

KIC 012400538

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})
012400538-01	OBS	1503.01	150.241131	138.290656	2382.1	10.967	69.4	67.7	0.94	5604	4.72	2.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012400538-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

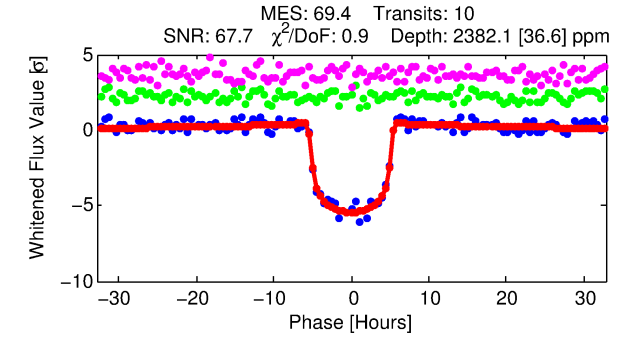
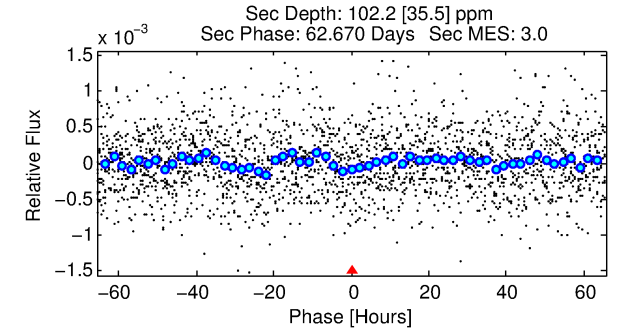
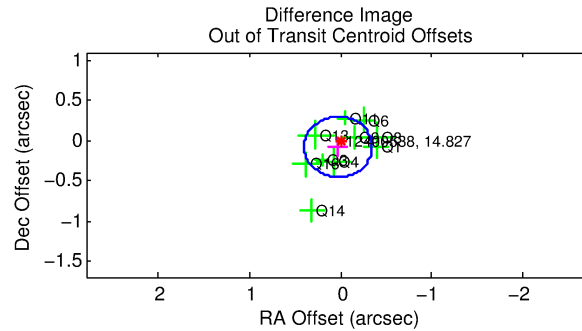
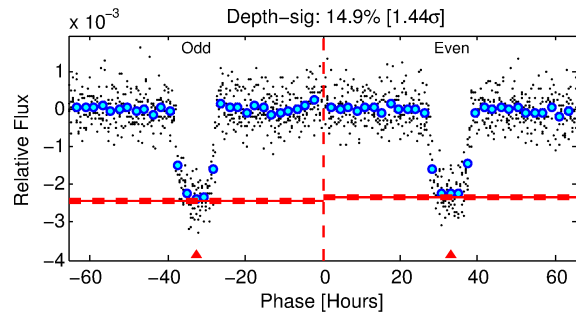
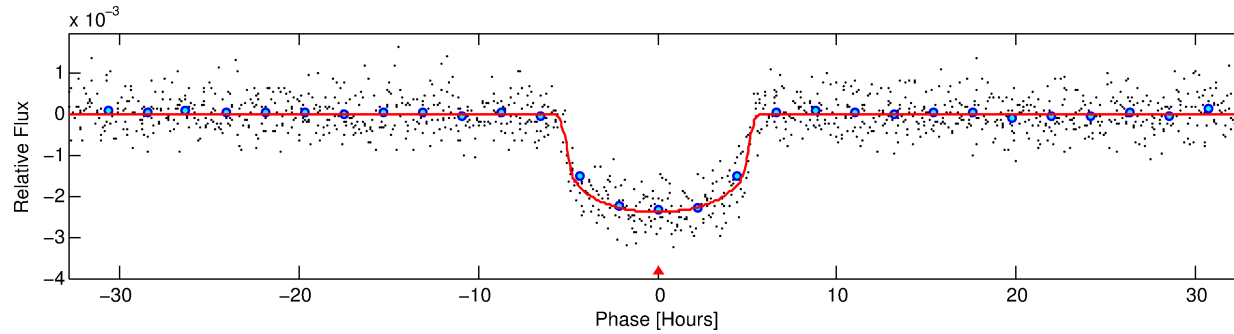
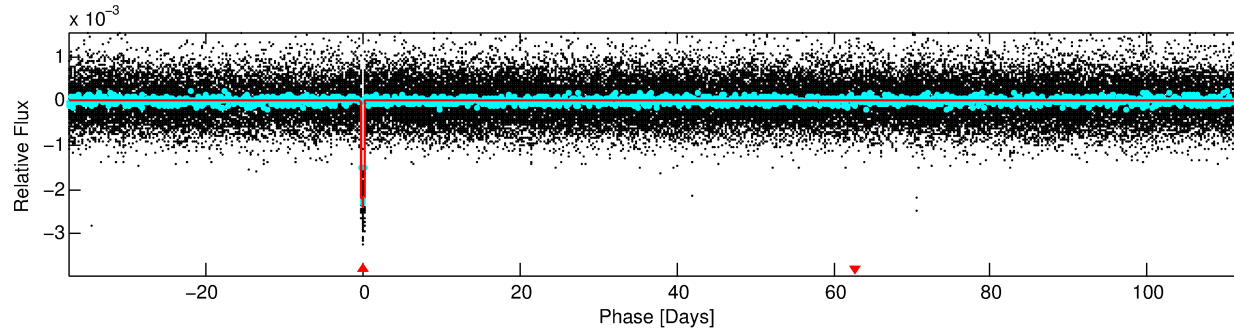
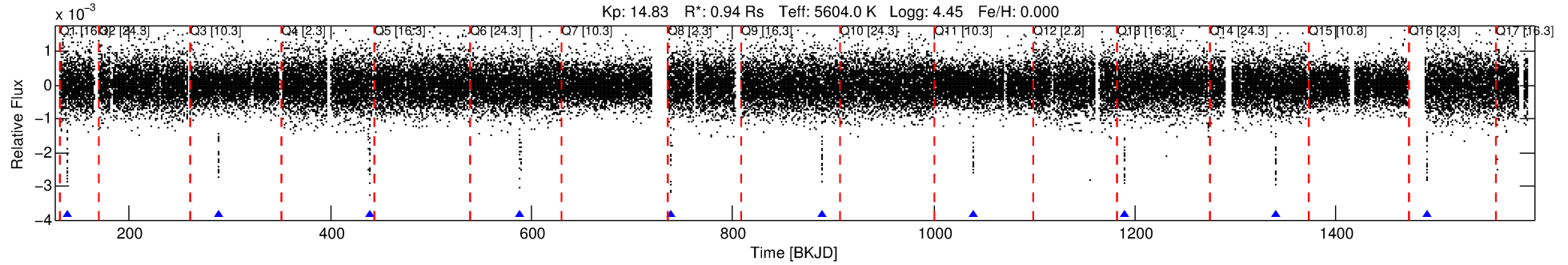
Ephemeris Match Information For 012400538-01

No Significant Match Found

DV One-Page Summary

KIC: 12400538 Candidate: 1 of 1 Period: 150.241 d

KOI: K01503.01 Corr: 0.994



DV Fit Results:

Period = 150.24113 [0.00054] d
Epoch = 138.2907 [0.0029] BKJD
Rp/R* = 0.0459 [0.0029]
a/R* = 93.83 [24.33]
b = 0.54 [0.35]
Seff = 2.72 [0.53]
Teq = 328 [16] K
Rp = 4.72 [0.69] Re
a = 0.5373 [0.0629] AU
Ag = 728.34 [299.58] [2.43 σ]
Teffp = 2631 [249] K [9.23 σ]

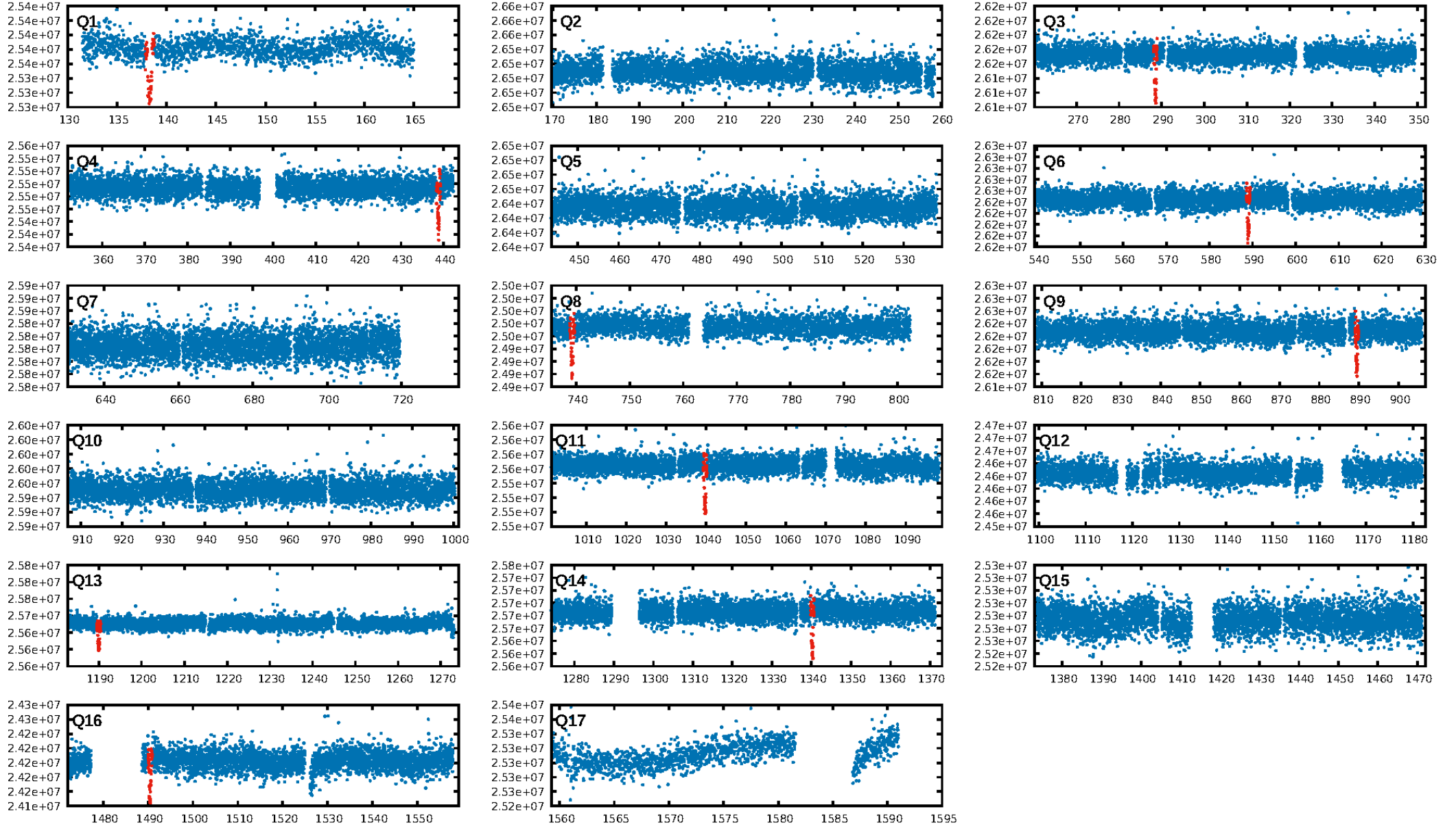
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 21.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 6.711
Centroid-sig: 70.0%
Centroid-so: 0.976 arcsec [4.48 σ]
OotOffset-rm: 0.083 arcsec [0.67 σ]
KicOffset-rm: 0.190 arcsec [1.61 σ]
OotOffset-st: 2/2/3/3 [10]
KicOffset-st: 2/2/3/3 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [10/10]

