

KIC 004160676

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})
004160676-01	OBS	No	3.933252	133.613786	62.9	14.479	8.2	7.1	1.02	6258	1.00	596.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004160676-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

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

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

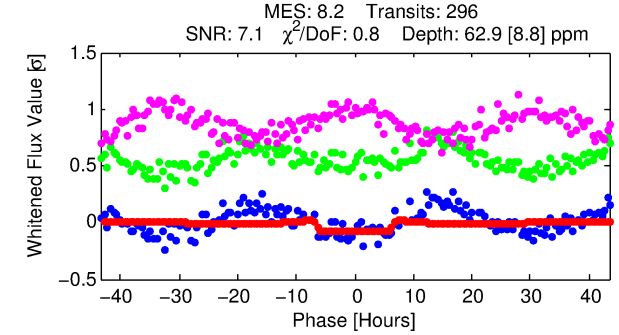
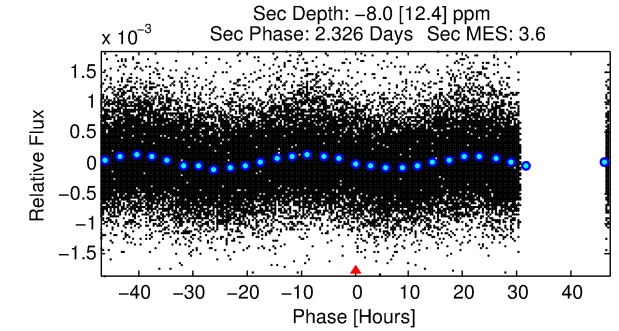
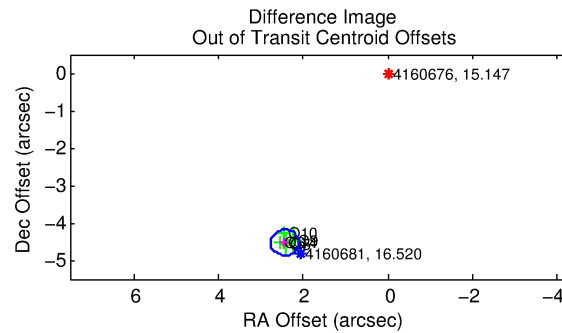
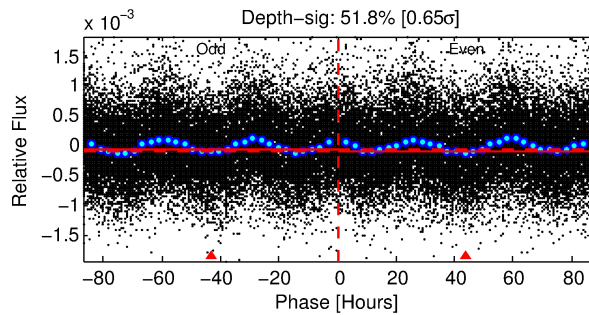
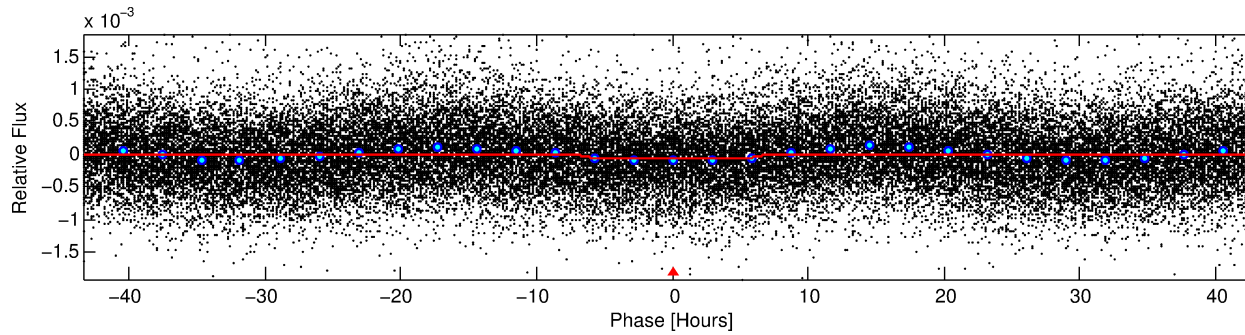
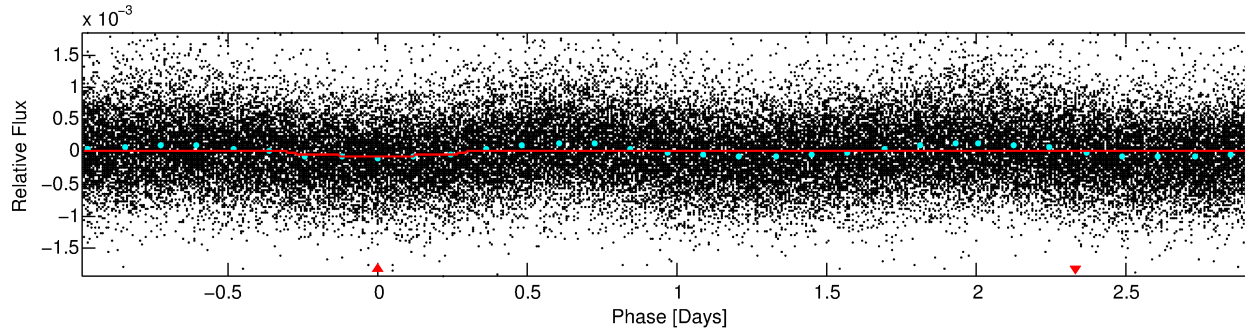
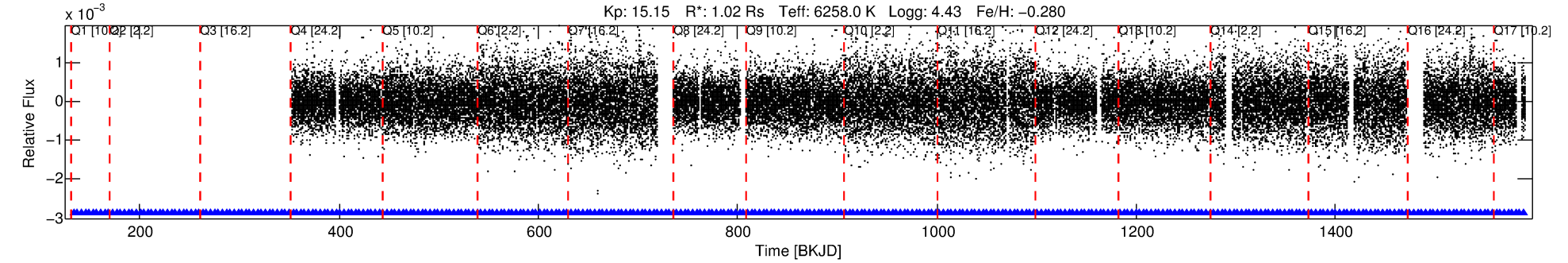
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004160676-01

No Significant Match Found

DV One-Page Summary

KIC: 4160676 Candidate: 1 of 1 Period: 3.933 d



DV Fit Results:

Period = 3.93325 [0.00013] d
Epoch = 133.6138 [0.0258] BKJD
Rp/R* = 0.0090 [0.0012]
a/R* = 1.21 [0.26]
b = 0.95 [0.08]
Seff = 596.03 [246.17]
Teq = 1260 [130] K
Rp = 1.00 [0.35] Re
a = 0.0491 [0.0129] AU
Ag = N/A
Teffp = N/A

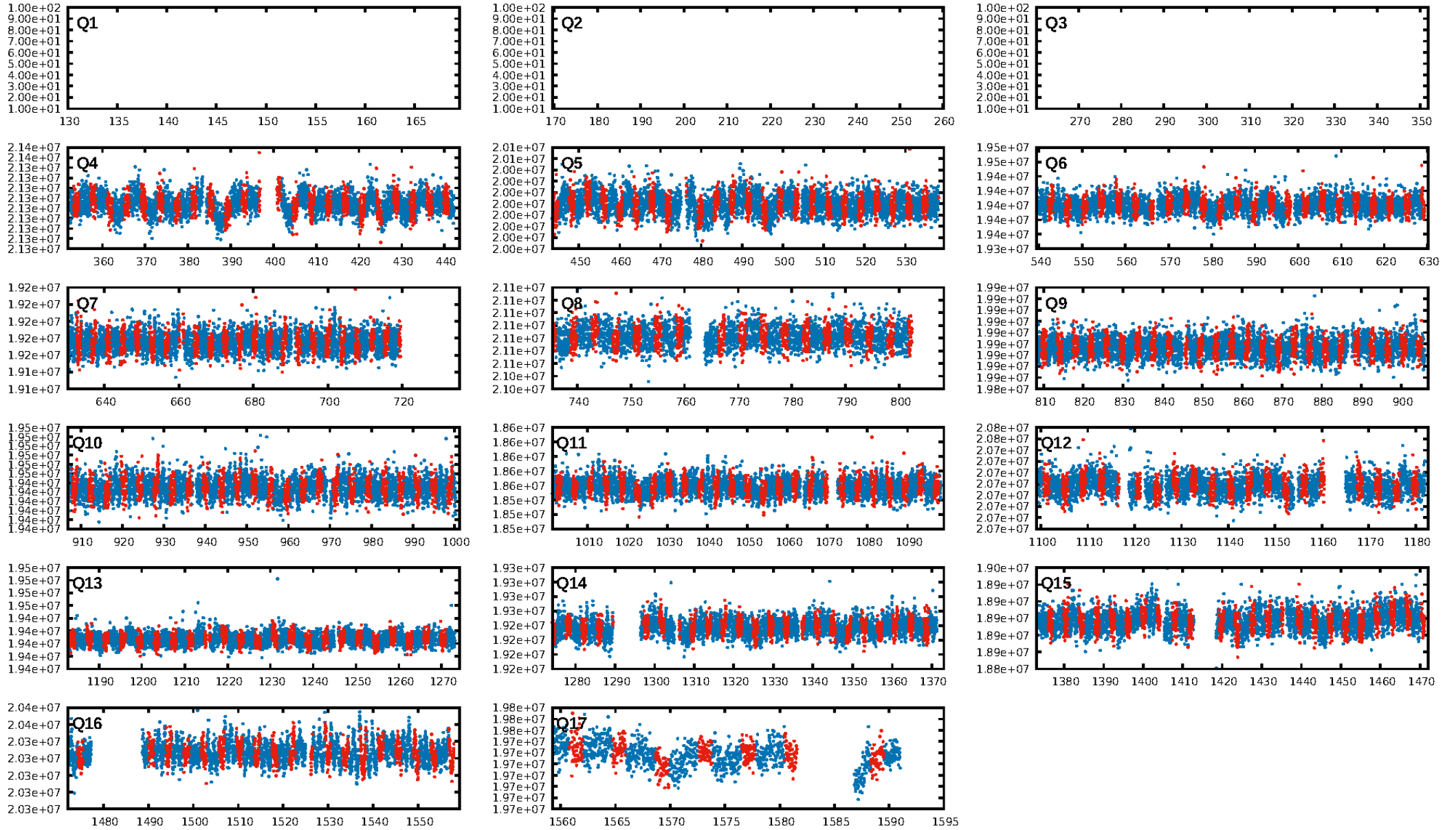
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.95e-18
RollingBand-fgt: 1.00 [289/289]
GhostDiagnostic-chr: 0.4506
Centroid-sig: 0.0%
Centroid-so: 5.984 arcsec [3.32 σ]
OotOffset-rm: 5.142 arcsec [45.43 σ]
KicOffset-rm: 5.441 arcsec [47.85 σ]
OotOffset-st: 3/0/0/2 [5]
KicOffset-st: 3/0/0/2 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [14/14]

