

KIC 009840406

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})
009840406-01	OBS	No	0.585630	131.812148	62.7	1.877	8.1	7.9	0.86	5861	0.81	4331.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009840406-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—CENT_FEW_MEAS—HALO_GHOST

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

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

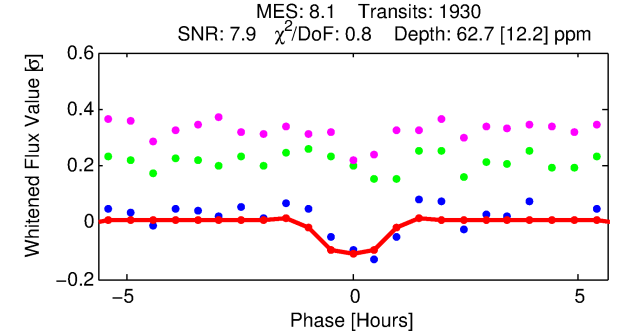
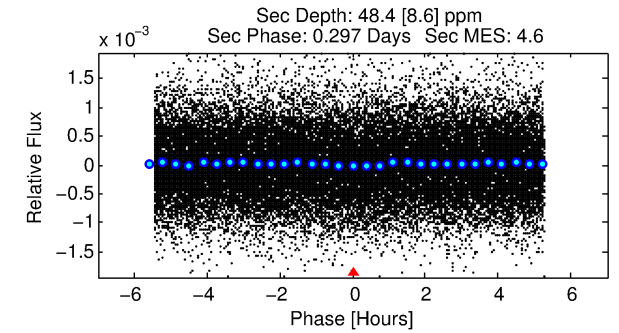
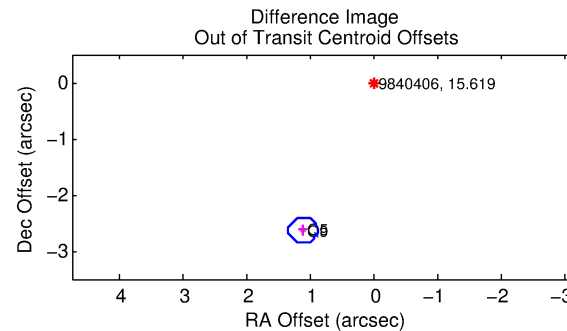
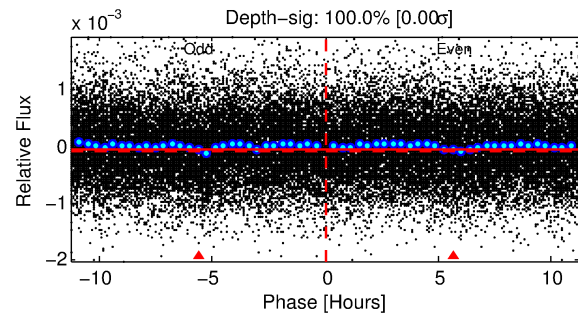
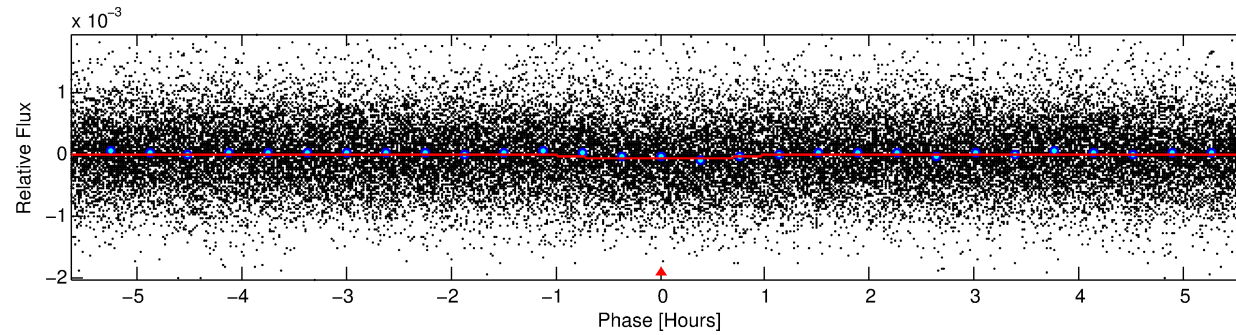
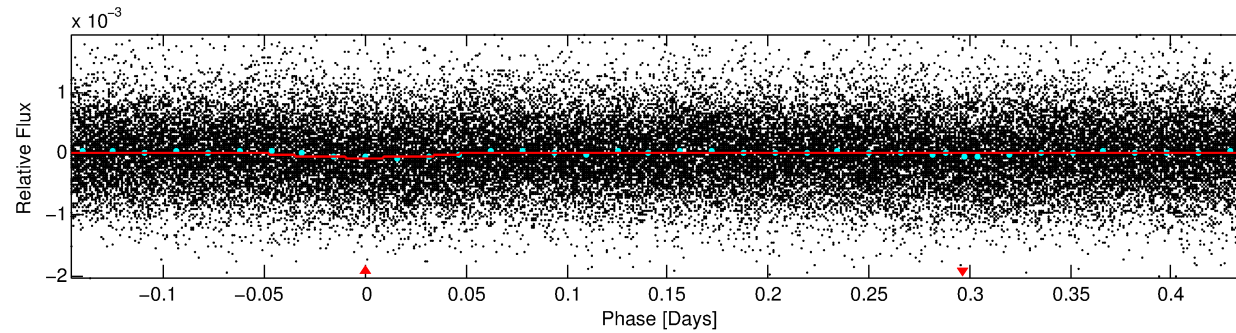
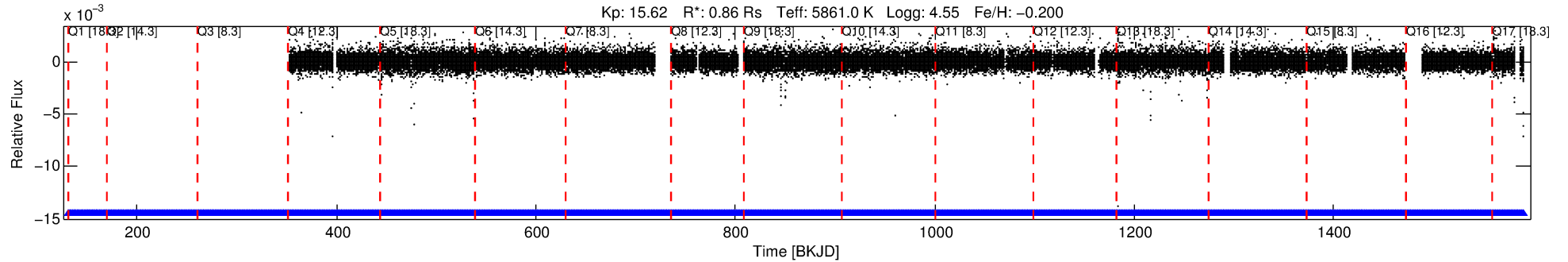
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009840406-01

No Significant Match Found

DV One-Page Summary

KIC: 9840406 Candidate: 1 of 1 Period: 0.586 d



DV Fit Results:

Period = 0.58563 [0.00001] d
Epoch = 131.8121 [0.0031] BKJD
Rp/R* = 0.0086 [0.0063]
a/R* = 1.44 [2.69]
b = 0.90 [0.79]
Seff = 4331.40 [1604.11]
Teq = 2069 [192] K
Rp = 0.81 [0.63] Re
a = 0.0135 [0.0031] AU
Ag = 7.37 [11.11] [0.57 σ]
Teff = 5270 [1947] K [1.64 σ]

