

KIC 008420644

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})
008420644-01	OBS	No	0.538809	131.913095	99.2	5.384	14.3	13.3	1.87	7791	1.89	49802.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008420644-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

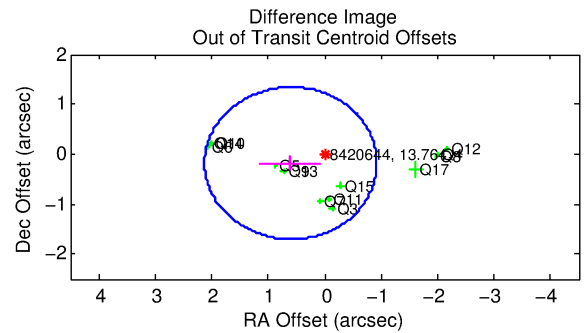
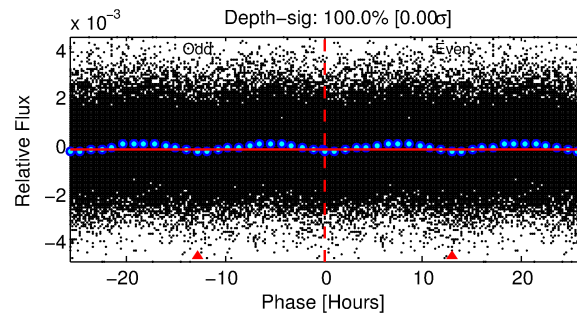
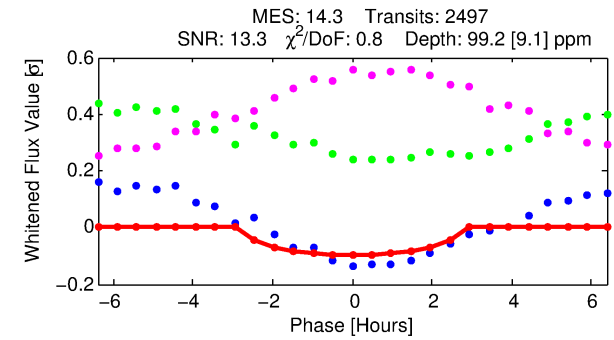
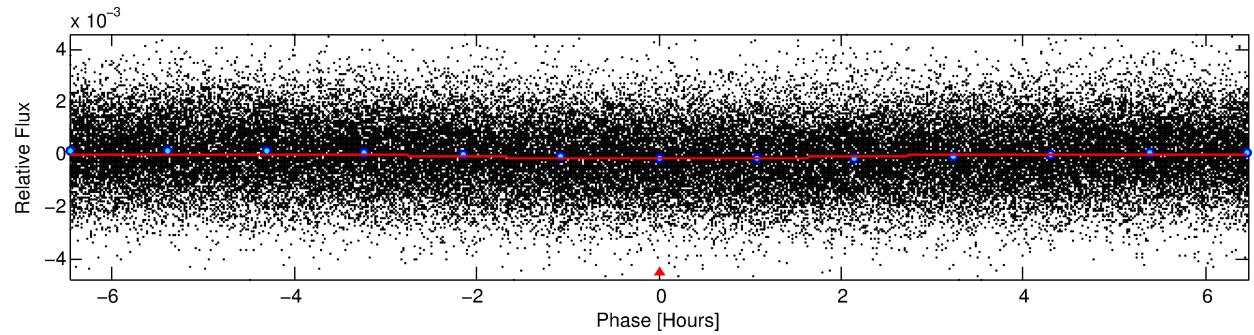
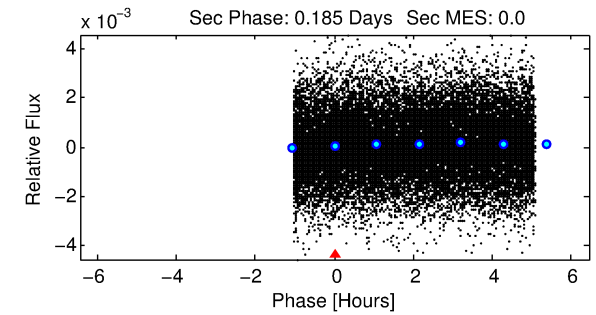
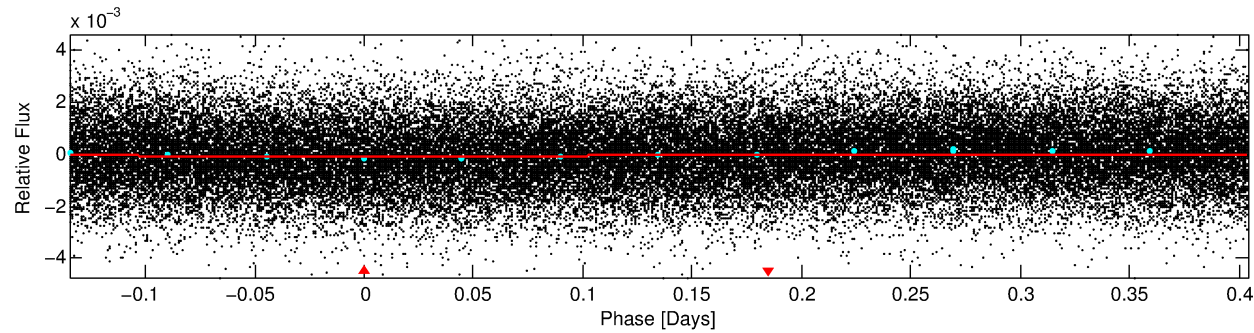
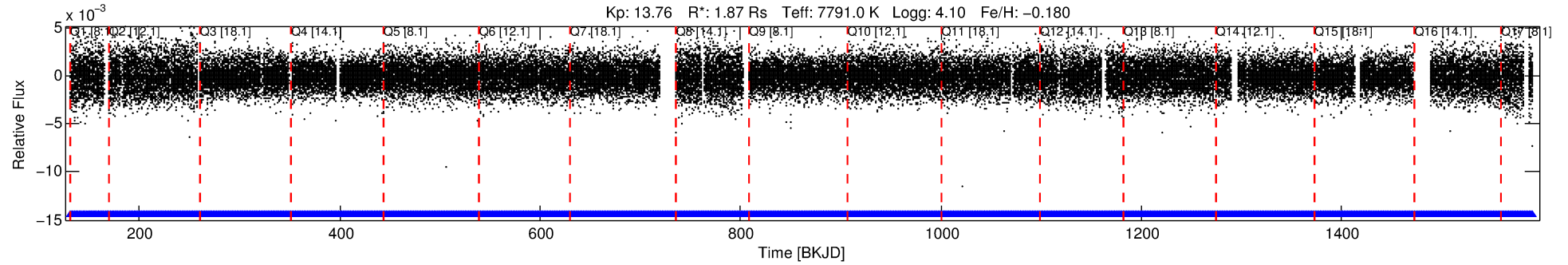
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008420644-01

No Significant Match Found

DV One-Page Summary

KIC: 8420644 Candidate: 1 of 1 Period: 0.539 d



DV Fit Results:

Period = 0.53881 [0.00001] d
Epoch = 131.9131 [0.0049] BKJD
Rp/R* = 0.0093 [0.0128]
a/R* = 1.04 [0.60]
b = 0.30 [23.37]
Seff = 49802.16 [17783.69]
Teff = 3809 [340] K
Rp = 1.89 [2.65] Re
a = 0.0152 [0.0033] AU
Ag = N/A
Teffp = N/A

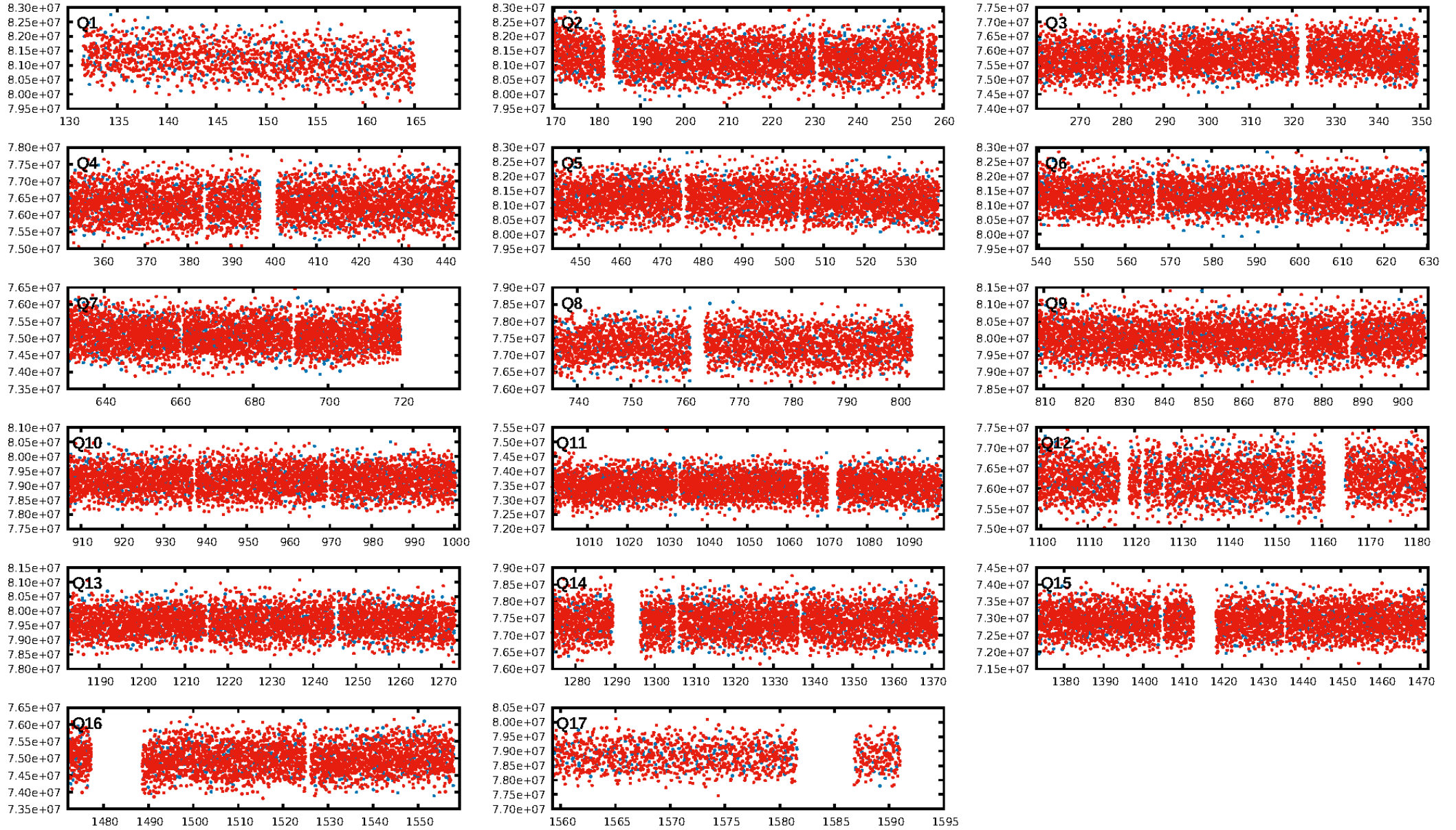
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2385/2385]
GhostDiagnostic-chr: 2.078
Centroid-sig: 0.0%
Centroid-so: 0.370 arcsec [2.32σ]
OotOffset-rm: 0.627 arcsec [1.23σ]
KicOffset-rm: 0.608 arcsec [1.30σ]
OotOffset-st: 3/4/3/4 [14]
KicOffset-st: 3/4/3/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [17/17]