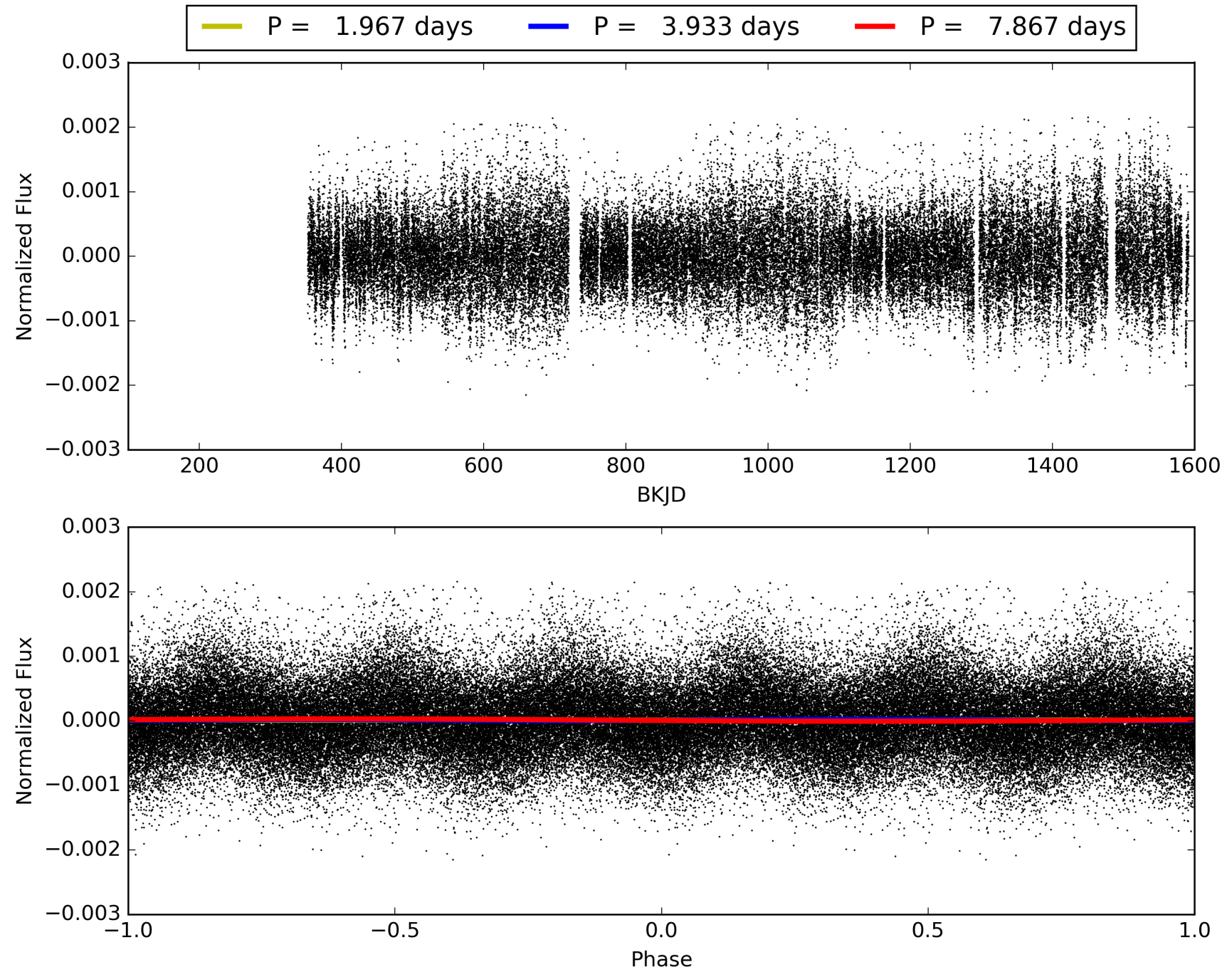
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:59:38 Z

