

KIC 012304851

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})
012304851-01	OBS	No	16.616343	145.993211	110.8	49.454	7.6	13.1	0.92	6351	1.86	75.69

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012304851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_KIC_POS

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

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

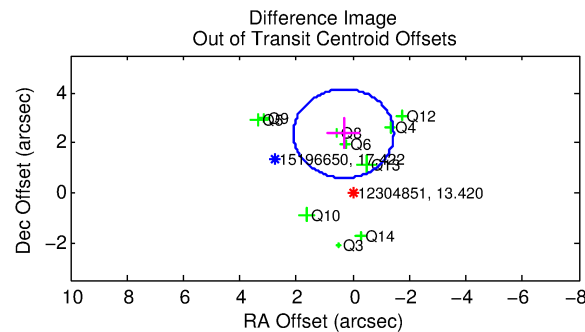
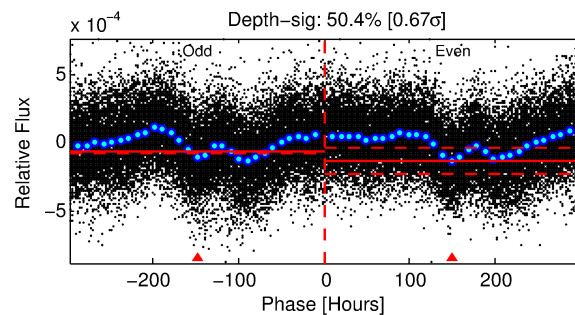
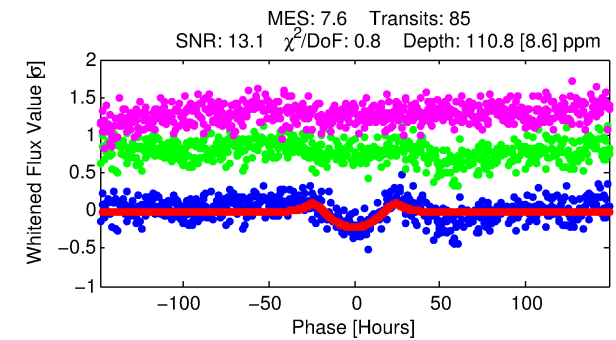
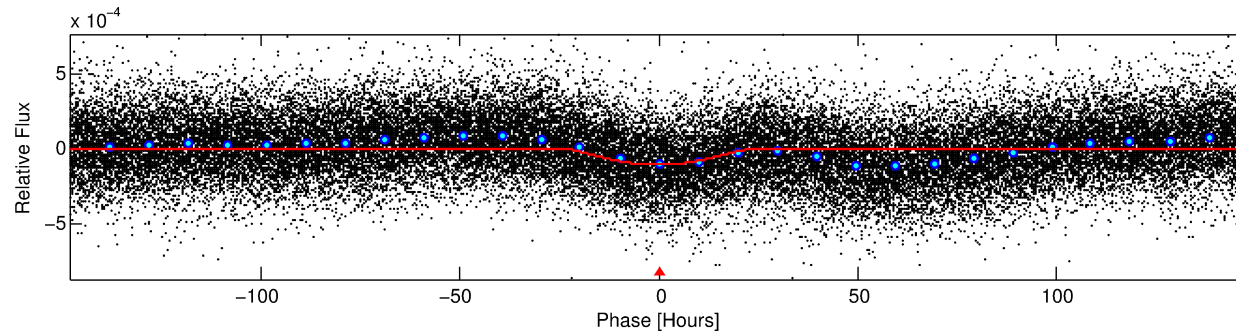
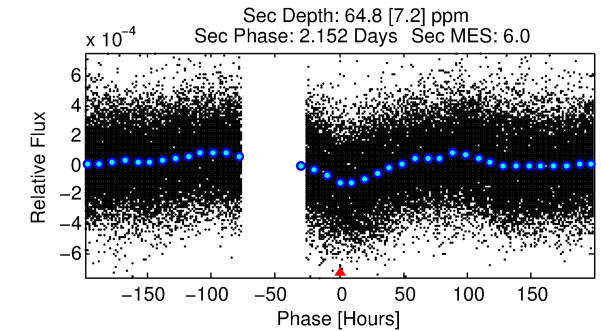
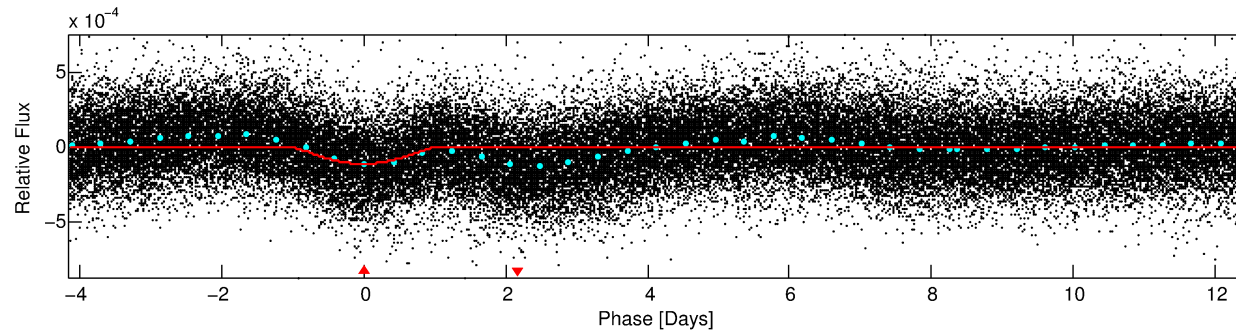
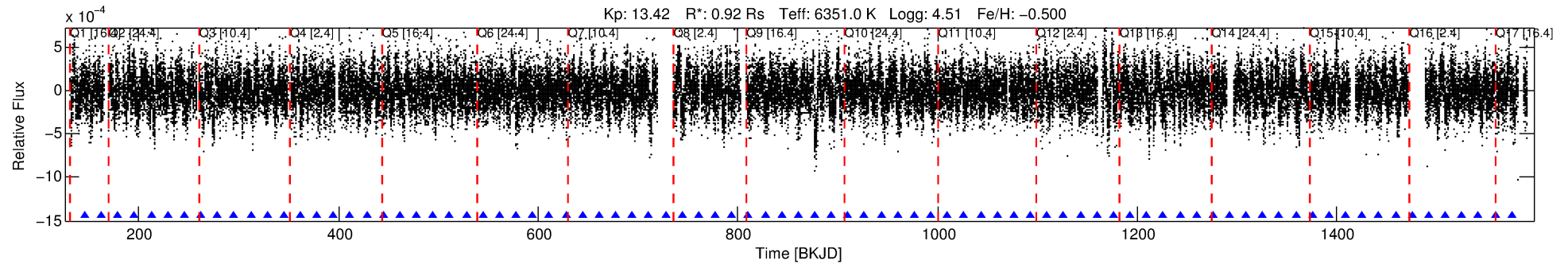
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012304851-01

No Significant Match Found

DV One-Page Summary

KIC: 12304851 Candidate: 1 of 1 Period: 16.616 d



DV Fit Results:

Period = 16.61634 [0.00119] d
Epoch = 145.9932 [0.0610] BKJD
Rp/R* = 0.0185 [0.0154]
a/R* = 1.13 [0.04]
b = 1.00 [0.02]
Seff = 75.69 [31.58]
Teq = 752 [78] K
Rp = 1.86 [1.66] Re
a = 0.1278 [0.0346] AU
Ag = 167.68 [287.02] [0.58σ]
Teffp = 4185 [1746] K [1.96σ]

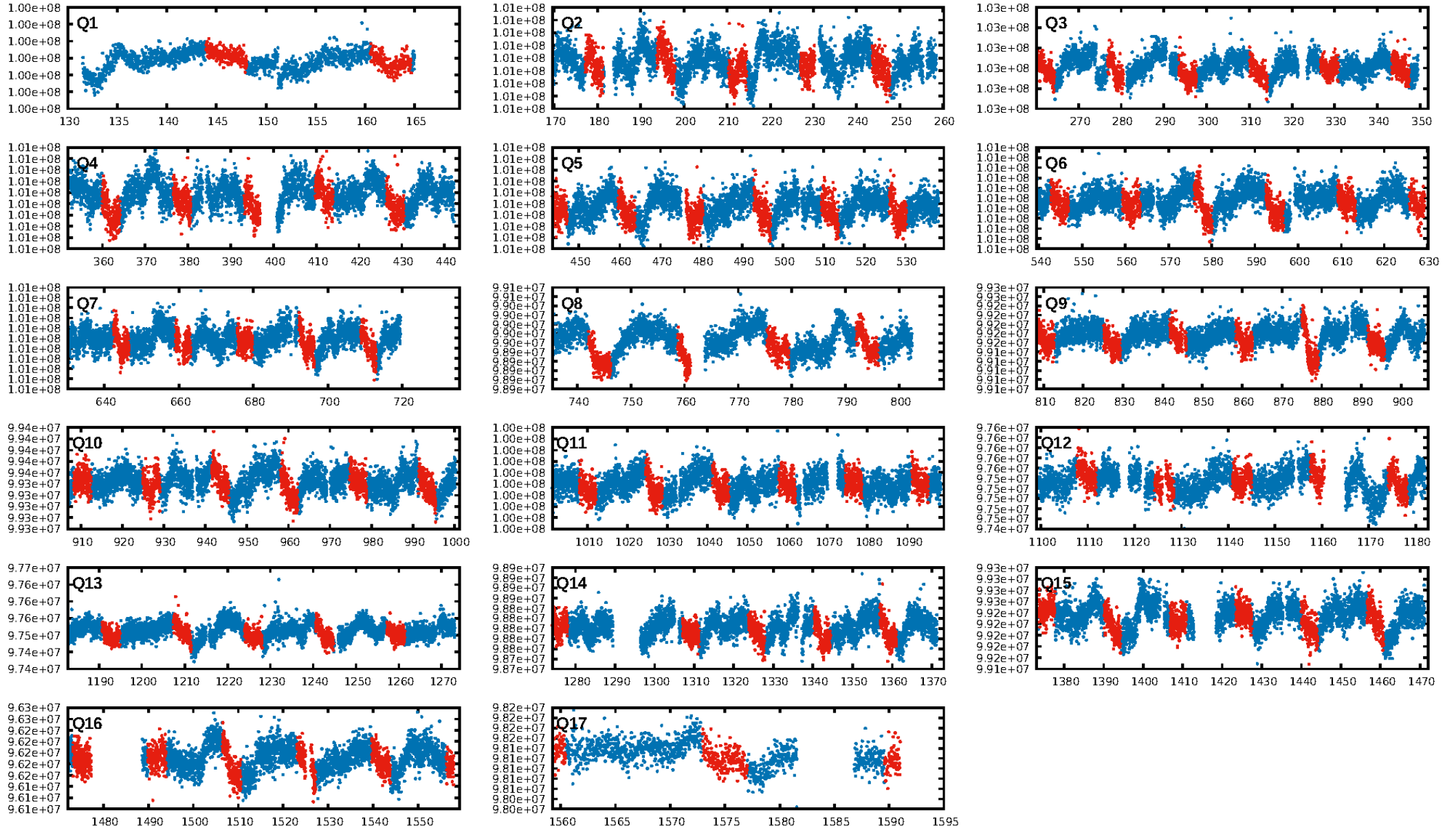
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 89.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.11e-14
RollingBand-fgt: 1.00 [81/81]
GhostDiagnostic-chr: 2.976
Centroid-sig: 1.2%
Centroid-so: 0.738 arcsec [1.79σ]
OotOffset-rm: 2.387 arcsec [4.02σ]
KicOffset-rm: 2.108 arcsec [3.21σ]
OotOffset-st: 3/1/3/3 [10]
KicOffset-st: 3/1/3/3 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [17/17]