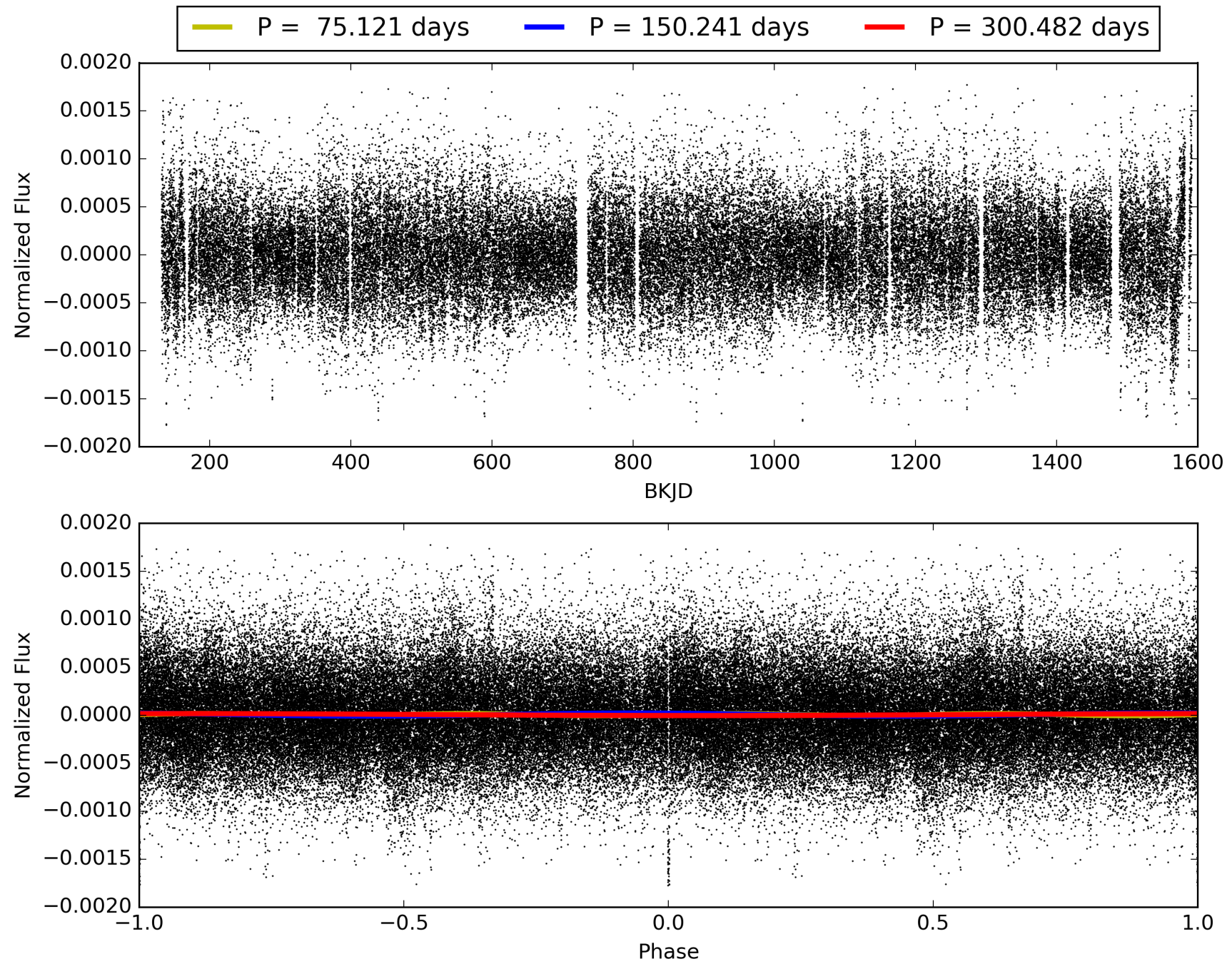
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:08:01 Z