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

TCE 004160676-01, PDC Light Curves

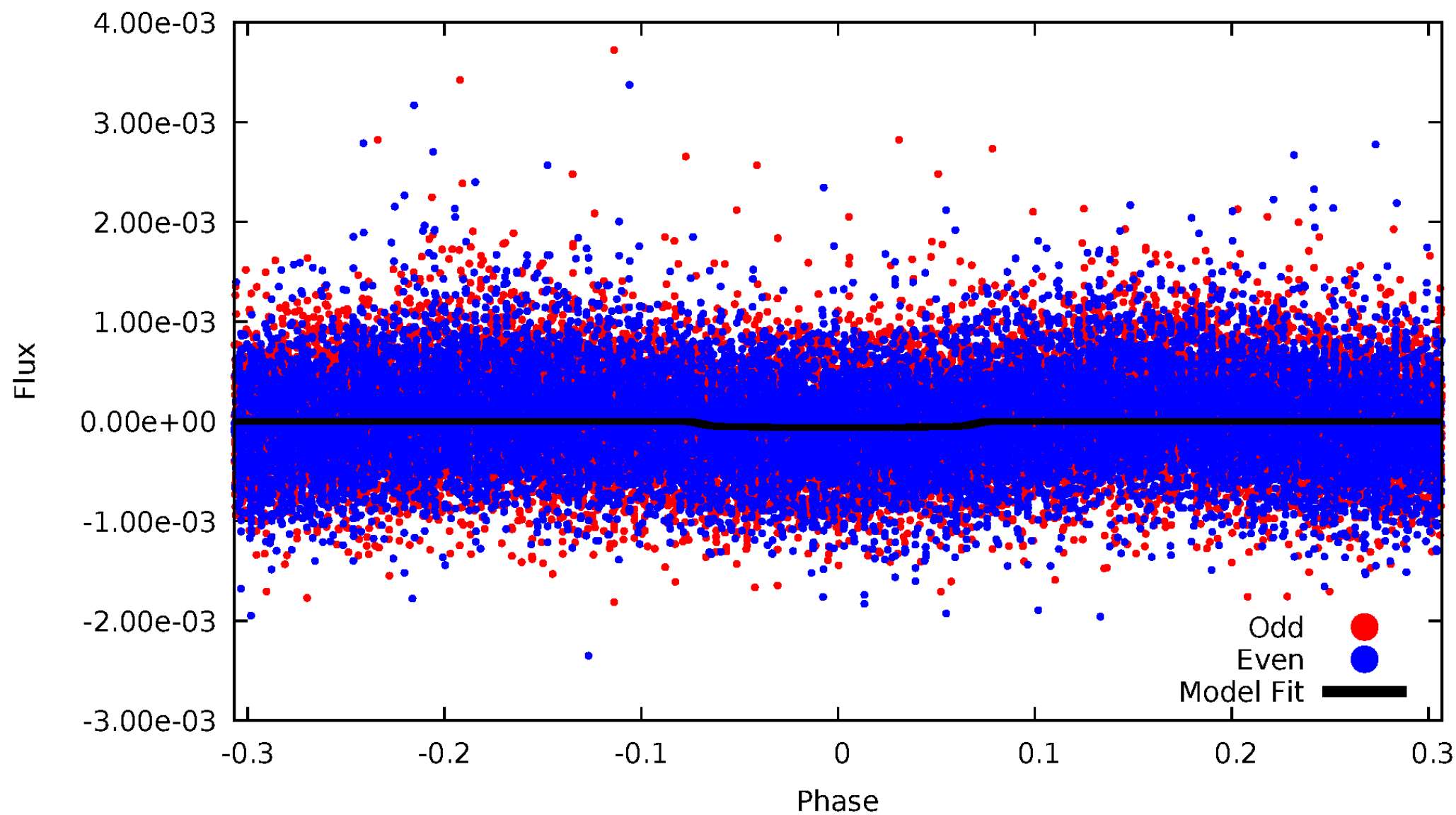


TCE 004160676-01



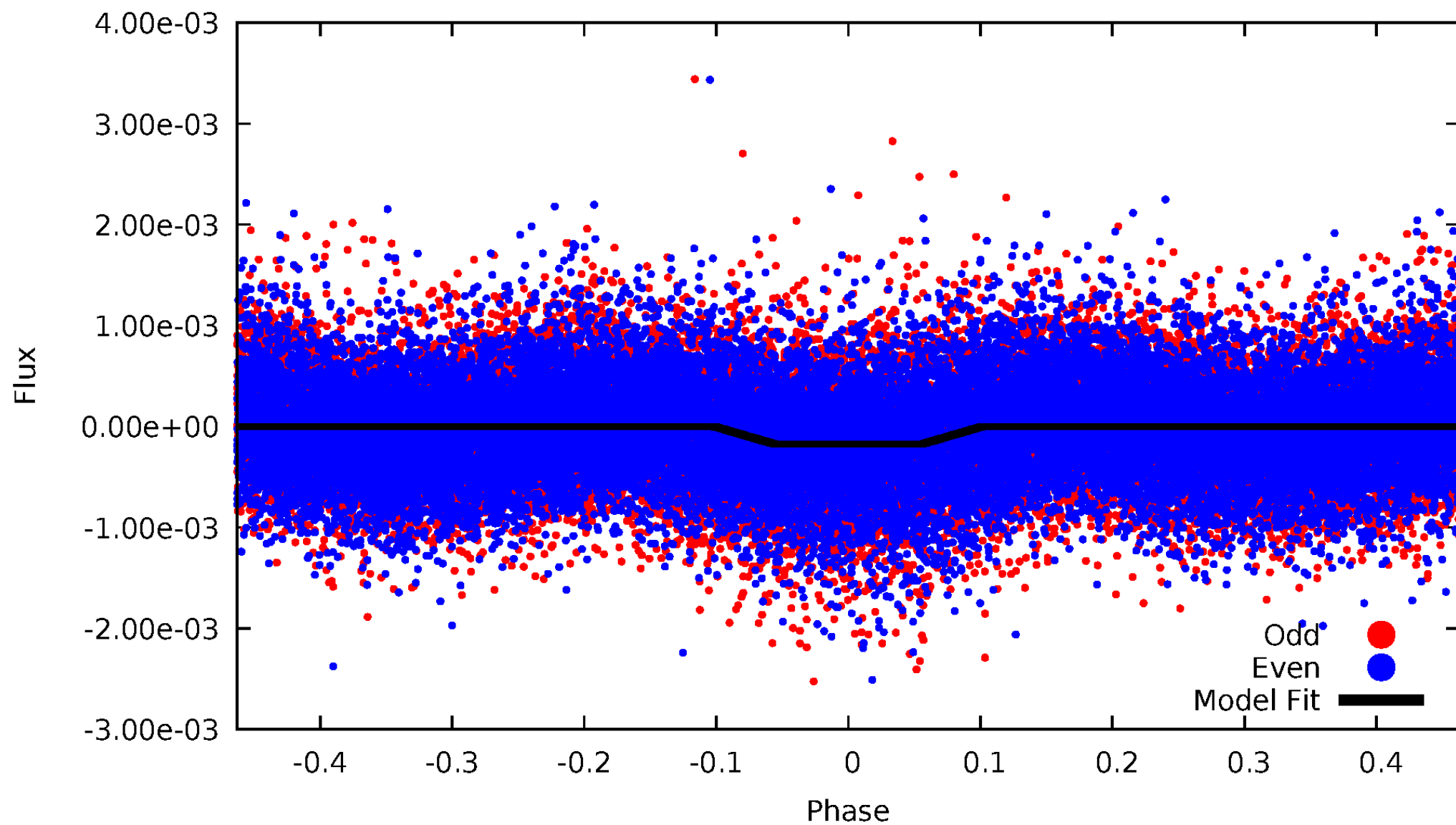
DV Odd/Even

TCE 004160676-01

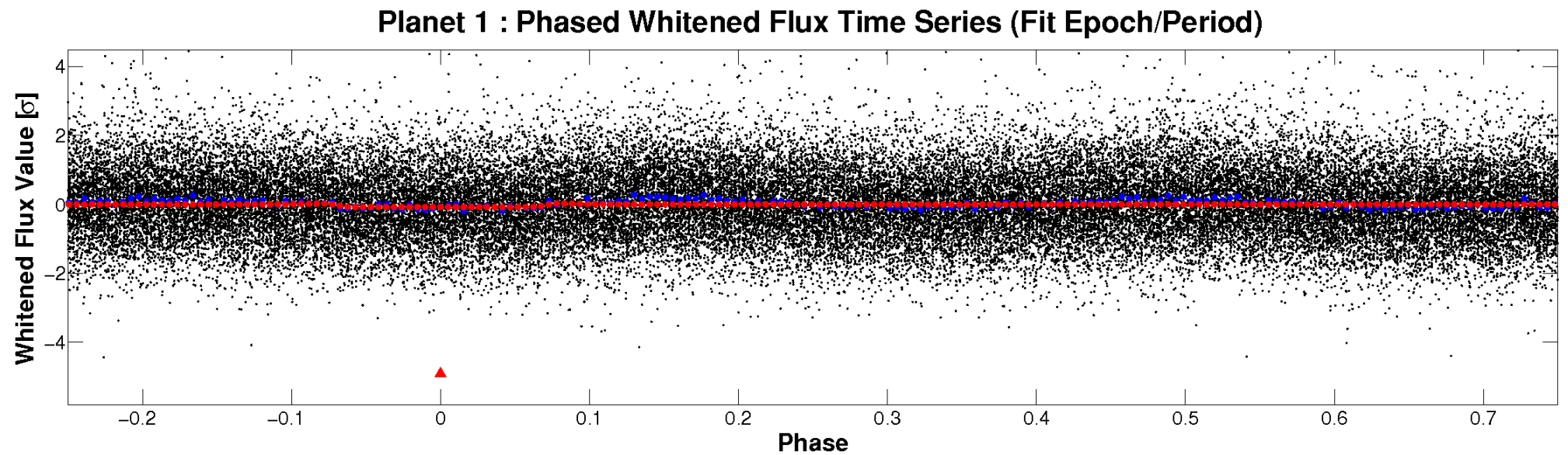
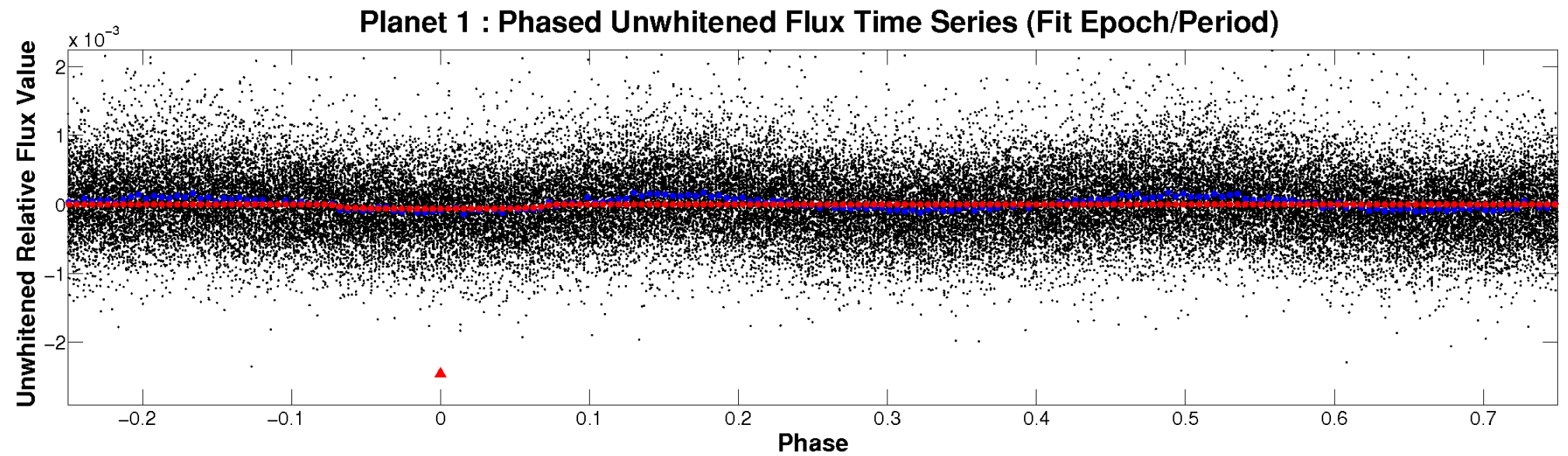