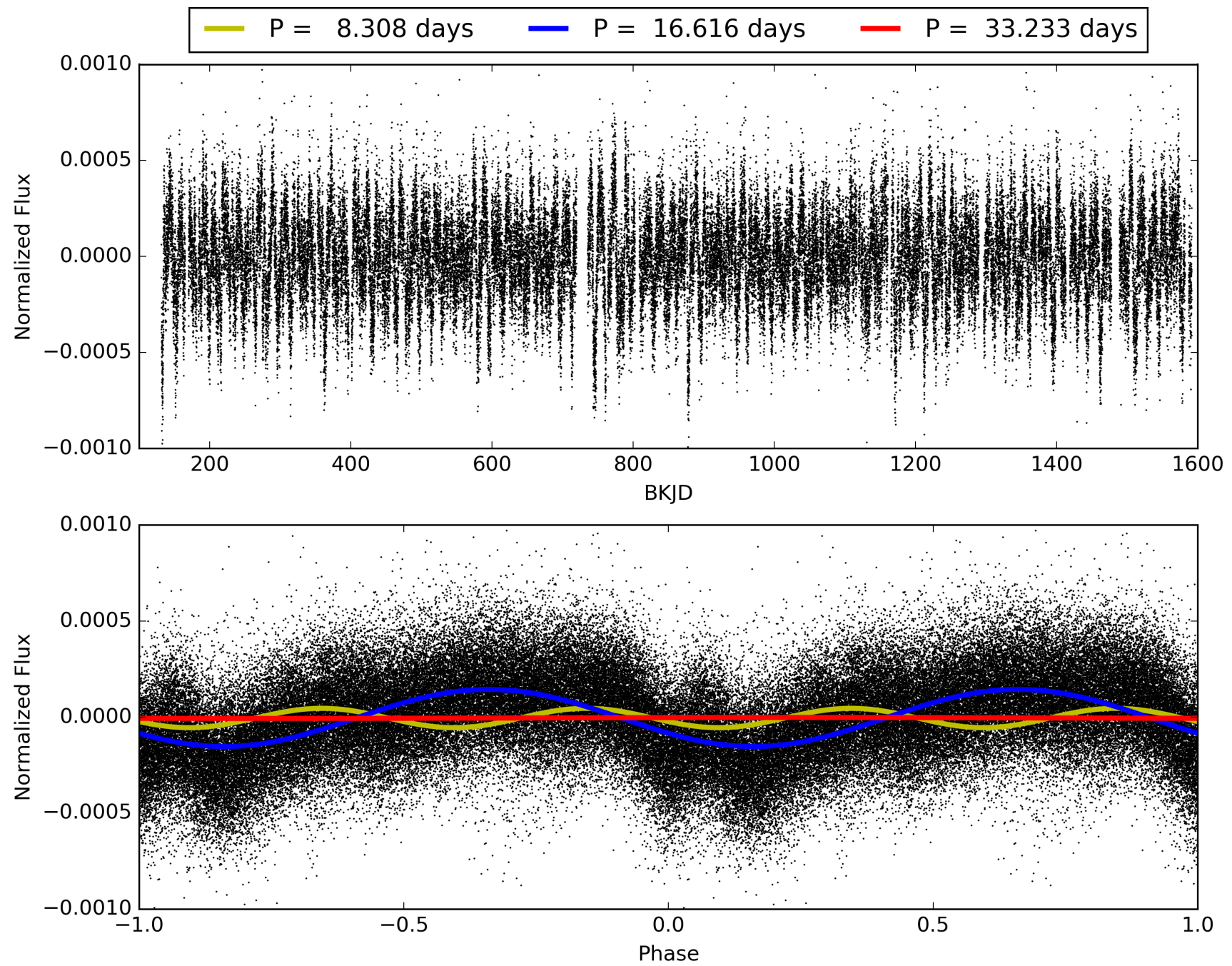
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:09:05 Z