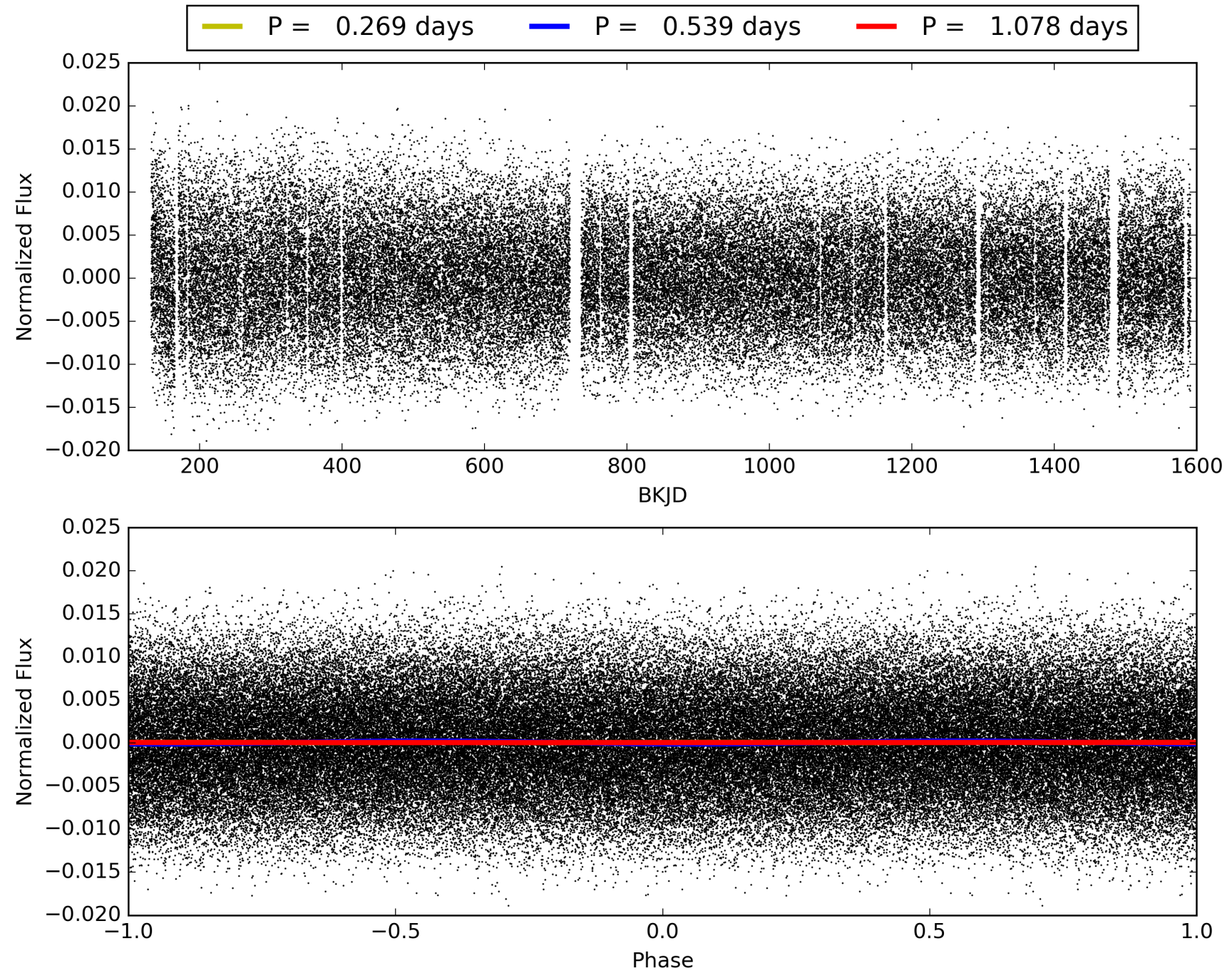
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:30:19 Z

