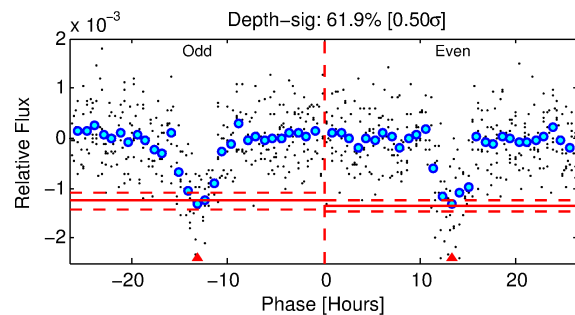
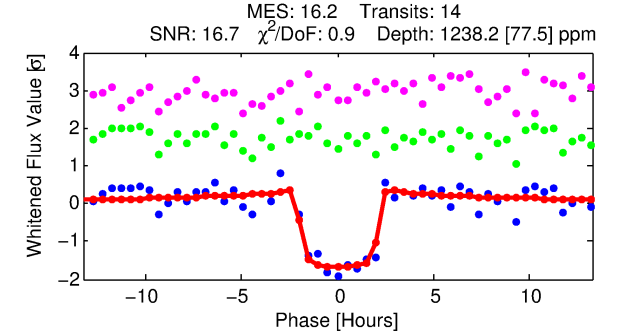
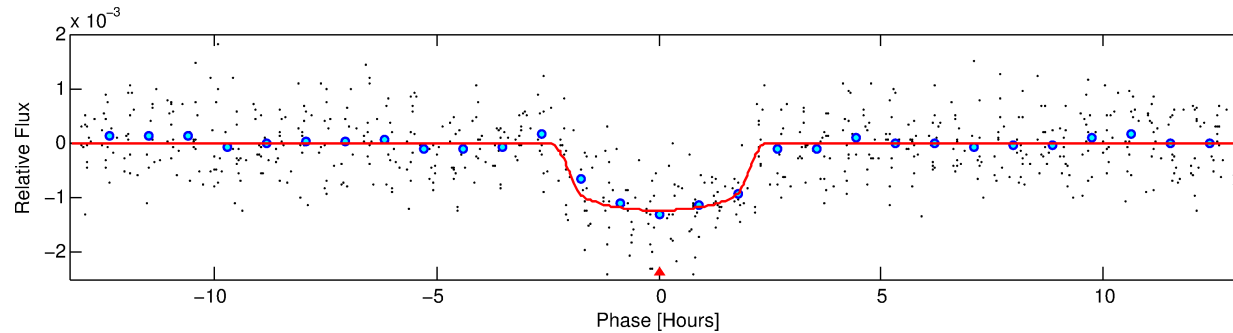
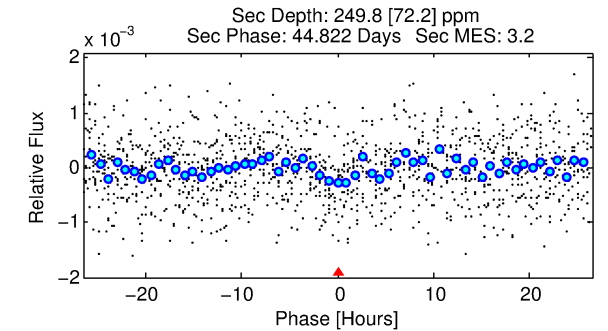
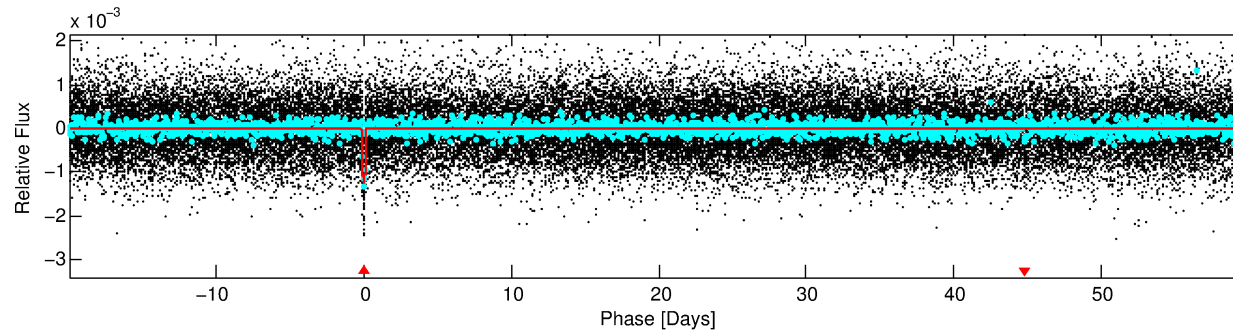
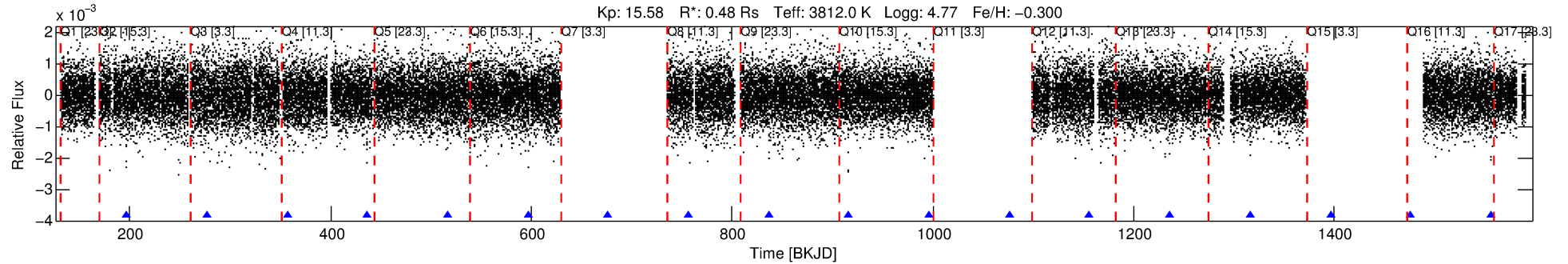
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010812504-01

No Significant Match Found

DV One-Page Summary

KIC: 10812504 Candidate: 1 of 1 Period: 79.920 d
KOI: K02570.01 Corr: 0.992



DV Fit Results:

Period = 79.92047 [0.00049] d
Epoch = 197.2139 [0.0046] BKJD
 R_p/R^* = 0.0339 [0.0119]
 a/R^* = 111.98 [189.63]
 b = 0.64 [1.57]
 Seff = 0.53 [0.08]
 Teq = 217 [8] K
 R_p = 1.76 [0.65] R_e
 a = 0.2850 [0.0239] AU
 Ag = 3597.32 [2767.36] [1.30σ]
 Teff = 2602 [499] K [4.78σ]

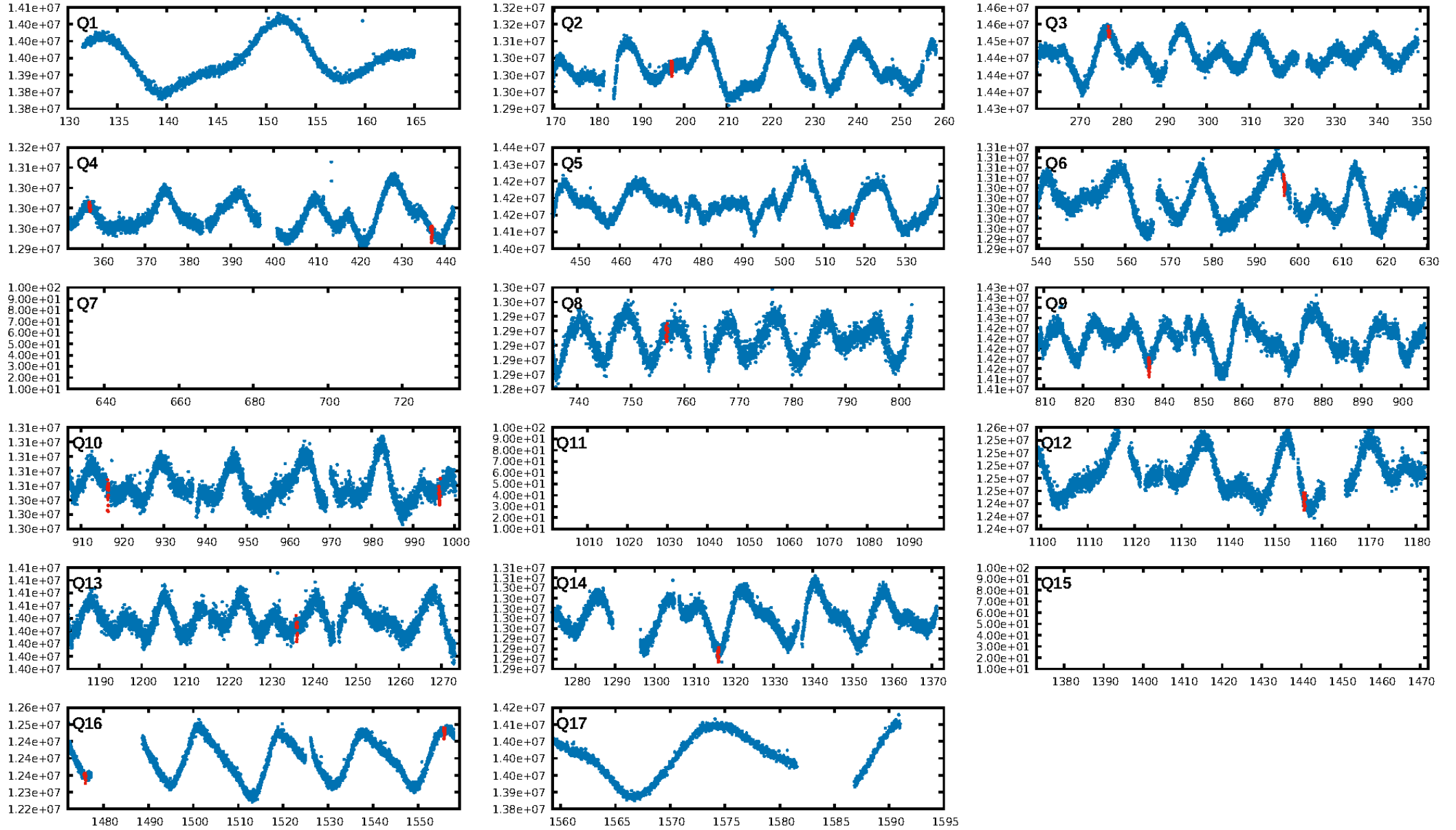
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.94e-54
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 1.261
Centroid-sig: 0.0%
Centroid-so: 4.732 arcsec [5.76σ]
OotOffset-rm: 2.627 arcsec [9.64σ]
KicOffset-rm: 3.091 arcsec [14.18σ]
OotOffset-st: 4/1/4/3 [12]
KicOffset-st: 4/1/4/3 [12]
DiffImageQuality-fgm: 0.92 [11/12]
DiffImageOverlap-fno: 1.00 [12/12]