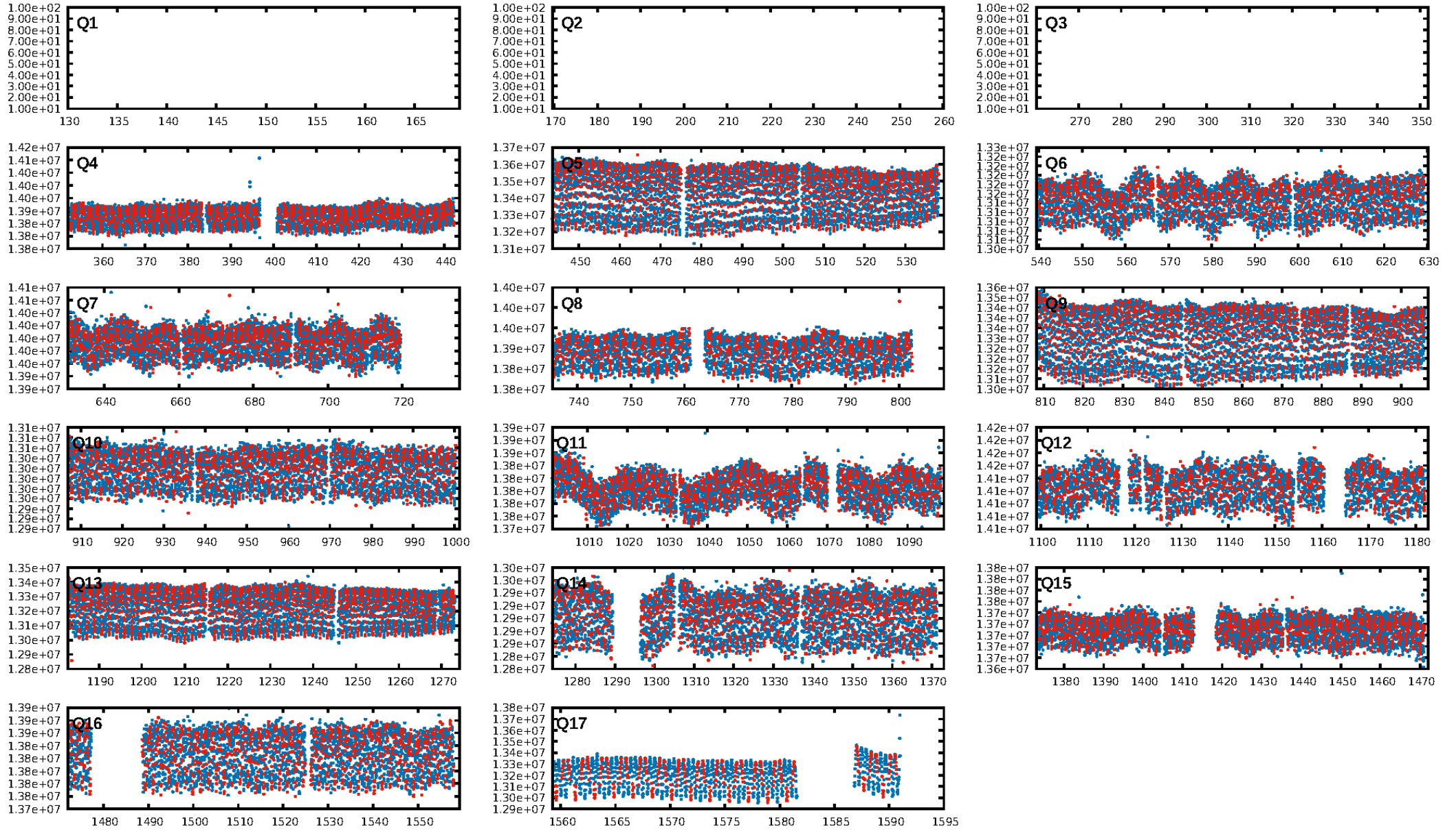
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.30e-16
RollingBand-fgt: 1.00 [1885/1885]
GhostDiagnostic-chr: 0.08142
Centroid-sig: 60.4%
Centroid-so: 3.717 arcsec [1.19 σ]
OotOffset-rm: 2.859 arcsec [37.74 σ]
KicOffset-rm: 6.633 arcsec [74.99 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [14/14]

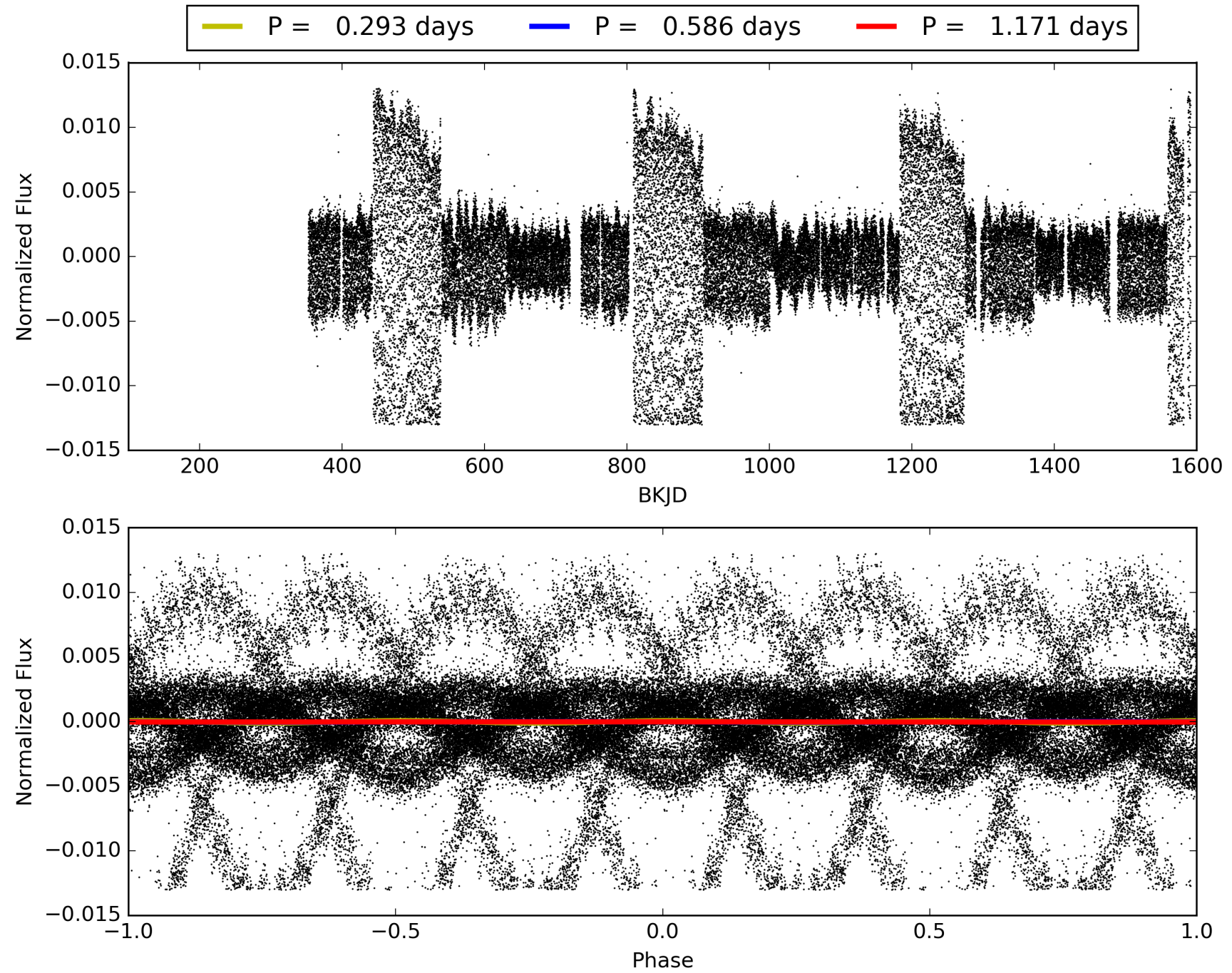
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:06:43 Z