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

TCE 008420644-01, PDC Light Curves

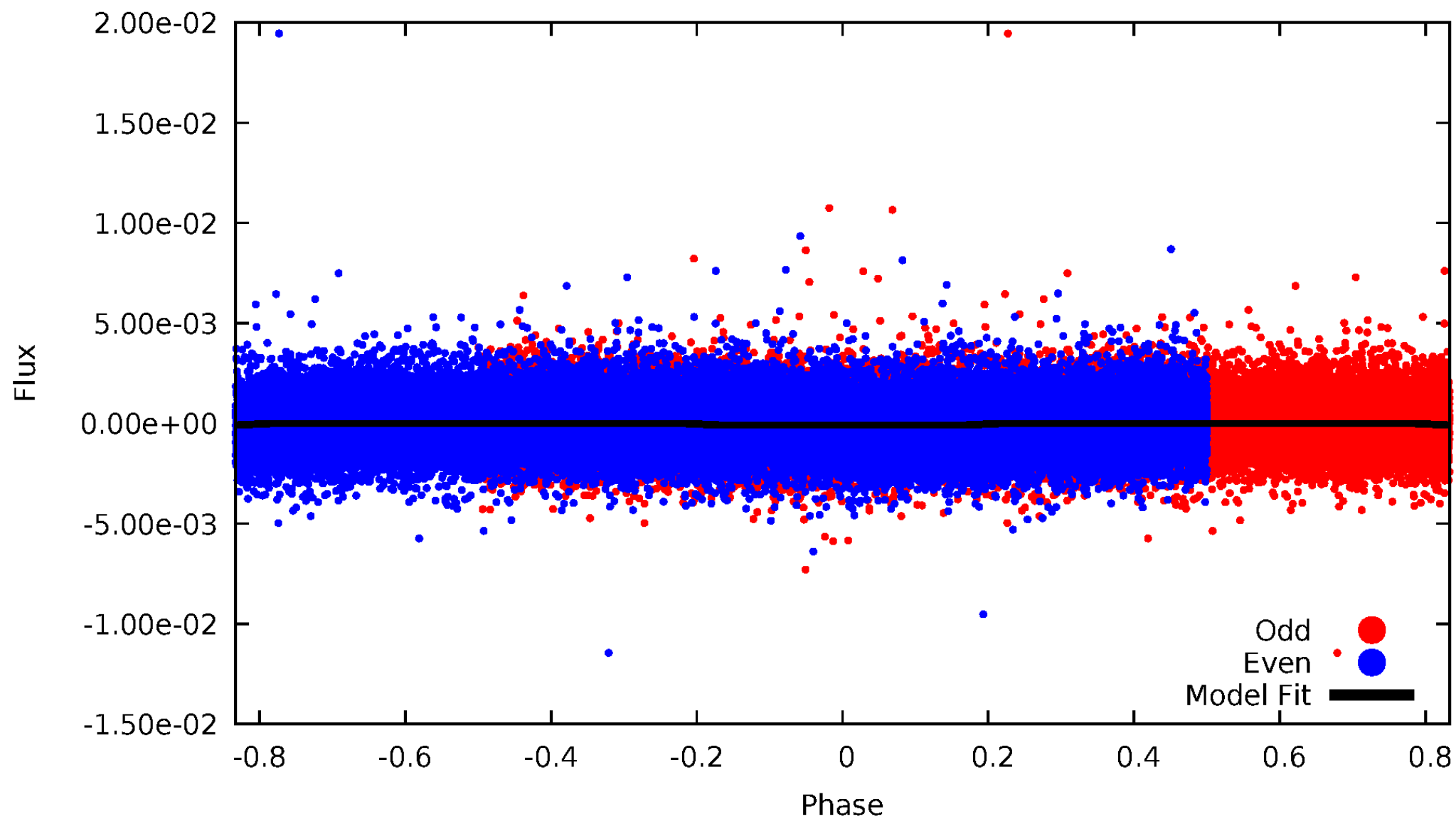


TCE 008420644-01



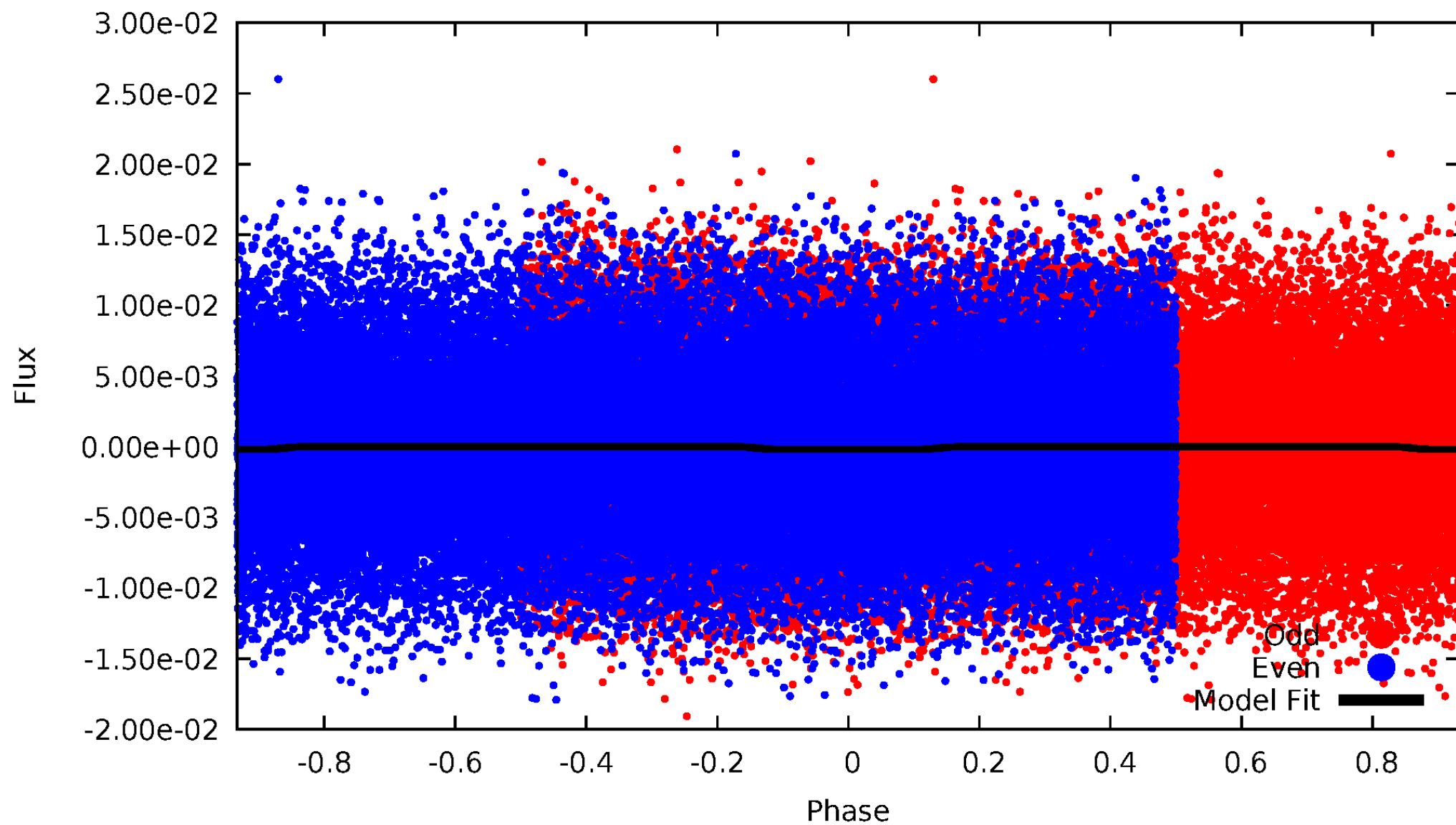
DV Odd/Even

TCE 008420644-01



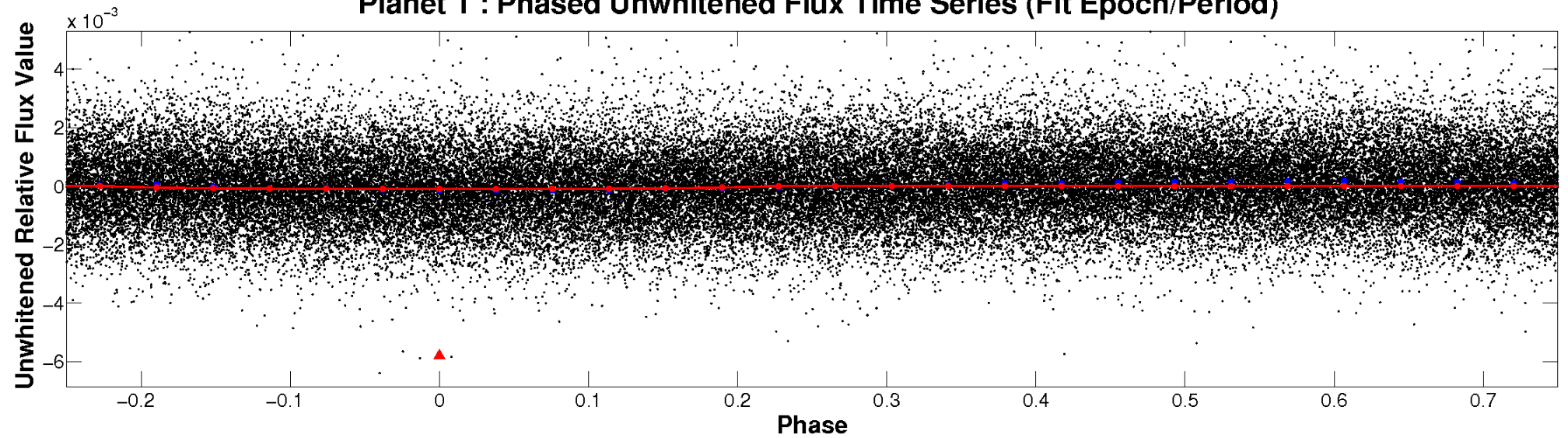
ALT Odd/Even

TCE 008420644-01

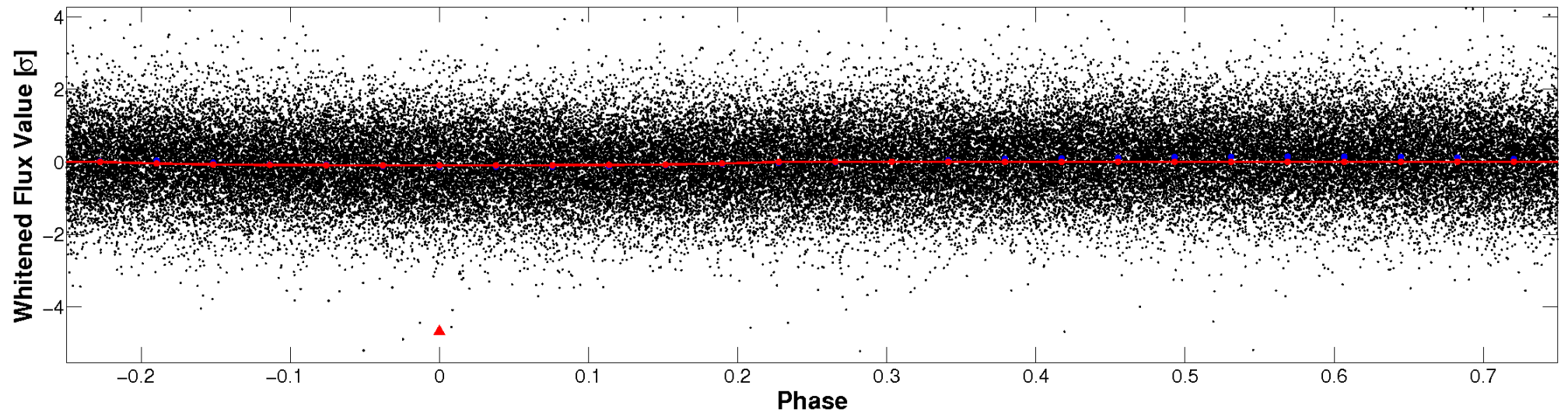


Non-Whitened Vs. Whitened Light Curve

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

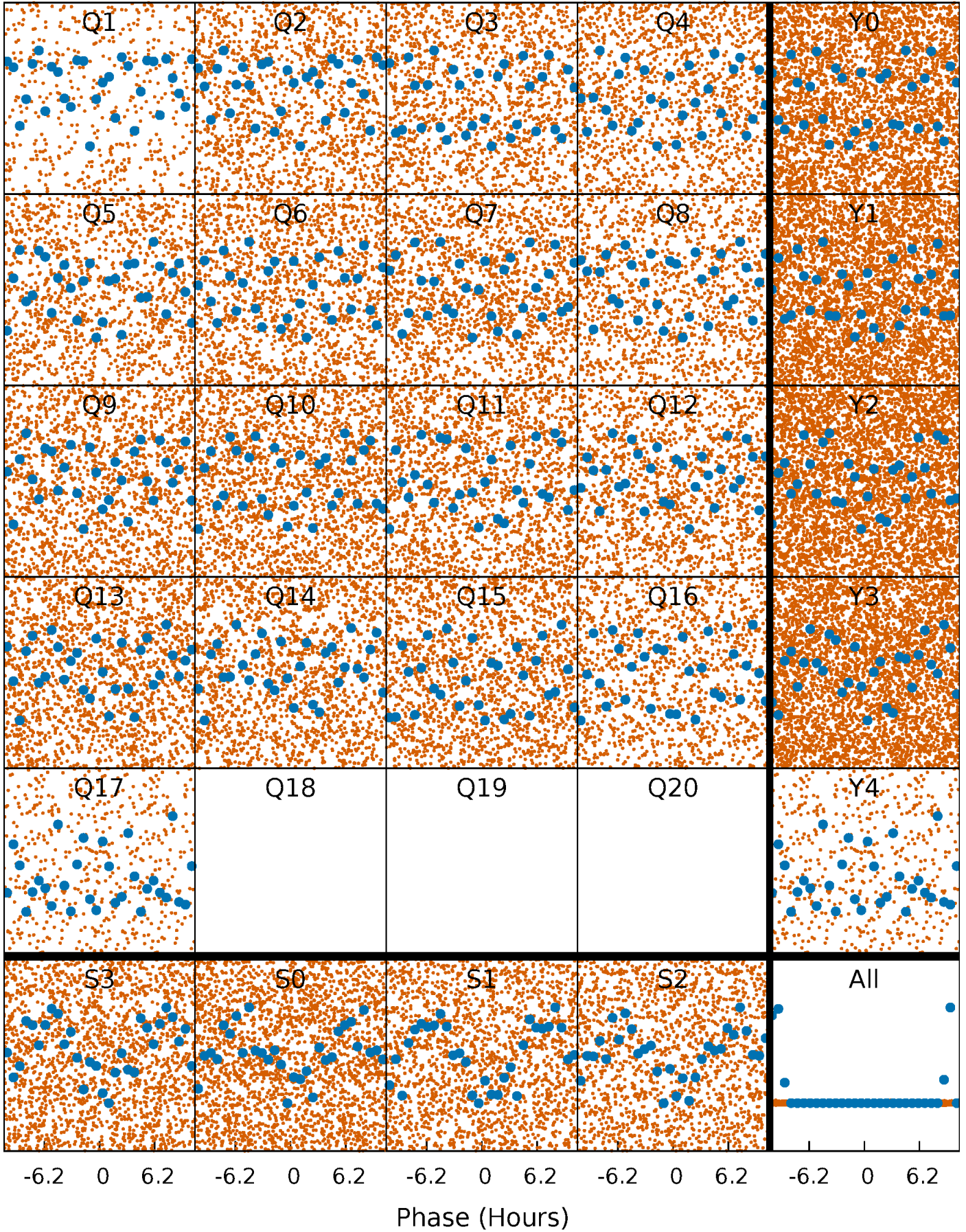


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



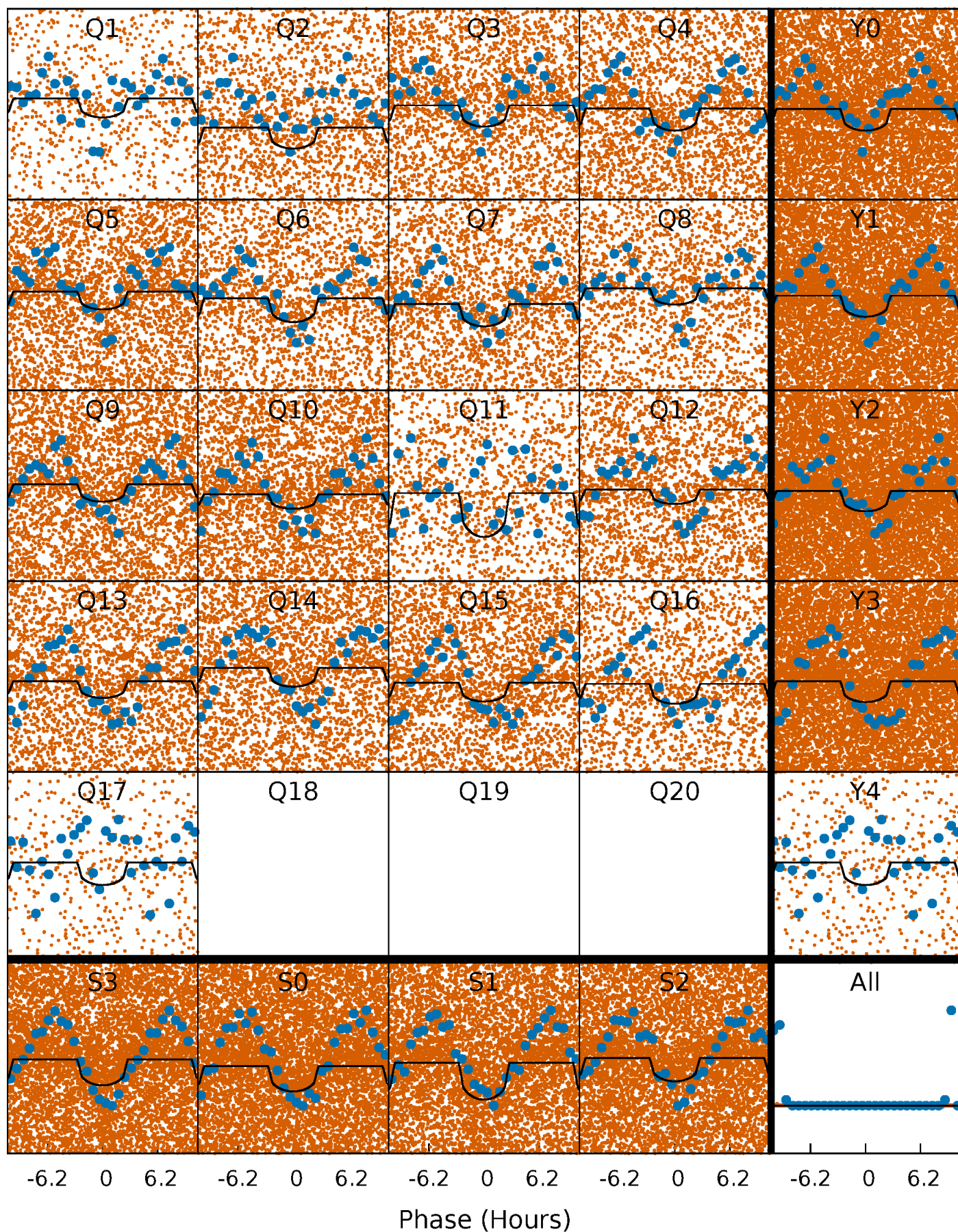
PDC Quarter-Phased Transit Curves

TCE 008420644-01 P= 0.538809 Days $T_0=131.913095$ (BKJD)