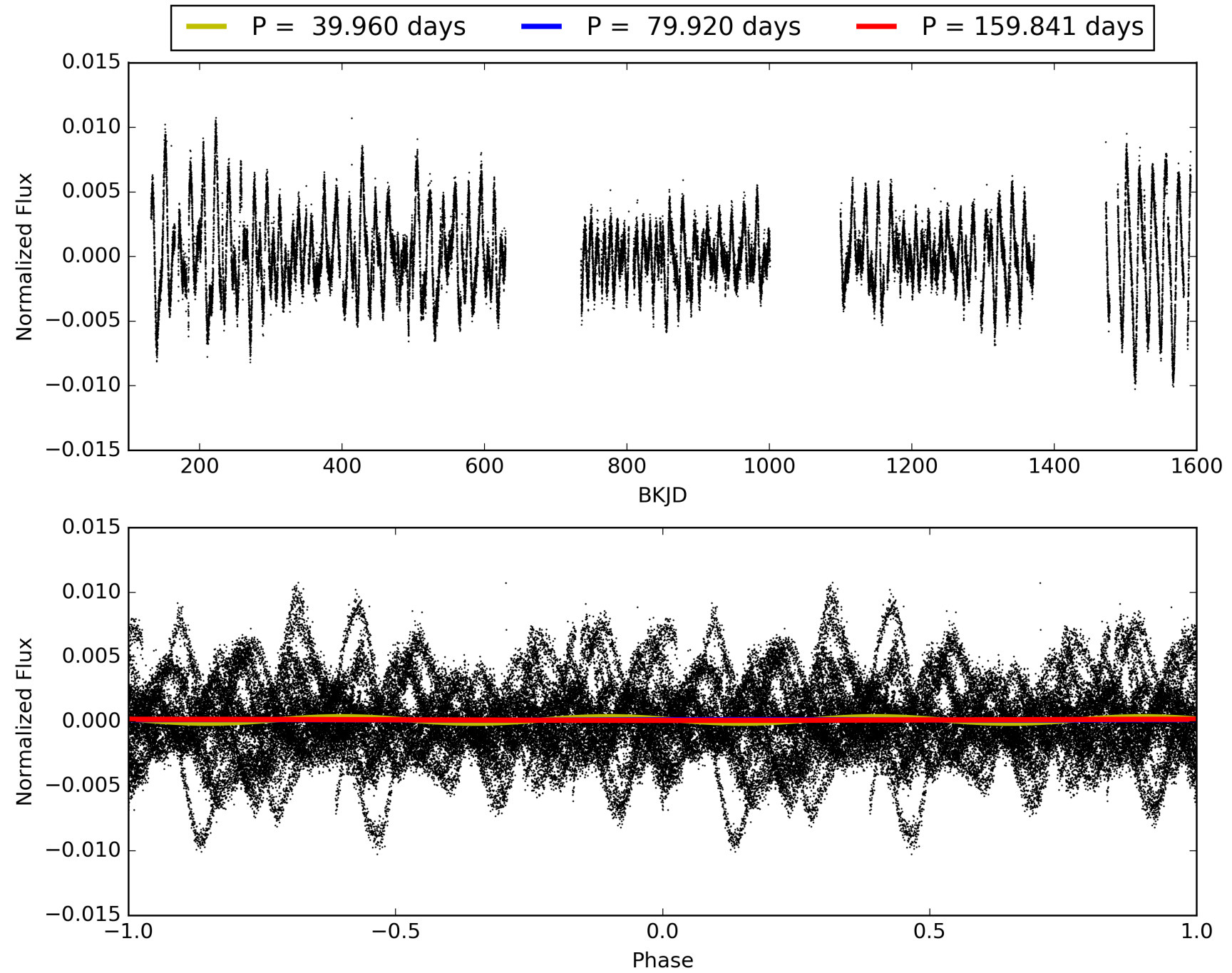
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:04:15 Z