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

TCE 012304851-01, PDC Light Curves

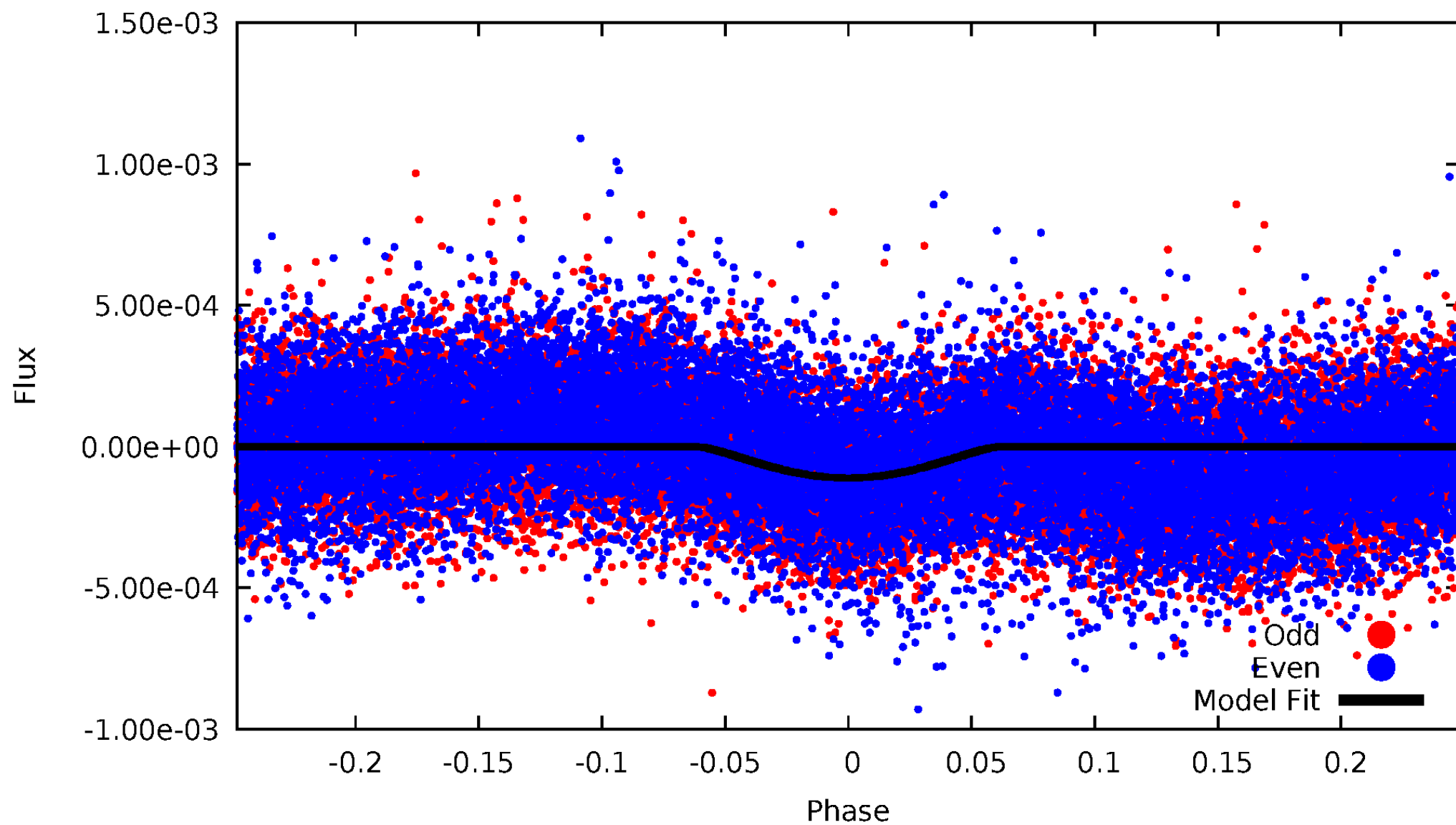


TCE 012304851-01



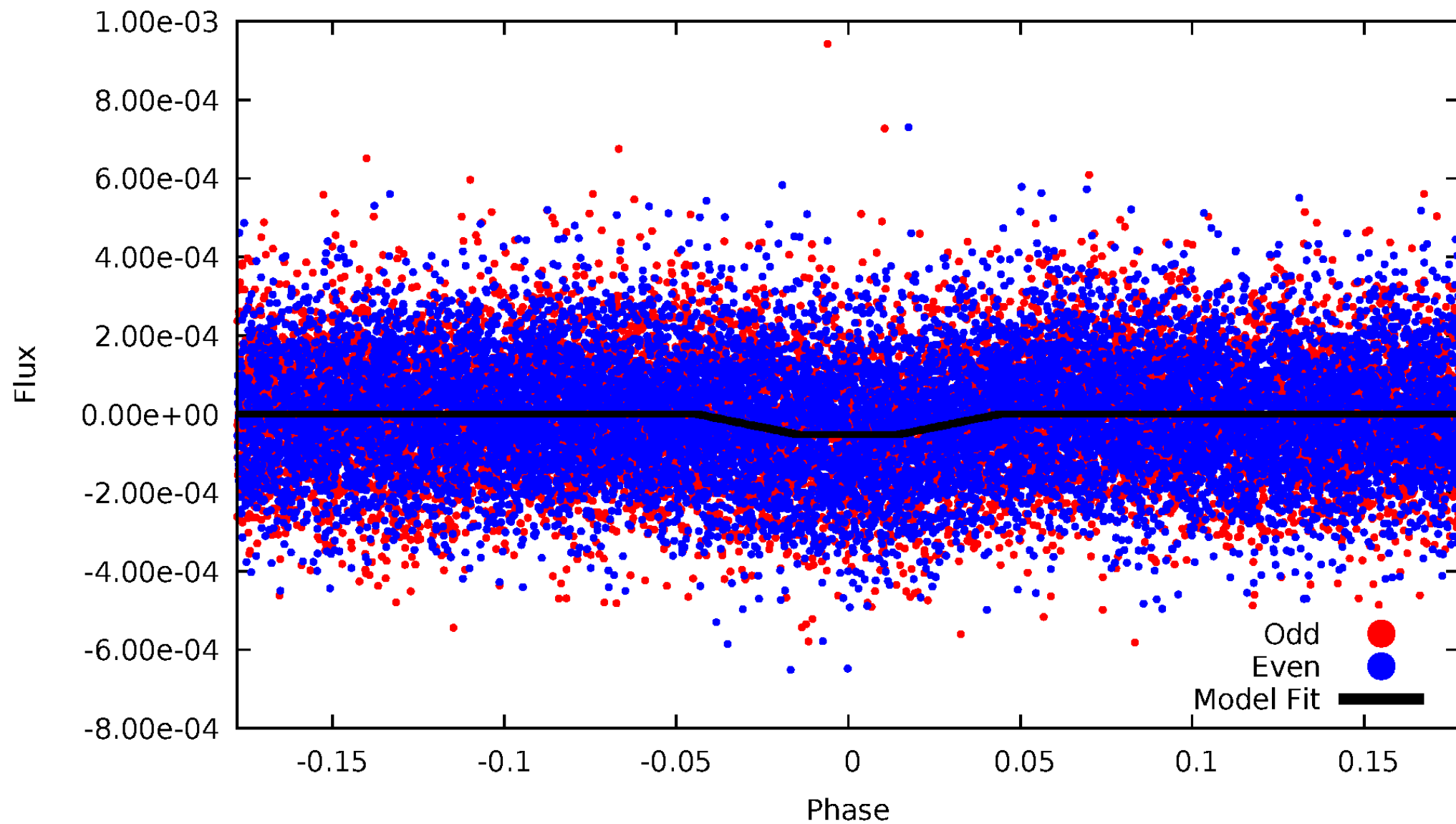
DV Odd/Even

TCE 012304851-01



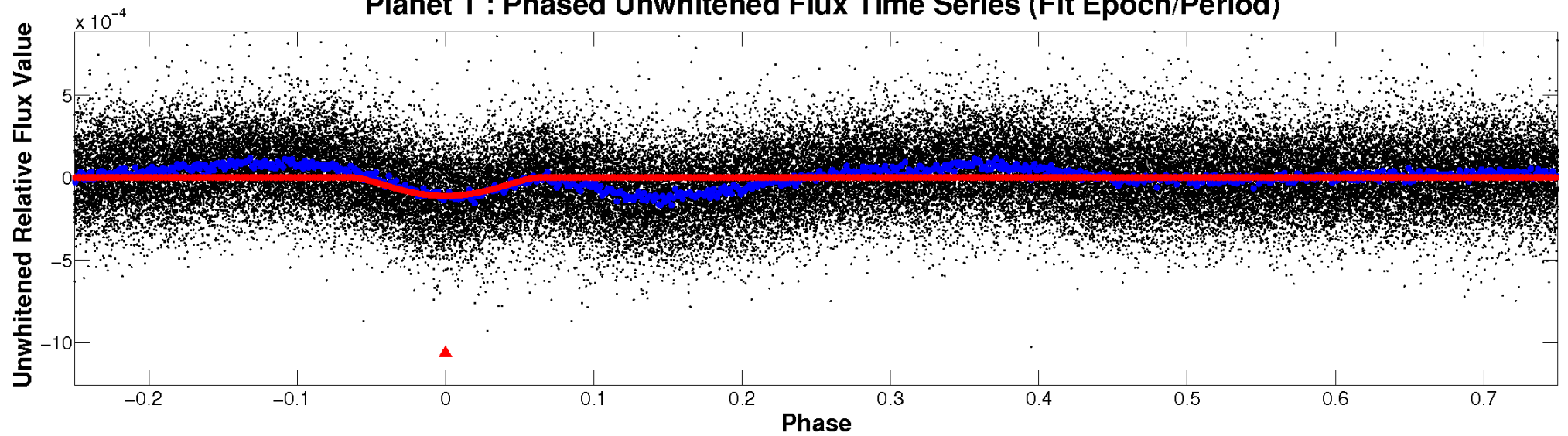
ALT Odd/Even

TCE 012304851-01

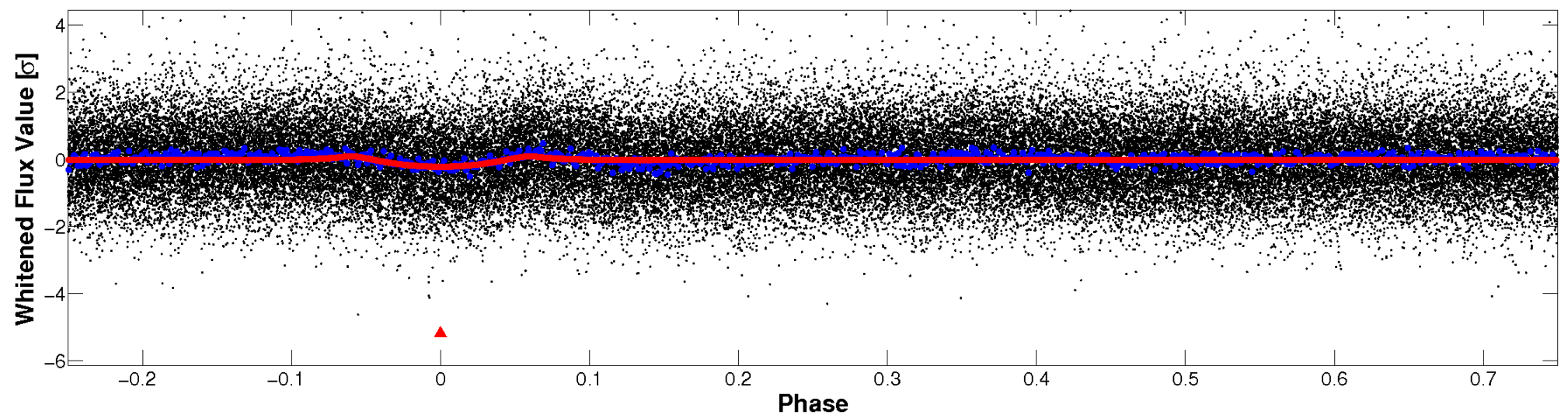


Non-Whitened Vs. Whitened Light Curve

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

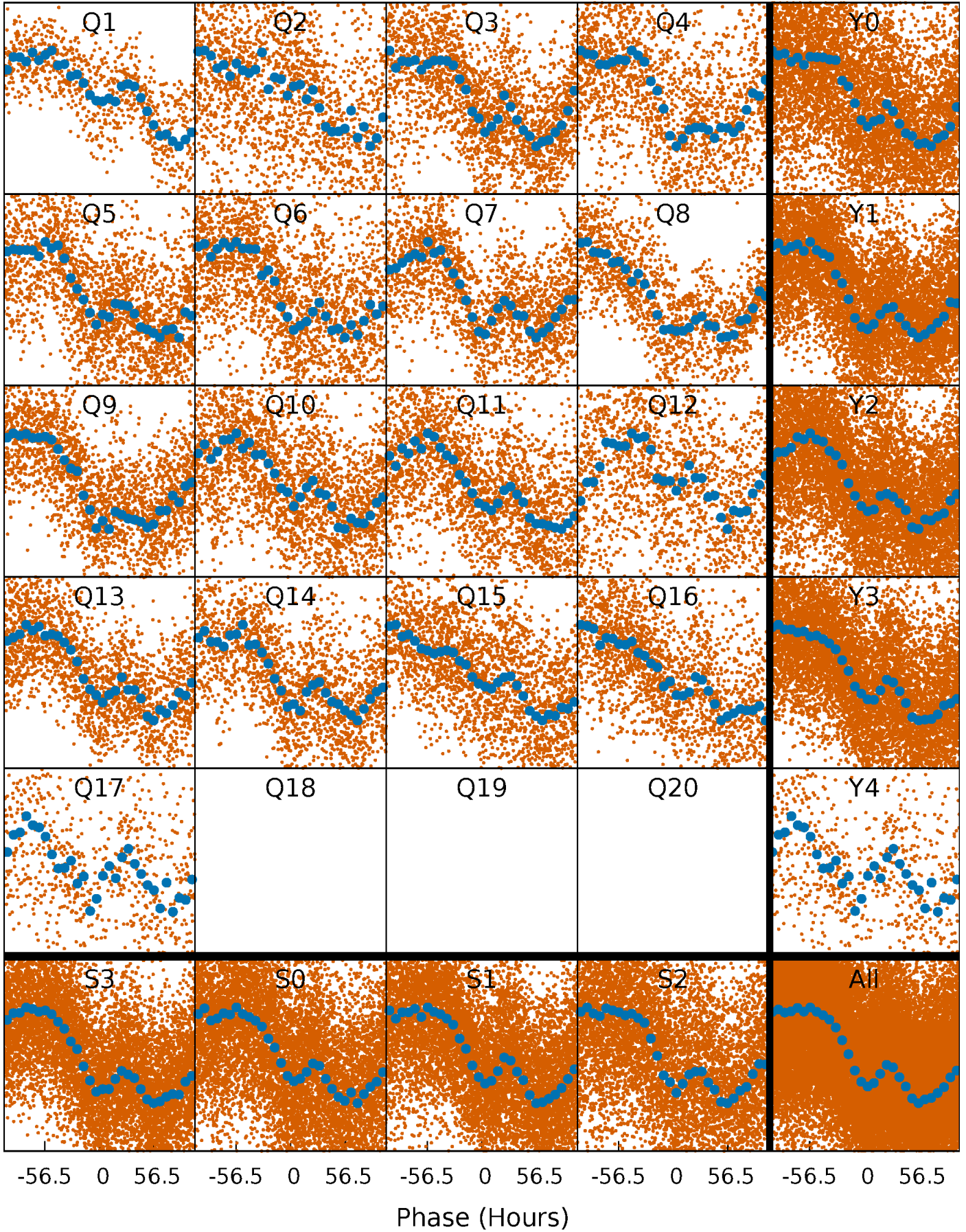