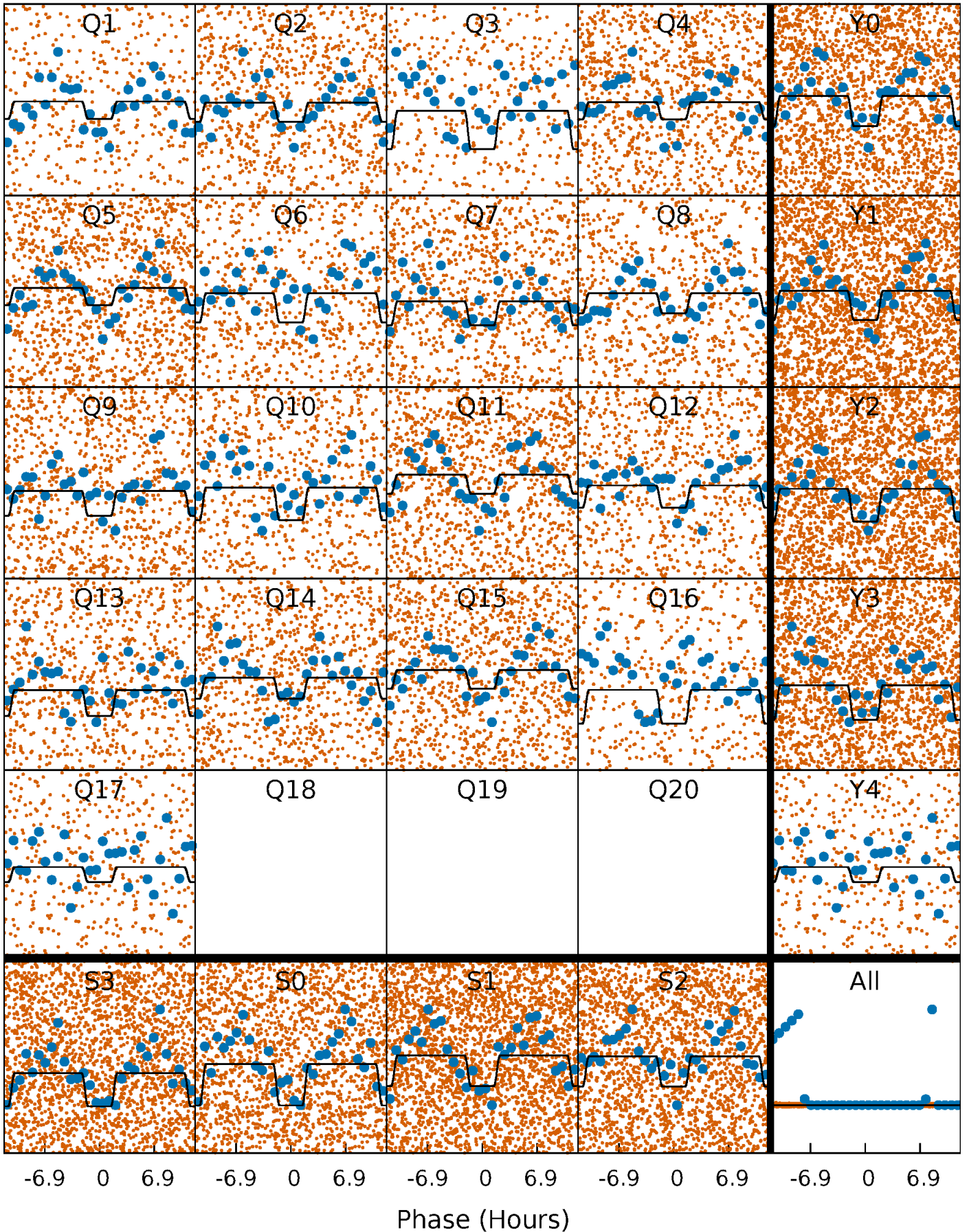
DV Quarter-Phased Transit Curves

TCE 008420644-01 P= 0.538809 Days $T_0=131.913095$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

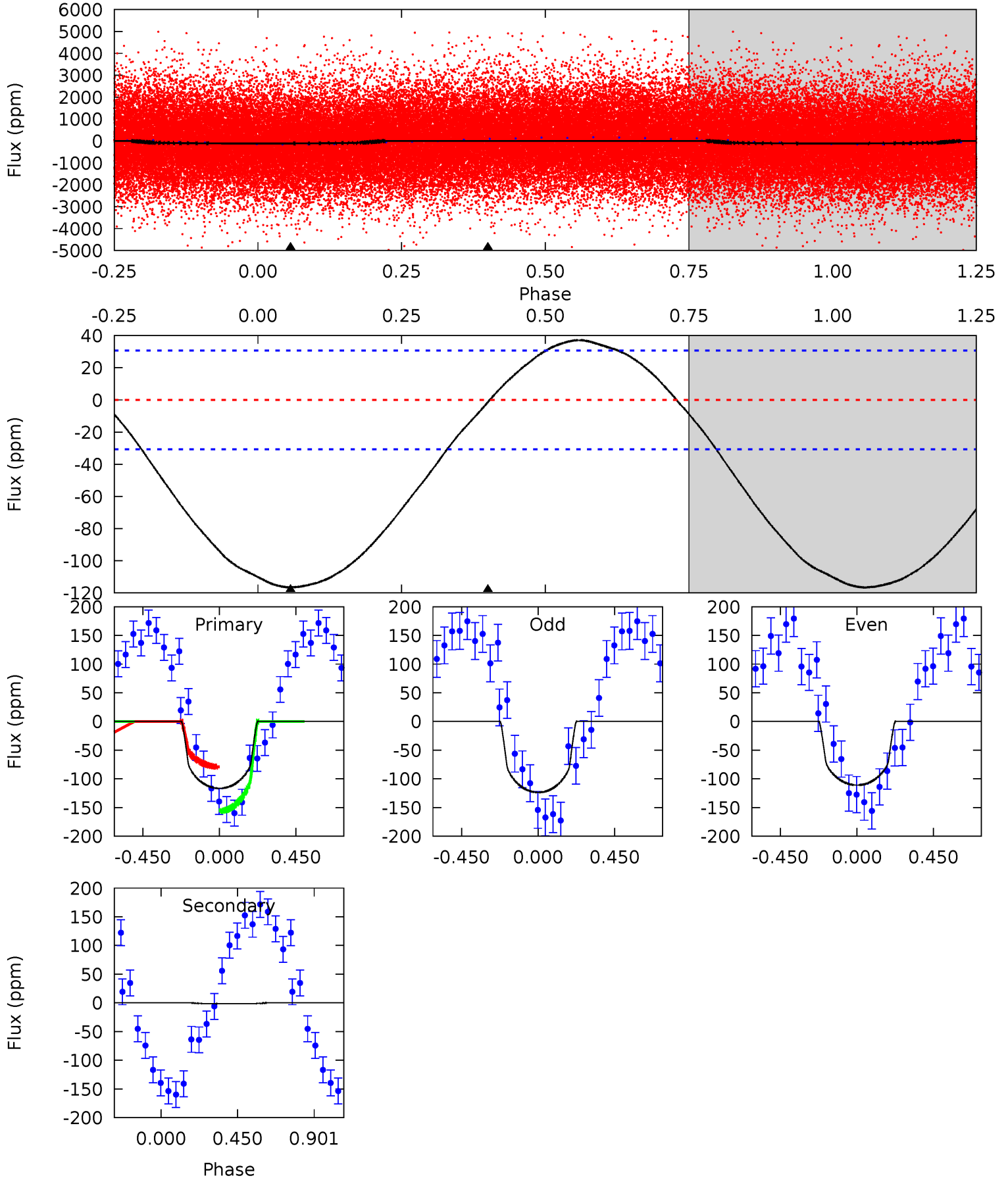
TCE 008420644-01 P= 0.538859 Days $T_0=131.882995$ (BKJD)



DV Model-Shift Uniqueness Test

008420644-01, P = 0.538809 Days, E = 131.374286 Days

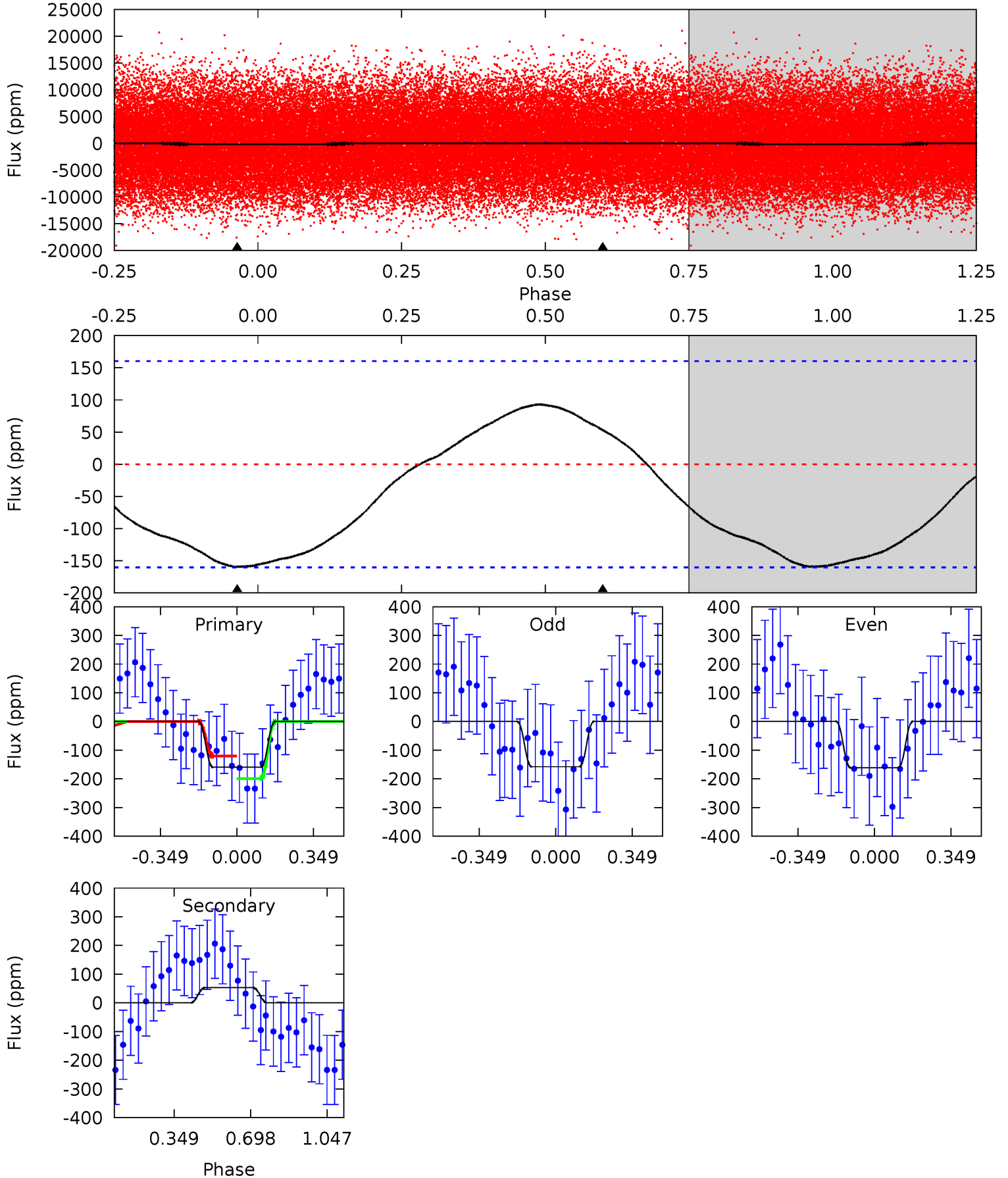
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	0.20	0	0	4.24	0.75	1.65	16.1	16.1	0.20	0.20	0.87	0.91	0.24	5.35