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

TCE 010812504-01, PDC Light Curves

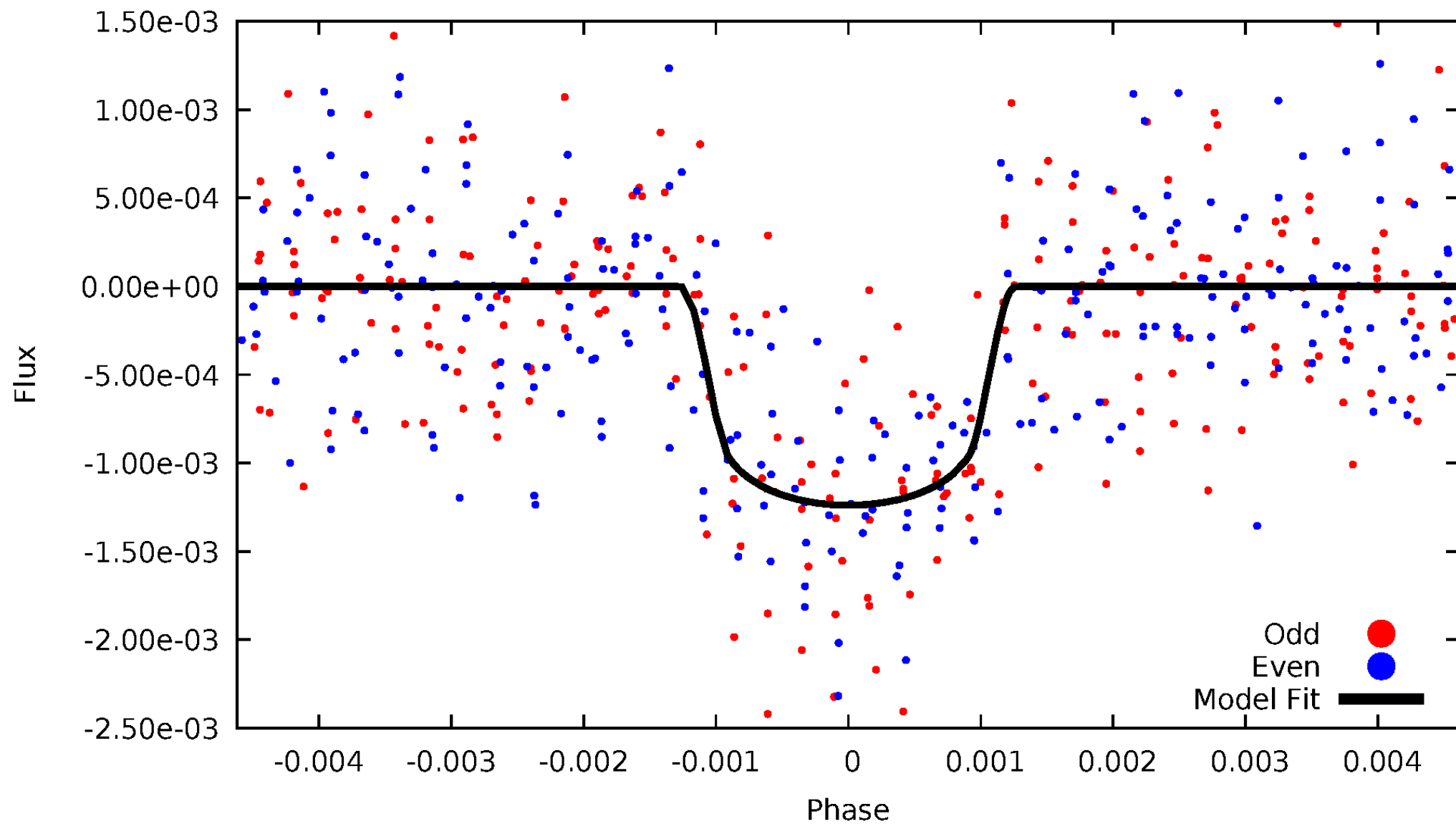


TCE 010812504-01



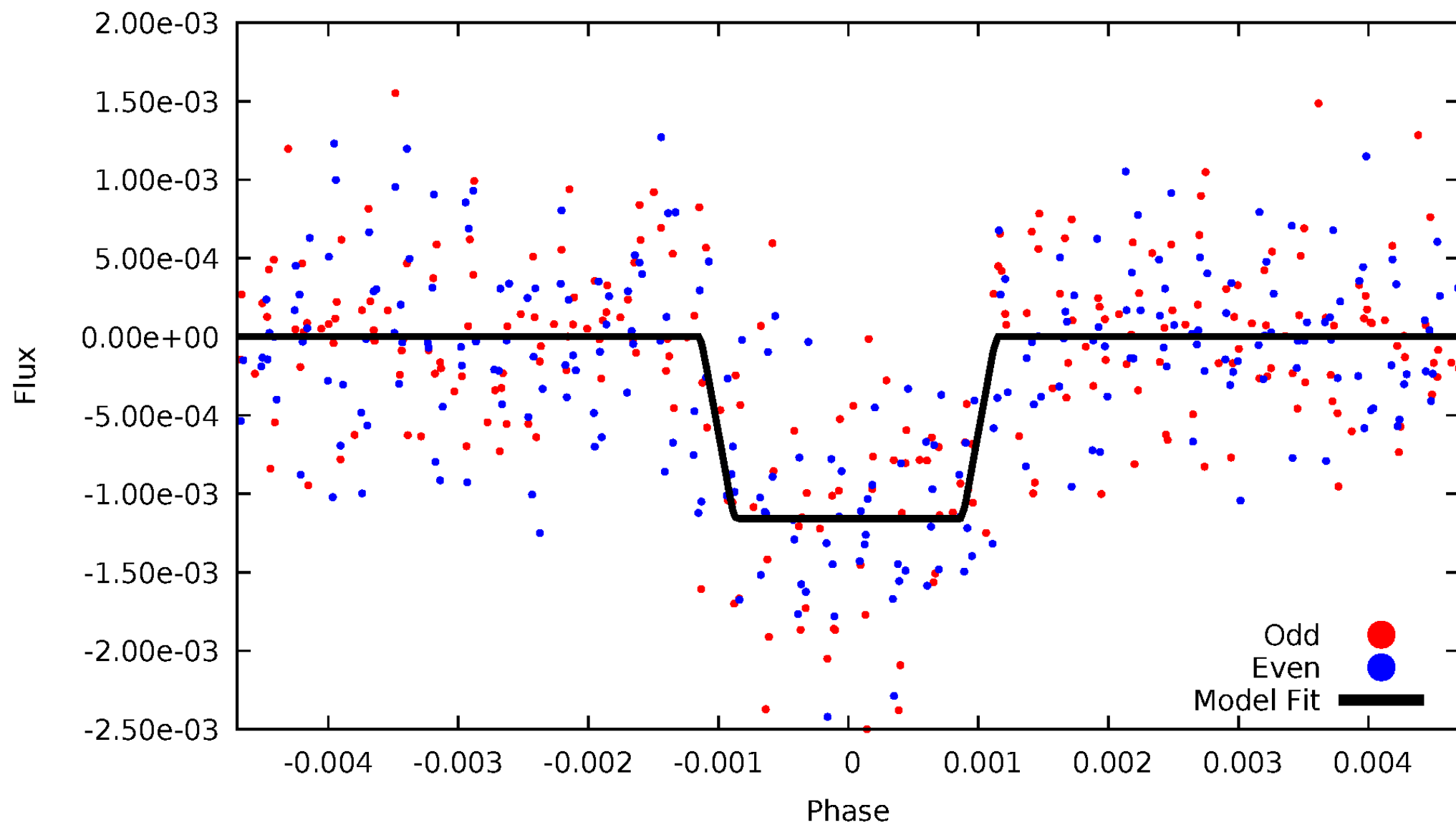
DV Odd/Even

TCE 010812504-01



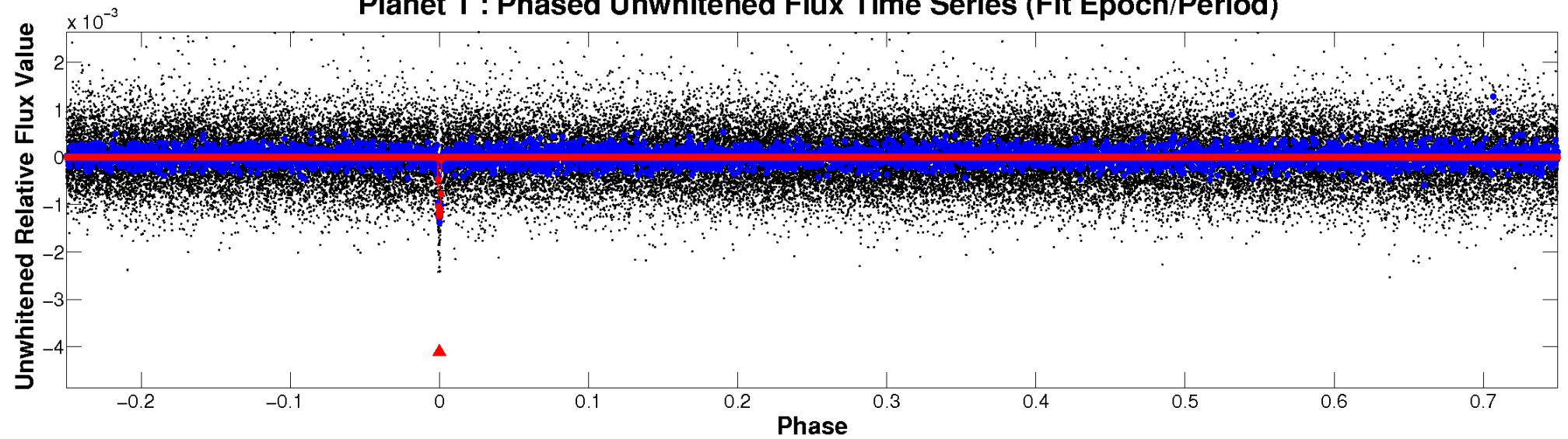
ALT Odd/Even

TCE 010812504-01

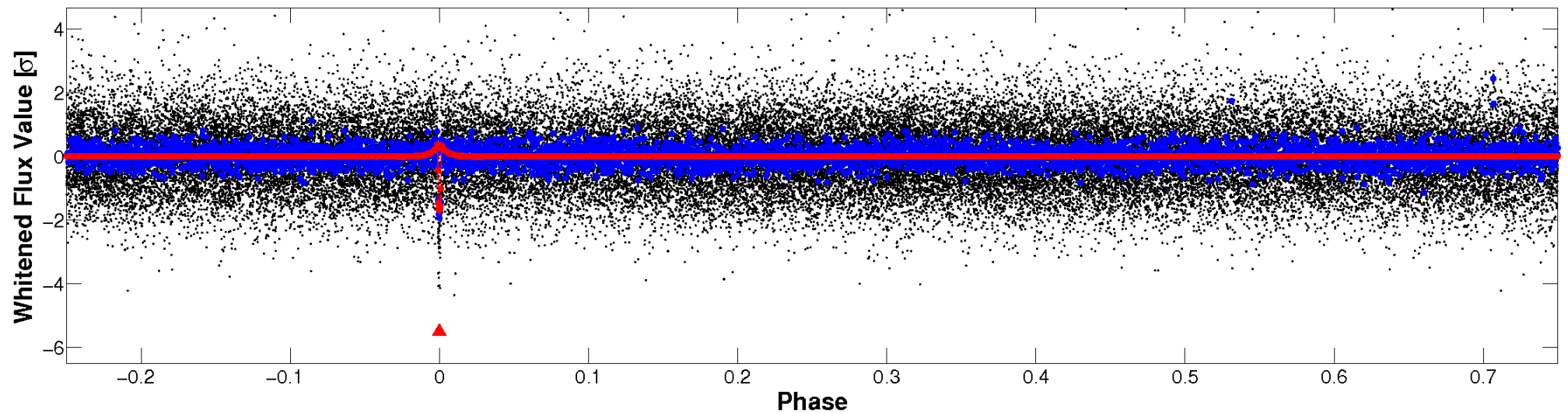


Non-Whitened Vs. Whitened Light Curve

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

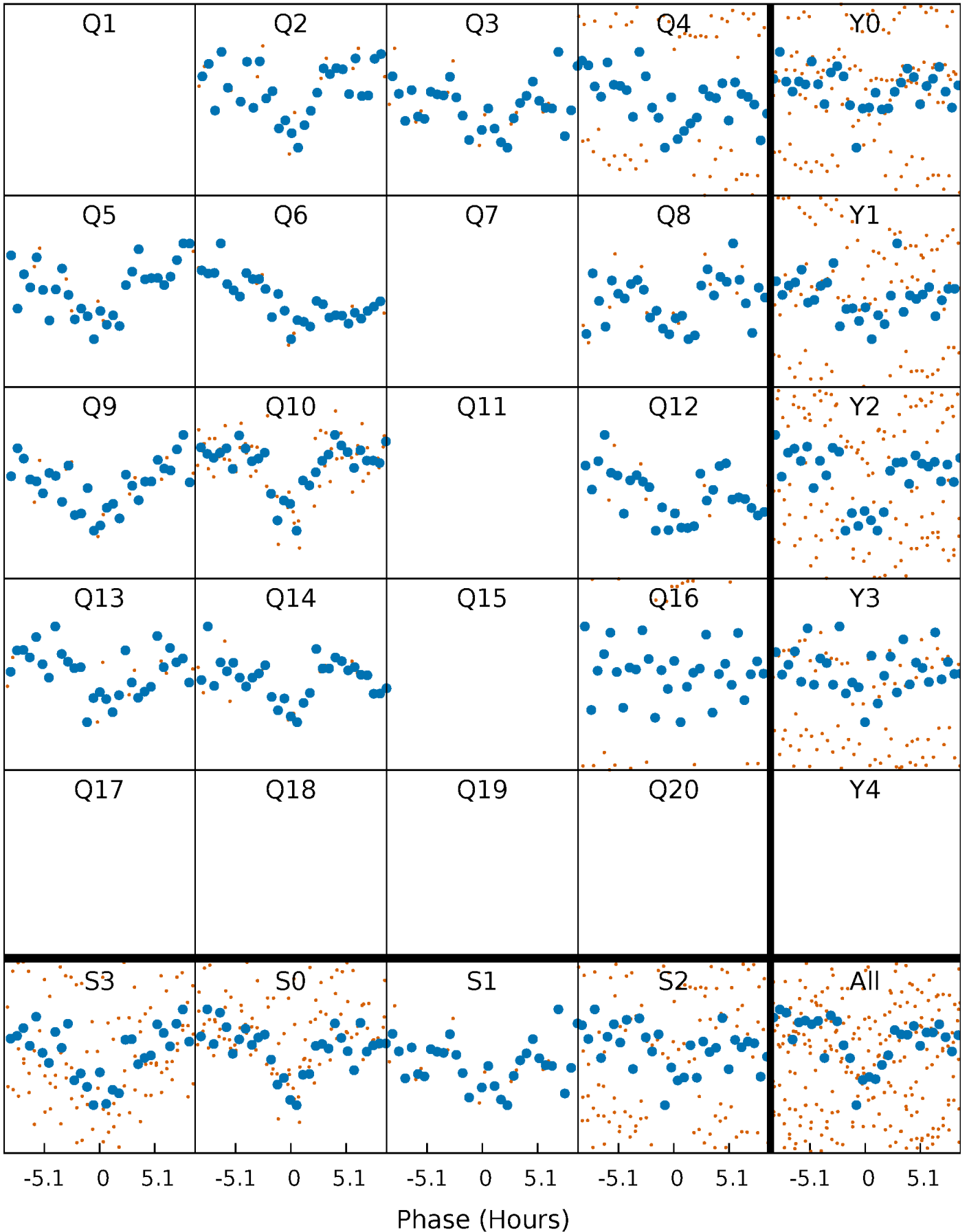