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



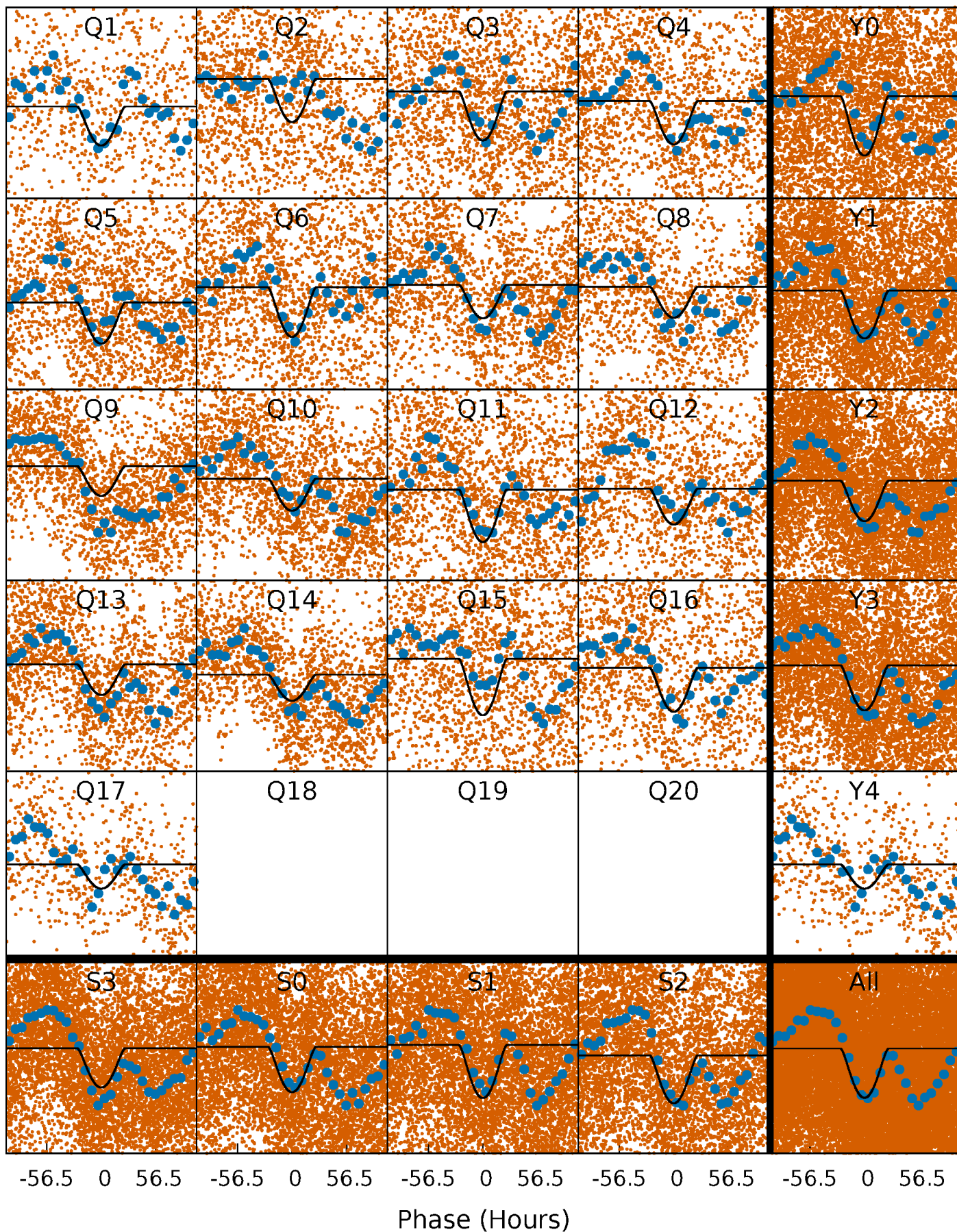
PDC Quarter-Phased Transit Curves

TCE 012304851-01 P= 16.616343 Days $T_0=145.993211$ (BKJD)



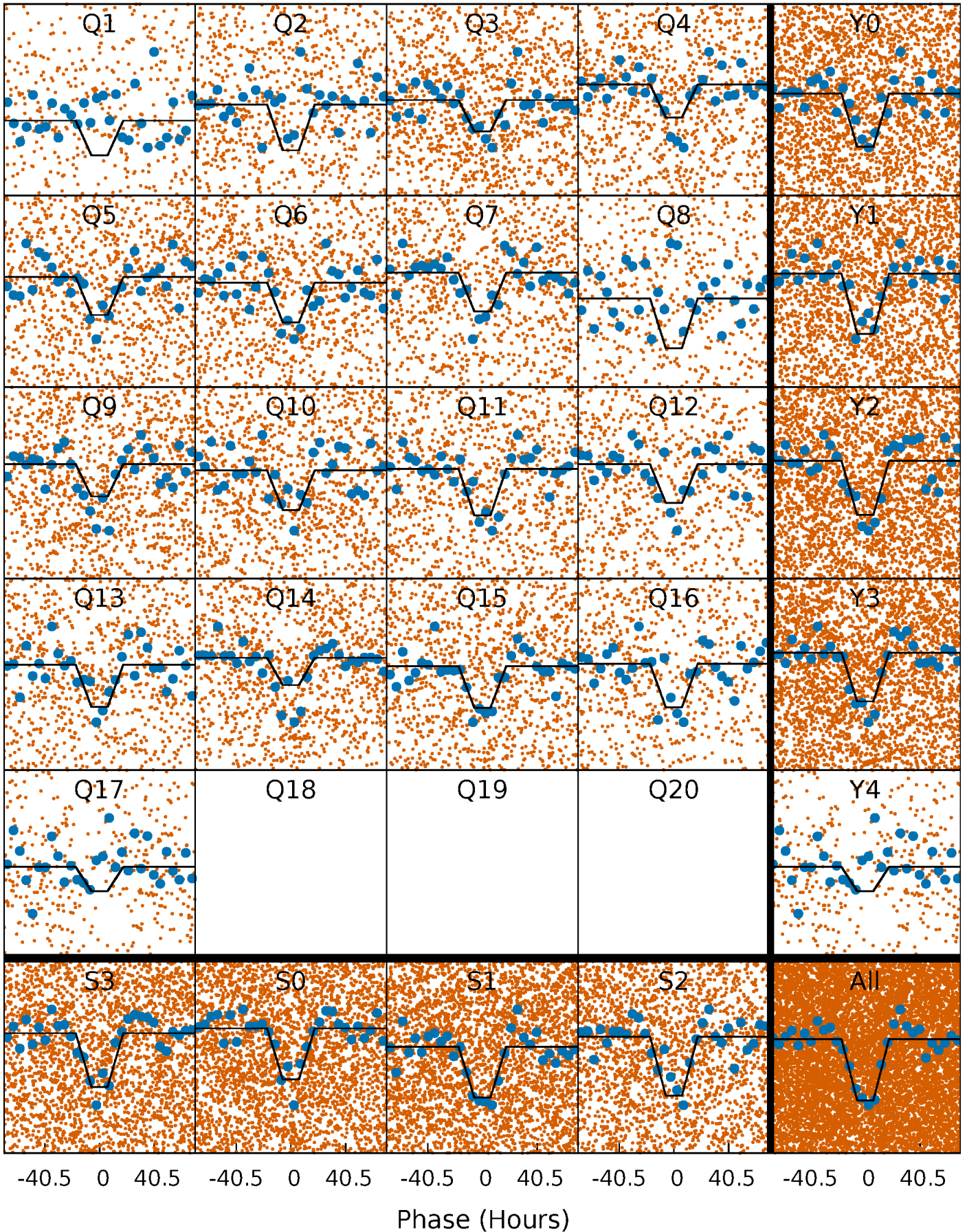
DV Quarter-Phased Transit Curves

TCE 012304851-01 P= 16.616343 Days $T_0=145.993211$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

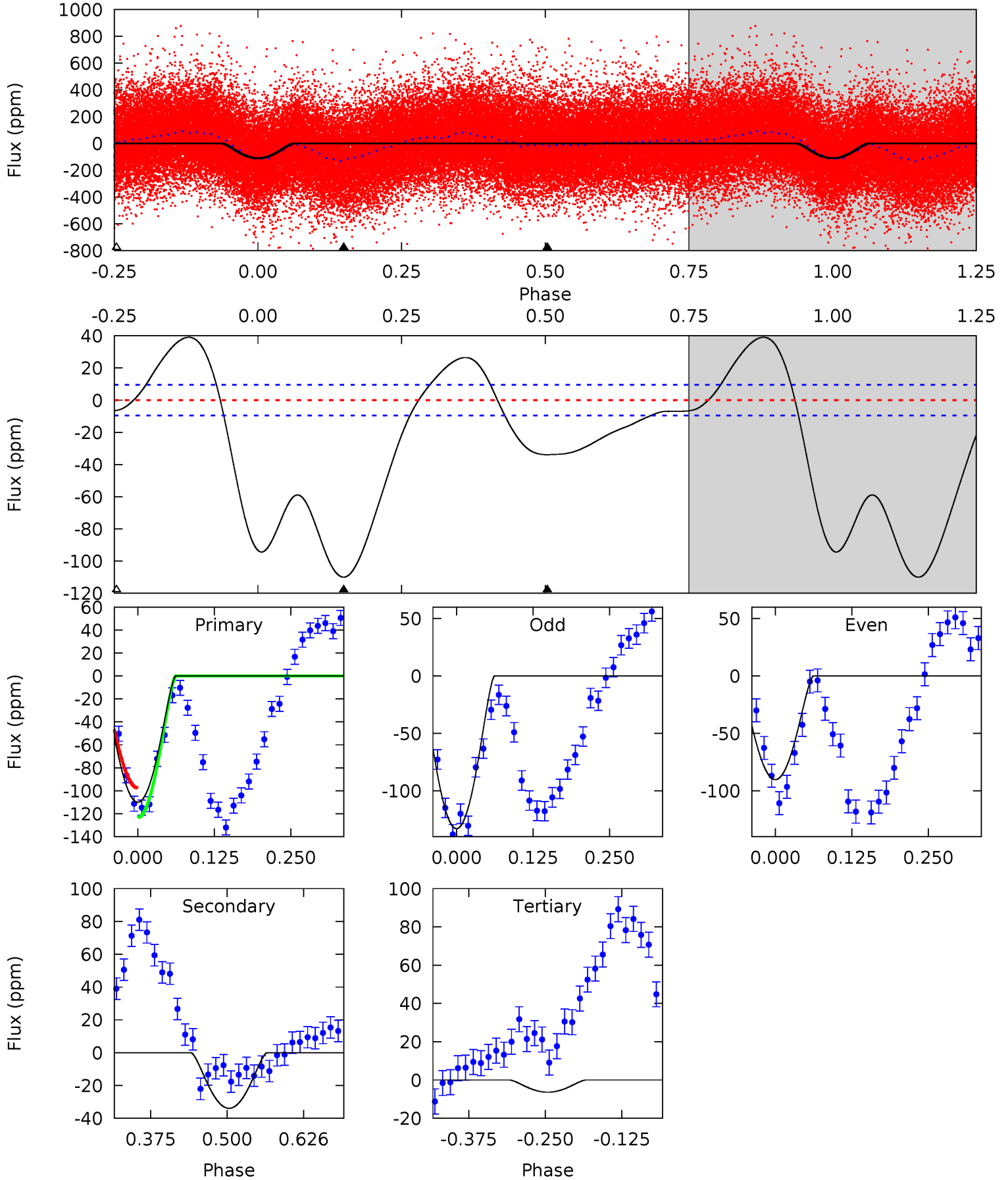
TCE 012304851-01 P= 16.618800 Days $T_0=145.950409$ (BKJD)