Alt Model-Shift Uniqueness Test

008420644-01, P = 0.538859 Days, E = 131.344136 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.27	-1.42	0	0	4.30	0.94	0.41	4.27	4.27	-1.42	-1.42	0.05	1.08	0.37	1.04



Stellar Parameters For KIC 008420644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7791^{+216}_{-325}	$4.104^{+0.140}_{-0.171}$	$-0.180^{+0.200}_{-0.350}$	$1.870^{+0.492}_{-0.403}$	$1.617^{+0.195}_{-0.238}$	$0.348^{+0.273}_{-0.152}$
	+3%/-4%	+3%/-4%	+111%/-194%	+26%/-22%	+12%/-15%	+78%/-44%
Source	KIC0	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 008420644-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1 ± 7	$2.83^{+2.25}_{-1.84}$	5344^{+368}_{-348}	-4422^{+1164}_{-549}	$0.015^{+0.231}_{-0.128}$
Alt.	53 ± 37	$3.19^{+2.39}_{-2.04}$	5325^{+369}_{-342}	-5623^{+871}_{-3499}	$-0.580^{+0.456}_{-3.974}$

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 $A_{obs} \gg 1.0$

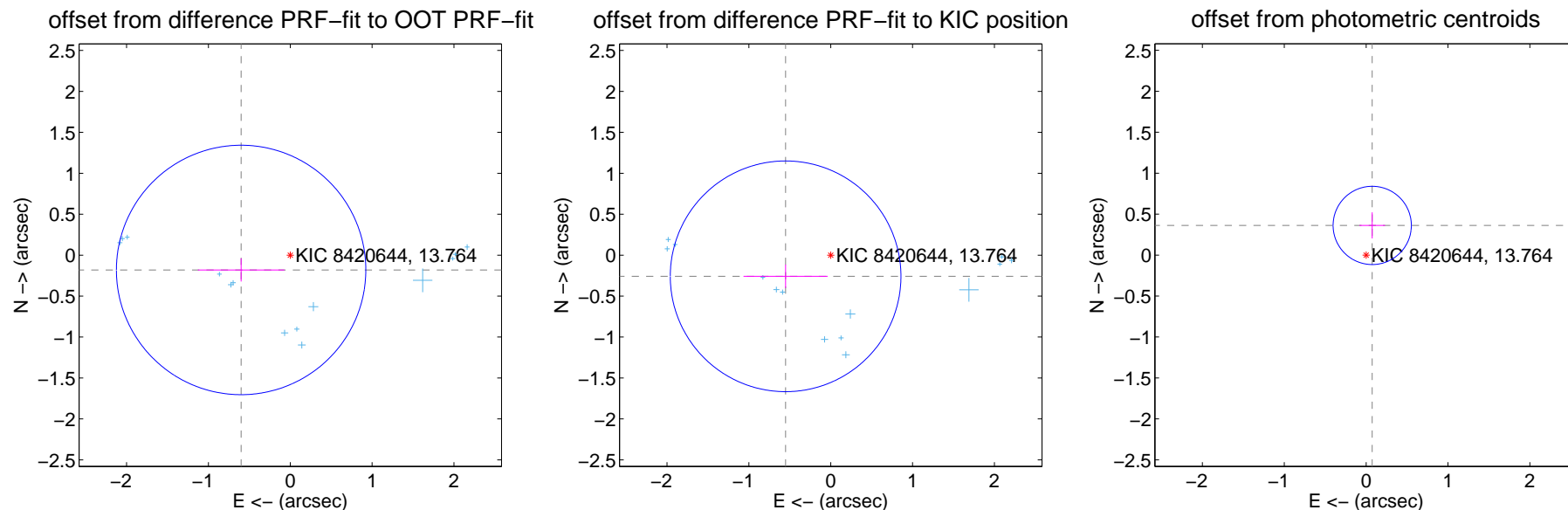
DV Centroid Data

Supplemental centroid analysis for 008420644-01. Kepler magnitude: 13.76. Transit SNR 13.31

There are 14 quarters with good PRF difference image offsets

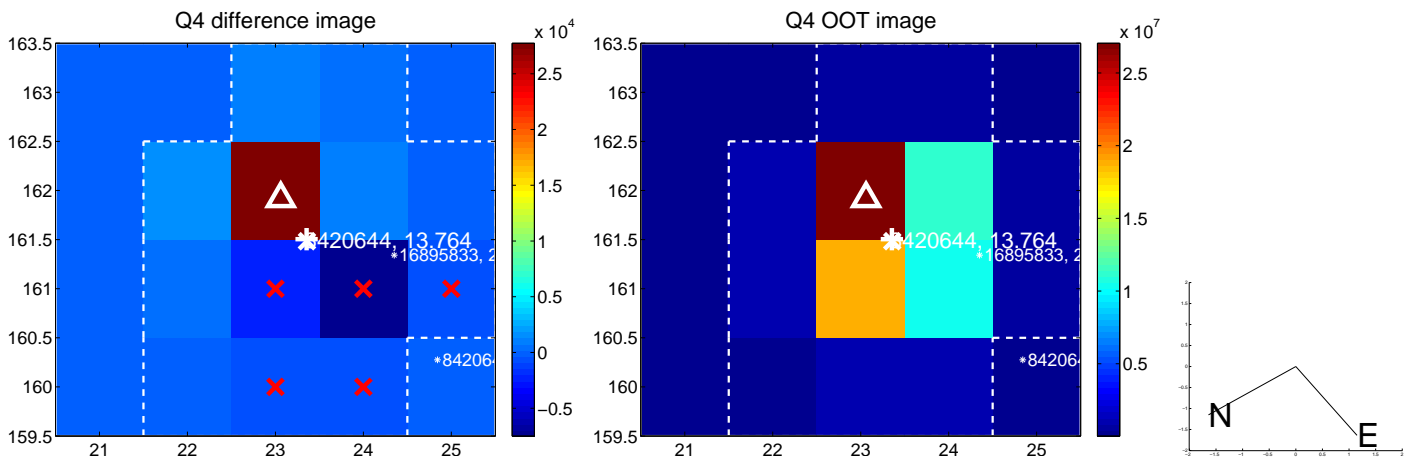
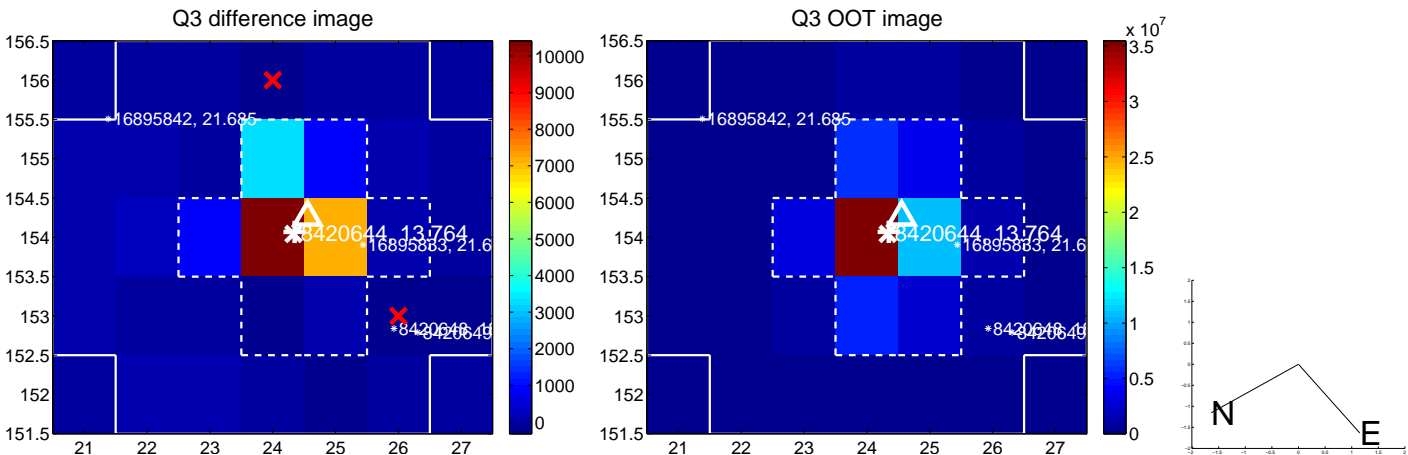
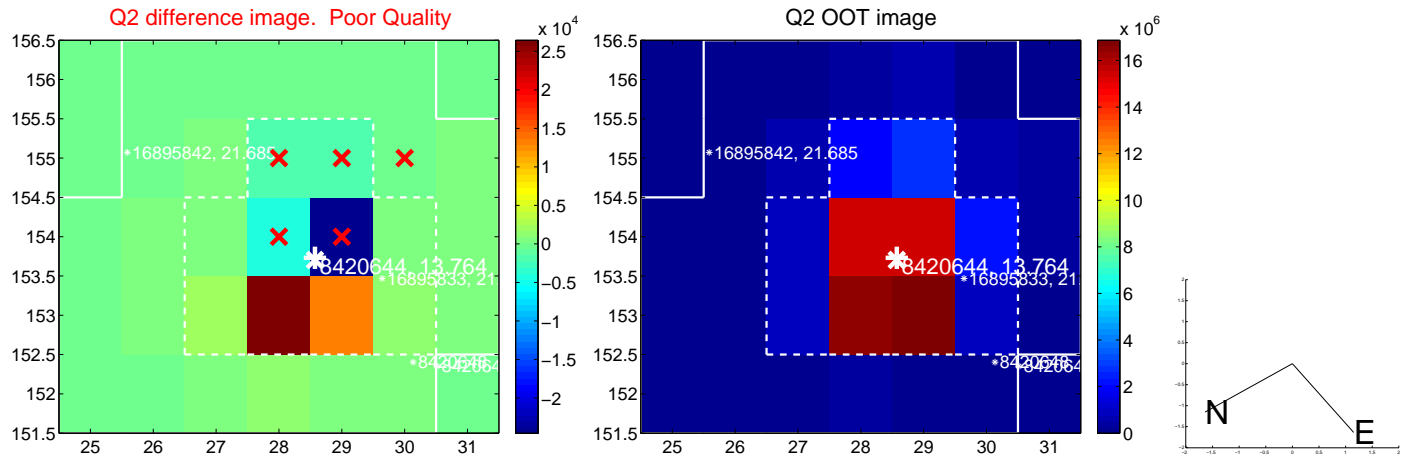
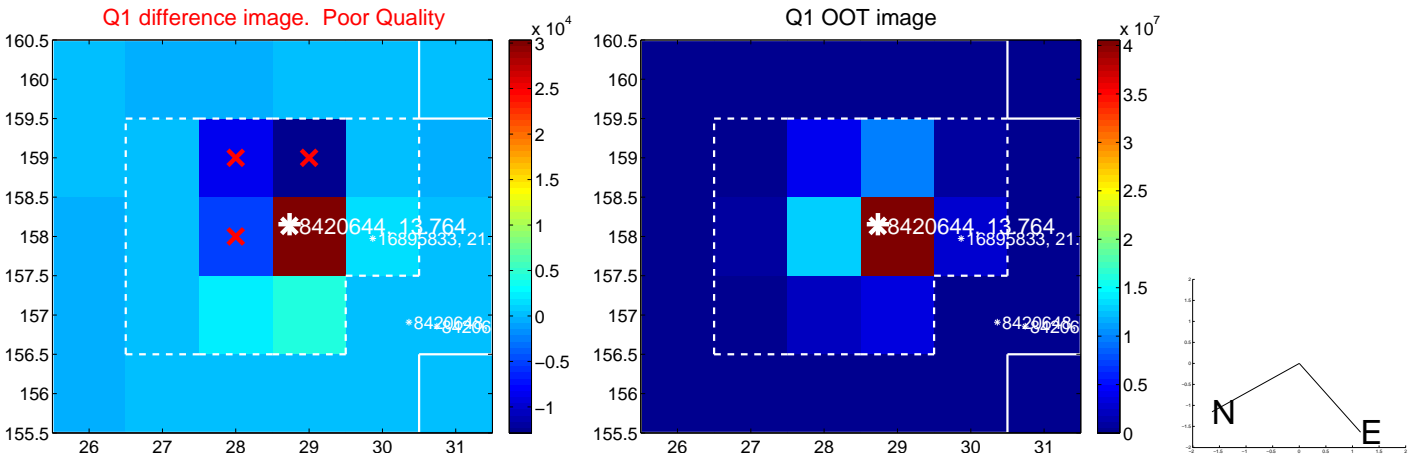
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.627 ± 0.508	1.23	0.600 ± 0.529	-0.181 ± 0.141
PRF-fit source offset from KIC position	0.608 ± 0.470	1.30	0.551 ± 0.514	-0.258 ± 0.143
photometric centroid source offset	0.37 ± 0.16	2.32	-0.07 ± 0.16	0.36 ± 0.16