ALT Odd/Even

TCE 004160676-01

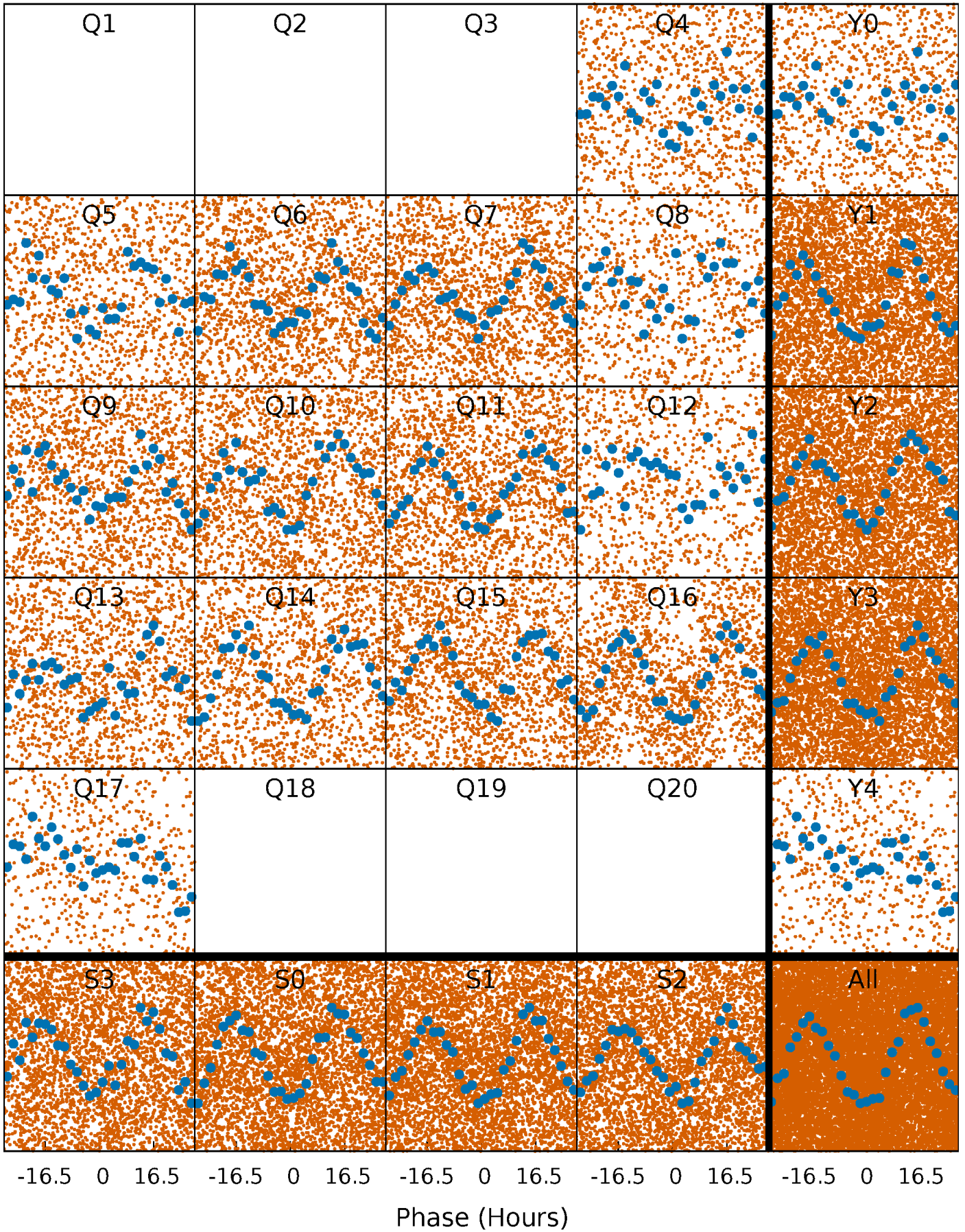


Non-Whitened Vs. Whitened Light Curve



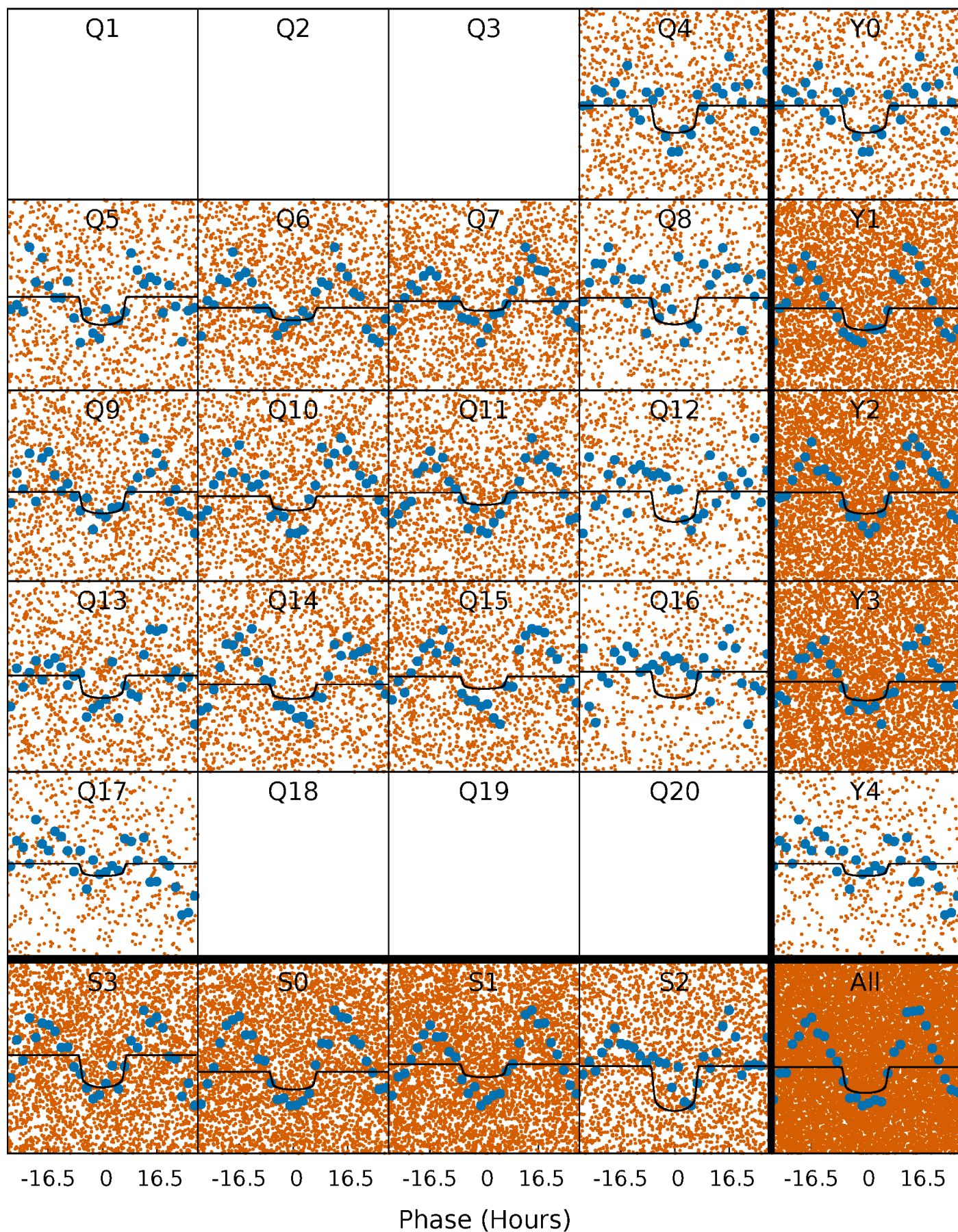
PDC Quarter-Phased Transit Curves

TCE 004160676-01 P= 3.933252 Days $T_0=133.613786$ (BKJD)



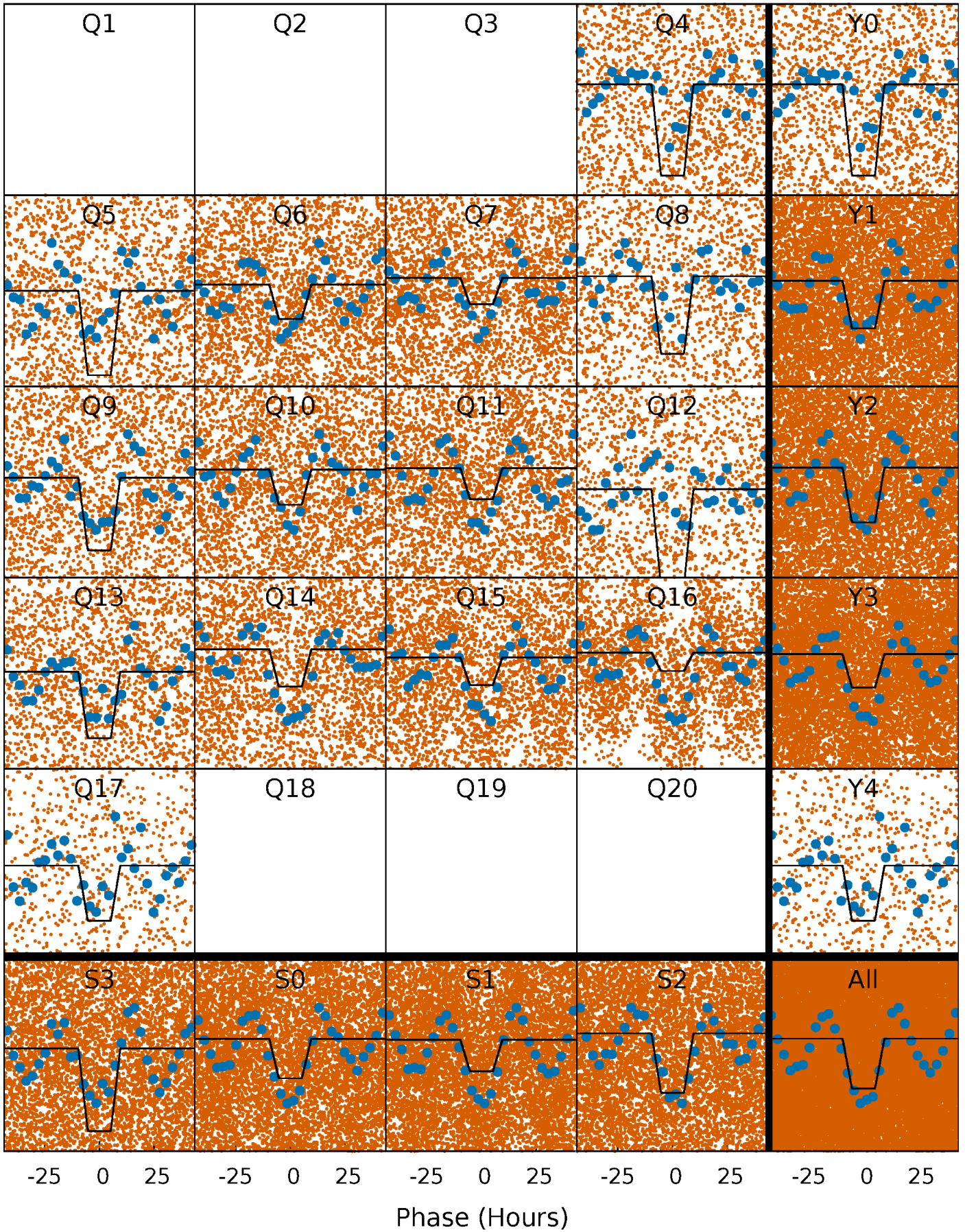
DV Quarter-Phased Transit Curves

TCE 004160676-01 P= 3.933252 Days $T_0=133.613786$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

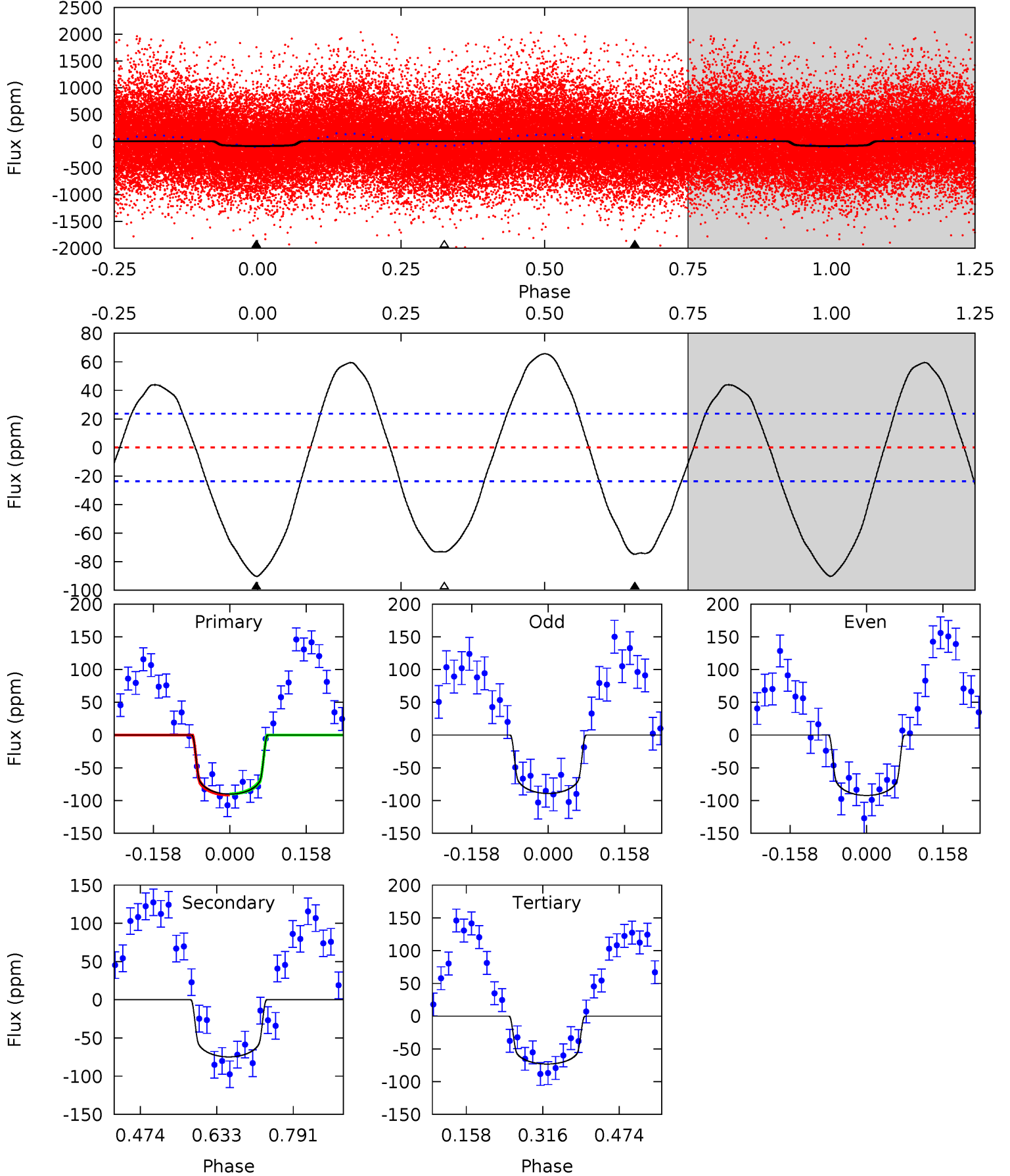
TCE 004160676-01 P= 3.933403 Days $T_0=133.587101$ (BKJD)