DV Model-Shift Uniqueness Test

012304851-01, P = 16.616343 Days, E = 129.376868 Days

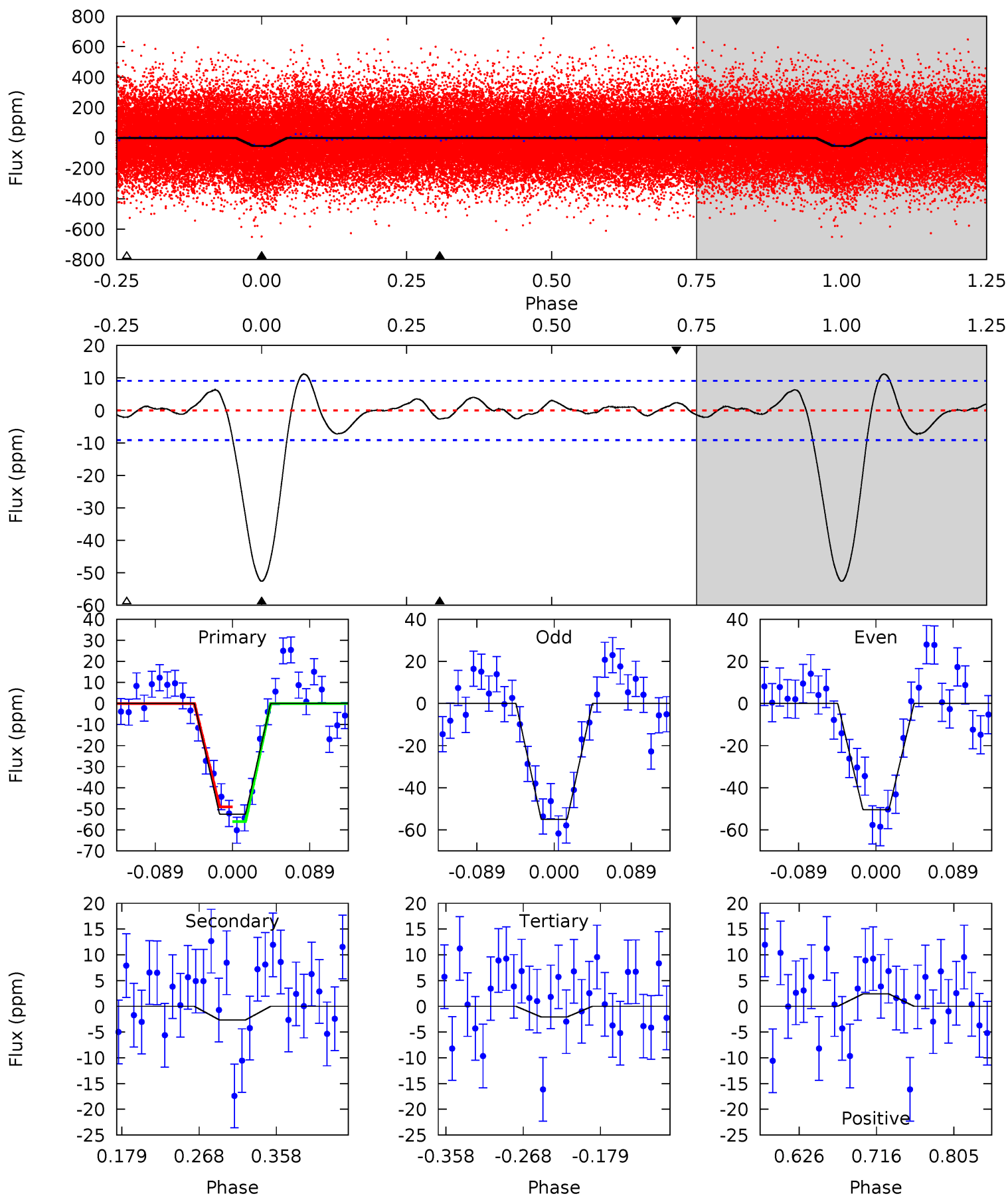
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.1	16.1	3.01	0	4.52	1.53	16.5	49.1	52.1	13.0	16.1	9.96	1.04	0.26	6.11



Alt Model-Shift Uniqueness Test

012304851-01, P = 16.618800 Days, E = 129.331609 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.4	1.33	1.04	1.21	4.59	1.70	1.12	25.4	25.2	0.29	0.12	1.14	1.03	0.18	1.75



Stellar Parameters For KIC 012304851

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6351^{+152}_{-190}	$4.513^{+0.039}_{-0.221}$	$-0.500^{+0.300}_{-0.300}$	$0.921^{+0.292}_{-0.091}$	$1.008^{+0.122}_{-0.122}$	$1.819^{+0.395}_{-0.997}$
	+2%/-3%	+1%/-5%	+60%/-60%	+32%/-10%	+12%/-12%	+22%/-55%
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 012304851-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 2	$2.23^{+1.56}_{-1.31}$	1079^{+80}_{-48}	3749^{+1540}_{-586}	62^{+290}_{-41}
Alt.	-3 ± 2	$1.54^{+1.38}_{-1.07}$	1078^{+81}_{-46}	2747^{+1290}_{-678}	$7.858^{+82.730}_{-6.911}$

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

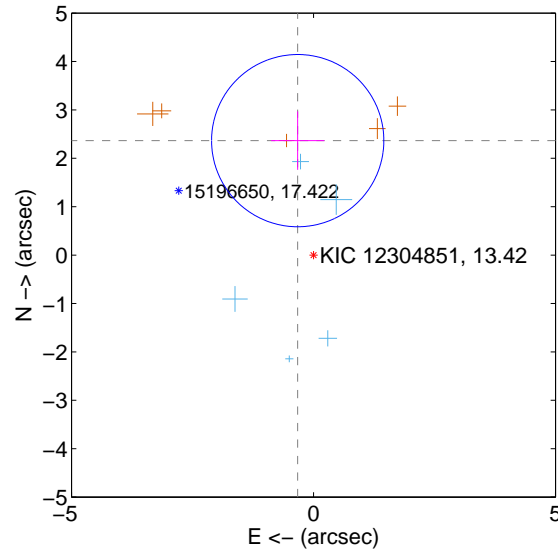
Supplemental centroid analysis for 012304851-01. Kepler magnitude: 13.42. Transit SNR 13.15

There are 5 quarters with good PRF difference image offsets

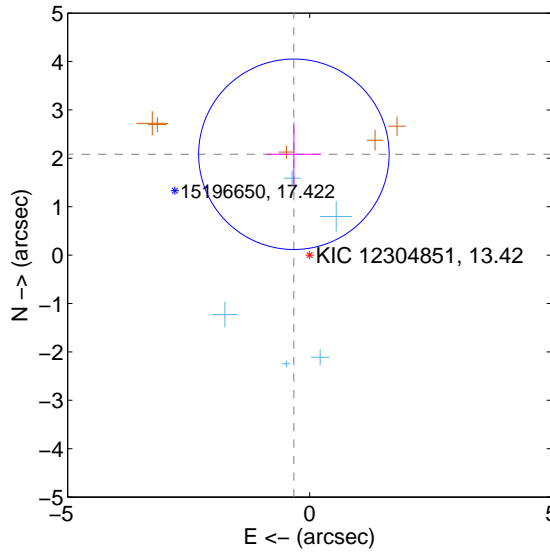
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.387 ± 0.593	4.02	0.327 ± 0.550	2.365 ± 0.604
PRF-fit source offset from KIC position	2.108 ± 0.656	3.21	0.325 ± 0.556	2.083 ± 0.653
photometric centroid source offset	0.74 ± 0.41	1.79	-0.15 ± 0.39	0.72 ± 0.41

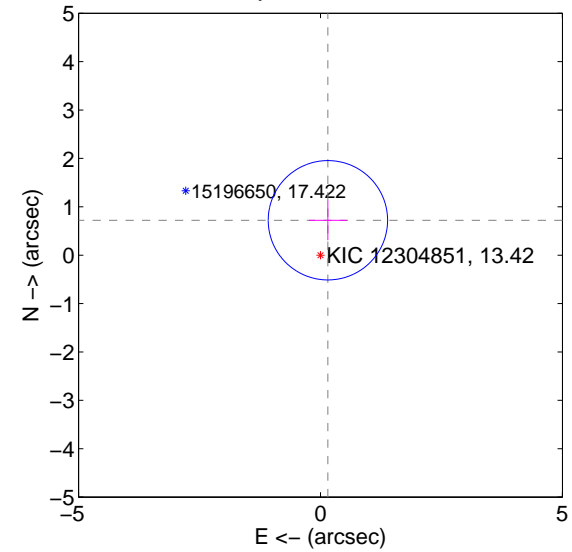
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