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

TCE 009840406-01, PDC Light Curves

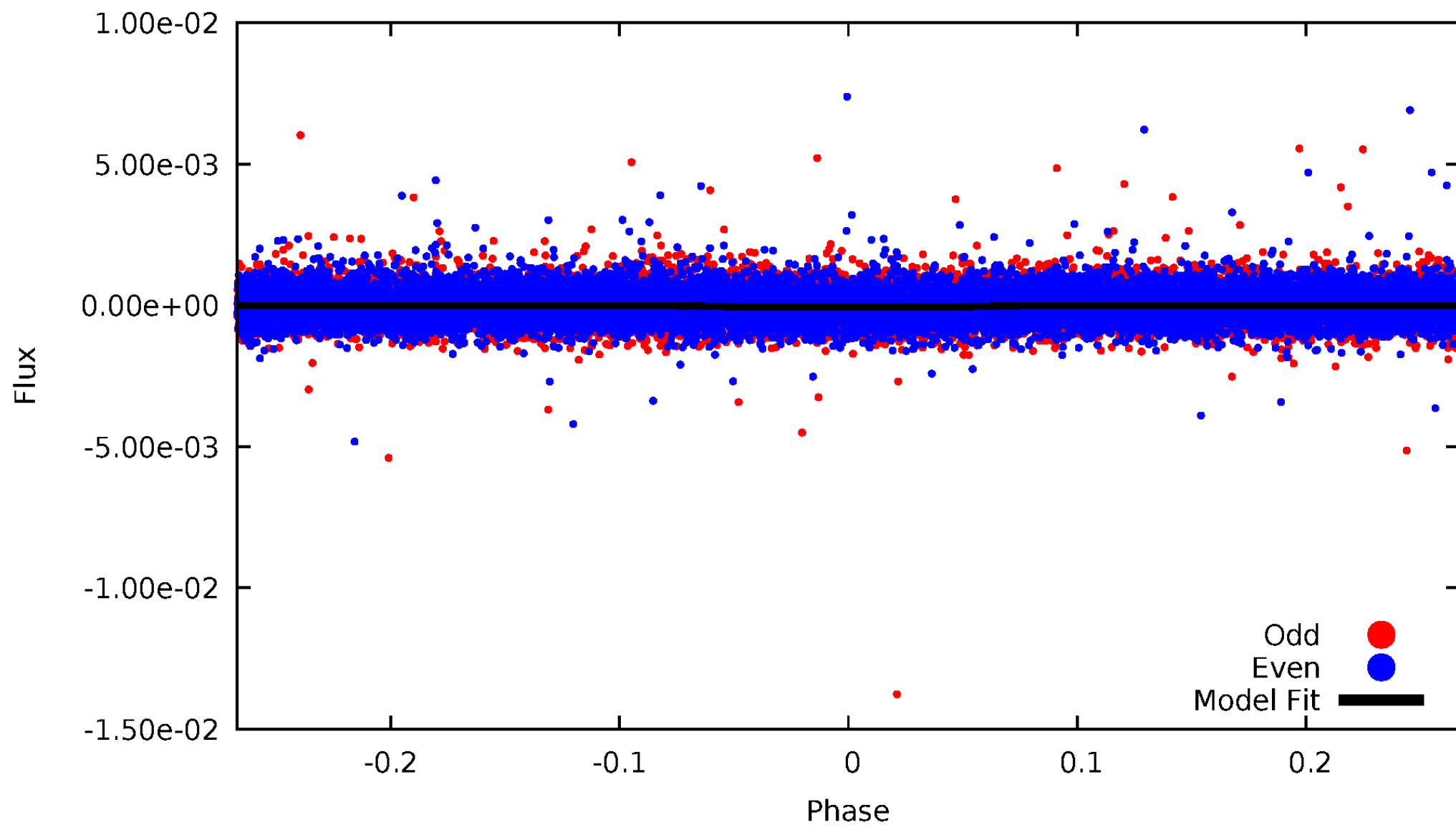


TCE 009840406-01



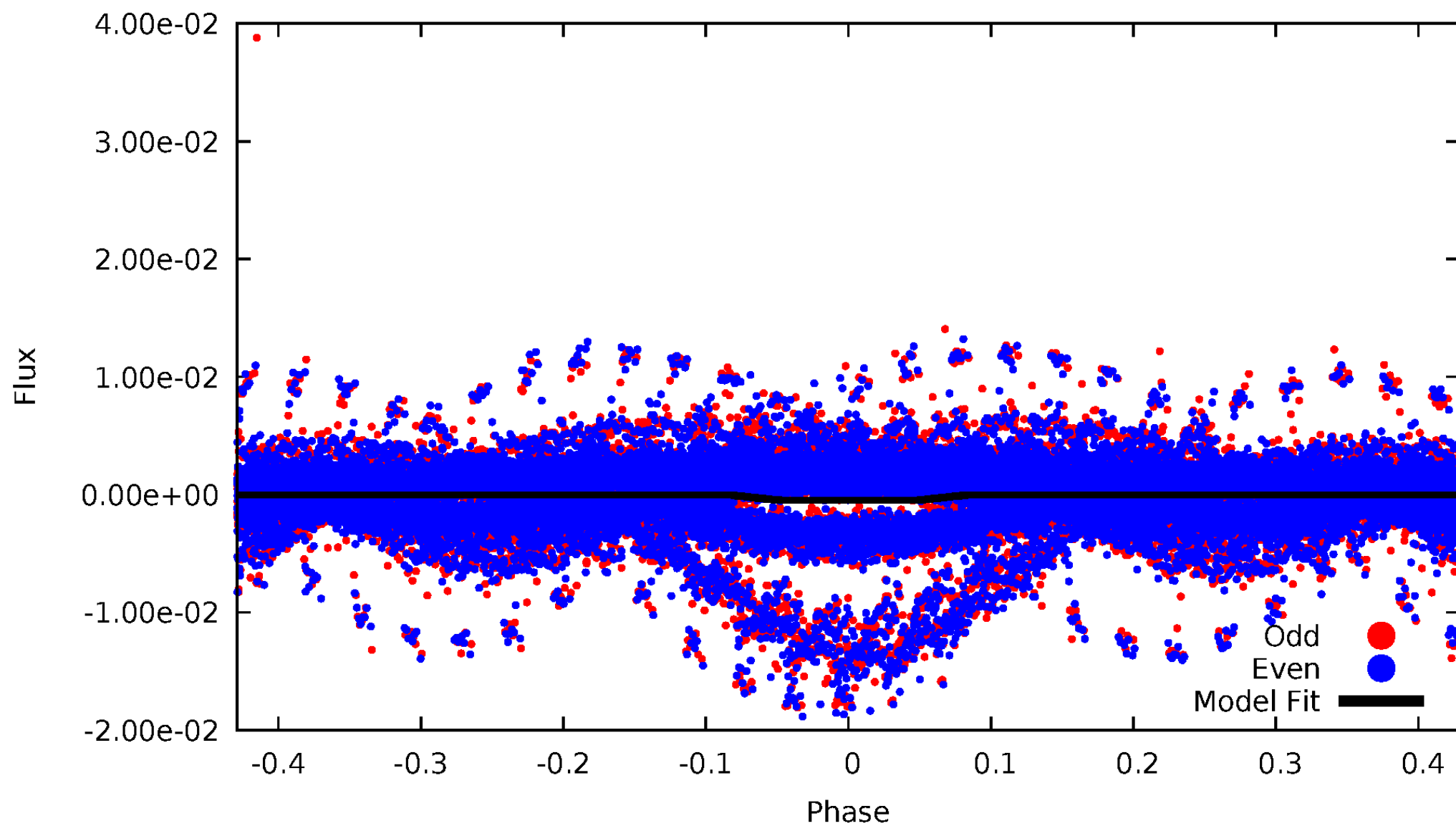
DV Odd/Even

TCE 009840406-01



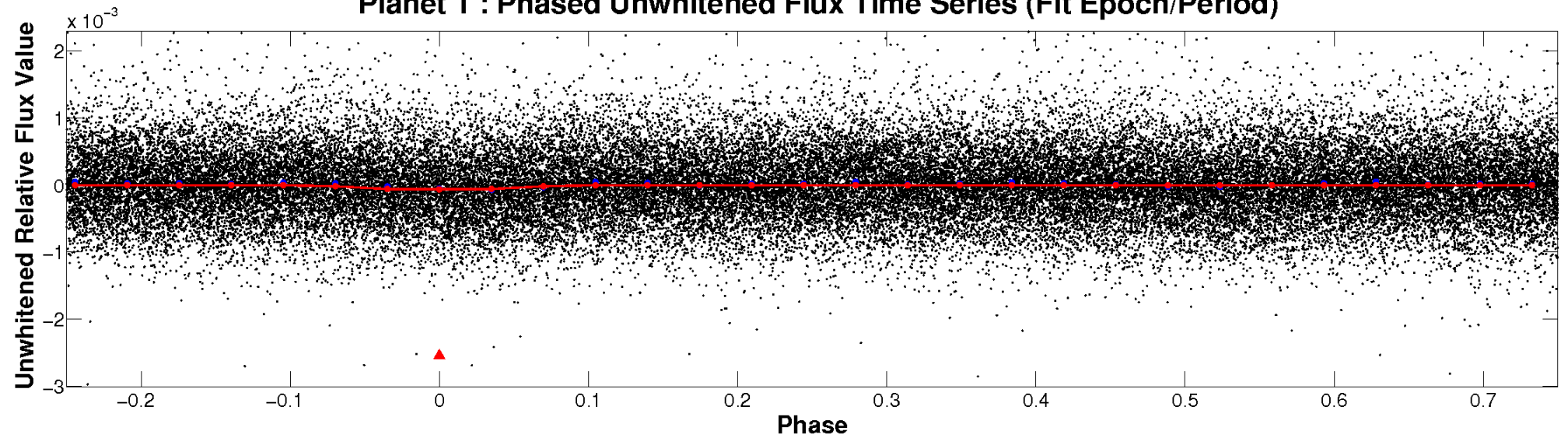
ALT Odd/Even

TCE 009840406-01

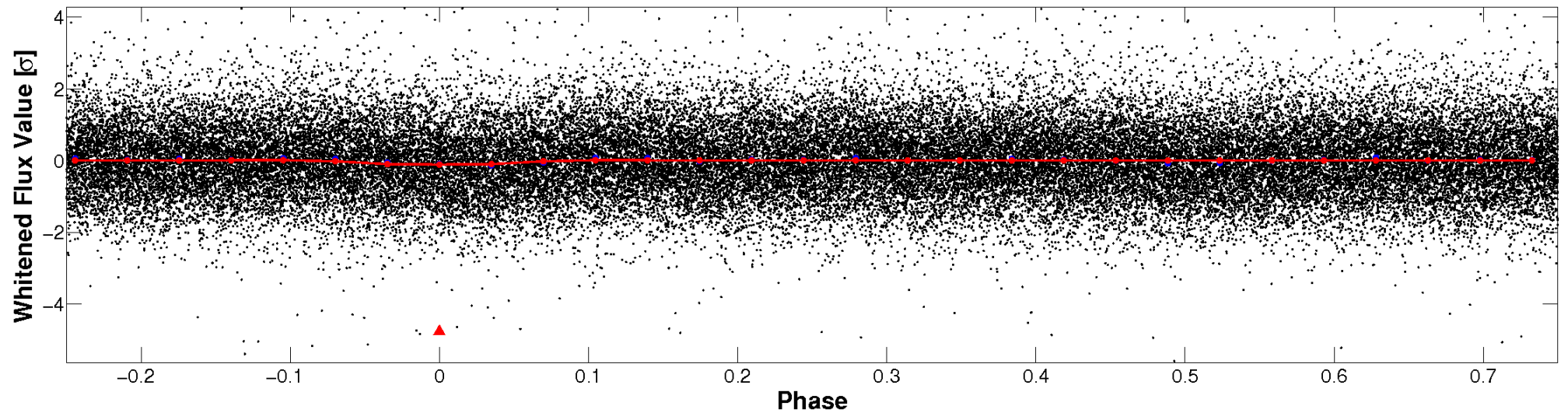