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

TCE 012400538-01, PDC Light Curves

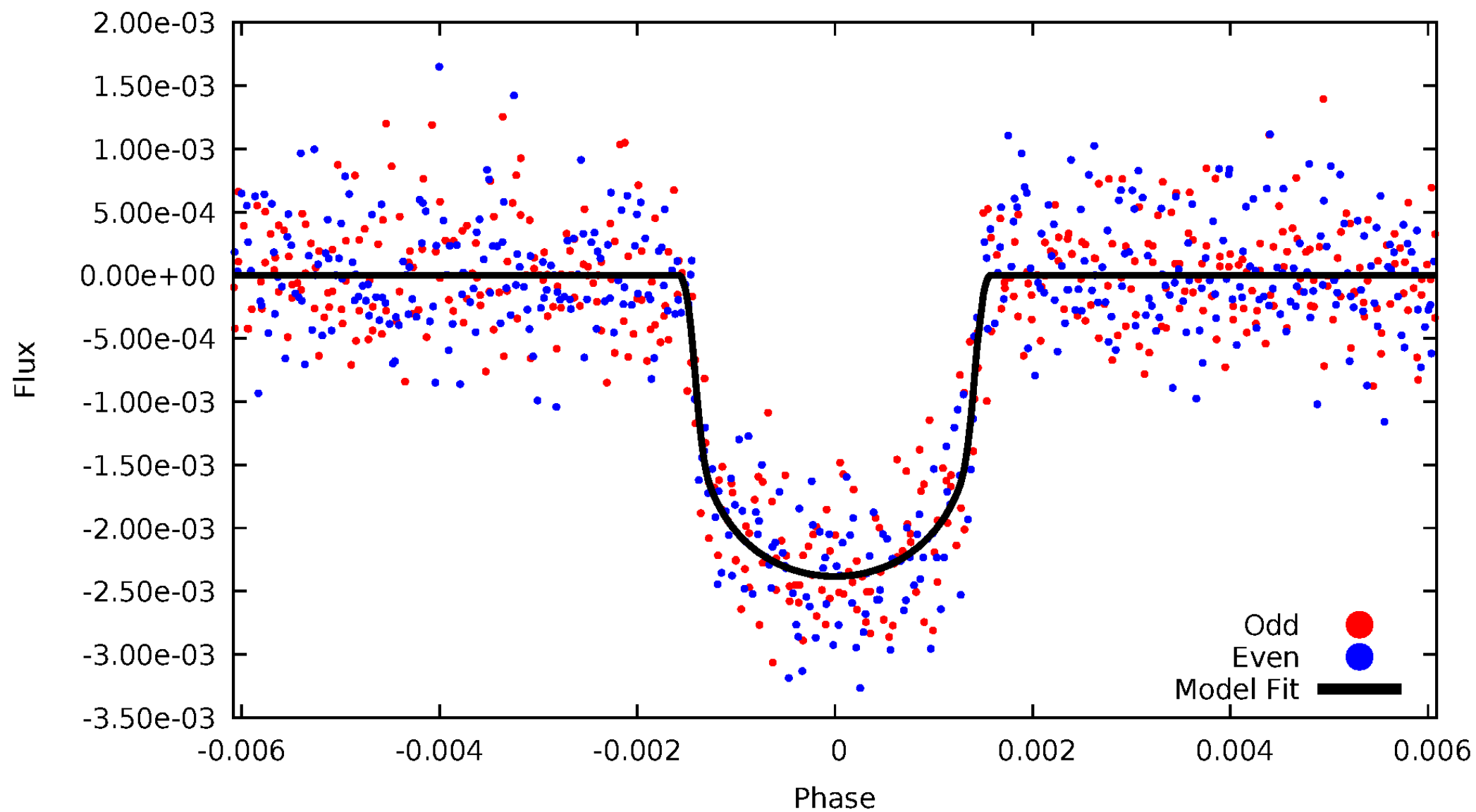


TCE 012400538-01



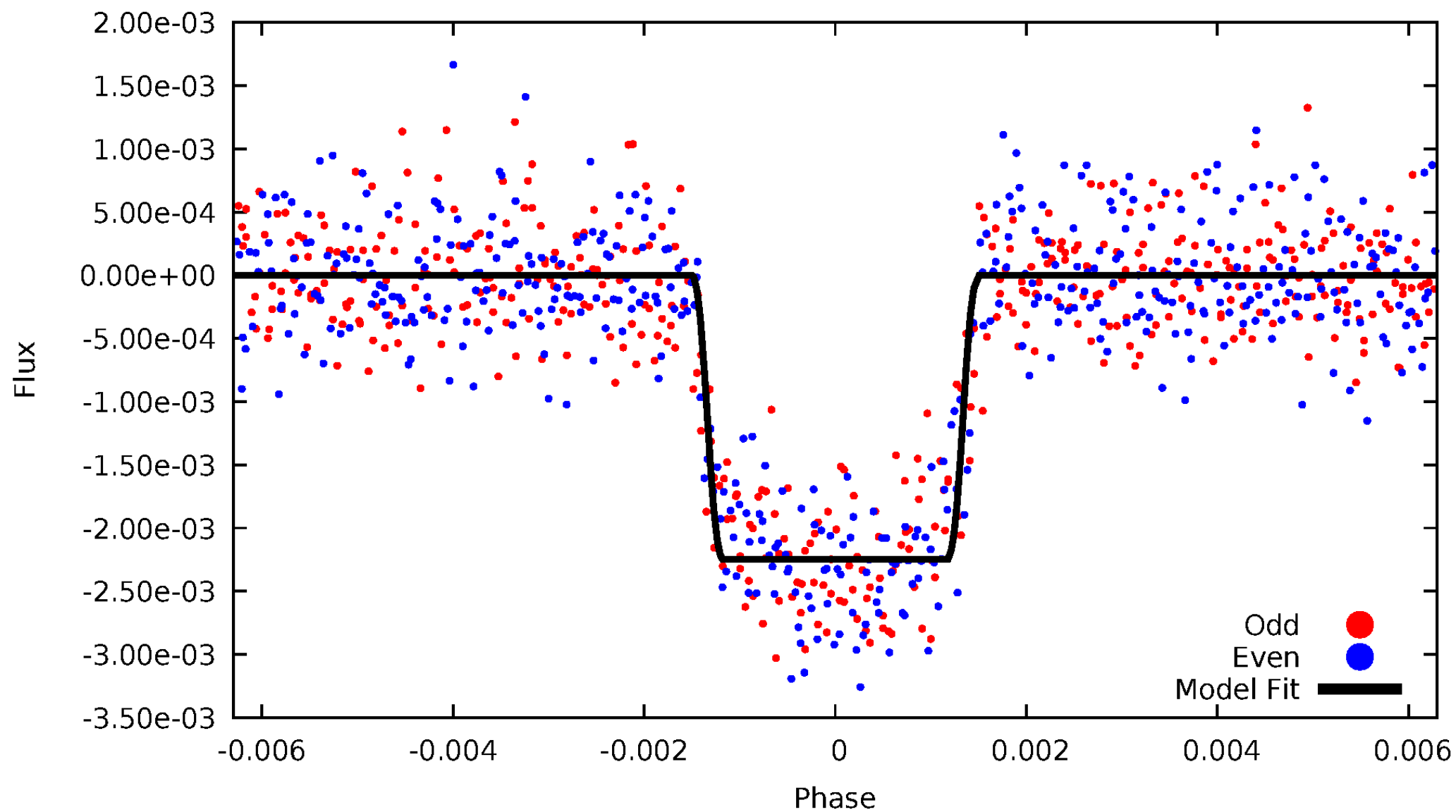
DV Odd/Even

TCE 012400538-01



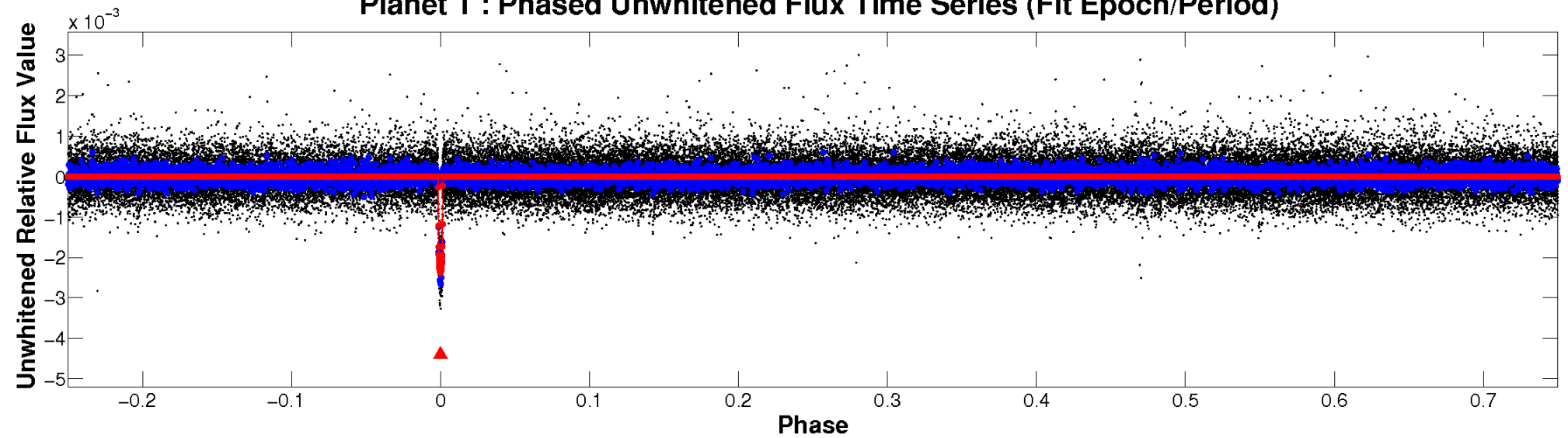
ALT Odd/Even

TCE 012400538-01

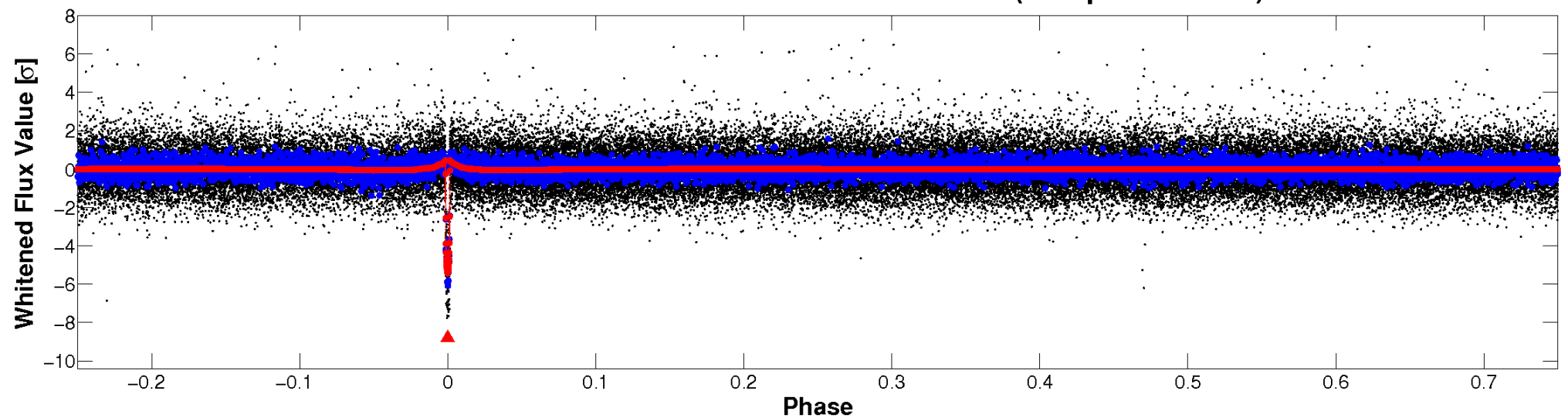


Non-Whitened Vs. Whitened Light Curve

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