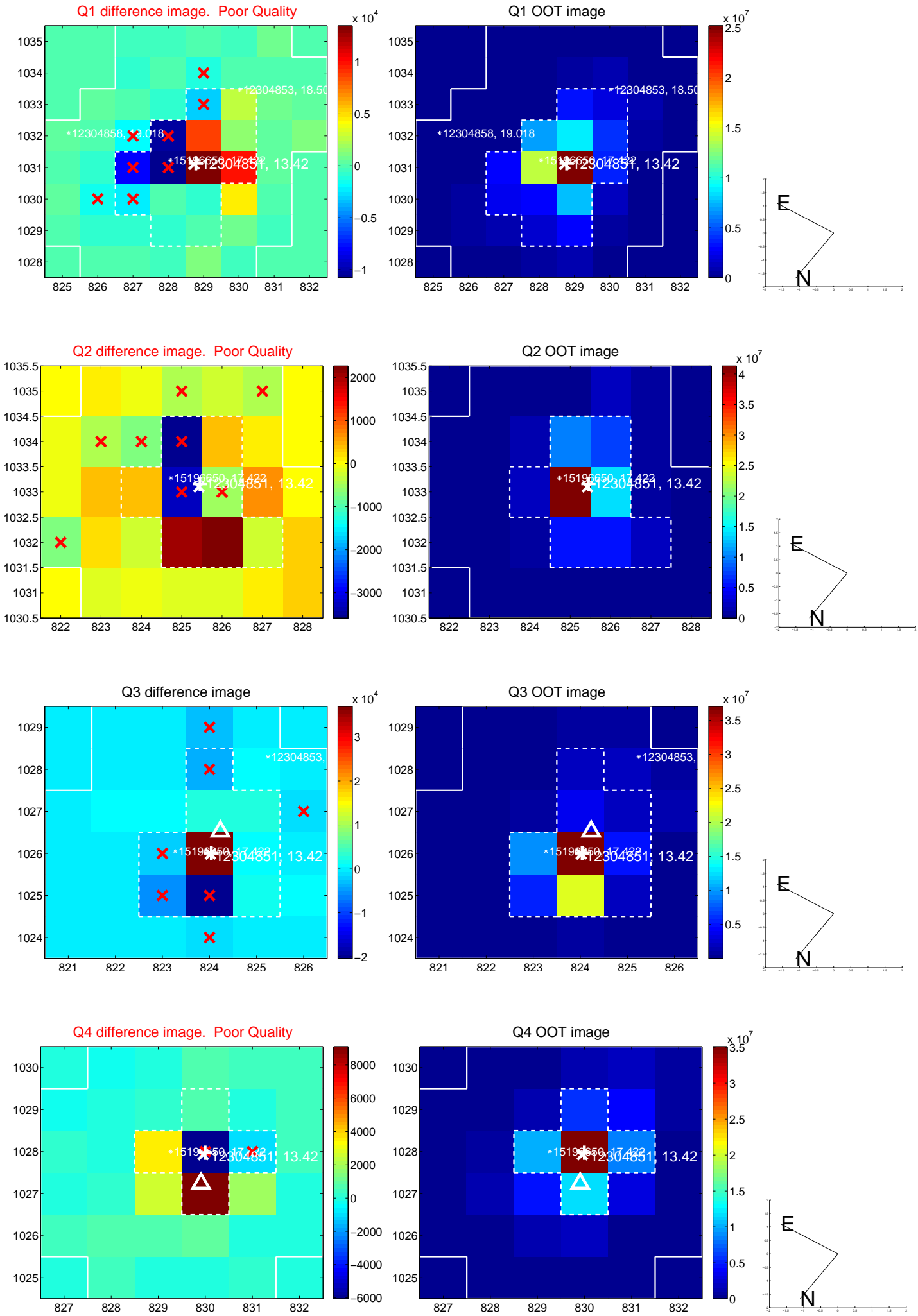


offset from photometric centroids

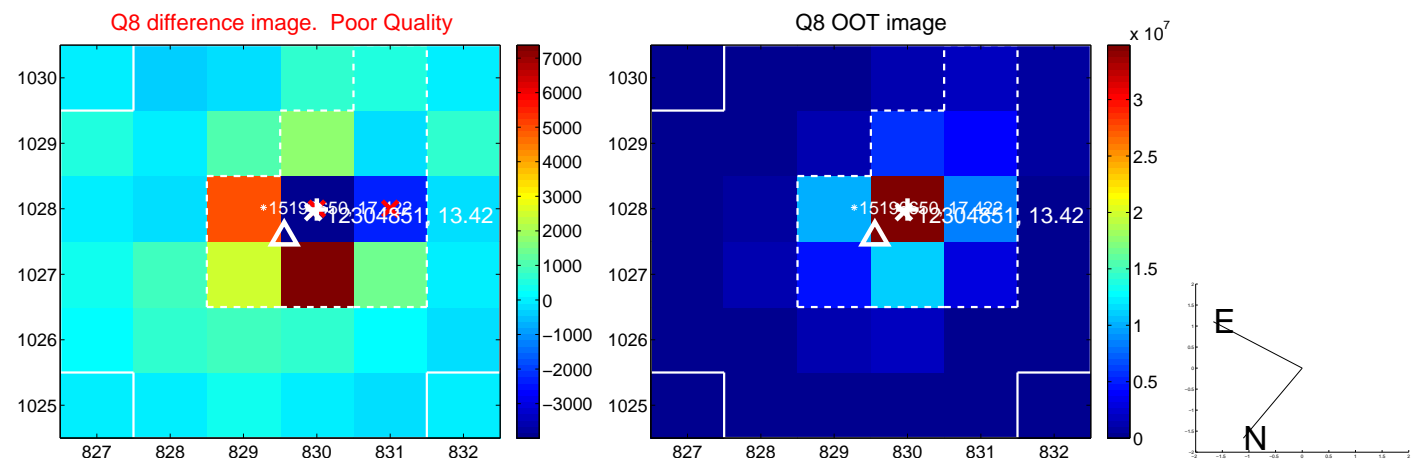
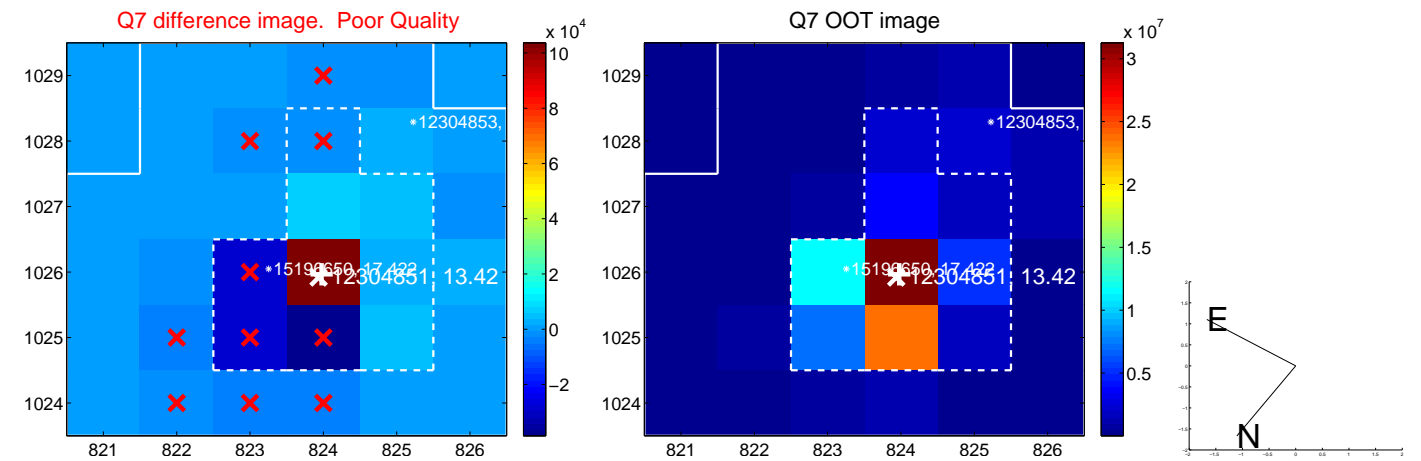
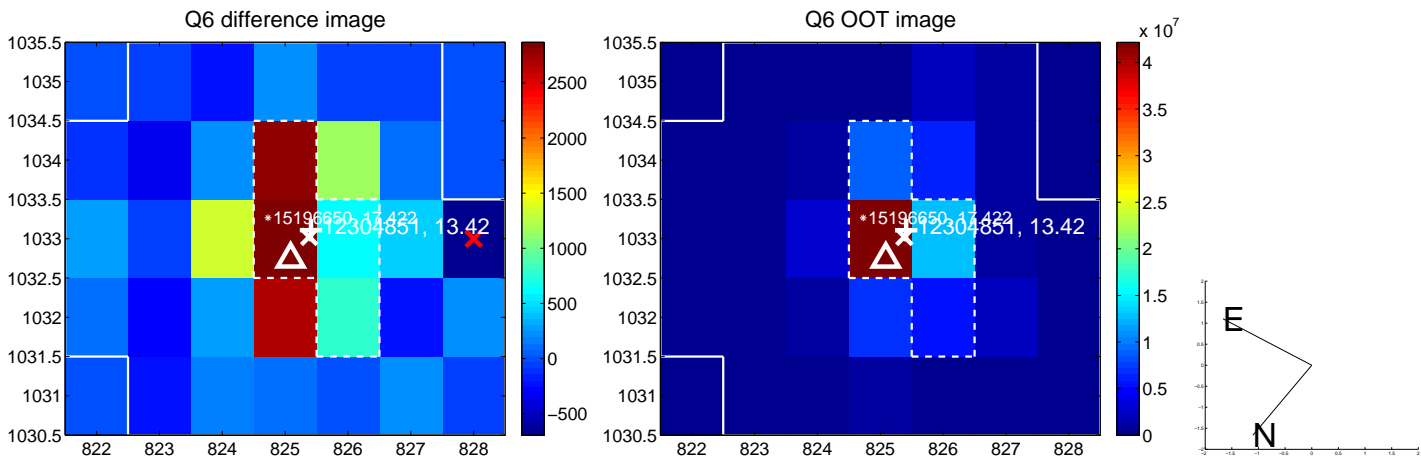
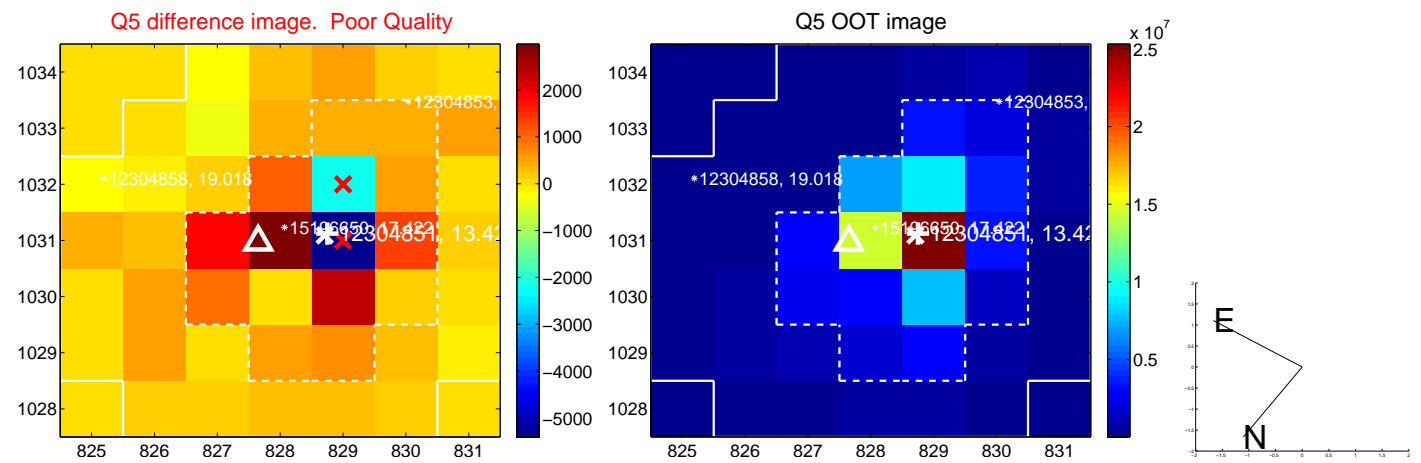