DV Model-Shift Uniqueness Test

004160676-01, P = 3.933252 Days, E = 133.613786 Days

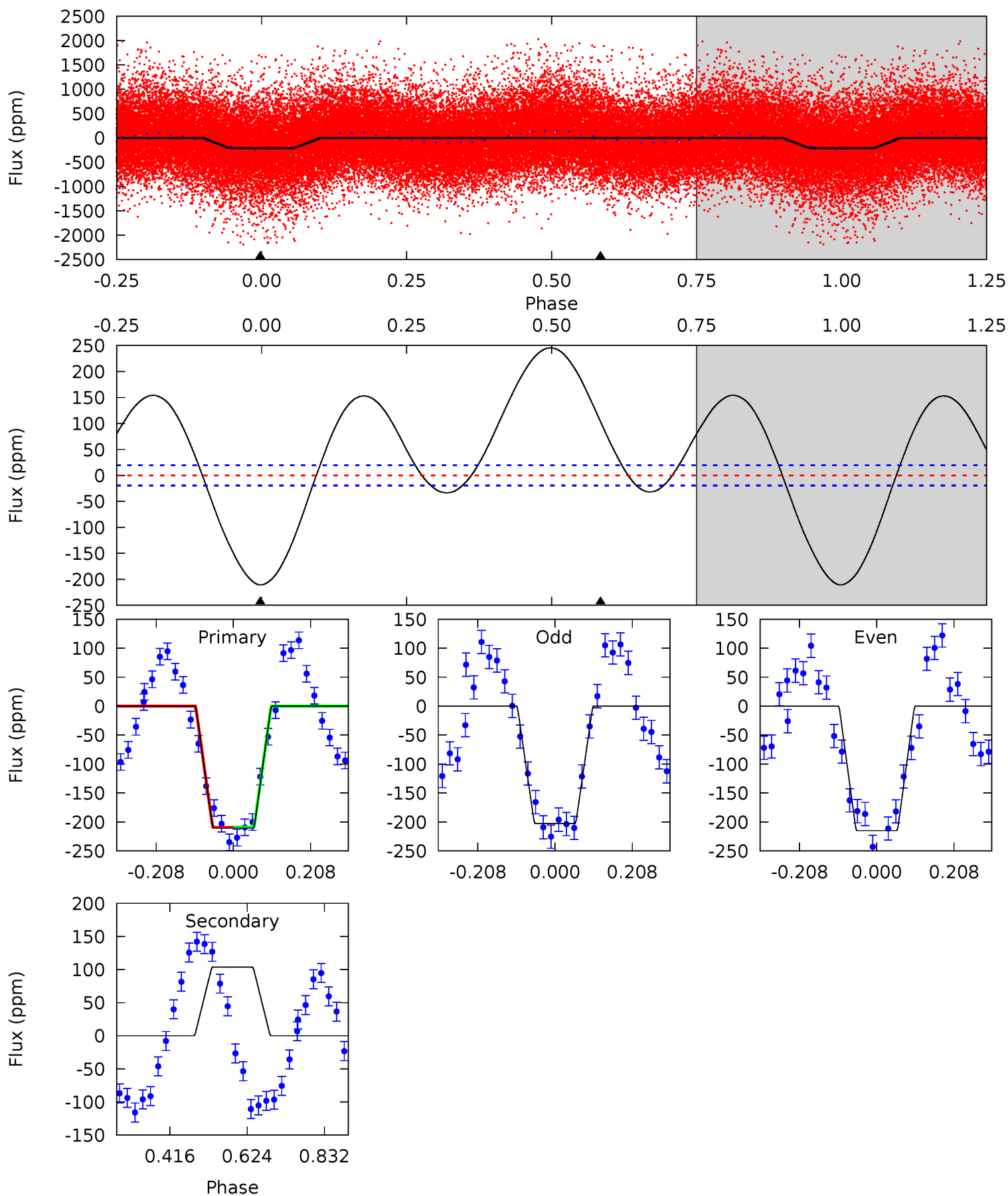
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	14.1	13.8	0	4.47	1.41	9.20	3.22	17.0	0.30	14.1	0.30	0.98	0.42	0.17



Alt Model-Shift Uniqueness Test

004160676-01, P = 3.933403 Days, E = 133.587101 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.6	-23.4	0	0	4.41	1.26	11.5	47.6	47.6	-23.4	-23.4	1.38	1.06	0.54	0.07



Stellar Parameters For KIC 004160676

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6258^{+197}_{-263}	$4.427^{+0.072}_{-0.203}$	$-0.280^{+0.250}_{-0.300}$	$1.022^{+0.326}_{-0.116}$	$1.015^{+0.158}_{-0.129}$	$1.338^{+0.496}_{-0.694}$
	+3%/-4%	+2%/-5%	+89%/-107%	+32%/-11%	+16%/-13%	+37%/-52%
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 004160676-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-75 ± 5	$1.02^{+0.21}_{-0.15}$	1787^{+125}_{-102}	6154^{+505}_{-470}	94^{+36}_{-29}
Alt.	103 ± 4	$1.52^{+0.26}_{-0.19}$	1791^{+123}_{-104}	-5494^{+281}_{-314}	$-57.653^{+14.547}_{-15.688}$

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

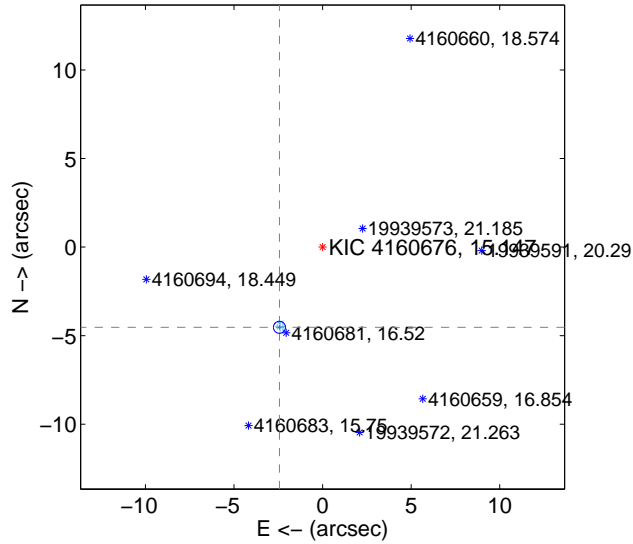
Supplemental centroid analysis for 004160676-01. Kepler magnitude: 15.15. Transit SNR 7.12

There are 5 quarters with good PRF difference image offsets

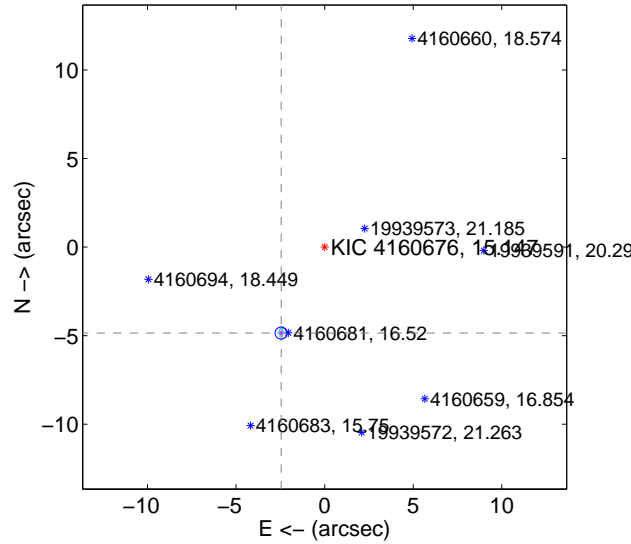
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.142 \pm 0.113	45.43	2.435 \pm 0.091	-4.529 \pm 0.119
PRF-fit source offset from KIC position	5.441 \pm 0.114	47.85	2.457 \pm 0.091	-4.855 \pm 0.119
photometric centroid source offset	5.98 \pm 1.80	3.32	5.49 \pm 1.78	-2.39 \pm 1.89

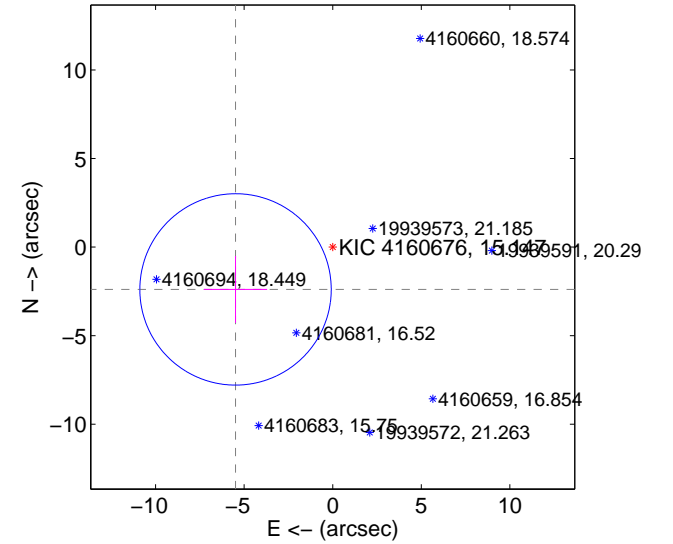
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

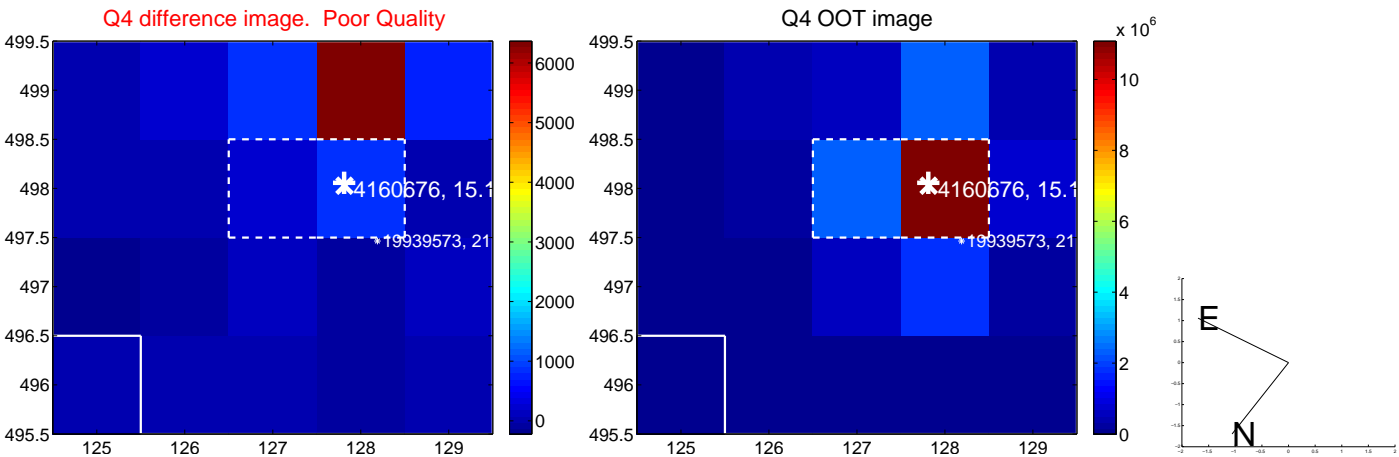
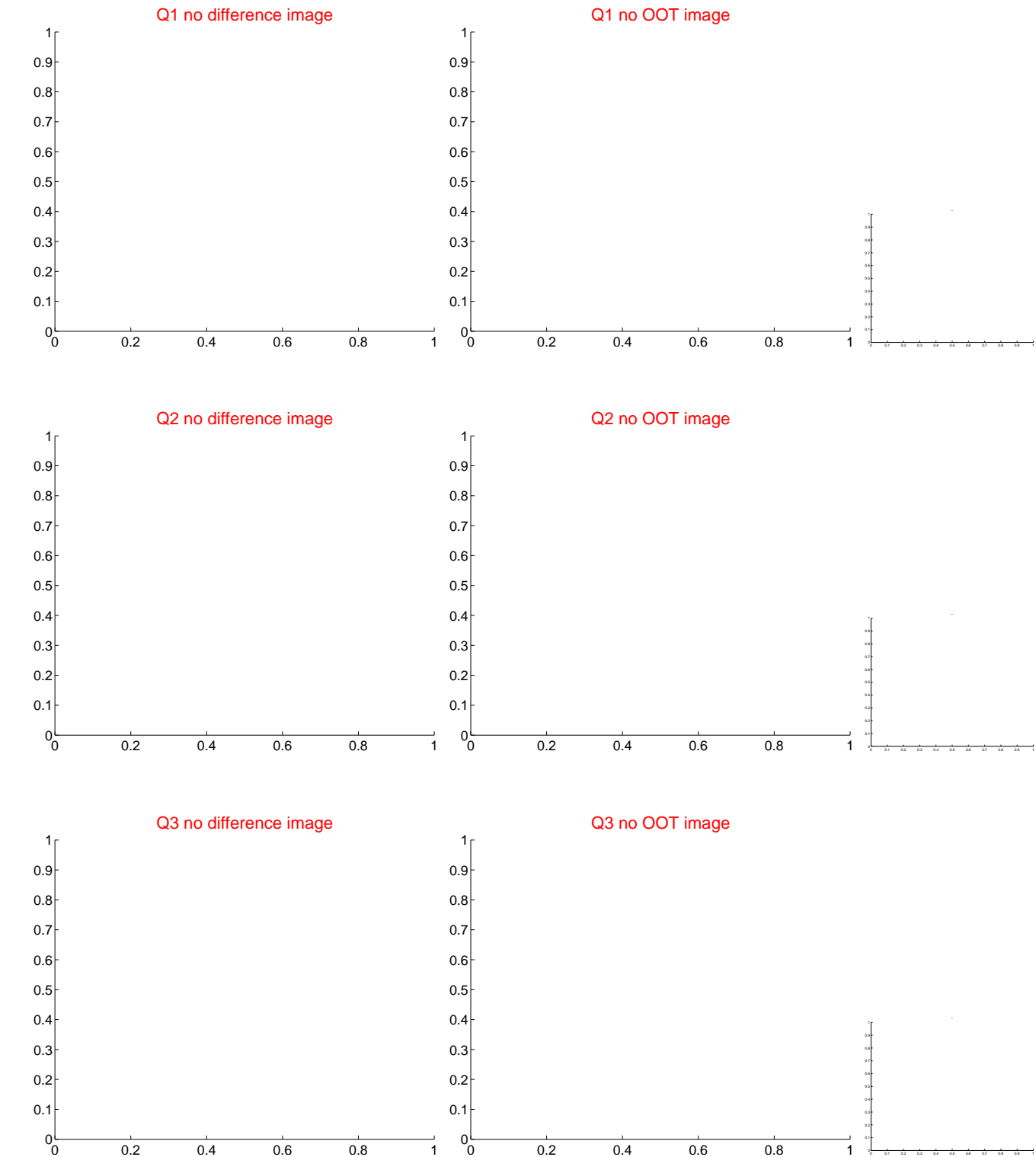