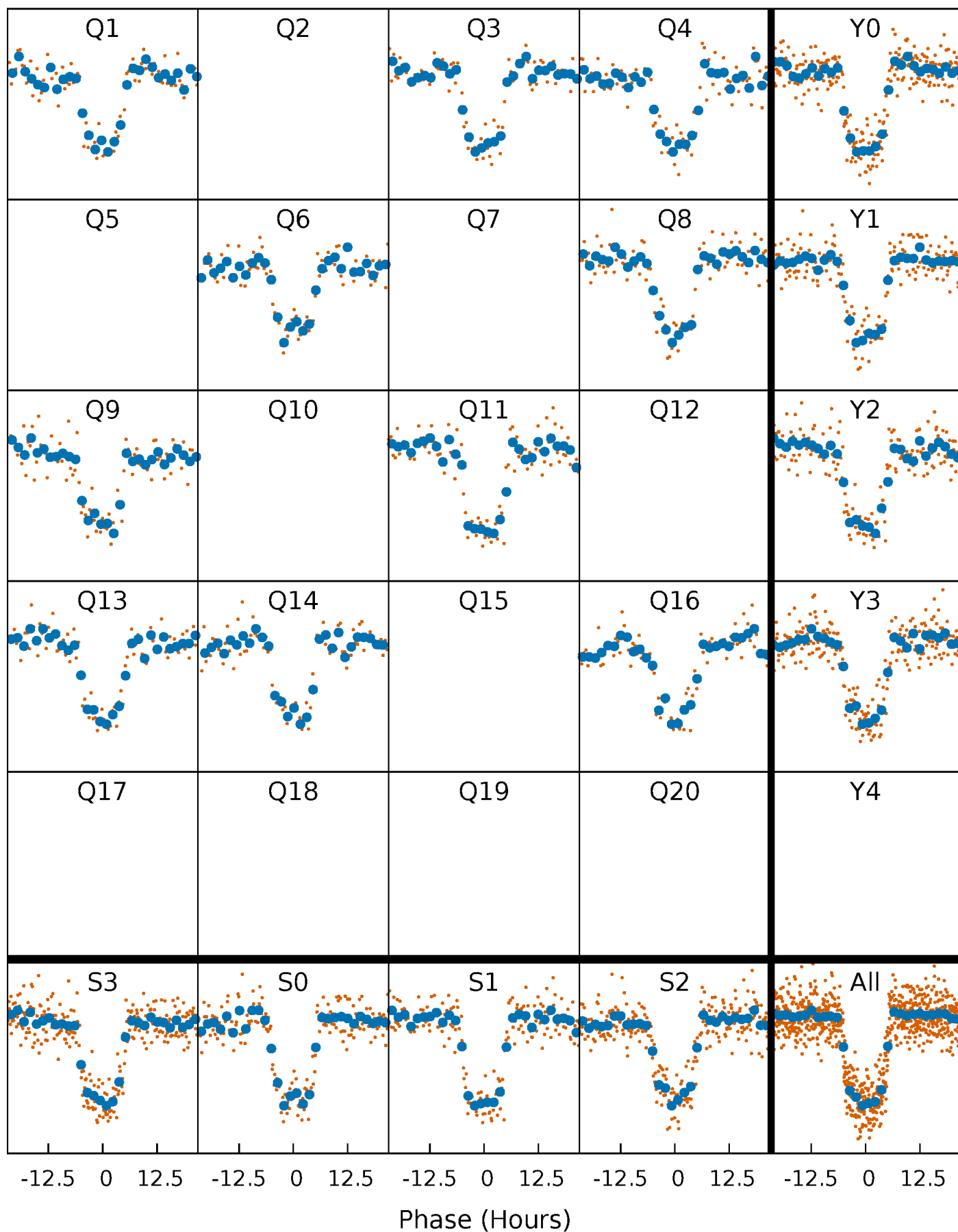


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



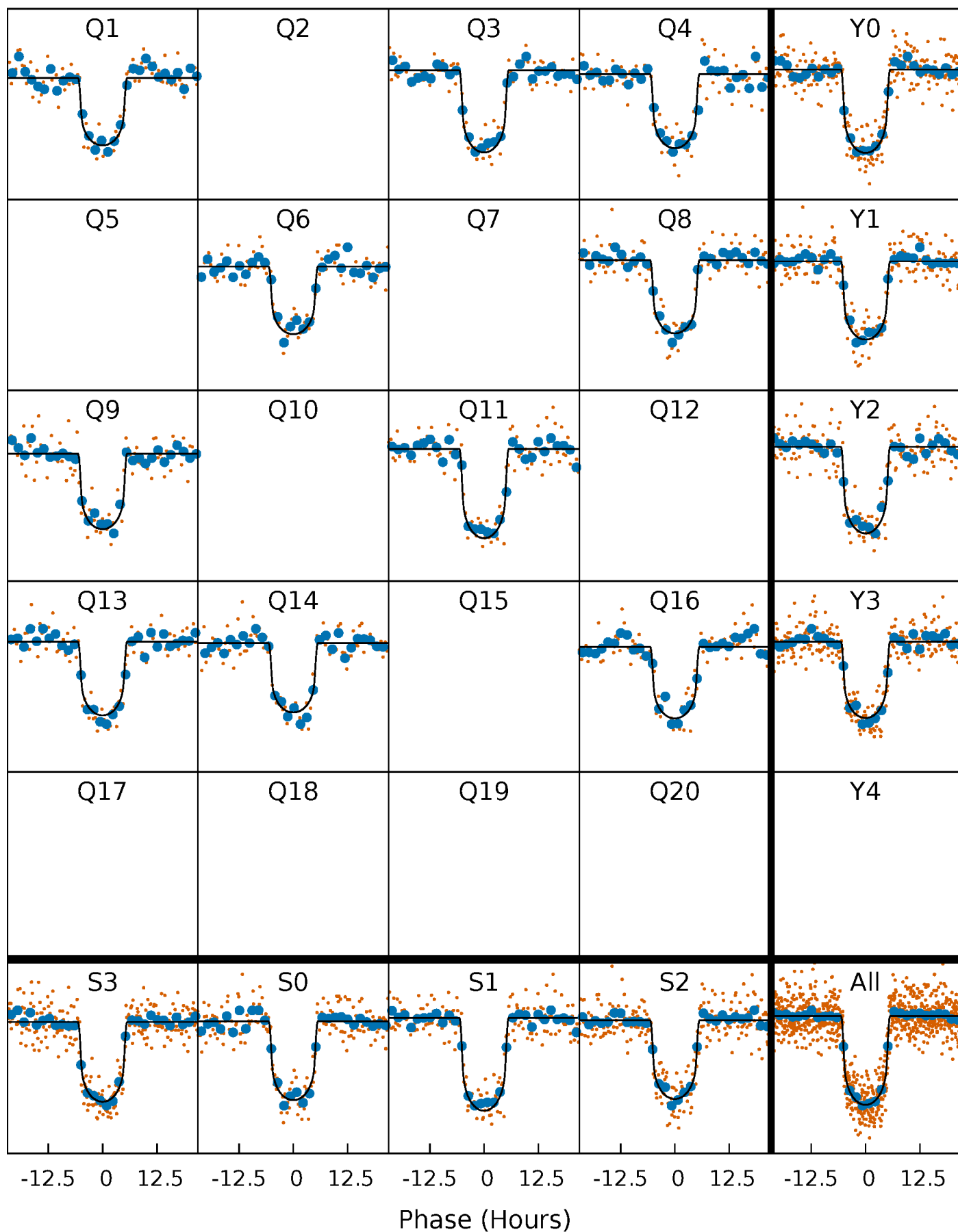
PDC Quarter-Phased Transit Curves

TCE 012400538-01 P=150.241131 Days $T_0=138.290656$ (BKJD)



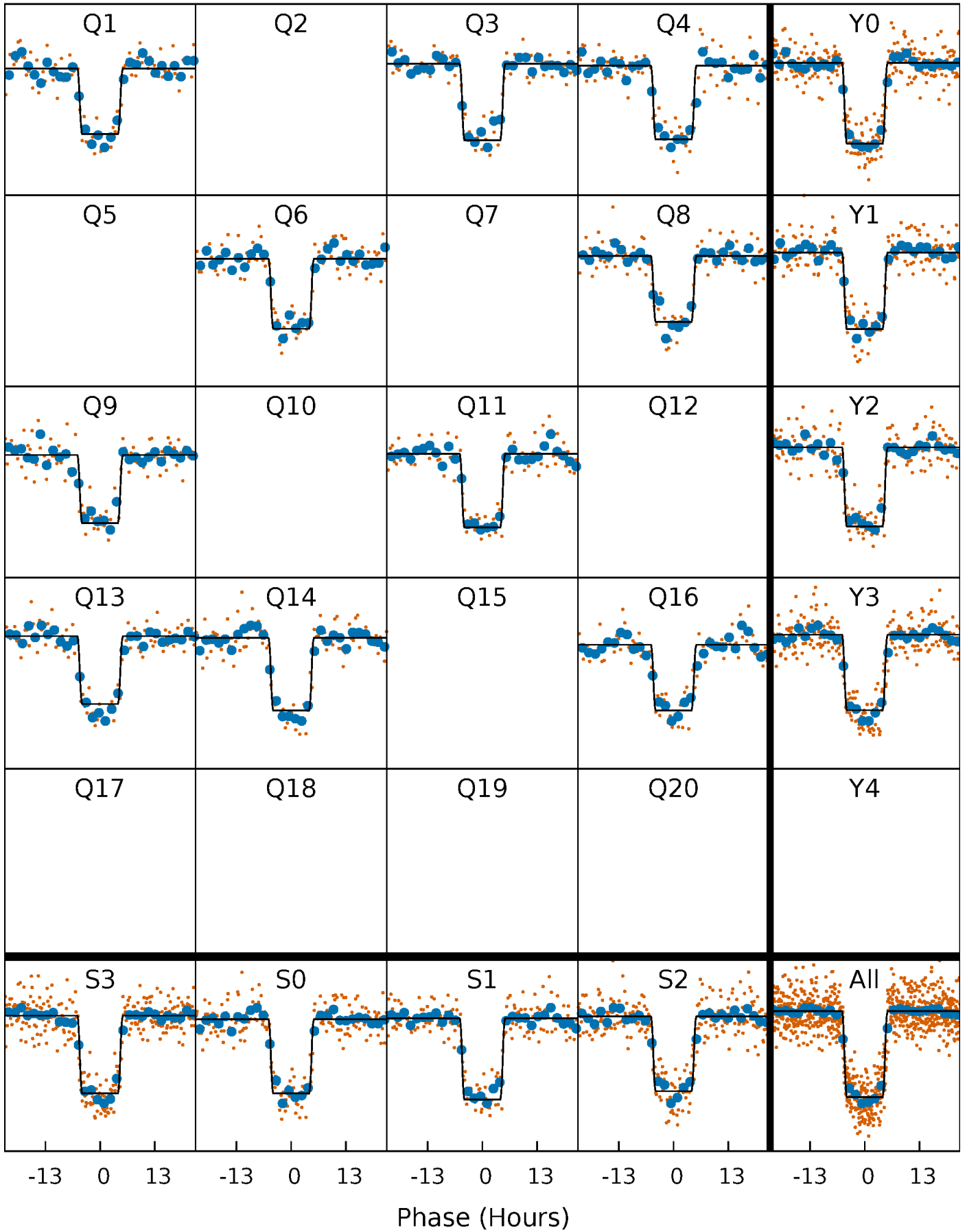
DV Quarter-Phased Transit Curves

TCE 012400538-01 P=150.241131 Days $T_0=138.290656$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