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

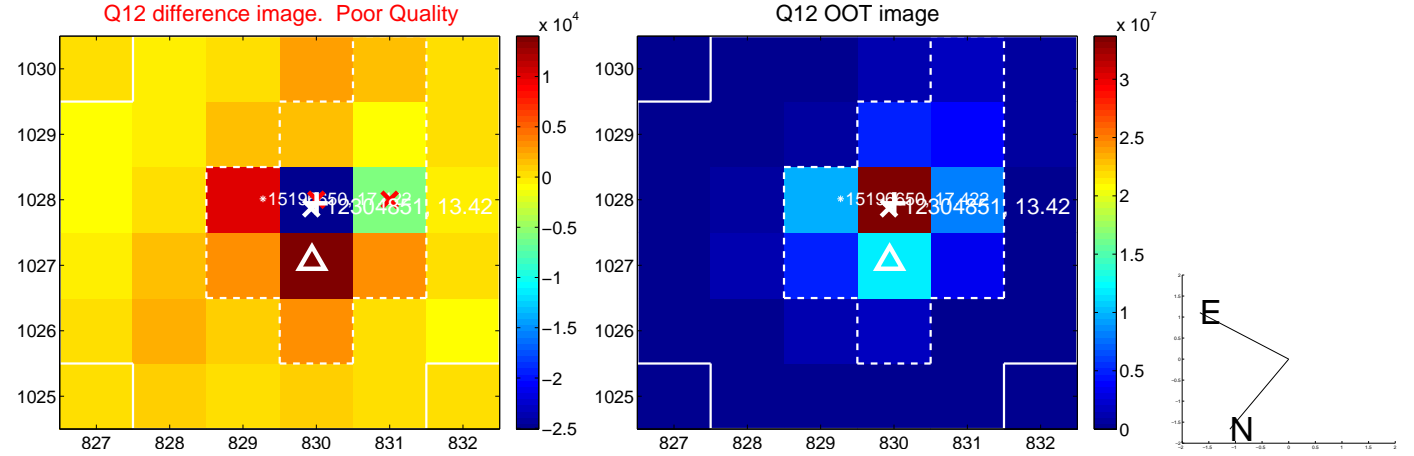
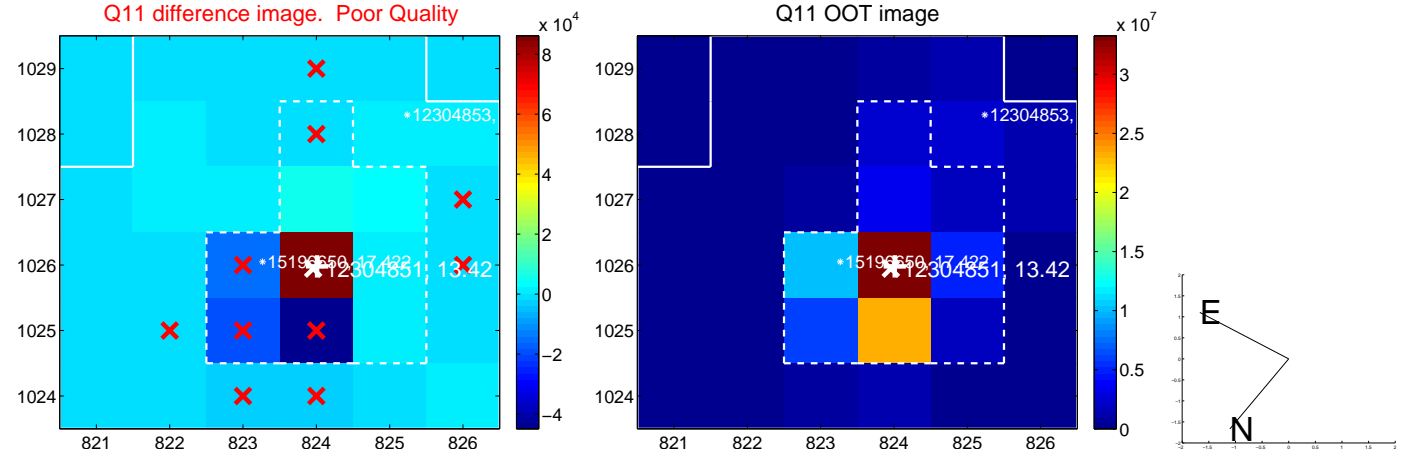
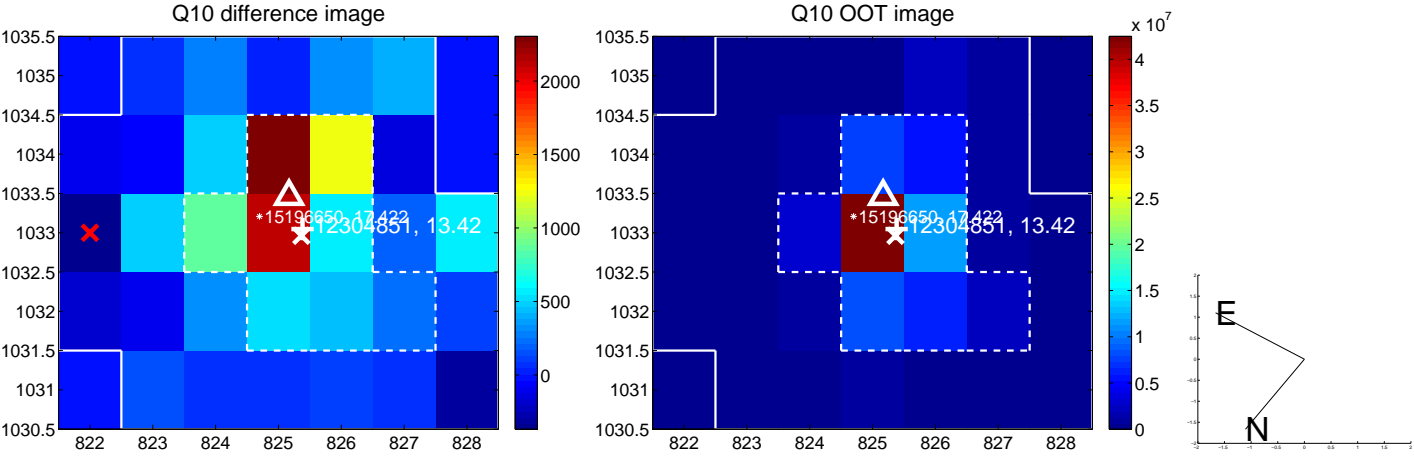
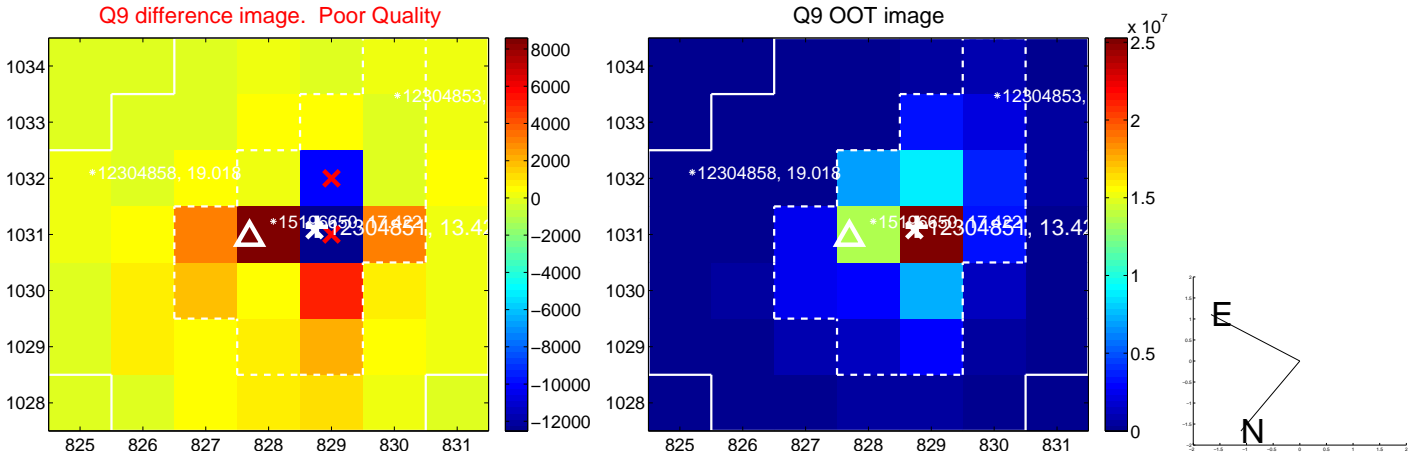
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