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



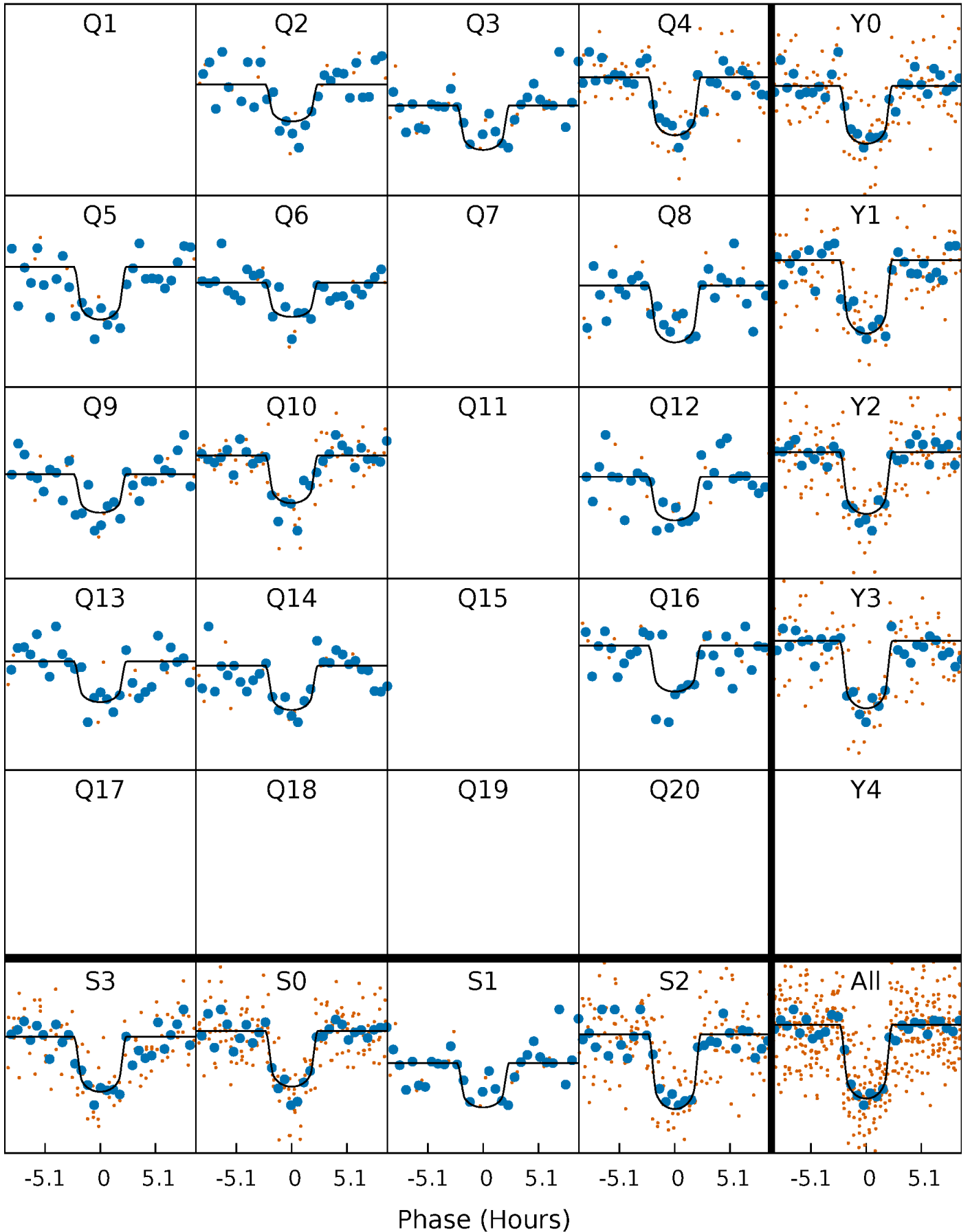
PDC Quarter-Phased Transit Curves

TCE 010812504-01 P= 79.920468 Days $T_0=197.213856$ (BKJD)



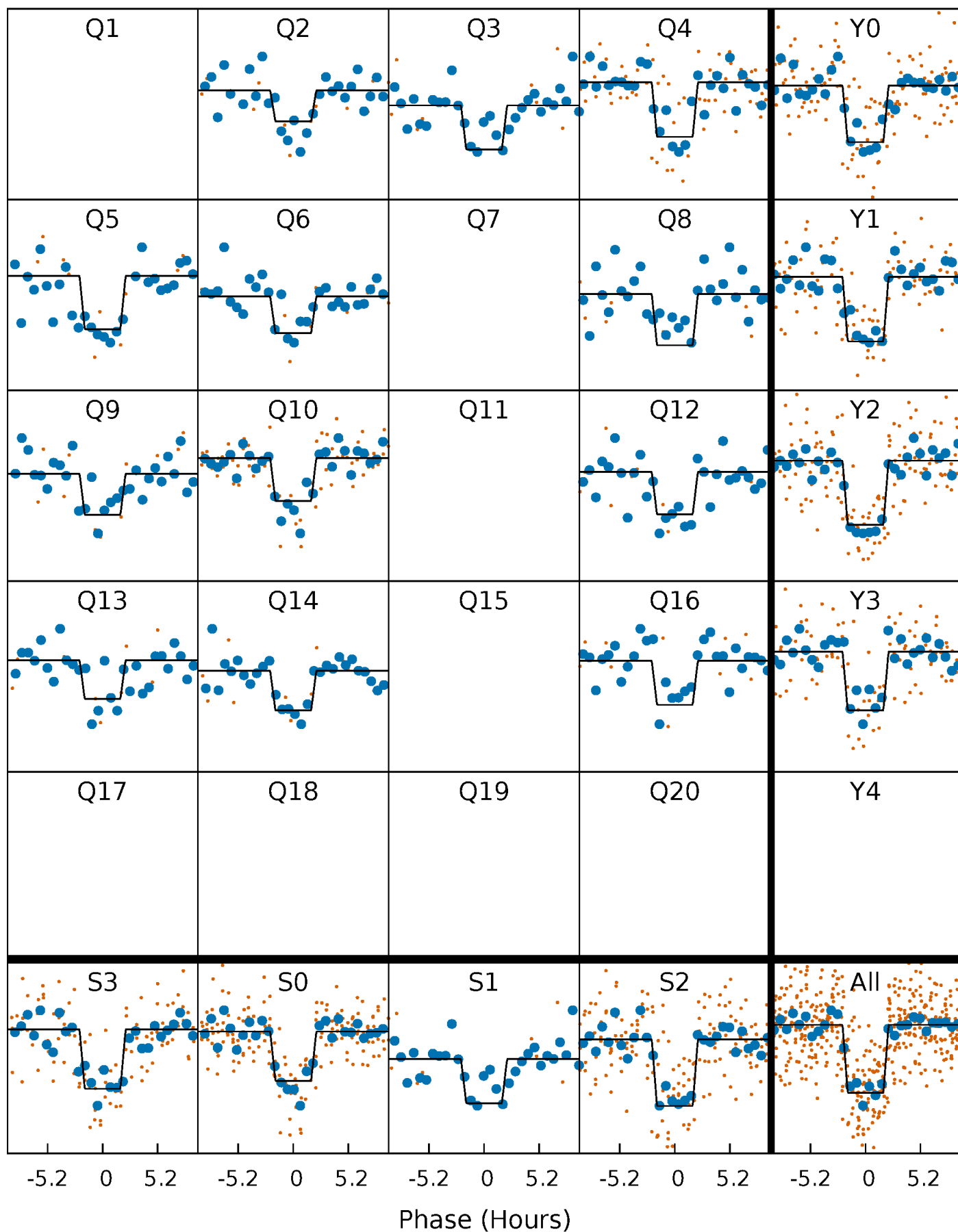
DV Quarter-Phased Transit Curves

TCE 010812504-01 P= 79.920468 Days $T_0=197.213856$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

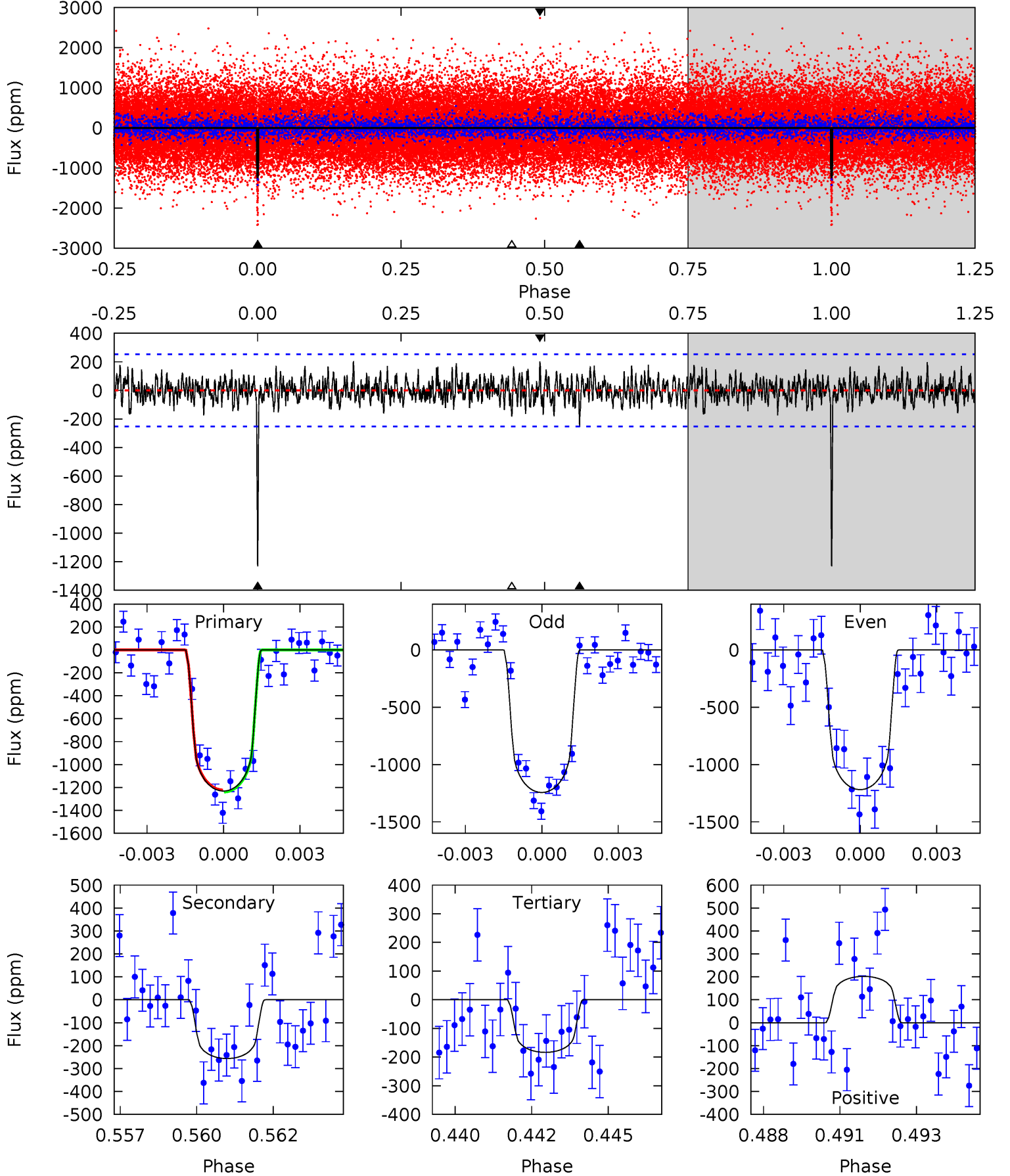
TCE 010812504-01 P= 79.919959 Days $T_0=197.220643$ (BKJD)