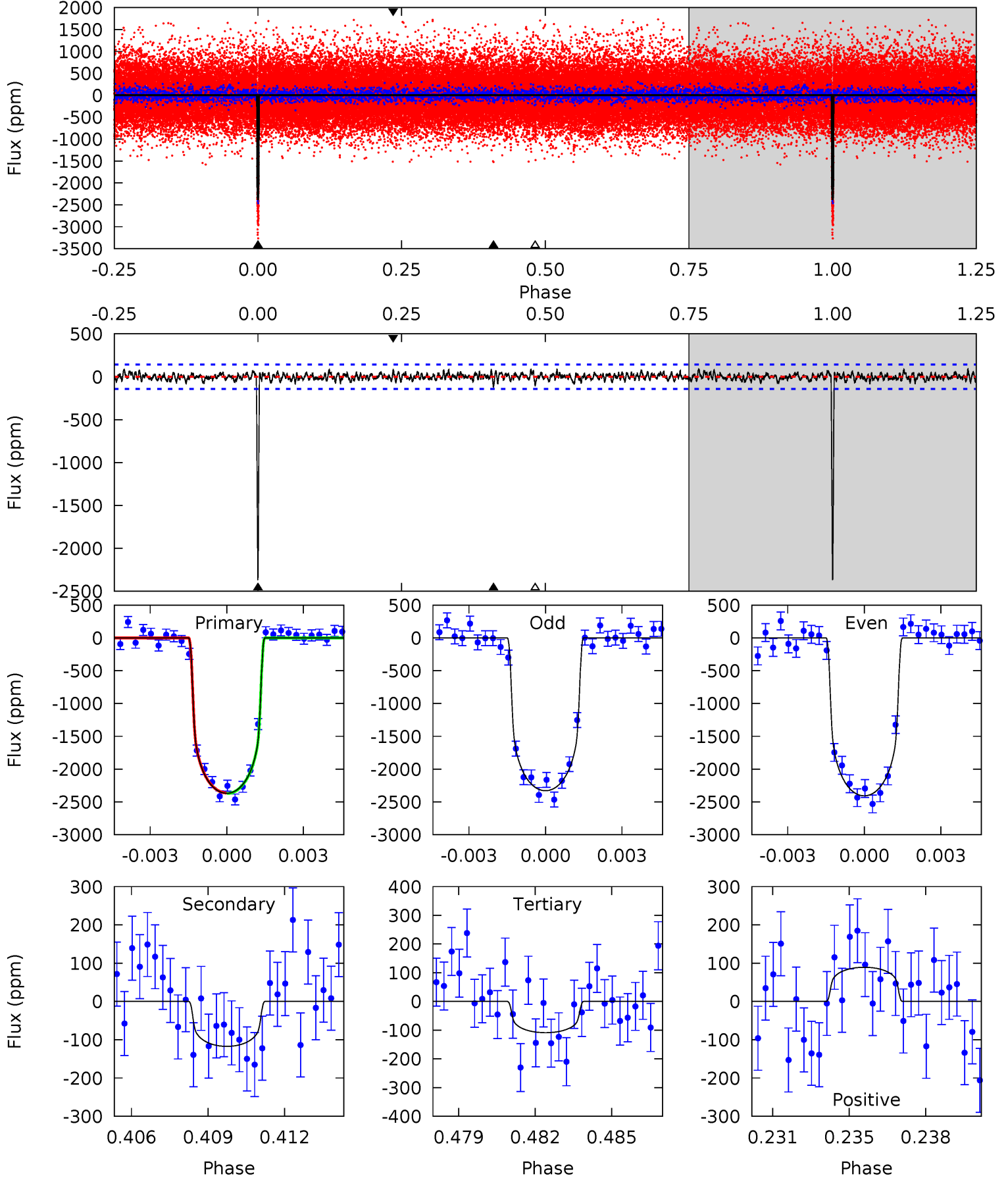
TCE 012400538-01 P=150.241155 Days $T_0=138.289394$ (BKJD)



DV Model-Shift Uniqueness Test

012400538-01, P = 150.241131 Days, E = 138.290656 Days

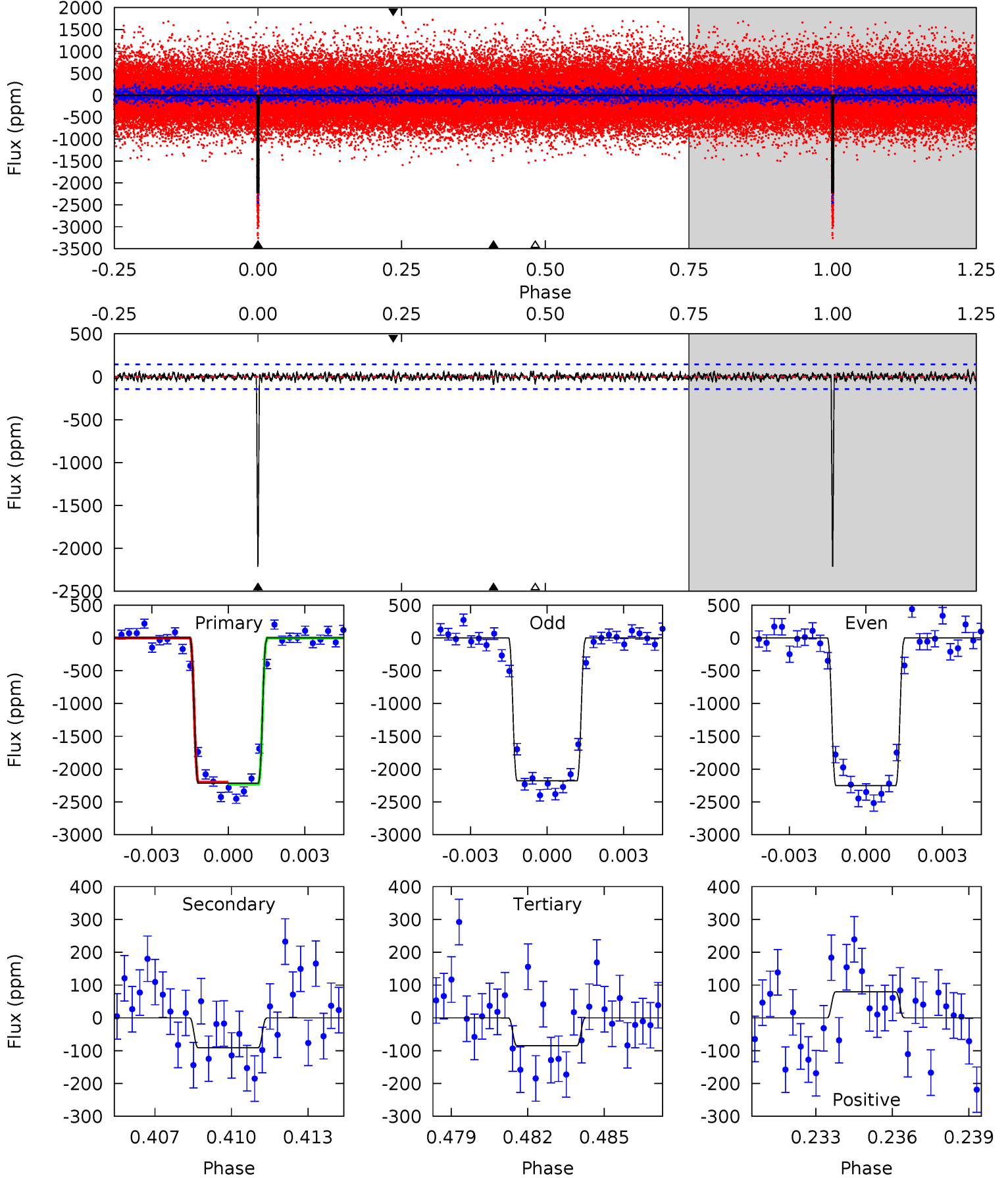
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
87.4	4.33	4.01	3.30	5.24	2.95	1.10	83.4	84.1	0.32	1.04	1.45	1.01	0.04	0.17



Alt Model-Shift Uniqueness Test

012400538-01, P = 150.241155 Days, E = 138.289394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.3	3.31	3.07	2.87	5.25	2.97	0.82	77.2	77.4	0.23	0.43	1.32	1.02	0.03	0.50



Stellar Parameters For KIC 012400538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5604^{+111}_{-111}	$4.451^{+0.076}_{-0.102}$	$0.000^{+0.150}_{-0.150}$	$0.943^{+0.123}_{-0.082}$	$0.916^{+0.062}_{-0.056}$	$1.538^{+0.416}_{-0.464}$
	+2%/-2%	+2%/-2%	+inf%/-inf%	+13%/-9%	+7%/-6%	+27%/-30%
Source	SPE57	SPE57	SPE57	DSEP		

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

Secondary Eclipse Parameters for KIC 012400538-01 / KOI 1503.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-117 ± 27	$4.73^{+0.47}_{-0.42}$	458^{+19}_{-15}	3281^{+134}_{-142}	820^{+265}_{-219}
Alt.	-91 ± 28	$4.91^{+0.43}_{-0.41}$	458^{+19}_{-15}	3138^{+141}_{-167}	611^{+217}_{-191}

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

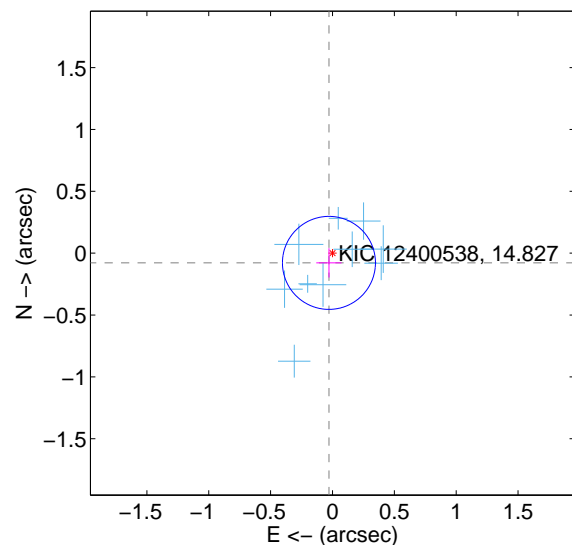
Supplemental centroid analysis for 012400538-01. Kepler magnitude: 14.83. Transit SNR 67.65