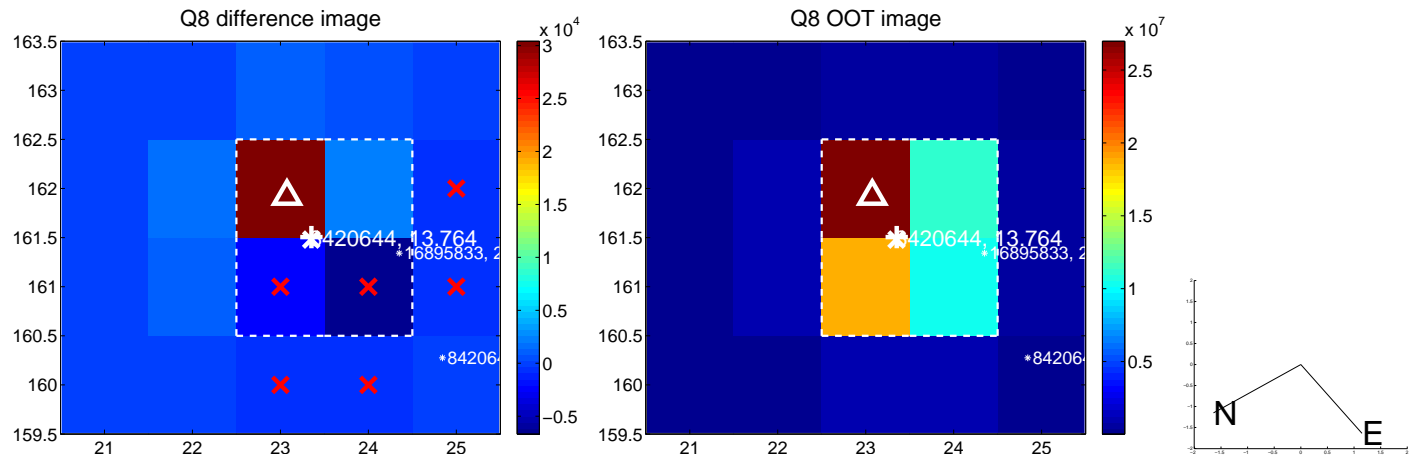
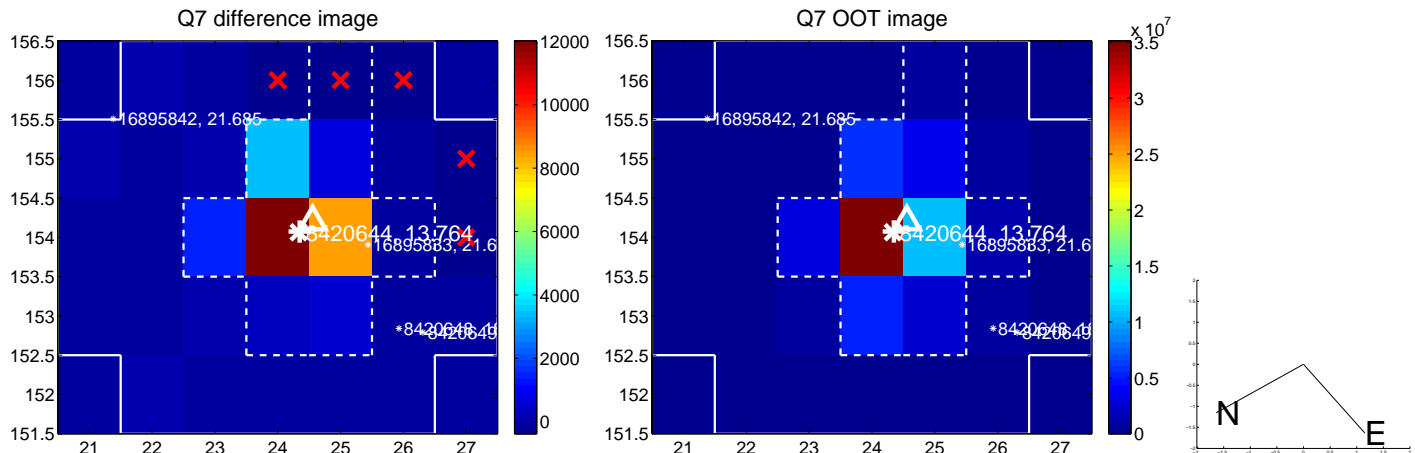
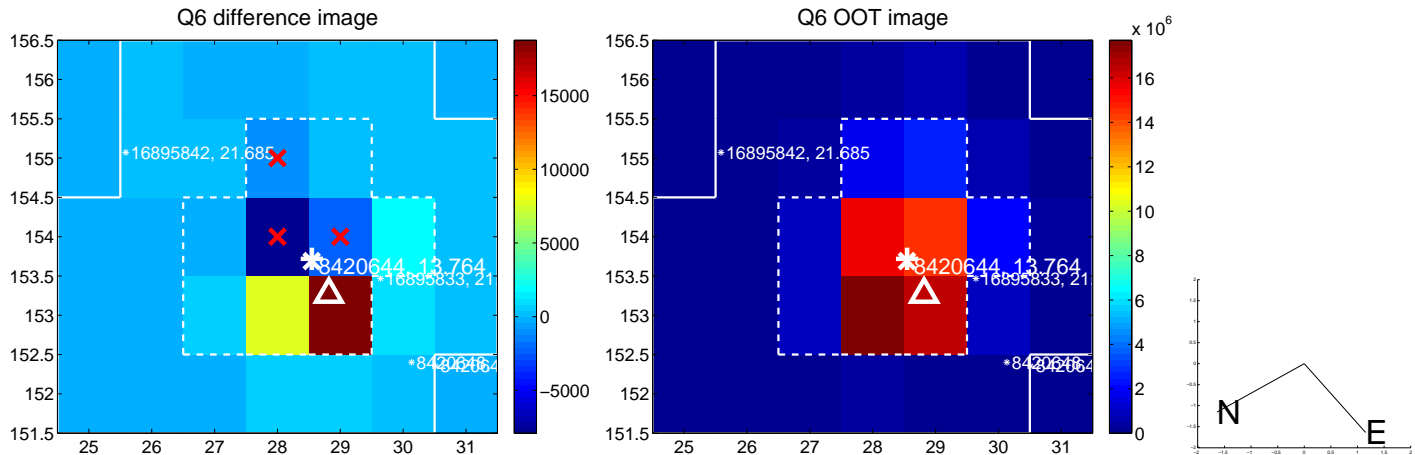
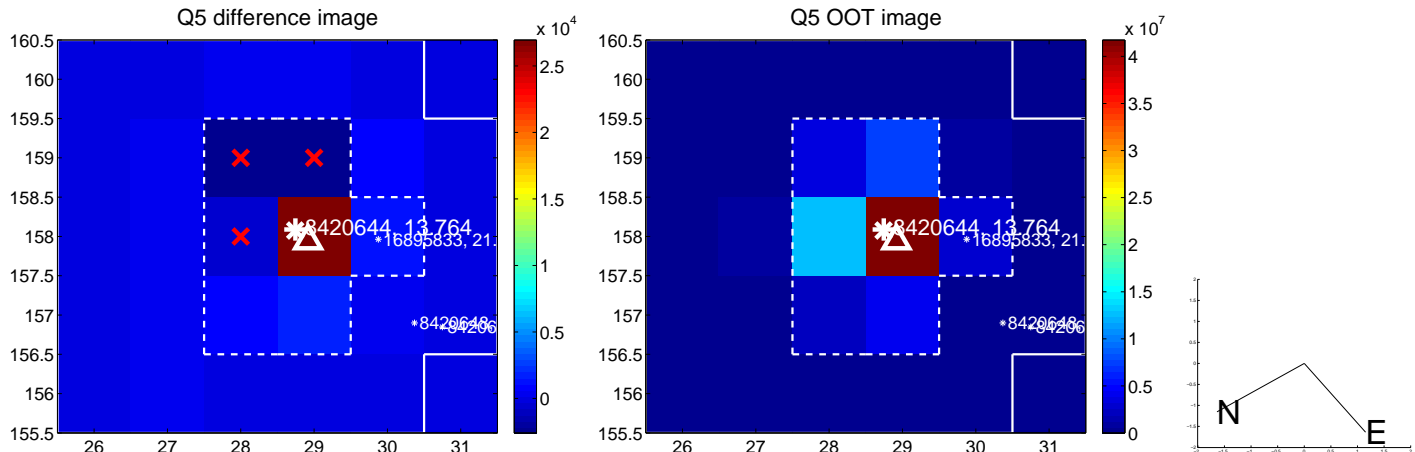