DV Model-Shift Uniqueness Test

010812504-01, P = 79.920468 Days, E = 117.293388 Days

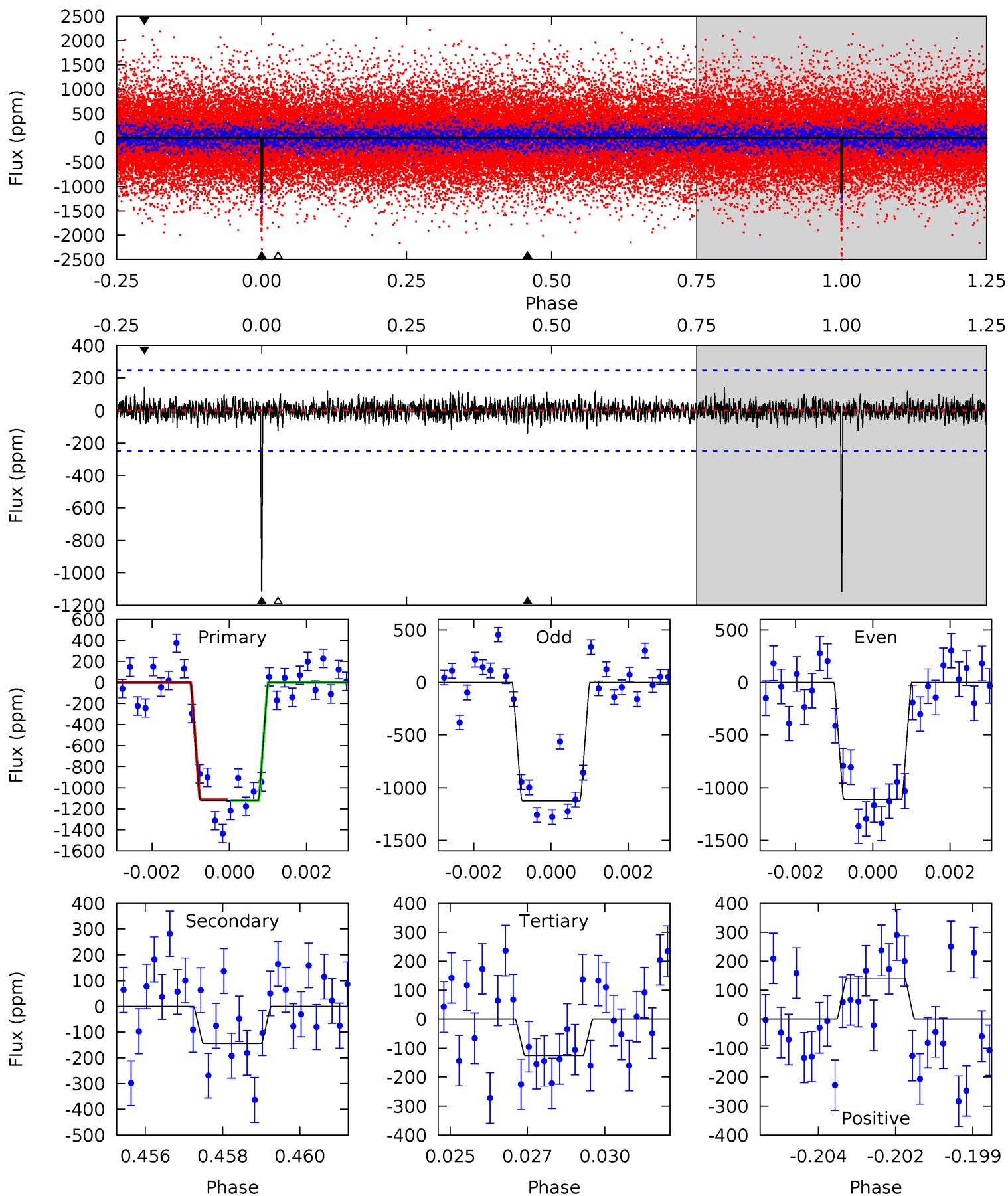
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.7	5.36	3.84	4.22	5.28	3.02	1.33	21.9	21.5	1.52	1.14	0.26	0.96	0.14	0.19



Alt Model-Shift Uniqueness Test

010812504-01, $P = 79.919959$ Days, $E = 117.300684$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	3.10	2.69	3.04	5.30	3.05	0.77	21.3	20.9	0.41	0.05	0.14	1.00	0.11	0.08



Stellar Parameters For KIC 010812504

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3812^{+76}_{-91}	$4.767^{+0.060}_{-0.035}$	$-0.300^{+0.200}_{-0.200}$	$0.476^{+0.041}_{-0.050}$	$0.484^{+0.043}_{-0.048}$	$6.317^{+1.790}_{-0.968}$
	+2%/-2%	+1%/-1%	+67%/-67%	+9%/-11%	+9%/-10%	+28%/-15%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 010812504-01 / KOI 2570.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-256 ± 48	$1.76^{+0.61}_{-0.64}$	303^{+8}_{-9}	3010^{+416}_{-252}	3748^{+5726}_{-1778}
Alt.	-145 ± 47	$1.73^{+0.63}_{-0.62}$	302^{+9}_{-9}	2798^{+401}_{-261}	2173^{+3506}_{-1155}

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 $A_{obs} \gg 1.0$

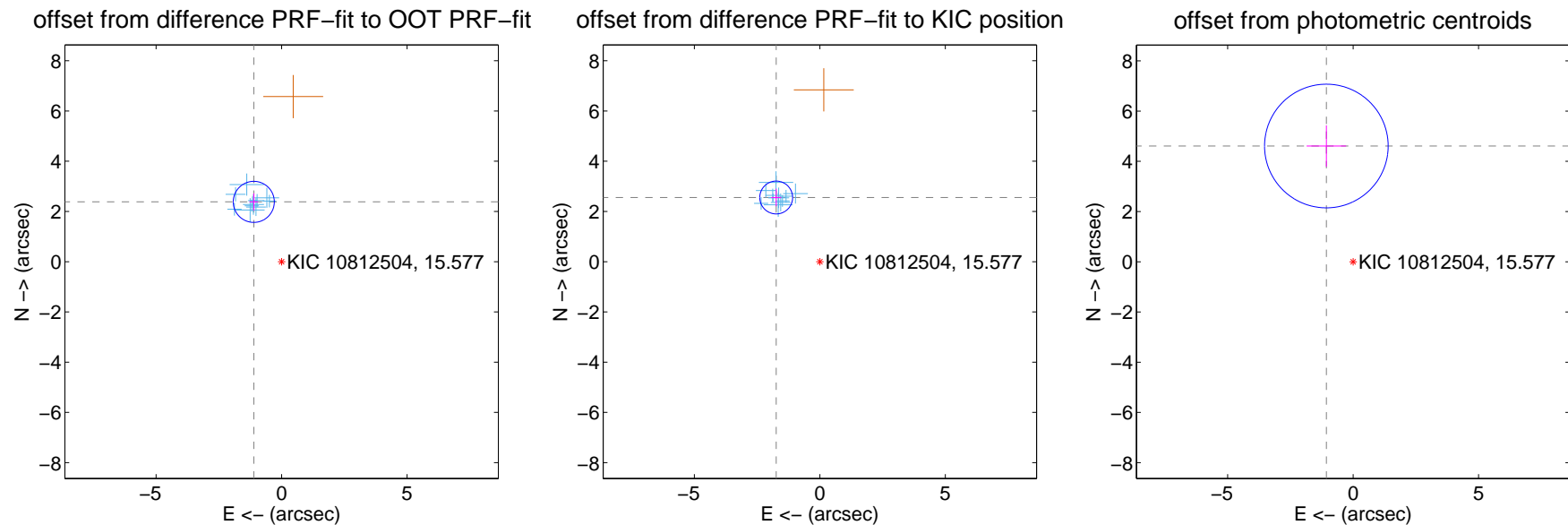
DV Centroid Data

Supplemental centroid analysis for 010812504-01. Kepler magnitude: 15.58. Transit SNR 16.67