There are 10 quarters with good PRF difference image offsets

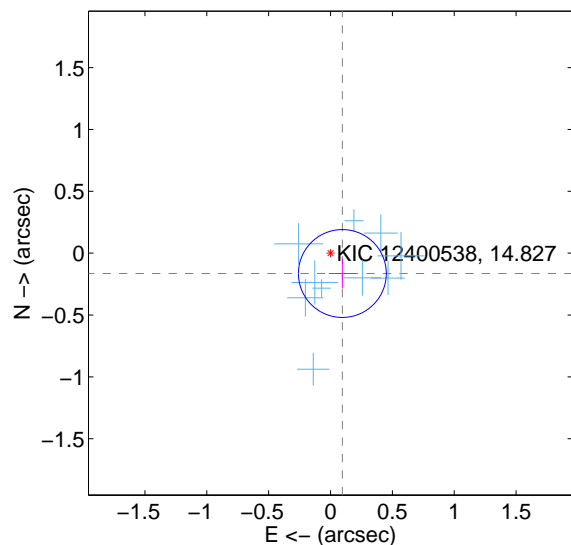
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.083 ± 0.125	0.67	0.029 ± 0.102	-0.078 ± 0.118
PRF-fit source offset from KIC position	0.190 ± 0.118	1.61	-0.096 ± 0.110	-0.164 ± 0.121
photometric centroid source offset	0.98 ± 0.22	4.48	-0.45 ± 0.22	0.87 ± 0.22

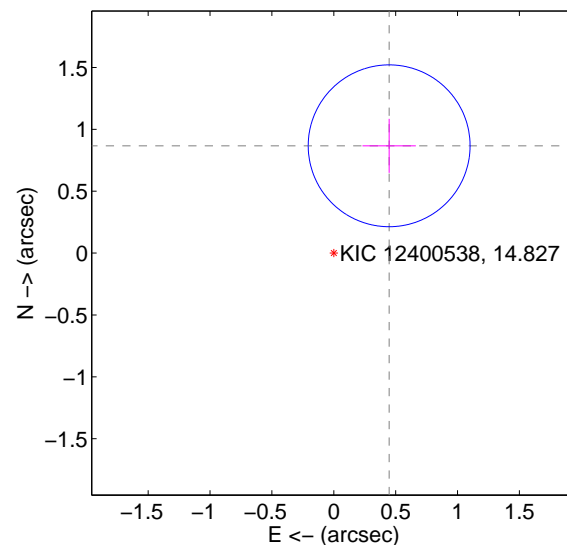
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