offset from photometric centroids

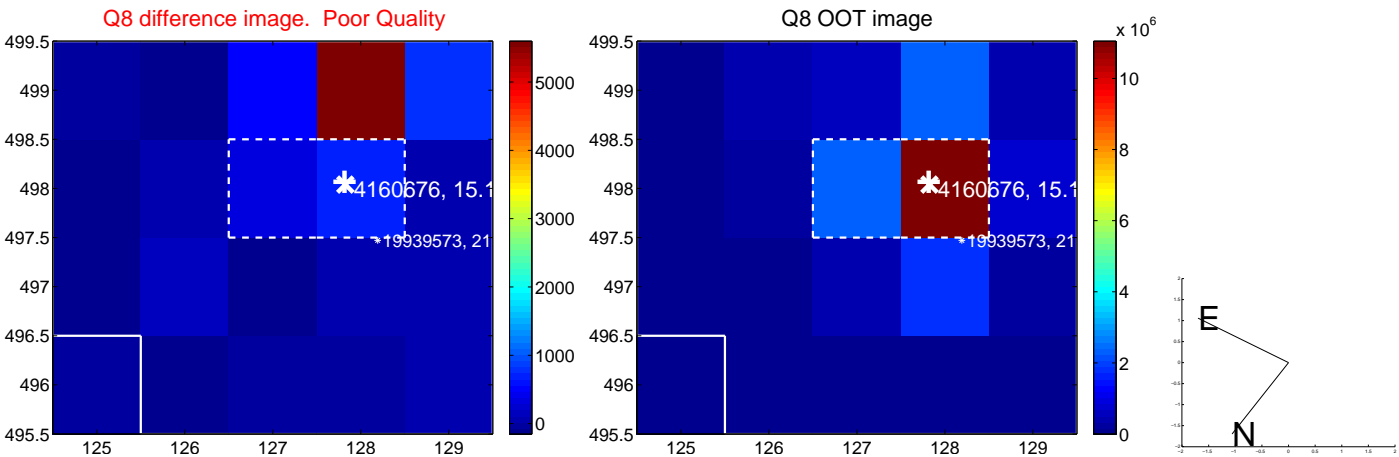
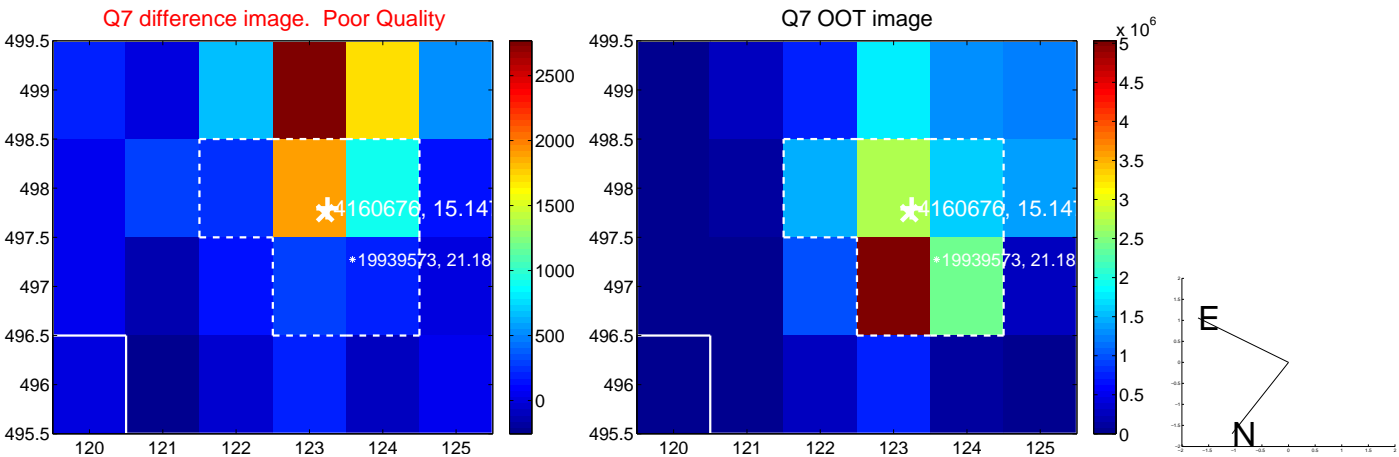
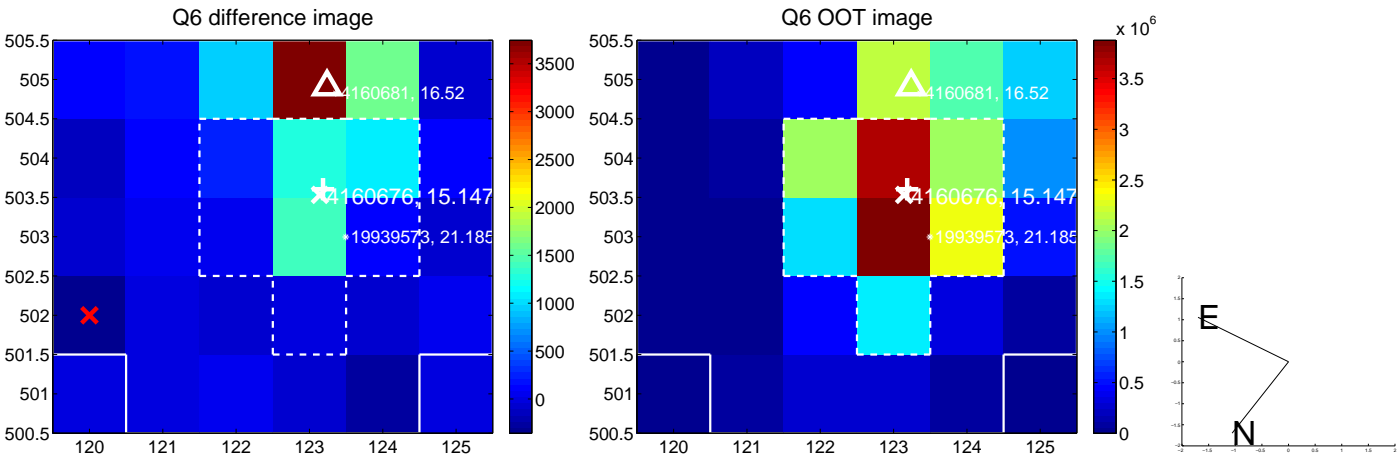
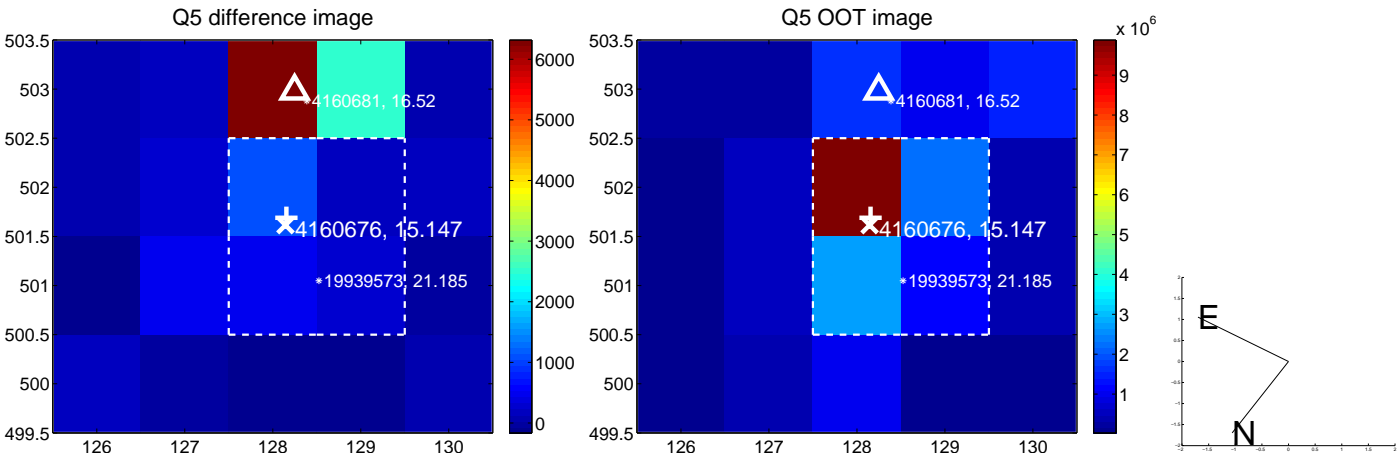