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

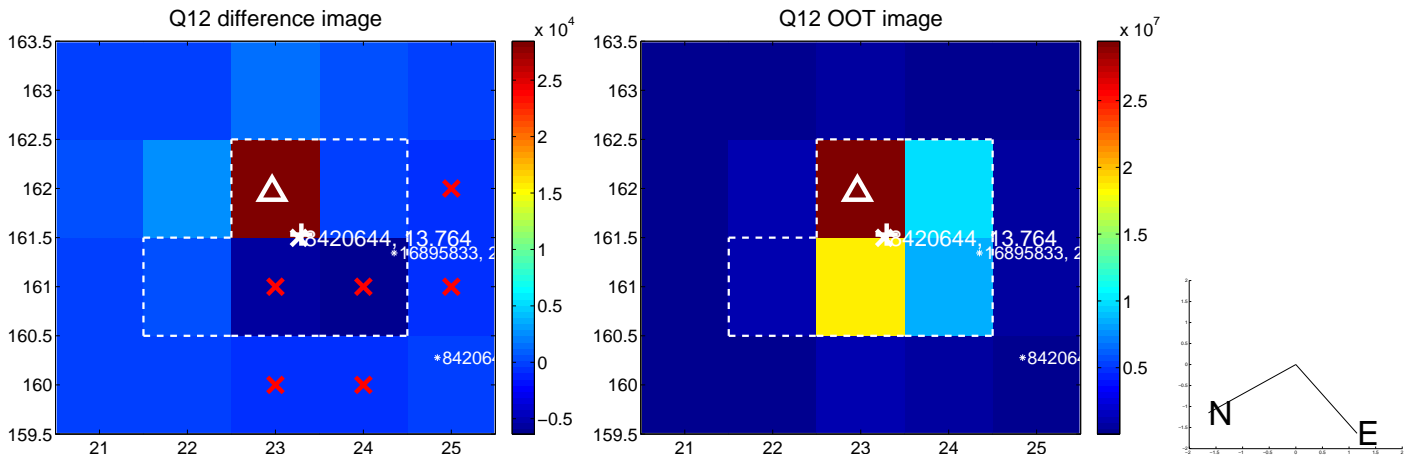
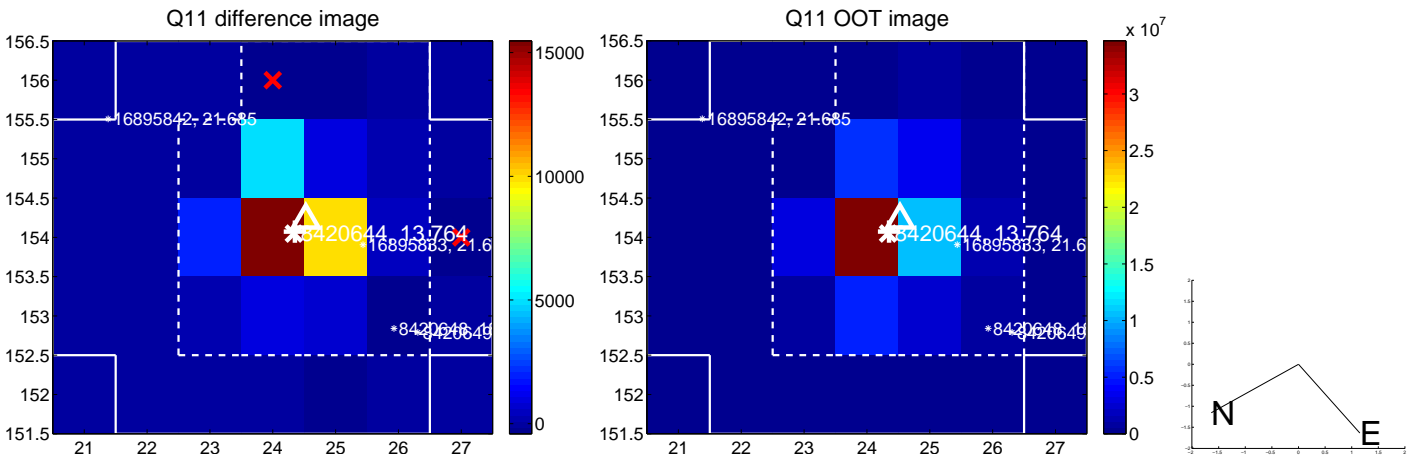
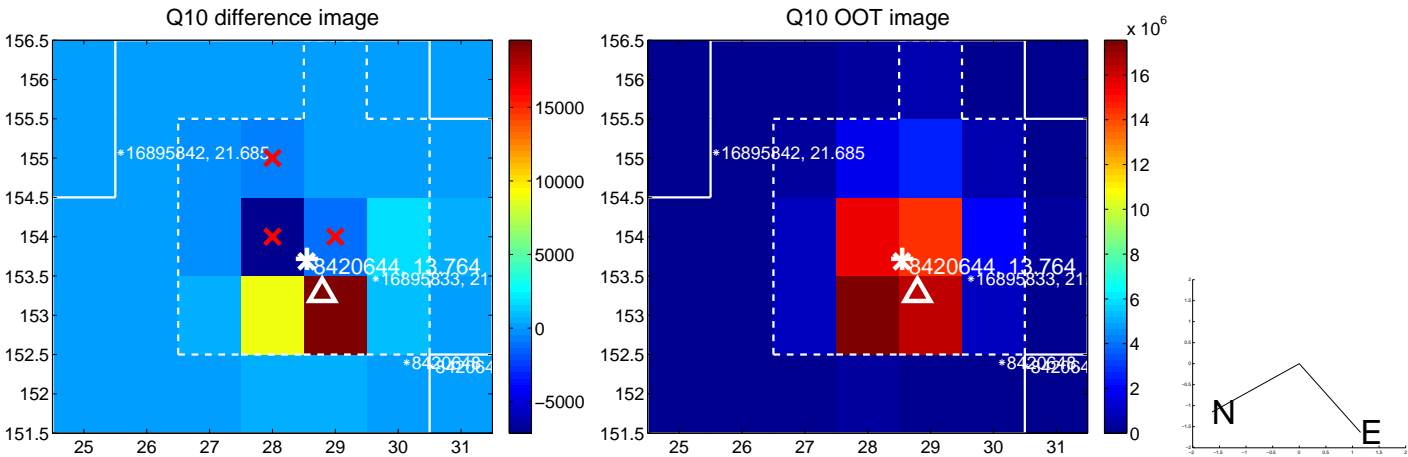
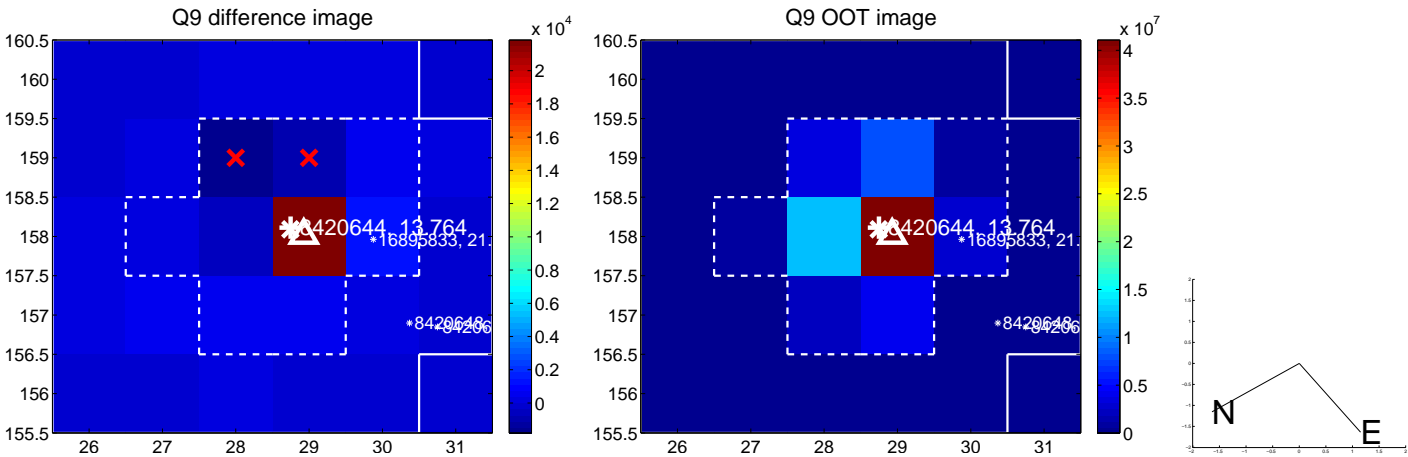
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