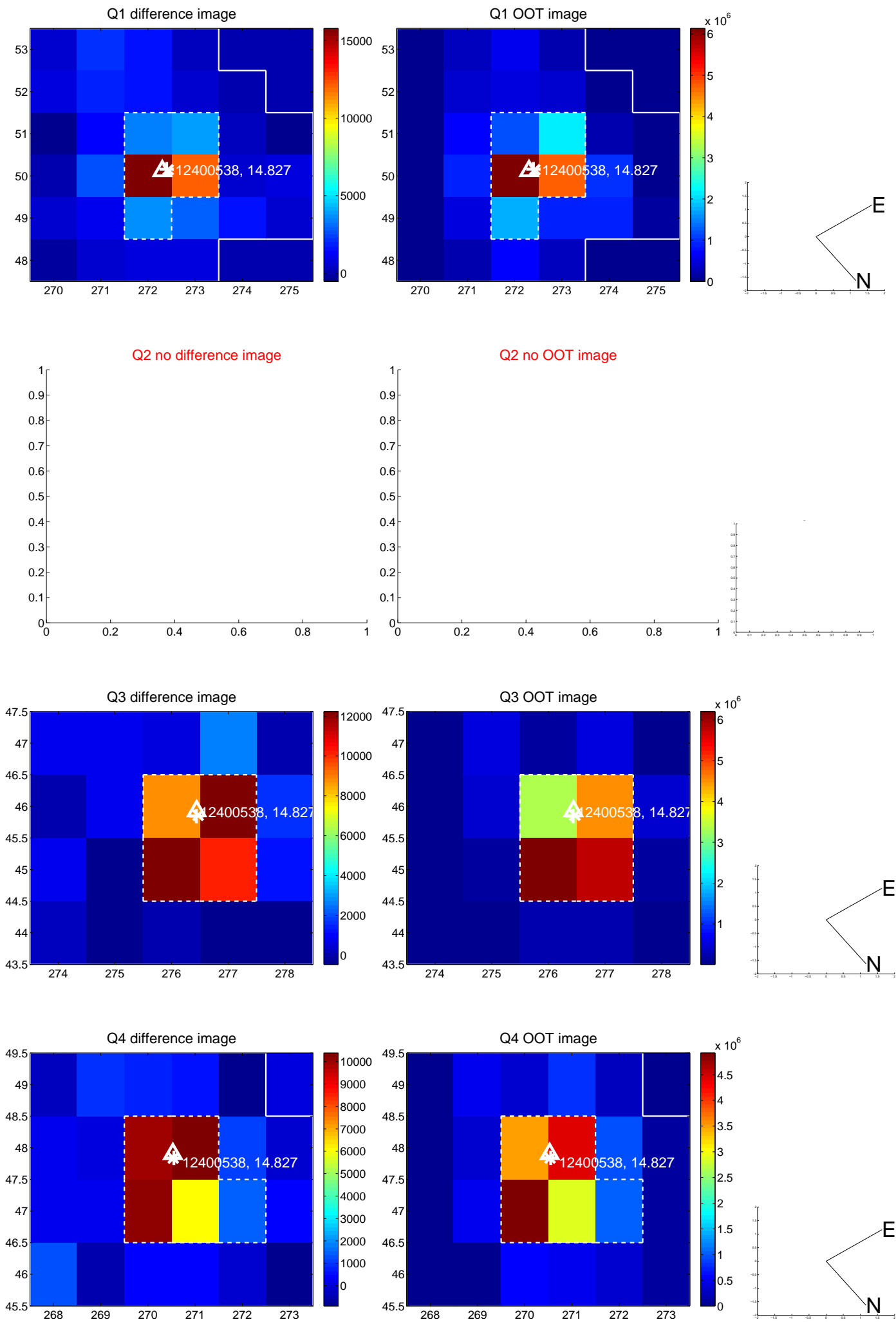


offset from photometric centroids

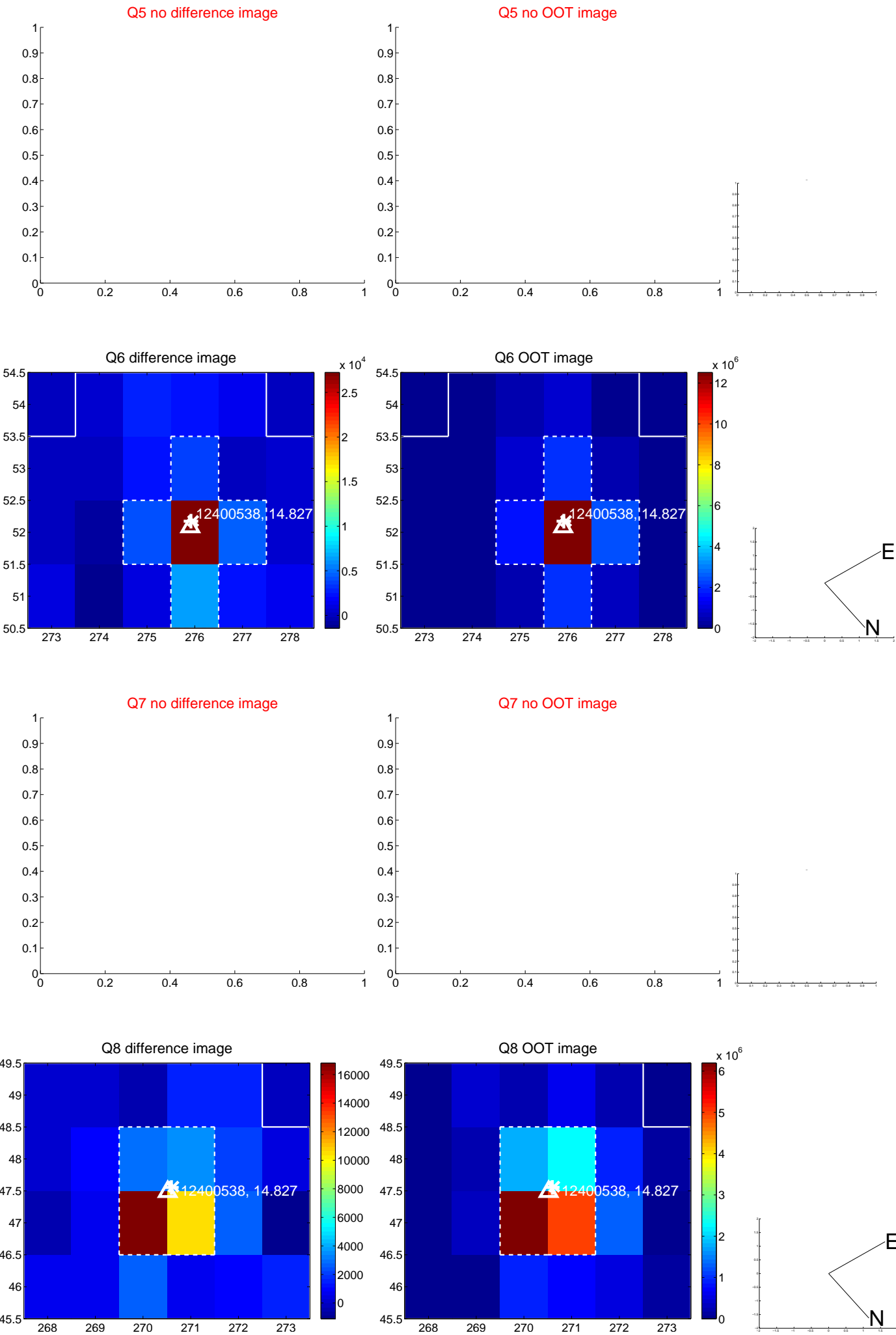


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

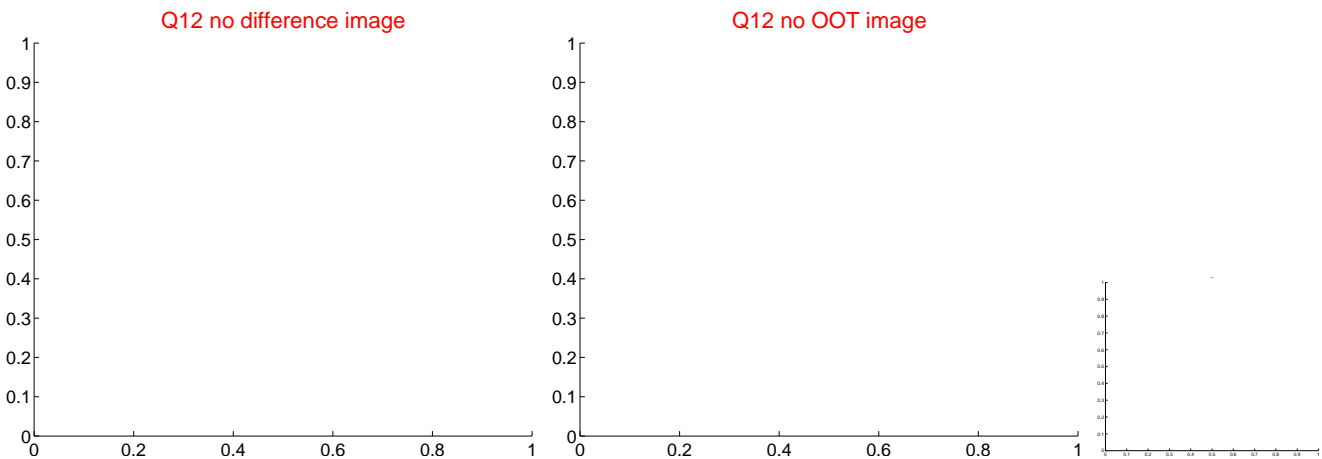
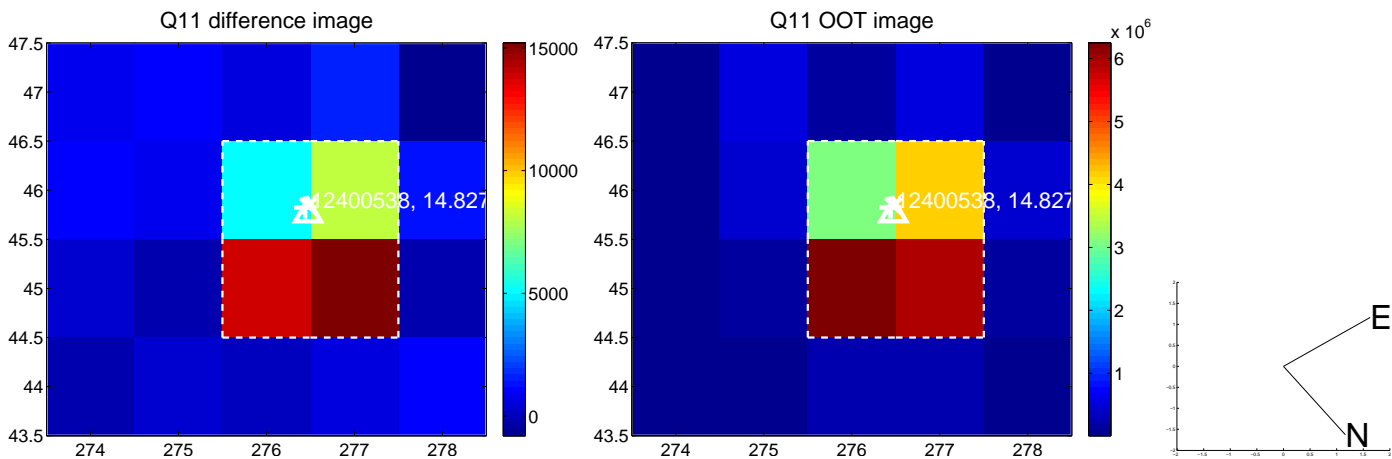
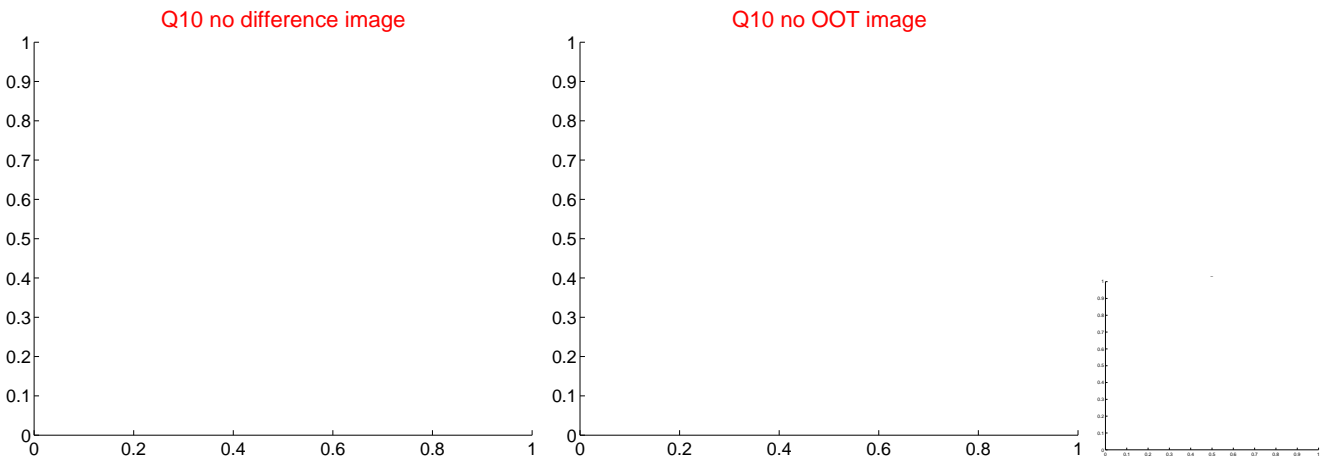
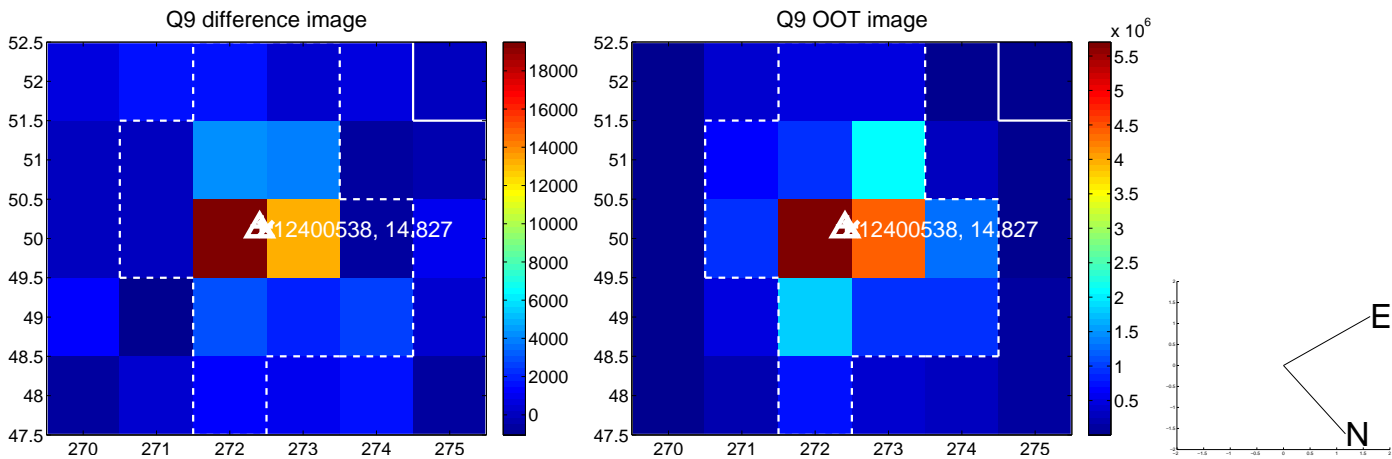
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