There are 11 quarters with good PRF difference image offsets

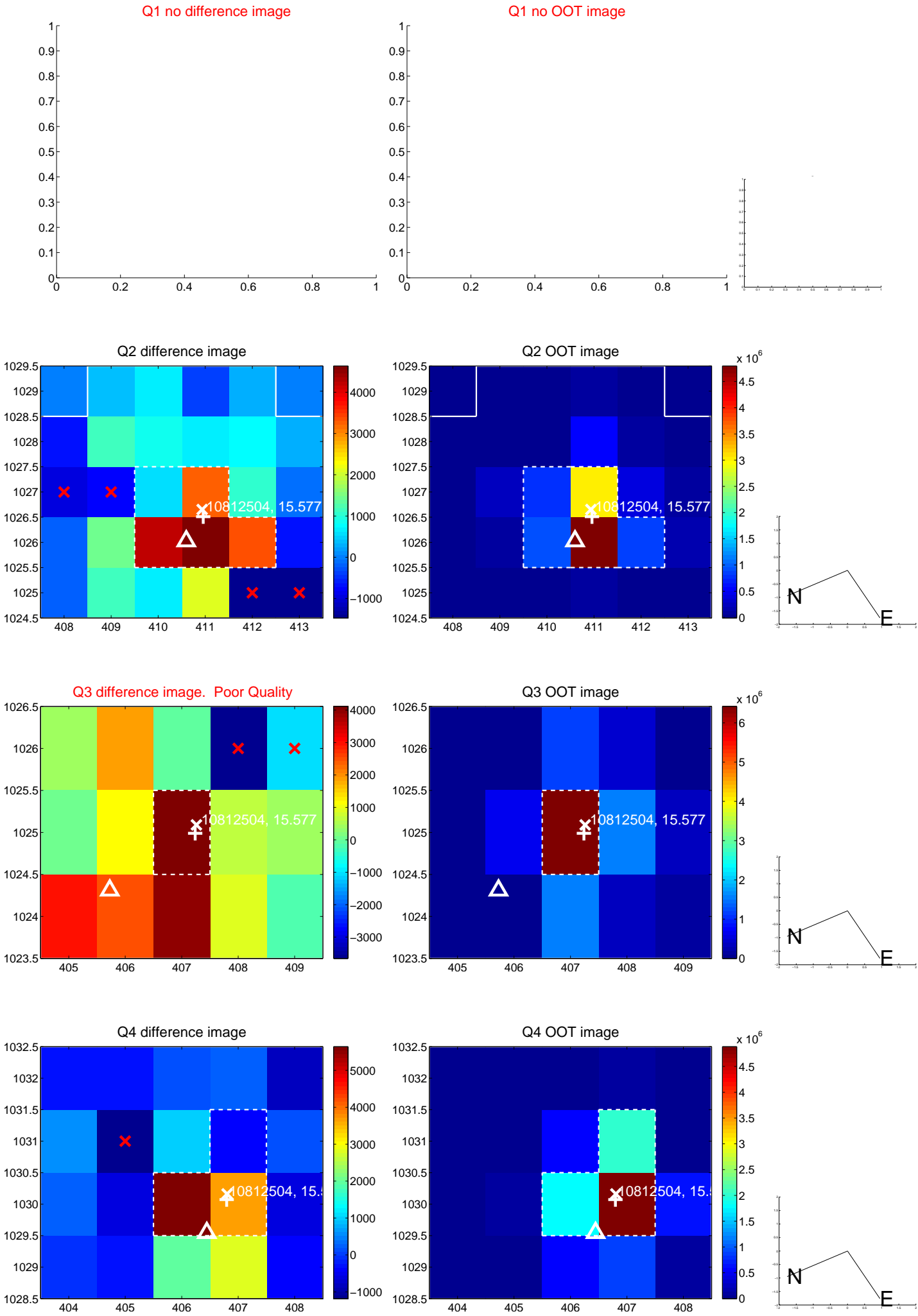
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.627 ± 0.273	9.64	1.107 ± 0.175	2.383 ± 0.342
PRF-fit source offset from KIC position	3.091 ± 0.218	14.18	1.739 ± 0.195	2.556 ± 0.350
photometric centroid source offset	4.73 ± 0.82	5.76	1.07 ± 0.79	4.61 ± 0.82

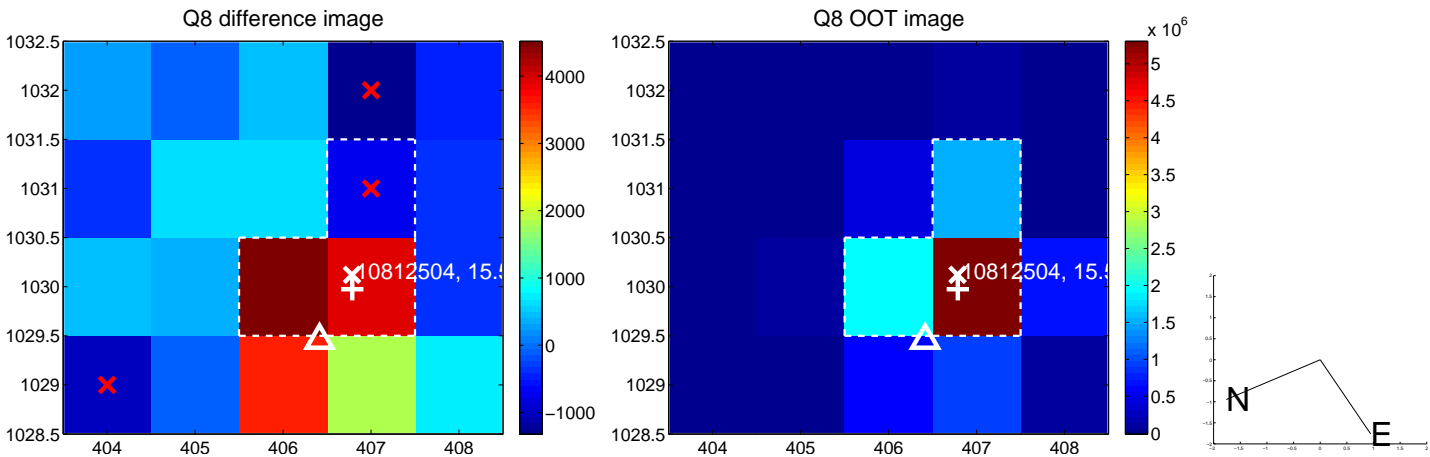
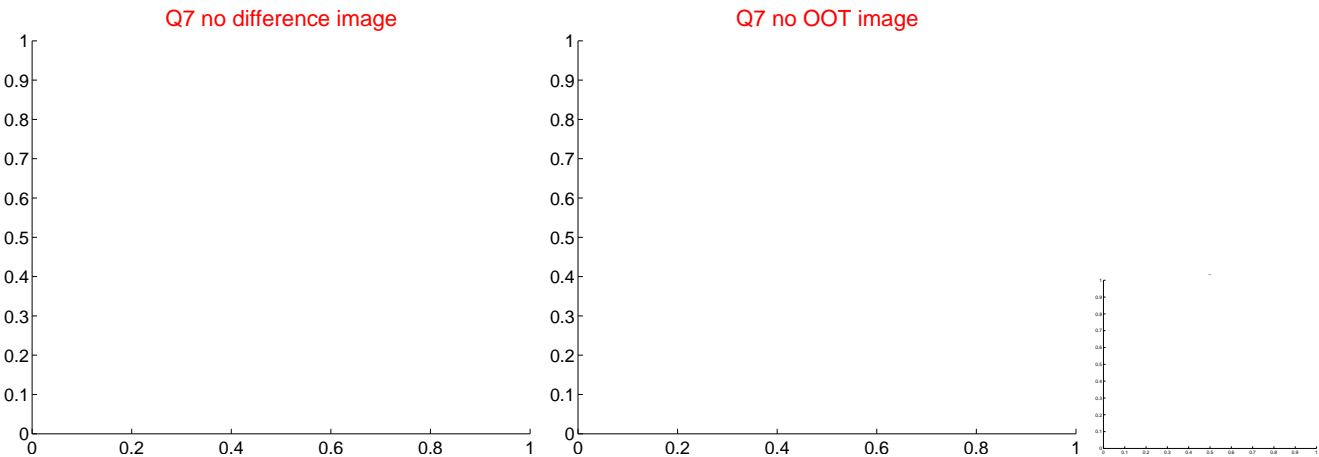
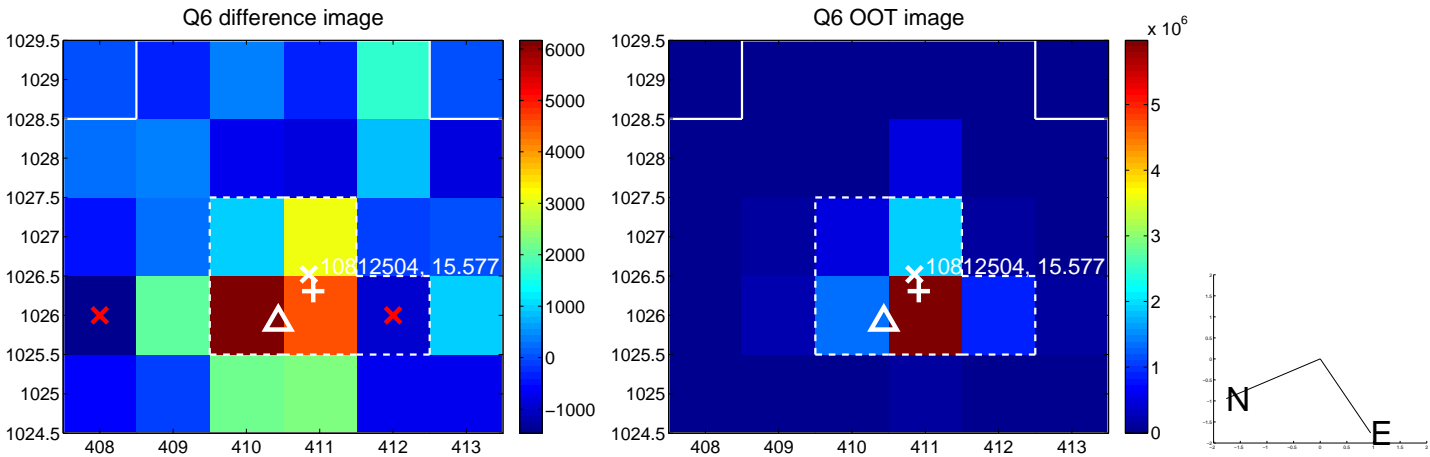
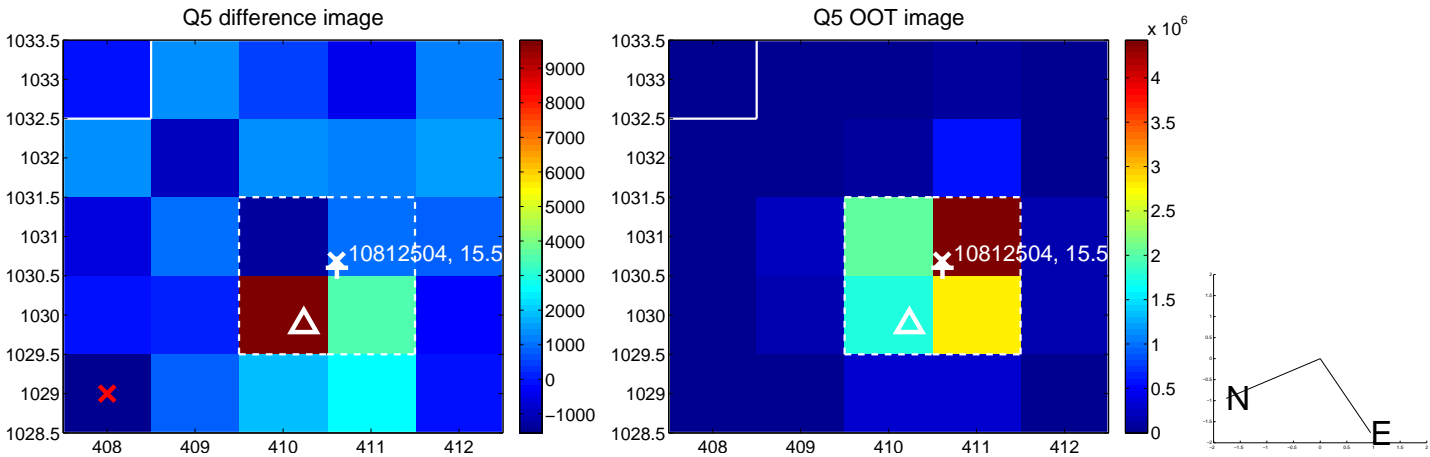