Non-Whitened Vs. Whitened Light Curve

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

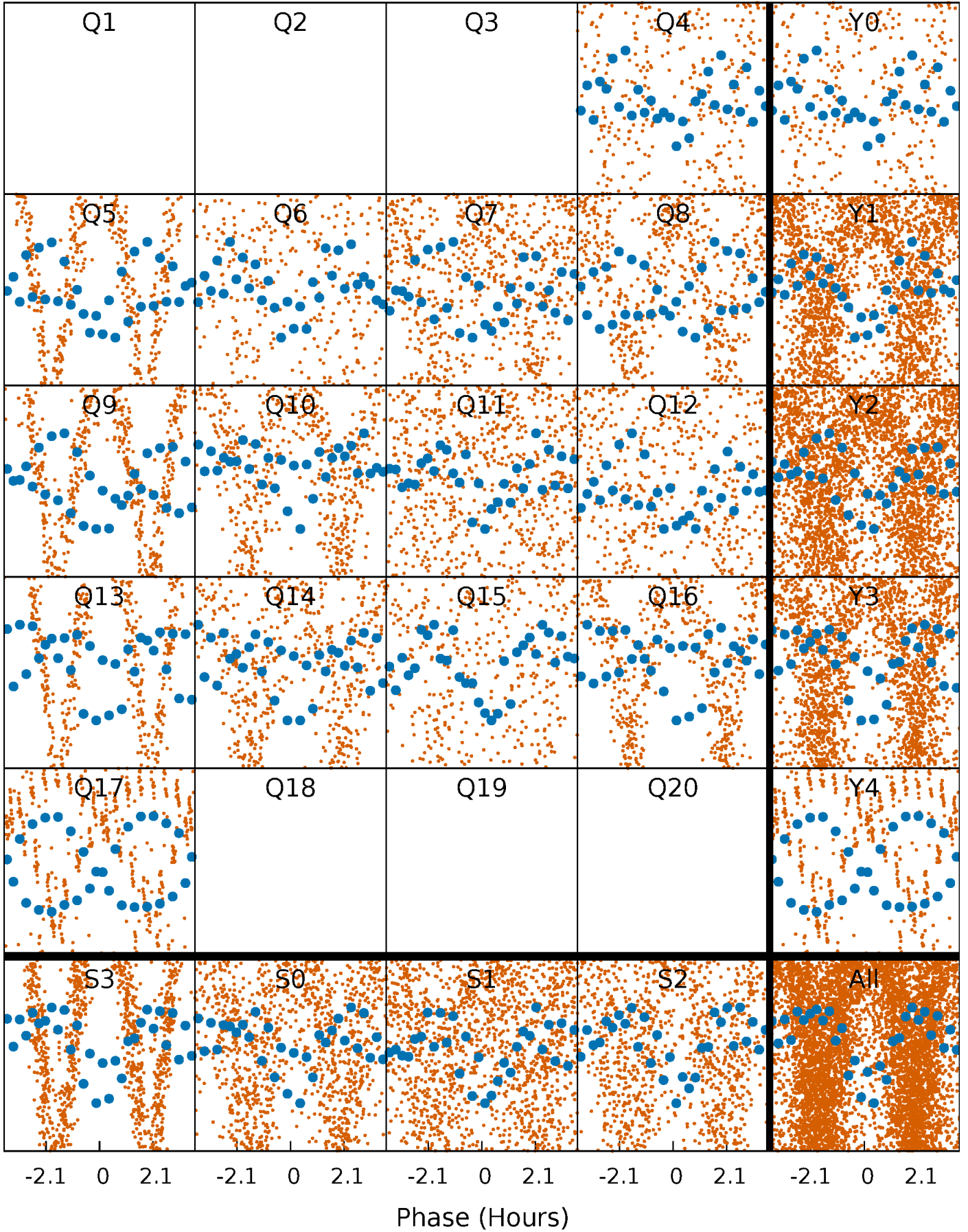


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



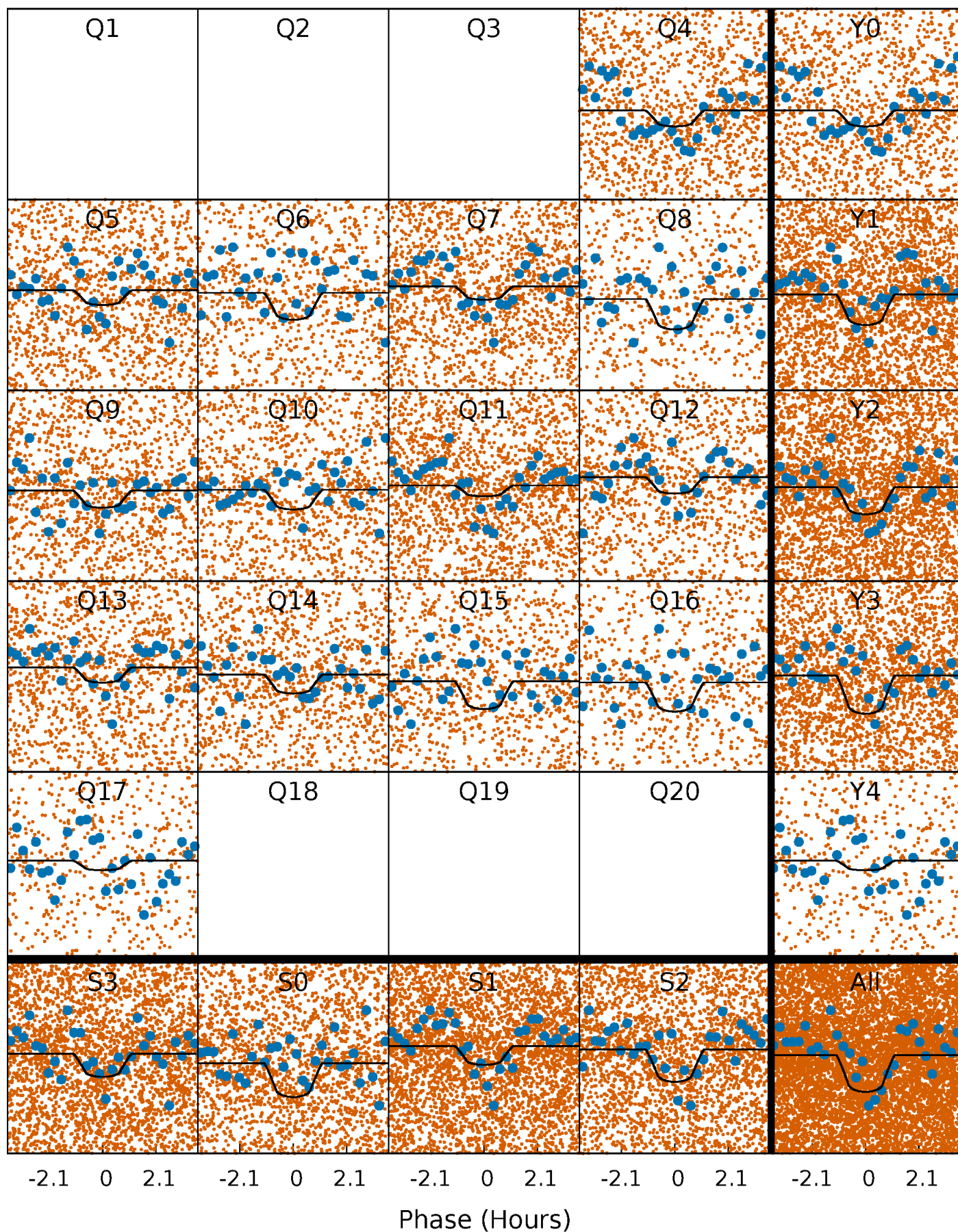
PDC Quarter-Phased Transit Curves

TCE 009840406-01 P= 0.585630 Days $T_0=131.812148$ (BKJD)