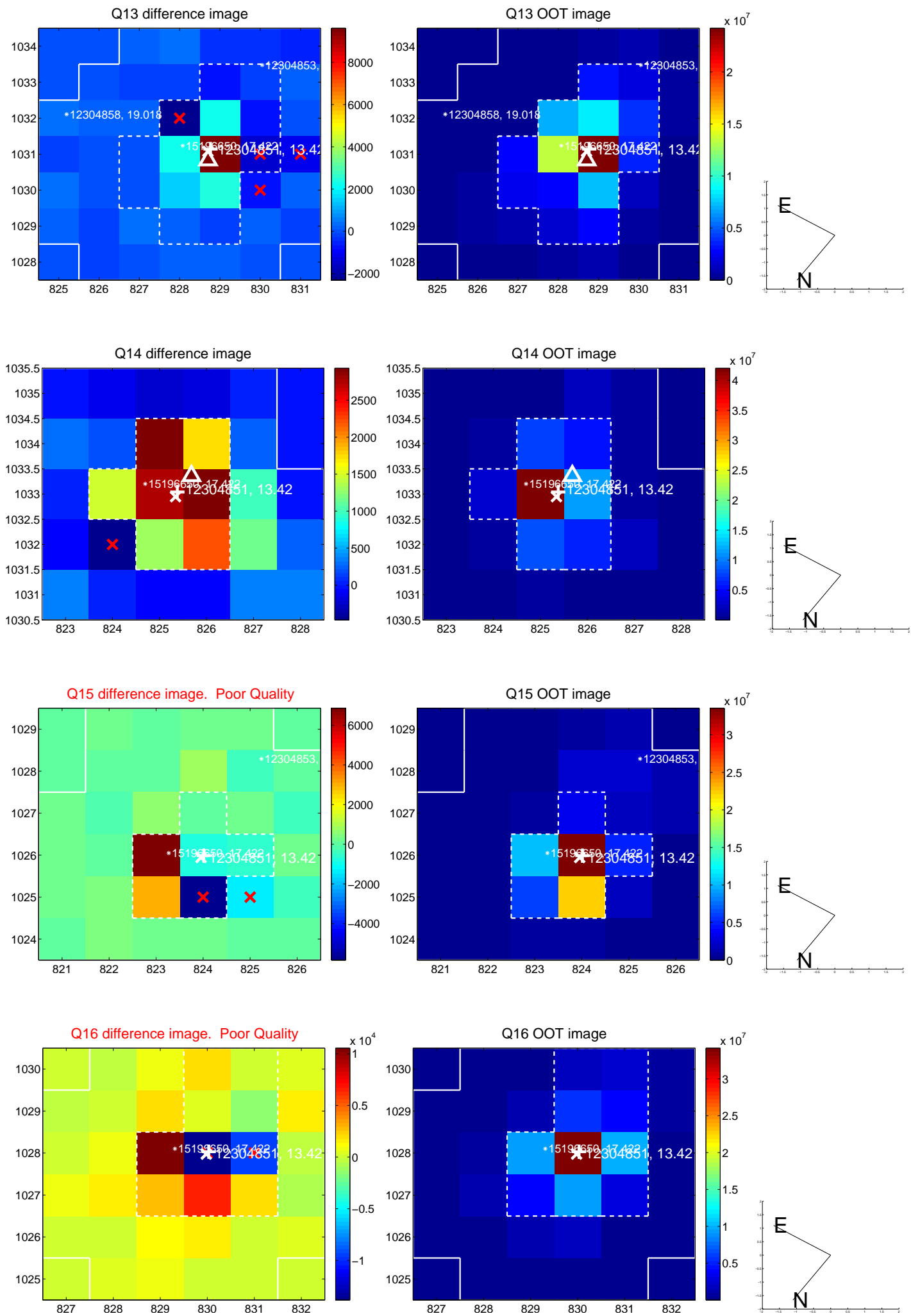
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



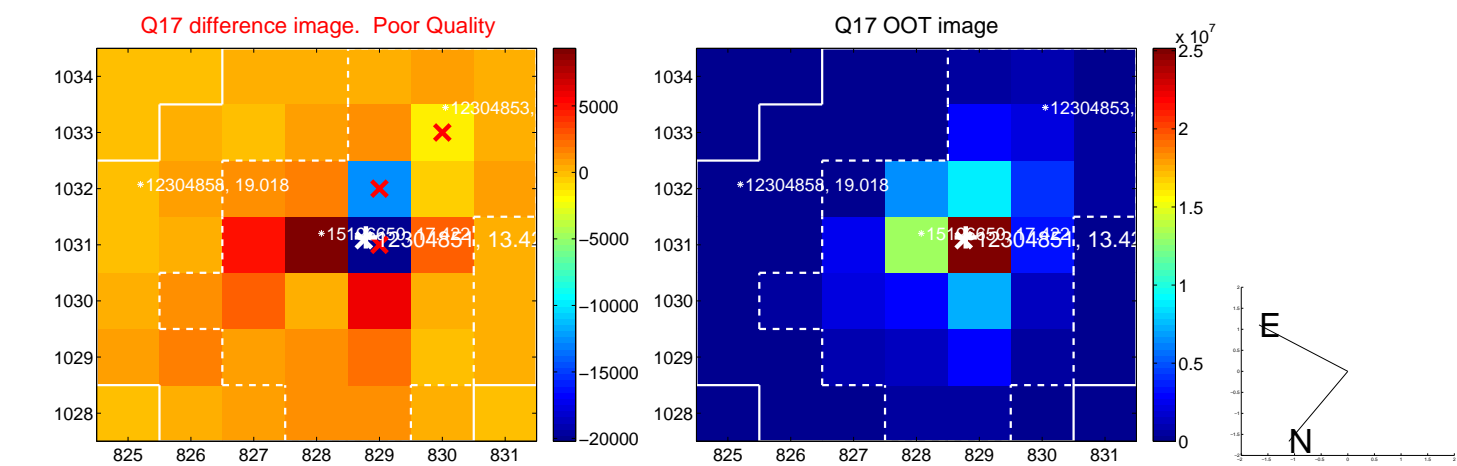
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



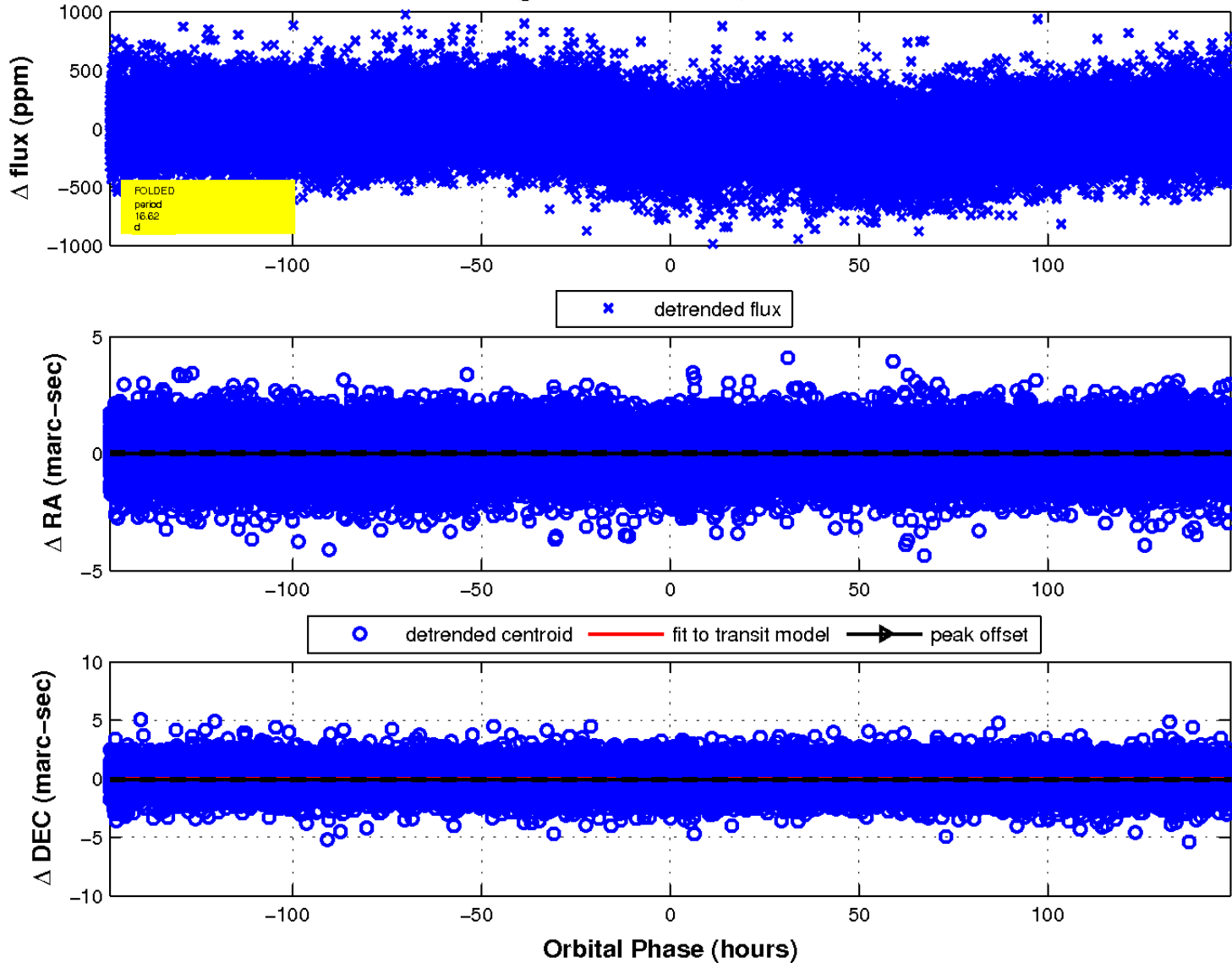
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