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

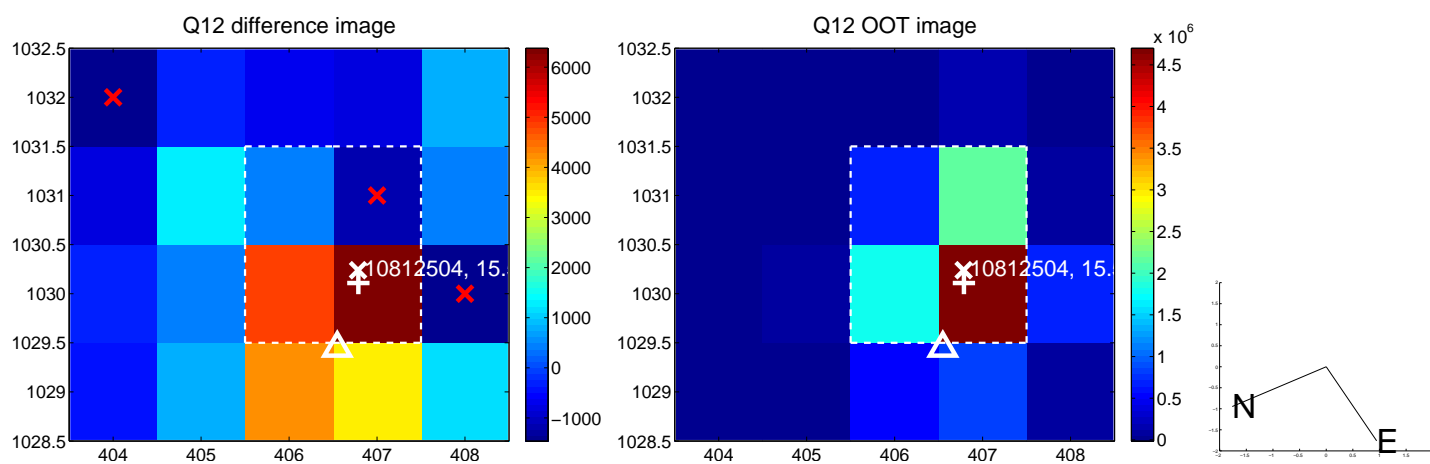
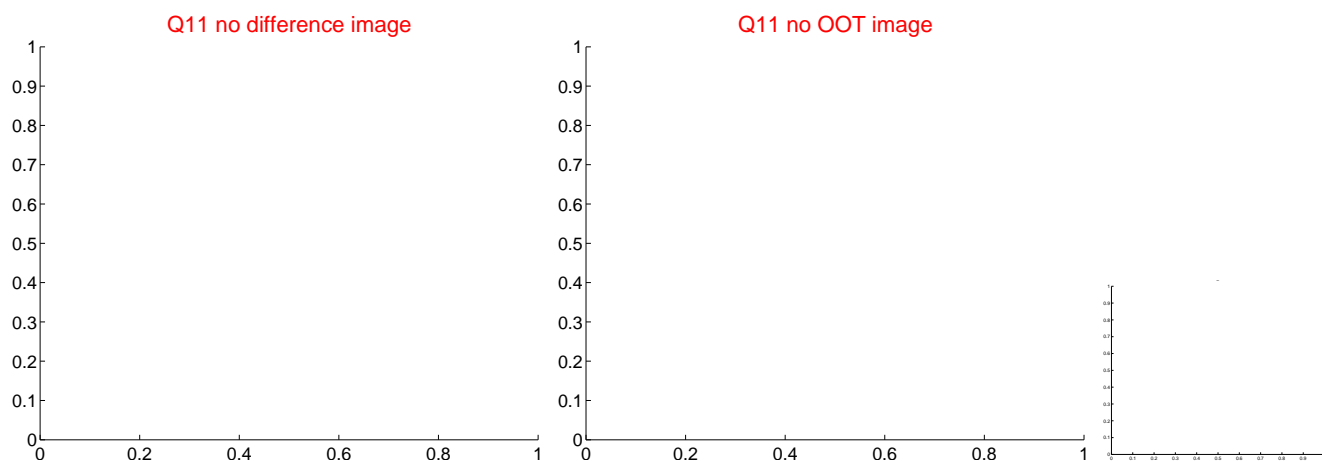
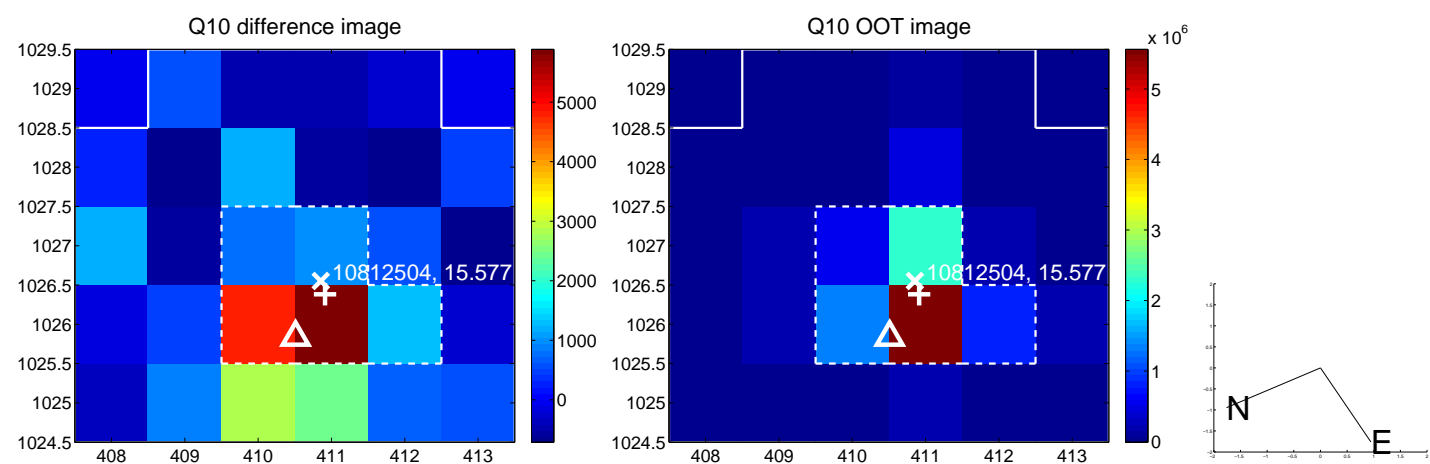
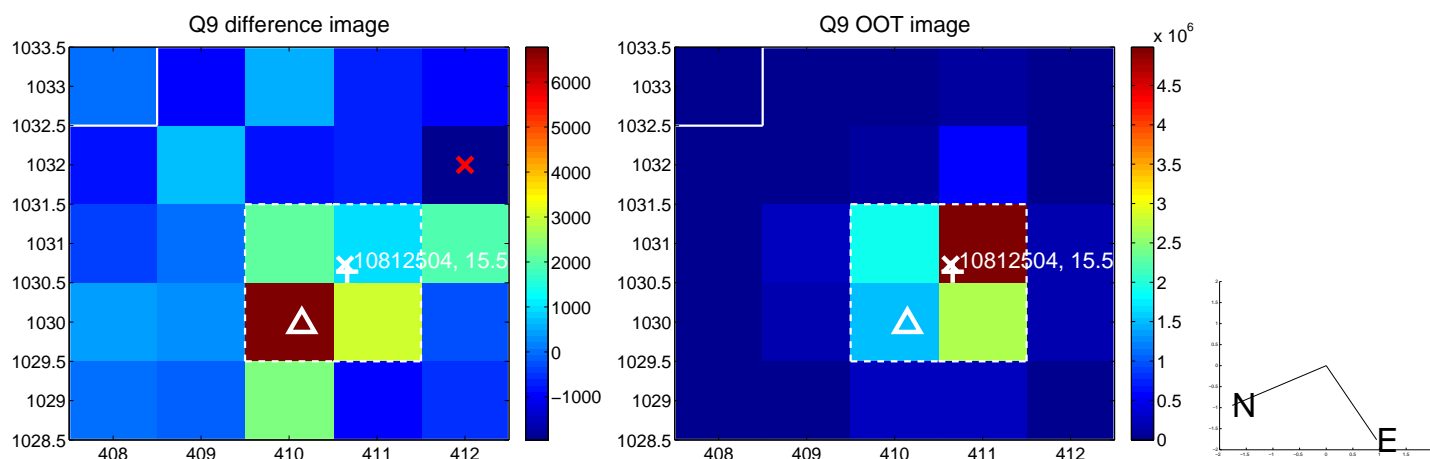
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