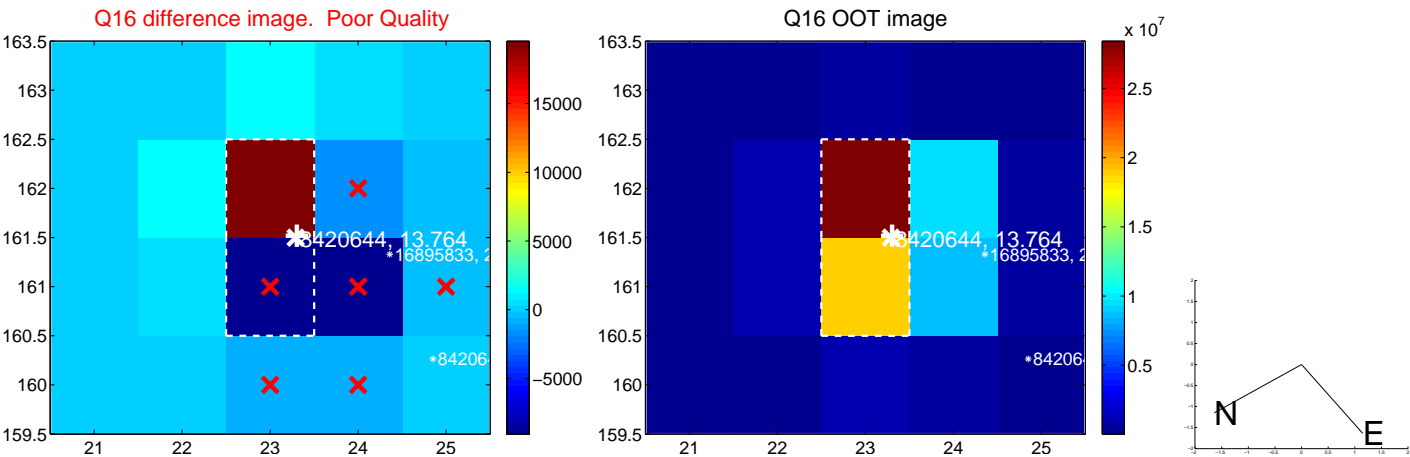
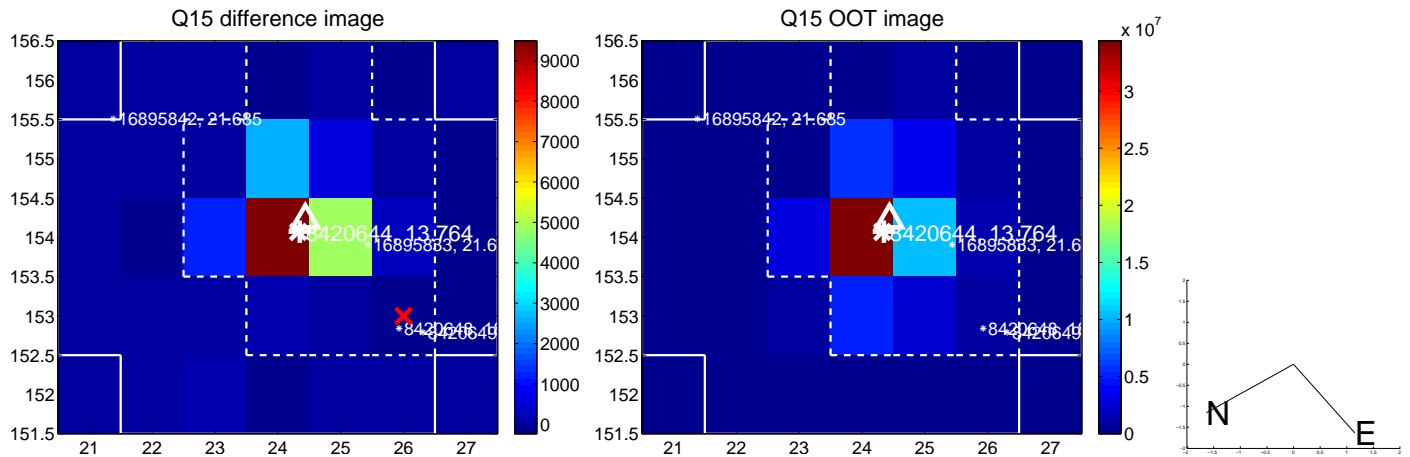
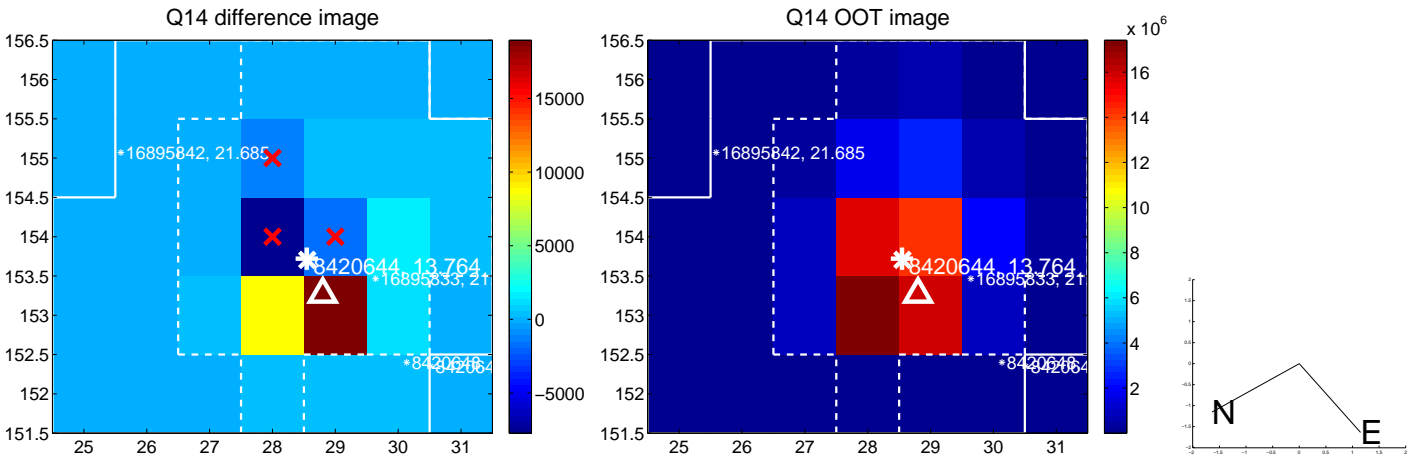
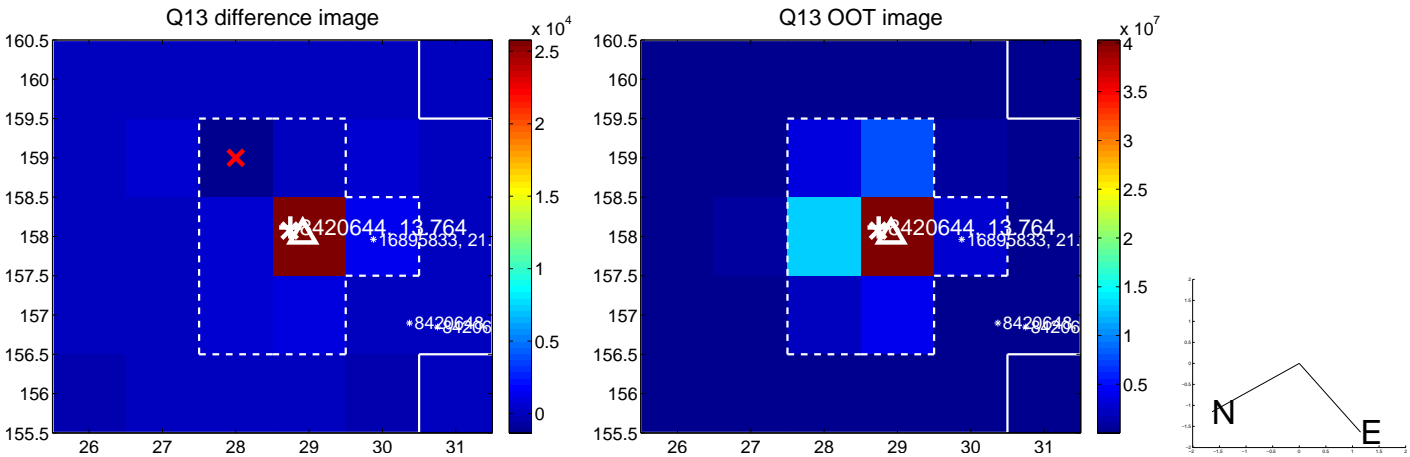
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



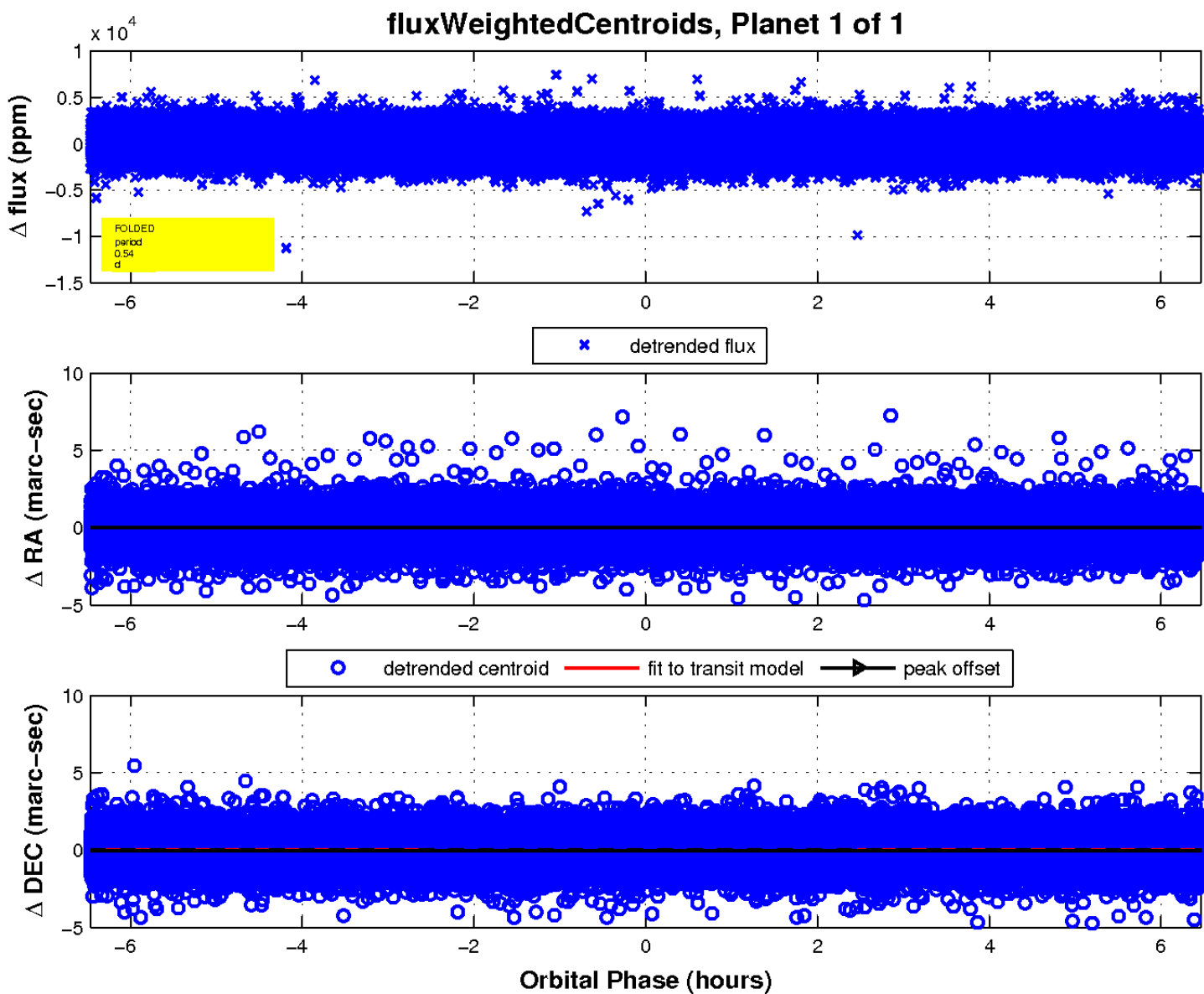
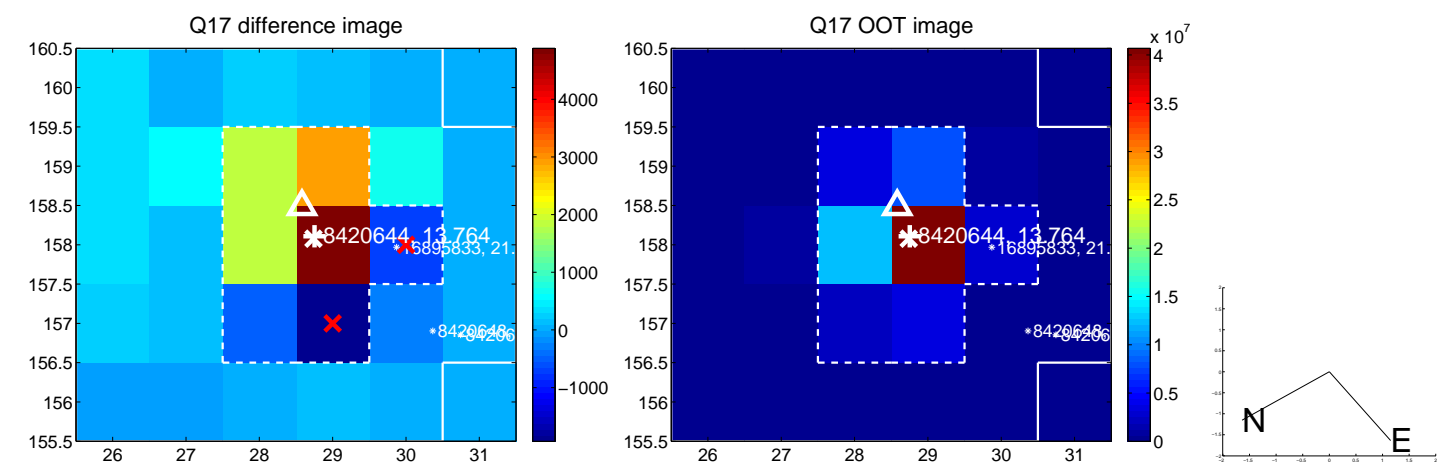
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