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

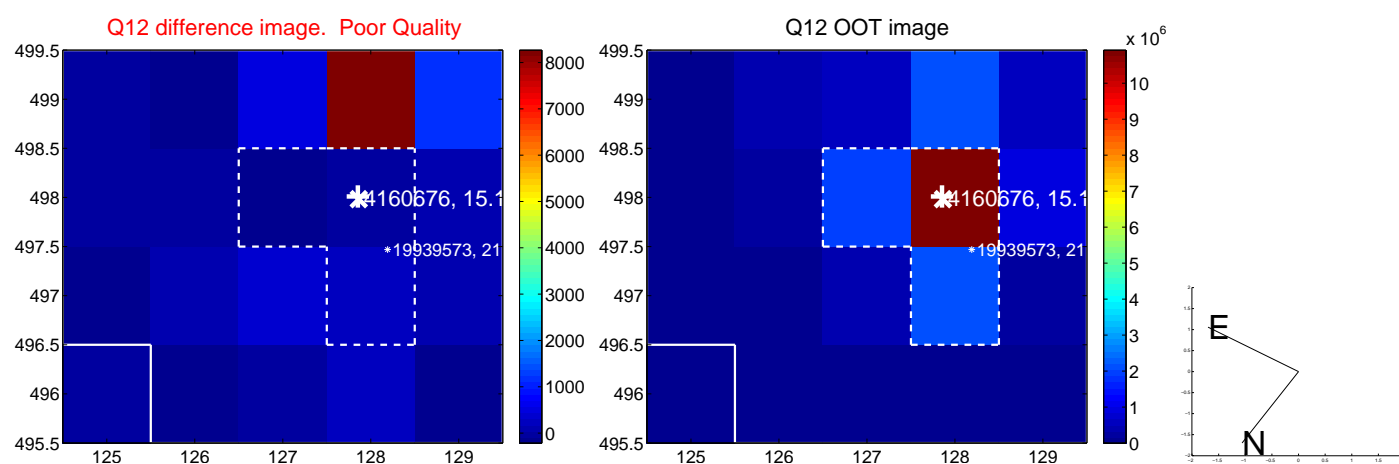
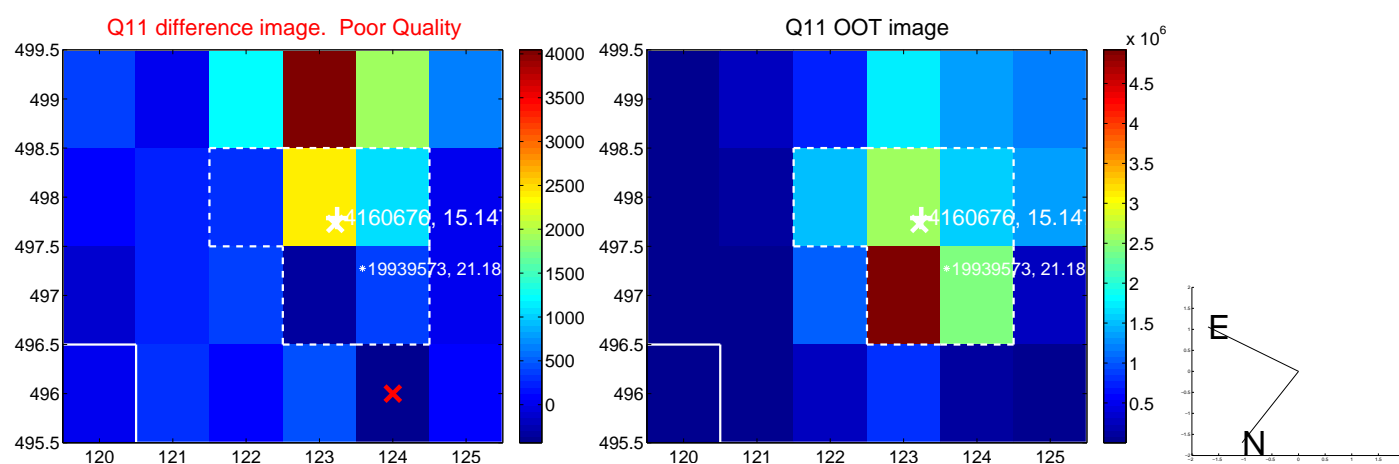
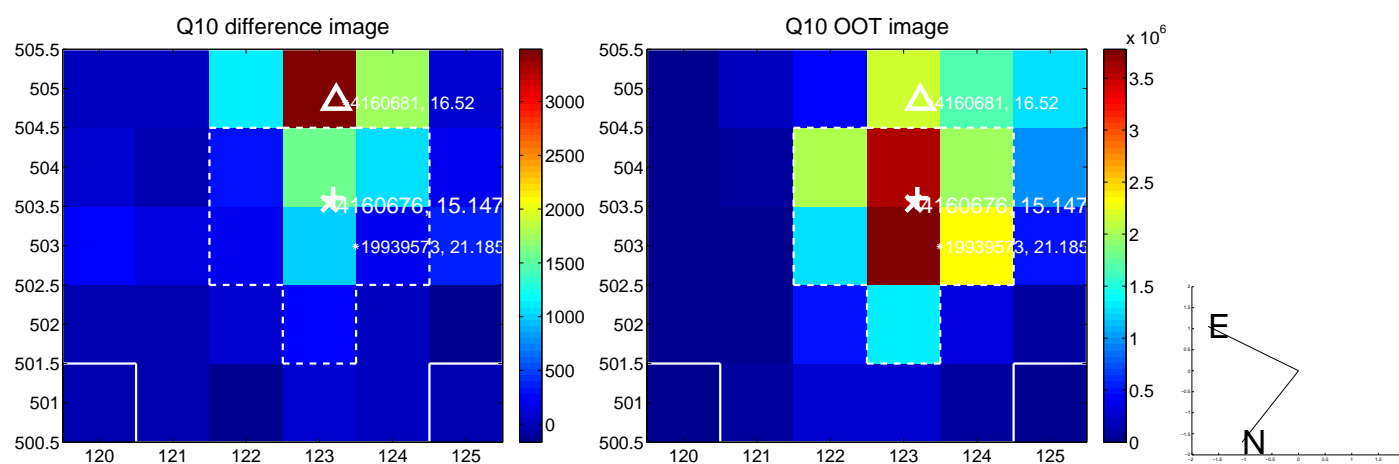
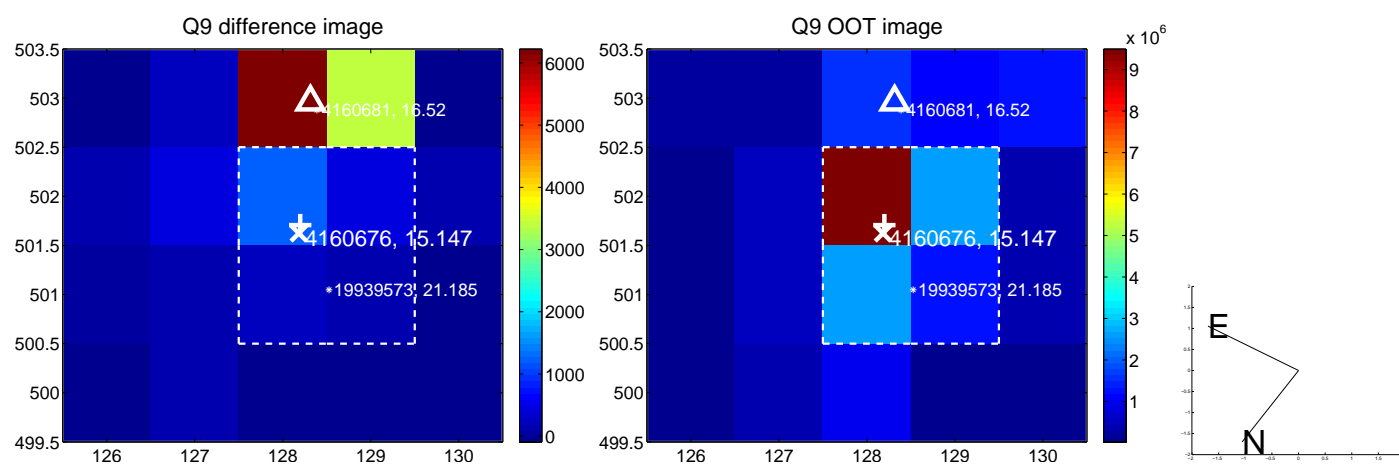
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