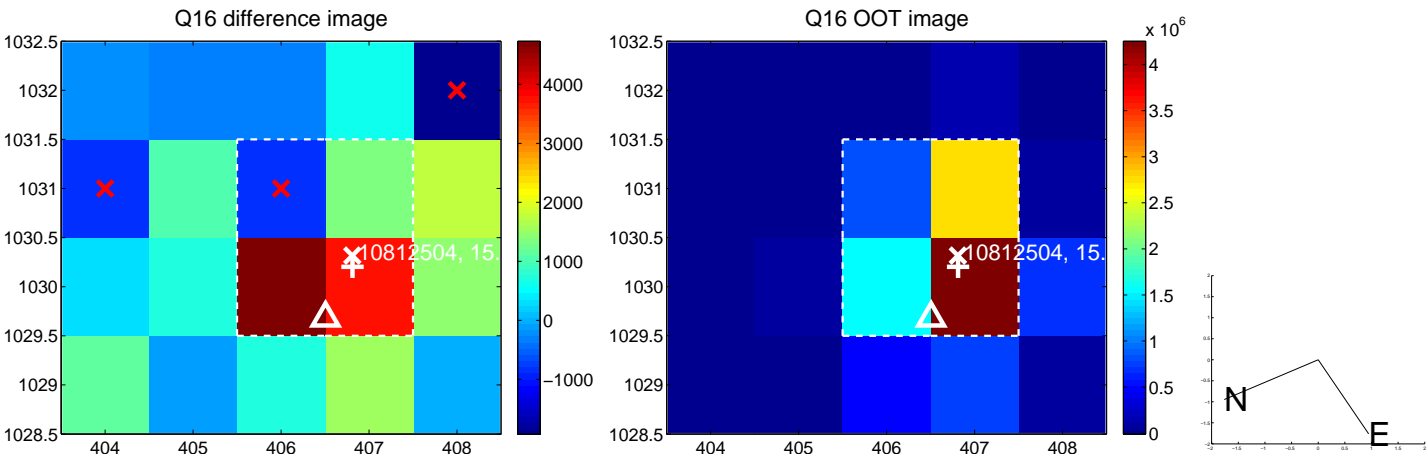
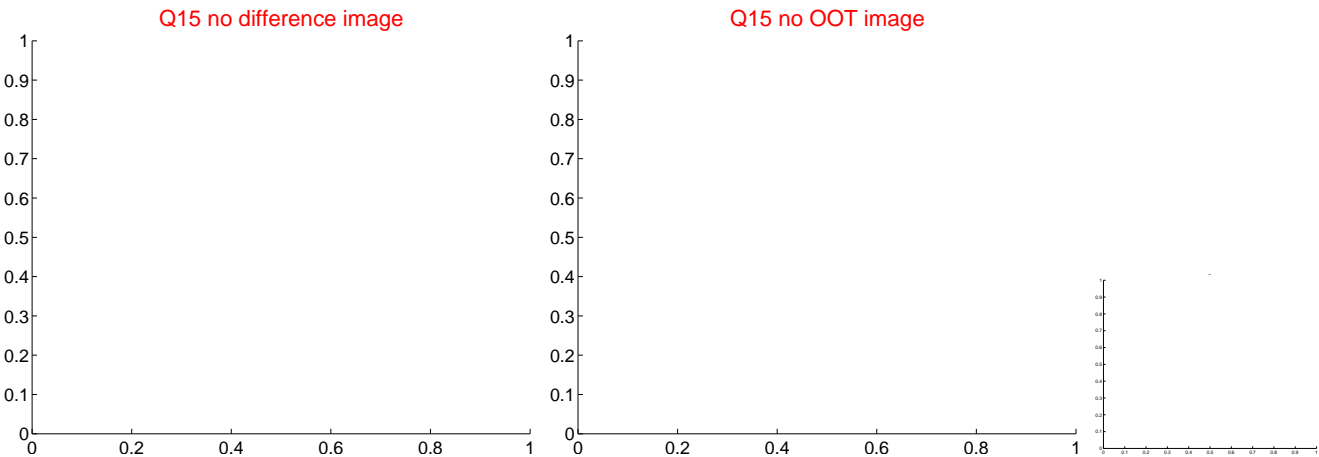
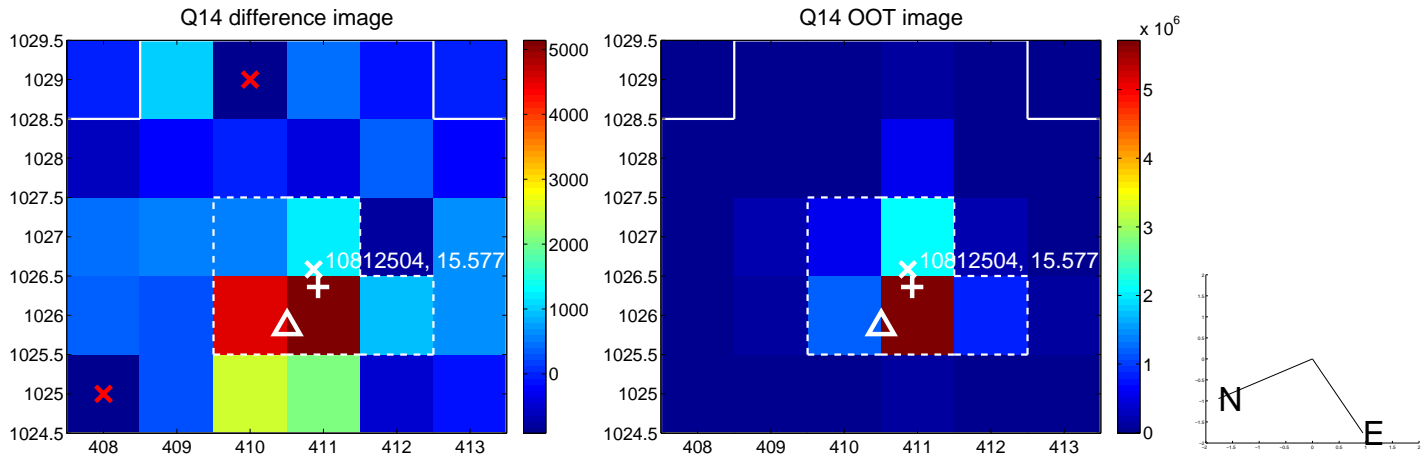
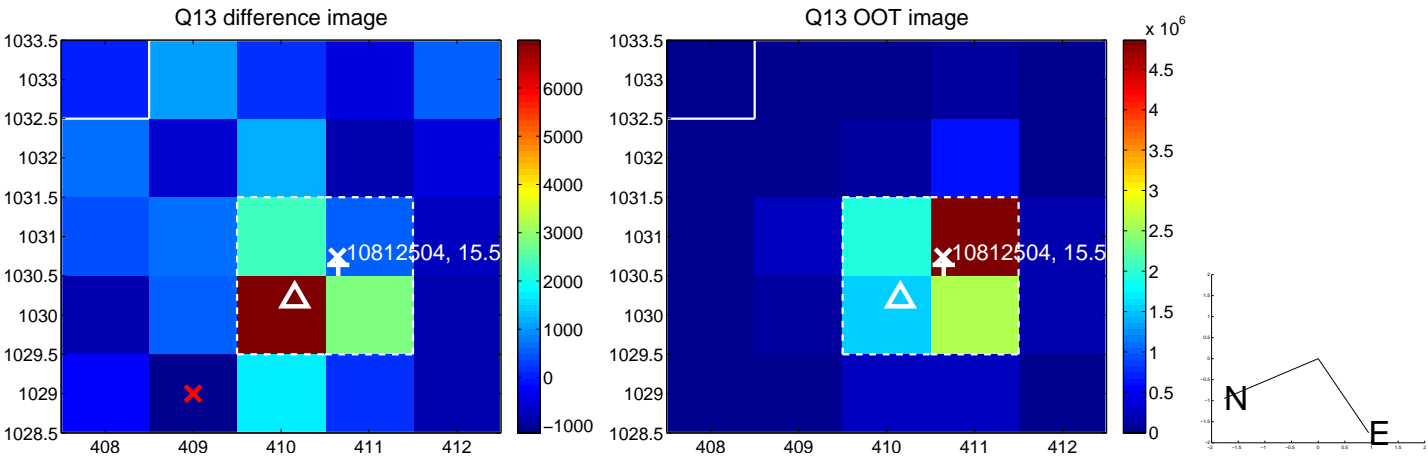
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



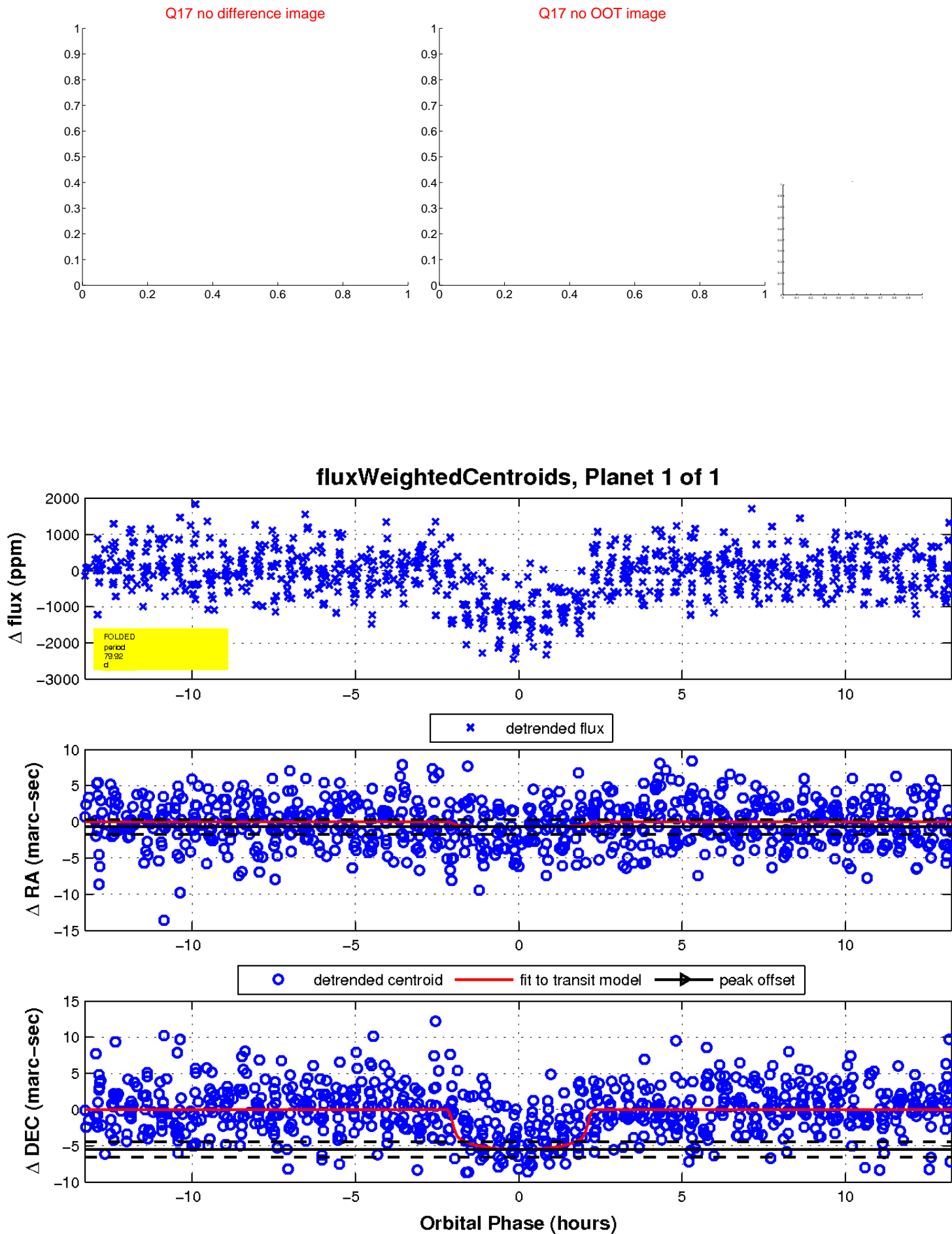
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image

Declination