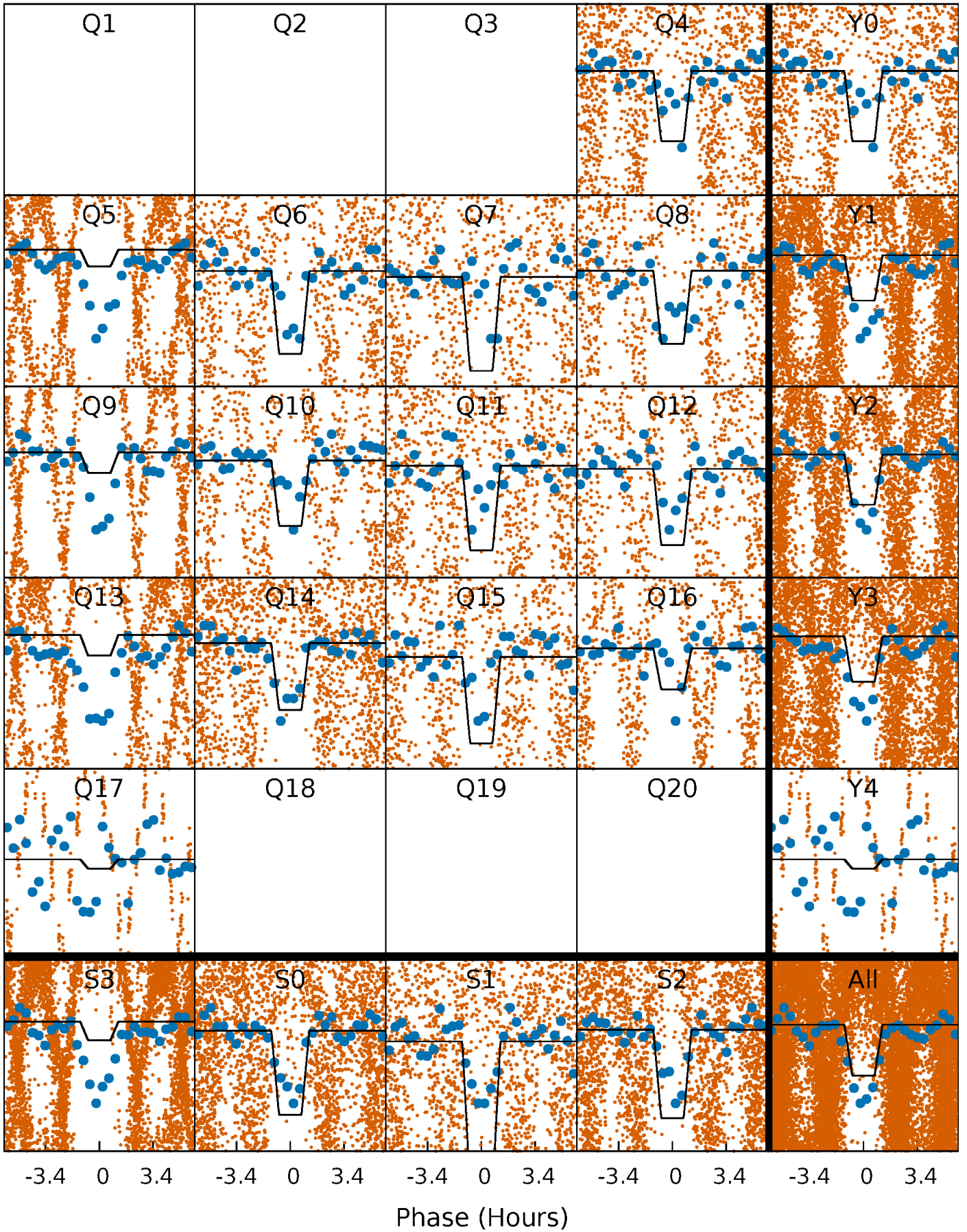
DV Quarter-Phased Transit Curves

TCE 009840406-01 P= 0.585630 Days $T_0=131.812148$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

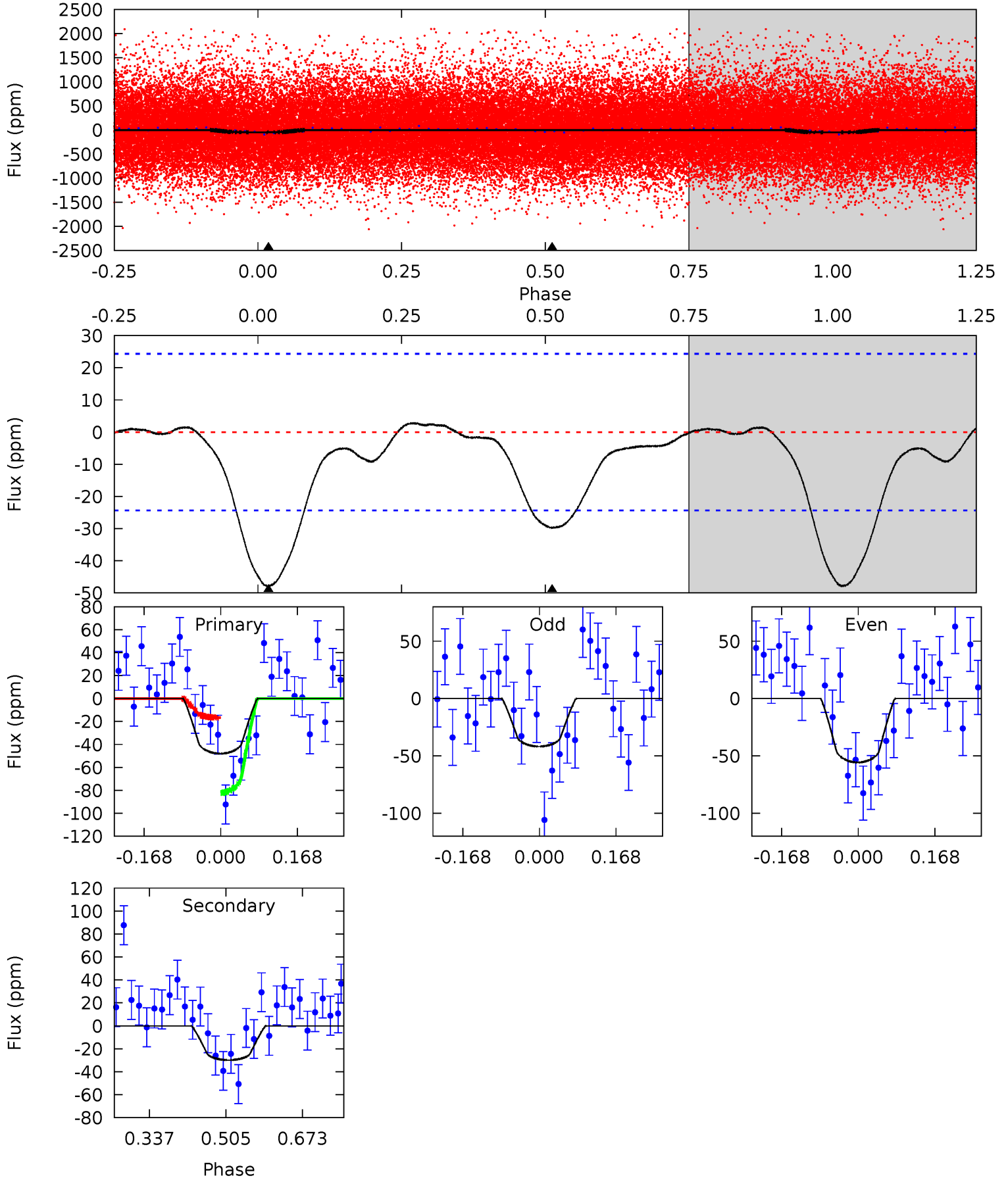
TCE 009840406-01 P= 0.585645 Days $T_0=131.796754$ (BKJD)