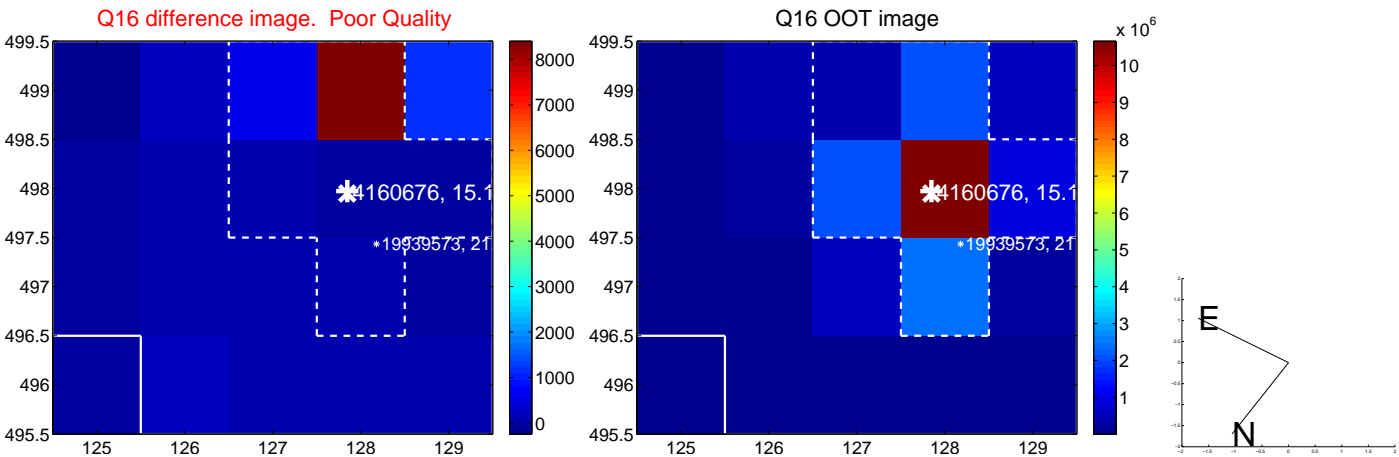
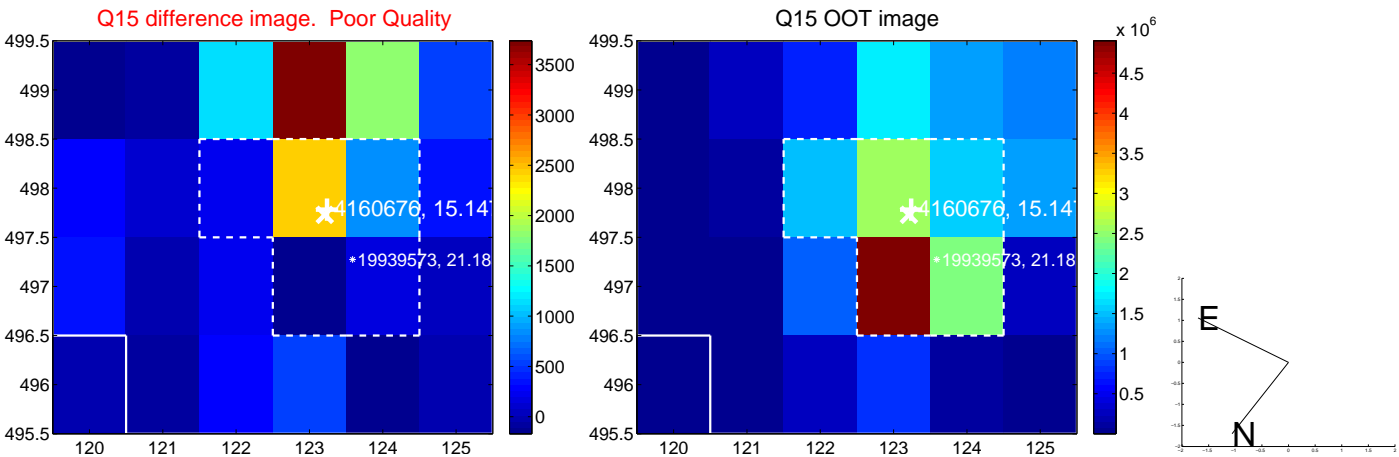
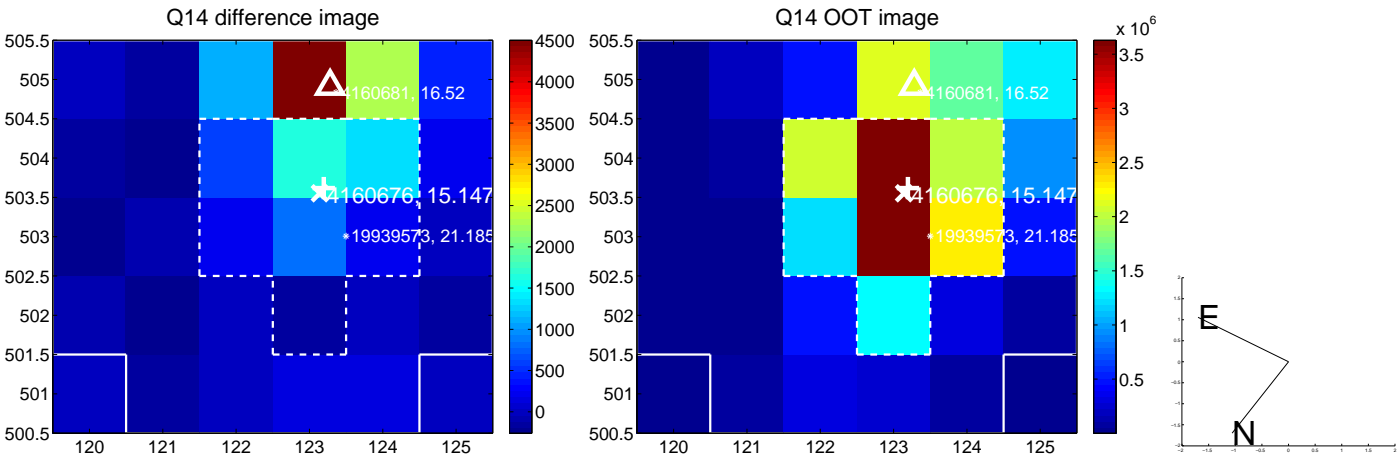
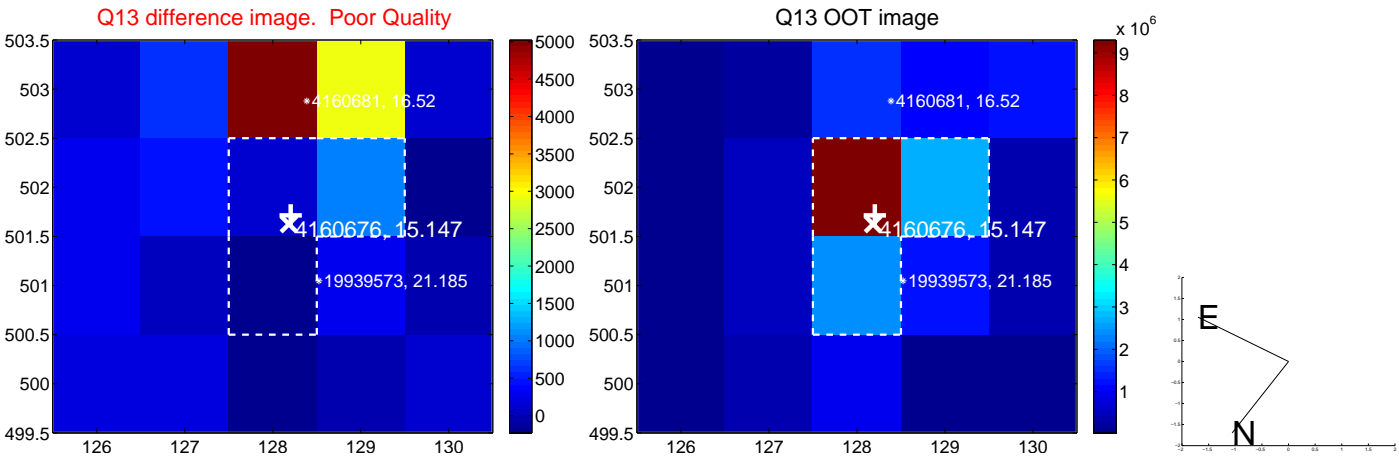
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



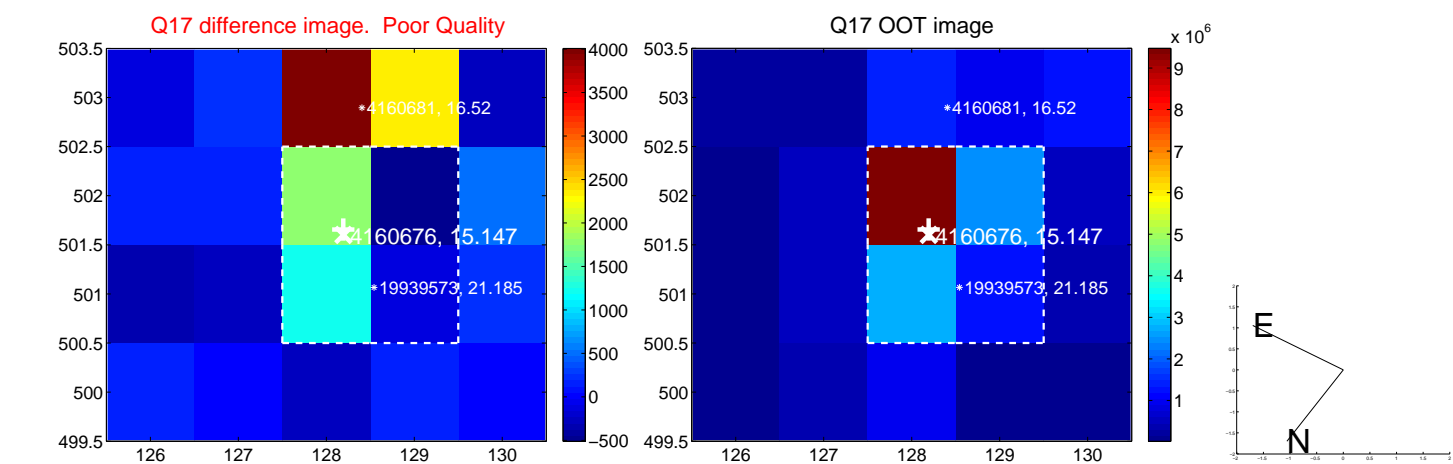
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



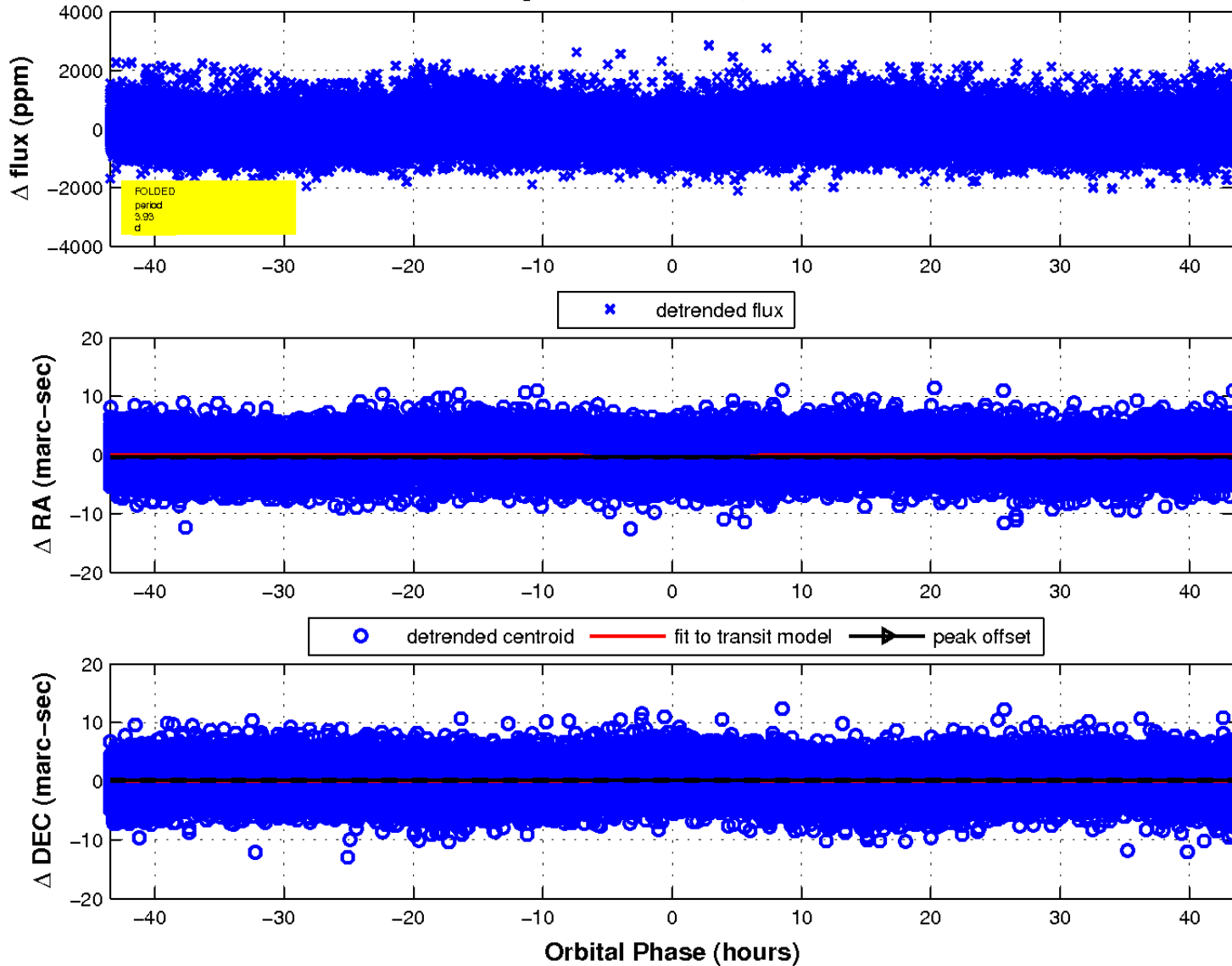
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