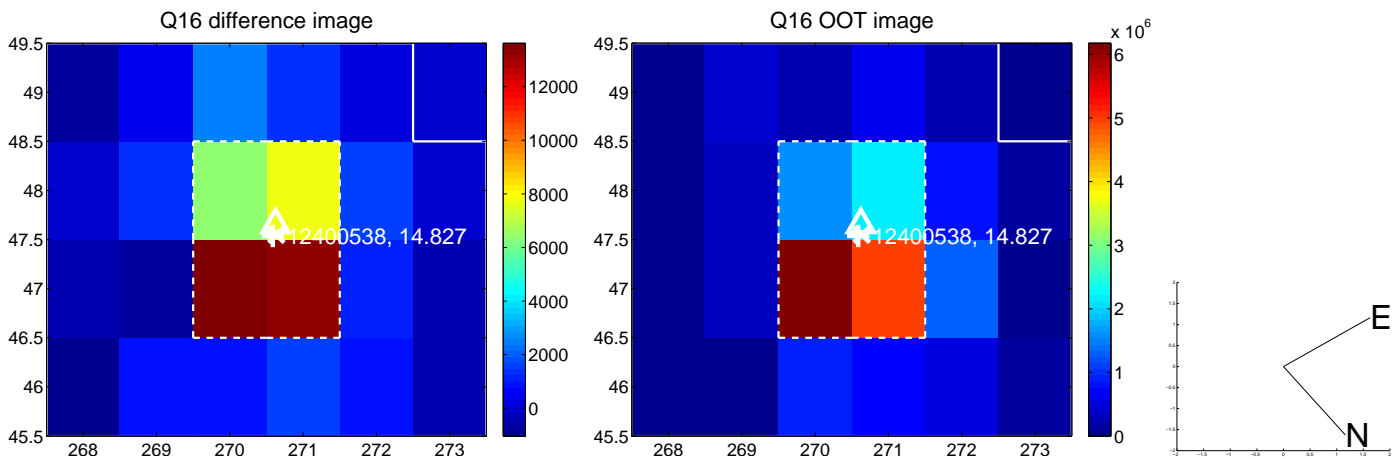
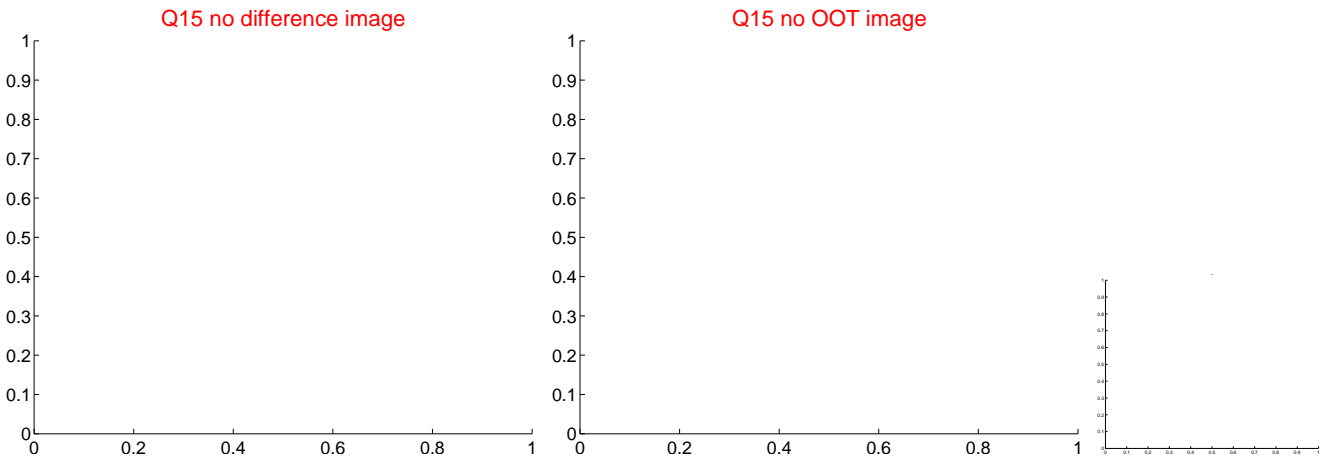
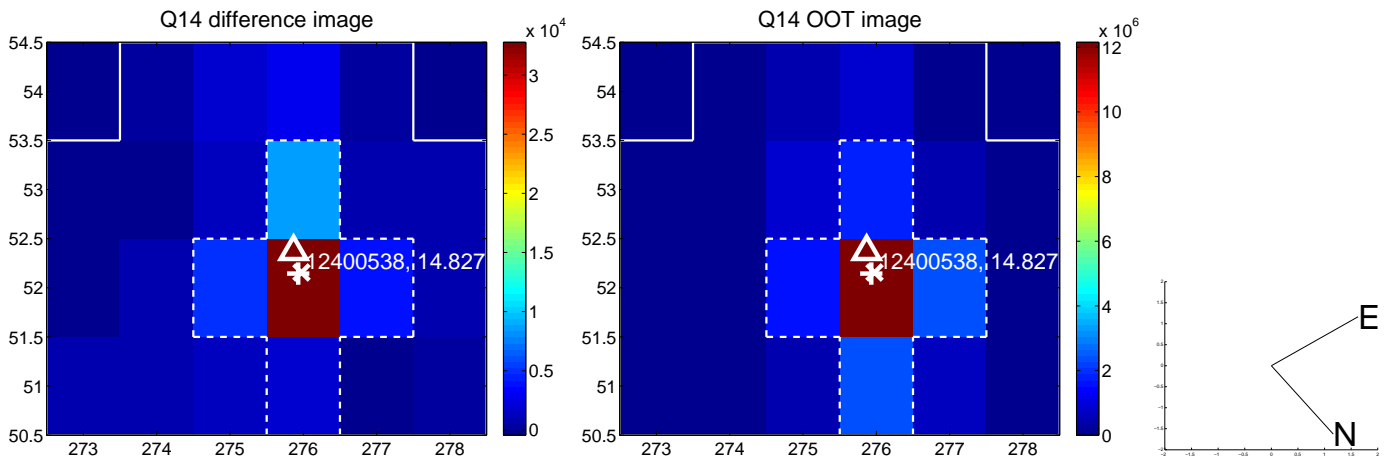
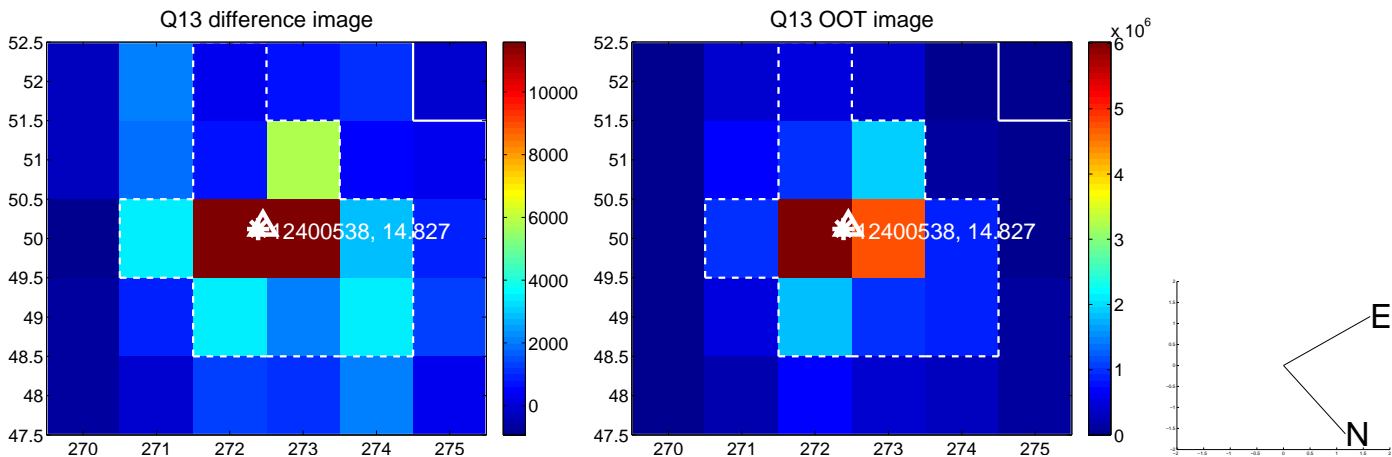
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



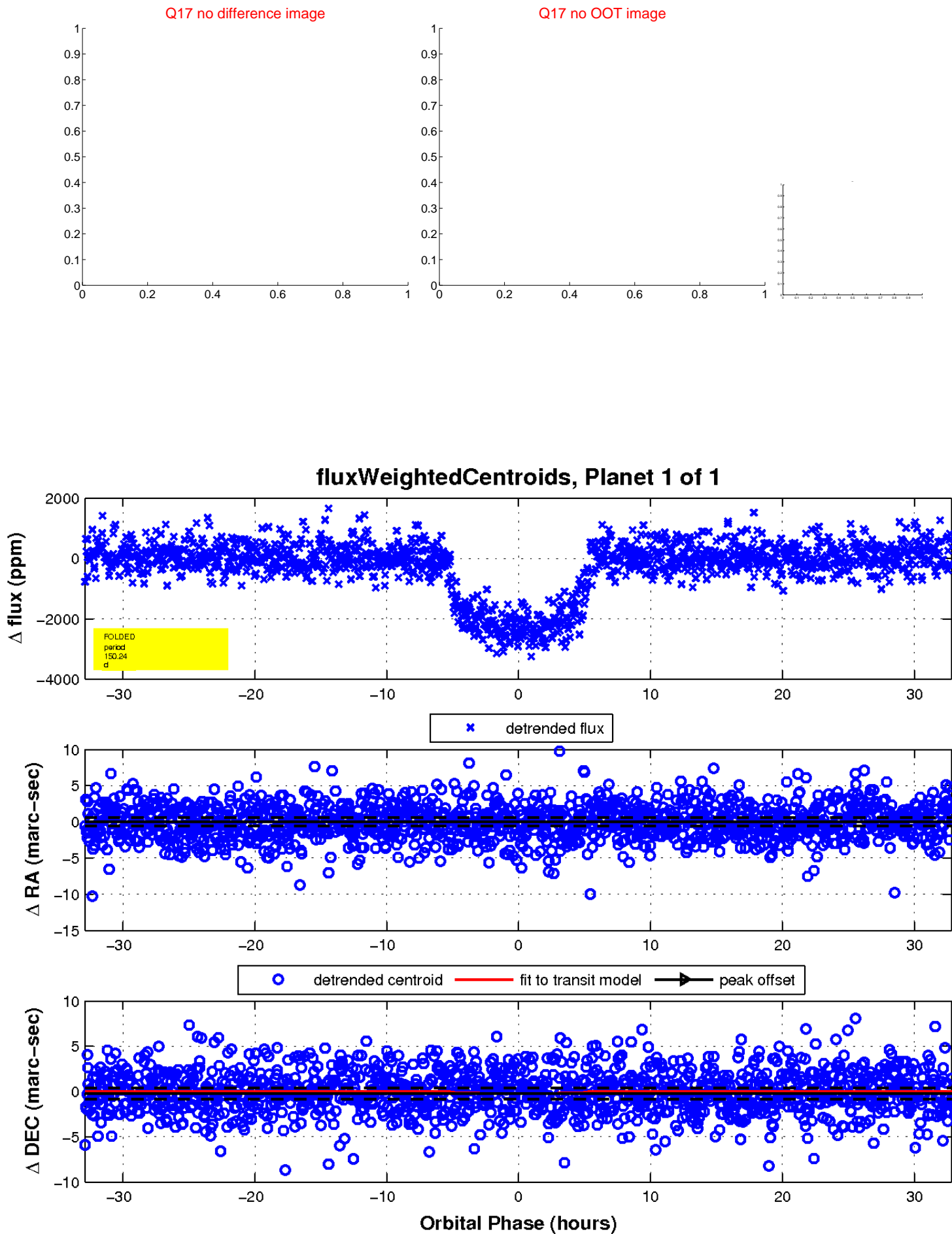
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