DV Model-Shift Uniqueness Test

009840406-01, P = 0.585630 Days, E = 131.812148 Days

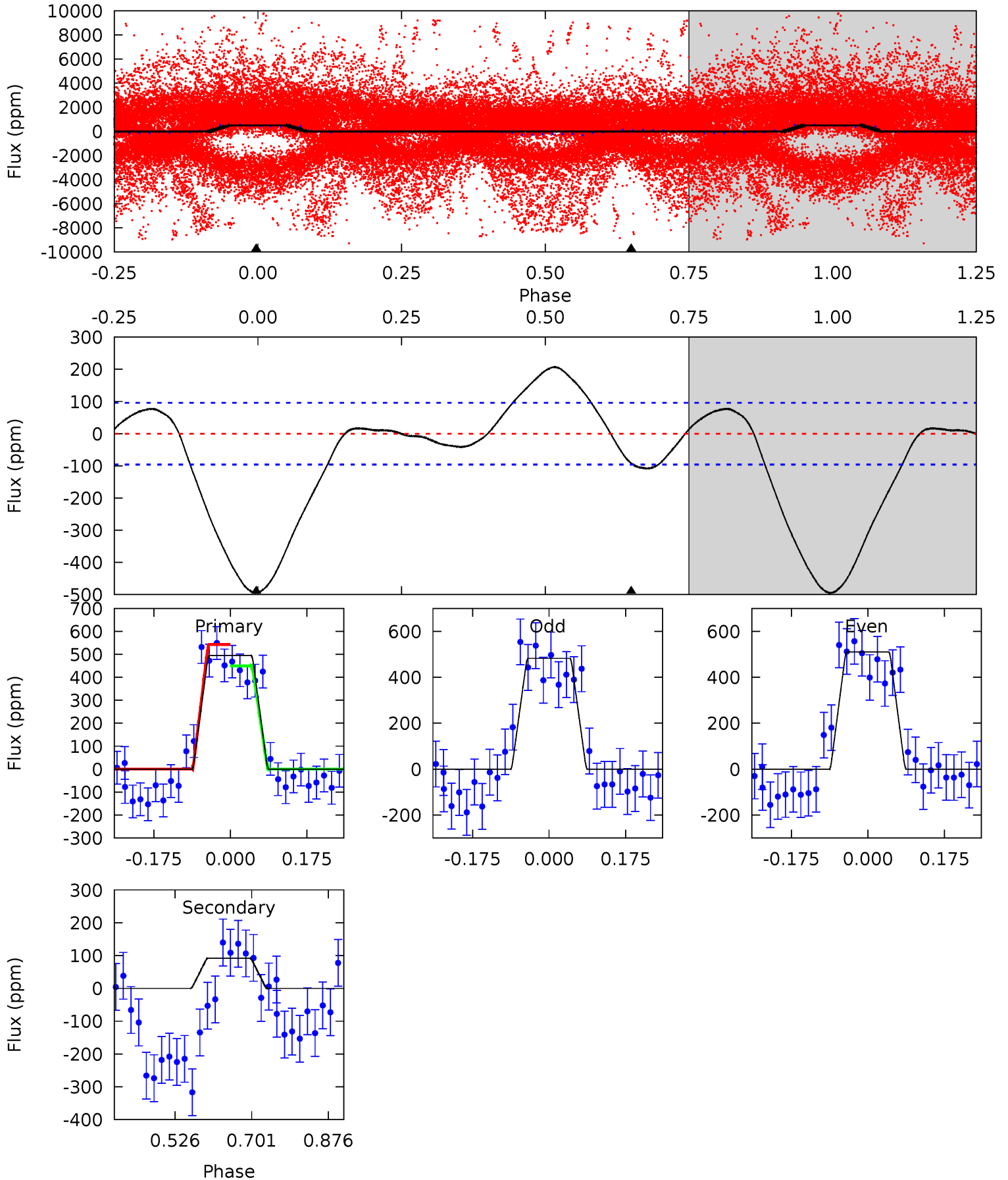
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.78	5.46	0	0	4.45	1.38	0.59	8.78	8.78	5.46	5.46	1.28	0.92	0.06	6.05



Alt Model-Shift Uniqueness Test

009840406-01, P = 0.585645 Days, E = 131.796754 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	4.26	0	0	4.45	1.36	2.24	23.0	23.0	4.26	4.26	0.65	-0.58	0.30	2.07



Stellar Parameters For KIC 009840406

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5861^{+162}_{-223}	$4.546^{+0.046}_{-0.184}$	$-0.200^{+0.300}_{-0.300}$	$0.865^{+0.240}_{-0.080}$	$0.957^{+0.108}_{-0.120}$	$2.084^{+0.395}_{-1.051}$
	+3%/-4%	+1%/-4%	+150%/-150%	+28%/-9%	+11%/-13%	+19%/-50%
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 009840406-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-30 ± 5	$0.91^{+0.66}_{-0.51}$	2929^{+196}_{-141}	4506^{+2219}_{-858}	$3.544^{+13.880}_{-2.290}$
Alt.	-92 ± 22	$2.11^{+0.66}_{-0.59}$	2941^{+206}_{-144}	4030^{+645}_{-471}	$2.008^{+1.971}_{-0.925}$

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

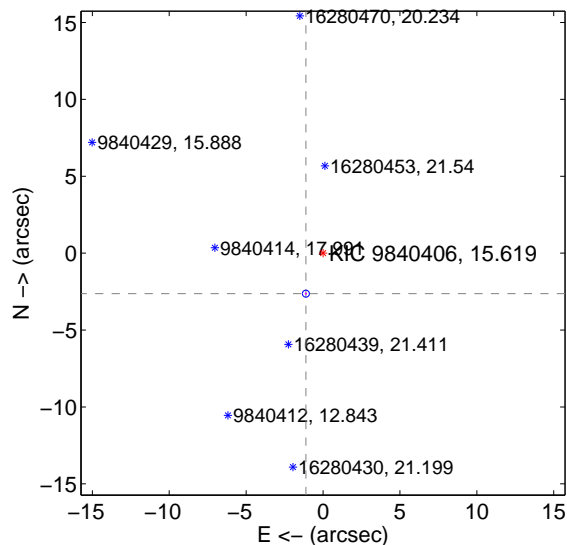
Supplemental centroid analysis for 009840406-01. Kepler magnitude: 15.62. Transit SNR 7.88

There are 2 quarters with good PRF difference image offsets

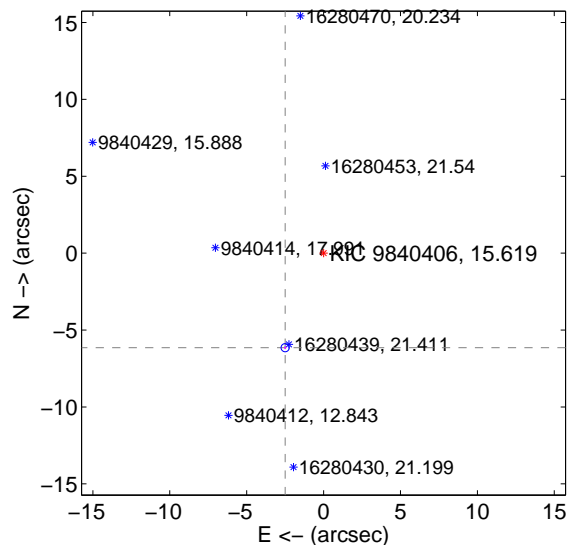
The OOT PRF centroid is offset from the target star catalog position by about 3.71 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.859 ± 0.076	37.74	1.115 ± 0.070	-2.633 ± 0.077
PRF-fit source offset from KIC position	6.633 ± 0.088	74.99	2.499 ± 0.067	-6.145 ± 0.092
photometric centroid source offset	3.72 ± 3.13	1.19	1.75 ± 2.27	-3.28 ± 3.34

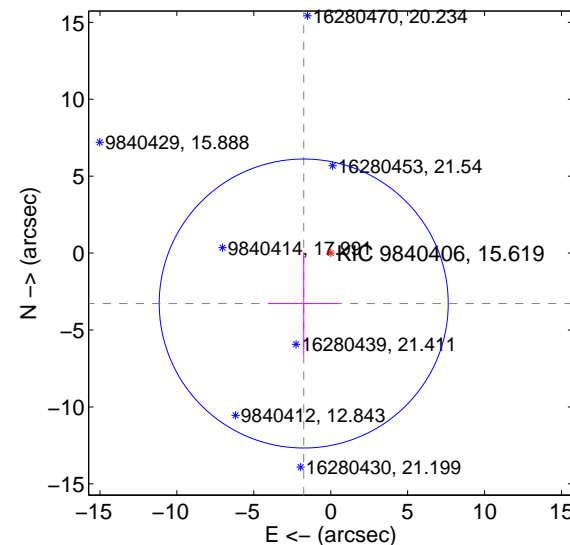
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

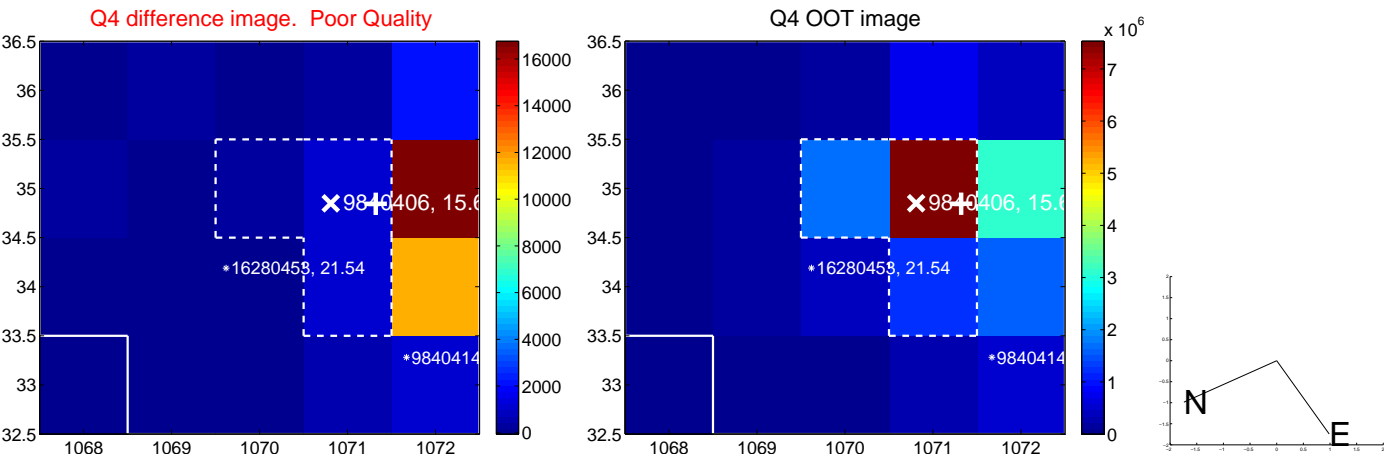


offset from photometric centroids

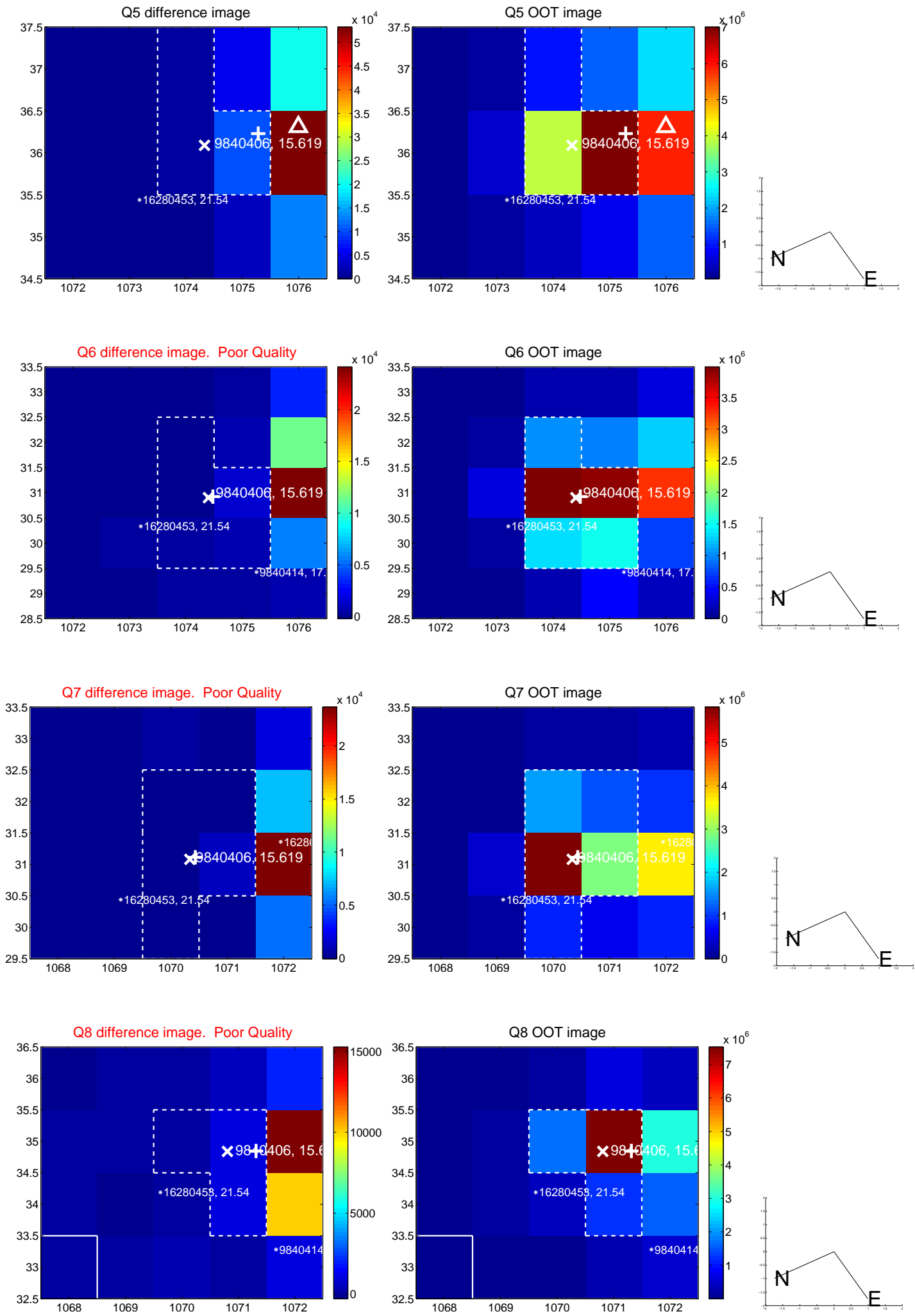


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

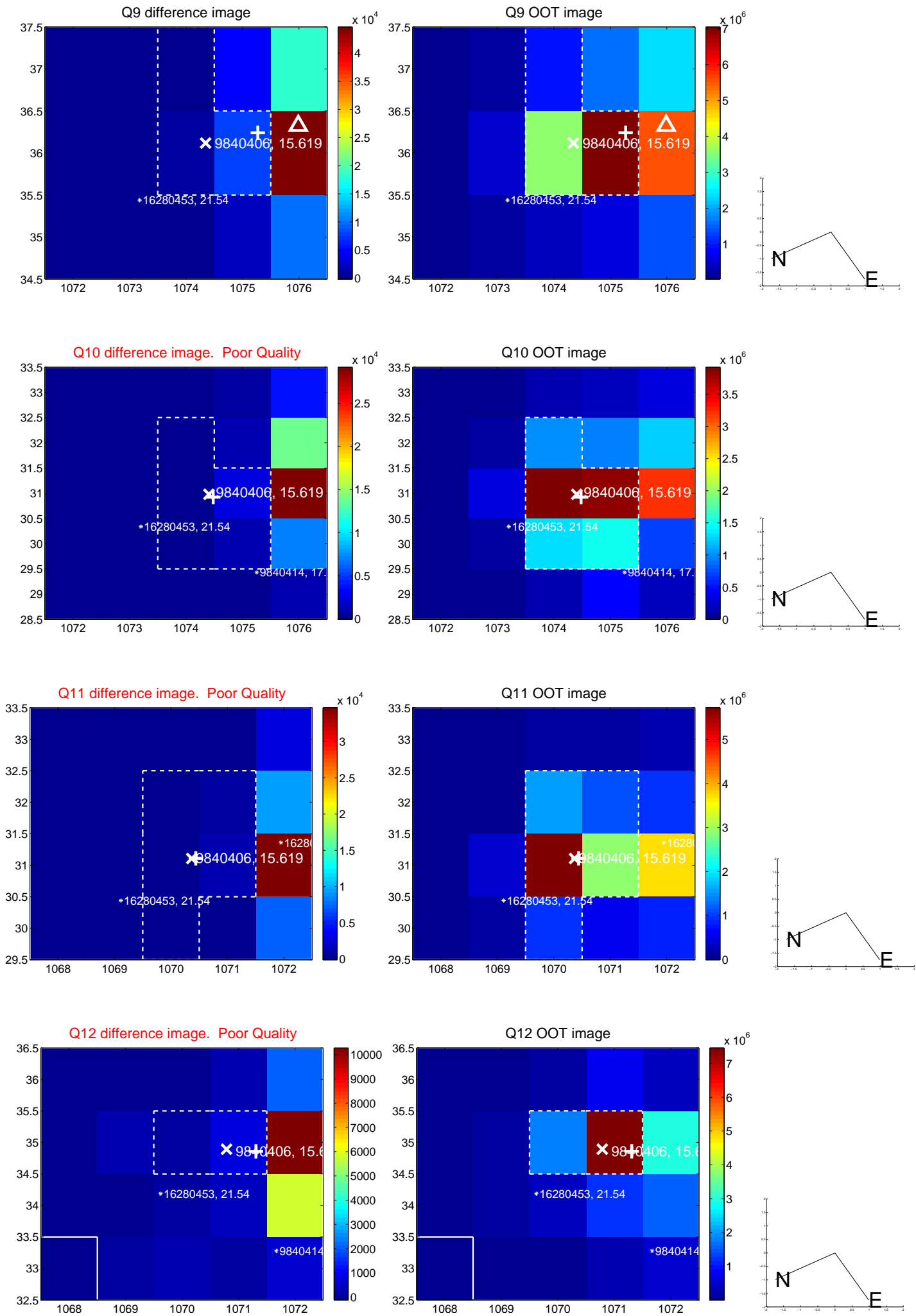
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



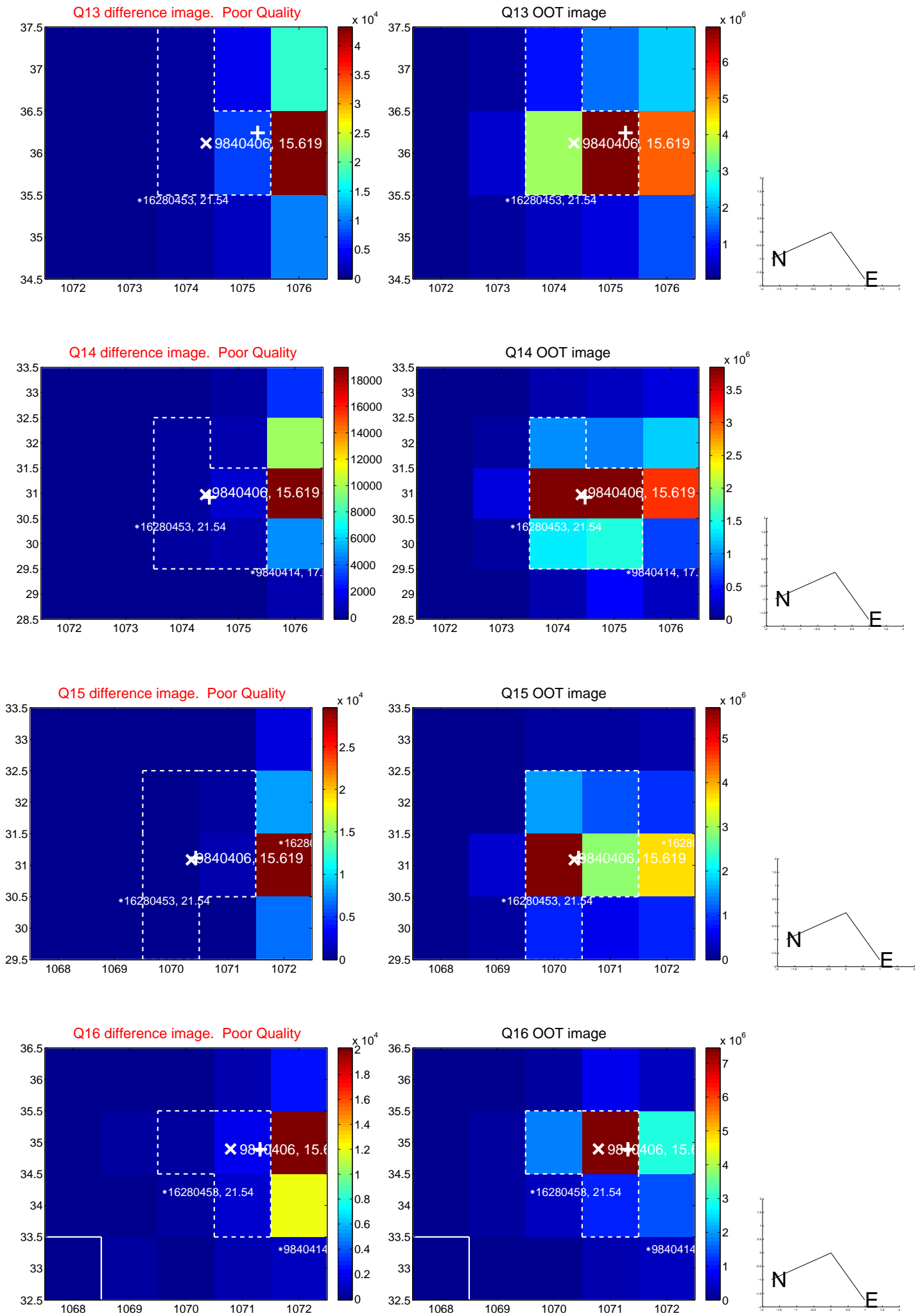
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



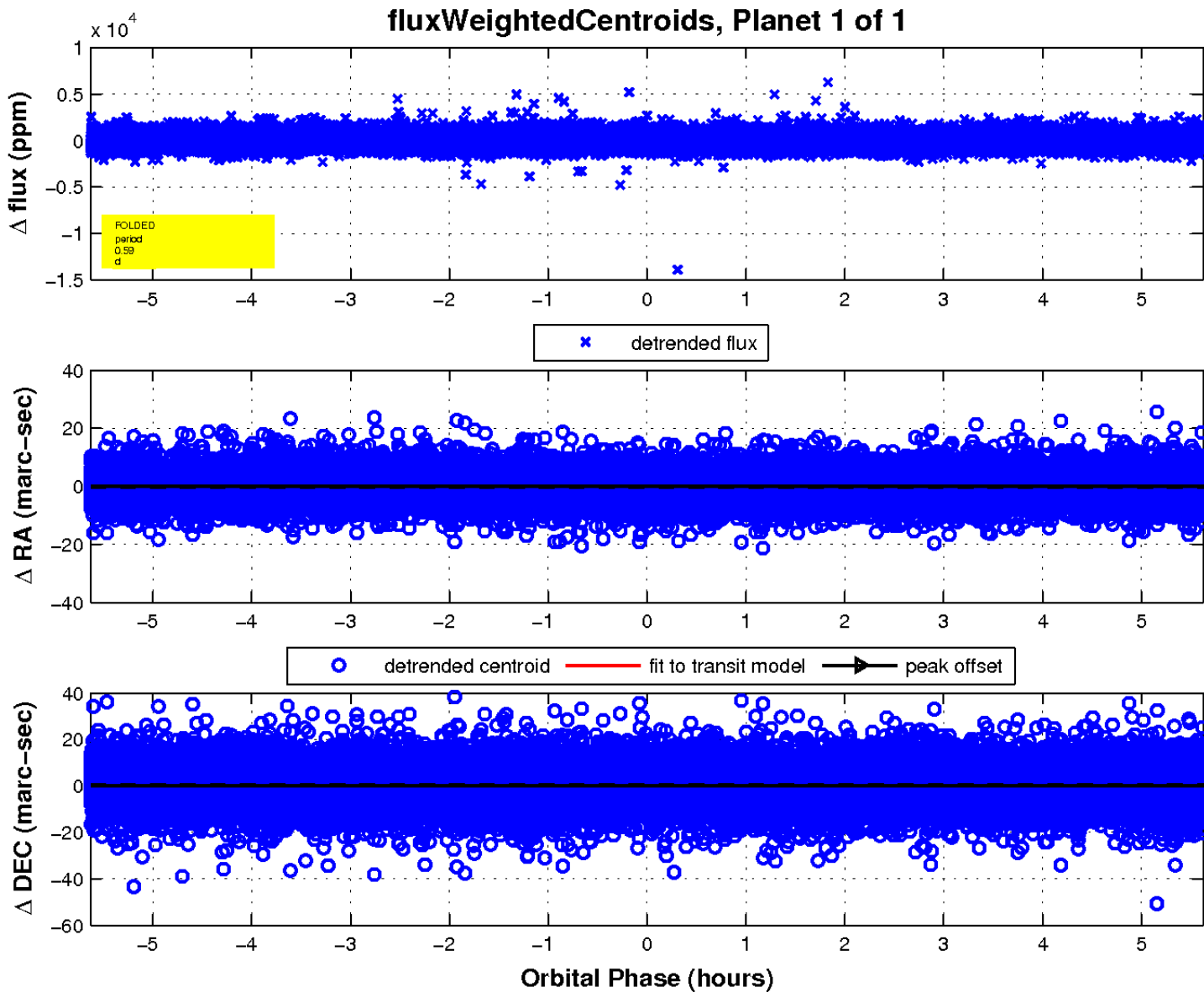
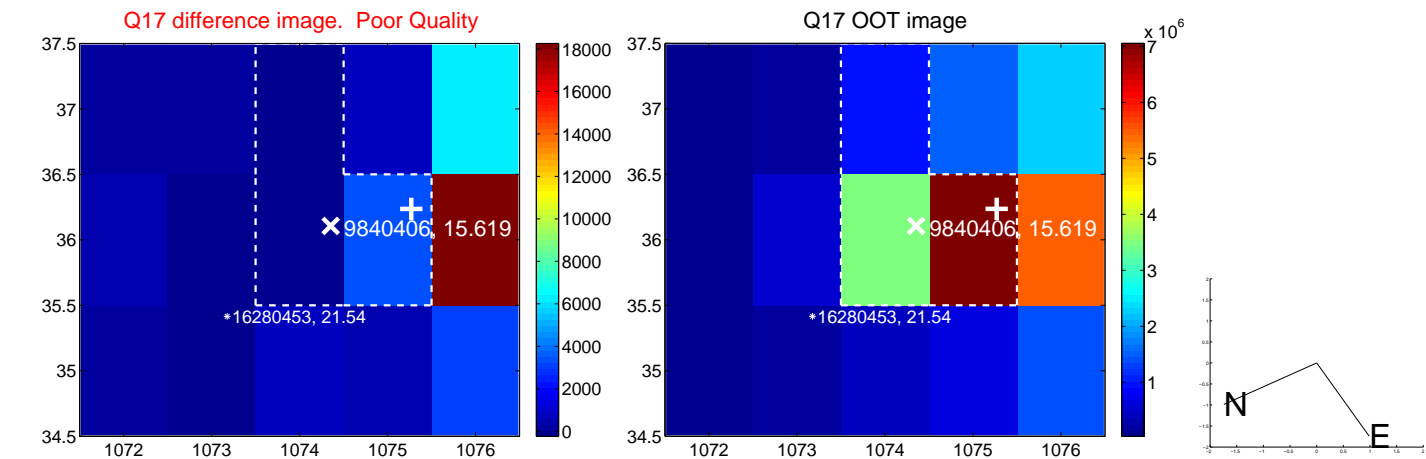
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

